

AUTOMATIC BAR FEEDER

ATTACHMENTS LIST
MANUAL FOR USE AND MAINTENANCE
KEYBOARD INSTRUCTION MANUAL
SPARE PARTS BOOK
SCHEMATICS
EC CONFORMITY DECLARATION FOR MACHINE

KID 80

EN

MANUAL FOR USE AND MAINTENANCE

Rel. 1

Date 15/07/07

Cod.



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S/N

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TYPE OF DOCUMENT: MANUAL FOR USE AND MAINTENANCE

PRODUCT: AUTOMATIC BAR FEEDER

MODEL: KID 80

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1.1 WARRANTY CONDITIONS

The applicable warranty period is subordinated to a correct assembly and coupling of the bar feeder to the lathe. In particular, prior to the first start-up, accurately make sure that the bar feeder is correctly aligned with the lathe and fixed with the expansion plugs as shown in section 4.

The product warranty is valid only if the bar feeder is installed by an authorized technician with Original Installation Certificate.

Please ask the technician, who will make the installation, to show the certificate, in order to ascertain the quality of the technical operations being carried out.

The warranty shall begin from the date on the "Installation Certificate" duly filled in and signed.

The document must be sent by mail to:

**TECHNICAL SERVICE DEPARTMENT
IEMCA division of IGMI spa
48018 Faenza (Ra) ITALY - Via Granarolo, 167**

IEMCA CERTIFICATO DI INSTALLAZIONE N° 0517 /02

IMPORTANTE Il presente modulo, compilato in ogni sua parte, deve essere spedito in IEMCA Italia per dare corso al periodo di garanzia.
Installazione e training eseguito da:

Ditta	Data
Tecnico Installatore	N° Rapporto di Intervento
Presso:	
Cliente	Partecipanti (Scrivere Spiegatore i nomi)
Nazione	
Caricatore	
Matricola	
Macc./Tipo	

A R G O M E N T O

Descrizione generale del caricatore e del suo funzionamento, spiegazione del ciclo di lavoro.	<input type="checkbox"/>
Istruzioni per attrezzare il caricatore e come eseguire il cambio di lavorazione.	<input type="checkbox"/>
Descrizione e cambio di: guide, spingibarra, pinze, semiboccole, cernotto anteriore e di riduzione.	<input type="checkbox"/>
Spiegazione lastiera operatore. Spiegazione dei parametri e loro utilizzo.	<input type="checkbox"/>
Procedure di programmazione in base al tipo di lavorazione da eseguire.	<input type="checkbox"/>
Errori - Cause - Rimedi: spiegazione dei principali allarmi riportati sui manuali.	<input type="checkbox"/>
Presenza visione della manualistica e delle indicazioni di manutenzione preventiva; Modalità per contattare l'assistenza tecnica autorizzata IEMCA.	<input type="checkbox"/>
Presenza visione della manualistica e delle indicazioni di manutenzione preventiva; Modalità per contattare l'assistenza tecnica autorizzata IEMCA.	<input type="checkbox"/>

Gli argomenti contrassegnati sono stati trattati in modo completo ed esauritivo. I partecipanti si dichiarano completamente soddisfatti del Training effettuato. Firma a lato per accettazione.	
NOTA - Ferrogazione del periodo di garanzia è subordinata a: - installazione eseguita da un tecnico autorizzato IEMCA. - svolgimento del sopraccitato "training"	
La decorrenza della garanzia si intende valida per 12 mesi dalla data di installazione e comunque, non oltre i 18 mesi dalla data di consegna. La validità della garanzia entra in vigore dalla data di sottoscrizione incondizionata del presente modulo che dovrà essere restituito alla IEMCA, completo di ogni sua parte via posta entro 15 giorni, o tramite il tecnico installatore.	Timbro e firma del cliente

1.2 PURPOSE OF THE MANUAL

This manual, which is an integral part of the bar feeder, has been carried out by the manufacturer in order to provide all necessary information for those who are authorised to interact with it.

Besides adopting a good use technique, the receivers must carefully read this information and rigorously follow it.

This information has been carried out by the manufacturer in his mother tongue language (Italian) and can be translated into other languages in order to satisfy any legal and/or commercial needs.

Some time devoted to reading such information will enable the users to avoid any risk to the health and safety of people as well as economic damage.

In the event that, in this manual there is some additional information regarding the effective equipment of the bar feeder, it does not interfere with the reading.

Keep this manual for the whole life of the bar feeder in a well-known and easily accessible place in order to have it always available when it is necessary to consult it.

The manufacturer reserves the right to make any changes without the obligation to notify them in advance.

In order to underline some very important parts of the text or to indicate some important specifications, some symbols have been adopted. Their meaning is described below:



DANGER - WARNING:

indicates some situations of great danger that, if neglected, can seriously put the health and safety of people at risk.



WARNING - CAUTION:

indicates that it is necessary to adopt suitable behaviour so as to avoid jeopardising the health and safety of people and causing any economic damage.



INFORMATION:

these are technical instructions of particular importance.

For a quick search of the topics, see the table of contents.

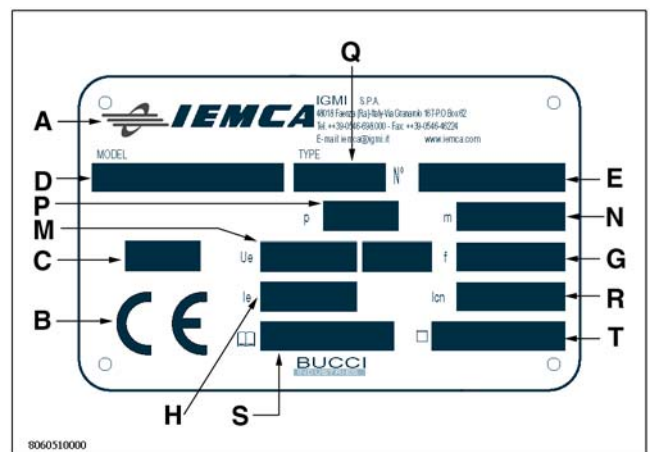
This manual, which contains all the instructions for the bar feeder operation and maintenance, is supplied with: the "Keyboard instruction manual".

The "Keyboard instruction manual" contains all the instructions on how to use the installed software.

1.3 MANUFACTURER AND BAR FEEDER IDENTIFICATION

The identification plate shown in the figure, is directly applied on the bar feeder. It contains any reference and all the indications indispensable for the operating safety.

- A Manufacturer identification.
- B EC mark of conformity.
- C Year of manufacture.
- D Bar feeder model.
- E Serial number.
- G Mains frequency.
- H Power consumption.
- M Supply voltage.
- N Bar feeder weight.
- P Pneumatic system pressure.
- Q Bar feeder and bar pusher length.
- R Interrupting power.
- S Base Wiring Diagram Number.
- T Interface Wiring Diagram Number.



INFORMATION:

always provide the manufacturer with the above mentioned specifications when requesting information or ordering spare parts, etc.

1.4 ASSISTANCE REQUEST MODE

For any need apply to an authorised service centre.

For any request of technical assistance concerning the bar feeder, indicate the data on the identification plate, the approximate hours of use and the kind of defect found.

1.5 GLOSSARY AND TERMINOLOGY

Some recurrent words in the manual are here described in order to provide a more complete understanding of their meaning.

Scheduled maintenance: set of operations necessary to ensure the appropriate operation and efficiency of the bar feeder. Usually these operations are programmed by the manufacturer who defines the necessary competence and the assistance procedures.

Unscheduled maintenance: set of operations necessary to ensure the appropriate operation and efficiency of the bar feeder. These operations are not programmed by the manufacturer and must be carried out by the maintenance technician.

Expert technician: authorized person chosen among those who have the requirements, competence and information needed for the installation, operation and unscheduled maintenance of the bar feeder.

Expert operator: authorized person chosen among those who have the requirements, competence and information needed for the installation, operation and scheduled maintenance of the bar feeder.

Loading axis: axis of the bar coinciding with the spindle axis of the lathe.

Remnant: final ejection portion of the machined bar.

Facing position: position of the bar in the lathe, during the facing phase.

1.6 ATTACHED DOCUMENTS

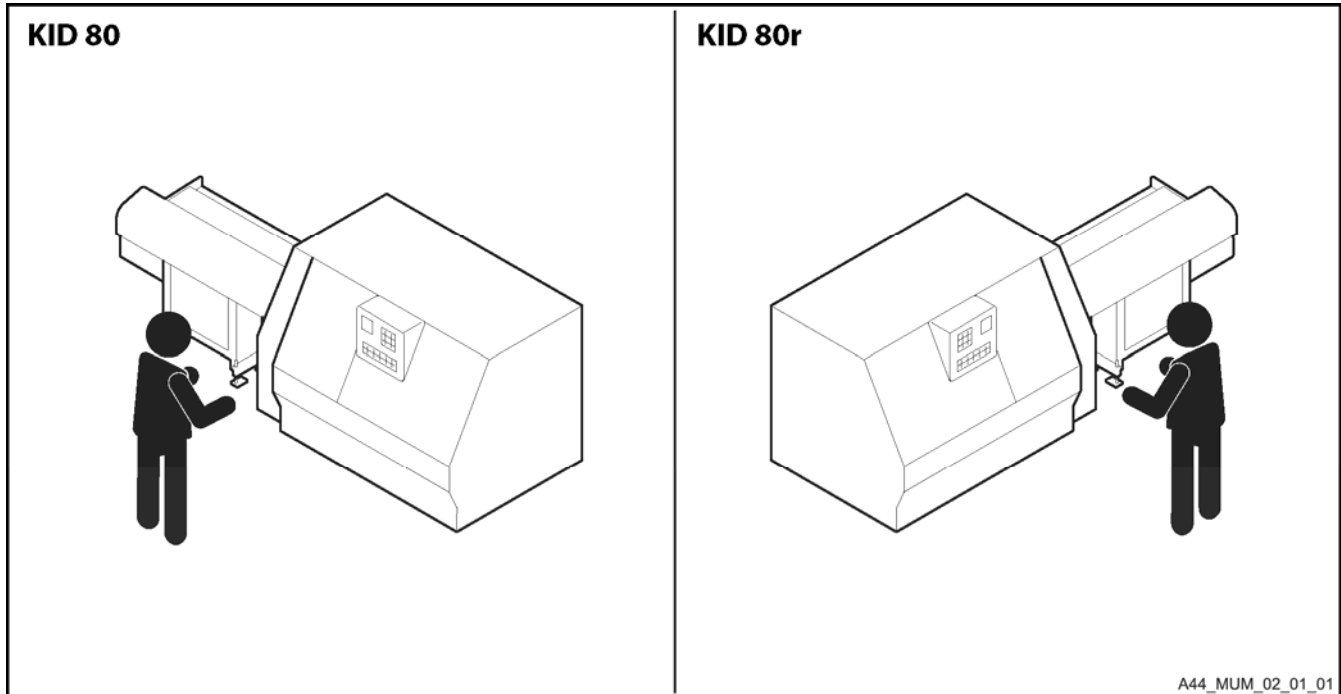
Together with this manual, the customer receives the following documents.

- Keyboard instruction manual; it contains all the operation instructions for the operational parameter setting.
- Wiring diagram.
- Spare parts catalogue.
- CD-Rom containing all the above-mentioned documents, inclusive of the Brochure with all the technical requirements of the bar feeder, the wiring diagram and the collet selection manual.

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2.1 BAR FEEDER GENERAL DESCRIPTION



The bar feeder in question has been designed and manufactured in order to automatically feed the bars to be machined on the lathe.

It can feed bars with different (round, square, hexagonal) sections and of maximum length equal to that of the spindle liner.

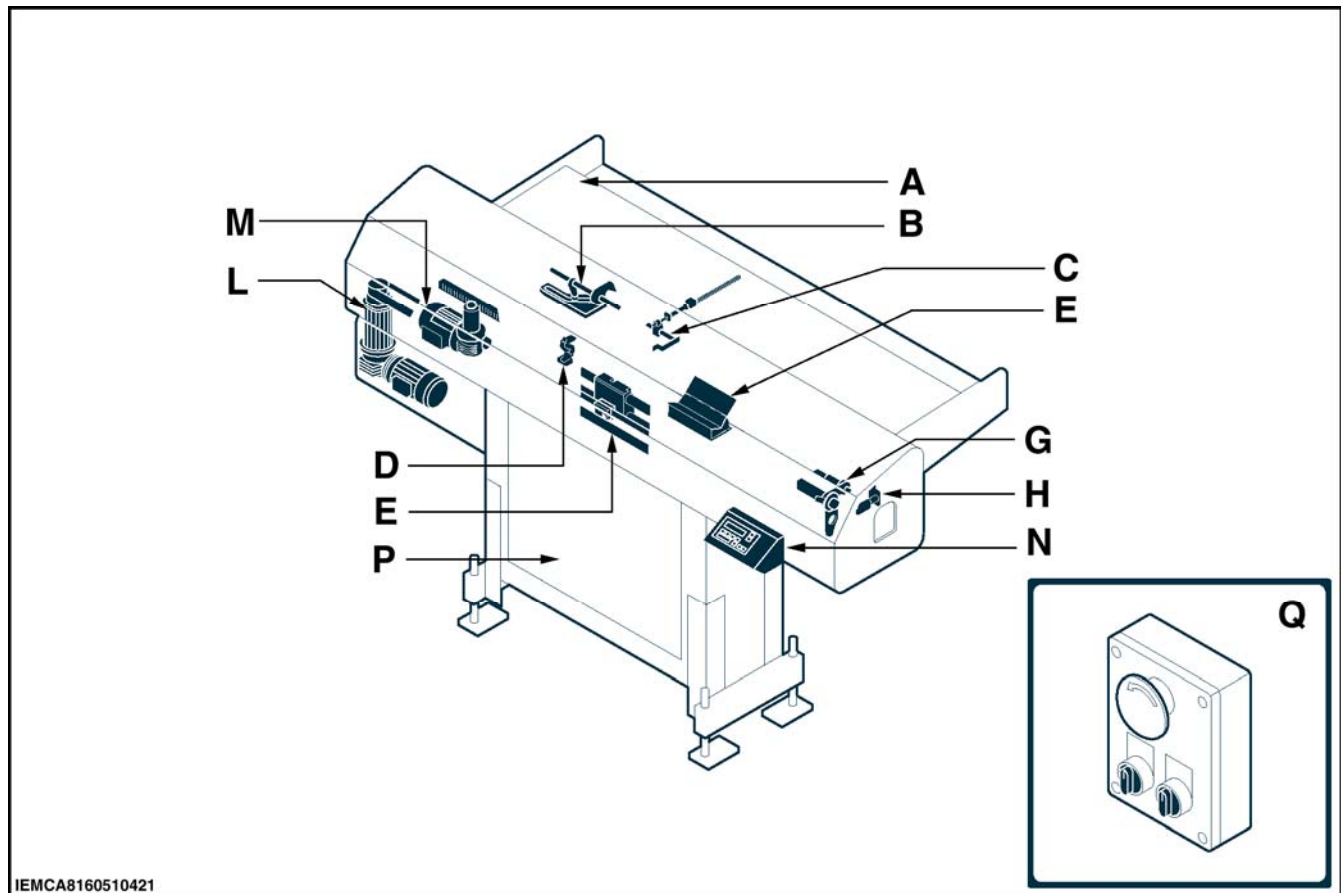
The operating cycle is directed by a PLC, integrated in the electrical control panel, which interacts with the lathe controls.

The bar feeder is provided with a remote push-button panel allowing the operator to perform operations in manual mode (tooling phase) without leaving the working area.

The phase of preparation and tooling of the working change (diameters or different sections) is extremely easy and quick.

Remnant ejection can take place with the feed either of the bar pusher or of the following bar.

2.1.1 MAIN PARTS



IEMCA8160510421

- A Magazine; contains the bars to be loaded.
- B Bar selecting device; it takes the first bar out of the magazine and lays it on the "bar drop control device".
- C Bar "limit stop" device; it regulates correctly the position of the first bar inside the magazine, before it is lifted by the "bar selecting device".
- D Bar drop control device; puts the bar onto the guide.
- E Guide channel; this device drives the bar and introduces it correctly into the lathe.
- F Carriage unit; this device introduces the bar into the lathe.
- G Bar pushing unit; this device pushes the bar inside the lathe until it has been completely machined.
- H Flag device; this device is activated by the arrival of the front end of the bar.
- L Bar feeding motor; thanks to a toothed belt, motions are transmitted to the carriage and to the bar pusher.
- M Cam drive unit; it starts the cams of the bar selecting and bar drop control devices as well as the bar limit stop cams.
- N Side keyboard; thanks to this keyboard it is possible to set up programming and to start bar feeder working phases.
- P Electric cabinet; houses the electrical control panel.
- Q Remote control; this device allows the operator to control operations remotely in manual mode.

2.2 OPERATING CYCLE

The possible working cycles are listed hereunder:

- REGULAR CYCLE; the bar is fed by the bar feeder until it reaches the lathe "bar stop".
- FIXED PIECE FEEDING; the bar feeding is exact and accurate (no lathe "bar stop" is needed).

In the following paragraphs you will find a concise description of the phases in this working cycle.

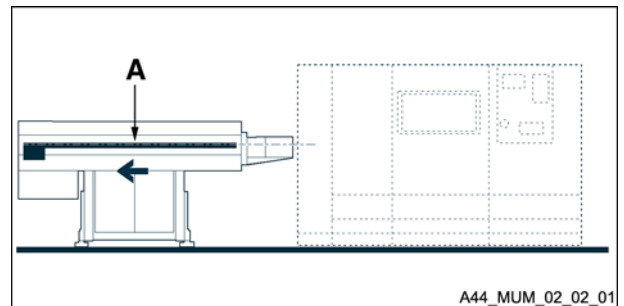


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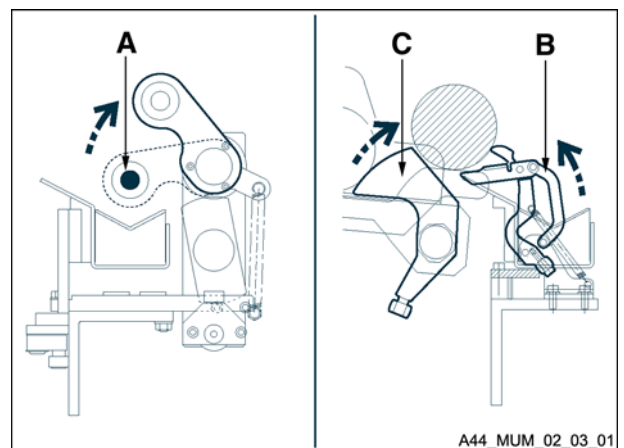
for further detailed information about working cycle selection and setting, please see the keyboard instruction manual, in particular parameter 29.

2.2.1 REGULAR CYCLE

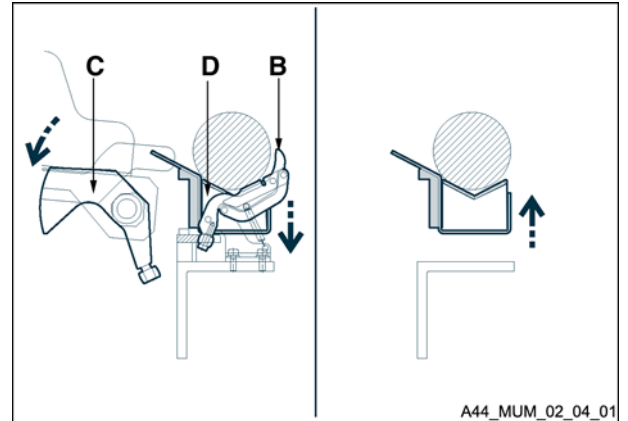
- At the stop of the lathe operating cycle, the bar pusher (A) moves back to the limit stop position.



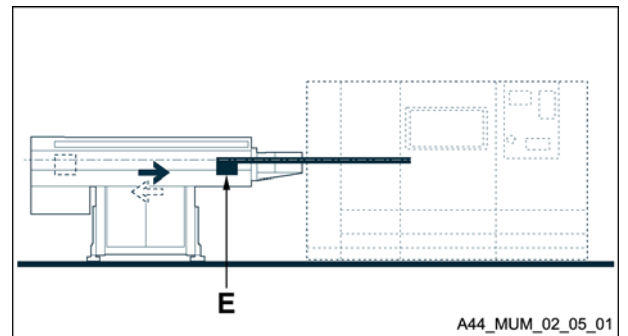
- The bar pusher (A) and the "bar drop control" unit (B) are lifted. At the same time, also the "bar selecting" unit (C) that loads the first bar on the "bar drop control" unit is lifted.



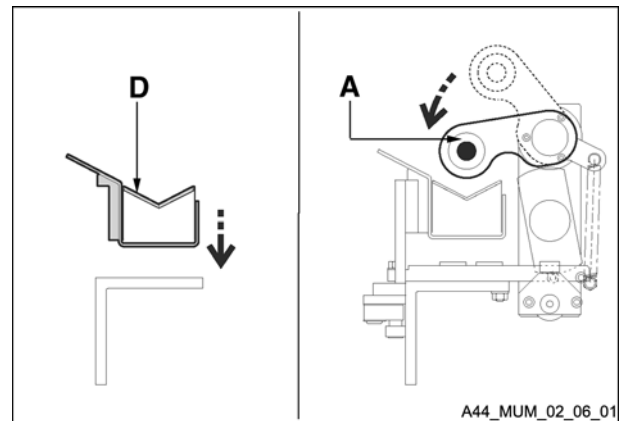
- The "bar drop control" unit (B) returns to its initial position enabling bar insertion into the guide (D). At the same time, the "bar selector" unit (C) returns to its initial position. Subsequently, the guide lifts and sets the bar in line with the loading axis.



- The bar is inserted into the carriage lathe (E) that then goes back to its initial position.



- The guide (D) returns to its low position. The bar pusher (A) lines up with the loading axis of the lathe spindle.



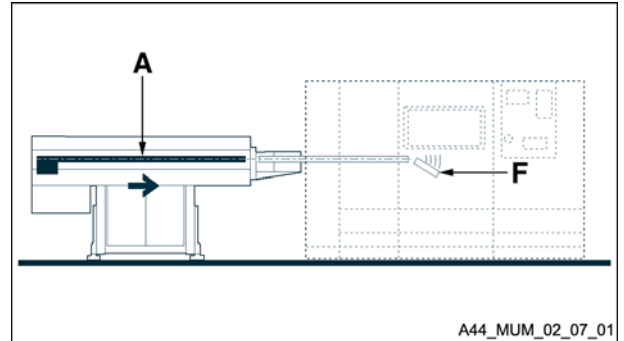
- The bar pusher (A) inserts the bar into the spindle liner. The bar ejects the remnant (F) as a residual of the previous machining, and is positioned for the facing.

The lathe operating cycle starts at the beginning of the bar facing phase.

At this point the bar is fed till it reaches the lathe "bar stop", then machining phase takes place until one piece has been fully machined.

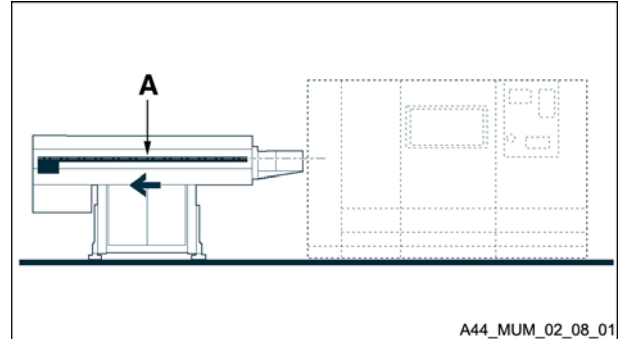
The latter phase is repeated several times till the bar has been completely machined.

NOTE: in order to save time, it is possible to start the bar change phase when the lathe is machining the last piece.

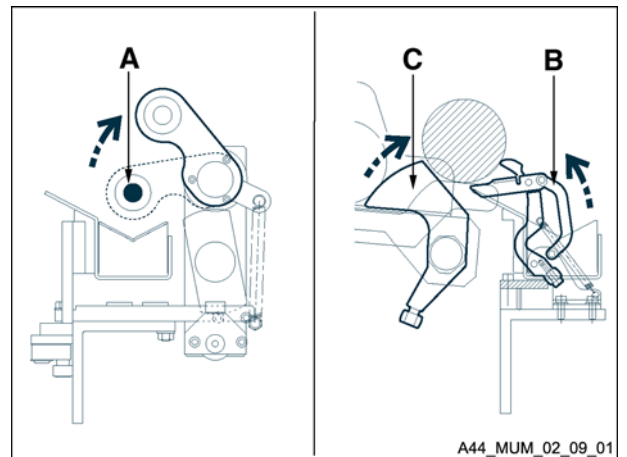


2.2.2 "FIXED PIECE FEEDING" CYCLE

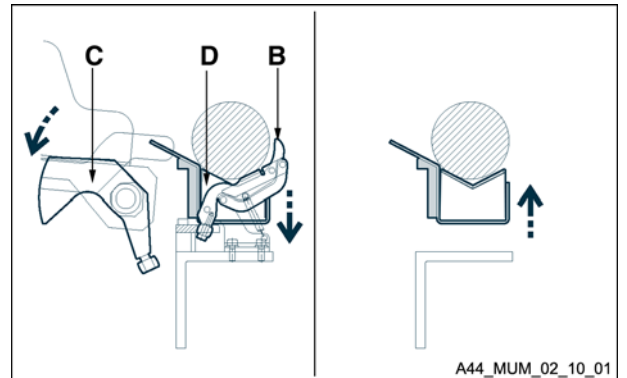
- At the stop of the lathe operating cycle, the bar pusher (A) moves back to the limit stop position.



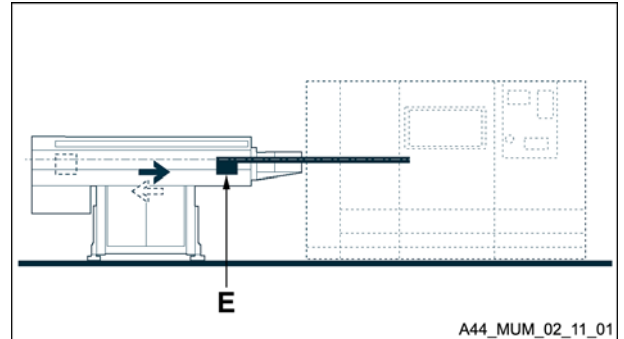
- The bar pusher (A) and the "bar drop control" unit (B) are lifted. At the same time, also the "bar selecting" unit (C) that loads the first bar on the "bar drop control" unit is lifted.



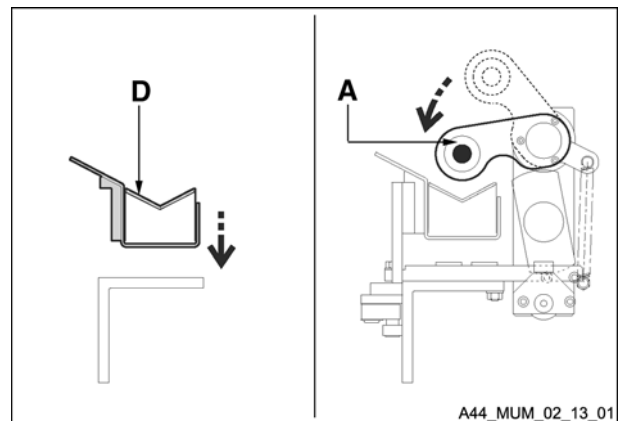
- The "bar drop control" unit (B) returns to its initial position enabling bar insertion into the guide (D). At the same time, the "bar selector" unit (C) returns to its initial position. Subsequently, the guide lifts and sets the bar in line with the loading axis.



- The bar is inserted into the carriage lathe (E) that then goes back to its initial position.



- The guide (D) returns to its low position. The bar pusher (A) lines up with the loading axis of the lathe spindle.

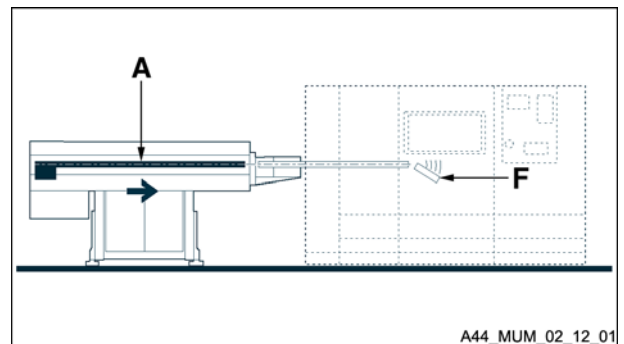


- The bar pusher (A) inserts the bar into the spindle liner. The bar ejects the remnant (F) as a residual of the previous machining, and is positioned for the facing.

The lathe operating cycle starts at the beginning of the bar facing phase.

At this point the bar is precisely fed according to the value which has been set, then the machining phase takes place until one piece has been fully machined.

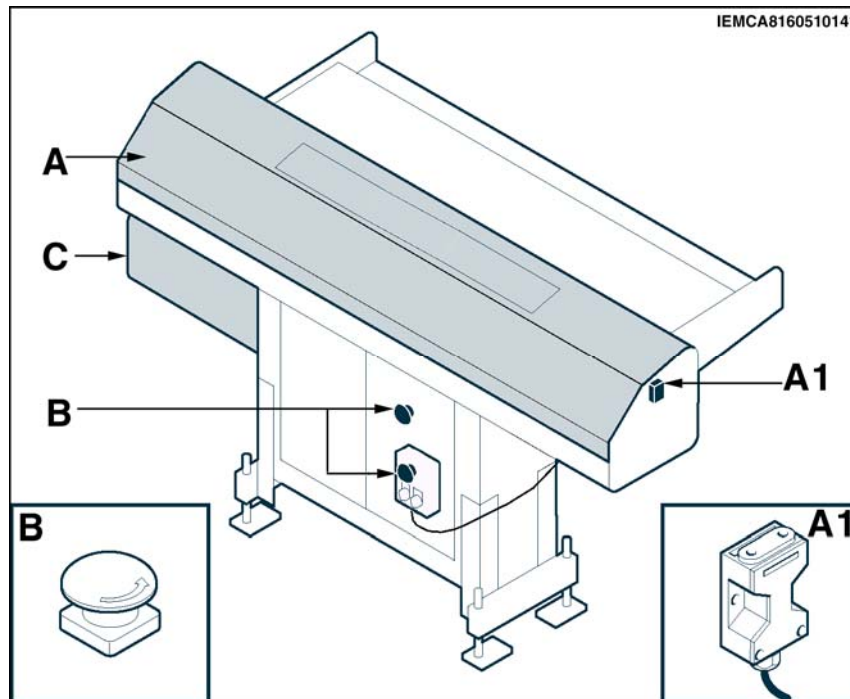
The latter phase is repeated several times till the bar has been completely machined.



NOTE: in order to save time, it is possible to start the "bar change" phase when the lathe is machining the last piece.

2.3 SAFETY DEVICES

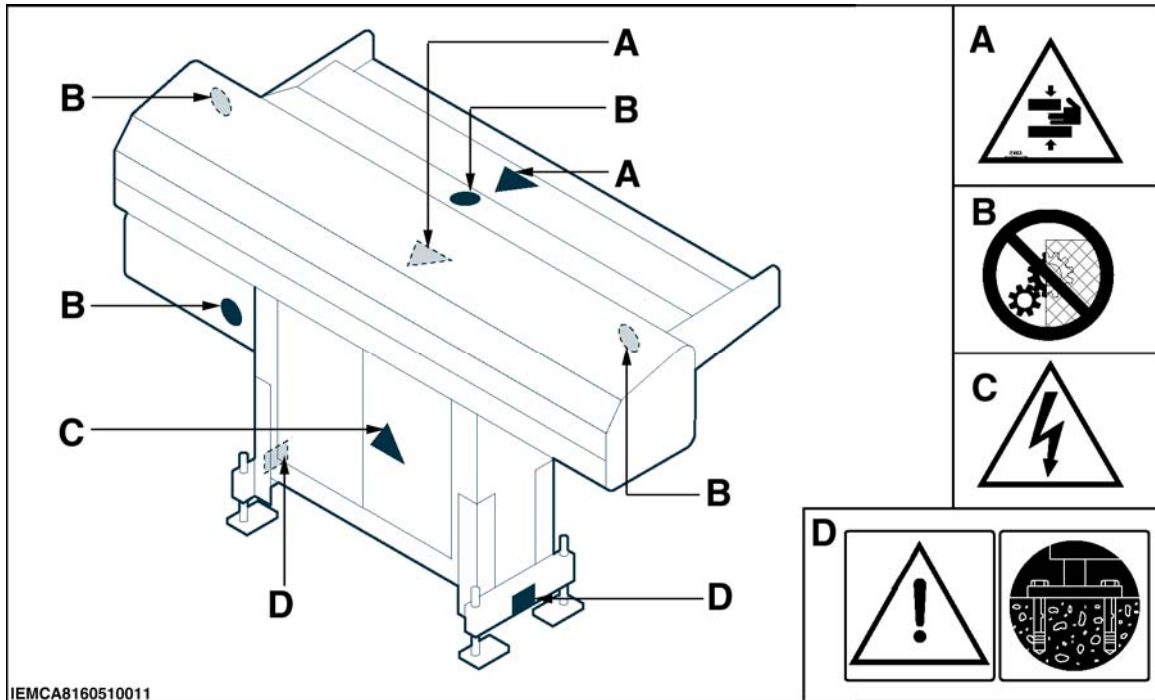
The figure indicates the position of the devices on the bar feeder.



- A- Interlocked sliding guard: is associated with an interlock device (microswitch A1). At the opening of the guard, in emergency conditions, all the bar feeder and lathe functions stop. At the guard closing, it is possible to start the operating cycle again. This one is endowed with a porthole allowing the visual inspection of the bar handling main components.
- B- Emergency stop button: if activated, each component of the bar feeder and of the lathe immediately stops. After having normalised the operating conditions it is required to release the button, with a voluntary action, in order to authorise again the bar feeder and lathe setting into operation.
- C- Fixed drive guard: prevents the access to the components in motion.

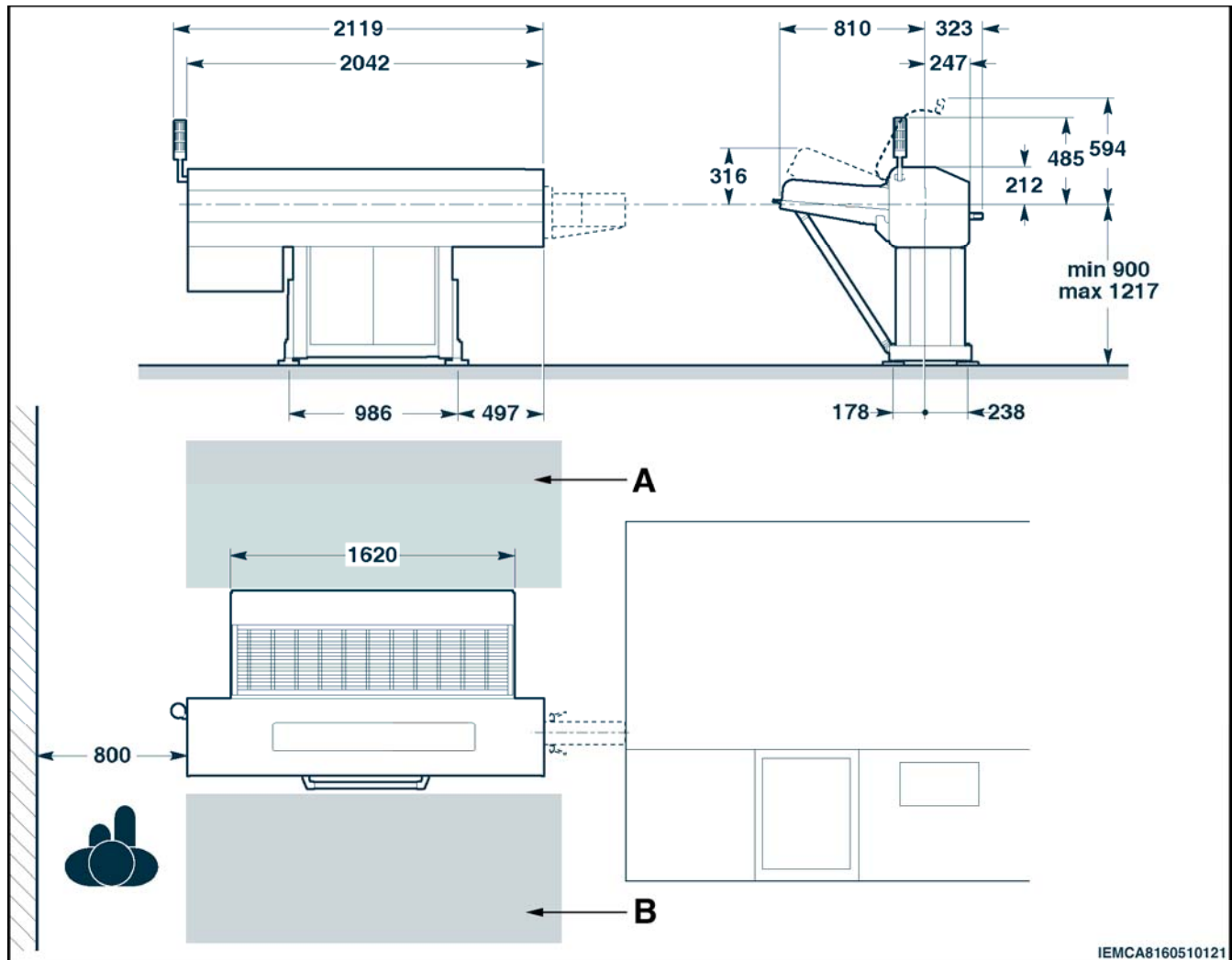
2.4 SAFETY AND INFORMATION SIGNALS

The figure indicates the position of the signals put on the bar feeder.



- A- Danger of crushing upper limbs: do not put hands inside when there are components in motion.
- B- No guard removal: it is forbidden to use the bar feeder without the guards installed and in operating conditions.
- C- Danger of electrocution: do not enter the powered elements.
- D- Danger of untimely shifting: before carrying out the first start make sure that the bar feeder is adequately anchored to the ground.

2.4.1 BAR FEEDER DIMENSIONS



IEMCA8160510121

- A BAR LOADING AREA
- B WORK AREA

2.4.2 Noise levels

During the machining, the bar feeder is not noisy. The only phase where there can be some short-lasting peaks (85 dbA), is the bar loading one. This measurement has been made in conformity with the regulations in force.

2.5 TECHNICAL DATA AND PERIMETRAL AREAS

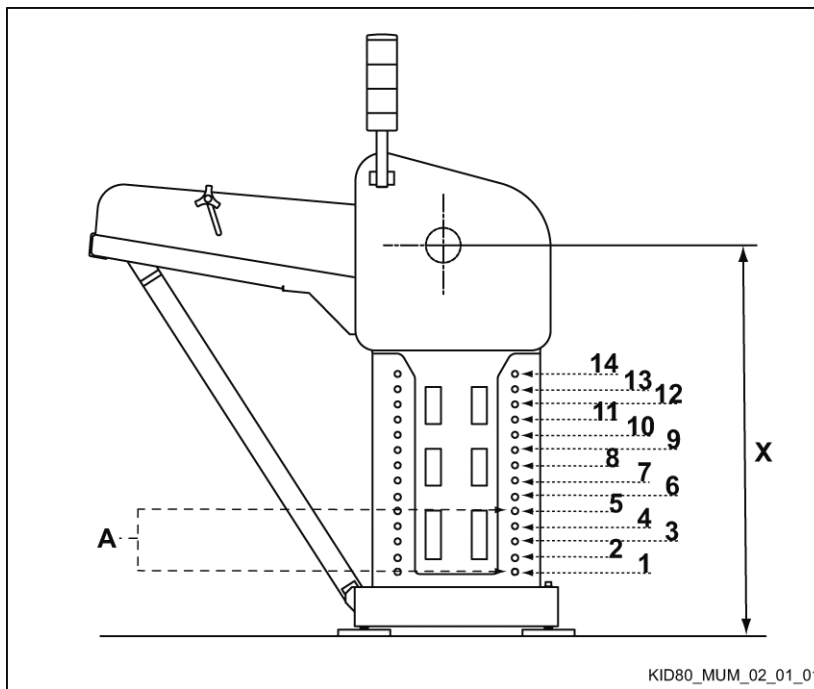
Technical data table

	KID 80	
Round bar diameter	Ø min. 5 mm (3/16")	Ø Max. 70 mm (2"3/4)
Square bar side	min. 5 mm (3/16")	Max. 50 mm (2")
Hexagonal bar height (key socket)	min. 5 mm (3/16")	Max. 60 mm (2 1/4")
Minimum bar length	500 mm	
Maximum bar length	1615 mm	
Magazine capacity (Kg.)	250 Kg (N. 60 barre da Ø 10 mm)	
Bar change time (with 1,000 mm bar)	50 sec.	
Feeding speed	0-500 mm/sec.	
Return speed	1000 mm/ sec.	
Power supply voltage	230/400 Volt	
Control voltage	24 Volt	
Installed power (kW)	2 kW	
Weight	580 Kg	

Note: the maximum length is valid for a lathe that can contain it. This means that the bar length should never exceed that of the lathe head and spindle.

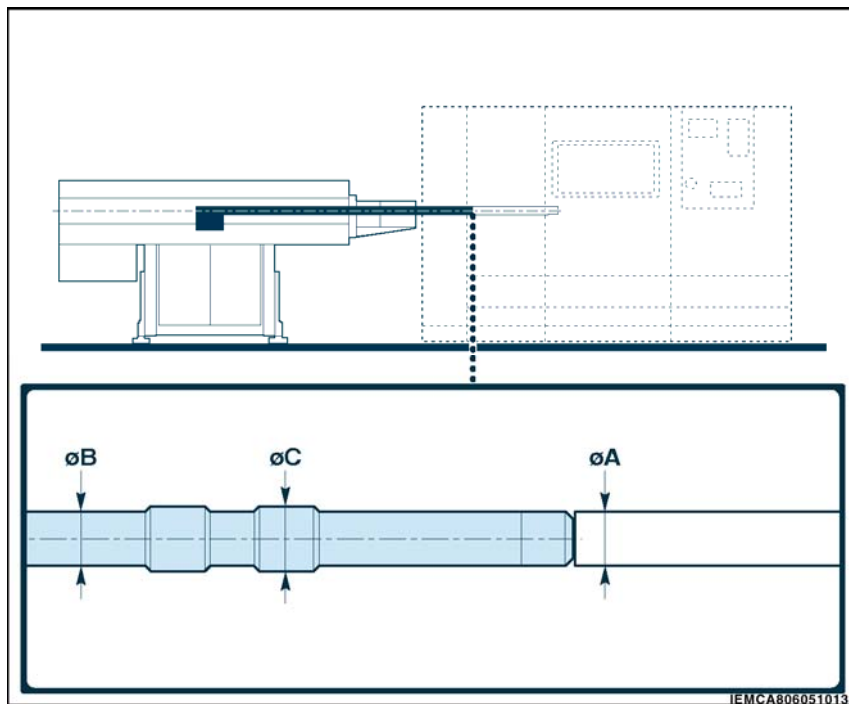
Table of the loading axis height table

X – Loading axis height	Reinforcement	Screw position	
		Threaded holes on the base	Slots on the supports
900÷937	/	A	1 - 5
938÷972	/	A	2 - 6
973÷1007	/	A	3 - 7
1008÷1042	/	A	4 - 8
1043÷1077	/	A	5 - 9
1078÷1112	/	A	6 - 10
1113÷1147	/	A	7 - 11
1148÷1182	805010641	A	8 - 12
1183÷1217	805010641	A	9 - 13
1218÷1252	805010641	A	10 - 14



Bar and bar pusher diameter table

Ø A Bar Diameter (mm)	Ø B Bar pusher rod diameter (mm)	Ø C Bar pusher bearing diameter (mm)	Ø D Spindle liner (mm)
5÷12	10	12	14
10÷19	12	15	16
16÷60	18	21	22
24÷80	24	26	28



2.6 EQUIPMENT DESCRIPTION (optional)

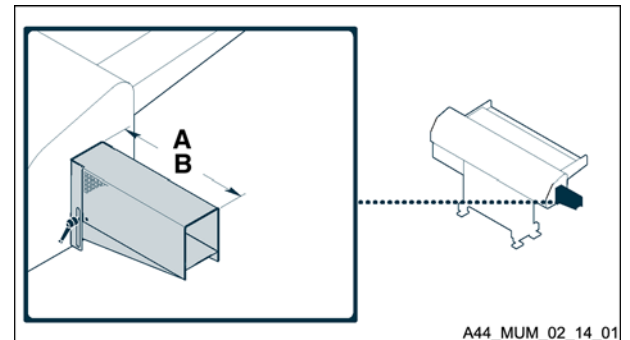
AXIAL DISPLACEMENT

In order to increase the performances and the versatility of the bar feeder, the manufacturer puts the equipment indicated below at the customer's disposal.

BAR FEEDER-LATHE GUIDE: directs the bar in the section between the bar feeder and the lathe. It proves extremely necessary when this section exceeds 100 mm.

A 220 ("short" version)

B 470 ("long" version)



BAR FEEDER DISPLACING DEVICE: to remove the bar feeder from the lathe with an axial displacement. This facilitates the lathe tooling and maintenance.

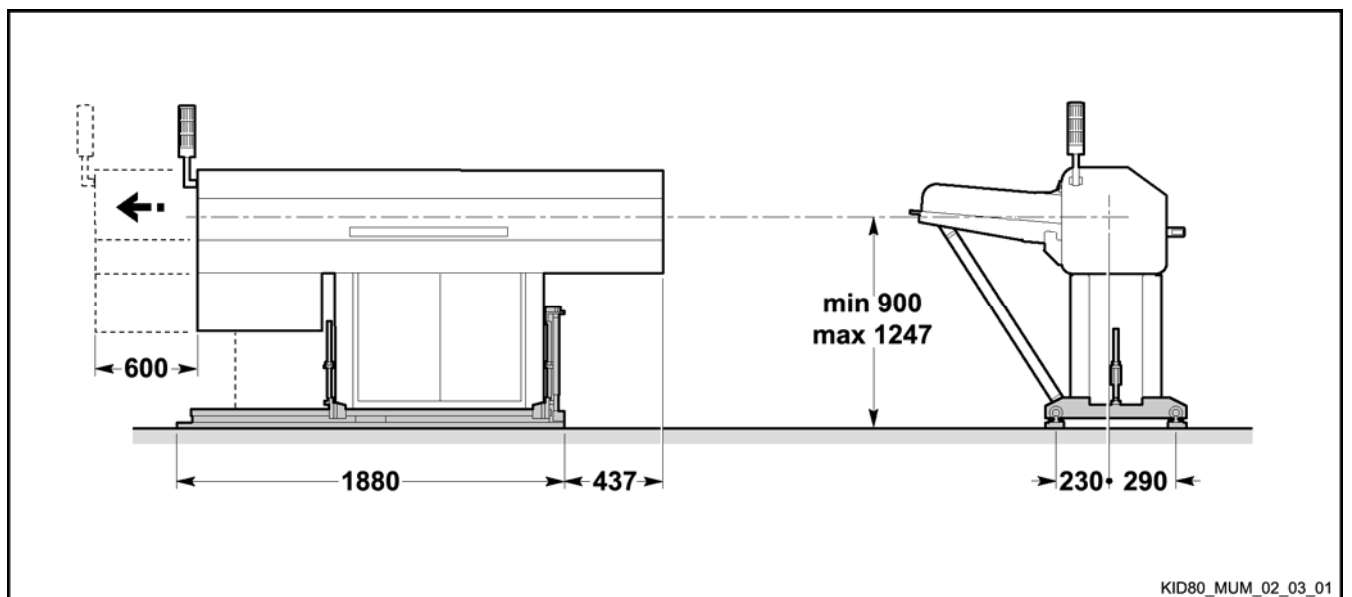
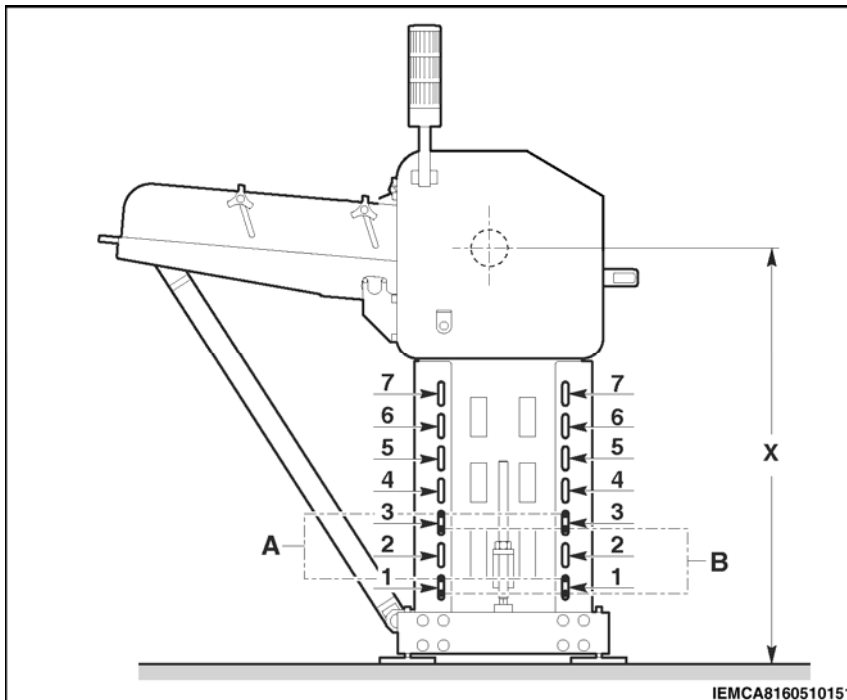


Table of the loading axis height with axial displacement

X – Loading axis height	Reinforcement	Screw position	
		Threaded holes on the base	Slots on the supports
900÷967	/	A	1 - 3
968÷999	/	B	2 - 4
1000÷1037	/	A	3 - 5
1038÷1069	/	B	4 - 6
1070÷1107	/	A	5 - 7
1108÷1139	/	B	
1140÷1177	805010641	A	
1178÷1209	805010641	B	
1210÷1247	805010641	A	



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3.1 GENERAL SAFETY REGULATIONS



It is of the utmost importance to read this manual carefully before installing, using, servicing the bar feeder or performing any other work on it. The constant compliance with the instructions in this manual ensures the operator safety.

- The user and expert operator must perform the specified duties only.
- Do not tamper with the safety devices for any reason whatsoever.
- Comply strictly with the health and safety regulations at work issued by the relevant authorities in each country.
- IEMCA declines any liability whatsoever for injury to persons or damage to property if the relevant safety regulations are disregarded.

3.2 HANDLING AND INSTALLATION - Safety

- The bar feeder must be handled using suitable means and methods only.
- Persons must not stand or transit underneath a suspended load, or within the range of action of the crane, lift truck or other suitable lifting and transport means.
- The bar machining and loading area must be delimited to prevent collisions between the operator and the means of transport or handling of the material to be machined or of other kind.
- Correct positioning of the bar feeder, lighting and cleanliness of the working environment are of the utmost importance as far as personal safety is concerned.
- The electric system connection must be carried out by skilled personnel only.
- Make sure the electric system is connected to an efficient earthing system by means of an appropriate cable.

3.3 ADJUSTMENTS AND SETUP - Safety

- Carry out the adjustments as described in the operation manual.
- Do not change the working parameters to obtain performances other than those envisaged in the design and testing phases.
- Do not adjust the bar feeder when running unless expressly requested in the manual.
- Do not feed the machine with bars having dimensions other than those recommended by the manufacturer.
- Do not use flexible pipes as handholds.












3.4 USE AND OPERATION - Safety

- The working area around the bar feeder must always be kept clean and uncluttered and its surface must be slip resistant in order to allow immediate access to the emergency devices and bar loading to be performed without creating obstructions or danger.
- Perform the starting sequence of the working cycle as recommended.
- Do not put hands or anything else near or inside the moving parts or parts in tension.
- Remove bracelets, watches, rings and ties.
- If necessary, use strong work gloves with five fingers, which do not reduce the grip sensitivity or power.
- Wear work shoes as well as personal protection devices provided for by the safety regulations in force in all countries.
- Inform the maintenance personnel of any operating anomalies.
- Before starting the bar feeder, make sure that there is no personnel engaged in servicing or cleaning the machine.

3.5 BAR FEEDER MAINTENANCE - Safety

- Do not allow unauthorized personnel to carry out maintenance operations.
- Read this manual carefully before carrying out maintenance operations.
- Do not lubricate, repair or adjust the bar feeder while running, unless expressly indicated in the manual.
- Stop the bar feeder in accordance with the foreseen procedures before carrying out the lubrication or other operations.
- Do not use matches, lighters or torches as lighting means during operations with inflammable fluids.
- Keep drain oil in suitable containers and deliver it to companies specialized in the storage and disposal of polluting waste products.
- Avoid environment pollution.
- Use original IEMCA spare parts only.

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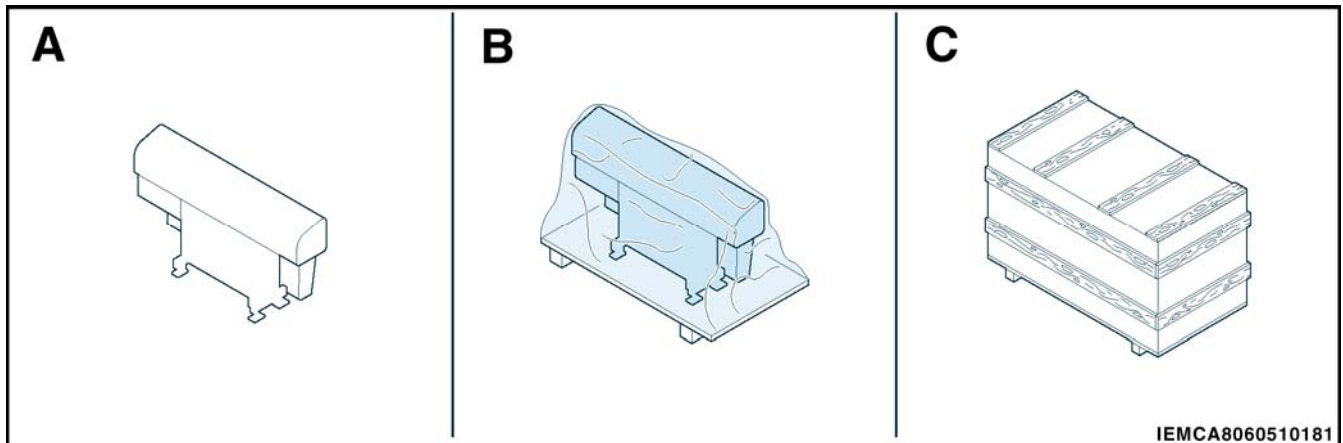
4.1 PRELIMINARY NOTE ON MOVEMENT AND INSTALLATION 



INFORMATION:

move and install the machine-tool by respecting the information provided by the manufacturer, which is directly written on the package, machine and in the operation instructions. The person who is authorised to carry out these operations shall prepare, if necessary, a "safety plan" to safeguard those who are directly involved in them.

4.2 PACKAGING AND UNPACKAGING 



- A WITHOUT PACKAGING
- B PACKAGING ON PALLET
- C PACKAGING IN CRATE

By reducing its dimensions, the packaging is made according to the type of transport required. In order to make the transport easier, the shipping can be made with some disassembled components being adequately protected and packaged.

Some parts, especially the electrical ones, are protected by anti-moisture nylon.

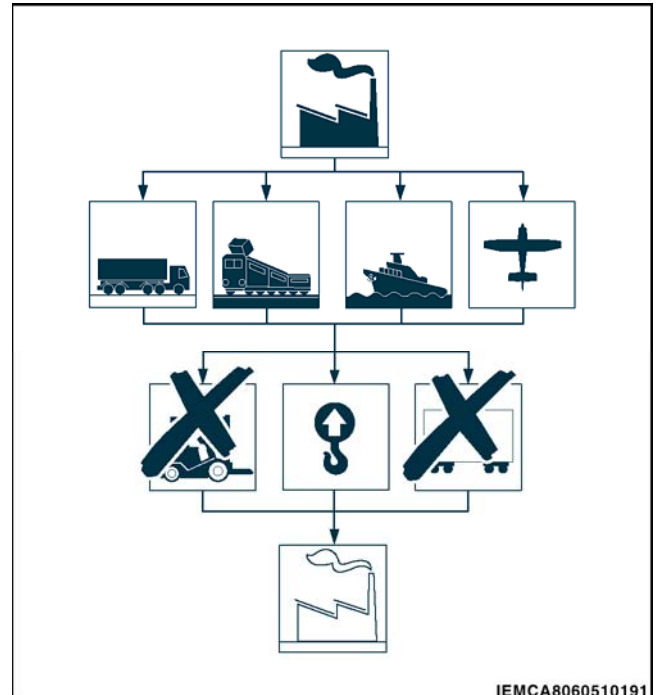
On the packaging all necessary information for loading and unloading is provided.

While unpacking, check the integrity and exact quantity of components.

The packaging material must be adequately disposed of in observance of the laws in force.

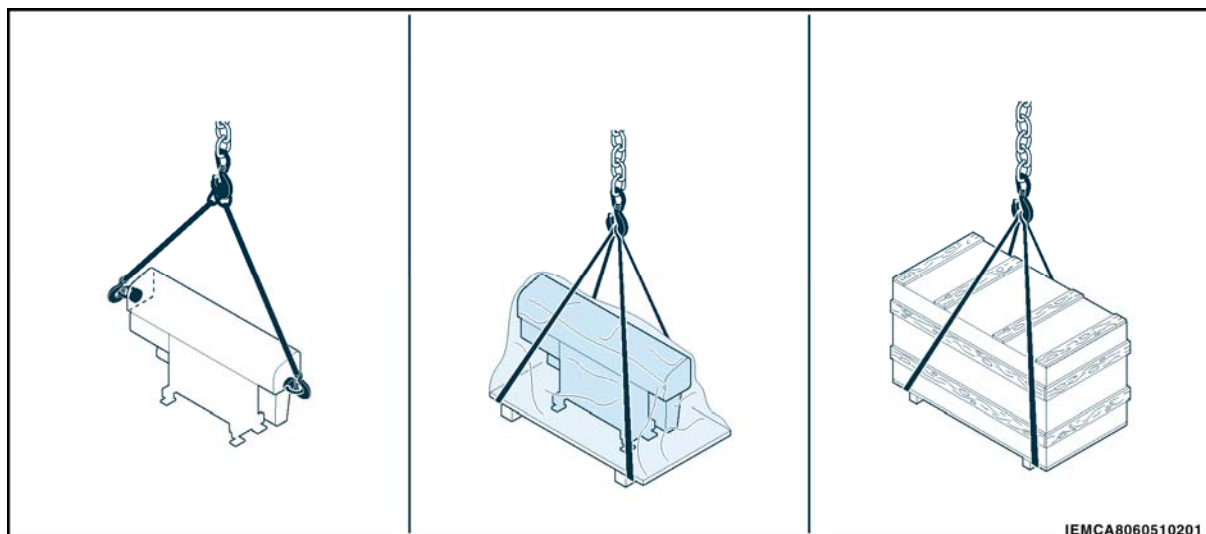
4.3 TRANSPORT

The transport can be carried out by different means, according to the destination. The diagram represents the most used solutions. In the transport phase, in order to avoid untimely movements, provide an adequate anchorage to the means of transport.



4.4 MOTION AND LIFTING

The bar feeder can be handled by a device provided with suitable lifting hook of adequate lifting capacity. Before carrying out this operation, check the position of the load centre. The figure represents the rope positioning.



4.5 BAR FEEDER INSTALLATION (without displacement)



WARNING - CAUTION:

the installation and connections must be carried out according to the indications provided by the manufacturer. The responsible person will also take into account all regulative and law requirements, carrying out all the installations and connections workmanlike. Once the installation has been completed, and before the operating phases, he will check if the above-mentioned requirements have been fulfilled.

The installation area must be in adequate environmental conditions (luminosity, ventilation, etc.).

The floor must be steady and levelled in order to allow a correct fastening of the bar feeder. If necessary locate the exact position by drawing the coordinates.

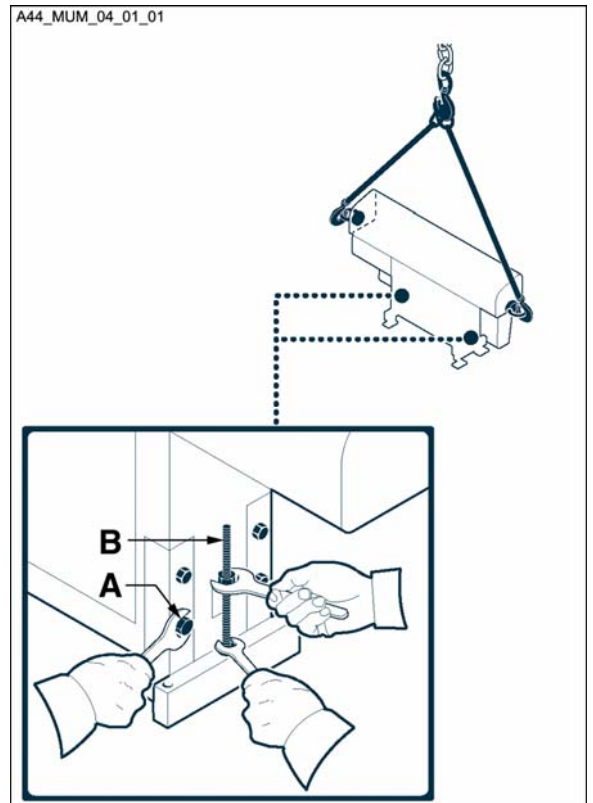
4.6 INSTALLATION PHASES

All the installation phases to be followed in sequence are described in the following paragraphs.

4.6.1 Loading axis height variation

The bar feeder is generally supplied with the loading axis height aligned to that of lathe spindle. If you need to change it, proceed as follows:

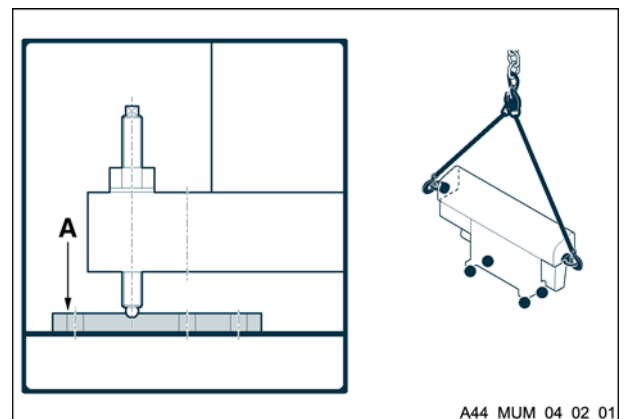
- Prepare the bar feeder for lifting
- Stretch the ropes.
- Loosen, on both sides, the screws (B) and remove the screws (A).
- Bring the bar feeder to the loading axis height (see chapter 2 "Loading axis height" table).
- Refit the screws (A) and temporarily adjust the screws (B).



4.6.2 Assembling the backing plates

- Lift the bar feeder.
- Place the plates (A) at the same level as the feet, with the longer part inwards (see figure).
- Lower the bar feeder again to the ground.

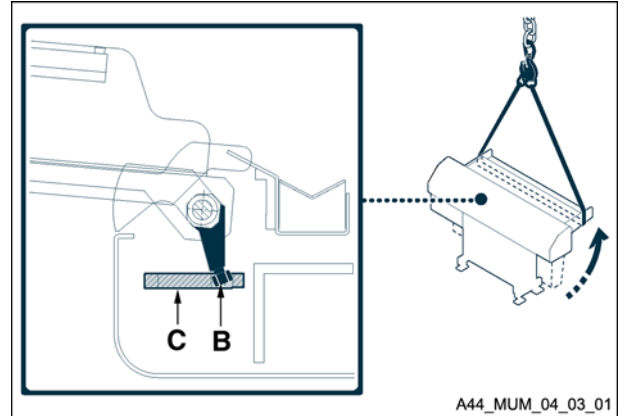
Note: fastening is made at the end.



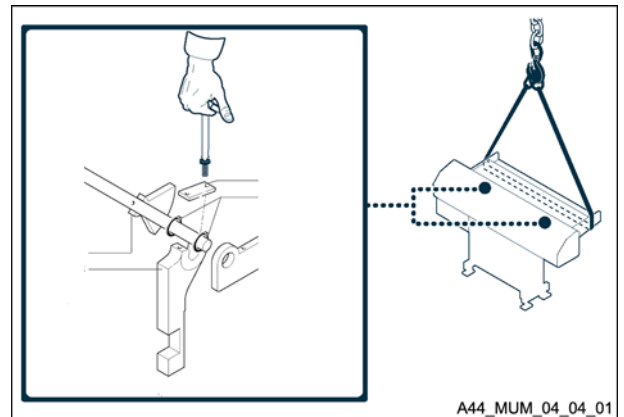
4.6.3 Magazine positioning

For the positioning proceed as follows.

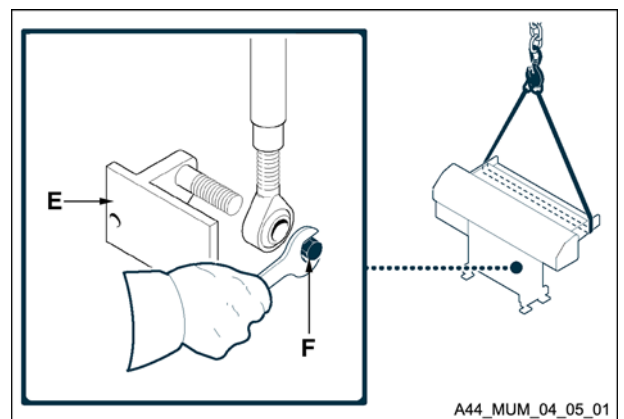
- Lift the magazine with the help of a lifting device. Make sure that during lifting, the pin (B) is correctly inserted in the cam housing (C).



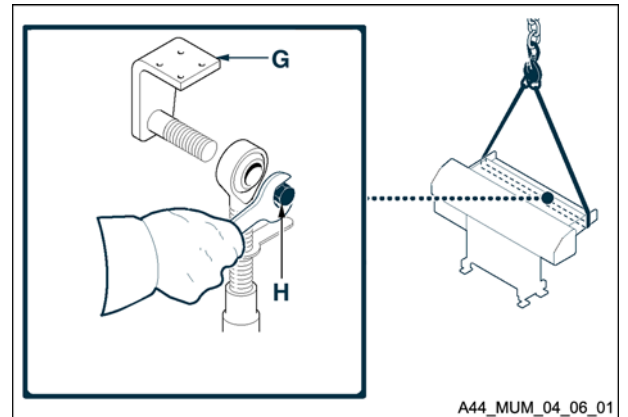
- Connect the bar magazine to the bar feeder body making sure the bearings (A) fit in their slots (D).
- Fix the support (C) on the bearing slots (D) by means of two screws.



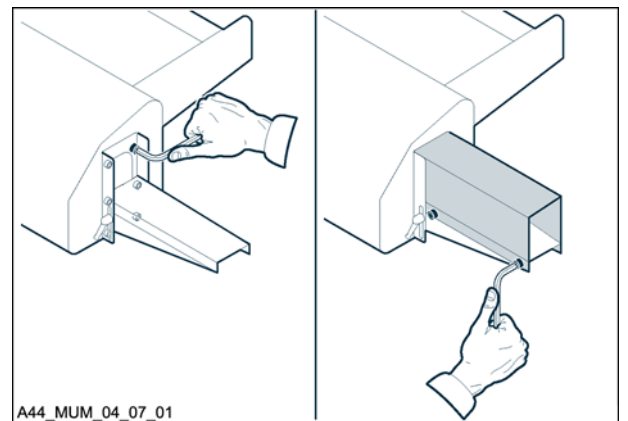
- By means of a self-locking nut (F) fix the lower end of the rod on the plate (E) that is fastened to the basement.



- Fix the upper end of the rod to the block (G) by means of a self-locking nut (H).



- Install the bar feeder-lathe guide (if provided).
- Install the safety grid (fixed guard).



4.6.4 Alignment and levelling

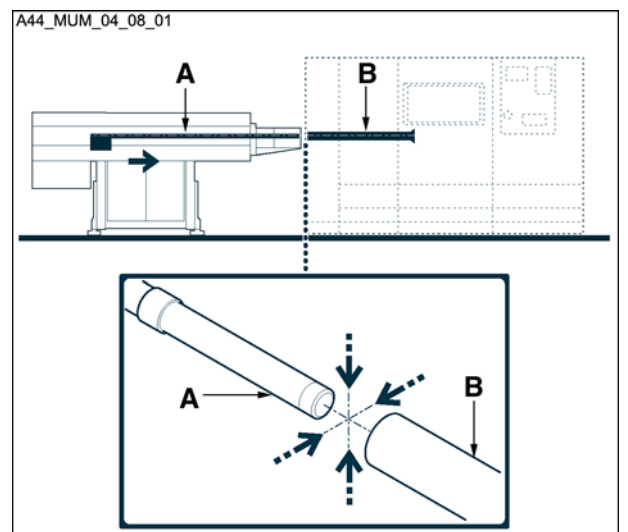


INFORMATION:

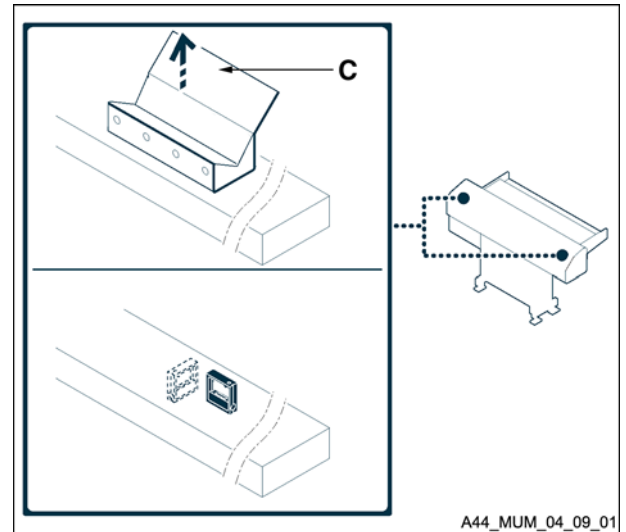
not only alignment and levelling are fundamental for the correct running of the bar feeder and for the WARRANTY VALIDITY, but also they must be carried out only by a SKILLED STAFF WITH PRECISE TECHNICAL COMPETENCE.

For the positioning proceed as follows.

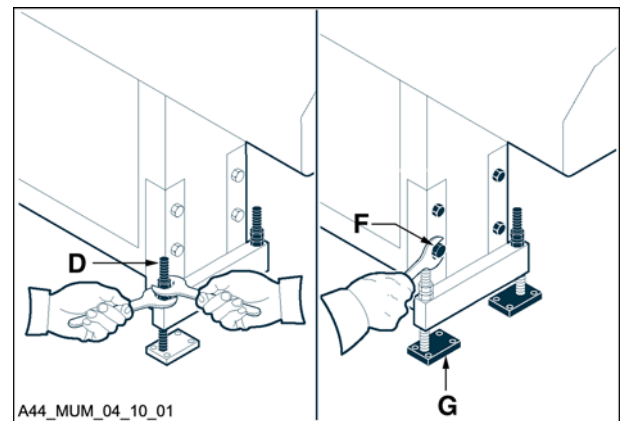
- Position the bar feeder near the lathe (see figure).
- Open the upper guard and manually transfer the bar pusher (A) until you bring the ends close to the spindle head (B).



- Remove two sections (C) from the guide channel in order to use the beam plane to check the levelling
- Verify the alignment of both bar feeder axes and levelling.



- Adjust the loading axis vertically through screws (D).
- Hit both sides of the plates (G) with a mallet for the adjustment of the loading axis horizontally.



4.6.5 Bar feeder fastening

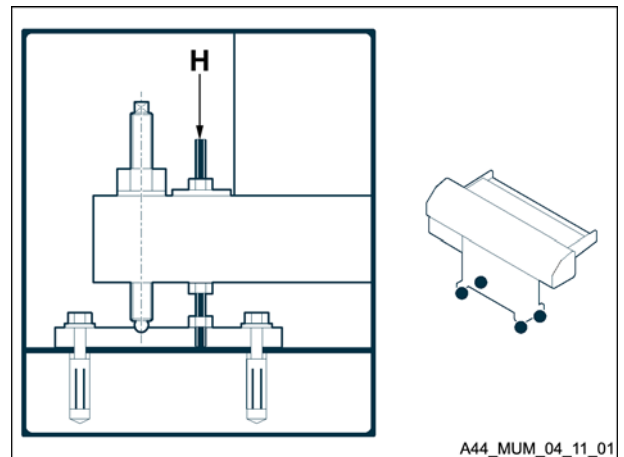


INFORMATION:

considering that this operation is fundamental to assure in time the bar feeder stability and the WARRANTY VALIDITY, the person who is authorised to carry it out, will have to take extreme care of it.

For the positioning proceed as follows.

- Drill the floor in the direction of the plate holes. Connect the bar feeder to the plates with the tie rods (H).
- Fasten the plates with expansion plugs.
- Fasten the bar feeder structure to the plates with the tie rods (H) fastening them with their relative check nuts.
- Reinstall the two guide sections after making sure that alignment, levelling and fastening are carried out correctly.



4.7 BAR FEEDER INSTALLATION (with displacement)



WARNING - CAUTION:

the installation and connections must be carried out according to the indications provided by the manufacturer. The responsible person will also take into account all regulative and law requirements, carrying out all the installations and connections workmanlike. Once the installation has been completed, and before the operating phases, he will check if the above-mentioned requirements have been fulfilled.

The installation area must be in adequate environmental conditions (luminosity, ventilation, etc.).

The floor must be steady and levelled in order to allow a correct fastening of the bar feeder. If necessary locate the exact position by drawing the coordinates.

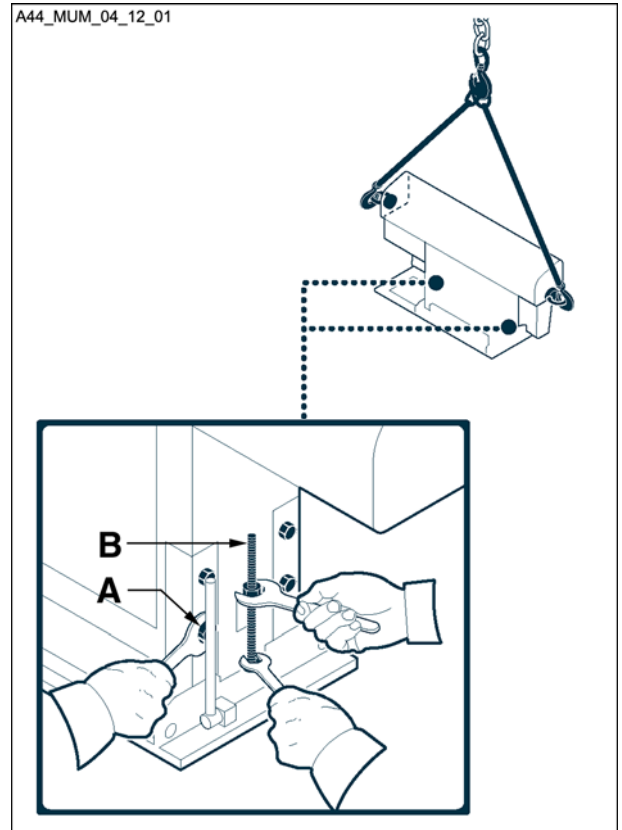
4.8 INSTALLATION PHASES

All the installation phases to be followed in sequence are described in the following paragraphs.

4.8.1 Loading axis height variation

The bar feeder is generally supplied with the loading axis height aligned to that of lathe spindle. If you need to change it, proceed as follows:

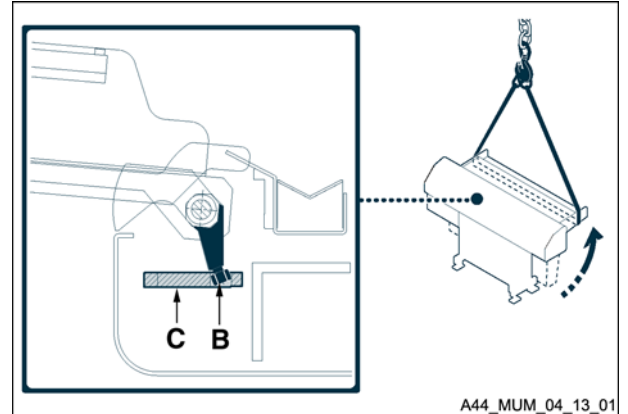
- Prepare the bar feeder for lifting.
- Stretch the ropes.
- Loosen, on both sides, the screws (B) and remove the screws (A).
- Bring the bar feeder to the loading axis height (see chapter 2 "Loading axis height" table).
- Refit the screws (A) and temporarily adjust the screws (B).



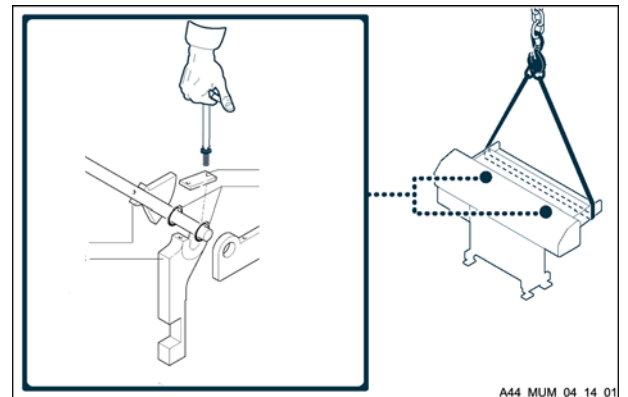
4.8.2 Magazine positioning

For the positioning proceed as follows.

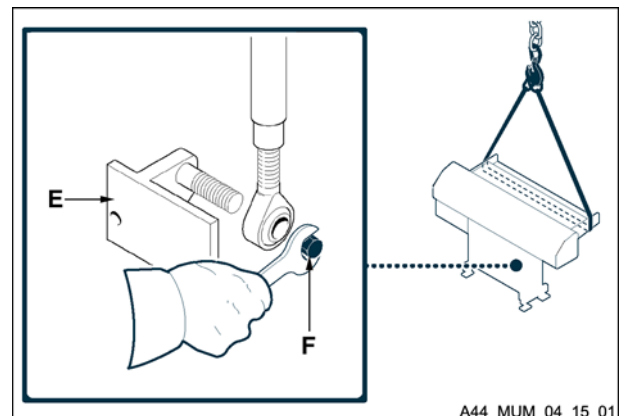
- Lift the magazine with the help of a lifting device. Make sure that during lifting, the pin (B) is correctly inserted in the cam housing (C).



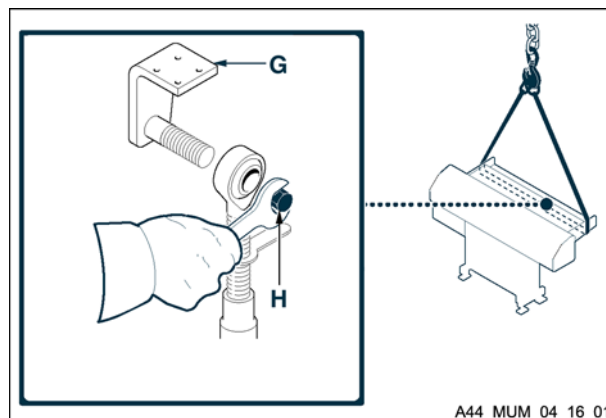
- Connect the bar magazine to the bar feeder body making sure the bearings (A) fit in their slots (D).
- Fix the support (C) on the bearing slots (D) by means of two screws.



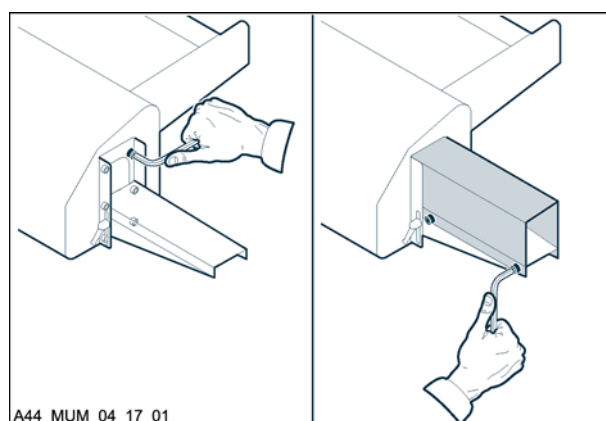
- By means of a self-locking nut (F) fix the lower end of the rod on the plate (E) that is fastened to the basement.



- Fix the upper end of the rod to the block (G) by means of a self-locking nut (H).



- Install the bar feeder-lathe guide (if provided).
- Install the safety grid (fixed guard).



4.8.3 Alignment and levelling

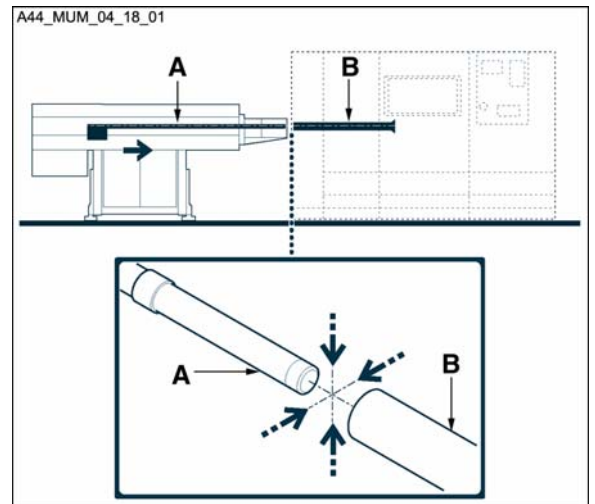


INFORMATION:

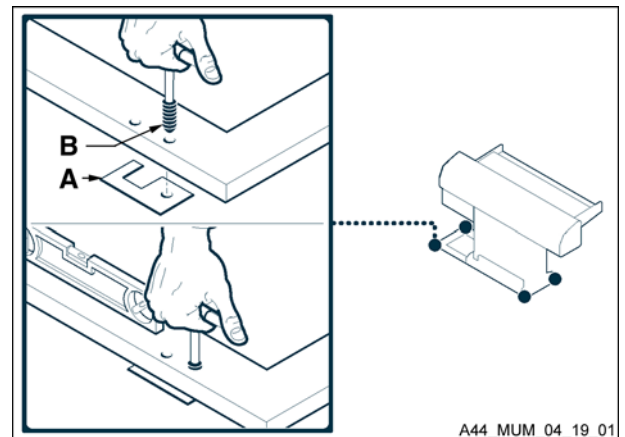
not only alignment and levelling are fundamental for the correct running of the bar feeder and for the WARRANTY VALIDITY, but also they must be carried out only by a SKILLED STAFF WITH PRECISE TECHNICAL COMPETENCE.

For these operations proceed as follows.

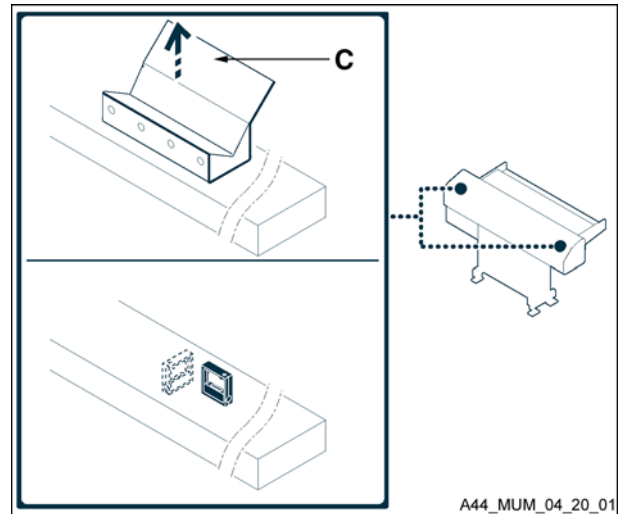
- Position the bar feeder near the lathe (see figure).



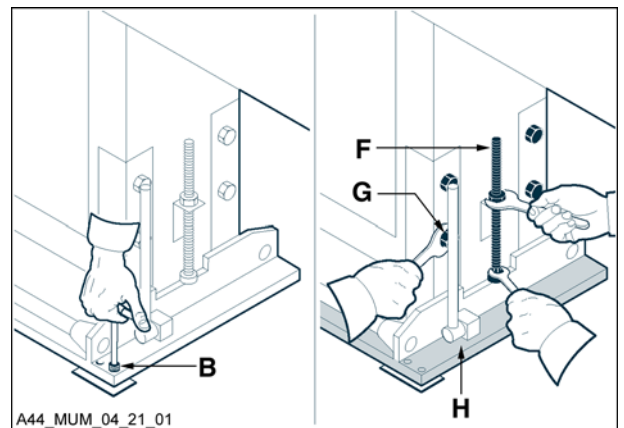
- Put the four plates (A) under the end points of the frame (see figure).
- Tighten the socket head screws. (B)
- Open the upper guard and manually shift the bar pusher (C) until you bring its end close to the spindle head (D).



- Remove two sections (C) from the guide channel in order to use the beam plane to check the levelling.
- Verify the alignment of both bar feeder axes and levelling.



- Adjust the loading axis vertically through screws (B). This adjustment can also be carried out by means of the screws (F), after loosening the screws (G).
- Hit both sides of the frame (H) with a mallet for the adjustment of the loading axis horizontally.



4.8.4 Bar feeder fastening

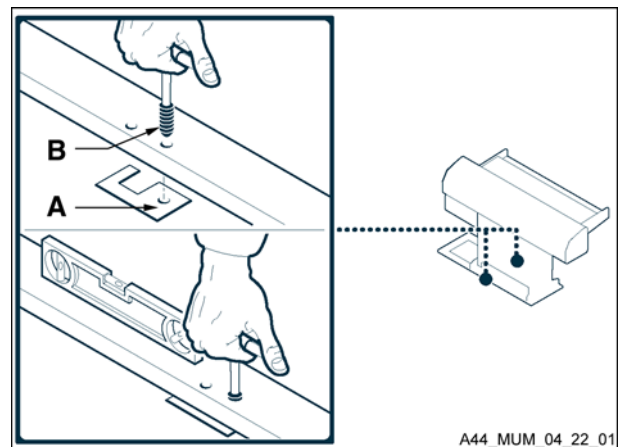


INFORMATION:

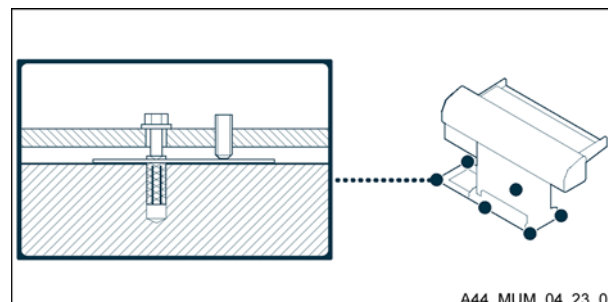
considering that this operation is fundamental to assure in time the bar feeder stability and the WARRANTY VALIDITY, the person who is authorised to carry it out, will have to take extreme care of it.

For the fastening proceed as follows:

- Put the two remaining plates (A) under the frame and fasten them with socket head screws (B).



- Drill the floor in the direction of the frame holes.
- Fasten the frame with the expansion plugs.
- Reinstall the two guide sections after making sure that alignment, levelling and fastening are carried out correctly.



4.9 ELECTRIC CONNECTION

**INFORMATION:**

the connections to the power supply must be carried out following the indications on the wiring diagram provided by the manufacturer.

The person who is authorised to carry out this operation, shall have special skills and experience acquired and recognised in the specific area. He shall carry out the connection to the power supply workmanlike, taking into account all regulative and law requirements, not only concerning the bar feeder but also the connection to the lathe.

When the connection to the power supply is completed, before starting the bar feeder, inspect if the above-mentioned requirements have been fulfilled.

Connect the multipolar connector provided with the bar feeder to the lathe socket.

4.10 WORKING PARAMETERS SETTING

By means of a hand-held keyboard you can assign the different parameter values according to the operating characteristics of lathe - bar feeder coupling and to the working needs. See the "Hand-held control instruction manual" in order to assign adequate values.

4.11 BAR FEEDER TESTING

**INFORMATION:**

the bar feeder testing must be carried out following a preset procedure, which is possibly indicated and authorised by the manufacturer.

During the bar feeder testing phase, check if the safety conditions are adequate and start it only if this requirement is in conformity with the standards required.

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5.2	MAGAZINE ADJUSTMENT AND BAR SELECTION.....	2
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5.4	BAR FEEDER-LATHE GUIDE ADJUSTMENT.....	5
5.5	FEEDING BELT ADJUSTMENT	6

5.1 PRELIMINARY NOTE ON ADJUSTMENT



INFORMATION:

before carrying out any adjustment, start all safety devices provided and check if it is necessary to inform the staff operating around and people close to the area. In particular, it is recommended to adequately signal the adjacent areas and to prevent anyone from approaching all the devices that, if started, could cause unexpected damage and harm to people.

5.2 MAGAZINE ADJUSTMENT AND BAR SELECTION

Bar magazine adjustment must be carried out according to the section of the bars to be machined.

The inclination of the bar magazine can be carried out while adjusting the bar magazine support.

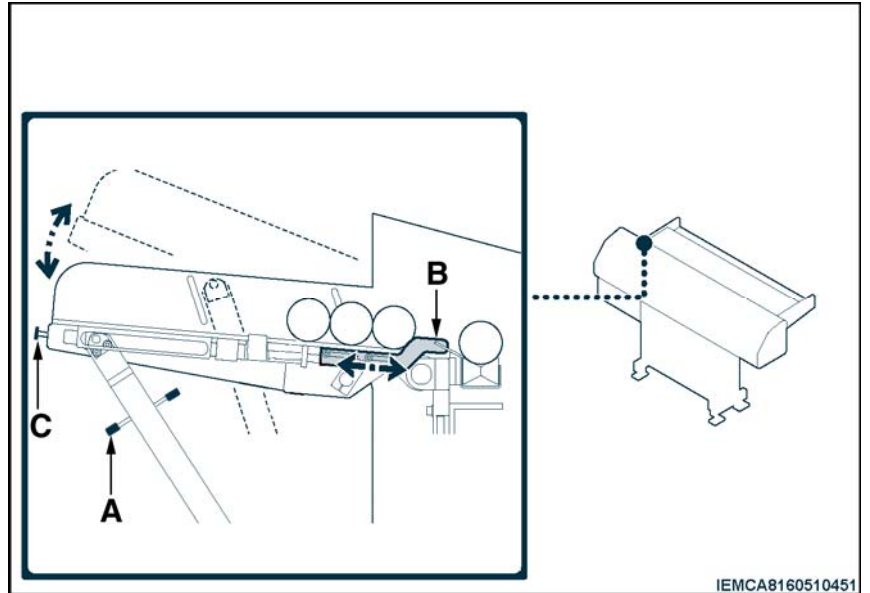
It is possible to increase bar magazine inclination in order to help square or hexagonal bars slide.

Please follow these instructions to adjust selecting device and bar magazine inclination.

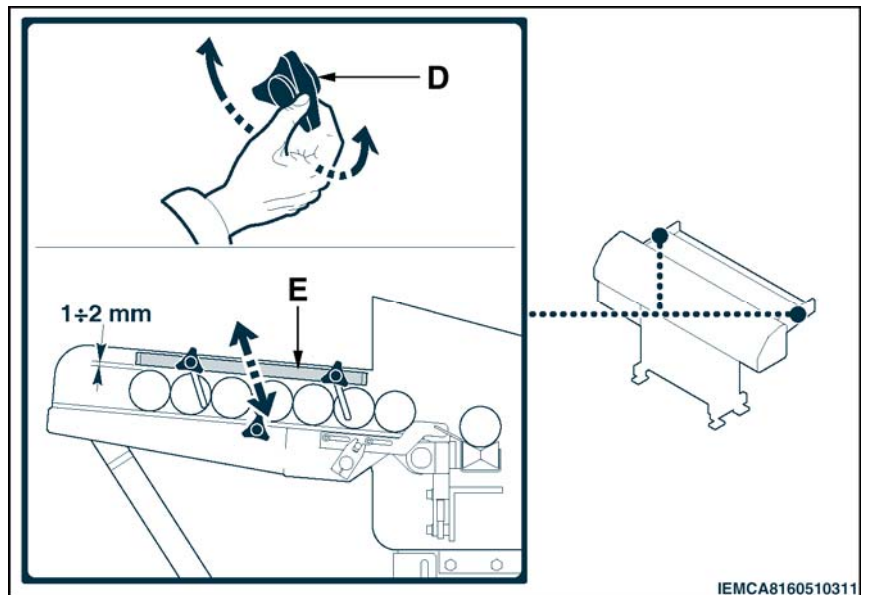
The adjustment must be carried out according to the diameter of the bar to be loaded.

For the adjustment proceed as follows:

- Turn lever (A) to adjust bar magazine inclination according to the type of the bars to be machined.
- Turn knob (C) to adjust the bar stop device (B).





- Loosen the knobs (D), adjust the frame (E) at about 1- 2 mm from the bars (see figure) and tighten the knobs.




5.3 LOADING AXIS ADJUSTMENT

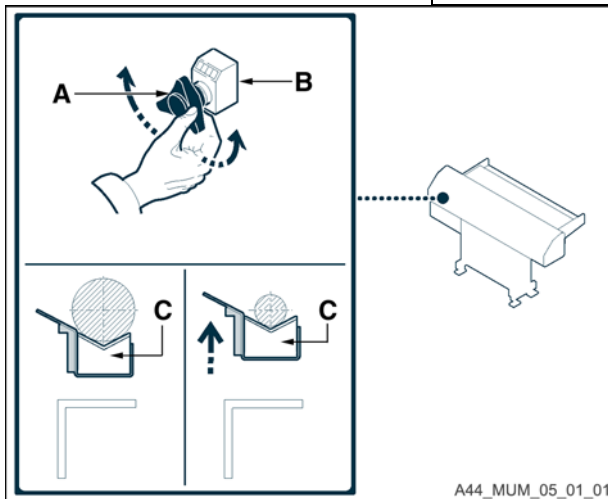
Carry out guide channel height adjustment according to the section of the bars to be machined. Please carry out guide channel height adjustment following these instructions.

 Round bars: set the bar diameter measurement on the millimetre-counter.

 Hexagonal bars: set the measurement of the wrench on the millimetre-counter.

 Square bars: set the measurement (X) obtained from the following table, on the millimetre-counter:

L = mm	X
5	5
8	8
10	10
12	12
15	15
18	18
20	20
22	22
25÷55	40



The adjustment has to be carried out according to the diameter of the bar to be machined. For the adjustment proceed as follows:

- Rotate the knob (A) until displaying the diameter of the bar to be machined, on the millimetre counter (B).
- Check that with the lifted guide (C), the bar is aligned with the loading axis.

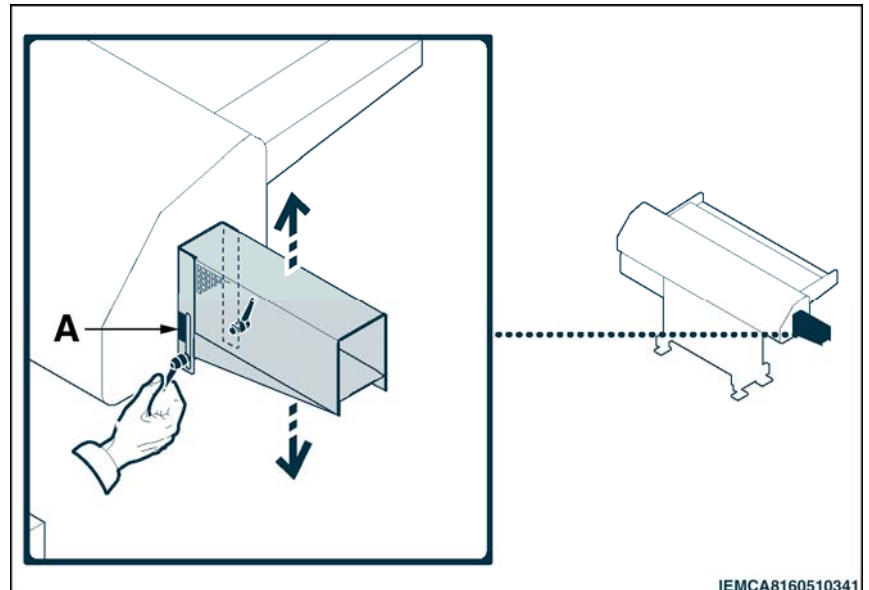


Setting bar diameters of less than $\varnothing 10$ (between $\varnothing 10$ and $\varnothing 5$) the guides do not move any further upwards: The bar may hence not be centred with the spindle axis and could cause vibrations.

5.4 BAR FEEDER-LATHE GUIDE ADJUSTMENT

The adjustment must be carried out according to the diameter of the bar pusher bearings and bar to be machined.

- Adjust the guide height, displayed on the graduated rod (A), in order to respect the values reported in the table.

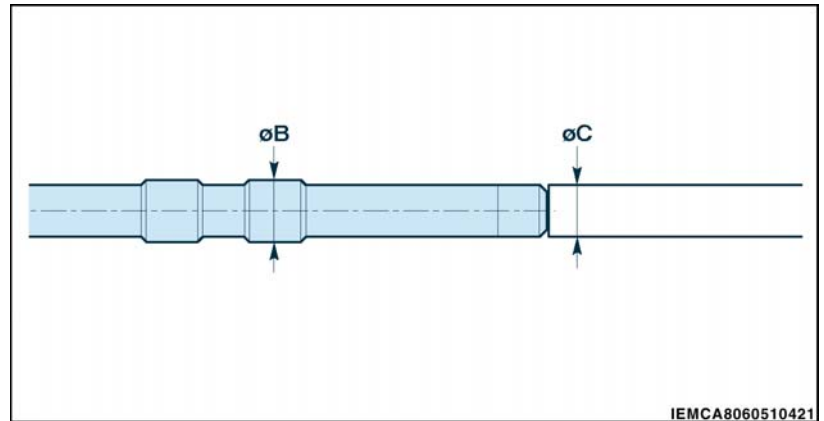


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Bar feeder-lathe guide height table

$\varnothing B$ Diameter of bar pusher bearings (mm)	$\varnothing C$ Bar diameter (mm)	Bar guide channel height
12	5 ÷ 12	12
15	10 ÷ 15	15
	16 ÷ 19	16 ÷ 19 (*)
21	16 ÷ 21	21
	22 ÷ 80	22 ÷ 80 (*)

(*) The height must be equal to the bar diameter ($\varnothing C$).

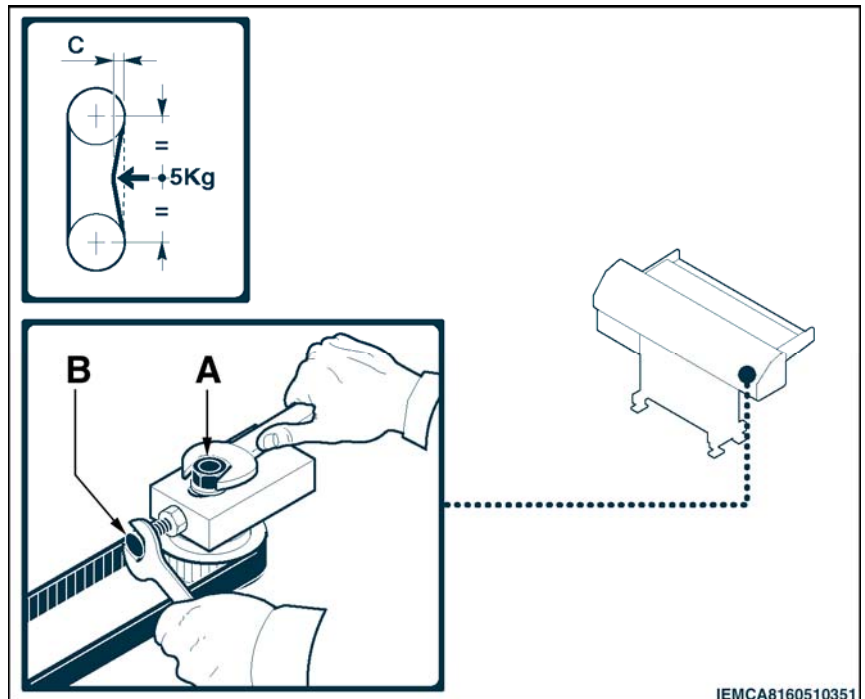


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5.5 FEEDING BELT ADJUSTMENT

For the adjustment proceed as follows:

- Open the upper guard. To check the belt tension, adopt the method indicated in the figure. The resulting value (C) must be 10 to 15 mm.
- Loosen nut (A).
- Adjust the belt tension through the screw (B) and lock nut.
- Tighten the lock nut (A). Check the tightening of the screw (B) and of the lock nut and close the carter again.



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6.1 PRELIMINARY NOTE ON USE AND OPERATION

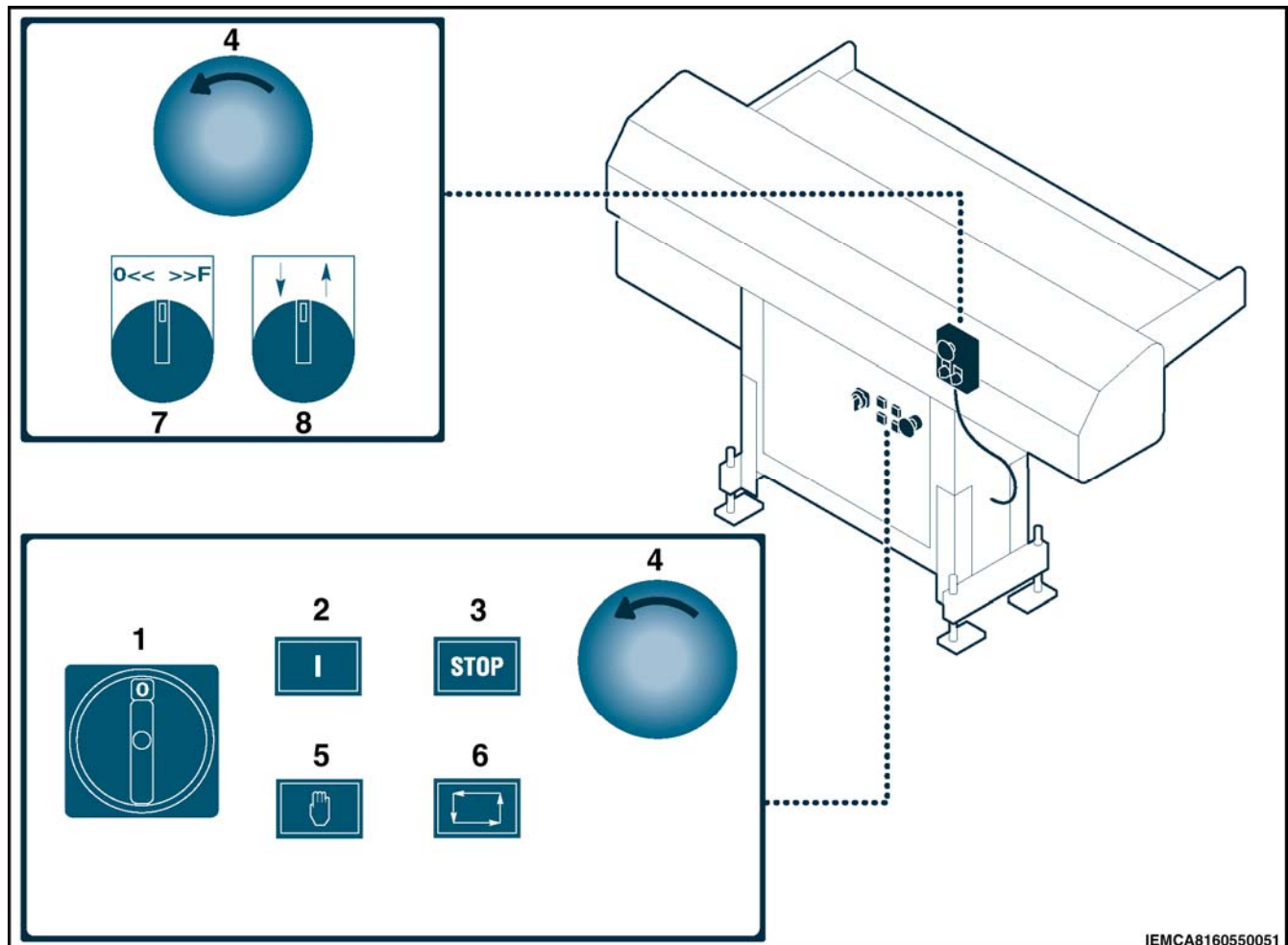


INFORMATION:

the incidence of injuries caused by the use of machines, depends on many factors that cannot always be prevented and checked. Some accidents can depend on some unpreventable environmental factors, others can be especially due to the operators' behaviour. The operators, apart from being authorised and appropriately informed, at the first use will have to carry out some manoeuvres to test the controls and the main functions. Exclusively use the machine according to the instructions provided by the manufacturer and do not tamper with any devices to obtain different performances. Before use, make sure that the safety devices are perfectly installed and efficient. The users, besides satisfying the above-mentioned requirements, must enforce all safety regulations and carefully read the control description and the commissioning.

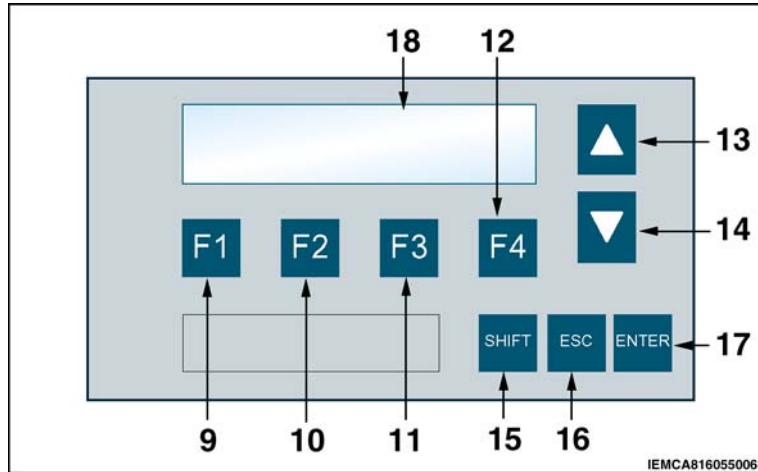
6.2 CONTROL DESCRIPTION

The figure represents the control position on board the machine.



- 1) Main switch; to turn power supply on and off.
 - 0 (OFF) power supply is off.
 - I (ON) power supply is on.
- 2) Bar feeder Start button (green light); press this button to start the bar feeder. Press the button and hold it down until it lights up. Press it rapidly twice to perform the "Bar feeder zero setting".
- 3) Bar feeder Stop button (red light); press this button to stop the bar feeder.
- 4) Emergency stop button; to stop the bar feeder under emergency conditions; you will have to manually release this button before restarting the bar feeder.
- 5) Manual Mode Button (white light); press this button to select manual mode.
- 6) Automatic mode button (white light); press this button to select automatic mode.
- 7) Bar pusher feeding and return selector switch; turn selector switch to allow bar pusher motion in manual mode.
- 8) Selector switch for selecting unit - guide channel - bar drop control device - bar pusher; turn selector switch to manual mode.

6.3 KEYBOARD CONTROLS DESCRIPTION



- 9) F1 BUTTON; to display bar feeder operation parameters.
- 10) F2 BUTTON; to display bar feeder status page (carriage position, number of pieces).
- 11) F3 BUTTON; button not enabled.
- 12) F4 BUTTON; to display the bar feeder and programme identification data.
- 13) ARROW BUTTON; to go back to the previous page. The cursor is moved upward to increase the selected value during modification phase.
- 14) ARROW BUTTON; to go to the next page. The cursor is moved downward to reduce the selected value during modification phase.
- 15) SHIFT BUTTON + ENTER; while modifying values, press these buttons together to reset the selected value.
- 16) ESCAPE BUTTON; press this button to enter password-protected pages and to leave the value modification mode without saving changes.
- 17) ENTER BUTTON:
 - press this button to carry out and save modifications;
 - press this button to cancel alarm messages.
- 18) DISPLAY; to display bar feeder status and setting pages (see "Side Keyboard Instruction Manual").

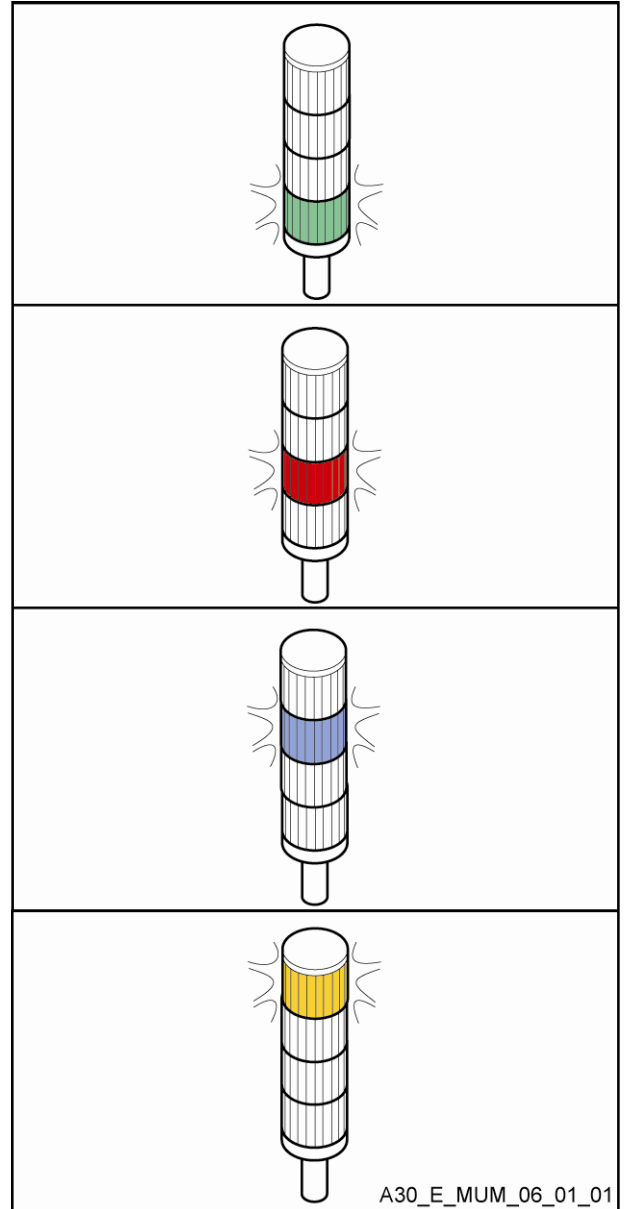
6.4 LIGHT INDICATOR DESCRIPTION

Flashing orange light (OPT): Signals that there is only one bar in the magazine. This signal will continue until the bars in the magazine have run out.

Flashing blue light (OPT): Signals that the bar feeder is carrying out the bar change.

Red light (OPT): Signals that the bar feeder is in stopping conditions, or that it is working in manual mode.

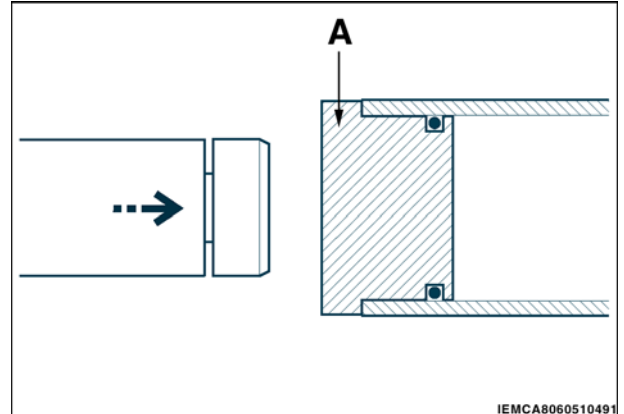
Green light: Signals that the bar feeder is working in automatic mode.



6.5 BAR PREPARATION (sections and tubes)

The bars, before being loaded in stock, must be chamfered in their inlet end, in order to remove any excessive burrs.

In the case of tubes, insert a plug (A) in order to create a bearing surface for the bar pusher and to prevent the coolant coming out.



6.6 MAGAZINE LOADING

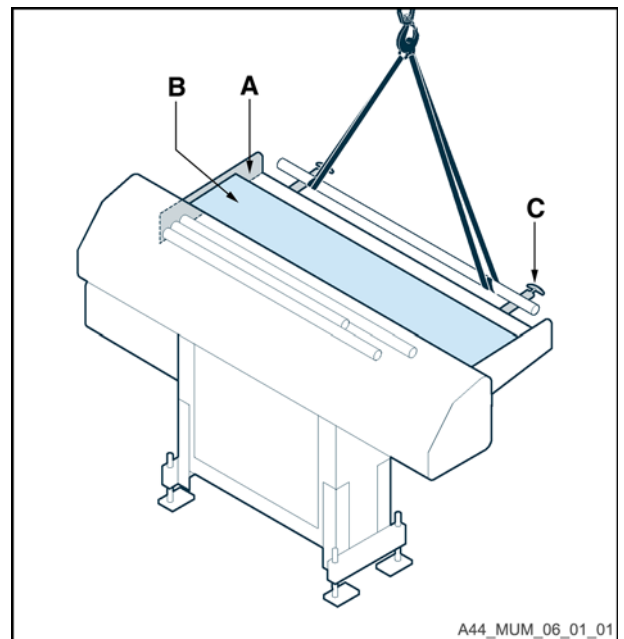


WARNING - CAUTION:

magazine loading must be carried out using only personal safety garments and, if necessary, appropriate means. The person who is authorised to carry out these operations shall prepare all the necessary conditions to guarantee his/her own safety and that of the people directly involved. In particular, respect the regulations in force on the subject of health and safety in the workplace.

For the loading proceed as follows.

- Load the bars on the magazine resting them on the bulkhead (A).



Note: put the bars down so as not to damage the bar feeder parts.

- For correct loading, adjust the frame (B). Use, if necessary, supplementary extractable racks (C).

6.7 BAR FEEDER TOOLING

Before starting machining bars with features different from the previous ones, it proves necessary to tool the bar feeder proceeding as follows.

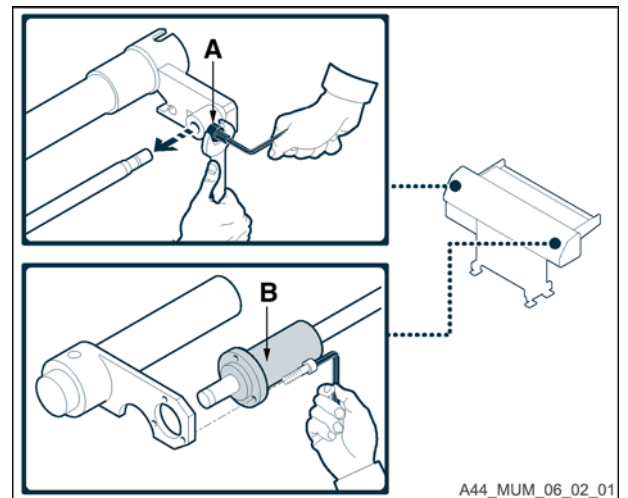
- Replace, if necessary, the bar pusher (see bar and bar pusher diameter table in chapters 2 and 6)

- Replace, if necessary, the lathe reduction noses.
- Adjust the magazine and the bar pushing frame.
- Adjust the loading axis.
- Adjust the bar feeder-lathe guide (OPTIONAL)
- Prepare the bars and load them on the magazine.
- Reset, if necessary, the work parameters (see "Keyboard instruction manual").

6.8 BAR PUSHER CHANGE

For this operation, proceed as follows.




- Open the upper guard.
- Adjust screw (A) and lock nut in order to uncouple the bar pusher rear end.
- Disassemble the bushing (B) in order to uncouple the bar pusher fore end.
- Assemble the new bar pusher with the bushing (B) fitted in its seat in the rear end.
- Put the bushing (B) in its seat and fasten it.
- Close the top cover again.

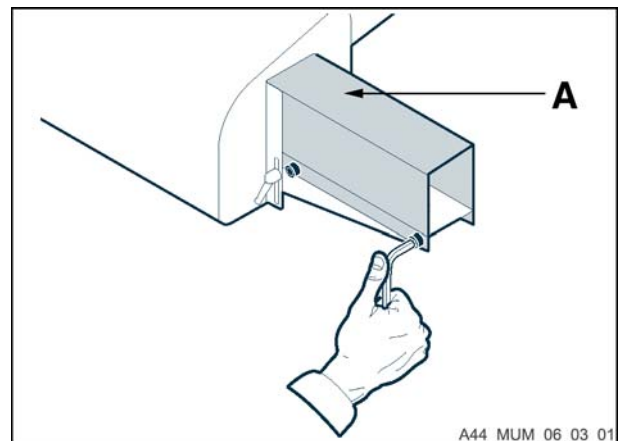


6.9 LATHE SPINDLE LINER CHANGE

We recommend you to use a spindle liner in order to guide the bar correctly into the lathe. This device is to be installed onto the lathe front side. The inner diameter of the reduction nose must be one millimetre larger than the outer diameter of the bar pusher bearings (see "Bar and bar pusher diameter table", chapter 2).

The replacement is carried out in the area between the lathe and the bar feeder; move the bar feeder away, if it is equipped with a displacing device, otherwise proceed as indicated:

- Press the  button to select manual mode.
- Turn and hold the selector switch  to the left to lift the bar selecting device, bar drop control device and bar pusher.
- Press the bar feeder emergency stop button  to stop bar feeder operation in safe conditions.
- Remove safety device (A) (if the bar feeder is provided with a bar feeder-lathe guide).
- Open the upper guard.
- Remove the reduction nose (from bar feeder side) and replace it.
- Reset the bar feeder to its regular operating conditions.



6.10 AUTOMATIC CYCLE START

If the bar feeder conditions allow no automatic cycle start, please follow these instructions:

- Turn on lathe power supply.



- Rotate the bar feeder main switch to I (ON) position to connect the power supply.



- Press the button on the machine to start the bar feeder and hold it down until the indicator-light on the push-button lights up.



- Press the button to select manual mode.
- If necessary, let the bar feeder devices reach the cycle start position.



- Press the button rapidly twice to carry out the "Bar Feeder Zero Setting".



- Turn the selector switch to the left and leave it turned: the bar selecting unit, bar drop control device and bar pusher are lifted.



- Turn the selector switch to the right and leave it turned: the bar is loaded and the guide is lifted for pre-feeding.












- Turn the selector switch to the left and leave it turned: resetting the error on the display, the bar pusher and the guide channel are lowered.
- Select the desired piece feeding mode (see parameter 29).



- Press the button to start the automatic cycle.

Bar loading into the lathe, when no bar (or remnant) is inside the lathe.

- Press the  button on the machine to start the bar feeder and hold it down until the indicator-light on the push-button lights up.
- Press the  button to select manual mode.
- Press the  button rapidly twice to carry out the "Bar Feeder Zero Setting".
- Turn the selector switch  to the left and leave it turned: the bar selecting unit, bar drop control device and bar pusher are lifted.
- Turn the selector switch  to the right and leave it turned: the bar is loaded and the guide is lifted for pre-feeding.
- Turn the selector switch  to the right and leave it turned: the bar enters the lathe collet.
- Turn the selector switch  to the left and leave it turned: the bar pusher returns to its back position.
- Turn the selector switch  to the left and leave it turned: resetting the error on the display, the bar pusher and the guide channel are lowered.
- Select the desired piece feeding mode (see parameter 29).
- Press the  button to start the automatic cycle.

6.11 NORMAL STOP

Follow the instructions given hereunder to stop bar feeder operations after machining stop.



INFORMATION:

press no emergency buttons for normal stop.

- Wait until piece machining has been completed and the automatic cycle has stopped.



- Press the button on board the machine to stop the bar feeder.

- Stop the lathe.



- Turn the bar feeder main switch to O (OFF) to switch power supply off.

6.12 EMERGENCY STOP AND RESTART




INFORMATION:


press lathe or bar feeder emergency button in case of impending danger only. Bar feeder and lathe operations will stop immediately. Restore ordinary operation conditions then release button to allow the unit restart.

Follow the instructions given hereunder to perform this operation:




- Press the  button on the machine to start the bar feeder and hold it down until the indicator-light on the button lights up.




- Press the  button to select "manual mode".

- If necessary, let the bar feeder devices reach the cycle start position.



- Press the  button rapidly twice to carry out the "Bar Feeder Zero Setting".



- Press the  button to start the automatic cycle.

- The bar feeder now allows lathe machining.

6.13 "STEP BY STEP"

You will have to activate a "step by step" cycle if you wish to check bar feeder operating conditions: It is possible to start either a complete operating cycle or a partial cycle.

Complete cycle

It is possible to carry out this operation with or without any bar.



- Turn selector switch and hold it to the left; the bar pusher will reach its limit position.



- Turn selector switch and hold it to the left; the bar selecting and bar drop control devices and the bar pusher are lifted.



- Turn selector switch and hold it to the right; the bar drop control device is lowered and the guide channel lifts for pre-feeding.



- Turn selector switch to the right; the carriage carries out the pre-feeding.



- Turn selector switch and hold it to the left; the carriage goes back to its start position.



- Turn selector switch and hold it to the left; resetting the error on the display, the bar pusher and the guide channel lower.



- Turn selector switch to the right to drive the bar pusher into the spindle liner.

Partial cycle

This operation can be carried out to remove a bar from the lathe.



- Turn selector switch and hold it to the left; the bar pusher will reach its limit position.



- Turn the selector switch to the right and leave it turned: the bar pusher and guide are raised without loading the bar.
- Remove bar from guide channel of the bar feeder.



- Turn selector switch and hold it to the left again; resetting the error on the display, the bar feeder start condition is set up again.

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7.1 PRELIMINARY NOTE ON MAINTENANCE



INFORMATION:

before carrying out any maintenance, start all safety devices provided and check if it is necessary to inform the staff operating around and people close to the area. In particular, it is recommended to adequately signal the adjacent areas and to prevent anyone from approaching all the devices that, if started, could cause unexpected damage and harm to people.

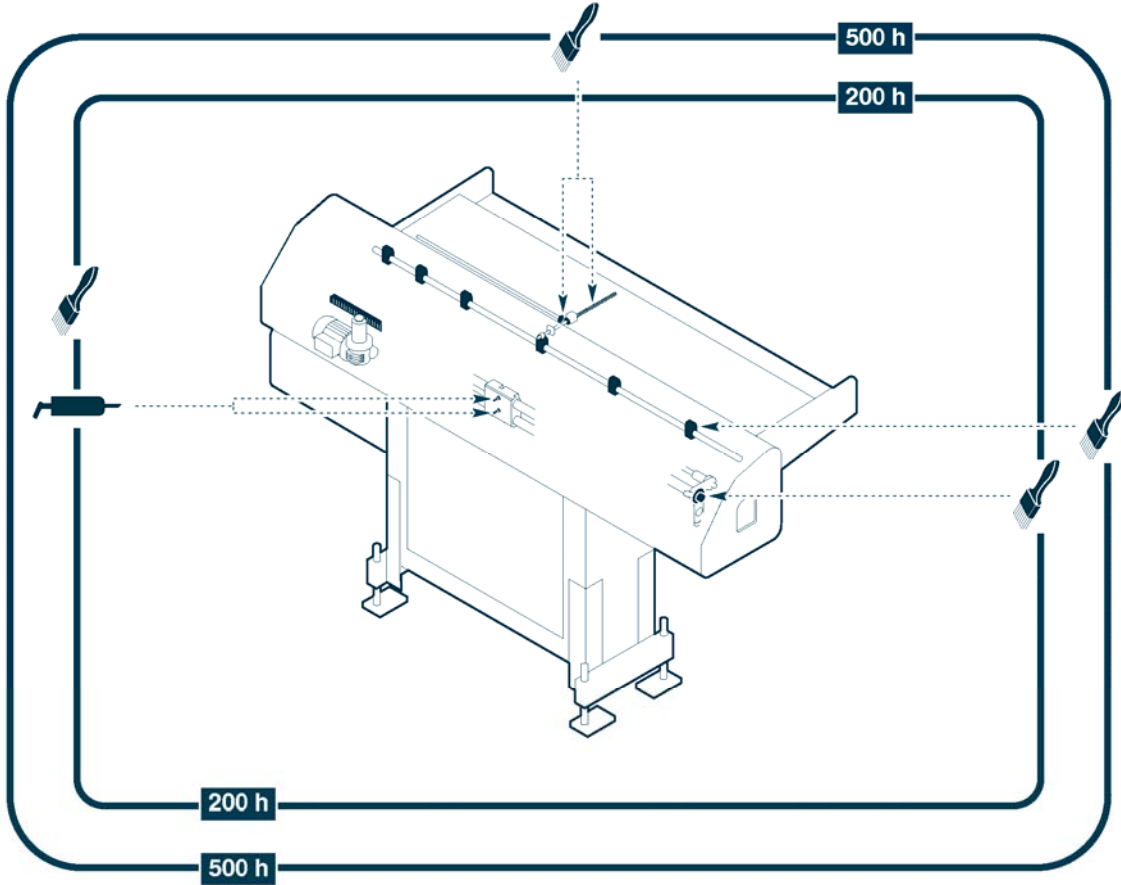
7.2 SCHEDULED MAINTENANCE

INFORMATION:

keep the bar feeder in conditions of maximum efficiency, carrying out the programmed maintenance operations provided by the manufacturer. Good maintenance will allow the best performances, a longer service life as well as constant keeping of safety requirements.

Component	Kind of intervention	Frequency				
		Hours				Yearly
		200	500	1250	2500	
Feeding belt	Test wear and, if necessary, adjust the tension			•		
	Test wear. If necessary, replace it.				•	
Fixed tip	Test wear. If necessary, replace it.	•				
Carriage unit	Lubricate the sliding guides	•				
Rack	Lubricate	•				
Magazine	Lubricate the bevel gear pair		•			
Stop device	Lubricate forks and pins		•			
Bar-pushing unit	Lubricate the lifting toothed wheels	•				
PLC	Replace the battery					•

7.3 GREASING POINTS



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7.4 DISPLACEMENT DEVICE USE

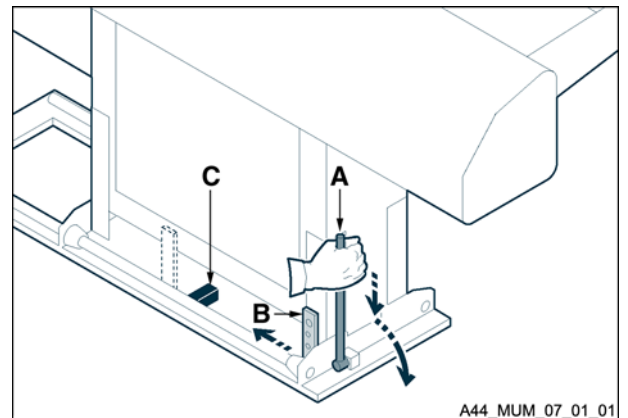


WARNING - CAUTION:

before carrying out this intervention, disconnect the bar feeder power supply. During the intervention take extreme care so as not to damage the connection cables.

Perform this operation following the instructions given hereunder:

- Disconnect the bar feeder-lathe fastening unit (if installed).
- Lower the lever (A) until it releases, then rotate it forward.
- Move the bar feeder until the bar stop (B) exceeds the stop (C).
- Carry out all lathe tooling and/or maintenance operations required.
- Lift the bar stop (B) and put the bar feeder again in its initial position.
- Put the lever (A) in position.



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7.1 PRELIMINARY NOTE ON MAINTENANCE



INFORMATION:

before carrying out any maintenance, start all safety devices provided and check if it is necessary to inform the staff operating around and people close to the area. In particular, it is recommended to adequately signal the adjacent areas and to prevent anyone from approaching all the devices that, if started, could cause unexpected damage and harm to people.

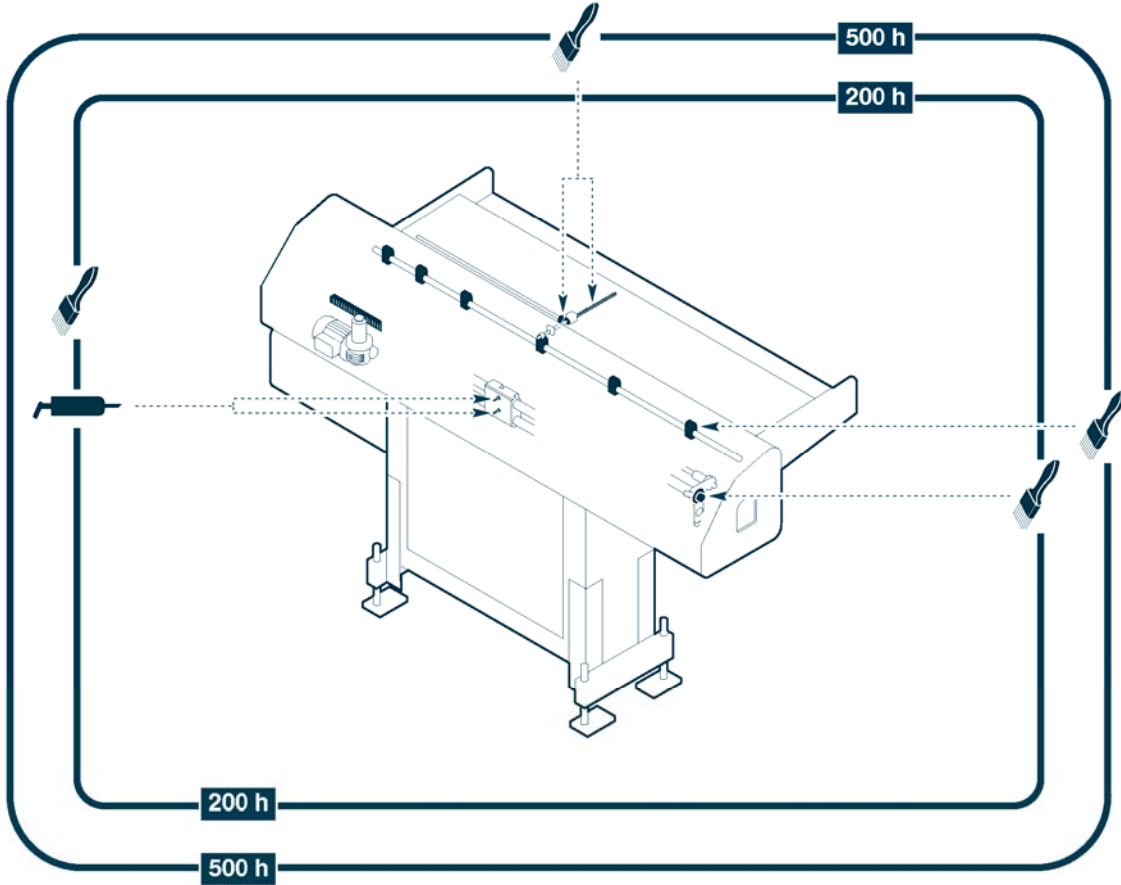
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Component	Kind of intervention	Frequency				
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		200	500	1250	2500	
Feeding belt	Test wear and, if necessary, adjust the tension			•		
	Test wear. If necessary, replace it.				•	
Fixed tip	Test wear. If necessary, replace it.	•				
Carriage unit	Lubricate the sliding guides	•				
Rack	Lubricate	•				
Magazine	Lubricate the bevel gear pair		•			
Stop device	Lubricate forks and pins		•			
Bar-pushing unit	Lubricate the lifting toothed wheels	•				
PLC	Replace the battery					•

7.3 GREASING POINTS



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7.4 DISPLACEMENT DEVICE USE

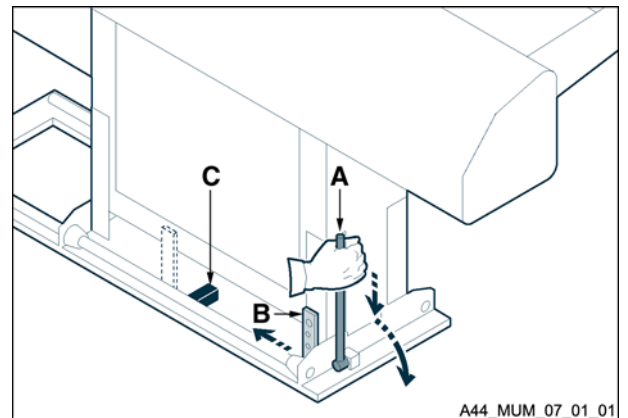


WARNING - CAUTION:

before carrying out this intervention, disconnect the bar feeder power supply. During the intervention take extreme care so as not to damage the connection cables.

Perform this operation following the instructions given hereunder:

- Disconnect the bar feeder-lathe fastening unit (if installed).
- Lower the lever (A) until it releases, then rotate it forward.
- Move the bar feeder until the bar stop (B) exceeds the stop (C).
- Carry out all lathe tooling and/or maintenance operations required.
- Lift the bar stop (B) and put the bar feeder again in its initial position.
- Put the lever (A) in position.



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8.1 GENERIC TROUBLESHOOTING

TROUBLES	CAUSES	SOLUTIONS
The bar feeder will not start	Blackout.	Check the electrical connection
	Open guard.	Close the guard.
	Emergency devices on.	Disconnect the emergency devices.
The bar feeder has been reset but the automatic cycle will not start.	No lathe signal.	Check the electrical connection with the lathe.

8.2 BAR MAGAZINE TROUBLESHOOTING

TROUBLES	CAUSES	SOLUTIONS
During the loading phase, the bar does not enter the magazine.	The bar pushing frame is too low.	Adjust the bar pushing frame position (see par. 5.2.).
The first bar in magazine is not lifted.	The limit stops are not well adjusted.	Adjust the stops (see par. 5.2.).
The second bar in the magazine lifts together with the first one.	The limit stops are not well adjusted and/or the bar pushing frame is too high.	Adjust the stops (see par. 5.2.) and/or the bar pushing frame position (see par. 5.2.).

8.3 TROUBLESHOOTING DURING BAR FEEDING

TROUBLES	CAUSES	SOLUTIONS
The bar hardly enters the lathe spindle.	The guides are not well adjusted.	Adjust the guides (see par. 5.3.).
	The bar feeder - lathe guide is not well adjusted.	Adjust the guide (see par. 5.4.).
	The bar feeder is not aligned with the lathe.	Check and correct the alignment.
The bar hardly enters the lathe collet.	Excessive burr at the bar end.	Trim rag before feeding.

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9.1 PRELIMINARY NOTE ON PARTS REPLACEMENT

Before carrying out any replacement, start all safety devices provided and check if it is necessary to inform the staff operating around and people close to the area. In particular, it is recommended to adequately signal the adjacent areas and to prevent anyone from approaching all the devices that, if started, could cause unexpected damage and harm to people.

If it proves necessary to replace worn components, use only original spare parts.

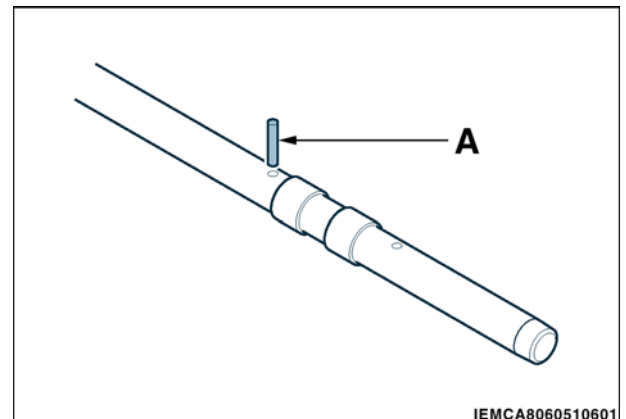
We disclaim any responsibility for damages to components and injury to people derived from the use of non-original spare parts and from any repair carried out without the manufacturer's authorisation.

For spare parts ordering, follow the indications reported on the spare parts catalogue.

9.2 REPLACEMENT OF THE FIXED TIP

For replacement proceed as follows:

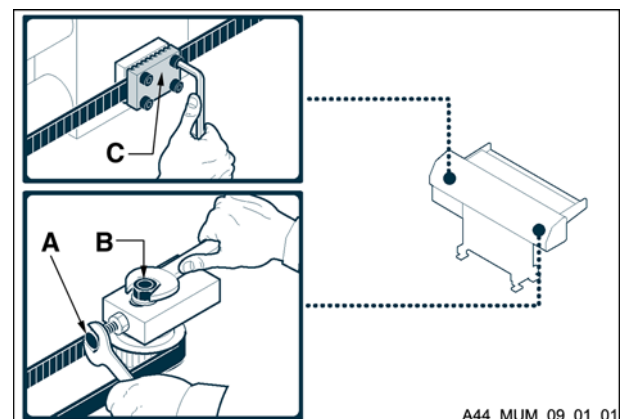
- Open the upper guard.
- Disassemble the bar pusher.
- Pull off the pin (A) to remove the fixed tip.
- Install the new fixed tip and fasten it by means of a new pin.
- Install the bar pusher again.
- Close the top cover again.



9.3 FEEDING BELT REPLACEMENT

Follow the instructions given hereunder to perform this operation:

- Open the upper guard.
- Loosen nut (B).
- Loosen the belt through screw (A) and lock nut.
- Disassemble the plate (C) and replace the belt.
- Assemble the plate again (C).
- Adjust the tension of the belt.
- Close the top cover again.



9.4 PLC BATTERY REPLACEMENT

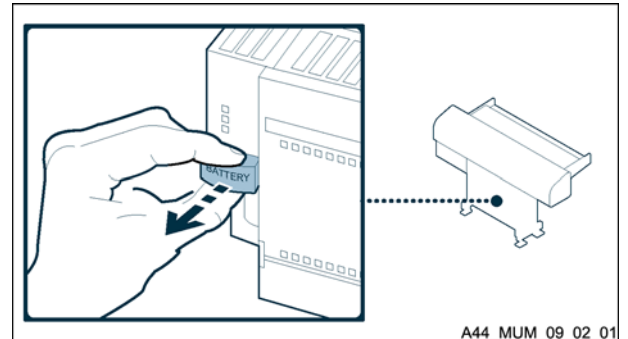
Replace the battery once a year.



WARNING – CAUTION:

if this device is not replaced PLC troubles may turn up.

- Switch bar feeder power supply off.
- Open the doors of the electrical control panel, take out the battery and put in the new one (battery type: SIEMENS 6ES7 291-88A20-0XA0).



WARNING – CAUTION:

replace battery quickly to avoid too long a power supply interruption.

- Close the electric cabinet doors and turn power supply back on.

9.5 RECOMMENDED SPARE PARTS

**INFORMATION:**

replace the too worn parts by using original spare parts. Use only oil and grease recommended by the manufacturer. All the above hints will assure the good performance of the bar feeder as well as its safety.

Below are listed the recommended spare parts to have in stock.

Code	Name	Features	Notes	Qty
32210013	Sensor	BERO 3RG4012-0AG33 BERO		2
806002431	Roller conveyor guide unit			1
24373000	Feeding belt	HTD 8 M20 479 PA		1
	Bar pusher		Specify diameter	1
	Fixed tip		Specify diameter	1

9.6 BAR FEEDER DISMANTLING

**INFORMATION:**

this activity must be carried out by specialized operators, in accordance with the laws in force on safety at work. Do not throw non-biodegradable products, lubricating oils and non-ferrous components (rubber, PVC, resins, etc.) in the environment. Carry out their disposal in compliance with the laws in force.