Revision 2.0

Patriot GEN II Series

338 & 551

OPERATIONS MANUAL

PATRIOT Ⅱ 338&551
HYDRODYNAMIC AUTOMATIC BAR FEEDER
PATRIOT Ⅱ SERIES

MANUAL FOR USE AND MAINTENANCE

VER：04 DATE：2024/03/12 COD：BPA702032

S/H

1. General Information

⚠WARNING Please read and understand the manual before operating the bar feeder. Failure to do so could result in hazardous conditions that could result in severe injury or even death, and could cause material damage to the bar feeder.

1.1 Contents of This Manual

The bar feeder manufacturer has provided this manual as an integral part of the bar feeder. By adhering to the manual instructions, operators may prevent injury to themselves and/or damage to the bar feeder, as well as maximize the potential of the bar feeder and machine tool.

Throughout the manual, the following symbols denote important points of information:

⚠DANGER Exercise extreme caution. This warning indicates a high-risk level which, if not avoided, will cause death or severe injury.

⚠WARNING This symbol warns of a hazard with a medium risk level which, if not avoided, could cause death or severe injury.

⚠CAUTION Caution indicates possible hazardous conditions. It warns of a hazard with a low risk level which, if not avoided, could cause minor or moderate injury.

NOTICE A notice indicates that misuse could cause material damage.

1.2 Machine Safety

Operators must provide proper safety equipment to safeguard the operator from harm or injury during operation or setup. It is the operator's responsibility to safeguard the bar feeder according to all federal, state, local government, and industry safety standards. Only trained personnel should operate the bar feeder. Improper use could result in equipment damage and/or personal injury.

1.3 Indemnification

The operator agrees to indemnify and hold harmless Edge Technologies from all claims or liabilities from accidents involving the bar feeder caused by failure of operators, employees, or agents to follow instructions, warnings, or recommendations furnished by Edge Technologies, or by failure of the user to comply with federal, state, and local laws applicable to such equipment, including the occupational Safety and Health Act of 1970.

1.4 Hardware and Software Changes

While Edge Technologies persists as the premier bar feeder supplier in the industry, ongoing development and upgrades to software and hardware are possible. All software noted in this manual is current to the print of this manual. For latest developments and upgrades, please visit **www.edgetechnologies.com**.

1.5 Machine Serial Plate

A. Name of Manufacturer

B. Model (Type)

C. Serial Number

D. Manufacture Date

E. Weight of Machine

F. Pnuematic Pressure

G. Rated Voltage

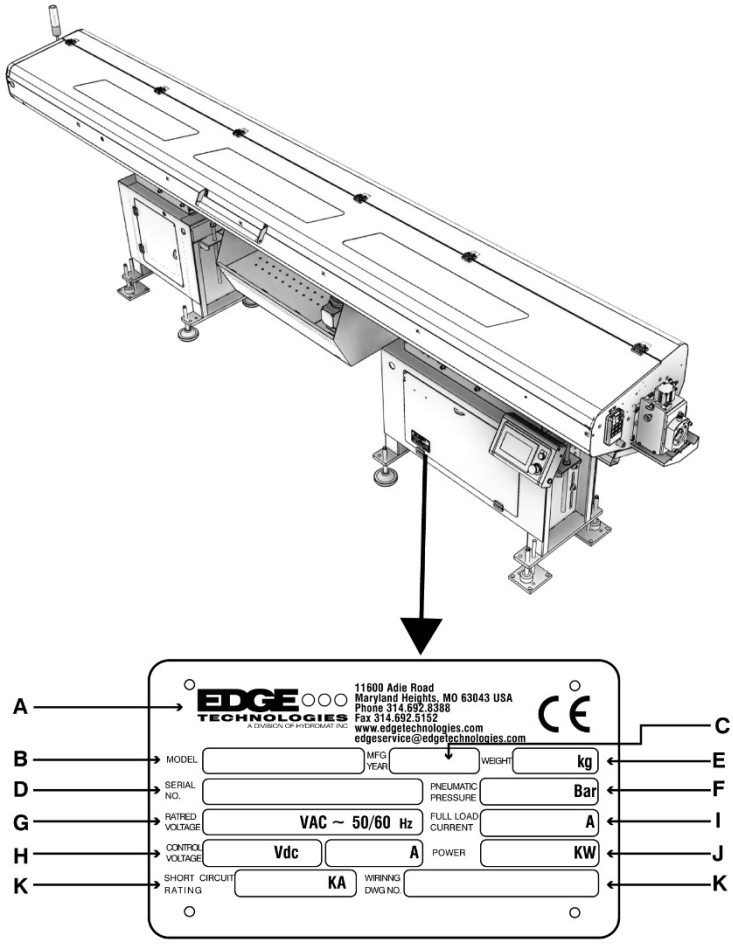
H. Control Voltage

I. Full Load Current

J. Power

K. Short Circuit Rating

L. Wiring Drawing Number



Important Information: When inquiring about parts or service, please have the machine model type and serial number available. Refer to the machine data plate pictured above for information.

1.6 Customer Support

For the Parts department, contact us at **(314) 810-3959,** or via email at **orderdesk@edgetechnologies.com.**

For the Service department, contact us at **(314) 810-3927,** or via email at **edgehelp@edgetechnologies.com**

2. Technical Information

2.1 Description of the Bar Feeder

The Patriot is an automatic bar feeder controlled by a Programmable Logic Controller (PLC) and designed for both fixed headstock lathes and Swiss-type (sliding headstock) lathes. It can handle a wide variety of material profiles, such as round, hex, and square stocks, and can be adapted to feed materials with a more unique shape.

The Patriot's hydrodynamic design dampens vibrations caused by bar stock rotation. The bar stock spins within a polyurethane channel that is flooded with a high viscosity circulation oil. This process creates turbulence within the channel that serves to steady the material and control vibration. The bar stock is supported by a rotating tip on the end of the bar pusher and by the workholding system of the lathe.

At the front of the bar feeder is an anti-vibration device (AVD). Polyurethane bushings surround the bar, leaving a few millimeters clearance between the bar and the bushings. This void is filled with oil to help further stabilize and support the stock.

The touchscreen Human Machine Interface (HMI) gives access to parameters that allow easy setup and operation. Most job changeovers require only one or two parameter settings to be changed. While in Automatic mode, the screen displays current position, material remaining, and what signals are being sent.

2.2 Following Features

(1) Guide channel set. Several sizes are available, and each handles a specific stock range. Refer to the chart on the following page. (A spindle liner is required if the channel set is not the lathe's max capacity.)

(1) O.D. bar stock collet. (A specific collet is needed for each stock diameter.)

Patriot 338

(1) Set bushing blocks for outboard anti-vibration device. These are chosen based on bar diameter.

Synchronization device and Swiss lathe adaption kit

Custom lathe cable and interface plugs

Air knife with flow control valve

Movable Anti-Vibration Device (MAVD) with rollers, block set available as option

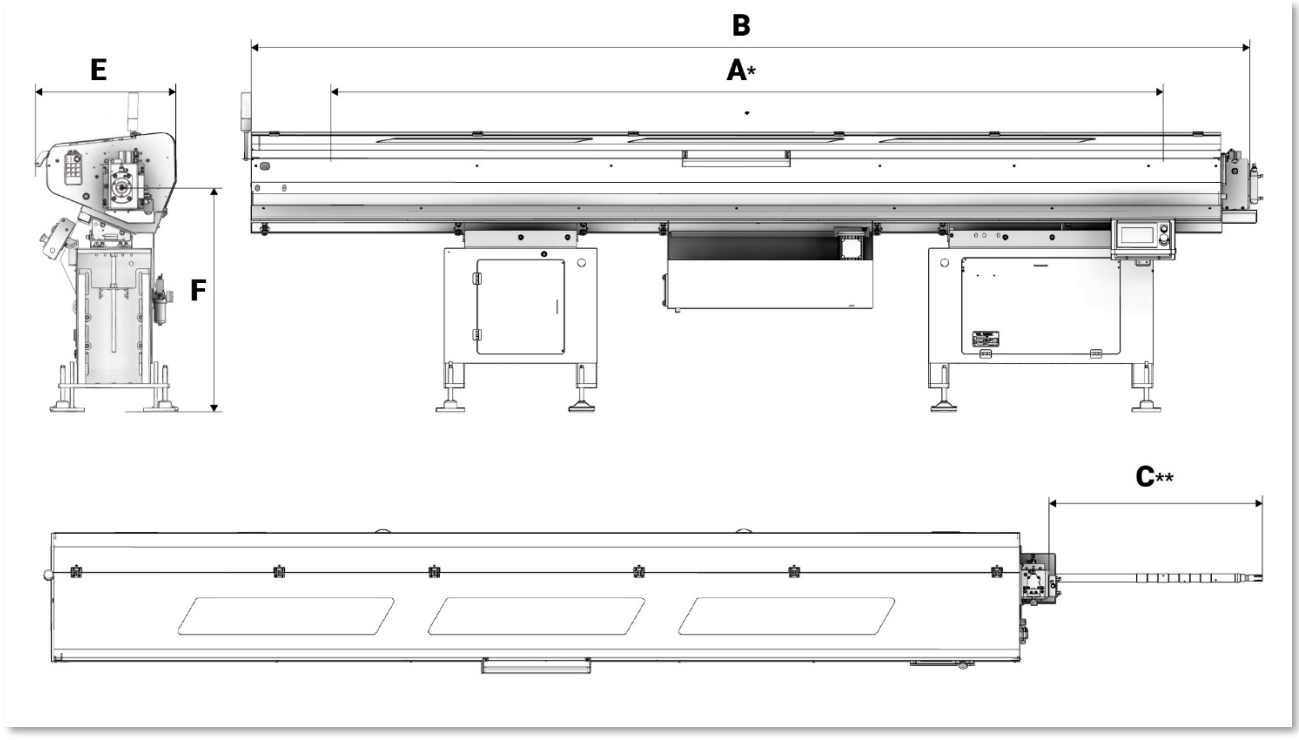
Patriot 551

(1) Front hard nose to match guide channel set

(1) Set bushing blocks for outboard AVD. These are chosen based on bar diameter.

Custom lathe cable and interface plugs

Machine Diagram and installation area



* Dimension A: Material bar length; ** Dimension C: Depending on on the pusher

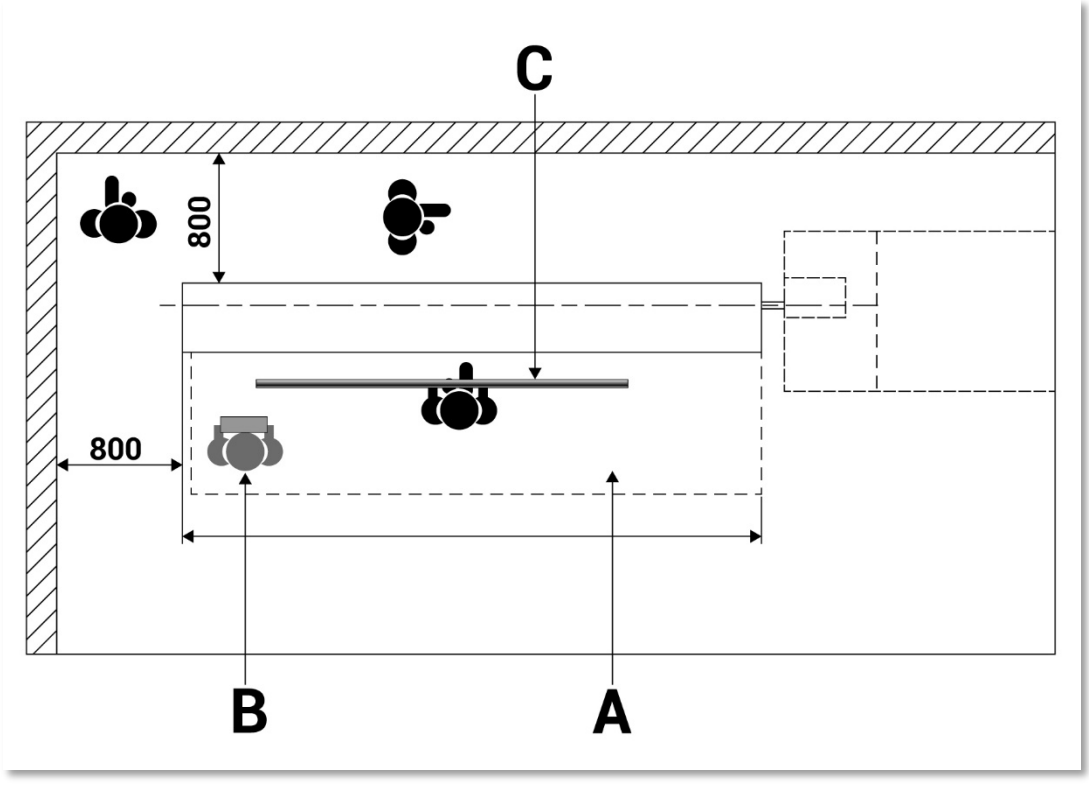
Pusher length	(L) 1220mm	(LL) 1550mm	(XL) 2120mm
	C1	C2	C3

Machine type	A	B	C1	C2	C3	E	F***
8' standard	2600	3200	1120	1500	x	701	850 - 1450
8' extended	2600	3740	x	x	2030		
12' standard	3800	4400	1120	1500	x		
12' extended	3800	4940	x	x	2030		

***On bar feeders with an axial shift, increase value by 70mm (920mm - 1520mm)
Heights above 1250mm must use tall stand kit.

2.3 Installation Area

NOTICE **The floor on which the bar feeder is placed must be designed to bear the loads. Non-observance can lead to material damage. The Patriot must be bolted to a sound, level floor using anchor bolts. The area surrounding the machine must allow sufficient clearance for the operator to access both sides and the rear of the machine, as shown in the diagram below.**



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[1] Areas of interest:

A - Operator area

B - Remnant material area

C - Supply Area

The space must provide an adequate working area. All values are in metric.

2.4 Technical Specifications

Model	Patriot 338	Patriot 551
Bar diameter capacity—no bar preparation	3 mm to 35.0 mm (0.118" to 1.377")	5 mm to 50.8 mm (2.000")
Bar diameter capacity—with bar preparation	3 mm to 38 mm (0.118" to 1.500")	5 mm to 54.5 mm (2.145" front ejection only)
Maximum bar length	3800 mm (12' 6")	3800 mm (12' 6")
Minimum bar length	1000 mm (39.4")	1000 mm (39.4")
Maximum remnant length	406 mm (16")	406 mm (16")
Magazine rack capacity	12"	12"
Bar loading cycle time	30 seconds for 12-foot bar	30 seconds for 12-foot bar
Material straightness specification	0.007" TIR/foot of material (V blocks, 3 points equidistant)	0.007" TIR/foot of material (V blocks, 3 points equidistant)
Feed force (pusher torque)	Max 450 N, adjustable	Max 450 N, adjustable
Forward feed rate	750 inches/minute max, adjustable	750 inches/minute max, adjustable
Return feed rate	1000 inches/minute max, adjustable	1000 inches/minute max, adjustable
Power consumption	1.5 kW - (2 kVA)	1.5 kW - (2 kVA)
Operating voltage	230V/60Hz 3-phase	230V/60Hz 3-phase
Control voltage	24V DC	24V DC
Oil capacity	57 liters (15 gallons)	57 liters (15 gallons)
Oil viscosity	ISO 100 cST	ISO 100 cST
Compressed air supply	6 bar (90 psi)	6 bar (90 psi)
Compressed air consumption	Approx. 8 liters per loading cycle	Approx. 8 liters per loading cycle
Machine weight	2,500 lbs	2,700 lbs

2.5 Bar Feeder Oil Requirements

Viscosity	Brand	Description
ISO 100 Oil	BP	Energol CS 100
	Castrol	Magna 100
	Cheveron	Circulating Oil 100
	Elf	Mvoixa 100
	Esso	Nuto 100
	Mobil	Vectra Oil Heavy
	Shell	Vitera 100 / Tellus C 100

2.6 Guide Channel Specifications

NOTICE **Use the channel set recommended for the bar stock diameter to avoid bar feeder or lathe damage.**

	Guide Channel	Pusher Diameter	Minimum Bar Size	Maximum Bar Size	*Maximum Bar Size with Front Remnant Expulsion	
Patriot 3-38	Ø 13mm	12.5mm	3mm (.118")	10mm (.393")	12mm (.472")	Patriot 5-51
	Ø 17mm	16.5mm	5mm (.196")	15mm (.591")	16mm (.629")	
	Ø 21mm	20.5mm	8mm (.315")	19.05mm (.750")	20mm (.787")	
	Ø 26mm	25.0mm	8mm (.315")	22.2mm (.875")	25mm (.984")	
	Ø 28mm	27.5mm	10mm (.393")	25.4mm (1.000")	27mm (1.062")	
	Ø 33mm	32.5mm	10mm (.393")	28.5mm (1.125")	32mm (1.259")	
	Ø 36mm	34 or 35.5 mm	12.7mm (.500")	32mm (1.260")	35mm (1.377")	
	Ø 39mm	38.0mm	15.8mm (.625")	35.0mm (1.377")	38mm (1.500")	
	Ø 43mm	42.5mm	19mm (.750")	38mm (1.500")	42mm (1.653")	
	Ø 46mm	45.5mm	22.2mm (.875")	42.07mm (1.656")	44.5mm (1.750")	
	Ø 52mm	51.0mm	25.4mm (1.000")	47.75mm (1.880")	50.5mm* (2.000")	
	Ø 56mm	55.0mm	25.4mm (1.000")	50.8mm (2.000")	54.5mm (2.145")	

** Bar stock larger than the standard maximum diameter up to the collet diameter may be used if the bar end diameter is reduced to fit a standard collet. An ejection collet may also be used if the end of the material is chamfered to match the angle of the ejection collet. match the angle of the ejection collet.*

For a complete list of available guide channels, review the Parts section at the end of this manual, or visit www.edgetechnologies.com.

2.7 Compressed Air Supply, Including Oil

⚠WARNING When working with compressed air, proper PPE is required in accordance with federal, state, and local laws. Flying air particles can be a hazard for eyes and exposed parts of the body.

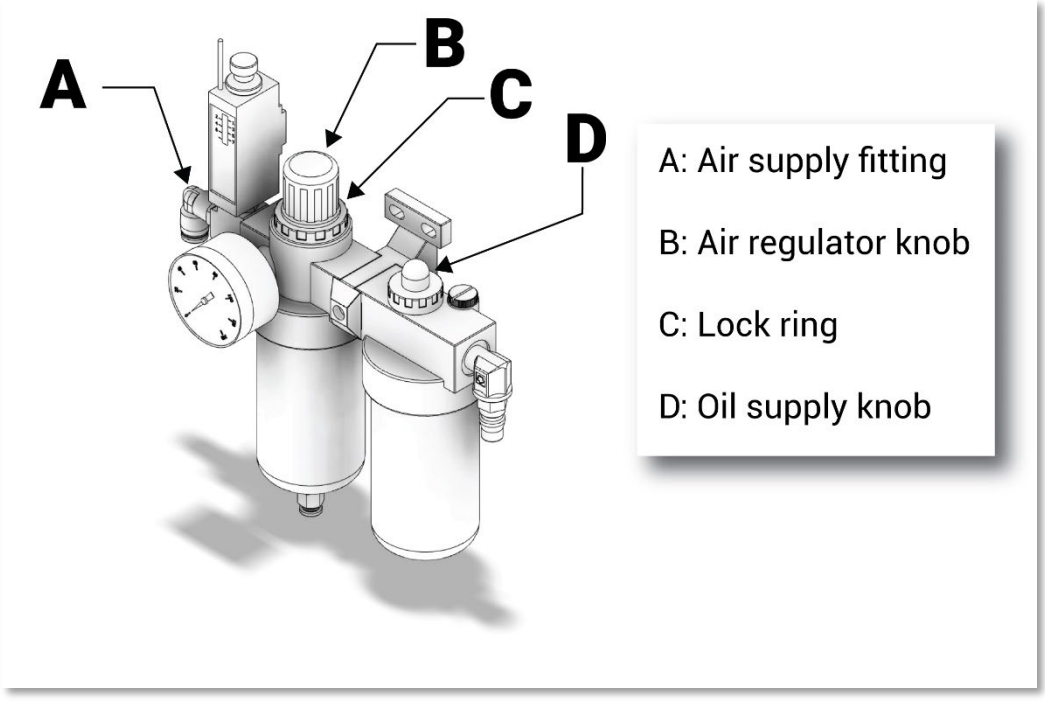
Compressed air supply must be available for machine operation.

1. The supply hose for compressed air supply must be larger than 8 mm.
2. Pressure must be over 5-7 kg/cm^2 71.11 – 99.56 PSI, Consumption about 50L/H.
3. Connect the air supply tube into (A). Pull up and rotate knob counterclockwise (B) and set the pressure at 6kg/cm^2 71.11 – 99.56 PSI.

Air System Lubricant – Viscosity of 32, temperature 40℃, ISO VG type.

Oil level should be checked monthly. Use the recommended oil to avoid damage to the pneumatic system. Adjust control air lubrication from cylinder, 1 - 2 drops/1000L air if necessary.

Air Unit Lubricating Oil - ISO VG32				
BP	Castrol	Chevron	Mobil	Shell
Energol HLP 32	Hyspin VG32	Regal R&O 32	DTE 24 or Light	Tellus 32



3. Safety

⚠ DANGER Safety switches should always be connected and in place during bar feeder operation.

The Patriot is designed to be safe and reliable. Only trained personnel should operate the bar feeder. Personnel should be familiar with the operating instructions of the equipment before using it and should follow standard safety practices. The machine is equipped with safety devices to prevent accidental damage to the machine and injury to the operator. These devices must not be bypassed or tampered with.

3.1 Covers and Hood Switch

⚠ WARNING Covers prevent access to moving parts during operation and should always be in place during bar feeder operation.

The hood of the machine is equipped with a safety switch to place the machine in alarm if the hood is not closed. The cover prevents access to the material on the rack and the bar separators.

3.2 Emergency Stop Buttons

⚠ WARNING The Emergency Stop buttons should be tested monthly to verify the proper emergency stoppage of the lathe and Patriot.

The Patriot has two Emergency Stop buttons: one on the handheld pendant and one on the HMI. Button ES1 is an Emergency Stop button on the HMI control panel housing. Button ES2 is an Emergency Stop button on the remote pendant control. Pressing either Emergency Stop button disconnects Emergency Stop circuit.

Contacts from the Emergency Stop buttons interface with the lathe Emergency Stop circuit, so the lathe can be manually placed into Emergency Stop condition from the Patriot control panel. The lathe Emergency Stop system will place the bar feeder into Emergency Stop as well. Some lathes during Emergency Stop will cut the supply voltage to the bar feeder. This will not allow the bar feeder to meet the Emergency Stop reset requirements of the lathe. The lathe will be stuck in Emergency Stop and the bar feeder will not power up. If this occurs, please contact Edge Technologies for appropriate instructions. Verify Emergency Stop operation between the lathe and bar feeder is operational.

When the Emergency Stop on either machine is pressed, automatic operations are stopped immediately.

3.3 Electrical Safety

⚠ DANGER Only a qualified electrician or serviceman should perform electrical troubleshooting or maintenance.

⚠ DANGER Do not perform maintenance, repairs or adjustments without first locking out all electrical controls in accordance with all federal, state, and local safety codes.

⚠ DANGER Personnel should be trained in OSHA-compliant lock-out/tag-out and electrical safety procedures.

⚠ DANGER Make certain that the power supply is disconnected before attempting to service or remove any components.

⚠ DANGER Never should adjustments, maintenance or cleaning be performed without following proper safety procedures in accordance with local, state, and national safety codes.

Before making any electrical connections, verify the voltage that the bar feeder requires from the lathe with a voltmeter at the power supply connector. Verify that this voltage matches the required voltage of the bar feeder. Failure to do so may result in injury or damage to the equipment.

Normally, a bar feeder is ordered from Edge Technologies to be used with a specific lathe model. The wiring interface is set in accordance with the most current information received by Edge Technologies. The lathe manufacturer may update and change the main connector pin locations and circuits. It is important this is verified with the schematics of the lathe and bar feeder. In some cases, a harness is provided that must be wired into the lathe. All previous safety advisories and information must be adhered to. This form of connection allows for quickly unplugging for cleaning or service without having to disconnect “hard wired” connections. Before starting the bar feeder, check to be sure no tools, packing, or other material have been left in the machine or lathe.

3.4 Electrical Connection

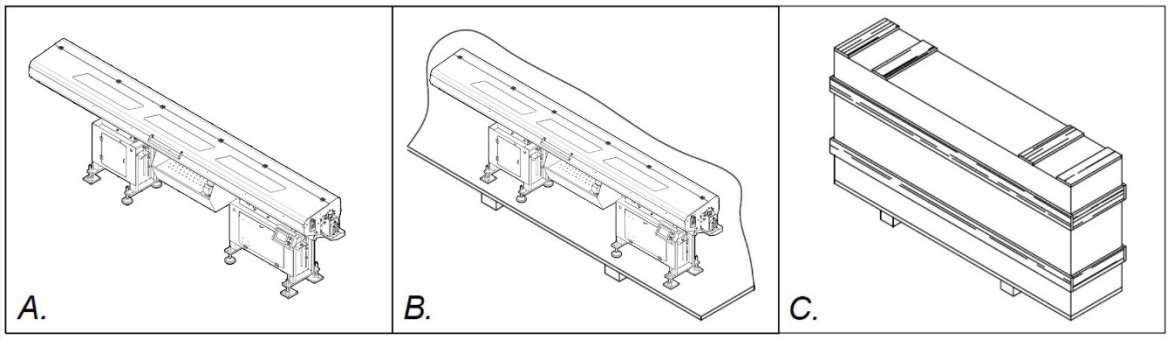
⚠ DANGER The power supply voltage for the Patriot, the input, and the output signals between the bar feeder and lathe are supplied through the interface cable. The interface cable is pre-wired for the lathe application when shipped from Edge Technologies. Verify the connection to the lathe before applying voltage to the system. The lathe must support a bar feeder interface for the two machines to be connected. The power supply output on some lathes may be higher than the required 230V. If this is the case, an additional transformer will be required to step down the lathe voltage for the bar feeder.

4. Transportation and Handling

⚠ DANGER Without packaging, the Patriot weighs approximately 2,800 lbs. Only trained operators are to use lifting equipment. Improper handling can result in an operator being crushed. Verify that the equipment to be used for moving the machine is rated to safely lift the weight of the bar feeder plus the packaging material. Make special note that the machine is top heavy and take proper precautions.

4.1 Unpacking the Bar Feeder

Lifting and moving the bar feeder by forklift is the preferred method of handling the machine. The forks must extend past the machine cabinet. Lift the machine from the side opposite the magazine and maintain sufficient clearance from the forklift mast to avoid contact. Take care to keep the load balanced. Do not lift the machine any higher than necessary.



Packaging the Bar Feeder

The bar feeder will arrive in one of three ways:

A: Without Packaging

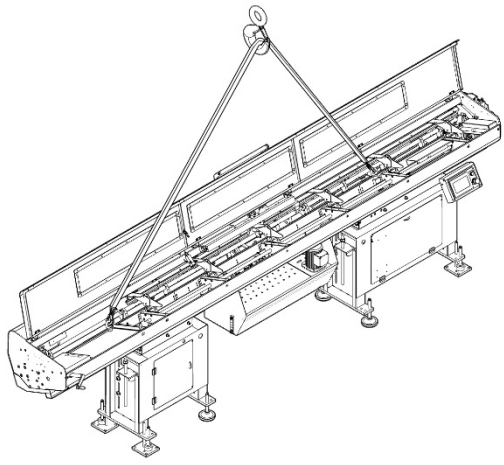
B: Attached to a skid or Pallet

C: Crated in a wooden box

4.2 Transportation and Hoisting

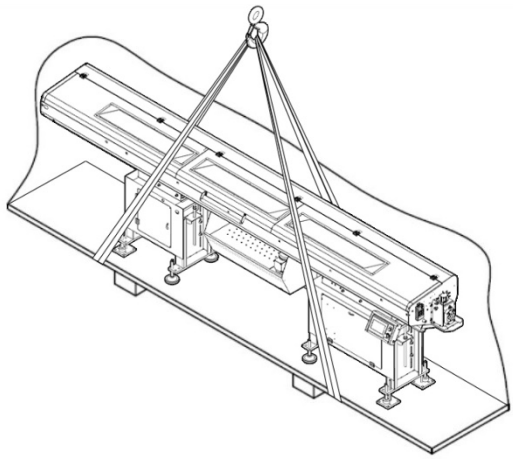
<u>Hoisting the bar feeder</u>

Attach the hooks of suitable web slings to eyebolts attached to the core beam inside to bar feeder.



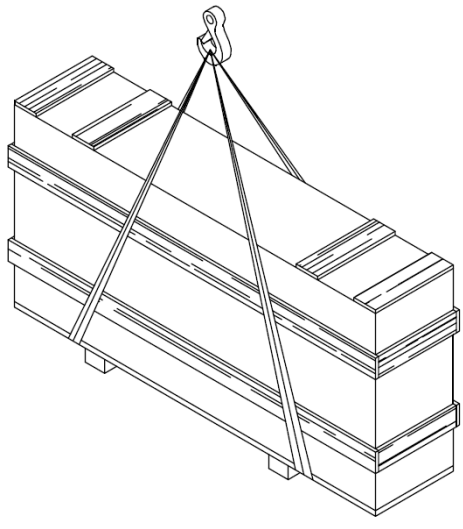
<u>Hoisting with bar feeder on pallet</u>

Position suitable lifting straps under the pallet near the stands.



<u>Hoisting the bar feeder in a crate</u>

Position suitable lifting straps under the pallet near the stands.



5. Installation

5.1 Lathe Preparation

Prior to installing the bar feeder, the lathe installation must be completed and ready to produce parts. If no lathe spindle workholding is installed and if no compressed air is supplied, the bar feeder cannot be installed.

⚠ DANGER Only qualified electricians or servicemen should perform any electrical troubleshooting or maintenance to this equipment.

⚠ WARNING Be sure the lathe and bar feeder Emergency Stops are engaged when performing the manual alignment procedure.

The lathe must be operational to perform the alignment and installation with the proper chucking package.

Some lathe models have covers for the spindle area. These covers may or may not be on the lathe when the lathe is ready for bar feeder installation. Review with lathe personnel to identify the related covers. If the covers are off the lathe, this may become an issue if the bar feeder is positioned close enough that it would interfere.

5.2 General Installation Guide

⚠ WARNING The following steps are to be performed by a trained technician.

Step 1: Inspect the bar feeder for damage.

Carry out a detailed inspection of the bar feeder to ensure no components have been physically damaged.

Step 2: Make sure the location has all required items they will need.

- Communicate directly with the person in charge, so decisions can be made in a timely fashion.
- Ask to be made aware of any special regulations or safety requirements to adhere to while working in the facility.
- Ask and be introduced to the employee(s) that will require training.
- Request the required oil be prepared for the bar feeder.

Step 3: Check inventory.

- Adaption kit. Verify that all components are present (refer to picklist supplied with the bar feeder).
- Guide channel, pushers, collets, noses. Ensure that all parts are there and are correct.
- If spindle liners are required, ensure they are correct for the lathe, and test load them.
- Verify that all hardware required for the alignment, anchoring and installation are present.

5.3 Bar Feeder Installation Process

1. Inspect the bar feeder for any shipping or handling damage, and report as necessary.

2. Verify the lathe installation condition.
   A. Lathe is level for operation.
   B. Lathe will power up.
   C. Lathe has a collet or chuck package.
   D. Lathe is free of any alarms.

3. Verify components of the pre-installation checklist are complete.
   A. Ensure access to compressed air to the bar feeder installation location.
   B. Bar feed oil is available and correct for the application.
   C. Material for parts is available.
   D. Spindle liner is available if required.

4. Verify bar feeder components are present.
   A. Required bar feed level pads and associated nits, washers and bolts
   B. Anchor bolts
   C. Head stock adaptors
   D. Correct channel set installed
   E. Threader rod, bracket, and nuts
   F. Telescopic nose or hard nose
   G. Hard nose insert, if required
   H. Bushing blocks or rollers
   I. MAVD, if equipped

5. Calculate bar feeder positioning.
   A. Consider lathe headstock stroke.
   B. Consider bar feeder reach capability.
   C. Determine distance based on manual specifications.
   D. Consider axial shift requirements.
   E. Verify collapsibility of telescopic nose.
   F. Verify reach of telescopic nose.

6. Install laser or string components for alignment and targets to bar pusher.
   A. Lathe collet/chuck
   B. Lathe guide bushing as required
   C. Lathe spindle
      I. Verify bar pusher reach and headstock stroke.
      II. Verify axial shift reach and stroke.

7. Drill and anchor bar feeder to floor.
   A. Verify floor is not heated.
   B. Drill holes complete through floor using an entire 12-inch drill stroke.
   C. Drive anchors completely into floor with associated fender and washers installed.
   D. Tighten anchors fully.

8. Verify alignment, adjust as necessary.
   A. Verify bar pusher reach and headstock stroke.
   B. Verify axial shift reach and stroke.

9. Install MAVD as required.
   A. Align MAVD.
   B. Adjust as required.

10. Install telescopic or hard nose.
   A. Install required inserts.
   B. Align as required.
   C. Cut the telescopic or hard nose as required.
      I. Verify collapsibility of telescopic nose.
      II. Verify reach of telescopic nose.

11. Connect synchronization rod.
   A. Cut threaded rod, as required.
   B. Adjust the stroke of the synch rod on the bar feed.
   C. Verify the axial shift synch switch adjustment and adjust as required.

12. Cut lathe sheet metal.
   A. If additional machines are present, review for consistent appearance.

13. Verify lathe signals.
   A. Emergency Stop from lathe
   B. Emergency Stop from bar feeder
   C. Door signal
   D. Torque stop
   E. Bar change
   F. Auto cycle/cycle start
   G. Collet open/close

14. Perform auto bar change with lathe.
   A. Add bar change program to the lathe.

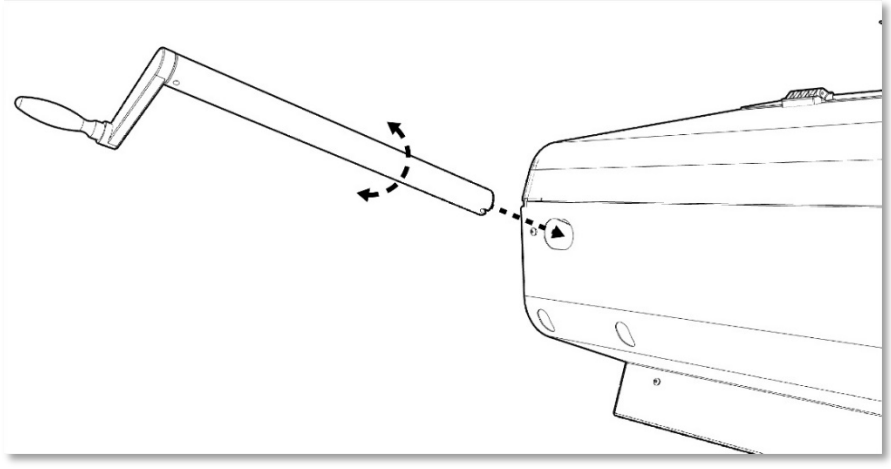
15. Add oil to bar feeder.
   A. Verify the oil on and off positions.
   B. Test running the oil for about 30 minutes to ensure proper flow.

5.4 Hand Crank

⚠ CAUTION **Do not apply power to the bar feeder with the hand crank inserted into the servo gearbox. Otherwise, personal injury may result.**

A hand crank has been included that may be used to manually operate the pusher carriage when performing a channel changeover.

The sheet metal of the Patriot is equipped with an access hole to insert the hand crank.



5.5 Axial Shift

NOTICE **Incorrect bar feeder placement may cause catastrophic damage to the lathe or bar feeder.**

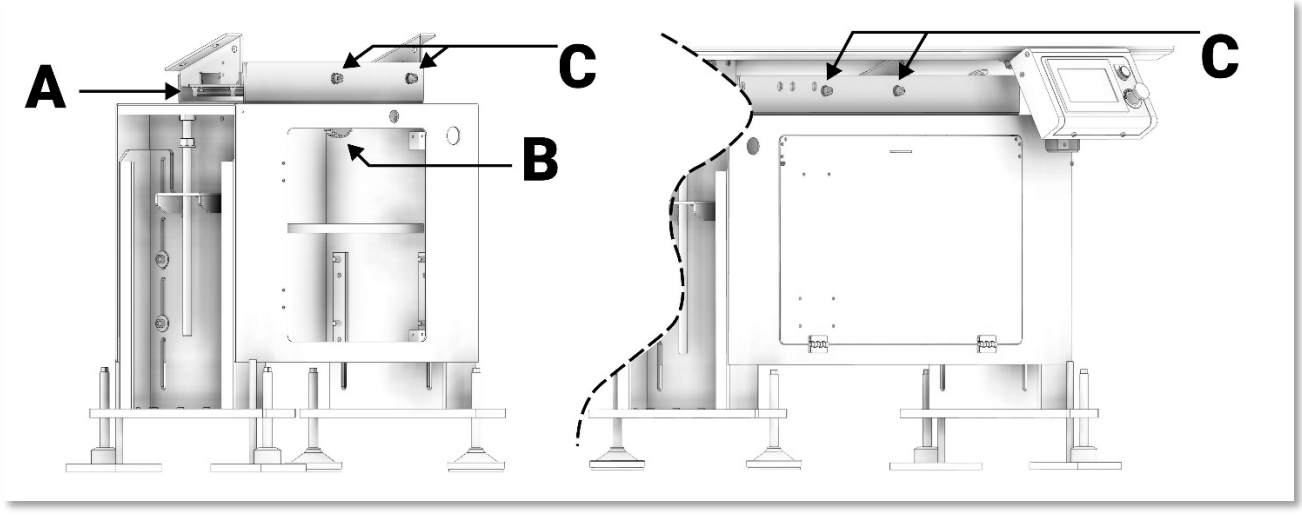
⚠ CAUTION **All axial shift safeties must be adjusted and set correctly.**

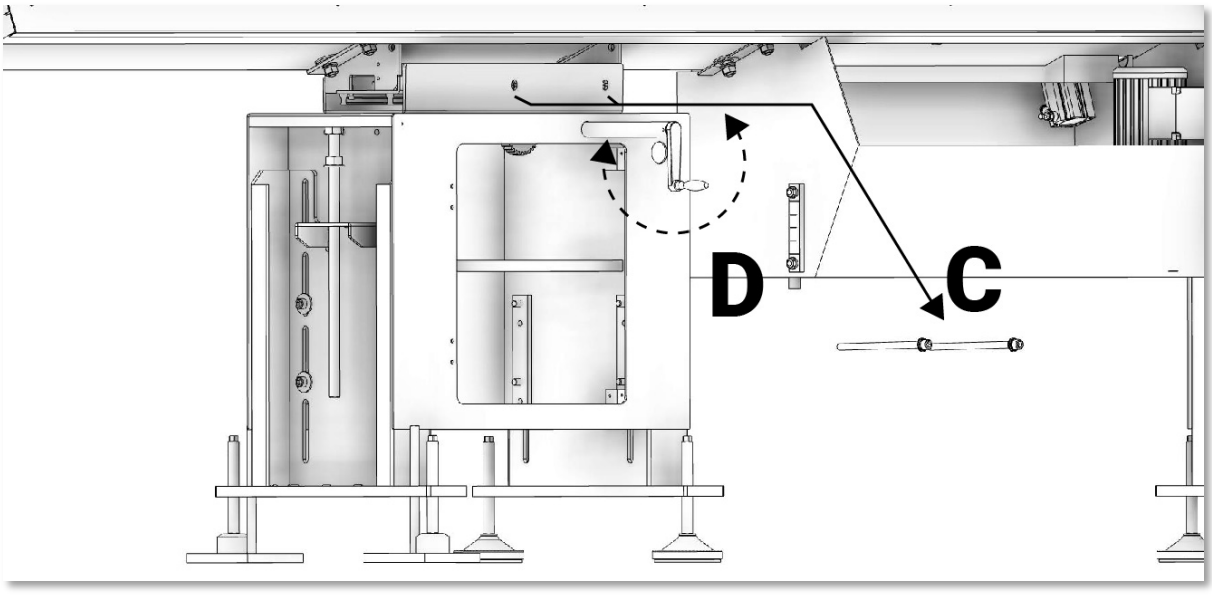
The Patriot may be equipped with an axial shifting option. Normally, lathes that require an axial shifting option are equipped with a non-guide bushing feature. When the guide bushing is removed from the lathe, the stroke of the headstock will be closer to the machining space. The distance of headstock movement forward into non-guide bushing mode will be the same distance the bar feeder shifts forward. When the guide bushing is removed, the bar feeder must reach further into the lathe, and therefore must be shifted forward.

NOTICE **Patriot Gen II machines that are equipped with an axial shift may be shipped with stands in opposite positions. For example, an electrical cabinet stand may be in non-guide bushing mode and a storage stand in guide bushing mode. The cabinets must be in the same configuration prior to installation.**

5.6 Axial Shift Instructions – Guide Bushing Mode to Non-Guide Bushing Mode

Between the cabinets and the upper magazine is a mechanism called the axial track. The axial track contains 2 guide rails (A) and a gear mechanism (B). The axial track is locked in place with 2 – 12mm hex bolts that are 230mm long (C). When used with the crank handle (D), the axial track moves the Patriot Gen Ⅱ fore and aft.





NOTICE **Failure to follow the instructions to shift the Patriot II when it is equipped with the axial shift option may cause damage to the bar feeder or lathe.**

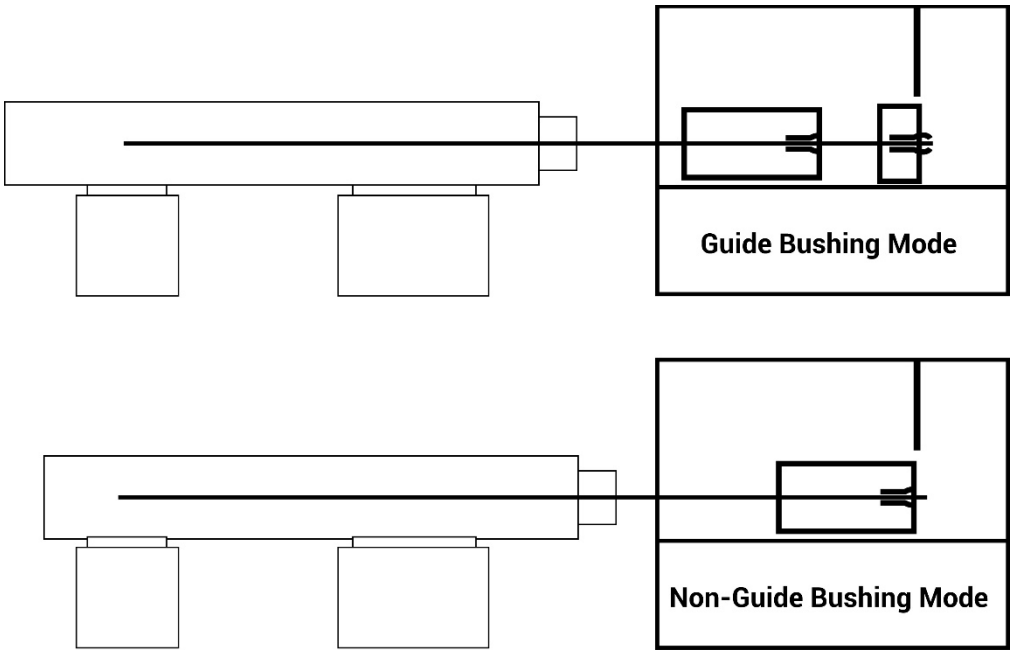
NOTICE **All attaching components must be installed and tightened prior to production.**

1. Follow the lathe manufacturer's instructions for converting to non-guide bushing mode.
2. With the bar feed in manual operation, ensure there are no active faults.
3. Place lathe headstock in the forward overtravel condition.
4. Place bar feed into Emergency Stop condition (press E-Stop button).
5. Place lathe into Emergency Stop condition (press E-Stop on lathe).
6. Disconnect bar feeder synch rod and telescopic nose from lathe headstock at the MAVD.
7. From the side of the stand cabinet, remove two axial track locking bolts from both stands.
8. Push bar feeder forward to shift it to non-guide bushing mode. The hand crank can also be used to shift the bar feeder.
9. Reinstall two locking bolts into the side of the axial track of both stands.
10. Be sure the lathe headstock is in the non-guide bushing mode before proceeding to Step 13.
11. Reattach telescopic nose and sync rod to headstock.
12. Reset Emergency Stop conditions on both bar feeder and lathe.
13. Move lathe headstock to the forward overtravel position.
14. The factory menu parameter values below must be checked and changed as necessary:
    A. Max end-of-bar position
    B. Facing Distance
    C. MAVD opening position (if used)
15. Verify proper operation of head stock movement and bar feeder response.

5.7 Axial Shift Instructions – Non-Guide Bushing Mode to Guide Bushing Mode

NOTICE **All attaching components must be installed and tightened prior to production.**

1. With the bar feeder in manual operation, be sure there are no active faults.
2. Place lathe headstock in forward overtravel position Swiss mode.
3. Place the bar feed into the Emergency Stop condition.
4. Place the lathe into the Emergency Stop condition.
5. Disconnect the bar feed synchronous rod and telescopic nose from the lathe headstock at the MAVD.
6. From the side of the stand cabinets, remove two axial track locking bolts from both stands.
7. Push bar feed magazine rearward to the Swiss position. The hand crank can also be used to shift the bar feeder.
8. Reinstall two locking bolts into the side of the axial track on both stands.
9. Be sure lathe headstock is in the Swiss mode position before proceeding to Step 13.
10. Reattach telescopic nose and synch rod to headstock.
11. Reset Emergency Stop conditions previously set.
12. Move lathe headstock to the forward overtravel position.
13. The factory menu parameter values below must be checked and changed as necessary:
    A. Max end of bar position
    B. Facing distance
    C. MAVD opening position (if used)
14. Verify proper operation of headstock movement and bar feed response. Follow lathe manufacturer's instructions for Swiss mode setup (installation of guide bushing).

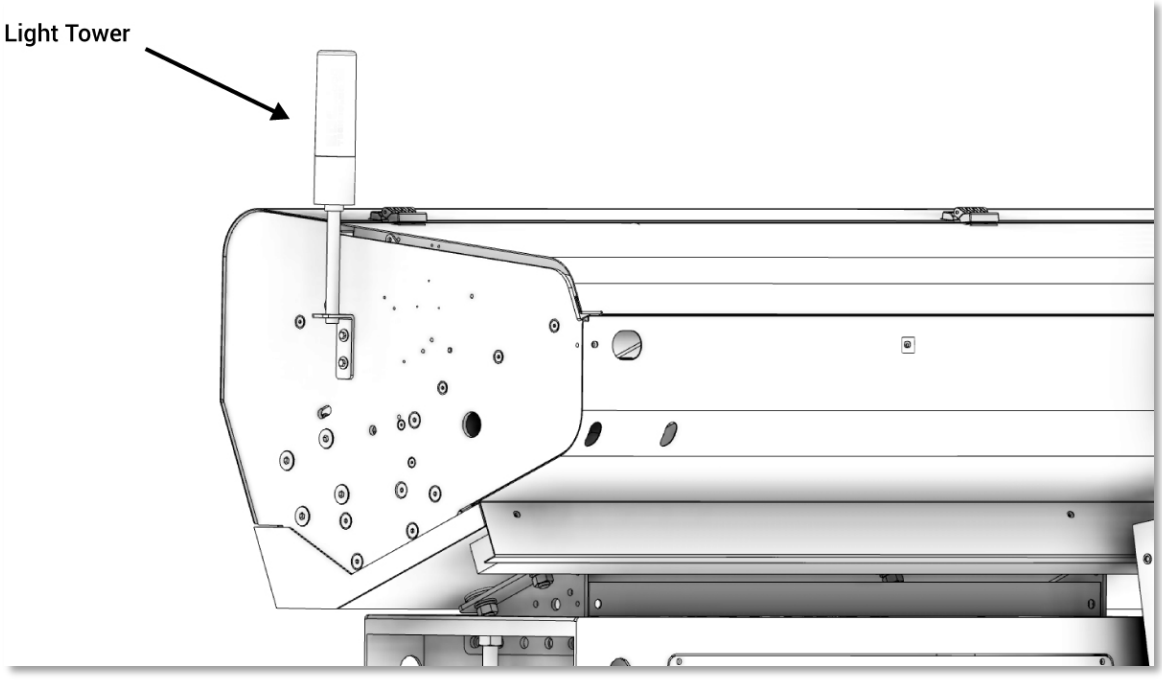


5.8 Tower Light

The indicator light provides quick visual indication of bar feeder status. The bar feeder PLC directly controls the operation of the tower light.

Status conditions include:

- Red light is on, the bar feeder is in alarm.
- Green light is on, the bar feeder is in Automatic mode.
- No light is on, the bar feeder is in manual mode with no alarms.



5.9 Spindle Liner

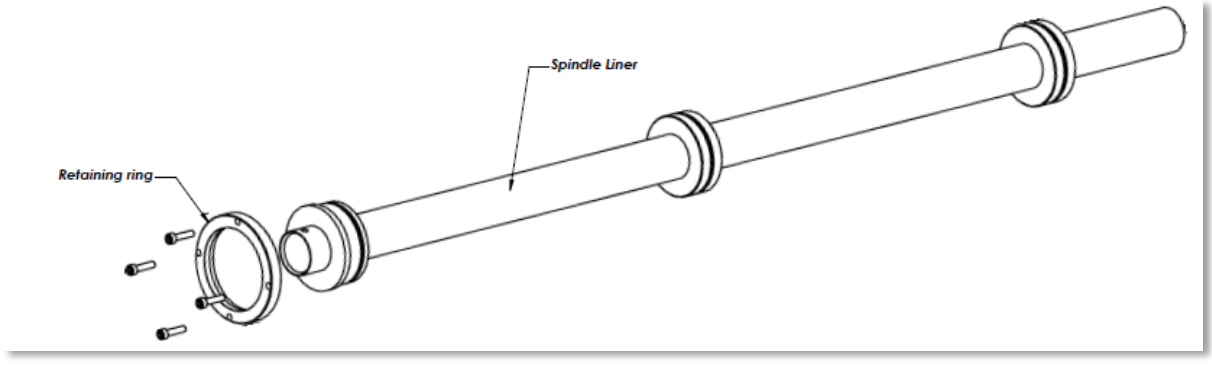
⚠WARNING Prior to spindle liner insertion or removal, ensure the lathe is in Emergency Stop or that power to the lathe is off. Never remove or install a spindle liner to a spindle that can be powered on during this process.

⚠WARNING Do not operate the lathe if the extended cover is off while using an extended spindle liner. Doing so could cause personal injury and machine damage.

NOTICE Use the proper fasteners for the spindle liner retaining ring and, if equipped, for the spindle liner extension housing.

To provide the most support to the long pusher, the lathe spindle normally requires a spindle liner. This liner reduces the inner diameter of the spindle to the diameter of the pusher. The liner's inner diameter should be approximately 2mm larger than the pusher from the bar feeder.

When installing a spindle liner for the first time, the liner end may need to be cut. This is a normal practice for the liner to be longer because various chucking packages are available. The end of the liner should be approximately 13mm from the rear of the chuck jaws or collet. Any further and this could cause remnant ejection issues.



5.10 Installation Components

Spindle liner: The spindle liner reduces the spindle internal diameter to support the pusher. Some applications do not require a spindle liner. This is true when the spindle bore diameter is the same as the pusher.

MAVD: This is used only on Swiss-type lathes. The MAVD is attached to the end of the spindle of the lathe. The device aids in material support between the headstock and bar feeder. This is always installed unless a special condition is present that would keep the pusher from reaching the required maximum pusher travel. Contact Edge Technologies for more information.

Telescopic nose: For lathes with a sliding headstock, the telescopic nose bridges the gap between the front of the bar feeder and the back end of the lathe. It acts as a protective cover and prevents rotating parts from coming out. The telescopic tube extends and collapses with the movement of the headstock. The telescopic nose is matched to the size of the channel set. Any time a channel set is changed, the nose must be changed as well.

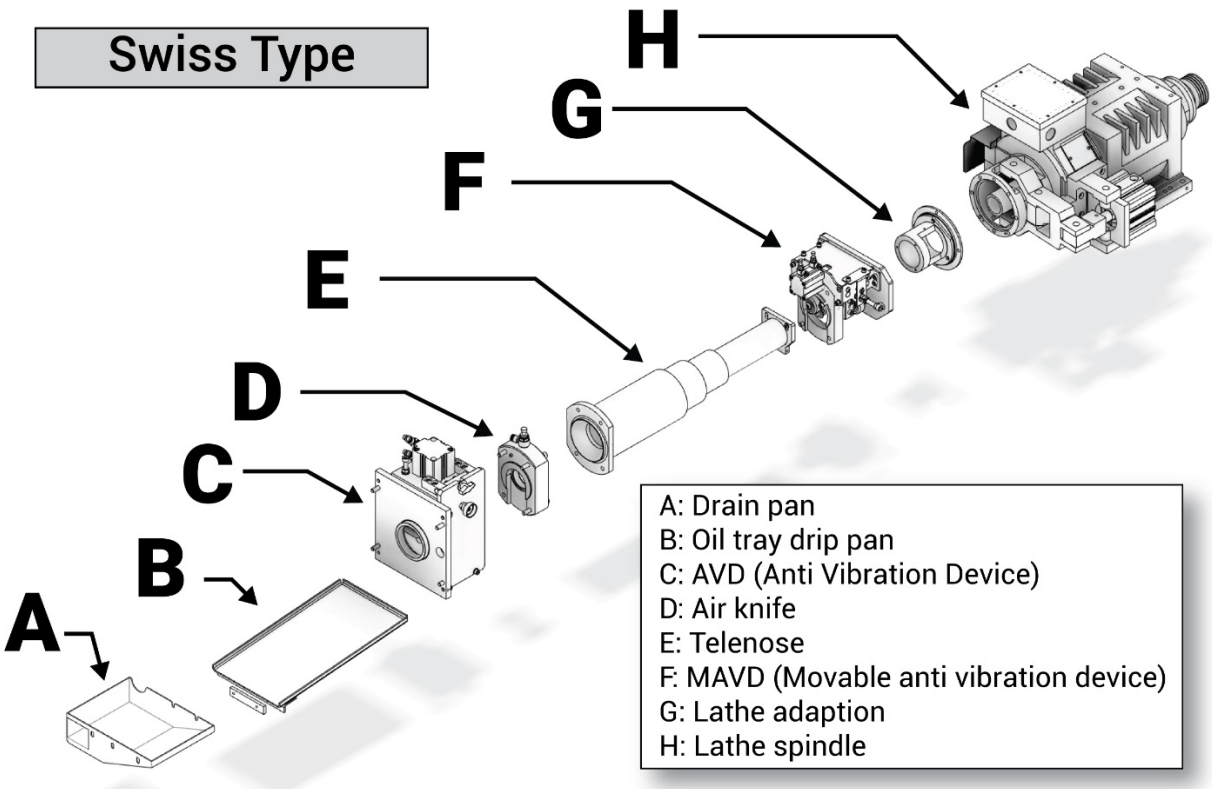
Hard nose and insert: For lathes with a fixed headstock, the guide tube bridges the gap between the front end of the loading magazine and the back end of the lathe. It serves as a protective cover and prevents rotating parts from coming out. Hard nose inserts need to be cut to the length of the nose.

Synchronization rod: The synchronization rod is connected at the MAVD. For more information, see the Parts section.

Oil tray drip pan: This is used under the telescopic nose to collect any oil that leaks out of the telescopic nose and back into the bar feeder.

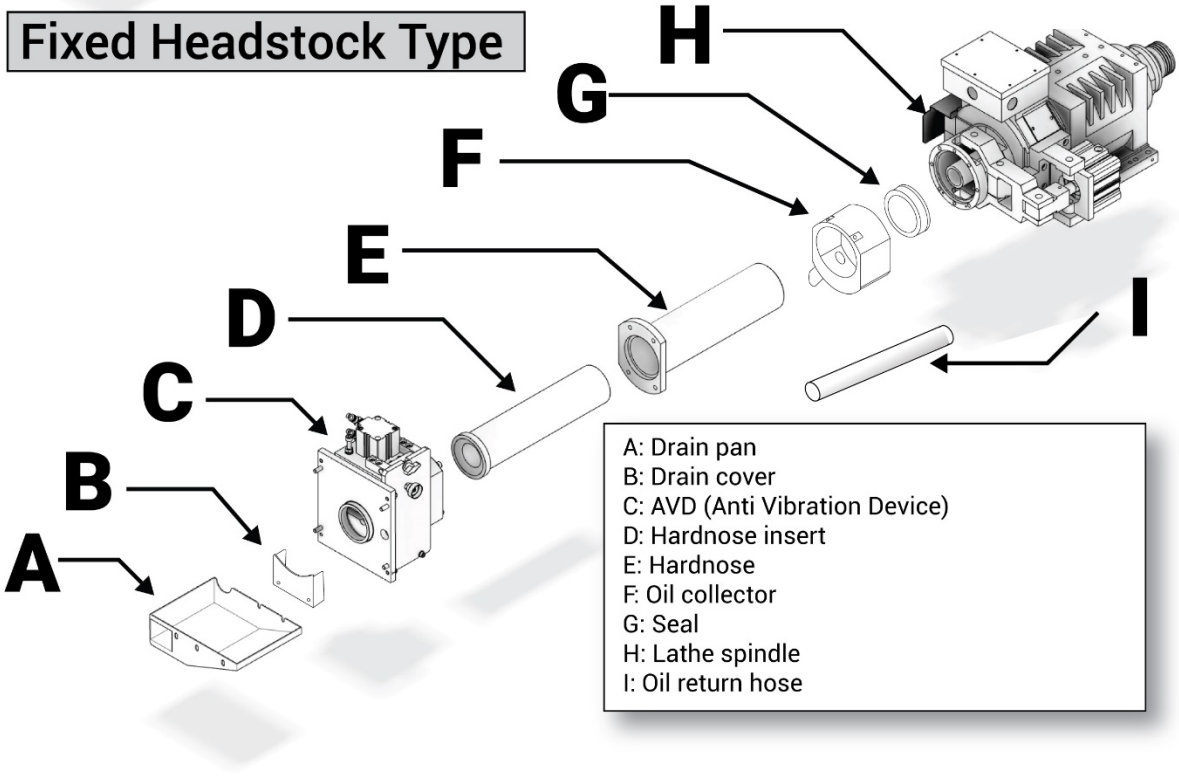
Oil gathering: This is a unit that will go over the end of the hard nose to gather oil that leaks out the front.

Swiss Type



A: Drain pan
B: Oil tray drip pan
C: AVD (Anti Vibration Device)
D: Air knife
E: Telenose
F: MAVD (Movable anti vibration device)
G: Lathe adaption
H: Lathe spindle

Fixed Headstock Type



A: Drain pan
B: Drain cover
C: AVD (Anti Vibration Device)
D: Hardnose insert
E: Hardnose
F: Oil collector
G: Seal
H: Lathe spindle
I: Oil return hose

6. Systems and Adjustments

6.1 MAVD Adjustment of Wheels

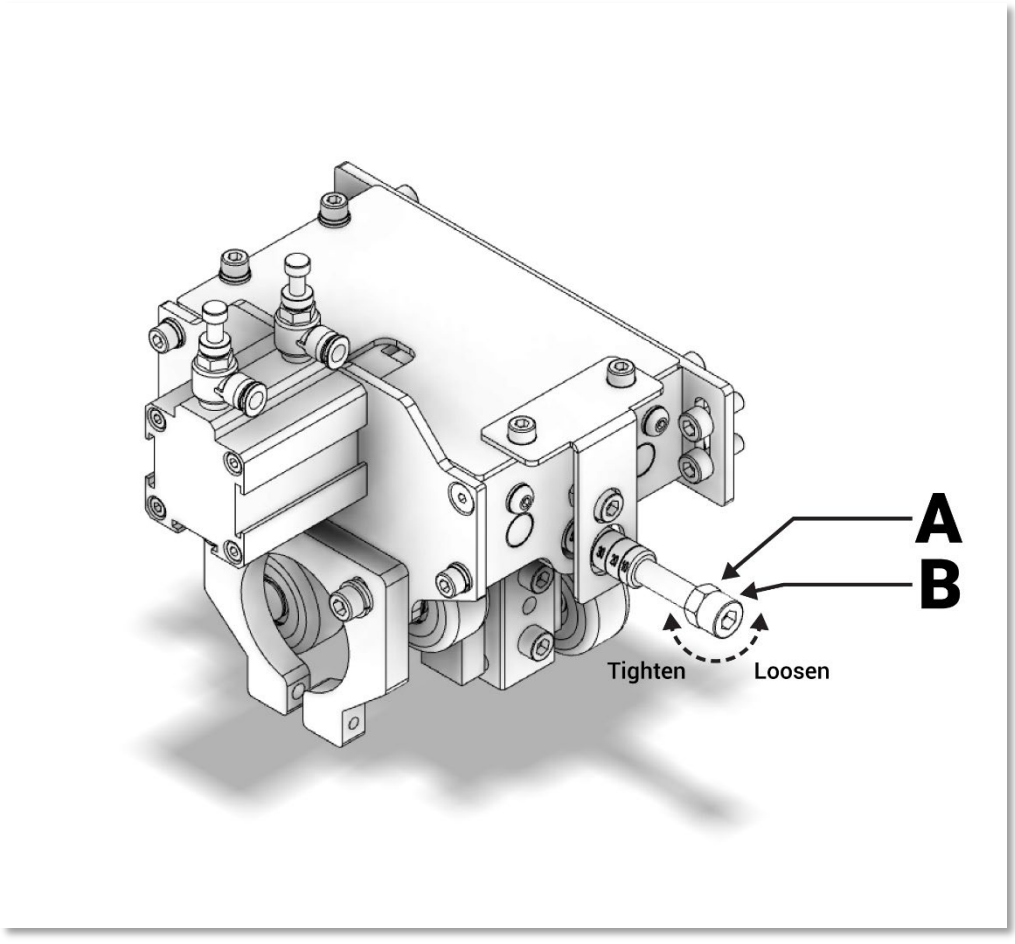
For optimal machine operation, properly adjust the close position of the rollers of the MAVD. Proper adjustment supports the bar and reduces vibrations during production.

⚠WARNING Lathe and bar feeder must be in manual mode during the adjustment of the MAVD. Only operators properly trained should adjust the MAVD.

NOTICE Improper adjustment may cause failure on the machined part.

NOTICE When loading a bar for the first time, make sure the MAVD rollers are open. Roller damage may occur if material or pusher is moved into the rollers.

1. Using the bar feeder, load a bar into the lathe and close the lathe collet.
2. Loosen the locking nut and back adjustment bolt, moving counterclockwise until no resistance is felt when turning the bolt. Rollers will be opened from the material centerline.
3. On the handheld pendant press the Pre-Auto button.  Both the AVD and MAVD will close.
4. Turn the adjustment bolt clockwise until resistance is met. Then rotate the bolt one more full turn clockwise. Tighten the locking nut.
5. Press the Manual button.  The MAVD should open. Then press the Pre-auto button again. 
6. Verify that the rollers are not clamped directly on the material but are very close to it.
7. Press Manual button again to open the MAVD.



[3]

To adjust the open and close speeds of the MAVD, use the flow control bolts on the cylinder. When the lathe collet is closed, the MAVD rollers/blocks will be closed if the parameter is set to operate this way. Pressing the pre-auto button with the lathe collet closed will command the MAVD to close. Adjust the speed as desired.

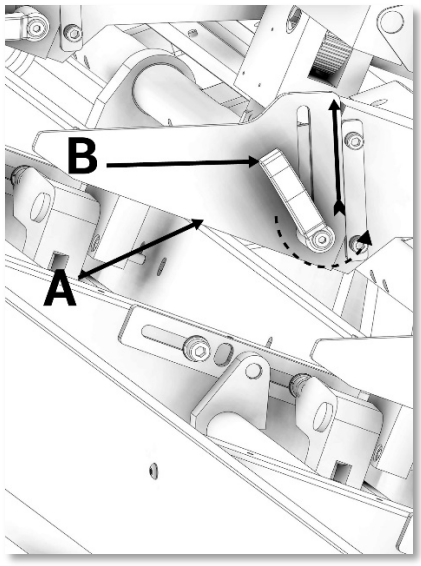
[3] A. Locking nut
B. Adjustment bolt

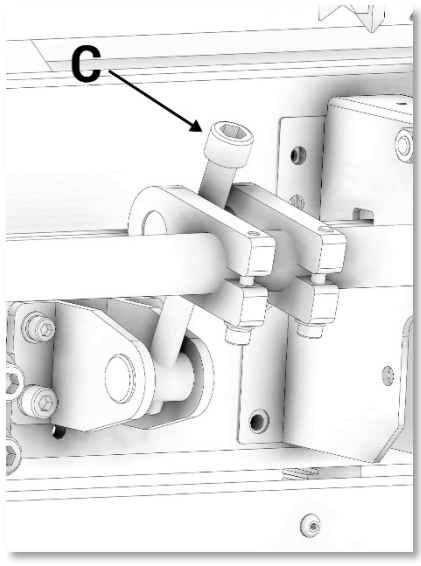
6.2 Magazine Adjustment

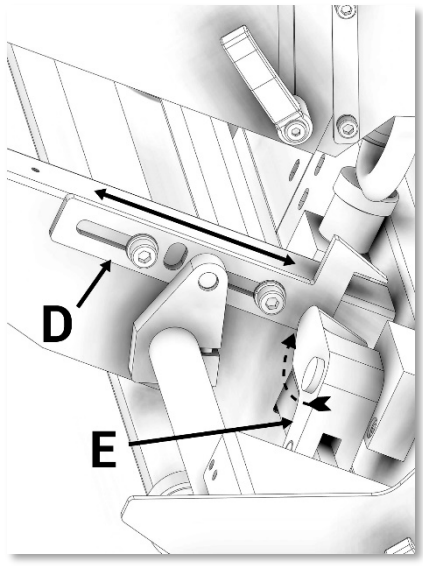
Follow the procedure below any time the bar diameter requires changing.

⚠ CAUTION When adjusting the magazine, be sure the lathe and bar feeder are in Emergency Stop. Adjusting the magazine can produce pinch points between magazine and material.

1. Place the lathe and bar feeder into Emergency Stop prior to adjusting magazine.
2. Remove any material from the magazine.
3. Loosen the locking lever (B) for the support plate (A) and lift the plate to the highest position. Tighten the lever back.
4. Place one bar to be loaded on the magazine.
5. Rotate the bolt (C) to adjust the bar stop so that only the first bar on the magazine will be lifted into the guide channel. While you rotate the bolt, you will see the vertical adjustment plate (D) move in the direction the bolt is rotated. The material lifter (E) will now accurately lift each piece of material one at a time.
6. Loosen the lever (B) and slide the support plate (A) down to 1mm over the bar to be machined.
7. Tighten the lever (B).
8. Load the desired material requirement.
9. Close the bar feeder hood.
10. Reset Emergency Stops on the lathe and bar feeder.

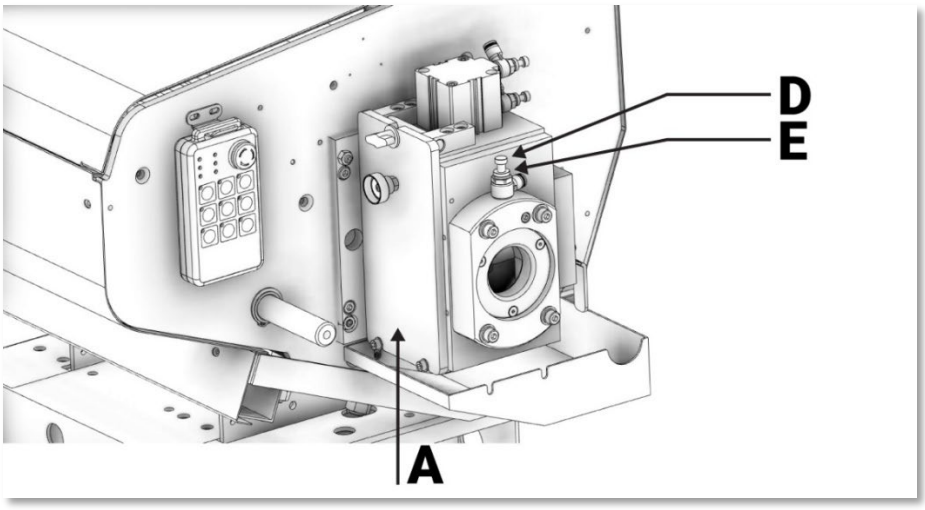


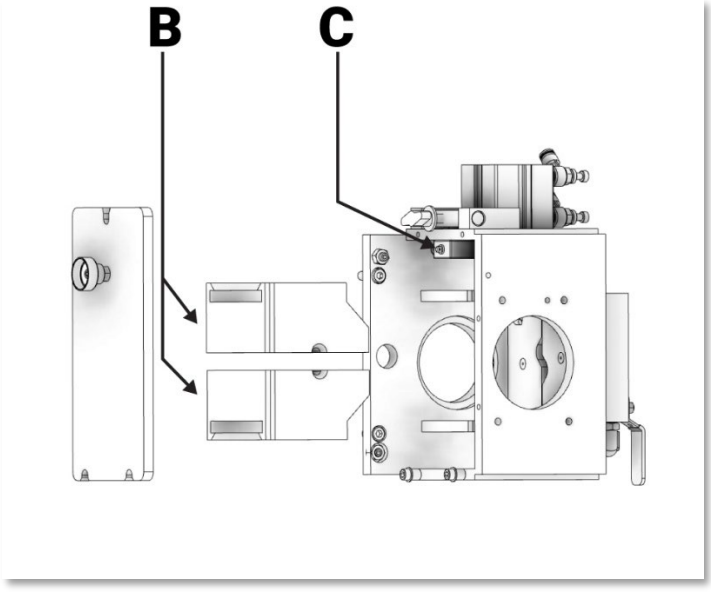




6.3 Anti-Vibration Device with Air Knife

⚠ WARNING Bushing block cover is removable and must be in place for safe operation of the bar feeder. Bushing blocks should only be changed out when there is no material in the bar feeder and when the bar feeder is in Emergency Stop.





[4]

[4] Anti-Vibration Device

A. Bushing block cover
B. Bushing blocks
C. Cover switch
D. Air knife flow control knob
E. Lock nut

The Patriot's unique anti-vibration device provides material support upon discharge from the channel. Bar feeder oil is supplied to the device to aid in vibration reduction. The telescopic / hard nose attaches to the end of the device.

In Automatic mode, the bushing blocks will shadow the lathe collet open and closing. When the bushing block cover is removed, the blocks are prevented from closing as a safety feature. Bushing blocks will only fit in one direction. A pair of blocks must be the same diameter, and both must match the diameter of the guide channel set, for proper operation.

⚠ CAUTION If the air flow through the air knife is set too high, oil vapor will produce around the bar feeder. Inhaling oil vapor has harmful long-term effects. In addition, it is a slipping hazard.

The air knife is an oil blow-off valve that helps to remove oil from the material and pusher upon entering the nose. This will aid in minimizing oil migration to the lathe. The air control valve is energized when the pusher moves forward. The air flow is adjustable via a thumb wheel on the valve. The air knife is a standard feature on the Swiss-style headstock Patriot and is an option for the fixed headstock Patriot.

To adjust the air knife:

1. Rotate the lock nut counterclockwise to loosen.
2. Rotate airflow control knob to the desired setting.
3. Tighten the lock nut to secure the valve position.

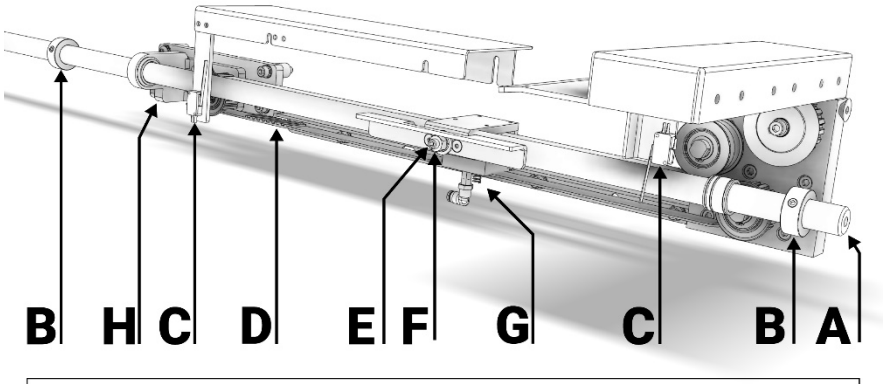
6.4 Synchronization System

⚠ CAUTION The synchronization system will move at random times during the automatic operation. Access covers to the synchronization device should always be in place during operation.

⚠ WARNING The synchronization belt adjustment should only be performed when the bar feeder electrical power has been removed. Follow local, state and federal lockout/tagout standards.

For installations on sliding headstock lathes, the synchronization device becomes the mechanical link between the lathe headstock and bar pusher. The lathe collet closure on the bar maintains the connection point of the material. The end of the bar stock must be supported by the bar feeder collet, which is attached to the end of the bar pusher. To maintain this mechanical connection point, the bar pusher must move back and forth at the same rate and distance as the material. If this synchronization is not maintained, the material and bar pusher will separate.

To prevent this, a synchronization device is used. A rod is attached to the MAVD, which is mounted to the lathe spindle. This rod passes through the front plate of the bar feeder. Inside the bar feeder, a piston assembly is attached to the rod. A timing belt passes through the piston assembly. The timing belt runs between two pulleys, one of which is attached to the same shaft as the front pulley of the bar pusher drive chain. When the lathe collet is closed, an air solenoid valve turns on to actuate the piston assembly, which grips the timing belt. In this condition, every move made by the lathe's headstock on its Z axis is transferred through the synchronization device to keep the bar pusher in sync with the lathe headstock.



A: Sync bar	E: Bolt for sync actuator
B: Shaft collar	F: Set screw for sync actuator
C: Limit Switch	G: Air solenoid valve for sync actuator
D: Timing belt	H: Adjustment plate with attached pulley

Bar feeders equipped with the axial shift feature have two additional electrical switches to limit the total synchronization stroke. The switches are tied to the Emergency Stop circuit and are normally closed. When they are opened, the bar feeder will be in Emergency Stop. The final positioning of the switches is performed during the bar feeder installation process. Once set, the switch locations should not be moved.

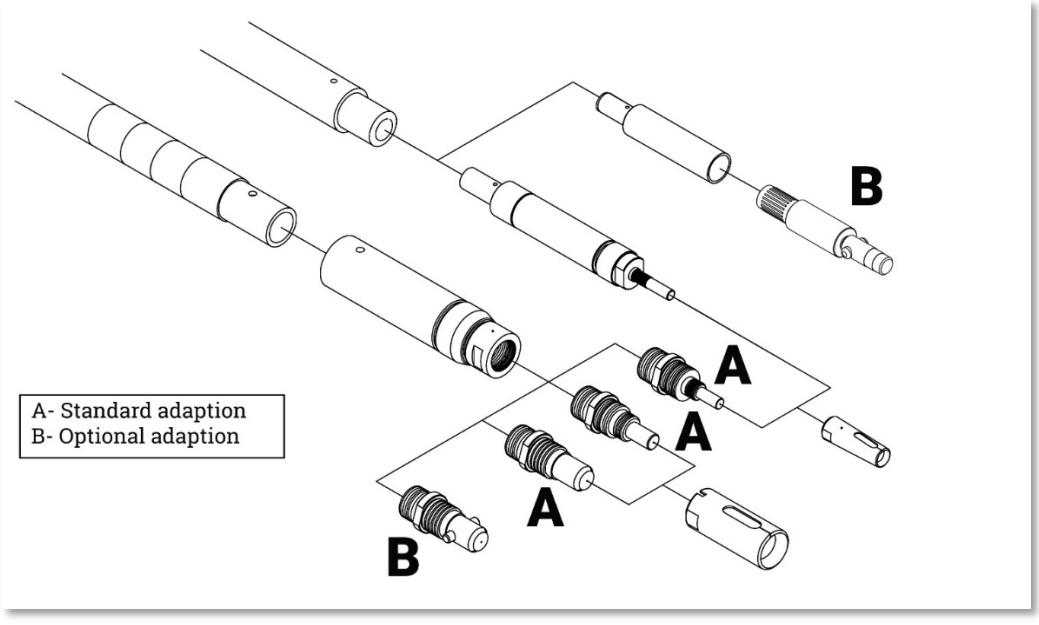
6.5 Rotating Tip

NOTICE **The rotating tip should match the diameter of the pusher. Running too small or too large of a rotating tip diameter will cause damage.**

NOTICE Rotating tip operating life may be significantly reduced without the proper bar feeder oil.

The rotating tip used in the Patriot is designed for many hours of operation. The rotating tip is internally lubricated by the factory and normally does not require additional lubrication. However, the rotating tip does require proper oil flow within the channel. This helps to cool the rotating tip and provide lubrication between the channel and tip. Some users operate the bar feeder with lathe cutting fluid or an aqueous based fluid. Edge Technologies does not recommend using anything but the oil recommended in this manual for oil type.

The Patriot comes standard with 3 collet screw-on tip adapters. An adapter with a pin attaching style is available from Edge Technologies as well. Refer to Parts section for part numbers and available sizes. The rotating tip diameter should be 1mm smaller in diameter than the guide channel set.



6.6 Pre-Feed Pusher and Pusher

⚠WARNING Do not replace the pusher or pre-feed pusher with electrical power applied to the lathe or bar feeder.

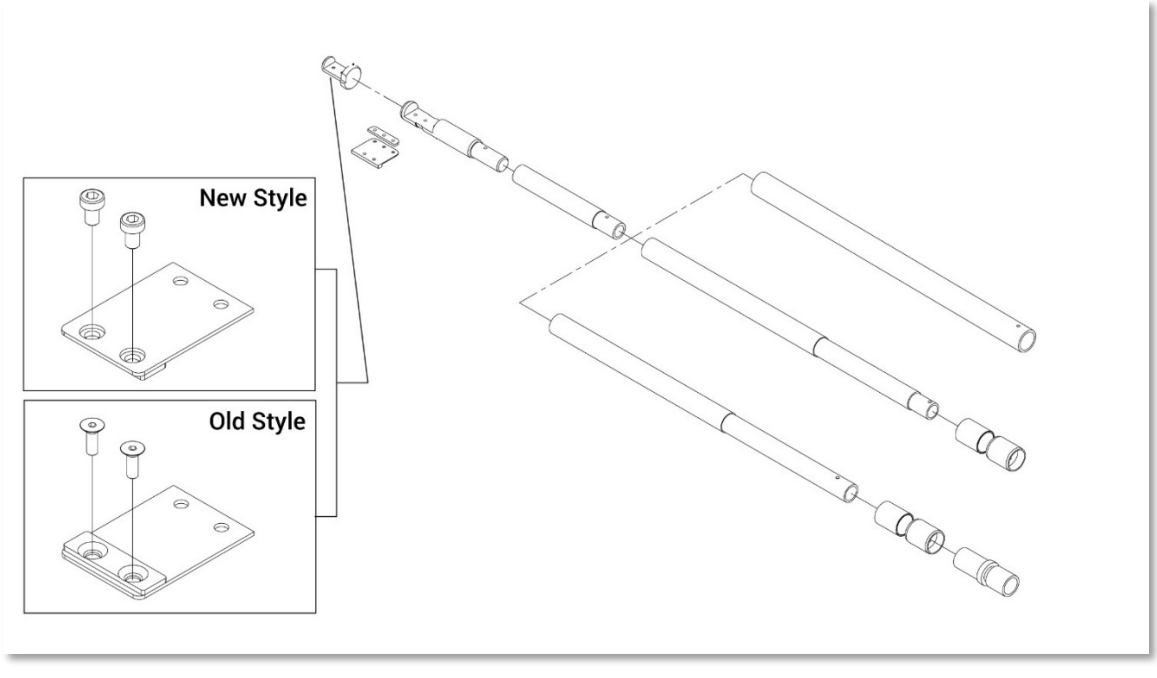
NOTICE The pre-feed pusher must be the proper size to the bar channel hangers, or else damage may occur. Also, the length of the pusher must be fitted to the length of the bar feeder, or else damage may occur.

NOTICE Using the wrong bolts can jam the machine.

The pre-feed pusher drives the bar pusher and remnant forward. It is attached to a plate that is countersunk, so the attaching bolts require proper tightening. The holding torque of countersunk bolts is much greater than a socket head or buttonhead bolt. The greater surface area between the mating surfaces of the bolt acts as a locking mechanism, especially if the two surfaces are clean of any oils. Clean the bolts and threads with denatured alcohol or some type of oil-removing cleaner. A medium strength thread lock is recommended when installing the bolts. Do not overtighten the bolts. Doing so may cause issues when removing them.

If the pusher assembly is stuck in any location of the channel, the short-feed pusher bolts may have loosened and wedged between the channel chain guard and carriage. If the pusher will not move freely by the hand crank or the servo, the pre-feed pusher attaching bolts may have backed out and created a wedge in the chain channel. This may require cutting the upper chain channel to remove the bolts. Contact Edge Technologies for additional information.

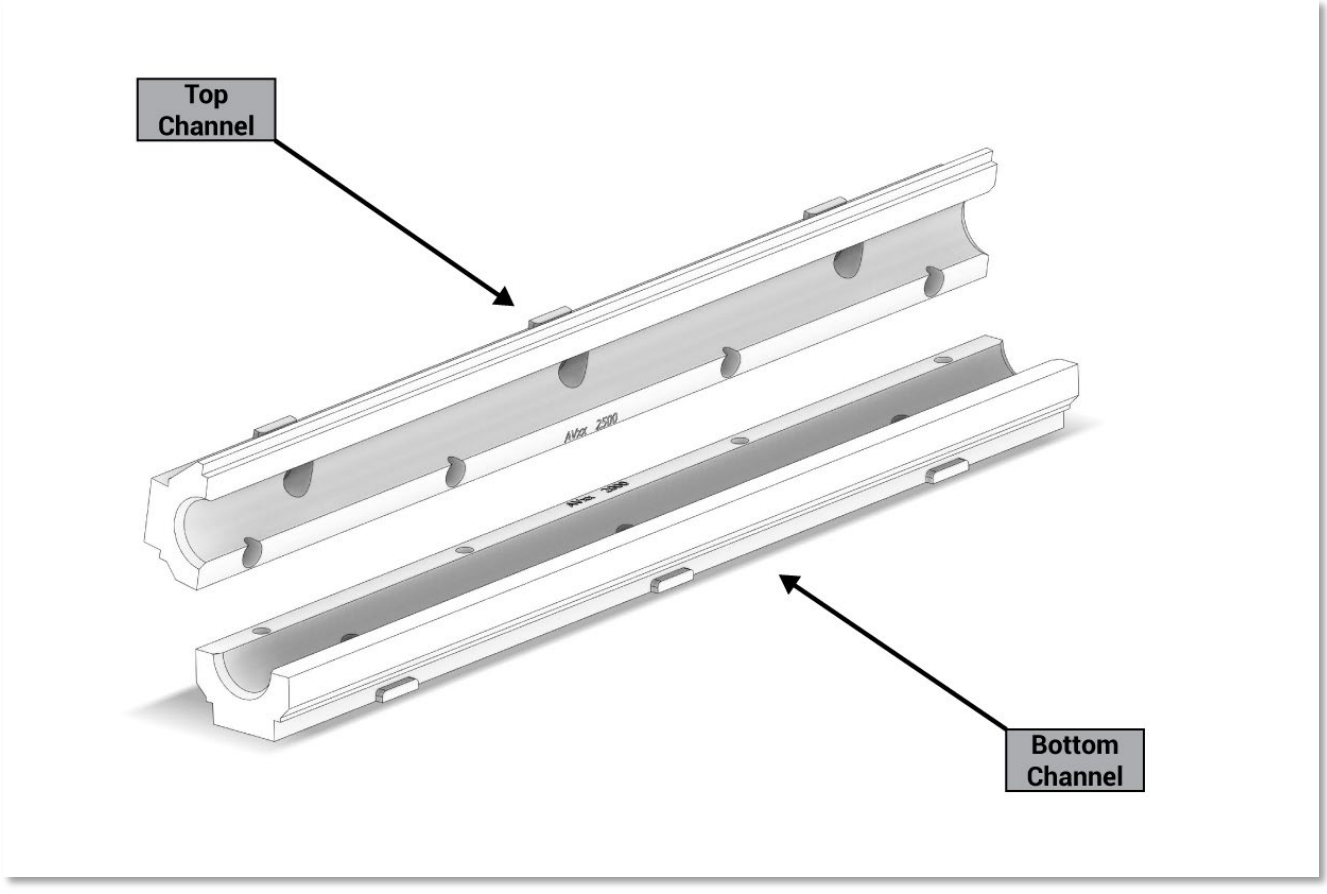
A pre-feed pusher and pusher are included in every new guide channel set. The old style uses flathead bolts, whereas the new style uses low-profile socket head bolts.



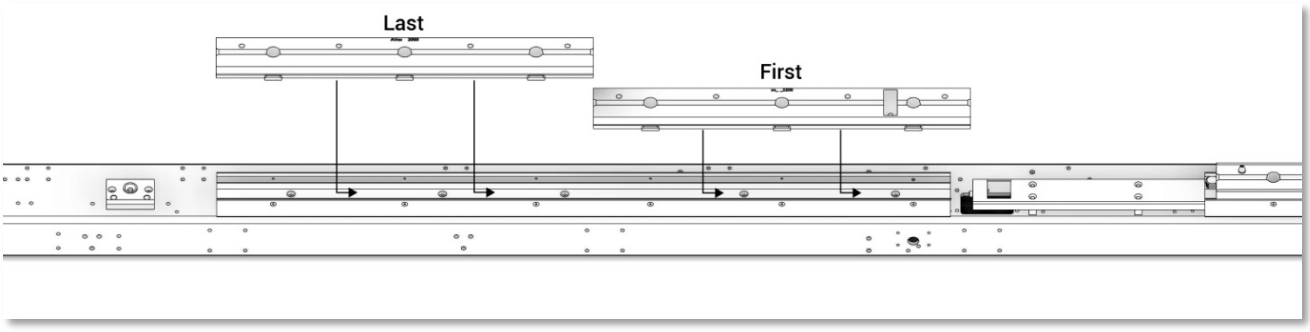
6.7 Guide Channel System

NOTICE **Machine damage will occur if the lower channel is installed in the upper channel locations. This will keep the flow of oil from reaching the channel.**

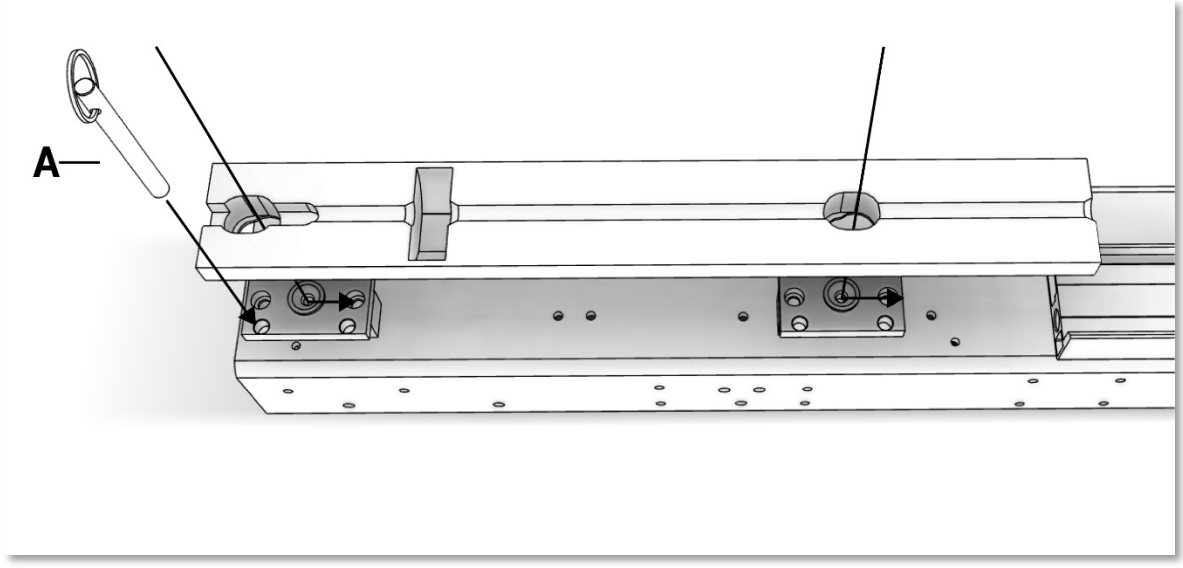
The Patriot Gen II uses a new guide channel system. It's a toolless application, so the time to install the guide channel is much faster. Below are the steps on how to install them:



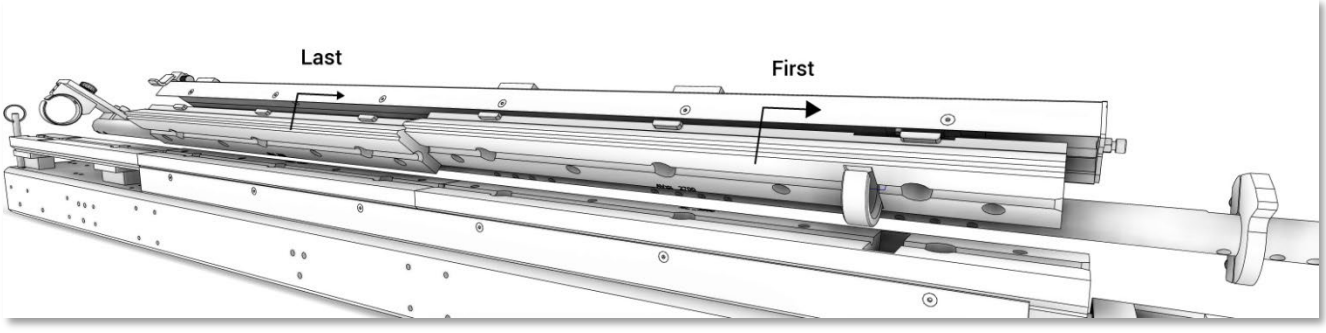
The guide channel system comes in two different molds: a top channel set and a bottom channel set.



Install the guide channels from first to last represented here. (Note, longer machine will have more guide channels.)

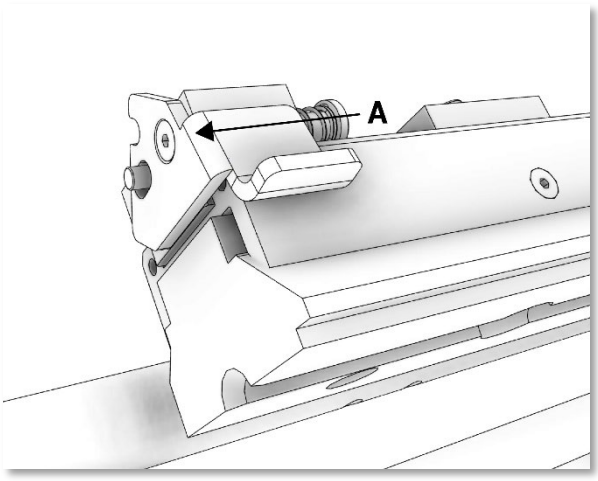


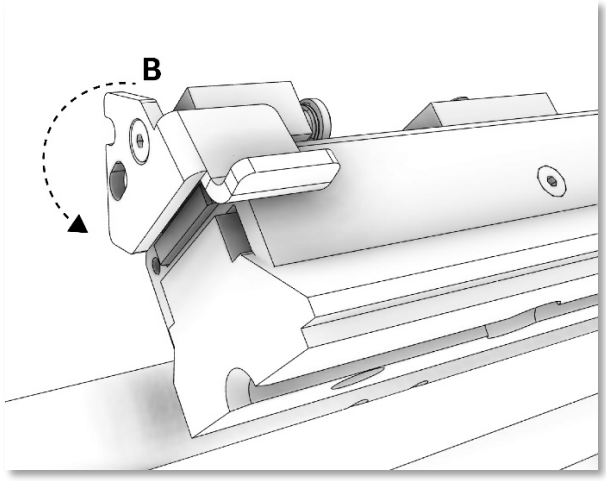
This illustration shows you how to properly install the pre-feed pusher channel. A set pin (A) keeps the pre-feed pusher from moving back and forth.

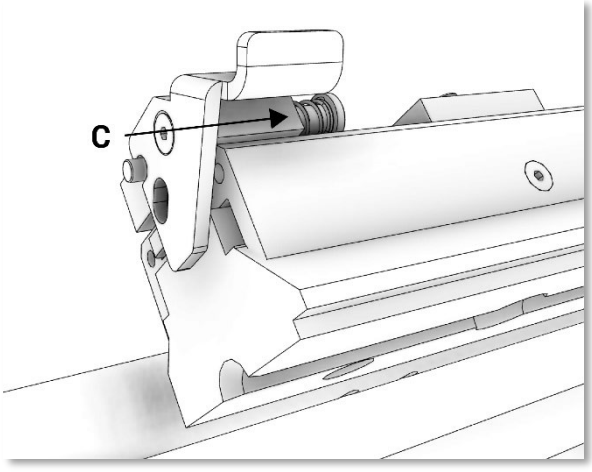


This is the top guide channel set in the pre-feed pusher area. Install the guide channels from first to last represented here. (Note, longer machine will have more guide channels.

Guide Channel Mechanical lever



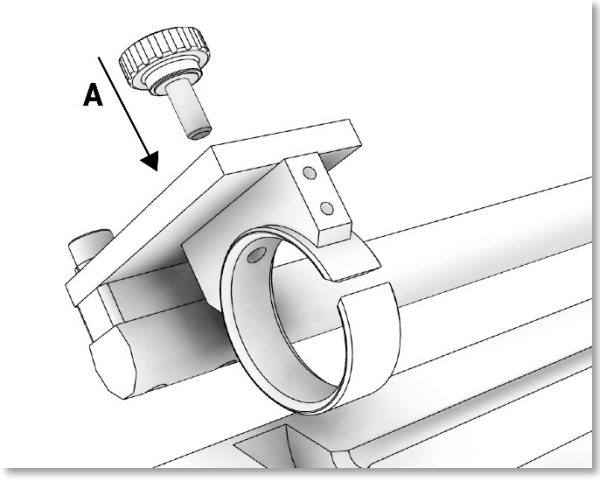




The guide channels are held in place by this mechanical lever. To lock the guide channel in place, push the spring-loaded lever set bolt (A) towards home position.

Rotate the lever counterclockwise (B)

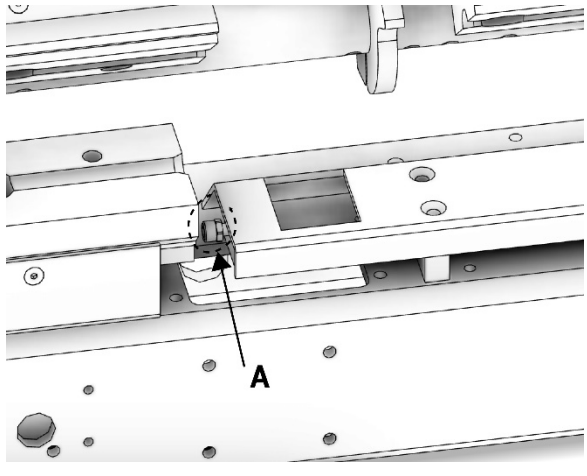
Once the lever is pushed counterclockwise, release the spring-loaded lever set bolt (C)

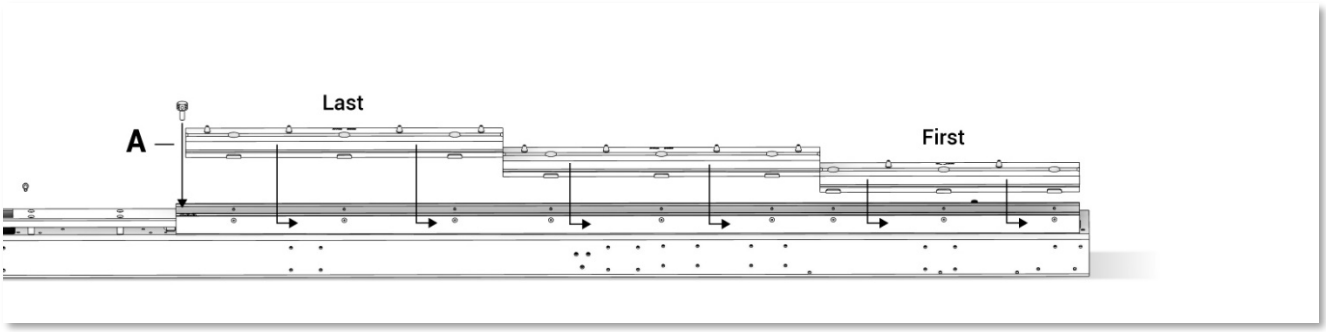


The pre feed hanger uses a tooless bolt (A)

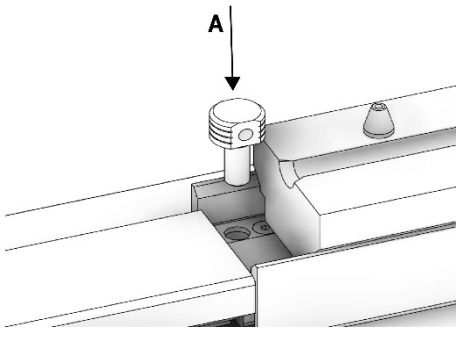
Place the hanger and tighten the bolt.

There is a set screw on under the gripper plate. If needed, adjust the bolt to increase or decrease the movement of the bottom home position guide channels. (A)

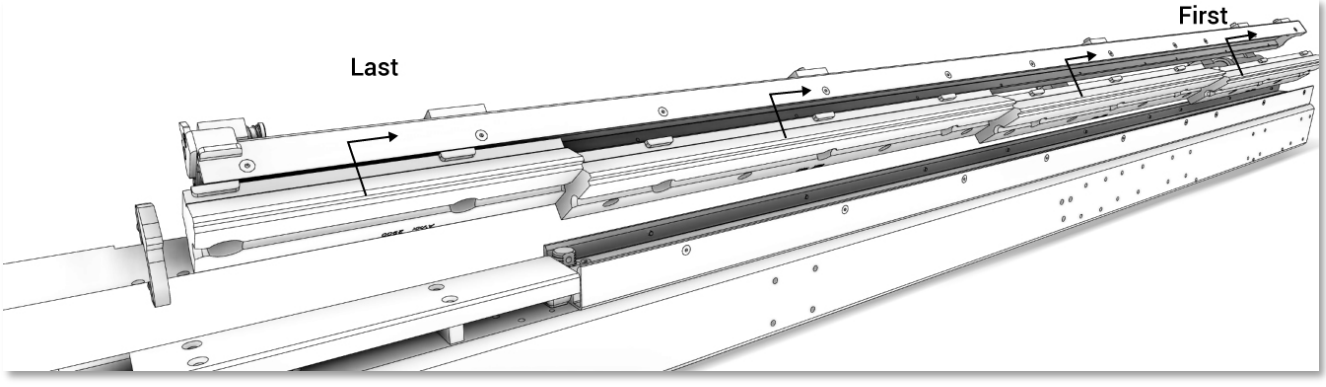




This illustration shows the bottom guide channel set post-gripper. Install the guide channels from first to last represented here. A set pin (A) keeps the guide channels from moving back and forth. (Note, longer machine will have more guide channels.)



The set pin (A) keeps the guide channels from moving back and forth. Make sure that the pins flat section is set in the position represented in the illustration.



This illustration shows the top guide channel set post-gripper. Install the guide channels from first to last represented here.

Repeat Guide Channel Mechanical lever steps.

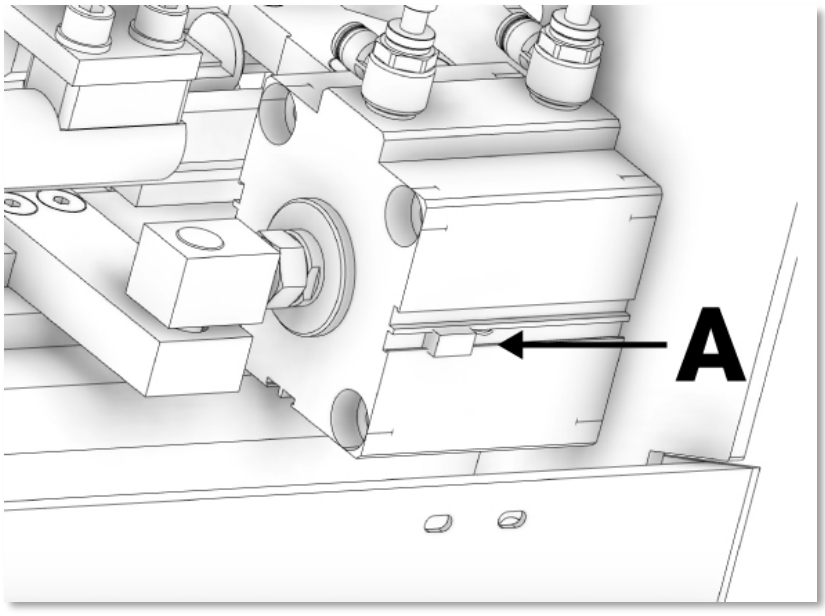
6.8 Shuttle – Extraction / Introduction Cylinder

⚠WARNING Never adjust the air valves without being properly trained. Personal injury could result.

The Patriot is equipped with a robust extraction and insertion system designed to provide exceptional durability. The operation of this cylinder is known as the shuttle.

During introduction of the bar feeder collet onto the bar end, the servo drive motor is engaged with the shuttle (air cylinder) moving simultaneously. The process is the same during the extraction step. The movement between extraction and introduction should always be fluid with the servo drive motor.

The air cylinder piston shaft is attached to the balance block. The balance block contains a spring-loaded finger that fits into a cavity of the carriage (bar pusher bracket). This finger will move the carriage forward and rearward. The chain guide, once installed into the chain cover will cause the finger to slide down and allow the carriage to move forward the length of the bar feeder.



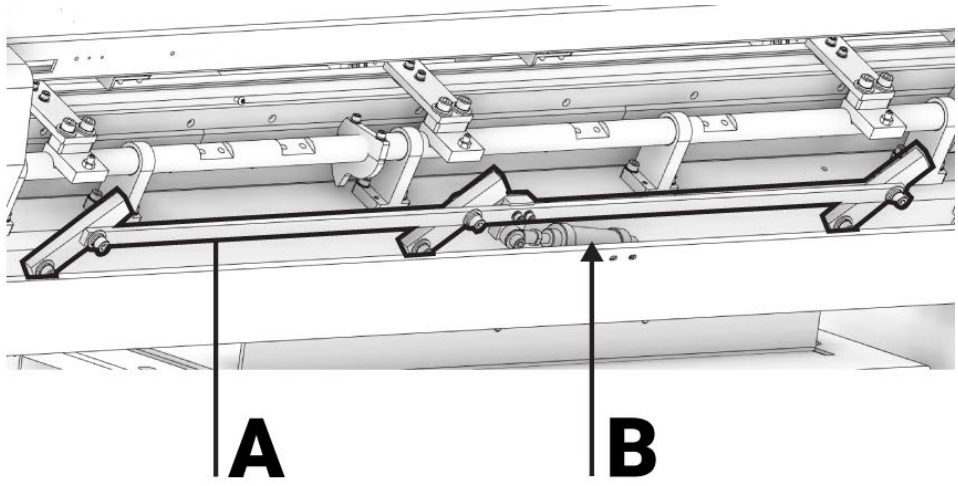
Shuttle - Extraction / Introduction Cylinder used in unison with the servo motor to press and extract material onto the bar feeder collet.

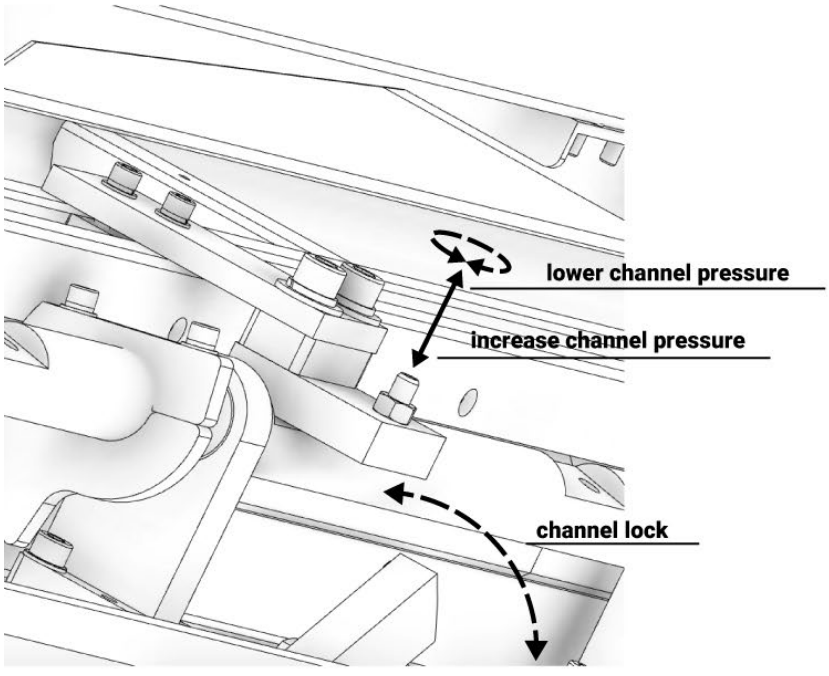
Pusher introduction sensor MS30 (A), must be in the correct position, or no cylinder operation will occur.

6.9 Channel Lock System

The channel lock system on the Patriot maintains guide channel closure during production (A). As the bar is rotated and the channel is filled with pressurized oil, this pressure could force the channel open.

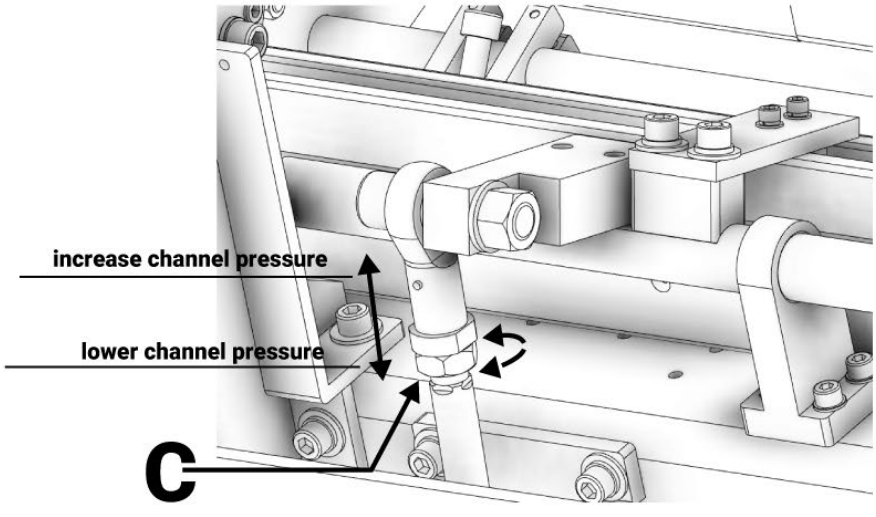
A pneumatic cylinder controls the opening and closing of the lock mechanism (B).





On the 12-foot Patriot, the channel lock is used as a fulcrum to apply pressure to the guide channel. Tightening or loosening the bolt attached to the support plate increases or decreases the channel clamping pressure.

The 8-foot Patriot does not use the lock linkage. The channel open close cylinder is used to hold the channel closed. (C)



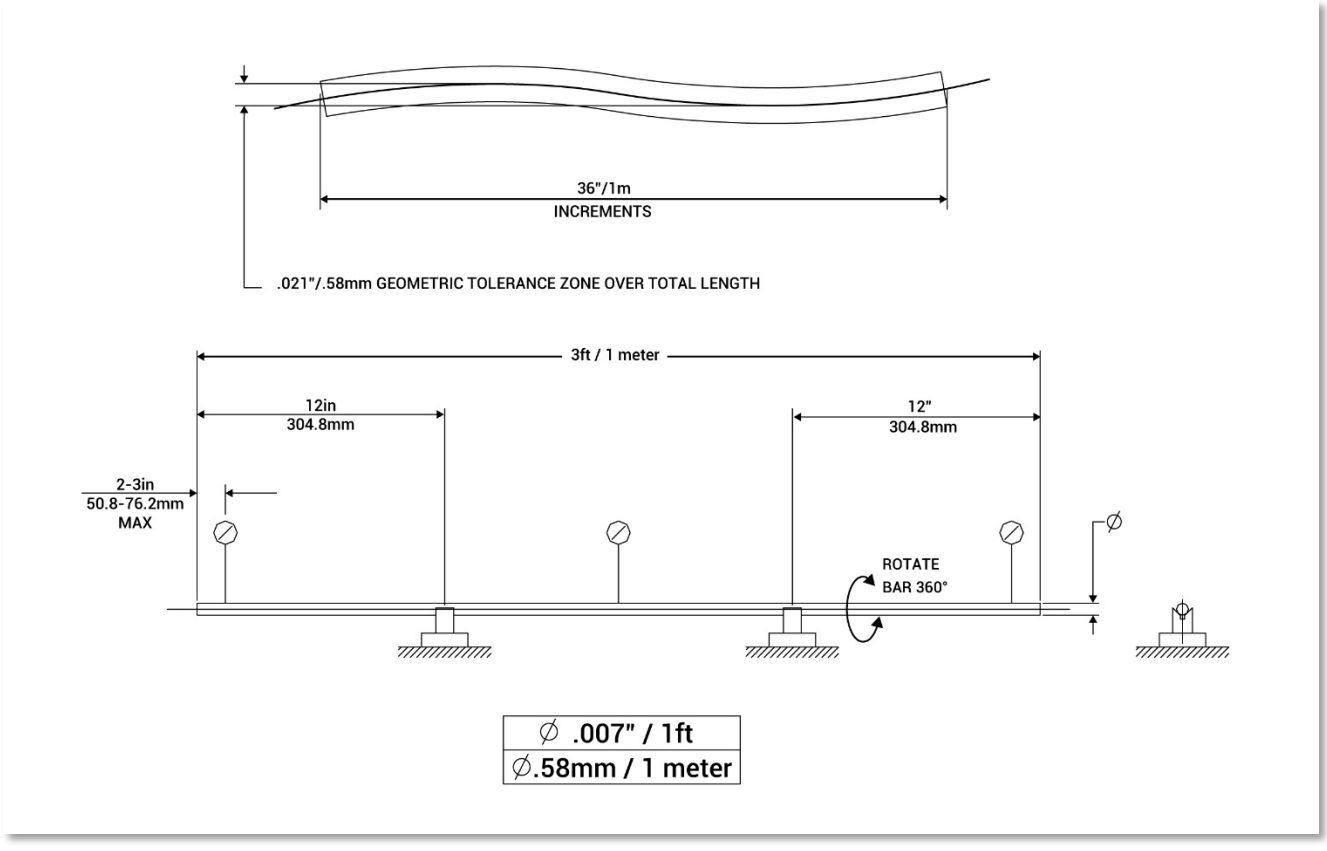
6.10 Material Standards and Requirements

NOTICE **The ends of the bar should be relatively straight to the bar diameter to ensure proper positioning as the bar reaches the facing position and to keep the bar pusher from sliding off the bar while feeding the material. In most cases, chamfering the front end of the bar is required. Using a spindle rotation of approximately 50 RPM during bar change maximizes reliability.**

Material should be relatively straight and clean. A chamfer on the leading bar edge is highly recommended. Bent bar stock may prevent loading of a new bar into the lathe spindle. Excessive chips, burrs or dirt may cause premature wear to the bar feeder channels.

6.11 Procedure to Check Bar Straightness

1) Find a suitable surface to allow the bar to rest on V-blocks without any rocking movement.
2) Rotate the bar 360°. Record the dial indicator readings at each location.
3) Calculate both the tolerance for each meter increment and the tolerance over the entire length of bar. Compare the recorded values to the required tolerances to determine the bar suitability for operation with a bar feeder.



Straightness Requirements

Optimum performance of the bar feeder can only be achieved if the material meets specifications for straightness. The maximum allowable bend in a bar is 0.021” Total Indicated Run-off (T.I.R.) per 3’ section (0.58mm T.I.R. in a 1m section). This tolerance assumes a curvature over the length of the section and not a short kink. This tolerance is not accumulative.

6.12 Bar Stock Preparation

Bar stock must be free of burrs, chips and excessive dirt. Clean bars will extend the life of the guide channel set and bearing unit of the pusher, as well as the oil pump impeller. Bar ends should be relatively square to the length of the bar. Chamfer both ends of the bar stock to be machined. This will ensure maximum reliability.

Profiled material such as hex and square stock should have a generous chamfer on the bar feeder end of the bar. This chamfer will help negate the offset of the bar centerline to that of the bar pusher when the stock falls differently into the channel (corners up versus flats up).

RPM Limiting Factors

Certain conditions may limit the lathe to less than full speed rotation of the spindle. Among these conditions are:

- Bent bars (bar stock with straightness of less than .5mm/1 meter)
- Bars with an irregular profile or shaped material
- Improperly sized guide channel in relation to the bar stock diameter
- Incorrect sizing of bushing blocks or incorrect adjustment of steady rollers
- Lack of support in the lathe spindle for the bar pusher
- Inherent characteristics of the type of bar stock (copper, brass, plastic etc.)
- Improper viscosity lubricant in the oil tank of the bar feeder
- Unbalanced bar stock
- Sheared bar ends rather than saw cut
- Non-concentric chamfered bar end when using an ejection collet

These factors may work alone or in combination to cause a vibration that requires a reduction in the lathe spindle speed.

6.13 Vibration Troubleshooting Check List

VIBRATION TROUBLESHOOTING CHECKLIST		
Bar Feeder Model	**Serial Number**	**Lathe Model**

TESTS TO BE CONDUCTED AND RECORDED		
	Comments and Feedback	
Bar Feeder Alignment		
1. Bar Feeder Alignment and Fastened		☐
2. Spindle Adapter Alignment and Condition		☐
3. Nose Alignment & Insert Conditions		☐
4. Steady Alignment		☐
5. MAVD Alignment		☐
Guide Channel Diameter		
1. Revolving Tip Condition		☐
2. Pusher-Collet Runout		☐
3. Pusher Straightness		☐
Material Type and Diameter		
1. Bar Straightness (See attached .007"/ft)		☐
2. Surface Finish		☐
Spindle Liner		
1. Tube Concentric to Journals (Max .004" or .1mm TIR)		☐
2. Fit with Spindle I.D.		☐
Other		
1. Confirm Oil Pump is on		☐
Lathe Influencing Factors		
1. Lathe Stability (not rocking on its pads)		☐
2. Workholding Runout & Chuck Pressure		☐
3. Guide Bushing Condition (Swiss Lathe)		☐
Additional Comments		
Technician's Name and Signature _____		

7. Control Operations

7.1 HMI Description

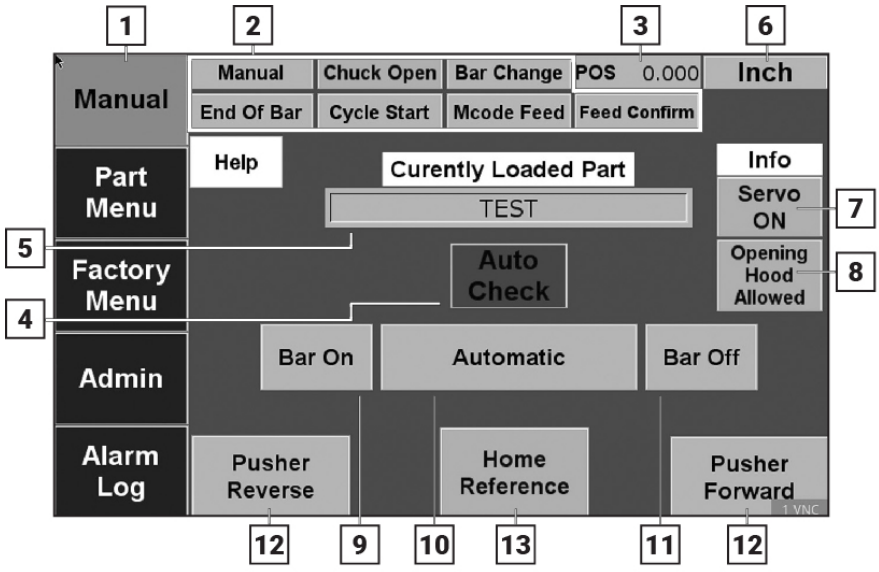
⚠WARNING **Only trained personnel should operate the bar feeder.**

The Patriot bar feeder features a 7” full touchscreen HMI.

The HMI is a microprocessor-based, touchscreen unit that receives user input commands directly through the touchscreen. Understanding the function of the HMI is essential in operating the bar feeder.

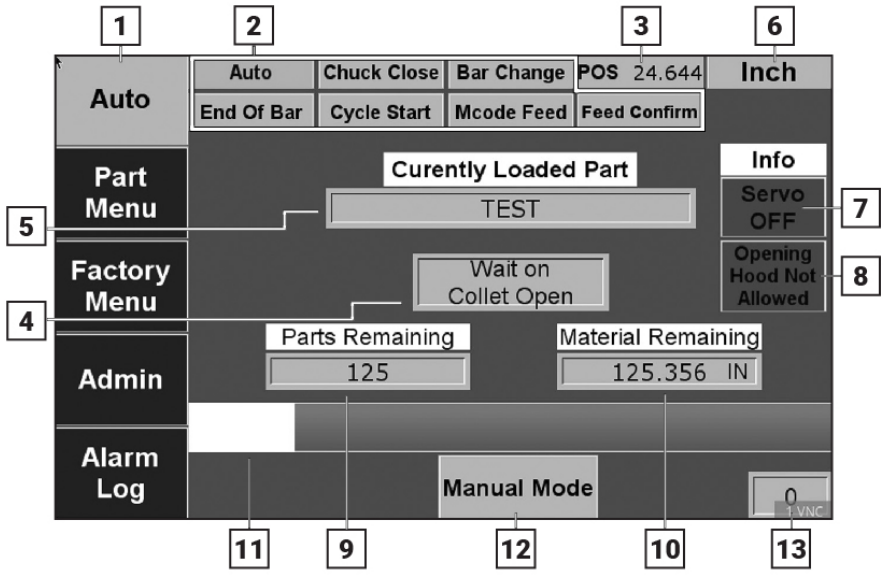
NOTICE Do not use harsh cleaning chemicals on the HMI screen. Use of a microfiber cloth towel and denatured alcohol is permissible. Clean the screen with the power off.

7.2 Manual and Auto Screen Layouts



Manual Screen

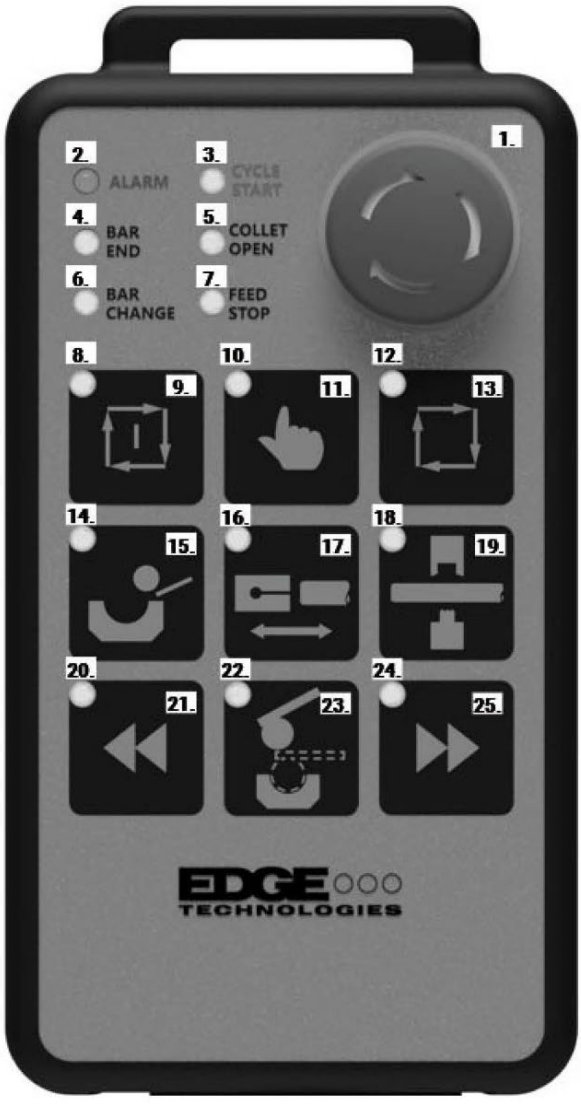
1	Mode status = Manual or Automatic mode	7	Servo on/off indicator
2	Status of interface signals	8	Hood opening allowed indicator
3	Current pusher position	9	Bar on button
4	Auto Check. When green all conditions to go into auto are made. When red, press to see what conditions are missing.	10	Automatic button
5	Current part program	11	Bar off button
6	Current unit of measurement. Tap to change between metric and inches. This can be done at any time	12	Jog pusher buttons
		13	Home Reference button



Automatic Screen

1	Mode status = Manual or Automatic mode	7	Servo on/off indicator
2	Status of interface signals	8	Hood opening allowed indicator
3	Current pusher position	9	Parts remaining indicator
4	Current script item	10	Material remaining indicator
5	Current part program	11	Material remaining visual indicator
6	Current unit of measurement. Tap to change between metric and inches. This can be done at any time	12	Manual mode button
		13	Current step number

7.3 Handheld Pendant Layout



NO.	Function
1.	Emergency Stop
2.	Alarm Light
3.	Cycle Start Light
4.	Bar End Light
5.	Collet Open Light
6.	Bar Change Light
7.	Feed Stop Light
8.	Automatic Start Light
9.	Automatic Start
10.	Manual Mode Light
11.	Manual Mode
12.	Pre Auto Light
13.	Pre Auto
14.	Channel Down Light
15.	Manual Loading
16.	Pusher Extracted
17.	Manual Insert/Extract
18.	Grippers Closed Light
19.	Manual Loading
20.	Pusher Home
21.	Manual Retreat (Left)
22.	Channel Open Light
23.	Manual Channel Open/Close
24.	Pusher Home (reversed)
25.	Manual Advance (Right)

7.4 Power Up

⚠ DANGER Improper use of the electrical cabinet can result in electric shock that will kill the operator and damage the machine.

Have the bar stock in the bar feeder magazine and the lathe ready for production to power up and place the bar feeder in Automatic mode.

1. Turn the main breaker switch on from the bar feeder electrical cabinet.
2. Make sure the Emergency Stop buttons on the pendant and the main control panel are released.
3. Press and hold the green On button on the main control cabinet. The green button will light when the bar feeder is on.
4. Close the collet on the lathe.
5. Press the automatic button on the touchscreen to place the bar feeder in Automatic mode. Reference the Auto Check screen for all conditions that must be met before pressing the automatic button.

7.5 Advance / Retreat at Low Speed

To advance at low speed, press  and  .

To retreat at low speed, press  and  .

7.6 Automatic Work Operation

Press the automatic button on the touchscreen, or press Pre-Auto and then Auto on the handheld pendant, to place the bar feeder in Automatic mode. Reference the Auto Check screen for all conditions that must be met before pressing the automatic button.

7.7 Resetting the Bar Feeder Home Position

Press the Home reference button.

Once the Home switch turns on, the Home reference indicator will turn from red to green. It is still possible to reference when the indicator is green.

This procedure should be done any time the bar feeder fails to properly reach a position, or the Home reference Lost alarm occurs.

7.8 Loading with the Bar On and Bar Off Buttons

NOTICE **Do not use Bar On if a bar is already in the bar feeder. Doing so will cause damage to the machine.**

Bar On

A new bar can be loaded by using the Bar On button. The lathe collet must be open for Bar On to function. The channel must be open, the chuck must be open, and the pusher must be extracted.

- Press the Bar On button.
- The grippers will close on the bar (only if bar is present. There need not be a bar in the channel at this step).
- A new bar will fall into the guide channel.
- The pre-feed pusher will move the bar forward ahead of the pusher collet.
- The pre-feed pusher will retract and the channel will close.
- The grippers will hold the bar as the pusher collet is forced over the material.
- The grippers will open and the bar will move forward to the facing position and stop.
- Manually close the lathe collet. The bar feeder can now be placed in Automatic, and machining may begin.

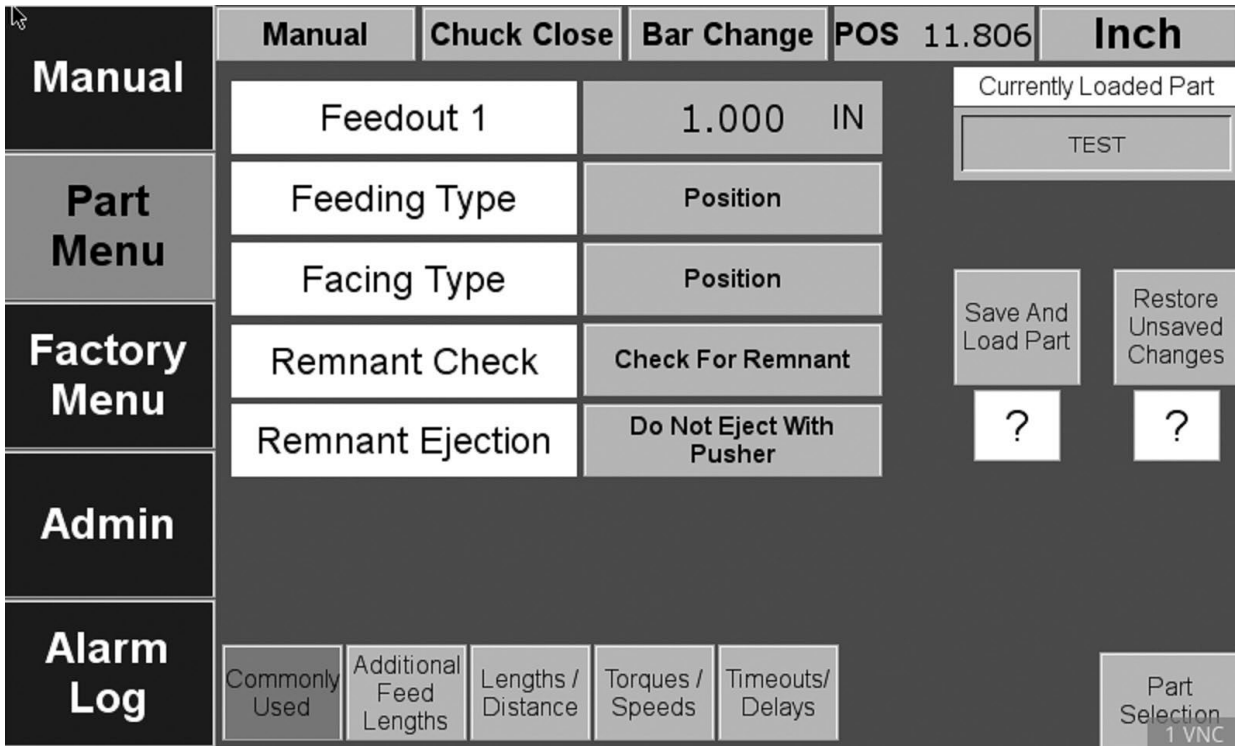
Bar Off

If the material in the channel is too long to drop through the remnant slot, use the Bar Off button.

- Press Bar Off.
- The bar pusher will retract to the Home reference position.
- The grippers will close on the bar, and the pusher will pull off the material.
- The grippers will open.
- The grippers will reclose to check for material.
- The grippers will reopen.

8. Parameters

8.1 Parameter Pages and Definitions: Part Menus



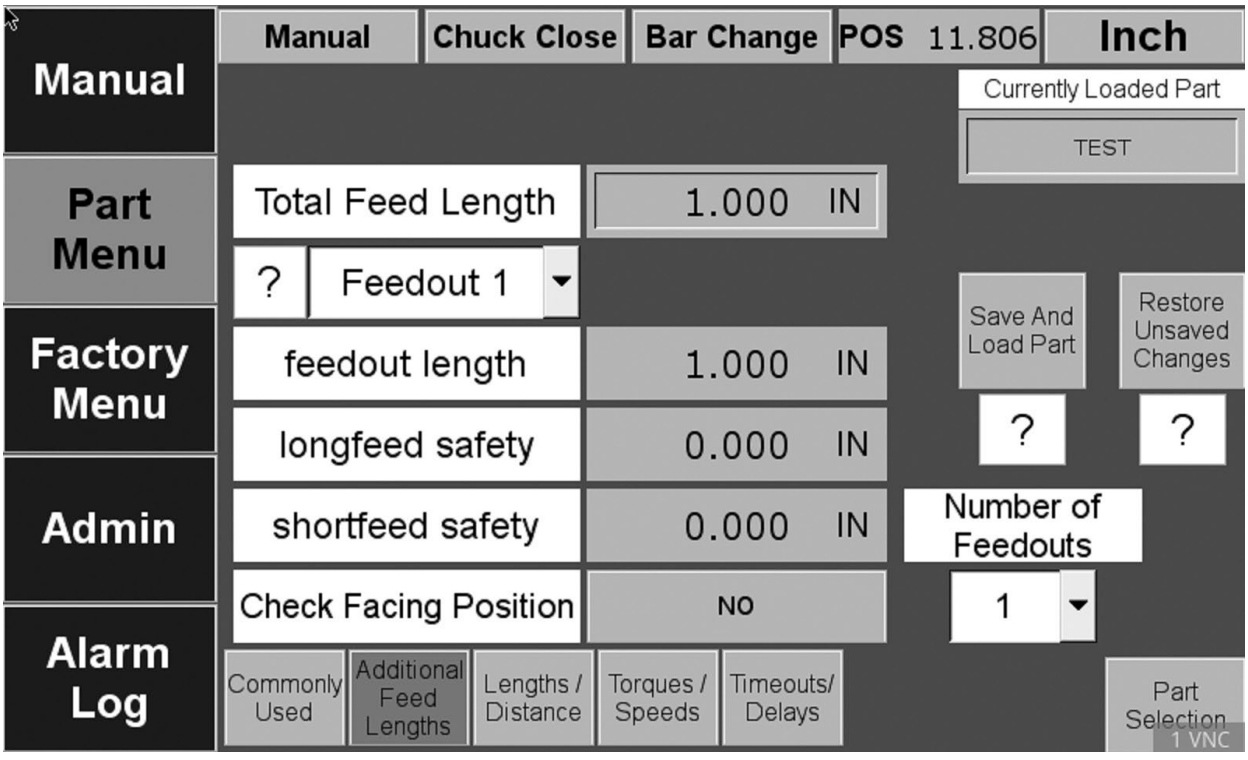
Feedout 1: When only using one feedout, this is the part length. If you wish to use multiple feedouts, modify the values in the additional feed lengths screen. Calculate the proper setting by adding the length of part + width of cut-off tool + facing stock. Used with Max End of Bar Position, Feedout 1 generates an end-of-bar signal (Max Feed Position – Part Length 1).

Feeding Type: Feeding Type selects the mode of feeding material in Automatic mode. The Position selection feeds the bar to positions specified by part lengths, while Turret Stop feeds until the bar feeder detects the bar has hit a hard stop. Set up long and short feed safeties for higher reliability when selecting Turret Stop.

Facing Type: The Position selection feeds the bar to a position. This position is controlled by facing position (factory menu), facing length (part menu), and chuck jaw length (part menu). Turret Stop feeds the bar until the bar feeder detects the bar has hit a hard stop.

Remnant Check: By choosing Remnant Check, when the pusher returns to do a bar change, the grippers will verify that there is a remnant left in the bar feeder collet and did not get left in the lathe or channel. Do Not Check For Remnant is used when either a loose-fitting collet or no collet is used to eject the part out of the front of the lathe with a new bar. The bar feeder will not alarm out when no bar is detected by the grippers.

Remnant Ejection: Eject With New Bar uses the next bar to eject the remnant from the lathe spindle. Eject With Pusher uses the pusher to eject the remnant from the lathe. The distance to eject is set in the factory menu.



Total Feed Length: This sets the total length of the part to be machined. This value is not entered but calculated from the sum of each feedout and is used to calculate parts remaining.

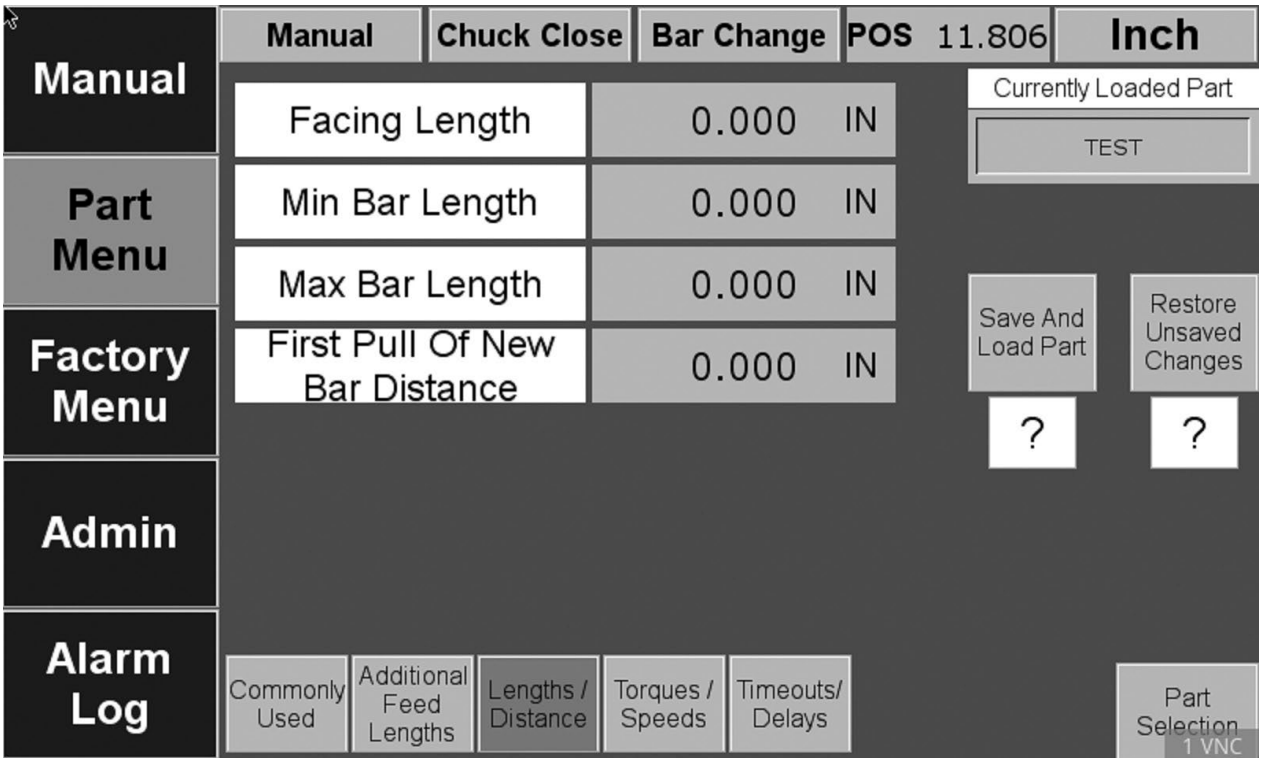
Feedout 1: Select which feedout you wish to modify. The bar feeder will feed these out in order.

Feedout Length: The length will feed out for the feedout number selected above.

Longfeed Safety: This is an incremental value. If the bar feeder attempts to feed a part but exceeds the position it expected to feed out by this amount, the bar feeder will alarm out.

Shortfeed Safety: This is a decremental value. If the bar feeder attempts to feed a part but comes up less than the expected feedout position by this value, the bar feeder will alarm out.

Check Facing Position: This uses the longfeed and shortfeed safeties to check that the new bar was fed to the correct facing position (factory menu). With this option disabled, the bar feeder will still alarm out if the position is off by more than an inch.

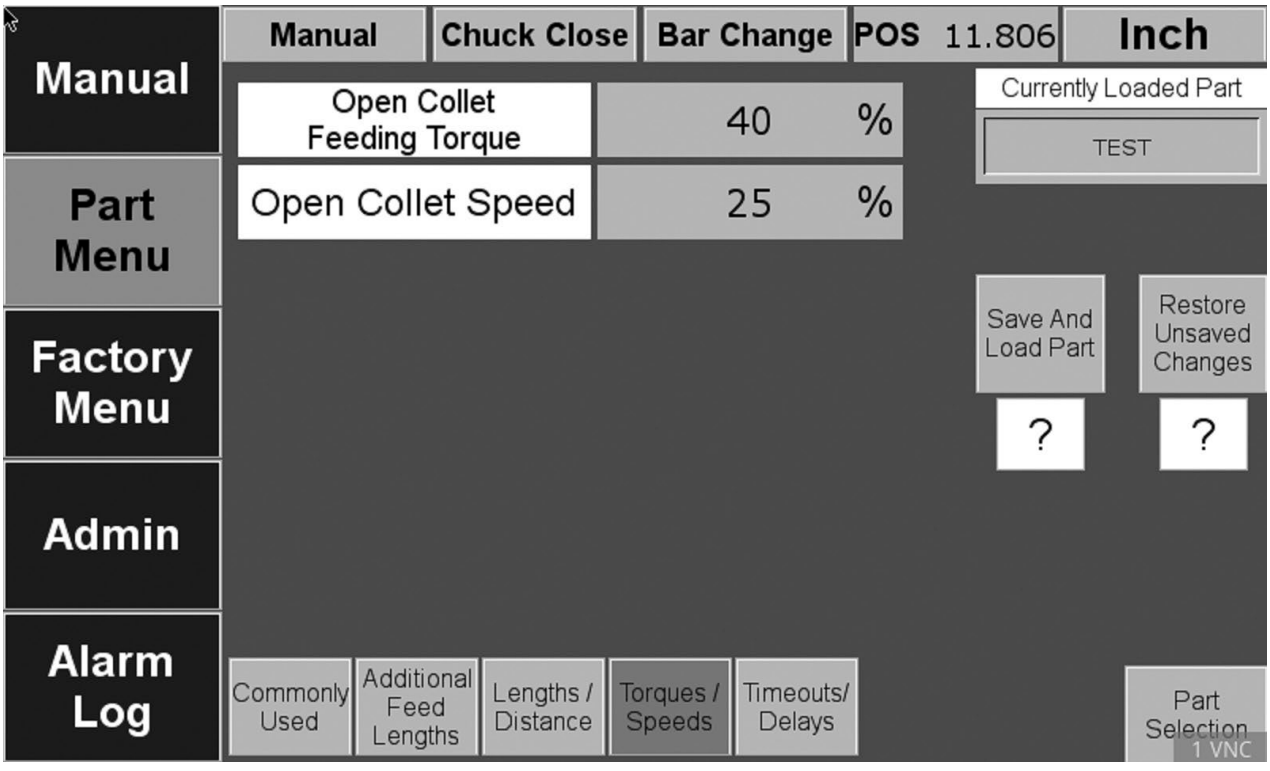


Facing Length: The additional length the bar will be fed after the facing position is reached.

Min Bar Length: If a bar is measured at less than this length, the bar feeder will alarm out. Setting this properly will help with process reliability.

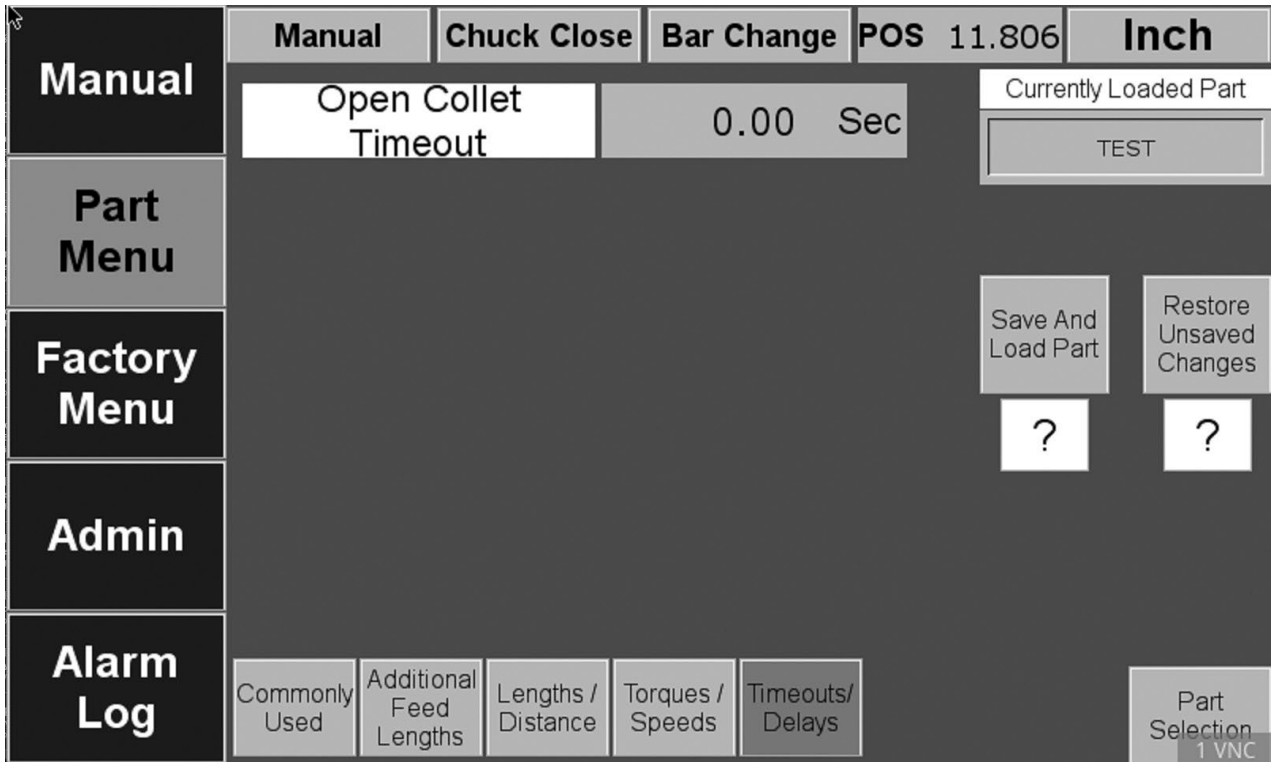
Max Bar Length: If a bar is measured at more than this length, the bar feeder will alarm out. Setting this properly will help with process reliability. This value also allows the bar to be measured faster, as the bar feeder will quickly push the bar to a calculated distance before the flag, at which point it will slow down to the bar measurement speed.

First Pull of New Bar Distance: When a new bar is loaded, the bar feeder will expect the bar to be pulled this distance for Swiss-type applications. The bar feeder will make the first feed of the new bar this distance for position/torque mode feeding on fixed headstock machines before feeding out parts. On Swiss-type machines, this is useful, as the lathe can load the bar into the guide bushing without requiring the distance to be the same as the part length.



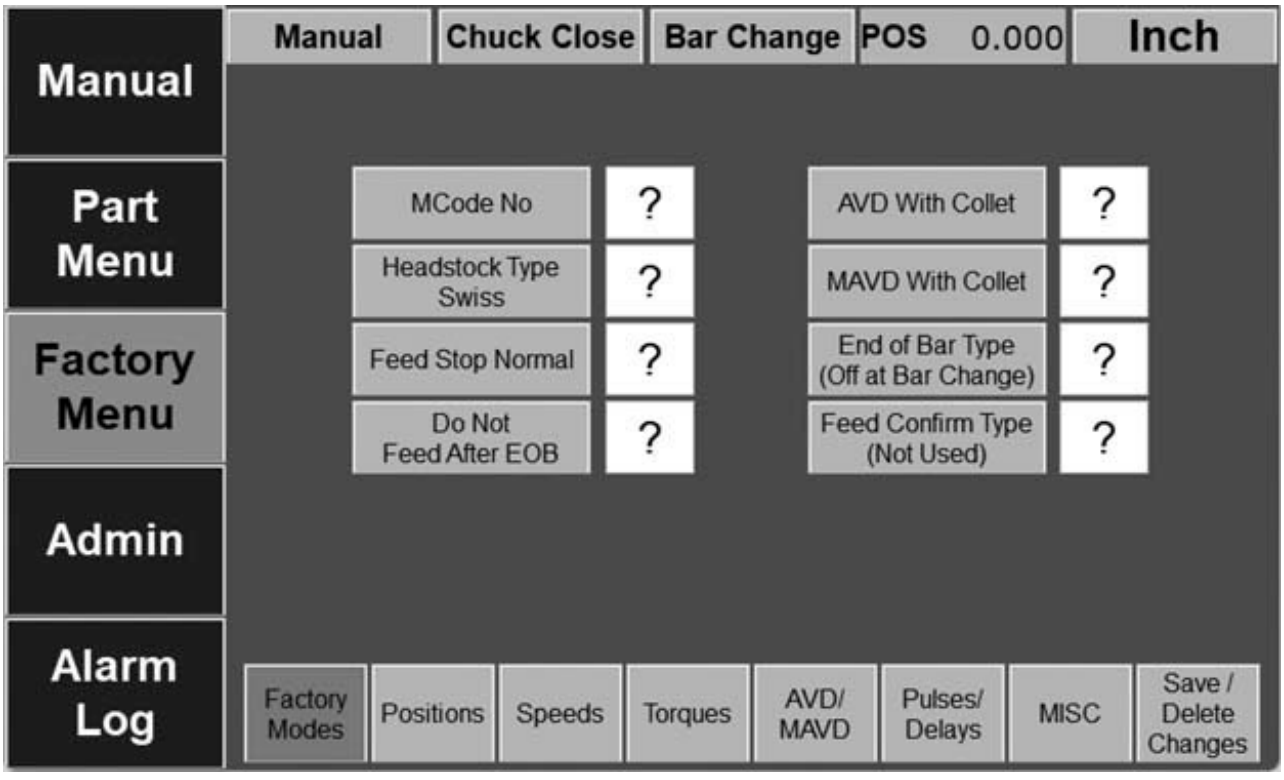
Open Collet Feeding Torque: This represents the maximum possible torque when feeding the bar into the lathe. Larger bars may need higher torque. If the torque is set too high for thin bars, it is possible to bend the bar and subsequently break a tool during machining.

Open Collet Speed: This represents the speed that the bar will be fed into the lathe.



Open Collet Timeout: When the bar feeder is in automatic, if the lathe collet is open for longer than the open collet timeout, the bar feeder will alarm out.

8.2 Parameter Pages and Definitions: Factory Menus



MCode Yes/No: MCode Feed commands the bar feeder to feed the bar. If MCode is set to yes, when the collet opens, the bar feeder will require the MCode feed signal (sent from the lathe) to feed a part. If MCode is set to no, the bar feeder will feed as soon as the collet opens (as long as the feed stop signal is off).

Headstock Type Swiss/Fixed: This sets the type of lathe the bar feeder is connected to, enabling/disabling the synchronization system, and makes other changes to the bar feeder.

Feed Stop Normal/Latched: Feed Stop Normal will prevent feeding while the feed stop signal is on. Feed Stop Latch will prevent feeding while the collet is open if the feed stop signal is seen once.

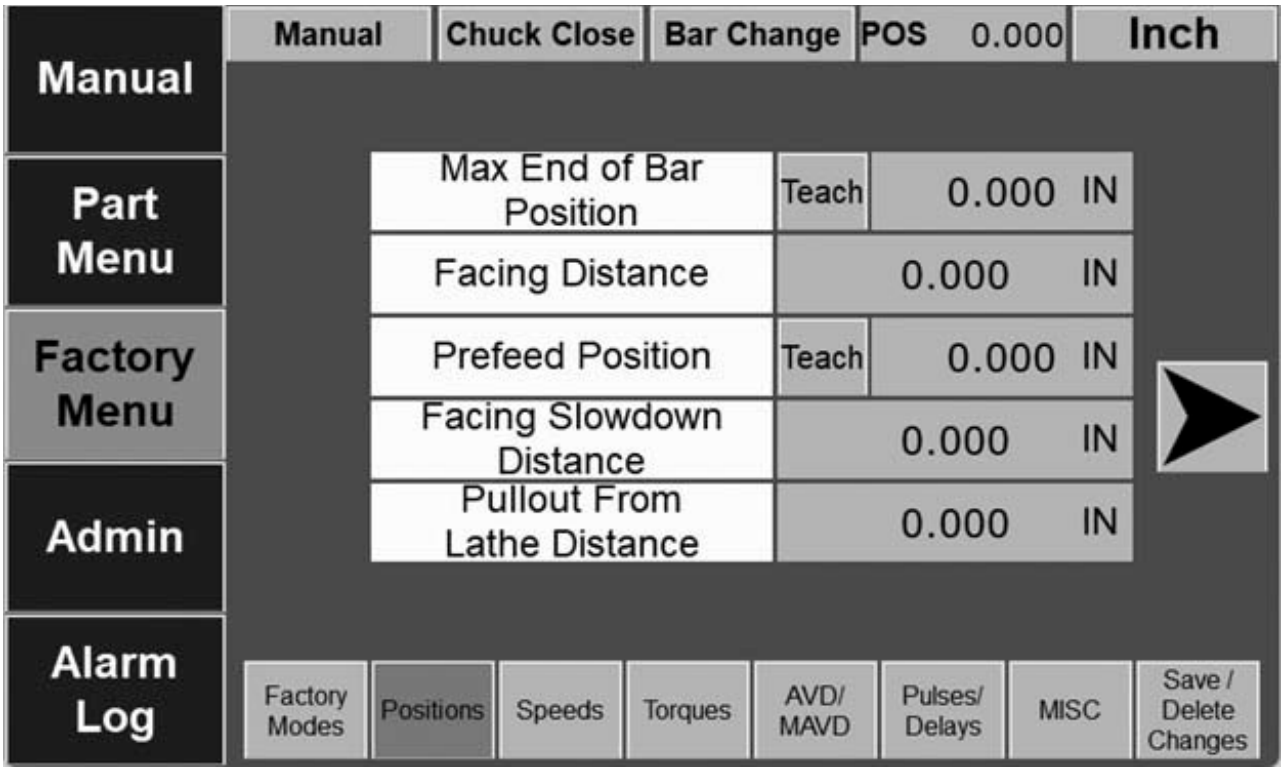
Do Not Feed After EOB: When set to Feed After EOB, this leaves the lathe in charge of when to change the bar. The bar feeder will keep feeding parts until the lathe sends the bar change signal. This is normally not recommended but can be useful if the lathe does not have a second EOB signal.

AVD With/Without Collet: AVD With Collet indicates the AVD will open and close with the lathe collet signal. AVD Without Collet indicates the AVD will always remain closed.

MAVD With/Without Collet: MAVD With Collet indicates the MAVD will open and close with the lathe collet signal. MAVD Without Collet indicates the MAVD will always remain closed.

End of Bar Type: Pulse enables the pulse timer for the end of bar. Latch, which is used for most lathes, turns the end-of-bar signal on until the bar change is complete. Double Pulse does 2 pulses instead of one to improve signal reliability on lathes where a single pulse is unreliable (extending the pulse timer can also help). Off at Bar Change sends the signal until the lathe responds with a bar change signal, then shuts off the end-of-bar signal.

Feed Confirm Type: Feed Confirm Type is not used on the Patriot Gen II. Never turn on the Feed Confirm signal. Finished Feeding indicates a Pulse signal after feeding is complete. Start Feeding indicates a Pulse signal before feeding. During Feeding will keep the signal on during the entirety of the feeding.



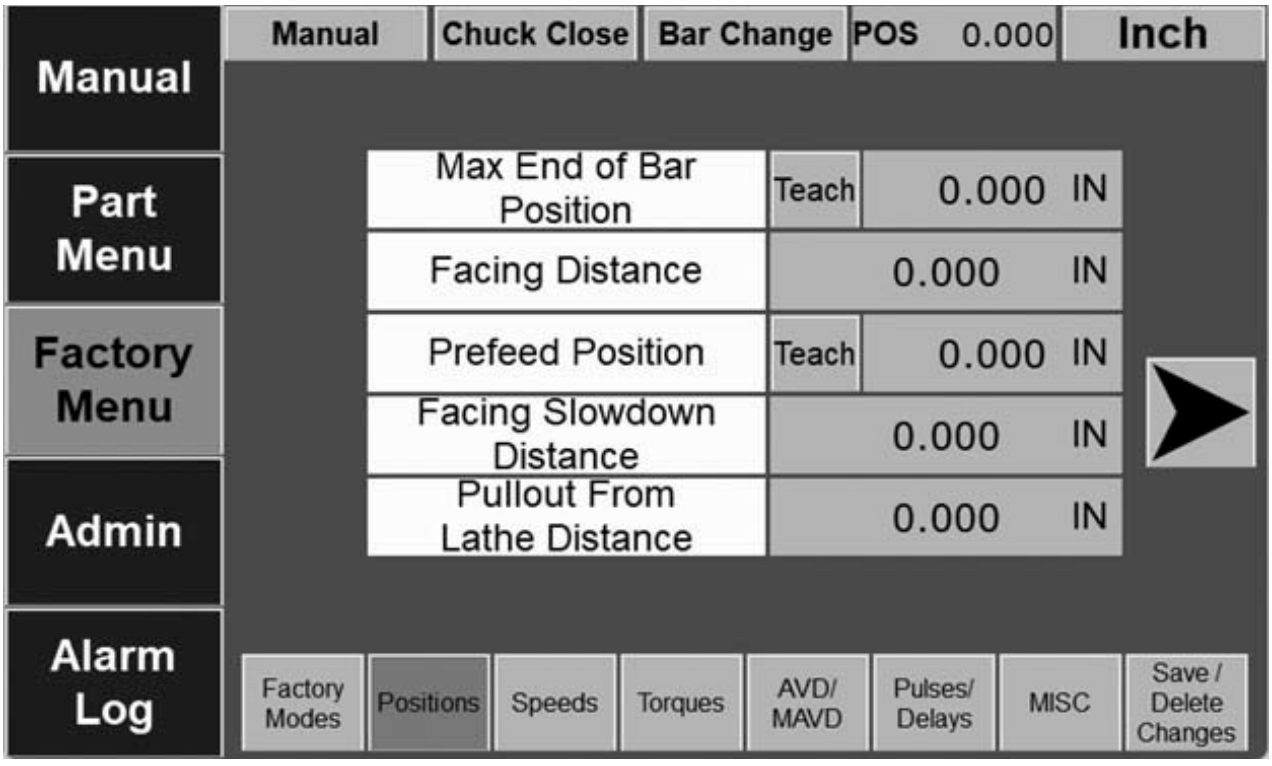
Max End of Bar Position: This is the maximum position of the pusher when feeding the bar into the lathe. It is used to ensure that the chuck jaws are gripping enough material to machine a new part.

Facing Distance: This is the distance from the measurement flag to the face of the lathe collet or chuck. If there is a value entered in Facing Length (Part Menu), that will extend this position.

Prefeed Position: This is the position to which the prefeed pusher will advance each new bar to be gripped and pressed onto the pusher collet.

Facing Slowdown Distance: At this position, the bar will start feeding slower before tripping the measurement flag to ensure a more accurate position of the bar in the spindle, and to help with feeding reliability.

Pullout From Lathe Distance: This is the distance the pusher will retract in a slower and higher torque state to get the bar sufficiently out of the spindle before pulling back at bar change return speed.



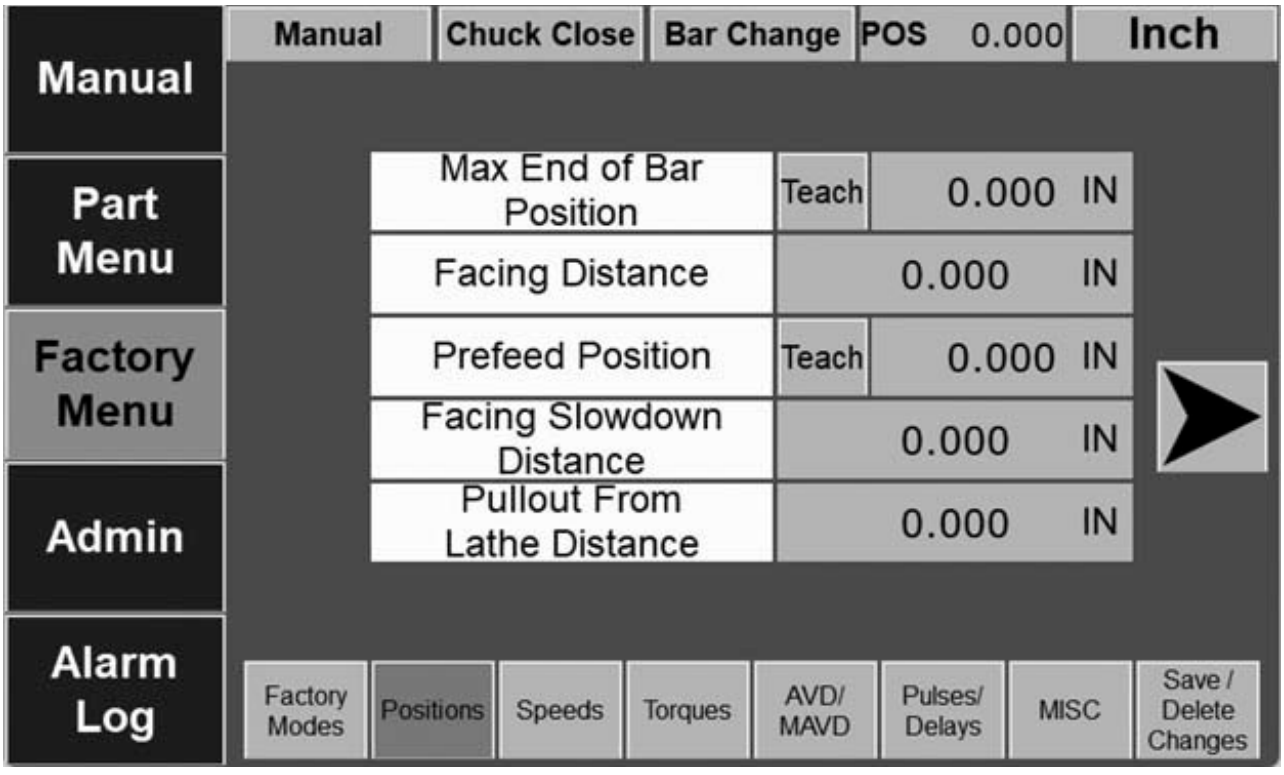
Oil Pump Shutoff Position: This is the position to shut off the oil pump. This position should be after the pusher collet has moved past the guide channels. Setting this position too far could result in undesired oil transfer to the lathe.

Front of Prefeed to Measure Flag Distance: This is the distance between the front of the prefeed pusher at the prefeed position and the measurement flag. This value is needed to calculate the bar length. This can be adjusted by small amounts if the bar length is slightly off to compensate for differences in sensors.

Ejection Distance: When the part menu parameter Remnant Ejection is set to Eject with Pusher, the pusher will go this far past the end-of-bar position to eject the remnant.

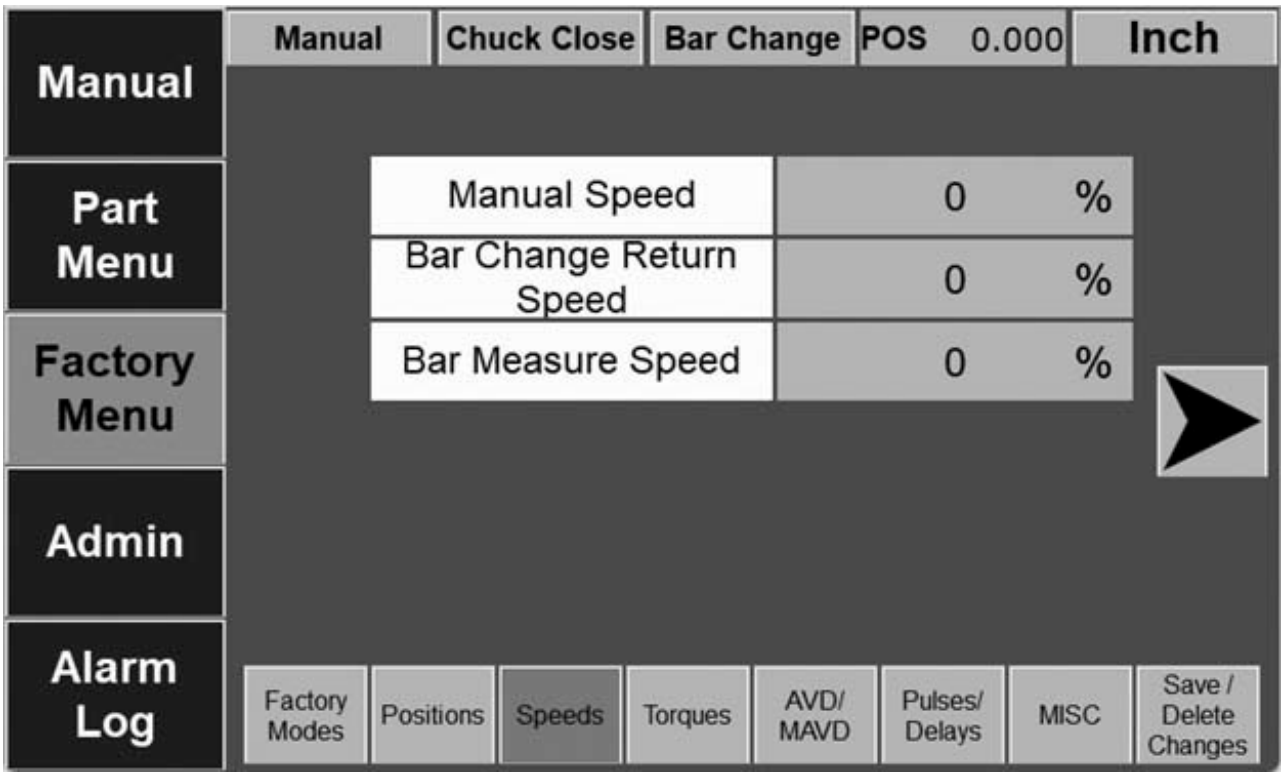
Prefeed Slowdown Distance: This is the distance before the prefeed position where the bar feeder will slow down the prefeed pusher to prevent the bar sliding in the channel. This helps to ensure the accurate measurement of a newly loaded bar.

Pusher Length: This parameter is the length of the pusher. It is used to help make the bar measurement more accurate. This value is measured from the tip of the pusher to the front of the prefeed pusher.



Pushback Collet Open: When the collet is open, if the pusher is forced back more than this amount, the bar feeder will alarm out. A value of zero will ignore this alarm. It is mostly used for Swiss-type applications.

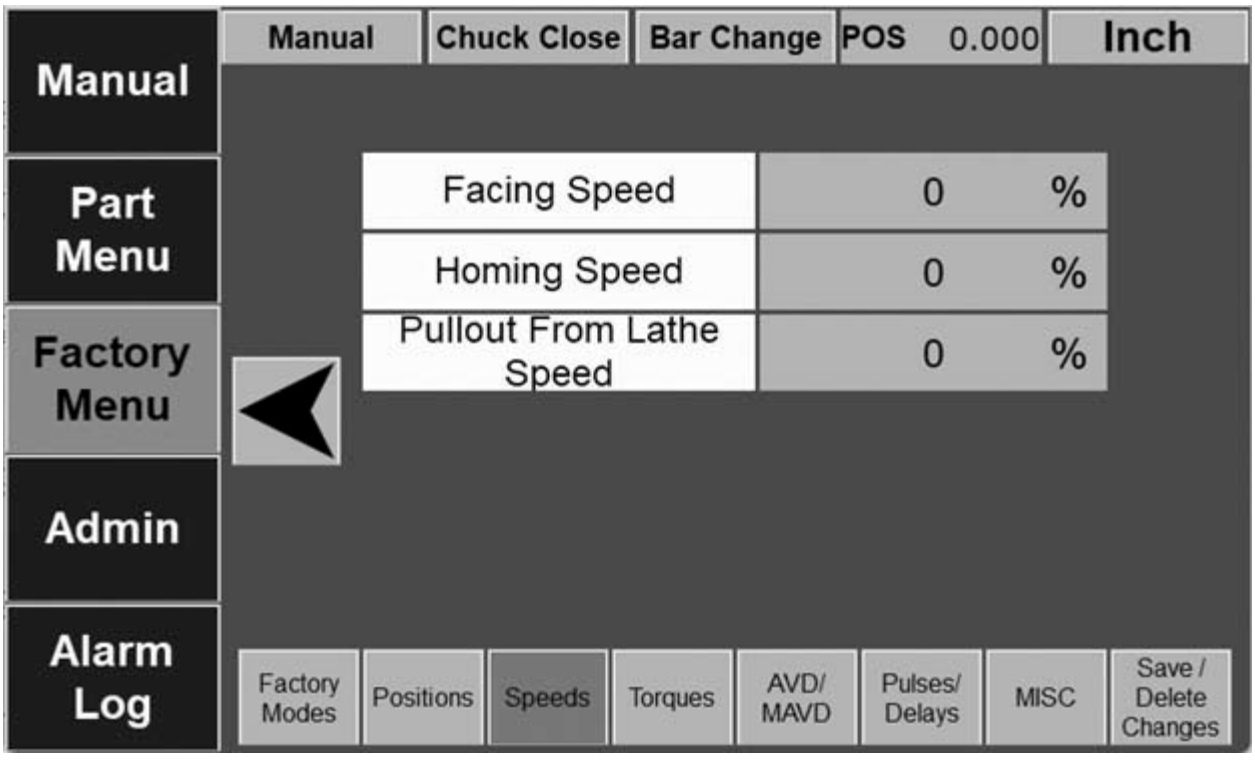
Pushback Collet Closed: When the collet is closed, if the pusher is pushed back further than this amount, the bar feeder will alarm out. A value of zero will ignore this alarm. It is used exclusively for fixed headstock applications.



Manual Speed: While in manual mode, this is the speed the pusher will move when the left/right arrow buttons on the handheld pendant are pushed.

Bar Change Return Speed: After the lathe sends the bar change command, the pusher will travel to the Home reference position at this speed.

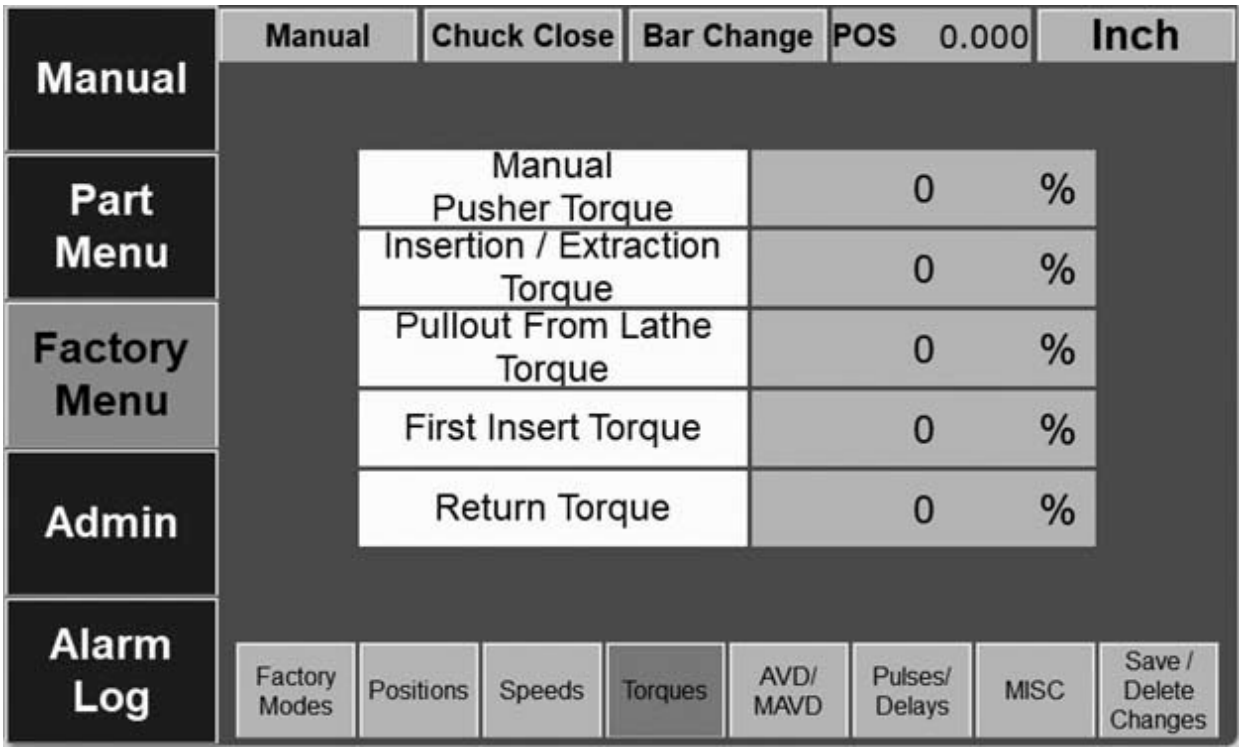
Bar Measure Speed: This parameter controls the speed at which the bar will be measured as it trips the measurement flag. Slower is more accurate. After the bar is measured, the (prefeed) pusher will change to the facing speed.



Facing Speed: This is the pusher speed before the bar reaches a point it can be measured (controlled by maximum bar length) and after a bar has been measured.

Homing Speed: This is the speed the pusher travels when trying to find the Home reference position. Slower speed prevents the pusher from slamming into the back of the machine.

Pullout From Lathe Speed: When executing a bar change, the bar feeder will pull out the remnant from the lathe at this speed before moving at the bar change return speed. This ensures that the remnant does not come off the pusher collet during remnant extraction.



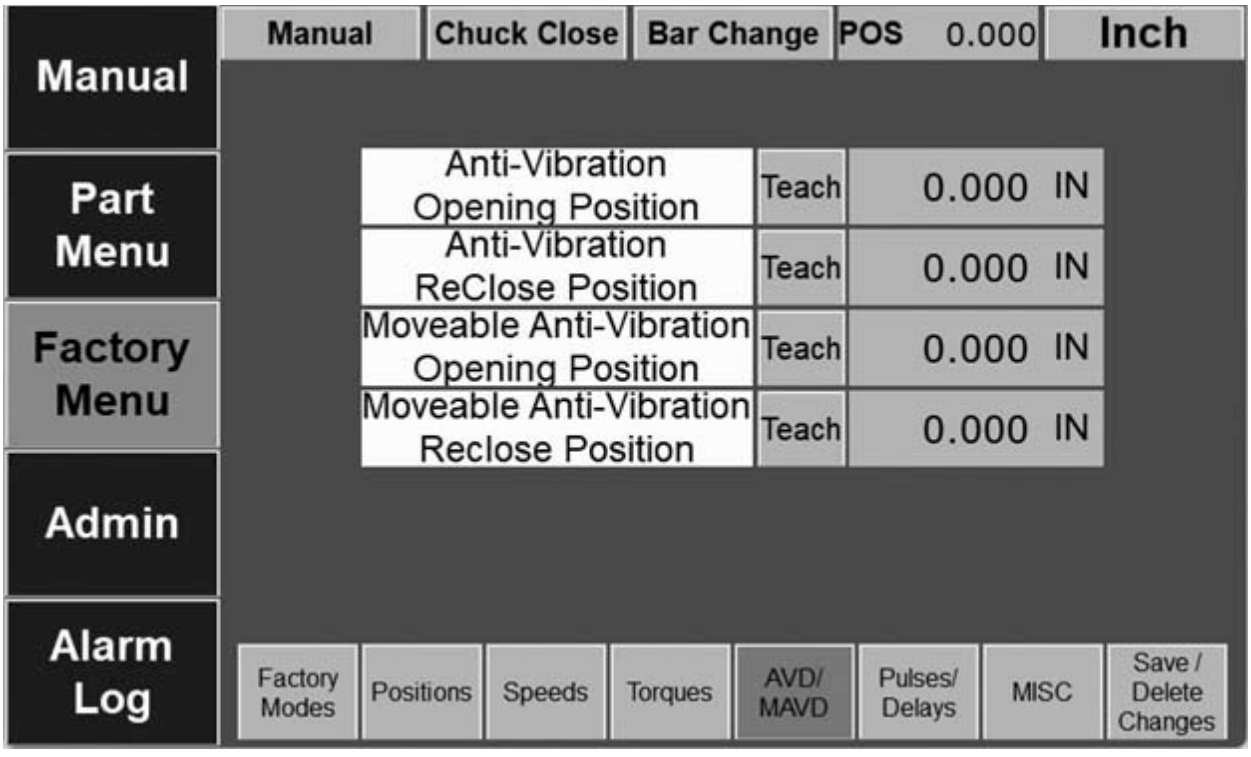
Manual Pusher Torque: This is the max torque the pusher will exert when doing manual moves.

Insertion / Extraction Torque: This is the torque used to assist the cylinder during insertion and extraction.

Pullout From Lathe Torque: When pulling the remnant out of the lathe, the bar feeder will use this torque until the pusher has pulled back the distance entered in the pullout from the lathe distance parameter (see Factory menu).

First Insert Torque: This is the torque used when a new bar is pushed through the lathe collet after a bar change.

Return Torque: This is the torque used when the pusher is returning home.

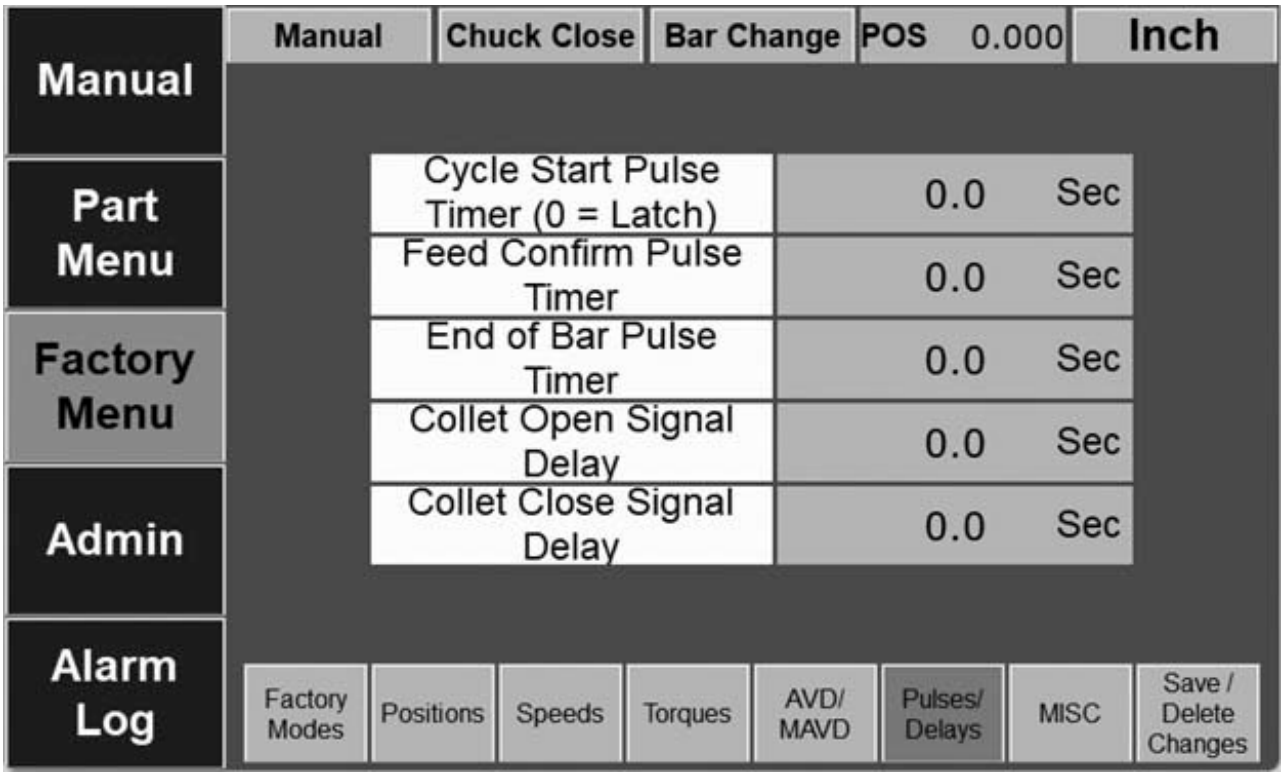


Anti-Vibration Opening Position: At this position, the first AVD will open. This position should be before the pusher collet reaches the first anti-vibration device.

Anti-Vibration Reclose Position: At this position, the AVD will reclose on the pusher. This stabilizes the pusher and helps reduce vibration. This position should be after the pusher collet passes fully through the AVD.

Moveable Anti-Vibration Opening Position: At this position, the MAVD will open. This should be before the pusher collet reaches the MAVD.

Moveable Anti-Vibration Reclose Position: At this position, the MAVD will reclose on the pusher. This stabilizes the pusher and helps reduce vibration. This position should be after the pusher collet passes fully through the MAVD.



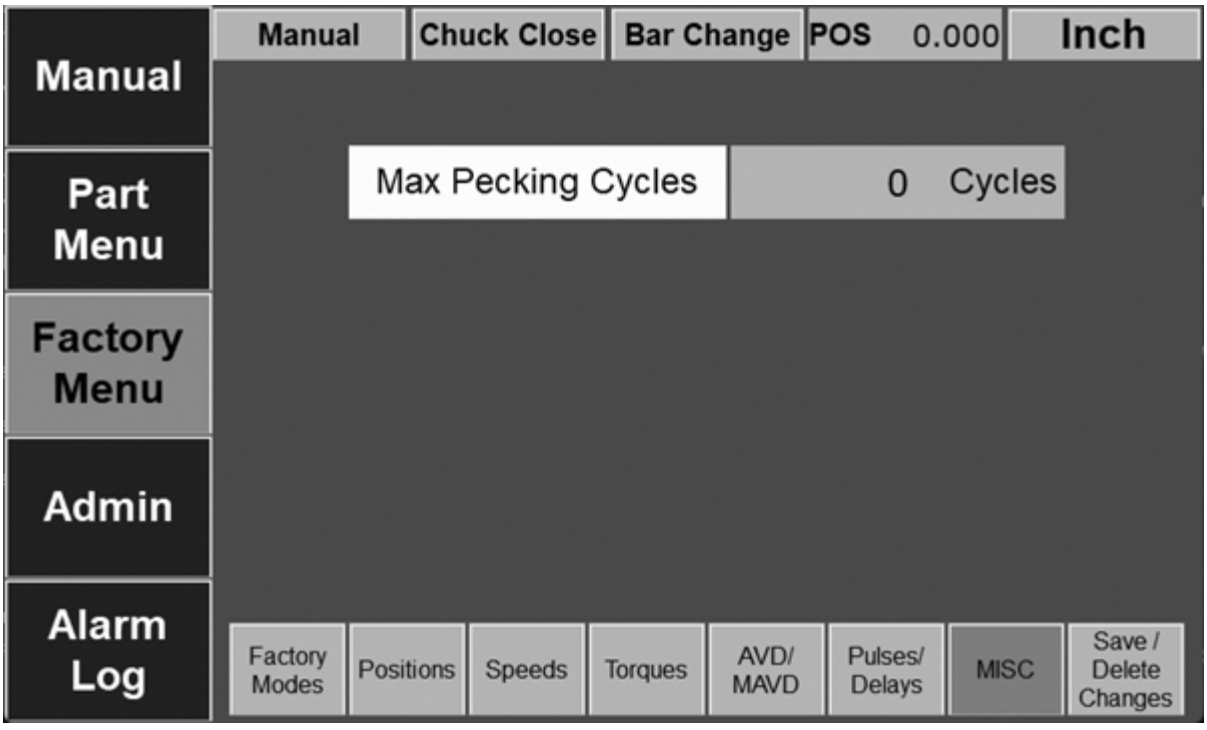
Cycle Start Pulse Timer: This sets the amount of time to keep on the cycle start signal. 0 is latch. The bar feeder will wait for the collet to close before turning the signal off.

Feed Confirm Pulse Timer: This sets the amount of time to keep on the feed confirm signal. 0 is latch. The bar feeder will wait for the collet to close before turning the signal off.

End of Bar Pulse Timer: This sets the amount of time to keep on the end-of-bar signal. Most lathes use a latch and not a pulse, so this should usually be 0 (latch). When set to 0, the bar feeder will wait for the collet to close before turning the signal off.

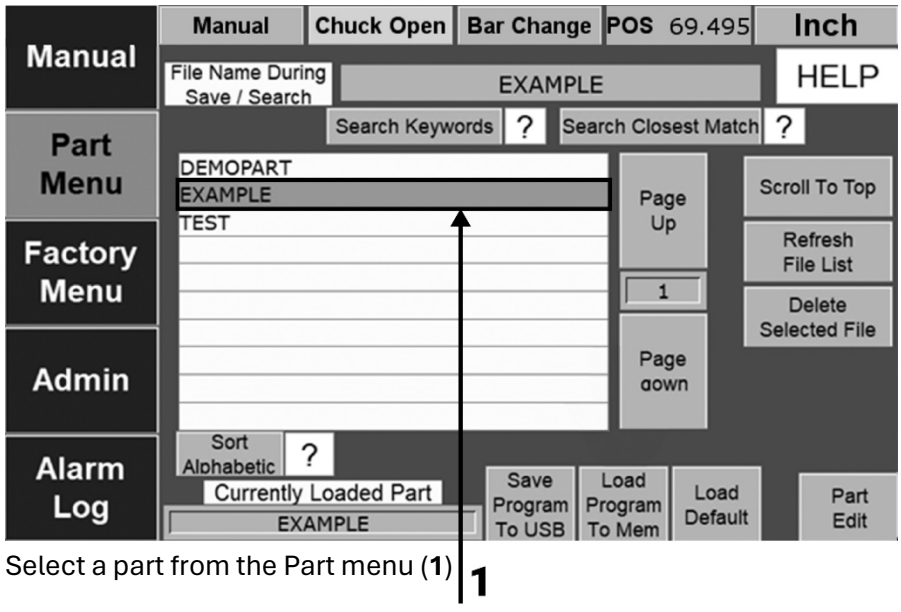
Collet Open Signal Delay: The bar feeder will delay the collet open signal it receives from the lathe.

Collet Close Signal Delay: The bar feeder will delay the collet close signal it receives from the lathe.

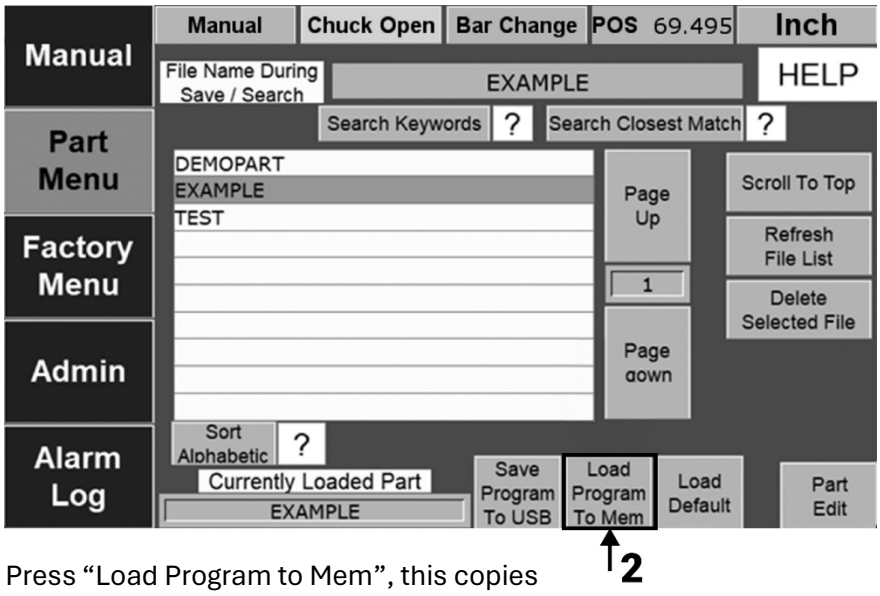


Max Pecking Cycles: When feeding the bar into the spindle, if the bar feeder detects the bar is stuck, it will "peck" the bar the number of times in this parameter by repeatedly backing up and pushing again. If the bar is still stuck after pecking this many times, the bar feeder will alarm out.

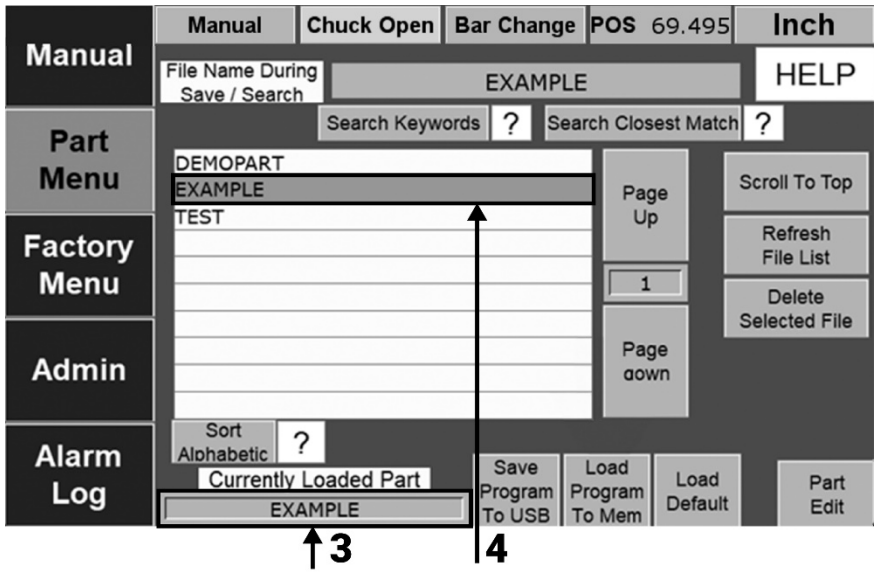
Loading an Existing Part



Select a part from the Part menu (**1**)

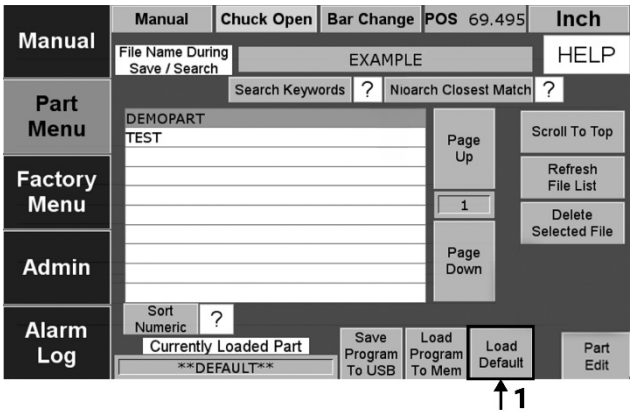


Press “Load Program to Mem”, this copies the part from the usb drive into the PLC memory. (**2**)

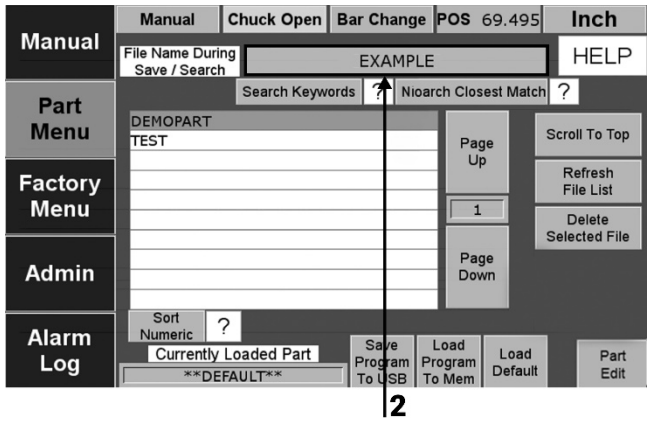


The “currently loaded part” (**3**) will update to show that the part that was just loaded (**4**)

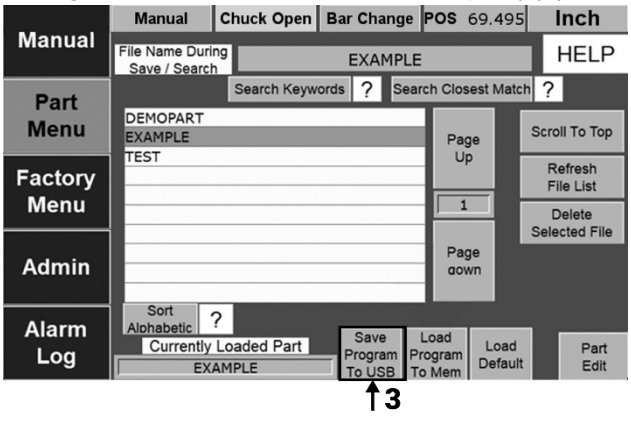
Creating a new part from default



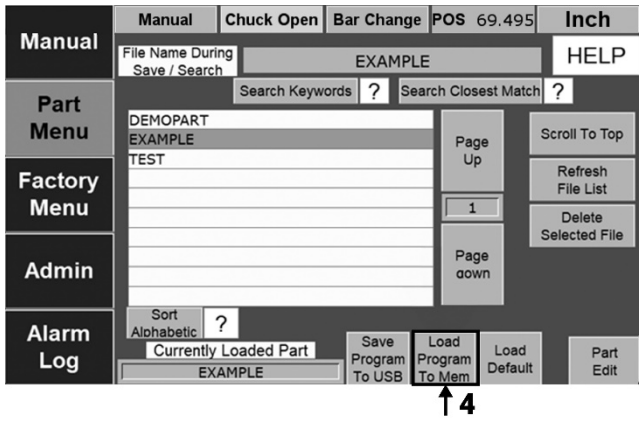
Press “load default” (this will load parameters in for the default part that was created after the machine was installed, the default part can be changed from Admin -> Save default part) (**1**)



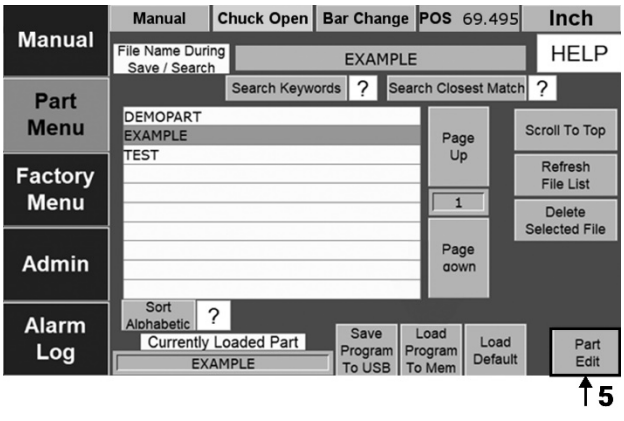
Enter the name you want the part to be called (**2**)



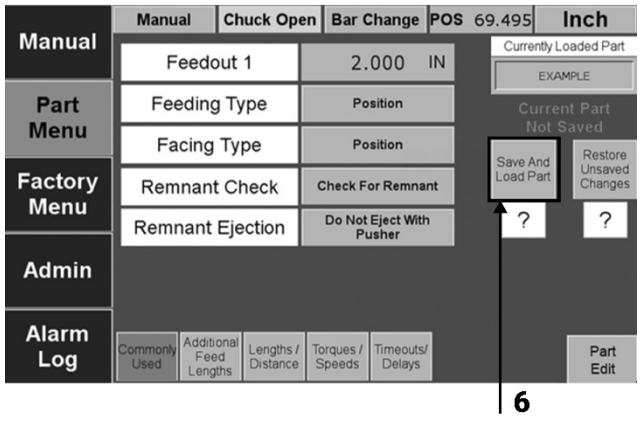
Press “save program to usb” (this will create a part file on the usb drive with the name entered) (**3**)



Press “load program to mem” (this will load the newly created part file into the PLC) (**4**)

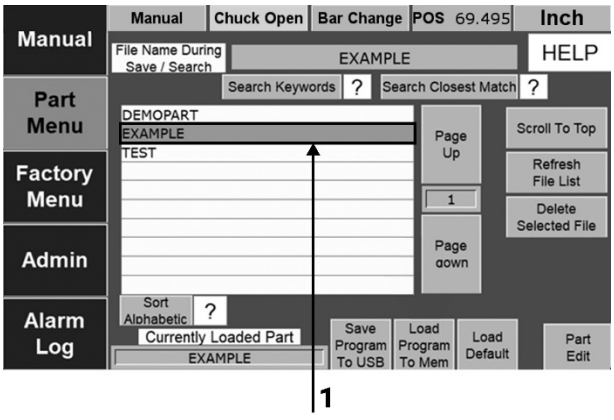


Press “part edit” (**5**)

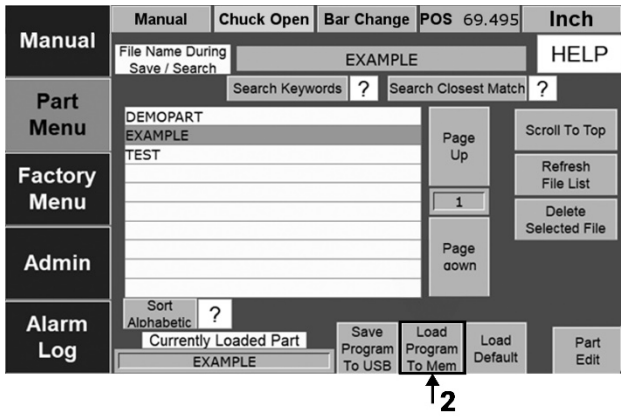


Edit your part parameters
Notice that there is a red message “current part not saved” Press the “save and load part” button this will save the part to the usb drive as well as update the part in the PLC (**6**)

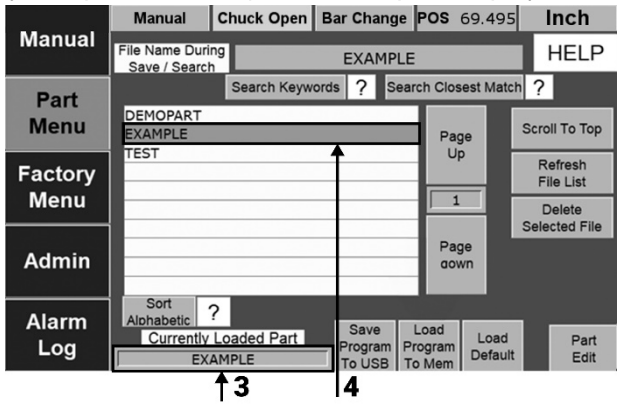
Modifying an existing part and saving/loading it under a new name



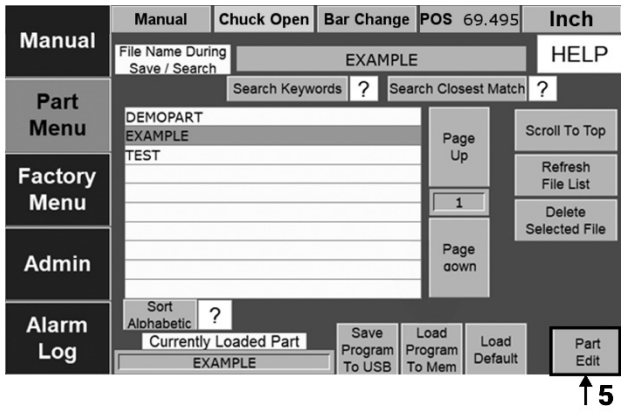
Select a part from the Part menu (**1**)
(if the part is already loaded skip to step 4)



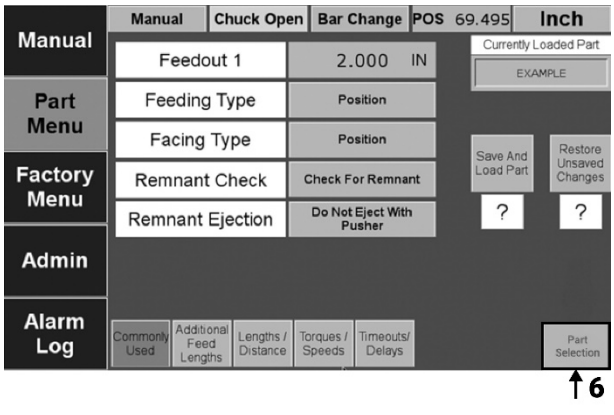
Press “Load Program to Mem”, this copies the part from the usb drive into the PLC memory. (**2**)



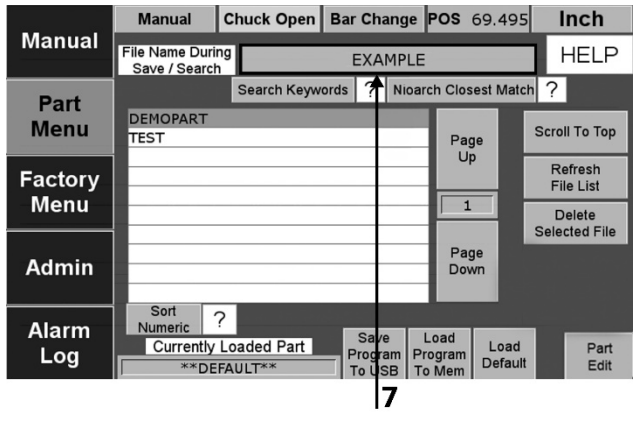
The “currently loaded part” will update (**3**) to show that the part that was just loaded. (**4**)



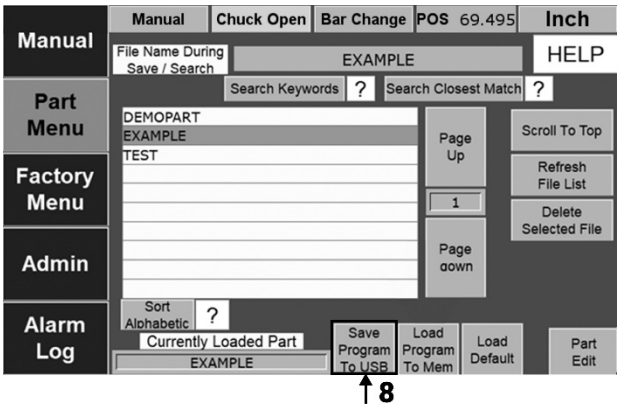
Select Part Edit (**5**)



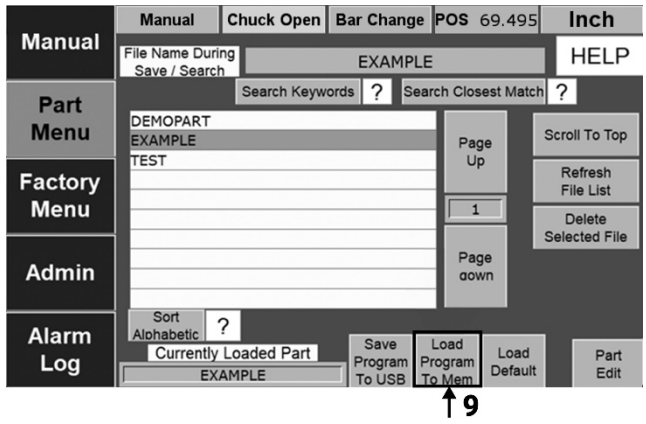
Edit your parameters. Select Part Selection (**6**)



Enter the name of your new part (**7**)



Press “Save program to Usb” (**8**)



Press “Load Program to Mem” (**9**)

8.3 Parameter Pages and Definitions: Admin Menus

Level	Password
0	00000000
1-Part Loading	258
2-Part Edit	235
3-Factory Menu	88
4-User Admin	11600116

9. Maintenance

9.1 General Maintenance Tips

⚠WARNING Prior to bar feeder maintenance, turn off 3-phase power to the bar feeder and place the lathe into an Emergency Stop.

⚠WARNING Prior to pneumatic system service, evacuate the system.

NOTICE Using petroleum or other solvents on the bar feeder may damage plastic components.

Observe the following guidance:

- For consistent operation of the bar feeder, perform maintenance checks regularly.
- The area around the bar feeder should be kept clean to avoid safety issues.
- Dust and wipe down the bar feeder with a mild cleaner daily.

Maintenance Chart

Maintenance Task	Every 3 Months	Every 6 Months	Every 12 Months
Check pusher collet for wear	X		
Check guidechannel for wear and clean		x	
Check air regulator	X		
Check drive chain		X	
Check oil tank level			X
Check synchronization belt		X	
Check rotating tip	X		
Check gripper blades			X

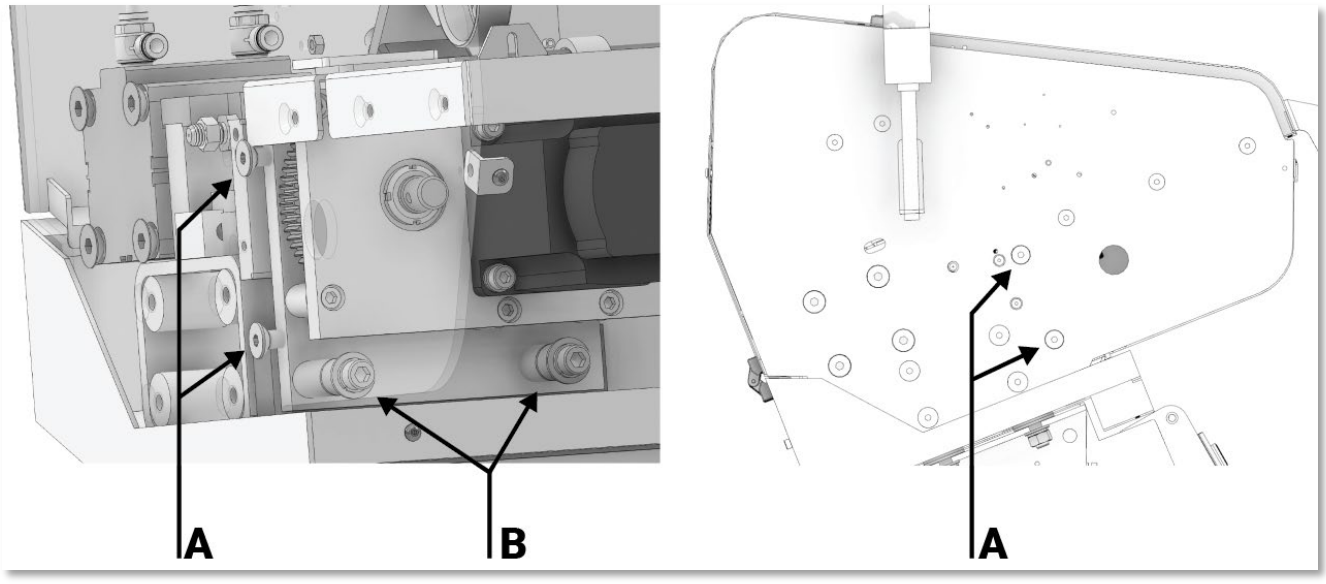
9.2 Pusher Drive Chain

⚠WARNING **Bar feeder and lathe must be in Emergency Stop for belt adjustment.**

⚠WARNING **Properly trained personnel are required to adjust the drive chain.**

NOTICE **Do not set chain tension too tight. This will stretch the chain and potentially lead to failure.**

The pusher drive chain is a roller type chain with a master link connected to the carriage. The chain runs the length of the machine contained inside of a channel. The chain is driven by a servo drive motor via gear reduction system opposite the lathe for adequate torque production.

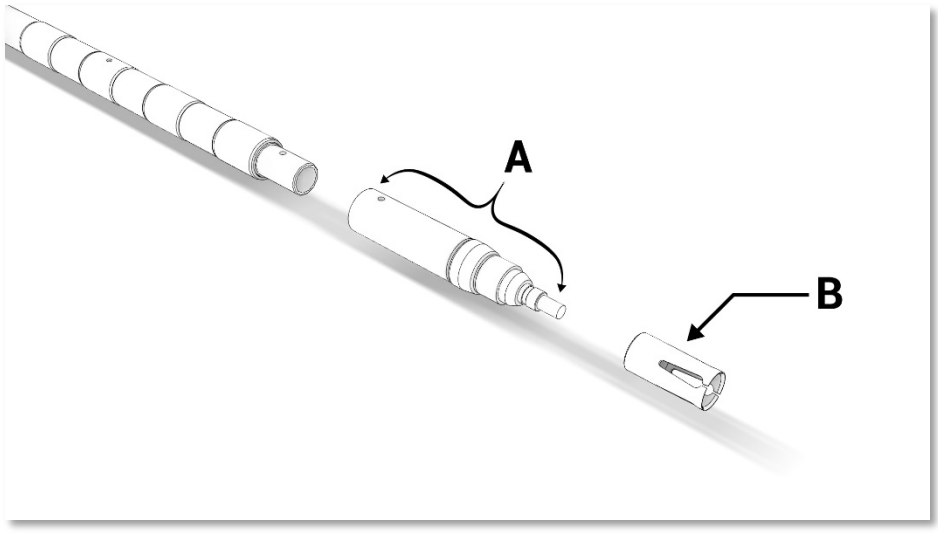


Any time the drive chain requires adjustment, follow the procedure below:

1. Place bar feeder and lathe into Emergency Stop.
2. Material may need to be removed from the channel if the pusher cannot be moved without obstruction.
3. Open the bar feeder hood.
4. Using the two access holes in the sheet metal, loosen the locking bolts (B).
5. Rotate the adjustment bolts (A) clockwise to tighten the chain to suitable tension.
6. Tighten the locking bolts.
7. Close the bar feeder hood.
8. Reset Emergency Stop and test pusher operation with the handheld pendant.

9.3 Inspecting the Pusher Collet and Revolving Tip

⚠WARNING The pusher collet and revolving tip are right next to the gripper. Make certain that the power supply is disconnected before attempting to inspect!

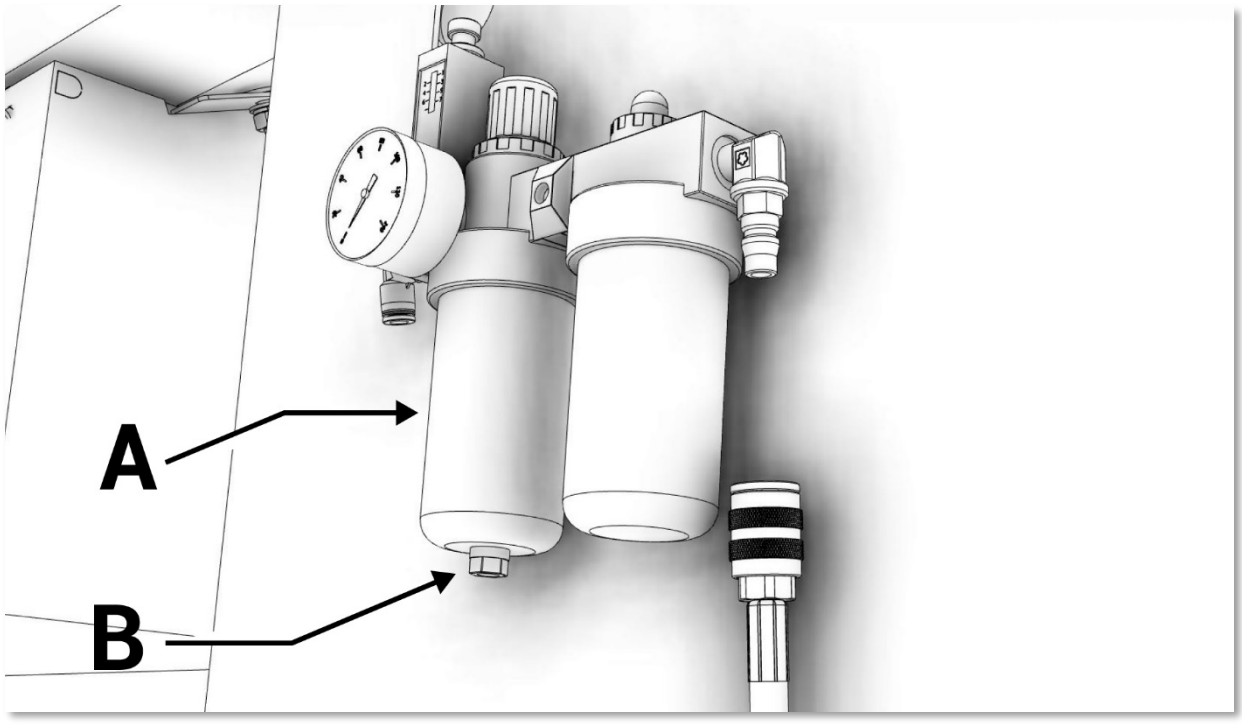


Check that the revolving tip (A) rotates smoothly and does not have excessive runout. If any problems are detected, replace the tip.

Check that the pusher collet (B) has the correct tension. The collet should press on a bar with some pressure required. The collet should be able to retain a proper length remnant. Inspect for cracks of pieces of material missing. Replace as required.

9.4 Inspecting the Air Regulator

⚠ WARNING Always use proper eye protection when working with compressed air systems.



- Check the bottle (A) for water.
- Press button (B) to exhaust water out of bottle.

Inspect for the following and repair any issues that are found:

- Air leaks
- Cracks
- Oil level ok
- Secure mounting
- Proper air regulation is set

9.5 Replacing Gripper Blades

⚠ CAUTION The gripper is a pinch hazard. Its assembly is a moving component that should always be serviced with electrical power and air supply removed.

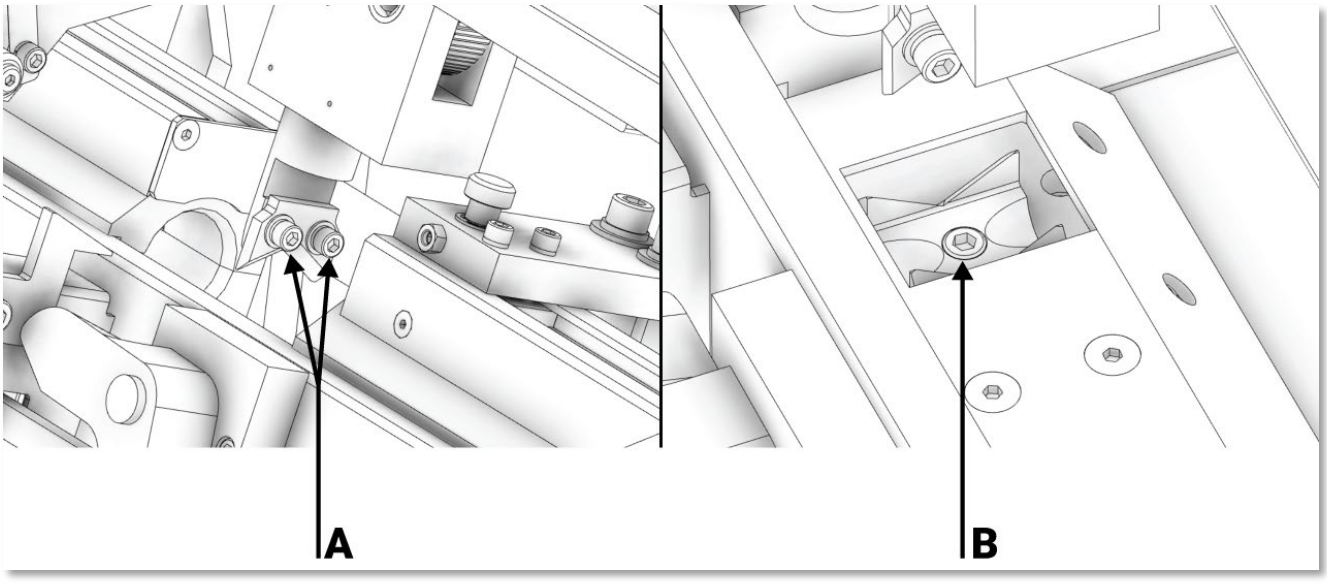
⚠ CAUTION Place the lathe and bar feeder into Emergency Stop when replacing gripper jaws.

The gripper device is used to press material onto the bar feeder collet and remove remnants from the collet. Gripping force is determined by the air supply and is not adjustable to the assembly. The gripper jaws can be replaced as needed.

The gripper assembly is stationary, and the amount of material inserted into the pusher collet is based on the pre feed positioning of the material. If the prefeed position is not set such that the material is placed the proper distance from the gripper, the correct amount of material will not be inside the pusher collet. This may lead to a servo alarm upon material insertion or could cause the material and pusher collet to separate.

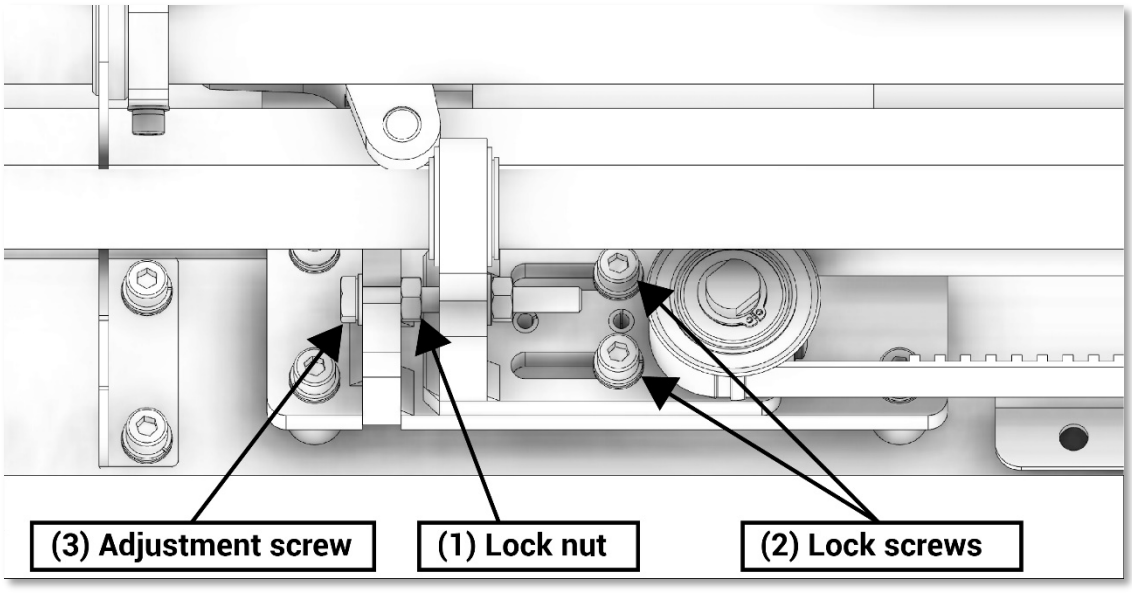
Upper gripper jaw with replaceable insert.

Lower gripper jaw with replaceable insert.



9.6 How to Tension the Synchronization Belt

1. Place bar feeder in Emergency Stop.
2. Remove front cover from the bar feeder.
3. Loosen lock nut (1).
4. Loosen the adjustment plate locking bolts (2).
5. Rotate the adjustment bolt (3) clockwise to tighten belt tension / counterclockwise to loosen belt.
6. Adjust belt tension to no more than 10mm deflection. Do not overtighten the belt.
7. Once the adjustment has been made, secure the adjustment plate lock bolts.
8. Tighten the lock nut (1).
9. Check belt deflection, readjust as required.
10. Install front cover.
11. Verify all tools have been removed and all machine guarding is in place prior to resetting the Emergency Stop.



10. Alarms

10.1 Alarm Table

⚠ DANGER Only a qualified electrician or serviceman should perform electrical troubleshooting or maintenance to this equipment.

Alarm Name	Possible Cause	Sensor
Emergency Stop	The E-stop is pressed in, or the green button has not been pressed since power up. • Make sure the lathe is not in alarm other than a bar feeder alarm. • Release E-stop on the bar feeder pendant. • Release E-stop on the bar feeder control panel. • Press green button. • Ensure synchronization switches are not pressed. • Some applications require power cycling both machines to clear Emergency Stop.	E-stops ES1 and ES2. Synchronization Switches LS41 and LS51.
Bar Too Long	The bar feeder measured a bar that was longer than the maximum bar length parameter (see Part Menu, Section 8.1). • Ensure the measurement sensor is working properly. • Verify the Max Bar Length parameter is set correctly.	Measurement flag sensor S02.
Pusher Stall	In manual operation, the pusher has stalled. • Press E-stop and clear the jam. Release E-stop and press green button.	
Lathe Alarm	The lathe is in alarm. • Attempt to clear the lathe's alarm condition.	
No Bar Detected	No bar was detected by the grippers, or by the measurement flag. • If a bar is present, but not being detected, remove air pressure, and then check functionality of gripper sensor or measurement flag sensor.	Measurement flag sensor S02 Gripper sensor S07
Pusher Could Not Find Home Switch	During the Home reference, the pusher moved home and hit the hard stop, but the home sensor did not detect it. • Check functionality of home sensor. • If the pusher is stuck, remove air pressure. Then investigate the jam and increase homing torque if needed.	Home sensor S01
Home Could Not Be Reached	The pusher tried to move home, but the home sensor did not detect it. • Check functionality of home sensor. • Remove air pressure, then check for a jam. Possibly increase the return torque (see Factory Menu, Section 8.2).	Home sensor S01

Alarm Name	Possible Cause	Sensor
Servo Alarm…	This alarm indicates the Servo drive is in alarm. The alarm message will also display the script item that was executed when this alarm occurred. For example, “Servo alarm move facing” indicates an alarm occurred during the move to facing position. This is useful for troubleshooting. • On the alarm screen, select the alarm and then press the alarm info button for more information about the specific reason a given Servo alarm occurred.	
HMI Script Not Running	The HMI script has crashed, please contact Edge Technologies	
No USB Drive Plugged In	The HMI requires a USB drive to function.	
Illegal Character in File Name	Revise the file name with acceptable characters.	
Lathe Alarm	The lathe is in alarm. • Attempt to clear the lathe's alarm condition.	
Failed to Load Default Part	There is no default part saved on the USB drive. • To save a default part, press “save default part” in the Admin Menu (see Admin Menu, Section 8.3).	
Feed Length Is Zero	No value has been entered for the feed length parameter. • Enter a value for the feed length parameter.	
Remnant Did Not Drop	A bar is still being detected in the grippers after the remnant extraction. • Check for a tight pusher collet, material slipping in the grippers, or inadequate air pressure. • Ensure that Part Length (see Part Menu, Section 8.1) and Max End of Bar (see Factory Menu, Section 8.2) are set correctly. • Check functionality of gripper sensor.	Gripper sensor S07
No Material Detected by Grippers	Material should be detected by grippers but wasn't. • Ensure a remnant is not left in the spindle or in the guide channel. • If the magazine is empty, put more bars in the magazine. • If there is material present which is not being detected, remove air from the machine and check the functionality of gripper switch. • When using a front eject collet, this alarm can be disabled during remnant extraction by setting the remnant check parameter to “Do Not Check For Remnant” (see Part Menu, Section 8.1).	Gripper sensor S07
Bar Too Short	The bar measured is shorter than the value entered in the minimum bar length parameter (see Part Menu, Section 8.1), or less than 3". • Ensure the measurement flag sensor is working properly.	Measurement flag sensor S02
Set Position Error	PLC could not command a set position to the Servo drive. Please contact Edge Technologies.	

Alarm Name	Possible Cause	Sensor
Change Torque Failed	PLC could not command a torque change to the Servo drive. Please contact Edge Technologies.	
Failed to Load Default Factory	Factory default does not exist on the USB drive. Please contact Edge Technologies.	
Air Pressure Too Low	The compressed air is too low on the air regulator. • Ensure adequate air pressure is applied to the machine. At least 80 PSI is required to run the bar feeder. • The dial on the side of the pressure sensor needs to be adjusted.	Air pressure sensor S09
Short Feed Safety	The pusher didn't reach the expected feedout distance.	
Long Feed Safety	The pusher exceeded the expected feedout distance.	
Failed Auto Check	Conditions to go into auto were not met. • Go to the manual screen and press the auto check button to see which conditions were not met.	
Hood Open Alarm	The hood has been opened during a movement that is not allowed with the hood open. • Close the hood or check the functionality of the hood safety switch.	Hood Safety Switch S08
Pecking Limit Exceeded	Pecking cycles have exceeded the value entered in max pecking cycles (see Factory Menu, Section 8.2). • Clear any obstruction in the spindle. Utilize slow rpm spindle rotation during bar change. • Verify collet fits in the spindle. • Verify pusher fits in the spindle.	
Machine Lockout in Less Than Five Days	Contact Edge Technologies.	
Extraction Failed	The pusher did not retract to the expected position during the remnant pull off. • Remove air pressure before investigating. • Ensure that the pusher collet is not too tight, and that no burrs are present on bar stock. • Check air cylinder functionality. • Check extraction sensor functionality.	Extraction sensor S06
Insertion Failed	Pusher did not reach expected position during insertion. • Check prefeed position (see Factory Menu, Section 8.2). • Ensure that the pusher collet is not too tight, and that no burrs are present on bar stock. • Remove air pressure and verify air cylinder functionality.	
Extraction Cylinder Forward	The bar feeder attempted to open the channel with the extraction cylinder forward. • Clear the alarm by pushing the introduction / extraction button on the pendant, then press open channel button.	
Waited Too Long for Hood to Close Bar Change	After a bar change signal is sent, if the hood is open, the bar feeder will wait two minutes before alarming out. • Close the hood. Do a bar off, bar on, and then start back in auto.	

Alarm Name	Possible Cause	Sensor
Lathe Not in Auto with Collet Open	When the lathe is taken out of auto and the collet is opened, the bar feeder will alarm out to prevent feeding. • If the lathe was in auto, verify the lathe auto signal.	
Position Lost, Home Bar Feeder	If the pusher is moved while the bar feeder is powered off, the position will be lost. This requires a Home reference. • Press the Home reference button on the manual screen.	
Servo re-enable failed	Communication between the PLC and servo motor lost. • Power cycle bar feeder. If the alarm remains, call Edge Technologies.	
Default Part File Does Not Exist	There is no default part saved on the USB drive. • To save a default part, press “save default part” in the Admin menu (see Admin Menu, Section 8.3).	
Default Factory File Does Not Exist	Factory default does not exist on the USB drive, please contact Edge Technologies.	
Failed Auto Check	Conditions to go into auto were not met. • Go to the manual screen and press the auto check button to see which conditions were not met.	
Already at Zero When Homing	The Home reference was executed while the pusher was already home. • Jog pusher forward, then hit the Home reference button.	
Lathe Alarm	The lathe is in alarm. • If the lathe is not in alarm, check the interface wiring.	
Pushback Limit Exceeded	The value in either pushback collet open or pushback collet closed has been exceeded. • Ensure proper lathe collet tension. • Check for burrs on the bar stock.	
Pusher Not at Zero When Grippers Activated	The gripper button the on pendant was pressed while the pusher was not at zero. • Jog the pusher home, then press the gripper button on the pendant.	
Measurement Flag Triggered Before Expected	The measurement flag tripped before an attempt was made to measure a bar. • Verify measurement flag sensor functionality. • Verify functionality of air cylinder for measurement flag.	
Test Alarm	The test alarm button was pressed in the admin menu (see Admin Menu, Section 8.3).	
Negative Parts Remaining	The calculated parts remaining are a negative number. This indicates improperly set parameters. Please contact Edge Technologies.	
Bar Length Longer Than Facing Length	This indicates improperly set parameters. Please contact Edge Technologies.	
Lathe Door Open	• If the lathe door is closed, check wiring. • Service parameters (see Admin Menu, Section 8.3) can disable lathe door safety if the signal is not provided by the lathe	

Alarm Name	Possible Cause	Sensor
Chuck Closed Before Feedout Finished	The chuck closed before the pusher could reach the expected position for a feedout. • Increase the dwell time in the lathe program. • Ensure the feed confirm signal is not backwards.	
Chuck Close During Bar On	Open the chuck, then press bar on.	
Attempted Production Restart with Preload Bar	This is specifically related to ethernet connectivity. Please refer to the Fanuc FOCAS manual.	
Commit Did Not Shut Off	This is specifically related to ethernet connectivity. Please refer to the Fanuc FOCAS manual.	
Lathe Command Part Number is Zero	Factory default does not exist on the USB drive, please contact Edge Technologies.	
No Part Found with Commanded Number	This is specifically related to ethernet connectivity. Please refer to the Fanuc FOCAS manual.	
No Machine Type Backup Exists	Please contact Edge Technologies.	
No Machine Type in PLC	Please contact Edge Technologies.	
PLC IO Module Error	The PLC lost communication to the required IO module. Please contact Edge Technologies.	
Pusher Forced Movement	In manual mode, if the pusher unexpectedly moves, the Servo will turn off. • If you need to manually move the pusher by hand or with the crank handle, first press the pusher disable button in the admin menu (see Admin Menu, Section 8.3).	
Absolute Move Position Not Reached	The Servo drive was commanded to an absolute position, but it did not reach that position. • Check the torque settings. • Make sure no speeds are set to zero.	
CRC Check Failure	The file on the USB drive is corrupted. Please contact Edge Technologies.	
PLC Not in Run Mode	Check the toggle switch for run mode on the front of PLC, under the SD card flap.	
Channel Close Timeout	The channel didn't close after an attempt was made to close it. • Remove air pressure before clearing jams.	
Channel Open Timeout	The channel didn't open after an attempt was made to open it. • Remove air pressure before clearing any jams.	
Failed to Load Default IO Config	Please contact Edge Technologies.	
Change Acceleration Error	Please contact Edge Technologies.	

11. Interface Signal Definitions

Common (from lathe) – This is the 24v DC supply voltage from the lathe for signal sent to the bar feeder control. The voltage cannot be mixed with the bar feeder power supply.

Cycle start (bar change end, program start) – Typically, this is a normally open circuit controlled by the bar feeder Cycle Start/MCode Finish relay. Voltage is supplied by the lathe. This circuit lets the lathe know the bar change is completed and that the lathe should resume the program.

Automatic mode (Automatic mode ON, bar feeder ready for work, spindle interlock) – Typically, this is a normally open circuit controlled by the bar feeder. Voltage is supplied by the lathe. This supplies the lathe with the bar feed automatic signal. If the bar feeder safety circuit is open, the bar feeder will not go into Automatic mode.

End of bar (bar end, block delete, program stop) – Typically, this is a normally open circuit controlled by the bar feeder end-of-bar relay. Voltage is supplied by the lathe. This circuit is closed once the bar feeder has determined the current bar is too short to produce anymore parts.

Bar feeder on – Typically, this is a normally open circuit controlled by the bar feeder alarm relay. Voltage is supplied by the lathe.

Lathe Emergency Stop (MC ready) – Voltage is supplied by the bar feeder, and control is performed by the lathe. When this circuit is opened, it will stop bar feeder operation.

Common (from bar feeder) – This is the 24v DC supply voltage from the bar feeder used for signals sent to the lathe control. The voltage cannot be mixed with the lathe power supply.

Lathe manual/auto – Typically, this is a normally open circuit controlled by the lathe. Voltage is supplied by the bar feed. This circuit can be bypassed if necessary.

Bar change (end of cycle) – Typically, this is a normally open circuit controlled by the lathe. Voltage is supplied by the bar feed. This circuit is closed once the lathe has received the end-of-bar signal from the bar feed and the lathe is machining the last part from the current bar.

Chuck/collet open – Typically, this is a normally open circuit controlled by the lathe. Voltage is supplied by the bar feed common.

Feed/torque stop - Typically, this is a normally open circuit controlled by the lathe. Voltage is supplied by the bar feed common.

Door safety – Typically, this is a normally open circuit controlled by the lathe. Voltage is supplied by the bar feed common. The signal prevents the bar pusher from feeding in Automatic mode if the door is open.

Bar feeder Emergency Stop – Voltage is supplied by the bar feeder, and the control is performed by the lathe relay. When this circuit is opened, this will stop bar feeder and lathe operation.

Power supply – The power supply serves as the supply voltage to the bar feeder from the lathe, usually 3 phase 200v-220v, nominal voltage 208v. In some applications, the supply voltage at the customer may be 440v. In this application, a transformer will be required before electrical connection can be made. Catastrophic electrical damage can occur to the bar feeder if a transformer is required but not present.

Common (from lathe) - Voltage is sent from the lathe to power relays in the bar feeder.

Cycle Start - Cycle start is used to answer a latched MCode from the lathe. Typically, this signal is for acknowledging that material has been loaded during a bar change or pushed to position during feeding cycles. This MCode is usually for the bar change cycle or sometimes can be used to answer the feed stop (torque stop).

Automatic mode (Automatic mode on, bar feeder ready for work, spindle interlock) - When wired, this signal ensures that the lathe does not run without the bar feeder in Automatic mode. The lathe will react in other ways when the automatic signal from the bar feeder is not being sent. Some lathes generate an alarm when the lathe is put into "memory mode," or a spindle interlock alarm may show up when attempting to rotate the spindle, or a "bar feeder torque off" alarm may show.

End of bar (bar end, block delete, program stop) – The end-of-bar signal is sent from the bar feeder to the lathe. The lathe needs to know that the bar feeder has reached the specified limit position of the pusher. This position is set in the bar feeder factory settings. The signal can be sent multiple ways at different durations.

Bar feeder on - This signal is typically used as a bar feeder alarm to the lathe. If the lathe always receives a signal that the bar feeder is in alarm, it will show a message saying that the bar feeder is in alarm. If set correctly, the alarm state of the bar feeder and the lathe should correspond to each other.

Lathe emergency stop (MC ready) - This signal is incredibly important. The signal sends the bar feeder voltage out to a relay in the lathe. The voltage should be returned to the bar feeder unless the lathe is in Emergency Stop.

Bar feeder common - The bar feeder common will be sent to a relay in the lathe. When the lathe relay is fired it will allow the corresponding signal to be seen by the bar feeder. If no signals are coming through from the lathe to the bar feeder, it could be that the common is not being sent back. This could be because of a wiring issue. It could also be that the bar feeder interface is not turned on in the lathe.

Lathe manual/auto – Edge Technologies products typically use this to limit feeding. If the bar feeder does not see the lathe automatic signal, it will not feed material when the collet opens.

Bar change (end of cycle) - This signal typically corresponds with an MCode from the lathe. Usually, the MCode will be used to send a bar change signal to the bar feeder. When this signal is sent, if properly set up, the lathe should latch to this MCode until it receives "cycle start" from the bar feeder.

Chuck/collet open - The chuck open signal lets the bar feeder know that the main spindle clamp is open or closed. When the bar feeder is in Automatic mode and it receives the collet open signal, it will feed at a fixed speed and torque (that is, if all restrictions are satisfied, including torque stop, lathe automatic, and door safety).

Feed stop - This signal is used to stop the bar feeder from pushing when the bar feeder is in Automatic mode and the collet is open. It can also be used in the opposite way: that it does not push at all until the bar feeder is in Automatic mode, the collet is open, and the feed stop is given. In this instance, it would be use this as an MCode feed. Feed stop is generally used in the bar change process so that the bar feeder does not push before it pulls remnant out of the collet.

Door safety - This signal is from the lathe door safety. If the lathe door is open, then the bar feeder should not be able to feed forward. This can also be used like a feed stop depending on the lathe and bar feeder.

Bar feeder Emergency Stop - Signal will be sent to the lathe to generate Emergency Stop on the lathe.

Power supply – Always check voltage at the lathe plug before the bar feeder is plugged in. The bar feeder plug wiring should also be checked to the wiring print supplied with the bar feeder. Check the wiring of the bar feeder plug, check that the lathe voltage is on the same pins as the plug, and check that the voltage of the lathe is proper and does not fluctuate beyond safe operating voltage.

12. Workholding or Service

Edge Technologies is proud to have partnered with Schlenker Spannwerkzeuge for nearly 15 years, supplying workholding needs for bar feeders and lathes.

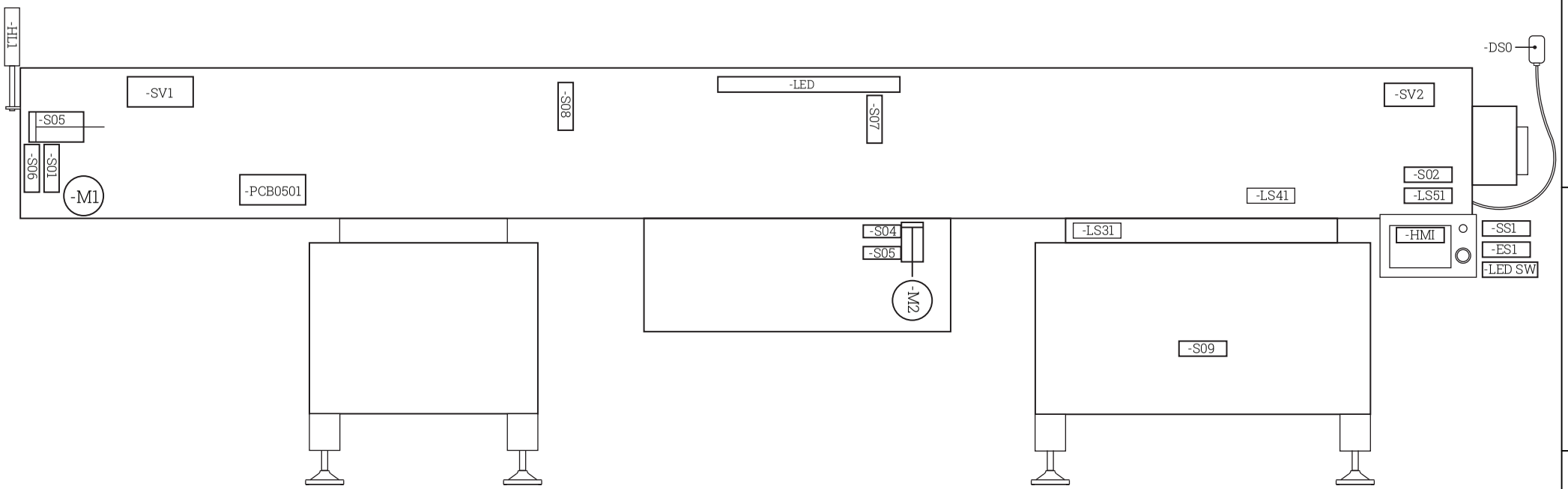
View the Edge catalogue at https://edgetechnologies.com/schlenker-collets/. Contact the Edge Technologies Parts Department by calling (314) 810-3959 or emailing orderdesk@edgetechnologies.com.

Direct service questions to (314) 810-3927 or edgehelp@edgetechnologies.com.

Edge Technologies' hours of operation are Monday-Thursday, 7:30 a.m. to 5 p.m. CST, and Friday, 7:30 a.m. to 4 p.m. CST. Contact the main phone at (314) 692-8388.

For helpful tutorials, visit our Youtube page at https://www.youtube.com/@EdgeTechnologies.

13. Index



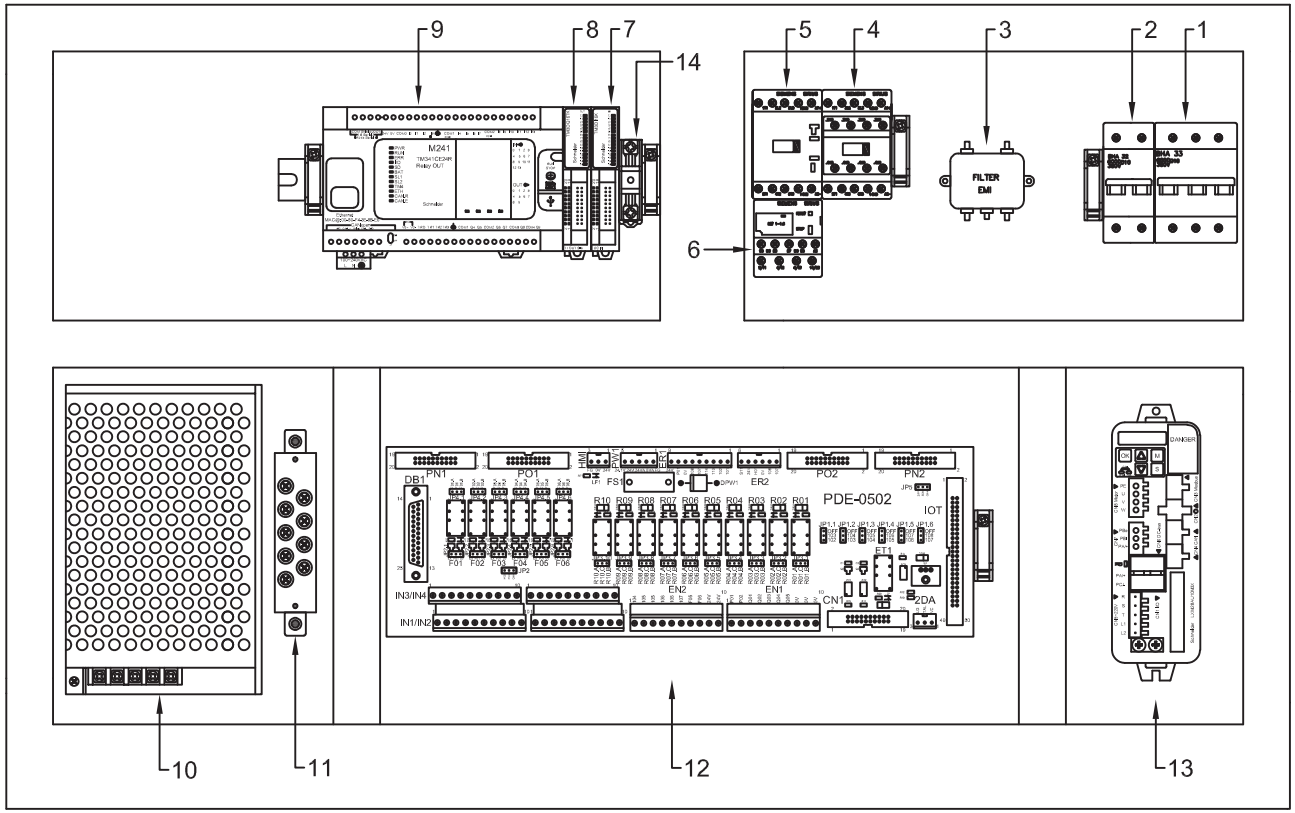
NO.	PART NO.	CODE	FUNCTION
01	J212060	M1	Schneider Servo Motor - 1KW
02	J310388	S06	Extraction Sensor
03	J310388	S01	Home Sensor
04	AV510L0900	M2	Oil Pump
05	A12140501	S04	Channel CloseSensor
06	A12140501	S03	Channel Open Sensor
07	J310419	LS41	Synchronization Switch
08	J310413	LS31	Axial Track Switch
09	J310419	LS51	Synchronization Switch

NO.	PART NO.	CODE	FUNCTION
10	J210519	HMI	Human Manchine Interface (Delta 7")
11	J310705	SS1	Power On
12	J3107041	ES1	Emergency Stop
13	A12140400	S09	Air Pressure Sensor
14	JVCQ1B201	DS0	Handheld Pendant (Distrubution Box)
15	J310389	S02	Measurement Flag Sensor
16	APATSTM / COAF	SV2	Air Manifold 2
17	J310389	LS51	Grippers Switch
18	COA2	HMVI	Air Manifold 1

NO.	PART NO.	CODE	FUNCTION
19	A12140501	SS1	Introduction Sensor (J310391)
20	J311804-J31118021	S08	Hood Safety Sensor
21	J630113	HL1	Light Tower
22	J630120	LED	LED Light 30w
23	J311506	LED SW	LED Light Switch
24	J515003	PCB0501	Distribution Circuit Board

EDGE TECHNOLOGIES

BAR FEEDER TYPE: Patriot GEN II	FIRST DATE: 2021/12/02	REVISION DATE: 2024/19/24	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 01
----	DRAWN BY: JSchenk	CHECKED BY:	DESCRIPTION: Machine electricity position		
----			DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS-EG		VERSION: B0



NO.	PART NO.	CODE	NAME
01	J310524	NFB	NO FUSE BREAKER
02	J310526	CP1	CIRCUIT PROTECTION
03	J220405	FIL	FILTER
04	J312709 + J312710	MC1+ACT1	MAGNETIC CONTACTOR
05	J312709	MC3	MAGNETIC CONTACTOR
06	J313350	OL	OVER RELAY
07	J212008	PIA	INPUT MODULE
08	J212063	PQA	OUTPUT MODULE
09	J212006	PLC	PROGRAMMABLE LOGIC CONTROLLER
10	J230102	PS1	POWER SUPPLY (LRS-150-24)
11	J631202	GND	CROUND
12	J515001	MPCB	MAIN PC RELAY BOARD
13	J212059	PS1	SERVO MOTOR DRIVER - 1KW
14	J312000 + J620102 + J620107	FS2	FUSE SOCKET + POWER FUSE 3A + FUSE LED LIGHT

BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 02
LATHE NAME: ----		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Distribution of Electric parts		
LATHE TYPE: ----				DRAWING NO.: -EG JV-EDGE PATRIOT II 37 XL AS		VERSION: C0

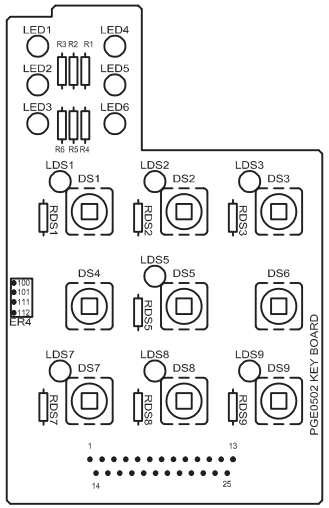
EDGE TECHNOLOGIES

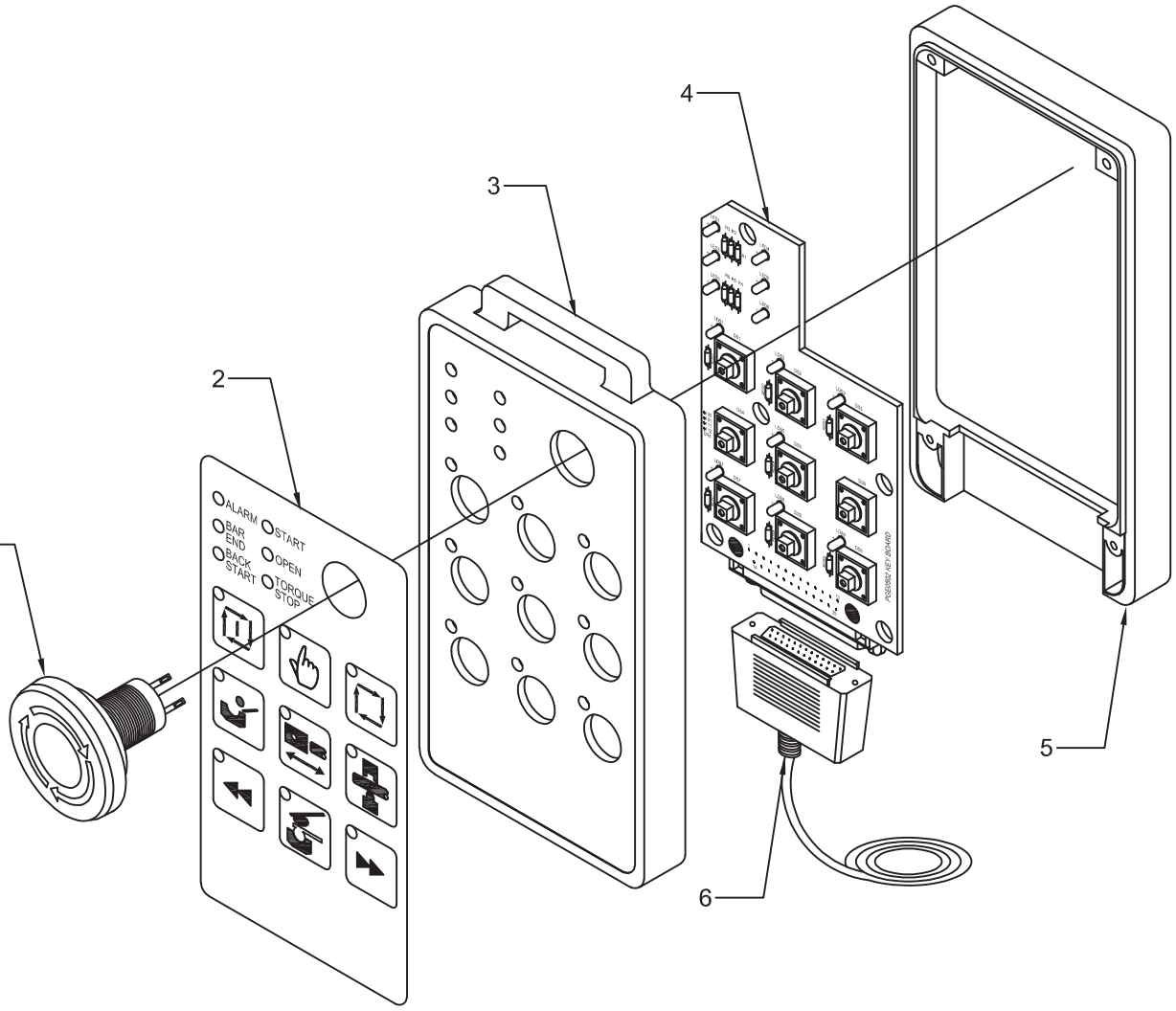
RIGHT: JL01

L01.1 L01 L01.2

LEFT: JL01

L01.1 L01 L01.2



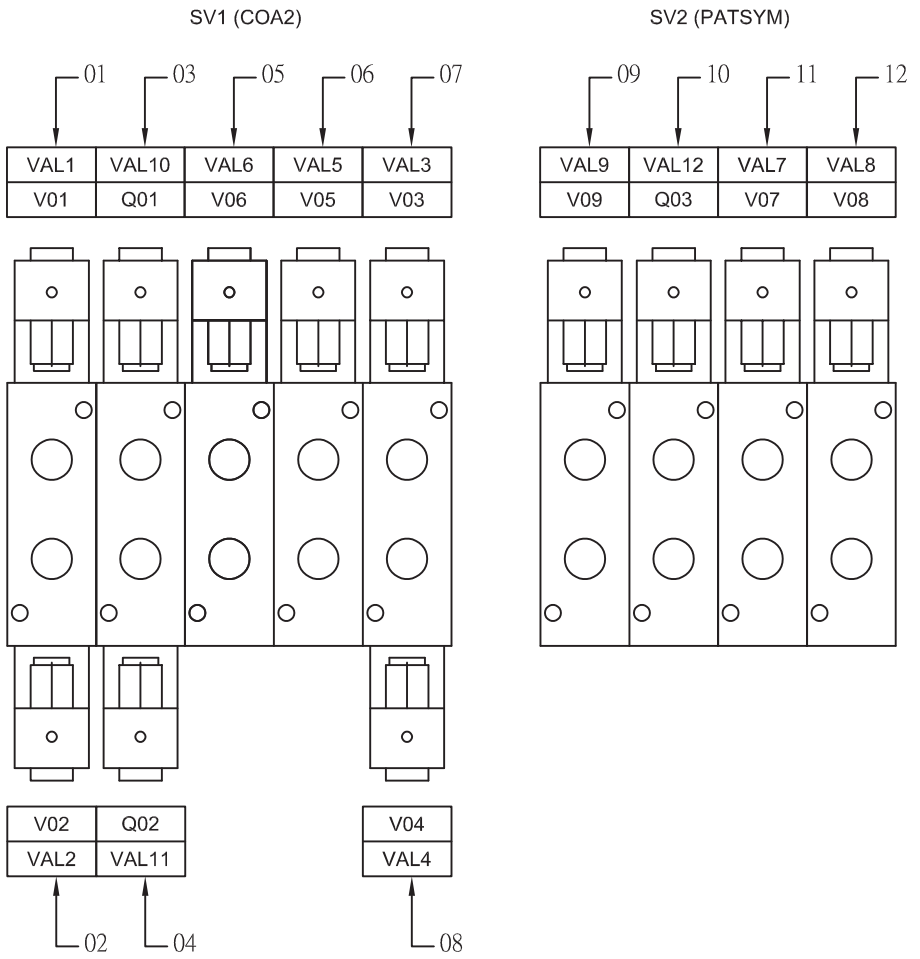


NO.	PART NO.	CODE	NAME
01	J310702	ES2	EMERGENCY STOP
02	AV51BA6600		STICKER
03	G91120500		TOP
04	J515002	HPCB	PCB PGE-0502 (DISTRIBUTION BOX)
05	G91120600		BOTTOM
06	J420600		CABLE

BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 03
LATHE NAME: -----		DRAWN BY: LIN	CHECKED BY	DESCRIPTION: Decomposition of remote control pendant		
LATHE TYPE: -----				DRAWING NO.: -EG JV-EDGE PATRIOT II 37 XL AS		VERSION: C0

EDGE TECHNOLOGIES

A4



NO.	PART NO.	CODE	NAME
01	A12120200	VAL1	CHANNEL OPEN (V01)
02	A12120200	VAL2	CHANNEL CLOSE (V02)
03	A12120200	VAL10	CHANNEL LOCK (Q01)
04	A12120200	VAL11	CHANNEL UNLOCK (Q02)
05	A12120100	VAL6	GRIPPERS (V06)
06	A12120100	VAL5	SEPARATORS (V05)
07	A12120200	VAL3	INTRODUCTION (V03)
08	A12120200	VAL4	EXTRACTION (V04)
09	A12120100	VAL9	SYNCHRONIZATION (V09)
10	A12120100	VAL12	AIR KNIFE (Q03)
11	A12120100	VAL7	ANTI-VIBRATION (V07)
12	A12120100	VAL8	MOVABLE ANTI-VIBRATION (V08)

BAR FEEDER TYPE: Patriot GEN II

LATHE NAME: ----

LATHE TYPE: ----

EDGE TECHNOLOGIES

FIRST DATE	REVISION DATE	MAIN VOLTAGE	SIGNAL VOLTAGE	PAGE
2022/11/28	2024/02/29	220V AC 3-PHASE	24V DC	P. 05

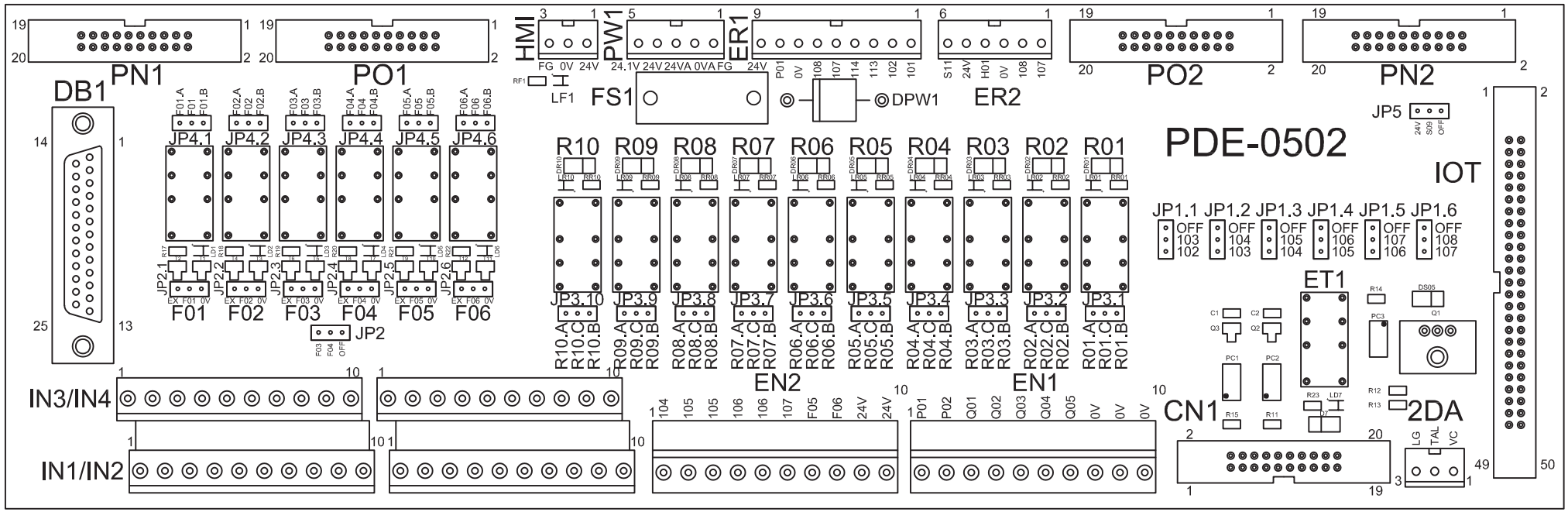
DRAWN BY: LIN

CHECKED BY:

DESCRIPTION: Solenoid valves position

DRAWING NO.: -EG JV-EDGE PATRIOT II 37 XL AS

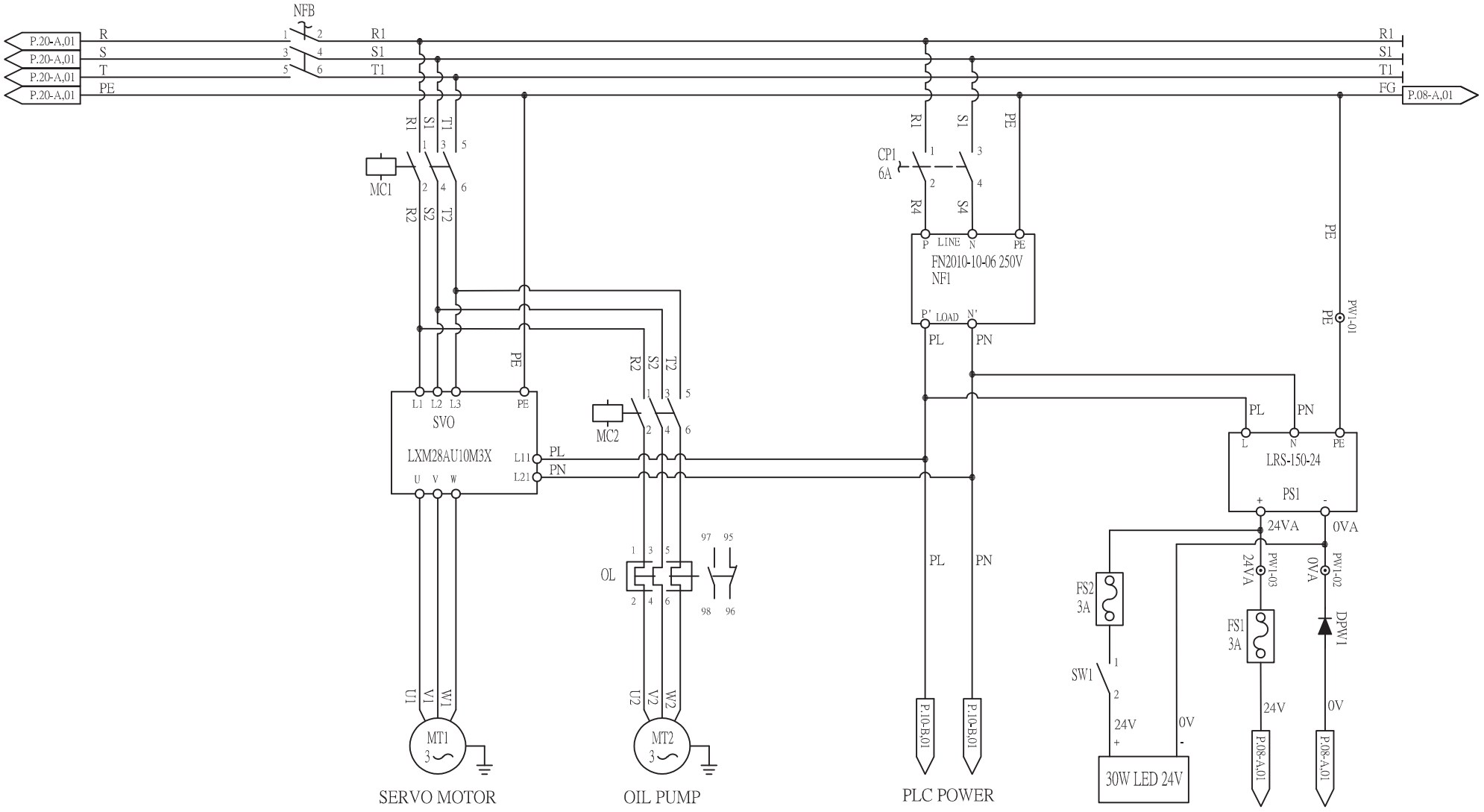
VERSION: C0



NO.	PART NO.	CODE	NAME
01	J515005	R1~R10 / F01~F06	RELAY
02	J620106	FS1	FUSE
03	J515001	MPCB	MAIN PCB (PDE-0502)

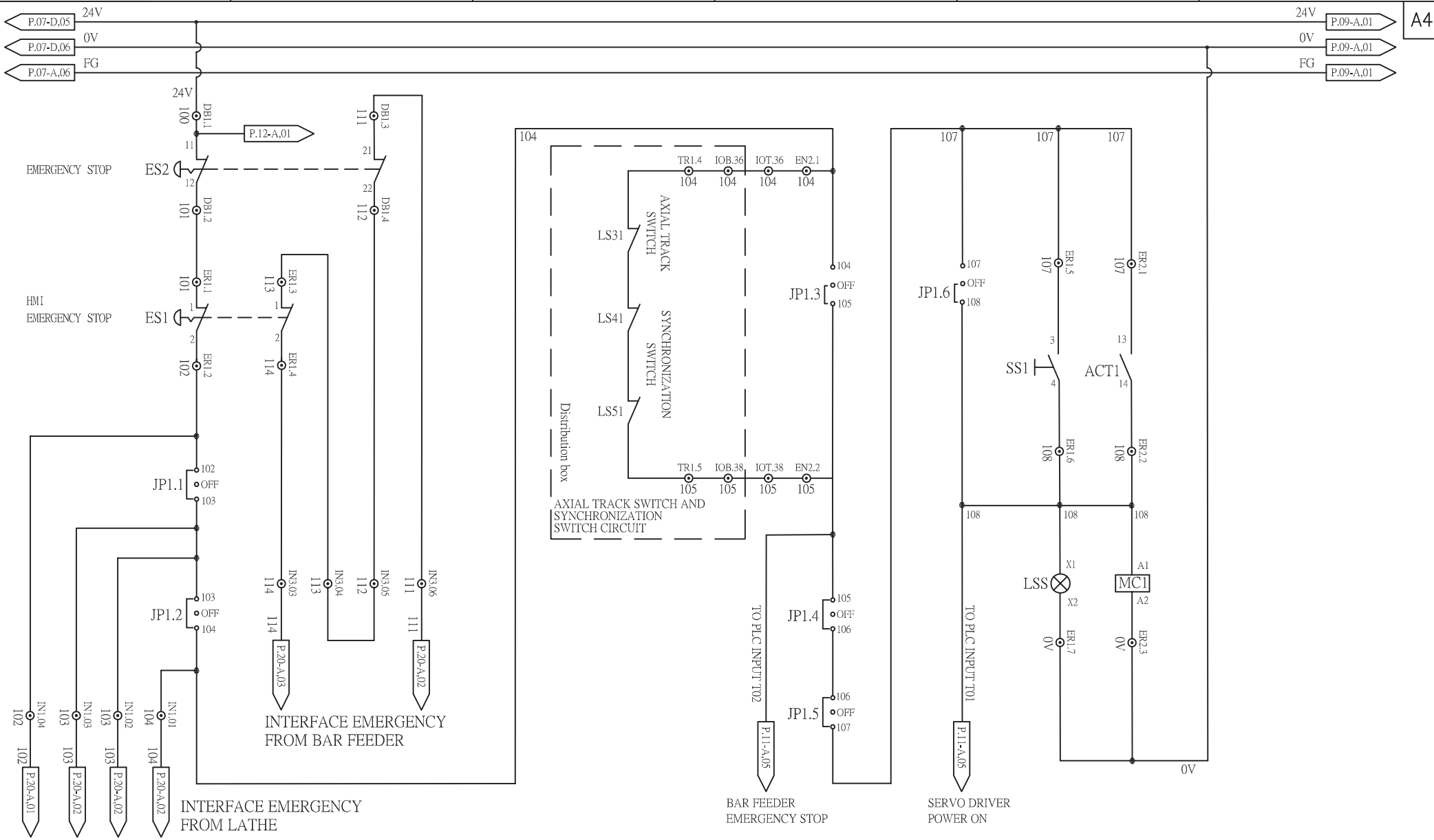
BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 06
LATHE NAME: ----		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Main PC board		
LATHE TYPE: ----				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0

EDGE TECHNOLOGIES

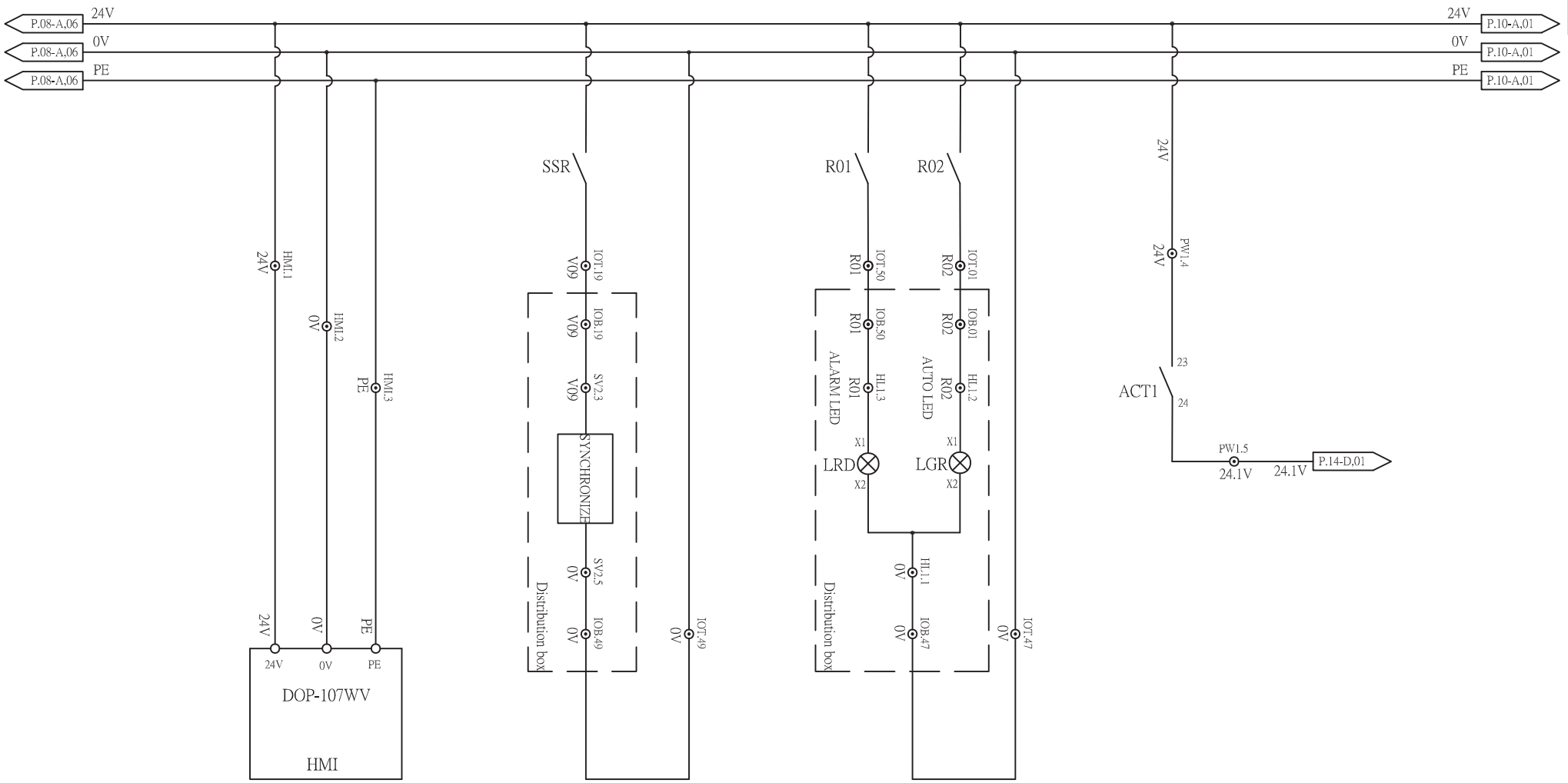


BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 07
LATHE NAME: ____		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Main circuit 1		
LATHE TYPE: ____				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0

EDGE TECHNOLOGIES

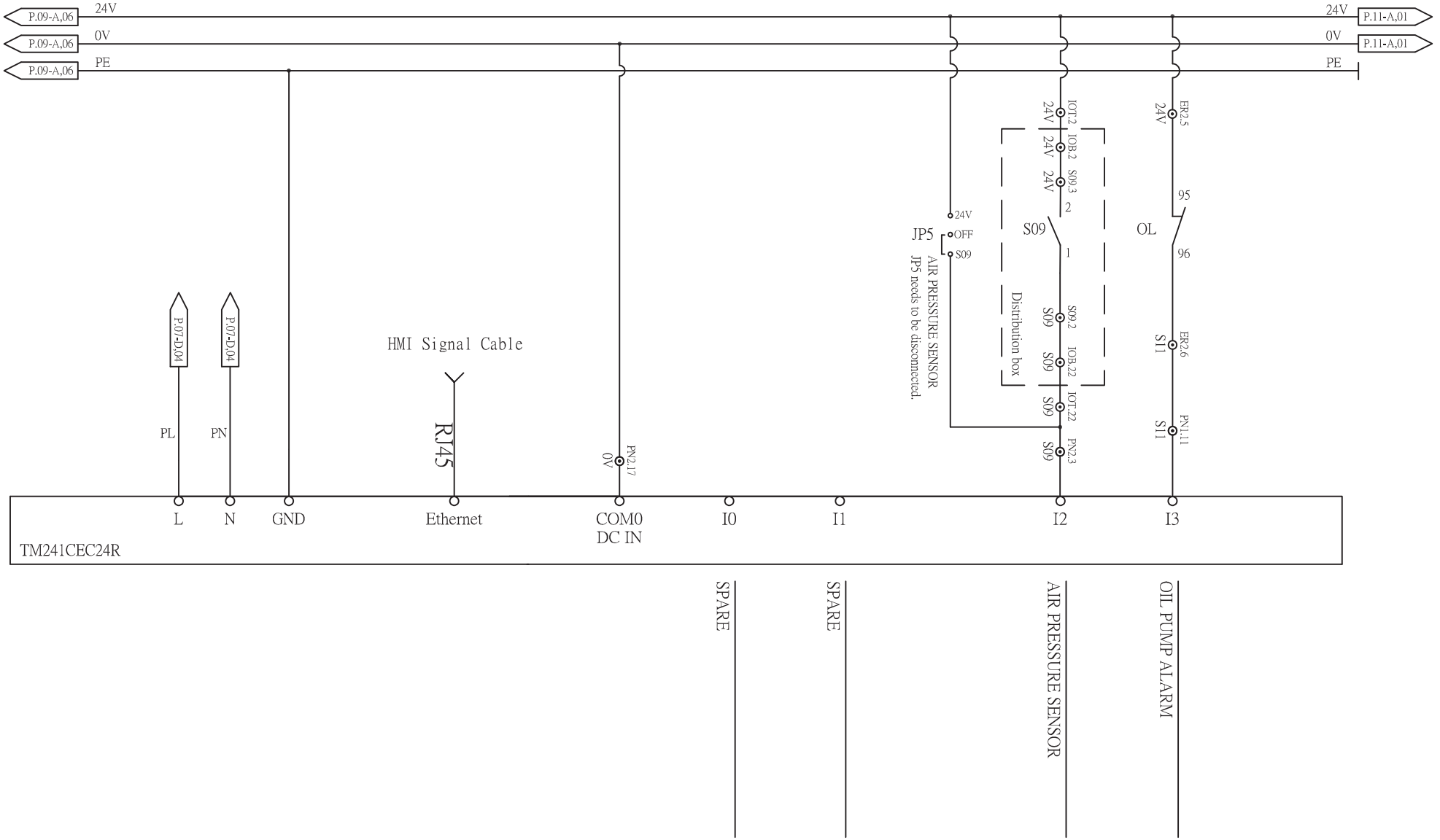


BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 08
LATHE NAME: ____	EDGE TECHNOLOGIES	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Main circuit 2		
LATHE TYPE: ____				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0

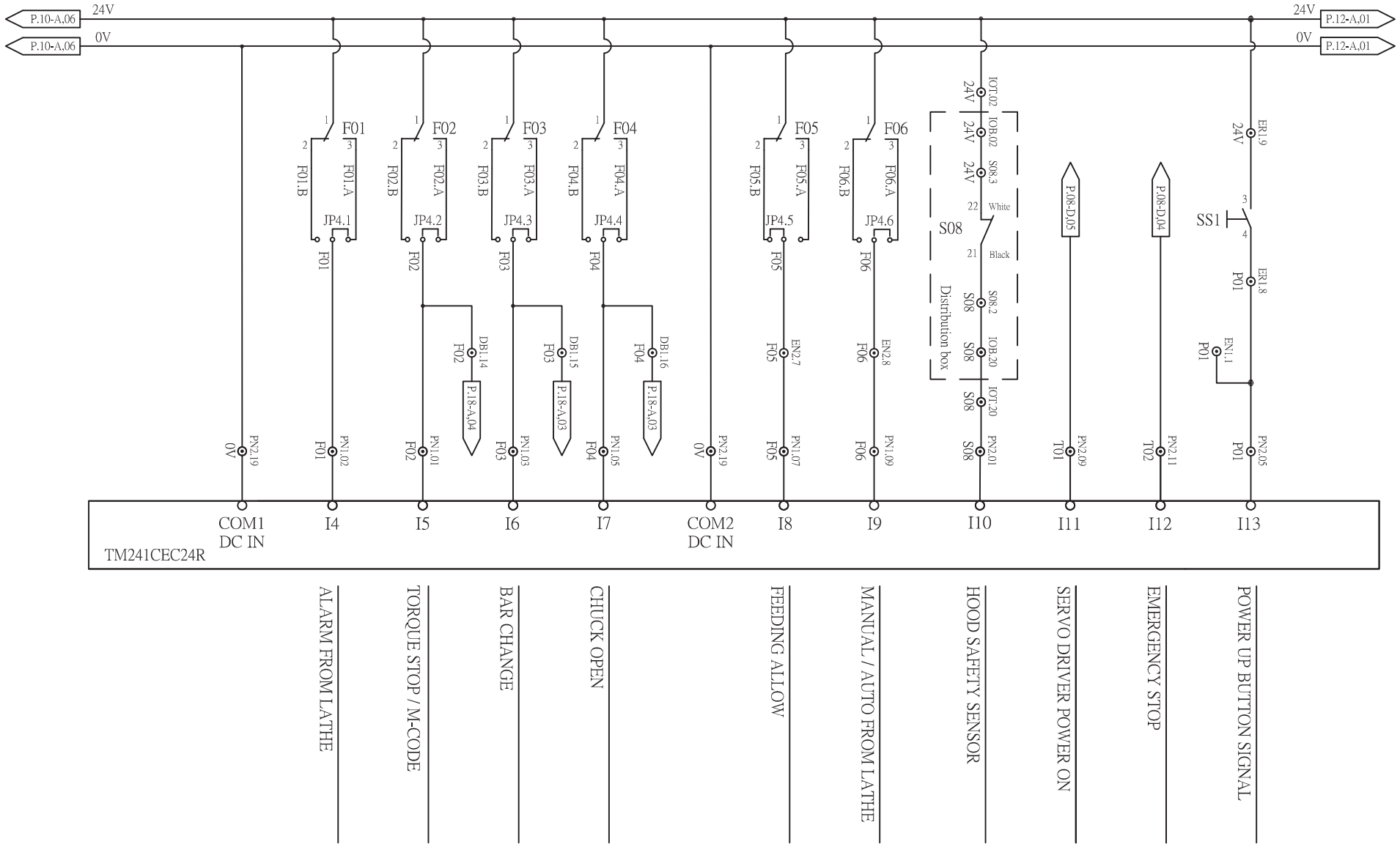


BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 09
LATHE NAME: ____		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Main circuit 3		
LATHE TYPE: ____				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0

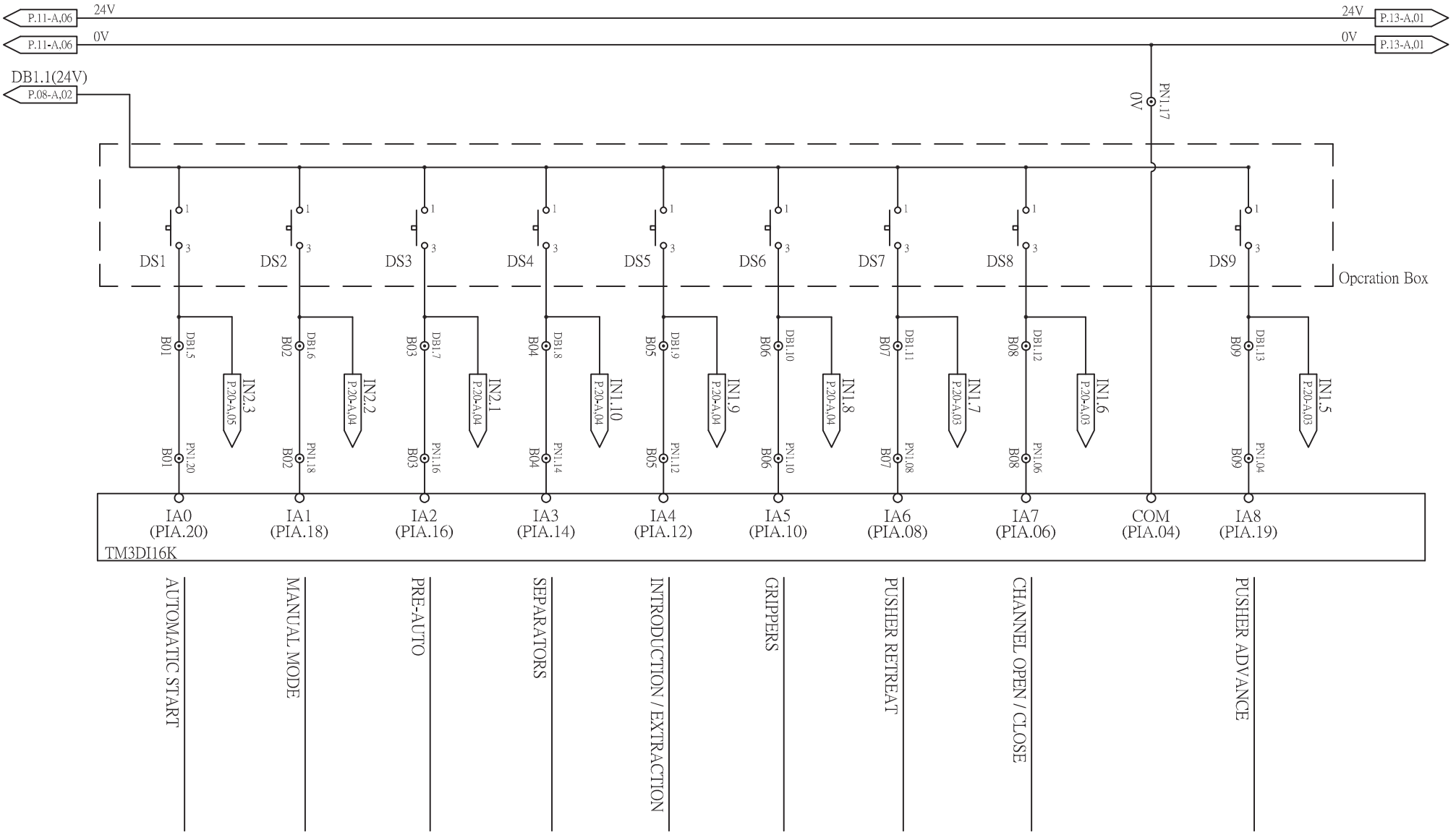
EDGE TECHNOLOGIES



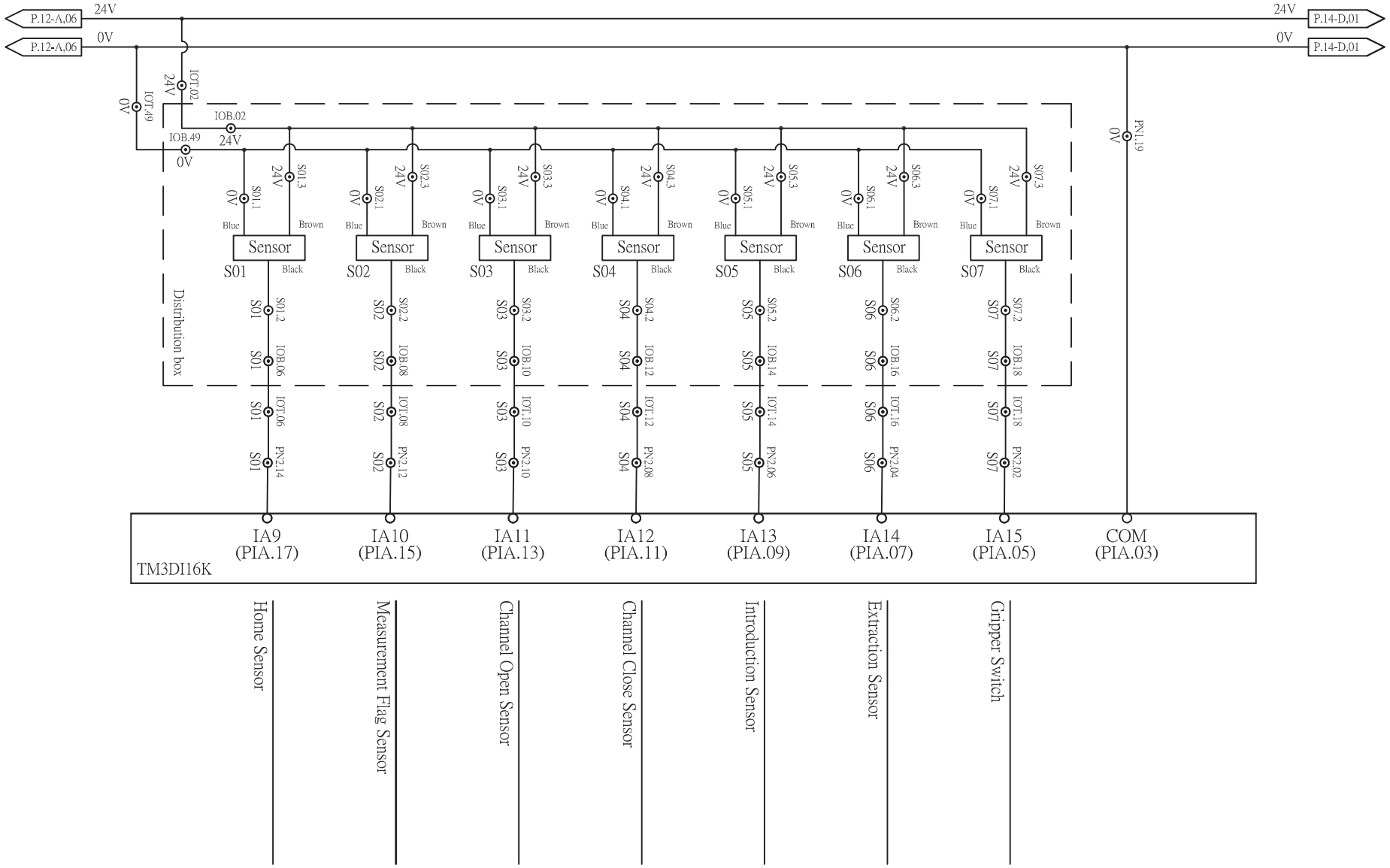
BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 10
LATHE NAME: ____		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PLC INPUT		
LATHE TYPE: ____				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0



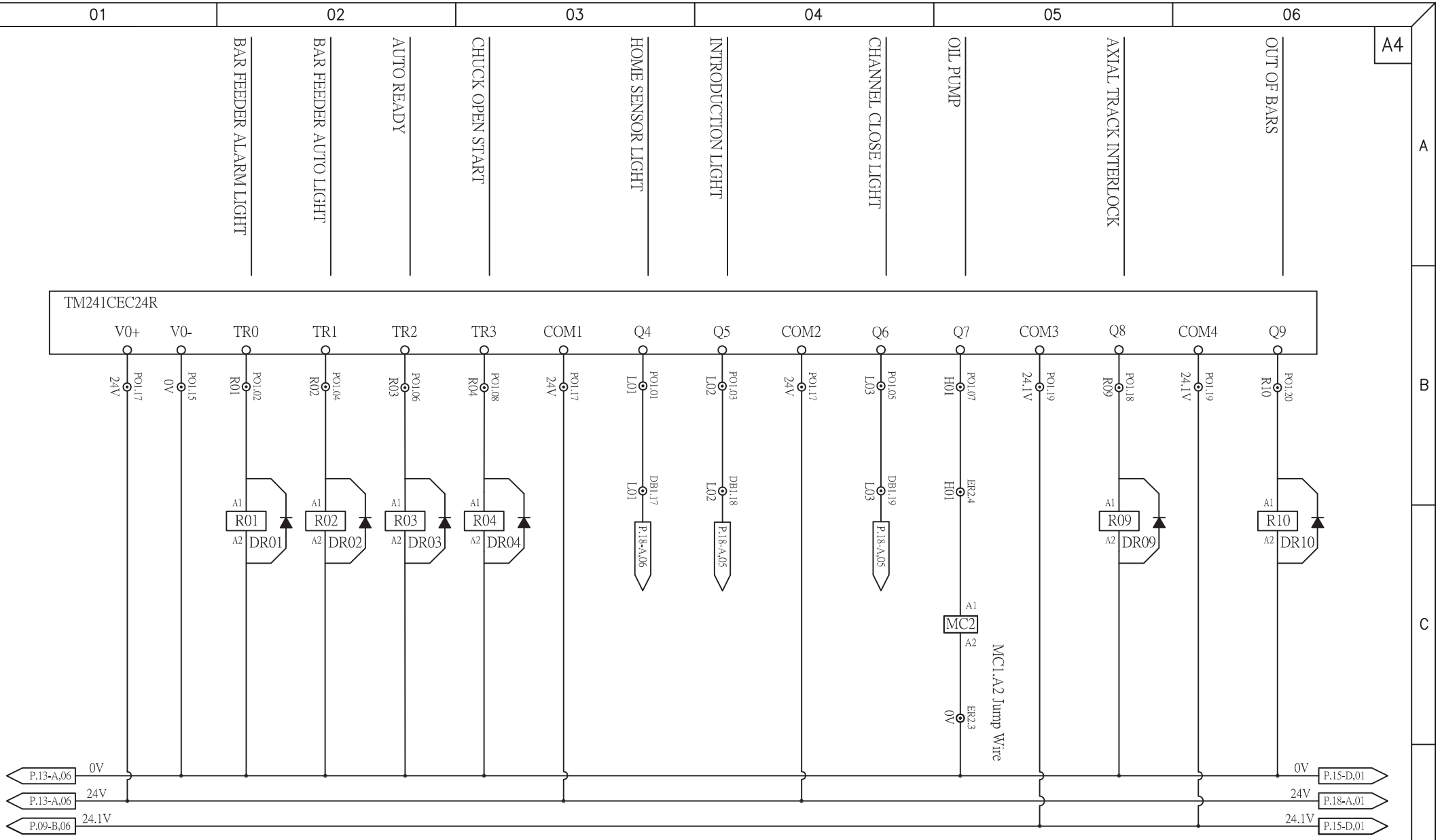
BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 11
LATHE NAME: ____	EDGE TECHNOLOGIES	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PLC INPUT		
LATHE TYPE: ____				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS-EG		VERSION: C0



BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 12
LATHE NAME: ____	EDGE TECHNOLOGIES	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PLC INPUT		
LATHE TYPE: ____				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0

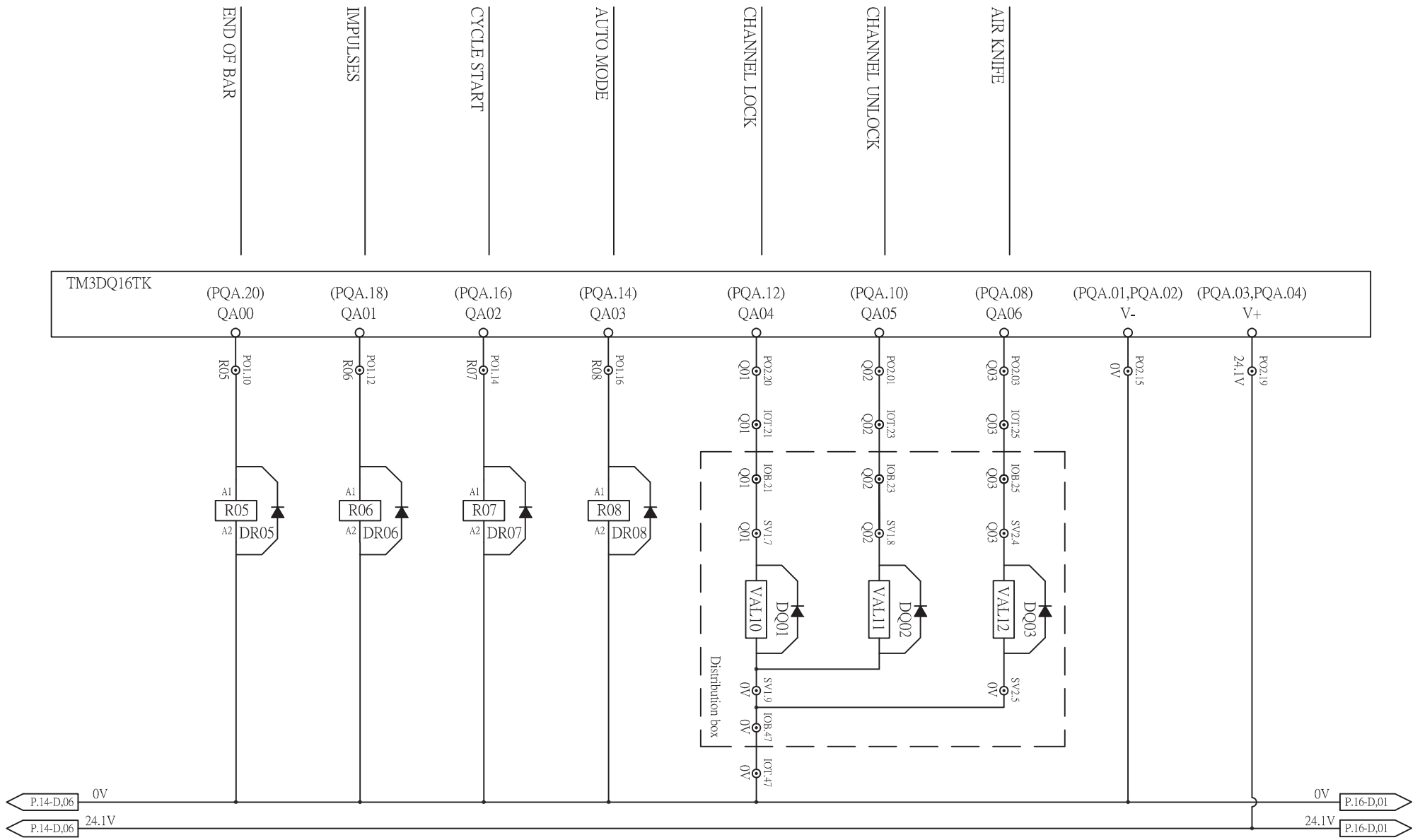


BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 13
LATHE NAME: ____		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PLC INPUT		
LATHE TYPE: ____				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0



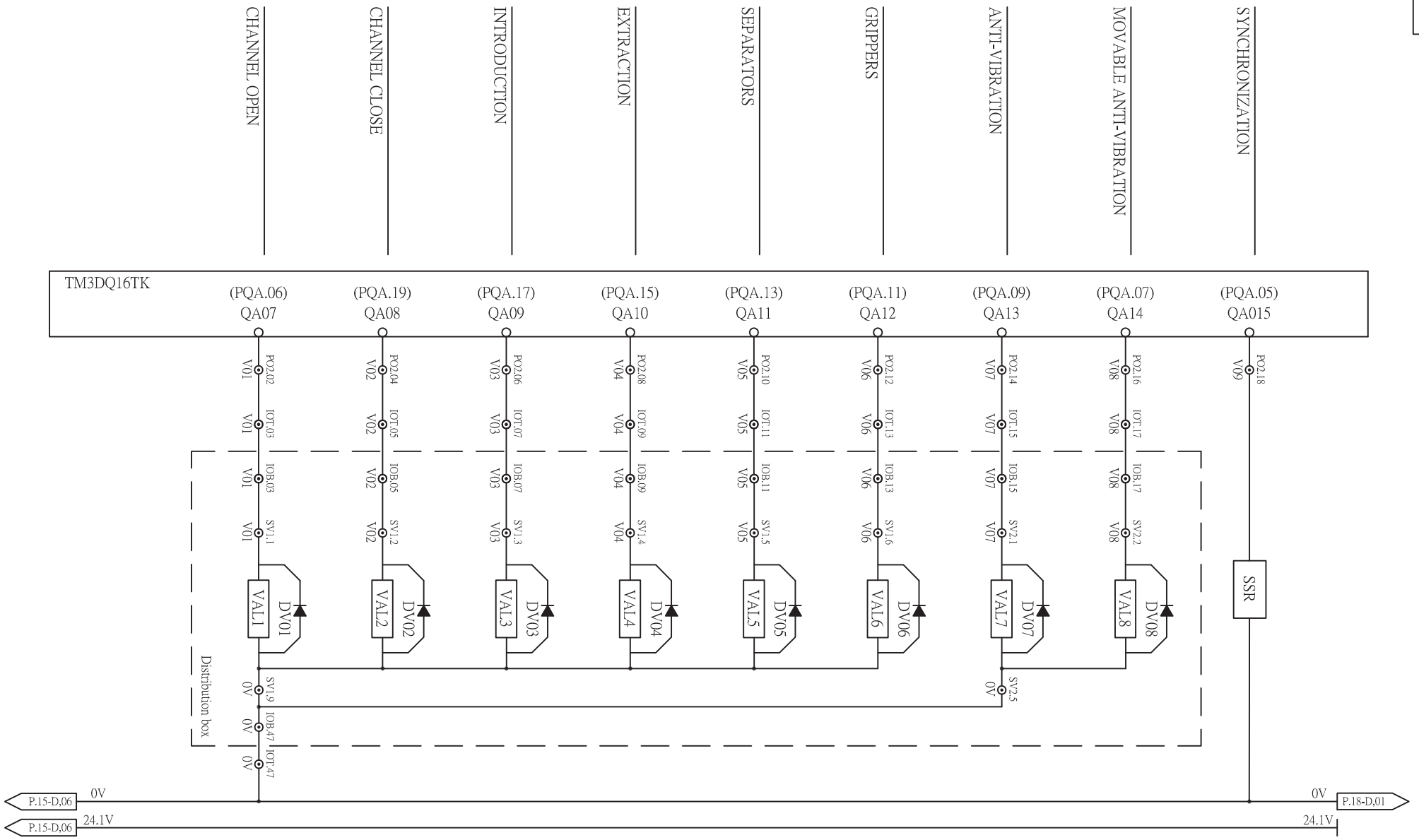
BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 14
LATHE NAME: ----		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PLC OUTPUT		
LATHE TYPE: ----				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0

EDGE TECHNOLOGIES

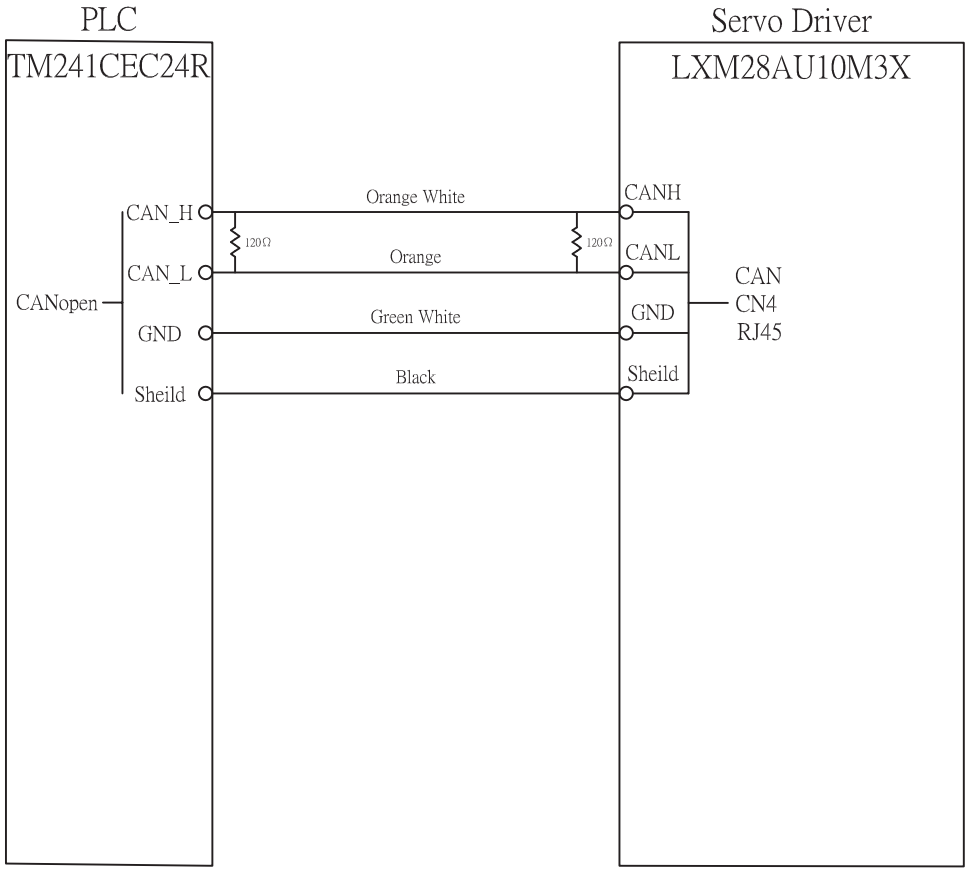


BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 15
LATHE NAME: ----		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PLC OUTPUT		
LATHE TYPE: ----				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0

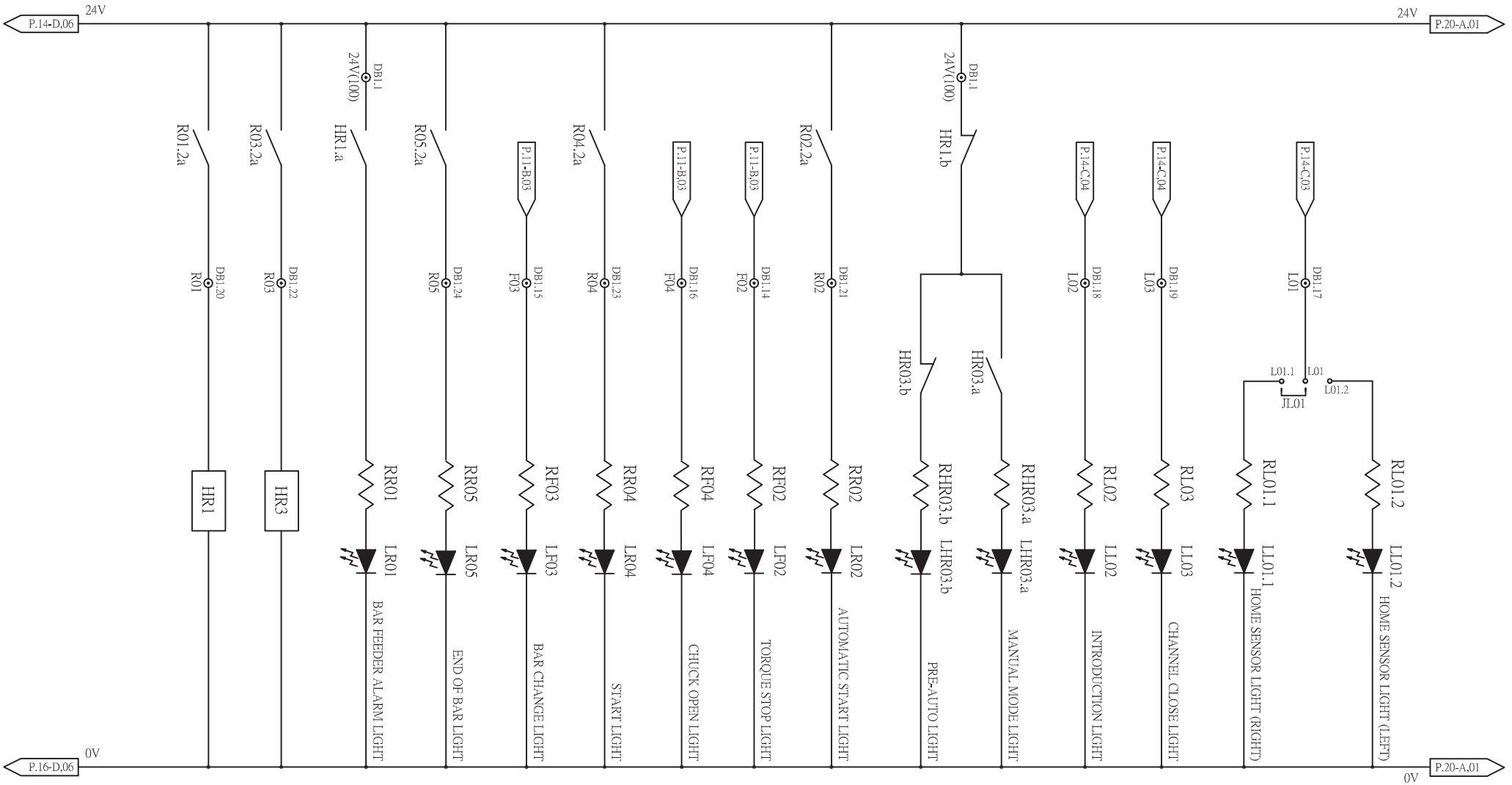
EDGE TECHNOLOGIES



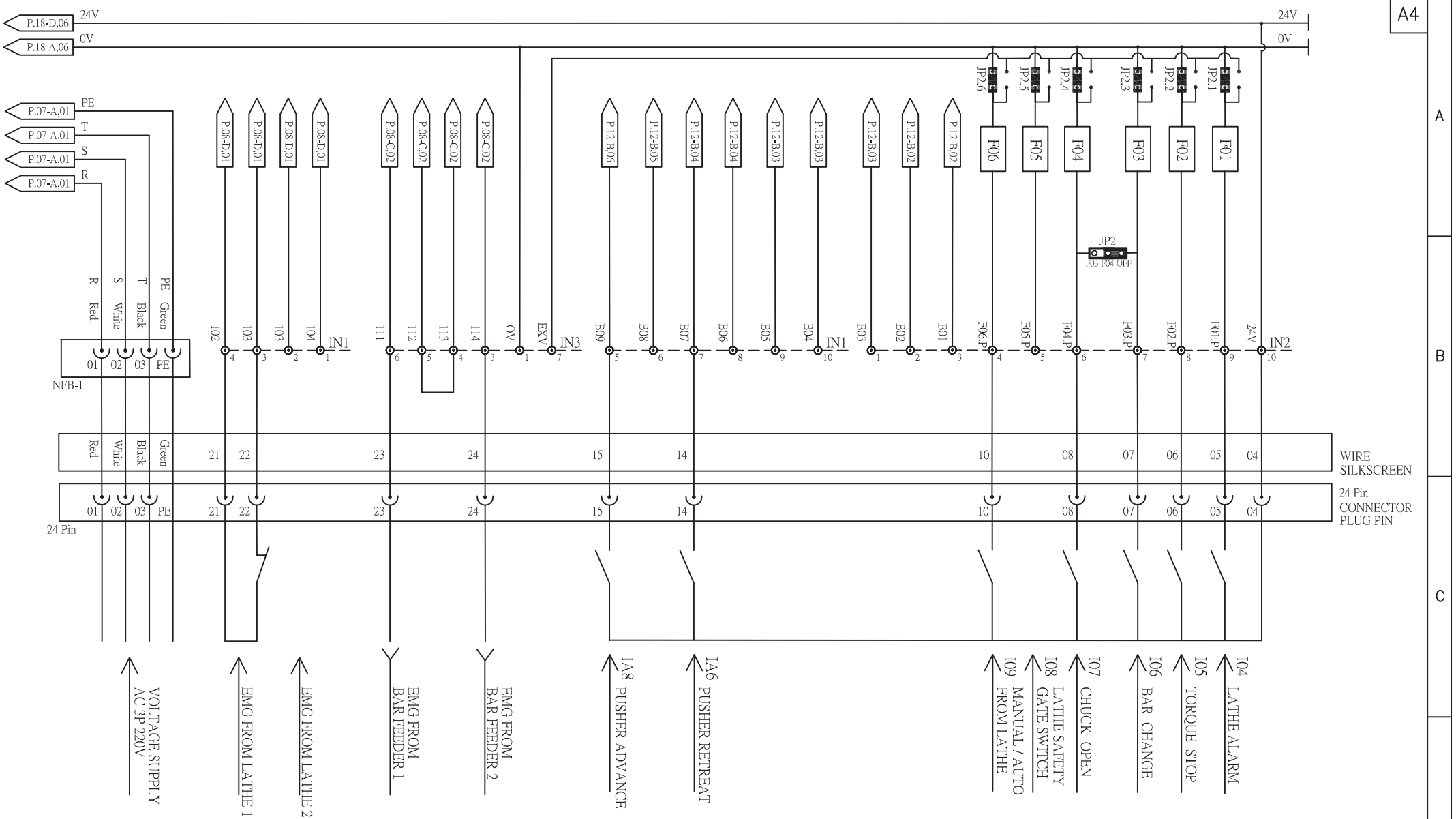
BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 16
LATHE NAME: ----		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PLC OUTPUT		
LATHE TYPE: ----				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0



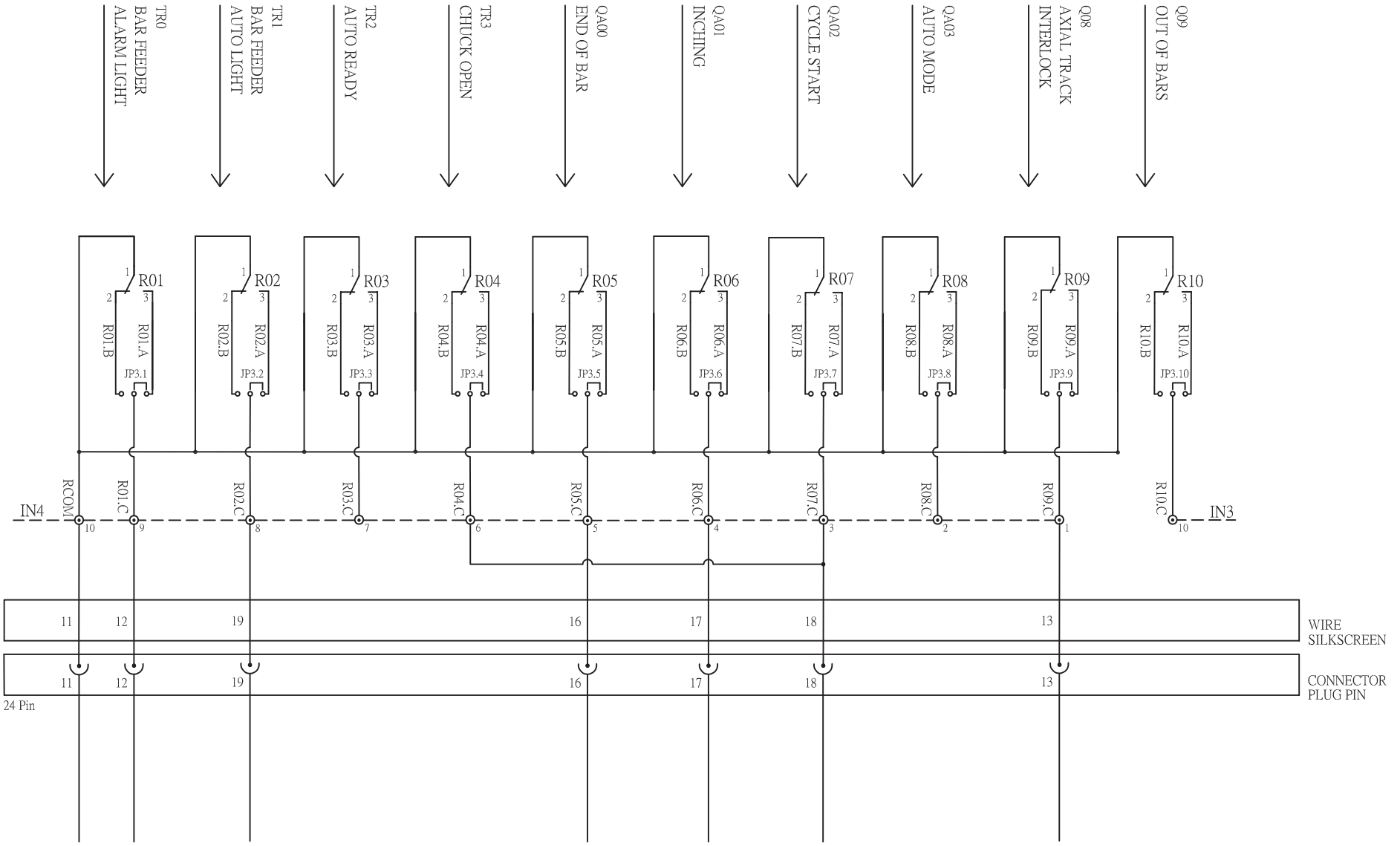
BAR FEEDER TYPE Patriot GEN II			FIRST DATE 2022/11/28	REVISION DATE 2024/02/29	MAIN VOLTAGE 220V AC 3-PHASE	SIGNAL VOLTAGE 24V DC	PAGE P. 17	
LATHE NAME ----			DRAWN BY LIN	CHECKED BY	DESCRIPTION CANopen circuit of Servo motor			
LATHE TYPE ----					DRAWING NO. JV-EDGE PATRIOT II 37 XL AS	-EG	VERSION C0	



BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 18
LATHE NAME: ----	EDGE TECHNOLOGIES	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: LED circuit of Remote control pendant		
LATHE TYPE: ----				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0

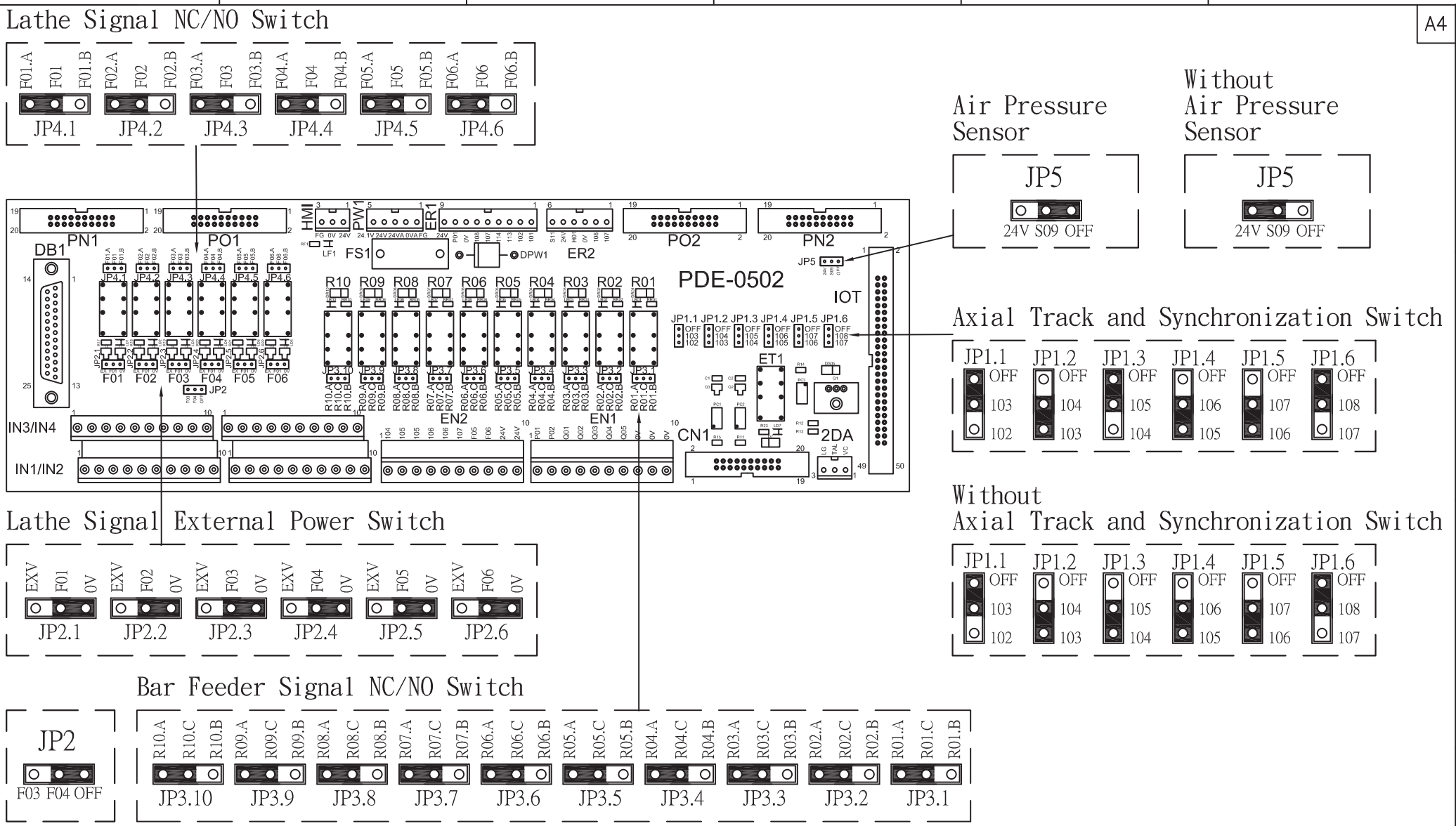


BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 20
LATHE NAME: ____	EDGE TECHNOLOGIES	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Interface 1		
LATHE TYPE: ____				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0



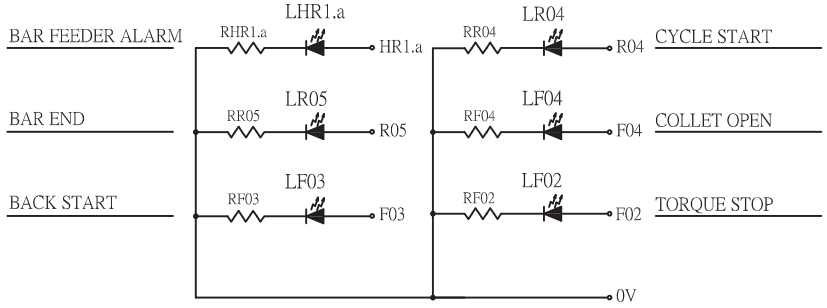
BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 21
LATHE NAME: ____		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Interface 2		
LATHE TYPE: ____				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0

EDGE TECHNOLOGIES

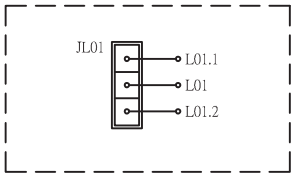


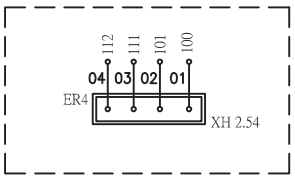
BAR FEEDER TYPE: Patriot GEN II	FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 22
LATHE NAME: ----	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Interface 3		
LATHE TYPE: ----			DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0

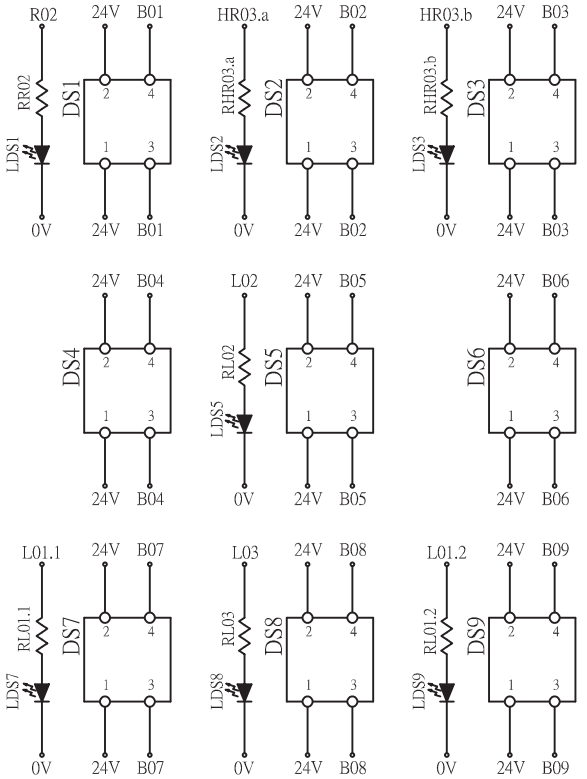
EDGE TECHNOLOGIES

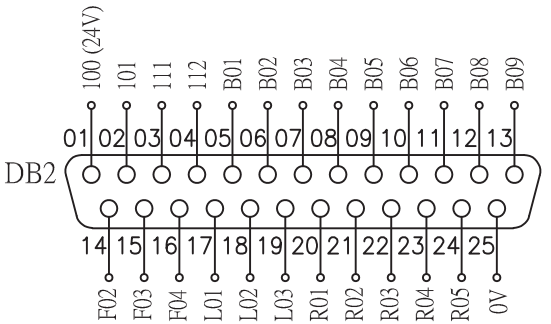


PGE 0502 KEY BOARD



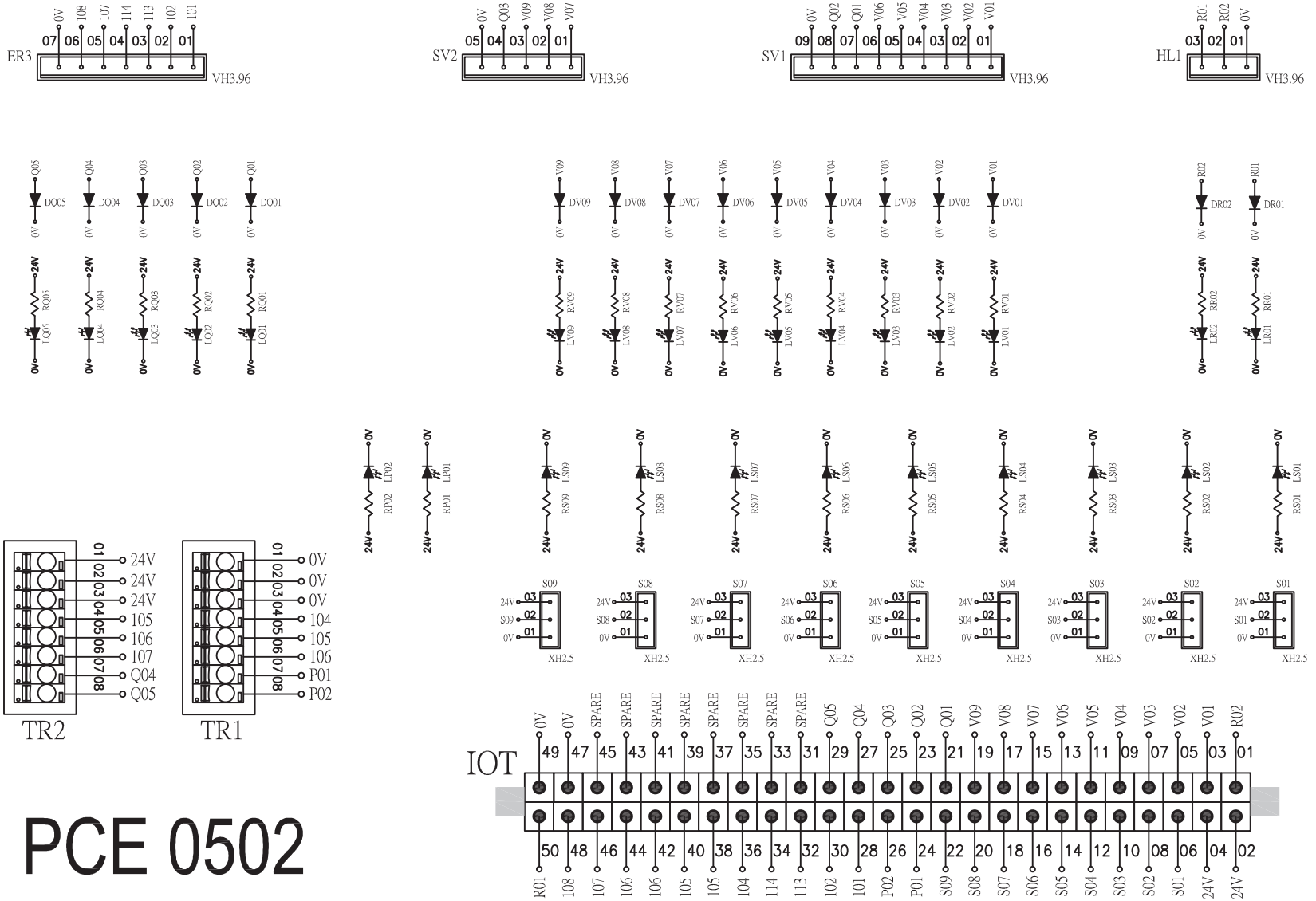






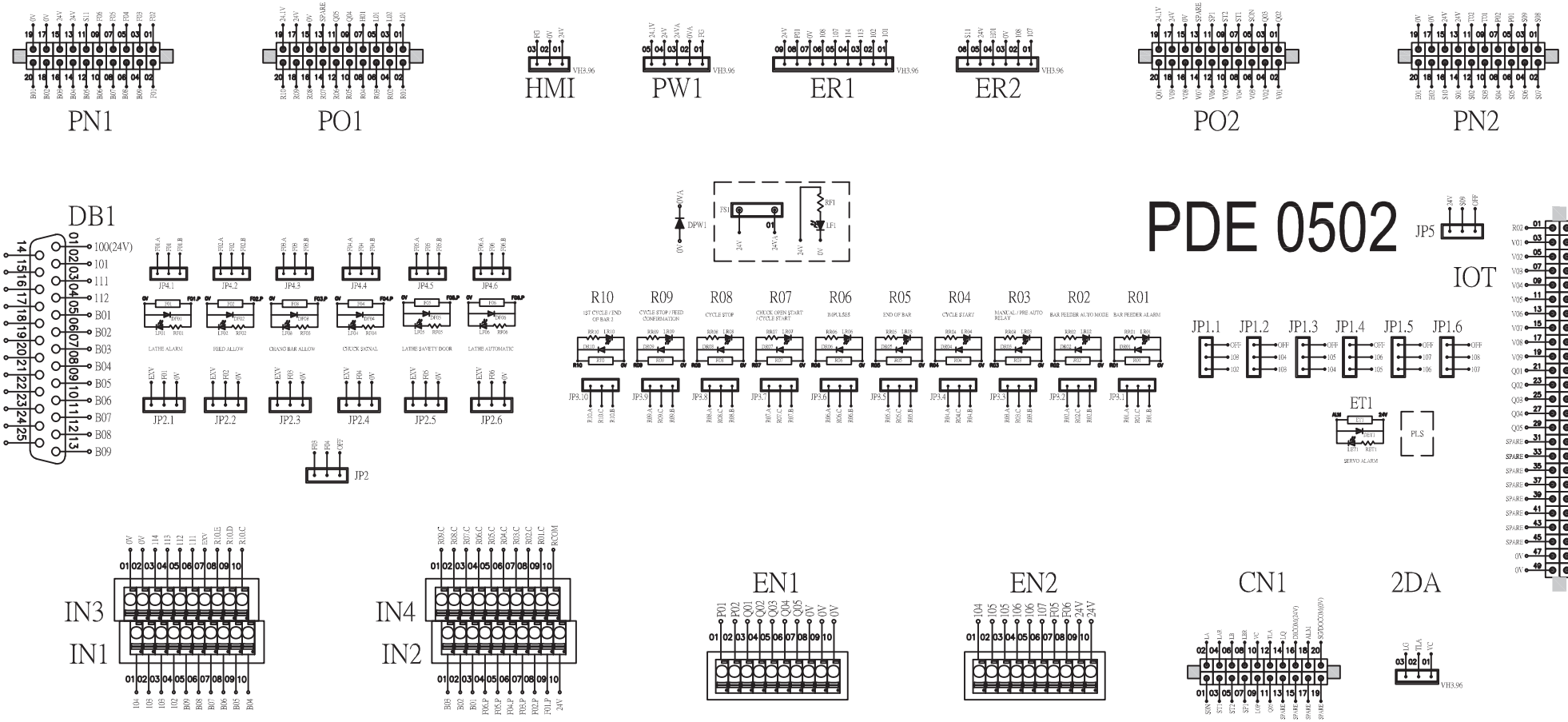
BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 23
LATHE NAME: ____		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PC board circuit of Remote control pendant		
LATHE TYPE: ____				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0

EDGE TECHNOLOGIES



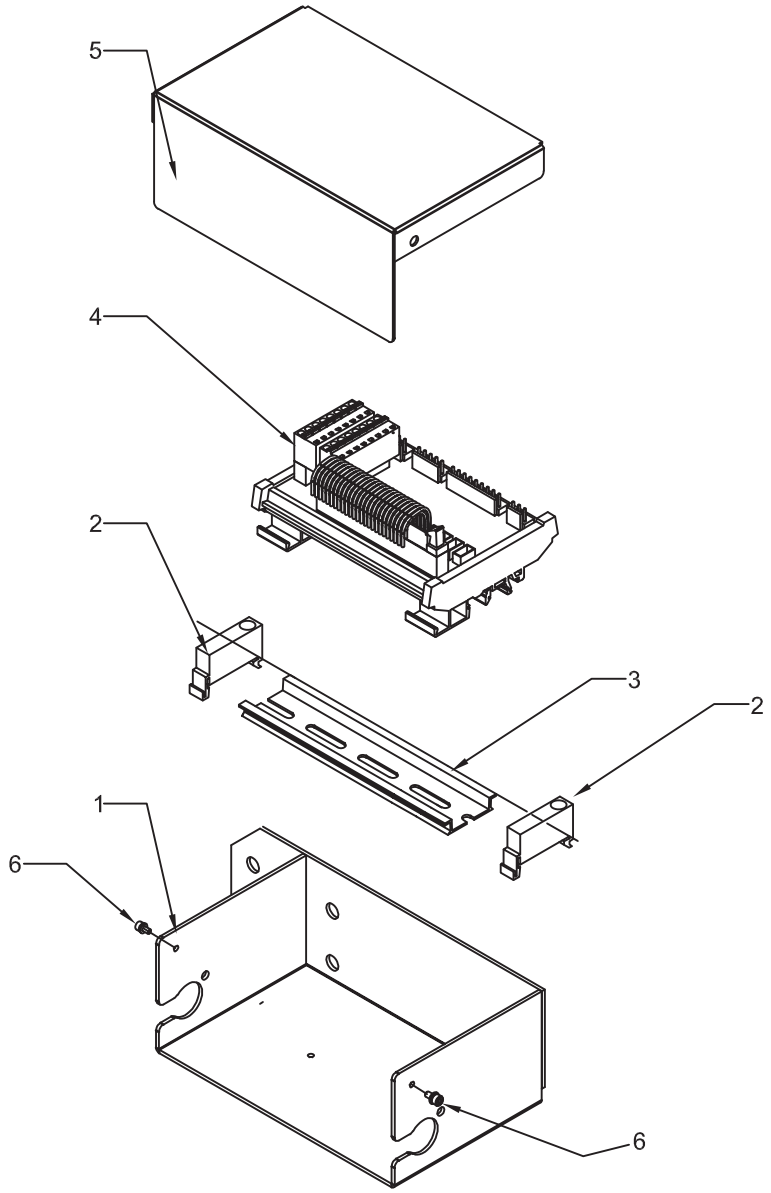
PCE 0502

BAR FEEDER TYPE: Patriot GEN II			FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 24
LATHE NAME: ____	EDGE TECHNOLOGIES		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Distributing component configuration		
LATHE TYPE: ____					DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0



BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 25
LATHE NAME: ____		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Main PC board circuit		
LATHE TYPE: ____				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0

EDGE TECHNOLOGIES

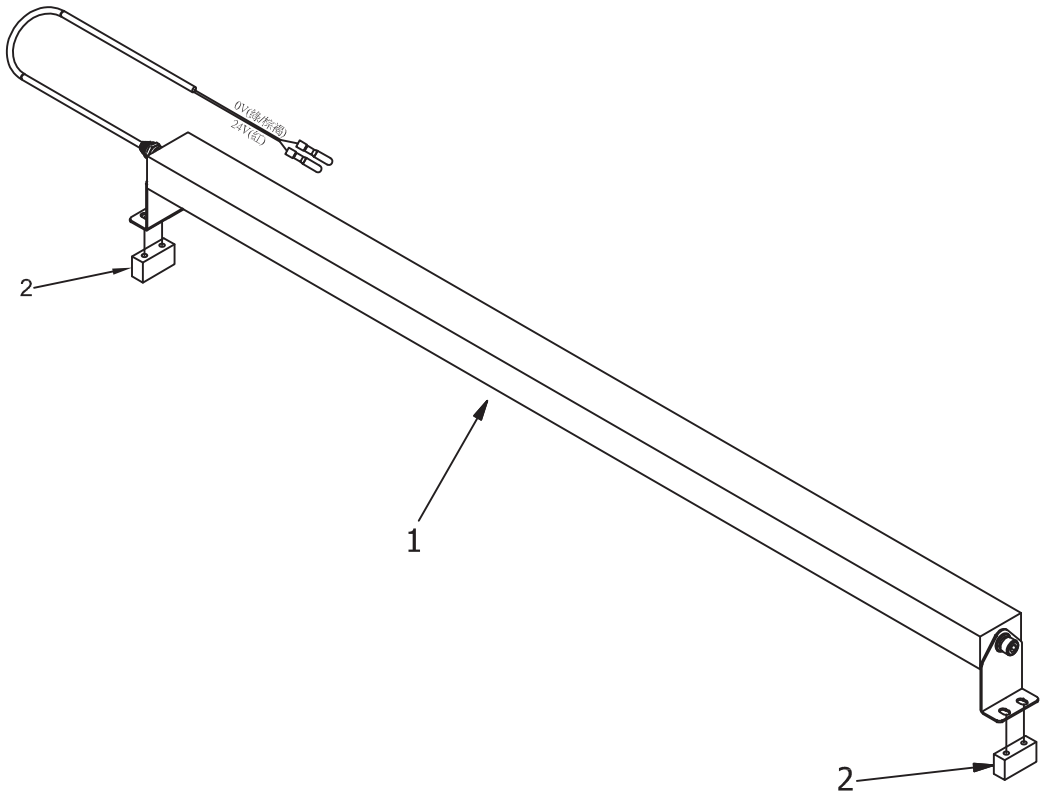


NO.	PART NO.	CODE	NAME
01	AV51MA3700-P1	BOX	Distribution panel box
02	J631401		Aluminum track clamp
03	J630801		Aluminum track 35mm (4 holes)
04	J515003	PCB2	Distribution circuit board
05	AV51MA3800-P1		Distribution box cover
06	ZS010408		Hexagon socket head cap screws (M4*8)
	ZS0504		Shrapnel M4
	ZS04040810		Pinghuasi (M4*8*1.0)

BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 26
LATHE NAME: ----		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Distribution panel chart		
LATHE TYPE: ----				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0

EDGE TECHNOLOGIES

A4

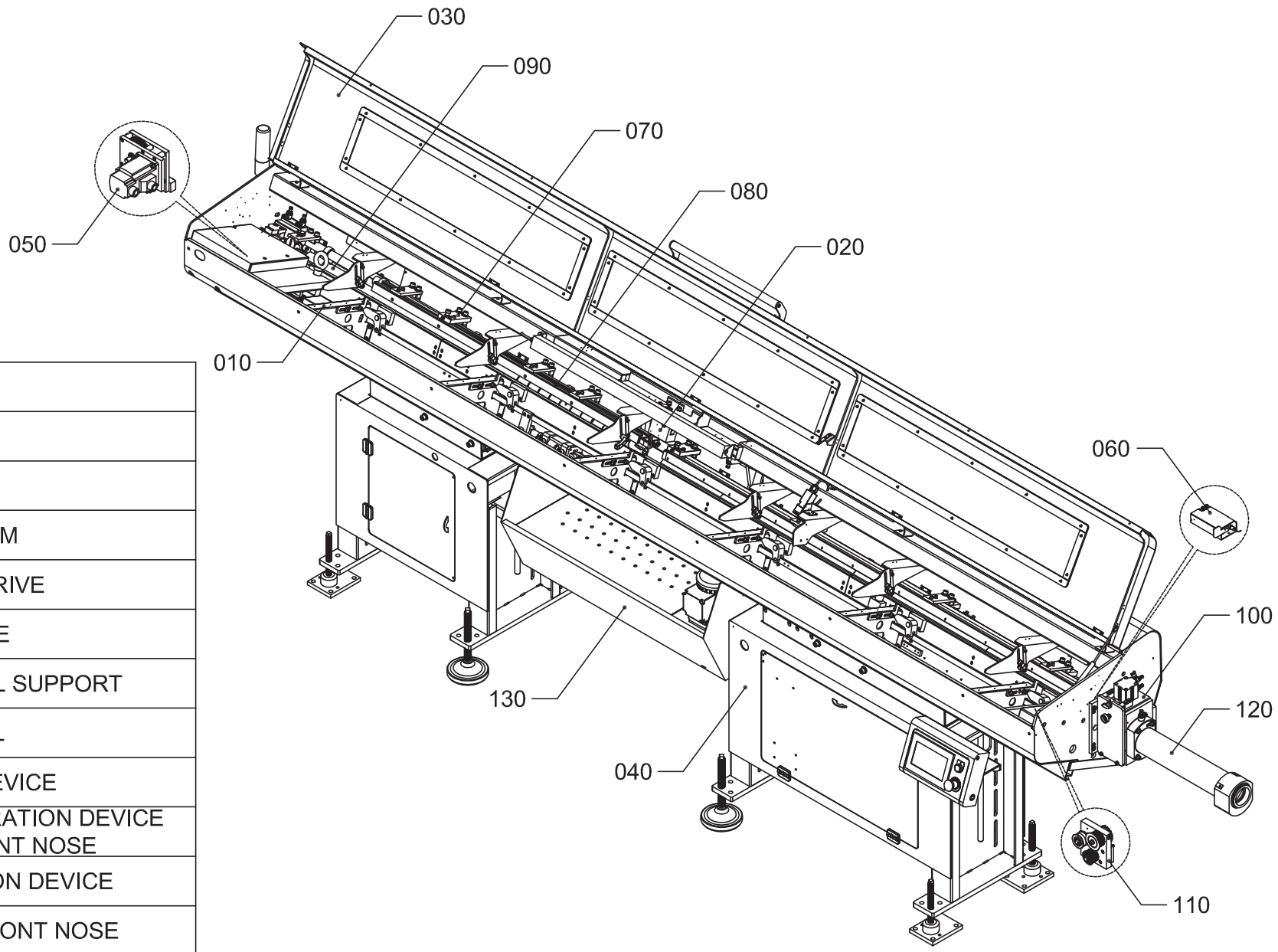


JVCQ1N100 LED LIGHT GROUP

NO.	PART NO.	CODE	NAME
01	J630120	LED	LED LIGHT
02	AV51MA3900		CUSHION

BAR FEEDER TYPE: Patriot GEN II		FIRST DATE: 2022/11/28	REVISION DATE: 2024/02/29	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 27
LATHE NAME: ----		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: LED LIGHT GROUP		
LATHE TYPE: ----				DRAWING NO.: JV-EDGE PATRIOT II 37 XL AS -EG		VERSION: C0

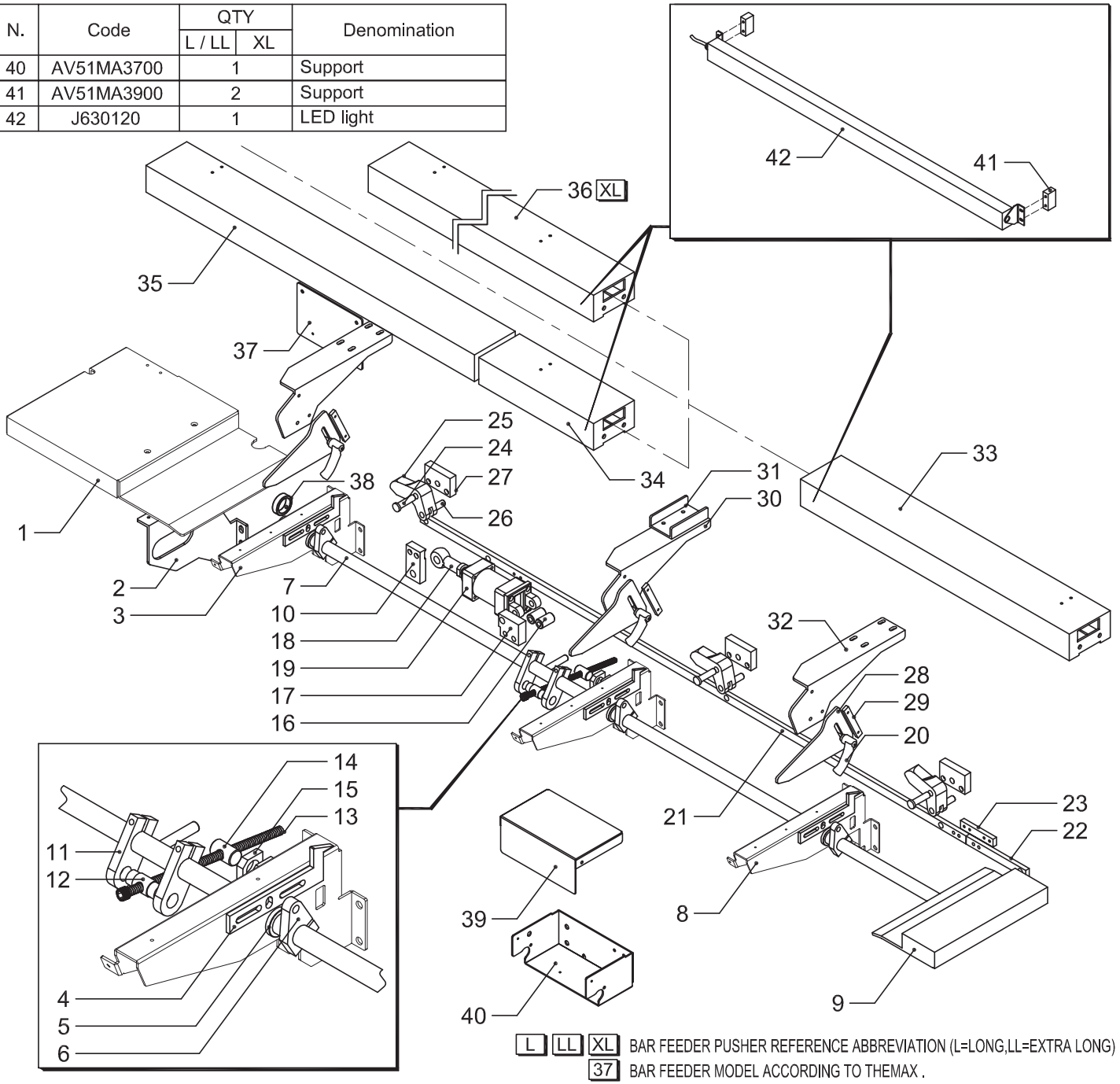
EDGE TECHNOLOGIES



010	FRAME DEVICE
020	CLAMPING
030	COVER
040	BASES AND BEAM
050	FEED MOTOR DRIVE
060	CUTTING DEVICE
070	GUIDE CHANNEL SUPPORT
080	GUIDE CHANNEL
090	BAR PUSHER DEVICE
100	FIRST ANTI-VIBRATION DEVICE AND FIXED FRONT NOSE
110	SYCHRONIZATION DEVICE
120	TELESCOPIC FRONT NOSE
130	OIL TANK

N.	Code	QTY L / LL	QTY XL	Denomination
1	AV51MA2200	1		Support
2	AV51MA2300	1		Plate
3	AV51MA0110	5		Support
4	AV51MA0200	6		Plate
5	AV51MA1800	6		Collet
6	AV51MA0300	6		Plate
7	AV51MA1637	1		Arbor-3.7M L=3400mm
8	AV51MA0120	1		Support
9	AV51MA2400	1		Support
10	AV51MA0800	1		Anchor
11	AV51MA1100	2		Plate
12	AV51MA1200	1		Arbor
13	ZS011212001	1		Cap screw
14	AV51MA1700	1		Arbor
15	AV51MA0701	2		Plate
16	AV51MA0901	2		Extension bar
17	AV51MA0900	1		Support
18	BPHS16	1		Joint
19	A11150500	1		Cylinder SC-63x25-CB
20	AV51MA2600	6		Adjustable handle
21	AV51MA1032	1		Pull rod-3.7M L=2725mm
	AV51MA1037		1	Pull rod-3.7M L=3330mm
22	AV51MA1037	1		Pull rod-3.7M L=605mm
23	AV51MA1001	1		Connector rod-3.7M
24	AV51MA0600	6		Arbor
25	AV51MA0500	6		Hook
26	AV51MA0601	6		Lever
27	AV51MA0400	6		Support
28	PG38MA0900	6		Plate
29	AV51MA1500	6		Leaf
30	AV51MA1301	1		Plate
31	AV51MA1302	1		Shim
32	AV51MA1300	5		Plate
33	AV51MA2000	1		Tube-3.7M L=1888mm
34	AV51MA2100	1		Tube L=328mm
35	AV51MA1900	1		Tube L=1398mm
36	AV51MA1902		1	Tube L=2268mm
37	AV51MA2700	1		Plate
38	AV51MA3100	1		Ring
39	AV51MA3800	1		Support

N.	Code	QTY L / LL	QTY XL	Denomination
40	AV51MA3700	1		Support
41	AV51MA3900	2		Support
42	J630120	1		LED light



L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

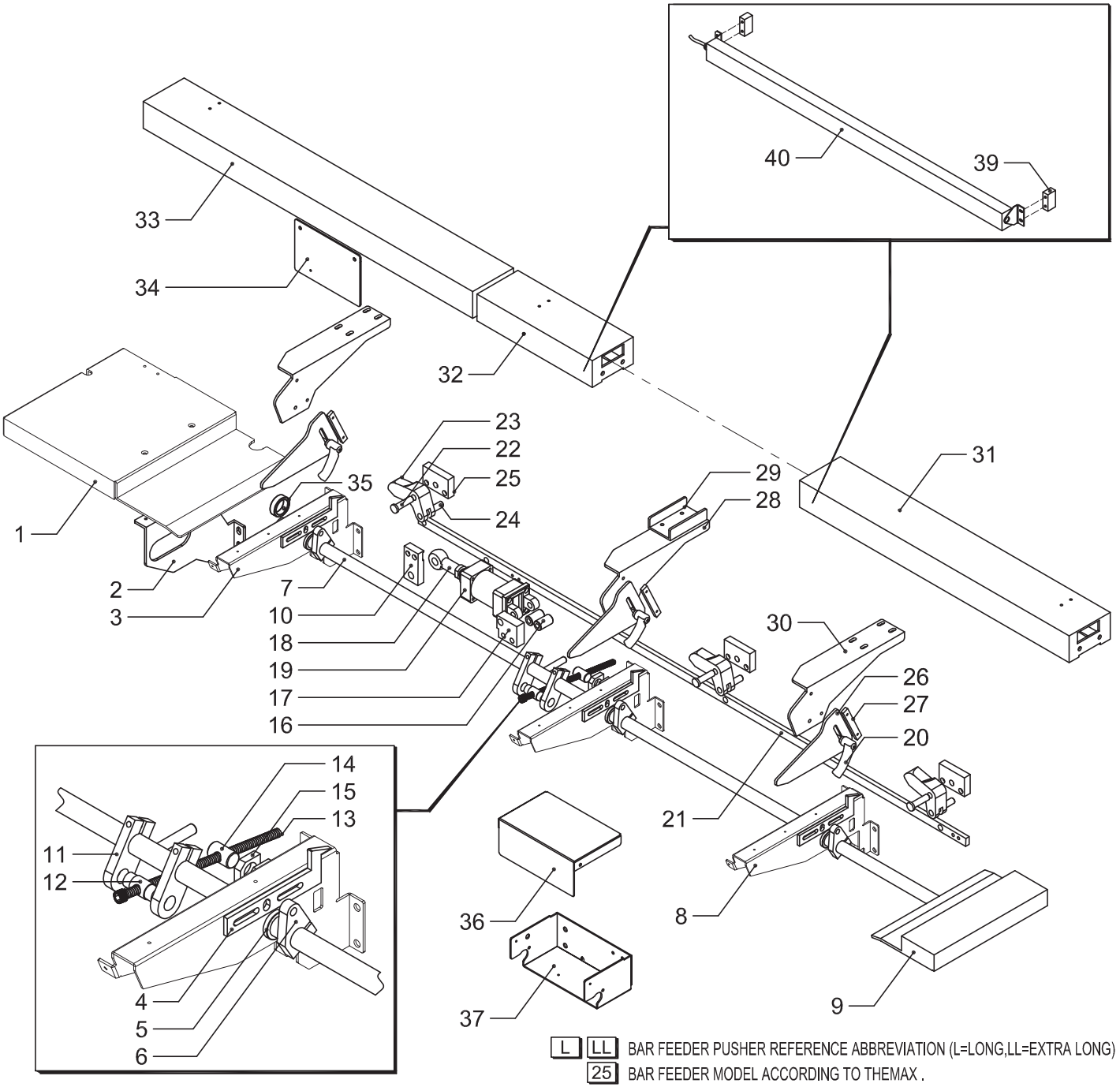
37 BAR FEEDER MODEL ACCORDING TO THEMAX .

PATRIOT II

FRAME DEVICE 37

Tab. 010 1

N.	Code	QTY	Denomination
1	AV51MA2200	1	Support
2	AV51MA2300	1	Plate
3	AV51MA0110	3	Support
4	AV51MA0200	4	Plate
5	AV51MA1800	4	Collet
6	AV51MA0300	4	Plate
7	AV51MA1625	1	Arbor-2.5M L=2160mm
8	AV51MA0120	1	Support
9	AV51MA2400	1	Support
10	AV51MA0800	1	Anchor
11	AV51MA1100	2	Plate
12	AV51MA1200	1	Arbor
13	ZS011212001	1	Cap screw
14	AV51MA1700	1	Arbor
15	AV51MA0701	2	Plate
16	AV51MA0901	2	Extension bar
17	AV51MA0900	1	Support
18	BPHS16	1	Joint
19	A11150500	1	Cylinder SC-63x25-CB
20	AV51MA2600	4	Adjustable handle
21	AV51MA1025	1	Pull rod-2.5M L=2010mm
22	AV51MA0600	4	Arbor
23	AV51MA0500	4	Hook
24	AV51MA0601	4	Lever
25	AV51MA0400	4	Support
26	PG38MA0900	4	Plate
27	AV51MA1500	4	Leaf
28	AV51MA1301	1	Plate
29	AV51MA1302	1	Shim
30	AV51MA1300	3	Plate
31	AV51MA2030	1	Tube L=688mm
32	AV51MA2100	1	Tube L=328mm
33	AV51MA1900	1	Tube L=1398mm
34	AV51MA2700	1	Plate
35	AV51MA3100	1	Ring
36	AV51MA3800	1	Support
37	AV51MA3700	1	Support
39	AV51MA3900	2	Support
40	J630120	1	LED light



L LL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

25 BAR FEEDER MODEL ACCORDING TO THEMAX .

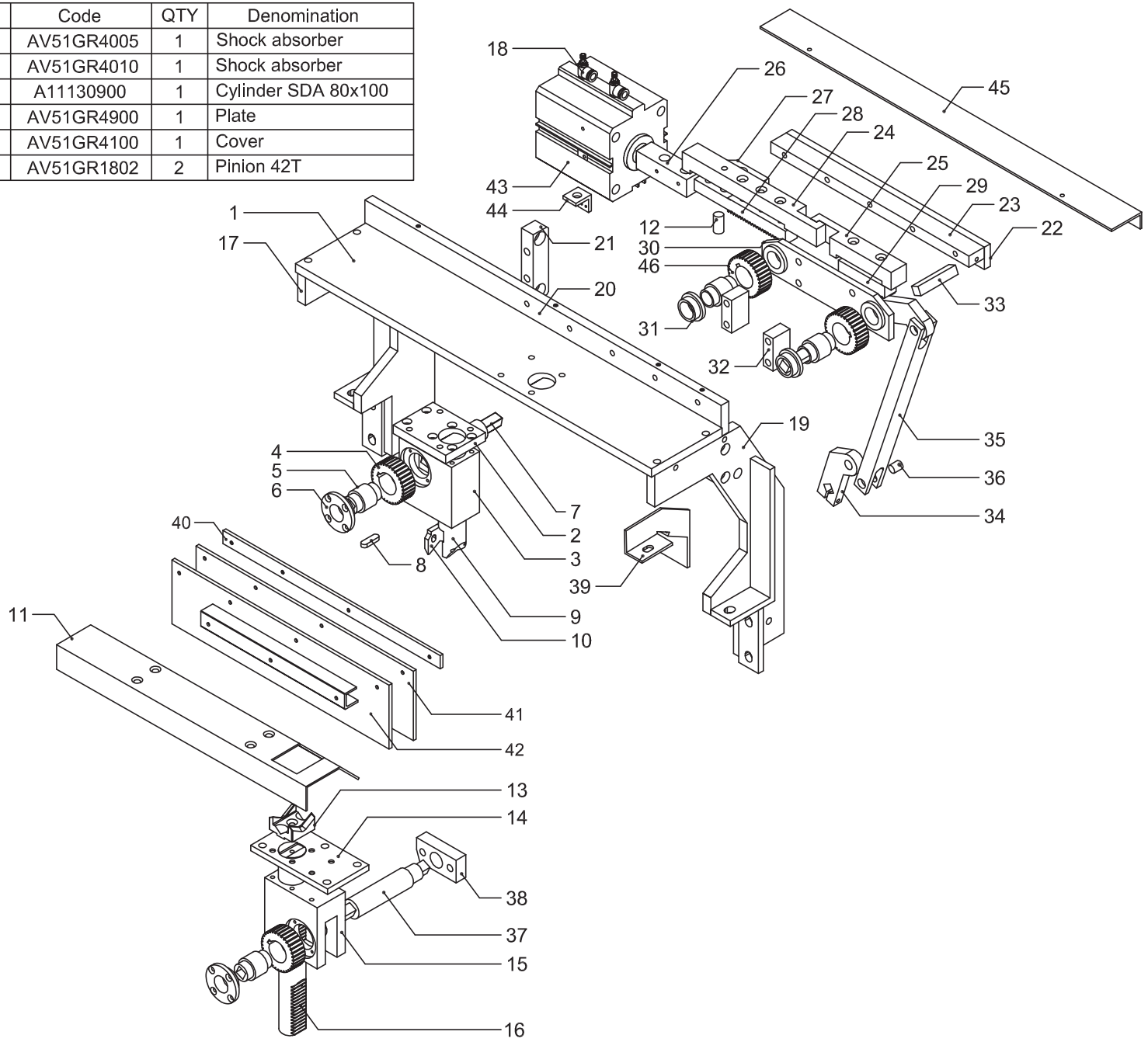
PATRIOT II

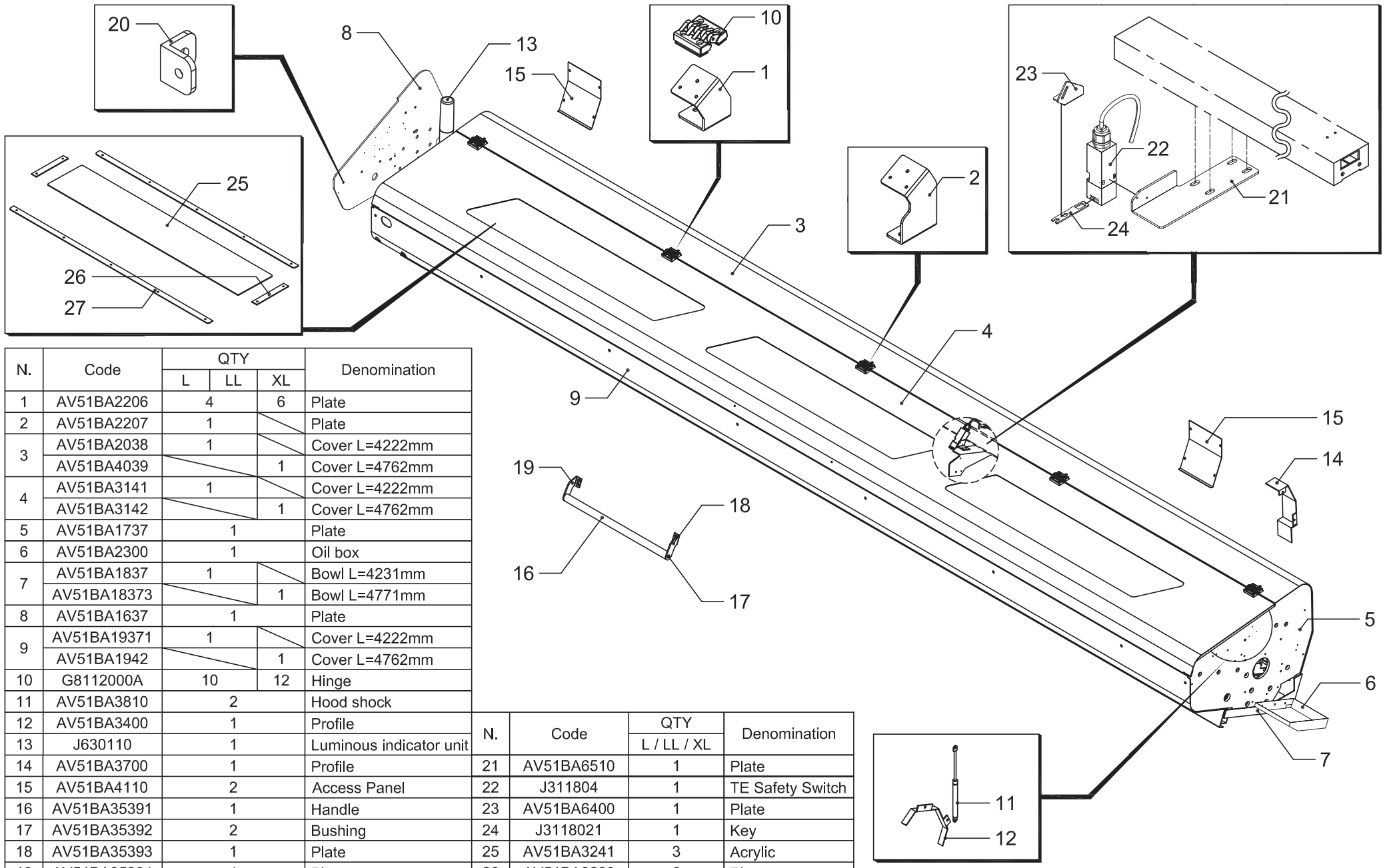
FRAME DEVICE 25

Tab. 011 1

N.	Code	QTY	Denomination
1	AV51GR0300	1	Cover
2	AV51GR1600	1	Plate
3	AV51GR1710	1	Anchor
4	AV51GR1800	2	Pinion 33T
5	AV51GR1801	4	Connetor shaft
6	AV51GR1900	2	Sleeve
7	AV51GR2200	1	Shaft
8	ZS060615	4	6x15 Tab
9	AV51GR2100	1	Rack
10	AV51GR2000	1	Clip cutter
11	AV51GR3130	1	Shelf
12	AV51CH1701	1	Arbor
13	AV51GR2700	1	Lower clamp
14	AV51GR2610	1	Plate
15	AV51GR1701	1	Anchor
16	AV51GR2800	1	Transmission rod
17	AV51GR0100	1	Anchor R
18	A12131000	2	Flow regulator JSC 8-03
19	AV51GR0200	1	Anchor L
20	AV51GR0410	1	Plate
21	AV51GR0600	1	Anchor
22	AV51GR0501	1	Sheel steel
23	AV51GR0500	1	Plate
24	AV51GR0901	1	Pushing stripe
25	AV51GR1001	1	Transmission rod
26	AV51GR0800	1	Spacer
27	AV51GR0701	1	Plate
28	AV51GR1101	1	Rack
29	AV51GR1201	1	Rack
30	AV51GR2400	1	Plate
31	AV51GR2300	2	Bearing
32	AV51GR2500	2	Shim
33	AV51GR1500	1	Shaft
34	AV51GR1300	2	Support
35	AV51GR1400	1	Lever
36	AV51GR3500	1	Anchor
37	AV51GR3000	1	Transmission rod
38	AV51GR2900	1	Anchor
39	AV51GR3150	1	Plate
40	AV51GR4004	1	Plate

N.	Code	QTY	Denomination
41	AV51GR4005	1	Shock absorber
42	AV51GR4010	1	Shock absorber
43	A11130900	1	Cylinder SDA 80x100
44	AV51GR4900	1	Plate
45	AV51GR4100	1	Cover
46	AV51GR1802	2	Pinion 42T



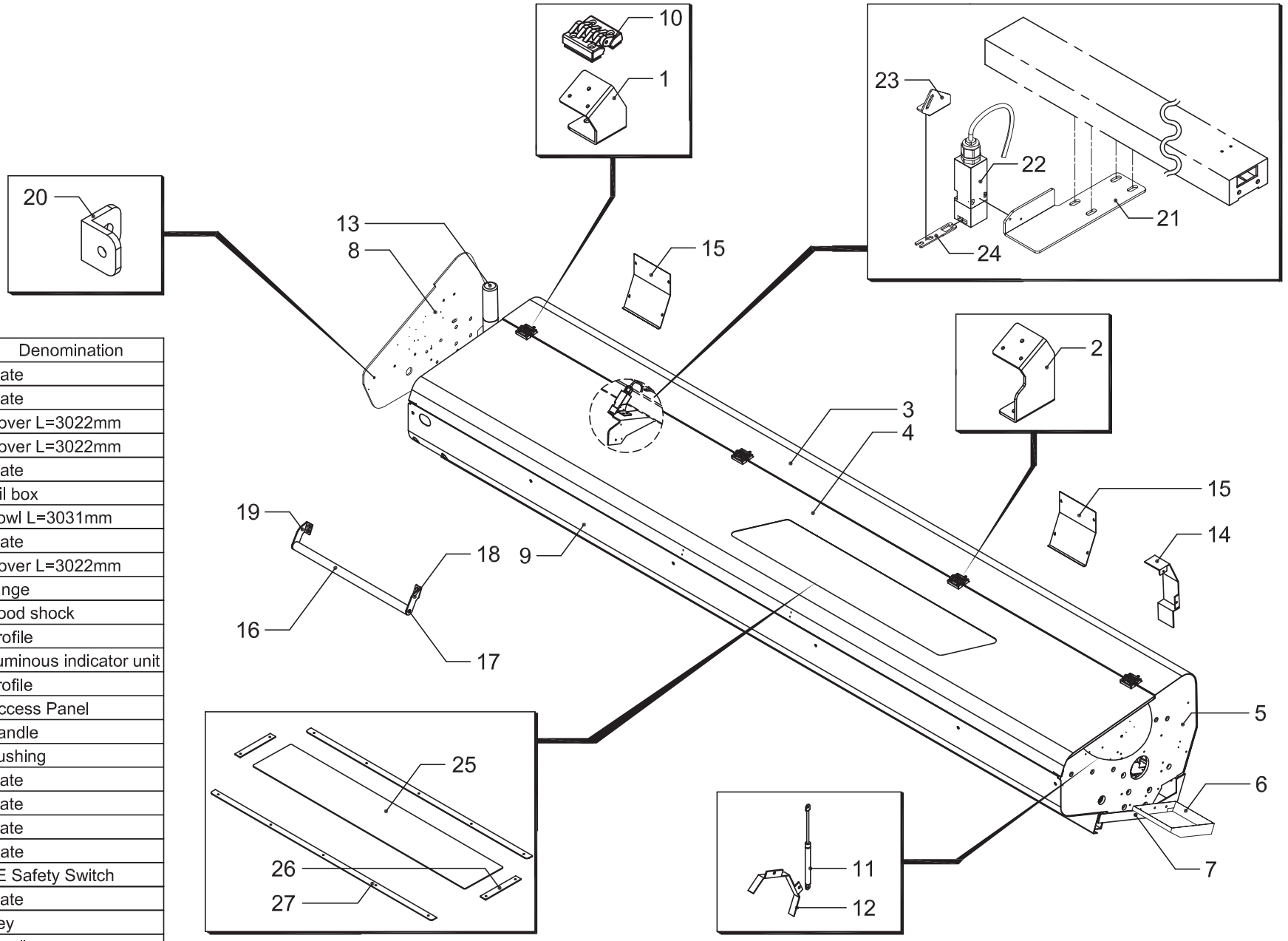


N.	Code	QTY L	QTY LL	QTY XL	Denomination
1	AV51BA2206	4		6	Plate
2	AV51BA2207	1			Plate
3	AV51BA2038	1			Cover L=4222mm
	AV51BA4039			1	Cover L=4762mm
4	AV51BA3141	1			Cover L=4222mm
	AV51BA3142			1	Cover L=4762mm
5	AV51BA1737	1			Plate
6	AV51BA2300	1			Oil box
7	AV51BA1837	1			Bowl L=4231mm
	AV51BA18373			1	Bowl L=4771mm
8	AV51BA1637	1			Plate
9	AV51BA19371	1			Cover L=4222mm
	AV51BA1942			1	Cover L=4762mm
10	G8112000A	10		12	Hinge
11	AV51BA3810	2			Hood shock
12	AV51BA3400	1			Profile
13	J630110	1			Luminous indicator unit
14	AV51BA3700	1			Profile
15	AV51BA4110	2			Access Panel
16	AV51BA35391	1			Handle
17	AV51BA35392	2			Bushing
18	AV51BA35393	1			Plate
19	AV51BA35394	1			Plate
20	AV51BA1901	2			Plate

N.	Code	QTY L / LL / XL	Denomination
21	AV51BA6510	1	Plate
22	J311804	1	TE Safety Switch
23	AV51BA6400	1	Plate
24	J3118021	1	Key
25	AV51BA3241	3	Acrylic
26	AV51BA3239	6	Plate
27	AV51BA3240	6	Plate

L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

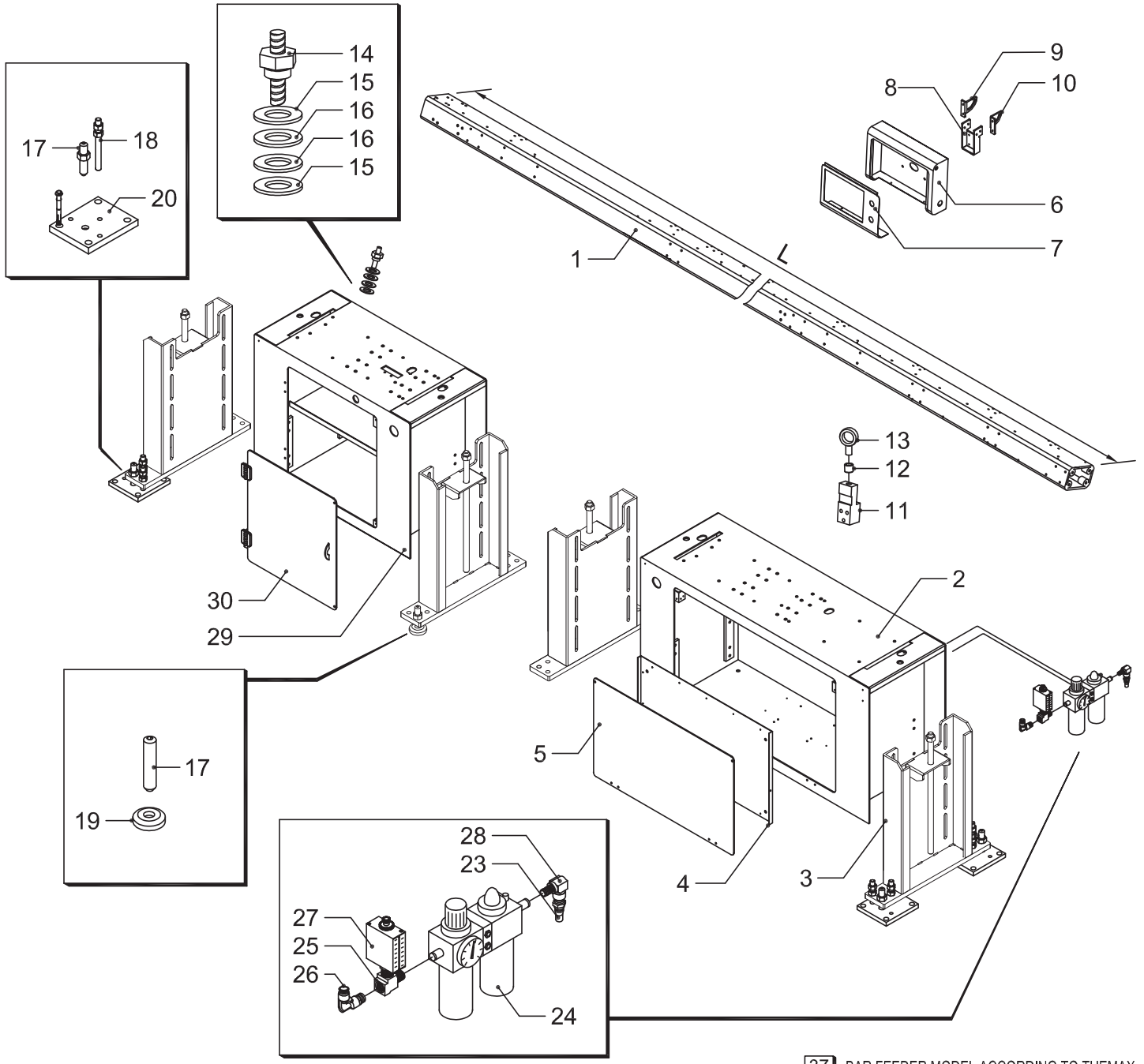
37 BAR FEEDER MODEL ACCORDING TO THEMAX .



N.	Code	QTY	Denomination
1	AV51BA2206	4	Plate
2	AV51BA2207	1	Plate
3	AV51BA2026	1	Cover L=3022mm
4	AV51BA3125	1	Cover L=3022mm
5	AV51BA1737	1	Plate
6	AV51BA2300	1	Oil box
7	AV51BA1827	1	Bowl L=3031mm
8	AV51BA1637	1	Plate
9	AV51BA19251	1	Cover L=3022mm
10	G8112000A	10	Hinge
11	AV51BA3810	2	Hood shock
12	AV51BA3400	1	Profile
13	J630110	1	Luminous indicator unit
14	AV51BA3700	1	Profile
15	AV51BA4110	2	Access Panel
16	AV51BA35391	1	Handle
17	AV51BA35392	2	Bushing
18	AV51BA35393	1	Plate
19	AV51BA35394	1	Plate
20	AV51BA1901	2	Plate
21	AV51BA6510	1	Plate
22	J311804	1	TE Safety Switch
23	AV51BA6400	1	Plate
24	J3118021	1	Key
25	AV51BA3241	3	Acrylic
26	AV51BA3239	6	Plate
27	AV51BA3240	6	Plate

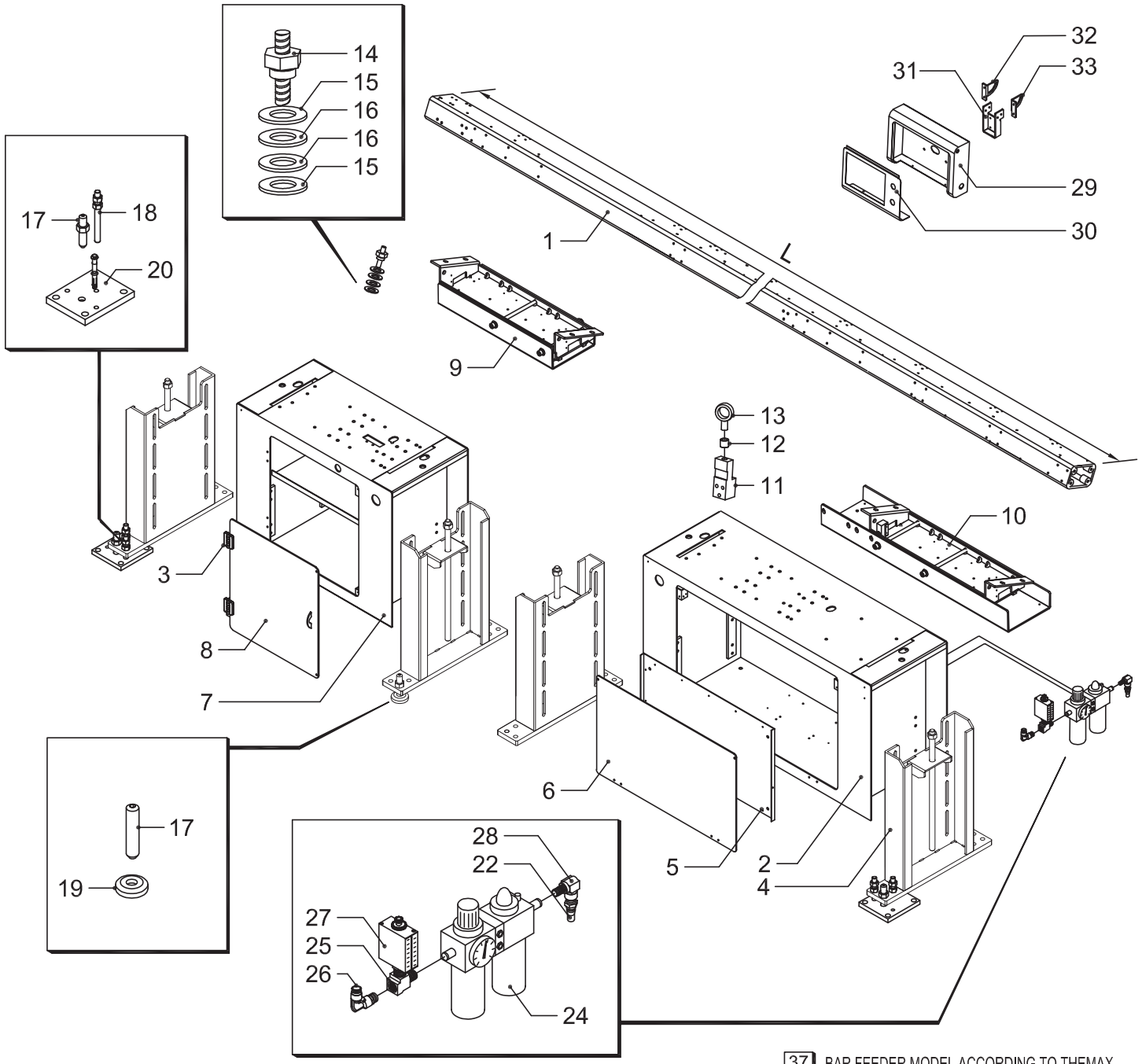
[L] [LL] BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)
[25] BAR FEEDER MODEL ACCORDING TO THEMAX .

N.	Code	QTY	Denomination
1	AV51CH0137	1	Beam L=4200
2	AV51BA0160	1	Base
3	AV51BA0450	4	Support
4	AV51BA0300	1	Panel
5	AV51BA0200	1	Door
6	AV51BA2520	1	Housing
7	AV51BA2830	1	Key-board
8	AV51BA2610	1	Support
9	AV51BA2620	1	Seat A
10	AV51BA2630	1	Seat B
11	AV51BA2900	2	Support
12	AV51BA3301	2	Bushing
13	AV51BA3300	2	Eyebolt
14	AV51BA0800	14	Column
15	AV51BA0900	28	Washer
16	AV51BA1000	28	Washer
17	ZS1120100	4	Screw
18	AV51BA1510	8	Tie rod
19	AV51BA1210	4	Plate
20	AV51BA1110	4	Plate
21	AV51BA3000	4	Plug
22	AV51BA3100	4	Plug
23	A13110300	1	Pneumatically-actuated electrical microswitch PM-20
24	A12110300	1	F.R.L. UNIT
25	A15140200	1	Connection 1/4"
26	A13120500	1	Connection 1/4"xØ8
27	A12140400	1	Pressure switch
28	A17110300	1	90° Connection 1/4"x1/4"
29	AV51BA0520	1	Base
30	AV51BA0561	1	Door
31	T16311100	2	Hinge



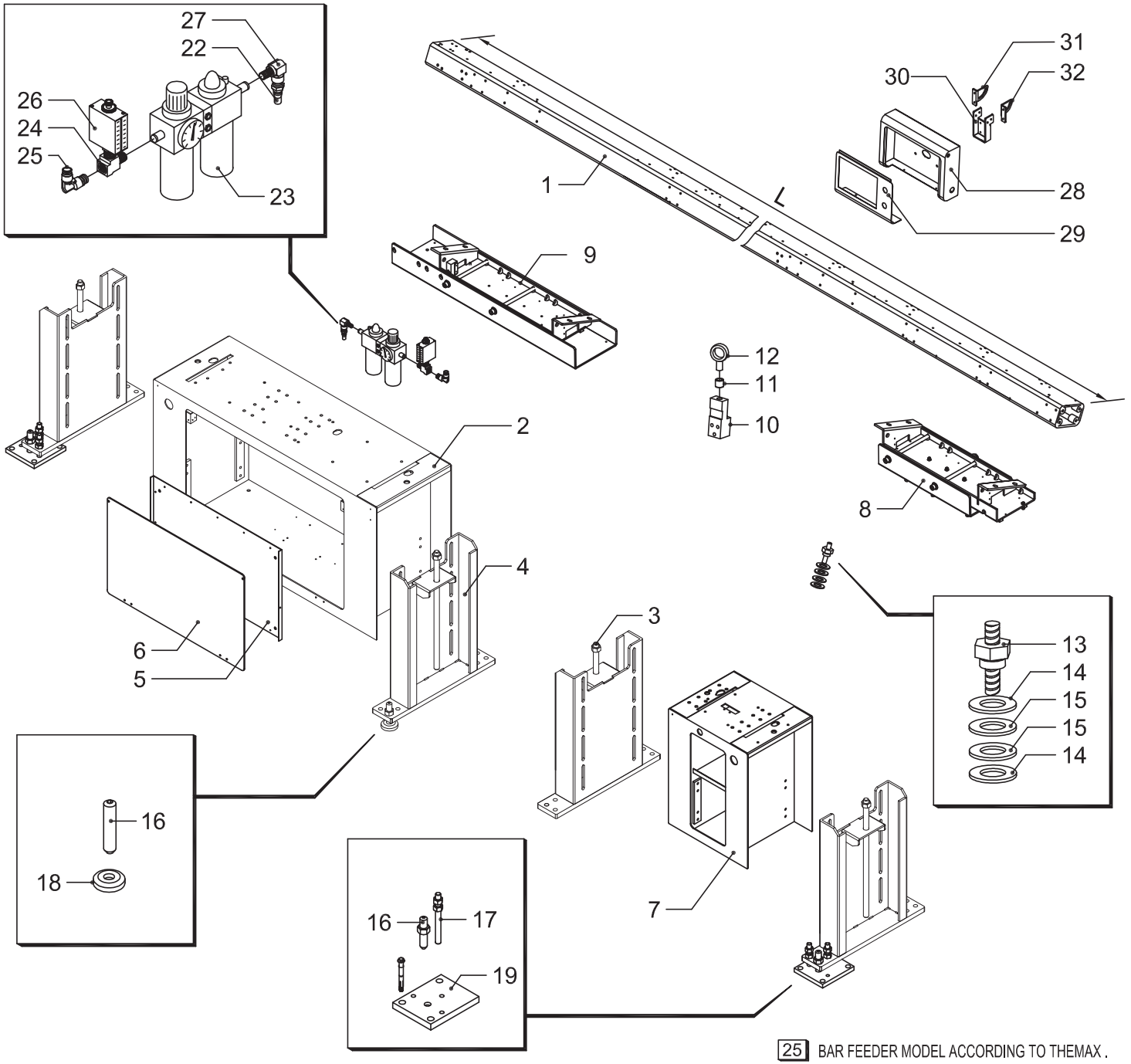
37 BAR FEEDER MODEL ACCORDING TO THEMAX .

N.	Code	QTY	Denomination
1	AV51CH0137	1	Beam L=4200
2	AV51BA0160	1	Base
3	T16311100	2	Hinge
4	AV51BA0450	4	Support
5	AV51BA0300	1	Panel
6	AV51BA0200	1	Door
7	AV51BA0560	1	Base
8	AV51BA0561	1	Door
9	AV51MZ011A	1	Back tracking system
10	AV51MZ010A	1	Front tracking system
11	AV51BA2900	2	Support
12	AV51BA3301	2	Bushing
13	AV51BA3300	2	Eyebolt
14	AV51BA0800	14	Column
15	AV51BA0900	28	Washer
16	AV51BA1000	28	Washer
17	ZS1120100	4	Screw
18	AV51BA1510	8	Tie rod
19	AV51BA1210	4	Plate
20	AV51BA1110	4	Plate
21	AV51BA1210	4	Plug
22	AV51BA3100	4	Plug
23	A13110300	1	Pneumatically-actuated electrical microswitch PM-20
24	A12110300	1	F.R.L. UNIT
25	A15140200	1	Connection 1/4"
26	A13120500	1	Connection 1/4"xØ8
27	A12140400	1	Pressure switch
28	A17110300	1	90° Connection 1/4"x1/4"
29	AV51BA2520	1	Housing
30	AV51BA2830	1	Key-board
31	AV51BA2610	1	Support
32	AV51BA2620	1	Seat A
33	AV51BA2630	1	Seat B



37 BAR FEEDER MODEL ACCORDING TO THEMAX .

N.	Code	QTY	Denomination
1	AV51CH0125	1	Beam L=3000
2	AV51BA0160	1	Base
3	G62120701	4	Screw
4	AV51BA0450	4	Support
5	AV51BA0300	1	Panel
6	AV51BA0200	1	Door
7	AV51BA0551	1	Base
8	AV51MZ040A	1	Back tracking system
9	AV51MZ010A	1	Front tracking system
10	AV51BA2900	2	Support
11	AV51BA3301	2	Bushing
12	AV51BA3300	2	Eyebolt
13	AV51BA0800	14	Column
14	AV51BA0900	28	Washer
15	AV51BA1000	28	Washer
16	ZS1120100	4	Screw
17	AV51BA1510	8	Tie rod
18	AV51BA1210	4	Plate
19	AV51BA1110	4	Plate
20	AV51BA3000	4	Plug
21	AV51BA3100	4	Plug
22	A13110300	1	Pneumatically-actuated electrical microswitch PM-20
23	A12110300	1	F.R.L. UNIT
24	A15140200	1	Connection 1/4"
25	A13120500	1	Connection 1/4"xØ8
26	A12140400	1	Pressure switch
27	A17110300	1	90° Connection 1/4"x1/4"
28	AV51BA2520	1	Housing
29	AV51BA2830	1	Key-board
30	AV51BA2610	1	Support
31	AV51BA2620	1	Seat A
32	AV51BA2630	1	Seat B



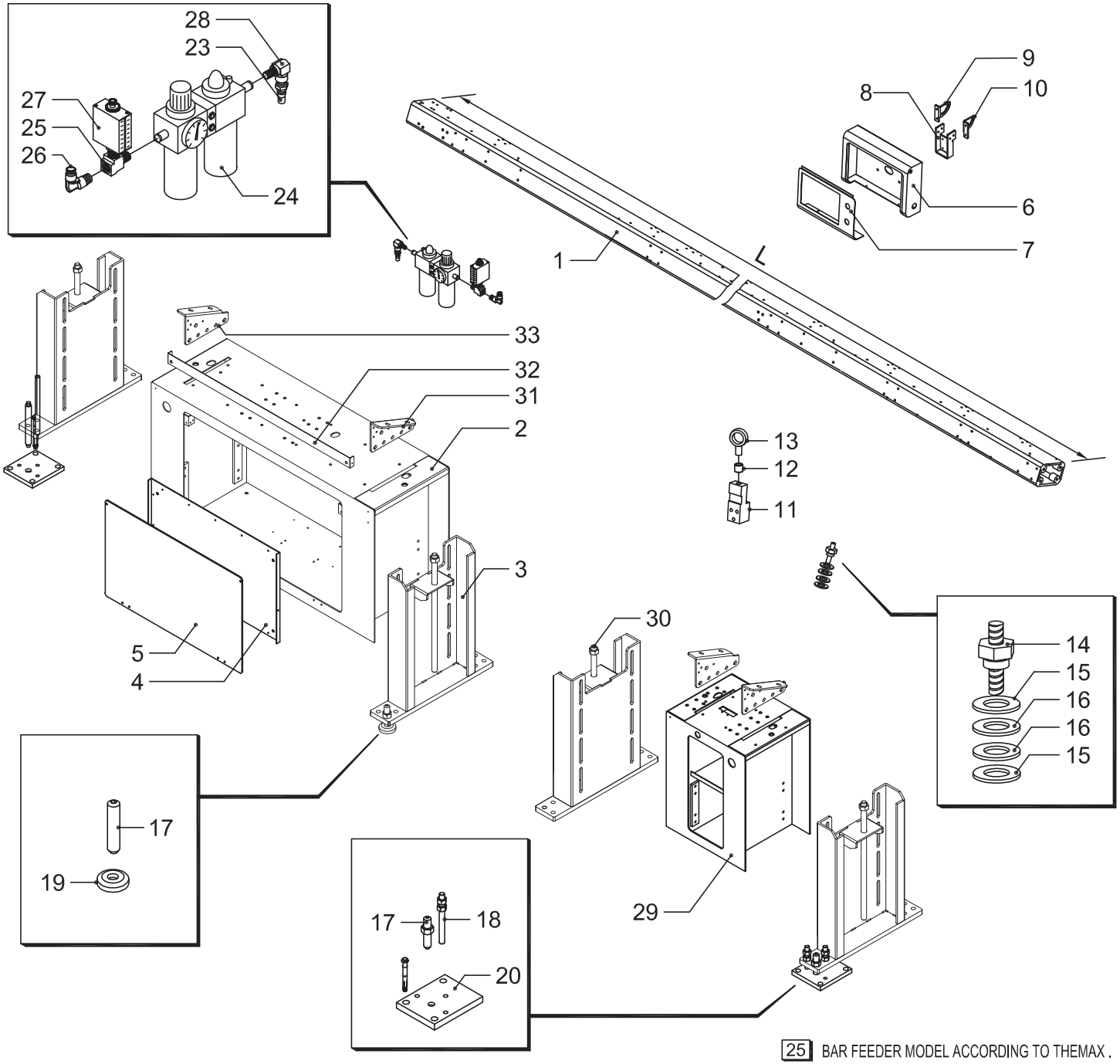
25 BAR FEEDER MODEL ACCORDING TO THEMAX .

PATRIOT II

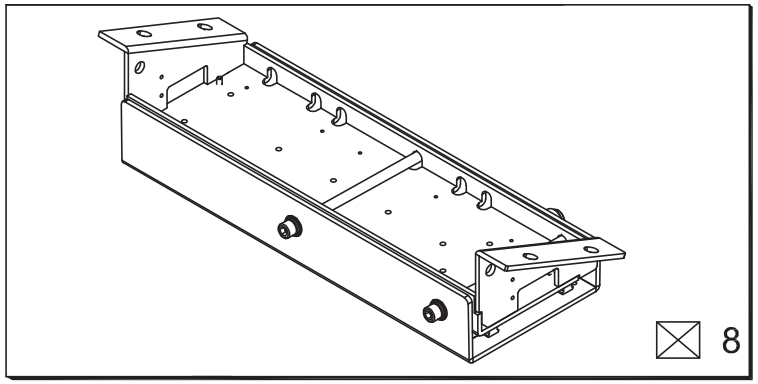
BASES AND BEAM (TRACKING SYSTEM) 25

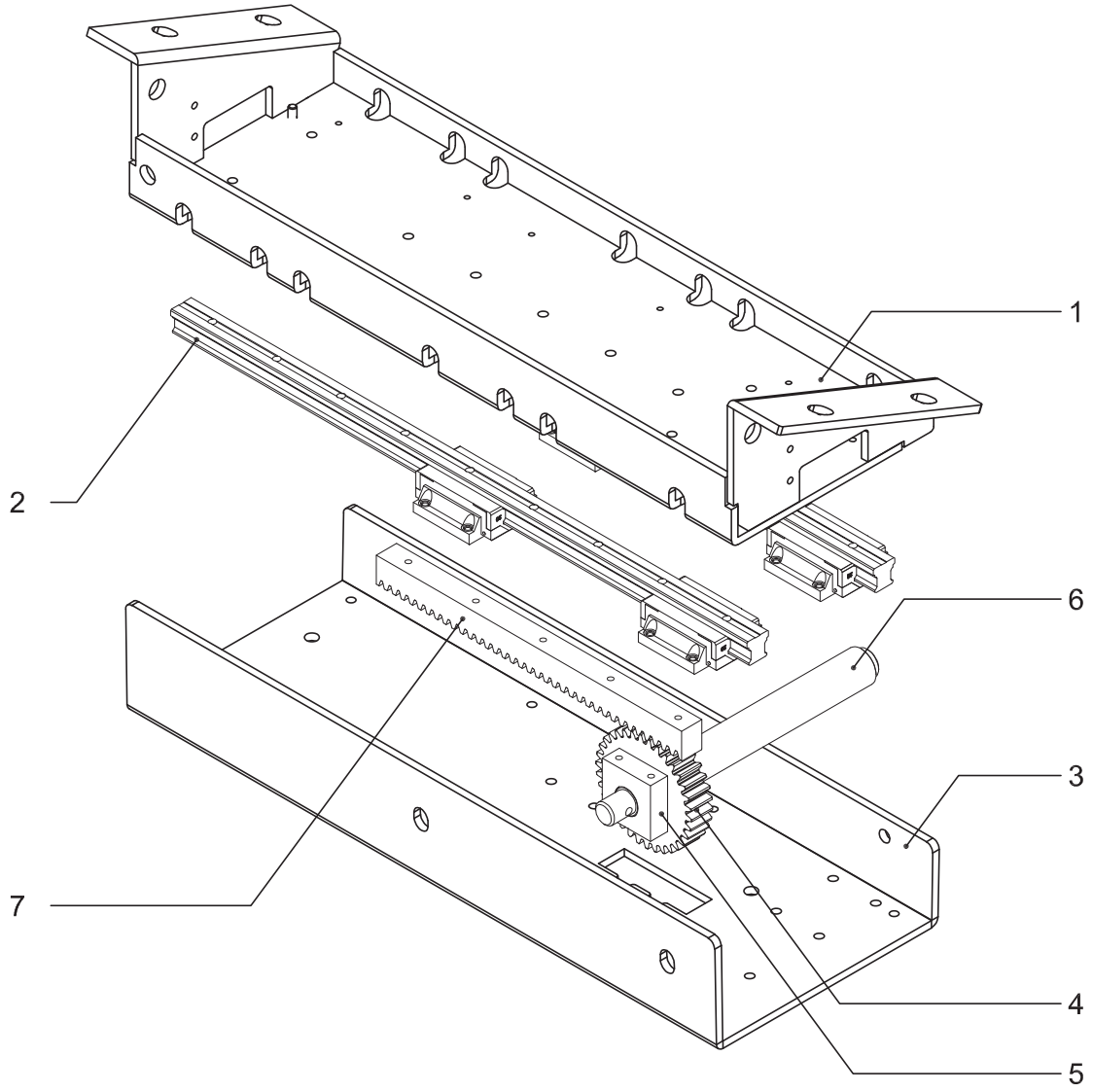
Tab. 042 2

N.	Code	QTY	Denomination
1	AV51CH0125	1	Beam L=3000
2	AV51BA0160	1	Base
3	AV51BA0450	4	Support
4	AV51BA0300	1	Panel
5	AV51BA0200	1	Door
6	AV51BA2520	1	Housing
7	AV51BA2830	1	Key-board
8	AV51BA2610	1	Support
9	AV51BA2620	1	Seat A
10	AV51BA2630	1	Seat B
11	AV51BA2900	2	Support
12	AV51BA3301	2	Bushing
13	AV51BA3300	2	Eyebolt
14	AV51BA0800	14	Column
15	AV51BA0900	28	Washer
16	AV51BA1000	28	Washer
17	ZS1120100	8	Screw
18	AV51BA1510	4	Tie rod
19	AV51BA1210	4	Plate
20	AV51BA1110	4	Plate
21	AV51BA3000	4	Plug
22	AV51BA3100	4	Plug
23	AB110300	1	Joint
24	A12110300	1	Pneumatically-actuated electrical microswitch PM-20
25	A15140200	1	Connection 1/4"
26	A13120500	1	Connection 1/4"xØ8
27	A12140400	1	Pressure switch
28	A17110300	1	90° Connection 1/4"x1/4"
29	AV51BA0551	1	Base
30	G62120701	4	Screw
31	AV51BA0600	2	Plate
32	AV51BA0701	1	Plate
32	AV51BA0700	2	Plate

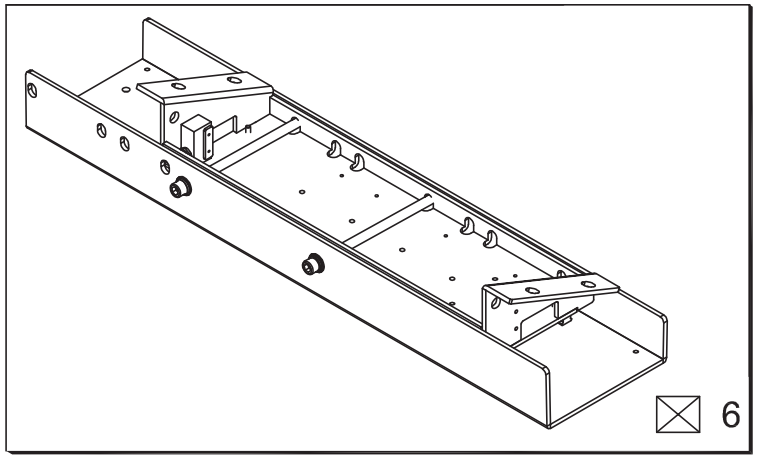


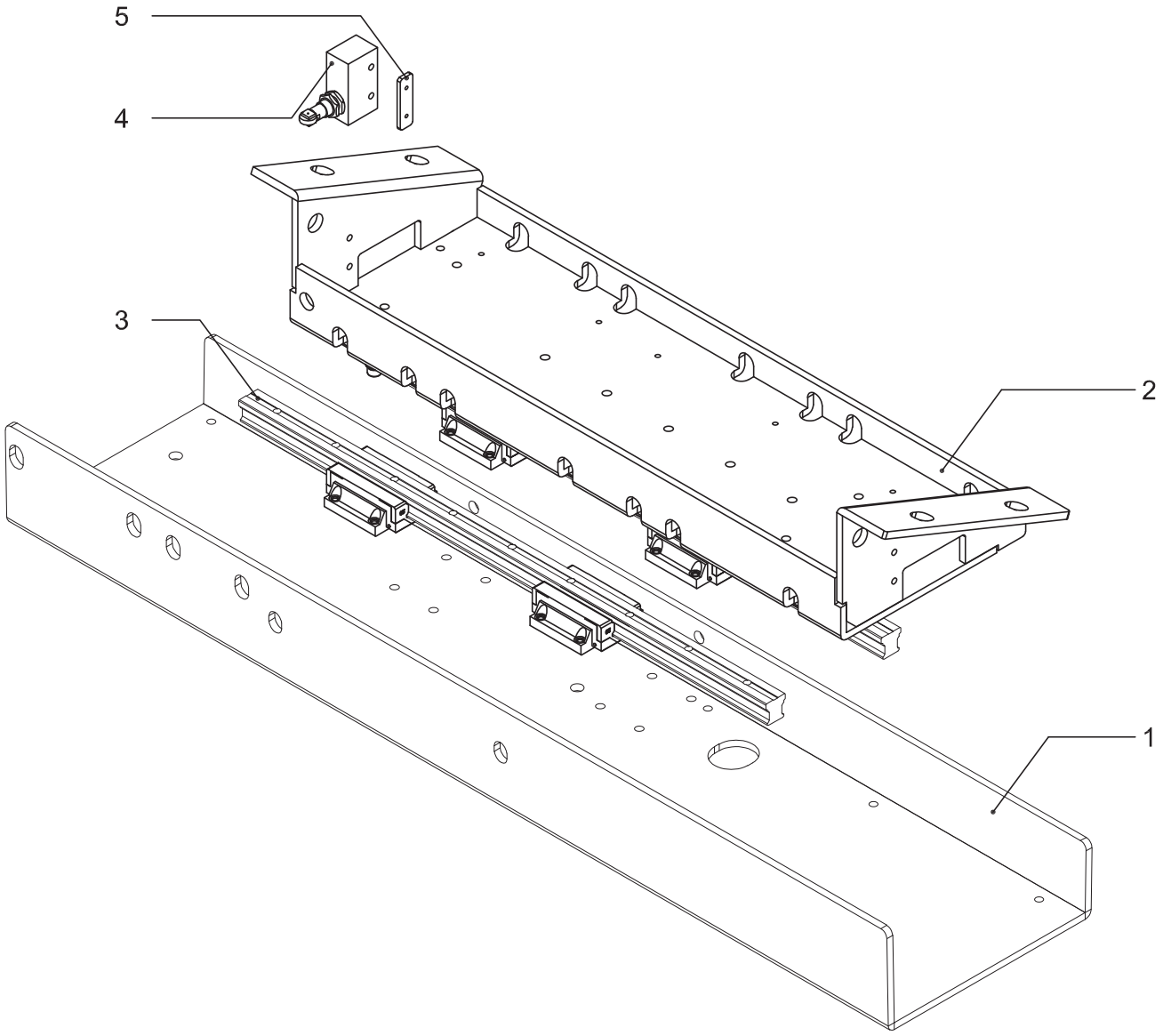
25 BAR FEEDER MODEL ACCORDING TO THEMAX .



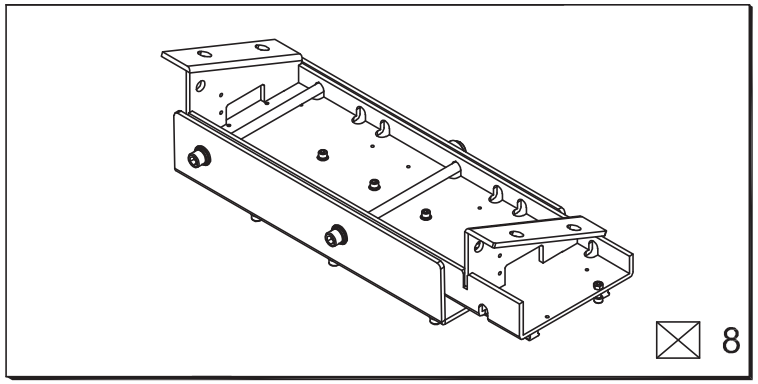


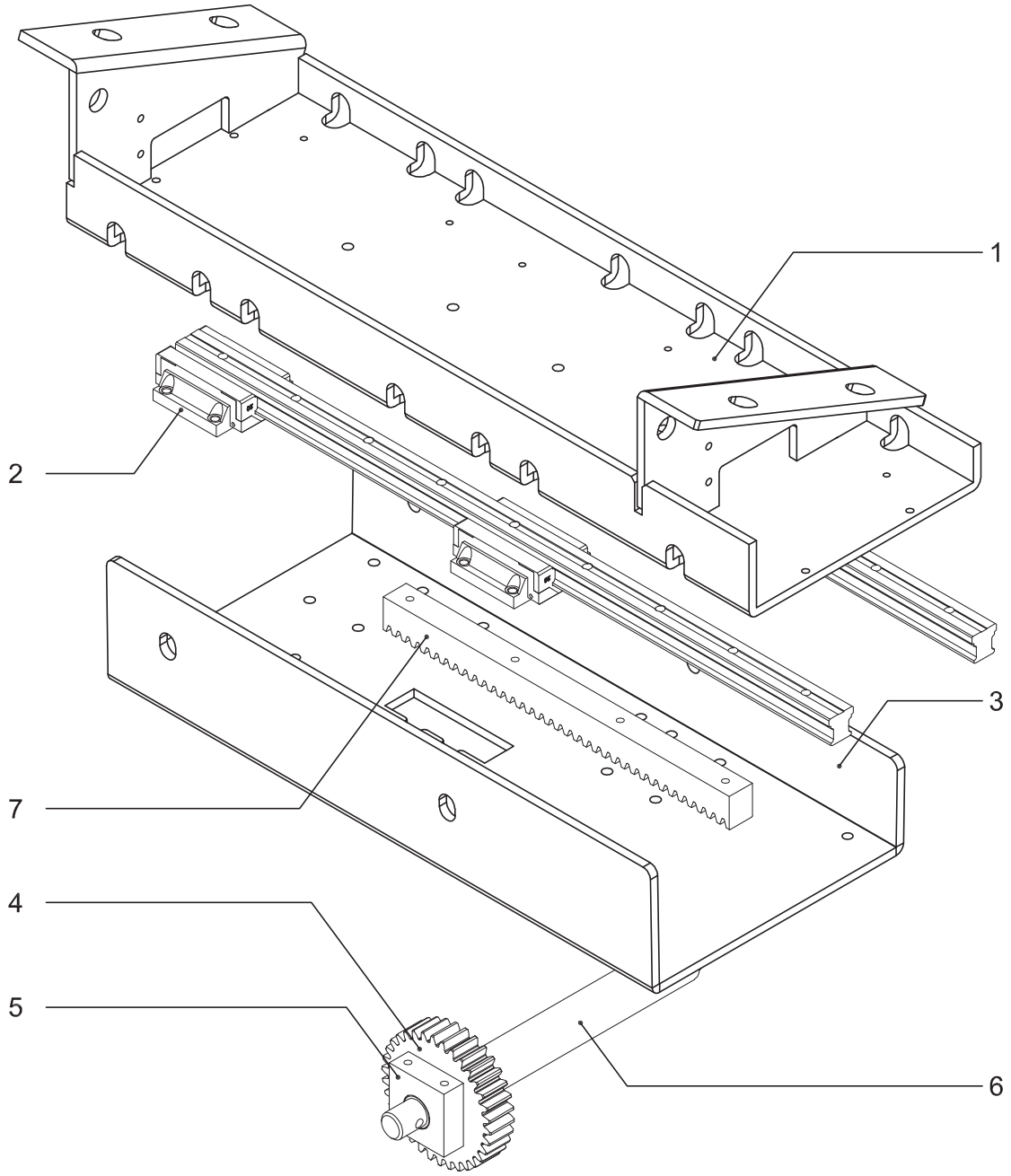
N.	Code	QTY	Denomination
1	AV51MZ4100	1	Plate
2	AV51MZ4800	2	Linear slide
3	AV51MZ5100	1	Plate
4	P35200600	1	Pinion 34T
5	AV51MZ5300	1	Anchor
6	AV51MZ5400	1	Arbor
7	AV51MZ5200	1	Gear rack
8	AV51MZ011A	1	Back tracking system





N.	Code	QTY	Denomination
1	AV51MZ5000	1	Plate
2	AV51MZ4100	1	Plate
3	AV51MZ4800	2	Linear slide
4	J310413	1	Switch
5	AV51MZ4900	1	Plate
6	AV51MZ010A	1	Front tracking system

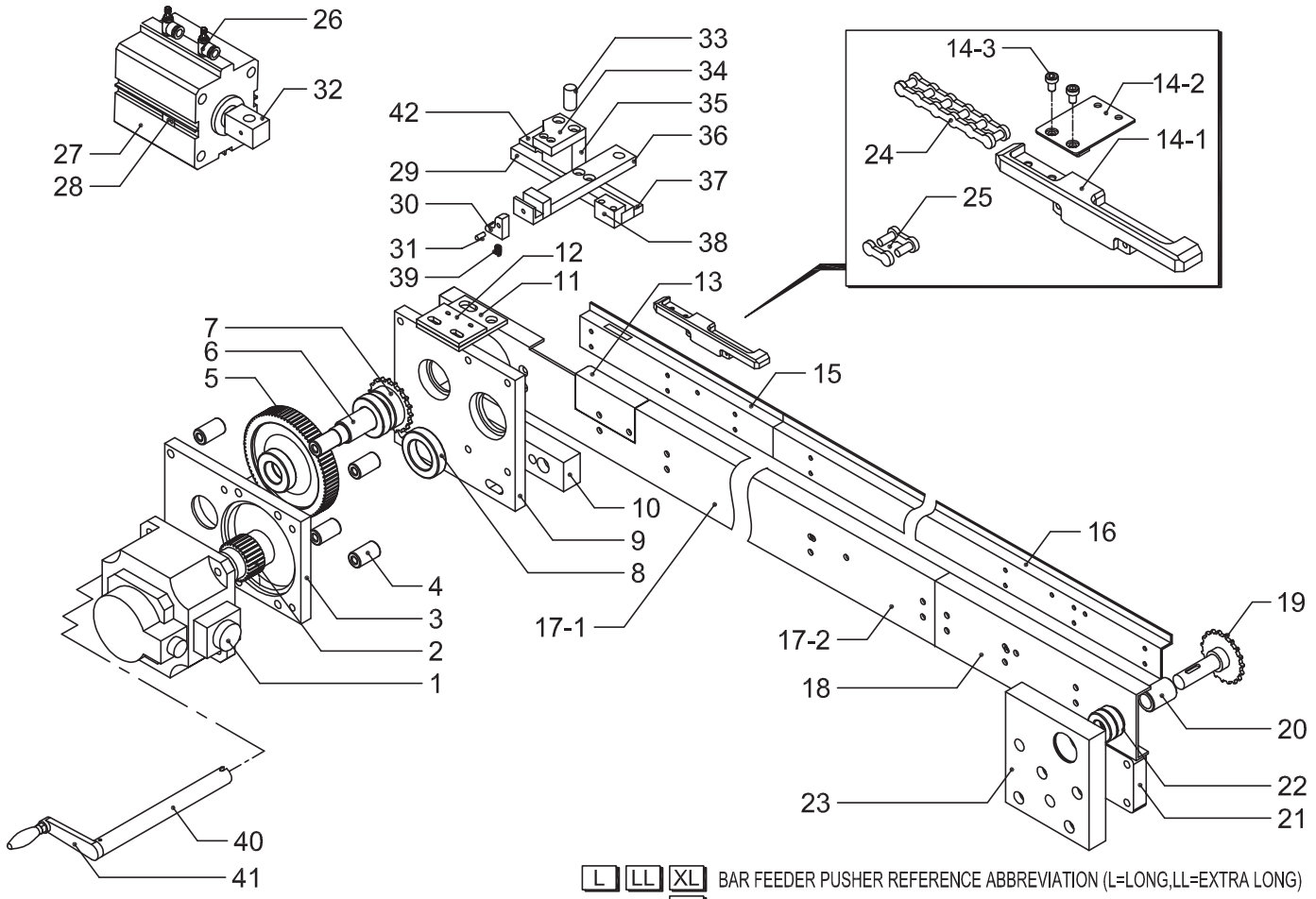




N.	Code	QTY	Denomination
1	AV51MZ4120	1	Plate
2	AV51MZ4800	2	Linear slide
3	AV51MZ5120	1	Plate
4	P35200600	1	Pinion 34T
5	AV51MZ5300	1	Anchor
6	AV51MZ5400	1	Arbor
7	AV51MZ5200	1	Gear rack
8	AV51MZ040A	1	Back tracking system

N.	Code	QTY L / LL	QTY XL	Denomination
1	J212060	1		Motor
2	AV51DR0503	1		Whorl pole 28T
3	AV51DR0404	1		Support
4	AV51DR0300	6		Pillar
5	AV51DR0100	1		Worm gear 80T
6	AV51DR0200	1		Whorl pole 19T
7	B6005ZZ	2		Bearing
8	B6907ZZ	1		Bearing
9	AV51DR0400	1		Support
10	AV51DR0600	1		Support
11	AV51DR1401	1		Sensor bracket
12	AV51DR1402	1		Bracket
13	AV51DR1300	1		Plate
14-1	AV51DR1500	1		Chain adjustable block
14-2	AV51PB1010	1		Prefeed pusher flag
14-3	AV51PB1020	2		Socket screw
15	AV51DR1100	1		Chain guide-3.7M L=1099
	AV51DR1106		1	Chain guide-3.7M L=1629
16	AV51DR1101	1		Chain guide-3.7M L=2930
17-1	AV51DR1000	1		Chain guide-3.7M L=951
	AV51DR1006		1	Chain guide-3.7M L=1491
17-2	AV51DR1005	1		Chain guide-3.7M L=2028
18	AV51DR1001	1		Chain guide-3.7M L=1215
19	AV51DR0700	1		Sprocket 39T
20	AV51DR0900	1		Spacer
21	AV51DR0801	1		Support
22	B6003ZZ	2		Bearing
23	AV51DR0810	1		Support
24	AV51DR2500	1		Chain-3.7M L=875P
	AV51DR2600		1	Chain-3.7M L=983P
25	AV51DR1800	2		Chain link 3/8"
26	A12131000	2		Adjustable valve JSC 8-03
27	A11131000	1		Cylinder SDAS 80x45
28	A12140501	1		Magnetic sensor LY-67A-5M
29	AV51GR4200	1		Slide block
30	AV51GR4500	1		CAM
31	AV51GR4700	1		Pin
32	AV51GR0800	1		Connector
33	AV51CH1701	1		Pillar
34	AV51GR4600	1		Extensive block

N.	Code	QTY L / LL	QTY XL	Denomination
35	AV51GR4300	1		Push block
36	AV51GR4400	1		OAM block
37	AV51GR3202	1		Guide block 2
38	AV51GR3201	1		Guide block
39	AV51GR5000	1		Spring
40	AV51MA3301	1		Screw
41	AV51MA3302	1		Handle
42	AV51GR4800	1		Push block plwnger



L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

37 BAR FEEDER MODEL ACCORDING TO THEMAX .

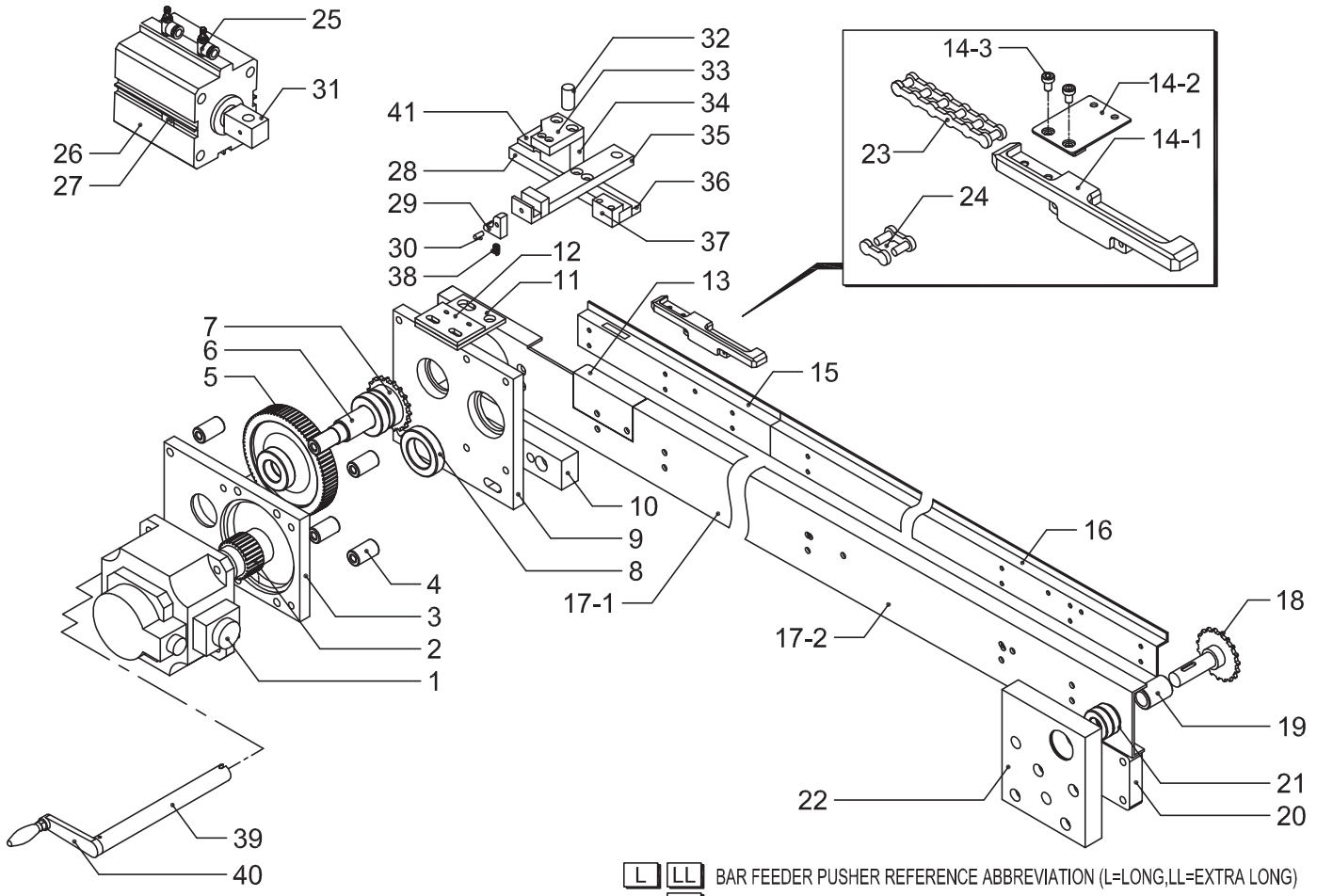
PATRIOT II

FEED MOTOR DRIVE 37

Tab. 050 1

N.	Code	QTY	Denomination
1	J212060	1	Motor
2	AV51DR0503	1	Whorl pole 28T
3	AV51DR0404	1	Support
4	AV51DR0300	6	Pillar
5	AV51DR0100	1	Worm gear 80T
6	AV51DR0200	1	Whorl pole 19T
7	B6005ZZ	2	Bearing
8	B6907ZZ	1	Bearing
9	AV51DR0400	1	Support
10	AV51DR0600	1	Support
11	AV51DR1401	1	Sensor bracket
12	AV51DR1402	1	Bracket
13	AV51DR1300	1	Plate
14-1	AV51DR1500	1	Chain adjustable block
14-2	AV51PB1010	1	Prefeed pusher flag
14-3	AV51PB1020	2	Socket screw
15	AV51DR1100	1	Chain guide L=1099
16	AV51DR1103	1	Chain guide-2.5M L=2830
17-1	AV51DR1008	1	Chain guide L=411
17-2	AV51DR1003	1	Chain guide-2.5M L=2584
18	AV51DR0700	1	Sprocket 39T
19	AV51DR0900	1	Spacer
20	AV51DR0801	1	Support
21	B6003ZZ	2	Bearing
22	AV51DR0800	1	Support
23	AV51DR2500	1	Chain-3.7M L=875P
24	AV51DR1800	2	Chain link 3/8"
25	A12131000	2	Adjustable valve JSC 8-03
26	A11131000	1	Cylinder SDAS 80x45
27	A12140501	1	Magnetic sensor LY-67A-5M
28	AV51GR4200	1	Slide block
29	AV51GR4500	1	CAM
30	AV51GR4700	1	Pin
31	AV51GR0800	1	Connector
32	AV51CH1701	1	Pillar
33	AV51GR4600	1	Extensive block
34	AV51GR4300	1	Push block
35	AV51GR4400	1	OAM block
36	AV51GR3202	1	Guide block 2
37	AV51GR3201	1	Guide block

N.	Code	QTY	Denomination
38	AV51GR5000	1	Spring
39	AV51MA3301	1	Screw
40	AV51MA3302	1	Handle
41	AV51GR4800	1	Push block plwnger



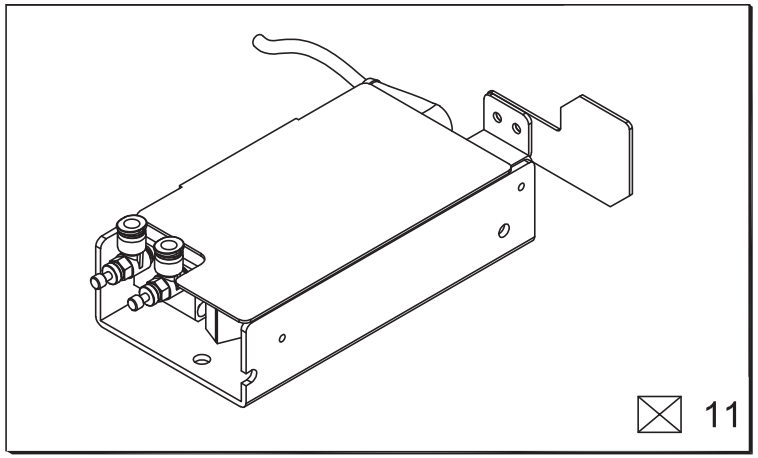
L LL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

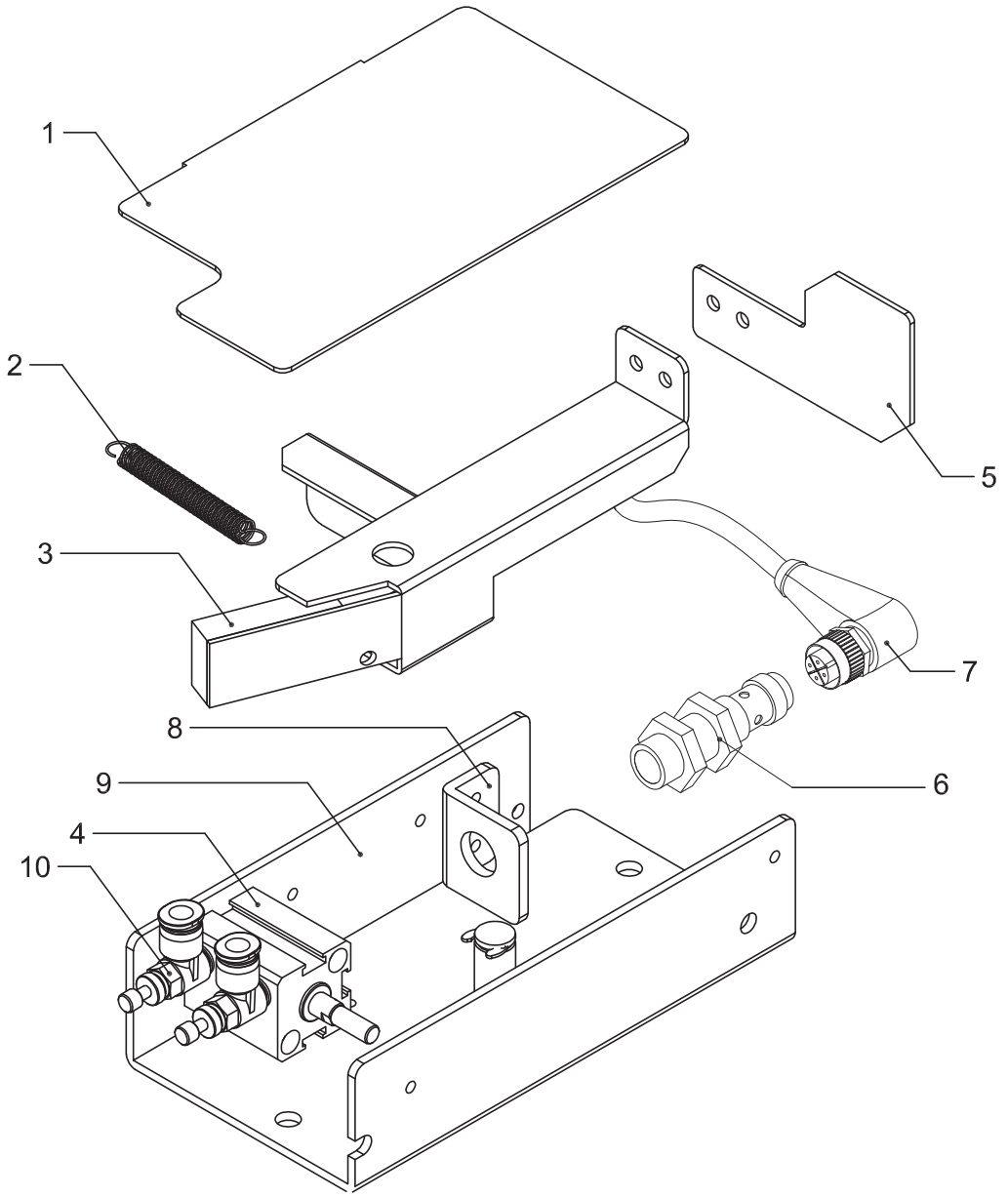
25 BAR FEEDER MODEL ACCORDING TO THEMAX .

PATRIOT II

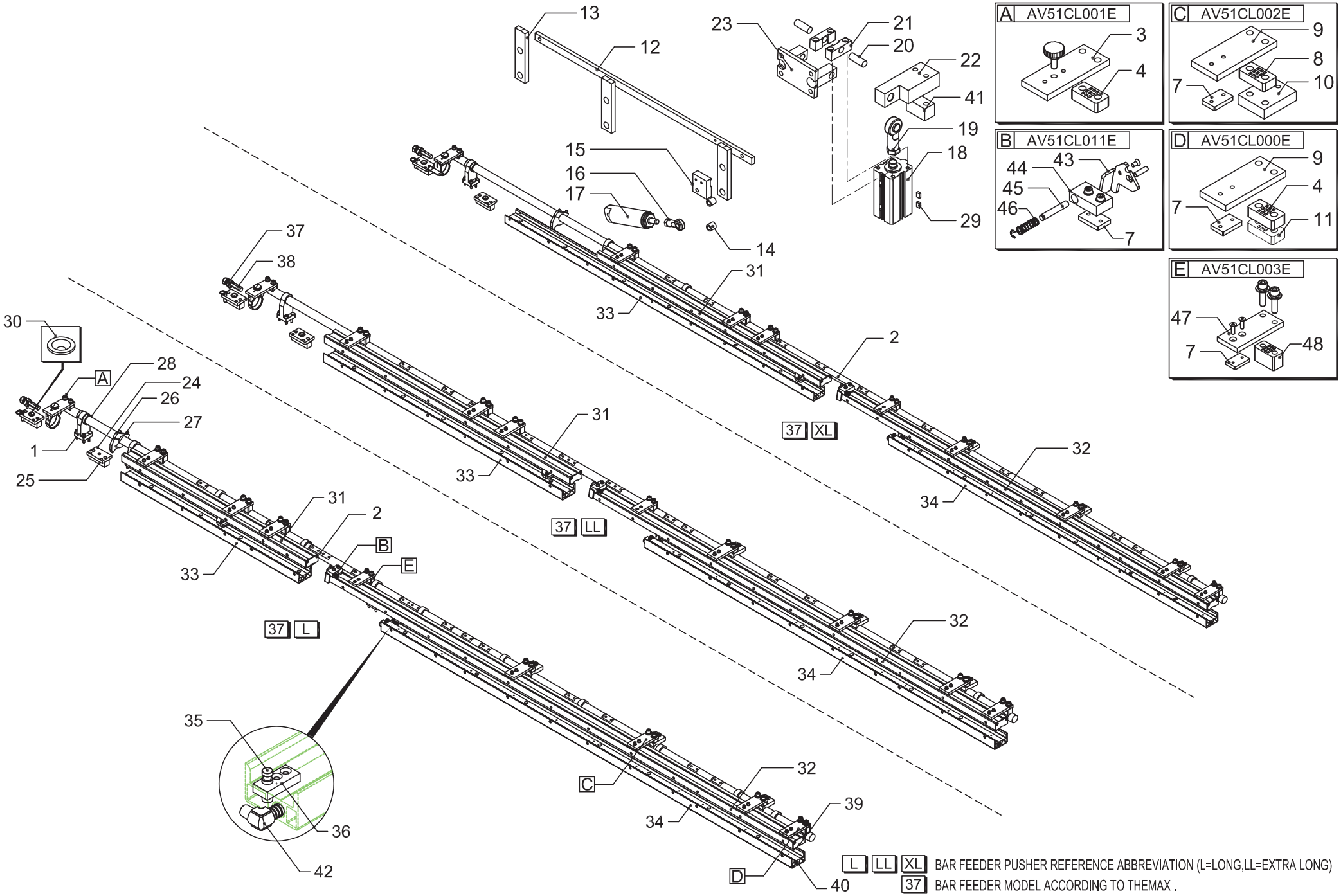
FEED MOTOR DRIVE 25

Tab. 051 1





N.	Code	QTY	Denomination
1	AV51FA0500	1	Cover
2	G92120600	1	Spring
3	AV51FA0200	1	Short feed door
4	A11130700	1	Cylinder SDA12x15
5	AV51FA0300	1	Flag
6	J312500	1	Microswitch
7	J312501	1	Microswitch Wire
8	AV51FA0400	1	Bracket
9	AV51FA0100	1	Housing
10	A12130300	2	Flow regulator JSC-M5
11	AV51FA000A	1	Cutting assembly



PATRIOT II

GUIDE CHANNEL SUPPORT 37

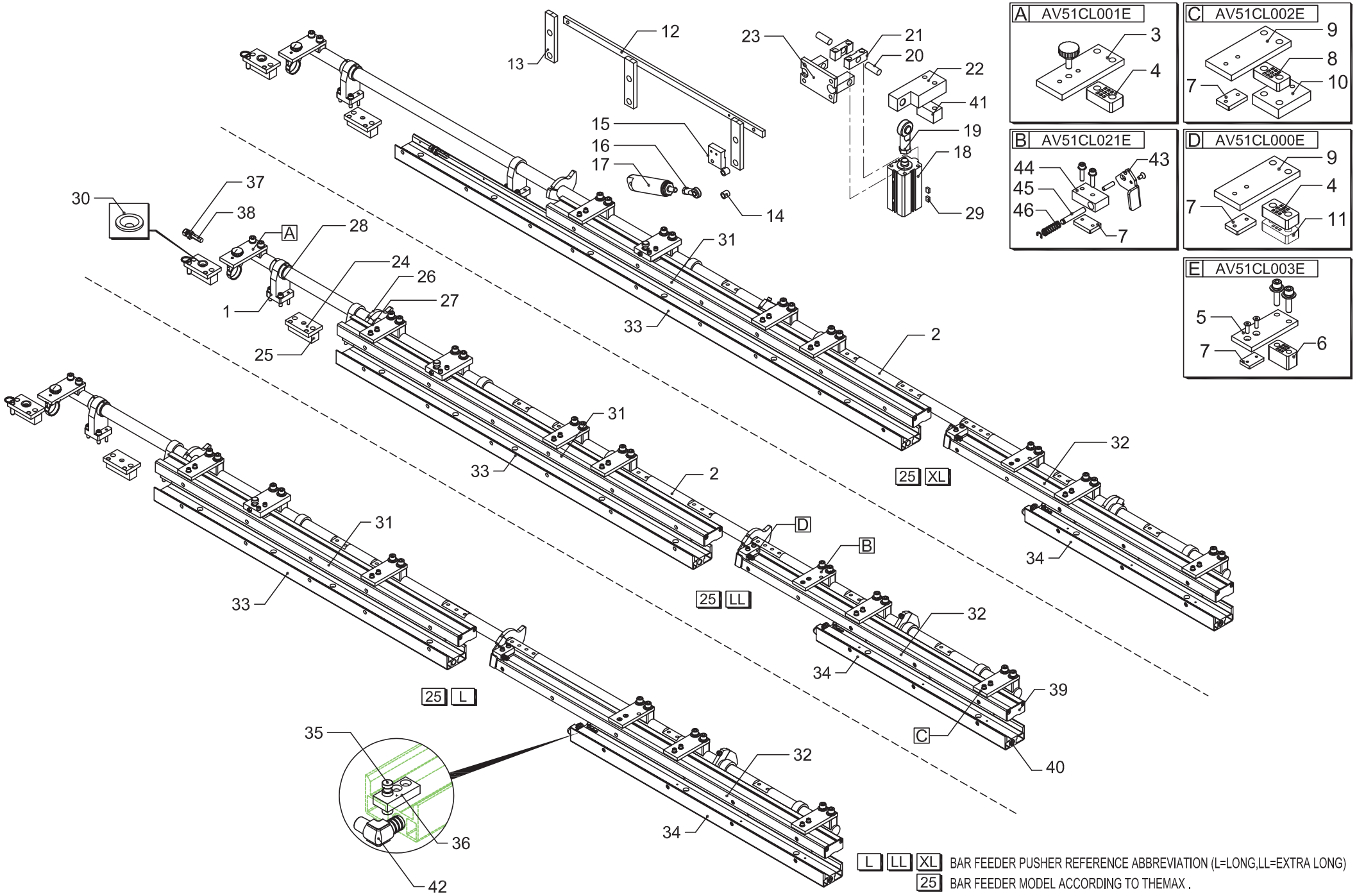
Tab. 070 3

N.	Code	QTY			Denomination
		L	LL	XL	
1	AV51CH0600	9			Support
2	AV51CH1537	1			Shaft L=4030
	AV51CH1538			1	Shaft L=4538
3	AV51CL1600	1			Support
4	AV51CH0910	7			Support
5	AV51CL1400	2			Support
6	AV51CL0700	2			Ping
7	AV51CL0900	9			Shim
8	AV51CL1700	5			Support
9	AV51CL1300	7			Support
10	AV51CH1000	3			Shim
11	AV51CL1900	4			Support
12	AV51CH1237	1			Connector rod
13	AV51CH1100	3			Support
14	AV51CH1600	6			Loop
15	AV51CH1300	1			Plate
16	BPHS10	1			Joint
17	A11111300	1			Cylinder MAL 32x40
18	A11130600	1			Cylinder SDAS 50x100B
19	BPHS18	1			Joint
20	AV51CH1701	2			Arbor
21	AV51CH1700	2			Support
22	AV51CH1900	1			Support
23	AV51CH1800	1			Cylinder anchor
24	AV51CH0500	2			Anchor
25	AV51CH0501	2			Anchor
26	AV51CH4100	3			Stopper holder
27	AV51CH4000	3			Stpper
28	AV51CH3700	2			Fixing ring
29	A12140501	2			Sensor switch LY-67A-5M
30	AV51CH3310	2			Fixed ring

N.	Code	QTY			Denomination
		L	LL	XL	
31	AV51CL1110	1			Aluminum batten L=990
	AV51CL1100		1		Aluminum batten L=1320
32	AV51CL1010	1			Aluminum batten L=2495
	AV51CL1000		1		Aluminum batten L=2165.4
33	AV51CL0210	1			Aluminum batten L=954
	AV51CL0220		1		Aluminum batten L=1284
	AV51CL0200			1	Aluminum batten L=1824
34	AV51CL0110	1			Aluminum batten L=2210
	AV51CL0100		1		Aluminum batten L=1880
35	AV51CL6400	1			Pin
36	AV51CL1800	1			Block
37	AV51BA3600	1			Screw
38	AV51GR4800	1			Block
39	AV51CL0800	2			Plate
40	A15120200	1			Plug
41	AV51CH0920	1			Spacer
42	A17140500	1			LFiting 3/8"*5/8"
43	AV51CL4400	1			Baffle
44	AV51CL4500	1			Quick Release Pressure Plate
45	AV51CL4200	1			Mandrel
46	AV51CL4300	1			Compression Spring
47	AV51CL0770	1			Quick Release Pressure Plate
48	AV51CL1700	1			Bushing

L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

37 BAR FEEDER MODEL ACCORDING TO THEMAX .



L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

25 BAR FEEDER MODEL ACCORDING TO THEMAX .

PATRIOT II

GUIDE CHANNEL SUPPORT 25

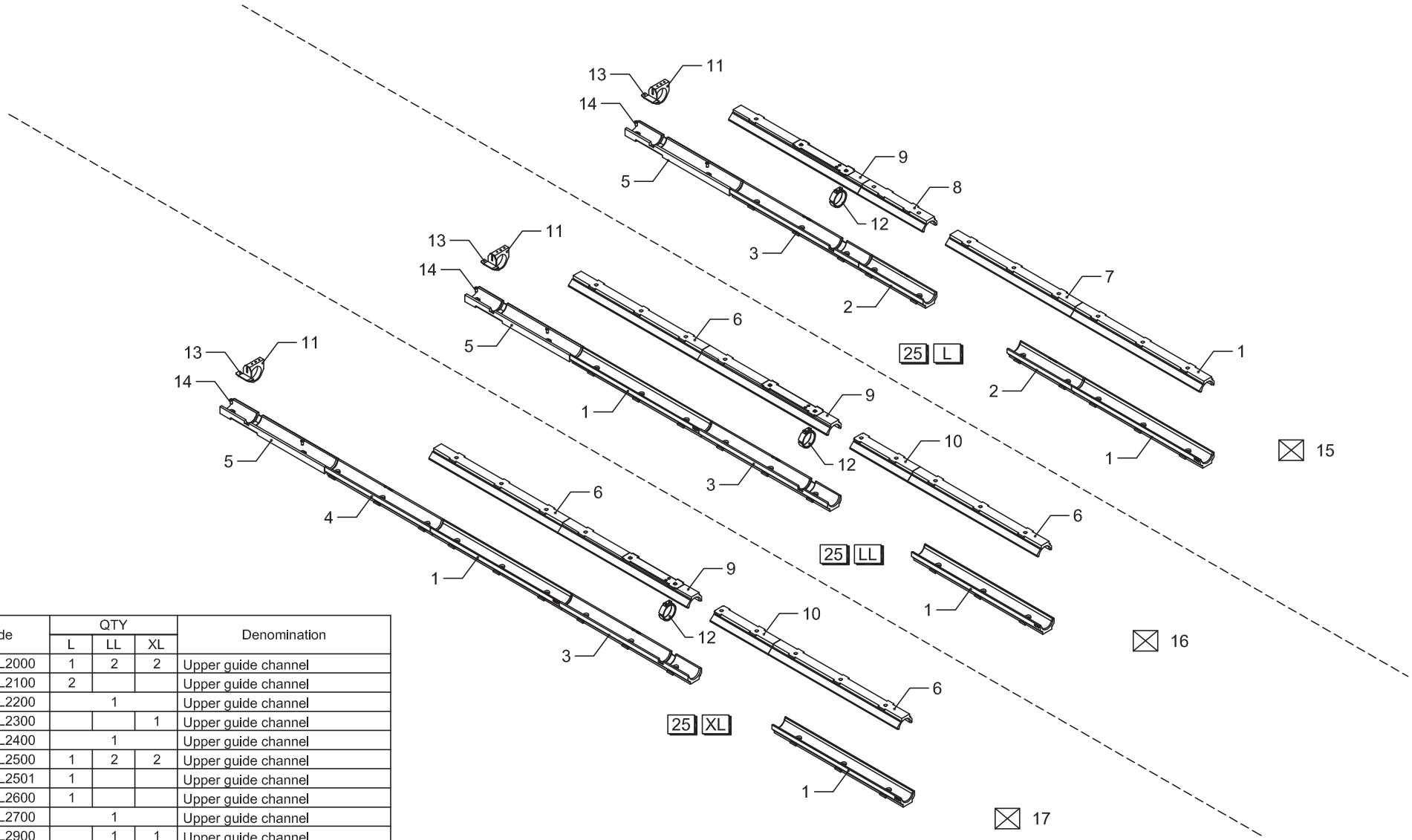
Tab. 071 3

N.	Code	QTY			Denomination
		L	LL	XL	
1	AV51CH0600		9		Support
2	AV51CH1525		1		Shaft L=2765
	AV51CH1527			1	Shaft L=3290
3	AV51CL1600		1		Support
4	AV51CH0910		7		Support
5	AV51CL1400		2		Support
6	AV51CL0700		2		Ping
7	AV51CL0900		7		Shim
8	AV51CL1900		2		Support
9	AV51CL1300		5		Support
11	AV51CL1900		5		Support
12	AV51CH1237		1		Connector rod
13	AV51CH1100		3		Support
14	AV51CH1600		6		Loop
15	AV51CH1300		1		Plate
16	BPHS10		1		Joint
17	A11111300		1		Cylinder MAL 32x40
18	A11130600		1		Cylinder SDAS 50x100B
19	BPHS18		1		Joint
20	AV51CH1701		2		Arbor
21	AV51CH1700		2		Support
22	AV51CH1900		1		Support
23	AV51CH1800		1		Cylinder anchor
24	AV51CH0500		2		Anchor
25	AV51CH0501		2		Anchor
26	AV51CH4100		3		Stopper holder
27	AV51CH4000		3		Stpper
28	AV51CH3700		2		Fixing ring
29	A12140501		2		Sensor switch LY-67A-5M
30	AV51CH3310		2		Fixed ring

N.	Code	QTY			Denomination
		L	LL	XL	
31	AV51CL1110	1			Aluminum batten L=990
	AV51CL1100		1		Aluminum batten L=1320
32	AV51CL1025	1			Aluminum batten L=1295
	AV51CL1050		1		Aluminum batten L=965
33	AV51CL0210	1			Aluminum batten L=954
	AV51CL0220		1		Aluminum batten L=1284
	AV51CL0200			1	Aluminum batten L=1824
34	AV51CL0125	1			Aluminum batten L=1100
	AV51CL0150		1		Aluminum batten L=680
35	AV51CL6400		1		Pin
36	AV51CL1800		1		Block
37	AV51BA3600		1		Screw
38	AV51GR4800		1		Block
39	AV51CL0800		2		Plate
40	A15120200		1		Plug
41	AV51CH0920		1		Spacer
42	A17140500		1		LFiting 3/8"*5/8"
43	AV51CL4400		1		Baffle
44	AV51CL4500		1		Quick Release Pressure Plate
45	AV51CL4200		1		Mandrel
46	AV51CL4300		1		Compression Spring
47	AV51CL0770		1		Quick Release Pressure Plate
48	AV51CL1700		1		Bushing

L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

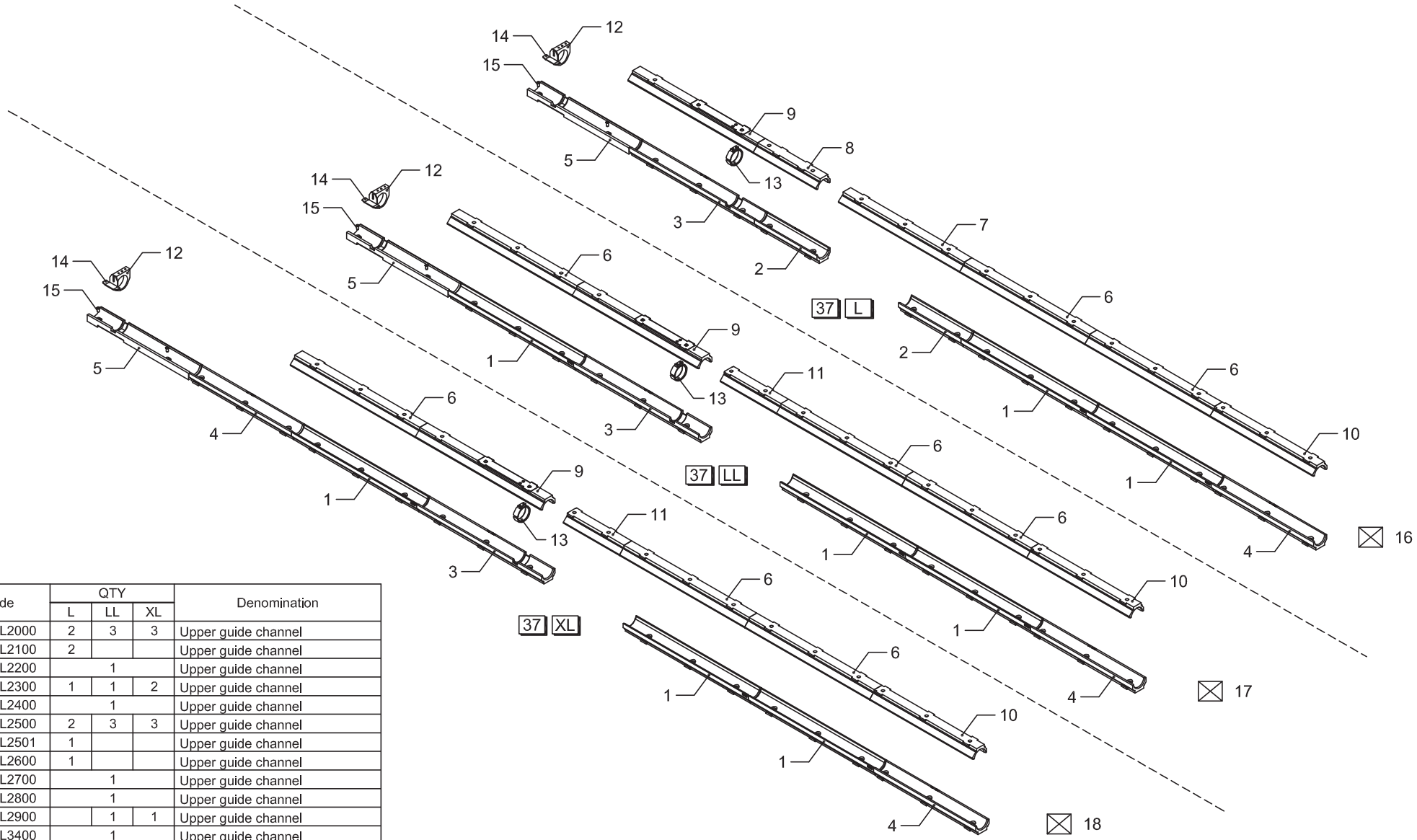
25 BAR FEEDER MODEL ACCORDING TO THEMAX .



N.	Code	QTY			Denomination
		L	LL	XL	
1	AV55CL2000	1	2	2	Upper guide channel
2	AV55CL2100	2			Upper guide channel
3	AV55CL2200	1			Upper guide channel
4	AV55CL2300			1	Upper guide channel
5	AV55CL2400	1			Upper guide channel
6	AV55CL2500	1	2	2	Upper guide channel
7	AV55CL2501	1			Upper guide channel
8	AV55CL2600	1			Upper guide channel
9	AV55CL2700	1			Upper guide channel
10	AV55CL2900		1	1	Upper guide channel
11	AV55CL3400	1			Upper guide channel
12	AV55CL3500	1			Support
13	AV51CH3600	1			Support
14	ZS0108161	2			very low head screw
15	AV55CL0025-L	1			Lower guide channel
16	AV55CL0025-LL	1			Lower guide channel
17	AV55CL0025-XL	1			Lower guide channel

L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

25 BAR FEEDER MODEL ACCORDING TO THEMAX .



N.	Code	QTY			Denomination
		L	LL	XL	
1	AV55CL2000	2	3	3	Upper guide channel
2	AV55CL2100	2			Upper guide channel
3	AV55CL2200	1			Upper guide channel
4	AV55CL2300	1	1	2	Upper guide channel
5	AV55CL2400	1			Upper guide channel
6	AV55CL2500	2	3	3	Upper guide channel
7	AV55CL2501	1			Upper guide channel
8	AV55CL2600	1			Upper guide channel
9	AV55CL2700	1			Upper guide channel
10	AV55CL2800	1			Upper guide channel
11	AV55CL2900		1	1	Upper guide channel
12	AV55CL3400	1			Upper guide channel
13	AV55CL3500	1			Support
14	AV51CH3600	1			Support
15	ZS0108161	2			very low head screw
16	AV55CL0037-L	1			Lower guide channel
17	AV55CL0037-LL	1			Lower guide channel
18	AV55CL0037-XL	1			Lower guide channel

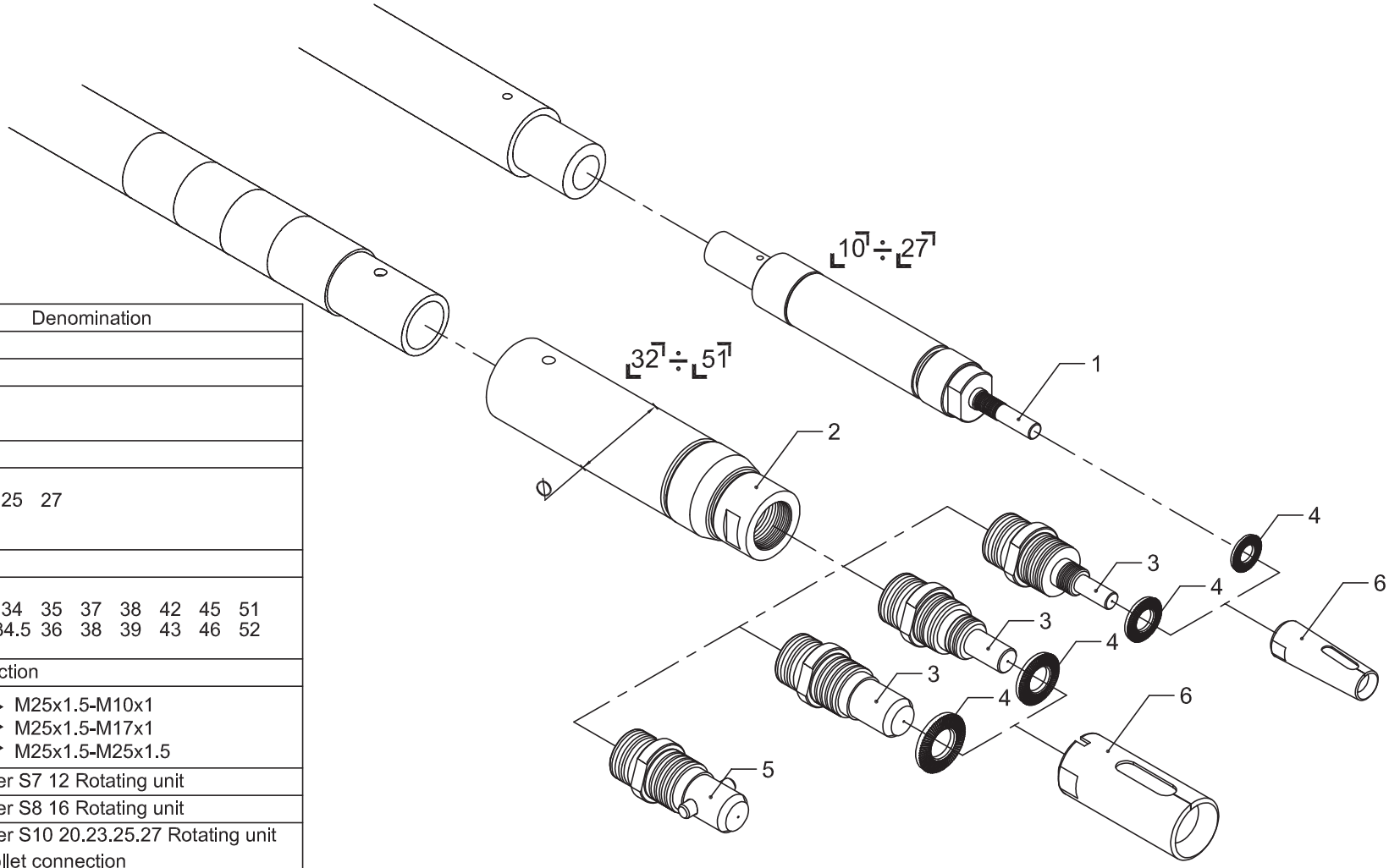
L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

37 BAR FEEDER MODEL ACCORDING TO THEMAX .

PATRIOT II

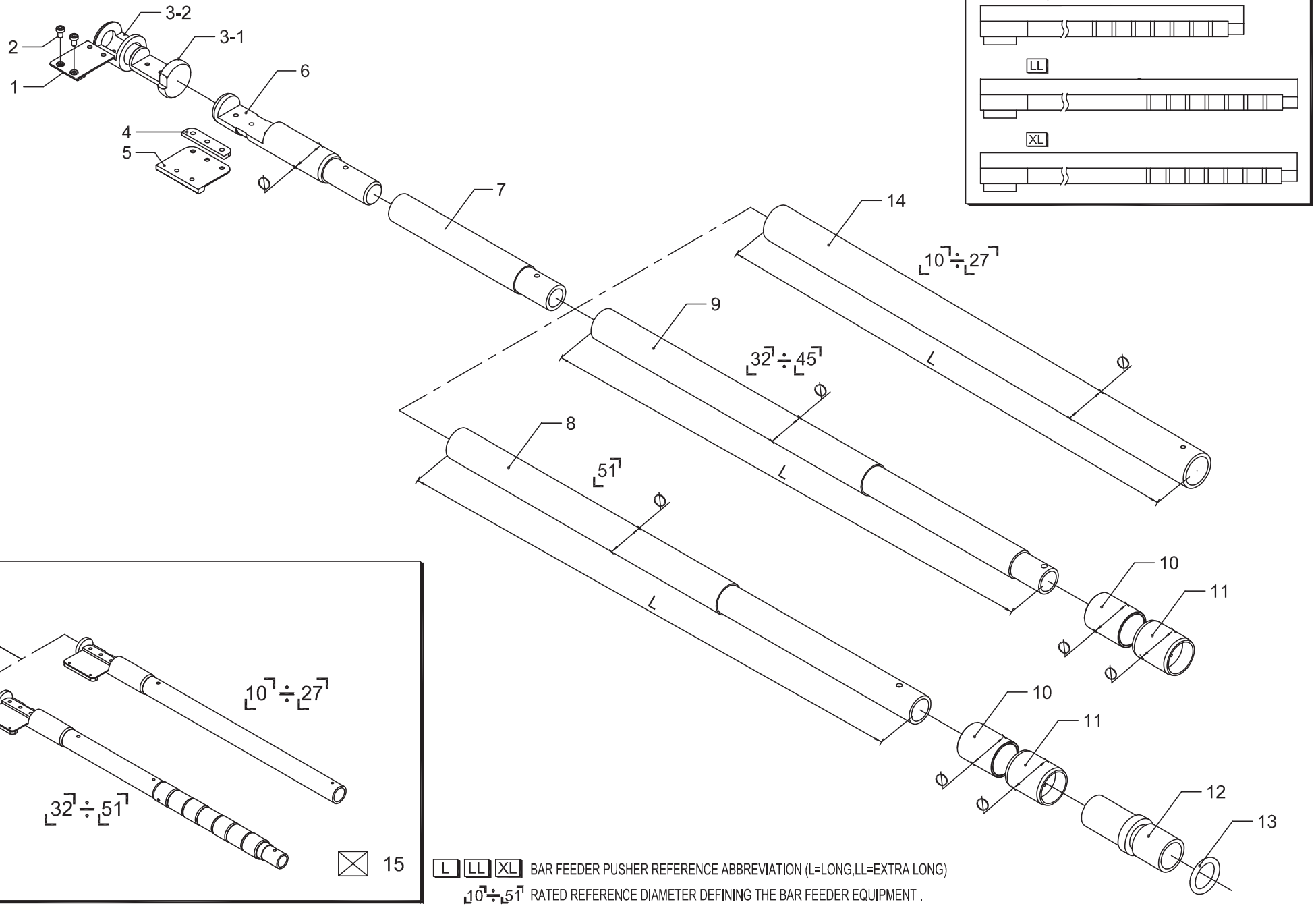
GUIDE CHANNEL 37

Tab. 083 1



N.	Code	QTY	Denomination
1	IE_0712000	1	Rotating unit
	IE_0816000	1	Rotating unit
	L : Left thread R : Right thread		
1	IE_10__000	1	Rotating unit
	NOMINAL DIAMETER D. → 20 25 27 L : Left thread R : Right thread		
2	IE_25__000	1	Rotating unit
	NOMINAL DIAMETER D. → 32 34 35 37 38 42 45 51 L : Left thread R : Right thread ØA 33 34.5 36 38 39 43 46 52		
3	IE_25520__	1	Collet connection
	10 → M25x1.5-M10x1 17 → M25x1.5-M17x1 25 → M25x1.5-M25x1.5 L : Left thread R : Right thread		
4	IEN0712001	1	Safety washer S7 12 Rotating unit
4	IEN0813001	1	Safety washer S8 16 Rotating unit
4	IEN1016001	1	Safety washer S10 20.23.25.27 Rotating unit M25-M10 Collet connection
4	IEN1724001	1	Safety washer S16 M25-M17 Collet connection
4	IEN2636001	1	Safety washer S24 M25-M25 Collet connection
5	IE_2552020	1	Grease nipple M25-Ø20
	L : Left thread R : Right thread		
6	IE_1020___	1	Bar collet
	EX:Ø12→120 ; Ø22.5→225 Out diameter The metric thread : M7, M8, M10, M17, M25 L : Left thread R : Right thread		

⌊10⌉÷⌊51⌉ RATED REFERENCE DIAMETER DEFINING THE BAR FEEDER EQUIPMENT .



L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

10÷51 RATED REFERENCE DIAMETER DEFINING THE BAR FEEDER EQUIPMENT .

PATRIOT II

BAR PUSHER DEVICE

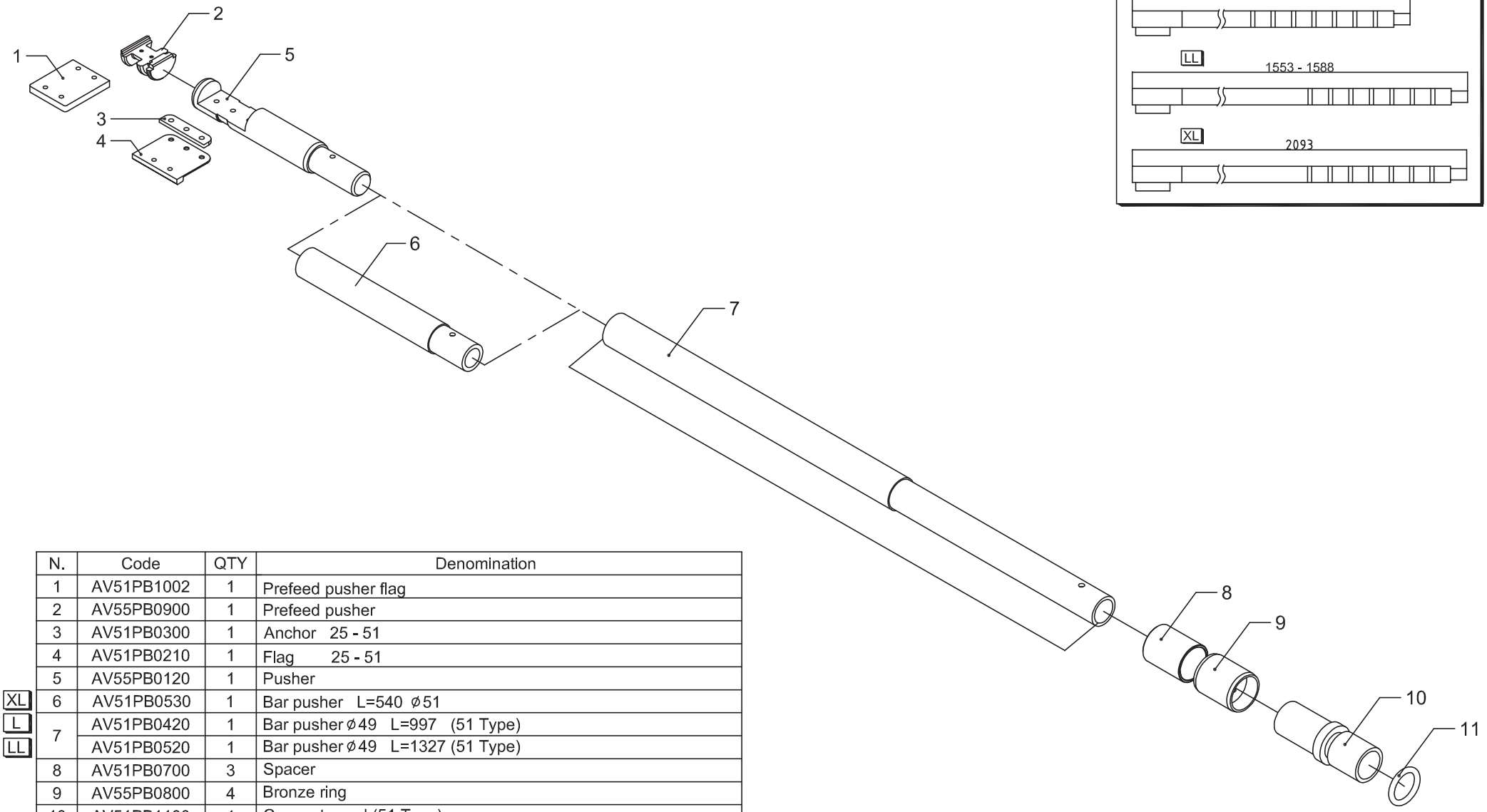
Tab. 092 2

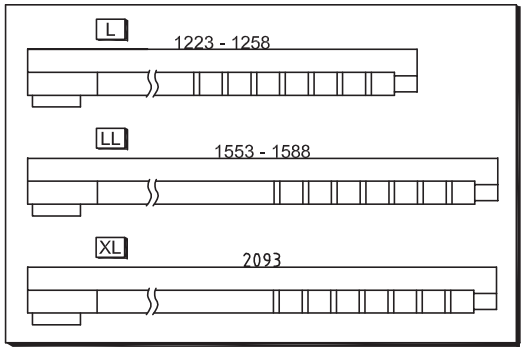
N.	Code	QTY	Denomination
1	AV51PB1010	1	Prefeed pusher flag
2	AV51PB1020	2	Socket screw
3-1	AV__PB0900	1	Prefeed pusher
	NOMINAL DIAMETER D. →		10 12 16 20 25 27 32 35 38 42 45 51
	Ø		10 12 16 20 25 27 32.5 35.5 38.5 42.5 45.5 51.5
3-2	AV__PB0901	1	Prefeed pusher casing
	NOMINAL DIAMETER D. →		35 38 42 45 51
	Ø		35.5 38.5 42.5 45.5 51.5
4	AV16PB0300	1	Anchor 10 - 16
	AV20PB0300	1	Anchor 18 - 20
	AV51PB0300	1	Anchor 25 - 51
5	AV20PB0210	1	Flag 10 - 20
	AV51PB0210	1	Flag 25 - 51
6	AV__PB0120	1	Pusher
	NOMINAL DIAMETER D. →		10 12 16 20 25 27 32 35 38 42 45 51
	Ø		10 12 16 20 25 27 32 35 38 42 45 51
XL 7	AV__PB0530	1	Bar pusher L=540
	NOMINAL DIAMETER D. →		10 12 16 20 25 27 32 35 38 42 45 51
	Ø		10 12 16 20 25 27 32 35 38 42 45 51
L 8	AV51PB0420	1	Bar pusher ø49 L=997 (51 Type)
LL 8	AV51PB0520	1	Bar pusher ø49 L=1327 (51 Type)
L 9	AV__PB0420	1	Bar pusher L=1061
LL 9	AV__PB0520	1	Bar pusher L=1391
	NOMINAL DIAMETER D. →		32 35 38 42 45
	Ø		30 33 36 40 43
10	AV__PB0700	3	Spacer
	NOMINAL DIAMETER D. →		32 35 38 42 45 51
	Ø		31.5 34 37 40 43 49
11	AV__PB0800	4	Bronze ring
	NOMINAL DIAMETER D. →		32 34 35 38 42 45 51
	Ø		31.5 34 34.5 38 41.5 44.5 51
12	AV51PB1100	1	Connector rod (51 Type)
13	AV51PB1200	1	Piston (51 Type)

N.	Code	QTY	Denomination
L 14	AV__PB0420	1	Bar pusher
LL 14	AV__PB0520	1	Bar pusher
XL 14	AV10PB0530	1	Bar pusher L=1960
	NOMINAL DIAMETER D. →		10 12 16 20 25 27
	Ø		10 11 15 18 23 24
15	AV__PB0040-__	1	Bar pusher device
	TYPE. →		L L LL LL XL XL
	NOMINAL DIAMETER D. →		10 12 16 20 25 27 32 35 38 42 45 51
	Ø		10 11 15 19 24 25 32 34.5 38 41.5 44.3 51

L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

10÷51 RATED REFERENCE DIAMETER DEFINING THE BAR FEEDER EQUIPMENT .





	N.	Code	QTY	Denomination
	1	AV51PB1002	1	Prefeed pusher flag
	2	AV55PB0900	1	Prefeed pusher
	3	AV51PB0300	1	Anchor 25 - 51
	4	AV51PB0210	1	Flag 25 - 51
	5	AV55PB0120	1	Pusher
XL	6	AV51PB0530	1	Bar pusher L=540 ø51
L	7	AV51PB0420	1	Bar pusher ø49 L=997 (51 Type)
LL		AV51PB0520	1	Bar pusher ø49 L=1327 (51 Type)
	8	AV51PB0700	3	Spacer
	9	AV55PB0800	4	Bronze ring
	10	AV51PB1100	1	Connector rod (51 Type)
	11	AV51PB1200	1	Piston (51 Type)
	12	AV55PB0020-__	1	Bar pusher device
	TYPE. →			L [L] LL [LL] XL [XL]

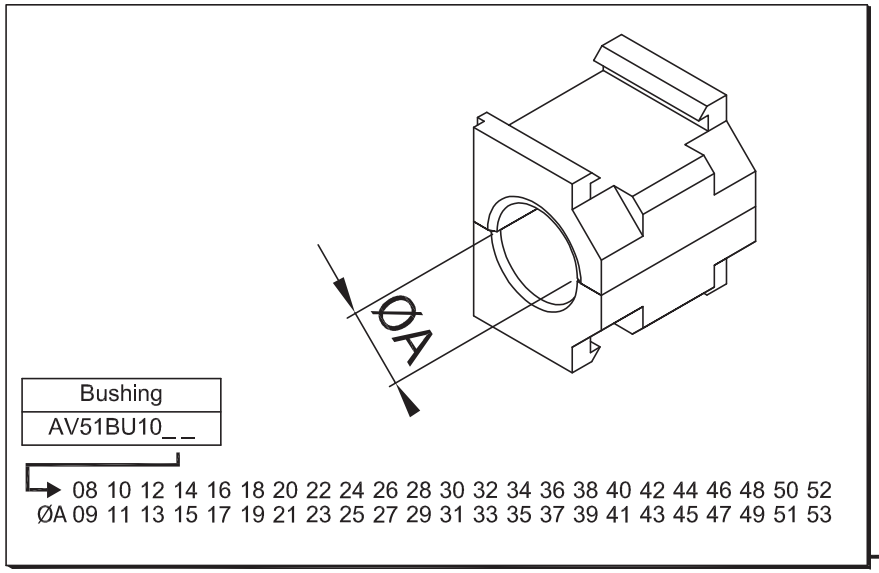
[L] [LL] [XL] BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

⌊10⌉÷⌊51⌉ RATED REFERENCE DIAMETER DEFINING THE BAR FEEDER EQUIPMENT .

PATRIOT II

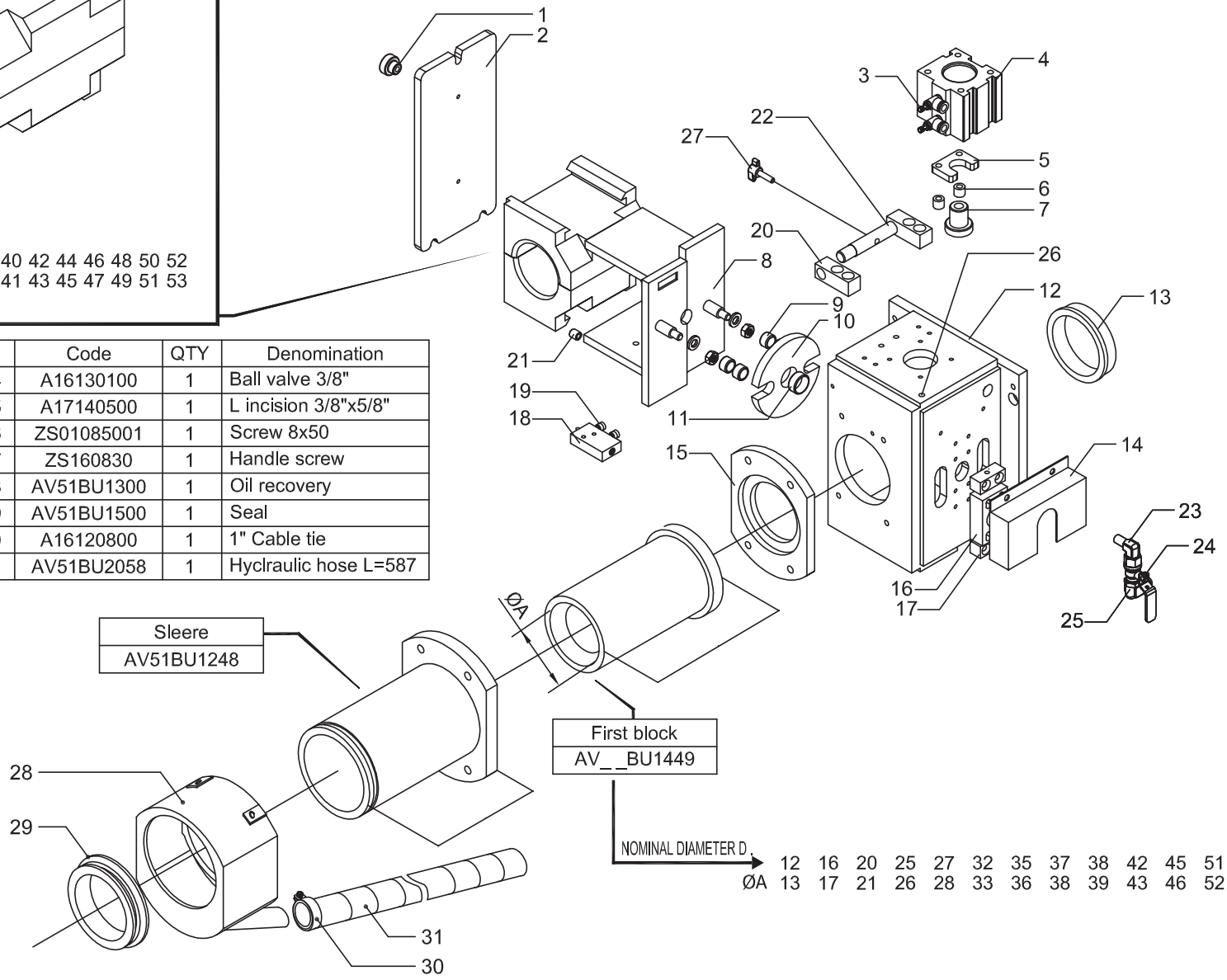
BAR PUSHER DEVICE [55]

Tab. 093 1



N.	Code	QTY	Denomination
1	G53120900	1	Screw
2	AV51BU0410	1	Plate
3	A12130800	2	Connection
4	A11131800	1	Cylinderr SDA 50x30
5	AV51BU0900	1	Support
6	AV51BU1600	2	Bushing
7	AV51BU0810	1	Ring
8	AV51BU0310	2	Slide
9	BIRT1220	2	Bearing
10	AV51BU0100	1	Support
11	BCB852010	1	Bearing
12	AV51BU0220	1	Case
13	AV51BU0500	1	Ring
14	AV51BU0700	1	Cover
15	AV51BU1100	1	Flange
16	AV51BU1800	1	Oil hose holder
17	AV51BU1900	2	Adjuster
18	A12120800	1	Valve
19	A13110800	2	Straight connector SPC 8-01
20	AV51BU2300	2	Block
21	AV51BU0430	2	Gasket
22	AV51BU2400	1	Shaft
23	A17110200	1	Connector 1/4"x3/8"

N.	Code	QTY	Denomination
24	A16130100	1	Ball valve 3/8"
25	A17140500	1	L incision 3/8"x5/8"
26	ZS01085001	1	Screw 8x50
27	ZS160830	1	Handle screw
28	AV51BU1300	1	Oil recovery
29	AV51BU1500	1	Seal
30	A16120800	1	1" Cable tie
31	AV51BU2058	1	Hyclraulic hose L=587

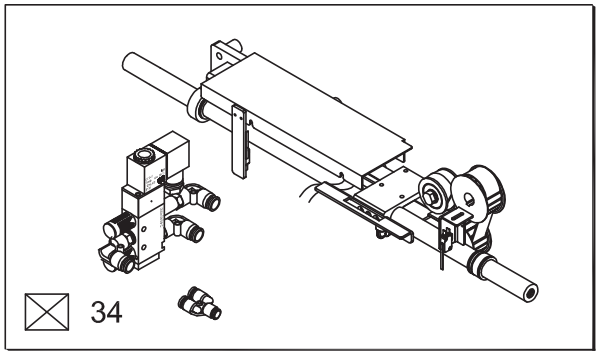


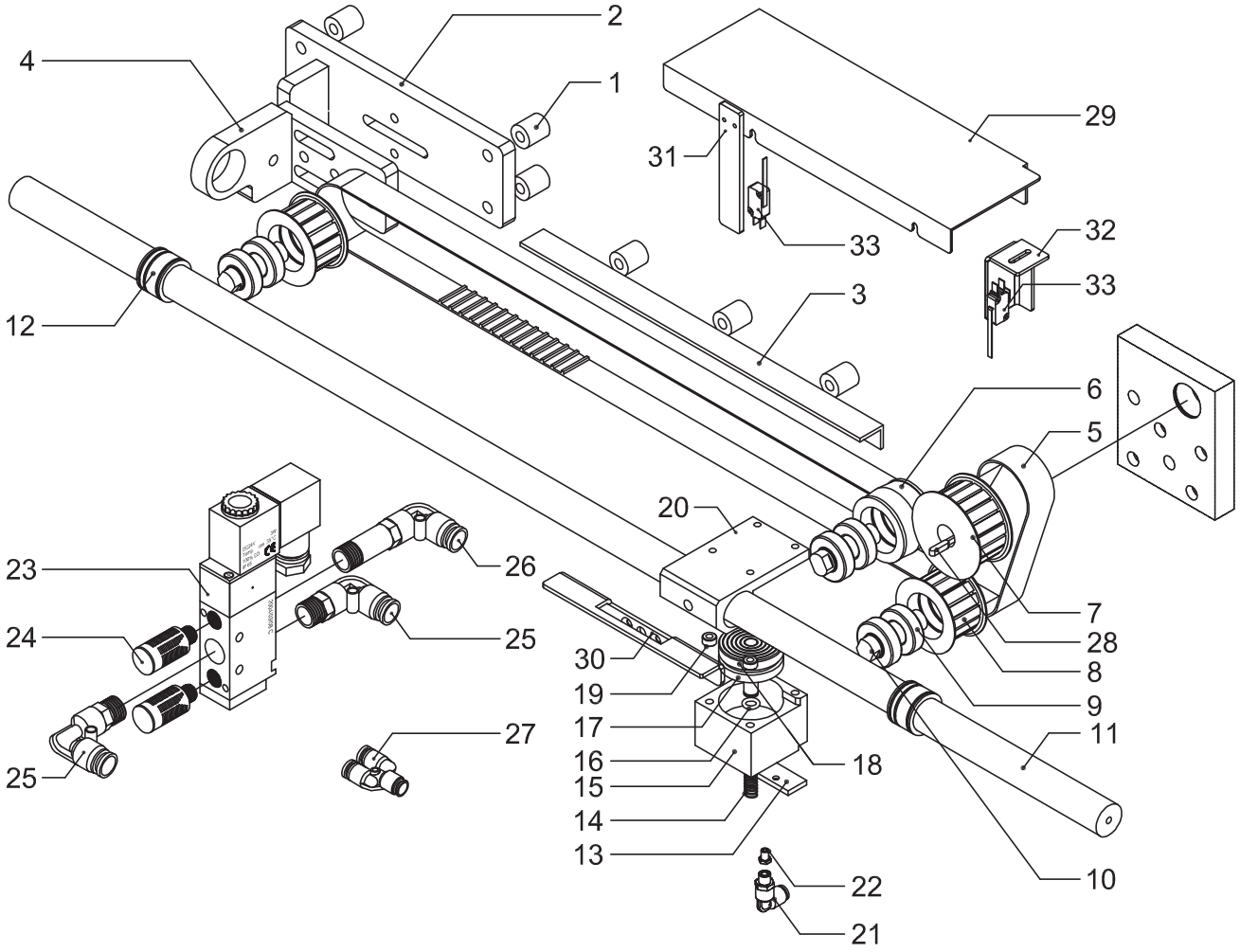
PATRIOT II

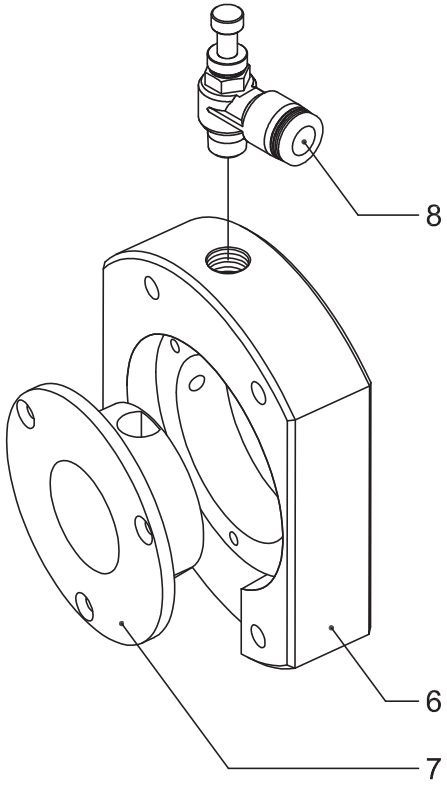
FIRST ANTI-VIBRATION DEVICE AND FIXED FRONT NOSE

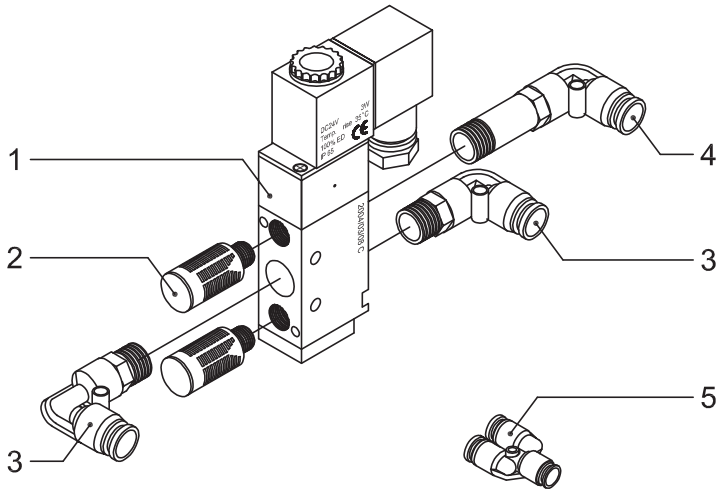
Tab. 100 1

N.	Code	QTY	Denomination
1	AV51SY1000	7	Bushing
2	AV51SY0600	1	Plate
3	AV51SY1410	1	Profile
4	AV51SY0500	1	Support
5	AV51SY1810	1	Toothed belt
6	AV51SY0100	1	Roller
7	AV51SY0300	1	Pulley 19T
8	AV51SY0400	2	Pulley 16T
9	B6003ZZ	6	Bearing
10	AV51SY0200	3	Pin
11	AV51SY0901	1	Shaft
12	AV51SY0800	1	Bronze ring
13	AV51SY1200	1	Guide
14	AV51SY1700	1	Spring
15	AV51SY1300	1	Jacket
16	AV51SY2010	1	Seal
17	AV51SY1510	1	Piston
18	AV51SY1910	1	Seal
19	AV51SY1100	2	Spacer
20	AV51SY0700	1	Support
21	A13121300	1	Bended connector SHP 8-01
22	A15120300	1	Copper connector 1/8" x 1/8"
23	A12120100	1	Electro valve
24	A14110200	2	Silencer
25	A13120500	2	Bended connector SPL 8-02 Ø8
26	A13120501	1	Bended connector SPLL 8-02 Ø8
27	A13130400	1	Three port Y type SPY-8 Ø8
28	ZS06050520	1	Double round key5x5x20
29	AV51SY3400	1	SHROUD DX
30	ADP779810026	1	Action Frame
31	ADP779810027	1	Frame-2
32	ADP779810028	1	Frame-1
33	J310419	2	LIMIT SWITCH V-15-1A5
34	AV51SY0040	1	Sychronization device









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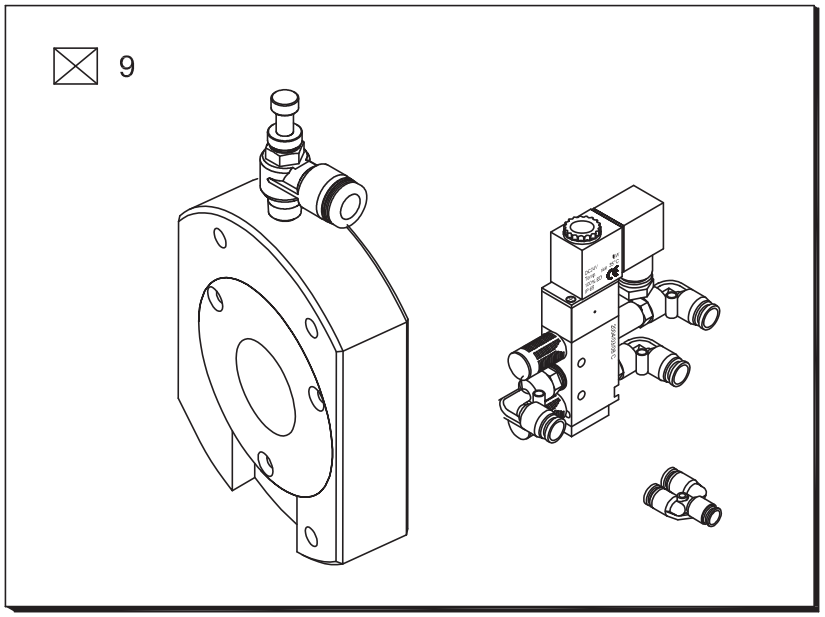
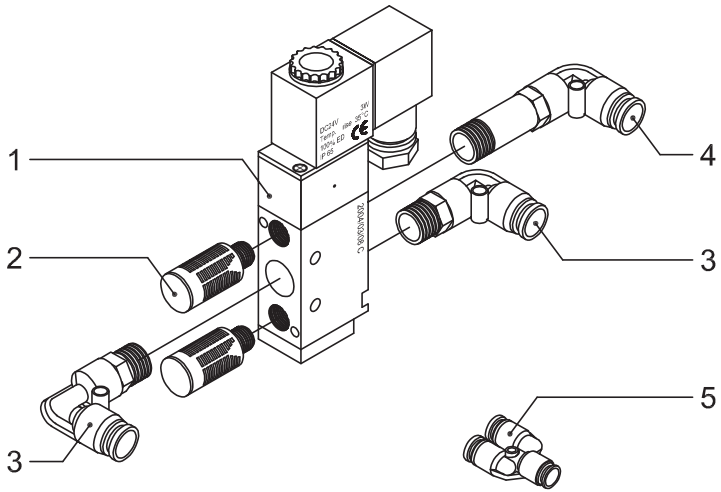
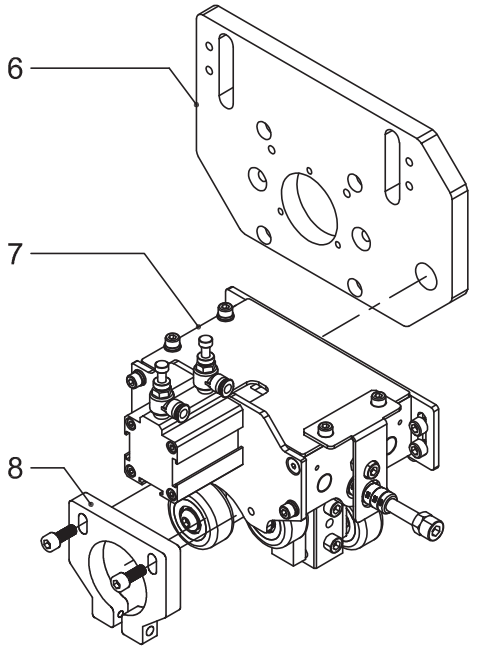


N.	Code	QTY	Denomination
1	A12120100	1	Solenoid valve
2	A14110200	2	Silencer
3	A13120500	2	Bended connector SPL 8-02 Ø8
4	A13120501	1	Bended connector SPLL 8-02 Ø8
5	A13130400	1	Three port Y type SPY-8 Ø8
6	AV51TE1001	1	Housing
7	AV51TE1101	1	Flange
8	A12130901	1	Air Control valve JSC8 1/4",Ø8
9	AV51RE0001	1	Oil Recovery





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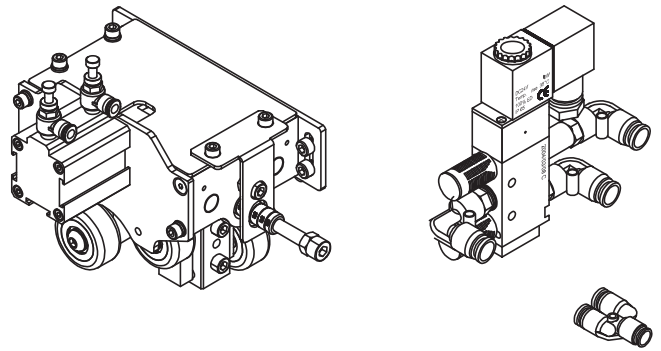
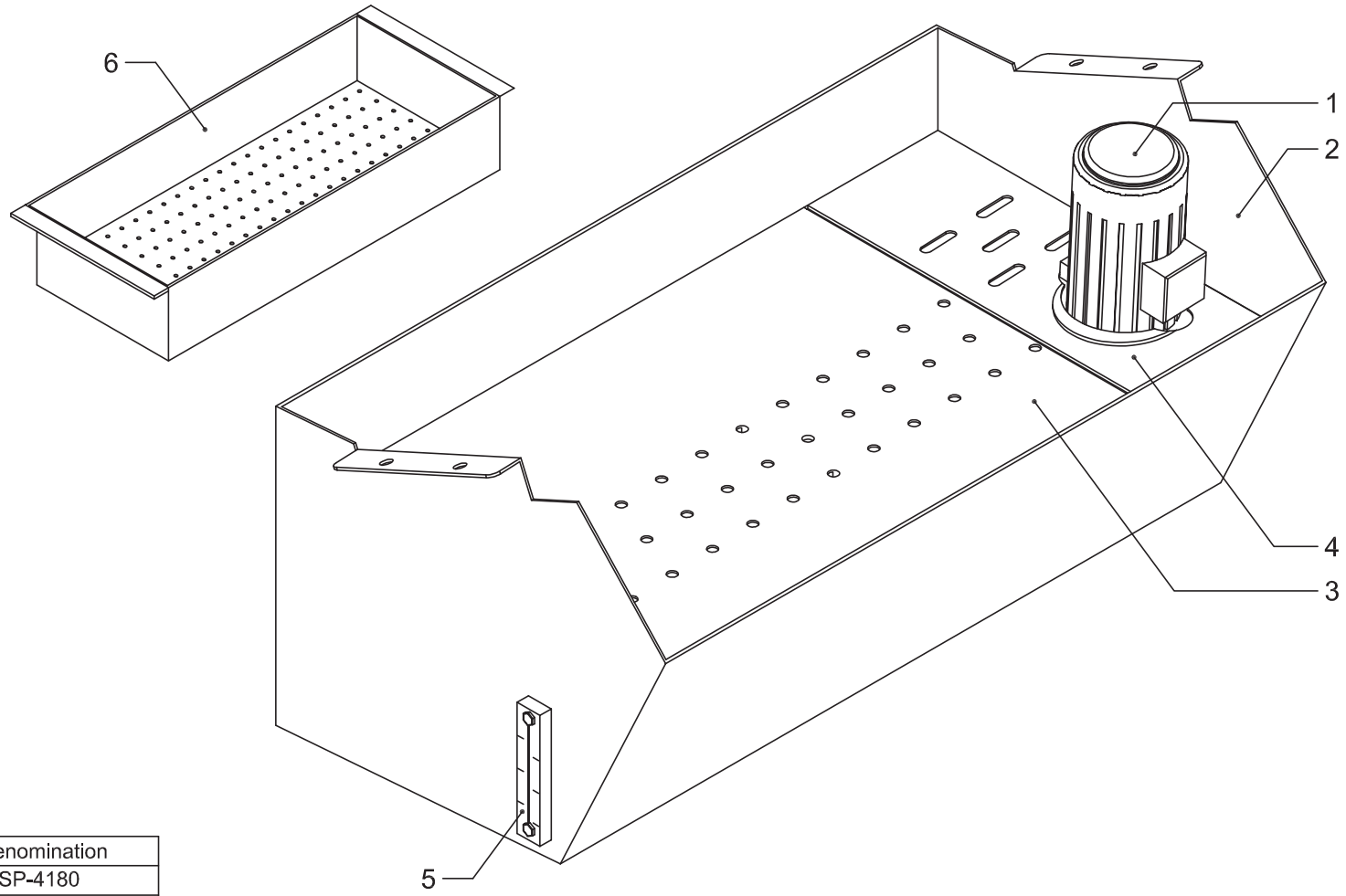


N.	Code	QTY	Denomination
1	A12120100	1	Electro valve
2	A14110200	2	Silencer
3	A13120500	2	Bended connector SPL 8-02 Ø8
4	A13120501	1	Bended connector SPLL 8-02 Ø8
5	A13130400	1	Three port Y type SPY-8 Ø8
6	AV51MO1300	1	Plate
7	AV51MO000A	1	Anti-vibraion device
8	AV37TE0700	1	Clamp
9	AV51MO1002	1	Movable anti-vibration + Solenoid valve



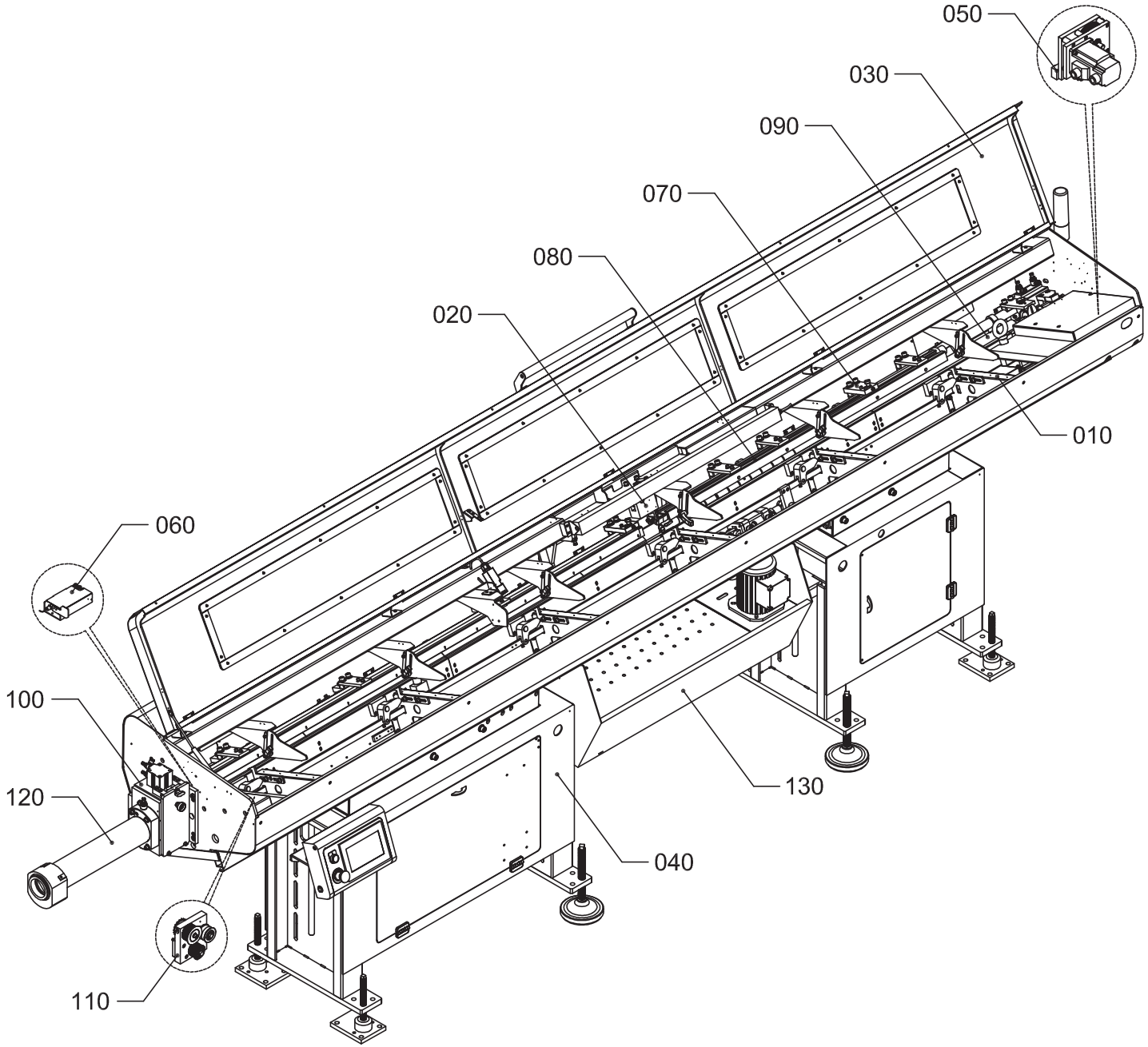
N.	Code	QTY	Denomination
1	AV51OL0900	1	Pump SP-4180
2	AV51OL0100	1	Oil tank
3	AV51OL0200	1	Cover
4	AV51OL0240	1	Cover
5	A16110100	1	Oil meter
6	AV51OL0400	1	Remnan tank

PATRIOT II

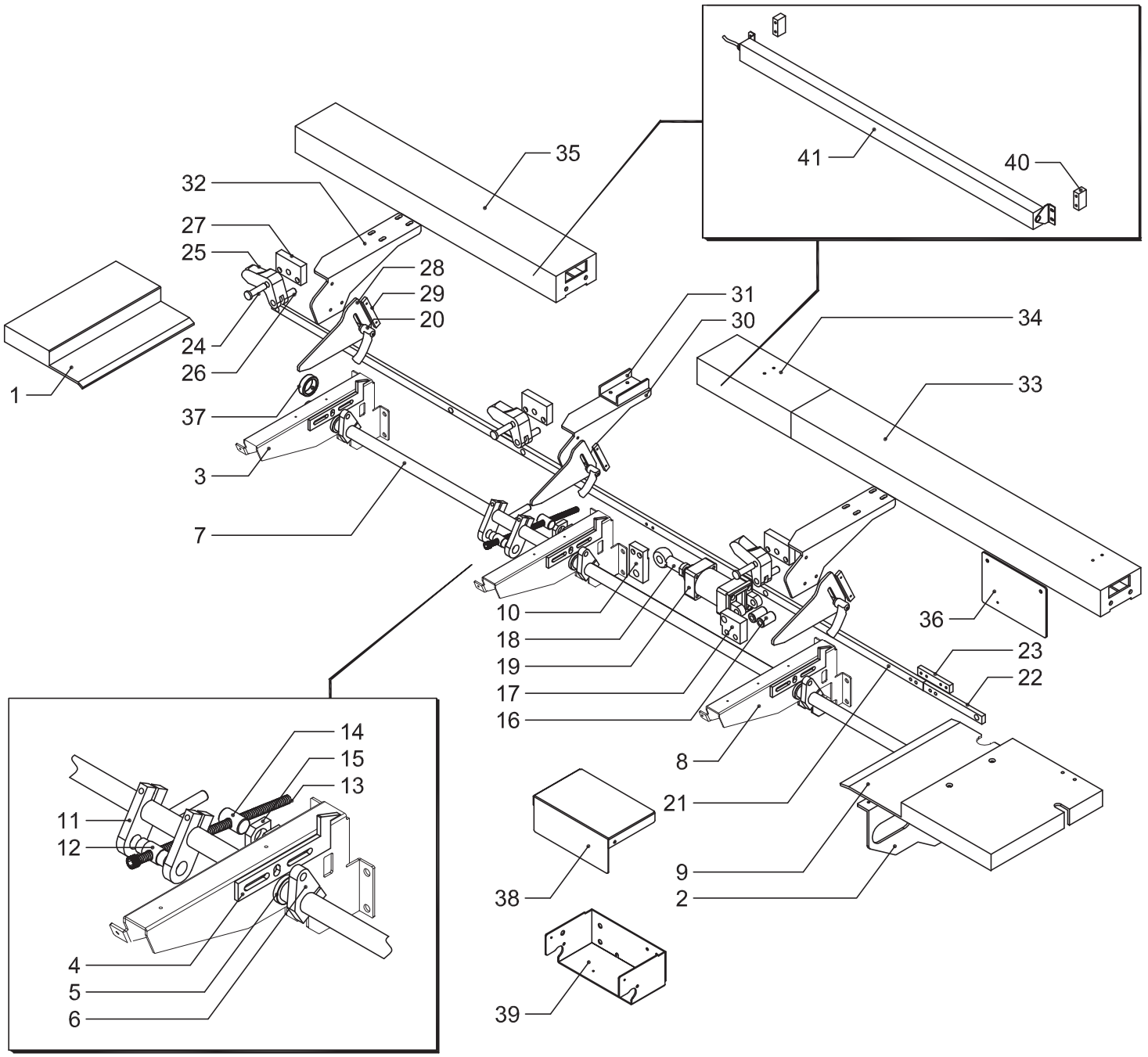
OIL TANK

Tab. 130 1

010	FRAME DEVICE
020	CLAMPING
030	COVER
040	BASES AND BEAM
050	FEED MOTOR DRIVE
060	CUTTING DEVICE
070	GUIDE CHANNEL SUPPORT
080	GUIDE CHANNEL
090	BAR PUSHER DEVICE
100	FIRST ANTI-VIBRATION DEVICE AND FIXED FRONT NOSE
110	SYCHRONIZATION DEVICE
120	TELESCOPIC FRONT NOSE
130	OIL TANK



N.	Code	QTY	Denomination
1	AV51MA2400	1	Support
2	AV51MA2300	1	Plate
3	AV51MA0110	5	Support
4	AV51MA0200	6	Plate
5	AV51MA1800	6	Collet
6	AV51MA0300	6	Plate
7	AV51MA1637	1	Arbor-3.7M L=3400mm
8	AV51MA0120	1	Support
9	AV51MA2210	1	Support
10	AV51MA0800	1	Anchor
11	AV51MA1100	2	Plate
12	AV51MA1200	1	Arbor
13	ZS011212001	1	Cap screw
14	AV51MA1700	1	Arbor
15	AV51MA0701	2	Plate
16	AV51MA0901	2	Extension bar
17	AV51MA0900	1	Support
18	BPHS16	1	Joint
19	A11150500	1	Cylinder SC-63x25-CB
20	AV51MA2600	6	Adjustable handle
21	AV51MA1032	1	Pull rod-3.7M L=2725mm
22	AV51MA1037	1	Pull rod-3.7M L=605mm
23	AV51MA1001	1	Connector rod-3.7M
24	AV51MA0600	6	Arbor
25	AV51MA0500	6	Hook
26	AV51MA0601	6	Lever
27	AV51MA0400	6	Support
28	PG38MA0900	6	Plate
29	AV51MA1500	6	Leaf
30	AV51MA1303	1	Plate
31	AV51MA1302	1	Shim
32	AV51MA1300	5	Plate
33	AV51MA2020	1	Tube-3.7M L=1888mm
34	AV51MA2100	1	Tube L=328mm
35	AV51MA1910	1	Tube L=1398mm
36	AV51MA2700	1	Plate
37	AV51MA3100	1	Ring
38	AV51MA3800	1	Support
39	AV51MA3700	1	Support
40	AV51MA3900	2	Support
41	J630120	1	LED light



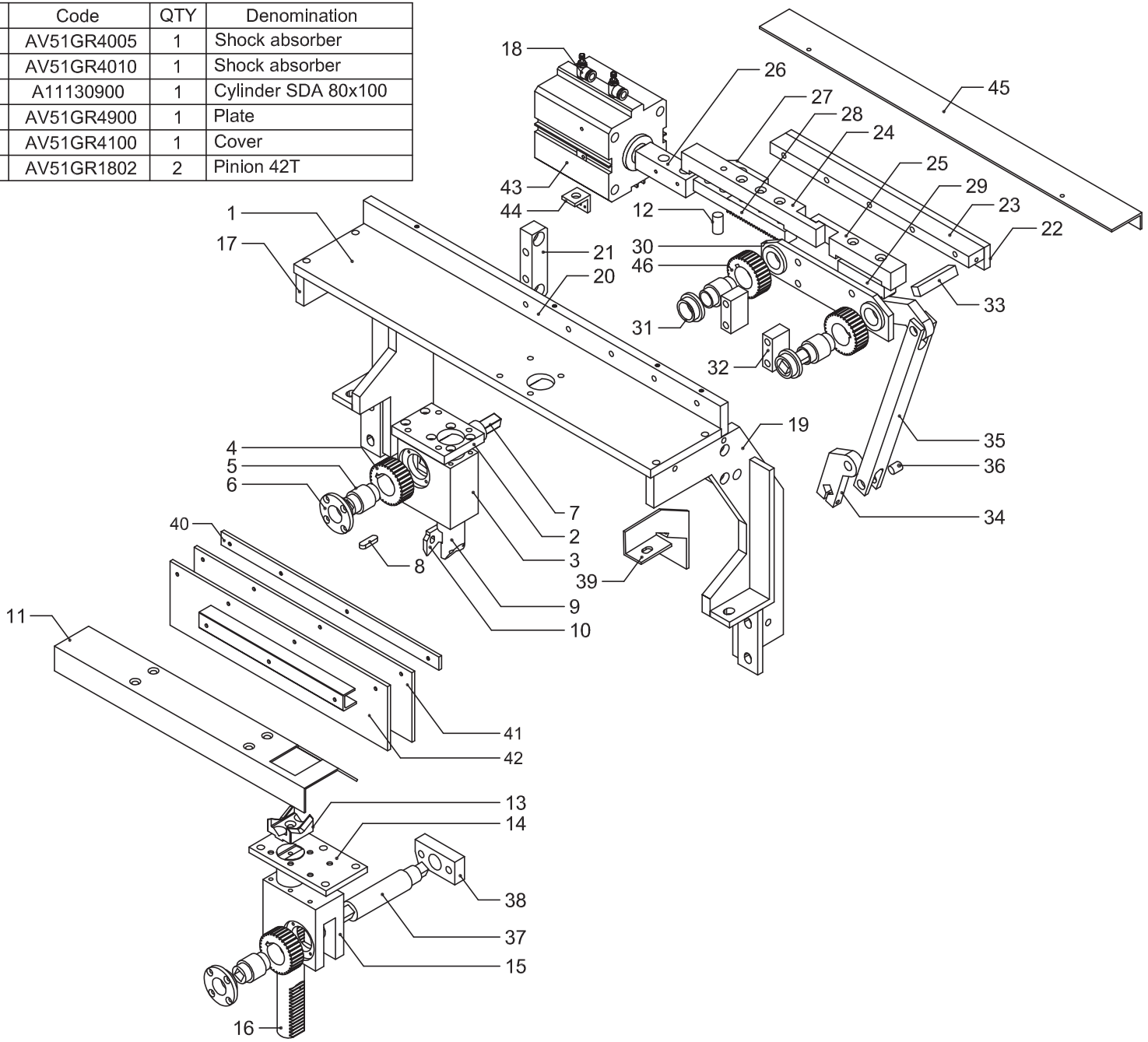
PATRIOT Ⅱ-SX

FRAME DEVICE 37 25

Tab. 010 1

N.	Code	QTY	Denomination
1	AV51GR0300	1	Cover
2	AV51GR1600	1	Plate
3	AV51GR1710	1	Anchor
4	AV51GR1800	2	Pinion 33T
5	AV51GR1801	4	Connetor shaft
6	AV51GR1900	2	Sleeve
7	AV51GR2200	1	Shaft
8	ZS060615	4	6x15 Tab
9	AV51GR2100	1	Rack
10	AV51GR2000	1	Clip cutter
11	AV51GR3130	1	Shelf
12	AV51CH1701	1	Arbor
13	AV51GR2700	1	Lower clamp
14	AV51GR2610	1	Plate
15	AV51GR1701	1	Anchor
16	AV51GR2800	1	Transmission rod
17	AV51GR0100	1	Anchor R
18	A12131000	2	Flow regulator JSC 8-03
19	AV51GR0200	1	Anchor L
20	AV51GR0410	1	Plate
21	AV51GR0600	1	Anchor
22	AV51GR0501	1	Sheel steel
23	AV51GR0500	1	Plate
24	AV51GR0901	1	Pushing stripe
25	AV51GR1001	1	Transmission rod
26	AV51GR0800	1	Spacer
27	AV51GR0701	1	Plate
28	AV51GR1101	1	Rack
29	AV51GR1201	1	Rack
30	AV51GR2400	1	Plate
31	AV51GR2300	2	Bearing
32	AV51GR2500	2	Shim
33	AV51GR1500	1	Shaft
34	AV51GR1300	2	Support
35	AV51GR1400	1	Lever
36	AV51GR3500	1	Anchor
37	AV51GR3000	1	Transmission rod
38	AV51GR2900	1	Anchor
39	AV51GR3150	1	Plate
40	AV51GR4004	1	Plate

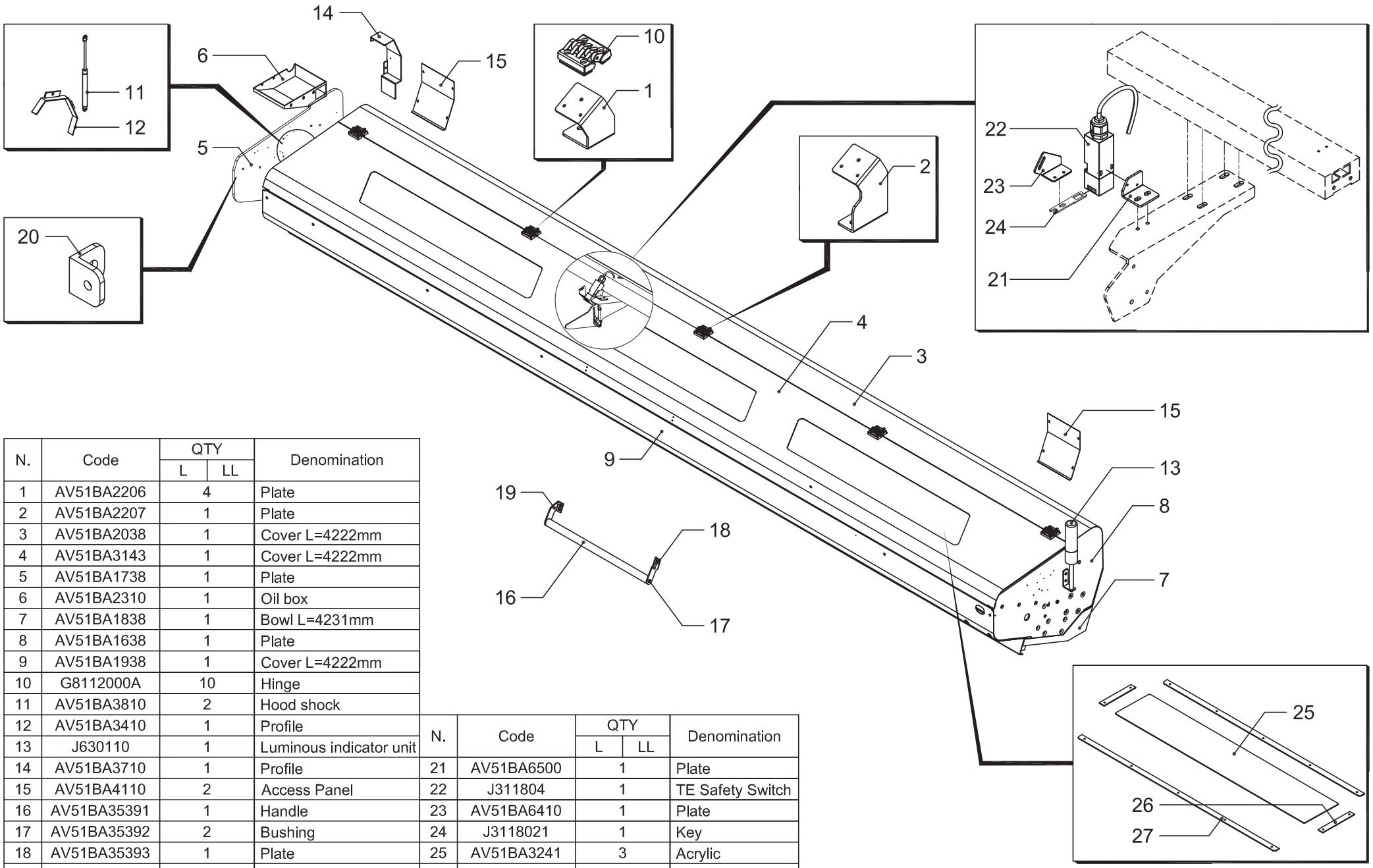
N.	Code	QTY	Denomination
41	AV51GR4005	1	Shock absorber
42	AV51GR4010	1	Shock absorber
43	A11130900	1	Cylinder SDA 80x100
44	AV51GR4900	1	Plate
45	AV51GR4100	1	Cover
46	AV51GR1802	2	Pinion 42T



PATRIOT II-SX

CLAMPING

Tab. 020 1

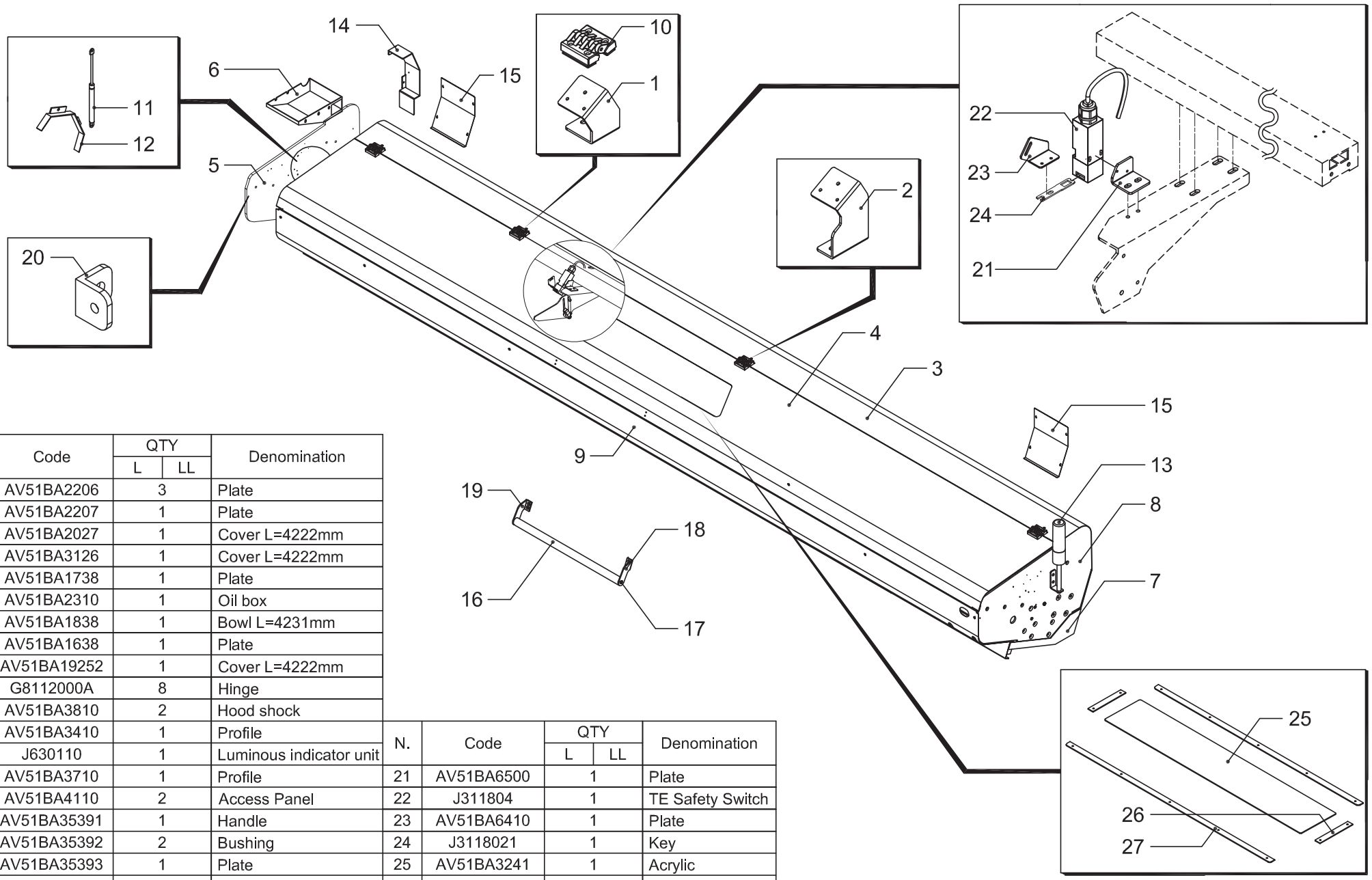


N.	Code	QTY L	QTY LL	Denomination
1	AV51BA2206	4		Plate
2	AV51BA2207	1		Plate
3	AV51BA2038	1		Cover L=4222mm
4	AV51BA3143	1		Cover L=4222mm
5	AV51BA1738	1		Plate
6	AV51BA2310	1		Oil box
7	AV51BA1838	1		Bowl L=4231mm
8	AV51BA1638	1		Plate
9	AV51BA1938	1		Cover L=4222mm
10	G8112000A	10		Hinge
11	AV51BA3810	2		Hood shock
12	AV51BA3410	1		Profile
13	J630110	1		Luminous indicator unit
14	AV51BA3710	1		Profile
15	AV51BA4110	2		Access Panel
16	AV51BA35391	1		Handle
17	AV51BA35392	2		Bushing
18	AV51BA35393	1		Plate
19	AV51BA35394	1		Plate
20	AV51BA1901	2		Plate

N.	Code	QTY L	QTY LL	Denomination
21	AV51BA6500	1		Plate
22	J311804	1		TE Safety Switch
23	AV51BA6410	1		Plate
24	J3118021	1		Key
25	AV51BA3241	3		Acrylic
26	AV51BA3239	6		Plate
27	AV51BA3240	6		Plate

L LL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

37 BAR FEEDER MODEL ACCORDING TO THEMAX .



N.	Code	QTY L	QTY LL	Denomination
1	AV51BA2206	3		Plate
2	AV51BA2207	1		Plate
3	AV51BA2027	1		Cover L=4222mm
4	AV51BA3126	1		Cover L=4222mm
5	AV51BA1738	1		Plate
6	AV51BA2310	1		Oil box
7	AV51BA1838	1		Bowl L=4231mm
8	AV51BA1638	1		Plate
9	AV51BA19252	1		Cover L=4222mm
10	G8112000A	8		Hinge
11	AV51BA3810	2		Hood shock
12	AV51BA3410	1		Profile
13	J630110	1		Luminous indicator unit
14	AV51BA3710	1		Profile
15	AV51BA4110	2		Access Panel
16	AV51BA35391	1		Handle
17	AV51BA35392	2		Bushing
18	AV51BA35393	1		Plate
19	AV51BA35394	1		Plate
20	AV51BA1901	2		Plate

N.	Code	QTY L	QTY LL	Denomination
21	AV51BA6500	1		Plate
22	J311804	1		TE Safety Switch
23	AV51BA6410	1		Plate
24	J3118021	1		Key
25	AV51BA3241	1		Acrylic
26	AV51BA3239	2		Plate
27	AV51BA3240	2		Plate

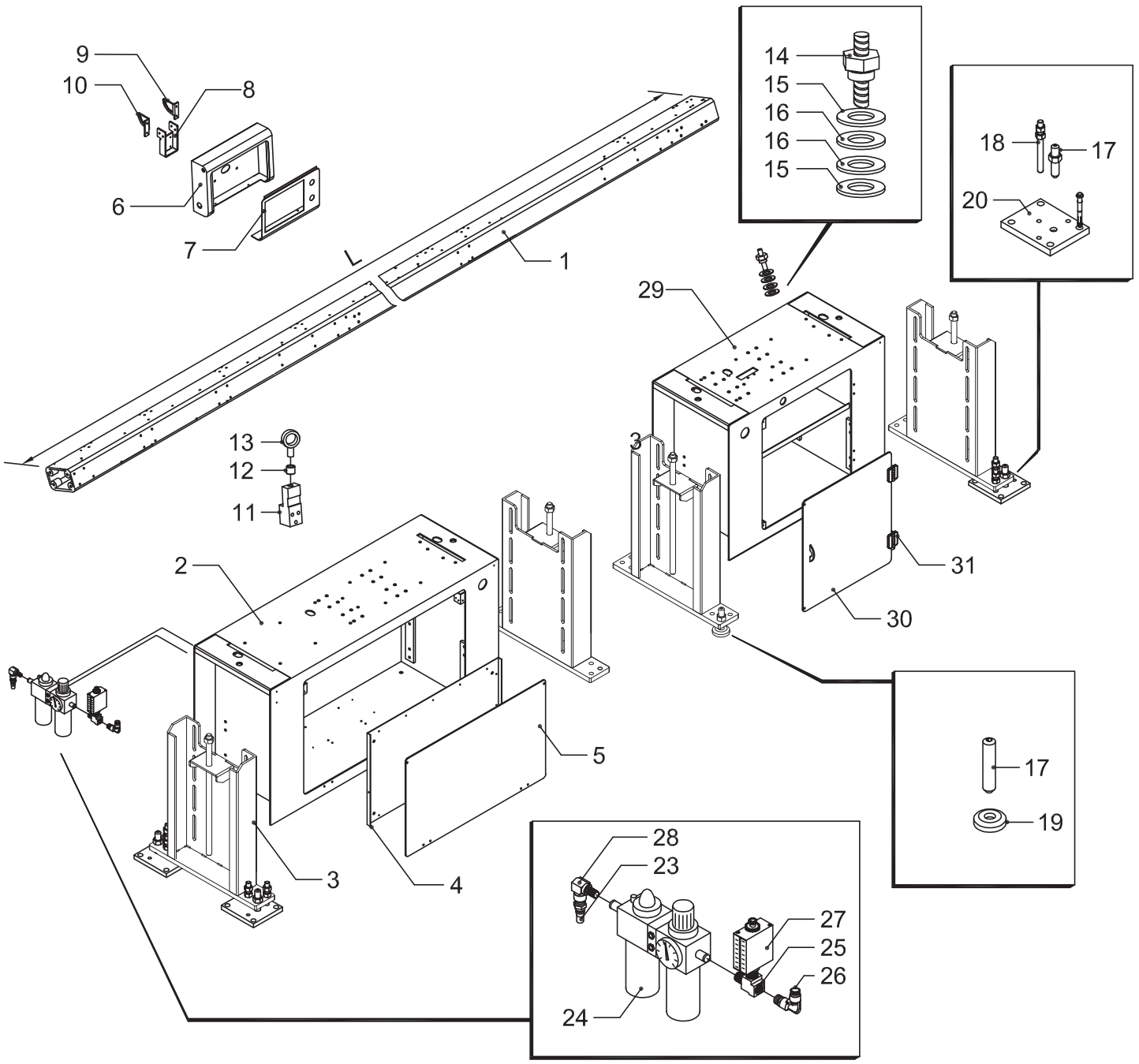
L LL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

25 BAR FEEDER MODEL ACCORDING TO THEMAX .

PATRIOT II-SX

COVER 25

N.	Code	QTY	Denomination
1	AV51CH0138	1	Beam L=4200
2	AV51BA0160	1	Base
3	AV51BA0450	4	Support
4	AV51BA0300	1	Panel
5	AV51BA0200	1	Door
6	AV51BA2520	1	Housing
7	AV51BA2830	1	Key-board
8	AV51BA2610	1	Support
9	AV51BA2620	1	Seat A
10	AV51BA2630	1	Seat B
11	AV51BA2900	2	Support
12	AV51BA3301	2	Bushing
13	AV51BA3300	2	Eyebolt
14	AV51BA0800	14	Column
15	AV51BA0900	28	Washer
16	AV51BA1000	28	Washer
17	ZS1120100	4	Screw
18	AV51BA1510	8	Tie rod
19	AV51BA1210	4	Plate
20	AV51BA1110	4	Plate
21	AV51BA3000	4	Plug
22	AV51BA3100	4	Plug
23	A13110300	1	Pneumatically-actuated electrical microswitch PM-20
24	A12110300	1	F.R.L. UNIT
25	A15140200	1	Connection 1/4"
26	A13120500	1	Connection 1/4"xØ8
27	A12140400	1	Pressure switch
28	A17110300	1	90° Connection 1/4"x1/4"
29	AV51BA0560	1	Base
30	AV51BA0561	1	Door
31	T16311100	4	Hinge



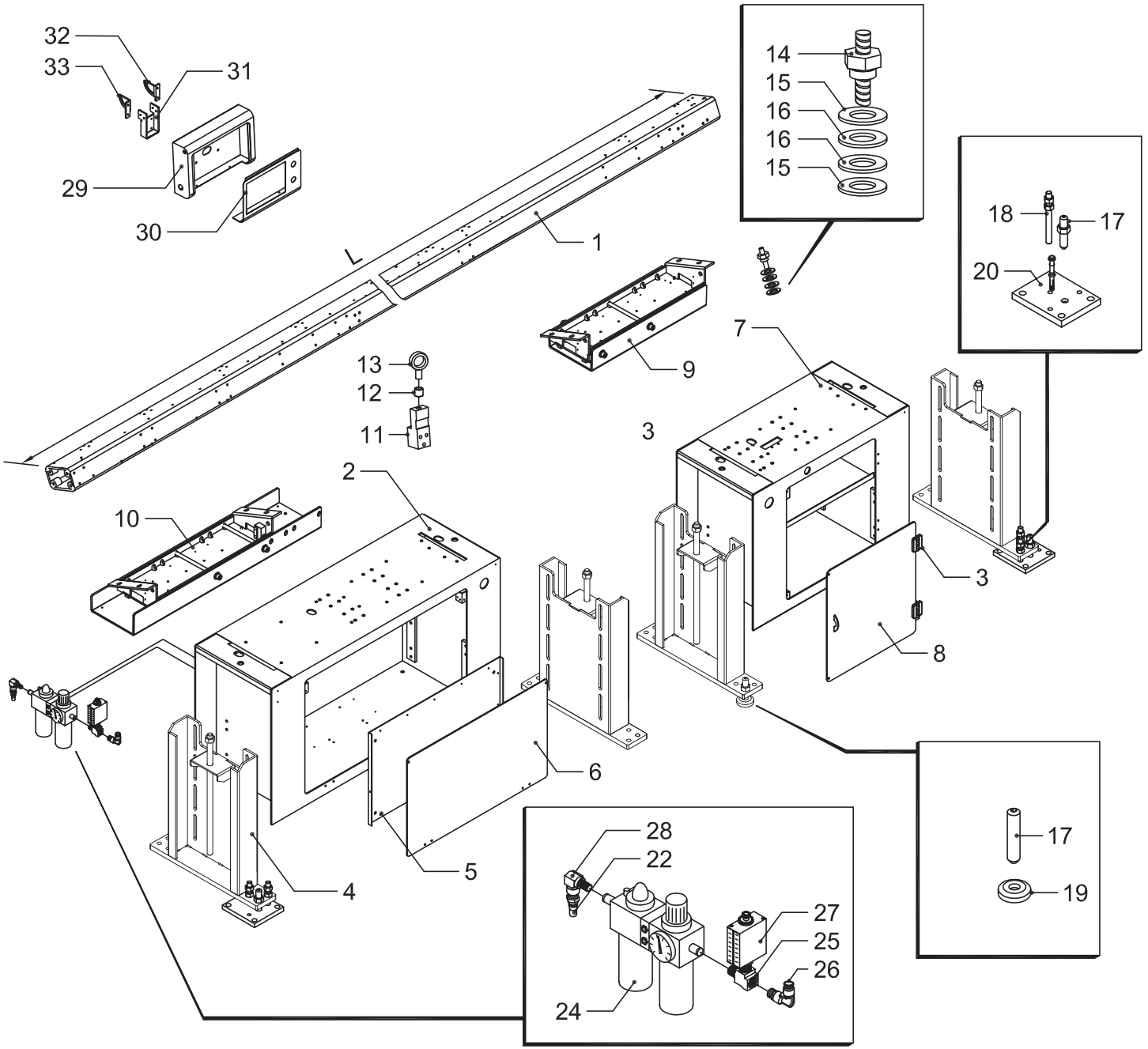
37 BAR FEEDER MODEL ACCORDING TO THEMAX .

PATRIOT II-SX

BASES AND BEAM 37

Tab. 040 1

N.	Code	QTY	Denomination
1	AV51CH0138	1	Beam L=4200
2	AV51BA0170	1	Base
3	T16311100	4	Hinge
4	AV51BA0450	4	Support
5	AV51BA0300	1	Panel
6	AV51BA0200	1	Door
7	AV51BA0570	1	Base
8	AV51BA0562	1	Door
9	AV51MZ030A	1	Back tracking system
10	AV51MZ020A	1	Front tracking system
11	AV51BA2900	2	Support
12	AV51BA3301	2	Bushing
13	AV51BA3300	2	Eyebolt
14	AV51BA0800	14	Column
15	AV51BA0900	28	Washer
16	AV51BA1000	28	Washer
17	ZS1120100	4	Screw
18	AV51BA1510	8	Tie rod
19	AV51BA1210	4	Plate
20	AV51BA1110	4	Plate
21	AV51BA1210	4	Plug
22	AV51BA3100	4	Plug
23	A13110300	1	Pneumatically-actuated electrical microswitch PM-20
24	A12110300	1	F.R.L. UNIT
25	A15140200	1	Connection 1/4"
26	A13120500	1	Connection 1/4"xØ8
27	A12140400	1	Pressure switch
28	A17110300	1	90° Connection 1/4"x1/4"
29	AV51BA2520	1	Housing
30	AV51BA2830	1	Key-board
31	AV51BA2610	1	Support
32	AV51BA2620	1	Seat A
33	AV51BA2630	1	Seat B



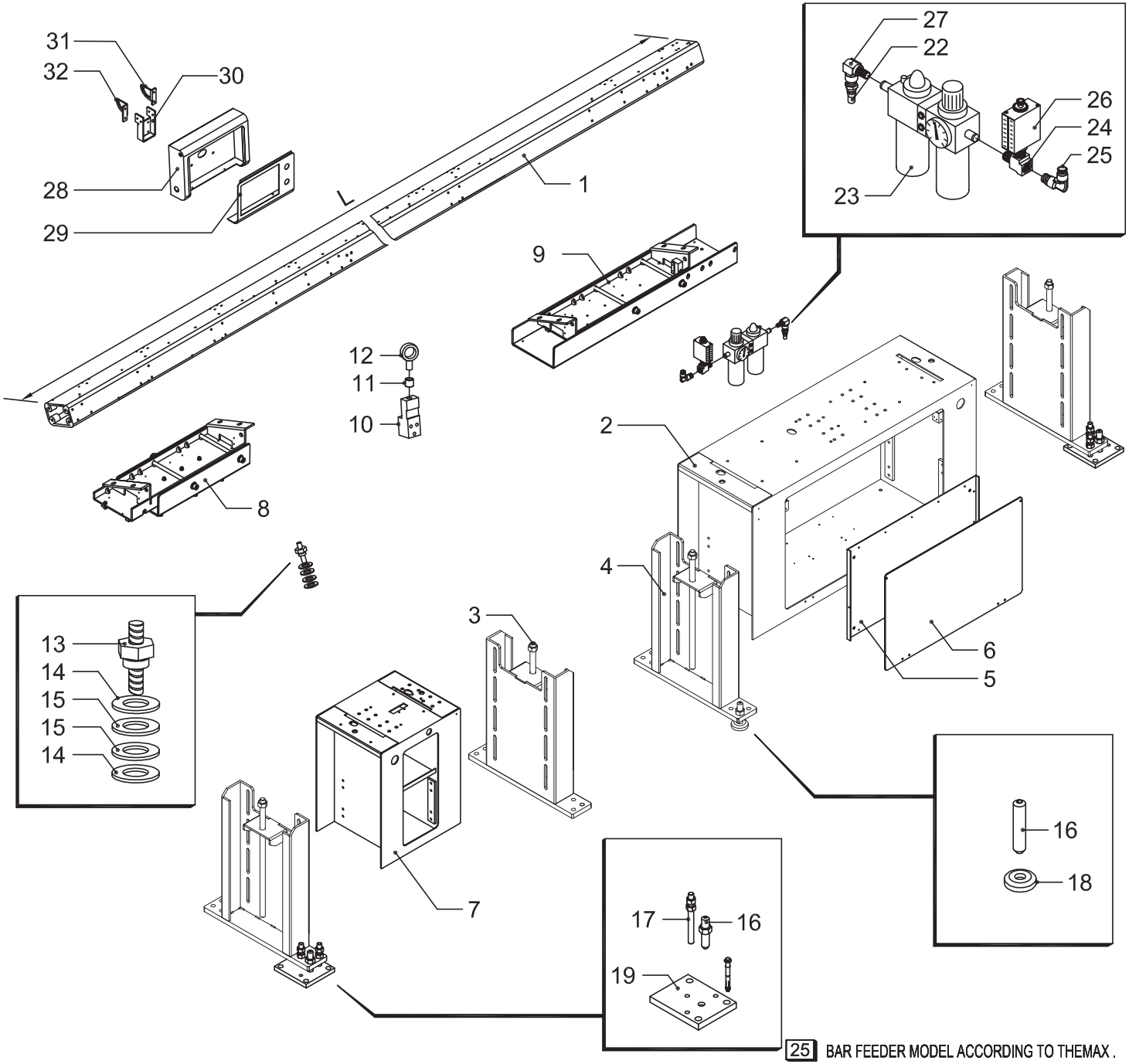
37 BAR FEEDER MODEL ACCORDING TO THEMAX .

PATRIOT II-SX

BASES AND BEAM (TRACKING SYSTEM) 37

Tab. 041 1

N.	Code	QTY	Denomination
1	AV51CH0126	1	Beam L=3000
2	AV51BA0170	1	Base
3	G62120701	4	Screw
4	AV51BA0450	4	Support
5	AV51BA0300	1	Panel
6	AV51BA0200	1	Door
7	AV51BA0552	1	Base
8	AV51MZ050A	1	Back tracking system
9	AV51MZ051A	1	Front tracking system
10	AV51BA2900	2	Support
11	AV51BA3301	2	Bushing
12	AV51BA3300	2	Eyebolt
13	AV51BA0800	14	Column
14	AV51BA0900	28	Washer
15	AV51BA1000	28	Washer
16	ZS1120100	4	Screw
17	AV51BA1510	8	Tie rod
18	AV51BA1210	4	Plate
19	AV51BA1110	4	Plate
20	AV51BA3000	4	Plug
21	AV51BA3100	4	Plug
22	A13110300	1	Pneumatically-actuated electrical microswitch PM-20
23	A12110300	1	F.R.L. UNIT
24	A15140200	1	Connection 1/4"
25	A13120500	1	Connection 1/4"xØ8
26	A12140400	1	Pressure switch
27	A17110300	1	90° Connection 1/4"x1/4"
28	AV51BA2520	1	Housing
29	AV51BA2830	1	Key-board
30	AV51BA2610	1	Support
31	AV51BA2620	1	Seat A
32	AV51BA2630	1	Seat B



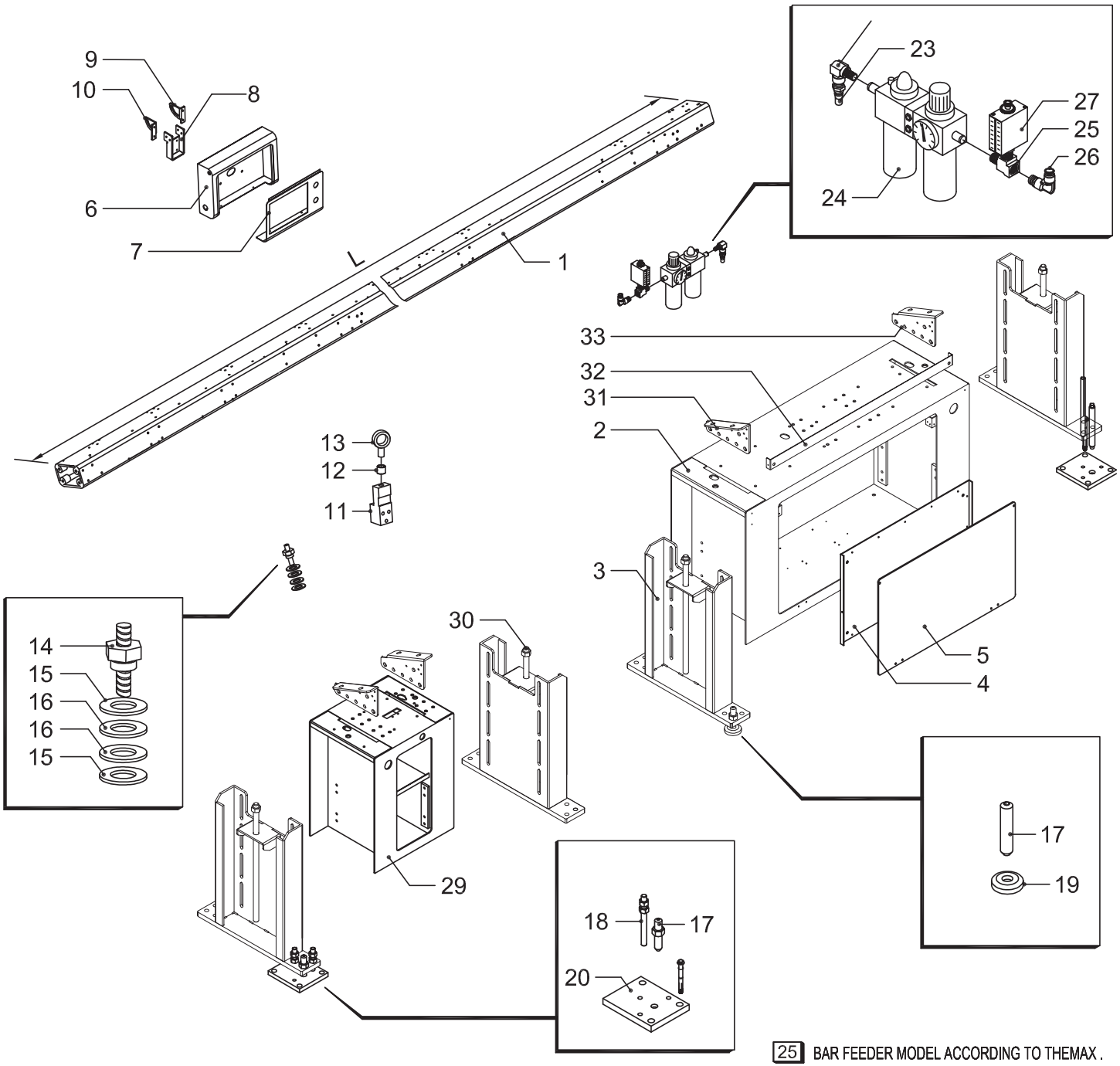
25 BAR FEEDER MODEL ACCORDING TO THEMAX .

PATRIOT II-SX

BASES AND BEAM (TRACKING SYSTEM) 25

Tab. 042 1

N.	Code	QTY	Denomination
1	AV51CH0126	1	Beam L=3000
2	AV51BA0170	1	Base
3	AV51BA0450	4	Support
4	AV51BA0300	1	Panel
5	AV51BA0200	1	Door
6	AV51BA2520	1	Housing
7	AV51BA2830	1	Key-board
8	AV51BA2610	1	Support
9	AV51BA2620	1	Seat A
10	AV51BA2630	1	Seat B
11	AV51BA2900	2	Support
12	AV51BA3301	2	Bushing
13	AV51BA3300	2	Eyebolt
14	AV51BA0800	14	Column
15	AV51BA0900	28	Washer
16	AV51BA1000	28	Washer
17	ZS1120100	8	Screw
18	AV51BA1510	4	Tie rod
19	AV51BA1210	4	Plate
20	AV51BA1110	4	Plate
21	AV51BA3000	4	Plug
22	AV51BA3100	4	Plug
23	AB110300	1	Joint
24	A12110300	1	Pneumatically-actuated electrical microswitch PM-20
25	A15140200	1	Connection 1/4"
26	A13120500	1	Connection 1/4"xØ8
27	A12140400	1	Pressure switch
28	A17110300	1	90° Connection 1/4"x1/4"
29	AV51BA0552	1	Base
30	G62120701	4	Screw
31	AV51BA0600	2	Plate
32	AV51BA0701	1	Plate
32	AV51BA0700	2	Plate

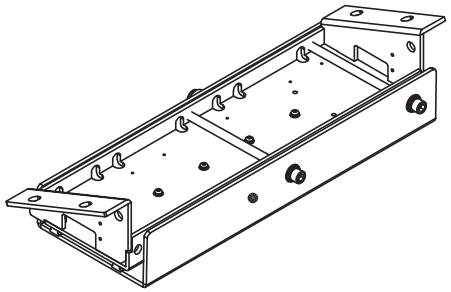


25 BAR FEEDER MODEL ACCORDING TO THEMAX .

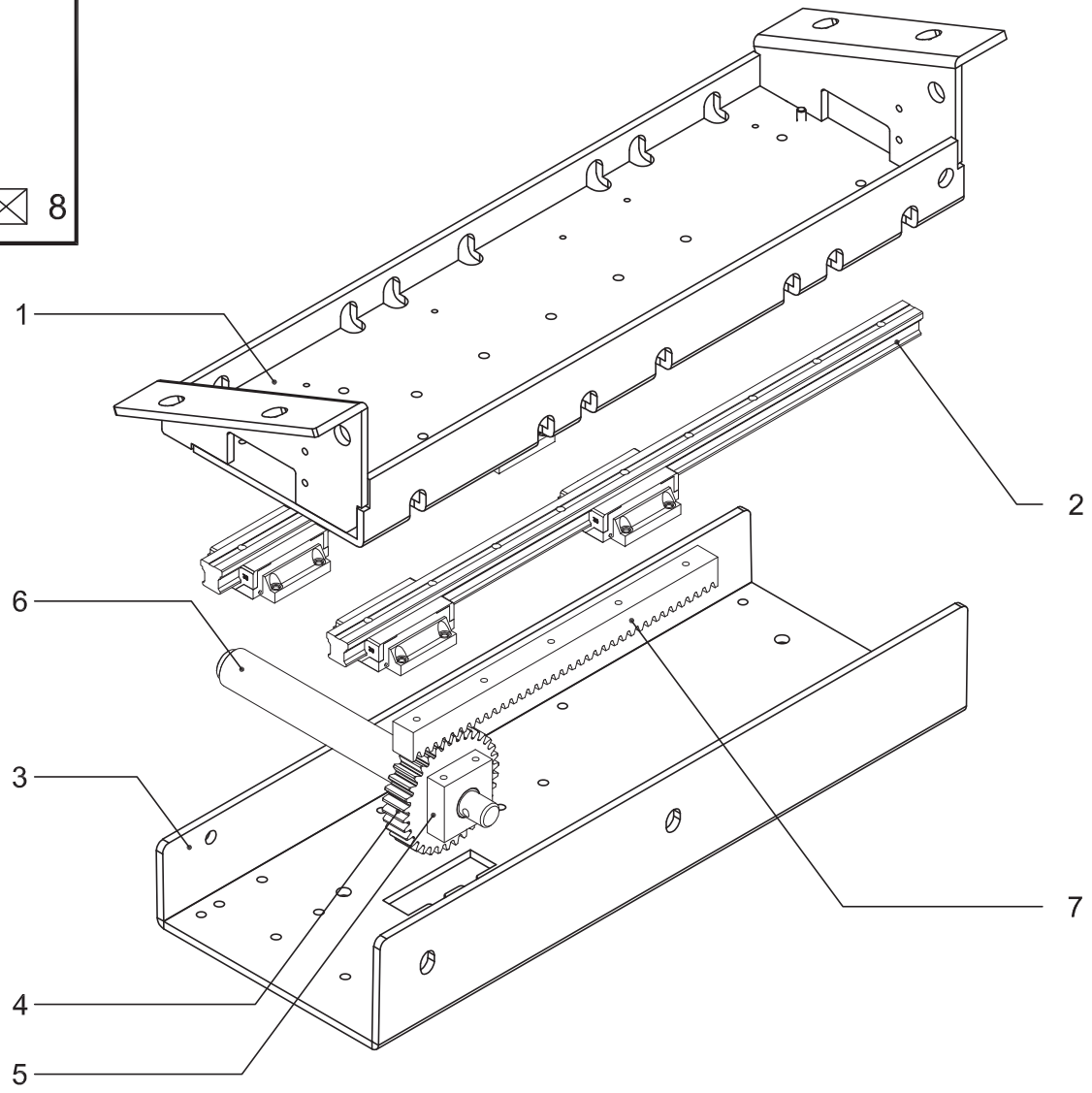
PATRIOT II-SX

BASES AND BEAM 25

Tab. 043 1

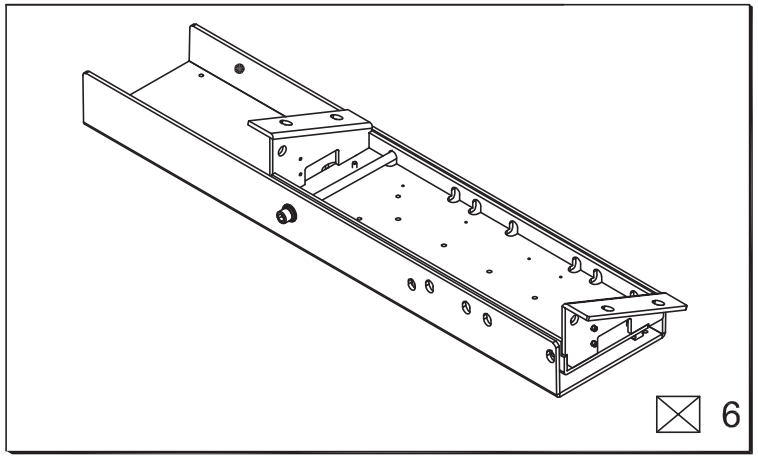


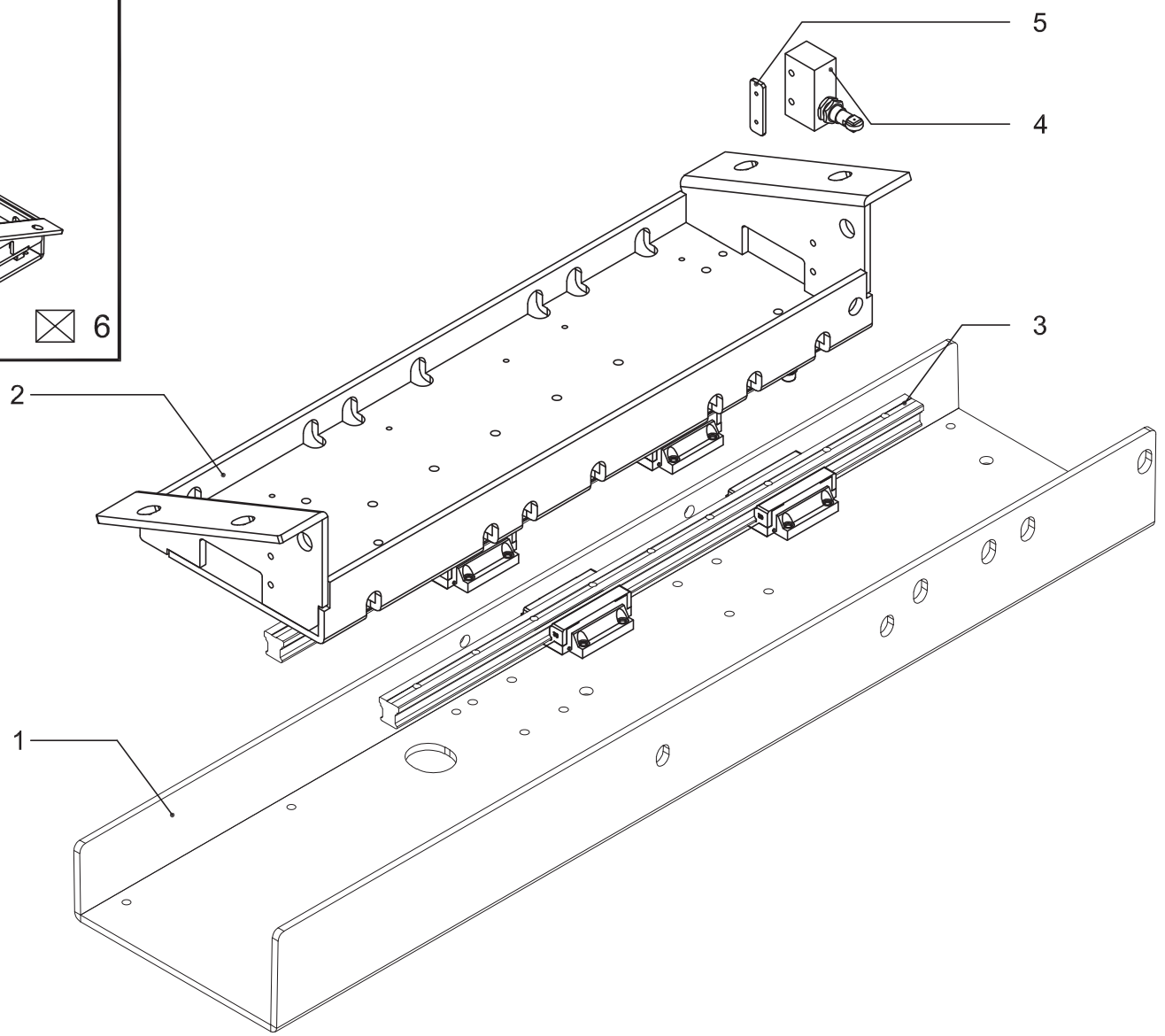
☒ 8



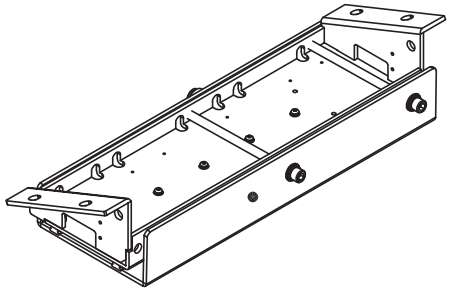
N.	Code	QTY	Denomination
1	AV51MZ4110	1	Plate
2	AV51MZ4800	2	Linear slide
3	AV51MZ5110	1	Plate
4	P35200600	1	Pinion 34T
5	AV51MZ5300	1	Anchor
6	AV51MZ5400	1	Arbor
7	AV51MZ5200	1	Gear rack
8	AV51MZ030A	1	Back tracking system

☒ 8





N.	Code	QTY	Denomination
1	AV51MZ5010	1	Plate
2	AV51MZ4110	1	Plate
3	AV51MZ4800	2	Linear slide
4	J310413	1	Switch
5	AV51MZ4900	1	Plate
6	AV51MZ020A	1	Front tracking system



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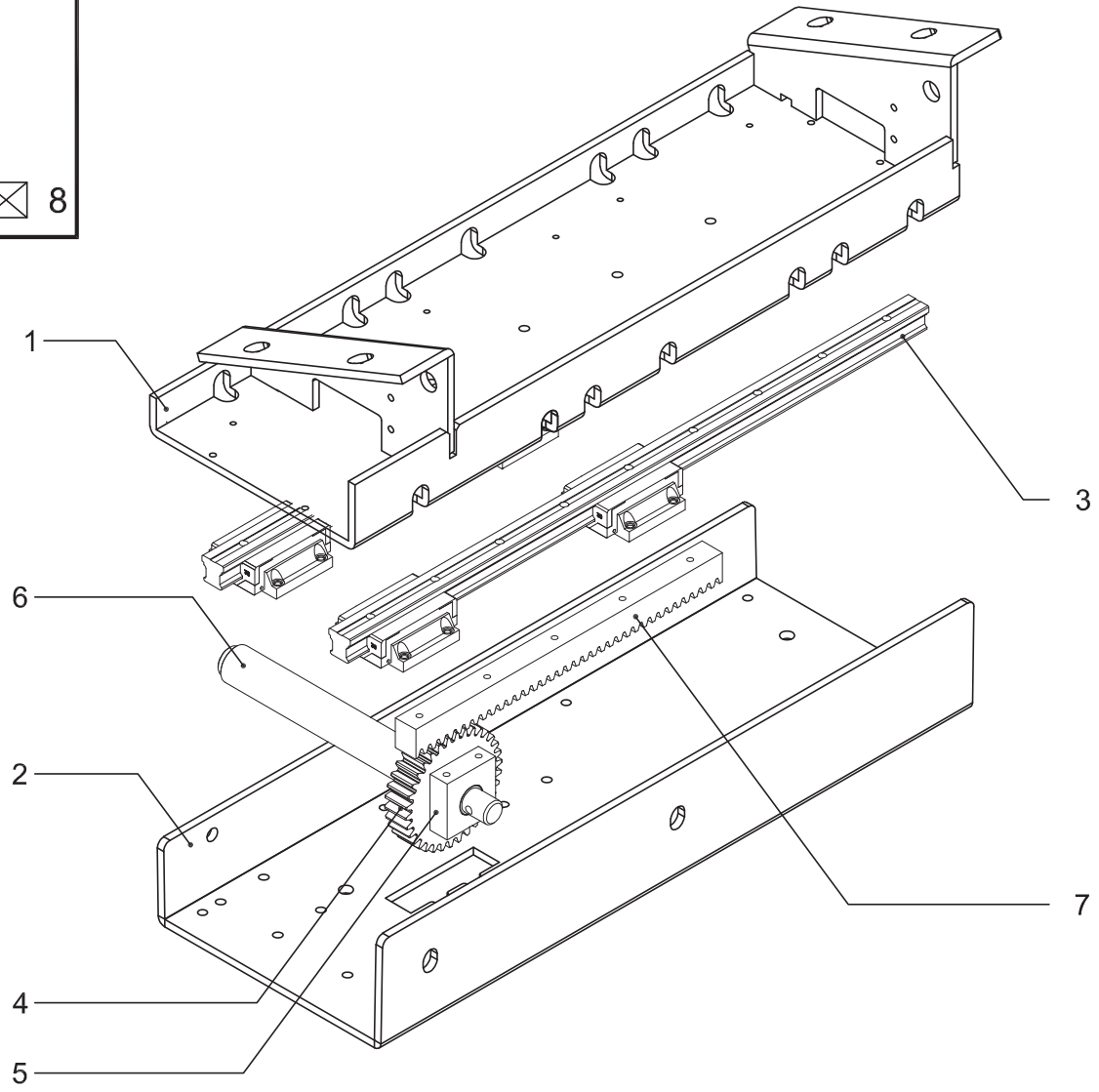
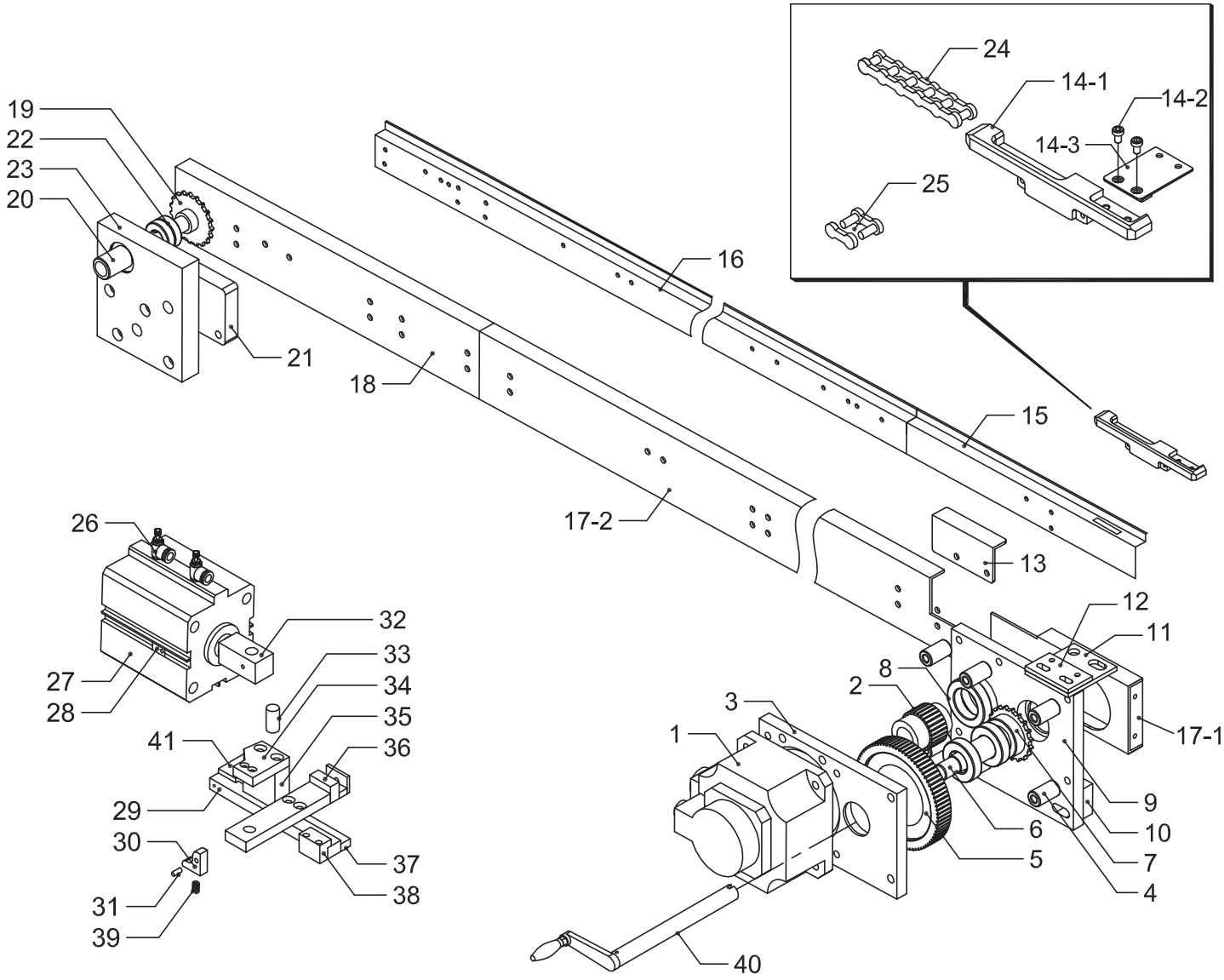


N.	Code	QTY	Denomination
1	AV51MZ4130	1	Plate
2	AV51MZ5130	1	Plate
3	AV51MZ4800	2	Linear slide
4	J310413	1	Switch
5	AV51MZ4900	1	Plate
6	AV51MZ020A	1	Front tracking system

N.	Code	QTY	Denomination
1	J212060	1	Motor
2	AV51DR0503	1	Whorl pole 28T
3	AV51DR0405	1	Support
4	AV51DR0300	6	Pillar
5	AV51DR0100	1	Worm gear 80T
6	AV51DR0200	1	Whorl pole 19T
7	B6005ZZ	2	Bearing
8	B6907ZZ	1	Bearing
9	AV51DR0410	1	Support
10	AV51DR0600	1	Support
11	AV51DR1401	1	Sensor bracket
12	AV51DR1402	1	Bracket
13	AV51DR1300	1	Plate
14-1	AV51DR1510	1	Chain adjustable block
14-2	AV51PB1010	1	Prefeed pusher flag
14-3	AV51PB1020	2	Socket screw
15	AV51DR1110	1	Chain guide-3.7M L=1099
16	AV51DR1111	1	Chain guide-3.7M L=2930
17-1	AV51DR1010	1	Chain guide-3.7M L=951
17-2	AV51DR1007	1	Chain guide-3.7M L=2028
18	AV51DR1011	1	Chain guide-3.7M L=1215
19	AV51DR0700	1	Sprocket 39T
20	AV51DR0900	1	Spacer
21	AV51DR0801	1	Support
22	B6003ZZ	2	Bearing
23	AV51DR0810	1	Support
24	AV51DR1700	1	Chain-3.7M L=875P
25	AV51DR1800	2	Chain link 3/8"
26	A12131000	2	Adjustable valve JSC 8-03
27	A11131000	1	Cylinder SDAS 80x45
28	A12140501	1	Magnetic sensor LY-67A-5M
29	AV51GR4200	1	Slide block
30	AV51GR4500	1	CAM
31	AV51GR4700	1	Pin
32	AV51GR0800	1	Connector
33	AV51CH1701	1	Pillar
34	AV51GR4610	1	Extensive block
35	AV51GR4300	1	Push block
36	AV51GR4410	1	OAM block
37	AV51GR3202	1	Guide block 2
38	AV51GR3201	1	Guide block

N.	Code	QTY	Denomination
39	AV51GR5000	1	Spring
40	AV51MA3300	1	Handle
41	AV51GR4800	1	Push block plwnger



37 BAR FEEDER MODEL ACCORDING TO THEMAX .

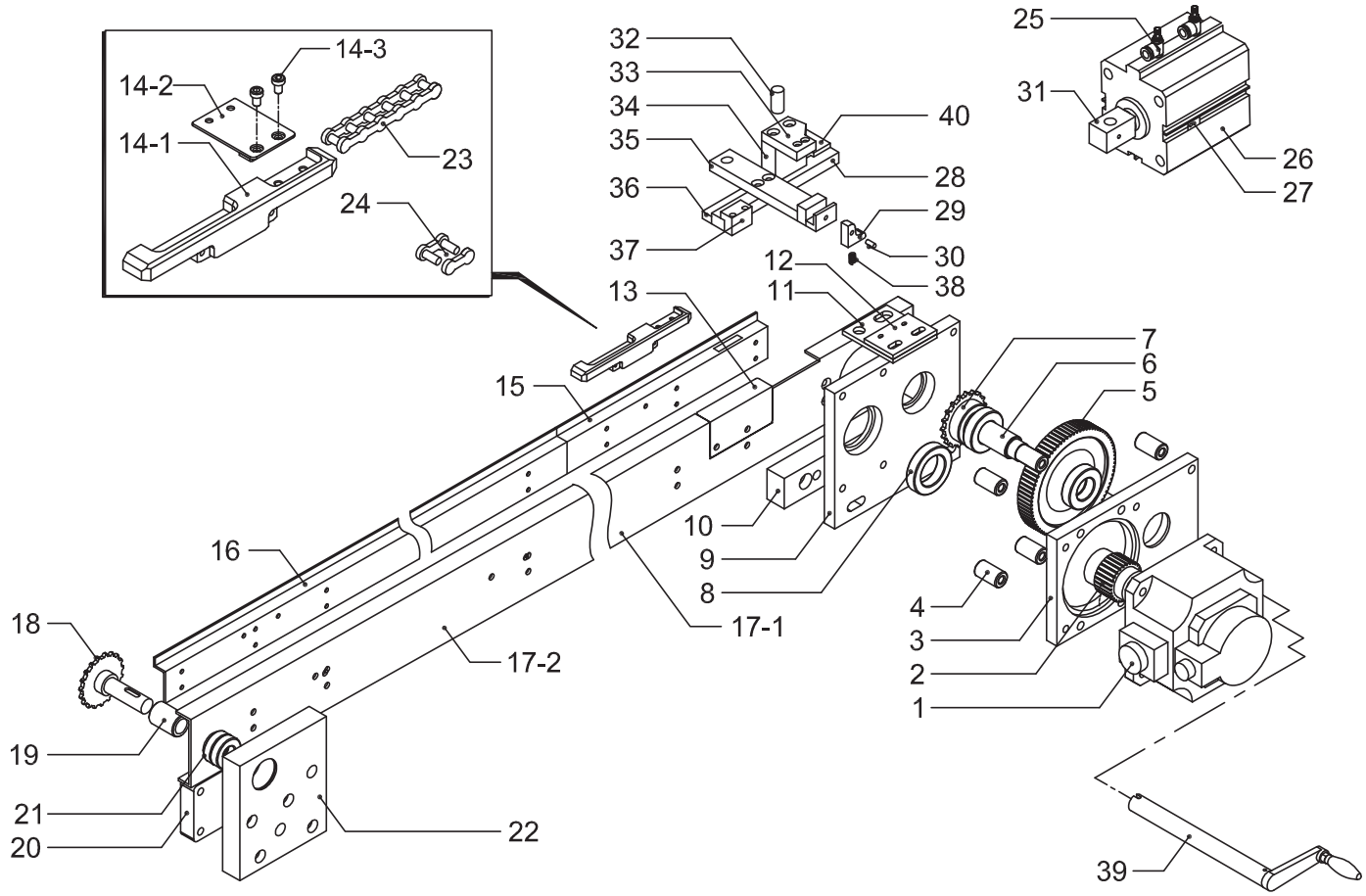
PATRIOT II-SX

FEED MOTOR DRIVE 37

Tab. 050 1

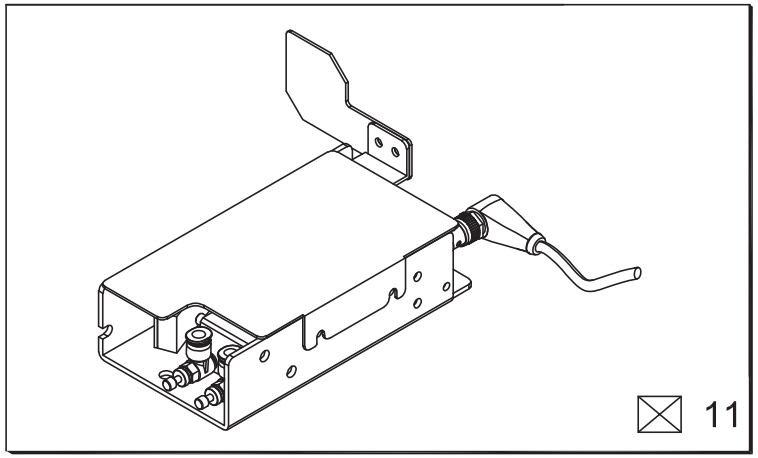
N.	Code	QTY	Denomination
1	J212060	1	Motor
2	AV51DR0503	1	Whorl pole 28T
3	AV51DR0404	1	Support
4	AV51DR0300	6	Pillar
5	AV51DR0100	1	Worm gear 80T
6	AV51DR0200	1	Whorl pole 19T
7	B6005ZZ	2	Bearing
8	B6907ZZ	1	Bearing
9	AV51DR0400	1	Support
10	AV51DR0600	1	Support
11	AV51DR1401	1	Sensor bracket
12	AV51DR1402	1	Bracket
13	AV51DR1300	1	Plate
14-1	AV51DR1500	1	Chain adjustable block
14-2	AV51PB1010	1	Prefeed pusher flag
14-3	AV51PB1020	2	Socket screw
15	AV51DR1100	1	Chain guide L=1099
16	AV51DR1103	1	Chain guide-2.5M L=2830
17-1	AV51DR1008	1	Chain guide L=411
17-2	AV51DR1003	1	Chain guide-2.5M L=2584
18	AV51DR0700	1	Sprocket 39T
19	AV51DR0900	1	Spacer
20	AV51DR0801	1	Support
21	B6003ZZ	2	Bearing
22	AV51DR0800	1	Support
23	AV51DR2500	1	Chain-3.7M L=875P
24	AV51DR1800	2	Chain link 3/8"
25	A12131000	2	Adjustable valve JSC 8-03
26	A11131000	1	Cylinder SDAS 80x45
27	A12140501	1	Magnetic sensor LY-67A-5M
28	AV51GR4200	1	Slide block
29	AV51GR4500	1	CAM
30	AV51GR4700	1	Pin
31	AV51GR0800	1	Connector
32	AV51CH1701	1	Pillar
33	AV51GR4600	1	Extensive block
34	AV51GR4300	1	Push block
35	AV51GR4400	1	OAM block
36	AV51GR3202	1	Guide block 2
37	AV51GR3201	1	Guide block

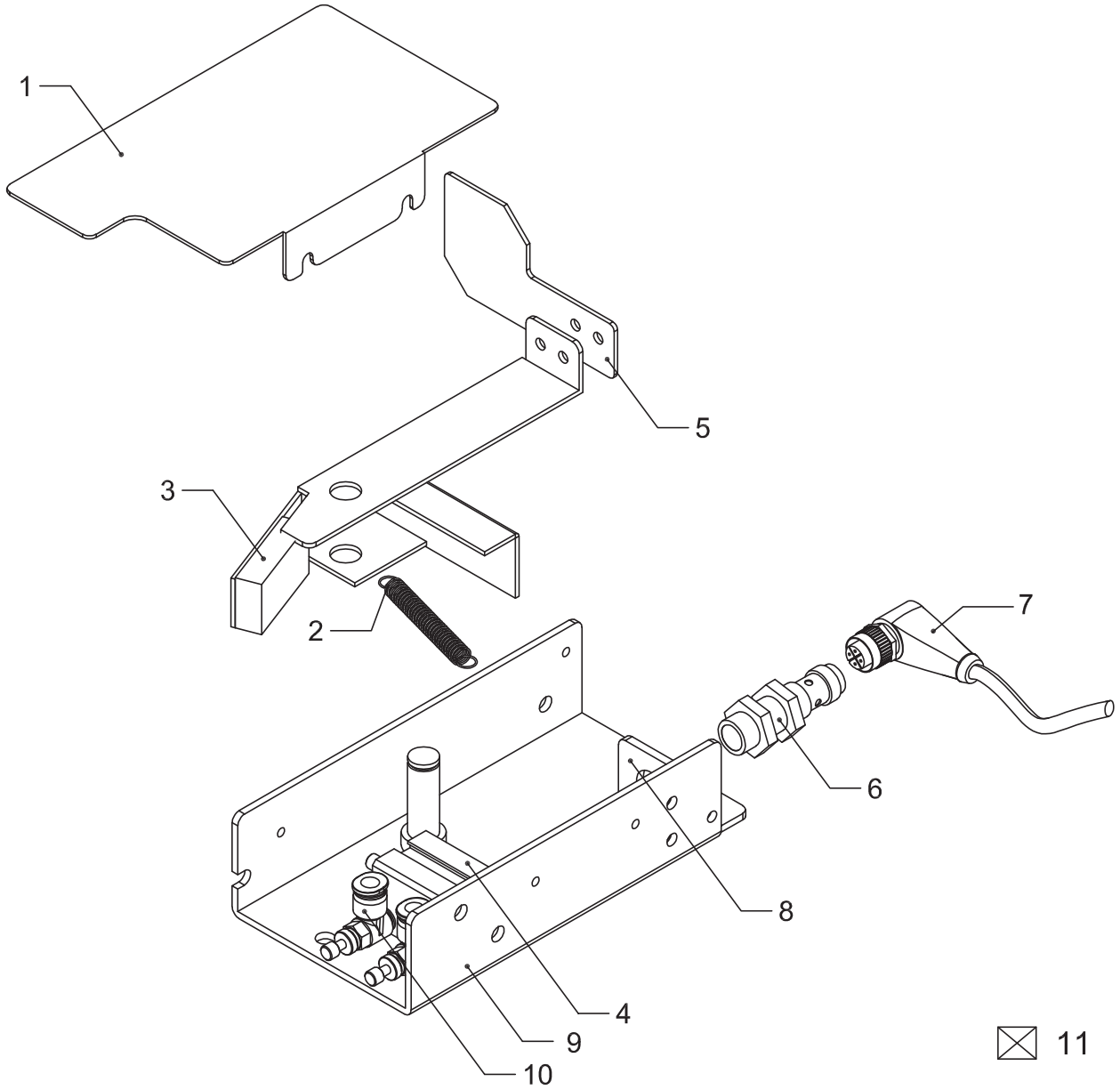
N.	Code	QTY	Denomination
38	AV51GR5000	1	Spring
39	AV51MA3300	1	Handle
40	AV51GR4800	1	Push block plwnger



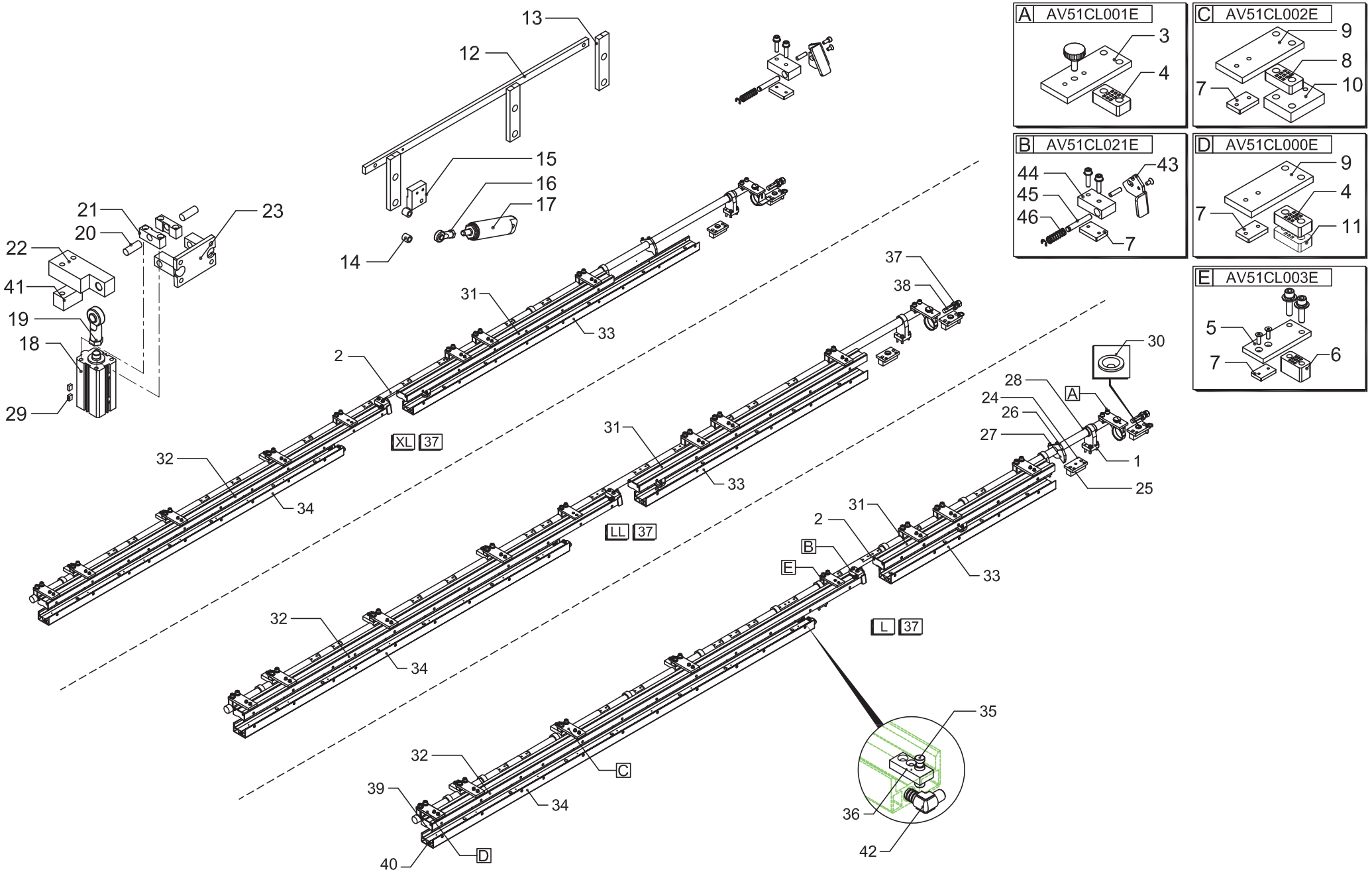
L LL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

25 BAR FEEDER MODEL ACCORDING TO THEMAX .





N.	Code	QTY	Denomination
1	AV51FA0510	1	Cover
2	G92120600	1	Spring
3	AV51FA0210	1	Short feed door
4	A11130700	1	Cylinder SDA12x15
5	AV51FA0300	1	Flag
6	J312500	1	Microswitch
7	J312501	1	Microswitch Wire
8	AV51FA0400	1	Bracket
9	AV51FA0110	1	Housing
10	A12130300	2	Flow regulator JSC-M5
11	AV51FA001A	1	Cutting assembly



PATRIOT II-SX

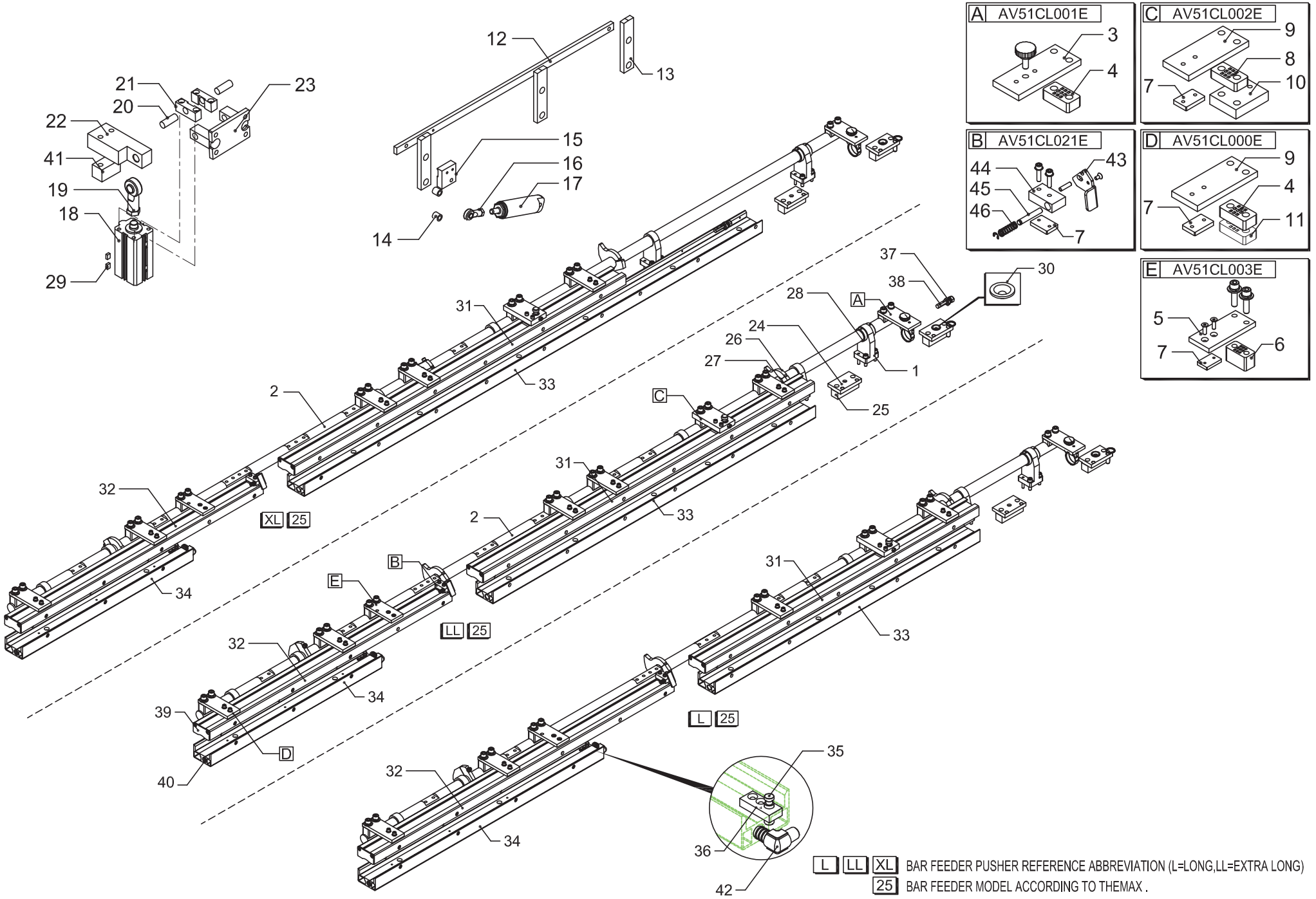
GUIDE CHANNEL SUPPORT 37

N.	Code	QTY			Denomination
		L	LL	XL	
1	AV51CH0600	9			Support
2	AV51CH1537	1			Shaft L=4030
	AV51CH1538			1	Shaft L=4538
3	AV51CL1600	1			Support
4	AV51CH0910	7			Support
5	AV51CL0770	2			Quick Release Pressure Plate
6	AV51CL1700	2			Support
7	AV51CL0900	9			Shim
8	AV51CL1900	5			Support
9	AV51CL1300	7			Support
10	AV51CH1000	3			Shim
11	AV51CL1900	4			Support
12	AV51CH1237	1			Connector rod
13	AV51CH1100	3			Support
14	AV51CH1600	6			Loop
15	AV51CH1300	1			Plate
16	BPHS10	1			Joint
17	A11111300	1			Cylinder MAL 32x40
18	A11130600	1			Cylinder SDAS 50x100B
19	BPHS18	1			Joint
20	AV51CH1701	2			Arbor
21	AV51CH1700	2			Support
22	AV51CH1900	1			Support
23	AV51CH1800	1			Cylinder anchor
24	AV51CH0500	2			Anchor
25	AV51CH0501	2			Anchor
26	AV51CH4100	3			Stopper holder
27	AV51CH4000	3			Stpper
28	AV51CH3700	2			Fixing ring
29	A12140501	2			Sensor switch LY-67A-5M
30	AV51CH3310	2			Fixed ring

N.	Code	QTY			Denomination
		L	LL	XL	
31	AV51CL1110	1			Aluminum batten L=990
	AV51CL1100		1		Aluminum batten L=1320
32	AV51CL1010	1			Aluminum batten L=2495
	AV51CL1000		1		Aluminum batten L=2165.4
33	AV51CL0210	1			Aluminum batten L=954
	AV51CL0220		1		Aluminum batten L=1284
	AV51CL0200			1	Aluminum batten L=1824
34	AV51CL0110	1			Aluminum batten L=2210
	AV51CL0100		1		Aluminum batten L=1880
35	AV51CL6400	1			Pin
36	AV51CL1800	1			Block
37	AV51BA3600	1			Screw
38	AV51GR4800	1			Block
39	AV51CL0800	2			Plate
40	A15120200	1			Plug
41	AV51CH0920	1			Spacer
42	A17140500	1			LFiting 3/8"*5/8"
43	AV51CL4410	1			Baffle
44	AV51CL4500	1			Quick Release Pressure Plate
45	AV51CL4200	1			Mandrel
46	AV51CL4300	1			Compression Spring

L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

37 BAR FEEDER MODEL ACCORDING TO THEMAX .



PATRIOT II-SX

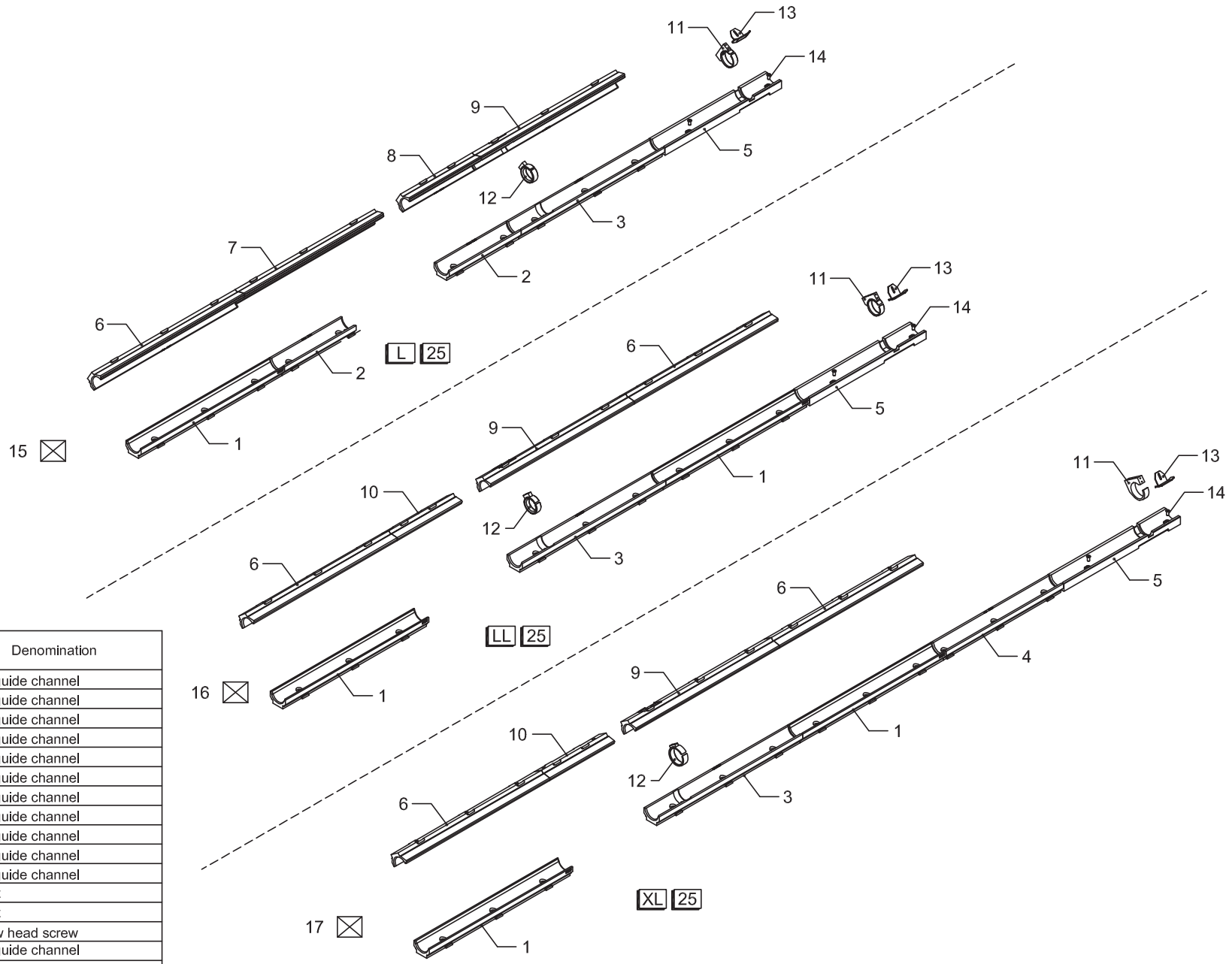
GUIDE CHANNEL SUPPORT 25

N.	Code	QTY			Denomination
		L	LL	XL	
1	AV51CH0600	9			Support
2	AV51CH1525	1			Shaft L=2765
	AV51CH1527			1	Shaft L=3290
3	AV51CL1600	1			Support
4	AV51CH0910	7			Support
5	AV51CL0770	2			Quick Release Pressure Plate
6	AV51CL1700	2			Support
7	AV51CL0900	7			Shim
8	AV51CL1900	2			Support
9	AV51CL1300	5			Support
11	AV51CL1900	5			Support
12	AV51CH1237	1			Connector rod
13	AV51CH1100	3			Support
14	AV51CH1600	6			Loop
15	AV51CH1300	1			Plate
16	BPHS10	1			Joint
17	A11111300	1			Cylinder MAL 32x40
18	A11130600	1			Cylinder SDAS 50x100B
19	BPHS18	1			Joint
20	AV51CH1701	2			Arbor
21	AV51CH1700	2			Support
22	AV51CH1900	1			Support
23	AV51CH1800	1			Cylinder anchor
24	AV51CH0500	2			Anchor
25	AV51CH0501	2			Anchor
26	AV51CH4100	3			Stopper holder
27	AV51CH4000	3			Stpper
28	AV51CH3700	2			Fixing ring
29	A12140501	2			Sensor switch LY-67A-5M
30	AV51CH3310	2			Fixed ring

N.	Code	QTY			Denomination
		L	LL	XL	
31	AV51CL1110	1			Aluminum batten L=990
	AV51CL1100		1		Aluminum batten L=1320
32	AV51CL1025	1			Aluminum batten L=1295
	AV51CL1050		1		Aluminum batten L=965
33	AV51CL0210	1			Aluminum batten L=954
	AV51CL0220		1		Aluminum batten L=1284
	AV51CL0200			1	Aluminum batten L=1824
34	AV51CL0125	1			Aluminum batten L=1100
	AV51CL0150		1		Aluminum batten L=680
35	AV51CL6400	1			Pin
36	AV51CL1800	1			Block
37	AV51BA3600	1			Screw
38	AV51GR4800	1			Block
39	AV51CL0800	2			Plate
40	A15120200	1			Plug
41	AV51CH0920	1			Spacer
42	A17140500	1			LFiting 3/8"*5/8"
43	AV51CL4410	1			Baffle
44	AV51CL4500	1			Quick Release Pressure Plate
45	AV51CL4200	1			Mandrel
46	AV51CL4300	1			Compression Spring

L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

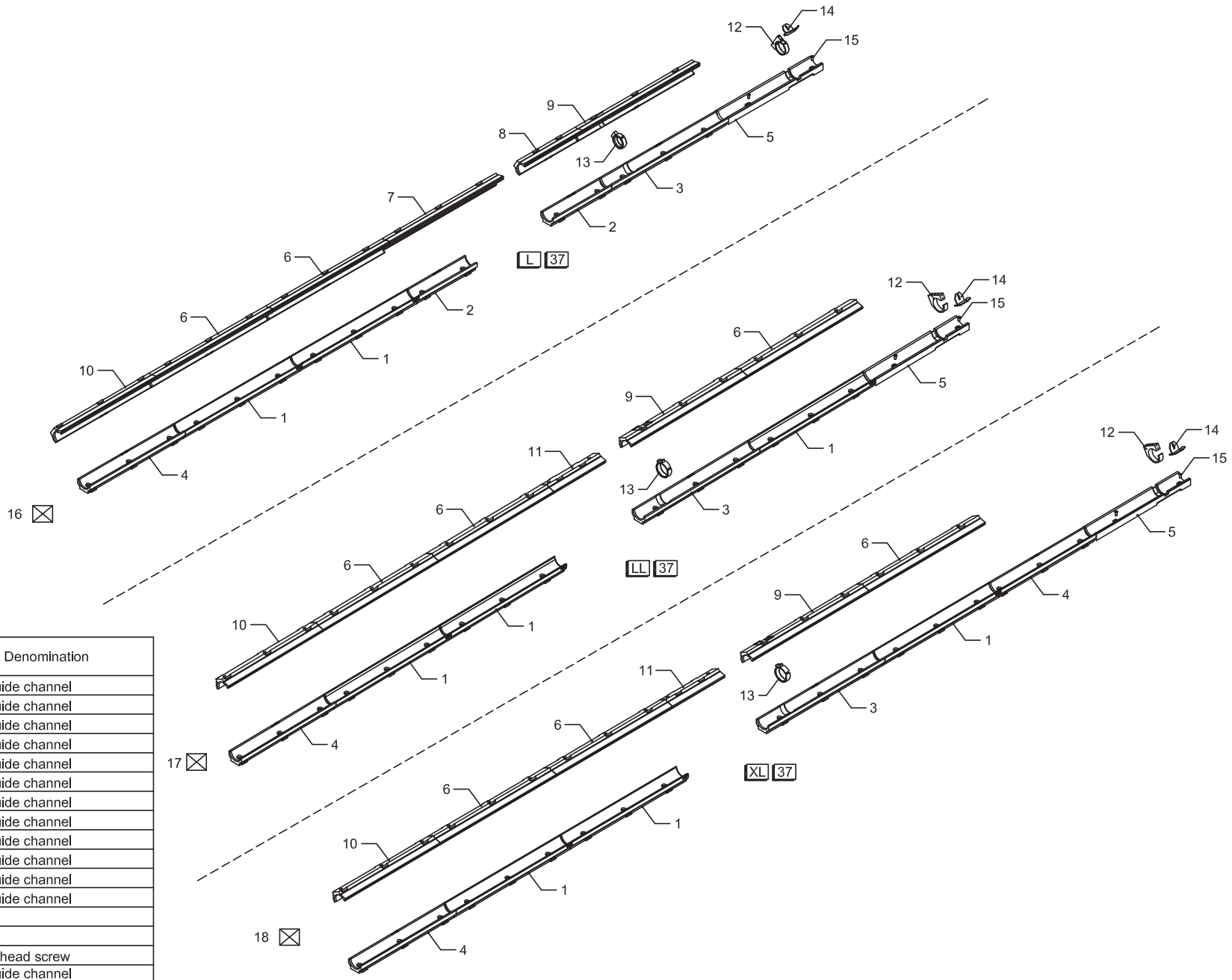
25 BAR FEEDER MODEL ACCORDING TO THEMAX .



N.	Code	QTY			Denomination
		L	LL	XL	
1	AV55CL2000	1	2	2	Upper guide channel
2	AV55CL2110	2			Upper guide channel
3	AV55CL2210	1			Upper guide channel
4	AV55CL2310			1	Upper guide channel
5	AV55CL2400	1			Upper guide channel
6	AV55CL2500	1	2	2	Upper guide channel
7	AV55CL2501	1			Upper guide channel
8	AV55CL2600	1			Upper guide channel
9	AV55CL2710	1			Upper guide channel
10	AV55CL2910		1	1	Upper guide channel
11	AV55CL3400	1			Upper guide channel
12	AV55CL3500	1			Support
13	AV51CH3600	1			Support
14	ZS0108161	2			very low head screw
15	AV55CL0025-LR	1			Lower guide channel
16	AV55CL0025-LLR	1			Lower guide channel
17	AV55CL0025-XLR	1			Lower guide channel

L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

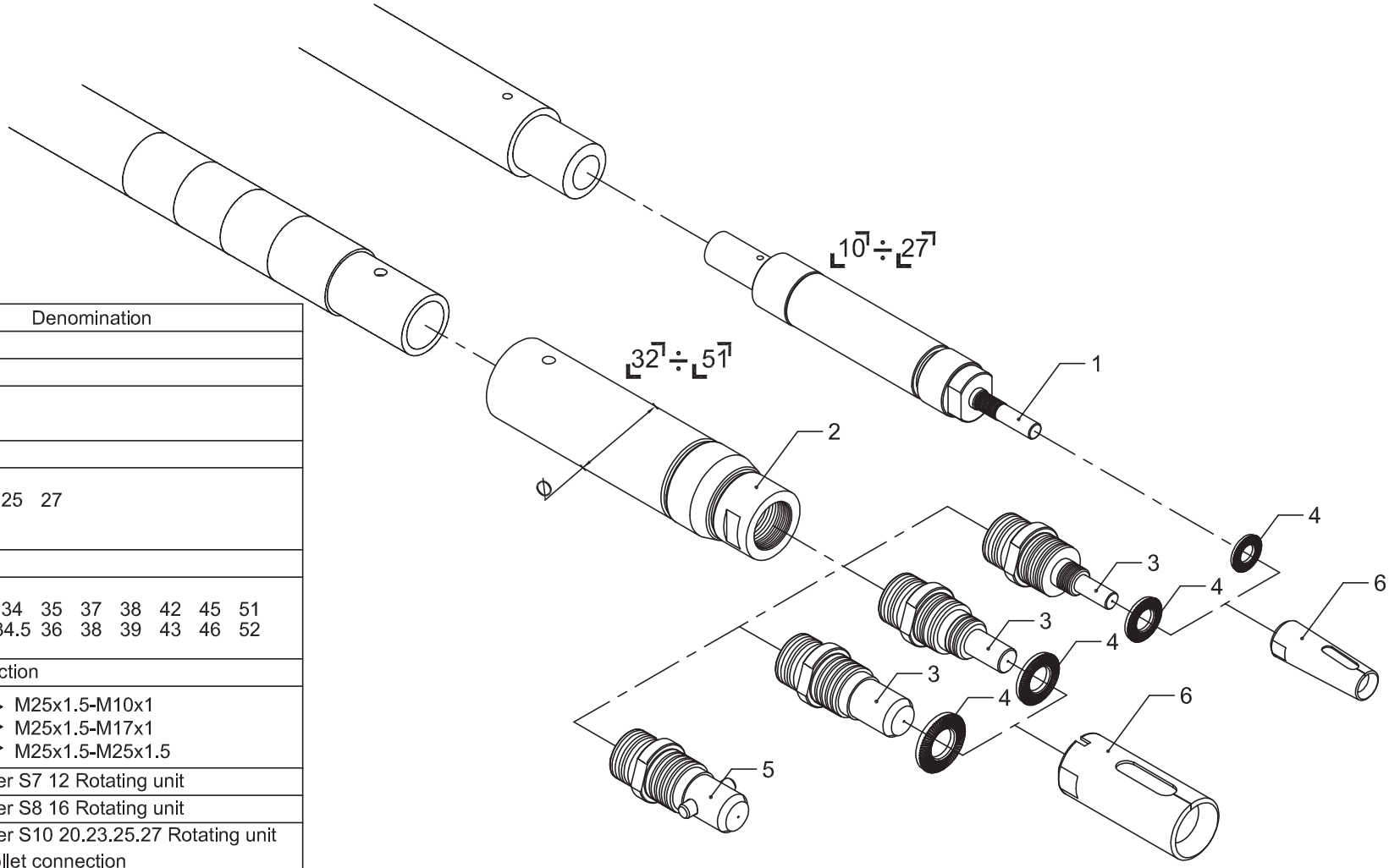
25 BAR FEEDER MODEL ACCORDING TO THEMAX .



N.	Code	QTY			Denomination
		L	LL	XL	
1	AV55CL2000	2	3	3	Upper guide channel
2	AV55CL2110	2			Upper guide channel
3	AV55CL2210	1			Upper guide channel
4	AV55CL2310	1	1	2	Upper guide channel
5	AV55CL2400	1			Upper guide channel
6	AV55CL2500	2	3	3	Upper guide channel
7	AV55CL2501	1			Upper guide channel
8	AV55CL2600	1			Upper guide channel
9	AV55CL2710	1			Upper guide channel
10	AV55CL2810	1			Upper guide channel
11	AV55CL2910		1	1	Upper guide channel
12	AV55CL3400	1			Upper guide channel
13	AV55CL3500	1			Support
14	AV51CH3600	1			Support
15	ZS0108161	2			very low head screw
16	AV55CL0037-LR	1			Lower guide channel
17	AV55CL0037-LLR	1			Lower guide channel
18	AV55CL0037-XLR	1			Lower guide channel

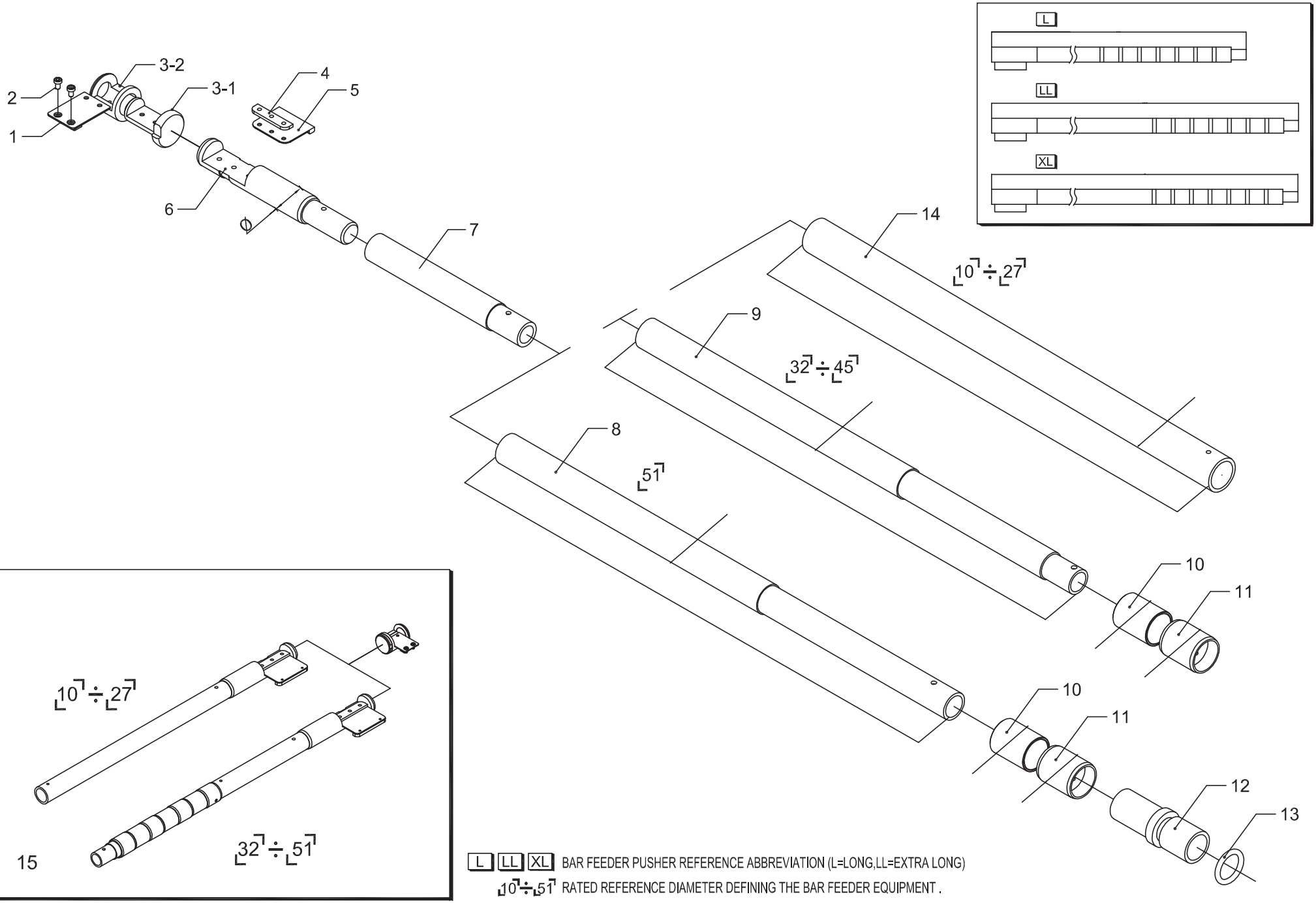
L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

37 BAR FEEDER MODEL ACCORDING TO THEMAX .



N.	Code	QTY	Denomination
1	IE_0712000	1	Rotating unit
	IE_0816000	1	Rotating unit
	L : Left thread R : Right thread		
1	IE_10__000	1	Rotating unit
	NOMINAL DIAMETER D. → 20 25 27 L : Left thread R : Right thread		
2	IE_25__000	1	Rotating unit
	NOMINAL DIAMETER D. → 32 34 35 37 38 42 45 51 L : Left thread R : Right thread ØA 33 34.5 36 38 39 43 46 52		
3	IE_25520__	1	Collet connection
	10 → M25x1.5-M10x1 17 → M25x1.5-M17x1 25 → M25x1.5-M25x1.5 L : Left thread R : Right thread		
4	IEN0712001	1	Safety washer S7 12 Rotating unit
4	IEN0813001	1	Safety washer S8 16 Rotating unit
4	IEN1016001	1	Safety washer S10 20.23.25.27 Rotating unit M25-M10 Collet connection
4	IEN1724001	1	Safety washer S16 M25-M17 Collet connection
4	IEN2636001	1	Safety washer S24 M25-M25 Collet connection
5	IE_2552020	1	Grease nipple M25-Ø20
	L : Left thread R : Right thread		
6	IE_1020___	1	Bar collet
	EX:Ø12→120 ; Ø22.5→225 Out diameter The metric thread : M7, M8, M10, M17, M25 L : Left thread R : Right thread		

⌊10⌉÷⌊51⌉ RATED REFERENCE DIAMETER DEFINING THE BAR FEEDER EQUIPMENT .



L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

⌊10⌉ ÷ ⌊51⌉ RATED REFERENCE DIAMETER DEFINING THE BAR FEEDER EQUIPMENT .

PATRIOT II-SX

BAR PUSHER DEVICE

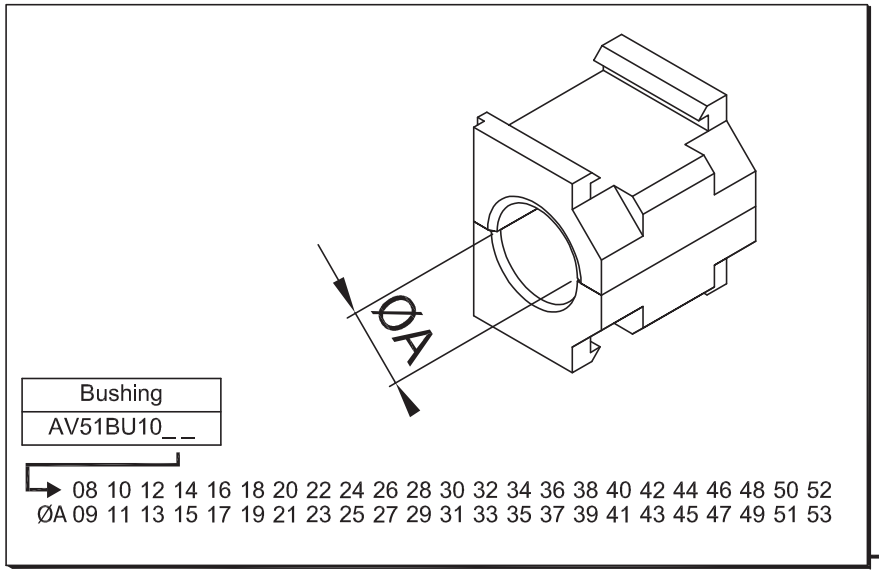
Tab. 092 2

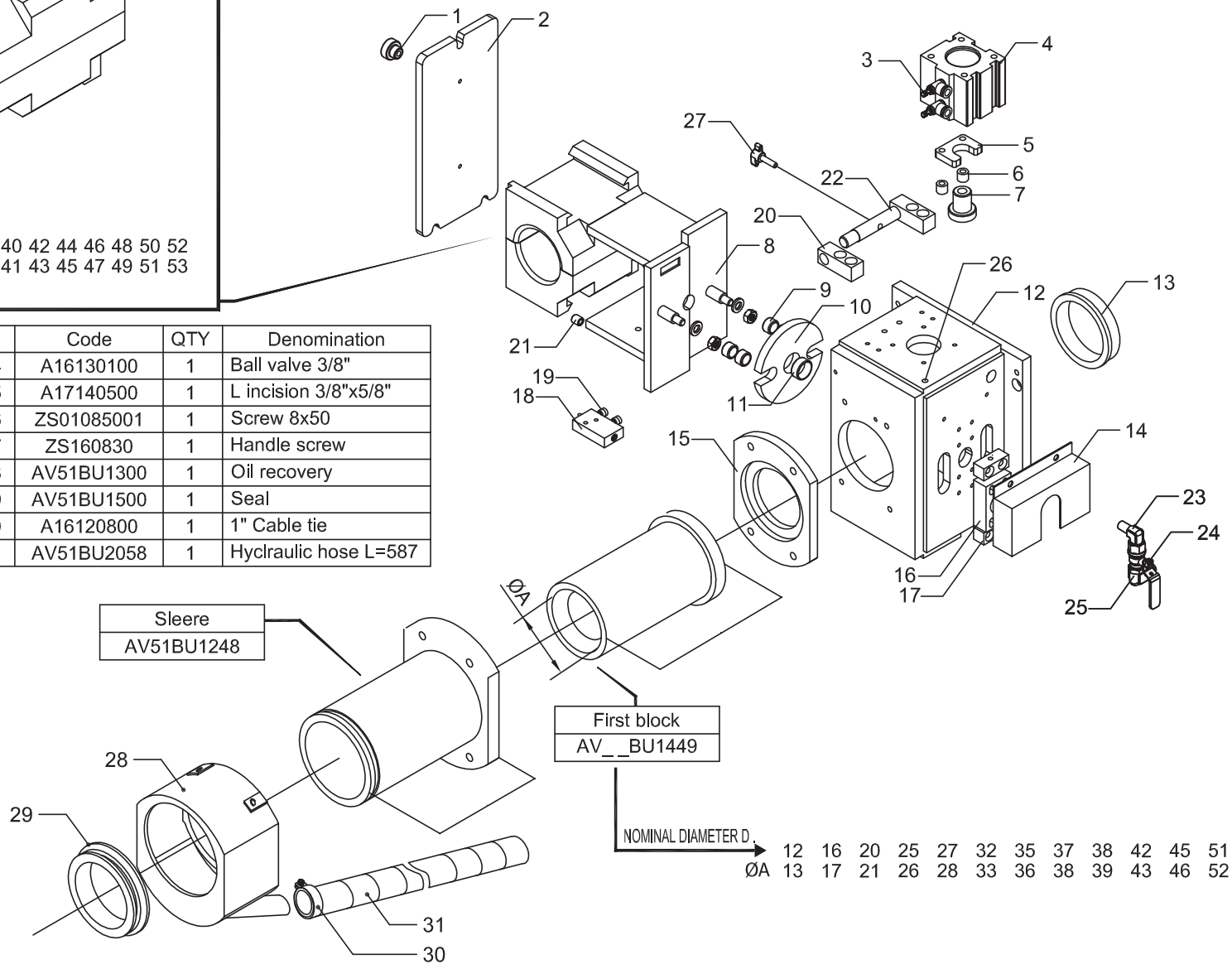
N.	Code	QTY	Denomination
1	AV51PB1010	1	Prefeed pusher flag
2	AV51PB1020	2	Socket screw
3-1	AV__PB0900	1	Prefeed pusher
	NOMINAL DIAMETER D. →		10 12 16 20 25 27 32 35 38 42 45 51
	Ø		10 12 16 20 25 27 32.5 35.5 38.5 42.5 45.5 51.5
3-2	AV__PB0901	1	Prefeed pusher casing
	NOMINAL DIAMETER D. →		35 38 42 45 51
	Ø		35.5 38.5 42.5 45.5 51.5
4	AV16PB0300	1	Anchor 10 - 16
	AV20PB0300	1	Anchor 18 - 20
	AV51PB0300	1	Anchor 25 - 51
5	AV20PB0210	1	Flag 10 - 20
	AV51PB0210	1	Flag 25 - 51
6	AV__PB0120	1	Pusher
	NOMINAL DIAMETER D. →		10 12 16 20 25 27 32 35 38 42 45 51
	Ø		10 12 16 20 25 27 32 35 38 42 45 51
XL 7	AV__PB0530	1	Bar pusher L=540
	NOMINAL DIAMETER D. →		10 12 16 20 25 27 32 35 38 42 45 51
	Ø		10 12 16 20 25 27 32 35 38 42 45 51
L 8	AV51PB0420	1	Bar pusher ø49 L=997 (51 Type)
LL 8	AV51PB0520	1	Bar pusher ø49 L=1327 (51 Type)
L 9	AV__PB0420	1	Bar pusher L=1061
LL 9	AV__PB0520	1	Bar pusher L=1391
	NOMINAL DIAMETER D. →		32 35 38 42 45
	Ø		30 33 36 40 43
10	AV__PB0700	3	Spacer
	NOMINAL DIAMETER D. →		32 35 38 42 45 51
	Ø		31.5 34 37 40 43 49
11	AV__PB0800	4	Bronze ring
	NOMINAL DIAMETER D. →		32 34 35 38 42 45 51
	Ø		31.5 34 34.5 38 41.5 44.5 51
12	AV51PB1100	1	Connector rod (51 Type)
13	AV51PB1200	1	Piston (51 Type)

N.	Code	QTY	Denomination
L 14	AV__PB0420	1	Bar pusher
LL 14	AV__PB0520	1	Bar pusher
XL 14	AV10PB0530	1	Bar pusher L=1960
	NOMINAL DIAMETER D. →		10 12 16 20 25 27
	Ø		10 10 15 18 23 24
15	AV__PB0040-__R	1	Bar pusher device
	TYPE. →		L L LL LL XL XL
	NOMINAL DIAMETER D. →		10 12 16 20 25 27 32 35 38 42 45 51
	Ø		10 11 15 19 24 25 32 34.5 38 41.5 44.3 51

L LL XL BAR FEEDER PUSHER REFERENCE ABBREVIATION (L=LONG,LL=EXTRA LONG)

10÷51 RATED REFERENCE DIAMETER DEFINING THE BAR FEEDER EQUIPMENT .

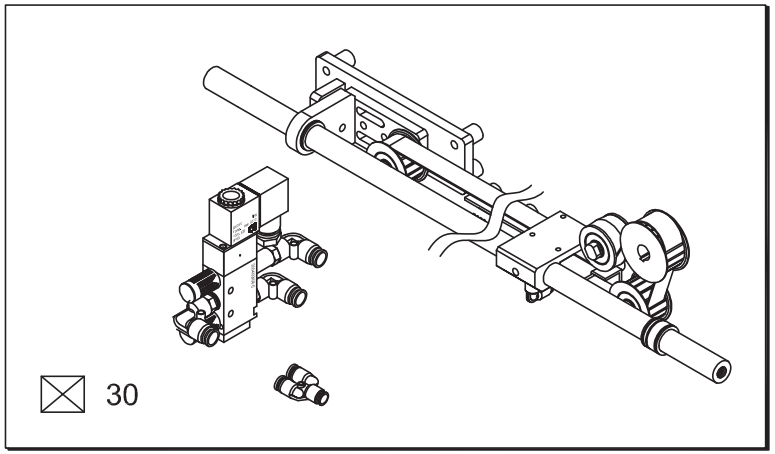


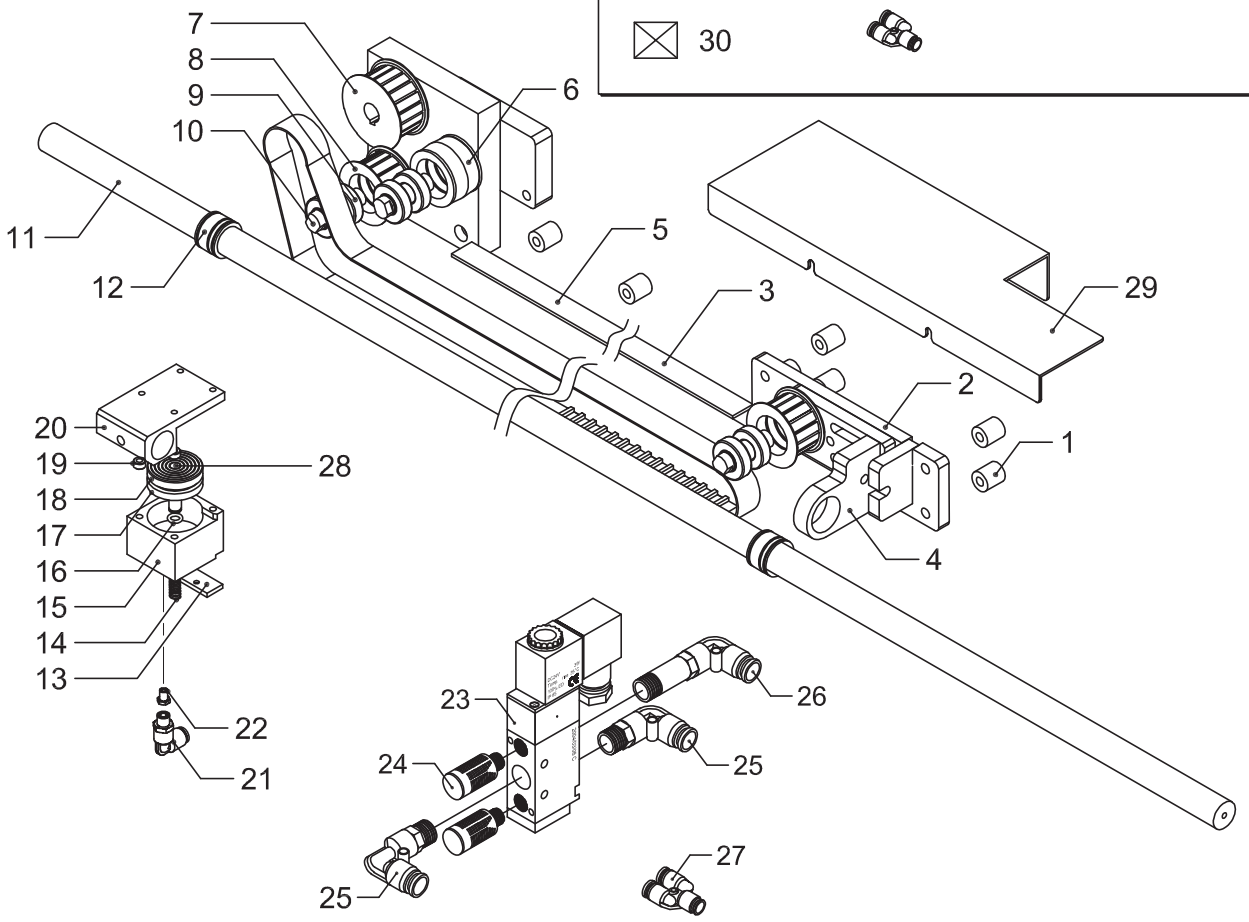


N.	Code	QTY	Denomination
1	G53120900	1	Screw
2	AV51BU0410	1	Plate
3	A12130800	2	Connection
4	A11131800	1	Cylinderr SDA 50x30
5	AV51BU0900	1	Support
6	AV51BU1600	2	Bushing
7	AV51BU0810	1	Ring
8	AV51BU0310	2	Slide
9	BIRT1220	2	Bearing
10	AV51BU0100	1	Support
11	BCB852010	1	Bearing
12	AV51BU0230	1	Case
13	AV51BU0500	1	Ring
14	AV51BU0700	1	Cover
15	AV51BU1100	1	Flange
16	AV51BU1800	1	Oil hose holder
17	AV51BU1900	2	Adjuster
18	A12120800	1	Valve
19	A13110800	2	Straight connector SPC 8-01
20	AV51BU2300	2	Block
21	AV51BU0430	2	Gasket
22	AV51BU2400	1	Shaft
23	A17110200	1	Connector 1/4"x3/8"

N.	Code	QTY	Denomination
24	A16130100	1	Ball valve 3/8"
25	A17140500	1	L incision 3/8"x5/8"
26	ZS01085001	1	Screw 8x50
27	ZS160830	1	Handle screw
28	AV51BU1300	1	Oil recovery
29	AV51BU1500	1	Seal
30	A16120800	1	1" Cable tie
31	AV51BU2058	1	Hyclraulic hose L=587

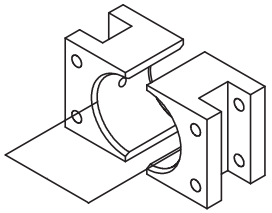
N.	Code	QTY	Denomination
1	AV51SY1000	7	Bushing
2	AV51SY0610	1	Plate
3	AV51SY1400	1	Profile
4	AV51SY0510	1	Support
5	AV51SY1800	1	Toothed belt
6	AV51SY0100	1	Roller
7	AV51SY0300	1	Pulley 19T
8	AV51SY0400	2	Pulley 16T
9	B6003ZZ	6	Bearing
10	AV51SY0200	3	Pin
11	AV51SY0901	1	Shaft
12	AV51SY0800	1	Bronze ring
13	AV51SY1200	1	Guide
14	AV51SY1700	1	Spring
15	AV51SY1300	1	Jacket
16	AV51SY2010	1	Seal
17	AV51SY1510	1	Piston
18	AV51SY1910	1	Seal
19	AV51SY1100	2	Spacer
20	AV51SY0700	1	Support
21	A13121300	1	Bended connector SHP 8-01
22	A15120300	1	Copper connector 1/8"x1/8"
23	A12120100	1	Electro valve
24	A14110200	2	Silencer
25	A13120500	2	Bended connector SPL 8-02 Ø8
26	A13120501	1	Bended connector SPLL 8-02 Ø8
27	A13130400	1	Three port Y type SPY-8 Ø8
28	AV51SY1503	1	Guide
29	AV51SY3500	1	Belt cover
30	AV51SY0030	1	Sychronization device

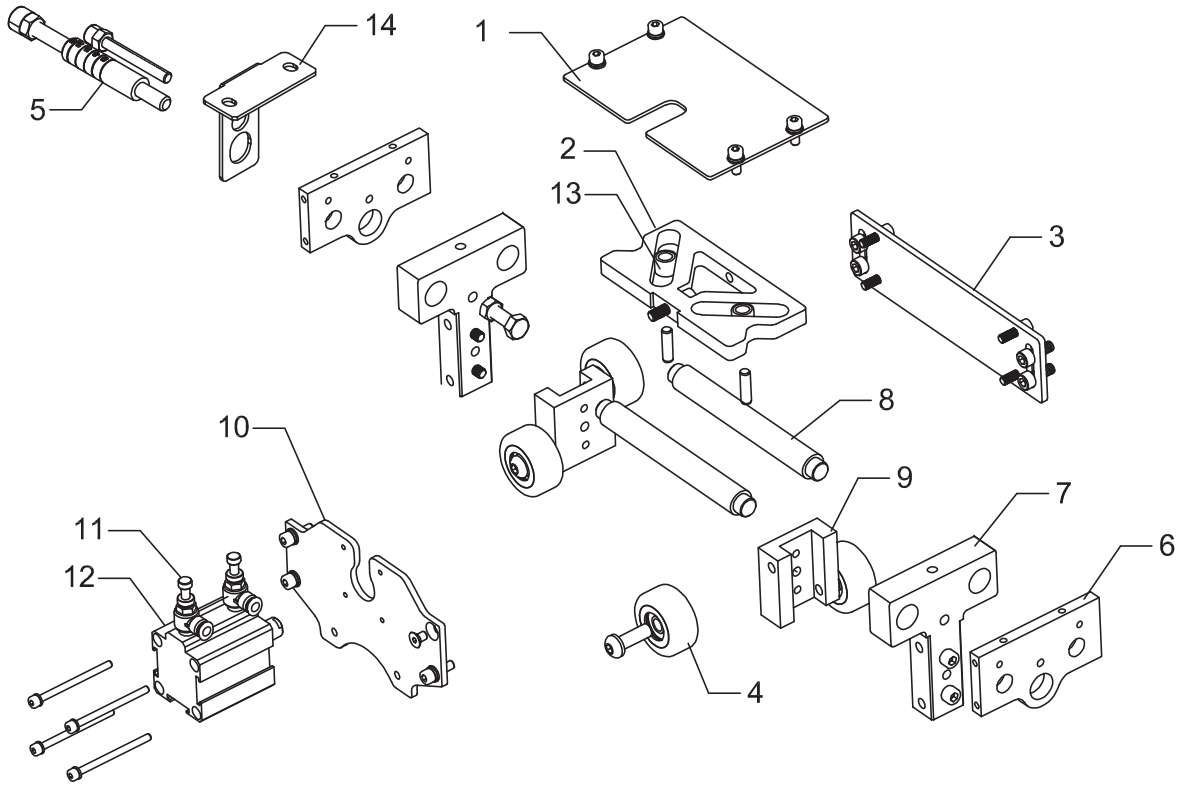




Bushing Block
AV51MO08_ _

08 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52
Ø 09 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53





N.	Code	QTY	Denomination
1	AV51MO1000	1	Plate
2	AV51MO0100	1	Cam
3	AV51MO0500	1	Plate
4	HP8127000F	4	Roller
5	AV51MO2200	1	Tube
6	AV51MO0300	2	Plate
7	AV51MO0200	2	Arm
8	AV51MO0700	2	Bar
9	AV51MO1100	2	Bracket
10	AV51MO0600	1	Plate
11	A12130100	2	Flow throttle
12	A11131100	1	Cylinder SDA32x30
13	AV51MO3000	2	Roller
14	AV51MO2300	1	Plate
15	AV51MO002A	1	Anti-vibration device

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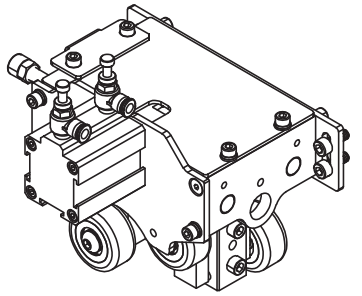
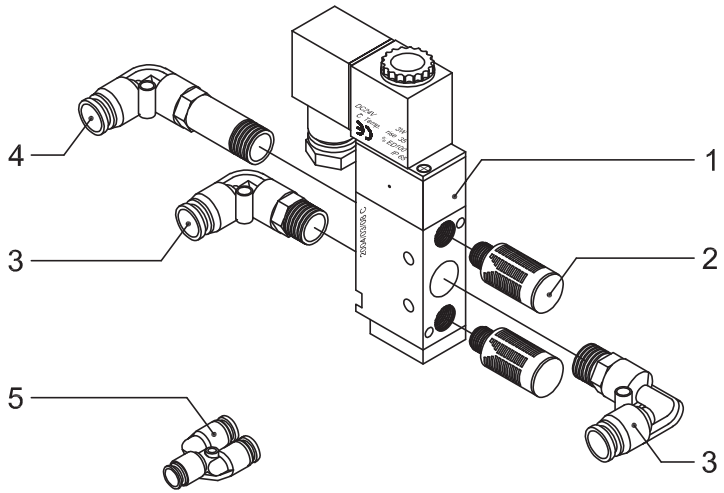
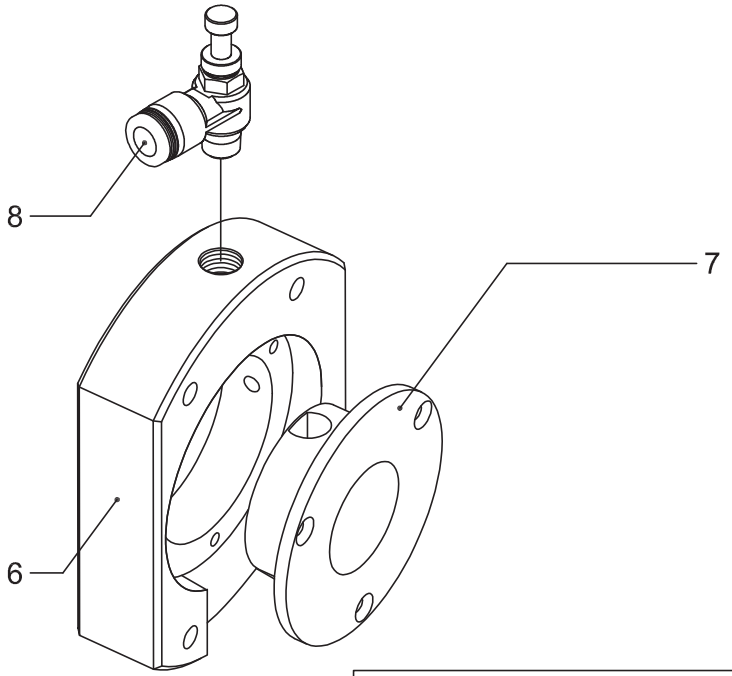
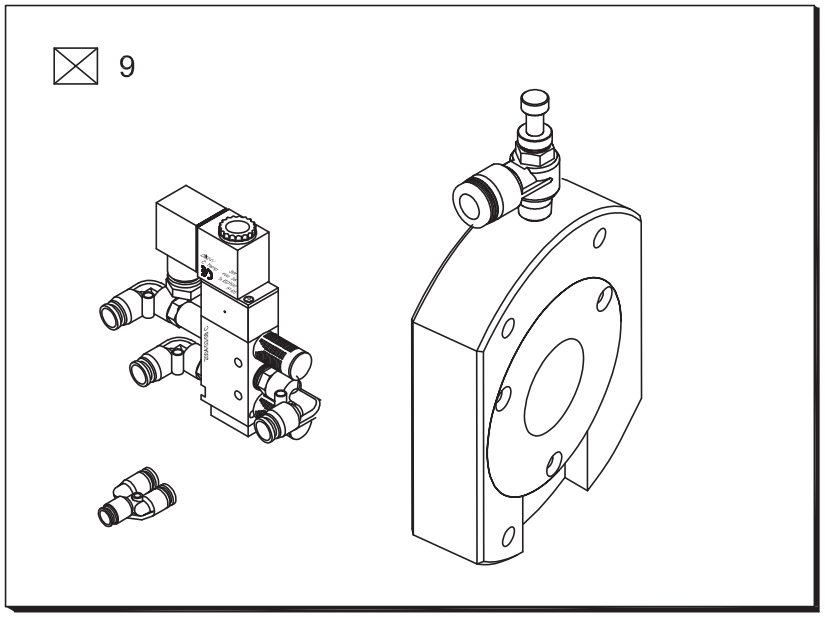
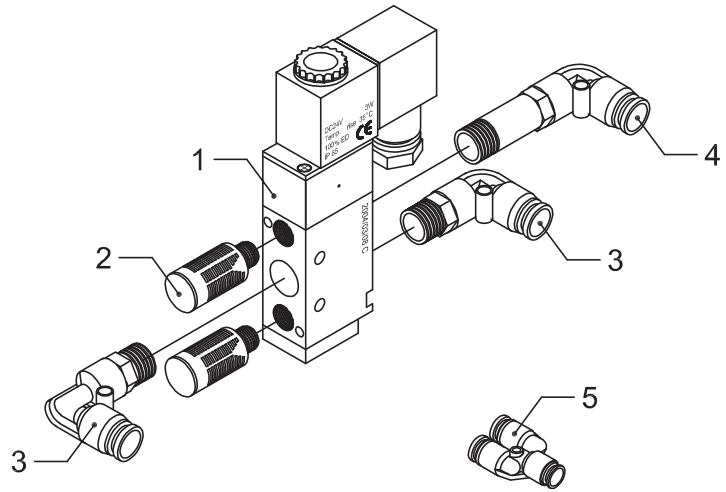


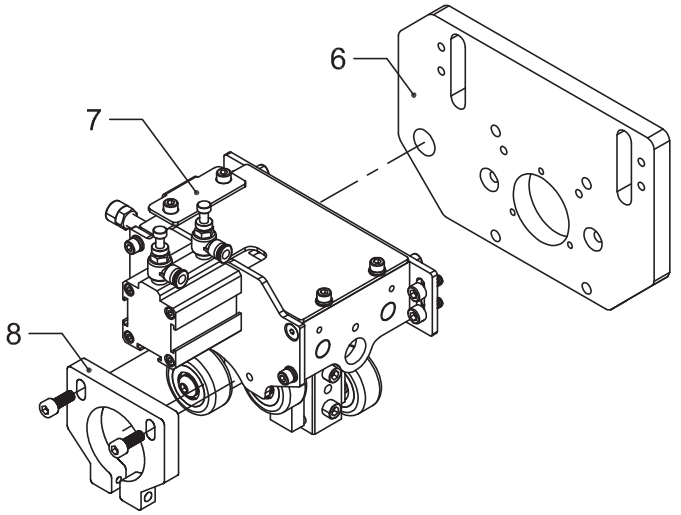






N.	Code	QTY	Denomination
1	A12120100	1	Solenoid valve
2	A14110200	2	Silencer
3	A13120500	2	Bended connector SPL 8-02 Ø8
4	A13120501	1	Bended connector SPLL 8-02 Ø8
5	A13130400	1	Three port Y type SPY-8 Ø8
6	AV51TE1001	1	Housing
7	AV51TE1101	1	Flange
8	A12130901	1	Air Control valve JSC8 1/4",Ø8
9	AV51RE0001	1	Oil Recovery





N.	Code	QTY	Denomination
1	A12120100	1	Electro valve
2	A14110200	2	Silencer
3	A13120500	2	Bended connector SPL 8-02 Ø8
4	A13120501	1	Bended connector SPLL 8-02 Ø8
5	A13130400	1	Three port Y type SPY-8 Ø8
6	AV51MO1300	1	Plate
7	AV51MO002A	1	Anti-vibraion device
8	AV37TE0700	1	Clamp
9	AV51MO1002	1	Movable anti-vibration + Solenoid valve

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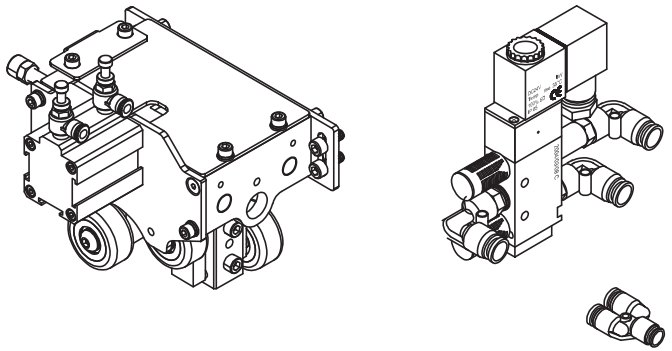
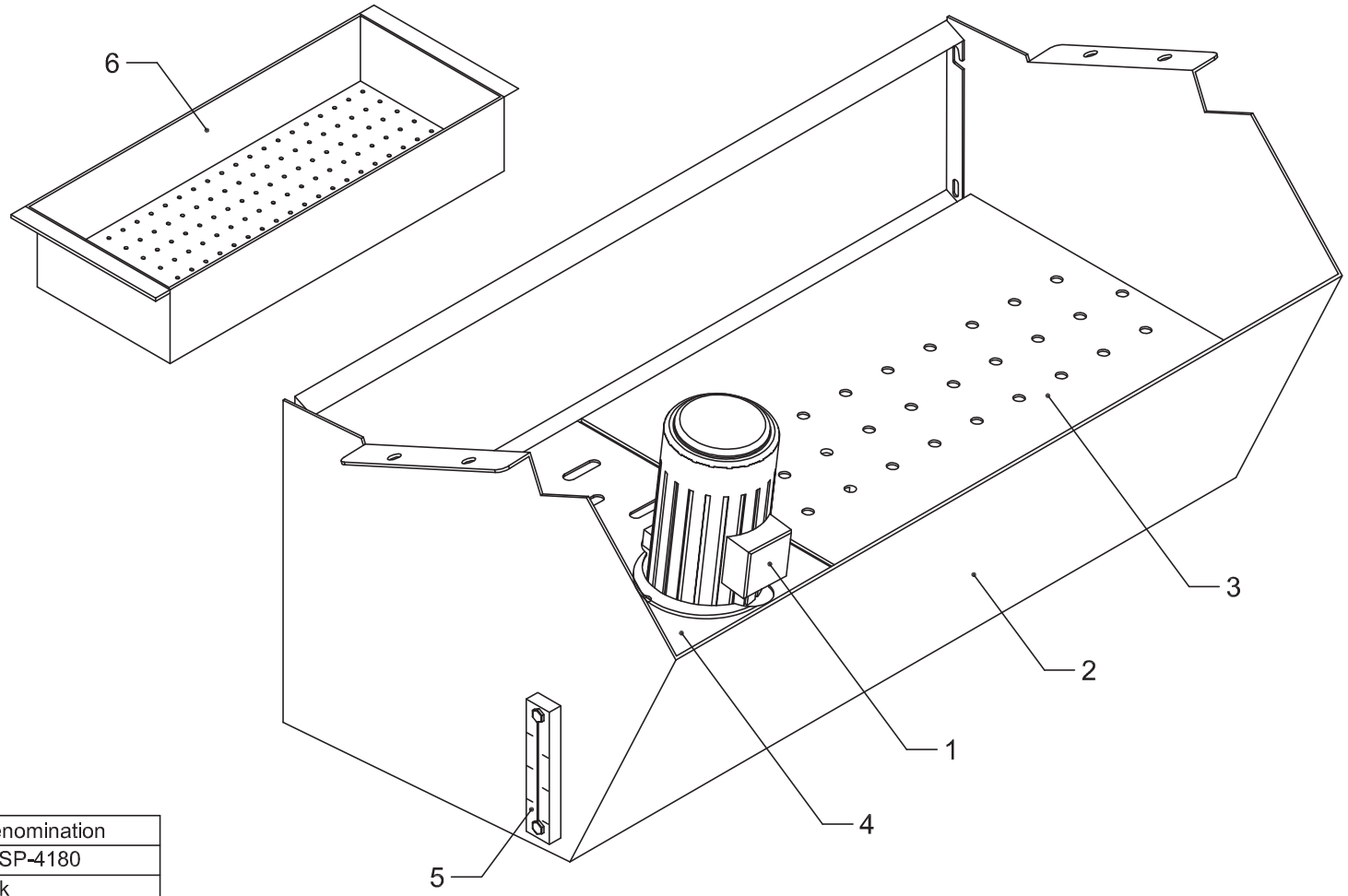


PATRIOT Ⅱ-SX

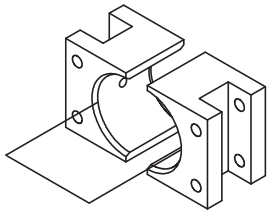
MOVABLE ANTI-VIBRATION + SOLENOID VALVE

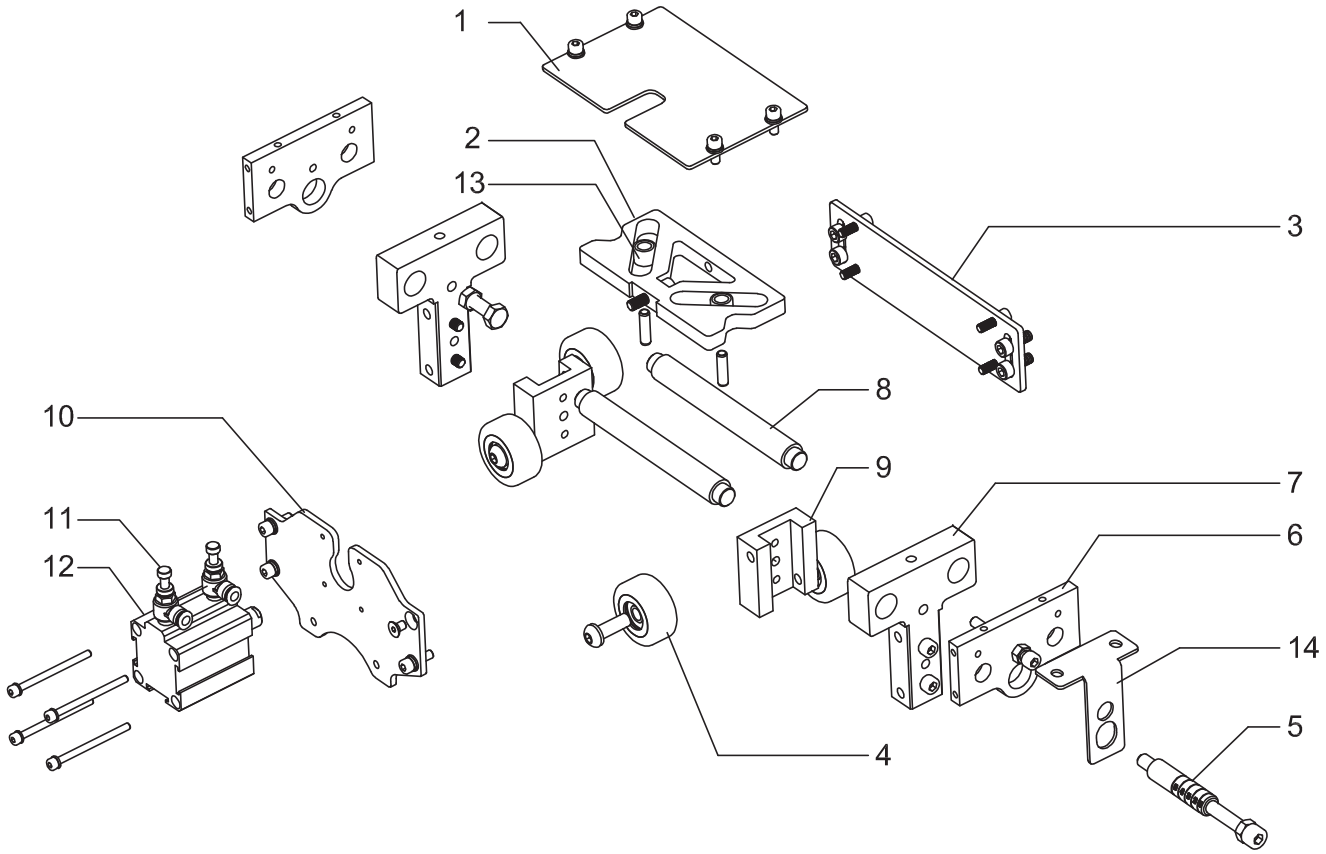


N.	Code	QTY	Denomination
1	AV51OL0900	1	Pump SP-4180
2	AV51OL0100	1	Oil tank
3	AV51OL0220	1	Cover
4	AV51OL0240	1	Cover
5	A16110100	1	Oil meter
6	AV51OL0400	1	Remnan tank

Bushing Block
AV51MO08_ _

08 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52
Ø 09 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53





N.	Code	QTY	Denomination
1	AV51MO1000	1	Plate
2	AV51MO0100	1	Cam
3	AV51MO0500	1	Plate
4	HP8127000F	4	Roller
5	AV51MO2200	1	Tube
6	AV51MO0300	2	Plate
7	AV51MO0200	2	Arm
8	AV51MO0700	2	Bar
9	AV51MO1100	2	Bracket
10	AV51MO0600	1	Plate
11	A12130100	2	Flow throttle
12	A11131100	1	Cylinder SDA32x30
13	AV51MO3000	2	Roller
14	AV51MO2300	1	Plate
15	AV51MO000A	1	Anti-vibration device

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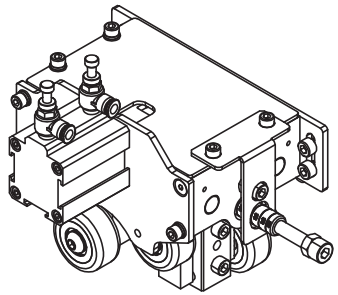
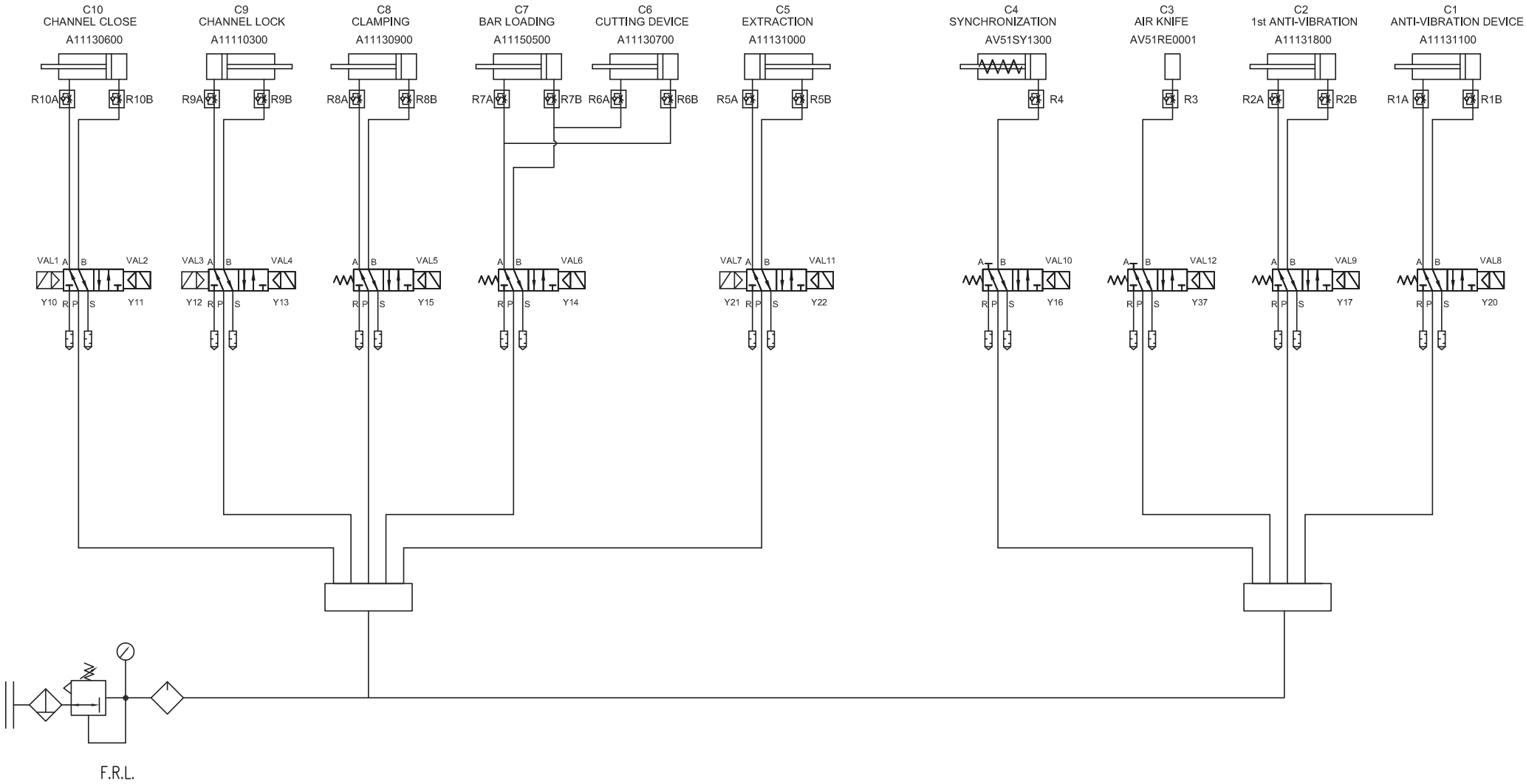




PATRIOT II

PRESSURE DIAGRAM

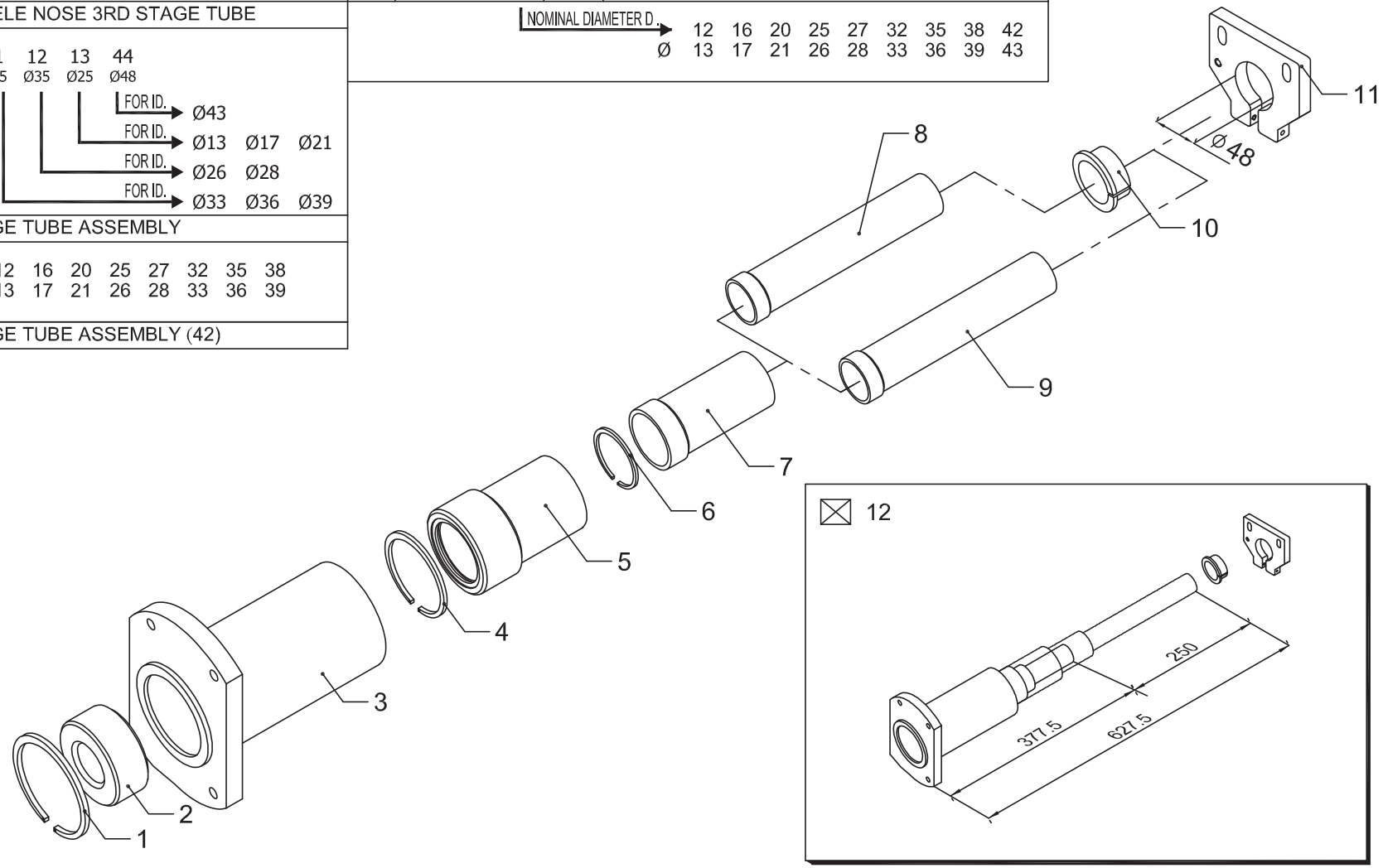
Tab. 140 1

PRESSURE DIAGRAM

Drawing No	Item designation	Description and function	Technical data	Quantity	Supplier	Suppliers reference	Remarks
A12110300	F.R.L.	FILTER,REGULATOR, LUBRICATOR	1.0-10kgf/cm²	1	AIRTAC	BFC-2000	
A12120200	VAL 1	5/2 WAY VALVE	DC24	1		4V220-08	VLMH9465
	VAL 2						
	VAL 3			1			
	VAL 4						
	VAL 7			1			
	VAL 11						
A12120100	VAL 5	5/2 WAY VALVE	DC24	1		4V210-08	
	VAL 6			1			
	VAL 8			1			
	VAL 9			1			
	VAL 10			1			
	VAL 12			1			
A11131100	C1	ANTI-VIBRATION DEVICE		1		SDA 32x30	
A11131800	C2	1st ANTI-VIBRATION		1		SDA 50x30	
AV51RE0001	C3	AIR KNIFE		1		AV51RE0001	
AV51SY1300	C4	SYNCHRONIZATION		1		AV51SY1300	
A11131000	C5	EXTRACTION		1		SDA 80x45	
A11130700	C6	CUTTING DEVICE		1		SDA 12x15	
A11150500	C7	BAR LOADING		1		SC-63x25-CB	
A11130900	C8	CLAMPING		1		SDA 80x100	
A11130300	C9	CHANNEL LOCK		1		SDA 40x25	
A11130600	C10	CHANNEL CLOSE & OPEN		1		SDA 40x25	
A12130100	R1A	FLOW REGULATOR	1-10 bar	1		SC6-01MA (PSB6-01NI)	ISO 9001
	R1B			1			
A12130800	R2A	FLOW REGULATOR		1		JSC 8-02 1/4",Ø8	
	R2B			1			
	R10B			1			
A12130901	R3	FLOW REGULATOR		1		JSC 8-02 1/4",Ø8	
A12121300	R4	L tape jiont		1		SPH8-01	
A12130900	R5A	FLOW REGULATOR		1		JSC 8-03 1/4",Ø8	
	R5B			1			
	R7A			1			
	R7B			1			
	R8A			1			
	R8B			1			
A12131000	R9A	HOSE TO HOSE FLOW REGULATOR		1		SPA-8 Ø8	
	R9B			1			
	R10A			1			

N.	Code	QTY	Denomination
1	DHO-88	1	INTERNAL SNAP RING (DHO-88)
2	MEP2061__	1	TELE NOSE 1ST STAGE CHANNEL ID INSERT
	NOMINAL DIAMETER D. → 24 25 36 27 28 29 39 30 46 Ø 39 36 33 28 26 21 17 13 43		
3	MEK206102	1	250MM TELE NOSE 1ST STAGE TUBE
4	DHO-65	1	INTERNAL SNAP RING (DHO-65)
5	MEK206104	1	250MM TELE NOSE 2ND STAGE TUBE
6	DHO-50	1	INTERNAL SNAP RING (DHO-50)
7	MEK206106__	1	250MM TELE NOSE 3RD STAGE TUBE
	NOMINAL DIAMETER D. → 11 (Ø45) 12 (Ø35) 13 (Ø25) 44 (Ø48) FOR ID. → Ø43 FOR ID. → Ø13 Ø17 Ø21 FOR ID. → Ø26 Ø28 FOR ID. → Ø33 Ø36 Ø39		
8	MEK206108__	1	4TH STAGE TUBE ASSEMBLY
	NOMINAL DIAMETER D. → 12 16 20 25 27 32 35 38 Ø 13 17 21 26 28 33 36 39		
9	MEP206145	1	4TH STAGE TUBE ASSEMBLY (42)

N.	Code	QTY	Denomination
10	MEP2061__	1	RING (12~38)
	NOMINAL DIAMETER D. → 40 (Ø40) 41 (Ø30) 42 (Ø22) FOR ID. → Ø13 Ø17 Ø21 FOR ID. → Ø26 Ø28 FOR ID. → Ø33 Ø36 Ø39		
11	AV37TE0700	1	PLATE
12	MEK206110__	1	250MM TELE NOSE ASSEMBLY
	NOMINAL DIAMETER D. → 12 16 20 25 27 32 35 38 42 Ø 13 17 21 26 28 33 36 39 43		



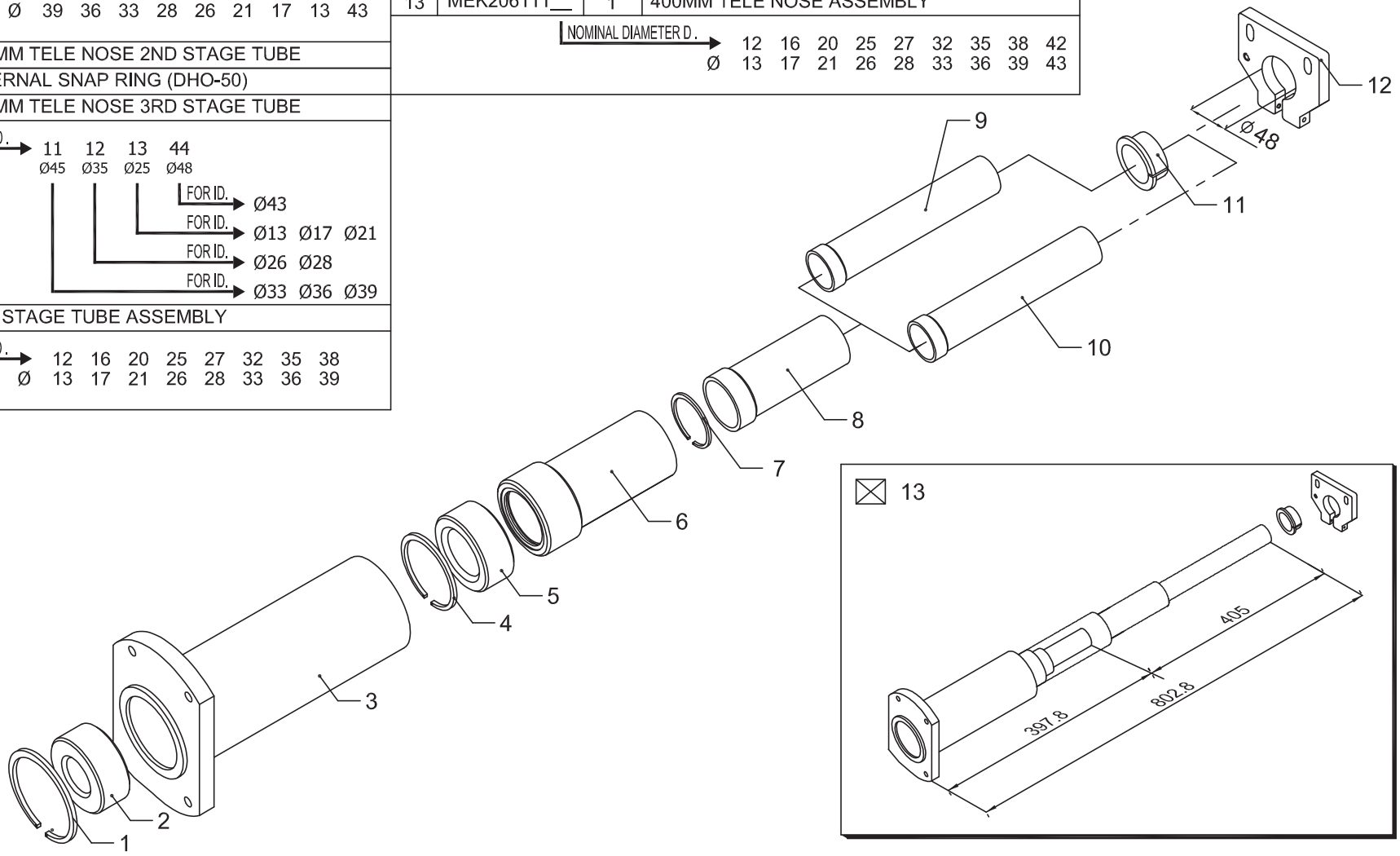
PATRIOT II

250MM TELE NOSE ASSEMBLY

Tab. MEK206110__ 1

N.	Code	QTY	Denomination
1	DHO-88	1	INTERNAL SNAP RING (DHO-88)
2	MEP2061__	1	TELE NOSE 1ST STAGE CHANNEL ID INSERT
	NOMINAL DIAMETER D.	24 25 26 27 28 29 39 30 46	
	Ø	39 36 33 28 26 21 17 13 43	
3	MEK206101	1	400MM TELE NOSE 1ST STAGE TUBE
4	ZS07R070	1	INTERNAL SNAP RING
5	MEP2061__	1	TELE NOSE 2ND STAGE CHANNEL ID INSERT
	NOMINAL DIAMETER D.	31 32 33 34 35 36 38 37 47	
	Ø	39 36 33 28 26 21 17 13 43	
6	MEK206105	1	400MM TELE NOSE 2ND STAGE TUBE
7	DHO-50	1	INTERNAL SNAP RING (DHO-50)
8	MEK206107__	1	400MM TELE NOSE 3RD STAGE TUBE
	NOMINAL DIAMETER D.	11 (Ø45)	12 (Ø35) 13 (Ø25) 44 (Ø48)
	FOR ID.		Ø43
	FOR ID.		Ø13 Ø17 Ø21
	FOR ID.		Ø26 Ø28
	FOR ID.		Ø33 Ø36 Ø39
9	MEK206108__	1	4TH STAGE TUBE ASSEMBLY
	NOMINAL DIAMETER D.	12 16 20 25 27 32 35 38	
	Ø	13 17 21 26 28 33 36 39	

N.	Code	QTY	Denomination
10	MEP206145	1	4TH STAGE TUBE ASSEMBLY (42)
11	MEP2061__	1	RING (12~38)
	NOMINAL DIAMETER D.	40 (Ø40)	41 (Ø30) 42 (Ø22)
	FOR ID.		Ø13 Ø17 Ø21
	FOR ID.		Ø26 Ø28
	FOR ID.		Ø33 Ø36 Ø39
12	AV37TE0700	1	PLATE
13	MEK206111__	1	400MM TELE NOSE ASSEMBLY
	NOMINAL DIAMETER D.	12 16 20 25 27 32 35 38 42	
	Ø	13 17 21 26 28 33 36 39 43	



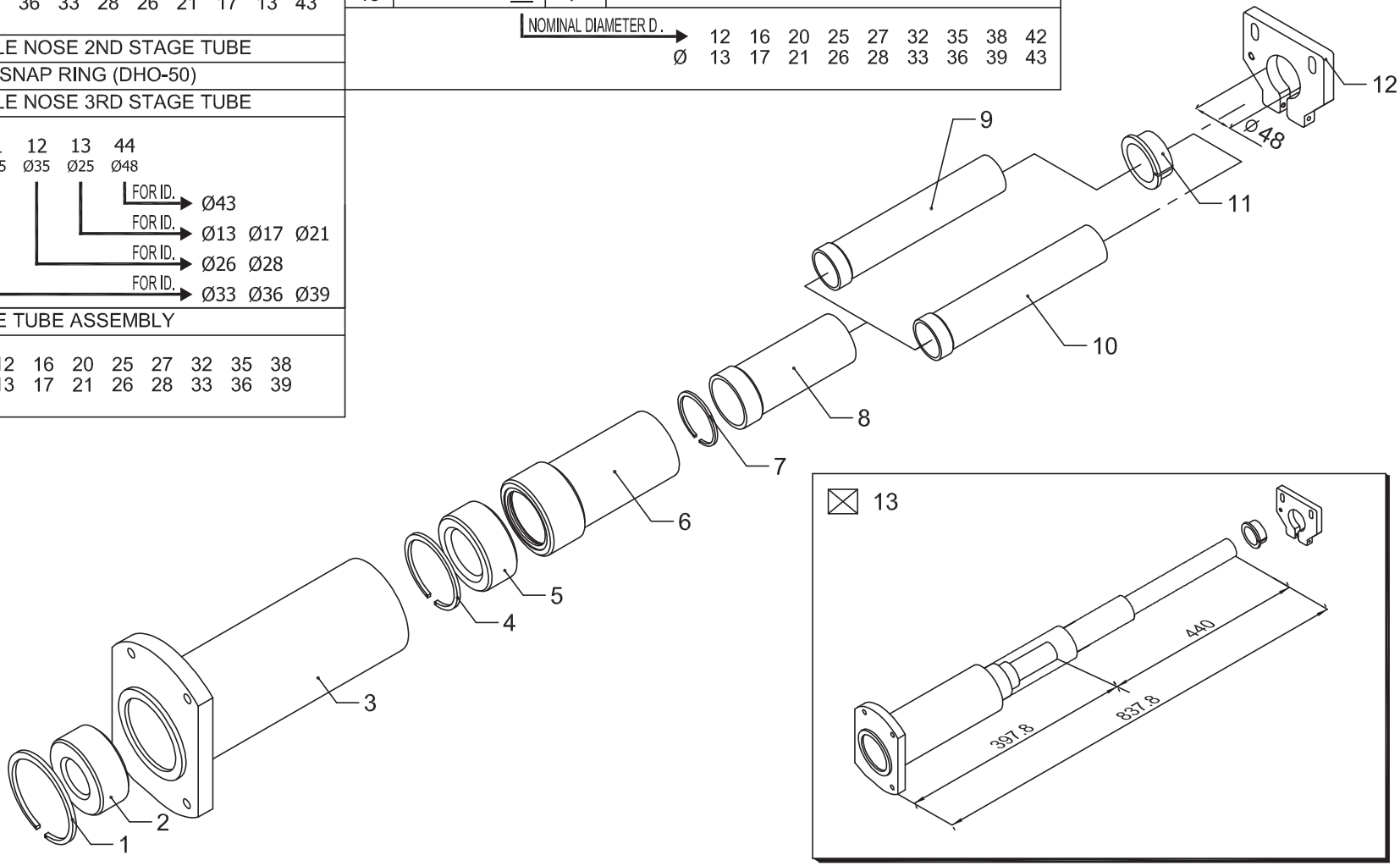
PATRIOT II

400MM TELE NOSE ASSEMBLY

Tab. MEK206111__ 1

N.	Code	QTY	Denomination
1	DHO-88	1	INTERNAL SNAP RING (DHO-88)
2	MEP2061__	1	TELE NOSE 1ST STAGE CHANNEL ID INSERT
	NOMINAL DIAMETER D. → 24 25 26 27 28 29 39 30 46 Ø 39 36 33 28 26 21 17 13 43		
3	MEK20610110	1	440MM TELE NOSE 1ST STAGE TUBE
4	ZS07R070	1	INTERNAL SNAP RING
5	MEP2061__	1	TELE NOSE 2ND STAGE CHANNEL ID INSERT
	NOMINAL DIAMETER D. → 31 32 33 34 35 36 38 37 47 Ø 39 36 33 28 26 21 17 13 43		
6	MEK20610510	1	440MM TELE NOSE 2ND STAGE TUBE
7	DHO-50	1	INTERNAL SNAP RING (DHO-50)
8	MEK206107__	1	440MM TELE NOSE 3RD STAGE TUBE
	NOMINAL DIAMETER D. → 11 (Ø45) 12 (Ø35) 13 (Ø25) 44 (Ø48) FOR ID. → Ø43 FOR ID. → Ø13 Ø17 Ø21 FOR ID. → Ø26 Ø28 FOR ID. → Ø33 Ø36 Ø39		
9	MEK206108__	1	4TH STAGE TUBE ASSEMBLY
	NOMINAL DIAMETER D. → 12 16 20 25 27 32 35 38 Ø 13 17 21 26 28 33 36 39		

N.	Code	QTY	Denomination
10	MEP206145	1	4TH STAGE TUBE ASSEMBLY (42)
11	MEP2061__	1	RING (12~38)
	NOMINAL DIAMETER D. → 40 (Ø40) 41 (Ø30) 42 (Ø22) FOR ID. → Ø13 Ø17 Ø21 FOR ID. → Ø26 Ø28 FOR ID. → Ø33 Ø36 Ø39		
12	AV37TE0700	1	PLATE
13	MEK206112__	1	440MM TELE NOSE ASSEMBLY
	NOMINAL DIAMETER D. → 12 16 20 25 27 32 35 38 42 Ø 13 17 21 26 28 33 36 39 43		



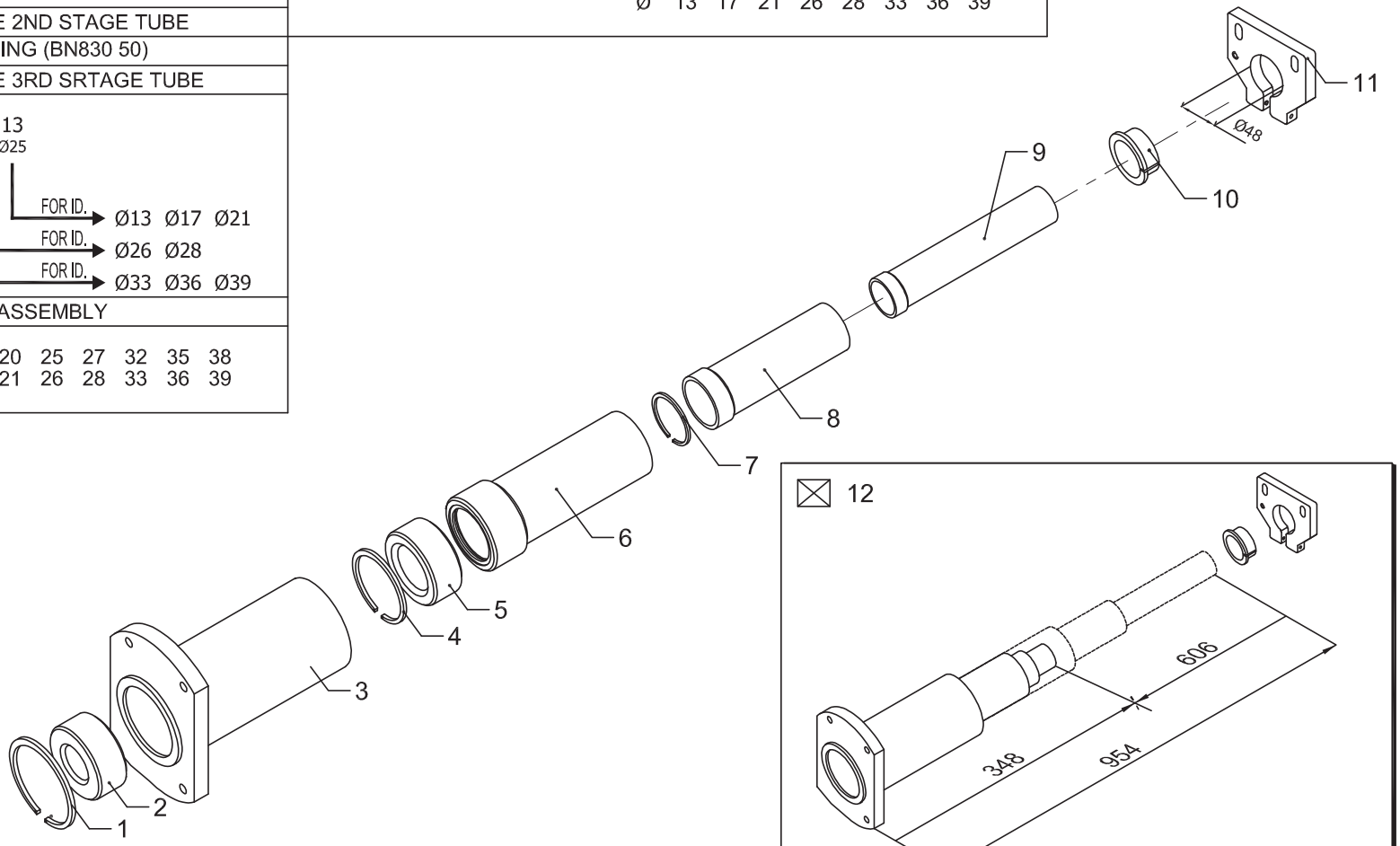
PATRIOT II

440MM TELE NOSE ASSEMBLY

Tab. MEK206112__ 1

N.	Code	QTY	Denomination
1	DHO-88	1	INTERNAL SNAP RING (DHO-88)
2	MEP2061_ _	1	TELE NOSE 1ST STAGE CHANNEL ID INSERT
	NOMINAL DIAMETER D. → 24 25 26 27 28 29 39 30 Ø 39 36 33 28 26 21 17 13		
3	MEK206101	1	590MM TELE NOSE 1ST STAGE TUBE
4	ZS07R070	1	INTERNAL SNAP RING
5	MEP2061_ _	1	TELE NOSE 2ND STAGE CHANNEL ID INSERT
	NOMINAL DIAMETER D. → 31 32 33 34 35 36 38 37 Ø 39 36 33 28 26 21 17 13		
6	MEK206205	1	590MM TELE NOSE 2ND STAGE TUBE
7	DHO-50	1	INTERNAL SNAP RING (BN830 50)
8	MEK206207_ _	1	590MM TELE NOSE 3RD SRTAGE TUBE
	NOMINAL DIAMETER D. → 11 12 13 Ø45 Ø35 Ø25 FOR ID. → Ø13 Ø17 Ø21 FOR ID. → Ø26 Ø28 FOR ID. → Ø33 Ø36 Ø39		
9	MEK206208_ _	1	4TH STAGE TUBE ASSEMBLY
	NOMINAL DIAMETER D. → 12 16 20 25 27 32 35 38 Ø 13 17 21 26 28 33 36 39		

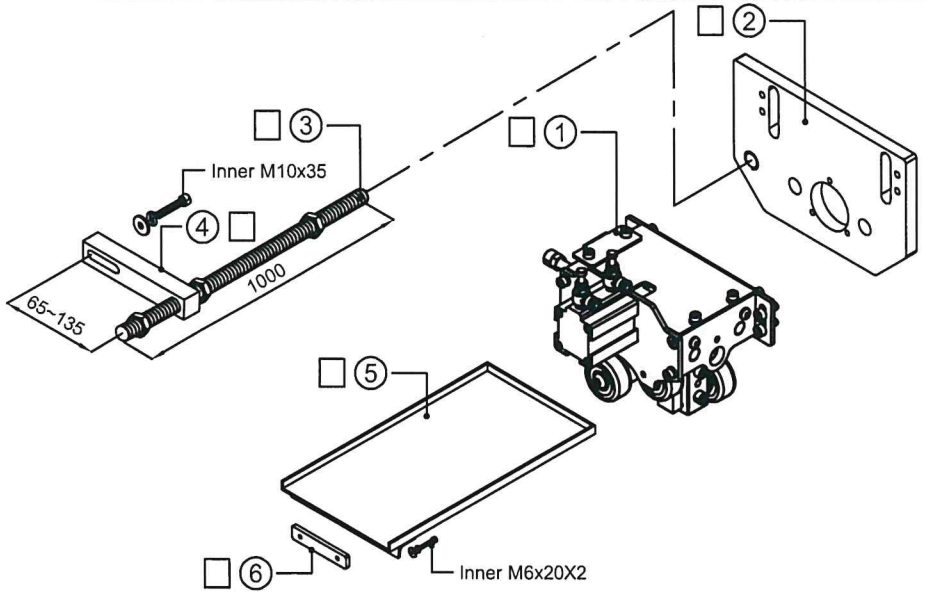
N.	Code	QTY	Denomination
10	MEP2061_ _	1	RING (12~38)
	NOMINAL DIAMETER D. → 40 41 42 Ø40 Ø30 Ø22 FOR ID. → Ø13 Ø17 Ø21 FOR ID. → Ø26 Ø28 FOR ID. → Ø33 Ø36 Ø39		
11	AV37TE0700	1	PLATE
12	MEK206113_ _	1	590MM TELE NOSE ASSEMBLY
	NOMINAL DIAMETER D. → 12 16 20 25 27 32 35 38 Ø 13 17 21 26 28 33 36 39		



PATRIOT II

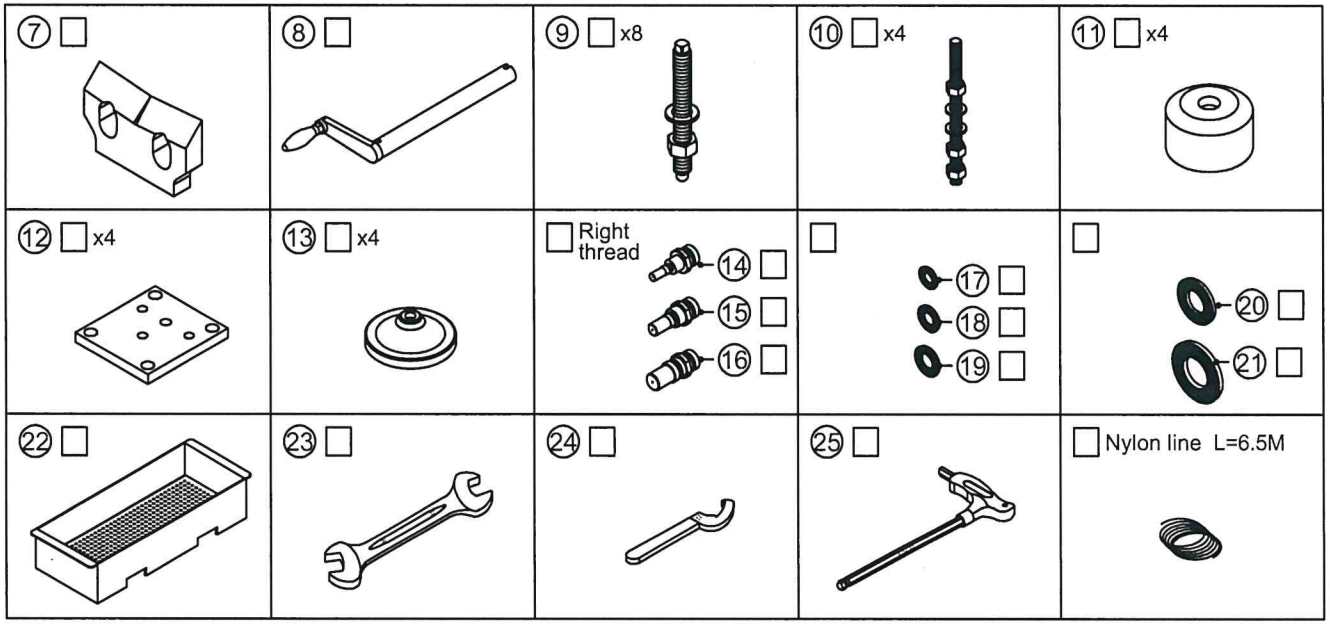
606MM TELE NOSE ASSEMBLY

Tab. MEK206113_ _ 1



設計管制
2024.4.25
發行章

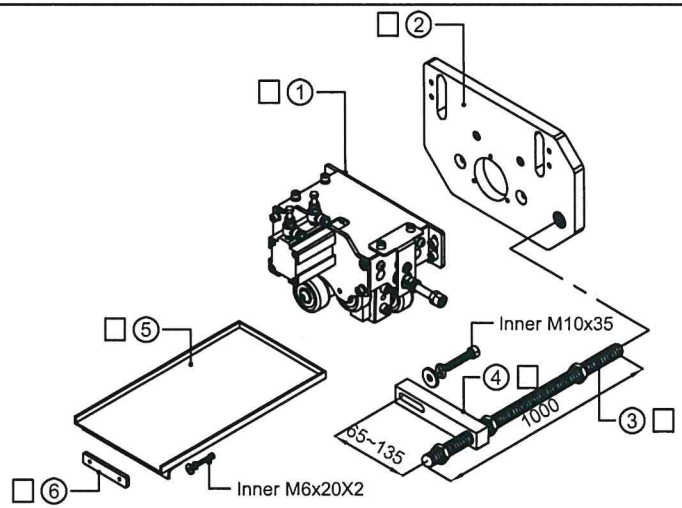
N.	Code	QTY	Description
1	AV51MO002A	1	Anti-vibration device
2	AV51MO1300	1	Adapter plate
3	AV51SY2200	1	Thread bar
4	AV51SY2101	1	Support
5	MEK20801	1	Drip pan
6	MEP20814	1	Plate
7	AV51GR2010	1	Clip cutter
8	AV51MA3300	1	Lever shaft
9	AV51BA1400	8	Arbor
10	AV51BA1500	4	Thread rod
11	AV51BA1200	4	Ejector block
12	AV51BA1100	4	Levelling pad
13	AV51BA3000	4	Levelling pad
14	IER2552010	1	Adapter M25-M10
15	IER2552017	1	Adapter M25-M17
16	IER2552025	1	Adapter M25-M25
17	IEN0712001	1	Washer(R) S7
18	IEN0813001	1	Washer(R) S8
19	IEN1016001	1	Washer(R) S10
20	IEN1724001	1	Washer(R) S16
21	IEN2636001	1	Washer(R) S24
22	AV51OL0400	1	Remnant box
23	ZT013032	1	Open end wrench 30-32
24	ZT040100	1	Claw wrench FGS 30-32
25	ZT031001	1	Hex wrench



PATRIOT

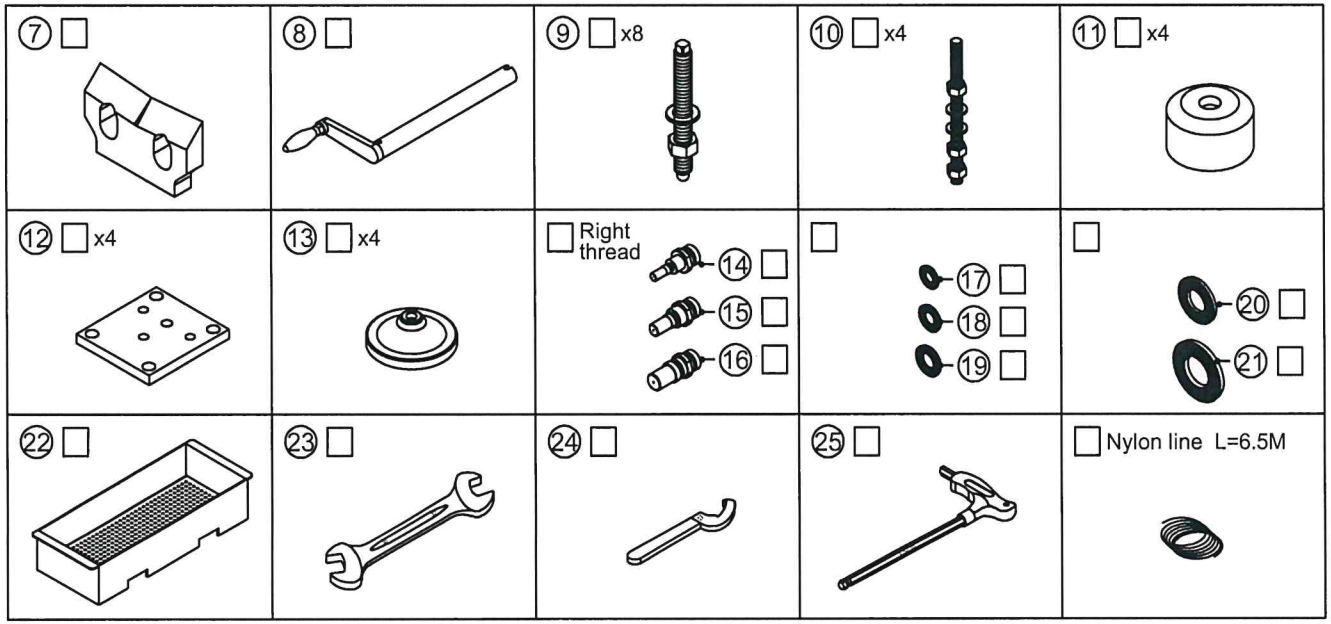
SWISS HS SX

Tab. 51-000300 16



設計管制
2024.4.25
發行章

N.	Code	QTY	Description
1	AV51MO000A	1	Anti-vibration device
2	AV51MO1300	1	Adapter plate
3	AV51SY2200	1	Thread bar
4	AV51SY2101	1	Support
5	MEK20801	1	Drip pan
6	MEP20814	1	Plate
7	AV51GR2010	1	Clip cutter
8	AV51MA3300	1	Lever shaft
9	AV51BA1400	8	Arbor
10	AV51BA1500	4	Thread rod
11	AV51BA1200	4	Ejector block
12	AV51BA1100	4	Levelling pad
13	AV51BA3000	4	Levelling pad
14	IER2552010	1	Adapter M25-M10
15	IER2552017	1	Adapter M25-M17
16	IER2552025	1	Adapter M25-M25
17	IEN0712001	1	Washer(R) S7
18	IEN0813001	1	Washer(R) S8
19	IEN1016001	1	Washer(R) S10
20	IEN1724001	1	Washer(R) S16
21	IEN2636001	1	Washer(R) S24
22	AV51OL0400	1	Remnant box
23	ZT013032	1	Open end wrench 30-32
24	ZT040100	1	Claw wrench FGS 30-32
25	ZT031001	1	Hex wrench



PATRIOT

SWISS HS DX

Tab. 51-000400 8

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Patriot 338 & 551 GEN II

OPERATIONS MANUAL

Technical data subject to change without notice

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