

VITALI

IDEAS & PROJECTS IN EVOLUTION.

T5 Re-Rm



Technician **EN**

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1 ► MANUFACTURER'S NOTES ON INSTALLATION

This technical manual, supplied to **VITALI** dealers, contains the information necessary in order to carry out those tasks **VITALI** considers may be carried out by specially trained and authorized technical personnel.

VITALI may not be held liable for the safety, reliability or performance of the equipment if:

- installation, adjustments, changes or repairs have not been carried out by qualified dealer personnel;
- the electrical system of the room where the equipment is installed is not in compliance with current regulations;
- the equipment is not used in accordance with the instructions.

The technical documentation supplied by **VITALI** along with the equipment contains all setting instructions and other information that may be used by specially trained user personnel, to work on those parts of the equipment that **VITALI** deems repairable by outside technicians.

VITALI declines all responsibility for personal injury or property damage derived from tampering by unauthorized personnel, lack of or inadequate maintenance, the use of non-original spares or failure to observe the instructions in the present manual.

This device must be used by qualified personnel only. **VITALI** shall not be liable for any direct or indirect damages connected with improper uses or abuses of the equipment.

NOTE: The equipment is available in two versions, identified by different letter pairs:

- Re** ▪ **Basic Version:** includes manual chair controls (Optional: 1 working position definable during installation).
- Rm** ▪ **Version with Memories:** includes manual and automatic controls, definable by the user.

2 ► WARRANTY

VITALI equipment is guaranteed ex works against defects in materials or workmanship for a period of twelve months following installation.

Your **VITALI** Dealer will provide any repairs or replacements needed during the warranty period. Any repairs that cannot be performed on-site will be carried out at authorized **VITALI** service centers. The customer will be charged only for transport costs.

Circumstances not covered by warranty

The warranty shall not be upheld in the event of:

- installation was not duly carried out in accordance with the directions provided in the Installation Instructions;
- servicing has not been performed by qualified personnel authorised by **VITALI**;
- non-original spare parts have been used;
- the technical systems supplying the device (electricity, water, pneumatic supplies) have not been set up in conformity with current technical standards and laws;
- supplementary equipment has been connected following the initial installation, exception being made for devices authorised by **VITALI**;
- the operating and maintenance instructions contained in the documentation furnished by the manufacturer are not complied with;
- the device identification label has been removed, erased or altered;
- the product displays damage caused by accidental impacts, faults or damage deriving from poor maintenance, improper use or abuse of the equipment, improper supply systems, exposure to flames, spilling of liquids, natural calamities, incompetence or any causes not ascribable to the manufacturer;
- the WARRANTY AND INSTALLATION CERTIFICATE has not been returned or registered by the user within 30 days of the date of installation (or delivery). The user may also delegate the dealer to fulfil this requirement.
- The Warranty does not extend to ceramic parts, bulbs or any parts subject to wear or which have deteriorated as a result of improper use or inadequate maintenance due to user negligence.

VITALI shall not be liable for inability to use the product caused by situations beyond its control, nor shall it be liable for any damage incurred as a result of inability to use the product.

Any unauthorised servicing that results in an impairment of the essential safety features provided by the manufacturer shall invalidate the CE DECLARATION OF CONFORMITY of the products.

Any parts to be replaced under warranty shall be returned to **VITALI** (together with the MAQ28 form) which shall provide for shipment of the required spare part.

The Warranty does not provide for compensation of direct or indirect damages of any kind caused by eventual defective equipment to people or things. **VITALI** shall freely decide whether to repair or replace defective products. All products replaced or repaired under warranty shall be subject to a 6-month warranty, commencing from the moment of repair or replacement.

Any spare parts sent under the clause "Anticipated replacement under warranty" shall be automatically invoiced should the corresponding defective parts not be returned to Vitali within 15 days of the shipping date. For fiscal reasons, spare parts shall be supplied under warranty provided Vitali has received the Certificate of Assembly and Warranty containing all the client's details.

The area dealer will be happy to provide you with any further information you may need.

VITALI IDEAS & PROJECTS IN EVOLUTION.

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CERTIFIED QUALITY SYSTEM
UNI EN ISO 9001:2008
UNI EN ISO 13485:2004

N° / No. / Fld. Nummer

DICHIARAZIONE DI CONFORMITA' CE
CE DECLARATION OF CONFORMITY
DECLARATION DE CONFORMITE CE
CE KONFORMITÄTSEKLRÄRUNG

Data / Date / Datum

DICHIARIAMO CHE IL PRODOTTO
WE DECLARE THAT THE FOLLOWING PRODUCT
NOUS DECLARONS QUE LE PRODUIT SUIVANT
WIR ERKLÄREN, DASS DAS PRODUKT

Prodotto nel / Produced on / Produit en / Hergestellt in

RIUNITO MODELLO / DENTAL UNIT MODEL
UNIT DENTAIRE, MODELE / BEHANDLUNGSEINHEIT, MODELL



Matricola / Serial Nr. / Matricule / Seriennummer

POLTRONA MODELLO / DENTAL CHAIR MODEL
FAUTEUIL DENTAIRE, MODELE / BEHANDLUNGSSITZ

Matricole / Seriennummer

FACSIMILE

è conforme ai requisiti essenziali di sicurezza della Direttiva 93/42/CE (D.Lgs.n.46/97) così come modificati dalla Direttiva 2007/47/CE (D.Lgs.n .37/2010)
complies with the essential safety requirements of the Directive 93/42/EC just as modified by the Directive 2007/47/EC
est conforme aux standards essentiels de sécurité de la Directive 93/42/CE ainsi que modifiés par la Directive 2007/47/CE
genauso der wesentlichen, wie von der Richtlinie 2007/47/EWG veränderten, Sicherheitsanforderungen der Richtlinie 93/42/EWG entspricht




















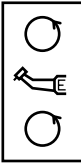



MARCO VITALI

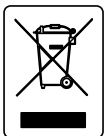
Amministratore unico / Sole Director / Administrateur Unique / Alleiniger Geschäftsführer

Concessionario / Distributor / Distributeur / Händler

Nome e indirizzo del Cliente / Client's name and address
Nom et adresse du Client / Name und Adresse des Kunden

3 ► SYMBOLS USED

Alternating current		Activate spray instrument	
Protective grounding		Chip-Blower	
Type-B equipment		Instrument on	
On / Off		Syringe water adjustment	
General warning		Syringe air adjustment	
Identification of manufacturer		Scaler water adjustment	
Device serial number	SN	Chip blower/spray air adjustment	
Parts accessible with surface temperature > 30 °C		Spray water adjustment	
Instrument function adjustment		Scaler potentiometer	
Instrument rotation speed adjustment		Instrument lighting brightness adjustment	
Pressurized bottle		Micromotor rotation direction reverse	
Pressurized bottle fluid level			
Autoclavable device			
Water mains			



Before disposal of waste produced during the use of the device or parts of the device itself, always carry out thorough disinfection and ensure that all parts that are potentially subject to biological contamination are correctly packed. Such parts must be disposed of in compliance with applicable national legislation and local bylaws. The local VITALI Dealer will be glad to satisfy your queries on national and local laws on correct waste disposal.

Applicable only within EU countries
2002/96/EC Directive on Waste Electrical and Electronic Equipments (WEEE).

The symbol on the product means that, in the event of decommissioning, the device cannot be disposed of as domestic waste, it must instead be divided into its various component material types for sorted waste disposal. The aim is to reduce the environmental impact of ANY electric or electronic equipment and minimize the volume of waste transported to dumps. Correct disposal prevents potential damages to personal health and to the environment.

For this purpose, VITALI has complied with the obligations that statutory regulations place under the responsibility of the manufacturer. The local VITALI Dealer will be able, if necessary, to give all information about.

The user can return the device to the manufacturer if a comparable device is purchased in its place. Improper disposal is punishable by law.


4 ► TECHNICAL SPECIFICATIONS

This equipment must work in environments with a relative humidity between 45% and 75%, and with an ambient temperature between 10 and 35 °C.

DENTAL UNIT

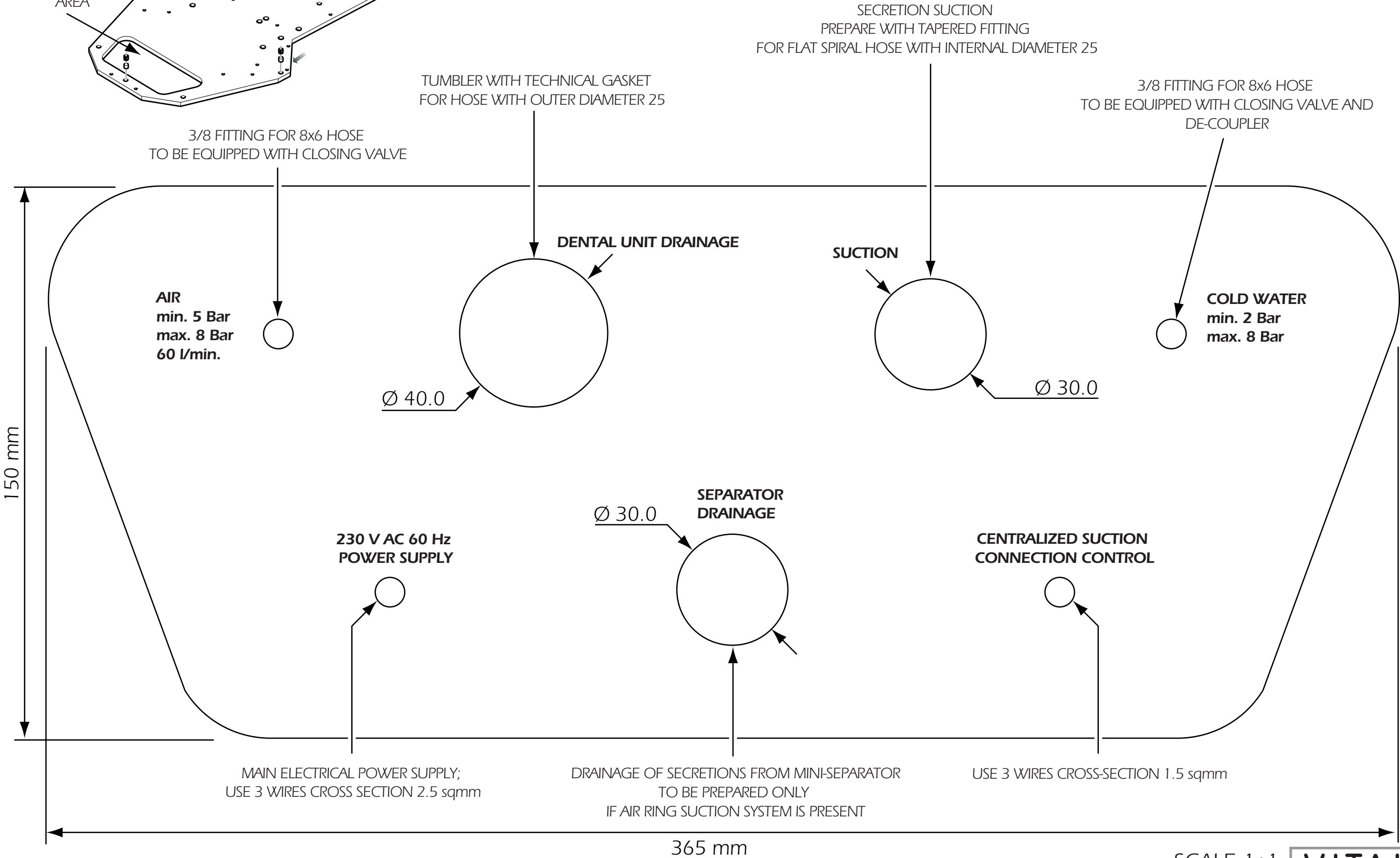
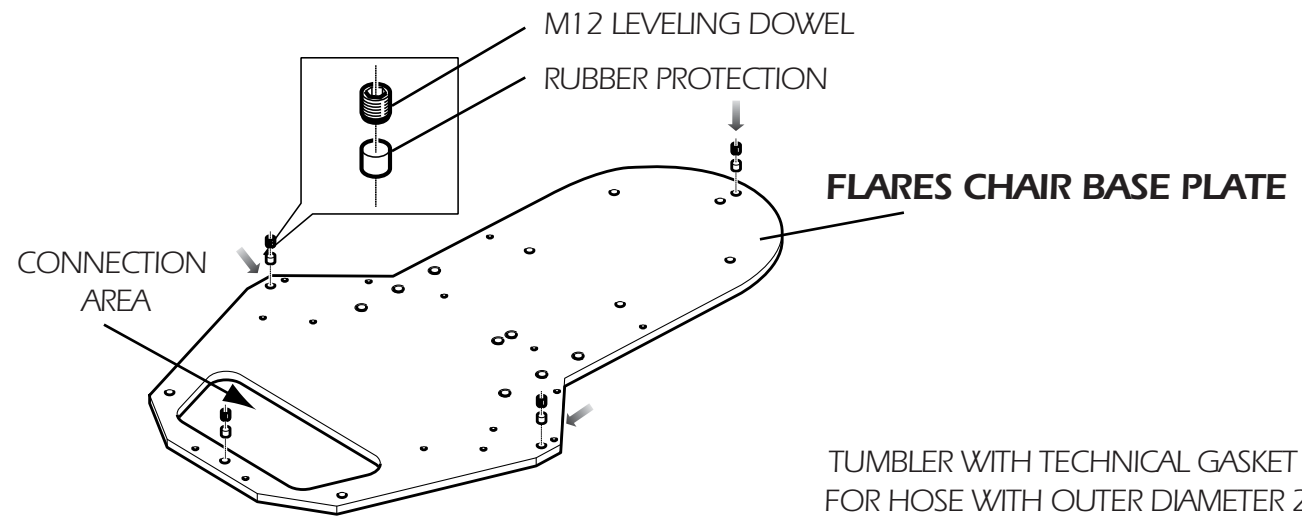
Model	T5
Class (EN 60601-1)	Class I
Class (Medical Devices Directive MDD)	Class IIa
Protection rating	Type B 
Power supply	230 V 50-60 Hz 600 VA
Inlet air pressure	min. = 5 bar ; max. = 10 bar
Inlet water pressure	min. = 2 bar ; max. = 10 bar
Air minimum capacity	60 L/min.
Max. weight applicable to instrument tray	1,5 kg
Weight (Kg)	40 kg
Filtering capability of suction filter	ø 0,8 mm
Filtering capability of bowl filter	ø 1,5 mm
Filtering capability of air filter	20 µm
Filtering capability of water filter	80 µm

CHAIR

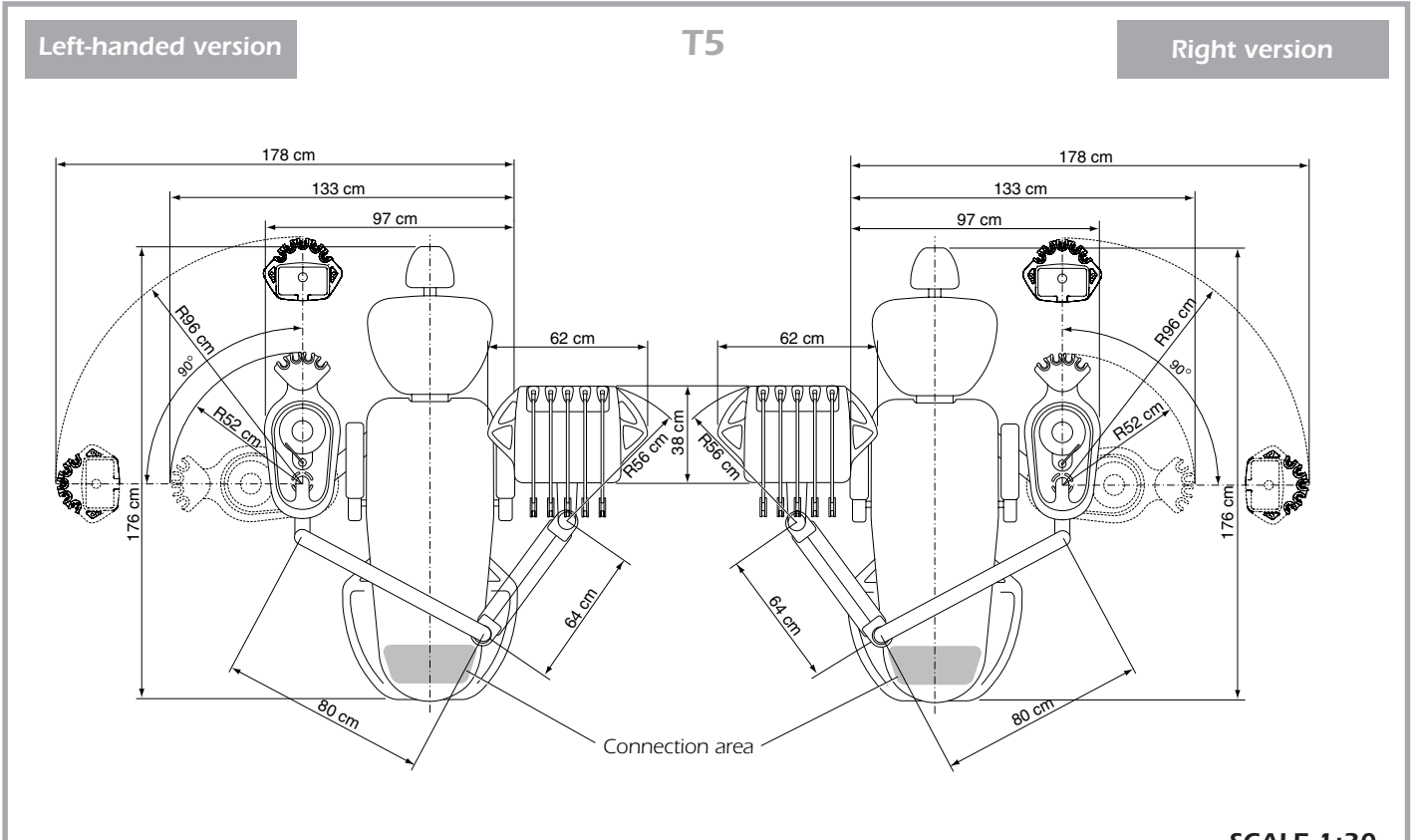
Modell	FLARES
Class (EN 60601-1)	Class I
Protection rating	Type B 
Power supply	230 V 50-60 Hz 300 VA
Total weight	127 Kg
Minimum seat height	45 cm
Maximum seat height	85 cm
Maximum seat width	50 cm
Total chair lift time	~ 15 sec
Total chair descent time	~ 15 sec
Total backrest lift time	~ 10 sec
Total backrest descent time	~ 10 sec

 **WARNING!** THE CORRECT OPERATING OF THIS EQUIPMENT DEPENDS ON THE OBSERVANCE OF THE PARAMETERS ABOVE.

 **WARNING!** THE EQUIPMENT IS NOT INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES (ATEX DIRECTIVE).



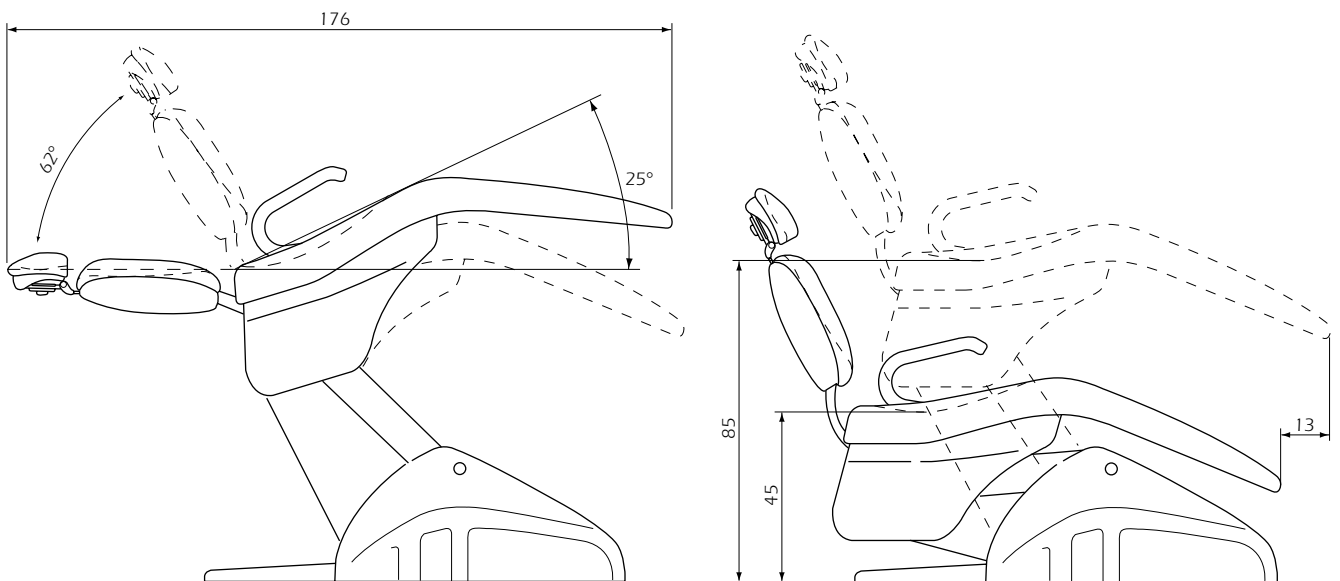
6 ► OVERALL DIMENSIONS



SCALE 1:30

FLARES

SYNCHRONIZED TRENDELENBURG POSITION



SCALE 1:20

7 ► INSTALLATION INSTRUCTIONS

**PLEASE FOLLOW THE INSTRUCTIONS BELOW CAREFULLY
FOR INSTALLING THE FLARES CHAIR!**

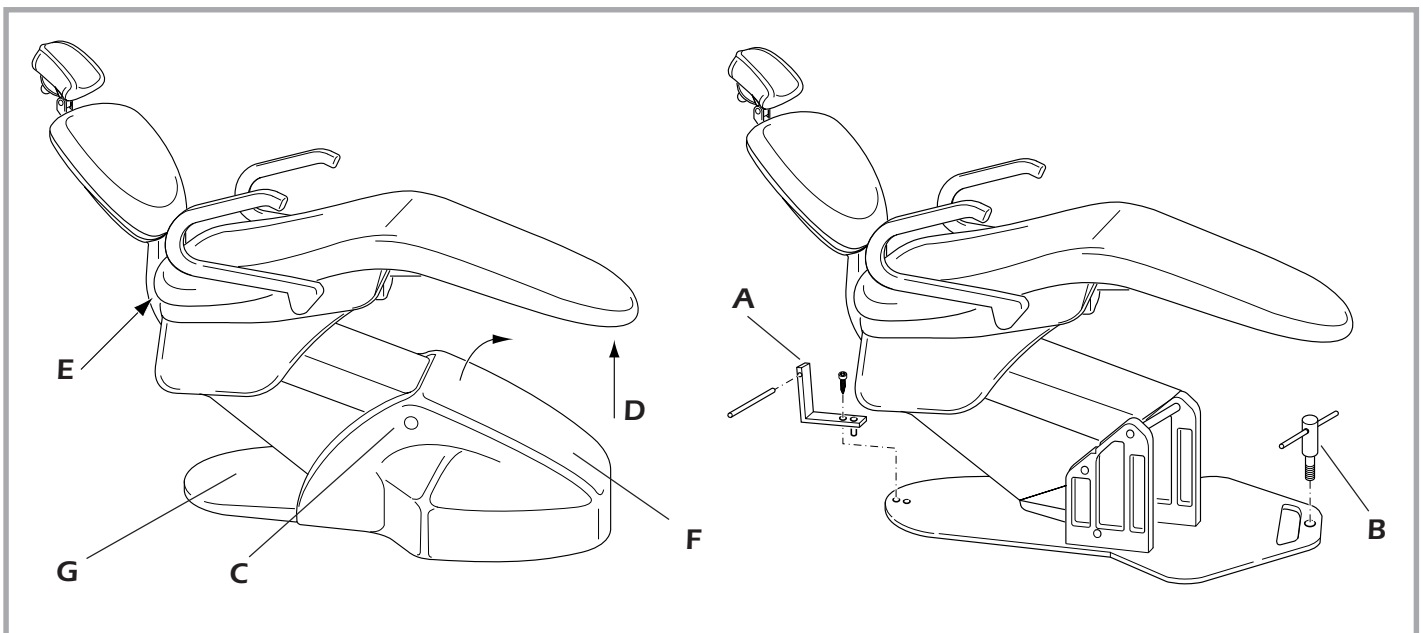
To avoid breaking the plastic housing, please use the special keys "A" and "B" supplied with the chair. Use them as follows:

- 1) Power the chair at 230 V AC - 50/60 Hz - single-phase

WARNING!

The power supply cable should be directly connected to the electrical installation:
DO NOT make use of extension cables.
Each equipment have to be individually connected to a socket
through the provided plug, without using multiple outlets.

- 2) Press the main switch "C"
- 3) To raise the chair, use the foot control (if present) or dentist keypad, after connecting it to the connector CN20 of the chair card. In this case, see the chapter on "**Setting the Chair Movement Dip-switches**"
- 4) Remove the grey polyurethane cover "G" and tighten the key "A"
- 5) Remove the upholstery from the seat, pulling on points "D" and "E"
- 6) Remove the housing "F", after first turning the mobile part of the seat (see the chapter on "**Accessing the internal parts - Flares**")
- 7) Tighten the key "B" in the point shown in the illustration
- 8) Move the chair by lifting it with the keys "A" and "B"
- 9) Remove the keys "A" and "B".



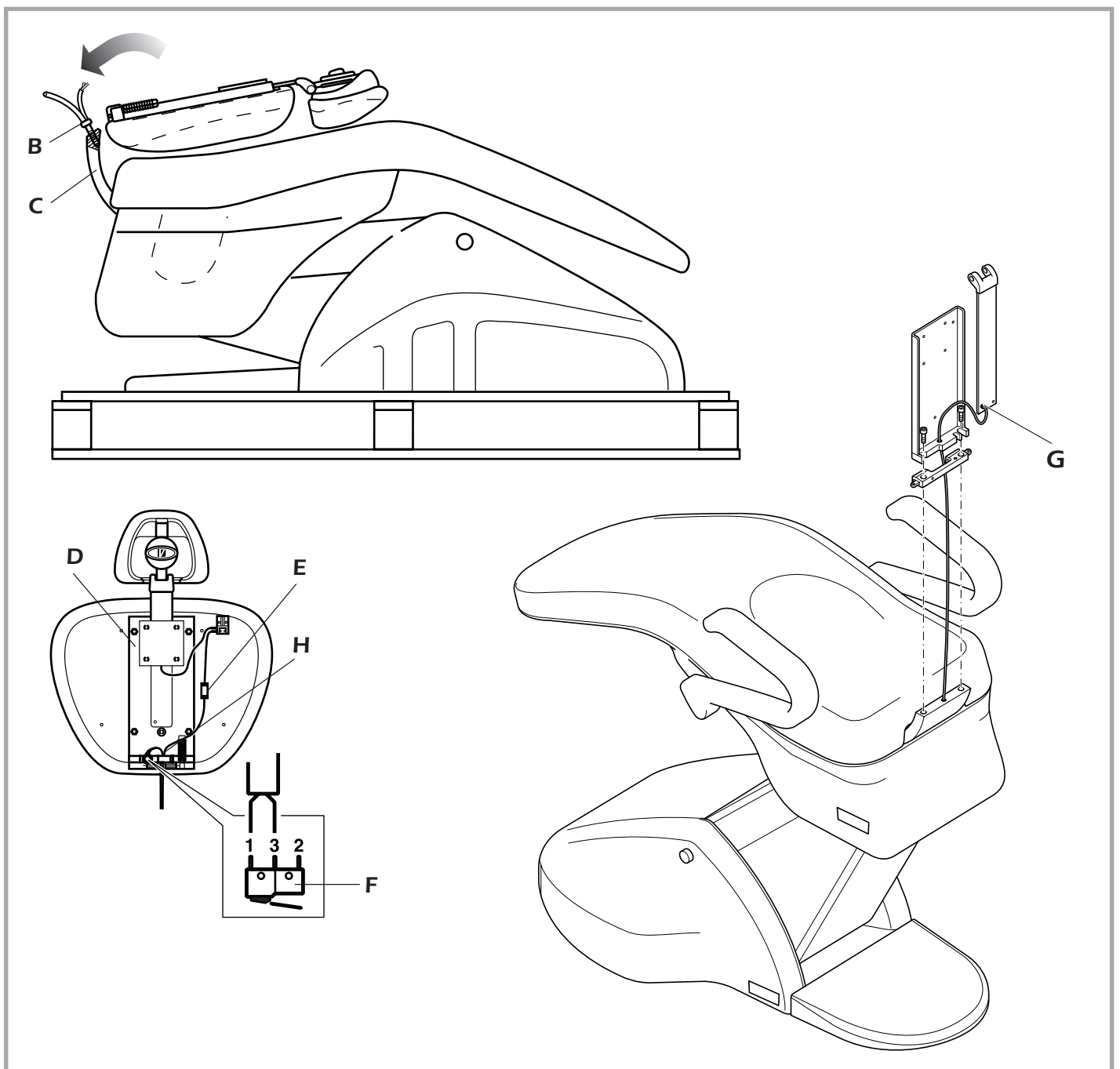
NOTE: For more details on removing the housing "F" and the seat upholstery, see the chapter on "**Accessing the internal parts - Flares**".

Assembling the backrest

NOTE: The Flares backrest is supplied disassembled and appropriately packed. During installation, failure to correctly complete all of the connections shown will seriously compromise the safety and proper operation of the equipment.

Proceed as follows to assemble the backrest:

- 1) Insert the white Rilsan hose and electrical wires through the hole "H" on the base of the backrest frame "D"
- 2) Attach the backrest using the two M8 Allen screws "B" on the support "C"
- 3) Connect the white Rilsan hose to the quick fitting "E"
- 4) Connect the electrical cable to the microswitch "F" as shown in the illustration
- 5) Connect the grounding safety wire in point "G".

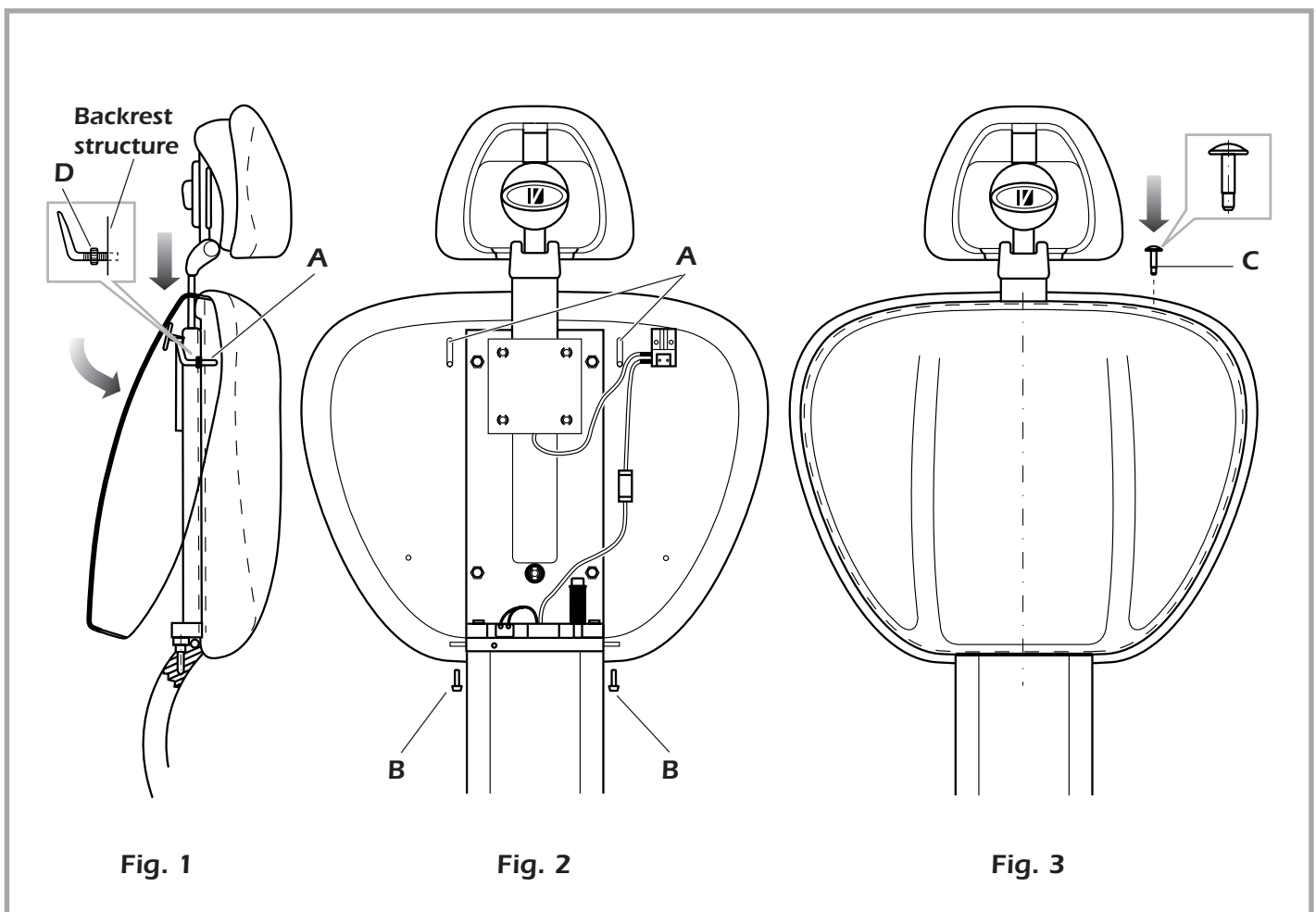


Assembling the backrest housing

Proceed as follows to assemble the backrest housing:

- 1) Make sure the distance between the hooks "A" and the backrest structure is properly adjusted, to avoid unnecessary strain when assembling the backrest upholstery, which could lead to breakage of the backrest guard.
- 2) If necessary, correct the position of the hooks "A" by loosening the nuts "D". Tighten the nuts "D" when the adjustment is complete
- 3) Tilt the backrest as shown in fig. 1 and fasten it using the hook "A". Pull downward until it is fully engaged with the upholstery.
- 4) Fasten the guard in place using the two tapered screws "B" (fig. 2).
- 3) Finally, mount the headrest bracket release button "C" (fig. 3).

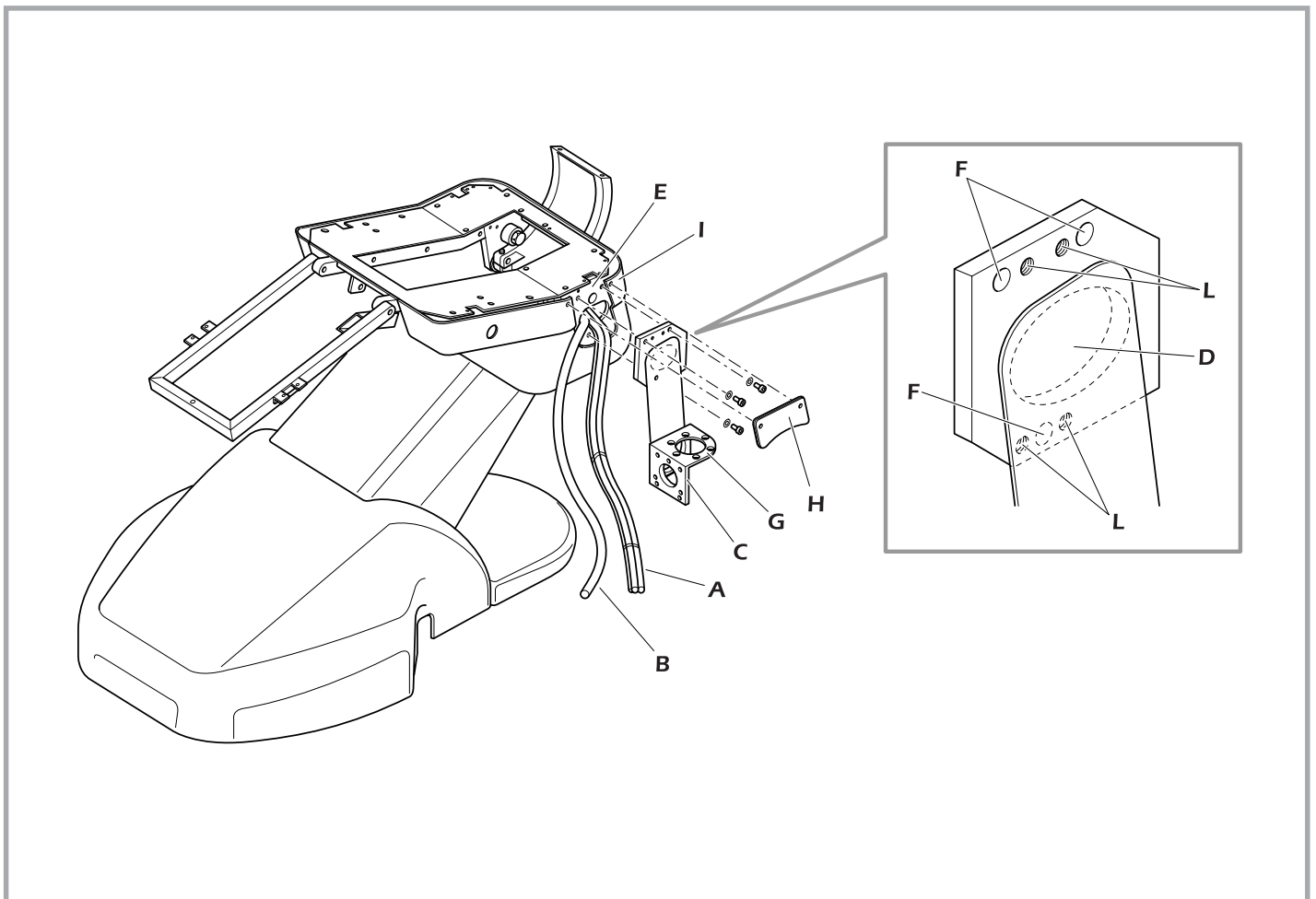
Perform the same steps in reverse order to remove the backrest housing.



Mounting the dental unit bracket on the chair

Proceed as follows:

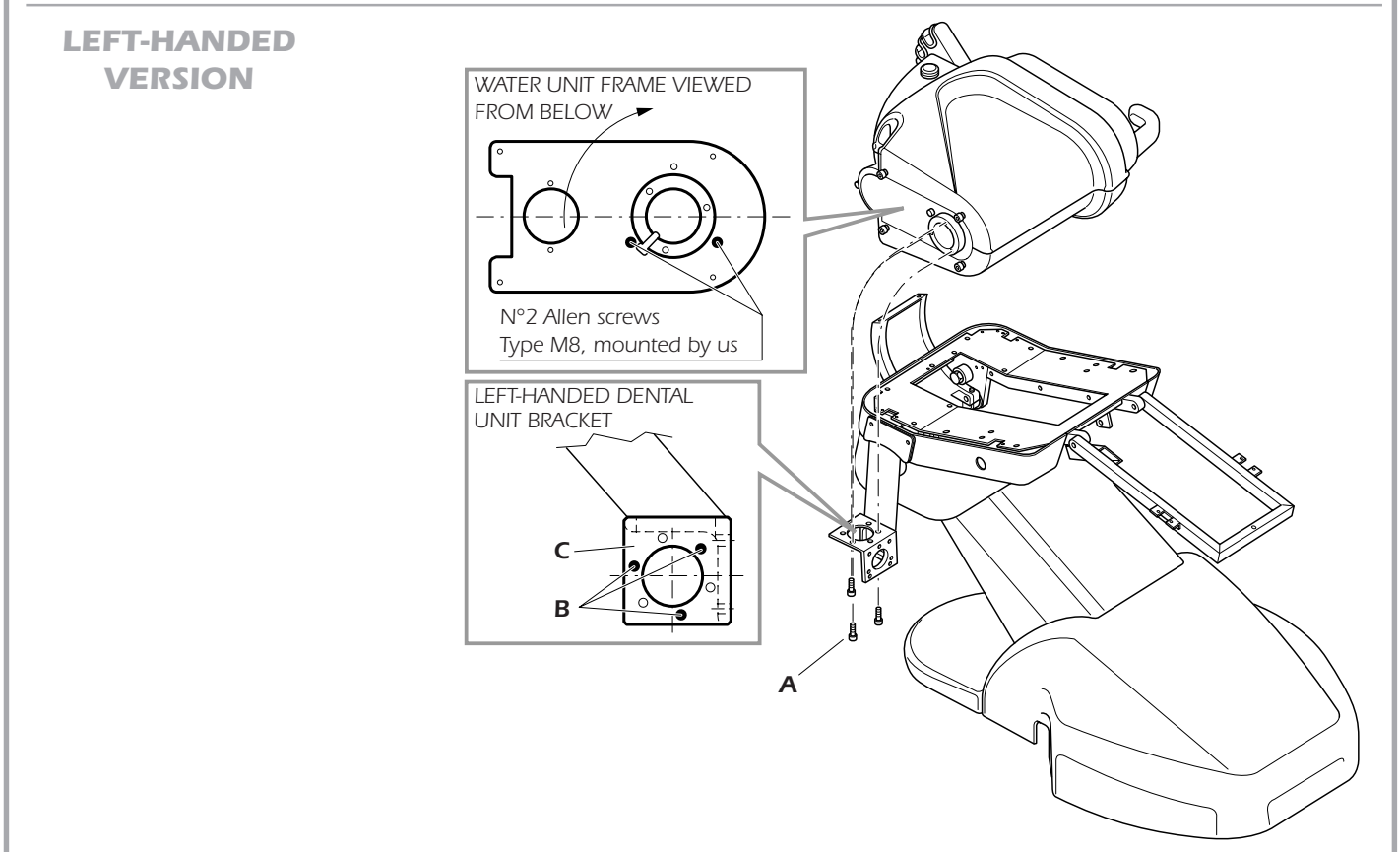
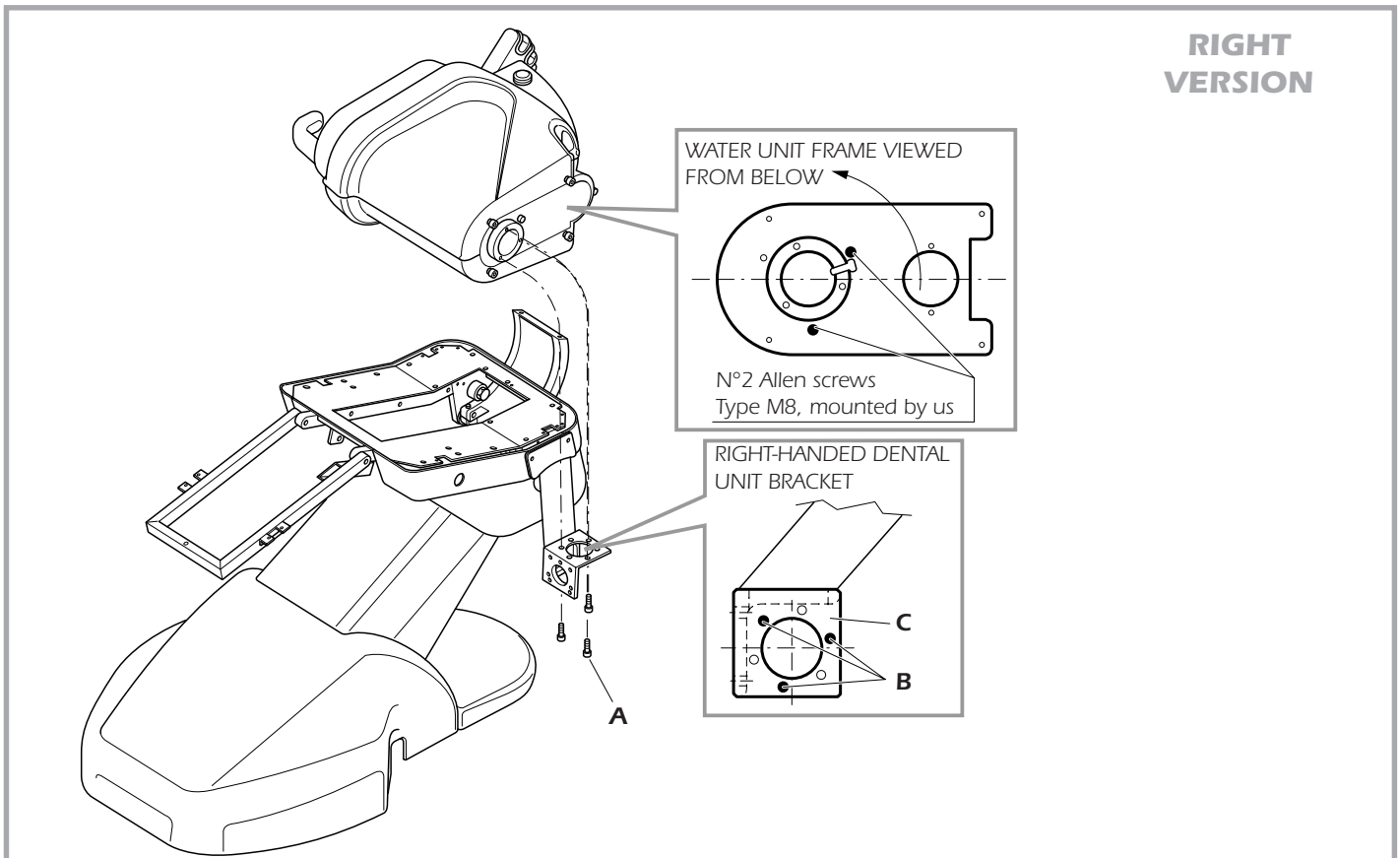
- 1) Insert the tube bundle "A" (bundle of electrical cables clamped to the ribbed grey suction hose id. 25 and the sheath containing the air and water intake hoses) through the hole "D" in the bracket "C".
- 2) Insert the hose "B" (transparent Armovin water drainage hose diam. 20x27).
- 3) Attach the bracket in area "E" through the holes "F" using the three M10 Allen screws.
- 4) Level using surface "G" as a reference by means of the four M10 dowels "L" and tighten the three M10 Allen screws.
- 5) After fastening the bracket, cut the plastic clamps on the bundle of hoses "A".
- 6) Fit the closing guard "H" on the seat guard "I" and fasten by means of the countersunk screws M6 supplied.
- 7) Cover the M6 screws using the two white covers supplied.



Assembling the water unit

Follow the instructions below to assemble the water unit:

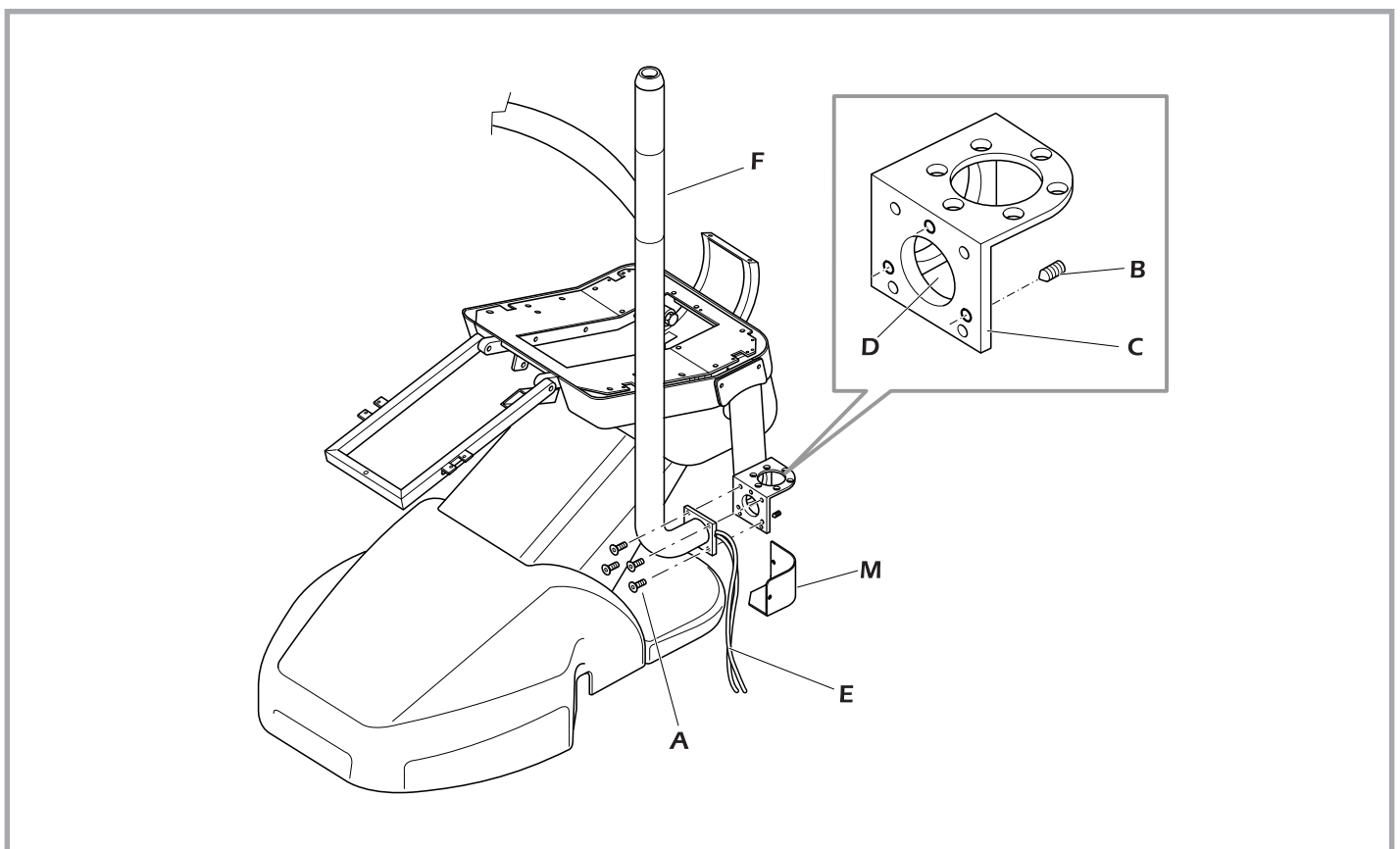
- 1) Use the 3 M8 Allen screws "A" to fasten the water unit, inserting them through the holes "B" in the bracket "C".



Assembling the instrument table arm

Proceed as follows to assemble the instrument table arm:

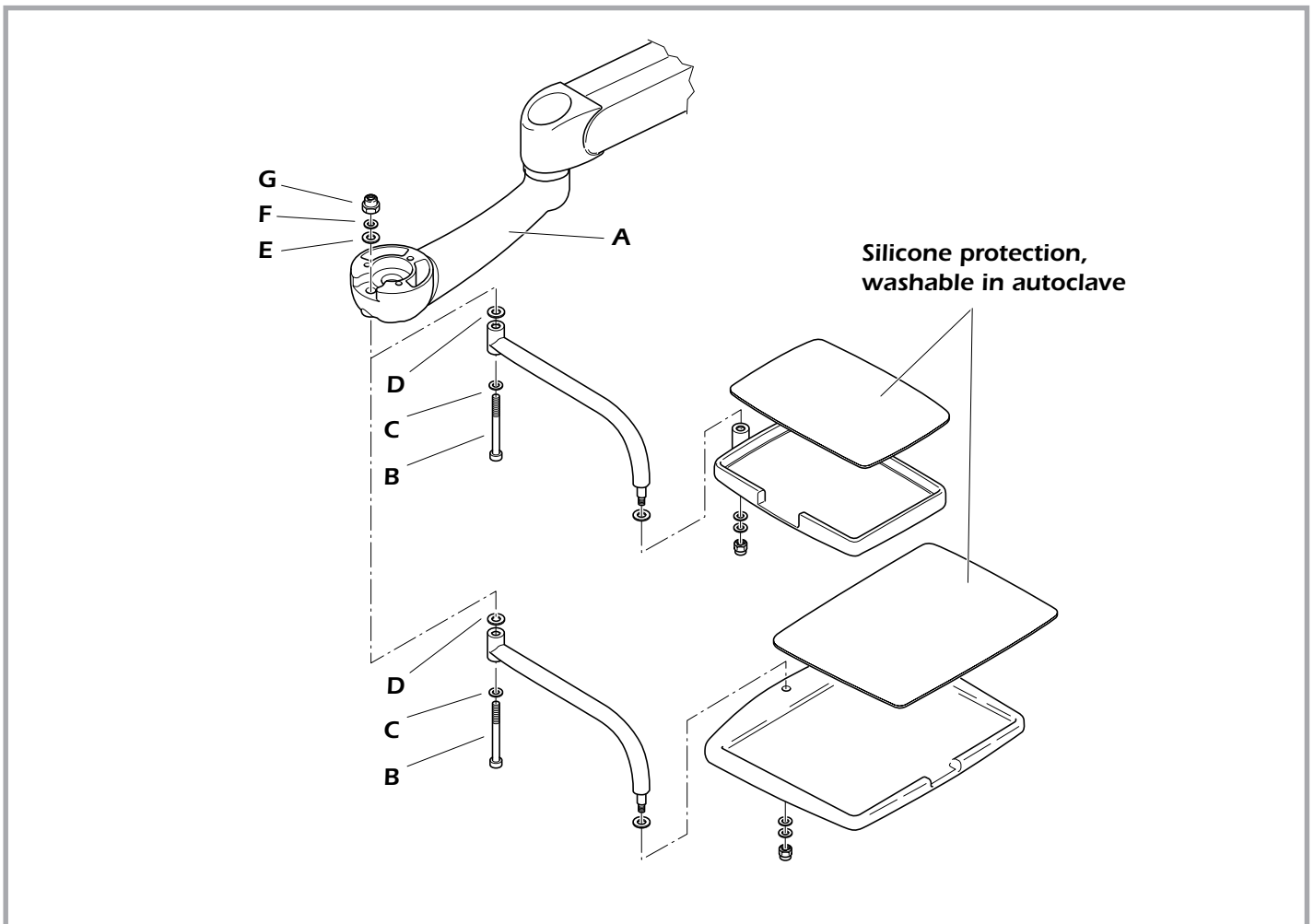
- 1) Insert all of the cables and hoses "E" from the instrument table arm through the hole "D"
- 2) Secure the tray table to the dental unit bracket with the four M8 screws "A" provided, level the arm with the three M10 dowel pins "B" located on side "C".
- 3) Level using surface "F" as a reference allowing for possible bending and tighten the four Allen M8 screws "A".
- 4) Tighten the three M10 dowels "B" to avoid losing the leveling adjustment.
- 5) After installation, apply protection guard "M" on the bracket "C" by means of the two M5 screws.



Assembling the tray table

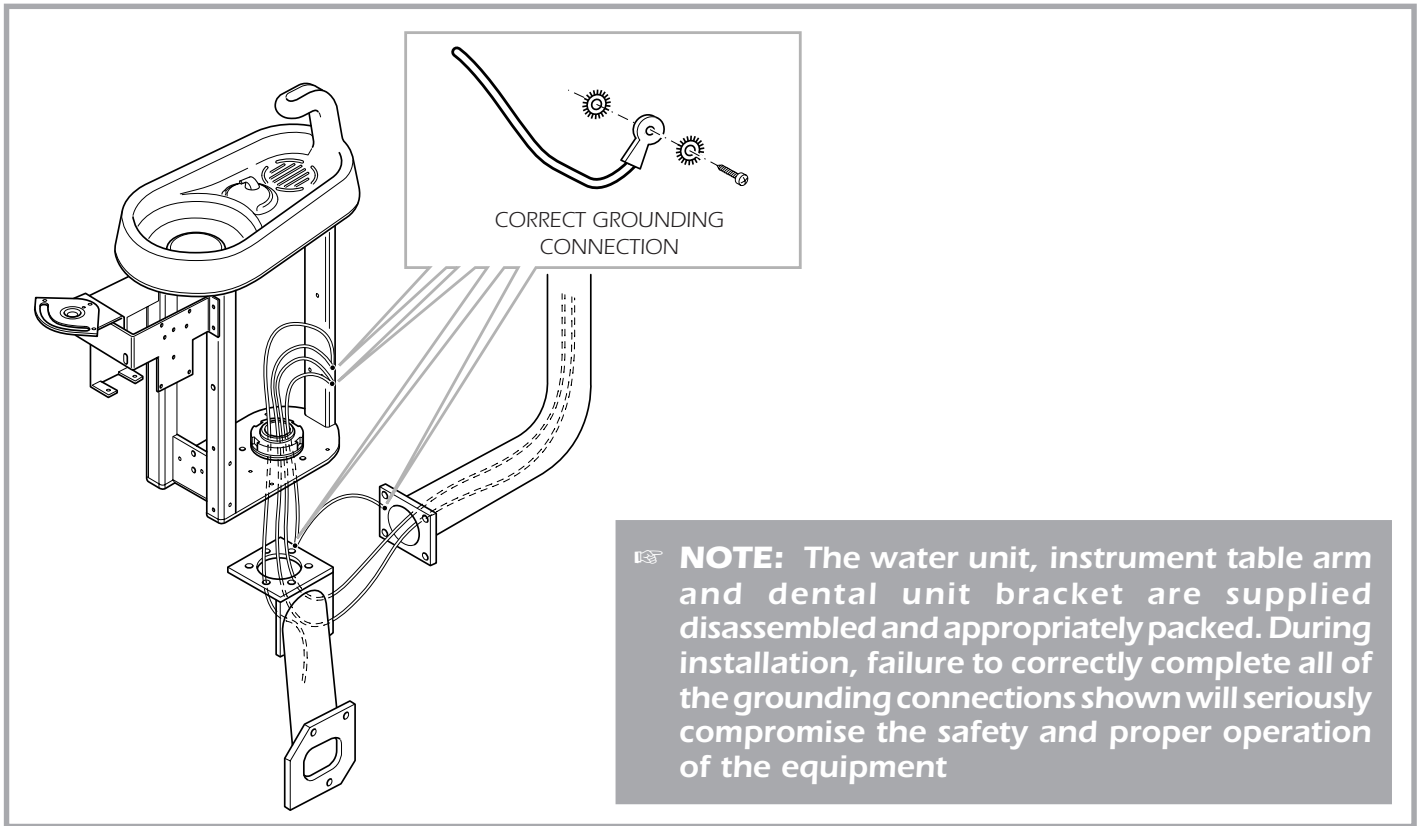
The tray table is supplied assembled. Fasten it to the instrument table support "A" as follows:

- 1) Use the M12 Allen screw "B" to fasten it to the instrument table support "A", making sure to insert the nylon washers "C", "D", "E" and the metal washer "F".
- 2) Finally, adjust the correct friction by means of the M12 nut "G".

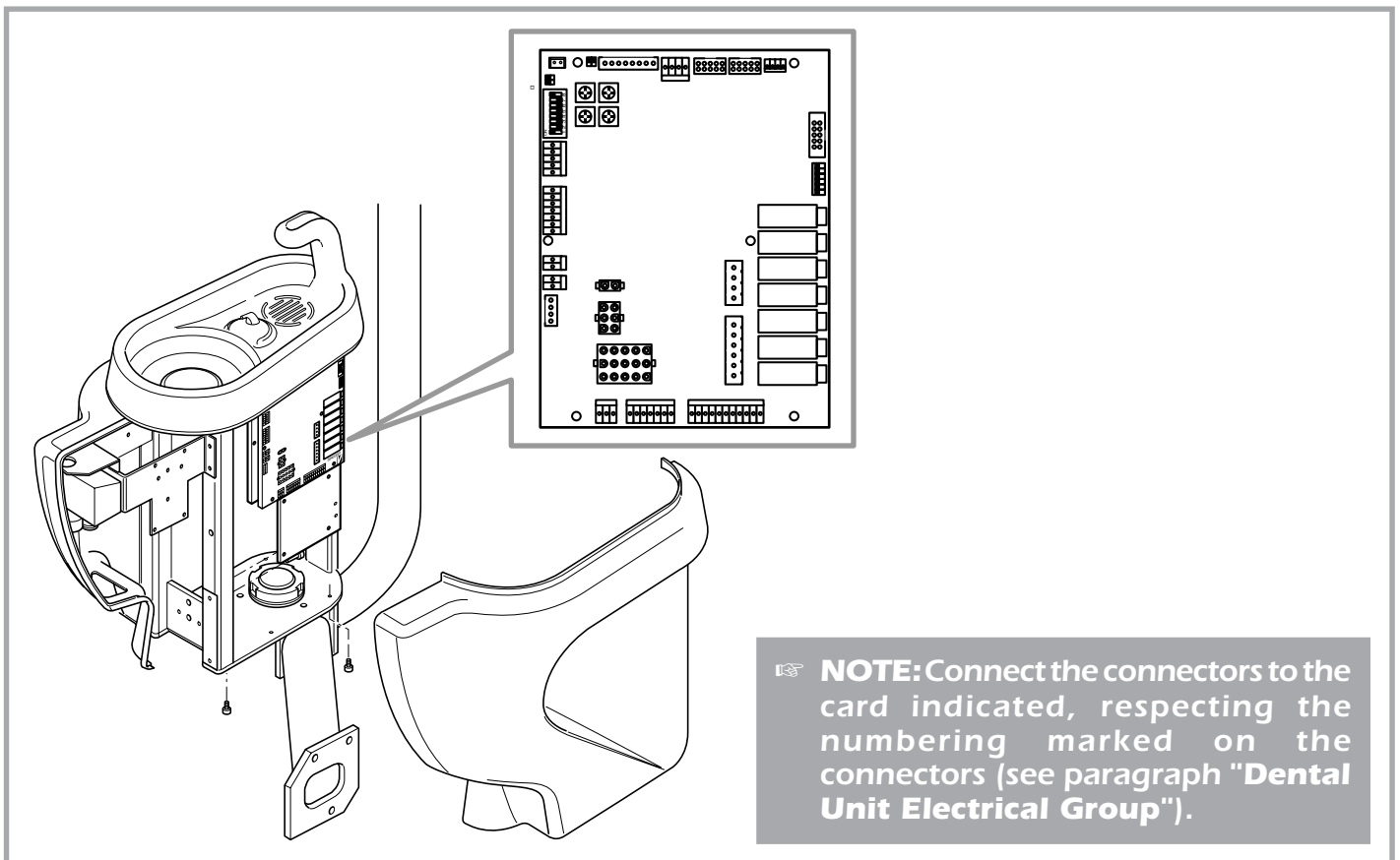


NOTE: maximum weight applicable to the tray table = 1.5 kg.

Grounding connection water unit - dental unit bracket - instrument table arm



Water unit electrical connection

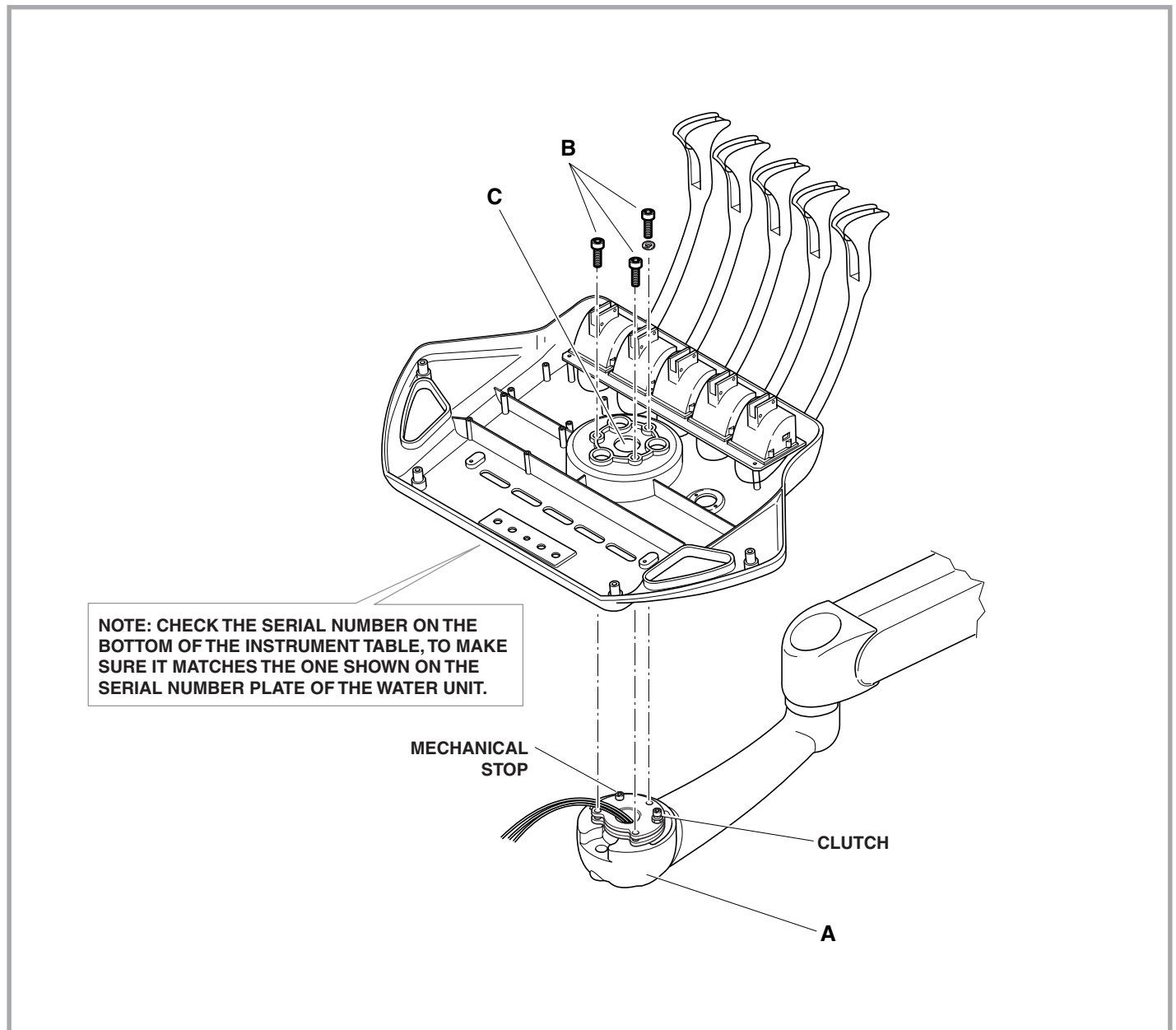


Assembling the instrument table

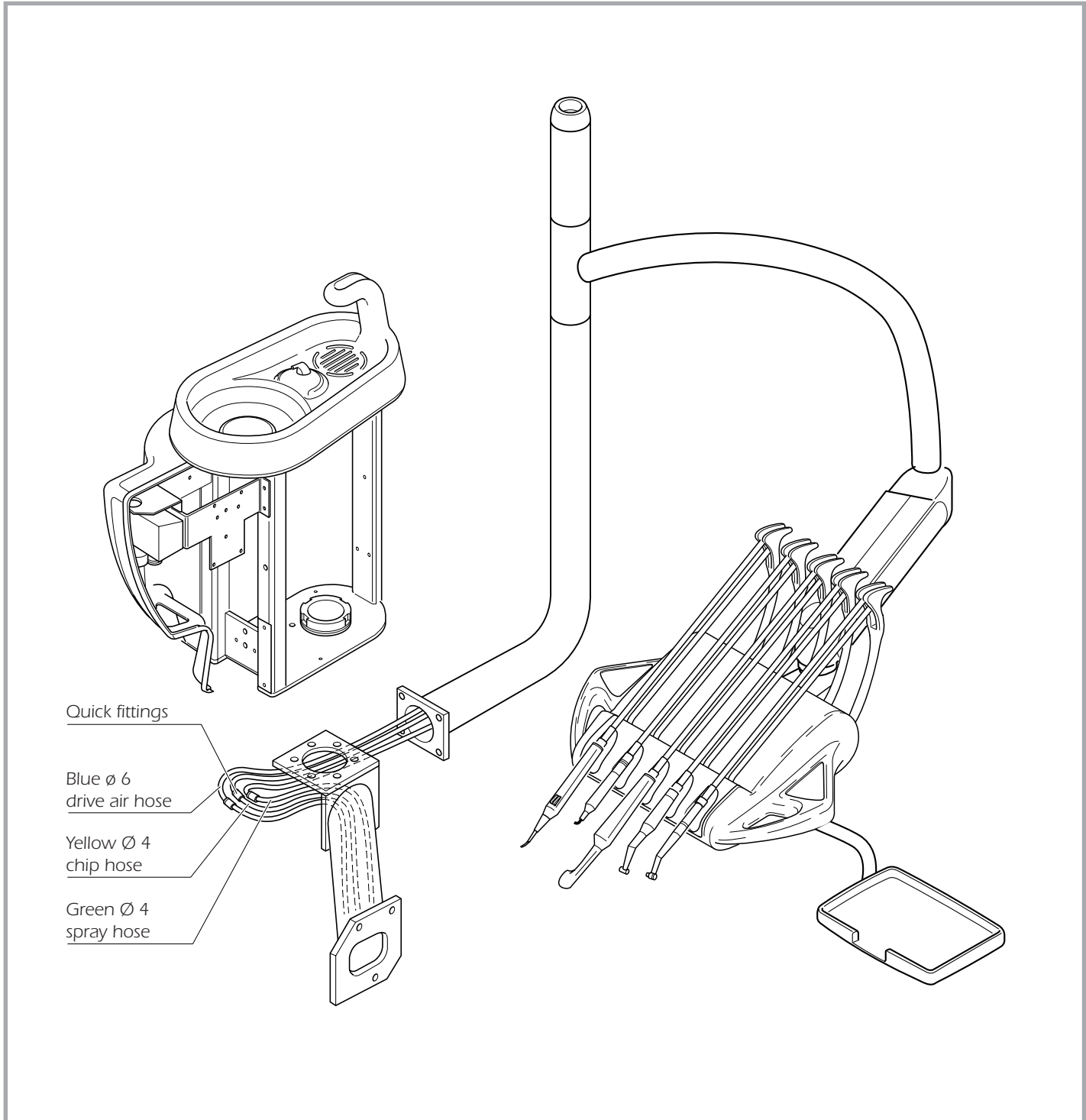
To access the interior of the instrument table, see the chapter on "**Accessing the internal parts of the instrument table**".

Before fastening the instrument table, insert all of the cables from the support "**A**" through the hole "**C**" at the bottom of the instrument table.

Use the 3 M8-screws "**B**" provided to fasten the instrument table to the support "**A**".

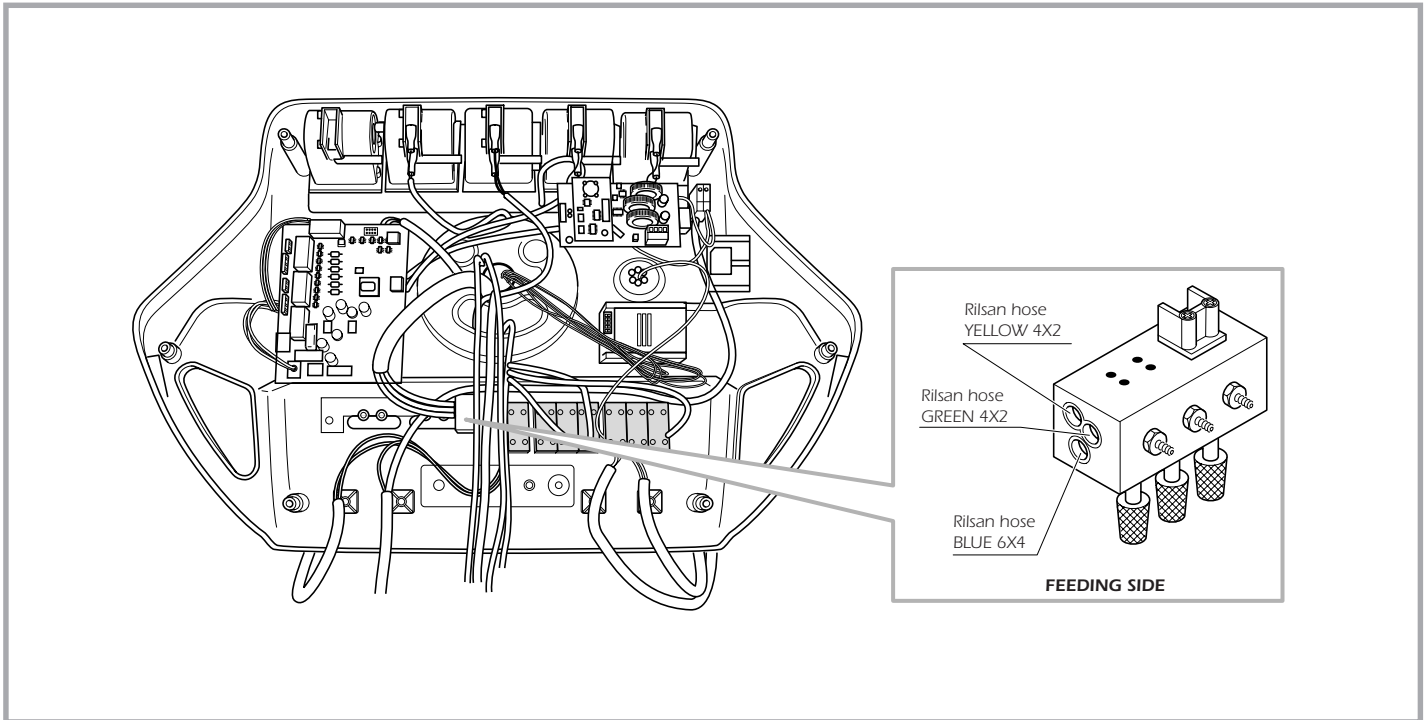


Hydraulic and pneumatic connections for the instrument table



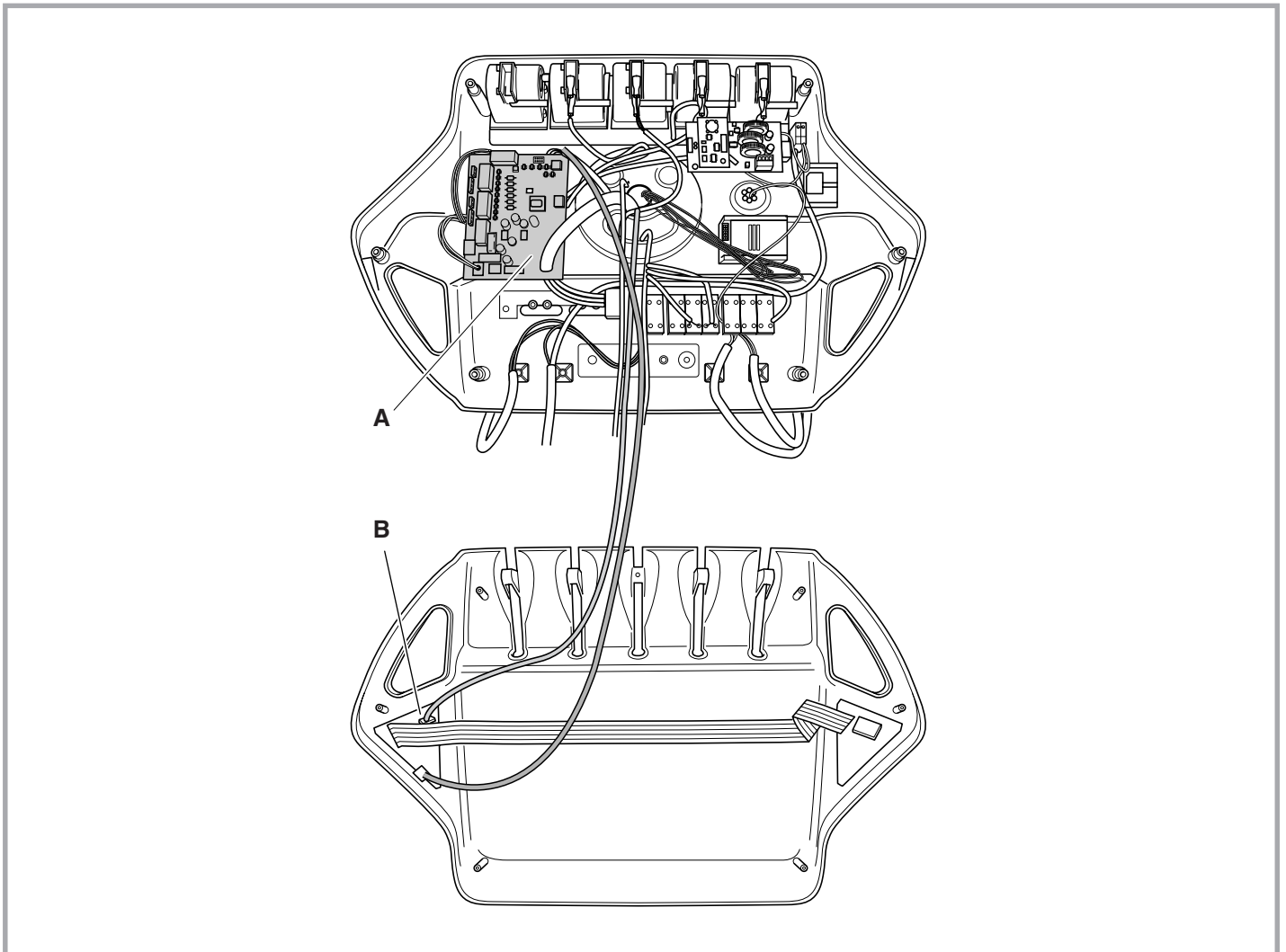
To access the interior of the instrument table, see the chapter on "**Accessing the internal parts of the instrument table**".

Connect the Rilsan hoses to the solenoid valve groups, as shown in the figure.



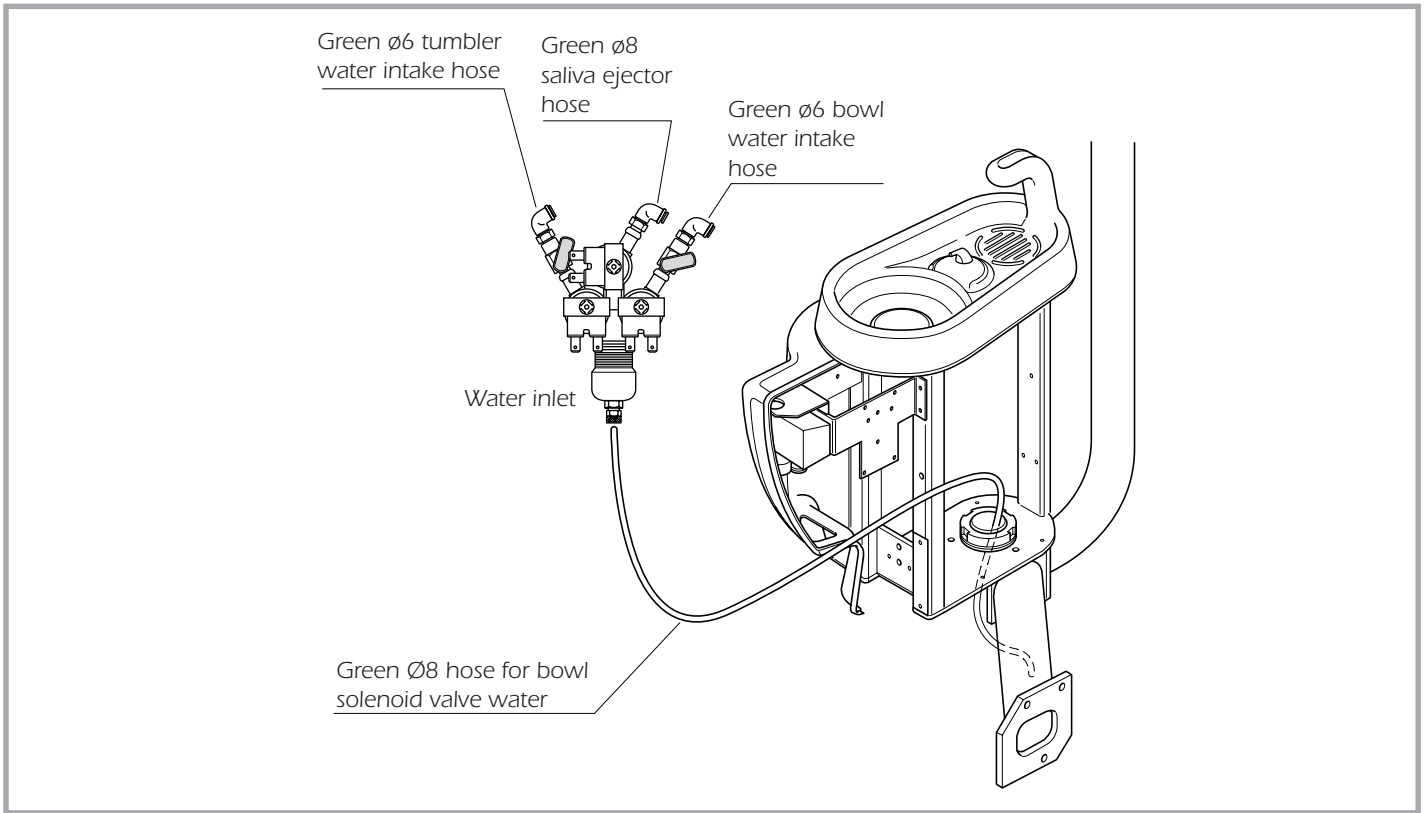
Electrical connections for the instrument table

Connect the connectors to the cards "A" and "B" respecting the numbering indicated on the connectors (see paragraph "Instrument Selection Card").

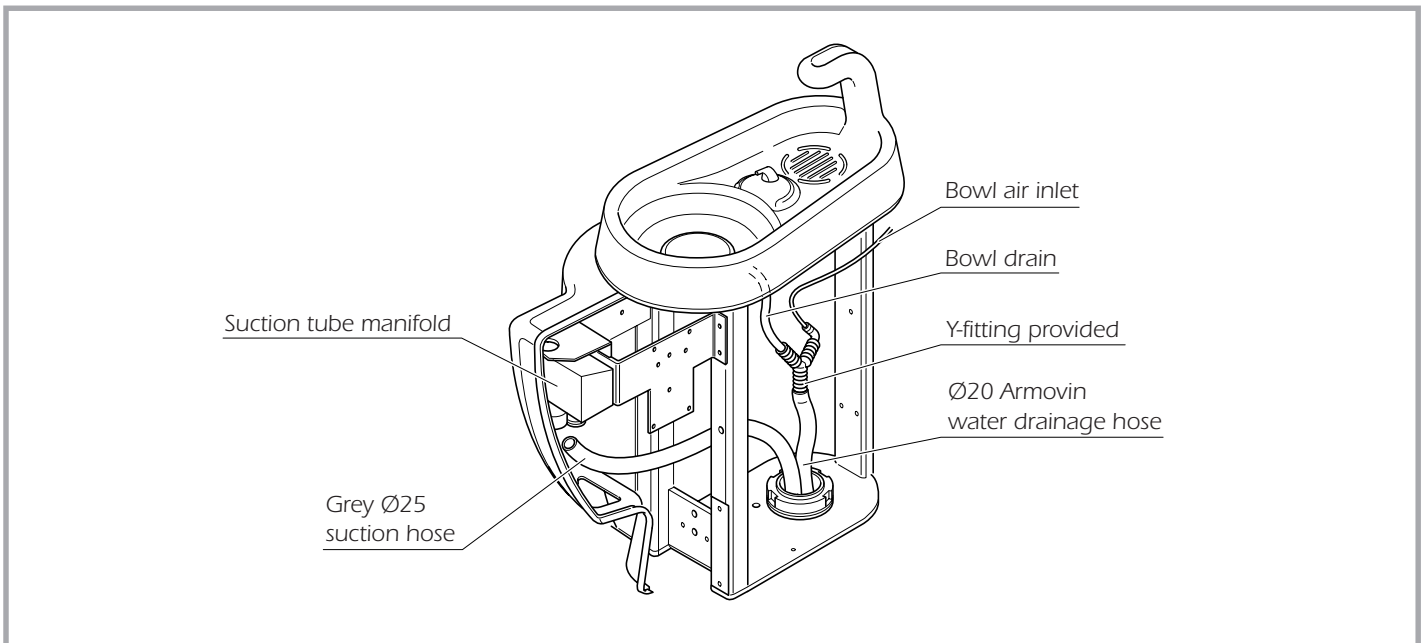


NOTE: The instrument table is supplied disassembled and appropriately packed. During installation, failure to correctly complete all of the connections shown will seriously compromise the safety and proper operation of the equipment.

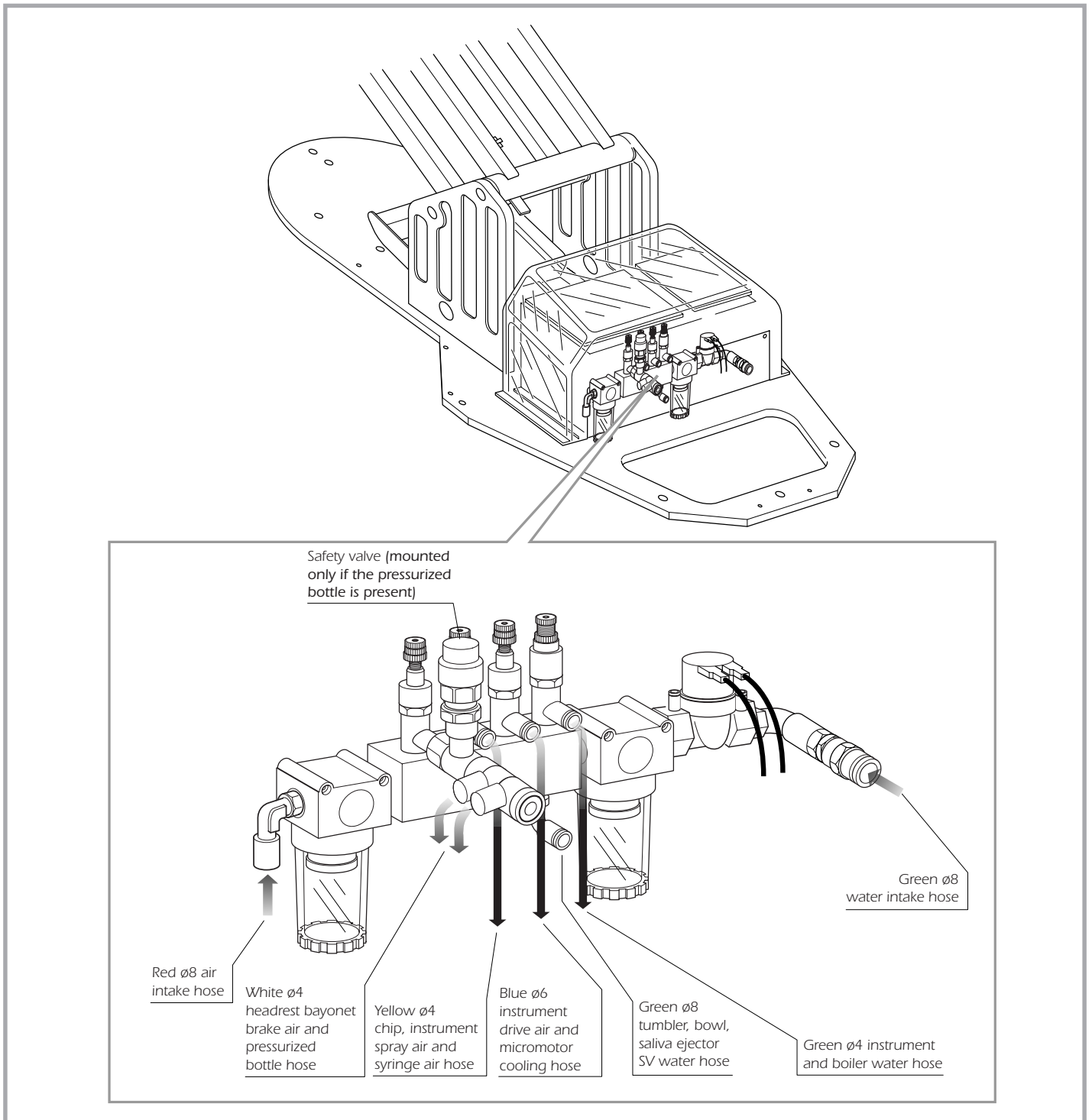
Hydraulic connection for water unit



Bowl suction and flushing connection



Hydraulic and pneumatic connections to the connector block



NOTE: To access the air and water units, see the chapter on "Accessing the internal parts of the water unit".

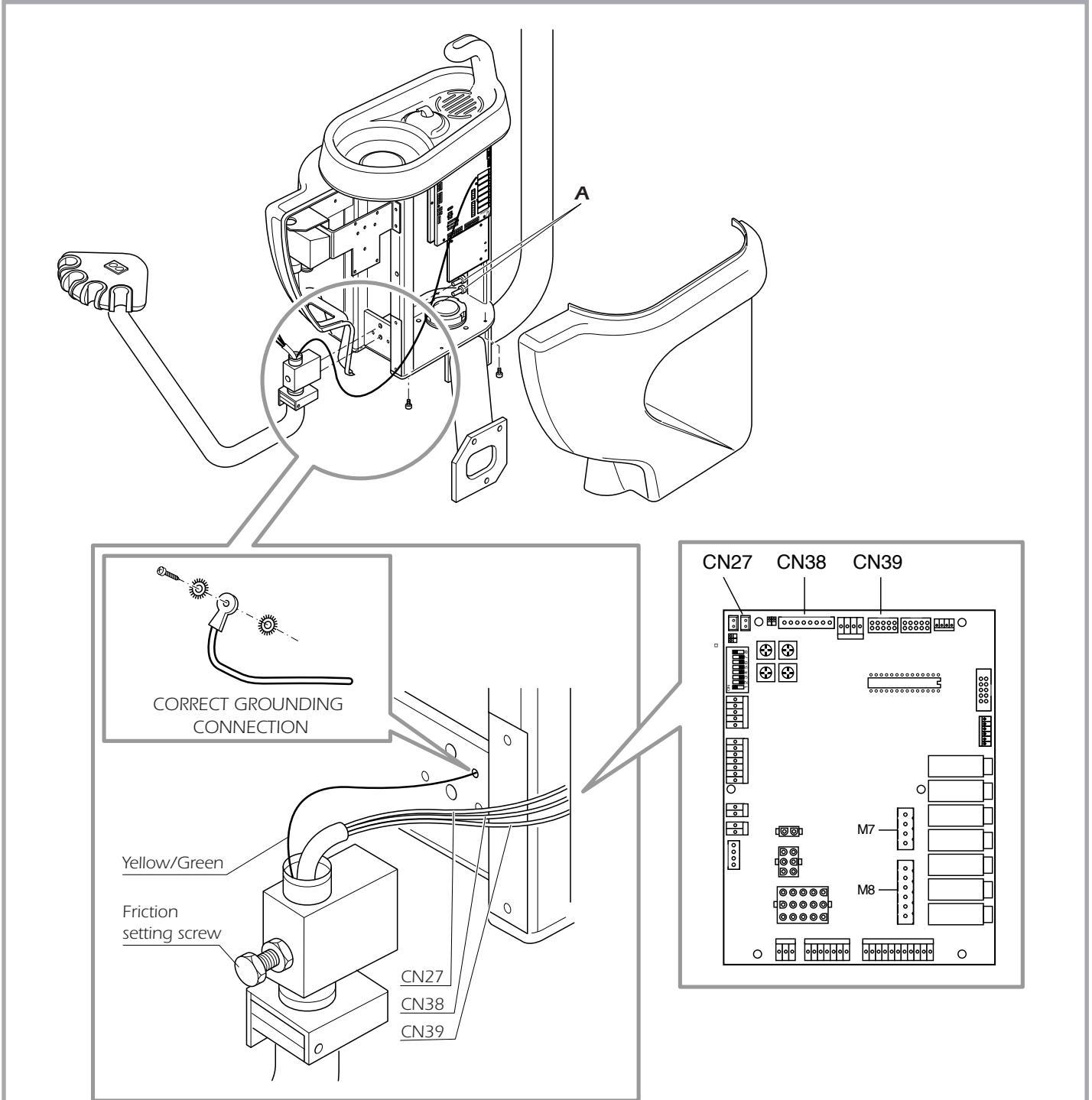
Assembling the optional suction tube support arm and grounding connection

To access the interior of the water unit, see chapter “**Accessing the internal parts of the water unit**”.

The suction tube support arm is supplied disassembled. Proceed as shown in the figure to assemble.

Use the 2 M8 screws “**A**” to fasten the arm, and complete the electrical connections as shown in the figure.

NOTE: The jumper on the connector CN27 allows the chair to move in the absence of the suction tube support arm.

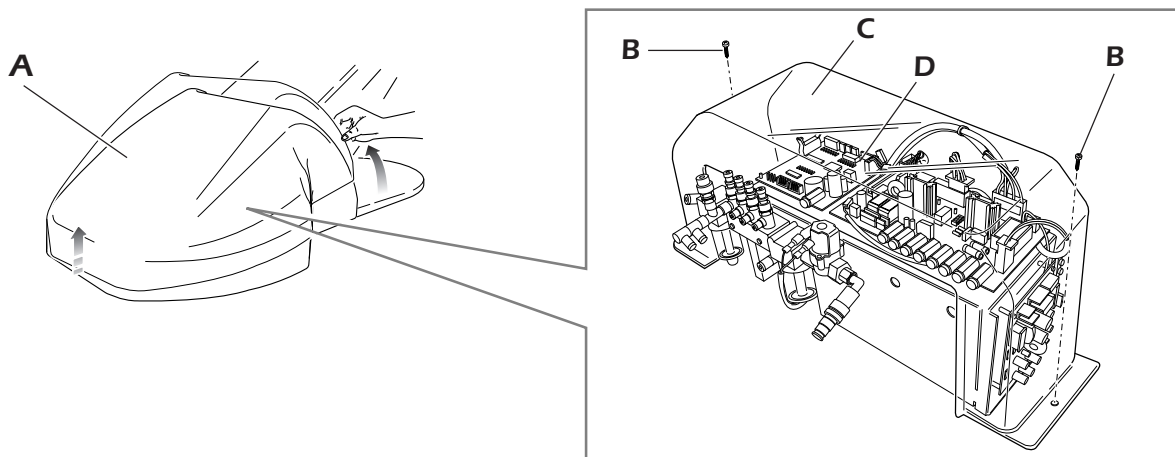


NOTE: The suction tube support arm is supplied disassembled and appropriately packed. During installation, failure to correctly complete all of the connections shown will seriously compromise the safety and proper operation of the equipment.

Setting the FLARES chair movement Dip-Switches

Should you wish to move the chair during installation before you have installed the water unit, you must adjust the switch SW1 on the card "D" as shown. To access this, raise the derivative housing "A", unscrew the two holding screws "B" and remove the protective housing "C".

WARNING!!
 Cut off electrical power before removing the housing!
 Removal of the connector block housing provides access to parts that are live even when the power switch is turned off.



Should you wish to move the chair during installation before you have installed the water unit, you must adjust the switch SW1 as shown.

Warning! Note the position of the dip-switches before making any changes.



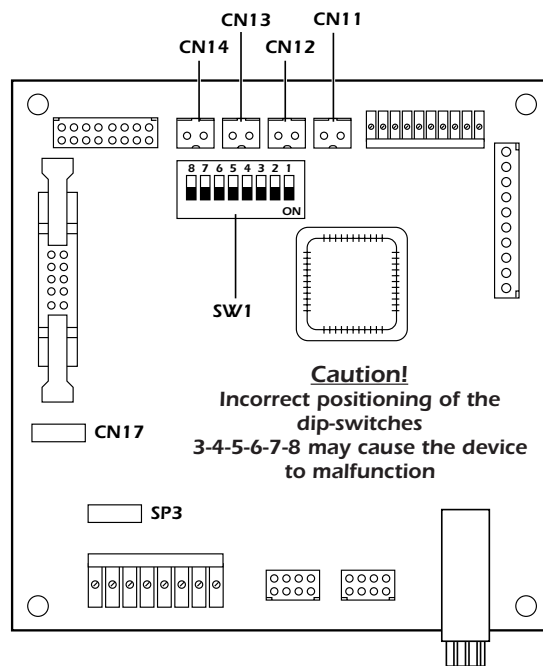
Warning! After installing the water unit, set the dip-switch to the position shown in the figure.

Note: The position of the dip-switch varies depending on the equipment configuration (see table below).



STANDARD CONFIGURATION
 FLARES

Dip-Switch no.	OFF	ON
1	Not used	Not used
2	The "mechanical memory" key has the function of a "rinse" key	The "mechanical memory" key has its standard function
3	Starting an instrument prevents the chair from moving	Chair operation is independent from instrument use
4	The instruments work even while the chair is moving	Moving the chair prevents the instruments from being used
5	Enables the "pantographic arm safety" microswitch (CN11)	Tripping the "pantographic arm safety" microswitch does not affect chair operation
6	Enables the "backrest safety" microswitch (CN12)	Tripping the "backrest safety" microswitch does not affect chair operation
7	Enables the "seat safety" microswitch (CN13)	Tripping the "seat safety" microswitch does not affect chair operation
8	Enables the "assistant arm safety" microswitch (CN14)	Tripping the "assistant arm safety" microswitch does not affect chair operation.



Chair version definition		
SOFTWARE RELEASE	JUMPER	
	CN17	SP3
Basic	Open	Open
With "mechanical" memory	Open	Closed
With memories	Closed	Open

NOTE:
 In case of Versions with Memories, additional devices are necessary for the correct operating !



8 ► INSTALLATION INSPECTION

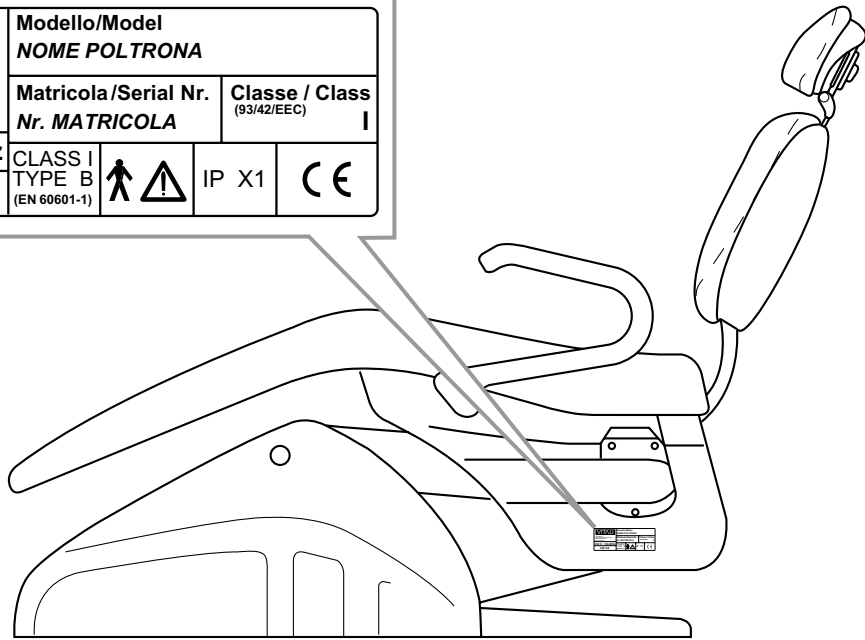
After installing the equipment, perform a general inspection as indicated in the form below:

VITALI		INSTALLATION FORM			MAQ51.5-EN	Page 1/1
Any check listed here below is possible depending on the configuration of the unit and chair involved. Y = working. N = out of work. N.A. = the equipment has not this option.						
No.	AFTER THE INSTALLATION, PROCEED WITH THE FOLLOWING CHECK LIST	Y	N	N.A.	NOTE	
1	Conformity of goods delivered with the delivery note					
2	Correct setting up of the chair dip-switches (SW1) (standard: 1-3-5-6-7-8 on OFF).					
3	Correct setting up of the unit dip-switches (SW1) (standard: 1-2-3-4-5-6-7 on OFF).					
4	Correct setting up of the instrument table dip-switches (see Technical book)					
5	Correct placing of the spittoon filter and its cap					
6	Instruments water pressure (2,2 ±0.2 bar)					
7	Drive air pressure (depending on the kind of handpiece used - See its technical data)					
8	Check the drive-air regulator blocking					
9	Working of the tumbler/bowl keypads (patient' side and nurse' side)					
10	Working of the tumbler water heater					
11	Working of instruments located on the instrument table					
12	Working of chair controls by the pedal					
13	Working of instruments located on the nurse's console					
14	Spray adjustment of any single instrument					
15	Working of the independent chair keypad					
16	Working of the dentist keypad (on instrument table)					
17	Correct alarms display on the keypad					
18	Working of the nurse's console keypad					
19	Working of the foot control					
20	Working of the backrest safety device and its alarm (if present)					
21	Working of the seat safety device and its alarm (if present)					
22	Working of the chair pantograph safety device and its alarm (if present)					
23	Working of the nurse console safety device and its alarm (if present)					
24	Working of the ceramic bowl safety device and its alarm					
25	Working of the chair inhibition device (and its alarm) in case of operation of the pedal lever, without selecting any instrument					
26	Working of the chair inhibition device in case of running instrument					
27	Working of the instruments pre-selection device					
28	Absence of any squeaking or noises during the chair movements (check the correct assembly of plastic housings)					
29	Waterproof condition of any joints of the hydraulic, pneumatic, vacuum and draining system					
30	Working of the "pressurized bottle" (if present)					
31	Working of M.A.C. disinfecting system (automatic Calbenium mixer) (if present)					
32	Working of the dynamic amalgam separator (if present)					
33	Working of the vacuum system (if present)					
34	Working of Aquaniumatic device (if present)					
35	Working of VDS system (integrated Vitali disinfection system) (if present)					
36	Working of LCD monitor (if present)					
37	Working of IPC (integrated Industrial Pc) (if present)					
38	Working of the headrest bracket release button					
39	Check the stability of the instrument table vertical positioning					
40	Check the centring between the bayonet of the headrest and the backrest plastic housing					
41	Working of the headrest manual blocking					
42	Assembly of the tray holder					
43	Check of the protective earth system continuity					
44	Filling of the "WARRANTY AND INSTALLATION CERTIFICATE" form in.					
TECHNICAL SERVICES REQUIRED DURING THE INSTALLATION						
No.	DESCRIPTION					
<i>In case of technical service required during the installation because of the non-function of the equipment and/or of negligence of Vitali Co., please send this "INSTALLATION FORM" together with a copy of the "WARRANTY AND INSTALLATION CERTIFICATE" to:</i> VITALI srl - Via Mazzini, 4 - 40010 San Marino di Bentivoglio (BOLOGNA) ITALIA (FAX +39 051 701600)						
UNIT/CHAIR SERIAL No.				INSTALLER'S NAME		
DATE				INSTALLER'S SIGNATURE		

9 ► SERIAL NUMBER LOCATION

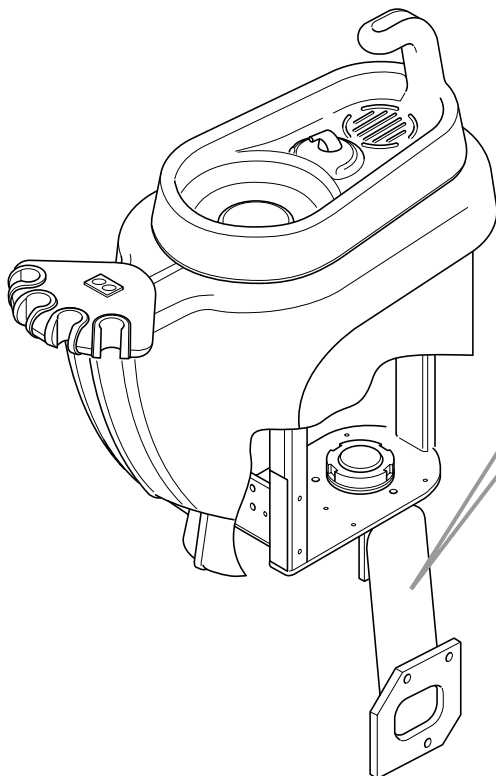
NOTE: The equipment is identified by a serial number indicated on the label shown in the illustration. Always indicate the serial number for the equipment when ordering spare parts or requesting information to the Technical Service Center VITALI.



VITALI Via Mazzini, 4 40010 San Marino di Bentivoglio (BOLOGNA) ITALY www.vitali.com	Modello/Model NOME POLTRONA			
	Matricola/Serial Nr. Nr. MATRICOLA	Classe / Class (93/42/EEC)	I	
230 V ~ 50-60Hz 300 VA	CLASS I TYPE B (EN 60601-1)		IP X1	



FLARES

T5



VITALI Via Mazzini, 4 40010 San Marino di Bentivoglio (BOLOGNA) ITALY www.vitali.com	Modello/Model NOME RIUNITO			
	Matricola/Serial Nr. Nr. MATRICOLA	Classe / Class (93/42/EEC)	II a	
230 V ~ 50-60Hz 600 VA	CLASS I TYPE B (EN 60601-1)		IP X1	 0476

10 ► ACCESSING THE INTERNAL PARTS - FLARES

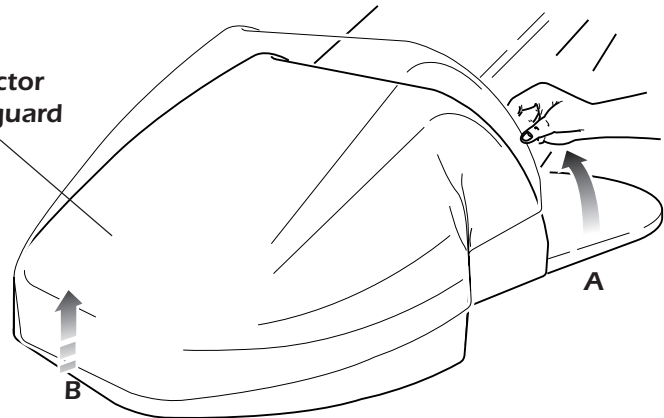
Removing the derivative housing

This guard is disassembled by pulling upward, as shown in the figure, moving it first in the direction of the arrow "A", then lifting it off entirely in the direction of the arrow "B".

WARNING:

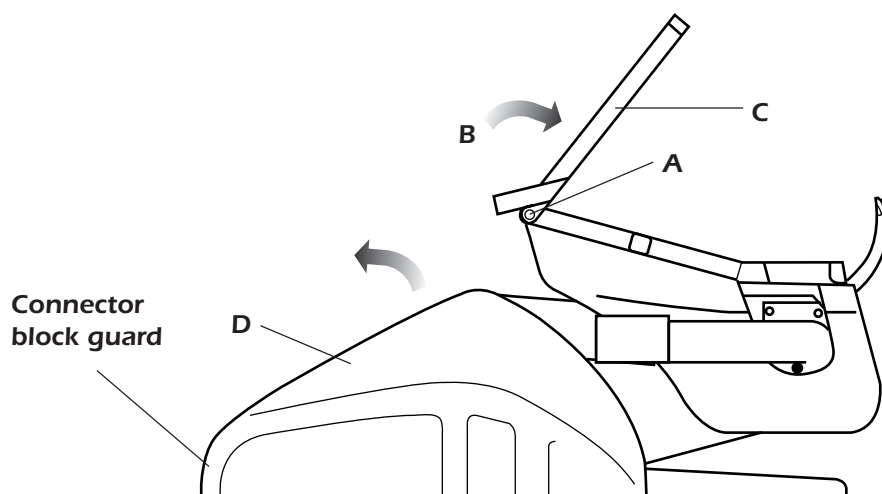
Cut off the electrical power supply before removing the housing!
Removing the derivative housing allows access to parts that remain live even when the power switch is turned off!

Connector
block guard



NOTE: In the event of a malfunction by the upward chair movement, proceed as follows to free the derivative housing:

- 1) Remove the seat upholstery (see the paragraph on "**Removing the seat upholstery**")
- 2) Loosen the two hexagonal M10 screws "A"
- 3) Turn the mobile part "C" in the direction shown by the arrow "B"
- 4) Remove the housing "D" by raising it as shown in the figure above, making sure that the chair has first been disconnected from the electrical power supply
- 5) Before replacing the seat upholstery, make sure that the two hexagonal M10 screws "A" have been firmly tightened.

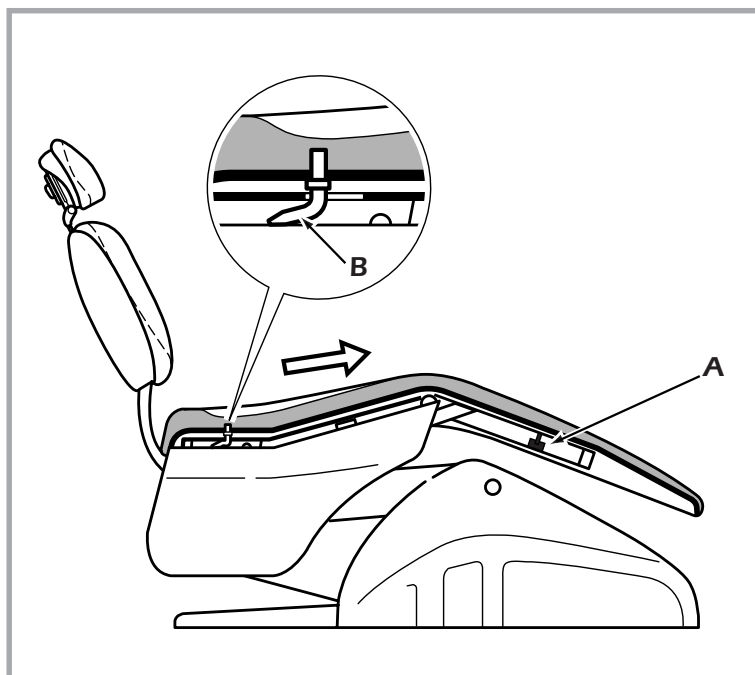


Removing seat upholstery

To remove the seat upholstery, proceed as follows:

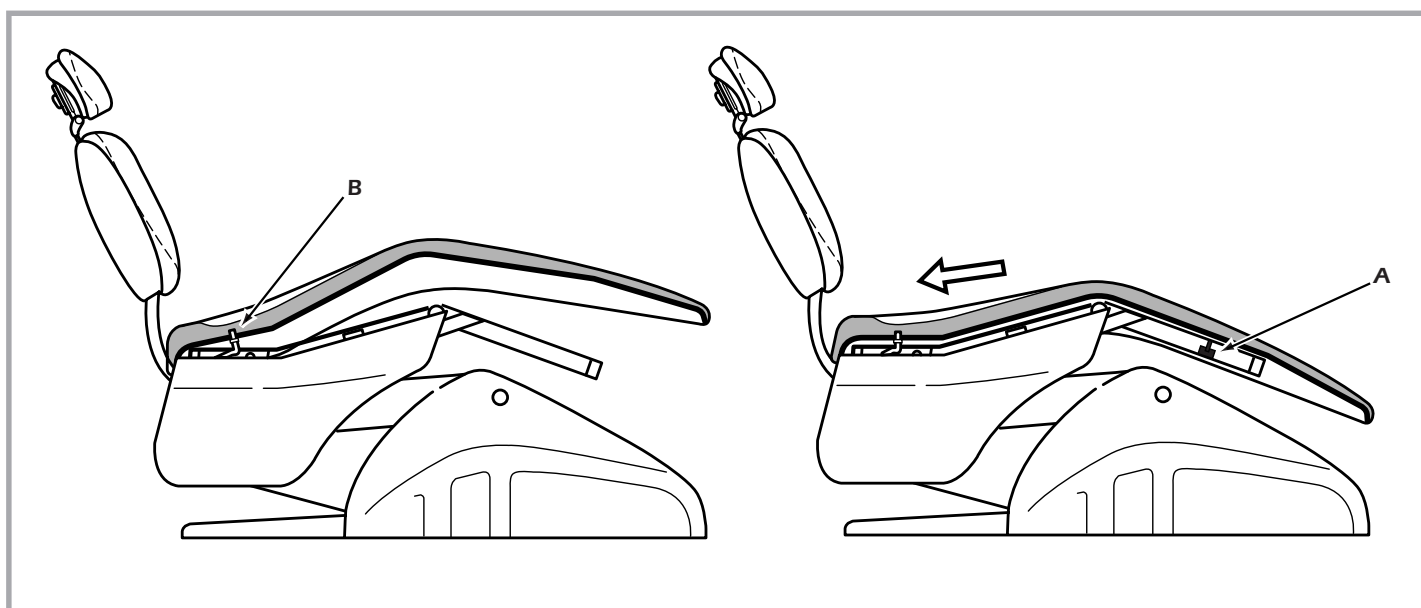
- 1) Unscrew the two knobs "A"
- 2) Slide the seat upholstery off in the direction shown by the arrow, until the locking devices "B" are released.

To reassemble, proceed as follows.



Installing seat upholstery

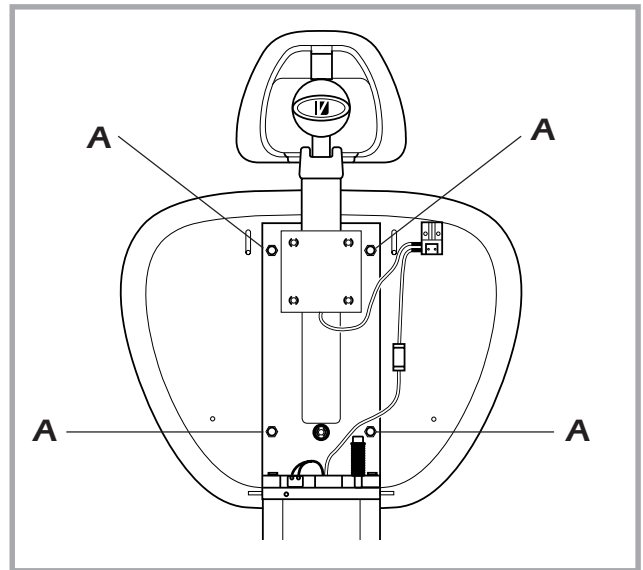
- 1) Standing on the backrest cradle side, position the upholstery, making sure that you correctly insert the locking devices "B"
- 2) To avoid damaging the seat upholstery, be careful not to strike the seat with the aluminum cradle
- 3) Push the seat upholstery in the direction shown by the arrow. Finally, tighten the two knobs "A".



Removing the backrest upholstery

- 1) Remove the backrest housing as described in the chapter "Installation Instructions", par. "Assembling the backrest housing".
- 2) Unscrew the four M6 Allen screws "A".

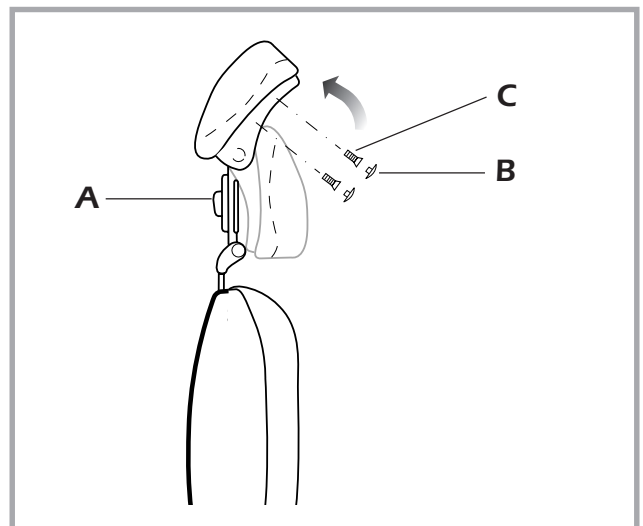
Follow the above steps in reverse order to install the new upholstery.



Removing the double-jointed headrest upholstery

- 1) Loosen the handle "A", turning it anticlockwise.
- 2) Turn the headrest as shown in the figure.
- 3) Remove the two screw caps "B" and unscrew the two M6 tapered screws "C".

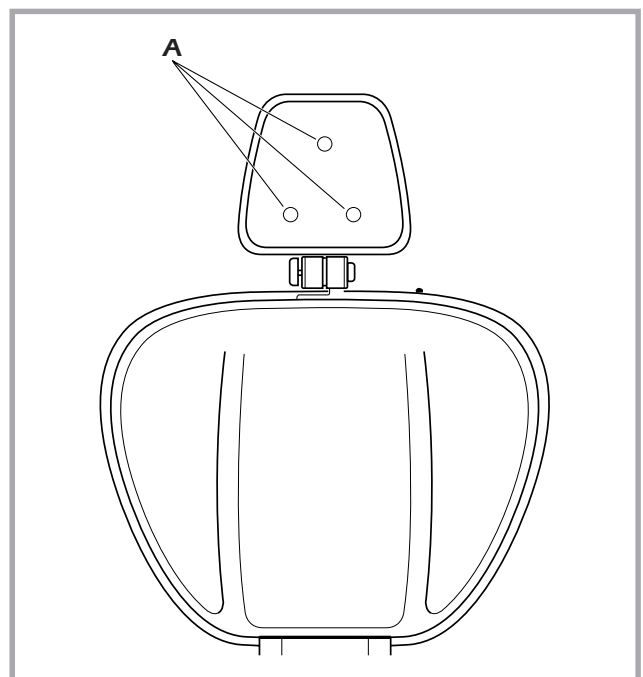
To assemble the new upholstery, repeat in reverse order.



Removing the coplanar headrest upholstery

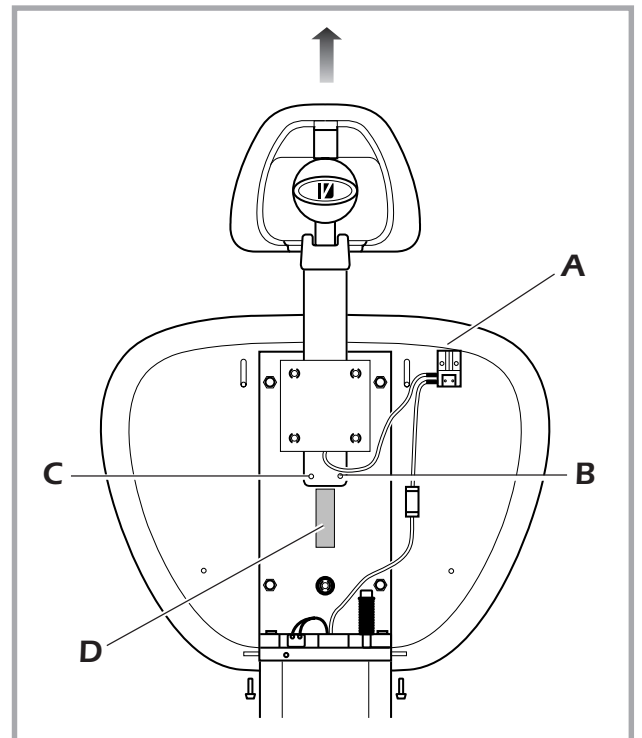
- 1) Remove the three caps "A".
- 2) Remove the three M6 tapered screws.

To assemble the new upholstery, repeat in reverse order.



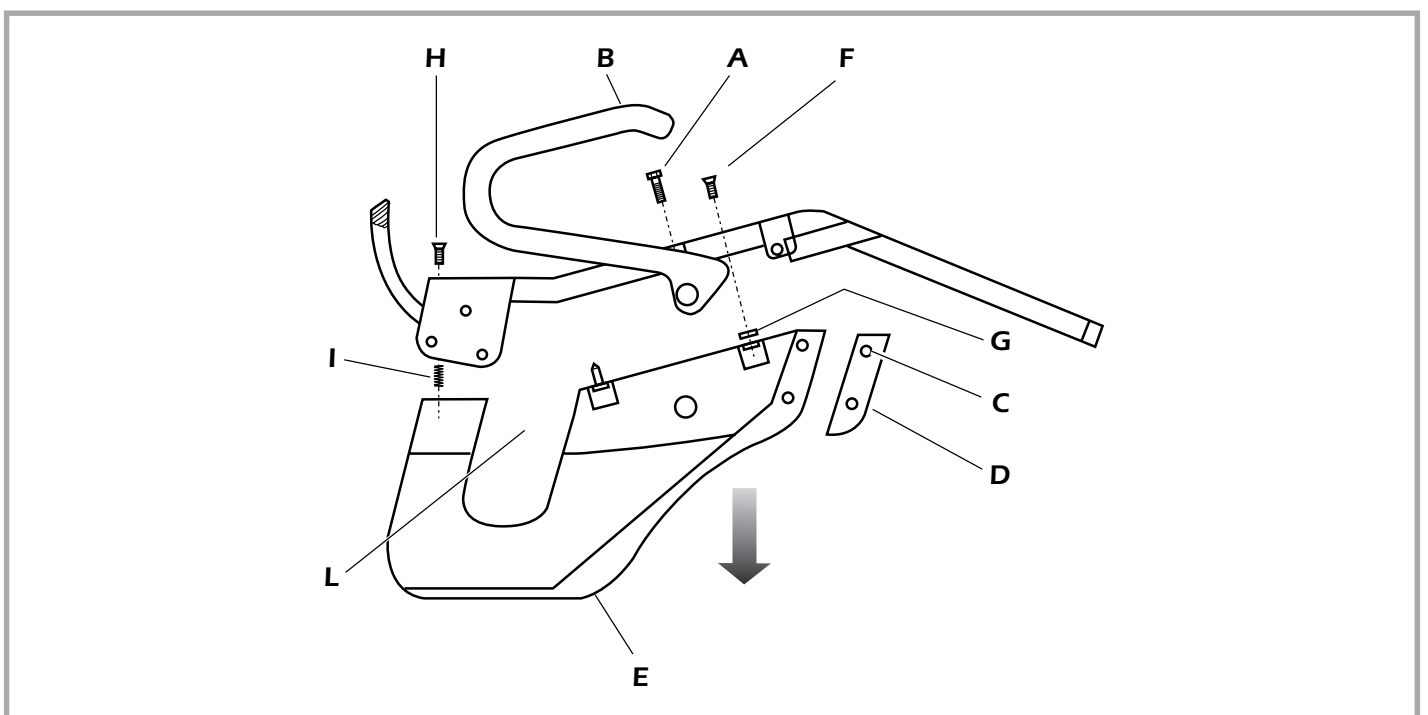
Disassembling the headrest bracket

- 1) Remove the backrest housing as described in the chapter "Installation Instructions", par. "Assembling the backrest housing"
- 2) Shut off the main air supply
- 3) Release the remaining air pressure by pressing the push-button "A"
- 4) Unscrew the M4 grounding screw "C"
- 5) Unscrew the M4 stop screw "B"
- 6) Slide the headrest out in the direction shown by the arrow. Before the bayonet is fully removed, make sure to insert the special 6-mm spacer "D" (available upon request). This spacer will allow you to insert the new headrest properly.



Removing the seat housing

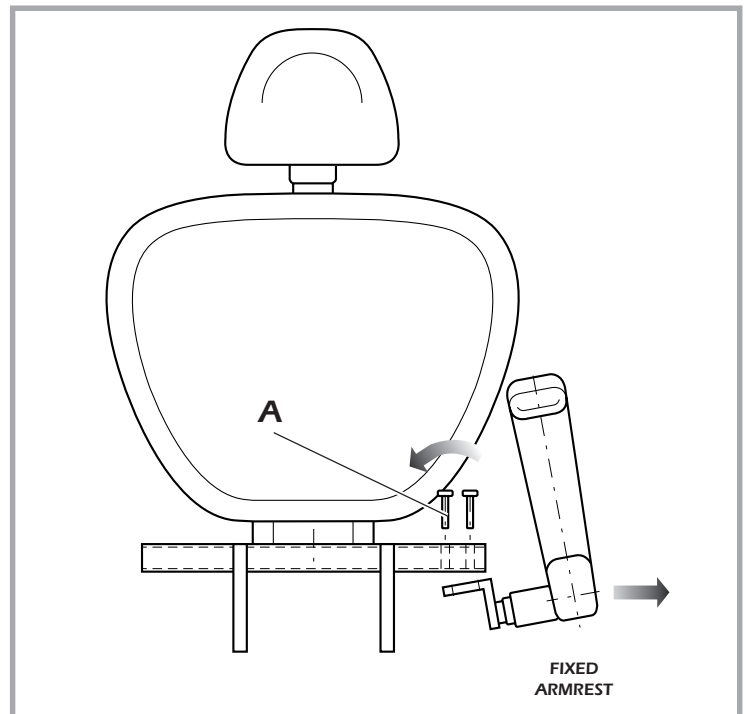
- 1) After removing the upholstery, unscrew the two hexagonal M8 screws "A" holding the armrest "B"
 - 2) Unscrew the two M4 screws "C" fastening the housing "D" to the seat housing "E"
 - 3) Unscrew the two tapered M6 screws "F" (making sure not to lose the two rubber spacers "G")
 - 4) Unscrew the two tapered M6 screws "H" (making sure not to lose the two springs "I")
 - 5) Slide the seat housing off the frame, avoiding the dental unit bracket.
- Proceed in reverse order to reassemble.



Removing the fixed armrest

- 1) Remove the seat upholstery as described in the chapter "**Accessing the internal parts**", par. "**Removing the seat upholstery**"
- 2) Unscrew the two hexagonal M8 screws "**A**" holding the armrest
- 3) Slide the armrest out as shown in the illustration, through the hole in the seat housing.

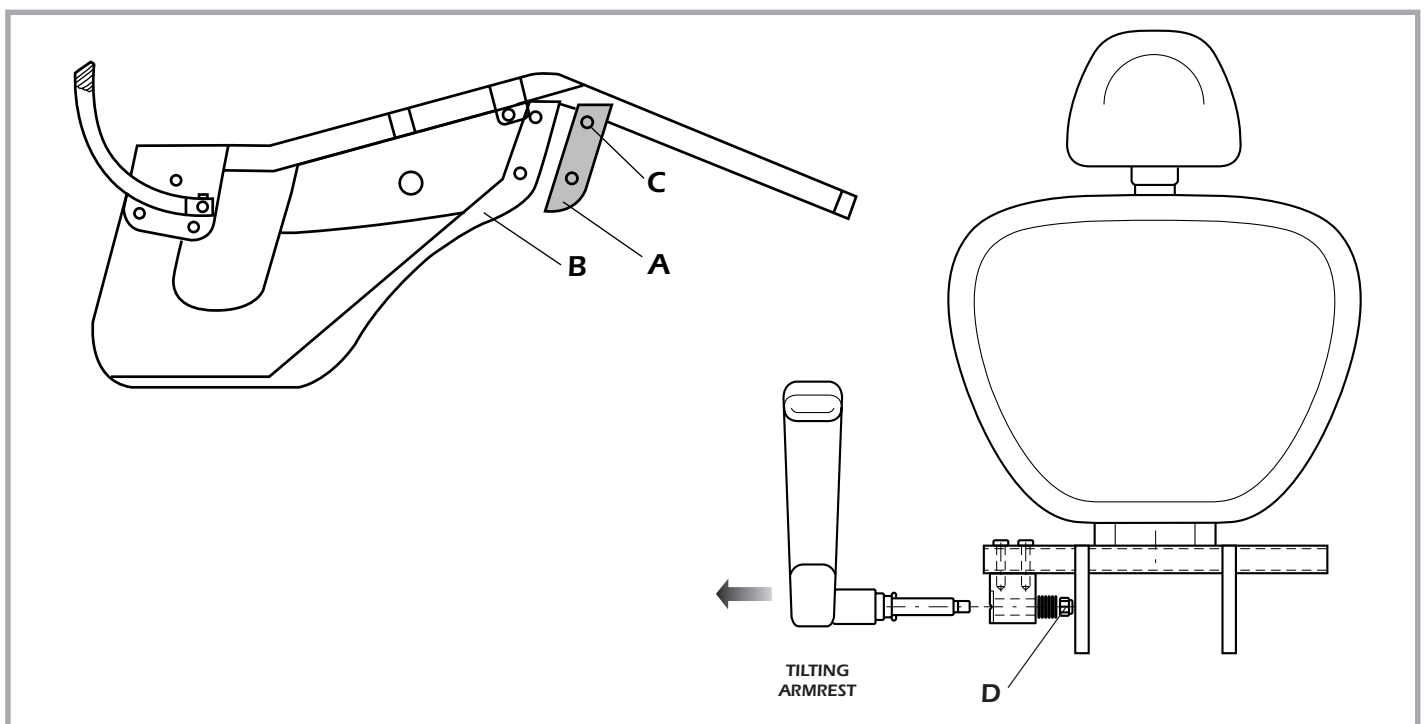
Proceed in reverse order to reassemble.



Removing the tilting armrest (optional)

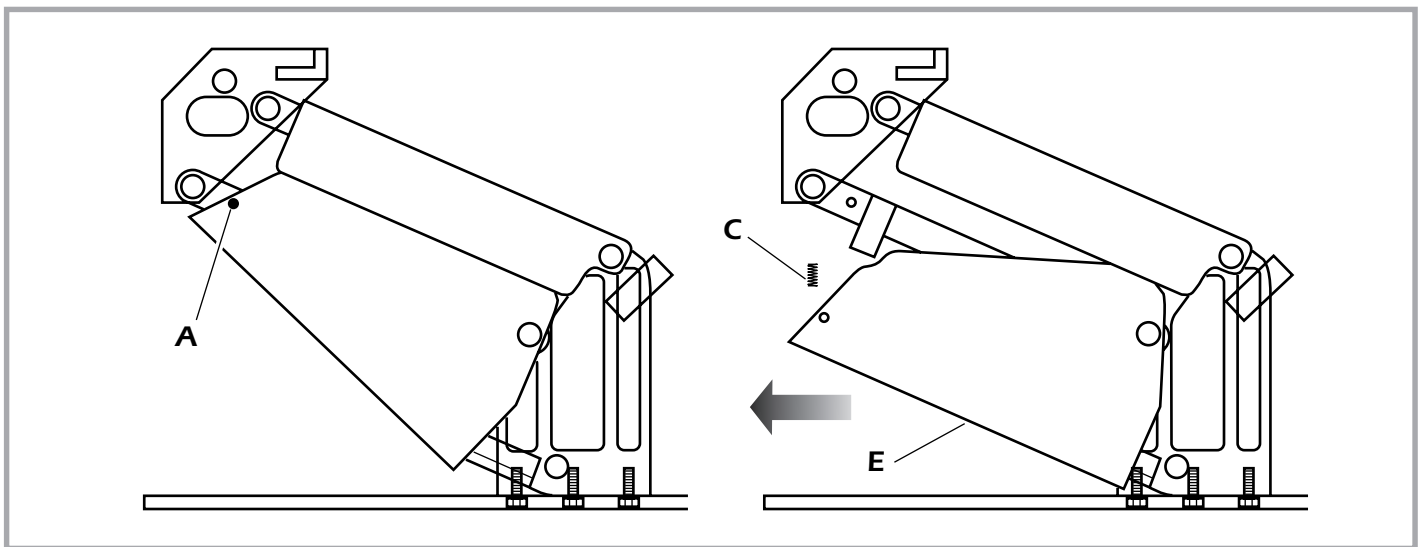
- 1) Remove the seat upholstery as described in the chapter "**Accessing the internal parts**", par. "**Removing the seat upholstery**"
- 2) Remove the front seat housing "**A**" by unscrewing the two M4 screws "**C**" fastening the seat housing "**B**"
- 3) Unscrew the self-locking M12 nut "**D**"
- 4) Slide the armrest out through the hole in the seat housing "**B**".

Proceed in reverse order to reassemble.



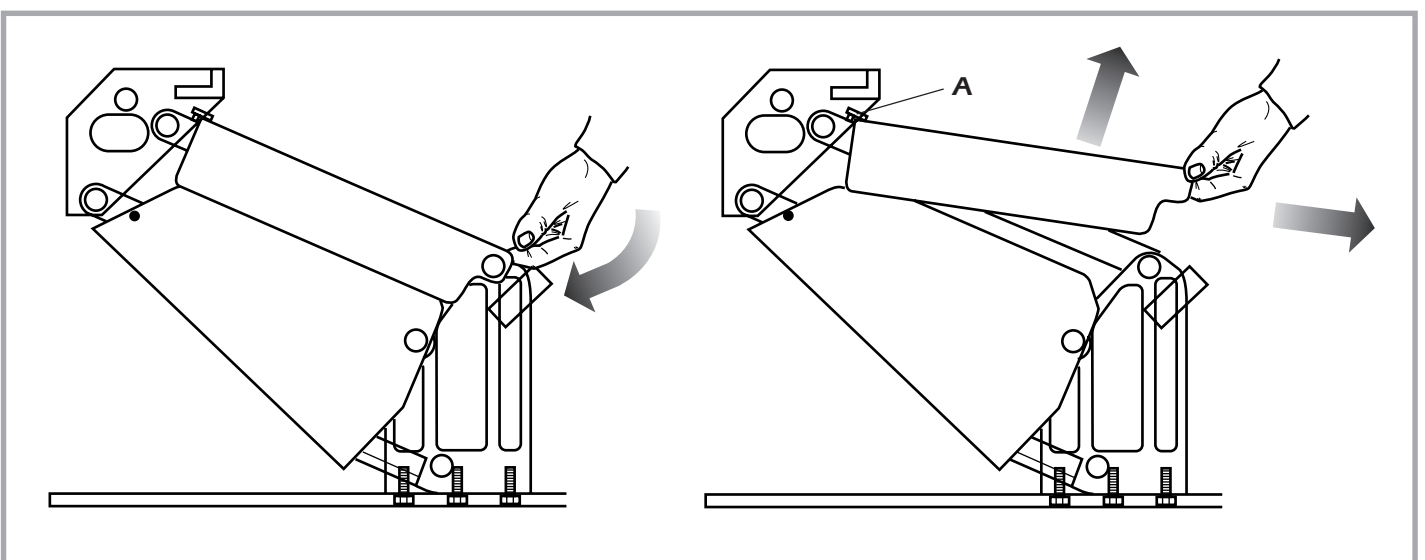
Removing the lower parallelogram housing

- 1) Remove the seat housing (following the procedure described in the chapter "**Accessing the internal parts**", par. "**Removing the seat housing**").
 - 2) Unscrew the two M4 screws "**A**".
 - 3) Remove the housing "**E**" in the direction shown by the arrow, taking care not to lose the two springs "**C**".
- Proceed in reverse order to reassemble.



Removing the upper parallelogram housing

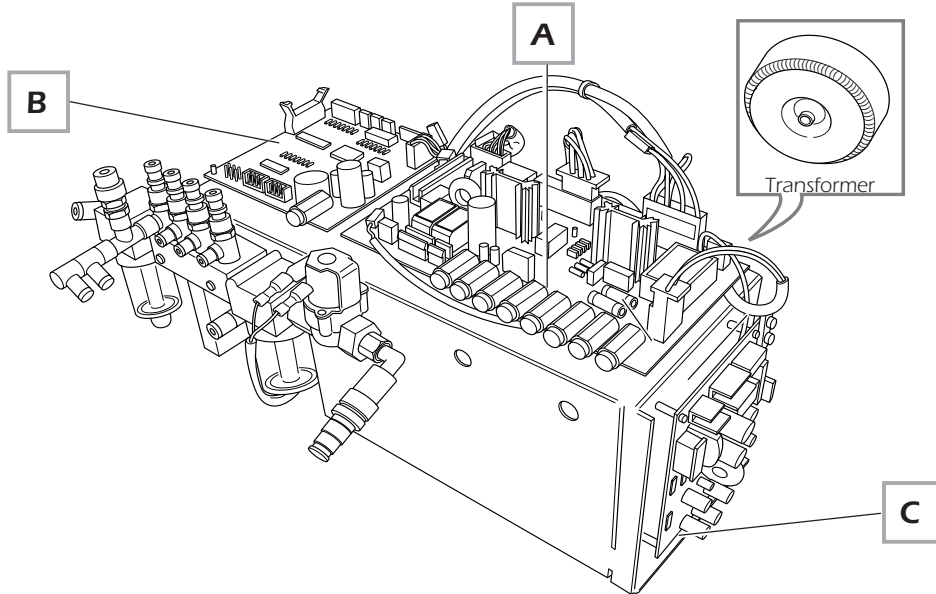
- 1) Remove the derivative housing (following the procedure described in the chapter "**Accessing the internal parts**", par. "**Removing the derivative housing**").
 - 2) Pull upward as shown in the illustration, releasing the holding elements.
 - 3) Remove the housing from the slots "**A**".
- Proceed in reverse order to reassemble.



11 ► FLARES ELECTRICAL UNIT

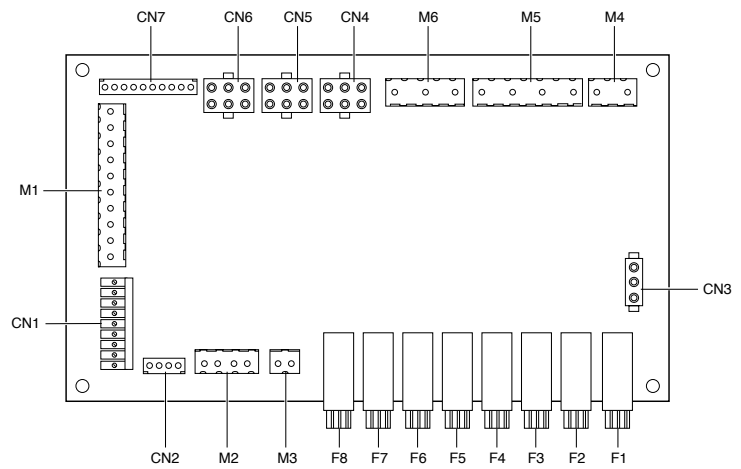
The different parts of the equipment are protected by special fuses.

Should you wish to replace a fuse, you must open the connector block (to remove the derivative housing, see the chapter "**Accessing the internal parts**", par. "**Removing the derivative housing**").



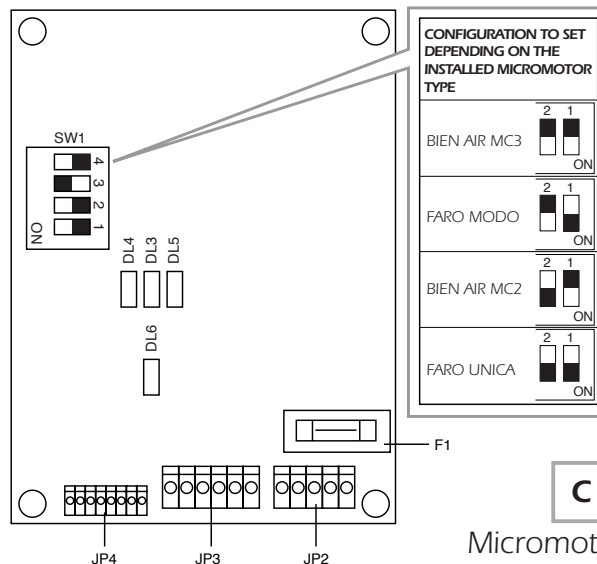
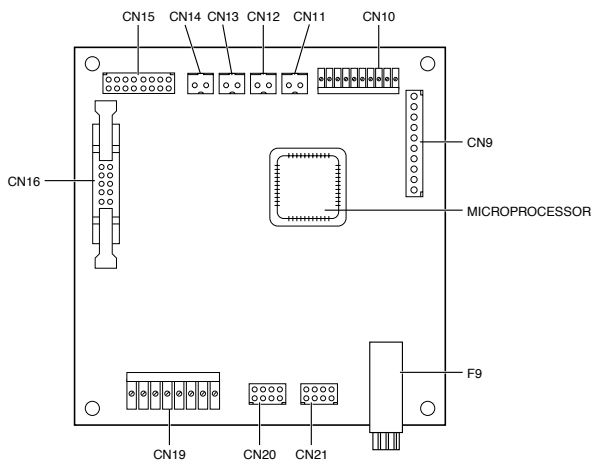
A

Power supply card



B

Chair card



C

Micromotor card

Below are the tables showing the various connections for the cards illustrated on the previous page.

A	M1	External connections to control suction and assistant call button *
	M2	Backrest movement actuator
	M3	24Vac 50 Hz 150 VA max (auxiliary voltage)
	M4	Main power supply input
	M5	Main switch
	M6	Chair movement gearmotor
	CN1	Suction and assistant call button control input
	CN2	Main water solenoid valve power supply
	CN3	Primary transformer power supply
	CN4	Secondary transformer input
	CN5	Main dental unit power supply
	CN6	Auxiliary power supply (not used)
CN7	Chair control input	
* PIN 1-2-3 Cattani central suction connection		
PIN 4	Shared C	
PIN 5	N.O. contact	
PIN 6	N.C. contact	
PIN 7-8	24 Vac 50 Hz 50 VA max with suction tubes raised	
PIN 9-10	24 Vac 50 Hz 50 VA max when assistant call button is pressed	

B	CN9	Chair control output
	CN10	Chair potentiometers with memories
	CN11	Lower pantographic arm housing safety microswitches
	CN12	Backrest safety microswitch
	CN13	Seat housing safety microswitches
	CN14	Assistant arm safety microswitches
	CN15	Chair movement and mechanical memory limit switch
	CN16	Information exchange connection between chair and dental unit
	CN19	Chair foot control
	CN20	Keypad – not used
CN21	Foot control connection	

C	JP2	Power supply and micromotor reversal from connector CN23 on dental unit card
	JP3	Instrument control signals and micromotor supply voltage sent to connector CN23 on dental unit card
	JP4	Foot control connection
	DL3	Signal for chip-blower activated
	DL4	Signal for Start (drive air) activated
	DL5	Signal for spray activated
	DL6	Signal for micromotor reversal activated

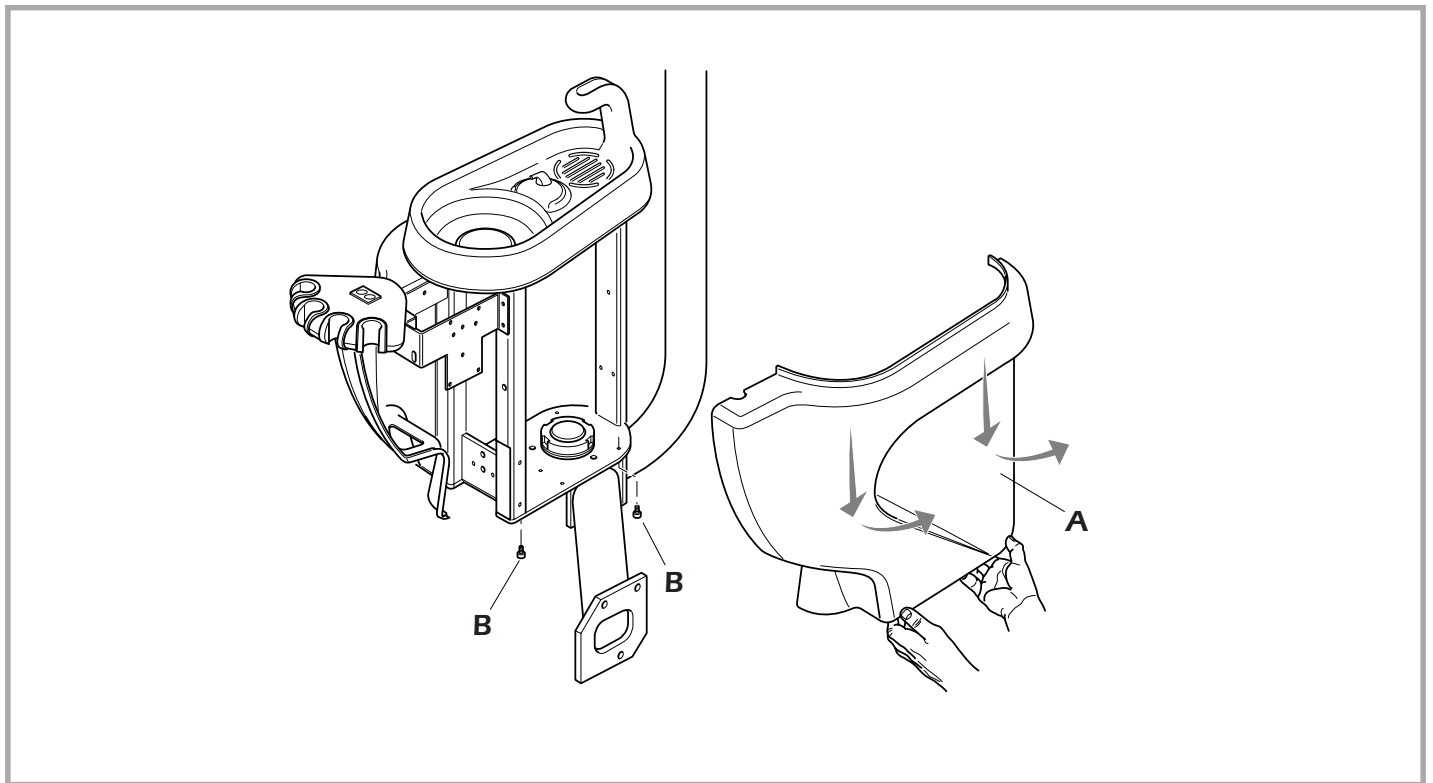
Replacing fuses

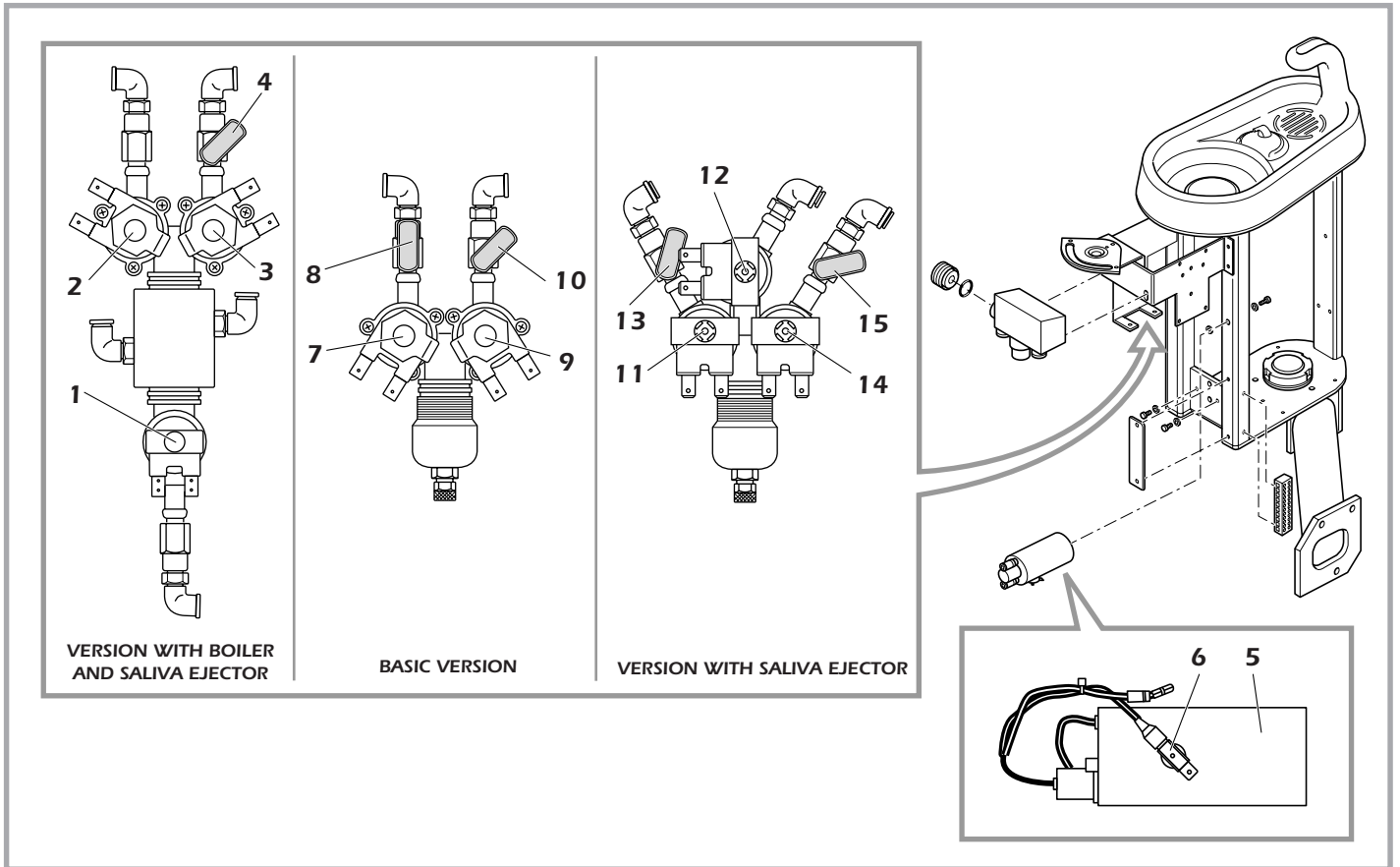
Below is a table showing the errors that may occur when one of the fuses is tripped. See the illustrations on the previous page to locate the fuses.

	LABEL	PROTECTED PARTS	VALUE AND TYPE	ERRORS THAT OCCUR WHEN TRIPPED
A	POWER SUPPLY CARD			
	F1 - F2	Line 230VAC	F. 5A (5x20) RAPID	Nothing works. The main switch lamp and all leds are not lit.
	F3	Chair motor 230VAC	F. 2A (5x20) RAPID	The up/down movements and the chair reset control do not work.
	F4	17 V AC power supply located on connector CN6	F. 5A (5x20) RAPID	Users connected to the 17 V AC output of connector CN6 do not work.
	F5	24 V CC backrest motor power supply	F. 5A (5x20) RAPID	All chair movements do not work. The DL2 green LED located in the center of the card is not lit. The water unit supply is not working.
	F6	24 V AC power supply located on connectors CN6 and M3	F. 6.3A (5x20) RAPID	Users connected to the 24 V AC output of connectors CN6 and M3 (suction control relay) do not work.
	F7	12 V AC power supply located on connector CN6	F. 1A (5x20) RAPID	The operative lamp does not work (if powered with 12 V AC).
	F8	24 V CC backrest motor	F. 5A (5x20) RAPID	The backrest movements and the chair reset control do not work.
B	CHAIR CARD			
F9	Card power supply	F. 3.15A (5x20) RAPID	Nothing except for the water unit controls is working. The DL1 green LED near the fuse is not lit.	
C	MICROMOTOR CARD			
F1	Card power supply	F. 5A (5x20) RAPID	The D7 green LED near the fuse is not lit.	

12 ► ACCESSING INTERNAL PARTS OF THE WATER UNIT

You must remove the panel **A** from the base in order to access the interior of the unit. First unscrew the knobs **B**, then pull outward and down. If the suction tube support is present as shown in the figure, use the notch **C** as a reference for assembly and disassembly.





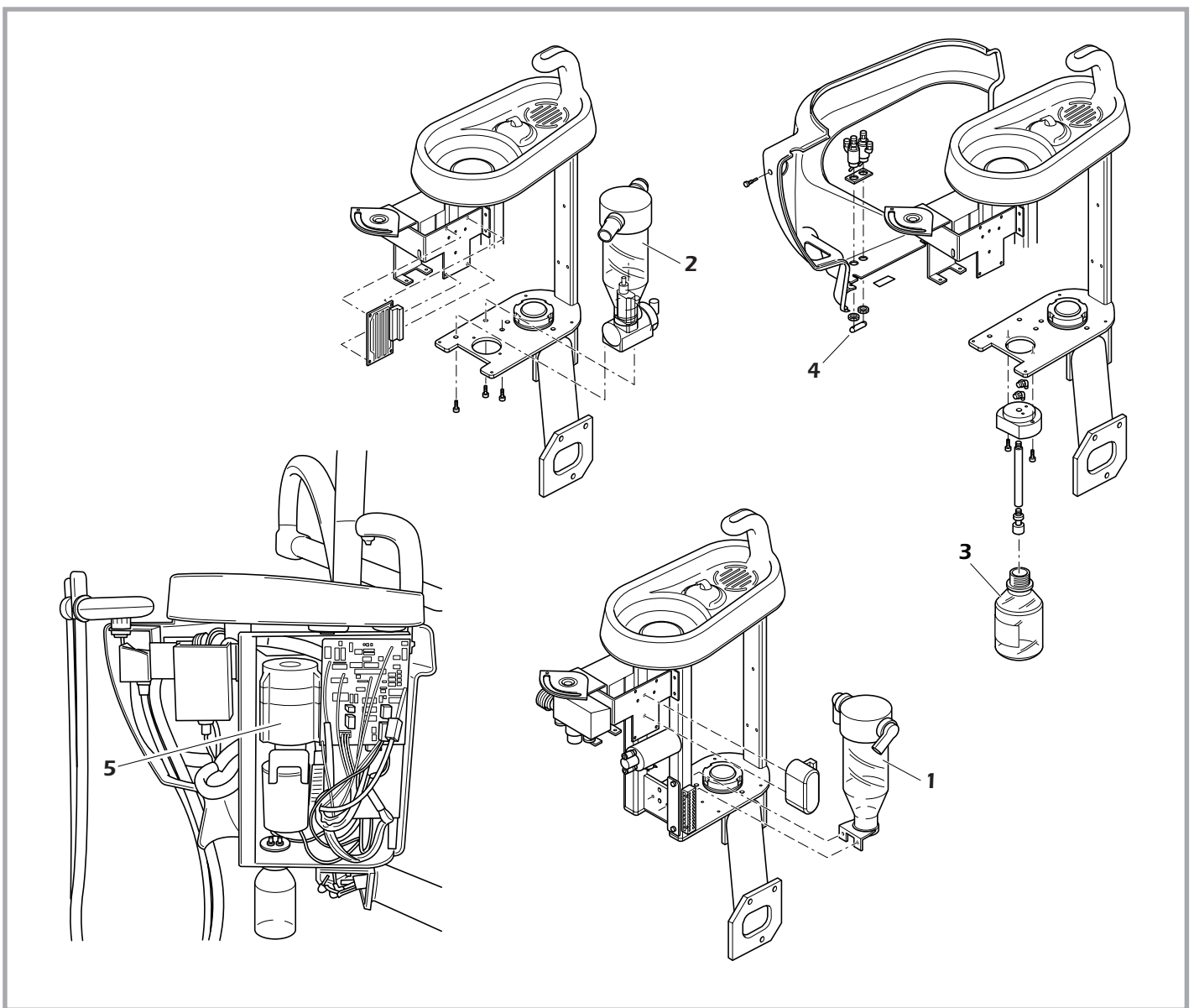
- 1 ▪ Tumbler water solenoid valve.
- 2 ▪ Saliva ejector water solenoid valve.
- 3 ▪ Basin washing water solenoid valve.
- 4 ▪ Basin washing water tap.
- 5 ▪ Tumbler water boiler.
- 6 ▪ Manual reset button for supplementary boiler thermostat.

Caution! It is necessary to reset this thermostat only when the equipment has been operated without water, or in case of a malfunction by the standard thermostat. If the problem persists, contact the Technical Service Department.

- 7 ▪ Tumbler water solenoid valve.
- 8 ▪ Tumbler water tap.
- 9 ▪ Bowl flush water solenoid valve.
- 10 ▪ Bowl flush water tap.
- 11 ▪ Tumbler water solenoid valve.
- 12 ▪ Saliva ejector water solenoid valve.
- 13 ▪ Tumbler water tap.
- 14 ▪ Bowl flush water solenoid valve.
- 15 ▪ Bowl flush water tap.

Available versions of the water unit

- 1 ▫ Air/water mini-separator (OPTIONAL).
- 2 ▫ Air/water separator with drainage pump (OPTIONAL).
- 3 ▫ Pressurized bottle (OPTIONAL) (for more details, see the next paragraph, “**Pressurized bottle Kit**”).
- 4 ▫ Pressurized bottle controls (for correct use, see the corresponding chapter).
- 5 ▫ Metasys Compact Dynamic amalgam separator.



13 ► PRESSURIZED BOTTLE KIT

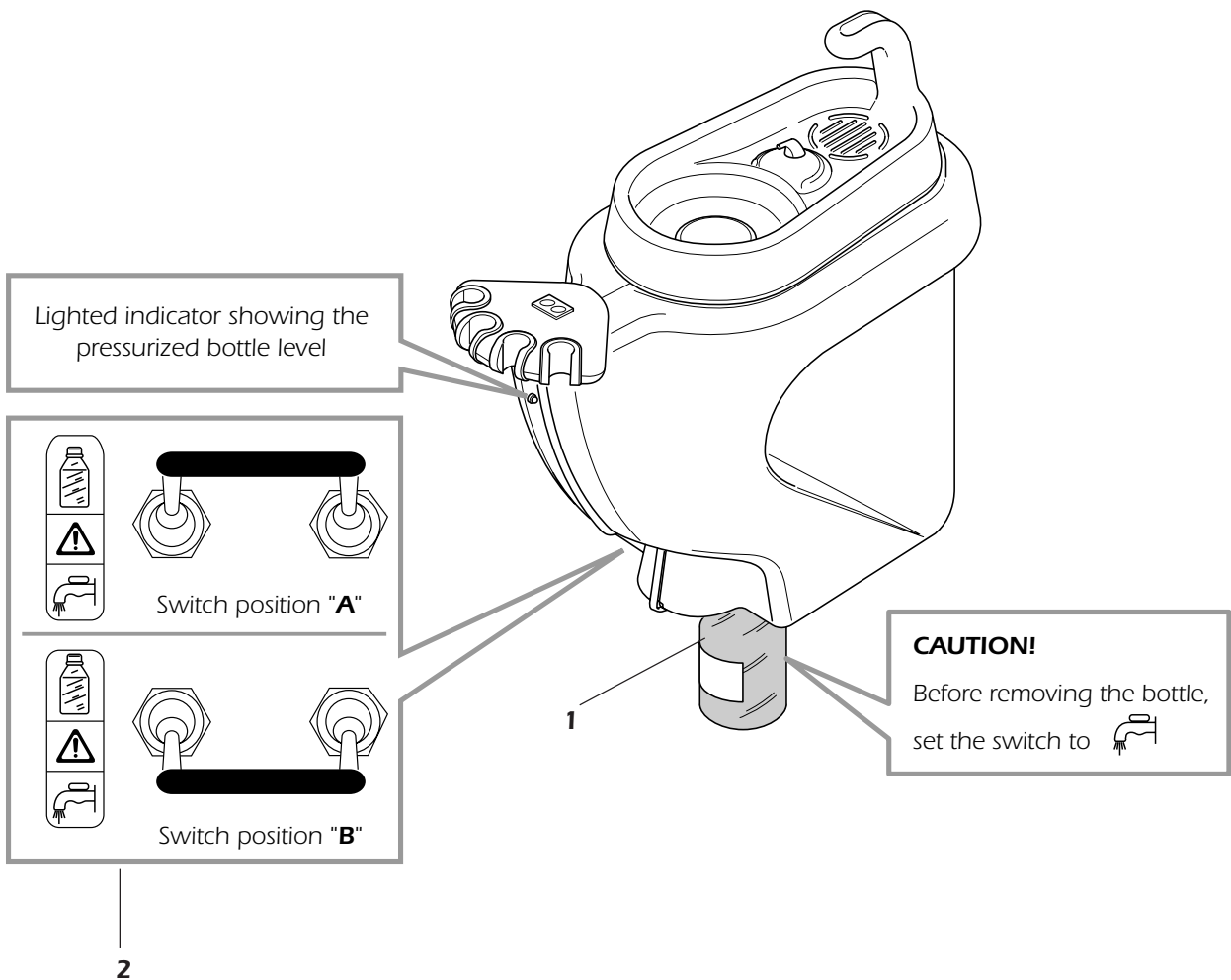
- 1 ▪ Bottle.
- 2 ▪ Pair of switches.

SWITCH POSITION "A"

In this setting, the instruments are fed by liquid from the pressurized bottle.

SWITCH POSITION "B"

In this setting, the instruments are fed by the water mains.

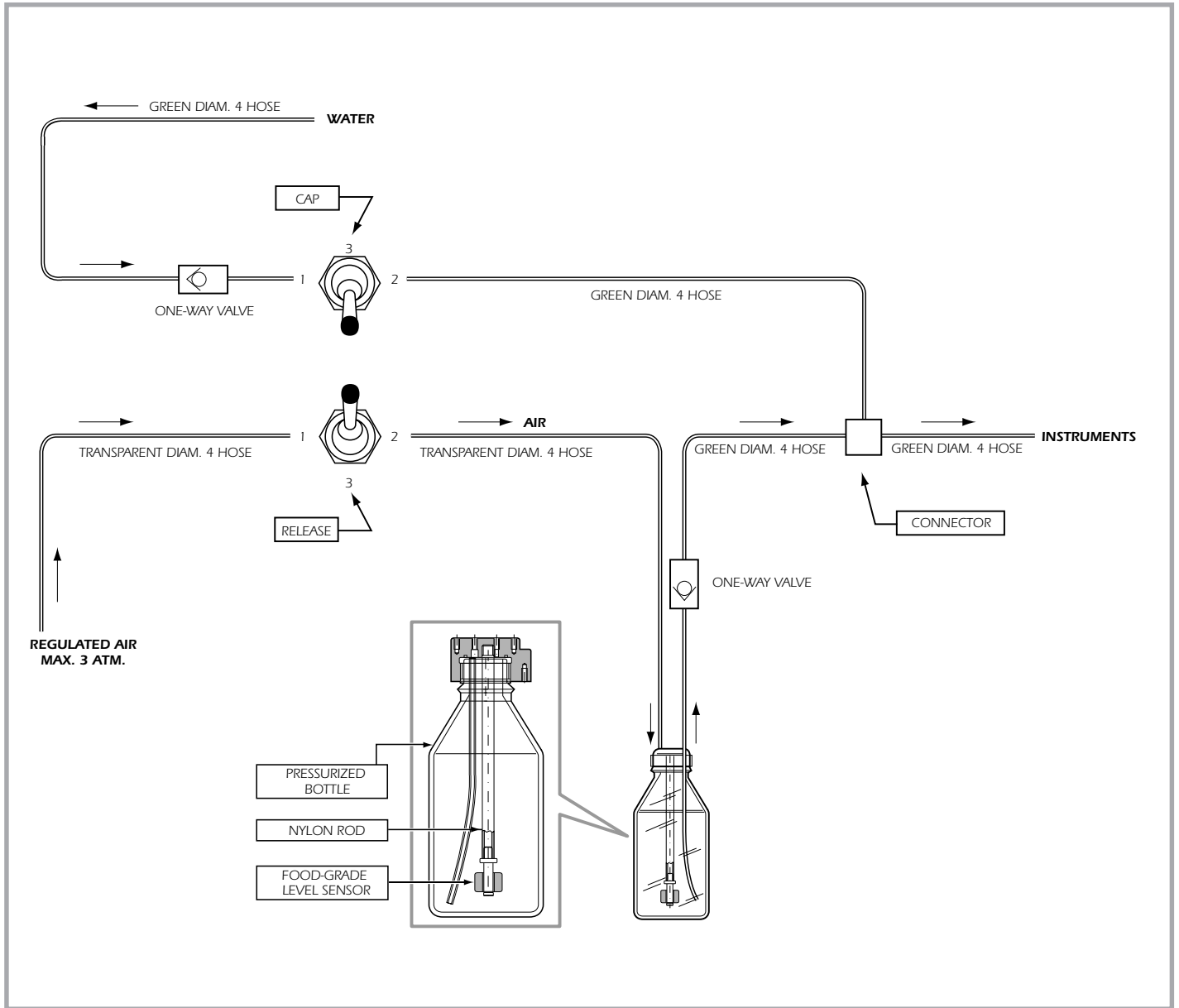


CAUTION:

TYPE OF LIQUID TO USE IN THE PRESSURIZED BOTTLE:

Water or physiological solutions.

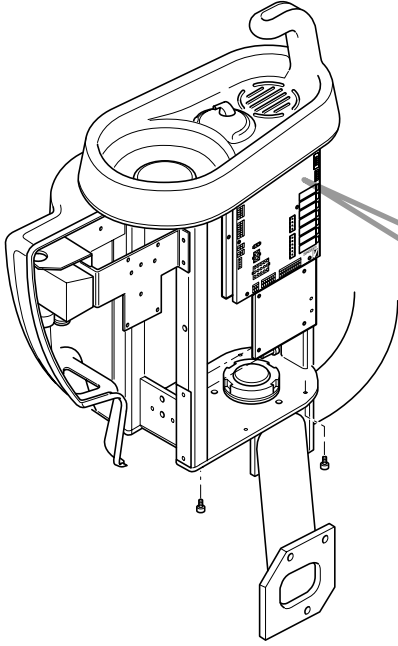
Operating diagram of the pressurized bottle



14 ► DENTAL UNIT ELECTRICAL GROUP

The various parts of the equipment are protected by special fuses.

Should you intend to replace a fuse, you must work inside the water unit (for instructions on removing the housing, see the chapter "Accessing the internal parts - water unit").



Dental unit card

F10	Dynamic amalgam separator power supply
F11	Dentist instrument table, water solenoid valve and assistant console power supply
F12	Tumbler water heater, suction control, assistant call button and x-ray viewer power supply
F13	Polymerizing lamp power supply
F14	Saliva ejector power supply
F15	Main dental unit card power supply
F16	Operating lamp power supply
TRIM 1	Tumbler fill level adjustment
TRIM 2	Interval adjustment between tumbler filling and bowl flush
TRIM 3	Automatic bowl flush duration adjustment
TRIM 4	Not used
SW1	Dip-switches to configure the dental unit card
M7	Polymerizing lamp (Pins 1 and 2) and saliva ejector (Pins 3 and 4) power supply
M8	Water unit utility power supply
CN22	Information exchange connection between chair and dental unit
CN23	Instrument controls from foot control card
CN24	Tumbler filling and bowl flush solenoid valve power supply
CN25	Main dental unit power supply
CN26	Operating lamp power supply
CN27	Service arm safety microswitch (dual universal input and output connector)
CN29	Not used
CN30	Not used
CN31	X-ray viewer power supply
CN32	Water unit keypad
CN34	Dentist instrument table power supply and instrument control
CN35	Not used
CN36	Dentist instrument table keypad
CN37	Assistant console instrument microswitch output
CN38	Assistant console instrument microswitch input
CN39	Assistant console keypad
CN40	Auxiliary control microswitch input
CN41	Suction control output
CN42	Suction and assistant call control outputs
CN43	Instrument control outputs
CN44	X-ray viewer power supply

Replacing the dental unit card fuses

Below is a table showing the errors that may occur when the fuses listed are tripped. See the illustration on the previous page for fuse locations.

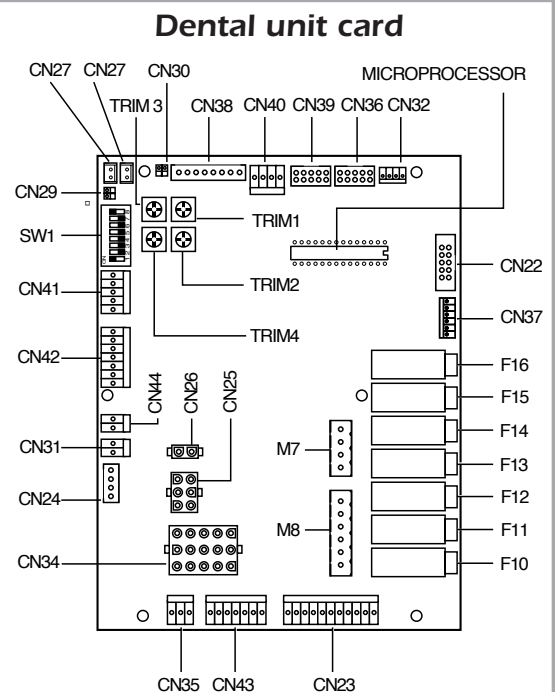
LABEL	PROTECTED PARTS	VALUE AND TYPE	ERRORS THAT OCCUR WHEN TRIPPED
F10	Dynamic amalgam separator power supply	F. 6,3A (5x20) RAPID	The dynamic amalgam separator does not work.
F11	Assistant/dentist console power supply, water unit solenoid valves	F. 6,3A (5x20) RAPID	The instruments do not work. The x-ray viewer does not work. The tumbler filling and bowl flush solenoid valves do not work.
F12	Tumbler water heater, suction control, assistant call button, x-ray viewer power supply	F. 6,3A (5x20) RAPID	The assistant call button does not work. The tumbler water heater does not work. The x-ray viewer does not work.
F13	Polymerizing lamp power supply	F. 5A (5x20) RAPID	The polymerizing lamp does not work.
F14	Saliva ejector solenoid valve power supply	F. 5A (5x20) RAPID	The saliva ejector does not work.
F15	Dental unit card power supply	F. 1A (5x20) RAPID	Only the instruments work.
F16	Operative lamp power supply	F. 6,3A (5x20) RAPID (with halogen lamp EDI) F. 1A (5x20) RAPID (with LED lamp ALYA)	The operative lamp does not work.

Setting the dental unit card dip-switches

Dip-Switch no.	ON	OFF
1	Enables the polymerizing lamp slot. Affects output "A" (PIN 1 e 2) on M7 (24 V AC-150 VA max).	Disables the polymerizing lamp slot.
2	Enables the saliva ejector slot. Affects output "B" (PIN 3 and 4) on M7 (24 V AC-150 VA max).	Disables the saliva ejector slot.
3	Enables the anti-glare function. The operative lamp shuts off while the chair is moving.	Disables the anti-glare function.
4	The tumbler filling key has no other functions.	The tumbler filling key also starts the bowl flush.
5	Complete cycle by bowl flush key	Partial cycle by bowl flush key
6	NOT USED	NOT USED (standard position)
7	NOT USED	NOT USED (standard position)
8	The tumbler filling and bowl flush solenoid valves work.	The tumbler filling and bowl flush solenoid valves do not work.



STANDARD CONFIGURATION



Caution!
Incorrect positioning of the dip-switches 3-4-5-6-7-8 may cause the device to malfunction

15 ► ACCESSING THE INTERNAL PARTS OF THE INSTRUMENT TABLE

To remove the upper table guard, proceed as follows:

- 1) Remove the instrument support "A"
- 2) Disassemble the fixing bushes of the instrument cords "B"
- 3) Move the instrument cords outward, as shown in the fig. 1
- 4) Unscrew the 7 screws "C", as shown in the fig. 2
- 5) Disconnect the connectors "M" and "L" from control keyboard (fig. 3).

Follow the above steps in reverse order to reassemble.

NOTE: To ensure the perfect matching, check the correct positioning of both table guards before fastening the 7 screws "C".

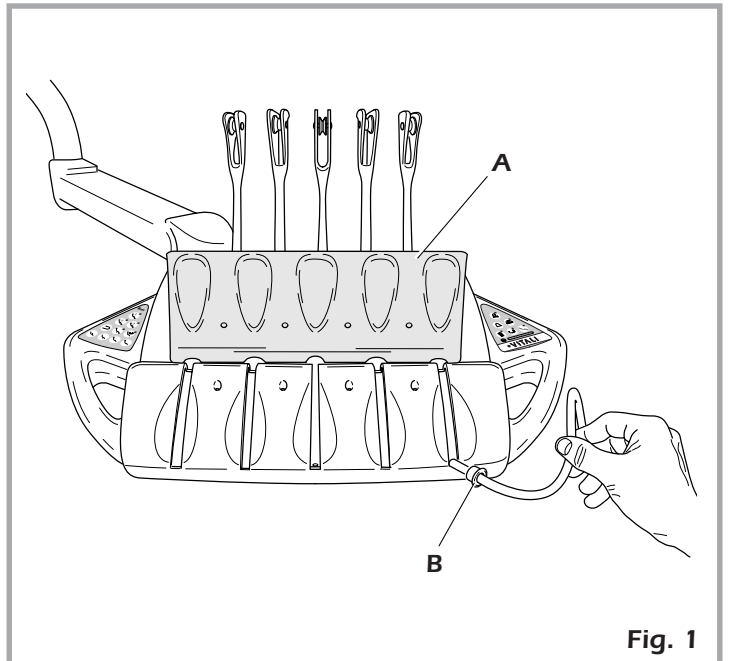


Fig. 1

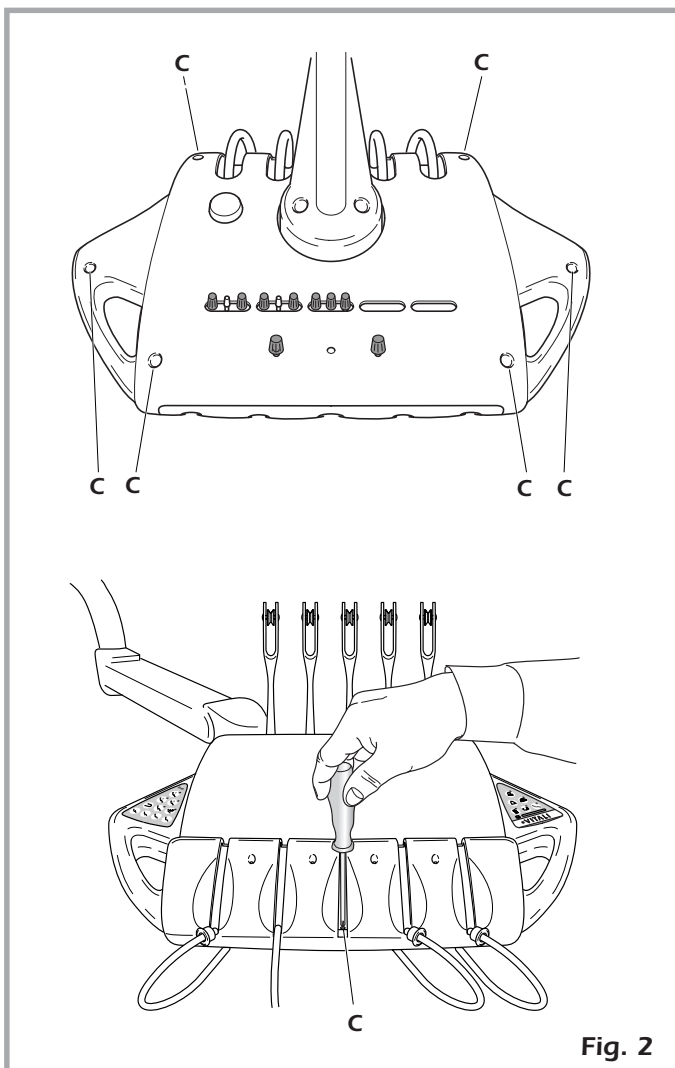


Fig. 2

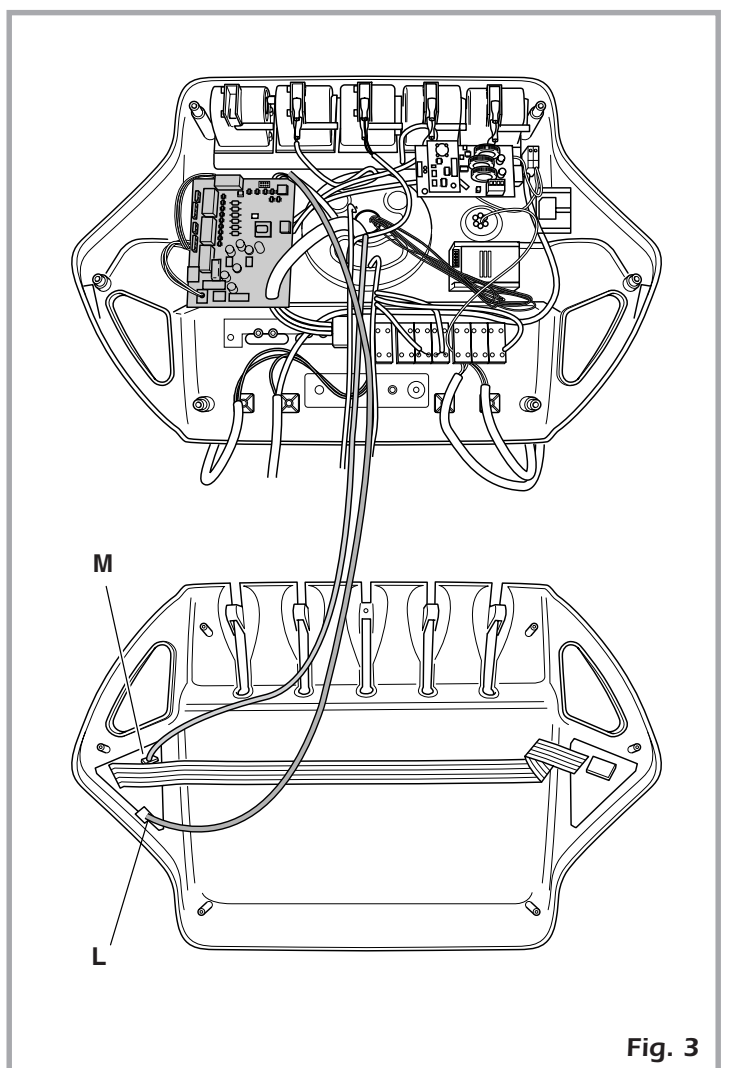
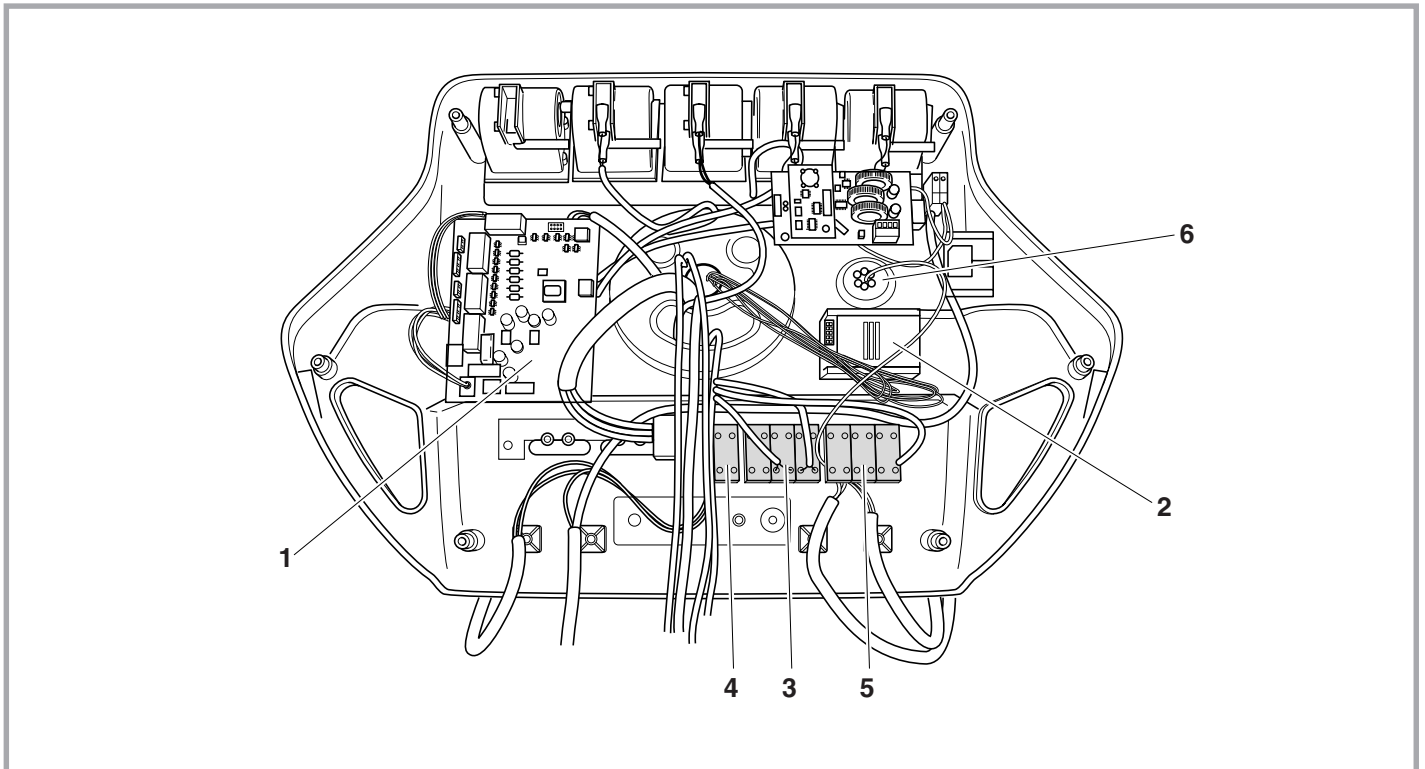


Fig. 3

The figure below shows an instrument table consisting of: 1 3F-syringe, 1 scaler, 1 intra-oral camera, 1 electric micromotor and 1 turbine.

- 1** ■ Instrument selection card.
- 2** ■ Piezon EMS scaler electronic power supply.
- 3** ■ Micromotor solenoid valve group.
- 4** ■ Syringe and scaler solenoid valve group.
- 5** ■ Turbine solenoid valve group.
- 6** ■ Instrument lubrication oil recovery device.

NOTE The spray function is achieved by simultaneously operating the water and chip blower solenoid valves.



NOTE: All drive air regulators are preset and locked by the ring-nut provided.

All regulators may be identified by the symbols shown at the bottom of the instrument table guard (see chapter "Symbols used").

16 ► INSTRUMENT SELECTION CARD

SW1 DIP-SWITCH CONFIGURATION

Instrument 1	
Instrument 2	
Instrument 3	
Instrument 4	
Example for activation of instruments 1, 2 and 4	

SW2 DIP-SWITCH CONFIGURATION

2 Instruments	
3 Instruments	
4 Instruments	

Instrument selection card	
JP1	Micromotor and 1st instrument lighting voltage outputs
JP3	1st instrument solenoid valve outputs
JP5-JP15	Connection for 2nd instrument card
JP6	Micromotor and 2nd instrument lighting voltage outputs
JP7	Instrument control input
JP8	2nd instrument solenoid valve outputs
JP9	Arm microswitch input
JP10	Micromotor and 3rd instrument lighting voltage outputs
JP11	3rd instrument solenoid valve outputs
JP12	Connection to display the rotation speed of the active instrument
JP13	Connection for disinfection card
JP16	Micromotor and 4th instrument lighting voltage outputs
JP17	4th instrument solenoid valve outputs
M11	Main power supply input
M12	6F syringe power supply output
TRIM1	Maximum instrument lamp supply voltage setting (max. 3.2 VDC)
TRIM2	Adjustment of the chip-blower function duration after using each active instrument
GND	Electronic earth (usable in connecting the MECTRON scaler module)
F1	Electronic card fuses
SW1	Sets the instruments displayed by the led indicator on the control keyboard
SW2	Sets the number of instruments used (to be configured with installed VDS-System)

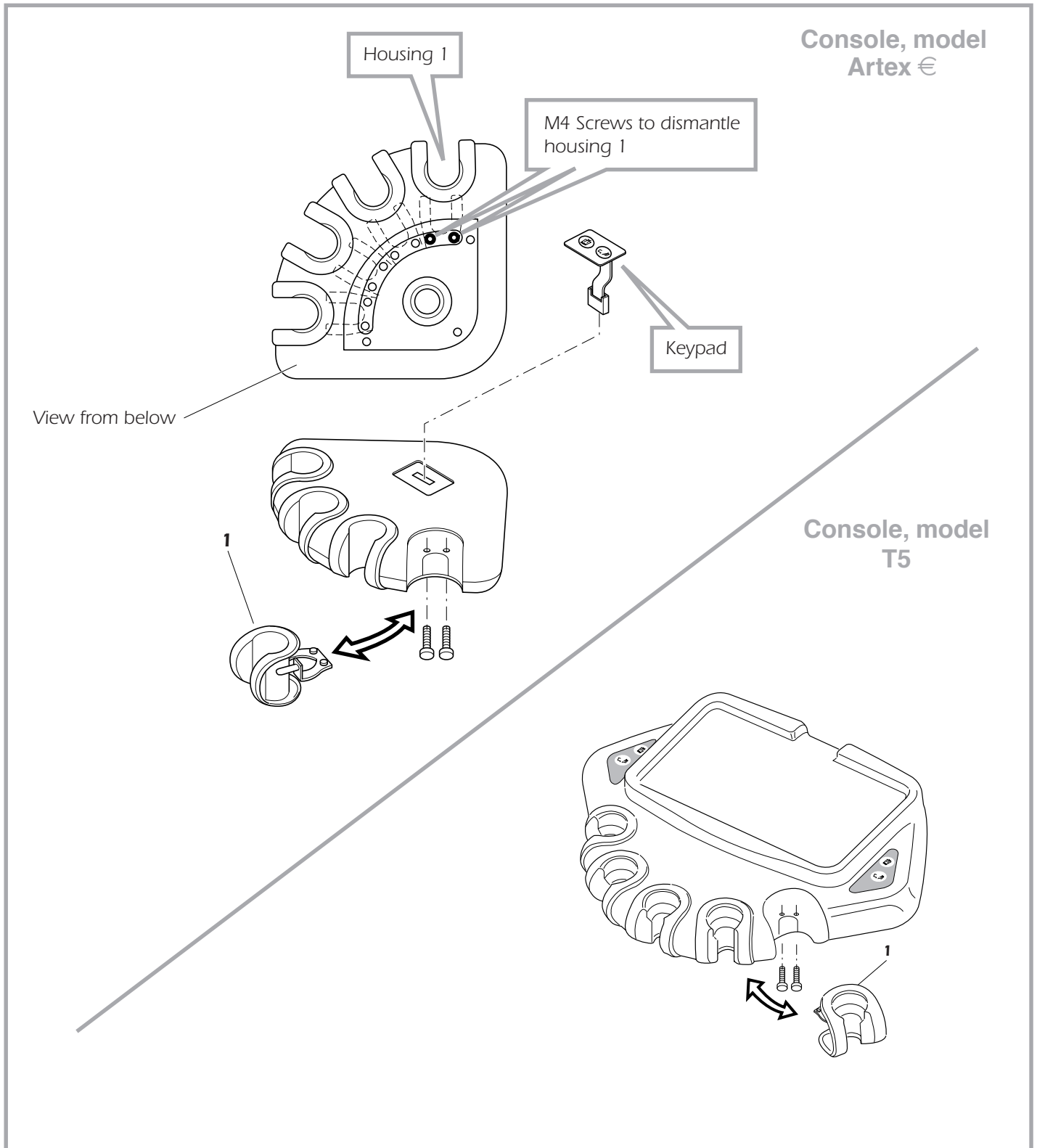
Electronic card fuses

The table below lists the errors that may occur when one of the fuses is tripped. See the picture above to locate the fuses. In case of more than 3 dynamic instruments installed, a second instrument table guard is present. The card numbering will be indicated on the plate below.

LABEL	PROTECTED PARTS	VALUE AND TYPE	ERRORS THAT OCCUR WHEN TRIPPED
F1	Selection card	F. 3.15A (5x20) RAPID	Instruments do no work.

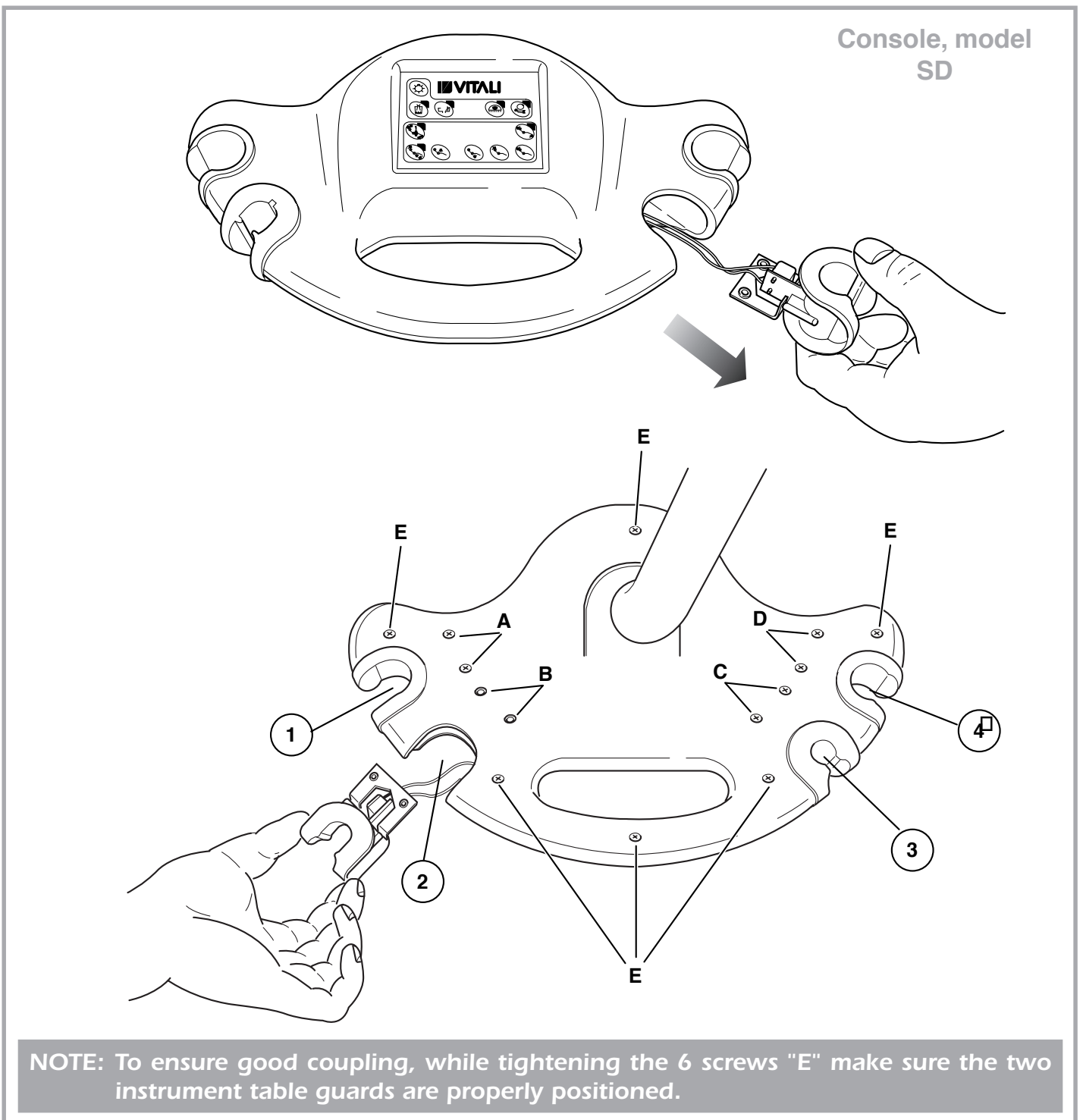
17 ► ACCESSING THE INTERNAL PARTS OF THE ASSISTANT CONSOLE

The assistant console allows you to customize the position of the various slots. To disassemble the housing "1" unscrew the two M4 screws located beneath the console. For electrical connections, see chap. **"Electrical connections for the assistant console"**. The keypad, located above the console, activates the tumbler and bowl command (see chap. **"Assistant console"**).



Example: To remove housing "1", unscrew the two M4 tapered screws "A". For connections, see the chap. **"Electrical connections for the assistant console"**. See the figure for directions on unscrewing housings "2", "3", and "4".

To access the assistant console card, you must remove all of the housings and unscrew the 6 M4 tapered screws "E" on the lower surface of the assistant console guard.



Electrical connections for the assistant console

To connect the slots for the suction tubes or instruments, follow the table in the figure.

WARNING! Do not connect anything to pins 8 and 16.

Slot	Wire color ("B" and "C")	PIN # (connector "A")
Polymerizing lamp	GREEN	1
	BLACK	9
Turbine	YELLOW	3
	BLACK	11
Minilight syringe	YELLOW	3
	BLACK	11
Micromotor	YELLOW	3
	BLACK	11
Small suction tube	PURPLE	4
	BLACK	12
Large suction tube	PURPLE	5
	BLACK	13

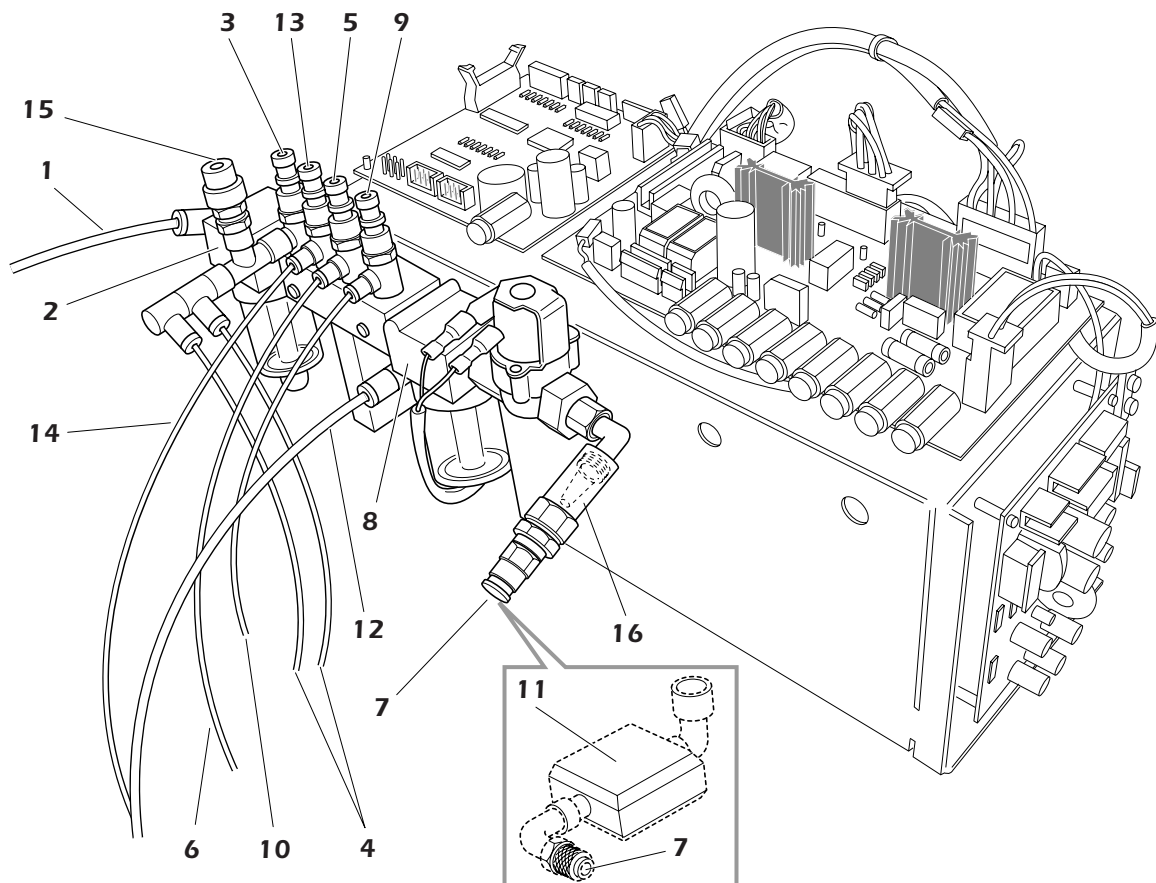
Insert the tip into the connector with the tab facing upwards

18 ► HYDROPNEUMATIC ADJUSTMENTS

Remove the derivative housing as described in the chapter "Accessing the internal parts", par. "Removing the derivative housing".

- 1 ■ Main air inlet (blue diam. 8 hose).
- 2 ■ Air filter with condensation drainage valve.
- 3 ■ Air pressure regulator for the headrest bayonet brake and air pressure of the pressurized bottle (optional).
- 4 ■ Air outlet for the headrest bayonet brake and air outlet for the pressurized bottle (white hose diam 4 - 3 bar).
- 5 ■ Instrument table air pressure regulator.
- 6 ■ Instrument table air output (blue diam. 6 hose). (to adjust based on the type of turbine used).
- 7 ■ Main water inlet (green diam. 8 hose).
- 8 ■ Water filter.
- 9 ■ Instrument table water pressure regulator.
- 10 ■ Instrument table water outlet (green diam. 4 hose - 2 bar).
- 11 ■ Anti-buildup device (optional).
- 12 ■ Tumbler, bowl and saliva ejector water outlet solenoid valve (green diam. 8 hose).
- 13 ■ Chip air, instrument spray and syringe air pressure regulator.
- 14 ■ Chip air, instrument spray and syringe air output.
- 15 ■ Pressurized bottle safety valve.
- 16 ■ Water prefilter.

NOTE: Removing the derivative housing allows access to parts that remain live even when the main power switch is shut off.



Adjusting and setting the table instruments

The figure below shows an instrument table consisting of: 1 syringe, 1 scaler, 1 electric micromotor and 1 turbine.

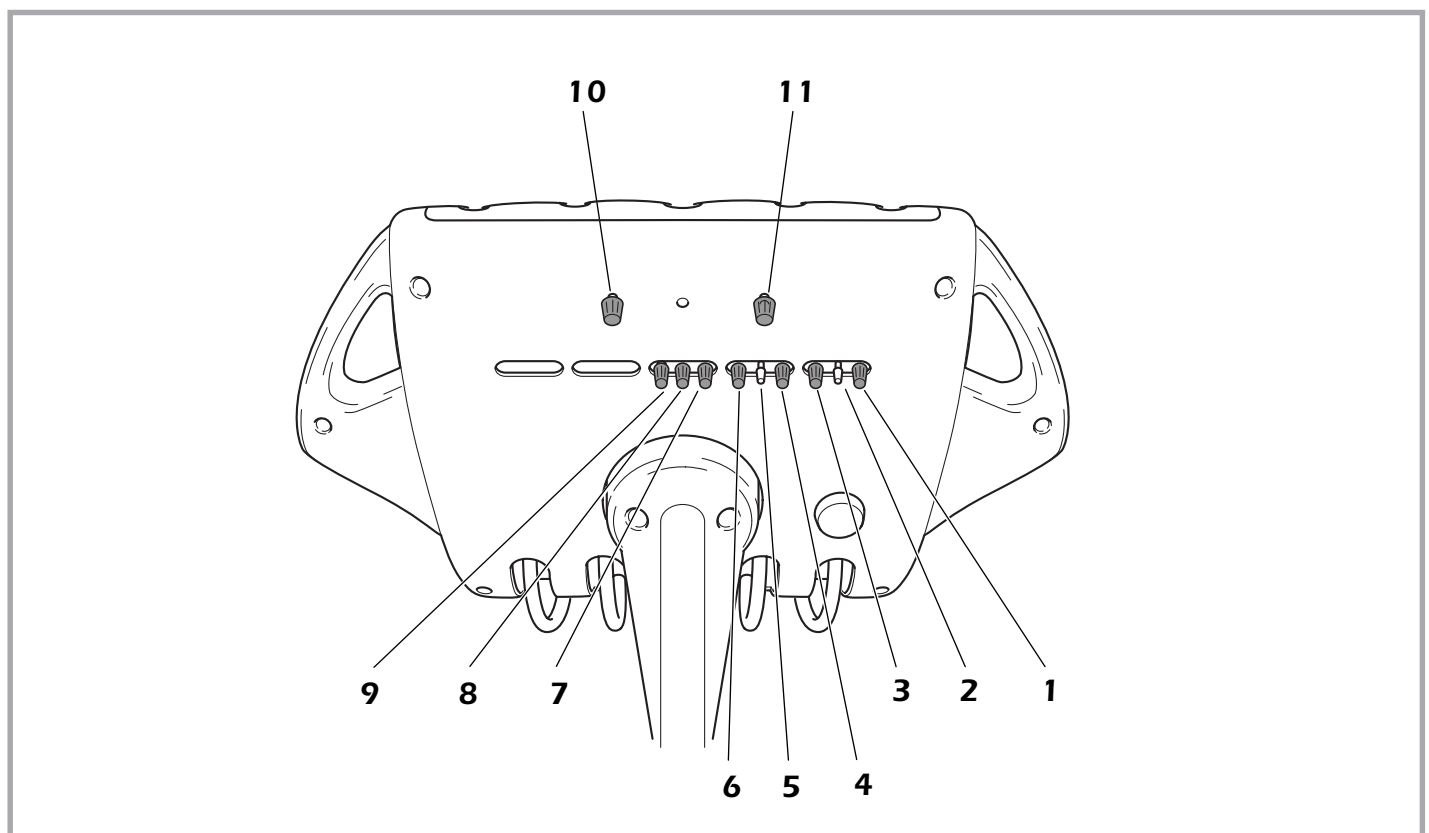
- 1 ▪ Turbine spray water regulator (green).
- 2 ▪ Pre-adjusted regulator for turbine drive air.
- 3 ▪ Turbine spray air regulator (yellow).
- 4 ▪ Micromotor spray water regulator (green).
- 5 ▪ Pre-adjusted regulator for micromotor cooling air.
- 6 ▪ Micromotor spray air regulator (yellow).
- 7 ▪ Ultrasound tartar scaler water regulator (green).
- 8 ▪ Syringe water regulator (green).
- 9 ▪ Syringe air regulator (yellow).
- 10 ▪ Ultrasound tartar scaler power regulator.
- 11 ▪ Micromotor rpm regulator (optional).

☞ **NOTE:** For information on how to use dynamic instruments, consult the instructions provided by corresponding manufacturers.

☞ **NOTE:** During operation of a dynamic instrument, all chair movements are disabled. If, during chair movement, a dynamic instrument is chosen, its movements will be locked.

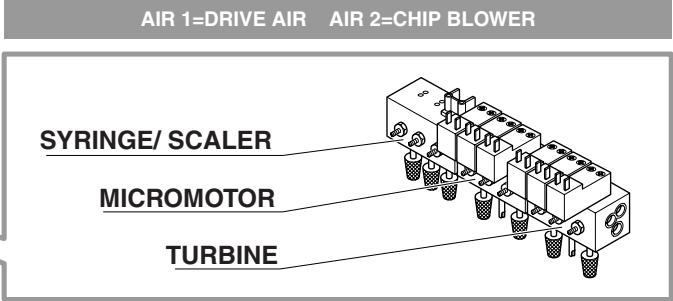
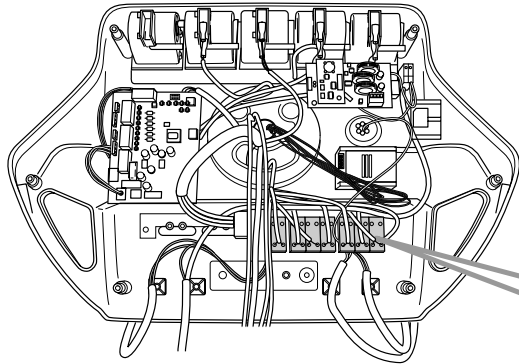
☞ **WARNING:** The configurations shown refer to RIGHT-HANDED dental units.

For the LEFT-HANDED VERSION, the various positions will be the reverse of those indicated.

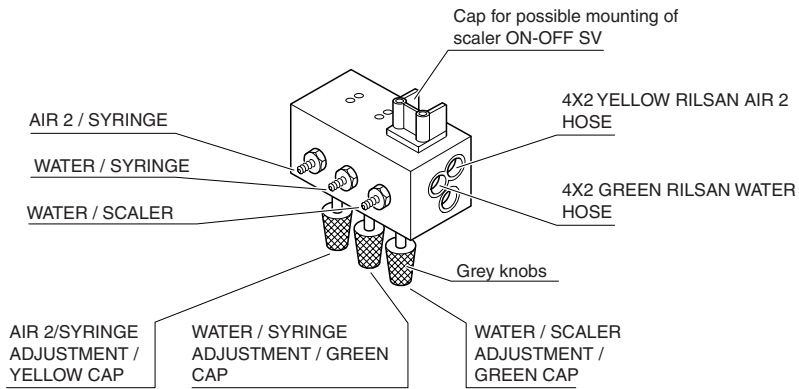


☞ **NOTE:** All drive air regulators are preset and locked by the ring-nut provided.

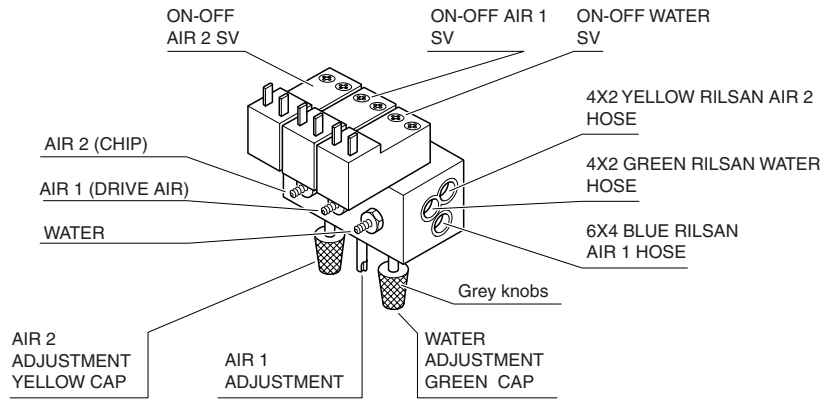
All regulators may be identified by the symbols shown at the bottom of the instrument table guard (see chapter "Symbols used").



SYRINGE / SCALER

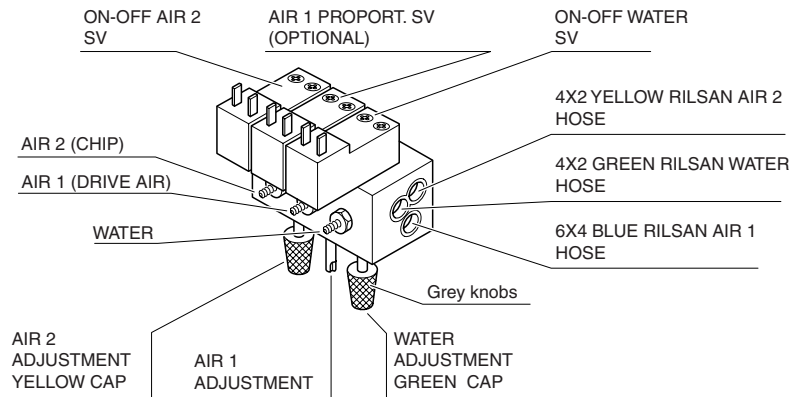


TURBINE OR MICROMOTOR



TURBINE OR AIR MICROMOTOR

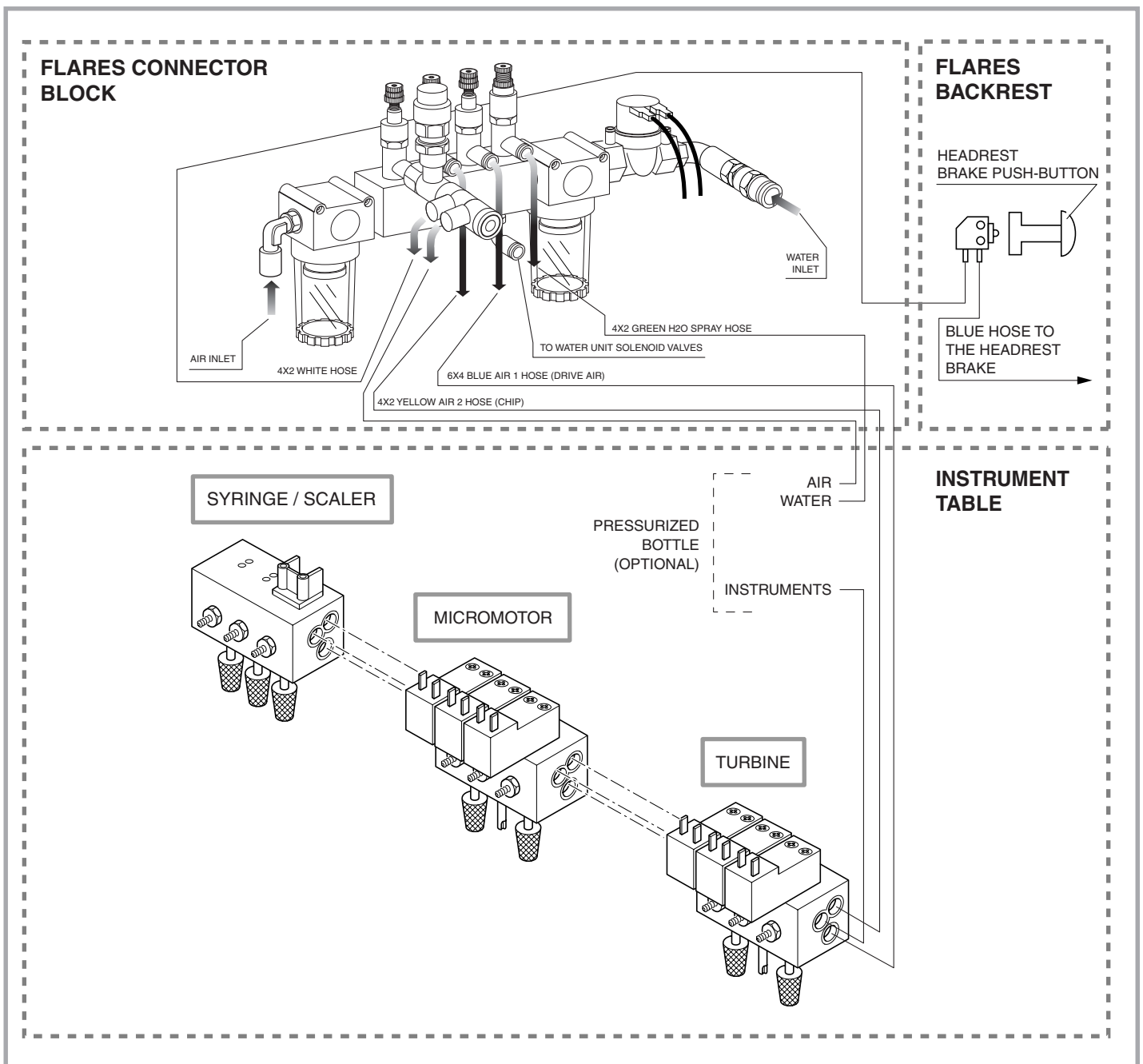
WITH ELECTRONIC FOOT CONTROL ONLY



Hydropneumatic diagram

To achieve the running pressure for the turbine, proceed as follows:


- check the technical specifications of the turbine;
- connect a pressure gauge between the fitting and the turbine;
- adjust the instrument table air pressure regulator (see chap. "Hydropneumatic adjustments" in this manual).



19 ► KEYPAD FUNCTIONS

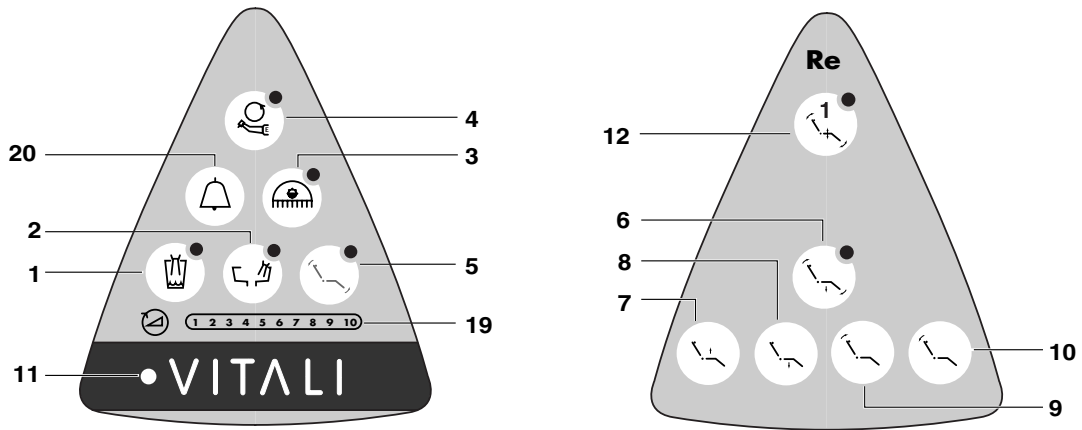
In order to allow all adjustments and/or replacements, hereunder are listed the functions controlled by the operator's keyboards.

- 1 ▪ Timed tumbler filling with LED, followed by timed bowl flushing (press again to cancel the function).
- 2 ▪ Manual bowl flushing with LED (ON/OFF switch).
- 3 ▪ Operating lamp ON/OFF switch (make sure the switch on the lamp is set to "⊕").
- 4 ▪ Reverse micromotor rotation direction (the LED remains lit until normal rotation is restored).
- 5 ▪ **Emergency** position with LED (press the key to achieve the Trendelenburg position, compensated by lowering the backrest to assist cerebral oxygenation if the patient should faint). The LED lights when the position is reached.
- 6 ▪ Automatic chair reset (pressing this key returns the backrest to an upright position and moves the chair fully down). The LED lights when the position is reached.
- 7 ▪ Raise chair.
- 8 ▪ Lower chair.
- 9 ▪ Raise backrest.
- 10 ▪ Lower backrest.
- 11 ▪ Indicator lamp: lights to indicate that power is on.
- 12 ▪ Mechanical memory with LED (OPTIONAL). Press this key to reach a working position set during installation by the authorized technician. The LED lights when the position is reached.
- 13-14-15 ▪ Keys for the 3 working positions, with corresponding LEDs.
These keys allow you to save 3 different working positions. Three standard working positions are set during the final equipment inspection. To change them, proceed as follows: set the chair to the desired positions using keys **7, 8, 9** and **10**. Then hold down the corresponding key (e.g. **13**) for approximately 5 seconds. A beep will sound when the position has been saved.
- 16 ▪ RINSE position: when this button is pressed, the backrest automatically moves to an upright position and the LED lights. The bowl will automatically flush after a few seconds. You may save a different backrest angle by following the procedure described above for points **13-14-15**.
- 17 ▪ Return to the last position used.
- 18 ▪ Display for rotating speed of the activated instrument (this function is present only on instruments with rpm adjustment by foot control).
- 19 ▪ Assistant call.

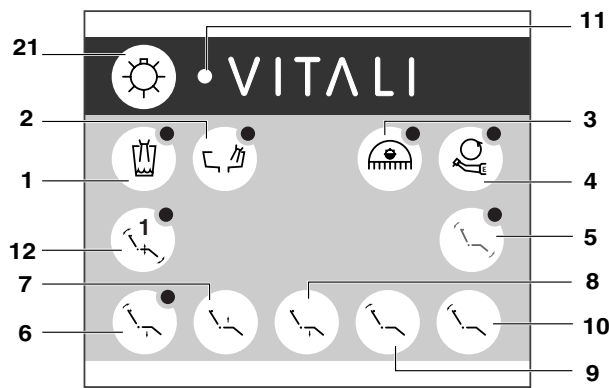
 **WARNING:** An automatic movement in progress may be aborted by pressing any of the chair buttons or acting on the main switch.

T5 Re

Dentist's instrument table

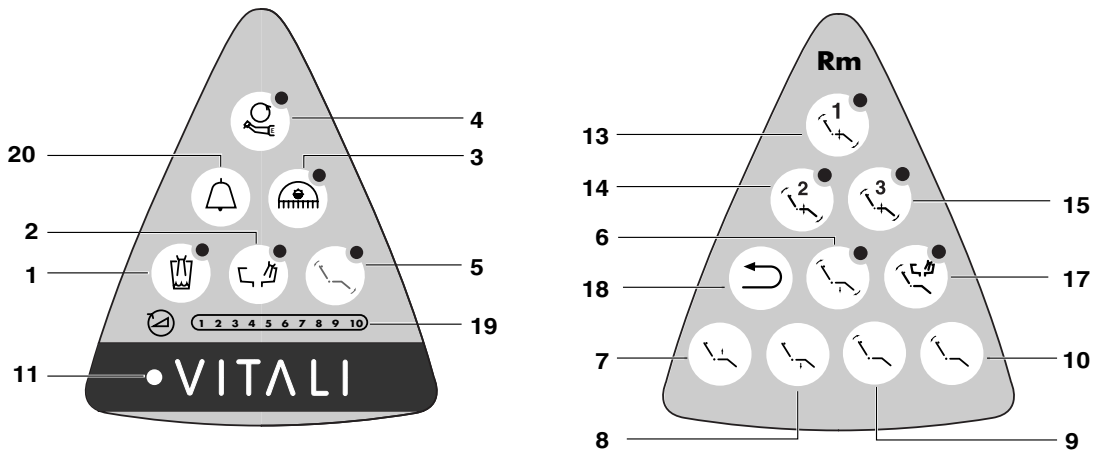


Assistant console - model SD (Optional)

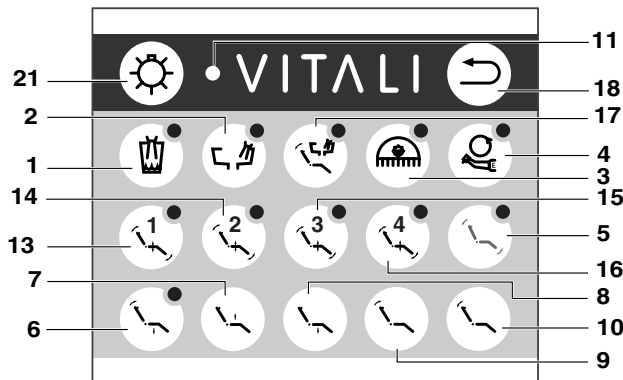


T5 Rm

Dentist's instrument table

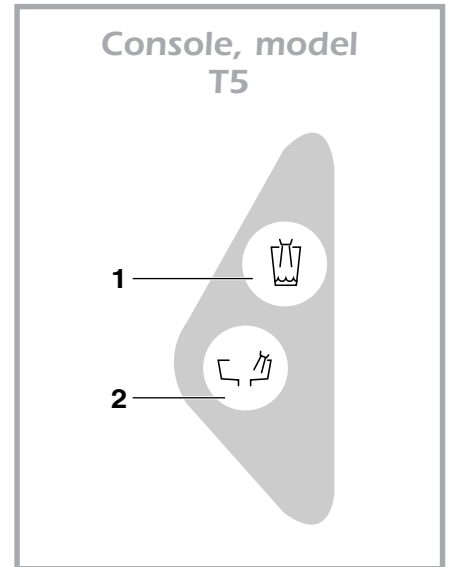
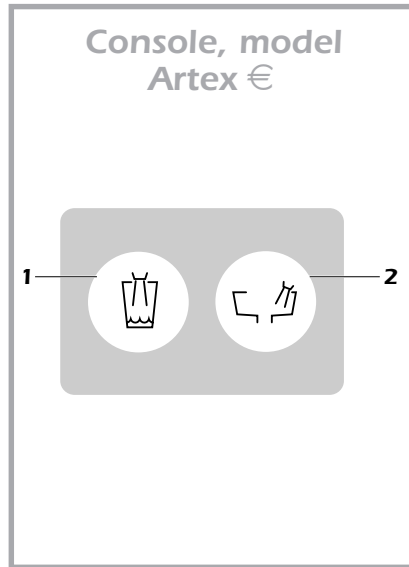


Assistant console - model SD (Optional)



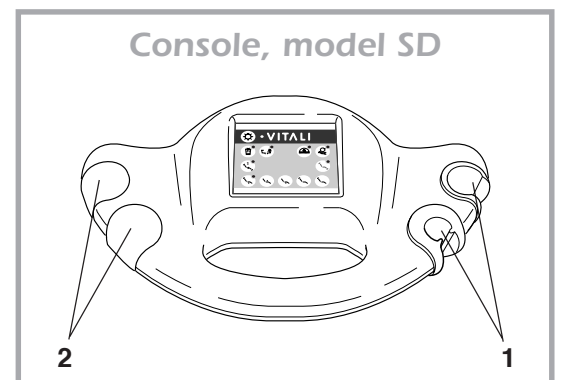
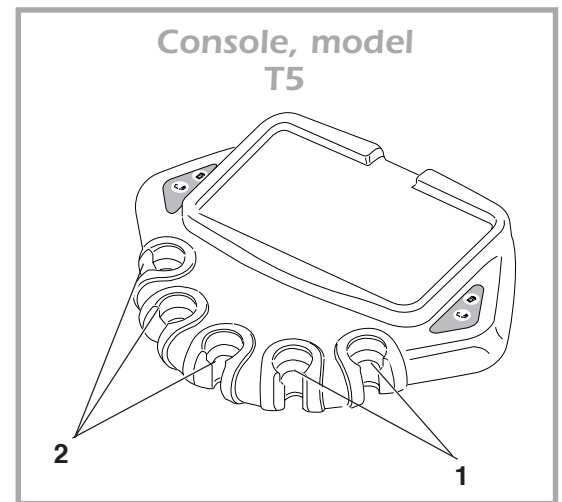
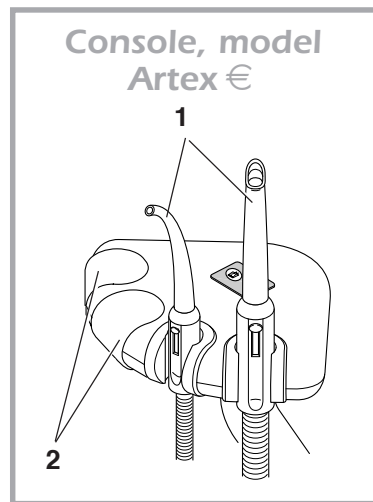
Assistant/patient keypad functions (located on console)

- 1 ▪ Timed tumbler filling with water and subsequent timed bowl flushing (press again to cancel the function).
- 2 ▪ Manual bowl flushing (switch with ON/OFF function).



20 ► ASSISTANT CONSOLE

- 1 ▪ Surgical suction tubes.
- 2 ▪ Blind seat. The cap may be removed for using the seat for additional instruments.

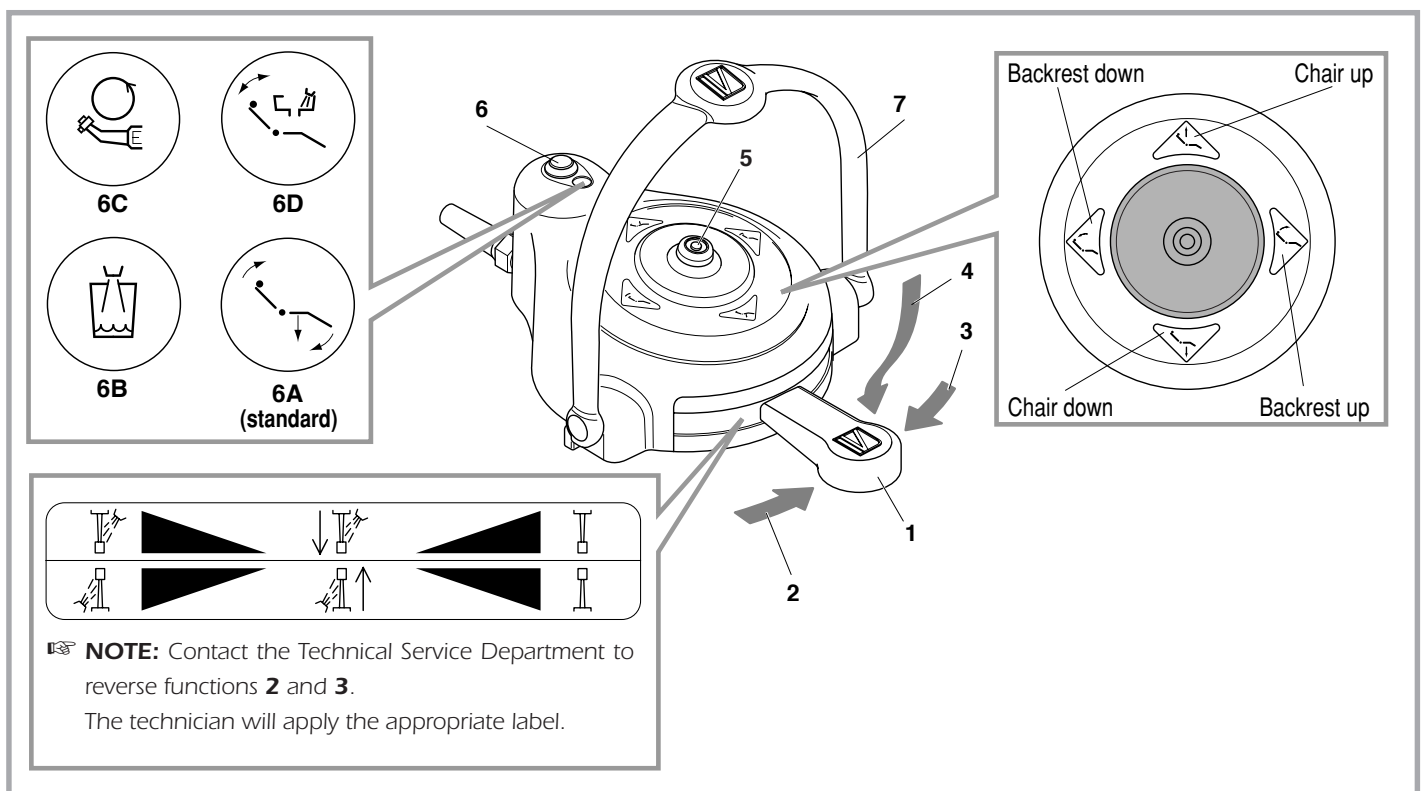


CAUTION: The configurations show refer to the RIGHT VERSIONS of dental units. For LEFT-HANDED VERSIONS, the positions will be a mirror image compared to those shown.

21 ► VITALI FOOT CONTROLS

Electronic foot control

- 1 ■ Dynamic instruments control lever
 - 2 ■ Set number of micromotor rpm without spray
Activate scaler with spray
Activate turbine without spray
 - 3 ■ Set number of micromotor rpm with spray
Activate scaler with spray
Activate turbine with spray
- 🔊 **NOTE** Functions **2** and **3** may be reversed by contacting the Technical Service Department!
- 4 ■ Chip-blower control (only available with the lever **1** in resting position) and activation still-shot intra-oral camera (if installed).
 - 5 ■ Chair controls (movements are obtained by shifting the joystick in the direction shown by the symbols).
 - 6 ■ Selection button, which can be configured with one of the following functions:
 - 6A Automatic chair reset
 - 6B Timed tumbler filling, followed by timed bowl flushing
 - 6C Reverse micromotor rotation direction
 - 6D Automatic rinsing.
- 🔊 **NOTE** To prevent this from being accidentally activated, the button **6** must be held down for approximately 1 second.
- 🔊 **NOTE** During installation or after it, the standard function **6A** can be substituted by one among the available, contact for it the Technical Service Department.
- 7 ■ Reclining foot control handle
- 🔊 **NOTE** When the lever **1** is released from the spray direction, a puff of air (chip-blower) is activated to remove any drips of water from the instruments, to prevent in that way any risk of crossed contamination.
- 🔊 **NOTE** If the lever **1** is moved without a dynamic instrument selected, two safety devices are activated: a warning buzzer or the chair movement lock.



Electronic foot control setting and configuration

Move the dip-switch 2 to On (the LED on the card flashes quickly at equal intervals).

- 2** ▪ Move the lever all the way to the right, then slowly release it until it returns to resting position.
- 3** ▪ Move the lever all the way to the left, then slowly release it until it returns to resting position.
- 4** ▪ Move the dip-switch 2 to Off. (the LED on the card flashes slowly in pulses).
- 5** ▪ Place a volt meter on pins 7 and 2 of CN82, and make sure that the voltage reading with the lever all the way to the right is the same as the reading with the lever all the way to the left. If so, the setting is complete and you may proceed with closing the foot control. If not, repeat the procedure (steps 1 through 4), moving the lever only to the side on which the volt meter measured a lower value.

NOTE: When the LED flashes, alternating long lit phases with short off breaks, you must check the serial connection (CN80) or the setting.

No. dip-switches S1	Off	On
1	Not used	Not used
2	Acquire setting	Min/max foot control lever setting
3	Spray by moving the lever to the right	Spray by moving the lever to the left
4	Not used	Not used
5	Not used	Not used
6	Not used	Not used

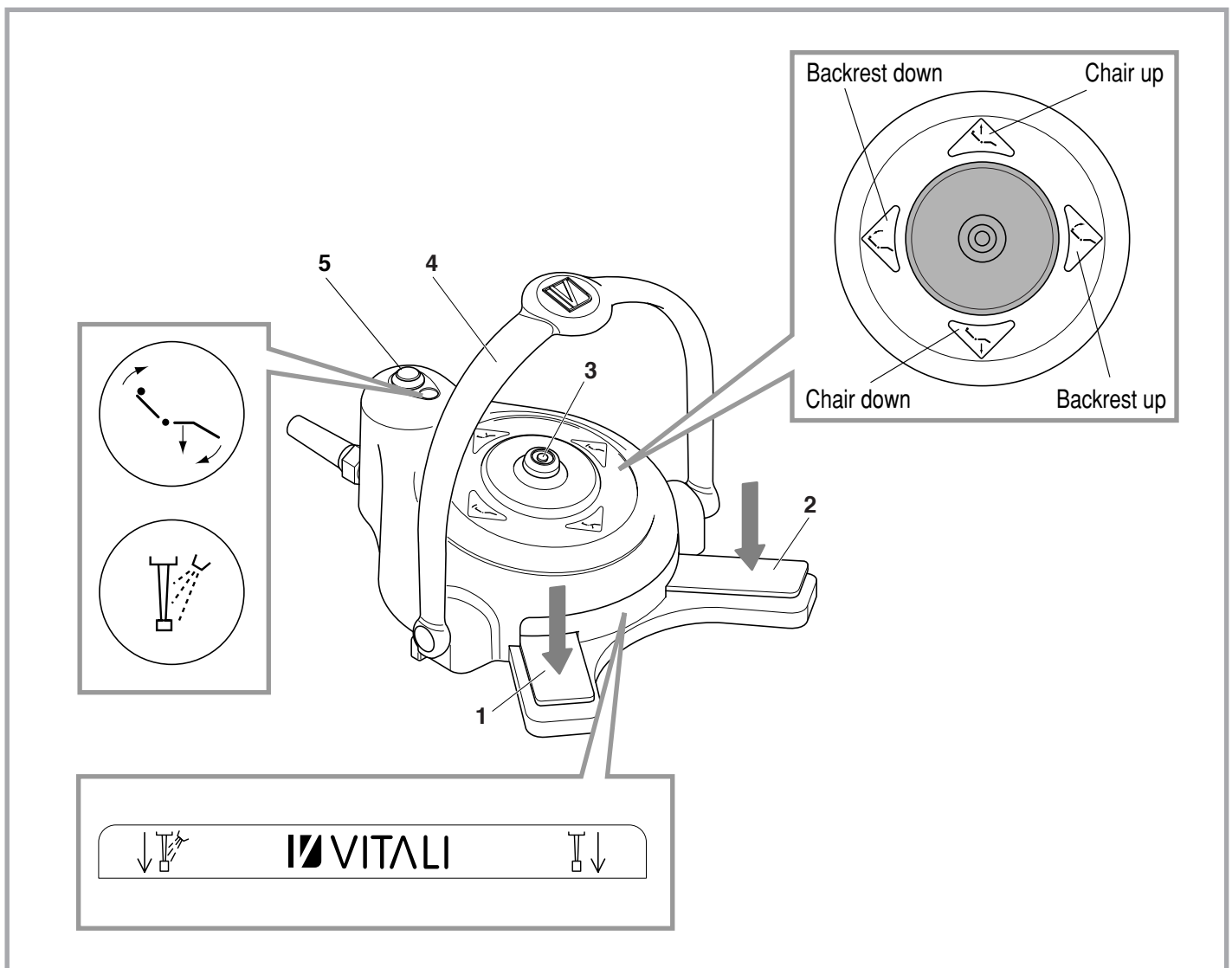
The position of the dip-switches **4-5-6 S1** determines the function of the push-button placed on the foot control (6). The following table indicates the functions that can be activated.

4	5	6	
OFF	OFF	ON	“Rinsing” position.
OFF	ON	ON	Automatic chair reset.
ON	OFF	OFF	Reversal of the sense of rotation of the micromotor.
ON	ON	ON	Timed tumbler filling.

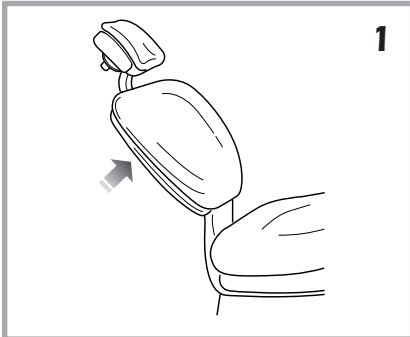
Two-lever foot control

- 1 ■ Activate instrument with spray and activation still-shot intra-oral camera (if installed)
- 2 ■ Activate instrument without spray
- 3 ■ Chair controls
- 4 ■ Reclining foot control handle
- 5 ■ Automatic chair reset selection button (pressing this key returns the backrest to the upright position, and moves the chair all the way down). To prevent it from being involuntarily activated, the button must be held down for approximately 1 second. In some models the button only starts the chip-blower function.

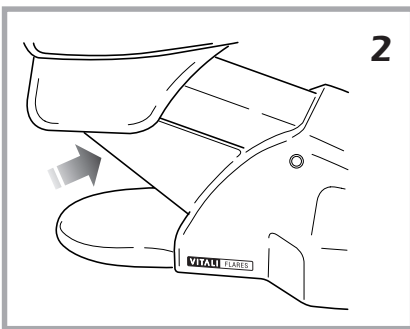
NOTE: When the lever **1** is released, a puff of air (chip-blower) is activated to remove any drips of water from the instruments, to prevent in that way any risk of crossed contamination



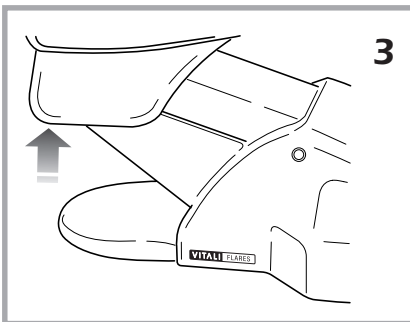
22 ► SAFETY DEVICES



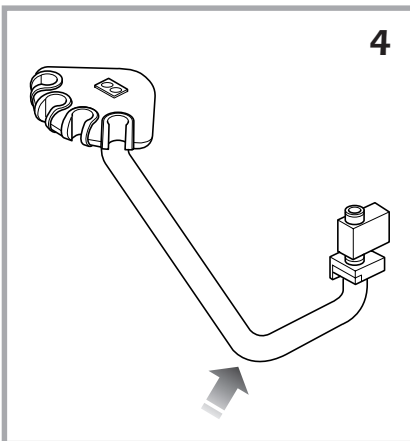
◄ CHAIR BACKREST SAFETY DEVICE



◄ CHAIR LOWERING SAFETY DEVICE

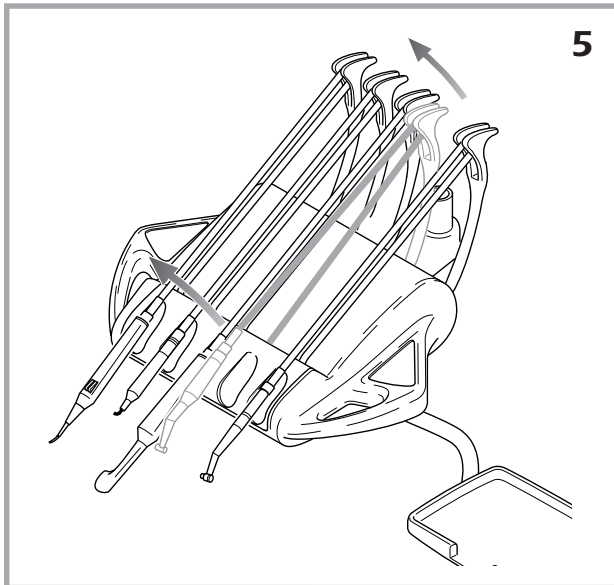


◄ CHAIR LOWERING SAFETY DEVICE



◄ ASSISTANT CONSOLE SAFETY DEVICE
(Present with assistant console on arm only)

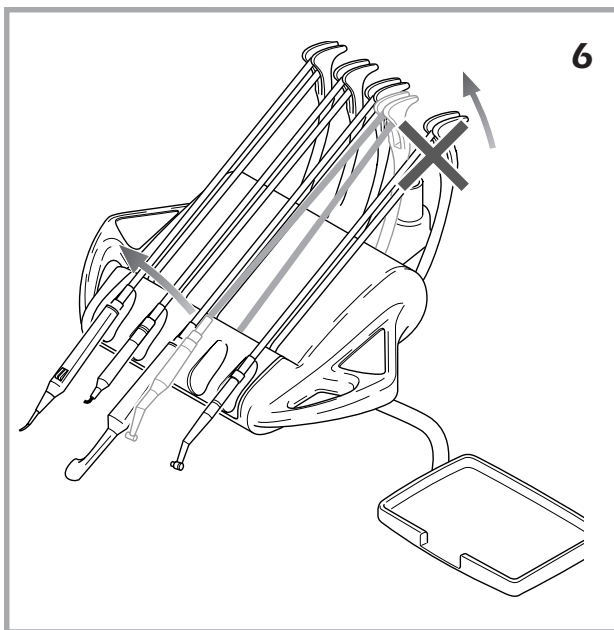
NOTE: If one of the safety devices described above is tripped while the chair is descending, the latter will automatically move up 2-3 cm to allow you to remove the obstacle that tripped the safety device. At the same time, a buzzer sounds and the keypad LEDs flash.



CHAIR MOVEMENT SAFETY DEVICE

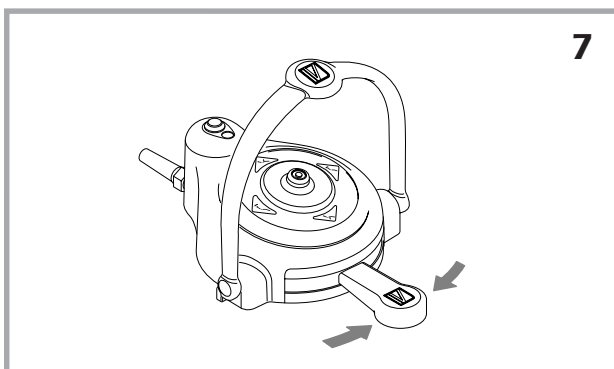
Chair movement is disabled with an instrument activated.

NOTE: Only with dynamic instruments.



INSTRUMENT SAFETY DEVICE

Two dynamic instruments cannot function simultaneously. Use of one instrument disables operation of the others.



FOOT CONTROL SAFETY

The chair and instruments are prevented from functioning when the foot control is activated; a buzzer sounds if the instruments are at rest.

23 ► SPECIAL MAINTENANCE

Replacing the vertical chair movement gearmotor

See the chapter "**Accessing the internal parts - Flares**" to carry out this operation:

- 1) Remove the seat upholstery.
- 2) Remove the derivative housing.
- 3) Remove the upper parallelogram housing.
- 4) If the motor is operating, activate it to raise the chair so that it will be easier to remove.
- 5) If the motor does not work, disconnect the chair from the mains, use a 4- mm "**A**" Allen wrench and introduce it into the drive shaft as indicate in figure 1 . Rotate the key for starting the motor by hand.
- 6) Disconnect the connector M6 from the card, the grounding wire and the condenser cable.
- 7) To prevent the chair from falling while the motor is being replaced, insert a special spacer "**B**" under the seat box as shown in figure 2 and bring the chair slightly down to block the spacer in place.
- 8) Unscrew the 4 M8 Allen screws "**C**" - see figure 3.
- 9) Remove the 2 Seeger rings from the pin "**D**" and unscrew the M5 dowel "**E**" - see figure 3.
- 10) Remove the motor as shown in figure 3.

Proceed in reverse order to reassemble.

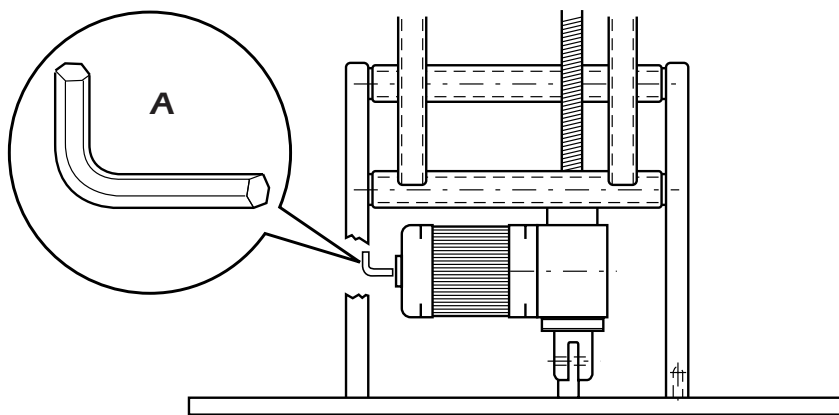


Fig. 1

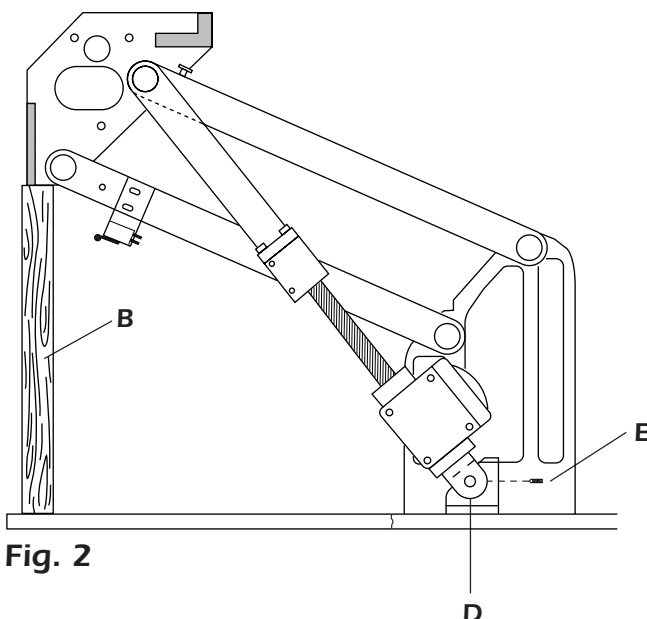


Fig. 2

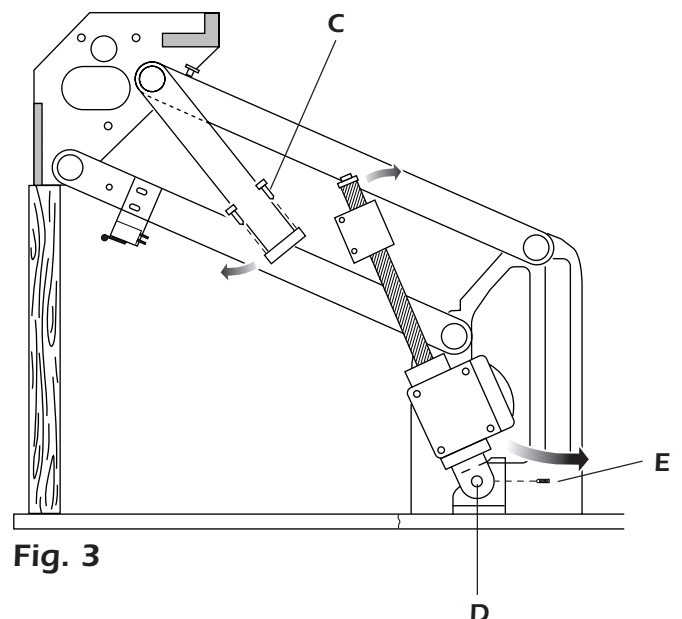


Fig. 3

Replacing the backrest actuator

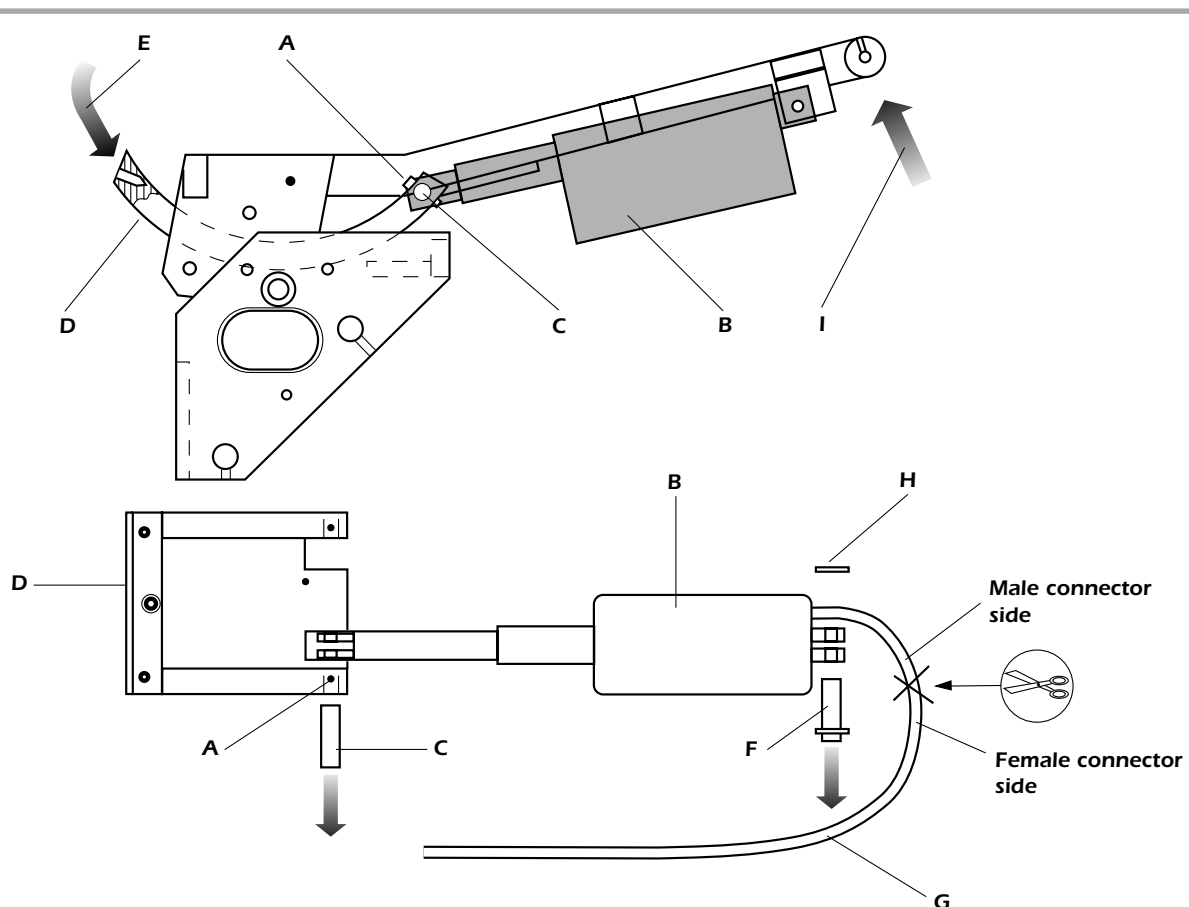
Remove the upholstery as described in the chapter "Accessing the internal parts", par. "Removing the seat upholstery" and the seat housing as described in the chapter "Accessing the internal parts", par. "Removing the seat housing":

IF THE ACTUATOR DOES NOT WORK:

- 1) Unscrew the dowel/activator "A".
- 2) Remove the Seeger ring "H" and the pin "F", raise the seat as indicated by the arrow "I" to make the M5 hole in the pin "C" accessible.
- 3) Cut off the electrical power supply.
- 4) Use an extractor screwed into the M5 hole in the pin "C" to remove the pin itself.
- 5) Cut the cable "G" and replace the actuator, applying the connector supplied.
- 6) Replace the pins "C" and "F", the dowel/activator "A" and the Seeger ring "H".
- 7) Turn on the electrical power supply.
- 8) Activate the backrest to make sure that the backrest limit switches are working properly.

IF THE ACTUATOR WORKS:

- 1) Unscrew the dowel/activator "A"
- 2) Activate it using the foot control or keypad in the direction shown by the arrow "E", to make the M5 hole in the pin "C" accessible.
- 3) Cut off the electrical power supply.
- 4) Use an extractor screwed into the M5 hole in the pin "C" to remove the pin itself.
- 5) Remove the stop (Seeger) ring "H" from the pin "F" and then remove the pin
- 6) Cut the cable "G" and replace the actuator, applying the connector supplied.
- 7) Replace the pins "C" and "F", the dowel/activator "A" and the Seeger ring "H"
- 8) Turn on the electrical power supply
- 9) Activate the backrest to make sure that the backrest limit switches are working properly.



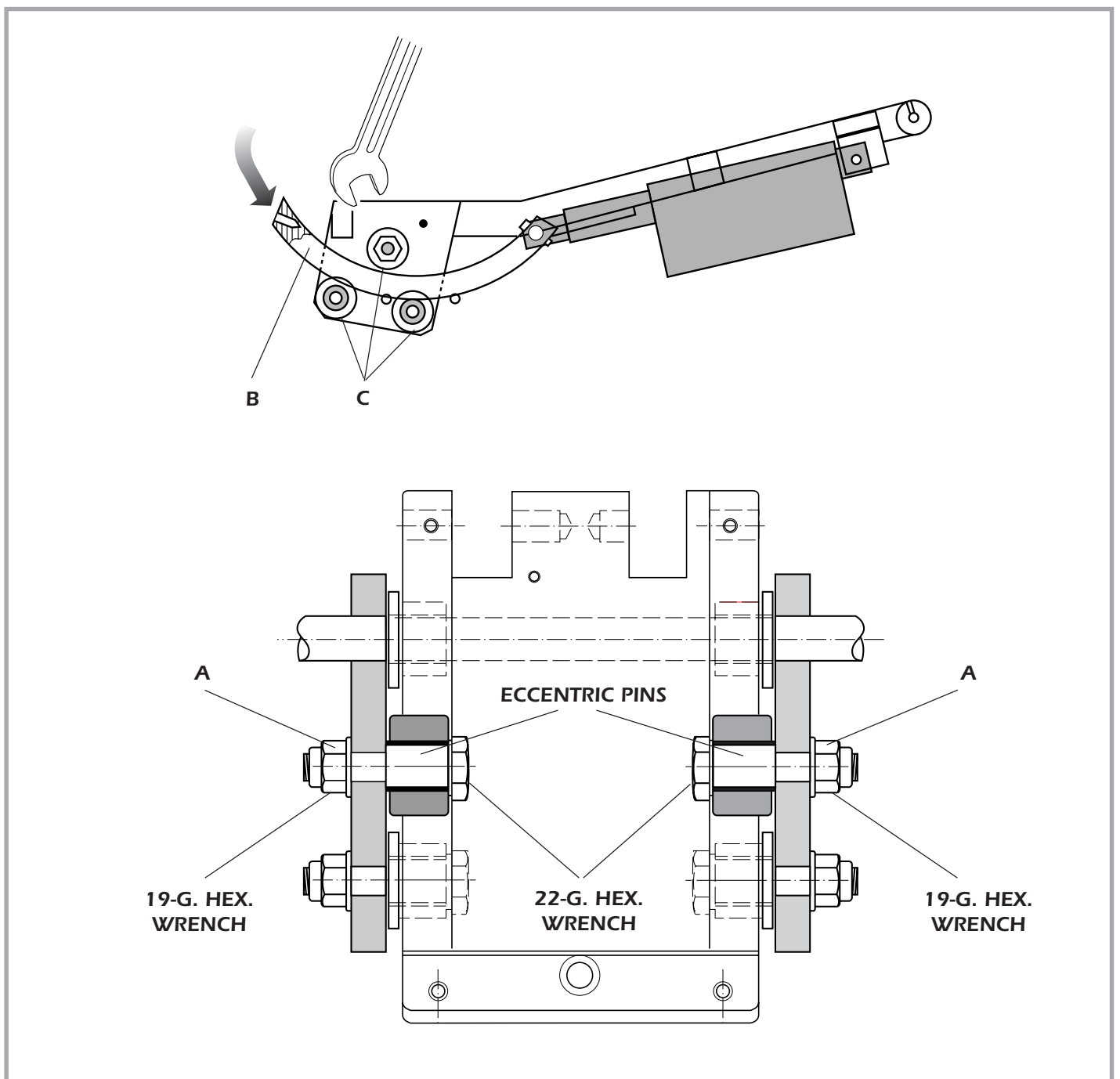
Specific tools required: M5 screw extractor

Adjusting the backrest movement cradle friction

Should a margin arise in the backrest, remove the seat upholstery as described in the chapter "**Accessing the internal parts**", par. "**Removing the upholstery**", and then the seat housing as described in the same chapter in the par. "**Removing the seat housing**". Use a 19-gauge hexagonal wrench to slightly unscrew the two self-locking M12 nuts "**A**".

Use the 22-gauge hexagonal wrench to slightly turn the two eccentric pins until the friction between the cradle "**B**" and the rollers "**C**" is correct. Finally, make sure that the six rollers always turn in contact with the cradle, with constant friction, whenever the backrest is moved.

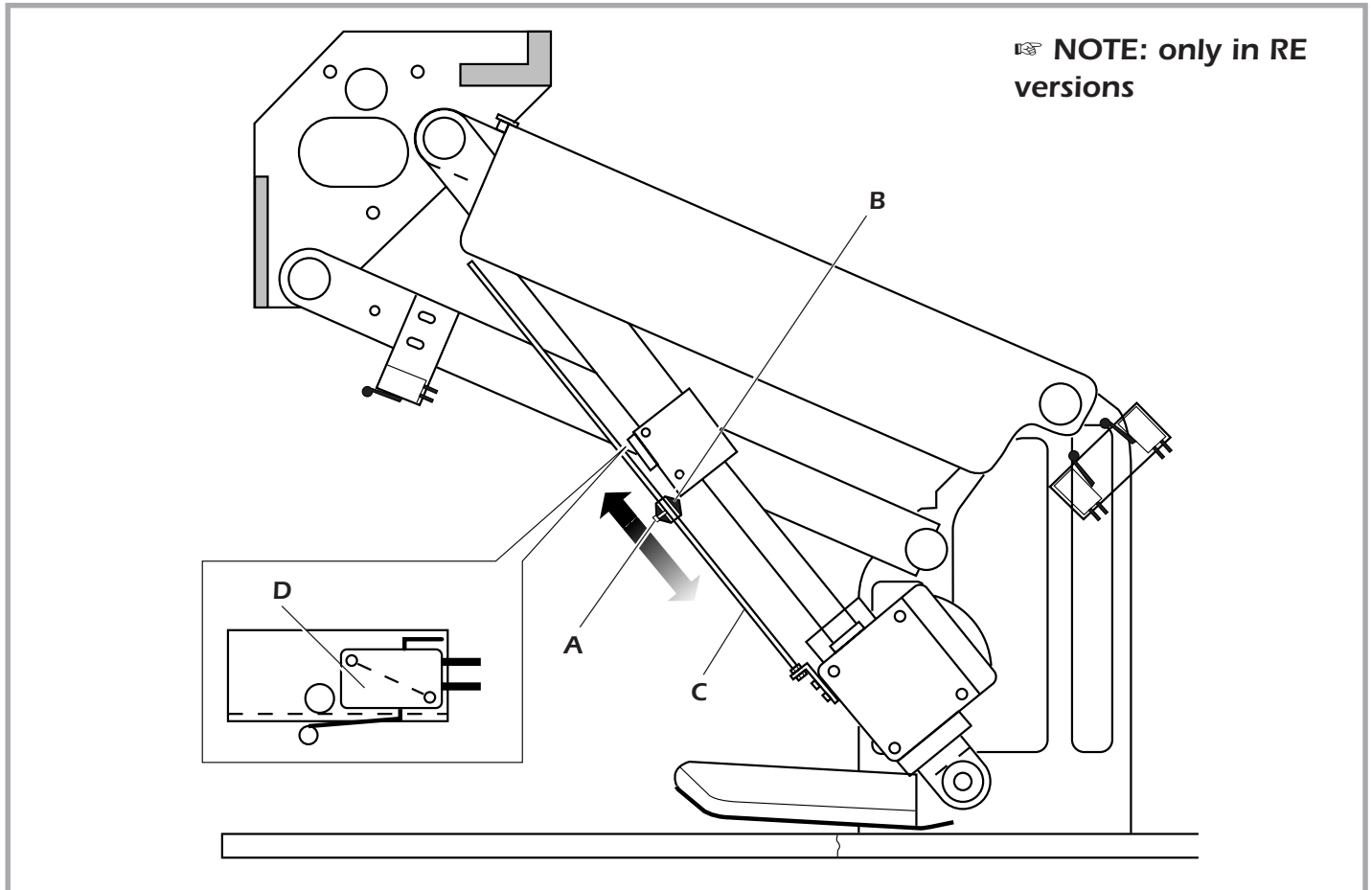
Tighten the two M12 nuts "**A**", using the 22-gauge hexagonal wrench to hold the two eccentric pins in place to avoid changing the friction achieved.



Adjusting the vertical chair movement mechanical memory

Remove the lower parallelogram housing as described in the chapter "**Accessing the internal parts**", par. "**Removing the lower parallelogram housing**". Use an Allen wrench to loosen the M4 dowel "**A**" and adjust the position of the activator "**B**", positioning it along the rod "**C**". Tighten the dowel "**A**" and move the chair up and down to make sure the microswitch "**D**" is activated.

When the final adjustment is achieved, close the housings by proceeding in reverse order.

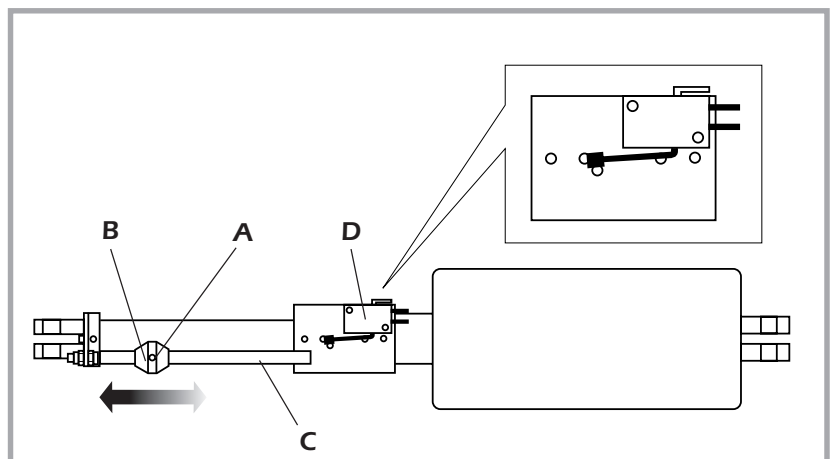


Adjusting the backrest movement mechanical memory

Remove the upholstery as described in the chapter "**Accessing the internal parts**", par. "**Removing the seat upholstery**".

Use an Allen wrench to loosen the M4 dowel "**A**" and adjust the position of the activator "**B**", positioning it along the rod "**C**". Tighten the dowel "**A**" and move the backrest to make sure the microswitch "**D**" is activated.

When the final adjustment is achieved, replace the upholstery by proceeding in reverse order.



Adjusting the instrument table support panel friction

This operation should be carried out whenever the weight of instrument table changes (for instance, by adding or removing an instrument), or whenever it may become necessary.

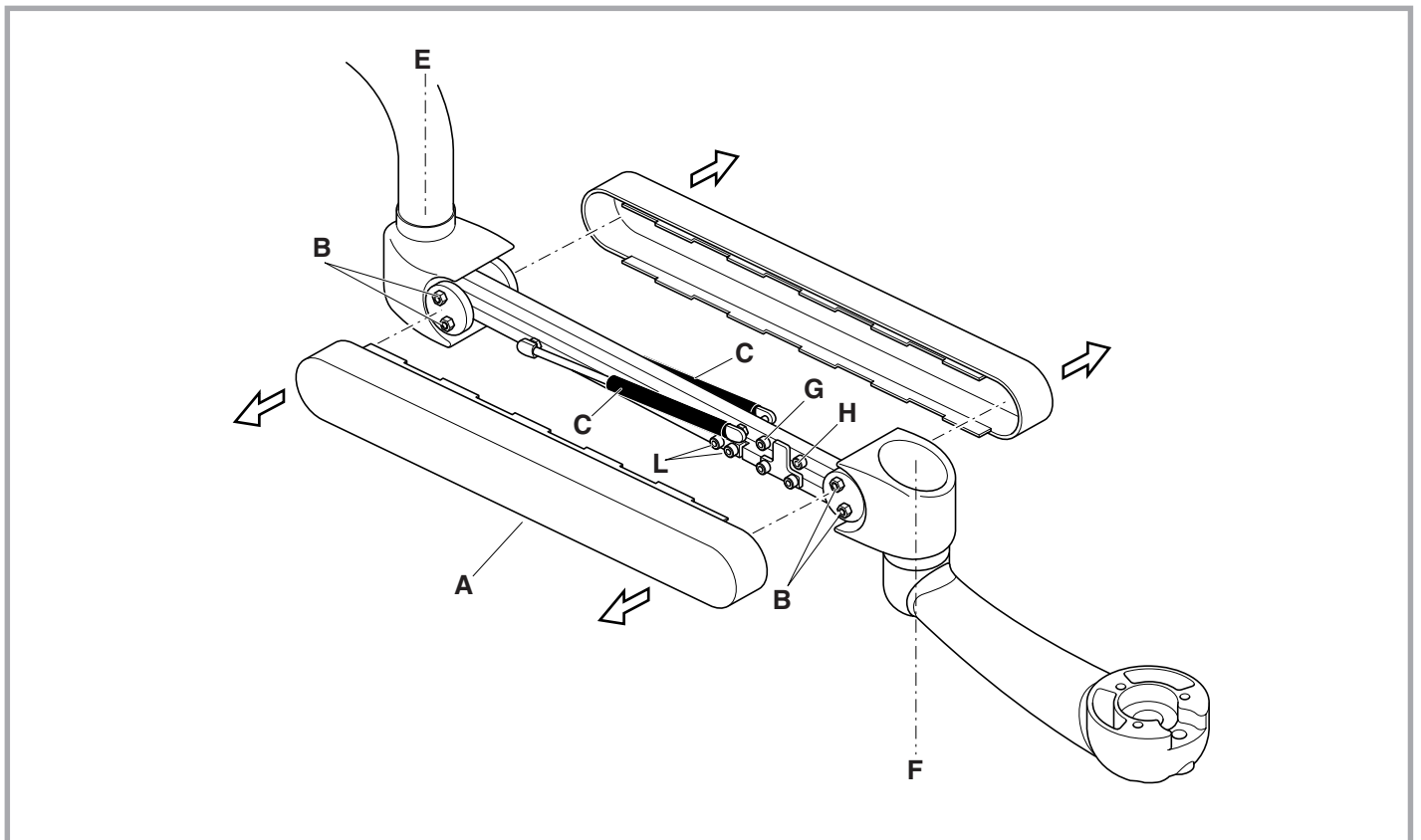
Remove the guard "A" in the direction shown by the arrows.

To achieve the proper friction, tighten or loosen the nuts "B". The lifting force of the instrument table is not adjustable, since it is determined by the force exerted by the gas springs "C".

After adjusting, re-mount the housing "A" in the opposite direction to one shown by the arrows.

👉 **NOTE:** The parallel between axes "E" and "F" the stops "G" and "H" are adjusted at our factory, and require **NO further adjustment**.

👉 **NOTE:** **NEVER** unscrew the screws "L"!

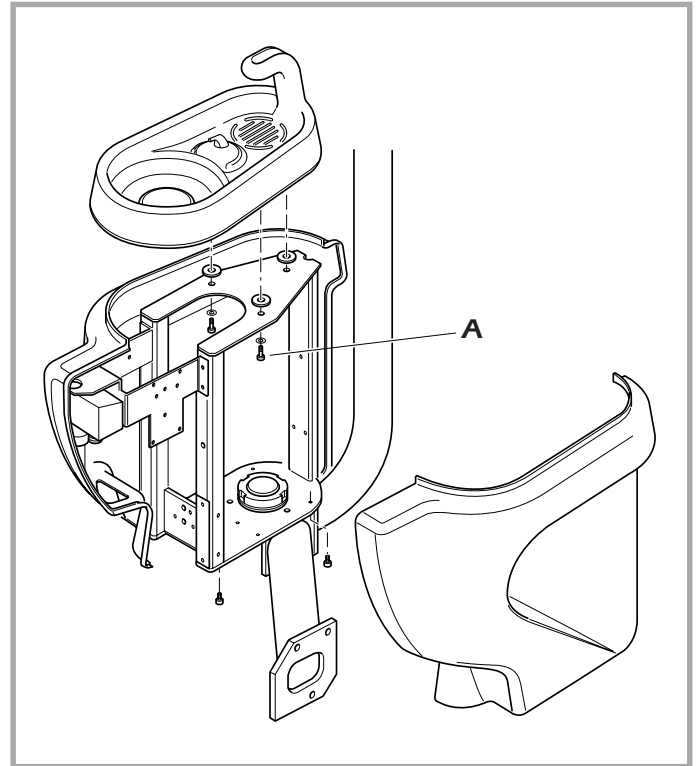


Replacing the bowl

To access the interior of the water unit, proceed as described in Chap. **"Accessing the internal parts of the water unit"**.

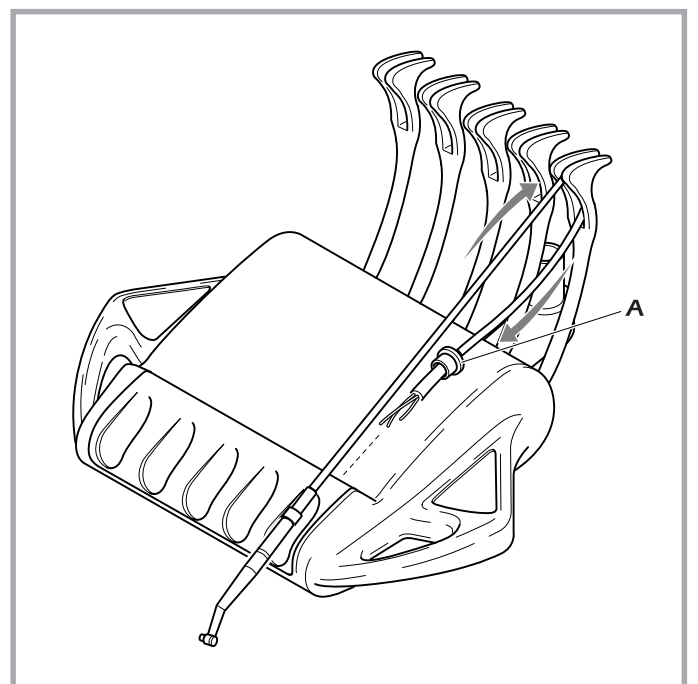
- 1) Disconnect the bowl from the drain and its various utility inlets.
- 2) Unscrew the three M4 screws **"A"**.

Proceed in reverse order to re-assemble.



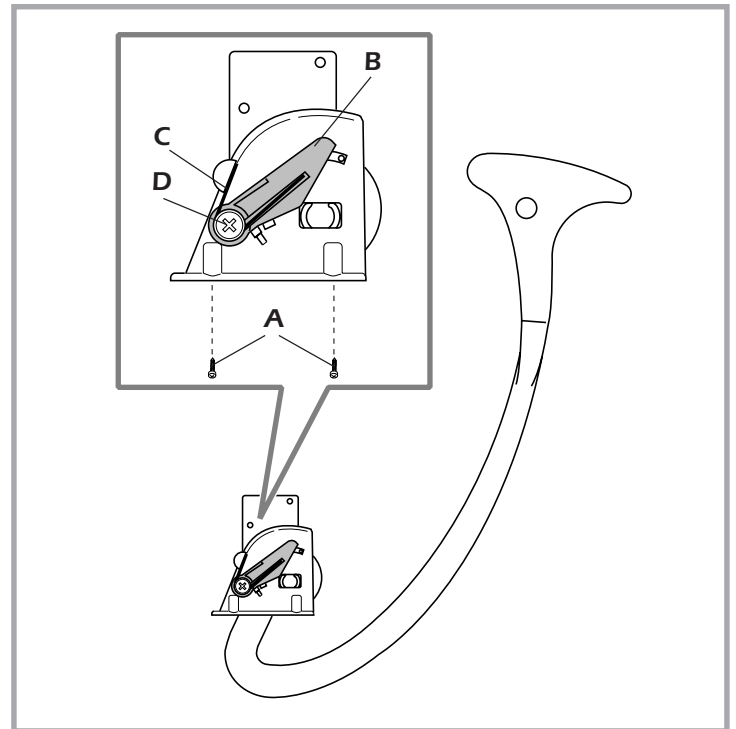
Assembling the table instrument cords

- 1) Open the upper table housing as described in the chapter **"Accessing the internal parts of the instrument table"**.
- 2) Remove the grey cap from the upper instrument table guard and insert the cable holder **"A"** provided.
- 3) Insert the cord as illustrated.
- 4) Extend the cord to the correct length, and attach the end inside the instrument table using the clamp provided. Take care not to throttle passage of the internal hoses.
- 5) Connect to utilities as shown in the various diagrams enclosed with this manual.



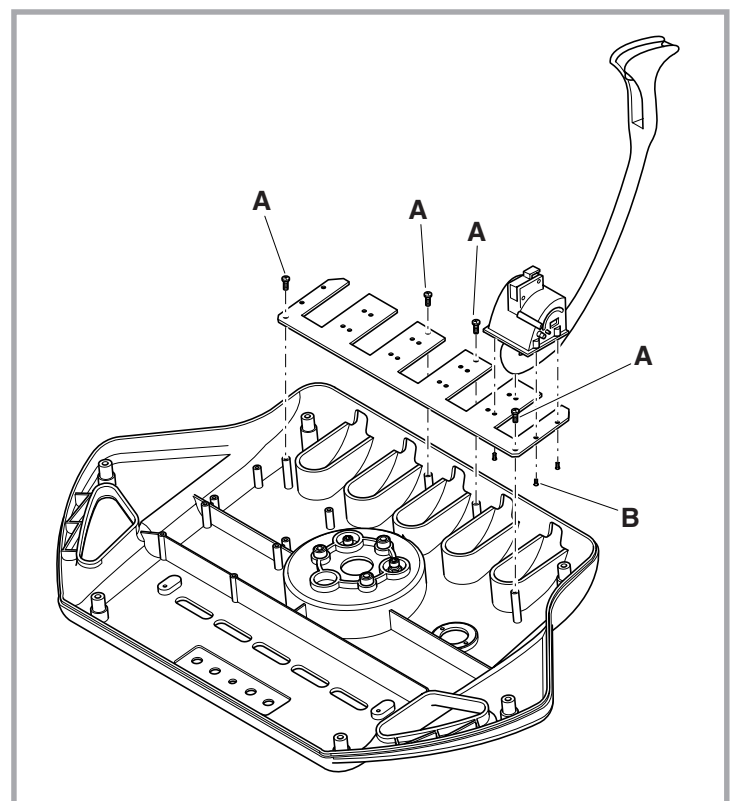
Assembling the instrument table arm stop

- 1) Open the upper table housing as described in the chapter "**Accessing the internal parts of the instrument table**".
- 2) Remove the arm by unscrewing the four self-threading screws "**A**".
- 3) Insert the stopping cam "**B**" into its slot.
- 4) Insert the spring "**C**" as illustrated.
- 5) Fasten the cams with the self-threading screw "**D**" provided, taking care to leave enough room to allow the cam to move properly.



Assembling the instrument table arm

- 1) Open the upper table housing as described in the chapter "**Accessing the internal parts of the instrument table**".
- 2) Remove the 4 screws "**A**".
- 3) Insert the arm as illustrated.
- 4) Finally, use the 4 self-tapping screws "**B**" provided.



24 ► MAINTENANCE

VITALI has always been sensitive to the solution of hygienic problems linked with the dental practice, has carried out designing and manufacturing solutions and can supply specific devices for minimizing these risks, on the user's demand:

- smooth surfaces without roughness for easy sanitation;
- use of materials capable of resisting to the repeated use of disinfectants (according to the instructions indicated in the following paragraphs);
- removable and autoclavable components (see paragraph "Autoclavable parts");
- sanitation system of the instrument water (e.g. IGN/MAC);
- antiretraction system of liquids (see paragraph "Foot controls");
- VDS disinfection integrated system (see paragraph "Disinfection") which allows the execution, between one patient and another, of automatic disinfecting cycles of the unit water pipes and supplying water and air treatment;
- sanitation system of the water in the bowl (e.g. AQUANIUMATIC);
- sanitation system of the suction circuit with specific products supplied by the manufacturers of the suction systems;
- specific detergents and disinfectants compatible with the materials employed (indicated in the following paragraphs).

During the use of the unit, the risks of infection can be minimized with a correct use of the above-mentioned accessories. The ways of use are indicated by the manufacturers in the instructions supplied by Vitali with all equipment.

The **VITALI** area distributor will be happy to provide you with any other useful information.

Since the above-mentioned execution should be carried out by the user, the responsibility of the correct and regular execution of the disinfection operation and use of the accessories is concern of the user.

Disinfecting

The materials covering VITALI equipments can be seriously damaged by particularly aggressive chemical compounds such as Ethanol, Propanole, Aldehydes, concentrated Ethil Alcohol, Phenolic derivatives, different kinds of dyes, Chlorophenol. Therefore, in accordance with the tests carried out by VITALI, please use only MULTICLEAN to disinfect VITALI products. In case of other products, carefully check their composition on the label.

MULTICLEAN is a Chlorhexidine digluconate and Benzalkonium chloride disinfecting solution active against Gram-positive and Gram-negative bacteria, fungi, HIV, HBV, HCV, lipophilic viruses as Adeno, Herpes, Vaccinia, Influenza. It can prevent mycobacteria multiplication and spores germination.

MULTICLEAN has been tested on a sample of Vitali units artificially contaminated with Streptococcus sanguis, Streptococcus salivarius, Streptococcus faecalis, Staphylococcus aureus, Bacillus subtilis, Escherichia coli, Pseudomonas aeruginosa, Candida albicans, Legionella pneumoniae. It has been demonstrated that MULTICLEAN, after a 5 minutes contact, obtained a 98% reduction of the bacterial charge.

MULTICLEAN does not stain and does not corrode synthetic fabrics and plastic materials; it has a pleasant scent.

MULTICLEAN is indicated in dentistry in the time intervals between one patient and another, for the rapid disinfection of operative handpieces, instrument shelves, lamps, dental chairs, washbasins and water pipes of Vitali units.

The product is not compatible with anionic soaps and detergents, chlorides, carbonates, bicarbonates and other inorganic anionics.

MULTICLEAN is a ready-to-use product.

DO NOT LITTER. Contains 1000 ml.

A bottle is included in the standard accessories of each dental unit.

As regards the period of validity of the product, refer to the date on the product label.

CAUTION: For the disinfection of the unit water pipes, MULTICLEAN must be used exclusively together with VITALI VDS disinfection integrated system. For such use see the relevant maintenance manual.

CAUTION: The product should not be applied on the keyboards. We recommend the use of disposable protection devices. The non-respect of this regulation may seriously damage the device.

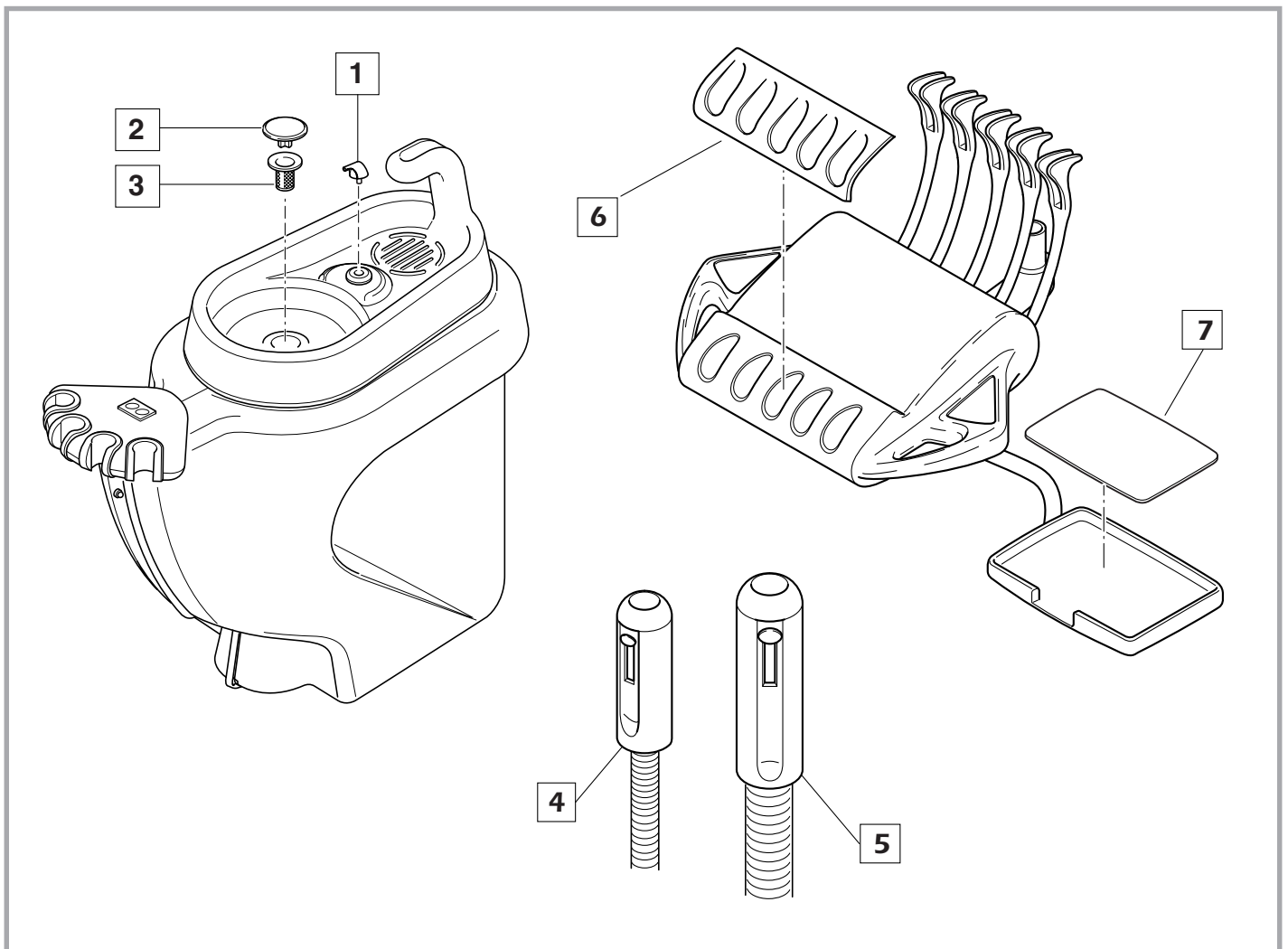
For further information on the treatment and use of MULTICLEAN, please refer to the relative Safety Cards and Technical Sheet which are available upon request.



Autoclavable parts

The parts indicated hereafter may be sterilized in an autoclave:

- 1 ▪ Bowl tap
- 2 ▪ Bowl filter cap
- 3 ▪ Bowl filter
- 4 ▪ Surgical suction terminal (ø11 mm).
- 5 ▪ Surgical suction terminal (ø17 mm).
- 6 ▪ Silicone 5-seat instrument support
- 7 ▪ Silicone tray protection



The materials used for manufacturing the above-mentioned components can resist to a maximum temperature of 135 °C and thus at the steam sanitation standard cycles according to the procedures indicated by the autoclave's manufacturer.

VITALI advises to replace the below-mentioned items between one patient and another, thus it is advisable to keep another kit of autoclavable parts for optimizing the working operations. The area dealer could give you all necessary information.

The unit can be equipped with other autoclavable devices not manufactured by **VITALI** (handpieces, contra-angles, etc.): for the relevant sanitation operations see the instructions supplied by the manufacturer.

25 ► PERIODIC CHECKS

NOTE: To ensure that the device maintains its performance over time, the following maintenance operations must be carried out periodically.

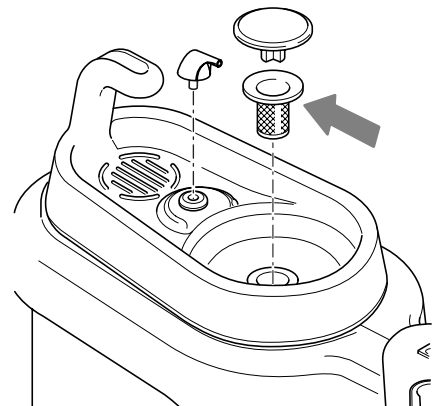
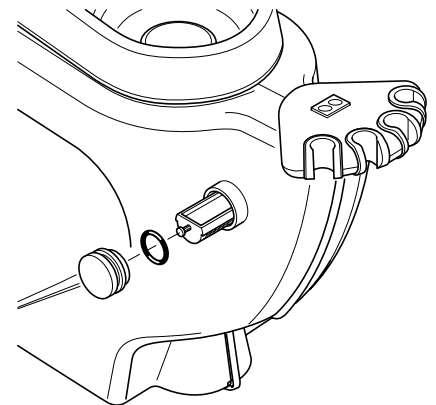
THE INTERVALS LISTED REFER TO AN AVERAGE USE OF APPROXIMATELY 6 HOURS OF DISCONTINUOUS USE PER DAY

DAILY

- **Clean the surgical suction filter and wash the cannula tubes.**

Use an appropriate disinfectant

- **Clean the bowl filter.**

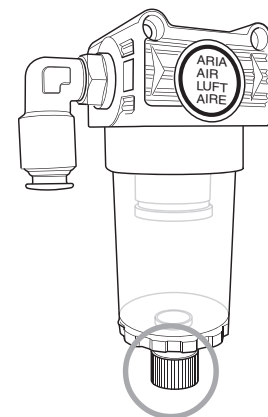


WEEKLY

- **Empty the water vessel in the connection area.**

- 1) Turn the valve counter-clockwise as shown in the figure.
- 2) Push the valve up and use a rag to soak up any water that might escape.
- 3) Block the valve turning it clockwise.

The frequency of this operation depends on the type of compressor used.



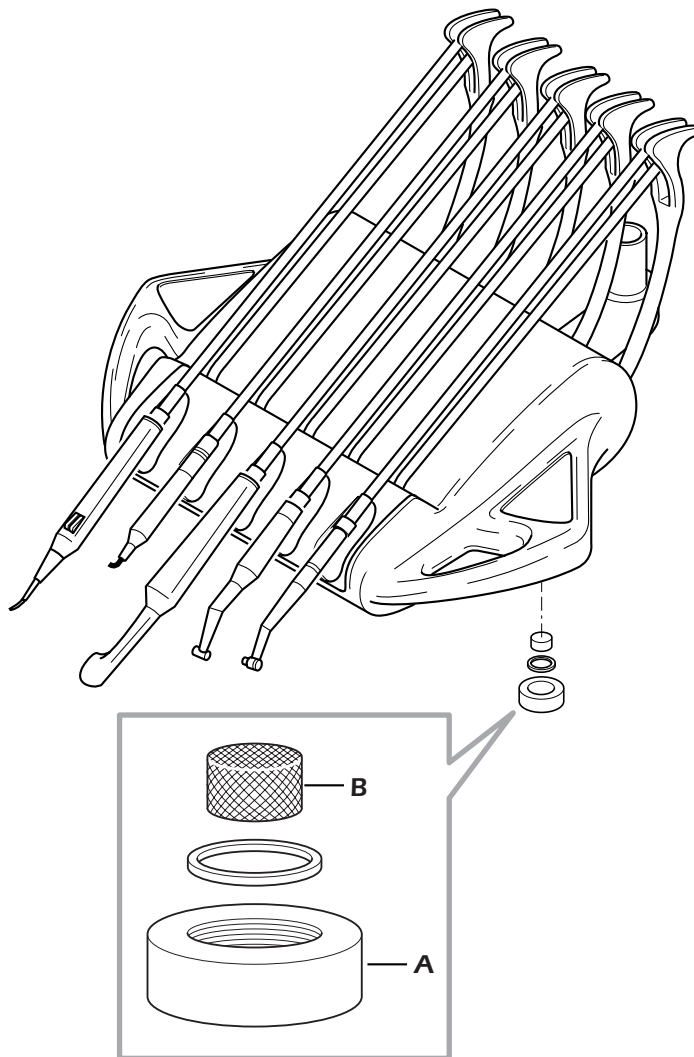
MONTHLY

Turbine lubrication oil recovery device

Standard supply.

Check the amount of oil in the container each month, unscrewing the cover **A**. Change the filter **B** if necessary.

🔧 **NOTE:** 10 spare filters are provided.

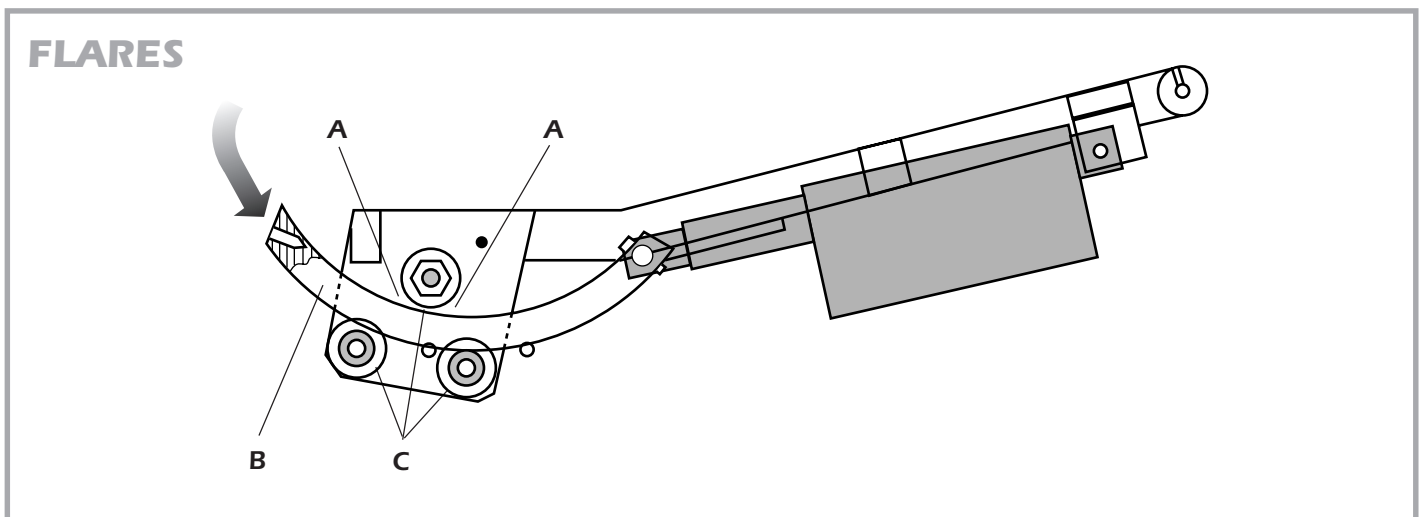


ANNUALLY

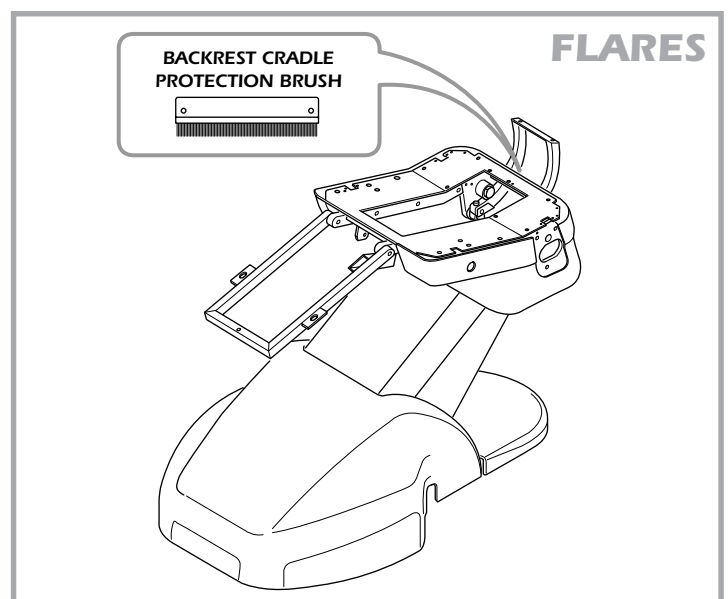
Checking the pull spools

Before performing the operations described below, you must remove the seat upholstery as described in the chapter, "**Accessing the internal parts - Flares**":

- 1) Remove any foreign matter present in points "**A**" which might interfere with the movement of the backrest support "**B**".
- 2) Remove any foreign matter trapped in the surface of the spools "**C**".
- 3) If there are any signs of wear on the pull spools "**C**" (for instance, powdered plastic), along with discontinuous rolling in contact with the backrest support "**B**", replace after first requesting instructions from **VITALI**.

**Checking the backrest protection brush**

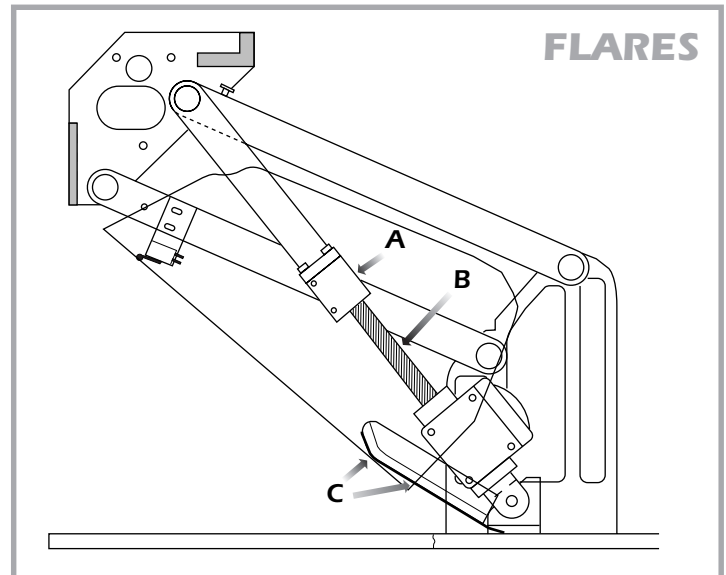
Make sure the brush protecting the backrest support is intact, and remove any foreign matter trapped there.



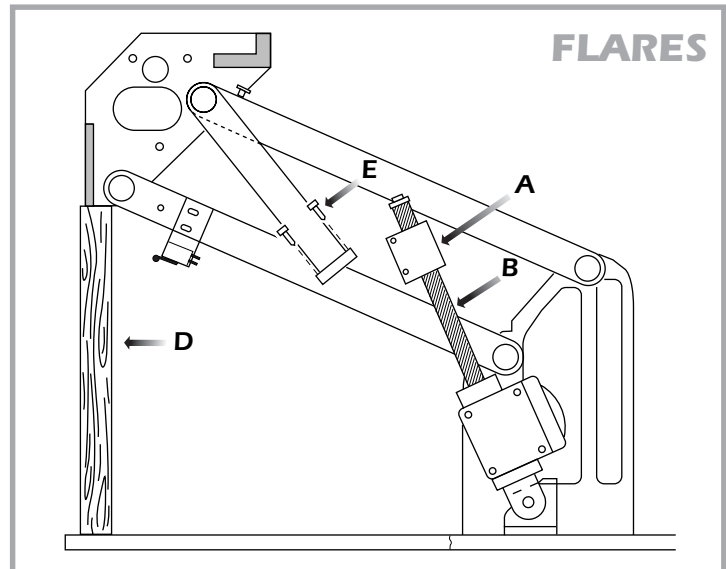
Checking for wear on the gearmotor winding block

In order to carry out the following, proceed as indicated in the chapter "**Accessing the internal parts - Flares**".

If there are any serious signs of wear on the winding block "**A**" (for instance, powdered plastic in points "**B**" and "**C**"), proceed as follows.

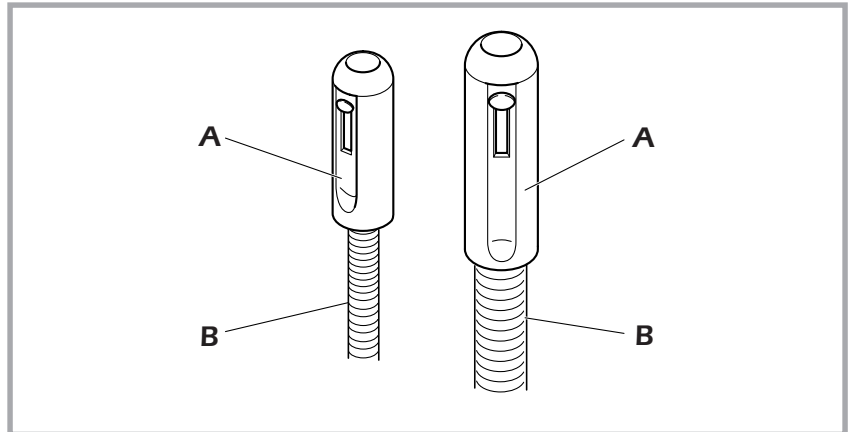


- 1) To keep the chair from falling, place a spacer "**D**" under the seat box as shown in the figure alongside, and gradually move the seat down to ensure that it remains firmly in place.
- 2) Unscrew the 4 M8 Allen screws "**E**".
- 3) Make sure the friction between the sliding block "**A**" and worm screw "**B**" is correct, and that they are perfectly coaxial. If not, replace part "**A**".
- 4) Grease the worm screw "**B**" with grease such as Bechem-Rhus Long Life LF.
- 5) Reassemble all parts, proceeding in reverse order.



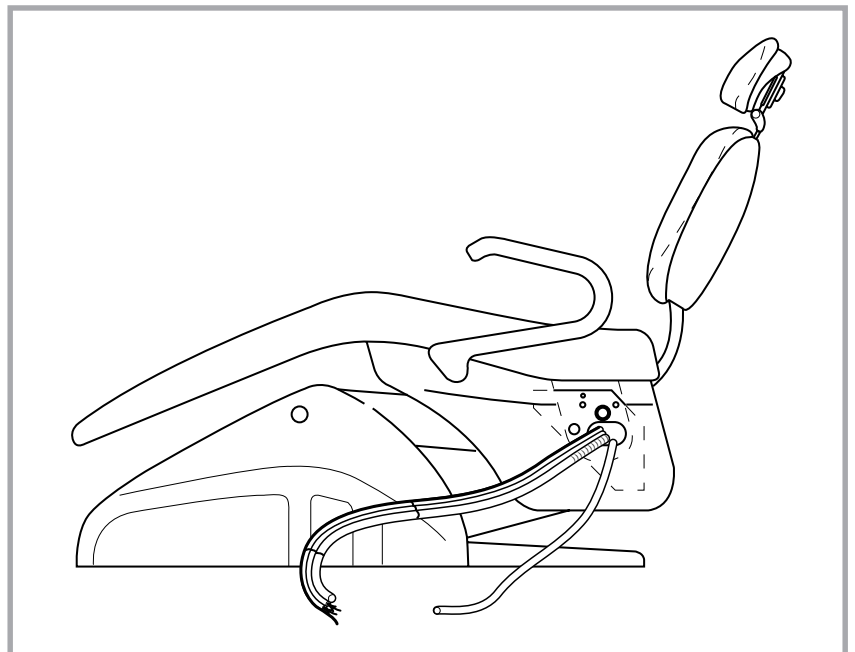
Replacement of the cannula terminals and external suction hoses

Replace the cannula terminals "A" and silicone hoses "B".



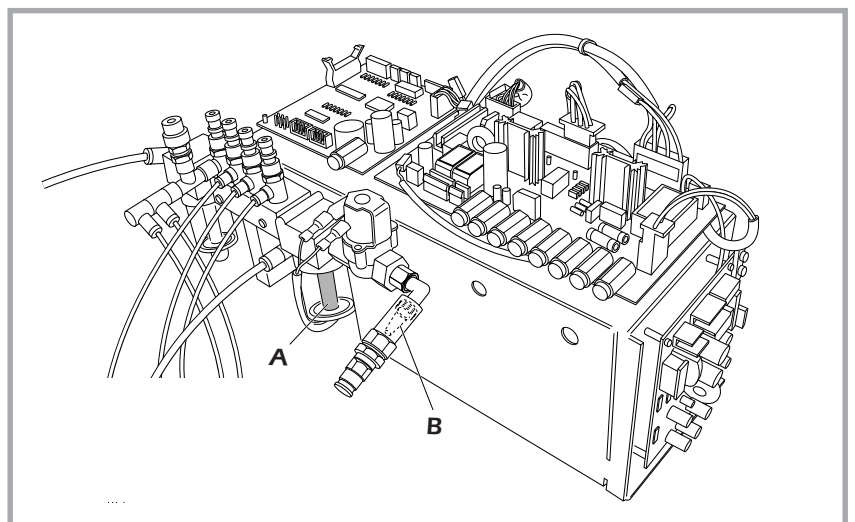
Checking the internal suction hoses

Make sure the air/water intake and suction hoses are in good condition. If the material has lost its flexibility, replace the entire part. We recommend replacing the suction hose annually in any case.



Replacing the water unit filters

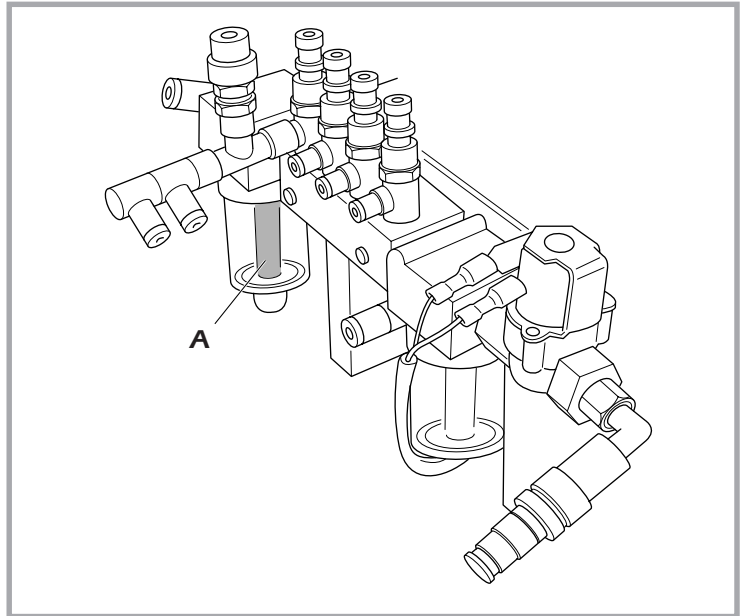
Replace the filter cartridge "A" and the prefilter "B".



EVERY TWO YEARS

Replacing the air unit filter

Replace the filter cartridge "A".



- After installation and following significant repairs, and in any case every two years, use an electrical safety testing instrument to ensure that the device has maintained its safety characteristics (ref. EN ISO 60601-1). Use as a reference the data indicated in the inspection report enclosed with the machine instruction manual, in the chapter "**Technical Machine Specifications**".
When checking, all devices connected to the equipment have to be under tension and turned on.
- **Note:** For keeping the expected safety standards, a general check of the equipment should be carried out at least every two years. For this, use the installation reference card indicate in the chap. "**Installation Inspection**".

Additional maintenance operations are required in the presence of any devices not manufactured by VITALI. For intervention procedures, see the corresponding user manuals (i.e., dynamic amalgam separator, water treatment devices, etc.).

26 ► REQUESTING SPARE PARTS AND MATERIALS

All requests for spare parts must be received solely by fax, using your own specific form containing the information needed to identify the materials (ID code and description) and the equipment (serial number) upon which they are to be installed.

You may use the enclosed form as is or as an example: it contains the minimum information required (when requesting spare parts under warranty, you MUST indicate the serial number of the dental unit).

Should the ID code of the spare part requested not be available from the technical documentation in your possession, we can provide information over the phone before you send in your form.



27 ► WIRING DIAGRAMS



Dental unit: **T5**
 Chair: **Flares**
 Version: **RE, RM**

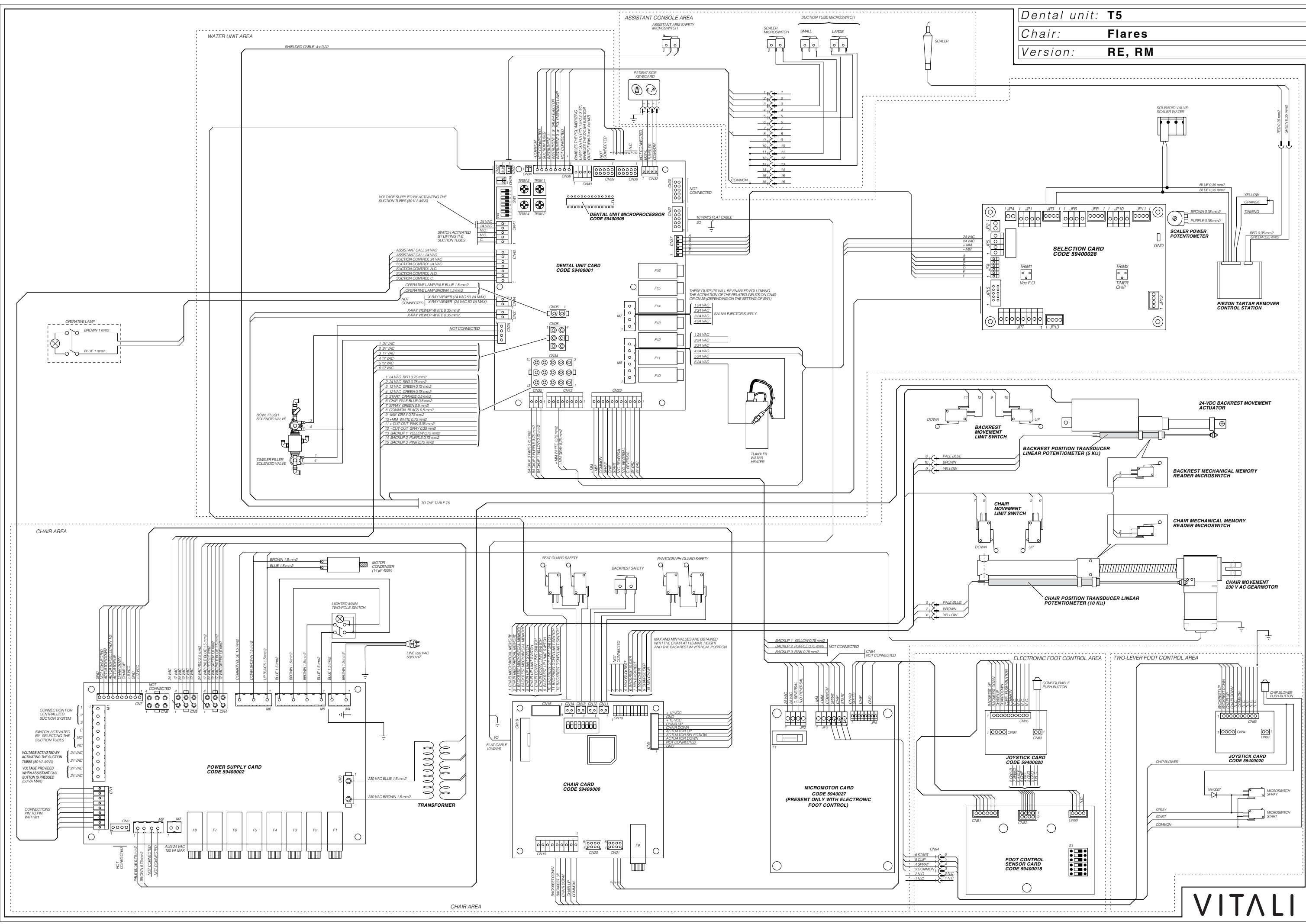
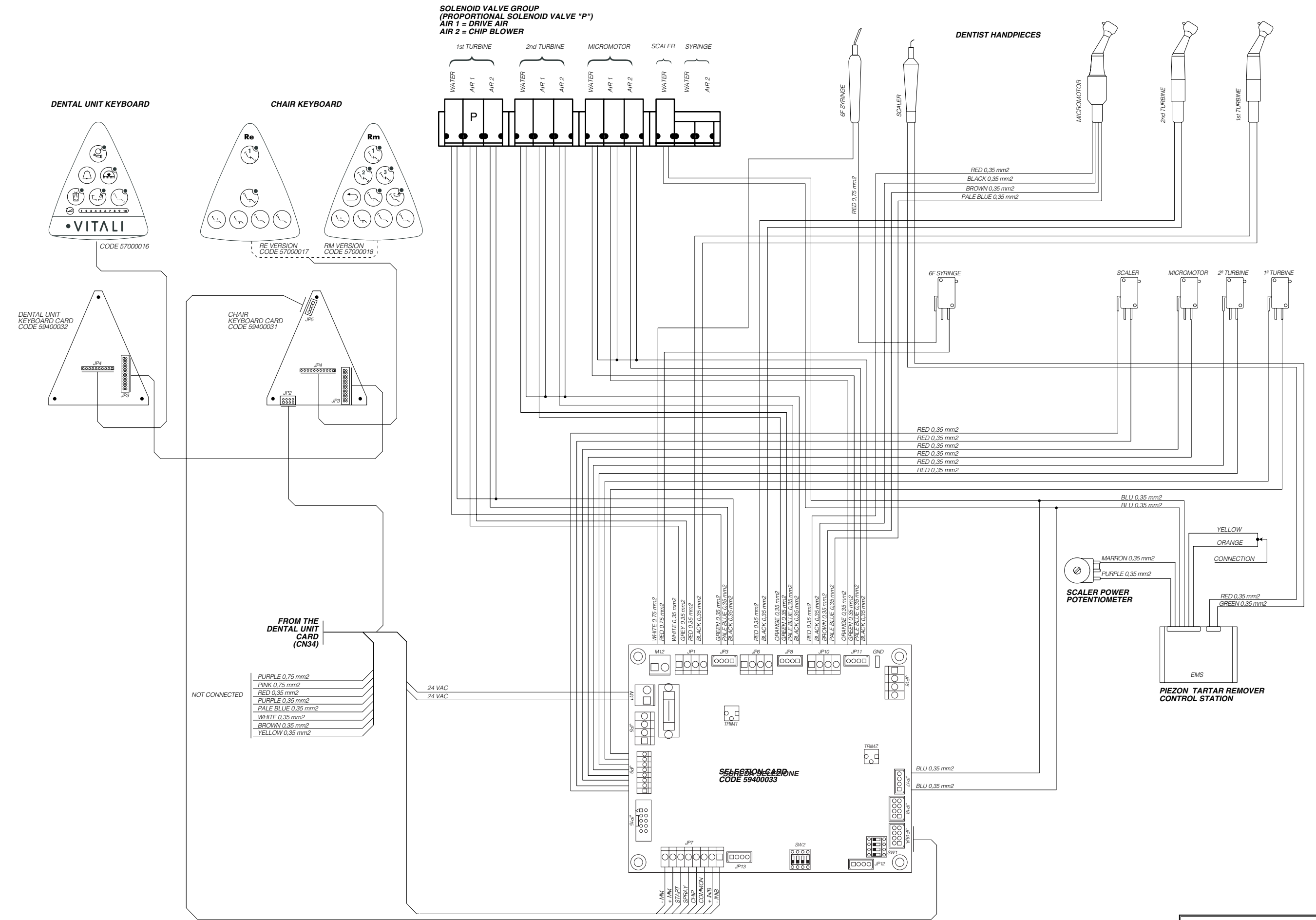


Table:	T5
Chair:	Flares
Version:	RE, RM



VITALI

COD. 66000013-EN.0910

▶▶▶ **VITALI** pursues a policy of continuous product development.

Therefore, **VITALI** reserves all rights to change the technical and
aesthetic characteristics of the products.

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CERTIFIED QUALITY SYSTEM

UNI EN ISO 9001:2008

UNI EN ISO 13485:2004