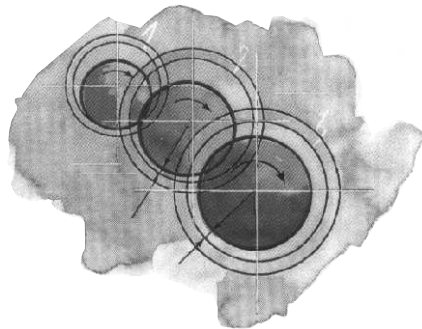


INSTRUCTION MANUAL FOR AUTOMATIC MAGAZINE BAR LOADER

QUICK LOAD

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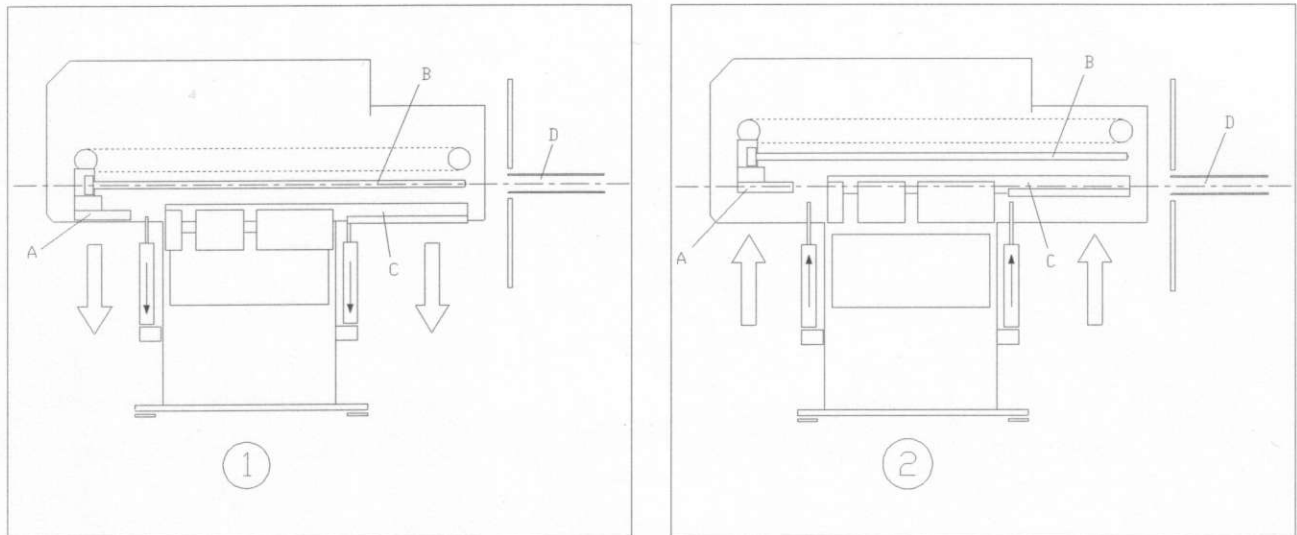


This instruction manual is written for a Quick Load with left/front loading system. Drawings and pusher/loading flag control will be opposite for a rear loading system.

1. INTRODUCTION

The LNS Quick Load is an automatic bar loading system to run short bar stock in a limited floor space. To minimize floor space, the Quick Load has been designed with two working positions:

1. The down position which brings the pusher (B) in the centerline of the spindle (D). This is the production working position.
2. The up position which brings the loading channel (C) and the loading ram (A) in the centerline of the spindle. This is the loading position.



Principle and sequence of events (with standard interface) :

In automatic production, during each chuck/collet opening, the pusher feeds the bar stock forward against the turret stopper of the lathe. As soon as the chuck/collet is closed, the pusher automatically reverses 4 mm (.15") (adjustable). No contact between the bar stock and the front of the pusher is allowed during the rotation of the bar stock.

When the end of bar position is reached, the automatic loading cycle begins :

The pusher reverses to its home position, the loading channel comes into working position and collects a new bar stock. The loading ram feeds forward and pushes the bar stock against the front stopper to measure the bar stock length. The front stopper retracts to allow the bar stock to be loaded into the spindle of the lathe. The measuring way is enabled to automatically position the bar stock in the top cut position (refer to section 7.9). The pusher decelerates approximately 300 mm (12") for accurate positioning (* see note below).

During the automatic positioning, the new bar stock pushes the remnant out, through the front of the spindle. The loading ram reverses to its home position, the loading channel moves down, the pusher is in the working position and feeds forward. A confirmation signal (interface) is sent to the CNC control to continue the program cycle of the lathe.

- * Should the new bar stock be too short to be positioned by the loading ram, the pusher will take over and complete the top cut positioning.

2. TECHNICAL DATA

Bar stock diameter range	:	8 - 80 mm (5/16" to 3-1/8")
Minimum bar stock length	:	150 mm (6")
Maximum bar stock length	:	1525 mm (60") (Not to exceed the combined length of the head stock, chuck and actuator)
Loader rack capacity	:	1005 mm (39")
Air requirements	:	min. 5 bar (75 psi), max. 6 bar (90 psi)
Air consumption	:	during loading cycle 6 lt (1.6 gal) during production .2 lt (.05 gal) per machined part
Electrical requirements	:	single phase, 200 to 480 volts AC, 50/60 Hz, max. 1 amp.
Overall length	:	1925 mm (70")
Maximum width	:	1500 mm (59")
Weight (approx.)	:	350 kg (770 lbs)

Specifications can change without notice.

3. SAFETY INSTRUCTIONS



Do not operate the barfeeder without having carefully read the safety instructions and the instruction manual.

- Follow all operating safety instructions of the Quick Load and of the lathe's manufacturer.
- Do not override any of the safety switches or safety device of the Quick Load or the lathe.
- Do not service, perform any maintenance or handle any parts of the bar loader during automatic cycling.
- Do not interface or perform any electrical maintenance in the electrical control with the power on.
- Do not feed material in the spindle of the lathe while the spindle is in rotation.
- Do not wear loose fitting clothing near any moving parts of the lathe or the bar loader.
- Do not remove the main cover of the bar loader before turning the main power off.
- Do not handle any parts in motion.
- An adequate spindle liner must be installed for each size bar stock
- The length of the bar stock **MUST NOT** exceed the combined length of the head stock, chuck and actuator of the lathe. In no case the bar stock must protrude from the rear of the spindle.



Failure to follow the above safety instructions can result in serious personal injury and damage to the machines.

4. PREPARATION FOR INSTALLATION

It is recommended that LNS or one of its representatives install the Quick Load, but can easily be installed by the end user.

The Quick Load is delivered either in a crate or on a skid.

Please follow the instructions located on the outside of the crate to safely hoist the Quick Load.

Failure to follow these instructions can result to serious damage of the bar loader.

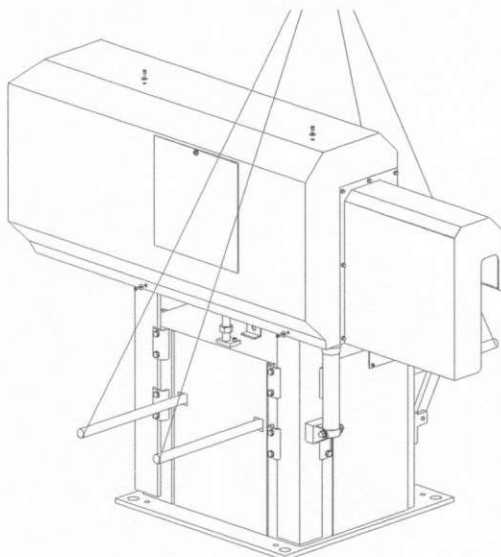
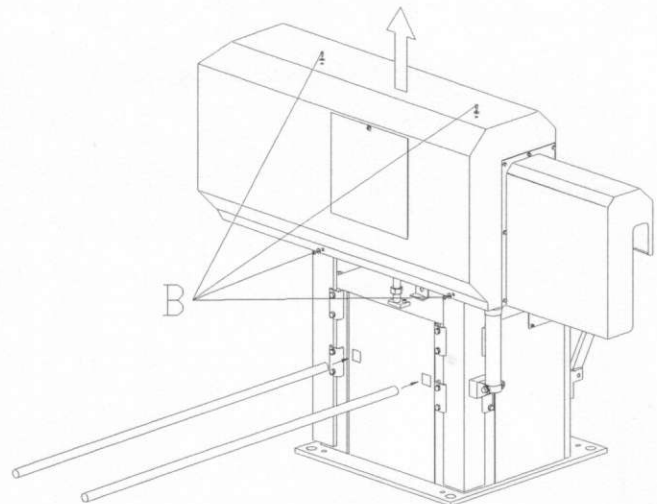
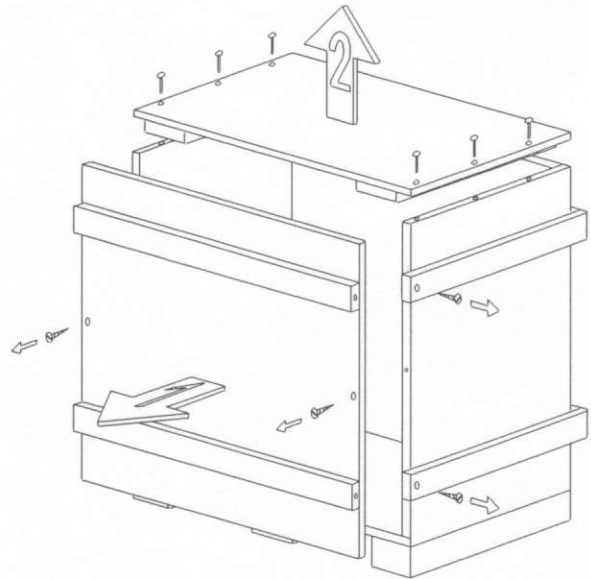
Installation requirements :

- 2 steel rods to lift the unit : diameter between 25 (1") and 38 mm (1-1/2"), 900 mm (36") long (refer to point 5.1 of this manual).
- Air supply (refer to point 5.5).
- Anchoring bolts (refer to point 5.4).

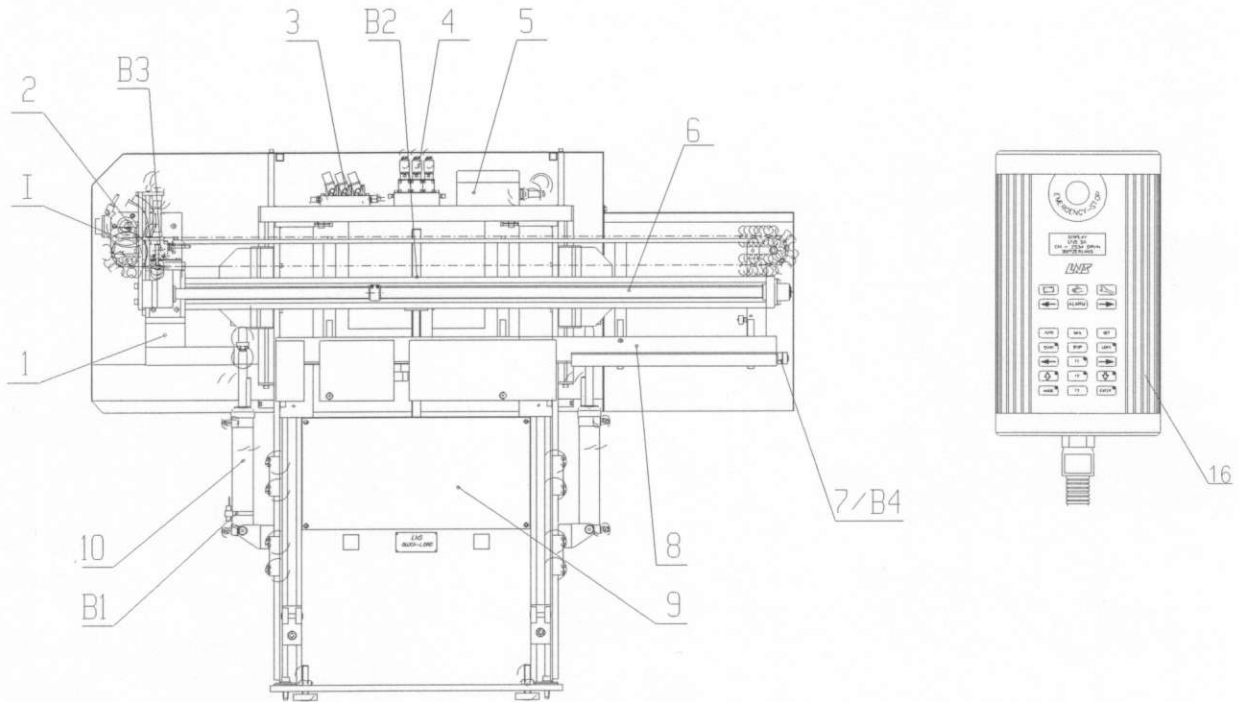
5. ASSEMBLING INSTRUCTIONS

5.1 UNPACKING

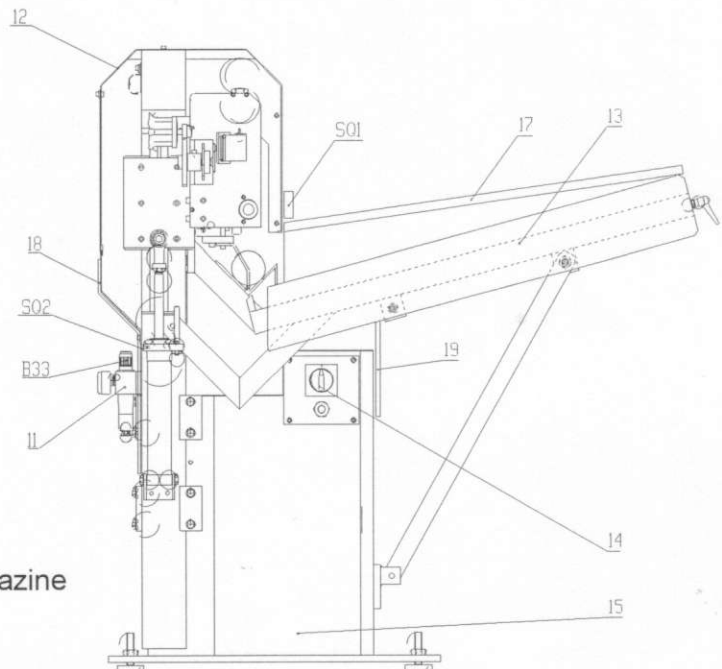
- Remove the front panel (1).
- Remove top panel (2).
- Remove fasteners to free the unit from the bottom of the crate.
- Insert the 2 lifting rods (see point 4) into the body of the Quick Load (see drawing below).
- Lift the Quick Load and position it longitudinally behind the lathe in alignment with the spindle. The distance between the sheet metal of the lathe and the front of the Quick Load must not exceed 30 mm (1-1/4").
- Place the 4 leveling pads (2) under the 4 leveling screws (1) (see point 5.4).
- Adjust the screws on all pads to raise the Quick Load about 1/4" off the leveling pads.
- Place a level on top of the base and use leveling screws to level the unit maintaining equal pressure on all pads.
- Carefully remove the main cover (4 screws B) to get easy access to all parts of the Quick Load.



5.2 DESCRIPTION OF COMPONENTS



- 1 : Loading ram
- 2 : Air motor driving unit
- 3 : Air valve assembly
- 4 : Air motor feed control unit
- 5 : Junction box
- 6 : Pusher
- 7 : Front positioner stop
- 8 : Loading channel
- 9 : Control box
- 10 : Loading air cylinders
- 11 : Air control unit
- 12 : Main cover
- 13 : Loader rack magazine
- 14 : Main disconnect switch
- 15 : Base frame
- 16 : Remote control station
- 17* : Protection (1) loader rack magazine
- 18* : Protection (2) Rear
- 19* : Lower protection
- SQ1* : Security switch Protection (1)
- SQ2* : Security switch Protection (2)
- B1 : Prox. switch loader down position
- B2 : Prox. switch loader up position
- B3 : Prox. switch sliding carrier on ref. point
- B4 : Prox. switch positioner stop
- B33 : Air pressure control switch



**QUICK LOAD WITH LEFT/FRONT
LOADING SYSTEM**

* CE options

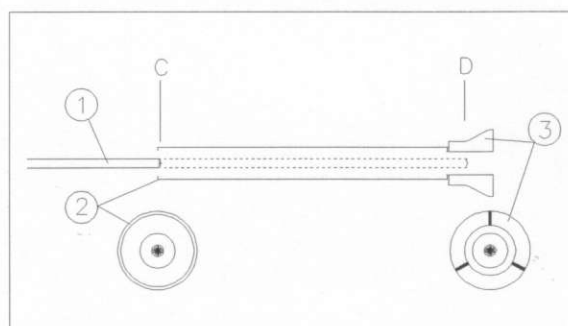
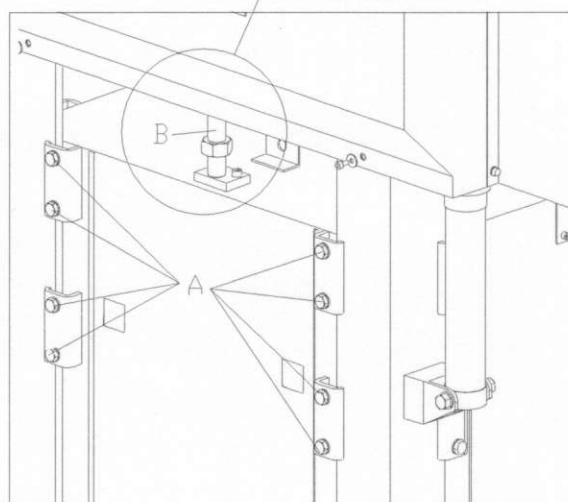
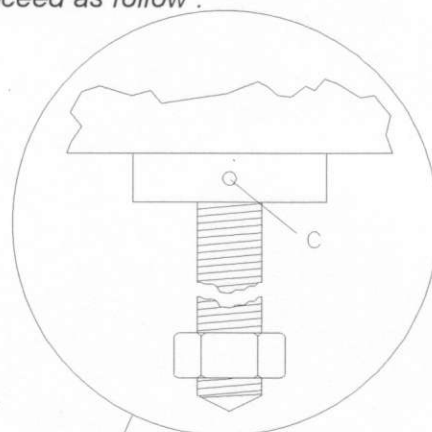
5.3 ALIGNMENT



Prior to aligning the Quick Load the lathe must be leveled.

Should the Quick Load be equipped with a retraction system, proceed as follow :

- After point 5.1 is completed, position the Quick Load the closest possible to the lathe, for maximum efficiency.
- Install the largest pusher (see point 7.4).
- Verify that the pusher is in the working position.
- By hand, advance the pusher near the back of the spindle.
- Loosen the bolts (A) to free the side clamps which lock the stand columns into place.
- Loosen the set screw (C) which locks the height adjusting screw (B).
- Adjust the height by using the height adjusting screw (B) until the front of the pusher is aligned with the centerline of the spindle.
- Adjust side to side alignment by moving the base sideways.
- Verify equal pressure of the leveling screws on the leveling pads.
- By hand, advance the pusher inside the spindle and verify the alignment. Make the necessary adjustments (horizontal) with the leveling screws.
- The alignment of the Quick Load is completed only when the pusher (1) is aligned with the centerline of the spindle from the rear (C) to the front of the spindle and the back of the chuck jaws (3).



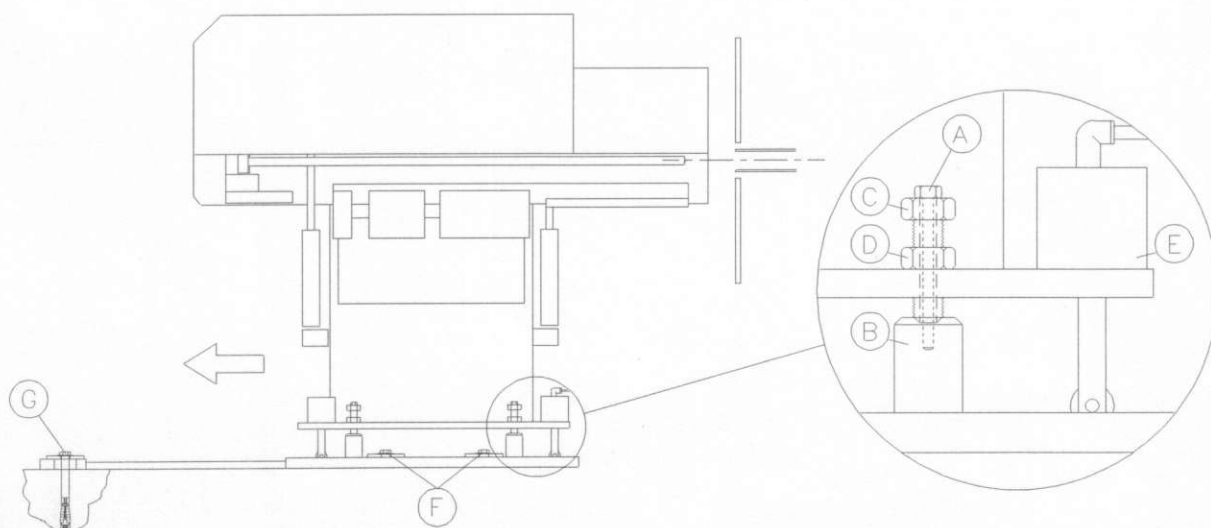
In no case, the pusher is allowed to touch the inside wall of the spindle.

- Lock down all side clamps and the set screw to lock the height adjustment screw.
- Verify alignment and correct if necessary.

5.3.1 Quick Load equipped with retraction system (option)

Should the Quick Load be equipped with a retraction system, proceed as follow :

When delivered with the unit, the system is located underneath the base of the Quick Load. Position the Quick Load without the leveling pads behind the lathe and the closest possible to the back of the lathe spindle. The Quick Load must rest on the leveling screws (C) (no air pressure must be present in the air cylinders (E)). The lock screws (A) pass through the hollow leveling screws (C) and are screwed in the support blocks (B). Unscrew and remove the screws (A). Loosen the lock nuts (D). Proceed to alignment of the Quick Load as described in point 5.3. The leveling of the unit must be adjusted with screws (C).



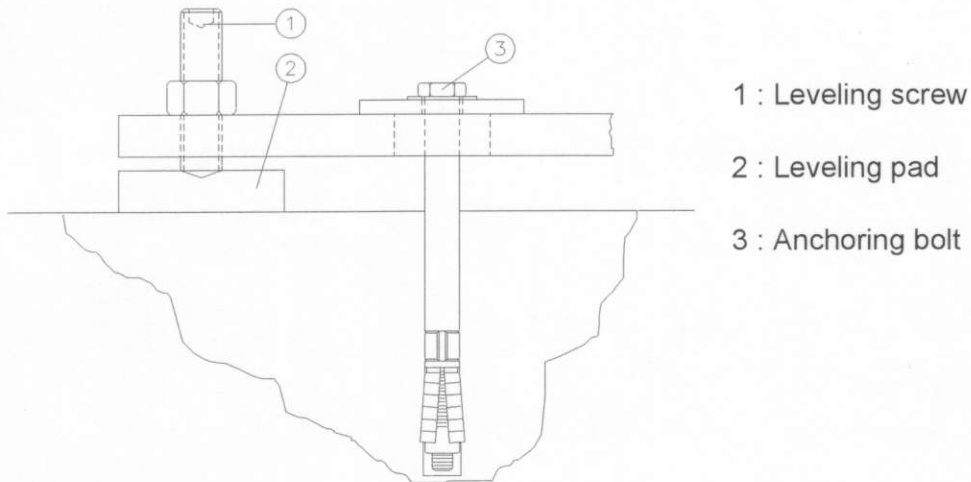
Once the leveling and the alignment are completed, lock with nuts (D) then tighten the screws (A) and anchor the Quick Load to the floor (F). Connect shop air. Loosen the screws (A) and activate the air cylinders (E). The Quick Load will move up. Slide the Quick Load back and forth several times until the rails are aligned. Position the Quick Load in the retract position and anchor the rails to the floor (G).

To operate the retraction system, refer to point 5.11.

5.4 ANCHORING

After the alignment is completed, it is recommended to secure the Quick Load to the floor to maintain stability.

4 x M10 (1/2") minimum diameter anchoring bolts are required (dimension can vary according to the floor).



Once the unit is anchored to the floor, it is necessary to verify the alignment. Some adjustments may be required.

5.5 AIR REQUIREMENTS AND CONNECTIONS

Air is required to operate the pusher and the loading mechanism.

Maximum air pressure : 6 bar (90 psi)

Minimum air pressure : 5 bar (75 psi)

Air must be dry and clean.

The 1/2" standard air hose (B) must be connected to the air control unit.

Connections :

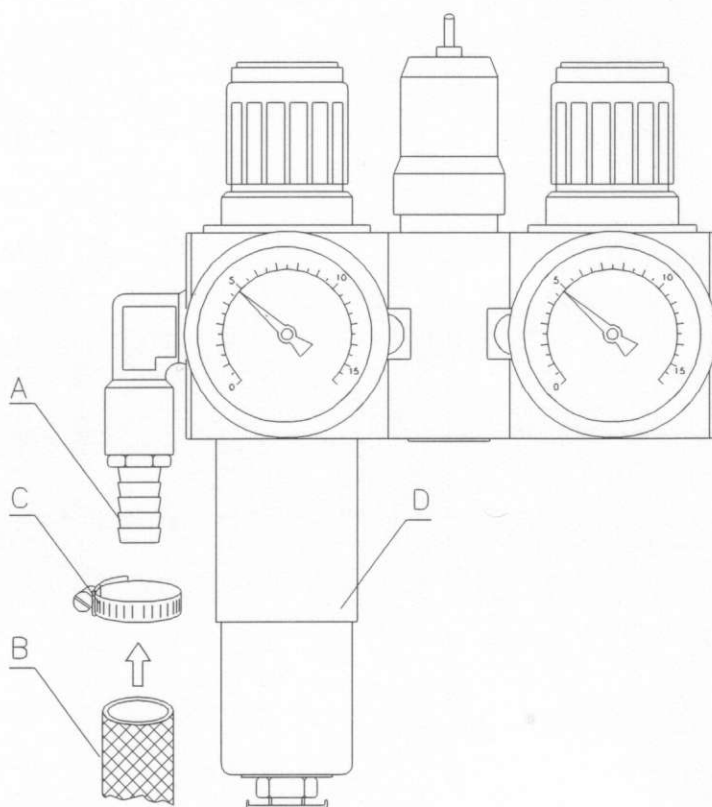
The inlet air fitting (A) is already mounted on the air control unit.

Assemble air hose (B) and air fitting (A) and secure with clamp (C).

The air must be connected prior to the final alignment.

Air consumption :

- During loading cycle : 6 lt (1,6 gal)
- During production cycle : 0,2 lt (0,05 gal) per machined part



5.6 ELECTRICAL CONNECTIONS

The interface cable (s) is (are) provided with the Quick Load for electrical connections.

Always refer to the interface diagram prior connections to the lathe. The diagram (see point 13) is located inside the control box (point 14).



Before connecting the power to the Quick Load, the connection in the control box (transformer) must match the income power to the unit (see below).

Any damaged components due to mis-connections of the power will not be covered by the factory's warranty.

Should the Quick Load electrical arrangements be changed, the following step must be taken :

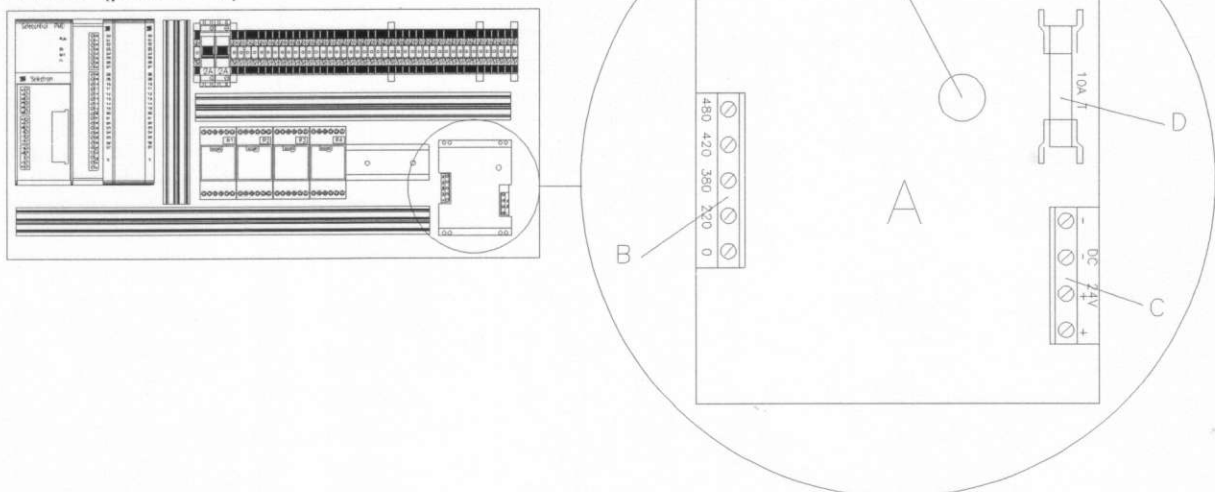
- Measure the income voltage to be connected

Control box

The power supply transformer is located in the electrical control box and can be connected to multiple voltage.

At the transformer primary terminal (B) connect the wire corresponding to the income voltage.

- A : Transformer
- B : Primary terminal block
- C : Secondary terminal block
- D : Fuse 10 A/T
- E : LED (power on)








5.7 INITIALIZATION

An initialization will be required should the following situations occur : main disconnect switch turned off or power failure.

After the power is restored, the Alarm light and the  push button light will lit solid. The display will read :

"INITIALIZATION REQUIRED! "
 "SELECT MAN OR AUT MODE "
 " AND PRESS START "








Procedure :

- Press either  or  , the corresponding light turns on.
-  The  Led turns on.
- Press .
- The initialization will automatically proceed (see below)
- After completion of the cycle, the display reads :


"BAR FEEDER READY"

The Quick Load is now ready to be operated.

Sequence of event :

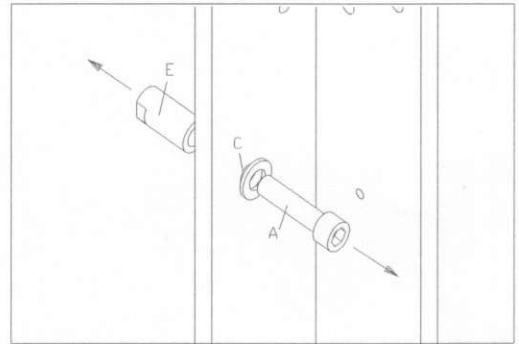
1. Loader down with pusher in home position during power failure:
 The pusher is forced to its home position,  light turns on and remains on until the pusher has reached its home position.
2. Loader down with pusher away from home position during power failure:
 The pusher reverses to its home position and automatically returns to its position prior to the power failure.
3. Loader up with loading flag in home position during power failure:
 The loader is called to move to the upper position and verifies the loading flag home position.
4. Loader up with loading flag away from home position during power failure:
 The loader is called to move to the upper position, the loading flag reverses to its home position and automatically returns to its position prior to the power failure.
 The  and the  Leds turn on.



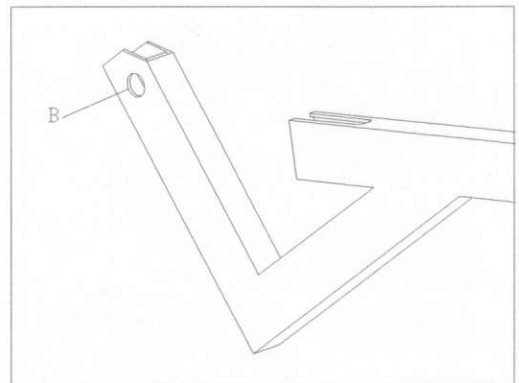
Prior to further operate the Quick Load, the loading flag must be forwarded to its maximum stroke and reversed to its home position. The  Led turns off.

5.8 BAR STOCK RACK MAGAZINE ASSEMBLING

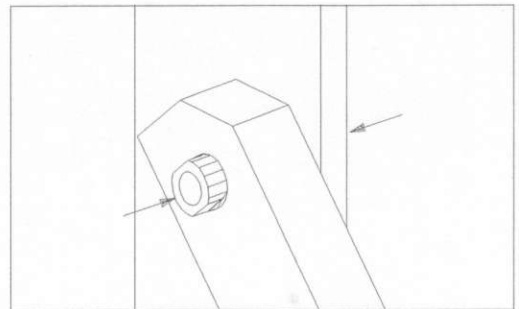
1. Remove the screws (A), washers (C) and the pivots (E) mounted on the 2 columns of the loader.



2. Install the pivots (E) into the holes (B). These holes are in the arms of the rack magazine.



3. Install the rack magazine and secure on the columns with screws and washers (A and C).

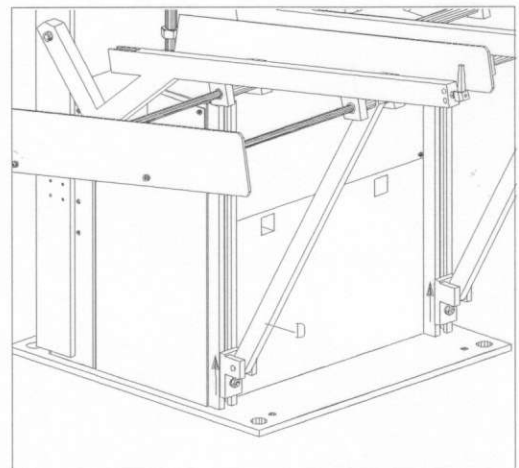


4. Mount the support arms (D) and adjust to desired slant angle.



When adjusting the inclination angle, make sure the loading fingers (point 7.1(B)) do not interfere with the "V" loading channel

Secure with lock nuts.



5.9 BAR STOCK LIMITERS ADJUSTMENT

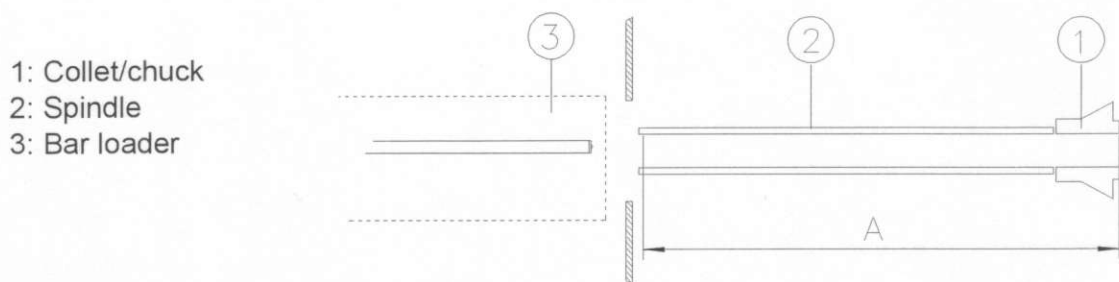
IMPORTANT :

The Quick Load is designed to accommodate a maximum bar stock length of 1525 mm (60"). The maximum bar stock length is determined by the combined length of the head stock, chuck and actuator and **must not exceed** this combined length.

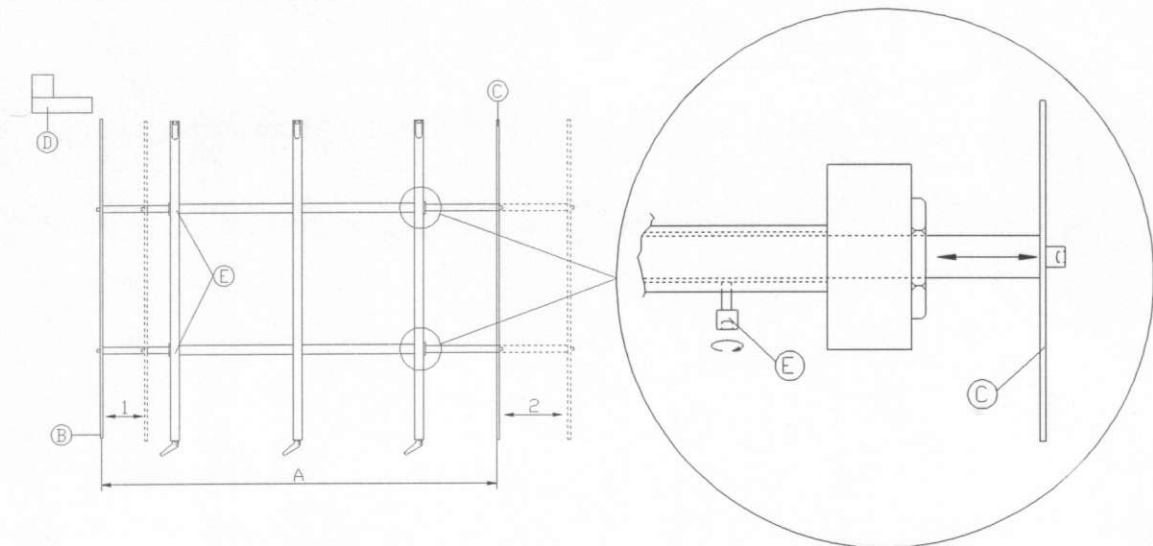
If the bar stock limiters are set accordingly, bar stock longer than the length (A) should not be able to be loaded (see drawing below).

Should the safety and adjustment instructions not be followed, LNS will not be responsible for any damage or bodily injury.

- Measure the length (A) between the collet/chuck and the back of the actuator.



- Loosen the set screws (E).



- The rear limiter (B) is factory adjusted and is positioned **ahead** of the loading ram (D). This will prevent collision between the loading ram and the bar stock. Adjust the front limiter (C) so that the distance between the rear and the front limiter corresponds to the maximum length of bar stock to be loaded (A). The maximum allowable length is 1525 mm (60").
- Lock in place with set screws (E).

Reminder : Should the length (A) of the spindle be 880 mm (35") or shorter, the front limiter (C) must be positioned to its minimum stroke (towards the rear limiter). In this case the rear limited must also be positioned to its maximum towards the front limiter. For shorter length or short bar stock, please refer to point 5.10.

5.10 LIMITERS ADJUSTMENT FOR SHORT BAR STOCK

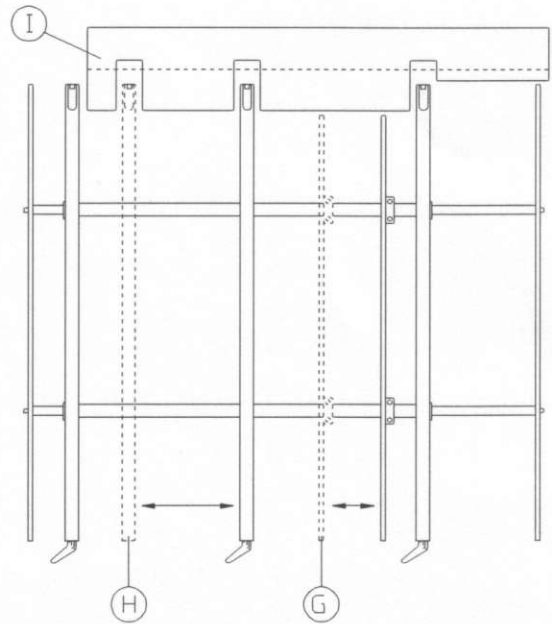
- An additional limiter (G) is provided when loading short bar stock is required. This limiter must be mounted in case of lathes with a very short head stock.

Installation :

- Install the additional limiter (G) in the desired location.
- To safely support a short bar stock, the support arm must be moved (H) to a different position.

The front of the support arm (H) must be located in the corresponding slot of the loading channel.

To load bar stock shorter than 250 mm (10"), the rear limiter must be positioned to its minimum stroke (towards the front limiter).



In any case, the rear limiter **must always be positioned ahead** of the loading ram to prevent collision between the bar stock and the loading ram while loading.

5.11 LONGITUDINAL / LATERAL RETRACTION SYSTEM

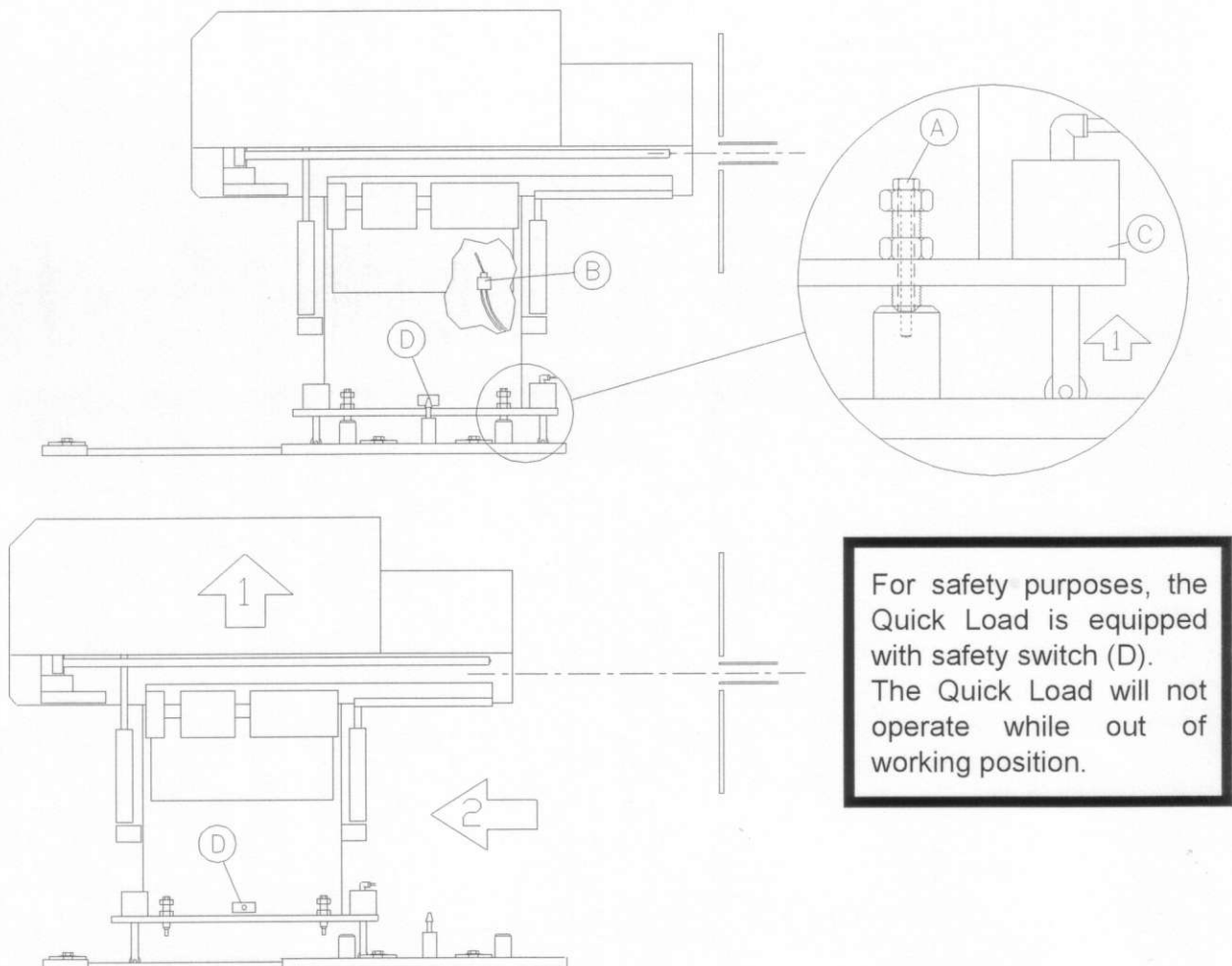
Should the back of the spindle not be accessible (recessed spindles, or other interference), the Quick Load must be equipped with a retraction system.

Two retraction systems are available; one in line with the spindle axis of the lathe (Z-axis) and one perpendicular to the axis of the spindle (X-axis)

Should the retraction system be ordered with the Quick Load, the system will already be mounted. In case of retrofit, assembling instructions will be included.

Operation :

- Unscrew and remove the 4 mounting screws (A)
- Activate the control lever (B) (either located in the front or the rear, depending on the Quick Load configuration).
- ☞ The air cylinders (C) will disengage (1) the Quick Load so it will move up. Manually slide the Quick Load (2) away from the back of the lathe. Proceed to lathe maintenance, changeover, etc...

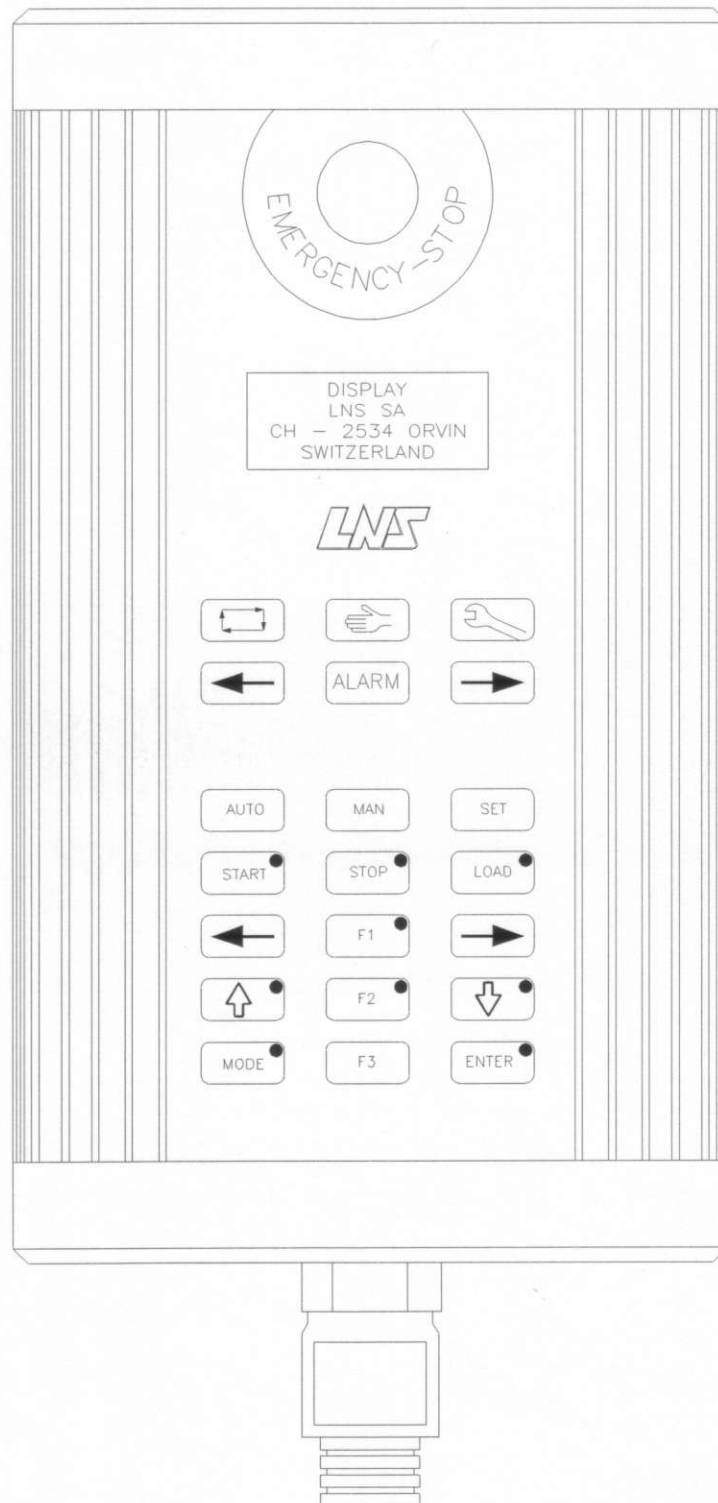




After all necessary work is complete :

- Manually slide the Quick Load back in its working position.
- Verify that nothing has accidentally moved underneath the Quick Load.
- Deactivate the control lever (B). The Quick Load will move down.
- Secure in position with lock screws (A).

6. OPERATING INSTRUCTIONS

6.1 REMOTE CONTROL STATION



The above drawing represents the standard control station for the QUICK LOAD. Depending on the type of set up (front or rear load, right or left from the lathe) the function of the  (forward) and  (reverse) keys will be inverted and will be set during initial installation.

6.2 QUICK REFERENCE CHART

Functions	PUSH BUTTONS												PILOT LIGHTS	REMARKS				
	AUTO	MAN	SET	START	STOP	LOAD	←	→	↑	↓	F1	F2			F3	MODE	ENTER	
Manual mode																		
Pusher forward																		Condition : Loader down
Pusher reverse																		Condition : Loader down
Loading ram forward																		Condition : Loader up
Loading ram reverse																		Condition : Loader up
Loader up																		Condition : Pusher in home position
Loader down																		Condition : Loading ram in home position
Loading bar stock in manual mode																		The loading channel moves up and collects a bar stock
Top cut positioning in manual																		The loading channel moves up and collects a bar stock. The loading ram measures the bar and advances in the spindle of the lathe.
Automatic mode																		
Production cycle																		The pusher advances to feed the barstock when receiving the push command from the lathe.
Miscellaneous																		
Single bar cycle																		The cycle stops after reaching end of bar position.
Setup mode																		
Various setup																		Refer to instruction manual for the setup description.
Mode EXIT																		



LNS SA Fabrique de Machines 2534 ORVIN SUISSE	DESSIN: A.G. DATE: 10.03.94	QUICK REFERENCE CHART	QUICK LOAD
	Soft No.	Modifications:	011-10-609 F1/1


6.3 MANUAL OPERATION

To operate the Quick Load in manual mode, press  , the  light turns on.

6.4 PUSHER FORWARD AND REVERSE

Condition : Loader in the down position

Procedure : Press  or , the pusher moves forward or reverse (depending on initial setup).




Press and hold the  key, the pusher returns to its home position.



The pusher can be forwarded to its maximum stroke only if the end of bar signal is set beyond its maximum stroke (see point 7.6 and 7.7).

6.5 LOADING RAM FORWARD AND REVERSE

Condition : Loader in the upper position

- Procedure :**
- Press  or , the loading ram will move forward or reverse (depending on initial setup).
 - Press and hold the  and the loading ram returns to its home position.



Should the loading ram be forwarded, it must be reversed to its home position prior to further operate the Quick Load. The down motion of the loader will not be possible and the following message is displayed:



"THE PUSHER/FLAG CARRIER HAS NOT REACHED ITS HOME POSITION"

6.6 LOADER UP AND DOWN





To prevent multiple bar loading, it is recommended that no bar stock is present in the loader rack magazine.





Condition : Loading ram or pusher in home position (read also note * , point 6.7).

- Procedure :**
- Press  , the loader will move up. The Led will turn on and remain on until the loader is brought to the down position.
 - Press  , the loader will move down. The Led will turn on and turn off to confirm.


6.7 LOADING A BAR STOCK IN MANUAL MODE


- Conditions :**
- Loader in the down position (read note below *)
 - Pusher in home position
 - Bar stock on the loader rack magazine
 - Loader rack diameter adjusted (see point 7.1)
 - Loader channel empty

Procedure : Press  , while the loading channel moves to the upper position, a bar stock is collected and brought in the working position. The  Led turns on and remains on until the loader is brought back to the down position.


Press  and advance the bar stock into the spindle. The  Led and the  light turn on. Once the loading flag has reached its maximum forward stroke the  Led turns off.

Important ! The loading ram must be forwarded to its maximum forward stroke, then reversed to its home position.

Press  , the loader moves to its down position.

* Note : With the loading flag in home position, should the loader not move to the down position, the  Led remains on and the display reads : "BARSTOCK BETWEEN LATHE AND BAR FEEDER-LOAD BAR STOCK IN THE SPINDLE-"

This means that there is either bar stock between the lathe and the barfeeder or that the loading process was not completed.





In this case the loading ram must be forwarded to its maximum forward stroke to complete the loading cycle. Or, remove remaining bar stock, advance the loading ram forward all the way to its maximum stroke. Reverse the loading ram to its home position then press  , the loader moves to the down position. All Leds turn off.

6.8 AUTOMATIC TOP CUT POSITIONING IN MANUAL MODE

- Conditions :**
- Pusher at home position
 - Measuring way adjusted (see point 7.9)
 - Loader in the down position
 - Chuck or collet of the lathe open
 - Loading channel empty
 - Loader rack magazine diameter adjusted (see point 7.1)
 - Bar stock on the loader rack magazine



The stopper of the lathe is not required for top cut positioning.

- Procedure :**
- Press , the  and the  Leds turn on.
The display reads: "PRESS START TO BEGIN BAR STOCK MEASURING CYCLE"
 - Press , the Led turns off and the cycle begins:

The loader moves to the upper position to collect bar stock, the bar stock is measured and automatically positioned to the top cut position by the loading ram after being measured. To increase accuracy of top cut positioning, the feed rate will switch to slow feed 300 mm (12") before the final position.

Note : Should the bar stock be shorter than the maximum length, the final positioning will be completed by the pusher.








To prevent any accident due to mis-operation of the Quick Load, it is recommended to close the chuck or the collet of the lathe after positioning the bar stock.


6.9 AUTOMATIC CYCLE



Do not start the Quick Load in automatic production before verifying that all adjustments described from points 7 through 8.3 have been observed.

- Conditions :
- Push signal from the lathe turned off.
 - Loader in the down position.
 - Bar stock positioned (top cut) (see point 6.8)
 - Chuck or collet of the lathe closed.

- Procedure:
- Press , the  Led turns on.
 - Press , the  Led turns off , the  light turns on and the display reads:
" IN PRODUCTION CYCLE"
 - Start the lathe in automatic cycle.

As soon as the push signal (input 02.09) is sent from the lathe, the  light turns on and remains on as long as the push signal is present.

To exit from automatic mode, press  .

Sequence of event



The following sequence of event represents a standard application of an automatic bar loader. Other sequencing may apply depending on the end user's applications and the electrical interface.


- The part is being machined.
- The part is cut-off.
- The turret indexes to the stopper station.
- The stopper moves near the cut-off position.
- The spindle stops.
- The chuck or collet of the lathe opens and the pusher advances the bar stock against the bar stopper.
- The turret moves to the part length.
- The chuck or collet closes and the pusher reverses approximately 4 mm (.15") (adjustable).
- The turret clears the front of the bar stock and the spindle starts.
- A new part is being machined.

The cycle repeats as long as the end of bar position is not reached.

SINGLE BAR CYCLE

While in production cycle, press , the  Led and the  light will blink to confirm the single bar cycle selection.

The display reads: "SINGLE BAR CYCLE"

After the end of bar position is reached, the pusher will reverse to its home position and the cycle stops. The Quick Load will generate an Alarm and send a signal to the lathe to stop the production cycle (interface). Press  to clear the Alarm and prior to further operate the Quick Load.

To restart the production cycle, proceed as described in point 6.9

END OF BAR / LOADING CYCLE

Should the remaining piece of bar stock be too short to machine another part after a feed-out, the Quick Load will send an end of bar signal to the lathe.

Sequence of event



The following sequencing is just an example. Cycling may vary according to the interface during initial installation.

- After receiving the end of bar signal from the Quick Load, the CNC jumps into a sub-program in which the turret is sent to its home position and waits.
- The spindle stops and the chuck or collet of the lathe opens.
- The new bar stock is loaded and automatically fed to the top cut position and while the remnant is being pushed through the front of the spindle.
- After top cut positioning, the Quick Load sends a signal to the lathe to resume the program.
- The chuck or collet of the lathe closes and the pusher retracts 4 mm (.15") (adjustable).
- The spindle restarts and the bar stock is faced-off (top cut).
- The lathe returns to its main part program to machine parts.

7. DIAMETER CHANGEOVER

When changing bar stock diameter, the following points must be observed :

- If required, the incline of the loader rack magazine must be adjusted (see point 5.8).
- If required, the bar stock limiters must be adjusted (see point 5.9 and 5.10).
- Calibrate the loader rack diameter adjusting arms (see point 7.1).
- Adjust the centerline height of the loading channel (see point 7.2).
- Replace the corresponding spindle liner (see point 7.3).
- If required, exchange the pusher (see point 7.4).
- Verify the end of bar position (see point 7.6 and 7.7).
- If required, adjust the pushing force of the pusher (see point 8).

7.1 LOADER RACK DIAMETER ADJUSTMENT

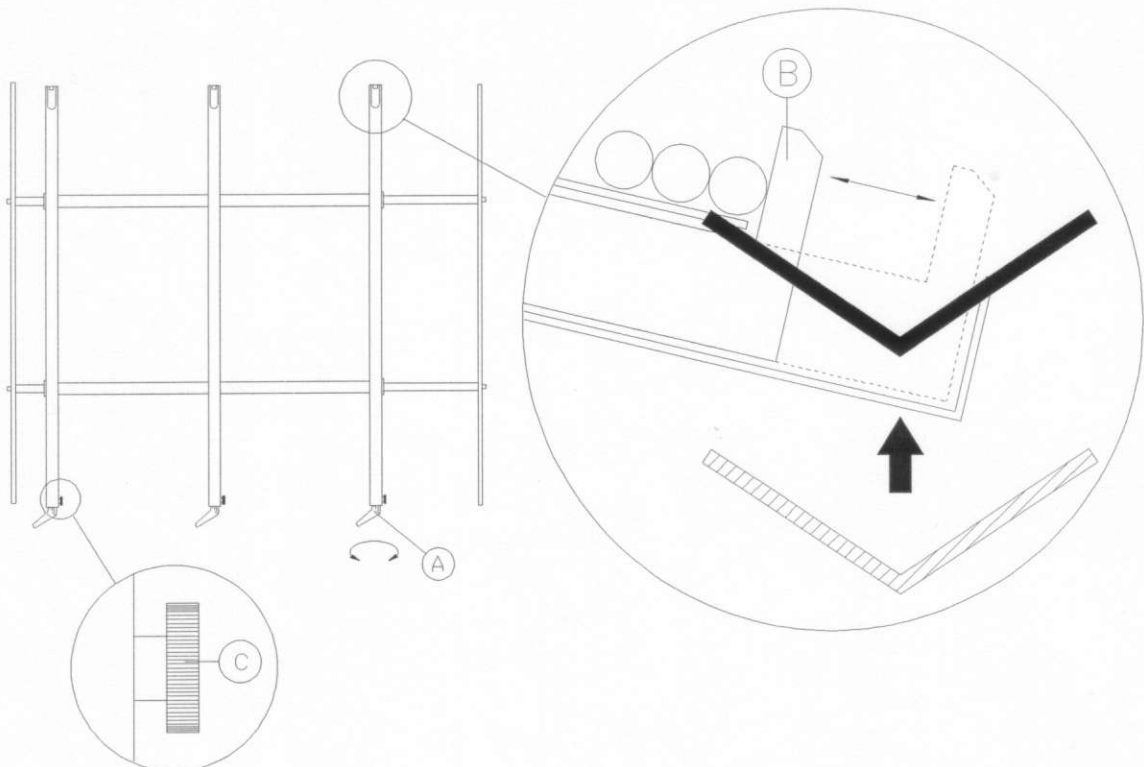
When changing bar stock diameter, the bar stock resting fingers must be adjusted so that the loading channel loads only one bar stock at a time.

Procedure :

Loosen the knurled knobs (C). By rotating the handles (A), adjust the fingers (B) so that when the loading channel moves to the upper position, only one bar is collected. All fingers must be evenly adjusted.

After adjustment, verify by moving the loading channel up and down (see point 6.6).

Lock the knurled knobs (C).



7.2 LOADING CHANNEL CENTER LINE ADJUSTMENT

As to complete the alignment process of the Quick Load (see point 5.3), when changing bar stock diameter, the loading channel must also be adjusted to allow the new loaded bar stock to feed into the spindle of the lathe. The pusher will automatically be centered with the centerline of the spindle. No side to side adjustment of the loading channel is required.

Procedure :

- Press to select manual mode.
- Lower the loading channel to the down position (see point 6.6).
- Loosen the set screw (1) of the knurled knob (2).
- Supply new diameter bar stock on the loader rack magazine.
- Adjust the rack magazine loading fingers (see point 7.1).
- Referring to the scale located next to the knurled knob, rotate the knob and roughly position its upper edge next to the desired diameter.
- Press , the loading channel moves to the upper position collecting the new bar stock.
- Press to advance the bar stock towards the spindle. The bar stock must be aligned with the centerline of the spindle.

Should the bar stock not be aligned with the center of the spindle, reverse the loading ram to its home position. Remove bar stock and press to bring the loader to the down position (see note below *).

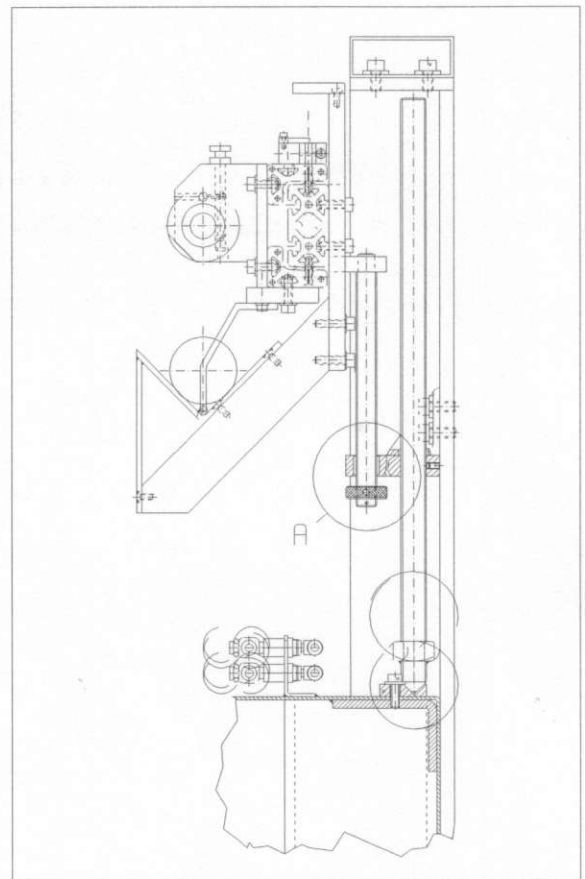
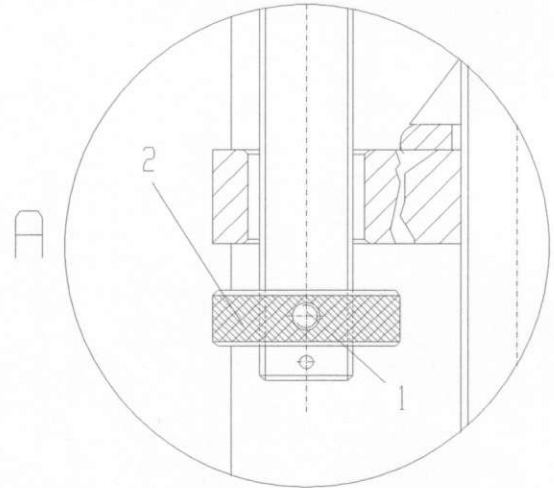
- After final adjustment, lock the set screw (1).

* Note :

Should the loader not move to the down position, the display reads: "BAR STOCK BETWEEN THE LATHE AND BAR FEEDER- LOAD BAR STOCK IN THE SPINDLE-".

Remove all remaining bar stock in the spindle or in the loading channel.

Advance the loading ram all the way forward to its maximum stroke. Reverse the loading ram to its home position and press to lower the loading channel.



IMPORTANT : When changing bar stock diameter, the centerline height of the loading channel must be adjusted.

7.3 SPINDLE REDUCTION TUBES

To allow bar stock to rotate safely at any RPM of the lathe, a spindle liner must be selected for each size of bar stock.












The recommended inside diameter of the spindle liner should be 1 mm (.040") greater than the outside diameter of the bar stock and always larger than the diameter of the pusher.

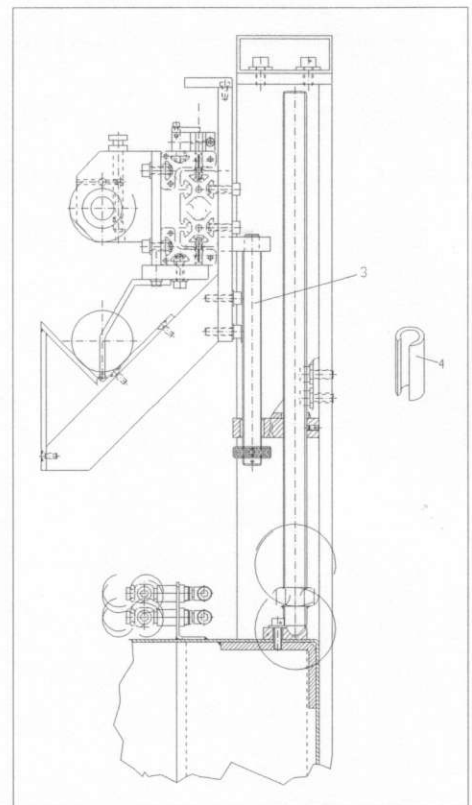
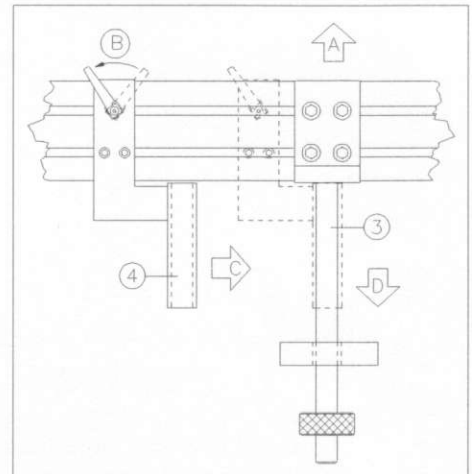
Since the pusher is not allowed to touch the inside diameter of the reduction tube, it is recommended when using the 12 mm (1/2") pusher, that the inside diameter of the spindle liner is not smaller than 14 mm (.55").

To access the spindle liner of the lathe, the Quick Load must be locked in an intermediate position. A split spacer is provided to limit the vertical stroke of the loading motion and must be installed for diameter changeover.

- Conditions :
- Pusher in home position
 - No bar stock on the loader rack magazine and the loading channel
 - Loader in the down position

Procedure :

- Press  , the  light turns on.
 - Press  to move (A) the loading channel in the upper position.
 - Loosen (B) the lock handel and slide (C) the split spacer (4).
 - Carefully insert the split spacer (4) on the threaded rod (3).
 - Press  , the loading channel will move down (D) and rest on the split spacer.
 - Press  to exit the Manual mode (see note * below).
 - Remove spindle liner and install corresponding spindle liner.
 - Press  to return to Manual mode, the  light turns on.
 - Press  , the loading channel moves back to the upper position.
 - Carefully remove the split spacer and secure it with the lock handle.
 - Press  to lower the loading channel in the normal position.
- * Note : Should  not be pressed after lowering the loader on the split spacer, an alarm will occur and the display reads "LOADER DOWN POSITION FAULTY". Press  to reset the alarm and proceed from step 1.



7.4 PUSHER CHANGEOVER

Each pusher has a bar stock diameter range. Refer to the following chart to select corresponding pusher.

PUSHER DIAMETER	BAR STOCK DIAMETER RANGE
12mm (0,47")	8mm - 32mm (0,31" - 1,26")
25mm (1")	33mm - 80mm (1,3" - 3 1/8")

Pushers \varnothing 6mm (1/4") and \varnothing 9mm are available for specials applications. Please contact LNS or one of its representative for further informations.

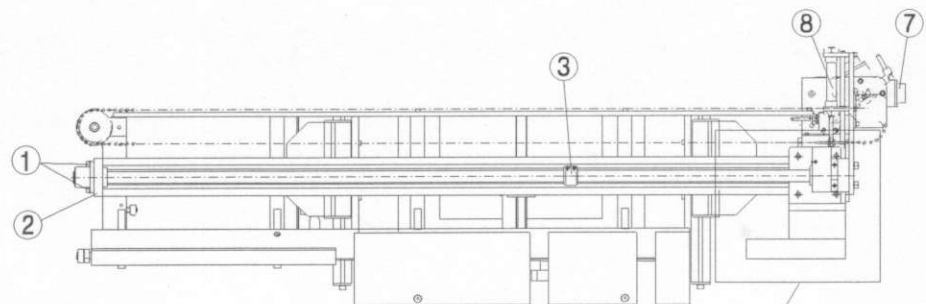
PUSHER CHANGEOVER

Conditions : Loading channel in the down position

Procedure :

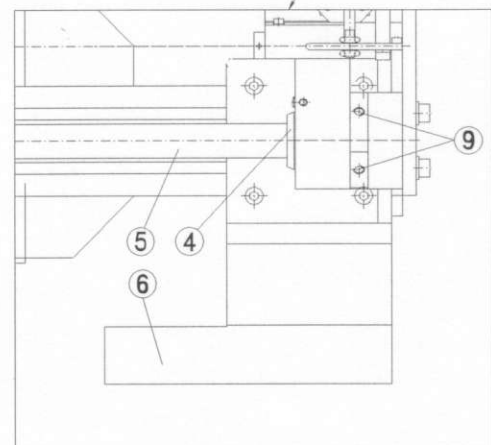
- Remove the two set screws (1) of the front support bushing (2)
- Remove front support bushing
- Remove the two set screws (9) holding the connecting piece (4)
- Remove pusher assembly (5)
- Install selected pusher assembly (5) with corresponding support bushing (2)
- Secure front support bushing and connecting piece with respective set screws.

1. Set screws
2. Support bushing
3. Stop bushing
4. Connecting piece
5. Pusher assembly
6. Loading ram
7. Air motor
8. Locking cylinder
9. Connecting piece; holding screws



Attention :

Each pusher assembly is equipped with an end of bar stop bushing which must be secured in the same position than during initial installation (see point 7.6).



7.5 BAR STOCK PREPARATION

The Quick Load can accommodate bar stock diameter from 8 mm (5/16") to 80 mm (3 -1/8") with length between 150 mm (6") and 1525 mm (60-1/8"). Should very short bar stock be accommodated, please refer to point 5.9 and 5.10 in this manual.

Reminder : For safety purposes, the bar stock must not exceed the combined length of the headstock, chuck and actuator.

BAR STOCK

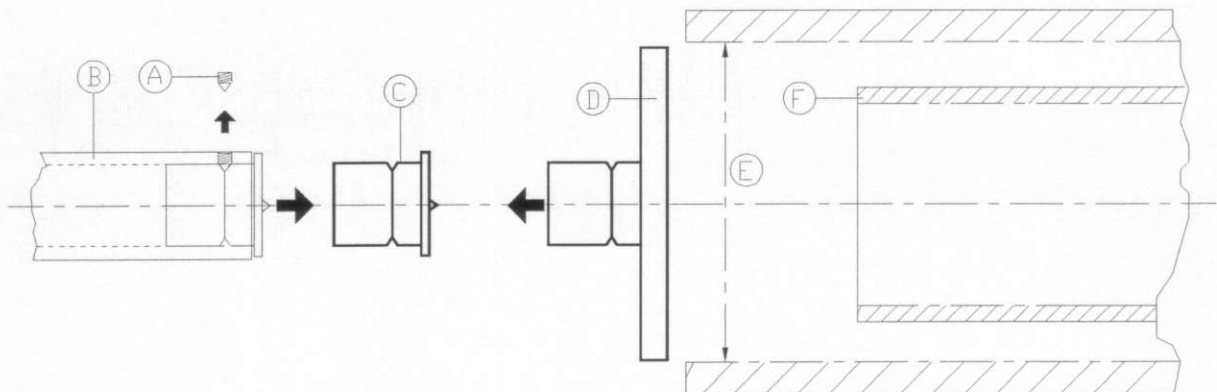
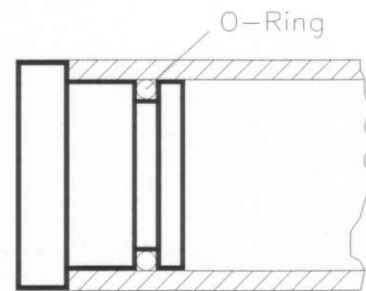
To prevent any mis-feeding of the bar stock in the spindle, it is recommended to remove all burrs at the front end of the bar stock and to install the correct spindle liner.

TUBING

To cover the whole diameter range from 8 to 80 mm, 2 pushers (12 and 25 mm) are necessary.

Should the I.D. of the tubing (F) be identical or larger than the diameter of the pusher (B), an adapted plug must be fitted in the back end of the piece to allow correct feeding.

A special adapter can be provided (only for 25mm) and will be mounted instead of the standard (C). The O.D. of the adaptor must be turned down to fit the I.D. of the spindle liner of the lathe (F). I.D. of spindle liner -2mm (.080") = O.D. of adapter



Mounting :

Remove set screw (A), remove standard end piece (C) of pusher (B). Install special adapter (D) and secure with set screw (A).

HEXAGONAL AND SQUARE BAR STOCK

To allow the bar stock to feed through the collet of the lathe, the following points must be observed :

- Install correct spindle liner.
- To prevent any damage to the Quick Load and the lathe, the rotation of the spindle must be inhibited until the bar stock has completely left the front of the loading channel and has been loaded inside the spindle (interface).
- Should the bar stock leave the front of the loader but not yet fed through the collet of the lathe, it is necessary to mount a V shaped support between the lathe and the Quick Load. This set up will be required in case of an excessive gap between the front of the Quick Load and the rear of the spindle. In this case the lathe must be capable of spindle indexing.

Note : The slant of the loader rack may have to be increased to allow the barstock to easily slide towards the center of the Quick Load.

d) With lathes capable of spindle orientation (C axis)

The bar stock is held in position in the 120 degrees shaped loading channel. When loading hexagonal bar stock, it is recommended that the length corresponds to the length of the spindle. This will allow the bar stock to be in the collet when leaving the loading channel.

The spindle/collet must be oriented to match the profile of the bar stock.

Should short hexagonal bar stock be loaded, either the inside diameter of the spindle liner must be $.2 \text{ mm}$ ($.008''$) over the outside diameter of the bar stock (across the corners), or a profiled sleeve must be mounted inside the spindle.

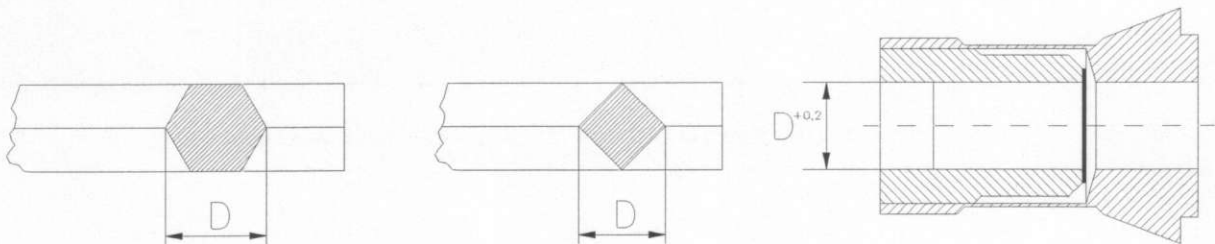
e) With lathes not capable of spindle orientation

An adapted sleeve can be mounted in the collet (see drawing below). The inside profile must match the profile of the bar stock plus $.2 \text{ mm}$ ($.008''$).

The back end of the sleeve and the front end of the bar stock must be straight (no chamfer).

While loading the bar stock, it is recommended to rotate the spindle at a very low RPM (approx. 30 rpm).

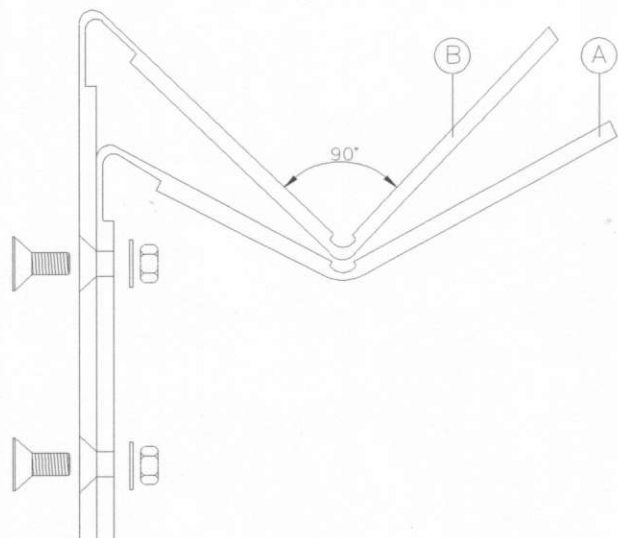
Note : When loading short hexagonal bar stock, the orientation in the collet may present more difficulties.



Square bar stock

Same principle as for hexagonal bar stock.

An 90° shaped adapter (B) must be mounted in the loading channel (A) .

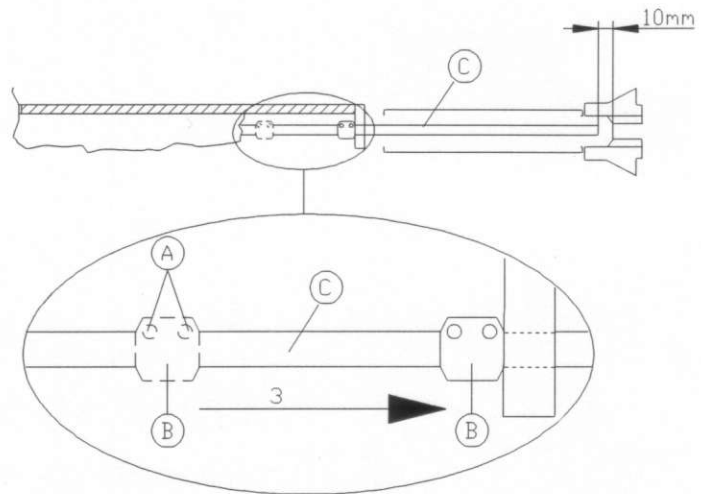


7.6 END OF BAR (MECHANICAL)

The end of bar is the position of the pusher to indicate that the remaining material left in the spindle is too short to machine another part. The mechanical adjustment located on each pusher, will prevent the front of the pusher to be damaged due to mis-adjustment of the end of bar position.

Adjustment :

- 1: Loosen the set screws (A).
- 2: By hand, move the pusher (C) forward into the spindle until the front of the pusher is located 10 mm (.40") behind the collet pads or chuck jaws.
- 3: Slide the stop bushing (B) towards the front of the Quick Load against the pusher support bushing.
- 4: Hold in position and secure with set screws (A).



7.7 END OF BAR ADJUSTMENT

The end of bar signal must be adjusted approximately 15 mm (.6") behind the collet pads or chuck jaws. As soon as the collet or chuck opens, the pusher feeds forward, the end of bar is reached and a new loading cycle begins.

The lathe waits until the new loaded bar stock is positioned (top cut position). The lathe will receive a confirmation signal to indicate that the top cut position has been reached. The program will resume only after receiving this signal.

Note :

The Quick Load is also capable of loading a new bar stock while machining the last part (parameter set up during initial installation and according to the interface only). In that case, the end of bar signal must be adjusted 15 mm (.6") + the length of a part behind the collet pads or the chuck jaws of the lathe.











Should the pusher interfere with the headstock (for example: sliding headstock machines) or, when loading single parts (pre-cut or short bar stock), the pusher can be retracted out of the spindle after complete loading (parameter set up) of a new bar stock.

For this application, the end of bar position must be adjusted at the pusher home position. After completion of the part, the lathe will send a loading signal to the Quick Load (interface).

Adjustment:

- Conditions :
- Loader in the down position
 - Pusher in home position

- Procedure :
- Press , the  Led and the  light turn on.
The display reads :
"END OF BAR POSITION **** MM".
Should the display not read "END OF BAR POSITION **** MM", press  to select the message.
 - Press  to advance the front of the pusher to the desired position read instructions above about the end of bar position).
 - Press  for at least 2 seconds, the end of bar position is memorized (Led turns on and off).
 - Press  or  to exit the end of bar programming mode.

7.8 AUXILIARY END OF BAR

The adjustable auxiliary end of bar signal is part of the standard equipment of the Quick Load.

This signal can be used for specific applications but the lathe may have to be equipped with corresponding software.









Applications examples :

- When machining long parts, for remnant consumption
- Remnant disposal control signal
- Additional signal required for miscellaneous applications
- Decision signal for "user macros"

Adjustment :

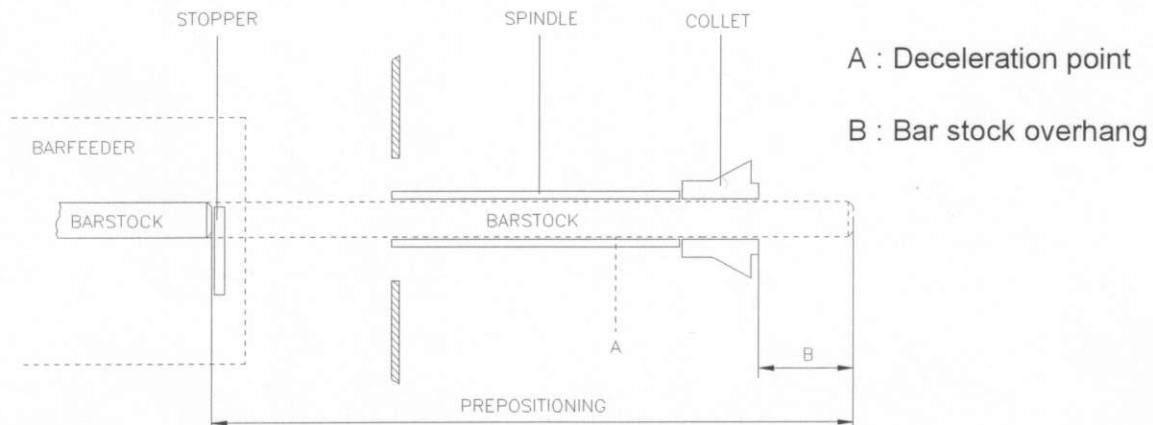
Refer to the end of bar adjustment described above.

Procedure :

- Press  the  Led and the  light turn on.
- Press  and select the "AUXILIARY END OF BAR POSITION **** MM" on the display.
- Press  and advance the pusher to the desired position.
- Press  for at least 2 seconds to memorize the position. The Led turns on and off for confirmation.
- Press  or  to exit the auxiliary end of bar programming mode.

7.9 TOP CUT POSITIONING, MEASURING WAY

The measuring way is the distance between the front stopper of the Quick Load and the top cut position during the loading a new bar stock.



Adjustment :

- Conditions :
- Loader in the down position
 - Pusher at home position
 - Bar stock on loader rack
 - Collet of the lathe open
 - No bar stock in the loading channel or in the spindle
 - The loading channel centerline adjusted
 - The fingers of the rack magazine adjusted to the bar stock diameter

- Procedure :
- Press **SET**, the **MODE** Led and the light turn on. The display reads "END OF BAR POSITION **** MM".
 - Press **F1**, the **F1** and the **START** Leds turn on.
 - The display reads: "PRESS START TO BEGIN BAR STOCK MEASURING CYCLE"
 - Press **START**, the Led turns off and the cycle begins.
 - The display reads: " PROCESSING ... PLEASE WAIT"

Sequence of events:

The loading channel automatically moves to the upper position and collects the bar stock. The front positioner stop swings up to receive the front of the bar stock. The loading flag advances and measures the bar stock. The positioner stop swings back and the loading ram advances the bar stock into the spindle. The loading ram reverses to its home position and the loading channel moves to its down position.

- The display reads: "MEASURING POSITION **** MM".
- Press and advance the bar stock to the desired position.
- Press **ENTER** for at least 2 seconds to memorize the position.
- Press **STOP** or **MAN** to exit the top cut position programming mode.

NOTE : Should the position not be satisfactory (.40"), an offset value can be programmed by 10 mm. Refer to point 7.11, step 5. In addition, the pusher will switch to slow feed rate (deceleration) 300 mm (12") before the end point. This distance is adjustable as well as the feed rate (see point 7.10).

7.10 PUSHER DECELERATION

To allow accuracy for top cut positioning, the pusher will automatically decelerate 300 mm (12") before reaching its final position. This deceleration distance is factory pre-set but can be changed if necessary. The deceleration feed rate is also adjustable.

Adjustment (if required) :

- After the measuring way adjustment (see above) and prior to exiting the programming mode, press to select the following message on the display:
 "MEASURING WAY DECELERATION POSITION **** MM"
- Press and reverse the pusher to the desired position.
- Press for at least 2 seconds to memorize the new deceleration position.
- Press or to exit the deceleration programming mode.

7.11 PARAMETERS


Only a selected number of parameters are accessible by the customer.
Service (setup) and interface parameters are not accessible for safety purposes.

The following parameters can be selected and changed:

1. CLAMPING WITH A CHUCK OR CLAMPING WITH A COLLET
2. PUSHER REVERSING DISTANCE
3. LANGUAGE (5 CHOICES)
4. CARRIER FORWARD LIMIT POSITION (Factory set, **Do Not Change**)
5. MEASURING WAY CORRECTION (position offset)
6. LOADING OF SAME LENGTH BAR STOCKS (Factory set, **Do Not Change**)

1. CLAMPING MODE

Depending on the application, the clamping mode may be switched from chuck to collet work or vice-versa.

- Procedure:**
- Press , the Led and the  light turn on.
 - Press , the display reads the actual clamping mode.
 - Press for at least 2 seconds to switch to the other clamping mode.
 - Press or to memorize the new setup and to exit the parameter access mode.









2. PUSHER REVERSING DISTANCE

In automatic production cycle, after the collet or the chuck of the lathe closes, the pusher will automatically reverse 4 mm (.15"). This distance is factory set and can be changed depending on the application (sliding headstock machines, small diameter pusher).

- Procedure:**
- Press , the Led and the  light turn on.
 - Press , the display reads the clamping mode selection.
 - Press , the display reads:
"PUSHER REVERSING DISTANCE ***4 MM" (or XXXX MM)
 - Press to change the digit from 0 to 9.
 - Press or to select the next digit, a.s.o.
 - Press or to memorize the new setup and to exit the parameter mode.

3. LANGUAGE SELECTION

This parameter will allow the reading of the display messages in 5 different languages, such as: FRANCAIS / ENGLISH / DEUTSCH / ITALIANO / ESPANOL

- Procedure:**
- Press , the  Led and the  light turn on.
 - Press , the display reads the clamping setup selection.
 - Press  twice, the display reads the actual language selection.
 - Press  for at least 2 seconds to select the desired language.
 - Press  or  to memorize the new setup and to exit the parameter mode.

4. CARRIER FORWARD LIMIT POSITION














This parameter is accessible but should not be programmed or changed unless the PLC is replaced. Consult factory, should a change be necessary.

5. MEASURING WAY CORRECTION (OFFSET)

Should the top cut position not be satisfactory, the position can be corrected without processing the whole setup cycle described in point 7.9.

The offset value can be programmed by 1mm increments, but a maximum of 10mm value can be programmed at once. Should the Top Cut position still not be satisfactory, another offset value (from 1 to 10 mm) can be entered until satisfactory, or proceed as described at point 7.9.

- Procedure:**
- Press , the  Led and the  light turn on.
 - Press , the Led turns on, the  Led and the  light turn off.
 - Press .
-  The display reads : "MEASURING WAY CORRECTION + ** MM"
- Press  or  to increase or decrease the offset value.
 - Press  for at least 2 seconds to memorize the new setup and to exit the offset programming mode.

NOTE: The offset value will not show on the display after entering but the position will automatically be corrected during the next Top Cut positioning. The new position can be read on the Led display after positioning a new bar (see point 12, "DISTANCE FROM HOME POSITION ****MM").

6. LOADING OF SAME LENGTH BAR STOCKS



This parameter is accessible but should not be programmed or changed. Consult factory, should a change be necessary.

8. AIR ADJUSTMENTS

8.1 MAIN PRESSURE

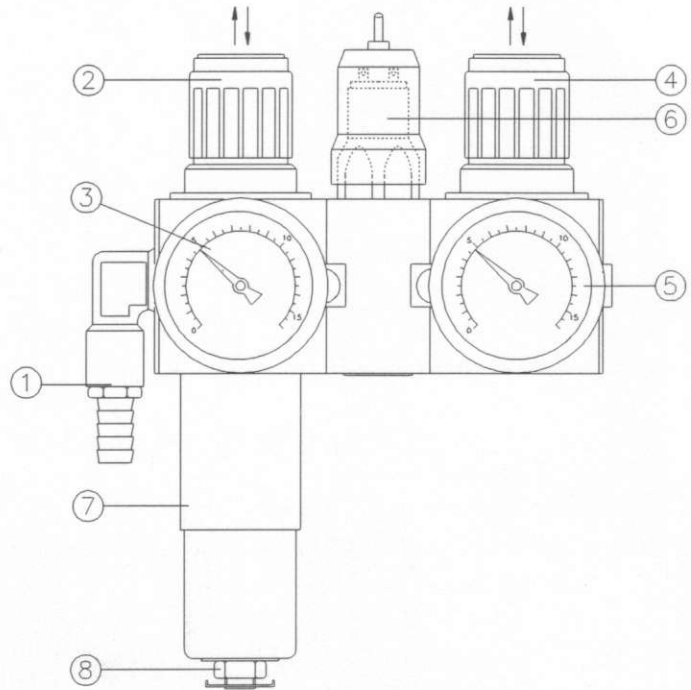
For trouble free operation of the Quick Load, a minimum air pressure of 5 bar (75 psi) is required and should not exceed 6 bar (90 psi).

Adjustment :

Pull up the adjusting knob (2) to unlock. To increase the pressure turn the knob clockwise, turn counterclockwise to decrease the pressure.

After adjustment, push down the knob back into position.

- 1 : 1/2" dia. connection
- 2 : Main pressure adjusting valve
- 3 : Main pressure gauge
- 4 : Air motor pressure adjusting valve (pushing force)
- 5 : Air motor pressure gauge
- 6 : Air pressure switch
- 7 : Filter, decanter
- 8 : Drain



8.2 AIR MOTOR PRESSURE (TORQUE)

The pushing force (torque) can be adjusted with adjusting valve (4). The maximum allowable pressure is 5 bar (75 psi). To prevent small diameter bar stock to bend, the pushing force (torque) must be adjusted.

Adjustment :

Pull up the adjusting knob (4) to unlock. To increase the pressure turn the knob clockwise, turn counterclockwise to decrease the pressure.

After adjustment push down knob into position.

RATIO	AIR PRESSURE Pushing force in LBS						AIR PRESSURE Pushing force in Kilo					
	31,5	45	52,5	60	67,5	75	2,5	3	3,5	4	4,5	5BA
1 / 3,5	7,9	14,95	17,15	19,8	20,90	25,95	3,6	6,8	7,8	9	9,5	11,8

8.3 PUSHER FEED RATE ADJUSTMENTS

The feed rate can be adjusted with the adjusting valves 6 (fast) and 7 (slow).
An average reverse rate is factory adjusted.

Pusher fast forward

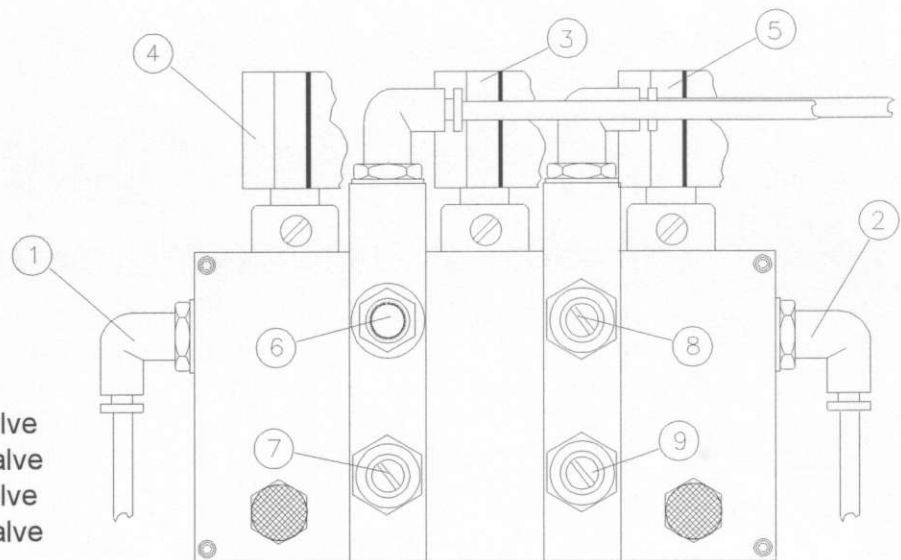
- To increase the feed rate, turn knob 6 counterclockwise.
- To decrease the feed rate, turn knob 6 clockwise.

Pusher slow forward (deceleration)

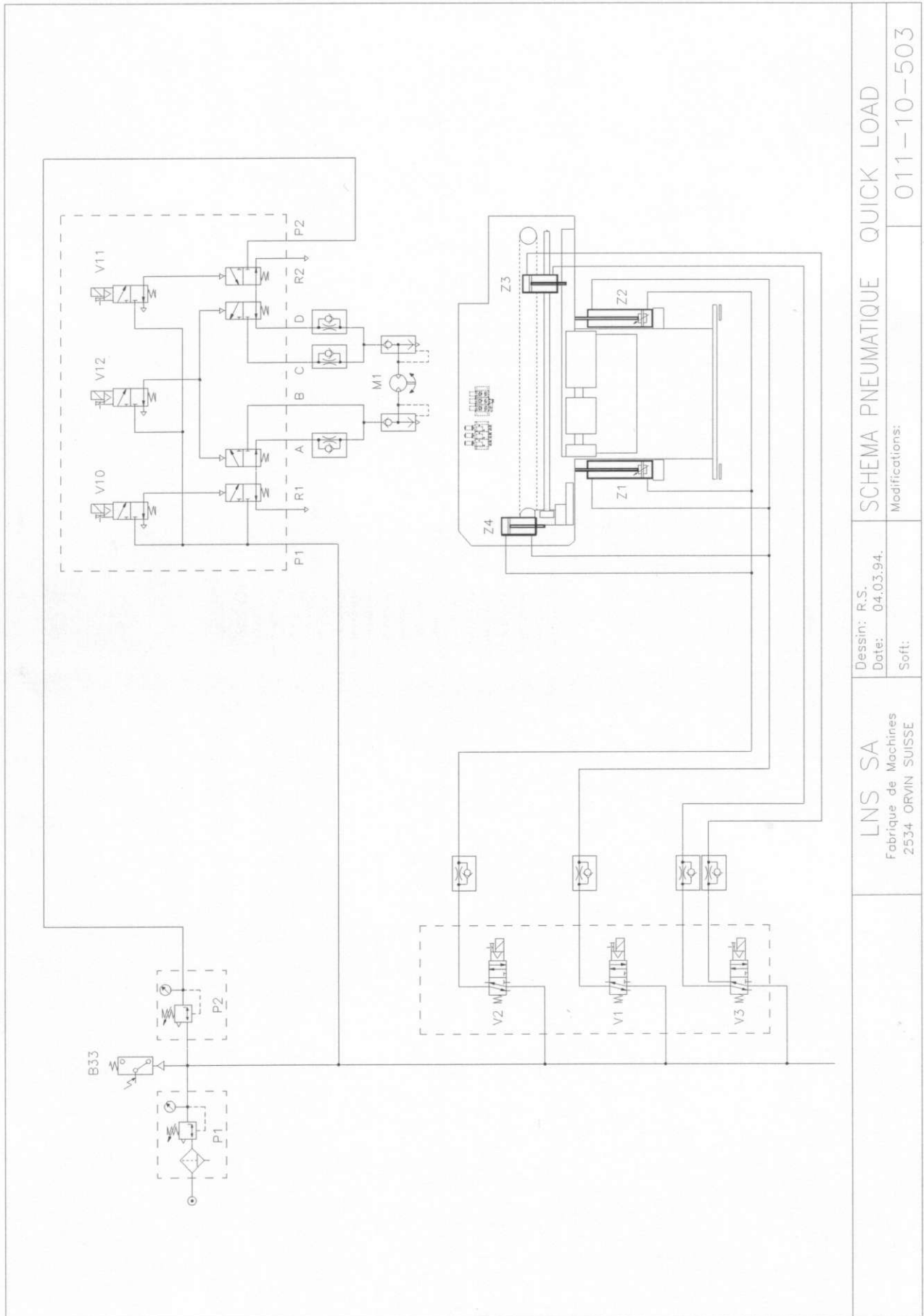
The slow forward feed rate is activated during top cut positioning (measuring way deceleration) and for 2 seconds during acceleration and deceleration of the pusher.

- To increase the feed rate, turn adjusting screw 7 counterclockwise
- To decrease the feed rate, turn adjusting screw 7 clockwise

- 1: Air inlet forward
- 2: Air inlet reverse
- 3: Solenoid Slow / Fast
- 4: Solenoid forward
- 5: Solenoid reverse
- 6: Fast forward adjusting valve
- 7: Slow forward adjusting valve
- 8: Fast reverse adjusting valve
- 9: Slow reverse adjusting valve



8.4 PNEUMATIC DIAGRAM



LNS SA
Fabrique de Machines
2534 ORVIN SUISSE

Dessin: R.S.
Date: 04.03.94.
Soft:

SCHEMA PNEUMATIQUE QUICK LOAD
Modifications:
011-10-503

9. MAINTENANCE

The Quick Load requires minimum maintenance. The followings need to be regularly checked :

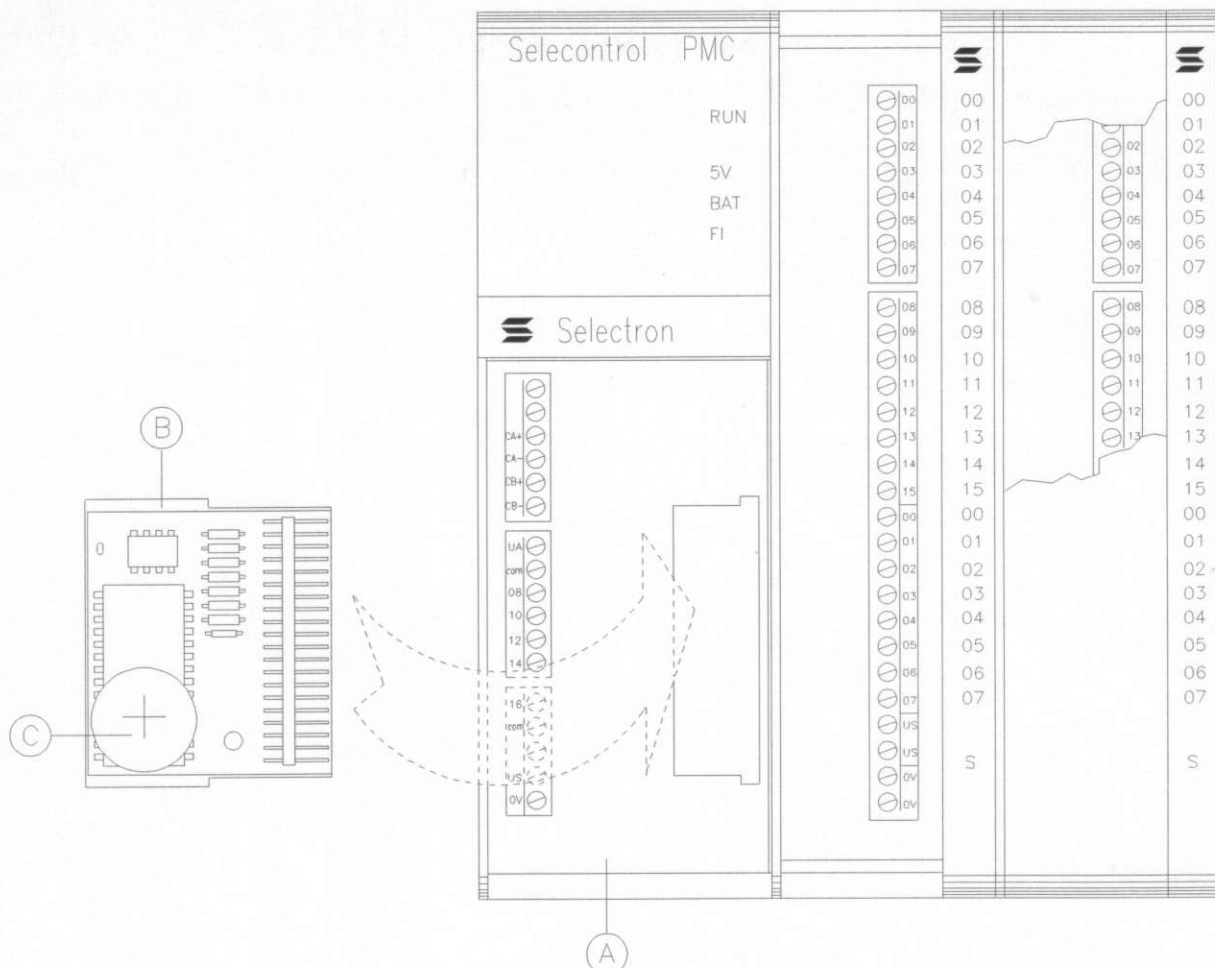
- The air filter/decanter must be checked weekly and free of dirt and water (see point 8.1).
- Verify air income pressure weekly and adjust if necessary.
- PLC back up battery.

Should the PLC back up battery be weak, the display will read "REPLACE PLC BACK UP BATTERY".

The bar feeder will still function properly but the battery must be replaced the soonest possible.

Procedure :

- Turn off main power (main disconnect switch on "0").
- Remove front electrical box access cover.
- Remove cover (A) and pull out battery/EEPROM cartridge (B).
- Replace back up battery (C) with new one (type 3V, CR 2032).
- Re-seat battery cartridge.
- Mount cover (A).
- Mount front electrical box access cover.
- Turn main power on (main disconnect switch on position 1).

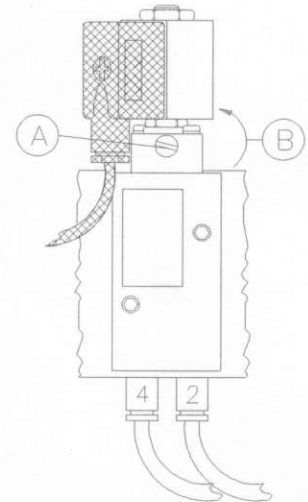


10. AIR CYLINDERS, AIR VALVES

For trouble shooting purposes, an air cylinder can be manually activated by rotating the screw "A" located on its corresponding air valve.

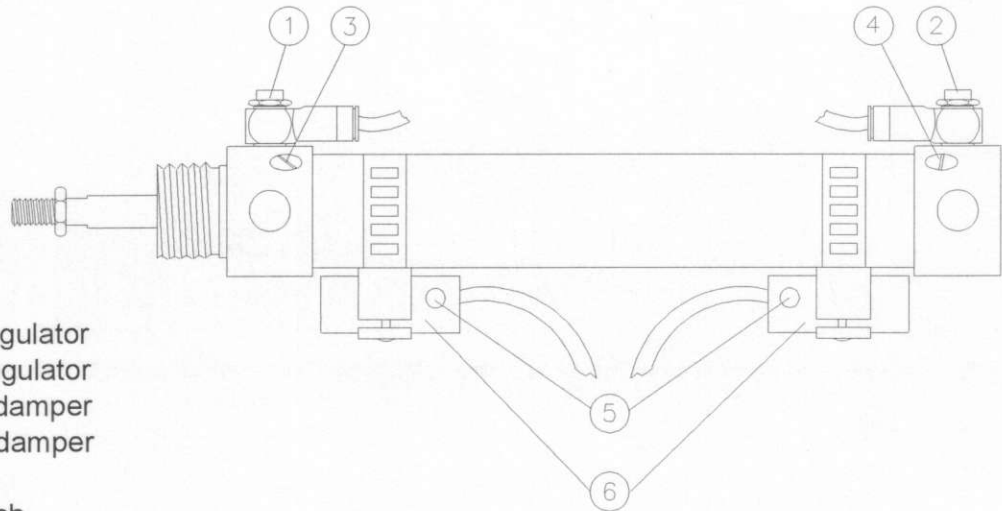


To prevent any malfunctioning of the valve and the Quick Load, the screw "A" must be returned to its original position.



The feed rate of the piston can be adjusted by turning the air regulators "1" and "2".

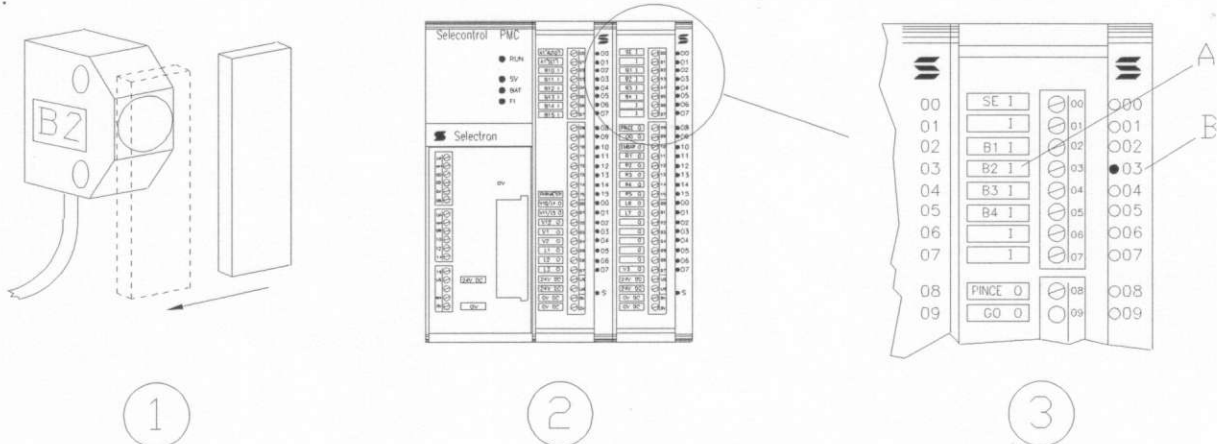
These regulators are factory adjusted and should normally not be re-adjusted.



- 1 : Forward air regulator
- 2 : Reverse air regulator
- 3 : Forward limit damper
- 4 : Reverse limit damper
- 5 : Led
- 6 : Magnetic switch

11. PROXIMITY SWITCHES

May be tested by applying a piece of metal in front of the proximity switch (1). The corresponding Led of the PLC (2) and (3) will lit. Should there be no metal in front of the proximity switch, the Led will be off.



1

2

3

12. ALARM AND OTHER MESSAGES








Should a malfunction or mis-operation of the Quick Load occur, the 4 line Led display will indicate messages in clear. An alarm will be recognized by the blinking **ALARM**. Following is a list of messages and alarms with their possible cause.

In addition, by pressing successively **MODE** during **MAN** or **AUTO**, the display will read the following information :

"DISTANCE FROM HOME POSITION **** MM"	indicating the pusher position
"USEFUL MATERIAL LENGTH UNTIL END OF BAR **** MM"	indicating the length of remaining material until end of bar position.
"XXXXXXXXXXXXXXXXXXXXX SEQUENCE NR. ***"	indicating the sequence number during operation.
"LAST FAULT SHOWN SEQUENCE NR. ***"	indicating the latest alarm sequence number that occurred.
"XXXXXXXXXXXXXXXXXXXXX"	indicating the latest alarm that occurred, in sequence.

ALARM MESSAGE	POSSIBLE CAUSE
EMERGENCY STOP LINE OPEN	<ul style="list-style-type: none"> - Emergency stop condition - Air pressure failure - Air pressure switch mis-adjusted - Door safety switch (option) - Lathe alarm (interface)
LOADER DOWN POSITION PROXIMITY SWITCH B1 SIGNAL FAULTY	- Proximity switch B1 malfunction
LOADER UP POSITION PROXIMITY SWITCH B2 SIGNAL FAULTY	- Proximity switch B2 malfunction
CARRIER HOME POSITION PROXIMITY SWITCH B3 SIGNAL FAULTY	<ul style="list-style-type: none"> - Proximity switch B3 malfunction - Home position mechanical interference
POSITIONING STOP PROXIMITY SWITCH B4 SIGNAL FAULTY	<ul style="list-style-type: none"> - Proximity switch B4 malfunction - Front stopper malfunction - Pusher pushing force not adjusted

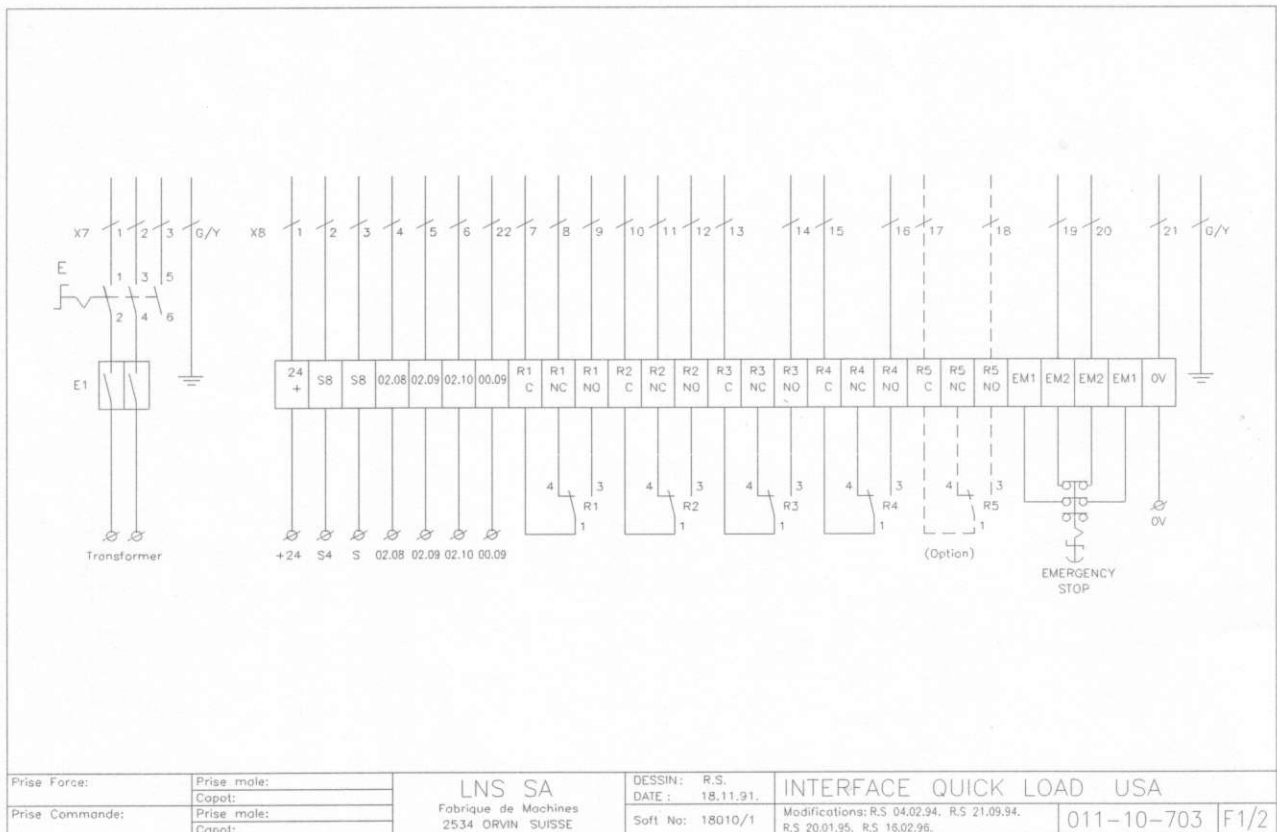
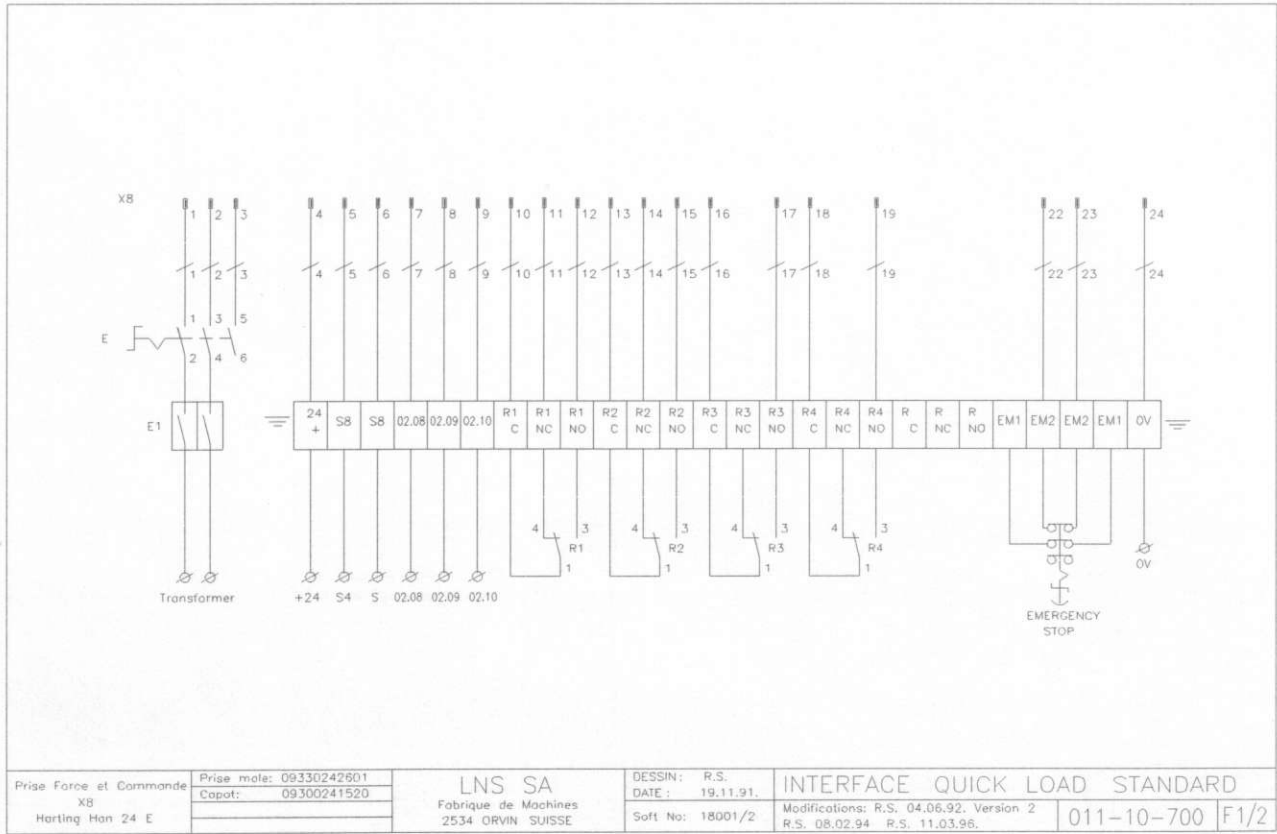
ALARM MESSAGE	POSSIBLE CAUSE
LOADER EMPTY	- Rack magazine empty
LOADER DOWN POSITION FAULTY	- Proximity switch B1 mis-adjusted - Mechanical interference - Split spacer for spindle liner changeover not removed
LOADER UP POSITION FAULTY	- Proximity switch B2 mis-adjusted - Mechanical interference
MEASURING WAY FOR TOP CUT POSITIONING NOT COMPLETED	- Lathe's collet not open - Pusher pushing force not adjusted - Mechanical interference - Wrong I.D. of lathe's collet
LATHE HAS NOT RE-STARTED IN AUTO. COLLET CLOSED SIGNAL MISSING	- Chuck/collet of the lathe not closed - Interface problem (input I 00.08)
AUTO START PROHIBITED! RESET PUSH SIGNAL AND RE-START BAR FEEDER	- Press <input type="button" value="STOP"/> , reset the push signal from the lathe, press <input type="button" value="AUTO"/> , press <input type="button" value="START"/> .
OUTPUT SHORT - CIRCUITED- CHECK RED LEDS "S" ON PLC	- Proximity switch, relay coil, electro-valve, light bulbs short circuited - Wiring problem
REPLACE PLC BACK UP BATTERY	- Replace battery in PLC (type : 3V, CR 2032), refer to point 9.
INITIALIZATION REQUIRED! SELECT MAN OR AUT MODE AND PRESS START	- Press <input type="button" value="MAN"/> or <input type="button" value="AUTO"/> and press <input type="button" value="START"/>
PROCESSING ... PLEASE WAIT	- Wait for further information

ALARM MESSAGE	POSSIBLE CAUSE
THE PUSHER/ FLAG CARRIER HAS NOT REACHED ITS HOME POSITION	- Press  and hold until the carrier is in home position
PRESS "START" TO BEGIN BAR STOCK MEASURING CYCLE	- Press 
ENCODER SIGNAL FAULTY	- Encoder mechanical malfunction - Encoder faulty
THE COLLET OF THE LATHE IS NOT OPEN (SIGNAL MISSING)	- Open collet or chuck of the lathe - Interface problem, input I. 02.08
BAR STOCK BETWEEN LATHE & BAR FEEDER- LOAD BAR STOCK IN THE SPINDLE-	- Bar stock between lathe and bar feeder - Press  and advance the sliding carrier to its maximum forward stroke. Reverse sliding carrier to home position by pressing  .
BAR FEEDER READY	- Bar feeder is ready to be operated
IN PRODUCTION CYCLE	- Bar feeder in automatic production cycle
END OF BAR POSITION	- End of bar position reached
LOWER THE LOADER TO IN PRODUCTION POSITION	- Loader in the upper position, press  , press  the loader moves down
SINGLE BAR CYCLE	- After the end of bar position is reached, the pusher will reverse to its home position and the cycle stops - Press  to clear the Alarm and prior to further operate the Quick Load.

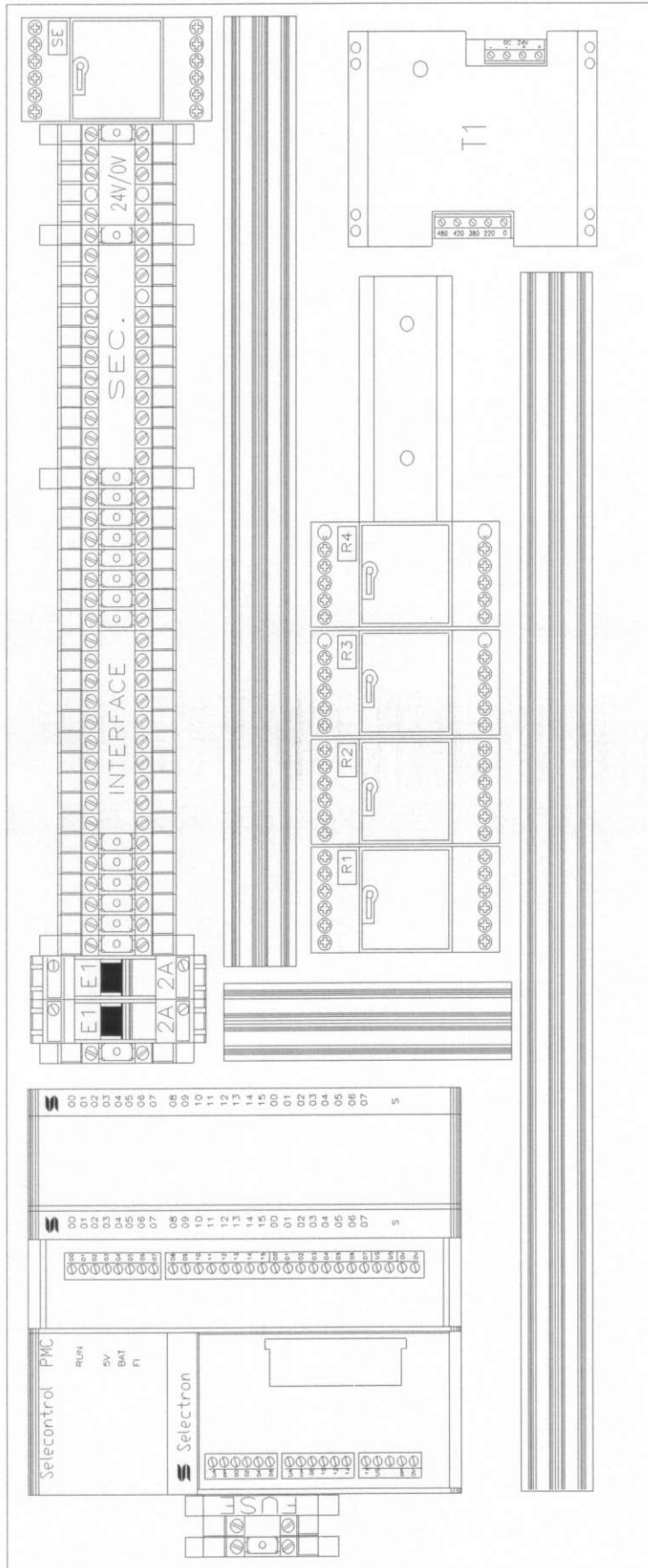
13. INTERFACE DIAGRAM

The following interface drawings are examples only.

Always refer to the electrical diagram supplied with the bar feeder and located in the electrical control box.

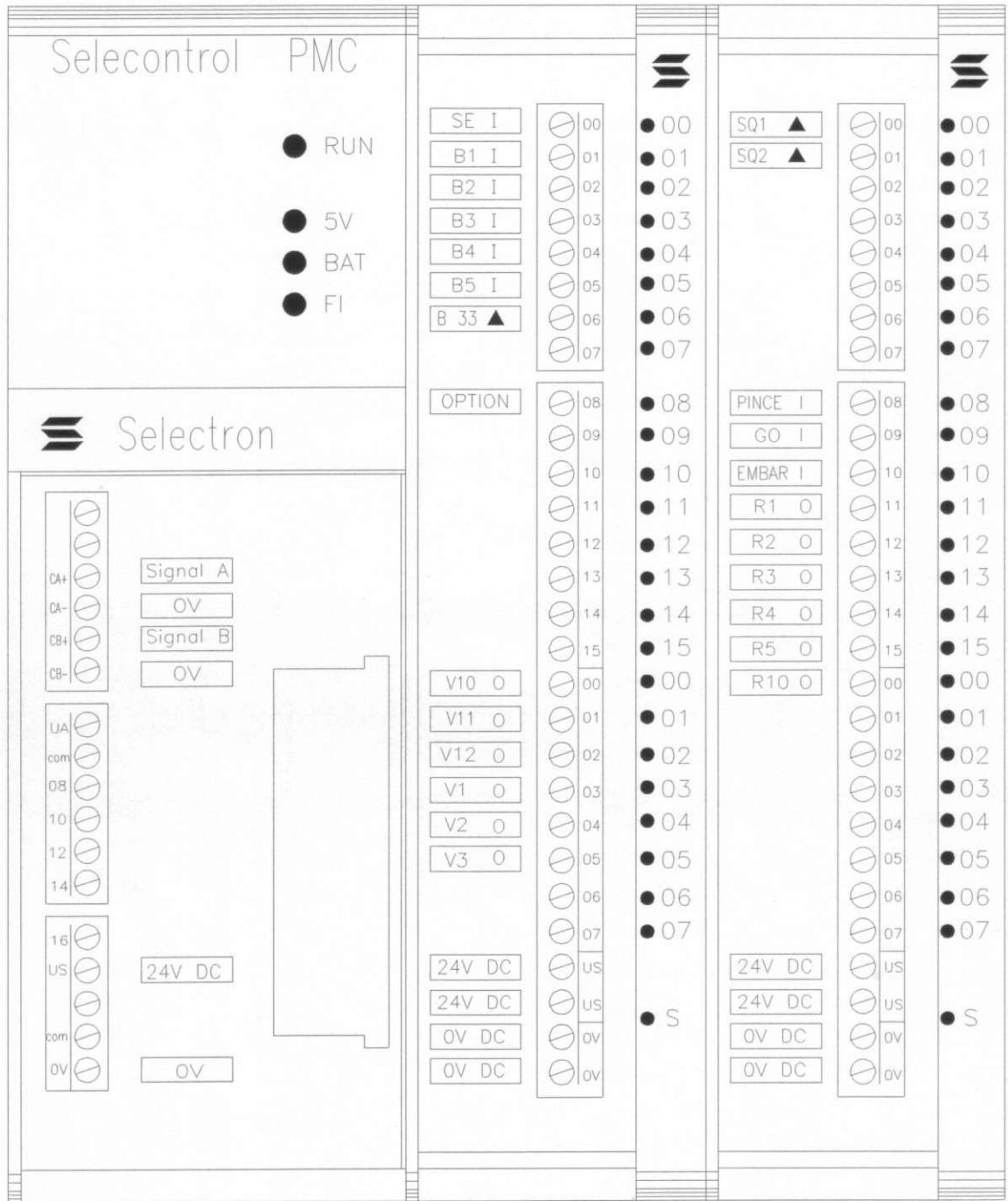


14. ELECTRICAL COMPONENTS LAYOUT



- 24V/0V** : Power supply terminal block
- SEC** : Emergency stop circuit
- INT.** : Interface terminals
- E1** : Circuit breaker
- T1** : Transformer
- R1-R4** : Interface relays
- PLC** : PLC Selectron Programmable controller
- SE** : Relay SE (Option CE)
- Fuse** : Fuse 24V

15. PLC



● = GREEN LED

▲ = OPTION (C)

MODULE 1

MODULE 2

PLC	MODULE 1	MODULE 2
INPUTS	I 00.00 - 00.07	I 02.00 - 02.10
OUTPUTS	O 01.00 - 01.05	O 03.00 - 03.15

16. DESCRIPTION OF COMPONENTS

Désignation Bezeichnung Designation	Description Beschreibung Description		
B34	Sécurité de capot Sicherheit Türe von Deckel zu Door safety switch		
B36	Sécurité rétraction Sicherheitss. Verschiebevorr. Safety switch retraction	(Option) (Option) (Option)	
STP	Bouton arrêt d'urgence Druckknopf STOP Emergency stop push button		
SP	Sécurité de porte coffret Sicherheit Schaltschranktüre Door safety switch	(Option) (Option) (Option)	
I	Donneur d'impulsion Impulsgeber Encoder	25 Imp/360° 25 Imp/360° 25 pulses/360°	
E	Interrupteur principal Hauptschalter Main disconnect switch	3 ph 3 ph 3 phase	
E 1	Disjoncteur de contrôle Leitungsschutzschalter Control circuit-breaker	2 ph 2A 2 ph 2A 2 ph 2A	
M1	Moteur à air Luft Motor Air motor		
Z1+Z2	Cylindre chargeur : en bas / en haut Zylinder Lader : unten / oben Air cylinder for loader up / down motion		
Z3	Cylindre butée positionnement Zylinder Anschlag vorne Air cylinder for positioner stop		
Z4	Cylindre blocage du poussoir Zylinder verriegelung von stössel Air cylinder for carrier home locking device		
X8	Réseau 200-480V / Interface Netz 200-480V / Interface Interface plug, power 200-480V and signals		

17. INPUTS

Adresses Adressen Addresses	Désignation Bezeichnung Designation	Description Beschreibung Description	
I 00.00	SE	Contrôle de la chaîne de sécurité Kontrolle Sicherheitskette Emergency stop line check	
I 00.01	B1	Sonde position de travail Annäherungsschalter Arbeitspos. Prox. switch loader down pos.	(Cylindre en bas) (Zylinder unten) (Cylinder down)
I 00.02	B2	Sonde position de chargement Annäherungsschalter Ladepos. Prox. switch loader upper pos.	(Cylindre en haut) (Zylinder oben) (Cylinder up)
I 00.03	B3	Sonde chariot arrière (Point de référence) Annäherungsschalter Vorschub hinten (Referenzpunkt) Prox. switch carrier in home position	
I 00.04	B4	Sonde butée positionnement Annäherungsschalter Anschlag vorne Prox. switch positioner stop	
I 00.05	B5	Contrôle de présence matière Kontrolle Stangen vorhanden Switch barstock on rack	(Option) (Option) (Option)
I 00.06	B 33	Contrôle de la pression d'air Luftdruck Kontrolle Air pressure control switch	
I 02.00	SQ1	Contrôle protection 1 fermée Sicherheit Deckel 1 zu Protection cover 1 safety switch	(Option CE) (Option CE) (Option CE)
I 02.01	SQ2	Contrôle protection 2 fermée Sicherheit Deckel 2 zu Protection cover 2 safety switch	(Option CE) (Option CE) (Option CE)

18. OUTPUTS

Addresses Adressen Addresses	Désignation Bezeichnung Designation	Description Beschreibung Description	
O 01.00	V10	Chariot en avant Vorschub vorwaerts Solenoid carrier forward	(moteur à air) (Luftmotor) (air motor)
O 01.01	V11	Chariot en arrière Vorschub rueckwaerts Solenoid carrier reverse	(moteur à air) (Luftmotor) (air motor)
O 01.02	V12	Chariot petite vitesse Vorschub langsam Sol. carrier slow speed	(moteur à air) (Luftmotor) (air motor)
O 01.03	V1	Chargeur position de travail Ventil Arbeitsposition Solenoid loader down	(Z1 + Z2 en bas) (Z1 + Z2 unten) (Z1 + Z2 down)
O 01.04	V2	Chargeur position de chargement Ventil Ladeposition Solenoid loader up	(Z1 + Z2 en haut) (Z1 + Z2 oben) (Z1 + Z2 up)
O 01.05	V3	Butée positionnement Ventil Anschlag vorne Solenoid positioner stop	(Z3) (Z3) (Z3)

19. INTERFACE

INPUTS

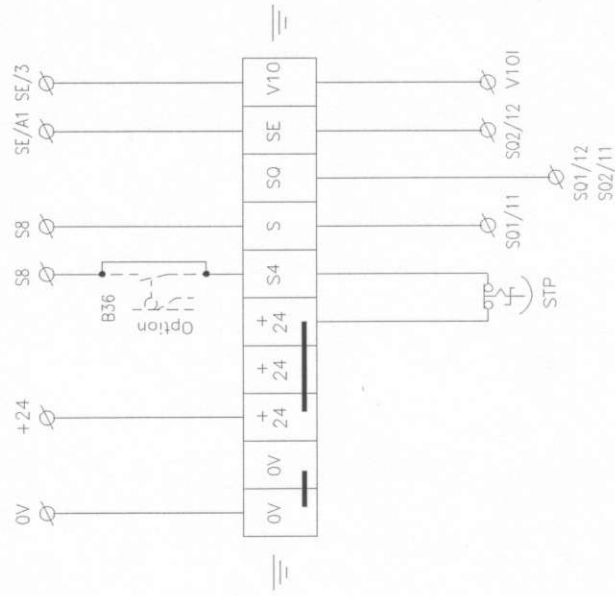
Addresses	Désignation	Description
I 02.08	Pince	Signal pince du tour fermée Spannzange Drehautomat geschlossen Collet of the lathe closed signal
I 02.09	Go	Tour en cycle automatique Drehmaschine in Automatik Lathe in AUTO-Cycle
I 02.10	Embarrage	Ordre de ravitaillement (poupée mobile) Start Ladezyklus (fuer Langdrehmaschinen) Loading Start signal (sliding headstock)
I 00.08	Option	Retour chariot au point de référence à chaque pièce Wagen läuft bei jedem Stück auf Null-Punkt Sliding carrier on reference point after each part
I 00.09	Option	Déclenchement du poussoir (M-fonction) Vorshub aus (M-Funktion) Pusher OFF (M-function)

OUTPUTS

Addresses	Désignation	Description
O 03.11	R1	Relais d'alarme Alarm-Relais Alarm relay
O 03.12	R2	Relais Ravitailleur en chargement Relais Lademagazin in Lade-Zyklus Relay bar feeder in loading cycle (Loading cycle compl.)
O 03.13	R3	Relais de fin de barre Stangenendrelais Relay End Of Bar (EOB)
O 03.14	R4	Relais de libération poupée Relais Spindel Freigabe Relay spindle interlock
O 03.15	R5	Relais de fin de barre auxiliaire Zusatz Stangenendrelais Relay Auxiliary End of Bar (AUX-EOB)
O 03.00	R10	Relais magasin de barres vide (option) Relais Laderampe leer (option) Relay loader empty (option)

20/B. EMERGENCY STOP CIRCUIT /CE Diagram

Chaîne de sécurité (Pour Schema 011-10-614)
 Sicherheitskette
 Security line

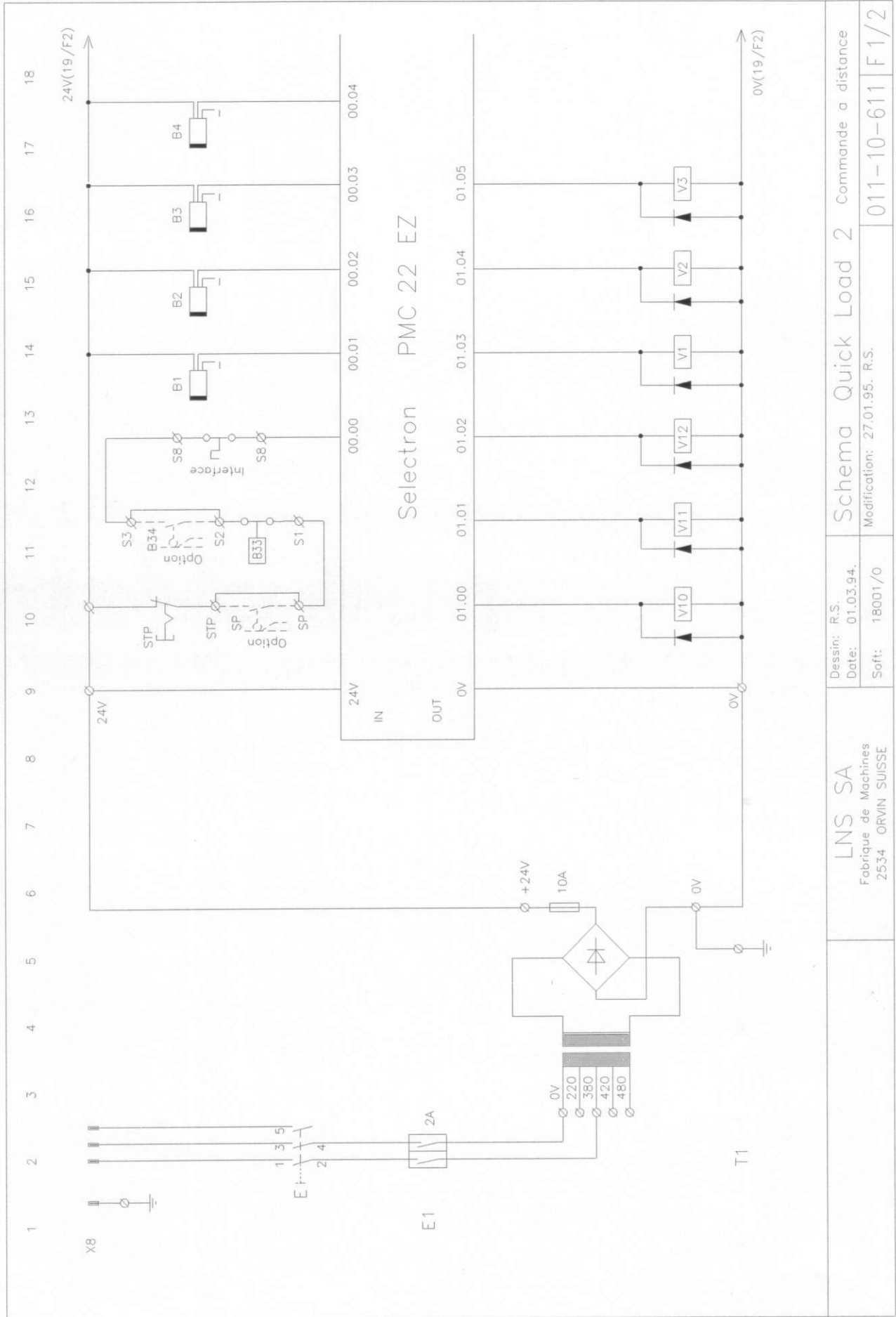


- STP Bouton-poussoir - ARRET D'URGENCE
Druckknopf - NOT-STOP
Pushbutton - EMERGENCY STOP
- S01 Switch protection 1 fermée
Schalter Abdeckung 1 zu
Control switch protection 1 closed
- S02 Switch protection 2 fermée
Schalter Abdeckung 2 offen
Control switch protection 2 closed
- SE Contrôle de la chaîne de sécurité
Kontrolle der Sicherheitskette
Check of the security line
- S8/S8 Chaîne de sécurité tour
Sicherheitskette Drehmaschine
Lathe Emergency Stop circuit
- B36 Sécurité retraction
Sicherheits. Verschiebevorr.
Safety switch retraction

Interface
 Interface
 Interface
 Option
 Option
 Option

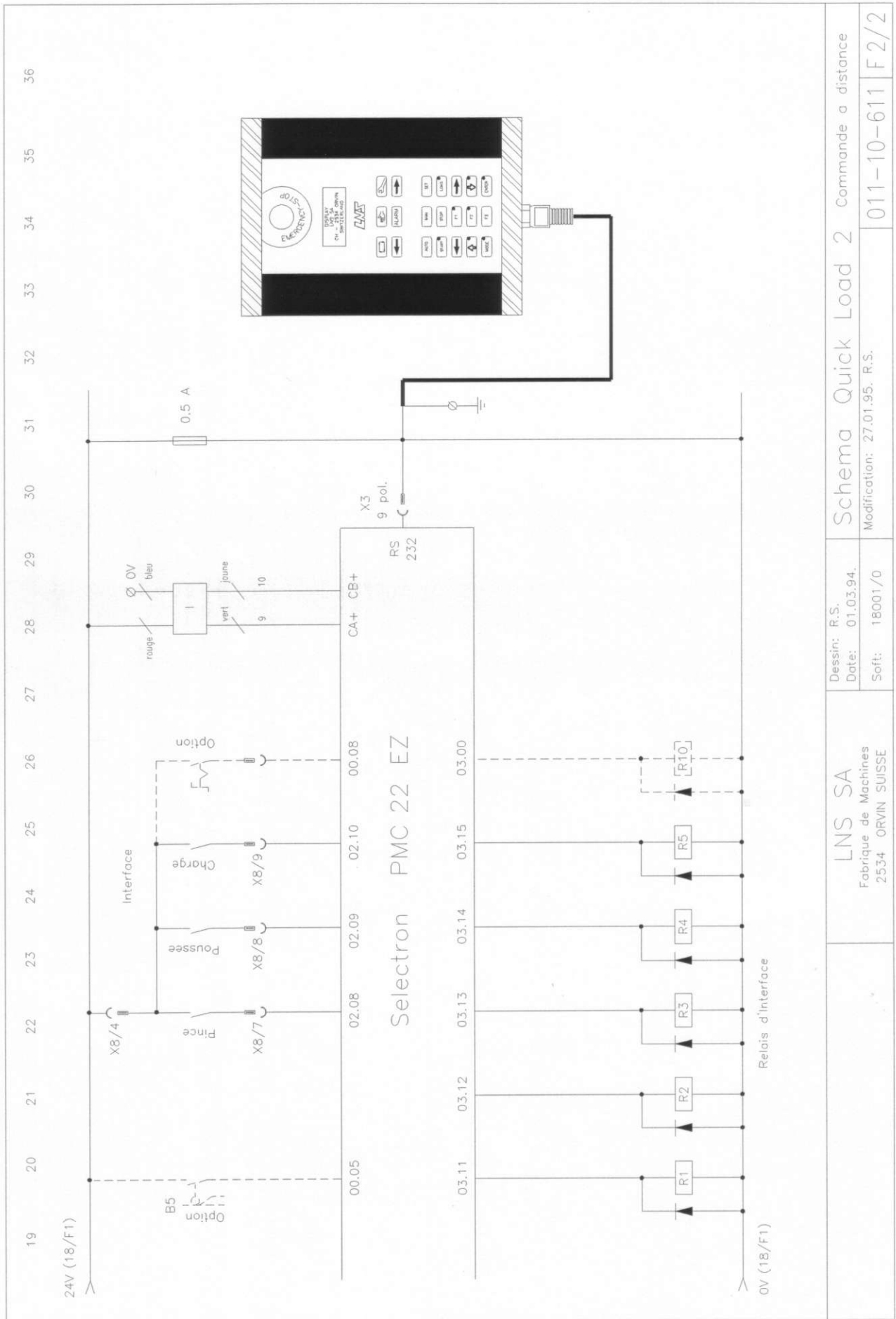
LNS SA Fabrique de Machines 2534 ORVIN SUISSE	Dessin: R.S. Date: 01.12.96.	Chaîne de sécurité QUICK LOAD cE
	Soft: 18002/1	Modifications: 10.02.97 R.S. 011-10-627

21. ELECTRICAL DIAGRAM



<p>LNS SA Fabrique de Machines 2534 ORVIN SUISSE</p>	<p>Dessin: R.S. Date: 01.03.94.</p>	<p>Schema Quick Load 2 Modification: 27.01.95. R.S.</p>	<p>Commande a distance 011-10-611 F1/2</p>
	<p>Soft: 18001/0</p>		

21. ELECTRICAL DIAGRAM

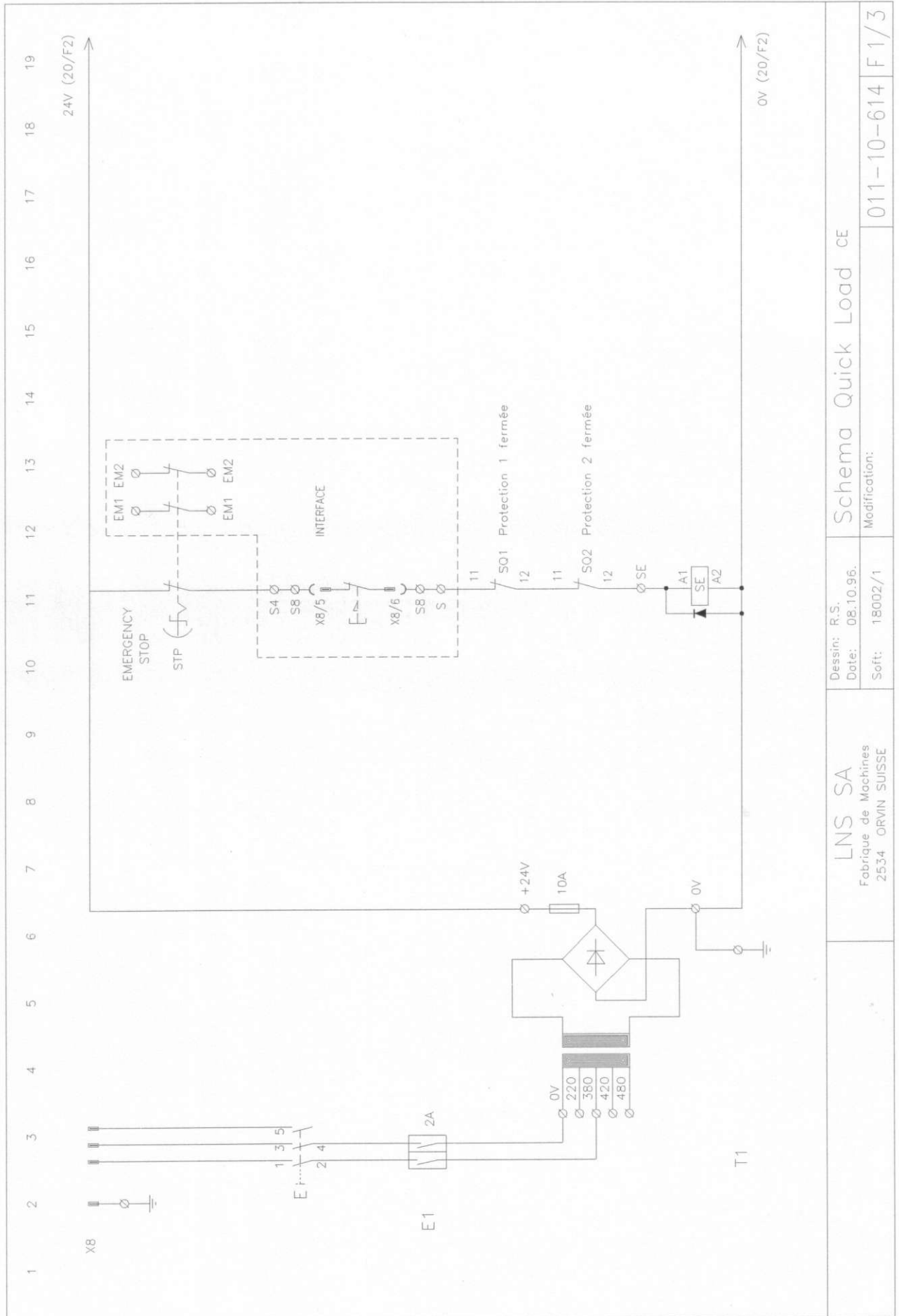


Dessin: R.S.
 Date: 01.03.94.
 Soft: 18001/0

LNS SA
 Fabrique de Machines
 2534 ORVIN SUISSE

Schema Quick Load 2 Comande a distance
 Modification: 27.01.95. R.S.
 011-10-611 F2/2

21/B. ELECTRICAL DIAGRAM CE



Schema Quick Load CE

Dessin: R.S.
Date: 08.10.96.

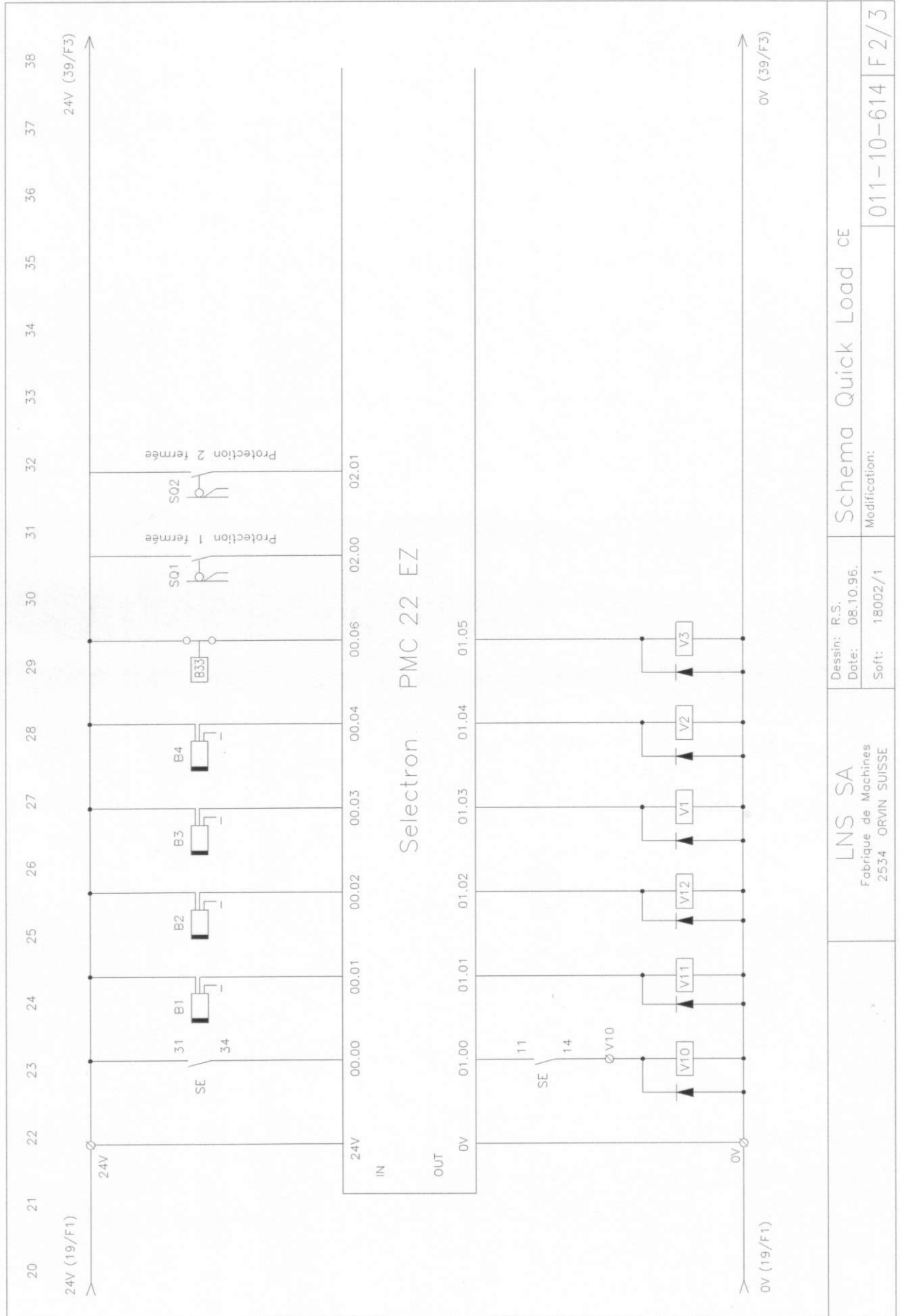
LNS SA
Fabrique de Machines
2534 ORVIN SUISSE

Modification:

Soft: 18002/1

011-10-614 F1/3

21/B. ELECTRICAL DIAGRAM CE



Schema Quick Load ce

Dessin: R.S.
Date: 08.10.96.

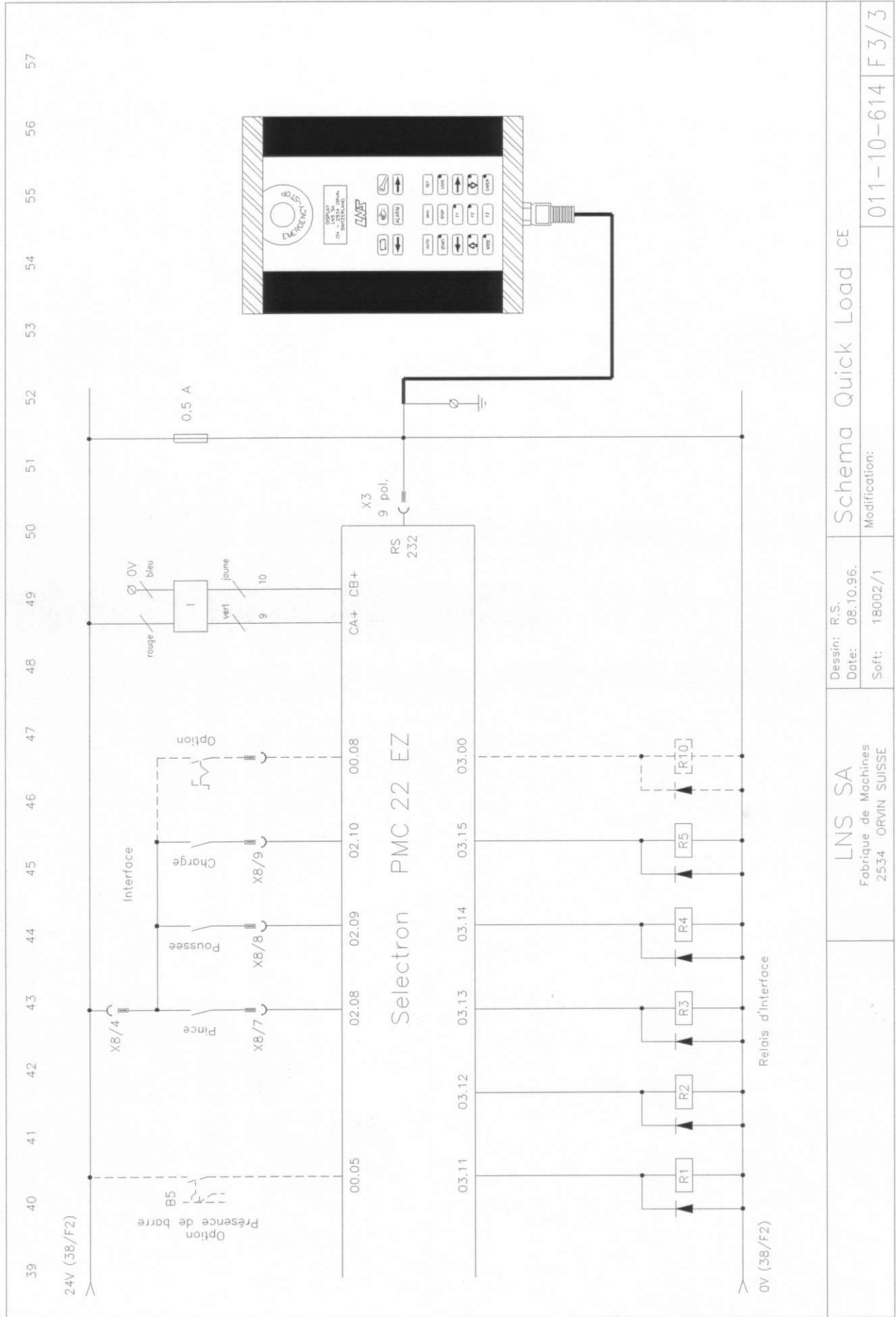
LNS SA
Fabrique de Machines
2534 ORVIN SUISSE

Modification:

Soft: 18002/1

011-10-614 F2/3

21/B. ELECTRICAL DIAGRAM CE



Schema Quick Load CE

Dessin: R.S.
Date: 08.10.96.

LNS SA
Fabrique de Machines
2534 ORVIN SUISSE

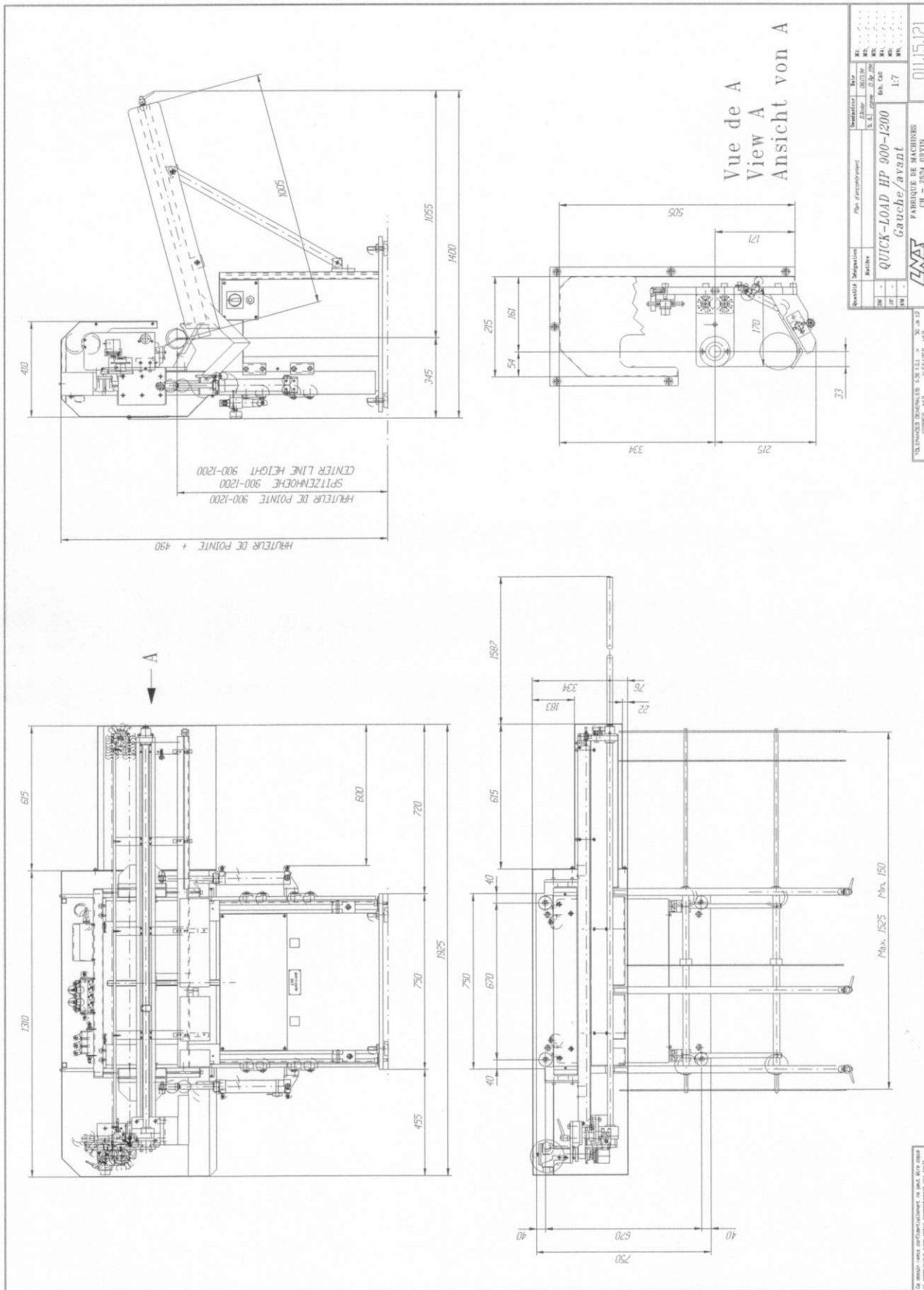
Modification:

Soft: 18002/1

011-10-614 F3/3

23.
FLOOR PLANS

LEFT-FRONT



24. SPARE PARTS

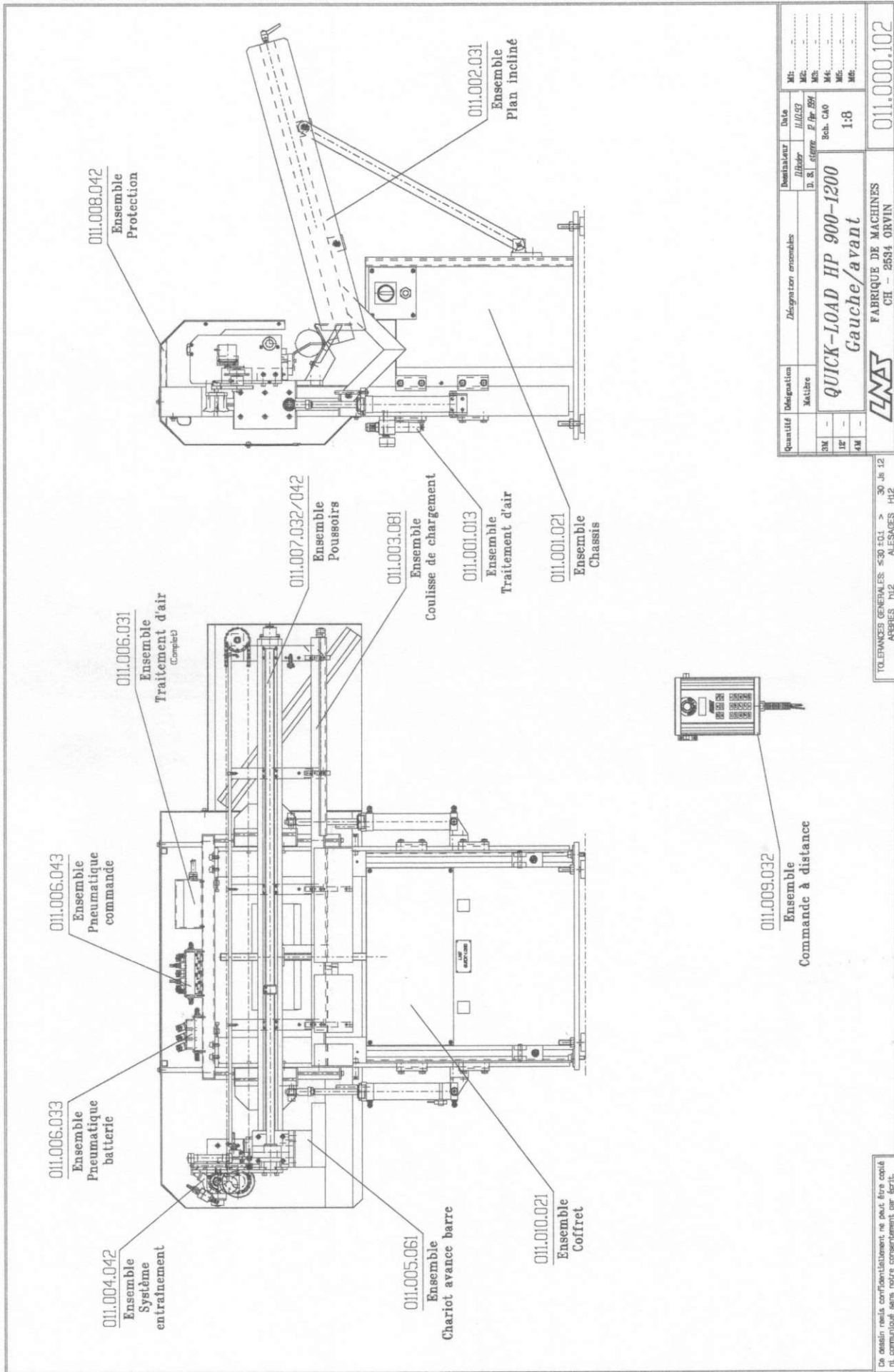
When ordering parts, always indicate the part number and the fabrication number. The fabrication number is printed on a tag located on the chassis of the bar feeder.

MODEL	<input type="text"/>	LNS	INCOME VOLTAGE	<input type="text"/>
LNS-SA 2534 ORVIN SUISSE				
S.Nr./YEAR	<input type="text"/>	PHASE	<input type="checkbox"/>	HZ
CONTROL VOLTAGE	<input type="text"/>	<input type="checkbox"/>	AMP MAX. F.L.A.	<input type="text"/>
			AMPS MAX.	<input type="text"/>
				KW
MADE IN SWITZERLAND				

Refer to mechanical drawing in the following pages of this manual for part numbers.

- 24.1 ASSEMBLIES LIST
- 24.2 AIR ADJUSTMENT UNIT
- 24.3 BASE FRAME
- 24.4 LOADER RACK MAGAZINE
- 24.5 LOADING CHANNEL /GAR
- 24.6 LOADING CHANNEL /GAV
- 24.7 AIR MOTOR DRIVING UNIT /GAR
- 24.8 AIR MOTOR DRIVING UNIT /GAV
- 24.9 LOADING RAM /GAR
- 24.10 LOADING RAM /GAV
- 24.11 AIR CONTROL UNIT
- 24.12 AIR VALVE ASSEMBLY
- 24.13 AIR MOTOR FEED CONTROL UNIT
- 24.14 PUSHER
- 24.15 PUSHER USA
- 24.16 REMOTE CONTROL STATION
- 24.17 MAIN COVER /GAR
- 24.18 MAIN COVER /GAV
- 24.19 LONGITUDINAL RETRACTION
- 24.20 TRANSVERSAL RETRACTION
- 24.21 CYLINDER SHAFT
- 24.22 RETRACTION CYLINDER
- 24.23 TERMINALS
- 24.24 CONTROL BOX

24.1



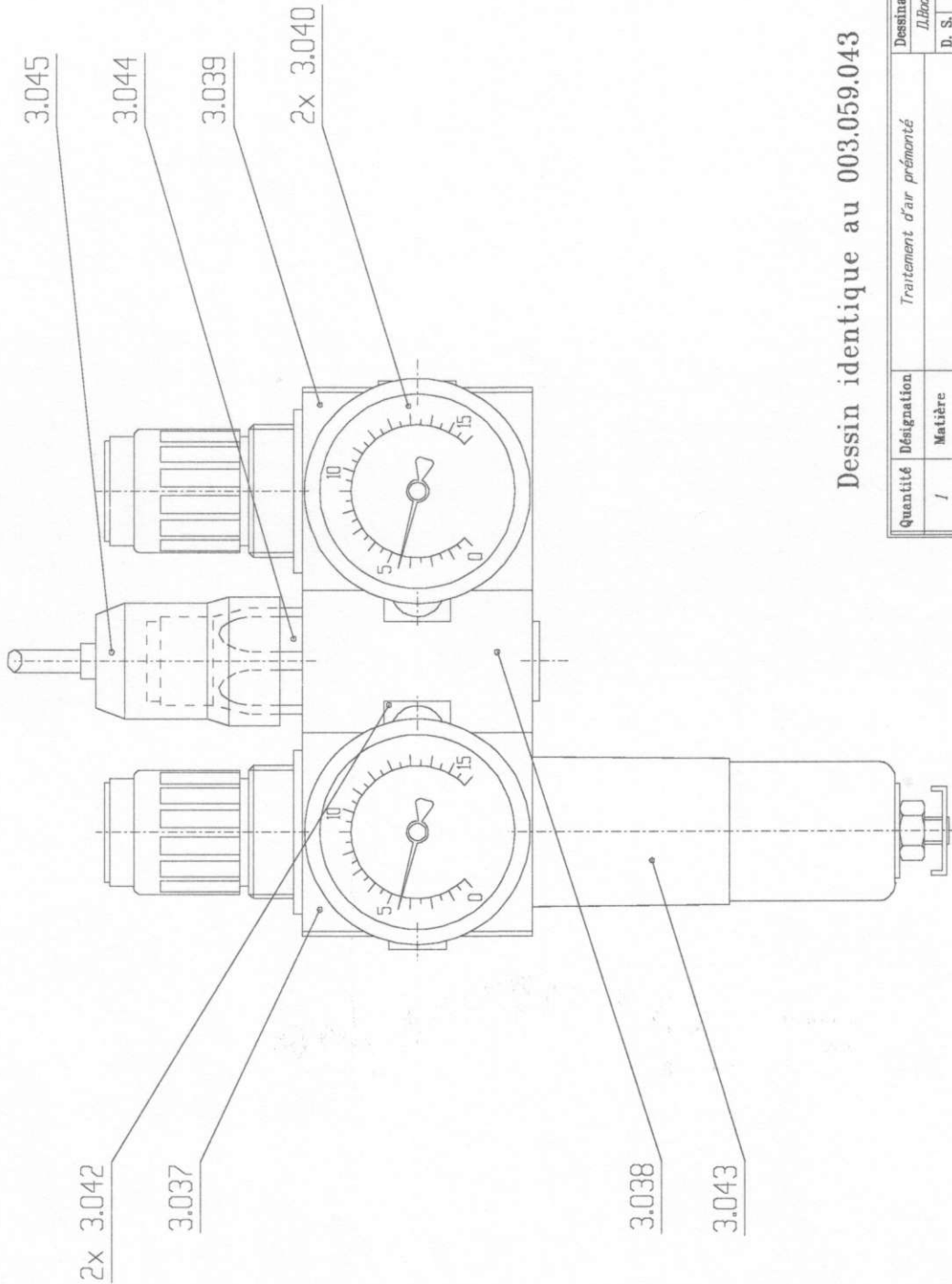
Quantité	Désignation	Désignation ensembles	Date	M1:
	Matière		11/03/83	M2:
3M		QUICK-LOAD HP 900-1200	D. S. L. 21/08/84	M3:
1R		Gauche/avant	Sch. CAO	M4:
4M			1:8	M5:
				M6:

FABRIQUE DE MACHINES
CH - 2684 ORVIN

011.000.102

TOLEANCES GENERALES: S30-E01 > 30 J6 J12
ARBRES N12 ALESAGES H12

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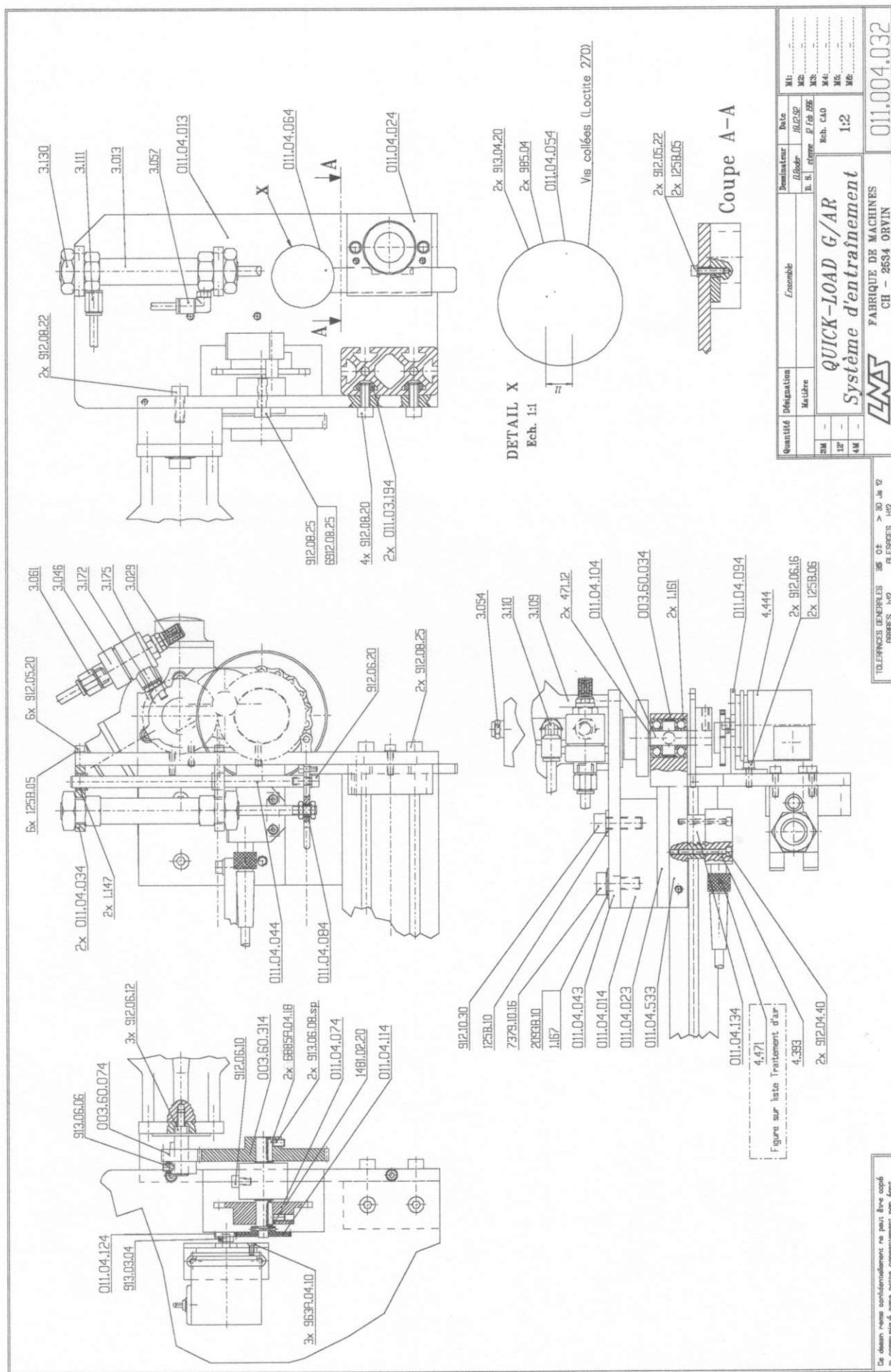


Dessin identique au 003.059.043 N° LNS 3.023

Quantité	1	Désignation	Traitement d'air prémonté	Dessinateur	D. S. etève	Date	14.09.92
		Matière					29 Mar 1994
3M	-						
12'	-						
4M	-						
		QUICK-LOAD		Ech. CAO		1:1	
		Pneuma.-Traitement-Air					
		LNS		FABRIQUE DE MACHINES		011.001.013	
				CH - 2534 ORVIN			

TOLERANCES GENERALES: $\leq 30 \pm 0.1$ > 30 JS 12
ARBRES h12 ALESAGES H12

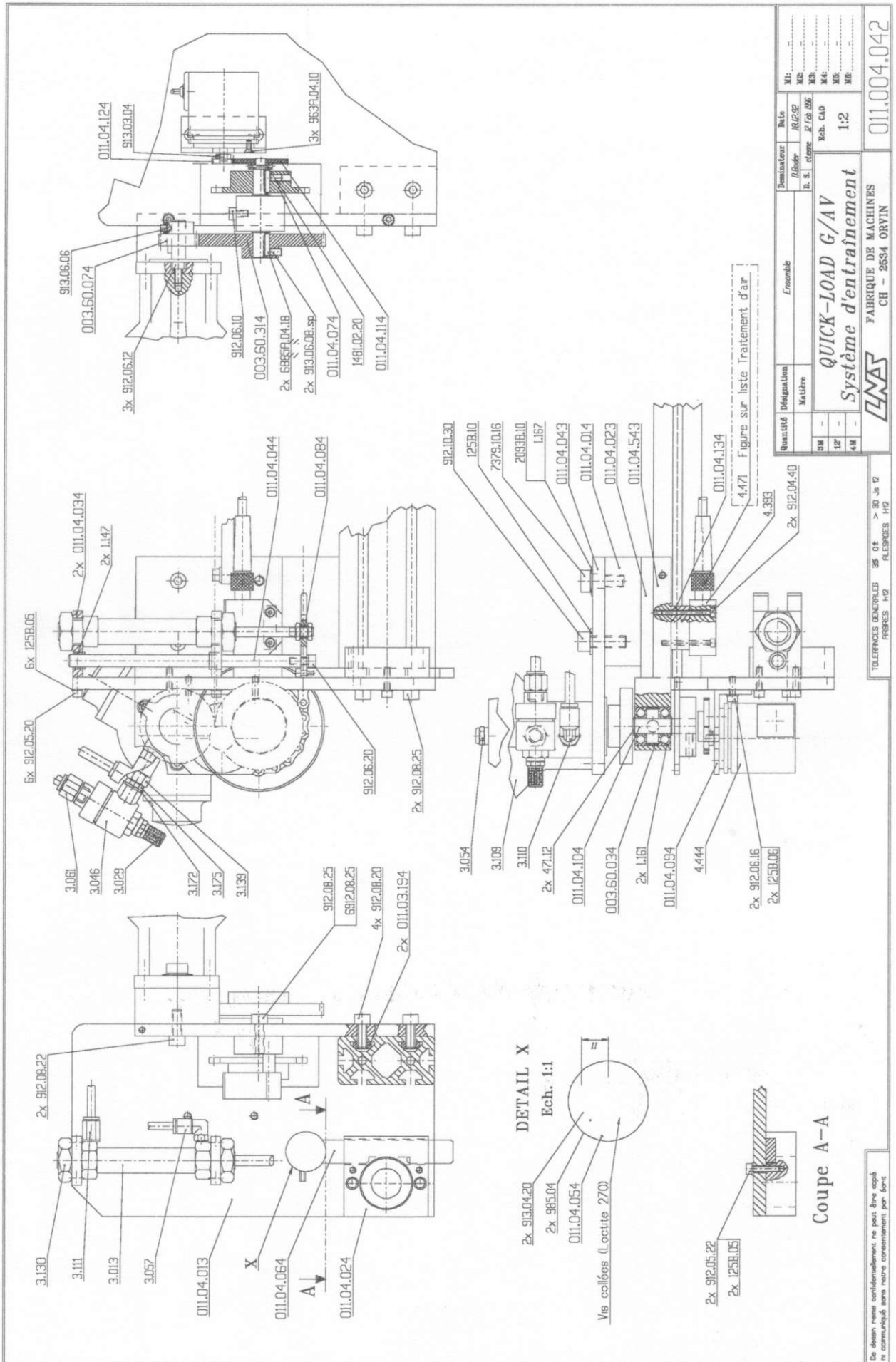
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Quantité	Désignation	Ensemble	Dimension	Date
3M	Matière		1/2000	18/12/92
12"			1. S. I. étape	27 Feb 99
4M			Reb. CAO	
			M4:	
			M5:	
			M6:	
			M8:	
QUICK-LOAD G/AR			Ech. CAO	1:2
Système d'entraînement				
LENAS			FABRIQUE DE MACHINES	011.004.032
			CH - 2634 ORVIN	

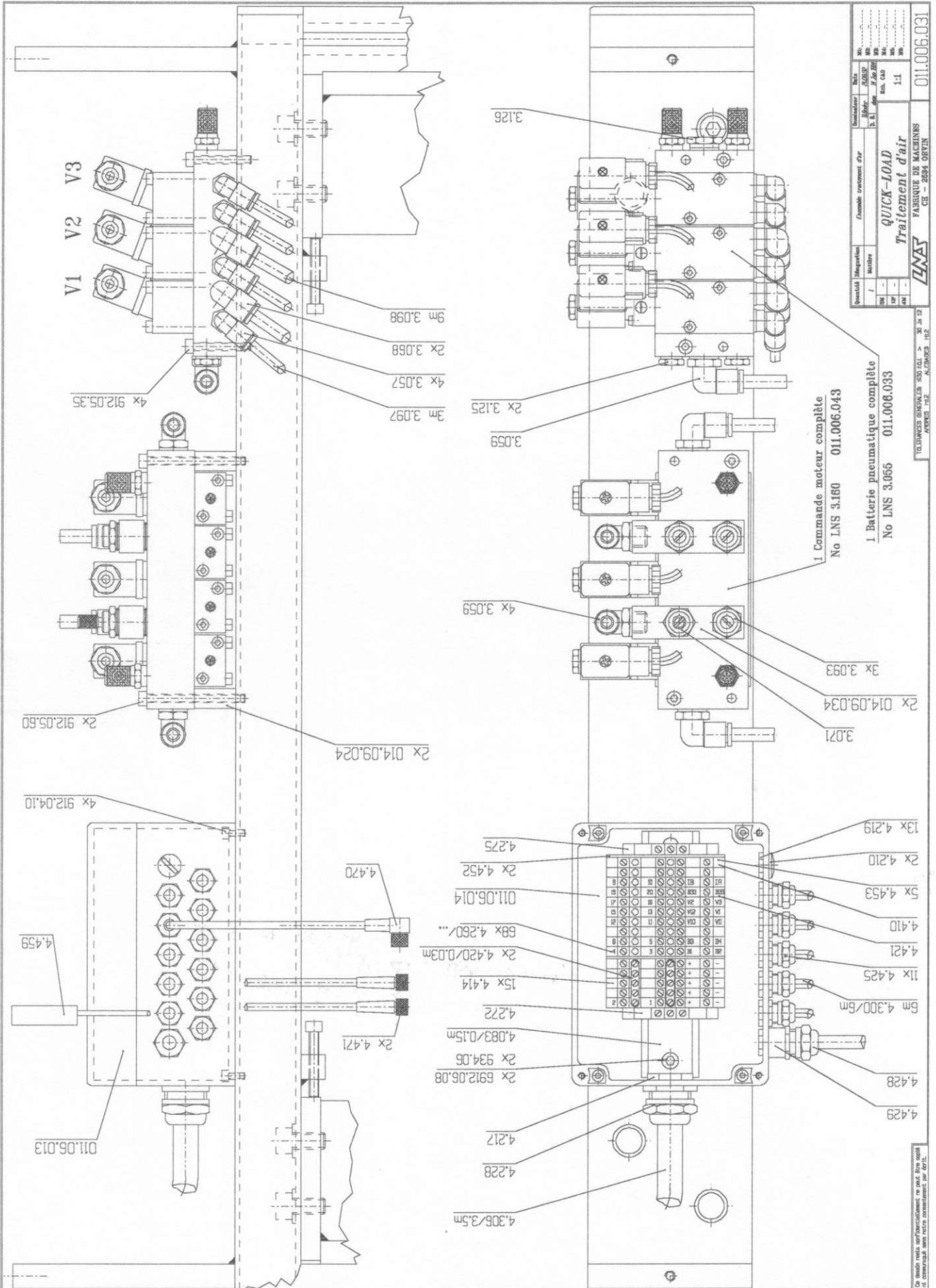
TOLERANCES GENERALES 35 02 > 30 JA 12
PROFES 110 FLESHES 110

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ni communiqué sans notre consentement par écrit.

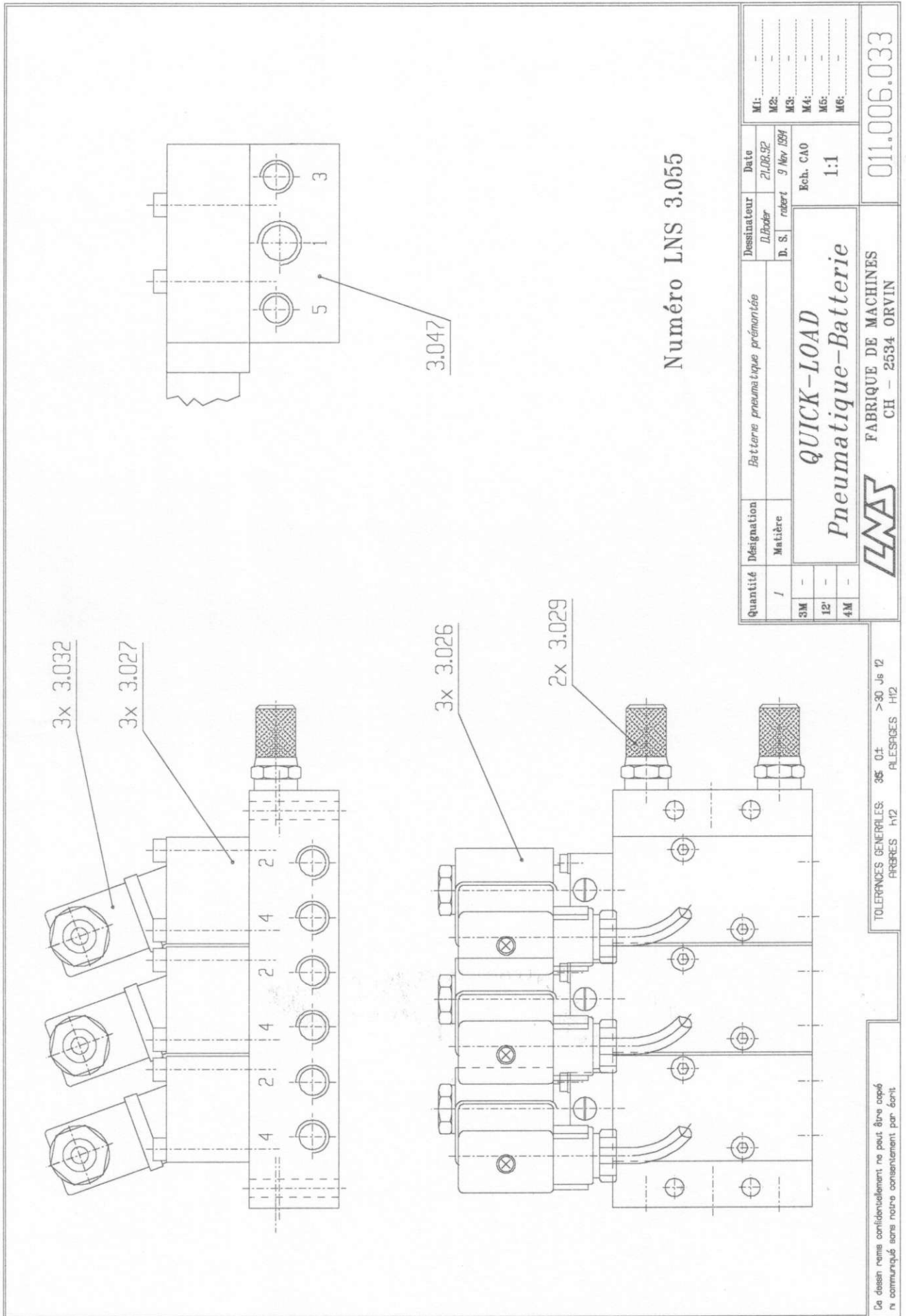


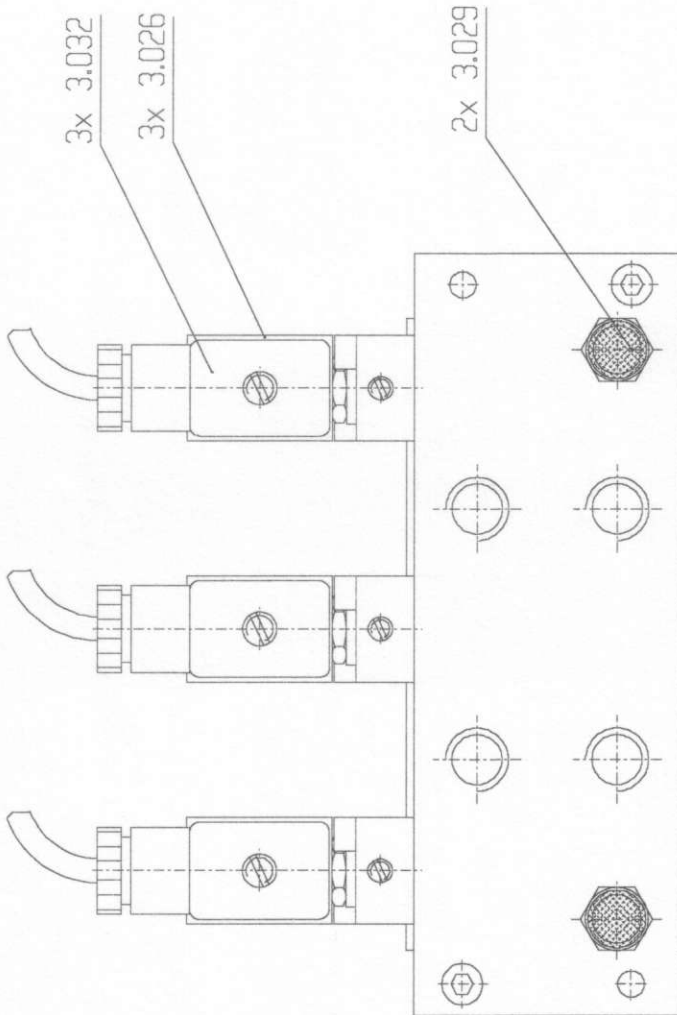
De dessin remis conformément ne peut être copié
ni communiqué sans notre consentement par écrit

24.11



24.12





No "BACHOFEN" 81.1585

No LNS 3.160

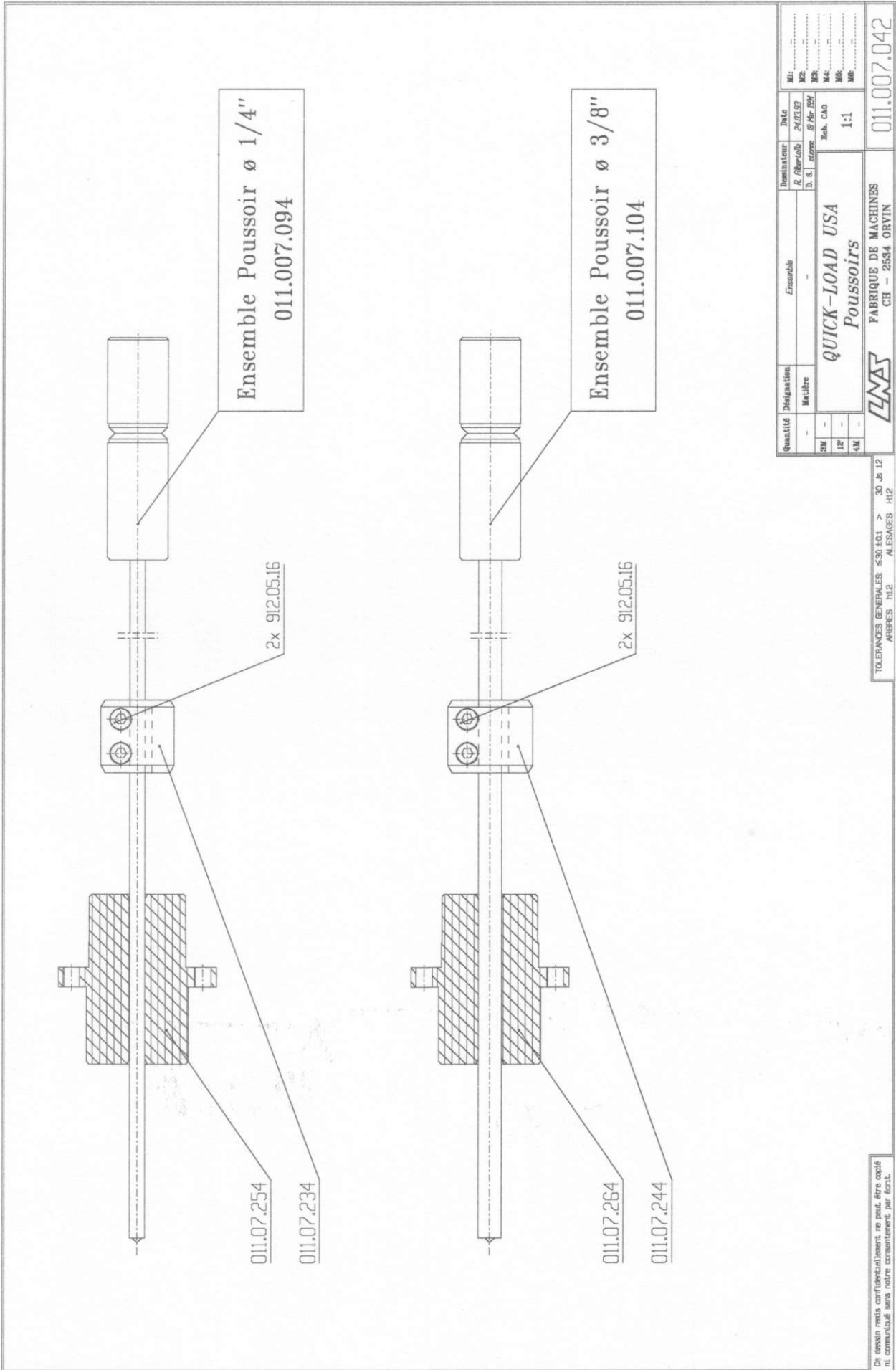
Dessin idem au No 014.009.053

Quantité		Designation		Ensemble commande moteur		Dessinateur		Date		M1: -	
/		Matière		-		R. F. Bertella		15.08.93		M2: -	
3M	-					D. S. Orbert		9 Nov. 1994		M3: -	
12'	-					Ech. CAO		1:1		M4: -	
4M	-									M5: -	
										M6: -	
QUICK-LOAD				Pneumatique-Batterie							
LNS				FABRIQUE DE MACHINES CH - 2534 ORVIN				011.006.043			

TOLERANCES GENERALES: 35 01 >30 Js 12
ARRRES h12 FILETES HT2

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24.14

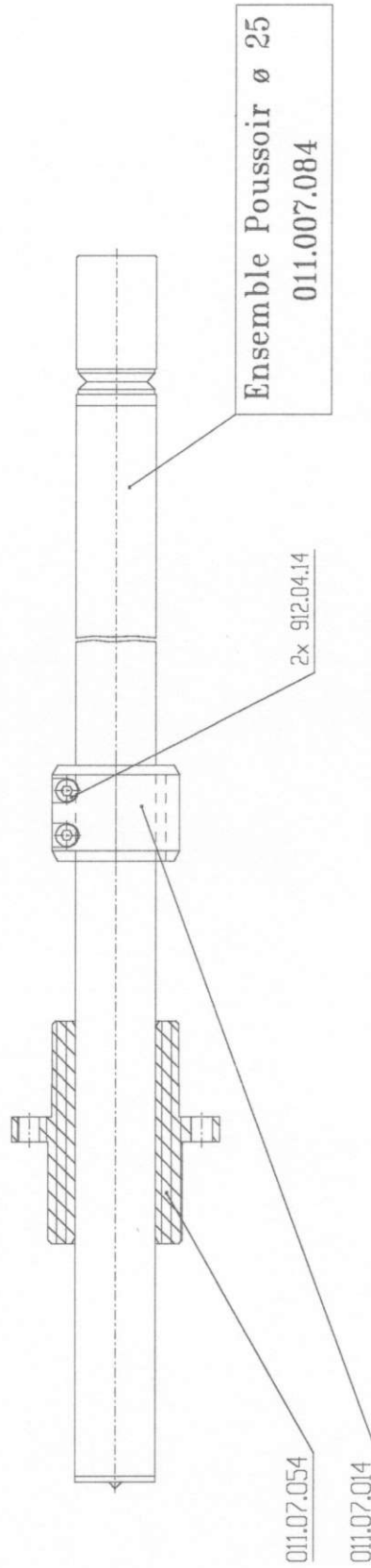
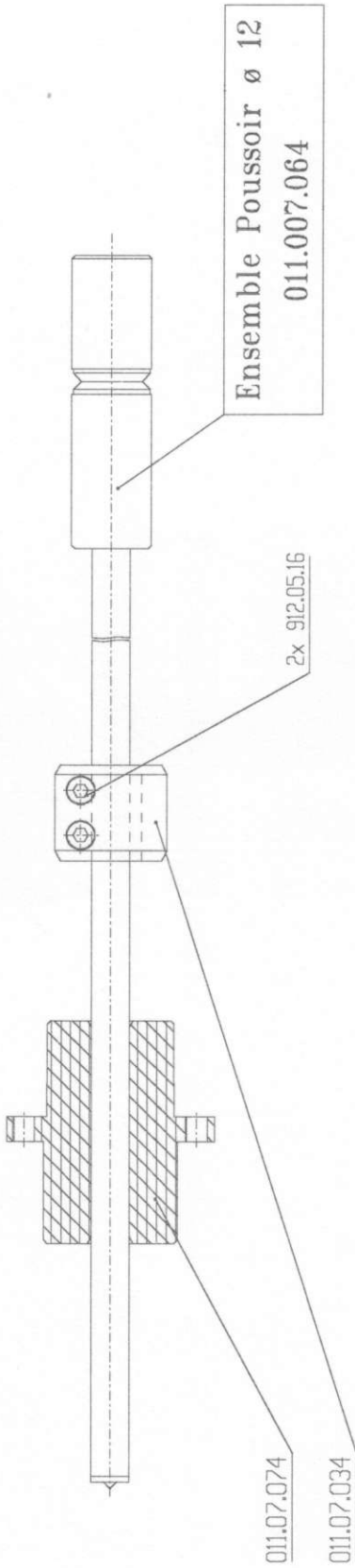


Quantité	Designation	Remarque	Date
-	Membre	-	24/03/97
3M			
18'			
4M			
Ensemble			
QUICK-LOAD USA			
Poussoirs			
FABRIQUE DE MACHINES			
CH - 2554 ORVIN			
			011.007.042

TOLERANCES GENERALES 530 L01 > 30 us 12
ARBRES H12 ALESAGES H12

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ni communiqué sans notre consentement par écrit.

24.15



Quantité	Désignation	Encadrement	Décl.	M1:
	Matière		3/1000	M2:
3M			25 par 256	M3:
1P			Rob. CAO	M4:
4M			1:1	M5:
				M6:

TOLENCES GENERALES SE 01 > 30 Ja 12
FRRES h/2 ALGRES h/2

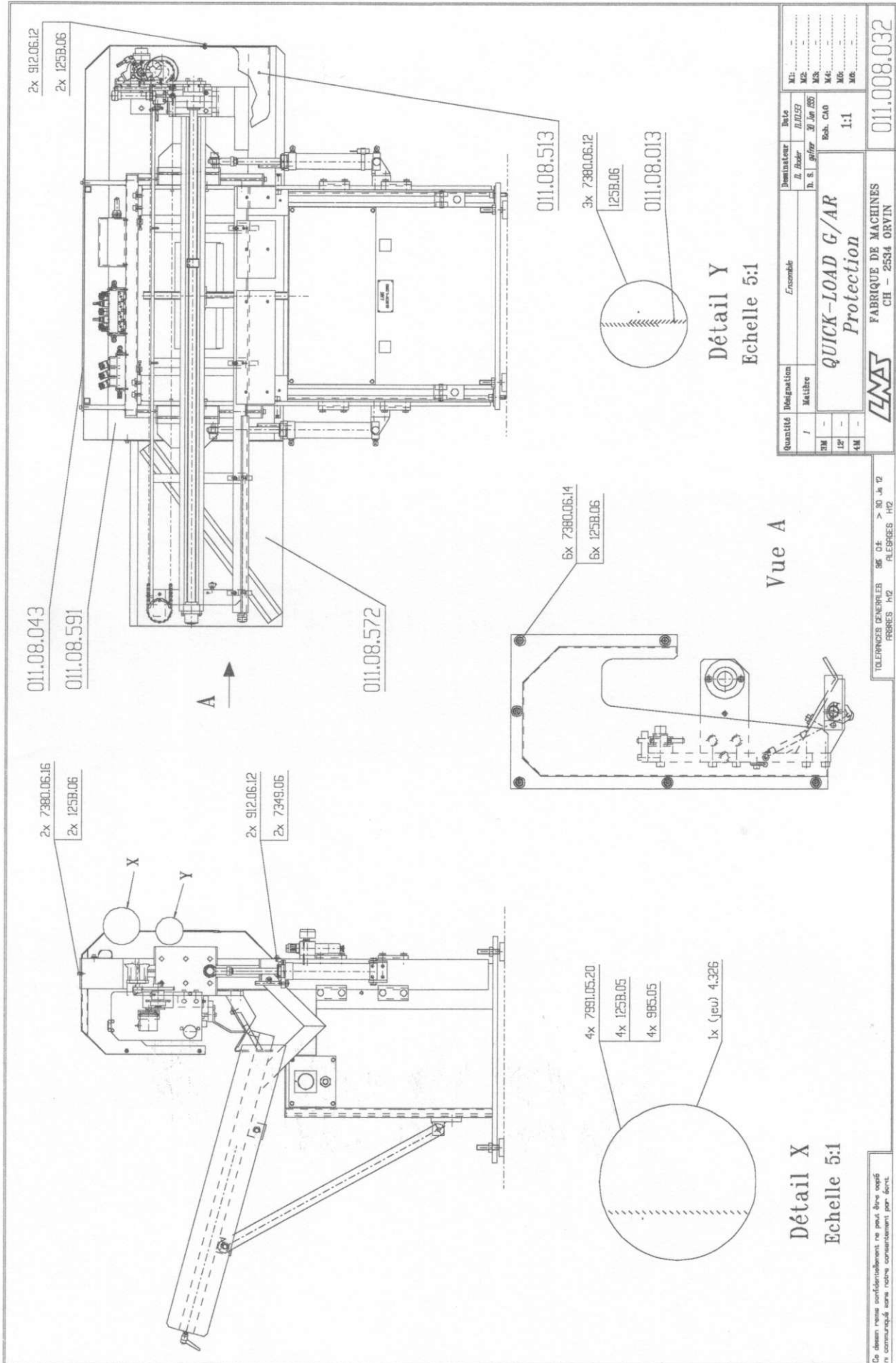
QUICK-LOAD
Poussoirs

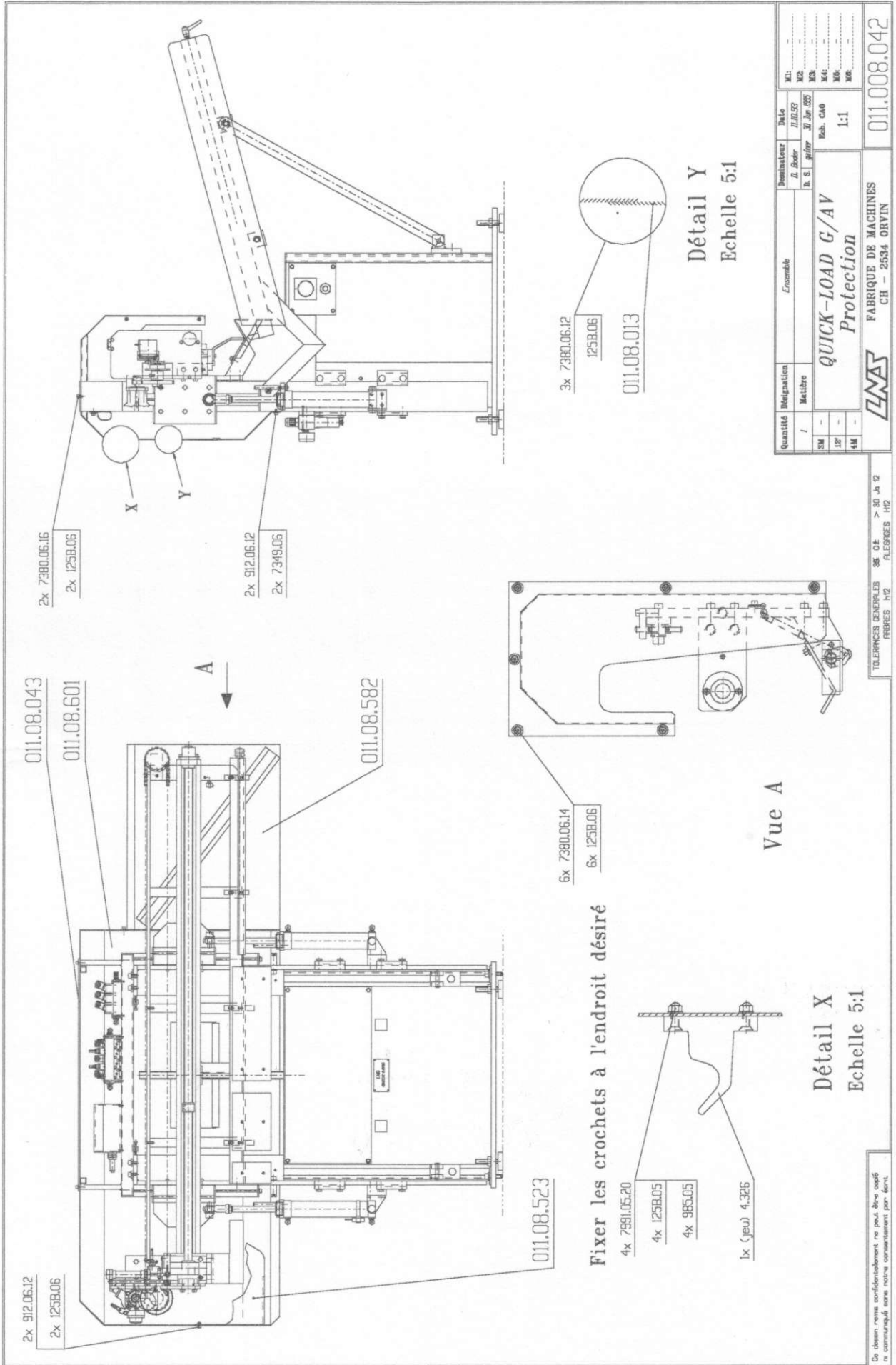
FABRIQUE DE MACHINES
CH - 2634 ORVIN

011.007.032

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ni communiqué sans notre consentement par écrit

24.17





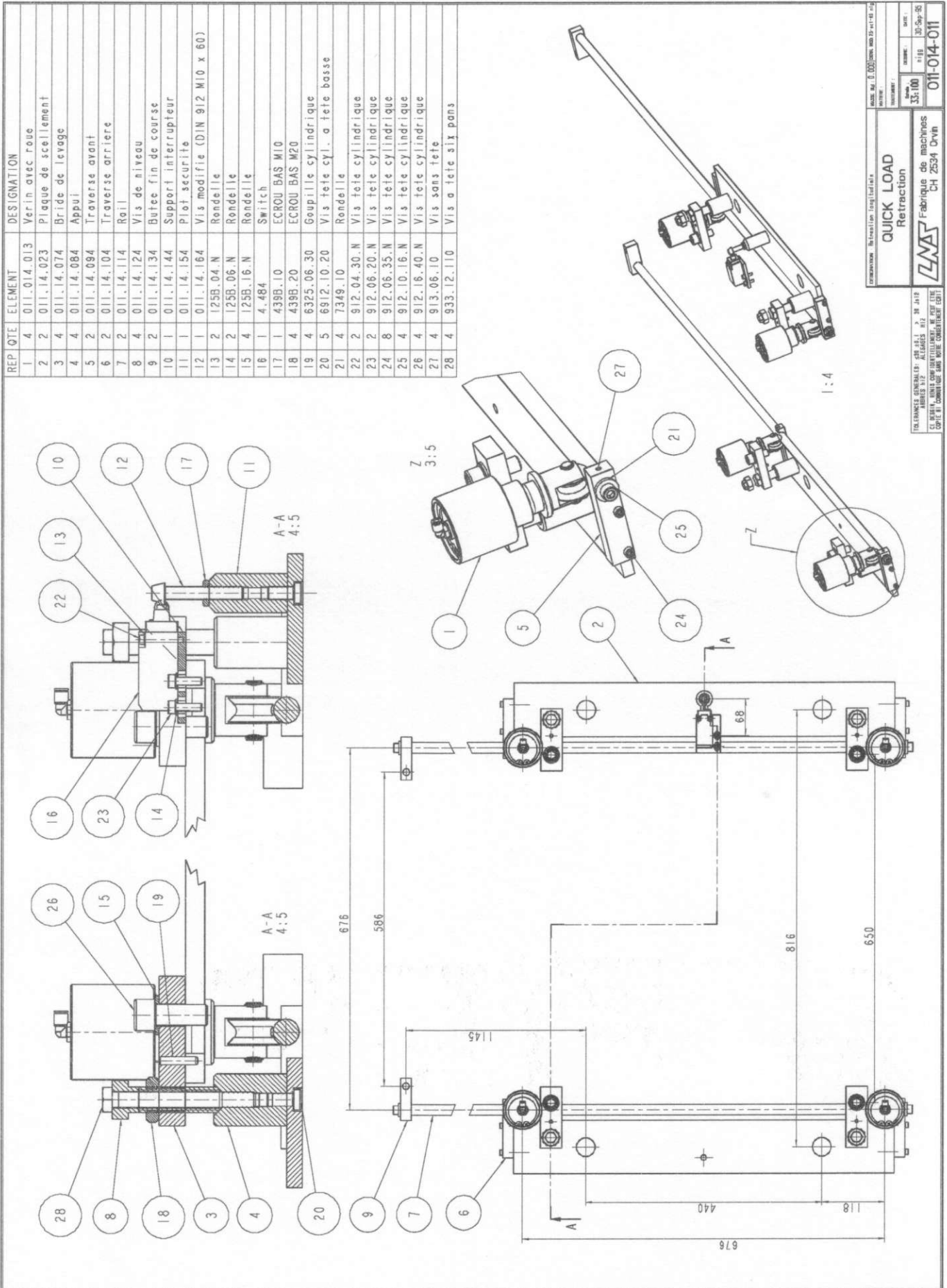
Fixer les crochets à l'endroit désiré

Les dimensions indiquées ne sont qu'à titre indicatif et ne doivent pas être considérées comme des tolérances.

Quantité	Désignation	Ensemble	Désignation	Date
1	Métrère		B. S. I. g/m/m	11/07/99
3M		QUICK-LOAD G/AV	Exp. CAO	
1P		Protection		
4M				1:1
FABRIQUE DE MACHINES CH - 2534 ORVIN				011.008.042

TOLERANCES GENERALES
 PRECIS H12
 SE. DE > 50 A 12
 ALÉSAGES H12

24.19

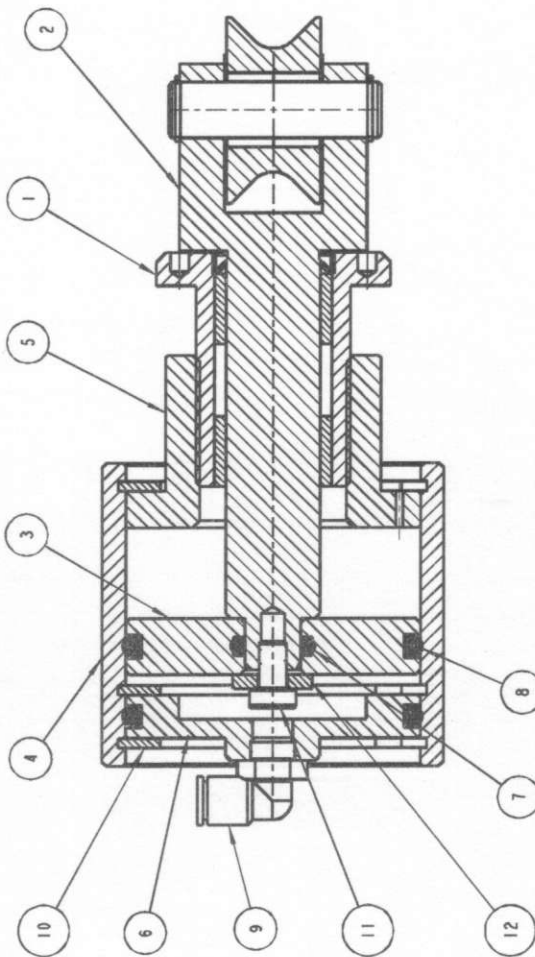
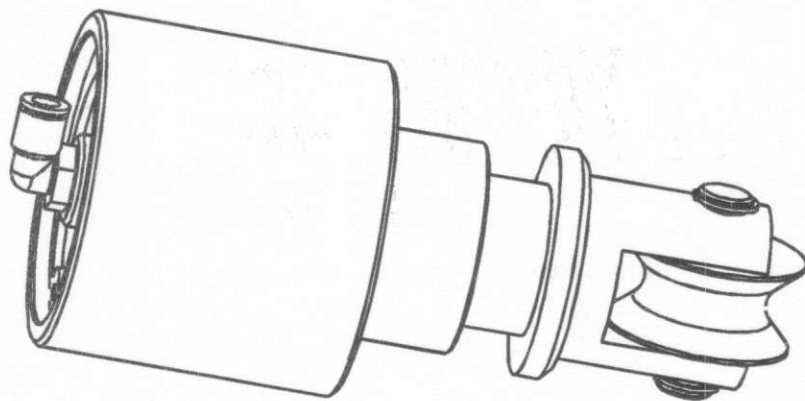


DIMENSIONNEMENT : Dimensionnement en mm
 UNITÉ : mm
 ÉCHELLE : 1:4
 DATE : 10-09-20
 N° : 011-014-011

QUICK LOAD Retraction
 Fabrication de machines
 CH 2534 Dr-vm

TOLERANCES GÉNÉRALES : ±0.15 / ±0.30 / ±0.15
 ALUMES H12
 COULEUR : ALUMES GÉNÉRAUX
 COULEUR : ALUMES GÉNÉRAUX

REP	QTE	ELEMENT	DESIGNATION
1	1	011.014.014	Preontage palier
2	1	011.014.024	Preontage tige piston
3	1	011.14.024	Piston
4	1	011.14.034	Cylindre
5	1	011.14.044	Douille verin
6	1	011.14.054	Couvercle
7	1	1.495	O-RING 3.0/12
8	2	1.499	O-RING 4.0/55
9	1	3.057	EQUERRE A PIGUAGE MALE 3199 06 10
10	3	472.63	Circlip pour alesage
11	1	6912.06.10	Vis tete cyl. a tete basse
12	1	7349.06	Rondelle



DESIGNATION : Verin avec roue

MASSE (kg) : 3.000 PERM. MOD. DATE

MATIERE :

TRAITEMENT :

Echelle : 1:1

DESSINE : n 199

DATE : 30-Sep-95

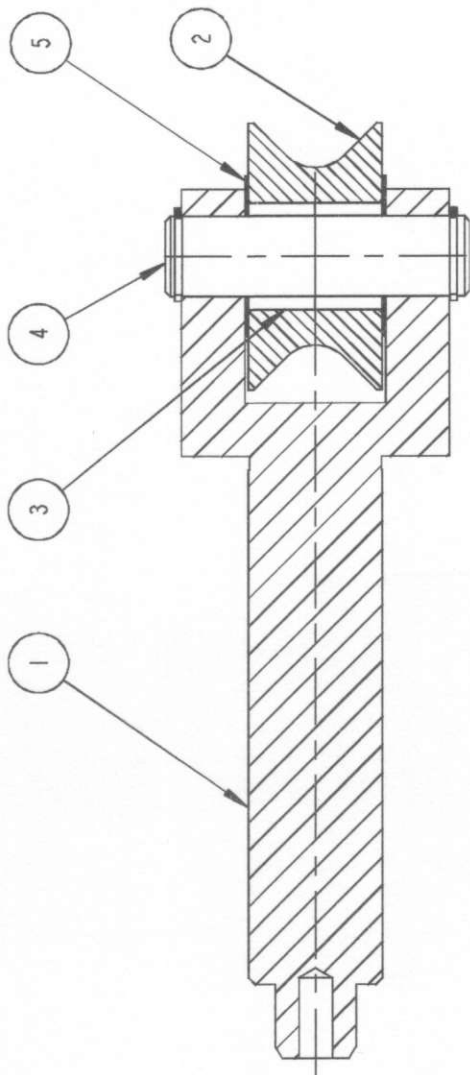
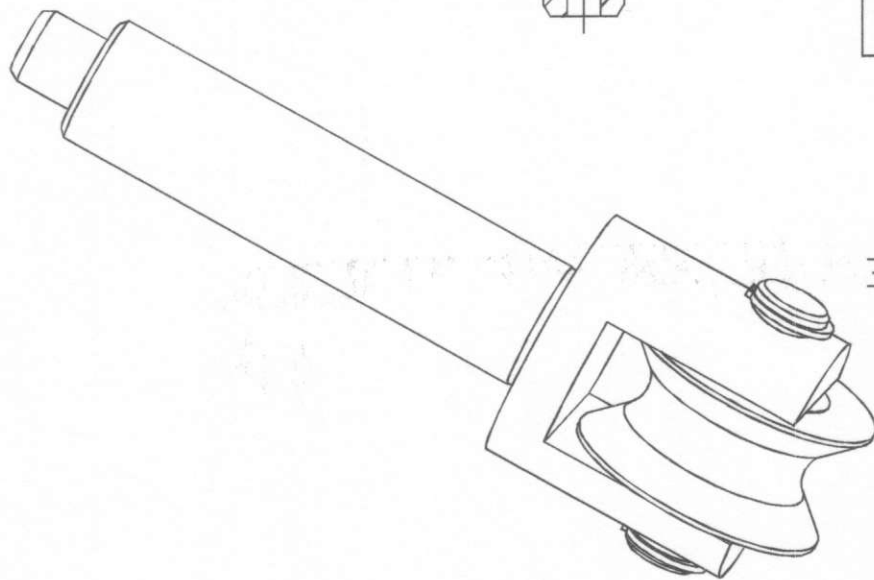
011-014-013

QUICK LOAD
Retraction

LMAS Fabrique de machines
CH 2534 Orvin

TOLERANCES GENERALES: ± 0.1 > 30 JS12
 ARBRES H12 ALESAGES H12
 CE DESSIN, REMIS CONSCIENTIEMENT, NE PEUT ETRE
 COPIE NI COMMUNIQUE SANS NOTRE CONSENTEMENT ECRIT

RFP	QTF	FLFMENT	DESIGNATION
1	1	011.14.013	Tige de piston
2	1	011.14.014	Roue
3	2	1.106	DOUILLE AIGUILLE HK 1210
4	1	1.457	AXE B100 12 X 40
5	2	988.12.24.03	RONDELLE D'EPAISSEUR



DESIGNATION : Premontage tige piston

MASSÉ (kg) : 0.000

DERN. MOD. : DATE :

MATIERE :

TRAITEMENT :

Echelle : 1:1

DESSINE : nigg

DATE : 29-Sep-95

011-014-024

QUICK LOAD
Retraction

LINAS Fabrique de machines
CH 2534 Orvin

TOLERANCES GENERALES: $\leq 30 \pm 0.1$ > 30 Js12
ARBRES h12 ALESAGES h12

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