MANUAL DE INSTRUCCIONES OPERATING INSTRUCTIONS MODE D' EMPLOI GEBRAUCHSANWEISUNG MANUALE D'ISTRUZIONI MANUAL DE INSTRUÇÕES ИНСТРУКЦИЯ ПО ЭКСПЛУАТАЦИИ INSTRUKCJA OBSŁUGI

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FC116U

IPODE



# CE

EHV

Fresadora de cajeados Lock mortiser Mortaiseuse Langlochfräsmaschine Fresatrice per mortase Fresadora de encaixes Фрезер для врезки замков Dłutownica



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## OPERATING INSTRUCTIONS



Specifications are subject to change without prior notice.

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#### **FC116U LOCK MORTISER**

#### IMPORTANT

Read these OPERATING INSTRUCTIONS and the attached GENE-RAL SAFETY INSTRUCTIONS LEAFLET carefully before using the machine. Make sure you have understood them before operating the machine for the first time. Keep both sets of instructions for any future queries.

#### **1. TECHNICAL INFORMATION**

Universal motor	50/60 Hz
Power	1,100 W
No-load speed	23,000 min <sup>-1</sup>
Maximum bit diameter	30 mm
Maximum trimming depth	0-125 mm
Maximum trimming width	bit diameter
Maximum trimming length177	mm+bitdiameter
Maximum opening of the clamp vises	190 mm
Maximum grip of the clamp vises	13mm
Side movement of the bit over thickness of doc	or+/- 15 mm
Weight	14 Kg

Weighted equivalent continuous acoustic pressure level A	87 dBA
Acoustic power level A	98 dBA
Uncertainty	K=3dbA
Wear ear protection!	

Vibration total values	a,: <2.5 m/s <sup>2</sup>
Uncertainty	Ř: 1.5 m/s²

#### 2. USE

The FC116U portable lock mortiser is an electrical tool, for the trimming of mortises to mount door locks, mortise assemblies, etc.

In addition to the box for the lock, you can also trim the fitting for the front plate of the lock. With the help of the tool UC16I, which comes with the equipment, you can drill the entry points in the door for the cylinder and the handle.



#### 3. MACHINE HANDLING SAFETY INSTRUCTIONS

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Ensure that the person who is to use this machine reads these OPERATING INSTRUCTIONS and the enclosed GENERAL SAFETY INSTRUCTIONS LEAFLET carefully and understands them before starting work.

• Before connecting the machine, ensure that the power supply voltage corresponds to that indicated on the characteristics plate.

• To change the bit or carry out any other operation close to the cutting head, disconnect the machine from the mains.

• Use safety goggles when working with the trimmer.

• Do not start the motor if the machine chassis has been removed.

• Check the power supply cable to make sure it does not twist during use.

- Always start the trimmer using the main switch lever.
- Once the trimmer has been placed on the part to be trimmed, always move the tool using the carriage advance crank handle. Never push it by hand or with extraneous tools.
- Ensure that the motor is at a complete standstill before removing the trimmer from the completed mortise.
- Always use bits of the correct diameter, correctly mounted on the serrated axis.

• Never use bits that are incorrect, defective or in bad condition. Use only authentic VIRUTEX bits and spare parts.

#### 4. STANDARD UNIT

The following elements are included in the box:

- Lock mortiser FC116U
- Drilling tool for cylinder and needle UT16
- Service keys and tracing template
- Detachable height bar in 4 sections and a door limiter.
- · Four clamp vise protectors for precise mounted jobs.
- Mortising trimmer bit, 16 mm diameter.
- Operating Instructions and miscellaneous documen-tation.

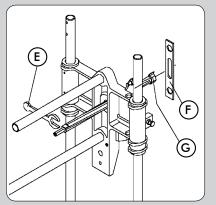
#### 5. ASSEMBLING THE CARRIAGE ADVANCE HANDLE



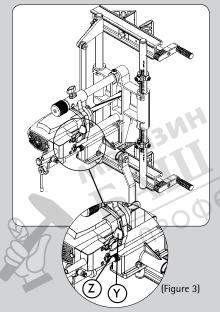
Check that the trimmer is disconnected from the mains.

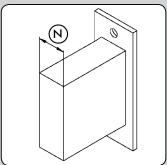
• Match the rectangular carriage forward handle slot "A" to the planes of the shaft "B". Fit washer "C" and screw "D", as shown in (Fig. 1). Tighten screw "D" with spanner "F", to hold the carriage advance handle in place.

• MAKE SURE NOT TO KNOCK THE SURFACE OF ADVANCE HAND-LE "A".









(Figure 4) 20 - FC116U / Operating instructions

#### 6. MOUNTING THE CUTTING TOOL



Check that the trimmer is disconnected from the mains.

• The mortising trimmer is supplied with a 16 mm diameter bit mounted on the end of the spline shaft.

To change the bit, lock the spline shaft by its planes with key "E" (Fig. 2), unscrew the bit "G" with key "F" and replace with one of the required diameter.

#### 7. SWITCH

• Cut-out box (Fig. 3) is equipped with lever "Y" for starting up the machine and lateral fixing stop "Z". To start it up, activate fixing stop "Z" and, without releasing it, push forward lever "Y", thus keeping the machine running.

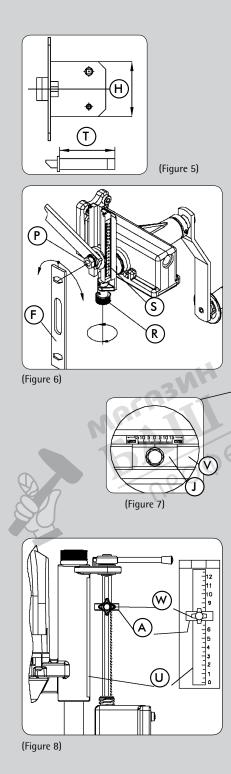
When lever "Y" is pushed forward with the machine running, stop "Z" loosens automatically and the machine comes to a halt. The switch's fixing stop "Z" prevents the machine from starting up accidentally.

#### 8. ADJUSTING THE TRIMMING WIDTH

• Measure the widest point, "N", of the lock box, including any protuberance it may have (Fig. 4). DO NOT INCLUDE the exterior decorative face of the lock.

Check that the trimmer is disconnected from the mains.

• Place a mortising trimmer bit of the measurement taken or slightly larger, according to the instructions in section 6.



#### 9. ADJUSTING THE TRIMMING LENGTH

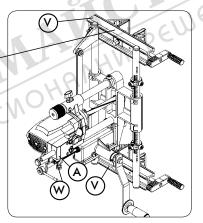
• Measure the longest point, "H", of the lock box, including any protuberance it may have (Fig. 5). DO NOT INCLUDE the exterior decorative face of the lock.

Check that the trimmer is disconnected from the mains.

• To adjust the machine to the required trimming length "H", loosen nut "P" (Fig. 6) with key "F" and move screw knob "R" until the length indicator "S" reaches the desired measurement "H", then tighten nut "P" in this position.

> Be sure to tighten nut "P" (Fig. 6); if not, this may cause the trimming length adjustment mechanism to break.

The centring of the bit over the thickness of the door or the part to be mortised is automatic if the small plates "J" (Fig. 7) are in the "0" position on the two clamp vise guides "V" (Fig. 7).

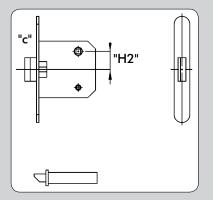


#### 10. ADJUSTING THE TRIMMING DEPTH

• Measure the depth "T" (Fig. 5) of the lock box including any protuberance it may have at the bottom, the thickness of the exterior decorative face and an additional few centimetres as allowance.

Check that the trimmer is disconnected from the mains.

• The trimming depth is controlled by the graduated rule "U" (Fig. 8), marked in 1 mm divisions. Loosen knob "W" and position ring "A" so that the inside face coincides with the required depth, then tighten knob "W" in this position.



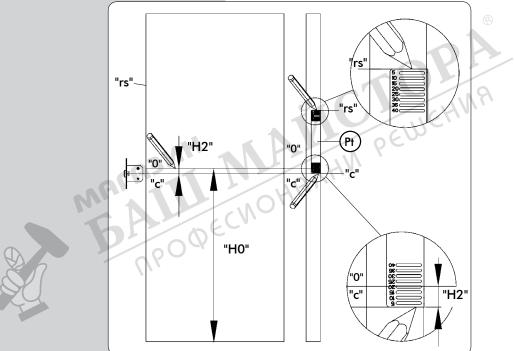
#### 11. MORTISING EDGE TRIMMING ON A DOOR

• Place the door vertically and fasten well so that it does not move. If the door is already mounted on the frame, place wedges under it to prevent it from moving.

#### MEASURING AND TRACING REFRENCES

• Place the lock against the door so that the path for the door knob or handle is at the desired height from the ground "H0" (Fig. 9) and mark the point "0" (Fig. 9) on the face and edge of the door.

• Measure the distance "H2" (Fig. 9) from the centre of the handle to the centre of the box for the lock.



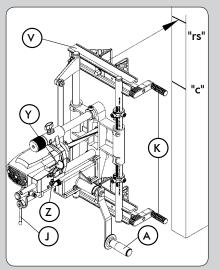
(Figure 9)

• Mark the centre "c" of the box for the lock onto the edge of the door using the tracing template "Pt" (Fig. 9), which comes with the equipment.

This template has a set of grooves 5 mm apart. You must place the template onto the edge of the door so that the mark "0" (Fig. 9) is lined up with the groove that corresponds to the measurement "H2" (Fig. 9) made earlier (20 mm in Fig. 9). Now make the "c" mark (Fig. 9) on the lower edge of the template.

• Trace the upper reference "rs" (Fig. 9) which acts as a reference for attaching the machine to the door.

To do this, place the lower edge of the tracing template "Pt" (Fig. 9) on the mark "c" (Fig. 9) and mark the point "rs" (Fig. 9) on the upper edge of the template.



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#### TRIMMING THE BOX FITTING

• Hold the machine against the door, aligning the upper edge of the crossbeam "V" (Fig. 10) with the upper reference tracing "rs" (Fig. 10) and firmly fix the clamps with crank handles "K" (Fig. 10).

• Check that the advance crank handle "A" (Fig. 7) is able to turn freely over the whole path.

• Turn locking bar "J" (Fig. 10) to the vertical position to gear the trimming depth advance mechanism.

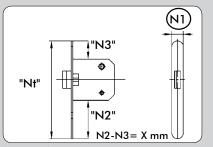
• Connect the machine to the mains, switch on the motor, pressing the lever "Y" (Fig. 10) and set the safety "Z" (Fig. 10).

• Turn the advance crank handle "A" (Fig. 10) repeatedly to effect a synchronised tool advance, both lengthways and in depth, to the end of the path as fixed in section 10.

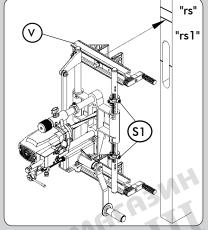
• Stop the machine by activating lever "Y" (Fig. 10).

Disconnect the trimmer from the mains.

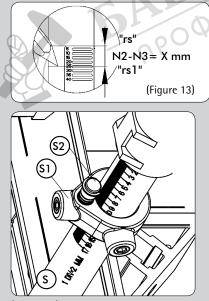
Turn the locking bar "J" (Fig. 10) to the horizontal position, completely freeing the advance mechanism of the tool and the motor goes back to the end of the stretch.



(Figure 11)



(Figure 12)



(Figure 14) 24 - FC116U / Operating instructions

12.1. TRIMMING THE FITTING FOR THE FRONT PLATE OF THE LOCK FOR A MAXIMUM "Nt" OF 170 mm

Check that the trimmer is disconnected from the mains.

#### CHANGING THE TRIMMING

• Measure the width "N1" (Fig. 11) of the front of the lock and attach a mortising bit of the correct size to the machine, following the instructions in section 6 of the manual.

### MEASURING, MARKING REFERENCE POINTS AND PLACING THE FC116U ON THE DOOR

• Measure the distance between the box for the lock and each of the two edges of the front of the lock, giving you measurements "N2" and "N3" (Fig. 11).

• If the two measurements "N2" and "N3" (Fig. 11) are the same: Hold the machine against the door, aligning the upper edge of crossbeam "V" (Fig. 12) with the upper reference mark "rs" (Fig. 12), which aligns the centres of the machine's trimming path for the lock box and the front plate for the lock.

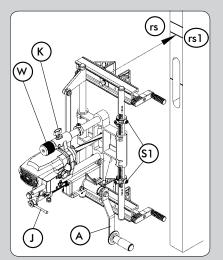
• If the measurements "N2" and "N3" (Fig. 11) are not the same, calculate the difference between them, "N2"-"N3"=X mm (Fig. 11) and make a new upper reference mark "rs1" (Figs. 13 and 12), which is X mm in the direction of the side with the greater measurement, either "N2" or "N3". Then hold the machine against the door, aligning the upper edge of crossbeam "V" (Fig. 12), using the new upper reference mark "rs1" (Fig. 12), which results in the alignment of the machine's trimming path with the centre of the front plate for the lock.

#### ADJUST THE TRIMMING PATH

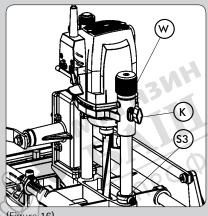
• Measure the length of the front "NT" (Fig. 11) of the lock and fix the two longitudinal stops "S1" (Figs. 12 and 14) onto the corresponding division of the measurement NT, using the scale on the guide column "S" (Fig. 14).

• Position and fix the two correcting stops for the diameter of the cutter bit "S2" (Fig. 14) onto the frame corresponding to the diameter of the cutter bit attached (Fig. 14).

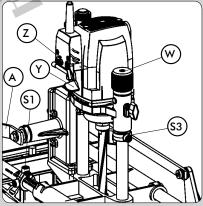
• Adjust the length of the trim on the connecting rod to a measurement somewhat greater than the front of the lock "NT" (Fig. 11), as explained in section 9 (Fig. 6) of this manual.



(Figure 15)



(Figure 16)



(Figure 18)

#### ADJUSTING THE DEPTH OF THE TRIM

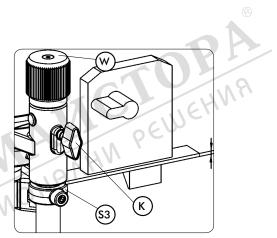
• Raise the knob "W" (Figs. 15-18) to its maximum upper position, turning it counter-clockwise.

• Check that the lock lever "J" (Fig. 15) is in the horizontal position (advance depth disconnected).

• Loosen knob "K" (Fig. 16). Move the machine downwards, gently pushing the motor with your hand until the bit just touches the edge of the door. Hold it in this position, tightening knob "K" (Fig. 16).

• Place the front of the lock (Fig. 17) so that it is touching the lower part of the motor support; move and fix the depth stop "S3" (Figs. 16 and 17), trapping the front of the lock.

• Loosen knob "K" (Figs. 15-17) so that the machine rises to its original position.



(Figure 17)

#### TRIMMING THE FITTING

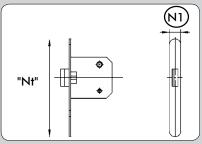
• Check that the lock lever "J" (Fig. 15) is in the horizontal position (advance depth disconnected).

• Connect the machine to the mains, switch on the motor, pressing the lever "Y" (Fig. 18) and set the safety "Z" (Fig. 18).

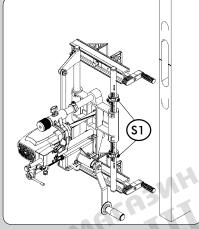
• Turn the knob "W" (Figs. 17 and 18) until the motor support touches depth stop "S3" (Fig. 18). When the tool reaches the depth of cut planned for the front of the lock, move the carriage advance crank handle "A" (Figs. 15 and 18) gently until it reaches each of the two stops "S1" (Figs. 15 and 18) located at each end of the carriage path, in a rocking movement.

If the fitting to be created is greater than 2 mm, it is advisable to complete this process using two or three successive movements, repeatedly using knob "W".

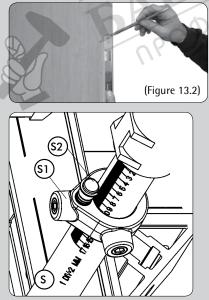
• Return the knob "W" (Fig. 18) and the depth stop "S3" (Fig. 16) to their initial position once the trim has been completed.



(Figure 11.2)



(Figure 12.2)



(Figure 14.2) 26 - FC116U / Operating instructions

12.2. TRIMMING THE FITTING FOR THE FRONT PLATE OF THE LOCK FOR AN "Nt" OF MORE THAN 170 mm

Check that the trimmer is disconnected from the mains.

#### CHANGING THE TRIMMING

• • Measure the width "N1" (Fig. 11.2) of the front of the lock and attach a mortising bit of the correct size to the machine, following the instructions in section 6 of the manual.

#### MEASURING AND MARKING

• Position the lock inside the fitting made for the box and mark the two ends of the front plate on the edge of the door (Fig. 12.2 and 13.2)

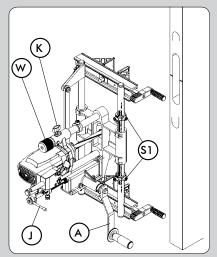
#### ADJUST THE TRIMMING PATH

• Adjust the length of the trim on the connecting rod to 170 mm, as explained in section 9 (Fig. 6) of this manual.

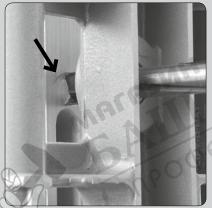
• Fix the two longitudinal stops "S1" (Fig. 12.2 and 14.2) on the division corresponding to 160 mm using the scale on the guide column "S" (Fig. 14.2).

#### ADJUSTING THE DEPTH OF THE TRIM

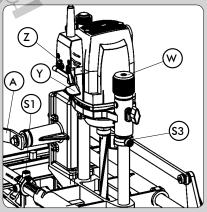
• Adjust the depth of the trim as explained in section 12.1 above.



(Figure 15.2)



(Figure 16.2)



TRIMMING THE FITTING

• Check that the lock lever "J" (Fig. 15.2) is in the horizontal position (advance depth disconnected).

Trimming the top of the fitting:

 Manually turn the tool until it is in a vertical position (Fig. 16.2).

• Turn the handle "A" (Fig. 15.2) clockwise (+) as far as the top stop "S1" (Fig. 15.2) and make sure it is kept in this position.

• Release the machine from the door edge and move it over the edge vertically until the top edge of the tool coincides with the top mark on the front of the lock (Fig. 16.2) and once again fix the machine on the edge in this position.

· Connect the machine to the mains, switch on the motor, pressing the lever "Y" (Fig. 18.2) and set the safety "Z" (Fig. 18.2).

• Turn the knob "W" (Fig. 18.2) until the motor support touches depth stop "S3" (Fig. 18.2). When the tool reaches the depth of cut planned for the front of the lock, move the carriage advance handle "A" (Figs. 15.2 and 18.2) gently as far as lower stop "S1" (Fig. 15.2).

If the fitting to be created is greater than 2 mm, it is advisable to complete this process using two or three successive movements, repeatedly using knob "W". IEHNE

Trimming the bottom of the fitting:

• Manually turn the tool until it is in a vertical position (Fig. 16.2).

• Turn the handle "A" (Fig. 15.2) anticlockwise (-) as far as the lower stop "S1" (Fig. 15.2) and make sure it is kept in this position.

• Release the machine from the door edge and move it over the edge vertically until the bottom edge of the tool coincides with the bottom mark on the front of the lock and once again fix the machine on the edge in this position.

 Connect the machine to the mains, switch on the motor, pressing the lever "Y" (Fig. 18.2) and set the safety "Z" (Fig. 18.2).

• Turn the knob "W" (Fig. 18.2) until the motor support touches depth stop "S3" (Fig. 18.2). When the tool reaches the depth of cut planned for the front of the lock, move the carriage advance handle "A" (Figs. 15.2 and 18.2) upwards gently as far as top stop "S1" (Fig. 15.2).

If the fitting to be created is greater than 2 mm, it is advisable to complete this process using two or three successive movements, repeatedly using knob "W".

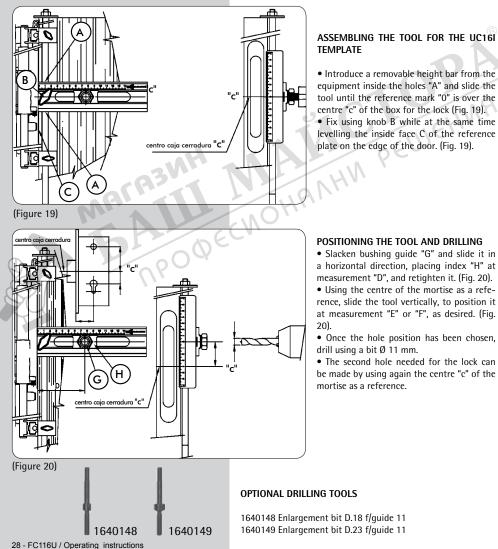
• Return the knob "W" and the depth stop "S3" (Fig. 18.2) to their initial position once the trim has been completed.

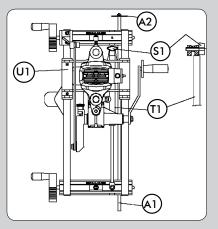
(Figure 18.2)



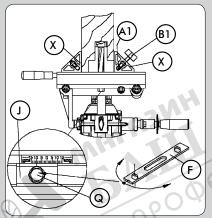
#### 13. DRILLING THE HOLES FOR THE HANDLE AND KEY

• Lastly, with the help of template UT16I supplied with the machine, you can carry out the drilling necessary to attach the lock, such as the holes for the handle, the chain lock, the key cylinder, etc.

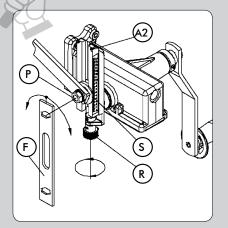




(Figure 21)



(Figure 22)



(Figure 23)

#### 14. TRIMMING THE LOCKS FOR SEVERAL DOORS

• Should you wish to trim several doors and position the locks at the same height, we recommend you use the height bar "A1" (Fig. 21) to simplify this operation.

To do this, having determined the height of the lock on the first door, and placed the machine in the trimming position, mount the four height bars "A1" (Fig. 21) and insert them in the clamp vise apertures "X" (Fig. 22), so that the end limiter disc "A2" (Fig. 21) has its limit at the upper edge of the door, and then fix the height bar "A1" (Figs. 21 and 22) in this position with the knobs "B1" (Fig. 22). For the following door, simply put the machine in place, with the limiter disc"A2" (Fig. 21) of the height bar "A1" resting on the upper edge of the door, fix the clamp vises in this position and mark the upper reference mark "rs" on this new door for later use so that all the locks remain at the same height.

The height bar "A1" (Fig. 21) without the limiter disc "A2" (Fig. 21) may also be used, if desired, as a height reference relative to the floor.

#### **15. HORIZONTAL MORTISING**

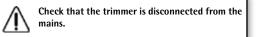
• To work with the FC116U horizontally, for example to mortise doors before hanging them, it is advisable to disconnect the damper "T1" (Fig. 21) to leave the movement of carriage "U1" free of its pressure.

To do this, loosen nut "P" (Fig. 23) with key "F" and by moving the screw knob "R", advance the length indicator "S" towards the end of stroke limiter "A2".

Remove knob "S1" (Fig. 21) that fastens silencer "T1" so that this is disconnected. Keep knob "S1" in a safe place for later use. Finally, adjust the length of the mortising required, as described in section 9, before starting work with the machine, as it must never operate at the end of stroke, over the maximum length.

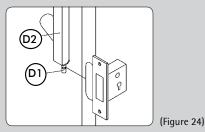
#### 16. CORRECTIONS FOR OVERLAPPING DOORS

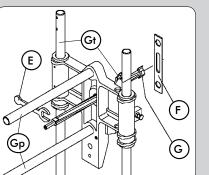
For mortise trimming of doors with overlap, the centring of the machine and the depth of the edge trimming should be changed, as follows:



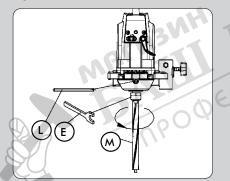
• To centre the machine over the section of the door without overlap, loosen the screws "Q", which lock the clamp vises "X", with key "F" (Fig. 22), and move the plates "J" to the overlap side, half the width of this in mm, and fix the screws "Q" again in this position.

• When the trimming depth is adjusted, as explained in section 10, the limiter ring "A" (Fig. 8) must be positioned at a height on the scale "U" (Fig. 8) which is the sum of the depth necessary for the lock, plus the height of the door overlap, since the machine will be supported on this overlap.

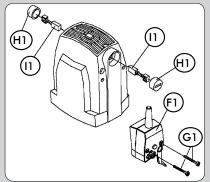




(Figure 25)



(Figure 26)



(Figure 27) 30 - FC116U / Operating instructions

#### **17. DUST COLLECTOR ATTATCHMENT**

• The FC116U mortising trimmer is equipped with a nozzle, "D2" (Fig. 24) which, when mounted on the position bar "D1" (Fig. 24) over the opening of the box to be made, allows the connection of the Virutex AS182K, AS282K, AS382L and ASC482U dust collector or another Industrial Dust Collector for the collection of trimming chips

#### **18. REMOVING THE SPLINE SHAFT**

In order to change the spline shaft "M" (Fig. 26), first dismount the bit "G" (Fig. 25) as explained in section 6.

Place the lock pin "L" (Fig. 26) in the central aperture of the chassis until the motor axis is locked and remove the spline shaft "M" with the key "E".

#### **19. CHANGING THE BRUSHES**

Make sure that the machine is disconnected from the mains before any handling is done.

• The brushes should be changed when they are a minimum of 5 mm long. To do this, dismount the switch box "F1" (Fig. 27), removing the screws "G1" which fasten it.

Remove the plugs "H1" which fasten the brushes "I1" and replace with new original VIRUTEX ones, checking that they slide smoothly on the inside of the guides. Ensure when mounting the switch box "F1" again that the cables are properly positioned inside. It is advisable to leave the machine running for a few minutes after a change of brushes. Take advantage of the change of brushes to check the state of the collector. If this shows signs of burns or wear and tear, it is advisable to take it to VIRUTEX technical service for repair.

#### 20. LUBRICATION AND CLEANING

• Before trimming the first fitting, lubricate the depth guide columns "Gp" (Fig. 25) and side columns "Gt" (Fig. 25), with a lightly oiled cloth, in order to smooth the two movements. It is important always to clean the machine carefully after use, with a dry air jet.

Always keep the power supply cable in perfect condition.



#### 21. OPTIONAL TOOLS AND ACCESSORIES

• Bits available for the FC16S mortising trimmer:

NUMBER	EXT. DIAM.	HEIGHT
1640127	16 mm.	13.5 mm.
1640150	17 "	13.5 "
1640128	18 "	13.5 "
1640367	20 "	13.5 "
1640129	21 "	13.5 "
1640130	23 "	13.5 "
1640368	23.5 "	13.5 "
1640131	25 "	13.5 "
1640369	29 "	13.5 "
1640132	30 "	13.5 "
1640140	Drilling bit Ø 24	

• The extension tool UP16I, 1645287 allows the machine to be held in place beyond the door itself.

#### 22. NOISE AND VIBRATION LEVEL

The noise and vibration levels of this device have been measured in accordance with European standard EN 61029-1 and serve as a basis for comparison with other machines with similar applications.

The indicated vibration level has been determined for the device's main applications and may be used as an initial value for evaluating the risk presented by exposure to vibrations. However, vibrations may reach levels that are quite different from the declared value under other application conditions, with other tools or with insufficient maintenance of the electrical device or its accessories, reaching a much higher value as a result of the work cycle or the manner in which the electrical device is used. Therefore, it is necessary to establish safety measures to protect the user from the effects of vibrations, such as maintaining both the device and its tools in perfect condition and organising the duration of work cycles (such as operating times when the machine is subjected to loads, and operating times when working with no-load, in effect, not in use, as reducing the latter may have a considerable effect upon the overall exposure value).

#### 23. WARRANTY

All VIRUTEX power tools are guaranteed for 12 months from the date of purchase, excluding any damage which is a result of incorrect use or of natural wear and tear on the machine. All repairs should be carried out by the official VIRUTEX technical assistance service.

VIRUTEX reserves the right to modify its products without prior notice.