

# AUTOMATIC BAR FEEDER WITH HYDRAULIC SUSPENSION

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

## MASTER 880 MP-E

GB

MANUAL FOR USE AND MAINTENANCE

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S/N

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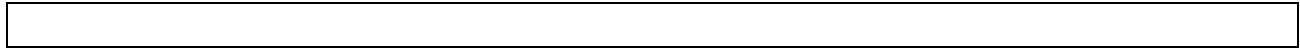
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**TYPE OF DOCUMENT: MANUAL FOR USE AND MAINTENANCE**

**PRODUCT: AUTOMATIC BAR FEEDER WITH HYDRAULIC SUSPENSION**

**MODEL: MASTER 880 MP-E**







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 Operations described in paragraphs showing this symbol, must be performed by qualified and skilled personnel only.  
Any other operation can be performed either by qualified personnel or by professional bar feeder operators.

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

## 1.1 TERMS OF WARRANTY

The warranty validity is subordinated to a correct assembly and coupling of the bar feeder to lathe. In particular, before the first start-up, carry out an accurate check to make sure the bar feeder is correctly aligned with the lathe and fastened with the expansion plugs as shown in section 4.

The product warranty is valid only if the bar loader 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 works being carried out.

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

The document must be sent per mail to:

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

 **INSTALLATION CERTIFICATE** N° 1005 /02

ATTENTION: to comply with the warranty terms all parts of this form are to be filled in and mailed to IEMCA Italia

Installation and training executed by:

Company	DATE	
Installer Technician	Servicing report No.	
Executed at:		
Customer	Participant/s <small>(write names in caps)</small>	
Country		
Bar feeder		
Serial no.		
Equip./Type		

**S U B J E C T**

Bar feeder's general description and running, operating cycle instructions.	<input type="checkbox"/>
Bar feeder tooling instructions and changeover instructions.	<input type="checkbox"/>
Description and change of guides, bar pusher, collet, hall bushing, front nose and reduction nose	<input type="checkbox"/>
Description of operator's keyboard; description of parameters and their use.	<input type="checkbox"/>
Programming procedures based on the kind of process required.	<input type="checkbox"/>
Errors - Causes - Solutions; description of the main alarms listed on manuals.	<input type="checkbox"/>
Manuals and precautionary maintenance tips examination; Procedures to request IEMCA technical service.	<input type="checkbox"/>

Customer is familiar with the bar feeder and is aware of all its running and maintenance procedures having received such information during previous installations.

Marked subjects have been dealt with fully and thoroughly. Participant's report that training received was fully satisfactory. Side signature acknowledgement.

**NOTE: In order to benefit from our warranty**  
 - an IEMCA authorised technician must have carried out the installation  
 - above mentioned "training" must be completed.

Warranty terms is of 12 months beginning on the date of the installation and may not exceed 18 months from the delivery date. Warranty will have effect from the date of the general undersigning of this form. All parts of these form must be completely filled in and the same must be mailed to IEMCA, or returned by means of the installing technician, within 15 days.	Customer's stamp and signature
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## 1.2 MANUAL PURPOSE

This manual has been written and supplied by the manufacturer, the information herewith contained has been written in Italian (manufacturer's language) to be translated to other languages, in order to comply with legal and/or commercial requirements. This manual is integral part of the bar feeder and of its equipment.

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

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 injuries, exert the maximum caution.*

**CAUTION - PRECAUTION**

*indicates measures to be adopted to avoid accidents or damages to property.*

**INFORMATION**

*technical instructions of particular importance.*

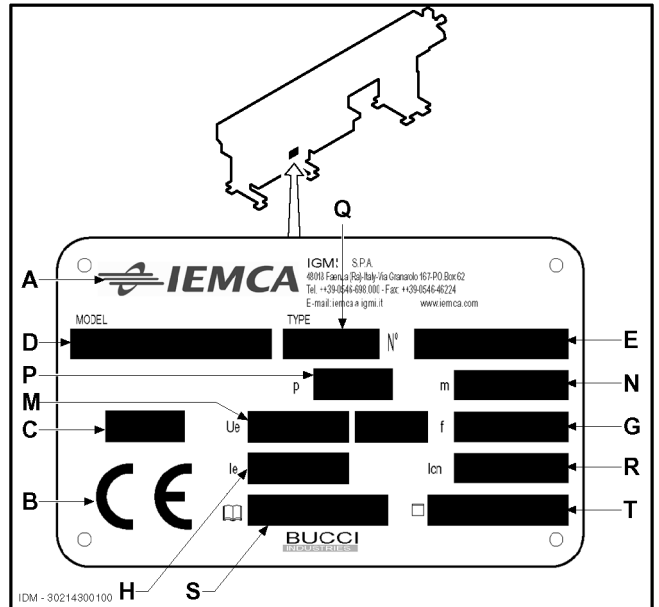
For a quick search of topics see the table of contents.

In addition to this manual, which contains all the instructions for the bar feeder use and maintenance, one more is supplied: the "Push-button panel instruction manual".

The "Push-button panel instruction manual" contains all the instructions on how to use the installed software.

### 1.3 MANUFACTURER AND BAR FEEDER IDENTIFICATION

- A Manufacturer's identification
- B CE conformity marking
- C Year of manufacture
- D Bar feeder model
- E Serial number
- G Mains frequency
- H Absorption power
- M Feeding voltage
- N Direct driving voltage
- P Air pressure
- Q Bar feeder and pusher length
- R Breaking capacity
- S Number of base wiring diagram
- T Number of interface wiring diagram



#### **INFORMATION:**

***Always provide the Manufacturer with the above mentioned specifications when requesting information or ordering spare parts, etc.***

### 1.4 TECHNICAL ASSISTANCE

Whenever necessary, please apply to one of the Technical Assistance Centres shown in the attached list.



#### **INFORMATION**

***when requesting technical assistance for the bar feeder, always specify the information shown on the machine dataplate.***

### 1.5 ANNEXES ENCLOSED

- Push-button panel instruction manual.
- GUIDES - BAR PUSHER - REVOLVING TIPS - COLLETS. Manual for choice.
- Wiring diagram.
- Pneumatic diagram.

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## **2.1 GENERAL DESCRIPTION OF THE BAR FEEDER**

The MASTER 880 automatic bar feeder is used in the machine-tool industry and in particular, for automatic lathe feeding.

The working cycle is controlled by a control panel with built-in PLC, which is able to dialogue with the lathe control.

The digital hand-held keyboard makes programming easier and allows the bar-feeder functions to be controlled without leaving the lathe.

The bar feeder can be used to feed bars, pipes and various sections.

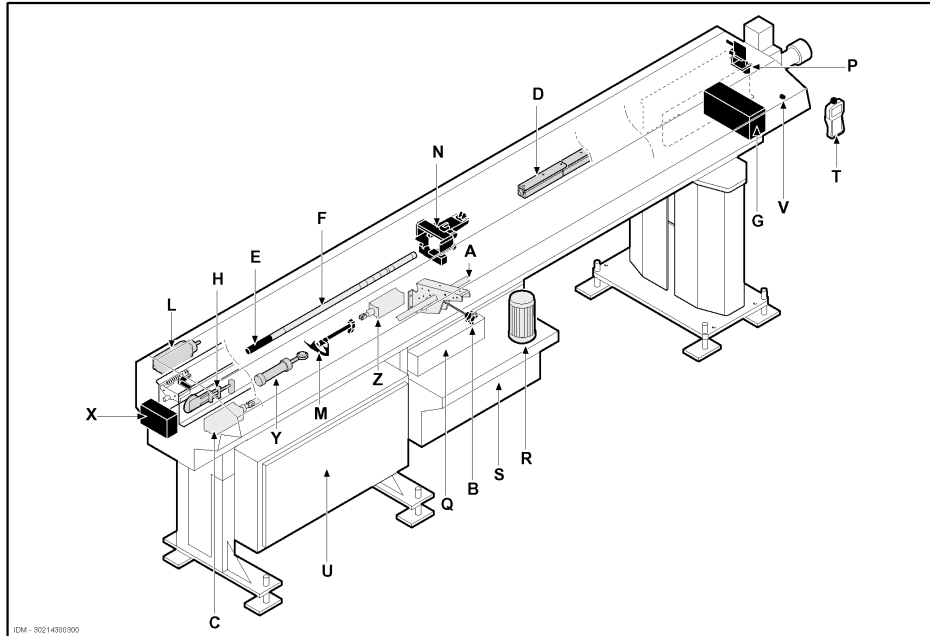
The guide channel is fully closed during machining; a pump is provided to maintain a continuous oil flow inside the channel, creating a hydrodynamic support effect; these characteristics allow the bar to rotate at a high r.p.m. number, with no vibrations and no surface damaging.

Thanks to the use of a "BRUSHLESS" and electronically controlled motor, the bar speed, thrust value and feeding position may be determined at any time during the working cycle.

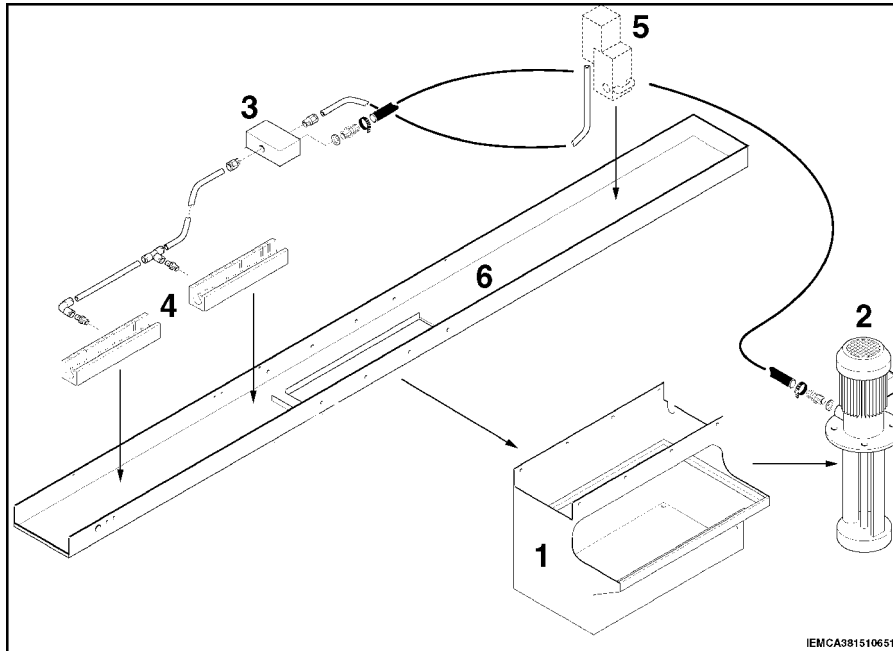
Bar remnant ejection can be caused by bar-pusher feeding or next bar feeding.

The lathe tooling and maintenance can be easily carried out due to the axial displacement of the bar feeder body.

### 2.1.1 Bar feeder - Main components



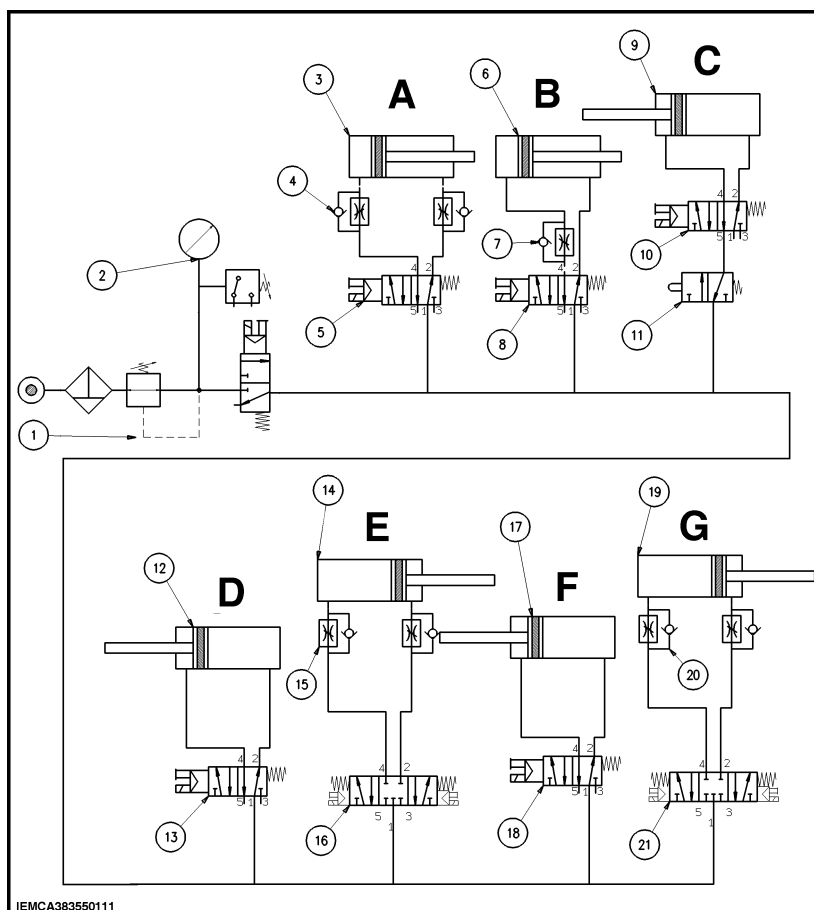
- A Magazine; where bars are stored.
- B Bar selectors; this selects the first bar contained in the magazine, so that it can be afterwards loaded by the lifting device.
- C Bar lifting device; this lifts the first bar contained in the magazine.
- D Guide channels; they drive the bar during the machining.
- E First feeding carriage; it pushes the bar forward until the necessary space for the bar pusher connection has been created.
- F Bar pusher; it pushes the bar during the machining. The collet is fixed on its front end.
- G Bar pusher drive; it drives the bar pusher.
- H Feed chain; it transmits the motion from the drive to the bar pusher.
- L Guide channel opening/closing cylinder
- Y Upper guide channel unlock
- M Pneumatic bar drop control devices; they control the bar during the drop into the guide channels.
- N Clamps; they hold the bar during its loading and removal from the bar pusher collet.
- P Facing device; it sends a signal during the bar passage.
- Q Remnant collection box; it collects the bar remnant.
- R Lubricating pump; it delivers oil to the guides.
- S Oil tank; contains the lubricating oil.
- T Hand-held keyboard; it allows bar feeder programming and function actuation.
- U Electric cabinet; houses the electric switchboard.
- V Axial displacement; it helps to remove the bar feeder body from the lathe.
- Z Pneumatic bar drop controls cylinder
- X Pneumatic clamps cylinder

**2.1.2 Hydraulic system - Main components**

- 1 TANK
- 2 PUMP
- 3 DIRECTIONAL CONTROL VALVE
- 4 GUIDES
- 5 BUSHING
- 6 OIL RECOVERY TRAY

Lubrication oil cycle: forced by pump (2) installed in tank (1), the oil flows to guides (4) and bushing holder (5) to lubricate the bars in production.

From these two devices the oil enters recovery tray (6) from where it is returned to the tank via a filter for use in the next lubrication cycle.

**2.1.3 Pneumatic system - Main components**


- A - PNEUMATIC BAR DROP CONTROL DEVICE UNIT
- B - FACING CYLINDER UNIT
- C - BUSHING DRIVE UNIT
- D - PNEUMATIC CLAMPS
- E - BAR SELECTORS
- F - GUIDE CHANNEL PNEUMATIC LOCKING UNIT
- G - GUIDE CHANNEL OPENING UNIT

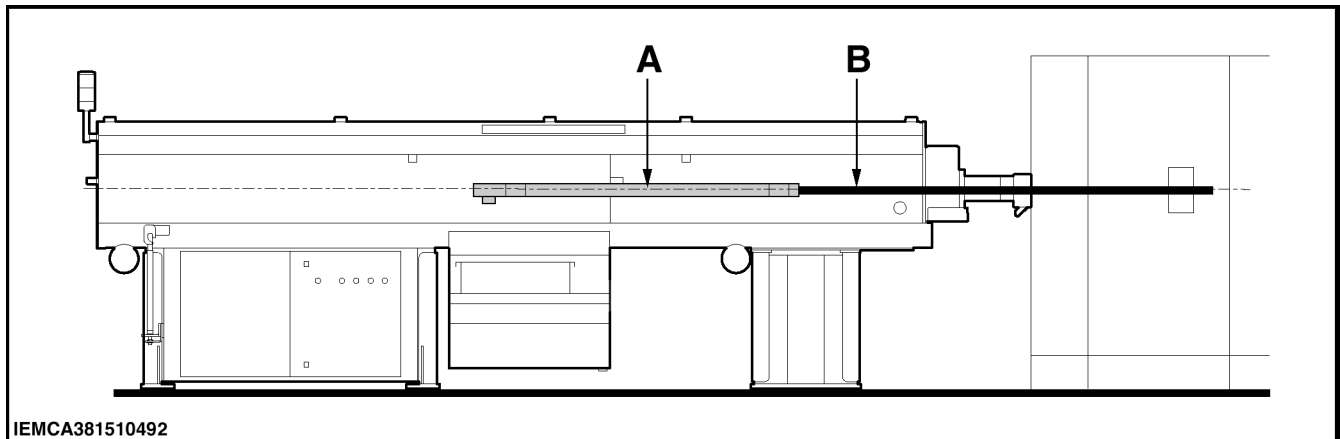
POS.	DENOMINATION
1	FILTER
2	PRESSURE GAUGE
3	CYLINDER
4	REGULATOR
5	ELETCTROVALVE
6	CYLINDER
7	REGULATOR
8	ELETCTROVALVE
9	CYLINDER
10	ELETCTROVALVE
11	VALVE

POS.	DENOMINATION
12	CYLINDER
13	ELETCTROVALVE
14	CYLINDER
15	REGULATOR
16	ELETCTROVALVE
17	CYLINDER
18	ELETCTROVALVE
19	CYLINDER
20	REGULATOR
21	ELETCTROVALVE

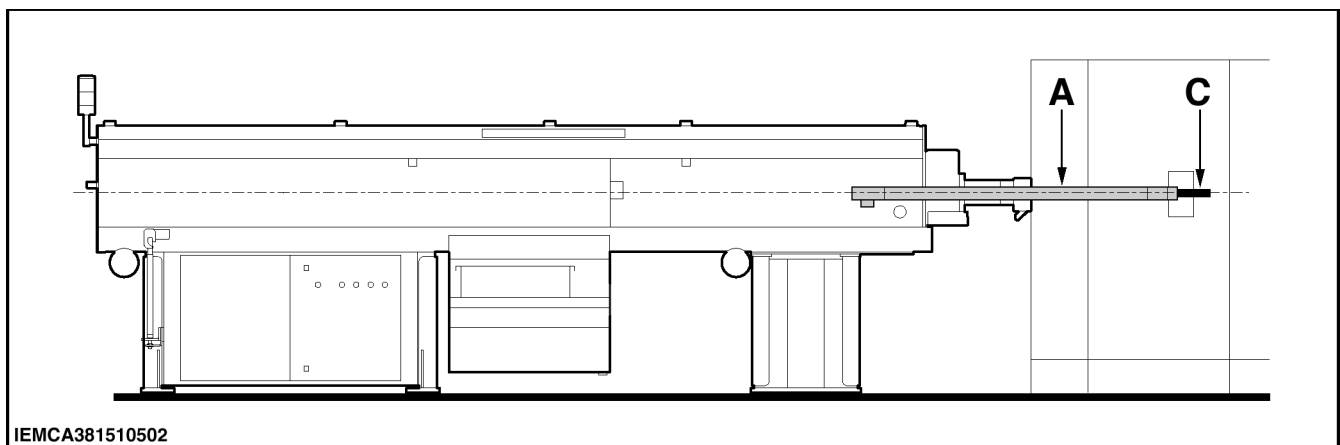
## 2.2 OPERATING CYCLE

The automatic functioning controls the motions of the bar feeder according to the sequence described below.

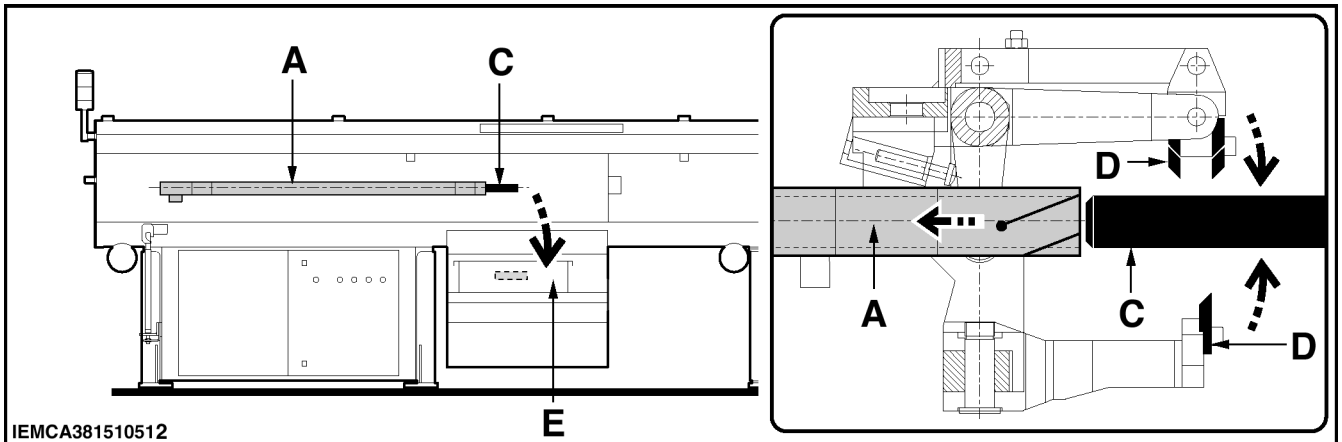
The bar pusher (A) makes bar (B) move forward in the lathe until the bar runout.



The bar-pusher (A) and remnant (C) are in their forwards limit stop position.

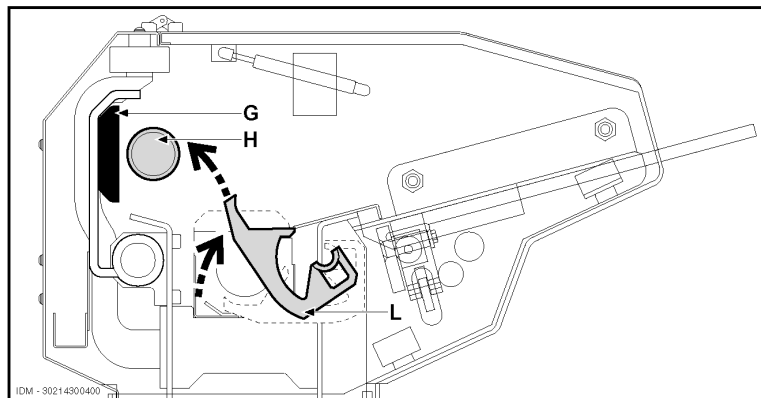




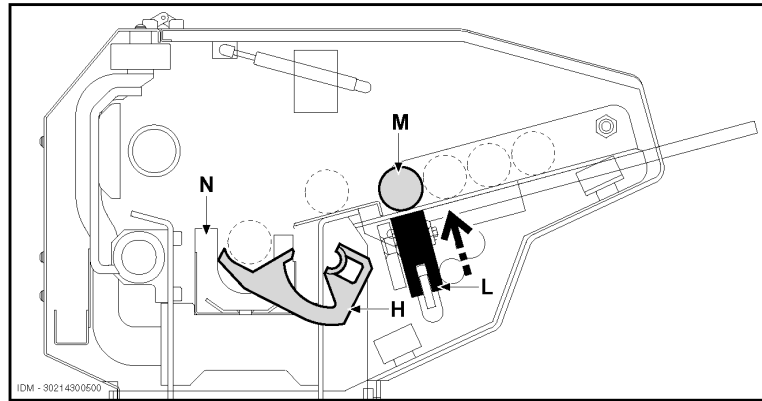


When dropping, bar remnant (C) activates a control device. If the bar remnant is still inside the collet of the bar pusher, the bar feeder stops, otherwise the cycle goes on.

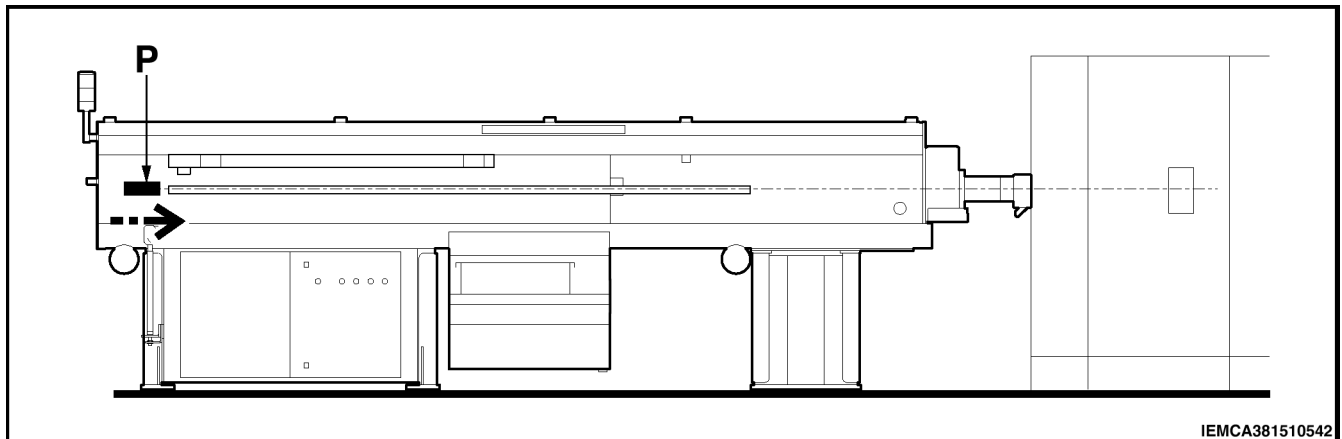
The top guides (G) are lifted together with the bar pusher (H), and also the bar control devices are lifted.



Bar lifts (L) load bar (M) that falls into lower guides (N) with the help of levers (H).

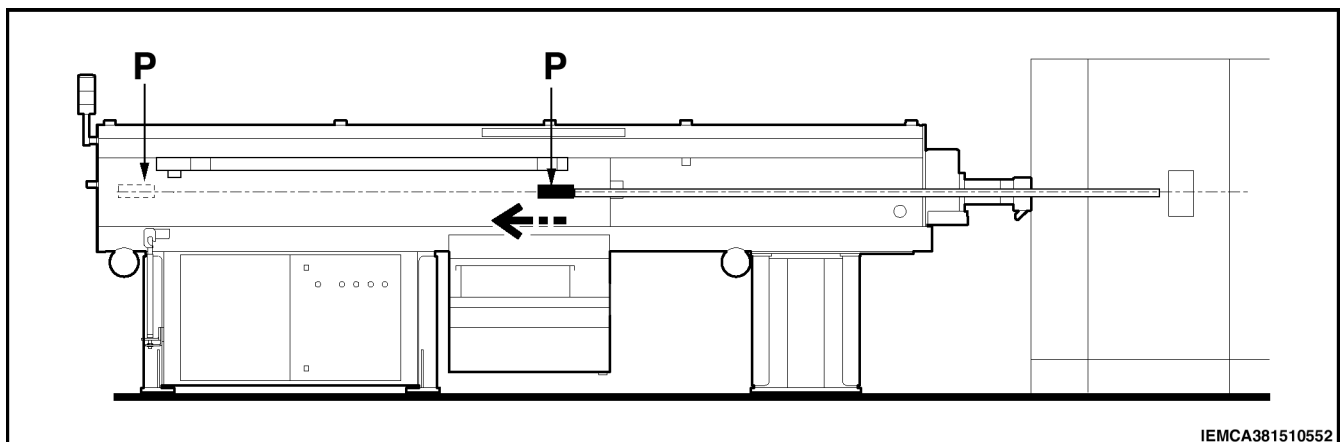


The 1st feeding carriage (P) stroke begins.

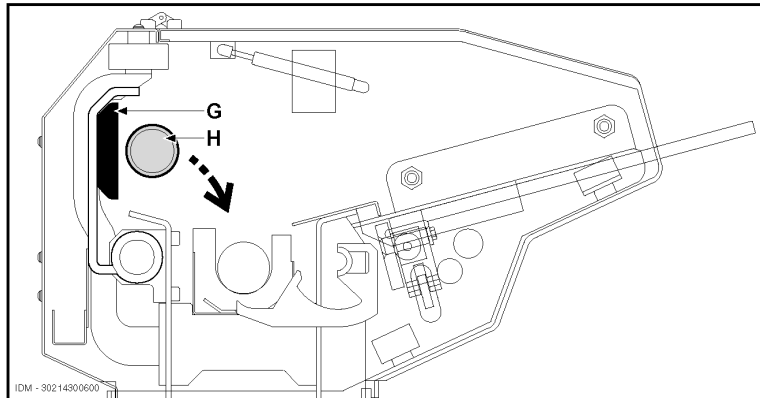


When the small pusher truck (P) completes its stroke, the required space has been created for bar-pusher insertion.

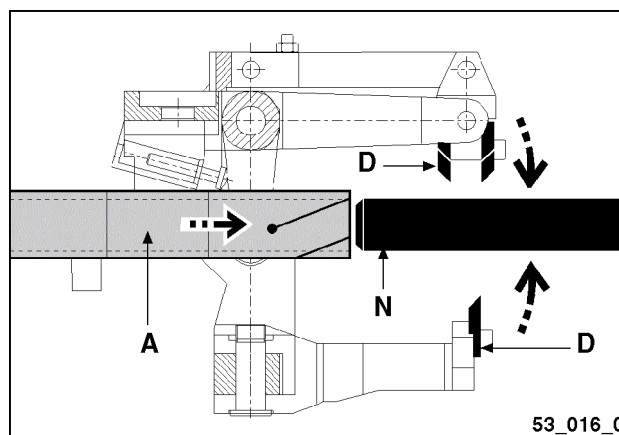
The small pusher truck executes its return stroke.



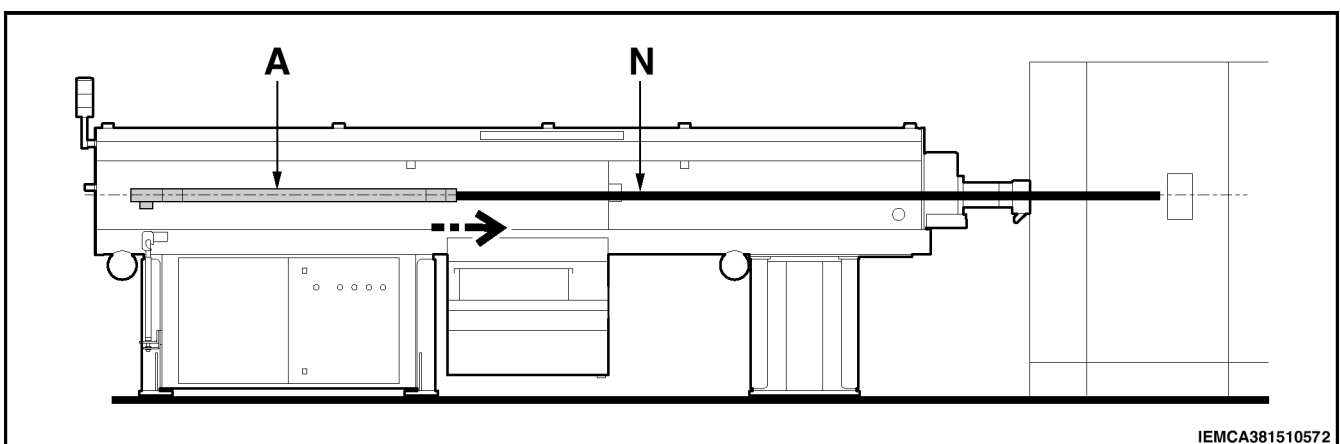
The upper guides (G) are closed; the bar-pusher (H) is positioned along the spindle axis.



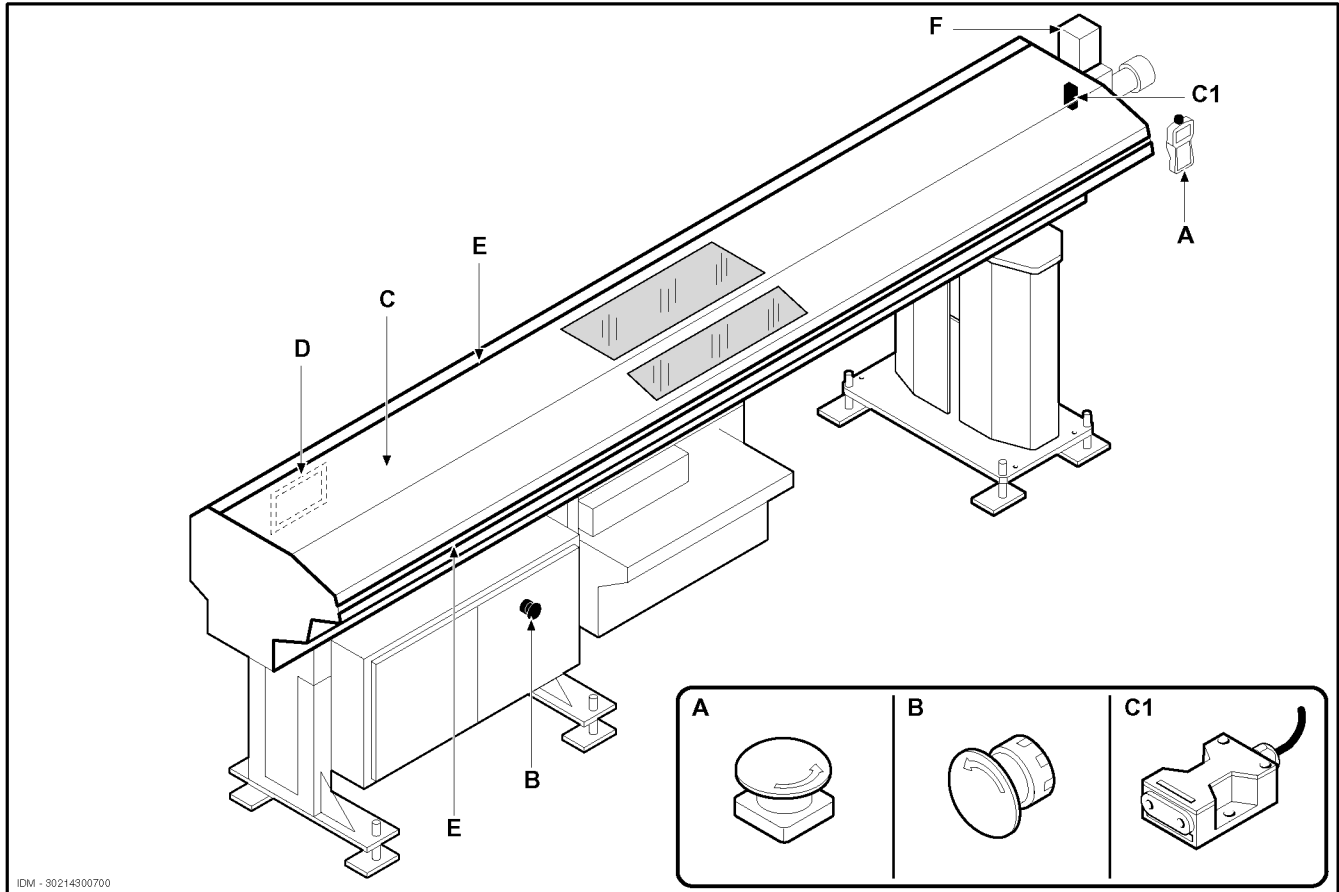
The clamps (D) close, the bar-pusher (A) moves forwards; the bar (N) is inserted into the bar-pusher collet.



The bar-pusher (A) and bar (N) execute their facing stroke. A new automatic work cycle is started.



### 2.3 Bar feeder - Safety devices



A-B Emergency push-button; when pressed, all the bar feeder and lathe functions stop in emergency condition.

C Interlocked mobile guard: associated with microswitch C1.

According to the cycle setting, its functions are.

manual cycle;

-on guard opening, the bar feeder controls are locked with the exception of bar pusher movement controls.

automatic cycle;

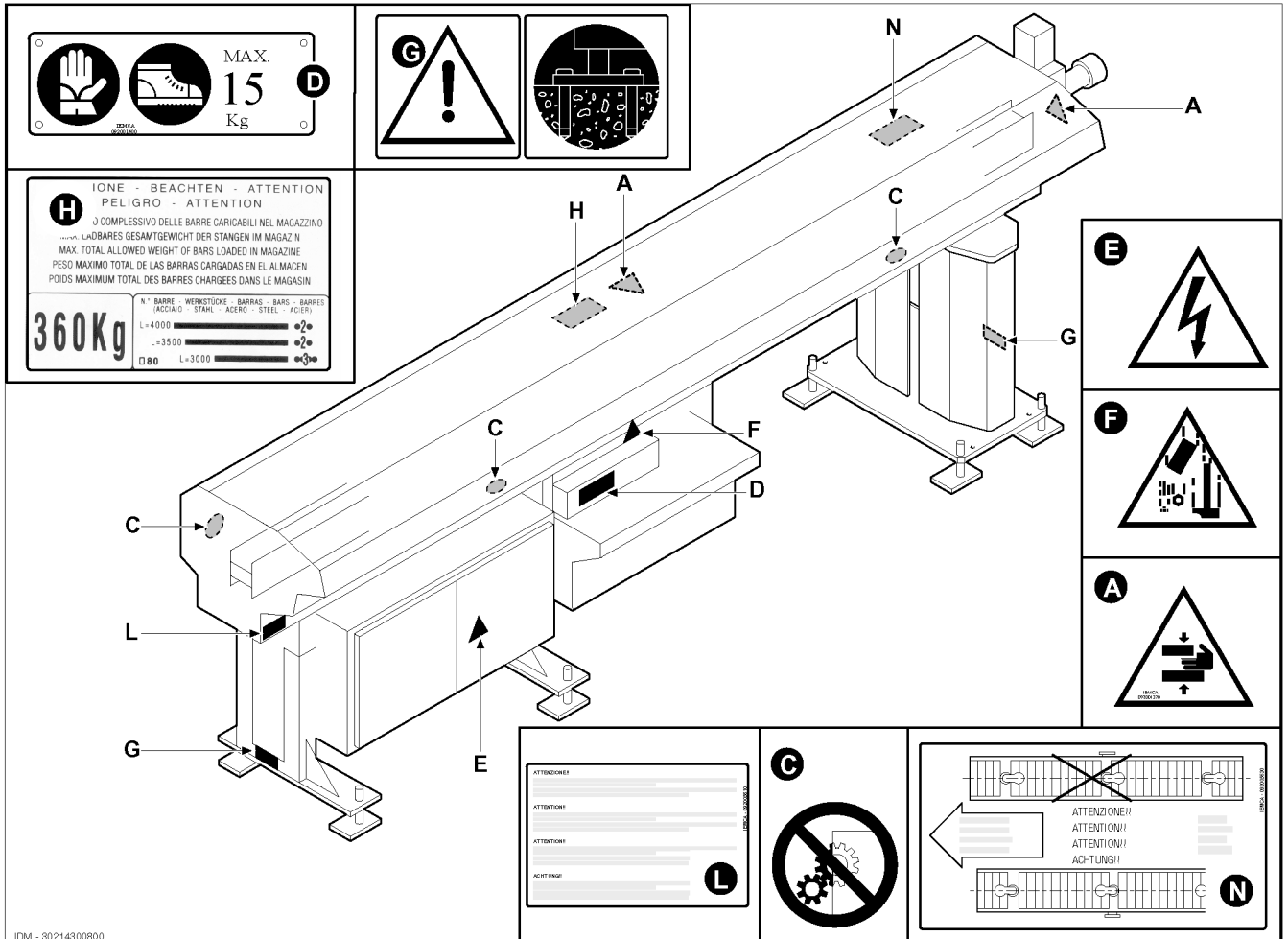
-during the bar feeding phase, the guard opens to allow magazine refilling. Although the bar feeder and lathe functions are not stopped, there are no residual risks for the operator within the area.

-during the bar change phase, on guard opening, the bar feeder and lathe functions are stopped. Guard closure allows the cycle to be restarted by the operator.

D Fixed guard: it is made from transparent material to allow visual inspection of the bar feeder devices.

E Fixed guard: hinders an accidental access to the operating components.

F Fixed guard: it prevents accidental access to the bar selection area.

**2.4 SAFETY PLATES - POSITION AND DESCRIPTION**


- A Danger of upper limb crushing.
- C Do not remove the safety barriers.
- D Wear safety gloves and shoes.  
Do not lift loads exceeding 15 kg manually.
- E Caution! Danger of electric contact.
- F Warning; danger of falling material.
- G Warning: fix the bar feeder to the ground.
- H Maximum overall weight of magazine loadable bars.
- L Warning; axial sliding
- N Warning; respect the correct guide channel assembly direction.

## 2.5 DESCRIPTION OF THE VERSIONS

Table 1. Bar length

Modello	Versione	Lunghezza massima mm (ft)	Lunghezza minima mm (ft)
MASTER 880 MP Evolution	33	3300 (10,8)	1000 (3,2)
	38	3800 (12,4)	
	43	4300 (14,1)	

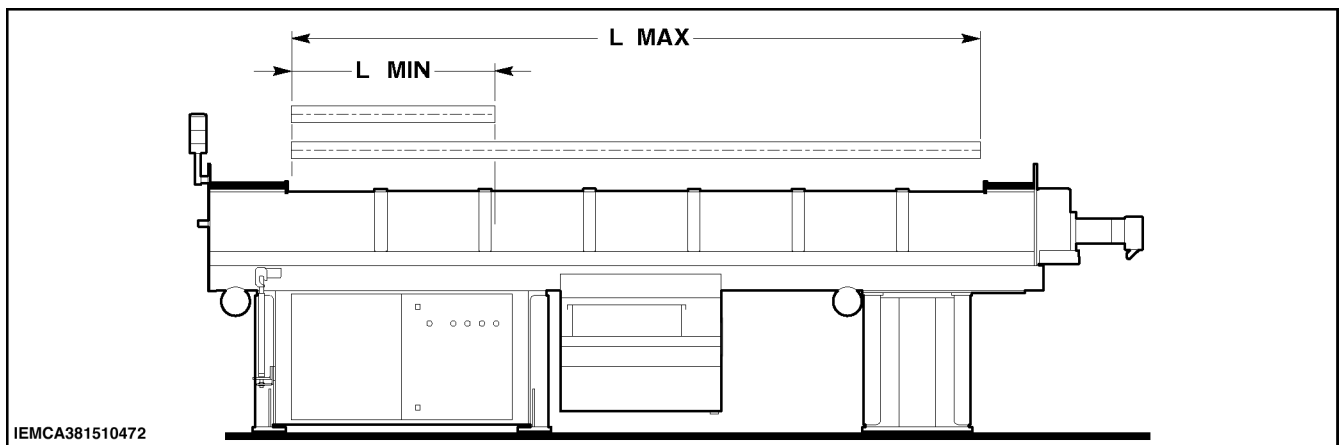
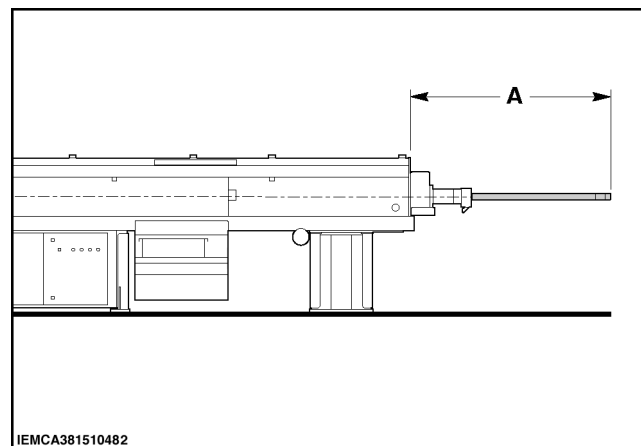


Table 2. Bar pusher max. extension

Model	Version	Version	A - Max. extension (mm)
MASTER 880 MP Evolution	33-38-43	L	1350
		LL	1600
	38-43	XLL	1850



2.6 TECHNICAL DATA

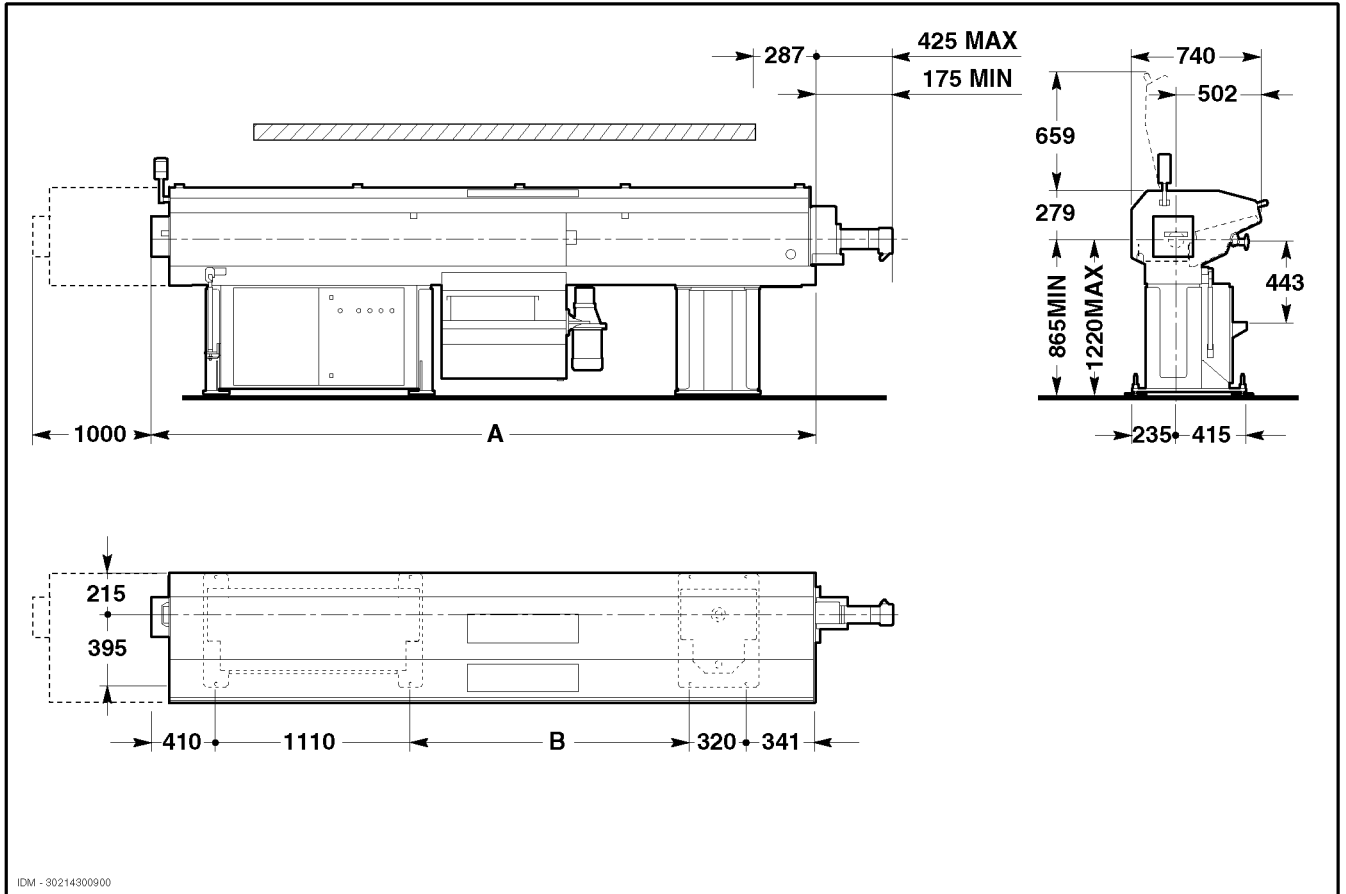


Table 3. Overall dimensions

Model	Version	A (mm)	B (mm)
MASTER 880 MP Evolution	33	4000	1950
	38	4500	2450
	43	5000	2950

Table 4. General technical specifications

	<b>MASTER 880 MP Evolution</b>	
Round bar diameter	Ø min 8 mm (5/16")	Ø max 80 mm (3")
Hex bar diameter	min 10 mm (5/16")	max 50 mm (2"1/4)
Max bar length	min 7 mm (5/16")	max 65 mm (2")
Min bar length	1000 mm	
Max bar length	Mod. 33 – 3300 mm (10,8 ft) Mod. 38 – 3800 mm (12,4 ft) Mod. 43 – 4300 mm (14,1 ft)	
Magazine capacity (maximum allowable load)	~360 kg	
Magazine capacity (Working width)	270÷320 mm (es. n° 34 bars with a diameter Ø 8 mm, n° 4 bars with a diameter Ø 80 mm)	
Remnant max. length	Ø 8÷65 = 400 mm Ø 66÷80 = 250 mm	
Bar change-over time (with 3000 mm bar)	30 sec (varying according to the bar diameter)	
(Adjustable) feeding speed	150 mm/sec	
(Adjustable) return speed	950 mm/sec	
Input voltage	230/400 Volt	
Control voltage	24 Volt A.C. – 24 Volt D.C.	
Installed power	3 kW	
Air pressure	6 bar	
Oil quantity	80 l	
Air consumption	6 NI/min	
Bar feeder weight	Mod. 33 – 1360 kg. Mod. 38 – 1440 kg. Mod. 43 – 1520 kg.	



Table 5. Working axis height

Model	Screws position	X (mm) High bedframe	X (mm) Low bedframe
MASTER 880 P MASTER 880 F	2	1215÷1249	900÷934
	3	1250÷1284	935÷969
	4	1285÷1319	970÷1004
	5	1320÷1354	1005÷1039
	6	1355÷1389	1040÷1074
	7	1390÷1424	1075÷1109
	8	1425÷1459	1110÷1144
	9	1460÷1494	1145÷1179
	10	1495÷1535	1180÷1220

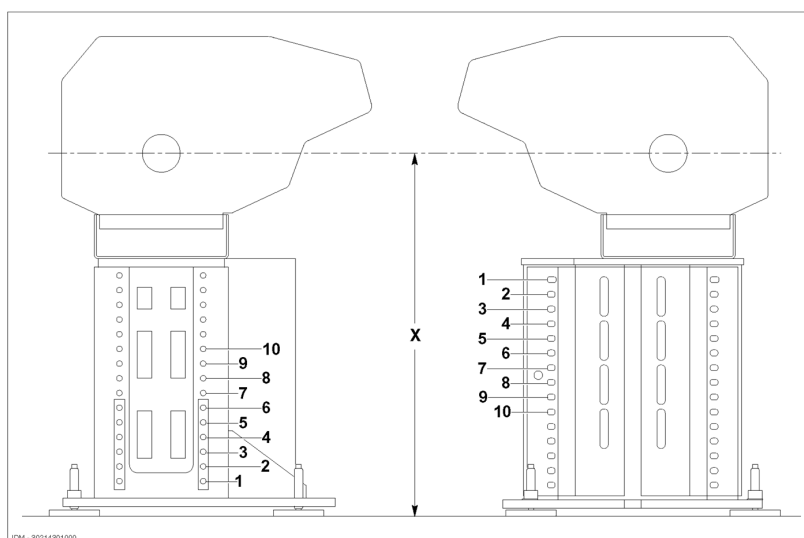


Table 6. Guide channel, bar pusher, bar and tube diameters

Model	Guide channel diameter (mm)	Bar pusher diameter (mm)	Bar diameter		Tube diameter (mm) (*)
			Minimum	Maximum	
MASTER 880 MP Evolution	21	20	8	18	20
	26	25	8	23	25
	33 (**)	32	10	29	31
	36	35	10	32	35
	38	37	11	35	37
	43	42	12	39	42
	46	45	15	42	45
	52	51	18	47	51
	57	56	22	52	56
	61 (**)	60	30	56	60
	66	65	38	61	65
	69	68	48	63	68
	71	70	48	65	70
	73	72	50	67	72
	76	75	50	70	75
	81	80	52	75	80
86 (**)	85	55	80	80	

(\*) Valid also for prepared bars or normal bars machined with front remnant ejection.

(\*\*) Recommended guide according to max lathe bar passage.

Example: ø85 max bar passage - GUIDES 86-61-33.

Example: ø80 max bar passage - GUIDES 81-61-33.

Example: ø75 max bar passage - GUIDES 76-61-33.

Table 7. Guides lubricating oils.

<b>Model ISO and UNI</b>	<b>Make</b>	<b>Name</b>
<b>CLASSE C CKB 150</b>	<b>Agip</b>	Acer 150
	<b>Api</b>	Api Cis 150
	<b>BP</b>	Energol CS 150
	<b>Castrol</b>	Magna 150
	<b>Chevron</b>	Circulating Oil 150
	<b>Elf</b>	Movixa 150
	<b>Esso</b>	Nuto 150
	<b>Fina</b>	Solna 150
	<b>IP</b>	IP Hermea 150
	<b>Klüber</b>	Crucolan 150
	<b>Olio FIAT</b>	Daphne LPN 150
	<b>Roloil</b>	Arm V 150
	<b>Shell</b>	Vitrea 150 Tellus C 150
	<b>Tamoil</b>	Industrial Oil 150
	<b>Texaco</b>	Omnis 150
	<b>Total</b>	Cortis 150 Azolla ZS 150
<b>Aral</b>	Aral Degol Tu 150	

Oil quantity: 80 litres

### 2.6.1 Noise levels

A bar feeder does not cause acoustic noise.

Noise occurs when the lathe connected to the bar feeder, is working and the bar is rotating in bar feeder guides.

In this case, noise level emitted depends on the following conditions:

- perfect alignment and levelling of the lathe-bar feeder unit;
- proper fastening to the floor both of lathe and bar feeder;
- suitable bar gripping device fitted on lathe;
- dimensions of guide channel and bar-pusher suited to the bar stock;
- front guide bush of suitable diameter (if supplied);
- bar with a straightness within prescribed limits (max. arrows equal to 0.5 % of the bar length);
- spindle liner having the same diameter as the bar feeder guide channel diameter;
- spindle rotation speed suitable for the material to be machined;
- as to the bar feeder, use of oil having features suitable for the diameter of the bar to be machined;
- all bar feeder panels must be closed.

Should the above mentioned conditions be met, the noise level emitted during bar rotation into the guide channel, measured in compliance with the international standards, will be within the following limits:

- brass and steel round bars within 80 dbA
- hexagonal steel bars within 83 dbA
- brass hexagonal bars within 85 dbA

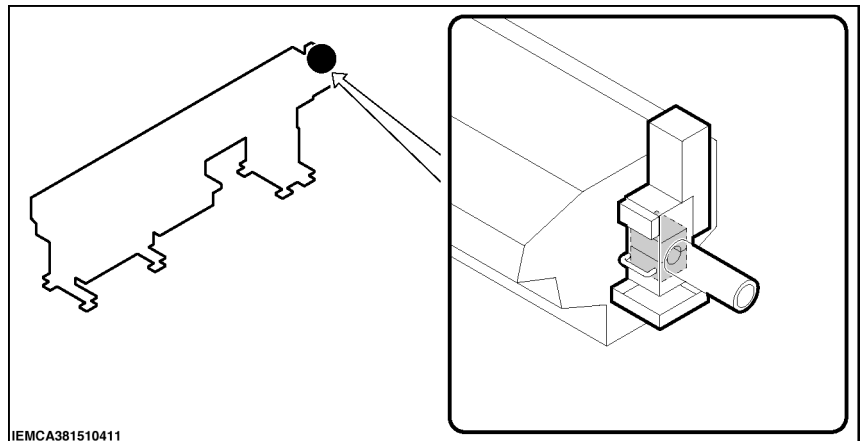
## 2.7 FITTINGS - FOREWORD

The bar feeder may be provided with the fitting that is described below to increase its performance and versatility.

### 2.7.1 Bush-holder device - Description

It is attached to the front part of the bar feeder. Its function is to reduce bar vibrations to a minimum, by keeping the bar centered during rotation through two half bushes A, which are coupled to form a round channel with a diameter just slightly larger than that of the bar being machined.

In many cases, this device can be used (by only changing the diameter of the half bushes) to greatly extend the range of diameters which can be machined without having to replace the guide channel.



#### OPERATION

- When the bar is dropped into the guide channel, the two half bushes are open.
- Closure is controlled by a pneumatic cylinder after the feeder has completed the bar feeding cycle. Closure also controls lubricating oil flow for lubrication and machined bar support purposes.
- When the bar-pusher approaches the device, the half bushes open up to allow its passage; oil flow is then discontinued.

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3.5	BAR FEEDER MAINTENANCE - Safety .....	4

### **3.1 GENERAL SAFETY PRESCRIPTIONS**



***It is of the utmost importance to read this manual carefully before installing, using or servicing the bar feeder or performing any other work . Constant compliance with the instructions in this manual is a guarantee of protection against injury.***

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

### **3.2 HANDLING AND INSTALLATION - Safety**

- The bar feeder must be handled using suitable means and methods.
- Persons must not stand or transit underneath a suspended load, or within the range of action of the crane, lift truck or other suitable means of lifting and transportation.
- The working area and bar loading area must be cordoned off to prevent collisions between the operator and machines used to transport or handle the barstock or other materials.
- Correct positioning of the bar feeder, adequate lighting and a clean working environment are of the utmost importance as far as personal safety is concerned.
- The electric system connection must be made exclusively by skilled electricians.
- Make sure the electrical system is connected to an efficient earth circuit by means of a dedicated wire.

### **3.3 ADJUSTMENTS AND SETTING UP - Safety**

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









### **3.4 USE AND OPERATION - Safety**

- The working area around the bar feeder must always be kept clean and uncluttered in order to allow immediate access to the emergency devices and bar loading to be performed without creating obstructions or danger.
- Perform the cycle starting sequence as prescribed.
- Keep hands and other parts of the body well clear of moving parts or live electrical parts.
- Remove bracelets, watches, rings and neckties.
- Whenever necessary, use strong work gloves with 5 fingers, which do not reduce the sensitivity or power of your grip.
- Wear working shoes as well as personal protection devices provided for by the accident prevention regulations in force in the country in which the machine is installed.
- Inform maintenance personnel of all operating anomalies that come to your attention.
- Before starting the bar feeder, make sure that there are no personnel engaged in servicing or cleaning the machine.

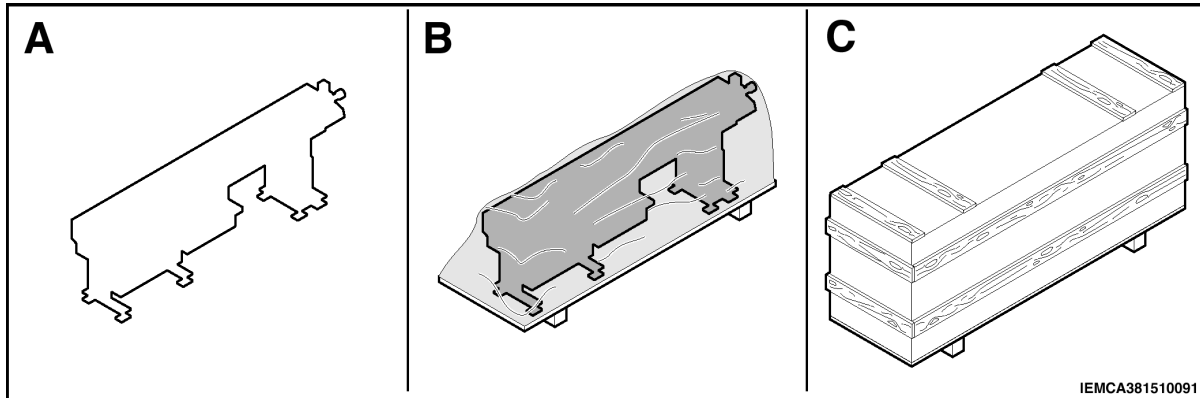
### **3.5 BAR FEEDER MAINTENANCE - Safety**

- Do not allow unauthorized persons to carry out maintenance.
- Read this manual carefully before carrying out maintenance.
- Do not lubricate, repair or adjust the bar feeder while it is running, unless expressly indicated to do so in the manual.
- Stop the bar feeder in accordance with the prescribed methods before carrying out lubrication or other work.
- Do use matches, lighters or torches when servicing the machine in the presence of inflammable fluids.
- Keep spent oil in suitable containers and consign it to companies specialized in the storage and disposal of polluting waste products.
- Do not pollute the environment.
- Use original IEMCA spare parts only.

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## 4.1 PACKAGING



There are three possible bar feeder packagings:

A WITH NO PACKAGING.

B WITH PALLET: the feeder is placed on a pallet and wrapped in protective film.

C WITH CRATE: the feeder is placed in a crate wrapped in protective film.

## 4.2 LIFTING



### **DANGER - WARNING:**

*e lifting and handling are to be done with proper means (see weight table, paragraph 2.6.) and by skilled staff, trained for this kind of manoeuvres.*

**4.2.1 Bar feeder without packaging - Lifting**

**4.2.2 Bar feeder with pallet - Lifting**

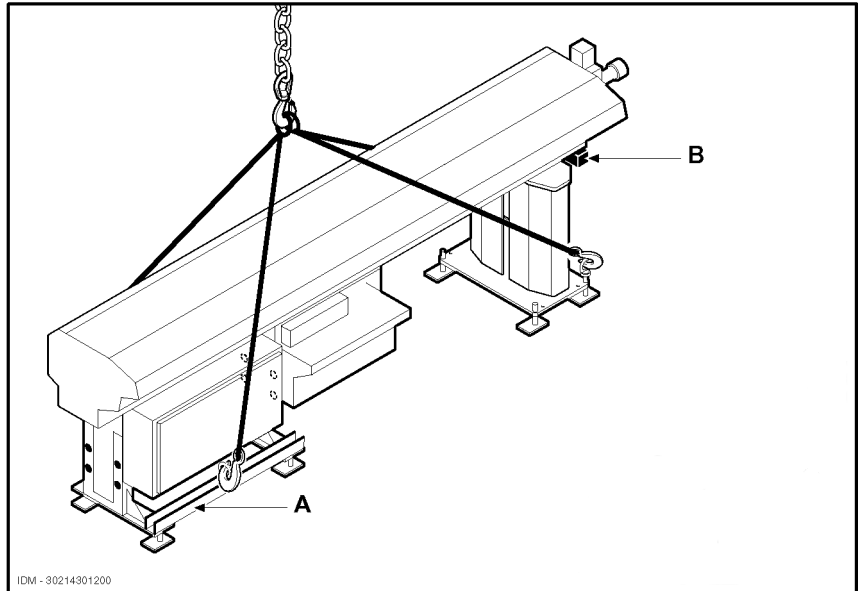
**4.2.3 Bar feeder with case - Lifting**

### 4.2.1 Bar feeder without packaging - Lifting

- Assemble the two crosspieces A supplied.
- Use a hooked lifting device of adequate capacity.

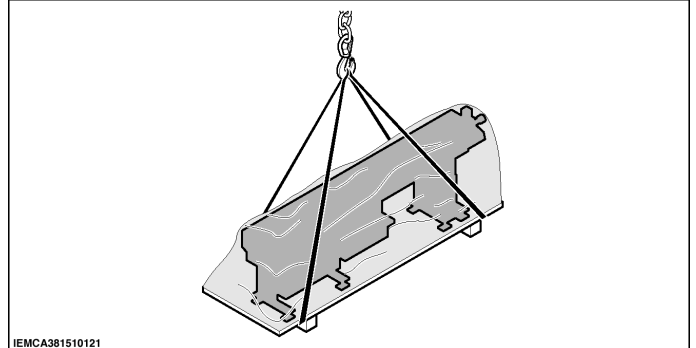


**CAUTION-PRECAUTION:**  
*during the lifting and installation phases pay special attention to the section housing the motor (B).*



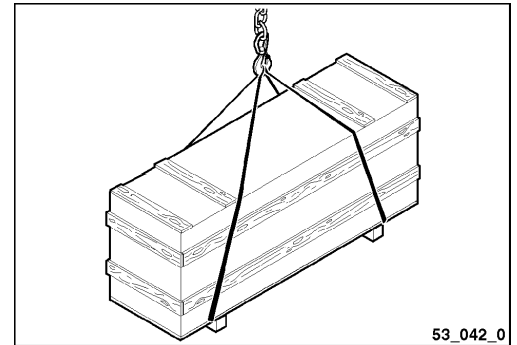
### 4.2.2 Bar feeder with pallet - Lifting

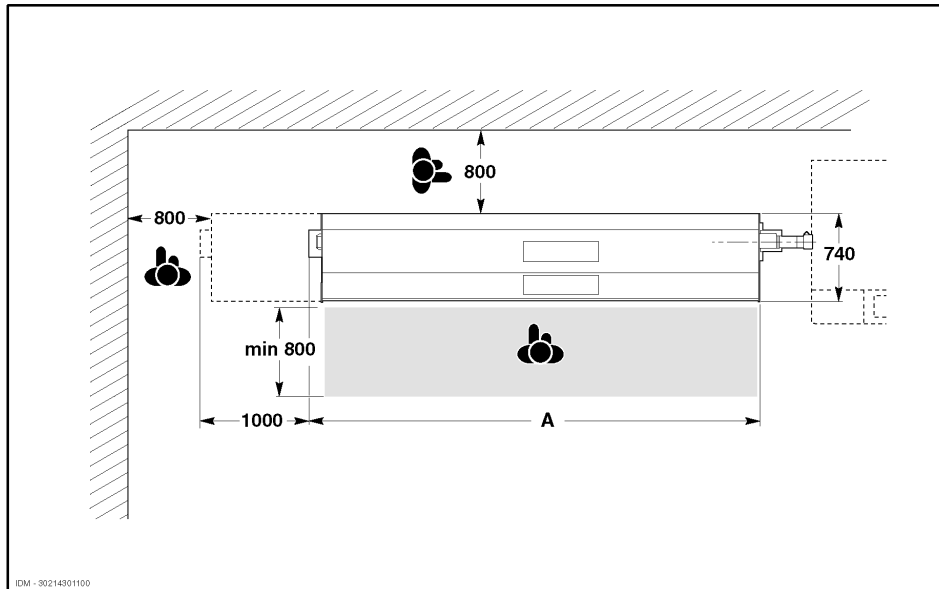
Use a hook lifting device of adequate capacity load.



### 4.2.3 Bar feeder with case - Lifting

Use a hook lifting device of adequate capacity load.



**4.3 INSTALLATION AREA - CHARACTERISTICS** 


The floor should be stable and levelled to guarantee good fastening to the ground. Provide an area of suitable dimensions according to the type of feeder use. The area: A (work area, bar feeding area, remnant discharge area) should be properly delimited to prevent collisions between the operator and any handling equipment or transport vehicles travelling near the bar feeder. The selected bar feeder setting should be suitably lit and provided with an electric power and air outlets. During operation, the feeder will release small amount of oil vapors. Make sure that the premises where the feeder is installed are suitably ventilated. The feeder has not been designed and built for use in an explosive atmosphere.

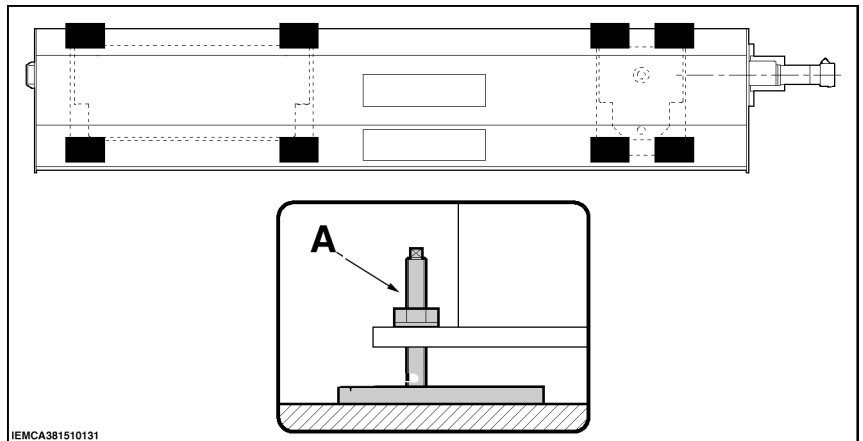
Model	Version	A (mm)
MASTER 880 MP Evolution	33	4000
	38	4500
	43	5000

## 4.4 INSTALLATION OF THE BAR FEEDER - INTRODUCTION

Before carrying out feeder installation, check lathe stability; make sure that it is firmly fastened to the ground and with a horizontal spindle axis.

### 4.4.1 Support plates and feet - Installation

- Position the feeder next to the lathe.
- Keep it lifted and install the plates (A).



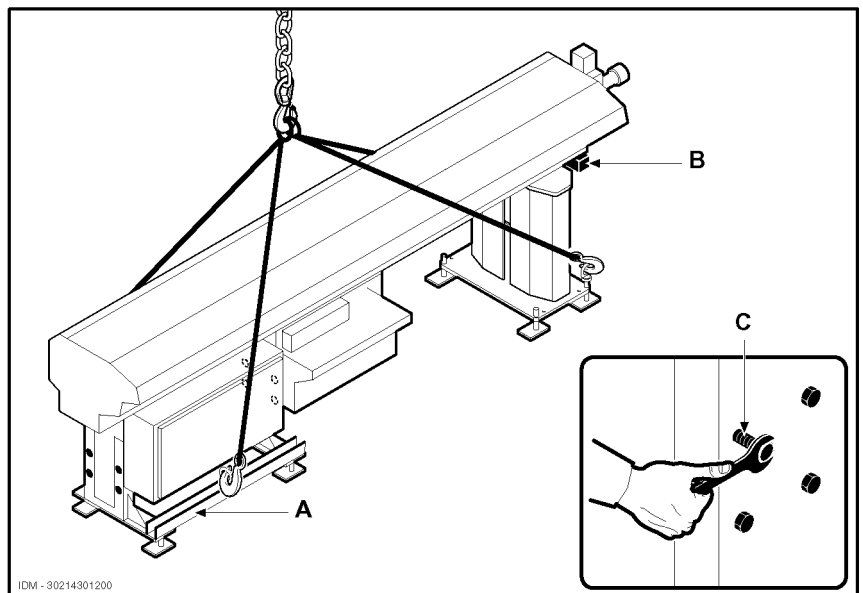
### 4.4.2 Height - Adjustment

The feeder is normally factory-preset to have a working axis height adjusted to lathe height. However, if feeder height needs adjustment, proceed as follows:

- stretch the lifting belts and remove screws (C) in the front and rear bases;

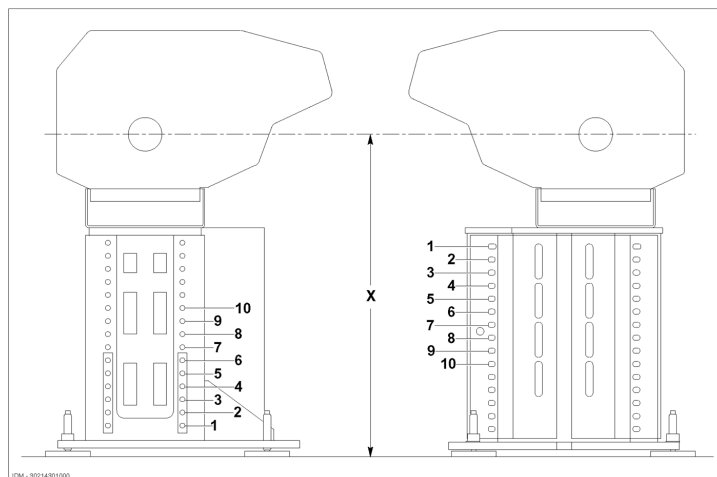


**CAUTION-PRECAUTION:**  
*during the lifting and installation phases pay special attention to the section housing the motor (B).*



- lift or lower the bar feeder according to necessary value X, see table.

Table 2. Working axis height



Model	Screws position	X (mm) High bedframe	X (mm) Low bedframe
MASTER 880 P MASTER 880 F	2	1215÷1249	900÷934
	3	1250÷1284	935÷969
	4	1285÷1319	970÷1004
	5	1320÷1354	1005÷1039
	6	1355÷1389	1040÷1074
	7	1390÷1424	1075÷1109
	8	1425÷1459	1110÷1144
	9	1460÷1494	1145÷1179
	10	1495÷1535	1180÷1220

- tighten screws (C); remove the cross-member and the eyebolts utilised for lifting purposes.



### 4.4.3 Preliminary positioning

- Position the feeder behind the lathe, by taking into account the overall dimensions and side plays of both machines. The coupling distance (B) should not exceed the bar-pusher max. extension (A).

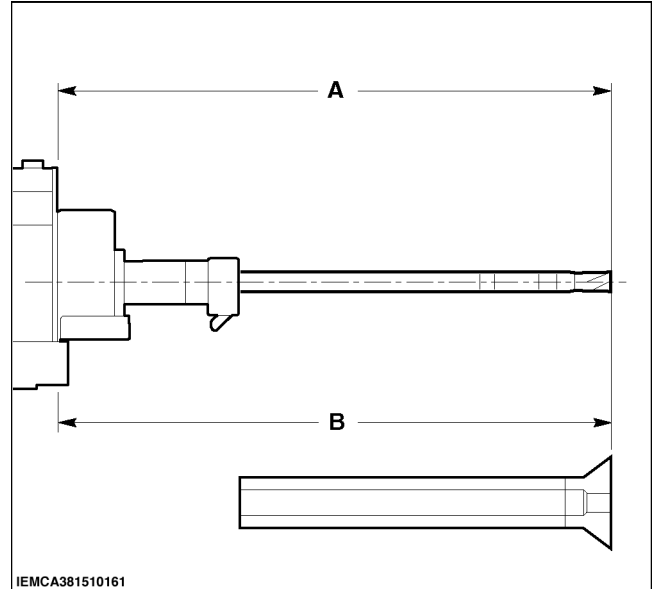
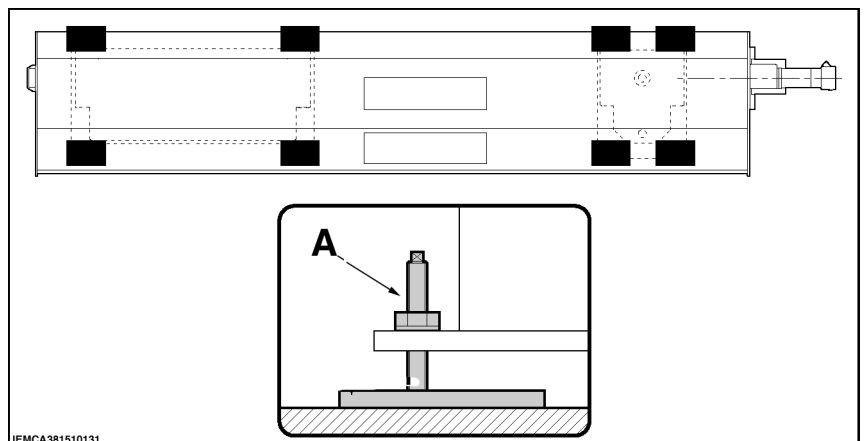


Table 3. Max. bar-pusher extension

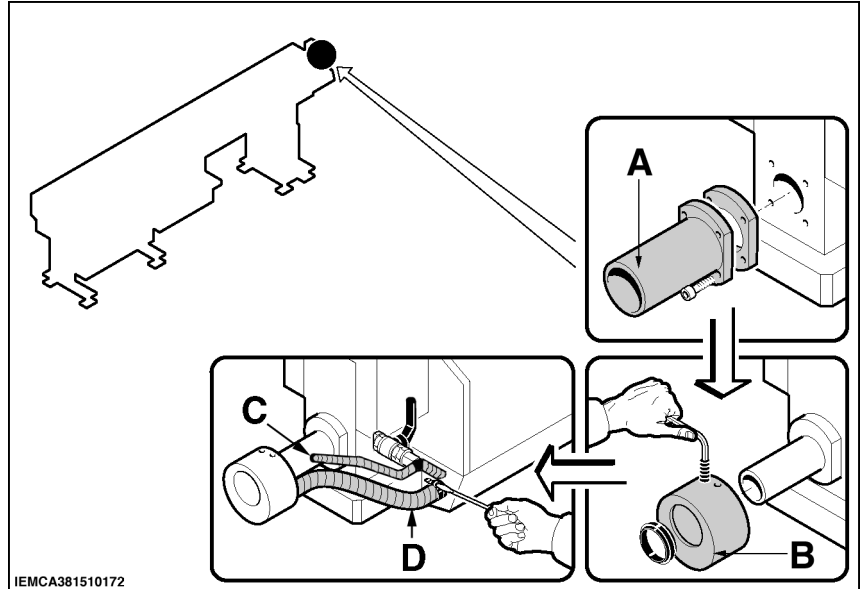
Model	Version	Version	A - Max. extension (mm)
MASTER 880 MP Evolution	33-38-43	L	1350
	38-43	LL	1600
		XLL	1850

- Roughly adjust the height of the working axis and the alignment with the lathe by turning the screws of plates A.



#### 4.4.4 Sleeve - Installation

- Install the sleeve (A) in the bush holder device.
- Install the oil recovery device (B).
- Connect lubrication line (C) to the feeder nose.
- Connect the drain pipe (D) to the tank.



#### 4.4.5 Levelling and alignment

##### FOREWORD

Alignment between the feeder and lathe is the most critical installation phase; therefore, this operation should be carried out by experienced personnel with the greatest accuracy.

**CAUTION:**

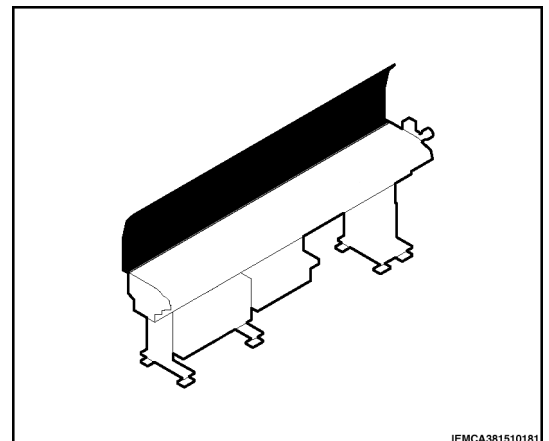
*bad alignment can be the main cause of feeder malfunction and resulting damage.*

**CAUTION:**

*do not operate manually (i.e. using the special crank) when the electric power is connected.*

##### PRELIMINARY PROCEDURE

- Open the upper guard.



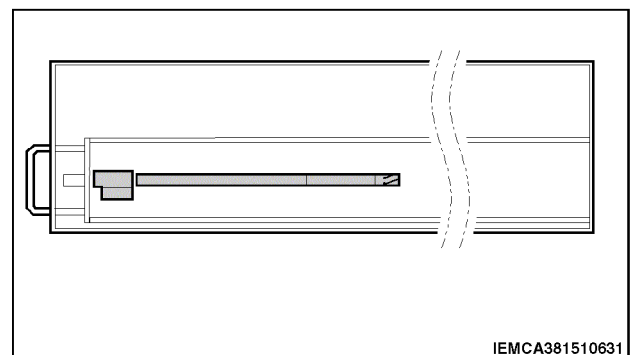
- To bring the bar pusher to its fully retracted position, select manual mode and press key

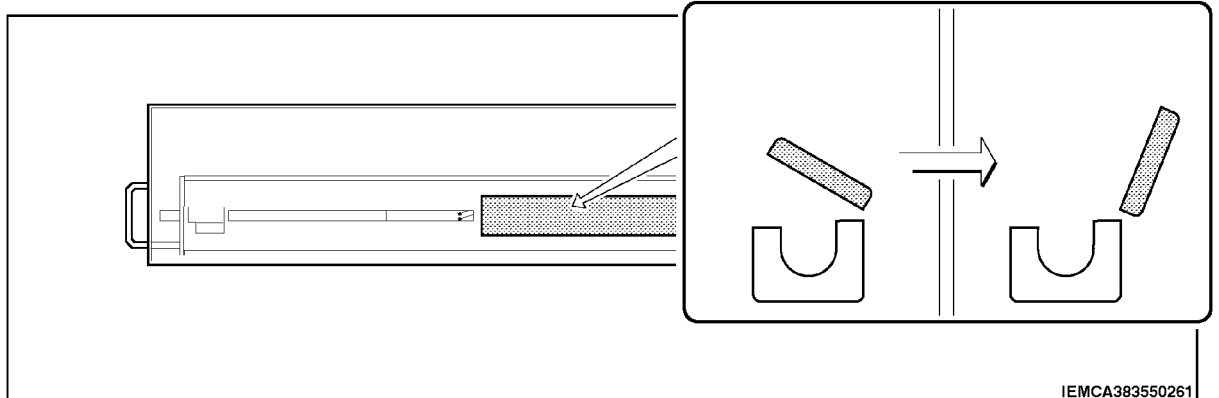


or



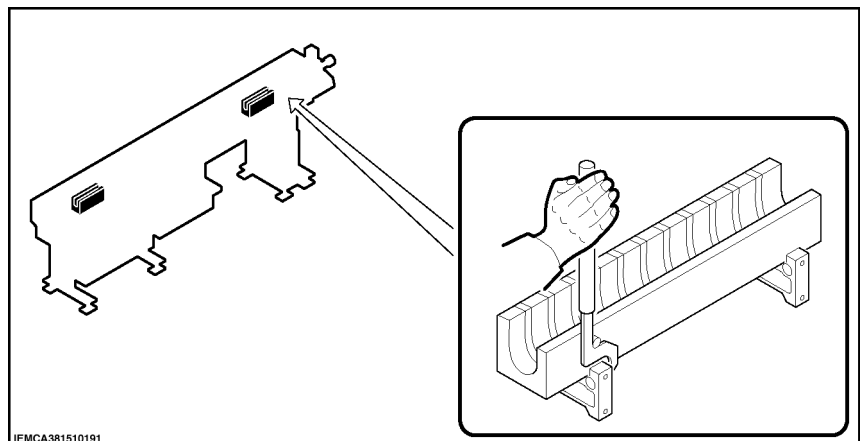
on the keypad.





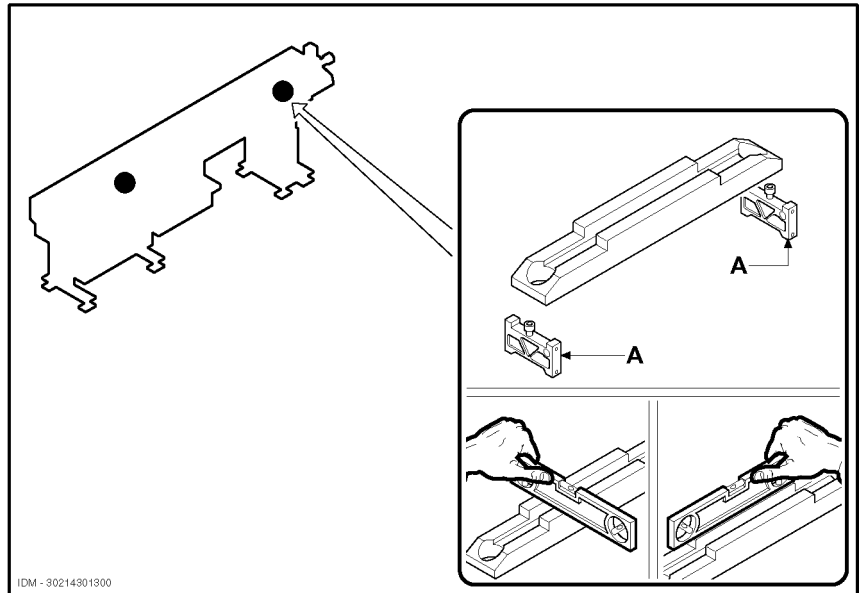
- Press both keys **SEMI AUT.** and **AUT.** to select semi-automatic operating function. Press repeatedly **STEP by STEP** until the guide channels are open and the message "GUIDE CHANNELS COMPLETELY OPEN" is displayed.

- Remove the first and the last lower guide channel by using the special wrench provided for the purpose.

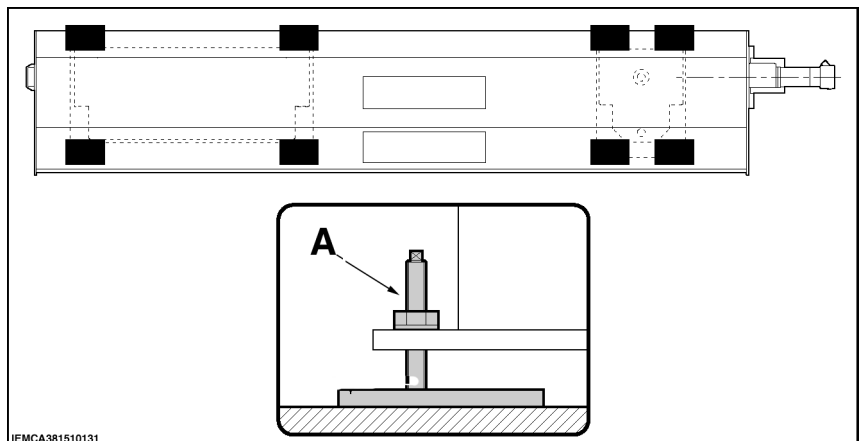


**LEVELLING**

- Rest provided shelf on (A) supports.
- Check the levelling by placing the level crosswise and lengthwise.



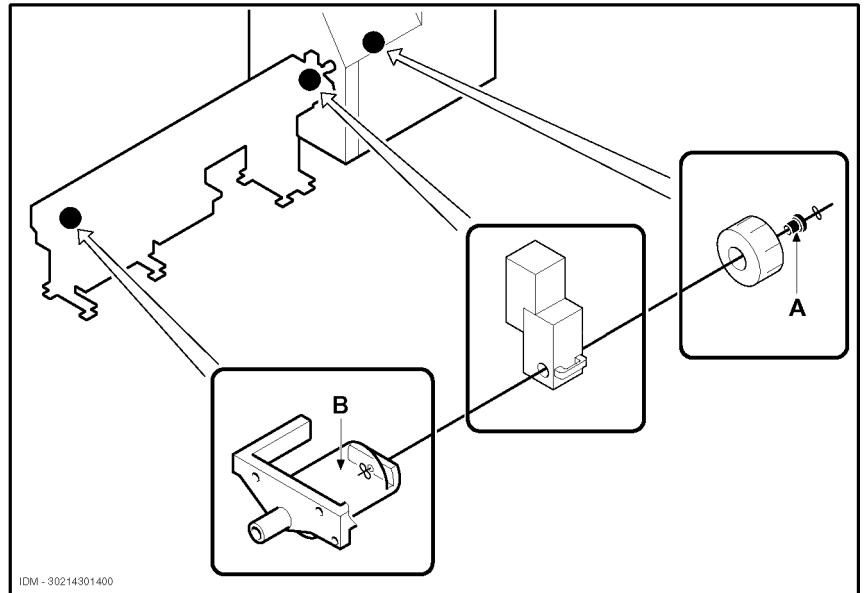
- Carry out the required connections by turning the feet (A).



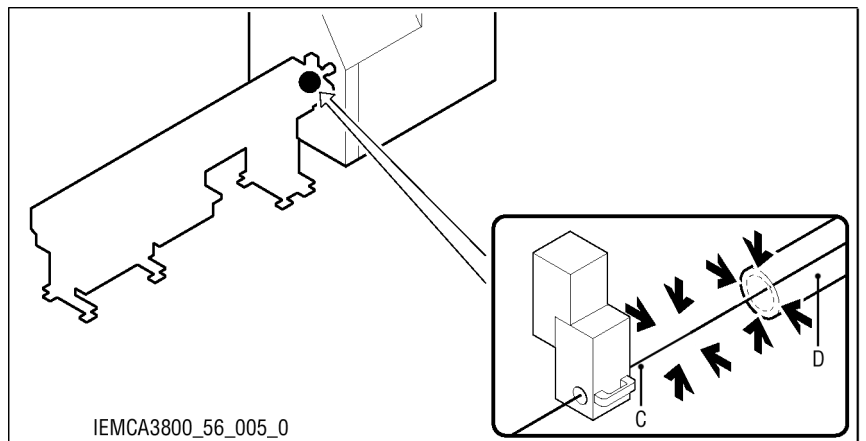
**ALIGNMENT**

Alignment is obtained by interposing a nylon yarn ( $\varnothing$  1 mm) between the lathe collet and the first feeding carriage, by proceeding as follows:

- place a pierced bushing (A) in the lathe collet;
- stretch the yarn between the bushing and the hole in the 1st feeding carriage (B).

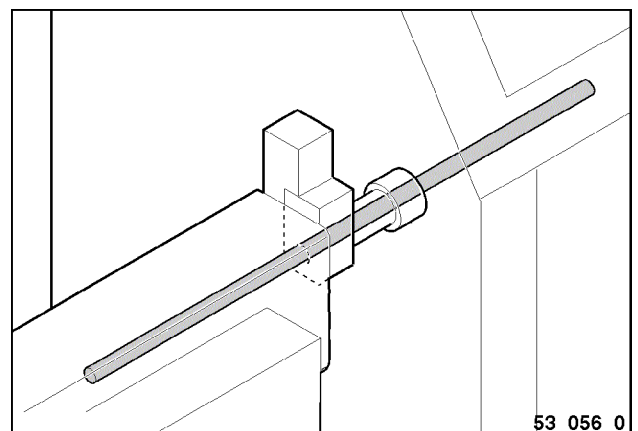


- use a sliding calliper to check alignment near the bushing (C) and the spindle (D); adopt a tolerance of 0.15 mm in all four directions.



It is also possible to carry out alignment by placing a bar in the guides. Proceed as follows:

- prepare a perfectly straight ground bar, having an outside diameter equal to the max. spindle bar passage and a length equal to twice the coupling distance (see item B paragraph 4.4.3);
- place the bar in the guide and cause it to slide forwards and backwards in the spindle, until almost reaching the lathe collet area.

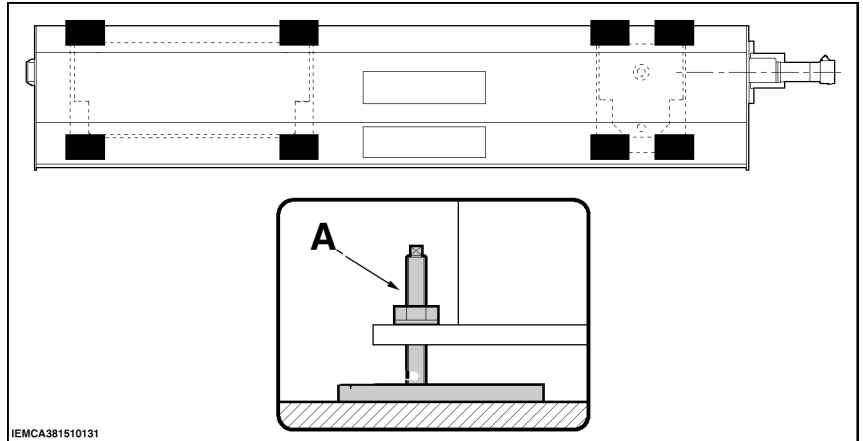


**POSITIONING ADJUSTMENTS**

After checking alignment of the feeder with either the thread or the bar, any required corrections should be carried out.

Adjust height by turning the (A) and (B) screws in the support feet; carry out lateral adjustment with calibrated mallet blows on the sides of plates (C).

During this phase, any adjustment carried out during levelling should be preserved; therefore, in most cases, feeder positioning will be the result of a good adjustment compromise.

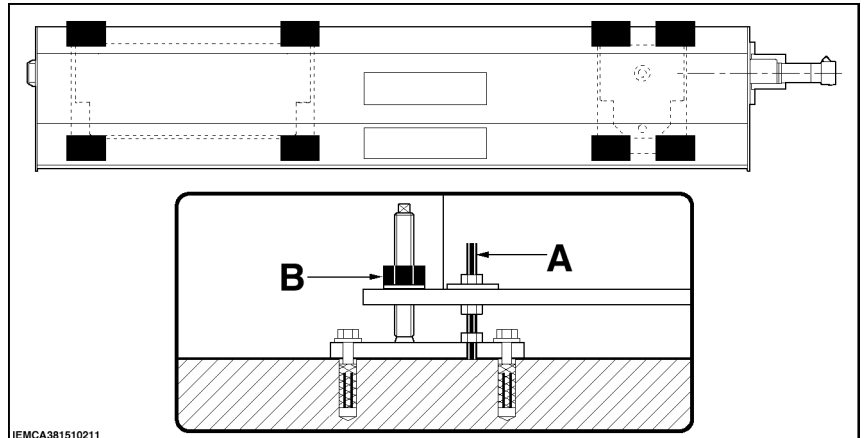


#### 4.4.6 Feeder fastening



**CAUTION:**

*failure to fix the bar feeder to the ground or bad bar feeder fixing to the ground can be the main cause of bar feeder bad operation and resulting damaging.*



- Drill the floor and fix the backing plates with expansion plugs. Drill the floor and fix the backing plates with the expansion plugs. Use the highest possible number of plugs in order to guarantee good fixing.
- Fix the feeder to the plates through the tie-rods A and lock with nuts B.
- Perform another levelling and alignment check.
- Remove all the equipment used for levelling and alignment and restore initial feeder conditions.



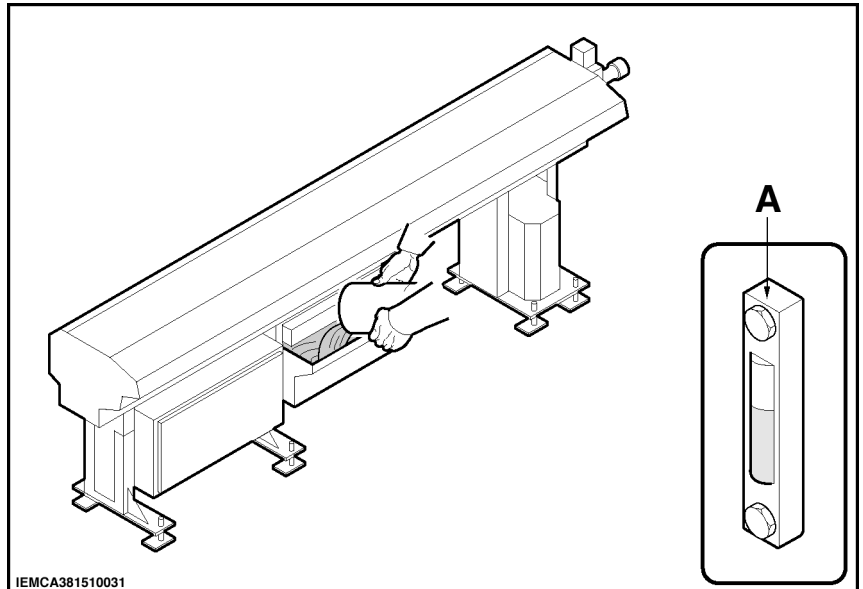
#### 4.5 LUBRICATING OIL - FILLING

**CAUTION:**

**wear personal protections according to the regulations in force.**

- Pour the oil directly into the tank and check the level through the relevant indicator (A).

Oil characteristics: Class C - CKB 150, amount 80 l.  
See paragraph 2.6. for the comparative table.



#### 4.6 ELECTRIC CONNECTION

**DANGER - WARNING:**

**this type of operation should only be entrusted to skilled technical staff to comply with the applicable standards and statutory regulations in force.**

**The feeder must be electrically connected to the lathe, which in turn, must be connected to the plant wiring system in compliance with the applicable regulations in force.**

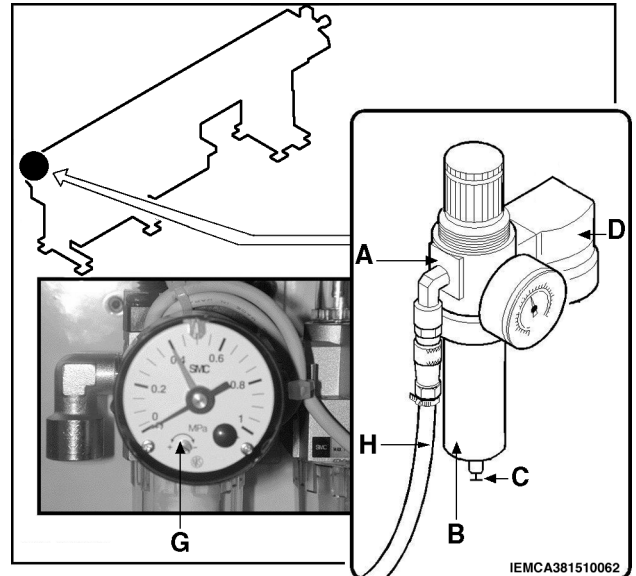
The feeder is normally provided with a multiple plug to plug into the special lathe outlet; refer to the "Wiring diagram" if necessary.

#### 4.7 PNEUMATIC CONNECTION

- Connect pipe (H) to the compressed air ductwork system as shown in the figure.



**CAUTION - PRECAUTION:**  
to adjust pressure, follow the directions  
in section 7.2.3.






#### 4.8 SOFTWARE PARAMETRING

There should be an adequate parametring of the bar feeder software according to the working needs and to the type of lathe.

For information on this operation, refer to the "Keyboardf panel instruction manual".

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## **5.1 INTRODUCTION TO ADJUSTEMENTS AND SET-UP - FOREWORD**



### **DANGER - WARNING:**

***do not adjust while the bar feeder is running, unless it is explicitly stated in the manual.***

This bar feeder also requires - besides the ordinary adjustments necessary during its life - setting ups depending on the bar dimensions and the type of bar magazine. Such interventions are listed and explained as follows.

### **5.2. General adjustments** **5.3. Bar feeder setting up**

## **5.2 GENERAL ADJUSTMENTS - FOREWORD**

All adjustments necessary for the bar feeder good operation are meant. They can be necessary for maintenance and as a cure to a trouble, or they can be required after a component replacement.

### **5.2.1 Feed chain - Adjustment** **5.2.2 Setting the pressure switch**

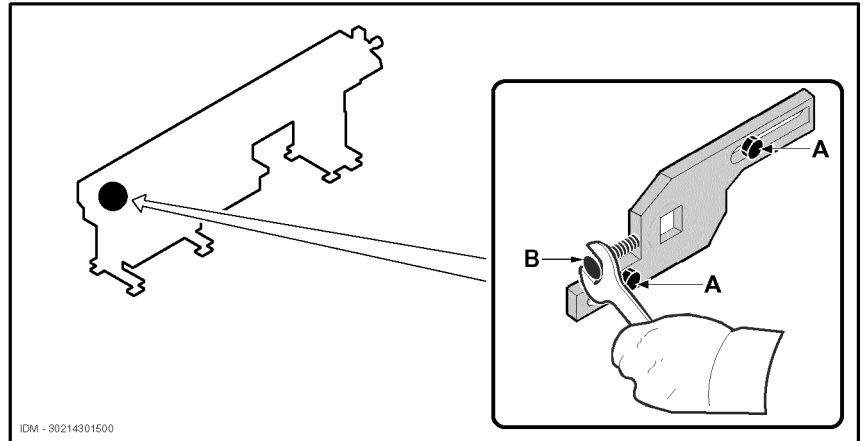
### 5.2.1 Feeding chain - Adjustment

- Loosen both (A) screws and adjust chain tension by turning the (B) screw.
- Restore bar feeder initial working conditions.



**WARNING**

*Perform chain adjustment by means of a dynamometric wrench, then tighten the (B) screw by setting the torque to 4N/meter and tighten both (A) fixing screws.*



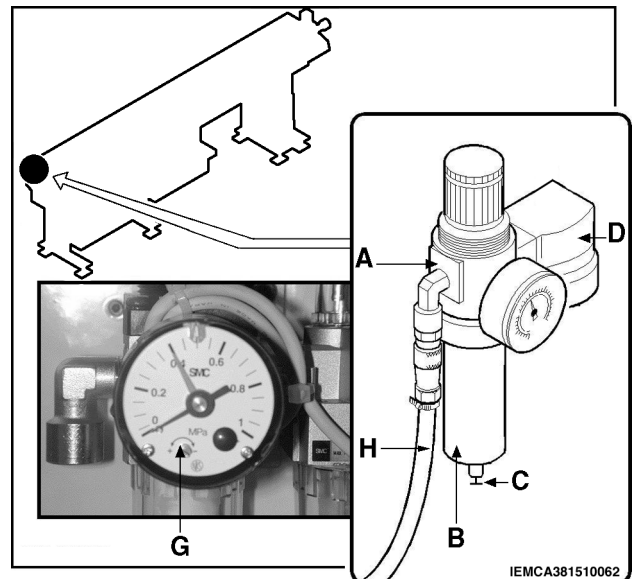
### 5.2.2 Setting the pressure switch

After unscrewing the glass protection, the pressure switch can be properly adjusted by turning the relevant adjusting screw (G). Proper setting is 4.5 bars (0.45 MPa).



**CAUTION:**

*Do not further turn anti-clockwise when the green pointer is found on 0, as this may cause damage to the pressure switch.*



### 5.3 BAR FEEDER SETTING UP

Some interventions are necessary, depending on the bar diameter of the previous machining in relation to the diameter of the "new" bar. The table reports the diameters of available guides as well as the range of the bar pushers that can be assembled, and the diameters of the bar to be machined.

Table 1. Guide channel, bar pusher, bar and tube diameters

Model	Guide channel diameter (mm)	Bar pusher diameter (mm)	Bar diameter		Tube diameter (mm) (*)
			Minimum	Maximum	
MASTER 880 MP Evolution	21	20	8	18	20
	26	25	8	23	25
	33 (**)	32	10	29	31
	36	35	10	32	35
	38	37	11	35	37
	43	42	12	39	42
	46	45	15	42	45
	52	51	18	47	51
	57	56	22	52	56
	61 (**)	60	30	56	60
	66	65	38	61	65
	69	68	48	63	68
	71	70	48	65	70
	73	72	50	67	72
	76	75	50	70	75
	81	80	52	75	80
86 (**)	85	55	80	80	

(\*) Valid also for prepared bars or normal bars machined with front remnant ejection.

(\*\*) Recommended guide according to max lathe bar passage.

Example:  $\varnothing 85$  max bar passage - GUIDES 86-61-33.

Example:  $\varnothing 80$  max bar passage - GUIDES 81-61-33.

Example:  $\varnothing 75$  max bar passage - GUIDES 76-61-33.





The bar feeder setting ups are listed and explained as follows.

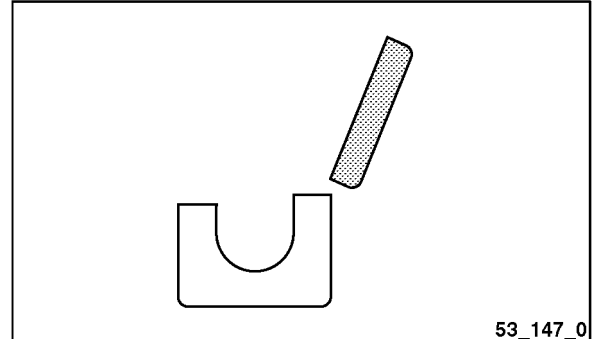
#### 5.3.1 Guide channels, half-bushings, bar pusher and collet - Replacement


#### 5.3.2 Adjusting the bar selectors

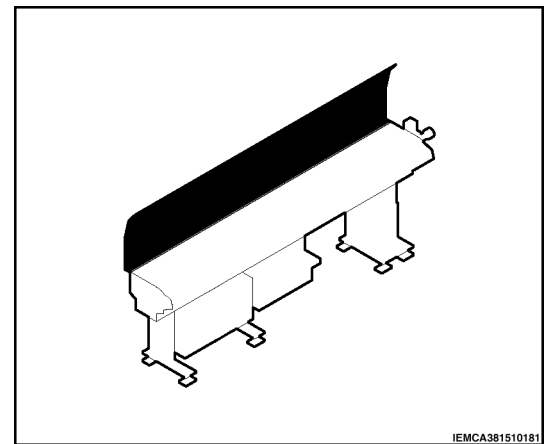
### 5.3.1 Guide channels, half-bushings, bar pusher and collet - Replacement



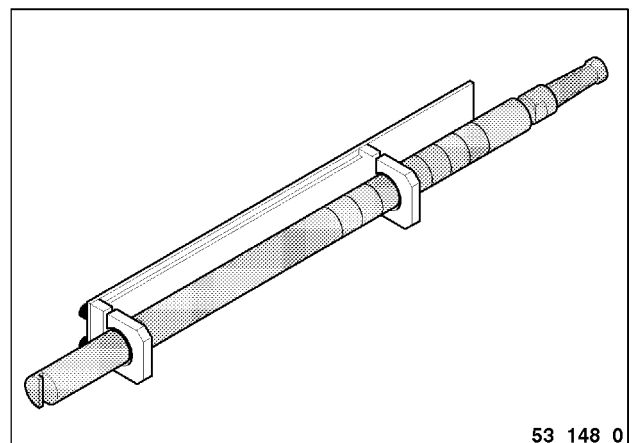
- Push  to start the bar feeder.
- Push  plus  to select the semiautomatic function.
- Press  several times until top guide opening is obtained; the displayed message must be "GUIDE FULL OPENING" .



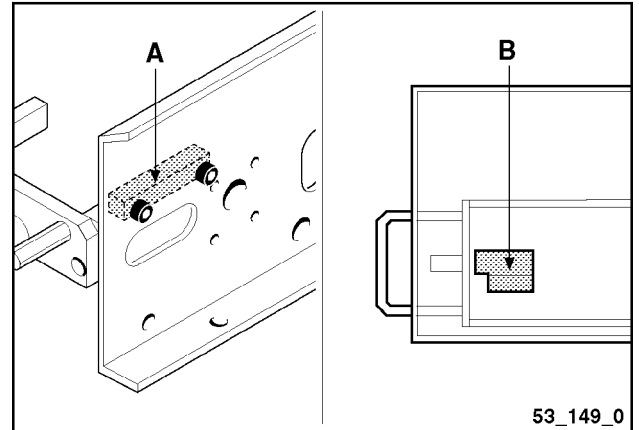
- Press  to open the top cover.



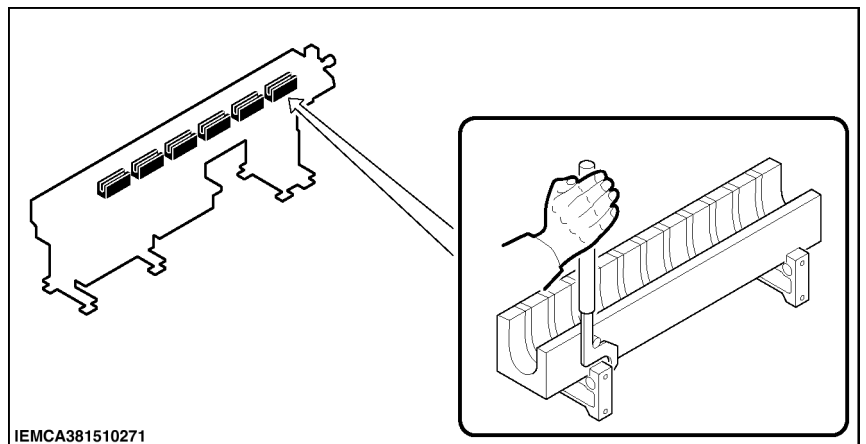
- Remove the bar pusher from the two supports.



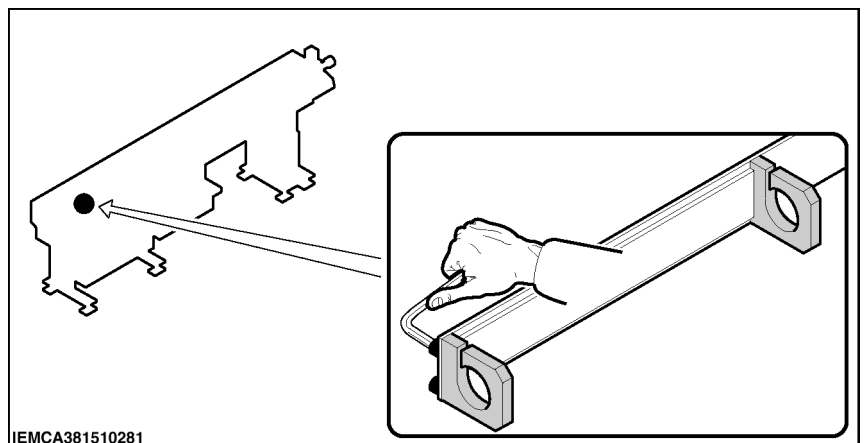
- Remove the block (A) and then, the first feeding carriage (B).



- Remove the lower guide channels by using the special wrench provided for the purpose.

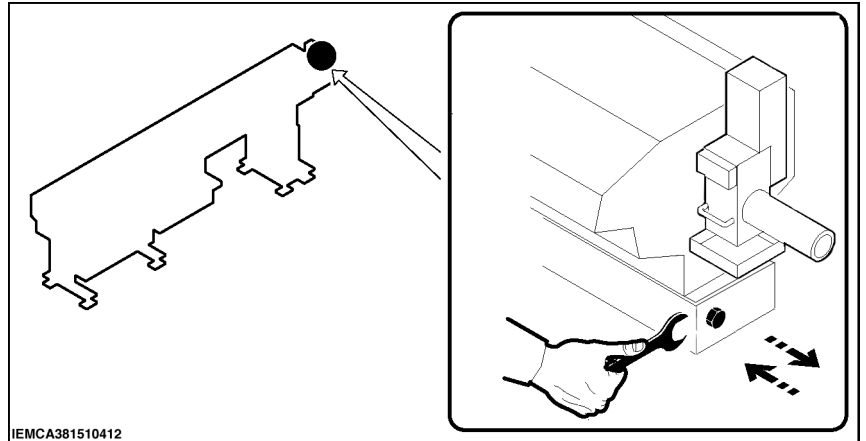


- Replace the bar pusher supports with those of the "new" diameter.

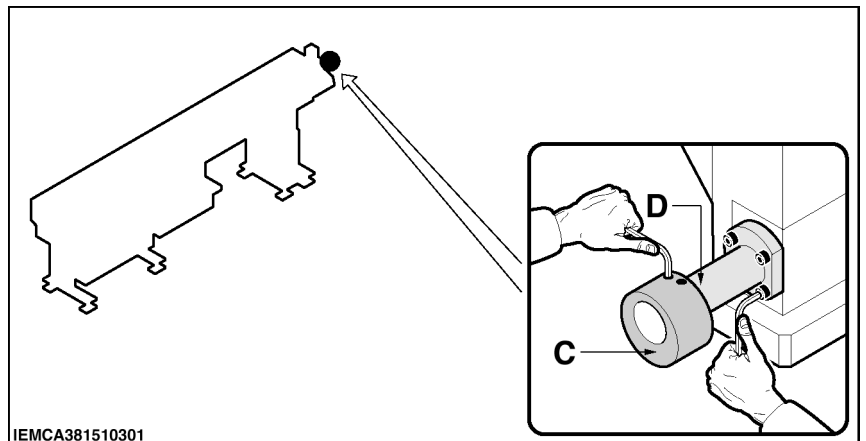




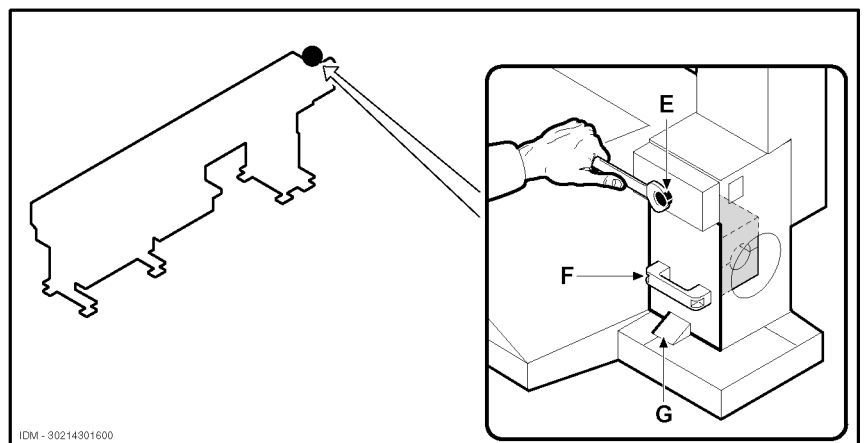
- Turn the screw counter-clockwise to move the feeder body backwards.



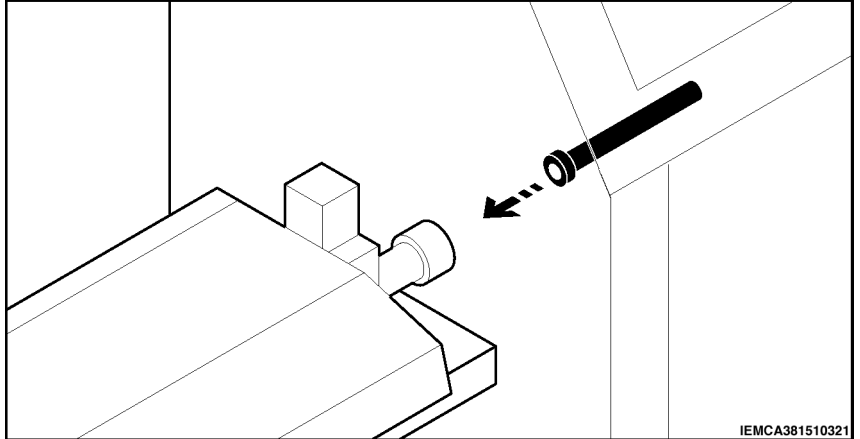
- Remove the oil recovery device (C) and nose (D).



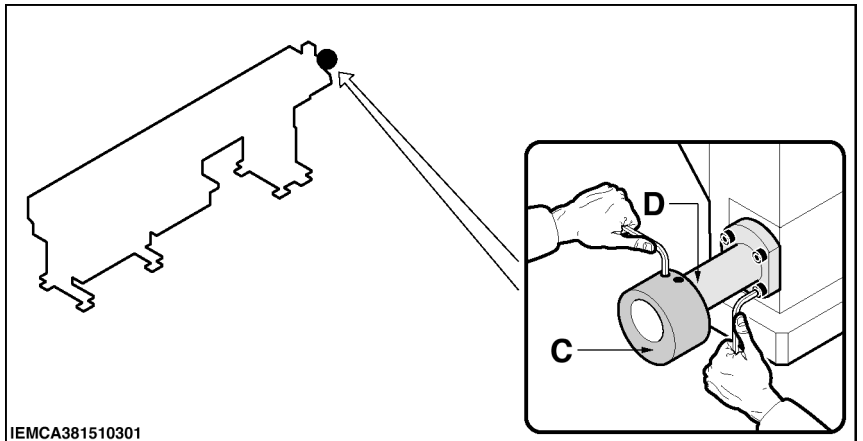
- Lower the (G) spring and remove the (F) cover, open the two half-bushings fully by turning the (E) shaft manually and remove the lower half-bushing.
- Close the upper half-bushing by turning the shaft again then replace it.
- Turn the shaft and fit the lower half-bushing.
- Fully close the half bushes and install the cover.



- Remove the lathe spindle liner if required and install a suitable liner for the "new" diameter.



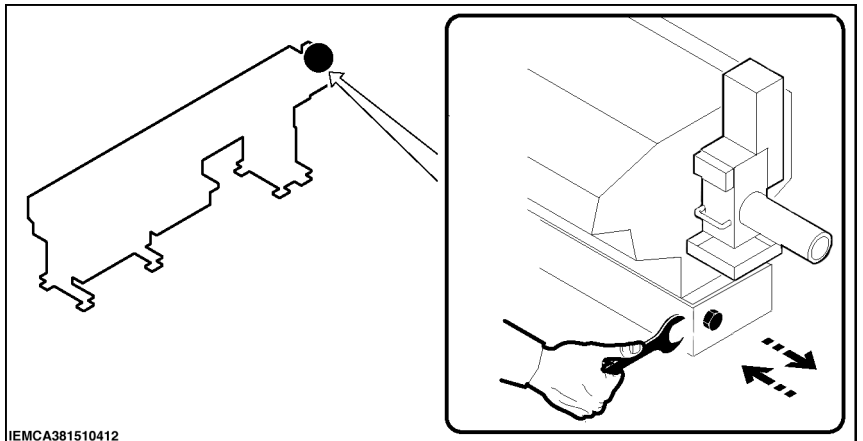
- Assemble sleeve (D) of the "new" diameter and the oil recovery (C).



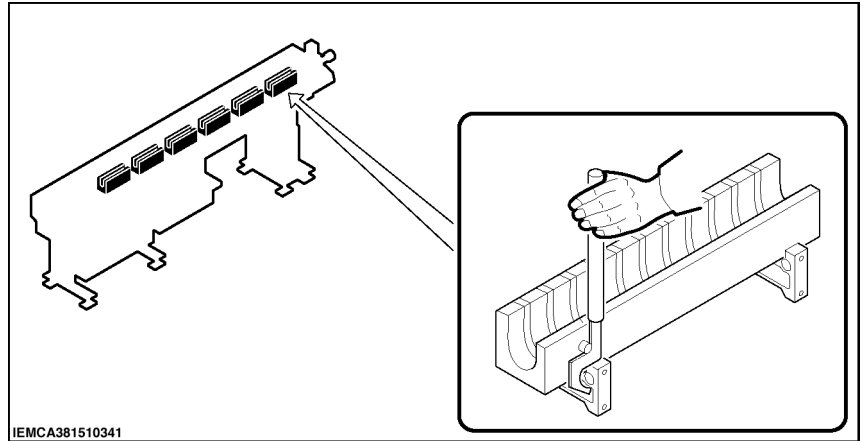
- Turn the screw clockwise to move the feeder body forwards.



**CAUTION - PRECAUTION:**  
*bring the body of the feeder up to the stop on the tank slowly, thereby eliminating the risk of damaging the traverse unit.*



- Assemble the lower guide channels of the "new" diameter.

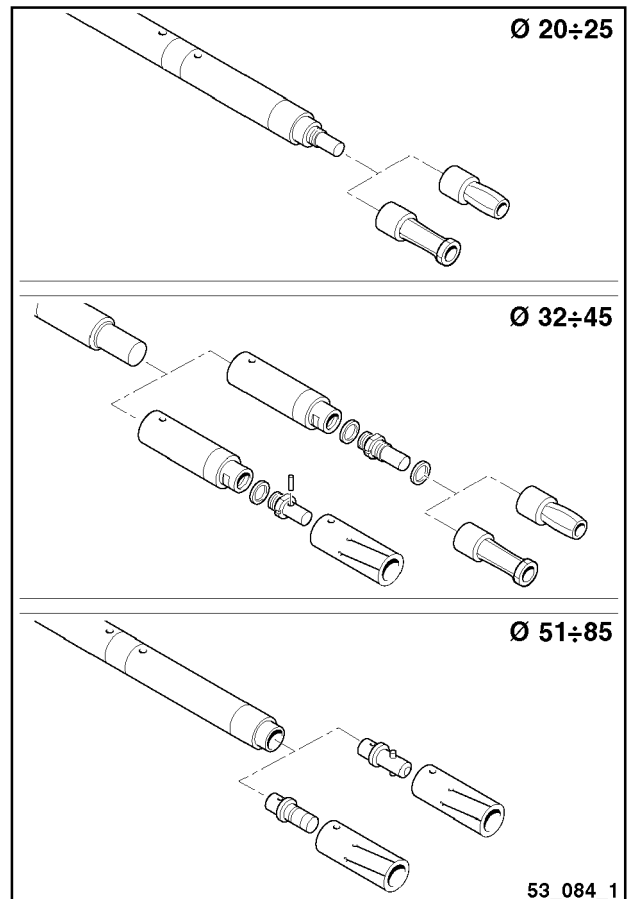


- Choose collet fit to bar diameter and profile; see "BAR PUSHER - GUIDES-COLLET - ROTARY GROUPS - Manual for the choice".



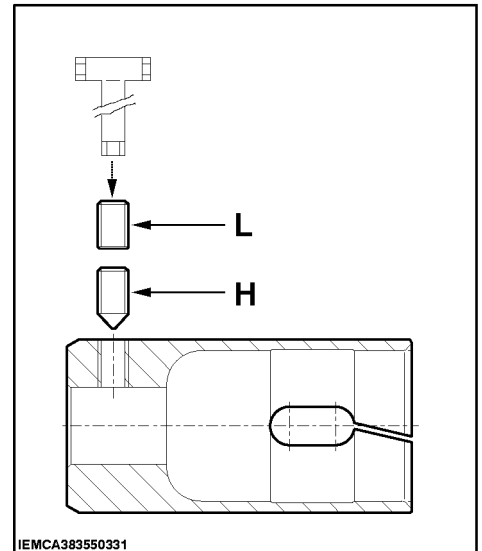
**INFORMATION:**

**contact IEMCA After-Sales service for more information.**



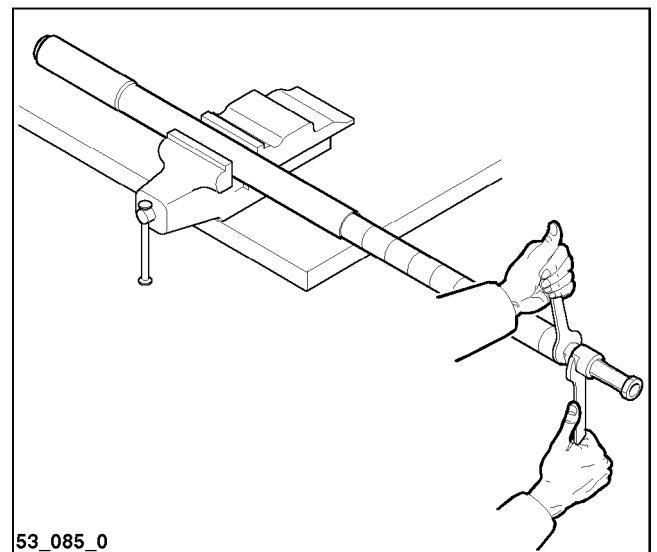

**CAUTION-PRECAUTION :**

*At every collet change (modell 381p, 381p..011, 381p..021 e 386p) it is necessary to install the grub screw H and the counter screw L.*

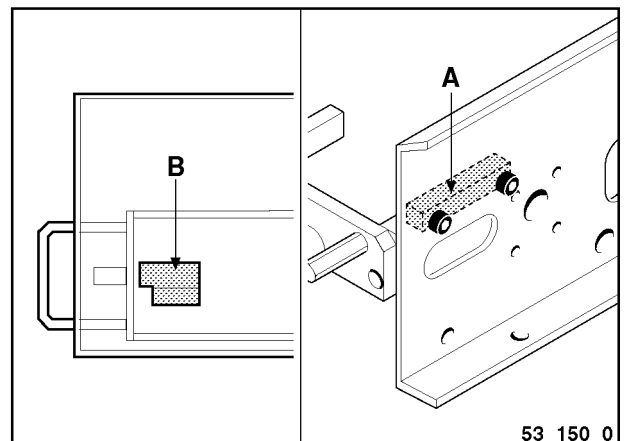

**CAUTION:**

*the collet outside diameter should be at least 0.5 mm smaller than the bar-pusher outside diameter.*

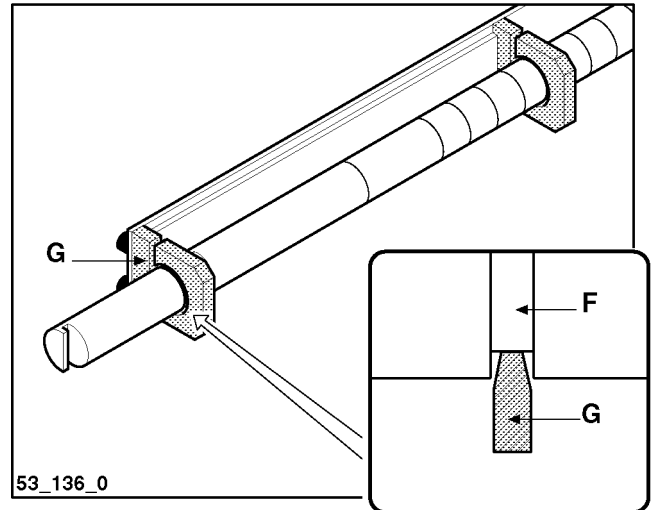
- Install the collet in the bar-pusher and make sure that the rings are riveted in their special recesses to prevent accidental collet unscrewing from its connection.



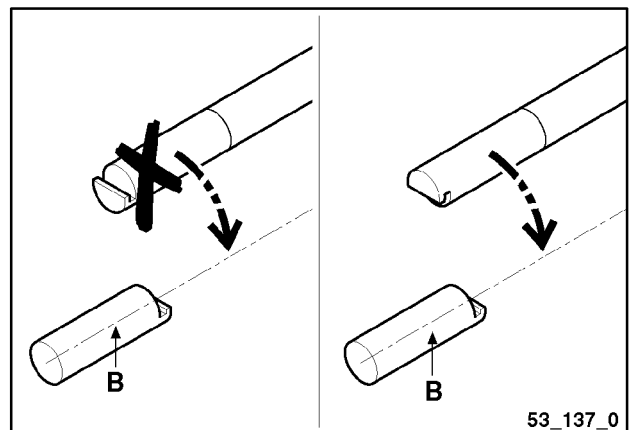
- Install a suitable 1st feeding carriage (B) for the new diameter, followed by the block (A).




- Insert bar pushers into two supports. Properly position bar pusher axially, so that (F) groove matches (G) support.

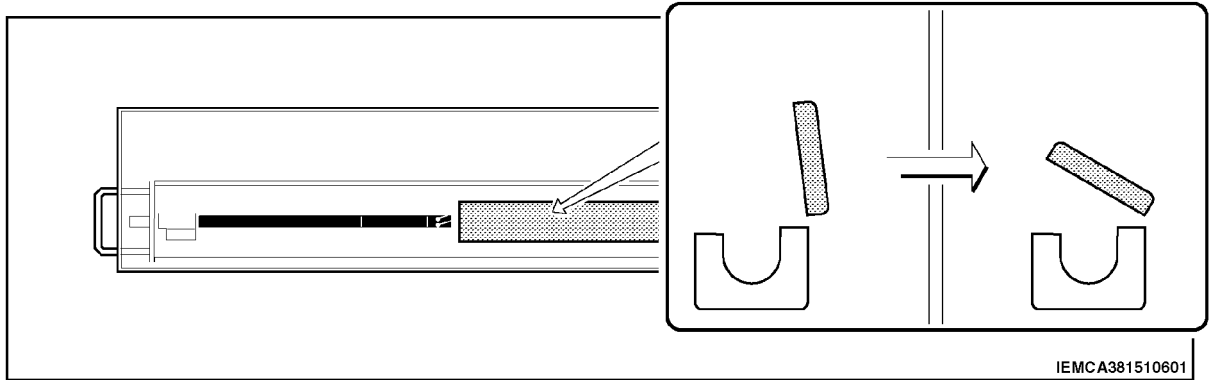


- Properly position bar pusher radially so that in next phase of upper guides locking, matching between bar pusher and (B) 1st feeding carriage occurs correctly.


**CAUTION:**


*The above mentioned positioning has to be assured. Therefore during set-ups or maintenance operations, if bar pusher is struck involuntarily, it has to be correctly repositioned.*

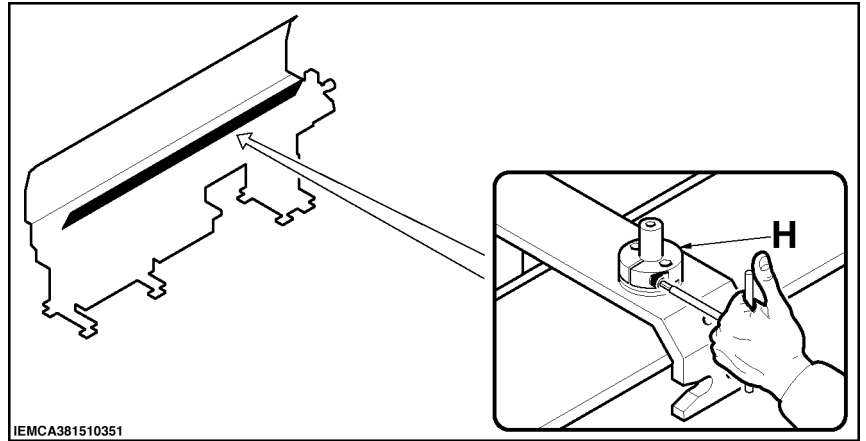
- Press at the same time both bar feeder operation keys and the  key to partially open the upper guide channels.



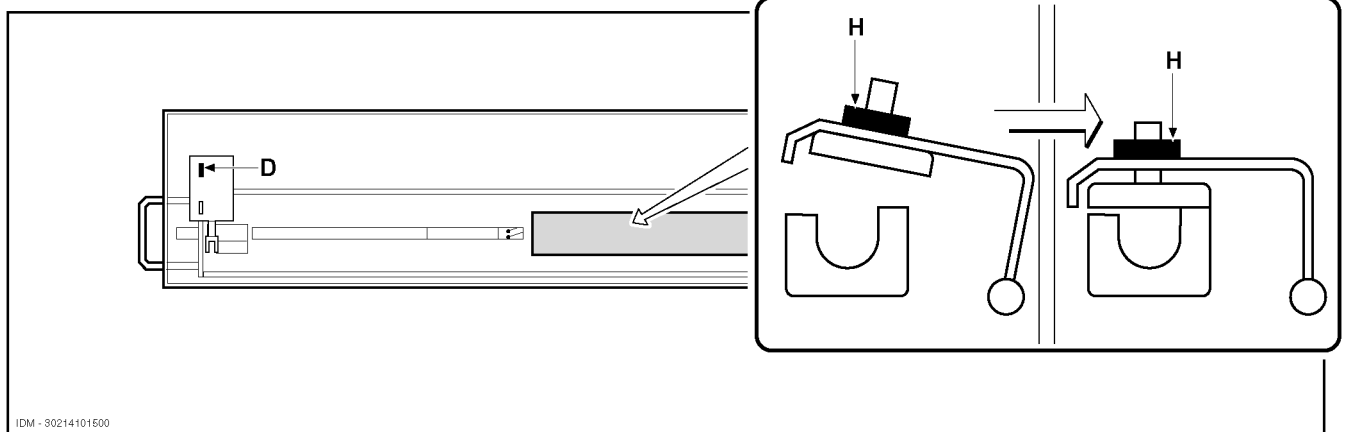
- Loosen all the elastic clamps H (Socket screw key CH6 supplied).

- Close the upper guide channels


 until the sensor (D) activates. By executing this operation, you will cause the upper guide channels to rest against the lower guide channels. Tighten all the clamps (H).



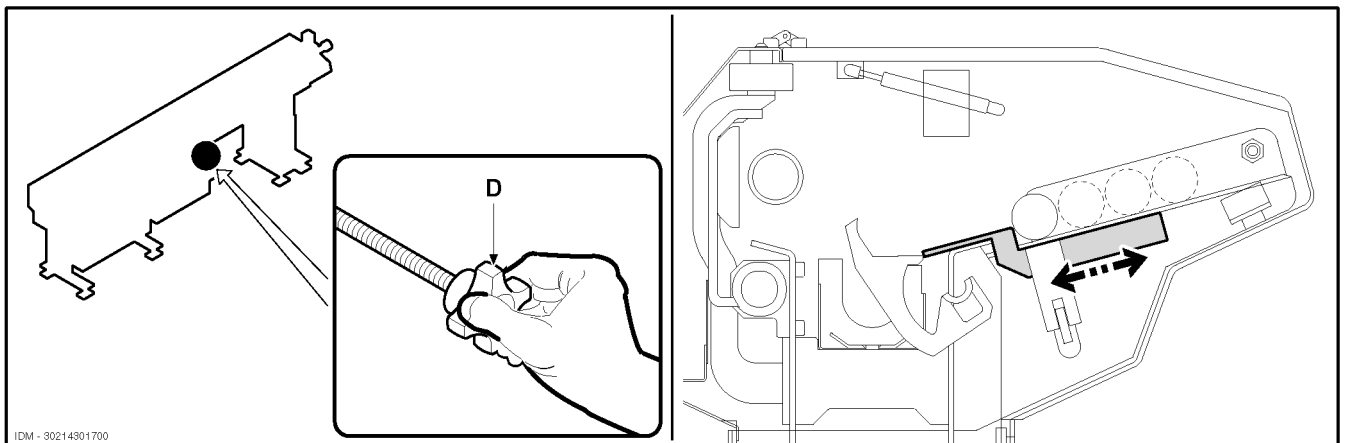
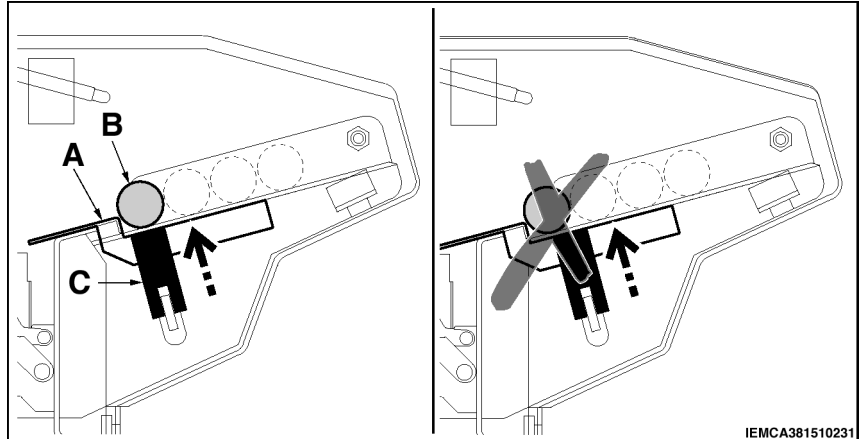
IEMCA381510351



IDM - 80214101500

### 5.3.2 Adjusting the bar selectors

- Properly position selectors A, so that only the first bar B is found along the path followed by lifts C during their travel.



- Work on knob D for adjustment.



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## 6.1 DESCRIPTION OF THE CONTROLS



**INFORMATION:**

*from the hand-held keyboard it is possible to start automatically the bar feeder, even when lathe 'MAN/AUT' signal is in Manual mode.*



**INFORMATION:**

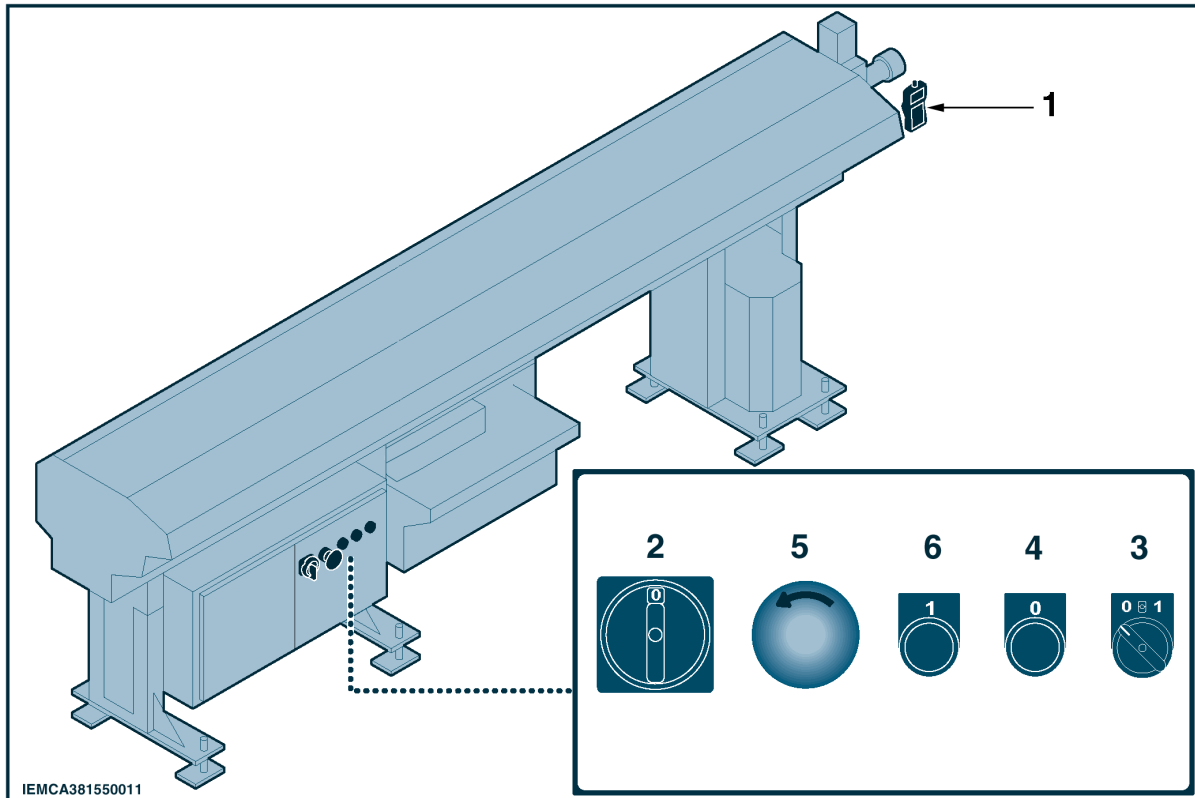
*When Automatic mode is on, the bar feeding is possible only when lathe 'MAN/AUT' signal is in Automatic mode.*



**INFORMATION:**



*Pressing Manual mode button it is possible to prevent the bar feeder automatic start by the lathe.*

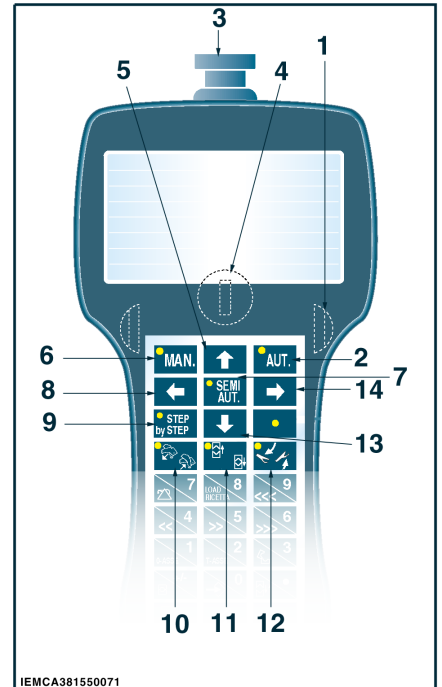
The illustration shows the positions of both the electrical controls and hand-held keyboard "1".



- 2 **MAIN SWITCH:** turns the power supply on and off.
  - Position 0 (OFF) the machine has no power supply.
  - Position I (ON) the machine has power supply.
- 3 **HALF-BUSHING OPENING AND CLOSING SELECTOR (green light)**
  - In "Manual" mode; if turned to 1, provided that the bar feeder is in proper working condition and the oil pump is on, the half-bushings close (the selector is lit). When turned to 0, the half-bushings open (the selector is not lit).
  - In "Automatic" mode; if turned to 1 the half-bushings close (the selector is lit) and open according to a preset sequence. If turned to 0, the half-bushings remain open during the whole working cycle (the selector is not lit).
- 4 **BAR FEEDER STOP BUTTON (red):** to stop the bar feeder and to reset "Errors".
- 5 **EMERGENCY STOP BUTTON:** this button stops the bar feeder in an emergency situation. To restart, first you must manually unlock the button
- 6 **BAR FEEDER START BUTTON AND DISABLING THE BAR REMNANT DETECTION PROCEDURE (green light):** to start the bar feeder, hold down the button until the button itself lights up. Holding down the pushbutton, disable the remnant and new bar controls during the bar changeover procedure.

## 6.2 DESCRIPTION OF KEYBOARD CONTROLS

- 1 Start buttons: opposite buttons that when pushed together will start some procedures. Press the two buttons, and at the same time, the key corresponding to the required function.
- 2 Selects the automatic mode.
- 3 Stops the bar feeder: to restart you must manually un-lock the button.
- 4 Selects the keyboard modes:
  - in the  position; the "messages display" mode is selected.
  - in the  position the "parameters display" mode is selected.
- 5 Multifunction
  - Allows you to scroll the page upwards.
  - Moves the cursor upwards.
  - Increases the preset data programming of date and time, by one unit.
- 6 Selects the manual mode.
- 7 Selects the semi-automatic mode.  
Push to select, press again to unselect.
- 8 Multifunction
  - Selects the previous parameter.
  - Moves the cursor towards the left.
- 9 Starts "step-by-step" movement of an operation cycle: every push of the key initiates a step in the cycle.
- 10 Lifts and lowers the bar selectors (LED illuminated when selectors are at their "down" position).
- 11 Opens/Closes the clamps (LED illuminated when clamps are open).
- 12 Lift and lower the pneumatic bar drop controls device (led on when this device is low).
- 13 Multifunction
  - Allows the downwards scrolling of the page.
  - Moves the cursor downwards.
  - Decreases the programming mode of date and time by one unit
- 14 Multifunction
  - Selects the next parameter
  - Moves the cursor towards the right.
- 16 Multifunction
  - Number setting.
  - Moves the bar pusher to a high speed.
  - Press the two running push-buttons and then the key.



**18 Multifunction**


- Number setting.
- Moves the bar pusher to a low speed.

**19 Multifunction**

- Number setting.
- Resets the "BAR FEEDER ZERO SETTING" of the carriage. Hold down the two start buttons and then the \* key; release the two buttons and the key when the carriage starts moving towards the "BAR FEEDER ZERO SETTING".

**20 Multifunction**

- Number setting.
- Closes the guide channels.

Push the two start buttons and then the \* key ; release the two buttons and the key only when the movement has terminated.

**21 Goes to the MAIN MENU.**
**22 Multifunction**

- Number setting
- Recalls the cursor

**23 Multifunction**

- Interrupts the selection mode.
- Resets the values held before the modifications, which were not confirmed.

**24 Confirms the data entered.**
**26 Multifunction**

- Number setting.
- Starts and turns off the oil pump (push to start and push again to turn off).

**27 Multifunction**

- Number setting.
- Loads the programme from the PLC (entering default settings in the parameters).

**28 Multifunction key**

- Sets the numerical value
- Shifts the bar pusher at a high speed.
- Removes the bar from the bar-pusher collet.
- Press the two running push-buttons and then the key.

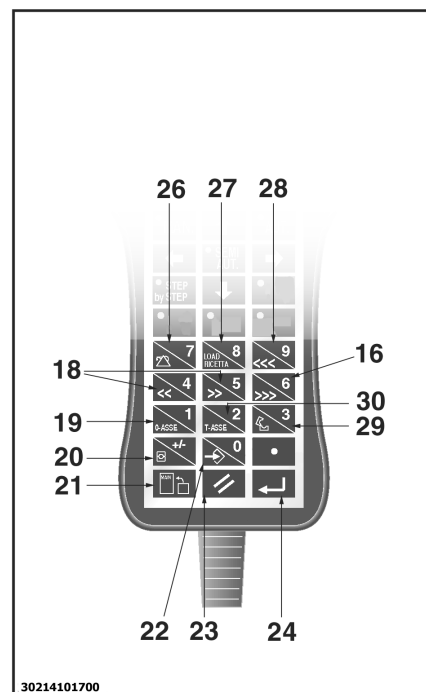
**29 Multifunction**

- Number setting.
- Opens the guide channels from the "partly open" to the "completely open" position.

Push the two start buttons and then the \* key ; release the two keys only when the movement is completed.

**30 Multifunction**

- Number setting.
- Sets the carriage movement motor. During the daily use of the bar feeder this function must never be used.



### 6.3 LUMINOUS INDICATOR - SIGNAL DESCRIPTION

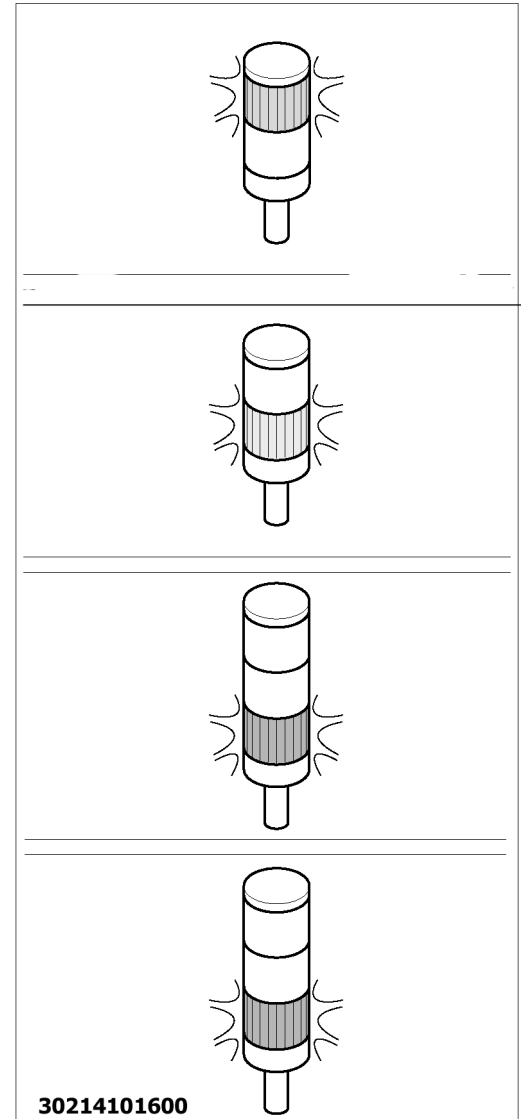
BLINKING ORANGE LIGHT; the bar magazine cover is open.

BLINKING GREEN LIGHT; it indicates that the bar feeder is in the automatic mode.

BLINKING RED LIGHT; signals that the bar feeder is not operating, or that it is in the manual mode. (OPTIONAL)

BLINKING BLUE LIGHT; signals that the bar feeder is carrying out the bar change.

FIXED BLUE LIGHT; signals that the PLC battery is exhausted. (OPTIONAL)



## **6.4 BAR FEEDER SETUP**

This is a list of all the stages of the bar feeder setup, assuming that one wants to start it for the first time.

- Carry out feeder set-up according to the bar to be machined (paragraph 5.3.)
- Preparing the bars to be processed (section 6.5.).
- Load the bar magazine (paragraph 6.6.).
- Starting the automatic cycle (sections 6.7. and 6.8.).
- Adjust the lubricating oil flow (paragraph 6.9.).

## 6.5 BARS TO BE MACHINED - CHARACTERISTICS AND PREPARATION

**CAUTION:**

***do not feed bars having different sizes than the manufacturer's prescribed sizes.***

Table 1. Maximum bar length

<b>Model</b>	<b>Version</b>	<b>MAX Length mm (ft)</b>	<b>MIN Length mm (ft)</b>
MASTER 880 MP Evolution	33	3300 (10,8)	1000 (3,2)
	38	3800 (12,4)	
	43	4300 (14,1)	

**INFORMATION:**

***Bar must not present a straightness defect above 0.5 per 1000.***

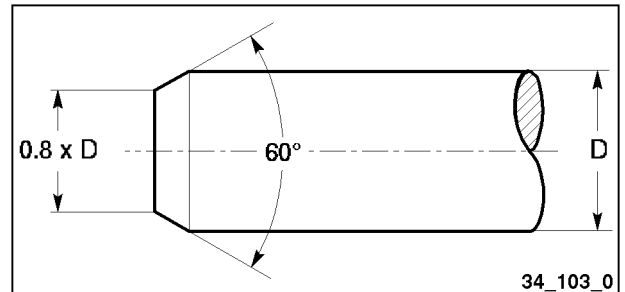
Please find herewith some advice to optimise the bar feeder performances.

Usually barstocks do not need any preliminary operations to be carried out on ends, nevertheless to obtain the best results when loading them, it is advisable to chamfer them.

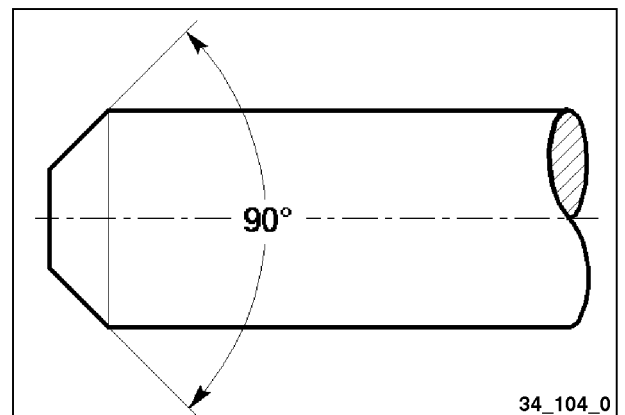


**SOLID BARS**

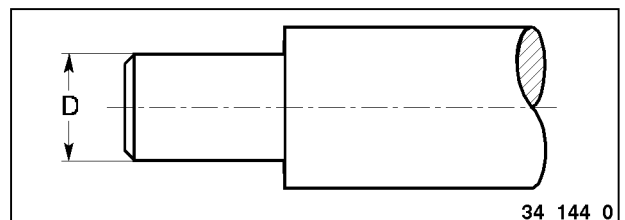
Check that there is not too much rag on bar head, which might hinder insertion in the lathe collet. Check that there is not too much rag on bar rear end, which might hinder insertion in the bar-pusher collet. In any case, to improve operation during this phase, we advise to chamfer the bar as shown in the figure.



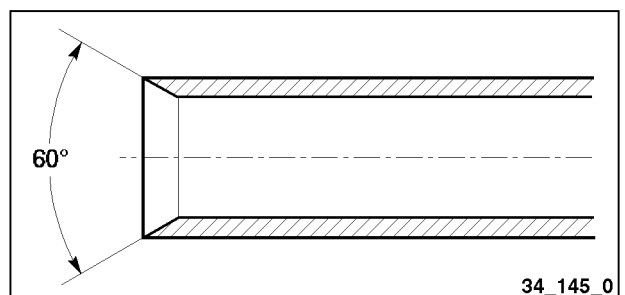
If bars with front remnant ejection have to be machined, we advise to chamfer the bar rear end as shown in the figure.



If bars have to be machined having a diameter equal to or only slightly smaller than the bar-pusher diameter, bar rear ends should be machine-turned; diameter "D" should be suitable for the collet size installed in the bar-pusher.


**PIPES**

If pipes have to be machined, their rear ends should be chamfered as shown in the figure.



### 6.5.1 BAR STRAIGHTNESS - Measurement

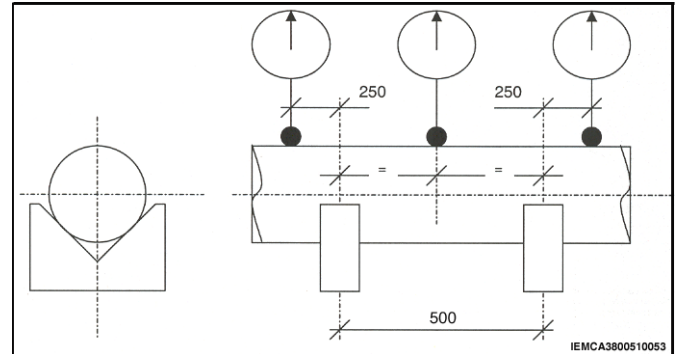
The bar vibrations are partially caused by the condition of the bar itself: in case the bar is not perfectly straight, this can cause vibrations.

#### Round bars

As stated also in the UNI-10233/2 regulation, the bar straightness can be measured by positioning the bar on two V-supports and control its straightness. In that case, the measurement can be carried out as shown in the figure.

It is necessary to rotate the bar on itself and measure the three indicated sections.

In this case the S-max value (difference between maximum and minimum reading on the comparator) should be interpreted as follows:



S max	Quality
< 0,25 mm	Good
0,25 < S max < 0,5 mm	Mediocre
> 0,5 mm	Problematic

In order to obtain a reliable value it is necessary to repeat measurements on the whole bar length by positioning it on a series of supports at a distance of 500 mm from each other and comparing the different values between prisms.



#### INFORMATION:

**Obviously, bar straightness is proportional to the rigidity of the material and to the number of revolutions (RPM) the lathe is operated at. highly The lack of bar straightness highly influences the maximum number of revolutions reachable: the bigger the diameter the greater the influence. The data concerning bar straightness do not absolutely refer to local inflection and/or deformation that the bar shall not absolutely show. Instead, they refer to the bar uniform curvature.**

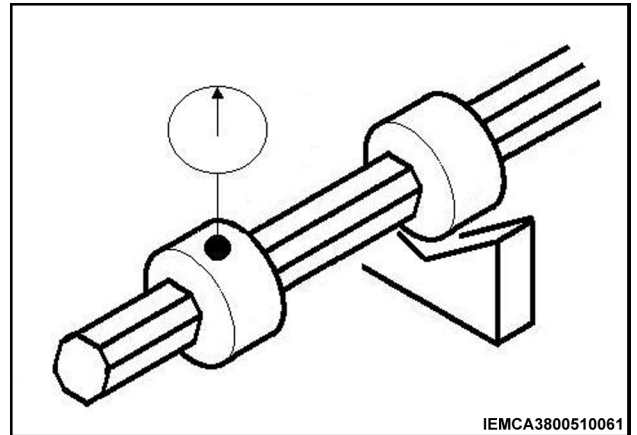


#### INFORMATION:

**For efficient operation of the feeder the use of rolled bar stock is not recommended.**

### Hexagonal, square and section bars

For non-round bars, insert some bushings on the bar to be controlled.  
 Position 2 bushings on the 2 V-supports.  
 In that case, the measurement can be carried out as shown in the figure.  
 Rotate the bar on itself and carry out the measurement on a bushing external to the two V-supports.



### 6.6 BAR MAGAZINE - LOADING



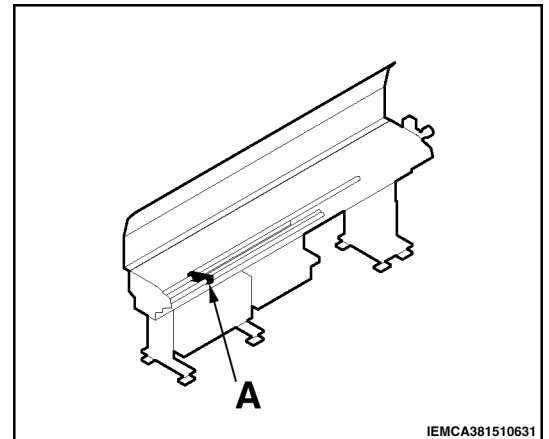
**CAUTION:**

*do not manually lift loads heavier than those mentioned by the regulations in force; ask for an assistant's help, if needed.*



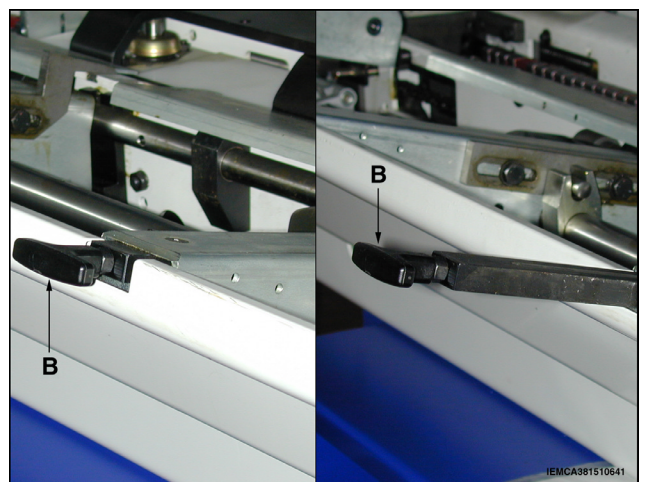
**CAUTION:**

*make use of the personal protections recommended by the regulations in force.*



- Open the top cover.
- Position the bars against plate A and close the cover.




To facilitate bar loading, supports B can be extracted from the magazine.



## 6.7 AUTOMATIC CYCLE START

- Power the lathe on.
- Turn the main power switch to the position I (ON).



- Press  to start the bar feeder.
- Press  to select the manual mode.
- Carry out a "BAR FEEDER ZERO SETTING" in the following way:
  - press the start buttons plus ;

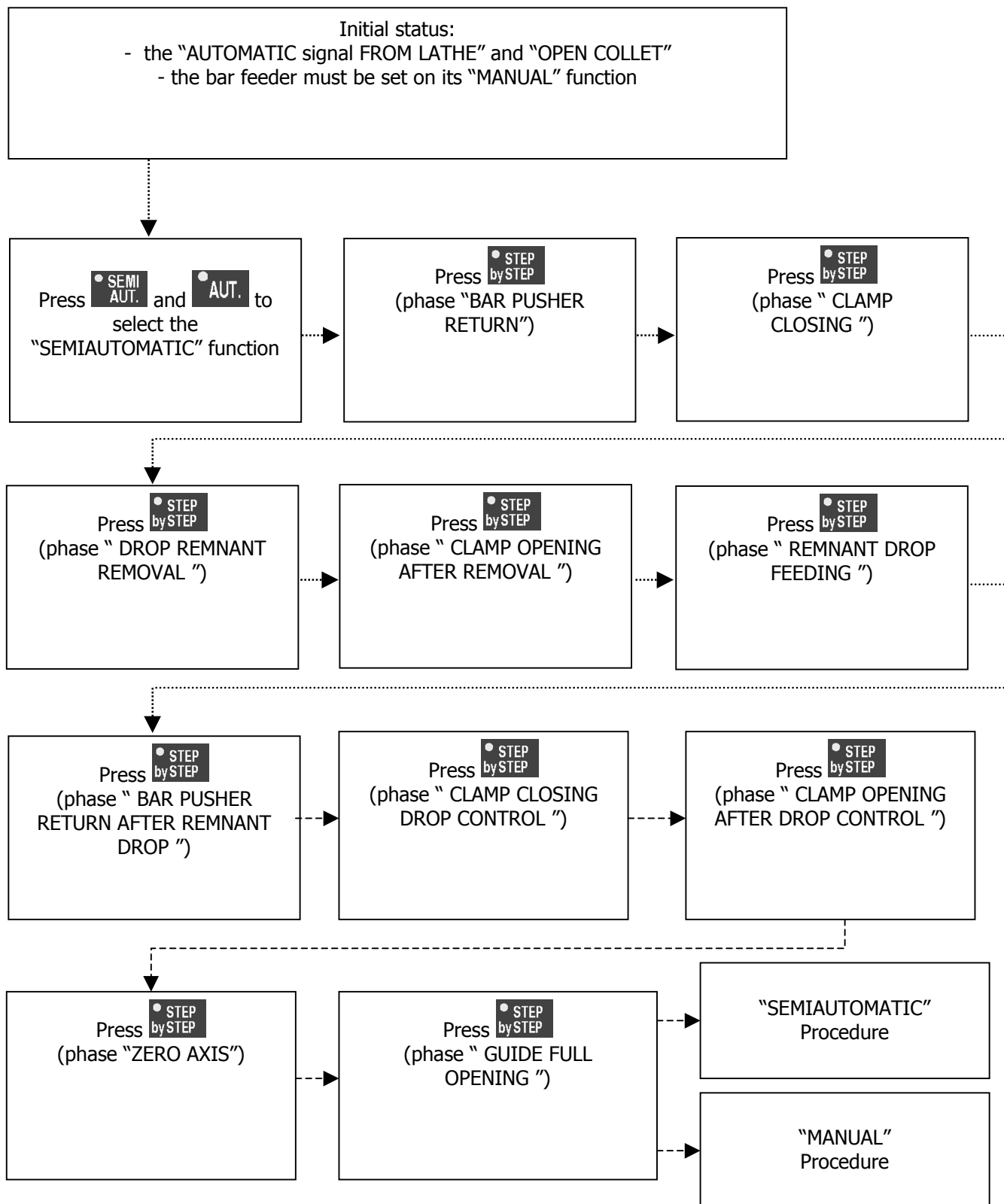


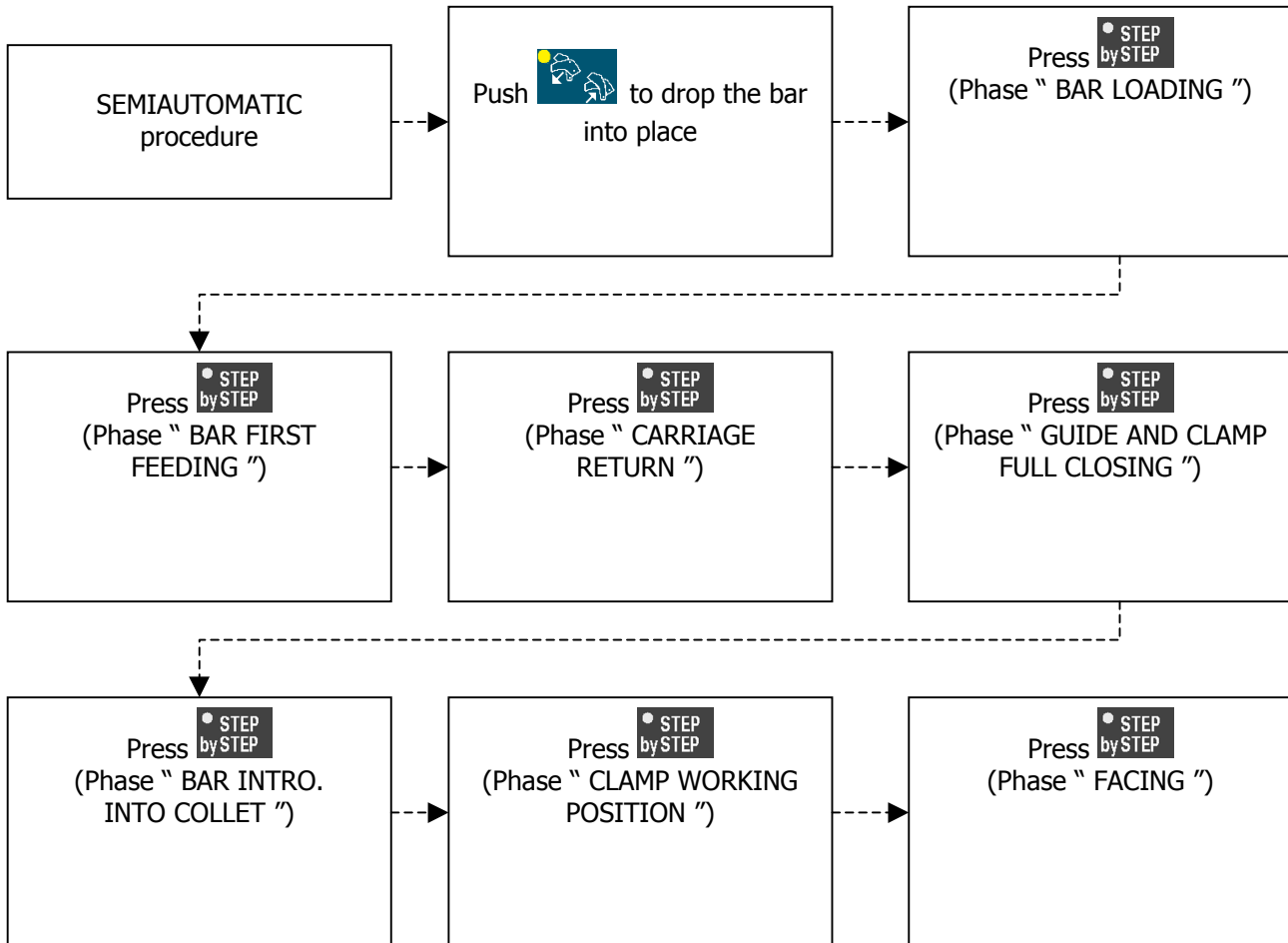
### **INFORMATION:**

***Axes zero setting can be performed with the guides open or closed.***

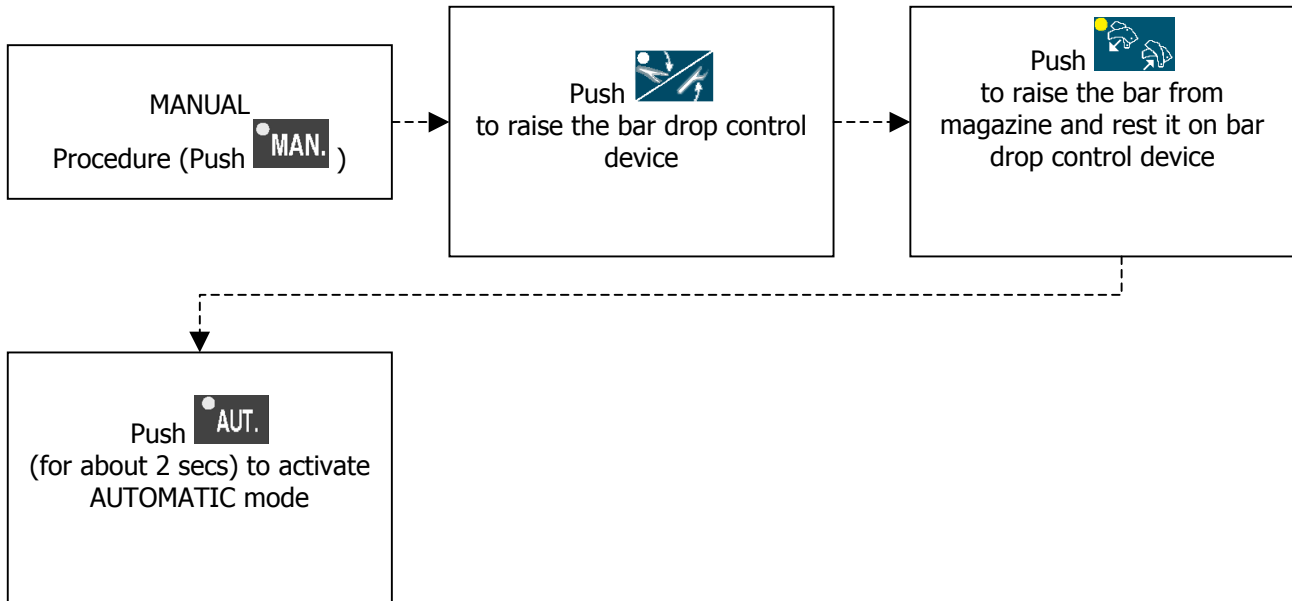
- Load one bar in the guides and start the automatic cycle. (See section 6.8.).

### 6.8 BAR LOADING - PROCEDURE



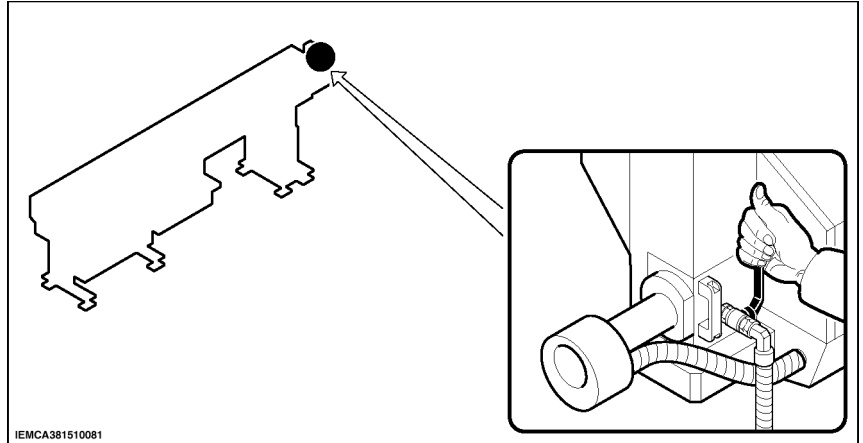

**INFORMATION:**

*the bar drop controls will not ascend if, during the "TOTAL GUIDES OPENING" phase there was a bar in the guide channels that has prevented the short feed door from resetting.*



## 6.9 LUBRICATION OIL - FLOW ADJUSTMENT

Oil flow in the guides and bush-holder device is automatically controlled during the feeder automatic cycle. The pump is started after the feeder has completed bar change-over; it is stopped when the bar-pusher approaches the bush-holder device. It is necessary to adjust the oil flow in the bushing-holding device according to the bar diameter and profile.



## 6.10 BAR FEEDER STOP

### BAR FEEDER EMERGENCY STOP



#### **CAUTION:**

*if the emergency stop is enabled during the lathe machining, before starting the working cycle again, make sure that no dangerous condition due to the sudden stop has occurred. Example: if the tool was removing chip, take the piece far from the lathe before starting the lathe again.*

- To stop the bar feeder in the emergency status, press one of the emergency push-buttons of the bar feeder or the lathe.

### BAR FEEDER STOP AT MACHINING END



#### **CAUTION:**

*do not use the emergency push-buttons for the ordinary bar feeder stop.*

- Achieve the operations of the working program.



- Stop the bar feeder pressing push-button .
- Stop the lathe.
- Turn the main electric switch onto position OFF.



## 6.11 CYCLE EXECUTION MODE IN THE "STEP-BY-STEP" FUNCTION






### 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;
- eccetera.

### Procedure



- Press  to start the bar feeder;
- Press  and  to select the "semiautomatic" function;
- Press,  the bar feeder performs the first step;
- Press,  the bar feeder performs the second step, and so on.

**INDEX**

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7.2	SCHEDULED MAINTENANCE 	.....3
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7.2.3	Air filter unit - Check .....	6
7.3	SCHEME OF THE LUBRICATION POINTS 	.....7

## 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.



### **INFORMATION:**

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

To protect the bar feeder during long periods of inactivity, disconnect it from the mains, let the compressed air out and cover with a piece of adequate cloth.

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 SCHEDULED MAINTENANCE** 

Table 1. Scheduled maintenance

Model	Bar feeder part	Operation to carry out	Frequency					
			Hours				Every year	Periodically
			200	500	1250	2500		
<b>MASTER 880 MP Evolution</b>	Revolving tip and collet	Wear check	•					
	Half-bushing	Wear check	•					
	Lubrication system	Oil level check	•					
		Oil change				•		
	Guides	Repair and cleanness check			•			
	Guide opening screw	Greasing			•			
	Feed chain	Lubrication	•					
		Tension check			•			
	Guide opening belt	Wear check				•		
	Air filter	Check						•
	Keyboard battery	Replacement					•	
	PLC Battery	Replacement					•	

### 7.2.1 Lubricating oil - Level check

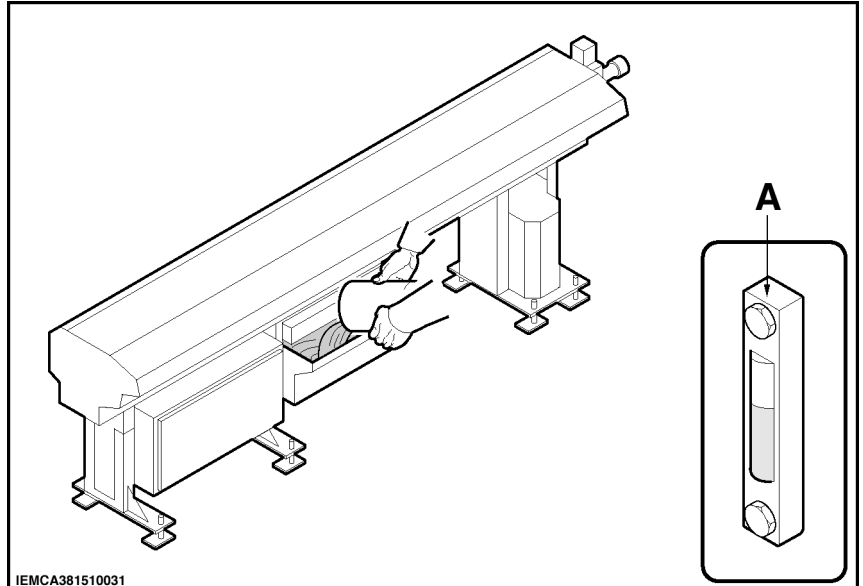
**CAUTION:**

*wear the personal protections prescribed by the applicable standards in force.*

- Wait until the bar feeder has been off for at least 6 hours.
- Check the level through the indicator A.
- Pour the oil directly in the tank to fill up, if needed.

Oil characteristics: C CLASS -  
CKB 150.

See paragraph 2.6. for the comparative table.



## 7.2.2 Lubricating oil - Change



**CAUTION:**

*wear the personal protections prescribed by the applicable standards in force.*



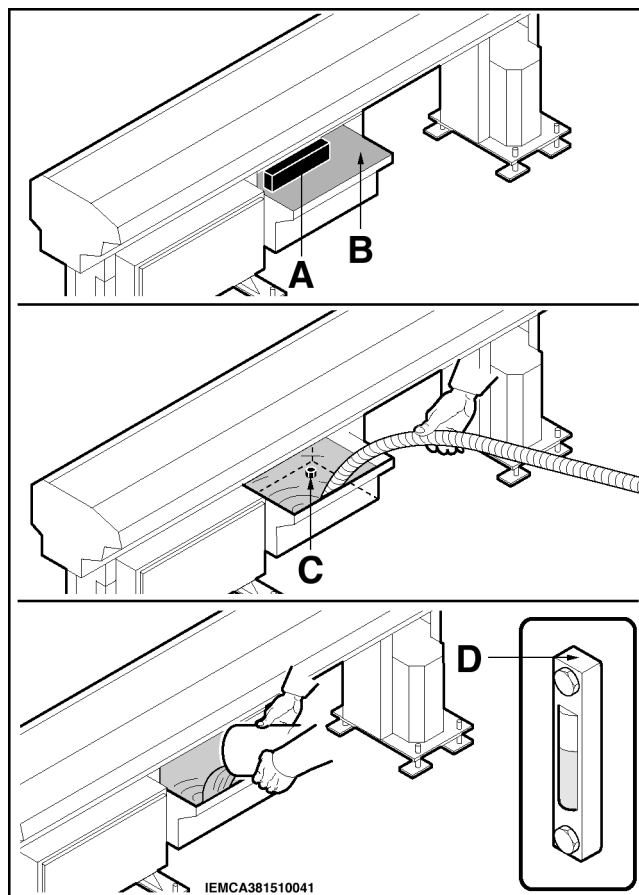
**INFORMATION:**

*store spent oil in special containers to be delivered to companies specialized in pollutant disposal and storage.*

- Remove the cover (A) and grid (B).
- Empty the tank with the use of an auxiliary pump, or through the draining plug (C). Clean the tank bottom and pump suction system.
- To load, pour the oil directly in the tank and check the level through the indicator (D).

Oil characteristics: C CLASS - CKB 150, amount 80 l.

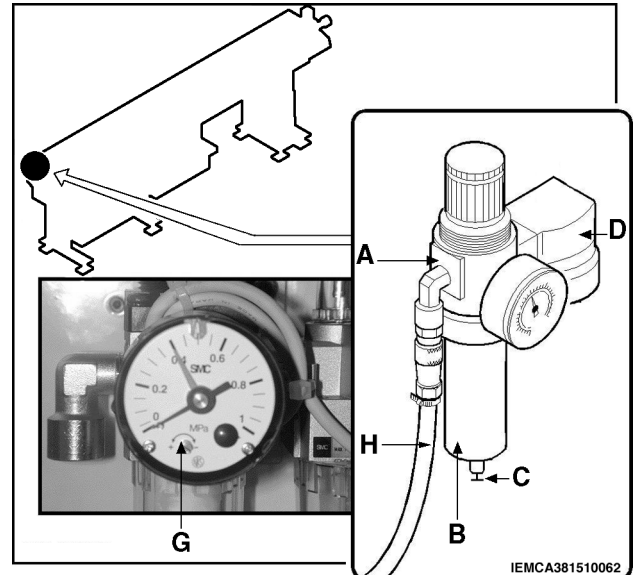
See paragraph 2.6. for the comparative table.



### 7.2.3 Air filter unit - Check

#### **FILTER (A)**

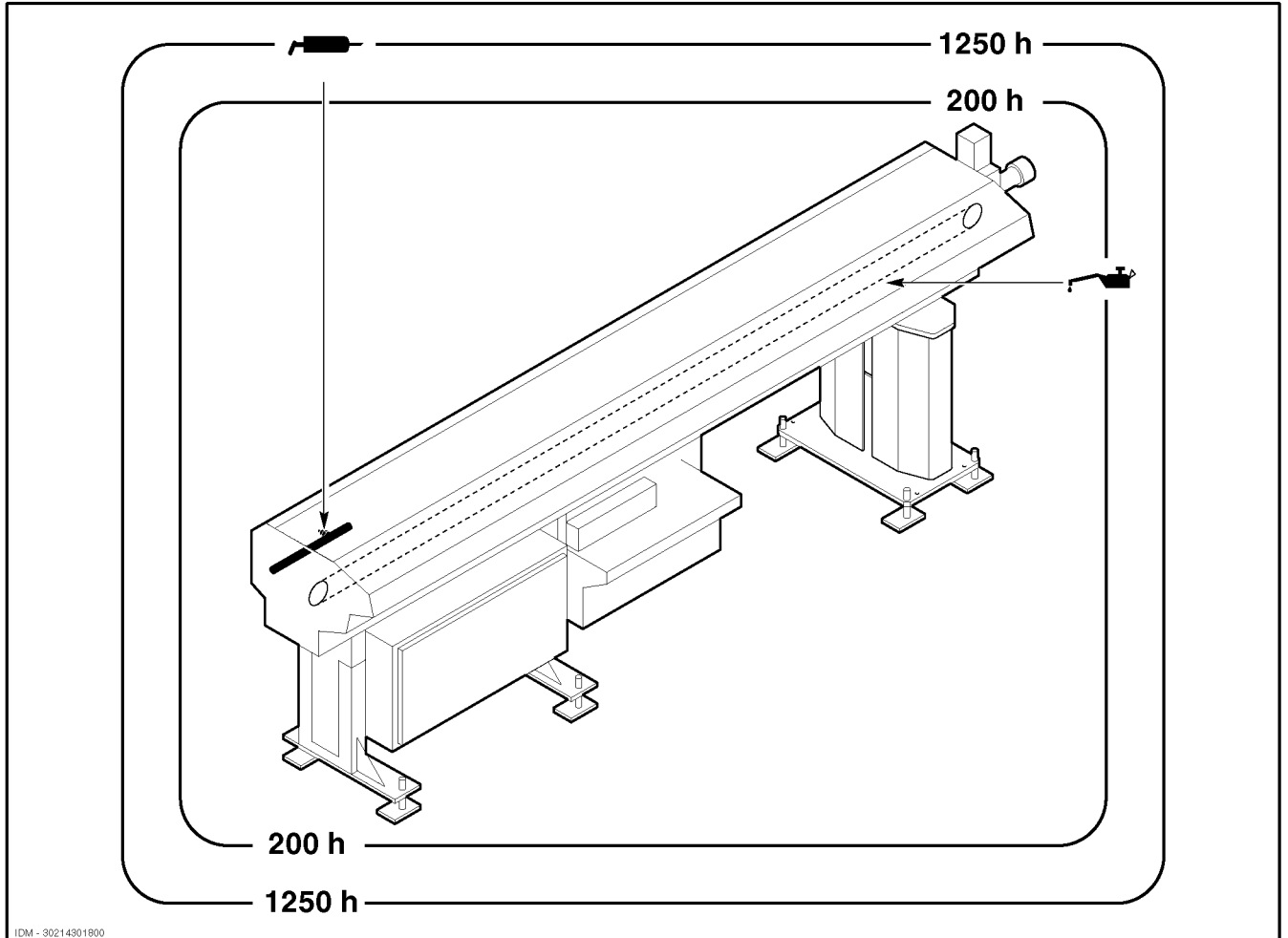
- Make sure that cup (B) is not full of condensate. If need be, bleed the condensate by valve (C). Make sure that cup (B) is not full of condensate. If need be, bleed the condensate by valve (C).
- The filter is equipped with a control pressure switch, set to a pressure of 4.5 bar.
  - remove the pressure gauge protecting glass;
  - turn the adjusting screw (G) anticlockwise (+) to increase pressure or clockwise (-) to lower it;
  - after this operation, replace the pressure gauge protecting glass.



#### **CAUTION:**

***should the pressure switch needle point a Pressure=0 , do not absolutely turn the adjusting screw (H) clockwise (-) , for this will cause pressure switch breakage.***

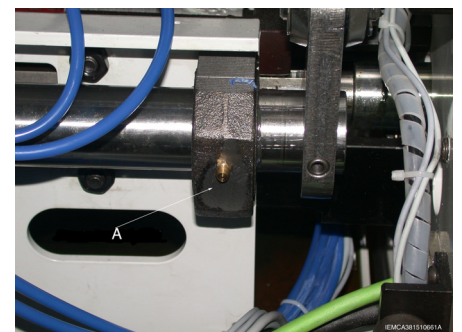
### 7.3 SCHEME OF THE LUBRICATION POINTS



Engrasar






Aceitar





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8.1	GENERAL FAULTS 	.....2
8.2	INSERTION IN THE COLLET - Faults 	.....2
8.3	BAR FEEDING - Faults 	.....2

**8.1 GENERAL FAULTS** 

TROUBLE	CAUSES	CURES
<b>The bar feeder will not start</b>	No power	Check the electric connections
	Open guard	Close the guard
	Emergency systems on	Disconnect the emergency devices
	Motor thermal switch tripped	Reset the motor overload cut-out with the special push-buttons.
<b>The bar feeder has been reset but the automatic cycle will not start</b>	No lathe signal	Check electric connection to the lathe
<b>The pneumatic devices will not respond to controls</b>	No air	Check the air system
<b>The pre-feed and feed suddenly stop</b>	Motor thermal switch tripped	Reset the motor overload cut-out with the special push-buttons





**8.2 INSERTION IN THE COLLET - Faults** 

PROBLEMS	CAUSES	CORRECTIVE ACTION
<b>Bar fails to enter collet.</b>	Collet diameter not suitable for bar diameter.	Change collet.
	Excessive rag on bar rear end.	Trim rag before feeding.

**8.3 BAR FEEDING - Faults** 

PROBLEMS	CAUSES	CORRECTIVE ACTION
<b>Difficult bar introduction into lathe spindle</b>	Bar feeder not aligned with lathe.	Check and correct alignment.
<b>Difficult bar introduction into lathe collet</b>	Excessive rag on bar rear end.	Trim rag before feeding.

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## 9.1 FEED CHAIN - REPLACEMENT

Replacement of the feed chain is a highly complex operation; call IEMCA after-sales service.

## 9.2 PLC BATTERY - REPLACEMENT

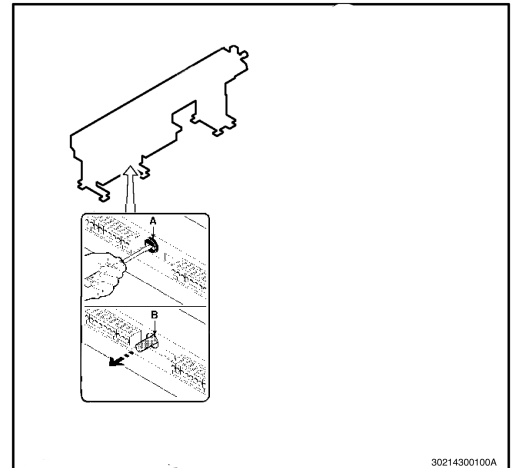
Replace the battery at least every year, and when the following message is displayed: "PLC battery exhausted"



### **INFORMATION:**

***when this message is displayed, the battery should be replaced within one day, otherwise, the "PLC/NC Software" data will be deleted.***

- Unscrew cap (A) and pull out battery (B);
- insert a new battery (AA 3.6volts lithium-type battery) and make sure that it is introduced correctly, then tighten the cap (A).



### 9.3 KEYBOARD BATTERY - REPLACEMENT

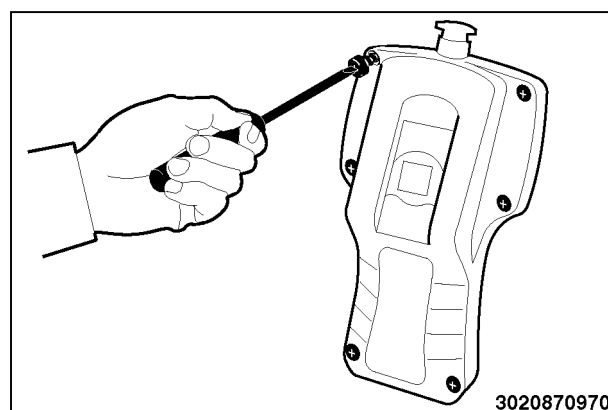
Replace the battery at least every year, and when the following message is displayed "KEYBOARD BATTERY EXHAUSTED":



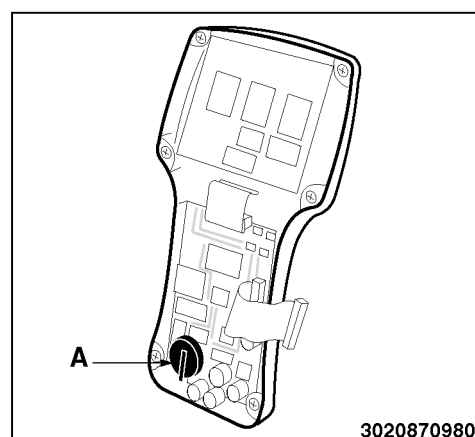
**INFORMATION:**

*failure to replace the battery can cause the calendar - clock memory to be deleted.*

- Disconnect power.
- Screw out the six screws and remove the two half-shells.



- Remove the battery A from its housing.
- Insert a new battery (type DURACELL DL2430).



**DANGER - WARNING:**

*danger of battery explosion if the battery is mounted with inverted poles.*

- Put the two half-shells back in place and screw down the six screws.
- Connect electric power again.



**INFORMATION:**

*Discard spent batteries by depositing them at authorised collection points. Help protect the environment.*

**9.4 RECOMMENDED SPARE PARTS** 

The heavy-wear parts or easily broken parts are listed below (this list refers to bar feeder requirements for a two year's period of normal use).

Model	Code	Designation	Characteristics	Notes	Qty.
MASTER 880 MP_E	24220108	Feed chain	1/2"x5/16"	For model 33	1
	24220109	Feed chain	1/2"x5/16"	For model 38	1
	24220121	Feed chain	1/2"x5/16"	For model 43	1
	24290606	Connecting link	1/2"x5/16"		1
	32210004	Sensor	3RG4012-0AG07		1
	32210013	Sensor	3RG4012-0AG33		1
	32210017	Sensor	3RG4012-0AG00		1
	32210019	Sensor	3RG4012-0AG33-Z		1
		Bar pusher		Specify diameter and length	1
		Rotary unit		Specify diameter	1
		Collet		Specify inside and outside diameters	1

To order the parts refer to the Spare Parts Catalogue.

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## 10.1 LIST OF AFTER-SALES CENTERS

<b>UK :</b>	Kitagawa Europe Ltd.	7 Dolphin Industrial Estate, Southampton Road SP12NB Salisbury	Phone ++44 1722 439721 Fax ++44 1722 421071 <a href="http://www.kitagawaeurope.com">www.kitagawaeurope.com</a>
<b>FRANCE:</b>	IEMCA France	Z.I. Des Grands Pres 145, rue Louis Armand 74300 Cluses	Tel +33 450 896960 Telefax +33 450 896135 Email: <a href="mailto:iemca@iemca.fr">iemca@iemca.fr</a>
<b>GERMANY:</b> <i>(West - Nord-Deutschl.)</i>	Hoßfeld GmbH	Königsberger Straße 10  D-58511 Lüdenscheid	Tel. ++49 02351/80521 Fax ++49 02351/860442 Email: <a href="mailto:HossfeldgmbH@t-online.de">HossfeldgmbH@t-online.de</a>
<b>GERMANY:</b> <i>(Neue Länder)</i>	Heyde Maschinen Service	Albin-Trommler-Str. 3 D-08297 Zwönitz	Tel. ++49 037754/5090 Telefax ++49 037754/50920 -Email <a href="mailto:Heyde-maschinen-service@t-online.de">Heyde-maschinen-service@t-online.de</a> <a href="mailto:Heyde-zwoenitz@t-online.de">Heyde-zwoenitz@t-online.de</a>
<b>GERMANY:</b> <i>(Süd-Deutschl)</i>	Reimo Lobers	Elektro-Mechanischer Betrieb Rebgartenweg 5/1 D-79576 Weil am Rhein	Tel. ++49 07621/69551 Fax ++49 07621/69491 Email: <a href="mailto:Mail@lobers.de">Mail@lobers.de</a>
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