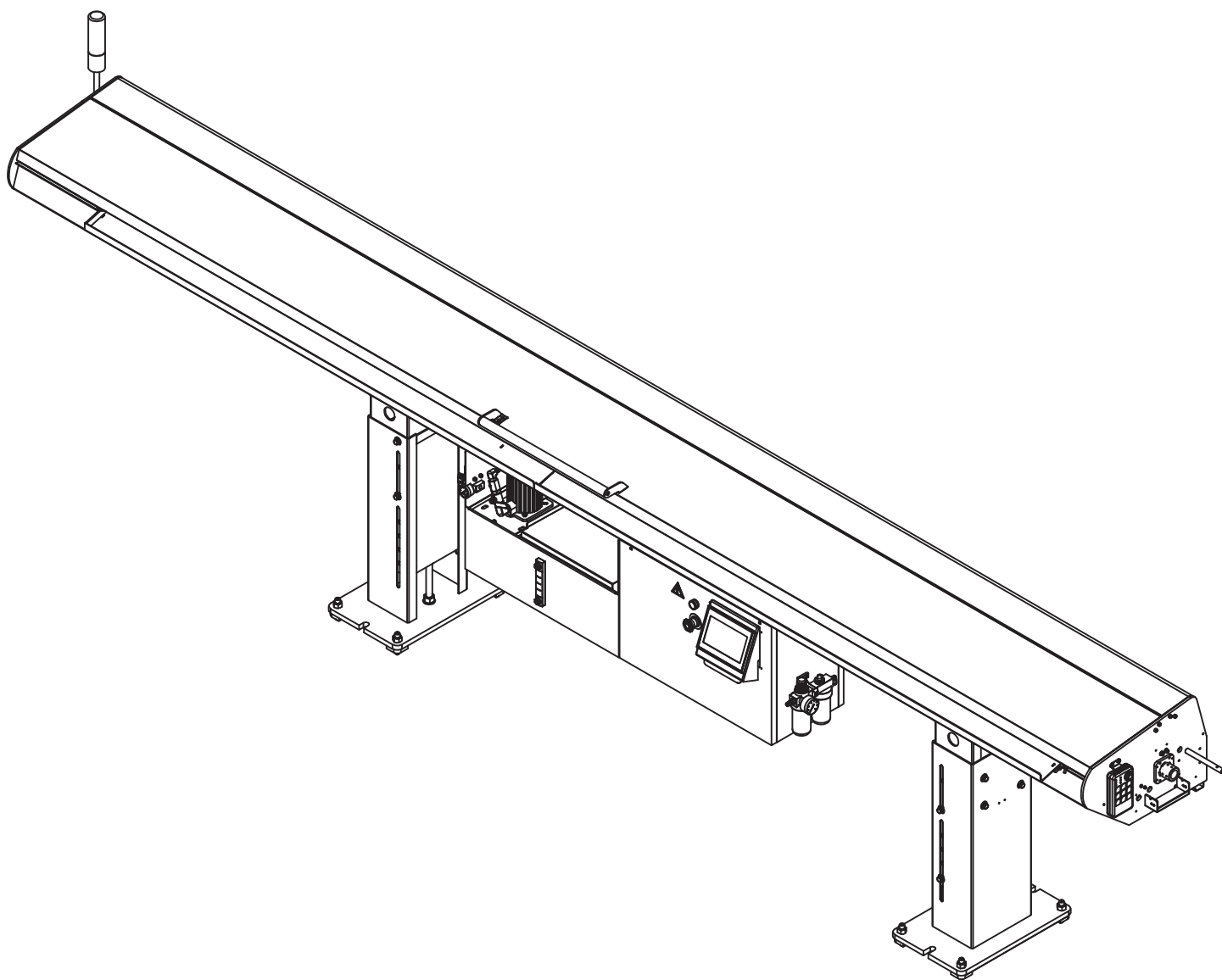


RANGER II 120
Operation Manual



Hight loading speed
Special development of design

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RANGER II 120
HYDRODYNAMIC AUTOMATIC BAR FEEDER

MANUAL FOR USE AND MAINTENANCE
VER : 02 DATA : 2023/09/21 COD : BRN702032

S/H

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1. GENERAL INFORMATION



Please read the Manual carefully before operating bar feeder.

1.1 Contents of the manual

The feeder manufacturer provides this manual, which is an essential part of the integrated products. Please act according to the indication of the manual in order to assure operators' safety as well as the machines', and greatly achieve economic efficiency and to get the best output of the machine's capability. The important part is printed in boldface, and included the following marks:



HAZARD-WARNING:

Hazard! It is possible to hurt you seriously, please be careful.



CAUTION:

For preventing the accident or the loss of property, you should take precautions.



INFORMATION:

Special important know-how information

Please take use of the table of contents, you will quickly find the information you need.

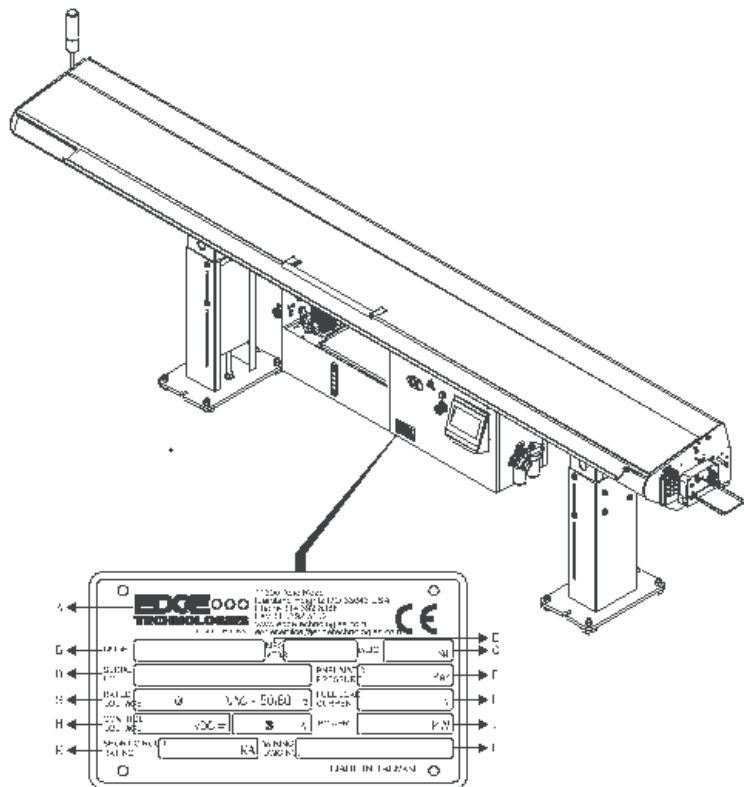


SKILLED:

The mark shown in the manual means that the machine should be operated by a qualified and expert operator. As to the other operation shall be handled by a qualified personnel or professional operator of bar feeder.

1.2 Machine data plate

- A. Name of manufacturer
- B. Model(Type)
- C. Serial Number
- D. Manufacture Date
- E. Weight of Machine
- F. Pneumatic Pressure
- G. Rated Voltage
- H. Control Voltage
- I. Full Load Current
- J. Power
- K. Short Circuit Rating
- L. Wiring Drawing Number



INFORMATION:

When inquiring or ordering the parts, please notify the manufacturer the above-mentioned in each standards.

1.3 Technical support

If you need any technical support , you can inquire the service center in the appendix at anytime.



INFORMATION:

When you need the support of technique, please refer to the label on the bar feeder. Tell us the data of the bar feeder.

2. TECHNICAL DATA

2.1 Instruction

The hydrodynamic automatic bar feeder is designed for full automatic lathe to auto feed material, the bar feeder is suitable for digital control sliding headstock lathe and fixed headstock lathe.

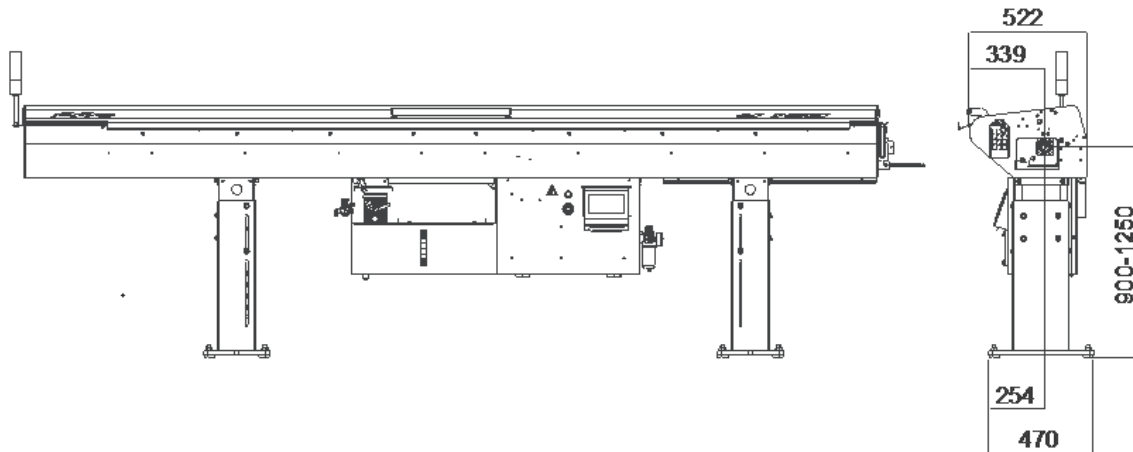
The program of the PLC system can control the bar feeder running with the lathe. The remote control box is easy to be operated.

The bar feeder can feed round bar, tubes and any other section of material. While the lathe is running, the guide channel is closed completely, at the same time; lubricating oil into the guide channel so that the noise and vibration can be reduced while the material is rotating in high speed. Furthermore, lubricating oil also can reduce the temperature resulted from friction so that the surface of the material can't be damaged.

The remnant material will be pushed out of the guide channel by the push bar or the next material.

The descriptions and legends of the manual are according to the operator stands at the left side of the lathe to be edited.

2.2 Machine dimension



MOD	RANGER II 120	
	27	37
L	3811 mm	4518 mm
A	2800 mm	3900 mm
B	3685 mm	1990 mm
C	320 mm	592 mm
Weight	400 kg	435 kg

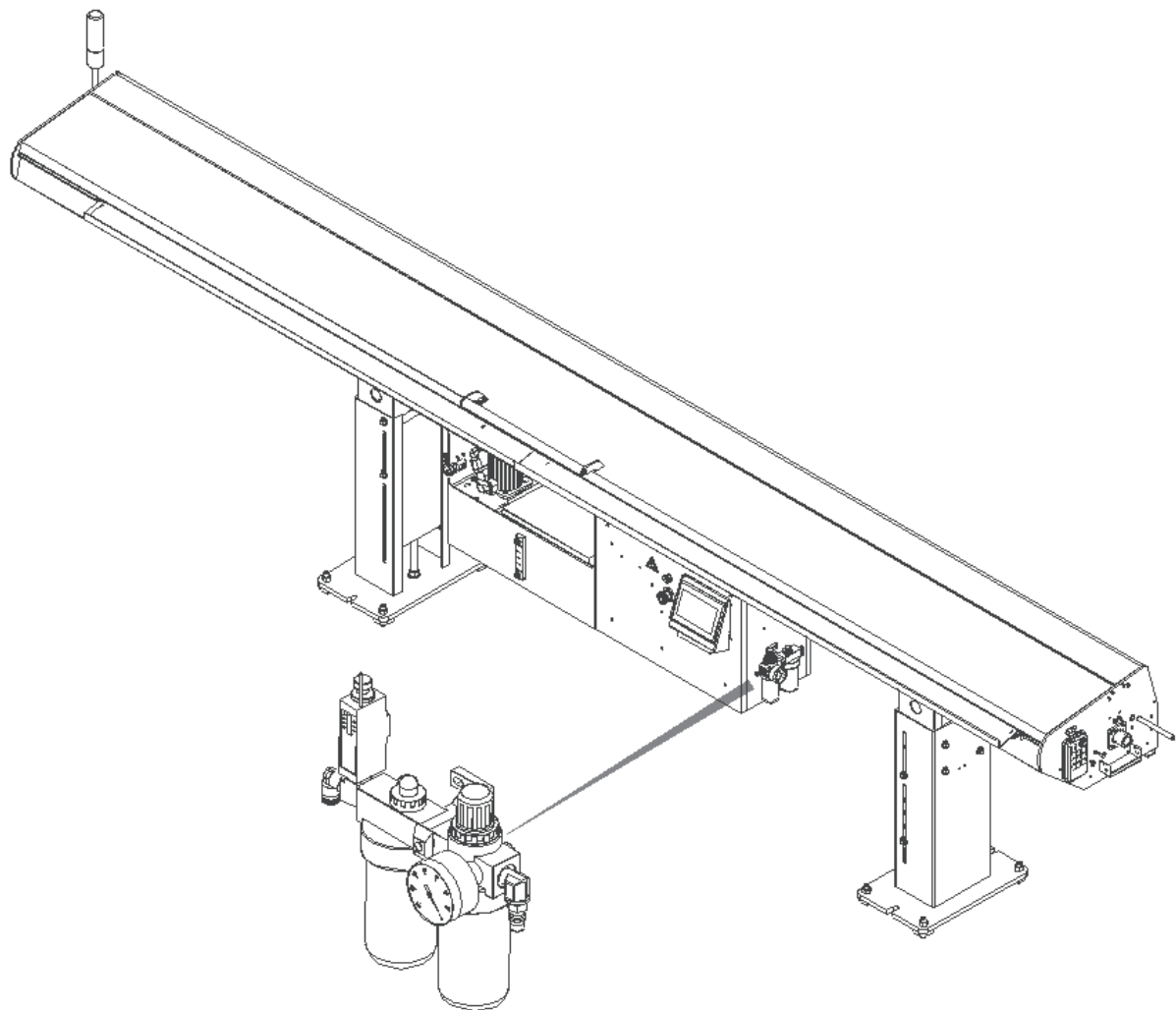
2.3 Machine specifications

Bar Diameter	○ 0.8 mm (1/32") ~ 20 mm (13/16")
	◇ 2 mm (5/64") ~ 19.75 mm (11/16")
Channel Size	Ø6 / Ø11 , Ø6 / Ø14 , Ø8 / Ø18 , Ø8 / Ø22
BAR PUSHER Size	Ø5 , Ø7 , Ø10 , Ø12 , Ø16 , Ø20
Bar Loading Capacity	Ø 1~4mm x35 (bar) / Ø10x25 (bar)
Lubricant Specification	40(L) ISO CB 32
Power Supply	220V 0.4A 50/60Hz
Pneumatic Supply	5~7 kg/cm ²

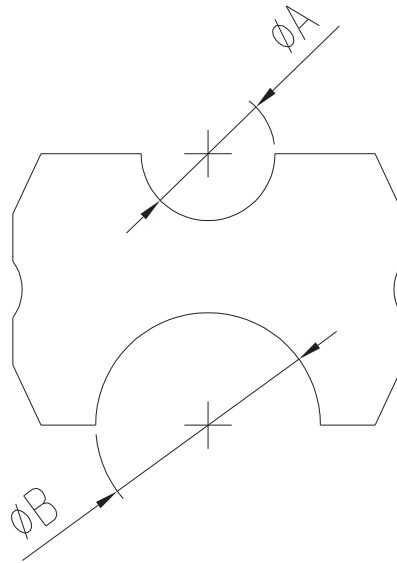
2.4 Compressed air supply

- 2.4.1** Tube size for compressed air supply unit must be not less than 8 mm. The pressure should be within 7 kg / cm² and the consumption near 50L/H.
- 2.4.2** Put the air supply tube into (A). Then pull and turn around the knob (B) to set the pressure at 6 kg / cm².
- 2.4.3** Control air lubrication from cylinder , adjust (C) , 1-2 drops / 1000 L air if necessary.
- 2.4.4** Lubricating (D) , viscosity 32 Cat , temperature 40°C , ISO VG type.

Adaptive lubricant			
BP ENERGOL HLP32	AGIP OSO 32	MOBIL DTE 24	ESSO NUTO H32

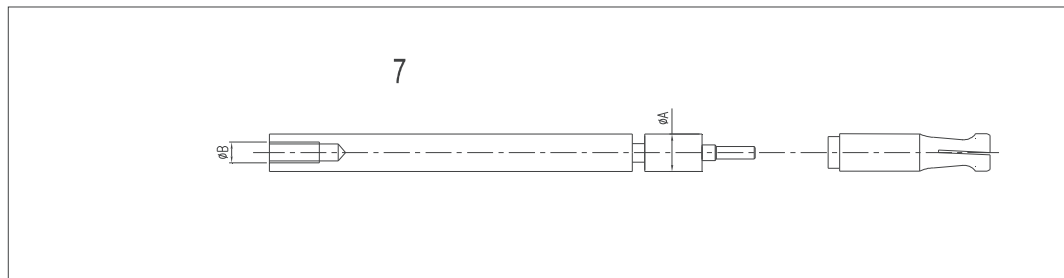
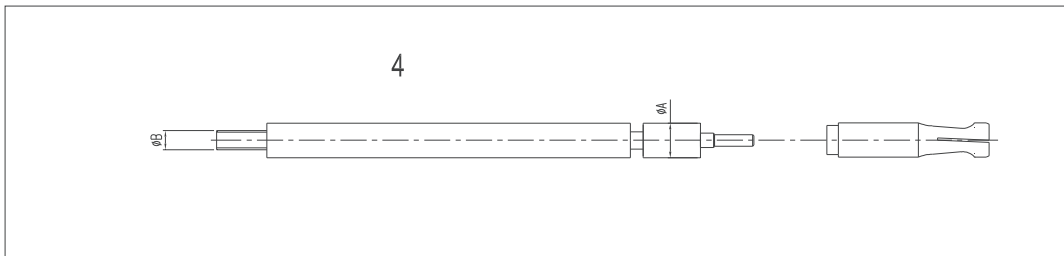


2.5 Channel Set Components

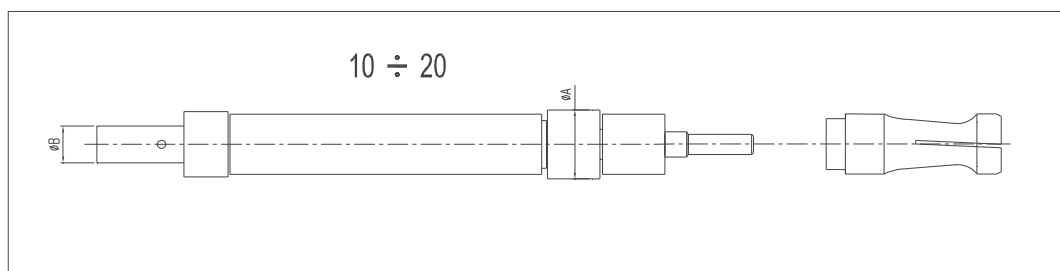


Type	Channel		Pusher Ø	Min	Max	Max Bar With Remnant Ejection
10	ØA	6	5	0.8mm	3mm	4mm
	ØB	11	10	3mm (.118")	9mm (.354")	10mm (.393")
12	ØA	6	5	0.8mm	3mm	4mm
	ØB	14	12	3.2mm (.125")	11mm (.437")	13mm (.512")
16	ØA	8	7.5	3mm (.118")	6.4mm (.250")	7mm (.275")
	ØB	18	16	5mm (.196")	14.2mm (.562")	17mm (.669")
20	ØA	8	7.5	3mm (.118")	6.4mm (.250")	7mm (.275")
	ØB	22	20	8mm (.315")	19mm (.750")	21mm (.826")

2.6 Revolving tip – Selection



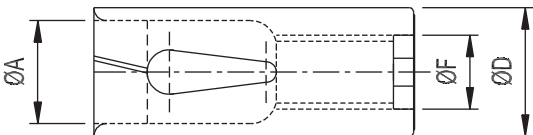
MOD.	Ø A	Ø B	Part No. of revolving tip
4	5.5	M4	D00150500
7	7.5	M6xP0.75	D73150705



MOD.	Ø A	Ø B	Part No. of revolving tip
10	10.5	12	D71151000
12	12.5	12	IER0712000
16	16.5	12	IER0816000
20	20.5	14	IER1020000

2.7 Collet - Selection

2.7.1 Specification of the collet for round bar



IE^R_L1020XXX

$\rightarrow$ **ØA Bar size :**
EX : Ø12→120
Ø22.5→225

$\rightarrow$ **ØD Out diameter**

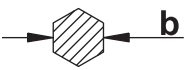
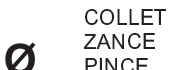
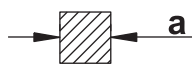
$\rightarrow$ **ØF The metric tread : M7, M8, M10**

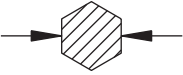
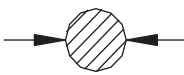
R : Right thread
L : Left thread

ØA \ ØF		M7	M8		M10		
		x0.75	X1		X1		
mm	in	Ø 12	Ø 15	Ø 16	Ø 20	Ø 23	Ø 25
2	5/64"	0712020	0815020				
2.5		0712025	0815025				
2.8	7/64"	0712028	0815028				
3		0712030	0815030				
3.2	1/8"	0712032	0815032				
3.5		0712035	0815035				
3.6	9/64"	0712036	0815036				
4	5/32"	0712040	0815040		1020040		
4.4	11/64"	0712044	0815044		1020044		
4.5		0712045	0815045		1020045		
4.8	3/16"	0712048	0815048		1020048		
5		0712050	0815050		1020050		
5.2	13/64"	0712052	0815052		1020052		
5.5	7/32"	0712055	0815055		1020055		
6	15/64"	0712060	0815060		1020060		
6.3	1/4"	0712063	0815063		1020063		
6.5		0712065	0815065		1020065		
7		0712070	0815070		1020070		
7.2	9/32"	0712072	0815072		1020072		
7.5	19/64"	0712075	0815075		1020075		

ØF ØA		M7 x0.75	M8 X1		M10 X1
mm	in	Ø 12	Ø 15	Ø 16	Ø 20
8	5/16"	0712080	0815080		1020080
8.4	21/64"	0712084	0815084		1020084
8.5	11/32"	0712085	0815085		1020085
9	23/64"	0712090	0815090		1020090
9.5	3/8"	0712095	0815095		1020095
10	25/64"	0712100	0815100		1020100
10.4	13/32"		0815104		1020104
10.5			0815105		1020105
10.8	27/64"		0815108		1020108
11			0815110		1020110
11.2	7/16"		0815112		1020112
11.5			0815115		1020115
12			0815120		1020120
12.5	31/64"		0815125		1020125
12.7	1/2"		0815127		1020127
13				0816130	1020130
13.5				0816135	1020135
14				0816140	1020140
14.2	9/16"				1020142
14.5					1020145
14.7					1020147
15					1020150
15.2					1020152
15.5					1020155
15.7					1020157
16	5/8"				1020160

2.7.2 Specification of the collet for polygonal material

					
3	3.48	3.25	1.5	2.12	2
3.5	4.04	3.8	2	2.82	2.7
4	4.61	4.5	2.5	3.53	3.4
4.5	5.19	5	3	4.24	4
5	5.77	5.5	4	5.65	5.5
5.5	6.35	6.2	4.5	6.36	6.2
6	6.92	6.8	5	7.07	6.8
6.5	7.50	7.3	5.5	7.77	7.5
7	8.08	7.8	6	8.48	8.3
7.5	8.66	8.5	6.5	9.19	9
8	9.23	9	7	9.89	9.7
9	10.39	10.2	8	11.31	11
10	11.54	11.3	8.5	12.01	11.8
11	12.70	12.5	9	12.72	12.5
12	13.85	13.5	10	14.14	13.8
13	15.02	14.8	10.5	14.84	14.5
14	16.16	16	11	15.55	15
15	17.32	17.2	12	16.97	16.5
16	18.47	18.3	12.5	17.67	17
17	19.62	19.5	13	18.38	18
			14	19.79	19.5

	PINZA COLLET ZANCE PINCE $\emptyset$			PINZA COLLET ZANCE PINCE $\emptyset$
	INCH	mm	inch	INCH
1/8		3.5	9/64	1/8
3/16		5.25	13/64	3/16
1/4		7	9/32	1/4
5/16		8.75	11/32	5/16
3/8		10.75	27/64	3/8
7/16		12.5	31/64	7/16
1/2		14.25	9/16	1/2
9/16		16.25	41/64	9/16
5/8		18	45/64	5/8
11/16		19.75	25/32	11/16
				3/4
				13/16

3. TRANSPORTATION



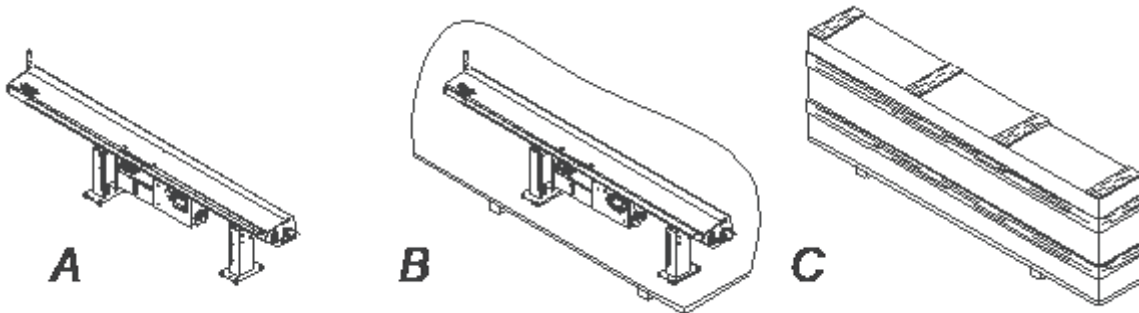
HAZARD-WARNING

The lifting and handling are to be operate with proper equipment (Refer to the weight of chapter 3.2) and by skilled staff, trained for the kind of transportation.

3.1 Packaging

The bar feeder will be arrived in one of three ways:

- A.** Without packaging.
- B.** On the pallet, Put the feeder on the pallet and package the feeder with plastic film.
- C.** Created in a wooden box, and package the feeder with plastic film.



3.2 Transportation

Verify the equipment to be used for moving the bar feeder is rate to safely lift the weight of the bar feeder plus the packaging material.

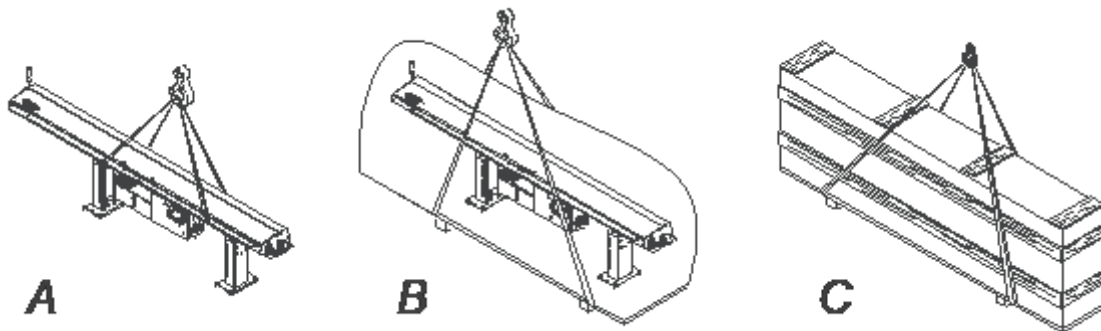


CAUTION

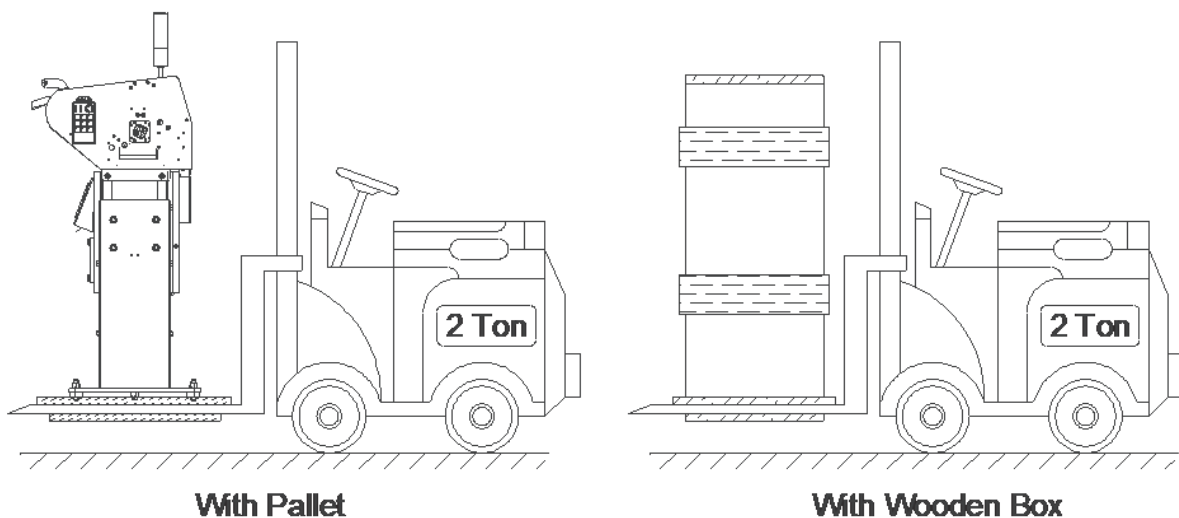
Lifting the bar feeder under the magazine with a lift truck or slings may cause damage to the machine.

3.2.1 Lifting by straps or slings

Hazard! It is possible to hurt you seriously, please be careful.



3.2.2 Lifting by lift truck

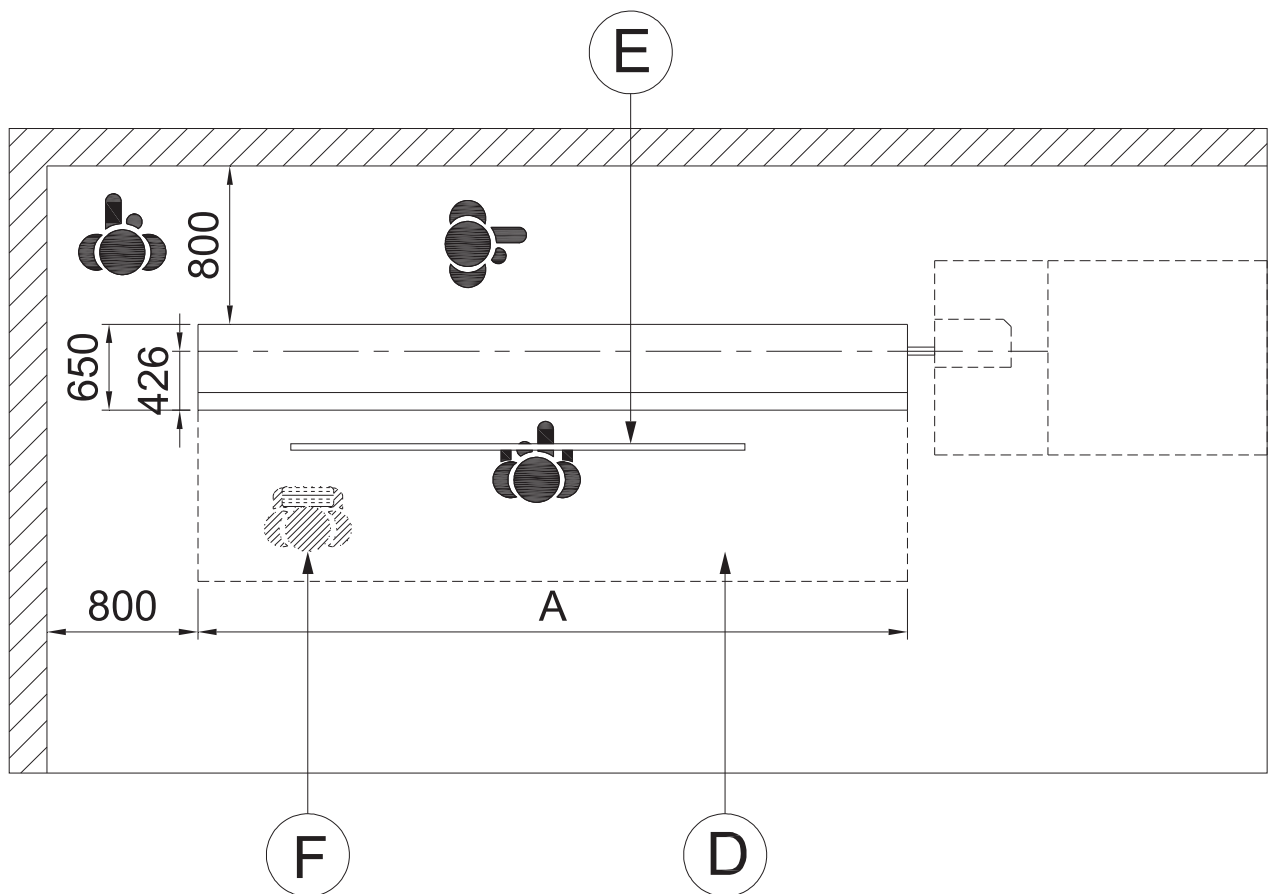


3.3 Installation area

The bar feeder must be bolted to a sound, reasonably level floor using anchor bolts. The area surrounding the machine must provide sufficient clearance the operator access to both sides and the rear of machine as shown in the diagram below.

Other necessities are suitable lighting and compressor air supply. The bar feeder is not suitable for and can be adapted to use in an explosive surrounding.

Area: (D-Operator area) , (E-Material supply area) , (F-Remain removal area)



List 1. - Size of appearance

Type	Size	A (mm)
RANGER II 120	27	3390 mm
	37	4518 mm

4. INSTALLATION

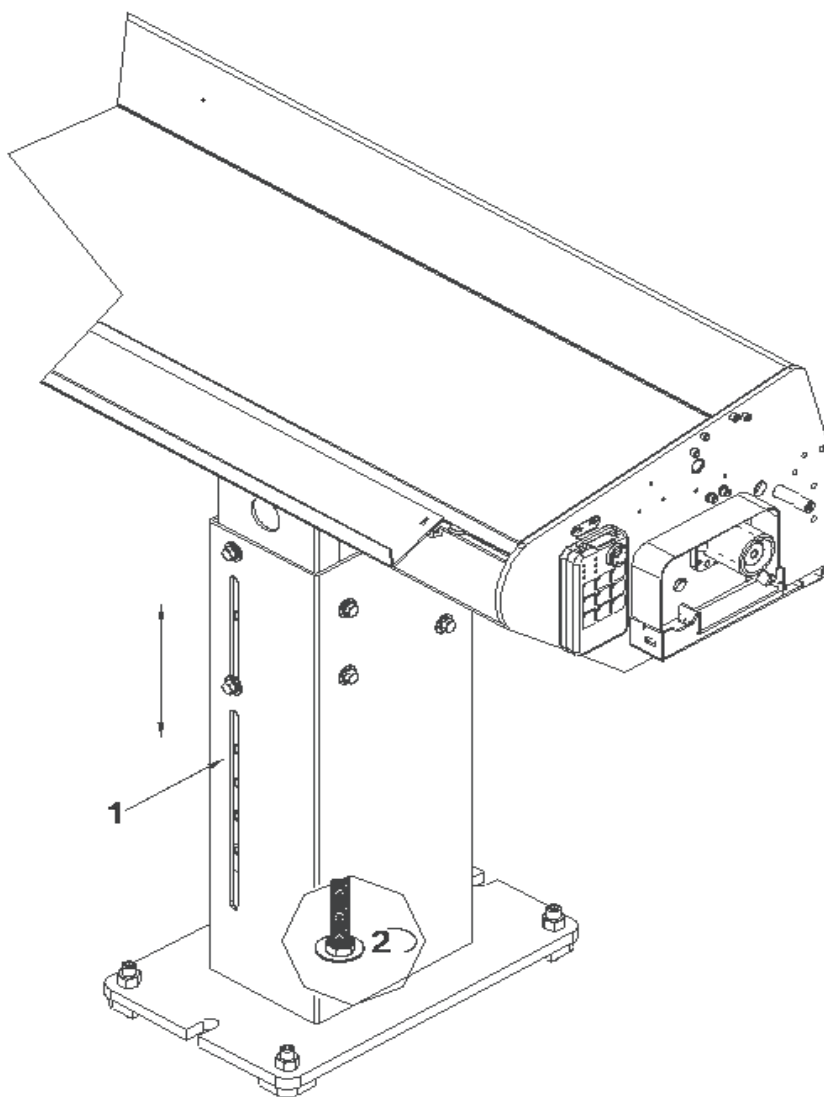
4.1 Bar feeder - Installation

Prior to beginning the bar feeder installation the lathe must be properly leveled. It is strongly recommended that the lathe be anchored to the floor to prevent it from shifting.

4.2 Height adjustment

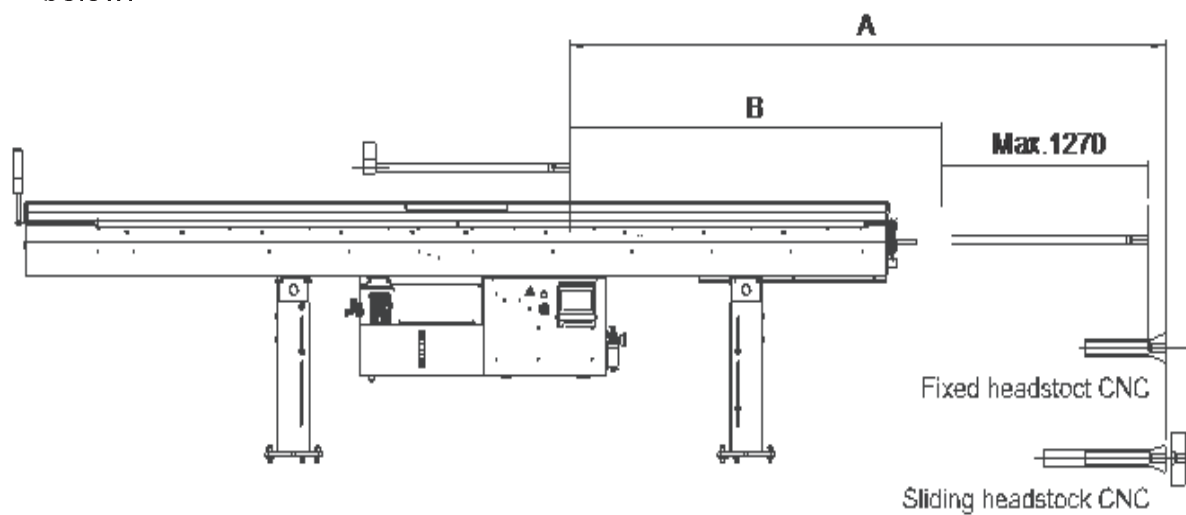
4.2.1 Disengage the screw (1).

4.2.2 Adjust the screw (2) and shift from up to down. Adjust the height to a straight line between the center of the bar feeder and the center of the lathe.



4.3 Initial position

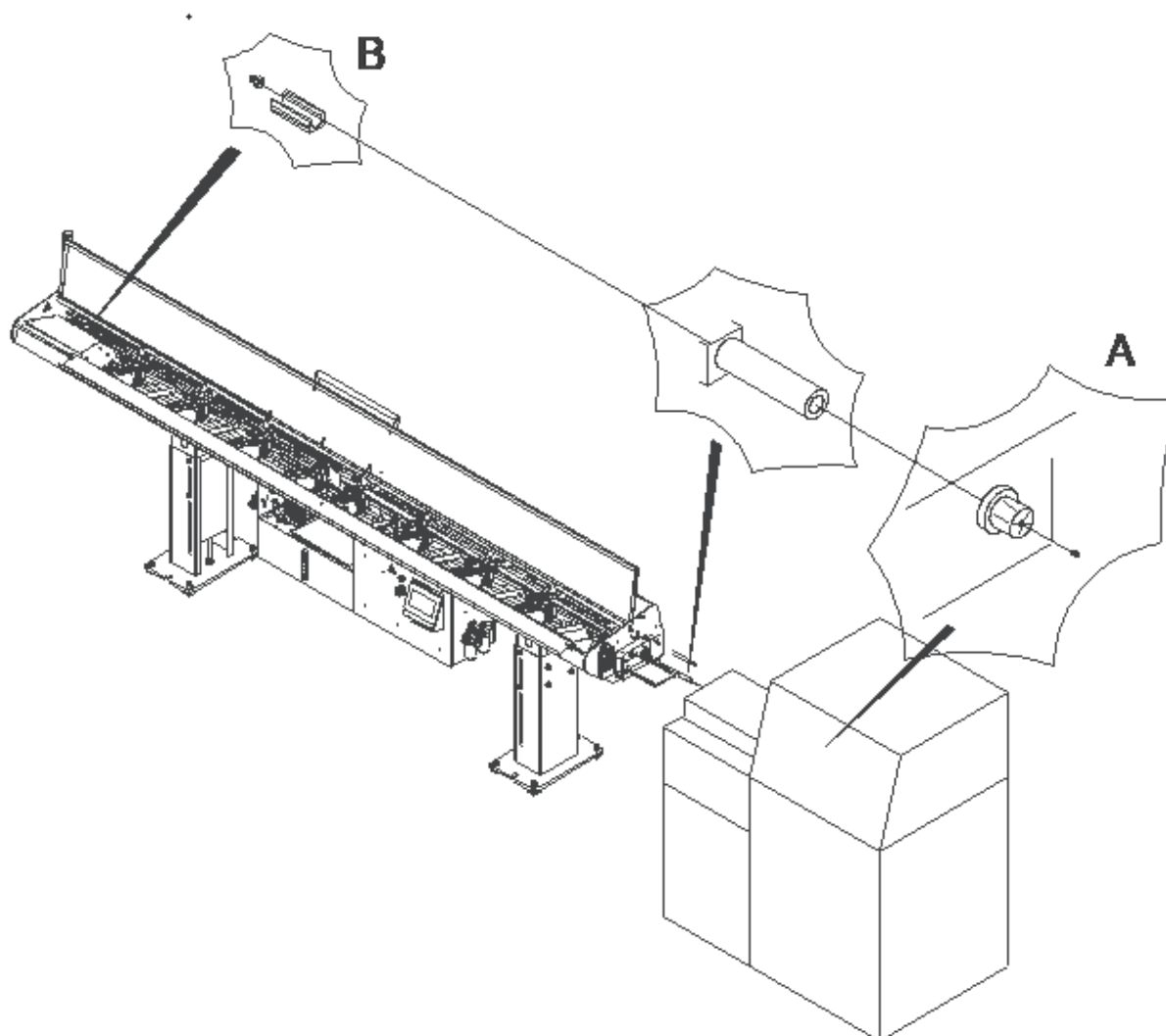
The bar feeder should set the proper distance from the lathe. The distance is as below:



Model	A	B
27	2800 mm	1900 mm
37	3800 mm	2570 mm

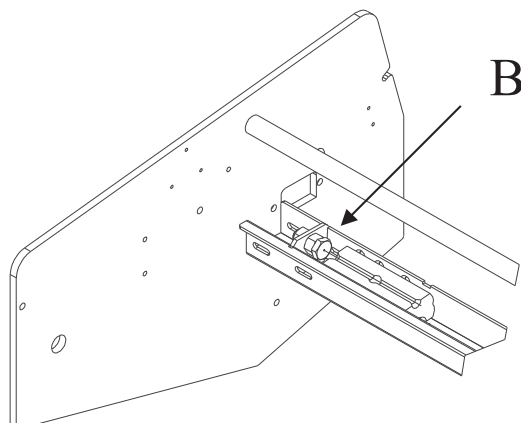
4.4 Adjustment of center

The bar feeder is aligned to the lathe spindle by use of a nylon string which is stretched between the lathe collet/chuck and alignment fitting at the rear plate of the bar feeder. This string indicates the centerline of two machines. Please prepare a nylon string (1mm) and pull it from the lathe (A) to the end of the bar feeder (B).

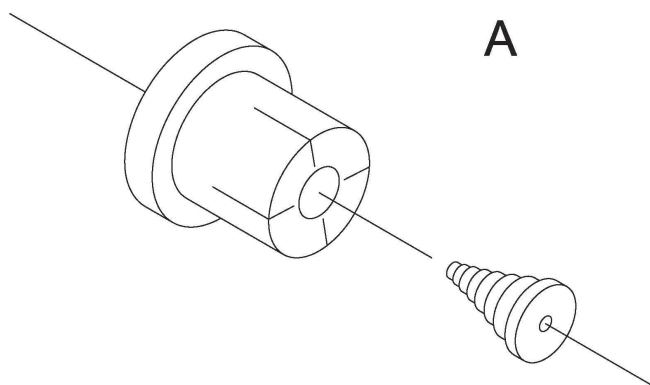


4.4.1 For rear plate of feeder

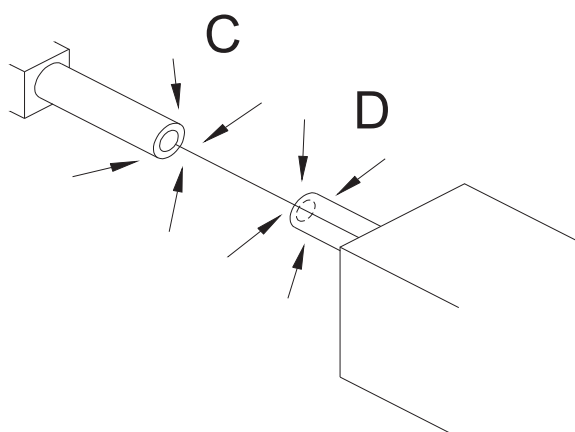
Secure nylon thread on to the axis screws (B point) of bar feeder, and then pull the thread through spindle hole.

**4.4.2 For collet/chuck of lathe**

Insert the center tool into the lathe collect/chuck, then pull the nylon string to be straight.

**4.4.3 Aligning the center line**

The bar feeder is aligned by moving the front and rear stands so that the distance from the string to the centerline of the lathe spindle and the centerline of opening of the anti-vibration device is equal on all sides to within 0.15mm.



4.5 Securing and fastening of the bar feeder

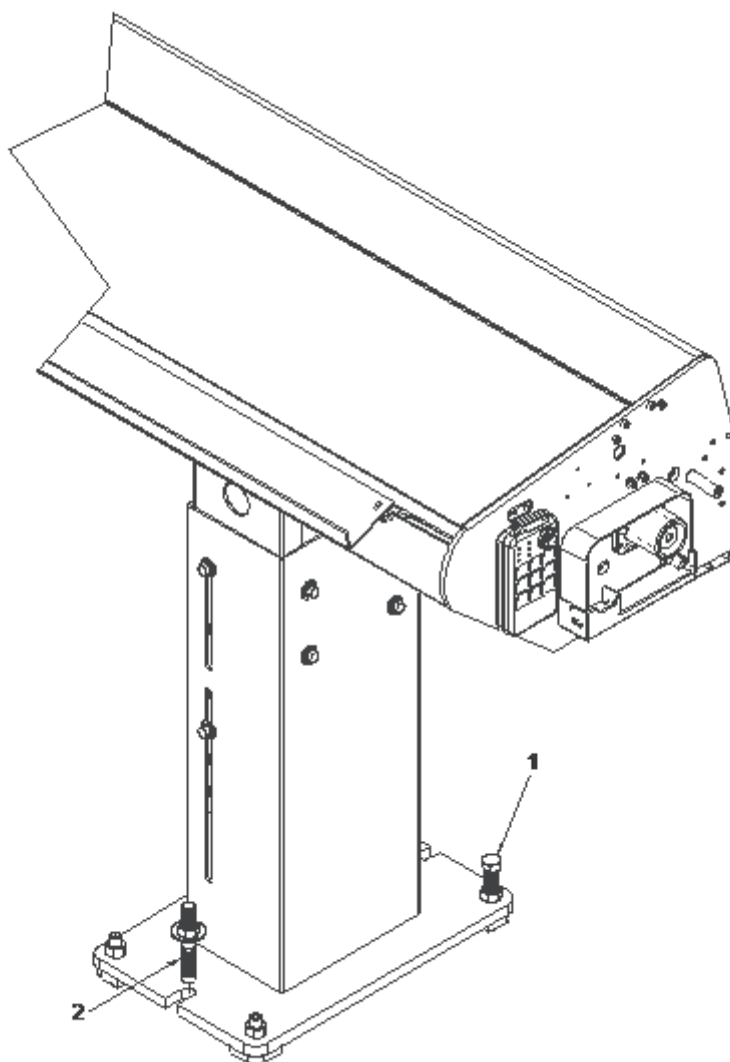


CAUTION

Failure or bad to fix the bar feeder to the floor can be the main cause of bar feeder bad operation and resulting damaging.

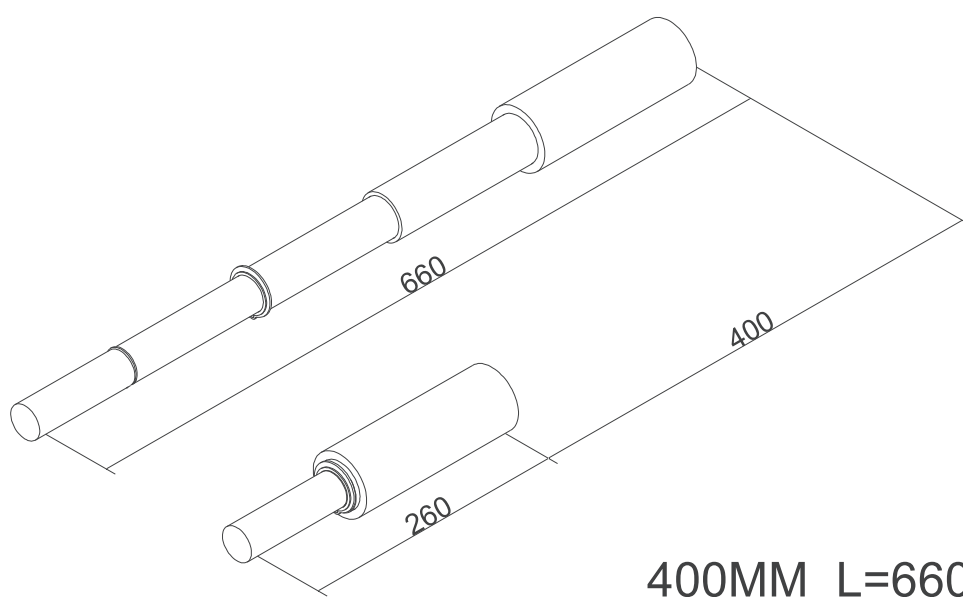
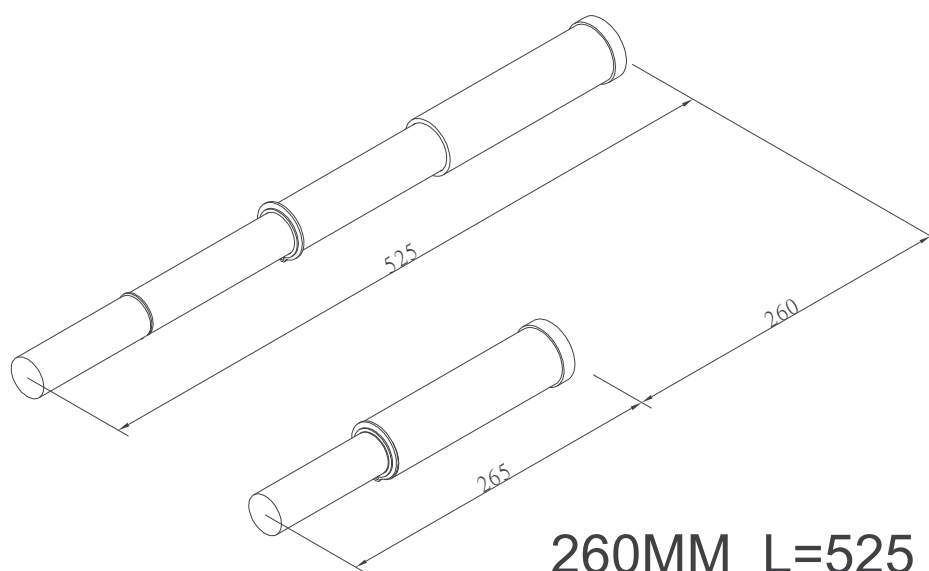
Place steel anchor plates and spacer under the four outside corner of the bar feeder. Thread the 4 screws (1) fully and fixing the nuts.

Drill the floor (2) with Ø16mm (5/8 inch) and fix with expansion plugs.



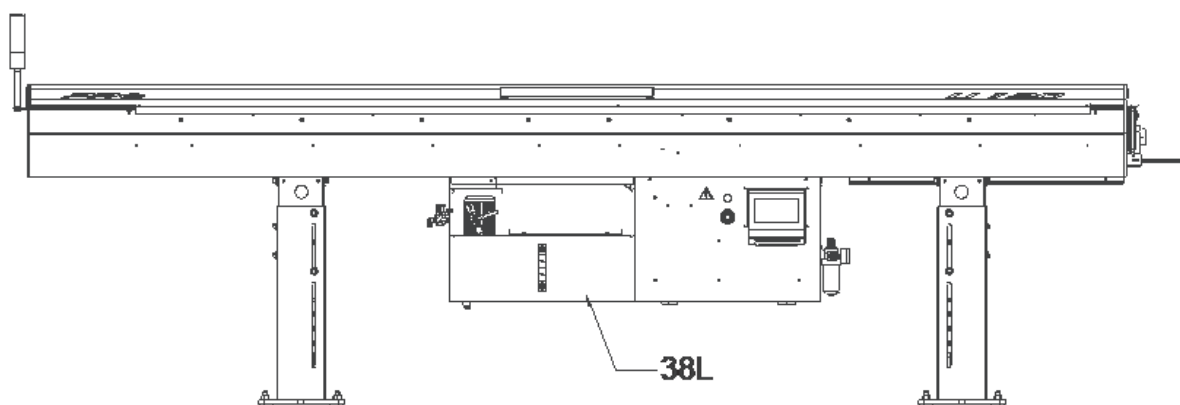
4.6 Installation accessories

- 4.6.1 Moveable anti-vibration device (OPTION):** The anti-vibration device is fixed at the end of the spindle of the lathe, using a bar to adjust the center of the anti-vibration.
- 4.6.2 Synchronization connecting rod:** Fix the connecting rod at the movable anti-vibration and makes it move smoothly.
- 4.6.3 Fixed front nose:** Fix it at the support of nose which is in front of the bar feeder.
- 4.6.4 Telescopic front nose:** End of the telescopic front nose fix at the front of the telescopic front nose connects with the plate of the lathe.
- 4.6.5 Oil ring:** Fix the oil ring in front of the fixed front nose or telescopic front nose.



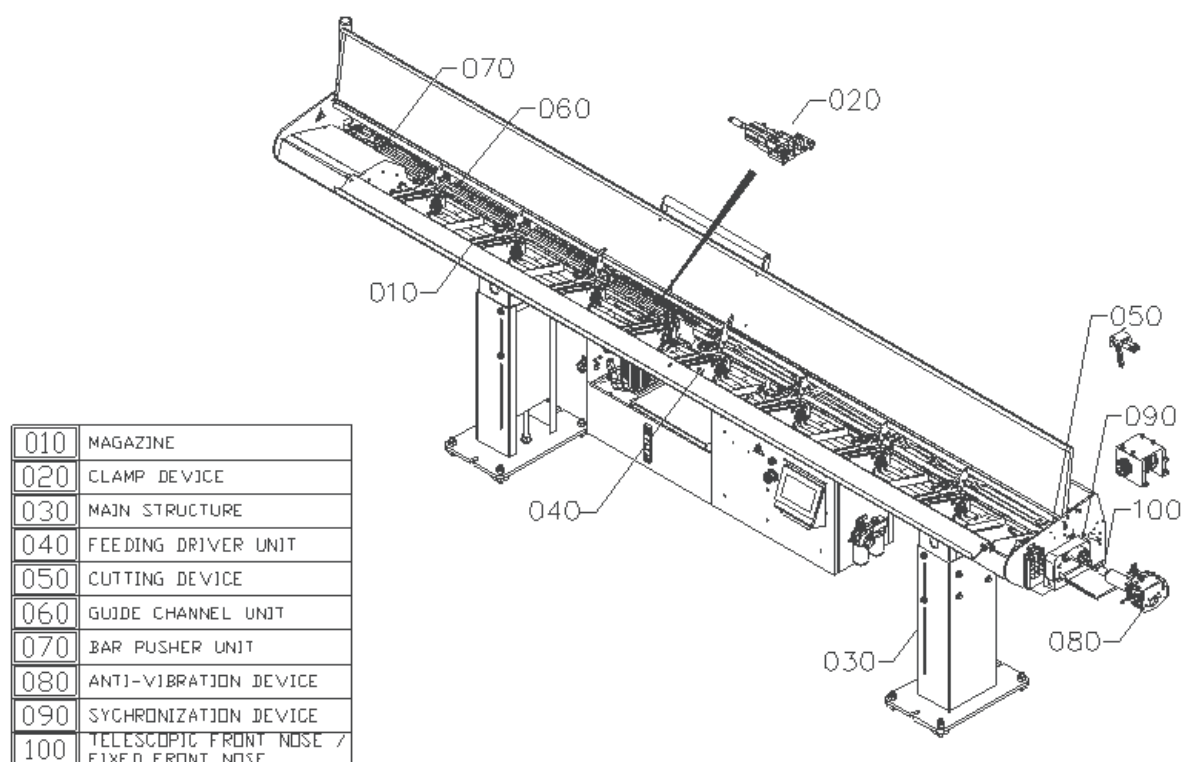
4.7 Guide channel lubricate

ISO and UNI brand	Brand	Description
CKB 100	Agip	Acer 100
	Api	Api Cis 100
	BP	Energol CS 100
	Castrol	Magna 100
	Chevron	Circulating Oil 100
	Elf	Movixa 100
	Esso	Nuto 100
	Fina	Solna 100
	IP	IP Hermea 100
	Kluber	Crucolan 100
	Mobil	Vectra Oil Heavy
	Olio FIAT	Daphne LPN 100
	Roloil	Arm V 100
	Shell	Vitrea 100 Tell us C 100
	Tam oil	Tell us C 100
	Texaco	Industrial Oil 100
	Total	Cortis 100
	Q8	Azolla ZS 100



5. ADJUSTMENT AND SETTING

5.1 Structure of the bar feeder



5.2 Adjust and fix the anti-vibration device

5.2.1 Load a bar using the bar feeder into the lathe and close lathe collet.

5.2.2 Press the Pre-Auto button , both Anti-vibration devices will close.

5.2.3 Back screw (A) off counterclockwise until no tension is felt on the screw

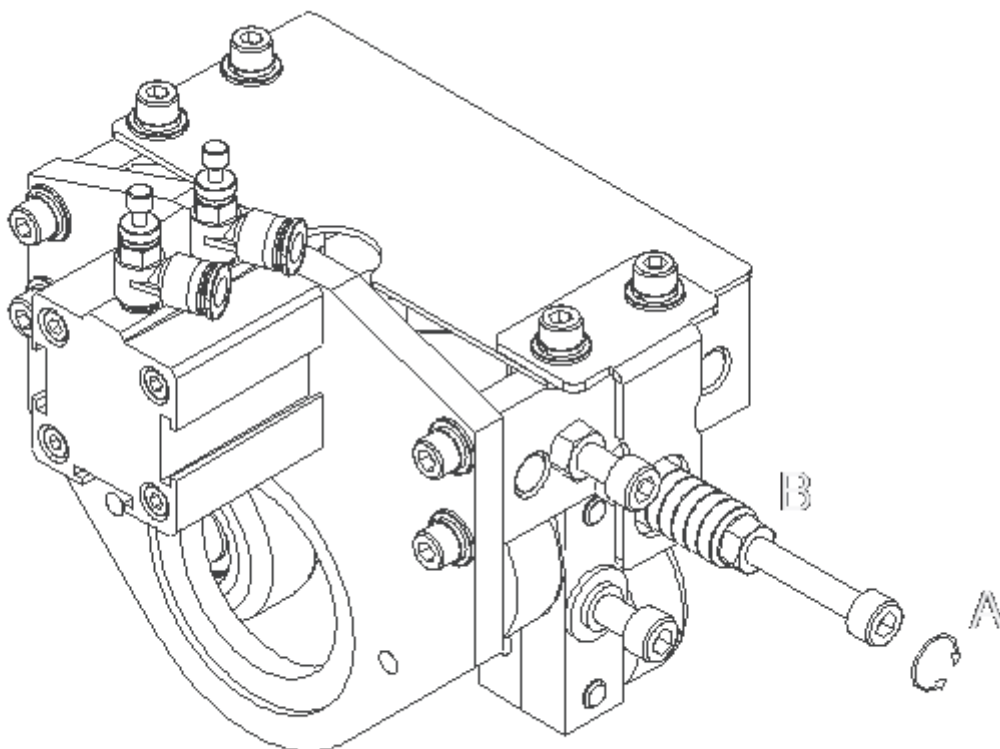
5.2.4 Press the Manual button , then the Pre-Auto Button , this will make sure rollers are closed onto bar.

5.2.5 Rotate screw (A) clockwise until tension is felt, continue to rotate screw clockwise for ¼ turn.

5.2.6 Tighten jam nut.

5.2.7 Press the manual button .

A

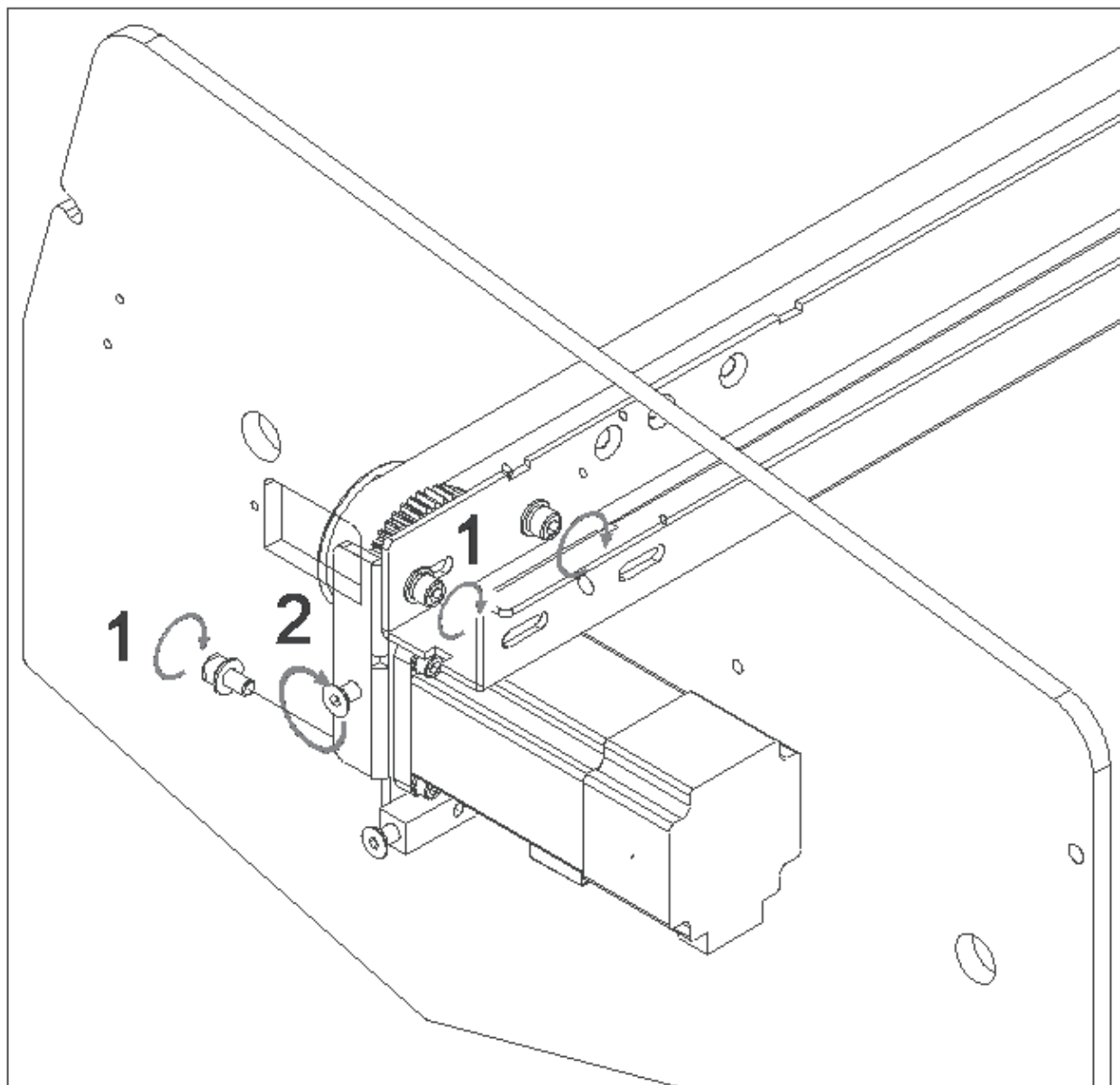


5.3 usher belt

5.3.1 Loosen locking screw (1) for the tensioner.

5.3.2 Rotate knob (2) clockwise to tighten the belt for suitable tension.

5.3.3 Tighten the locking screw (1).



6. OPERATIONS AND DESCRIPTION

6.1 Material preparation



CAUTION

Please don't put the material out of standard.

The max length of material

Type	Mod	Max length mm (ft)
RANGER II 120	27	2800
	37	3800

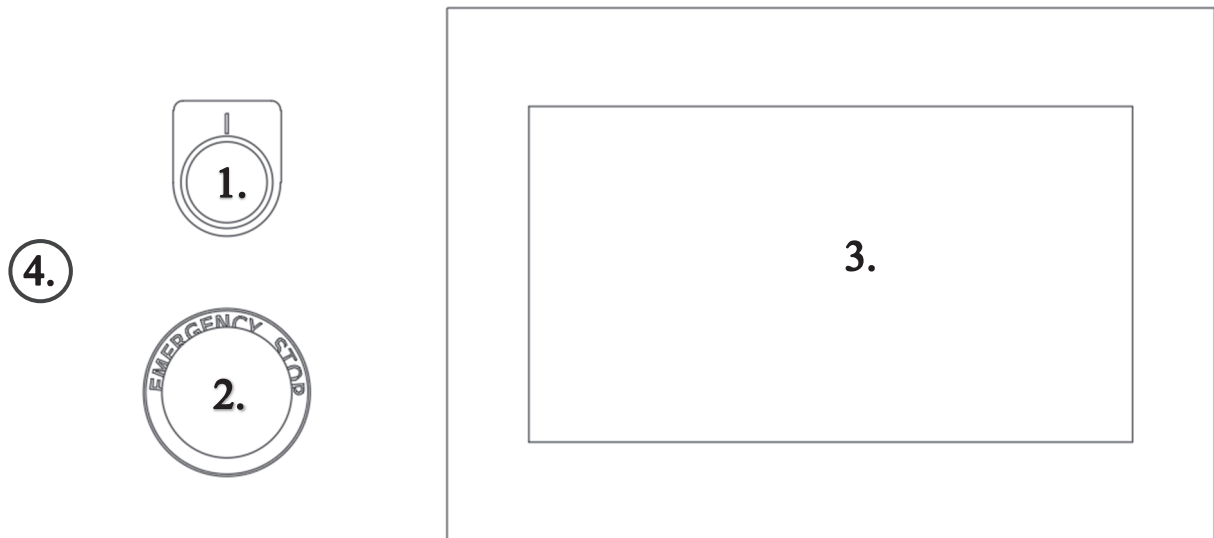


INFORMATION

The flatness of material must be within 0.5mm/M.

6.2 Description of monitor function

6.2.1 H/M function description



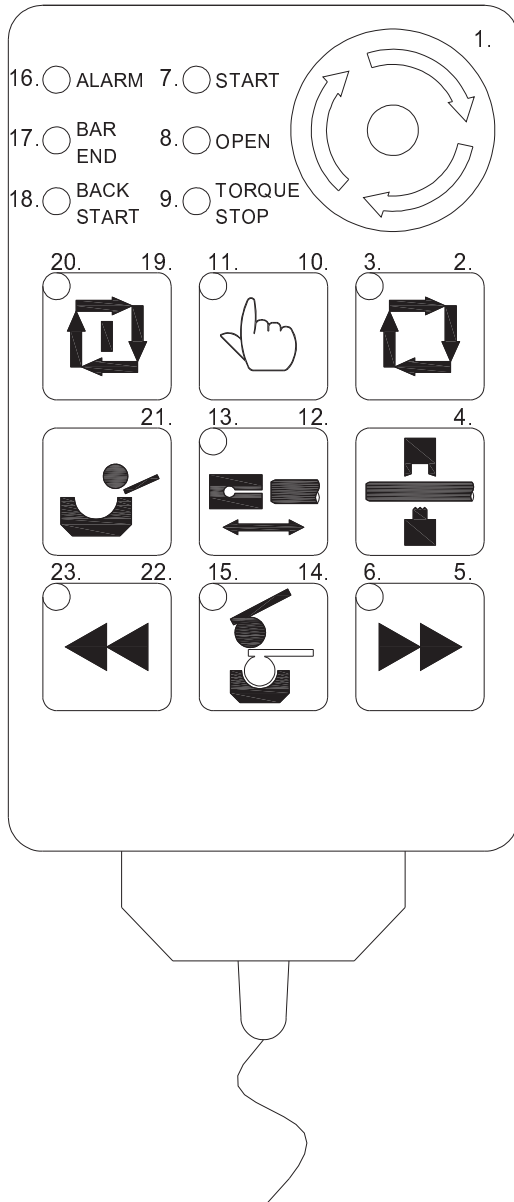
NO.	Function
1	Start
2	Emergency STOP
3	LCD Display area
4	Manual loading button



Please remove the screen protector before using the HMI!

6.2.2 Description of remote-control pendant

6.2.2.1 Description of button and indication light



NO.	Code	Function
1.	PB2	Emergency STOP
2.	DS6	Automatic mode
3.	LDS6	Automatic mode light
4.	DS10	Manual clamping
5.	DS1	Manual advance (Right) Manual retreat (Left)
6.	LDS1	Origin points light (Left)
7.	L3	Start light
8.	L4	Chuck open light
9.	L6	Torque stop light
10.	DS7	Manual mode
11.	LDS7	Manual mode light
12.	DS3	Manual clamping in/out
13.	LDS3	Clamping in light
14.	DS4	Manual bar-pusher rise/down
15.	LDS4	Bar pusher down light
16.	L2	Alarm light
17.	L1	Bar end
18.	L5	Back start light
19.	DS5	Automatic start
20.	LDS5	Automatic start light
21.	DS9	Manual loading
22.	DS2	Manual advance (Right) Manual retreat (Left)
23.	LDS2	+Z light (Right)

6.2.2.3 Operation description

1. Pusher original return operation

When the barfeeder is restarted, stopped in an emergency, or the position of the pusher is abnormal, it must return to the origin to recalculate the position.

In manual mode ( light is on), press  and  simultaneously for 3 seconds to begin resetting the bar feeder home position.

2. Pusher Jog operation

 ,  Forward and backward button of Bar Pusher. When the lathe is on the left, the motion is reversed.

3. Manual pusher rise/down operation

In manual mode ( light is on), return to the pusher origin and it is in the state of clamping in ( /  light are on), press the bar-pusher rise/down button  to open or close the pusher. And it will automatically judge that there is no material before opening the pusher.

4. Loading and placing operation

Before manual loading, please make sure that there is no material in the track, return the pusher to the original position and open it. Press the loading button to start loading. This function can be operated in manual and automatic modes, please avoid the automatic loading stage.

5. Automatic mode operation

In the clamping in state ( light is on), press the automatic mode button  and the automatic start button  to enter the automatic mode, and press the manual mode button  to return to the manual mode. If it is operated in the state of opening the cover, the push rod must be returned to the original point to enter the automatic mode. The lights of each mode are compared in form 6-2.1.

Form 6-2.1 Operation mode

	Manual key status	Automatic mode key status	Automatic start key status
Manual operation mode	 ON	 OFF	 OFF
Automatic mode operation mode	 OFF	 ON	 OFF
Automatic start operation mode	 OFF	 ON	 ON

6. Alarm reset operation

After solving the abnormality, press the manual mode button to reset the status and screen. If the power is turned on again, be sure to perform the pusher original return operation again.

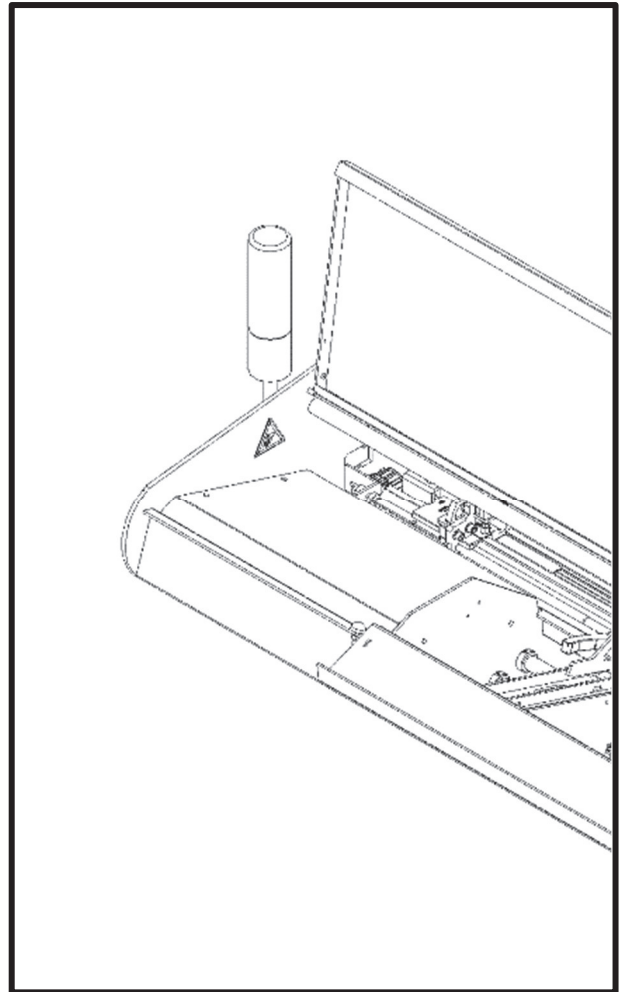
7. Replace the bar-pusher and guide channel

In manual mode and with cover closed ( /  light are on), push the bar-pusher forward beyond the clamp blade. Press the  button to replace the bar-pusher and guide channel. The  button light will flash during the process. Once the replacement is done, press the button again to resume normal operation.

6.2.3 Indicator Light

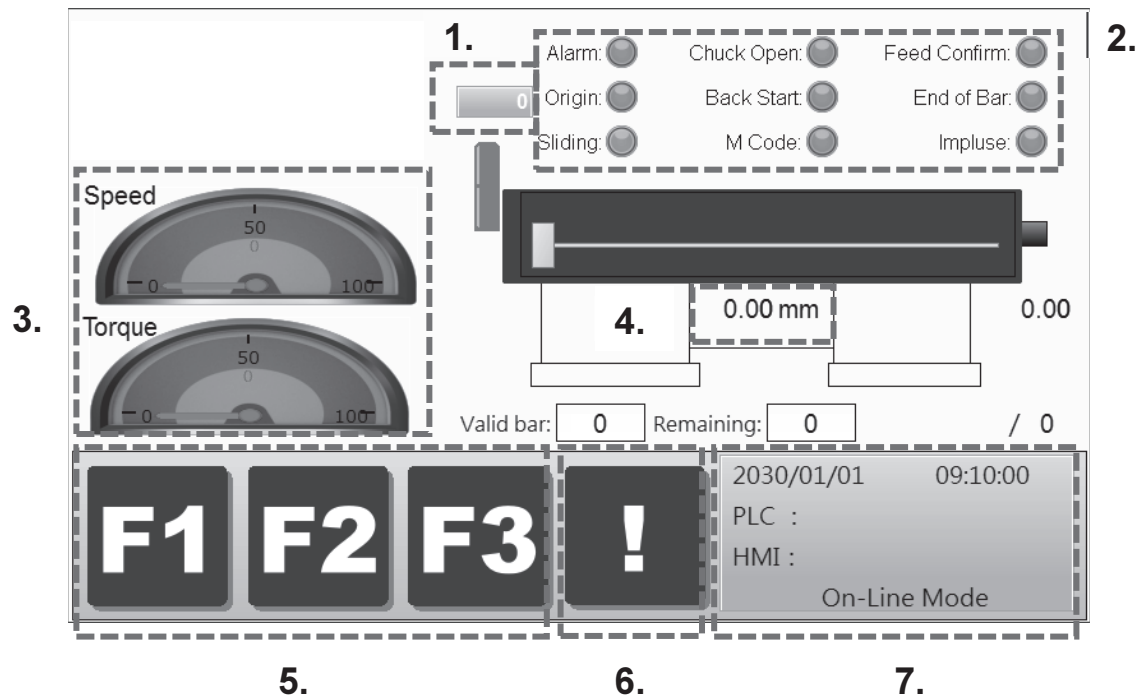
When Red light is on, bar feeder is in Emergency stop.

When Green light is on, bar feeder is in machining mode.



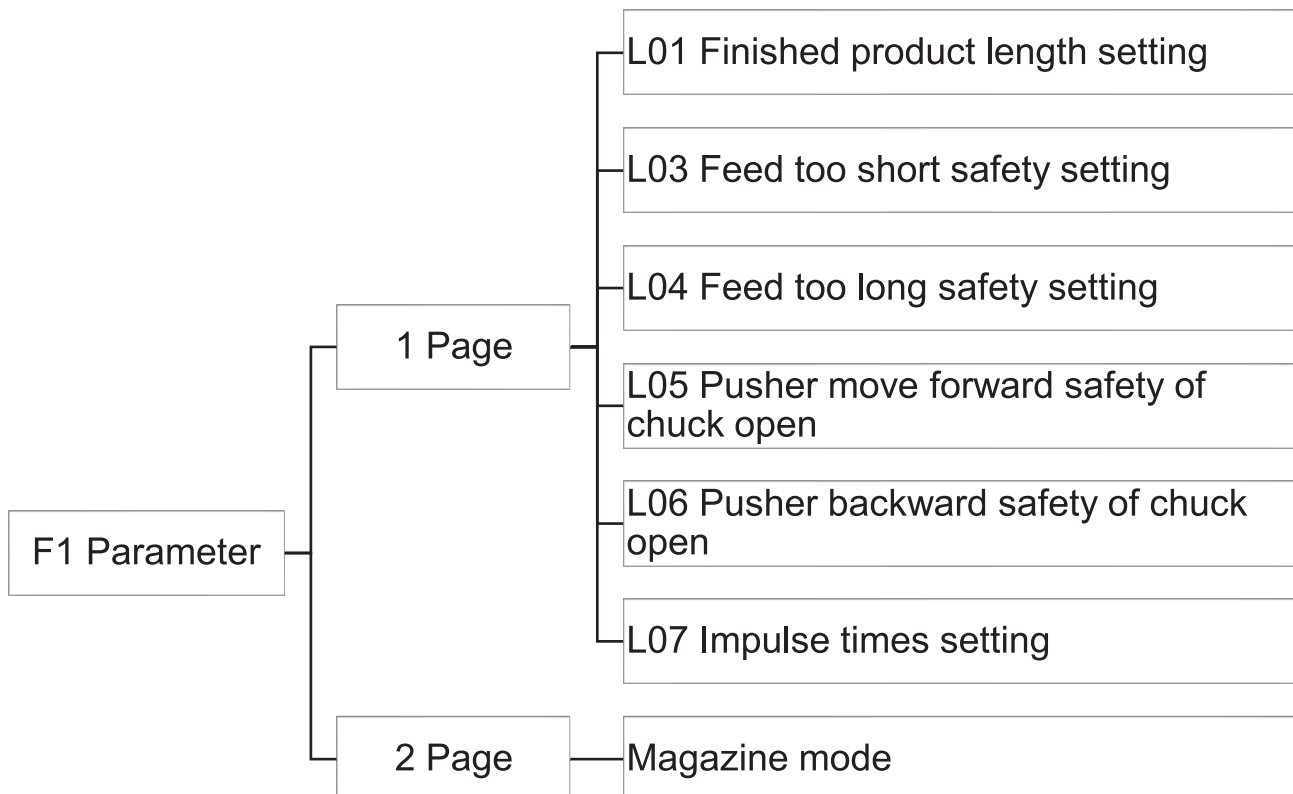
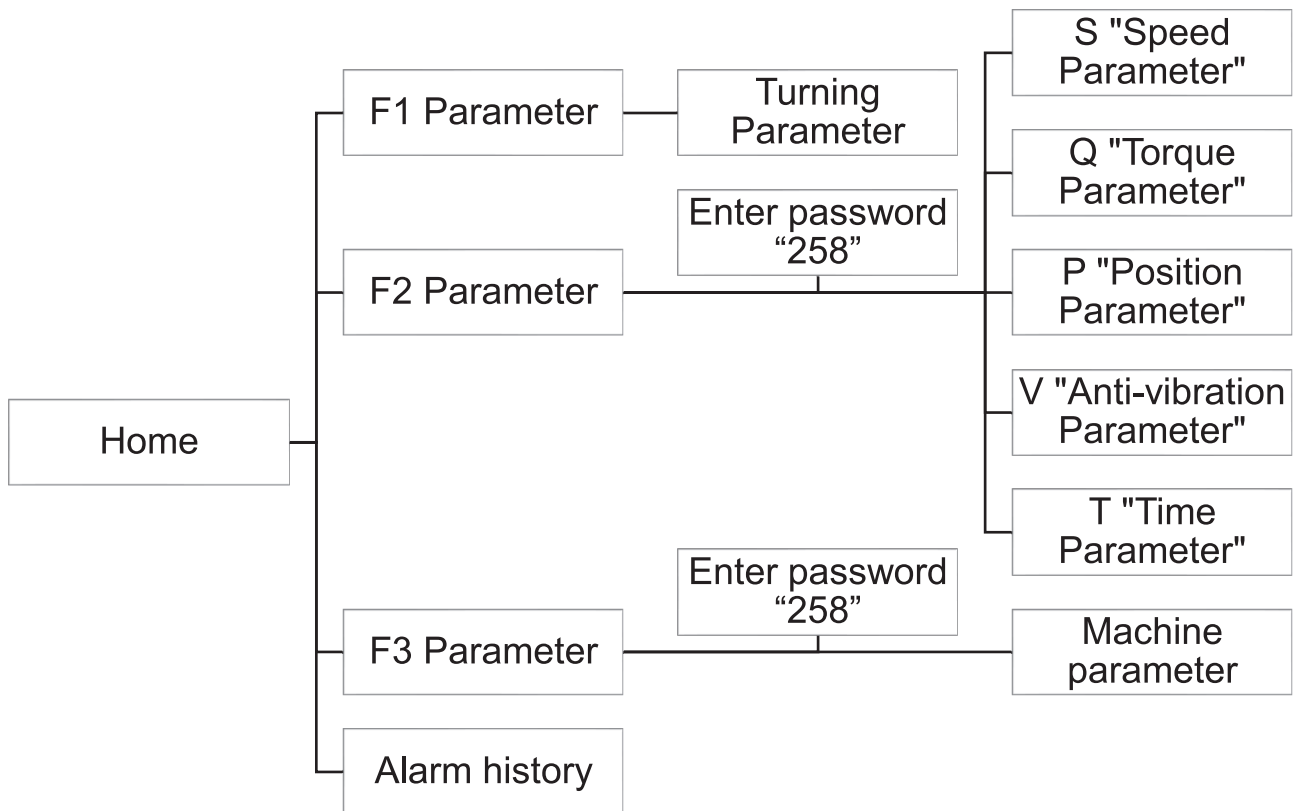
6.3 Description of settings and parameter

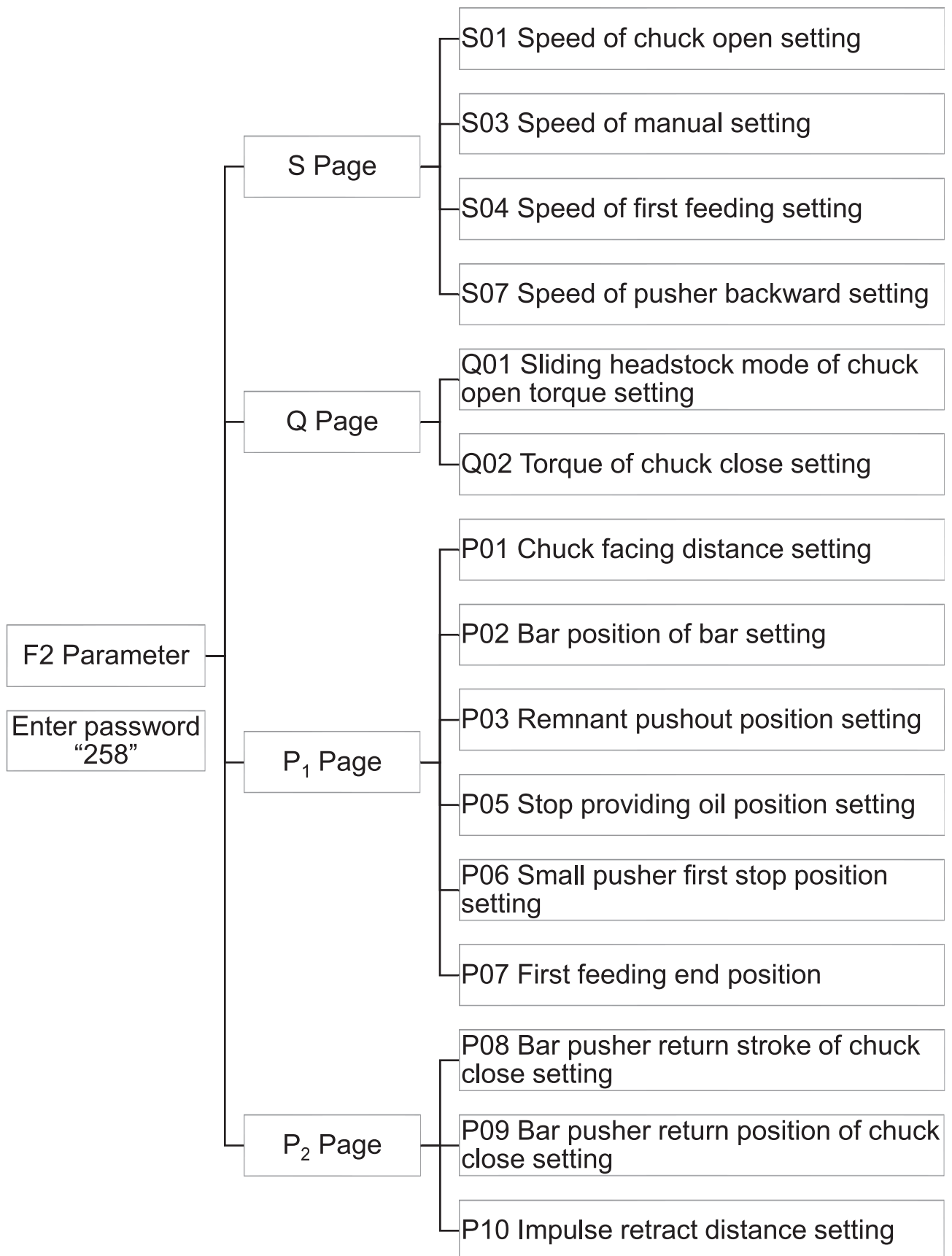
6.3.1 HMI Program selection

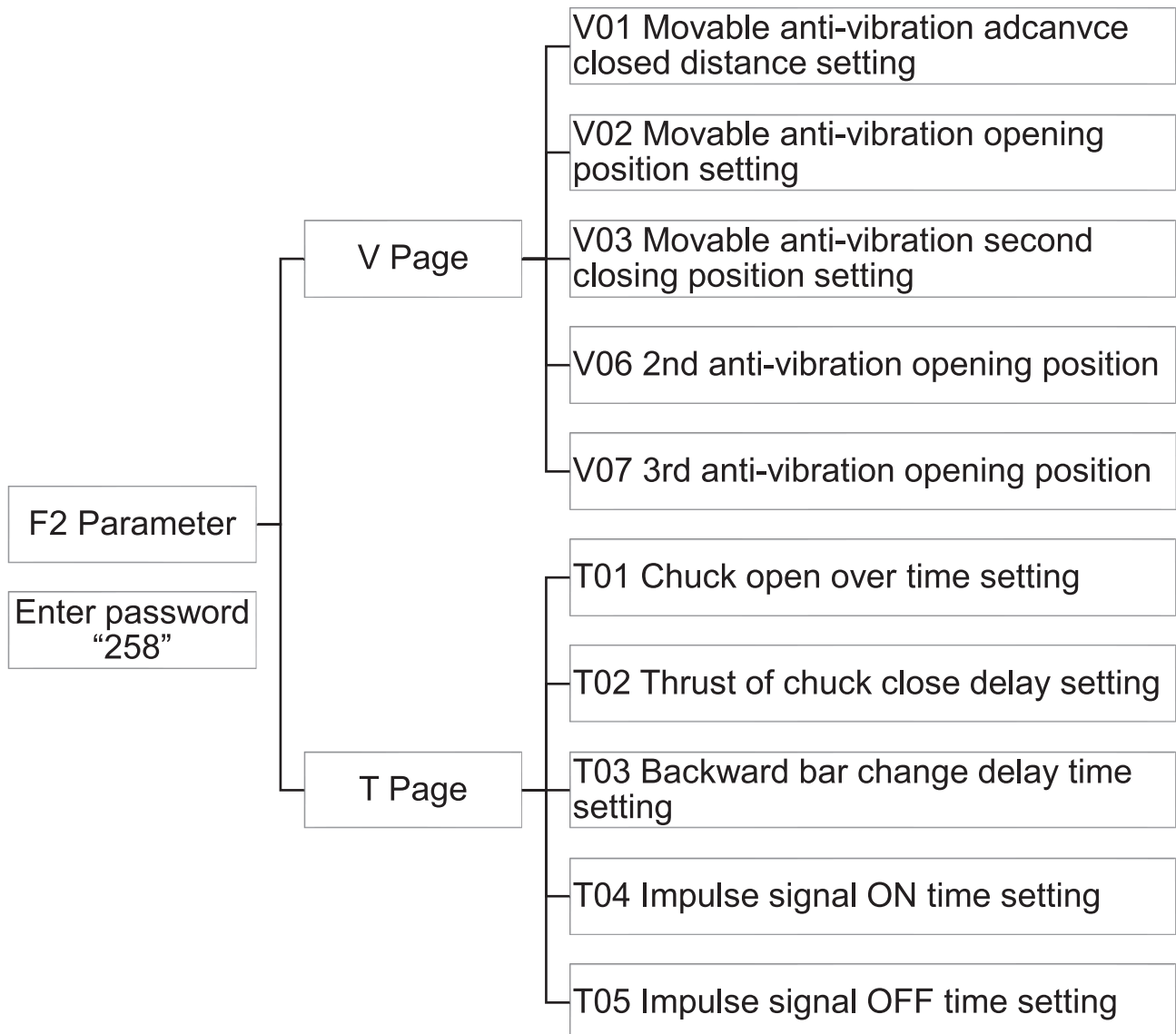


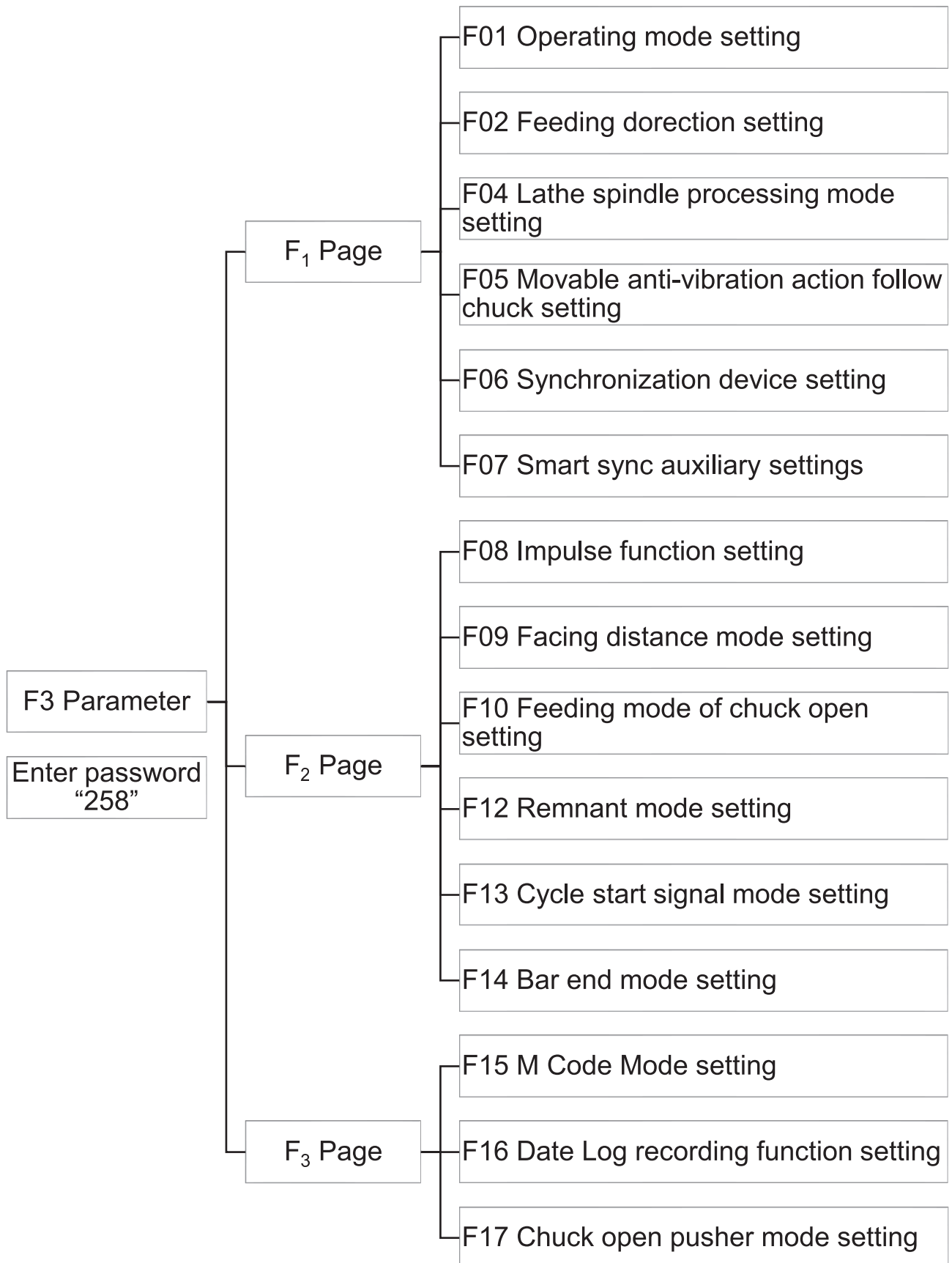
NO.	Function
1.	Alarm page
2.	Indicating light
3.	Bar Pusher speed and torque
4.	Bar Pusher position
5.	Parameter settings
6.	Alarm history
7.	System information

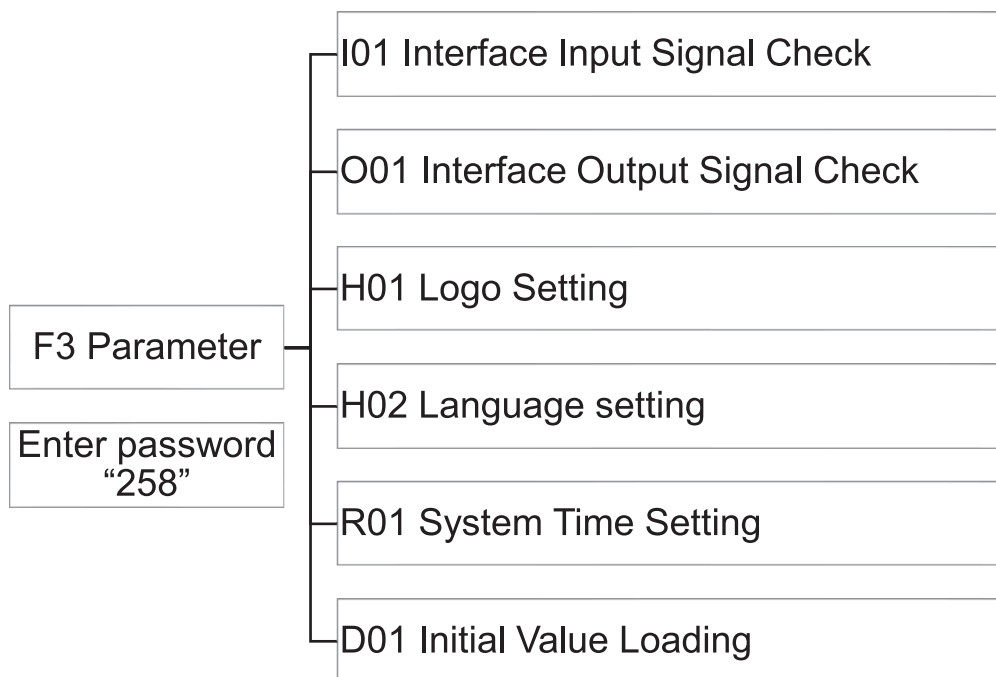
6.3.2 Parameter picture driftage











6.3.3 Description of settings and parameter

6.3.3.1 Turning parameter

L01 Finished product length setting

Parameter description: The finished product length will be the workpiece length adding the cutter thickness. This parameter setting may affect the bar end setting.

Setting method: Input the required length.

For example: Workpiece 47mm + thickness of cutter 3mm = The finished product length 50mm. So, we will set finished product Length to be 50mm.

Factory default:	Setting range:	0 ~ 2000
	Setting value:	

L03 Feed too short safety setting

Parameter description: This parameter setting will let feed material more stable and ensure the material to be sent to request location. But if no need to use this function that you can directly set it as the finished product length.

Setting method: This parameter will be finished product length to deduct 5 mm automatically after finished product length setting. This parameter can also be set finished product length to deduct tolerance.

For example: Refer to figure 1: Finished product length - Tolerance = Short feed safety.

Factory default:	Setting range:	0 ~ F01 value
	Setting value:	

L04 Feed too long safety setting

Parameter description: This parameter setting will let feed material more stable and ensure the material to be sent to request location. But if no need to use this function that you can directly set it as the finished product length.

Setting method: This parameter will be finished product length to add 5 mm automatically after finished product length setting. This parameter can also be set finished product length to add tolerance.

For example: Refer to figure 1: Finished product length + Tolerance = Long feed safety.

Factory default:	Setting range:	F01 value ~ 2000
	Setting value:	

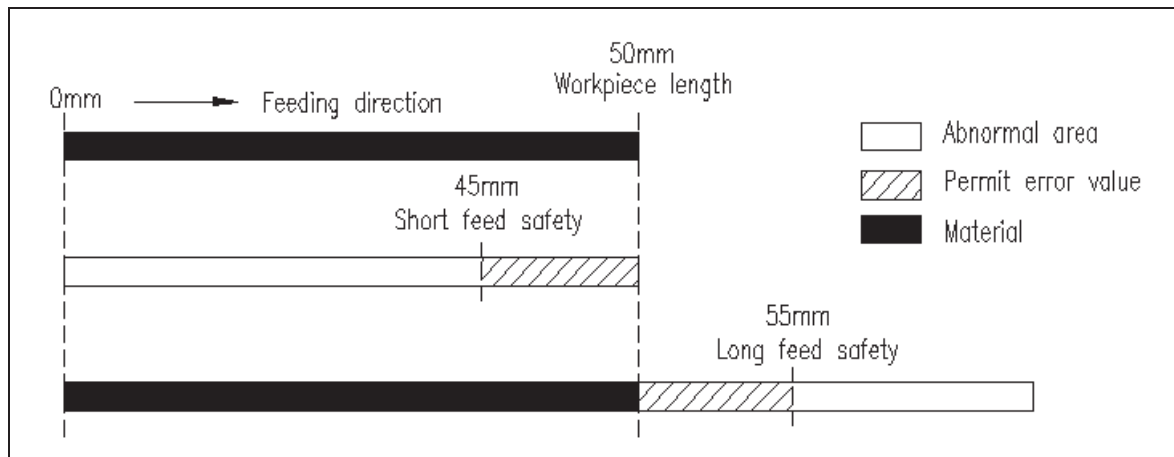


Figure 1

L05 Pusher move forward of chuck open setting

Parameter description: In automatic mode to set the pusher safety distance during chuck open. If pusher exceeds distance longer than this safety distance that the bar feeder will alarm.

Setting method: Input the required length.

Note: The parameter is disabled if set to zero.

Factory default:	Setting range:	0 ~ 500
	Setting value:	

L06 Pusher backward safety of chuck open setting

Parameter description: In automatic mode to set the pusher safety distance during chuck open. If pusher retreat distance is longer than this safety distance that the bar feeder will alarm.

Setting method: Input the required length.

For example: The parameter is disabled if set to zero.

Factory default:	Setting range:	0 ~ 500
	Setting value:	

L07 Impulse times setting

Parameter description: During changing the new bar and the bar pusher stocks or cannot push the new bar toward to the chuck facing position, bar pusher will start the inching movement and the frequency according to this setting value. If the new bar fails to reach chuck facing position and inching frequency exceeds the setting value, then bar feeder will show Alarm.

Setting method: Input the number of required inching movement times.

Factory default:	Setting range:	0 ~ 99
	Setting value:	

Magazine mode

Parameter description: According to the material size, the loading mode can be switched, which is divided into standard mode and 1~3mm Φ screw mode.

Setting method: Select the desired loading mode.

Factory default:	Setting range:
	Setting value:

6.3.3.2 Fixed parameter / enter password "258"

6.3.3.2.1 Speed parameter

S01 Speed of chuck open setting

Parameter description: The speed of the pusher during in automatic mode when lathe chuck open.

Setting method: According to the bar material size and torque of chuck close to adjust speed.

Note: When setting value is too high it could cause servo failure.

Factory default:

Setting range:

0 ~ 90

Setting value:

S03 Speed of manual setting

Parameter description: The pusher speed of manual operation.

Setting method: According to the required speed and manual operation torque to adjust speed.

Factory default:

Setting range:

0 ~ 90

Setting value:

S04 Speed of first feeding setting

Parameter description: The first bar material feeding means guide channel open and bar pusher raising up. The first bar material feeding speed is the pre-feeding pusher speed as the pusher rising.

Setting method: Input the required speed to be the first bar material feeding speed parameter.

Note: If the speed of pusher is too fast that bar material will pass clamping device to let clamping device miss bar material.

Factory default:

Setting range:

0 ~ 90

Setting value:

S07 Speed of pusher backward setting

Parameter description: Retracting speed of the bar pusher in manual or automatic mode.

Setting method: Input the required speed.

Factory default:	Setting range: 0 ~ 90
	Setting value:

6.3.3.2.2 Torque parameter

Q01 Sliding headstock mode of chuck open torque setting

Parameter description: The torque of the pusher during in automatic mode when lathe chuck open. Use with F17 parameter "push forward" setting.

Setting method: According to the bar material size and torque of chuck close to adjust torque.

Note: When setting value is too high it could cause servo failure.

Factory default:	Setting range:	0 ~ 90
	Setting value:	

Q02 Torque of chuck close setup

Parameter description: The torque of pusher moves forward when automatic mode and lathe chuck close.

Setting method: According to the bar material size and speed of lathe chuck close to adjust torque.

Note: When setting value is too high it could cause servo failure.

Factory default:	Setting range:	0 ~ 90
	Setting value:	

6.3.3.2.3 Position parameter

P01 Chuck facing distance setting

Parameter description: Chuck facing position is the distance between cutters facing detection to cutter facing position. We cannot know if the new bar material has been pushed to chuck facing position until loading a new bar material. As shown in the figure 2.

Setting method: According to below drawings to set the distance from A - B point. In addition, input it by mm unit.

Factory default:	Setting range:	0 ~ 9999
	Setting value:	

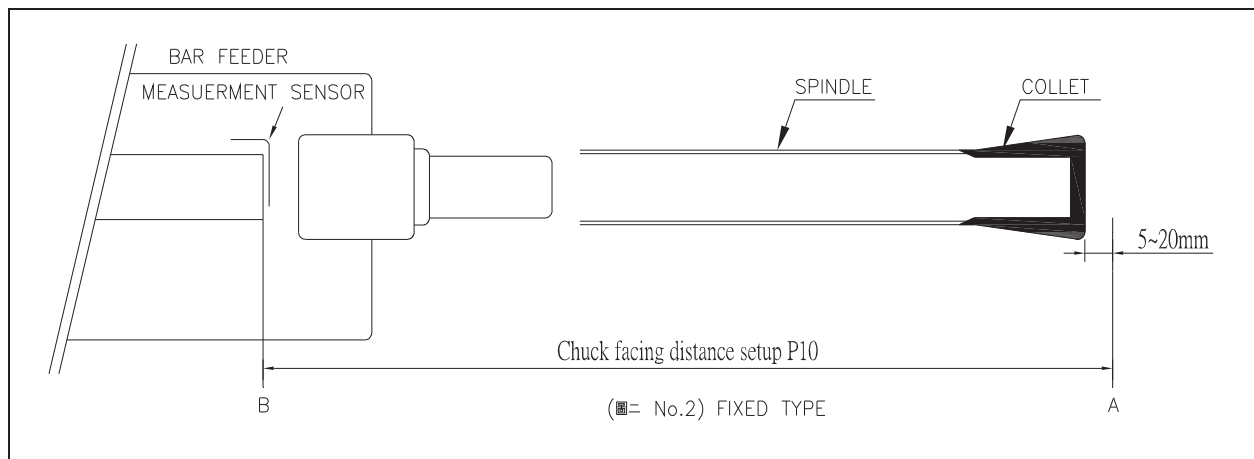


Figure 2-1

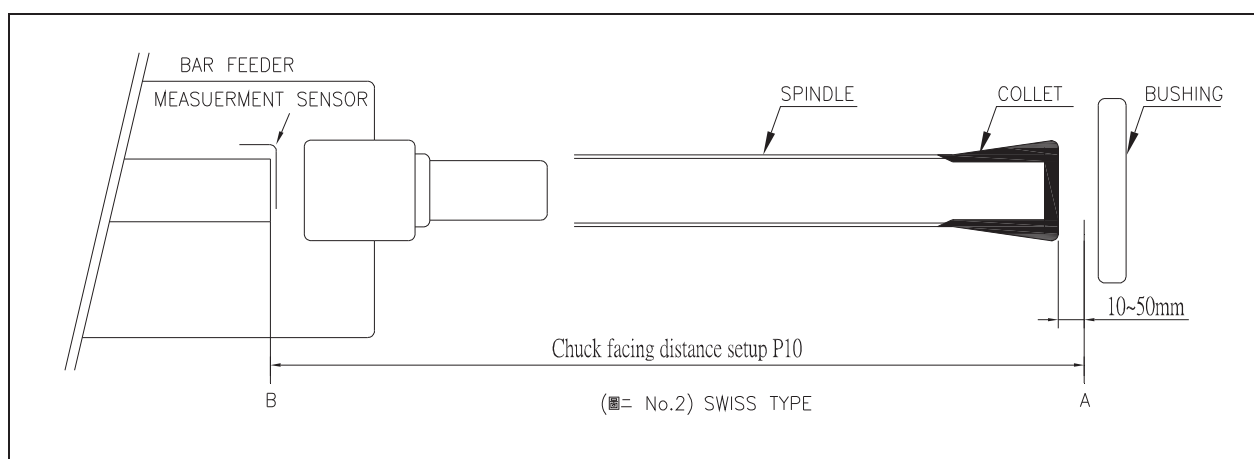


Figure 2-2

P02 End position of bar setting

Parameter description: This position is the maximum working limit. If pusher position value is bigger than bar end setting that bar feeder will offer a bar end signal to notice lathe to prepare loading new bar material.

Setting method for fixed lathe: In the manual mode let pusher into lathe spindle until 5~10mm before lathe chuck. Then confirm the value of monitor to input it to be bar end position.

Setting method for sliding lathe: In the manual operation let lathe spindle move to +Z limit position and pusher move forward until 5~10mm before chuck. Then confirm the value of monitor to input it to be bar end position.

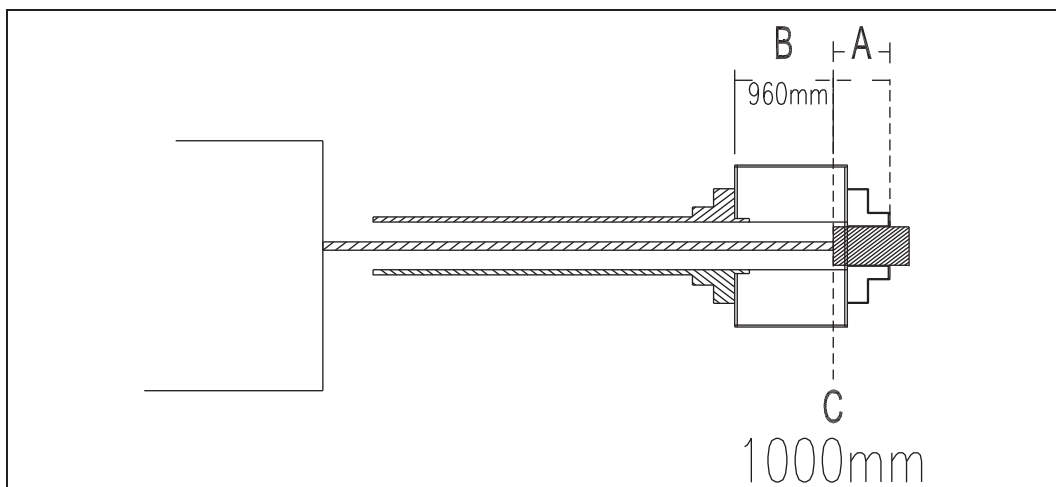
Note: Reference figure 3: The distance of A is about 30mm; C is the parameter of "Bar End Position". If the length of product is 40 mm, the area to evoke bar end signal, B is from range 960mm to 1000 mm.

Factory default:

Setting range:

0 ~ 9999

Setting value:

**Figure 3 Bar End Position**

P03 Remnant pushout position setting

Parameter description: This distance is the position that bar pusher pushes out the remnant into the lathe.

Setting method: Reference figure 4: Push the pusher to exceed chuck position 20mm by manual operation. Then confirm the value showing in monitor and input this value. The distance of B is about 20 mm; The Position A is 1200mm for setting parameter of "Remnant Push out position".

Factory default:	Setting range:	0 ~ 9999
	Setting value:	

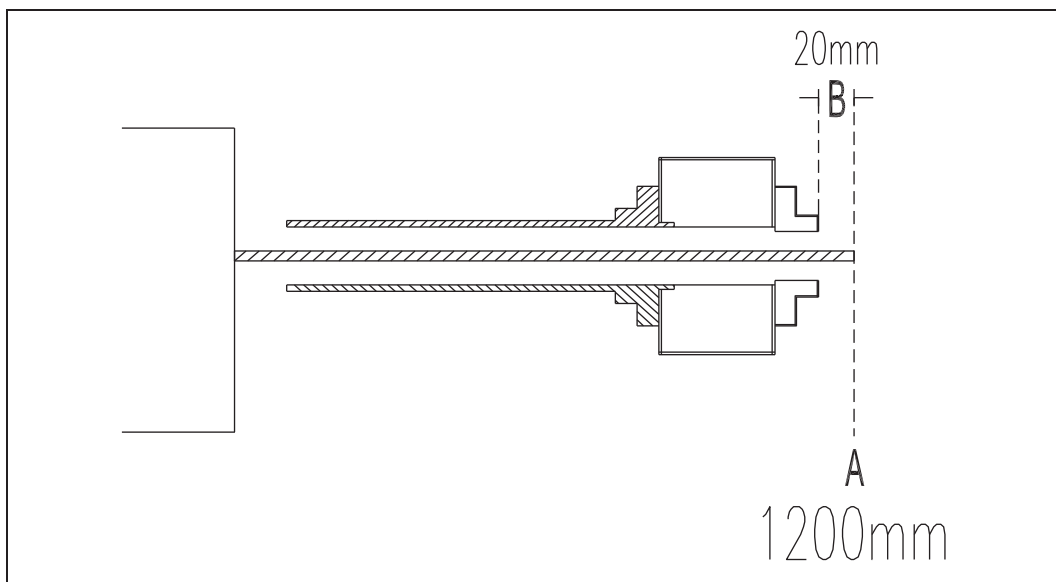


Figure 4 Remnant Push out position

P05 Stop providing oil position setting

Parameter description: In auto mode the pump stops providing oil position.

Setting method: In manual mode let pusher move forward to stop providing oil position. Then input the current position.

Note: Oil pumps provide oil for lubrication and cooling.

Factory default:	Setting range:	0 ~ 9999
	Setting value:	

P06 Small pusher first stop position setting

Parameter description: This parameter is to prevent hard impact on new bar material end because of small pusher block high speed during loading a new bar material. This parameter will let the small pusher block to slow down to prevent hard impact to the new bar material.

Setting method: Input the required position.

Factory default:	Setting range:	0 ~ 9999
	Setting value:	

P07 First feeding end position setting

Parameter description: This distance is the position that bar pusher pushes out the remnant into the lathe.

Setting method: Push the pusher to exceed chuck position 20mm by manual operation. Then confirm the value showing in monitor and input this value.

Factory default:	Setting range:	0 ~ 9999
	Setting value:	

P08 Bar pusher return stroke of chuck close setting

Parameter description: If bar pusher position is less than setting value that pusher will retreat to setting position when chuck close.

Setting method: Input the required pusher retreating distance.

For example: Reference figure 4: If the value of parameter is set to 30mm and the bar pusher is within the A area, the bar pusher will retract to 30mm after chuck closed.

Factory default:	Setting range:	0 ~ 9999
	Setting value:	

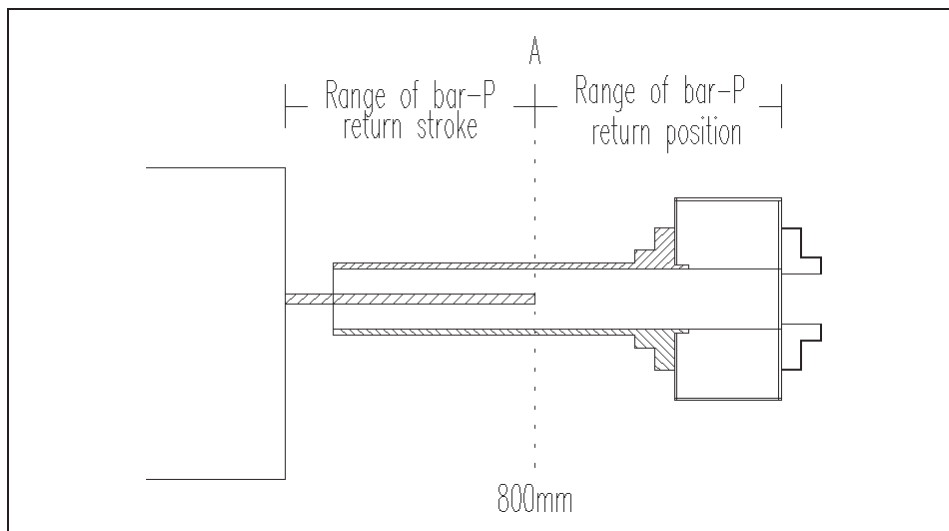
P09 Bar pusher return position of chuck close setting

Parameter description: If bar pusher position is over than setting value that pusher will retreat to setting position when chuck close. To prevent friction and vibration caused from pusher going into the lathe spindle too long.

Setting method: By manual operation let the bar pusher move into the spindle inside around 1 / 3 of its length. To ensure not to touch the spindle and input the current position.

For example: Reference figure 5: If the value of parameter is set to 800mm and the bar pusher is out of the A area, the bar pusher will retract to 800mm after chuck closed.

Factory default:	Setting range: 0 ~ 9999
	Setting value:

**Figure 5****P10 Impulse retract distance setting**

Parameter description: Bar pusher will pull back and inching move forward when loading a new bar material. This parameter will control pusher retreating distance.

Setting method: Input the required retreat distance.

Factory default:	Setting range: 0 ~ 9999
	Setting value:

6.3.3.2.4 Speed parameter

V01 Movable anti-vibration advances closed distance setting

Parameter description: Under Auto-Mode, Anti-vibration Device will close when bar pusher reached this parameter setup position.

Setting method: Input the required length.

Note: To disable this parameter function, set the value to zero.

Factory default:	Setting range:	0 ~ 9999
	Setting value:	

V02 Movable anti-vibration opening position setting

Parameter description: In automatic mode anti-vibration device open position.

Setting method: There are two open positions as following.

1. Let lathe spindle move to Z limit position and pusher move forward nearby anti-vibration. Then input the current position.
2. Let lathe spindle move to spindle retreating position when working mode and lathe chuck open. Then move pusher forward nearby anti-vibration. Then input the current position.

Factory default:	Setting range:	0 ~ 9999
	Setting value:	

V03 Movable anti-vibration second closing position setting

Parameter description: Move anti-vibration device will do the second close action to clamp bar pusher when bar pusher passed anti-vibration open position.

Setting method: This position will be movable anti-vibration open position to add 150 mm.

Note: To disable this parameter function, set the value to zero.

Factory default:	Setting range:	0 ~ 9999
	Setting value:	

V06 2rd anti-vibration opening position setting

Parameter description: In automatic mode setting 2rd Anti-Vibration Device open position.

Setting method: In manual mode collet will be pushed forward until 30~50mm before 2rd anti vibration device. Then input the current position.

Note: Second anti-vibration should be opened before the collet will be arrived to avoid the material was separated from the collet.

Factory default:	Setting range:	0 ~ 9999
	Setting value:	

V07 3th anti-vibration opening position setting

Parameter description: In automatic mode setting 3th Anti-Vibration Device open position.

Setting method: In manual mode collet will be pushed forward until 30~50mm before 3th anti vibration device. Then input the current position.

Note: Third anti-vibration should be opened before the collet will be arrived to avoid the material was separated from the collet.

Factory default:	Setting range:	0 ~ 9999
	Setting value:	

6.3.3.2.5 Speed parameter

T01 Chuck open over time setting

Parameter description: The timing is over the time for chuck opened under automatic mode and **ALARM** will display and stop operating.

Setting method: When the setting value is 0, the parameter function will be disabled.

Factory default:	Setting range:	0 ~ 999.9
	Setting value:	

T02 Thrust of chuck close delay time setting

Parameter description: In automatic working mode, pusher pushes bar material into lathe and chuck close to work. To ensure that material will not move during the chuck close. Set the delay time for bar pusher to change the speed and torque.

Setting method: Input the required time.

Factory default:	Setting range:	0 ~ 999.9
	Setting value:	

T03 Backward bar change delay time setting

Parameter description: Sets delay time to stop the bar pusher drawing back so that the bar feeder can run the changing new bars process while the bar end signal and chuck open signal display from Lathe.

Setting method: Input the necessary delay time.

Factory default:	Setting range:	0 ~ 999.9
	Setting value:	

T04 Impulse signal ON time

Parameter description: Set the starting time (ON) of bar pusher inching moves so that the chuck of lathe will move at the same time during bar feeder changes new bars.

Setting method: Input required time.

Factory default:	Setting range:	0 ~ 999.9
	Setting value:	

T05 Impulse signal OFF time

Parameter description: Set the ending time (OFF) of bar pusher inching moves so that the chuck of lathe will stop moving at the same time during bar feeder changes new bars.

Setting method: Input required time.

Factory default:	Setting range:	0 ~ 999.9
	Setting value:	

6.3.3.3 System parameter / enter password "258"

F01 Operating mode setting

Parameter description: Set two modes to normally operate.

1. On-Line mode: The bar feeder starts operating along with lathe.
2. Demo mode: The bar feeder circulates automatically without connection.

Factory default:	Setting range:
	Setting value:

F02 Feeding direction mode setting

Parameter description: Set the direction of bar feeder fed along with type of lathe.

1. Right direction: Send the bar to the right.
2. Left direction: Send the bar to the left.

Factory default:	Setting range:
	Setting value:

F04 Lathe spindle processing mode setting

Parameter description: Set the mode for use what kind of type of lathe.

1. Sliding headstock
2. Fixed headstock

Factory default:	Setting range:
	Setting value:

F05 Movable anti-vibration action follows chuck setting

Parameter description: Switch either one function of opening or closing the moveable anti-vibration device to accompany the lathe chuck opened or closed.

1. Disuse
2. Use

Factory default:	Setting range:
	Setting value:

F06 Synchronization device setting

Parameter description: It sets the bar/headstock synchronizing device operation mode.

1. Disuse: Bar-headstock synchronization is disabled; the bar is continuously driven by the feed motor. For matching with Fixed type CNC.
2. Use: Headstock synchronization is on when lathe collet is closed (feed motor stopped), and synchronization is off when lathe collet is open (feed motor running). For matching with Swiss type CNC.

Factory default:	Setting range:
	Setting value:

F07 Smart sync auxiliary setting

Parameter description: Servo motor synchronize movement with spindle liner under sliding headstock mode.

1. Disuse
2. Use

Factory default:	Setting range:
	Setting value:

F08 Impulse function setting

Parameter description: When the feeder is loading the new bar, if the new material cannot be sent to the chuck facing position, after using this parameter, the push bar will have the action of inching to push the material.

1. Disuse
2. Use

Factory default:

Setting range:

Setting value:

F09 Facing distance mode setting

Parameter description: Select either one mode of bringing a new bar to facing position automatic or a new bar pushed to the setting facing position by bar pusher during bars changed.

1. To the stop: The new bar will be pushed to the chuck facing position and keep pushing until the lathe chuck closed.
2. In position: The new bar will be pushed to the setting chuck facing position by the parameter and the bar pusher will stop right away.

Factory default:

Setting range:

Setting value:

F10 Feeding mode of chuck open setting

Parameter description: Set either one of modes of bar pusher keeps feeding or stops feeding a bar to the product finishing length position under automatic mode when chuck is open.

1. To the stop: The bar pusher pushes the bar to the product finishing position and keeps pushing.
2. In position: The bar pusher pushes the bar to the product finish length position and stop pushing.

Factory default:

Setting range:

Setting value:

F12 Remnant mode setting

Parameter description: Select the bar pusher forward or backward under automatic mode.

1. Remnant pull back: The bar pusher backward when chuck closed. If this parameter is selected, it must be operated with parameter P08 (Bar pusher return stroke of chuck close) and parameter P09 (Bar pusher return position of chuck close).
2. Pusher push out: The bar pusher forward when chuck closed.
3. By new bar: Push out the remnant into the lathe by a new bar when bar end signal is sent and bar feeder will change another new bar.

Factory default:	Setting range:
	Setting value:

F13 Cycle start signal mode setting

Parameter description: Select modes for output the Cycle start signal of bar feeder.

1. Stand
2. Pusher Back
3. Origin point
4. Pusher Out
5. In processing

Factory default:	Setting range:
	Setting value:

F14 Bar end mode setting

Parameter description: When bar end occurred, the timing for bar feeder sending bar end signal.

1. Open [ON]
2. Open [PLS]
3. Close [ON]
4. Close [PLS]

Factory default:	Setting range:
	Setting value:

F15 M Code Mode

Parameter description: This parameter is the M-Code mode selection required for the bar feeder to match the lathe program.

1. Disuse
2. Use

Factory default:	Setting range:
	Setting value:

F16 Date Log recording function setting

Parameter description: After using this parameter, PLC will automatically record Date Log.

1. Disuse
2. Use

Factory default:	Setting range:
	Setting value:

F17 Chuck open pusher mode setting

Parameter description: With the pusher mode selection when the sliding headstock lathe is chucked open.

1. Push forward: The pusher pushes forward during the lathe chucking open.
2. Fixed point: The pusher stands still during the lathe chucking open.

Factory default:	Setting range:
	Setting value:

I01 Interface input signal check

Parameter description: This parameter allows technician to test each signal if it output to lathe after settling down the bar feeder.

Setting method: This parameter only executive under manual mode both lathe and bar feeder, otherwise it may cause danger.

Factory default:

Setting range:

Setting value:

O01 Interface output signal check

Parameter description: This parameter allow technician to test each signal output on interface is continued to lathe.

Setting method: To executive this parameter must be under manual mode both lathe and bar feeder or could cause danger.

Factory default:

Setting range:

Setting value:

H01 Logo Setting

Parameter description: Switch the LOGO on the homepage of the HMI

Factory default:

Setting range:

Setting value:

H02 Language setting

Parameter description: Select the proper language of the information displayed.

Factory default:	Setting range:
	Setting value:

R01 System Time Setting

Parameter description: Set the date and time of system to record data.

Factory default:	Setting range:
	Setting value:

D01 Initial Value Loading

Parameter description: Set all parameters to original value. Select correct length of bar feeder to operate. Otherwise, it may cause problems.

Factory default:	Setting range:
	Setting value:

7. MAINTENANCE

7.1 General maintenance



HAZARD-WARNING

Before operators are maintaining the bar feeder, the power must be turned off. In order to make good use of the bar feeder, please maintain the bar feeder regularly.

Accessories and the area of operation must be cleaned to increase the safety of operators.

Using petroleum or other dissolvent to maintain the bar feeder maybe caused damage of cover or plastic components.



INFORMATION

The oxidation will damage the components and electronic equipments. Please pull out the plug and the air joint while the bar feeder is not operated. Keep the air unobstructed in the operation area and the bar feeder can't be covered completely, otherwise there will be produced mist.

7.2 Regular maintenance

List 1. - Regular maintenance

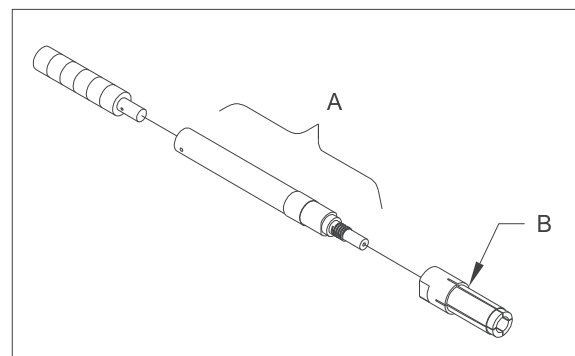
Component	Action	Frequency				
		Hours			Regular	Period
		200	1250	2500		
Collet	Check wear	•				
Guide channel	Check wear and clean		•			
Feeding chain	Lubrication	•				
	Tension	•				
drive chain	Lubrication	•				
	Tension	•				
Air cleaner	Check				•	

(•) Optional

7.2.1 Check the pusher collet and revolving tip

Check that revolving tip (A) rotates smoothly.

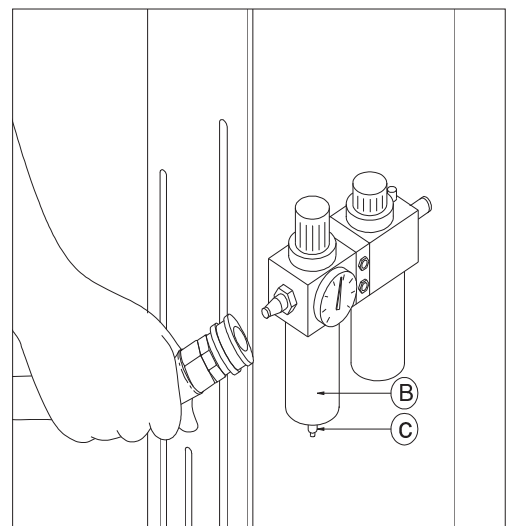
Check that pusher collet (B) has the correct tension.



7.2.2 Check the air regulator

Check the bottle (B) for water.

Press button (C) to exhaust water out of bottle.



8. CAUSE OF BREAKDOWN AND TROUBLESHOOTING

8.1 Frequent cause of breakdown

ITEM	Cause	Solution
Unable to start the bar Feeder	Without power	Check the power source
	In emergency	Restart
The bar feeder is reset but the bar feeder can't auto to start	The lathe is sending signal.	Check the connection
The device of the compressed air can't work	Compressed air is unable to be sent	Check the air supply

8.2 Breakdown on frame device

Situation	Cause	Solution
Material is unable to load on the frame device	The position of plates is too low	Adjust the position of plates

8.3 Breakdown on the collect

Situation	Cause	Solution
Material is unable to be inserted into the collet.	The adjustment of the clamp device is not correct	Re-adjust
	The diameter of collet and material are different.	Change a new collet.
	The end of the material is too rough.	Chamfering before feeding material
	The air pressure is without chamfer.	Check the pressure

8.4 Breakdown on feeding material

Situation	Cause	Solution
Material can't feed into the spindle smoothly	The center of the bar feeder and the lathe isn't correct	Re-adjust the center
Material can't feed into the chuck of the lathe smoothly	The front of the material is too rough.	Chamfering before feeding material

8.5 Refer alarm message

8.5.1 HMI Alarm Message

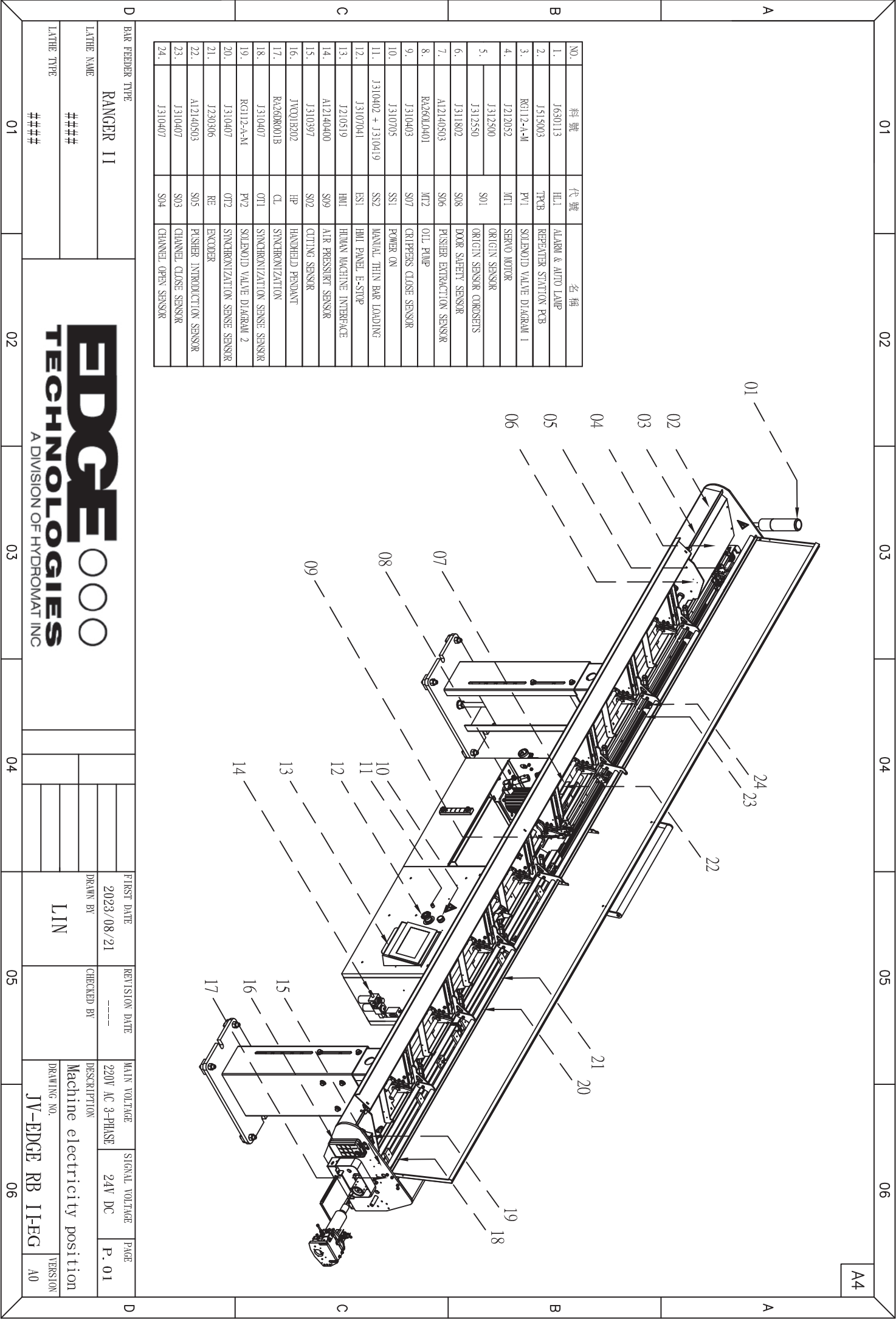
ERROR/CAUSE	CURE
ALARM - 100 Bar feeder emergency stop.	1. Release emergency stop button after troubleshooting and locating position. Press start button on servo motor.
ALARM - 101 Undefine bar feeder parameter.	1. Reload the initial value.
ALARM - 102 The lathe emergency stops or Security module does not start.	1. Check the lathe status. 2. Confirm interface cable, relay and PLC related IO.
ALARM - 103 The lathe alarm.	1. Check the lathe status. 2. Confirm interface cable, relay and PLC related IO.
ALARM - 104 The hood is open.	1. Check the hood is closed. 2. Check security module. 3. Confirm PLC related IO.
ALARM - 105 The sliding rail not in position.	1. Check the sliding rail position. 2. Check security module. 3. Confirm PLC related IO.
ALARM - 106 Bar feeder model cannot be defined.	1. Please contact after-sales service.
ALARM - 200 The servo motor power off.	1. Press servo motor start button. 2. Confirm electromagnetic contactor is working.

ERROR/CAUSE	CURE
ALARM - 201 The servo alarm.	1. Record the alarm code and contact after-sales service. 2. Shut down bar feeder's power and restart again. 3. Run pusher origin return.
ALARM - 202 Oil pump alarm.	1. Check the oil is enough. 2. Check any foreign material inside oil tank. 3. Check the pump. 4. Check overload protector.
ALARM - 203 Insufficient air pressure.	1. Check air pressure tube. 2. Check the air pressure value. 3. Check air pressure sensor. 4. Confirm PLC related IO.
ALARM - 204 The cutting sensor errors.	1. Check the cutting device. 2. Check the air pressure value. 3. Check (S02) cutting sensor. 4. Confirm PLC related IO.
ALARM - 205 Pusher move out is timed out.	1. Check pusher move out mechanism. 2. Check the air pressure value. 3. Check (S04) pusher move out sensor. 4. Confirm PLC IO positioning.
ALARM - 206 Pusher return is timed out.	1. Check pusher return mechanism. 2. Check the air pressure value. 3. Check (S03) pusher return sensor. 4. Confirm PLC IO positioning.
ALARM - 207 Bar pull out is timed out.	1. Check bar pull out mechanism. 2. Check the air pressure value. 3. Check (S06) collet extracting sensor. 4. Confirm PLC IO positioning.
ALARM - 208 Bar push in is timed out.	1. Check bar push in mechanism. 2. Check the air pressure value. 3. Check (S05) bar push in sensor. 4. Confirm PLC IO positioning.
ALARM - 209 Pusher move out or return sensor error.	1. Check (S03) pusher return sensor. 2. Check (S04) pusher move out sensor. 3. Confirm PLC IO positioning.

ERROR/CAUSE	CURE
ALARM - 210 Bar push in or pull out sensor error.	1. Check (S05) bar push in sensor. 2. Check (S06) bar pull out sensor. 3. Confirm PLC IO positioning.
ALARM - 211 Loading sensor or loading moto error.	1. Check loading motor. 2. Check loading mechanism. 3. Confirm PLC IO positioning.
ALARM - 224 Pusher resetting home position is time out.	1. Check interference of gear, transmission device, guide channel and V-Tray. 2. Check (S01) pusher original sensor. 3. Check servo motor is normal.
ALARM - 300 Pusher could not return to zero position during bar change.	1. Check interference of gear, transmission device and guide channel. 2. Check (S01) original sensor. 3. Confirm PLC related IO.
ALARM - 301 Lathe collet closed during bar change.	1. Check the lathe status. 2. Confirm interface cable, relay and PLC related IO.
ALARM - 302 First feeding is time out.	1. Check interference of gear, transmission device and guide channel. 2. Check S04 [First feeding speed setting] value.
ALARM - 303 The new bar not detected.	1. Confirm if there are any bars. 2. Check loading device. 3. Check (S07) clamping sensor. 4. Confirm interface cable, relay and PLC related IO.
ALARM - 304 Insufficient length of new bar.	1. Check the length of the bar. 2. Check (S02) cutting sensor. 3. Check P01 [Chuck facing distance setting] value. 4. Check P02 [Bar end position setting] value.
ALARM - 305 Pusher could not reach facing position.	1. Check the bar. 2. Check interference of gear, transmission device. 3. Confirm interface cable, relay and PLC related IO. 4. Check related Impulse function setting parameter value.

ERROR/CAUSE	CURE
ALARM - 306 Bar change is time out.	1. Check interference of gear, transmission device, guide channel and V-Tray. 2. Check loading device. 3. Confirm interface cable, relay and PLC related IO.
ALARM - 307 Prefeed return timed out.	1. Check interference of gear, transmission device, guide channel and V-tray. 2. Check (S01) origin sensor. 3. Confirm interface cable, relay and PLC IO positioning.
ALARM - 308 Bar length exceeded limit.	1. Check the bar. 2. Check (S02) cutting sensor. 3. Confirm PLC IO positioning.
ALARM - 309 The remnant is separated from the pusher collet.	1. Check any remnant left in spindle or guide channel. 2. Check the collet. 3. Check the pressure of the air. 4. Check (S07) clamping sensor.
ALARM - 310 The remnant detected after extraction or unable to drop.	1. Check the collet. 2. Check the pressure of the air. 3. Check (S07) clamping sensor.
ALARM - 311 Pusher could not reach extraction position.	1. Check interference of gear, transmission device, guide channel and V-tray.
ALARM - 312 Prefeed pusher could not reach first feeding position	1. Check the bar. 2. Check [F08] Impulse function setting value. 3. Check [L06] Impulse times setting value. 4. Check [P01] Chuck facing distance value.
ALARM - 400 Feed length is too long.	1. Check the stopper of the lathe. 2. Check pusher chuck. 3. Confirm interface cable, relay and PLC related IO. 4. Check L02[Feeding too long setting of chuck close] value.
ALARM - 401 Feed length is too short.	1. Check the stopper of the lathe. 2. Check pusher chuck. 3. Confirm interface cable, relay and PLC related IO. 4. Check L03[Feeding too short setting of chuck close] value.

ERROR/CAUSE	CURE
ALARM - 402 The lathe collet did not close after bar change.	1. Check the lathe status. 2. Confirm interface cable, relay and PLC related IO.
ALARM - 403 Machining process timed out.	1. Check the lathe. 2. Confirm interface cable, relay and PLC IO positioning.
ALARM - 404 Bar feeder must in auto mode when lathe is machining.	1. Check the bar feeder is operating normally. 2. Confirm interface cable, relay and PLC IO positioning.
ALARM - 405 The lathe chuck opened is time out.	1. Check the lathe status. 2. Confirm interface cable, relay and PLC related IO.
ALARM - 406 Pusher forward when lathe chuck opened.	1. Check the lathe. 2. Check pusher and chuck. 3. Check (L05) Bar pusher move forward of chuck open value.
ALARM - 407 Pusher backward when lathe chuck opened.	1. Check the lathe. 2. Check pusher and chuck. 3. Check (L06) Bar pusher backward safety of chuck open value.
ALARM - 408 Lathe chuck closed timed out.	1. Check the lathe. 2. Confirm interface cable, relay and PLC IO positioning.
ALARM - 409 Bar out alarm. Lathe processing over two times. Please check the interface.	1. Check the lathe. 2. Confirm interface cable, relay and PLC IO positioning.
ALARM - 410 Machining distance over finished product's length.	1. Check the lathe. 2. Confirm interface cable, relay and PLC IO positioning. 3. Confirm (L01) Finished product length value.



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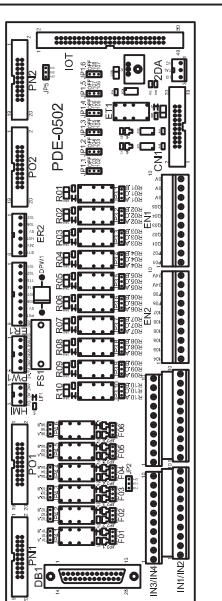
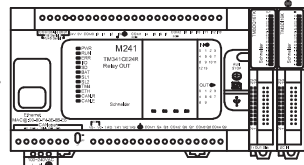
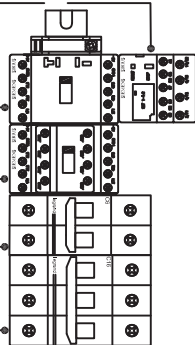
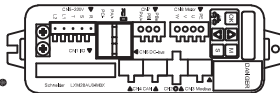
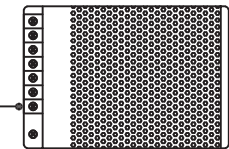
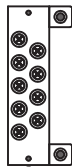
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NO.	PART NO.	CODE	CODE	NO.	PART NO.	CODE	CODE
1.	J315004	MPK3	MAIN PC RELAY BOARD(PDE-0502)	11.	J313350	OL	OVER RELAY
2.	J212009	POA	OUTPUT MODULE	12.	J212051	STD	SERVO MOTOR DRIVER - 0.4KW
3.	J212006	PLC	PROGRAMMABLE LOGIC CONTROLLER	13.	J230107	PS1	POWER SUPPLY
4.	J221008	PIA	INPUT MODULE				
5.	J220405	FIL	FILTER				
6.	J631202	GND	FACILITIES GROUND				
7.	J310524	NFB	NO FUSE BREAKER				
8.	J310526	CP1	CIRCUIT PROTECTION				
9.	J312709 + J312710	MCI + ACT1	MAGNETIC CONTACTOR				
10.	J312709	MC3	MAGNETIC CONTACTOR				

D

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BAR FEEDER TYPE	RANGER II		FIRST DATE	2023/08/21	REVISION DATE	----	MAIN VOLTAGE	220V AC 3-PHASE	SIGNAL VOLTAGE	24V DC	PAGE	P. 02
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LATHE NAME	####						DRAWN BY		CHECKED BY		DESCRIPTION	
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LATHE TYPE	####										DRAWING NO.	JV-EDGE RB II-EG	VERSION	A0
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A DIVISION OF HYDROMAT INC

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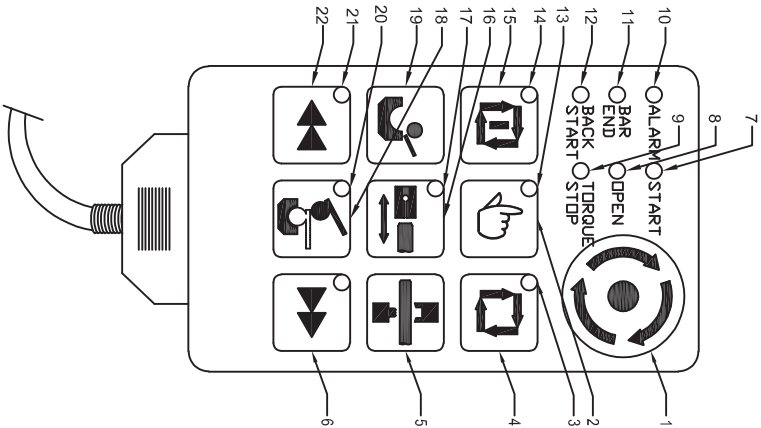
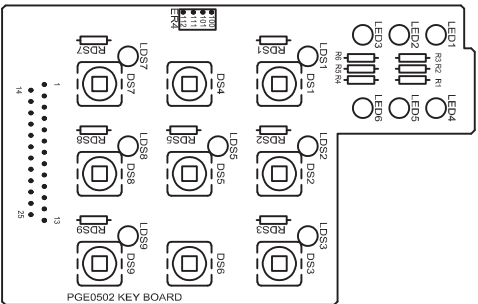
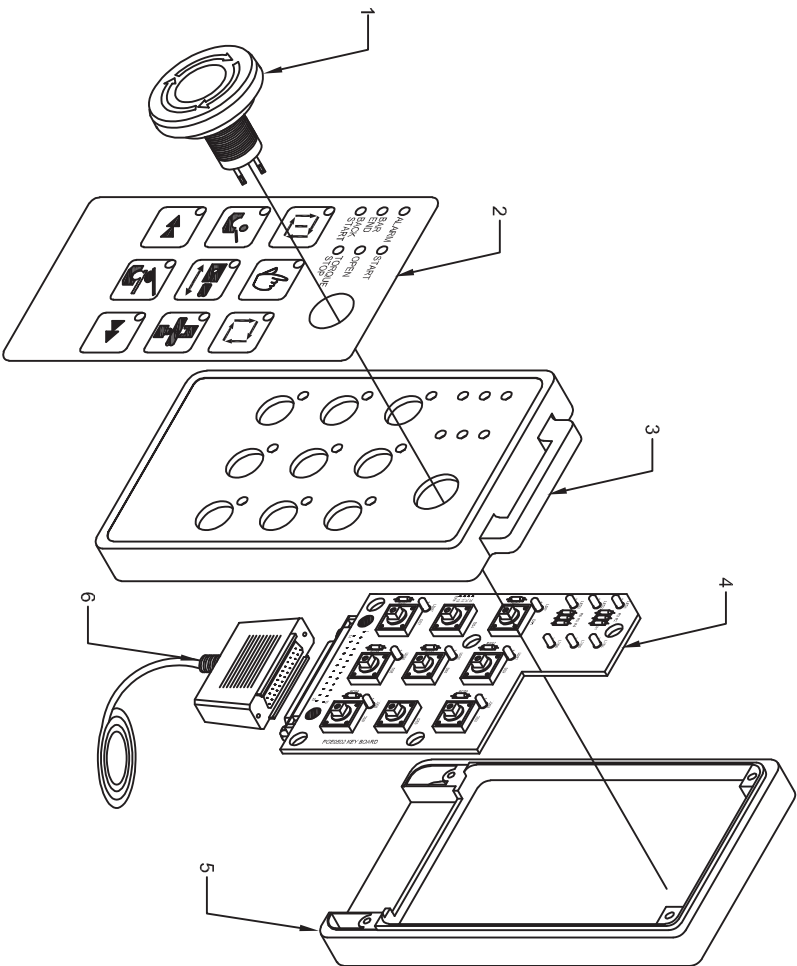
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NO.	PART NO.	CODE	NAME
01	J310702	ES2	EMERGENCY STOP
02	AV51BA6600		PASTER
03	091120500	TOP	
04	J515002	PCB3	PC BOARD PCB 0501
05	091120600		BOTTOM
06	J1420600		CABLE

RIGHT : JL01

L01.1 L01 L01.2

LEFT : JL01

L01.1 L01 L01.2

NO.	CODE	FUNCTION
01	ES2	EMERGENCY STOP
02	DS2	MANUAL MODE
03	DS3	AUTOMATIC MODE LIGHT
04	DS3	AUTOMATIC MODE
05	DS6	MANUAL CLAMPING
06	DS9	MANUAL ADVANCE
07	LED4	START LIGHT
08	LED5	CHUCK OPEN LIGHT
09	LED6	TORQUE STOP LIGHT
10	LED1	ALARM LIGHT
11	LED2	END OF BAR LIGHT
12	LED3	BACK START LIGHT
13	DS2	MANUAL MODE LIGHT
14	DS1	AUTOMATIC START LIGHT
15	DS1	AUTOMATIC START
16	DS5	MANUAL CLAMPING IN/OUT
17	DS5	CLAMPING IN LIGHT
18	DS8	MANUAL BAR-PUSHER RISE/DOWN
19	DS4	MANUAL LOADING
20	DS8	BAR PUSHER DOWN LIGHT
21	DS7	-Z LIGHT
22	DS7	MANUAL RETREAT

D BAR FEEDER TYPE

RANGER II

LATHE NAME

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LATHE TYPE

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EDGE TECHNOLOGIES

A DIVISION OF HYDROMAT INC

FIRST DATE

2023/08/21

REVISION DATE

MAIN VOLTAGE

220V AC 3-PHASE

SIGNAL VOLTAGE

24V DC

PAGE

P. 03

DRAWN BY

CHKD BY

DESCRIPTION

Decomposition of remote control pendant

DRAWING NO.

JV-EDGE RB II-EG

VERSION

A0

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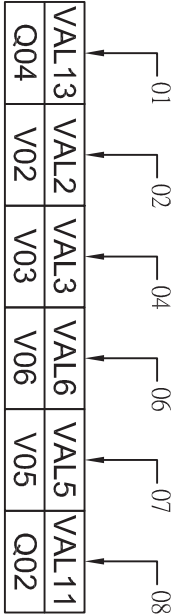
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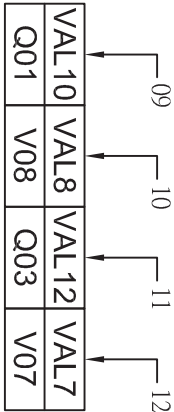
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A4

SOLENOID VALVE DIAGRAM 1



SOLENOID VALVE DIAGRAM 2



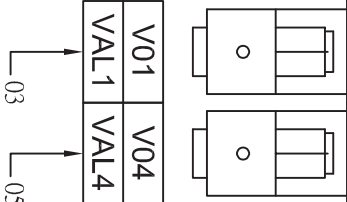
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NO.	PART NO.	CODE	NAME
01	AI2120100	VAL13	BAR PUSHER FIX (Q04)
02	AI2120200	VAL2	BAR PUSHER DOWN (V02)
03		VAL1	BAR PUSHER RISE (V01)
04	AI2120200	VAL3	INTRODUCTION (V03)
05		VAL4	EXTRACTION (V04)
06	AI2120100	VAL6	LOADING (V06)
07	AI2120100	VAL5	THIN BAR LOADING VIBRATION(V05)
08	AI2120100	VAL11	REMANANT DISPOSAL (Q02)
09	AI2120100	VAL10	THIN BAR LOADING (Q01)
10	AI2120100	VAL8	MOVABLE ANTI-VIBRATION (V08)
11	AI2120100	VAL12	2nd ANTI-VIBRATION (Q03)
12	AI2120100	VAL7	3rd ANTI-VIBRATION (V07)



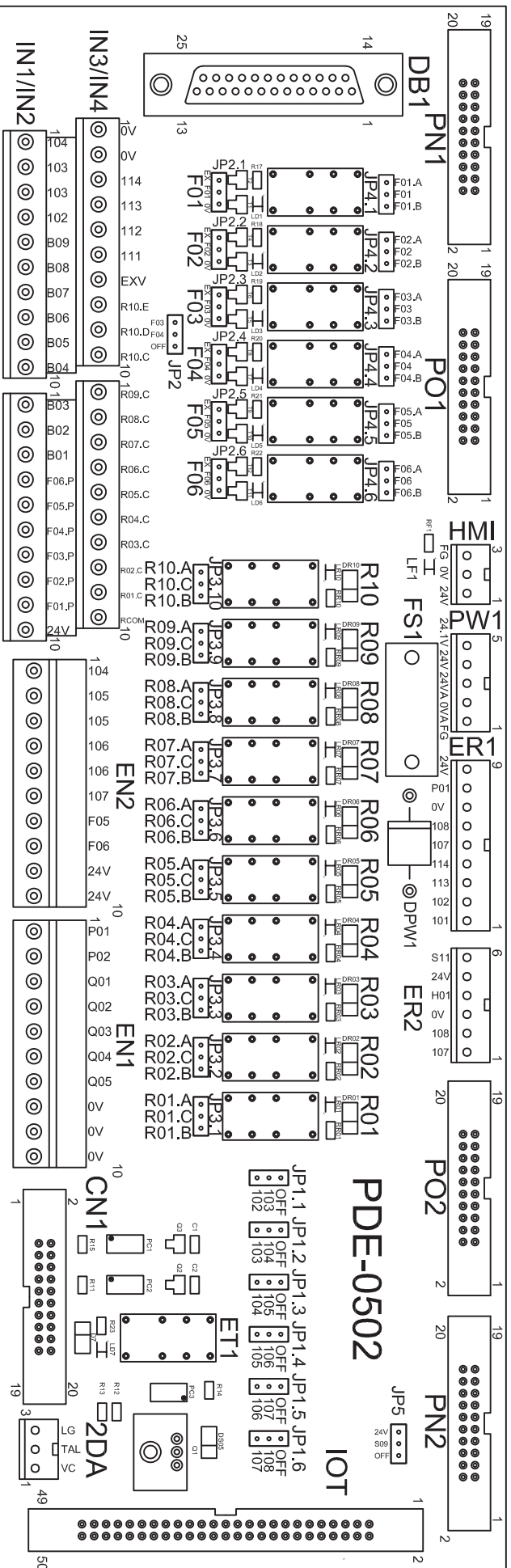
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BAR FEEDER TYPE	RANGER II
LATHE NAME	####
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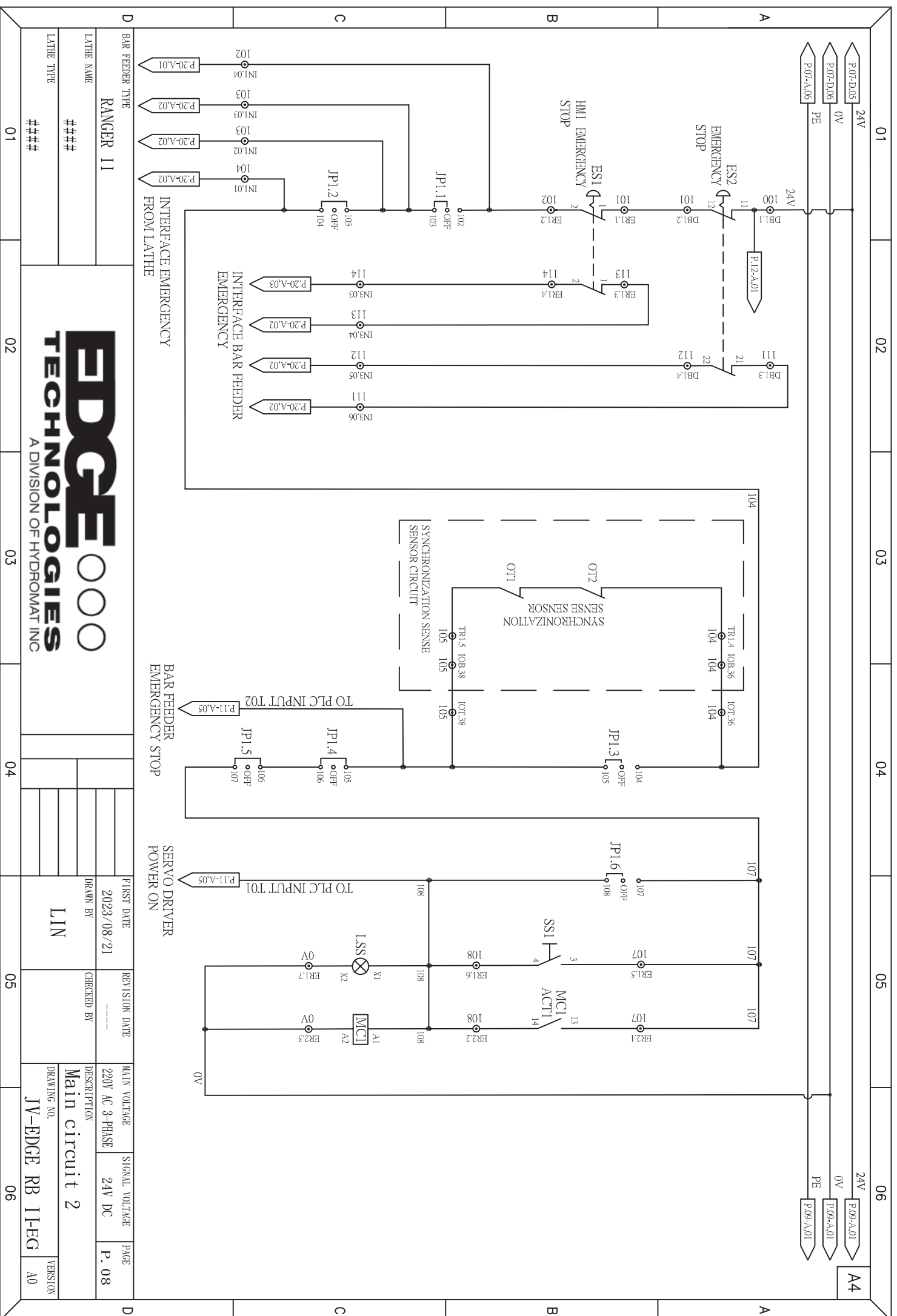


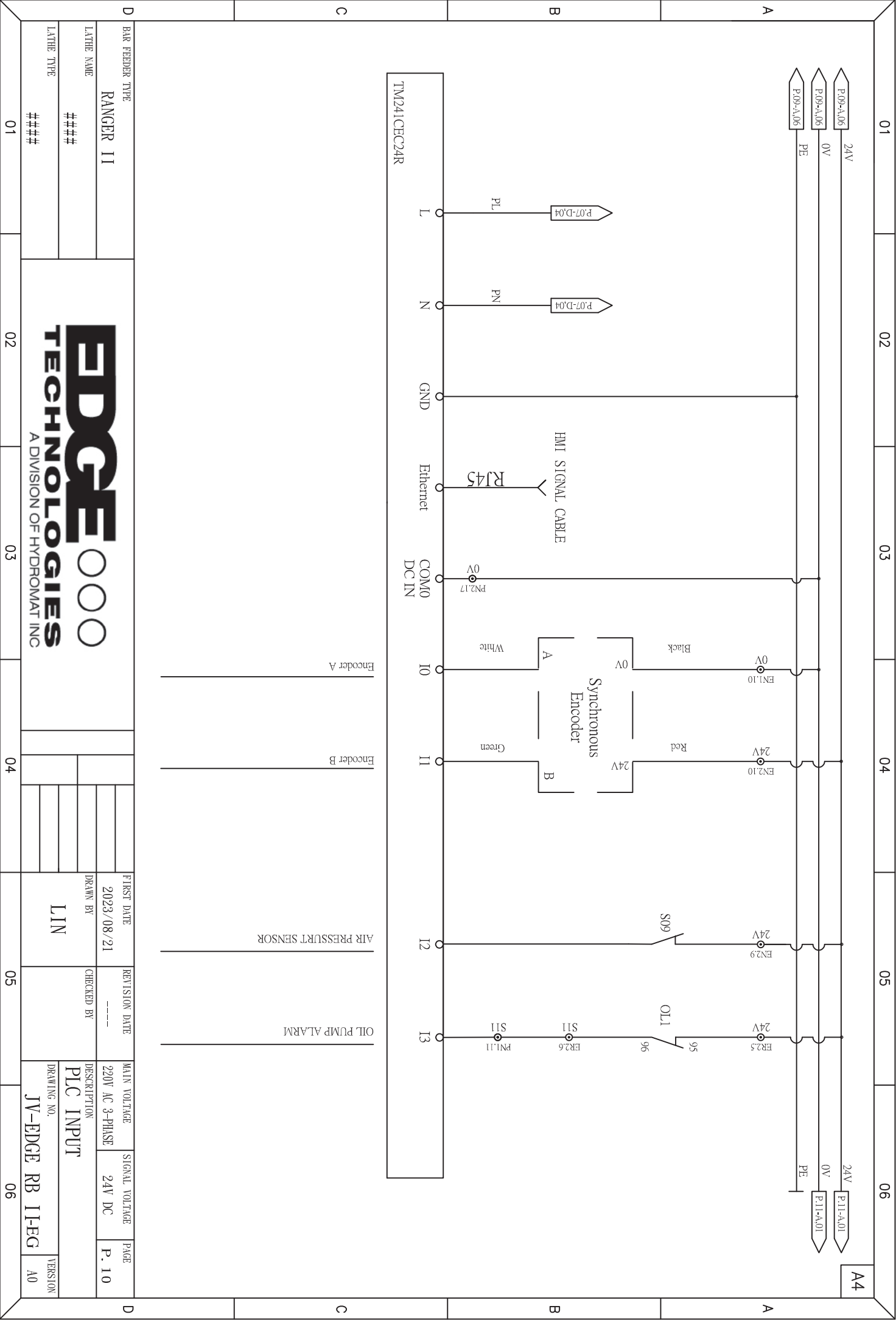
FIRST DATE	2023/08/21	REVISION DATE	----	MAIN VOLTAGE	220V AC 3-PHASE	SIGNAL VOLTAGE	24V DC	PAGE	P. 04
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DRAWING NO.	JV-EDGE	RB	II-EG						A0

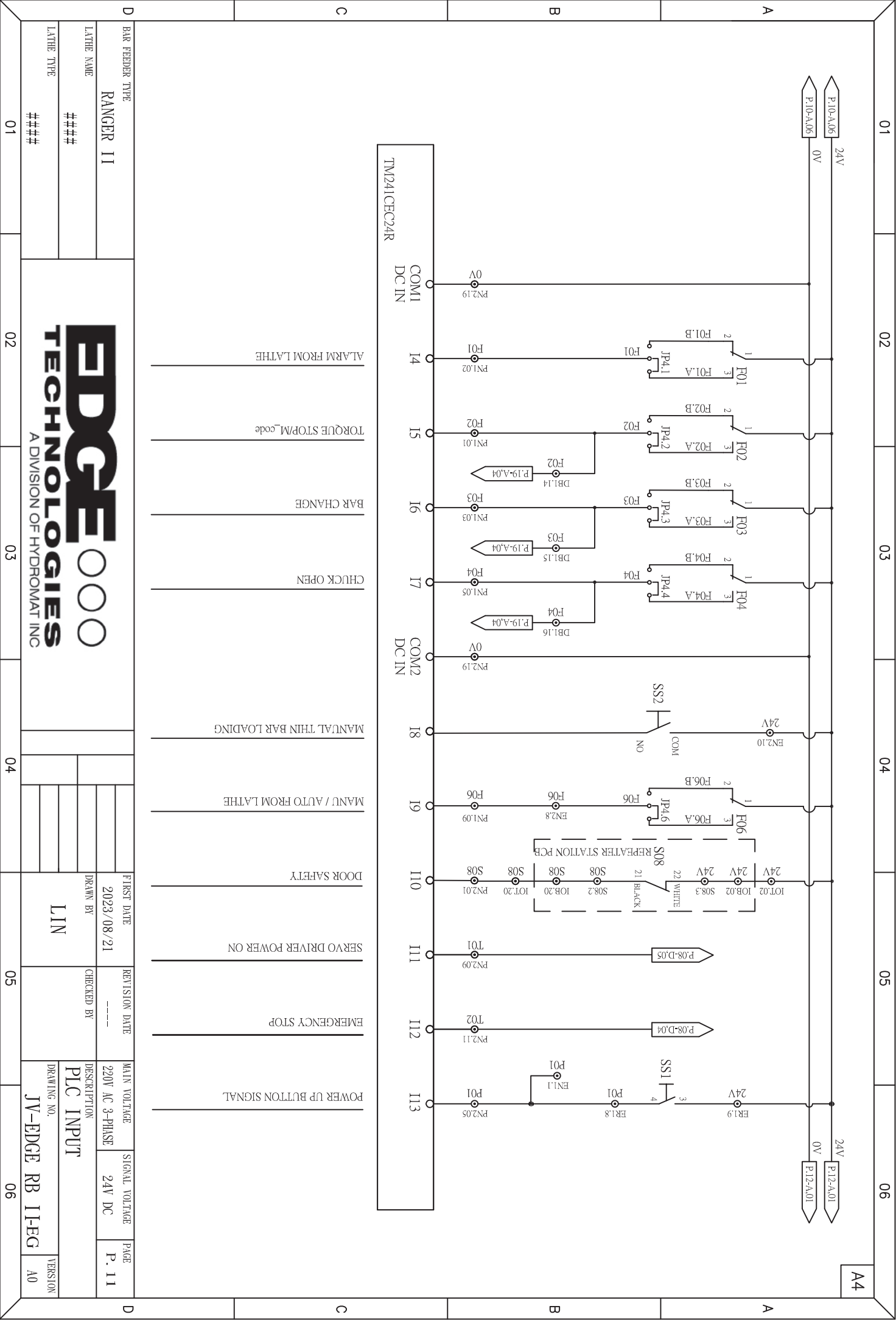


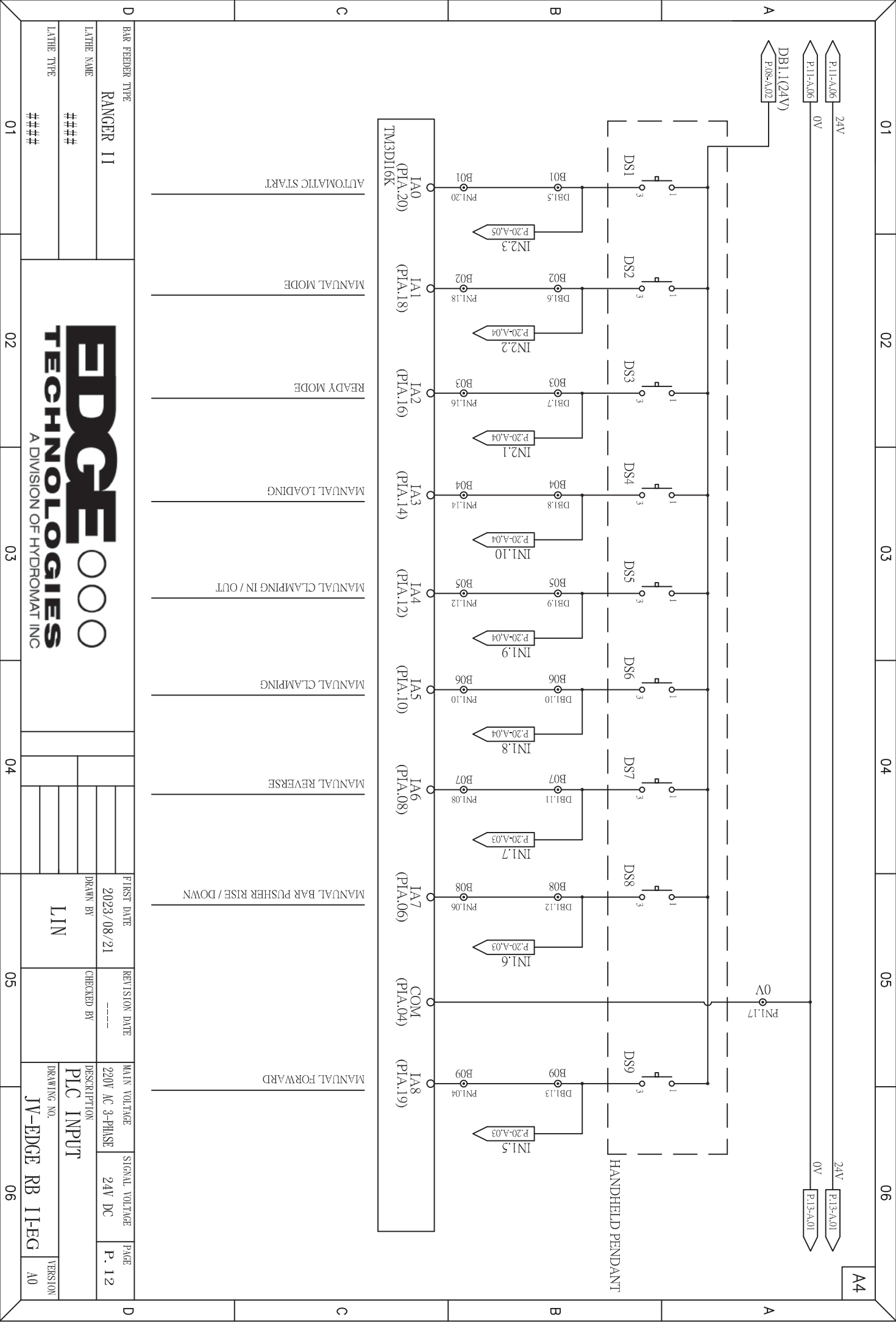
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03	J51.5001	PCB	Main PC board (PDE 0501)

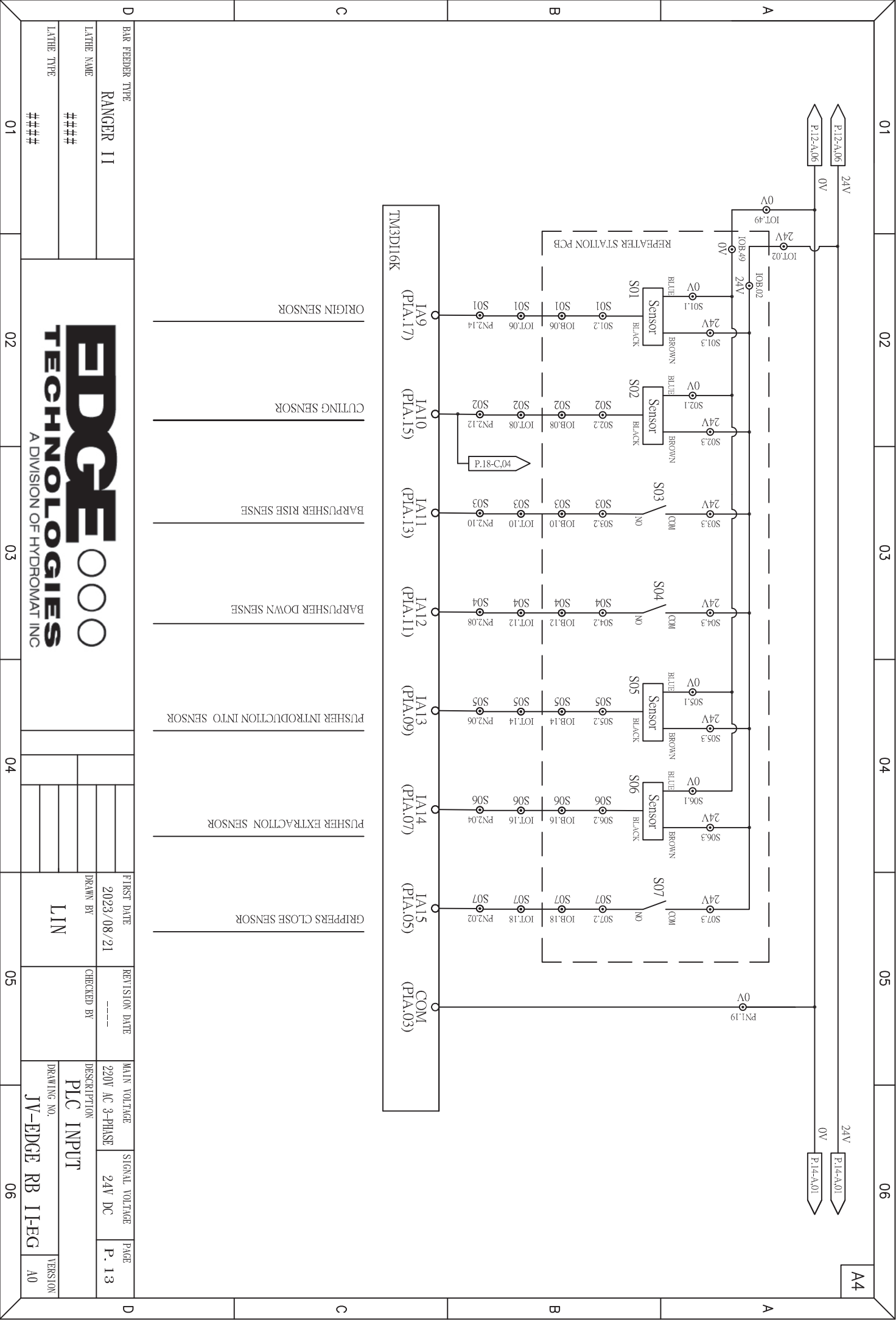
BAR FEEDER TYPE		EDGE TECHNOLOGIES A DIVISION OF HYDROMAT INC													
LATHE NAME		RANGER II													
LATHE TYPE		####													

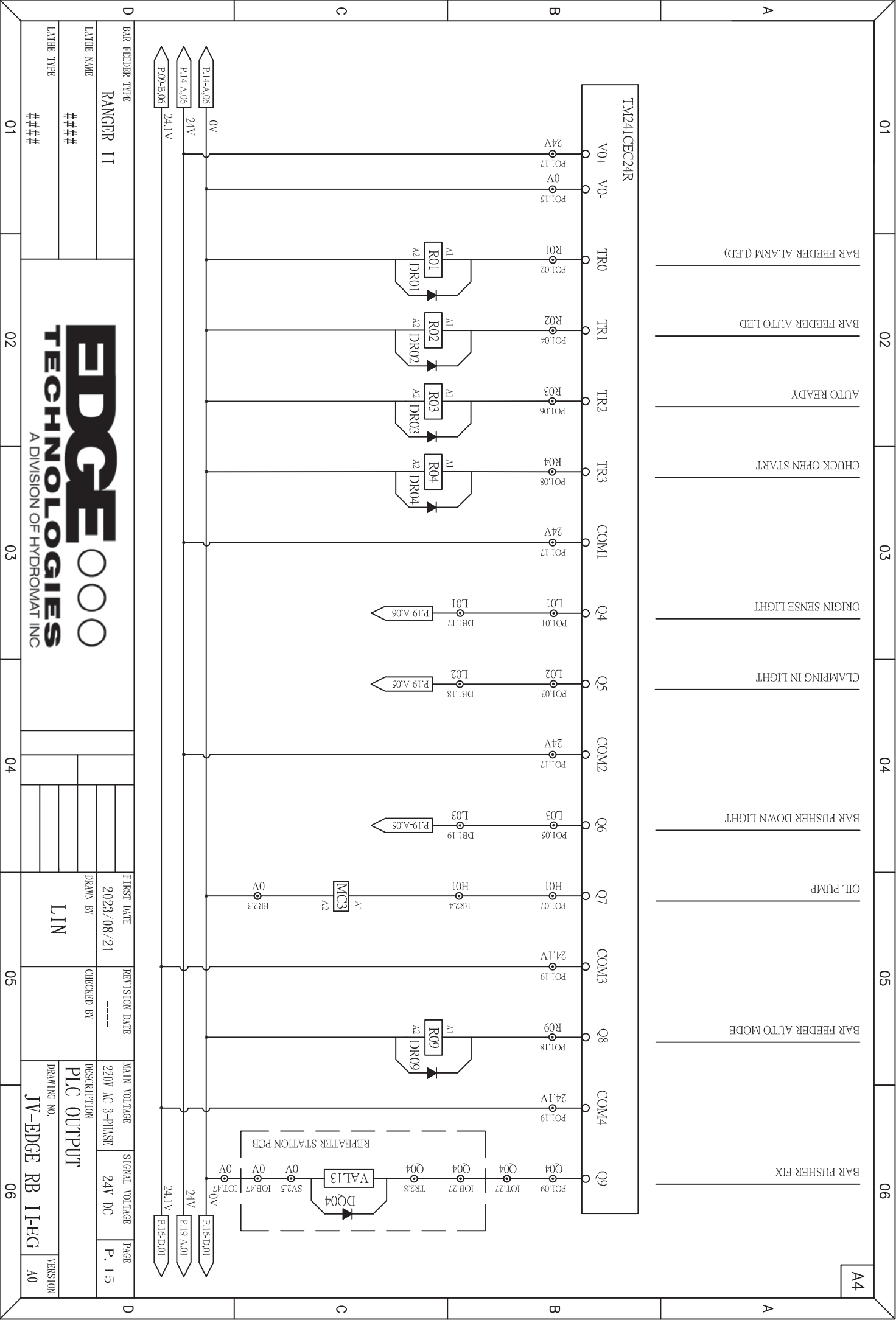


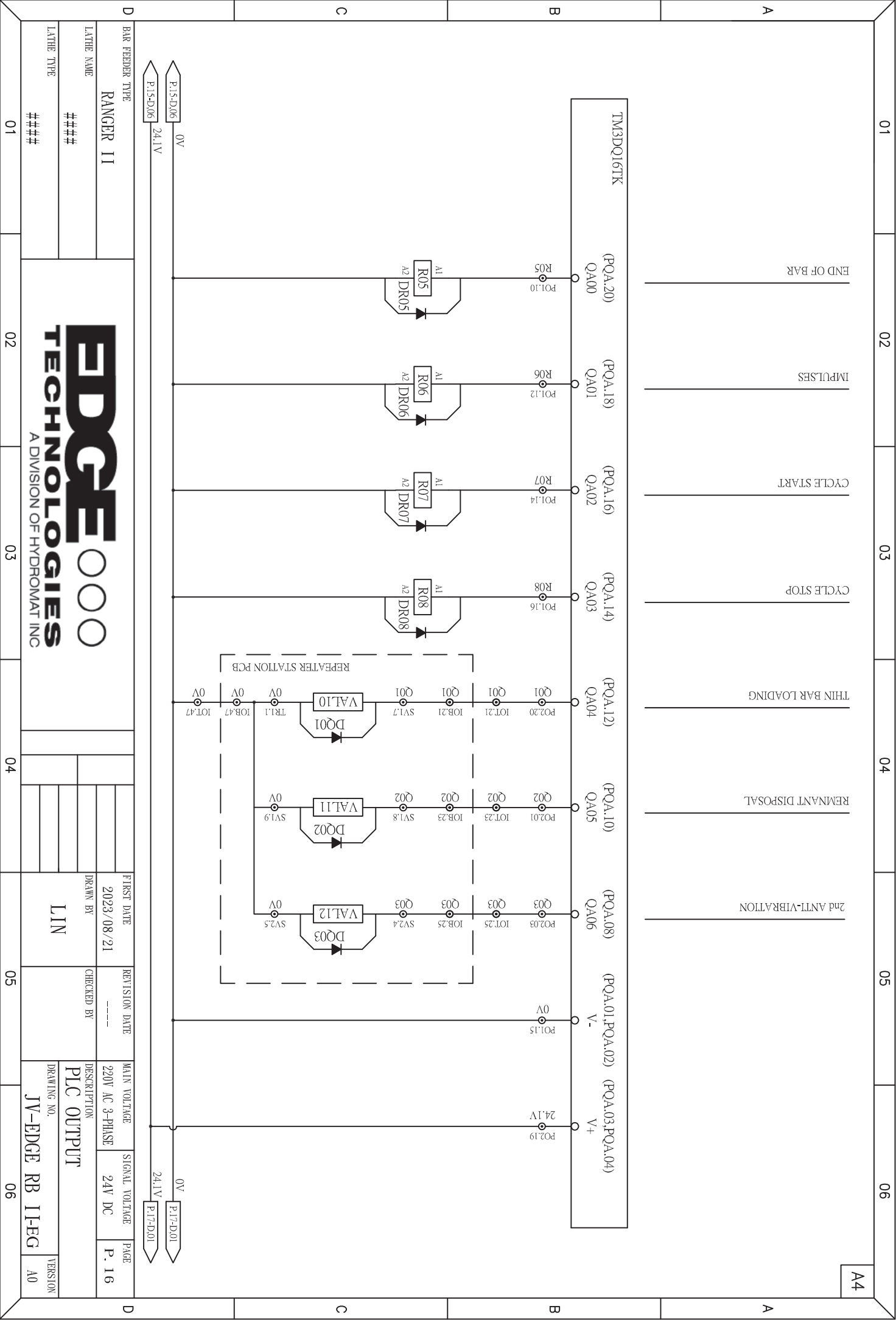


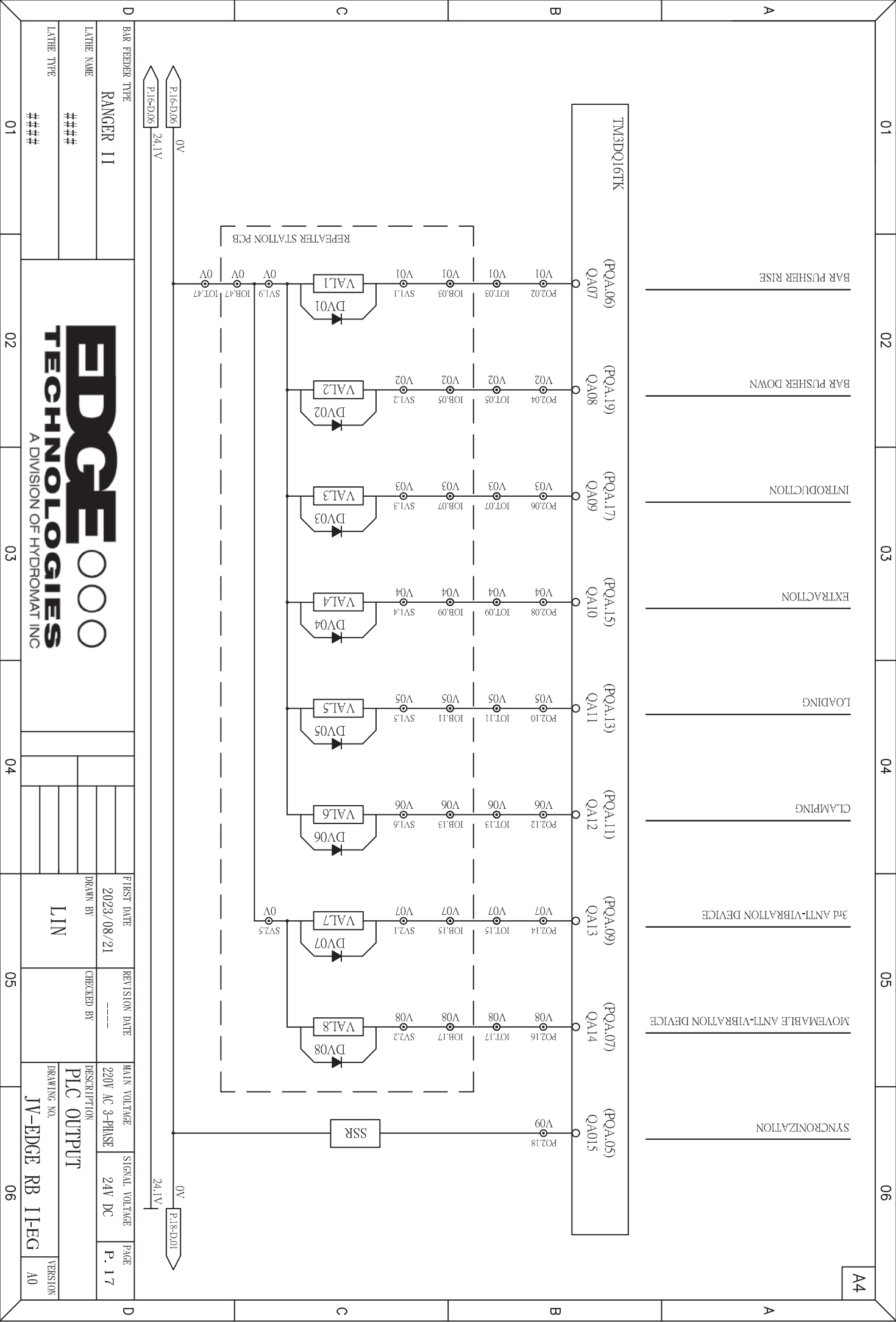












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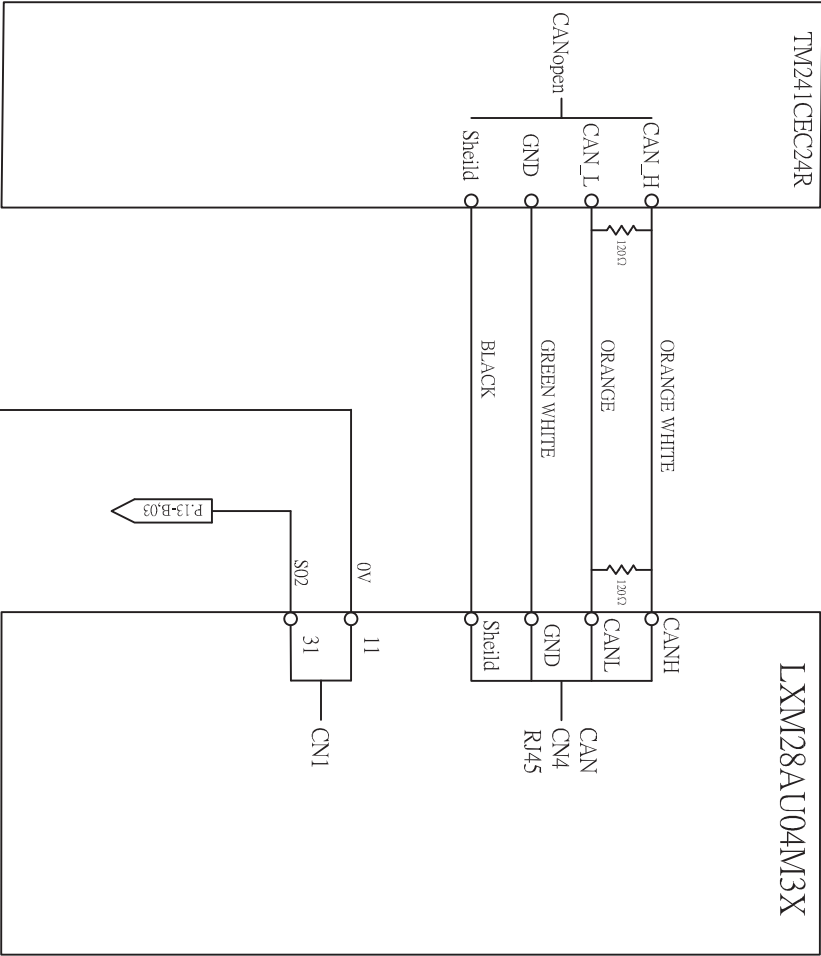
A4

PLC

TM241CEC24R

SERVO DRIVER

LXM28AU04M3X



P.17-D.06

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BAR FEEDER TYPE

RANGER II

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FIRST DATE
2023/08/21

REVISION DATE

MAIN VOLTAGE
220V AC 3-PHASE

SIGNAL VOLTAGE
24V DC

PAGE
P. 18

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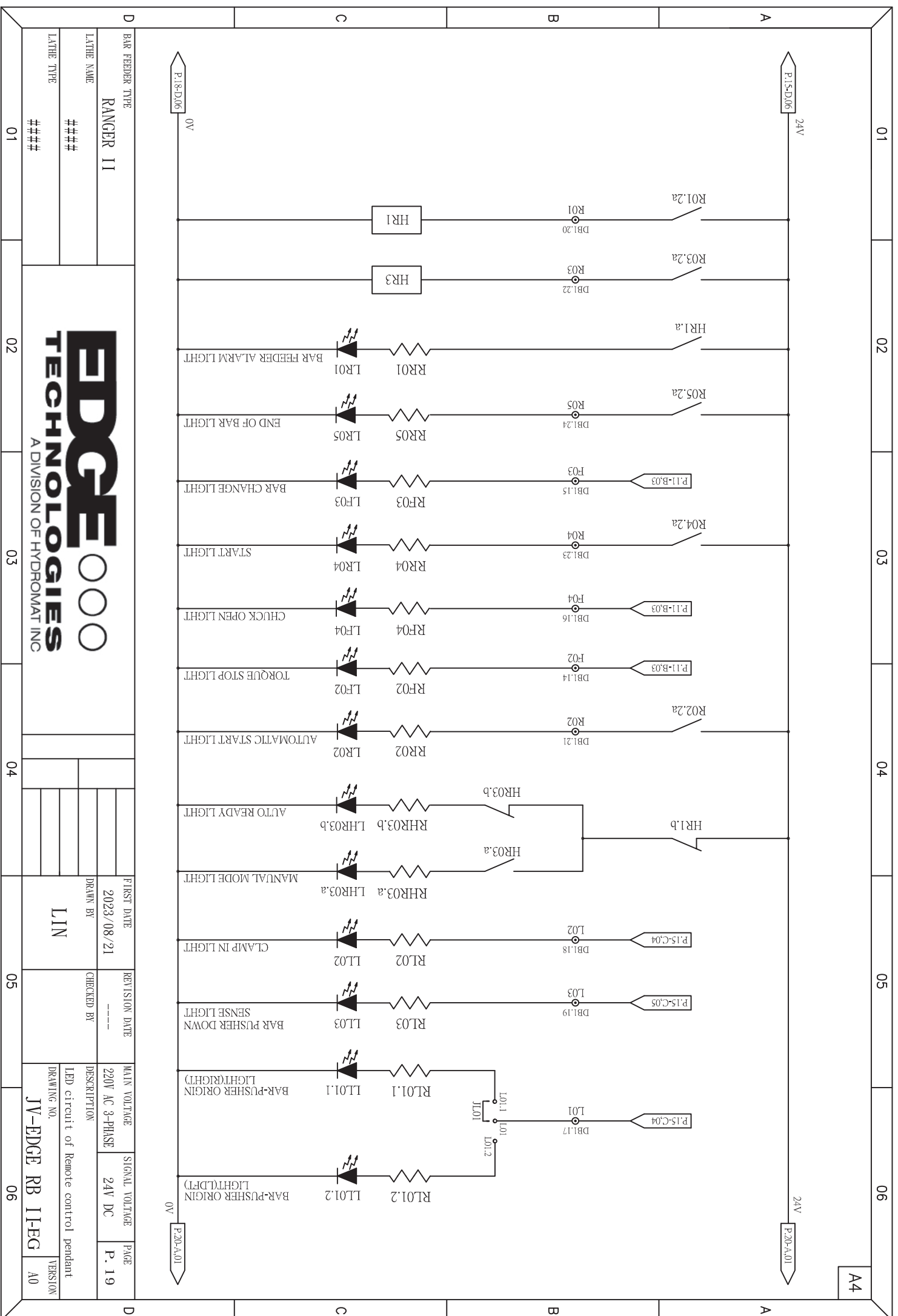
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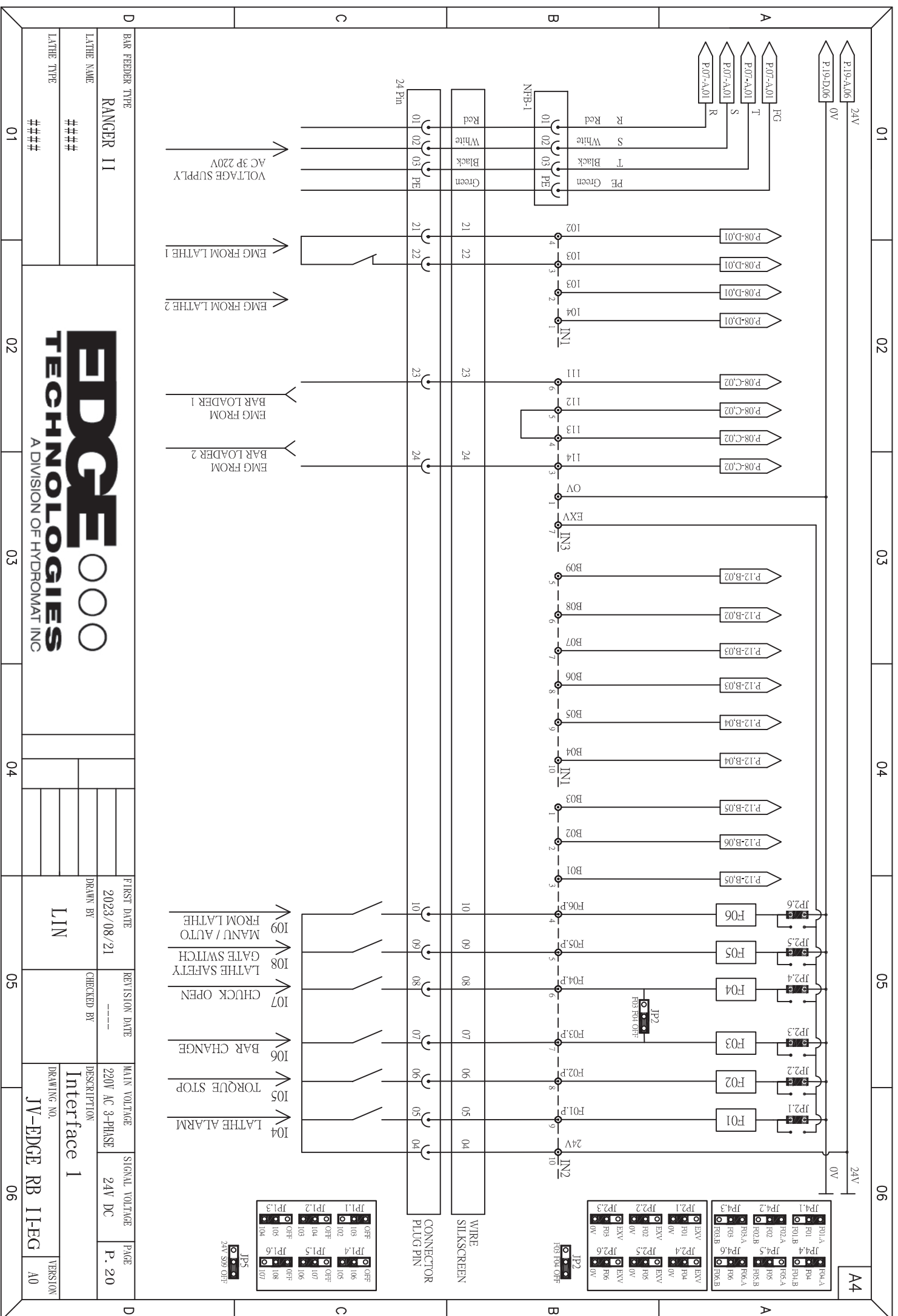
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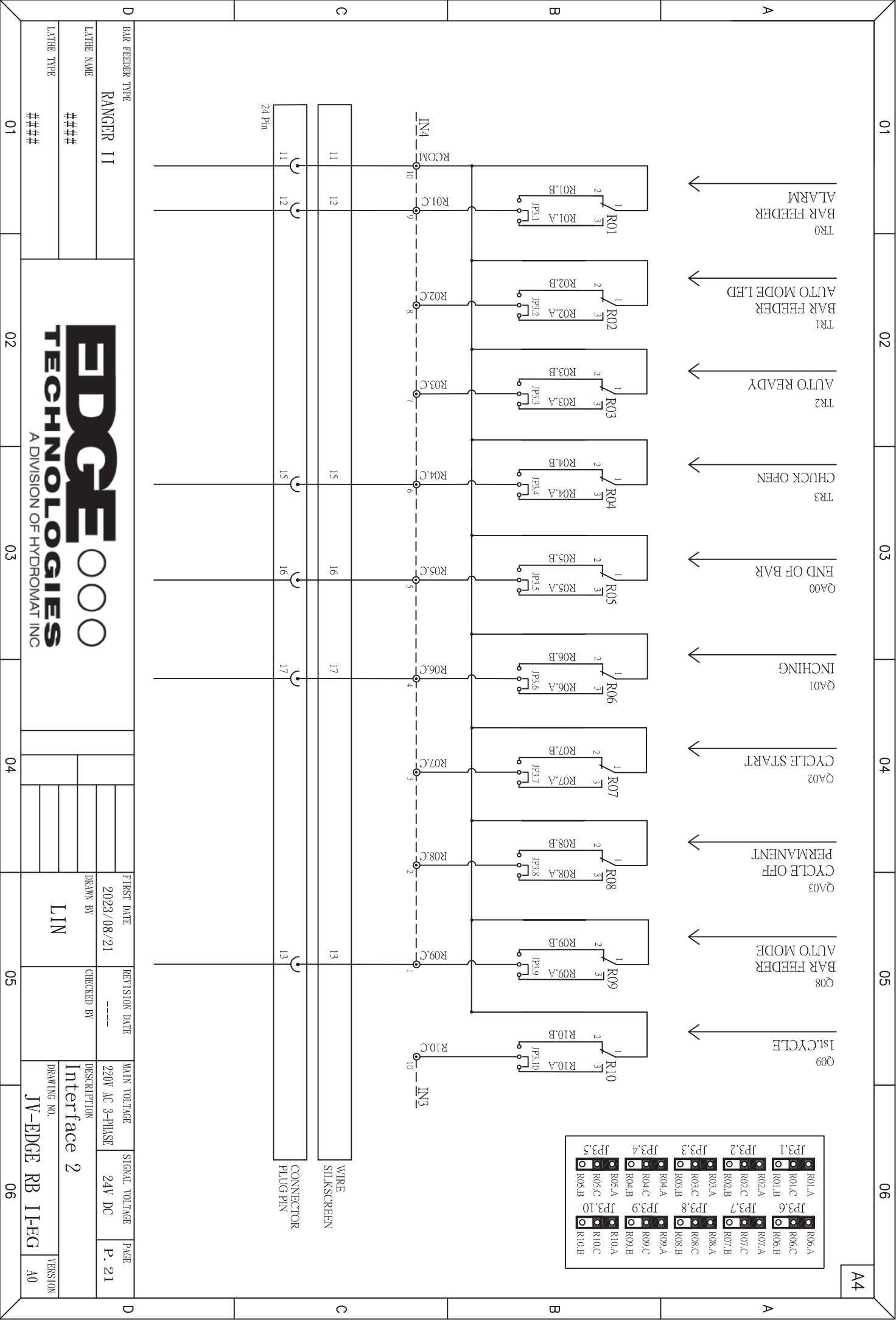
JV-EDGE RB II-EG

VERSION

A0







IN4

RCOM

R01.C

R02.C

R03.C

R04.C

R05.C

R06.C

R07.C

R08.C

R09.C

R10.C

IN3

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CONNECTOR

PLUG PIN

BAR FEEDER TYPE

RANGER II

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EDGEC TECHNOLOGIES

A DIVISION OF HYDROMAT INC

FIRST DATE

2023/08/21

REVISION DATE

MAIN VOLTAGE

220V AC 3-PHASE

SIGNAL VOLTAGE

24V DC

PAGE

P. 21

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DESCRIPTION

Interface 2

VERSION

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JV-EDGE RB II-EG

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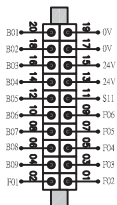
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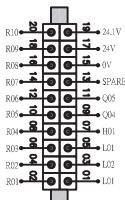
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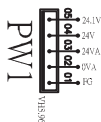
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PO1



HMI



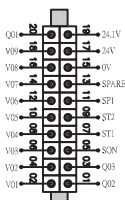
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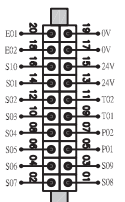
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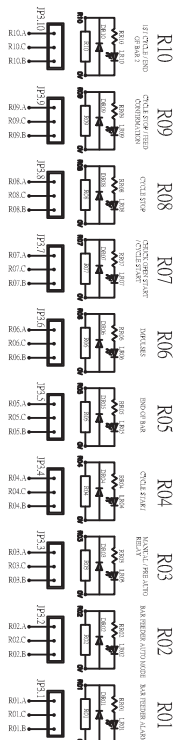
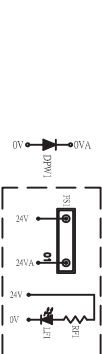
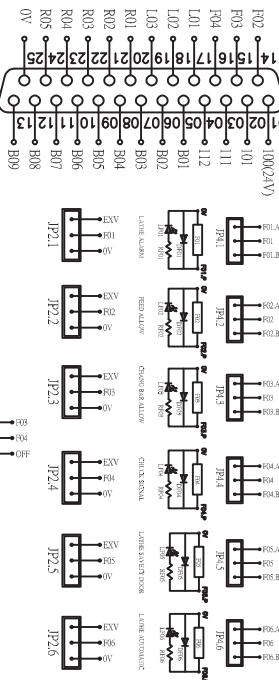


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PN2

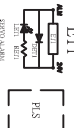
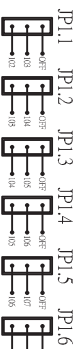
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PDE 0502

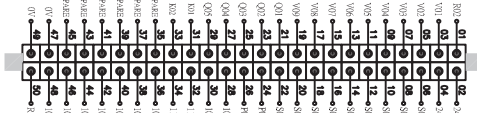


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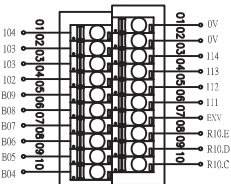


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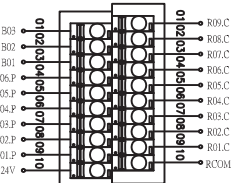
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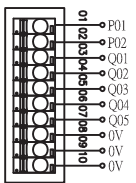
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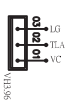
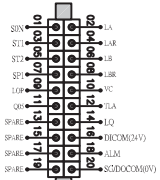
IN4



EN1



CN1



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BAR FEEDER TYPE

RANGER II

LATHE NAME

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LATHE TYPE

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FIRST DATE

2023/08/21

REVISION DATE

MAIN VOLTAGE

220V AC 3-PHASE

SIGNAL VOLTAGE

24V DC

PAGE

P. 24

DRAWN BY

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CHECKED BY

DESCRIPTION
Main PC board

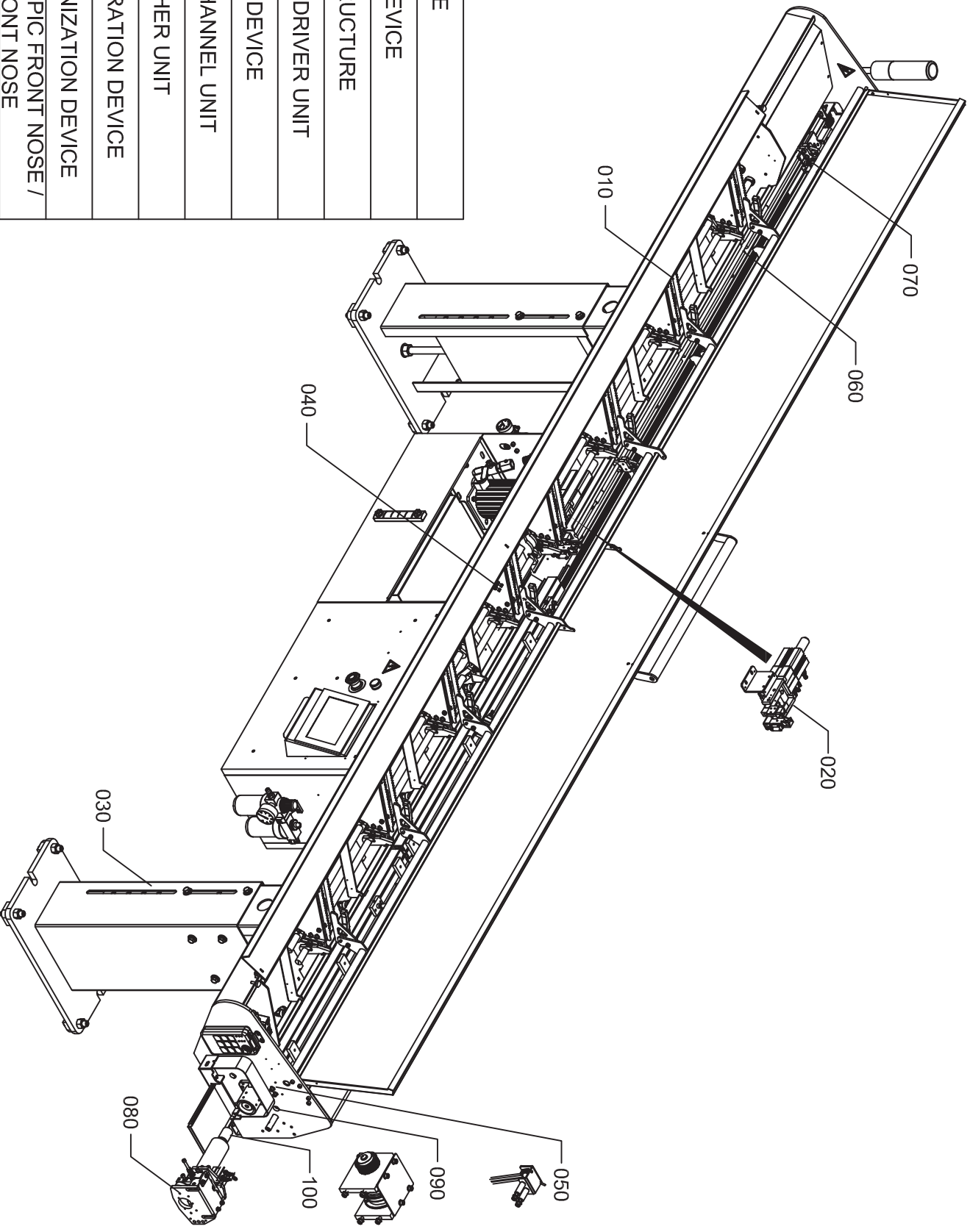
DRAWING NO.

JV-EDGE RB II-EG

VERSION

A0

010	MAGAZINE
020	CLAMP DEVICE
030	MAIN STRUCTURE
040	FEEDING DRIVER UNIT
050	CUTTING DEVICE
060	GUIDE CHANNEL UNIT
070	BAR PUSHER UNIT
080	ANTI-VIBRATION DEVICE
090	SYCHRONIZATION DEVICE
100	TELESCOPIC FRONT NOSE / FIXED FRONT NOSE



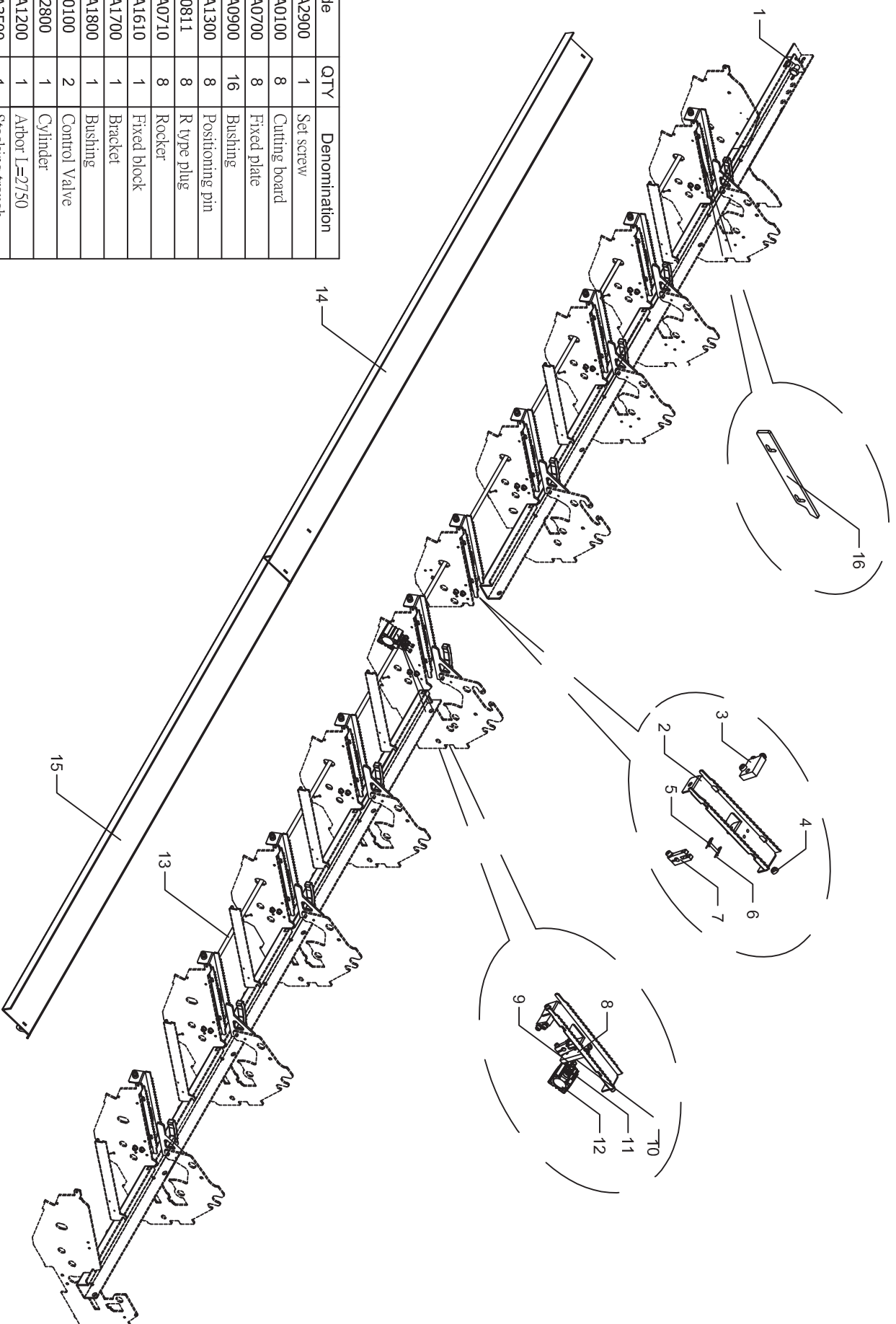
RANGER II 120

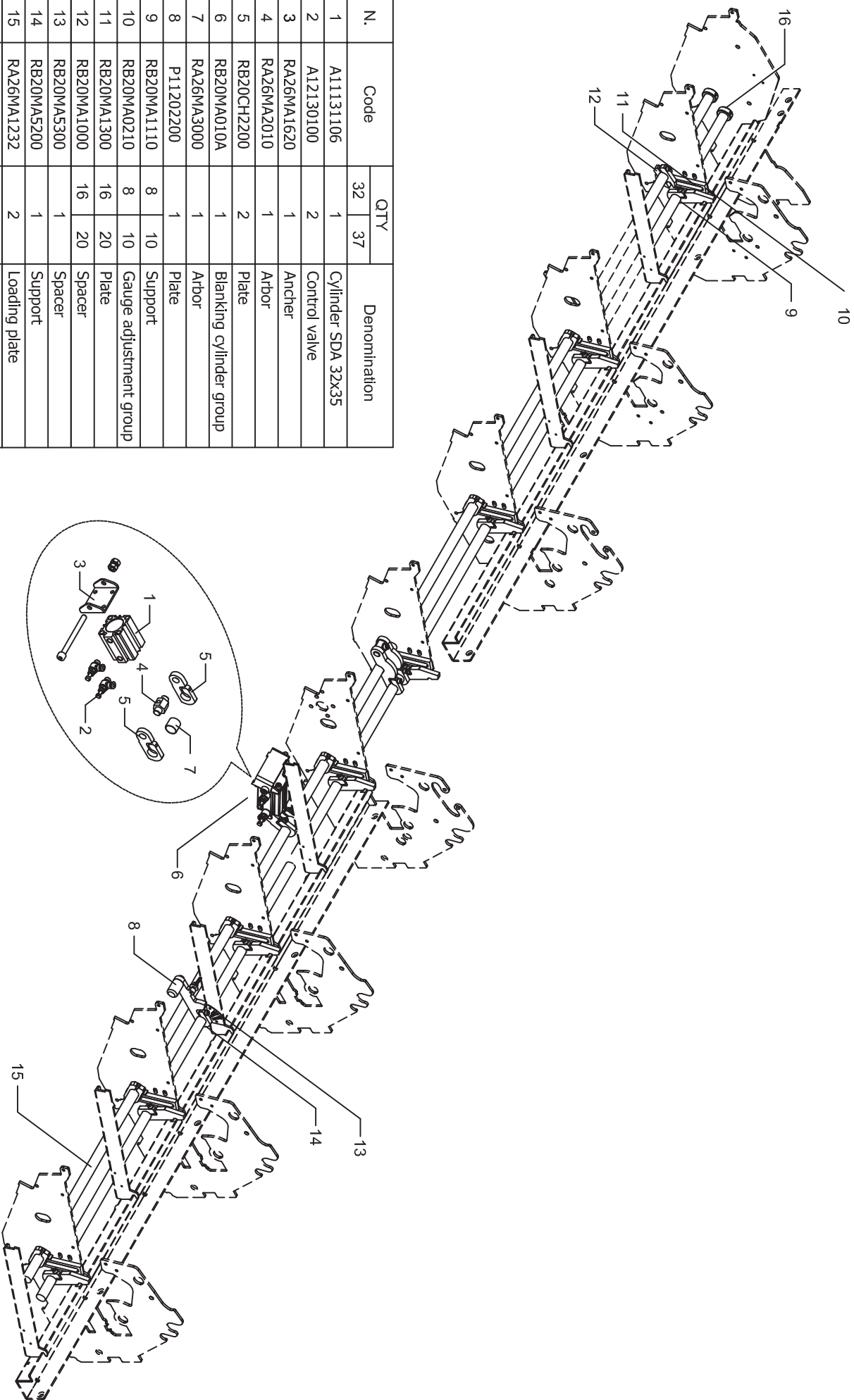
FIGURES INDEX

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2

N.	Code	QTY	Denomination
1	RA26BA2900	1	Set screw
2	RB20MA0100	8	Cutting board
3	RB20MA0700	8	Fixed plate
4	RB20MA0900	16	Bushing
5	RB20MA1300	8	Positioning pin
6	P12200811	8	R type plug
7	RB20MA0710	8	Rocker
8	RB20MA1610	1	Fixed block
9	RB20MA1700	1	Bracket
10	RB20MA1800	1	Bushing
11	A12130100	2	Control Valve
12	A11132800	1	Cylinder
13	RB20MA1200	1	Arbor L=2750
14	RB20MA3500	1	Stocking trough
15	RB20MA3538	1	Stocking trough
16	RB20MA0220	10	Bar lower board

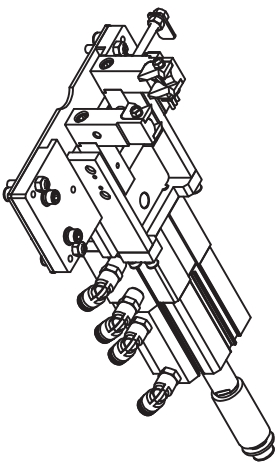




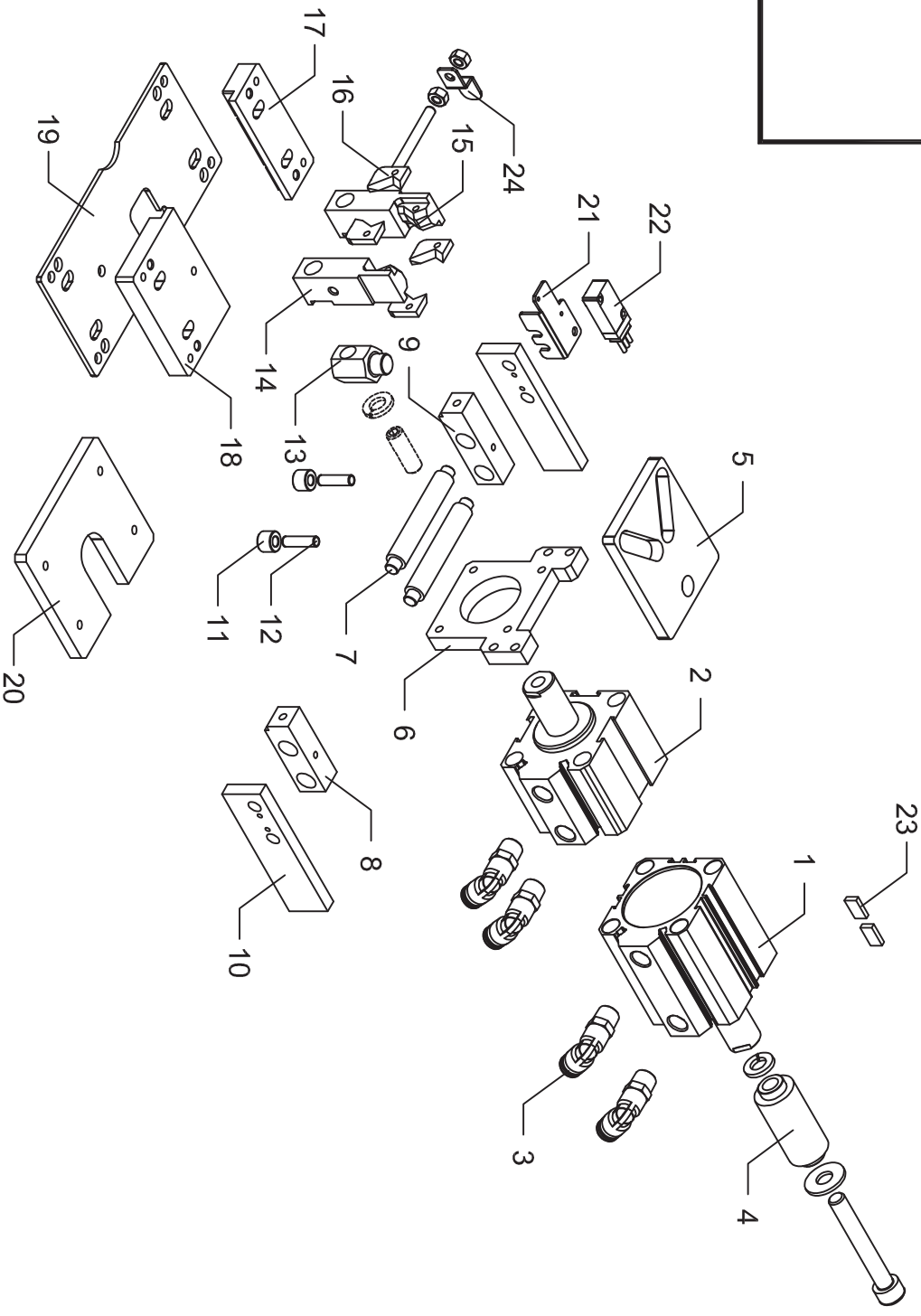
N.	Code	QTY		Denomination
		32	37	
1	A11131106	1		Cylinder SDA 32x35
2	A12130100	2		Control valve
3	RA26MA1620	1		Anchor
4	RA26MA2010	1		Arbor
5	RB20CH2200	2		Plate
6	RB20MA010A	1		Blanking cylinder group
7	RA26MA3000	1		Arbor
8	P11202200	1		Plate
9	RB20MA1110	8	10	Support
10	RB20MA0210	8	10	Gauge adjustment group
11	RB20MA1300	16	20	Plate
12	RB20MA1000	16	20	Spacer
13	RB20MA5300	1		Spacer
14	RB20MA5200	1		Support
15	RA26MA1232	2		Loading plate
16	S12150500	2		Spacer
17	RB20MA0211	1		Gauge adjustment group

RANGER II 120

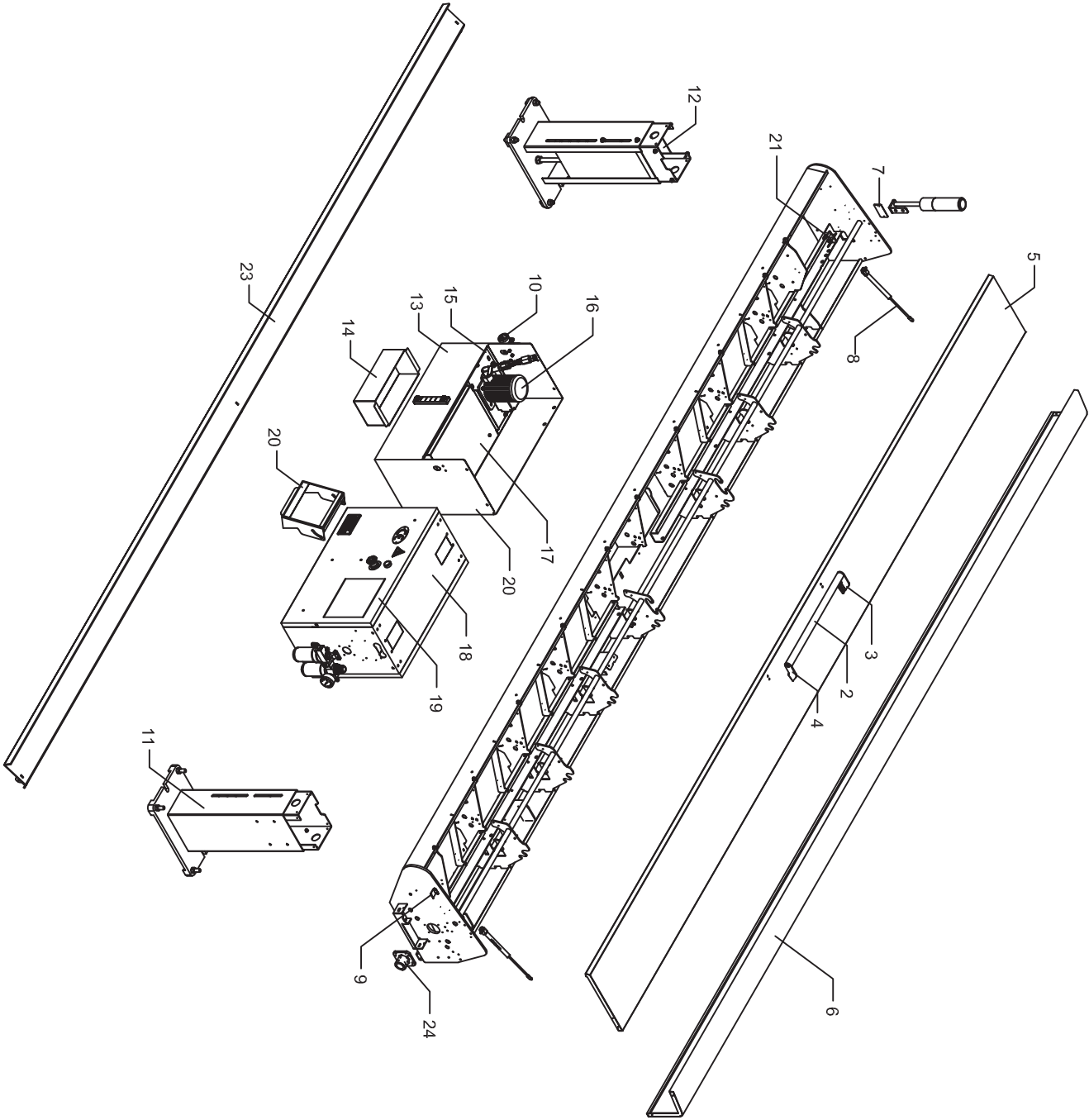
LOADING DEVICE

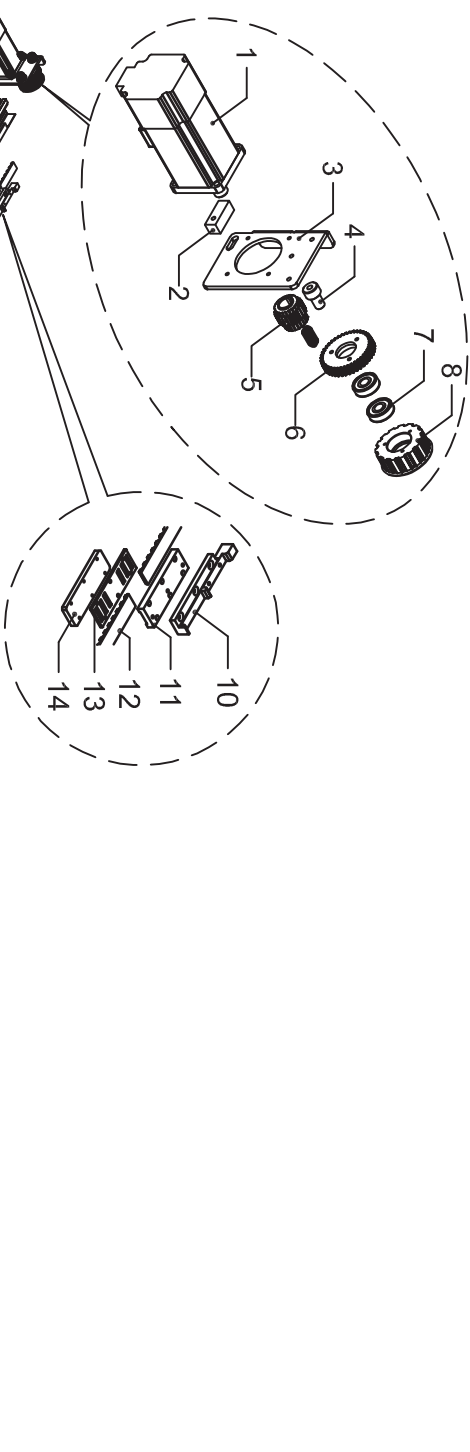


N.	Code	QTY	Denomination
1	A11131805	1	Cylinder SDA-50x35
2	A11130400	1	Cylinder SDAS-50x25
3	A12130800	4	Bended connector 1/4 Ø8
4	RB20GR2300	1	Bushing
5	RB20GR0500	1	Sliding plate
6	RB20GR1400	1	Plate
7	RB20GR0200	2	Arbor
8	RB20GR0100	1	Block
9	RB20GR0110	1	Block
10	RB20GR0400	2	Plate
11	P85202300	2	Bushing
12	Z5080622	2	Pin
13	RB20GR1200	1	Sensor shaft
14	RB20GR1600	1	Anchor(L)
15	RB20GR1700	1	Anchor(R)
16	RB20GR0300	4	Clip cutter
17	RB20GR2800	1	Plate
18	RB20GR2700	1	Plate
19	RB20GR2900	1	Plate
20	RB20GR0700	1	Sliding plate
21	RB20GR1920	1	Anchor
22	J310403	1	Switch D2VW-5-1M
23	12140501	2	Microswitch LY-67A-5M
24	RB20GR2500	1	Base
25	RB20GR030A	1	Clamp device



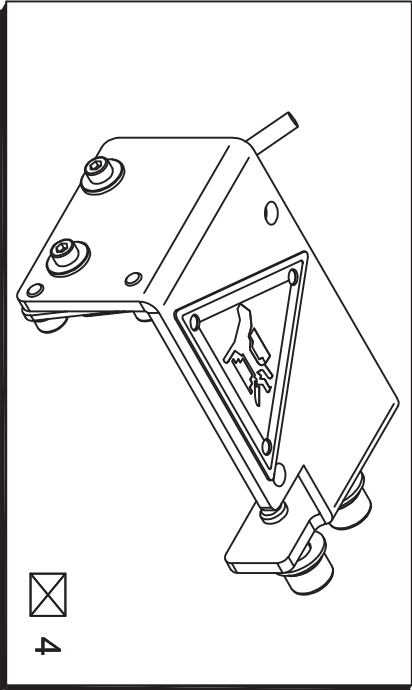
N.	Code	QTY		Denomination
		32	37	
1	RB20BA0228	1		Main structure 2.7M
	RB20BA0238		1	Main structure 3.7M
2	AV51BA35391		1	Handle
3	AV51BA35394		1	Handle plate
4	AV51BA35393		1	Handle plate
5	RB20BA0328	1		Rear cover 2.7M
	RB20BA0339		1	Rear cover 3.7M
6	RB20BA0428	1		Back cover 2.7M
	RB20BA0439		1	Back cover 3.7M
7	RA26BA3200		1	Cover
8	AV51BA3330		2	Hood shock
9	G91120700		1	Holder
10	A12110200		1	Regulator
11	RA26BA0800		2	Lower stand
12	P76200100		2	Adjustable stand
13	RB20OL0400		1	Oil tank
14	RB20OL1000		1	Remain box
15	RB20OL0220		1	Plate
16	RA26OL0401		1	Pump
17	RB20OL0230		1	Plate
18	P76200604		2	Door
19	P76200602		1	Electrical cabinet
20	P76200615		1	Housing
21	RA26BA2900		1	Screw
23	RB20MA3527	1		Magazine 2.7M
	RB20MA3538		1	Magazine 3.7M
24	RB20TE0200		1	Block



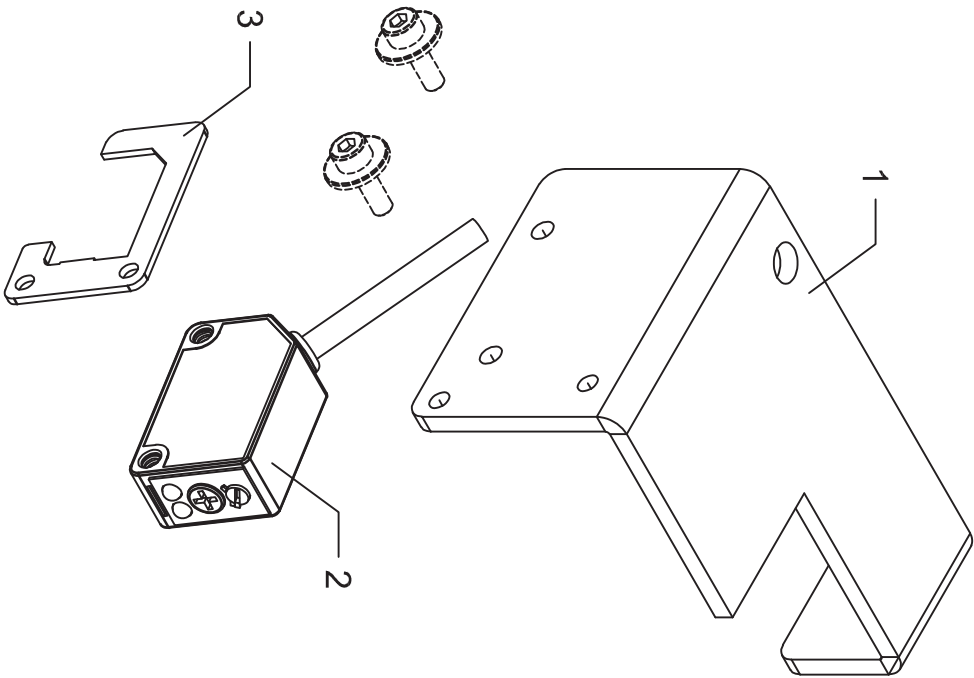


N.	Code	QTY		Denomination
		32	37	
1	M	1		Servo
2	RB20DR1700	1		Block
3	RB20DR1900	1		Plate
4	RA26DR1510	1		Screw
5	RA26DR1600	1		Spur gear
6	P48200200	1		Spur gear
7	B6000ZZ	4		Bearing
8	P48200300	1		Pulley
9	RB20DR000E	1		Belt driver
10	RA26DR0310	1		Carriage
11	RA26DR4200	1		Plate
12	RB20DR4027	1		Belt 2.7M L=6680
	RB20DR4037		1	Belt 3.7M L=8926
13	RA26DR4300	1		Plate
14	RA26DR4400	1		Plate
15	RB20DR1000	1		Block
16	RB20DR0200	1		Spur gear
17	RB20DR1100	1		Block
18	RB20DR1200	1		Block
19	J230306	1		Encoder
20	RB20DR010C	1		Belt device
21	RB20DR4000	1		Synchronization belt

#	台車軌道	L	QTY
27#	RB20DR3327	3099	1
37#	RB20DR3337	4237	1

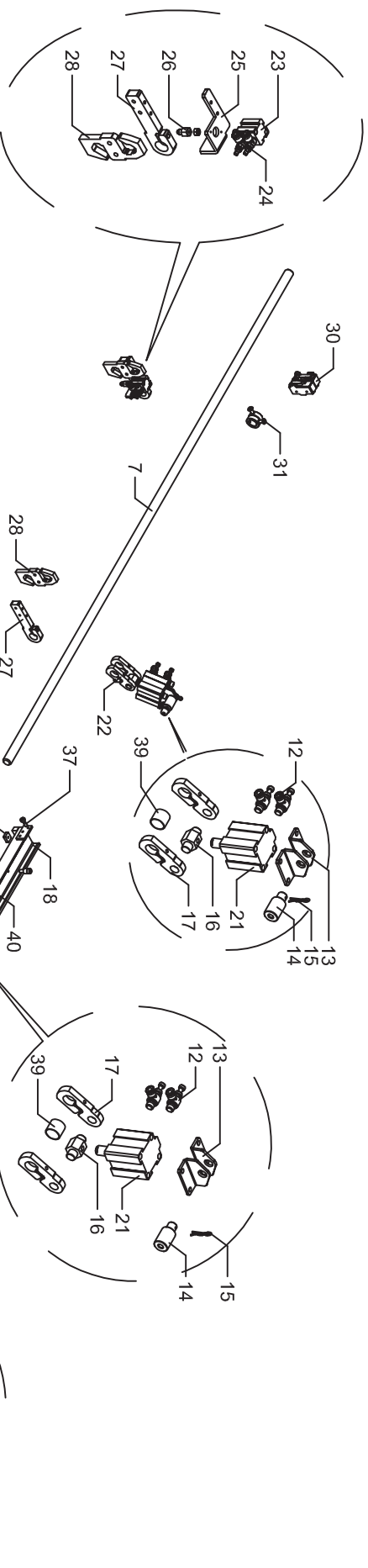


N.	Code	QTY	Denomination
1	RB20FA0200	1	Seat
2	J230531	1	Photoelectric switch
3	RB20FA0500	1	Plate
4	RB20FA000A	1	Cutting device



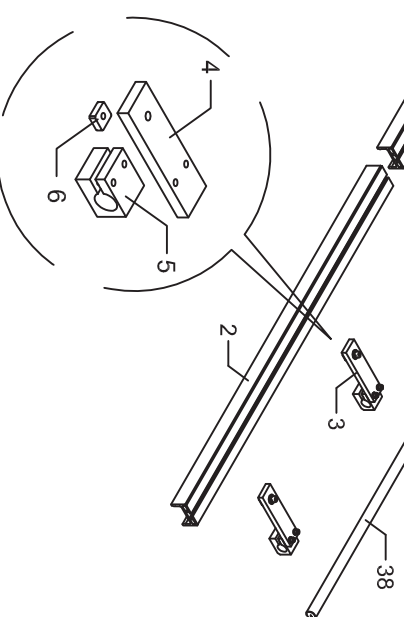
RANGER II 120

CUTTING DEVICE



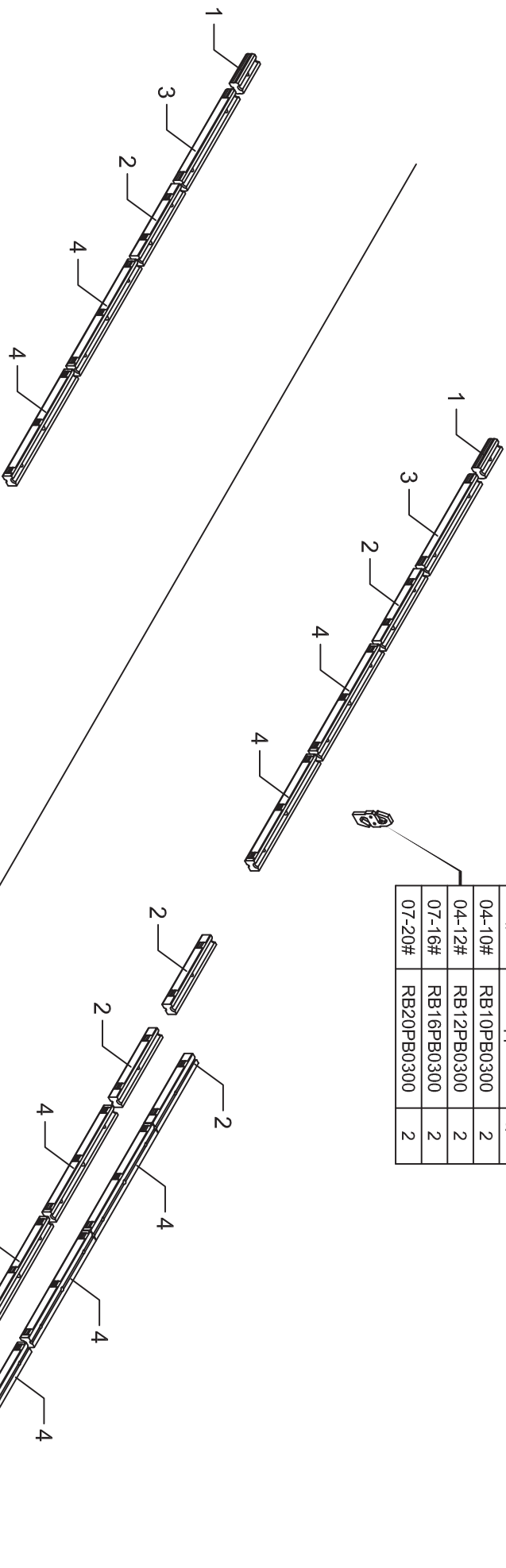
N.	Code	QTY	Denomination
1	RB12CH1200	1	Lower channel section L=1014
2	RB12CH1400	1	Lower channel section L=1205
3	RB20CH001E	6	Plate device
4	RB20CH3100	6	Press plate
5	RB20CH1600	6	Block
6	RA26CH0900	8	Plate
7	RB20CH0517	1	Arbor L=1740
8	RB20CH0519	1	Arbor L=850
9	RB20CH3400	1	Bushing
11	A11132700	2	Cylinder SDA 32x20
12	A12130100	6	Bended connector
13	RB20MA1500	6	Plate
14	RB20CH1100	3	Connector
15	P12200811	3	R-Type Plug
16	RA26MA2010	3	Arbor
17	RB20CH2200	6	Plate
18	RB12CH1300	1	Lower channel section L=200
19	RB20CH0600	1	Arbor
20	RB20CH1810	2	Plate
21	A11130201	1	Cylinder SDA 32x25
22	RB20PB000A	1	Bar pusher cylinder set
23	A11131601	1	Cylinder SDA 12x10
24	A12130300	2	Bended connector
25	RB20PB0200	1	Cylinder support

N.	Code	QTY	Denomination
26	RA26CH0700	1	Locating pin
27	RB20PB0100	2	Press plate
28	RB20PB0300	2	Support 4-12#
30	J310407	2	Limit switch
31	RA26CH000E	2	Bushing device
34	RB20CH010F	1	Channel pin set
35	RB20CH6500	1	Arbor
36	RB20CH2110	1	Plate
37	G55120900	1	Locating pin BP-06L
38	RB20CH0518	1	Arbor L=1190
39	RA26MA3000	4	Spacer
40	RB20CH3500	2	Plate

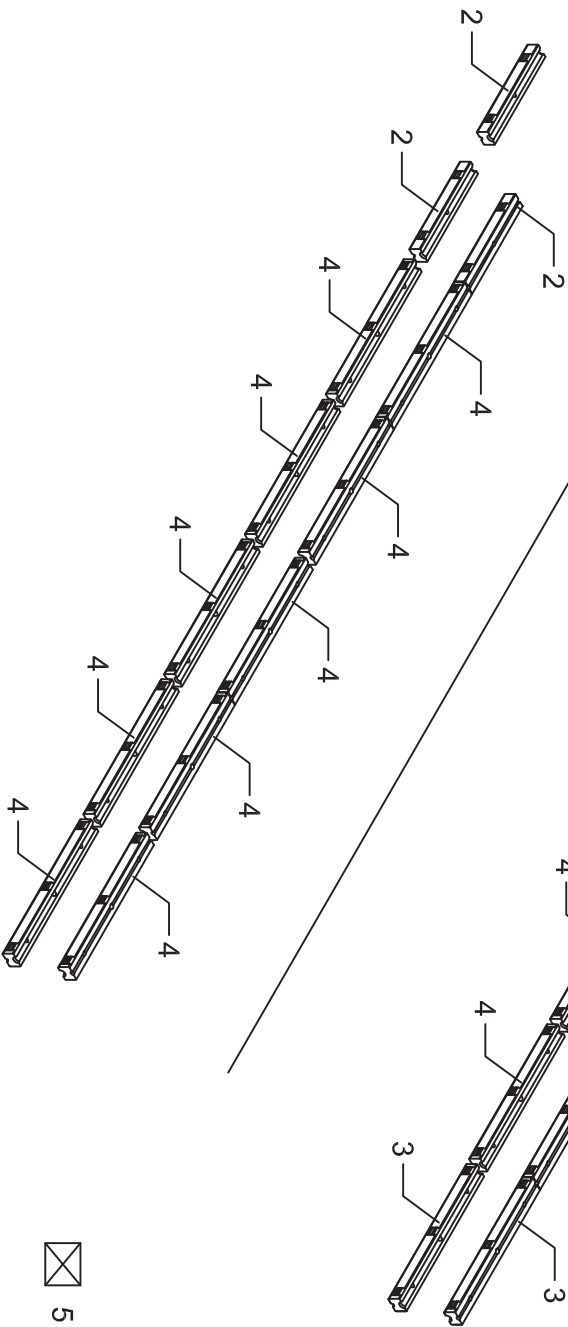




#	Support	QTY
04-10#	RB10PB0300	2
04-12#	RB12PB0300	2
07-16#	RB16PB0300	2
07-20#	RB20PB0300	2



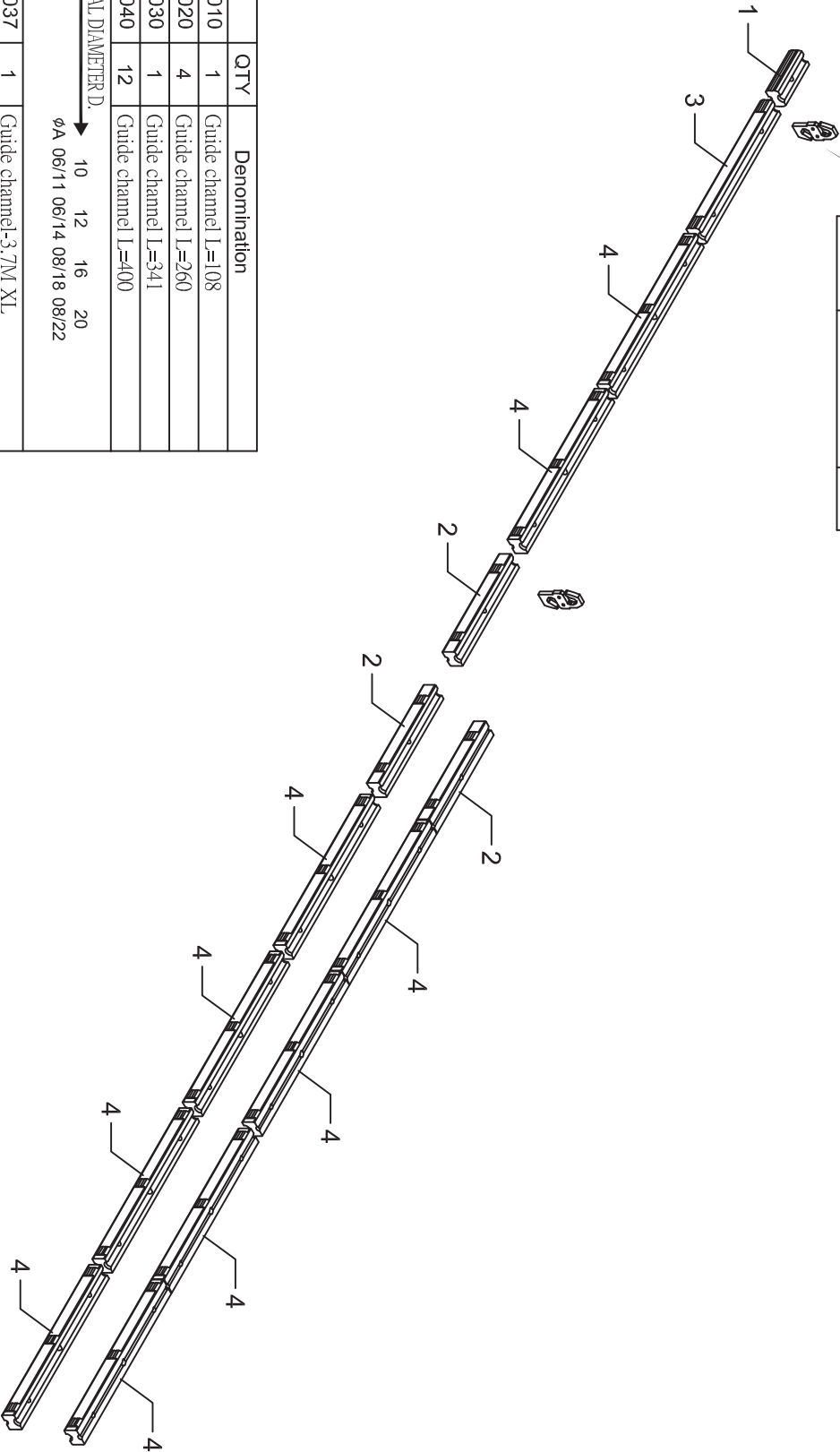
N.	Code	QTY		Denomination
		2.7	3.7	
1	RB__CH0010	1	1	Guide channel L=108
2	RB__CH0020	3	4	Guide channel L=260
3	RB__CH0030	1	1	Guide channel L=341
4	RB__CH0040	8	12	Guide channel L=400
→ 10 12 16 20 φA 06/11 06/14 08/18 08/22				
5	RB__CH0037 XL	1		Guide channel-3.7XL
→ 10 12 16 20 φA 06/11 06/14 08/18 08/22				



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GUIDE CHANNEL

#	Support	QTY
04-10#	RB10PB0300	2
04-12#	RB12PB0300	2
07-16#	RB16PB0300	2
07-20#	RB20PB0300	2



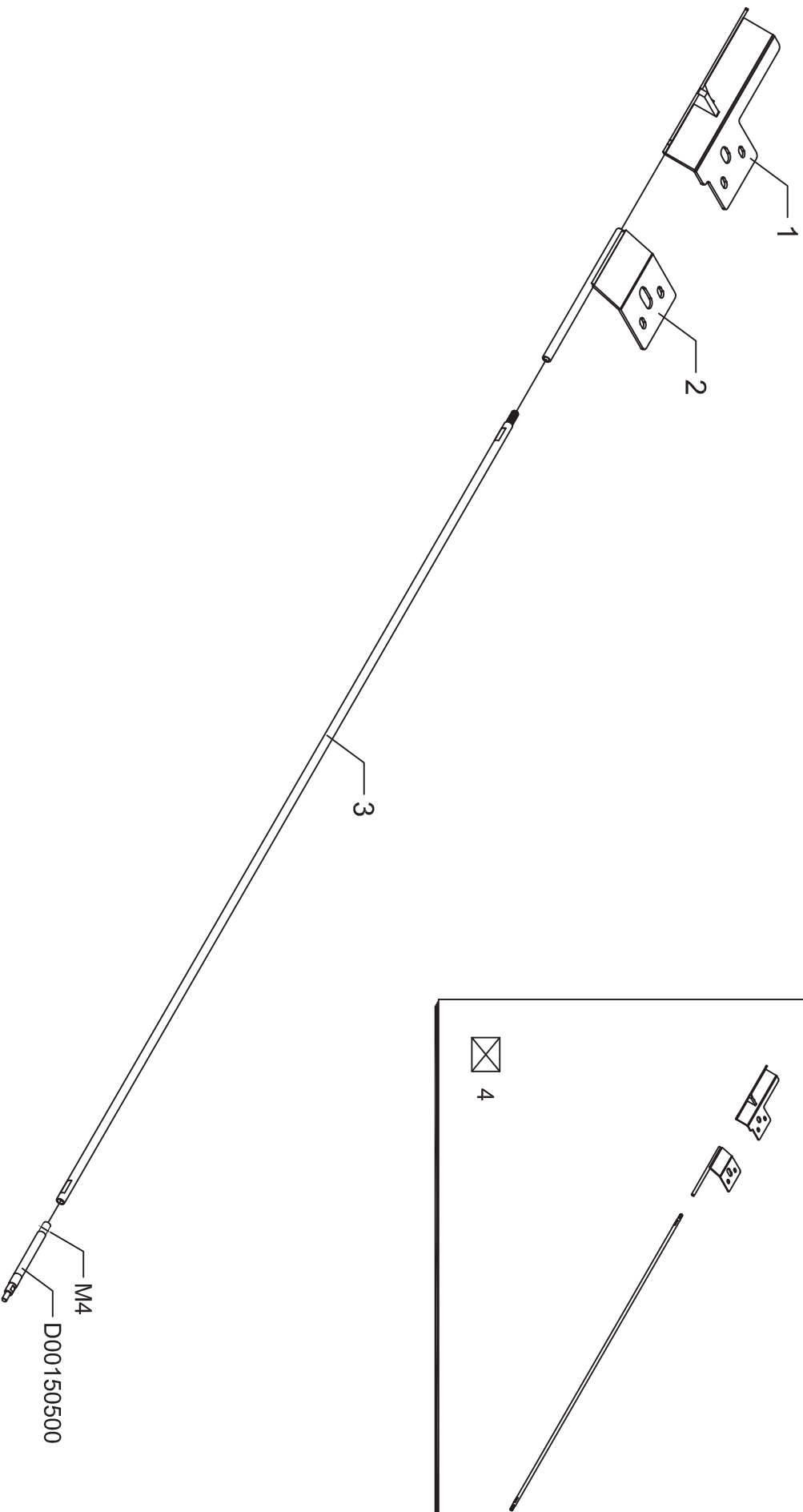
N.	Code	QTY	Denomination
1	RB__CH0010	1	Guide channel L=108
2	RB__CH0020	4	Guide channel L=260
3	RB__CH0030	1	Guide channel L=341
4	RB__CH0040	12	Guide channel L=400
NOMINAL DIAMETER D. 10 12 16 20 φA 06/11 06/14 08/18 08/22			
5	RB__CH0037	1	Guide channel-3.7M XL
NOMINAL DIAMETER D. 10 12 16 20 φA 06/11 06/14 08/18 08/22			



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RANGER II 112

GUIDE CHANNEL 37



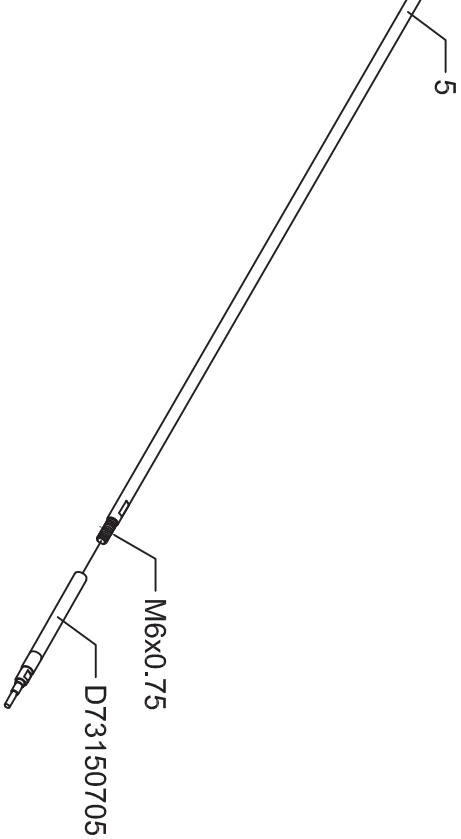
N.	Code	QTY	Denomination
1	RB20PB0400	1	Fix rod
2	RA05PB0310	1	Support
3	PS4050105	1	Fix rod L=1578
4	RB05PB0020-XL	1	RANGER II 112-Bar

RANGER II 120

5# BAR PUSHER DEVICE ☒ 37 ☒ XL



N.	Code	QTY	Denomination
1	RA07PB0500	1	Flag
2	RA07PB0200	1	Fix rod
3	RA07PB0610	1	Spacer Block
4	RA07PB0320	1	Support
5	P54080104	1	Fix rod L=1534
6	RB07PB0020-XL	1	RANGER II 112-Bar



RANGER II 120

7# BAR PUSHER DEVICE

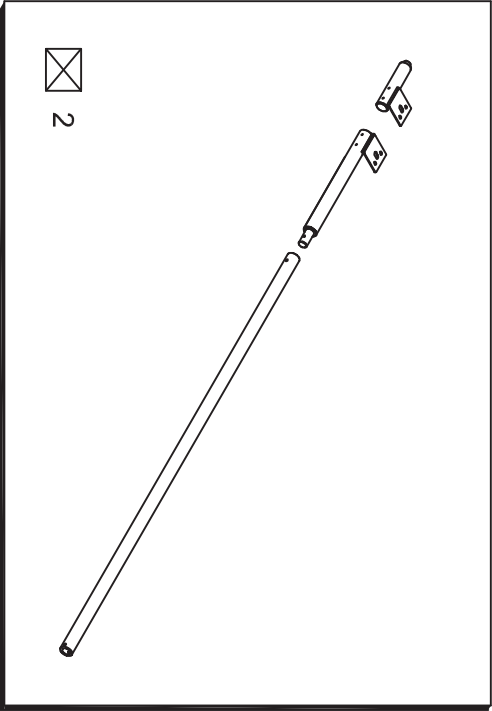
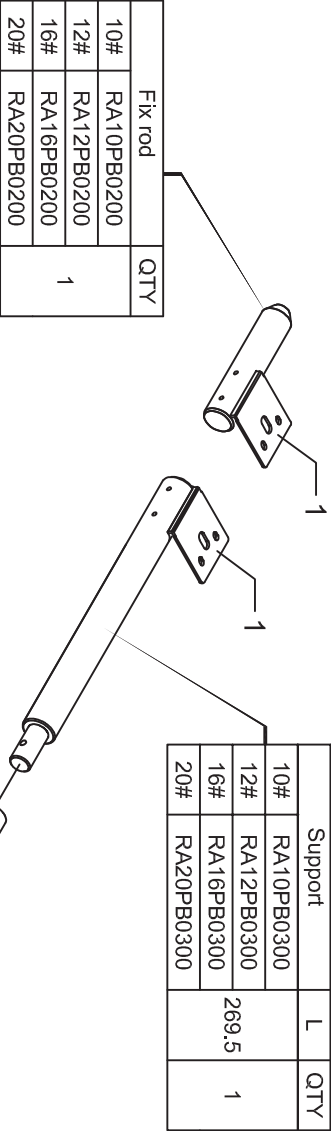
XL



N.	Code	QTY	Denomination
1	RA26PB0100	1	Flag
2	RA10PB0200	1	Fix rod
3	RA10PB0320	1	Support
4	RA10PB060400	1	Fix rod L=1386
5	RB10PB0020-XL	1	RANGER II 112-Bar

RANGER II 112

10# BAR PUSHER DEVICE 37 XL



Support		L	ØA	QTY
12#	RA12PB060400	1381	Ø12	1
16#	RA16PB060400	1364	Ø16	
20#	RA20PB060400	1352	Ø20	

N.	Code	QTY	Denomination
1	RA26PB0100	2	Flag
2	RB_PB0020-XL	1	RANGER II 120-Bar

NOMINAL DIAMETER D.

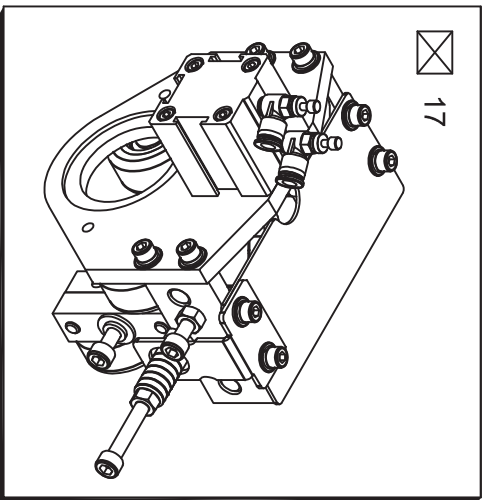
10 12 16 20

φA 10 12 16 20

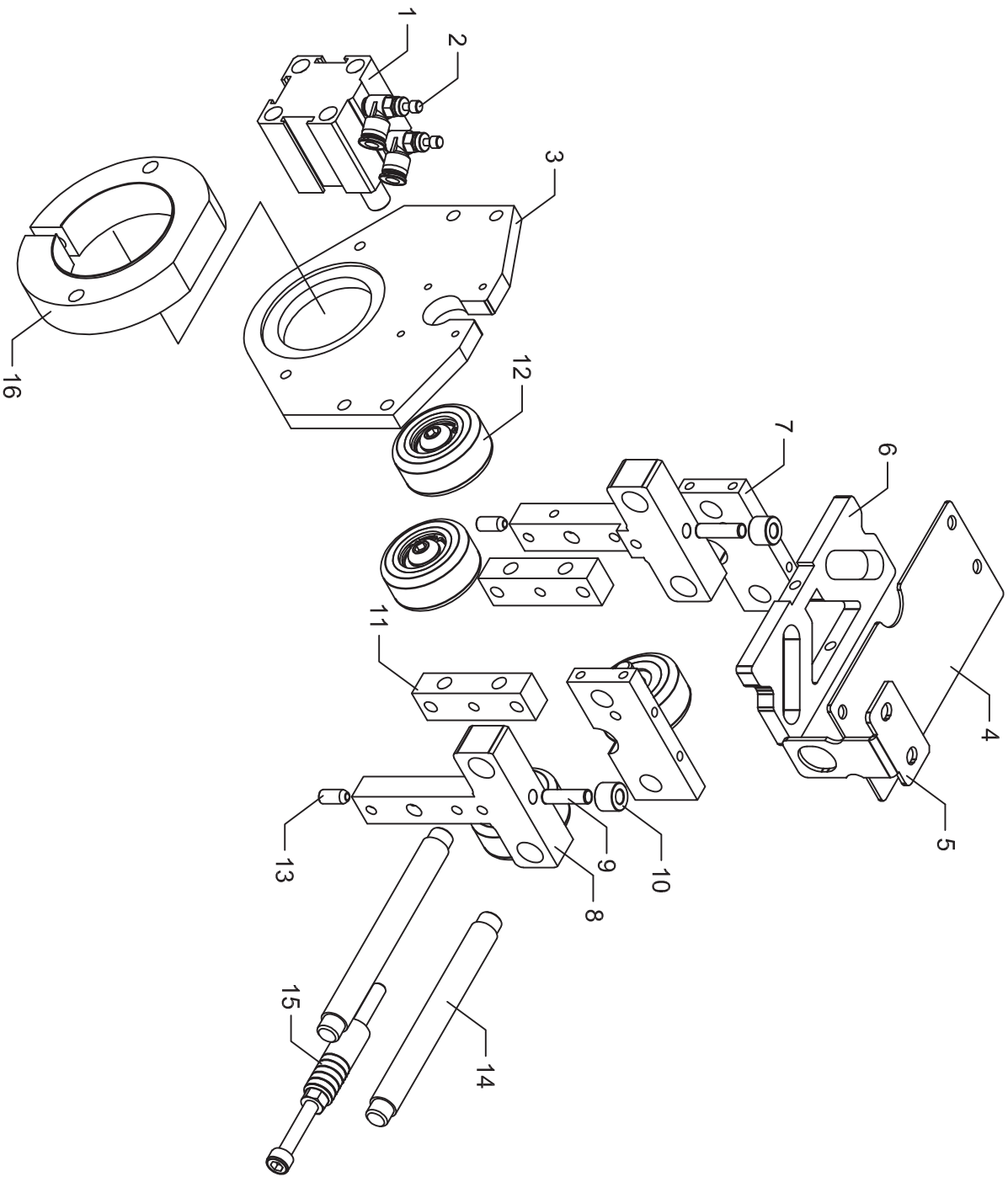
RANGER II 120

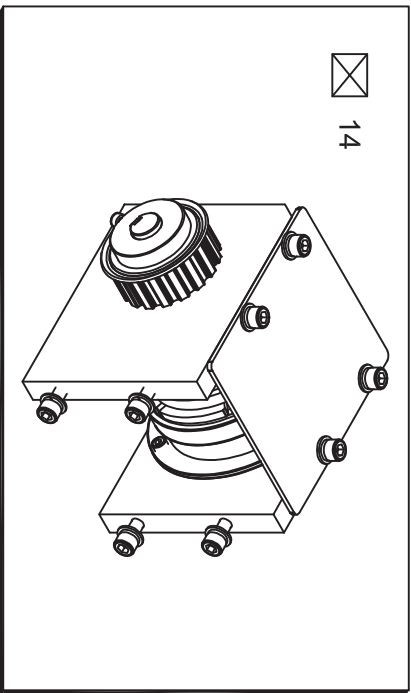
10~20# BAR PUSHER DEVICE 37 XL

Tab. 073 1

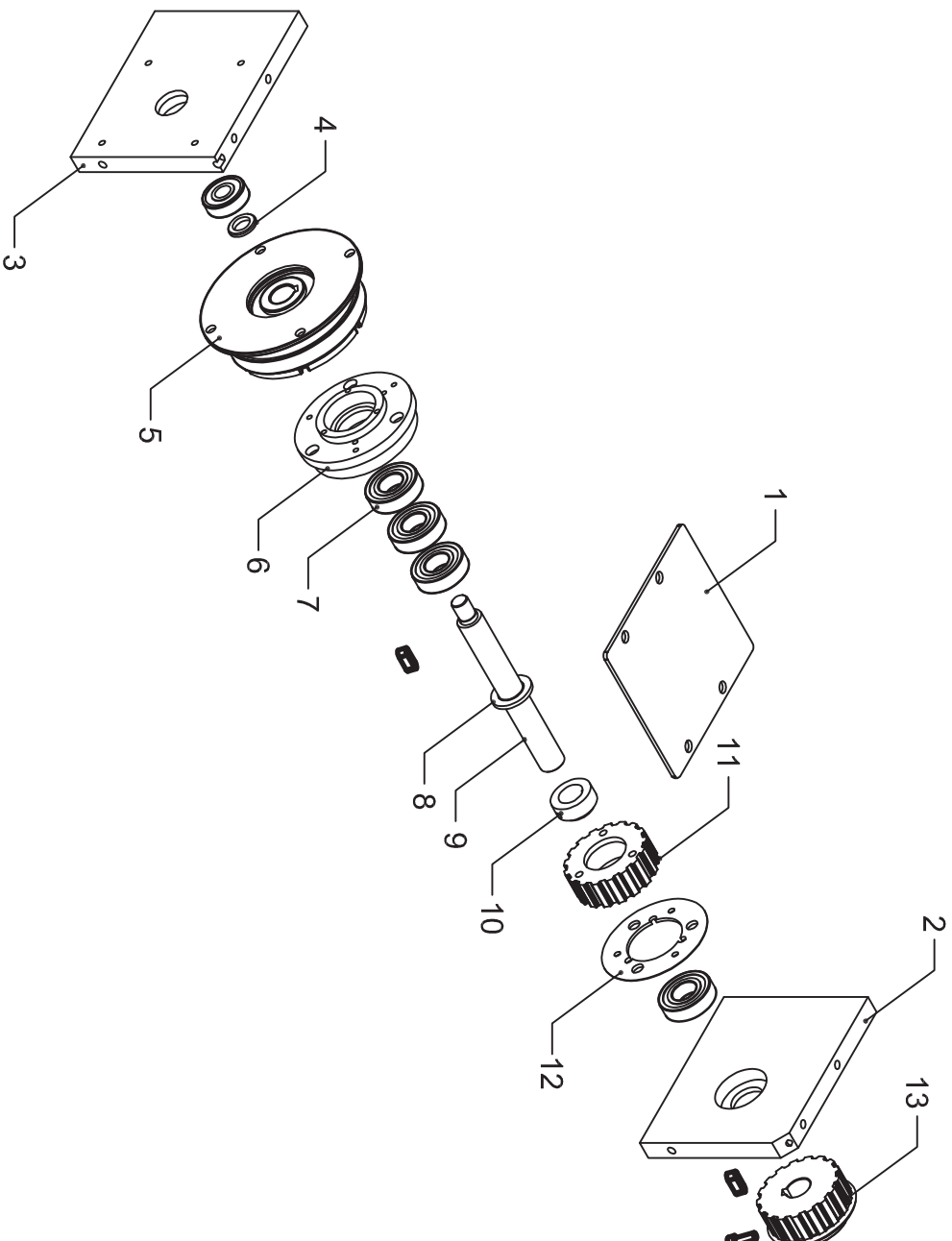


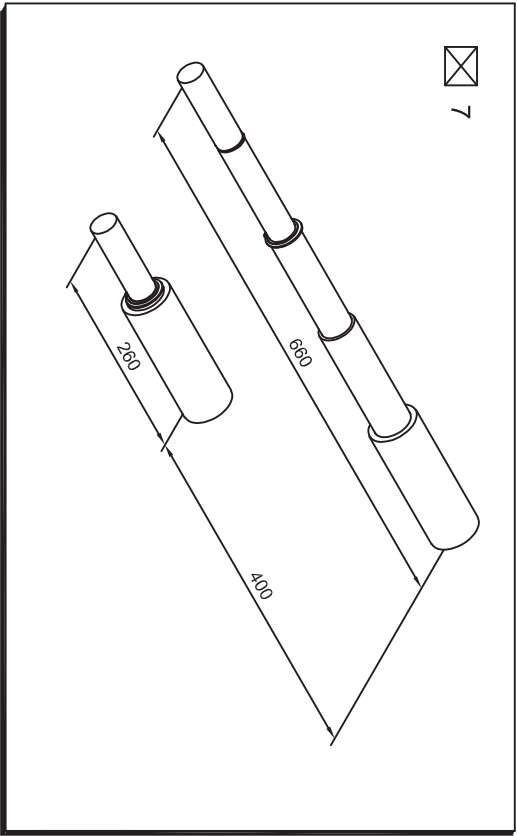
N.	Code	QTY	Denomination
1	A11130100	1	Cylinder SDA 25x20
2	A12130300	2	Flow regulator M5 , Ø6
3	RB20MO0100	1	Plate
4	P85200500	1	Plate
5	P85201360	1	Indicator plate
6	P85200300	1	Plate
7	P85200700	2	Plate
8	P85200200	2	Anchor
9	ZS080622	2	Pin
10	P85202300	2	Roller
11	P85200900	2	Anchor
12	HP8127000F	4	Spacer set
13	G55120900	2	Ball BP-06L
14	P85200100	2	Arbor L=119
15	P85201350	1	Scale shaft
16	RB20TE0600	1	Anchor
17	RB20MO000A	1	Moveable anti-vibration device





N.	Code	QTY	Denomination
1	RB20DR0300	1	Plate
2	RB20DR3000	1	Plate
3	RB20DR3200	1	Plate
4	RA26DR1910	1	Bushing
5	RA26DR2000	1	Clutch
6	RA26DR1010	1	Bearing seat
7	B6002ZZ	5	Bearing
8	P47201100	1	Bushing
9	RB20DR2900	1	Shaft
10	RA26DR1200	1	Fixing ring
11	P49203100	1	Pulley
12	607460402	1	Plate
13	P49201700	1	Pulley
14	RB20DR010B	1	Synchronization device

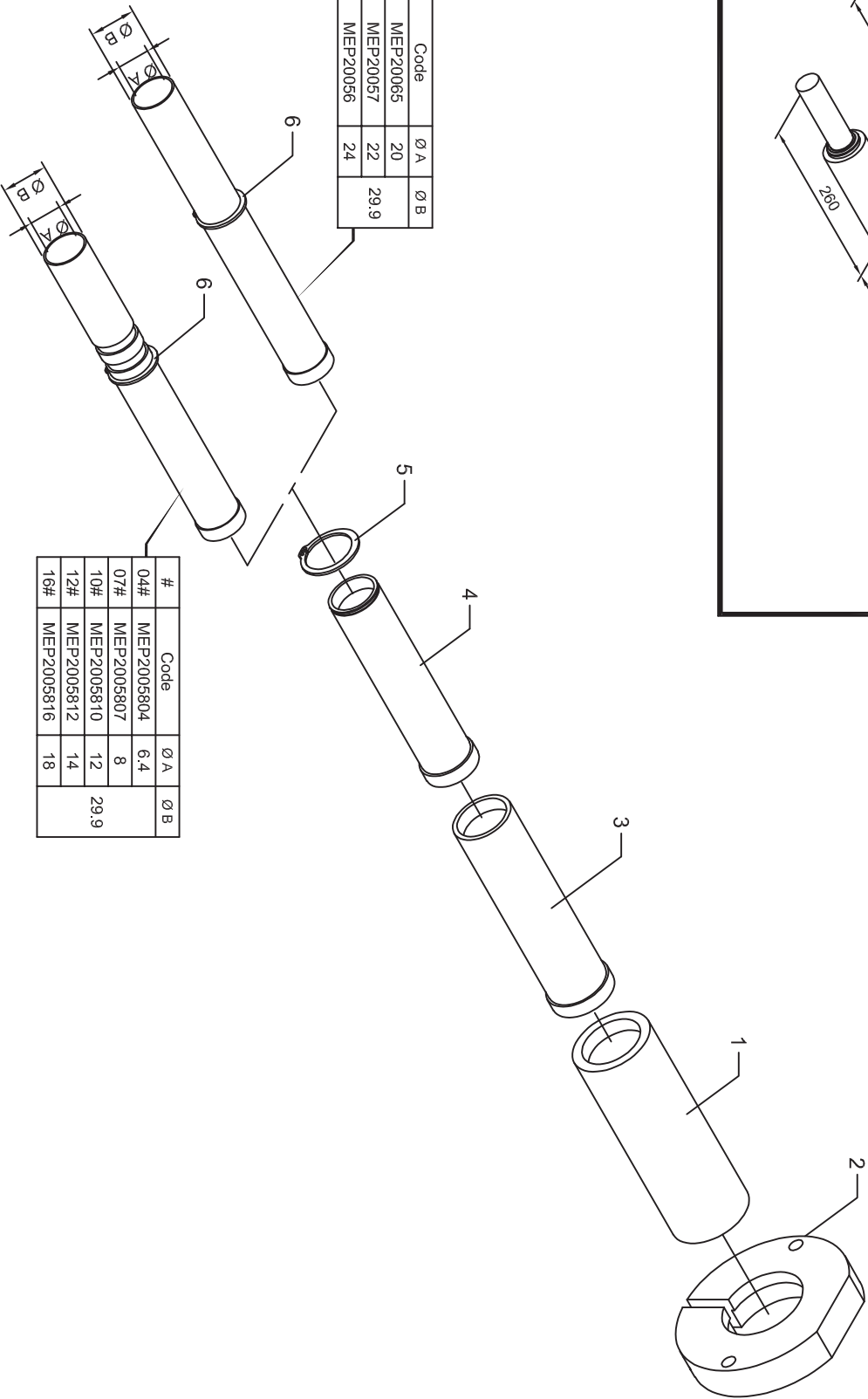




N.	Code	QTY	Denomination
1	RB20TE0100	1	360MM TELE NOSE 1ST STAGE TUBE
2	RB20TE0600	1	Fixed block
3	MEP20053	1	360MM TELE NOSE 2ND STAGE TUBE
4	MEP20054	1	360MM TELE NOSE 3RD STAGE TUBE
5	ZS07S035	1	C RING-S35 (SHAFT)
6	ZS07S030	1	C RING-S30 (SHAFT)
7	RB__TE040A	1	360MM TELE NOSE-MINUTEMAN-TSUGAMI SS20

NOMINAL DIAMETER D. → 04 07 10 12 16 18 20 23

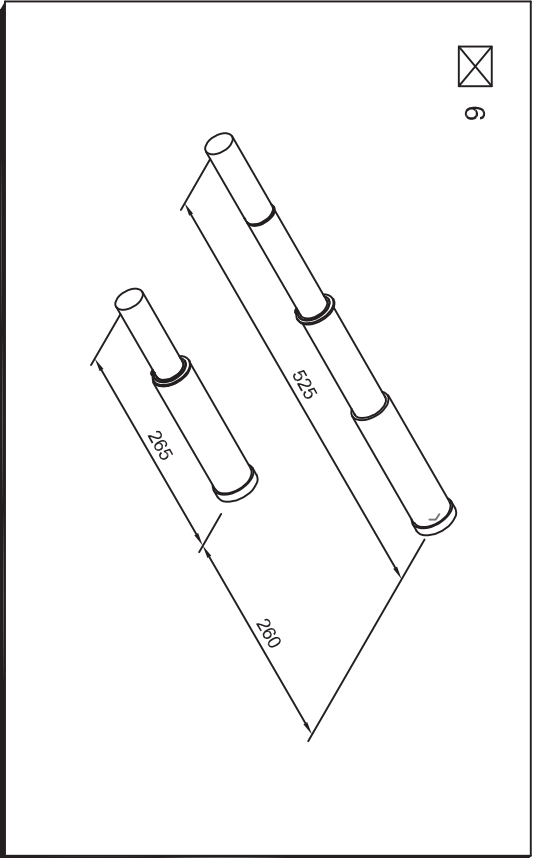
#	Code	Ø A	Ø B
18#	MEP20065	20	
20#	MEP20057	22	29.9
23#	MEP20056	24	



#	Code	Ø A	Ø B
04#	MEP2005804	6.4	
07#	MEP2005807	8	
10#	MEP2005810	12	29.9
12#	MEP2005812	14	
16#	MEP2005816	18	

RANGER II 120

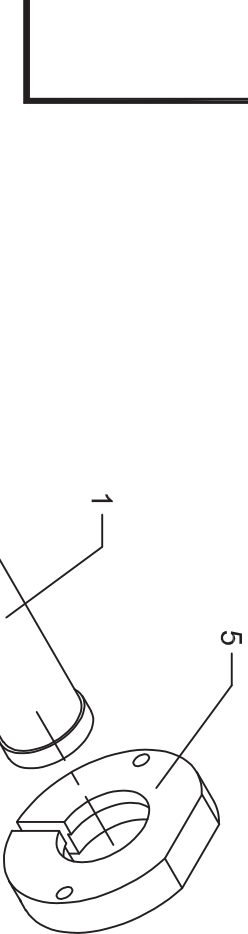
400MM TELE NOSE



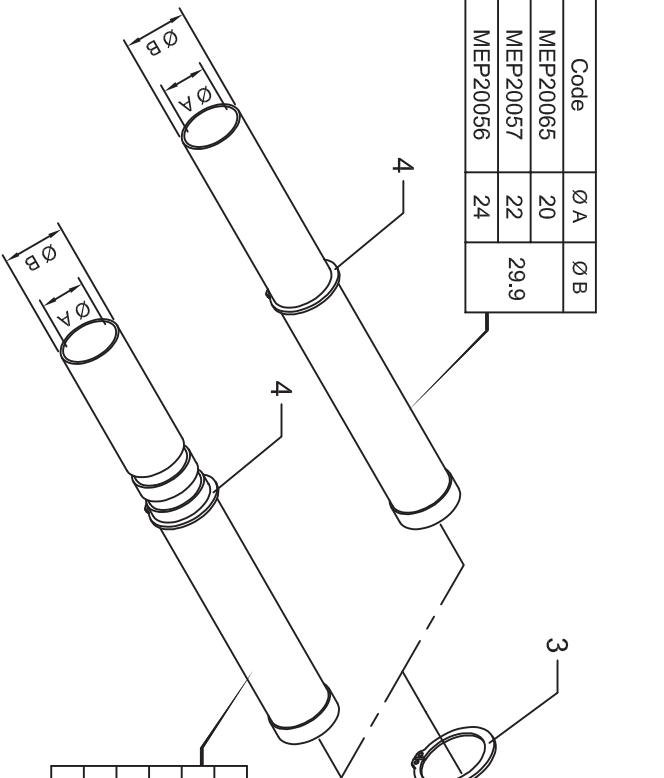
N.	Code	QTY	Denomination
1	MEP20053	1	360MM TELE NOSE 2ND STAGE TUBE
2	MEP20054	1	3360MM TELE NOSE 3RD STAGE TUBE
3	ZS07S035	1	C RING-S35 (SHAFT)
4	ZS07S030	1	C RING-S30 (SHAFT)
5	RB20TE0500	1	Fixed block
6	RB__TE026A	1	360MM TELE NOSE-MINUTEMAN-TSUGAMI SS20

NOMINAL DIAMETER D.

04 07 10 12 16 18 20 23



#	Code	Ø A	Ø B
18#	MEP20065	20	29,9
20#	MEP20057	22	
23#	MEP20056	24	



#	Code	Ø A	Ø B
04#	MEP2005804	6,4	29,9
07#	MEP2005807	8	
10#	MEP2005810	12	
12#	MEP2005812	14	
16#	MEP2005816	18	

RANGER II 112

260MM TELE NOSE

✕

3



N.	Code	QTY	Denomination
1	607710800	1	FIXED PLATE
2	RB04TE0500	1	BUSHING
3	RB_TE017A	1	170MM TELE NOSE
NOMINAL DIAMETER D. 04 07			

#	Code	ID Ø
04#	604462900	12
07#	607462900	16

#	Code	ID Ø	OD Ø	L
04#	604462700	10	12	200
07#	607462700	12	15	

#	Code	ID Ø	OD Ø	L
04#	604310341	7	10	410
07#	607310341	9	12	

#	Code	ID Ø
04#	RB04TE0200	10
07#	RB07TE0200	12

RANGER II 112

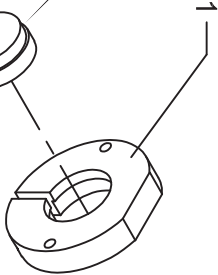
170MM FIXED FRONT NOSE

☒ 2



N.	Code	QTY	Denomination
1	RB20TE0500	1	FIXED PLATE
2	RB__TE000A	1	FIXED FRONT NOSE
NOMINAL DIAMETER D. → 04 07			

#	Code	ID Ø
04#	RB04TE0300	10
07#	RB07TE0300	12

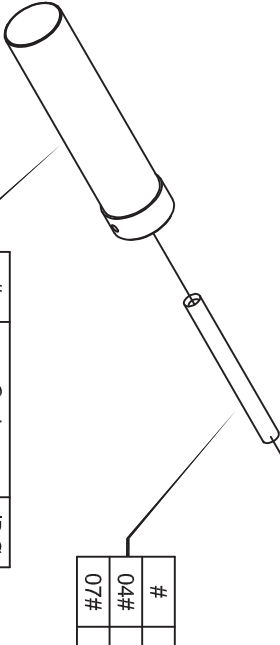


#	Code	ID Ø
04#	604311600	10
07#	607311600	12

#	Code	ID Ø	OD Ø	L
04#	604310341	7	10	410
07#	607310341	9	12	

#	Code	ID Ø	OD Ø	L
04#	RB04TE0421	7	10	130
07#	RB07TE0421	9	12	

#	Code	ID Ø
04#	RB04TE0200	10
07#	RB07TE0200	12



RANGER II 112

FIXED FRONT NOSE