

# VIP 80

Ⓒ MANUAL FOR USE AND MAINTENANCE


REL.  DATA  COD.

S/N



**VIP 80**

**AUTOMATIC  
BAR FEEDER**

 **MANUAL FOR USE AND MAINTENANCE**

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 IEMCA

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 Any operations described in paragraphs preceded by this symbol should be carried out by a skilled operator. All the other operations may be carried out by either a skilled operator or a professional user.







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 Any operations described in paragraphs preceded by this symbol should be carried out by a skilled operator. All the other operations may be carried out by either a skilled operator or a professional user.



**Before carrying out any servicing whatsoever on the machine , it is of the utmost importance to read this manual carefully.**

### 1.1. MANUAL PURPOSE

This manual has been written and supplied by the manufacturer and is integral part of the machine and of its equipment.

The compliance with the instructions contained herein ensures the operator and machine safety as well as a running economy and a longer life of the machine itself.

Information contained herein is aimed both at the trained operator<sup>(1)</sup> and skilled<sup>(2)</sup> engineer.

In order to allow a quick search of contents, consult the descriptive index.

Particularly important parts of this manual have been highlighted in bold type and preceded by the following symbols:



**Danger-Warning: shows impending danger which might cause serious harm, hence it is necessary to pay the greatest attention.**



**Caution - Precaution: in order to avoid accidents or damages to property, suitable measures shall be adopted.**



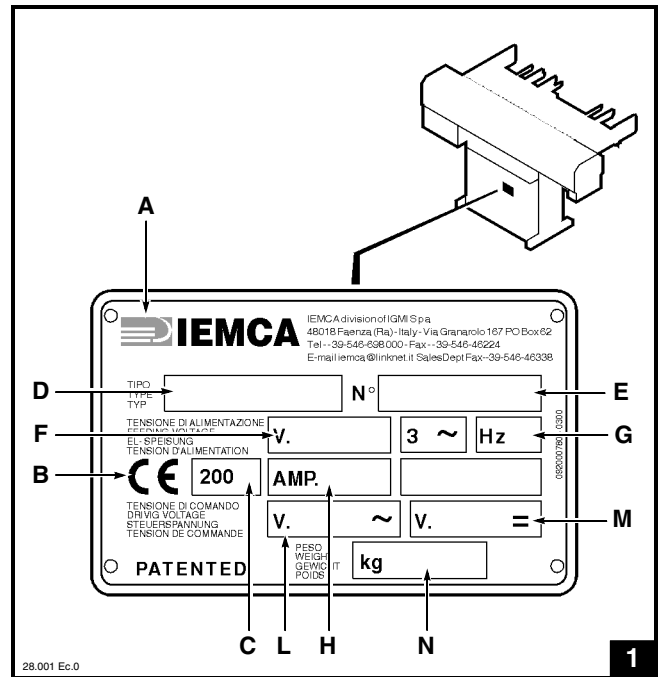
**Information: technical instructions having particular importance.**

(1) Operators in charge of the machine running, having a specific knowledge of the field in which the machine is to be used.

(2) Engineers having experience, technical skill and knowledge of the legislative rules and regulations, who are able to carry out the necessary servicing as well as to detect and avoid dangers when handling, installing, using and servicing the machine.

## 1.2. MANUFACTURER AND MACHINE IDENTIFICATION (fig. 1)

- A - Manufacturer's identification
- B - CE conformity marking
- C - Year of manufacture
- D - Machine model
- E - Serial number
- F - Feeding voltage
- G - Mains frequency
- H - Amperage
- L - Alternate driving voltage
- M - Direct driving voltage
- N - Weight.



Always provide the Manufacturer with the above mentioned specifications in order to obtain information or whenever ordering spare parts, etc.

## 1.3. TECHNICAL ASSISTANCE

Whenever necessary, please apply to one of the Technical Assistance Departments listed in the annex enclosed herein.



As far as technical servicing relevant to the bar feeder is concerned, always specify the technical data printed on the machine nameplate.

## 1.4. ANNEXES ENCLOSED

- Technical assistance departments list.
- Electric diagram.
- Pneumatic diagram.
- Push-button panel operation guide.
- Instructions for lathe connection.



### 2.1. DESCRIPTION OF MODELS

VIP 80 bar feeders are available in two models, according to the max. length of the bar to feed.

Model	Type	Max. bar length (mm)
VIP 80	14	1400
	15 (*)	1560

(\*) Model supplied upon request and for special installations only, to be agreed upon from time to time.

### 2.2. GENERAL MACHINE DESCRIPTION

The automatic bar feeder **VIP 80** is used in the machine-tooling sector and specifically to automatically feed a lathe.

It can feed either round, hexagonal or square bars having a max length contained within the lathe spindle length.

Its working cycle is handled by an integrated PLC in the control board, which is able to dialogue with the lathe control system.

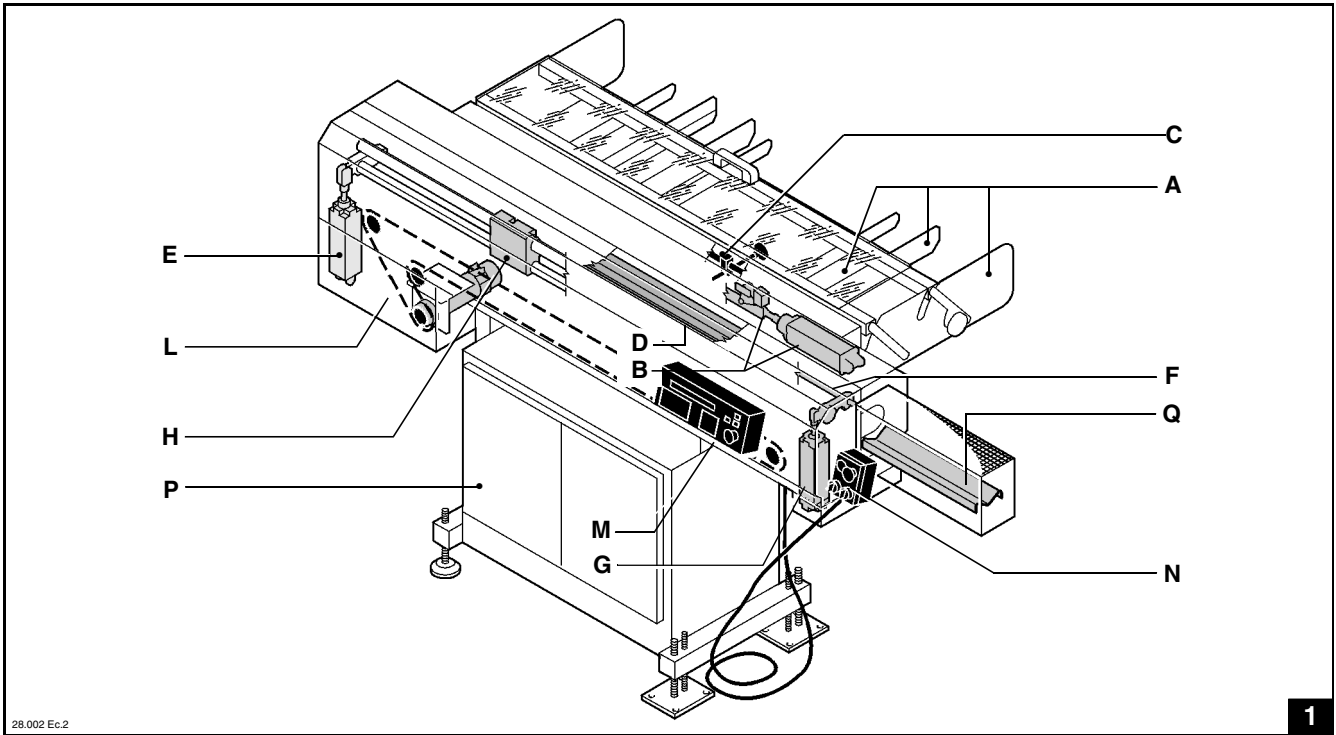
The main digital push-button panel makes programming easier.

The removable additional push-button panel makes it possible to control the main functions without any need to move away from the lathe.

Ejection of bar remnants is obtained through either the bar pusher feed or the next bar feed.

Changing over from one diameter to another is very easy and fast. It takes only a few minutes.

The bar feeder has been designed so as to allow quick change of the spindle reduction sleeves.



**2.2.1 Main parts (fig. 1)**

**A - Magazine**

where bars are stored.

**B - Bar lifting device**

it lifts the first bar and moves it from the magazine on to the guide channel.

**C - Bar selector**

it lifts the first bar as this is lifted by the device **B**. All the other bars remain in the magazine.

**D - Guide**

it guides the bar as it is inserted into the lathe spindle.

**E - Stock guide tube lifting/lowering device**

it lifts/lowers the stock guide tube.

**F - Bar pusher**

as a result of the feeding stroke, it pushes bars into the lathe.

**G - Bar pusher lifting/lowering device**

it lifts/lowers the bar pusher.

**H - Prefeed and feed carriage**

it prefeeds and feeds bars.

**L - Motor**

it powers the carriage **H**.

**M - Main push-button panel**

it controls and programs all feeder functions.

**N - Additional push-button panel**

it makes it possible to control the main functions without any need to move away from the lathe.

**P - Switch cabinet**

it contains the electrical control panel.

**Q - Bar passage guide (OPTIONAL)**

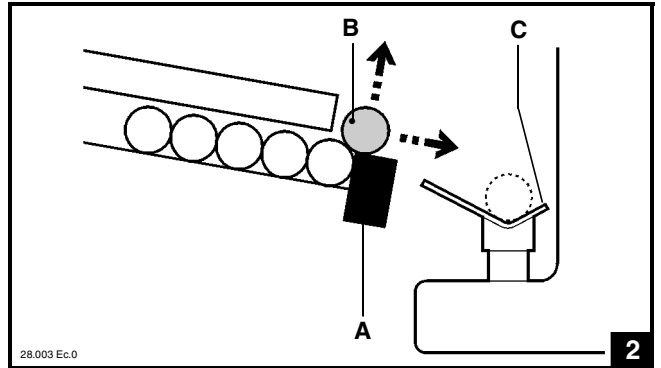
this device, equipped with a guard, is necessary whenever there is a considerable gap between the feeder and the lathe.

It is used to guide the bar while it covers the distance between the feeder and the lathe, thus improving bar feeding into the spindle.

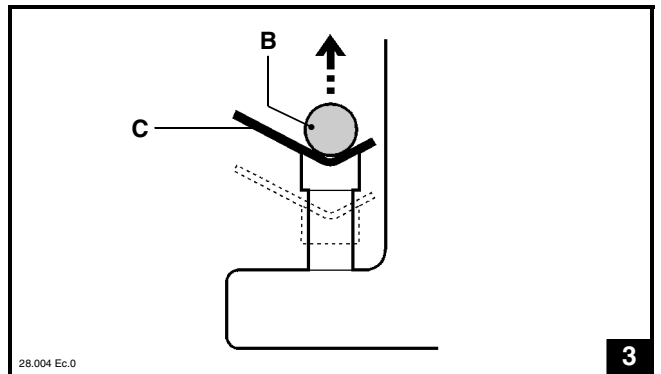
**2.3. WORKING CYCLE - GENERAL DESCRIPTION**

The automatic control system controls machine movements according to the following sequence:

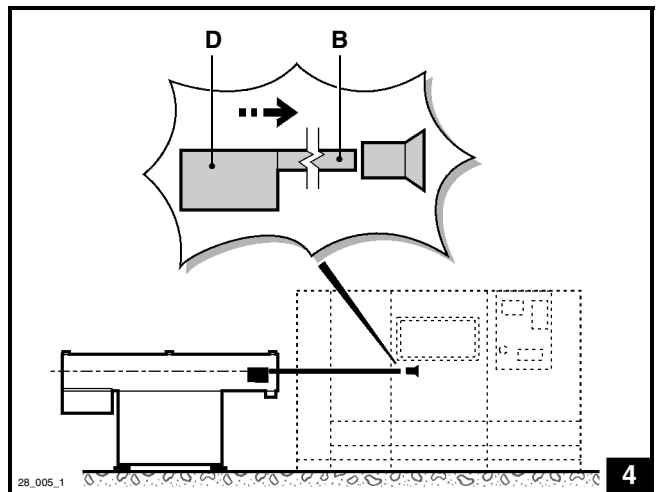
- The bar lifting device **A** lifts the first bar **B** in the magazine. The bar falls into guide **C** (fig. 2).



- The guide **C** rises. The axis of the bar **B** is positioned along the spindle axis (fig. 3).

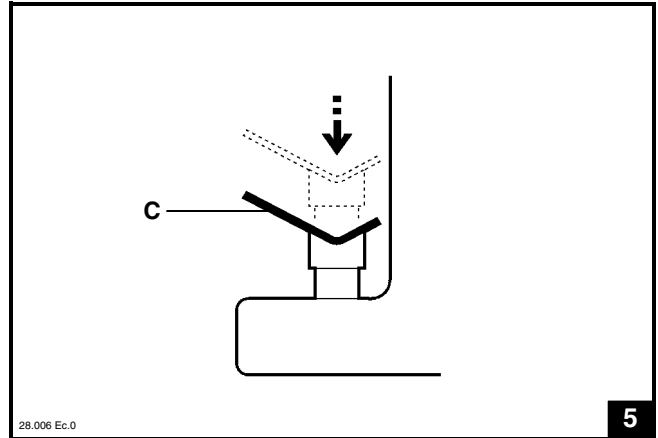


- The prefeed carriage **D** inserts the bar **B** into the lathe. The prefeed carriage strokes back (fig. 4).

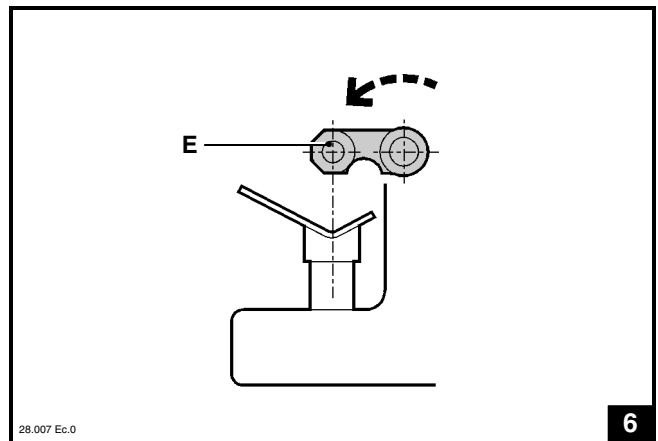


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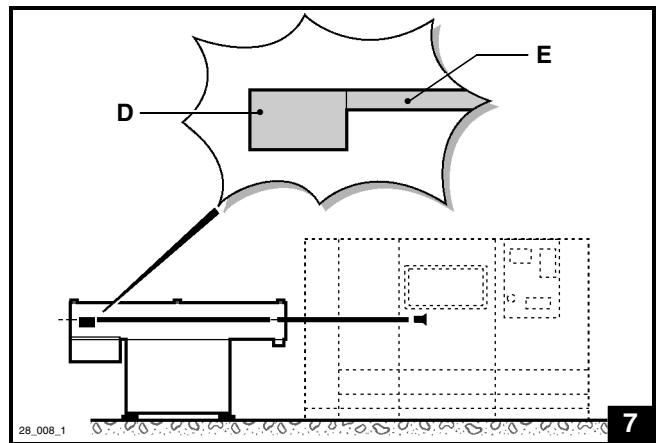
- The guide **C** sinks (fig. 5).



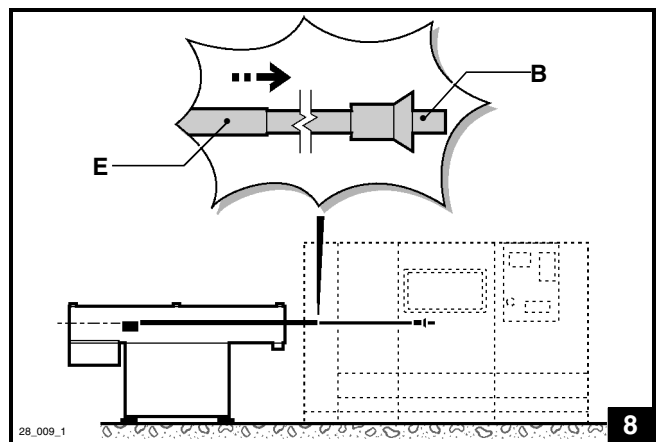
- The bar pusher **E** sinks; the bar-pusher axis is positioned along the spindle axis (fig. 6).



- The bar pusher **E** is engaged in the carriage **D** (fig. 7).

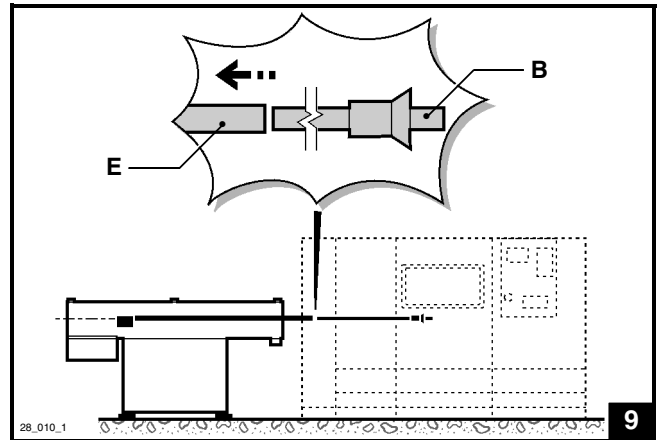


- The bar pusher **E** causes the bar **B** to move on according to the lathe impulses until it comes to an end (fig. 8).

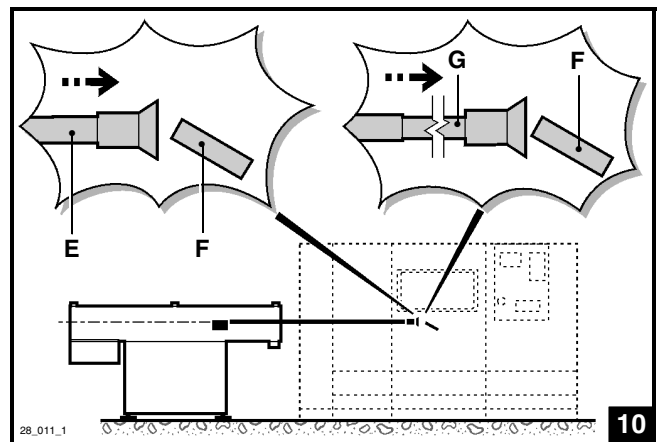


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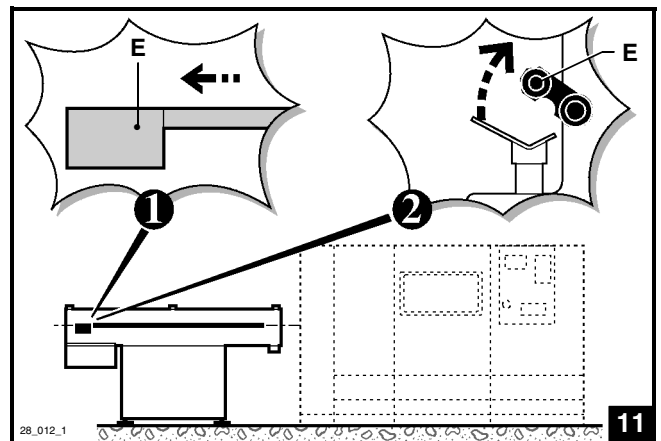
- After each feeding, the bar pusher **E** moves back from the bar **B** (fig. 9).



- The bar remnant **F** is ejected either directly by the bar pusher **E** or by the next bar **G** which is fed on (fig. 10).

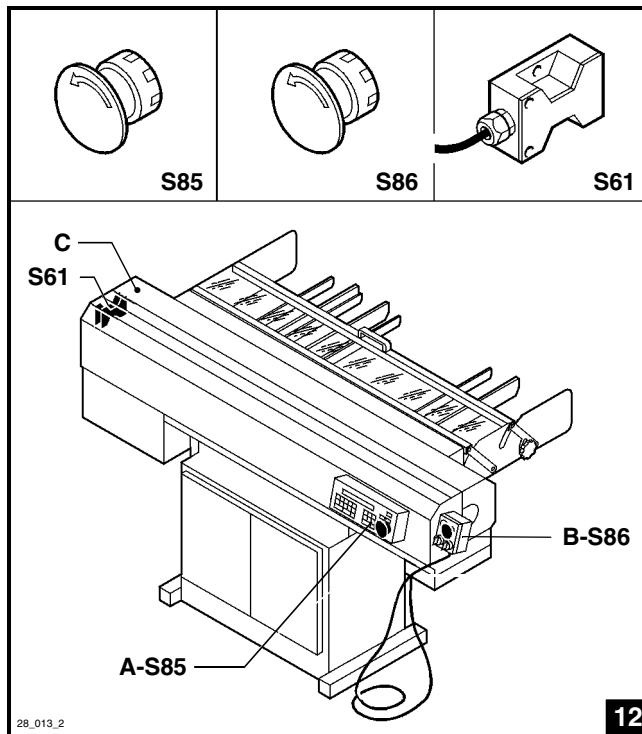


- The bar pusher **E** strokes back and rises (fig. 11).
- The feeder begins a new automatic working cycle.



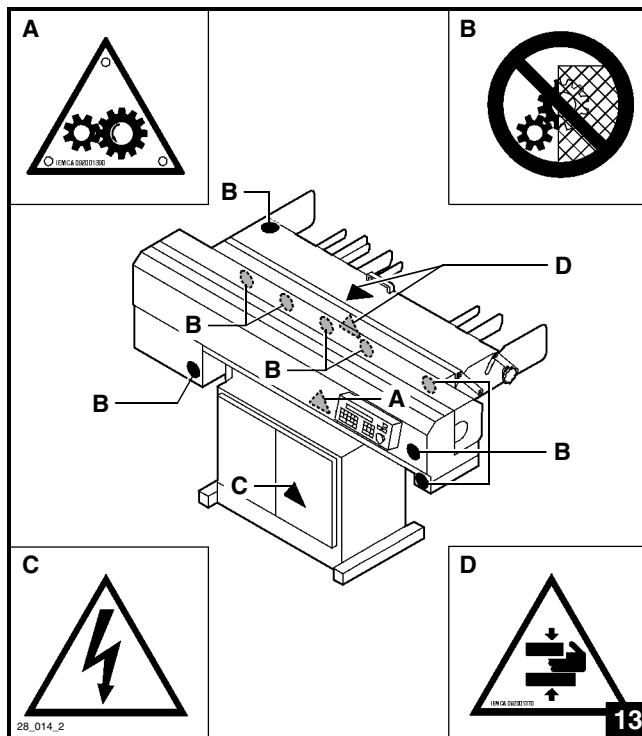
2.4. SAFETY DEVICES (fig. 12)

- A - Emergency button S85;**  
in an emergency, press it to stop all feeder/lathe functions.
- B - Emergency button S86;**  
in an emergency, press it to stop all feeder/lathe functions.
- C - Interlocked mobile guard:** it is connected to the microswitch **S61**.  
When the guard is opened, the feeder/lathe functions are disabled.  
By closing the guard back, the user can restart the cycle.

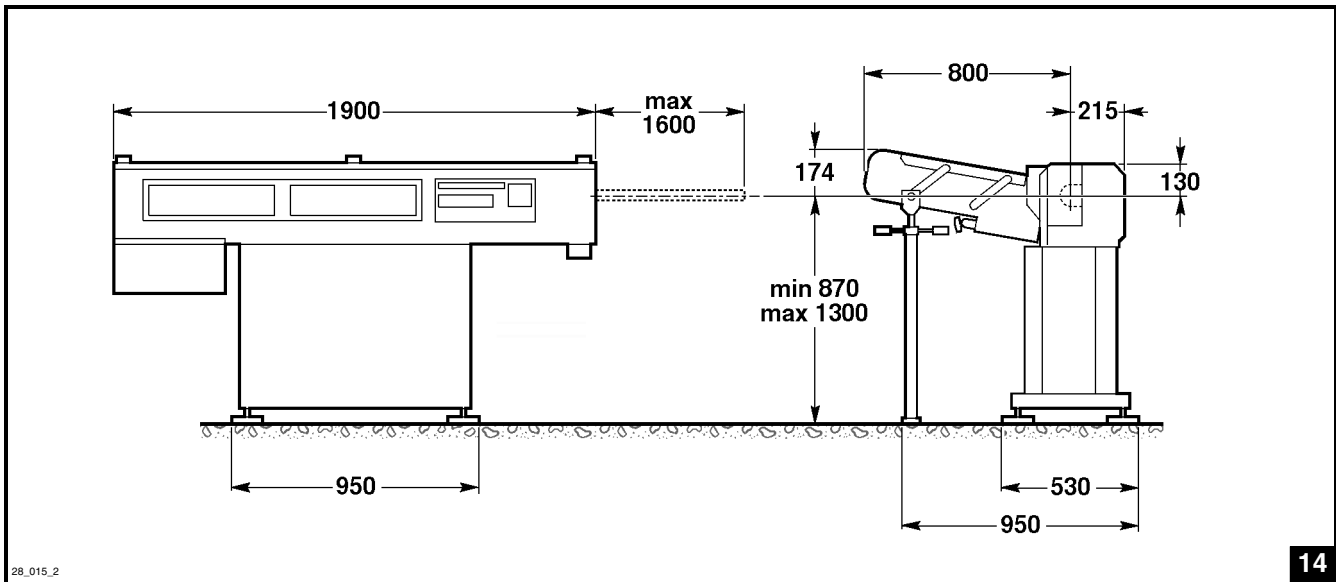


2.5. SAFETY LABELS - POSITION AND DESCRIPTION (fig. 13)

- A - Caution: working parts.**
- B - Do not remove the safety barriers.**
- C - Caution: danger of electric contact.**
- D - Danger of upper limbs crushing.**



## 2.6. TECHNICAL SPECIFICATIONS (fig. 14)



	Model	
	14	15
Min. bar diameter	ø 5 mm	
Max. bar diameter	ø 80 mm	
Min. bar length	250 mm	
Max. bar length	1400 mm	1560 mm
Magazine capacity (working width)	750 mm	
Bar pusher diameter	ø12 (10) - 15 (12) - 21 (18) mm	
Feeding speed (adjustable)	MAX 750 mm/s	
Return speed (adjustable)	MAX 750 mm/s	
Bar change-over time	16s	
Input voltage	230/400 Volt	
Control voltage	24 Volt D.C.	
Installed power	1,5 KW	
Air pressure	6 bar	
Weight	450 kg	

## 2.6.1 Noise levels

Usually, the bar feeder does not cause any acoustic noise during machining, since the bar rotates inside the lathe spindle.

During the bar feeding, with the bar feeder under normal conditions, the max. noise peaks average 85 dbA (measurement performed in compliance with the international standards).

## 2.7. AXIAL DISPLACEMENT DEVICE - DESCRIPTION (FIG.5)

It allows the feeder to be moved away from the lathe to allow maintenance, cleaning or any other servicing of the lathe.

Release and rotate lever **A** for conveying.

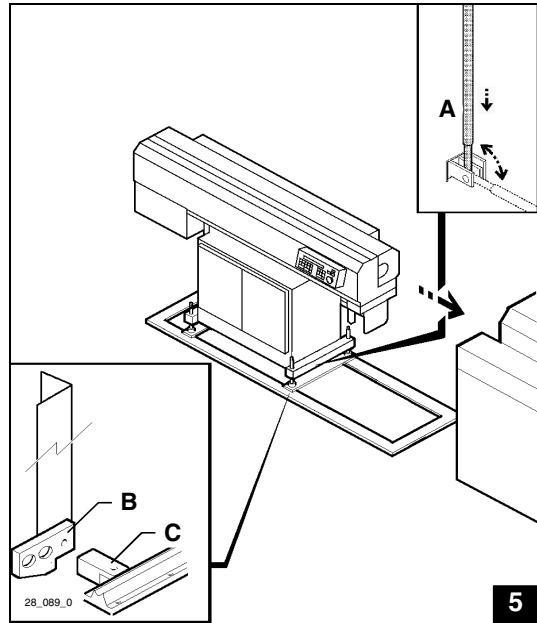


**DANGER - WARNING:** Make sure that safety hook **B** has passed block **C**, in order to prevent the bar feeder from sliding freely over the guides.

To move the bar feeder back to working position, release safety hook **B** and move lever **A** to its initial position after conveying.



**CAUTION:** In order to guarantee a good working, keep axial displacement bars cleaned and lubricated.





### 3.1. SAFETY GENERAL INSTRUCTIONS



**It is of the utmost importance to read carefully this manual before carrying out any installation, use, maintenance or other servicing on the machine. The compliance with the instructions contained herein ensures safety both of man and machine.**

- Both the operator and skilled engineer in charge shall keep to their task.
- Do not tamper with the safety devices for any reason whatsoever.
- Safety labour regulations issued by each country authority shall be strictly complied with.
- IEMCA declines any liability whatsoever for damages to people or property due to the non-observance of the above mentioned regulations.

### 3.2. HANDLING AND INSTALLATION - SAFETY PROCEDURES

- Machine shall be handled using suitable means and methods.
- People shall not stand underneath a suspended load, within the crane, lift truck or other suitable means of lifting or transportation operating range.
- The working and bar feeding area shall be delimited in order to prevent collisions between the operator and transportation or handling means, if any, either of the materials to be machined or other material.
- A proper machine installation, as well as lighting and cleaning of the area, are of the utmost importance as far as personal safety is concerned.
- The electric system connection shall be carried out by skilled personnel only.
- Make sure the electric system is earth connected through a suitable cable.

### 3.3. ADJUSTMENTS AND SETTING UP - SAFETY PROCEDURES

- Carry out the adjustments according to the use and maintenance manual.
- Do not change the working parameters to obtain performances different from those designed and tested.
- Do not adjust the machine when it is running unless otherwise specified in the use and maintenance manual.
- Do not feed the machine with barstocks having dimensions different from those recommended by the manufacturer.
- Do not use hoses as grips.

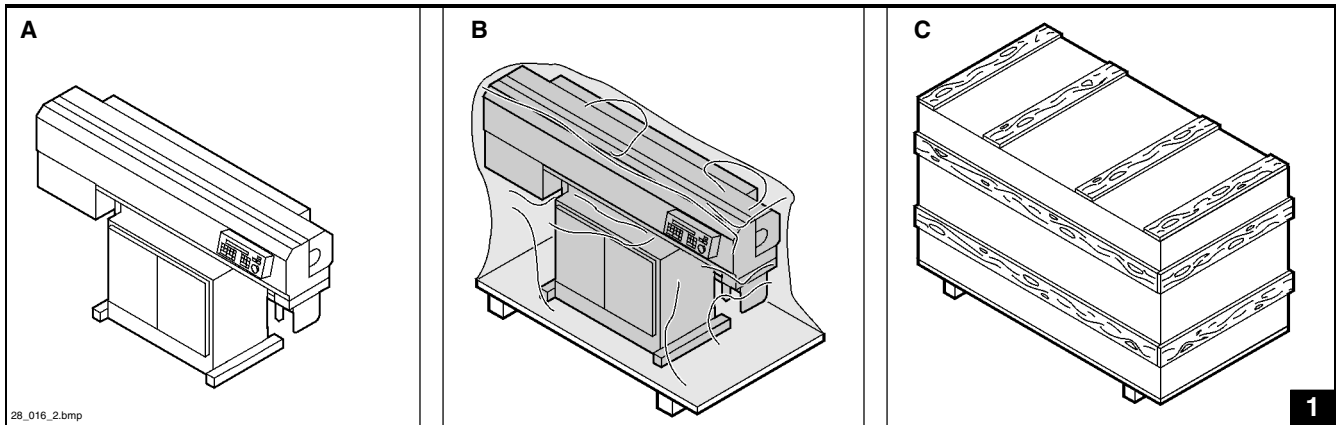
### 3.4. USE AND OPERATION - SAFETY PROCEDURES

- The working area around the machine shall always be kept clean and empty in order to allow an immediate access to the emergency devices, thus allowing the bar feeding operations without causing danger and hindrance.
- Carry out the starting cycle sequence as recommended.
- Do not introduce hands or other parts near or inside running parts or energised parts of the machine.
- Take off bracelet, watch, ring and tie.
- Whenever necessary, use strong working 5 finger gloves, which do not reduce sensitivity and gripping.
- Use working shoes as well as personal protections as provided for by the accident prevention regulations in force in every country.
- Personnel in charge of maintenance shall be informed should the machine fail to work properly.
- Before starting the machine, make sure that there is no personnel carrying out maintenance or cleaning operations.

### 3.5. MACHINE MAINTENANCE - SAFETY PROCEDURES

- Non-authorized people are not allowed to carry out maintenance.
- Read carefully this manual before carrying out any maintenance whatsoever.
- Do not lubricate, repair or adjust the machine during its working cycle, unless otherwise specified by this manual.
- Stop the machine in accordance with the safety procedures before carrying out lubrication.
- Do not light the working area with matches, lighters or torches when servicing the machine using inflammable fluids.
- Preserve the exhausted oil in suitable containers and deliver it to stocking and disposal of polluting wastes companies.  
Do not pollute environment.
- Use original IEMCA spare parts only.

#### 4.1. PACKAGING (fig. 1)



The machine can come in three different packagings:

**A - With no packaging.**

**B - On a pallet:** the feeder is placed on a pallet and wrapped in protective film.

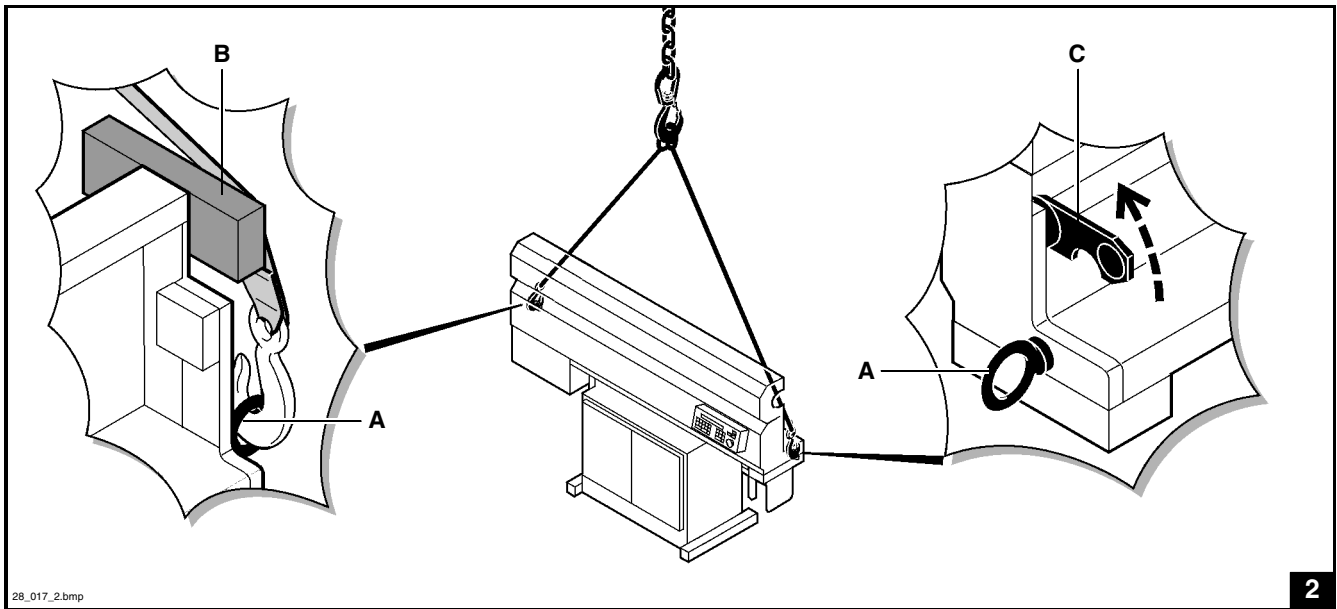
**C - In a case:** the feeder is placed in a case and wrapped in protective film.

#### 4.2. LIFTING



**DANGER - WARNING:** Lifting and handling operations should be carried out with suitable equipment by skilled staff specially trained for this kind of manoeuvres.

According to the type of packaging used, lifting should be carried out as follows.

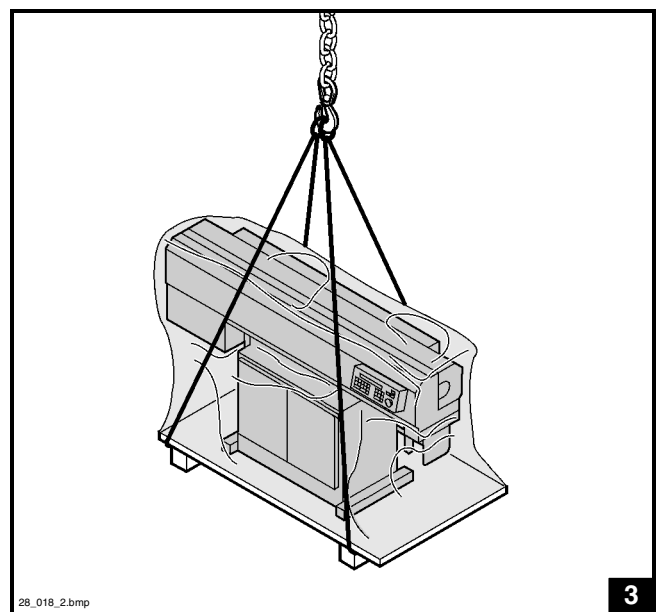


❑ **Lifting with no packaging** (fig. 2)

- Install the two round-eye eyebolts **A** with threaded stem (type 1 UNI - ISO 3266 M20).
- Fit a wooden pad **B**.
- Lift the bar pusher support **C** to prevent it from being damaged.
- Use a hook-up lifting device having a suitable capacity.

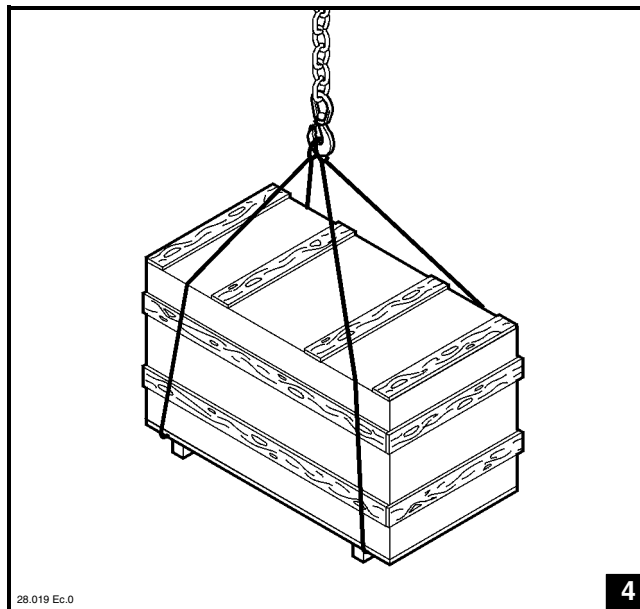
❑ **Lifting with pallet** (fig. 3)

Use a hook-up lifting device of suitable capacity.



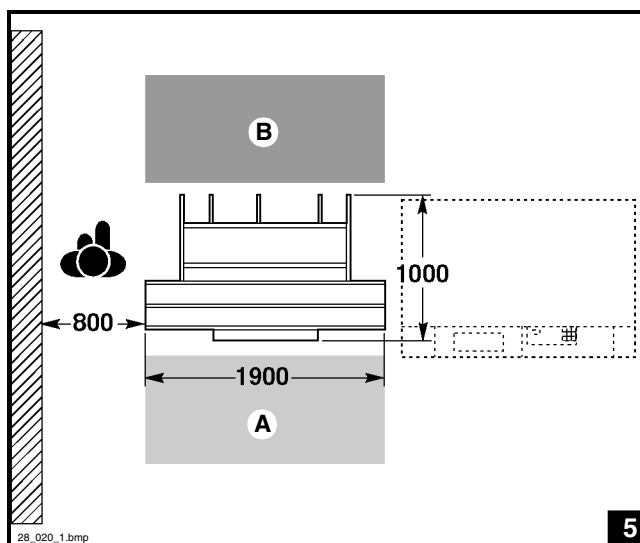
❑ **Lifting with case** (fig. 4)

Use a hook-up lifting device of suitable capacity.



**4.3. MACHINE SETTING - CHARACTERISTICS** (fig. 5)

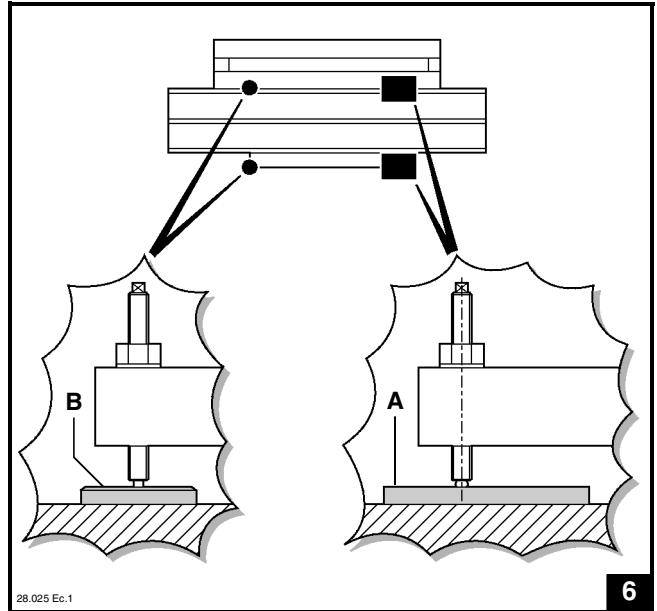
- The floor should be stable and well-levelled so as to allow good anchoring to the ground.
- Select an area having a suitable size according to the type of feeder used. The dimensions shown in the figure have been calculated by taking into account the feeder overall dimensions and the minimum clearance required to walk around the machine.
- The working **A** and feeding area **B** should be properly delimited in order to avoid any possible collisions between the operator and the transport/handling means travelling near the machine.
- The selected area should be suitably lit and have an electric/pneumatic power outlet.



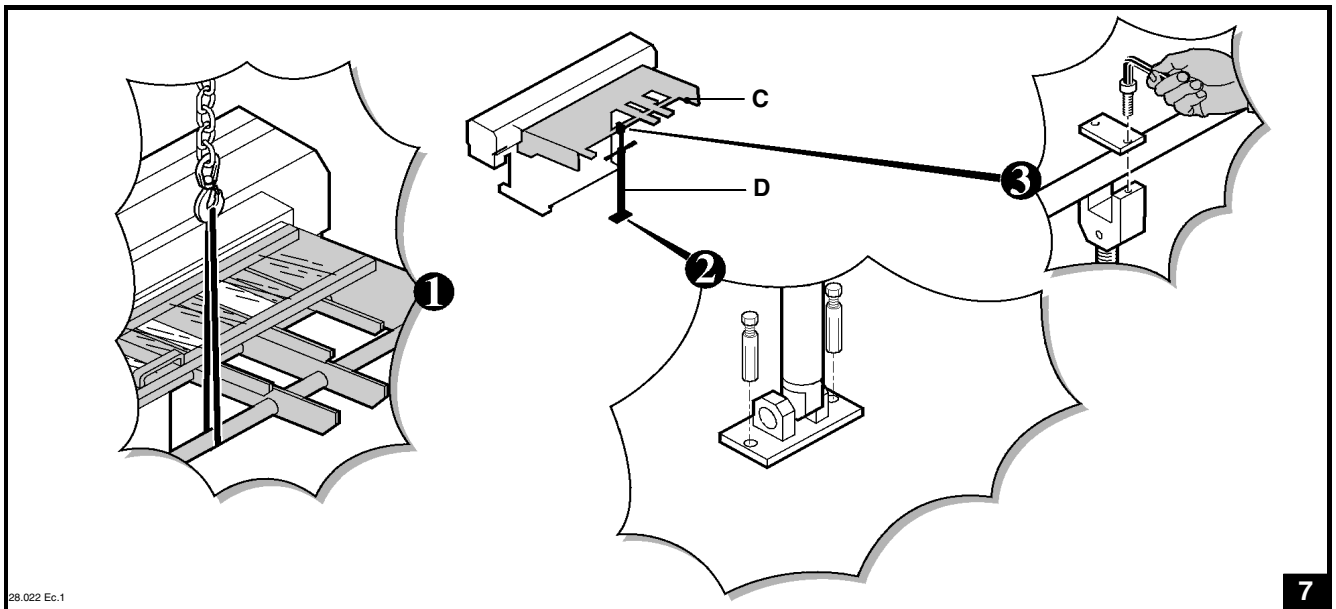
### 4.4. PREPARING THE BAR FEEDER FOR INSTALLATION

Before positioning and installing the bar feeder close to the lathe, do the following:

- Lift the bar feeder and assemble plates **A** and feet **B** (fig. 6).



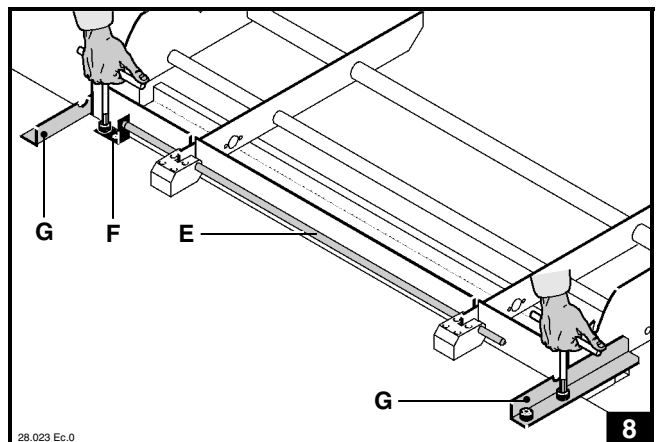
- lift the magazine **C** and install the foot **D** as shown in figure 7 ;



- insert the pin **E** (fig. 8). Install the keep plate **F**. Remove the supports **G**.



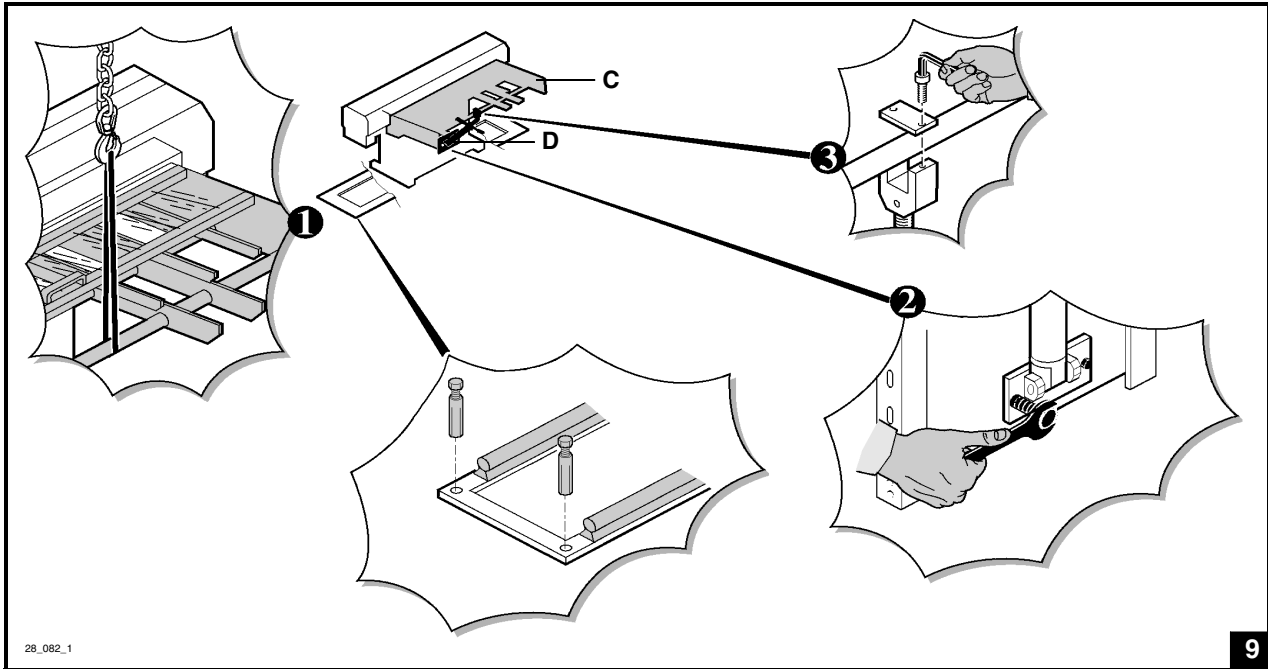
**Keep the supports (G) in case you need to transport the feeder in the future.**





In case of axial displacement foot "D" is fixed directly to the base.

- lift the magazine C and install the foot D as shown in figure 9;



**DANGER - WARNING:** The bar feeder should be fixed to the floor before loading bars in the magazine; moreover, the maximum bar weight limit should be complied with. Before clearing the bar feeder from the floor all bars should be removed from the magazine.

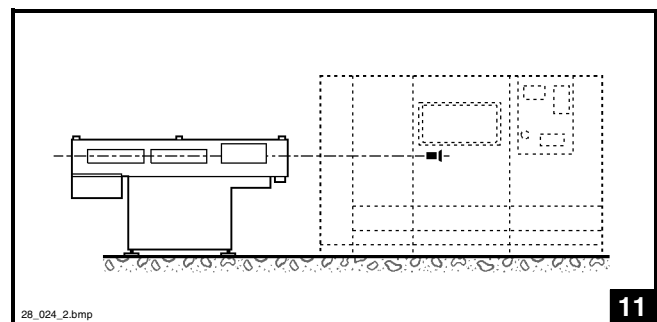
#### 4.5. INSTALLATION - FOREWORD

Bar feeder installation imply several operations listed and described here below.

- 4.5.1 Positioning
- 4.5.2 Height - Adjustment
- 4.5.3 Alignment - Levelling
- 4.5.4 Fixing the feeder to the lathe
- 4.5.5 Bar passage guide - Installation

##### 4.5.1 Positioning

- Position the bar feeder behind the lathe (fig. 11), considering the dimensions of the bar guide and of its guard (paragraph 4.5.5).

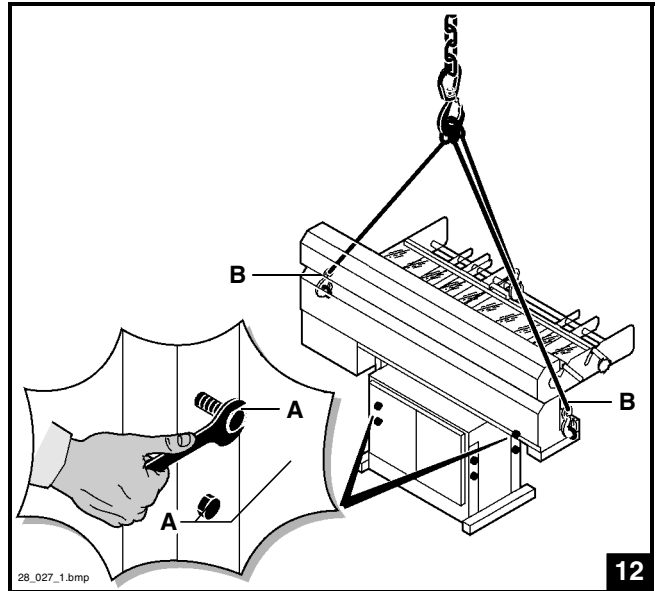


### 4.5.2 Height - Adjustment

The working axis height is normally adjusted to the lathe height at the Manufacturer's premises.

Should you need to adjust it, proceed as follows:

- tighten the lifting belts and remove screws **A** (fig. 12);



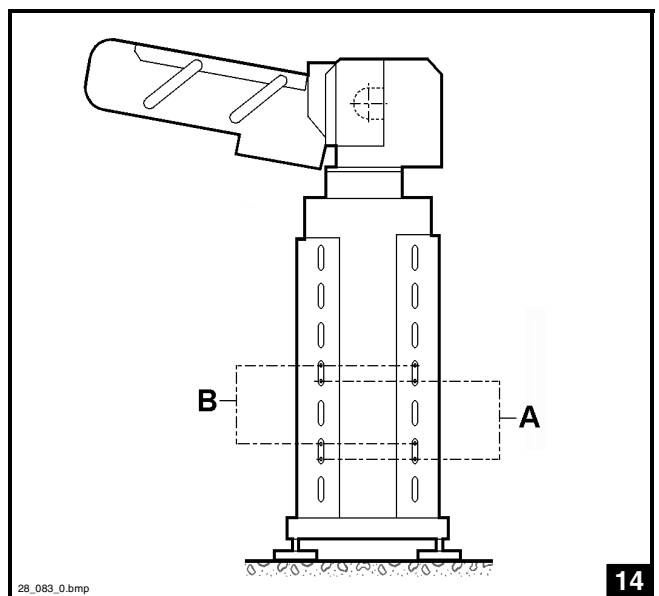
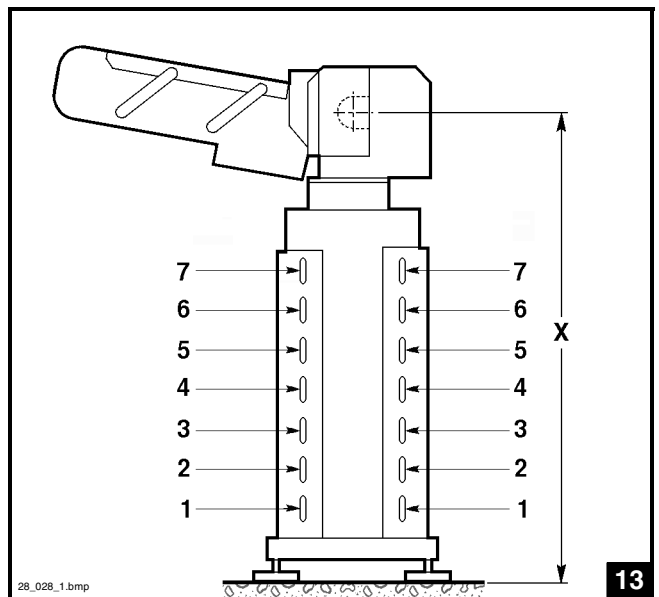
- lift the feeder to the height **X** (fig13 -14); see table below:

SCREWS POSITION		X (mm)
Slots	Holes	
1 and 3	A	870 - 907
2 and 4	B	908 - 939
2 and 4	A	940 - 977
3 and 5	B	978 - 1009
3 and 5	A	1010 - 1047
4 and 6	B	1048 - 1079
4 and 6	A	1080 - 1117
5 and 7	B	1118 - 1149
5 and 7	A	1150 - 1187

- tighten the screws **A** and remove the eyebolts **B**.



For higher adjustments, shims are available that can be placed under the foot supports (ask IEMCA Service staff).





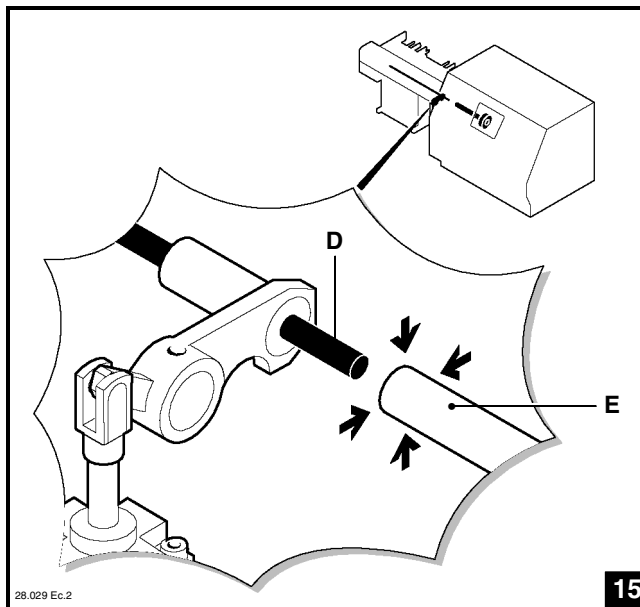
### 4.5.3 Alignment - Levelling

Alignment between the feeder and the lathe is a key step, therefore, it should be carried out by experienced personnel with the greatest accuracy.

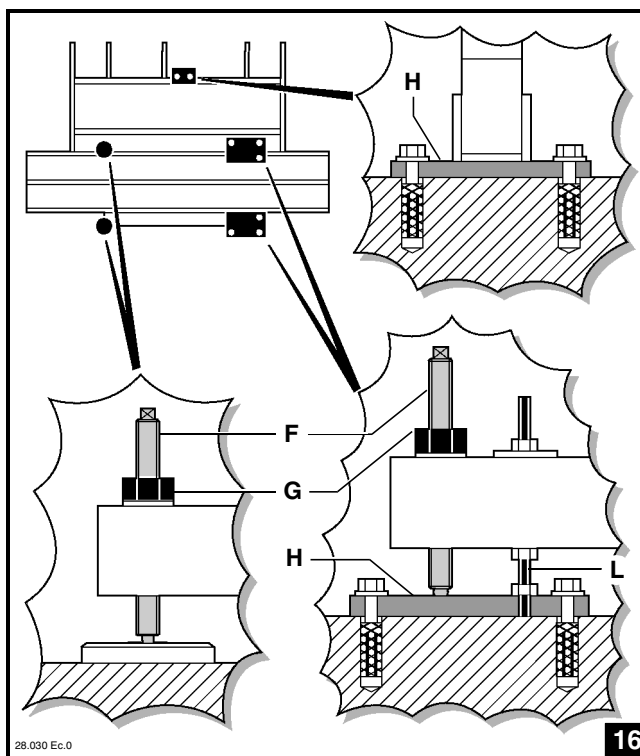


**CAUTION: Bad alignment can be the main cause of faulty operation and of the resulting damage.**

- Control the bar pusher **D** (fig. 15) out and check its alignment at lathe spindle **E** inlet.
- Check feeder levelling.



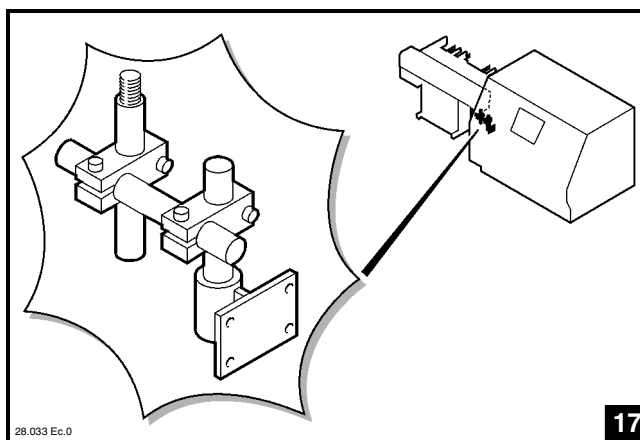
- For height adjustments, turn the screws **F** (fig. 16). For lateral adjustments, give calibrated blows on the side of the base foot with a mallet.
- Tighten the nuts **G**.
- Drill a hole in the floor and fasten the plates **H** with the expansion plugs.
- Fasten the base to the plates using the tie rods **L**.
- Finally, double-check the alignment.



### 4.5.4 Fixing the feeder to the lathe

Should the floor be in such a condition so as not to guarantee a good anchorage of the feeder, fasten the feeder to the lathe.

Fig. 17 shows a generic example. For more details, ask the "IEMCA Service staff".

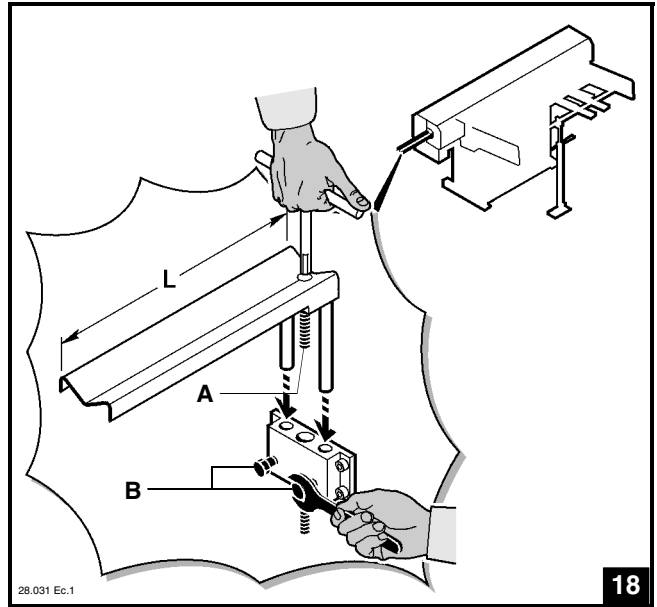


### 4.5.5 Bar passage guide - Installation (fig. 18)

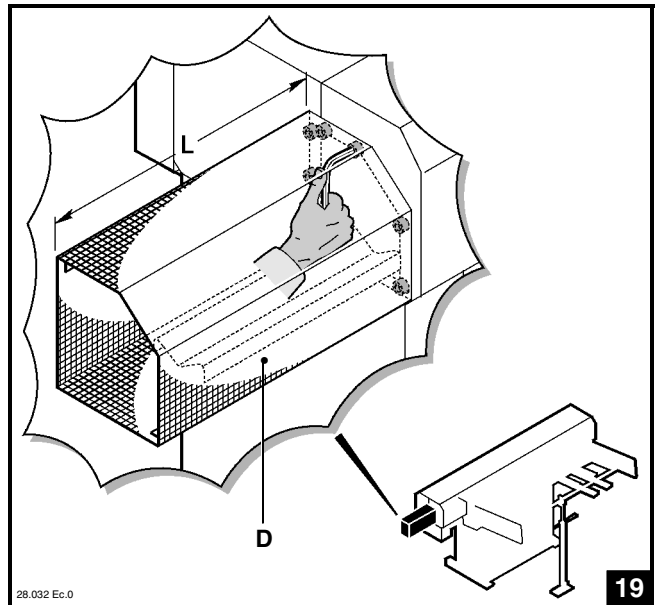
- Saw the guide of the length **L** necessary to cover the distance between bar feeder and lathe spindle.
- Position it in its seat.
- Adjust the guide height. The bar axis (resting on the bar) should be aligned with the feeding axis.
- To adjust, turn screw **A**.
- Tighten the nuts **B**.



**DANGER - WARNING:** it is critical to install the protection guard to guarantee safety.



- Cut the guard **D** (fig. 19) to a length **L** necessary to cover the distance between the feeder and the lathe.
- Fix the guard with screws.

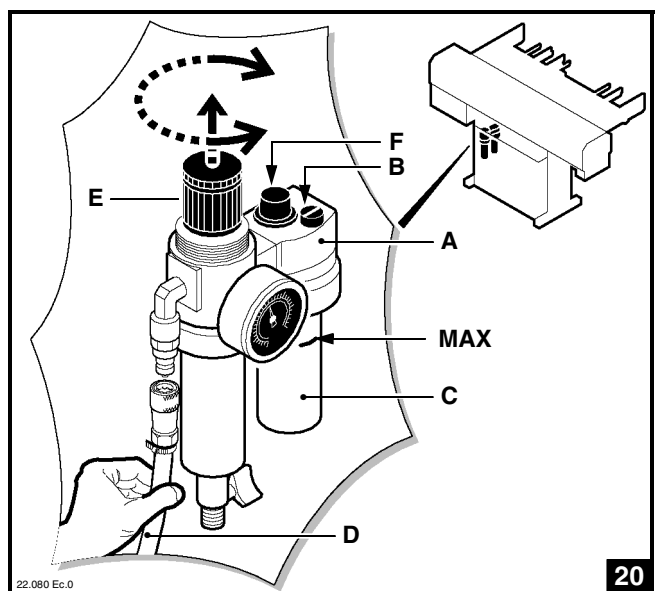


### 4.6. PNEUMATIC CONNECTION

- Unscrew plug **B** or cup **C** to fill the tank of lubricator **A** (fig. 20); the oil level shall reach the **MAX.** reference.
- Oil properties: 9 to 11 cSt at 40°C ISO VG 10.

LUBE OIL TABLE			
BP ENERGOL HP10	SHELL TELLUS C10	MOBIL DTE 21	ESSO SPINESSO 10

- Connect pipe **D** of the compressed air ductwork system as shown in the figure. Adjust pressure at 6 bar by means of knob **E**.
- Check the air lubrication (1-12 drops per 1000 l air); adjust through screw **F**.



4.7. ELECTRIC CONNECTION



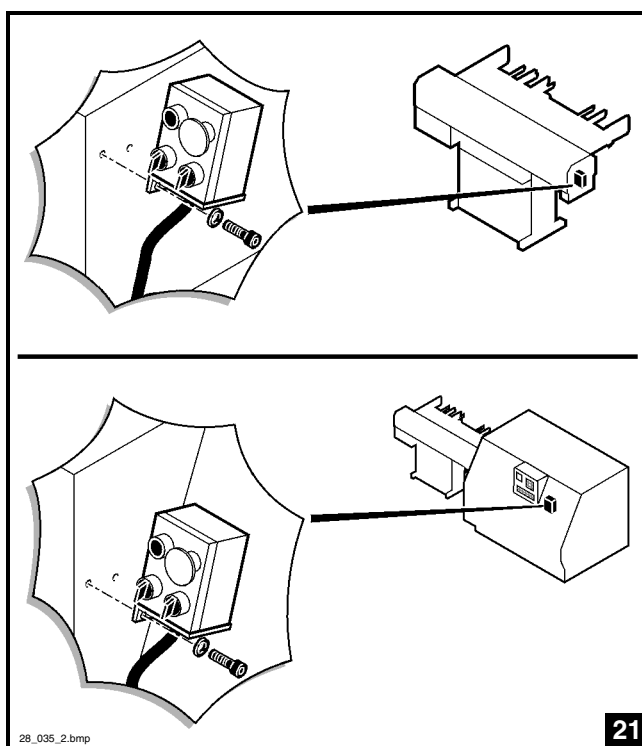
**DANGER - WARNING:** This type of intervention should only be entrusted to qualified personnel with specific skills in accordance with the applicable regulations and standards.

As a rule, the feeder comes equipped with a multipolar electric plug to be plugged into the specially provided lathe socket (check the "Wiring diagram" if needed).

4.8. ADDITIONAL PUSH-BUTTON PANEL - INSTALLATION (fig. 21)

The additional push-button panel can be removed from its housing.

According to working requirements, it can be installed nearby the lathe push-button panel.



4.9. SELF-LEARNING VALUES - ENTRY INTO PROGRAM

Self-learning values depend on type and dimension of the lathe to which the bar feeder has been fitted.

Said operation is necessary, since the bar moves according to these values.

For detailed information relevant to this operation, see the "Push-button panel instruction manual".



### 5.1. ADJUSTMENT AND SETUP - FOREWORD



**DANGER - WARNING:** Unless otherwise stated in this manual, do not adjust the feeder when it is working.

Besides normal adjustments which may become necessary over its service life, this machine should also be adjusted to suit its required type of work.

According to bar size and type of work, machine setup may include the replacement of a few parts.

These interventions are divided into and described under:

- general adjustments (paragraph 5.2.);
- adjustments according to bar type (paragraph 5.3.).

### 5.2. GENERAL ADJUSTMENTS - FOREWORD

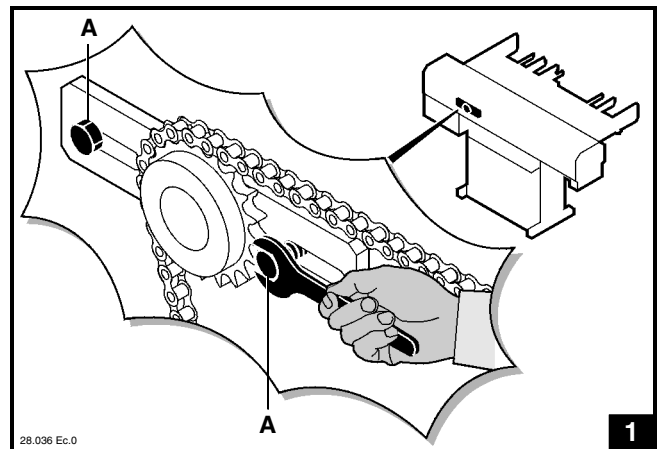
These are all the operations necessary for feeder smooth working. They can include maintenance operations, operations required to fix a problem or operations required after replacing a machine part or unit.

5.2.1 Feed chain - Adjustment.

5.2.2 Bar pusher axis - Adjustment.

#### 5.2.1 Feed chain - Adjustment (fig. 1)

- Remove the front guard.
- Loosen the screws **A**.
- Tighten the chain to an appropriate extent.
- Tighten the screws **A**.

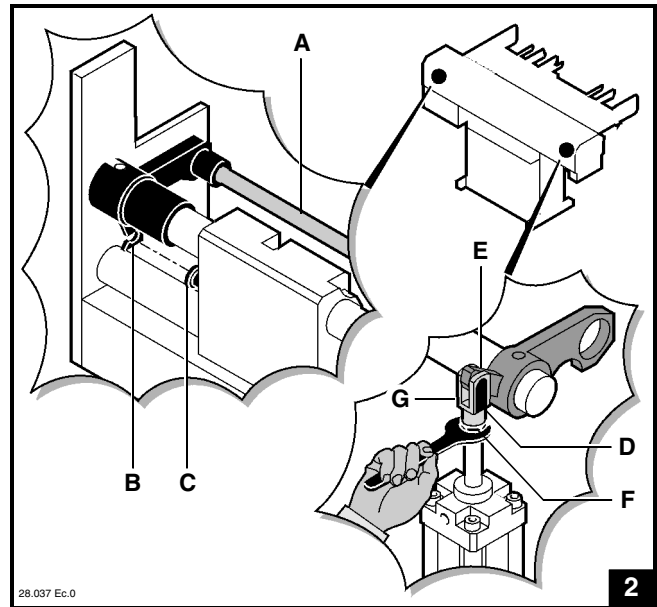


### 5.2.2 Bar pusher working position - Adjustment (fig. 2)

When the bar pusher **A** has been lowered, the groove on lever **B** must be aligned with the carriage pin **C**.

To adjust the bar pusher working position:

- remove the rear guard;
- remove the pin **D** and pull the lever **E**;
- loosen the nut **F**. Then, either tighten or loosen the fork pin **G** depending on what you need to do;
- tighten the nut **F** and fit the pin **D** again.



### 5.3. ADJUSTMENTS ACCORDING TO BAR TYPE - FOREWORD

They include all the preliminary adjustments that must be made according to the diameter, length and section type of the bar to be machined.

- 5.3.1 Reduction sleeves - Diameter change-over.
- 5.3.2 Magazine inclination - Adjustment.
- 5.3.3 Bar selection - Adjustment.
- 5.3.4 Covering frame - Adjustment.
- 5.3.5 Guide lifting limit switch - Adjustment.
- 5.3.6 Bar pusher - Selection and installation.
- 5.3.7 Bar passage guide (optional) - Adjustment.

#### 5.3.1 Reduction sleeves - Diameter change-over

To support bars in the lathe, it is advisable to insert reduction sleeves into the spindle.

Their inner diameter shall be equal to the bar pusher diameter + 1 mm.

Example:

to make sure that  $\varnothing 12$  mm bar pusher never touches the spindle inner part, the inner diameter of the spindle liners must be at least 13 mm.

To be able to carry out the replacement, clear the front part of the feeder by proceeding as follows:

- Press to start the feeder.



- Press to select the manual cycle.



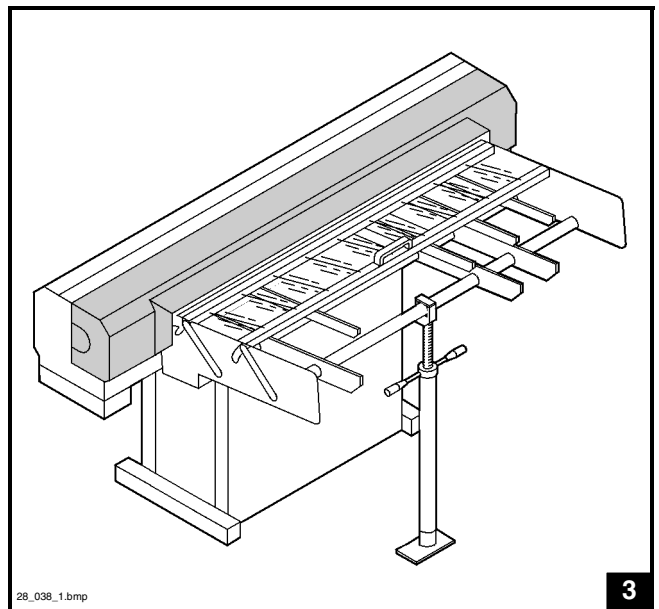
- The feeder can be in two positions: guide lifted or bar pusher lowered. Lower the guide or lift the bar pusher. To lower the guide press



To lift the bar pusher press



- Open the rear guard (fig. 5).
- Change the reduction sleeves.
- Restore the initial condition.



**5.3.2 Magazine inclination - Adjustment (fig. 4)**

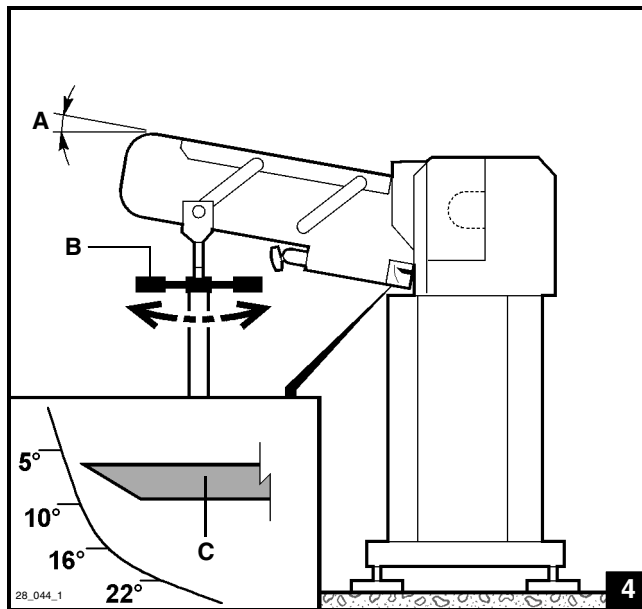
Adjust the magazine inclination according to the bar diameter verifying its angle by means of index **C**.

BAR DIAMETER (mm)	INCLINATION (A)
ø5÷15	22°
ø16÷53	16°
ø54÷70	10°
ø71÷80	5°



The data shown in the table refer to round bars. To work bars having a different shape, increase inclination. In the initial working phases, experiment until you find the ideal inclination.

To adjust inclination, use handle **B**.

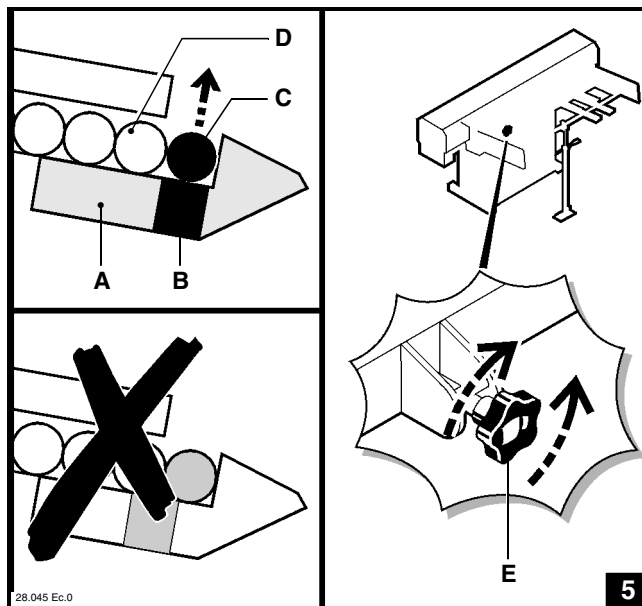


**5.3.3 Bar selection - Adjustment (fig. 5)**

Bar **C** is lifted by device **B**.

Thus, the position of bar catches **A** must allow the lifting of bar **C** only, preventing bar **D** from being lifted.

For adjustment use knob **E**.



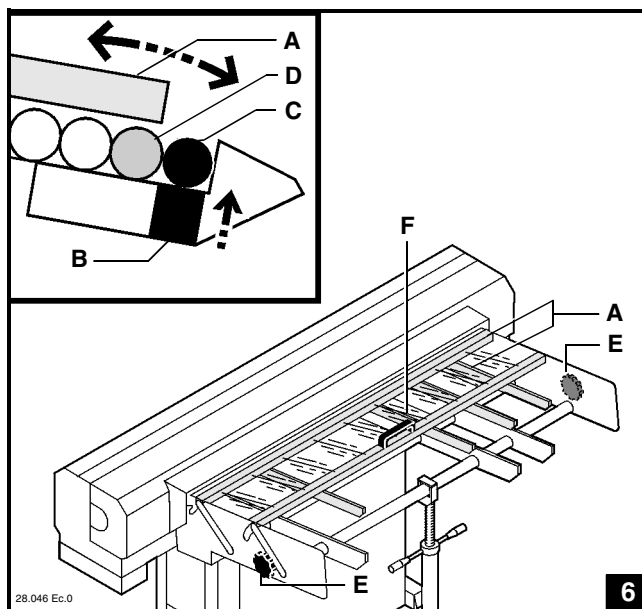
**5.3.4 Covering frame - Adjustment (fig. 6)**

Bar **C** is lifted by device **B**.

Thus, the position of frame **A** must allow the passage of bar **C** keeping bar **D**.

To adjust the frame position, loosen the knobs **E**. Then, lift/lower the frame **A** using handle **F**.

After finding the right position, tighten the knobs **E**.





### 5.3.5 Guide lifting limit switch - Adjustment. (fig. 7)

When the bar **A**, is on the lifted guide **B**, its axis must coincide with the loading axis. The lifting limit switch must be adjusted according to the stock diameter and shape.

To adjust it, proceed as follows:

– press  
to start the feeder;



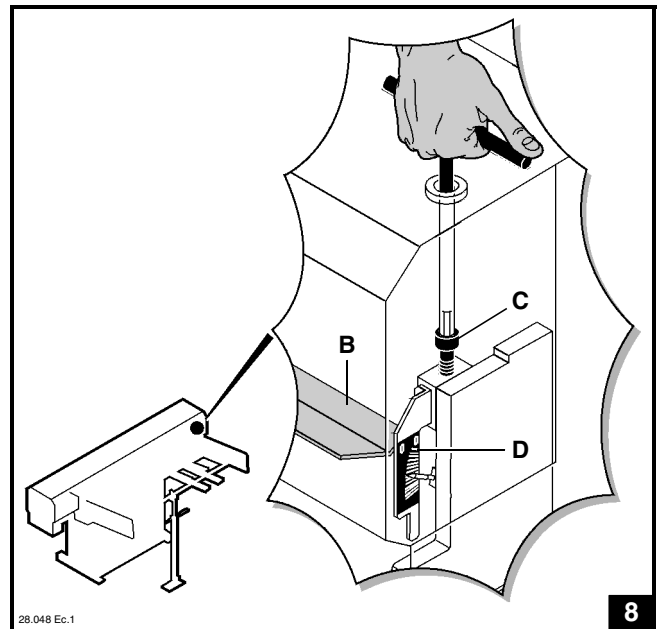
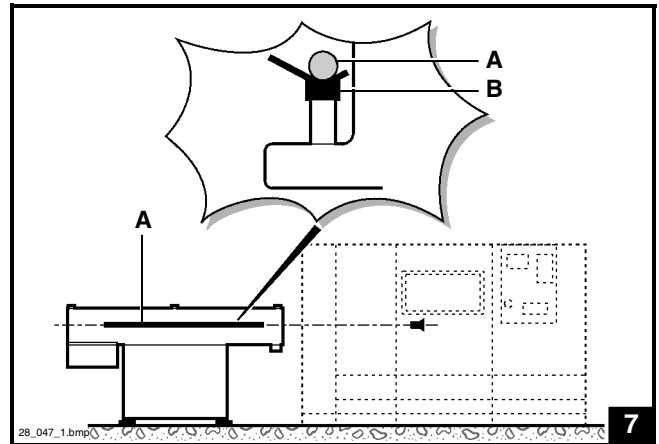
– press  
to select the manual function;



– press to lift the guide;



– adjust the guide lifting limit stop through screw **C** (fig. 8) and check the adjustment through the graduated scale **D**.



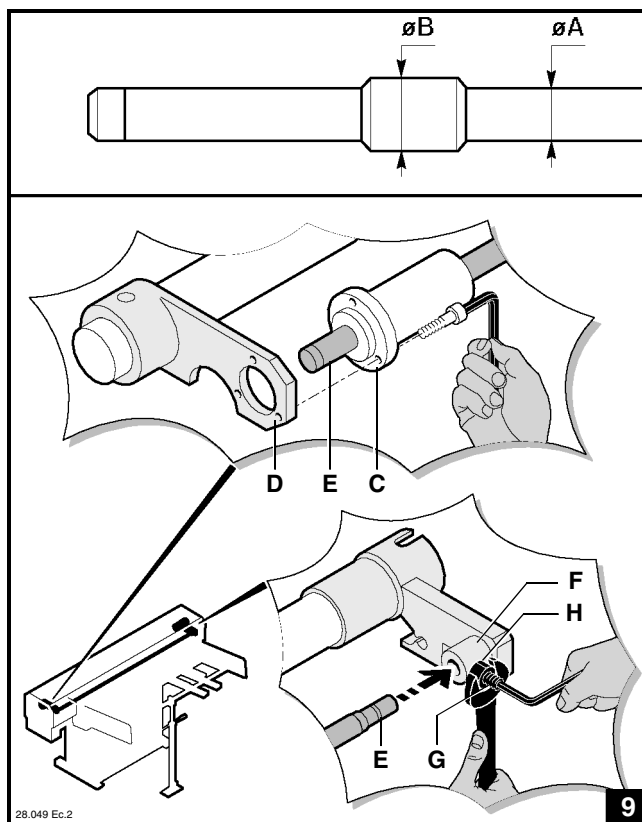
### 5.3.6 Bar pusher - Selection and installation (fig. 9)

Install a bar pusher with a diameter which is suitable for the bar diameter (see table below).

BAR DIAMETER (mm)	ØA - ROD DIAMETER (MM)	ØB - BEARING DIAMETER (MM)
5÷12	10	12
10÷19	12	15
16÷80	18	21

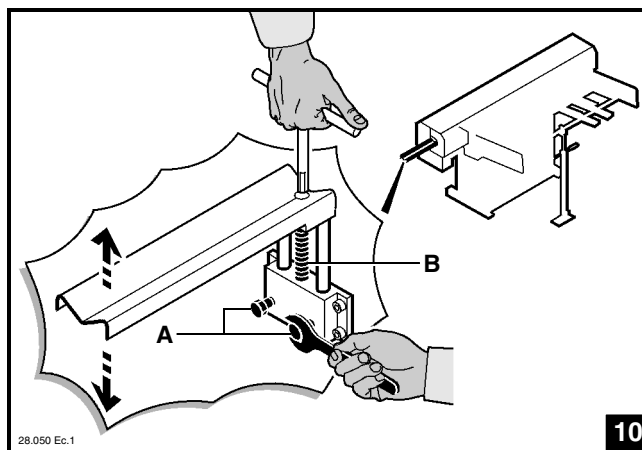
To install the bar pusher, proceed as follows:

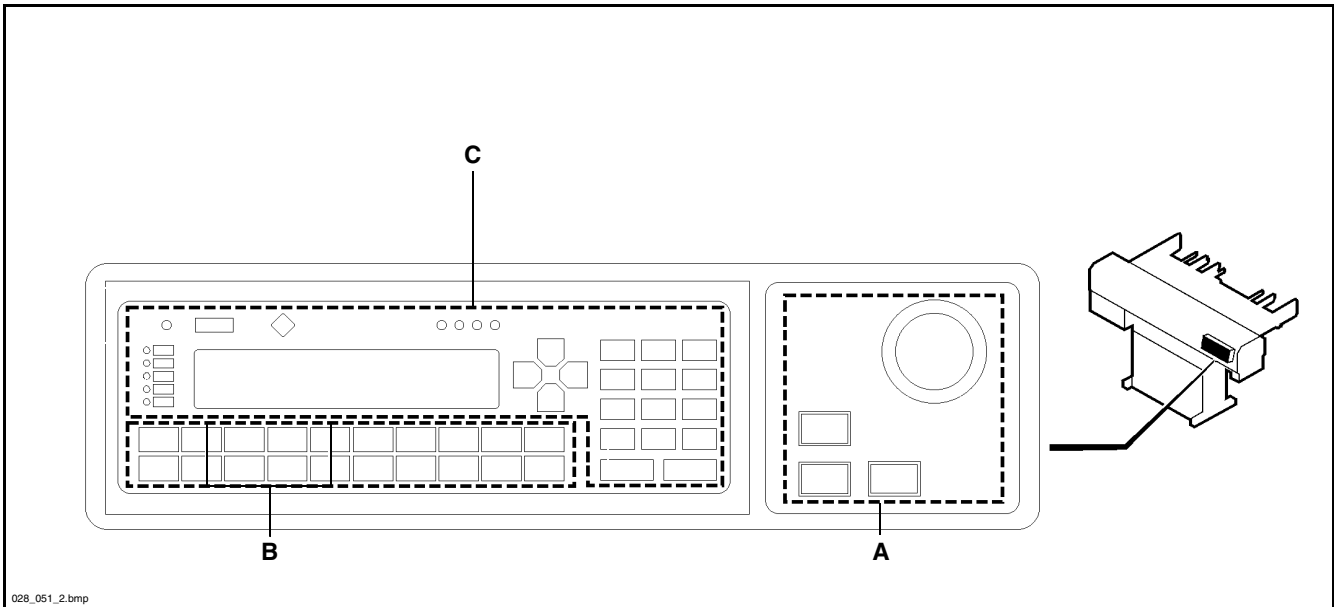
- Open the front guard.
- Install the fore bush **C** in the seat of lever **D**. The bar pusher **E** must be inserted into bush **C**.
- Introduce the rear part of bar pusher **E** into lever **F** housing, tighten screw **G** and nut **H**.
- Close the guard.



### 5.3.7 (Optional) Bar passage guide - Adjustment (fig. 10)

- Screw out the screws **A**.
- Adjust the guide height. The axis of the bar resting on it should be aligned with the feeding axis. Adjust by screwing out the nut **A** and manually adjust the position of screw **B**. To adjust, turn screw **B**.
- Tighten screws **A**.





### 6.1. PUSH-BUTTON PANEL - DESCRIPTION OF CONTROLS


The push-button panel controls are divided as follows:

**A - Main controls.**

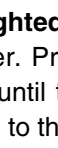
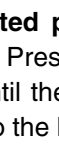
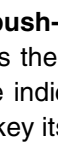
**B - Controls for manual operation.**

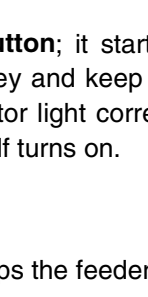
**C - Display controls and LEDs.**

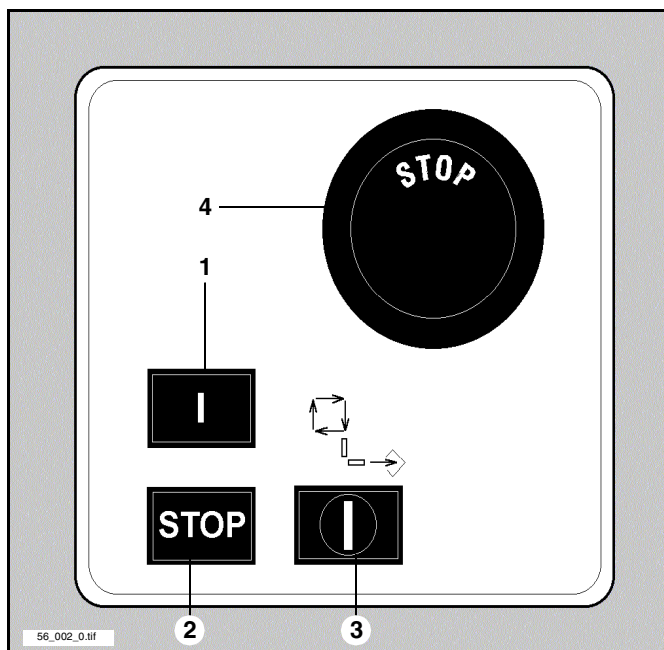
□ Main controls

1 -  **Green lighted push-button**; it starts the feeder. Press the key and keep it pressed until the indicator light corresponding to the key itself turns on.

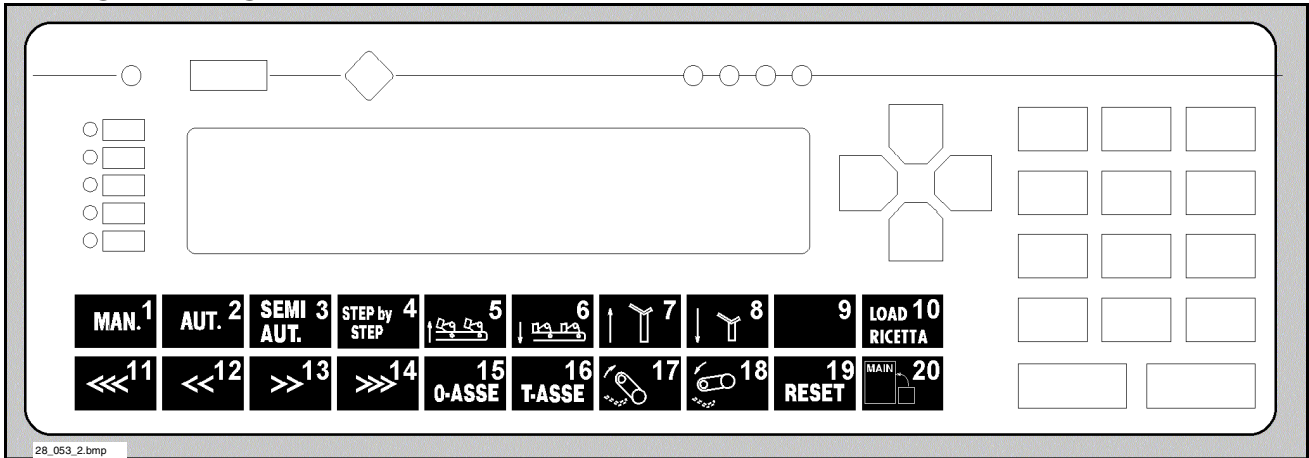
2 -  **Red push-button**; it stops the feeder.

3 -  **Key-operated two-position selector**  
 Position : the push-button panel is enabled for the "message display" mode.  
 Position : push-button panel enabled to data entering mode.

4 -  **Emergency push-button**; it stops the feeder. The feeder can be re-started only after the push-button has been manually released.

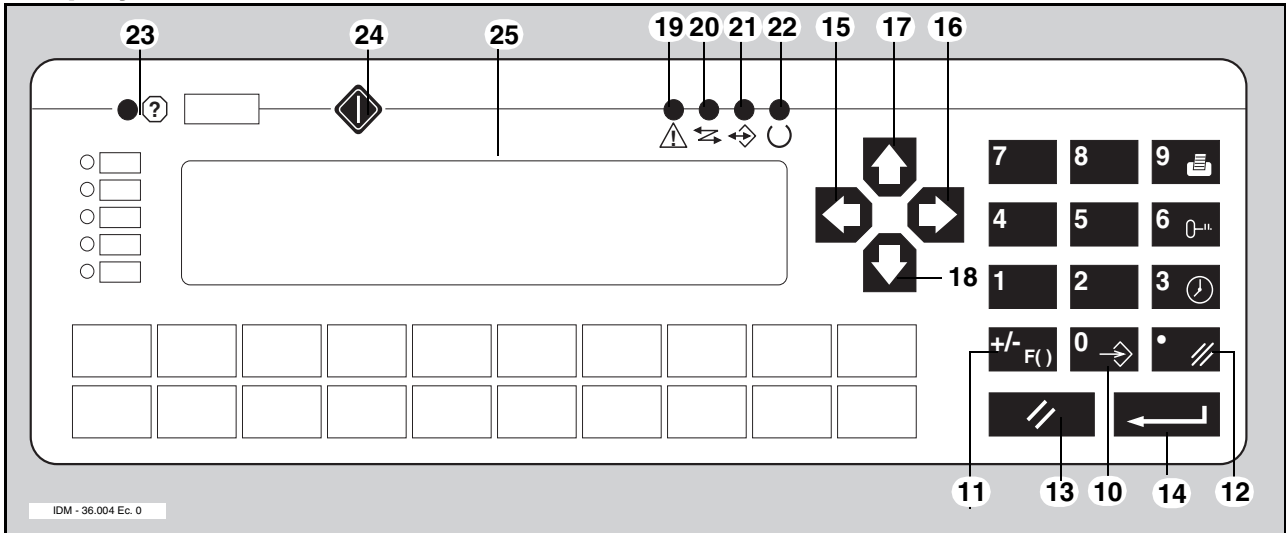







## □ Programming and manual functions controls









- 1- **MAN. 1** Key to select bar feeder manual operation.
- 2- **AUT. 2** Key to select bar feeder automatic operation.
- 3- **SEMI AUT. 3** Key to select the bar feeder semiautomatic function.
- 4- **STEP by STEP 4** Key to control a step-by-step operating cycle. If pressed, the bar feeder performs the first step, if pressed again the bar feeder performs the second step, and so on.
- 5- **5** Key to lift the bar lifting device
- 6- **6** Key to lower the bar lifting device
- 7- **7** Key lifting the guide
- 8- **8** Key lowering the guide
- 11- **<<< 11** Key for bar pusher backward manual motion at high speed.
- 12- **<< 12** Key for bar pusher backward manual motion at low speed.
- 13- **>> 13** Key for bar pusher forward manual motion at low speed.
- 14- **>>> 14** Key for bar pusher forward manual motion at high speed.
- 15- **0-ASSE 15** Key for "BAR FEEDER ZERO SETTING". It must be pressed only after key **I S 73** has been pressed; once the carriage has started moving, they can be released.
- 16- **T-ASSE 16** Key to adjust the motor for the bar pusher motion. Never press it during daily operation of bar feeder.
- 17- **17** Bar pusher lifting key
- 18- **18** Bar pusher lowering key
- 19- **RESET 19** "RESET" key.
- 20- **MAIN 20** Key to recall "MAIN MENU".

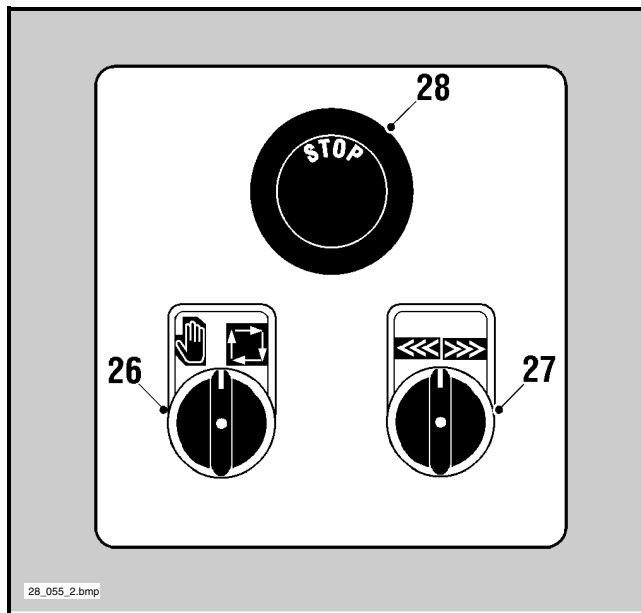
□ Display controls and LEDS



- 1 - **1** Key for numerical value 1.
- 2 - **2** Key for numerical value 2.
- 3 - **3**  Key for numerical value 3 and to access the date and hour programming mode.
- 4 - **4** Key for numerical value 4.
- 5 - **5** Key for numerical value 5.
- 6 - **6**  Key for numerical value 6 and to access protected parameter entering mode.
- 7 - **7** Key for numerical value 7.
- 8 - **8** Key for numerical value 8.
- 9 - **9**  Key for numerical value 9.
- 10 - **0**  Key for numerical value 0 or to recall selection cursor.
- 11 - **+/- F()** Key for “minus” or “plus” sign.
- 12 - **,**  Key for “comma” sign.
- 13 - **//** Key for “CLEAR” function:
  - to stop selection function,
  - to return to the value which had been displayed before the non-confirmed modification,
  - to return to the screenful displayed after the date and time programming.
- 14 - **←** Key for “ENTER” function to confirm entered data.
- 15 - **←** Key to recall the previous parameter or to move the selection cursor left.
- 16 - **→** Key to recall the next parameter or to move the selection cursor right.
- 17 - **↑** Key to scroll page upwards or to move selection cursor upwards or to increase by one the value in the date and hour programming mode.
- 18 - **↓** Key to scroll page downwards or to move selection cursor downwards or to decrease by one the value in the date and hour

- 19 - ●  **Red LED:**  
*OFF mode - It indicates that there is no display warning;*  
*ON mode - It indicates that there is display warning.*
- 20 - ●  **Green LED:**  
*BLINK mode - signals that the display does not interact with the PLC correctly;*  
*ON mode - signals that the display interacts with the PLC correctly.*
- 21 - ●  **LED not enabled.**
- 22 - ●  **Green LED:**  
*OFF mode - signals that the display is not active;*  
*ON mode - signals that the display is active.*
- 23 - ●  **Green LED:**  
*OFF mode - signals that no key is pressed;*  
*ON mode - signals that any key is pressed.*  
**Red LED:**  
*BLINK mode - It signals that the keyboard battery is flat (chapter 9).*  
*ON mode - It signals severe keyboard trouble*
- 24 -  **Key not enabled.**
- 25 - **Display.**

6.2 ADDITIONAL PUSH-BUTTON PANEL - DESCRIPTION OF CONTROLS



26 - **Selector** for switching from the automatic cycle to the manual cycle and vice versa:

position  : manual cycle  
 position  : automatic cycle.

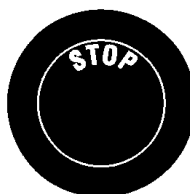


27 - Carriage progress/return **selector**:

position <<< : carriage return  
 position >>> : carriage progress.



28 - **Emergency push-button**. It stops the feeder. The feeder can be restarted only after the push-button has been manually released.





### 6.3. BAR STOCK - CHARACTERISTICS AND PREPARATION

The bar stocks must comply with the features shown in the table.

	Model	
	14	15
Min. bar diameter	ø 5 mm	
Max. bar diameter	ø 80 mm	
Min. bar length	250 mm	
Max. bar length	1400 mm	1560 mm



**DANGER - WARNING:** The maximum stock length must be contained within the lathe spindle length.



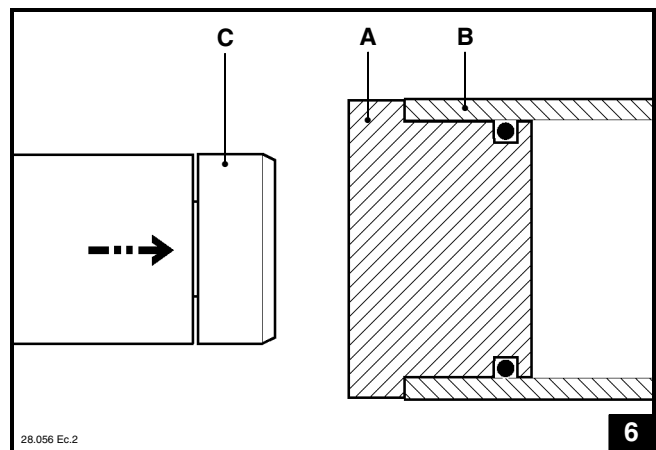
**CAUTION:** Do not feed bars having a different size than that prescribed by the Manufacturer.

#### □ Bars

- Bars should not have too much excess flash at their fore end. This would affect their feeding into the lathe collet.

#### □ Tubes

- Tubes should not have too much excess flash at their fore end. This would affect their feeding into the lathe collet.
- Prepare a cap **A** (fig. 6) to mount into the rear end of the tube **B** in order to avoid that:
  - the thrust of the bar pusher **C** is not transmitted to the tube **B**.
  - the lathe coolant flows out in the feeder.



**6.4. TOOLING AND STARTING THE AUTOMATIC CYCLE - OPERATION SEQUENCE**

Bar feeder tooling and automatic cycle starting sequence for the first bar feeder start, are to be found below.

- Adjust the feeder according to the type of bar to be machined (paragraph 5.3.).
- Program the feeder according to the type of work to be carried out (read the "Push-button panel operation guide").
- Prepare the bar stock (paragraph 6.3.).
- Load the bar magazine (paragraph 6.4.1).
- Start the automatic cycle (paragraph 6.4.2).

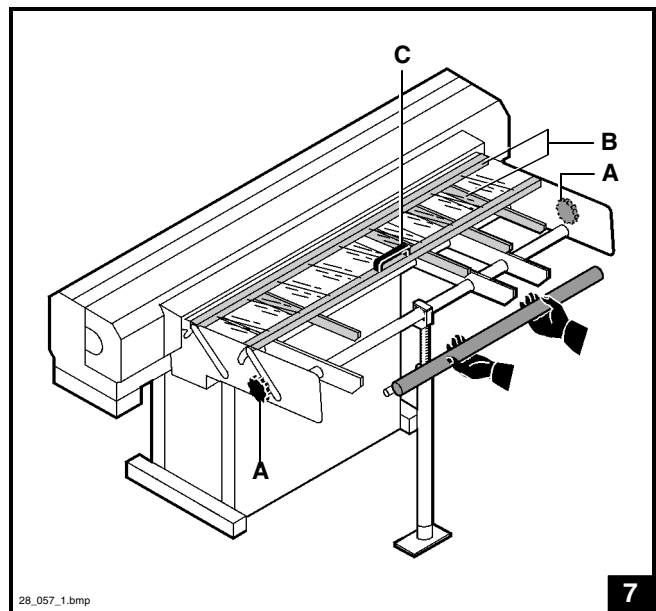
**6.4.1 Bar magazine - Loading**



**CAUTION: do not lift any loads exceeding the weight prescribed by the standards in force.**

To load the bars in the magazine, proceed as follows:

- If necessary, lift the covering frame; loosen the two knobs **A** (fig. 7) and lift the frame **B** using handle **C**.
- Load the magazine completely or in part, according to your own needs.  
When lowered, thick bars must be supported.



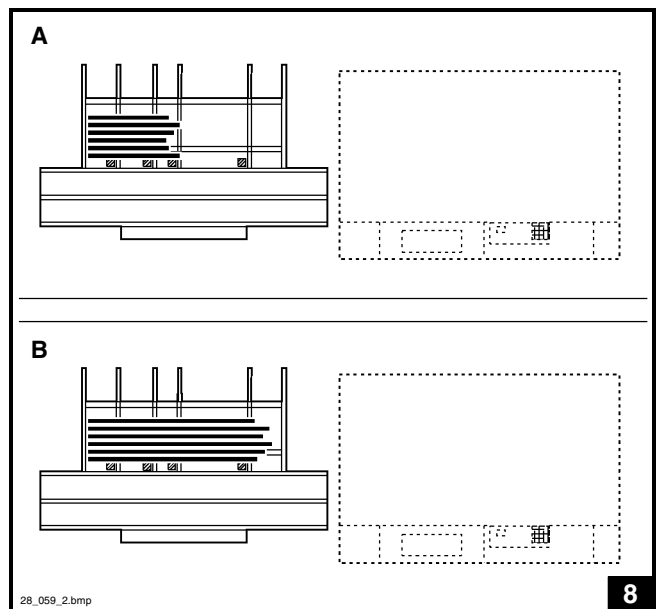
28\_057\_1.bmp

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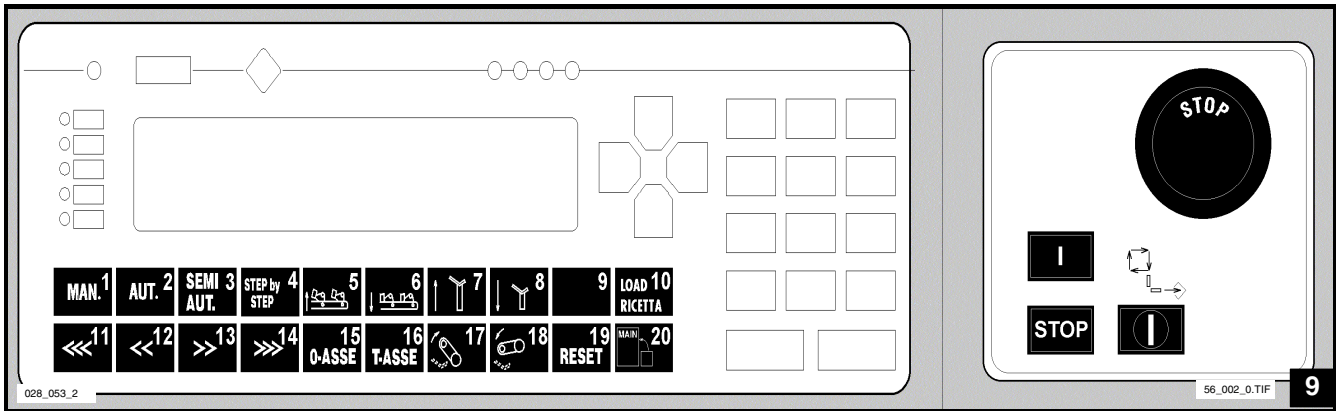
**CAUTION: max. total allowed weight of bars loaded in magazine is 240 Kg.**

- Place the bars in the magazine as shown in figure 8:  
**A** - arrangement for short bars  
**B** - arrangement for long bars.



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8



#### 6.4.2 Starting the automatic cycle (fig. 9)

– Switch on power supply from lathe.

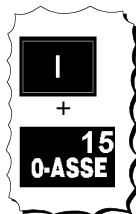
– To start bar feeder press  
(till indicator turns on)



– Press  
to select the manual function.



– Perform the "BAR FEEDER ZERO  
SETTING" as follows:  
press











– Press  
to lift the bar pusher.



– Press  
to drop the first bar into the guide.



- Press  
to lower the bar lifting device again. 
- Press  
to lift the guide. 
- Press  
to prefeed the bar. 
- Press  
to move the carriage back to its end-of-stroke position. 
- Press  
to lower the guide. 
- Press  
to lower the bar pusher. 
- Press  
to let the bar fore end come out of the lathe collet by a few millimetres. 
- Press  
to select the automatic function. The bar will be fed on according to the selected program. 
- Start the lathe cycle.
- The lathe collet closes, thus starting the machining. From now on, bars will be fed automatically as long as there are bars available or according the selected program.
- If you wish to restock bars in the magazine during machining, proceed as described in paragraph 6.4.1.

## 6.5. FEEDER STOP



**CAUTION:** After the feeder has stopped, do not move it manually. Use the push-buttons.

### Feeder emergency stop



**CAUTION:** if the emergency stop is used during lathe machining, before resuming work make sure that the sudden stop has not created any hazardous condition (e.g., if the tool was cutting chips, move the tool away from the workpiece before restarting the lathe).

To stop the feeder in an emergency, press an emergency push-button, either that of the lathe or that of the feeder.

### Feeder stop at work end



**CAUTION:** Do not use emergency buttons for normal machine stop.

– Complete the operations in your work schedule.

– Stop the feeder by pressing the button.



– Stop the lathe.

## 6.6. STARTING THE AUTOMATIC CYCLE FOLLOWING MANUAL CYCLE OPERATIONS (fig. 9)

It is the automatic cycle starting following: manual movements, parameter changes, servicing, etc.

When performing said operations, the lathe is in an "ALARM" mode, therefore follow the procedure below.

**The bar feeder must be in MANUAL mode, ready to start the automatic cycle.**

Set the bar feeder on the "WORK" phase

Press



Otherwise, messages showing the operations to perform will be accordingly displayed.

- ❑ **The bar feeder must shift to the AUTOMATIC mode, ready to receive the signal from lathe.**  
Bring the bar feeder to the "BAR FEEDER WAITING" phase.

Press



Should the bar feeder be set, it shifts automatically in the "BAR FEEDER WAITING" phase. Otherwise, messages showing the operations to perform will be accordingly displayed.

**6.7. STARTING THE AUTOMATIC CYCLE - RESUMING WORK FOLLOWING A SWITCHING OFF (fig. 9)**

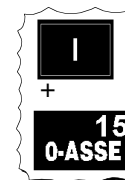
- ❑ **If the carriage has been moved while the bar feeder was not powered:**

- Switch on power supply from lathe.

- Press to start the bar feeder.



- Press to perform the "BAR FEEDER ZERO SETTING".



- Bring the carriage to the starting position.

- Press



- ❑ **If the carriage has not been shifted while the machine was not powered:**

- Switch on power supply from lathe.

- Press to start the bar feeder.



- Press








## 6.8. PERFORMING A “STEP BY STEP” CYCLE

### Introduction

This mode can be used for many reasons, as for instance;

- to check a complete bar change cycle;
- to check the bar feeder mechanics;
- to load a single bar with the intent of checking the facing;
- eccetera.

### Procedure

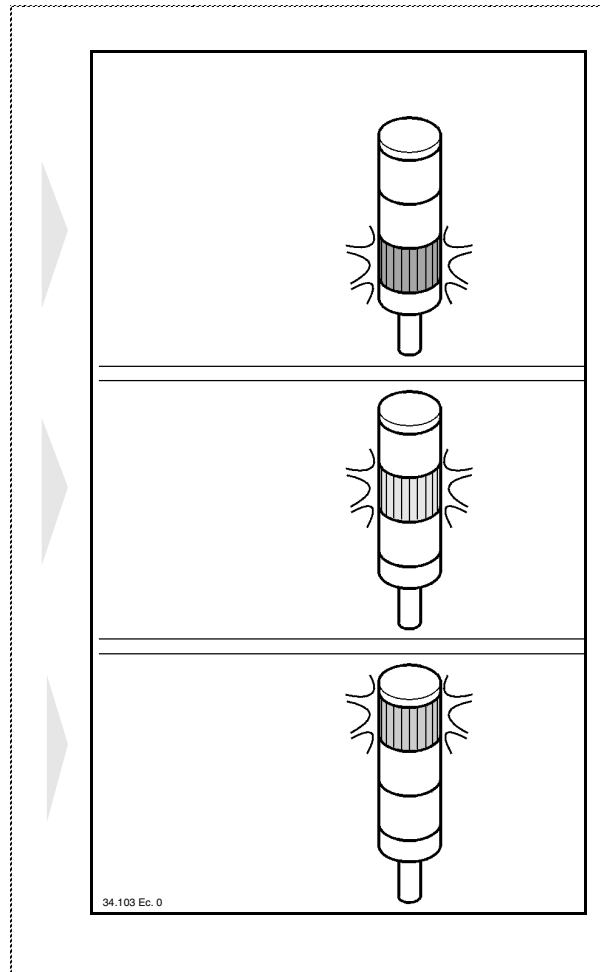
- Press  to start the bar feeder;
- Press  to select the semi-automatic cycle;
- Press  to select automatic cycle;
- Press , the bar feeder performs the first step;
- Press , the bar feeder performs the second step , and so on.

### 6.9. INDICATOR LIGHTS - Description of indications

**Red light;** signals that the bar feeder is not operating, or that it is in the manual mode.

**Green light;** it indicates that the bar feeder is in the automatic mode.

**Blue light;** signals that the bar feeder is carrying out the bar change, that it is not operating, or that manual motions are being carried out.





### 7.1. MAINTENANCE - GENERAL RULES



**DANGER - WARNING:** carry out machine maintenance and cleaning while the machine is off.

Regular cleaning and maintenance are critical to ensure smooth operation and longer machine service life.

It is recommended to regularly and effectively clean the machine, its accessories and work area, which also increases operator's safety.

Do not use petrol or solvents which would damage the painted and transparent parts, the cable sheaths etc.



**Oxidation can damage metal parts and electric equipment.**

To protect the machine when you expect not to use it for long periods of time, disconnect it from mains voltage and from compressed air supply and cover it with a suitable protective sheet.

Any protection used should not be fully closed or sealed at the base; it should have ventilation holes to make sure that air within the envelope cannot condense due to lack of circulation.

## 7.2. PERIODIC MAINTENANCE - TABLE

FEEDER SECTION	OPERATIONS	FREQUENCY			Periodically
		HOURS			
		200	1250	2000	
Feed chain	Tension check and adjustment	•			
Air filter	Check				•
Revolving tip	Check	•			

### 7.2.1 Air filter unit - Check (fig. 1)

**Filter (A)**

- Check if cup **B** is not full of condensate. If need be, drain through valve **C**.

**Lubricator (D)**

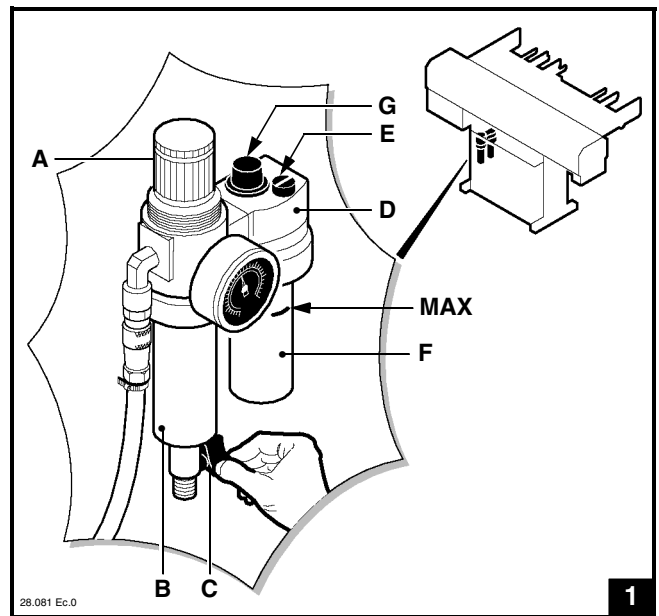
- Make sure that the oil level is not under the height of suction.

To top up, do the following:

- disconnect the compressed air supply;
- unscrew plug **E** or cup **F** to fill the tank; the oil level shall reach the **MAX.** reference.  
Oil properties: 9 to 11 cSt at 40°C ISO VG 10.

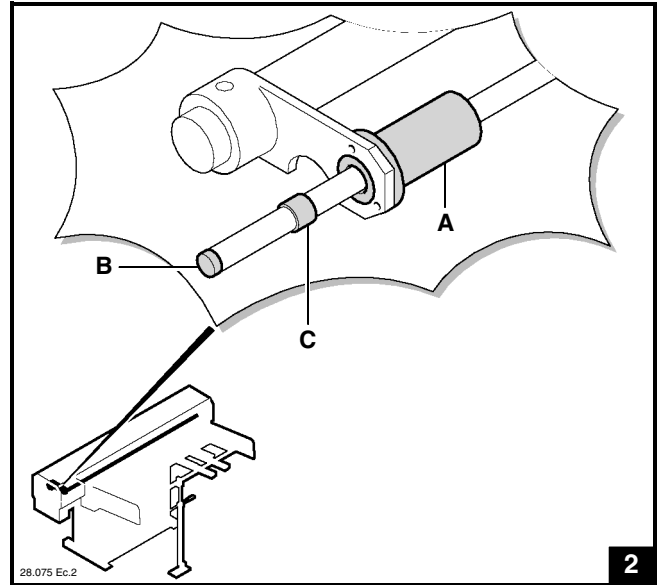
AIR LUBE OIL COMPARATIVE TABLE			
BP ENER-GOL HP10	SHELL TELLUS C10	MOBIL DTE 21	ESSO SPINESSO 10

- Reset the compressed air supply.
- Check the air lubrication (1-12 drops per 1000 l air); adjust through screw **G**.

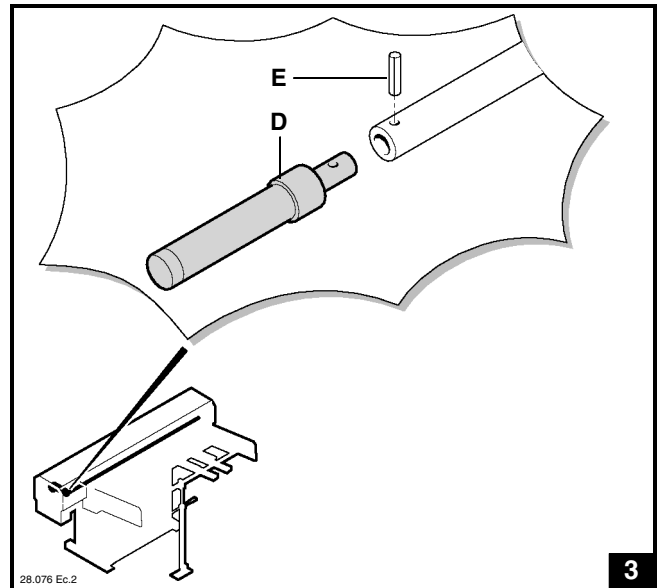


### 7.2.2 Revolving tip - Inspection

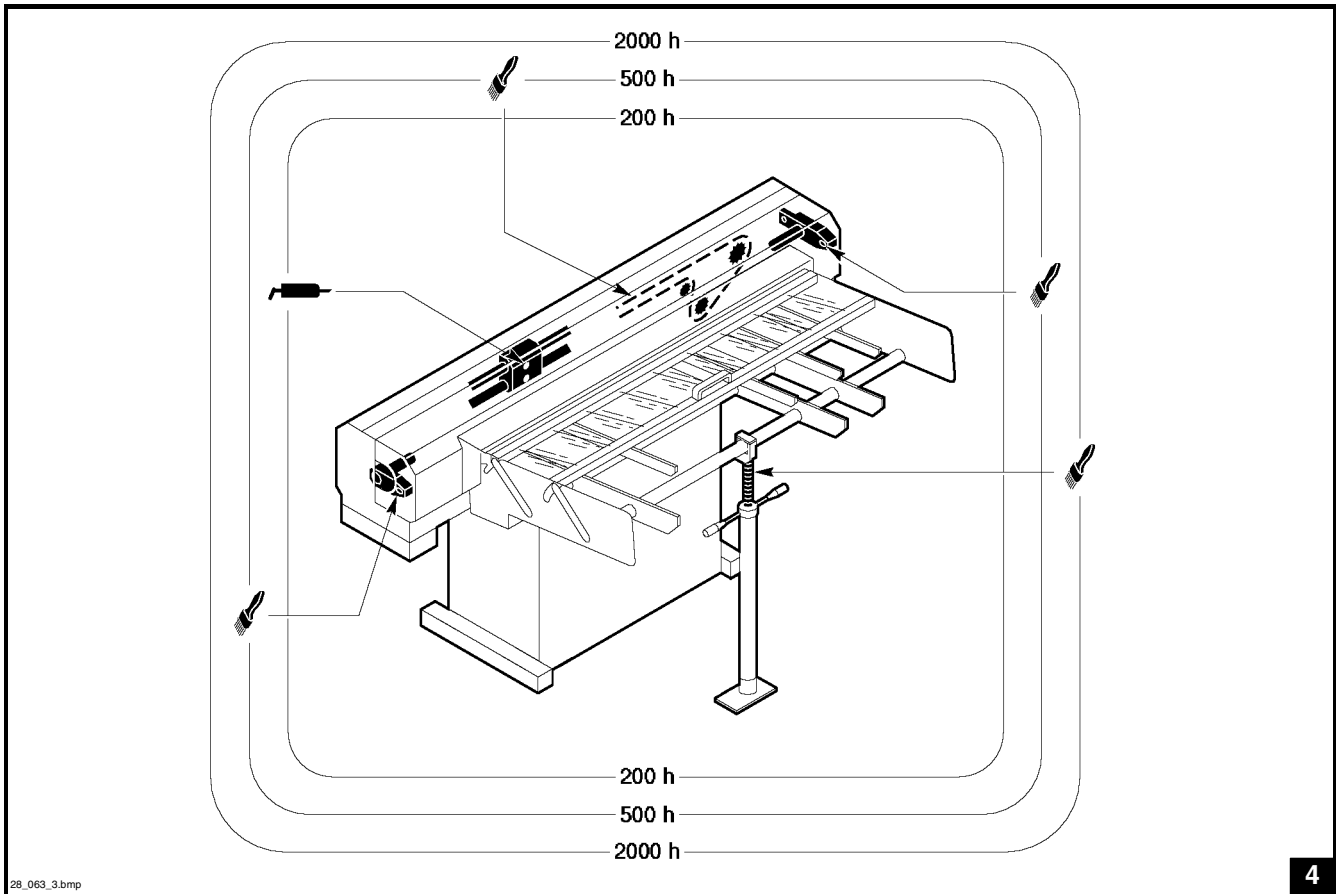
- Make the front end of the bar pusher come out of bushing **A** (fig.2).
- Open the rear guard.



- Make sure that shaft **B** and bearing **C** turn properly with no excessive backlash.
- In case of excessive backlashes, do the following:
- remove the bar pusher from its housing (see paragraph 5.3.6);
  - remove pin **E** (fig.3), replace revolving tip **D** and set a new pin.



### 7.2.3 Lubricating points (fig.4)



Lubricate



Lubricate

## 8.1. GENERAL TROUBLES

**THE FEEDER WILL NOT START**

**Cause** \_\_\_\_\_  
No power input.

**Remedy** \_\_\_\_\_  
*Check electric connection.*

**Cause** \_\_\_\_\_  
The guard is open.

**Remedy** \_\_\_\_\_  
*Close guard.*

**Cause** \_\_\_\_\_  
Emergency devices operated.

**Remedy** \_\_\_\_\_  
*Reset emergency devices.*

**Cause** \_\_\_\_\_  
Motor thermal cutout tripped.

**Remedy** \_\_\_\_\_  
*Reset motor overload cutout using special buttons.*

**FEEDER IN STARTING STATUS BUT AUTOMATIC CYCLE WON'T START**

**Cause** \_\_\_\_\_  
No lathe signal.

**Remedy** \_\_\_\_\_  
*Check electric connection to lathe.*

**THE PNEUMATIC DEVICES DO NOT RESPOND**

**Cause** \_\_\_\_\_  
No air.

**Remedy** \_\_\_\_\_  
*Check air system.*

**PREFEEDING AND FEEDING STOP SUDDENLY**

**Cause** \_\_\_\_\_  
Motor thermal cutout tripped.

**Remedy** \_\_\_\_\_  
*Remset the motor overload cutout using special buttons.*

## 8.2. BAR MAGAZINE - TROUBLES

**THE BAR WON'T ENTER MAGAZINE DURING LOADING**

**Cause** \_\_\_\_\_  
The magazine covering frame is too low.

**Remedy** \_\_\_\_\_  
*Adjust the position of the covering frame.*

**THE FIRST BAR IN THE MAGAZINE IS NOT LIFTED**

**Cause** \_\_\_\_\_  
Wrong setting of the bar selector.

**Remedy** \_\_\_\_\_  
*Adjust the selector.*

**Cause** \_\_\_\_\_  
The magazine is not inclined enough.

**Remedy** \_\_\_\_\_  
*Tilt the magazine.*

**THE SECOND BAR IN THE MAGAZINE IS LIFTED TOGETHER WITH THE FIRST**

**Cause** \_\_\_\_\_  
Wrong setting of the bar selector and/or of the magazine covering frame.

**Remedy** \_\_\_\_\_  
*Adjust the selector and/or the covering frame position.*

## 8.3. BAR FEEDING - TROUBLES

**THE BAR HAS DIFFICULTIES IN ENTERING THE LATHE SPINDLE**

**Cause** \_\_\_\_\_  
Wrong setting of the guide lifting limit switch.

**Remedy** \_\_\_\_\_  
*Adjust the limit switch.*

**Cause** \_\_\_\_\_

Bar passage guide adjustment too high.

**Remedy** \_\_\_\_\_

*Adjust bar passage guide to right height.*

**Cause** \_\_\_\_\_

Feeder not aligned with lathe.

**Remedy** \_\_\_\_\_

*Check and correct alignment.*

**THE CARRIAGE WON'T COMPLETE ITS PREFEED STROKE****Cause** \_\_\_\_\_

The bar is too long.

**Remedy** \_\_\_\_\_

*The max. length must correspond to the max. length contained in the lathe spindle.*

**THE BAR PUSHER WON'T REACH THE REAR END-OF-STROKE****Cause** \_\_\_\_\_

Excessive flash at bar end.

**Remedy** \_\_\_\_\_

*Remove bar flash before feeding.*

**BAR HAS DIFFICULTIES IN ENTERING LATHE COLLET****Cause** \_\_\_\_\_

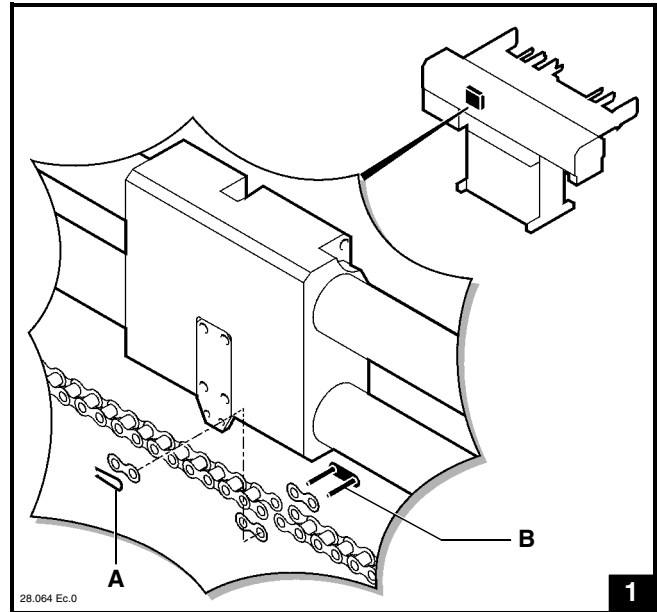
Wrong setting of the bar pusher working position.

**Remedy** \_\_\_\_\_

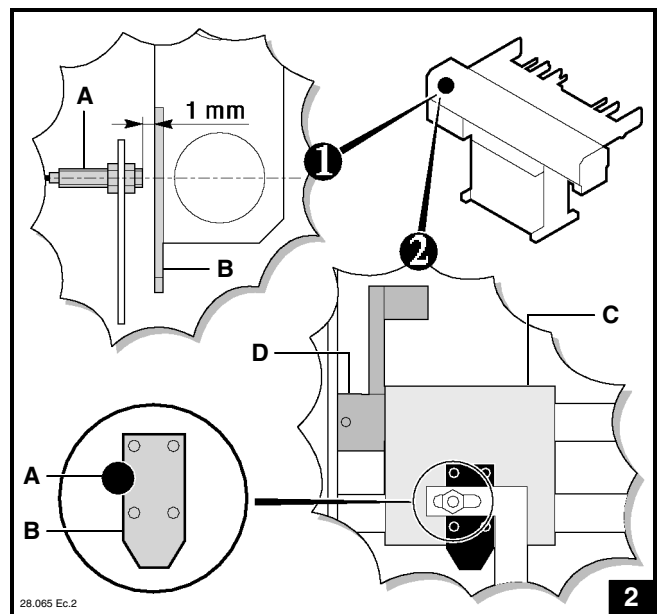
*Adjust the bar pusher working position.*

**9.1. FEED CHAIN - REPLACEMENT (fig. 1)**

- Remove the front guard.
- Slacken the chain (see paragraph 5.2.1).
- Remove the fork pin **A** and the link **B**.
- Replace the chain.
- Fit the link **B** and the fork pin **A** back in their position.
- Stretch the chain (see paragraph 5.2.1).
- Install the front guard.

**9.2. CARRIAGE BACK LIMIT SENSOR - REPLACEMENT (fig. 2)**

- Remove the front guard.
- Replace the sensor **A** and fit the new sensor by proceeding as follows:
  - 1 - keep the sensor 1 mm far from plate **B**;
  - 2 - moving carriage **C** backwards, the sensor LED shall turn on when the carriage abuts against lever **D**. The display shall show a -3,0 to -4,0 mm displacement.



### 9.3. KEYBOARD BATTERY REPLACEMENT (fig. 3)

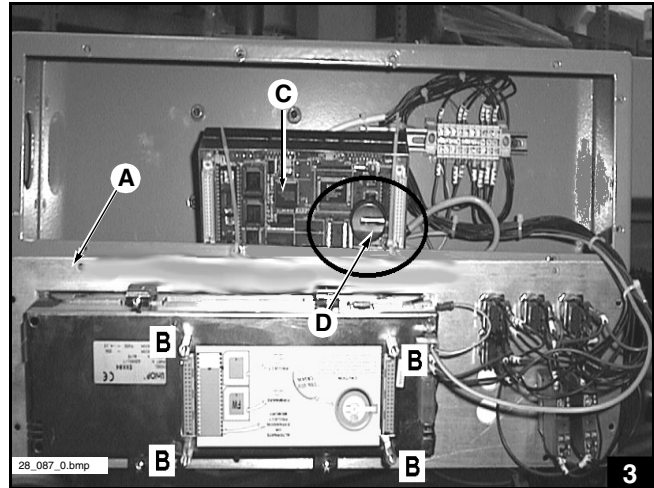
Replace the battery every year or when battery signalling lamp **23-●(?)** sends a blinking red signal.



**INFORMATION:** If no replacement takes place, date and hour disappear from the display.

Replace the battery as follows:

- Cut off the bar feeder supply.
- Unscrew the key-board's panel **A**.
- With a screwdriver, loosen the 4 corner screws **B** in the rear double housing **C** holding the communication ports.
- Remove the double rear housing **C** keeping it parallel to the surface it was fastened to.
- Remove the battery **D** from its compartment.
- Insert the new battery (type CR2430 3 volts, lithium)



**DANGER - WARNING:** Battery explosion danger if inserted with reversed polarity.

- Fix the double housing **C** to the panel again and tighten the 4 screws **B**.
- Connect the bar feeder and check that the battery charge is signalled.

### 9.4. SOSTITUZIONE BATTERIA PLC (fig.4)

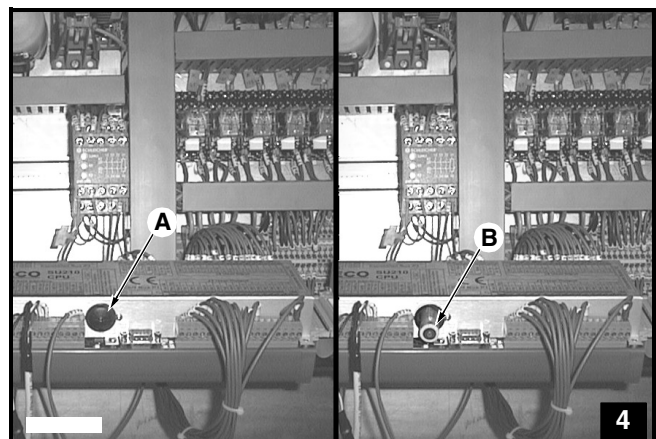
Replace the battery every year.



When the message "PLC battery exhausted" appears on the display of the control panel, replace the battery within a day. If no replacement takes place, the data of the "PLC/CN software" are cancelled.

Replace the battery as follows:

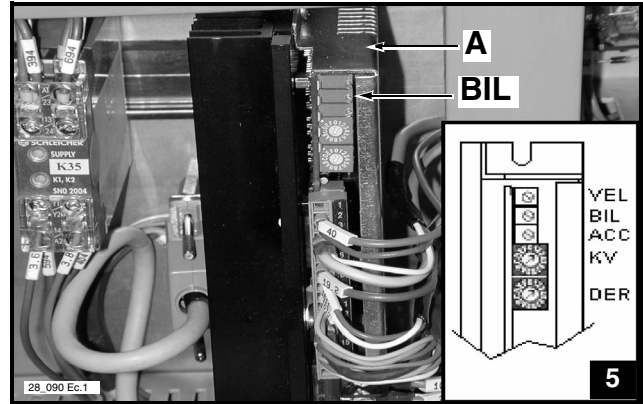
- Loosen plug "A" and extract battery "B" from its compartment.
- Insert new battery (type AA 3,6 volts, lithium) correctly and screw plug "A" tight.





### 9.5. FEED MOTOR DRIVE - Replacement

- Disconnect power and remove the faulty drive **A** from its seat (fig. 5); settle the new drive and power the feeder back on.
- Motor setting should now be checked (function T. offset); this operation is also necessary if one of the boards needs replacement.
- Move the bar-pusher to a position where it can move forwards or backwards.



press: **16** with bar feeder in “MANUAL MODE”.

**T.ASSE**

the bar-pusher should not move (not even by decimal displacements, see the display).

- If bar pusher travel does not stop within few seconds, motor set-up must be performed.



**DANGER - WARNING: live control panel, danger of electric contact.**

Turn the screw (BIL) clockwise or counterclockwise with small sharp movements until the bar-pusher is stopped.

- Check the setting that you have carried out:

press: **16** with bar feeder in “MANUAL MODE”.

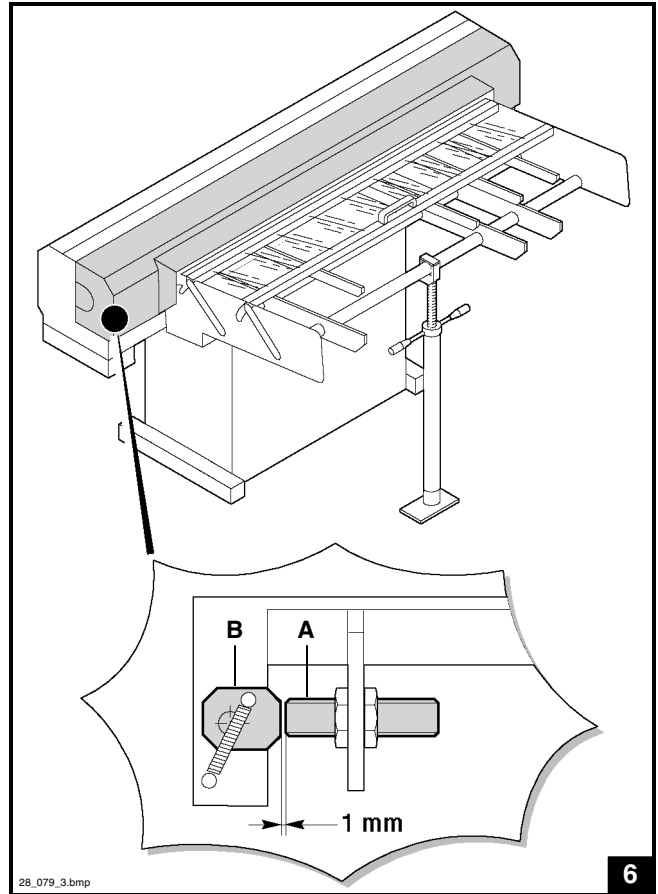
**T.ASSE**

the bar-pusher should not move (not even by decimal displacements, see the display).

- Restore the bar feeder initial conditions.

**9.6. SENSOR OF THE SHORT FEED DOOR - REPLACEMENT (Fig. 6)**

- Open the rear guard.
- Replace sensor **A** keeping 1 mm distance from came **B**.



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# VIP 80

## AUTOMATIC BAR FEEDER

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03/11/99



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## **REQUEST FOR ASSISTANCE**

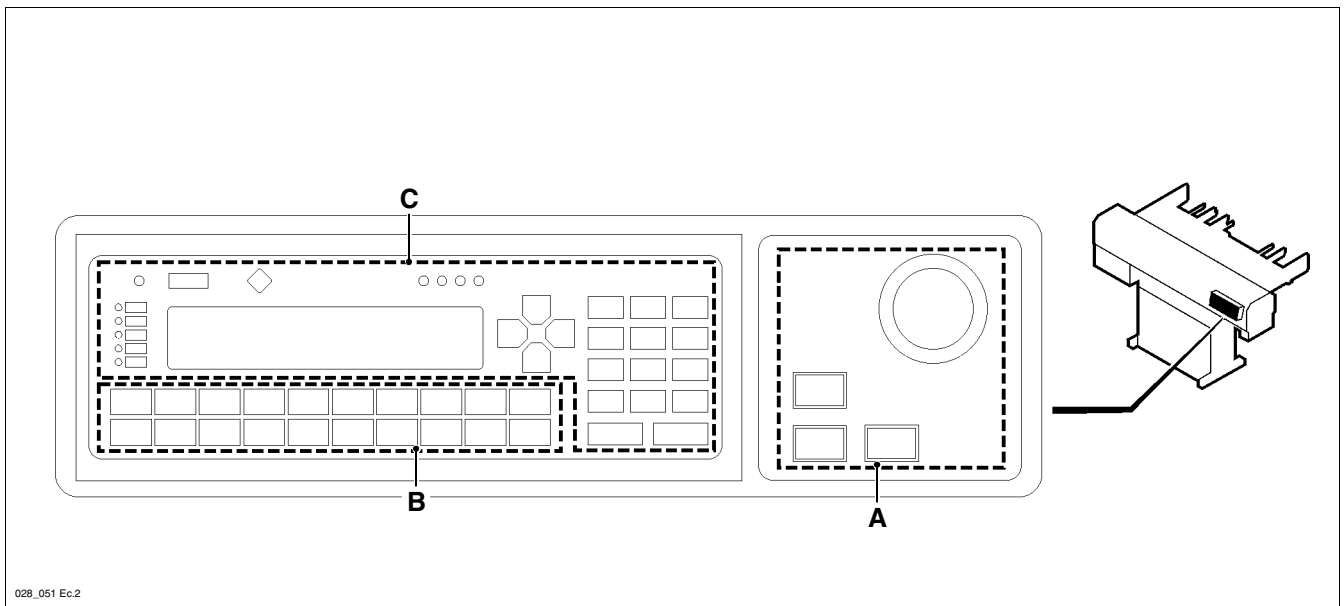
- A LIST OF GENERIC PARAMETERS
- B LIST OF BAR FEEDER PHASE PARAMETERS
- C LIST OF REFERENCE VALUE PARAMETERS
- D LIST OF AXIS FUNCTION PARAMETERS
- E LIST OF INTERFACE PARAMETERS
- F LIST OF GENERIC PARAMETERS
- G HARDWARE IDENTIFICATION DATA

(\*) The pages of this paragraph may not be enclosed. The manufacturer reserves the right to spread the information contained in this paragraph.





## 1.1. PUSH BUTTON PANEL - Control description




**A - Main controls.**

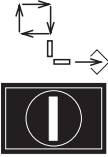


**B - Controls for manual operation.**


**C - Display controls and LEDs.**

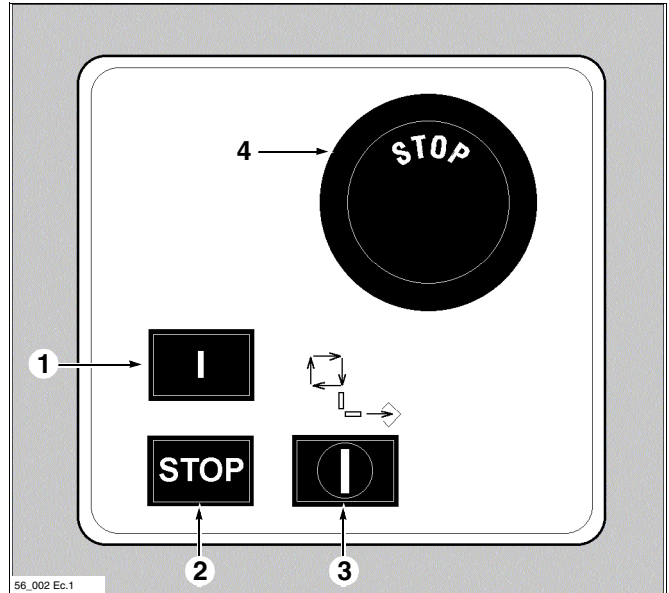
**□ Main controls**

1 -  **Green lighted push-button**; it starts the feeder. Press the key and keep it pressed until the indicator light corresponding to the key itself turns on.

2 -  **Red push-button**; it stops the feeder.

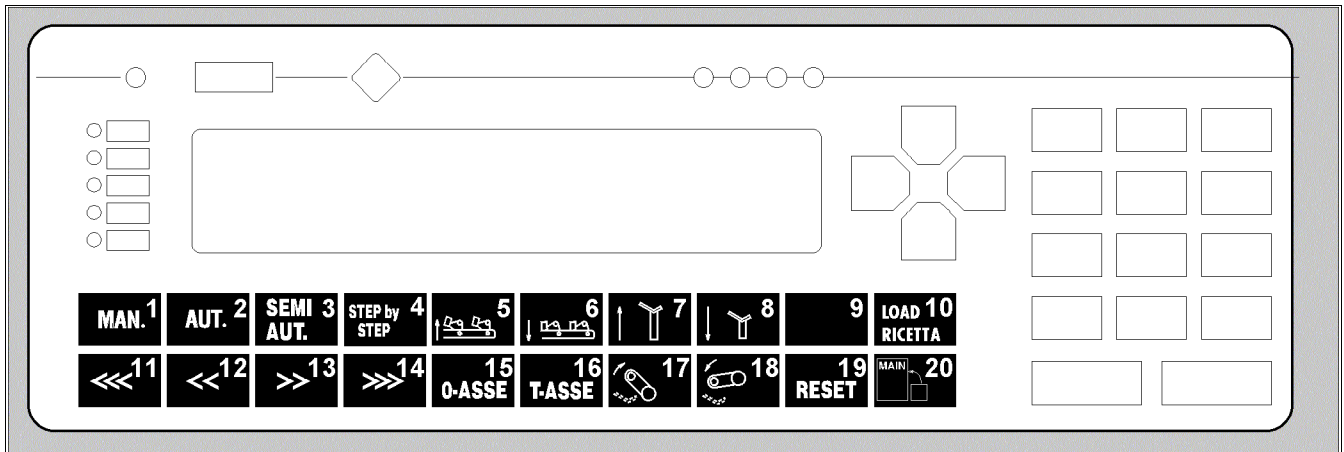
3 -  **Key-operated two-position selector**  
 Position : the push-button panel is enabled for the "message display" mode.  
 Position : push-button panel enabled to data entering mode.

4 -  **Emergency push-button**; it stops the feeder. The feeder can be restarted only after the push-button has been manually released.



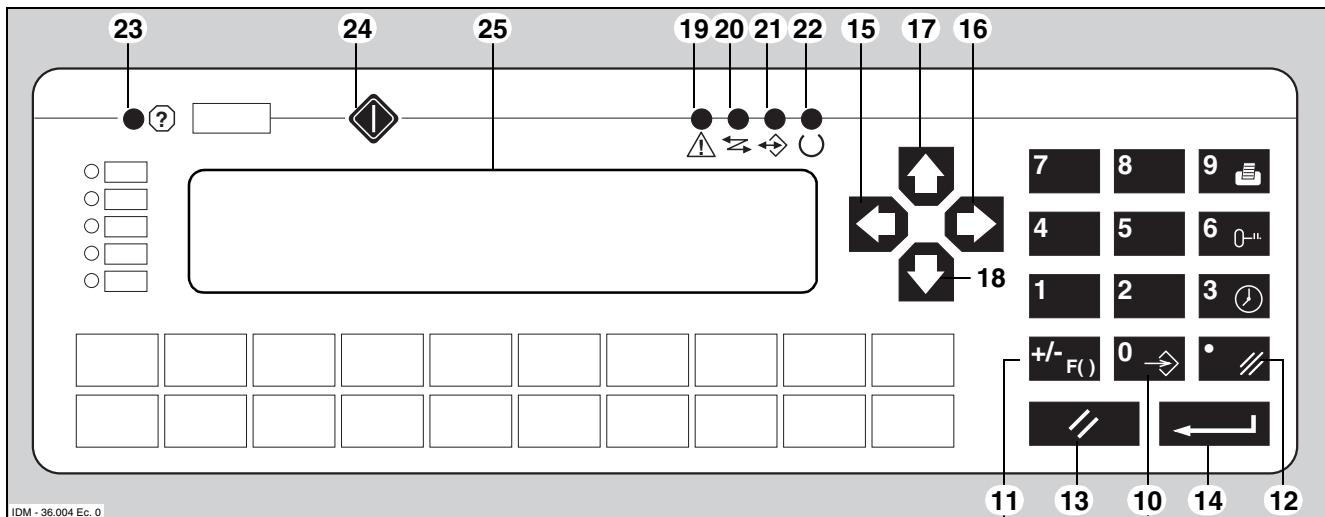
56\_002 Ec.1



















## □ Programming and manual functions controls

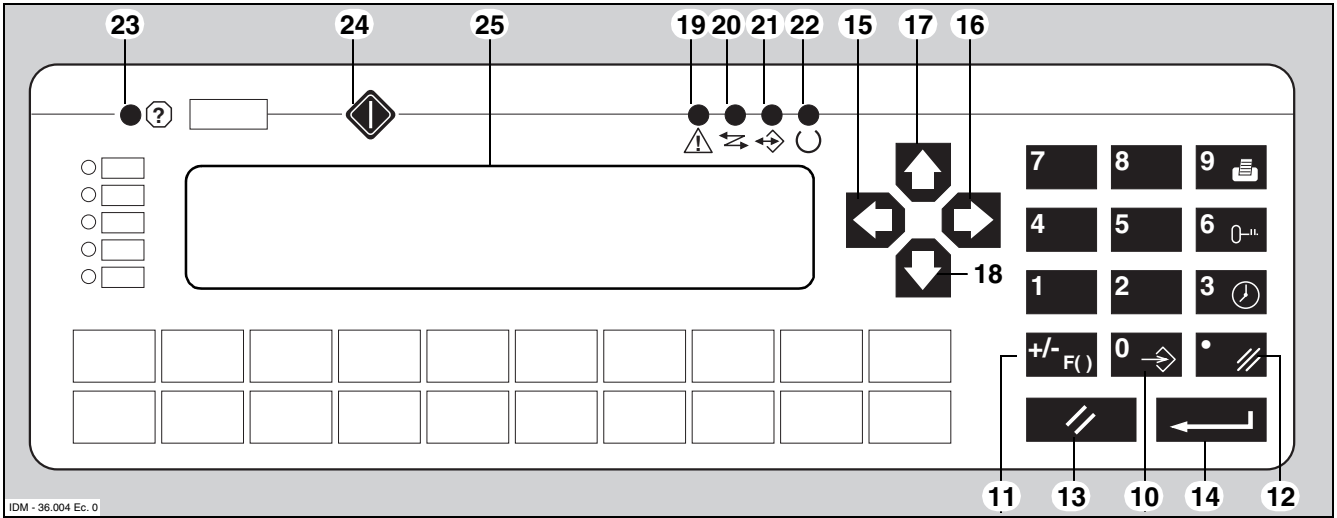


- |  |   |
|--|---|
| <p>1 -  <b>MAN. 1</b> Key to select bar feeder manual operation.</p> <p>2 -  <b>AUT. 2</b> Key to select bar feeder automatic operation.</p> <p>3 -  <b>SEMI 3 AUT.</b> Key for selecting semiautomatic functioning of the bar feeder. Pressing it selects the function, pressing it again cuts off the selection.</p> <p>4 -  <b>STEP by 4</b> Key to control a step-by-step operating cycle. If pressed, the bar feeder performs the first step, if pressed again the bar feeder performs the second step, and so on.</p> <p>5 -  <b>5</b> Key to lift the bar lifting device.</p> <p>6 -  <b>6</b> Key to lower the bar lifting device.</p> <p>7 -  <b>7</b> Key to lifting guide channel.</p> <p>8 -  <b>8</b> Key to lowering guide channel.</p> <p>10 -  <b>LOAD 10 RICETTA</b> Key for inserting default values in the parameters according to a special procedure.</p> <p>11 -  <b>11</b> Key for manual forward movement of bar pusher at high speed.</p> | <p>12 -  <b>12</b> Key for manual forward movement of bar pusher at low speed.</p> <p>13 -  <b>13</b> Key for manual backward movement of bar pusher at low speed.</p> <p>14 -  <b>14</b> Key for manual backward movement of bar pusher at high speed.</p> <p>15 -  <b>15 O-ASSE</b> Key for "BAR FEEDER ZERO SETTING". It must be pressed only after key  has been pressed; once the carriage has started moving, they can be released.</p> <p>16 -  <b>16 T-ASSE</b> Key to adjust the motor for the bar pusher motion. Never press it during daily operation of bar feeder.</p> <p>17 -  <b>17</b> Key for bar pusher lifting.</p> <p>18 -  <b>18</b> Key for bar pusher lowering.</p> <p>19 -  <b>19</b> Key to "RESET".</p> <p>20 -  <b>20</b> Key to recall "MAIN MENU".</p> |
|--|---|







**□ Display controls and LEDs**



- |   |   |
|---|---|
| <p>1 -  <b>Key</b> for numerical value 1.</p> <p>2 -  <b>Key</b> for numerical value 2.</p> <p>3 -  <b>Key</b> for numerical value 3 and to access the date and hour programming mode.</p> <p>4 -  <b>Key</b> for numerical value 4.</p> <p>5 -  <b>Key</b> for numerical value 5.</p> <p>6 -  <b>Key</b> for numerical value 6 and to access protected parameter entering mode.</p> <p>7 -  <b>Key</b> for numerical value 7.</p> <p>8 -  <b>Key</b> for numerical value 8.</p> <p>9 -  <b>Key</b> for numerical value 9.</p> <p>10 -  <b>Key</b> for numerical value 0 or to recall selection cursor.</p> <p>11 -  <b>Key</b> for “greater” or “less” sign or for displaying “Push-button panel Software” and “PLC/CN Software” identification data.</p> | <p>12 -  <b>Key</b> for “comma” sign.</p> <p>13 -  <b>Key</b> for “CLEAR” function:<br/> <ul style="list-style-type: none"> <li>• to stop selection function,</li> <li>• to return to the value which had been displayed before the non-confirmed modification,</li> <li>• to return to the page shown after setting date and time.</li> </ul> </p> <p>14 -  <b>Key</b> for “ENTER” function to confirm entered data.</p> <p>15 -  <b>Key</b> to recall the previous parameter or to move the selection cursor left.</p> <p>16 -  <b>Key</b> to recall the next parameter or to move the selection cursor right.</p> <p>17 -  <b>Key</b> to scroll page upwards or to move selection cursor upwards or to increase by one the value in the date and hour programming mode.</p> <p>18 -  <b>Key</b> to scroll page downwards or to move selection cursor downwards or to decrease by one the value in the date and hour programming mode.</p> |
|---|---|



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- 19 - ●** **Red LED:**  
 *OFF mode - indicates that there is no signal on the display;*  
*ON mode - indicates that there is a signal on the display.*
- 20 - ●** **Green LED:**  
 *BLINK mode - signals that the display does not interact with the PLC correctly;*  
*ON mode - signals that the display interacts with the PLC correctly.*
- 21 - ●** **LED not enabled.**  

- 22 - ●** **Green LED:**  
 *OFF mode - signals that the display is not active;*  
*ON mode - signals that the display is active.*
- 23 - ●** **Green LED:**  
 *OFF mode - signals that no key is pressed;*  
*ON mode - signals that any key is pressed.*  
**Red LED:**  
*status BLINK - indicates that the keyboard battery needs to be replaced;*  
*ON state - indicates serious problems in the keyboard.*
- 24 - ** **Key not enabled.**
- 25 - Display.**

1.2. MAIN SCREENFUL - Description

When loading is on, the following screenful appears on the display:

it appears:

Bar	feeder	waiting													
MANUAL MODE															
Position	from			'0'						3.34	(mm)				
Position	from	'F'	ideal							144.66	(mm)				

press:



it appears:

Position	from			'0'						3.34	(mm)				
Position	from	'F'	ideal							144.66	(mm)				
Total	workpieces									50					
Speed											(mm/sec)				

press:



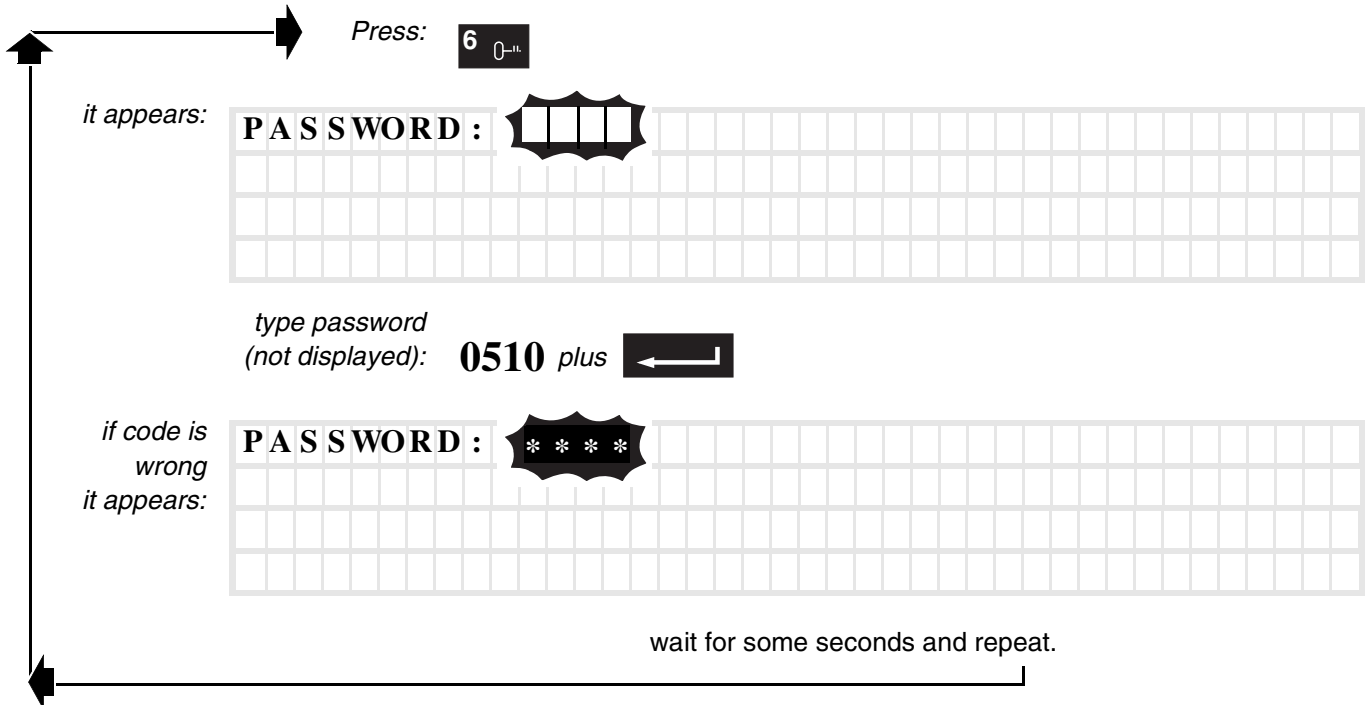
to return to the initial screenful

If the operator needs to reset the workpiece counter

Display the screenful:

it appears:

Position	from			'0'						3.34	(mm)				
Position	from	'F'	ideal							144.66	(mm)				
Total	workpieces									50					
Speed											0	(mm/sec)			



if code is correct, the last screenful displayed appears.

Press: **0**

it appears:

P o s i t i o n	f r o m	' 0 '	3 . 3 4 ( m m )
P o s i t i o n	f r o m	' F ' i d e a l	1 4 4 . 6 6 ( m m )
T o t a l	w o r k p i e c e s	<b>50</b>	
S p e e d			0 ( m m / s e c )

### To stop the reset function

press:



the parameter value stops blinking. Besides, if the value has been modified but the modification has not been saved, the valid value is the one preceding the modification.


### To start the reset function

press: **0** plus

### 1.3. DATE AND CLOCK - Programming

Access data entering mode

turn the selector:  onto position 



recall "MAIN MENU"

press: 

it appears:

5 - 0 2 - 0 0										1 2 : 0 9 : 4 0									
* * * M E N U * * *																			
-----																			
( G B )					( P a r . 0 )					( C o d e 0 )					→) M o v e				

Enter date and time programming mode

press: 

it appears:

DATE	<b>5</b>	-	0	2	-	0	0												
TIME	1	2	:	0	9	:	4	0											

#### If date and time programming is needed

Day setting

press:  or 

press: 

Month setting

press:  or 

press: 

Year setting

press:  or 

press: 



Hour setting

press:  or 

press: 

Minutes setting

press:  or 

press: 


Seconds setting

press:  or 

press: 

**If only one value programming is needed**

For instance, if only the hour programming is needed

press:  more than once to move the selecting cursor onto the hour value.

Hour setting

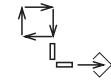

press:  or 

**Exiting from date and time programming mode**

Recall "MAIN MENU"

press: 

exit from data entering mode

turn the selector:  onto position 



## 2.1. OPERATOR PARAMETERS - Description and setting

### Introduction

These parameters concern programming of the bar feeder automatic cycle; the relative values must be entered on the basis of work requirements and type of machine to which the bar feeder is connected.



**CAUTION:** each parameter has a specific default value (preset value). If the operator does not change these values, the bar feeder performs the automatic cycle according to them.

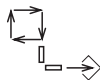


**INFORMATION:** it is not necessary to enter all parameter values; whether they are to be partially or totally entered depends on the type of lathe or the type of process adopted.

Some parameters concern the machining phase or the bar change phase. During the machining phase, the lathe is fed by the bar feeder. During the bar change phase, the bar feeder carries out the bar change.

### □ Accessing the parameters

Access to data entering



turn the selector:



onto position →

recall "MAIN MENU"

press:



it appears:

date										time									
5 - 0 2 - 0 0										1 2 : 0 9 : 4 0									
* * * MENU * * *																			
-----																			
( GB )					( P a r . 0 )					( C o d e 0 )					→) M o v e				
language in which information is displayed										operations that can be carried out									

**□ Selecting the parameters in sequence**

press:  or 

parameter

appears. Ex:

no . 1 Bar end adjustment															
( mm )															
-----															
Ins ) Press ENTER ) to confirm												←→ ) Move			


operations that can be carried out

**□ Selecting the parameter required**

the parameter value blinks  
 press: 


appears:

5 - 0 2 - 0 0						1 2 : 0 9 : 4 0					
*** MENU ***											
-----											
( GB )			( Par . 0 )			( Code 0 )			→ ) Move		

press: 

appears:

5 - 0 2 - 0 0						1 2 : 0 9 : 4 0					
*** MENU ***											
-----											
( GB )			( Par . <b>0</b> )			( Code 0 )			→ ) Move		

enter the number of the parameter required. Example: **20** plus 

appears. Ex:

no . 2 0 Cycle start lag															
( sec )															
-----															
Ins ) Press ENTER ) to confirm												←→ ) Move			



**□ Entering or modifying the subparameter values**

The desired subparameter must be displayed.

N	e	w	s	p	e	e	d											1	0	0	0	(	m	m	/	s	e	c	)												
C	o	n	n	e	c	t	i	o	n	a	c	c	e	l	e	r	a	t	i	o	n	1	1	0	0	(	m	m	/	s	e	c	*	s	e	c	)				
N	e	w	s	p	e	e	d	p	o	i	n	t																													

press: 0

The subparameter value blinks

appears. Ex:

N	e	w	s	p	e	e	d																																				
C	o	n	n	e	c	t	i	o	n	a	c	c	e	l	e	r	a	t	i	o	n	1	1	0	0	(	m	m	/	s	e	c	*	s	e	c	)						
N	e	w	s	p	e	e	d	p	o	i	n	t																															

type the value to assign. Ex: 1050 plus

it appears:

N	e	w	s	p	e	e	d																																						
C	o	n	n	e	c	t	i	o	n	a	c	c	e	l	e	r	a	t	i	o	n	1	1	0	0	(	m	m	/	s	e	c	*	s	e	c	)								
N	e	w	s	p	e	e	d	p	o	i	n	t																																	

**Suspending the selection function**

premere:

The subparameter value stops blinking. In addition, if the value has been modified without saving, the valid value will be the previous one.

**□ Quitting the operator parameters**

Exit from data entering mode

turn the selector: onto position

## □ Parameters with self-learned values

A default value is assigned to the parameters.

Actually, some parameters are self-learned variables of the PLC, which vary during normal bar feeder operation.

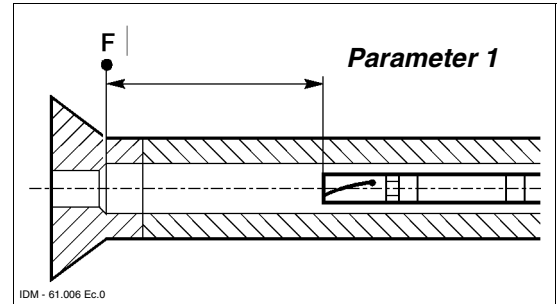
On the screenful reproduced on this manual, the self-learned value is represented by an asterisk (\*).

**i** **INFORMATION:** the values assigned to the parameters are organized into two categories. The first one comprises the values referring to the motor speed reduction ratio of reducer to 1/6 (standard values); the second one ( values in brackets ) includes the values referring to the motor speed reduction ratio of the reduce to 1/4.

### 2.1.1 Operator parameters - Description

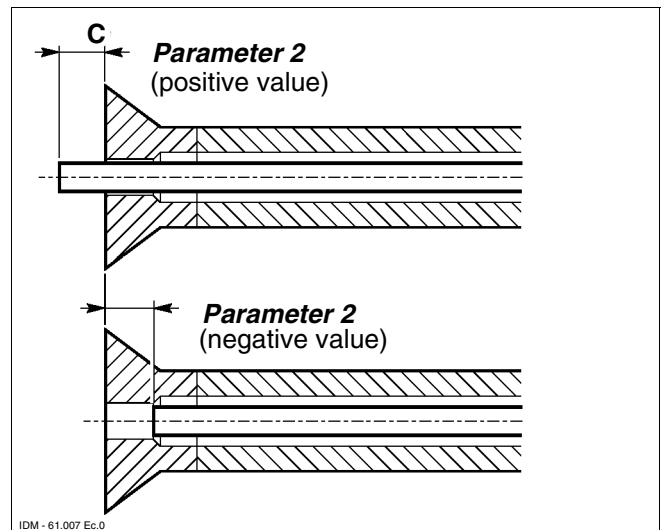
<b>1</b>	<b>no . 1 Bar end adjustment</b>	<b>: &gt; 100 ( mm )</b>	<b>( i n c h e s )</b>	
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Phase</td> </tr> <tr> <td style="text-align: center;"><b>machining</b></td> </tr> </table>			Phase
Phase				
<b>machining</b>				

Defines the position of the point at which the bar feeder must send the "END OF BAR" signal to the lathe. It is a value referred to point **F** (maximum bar pusher feed point), and corresponds to the length of the workpiece plus the thickness of the cutting tool.



<b>2</b>	<b>no . 2 Facing length</b>	<b>: &gt; 0 ( mm )</b>	<b>0 ( i n c h e s )</b>	
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Phase</td> </tr> <tr> <td style="text-align: center;"><b>bar change</b></td> </tr> </table>			Phase
Phase				
<b>bar change</b>				

Defines the movement of the bar head with reference to point **C** (facing point). Both positive and negative values can be entered.



<b>3</b>	<b>no . 3 Facing mode</b>	<b>: &gt; 0</b>	
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Phase</td> </tr> <tr> <td style="text-align: center;"><b>bar change</b></td> </tr> </table>		Phase
Phase			
<b>bar change</b>			

Defines the facing.

- 1** - "In position"; the bar is positioned at the point defined in **parameter 2**.
- 0** - "To the stop"; the bar moves past the point defined in **parameter 2** until it meets the bar stop or the tool.

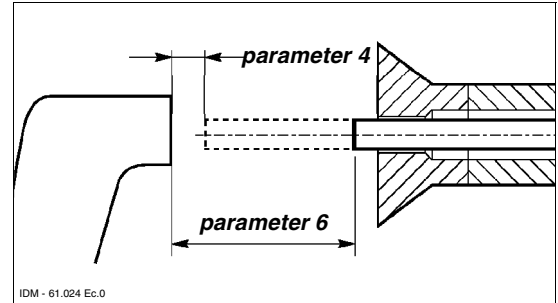


<b>4</b>	no . 4 Short feed safety									
	: >	0 ( mm )								0 ( inches )
Phase										
machining										

With each feed, it checks that the bar feeding corresponds to the value set at **parameter 6** while remaining within the tolerance set at **parameter 4**. If for any reason this does not happen, when the lathe disables the “FEEDING” signal the bar feeder goes into “ALARM”.

Set the tolerance.

**i** **INFORMATION:** this control is not active for the first piece during the bar change phase, nor for the first piece when switching from manual cycle to automatic cycle.

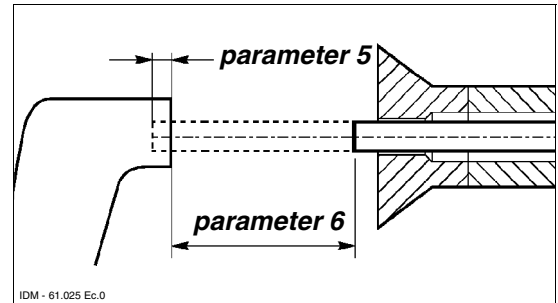


<b>5</b>	no . 5 Long feed safety									
	: >	0 ( mm )								0 ( inches )
Phase										
machining										

With each feed, it checks that the bar feeding does not exceed the value set at **parameter 6**, added to the value set at **parameter 5**. If for any reason this does not happen, the bar feeder goes into “ALARM”.

Set the tolerance.

**i** **INFORMATION:** On sliding headstock lathes, this parameter can be used to check for tool damage. Set this value to a few millimetres (max. 5 mm).

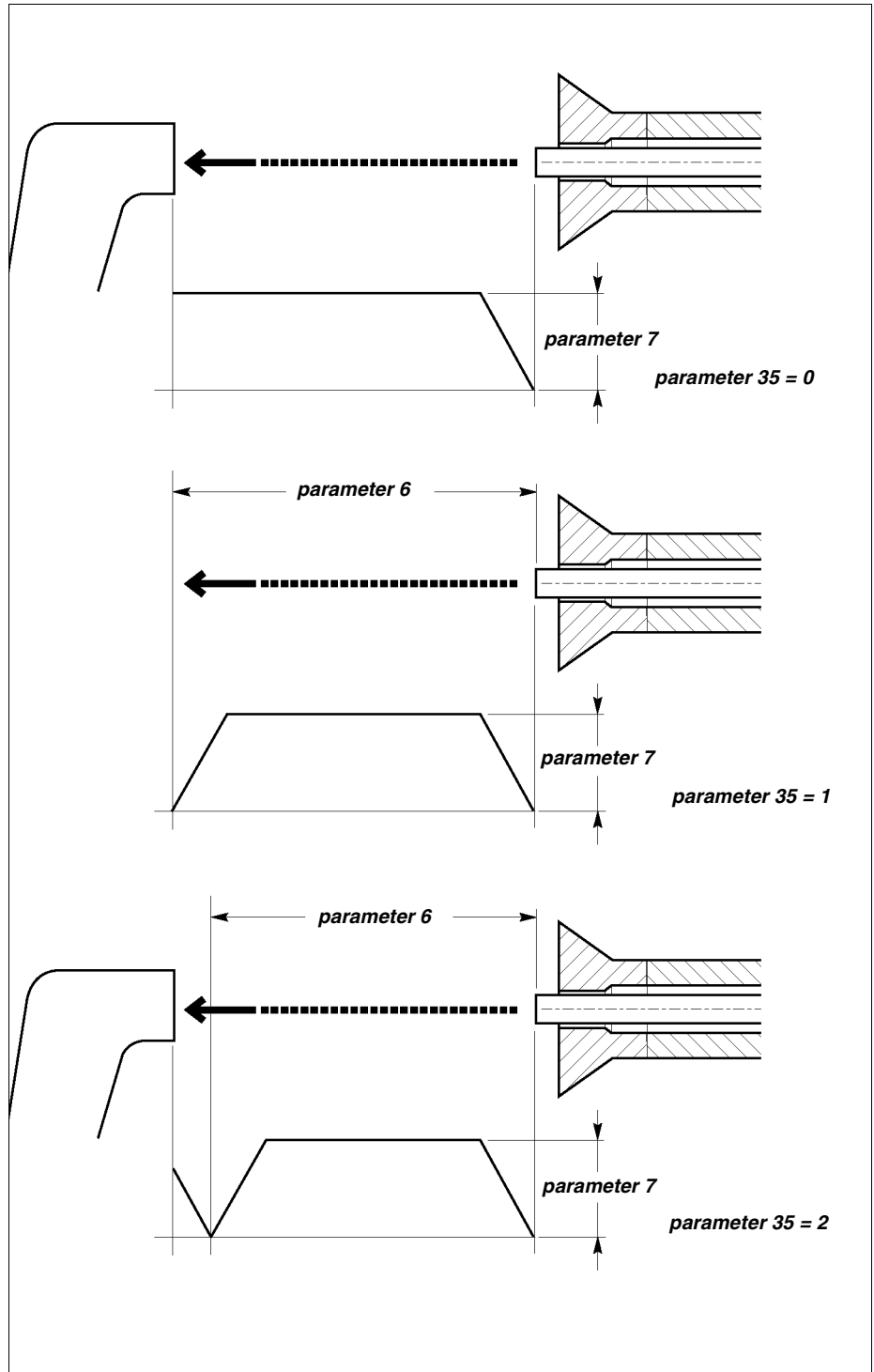


6

no. 6	Workpiece length	:
>	0 (mm)	( inches )

Phase  
machining

It defines the feeding control at every open collet.  
 This parameter is restricted by the value set at **parameter 35**.  
 When **parameter 35** is set on 0, it is necessary to set a value at **parameter 6**.



<b>7</b>	<b>no . 7 Open collet speed</b>
	: > <b>200 ( mm / sec )</b> <b>( 100 )</b>
Phase	
<b>machining</b>	

It defines the speed value in "FEEDING". Accepted values range from 0 to 500 mm/sec.

<b>8</b>	<b>no . 8 Open collet acceleration</b>
	: > <b>500 ( mm / sec * sec )</b> <b>( 280 )</b>
Phase	
<b>machining</b>	

Acceleration related to **parameter 7**. Accepted values range from 0 to 500 mm/sec<sup>2</sup>.

<b>9</b>	<b>no . 9 Open collet thrust delay</b>
	: > <b>0 ( sec )</b>
Phase	
<b>machining</b>	

At the "FEEDING" signal from the lathe, the bar pusher keeps running for the set time.

*Example of application: It must be used when the mechanical opening movement of the collet is slow (double-cone collet).*

<b>10</b>	<b>no . 10 Closed collet thrust delay</b>
	: > <b>1 ( sec )</b>
Phase	
<b>machining</b>	

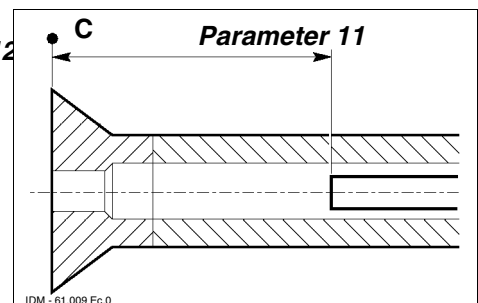
After the issue of the "COLLET CLOSED" signal by the lathe, the bar pusher continues to push for the set time.

*Example of application: it must be used when the mechanical closing movement of the collet is slow (double-cone collet).*

<b>11</b>	<b>no . 11 Collet entry slowing down</b>
	: > <b>200 ( mm )</b> <b>( inches )</b>
Phase	
<b>bar change</b>	

Defines the length of the slow speed section before the entry into the collet. This value is referred to point **C** (facing point).

Along this section the bar moves at the collect entry speed (**parameter 12**)



<b>12</b>	no . 12    C o l l e t   e n t r y   s p e e d
	: >            2 0 0 ( m m / s e c )
	( 1 0 0 )
Phase	
<b>bar change</b>	

Defines the slow speed value in the slow speed section (*parameter 11*). Accepted values range from 0 to 500 mm/sec.

<b>13</b>	no . 13    C o l l e t   i n l e t   t o r q u e
	: > 1 5 0
Phase	
<b>bar change</b>	

Defines the value of the push used by the bar pusher to feed the bar in the collect of the lathe. It is active in the slow speed section (*parameter 11*). Accepted values range from 0 to 550. The smaller the value set for *parameter 13*, the greater the torque delivered by the feeding motor.

**i** **INFORMATION:** the above description applies to bar feeders equipped with the adjusting board n. ARTECO B5N23 cod. 32020013. Otherwise, bar feeders self-learn the maximum thrust value of the bar change.

<b>14</b>	no . 14    I m p u l s e   n u m b e r
	: > 1 0
Phase	
<b>bar change</b>	

Defines the number of impulses applied to the bar to assist its feeding into the collet of the lathe. Acts anywhere in the slow speed section (*parameter 11*). Stage sequence:  
 – The bar moves forward in the slow speed section;  
 – The bar meets the obstacle (the collet). Impulses start;  
 – The bar enters the collet.

**i** **INFORMATION:** should the bar meet other obstacles before leaving the slowdown path, the bar feeder goes into "ALARM".

<b>15</b>	no . 15    I m p u l s e   s t r o k e	
	: > 1 0            ( m m )	( i n c h e s )
Phase		
<b>bar change</b>		

Defines the forward and backward strokes of the impulses (*parameter 14*).

**18**

**n o . 1 8 S p i n d l e i m p u l s e s o n**  
**: > 0 , 5 ( s e c )**

Phase  
**bar change**

Defines the duration of the ON impulse received by the lathe to turn the spindle. It is required to facilitate the feed of shaped bars into the collet.

Stage sequence:

- The bar moves forward in the slow speed section (**parameter 11**);
- The bar meets the obstacle (the collet) and the lathe receives the spindle rotation impulse of the set duration;
- The spindle slows down and stops (having the time defined at **parameter 19**);
- The bar receives the feed impulse;
- If the bar enters the collet, the cycle continues;
- If the bar does not enter into the collet, the previous stages are repeated.

**19**

**n o . 1 9 S p i n d l e i m p u l s e s o f f**  
**: > 2 ( s e c )**

Phase  
**bar change**

Defines the duration of the OFF impulse received by the lathe to slow down and stop the spindle before the subsequent rotation impulse (see description of stages at **parameter 18**).

**20**

**n o . 2 0 C y c l e s t a r t d e l a y**  
**: > 1 ( s e c )**

Phase  
**bar change**

When the bar reaches its facing position (**parameter 2**), there can be a delay of the lathe "CYCLE START" signal corresponding to the value set (K15).

*Example of application: A "CYCLE START" signal delay may be necessary if the spindle requires some time to reach its correct operating speed.*

**21**

**n o . 2 1 R e m n a n t h a n d l i n g**  
**: > 1**

Phase  
**bar change**

Defines bar remnant handling.

- 0 - "Not enabled"**
- 1 - "Ejection"**
- 2 - "Bar change advance"**

**0 - "Not enabled"**

Mode 0 is not enabled.

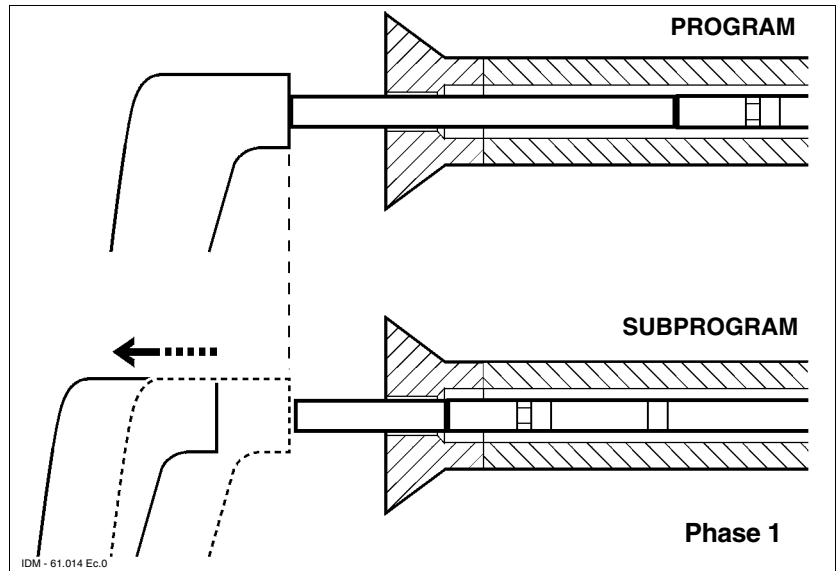
**Mode 1 - "Ejection" or 2 - "Bar change advance"**

**Introduction**

These modes can be implemented only if the lathe allows subprograms.

The subprogram must move away the stop after the "bar end" signal.

When the stop is moved away, the bar remnant can be ejected from the lathe side.



**1 - "Ejection"**

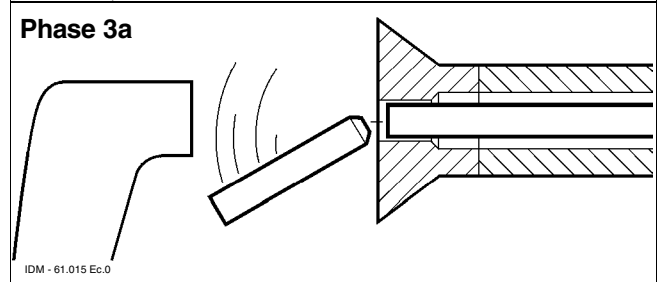
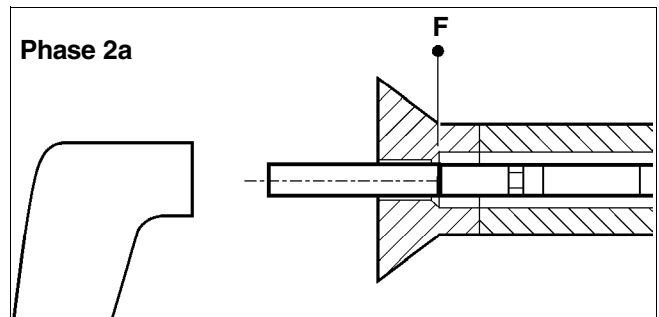
Either of two options are possible:

- a) *Ejection with the new bar.*
- b) *Ejection with the bar pusher.*

**a) Ejection with the new bar.**

Stage sequence:

- Phase 1** - The lathe receives the "END OF BAR" signal from the bar feeder, it completes the last workpiece, then enters the subprogram (bar stop removal) and displays the "FEEDING" and "BAR CHANGE" signals;
- Phase 2a** - The bar pusher moves forward until point **F** (max. bar pusher feed point) and the bar feeder carries out the bar change;
- Phase 3a** - The new bar, in its forward movement, ejects the bar remnant and moves to the facing position.

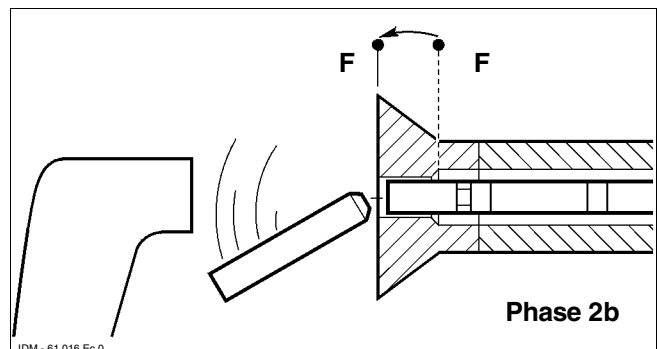


**b) Ejection with the bar pusher.**

Move point **F** (max. bar pusher feed point, **parameter 29**) flush with the collet.

Stage sequence:

- Phase 1** - The lathe receives the "END OF BAR" signal from the bar feeder, it completes the last workpiece, then enters the subprogram (bar stop removal) and displays the "FEEDING" and "BAR CHANGE" signals;
- Phase 2b** - The bar pusher moves forward to point **F** and ejects the bar remnant. The bar feeder performs the bar change.



**2 - "Bar change advance"**

Allows the bar feeder to perform the bar change while the lathe is beginning the machining of the last workpiece. The bar change starts in advance, without waiting for the end of the machining of the last workpiece and that the bar pusher has reached point F. The bar remnant is ejected with the new bar.

Conditions required.

- Set the interface signal 85, "LOADING CYCLE", to position 1 (=NC), which is already set by default, then set **parameter 21**, "FEEDING HANDLING", to mode 2
- Use the "LOADING CYCLE" signal from the lathe (if available).

Description of how the stages take place:

- The lathe receives the "BAR END" signal with the above conditions.
- the bar feeder actuates the bar pusher return, inserts the new bar into the guide channels and waits for the "FEEDING" and "BAR CHANGE" signals.
- the lathe has machined the last workpiece, so it enters the subprogram (bar stop removal) and the "FEEDING" and "BAR CHANGE" signals appear on the display.
- The new bar, in its forward movement, ejects the bar remnant and moves to the facing position.

<b>22</b>	n o . 2 2 O p e n c o l l e t t i m e o u t
	: > 0 ( s e c )
Phase	
<b>machining</b>	

This is the maximum time span of the "FEEDING" ("OPEN COLLET") phase. If for any reason the feed enabling signal (the "FEEDING" signal from the lathe) for the bar feeder exceeds the set time, the bar feeder goes into "ALARM".

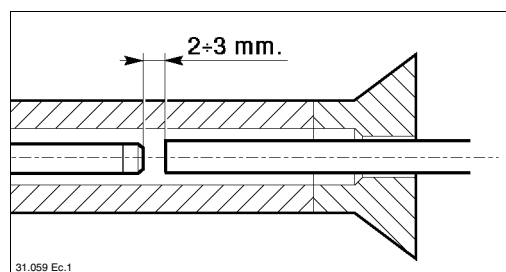
<b>23</b>	n o . 2 3 W o r k p i e c e t i m e o u t
	: > 0 ( s e c )
Phase	
<b>machining</b>	

Maximum machining time of a piece. If for any reason the workpiece machining takes longer than the set time, the bar feeder goes into "ALARM".

<b>25</b>	n o . 2 5 b a r p u s h e r r e t u r n c o l l e t c l o s e d
	: > 1 0 ( m m )
Phase	
<b>machining</b>	

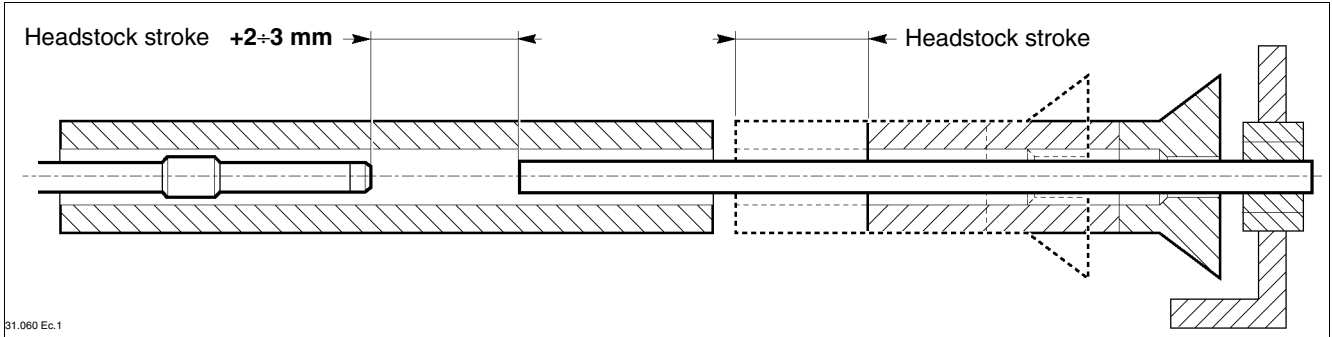
Controls the bar-pusher backwards movement occurring during lathe "COLLET CLOSING" phase.

**For fixed headstock and sliding steady rest lathes;** set a few millimetres shift, to avoid any contact between the bar-pusher and the bar during machining.



31.059 Ec.1

**Sliding headstock lathes:** enter the headstock stroke value, adding some millimetres to avoid any contact between the bar-pusher and the bar during machining.



**26**

no . 2 6 W o r k p i e c e s p r i o r t o l a t h e s t o p									
: > 0 ( 0 )									
Phase									
machining									

**0** - The parameter function is overridden.  
**>0** - When the set number of workpieces is reached, the bar feeder stops the lathe in "FEEDING".  
**Value>0** - Example of application.

Set 1000 workpieces

*it appears:*

no . 2 6 W o r k p i e c e s p r i o r t o l a t h e s t o p									
: > 1 0 0 0 ( 0 )									

Start the working cycle.  
 After 1000 machined workpieces, the bar feeder stops the lathe.

*it appears:*

no . 2 6 W o r k p i e c e s p r i o r t o l a t h e s t o p									
: > 1 0 0 0 ( 1 0 0 0 )									

To reactivate the working cycle, the value within brackets must be reset.

**27**

no . 2 7 M i n u t e s p r i o r t o l a t h e s t o p									
: > 0 ( m i n )									
Phase									
machining									

**0** - The parameter function is overridden.  
**>0** - After the set number of minutes, the bar feeder stops the lathe in "FEEDING".



29

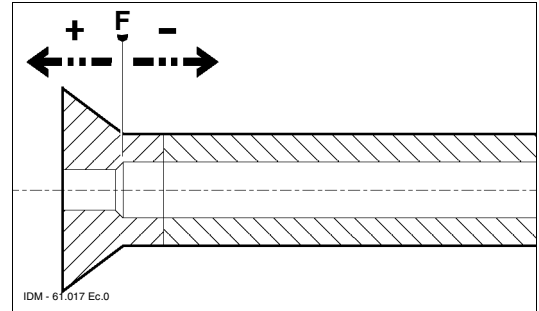
no. 29 Max. feeding position modification  
: > 0 (mm) (inches)

Phase  
machining

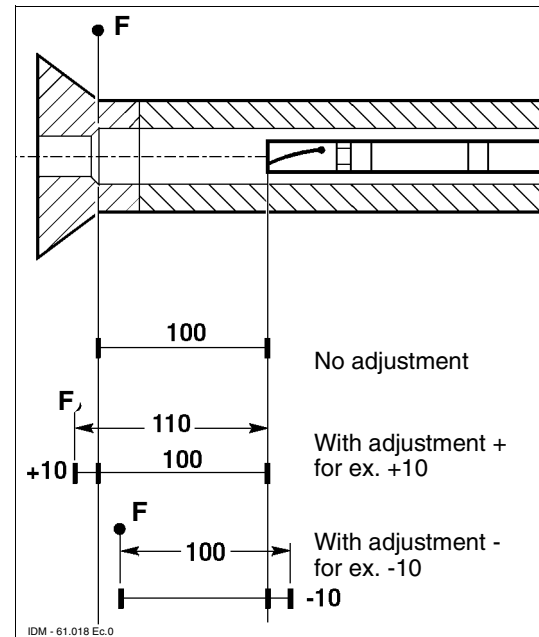
Defines the positive or negative corrections of point **F** (max. bar pusher feed point).

Application examples:

- it is required when ejecting with the bar pusher (point **b**, **parameter 21**);
- it is required when the lathe collet is replaced with one having different dimensions.



When the operator corrects the **F** point, **parameter 1** is modified as shown in the picture; it is then necessary to check and, if required, correct the value of **parameter 1**.



**30**

Phase
/

n	o	.	3	0	L	a	n	g	u	a	g	e	1	I	-	2	G	B	-	3	D	-	4	F	-	5	E
:	>	1																									

Defines the language of the messages on screen.

- Italiano
- Français
- English
- Deutsch
- Español

**31**

Phase
machining/bar change

n	o	.	3	1	B	a	r	f	e	e	r	i	n	t	e	r	f	a	c	e	c	o	n	t	r	o	l
:	>	1																									

- 1 - (RETURN)
- 2 - (K13 IMMEDIATE)
- 3 - (IMMEDIATE RETURN)
- 4 - (FEEDING)
- 5 - (K1 ENABLED)

**i** **INFORMATION:** the five modes signals described below refer to parameter 21 in the 0 - “Removal” or 1 - “Ejection” mode. When parameter 21 is in the 2 - “Bar change advance” mode, the signals do not change but the bar feeder behaves according to the description at this parameter.

1 - (RETURN)

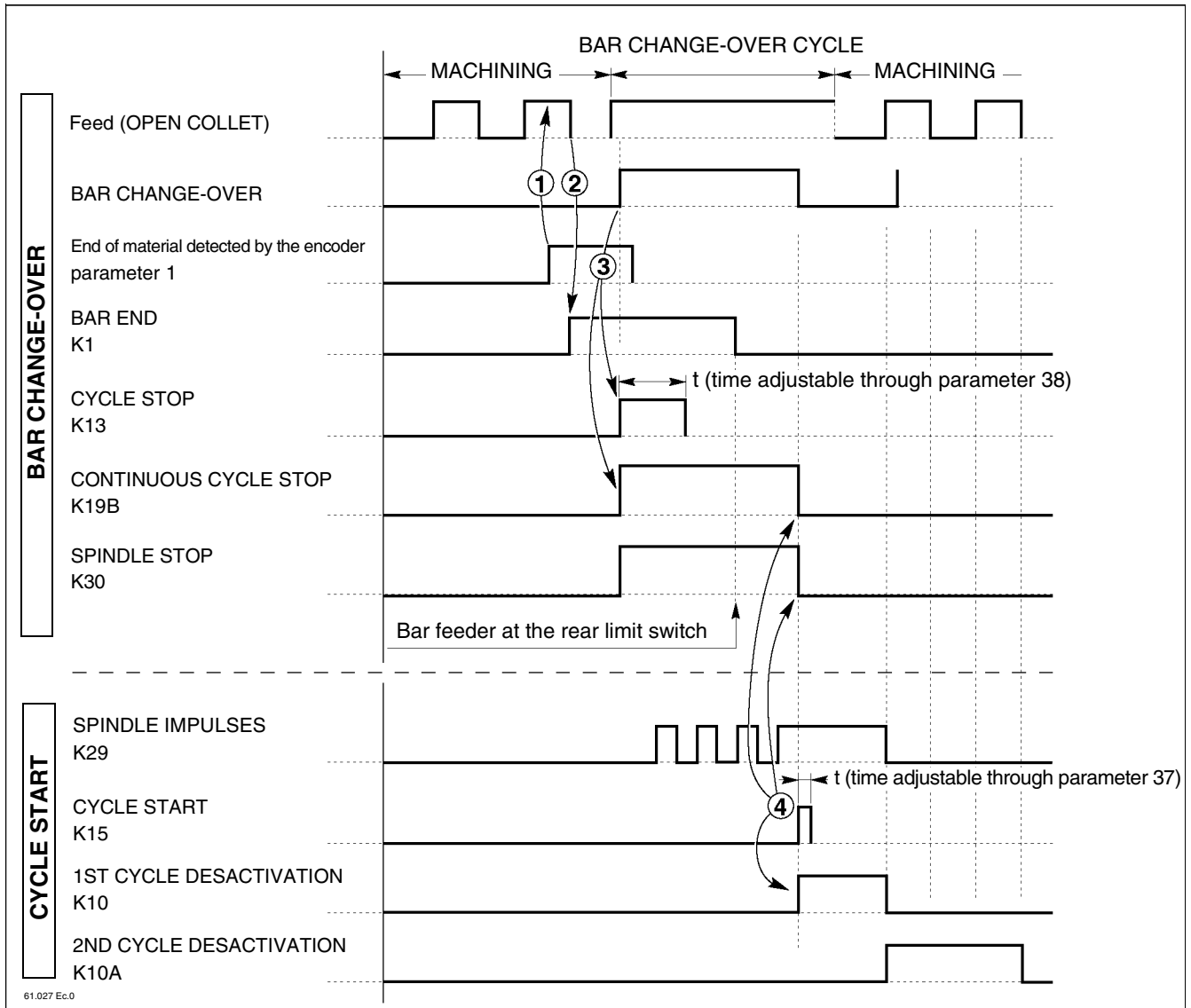
As soon as the bar feeder reaches the "BAR END" position, it activates relay K1 lathe "COLLET CLOSING".

With the next "COLLET OPENING", the bar feeder receives the "FEEDING" and "BAR CHANGE" signals.

With "BAR CHANGE-OVER" signal activated, relays K13 and K19B are also activated.

**i** **INFORMATION:** in the CNC lathes which do not show the "BAR CHANGE" signal, transfer the "FEEDING" signal also to the pre-set clamp for the "BAR CHANGE".

Interface signal cycle diagram



2 - (K13 IMMEDIATE)

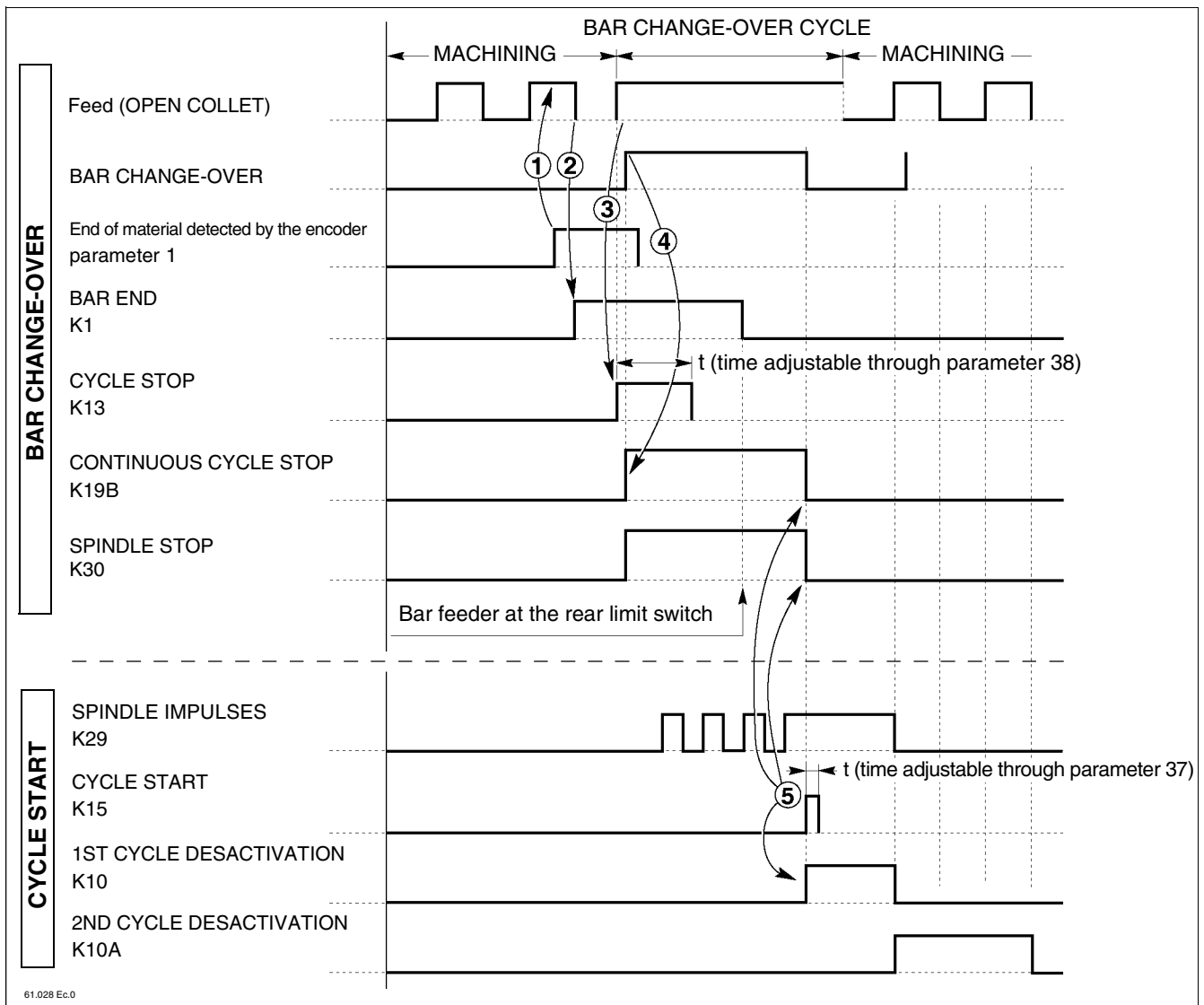
When the bar feeder reaches the "BAR END" position, it activates relay K1, iathe "COLLET CLOSING".

With the next "COLLET OPENING", the bar feeder receives the "FEEDING" and "BAR CHANGE" signals".

Relay K13 activates through the "FEEDING" signal following the "BAR END" signal.

"BAR CHANGE-OVER" signal activates relay K19B only.

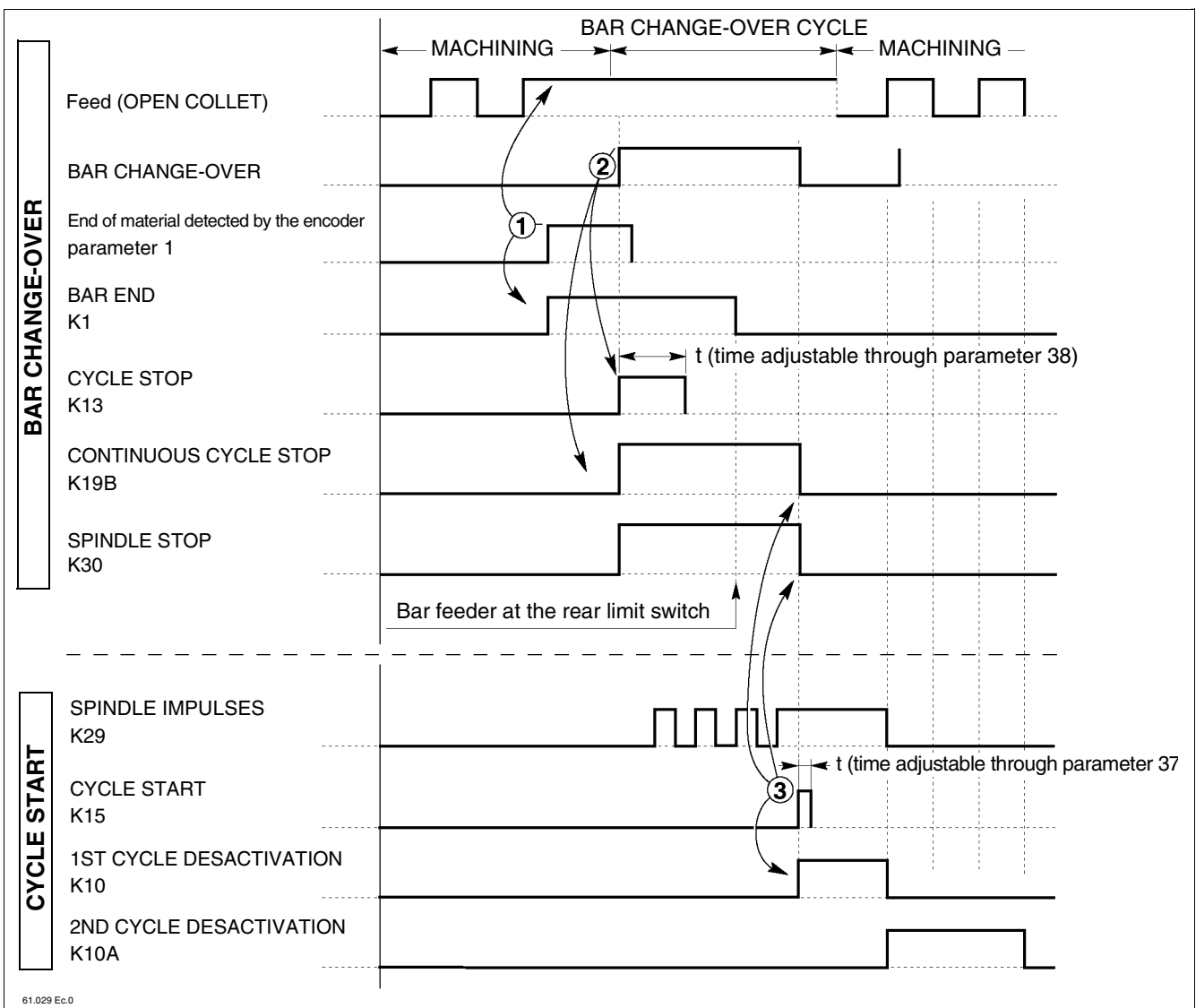
Interface signal cycle diagram



**3 - (IMMEDIATE RETURN)**

During lathe “OPEN COLLET” feeding, when the bar feeder detects the “BAR END” signal, relays K1-K13-K19B activates at the same time, thus allowing the bar feeder to perform the “BAR CHANGE-OVER”.

**Interface signal cycle diagram**



61.029 Ec.0

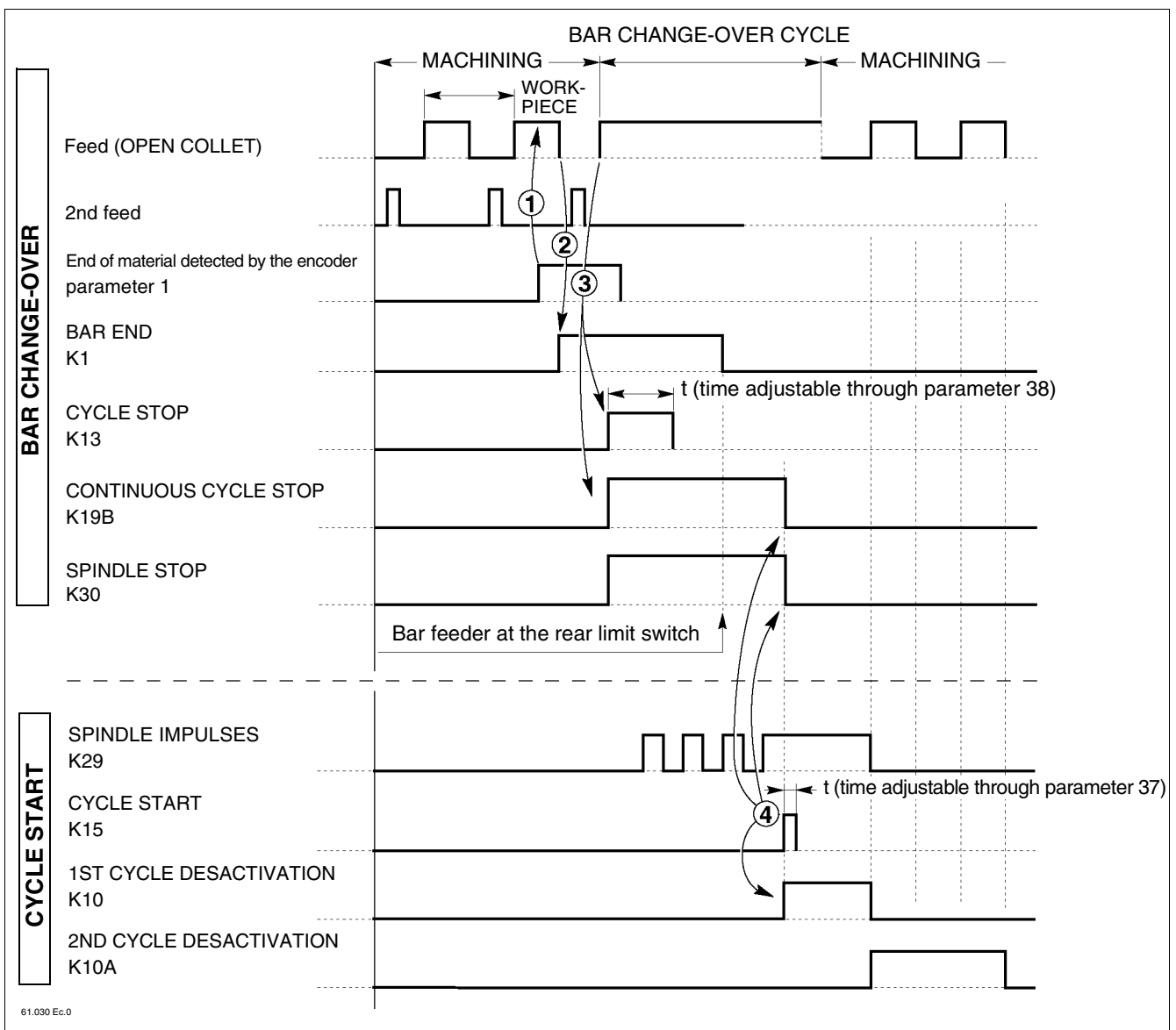
4 - (FEEDING)

As far as "BAR CHANGE-OVER" signal control is concerned, this option differs from option 1 - (RETURN).

Said signal controls more bar-pusher feeding movements, whenever they are required by lathe during workpiece machining.

In this condition, the "BAR CHANGE" controls the feeding of the bar feeder and disables its return. The bar feeder return depends on the "FEEDING" signal.

Interface signal cycle diagram



61.030 Ec.0

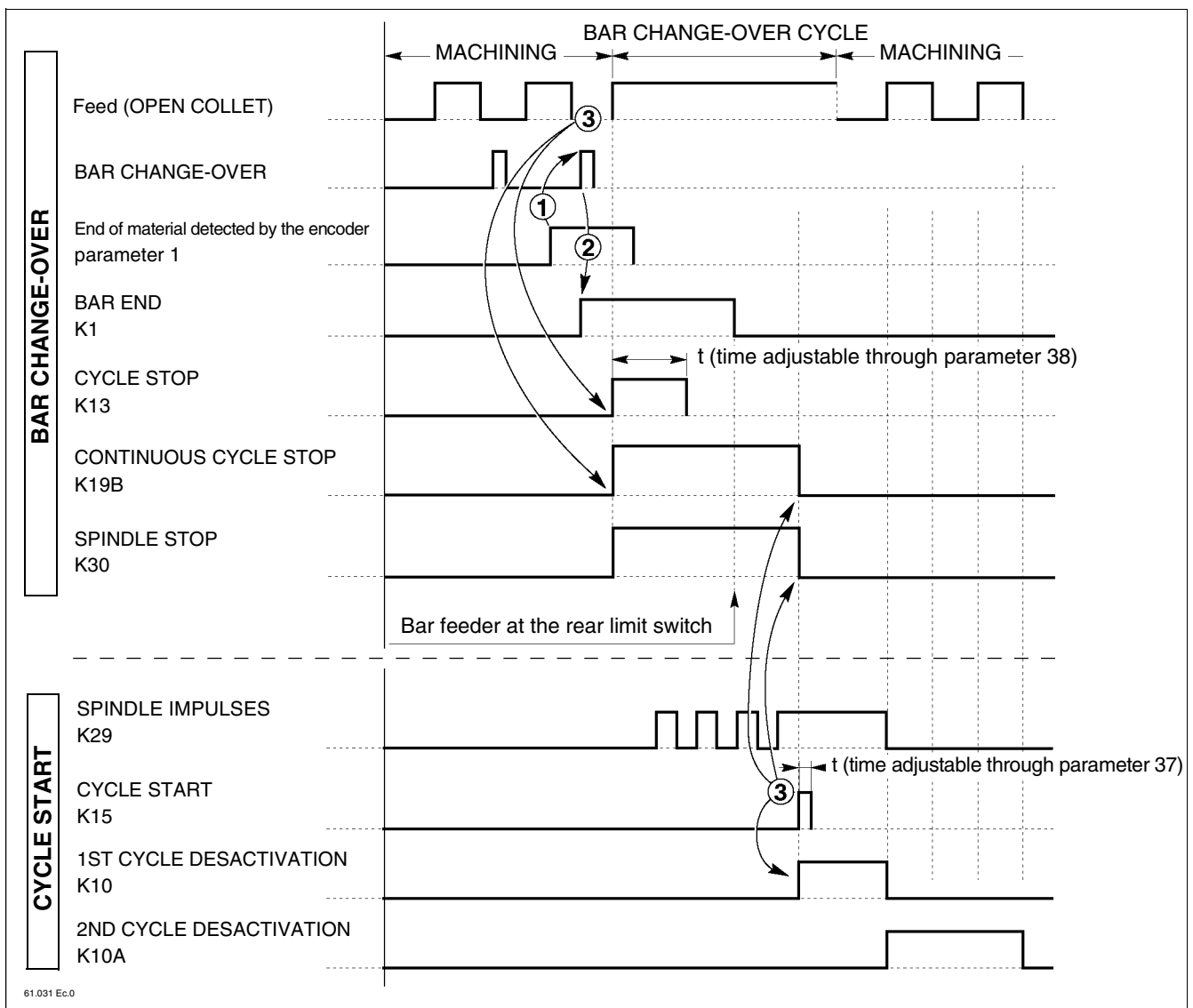
5 - (K1 ENABLED)

This option allows the lathe to check, at any cycle, if the bar feeder has reached the "BAR END" position, thus activating relay K1.

Relays K13-K19B are activated at the following collet opening, through the "FEEDING" signal.

The return is controlled by the "FEEDING" signal.

Interface signal cycle diagram



**32**

**n o . 3 2 K 1 i m m e d i a t e e x i t**  
**: > 0**

Phase  
**machining**

The bar end signal K1 is sent to the lathe as soon as the bar feeder detects the end of the bar.

**33**

**n o . 3 3 K 2 i n v e r s i o n**  
**: > 0**

Phase  
**machining**

- 0 - At the "FEEDING" signal the K2 relay is disabled when the bar feeding is performed; it is enabled when the bar reaches the bar stop (bar stop encoder).
- 1 - The K2 relay is enabled when the bar feeding is performed and disabled when the bar reaches the bar stop (bar stop encoder).

**34**

**n o . 3 4 F e e d i n g t o r q u e**  
**: > 3 0 0**  
**( 2 0 0 )**

Phase  
**machining**

This is the thrust used during the FEEDING phase.



35

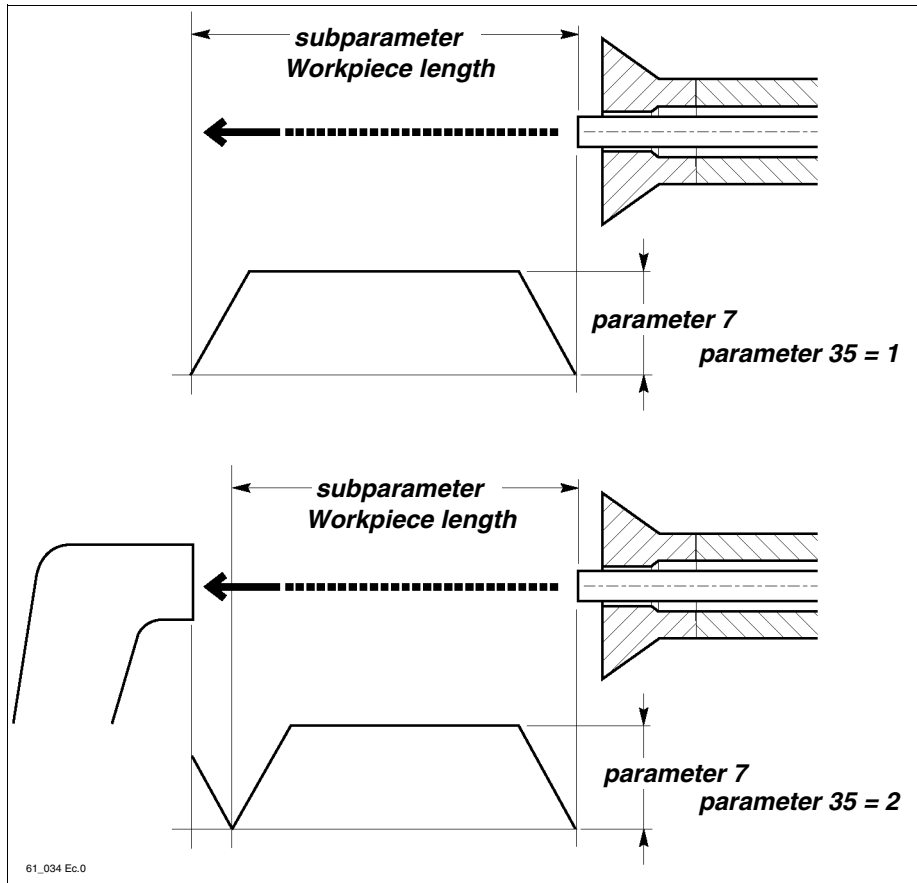
no. 35 Fixed workpiece feeding  
: > 0

Phase  
machining

Subparameters

Workpiece length	97
Cutting tool length	3

- 0 - It actuates the feeding on the lathe's bar stop.
- 1 - It actuates the workpiece feeding, by the value set at **Subparameters "Workpiece length"**.
- 2 - It actuates a workpiece feeding by the value set at **Subparameters "Workpiece length"**, it stops at a few millimetres from the bar stop, it performs another feeding until the bar stop, on condition that the FEEDING signal is on.



**36**

**n o . 3 6 K 1 5 D i s a b l i n g**  
**: > 1**

Phase  
**machining**

Turns off the signalling of **parameter 35** in position 1 at every use.

**37**

**n o . 3 7 K 1 5 t i m e**  
**: > 2 ( s e c )**

Phase  
**machining/bar change**

Defines the duration of the CYCLE START signal.

**38**

**n o . 3 8 K 1 3 t i m e**  
**: > 5 ( s e c )**

Phase  
**bar change**

Defines the duration of the CYCLE STOP signal.

**39**

**n o . 3 9 S p i n d l e s t o p**  
**: > 0**

Phase  
**bar change**

During bar change the signal stops the spindle.

**0** - The relay is disabled during bar change.

**1** - The relay remains always enabled.

40

no . 4 0		Sub spindle mode																	
:		> 0																	
Phase																			
machining																			

Subparameters

Workpiece length	9	7
Cutting tool length	3	
Number opening collet workpiece program	1	
Sub-spindle feeding torque	4	5

- 0 - Off
- 1 - On

This function is available when the lathe handles the workpiece feeding. In this case the bar feeder, having loaded the bar, stores the bar working length and consequently the number of workpieces. The bar pusher moves back to the zero point and signals the end of bar to the lathe only when the stored workpiece amount has been reached. Then, according to the value set in **parameter 21** (REMNANT HANDLING), the bar feeder actuates the bar change.

**i** **INFORMATION:** Once this parameter values are modified, the operator must press the **STOP** key to reset the previously set values.

**i** **INFORMATION:** The subparameter "Sub-spindle feeding torque" must be set at a minimum value (0=MAX, 500=MIN). This will allow the bar pusher to reach the bar.

**⚠** **CAUTION:** for a correct operation, the feed chain must be adequately tensioned.

42

no . 4 2		Bar pusher return pause																	
:		> 1 (sec)																	
Phase																			
bar change																			

Timing of the "BAR PUSHER RETURN" signal.

43

no . 4 3		First feeding speed change																	
:		>																	
Phase																			
bar change																			

Subparameters

New speed	9	0	0	(	8	0	0	)	(	mm	/	sec	)
Connection acceleration	*	(	mm	/	sec	*	sec	)					
New speed point	*	(	mm	)									

It allows changing the "NEW SPEED" in the "1st FEEDING" phase.

## 2.2. ERRORS - CAUSES - SOLUTIONS

The display may signal the occurrence of errors during the calibration of the bar feeder or the machining of pieces. These errors may be the result of incorrect programming, operational errors, or mechanical or electrical faults.

When errors are detected, the bar feeder stops. To restore automatic cycle proceed as follows:

- Restore the manual cycle.
- Eliminate the cause of the error.
- Restore the automatic cycle.

The table below lists the error messages, their possible causes and the corresponding solutions.

**i** **INFORMATION:** All error signals must be reset by pushing the **STOP** key.

<b>1</b>	P r e s s   s t a r t   f i r s t

CAUSE	SOLUTION
A ZERO AXIS was attempted without first pressing the start button.	Press push-button <b>I</b> and key <b>15 O-ASSE</b> at the same time to start the bar feeder.

<b>2</b>	E r r o r : w r o n g   b a r   p u s h e r   m o v e m e n t

ERROR	CAUSE	SOLUTION
The bar pusher or the 1st feeding carriage motion does not perform the stroke within the set time.	The bar pusher or the first feeding carriage are not moving correctly.	Check the free and unimpeded movement of bar pusher, first feeding carriage and chains.
	Encoder fault.	Check that the encoder is driven correctly.
		Check on the display the position of the bar pusher carriage, and verify that the position change indicated corresponds to the actual movement.

**3**

<b>E r r o r : f e e d s t o p</b>

<b>ERROR</b>	<b>CAUSE</b>	<b>SOLUTION</b>
The carriage has stopped moving.	The bar pusher stop interface signal from the lathe is present.	Check the "INTERFACE FROM LATHE" signal.
		Check the wiring.

**4**

<b>( E r r o r : . . . )</b>

**5**

<b>( E r r o r : . . . )</b>

**6**

<b>( E r r o r : . . . )</b>

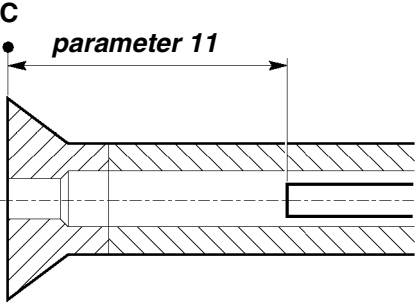
**7**

<b>E r r o r : n o b a r</b>

<b>CAUSE</b>	<b>SOLUTION</b>
The bar feeder magazine is empty.	Fill the bar feeder magazine.

8

Error: the bar fails to enter into the collet

ERROR	CAUSE	SOLUTION
<p>The bar met the first obstacle in the section defined by <b>parameter 11</b> and was not able to continue.</p>  <p>IDM - 61.019 Ec.0</p>	<p>The bar cannot go through the collet or the bushing of the lathe.</p>	<p>Check the diameter of the bushing.</p> <p>If a shaped bar is being machined, check that the introduction area is suitable on the bar entry on the rear of the collet.</p> <p>If the bar is shaped, check the revolutions of the spindle and that the impulse sequence is correct.</p> <p>Check the torque of the clutch (<b>parameter 13</b>) and the feed set (<b>parameter 12</b>).</p>
	<p>Encoder fault.</p>	<p>Check that the encoder is driven correctly in the rotation .</p> <p>Check on the display the position of the bar pusher carriage, and verify that the position change indicated corresponds to the actual movement.</p>

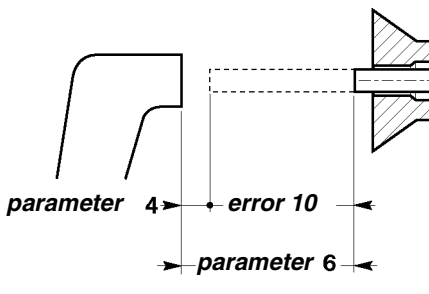
9

Error: gate open

ERROR	CAUSE	SOLUTION
At the beginning of the first feeding stroke, the short feed gate is not closed.	The gate could not close because of an obstacle.	Check that the area is free from obstruction (swarf, bar remnants, chips). Close the gate manually checking for obstructions.
	Gate closed sensor fault.	Check that when the gate moves, the sensor is triggered.

10

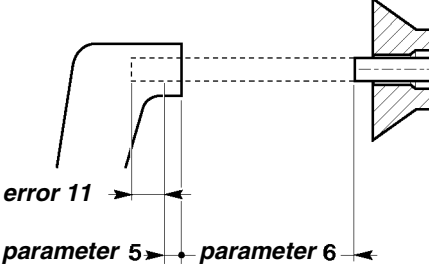
Error: short feed

ERROR	CAUSE	SOLUTION
After "collet closed" the bar is at a position lower than that given by <i>parameter 6 minus parameter 4</i> .   <p>The diagram shows a cross-section of a bar in a collet. Parameter 4 is the distance from the bar's end to the start of the collet. Parameter 6 is the total length of the bar. Error 10 is the distance from the bar's end to the position where the bar is actually stopped, which is shorter than parameter 6 minus parameter 4.</p>	The value of <i>parameter 4</i> is too low.	Check the value of <i>parameter 4</i> based on the length of the workpiece to be machined.
	The collet lathe does not open correctly.	Check the correct opening of the collet lathe (at least 0.5 mm).
	The push on the bar is not sufficient.	Check the values of <i>parameter 4</i> , and <i>parameter 6</i> .
	Encoder fault.	Check that the encoder is driven correctly in the rotation.
Check on the display the position of the bar pusher carriage, and verify that the position change indicated corresponds to the actual movement.		

IDM - 61.022 Ec.0

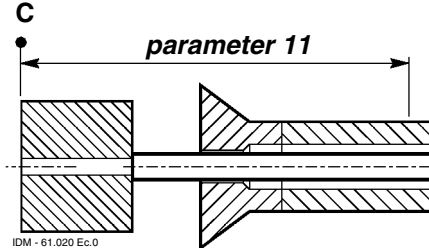
11

Error: long feed

ERROR	CAUSE	SOLUTION
<p>During feed, the bar is at a position past that given by <b>parameter 5 plus parameter 6.</b></p>  <p><i>error 11</i></p> <p><i>parameter 5</i></p> <p><i>parameter 6</i></p> <p>IDM - 61.023 Ec.0</p>	<p>The value of <b>parameter 5</b> is too high.</p>	<p>Check the value of <b>parameter 5</b> based on the length of the piece to be machined.</p>
	<p>The lathe bar stop is not in the correct position.</p>	<p>Check the correct position of the bar stop on the lathe.</p>
	<p>Encoder fault.</p>	<p>Check that the encoder is driven correctly in the rotation .</p> <p>Check on the display the position of the bar pusher carriage, and verify that the position change indicated corresponds to the actual movement.</p>

12

Error: stationary position after impulses

ERROR	CAUSE	SOLUTION
<p>The bar moves along the section defined at <b>parameter 11</b>, clears the first obstacle (the collet), but stops when it meets a second obstacle (bushing or other).</p>  <p><b>C</b></p> <p><i>parameter 11</i></p> <p>IDM - 61.020 Ec.0</p>	<p>The bar has met with an obstacle past the impulse window (10 mm)..</p>	<p>Check the play of the bushing and the presence of foreign bodies (bar scraps or tool chips).</p>
	<p>The push on the bar is not sufficient.</p>	<p>Check the value of <b>parameter 13</b>.</p>
	<p>Encoder fault.</p>	<p>Check that the encoder is driven correctly in the rotation .</p> <p>Check on the display the position of the bar pusher carriage, and verify that the position change indicated corresponds to the actual movement.</p>



13

( E r r o r : . . . )

14

P r e s e t q . t y r e a c h e d , r e s e t ! ! !

CAUSE	SOLUTION
The amount of pieces set has been reached.	Reset the number of workpieces at <b>parameter 26</b> , then restart.

15

E r r o r : d o o r s a f e t y

ERROR	CAUSE	SOLUTION
The bar feeder is in AUTOMATIC MODE and the feed signal is active, but the bar feeder does not feed the bar.	One of the lathe door enabling the signal is open.	Check that the lathe door are closed.
	The "CLOSED DOOR" signal does not reach the bar feeder card.	Check the lathe output signal inputted in the PLC (wire number, port)
	The bar pusher stop interface signal from the lathe is present.	Check the "INTERFACE FROM LATHE" signal.

16

E r r o r : o p e n c o l l e t t i m e o u t

ERROR	CAUSE	SOLUTION
The lathe has stopped with the feed signal ON.	While in AUTOMATIC MODE, the lathe collet has remained open for a time longer than the value set in <b>parameter 22</b> .	Check the value of <b>parameter 22</b> , in relation to the actual time of "FEEDING".

**17**

<b>E r r o r : s a f e t y f r o m l a t h e</b>

<b>ERROR</b>	<b>CAUSE</b>	<b>SOLUTION</b>
The safety devices of the lathe are disabled.	The interface from lathe signal, which stops the bar feeder, is absent.	Check the "SAFETY FROM LATHE" interface signal. Check the lathe safety devices.

**18**

<b>E r r o r : b a r f e e d e r e m e r g e n c y</b>

<b>ERROR</b>	<b>CAUSE</b>	<b>SOLUTION</b>
The bar feeder stopped and the K1, K2 LED of the K35 safety unit is also switched off.	An emergency stop push-button has been pressed.	Check the status of the emergency stop push-button.
	An emergency signal from the lathe is active.	Check if the sequence of signals from the lathe is continuous: All the signals must either be open or closed.
	One of the covers of lathe or bar feeder is open.	Check that all covers are closed.

**19**

<b>E r r o r : a i r p r e s s u r e s w i t c h</b>

<b>ERROR</b>	<b>CAUSE</b>	<b>SOLUTION</b>
The bar feeder stopped or does not start.	No air.	Check the pressure switch and the air system pressure.

## 20

<b>E r r o r : f l a g n o t k n o c k e d</b>

ERROR	CAUSE	SOLUTION
The short feed flag was not knocked down.	No bar.	Load new bars into the bar feeder magazine.

## 21

<b>E r r o r : n o l e v e r l o w e r i n g</b>

ERROR	CAUSE	SOLUTION
The guide channel lifting levers do not lower.	During the BAR CHANGE the guide channel did not lower or the bar drop control did not switch off.	Check the cylinder motion. Check the lever lifting and channel lifting sensors.

## 22

<b>E r r o r : w o r k p i e c e t i m e o u t</b>

ERROR	CAUSE	SOLUTION
The machining cycle lasted longer than the time set in <b><i>parameter 23</i></b> .	The machining cycle required more time than set in <b><i>parameter 23</i></b> .	Check the settings of <b><i>parameter 23</i></b> based on the actual work cycle.
	The machining cycle was stopped or slowed down.	Check the effective length of the work cycle and ensure that it is not stopped or slowed down.

**23**

<b>E r r o r : t h r e a d s a f e t y</b>

<b>ERROR</b>	<b>CAUSE</b>	<b>SOLUTION</b>
The lathe failed to the thread on the current piece.	Threading device fault.	Check the correct operation of the device on the lathe.
	Threading device fault.	Check the correct operation of the device (S99).
	The bar did not move forward at the last "COLLET OPENING".	Check the correct opening of the lathe collet and the push of the bar loader ( <i>parameter 34</i> ).

**24**

<b>E r r o r : m a n / a u t f r o m l a t h e</b>

<b>ERROR</b>	<b>CAUSE</b>	<b>SOLUTION</b>
The lathe is not in AUTOMATIC mode.	An interface signal from the lathe is keeping the bar loader in MANUAL MODE.	Check the "INTERFACE FROM LATHE" signal.

**25**

<b>( E r r o r : . . . )</b>

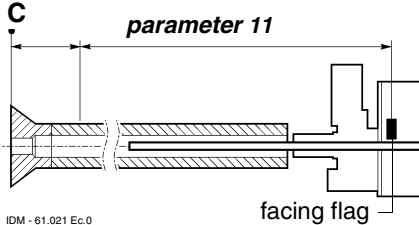
26

Error: protected motor drive

ERROR	CAUSE	SOLUTION
The feed motor has stopped and is not restarting.	There is a problem with the drive of the motor.	Check the drive: The green LED of the control panel must be lighted.
	The motor is shorted	Check the shorted motor.
	The temperature of the drive heat sink has reached the maximum permissible value	Let the drive cool and wait about 15 minutes before powering on again. Check if the problem occurs again.

27

Error: stationary position before impulses

ERROR	CAUSE	SOLUTION
<p>During the facing stroke, the bar has met an obstacle before reaching the section defined by <b>parameter 11</b>.</p>  <p>IDM - 61.021 Ec.0</p>	There is an obstacle in the spindle	<p>Check that there are no impediments, or diameter differences such as to prevent the movement of the bar .</p> <p>Check the number of revolutions of the spindle.</p>
	Encoder fault.	<p>Check that the encoder is driven correctly in the rotation.</p> <p>Check on the display the position of the bar pusher carriage, and verify that the position change indicated corresponds to the actual movement.</p>
	Card fault.	Contact IEMCA technical assistance.

**28**

**R e s e t   w i t h   S T O P ! ! !**

ERROR	CAUSE	SOLUTION
The bar feeder has stopped due to a fault.	Examples: Wrong bar-pusher movement, bar not loaded in collet, bar remnant missing, bar missing, etc..	Correct fault and reset with STOP push-button.

**29**

**E r r o r : a x i a l   d i s p l a c e m e n t   n o t   l o c k e d**

ERROR	CAUSE	SOLUTION
The bar feeder is not locked but is running.	The axial displacement device is not locked.	Lock the axial displacement device.
	The sensor is not providing the OK signal.	Check that the sensor issues the signal when the axial displacement device is locked.
		Check the correct operation of the sensor.

**30**

**( E r r o r : . . . )**

**31**

**E r r o r : M a n u a l   f r o m   c o n t r o l   p a n e l**

ERROR	CAUSE	CURE
After the <b>AUT. 2</b> key has been pressed on the bar feeder keyboard, this message appears.	The "MANUAL" mode was actuated from the remote control panel on the lathe.	Move the selector switch of the remote control panel to the "AUTOMATIC" position.

**32**

**E r r o r : M a n u a l f r o m k e y b o a r d**

ERROR	CAUSE	CURE
After the selector switch on the remote control panel has been turned to the "AUTOMATIC" position, this message appears.	The "MANUAL" mode was actuated from the keyboard on the bar feeder.	To actuate the "AUTOMATIC" mode press the <b>AUT. 2</b> push-button on the bar feeder keyboard.

**33**

**( E r r o r : s u b - s p i n d l e p a r a m e t e r s w r o n g**

CAUSE	CURE
No value was set at <i>parameter 40</i> .	Enter the values in the subparameters.

**34**

**( E r r o r : . . . )**

**35**

**E r r o r : b a r t o o l o n g**

ERROR	CAUSE	SOLUTION
During the 1st feeding stroke the short feed control gate detected a bar which is too long.	The bar exceeds the maximum loadable length of bars.	Load bars of the maximum length allowed, which corresponds to the maximum length inside the lathe spindle.

**36**

<b>E r r o r : f a c i n g t i m e o u t</b>

<b>ERROR</b>	<b>CAUSE</b>	<b>SOLUTION</b>
The bar feeder does not actuate the function.	The bar reached the facing position, but the lathe did not restart.	Check the K15 interface signal: "Cycle Start".
		Check the lathe.

**37**

<b>( E r r o r : . . . )</b>

**38**

<b>( E r r o r : . . . )</b>

**39**

<b>E r r o r : c o l l e t n o t o p e n</b>

<b>CAUSE</b>	<b>SOLUTION</b>
When the operator presses the AUTOMATIC push-button to actuate a bar change, the FEEDING signal is not received.	Check the corresponding interface signal.
	Open the collet.



**40**

**E r r o r : b a r p u s h e r d o w n w a r d**

CAUSE	SOLUTION
It indicates that the bar pusher is not in the correct position.	Using the keyboard controls, regain the correct position.

**41**

**( E r r o r : . . . )**

**42**

**M o v e c a r r i a g e t o b a c k l i m i t s t o p ! ! !**

ERROR	CAUSE	SOLUTION
The bar pusher does not go down.	An attempt was made to lower the bar pusher with the bar pusher carriage out of position.	Move the bar pusher carriage to the lower position.

**43**

**C a r r i a g e t o b a c k l i m i t s t o p ! ! !**

CAUSE
Signals that the bar pusher carriage has returned.

**44**

**F a i l u r e d u r i n g b a r c h a n g e**

ERROR	CAUSE	SOLUTION
Bar change was not completed in the expected time.	To monitor unexpected mechanical or electrical faults, a checking system stops the machine if the bar change cycle is not completed within a set time.	Verify the nature of the fault and restart the work cycle. In case of serious faults, contact IEMCA technical assistance.

**45**

PLC battery exhausted

ERROR	CAUSE	SOLUTION
Signals that the charge of the PLC batter is low.	Battery charge low.	Replace the battery within one day (See Chapter 9 of the Use and Maintenance Manual).

**46**

Bar feeder lifted

ERROR	SOLUTION
It indicates that the bar guide is not in the correct position.	Using the keyboard controls, regain the correct position by lowering the bar pusher.

**47**

Bar drop control on

ERROR	SOLUTION
It indicates that the bar pusher is not in the correct position.	Using the keyboard controls, regain the correct position.

**48**

Bar pusher upward

ERROR	CAUSE	SOLUTION
The bar pusher did not move from the "UPWARD" to the "DOWNWARD" position.	The movement is hindered by an obstacle.	Remove the obstacle.
	The <b>S2</b> microswitch (the bar pusher downwards device) is out of position or damaged.	Check the microswitch position or replace the microswitch.

### 2.3. PROGRAMME IDENTIFICATION DATA - Displaying procedures

The four programs installed in the bar feeder are as follows:

- Push-button panel Firmware;
- Push-button panel Software;
- PLC/CN Software.
- PLC/CN Firmware.

For various reasons (e.g., request for assistance) it may be useful to display the identification data of the first three programs listed, according to the following procedure. As regards the “PLC/CN Firmware” displaying the identification data is not particularly important.

#### □ To display “Push-button panel Firmware” identification data

- Disconnect power supply
- Connect power supply again


it appears for a few seconds:

identification data of the push-button panel firmware


Un i O P XX . XX									
O P E R A T I O N M O D E									

#### □ To display “Push-button panel Software” and “PLC/CN Software” and “PLC/CN Firmware” identification data

turn the selector:



onto position →

press  and keep pressed

it appears:

- - - - - [ XXXXXX R . XX ] - - - - -									
SwOP : XXXXXX & SwCNC : XXXXXX									
Fw : v . XXXX									
- - - - -									

identification data of the PLC firmware      identification data of the PLC software  
 identification data of the push-button panel software



## 3.1. PROTECTED PARAMETERS FOR SETTING-UP - Description

### Foreword

These parameters affect the bar feeder configuration and the bar feeder-lathe interface. Entering or modifying the value of such parameters is mainly required during the installation of the bar feeder, performed by an authorised technician.



**CAUTION:** Each parameter has a specific default value (preset value). If the operator does not change these values, the bar feeder performs the automatic cycle according to them



**INFORMATION:** It is possible to enter or modify these parameter values only in the appropriate data entering mode.

To enter this mode, the procedure described in section 4.1.1 must be followed. This section's pages are only destined to authorised technicians and might not be attached to this manual. It is the exclusive right of the manufacturer to distribute the information included herein.

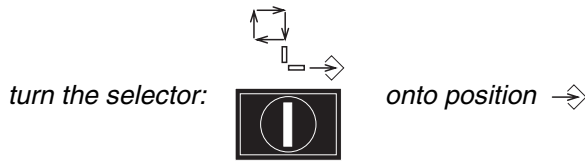
During daily bar feeder utilization these parameters must not be modified.

The protected set-up parameters are made up of four sections:

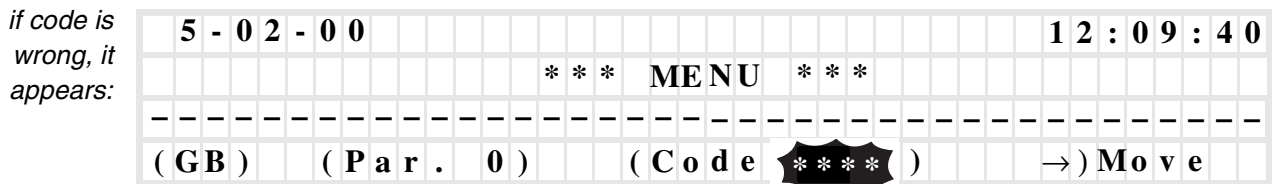
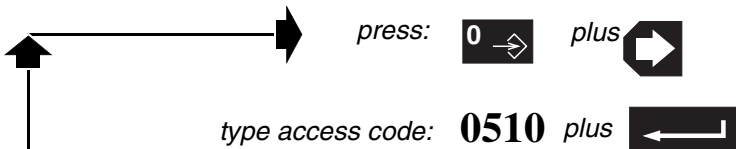
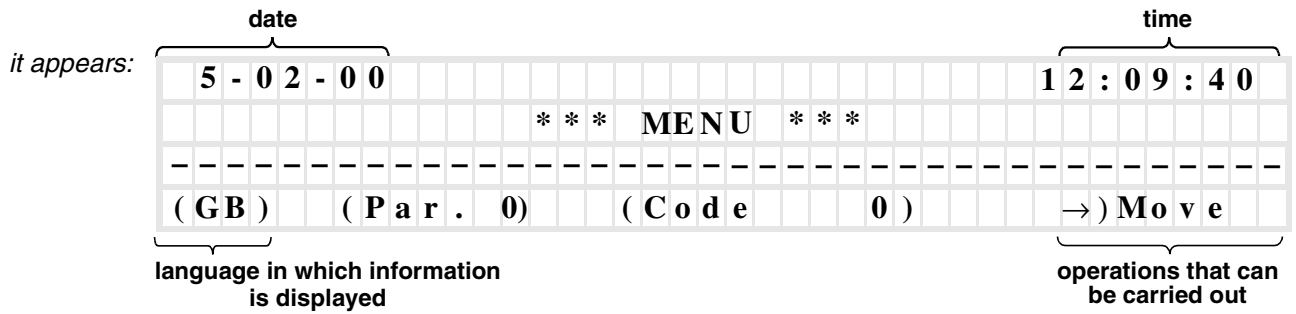
- Bar feeder phase parameters (paragraph 3.1.1);
- Reference value parameters (paragraph 3.1.2);
- Axis function parameters (paragraph 3.1.3);
- Interface parameters (paragraph 3.1.4).
- Parameters for generics (paragraph 3.1.5);

□ Accessing the setup protected parameters

Access the data entering mode

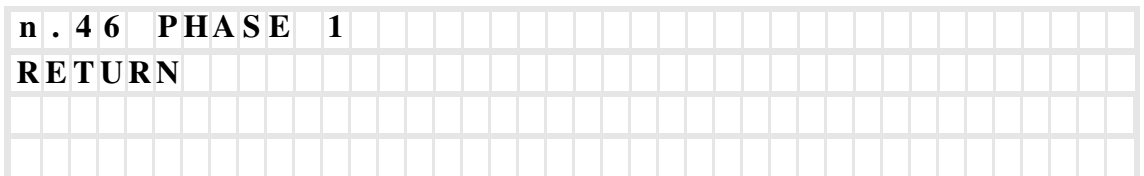


recall "MAIN MENU"



wait a few seconds and repeat

if the code is correct, the first protected parameter appears:



□ General procedures

Selecting the parameters in sequence

press:  or 

it appears. Ex:

n . 4 7	P h a s e	2															
Z E R O	A X I S																


Selecting the parameter required

Recall "MAIN MENU"

press: 


it appears:

5 - 0 2 - 0 0														1 2 : 0 9 : 4 0
				* * *	M E N U	* * *								
- - - - -														
( G B )	( P a r . 0 )	( C o d e	0 )										→ )	M o v e

press: 

it appears:

5 - 0 2 - 0 0														1 2 : 0 9 : 4 0
				* * *	M E N U	* * *								
- - - - -														
( G B )	( P a r . 0 )	( C o d e	0 )										→ )	M o v e

enter the number of the parameter required. Example: **60** più 

it appears. Ex:

n o . 6 0	1 s t	F e e d i n g	v a l u e	( B )													
		( m m )											( i n c h e s )				

❑ Subparameters

Some parameters have subparameters.

To access the subparameters, scroll down the parameter screen image

press many times:



to return to the parameter screen image

press many times:



❑ Parameters with self-learned values

A default value is assigned to the parameters.

Actually, some parameters are self-learned variables of the PLC, which vary during normal bar feeder operation.

On the screenful reproduced on this manual, the self-learned value is represented by an asterisk (\*).



**INFORMATION:** the values assigned to the parameters are organized into two categories. The first one comprises the values referring to the motor speed reduction ratio of reducer to 1/6 (standard values); the second one ( values in brackets ) includes the values referring to the motor speed reduction ratio of the reduce to 1/4.

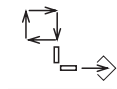

❑ Quitting the setup protected parameters


Recall "MAIN MENU"

press:



Exit from data entering mode

turn the selector:  onto position 





### 3.1.1 Description of bar feeder phase parameters

**46**

n . 4 6 P h a s e 1																				
RETURN																				

Subparameters

P o s i t i o n																				0 ( m m )
S p e e d																				1 5 0 0 ( 2 0 0 0 ) ( m m / s e c )
A c c e l e r a t i o n																				3 0 0 0 ( m m / s e c * s e c )

It defines the position, speed and acceleration of the bar pusher carriage during the bar pusher return phase.

**47**

n o . 4 7 P h a s e 2																				
ZERO AXIS																				

Subparameters

R e s e a r c h s p e e d																				1 0 0 ( m m / s e c )
R e s e a r c h r e l e a s e																				3 0 ( m m / s e c )
A c c e l e r a t i o n																				3 0 0 ( m m / s e c * s e c )
D i r e c t i o n																				0 ( m m )

It defines the speed, acceleration and direction of the bar pusher carriage during the zero point research phase.

**48**

n o . 4 8 P h a s e 3																				
BAR PUSHER UPWARD																				

Subparameters

S p e e d																				- 3 0 ( m m / s e c )
A c c e l e r a t i o n																				3 0 0 ( m m / s e c * s e c )

It defines the bar pusher lifting phase.

**49**

<b>n o . 4 9</b>	<b>Ph a s e</b>	<b>4</b>																				
<b>BAR LOADING</b>																						

The phase during which the bar from the magazine is loaded on the guide.

**50**

<b>n o . 5 0</b>	<b>P H A S E</b>	<b>5</b>																				
<b>GUIDE CHANNEL LIFTING</b>																						

The phase during which the guide is lifted and centred with reference to the spindle.

**51**

<b>n o . 5 1</b>	<b>P H A S E</b>	<b>6</b>																				
<b>1 s t FEEDING</b>																						

Subparameters

<b>P o s i t i o n</b>	<b>*</b>	<b>( m m )</b>																				
<b>S p e e d</b>			<b>1 0 0</b>	<b>( m m / s e c )</b>																		
<b>A c c e l e r a t i o n</b>			<b>2 8 0</b>	<b>( m m / s e c * s e c )</b>																		

It defines the position, speed and acceleration of the bar pusher carriage during the 1st feeding phase (see ***parameter 43***).

**52**

<b>no . 5 2</b>	<b>P h a s e</b>	<b>7</b>																		
<b>RETURN AFTER 1 s t F E E D I N G</b>																				

Subparameters

<b>P o s i t i o n</b>																						<b>* ( m m )</b>	
<b>S p e e d</b>																							<b>1 5 0 0 ( 2 0 0 0 ) ( m m / s e c )</b>
<b>A c c e l e r a t i o n</b>																							<b>3 0 0 0 ( m m / s e c * s e c )</b>

It defines the position, speed and acceleration of the bar pusher carriage during the return phase, following the 1st feeding.

**53**

<b>no . 5 3</b>	<b>P h a s e</b>	<b>8</b>																				
<b>BAR PUSHER DOWNWARD</b>																						

Subparameters

<b>S p e e d</b>																							<b>- 3 0 ( m m / s e c )</b>
<b>A c c e l e r a t i o n</b>																							<b>3 0 0 ( 4 0 0 0 ) ( m m / s e c * s e c )</b>

The phase during which the bar pusher is lowered.

**54**

<b>no . 5 4</b>	<b>P h a s e</b>	<b>9</b>																				
<b>FACING</b>																						

Subparameters

<b>P o s i t i o n</b>																							<b>* ( m m )</b>
<b>S p e e d</b>																							<b>4 0 0 ( 1 0 0 ) ( m m / s e c )</b>
<b>A c c e l e r a t i o n</b>																							<b>3 0 0 ( 2 8 0 ) ( m m / s e c * s e c )</b>

It defines the bar’s position, speed and acceleration during the facing phase (see **parameter 88**)

### 3.1.2 Description of reference value parameters

**57**

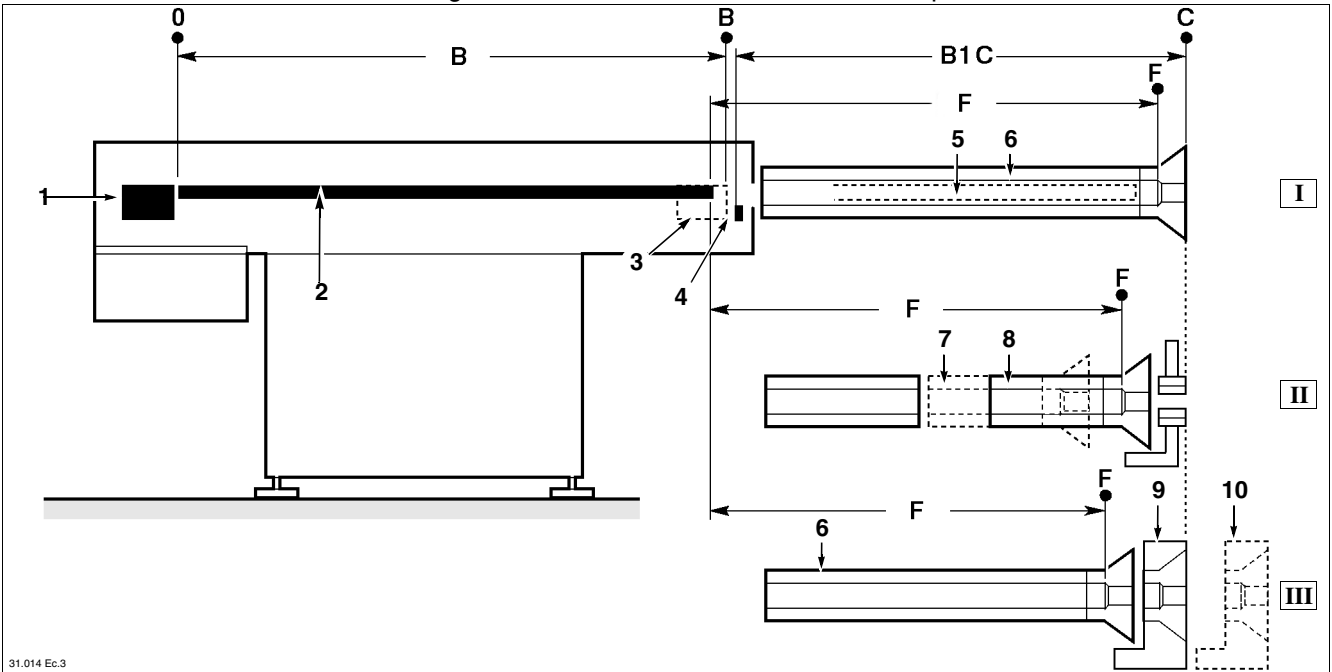
n o . 5 7	Max . bar length	
	1 2 0 0 ( m m )	( i n c h e s )

It defines the maximum length of the loadable bar.

**60**

n o . 6 0	1 s t FEEDING VALUE ( B )	
	1 6 2 2 ( m m )	( i n c h e s )

This is the 1st feeding stroke value, i.e. the distance between points 0 and B.



**Legend:**

- I** - Fixed headstock lathe
- II** - Sliding headstock lathe
- III** - Sliding steady rest lathe
- 1** - Carriage "backwards"
- 2** - Bar-pusher "backwards"
- 3** - Carriage "forwards"
- 4** - Short feed door

- 5** - Bar-pusher "forwards"
- 6** - Spindle
- 7** - Headstock "backwards"
- 8** - Headstock "forwards"
- 9** - Steady rest "backwards"
- 10** - Steady rest "forwards"

**61**

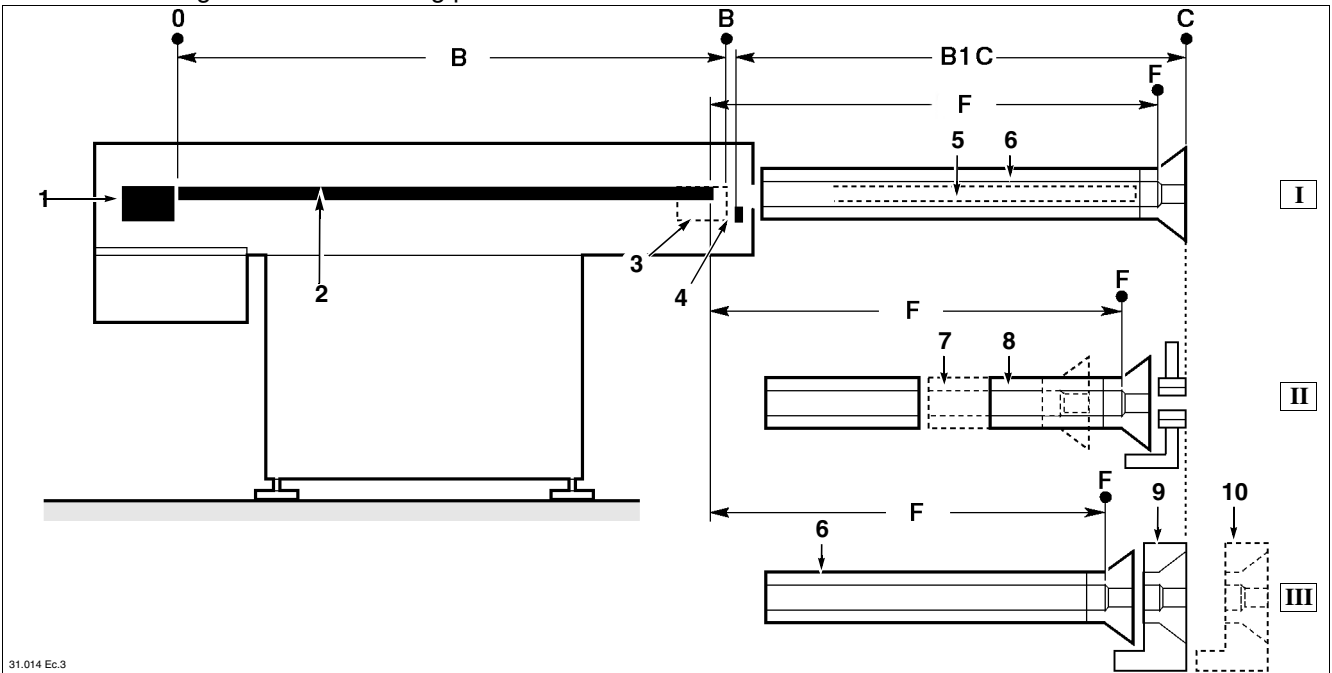
<b>n o . 6 1</b>	<b>I N T R O D U C T I O N V A L U E ( X )</b>		
	<b>* ( m m )</b>		<b>( i n c h e s )</b>

**63**

<b>n o . 6 3</b>	<b>C O L L E T - F L A G D I S T A N C E ( B 1 C )</b>		
	<b>1 3 7 5 ( m m )</b>		<b>( i n c h e s )</b>

The value of this parameter must be entered.

This is the value of point **C** (the facing point), i.e. the distance between the bar feeder's short feed gate 4 and the facing point.



**Legend:**

- I** - Fixed headstock lathe
- II** - Sliding headstock lathe
- III** - Sliding steady rest lathe
- 1** - Carriage "backwards"
- 2** - Bar-pusher "backwards"
- 3** - Carriage "forwards"
- 4** - Short feed door

- 5** - Bar-pusher "forwards"
- 6** - Spindle
- 7** - Headstock "backwards"
- 8** - Headstock "forwards"
- 9** - Steady rest "backwards"
- 10** - Steady rest "forwards"

**64**

<b>n o . 6 4</b>	<b>C O L L E T V A L U E ( C )</b>		
	<b>* ( m m )</b>		<b>( i n c h e s )</b>

The value of this parameter is self-learnt by the program.

This is the distance (mm) that the bar pusher has still to cover in order to reach point **C**, after the bar's 1st feeding.

**65**

<b>n o . 6 5</b>	<b>COLLET+FACING</b>	<b>VALUE ( C I )</b>																	
		<b>* ( m m )</b>																	

The value of this parameter is self-learnt by the program.  
 Value given by adding the value of point **C** and the value of *parameter 2*.

**66**

<b>n o . 6 6</b>	<b>MAX . FEED</b>	<b>VALUE ( F )</b>																	
		<b>1 3 5 0 ( m m )</b>																	

The value of this parameter is self-learnt by the program.  
 This is the value of point **F** (the maximum bar pusher feed point), i.e. the distance between the bar pusher’s rear end in the “completely backward” position and the maximum bar pusher feed point..

**68**

<b>n o . 6 8</b>	<b>GUIDE CHANNEL</b>	<b>OPENING MAX . VALUE</b>																	
		<b>* ( m m )</b>																	

Position of the feeding carriage during the bar pusher lifting phase.

### 3.1.3 Axis function parameter description

**i** **INFORMATION:** Once the parameter values are set, the power supply must be disabled and then enabled again, if the set values are to be self-learned.

It is recommended to avoid changing these parameters; if a change is necessary, call the IEMCA service department.

**70**

no. 70 Axis parametring									

Subparameters

<b>Mm Imp</b>									<b>2 8 5 7 , 5 ( mm / i m p . )</b>
<b>I n v E n</b>									<b>1</b>
<b>I n v V o</b>									<b>0</b>
<b>T i p A b</b>									<b>6</b>

<b>T o d A b</b>									<b>0</b>
<b>T y A z z</b>									<b>1</b>
<b>P D f h</b>									<b>1 ( mm )</b>
<b>V e l M x</b>									<b>1 6 6 6 ( 2 5 0 0 ) ( mm / s e c )</b>

<b>D e c E m</b>									<b>6 0 0 0 ( mm / s e c * s e c )</b>
<b>A l g C o</b>									<b>0</b>
<b>P r c F d</b>									<b>0 ( % )</b>
<b>E r r E c</b>									<b>3 0 0 0 ( mm )</b>

<b>K P M</b>									<b>1 5 0</b>
<b>K P P</b>									<b>1 4 0</b>
<b>K I</b>									<b>1</b>
<b>K D</b>									<b>0</b>

<b>C l e E i</b>									<b>1</b>
<b>I n L i m</b>									<b>1</b>
<b>I P</b>									<b>0 , 0 0 ( mm )</b>
<b>T P</b>									<b>0 , 0 6 ( mm )</b>

<b>E p s S t</b>	<b>0 , 5 0 ( m m )</b>
<b>T i m S t</b>	<b>1 0 0 ( s e c / 1 0 0 0 )</b>
<b>F c M i n</b>	<b>- 1 2 ( m m )</b>
<b>F c M a x</b>	<b>1 6 3 0 ( m m )</b>

<i>Version</i>	<i>Fc Max</i>
<b>14</b>	1630
<b>15</b>	

**71**

<b>n o . 7 1 S l o w f o r w a r d m o t i o n</b>

Subparameters

<b>S p e e d</b>	<b>2 0 0 ( m m / s e c )</b>
<b>A c c e l e r a t i o n</b>	<b>2 0 0 0 ( m m / s e c * s e c )</b>

It defines the speed of the bar pusher carriage related to key n. 13 on the push-button panel.

**72**

<b>n o . 7 2 S l o w b a c k w a r d m o t i o n</b>

Subparameters

<b>S p e e d</b>	<b>- 2 0 0 ( m m / s e c )</b>
<b>A c c e l e r a t i o n</b>	<b>2 0 0 0 ( m m / s e c * s e c )</b>

It defines the speed of the bar pusher carriage related to key n. 12 on the push-button panel.



73

no. 73	Fast	forward	motion																

Subparameters

Speed										500	(mm/sec)								
Acceleration										2000	(mm/sec*sec)								

It defines the speed of the bar pusher carriage related to key n. 14 on the push-button panel.

74

no. 74	Fast	backward	motion																

Subparameters

Speed										-500	(mm/sec)								
Acceleration										2000	(mm/sec*sec)								

It defines the speed of the bar pusher carriage related to key n. 11 on the push-button panel.

76

no. 76	Zero	research	motion																

Subparameter

(see parameter No. 47)																			

**77**

no . 7 7	Thrust value pair check selection

Subparameters

Thrust value for bar change	50
Manual thrust value pair	150
Collet inlet torque	150
Feeding torque	300(200)

Subparameters

Sub spindle feeding value pair	350
Thrust value pair bar pusher motion	300

It defines the value of the clutch thrust.

Value	Feed receiving the "reinforced clutch" device (Volt)
0	0
50	9,1
100	8,1
200	6,1
300	4,1
400	2,1
550	0,1

**84**

no . 8 4	Opposite keyboard
: > 1	

It reverses the motioning direction of parameters **71,72,73** and **74**.



### 3.1.5 Description of generic parameters

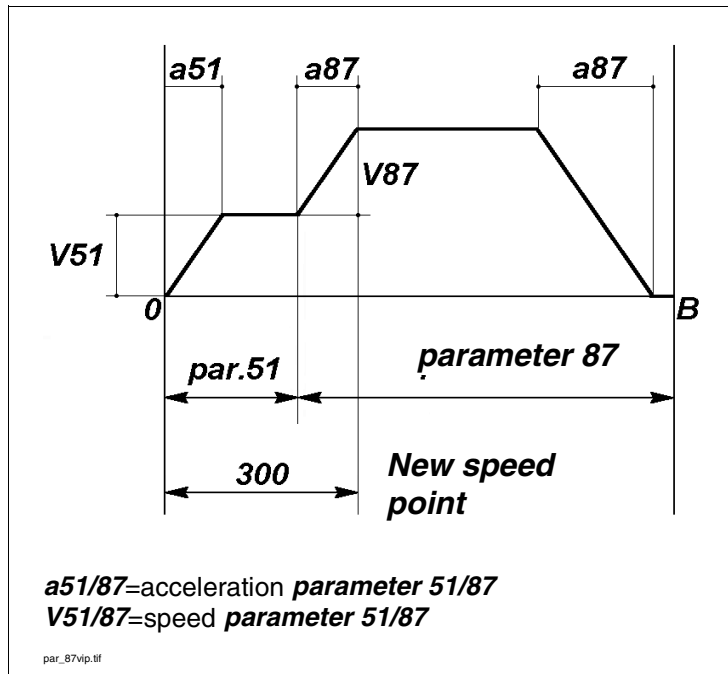
**87**

no. 87	First feeding speed change

Subparameters

New speed	900 (800)(mm/sec)
Connection accelerat.	800 (300)(mm/sec*sec)
New speed point	600 (800)(mm/sec)

It defines the speed and acceleration with which the bar, during the 1st feeding, is carried to point B.



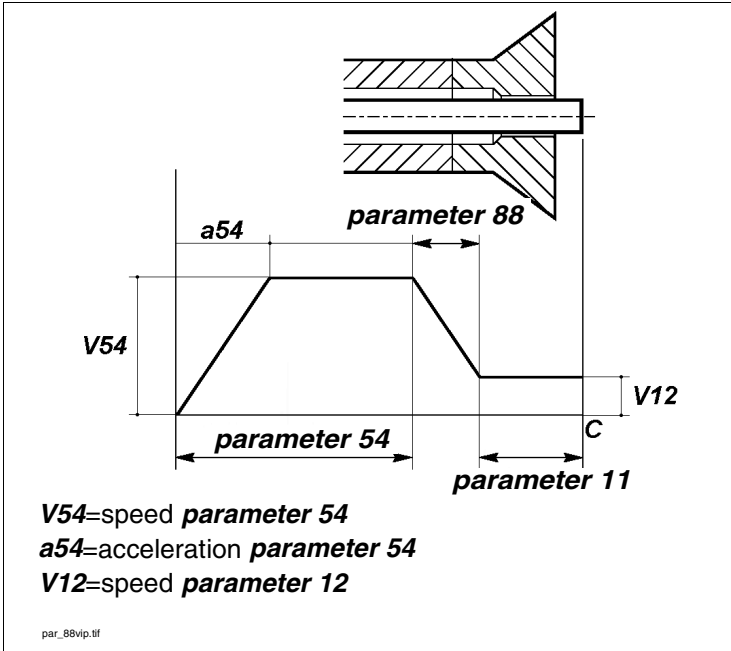
88

no. 88	Facing speed change

Subparameters

New speed (see param. No. 12)	*(mm/sec)
Connection accelerat. 2000(500)	(mm/sec*sec)
New speed point	*(mm/sec)

It defines the speed and acceleration with which the bar is fed along the path set at **parameter 11**.



89

no. 89	Exhibition demo
:	> 0

0 - disabled  
 1 - enabled.  
 To operate this mode, the **parameter 35** must be set to 1, the **parameter 6** to 200 mm (for instance) and the **parameter 85** ("Bar change") to 1.

90

no. 90	Wrong bar feeder phase
:	> 0

- 0 - K37 enabled with guide channels closed in manual mode.
- 1 - Bar feeder in manual mode and lathe in automatic mode.

0  
 The bar feeder goes into "ALARM" when, in "MANUAL" cycle, movements are performed (e.g.: "bar pusher lifting", "guide channel lifting"). The bar feeder exits from the "WORKING" phase, which will need to be reset. "BAR FEEDER WAITING" will appear on the display.

1  
 If the bar feeder is in manual mode, at the feeding first signal it goes into "ALARM".



**CAUTION:** With the "MANUAL/AUTOMATIC" signal from lathe, if the bar feeder is in "MANUAL" mode from lathe, this safety is off.

92

no. 92	Bar pusher backward motion

Subparameters

Speed	- 30 ( mm / sec )
Acceleration	300 ( mm / sec * sec )

It defines the speed and acceleration with which the carriage is pushed back when the bar pusher is lifted or lowered.







# REQUEST FOR ASSISTANCE

For requests for assistance, send the list of parameters compiled, together with the values assigned (attachments A, B, C, D, E, F), to the IEMCA service.

It is also necessary to transmit the identification data of the HARDWARE installed in the bar feeder (attachment G).

## Example of filling in

A

Cliente <b>INDUSTRIES</b>	Data <b>15/02/99</b>
Modello caricatore <b>Vip 80</b>	S/N <b>138240</b>
Modello macchina utilizzatrice <b>Renio 227</b>	

ELENCO DEI PARAMETRI PER L'OPERATORE				
N. par.	Descrizione parametro	Fase	Valore assegnato	Pag.
1	Regolazione fine barra	lavoro	120 mm	14
2	Lunghezza intestatura	cambio barra	40 mm	14
3	Modo di intestatura	cambio barra	1	14
4	Sicurezza avanzamento corto	lavoro	20 mm	14
5	Sicurezza avanzamento lungo	lavoro	20 mm	14
6	Tratto veloce	lavoro	200 mm	14
7	Velocità pinza aperta	lavoro	10 mm/sec	14
8	Accelerazione pinza aperta	lavoro	2 mm/sec <sup>2</sup>	14
9	Ritardo spinta pinza aperta	lavoro	3 sec	15
10	Ritardo spinta pinza chiusa	lavoro	3 sec	15
11	Rallentamento ingresso pinza	cambio barra	40 mm	15
12	Velocità ingresso pinza	cambio barra	10 mm/sec	15
14	Numero degli impulsi	cambio barra	3	15
15	Corsa impulsi	cambio barra	20 mm	15
16	Apertura boccia	lavoro	10 mm	15
17	Chiusura boccia	cambio barra	10 mm	15
18	Impulsi mandrino-tempo on	cambio barra	3 sec	16
19	Impulsi mandrino-tempo off	cambio barra	3 sec	16
20	Ritardo partenza ciclo	cambio barra	7 sec	16
21	Gestione dello spezzone	cambio barra	0	16
24	Uso sincronismo	lavoro	0	16
26	Pezzi prima dell'arresto tomio	lavoro	250	16
27	Minuti prima dell'arresto tomio	lavoro	/	16
28	Velocità pinza chiusa	lavoro	40 V	16
29	Correzione pos. max avanzamento	lavoro	20	16
30	Lingua	lavoro	1	16
31	Uso interfaccia macchina	lavoro	0	16
32	Escl. chiusura guide in prevanz.	cambio barra	1	16
35	Avanzamento a pezzo fisso	lavoro	0	17
37	Durata K15	cambio barra	4 sec	17
38	Durata K13	cambio barra	6 sec	17

B
C
D
E
F
G



Customer	Date
Bar feeder model	Y/N
Machine tool model	

## LIST OF GENERIC PARAMETERS

no. par.	Description of parameters	Default value	Assigned value	Page
1	Bar end adjustment	100	mm-inch	18
2	Facing length	0	mm-inch	18
3	Facing mode	0		18
4	Short feed safety	0	mm-inch	19
5	Long feed safety	0	mm-inch	19
6	Workpiece length	0	mm-inch	20
7	Open collet speed	200	mm/sec	21
8	Open collet acceleration	500	mm/sec <sup>2</sup>	21
9	Open collet thrust delay	0	sec	21
10	Closed collet thrust delay	1	sec	21
11	Collet entry slowing down	200	mm-inch	21
12	Collet entry speed	200	mm/sec	22
13	Collet inlet torque	150		22
14	Impulse number	10		22
15	Impulse stroke	10	mm-inch	22
18	Spindle impulses on	0,5	sec	23
19	Spindle impulses off	2	sec	23
20	Cycle start delay	1	sec	23
21	Remnant handling	1		23
22	Open collet timeout	0	sec	25
23	Workpiece timeout	0	sec	25
25	Bar pusher return collet closed	10		26
26	Workpieces prior to lathe stop	0		27
27	Minutes prior to lathe stop	0	min	27
29	Max. feeding position modification	0	mm-inch	28
30	Language 1l - 2GB - 3D	1		29
31	Bar feeder interface control	1		29

no. par.	Description of parameters	Default value	Assigned value	Page
32	k1 immediate exit	0		34
33	k2 inversion	0		34
34	Feeding torque	300		34
35	Fixed workpiece feeding	0		35
	Workpiece lenght	97		
	Cutting tool lenght	3		
36	k15 Disabling	1		36
37	K15 time	2	sec	36
38	K13 time	5	sec	36
39	Spindle stop	0		36
41	Sub spindle mode	0	mm-inch	37
	Workpiece lenght	97		
	Cutting tool lenght	3		
	Number opening collet workpiece program	1		
	Sub-spindle feeding torque	350		
42	Bar pusher return pause	1	sec	37
43	First feeding speed change			37
	New speed	900	mm/sec	
	Connection acceleration	800	mm/sec <sup>2</sup>	
	New speed point	600	mm	

Customer		Date
Bar feeder model		Y/N
Machine tool model		

## LIST OF BAR FEEDER PHASE PARAMETERS

no. par.	Description of parameters	Default value	Assigned value	Page
46	<b>Phase 1 - RETURN</b>			59
	Position	0	mm	
	Speed	1500	mm/sec	
	Acceleration	3000	mm/sec <sup>2</sup>	
47	<b>Phase 2 - ZERO AXIS</b>			59
	Research speed	100	mm	
	Release speed	30	mm/sec	
	Acceleration	300	mm/sec <sup>2</sup>	
	Direction	0		
48	<b>Phase 3 - BAR PUSHER UPWARD</b>			59
	Speed	-30	mm/sec	
	Acceleration	300	mm/sec <sup>2</sup>	
49	<b>Phase 4 - BAR LOADING</b>			60
50	<b>Phase 5 - GUIDE CHANNEL LIFTING</b>			60
51	<b>Phase 6 - FIRST FEEDING</b>			60
	Position	1621	mm	
	Speed	100	mm/sec	
	Acceleration	280	mm/sec <sup>2</sup>	
52	<b>Phase 7 - RETURN AFTER FIRST FEEDING</b>			61
	Position	0	mm	
	Speed	1500	mm/sec	
	Acceleration	3000	mm/sec <sup>2</sup>	
53	<b>Phase 8 - BAR PUSHER DOWNWARD</b>			61
	Speed	-30	mm/sec	
	Acceleration	300	mm/sec <sup>2</sup>	
54	<b>Phase 9 - FACING</b>			61
	Position	690	mm	
	Speed	400	mm/sec	
	Acceleration	300	mm/sec <sup>2</sup>	



Customer		Date
Bar feeder model		Y/N
Machine tool model		

### LIST OF REFERENCE VALUE PARAMETERS

no. par.	Description of parameters	Default value	Assigned value	Page
57	Max . bar lenght	1200	mm-inch	62
60	First feeding value (B)	1622	mm-inch	62
61	Bar loading value (X)	/	mm-inch	63
63	Collet-flag distance (B1C)	1375	mm-inch	63
64	Collet value (C)	365,74	mm-inch	63
65	Collet + facing value (CI)	365,74	mm-inch	64
66	Max. feed value (F)	1350	mm-inch	64
68	Guide channel opening max. value	0	mm-inch	64





Customer		Date
Bar feeder model		Y/N
Machine tool model		

## LIST OF AXIS FUNCTION PARAMETERS

no. par.	Description of parameters	Default value	Assigned value	Page
70	<b>Axis parametring</b>			65
	MmImp	2857,5	mm/imp.	
	InvEn	1		
	InvVo	0		
	TipAb	6		
	TodAb	0		
	TyAzz	1		
	PDfh	1	mm	
	VelMx	1666	mm/sec	
	DecEm	6000	mm/sec <sup>2</sup>	
	AlgCo	0		
	PrcFd	0	%	
	ErrEc	3000	mm	
	KPM	150		
	KPP	140		
	KI	1		
	KD	0		
	CleEi	1		
	InLim	1		
	IP	0	mm	
TP	0,06	mm		
EpsSt	0,50	mm		
TimSt	100	sec/1000		
FcMin	-12	mm		
FcMax	1630	mm		
71	<b>Slow forward motion</b>			66
	Speed	200	mm/sec	
	Acceleration	2000	mm/sec <sup>2</sup>	
72	<b>Slow backward motion</b>			66
	Speed	-200	mm/sec	
	Acceleration	2000	mm/sec <sup>2</sup>	

no. par.	Description of parameters	Default value	Assigned value	Page
73	<b>Fast forward motion</b>			67
	Speed	500	mm/sec	
	Acceleration	2000	mm/sec <sup>2</sup>	
74	<b>Fast backward motion</b>			67
	Speed	-500	mm/sec	
	Acceleration	2000	mm/sec <sup>2</sup>	
76	<b>Zero point research motion</b>			67
77	<b>Thrust value pair check selection</b>			68
	Thrust value for bar change	50		
	Manual thrust value pair	150		
	Collet inlet torque	150		
	Feeding torque	200		
	Sub spindle feeding value pair	350		
	Thrust value pair bar pusher motion	300		
84	<b>Opposite keyboard</b>	1		68

Customer		Date
Bar feeder model		Y/N
Machine tool model		

### LIST OF INTERFACE PARAMETERS

no. par.	Description of parameters	Default value	Assigned value	Page
85	<b>Interface signals</b>			69
	Feed	0		
	Bar change	0		
	Manual/automatic from lathe	0		
	Loading cycle	1		
	Feed stop	0		
	Threading safety	0		
	Start from lathe	0		
	Safety from lathe	1		
	Door safety	0		
	Startup safety	0		
	Startup start	0		



Customer		Date
Bar feeder model		Y/N
Machine tool model		

### LIST OF GENERIC PARAMETERS

no. par.	Description of parameters	Default value	Assigned value	Page
87	<b>First feeding speed change</b>			70
	New speed	900		
	Connection acceleration.	800		
	New speed point	600		
88	<b>Facing speed change</b>			71
	New speed	200		
	Connection acceleration	2000		
	New speed point	365		
89	<b>Exhibition demo</b>	0		71
90	<b>Wrong bar feeder phase</b>	0		72
92	<b>Bar pusher backward motion</b>			72
	Speed	-30		
	Acceleration	300		
96	<b>Return safety</b>	4	mm	72
97	<b>1st feeding safety</b>	4	mm	72
98	<b>Return after 1st feed. safety</b>	4	mm	72





Customer		Date
Bar feeder model		Y/N
Machine tool model		

**HARDWARE IDENTIFICATION DATA**

<b>PLC card</b>	serial number:
<b>Enabling card</b>	serial number:
<b>EEPROM</b>	model:

