APELEM

D M S G R O U P

Remote Controlled Tables

BACCARA 90/20 & 90/25 HV

TECHNICAL MANUAL (Ref. 80-40-001- Rev. Q – Date january 2006)

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1. SAFETY AND COMPLIANCE

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The purpose of this user's manual is to provide a set of easy instructions for a proper use of the system.

All of information contained herein is based on the current version of the system.

APELEM-DMS Group reserves the right to improve and implement changes to the information herein in order to reflect any changes required by technological enhancements.

1.1. INTENDED USE OF THE UNIT

BACCARA Table has been designed to satisfy the most demanding practitioners in Digital techniques. Completely multipurpose and extremely efficient, the BACCARA Table in its traditional version has a spot film device (for 18 x 24 and 36 x 43 cm cassettes) that allows specific and reliable diagnosis (1/2/3/4 and 5 cuttings and on large sizes of cassettes).

It allows gastro-intestinal examinations, urology, pulmonary, hysterography, lymphography, skeleton radiography, tomography and paediatrics (the grid is retractable).

This system is especially intended to radiological use.

This X-ray equipment must be used in strict compliance with safety rules contained in this manual, and cannot be used for other purposes than those for which it has been designed.

1.2. SAFETY

Only personnel qualified enough to radiations protection methods and trained enough to X-ray unit safety and operating rules may use this unit.

It is incumbent upon the operator to use the unit in compliance with safety standards relating to the installation and the use of X-ray units.

Only trained service personnel authorized by APELEM-DMS Group may remove the unit covers and only in accordance with the instructions contained in the Service Manual.

This equipment is not intended to function in an atmosphere containing explosive gas or where there exists a danger of explosion.

It is imperative for both patient and operator safety, that the unit be checked every 6 months in order to guarantee its efficiency and its reliability during ten years of its lifetime.

Worn parts may become dangerous; they must be checked and replaced by new ones.

Circuits and safety systems must not be moved for any reason, modified or removed.

Before using the unit, the operator must ensure that all safety devices are in working order.

This X-ray unit may only be used in environments or medical rooms in compliance with the applicable IEC standards.

The unit must not operate when mechanical or radiological faults occur, or when indicators or warning light are faulty. When the unit is jointly used with other unit, component or module whose compatibility is unknown, ensure of lack of danger to the patient or to the operator. For all information, call APELEM-DMS Group Society.

No modification must be brought to the unit without the authorization of the manufacturer.

Check regularly the condition of cables and connections; replace them if they show sign of wear. In case of doubt, call the Manufacturer.

APELEM-DMS Group is responsible for the safety of its products only when maintenance, repairs, or modifications have been performed by its personnel or by personnel authorized by APELEM-DMS Group in writing.

APELEM-DMS Group cannot be held liable for any malfunction, damage, or danger resulting from improper use of the system or non-compliance with the rules for proper maintenance.

NE PAS DEPLACER LE PANNEAU AVEC UN PATIENT ASSIS

DO NOT MOVE THE PANEL WITH A PATIENT IN THE SEATED POSITION

Concerning the tables provided with an optional digital system and an optional I.I. elevator, never switch off the generator before the table.

1.3. ELECTRICAL SAFETY

Only trained service personnel authorized by APELEM-DMS Group may remove the unit covers and only in accordance with the instructions contained in the Service Manual.

This X-ray unit may only be used in environments or medical rooms in compliance with the applicable IEC standards.

The X-ray unit must not be used in areas where there exists a danger of explosion.

Cleaning and disinfecting agents, including those used on patients, may create an explosive, gaseous mixture.

Use only those products in compliance with the applicable rules.

1.4. LASER TARGETING DEVICES SAFETY

Keep always a good lightening on the room.

Never look through the output window of the laser-targeting device.

Never fix the reflections of the laser targeting devices.

Before starting any examination, the patient must remove earrings, glasses, necklaces and whatever could reflect the laser beam and be printed on the image.

Don't clean the openings of the laser targeting devices with tools that could modify their optics. Only the service personnel must perform possible cleaning actions.

The min. distance between the laser source and the patient must not be lower than cm20.

The only purpose of the laser use is to reduce the patient dose to a minimum.
The activation of procedures other those listed above can cause the emission of dangerous non-ionizing radiations.

1.5. ELECTROMAGNETIC COMPATIBILITY (EMC)

This apparatus is in compliance with IEC 60601-1-2 standard regarding EMC, Directive 89/336 that defines the allowed emission levels from electronic devices and the required immunity from interference caused by externally generated electromagnetic fields.

It is not, however, possible to exclude radio signals coming from transmitters such as mobile phones or similar mobile radio devices. These and other transmitting devices, including those in compliance with the EMC standards, may influence the proper functioning of medical apparatus when used in proximity and with a relatively high transmitting power.

Therefore, the use of radio equipment proximity to electronically controlled systems must be avoided in order to eliminate any interference risk.

Any transmissions by mobile radio equipment must be avoided.
Mobile phones must be switched off in zones close to the unit.
These rules must be applied when the unit is switched on (that is to say connected to the mains and ready for use).

1.6. PROTECTION AGAINST IONIZING RADIATIONS

Before any x-ray exposure, ensure that all the necessary protective precautions have been taken.

During the use of x-rays, personnel present in the room must comply with the following rules concerning protection against ionizing radiation:

When necessary, use protective shielding against radiation in addition to the shielding already provided on the unit.

Use protective aprons containing a material equivalent to 0,35mm of lead. Material of this nature reduces radiation at 50kV by 99,95% and at 100kV by 94,5%.
The best protection against radiation is distance. It is therefore recommended that you stay as far as possible from the x-ray source and the exposure target. For this purpose, use all of the cable length provided for the foot-switch.

Avoid walking or standing directly in the x-ray beam.
Always use the smallest possible field of exposure by closing properly the collimator diaphragms.

Never modify or disconnect the safety circuits or devices designed to prevent accidental exposures.

1.7. GENERAL DISPOSAL

APELEM-DMS Group produces radiological systems that are advanced in terms of safety and environmental protection. Assuming that the unit is properly used, there is no risk to people or the environment.

In order to comply with applicable safety requirements, it is necessary to use materials that may be harmful to the environment (for example: monobloc oil, protective lead, monitor kinescope, boards and electronic components). Therefore, when necessary, it needs dispose of them in a proper way according to the regulations applied in the country where the unit is installed.

For this reason, the unit may not be disposed of along with industrial or domestic waste and must be regarded as hazardous waste.

For additional information, contact APELEM-DMS Group.

1.8. TRANSPORT

Any time it is travelling, the device must be carried in its original packing and must not be moved without taking precautions. For more details, please contact APELEM-DMS Agent.

1.9. INSTALLATION

The installation of the system must be done in a room exempt of humidity and dust.
For more information, please, refer to the § 1.2 “Safety” mentioned above.

1.10. OPERATING

The conditions of use are the following:

- Ambient temperature: 10 to 30°C
- Relative humidity: 30 to 75%
- Atmospheric pressure range : 700 to 1060 hPA

1.11. STORAGE

The conditions of storage are the following:

- Temperature: 0 to 40°C
- Relative humidity: 10 to 80%
- Pressure: 700 to 1060 hPA

After a period of storage at a temperature inferior to 10°C, it is recommended to place the turned-off device in place with a temperature of between 10° to 40°C for a minimum period of 4 hours.

1.12. CLEANING AND DISINFECTION

Before cleaning the unit make sure that the power supply is disconnected, and the trolley is switched off.

Clean the unit using a humid rag and tepid water.

Do not use detergents or sprays abrasive or corrosive like Acetone or pure alcohol, only alkaloid solutions with a soft rag.

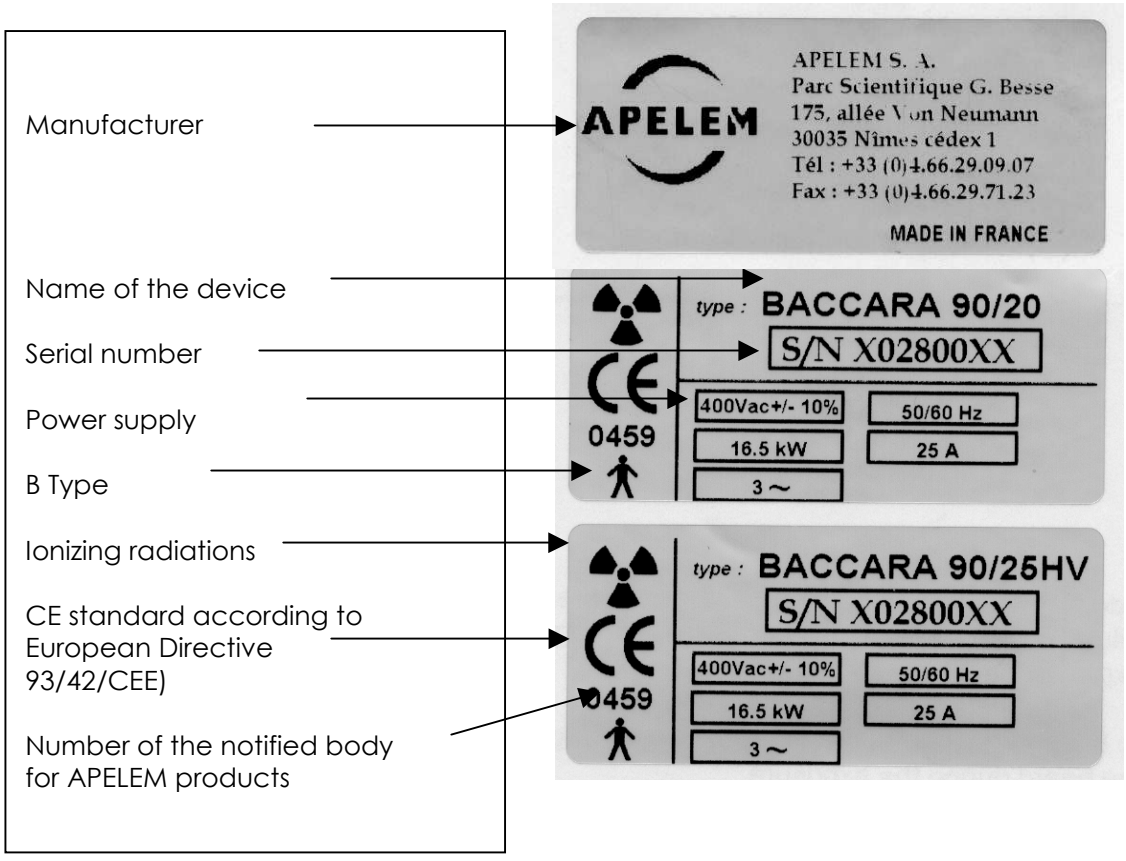
Avoid allowing water or liquid of any kind enter into the unit or into the trolley because this could cause a short circuit or corrosion to the unit.

1.13. LIFE TIME

The lifetime of the BACCARA Table is 10 years. Beyond this time, the Manufacturer does not guarantee technical specifications from origin.

When the unit is out of order, it has to be recycled according to the country current regulations.

1.14. DESCRIPTION OF LABELS



1.15. REGULATION

This device is in conformity with the IEC 60601-1 standard and belongs to II b class according to the 93/42/CEE norm, appendix IX, regulation 10.

1.16. APELEM-DMS GROUP WARRANTY

The validity of DMS-APELEM is 12 months from certificate receipt date and it covers mending or free replacement of spare parts as well as handwork (except for the unload tubes which have a warranty in proportion to 12 months).

APELEM – DMS warranty is not valid for operations and mending caused by externals factors:
- Fire, explosion, floods, subsidence of buildings,
- Default of the device relative to the environmental conditions,
- Non-respect or non-observance of the prescriptions given by the manufacturer in the User's manual,
- Operations or mending carried out by a non qualified staff and not agreed by APELEM – DMS Group

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2. DESCRIPTION

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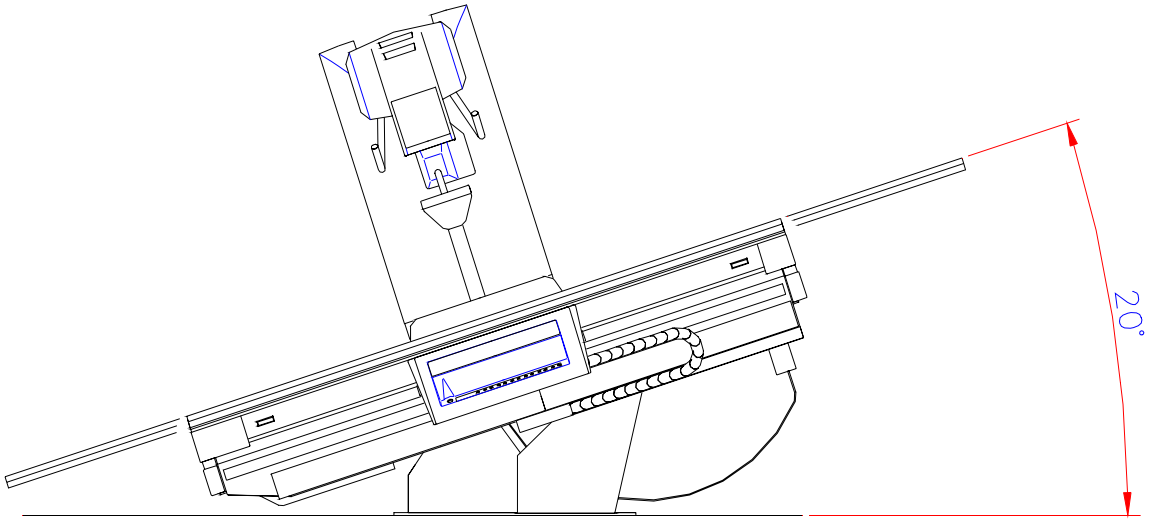
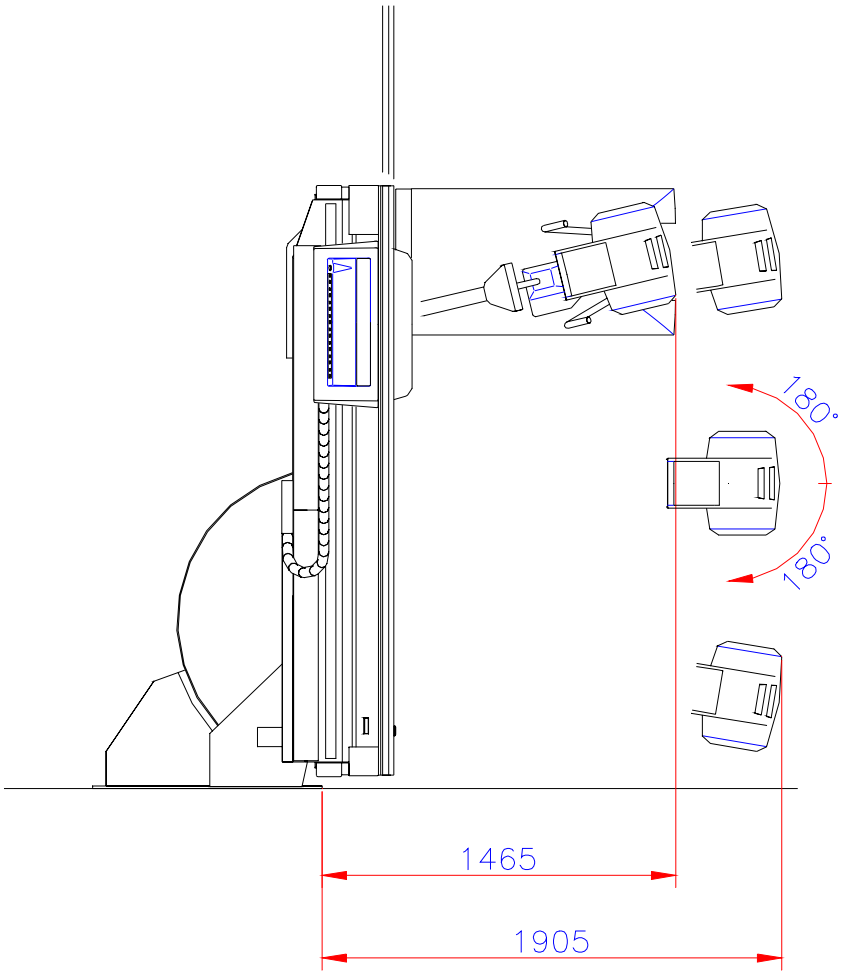
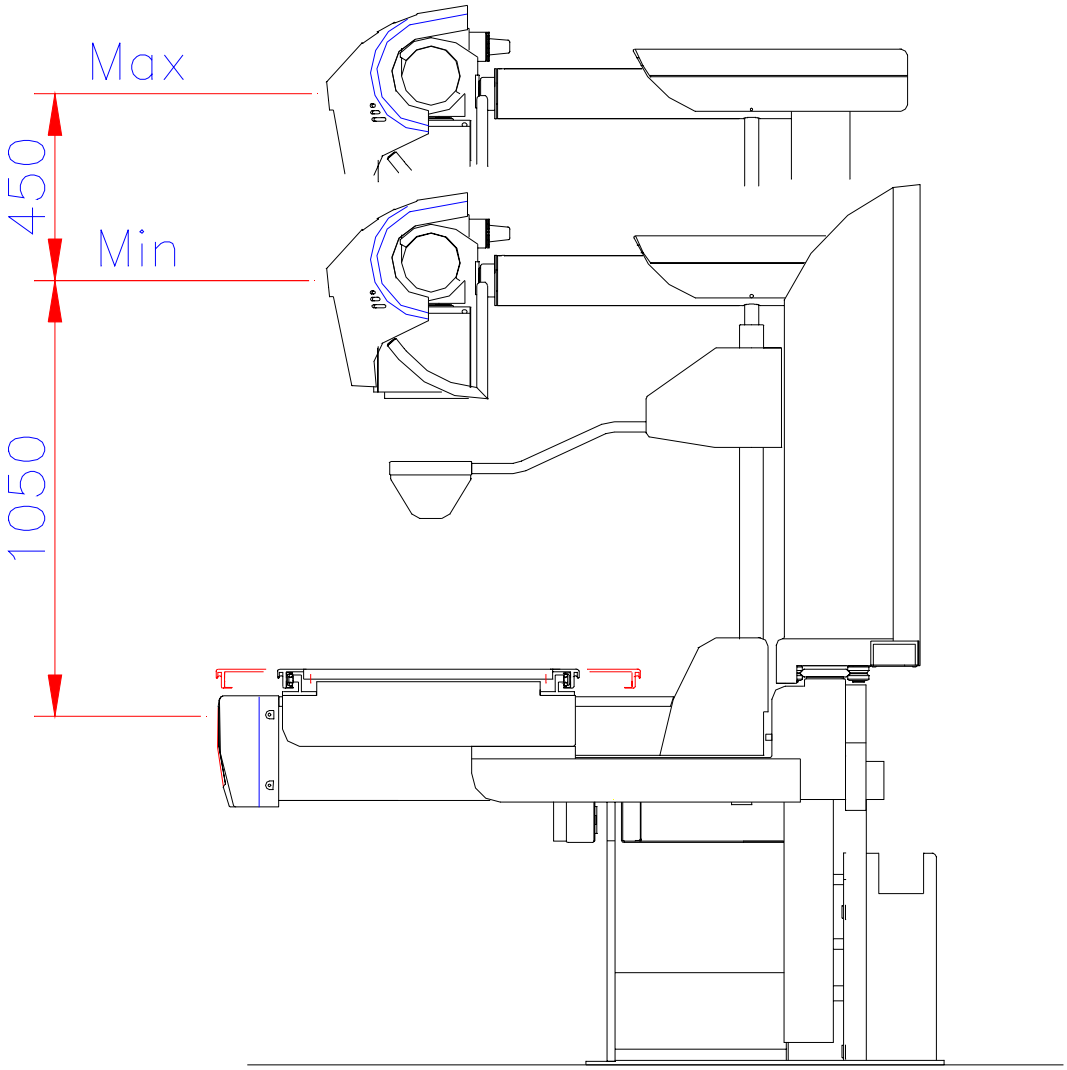
2.1. BACCARA 90/20

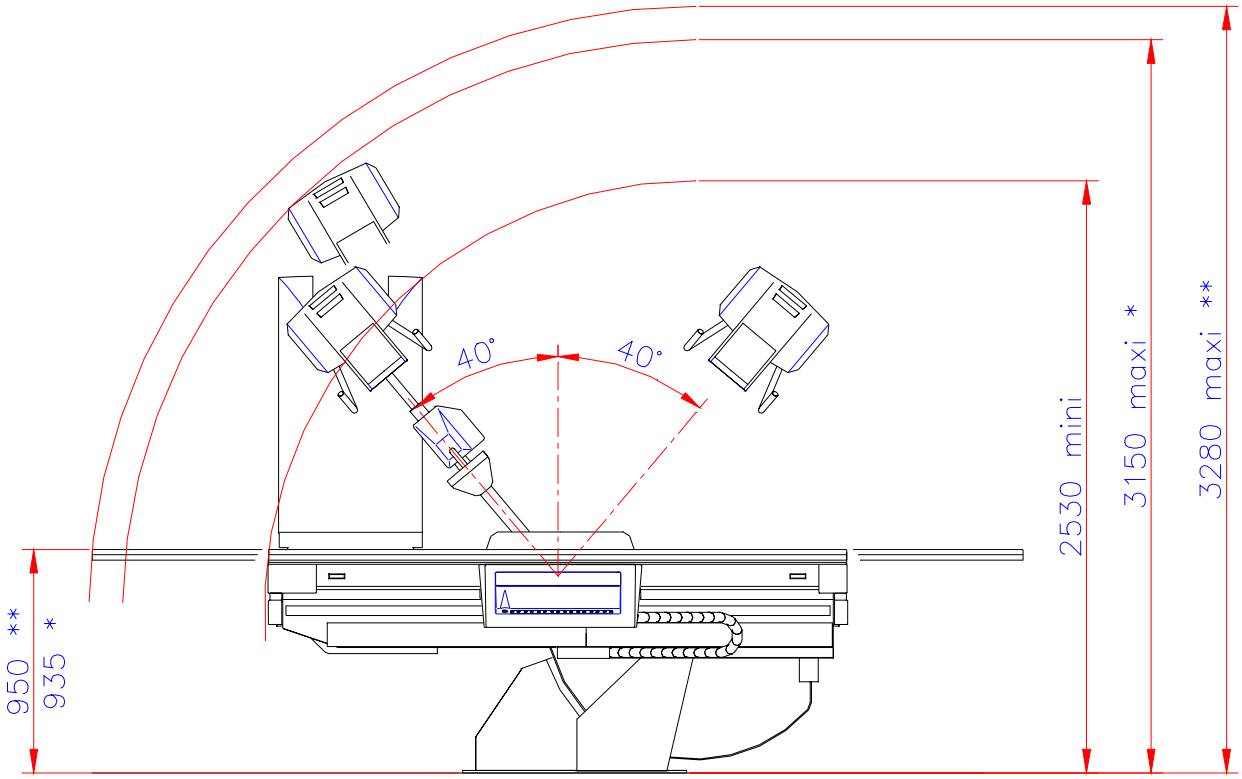
Remote Controlled Table BACCARA 90/20
(Elevator and tilting from 90° to 20°)

2.1.1. BACCARA 90/20 MECHANICAL DRAWINGS AND DIMENSIONS

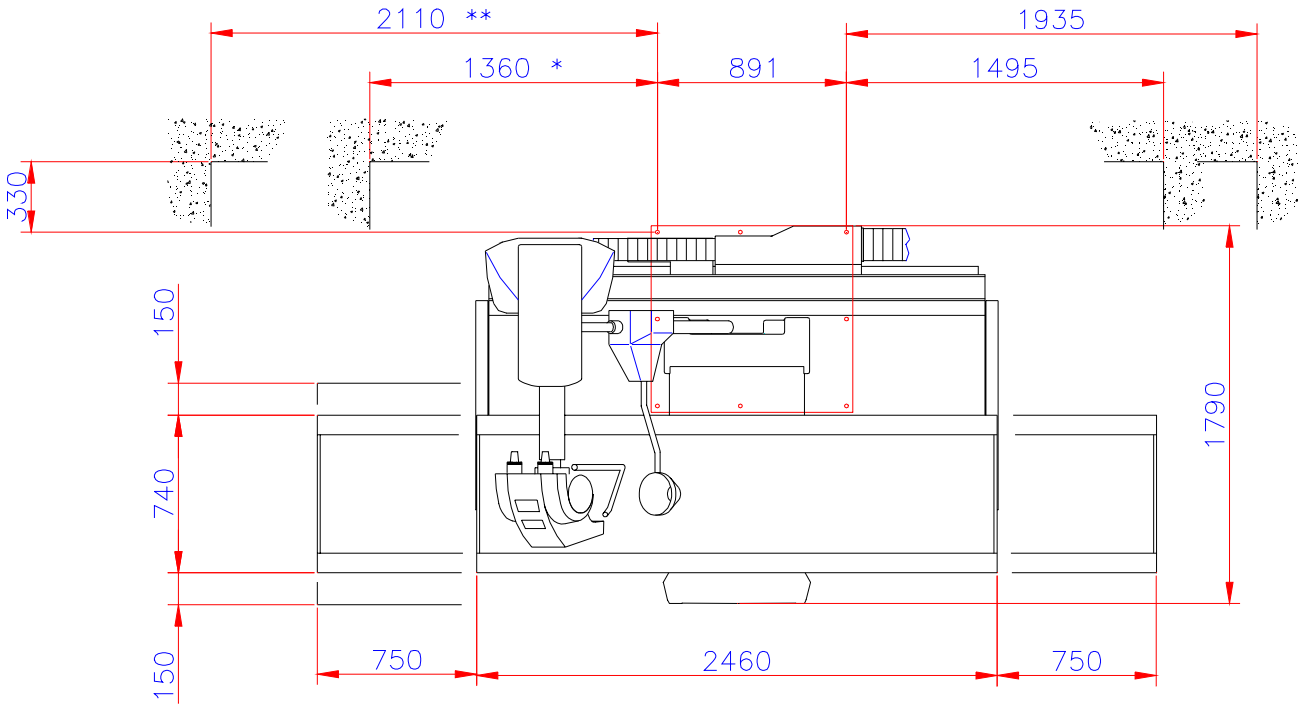





Max
450
Min
1050



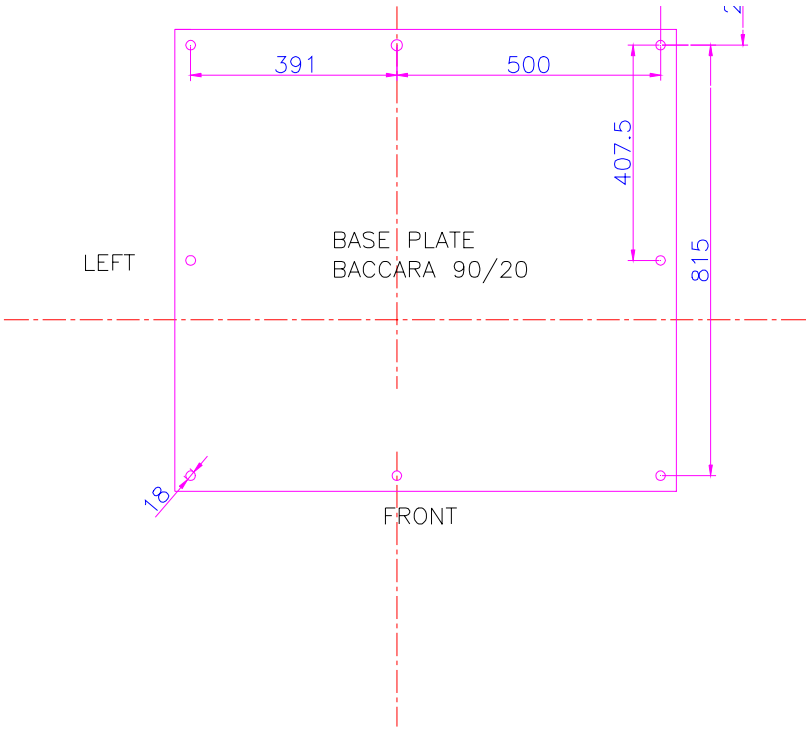
* Panneau 2 voies / 2 ways t.top
** Panneau 4 voies / 4 ways t.top



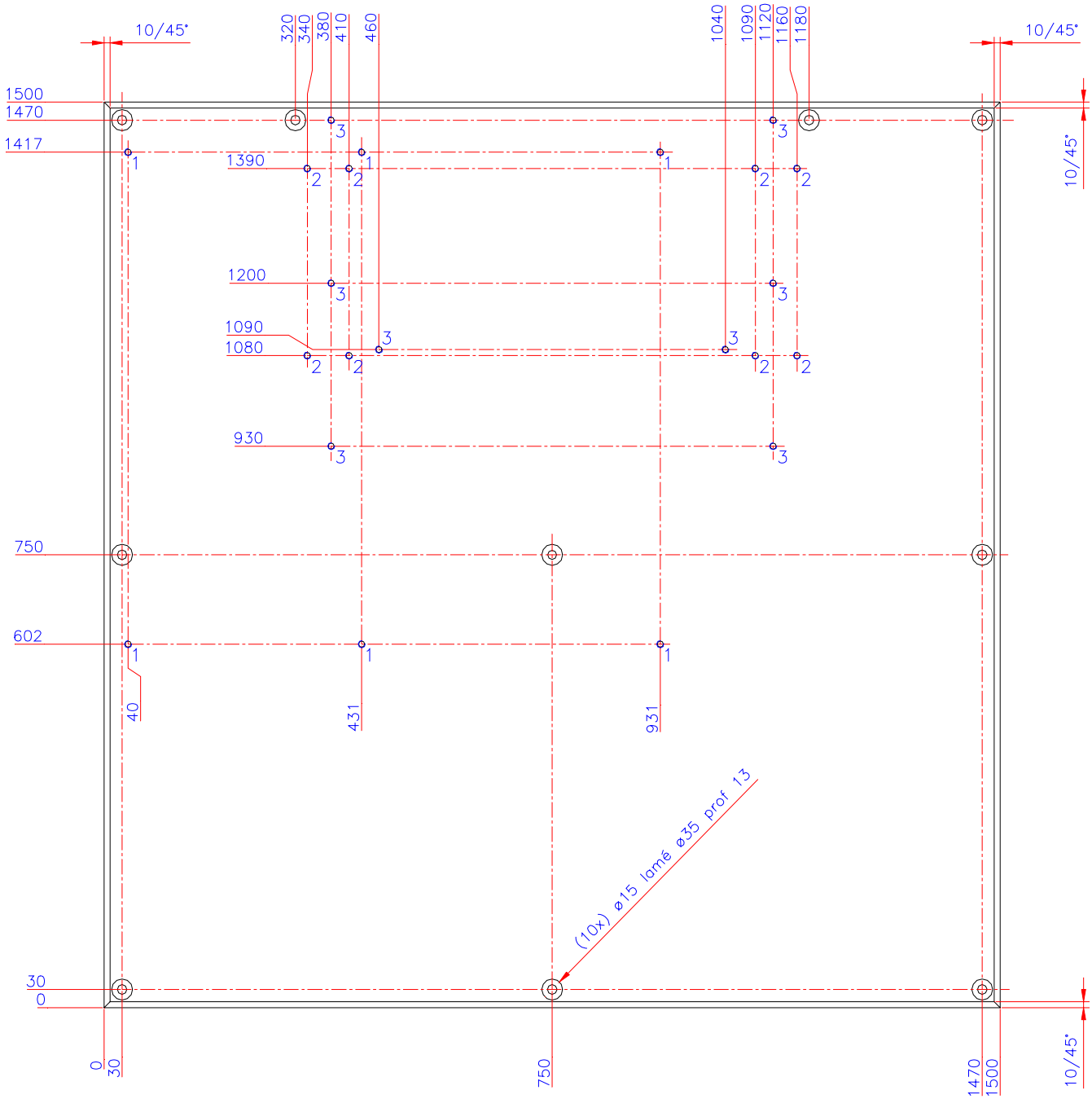
* Panneau 2 voies / 2 ways t.top
** Panneau 4 voies / 4 ways t.top

2.1.2. BACCARA 90/20 STRAIGHT SCREWED ON THE FLOOR

Before starting the table installation, check the levelness of the floor, correct it if necessary.
The table will be hold on the ground by 8 fixing points which can resist to a 1000 daN tractive effort.



2.1.3. FASTENING THE BACCARA 90/20 WITH A DISTRIBUTION PLATE



Note: Only the reference mark n°1 refers to the 90/20 BACCARA table mounting.

The presence of the distribution plate is only necessary in case the floor is not strong enough to support the table.

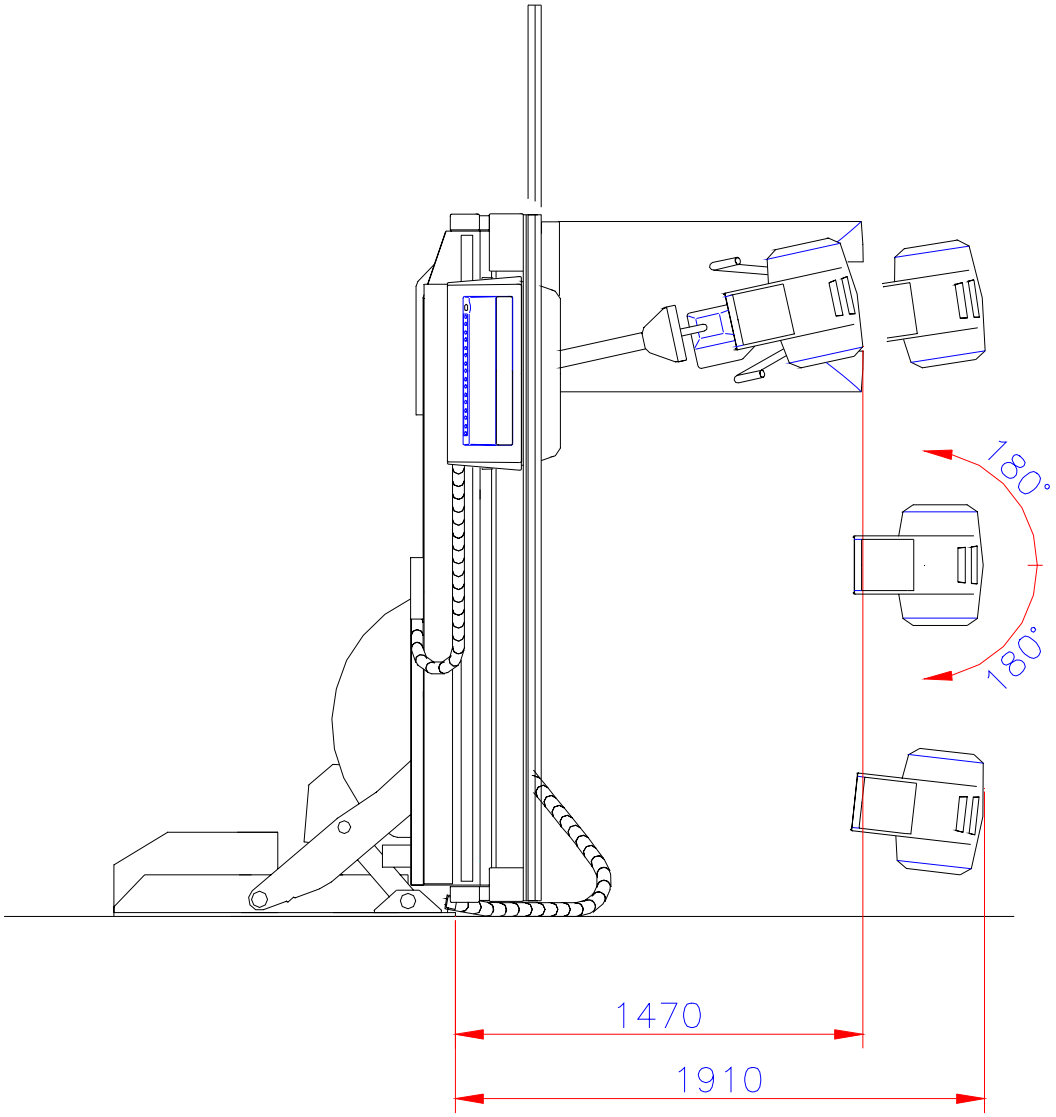
The distribution plate will be hold on the ground by 8 fixing points, which can resist to a 1000 daN tractive effort. Then, the table will be hold on the distribution plate by 8 fixing points which can resist to a 1000 daN tractive effort.

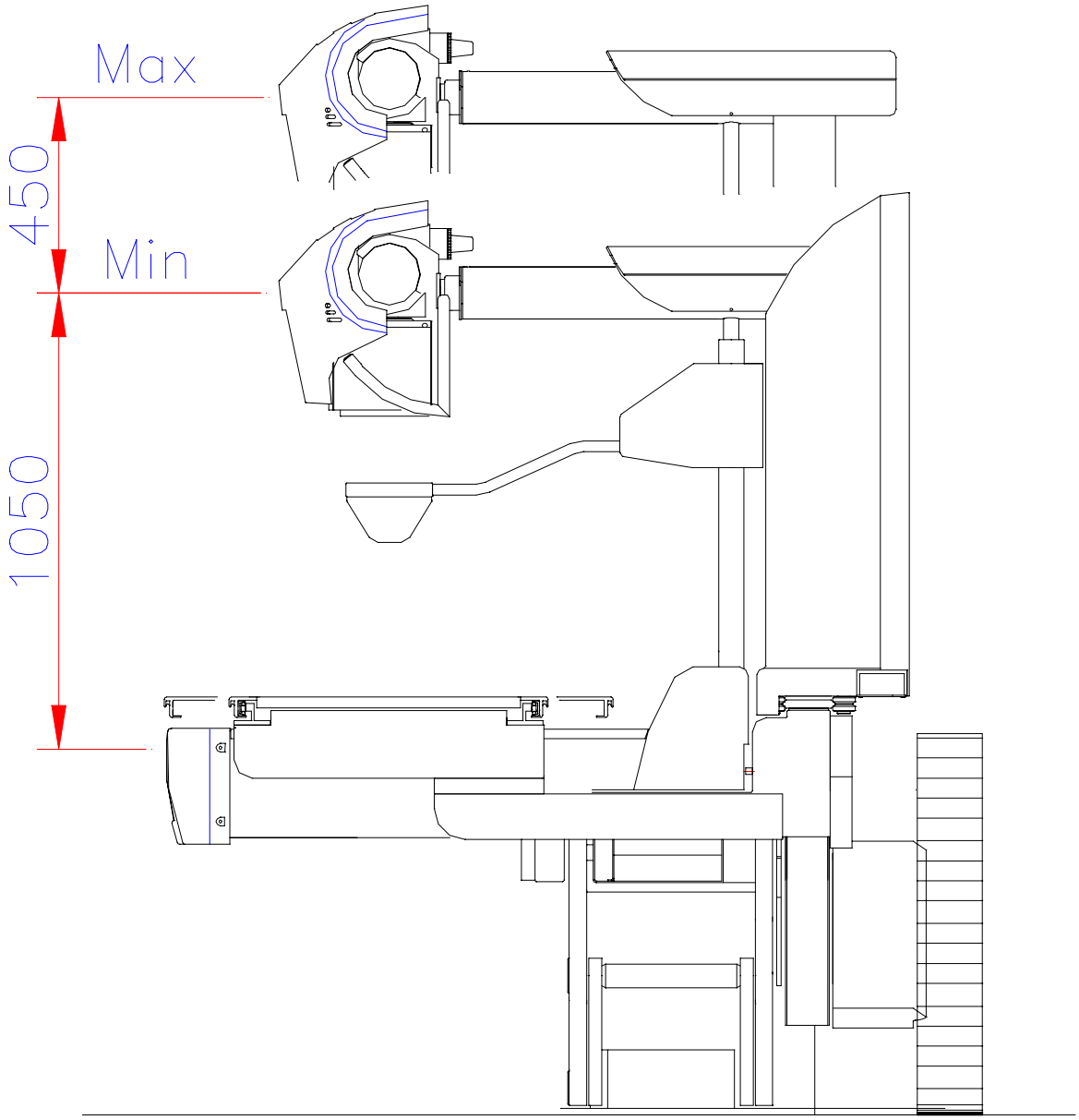
We remind to the user that the distribution plate is not supplied by APELEM-DMS Group.

2.2. BACCARA 90/25 HV

Remote Controlled Table BACCARA 90/25HV
(Variable height and tilting de 90° to 25°)

2.2.1. BACCARA 90/25 HV MECHANICAL DRAWINGS AND DIMENSIONS

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Min
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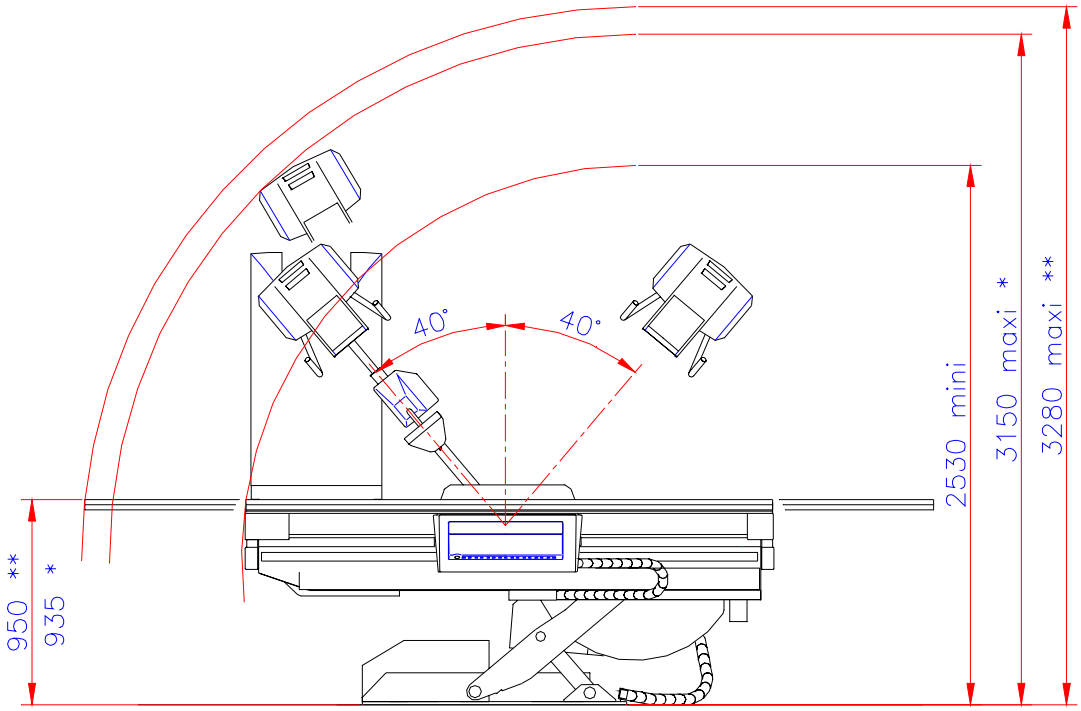
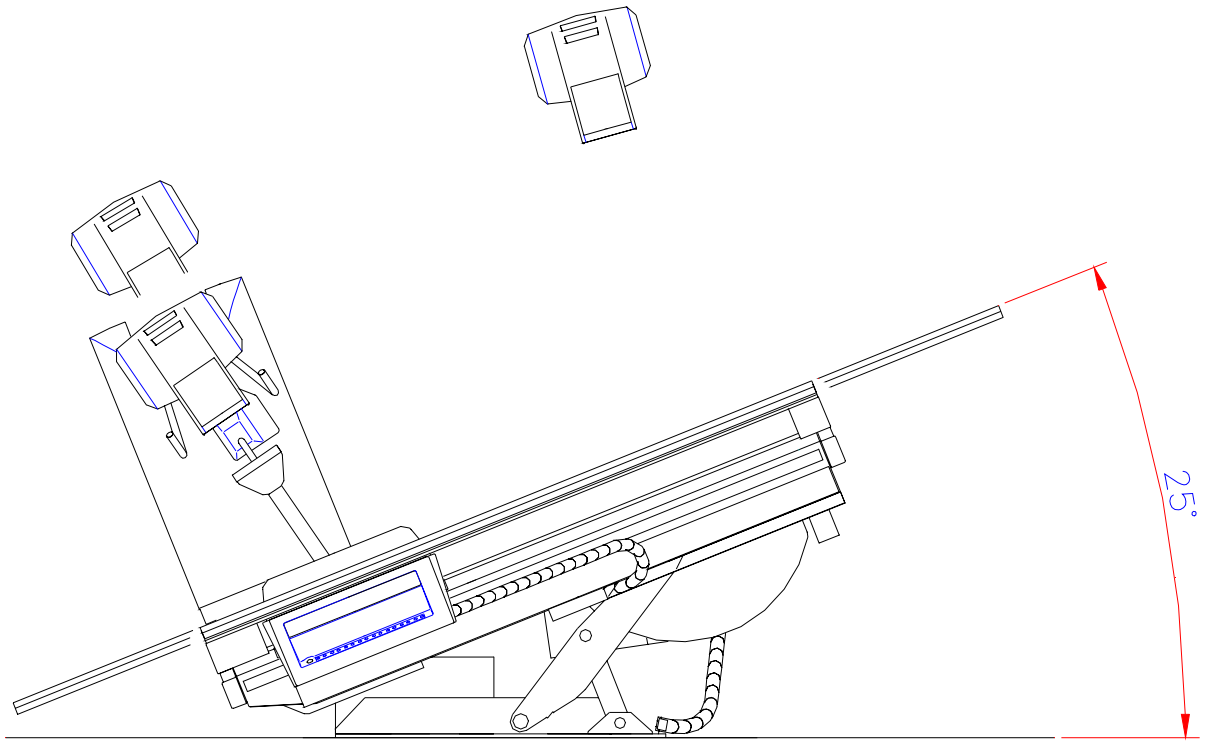
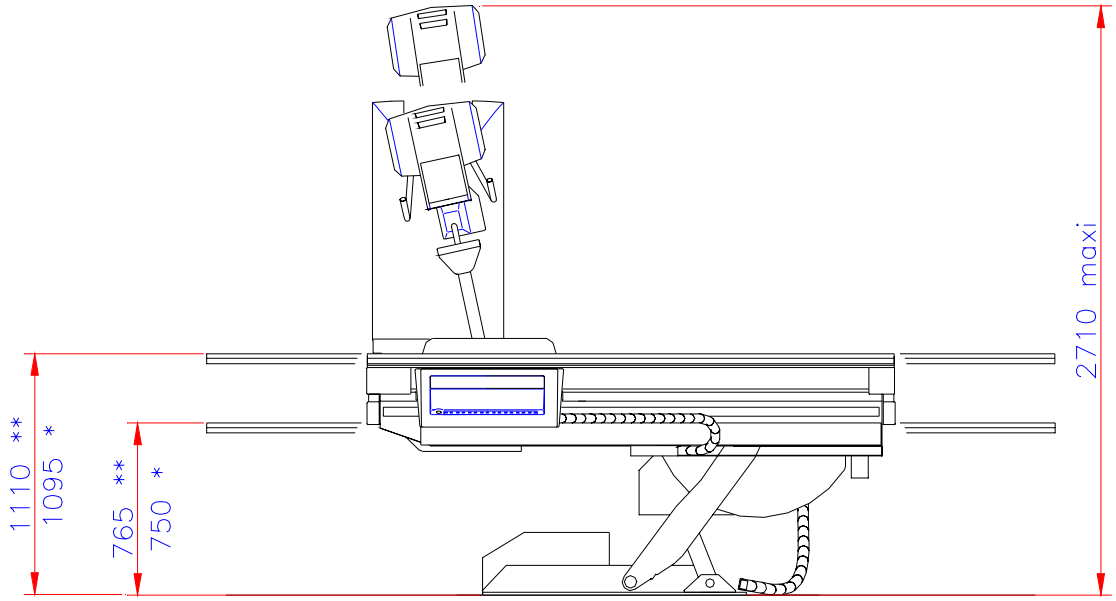
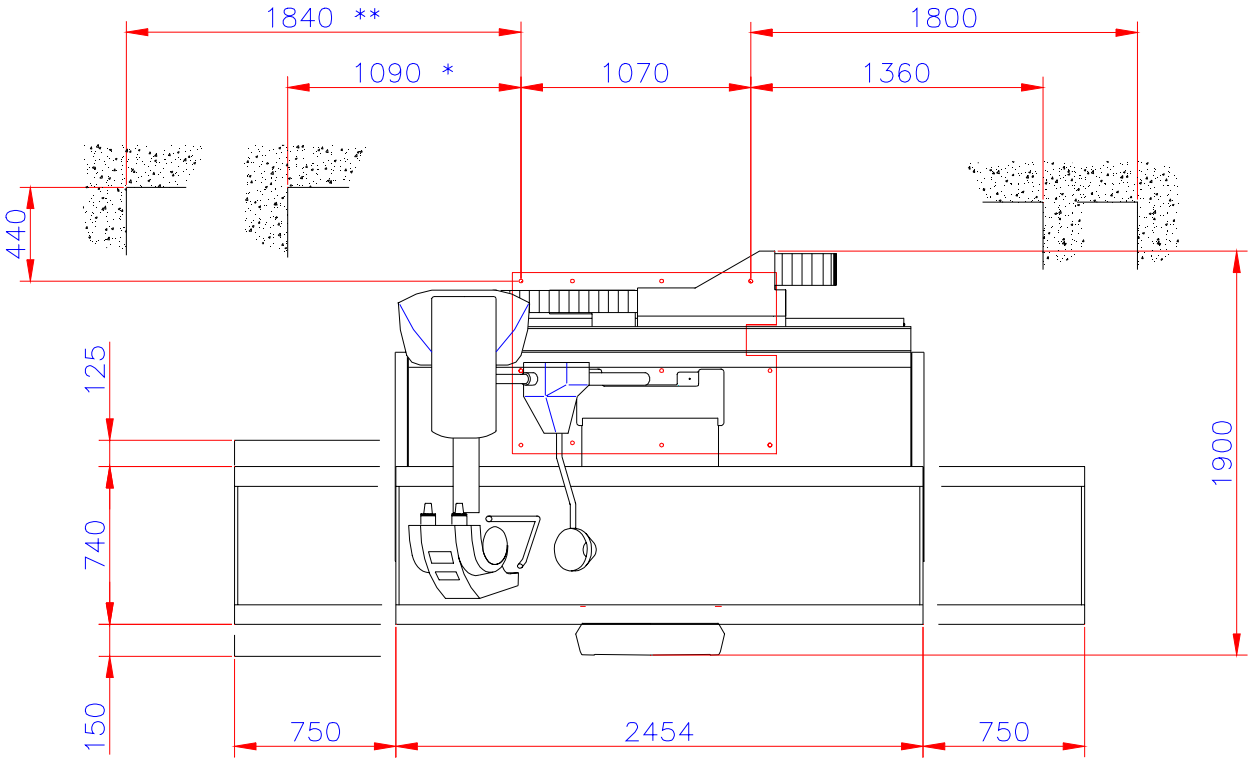


* Panneau 2 voies / 2 ways t.top
** Panneau 4 voies / 4 ways t.top


25°



* Panneau 2 voies / 2 ways t.top
** Panneau 4 voies / 4 ways t.top



* Panneau 2 voies / 2 ways t.top
** Panneau 4 voies / 4 ways t.top

2.2.2. BACCARA 90/25 HV STRAIGHT SCREWED ON THE FLOOR

Before starting the table installation, check the levelness of the floor, correct it if necessary.
The table will be hold on the ground by 11 fixing points which can resist to a 1000 daN tractive effort.

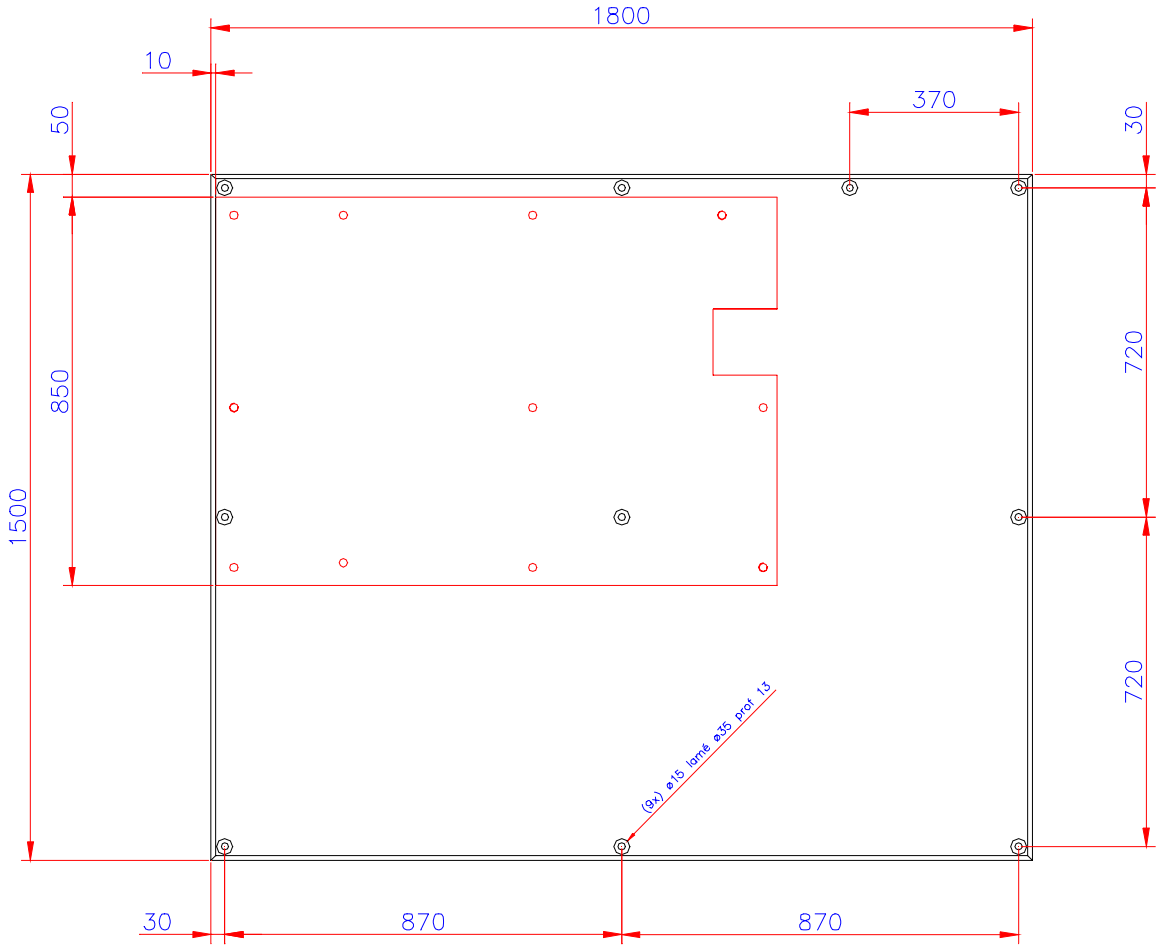
See Diagram N° M80 22 48 next page.

2.2.3. FASTENING THE BACCARA 90/25 HV WITH A DISTRIBUTION PLATE

The presence of the distribution plate is only necessary in case the floor is not strong enough to support the table.

The distribution plate will be hold on the ground by 10 fixing points, which can resist to a 1000 daN tractive effort. Then, the table will be hold on the base plate by 11 fixing points which can resist to a 1000 daN tractive effort.

We remind to the user that the distribution plate is not supplied by APELEM-DMS Group.



Distribution plate

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3. TECHNICAL SPECIFICATIONS

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GENERAL		
	BACCARA 90/20	**BACCARA 90/25 HV**
Three phase power supply	400 V + Neutral + Earth	400 V + Neutral + Earth
Safety cut off	25 A – D curve	25 A – D curve
Average power	5 Kw	5 Kw
Fixed elevation	90 cm	
Variable height	NO	82/1006 (0 – 2cm)
Tilting	-20°/+90°	+90°/-20 (0,-4°) with automatic stop at zero
Time of tilting	15,7 sec.	18 sec.
Speed of tilting	5,7°/sec.	5°/sec.
Range of column movement	1720 mm	1720 mm
Variable speed	From 0 to 12 cm/sec.	From 0 to 12 cm/sec.
Range of spot film device movement	1580 mm (2 way panel) 1380 mm (4 way panel)	1580 mm (2 way panel) 1380 mm (4 way panel)
Variable speed	From 0 to 12 cm/sec.	From 0 to 12 cm/sec.
Range of side panel movement	30 cm	27,5 cm
Dimensions	246 x 74 cm	246 x 74 cm
Type of panel	Flat	Flat
Mechanical weight (Note: the weight that is mentioned does not include the RX Tube, I.I., electric parts and cables)	**Table** : 950 Kg **Cabinet** : 80 Kg **Console with base** : 27 Kg **Console without base** : 7,9 Kg	**Table** : 1500 Kg **Cabinet** : 80 Kg **Console with bas**e : 27 Kg **Console without base** : 7,9 Kg
Maximum patient weight	160 Kg	160 Kg
Speed	3,5 cm/sec.	3,5 cm/sec
Range of focal distance	105 to 150 cm	105 to 150 cm
Incidence	- 40° / + 40°	- 40° / + 40°
Speed	4 cm/sec.	4 cm/sec.
Parallax adjustment	Yes	Yes
Rotation of X-ray tube (mechanical)	+/-180°	+/-180°
Spot film device format	18 x 24 to 36 x 43 cm	18 x 24 to 36 x 43 cm
Selection	2/3/4/5 according sizes, redivisible	2/3/4/5 according sizes, redivisible
Size of Image Intensifier	23/32/36/40 cm	23/32/36/40 cm
Retractable grid	Yes	Yes
Radiological room minimal size	(L)4,10 m x (l)3 m x (H)3,35 m without limitation	(L)4,10 m x (l)3 m x (H)3,35 m without limitation
AUTOMATIC SPOT FILM DEVICE		
	Fast sequence	Fast sequence
	Radiography and Tomography on the same film	Radiography and Tomography on the same film
	Remaining exposures display and cassette size display	Remaining exposures display and cassette size display
	Ionization chamber	Ionization chamber
	Grid 90L/cm Ratio 12:1 Focal distance 120 cm	Grid 90L/cm Ratio 12:1 Focal distance 120 cm

TOMOGRAPHY		
	Parallel tomographic plan programmable	Parallel tomographic plan programmable
Focal distance	105 to 120 cm	105 to 120 cm
Angles	- 8° - 20° - 40°	- 8° - 20° - 40°
Exposure time	Fast: 0.4/1/2 sec. Slow: 0.8/2/4 sec.	Fast: 0.4/1/2 sec. Slow: 0.8/2/4 sec.
Cutting layer	0 to 30 cm	0 to 30 cm
Step	1 mm	1 mm
OPTIONALS EXTRA		
	Image intensifier elevator	Image intensifier elevator
Longitudinal movement of panel	+/- 750 mm	+/- 750 mm
Speed	6 cm / sec.	6 cm / sec.
	PALADIO System	PALADIO System
	Stepping (step by step)	Stepping (step by step)
	Carbon fibre panel	Carbon fibre panel
	Lateral cassette support	Lateral cassette support
	Collimator with diaphragm	Collimator with diaphragm
	Gynaecological stirrups	Gynaecological stirrups

4. INSTALLATION OF THE TABLE

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This chapter is intended to explain how to install a BACCARA 90/20 or BACCARA 90/25 HV table.

4.1. CONNECTIONS AND SETUP

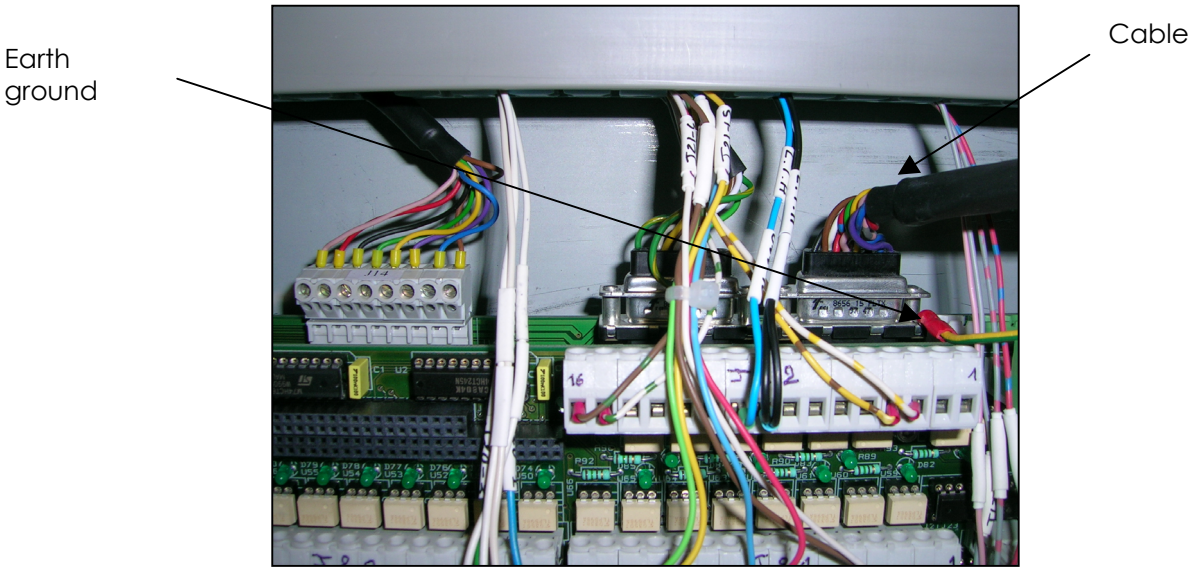
Some points must be checked before connecting the table.

- Ensure that the mains supply in the room complies with the one indicated in the identification sticker located in the cabinet.
- Install the table horizontally, away from any source of heat or appliances creating strong magnetic or electric fields. Components of this system are sensitive to heat. The maximum ambient temperature does not exceed 35°C.
- Leave sufficient space around the cabinet to allow an adequate ventilation.
- The humidity of the room should not exceed 75%. The apparatus should not be exposed to dripping or splashing and not objects filled with liquids.

4.2. ELECTRICAL ACTIVITIES

- Connect all the cables between the table and the cabinet.
  Refer to the terminal board diagram.
  Most of the cables may directly be connected to the terminal board in the cabinet.
  Do not forget to earth the cables, which must connect each table sub-assembly and the power motors to the grounding strip in the cabinet.
  Do not forget to connect the screened cables to the terminal board.

- Connect the cables between the console and the cabinet as shown in the picture below. The keyboard cable is connected to J12 of the electronic board E80 00 548. Do not forget to perform the earth ground.



- Recommended protection 25 A four poles (D curve) with differential in compliance with the current standards.

- Connect the table to the power supply.(380V three-phased + Neutral + Ground) with the 5 x 2,5 mm² flexible cable.

- Connect the generator interface, T.V. chain, digital system etc.

- Connect the 122 cable (see diagram E80 57 008) on J12 connector of VD22 board (see diagram E80 00 548), and also the shield nearest to this connector.

- Connect also the 222 earth cable (see diagram E80 57 008) between the console frame and the earth bar of the cabinet.

4.3. TESTING

- Check the settings of the table and possibly configure the different parameters corresponding to your installation.

- Check the over travel switches.

- Make tests exposure and check all cutting sizes, correct if necessary the settings.

- Test the whole interface

4.4. ON SITE CHECKLIST FOR THE INSTALLATION OR FOR PREVENTIVE MAINTENANCE

This Table is designed to check the main points during the installation of the table and may also be used for maintenance. Concerning the periodicity of the maintenance checks refer to chapter 11 at the end of this manual.

TO BE CHECKED	COMMENTS
MECHANICS	
Fixing of the base plate	
Tightening of screws	
ELEVATOR + TILTING	
Tension elevator motor belt + tightener	
Chain tension	
Noise by ascent or descent	
Side lash of rollers	
Tension and cleanliness curtains	
Rotation noise +90°/-90°	
Tension table rotation belt + Tightener	
Play in table rotation reducer	
Ring tightening chain	
Structure/support tightening check	
Check of electric cables on the ring level	
STRUCTURE	
State of the slide rails x 3, wear, play, marking	
Noise of chain covers (see if modification)	
Noise of shavings	
COLUMN	
Play in the rollers on the rail. Wear. Lack of grease	
Column movement (play, jerk, noise)	
Focal ascent / descent focal	
Play in guide rollers (extra)	
Check play of the tube collimator support with sheet paper on panel and tilting at +90-90°	
Column in and column out at+150	
Tube fastening	
Fastening collimator	
Collimator slide rails	
Compression system	
Limitation compression force	
Tension of the chain	

TO BE CHECKED	COMMENTS
SPOT FILM DEVICE	
Movement(noise, jerk, play of rollers x 4)	
State of cables, chains, belts	
Check of the strain and of the state of cables for the alignment of the I.I. Check of the housing every year (every 6 months if there is a I.I. of 40).	
PANEL	
Play in the arms (roll-ons)	
Movement (noise, jerk)	
Mylard on 4 ways	
ELECTRICAL	
Wiring of the stand	
Wiring of the console keyboard	
Check of the ON/OFF lamp	
Check of the indicator	
Check of the emergency switch	
FUNCTIONING	
Column + over travel	
Tilting + over travel	
Compression	
Longitudinal panel + Over travel	
Lateral panel	
Focus + over travel	
Carriage + over travel	
Incidence + over travel	
Moving for these 6 movements	
Ground Safety	
Ceiling safety	
SPOT FILM DEVICE	
Grid movement	
Forward movement of the cassette	
Shutter movement	
Cassette centring	
Positioning in 2	
Positioning in 3	
Positioning in 4	
Positioning in 5	
Shutdown of the X-rays by the exposure chamber	
Shutdown of the X-rays by the PM or the camera tube (in digital)	
Set in automatic fluoroscopy	

COLLIMATOR	
X-rays light centring	
Centring on spot film device	
Centring lamp	
Opening at the formats	
TOMOGRAPHY	
Height of the cutting plane / Display	
VARIOUS	
Condition of the footrest	
Condition of handles	
Condition of compression bands	
Condition of other accessories	

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5. BACCARA CONTROL ELEMENTS

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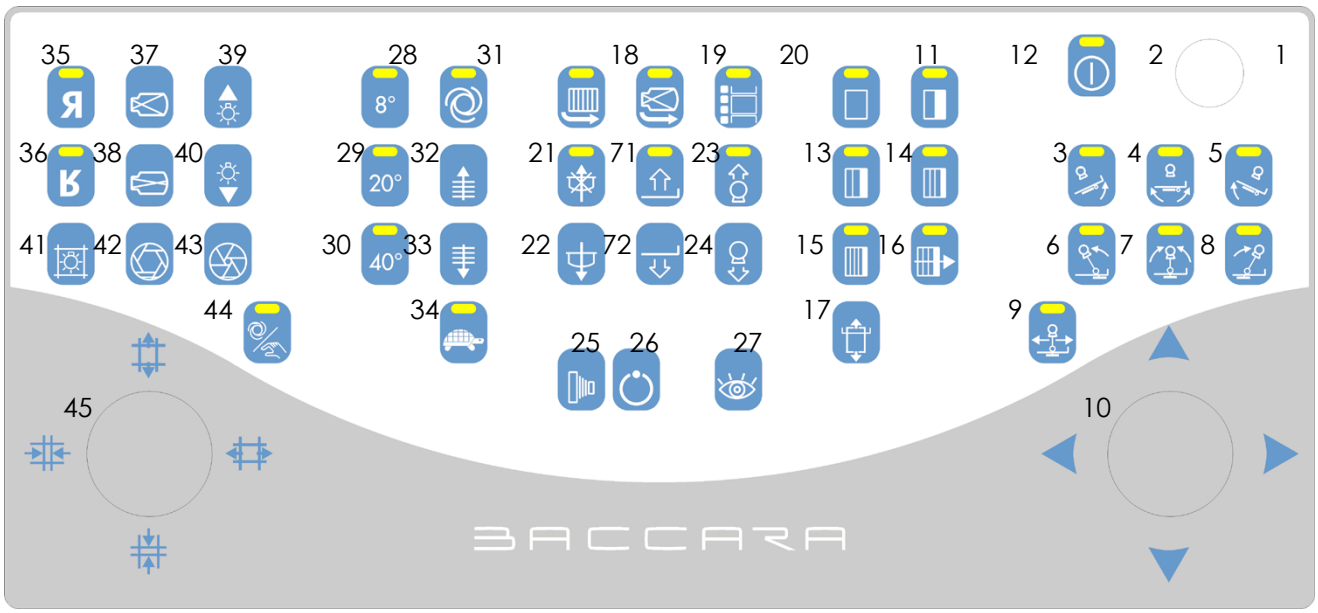
5.1. MAIN CONSOLE



1	Emergency stop	25	Graphy Control
2	On/Off	26	Preparation control
3	Tilting of the table to –20° or –25°	27	Fluoroscopy control
4	Tilting of the table to horizontal position	28	8° Tomography angle
5	Tilting of the table to 90°	29	20° Tomography angle
6	Tilting of the tube to –40°	30	40° Tomography angle
7	Tilting of the tube to 0°/exit of the Tomography mode	31	Automatic height cutting layer
8	Tilting of the tube to +40°	32	Height cutting layer up
9	Spot film device and column movement*	33	Height cutting layer up
10	Movement (Transv./Longitudinal)	34	Tomography low speed
11	Film section 1	35	Horizontal reverse (fluoro image)
12	Film section 2	36	Vertical reverse (fluoro image)
13	Film section 3	37	Reduction of the I.I. field
14	Film section 4	38	Increase of the I.I. field
15	Film section 5	39	Control of brightness
16	Series exposure	40	Control of brightness
17	Input/Output cassette	41	Light centring device
18	Retractable grid	42	Iris opening
19	Image intensifier elevator (option)	43	Iris closing
20	Digit mode	44	Automatic collimator
21	Compression up	45	Shutters adjustment
22	Compression down	71	Ascent of the table (90/25 HV)
23	S.I.D. Up	72	Descent of the table (90/25 HV)
24	S.I.D. Down		

* Only in case of longitudinal table option

5.2. CONSOLE KEYBOARD CONTROLS

5.2.1.ON / OFF BUTTONS

KEY	DESCRIPTION	FUNCTION
1		Emergency switch : Stops immediately all movements of the table.
2		To start up the table, check that the indicator light above the key 2 is switched on and press on key 2. If the indicator light is off, check that the emergency stop buttons are not pushed (one on the table console, and one on console ('1')and that the power supply is ON. Remark: Wait for 25 seconds before restarting the table.

5.2.2. TABLE MOVEMENTS

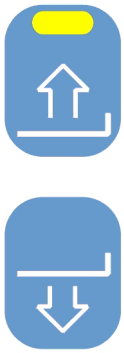
5.2.2.1. TILTING

KEY	DESCRIPTION	FUNCTION
3, 4, 5	 3  4  5	3 : Allows an anticlockwise tilting of the table to 90°. 4: Allows to put the table in the horizontal position. 5 : Allows a clockwise tilting of the table to – 20°. The luminous indicators show that the table has reached its ends of travel.

Operating conditions : No stops.

Warning : When you tilt the table in trendelenbourg, Check that the patient is correctly fastened and that the shoulder holder is positioned. We remind to the user that the compression band is provided with the table and that shoulder holder is optional.

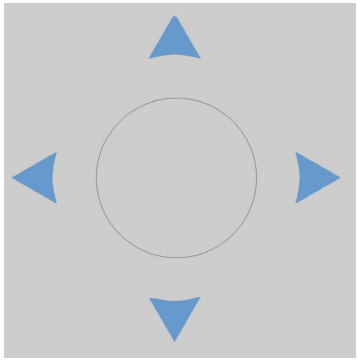
5.2.2.2. RISING

KEY	DESCRIPTION	FUNCTION
71 & 72		These keys control the height of the table and allow an elevating, or a descending movement.

Operating conditions : Depends on ground and ceiling forbidding.

Remark : Only with the 90/25 HV version.

5.2.2.3. SPOT FILM DEVICE CARRIAGE

KEY	DESCRIPTION	FUNCTION
10		allows to move the lateral or longitudinal panel, and the carriage if the «longitudinal panel» option is present.

Operating conditions : The movements of the trolley or longitudinal panel have a variable speed proportional to the tilt of the joystick.

Remark : In configuration, two operating modes are available, Demo or Normal :
Demo : The movement of the table is equal to the movement of the joystick, top view.
Normal : The image on the TV monitor follows the joystick. The inversion cameras are connected to this mechanism according to the parameters.

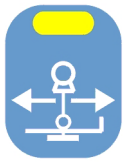
5.2.2.4. COLUMN

KEY	DESCRIPTION	FUNCTION
6, 7 & 8	 6 7 8	6 : Allows an anticlockwise tilting of the column until – 40°. 7 : Allows to position the column in vertical position at 0°. 8 : Allows a clockwise tilting of the column until + 40°. The lights above indicate that the column has reached its ends of travel.

Operating conditions : No stops, and compression in parking position.

Remark : The key 7 allows to exit from the tomography mode.

5.2.2.5. SPOT FILM DEVICE AND COLUMN COMBINED

KEY	DESCRIPTION	FUNCTION
9		Allows to commute the joystick 10 between the carriage and the longitudinal panel. The light indicates the validation of the carriage movement with the switch 10.

Operating conditions : None

Remark : If the table has not the longitudinal panel option, this key is inactive and the light stays on.

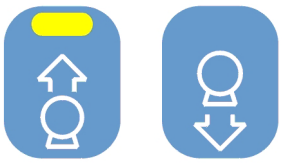
5.2.3. USE OF ELEMENTS

5.2.3.1. SPOT FILM DEVICE

KEY	DESCRIPTION	FUNCTION
17		Allows to push the cassette holder in and out. Operating conditions : None Remark : Any power control must be activated. The tube must be centred.
18		If the key 18 is voluntarily activated, the grid will retract itself from the X-ray field. - When the led flashes on, the grid will retract. If the flashing is continuing there is a problem on the grid functioning. - If the led is switched off, the grid is in position. - If the led is switched on, the grid is retracted. Operating conditions : The retraction must be validated in the configuration mode (parameter 204). Remark : None
11		Allows to choose the cutting of the film according to the respective indicators. Operating conditions: Cutting of 8cm mini and therefore possible choice of cutting according to the cassette size. Remark: It should be noted that the sections are selected on the remaining surface of the film. Therefore, it is possible to re divided a film in 1, 2, 3, or 4 according to the remaining area.
12		Allows to choose the cutting of the film according to the respective indicators. Operating conditions: Cutting of 8cm mini and therefore possible choice of cutting according to the cassette size. Remark: It should be noted that the sections are selected on the remaining surface of the film. Therefore, it is possible to re divided a film in 1, 2, 3, or 4 according to the remaining area.

13		Allows to choose the cutting of the film according to the respective indicators. Operating conditions: Cutting of 8cm mini and therefore possible choice of cutting according to the cassette size. Remark: It should be noted that the sections are selected on the remaining surface of the film. Therefore, it is possible to re divided a film in 1, 2, 3, or 4 according to the remaining area.
14		Allows to choose the cutting of the film according to the respective indicators. Operating conditions: Cutting of 8cm mini and therefore possible choice of cutting according to the cassette size. Remark: It should be noted that the sections are selected on the remaining surface of the film. Therefore, it is possible to re divided a film in 1, 2, 3, or 4 according to the remaining area.
15		Allows to choose the cutting of the film according to the respective indicators. Operating conditions: Cutting of 8cm mini and therefore possible choice of cutting according to the cassette size. Remark: It should be noted that the sections are selected on the remaining surface of the film. Therefore, it is possible to re divided a film in 1, 2, 3, or 4 according to the remaining area.
16		Allows a serial exposure that is to say that you don't have to release the graphy button 25 to take an exposure. Operating conditions: None Remark: None.

5.2.3.2. FOCAL

KEY	DESCRIPTION	FUNCTION
23 & 24	 23 24	These keys control the focal distance. The key 23 allows the elevating movement of the tube. The key 24 allows the descending movement of the tube. Remark : It should be noted that the height of the tube has an influence on the incidence of the column and on the tomography too.

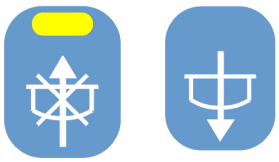
Operating conditions : Depend on the ceiling forbidding.

Remark : Tomography prohibited beyond 120 cm.

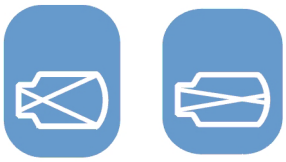
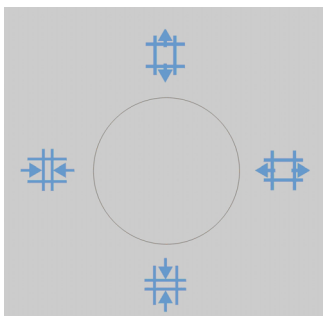
5.2.3.3. COLLIMATOR & CENTERING DEVICE

KEY	DESCRIPTION	FUNCTION
41		The key 41 is used for switching on the light centring device. Operating conditions : Enter a value in the parameter mode for timer temporizing. Remark : None
42		Controls the collimator iris opening. Operating conditions : The collimator must be in manual mode. Remark : None
43		Controls the collimator iris opening. Operating conditions : The collimator must be in manual mode. Remark : None
44		Allows the collimator to enter in the automatic mode. (Led switched on = automatic) Operating conditions: The tube must be centred. Observation: The switch of the off-centre tube or the direct position of the generator will position the collimator into the manual mode.

5.2.3.4. COMPRESSION

KEY	DESCRIPTION	FUNCTION
21 & 22	 21 22	These keys control the compression. Operating conditions: In centred position, the compression can be brought to its lowest position, while if the column is tilted, the compressor travel is limited. Remark : It should be noted that as soon as the compression is in pressure on the patient, both column and panel movements are prohibited in order to protect the patient. (A message is displayed in case a prohibited movement request and the led of upper compressor end of travel begins to flash).

5.2.3.5. USE OF THE IMAGE INTENSIFIER

KEY	DESCRIPTION	FUNCTION
19		Controls the height of the image intensifier. Operating conditions : The image intensifier rises only if the cassette holder is in the parking position. Remark : as soon as the fluoroscopy is pressed in the mode film, the Image intensifier immediately returns in the upper position. This key operates only with the elevator image intensifier option.
37 & 38	 37 38	These keys control the image intensifier magnification. The key 37 reduces the I.I. field and the image is enlarged. The key 38 increases the I.I. field and the image is reduced. Operating conditions : None Observation : Keys are validated only if the image intensifier magnification has been defined.
45		Controls the opening and the closing of the collimator shutters. Operating conditions : The collimator must be in the manual mode. Remark : None.

5.2.3.6. TOMOGRAPHY MODE

- **Precautionary measures**:

The description which follows concerning the use of tomography supposes that the interface table-generator-digital system has been correctly realized and tested.

- **Display:**

Film	: **--- X ---**	Division	: **- / -**
Angle tomo	: **8°**	Time	: **0, 50 / 1s**
Layer	: **0 mm**	Auto step	: **0 mm**
Tomo	: **Ready**	Speed	: **Fast or slow**

NB: The texts in bold type are given as examples

Film : indicates the film size.

Angle tomo : User's choice (8°, 20°, 40°). Indicates the scanning angle of X-rays.

Layer : corresponds to the tomo cutting layer. The number in mm indicates the distance in height of the patient body in comparison with the table top.

Tomo : indicates that the tomography is ready.

Division : indicates the current number of cuttings according to the size of the film. Between 1 and 5.

Time : The time automatically displays according to the chosen tomo angle.
Two speeds are available :
- 0, 50s = fast.
- 1 sec = slow and may be set using the turtle key.

Auto step : corresponds to the automatic incrementation in mm of the cutting layer.

Speed : corresponds to the current scanning speed fast or slow.

- **Warning messages**

MESSAGES	INSTRUCTIONS NOT OBSERVED	SUGGESTIONS
"Column off centre"	Column not centred	Center the column
" Carriage out of position"	The travel is insufficient to perform the tomography	Using the joystick, move lateraly the carriage until the warning message disappear.

- **Keys**

KEY	DESCRIPTION	FUNCTION
28		Allows to choose the tomography angle desired. Operating conditions : Pressing the key 26 allows preparing the column ; the start of the tomography will be effective by pressing the graphy key 25. To exit from the tomography mode, just press the key 7 centre - column. After each tomography, the column automatically refocuses for allowing the change of cassette. Remark : If the position of the column trolley or the focal height does not allow the tomography in the chosen angle, the indicator flashes and a message displays. (Re centre the column and bring back the carriage in the tomography range,...)
29		Allows to choose the tomography angle desired. Operating conditions : Pressing the key 26 allows to prepare the column ; the start of the tomography will be effective by pressing the graphy key 25. To exit from the tomography mode, just press the key 7 centre – column. After each tomography, the column automatically refocuses for allowing the change of cassette. Remark : If the position of the column trolley or the focal height does not allow the tomography in the chosen angle, the indicator flashes and a message displays. (Re centre the column and bring back the carriage in the tomography range,...)
30		Allows choosing the tomography angle desired. Operating conditions : Pressing the key 26 allows to prepare the column ; the start of the tomography will be effective by pressing the graphy key 25. To exit from the tomography mode, just press the key 7 centre – column. After each tomography, the column automatically refocuses for allowing the change of cassette. Remark : If the position of the column trolley or the focal height does not allow the tomography in the chosen angle, the indicator flashes and a message displays. (Re centre the column and bring back the carriage in the tomography range,...)
31		Allows the automatic progression of the cutting layer if this function is activated (indicator switched on). Operating conditions: None Remark: In this case, keys 32 & 33 allow choosing the height of the progression.

32		Allows to select the height of the cutting layer. Operating conditions : Active only if the tube is centred and is in the Tomography mode. Remark : with the automatic progression mode of the layer cut (see key 31), the keys 32 & 33 select the height of the step.
33		Allows to select the height of the cutting layer. Operating conditions : Active only if the tube is centred and is in the Tomography mode. Remark : with the automatic progression mode of the layer cut (see key 31), the keys 32 & 33 select the height of the step.
34		Selects the scanning speed. (indicator switched on = slow speed selected). Operating conditions : None. Remark : None.

5.2.3.7. STEPPING MODE

The description which follows concerning the use of stepping supposes that the interface table-generator-digital system have been correctly realized and tested. Those tests include among others the simulation of the different stages during a stepping test upon X-ray emission with a leaded rule.

The number of the steps and the distance to cover are chosen when the table is set and cannot be modified in normal use. Those parameters are determined by the user, collaborating with the fitter, and must be validated by testing without a patient but with a leaded rule according to the exposures provided by the laser copy. They are captured in the programming mode.

- **Displays**

When the table is informed by the generator that the stepping mode is in progress, the screen of the table console displays specific information to this kind of examination (as tomography).

Stepping	: **arterio**	Current step	: **1 / 4**
Acquisition	: **masks**	Step length	: **20 cm**
Field	: **40 cm**	Coverage	: **80 cm**
Message area			

NB: The texts in bold type are given as examples

Stepping : shows the way of discharge of the contrast product and so the movements of the column .

« **arterio** » for the way from the pelvis down to feet (in the right direction of the table), « phlebo » for the way from feet up to the pelvis (in the left direction of the table).

Acquisition : indicates if you are in the acquisition mode of masks or in angiography mode.

Field : indicates the intensifier field selected in cm.

Current step : indicates the number of the current steps following by the total number of steps.

Step length : indicates the displacement distance in cm of the group base-column for one step.

Coverage : indicates the total of the travels (not the distance realized by the X-rays).

Messages area : area reserved to error messages, signals or various (see the following paragraphs).

- **Signals messages**

Before starting an acquisition cycle or a test cycle with movements, the table checks that the configuration is correct and that it will permit to execute the cycle in its totality.

Signal messages on the line in the low part of the LCD screen inform the user on conditions which are not observed . Those messages begin by "WARNING".

The board on the next page details the list of the different messages :

MESSAGES	INSTRUCTIONS NOT OBSERVED	SUGGESTIONS
"Warning: not enough travel!"	The base of the spot film device will not be able to execute the displayed travel (and recorded in the 722 parameter)	Move the group base-column, base-spot film device to the left (arterio) or to the right (phlebo) with the joystick in order to allow the table to execute the travel indicated by the display.
"Warning: table with tilting!"	During the examination the table must be in horizontal position.	Use the key which allows the centring of the tilting on the main board, or the two keys of tilting (simultaneously) of the control board.
"Warning: too much focal!"	During the examination the focal is limited to 120 cm	Use the key of the focal downstroke on the main board.
"Warning: column not centred!"	The column must be centred compared with the spot film device.	Use the key of the column centring on the main board.
"Warning: I.I. field lower than 30!"	The field of the I.I. must be superior or equal to 30.	Use the key for increasing the I.I. field on the main board.
"Warning: Compression engaged!"	The compression must be in parking position.	Use the key for ascending the compression on the main board.

- **Error messages**

These messages indicate that a problem has happened during the cycle. They begin by the word "error". In all cases, the stepping is stopped, and any movement is authorized. To go out of this position, you have to select an other post than "stepping" on the generator or to re-initialize.

ERROR MESSAGES	DESCRIPTION OF THE ERROR	SUGGESTIONS
"Error : initialization of inverter!"	The control software unit cannot communicate with the inverter of the column trolley	Contact the after sales service 'check the connecting and parameters of the frequency converter).
"Error : no image intensifier!"	Missing of the image intensifier or parameter indicating its presence misinformed.	No stepping without intensifier! Please contact your retailer.
"Error : wrong stepping parameters!"	Parameters of stepping at 0 (number of steps and distance to be covered).	Enter in the configuration mode (switch on board inside the keyboard) and set the parameters 721 and 722.
"Error : right end of travel reached!"	The column trolley or the spot film device trolley has reached the right software stop.	You have to quit the stepping mode and start again from the beginning. If the extra travel is reached, contact your Technical service.
"Error : Left end of travel reached!"	The column trolley or the spot film device trolley has reached the left software stop.	You have to quit the stepping mode and start again form the beginning. If the extra travel is reached, contact your Technical service.

- **Various messages**

MESSAGES	DESCRIPTION	SUGGESTIONS
"Ok stepping"	Displays at the beginning of the examination after memorizing the start position in order to indicate that all conditions are right and that the table is ready.	After an exposure in the radiography mode, the group column-spot film device move on the next step.
"Stepping. Turtle key = store start position"	In normal stepping mode, asks to position the table and then to press on the turtle key to memorize the position of the start of the stepping.	Position the table. Press on the turtle key.
"Turtle key = back to start step 0"	Indicates that it is possible to return to the start position memorized by pressing the turtle key	Press on the turtle key until the stop of movements of the column trolley and the spot film device trolley.

"Tests. Turtle key to store start position"	In the mode exposure tests, asks to position the table, and then to press on the turtle key to memorize the start position of the stepping.	Position the table. Press on the turtle key.
"Tests. Move one step = levels key"	In the mode exposure tests, movement from one step to another with the keys "cutting layer up" and "cutting layer down".	Press on the key "cutting layer up" and "cutting layer down" until the stop of movements of carriage column and spot film device.
"Tests. Turtle key = back to start"	In the mode exposure tests, indicates that it is possible to go back to the start position pressing on the turtle key.	Press on the turtle key until the stop of the movements of column and spot film device carriage.

- **Preparation**

• Position the table and the patient with the key board of the table.

• Enter the stepping mode on the generator and select the kind of examination (arterio or phlebo). The LCD screen of the table keyboard displays information relative to the stepping.

• Position the axis of the X-rays at the starting point of the area to explore using the keyboard and the scopy. It is advised for the starting position not to be on a stop of software travel.

• If the starting conditions of the stepping mode are not realized, a message of warning corresponding is displayed on the line in the lower part of the LCD screen (see paragraph 13.1.1.2. Warning Messages).

Mode tests

• If the mode tests is selected (from the digital system), the led above the turtle key is flashing and the message "test. Turtle key to store position" is displayed on the LCD screen.

• Position the table on the starting position desired. Press on the turtle key to memorize. The led above the turtle key stay alight. If a signal message is displayed, it is not possible to memorize the position (see paragraph 13.1.1.2. Warning Messages).

• Realize a graphy, and then set the constants of the generator according to the result you have got on the image displayed on the digital screen, this is to say, some seconds later.

• The message "tests. Move one step: level keys" is displayed. Move the group column-spot film device on the next step with the key "cutting layer up". Keep the key pressed until the stop of the movement, otherwise, the table may stop between two steps (see paragraph 7 below).

• Realize a new setting of the constants as indicated in the paragraph 3 above. It is possible to go back to the previous steps by keeping the key "cutting layer down" pressed.

• To go back to the starting position, keep the turtle key pressed until the return to the step 0. The led above the turtle key is flashing. Now, it is possible to memorize another position of starting and to start the tests again, or to work in mode stepping (by the digital system).

• If you release one key of movement (cutting layer up, down or turtle key), before the stop on the desired step or on the starting position, the message "tests. Turtle key = back to start position" is displayed. It is only possible to go back to the starting position by pressing the turtle key.

- **Mode stepping : cycle of masks acquisition**

• If the stepping mode is selected (from the digital system), the led above the turtle key is flashing and the message "stepping. Turtle key = memo start" is displayed on the screen.

• Position the table on the starting position desired. Press on the turtle key to memorize. The led above the turtle key is switching off. If a signal message appears, it is not possible to memorize (see paragraph 13.1.1.2. Warning Messages).

• Press on the preparation key and the on the graphy key to start the acquisition of a series of exposures. The preparation key will be keep during all the cycle, otherwise the cycle is stopped.

• When you release the key "graphy", the group column-spot film device realize a movement of one step whose the width is displayed on the LCD screen. The number of the current step is also mentioned.

• As soon as the group column-spot film device is locked, press again on the key "graphy" to start the next series of exposures..

• Repeat the sequences 4 and 5 as much as all the steps are not completely realized. At the releasing of the graphy on the last step, the group column-spot film device stay fixed. Now the user can release the preparation key.

NB : When the cycle is started (first press on graphy), all other movements are forbidden until the normal end or not of the stepping. It is possible at every time to go out of the stepping mode by selecting an other post on the keyboard of the generator. This allows to cancel on the table all that has been done previously in the stepping mode.

- **Mode stepping : back to the starting position**

• When the user decides it, he puts the group column-spot film device in starting position by pressing the turtle key, and these until it stops. When he release the turtle key, the LCD screen indicates the moving in angiography (in the acquisition field).

• If you release the preparation key before the end of the acquisition of the masks or angiography, the message "turtle key = back to the step 0" is displayed. It is now only possible to go back to the starting position by pressing the turtle key.

- **Mode stepping : Cycle of Angiography**

The process is the same that the process of the acquisition of the masks.

• When the contrast product is injected, press on the preparation key and then on the graphy key to start the acquisition of a series of exposures.

• When you release the graphy key, the group column-spot film device realise a movement one step to set himself on the positions yet memorised in the cycle of the masks.

• As soon as the group column-spot film device is fixed, press again on the graphy key to start the next series of exposures.

• Repeat the operations 2 and 3 to follow the contrast product as much as all the steps have not been realized. When you release the graphy on the last step, the group column-spot film device stay fixed. The user then can release the preparation key.

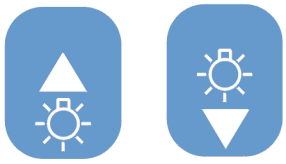
NB : It is possible to do angiographies with the same masks (and so the same position of starting and the same movements) if you don't go out of the stepping mode.

❑ **End of the examination**

• Come out of the stepping mode by selecting an other post on the keyboard of the generator.

• Work in the digital system to pull out and to treat the exposures.

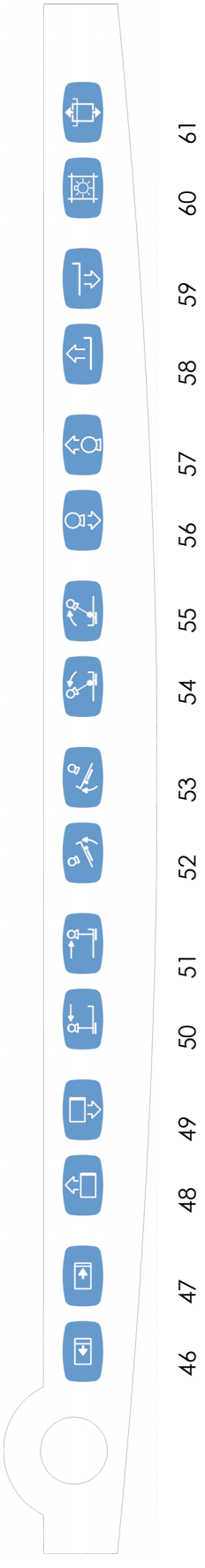
5.2.4. VIDEO CONTROLS

KEY	DESCRIPTION	FUNCTION
39 & 40	 39 40	These keys control the TV chain monitor brightness. Operating conditions : None. Remark : None.
35 & 36	 35 36	These keys control the camera scan reverses. Operating conditions : None Remark : Keys may reverse the controls of the joystick 10 (see parameters configuration).

5.2.5. GENERATOR CONTROLS

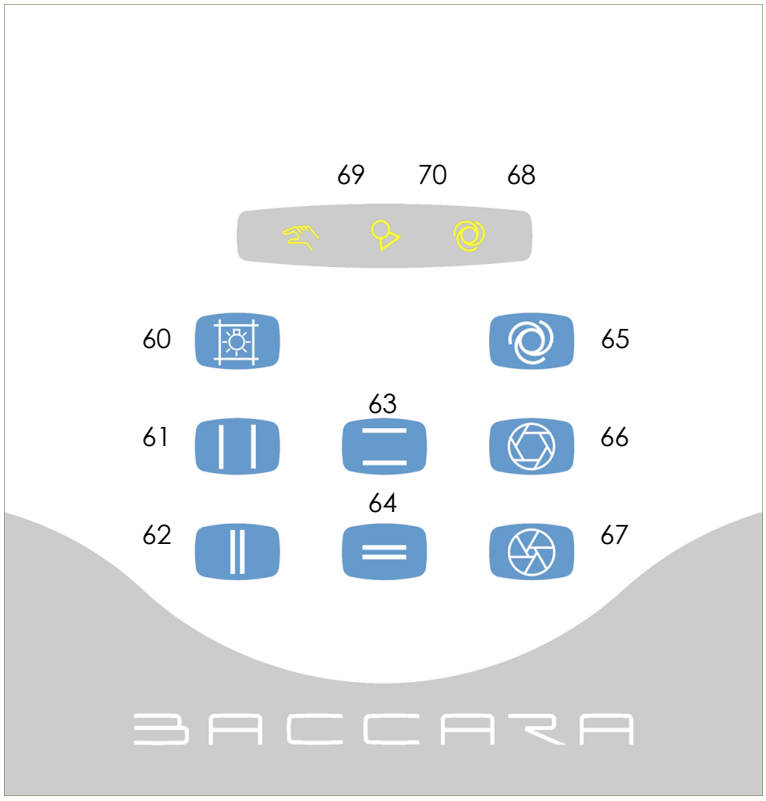
KEY	DESCRIPTION	FUNCTION
20		Allows to select the digit mode (led switched on = mode digit activated) Operating conditions : In preparation the cassette holder stays in the parking position and the exposure is performed on the image intensifier. Remark : External order possibility for the generator.
25		Performs the exposure. Operating conditions : The cassette holder must be pushed in with a cassette inside, the first time activated (preparation) and the ready signal present from the generator. Remark : The tube must be centred.
26		Prepares the graphy. Operating conditions : Cassette holder pushed in with cassette. Remark : The tube must be centred.
27		Performs the fluoroscopy and may also push in the cassette holder. Operating conditions: The tube must be centred. Remark: Operates at the same time as the fluoroscopy pedal.

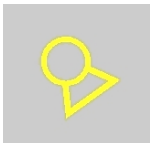
5.3. TABLE CONTROL PANEL



KEY	DESCRIPTION	FUNCTION
46 & 47		Move the optional longitudinal panel. Pressing simultaneously on both Keys will re centre automatically the longitudinal panel. Active only in case of longitudinal panel option.
48 & 49		Move the lateral panel.
50 & 51		Move the carriage .
52 & 53		Enable the tilting of the table. Pressing simultaneously on both Keys put the table in horizontal position.
54 & 55		Enable the tilting of the tube. Pressing simultaneously on both Keys will re centre automatically the column.
56 & 57		Allow moving up and down the tube (focal).
58 & 59		Enable the ascent or the descent of the BACCARA table version 90/25 HV.
60		Switches on the light centring device.
61		Enables the cassette input/output.

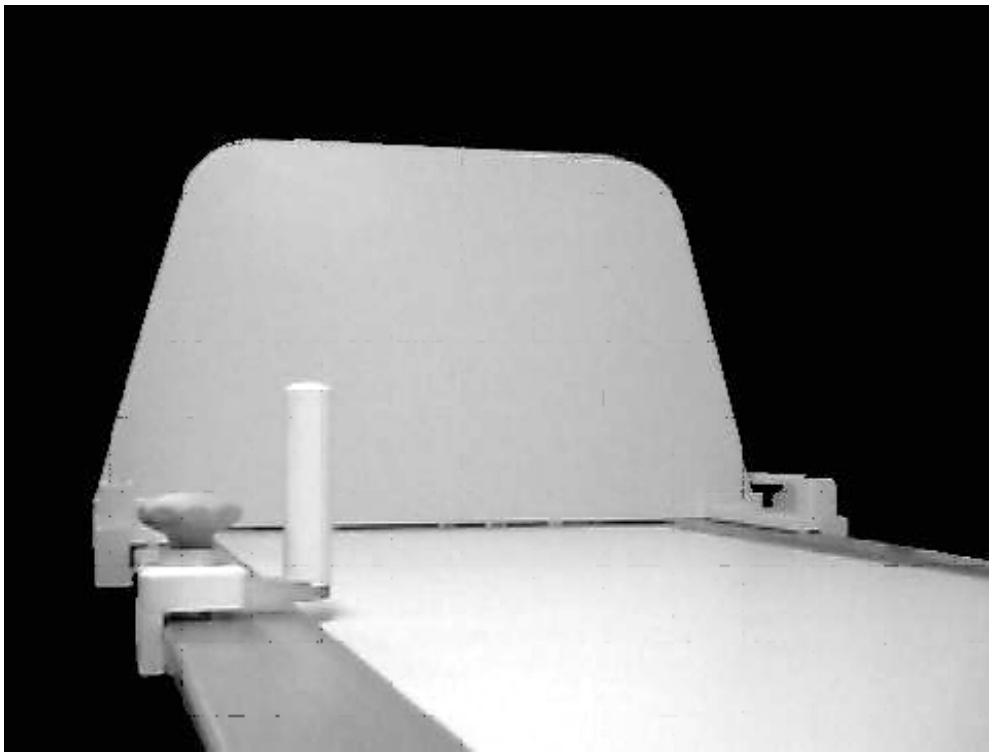
5.4. COLLIMATOR CONTROL PANEL



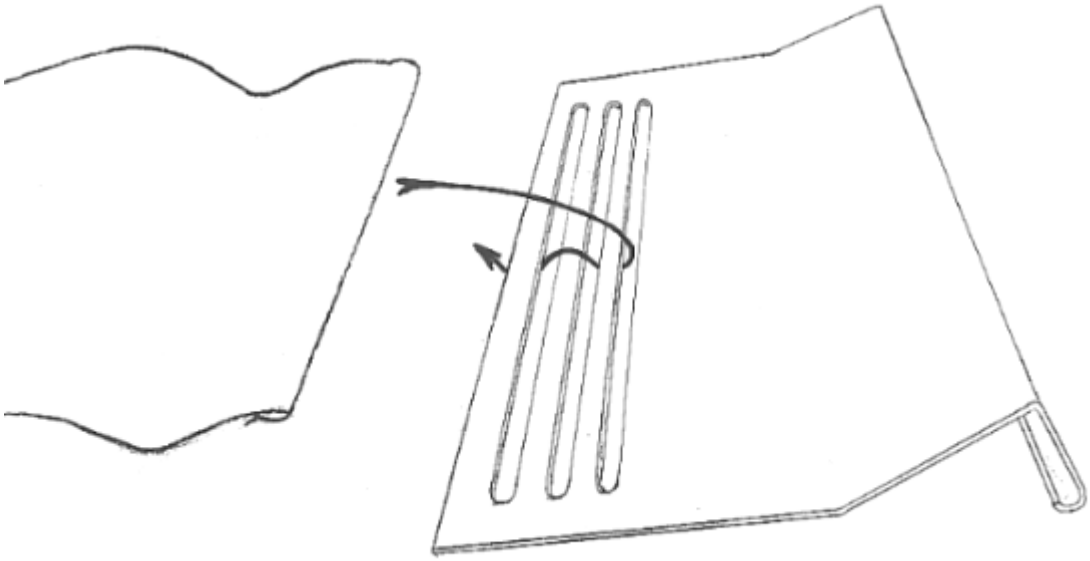
KEY	DESCRIPTION	FUNCTION
60		Switches on the light-centring device.
61		Controls the opening of the collimator shutters on X axe.
62		Controls the closing of the collimator shutters on X axe.
63		Controls the opening of the collimator shutters on X axe.
64		Controls the closing of the collimator shutters on X axe.
65		Setting of the collimator in automatic mode.
66		Controls the collimator opening .
67		Controls the collimator closing .
68		Selection of automatic mode
69		Selection of manual mode
70		Indicator light 70 switched on = tube off-centre that prohibits the use of the keys 24 to 26 of the console and forces the change in manual mode.

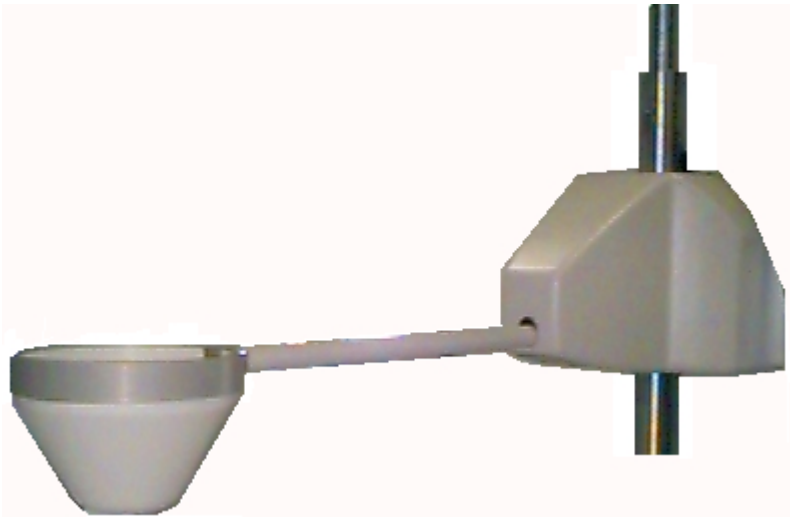
5.5. POSITIONING AND REMOVING OF ACCESSORIES

Accessories such as handles, footrest, and compression winch are designed to slide on the rails of the panel.



The compression band is held on the winch by a hook for that purpose ; on the other side the compression is held on the fixing plate as indicated below.





Press and turn ¼ around (toward left or right) by pressing to put or to remove the compression device.

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6. ERROR CODES

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ERROR	TITLE	EXPLANATION
1	« Move up the compressor »	This warning message is displayed on the LCD of the console when the operator asks for a mechanical movement and when the compressor is not in its highest position, i.e at rest. Some mechanical movements may be dangerous when the compressor is used and when a patient is immobilized beneath it. This is why some movements are prohibited as long as the compressor is not positioned in its highest position. The highest position is reached when the indicator light located above the compressor is turned on. The movements that can cause this error type are: · The carriage of the column - cassette holder unit. · A variation of the incidence · A movement of the lateral panel.
2	« Move down the focal »	
3	« Move down the carriage »	
4	« Tilt the column »	
5	« Tube in ceiling safety »	
6	« Image intensifier in ground safety »	
7	« Park the ceiling suspension »	The ceiling suspension is not on its parking switch.
8	« Arming not performed »	
9	« Move up the compressor »	
10	« Push in the patient panel »	
11	« Ceiling interdictions »	
12	« Move down the table »	
13	« Trolley out of position »	
14	« Centre the column »	
15	« Collimator in automatic »	
16	« Compressor engaged »	
17	« Move up the table. »	
18	« Table in over run. »	This message displays when a problem has caused a mechanical part movement out of its normal operating area. It this problem was caused by a wrong movement during the calibration phase, please refer to the chapter « how to restart the remote controlled table after a disruption caused by a movement which has activated an over travel contact? » If this problem has occurred in the normal operating mode, you must immediately call the technical department, which will proceed to an analysis of the breakdown.
19	« Leave the digital technique »	If the BACCARA table is equipped with a manual spot film device, you must leave the digital technique of the generator when you insert a cassette in the holder.

20	« Move out the lateral bed patient»	If the BACCARA table is equipped with an HV elevator, when you want to tilt the table in vertical position, it is necessary to move out the lateral bed patient in order to avoid a internal collision between the elevator guide rail and the right arm of the support panel. NB: It is possible to set the parameter 726 before 90° in order to avoid that the table reach this position.
21	« Structure elevation elevating 90/25HV table »	In the case of a BACCARA table equipped with a HV elevator, this message indicates that there is a risk of internal collision between the elevator arm lever and the structure of the panel support patient. This message has three normal cases of display: - Table tilted in vertical position: if you move up the elevator or if you tilt towards the vertical limit => gently lower the elevator or gently tilt the table towards the horizontal position in order to erase this message. - Table tilted in Trendelenbourg : If you lower the elevator, or if you tilt towards the trendelenbourg limit => gently raise the elevator or gently tilt towards the horizontal position in order to erase this message. - Table in horizontal position: If you lower the elevator at the minimum => gently raise the elevator in order to erase this message.
22	«Failure potentiometer P1 bed patient»	If the system detects an exceeding of the inferior and superior terminals of the potentiometer, all table movements watched by potentiometers will be prohibited. Check the potentiometer: state, fixing, wiring, calibration (configuration mode).
23	«Failure potentiometer P2 tilting»	Identical to error 22.
24	«Failure potentiometer P3 spot film device»	Identical to error 22.
25	«Failure potentiometer P4 column»	Identical to error 22.
26	«Failure potentiometer P7 focal»	Identical to error 22.
27	«Failure potentiometer P9 elevator»	Identical to error 22.

7. SAFETY DEVICES

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In order to guarantee a total safety for patients, the remote controlled stands are provided with a safety calculator that avoid collisions between the different parts of the table and the floor or the ceiling.

This device is intended to calculate all the time the position of the different mobile parts of the table and compare them to the fixed values which are : the height from floor to ceiling, the distance on floor between the tilting axis of the table and the safety margin.

The different safeties may be listed as follows.

7.1. CEILING SAFETIES

7.1.1. End of travel ceiling backrest

This safety is used to prevent the risk of collision between the extended backrest with the ceiling, when the table is tilted vertically.

Once the safety margin is reached, the tilting towards vertical and the extension of the backrest at the head will be prohibited.

7.1.2. End of travel (the table tilting from the vertical position towards the trendelenbourg)

This safety is intended to avoid the collision risk of the housing top part with the ceiling, when the table tilts towards the trendelenbourg.

Will be stopped :

- the tilting towards the trendelenbourg,
- the column incidence towards the head,
- the movement of the column trolley towards the head.
- the focal height

7.1.3. Ceiling end of travel (the table tilting from trendelenbourg the towards the vertical position)

This safety is intended to avoid the collision risk of the housing top part with the ceiling when the table tilts from the trendelenbourg towards the vertical position.

Will be stopped :

- the table tilting towards the vertical position,
- the movement of the column trolley towards the head,
- the column incidence towards the head.

7. 2. FLOOR SAFETIES

7.2.1. End of travel floor

This safety is intended to avoid the risk of collision between the housing and the floor when there is an incidence towards foot, the table being in tilting towards the vertical position.

Will be stopped:
- the table tilting towards vertical,
- the movement of the column trolley towards foot.

7.2.2. End of travel floor backrest

This safety device is intended to avoid the risk of collision with the floor, when the backrest is extended towards foot, the table being in tilting towards the vertical position.

Will be stopped:
- the table tilting towards vertical,
- the extension of the backrest towards foot.

7.2.3. End of travel floor-trendelenbourg

This safety device is intended to avoid the risk of collision with the floor when the table tilts towards the trendelenbourg, the backrest being extended towards head.

Will be stopped:
- the tilting towards trendelenbourg,
- the extension of the backrest towards head,
- the movement of the image intensifier on the head side.

8. CONFIGURATION

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The configuration mode allows setting the operating parameters of the remote controlled table. Only qualified persons may have access to this operating mode. A wrong programming of the parameters may induce very serious malfunctions. To enter in this mode, open the main console and tilt the green and red micro switch.

Warning : For the tables with variable height (BACCARA 90/25 HV), in the configuration mode, there is no collision detection to be managed. Therefore, it is the responsibility of the technicians to check that they do not damage the equipment when they control the movements of the table, and especially in case of tables with variable height.

Concerning the BACCARA 90/25 HV version, internal collisions may exist when the table is in vertical position, between:

- the leverage of the elevator and the structure of the table.

This list is not exhaustive, and all handling must be perform very cautiously.

Any movement of elevator leads to a tilting movement, therefore there are collision risks in programming mode.

Configuration groups:

The BACCARA configuration mode is displayed when the switch S37 SW1PT has been selected.

Select a group option using the ↑, ↓ buttons. Press the button 31 to confirm your selection.

A menu option can provide access to a submenu, enable or disable an option or trigger an action.

To access to this submenu, select the relevant option and press the button 31.

Example: The Language option provides access to a submenu offering two options ranging from language to Table Name.

Other menu options can be to enable or disable an option.

Example: With the Digital Imaging System option from the spot film device menu, each time you press in the ↑↓ buttons you enable aisable (on or off) the Digital presence.

Finally, menu options can be used to carry out an action immediately. In this case select the option and press the button 31.

Example: When you confirm the OUV MAX X option in the collimator menu, the shutters in X axe are setting immediately the point you have selected them.

8.1. SETTING OF THE CONFIGURATION PARAMETERS

In the configuration mode, certain keys and joysticks are used to find and to modify the parameters.

Other keys and joysticks are used to manage the mechanical movements, but there are no automatic safety devices.

So, you must take a great care to not reach the ends of travel, which may cause an immediate interruption of the power supply.

8 groups of parameters exist :

- language
- setting of the cassette holder
- setting of the spot film device
- setting of the collimator
- setting of the image intensifier
- mechanical measurements
- video
- movements of the table

8.2. PRINCIPLE OF THE SETTING

To set the value of a parameter, you must :

1) select the group
2) select the parameter
3) set the parameter value
4) memorize the modified value

8.3. SELECTING A GROUP

The left joystick usually used to set the collimator shutters, allows selecting the group. An upward movement increment the group number and a downward movement allows to decrement.

The LCD display indicates:

the number of the group on its first line
the name of the group on its second line
The third line inform the user the means of choosing a group : "Joystick: group selection"
The fourth line inform the user the means of validating the selection of the group: "Auto : access to this group"

You then just need to press on the AUTO key located in the top right corner on the right of the joystick to validate this group and to indicate to the system if you want to work on the setting of its values.

8.4. SELECTING A PARAMETER

When the group has been selected by a press on the AUTO key, the LCD display changes in order to indicate the number and the name of the parameter and its value stored in EPROM.

The LCD display indicates :

The first line indicates the number of the parameter and its present value
The second line indicates the name and the function of the parameter
The third line indicates to the user the means of choosing a parameter in the selected group: "joystick: Selection of the parameter"
The fourth line indicates to the user the means of choosing a parameter or of leaving the selection mode in order to return to parameter group selection mode: "Auto : edit the value; Digit : Quit"
So, the left joystick enables to choose a parameter ; the AUTO key enables to confirm the selection ; the DIGIT key allows returning to the selection of a group.

8.5. MODIFYING A PARAMETER

When a new press on the AUTO key has selected the parameter on which you wish to operate, it is now possible to change its value.

Some parameters are adjustable by keys or by the left joystick, others change their value by operating a mechanical movement, others have a special function and only perform mechanical movements.

The parameters whose values are directly modifiable without mechanical movement may be set by :

- The joystick
- The video scan reverse keys
- The keys for selecting the image intensifier field
- The keys for setting the brightness of the monitor
- Keys 8° and 20°

The joystick allows modifying at variable speed the parameter value. more the amplitude is important, more the amplitude movement is important. The console keys are usable to facilitate the setting of the parameters value. Some parameters have an amplitude of 10000 and in order to allow a fast setting the keys of the keyboard enable to jump forward 1000, 100, 10 or 1.

The video inversion keys allow the value to jump forward 1000.
The keys for selecting the image intensifier field jump forward 100.
The keys for setting the brightness jump forward 10.
And the keys 8° and 20° have +1/-1 a step.
The management program assigns an amplitude of setting to each parameter that determines the maximum and the minimum.

Other parameters change their value following a mechanical movement : this process enables to adjust the end of travel. To vary a value you must activate the corresponding movement; the program reads the position value of the selected movement, displays it and then offers the possibility to memorize it as a borderline or as a nominal constant of functioning. Never forget that these parameters force you to be very watchful because there is no safeguard, and the management program will no interfere by limiting a movement or reducing its speed as a stop approaches.

If, you demand inadvertently a mechanical movement that exceeds the mechanical structure possibilities, you will provoke a disruption of the power supply. In this case, switch the unit on using the reset push button. See the chapter “how to restart the remote controlled table after a cut-out due to a movement that has activated an over travel contact”. The movements of the remote controlled table are normally limited by the potentiometers; in case of problem, the mechanical movement can activate a safety contact « an over travel contact » that will immediately cut off the power supply.

8.6. MEMORIZING A PARAMETER VALUE

When you have modified a value, you certainly wish to memorize it in order the system uses it at the next restart. Just press the AUTO key to transfer the displayed value on the LCD towards a memory area in the EEPROM.

To remind you that the memorization is allowed, the indicator located above the AUTO key flashes.

8.7. LEAVING THE CONFIGURATION MODE

To leave the configuration mode, just tilt the micro switch located under the main control keyboard. The remote controlled table will then restart in the normal functioning mode, using the new memorized values. These values are saved even when the power supplied is switched off.

8.8. RESTARTING THE REMOTE CONTROLLED TABLE AFTER A CUT OUT CONSECUTIVE TO A MOVEMENT THAT HAS ACTIVATED AN OVERTRAVEL CONTACT

Adjusting the parameters may unfortunately lead you to exceed the mechanical possibilities of the mechanical structure. So, you have caused the movement of a mobile part, which has activated a safety contact « an over travel contact ». It is impossible to restart the apparatus without operating the manual reset push button.

The reset «PR1» button allows to temporarily suppressing the action of the safety contacts « over travel ». This button is located on the middle right of the cabinet.

This button must be activated only to perform a movement in the opposite direction that will move the mechanical piece, which has set off the safety.

To switch the unit on, follow the procedure below:

1. Press the push button and hold it down
2. Switch the remote controlled table on
3. Perform a movement inverse to the one that sets off the safety
4. Release the reset push button

You will probably need help to press on the reset push button. This procedure has been made intentionally difficult in order to make the invalidation of the remote controlled table safeties very exceptional.

8.9. SUMMARY OF FUNCTIONING IN THE CONFIGURATION MODE

1. Validate the configuration mode by tilting the switch located under the printed circuit of the console.

2. Select the group with switch on the left.

3. Validate your choice with the AUTO key

4. Choose a parameter with the joystick on the left

5. Validate your choice with the AUTO key

6. Vary the parameter value either by performing a mechanical movement with the usual control or by varying the value with the joystick on the left or with the 8 keys located in the left top of the console

7. Memorize the set value with the AUTO key

8. Leave the setting mode or the parameters selection mode by pressing the DIGIT key.

9. Switch the table on in normal mode, by activating the switch located under the console printed circuit.

Group	Number	Title	Range	Designation
0	000	LANGUAGE	FR, US, SP, DUTCH and PO	The 0 group contains only one parameter which is used to select the language of texts displayed on the LCD display. Choice: FR (French), US (English), SP (Spanish), (NL) Dutch an PO (Portuguese).
0	001	NAME OF THE TABLE	BACCARA	Allow to choose the name of the table displaying at switching on: BACCARA.
1	100	FILM ORDER IN MANUAL CONTROL	0 to 32000	This parameter allows to move manually the cassette holder.
1	101	MOVEMENT AMPLITUDE	0 to 7000	This setting is automatically performed by pulling out manually the cassette holder and by pressing the "tortoise" key.
1	102	film order in zero position	0 to 7000	This parameter allows to position the cassette holder in the X-ray centre. Bring the front cassette towards the X-ray centre and capture the value.
1	103	FILM ORDER MEASUREMENT OFFSET	0 to 7000	Set around 6,500.
2	200	SHUTTERS IN MANUAL CONTROL	0 to 7000	This parameter allows to move manually the shutters.
2	201	DISTANCE BETWEEN THE ENDS OF TRAVEL	0 to 9999	Pressing the «tortoise» key automatically performs this setting.
2	202	SPACE BETWEEN CUTTINGS	0 to 30	This parameter allows to determine the space desired between two exposures on the same film.
2	203	CASSETTE EXIT AT THE END OF EXPOSURE	Yes or no	User's choice : Yes or No
2	204	GRID RETRACTION	Yes or no	User's choice : Yes or No
2	205	LIGHT OF CLOSED SHUTTERS	0 to 100	Measure the space between the shutters on the closed end of travel.
2	206	DIGITAL SYSTEM	Yes or no	Allow to validate the digital key. User's choice : Yes or No
2	207	SPOT FILM DEVICE	Yes or no	According to the table type with or without spot film device.
2	208	MOVING GRID IN FLUOROSCOPY	Yes or no	
2	209	PALADIO OPTION	Yes or no	According to the table type with or without PALADIO (yes/no). enable radiography during carriage of the group column/spot film device or during the longitudinal 4 ways panel movement.
2	210	DISPLAY CASSETTE SIZE	Yes or no	User's choice : Yes or No
2	211	AUTO COLLIMATOR FEED BACK	Yes or no	The collimator goes into or stays in automatic mode when the cassette goes out. User's choice : Yes or No
2	212	RESET DIVISIONS	Yes or no	Feedback to the full format when the cassette goes out (no divisions memorizing). User's choice : Yes or No

3	300	PRESENCE OF THE IRIS	Yes or no	Depends on the installation configuration: yes, no.
3	301	MAX OPENING OF IRIS	0 to 255	This parameter is used to set the recopy potentiometer. Just set mechanically the potentiometer , and then capture the value when the desired position is reached. If a rotative filter is present in place of the motorized iris (parameter 318 at yes), this parameter allows to capture the position of the filter 1+0.1Cu (number 1).
3	302	MIN OPENING OF IRIS	0 to 255	This parameter allows the setting of the recopy potentiometer. Just set mechanically the potentiometer, then capture the value when the desired position is reached. If a rotative filter is present in place of the motorized iris (parameter 318 at yes), this parameter allows to capture the filter position 1+0.2Cu (number 2).
3	303	iris opening 40cm plate 110	0 to 255	Capture the value when the desired position is reached.
3	304	iris opening 40cm plate 150	0 to 255	Capture the value when the desired position is reached.
3	305	measure min opening iris110	0 to 1000	Measure the opening in mm et capture it manually.
3	306	MAX X OPENING	0 to 255	This parameter allows the setting of the recopy potentiometer. Just set manually the potentiometer and then capture the value when the desired position is reached.
3	307	MIN X opening	0 to 255	This parameter allows the setting of the recopy potentiometer. Just set mechanically the potentiometer and then capture the value when the desired position is reached.
3	308	X OPENING 40CM PLATE 110	0 to 255	Capture the value when the desired position is reached.
3	309	X OPENING 40 CM PLATE 150	0 to 255	Capture the value when the desired position is reached.
3	310	MAX Y OPENING	0 to 255	This parameter allows the setting of the recopy potentiometer.
3	311	MIN Y OPENING	0 to 255	This parameter allows the setting of the recopy potentiometer. Just set mechanically the potentiometer and then capture the value when the desired position is reached.
3	312	Y OPENING 40CM PLATE 110	0 to 255	Capture the value when the desired position is reached.
3	313	OPENING 40 CM PLATE 150	0 to 255	Capture the value when the desired position is reached.

3	314	COLLIMATOR IN TIME OUT	0 to 10	Time limit of shutters positioning for the X blockage. (0 invalidates this safety device
3	315	OPENING COMPENSATION	0 to 50	This parameter allows to correct eventual shifts of the X-ray tube.
3	316	CENTERING DEVICE TIMER	0 to 10000	Allow to set the lighting time of the centring device. Value in 1/100th s.
3	317	GRAPHY IF COLLIMATOR ON	Yes or no	The radiography is allowed only if the iris and the shutters potentiometers returns correspond to the instructions of positioning (needs a EFBD version of the diaph.epp software in the microcontroller 68HC705C8A of the collimator board). User's choice : Yes or No Just press mechanically the potentiometer and then capture the value when the desired position is reached.
3	318	PRESENCE OF THE ROTATIVE FILTER OPTION	Yes or no	If a rotative filter is present in place of the motorized iris. User's choice: Yes or No. If this parameter is yes, the parameters 301 and 302 allow respectively to enter the position of the filter 1+0.1Cu and of the filter 1+0.2Cu.
4	400	PRESENCE I.I. ELEVATOR	Yes or no	User's choice : Yes or No.
4	401	1ST FIELD OF I.I. SIZE MM	0 to 450	Range of setting : 0..450 Enter into this parameter the size of the image intensifier in mm. Generally it is advisable to enter the value 110 in order to indicate the presence of a field of 11cm. Enter 0 to invalidate this field. The LCD displays only the hundreds and the tens, because they are in cm. The validation by the user of this size of field does not control any relay of the interface board. Any field value is authorized even if this value does not follow a logical progression, normally the 401 parameter, has the smallest size, ant the 405 parameter the biggest. At switching on, the program looks for the 405 range, and then if it is nil, it will look for a non-nil value in the parameter 404, etc. The first non-nil value is selected and validated, and a relay of the interface board is driven. Only the 401 parameter does not enable any relay drive. If the 402 field is selected, the 61 relay is driven. If the 403 field is selected the relay 62 is driven.

				If the 404 field is selected the relay 63 is driven. If the 405 field is selected the relay 64 is driven. It is not allowed to leave a i.e. « hole » a zero value between 2 non-nil parameters. When the operator performs the settings in the normal operating mode, the range of settings will go from the highest to the lowest value.
4	402	2ND FIELD OF I.I. SIZE MM	0 to 450	Range of setting : 0..450 Enter into this parameter the size of the image intensifier in mm. Generally it is advisable to enter the value 160 in order to indicate the presence of a field of 16cm. Enter 0 to invalidate this field. The LCD displays only the hundreds and the tens, because they are in cm. The validation by the user of this size of field controls the 61 relay of the interface board. Any field value is authorized even if this value does not follow a logical progression, normally the 401 parameter, has the smallest size, ant the 405 parameter the biggest. At switching on, the program looks for the 405 range, and then if it is nil, it will look for a non-nil value in the parameter 404, etc. The first non-nil value is selected and validated, and a relay of the interface board is driven. Only the 401 parameter does not enable any relay drive. If the 402 field is selected, the 61 relay is driven.If the 403 field is selected the relay 62 is driven. If the 404 field is selected the relay 63 is driven. If the 405 field is selected the relay 64 is driven. It is not allowed to leave a i.e. « hole » a zero value between 2 non-nil parameters. When the operator performs the settings in the normal operating mode, the range of settings will go from the highest to the lowest value.
4	403	3RD FIELD OF I.I. SIZE MM	0 to 450	Range of setting : 0..450 Enter into this parameter the size of the image intensifier in mm. Generally it is advisable to enter the value 230 in order to indicate the presence of a field of 23cm. Enter 0 to invalidate this field.

				The LCD displays only the hundreds and the tens, because they are in cm. The validation by the user of this size of field controls the n° 62 of the interface board. Any field value is authorized even if this value does not follow a logical progression, normally the 401 parameter, has the smallest size, ant the 405 parameter the biggest. At switching on, the program looks for the 405 range, and then if it is nil, it will look for a non-nil value in the parameter 404, etc. The first non-nil value is selected and validated, and a relay of the interface board is driven. Only the 401 parameter does not enable any relay drive. If the 402 field is selected, the 61 relay is driven. If the 403 field is selected the relay 62 is driven. If the 404 field is selected the relay 63 is driven. If the 405 field is selected the relay 64 is driven. It is not allowed to leave a i.e. « hole » a zero value between 2 non-nil parameters. When the operator performs the settings in the normal operating mode, the range of settings will go from the highest to the lowest value.
4	404	4TH FIELD OF I.I. SIZE MM	0 to 450	Range of setting : 0..450 Enter into this parameter the size of the image intensifier in mm. Generally it is advisable to enter the value 320 in order to indicate the presence of a field of 32cm. Enter 0 to invalidate this field. The LCD displays only the hundreds and the tens, because they are in cm. The validation by the user of this size of field controls the n° 63 of the interface board. Any field value is authorized even if this value does not follow a logical progression, normally the 401 parameter, has the smallest size, ant the 405 parameter the biggest. At switching on, the program looks for the 405 range, and then if it is nil, it will look for a non-nil value in the parameter 404, etc. The first non-nil value is selected and validated, and a relay of the interface board is driven. Only the 401 parameter does

				not enable any relay drive. If the 402 field is selected, the 61 relay is driven. If the 403 field is selected the relay 62 is driven. If the 404 field is selected the relay 63 is driven. If the 405 field is selected the relay 64 is driven. It is not allowed to leave a i.e. « hole » a zero value between 2 non-nil parameters. When the operator performs the settings in the normal operating mode, the range of settings will go from the highest to the lowest value.
4	405	5TH FIELD OF I.I. SIZE MM	0 to 450	Range of setting : 0..450 Enter into this parameter the size of the image intensifier in mm. Generally it is advisable to enter the value 400 in order to indicate the presence of a field of 40cm. Enter 0 to invalidate this field. The LCD displays only the hundreds and the tens, because they are in cm. The validation by the user of this size of field controls the n° 64 of the interface board. Any field value is authorized even if this value does not follow a logical progression, normally the 401 parameter, has the smallest size, ant the 405 parameter the biggest. At switching on, the program looks for the 405 range, and then if it is nil, it will look for a non-nil value in the parameter 404, etc. The first non-nil value is selected and validated, and a relay of the interface board is driven. Only the 401 parameter does not enable any relay drive. If the 402 field is selected, the 61 relay is driven. If the 403 field is selected the relay 62 is driven. If the 404 field is selected the relay 63 is driven. If the 405 field is selected the relay 64 is driven. It is not allowed to leave a i.e. « hole » a zero value between 2 non-nil parameters. When the operator performs the settings in the normal operating mode, the range of settings will go from the highest to the lowest value.
5	500	DISTANCE FILM / PATIENT SUPPORT	0 to 100	Not used.

5	501	HEIGHT OF THE ROOM	0 to 4000	Enter the height of the room in mm for the safety device calculations .
5	502	SPACE ON THE RIGHT SIDE	0 to 4000	Enter the distance between the right side of the panel (in centred position) and the wall.
5	503	SPACE ON THE LEFT SIDE	0 to 4000	Enter the distance between the left side of the panel (in centred position) and the wall.
5	504	ZERO HEIGHT OF CUT DIGIT	0 to 200	Adjustment of the 0 cutting layer in normal tomography.
5	505	ZERO HEIGHT OF CUT FILM	0 to 200	Adjustment of the 0 mm cutting layer in normal tomography.
5	506	I.I. HEIGHT	0 to 200	This parameter gives in mm, the measure of the image intensifier height in relation to its support. It must be captured by the user and then checked by tilting or carriage movements (check of ground safeties).
5	507	I.I. LEFT WIDTH	0 to 200	This parameter gives in mm the width of the image intensifier from the left towards the right part of the spot film device carriage. It must be captured after being checked by the user.
5	508	I.I. RIGHT WIDTH	0 to 200	This parameter gives in mm the width of the image intensifier from the right towards the right part of the spot film device carriage. It must be captured after the user had check the ground safety ERROR 14: “centre the column”. If the PALADIO option is selected (parameter 209), the measure must be done between the spot film device trolley right side and the right side exceeding the PALADIO.
6	600	BRIGHTNESS STEP MIN	0 to 4096	
6	601	BRIGHTNESS STEP MAX	0 to 4096	
6	602	NOMINAL BRIGHTNESS STEP	0 to 4096	
6	603	VERTICAL REVERSE ON START	Yes or no	User’s choice yes or no.
6	604	HORIZONTAL REVERSE ON START	Yes or no	User’s choice yes or no.
6	605	joystick demo mode	Yes or no	This parameter allows the trolley and the panel movements to be reversed. User’s choice yes or no.
6	606	joystick following tv monitor inversion	Yes or no	This parameter allows the joystick to follow the camera reverses. User’s choice yes or no. (NU = not used)
7	700	TABLE MIN HEIGHT	Potentiometer	This parameter allows to set the table end of travel at 80 cm, horizontal position. Free the potentiometer mechanically.

				Validate the parameter with the automatic diaphragm key. Position the column rail mechanically at 825 mm from the ground. Reset the potentiometer value near 0,2V. Validate this value with the automatic diaphragm key. For the 90/25 HV table this parameter allows to set the table end of travel at 75 cm with the 2 rails panel, and at 78 cm with the 4 rails panel . Position mechanically the column rail at 795 mm.
7	701	table max height	Potentiometer	This parameter allows to set the end of travel at 150 cm, horizontal table. Validate the parameter with the automatic diaphragm key. Begin to lift the table. Check that the displayed value increases. Position the column rail at 1545 mm from the ground. Validate the new value of the potentiometer by the automatic diaphragm key. For the 90/25 HV table this parameter allows to set the table end of travel at 110 cm with the 2 rails panel, and at 113 cm with the 4 rails panel. Position mechanically the column rail at 1085mm.
7	702	TABLE WORKING HEIGHT	Potentiometer	Position the table and validate the value with the automatic diaphragm key.
7	703	TABLE AT +90°	Potentiometer	This parameter allows to set the table end of travel in the +90° position. Free the potentiometer mechanically. Validate the parameter with the automatic diaphragm key. Position mechanically the table at +90° using a spirit level placed on the upper rail of the column. Reset the potentiometer at a value near 2.2V. Validate the value by the automatic diaphragm key.
7	704	TABLE AT -20°/-25°	Potentiometer	This parameter allows to set the end of travel of the table in the -20° position. Validate the parameter with the automatic diaphragm key. Begin to tilt the table. Check that the displayed value decreases. Position mechanically the table at –20° using a spirit level placed on the

				upper rail of the column and taking care to avoid the image intensifier or the camera to hit the ground. Validate the new potentiometer value with the automatic diaphragm key.
7	705	TABLE AT 0°	Potentiometer	This parameter allows to set the end of travel of the table in the horizontal position. Validate the parameter with the automatic diaphragm key. Begin to tilt the table. Check that the displayed value increases. Position mechanically the table at 0° using a spirit level placed on the upper rail of the column. Validate the new potentiometer value with the automatic diaphragm key.
7	706	COLUMN ON THE RIGHT	Potentiometer	This parameter allows to set the end of travel of the right column carriage. Free the potentiometer mechanically. Validate the parameter with the automatic diaphragm key. Position mechanically the column carriage at 6 cm between the edge of the column and the end of the rail. Reset the potentiometer at a value near 0.1V. Validate the new potentiometer value with the automatic diaphragm key.
7	707	COLUMN ON THE LEFT	Potentiometer	This parameter allows to set the end of travel of the left column carriage. Validate the parameter with the automatic diaphragm key. Check that the displayed value increases. Position mechanically the column carriage at 6 cm between the edge of the column and the end of the rail. Validate the new potentiometer value with the automatic diaphragm key.
7	708	spot film device on the right	Potentiometer	This parameter allows to set the end of travel of the right spot film device carriage. Free the potentiometer mechanically. Validate the parameter with the automatic diaphragm key. Position mechanically the spot film device carriage at 6 cm between the edge of the spot film device and

				the end of the rail. Reset the potentiometer value near 0.1V. Validate the new potentiometer value with the automatic diaphragm key.
7	709	spot film device on the left	Potentiometer	This parameter allows to set the end of travel of the left spot film device carriage. Validate the parameter with the automatic diaphragm key. Move the spot film device carriage toward the left. Check that the displayed value increases. Position mechanically the spot film device carriage at 6 cm between the edge of the spot film device and the end of the rail. Validate the new potentiometer value with the automatic diaphragm key.
7	710	SHUTTERS IN MANUAL	Yes or no	This parameter allow to choose or not the spot film device shutters movement in manual mode. User's choice: yes or no.
7	711	COMPRESSOR IN PARKING	Yes or no	This parameter allows to manage the compressor position when there is a tilting in the safety devices. User's choice: yes or no.
7	712	height angulation rotation	0 to 300	This parameter allows to fix the starting points of the cutting plane and the movement of the spot film device when there is an incidence. According to the parameter 713.
7	713	PARALLAX CORRECTION	Yes or no	This parameter allows a correction of the spot film device movement according to the column angulation. User's choice: yes or no.
7	714	FOCAL UP	Potentiometer	This parameter allows to set the end of travel of the high focal. Free the potentiometer mechanically. Validate the parameter with the automatic diaphragm key. Position mechanically the focal at 1500mm height.(1360mm between the panel and the column under arm). Reset the potentiometer value near 0.5V. Validate this value with the automatic diaphragm key.
7	715	FOCAL DOWN	Potentiometer	This parameter allows to set the end of travel of the low focal. Validate the parameter with the automatic diaphragm key. Move the focal downward.

				Check that the displayed value increases. Position mechanically the focal at 1100mm height. (960mm between the panel and the column under arm). Validate the new value with the automatic diaphragm key.
7	716	longitudinal patient support	Yes or no	According to the panel option. User's choice: yes or no.
7	717	longitudinal patient on the right	Potentiometer	This parameter allows to set the right end travel of the panel. Free the potentiometer mechanically. Validate the parameter with the automatic diaphragm key. Position mechanically the panel at 750 mm between the edge of the panel and the rail of the extremity. Reset the potentiometer value near 0.1 V. Validate the new potentiometer value with the automatic diaphragm key.
7	718	PANNEAU LONGITUDINAL ON THE LEFT	Potentiometer	This parameter allows to set the left end travel of the panel. Validate the parameter with the automatic diaphragm key. Move the panel toward the left. Check that the displayed value increases. Position the longitudinal panel at 750 mm between the edge of the panel and the rail of the extremity. Validate the new potentiometer value with the automatic diaphragm key.
7	719	presence raising option	HV or 90/20	According to the table type: 90/20, or 90/25 HV, user's choice among these three cases.
7	720	MOVEMENT ENABLED WITH COMPRESSION	Yes or no	This parameter allows the movements of the table with the compressor even it is not in the parking position. If the compressor is in contact with the patient, the movements are blocked. User's choice: yes or no.
7	721	STEP NUMBER FOR STEPPING	0 to 255	Only available for tables provided with the stepping option. This parameter allows to program the number of carriage movements.

7	722	DISTANCE DURING STEPPING	0 to 2000	Not used.
7	723	STEP DISTANCE FOR STEPPING	0 to 2000	Not used.
7	724	STOP TRENDELENBOURG	0 to 90	This parameter allows to limit the trendelenbourg on 90/20 or 90/25 HV at the angle desired. (from 0 to 25°)
7	725	STOP TABLE ELEVATOR	0 to 1500	This manual parameter allows to limit the lifting movement of 90/25 HV tables to the desired height, only by pressing the ascending key. If the user asks for a tilting movement, this parameter will not be considering.
7	726	STOP VERTICAL TILTING	0 to 90	This parameter enables to limit the tilting movement of the table before the positioning at +90°.
7	727	TomographYWITHOUT re centrING	Yes or No	User's choice : Yes or No.

9. SPARE PARTS

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- **90/20 VERSION CABINET**

REFERENCE	MARK	DESIGNATION	QTY.
E8000237	CABLE LISTING	90/20 CABINET WIRING LISTING	1
E8000261	209	KEYBOARD CABLE. CABINET SIDE	1
E8000270	9715	TILTING MOTOR POWER SUPPLY CABLE. CABINET SIDE	1
E8000273	819	TILTING ANALOG REFERENCE CABLE	1
E8000276	123	COL. & SFD. ANALOG REFERENCE CABLE	1
E8000277	223	TABLE MOVEMENT ANALOG INPUTS CABLE	1
E8000278	323	COLLIMATOR BOARD CABINET SIDE	1
E8000279	423	POWER SUPPLY LPQ112 CABLE	1
E8000280	1123	SFD & COL. VAR SERIES LINK CABLE	1
E8000281	1223	CABLE NAPPE LIAISON SERIE COM2	1
E8000282	1323	CABLE LINK SFD RACK. CABINET SIDE	1
E8000296	546	SERIES LINK COM3 CABLE	1
02600006	VD19	POWER SUPPLY	1
E8000012	VD20	ON/OFF BOARD	1
02800022	VD21	ISA PCA6753 BOARD	1
E8000548	VD22	COM PC & ANALOG INPUTS/OUTPUTS	1
E8000547	VD23	PC DIGITAL INPUTS/OUTPUTS	1
02800018	HDD	DISK ON MODULE PQI	1
02800048	RAM	SDRAM DIMM 128Mb MEMORY	1
04000022	VAR2 TILTING	VARIABLE SPEED	1
00800435	SUB1	ADAPTATOR SUB-D9 M / SUB-D 25 M	1
02800206	CONV	BIDIRECT CONVERTER RS232/RS485	1
02300005	RL1	RELAY TYPE 40.52	1
02300006	SPR1	SOCKET RELAY TYPE 95.05	1
04200019	D7	CIRCUIT BREAKER 0,4A 400V-3P/SFKOC	1
04200071	D3	CIRCUIT BREAKER EP62 D10 400V 2P	6
04200071	D12	CIRCUIT BREAKER EP62 D10 400V 2P	
04200071	D13	CIRCUIT BREAKER EP62 D10 400V 2P	
04200071	D18	CIRCUIT BREAKER EP62 D10 400V 2P	
04200071	D2	CIRCUIT BREAKER EP62 D10 400V 2P	
04200071	D21	CIRCUIT BREAKER EP62 D10 400V 2P	
02900004	D14	FUSE HOLDER SF2 10X38-32A/400V	1
04200021	D15	CIRCUIT BREAKER EP61 C10-230V-1P	2
	D16	CIRCUIT BREAKER EP61 C10-230V-1P	
04200022	D17	CIRCUIT BREAKER EP61 C16-230V-1P	1
04200009	D19	CIRCUIT BREAKER EP62 D02-230V-2P	1
04200072	D20	CIRCUIT BREAKER C10 230V 2P	1
02500003	PS1	CONNECTING PLUG MSC SPP	3
02500003	PS2	CONNECTING PLUG MSC SPP	
02500003	PS3	CONNECTING PLUG MSC SPP	
04400007	PR1	PUSH BUTTON - AST P 16 10	1
04200025	SG	CIRCUIT BREAKER EP64 C25 -25A	1
00800037	KA1	AUXIL CONNECTING PLATE - BCLF10	1
04200010	KMP	TREE POLE CONTACTOR -CL02D310TD	1
04200012	KMG	FOUR POLE CONTACTOR-CL03D400MD	1
04200006	KM1/KM2	REVERSER MJ0S-00S-ATD	1
04200007	KM3	MINICONTACTOR MC 1 C B00ATD	4
04200007	KM4	MINICONTACTOR MC 1 C B00ATD	

04200007	KM5	MINICONTACTOR MC 1 C B00ATD	
04200007	KM6	MINICONTACTOR MC 1 C B00ATD	
02900064	F12	2AT 5X20	2
02900064	F13	2AT 5X20	
02900021	F14	3,15 AT 5X20	2
02900021	F10	3,15 AT 5X20	
02900068	F11	6,3AT 5X20	1
02900069	F15	8A T 5X20	1
00800069	PF10	JUNCTION BOX SECTIO. 5X20	6
00800069	PF11	JUNCTION BOX SECTIO. 5X20	
00800069	PF12	JUNCTION BOX SECTIO. 5X20	
00800069	PF13	JUNCTION BOX SECTIO. 5X20	
00800069	PF14	JUNCTION BOX SECTIO. 5X20	
00800069	PF15	JUNCTION BOX SECTIO. 5X20	
00800070		TERMINAL WALL	2
02900028	FD14	FUSE	2
01700006	FT0	MAINS FILTER 20A	1
01700007	FT1	3 PHASE FILTRE + NEUTRAL	1
01700003	T1	FERRITES TORUS N30 5400	1
02100062	TR1	TRI NU TRANSFORMER	1
02100056	TR2	TOROIDAL TRANSFO. 300VA	1
00800038	CA1	FEMALE COLLAR CMC	4
00800038	CA2	FEMALE COLLAR CMC	
00800038	CA3	FEMALE COLLAR CMC	
00800038	CA4	FEMALE COLLAR CMC	
00800068		DETROMPEUR PRISE CPC	4
04400024	CP1	BOX 1 HOLE P9EPEG1	1
04400025	CP1	CONNECTING BOX NF P9B01BN	1
04400026	CP1	BUTTON CP. P9MER4RN	1
02000117	SP1	CONDENSER HOLDER	3
02000117	SP2	CONDENSER HOLDER	
02000117	SP3	CONDENSER HOLDER	
02000116	C1	CONDO 15000MF 63V-CHEMICAL	3
02000116	C2	CONDO 15000MF 63V- CHEMICAL	
02000116	C3	CONDO 15000MF 63V- CHEMICAL	
01800021	R1	WINDED RESISTOR 10K-RB59	3
01800021	R2	WINDED RESISTOR 10K-RB59	
01800021	R3	WINDED RESISTOR 10K-RB59	
02400017	DP1	DIODE BRIDGE	4
02400017	DP2	DIODE BRIDGE	
02400017	DP3	DIODE BRIDGE	
02400017	DP4	DIODE BRIDGE	
02000013	C4	CONDO 10000µF – 63V	1
02000012	BRIDE C4	BRIDE POUR CONDO Ø35	1
00800051	CLS1	TERMINAL WALL	6
00800051	CLS2	TERMINAL WALL	
00800051	CLS3	TERMINAL WALL	
00800051	CLS4	TERMINAL WALL	
00800051	CLS5	TERMINAL WALL	
00800051	CLS6	TERMINAL WALL	

00800045	XA1 / XB1	JUNCTION BOX	24
00800045	XA2 / XB2	JUNCTION BOX	
00800045	XA4 / XB4	JUNCTION BOX	
02500043	BQ	LINK BAR EQUIPOTENT.	2
03400010	GG1	CHUTE 40X60-LG2M	58
03400010	GG2	CHUTE 40X60-LG2M	85
03400010	GG3	CHUTE 40X60-LG2M	46,5
03400010	GG4	CHUTE 40X60-LG2M	46,5
03400010	GG5	CHUTE 40X60-LG2M	70,5
03400010	GG6	CHUTE 40X60-LG2M	70,5
03400009	PG1	CHUTE 25X60-LG2M	46,5
03400009	PG2	CHUTE 25X60-LG2M	46,5
03400009	PG3	CHUTE 25X60-LG2M	45
03400009	PG4	CHUTE 25X60-LG2M	45
03400009	PG5	CHUTE 25X60-LG2M	44,5
02500005	BM1	COOPER WITH TAPPING HOLES	21,5
03400011	RAIL 1	RAIL DIN SYM 35X7,5MM-PIERCED	39,5
03400011	RAIL 2	RAIL DIN SYM 35X7,5MM- PIERCED	46,5
03400011	RAIL 3	RAIL DIN SYM 35X7,5MM- PIERCED	46,5
03400011	RAIL 4	RAIL DIN SYM 35X7,5MM- PIERCED	20
00800025	J1 (M/A)	MSTB 2,5/3-ST-5,08 TERMINAL	1
00800055	J3 (M/A)	MSTB 2,5/5-ST-5,08 TERMINAL	1
00800026	J13 (548)	MSTB 2,5/4-ST-5,08 TERMINAL	2
00800026	J2 (M/A)	MSTB 2,5/4-ST-5,08 TERMINAL	
00800040	J5 (547)	MSTB 2,5/10-ST-5,08 TERMINAL	12
00800040	J6 (547)	MSTB 2,5/10-ST-5,08 TERMINAL	
00800040	J7 (547)	MSTB 2,5/10-ST-5,08 TERMINAL	
00800040	J8 (547)	MSTB 2,5/10-ST-5,08 TERMINAL	
00800040	J9 (547)	MSTB 2,5/10-ST-5,08 TERMINAL	
00800040	J10 (547)	MSTB 2,5/10-ST-5,08 TERMINAL	
00800040	J11 (547)	MSTB 2,5/10-ST-5,08 TERMINAL	
00800040	J12 (547)	MSTB 2,5/10-ST-5,08 TERMINAL	
00800040	J13 (547)	MSTB 2,5/10-ST-5,08 TERMINAL	
00800040	J14 (547)	MSTB 2,5/10-ST-5,08 TERMINAL	
00800040	J15 (547)	MSTB 2,5/10-ST-5,08 TERMINAL	
00800040	J16 5547)	MSTB 2,5/10-ST-5,08 TERMINAL	
00800054	J17 (547)	MSTB 2,5/16-ST-5,08 TERMINAL	6
00800054	J18 (547)	MSTB 2,5/16-ST-5,08 TERMINAL	
00800054	J19 (547)	MSTB 2,5/16-ST-5,08 TERMINAL	
00800054	J20 (547)	MSTB 2,5/16-ST-5,08 TERMINAL	
00800054	J21 (547)	MSTB 2,5/16-ST-5,08 TERMINAL	
00800054	J22 (547)	MSTB 2,5/16-ST-5,08 TERMINAL	
00800033	J23 (547)	MSTB 2,5/12-ST-5,08 TERMINAL	4
00800033	J24 (547)	MSTB 2,5/12-ST-5,08 TERMINAL	
00800024	J27 (547)	MSTB 2,5/2-ST-5,08 TERMINAL	1
00800061	CALI	BOITIER KK PAS 3,96 MM 5 PTS	1
00800232	JA2	MALE BOX 4V-CTS FEM.	4
00800232	CN9	MALE BOX 4V-CTS FEM.	
00800232	J24	MALE BOX 4V-CTS FEM.	
00800232	JB	MALE BOX 4V-CTS FEM.	
00800233	JA1	FEMALE BOX 4V-CTS MALE	1
01700024	S1	ARC QUENCHER	2
01700024	S2	ARC QUENCHER	

01600012	VT0	VENTILATEUR	1
01600017	GRILLES	FINGER PROTECTION FAN	2
04800019	STICKER	STICKER	4
04800006		COLLAR SMALL MODEL	60
04800007		COLLAR LARGE MODEL	40
62500004		HEXAGONAL CROSS BAR M/F M3X10 BRASS NICKELPLATED	17
62500009		HEXAGONAL CROSS BAR M/F M3X20 BRASS NICKELPLATED	8
62500010		HEXAGONAL CROSS BAR M/F M3X25 BRASS NICKELPLATED	8
62000024		M3 POLYAMIDE WASHER	3
63900015		SNAP HEADED RIVET OPENED 4,8X10	32
63900023		SNAP HEADED RIVET OPENED 2,8X7	2
62000004		M3 INOX A2-70 WASHER	6
62000005		M4 INOX A2-70 WASHER	30
62000006		M5 INOX A2-70 WASHER	4
62000007		M6 INOX A2-70 WASHER	4
62000008		M8 INOX A2-70 WASHER	3
62300005		W4 INOX A2-70 WASHER	22
62300006		W5 INOX A2-70 WASHER	3
62300007		W6 INOX A2-70 WASHER	4
62400005		DEC4 INOX A2-70 WASHER	7
62400006		DEC5 INOX A2-70 WASHER	7
61600004		LOCK NUT M3 (DIN 6924) INOX A4-70	1
61600005		LOCK NUT M4 (DIN 6924) INOX A4-70	4
61300006		H M5 (DIN 934) A4-70 NUT	4
61300008		H M8 (DIN 934) A4-70 NUT	3
60100031		CHC M3-8 (DIN 912) INOX A4-70 SCREW	33
60100033		CHC M3-12 (DIN 912) INOX A4-70 SCREW	1
60100041		CHC M4-8 (DIN 912) INOX A4-70 SCREW	4
60100042		CHC M4-10 (DIN 912) INOX A4-70 SCREW	17
60100043		CHC M4-12 (DIN 912) INOX A4-70 SCREW	4
60100045		CHC M4-20 (DIN 912) INOX A4-70 SCREW	2
60100049		CHC M4-40 (DIN 912) INOX A4-70 SCREW	4
60100053		CHC M5-10 (DIN 912) INOX A4-70 SCREW	9
60100055		CHC M5-16 (DIN 912) INOX A4-70 SCREW	3
60100056		CHC M5-20 (DIN 912) INOX A4-70 SCREW	4
60100066		CHC M6-16 (DIN 912) INOX A4-70 SCREW	4

- **CABINET OPTIONAL RAISING (VERSION 90/25 HV)**

REF APELEM	MARK	DESIGNATION	QTY
04000023	VAR 9	VARIABLE SPEED	1
04200071	D9	CIRCUIT BREAKER EP62 D10	1
02300005	REL2	RELAY TYPE 40.52	1
02300006	SUP REL2	SOCKET RELAY TYPE 95.05	1
E8000241	Listing (wires)	WIRING LISTING FOR CABINET WITH OPTIONAL RAISING 90/25	1
E8000272	9915	POWER SUPPLY CABLE. RAISING MOTOR. CABINET SIDE	1
E8000274	825	CABLE CONS. ANALOG RAISING	

- **CABINET OPTIONAL LONGITUDINAL PANEL**

REF APELEM	MARK	DESIGNATION	QTY
04000024	VAR 1	VARIABLE SPEED	1
04200071	D1	CIRCUIT BREAKER EP62 D10	1
02300005	REL3	RELAY TYPE 40.52	1
02300006	SUP REL3	SOCKET RELAY TYPE 95.05	1
E8000243	Listing (wires)	LONG. PANEL OPTION. CABINET SIDE	1
E8000271	9815	POWER SUPPLY CABLE. LONG. PANEL MOVEMENT.	1
E8000275	824	CABLE CONS. ANALOGIQUES PANNEAU LONG.	1

- **CABINET OPTIONAL I.I. ELEVATOR**

REF APELEM	MARK	DESIGNATION	QTY
04200007	KM7	CONTACTOR 4P	2
04200007	KM8	CONTACTOR 4P	
02900068	F16	6,3AT 5X20	1
00800069	PF16	JUNCTION BOX SECTION.-5X20	1
E8000295	LISTING (FILS)	PT. I.I. ELEVATOR V3	1

- **TABLE 90/20**

REF APELEM	MARK	DESIGNATION	QTY
01800015	P3	POTENTIOMETER 1K/10TRS	3
01800015	P4	POTENTIOMETER 1K/10TRS	
01800015	P7	POTENTIOMETER 1K/10TRS	
01800014	P2	POTENTIOMETER 1K/1TR	1
01900010	SW 0	SWITCH	1
01900003	SW 2A	SWITCH	7
01900003	SW 2B	SWITCH	
01900003	SW 5A	SWITCH	
01900003	SW 5B	SWITCH	
01900003	SW 7A	SWITCH	
01900003	SW 7B	SWITCH	
01900003	SW 6B	SWITCH	
01900009	SW 6A	SWITCH	1
04400050	SW 7D	PUSH BUTTON	2
04400050	SW 7E	PUSH BUTTON	

01900007 01900007 01900007	SW 4A SW 4B SW 6C	SWITCH SWITCH SWITCH	3
00800145 00800145 00800145 00800145	PR 06 PR 71B PR 71C PR81	FEMALE BOX HE15 2PTS FEMALE BOX HE15 2PTS FEMALE BOX HE15 2PTS FEMALE BOX HE15 2PTS	4
00800146 00800146	PR 60T PR 60C	MALE BOX HE15 3PTS MALE BOX HE15 3PTS	2
00800148	PR 61C	MALE BOX HE15 4PTS	1
00800147 00800147 00800147	PR 51 PR 60T PR 60C	FEMALE BOX HE15 3PTS FEMALE BOX HE15 3PTS FEMALE BOX HE15 3PTS	3
00800149 00800149 00800149	PR 47 PR 61T PR 61C	FEMALE BOX HE15 4PTS FEMALE BOX HE15 4PTS FEMALE BOX HE15 4PTS	3
00800151	PR 73	FEMALE BOX HE15 5PTS	1
00800056	BJEC	JUNCTION BOX IN LAMINTAED150-8 POLES	1
02500034	DOMINO	CONNECTING BAR 4MM^2 PAR 12	1
04000021 04000021	RF1 RF2	RESISTOR RESISTOR	2
04000019 04000019	POK1 POK2	SERIES OPERATOR SERIES OPERATOR	2
04000014	VAR3	BRUSHLESS VARIABLE SPEED	1
04000015	VAR4	BRUSHLESS VARIABLE SPEED	1
04000020	FLT3	FILTRE	1
00800039 00800039 00800039 00800039	CT1 CT2 CT3 CT4	COLLAR MALE CMC-37PTS COLLAR MALE CMC-37PTS COLLAR MALE CMC-37PTS COLLAR MALE CMC-37PTS	4
03800013	Black annulated insulation	BLACK ANNULATED INSULATION Ø16	145
04800069	Bent joint Ø 16	BLACK BENT INSULATION JOINT Ø 16MM	2
03800012	Spiral insulation	SPIRAL INSULATION Ø 12	205
03800002	Annulated insulation	GREY ANNULATED INSULATION- DIA 80	75
01700024	S3	ARC QUENCHER	1
E8000537	Board	COLLIMATOR KEYBOARD	1
E8000238	Wires (Listing)	WIRING LISTING OF THE TABLE 90/25	1
E8000292	1701	COMPRESSION END OF TRAVEL CABLE	1
E8000293	1801	COMPRESSION MOTOR POWER SUPPLY CABLE	1
E8000297	1702	SW0 ELECTRO & SW0 INTERCONNEXION CABLE	1
E8000298	1802	FOCAL & COLUMN END OF TRAVEL CABLE	1
E8000299	1902	SW7(D ET E)& ELECTRO CABLE INTERCON.	1
E8000300	2002	FOCAL P7 POTENTIOMETER CABLE	1
E8000301	2102	FOCAL P7 POTENTIOMETER CABLE	1
E8000302	2202	FOCAL MOTOR POWER SUPPLY CABLE	1
E8000303	2302	FOCAL MOTOR POWER SUPPLY CABLE	1
E8000313	2402	ELECTRO BRAKE & INTERCON. SWO CABLE	1

E8000097	103	TILTING 90/20 POTENTIOMETER CABLE	1
E8000289	203	TILTING 90/20 OVER TRAVEL CABLE	1
E8000098	503	TILTING 90/20 BRAKE CABLE	1
E8000099	603	TILTING 90/20 MOTOR CABLE	1
E8000166	204	SFD POTENTIOMETER CABLE	1
E8000167	304	SFD POTENTIOMETER CABLE	1
04000016	404	RESOLVER CABLE - 1M	1
04000017	504	POWER CABLE - 1M	1
E8000290	604	SFD & COL. VARIABLE SPEED POWER SUPPLY CABLE	1
E8000291	704	SFD & COL. VARIABLE SPEED POWER SUPPLY CABLE	1
E8000286	804	SFD & COL. BRAKES POWER SUPPLY CABLE	1
E8000287	904	SFD & COL. CONTROL CABLE	1
E8000288	1004	CABLE CONS. ANA. COL. ET SEL. COTE TABLE	1
04000018	1104	VARIABLE SPEED LINK CABLE	1
E8000284	1204	SFD & COL. VARIABLE SPEED POCKET LINK CABLE	1
E8000165	205	COLUMN POTENTIOMETER CABLE	1
E8000164	305	COLUMN POTENTIOMETER CABLE	1
04000016	405	RESOLVER CABLE - 1M	1
04000017	505	POWER CABLE - 1M	1
E8000109	506	LATERAL PANEL END OF TRAVEL CABLE	1
E8000110	606	LATERAL PANEL MOTOR CABLE	1
E8000111	706	LATERAL PANEL MOTOR CABLE	1
E8000117	108	COLLIMATOR CONTROL CABLE	1
E8000118	208	CENTERING DEVICE CABLE	1
E8000119	109	TABLE KEYBOARD CABLE	1
E8000305	709	SFD EMERGENCY STOP CABLE	1
E8000316	114	OVER TRAVEL STRAP CABLE	1

- **TABLE VERSION 90/25 HV**

REF APELEM	MARK	DESIGNATION	QTY
01800015	P3	POTENTIOMETER 1K/10TRS	3
01800015	P4	POTENTIOMETER 1K/10TRS	
01800015	P7	POTENTIOMETER 1K/10TRS	
01800014	P2	POTENTIOMETER 1K/1TR	2
01800014	P9 (bis)	POTENTIOMETER 1K/1TR	
01800016	P9	POTENTIOMETER 1K / 3TRS	1
01900010	SW 0	SWITCH	1
01900003	SW 2A	SWITCH	9
01900003	SW 2B	SWITCH	
01900003	SW 5A	SWITCH	
01900003	SW 5B	SWITCH	
01900003	SW 7A	SWITCH	
01900003	SW 7B	SWITCH	
01900003	SW 6B	SWITCH	
01900003	SW9	SWITCH	
01900009	SW 6A	SWITCH	1
04400050	SW 7D	PUSH BUTTON	2
04400050	SW 7E	PUSH BUTTON	
01900007	SW 4A	SWITCH	3
01900007	SW 4B	SWITCH	
01900007	SW 6C	SWITCH	

00800145	PR 06	FEMALE BOX HE15 2PTS	4
00800145	PR 71B	FEMALE BOX HE15 2PTS	
00800145	PR 71C	FEMALE BOX HE15 2PTS	
00800145	PR81	FEMALE BOX HE15 2PTS	
00800146	PR 60T	MALE BOX HE15 3PTS	4
00800146	PR 60C	MALE BOX HE15 3PTS	
00800146	PR 61T	MALE BOX HE15 3PTS	
00800146	PR 61C	MALE BOX HE15 3PTS	
00800147	PR 51	FEMALE BOX HE15 3PTS	5
00800147	PR 60T	FEMALE BOX HE15 3PTS	
00800147	PR 60C	FEMALE BOX HE15 3PTS	
00800147	PR 61T	FEMALE BOX HE15 3PTS	
00800147	PR 61C	FEMALE BOX HE15 3PTS	
00800149	PR 47	FEMALE BOX HE15 4PTS	1
00800151	PR 73	FEMALE BOX HE15 5PTS	1
00800144	PR 21	MALE BOX HE15 2PTS	1
00800056	BJEC	LAMINATED JUNCTION BOX 150-8 POLES	1
02500034	DOMINO	JUNCTION BAR 4MM2 / 12	1
04000021	RF1	RESISTOR	2
04000021	RF2	RESISTOR	
04000019	POK1	SERIES OPERATOR	2
04000019	POK2	SERIES OPERATOR	
04000014	VAR3	BRUSHLESS VARIABLE SPEED	1
04000015	VAR4	BRUSHLESS VARIABLE SPEED	1
04000020	FLT3	FILTRE	1
00800039	CT1	MALE COLLAR CMC-37PTS	4
00800039	CT2	MALE COLLAR CMC-37PTS	
00800039	CT3	MALE COLLAR CMC-37PTS	
00800039	CT4	MALE COLLAR CMC-37PTS	
04400009	AU1	EMERGENCY STOP	1
03800013	Black annulated insulation	BLACK ANNULATED INSULATION Ø16	145
04800069	Bent joints Ø 16	BLACK BENT INSULATION JOINT Ø 16MM	2
03800012	Spiral insulation	SPIRAL INSULATION Ø 12	205
03800002	Annulated insulation	GREY ANNULATED INSULATION - Ø 80	75
01700024	S3	ARC QUENCHER	1
E8000537	CARTE	COLLIMATOR KEYBOARD	1
E8000314	FILS (Listing)	WIRING LISTING OF THE 90/25 TABLE	1
E8000292	1701	COMPRESSION END OF TRAVEL CABLE	1
E8000293	1801	COMPRESSION MOTOR POWER SUPPLY CABLE	1
E8000297	1702	ELECTRO & SW0 INTERCONNEXION CABLE	1
E8000298	1802	FOCAL & COLUMN END OF TRAVEL CABLE	1
E8000299	1902	INTERCON. CABLE SW7 (D & E) & ELECTRO	1
E8000300	2002	FOCAL POTENTIOMETER CABLE P7	1
E8000301	2102	FOCAL POTENTIOMETER CABLE P7	1
E8000302	2202	FOCAL MOTOR POWER SUPPLY CABLE	1
E8000303	2302	FOCAL MOTOR POWER SUPPLY CABLE	1
E8000313	2402	ELECTRO BRAKE & SWO INTERCON. CABLE	1
E8000166	204	SFD POTENTIOMETER CABLE	1

E8000167	304	SFD POTENTIOMETER CABLE	1
04000016	404	RESOLVER CABLE - 1M	1
04000017	504	POWER CABLE - 1M	1
E8000290	604	SFD & COL. VARIABLE SPEED POWER SUPPLY CABLE	1
E8000291	704	SFD & COL. VARIABLE SPEED POWER SUPPLY CABLE	1
E8000286	804	SFD & COL. BRAKE POWER SUPPLY CABLE	1
E8000287	904	SFD & COL. CONTROL CABLE	1
E8000288	1004	CABLE CONS. ANA. COL. ET SEL. COTE TABLE	1
04000018	1104	VARIABLE SPEED LINK CABLE	1
E80 00 284	1204	SFD & COL. VARIABLE SPEED POCKET LINK CABLE	1
E80 00 165	205	COLUMN POTENTIOMETER CABLE	1
E80 00 164	305	COLUMN POTENTIOMETER CABLE	1
04000016	405	RESOLVER CABLE - 1M	1
04000017	505	POWER SUPPLY CABLE - 1M	1
E8000109	506	LATERAL PANEL END OF TRAVEL CABLE	1
E8000110	606	LATERAL PANEL MOTOR CABLE	1
E8000117	108	COLLIMATOR CONTROL CABLE	1
E8000118	208	CENTERING DEVICE CABLE	1
E8000119	109	TABLE KEYBOARD CABLE	1
E8000305	709	SFD EMERGENCY SWITCH CABLE	1
E8000316	114	OVER TRAVEL CABLE STRAP	1
E8000265	112	P9 RAISING REDUCER POT. CABLE	1
E8000266	212	CRAWLER RISING POT. CABLE P9BIS	1
E8000267	312	RAISING MOTOR POWER SUPPLY CABLE	1
E8000268	412	RASING BRAKES POWER SUPPLY CABLE	1
E8000269	512	RAISING OVER TRAVEL CABLE	1
E8000309	139	90/25 TILTING POTENTIOMETER CABLE	1
E8000310	539	90/25 TILTING OVER TRAVEL CABLE	1
E8000311	639	90/25 TILTING BRAKES POWER SUPPLY CABLE	1
E8000312	739	90/25 TILTING MOTOR POWER SUPPLY CABLE	1

- **OPTIONAL SPOT FILM DEVICE**

REF APELEM	MARK	DESIGNATION	QTY
E8000520	BOARD	SMALL OPTO BOARD	7
E8000521	BOARD	GRID OPTO BOARD	1
E8000522	BOARD	INTERFACE OPTO BOARD	1
E8000524	BOARD	SFD KEYBOARD BOARD	1
04000004	VD4 BOARD	DRIVER MOTOR STEP BY STEP	2
04000004	VD5 BOARD	DRIVER MOTOR STEP BY STEP	
04400027	Emergency switch	BUTTON C.P. P9MER3RN	1
04400028	Emergency switch	CONNECTING BOX NC P9B01VN	1
00800028	J13	CONNECTOR MSTB 2,5/6-ST-5,08	1
00800149	PR31	FEMALE BOX HE15 4PTS	2
00800149	PR1	FEMALE BOX HE15 4PTS	
00800151	PR4	FEMALE BOX HE15 5PTS	1
01900003	SW 3A	SWITCH	4
01900003	SW 3B	SWITCH	
01900003	SW 8A	SWITCH	
01900003	SW 8B	SWITCH	

E8000304	Wires (listing)		1
E8000113	207		1
E8000114	307		1
E8000115	407		1
E8000116	507		1
E8000247	1807		1
E8000248	1907		1
E8000140	S1		1
E8000141	S2		1
E8000142	S3		1
E8000143	S4		1
E8000144	S5		1
E8000145	S6		1
E8000146	S7		1
E8000147	S8		1
E8000148	S9		1

- **OPTIONAL LONGITUDINAL PANEL**

REF APELEM	MARK	DESIGNATION	QTY
01800015	P1	POTENTIOMETER 1K/10TRS	1
01900010 01900010	SW1A SW1B	SWITCH SWITCH	2
01900007	SW 80°	SWITCH	1
00800145	PR11	FEM. BOX HE15 2PTS	1
03800014	Annulated insulation	WHITE ANNULATED INSULATION Ø22	450
04800065	gland	GLAND IP68/PG16 + NUT	2
E8000245	Listing (wires)	LONG. PANEL OPTION. TABLE SIDE	1
E8000155	111	LONG. PANEL POTENTIOMETER CABLE	1
E8000306	211	LONG. PANEL POTENTIOMETER CABLE	1
E8000307	611	LONG. PANEL OVER TRAVEL CABLE	1
E8000308	711	LONG. PANEL MOTOR POWER SUPPLY CABLE	1
E8000153	811	LONG. PANEL TREE PHASE POWER SUPPLY CABLE	1
E8000285	911	LONG. PANEL OPTION SWITCH 80° CABLE	1

- **OPTIONAL I.I. ELEVATOR**

REF APELEM	MARK	DESIGNATION	QTY
01900010 01900010	SW10A SW10B	SWITCH SWITCH	2
00800147 00800147	PR100 PR 101	FEMALE BOX HE15 3PTS FEMALE BOX HE15 3PTS	2
E8000294	Listing (wires)	I.I. ELEVATOR OPTION WIRING LISTING	1
E8000263	810	I.I. ELEVATOR MOTOR POWER SUPPLY CABLE	1
E8000264	910	I.I. ELEVATOR OVER TRAVEL CABLE	1

- **SPOT FILM DEVICE HOLDER**

REF APELEM	MARK	DESIGNATION	QTY
E8000545		SFD RACK BACK PLANE	1
E8000004		MOTOR INTERFACE BOARD	1
03200019		PROFIL 26F SANS LEVRES	8
03200018		SCREW STRIP 26F / M2.5	2
03200011		BOLT BOARD	3
03200010		BOARD GUIDE /ACC BOARD 160MM	6
03200009		ISOLATED STRIP 26F	2

- **OPTIONAL PALADIO**

REF APELEM	MARK	DESIGNATION	QTY
E8000520	BOARD	SMALL OPTO BOARD	2
E8000521	BOARD	GRID OPTO BOARD	1
E8000522	BOARD	OPTO INTERFACE BOARD	1
E8000526	BOARD	MEMBRANE KEYBOARD INTERFACE	1
E8000529	BOARD	MEMBRANE KEYBOARD	1
04400009	Emergency switch	EMERGENCY SWITCH	1
01900003	SW 8A	SWITCH	2
01900003	SW 8B	SWITCH	
00800149	PR1	FEMALE BOX HE15 4PTS	2
00800149	PR31	FEMALE BOX HE15 4PTS	
00800184	AMP	FEMALE BOX 3 POINTS – 1 LINE	5
00800184	AMP	FEMALE BOX 3 POINTS – 1 LINE	
00800184	AMP	FEMALE BOX 3 POINTS – 1 LINE	
00800184	AMP	FEMALE BOX 3 POINTS – 1 LINE	
00800184	AMP	FEMALE BOX 3 POINTS – 1 LINE	
E8000244	Listing (wires)	PALADIO OPTION WIRING LISTING	1
E80000035	S4	POSITIONED GRID SENSOR CABLE FOR PALADIO	1
E80000036	S5	RETRACTED GRID SENSOR CABLE FOR PALADIO	1
E80000037	S8	CENTERED GRID SENSOR CABLE FOR PALADIO	1
E80000038	S9	STARTING GRID SENSOR CABLE FOR PALADIO	1
E80000031	129	PALADIO GRID MOTOR POWER SUPPLY CABLE	1
E80000032	629	PALADIO OPTO INTERFACE CABLE	1
E80000033	729	EXTRA TRAVEL CABLE FOR PALADIO CARRIAGE	1
E80000034	1229	RACK CONNECTION CABLE FOR PALADIO	1
E80000159	309	PALADIO OPTION CONTROL BOARD CABLE	1
60100053		SCREW CHC M5-10 (DIN 912) INOX A4-70	2
62000006		WASHER M5 INOX A2-70	2
62300006		WASHER W5 INOX A2-70	2
62500004		HEXAGONAL CROSS BAR M/F M3X10 BRASS NICKELPLATED	2
60100031		SCREW CHC M3-8 (DIN 912) INOX A4-70	14
62000004		WASHER M3 INOX A2-70	8
62300004		WASHER W3 INOX A2-70	14

- **SPOT FILM DEVICE HOLDER**

APELEM REF.	APELEM DESIGNATION	QUANTITY
51300009	W1 (19,55X7,87X4,76) # BEARING # HEPCO	1
51300031	CSW 28-80-2Z # SLIDER # ROLLON	1
52200019	D11720 # SPRING # SPEC	1
52200020	E0360-041-4500M # SPRING # SPEC	1

- **SPOT FILM DEVICE/ PALADIO CARRIAGE**

APELEM REF.	APELEM DESIGNATION	QUANTITY
51300024	CPA 18/2Z # ROLLER # ROLLON	1
51300027	CPN 18/2Z # ROLLER # ROLLON	1
52500021	AR00 # SIMPLE FASTENER (DIN 03-1) # PRUD'HOMME	1
52500080	CR00 # SIMPLE CHAIN(DIN 03-1) LONG 1595 # PRUD'HOMME	1
52500074	SYN 10 AT5 255 # BELT # BINDER MAGNETIC	1

- **BASE / COLUMN / ELEVATOR**

APELEM REF.	APELEM DESIGNATION	QUANTITY
52200016	T31130 # SPRING# SPEC	1

- **IMAGE INTENSIFIER CARRIAGE**

APELEM REF.	APELEM DESIGNATION	QUANTITY
51300018	FRNR 22 EI # ROLLER # NADELLA	1

- **EMERGENCY SPARE PARTS KIT**

APELEM REF.	APELEM DESIGNATION	QUANTITY
Z8033002	BACCARA 90/20 KIT	1
Z8033006	BACCARA 90/25 HV KIT	1

APELEM REF.	APELEM DESIGNATION	QUANTITY
80.40.002. Rev J	User's Manual - English language	1
80.41.002. Rev J	User's Manual - French language	1
80.40.001. Rev N	Technical Manual - English language	1
80.41.001. Rev N	Technical Manual - French language	1

10. BACCARA DIAGRAMS

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DIAGRAM N°	DESIGNATION
E80 57 050 Folio 1	General System Overview
E80 57 050 Folio 2	General wiring of the table
E80 52 001 Folio 1	Components layout of BACCARA V3 cabinet * (see components list p 127 to 131 of this manual)
E80 52 001 Folio 2	BACCARA V3 cabinet components layout * (see components list p 127 to 131 of this manual)
E80 57 028	24V Power supply wiring * (see components list p 132 of this manual)
E80 52 004	Motor interface components layout
E80 51 004 Folio 1	Electric diagram Motor Interface
E80 51 004 Folio 2	Motor Interface Electric diagram
E80 52 012	ON/OFF board components layout
E80 51 012	ON/OFF board Electric diagram
E80 51 522	Position sensors Interface board
E80 52 523	Console components layout
E80 51 523	Console interconnections
E80 52 537	Collimator board components layout
E80 53 537	Collimator board welding layout
E80 51 537	Collimator board electric diagram
E80 52 545	SFD board Components layout
E80 53 545	SFD board welding layout
E80 51 545 Folio 1	SFD board electric diagram
E80 51 545 Folio 2	SFD board electric diagram
E80 52 547 Folio 1	IO TOR, BUS PC 104 board components layout
E80 52 547 Folio 2	IO TOR, BUS PC 104 board components layout
E80 52 547 Folio 3	IO TOR, BUS PC 104 board components layout
E80 51 547 Folio 1	IO TOR, BUS PC 104 board
E80 51 547 Folio 2	IO TOR, BUS PC 104 board inputs from 0 to 7
E80 51 547 Folio 3	IO TOR board inputs from 8 to 15
E80 51 547 Folio 4	IO TOR board inputs from 16 to 23
E80 51 547 Folio 5	IO TOR board inputs from 24 to 31
E80 51 547 Folio 6	IO TOR board inputs from 32 to 39
E80 51 547 Folio 7	IO TOR board inputs from 40 to 47
E80 51 547 Folio 8	IO TOR board outputs from 0 to 7
E80 51 547 Folio 9	IO TOR board outputs from 8 to 15
E80 51 547 Folio 10	IO TOR board outputs from 16 to 23
E80 51 547 Folio 11	IO TOR board outputs from 24 to 31
E80 51 547 Folio 12	IO TOR board outputs from 32 to 39
E80 51 547 Folio 13	IO TOR board outputs from 40 to 46
E80 51 547 Folio 14	IO TOR Board, watchdog
E80 52 548	PC ANA COM, BUS PC 104 components layout
E80 51 548 Folio 1	PC ANA COM, BUS PC 104 components layout
E80 51 548 Folio 2	PC ANA COM, BUS PC 104 decoding and AD clock
E80 51 548 Folio 3	PC ANA COM, BUS PC 104 analogical inputs
E80 51 548 Folio 4	PC ANA COM, BUS PC 104 AD inputs from 0 to 5
E80 51 548 Folio 5	PC ANA COM, BUS PC 104 AD inputs from 6 to 11
E80 51 548 Folio 6	PC ANA COM, COM 1 to 4
E80 51 548 Folio 7	PC ANA COM SFD connection
E80 51 548 Folio 8	PC ANA COM, digital inputs
E80 51 548 Folio 9	PC ANA COM, digital outputs
E80 51 548 Folio 10	PC ANA COM, PIC SFD and com. Series 2 reserved
E80 51 548 Folio 11	PC ANA COM, power supplies

DIAGRAM N°	DESIGNATION
E80 58 201	Compressor B001.SCH
E80 58 202	Column and Focal B002.SCH
E80 58 203	Tilting 90/20 B003.SCH
E80 58 204	SFD carriage B004. SCH
E80 58 205	SFD carriage B005. SCH
E80 58 206	Panel B006.SCH
E80 58 207	Spot film device B007.SCH
E80 58 208	Collimator B008.SCH
E80 58 209	Table console B009.SCH
E80 58 027	Image intensifier elevator B010.SCH
E80 58 026	Longitudinal panel B011.SCH
E80 58 212	Rising 90/25 B012.SCH
E80 58 214	ON/OO and over travel safeties B014.SCH
E80 58 215	Power supplies B015 SCH
E80 58 216	24 V power supply and motor brakes B016.SCH
E80 58 217	Motors movement control B017.SCH
E80 58 318	SFD optos wiring B018.SCH
E80 58 219	Tilting control B019. SCH
E80 57 008	Console wiring plan B022.SCH
E80 58 223	VD21, VD22 board wiring B023.SCH
E80 58 224	Longitudinal panel control B024.SCH
E80 58 225	Table lift control B025.SCH
E80 58 029	Paladio carriage B029.SCH
E80 58 030	Paladio carriage optos wiring B030.SCH
E80 58 239	Tilting 90/25 B039.SCH
E80 58 246	PC 547/548 boards interconnections B046.SCH
E1N 59 027	Stiching options interface diagram
E80 59 231	MAGNUM-BACCARA Interface
E47 59 056	Flash/Table BACCARA or KRISTAL Interface
E1N 59 048	BACCARA – MAGNUM Interface
E1N 57 068	BACCARA-MAGNUM-PALADIO wiring diagram

Components located in the cabinet and their function are listed in the table below.

This table refers to the E80 52 001 DIAGRAM folios 1 and 2 .

MARK	REFERENCE	TYPE	INTERNAL CODE	QTY
Wiring listing	E8000237	Cabinet wiring listing 90/20	E8000237	1
209	E8000261	Keyboard cable cabinet side	E8000261	1
9715	E8000270	Motor tilting power supply cable, cabinet side	E8000270	1
819	E8000273	Tilting analogical cons. cable	E8000273	1
123	E8000276	SFD and Column analogical cons. Cable	E8000276	1
223	E8000277	Table movement analogical inputs cable	E8000277	1
323	E8000278	Cabinet side collimator cable	E8000278	1
423	E8000279	Power supply LPQ112	E8000279	1
1123	E8000280	SFD and Column variable speed series link cable	E8000280	1
1223	E8000281	COM2 series link flat cable	E8000281	1
1323	E8000282	SFD rack link cable, cabinet side	E8000282	1
546	E8000296	COM3 series link cable	E8000296	1
VD19	LPQ112-B	Power supply	02600006	1
VD20	E8000012	ON/OFF board	E8000012	1
VD21	PCA-6753FC-GOB1	ISA PCA 6753 board	02800022	1
VD22	E8000548	PC COM and analogical outputs inputs	E8000548	1
VD23	E8000547	PC digital inputs outputs	E8000547	1
HDD	FD032-O19P.6D	DISK ON MODULE PQI	02800018	1
RAM	SDRAM 128MO PC100	SDRAM DIMM 128Mb MEMORY	02800048	1
VAR2 Tilting	10.F5.B1B-2A00	Variable speed	04000022	1
SUB1	299-2800	Adapter SUB-D9 M / SUB-D 25 M	00800435	1
CONV	40502	RS232/RS485 bi direct inverter	02800206	1
RL1	4052 9 0240000	40.52 type relay	02300005	1
SPR1	95.05SPA	Relay socket type 95.05	02300006	1
D7	120003	Circuit breaker 0,4A 400V-3P/SFKOC	04200019	1
D3	566572	Circuit breaker EP62 D10 400V 2P	04200071	6
D12	566572	Circuit breaker EP62 D10 400V 2P	04200071	
D13	566572	Circuit breaker EP62 D10 400V 2P	04200071	
D18	566572	Circuit breaker EP62 D10 400V 2P	04200071	
D2	566572	Circuit breaker EP62 D10 400V 2P	04200071	
D21	566572	Circuit breaker EP62 D10 400V 2P	04200071	
D14	676560	Fuses holder SF2 10X38-32A/400V	02900004	1
D15	672043	Circuit breaker EP61 C10-230V-1P	04200021	2
D16	672043	Circuit breaker EP61 C10-230V-1P		
D17	672045	Circuit breaker EP61 C16-230V-1P	04200022	1
D19	566568	Circuit breaker EP62 D02-230V-2P	04200009	1

MARK	REFERENCE	TYPE	INTERNAL CODE	QTY
D20	673761	Circuit breaker C10 230V 2P	04200072	1
PS1	666502	Base of MSC SPP plug	02500003	3
PS2	666502	Base of MSC SPP plug	02500003	
PS3	666502	Base of MSC SPP plug	02500003	
PR1	666571	Push button - AST P 16 10	04400007	1
SG	676114	Inverter EP64 C25 -25A	04200025	1
KA1	104700	Auxiliary ignition block - BCLF10	00800037	1
KMP	112046	Three polar contactor -CL02D310TD	04200010	1
KMG	112196	Tetra polar contactor-CL03D400MD	04200012	1
KM1/KM2	116717	MJ0S-00S-ATD inverter	04200006	1
KM3	100376	MC 1 C B00ATD mini contactor	04200007	4
KM4	100376	MC 1 C B00ATD mini contactor	04200007	
KM5	100376	MC 1 C B00ATD mini contactor	04200007	
KM6	100376	MC 1 C B00ATD mini contactor	04200007	
F12	5 X 20 2A L	2AT 5X20	02900064	2
F13	5 X 20 2AL	2AT 5X20	02900064	
F14	5 X 20 3,15AL	3,15 AT 5X20	02900021	2
F10	5 X 20 3,15AL	3,15 AT 5X20	02900021	
F11	5 X 20 6,3AL	6,3AT 5X20	02900068	1
F15	5 X 20 8A	8A T 5X20	02900069	1
PF10	390 86	Junction block 5X20 gauge	00800069	6
PF11	390 86	Junction block 5X20 gauge	00800069	
PF12	390 86	Junction block 5X20 gauge	00800069	
PF13	390 86	Junction block 5X20 gauge	00800069	
PF14	390 86	Junction block 5X20 gauge	00800069	
PF15	390 86	Junction block 5X20 gauge	00800069	
	393 49	Terminal wall	00800070	2
FD14	16A 10,3X38 TYPE AM	Fuse	02900028	2
FT0	FN 610-20/06	Mains filter 20A	01700006	1
FT1	FN 256-25/47	Tree phased filter + neutral	01700007	1
T1	B64290L40X230	Ferrite annulus N30 5400	01700003	1
TR1	1T402-TN-N272	Tri nu transformer	02100062	1
TR2	58 0300 024 D	Toroidal transformer 300VA	02100056	1
CA1	208473-1	CMC Female collar	00800038	4
CA2	208473-1	CMC Female collar	00800038	
CA3	208473-1	CMC Female collar	00800038	
CA4	208473-1	CMC Female collar	00800038	
	200821-1	CPC plug feather	00800068	4
CP1	189000	P9EPEG1 box 1 hole	04400024	1
CP1	187017	NF P9B01BN contact plug	04400025	1
CP1	184071	CP. P9MER4RN button	04400026	1
SP1	BRIDE CO39	Condenser support	02000117	3
SP2	BRIDE CO39	Condenser support	02000117	
SP3	BRIDE CO39	Condenser support	02000117	
C1	CO39	15000MF 63V- chemical condenser	02000116	3
C2	CO39	15000MF 63V- chemical condenser	02000116	
C3	CO39	15000MF 63V- chemical condenser	02000116	

MARK	REFERENCE	TYPE	INTERNAL CODE	QTY
R1	W21-10KJI	10K-RB59 Winded resistor	01800021	3
R2	W21-10KJI	10K-RB59 Winded resistor	01800021	
R3	W21-10KJI	10K-RB59 Winded resistor	01800021	
DP1	KBPC 2508	Diode bridge	02400017	4
DP2	KBPC 2508	Diode bridge	02400017	
DP3	KBPC 2508	Diode bridge	02400017	
DP4	KBPC 2508	Diode bridge	02400017	
C4	B41456B8109M	10000µF - 63V condenser	02000013	1
Flange C4	H2	Flange for condenser. Ø35	02000012	1
CLS1	394-50	Terminal wall	00800051	6
CLS2	394-50	Terminal wall	00800051	
CLS3	394-50	Terminal wall	00800051	
CLS4	394-50	Terminal wall	00800051	
CLS5	394-50	Terminal wall	00800051	
CLS6	394-50	Terminal wall	00800051	
XA1 / XB1	390 60	Junction block	00800045	24
XA2 / XB2	390 60	Junction block	00800045	
XA4 / XB4	390 60	Junction block	00800045	
BQ	394 10	Equipotential link bar	02500043	2
GG1	362 07	Chute 40X60-LG2M	03400010	58
GG2	362 07	Chute 40X60-LG2M	03400010	85
GG3	362 07	Chute 40X60-LG2M	03400010	46,5
GG4	362 07	Chute 40X60-LG2M	03400010	46,5
GG5	362 07	Chute 40X60-LG2M	03400010	70,5
GG6	362 07	Chute 40X60-LG2M	03400010	70,5
PG1	362 02	Chute 25X60-LG2M	03400009	46,5
PG2	362 02	Chute 25X60-LG2M	03400009	46,5
PG3	362 02	Chute 25X60-LG2M	03400009	45
PG4	362 02	Chute 25X60-LG2M	03400009	45
PG5	362 02	Chute 25X60-LG2M	03400009	44,5
BM1	373-89	Tapped holes copper	02500005	21,5
RAIL 1	AM1-DP200	RAIL DIN SYM 35X7,5MM-pierced	03400011	39,5
RAIL 2	AM1-DP200	RAIL DIN SYM 35X7,5MM- pierced	03400011	46,5
RAIL 3	AM1-DP200	RAIL DIN SYM 35X7,5MM- pierced	03400011	46,5
RAIL 4	AM1-DP200	RAIL DIN SYM 35X7,5MM- pierced	03400011	20
J1 (M/A)	L24520301000	Terminal MSTB 2,5/3-ST-5,08	00800025	1
J3 (M/A)	L24520501000	Terminal MSTB 2,5/5-ST-5,08	00800055	1
J13 (548)	L24520401000	Terminal MSTB 2,5/4-ST-5,08	00800026	2
J2 (M/A)	L24520401000	Terminal MSTB 2,5/4-ST-5,08	00800026	
J5 (547)	L24521001000	Terminal MSTB 2,5/10-ST-5,08	00800040	12
J6 (547)	L24521001000	Terminal MSTB 2,5/10-ST-5,08	00800040	
J7 (547)	L24521001000	Terminal MSTB 2,5/10-ST-5,08	00800040	
J8 (547)	L24521001000	Terminal MSTB 2,5/10-ST-5,08	00800040	
J9 (547)	L24521001000	Terminal MSTB 2,5/10-ST-5,08	00800040	
J10 (547)	L24521001000	Terminal MSTB 2,5/10-ST-5,08	00800040	
J11 (547)	L24521001000	Terminal MSTB 2,5/10-ST-5,08	00800040	
J12 (547)	L24521001000	Terminal MSTB 2,5/10-ST-5,08	00800040	
J13 (547)	L24521001000	Terminal MSTB 2,5/10-ST-5,08	00800040	
J14 (547)	L24521001000	Terminal MSTB 2,5/10-ST-5,08	00800040	

MARK	REFERENCE	TYPE	INTERNAL CODE	QTY
J15 (547) J16 (547)	L24521001000 L24521001000	Terminal MSTB 2,5/10-ST-5,08 Terminal MSTB 2,5/10-ST-5,08	00800040 00800040	
J17 (547) J18 (547) J19 (547) J20 (547) J21 (547) J22 (547)	L24521601000 L24521601000 L24521601000 L24521601000 L24521601000 L24521601000	Terminal MSTB 2,5/16-ST-5,08 Terminal MSTB 2,5/16-ST-5,08 Terminal MSTB 2,5/16-ST-5,08 Terminal MSTB 2,5/16-ST-5,08 Terminal MSTB 2,5/16-ST-5,08 Terminal MSTB 2,5/16-ST-5,08	00800054 00800054 00800054 00800054 00800054 00800054	6
J23 (547) J24 (547)	L24521201000 L24521201000	Terminal MSTB 2,5/12-ST-5,08 Terminal MSTB 2,5/12-ST-5,08	00800033 00800033	4
J27 (547)	L24520201000	Terminal MSTB 2,5/2-ST-5,08	00800024	1
CAL1	09-91-0500	KK box 3,96MM 5PTS step	00800061	1
JA2 CN9 J24 JB	1-0480424-0 1-0480424-0 1-0480424-0 1-0480424-0	Male Terminal 4V-CTS FEM. Male Terminal 4V-CTS FEM. Male Terminal 4V-CTS FEM. Male Terminal 4V-CTS FEM.	00800232 00800232 00800232 00800232	4
JA1	1-0480426-0	BOITIER FEMELLE 4V-CTS MALE	00800233	1
S1 S2	1.5KE33CA 1.5KE33CA	Diodes removal Diodes removal	02400019 02400019	2
VT0	99 487 102	Fan	01600012	1
GRILLES	99 485 904	Fan fingers protection	01600017	2
PAVET	320-65	Sticker	04800019	4
	320-30	Pipe collar small model	04800006	60
	320-39	Pipe collar large model	04800007	40
		Hexagonal cross bar M/F M3X10 nickel plated brass	62500004	17
		Hexagonal cross bar M/F M3X20 nickel plated brass	62500009	8
		Hexagonal cross bar M/F M3X25 nickel plated brass	62500010	8
		Polyamide washer M3	62000024	3
		Snap headed rivet opened Ø4,8X10	63900015	32
		Snap headed rivet opened Ø4X11.5	63900012	2
		Washer M3 INOX A2-70	62000004	6
		Washer M4 INOX A2-70	62000005	30
		Washer M5 INOX A2-70	62000006	4
		Washer M6 INOX A2-70	62000007	4
		Washer M8 INOX A2-70	62000008	3
		Washer W4 INOX A2-70	62300005	22
		Washer W5 INOX A2-70	62300006	3
		Washer W6 INOX A2-70	62300007	4
		Washer DEC4 INOX A2-70	62400005	7
		Washer DEC5 INOX A2-70	62400006	9
		Brake nut M3 (DIN 6924) INOX A4-70	61600004	1
		Brake nut M4 (DIN 6924) INOX A4-70	61600005	4
		Nut H M5 (DIN 934) A4-70	61300006	4
		nut H M8 (DIN 934) A4-70	61300008	3
		Screw CHC M3-8 (DIN 912) INOX A4-70	60100031	33

MARK	REFERENCE	TYPE	INTERNAL CODE	QTY
		Screw CHC M3-12 (DIN 912) INOX A4-70	60100033	1
		Screw CHC M4-8 (DIN 912) INOX A4-70	60100041	4
		Screw CHC M4-10 (DIN 912) INOX A4-70	60100042	17
		Screw CHC M4-12 (DIN 912) INOX A4-70	60100043	4
		Screw CHC M4-20 (DIN 912) INOX A4-70	60100045	2
		Screw CHC M4-40 (DIN 912) INOX A4-70	60100049	4
		Screw CHC M5-10 (DIN 912) INOX A4-70	60100053	9
		Screw CHC M5-16 (DIN 912) INOX A4-70	60100055	3
		Screw CHC M5-20 (DIN 912) INOX A4-70	60100056	4
		Screw CHC M6-16 (DIN 912) INOX A4-70	60100066	4

Concerning the cabinet power supply refer to the table below and to the diagram E80 57 028

REFERENCE	FUNCTION
517	Alim 24V lateral panel input control
1317	Alim 24V compression ascent control
1717 (optional)	Alim 24V I.I. descent control
1014	Alim 24V over travels
4215	Alim 24 V inlet movements control
117	Alim 24V lateral panel output control
917	Alim 24V Compressor descent control
2117 (optional)	Alim 24V I.I. Ascent
314	Alim 24V Table release button (PR1)
614	Alim 0V KMP contactor (power)
417	Alim 0V lateral panel output control
1217	Alim 0V compression descent control
4615	Alim 0V brakes (to XB4/1)
3017	Alim 0V focal descent control
3615	Inlet 0V movements control
817	Inlet 0V lateral panel input control
1617	Inlet 0V compressor ascent control
2017/2417 (optional)	Inlet 0V I.I. descent control / or I.I. ascent control
2717	Inlet 0V focal ascent control
916	Alim 24V lateral panel motor
2716 (optional)	Alim 24V I.I. elevator motor
1816	Alim 24V compression motor
4315	Inlet 24V motors supply
3616	Alim 24V tube rotation electro brake
816	Alim 0V lateral panel motor
1716	Alim 0V compression motor
2616 (optional)	Alim 0V I.I. elevator
3516	Alim 0V tube rotation electro brake
519	Alim 24V Tilting control
6615 (optional)	Alim 24V uprising brakes
2604	Alim 24V Spot film device carriage control
516	Alim 24V column carriage brakes
4715	Inlet 24V brakes supply
61515	Alim 24V tilting brakes
525 and/or 1024 (optional)	525 : Alim 24V longitudinal panel uprising control 1024: Alim 24V 80° switch safety
216	Alim 24V SFD carriage brakes
125 (optional)	Alim 0V uprising controls
119	Alim 24V
2004	Alim 0V column and SDF carriage controls
4615	Inlet 0V brakes
124 (optional)	Alim 0V safety switch 80° and longitudinal panel control
6715	Alim 0V tilting brakes
116	Alim 0V column and SFD carriage

11. MAINTENANCE AND CHECKS

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Qualified technicians specially trained on the equipment and agreed by APELEM-DMS GROUP must perform checks.

Every year, the following checks must absolutely be performed.

We advise you to reserve the room an half-day in order to proceed to these checks.

- Check all fixing holes on floor.
- Disassemble all the covers of the table, clean the bearing ways, grease the gears, and check the state of the bearings, chains and ropes.
- The belts of the tilting motors and of the variable height must be changed once yearly (refer to the chapter «Replacement of the reduction gear tilting and raising belt on page 85 which indicates the procedure to follow).

11.1. RAISING AND TILTING MOVEMENT

- Check the belts tightness
- Check that all movements are easily performed all along the run without any noise or any inconvenience.
- Check the ends of travel soft and the good functioning of the over travels.
- Check the good tightening of all elements.
- Check the oil level of the reduction gear once a year.

11.2. MOVEMENTS OF THE COLUMN

- Check the belt tightness.
- Check the good tightness of the guide bearings on the rail.
- Check that all movements are easily performed all along the run without any noise or any inconvenience.
- Check the ends of travel soft and the good functioning of the over travels.
- Check the good state of cables and support cables.
- Check the oil level of the reduction gear once a year.
- Grease once a year the two column tilting rings
- Check the good tightening of all elements

11.3. MOVEMENTS OF THE SPOT FILM DEVICE TROLLEY

- Check the chain tightness.
- Control the good tightening of the bearings on the rail.
- Check that all movements are easily performed all along the run without any noise or any inconvenience.
- Grease once a year the two support «C» tilting rings
- Check the ends of travel soft and the good functioning of the over travels.
- Check the good tightening of all elements

11.4. MOVEMENTS OF THE SUPPORT « C »

- Check the chain tightness.
- Control the good tightening of the bearings on the rail.
- Check that all movements are easily performed all along the run without any noise or any inconvenience.
- Check the ends of travel soft and the good functioning of the over travels.
- Check the good tightening of all elements

11.5. MOVEMENT OF THE ELEVATOR COLUMN, THE I.I., AND THE TUBE

- Control the good tightening of the bearings on the rail.
- Check that all movements are easily performed all along the run without any noise or any inconvenience.
- Check the ends of travel soft and the good functioning of the over travels.

11.6. SUPPORT PATIENT

- Disconnect mechanically the driving chains and check the quality of the empty movement
- Control that there is no looseness in the bearings.
- Set the chains and check their tightness.
- Check the good functioning of the over travels.
- Check the good tightening of all elements.

11.7. CONTROL CONSOLE

- Check the good functioning of the keys from the main keyboard and the condition of the polycarbonate.
- Proceed in the same way to check the secondary keyboard and the diaphragm.

11.8. DIAPHRAGM

- Check the good functioning of the shutters in the manual mode and the iris. (no mechanical inconvenience, good setting of the ends of travel etc..)
- Check the good lighting of the centring device light.
- Check the good openings in the automatic mode.
- Check the centring of the X-ray beam and of the light beam.

11.9. X-RAY TUBE

- Check the alignment and the centring of the tube and also the good functioning of the rotation brake.

11.10. COVERS

- Check the state of the painting ; if necessary retouch it.
- Check that the screws and the washers are correctly set.

11.11. VARIOUS

- Control the constants of the generator .
  (Refer to the generator technical documentation)
- Check the good state of the TV chain.
  (Refer to the documentation provided with the equipment).
- Check the good functioning of the interface.
- Check after the re-assembling of the covers that the room operates correctly.

11.12. REPLACEMENT OF THE REDUCTION GEAR TILTING BELT FOR THE BACCARA 90/20

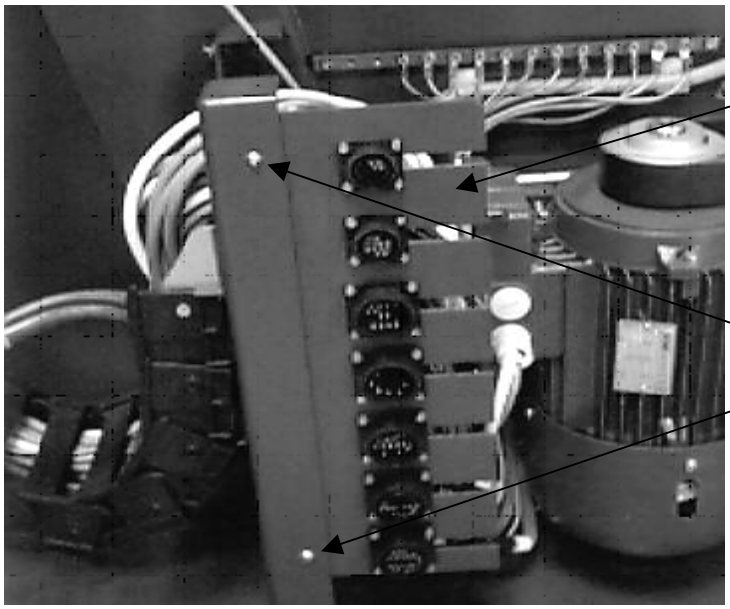
Necessary tools for the replacement

- A set of Allen wrenches
- A 16 mm flat wrench
- A tube of normal nut lock
- A belt tension measure device (SM3 pattern from BINDER)

NB : All the screws mounted with grower washers must be fixed with nut lock

Instructions

1- Put the table in horizontal position.
2- Switch the table off.
3- Wedge the table at its extremities in order to avoid tilting when you take apart the reduction gear and motor uncoupling. (Use two hydraulic trolleys with mechanical stops for example).
4- Remove the rear cover (800680) of the base. (There are 3 RHc M 5x10 screws and 3 polyamide washers Z5.)
For a better access, dismantle the connector support (800675)and separate in a such way as to accede to the sliding block (800621). (There are two RHc M5x12 screws and two L5 polyamide washers. Take care to not pull on wires) See the following picture.



6 - Unscrew the Hc M6 pressure screws of the sliding block
7- Unscrew the adjusting screw of the sliding block in order to release the belt.
8- Remove the belt.
9- Put the new belt in position.
10- Screw the sliding block adjusting screw to stretch the belt.
11- Block the pressure screw of the sliding block and apply to the Hc M6 screw with normal nut lock.
12- Re-assemble the connector support 800675. Ensure that any cables have been damaged during the operation(There are two RHc M5x12 screws and two L5 polyamide washers).
13- Switch the table on.
14- Perform several tests of tilting.
15- Finally, after a last check on SM3, re-assemble the rear cover. (There are three RHc M5x10 screws and three Z5 polyamide washers).

12. TROUBLESHOOTING

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12.1. MESSAGE DESCRIPTION AND CHECKING

TROUBLESHOOTING				
	MESSAGE/DESCRIPTION	**CHECKING**		**PHOTO**
1	ON/OFF indicator light switched off	**1a-**Check the red indicator light on the ON/OFF board (E8000012) located on the door of the cabinet is switched on.	OTHERWISE chack that the cabinet is powered with 380vac on FT1	Photo 1a
		1b-Check that E8000121cable connecting the console to the cabinet is connected on J12 of E8000548 board.		
2	No starting up by the console	**2a-**Check all emmergency stops are deactivated		
3	Starting up without display	**3a-**Check power supplies on J25 connector of E8000548 board	OTHERWISE check the power supply board LPQ112 02600006	Photo 3a
4	Message "COMMUNICATION ERROR WITH THE PROCESSOR"	**4a-**Information message indicating that the table is starting up.		
5	Message "COMMUNICATION ERROR WITH THE PROCESSOR" and movement without control	**5a-**Defective communication between the console and the cabinet: replace U4 component of E8000523 console board and/or U27component of E8000548 cabinet board.		
6	Message "WAITING FOR THE VARIATOR"	**6a-**Check that variators are switched on (red indicator light on VAR2 in the cabinet and VAR3/VAR4 under the table structure)	OTHERWISE check D3 switch is activated for VAR3 and VAR4.	Photo 6a
			OTHERWISE an over travel is launch: - SFD left or right - Column left or right - Tilting -20/-25 or +90° - Parallaxis correction +/-40° - Focal Up or down - Rising up or down	
		6b-Check the connection of the flat cable connecting CN10 (on PC 02800022 board of the cabinet) and RS232/RS485 inverter (fixed on the sur la right chute of the cabinet door)		Photo 6b
		6c-Check RS232/RS485 inverter is correctly powered	OTHERWISE check PS2 plug of the cabinet	
		6d- Check the continuity between the RS232/RS485 inverter and the linking series connectors on 3 and 4 inverters (under the table structure) see B023 diagram.	OTHERWISE, check the 1123 (E8000280) cable connecting the RS232/RS485 inverter to the CA1 cabinet connector	Photo 6d
			OTHERWISE check C1 cable connecting the cabinet to the table foot	
			OTHERWISE, check 1204 (E8000284) cable connecting the table foot to inverters	Photo 6d

TROUBLESHOOTING 1 :

ON/OFF INDICATOR LIGHT SWITCHED OFF

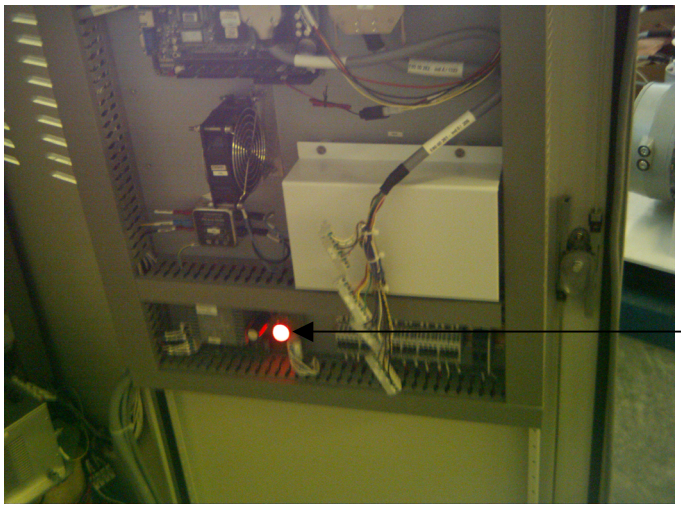


PHOTO 1a

red indicator of ON/OFF board E8000012

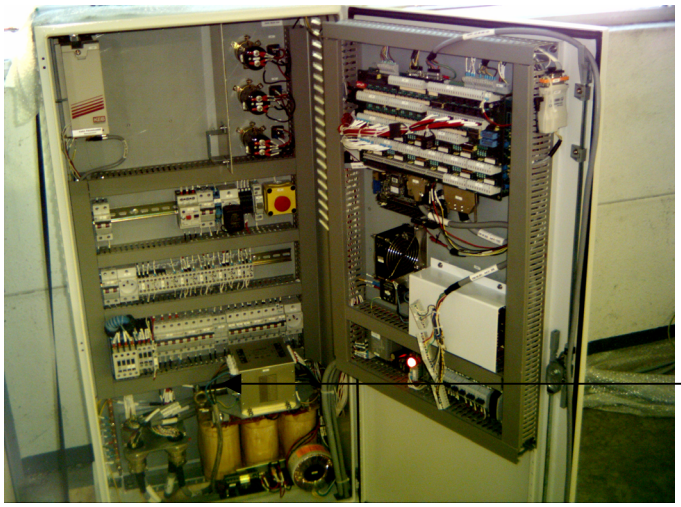


PHOTO 1a

Cabinet power supply :
360Vac<alim<440Vac

TROUBLESHOOTING : 3

STARTING UP WITHOUT DISPLAY

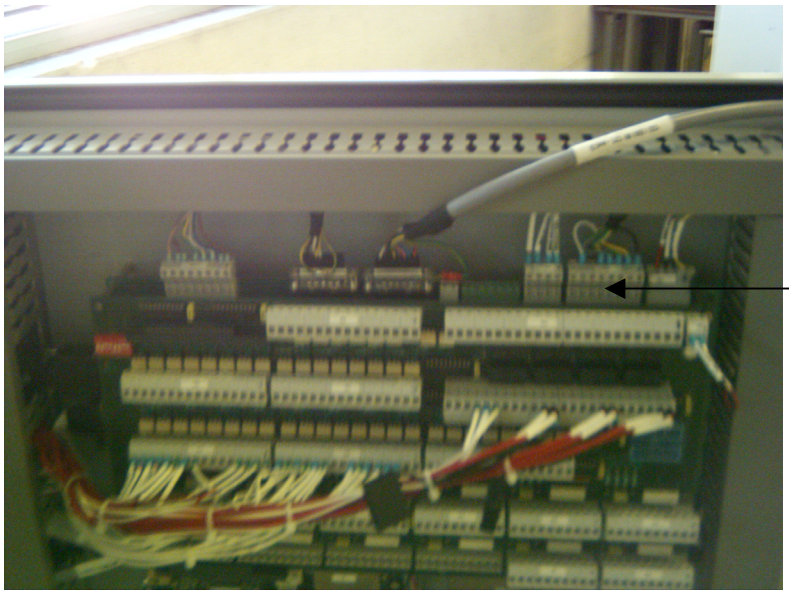


PHOTO 3a

Power supplies on J25: (plug 1 on the right side)
- plug 1 : +24vdc
- plug 2 : +12vdc
- plug 3 : +5vdc
- plug 4 et 5 : gnd
- plug 6 : -5vdc
- plug 7 : -12vdc

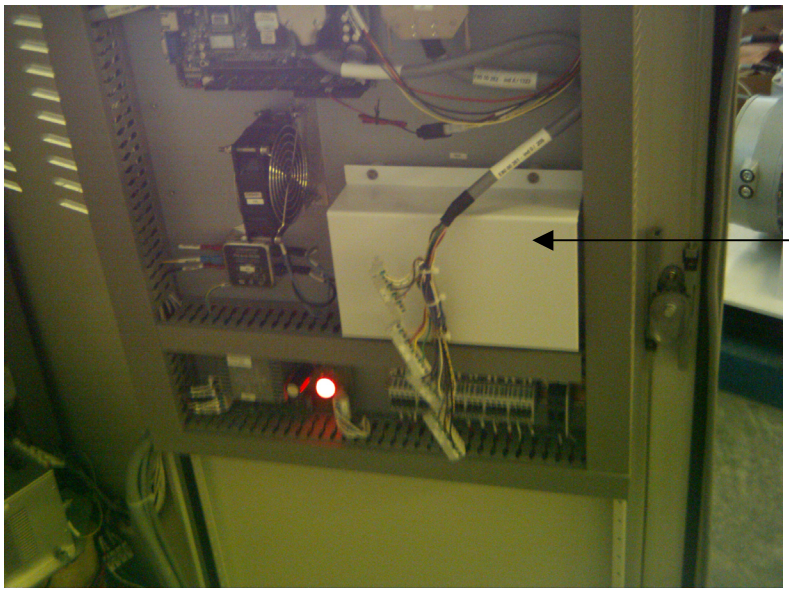


PHOTO 3a

Power supply board
LPQ112
02600006

TROUBLESHOOTING 6 :

MESSAGE « WAIT FOR VARIABLE SPEED» ON THE CONSOLE

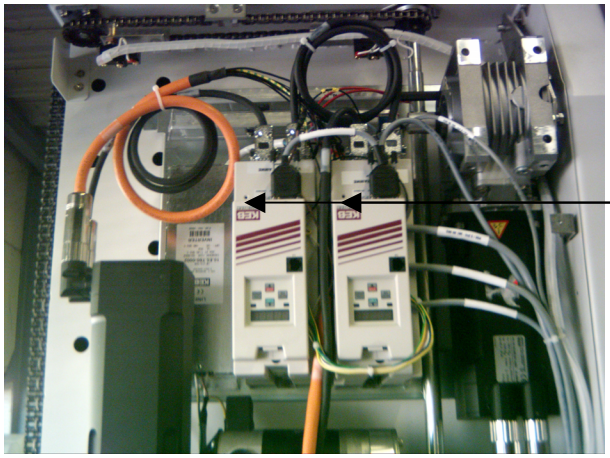
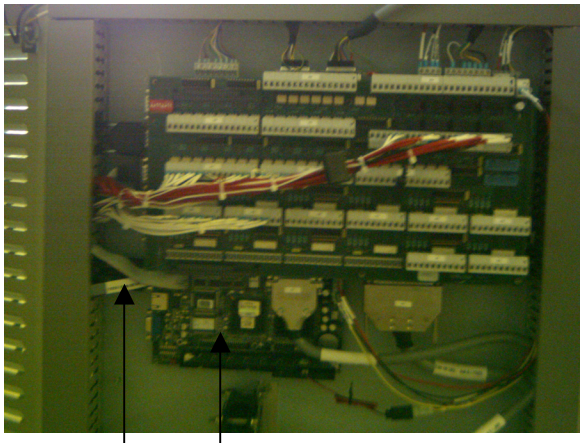


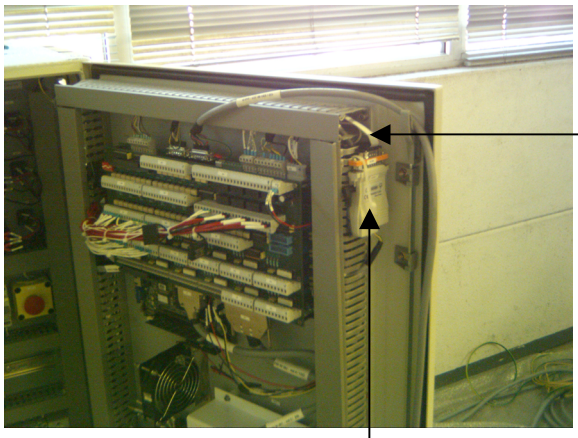
PHOTO 6a

Indicators light of variable speed switched on

PHOTO 6b

Connection between the PC board and the inverter





FLAT CABLE

PC BOARD
02800022

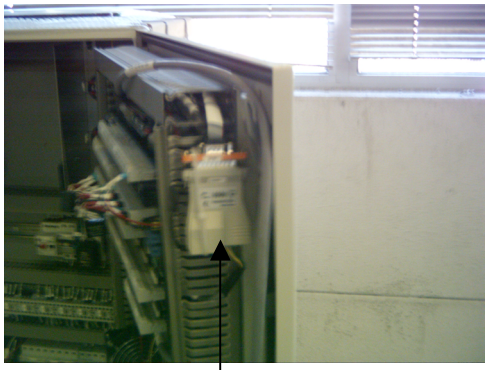
INVERTER
RS232/RS485
02800206

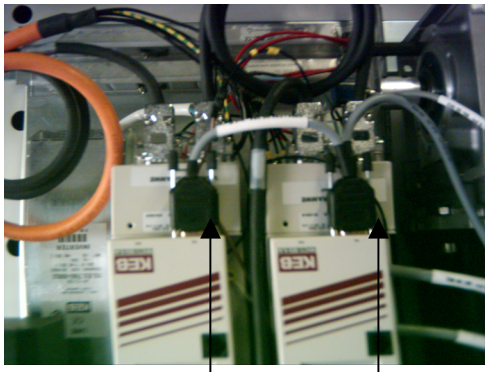
TROUBLESHOOTING 6 :

(CONTINUED)

PHOTO 6d

Continuity between the cabinet inverter and both the spot film device inverter (VAR3) and the column inverter (VAR4) of the table





Cable 1123 (E80000280) connecting the inverter to CA1 connector of the cabinet

Cable connecting CA1 to CT1

Cable 1204 (E80000284) connecting CT1 connector to 3 and 4 inverters