

**Lectra**

# Maintenance manual



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# Preface

## Purpose of this document

The purpose of this manual is to give you essential information about the advanced maintenance of the Alys plotter. Due to the specific nature of the operations, the manual is intended only for Lectra technicians or experienced technical staff.

## How to use this document

The first part describes the **Safety instructions** and standards to be applied according to the country.

The **Introduction** chapter describes the plotter and its control panel. The minimum configuration required for the operating PC is indicated in this chapter. A data sheet summarizes its technical specifications.

The **Plotter tests** chapter provides access to the advanced maintenance software for carrying out specific adjustments and self tests on the plotter.

The **Mechanical maintenance** chapter contains the maintenance operations corresponding to the Alys maintenance Kit that is available within the framework of an Alys service contract.

## Conventions used in this manual



*Note*



*Advice or suggestion*



**Caution Danger**



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# Safety instructions

The Alys inkjet printer has components that move when it is in operation. Similarly, the consumable items used in this plotter (ink, rolls of paper) require that the procedures for use be observed to guarantee the optimum functioning of the machine and the operator's safety.



**This label indicates the presence of safety instructions.**

It is imperative that the safety instructions given in this manual be observed to avoid the risk of accidents.

## 1. Electrical safety

### 1.1 Fuses



**When replacing a fuse, replace it with one of the same type and the same rated specifications in order to preserve the protection afforded against the danger of fire.**



Replace the fuse with an identical model.

**The fuse must have the following rating:  
T5A, H250 V**



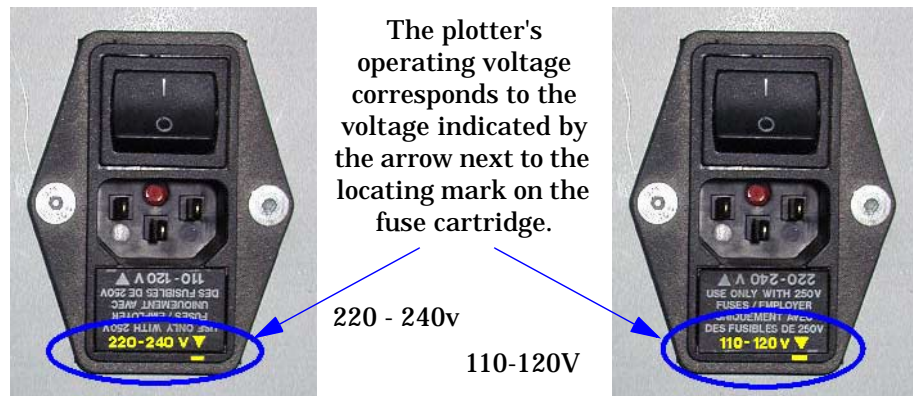
**Observe the mounting direction of the fuse! It determines the operating voltage of the plotter (See next §).**

## 2. Operating voltage of plotter



**Before switching on the plotter, check that its operating voltage is correct. The plotter is supplied configured for a mains voltage of 230V.**

To change the plotter's serviceable voltage, simply invert the protective fuse cartridge, which is located underneath the entry point of the mains cord.



### 2.1 Mains cord

#### 2.1.1 European countries

The mains cord supplied with Alys plotters conforms with European safety standards.

#### 2.1.2 USA and Canada

Le cordon d'alimentation du traceur Alys doit être du type :

3-core type SJT, rated 18 AWG minimum for 10A, 250V.



## 3. Handling and storage of consumable items

### 3.1 Ink cartridges

#### 3.1.1 Handling

Ensure good ventilation. Avoid contact with the skin and eyes. For further information, refer to the label on ink cartridges.

#### 3.1.2 Storage

Keep the container in a dry place at room temperature. Take precautionary measures against electrostatic discharge. Keep away from powerful oxidizing agents.

#### 3.1.3 Recycling used ink reservoirs

Disposal must conform with national and local regulations. Chemical residues are generally considered as special residue.

### 3.2 Paper

#### 3.2.1 Storage

Recommended storage conditions for paper are as follows:

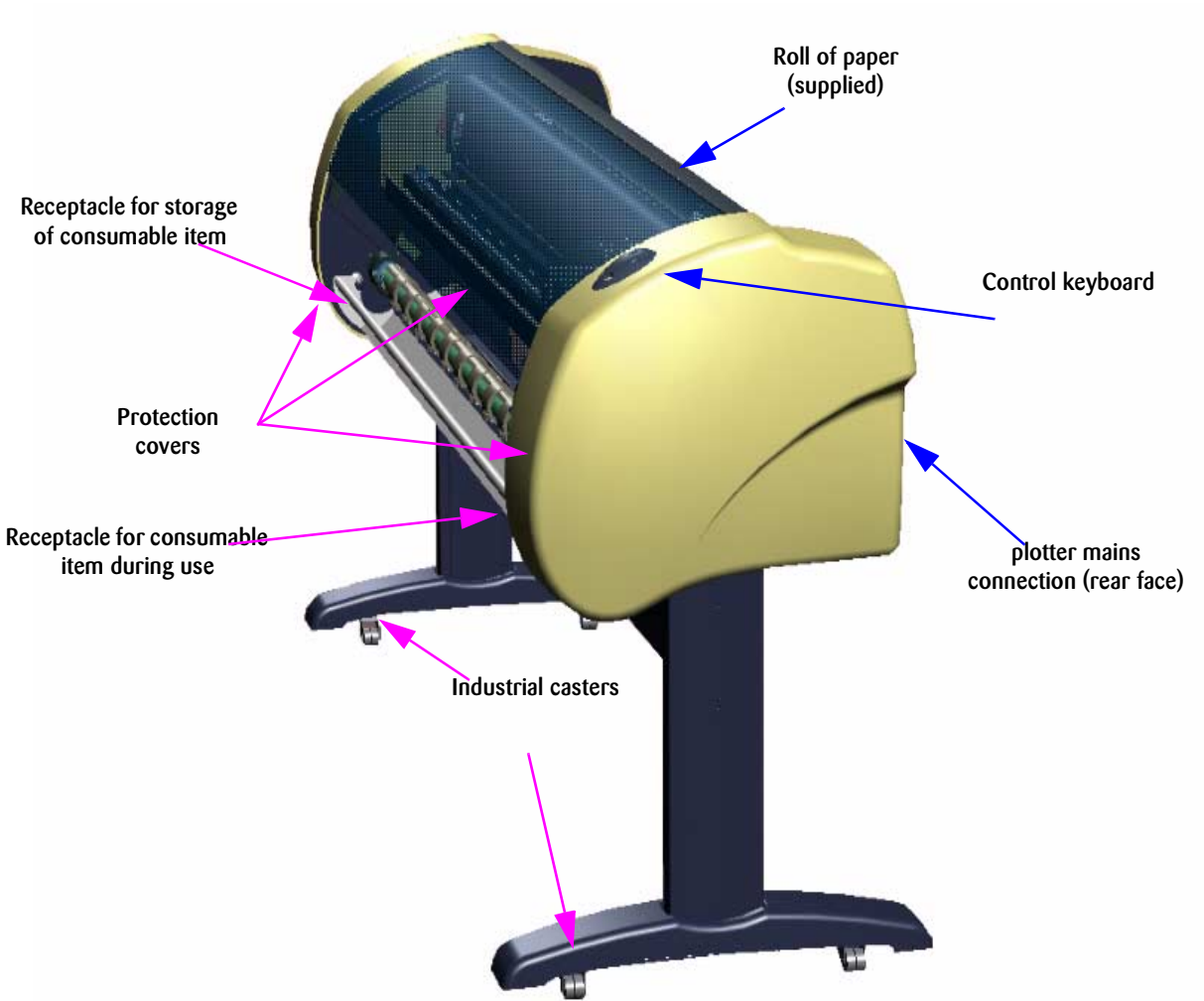
Temperature: 23 °C

Degree of moisture: 50%

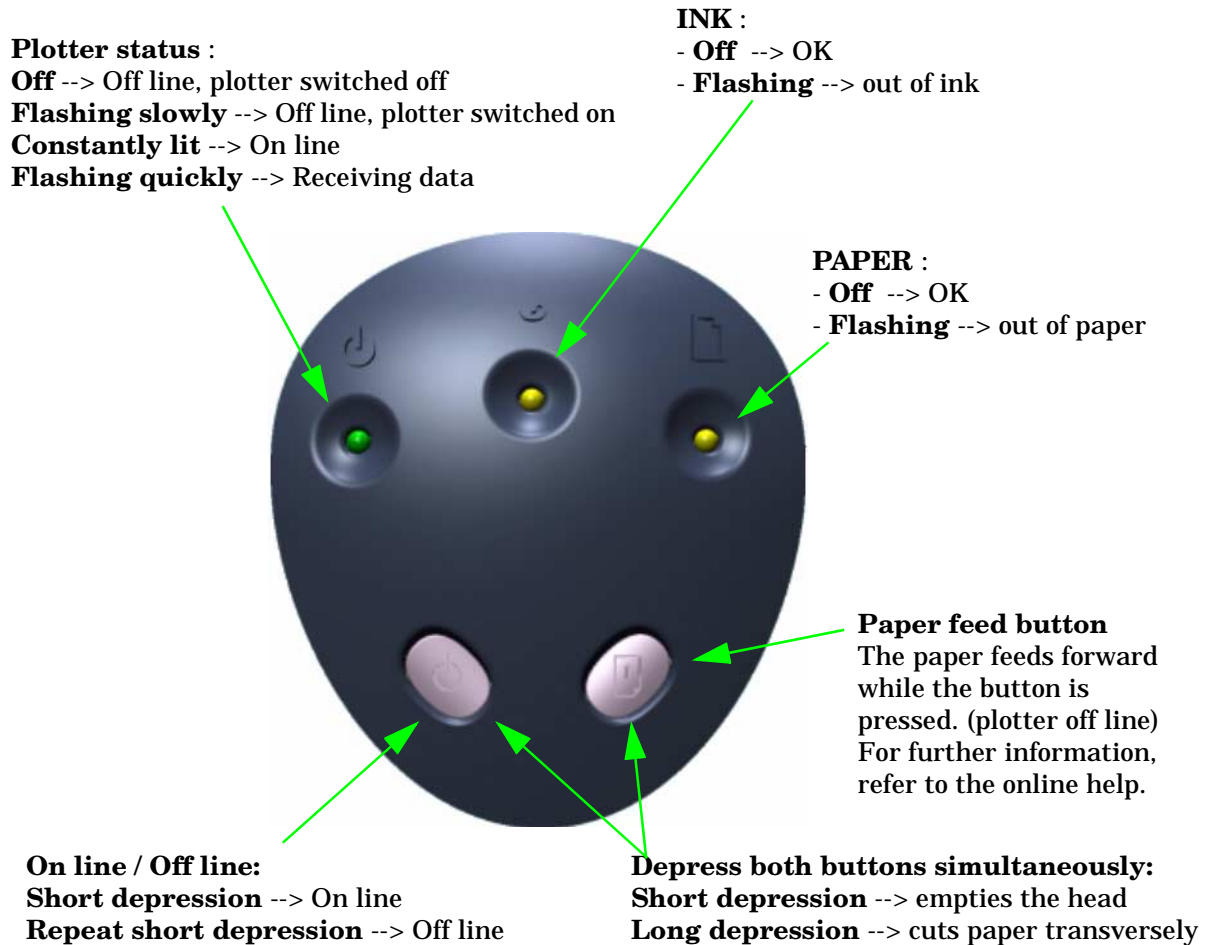


# Introduction

## 1. Presentation of the Alys inkjet plotter



## 2. Control keyboard



## 3. Minimum required configuration

### 3.1 Hardware configuration

The Alys plotter requires a single-phase mains supply of 115V or 230V 50/60Hz.

It is controlled by a PC that has had control software installed during the installation of the plotter.

- Pentium PII 300 Mhz
- 128 Mb of memory
- 1 parallel port to connect to the plotter
- or
- 1 USB port (Windows 2000 only)
- or
- 1 RS232 serial port



**You must respect the recommended cable lengths to connect the plotter to its operating PC. Lectra Systèmes cannot guarantee correct Alys plotter functioning if a connection cable longer than that indicated below is used:**

**Centronics (parallel): 3 meters maximum**

**USB (no repeater): 3 meters maximum**

**RS232 (serial): 5 meters maximum**

### 3.2 Software configuration

Minimum software configuration of operating PC:

- Windows NT or Windows 2000

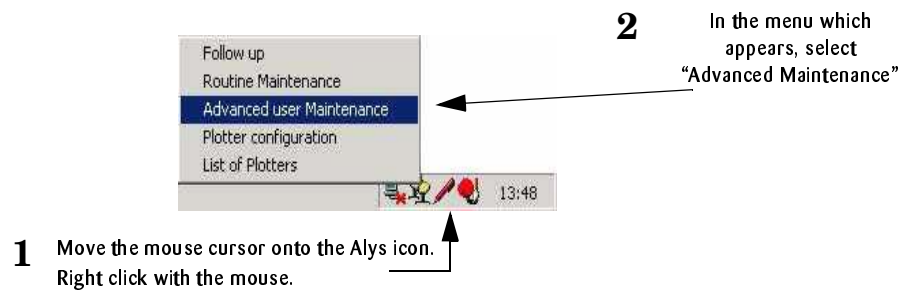
## 4. Data Sheet

		Maximum plot speed for a width of 1.60m (*)		
		Standard quality .....	High quality	
Performance	Alys 30 & 30L	30 .....	17	
	Alys 60 & 30L	60 .....	34	
	Alys 120 & 30L	100	60	
(*)Plot speed measured on a complex apparel marker with average density.				
Overall dimensions	Width Alys 30, 60, 120	2540 mm .....	Alys 30L, 60L, 120L 2998 mm	
	Depth	..... 780 mm		
	Height	..... 1195 mm		
Weight	Plotter 72"	Alys 120 .....	150 Kg	
		Alys 60 .....	147 Kg	
		Alys30 .....	135 Kg	
	Plotter 90"	Alys 120 .....	176 Kg	
		Alys 60L .....	173 Kg	
		Alys 60L .....	161 Kg	
Effective plot width	Plotter 72"	..... 1828 mm		
	Plotter 90"	..... 2286 mm		
Paper roll specifications	Max. weight	Input roll .....	40Kg	
		Output roll.....	40Kg	
	Loading height	1 head Plotter.....	744 mm	
		2 & 4 head Plotters.....	744 & 1024 mm	
	Interior diameter of input roll .....	76.2 mm		
	Max. diameter of rolls .....	200 mm		
	Max. winding error on input roll .....	2 mm		
	Max. length	Ordinary paper.....	400 m	
		<b>Thermal glue paper</b> .....	<b>200 m</b>	
Continuous feed	Option of plotting without winding paper onto feed bar (Option for Alys30 and Alys30L plotters).			
Paper cutter	Not available on Alys30 and Alys30L			
Ink refilling autonomy	1 head Plotter (print area:	Approx. 25 rolls of 200m with typical markers		
		2% of paper surface used)		
Miscellaneous	Max. operating gradient.....	+/- 2°		
	Max. gradient during movement .....	+/- 10°		
	Operating temperature .....	10 to 40 °Celsius		
	Hygrometry .....	80% max. humidity.		
Noise level .....	< 55 dB(A)			
Power supply	Voltage	Single-phase 50 / 60Hz + PE(GND) 115V or 230V		
	Power consumed	120VA +/- 10%		

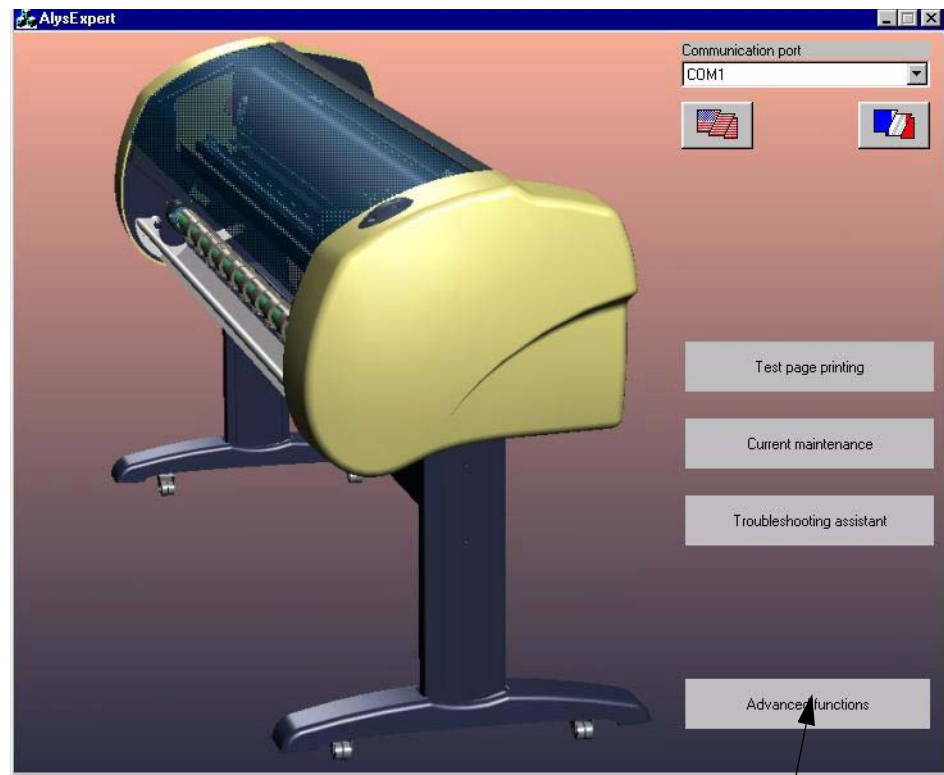
# Plotter Tests

## 1. Access to the advanced maintenance software

To access the advanced maintenance tools,



The main screen of routine maintenance is displayed:

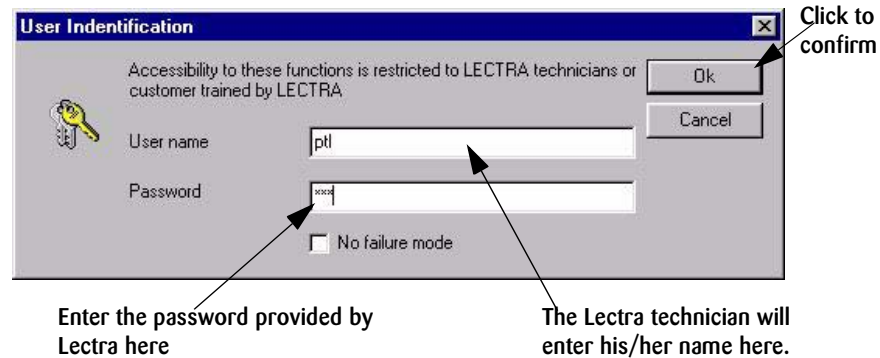


Press the button



**Access to advanced maintenance is restricted to Lectra maintenance technicians. To gain access, the technician will need to obtain an access code from Lectra support services.**

A dialog box appears on the screen:



## 1.1 Updating plotter electronics management program.

The update will be required in the following cases:

- replacing the electronics board,
- the three LEDs on the keyboard are ON (following a problem on the electronics board),
- update of the software using Alys and requiring plotter electronics management update,
- update of electronics management in an attempt to improve or correct bugs.

### Fail-safe mode



***If the three LEDs on the command keyboard remain ON, the plotter electronics management program will need to be reloaded. In this case, the “Fail-safe mode” is selected by default when Alys Expert starts.***

Access to tools to test the plotter will be available only after the plotter electronics management program is updated.

In some instances, activating the “Fail-safe mode” may be required in order to update the program installed for the plotter. To activate this mode, check “Fail-safe mode **before** clicking the OK button.

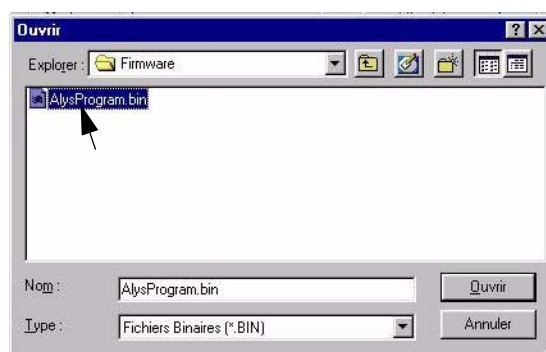


**In the window that opens, the fail-safe mode is checked.  
Never uncheck this mode when updating the plotter program as  
serious malfunctions may occur.**

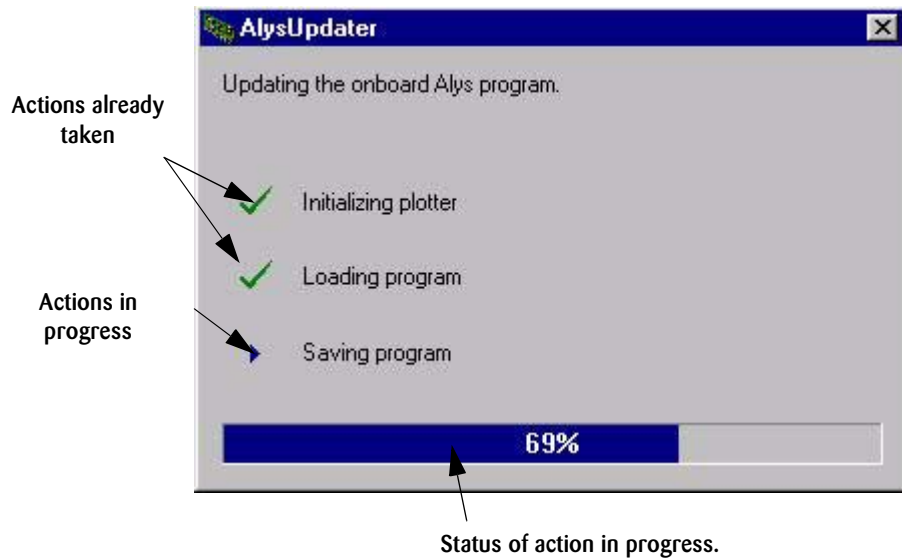


Click the "Update" button to load the program in the plotter.

In the window that opens, click on the **AlysProgram** file to load and then on the "Open" button



The update status bar appears on the screen.



When the update has finished, the window will close.

If a problem arises during the update, an alert window will appear on screen.

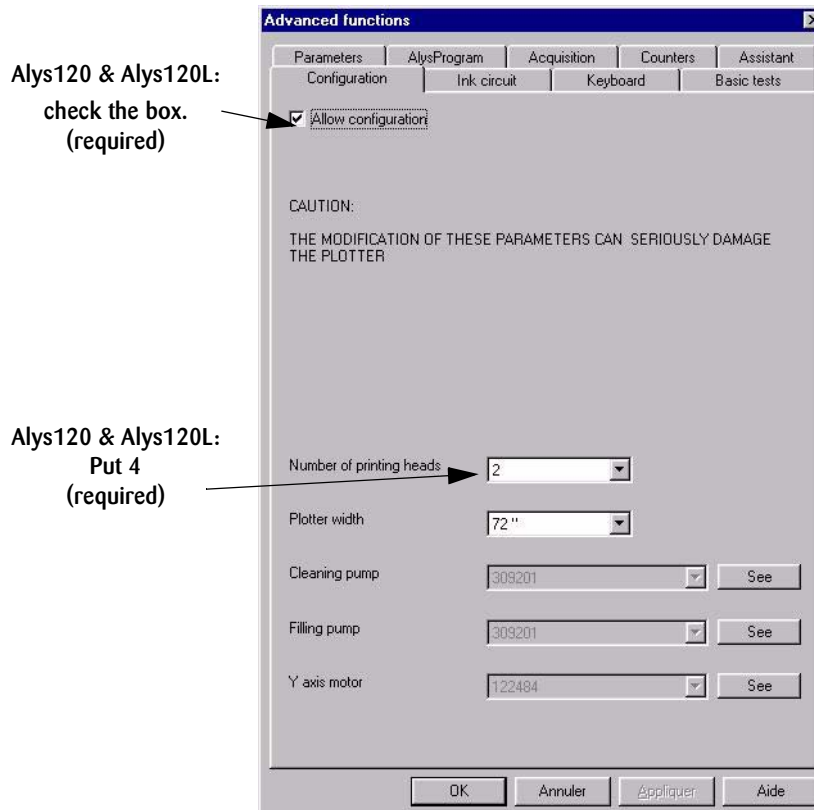
## 1.2 Synchronizing plotter clock with the PC clock

To work properly, the plotter has an internal clock that must be synchronized with the controlling PC clock. To do this, click on "set clock" and the time of PC clock is sent to the plotter.

## 2. Plotter tests

### 2.1 Configuration

When the plotter's controlling electronics are working properly, the following screen appears:



*The number of heads are automatically set to 1 for Alys30 and Alys30L.  
For Alys60, Alys60L, Alys120 & Alys120L plotters, the number of heads is set to 2 by default.*

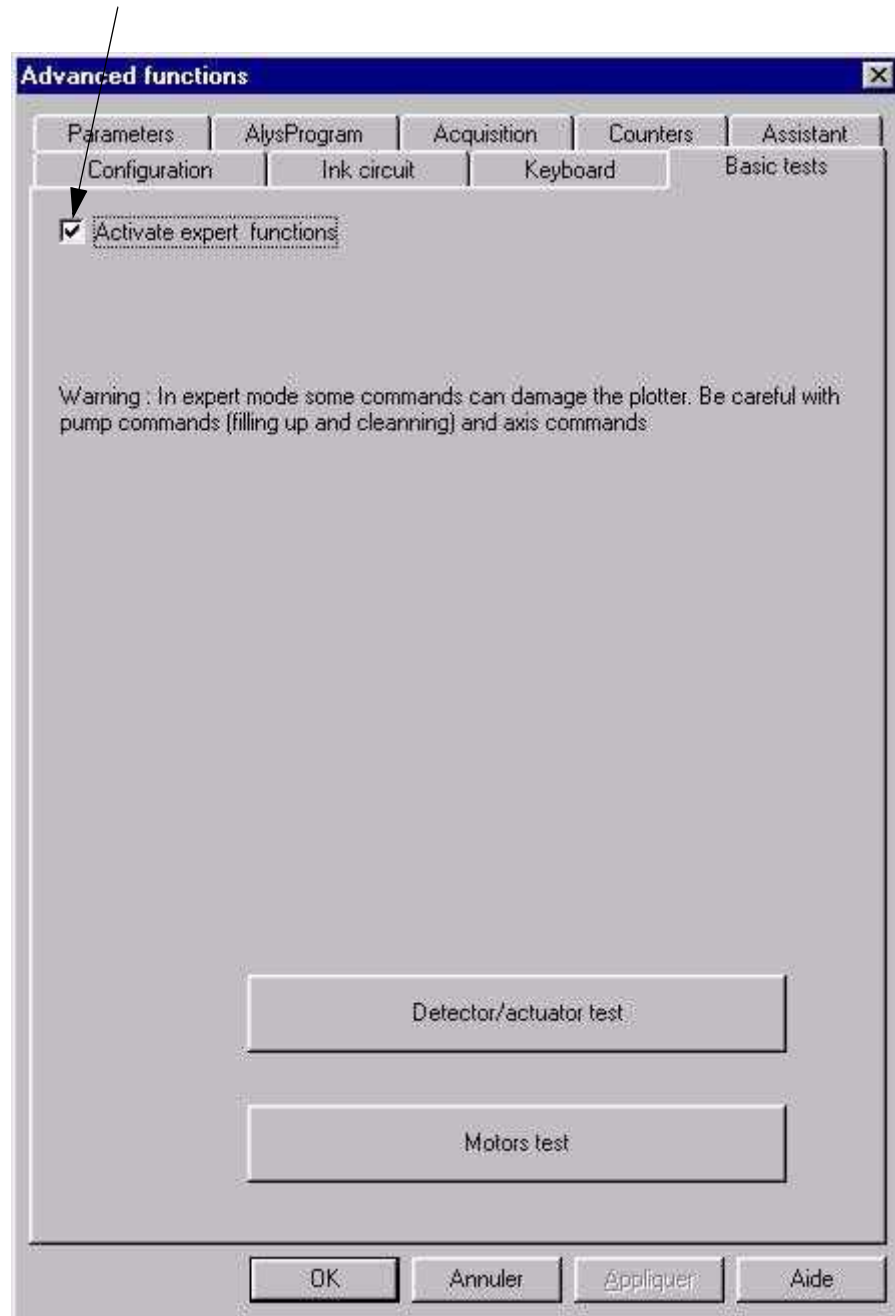
***The number must be set to 4 for Alys120 and Alys120L.***

## 2.2 Basic tests

These tests allow the user to check if the sensors, solenoid valves, relays and motors are working properly.

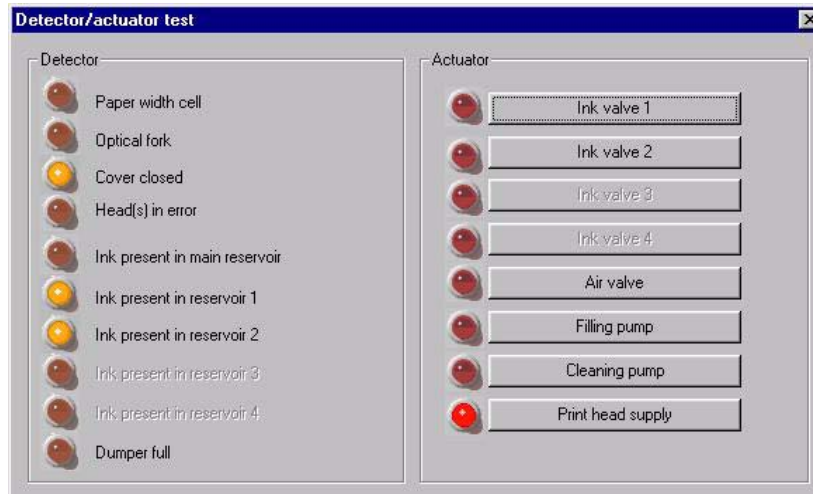
To access these tests, select the “Basic Tests” tabs.

To test pumps and motors, check



## 2.2.1 Test actuators/sensors

Click the “Test actuators/sensors” button in the “Advanced functions” window. The following window appears:



Sensor LEDs activated:

**Alys30 & Alys30L:** Ink reservoir 1

**Alys60 & Alys60L:** Ink reservoir 1 and ink reservoir 2 (as seen in above image)

**Alys120 & Alys120L:** Ink reservoir 1, Ink reservoir 2, Ink reservoir 3 and Ink reservoir 4

Several different tests will be performed through this interface:

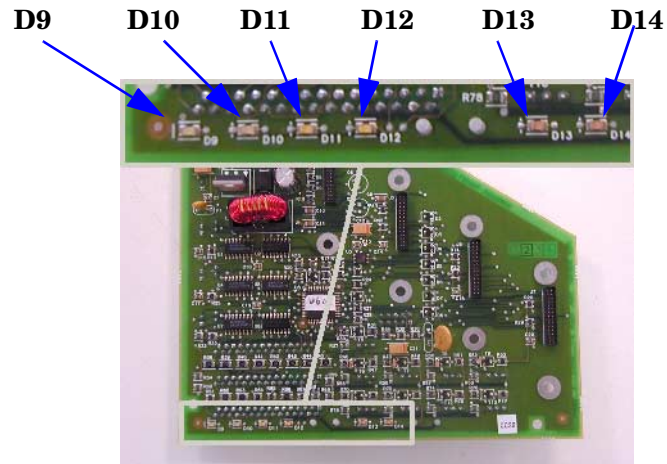
- test of all plotter sensors and cover detection switch adjustment
- test of all solenoid valves,
- test of all fill pumps and purge pumps of the ink circuit (only if “Activate commands reserved for experts” was checked in the previous “Advanced functions” window).



*For some tests, the protective cover used for the print heads will need to be removed.*

Follow the instructions given in the chapter **Mechanical maintenance § Dismantling the printing head, Removing the protective head cover**

Doing so will allow you to monitor the status of the LEDs visible on the heads command electronics board.



### Cell width

---

1. Place / remove one sheet of paper between the print head and the plotter beam.  
The **D12** LED on the “head board” and the LED visible in the “Test actuators/sensors” window displayed on the screen should change their status.

### Optical fork (zero detection cell)

---

1. Move head completely to the left of the plotter (on the same side as the command keyboard). When the head is almost at the end, the head board **D11** LED should change status. The LED displayed in the control window on screen should also change status.

### Linear encoder

---

1. Carefully move the head by hand. The **D13** LED on the head board should flash while the head is moving.

### Cover closed.

---

1. When the cover is closed, the LED displayed on the control screen should be on. Opening the cover only 4 centimeters should make this LED go out. If this does not happen, **you must** adjust the cover detection switch.



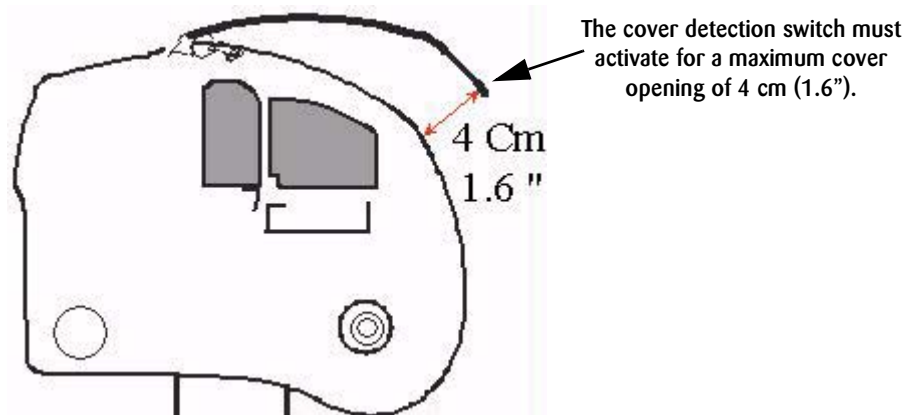
**The cover detection cell is an extremely important security element for the plotter. Improper adjustment can provoke:**

- a security malfunction
- complete seizure of the plotter.

2. Adjusting the cover switch:

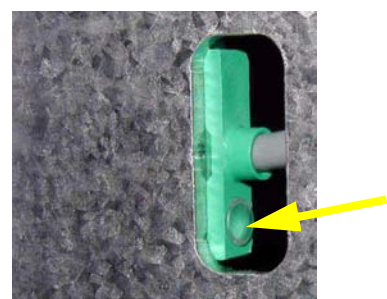


Switch detection threshold:



Ink of drain reservoir (Alys 60, Alys60L, Alys120, Alys120L)

1. Dismantle the drain reservoir
2. Move your hand in the area where the reservoir is located.



3. The sensor should go off each time you move your hand across.

### EV fill reservoir 1

---

1. Click the “EV fill reservoir 1” button. The corresponding LED (on the command screen) should turn red. The solenoid valve is now supplied.
2. Unplug the connector on the solenoid valve being tested and then plug it back in. Each time the connector is plugged back in, you should hear the switch click on the solenoid valve.
3. When the test is complete, plug the solenoid valve back in and click on the “EV fill reservoir 1” button on the Alys Expert command screen. The corresponding LED should go out.

### EV fill reservoir 2, 3 & 4

---

1. Follow same procedure as above (EV fill reservoir 1)



*The solenoid valves to be tested depend on the machine type:  
When the machine does not have all the solenoid valves (Alys30, Alys30L, Alys60 & Alys60L), the commands corresponding to these non-existent solenoid valves are grayed out.*

### Venting

---

1. Same test procedure as for the other solenoid valves (see above).

### Fill pump

---



*This test will check the rotation direction of the pump motor. If the pump motor is turning in the wrong direction, the ink circuit cannot be supplied.*



**This test must not be done unless the pump is being replaced. The tube should not be placed in the pump to do the test.**

1. Make sure the tube is not placed inside the pump to be tested.
2. Click the “Fill Pump” button. The LED opposite the button should light up and the pump should be working.
3. Check which way the pump is turning (anti-clockwise).
4. If the pump is turning in the wrong direction, reverse the black and red wires used to power it.
5. When the test has finished, click the “Fill Pump” button again. The LED opposite the button should go out and the pump should stop working.
6. Put the tube back in the pump.



---

## Purge

---



*This test will check the rotation direction of the purge pump. If the pump motor is turning in the wrong direction, the ink will be sent to the purge station bringing it towards the heads instead of being suctioned away.*

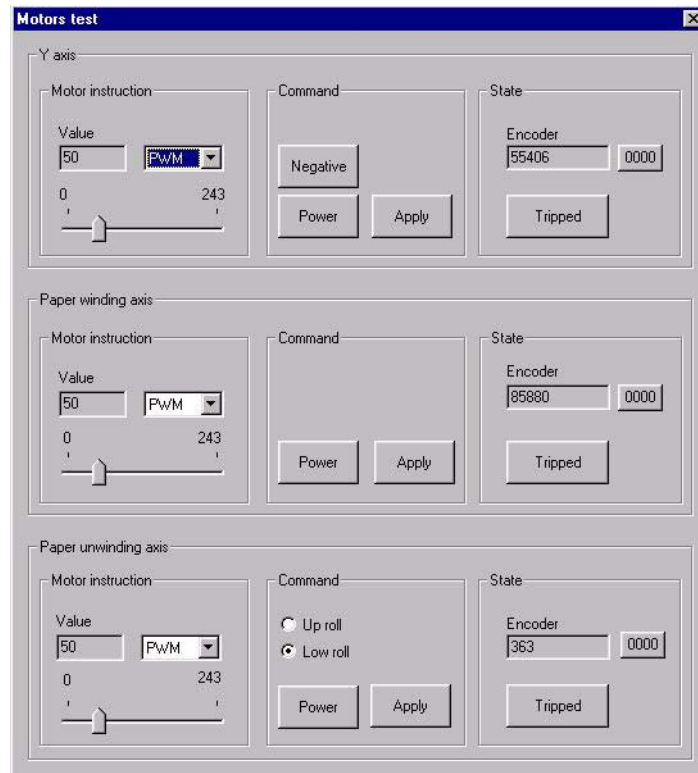


**This test must not be done unless the pump is being replaced.  
The tube should not be placed in the pump to do the test.**

1. Make sure the tube is not placed inside the pump to be tested.
2. Click the “Purge” button. The LED opposite the button should light up and the pump should be working.
3. Follow the same procedure as for the fill pump test.
4. When the test has finished, click the “Purge” button again. The LED opposite the button should go out and the pump should stop working.
5. Put the tube back in the pump.

## 2.2.2 Testing motorizations

Click the “Test actuators/sensors” button in the “Advanced functions” window. The following window appears:



- Each of these tests must be done with the cover closed.
- It is highly recommended to use set values identical to those seen in the above image.
- Use “PVM” mode to do these tests.

### Y Axis (moving the print head)

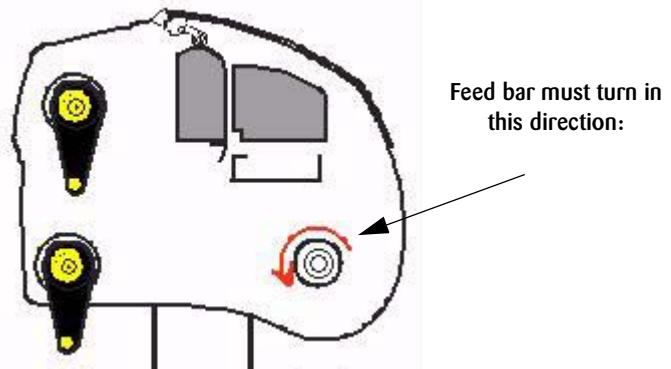
1. Click the “MST” button
2. To validate this command, click the “Apply” button. The head moves along the beam.  
Positive travel direction: towards purge station  
Negative travel direction: towards control keyboard.
3. Make sure the value displayed in the “Status - Y encoder” varies as the head moves.
4. Make sure the direction of the value shown corresponds to the travel direction (see point 2).



- *Disj Y Button: if this button lights up, disjunction exists in the Y motor command. Click the MST button to rearm the breaker. Click the MST button again to restart the test.*
- *Resetting the encoder display window: click the 0000 button.*

### Paper winding axis

1. Click the “MST” button
2. To validate this command, click the “Apply” button. The paper reception bar must turn as seen in the image below:



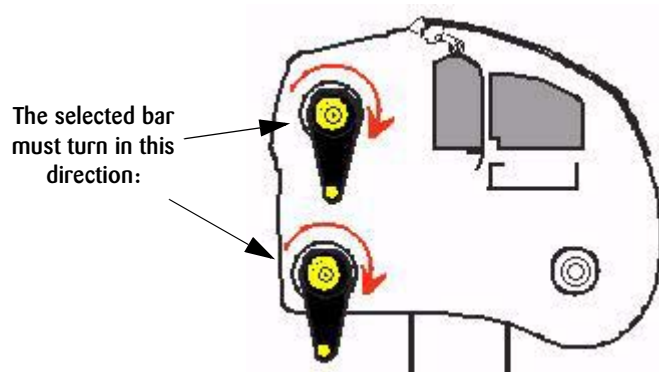
3. Paper encoder: turn by hand. The value shown in the control window should increase when the encoder rotates in the direction of the paper feed. Rotation in the opposite direction of the paper feed should make the value in the control window decrease.



- *Disj P Button: if this button lights up, disjunction exists in the P motor command. Click the MST button to rearm the breaker. Click the MST button again to restart the test.*
- *Resetting the encoder display window: click the 0000 button.*

### Paper unwinding axes

1. Select the motor to test by clicking on the corresponding radio button.
2. Click the “MST” button
3. To validate this command, click the “Apply” button. The bar selected must turn as seen in the image below:





- *Disj X Button: if this button lights up, disjunction exists in the X motor command. Click the MST button to rearm the breaker. Click the MST button again to restart the test.*

Testing the bar encoder:

4. Put the bar to test in low position.
5. Check to make sure the value in the Encoder bar window is zero. If this is not the case, click the 0000 button.
6. Turn the bar towards the plotter beam (at the front of the plotter). The value in the control window should increase (value shown should be positive).

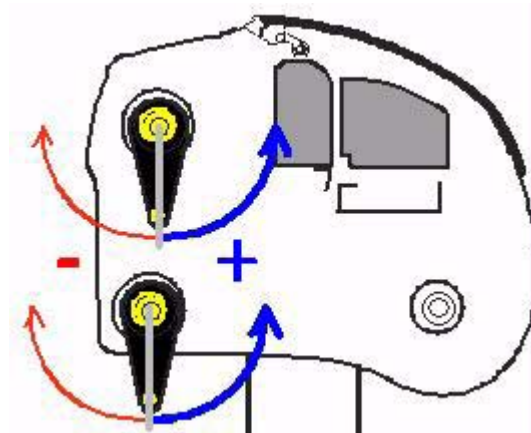


**Do not turn the bar more than halfway during this test.**

7. Turn the bar towards the rear of the plotter. The value in the control window should decrease (value shown should be negative).



**Do not turn the bar more than halfway during this test.**



# Mechanical maintenance

## 1. Tools necessary for maintenance

An Alys maintenance Kit.

A cutter.

A size 3 Allen key.

A size 5,5 open-end spanner.

A size 7 open-end spanner.

A small flat screwdriver.

Brake fluid ref.: Loctite 222.

Microlube grease (Klubert) 118010.

A container for keeping dismantled parts.

Adhesive tape.

A dynamometric spanner.

A spring scale.

### 1.1 General recommendation



**Always start by unplugging all the electrical connections linking the plotter to the mains and to the controlling PC.**

Apply brake fluid to all tightening parts on re-assembly.

To ensure maintenance under the best conditions, observe the indicated torque values.

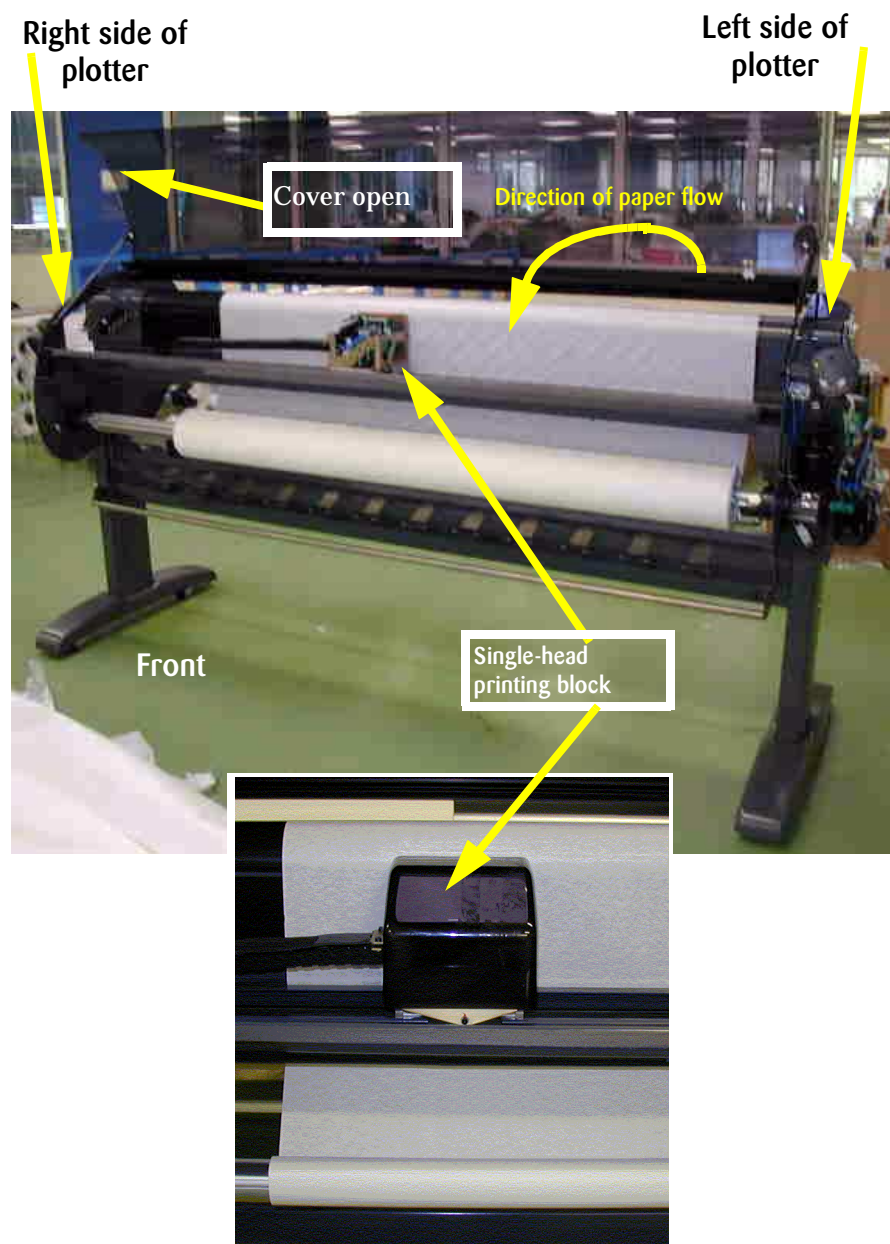
## 2. Presentation of sub-assemblies

### 2.1 Front view of plotter

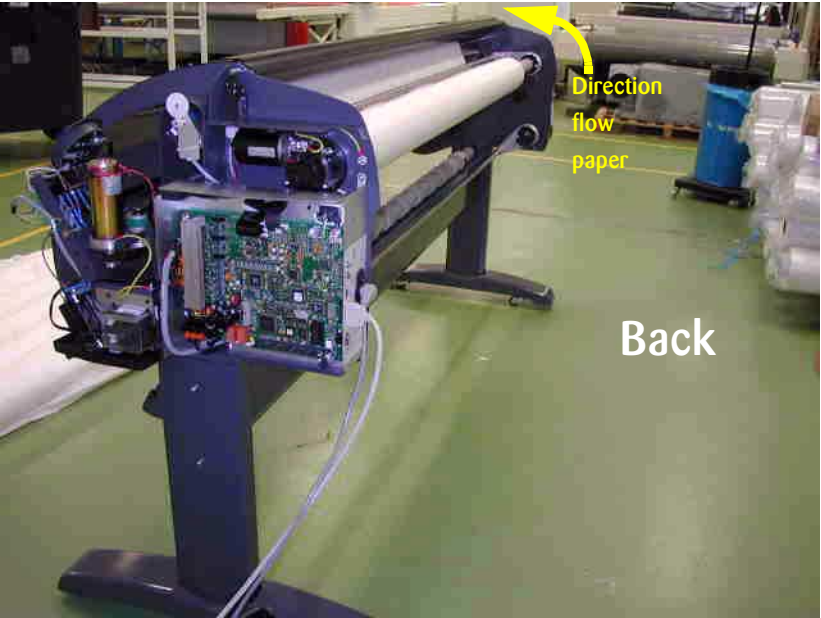


**In order to define the left and right sides of the plotter, look from behind the plotter and consider the direction of flow of the paper.**

The following rules result:



### 2.2 Left side of Plotter, seen from the back



### 2.3 Right side of Plotter, seen from the back

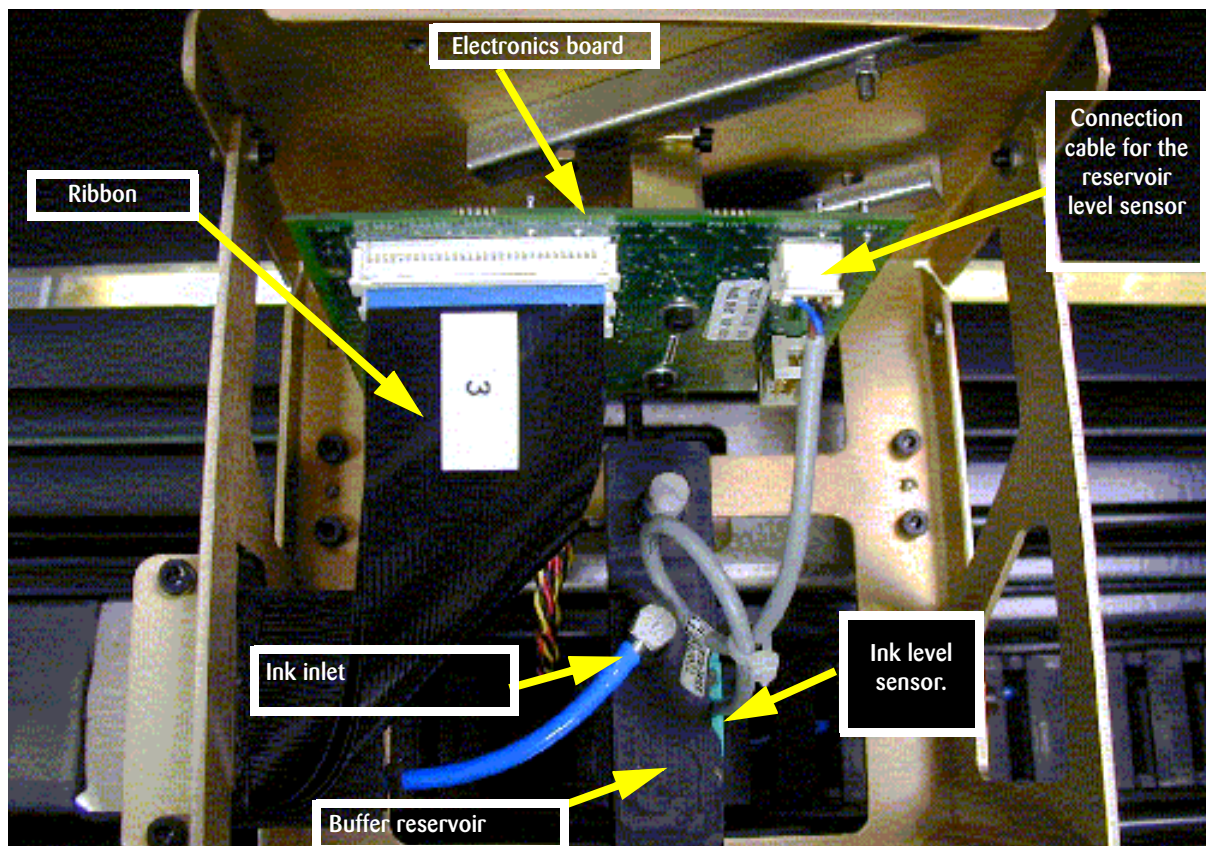
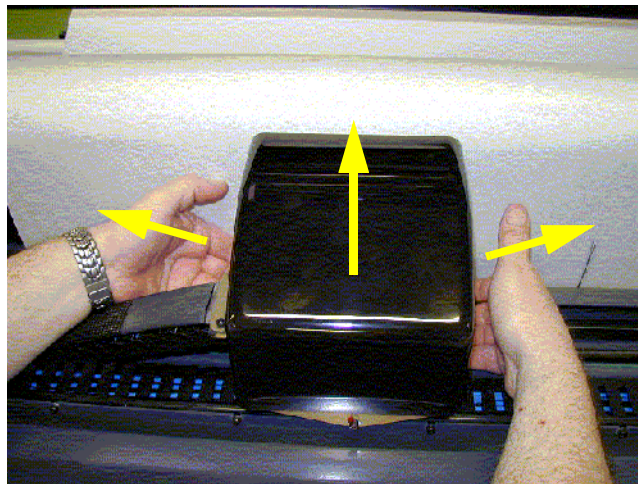


## 3. Dismantling of printing block parts

### 3.1 Removal of head protection cover

To remove the cover protecting the heads, do the following:

- facing the head, grasp the sides of the cover, move them apart slightly and pull the cover upwards.



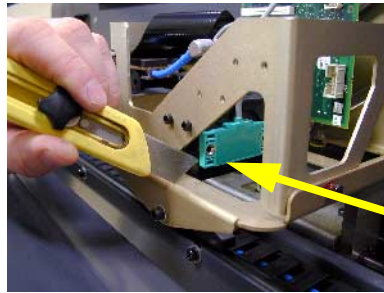


The photo and procedures described below correspond to an Alys30.

The procedure is the same for an Alys60 or an Alys120.

## 3.2 Replacing the ink level sensor

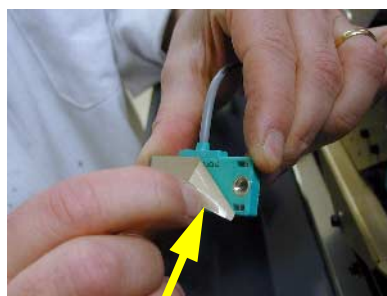
Each buffer reservoir has its own sensor to detect ink level.



Lift off the sensor with a cutter

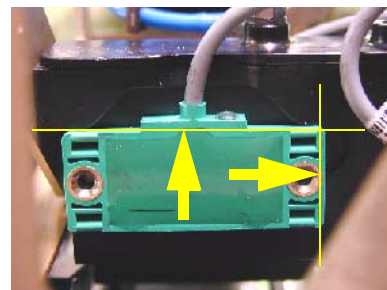


Unplug the ink level sensor cable from the electronics board.  
Remove the defective sensor.



Remove the protection covering the sensor adhesive.

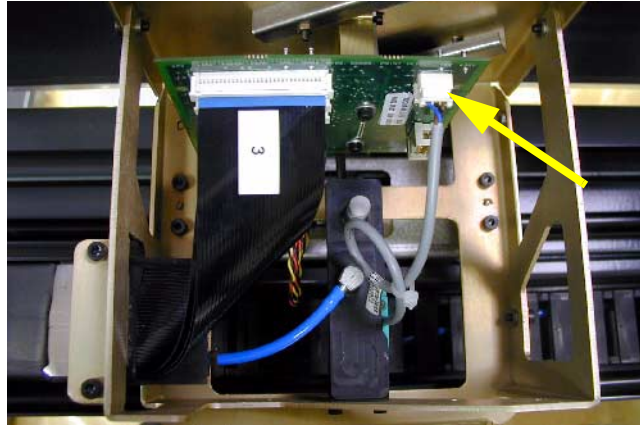
Bring the sensor to the end against the positioning blocks as shown in the photo below.  
When the sensor is in place, press on it firmly to paste it to the reservoir.





**Before sticking the new sensor onto the reservoir, make sure that the surface of the reservoir is clean, dry and free of grease.**

Re-plug the ink level sensor cable into the electronics board. When doing this, make sure the connector is plugged in the right way and connect the cable to the appropriate connector in the case of a multi-head.

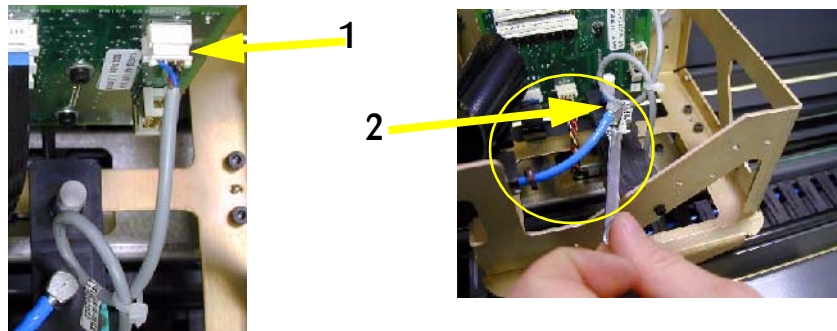


### 3.3 Dismantling the buffer reservoir

1. If necessary, unplug the ink level sensor cable from the electronics board (see below).
2. Unscrew the lock nut from the ink entry tube on the reservoir.

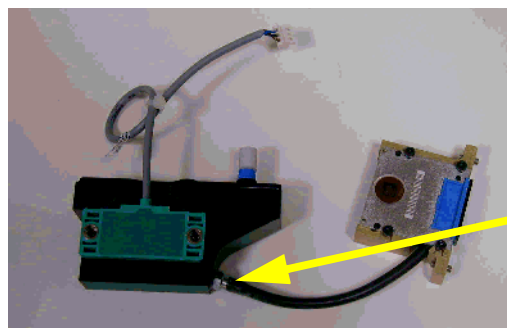
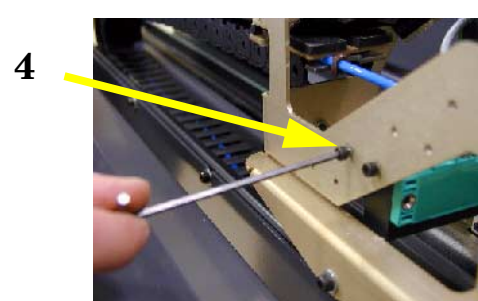
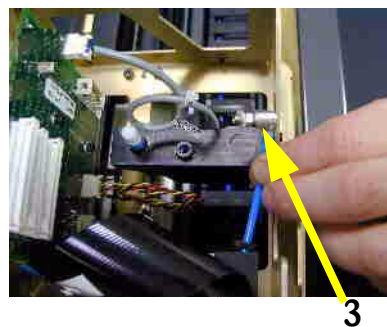


**Keep the seal. Make sure not to lose it.**



**Be careful not to spill ink on the machine or on your clothes. Protect the ends with adhesive tape.**

3. Remove the ink delivery tube from its housing
4. Unscrew the buffer reservoir fastening screws, situated outside the plotting block casing



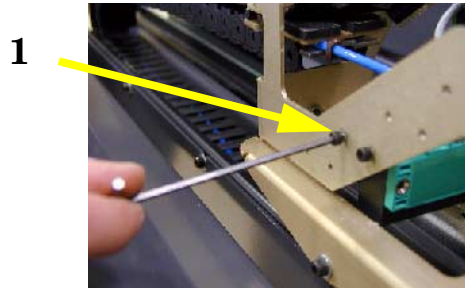
See "Removal of the head/buffer reservoir unit" to remove the reservoir/buffer assembly, equipped with the disconnected printer head.

## 3.4 Mounting the buffer reservoir

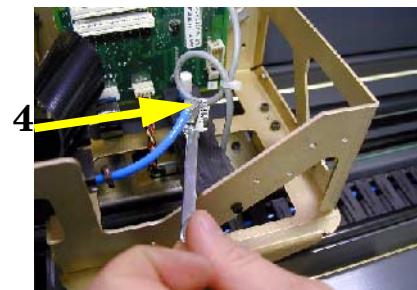
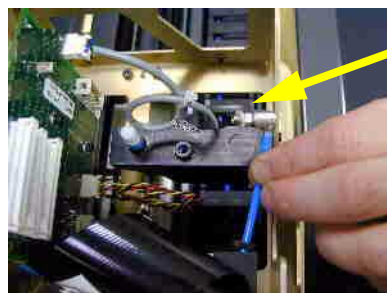


**Before repositioning the buffer reservoir, the printing head must be replaced (see § 3.10)**

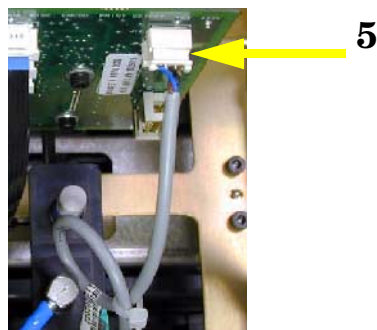
1. Position the buffer reservoir assembly on the plotting block casing and tighten the fastening screws on the outside (0,2 N.m).



2. Remove the ink delivery pipe housing protection, if necessary.
3. Install the seal and reposition the ink delivery pipe into its housing.
4. Screw the ink delivery tube lock nut to the reservoir. Tighten to one quarter turn.

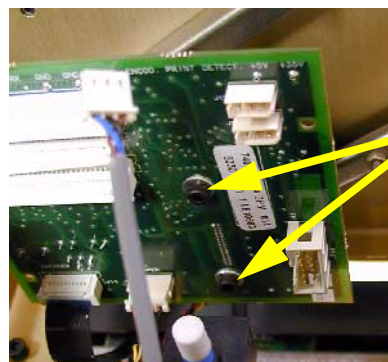
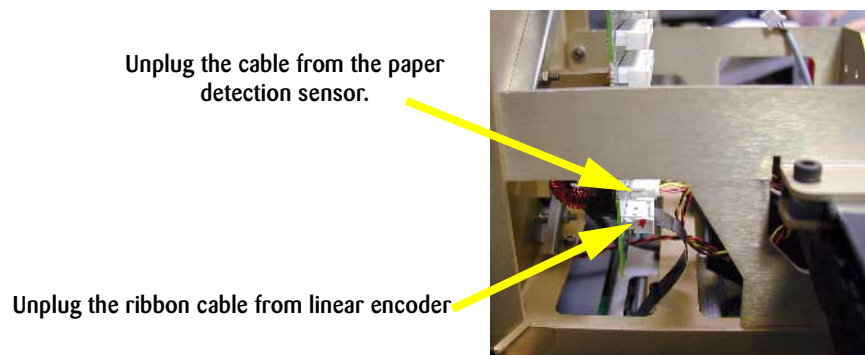
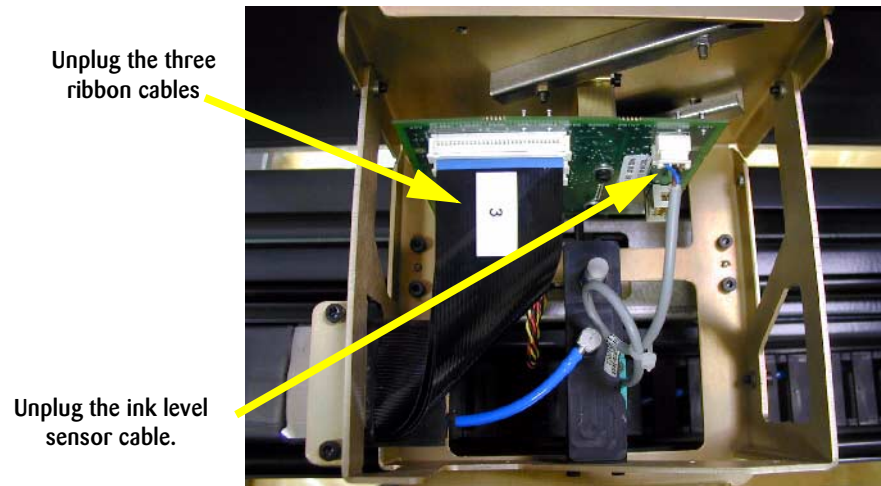


5. Plug the ink level sensor cable to the electronics board, if necessary.



### 3.5 Removal of the electronics board

Unplug the cables from the electronics board.



Unscrew the fastening screws from the board on the printing head.

- 2 screws for Alys 30
- 4 screws for Alys 60
- 8 screws for Alys 120

You can access the lower screws by removing the buffer reservoir.

Remove the buffer reservoir if necessary (see “Dismantling the buffer reservoir”).



**Keep the screws and washers, for re-assembly.**

To remove the board, hold it and pull the four corners towards you simultaneously.  
Be careful not to damage the connector behind the board



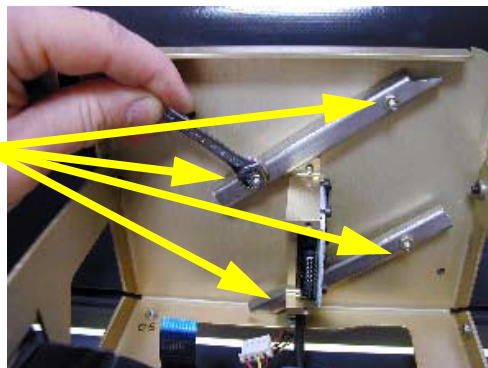
### 3.6 Removal of the head/buffer reservoir unit

It is better to carry out the “Removal of the plotting block”, to remove the head/buffer reservoir assembly.

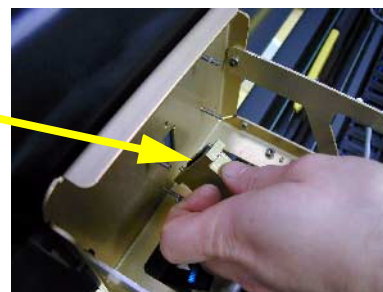
After removing the electronics board,

Proceed with the “Dismantling the buffer reservoir” described above, then:

Unscrew the lock nuts from the head holding bars.  
Remove the holding bars.



Carefully remove the head  
Be careful not to touch anything with the surface of the print head! This surface is extremely fragile.



Remove the head/buffer reservoir assembly after proceeding with the “Removal of the plotting block”.

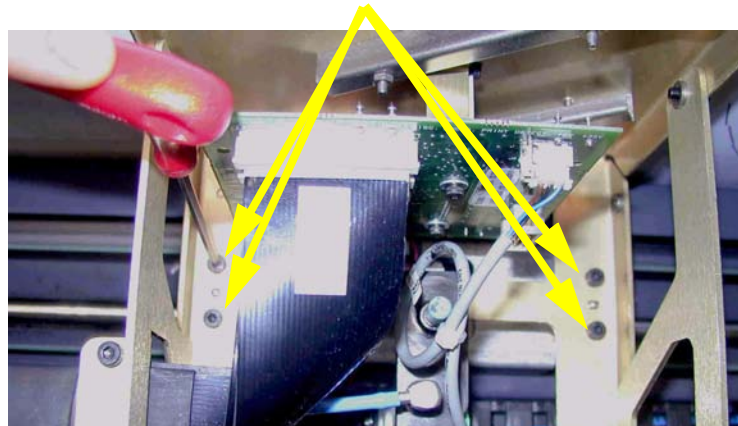
Head/buffer reservoir assembly removed



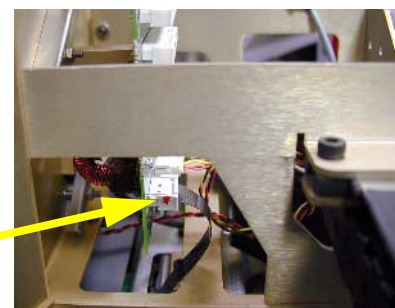
### 3.7 Removal of the plotting block

The plotting block can be removed with all its parts intact. You must simply have access to the fastening screws of the block and so have carried out the “Removal of head protection cover”.

Unscrew the four fastening screws of the block seen from



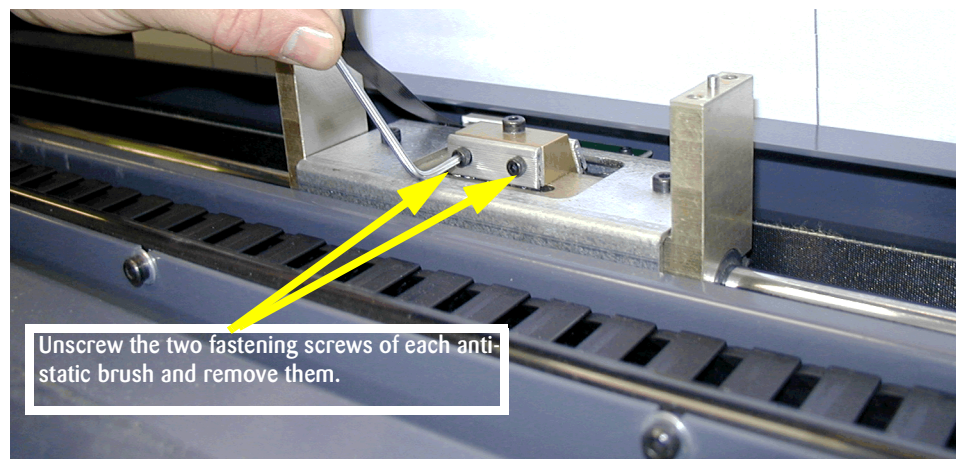
Disconnect the ribbon cable from the linear encoder to free the plotting block.



## 3.8 Removal/replacement of anti-static brushes, Y carriage

### 3.8.1 Removal

The plotting block must be removed, to reach the fastening screws of the anti-static brushes.

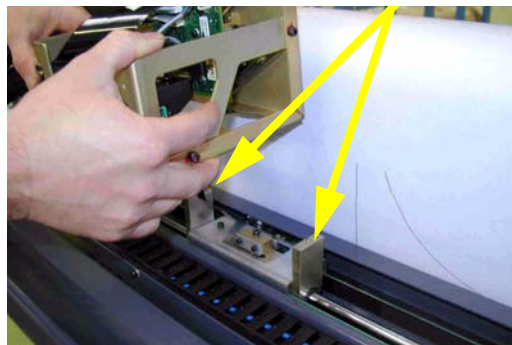


### 3.8.2 Replacement

Reposition the anti-static brushes on the plotting block support and screw in the four fastening screws lightly.

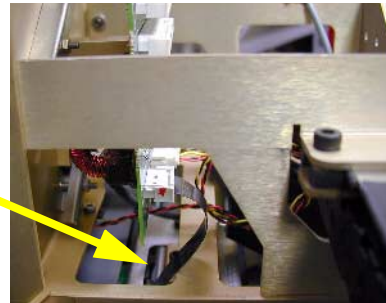
## 3.9 Replacement of the plotting block

Position the plotting block with care for the guide studs.





Place the linear encoder ribbon cable between the board and the plotting block casing.



Attach the block with four screws. Tighten to a torque of 2 N.m.

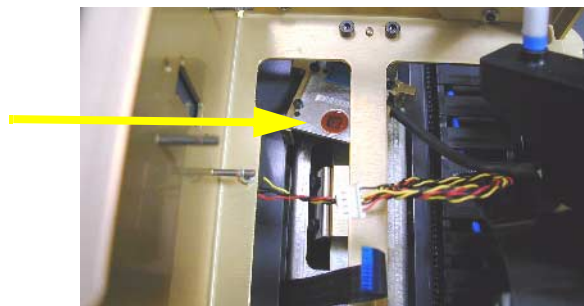
Connect the linear encoder ribbon cable (Be careful of cable direction: protected side of plug, in blue, visible from above).

### 3.10 Replacement of the head/buffer reservoir unit

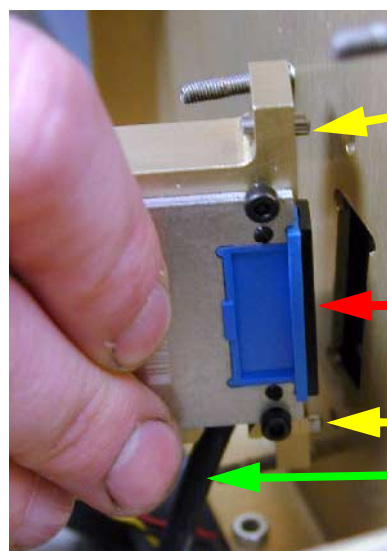
The “Removal of the electronics board” must be carried out.

Pass the head under the plotting block with caution.

Printing head



raise it as shown below.

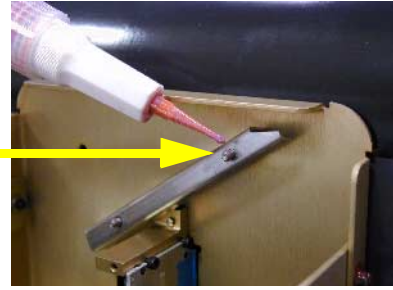


The head mounting direction can be determined by two centering blocks

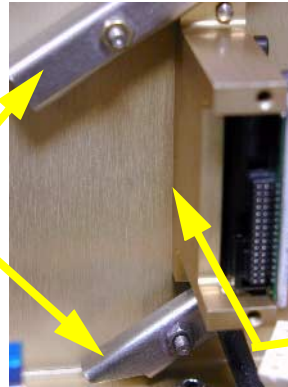
When mounting, be careful not to touch the surface of the print head. This can seriously damage it.

Ink supply tube

Put the safety bars back into place.  
First apply some brake fluid.



Mount the fastening  
nuts and tighten  
them well.



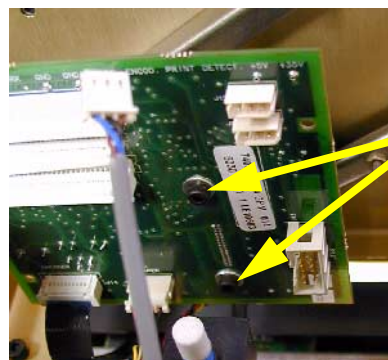
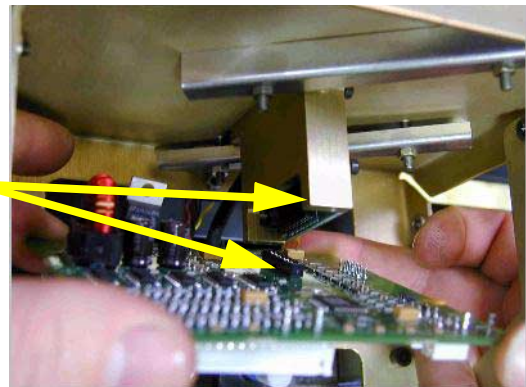
Check that the head is  
correctly supported on  
the plotting block.

### 3.11 Replacing the electronics board

Replacing the electronics board.

Be careful to correctly align the  
electronics board connector with the  
printing head connector when  
mounting.

A misalignment can destroy both  
connectors.



Apply some brake fluid on the fastening  
screws.

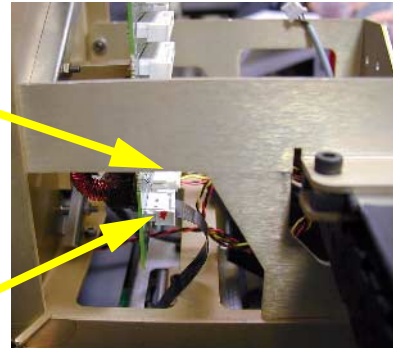
Replace the washers and screw the board  
fastening screws onto the printing head (torque  
of 1 N.m).

- 2 screws for Alys 30
- 4 screws for Alys 60
- 8 screws for Alys 120

Replace the buffer reservoir if necessary (see “Mounting the buffer reservoir”).

Reconnect the paper detection sensor cable.

Reconnect the linear encoder ribbon cable.  
(Be careful of the cable direction: protected side of plug, in blue, visible from above).



Replace the three Y-ribbon cables according to these three phases:

1. Connector presentation (Be careful of the cable direction: protected side of plug, in blue, visible from above).
2. Insertion and guide
3. Connection check



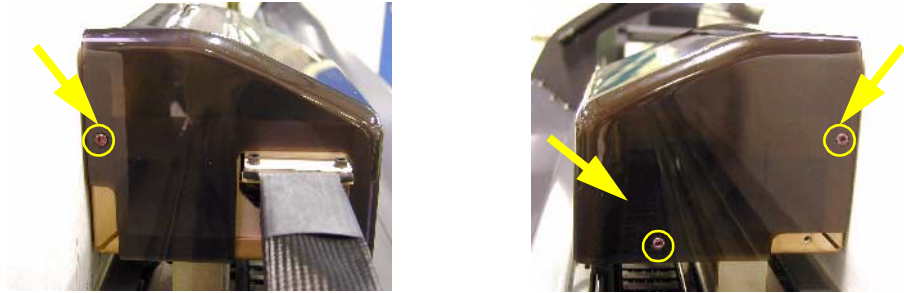
(Be careful of the cable direction: protected side of plug, in blue, visible from above).

4. Check that the ink level sensor cable is correctly connected to the electronic board.

### 3.12 Replacement of the head protection cover

Three safety blocks hold the cover in place.  
When replacing the cover, slightly move the corners of the cover apart and position it so that the holding blocks are fully inserted into the cover.

Position of the safety blocks for the head cover

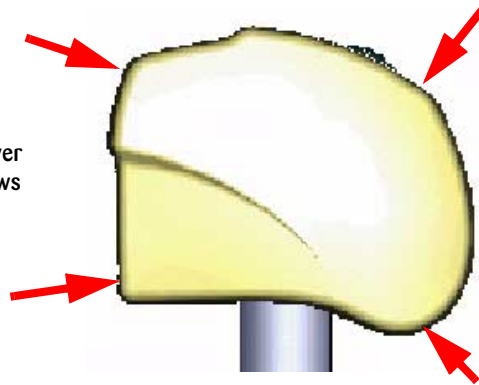


## 4. Removal of lateral covers



**Always start by unplugging all the electrical connections linking the plotter to the mains and to the controlling PC.**

Position of cover fastening screws



**It is imperative to unplug the ribbon cable linked to the command keyboard before completely removing the protective cover.**

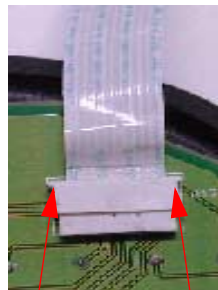


To unplug the ribbon cable from the keyboard, do the following:

1 - Ribbon cable locked

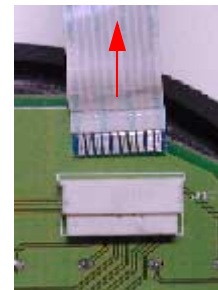


2 - Ribbon cable unlocked



Firmly push on the "ears" located on the sides of the connector to unlock the ribbon cable.

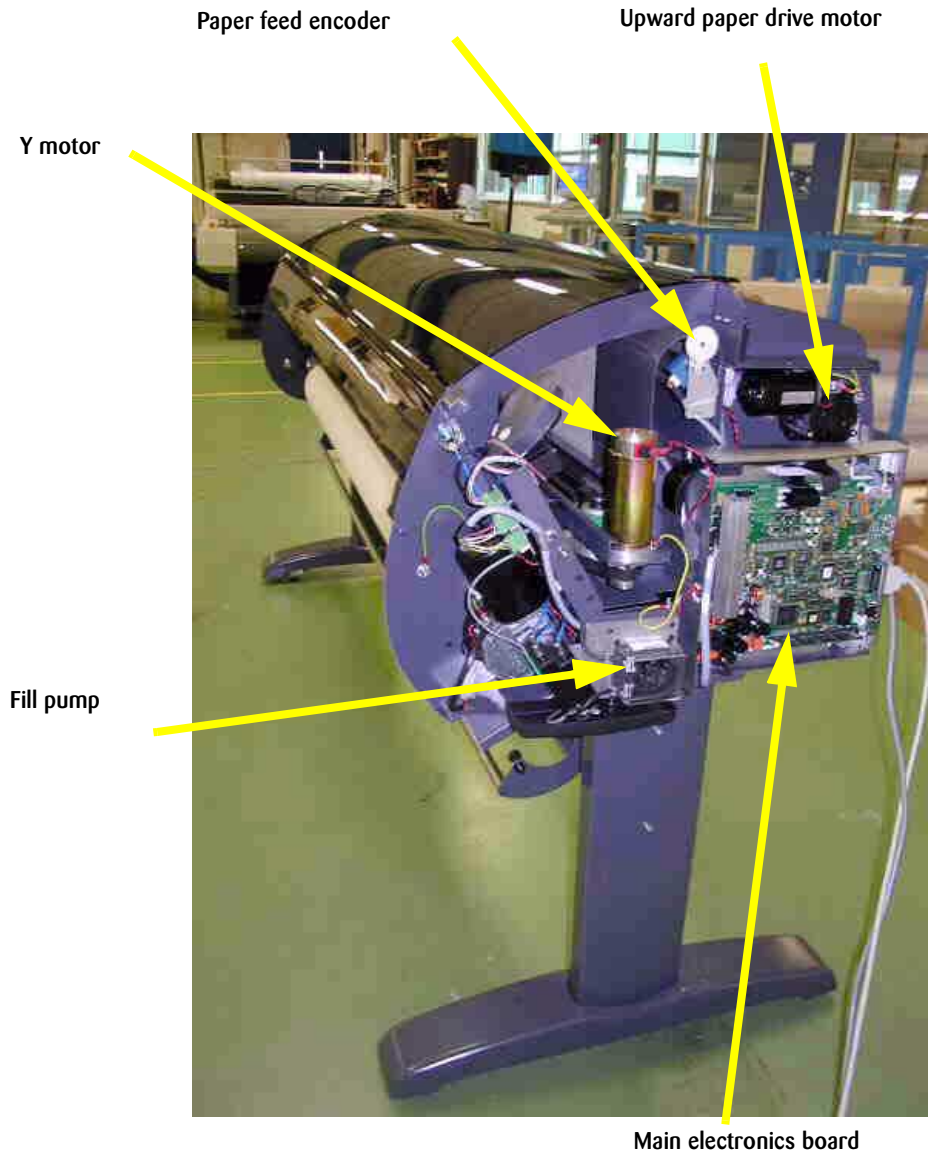
3 - Ribbon cable



Pull on the ribbon cable to remove it from the

## 5. Left side of Plotter, seen from the back

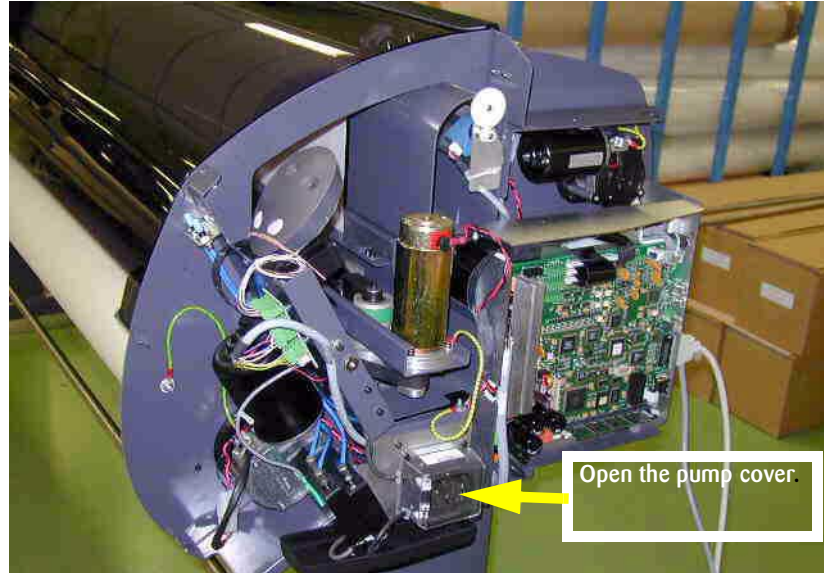
Removed left side protection cover of the plotter



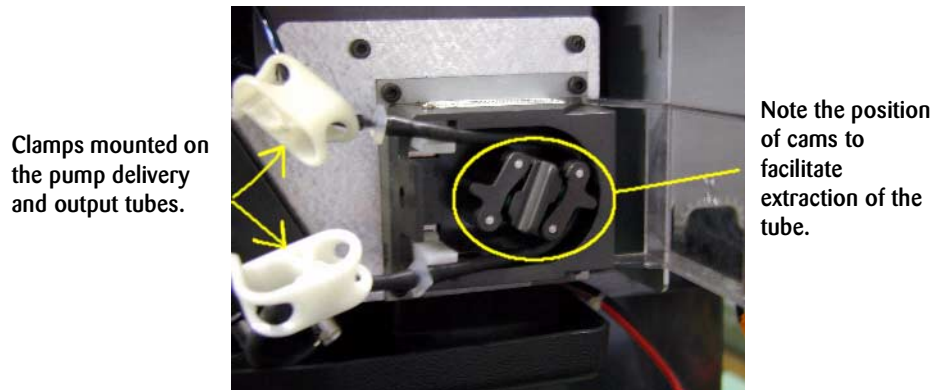
**Always start by unplugging all the electrical connections linking the plotter to the mains and to the controlling PC.**

## 5.1 Replacement of the fill pump tube.

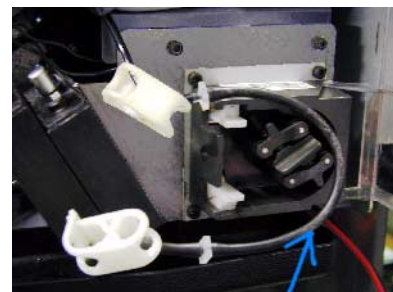
Removed left side protection cover of the plotter



Put clamps on the pump's entry tube and exit tube. Make sure the tubes are securely closed off.



Press the small parts made of white plastic to remove the tube from the pump



The tube is out of the pump.

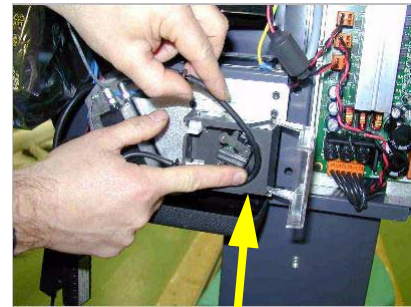
Unplug the pump tube from the adapter.



Install a new pump tube by following the dismantling procedure in reverse order.



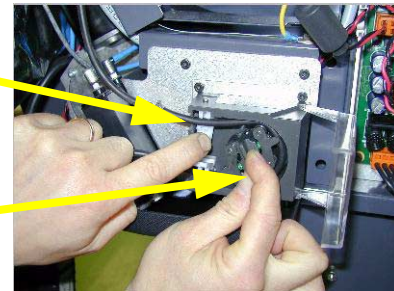
Position the tube in its housing by guiding it with your finger.



Position the cams to enable the tube to be installed.

Connect the tube into the white plastic part to set its final position.

Turn the body of the pump anti-clockwise by hand, 2 or 3 cycles, to position the tube correctly.



Make sure the various tubes are securely pushed into the adapters. Remove the pump entry tube clamps.

Make sure the new tube is correctly installed in the body of the pump. Mounting is completed.



## 5.2 Replacement of the main electronics board

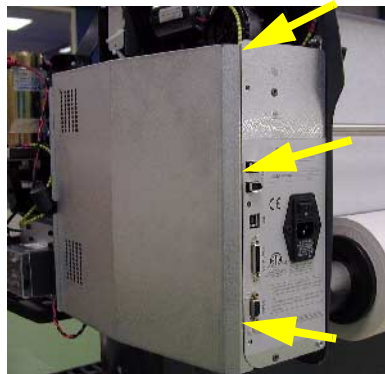


**Always start by unplugging all the electrical connections linking the plotter to the mains and to the controlling PC.**

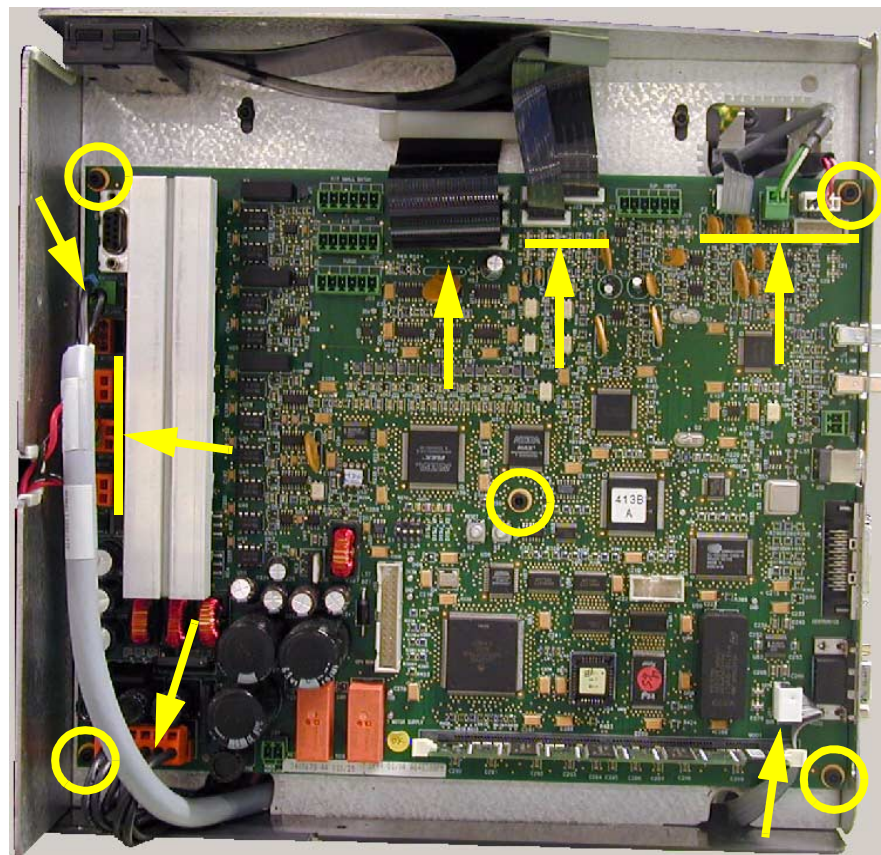
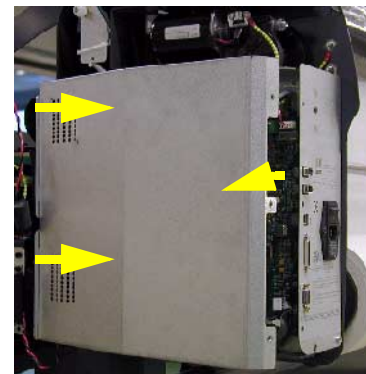
Removed left side protection cover of the plotter (keyboard side).

1. Remove the electronics shielding cover.

Cover fastening screw



Open the cover a few centimeters then remove



2. Unplug all the board connectors (identified with arrows).



*To unplug and plug back in the ribbon cables, use the same procedure as described for the ribbon cable linked to the command keyboard § 4.*

3. Remove the fastening screws from the board (identified with circles), remove the main board and replace it.
4. Fasten the new board by means of the five fastening screws (torque of 1 N.m), and replace the connectors.
5. Make sure that all the connectors are plugged to the appropriate places.
6. Put the electronics shielding cover back into place.
7. Replace the side protective cover, fasten it and plug the command keyboard back in.

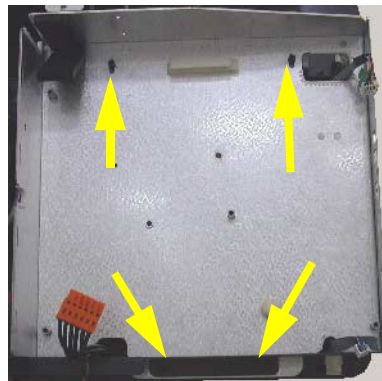
### 5.3 Replacing the main transformer



**Always start by unplugging all the electrical connections linking the plotter to the mains and to the controlling PC.\***

Left side protection cover of the plotter removed

1. Remove the electronics board as indicated in the previous paragraph.
2. Unscrew the 4 fastening screws from the transformer base plate.



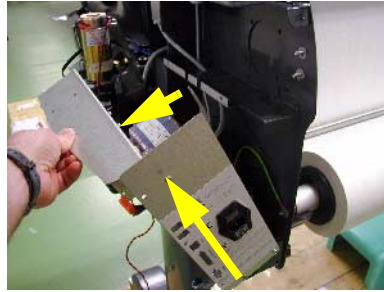
3. Unplug the earth braid from the plotter frame.



Unplug the shielding braid.

4. Remove the plate from the plotter.

Move the transformer support plate and remove it by pulling up.

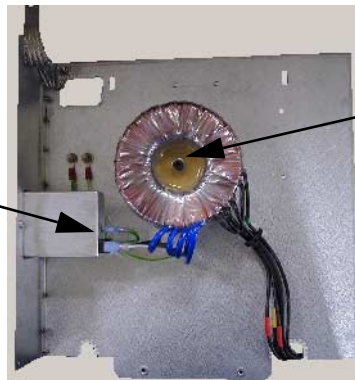


Unplug the transformer and replace it with a new one.



**Note how the wires are connected before dismantling to avoid errors when hooking the wires back up.**

Unplug the transformer. When replacing the transformer, be careful not to reverse the wires when plugging it back in.



Unscrew the fastening screw, replace the transformer and remount it.

5. Plug in the new transformer and make sure all the connections are correct.
6. Put the transformer base plate back into place and screw in the fastening screws.
7. Put the main electronics board back in place (see the § “Replacement of the main electronics board”).

## 5.4 Mounting / Removing the Y motor



**Always start by unplugging all the electrical connections linking the plotter to the mains and to the controlling PC.**

Removed left side protection cover of the plotter

### 5.4.1 Replacement of Y motor

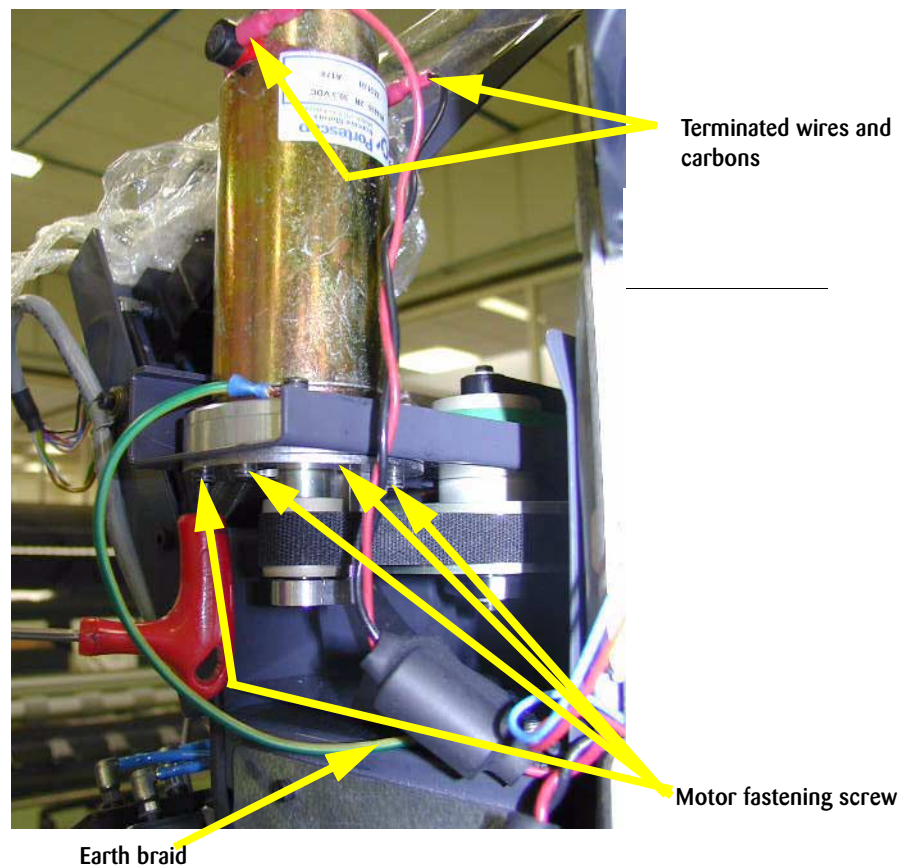
Unscrew the four fastening screws situated beneath the motor.

Loosen the drive belt by sliding the motor assembly.

Unscrew the earth braid on the opposite side to the motor

Unplug connector J from the electronics board and remove the motor assembly.

Keep the fastening screws and the motor attachment strap.



Reinstall a new motor.

Replace the attachment strap and reposition the screws.

Replace the drive belt and tighten it to 120 N with the aid of a spring scale

Then tighten the motor fastening screws to a torque of 4 N.m.

Replace the earth braid and tighten lightly.

Plug in connector J to the electronics board.

## 5.4.2 Replacement of carbons

Unplug the wire from the terminal if necessary.



Unscrew the nut and pull on the terminal to remove the carbon.



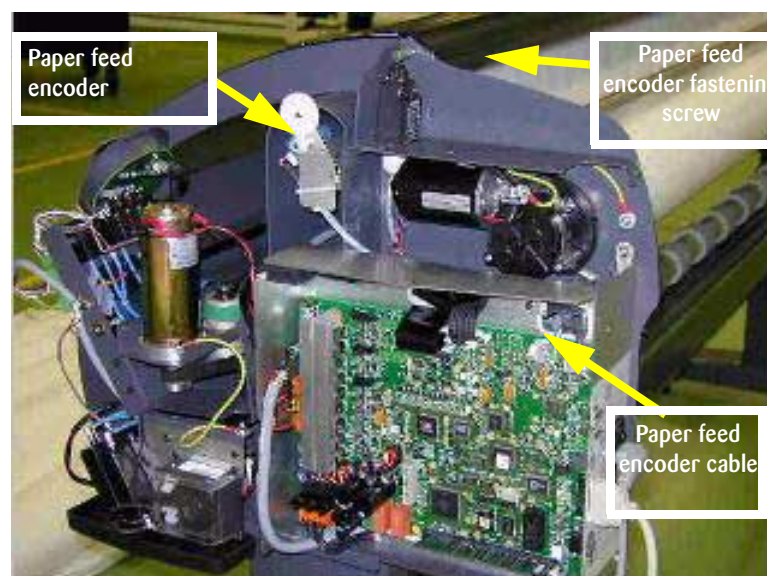
Reposition a new carbon in the housing and re-screw the nut with care.  
Reconnect the terminated wires if necessary.

## 5.5 Replacing the paper feed encoder



**Always start by unplugging all the electrical connections linking the plotter to the mains and to the controlling PC.**

Left side protection cover of the plotter removed



### 5.5.1 Dismantling



Disconnect the paper feed encoder cable from the main electronics board

Unscrew the fastening screws from the encoder unit and remove it from the beam.

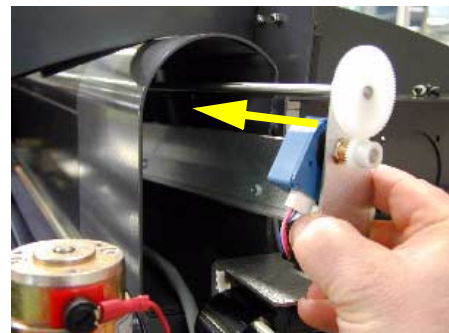


Rear view of the beam

Fastening screw for the paper feed encoder unit

### 5.5.2 Mounting

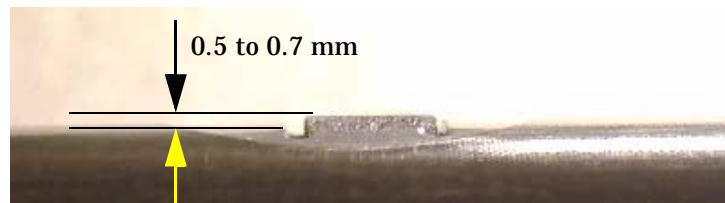
Put the paper feed encoder unit into place by sliding it to the inside of the beam.



Attach the unit on the beam with the 2 fastening screws and tighten. Do not over-tighten.

Put the paper feed encoder connection cable back into place and plug it back onto the main electronics board.

### 5.5.3 Adjustment



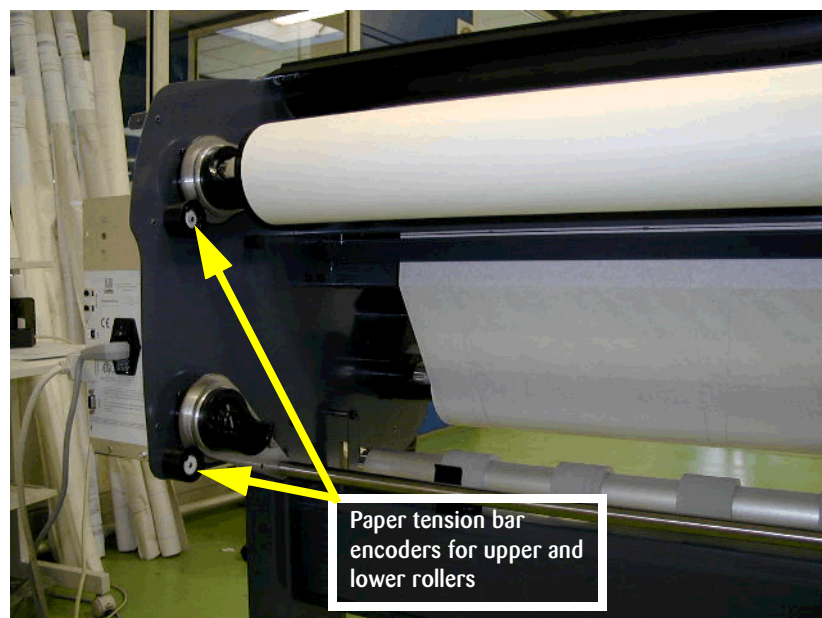
Adjust the height of the encoder feed roller as shown above. Tighten the 2 fastening screws for the paper feed encoder unit to a torque of 4 N.m.

### 5.6 Replacing the paper encoder tension bar



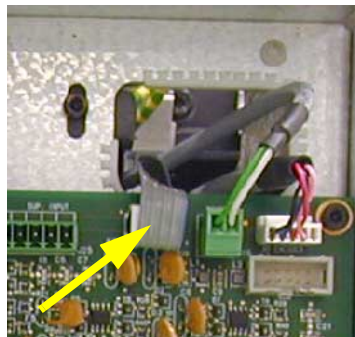
**Always start by unplugging all the electrical connections linking the plotter to the mains and to the controlling PC.**

Left side protection cover of the plotter removed

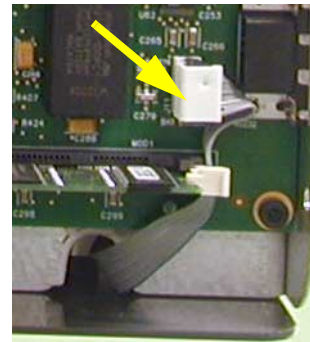


1. Remove the command electronics shielding cover.
2. Unplug the ribbon cable of the encoder to be replaced, from the main electronics board.

Disconnection of the paper tension bar encoder cable from the upper roller

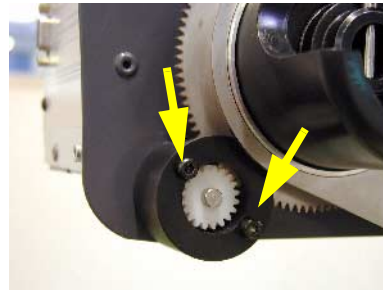


Disconnection of the encoder cable from the paper tension bar from the lower roller



3. If necessary, remove the paper feed roll.
4. Remove the protective cover from the encoder drive pinion.

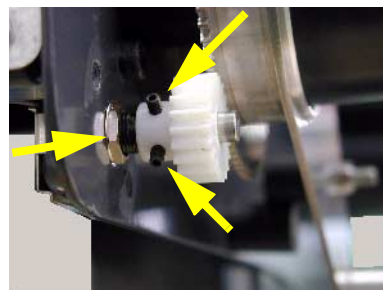
Unscrew the fastening screws from the protective cover.



Remove the protective cover from the paper tension encoder drive pinion

5. Remove the pinion along the encoder's axis and dismantle the encoder.

Unscrew the encoder lock nut.



Unscrew the 2 fastening screws from the pinion on the encoder's axis.

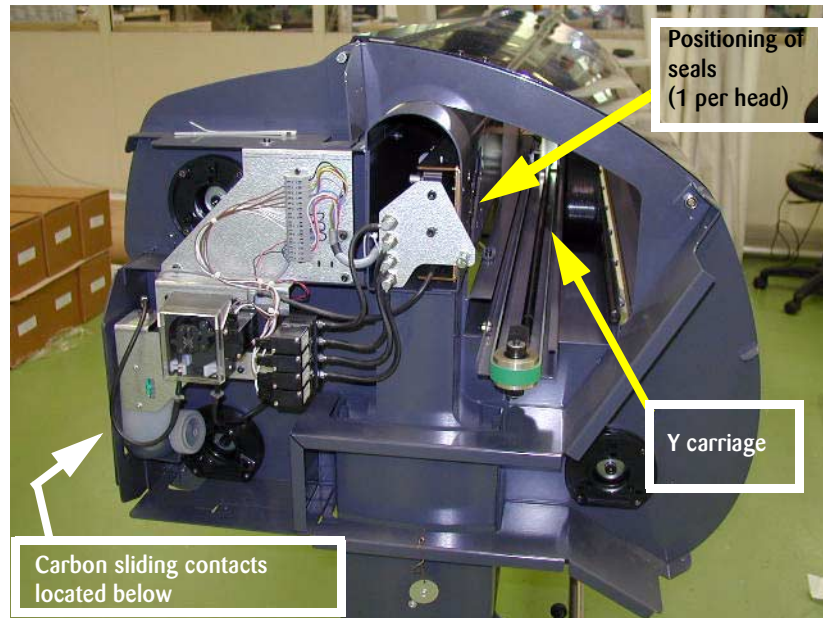
6. Replace the encoder with a new one.



7. Replace the pinion along the encoder's axis and tighten the fastening screws.
8. Put the protective cover back into place.
9. Reconnect the encoder to the main electronics board. Observe the connection direction of the connector. (guided connector)
10. Put the electronics shielding cover back into place.
11. Replace the side protective cover, fasten it and plug the command keyboard back in.

## 6. Right side of Plotter, seen from the back

Right side protection cover of the plotter removed.

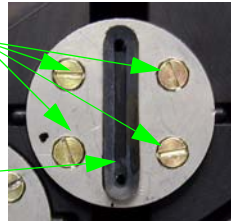


## 6.1 Changing seals

The seals are the joints used to create a tight seal between the print heads and the suction system during purging.

Unscrew the 4 fastening screws from the seal.

Remove the seal and its metal holding plate.



Install a new seal and its holding plate.

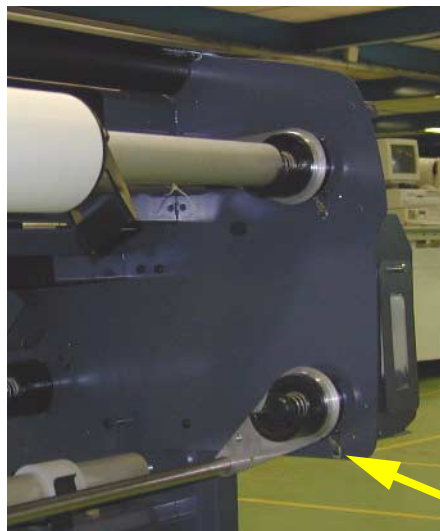
Replace the 4 fastening screws and tighten them moderately.



**The fastening screws should not be over-tightened. Over-tightening may change the seal's shape and create sealing defects when the heads are purged.**

## 6.2 Removal/mounting of carbon sliding contacts

Loosen the fastening screw and remove the carbon sliding contacts.



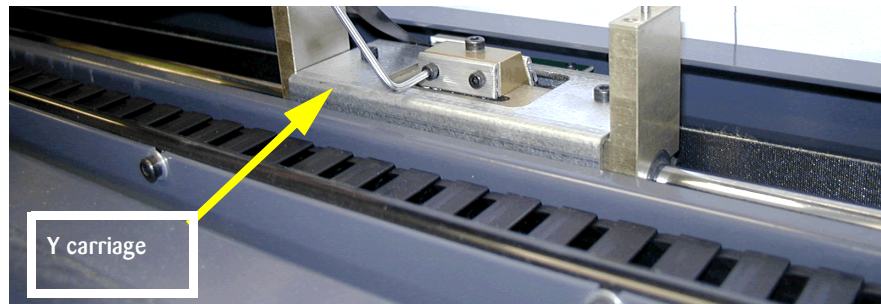
Carbon sliding contacts

Change the carbon sliding contacts and reposition it so that it rubs correctly on the balancing arm.

Tighten the screw lightly.

## 6.3 Removal of Y carriage/Guide sockets/drive belt

The Y carriage must be removed in order to change the guide sockets. To do this, carry out the "Removal of the plotting block" as well as the removal of the Y carriage drive belt.

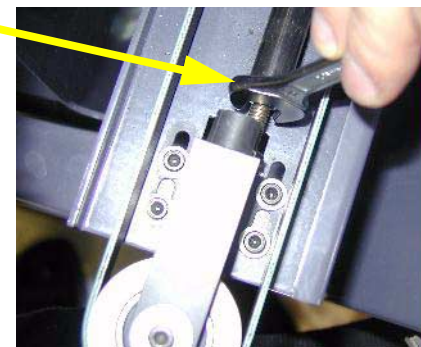


### 6.3.1 Removal of the Y carriage drive belt



**1** Make a mark on the Y mounting to indicate the position of the drive belt tightener, so its repositioning is easier

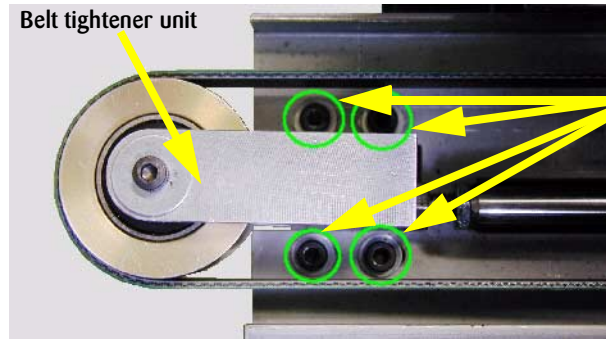
**2** Unscrew the retention nut.



**3** Unscrew the rubber limit stop

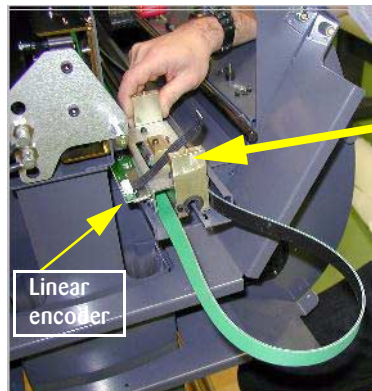
**4** Unscrew the belt tension adjustment screw





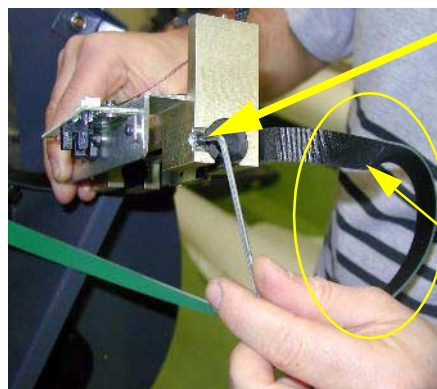
**5** Unscrew the belt tightener holding screw so that it can slide freely.

**6** Slide the belt tightener unit to loosen it.  
Unscrew the four fastening screws and remove them.  
Take out the belt tightener unit.



**7** Remove the Y carriage, with care for the linear encoder

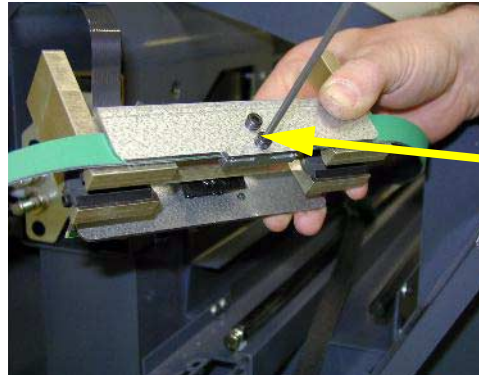
### 6.3.2 Removal of sockets



Unscrew the socket tightening screws.  
Remove the socket.  
Install a new socket and the fastening screw.  
Tighten lightly.  
Do the same for the socket on the

Be careful not to twist the belt, as it may get damaged.

### 6.3.3 Removal of the belt



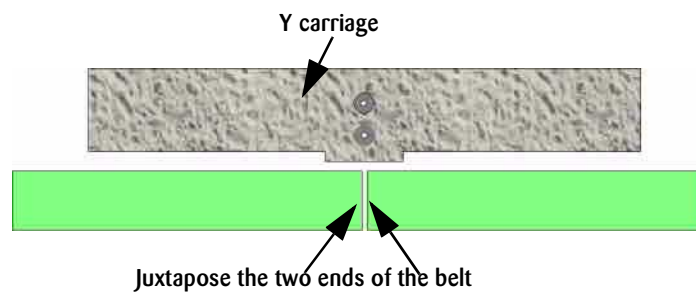
Unscrew the two belt holding screws and remove the belt from the Y carriage

## 6.4 Mounting of the Y carriage

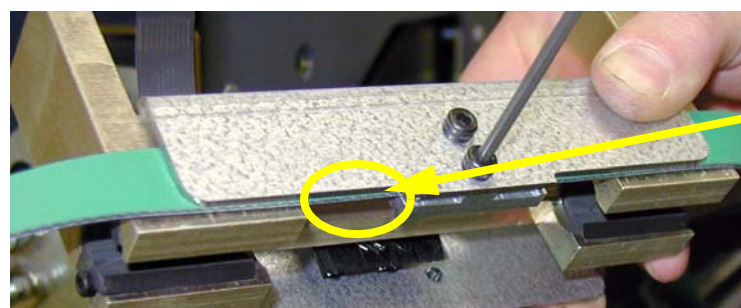
### 6.4.1 Installing the belt on the Y carriage

The belt is in the form of a band.

Position the belt in such a way that the two ends are juxtaposed over the holding screws of the Y carriage.

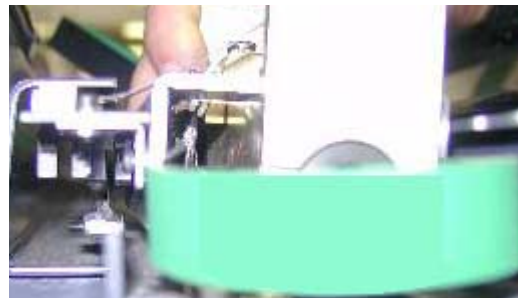
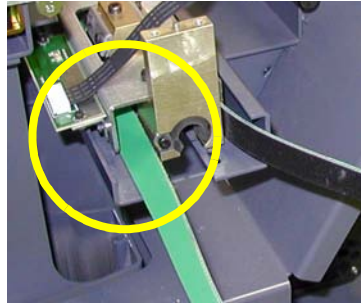


Position the belt as shown in the photo.



Align the lower edge of the belt with the edge of the Y carriage.

Tighten to a torque of 4 N.m.



Place the Y carriage on the rail, while making sure the belt is positioned with the green side visible on the outside.

Place the belt in its housing on the Y axis.

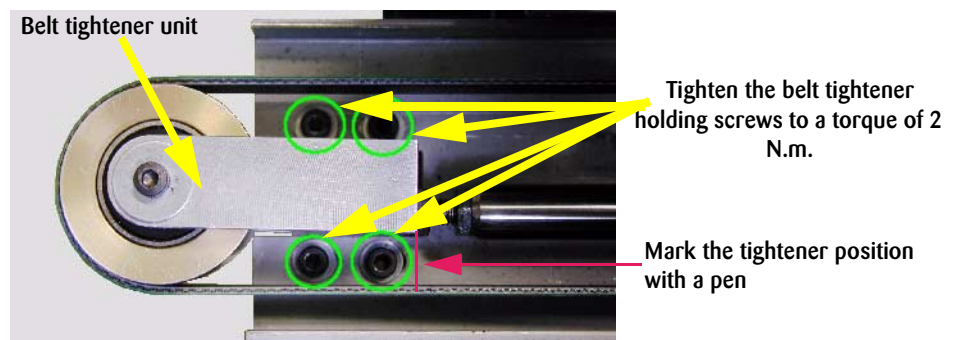
Install the belt tightener unit by sliding it on the rail.

Pre-position the belt in its tightened position.

Place the four belt tightener holding screws, without tightening them, so that it can slide freely.

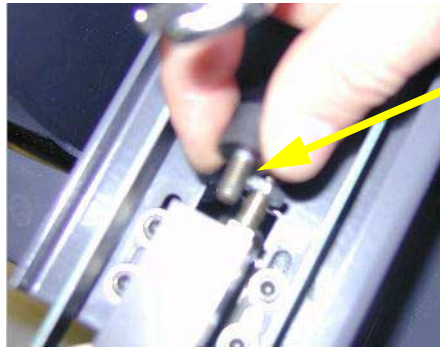
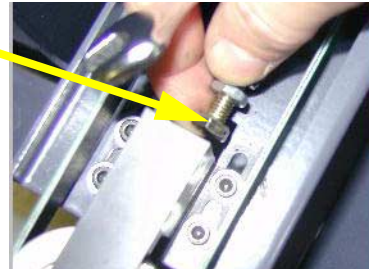


Put the belt tightener in the position marked when it was removed.



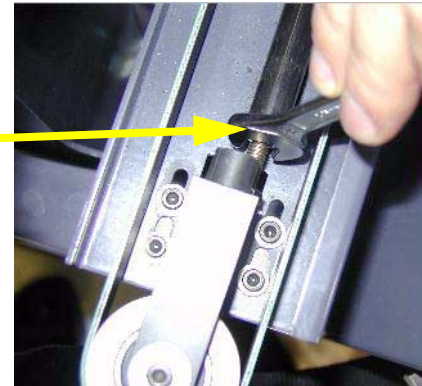
**When a belt is removed without being changed, do the following in order to adjust the tension. In the case of a new belt, see § 7.1**

Screw in the belt tension adjustment screw, according to the tightener position pen-mark.



Screw in the rubber limit stop

Screw in the retention nut .

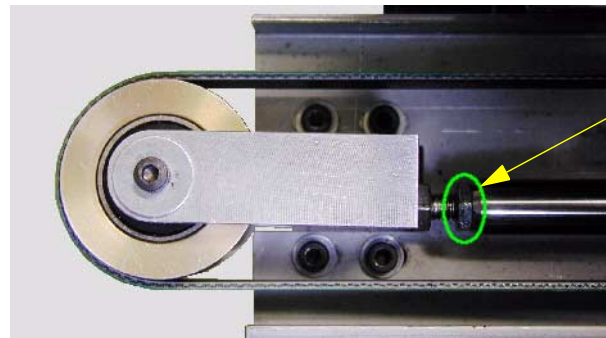




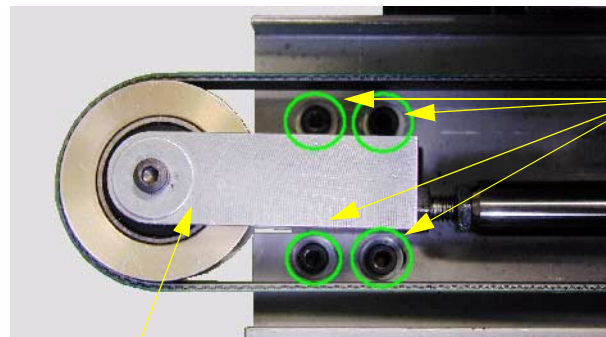
## 7. Adjustment of belt tension

### 7.1 Head drive belt (green belt, Y motor)

Correct tension for the belt is determined by its stretching during adjustment.

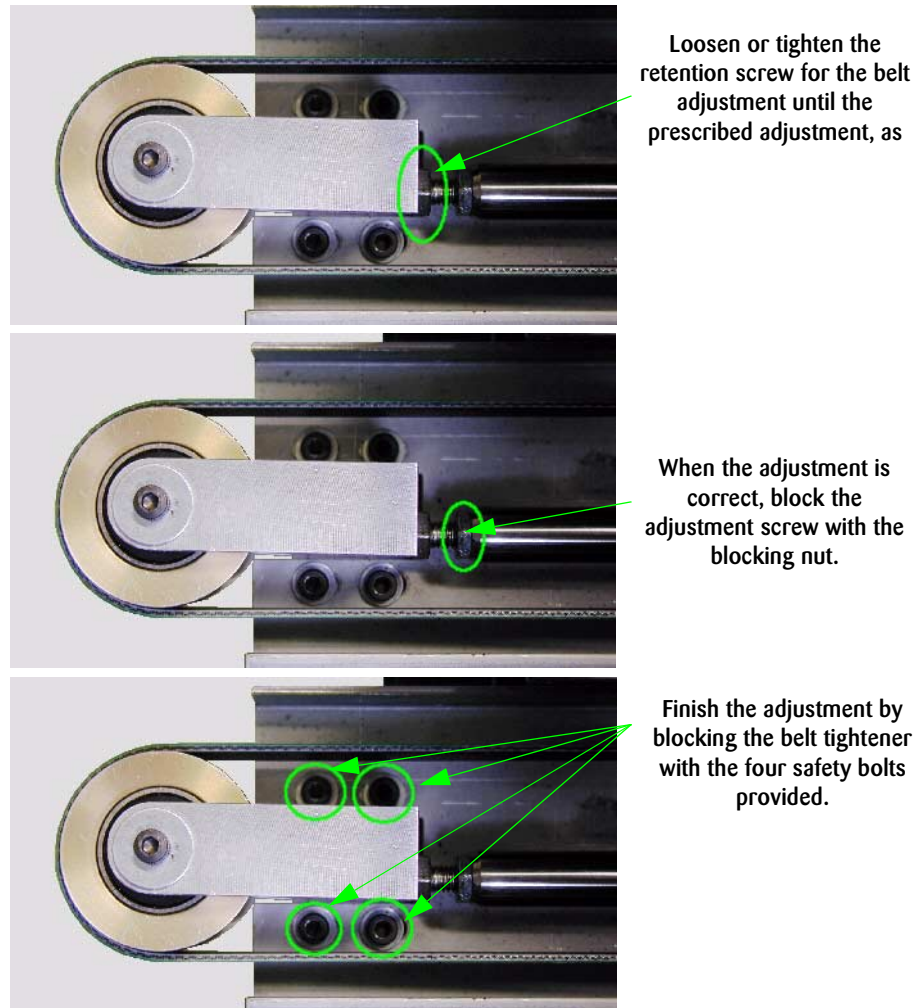


Unscrew the retention nut from the belt tension screw



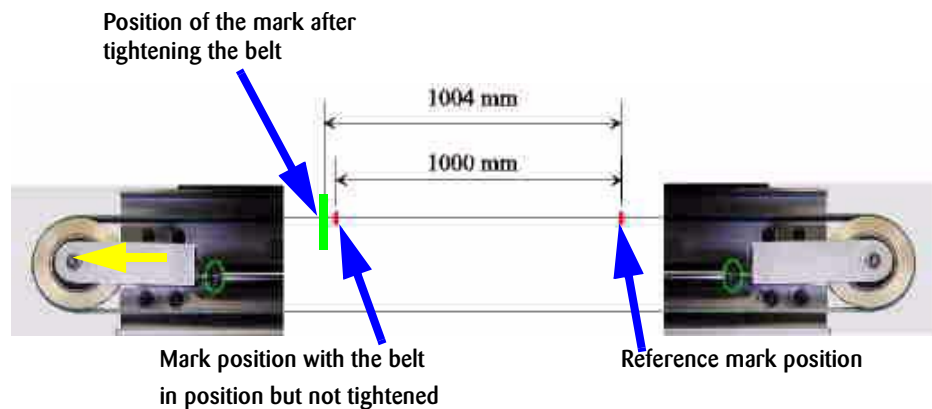
Unscrew the retention screw for the belt tightener to allow it to move freely.

Belt tightener unit



To measure the tension of the belt, take into account the mark made on the 1000mm belt.

Tighten the belt with the aid of the tightening nut, until the mark moves to 1004mm from the reference point (for a new belt), or 1003mm for a belt being repositioned. Tighten all the screws and locking nuts of the elements needed for belt tension. Check that the Y tightener is perpendicular to the Y mounting



## 7.2 Short belt

To adjust the tension of the short belt, you will need to use a spring scale.



**Tension of the small belt must always be 120 N.**  
**A different belt tension can bring about significant problems involving plotter quality.**

## 8. Greasing

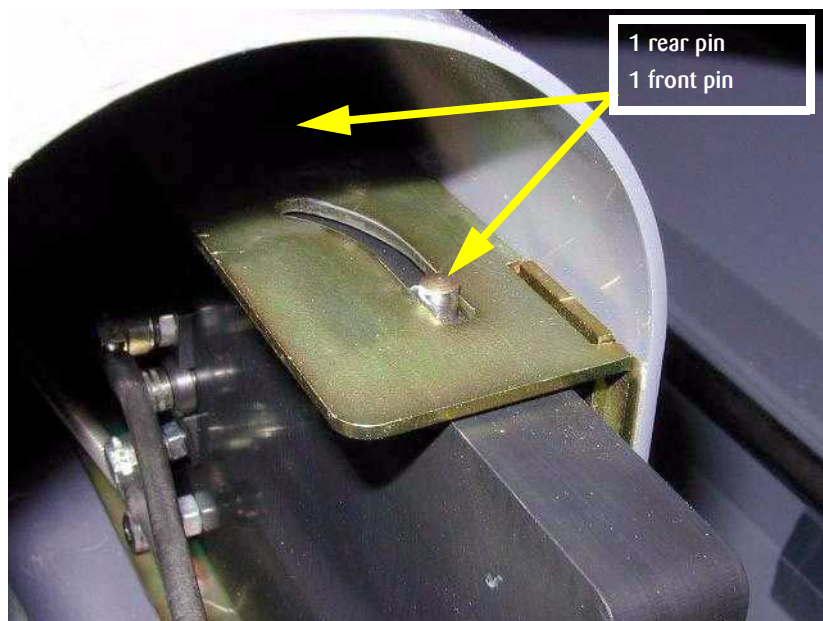
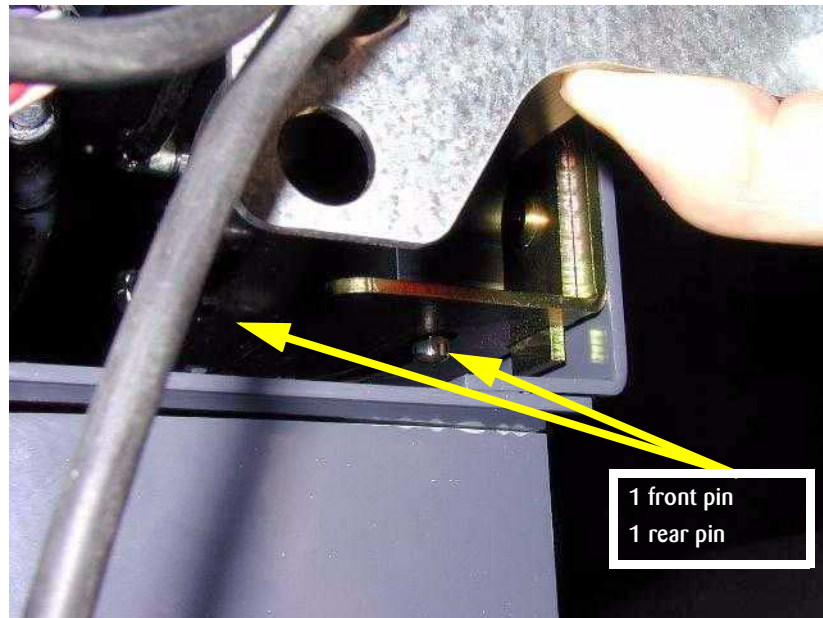
### 8.1 Greasing of the block bearing

Grease the block bearing spring using the grease syringe.



## 8.2 Greasing the purge station

Grease the four guide pins of the purge station.



# 9. Mounting of side covers

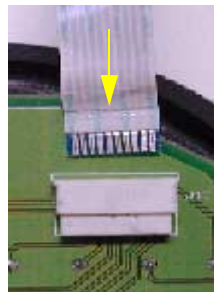
## 9.1 Command keyboard connection

Hold the command keyboard in your hand.

Position the connector as shown in the photo (observe the direction of the cable: pin side of plug, unprotected, visible from above).

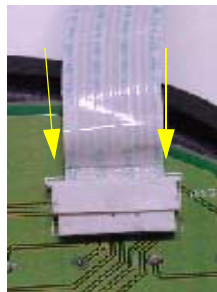


Ribbon cable unplugged



Position the connector.

Insertion and guide

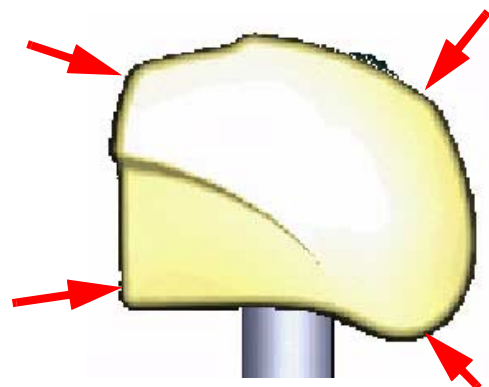


Firmly push on the "ears" located on the side of the connector to lock the ribbon

Ribbon cable locked



Install the command keyboard



Position the cover fastening screws

## 10. Plotter maintenance



**NEVER GREASE THE HEAD SUPPORT RAILS.**

**Do not use solvents or alcohol based products for plotter maintenance.**

Regular cleaning of the plotter is recommended to maintain good working order. You must regularly remove all waste and dust caused by the paper. To do this, pull a soft cloth through all machine parts.



**The linear encoder behind the head is an element, which is essential to the plotter's good working order. It must only be cleaned with compressed air.**

## 10.1 Cleaning ink stains on the plotter



**The product used for cleaning the ink stains on the plotter can irritate the skin and eyes. The use of gloves when handling this product is therefore recommended.**

To clean the ink stains, use the product supplied by Lectra Systèmes, ref. no. 900592. Spray the product on the stain to be removed and rub using absorbent tissue or a soft cloth.

## 11. Handling

Before handling the plotter:

- Check that the drain reservoir is not full. If it is full, replace it.
- Place the print head in the purge position (at the end of track to the right of the plotter) and secure it in place using adhesive tape.
- If necessary, secure the ink supply cartridge using adhesive tape (this should remain in place during transportation).

