Dental Unit

GALLANT K-5

Operating Manual

Version 3_ENG_2021

GALIT

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List of revisions and changes

Reason of the changes

Rev	Date of revision	Reason of the changes
2	24.07.2020	Changing the company logo
3	28.04.2021	Change of Conformity Assessment Body

List of the change pages

Page № / Revision	Information about document changes	Page №	Information about document changes
/2	Changed		
4, 6/3	Changed		

Make sure you are using the latest version of the document.

Contact your distributor or manufacturer for the latest version.

Introduction

When purchasing the dental unit, make sure that there is a stamp of the trading company, date of sale and signature of seller in section 9 of this manual for operation and in the coupons for warranty repairs. Check the completeness of the unit according to section 2.4 of this Operating Manual.

REMEMBER! In the absence of appropriate markings, the warranty period starts from the date of manufacture of the dental unit.

These operating instructions are an integral part of your new dental unit. Always keep it close to the unit so you or your technician can access it quickly and easily.
Read this operating manual and make sure you understand it completely before you start working with the dental unit. This operating manual cannot cover all aspects of use, but it can help to avoid mistakes when using your dental unit.

The information contained in this operating manual is correct and current at the time of printing. The information in the operating instructions is provided to facilitate the operation of the dental unit. Always follow the recommendations, they will help make the operation of your dental unit economical and efficient. Our units are constantly improved, their characteristics are improved, the design is updated, therefore the drawings and designations in this operating manual may slightly differ from your unit.

Translation of the instructions was made with appropriate competence and in good faith. However, we cannot take responsibility for translation errors. In case of inaccuracies in the translation, the Ukrainian version of the installation instructions and operating instructions is considered the main one.

If there are any damages or problems when using the dental unit, contact the service department of the company that sold you the unit.

If repairs are necessary, use only original spare parts to ensure that your dental unit works efficiently throughout its lifetime.

All products are tested and guaranteed for 12 months from the date of sale. This guarantee is provided to all customers who have fulfilled contractual and administrative obligations, installed and use the dental unit in accordance with the operating instructions. Under this warranty, the MANUFACTURER will repair or replace free of charge all components that are found to be defective due to the manufacturer's fault or fail during the warranty period.

The MANUFACTURER's technical assistance service is the only authority to determine whether a malfunction is covered by the warranty. The guarantee does not cover the labour costs of the employees of the Technical Assistance Service, which must be reimbursed. The warranty does not take into account the MANUFACTURER's liability for direct or indirect loss or damage caused to people or objects as a result of improper use or maintenance of the dental unit, while the warranty covers only materials and installation. Furthermore, the warranty does not cover the costs incurred by the MANUFACTURER's personnel for transportation, inspection, replacement or re-installation, unless the malfunctions are the result of defects in materials or assembly. All costs will be deducted from the user.

Equipment Classification	
	The following classification methods correspond to IEC/EN 60601-1: • According to the directive on medical devices 93/42/EEC, the dental unit corresponds to class II a. • In accordance with the requirements of IEC/EN 60601-1, the dental unit is class I equipment. • According to CISPR 11, the dental unit is ISM group 1, class B equipment.
Sign UA.TR.099	National mark of compliance with technical regulations with the identification number of the designated conformity assessment body.
Sign CE	
CE **2797**	This product meets the regulatory requirements of the European Union Directive 93/42/EEC on medical devices. Compliance with this Directive is evidenced by the CE sticker on the product. Location of the CE sticker is indicated in section 1.1 of the operating instructions.

The dental device does not belong to measuring equipment for medical purposes and does not require periodic metrological attestation.

Відповідність міжнародним стандартам /Compliance with International Standards		
Стандарт/Standard	**Українська назва / Ukrainian name**	**English title**
93/42/EEC	Директива 93/42/ЄЕС від 14.06.1993 Щодо питання медичного обладнання	COUNCIL DIRECTIVE 93/42/EEC of 14 June 1993 concerning medical devices
EN 60601-1	Вироби медичні електричні. Частина 1. Загальні вимоги щодо безпеки та основних технічних характеристик	Medical electrical equipment. General requirements for basic safety and essential performance
EN 60601 -1-2	Вироби медичні електричні. Частина 1-2. Загальні вимоги щодо безпеки та основних робочих характеристик. Додатковий стандарт. Електромагнітна сумісність. Вимоги та випробування	Medical Electrical Equipment – Part 1-2: General Requirements for Basic Safety and Essential Performance – Collateral Standard: Electromagnetic Disturbances – Requirements and Test.
IEC 80601-2-60	Обладнання медичне електричне. Частини 2-60.	Medical electrical equipment - Part 2-60: Particular requirements for basic safety and essential performance of dental equipment
EN ISO 7494-1	Стоматологія. Установки стоматологічні. Частина 1. Загальні вимоги та методи випробування	Dentistry - Dental units - Part 1: General requirements and test methods
EN ISO 7494-2	Стоматологія. Установки стоматологічні. Частина 2. Водопостачання та подавання повітря	Dentistry - Dental units - Part 2: Air, water, suction and wastewater systems
ISO 10993-1	Біологічне оцінювання медичних виробів. Частина 1. Оцінювання та тестування в рамках процесу управління ризиками.	Biological evaluation of medical devices - Part 1: Evaluation and testing within a risk management process

Європейське представництво / European representative office

The European representative office is registered to the address:

EC REP

Company Name:	**Galdent CZ s.r.o.**
Address:	K.Vapence 448, 41503 Teplice, Czech Republic
Company number:	103510996
Easy number:	00007069449932
National identification number:	28741536
Registration number:	C 29946

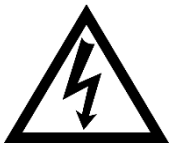
Certificates **No.: CE 703906**

Service representatives in Europe (phone numbers, address):

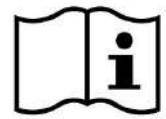
1. Symbols

The following symbols are used in this operating manual:

ATTENTION!
Pay special attention to items marked with this sign.
These paragraphs describe actions that, if not followed, could result in personal injury or danger to life, or damage to the equipment, if this operating manual is not followed.



Caution, risk of electric shock.



REFER TO APPROPRIATE OPERATING INSTRUCTIONS OR GUIDELINES

(Instructions for use, operating manuals, accompanying documents).

BE SURE TO REFER TO THE INSTRUCTIONS OR OPERATING INSTRUCTIONS FOR THIS PRODUCT BEFORE USING THE PRODUCT

(Instructions for use, operating manuals, accompanying documents).

WORK ONLY WITH PROTECTIVE GROUNDING.

Operating part of type B *.

** type of user part of dental instruments (B or BF) see operating instructions for the instrument.*

1.1 Identification Name Plate

The identification plate with the inscription of general data is placed on the rack of the dental unit.

Fig.1.1.1 Identification plate for the Cart

Serial Number (SN): **XXXX MM YY**
XXXX – dental unit №
MM – month of manufacture
YY – year of manufacture

Fig.1.1.2 Identification name plate for a telescopic Cart

When requesting information, services, or replacement parts, always include the model, type, and serial number of your dental unit. This information is indicated on the identification plate and in the warranty coupon for the dental unit.

Designations

	Manufacturer.
CE 2797	This product meets the regulatory requirements of the European Union Directive 93/42/EEC on medical devices.
	ATTENTION! Pay special attention to items marked with this sign. These paragraphs describe actions that, if not followed, could result in personal injury or danger to life, or damage to the equipment, if this operating manual is not followed.
	Working part of type B*. Protection class I. ** type of user part of dental instruments (B or BF) see operating instructions for the instrument.*
	BE SURE TO REFER TO THE INSTRUCTIONS OR OPERATING MANUAL FOR THIS PRODUCT BEFORE USING THE PRODUCT *(Instructions for use, operating manuals, accompanying documents).*
UA **20YY**	Manufacturing country. Year of manufacture.
	Disposal of electronic equipment in accordance with Directive 2002/96/EC.
MD	This product is a medical product.
	An authorized representative who distributes the medical product in the region.
REF	Number according to Catalogue

1.2 Contents

1.3 Safety Measures

In terms of safety, the product meets the requirements of IEC/EN 60601-1 and is Class I Type B* equipment.
**type of user part of dental instruments (B or BF) see operating instructions for the instruments.*

- Installation of the unit must be performed by personnel who have the right to do so and in accordance with the "Installation Instructions".

- The unit must be connected to a network with protective earthing.

- Operation of dental equipment (dental chair, lamp, dental unit) without reliable grounding is strictly prohibited.

- It is strictly forbidden to carry out troubleshooting in the unit connected to the power network.

- It is prohibited to use the device to persons who have not read this operating manual in detail.

- Follow the operating manual for proper use.

- Do not use the device if there are signs of damage. In case of malfunctions, call an authorized technician.

- Replace damaged parts and components only with original spare parts approved for replacement by the company GALIT.

- Always turn off the main power switch of the dental unit after finishing work.

General Safety Instructions

Intended use

This dental unit is used for therapy, diagnosis and treatment of teeth by trained personnel.
This product is not intended for use in explosive atmospheres.

Installation performed by the user on site

Installation of the unit must be performed according to the requirements of the manufacturer. A detailed description is presented in the installation instructions.

Care and repair

As a manufacturer of dental equipment, in order to ensure the operational reliability and safety of the product, we attach great importance to the fact that maintenance and repairs are performed only by us or by personnel who have received from us the exclusive right to do so, and in the event of failure of parts that affect the safety of work product, they were replaced only with original spare parts.
When carrying out such work, it is recommended to obtain from the manufacturer a document indicating the type and scope of work, if necessary, with information about the change of nominal parameters or working range, and with the date, information about the manufacturer, and signature.

Changes to the product

Changes to the product that may affect the safety of the user, patient or other persons are strictly prohibited in accordance with the law!
To ensure operational reliability and safety, this product may be operated only with original components manufactured by Galit or with components from other manufacturers authorized by Galit. The user bears all responsibility for the use of unauthorized components (parts).
All products connected to the dental unit must comply with the current regulations:
IEC 60950 for data processing and transmission systems (for example, PCs), as well as IEC 60601-1 for medical and technical equipment.

Combination with other devices

When connecting the unit to other equipment (e.g. a PC), as well as changing the electrical system, it is the user's responsibility to ensure that the requirements of IEC 60601-1-1 (Regulations for the safe operation of medical electrical systems) regarding patient safety are fully complied with, service personnel and the environment.
If in doubt, consult the manufacturer of the dental unit.

Electromagnetic compatibility (EMC)

The dental unit "GALLANT K-5" meets the requirements of the IEC 60601-1-2 standard.

The dental unit "GALLANT K-5" meets the requirements of electromagnetic compatibility group 1 class B according to DSTU CISPR 11.

- **Group 1 –** medical equipment in which radio frequency energy is intentionally generated or used with a conductive connection necessary for the internal functioning of the equipment itself.
- **Class B equipment** is equipment suitable for domestic use and installations that are directly connected to the low-voltage power supply network that supplies buildings used for domestic purposes.

Class B equipment must comply with Class B standards.

Electromagnetic compatibility (EMC)

Medical electrical equipment must meet all safety requirements for EMC.

The equipment must be installed and operated in accordance with the instructions given in the document "Electromagnetic Compatibility (EMC) (MEK 60601-1-2)".

Portable and mobile RF communication devices can affect electro-medical equipment.
It is necessary to prohibit the use of radio telephones on the territory of clinics and medical practices.

Quality of supplied water/air

Air and water supply must meet the requirements specified in the instructions.
Use only clean water.

Requirements for water characteristics

The user of the dental unit is responsible for quality of the water supplied and, if necessary, must take alternative measures to comply with water requirements.

Suction system

The suction of aluminium oxides or other metals from the jet devices through the separation automation and amalgam separator built into the dental unit is prohibited! This leads to extreme wear and clogging of suction and drainage channels.

When using metal-oxide jet devices, a separate suction device must be used.

Dental units with central wet suction are fundamentally suitable for suction of the above-mentioned materials. Strictly follow the instructions of the manufacturer of your suction system.
There are still no restrictions on the use of jet devices in combination with "GALLANT K-5" dental devices. But at the end of the work, it is necessary to ensure sufficient washing with water.

Dental chair

Consider the maximum load on the dental chair, which is equal to 135 kg according to EN ISO 6875 (tested with a four-fold safety margin).

Maintenance of dental unit

In order to ensure the normal functioning of the unit, it is necessary to carry out regular maintenance and preventive work at the established frequency to ensure operational reliability and safety of work.

In order to ensure the operational safety and suitability of the dental unit, to prevent damage caused by natural wear and tear, it is necessary to regularly inspect the unit by employees of the technical support company. In addition, safety control must be performed.
Please contact the manufacturer's service center for a maintenance offer.

Disassembly and reassembly

When disassembling and reassembling the product, you must follow the instructions given in the installation instructions to ensure operability and stability of the product.

Disposal

According to directive 2002/96/EC, to prevent environmental pollution and injury during disposal, please follow the disposal laws.

Disposal recommendations are described in section 8.

2 Dental Unit Description

The dental unit "GALLANT K-5" is a complex medical product, which consists of the main elements: doctor table, stand, table for instruments, wheel frame, foot control. For operation of the dental unit, it is necessary to have: compressed air, suction system, water supply and sewage system.

Functionally, the following operations can be performed on the "GALLANT K-5" dental unit:

- adjustment of rotation frequency of the micromotor from 3700 rpm to 42000 rpm in normal mode
and from 550 to 2900 rpm in ENDO mode;

- creation of rotating motion of a pneumatic turbine with a rotation frequency of up to 310,000 rpm;

- supply of liquid from the "distilled water" system to multifunctional dental syringe;

- ejecting saliva ejector control;

Functional capabilities of dental units are set separately for each product depending on the order, including additional needs of a specific consumer.
However, there is a minimum list of functions that any unit must perform.

Upon request, the Manufacturer will provide the necessary wiring diagrams, component specifications, setup instructions, and other information necessary for Service Personnel to replace those parts identified by the Manufacturer as Serviceable.

2.1 Product Information

Using the product in accordance with its purpose

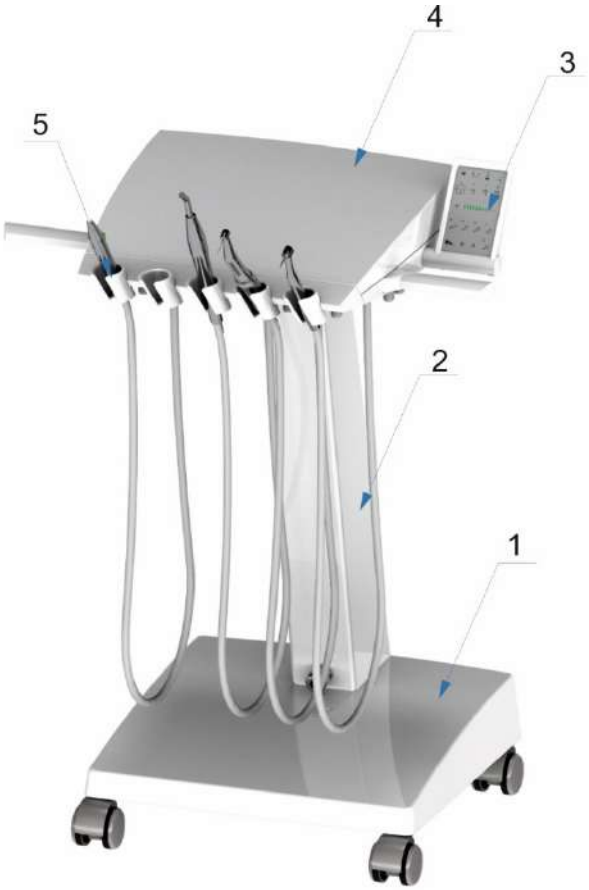
The dental unit "GALLANT K-5" (hereinafter referred to as the unit) is intended for the provision of dental care in polyclinics, hospitals and other medical facilities.
The area of use of the installations is medical and orthopedic stomatology.

Installation in medical facilities: During the development and manufacture of the dental unit, all special requirements for medical products were taken into account. When installing equipment in medical institutions during mechanical and electrical installation, it is necessary to comply with the requirements of **Directive 93/42 EEC** on medical products, standards **IEC 60601-1, IEC 60601-1-1, IEC 60601-1-2**.

Use of the product not for its intended purpose

Any other use of the product, not provided for in this operating manual, is considered improper use. The manufacturer is not responsible for any damage caused as a result. All risks in this case are borne by the user.

2.2 Component Parts



1.Wheel frame.

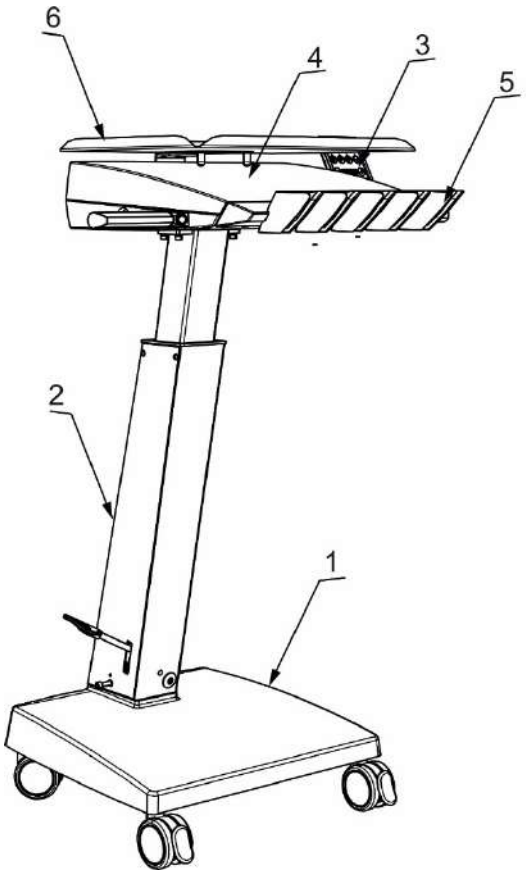
2. Stand.

3. Control panel.

4. Doctor table

5. Doctor instruments.

Figure 2.2.1 – Component parts of K-5



1.Wheel frame.

2. Stand.

3. Control panel.

4. Doctor table

5. Doctor instruments.

6. Table

Fig. 2.2.2 – Component parts of K-5 telescopic

2.3 Technical Characteristics

Power supply	220 V, 50 Hz
Water supply network pressure	3-4 kg/cm^2
Water consumption	До 10 l/min*
Compressed air network pressure	5,5-8 kg/cm^2
Compressed air consumption	30-70 l/min*
Maximum current consumption	5A
Average power consumption: of doctor table in standby mode in operating mode	 140 VA 20 VA 200 VA
Weight	30-40 kg*

Note depending on configuration of unit.

Conditions of transportation and storage	Ambient temperature: Relative air humidity: Atmospheric pressure:	-40°C – +70°C 10% – 100% 500 –1060 hPa
Terms of use	Ambient temperature: Relative air humidity: Atmospheric pressure:	+10°C – + 40°C 30% – 75% 700–1060 hPa
Protection class	Protection class I product	
Degree of protection against electric shock:	Type B user part 	
Degree of protection against water ingress according to IEC 60529 (dental unit)	IPX0 Normal product (no protection)	
Degree of protection against water ingress according to IEC 60529 (foot control)	IPX1	
Mode of operation	Continuous mode with repeated short-term load according to the work of dentist.	
Year of manufacture	 (on the identification plate of the unit) 20XX	

2.4 Delivery Set

1	**Dental Unit "GALLANT K-5"**	**SN:**	***1 pc.***	☐
2	Operating Manual to dental unit "GALLANT K-5"		*1 pc.*	☐
3	Instructions for installing the dental unit "GALLANT K-5"		*1 pc.*	☐
4	Set of mounting parts (located in the box of mounting and spare parts).		*1 pc.*	☐
5	Patient chair		*1 pc.*	☐
6	Instructions for operating the patient chair		*1 pc.*	☐
7	Lamp EDI/MAIA/ALYA		*1 pc.*	☐
8	Instructions for operating the lamp		*1 pc.*	☐
9	Foot control		*1 pc.*	☐
10	Accessories that are part of the unit with relevant instructions for operation. *Specify the model.*	**SN:**		
	1. *micromotor*		***1 pc.***	☐
	2. micromotor		***1 pc.***	☐
	3. *micromotor*		***1 pc.***	☐
	4. *syringe*		***1 pc.***	☐
	5. *curing lamp*		***1 pc.***	☐
	6. scaler		***1 pc.***	☐
	7. *doctor table heater*		***1 pc.***	☐
	8.			☐
	9.			
	10.			
11	Set of certificates and licences		*1 pc.*	☐

Person responsible for packing _____(Surname)

2.5 Requirements to the External Service Lines System

The manufacturer is not responsible for damage or non-compliance with the technical characteristics of the equipment if the following requirements for external communication systems are not met.

Compressed air

Compressed air without oil additives and preferably dried. Dried air extends service life of pneumatic instruments.

Minimum pressure is 5.5 kg/cm2; maximum pressure is 8 kg/cm2. The compressed air hose at the point of connection to the service lines system must end with a 1/2" internal thread or a fitting designed for connecting a Ø 6x8 mm hose. The block itself must be fixed on a flat surface

- **When using plastic pipes for the supply of service lines, use only polypropylene pipes of the HT brand, DIN V 19560 (with red marking) with 2-cuff seals or similar pipes.**
- **Do not use stabilized pipes HT, DIN 19561 (with yellow marking, easy to handle) for the supply of service lines. They are made of ABS plastic / or ASA and are not resistant to medicines and solutions used in dentistry.**

2.6 Checking the dental unit before starting work

Check functioning of the instruments of the doctor table (see chapter 4 Operating instructions): for pneumatic instruments and instruments with cooling, adjust additional working pressures and flows of water-air cooling mixtures.

3 Dental Unit Switching ON

- Connect the plug of the power cable of the unit to a power outlet (~220 V, 50 Hz) with a grounding contact;
- Switch on the main switch of the unit (Figure 3.1 3.2.). The light indicator of this switch signals that the power is on;
- Switch on the air compressor.

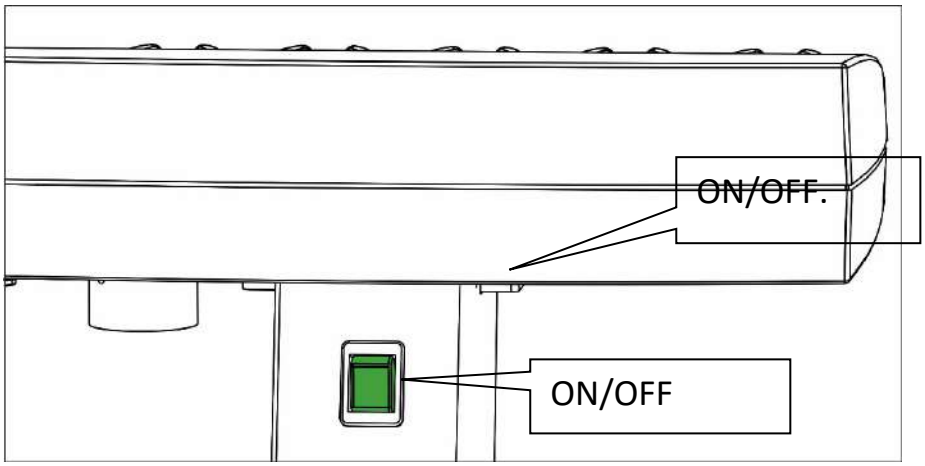
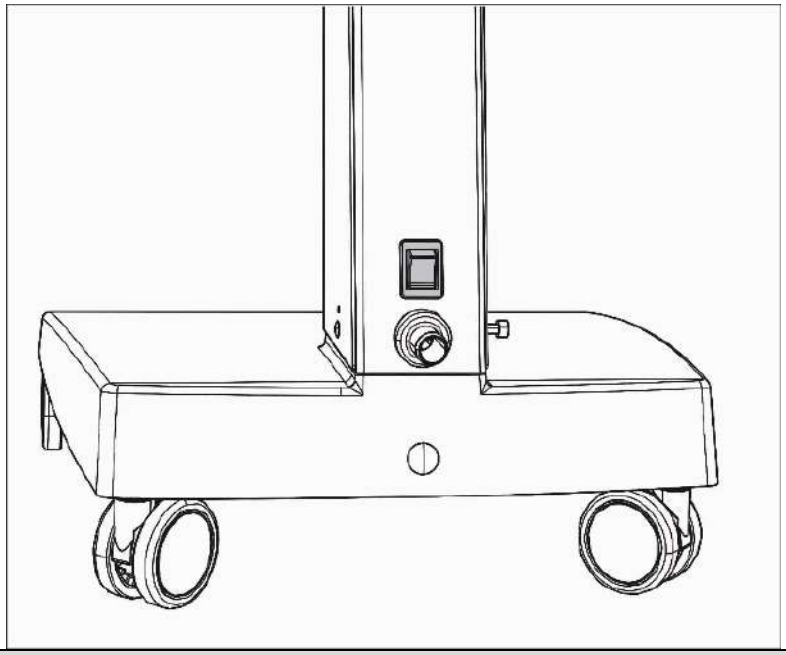


Figure 3.1.- Main Switch K-5



3.1 Connection of the Distilled Water System

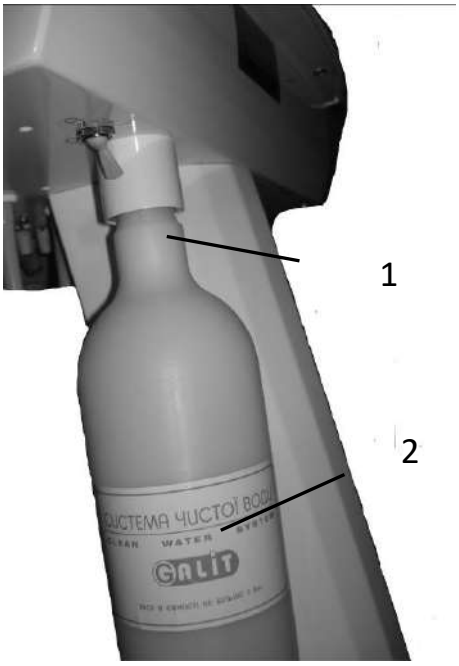


Figure 3.1.1

Figure 3.1.2

Refilling the Distilled Water System:

- turn off the air supply switch pos. 1 into the distilled water system (Fig. 3.1.1);
- unscrew the water container **pos. 2. To do this, turn the water container to the stop and pull it down (Fig. 3.1.2);**
- pour distilled water into the container;
- install the container with water in the holder. **To do this, install the filled water container on the upper part of the bayonet connection and rotate until it is fully fixed;**
- turn on the air supply switch to the distilled water system (upper position of the switch).

ATTENTION! In order to prevent contamination of channels of water system of the unit and water system of instruments, fill the container only with distilled water. The presence of continuous hissing around the neck of the container with water indicates a leak. To eliminate leakage, tighten the container or replace the gasket

To disinfect the distilled water system, use FD 322 of Durr Dental GmbH & Co. KG", or use disposable bottles.

4 Doctor Table

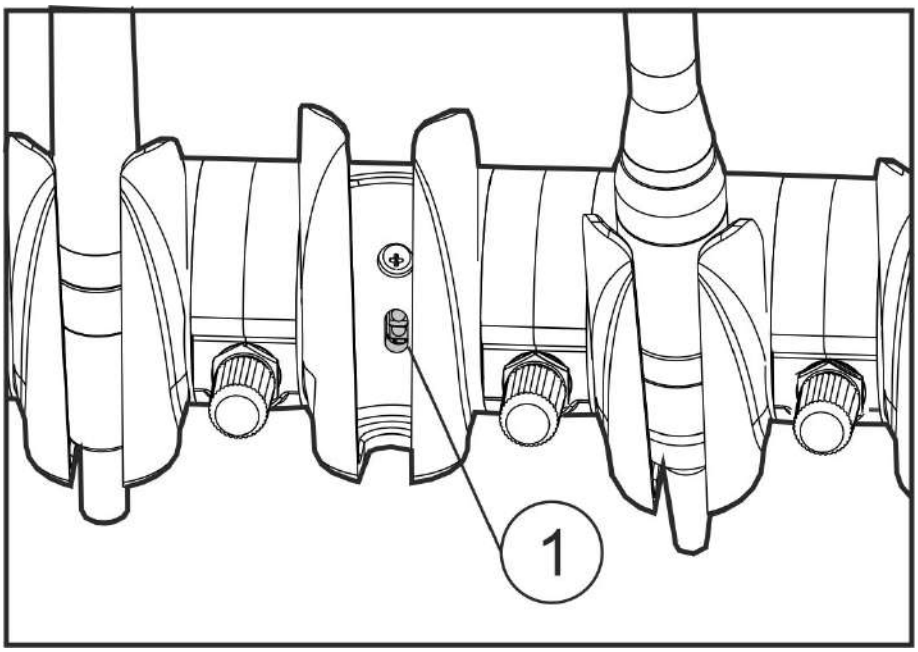
Depending on the order, the doctor table on the rotary arm can be with upper or lower delivery of hoses with the possibility of installing 5 different instruments. In the standard version, the doctor table is equipped as follows:

- 3-way dental syringe DCI;
- electric micromotor MC2 (BIEN AIR);
- one turbine pneumatic outlet for connecting the turbine handpiece;
- control panel to control instruments and functions of patient chair;
- negatoscope.

Doctor table with lower delivery of hoses (maximum - 5 instruments), includes:
• four free holders with adjustment of the angle of inclination of the device (15 ° and 30 °) and selection of instrument using optical sensors;
• control panel for controlling the chair and unit operation with power regulation of all dynamic devices and ENDO function for micromotor.

Doctor table is equipped with device holders with reflex optosensors. The optosensor becomes activated when instrument is removed, and it reacts when approaching the hose or device handpiece. The sensor's optical signal is converted into electrical switching for unambiguous determination of the device's position. Among several devices removed at the same time, the instrument that is closer to the control panel has a priority.

In Fig. 4.1. holders in different positions are shown. Thanks to adjustment of the angular inclination, it is possible to make a free arrangement of the instrument, which also makes the work of the dentist much easier.
The holders are removable and vacuclavable.



1 – dental instrument pick-up optosensor

Figure 4.1

4.1 Doctor Table Control Panel

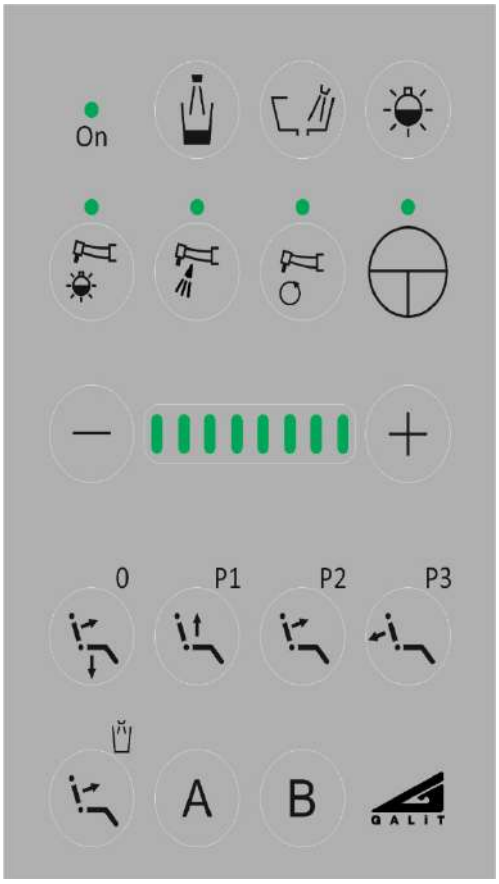


Figure 4.1.1 Doctor table control panel GALLANT CART-5

The unit power-on indicator.
Indicator is on – unit is on.

Button for cup filling with cold water (not used).

Cuspidor bowl rinsing button (not used).

Light ON/OFF button (not used).

Instrument illumination ON/OFF button
Indicator is on – illumination is on.

Water ON/OFF button in online mode for cooling devices. Indicator is on - cooling is on.

Button to change direction of rotation of electric micromotor.
Indicator is on - reverse is on.

ENDO mode ON/OFF button.
Indicator is on - ENDO mode is on. The button does not light up - normal mode.

T decrease.

Indicators of gradation of power level or rotation frequency
(increase goes from right to left).

To increase

* **Note. When working with scaler, the mentioned instrument (power level) is regulated by buttons**.

Quick press - chair moves to the "0" position.
Holding down the button - the seat of the chair moves down.

Patient chair moves up / down.

Backrest moves up.

Backrest moves down.

Quick press - back of the chair moves up to the position for rinsing the oral cavity.

The same as 

The same as 

4.2 Adjustment of instruments operating modes on Doctor Table

Section 4.2. "Adjusting the working modes of instruments on doctor table" describes only general rules for using working instruments and general rules for adjusting these instruments. Detailed instructions for operation and maintenance of working instruments, as well as the delivery set, are specified in the operating documentation for these instruments.

The instruments, except for the dental syringe and some models of curing lamps, are controlled by a pneumatic foot control through a microcontroller board, which is located in the doctor table.
The microcontroller controls the switching ON/OFF of the instruments, the rotating movement of the micromotor in normal mode and ENDO mode, supply of spray and illumination, operation of diathermocoagulator and scaler, if there are any in the doctor table.

The internal software of the microcontroller is oriented to any customer with an arbitrary set of instruments and their placement on the doctor table. In particular, micromotors can be placed on the second, third or fourth working place with the maximum permissible supply voltage from the range of 24V, 30V. It is also possible to place scalers from different manufacturers with different requirements for output power regulation, etc.

Correspondence between the internal software of the microcontroller and set of instruments and their placement is established when ordering the dental unit and is performed only at the Galit enterprise.

All operational final settings of the power level, rotation frequency, and indications performed by the doctor during work are stored in the microcontroller's memory. When the power is turned on again, all the last settings are saved.
System of priority selection of instruments prevents the simultaneous operation of several instruments. Operation is carried out by the first removed tool.

Pneumatic foot control makes it possible to effect main start of the pneumatic instruments and adjust their speed.
Adjustment of the working modes of the instruments is carried out with the help of adjustment controls, which are located under the doctor table (below). Each tool has its own adjustment block, which is located under the corresponding instrument. Moreover, the operational adjustments are on the same axis as the instrument, and the installation adjustments are shifted slightly to the left (if you look at the doctor table from above, and if you look from below, the installation adjustments are shifted to the right), (Figure 4.2.1).

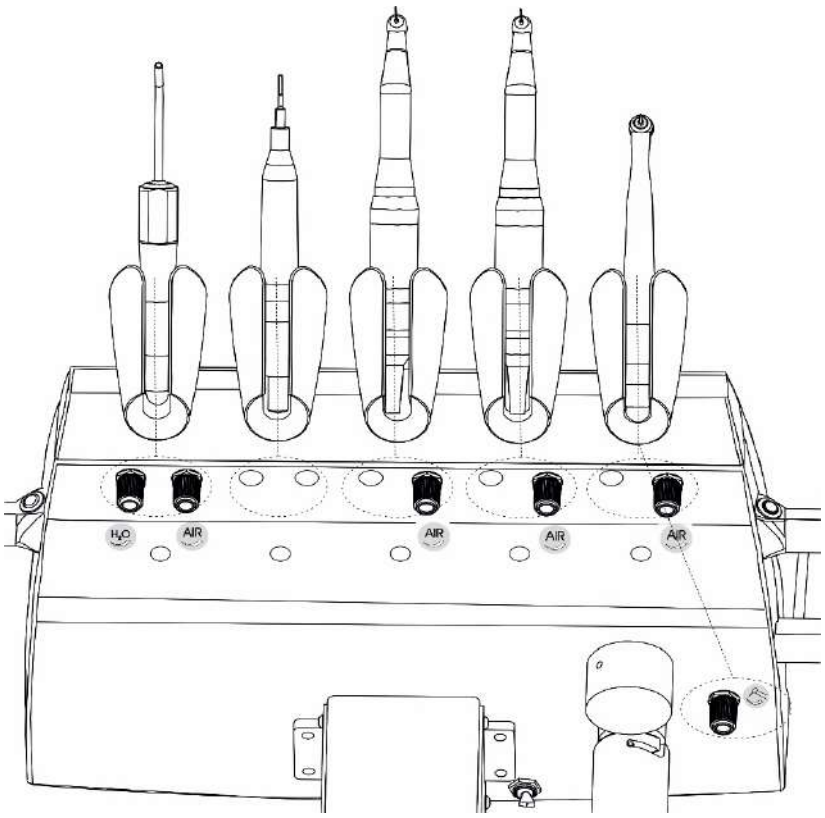


Fig. 4.2.1 Axis of placement of working instruments

Table 4.2 shows the possible versions of adjustment blocks of working instruments

Table 4.2

Marking	Block of adjustment of turbines	Block of adjustment of electric micromotor	Block of adjustment of electric micromotor	Block of adjustment of scaler	Block of adjustment of 3-way syringe
Controls, which are located below the doctor table					
					
	operating pressure (2,5 ±0,3 bar)	X	X	X	X
	air flow in the water-air cooling mixture	air flow in the water-air cooling mixture	air flow in the water-air cooling mixture	X	air flow in the water-air cooling mixture
	X	X		X	water flow in the water-air cooling mixture
ENDO/ PERIO/ SCALING	X	X	X	operating mode switch	X

Note:

** operating pressure for the pneumatic turbine is set on the manometer according to the technical requirements for a specific model of the turbine.*

5.1 Dental Syringe

5.1.1 Dental Syringe LUZZANI

Figure 5.1.1.1.

1. Procedure for the syringe operation:

- Take off the syringe from the instrument table;
  - To get ***water***, press the left button on the syringe body. To get ***air***, press the right button on the syringe body. To obtain ***water-air mixture (spray),*** press two buttons on the syringe body at the same time;
  - To change the angle of the nose inclination, turn the nose of the syringe to the required position

2. The mode of operation of the dental syringe is a repeatedly - short-term mode.

3. Syringe maintenance:

Clean *the nose of the syringe with a mandrel*.

Carry out ***Disinfection*** *of the external surfaces, buttons, body, with a soft cloth moistened with a disinfectant solution*.

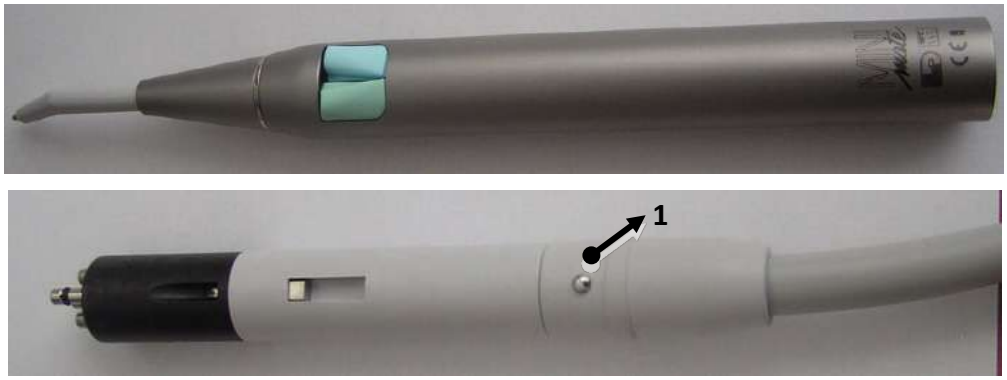


Figure 5.1.1.2.

Sterilization: *press the button (position 1 Figure 5.2.1.1.2.), remove the tip with the body without disassembling the gun barrel, place in an autoclave at a temperature of +1350C, sterilize for 20 minutes*.

Technical characteristics of the syringe:

Max. Water inlet pressure	Bar	2,5
Max. Air inlet pressure	Bar	4,5
Air flow rate	Nl / min	10
Water flow rate	cm2 /min	110

Detailed instructions for the operation and maintenance of the dental syringe and the delivery set are provided in the operational documentation for the syringe.

5.1.2 3-Way Dental Syringe DCI

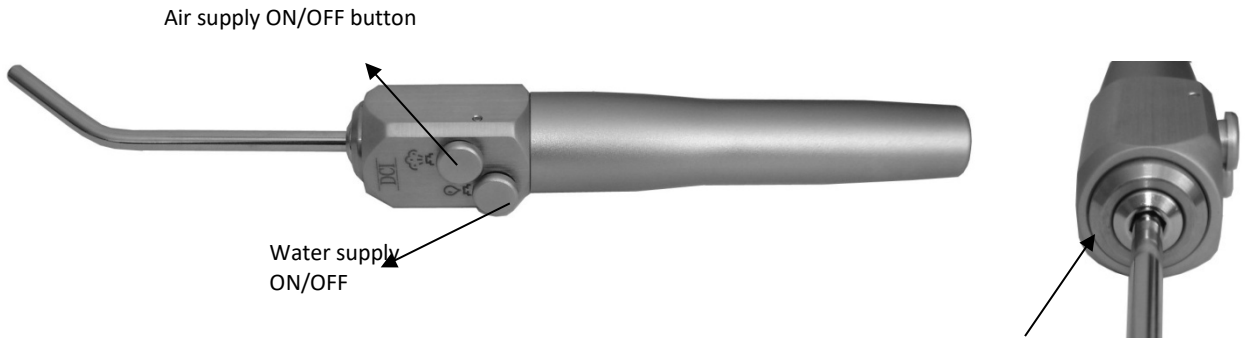


Figure 5.1.2.1

1. Procedure of the syringe operation:

- Take off the syringe from the instrument table;
- To get ***water,*** press the left button  on the syringe body.

  To get **air,** press the right button  on the syringe body.

  To get ***water-air mixture (spray),*** press two buttons on the syringe body at the same time;
- To change the angle of the nose inclination, turn the nose of the syringe to the required position.

2. The mode of operation of the dental syringe is a repeatedly - short-term mode.

3. Syringe maintenance:

Clean *the nose of the syringe with a mandrel*.

Carry out ***Disinfection*** *of the external surfaces, buttons, body, with a soft cloth moistened with a disinfectant solution*.

Sterilization of the syringe nose should be carried out in an autoclave at a temperature of +135^{0}C for 20 minutes. To remove and then install the nose in the syringe body, you need to press the ring according to figure 5.2.1.2.1.

Detailed instructions for the operation and maintenance of the dental syringe and the delivery set are provided in the operational documentation for the syringe.

5.2 Pneumatic Turbine

1. Connection of pneumatic outlet

The pneumatic outlet of the unit has a four-channel hose with a connection to a turbine, pneumatic motor or pneumatic scaler.

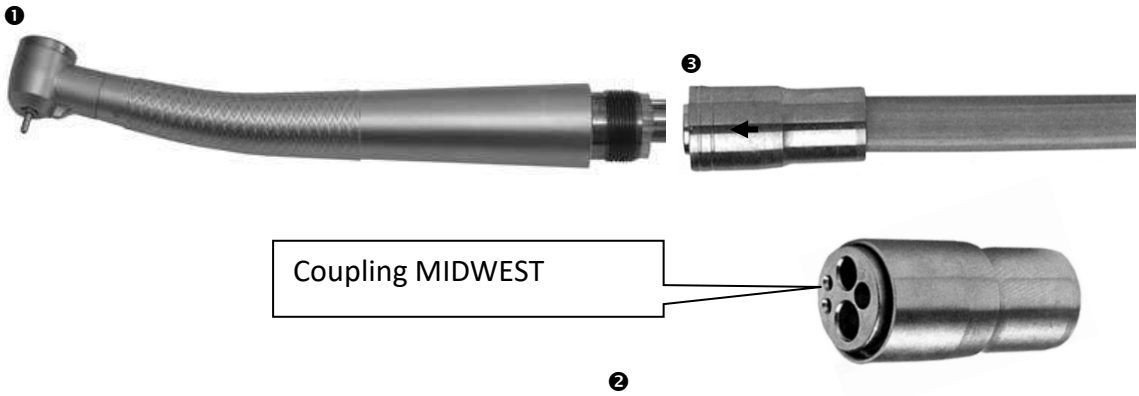


Figure 5.2.1

2. Preparation for work:

Connect turbine ❶ to pneumatic outlet ❷ and tighten nut ❸.

ATTENTION!
It is strictly forbidden to switch on the turbine without a tool installed in the handpiece!

3. Procedure of the turbine operation:

- Take off the turbine from the doctor table and press the foot control;
- Set operating pressure by the control located on bottom of the doctor table opposite the pneumatic outlet according to the doctor table pressure gauge index or with help of control pressure gauge REF 1600242-001 "Bien Air".

ATTENTION! Operating pressure of the pneumatic outlet is set separately for each specific model of the pneumatic turbine according to its technical requirements.

Set proportion of water-air mixture for cooling with controls H_2O and AIR on bottom of the doctor table opposite the pneumatic outlet.

4. Procedure for adjusting pressure of the pneumatic turbine according to the control manometer.

- Take off the instrument;
- Connect the control manometer according Figure 5.2.2.2 or Figure 5.2.2.3;
- Press the pneumatic foot control to the stop, which corresponds to the maximum speed of rotation of the turbine (**for a pneumatic foot control);**
- Set the foot control lever to the extreme right position, which corresponds to the maximum speed of the turbine (**for a multi-function foot control**);
- Set needed pressure by control on bottom of the doctor table opposite the pneumatic outlet.

5. Mode of Operation.

Turbine operation mode in accordance with the operational documentation.

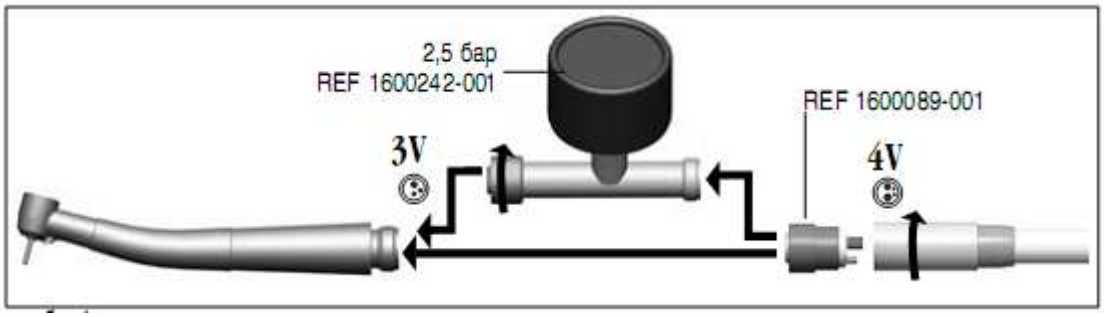


Figure 5.2.2

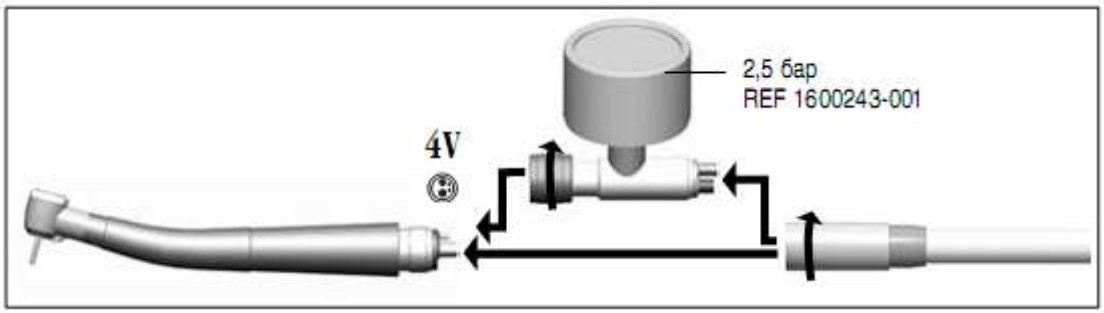


Figure 5.2.3

Figure 5.2.2.2 and Figure 5.2.2.3 — Connection diagrams of the control manometer.

6. Turbine maintenance:

ATTENTION! Durability of the turbine handpieces depends on fulfilment of the lubrication requirements, as well as on compliance with the recommended operating pressure.

Detailed instructions for the operation and maintenance of the pneumatic turbine and the delivery set are given in the operational documentation for the turbine.

5.3 Electric Micromotor

5.3.1 Electric Micromotor BIEN AIR

ATTENTION: It is strictly prohibited to switch on the electric micromotor without an instrument installed in the handpiece!

1. To start the micromotor, take off the instrument from the holder and press the foot control. The micromotor will rotate clockwise.

Speed of rotation of the micromotor is set by the speed control of block of adjustment of electric micromotor (Table 5.2.1.) or the slider of the multi-functional foot control.

2. To reverse direction of rotation, release the foot control and then press the reverse activation button on the doctor table control panel.

ATTENTION! Direction of rotation is changed only when the instrument comes to a complete stop.

3. In micromotors with water-air mixture supply for cooling, the proportion of water-air mixture is set by regulators H_2O and AIR of the electrical micromotor adjustment block.

For micromotors with lighting - switch on the light with the button for switching on the light of the instruments on the doctor table control panel.

To ensure reliable operation of the micromotor, use only dry compressed air.

4. Micromotor cooling.
Cooling of the micromotor is provided by manufacturer. When replacing the micromotor, the cooling is adjusted and checked. The check is carried out using an air flow meter (flow meter for motor, N107.24.08, order code 1600307-001, "Bien Air", Switzerland).

Detailed instructions for the operation and maintenance of the electric micromotor and the delivery set are given in the operational documentation for the micromotor.

Micromotors of company **BIEN AIR,** models **MC2** and **MC3** have ENDO function.

5.3.2 Electric Micromotor NSK

ATTENTION: It is strictly forbidden to switch on the electric micromotor without an instrument installed in the handpiece

1 To start the micromotor, remove the instrument from the holder and press the foot control. The micromotor will rotate clockwise. The speed of rotation of the micromotor is set by the speed regulator of the electrical micromotor adjustment block (Table 5.2.1.) or by the multifunctional foot control slider.

2 To change the direction of rotation, release the pedal and then press the reverse button on the doctor table control panel.

ATTENTION! Direction of rotation is changed only when the instrument comes to a complete stop.

3 In micromotors with water-air mixture supply for cooling, the proportion of water-air mixture is set by regulators and of the electrical micromotor adjustment block.

For micromotors with lighting - switch on the light with the button for switching on the light of the instruments on the doctor table control panel.
To ensure reliable operation of the micromotor, use only dry compressed air.

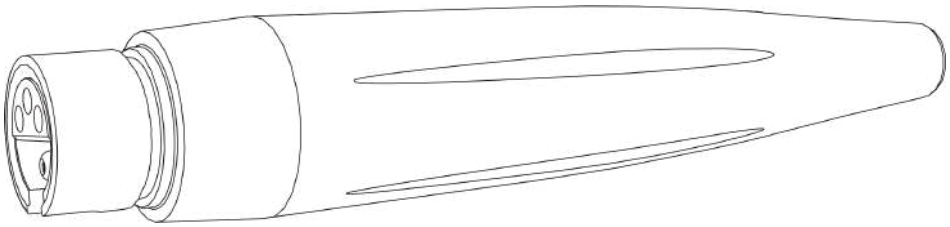
4 ***Cleaning***
Manual: Rinse the external surface of the micromotor in running water (<38°C, demineralized water is recommended).
Disinfection
Manual: Wipe the outer surface of the micromotor with a cleaning or disinfecting solution.
Lubrication
NSK surgical micromotors are maintenance-free. Do not lubricate the micromotors.
Sterilization
The micromotor can be repeatedly sterilized in an autoclave at a maximum temperature of 135°C (together with the cap for autoclaving and the cover of the micromotor).

Table 5.2.3.2.1 Technical Specifications.

Motor type	NLX nano	NLX plus	M40XS
Maximum power	19V/5A	25V/5A	24V/5A
Speed	1.000-40.000 rpm	100-40.000 rpm	60-40.000 rpm
Torque	max. 3,4 N·cm	max. 4,0 N·cm	max. 3,4 N·cm
Overall dimensions	70mm x 22mm	77mm x 22mm	91mm x 21mm
Water spray	>65 ml/min	>65 ml/min	>65 ml/min

Detailed instructions for the operation and maintenance of the electric micromotor and the delivery set are given in the operational documentation for the micromotor.

5.4 Piezoelectric scaler



Scaler handpiece

Figure 5.4.1

<u>ATTENTION!</u> Do not disconnect the handpiece or handpiece hose while the unit is on.

<u>ATTENTION!</u> The scaler unit does not require additional maintenance, but the components (handpiece cable, tip, files, etc.) should be checked before and after work to detect any damage or insulation defects. Eliminate all malfunctions before starting work.

<u>ATTENTION!</u> The vents of the dental unit must be kept clean to ensure optimal working conditions for the piezoelectric scaler.

<u>1. Preparation for work:</u>

- wear safety glasses and gloves;
- pull out the handpiece, torque wrench and inserts;
- screw the insert into the handpiece, first by hand, and then with a torque wrench (Fig. 5.2.4.2 and Fig. 5.2.4.3);

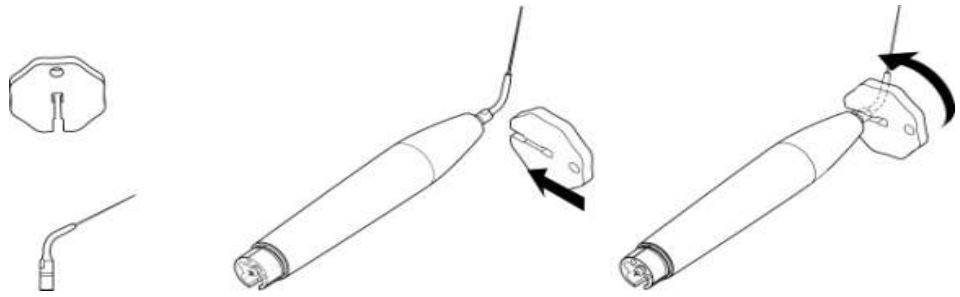


Figure 5.4.2

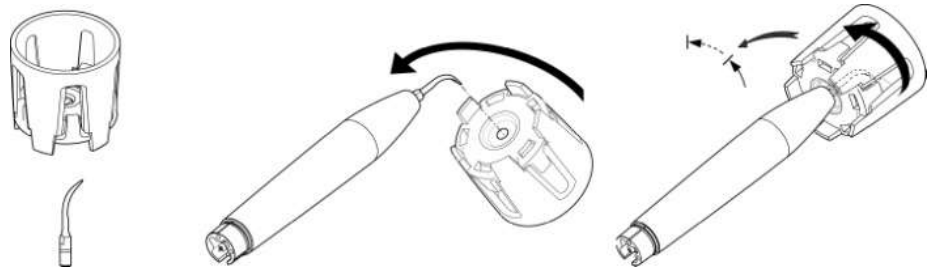


Figure 5.4.3

<u>ATTENTION!</u> The handpiece or file must be securely fastened in the holder without excessive pressure. Do not use a flat wrench to secure the handpiece or file as this may damage the handpiece, insert or file.

- connect the handpiece to the hose (Fig. 5.2.4.4), when doing so:
  - it is forbidden to rotate the handpiece connector relative to the hose;
  - t is forbidden to wind the hose of the handpiece on medical devices;
  - it is necessary to make sure that the hose does not twist and that no one steps on it;

- ensure that when performing dental procedures, the hose is in the access zone and is not excessively stretched;
- make sure that there are no traces of moisture at the junction of the handpiece and the hose.

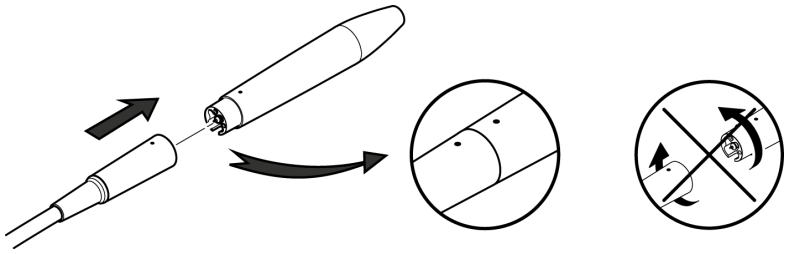


Figure 5.4.4

To increase the efficiency of the gasket and eliminate leakage, lubricate the gasket of the irrigation system, which is located on the back side of the handpiece on the metal axis, with a silicone paste. It is not recommended to use a spray for lubricating dental instruments.

- take the handpiece of the scaler in your hand and switch on the device;
- check the operation parameters of the irrigation system;

Irrigation may not be used if the following conditions are met:
- the scaler insert is intended for use without irrigation;
- additional devices are used to improve visibility (microscope or magnifying glass);
- work is done in four hands (doctor + assistant);
- place of intervention is always in the field of vision, which reduces risks of overheating;
- any manipulation should last no more than 1 minute;
- local irrigation is used;
- air drying is carried out.

<u>ATTENTION!</u> Doctor must constantly monitor the process - the lack of irrigation should not create risks for the patient.

<u>2. Intended use:</u>

- take off the scaler from the doctor table;

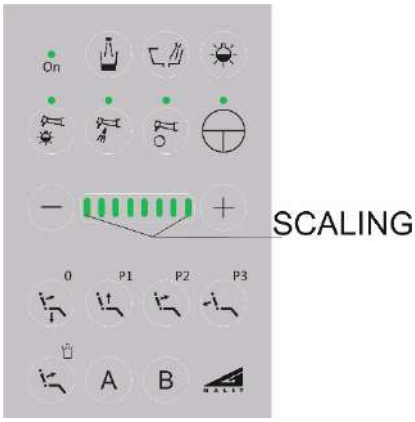


Figure 5.2.4.5

select the necessary scaler operation mode (**PERIO/SCALING**) on the control panel of the doctor table (Fig. 5.2.4.5). (Inserts or files for the scaler must be selected according to the mode of operation of the scaler)

by buttons (+), (−) on the doctor table control panel set a required power for the selected operation;

if none of the power indicators on the doctor table control panel lights up, the scaler is ready to work in **PERIO** mode;

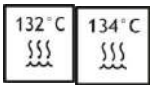
I-VIII indicators determine the power range for the mode **SCALING** (Fig. 5.2.4.5);

- if necessary, adjust with a knob H_2O intensity of water supply (irrigation) for the instrument;
- press the foot control.

<u>ATTENTION!</u> During start of the scaler at the moment of pressing the foot control, it is strictly forbidden to apply any effort to the handpiece of the scaler. Failure to comply with this requirement may result in damage to the handpiece.

<u>ATTENTION!</u> The doctor must hold the active part of the device - the handpiece - in his hand throughout the duration of the medical procedure.

<u>3. Cleaning, disinfection and sterilization of the handpiece, inserts and files:</u>



- components and handpieces must be cleaned, disinfected and sterilized before each use;
- during cleaning and disinfection operations, the device must be switched off;
- do not immerse the scaler handpiece in water;
- avoid using cleaning and disinfecting agents containing abrasive cleaning agents and flammable components;
- do not spray the cleaning agent directly on the medical device. **Do not wipe contacts.**

<u>4. Cleaning of the irrigation system:</u>

After installation and before starting use, at the end of the working day or if the scaler has not been used for a long time, it is necessary to clean the irrigation system. To do this, switch on the scaler at the minimum power, but with the maximum use of the irrigation spray for 2 minutes.

Be sure to read the operating documentation provided by the scaler manufacturer before starting work, which contains detailed instructions for operation and maintenance, cleaning, disinfection and sterilization of the device.

<u>ATTENTION!</u> The scaler can contain ENDO mode.

To ensure operation of the ENDO mode; a three-position switch is installed in the dental unit.

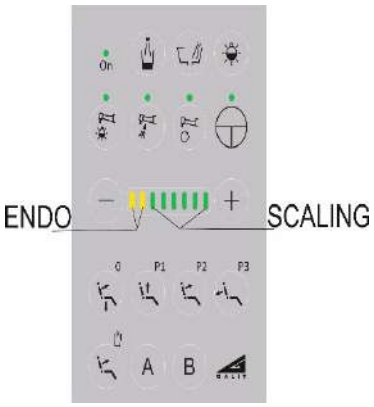


Figure 5.2.4.6

select a necessary mode of operation of the scaler **(PERIO/ENDO/SCALING**) on the control panel of doctor table (Figure 5.2.4.6). (Inserts or files for the scaler must be chosen according to the mode of operation of the scaler).

by buttons ⊕, ⊖ on the doctor table control panel set a needed power for the selected operation;

if none of the power indicators on the doctor table control panel lights up, the scaler is ready to work in **PERIO** mode;

I-II indicators determine power range for **ENDO** mode;

III-VIII індикатори indicators determine power range for **SCALING** mode (Figure 5.2.4.6);

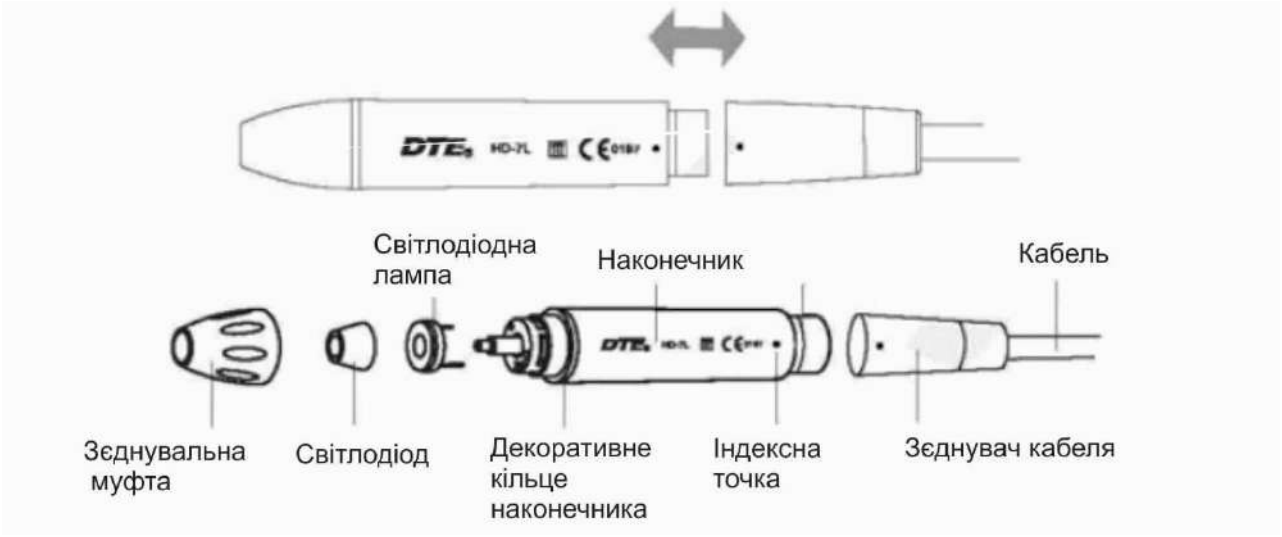
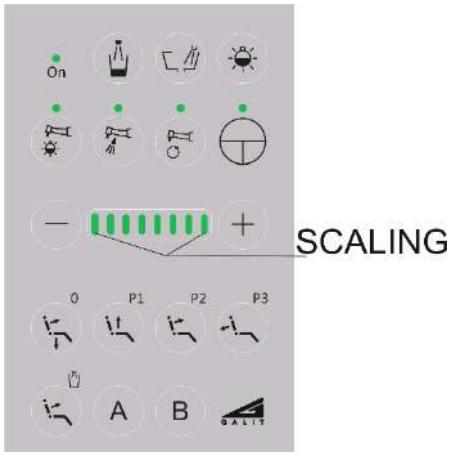


Figure 5.4.5 – structure of the LED scaler

Adjustment of the scaler power.

The maximum possible power of the scaler is selected on the control panel.

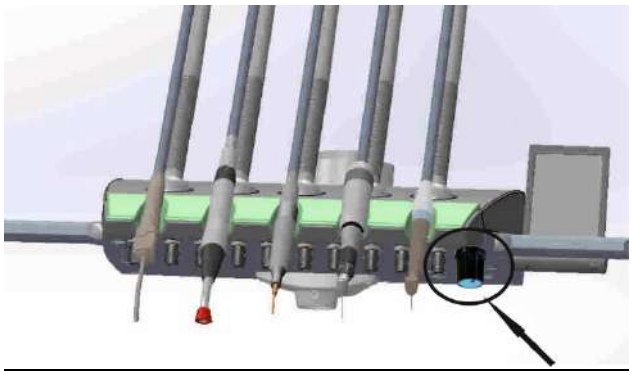


Multifunctional foot control.

The slider on the multi-function foot control adjusts power of the scaler operating mode in the range specified on the control panel.

Pneumatic foot control.

The potentiometer located on the doctor table regulates power of the scaler in the range specified on the control panel.



5.5 Curing Lamp

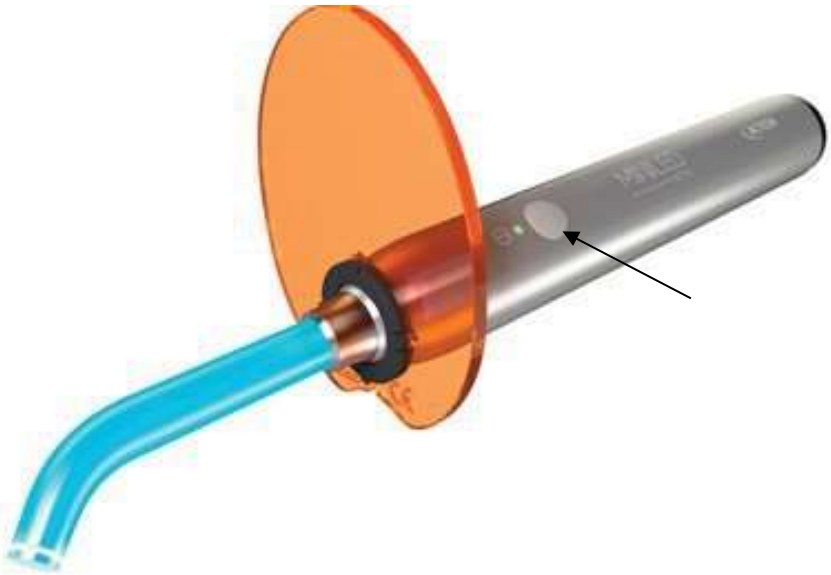


Fig.5.5.1. Curing Lamp

To start work, it is necessary to take off the lamp from the holder.

- The curing lamp is turned on and off by pressing the button on the lamp body.
- The lamp switches off if it is not used for 3 minutes. Press On/Off button to start a new cycle.
- The polymerization cycle can be stopped at any time by pressing On/Off button.

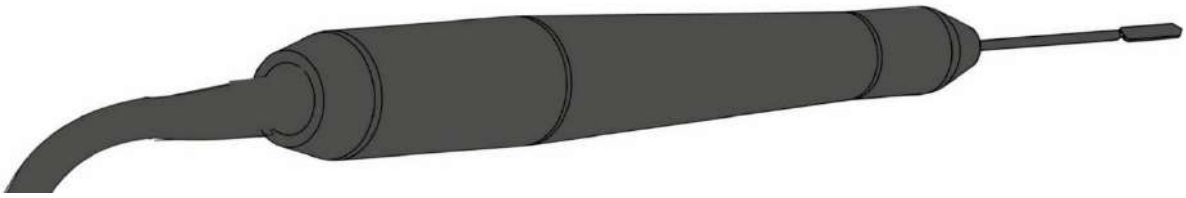
- The patient and doctor must use special protective glasses.
- Do not expose people with high sensitivity to light to the lamp.
- Do not direct the beam into the eyes.
- The device may interfere with sensitive devices.
- Do not allow composite residue to stick to the optical fibre.
- Do not use the device in a flammable atmosphere.

Recommendations for disinfection and sterilization.

- All work on disinfection and sterilization should be carried out only when the lamp is switched off.
- Never spray any liquid directly on the equipment
- Before starting work, the fibre and the light hood must be cleaned and sterile.
- Do not use abrasive products and products with aggressive impurities**.**

Detailed instructions for operation and maintenance, cleaning, disinfection and sterilization are provided in the operating documentation for curing lamps.

5.6 Coagulator



Coagulator operation procedure:

1. Placing coagulator on the doctor table

- Select a required mode of operation with the "COAGULATION/CUTTING" (“КОАГУЛЯЦІЯ/РІЗАННЯ”) switch, which is located at the bottom of the doctor table.
- Take off the coagulator from the doctor table.
- Press the foot control.

By buttons ⊕, ⊖ on the doctor table set the required power for the selected gradation “CUTTING” or “COAGULATION”. If there are no buttons on the control panel of doctor table, then set the power with the regulator at the bottom of the doctor table, which is on the same axis as the instrument.

ATTENTION: Do not touch metal objects with the cutting element while the coagulator is working. This may cause the coagulator to malfunction.

2. Placing the coagulator on the assistant table

- Select the required mode of operation with the **"COAGULATION/CUTTING"** (“КОАГУЛЯЦІЯ/РІЗАННЯ”) switch, which is located at the bottom of the assistant table.
- Take off the coagulator from the assistant table.
- Press the foot control.
- Set the required power with the regulator located on the bottom of the assistant table.

Detailed instructions on the operation and maintenance of the coagulator and the delivery set are provided in the operating documentation for the coagulator.

6.1 Version of “GALLANT K-5” dental unit with ENDO option

Dental unit "GALLANT K-5" with ENDO option has more advanced functionality compared to other versions and is intended, first of all, for work in the field of endodontics.
The following functions are additional (to the main ones in the standard version):

1) smooth and stepwise adjustment of the frequency of rotation of the micromotor in the nominal mode. The maximum value of the rotation frequency by gradations for this mode is given in the table 4.3.1.
2) smooth and stepwise adjustment of frequency of rotation of the micromotor in the ENDO mode. The maximum value of the rotation frequency by gradations for this mode is given in table 4.3.1.

Table 4.3.1. Measurement of maximum rotation frequency of MC2 micromotor, "Bien Air", in normal mode and in ENDO mode.

Gradations	Revolutions per minute, ±20% approximate	
	Normal mode	ENDO mode
0	-	550*
I	3700	870*
II	8700	1200*
III	14300	1450*
IV	19700	1630*
V	25050	2100*
VI	30700	2250*
VII	36200	2500*
VIII	42000	2900*

***- Reference data.**

3) operative selection of torque of forward motion, at which the micromotor stops and switches to reverse motion. It is possible to choose one of eight fixed torque values according to Table 4.3.2. This function can be used only in ENDO mode;

Table 4.3.2 Selection of the maximum torque for collector micromotors MC2, ISOLITE, MC3 "Bien Air" in ENDO mode.

Gradations	Torque, N·cm
I	0,3
II	0,6
III	0,9
IV	1,2
V	1,5
VI	1,8
VII	2,1
VIII	2,3

4) presence of positive feedback in the micromotor control circuit. The control scheme is built on the basis of a digital pulse width modulator (PWM), which allows you to maintain the frequency
rotation unchanged when increasing / decreasing the load.

5) 8-stage adjustment of the output power of the piezoelectric scaler and (or) diathermocoagulator.

6) illumination of instruments with a delay on switching off (8÷10) sec;

7) memorization of all final settings of rotation frequency, torque, power level when power is switched off;

8) visual display of the established modes of the dental unit as a whole, as well as indication of gradations of rotation frequency, torque and power level;

9) sound confirmation of pressing a button on the control panel;

10) automatic zeroing in the event of failure of the display on the doctor's unit remote control or failure of the doctor table controller.

6.1.1 Adjusting the frequency of micromotor rotation at II - IV workplace in normal mode

1. Switch on the power of the dental unit according to location of the main power switch of the unit. At the same time, a normal operating mode is set on the doctor table (see Figure 6.1.1.1).

2. Remove the micromotor from II - IV workplace of the doctor table.

3. By means of buttons ⊕ and ⊖ set the maximum rotation frequency of the micromotor on the control panel of doctor table.

Button ⊕ increases the rotation frequency, and button ⊖ decreases the rotation frequency.

Each indicator of the doctor table displays a certain gradation and corresponds to the specified frequency of rotation of the micromotor (according to Table 4.3.1.).

For example, I-gradation – one indicator is on - revolutions of the micromotor ~ 3700 rpm.
VIII-gradation – eight indicators are on - revolutions of the micromotor ~ 42000 rpm.

4.a – for multifunctional foot control

Set the foot control slider to the extreme right position corresponding to the maximum rotation frequency of the micromotor and smoothly change rotation frequency from zero to the maximum value for this gradation.

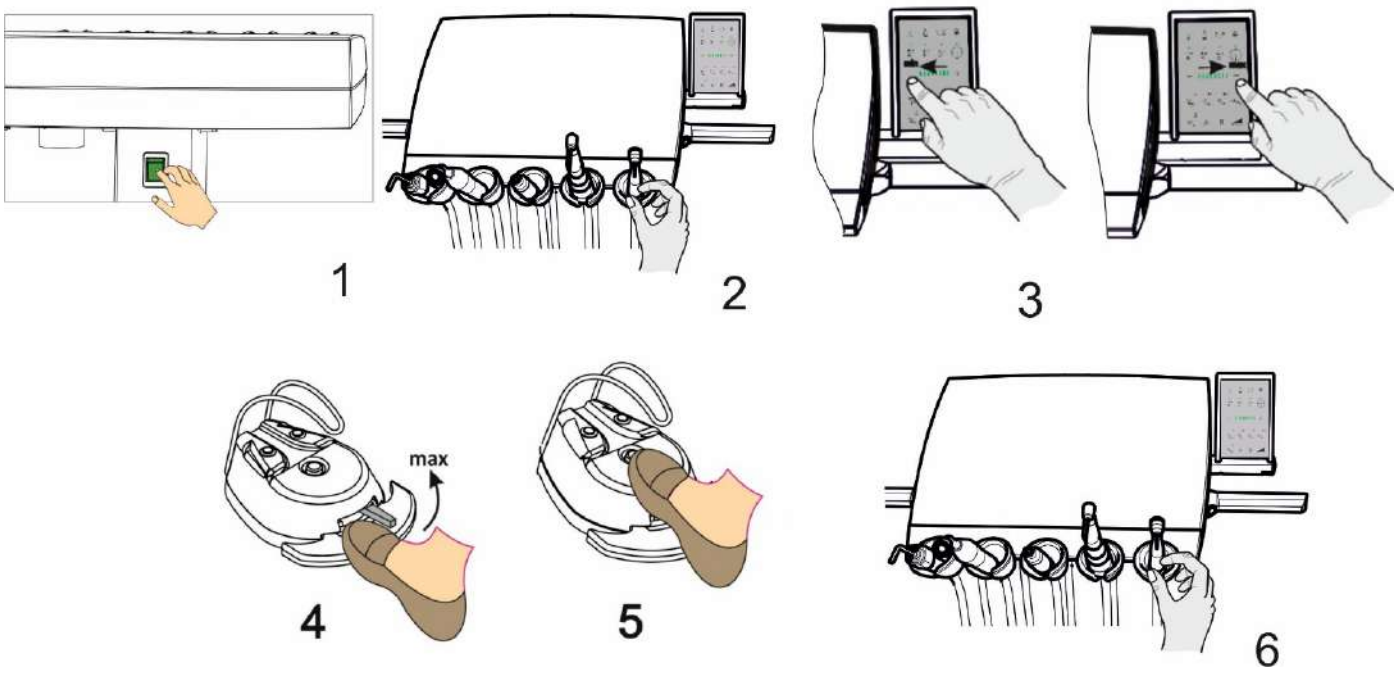


Figure 6.1.1.1 Adjusting the micromotor speed in normal mode (multifunction foot control)

4.6 – for pneumatic foot control

Set the knob of one or both potentiometers 

of doctor table to the extreme right position corresponding to the maximum rotation frequency of the micromotor and smoothly change rotation frequency from zero to the maximum value for this gradation.

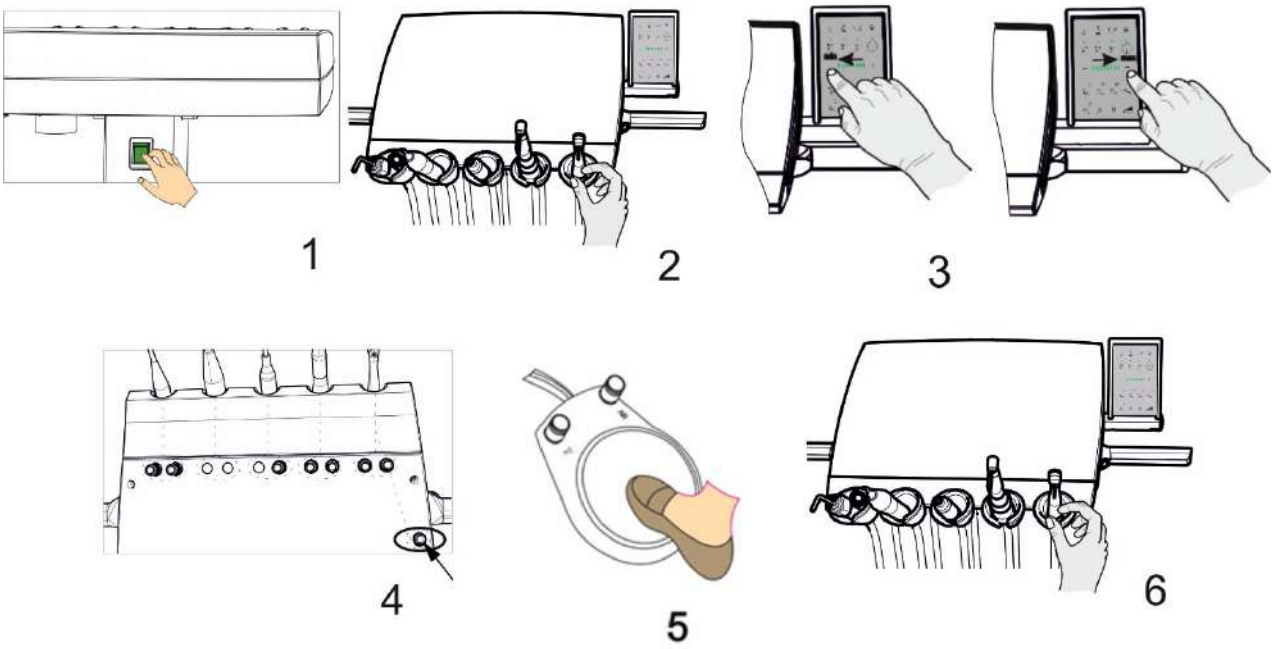


Figure 6.1.1.2. Adjusting the speed of the micromotor in normal mode (pneumatic pedal)

5. Press the foot control and check the set rotation speed of the micromotor.
6. To memorize the set rotation frequency and the corresponding indication, put the instrument down.

6.1.2 Adjusting the rotation frequency of the micromotor in ENDO mode

1. Take off the micromotor from the third workplace of the doctor table (see Figure 6.1.2.1).

2. Press the button to switch on ENDO mode, while the indicator flashes, which means that this mode is set.

3. By means of buttons ⊕ and ⊖ on the doctor table set frequency of rotation of the micromotor.

Button ⊕ increases the rotation frequency, and button ⊖ decreases the rotation frequency.

Each indicator of doctor table displays a certain gradation and corresponds to the specified frequency of rotation of the micromotor (according to Table 4.3.1.).

For example, I-gradation – one indicator is on - revolutions of the micromotor ~ 870 rpm.
VIII-gradation – eight indicators are on - revolutions of the micromotor ~ 2900 rpm.

4.<u>a – for multifunctional foot control</u>

Set the foot control slider to the extreme right position corresponding to the maximum rotation frequency of the micromotor and smoothly change rotation frequency from zero to maximum value for this gradation.

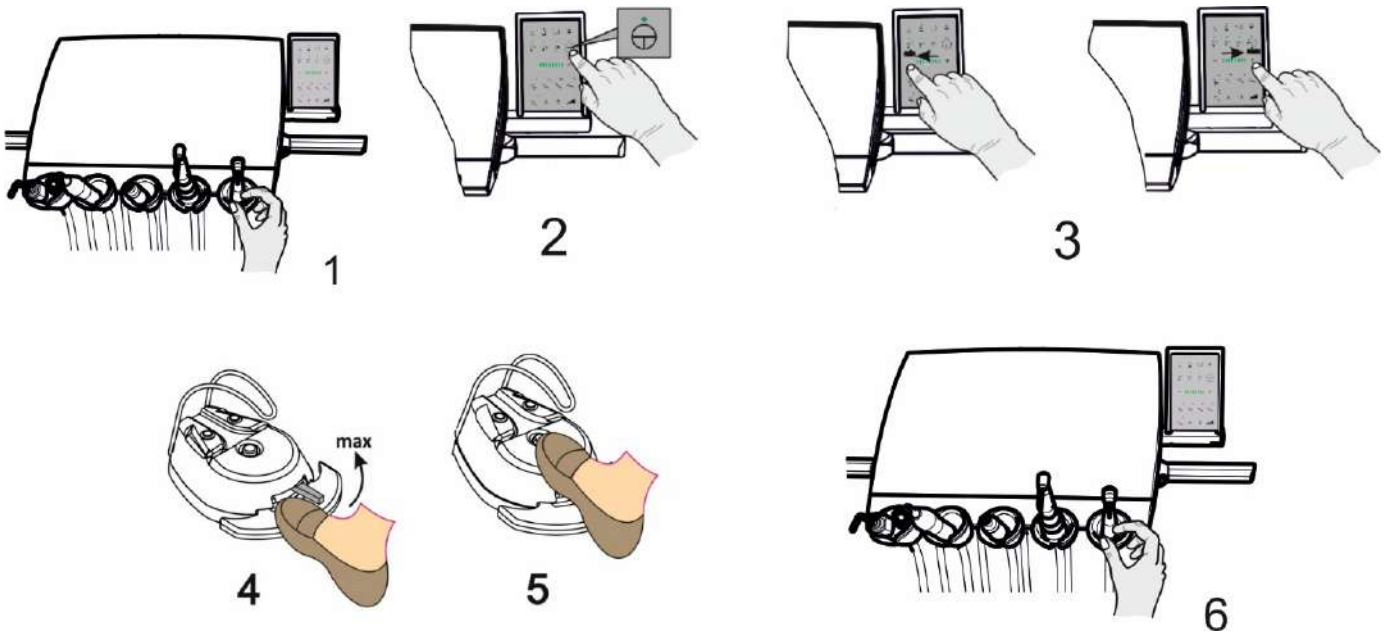


Figure 6.1.2.1 Adjusting the speed of the micromotor in ENDO mode (multifunction foot control)

4.6 – for pneumatic foot control

Set the knob of one or both potentiometers 

of doctor table to the extreme right position corresponding to the maximum rotation frequency of the micromotor and smoothly change rotation frequency from zero to the maximum value for this gradation.

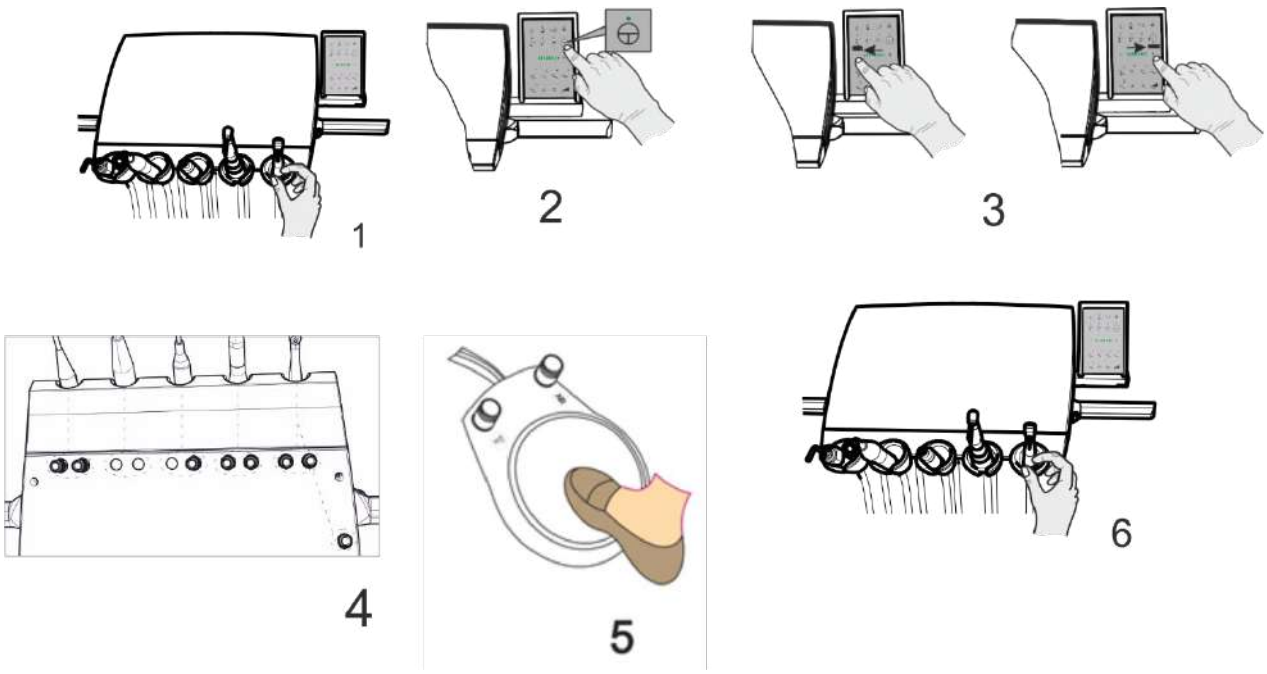


Figure 6.1.2.2 Adjusting the rotation frequency of the micromotor in ENDO mode (pneumatic foot control)

5. Press the foot control and check the set rotation speed of the micromotor.

6. To memorize the set rotation frequency and the corresponding indication, put the instrument down.

7. ENDO mode is switched off by pressing the button again  .

Note.

1. The second micromotor does not work in ENDO mode.
2. The MH, MH2 micromotors in the OPTIMA MH INT or OPTIMA MH2 INT set can be adjusted from the OPTIMA control panel.
3. Micromotors MX2, MCX without the OPTIMA control panel in ENDO mode also do not work.

6.1.3 Adjusting the torque of the micromotor at the III workplace in ENDO mode

1. Press the button to switch on ENDO mode, while the indicator flashes, which means that this mode is set (see Figure 6.1.3.1).

2. Press ENDO button again for about 5 seconds and wait for the 8 vertically placed LEDs to blink.

*****Note.*** *If the minimum moment is set, then none of the 8 LEDs will blink.*

3. By means of buttons ⊕ and ⊖ on the control panel select the torque value at which the endo file, encountering a stronger obstacle under real conditions and reaching the selected force, will cause the micromotor to switch from direct to reverse motion.
Removing the obstacle automatically returns the micromotor to direct motion.
Button ⊕ increases the torque, and button ⊖ decreases the torque.

For normal mode, the maximum torque is 2.3 N·cm.
For ENDO mode, each indicator of the doctor table displays a certain gradation and corresponds to a fixed torque value (according to Table 4.3.2.).

For example: I-gradation – one indicator is on – torque ~ 0,3 N·cm.
VIII-gradation – eight indicators are on - torque ~ 2,3 N·cm.

*****Note.*** *Any other operations at the dental unit are not possible at this time. The micromotor also does not rotate.*

4. Press the ENDO button again to memorize the torque value. At the same time, the normal mode of operation of the dental unit is set. The ENDO indicator does not flash.

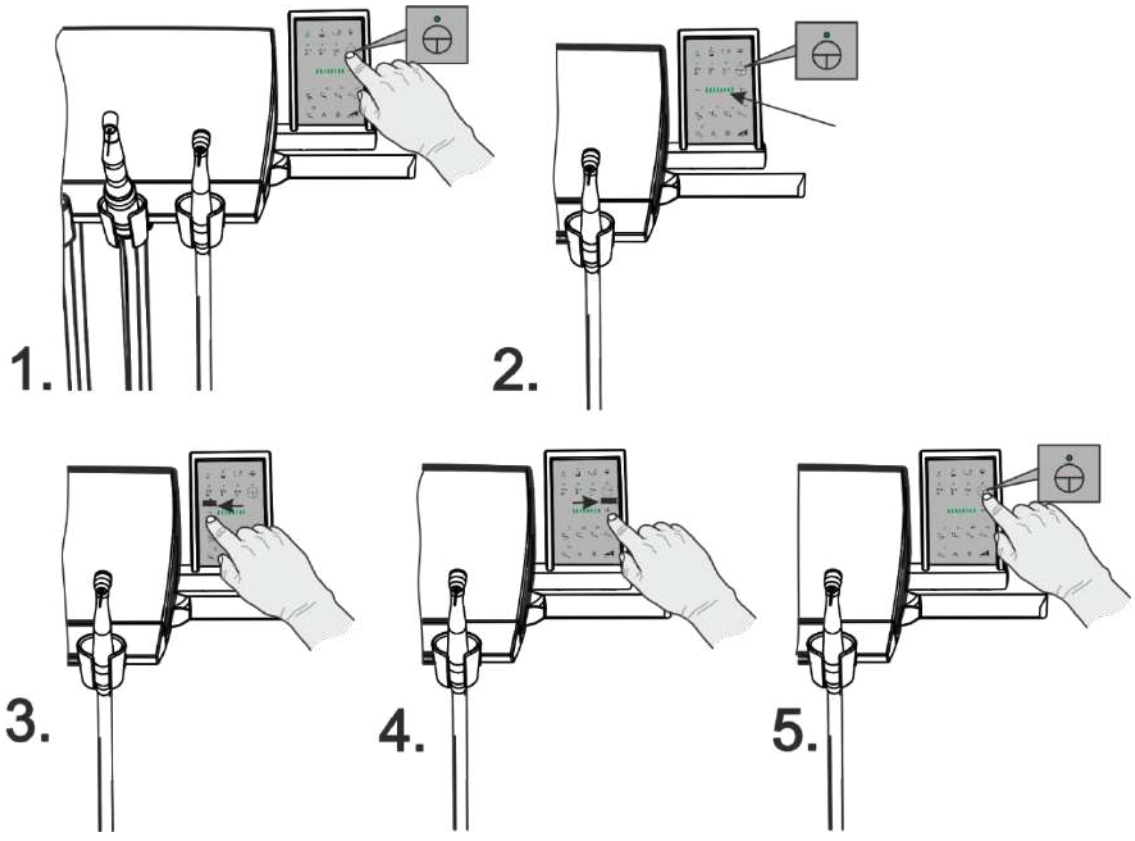


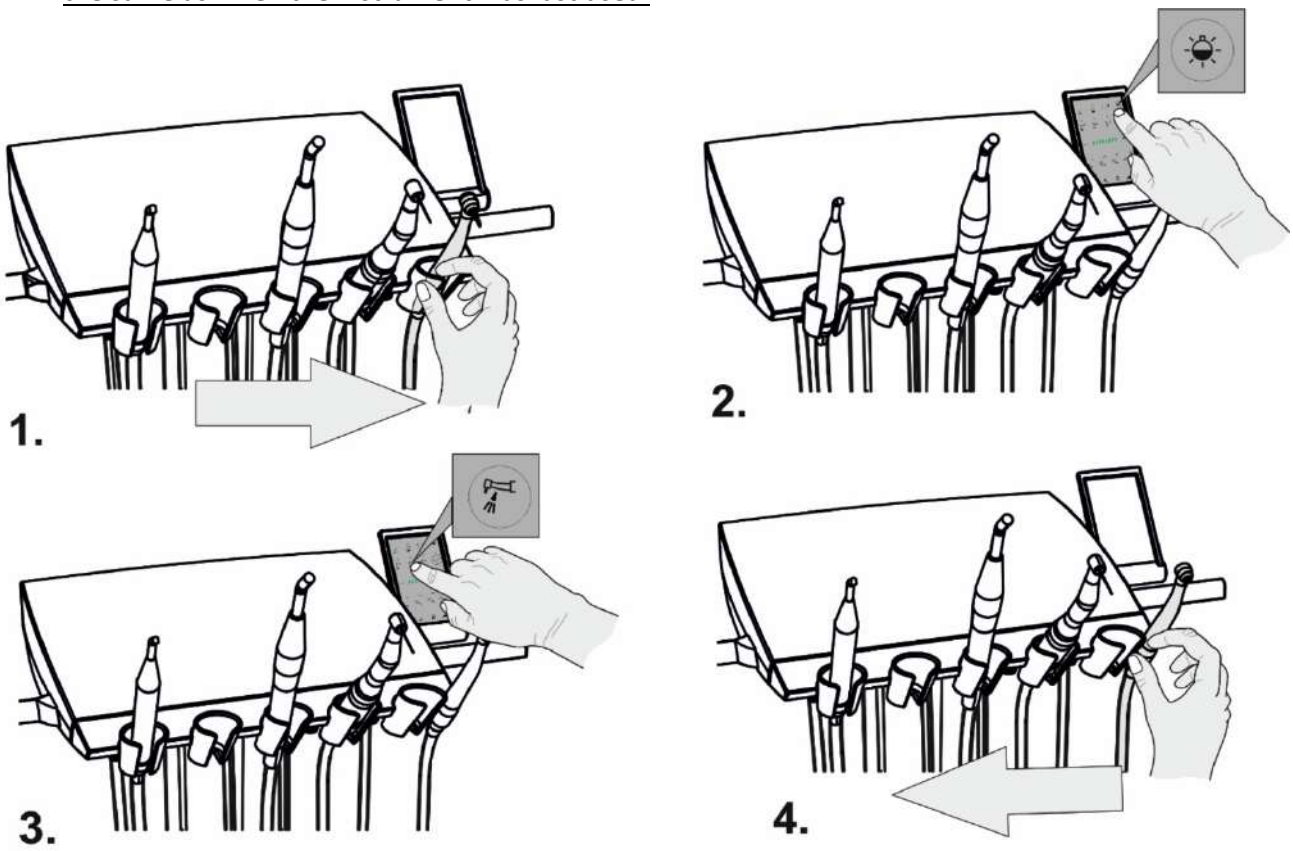
Figure 6.1.3.1 Adjusting the torque of the micromotor in ENDO mode

6.1.4 Memorization of "spray" and "illumination" modes for I-IV instruments

For I-IV instruments, the "spray" and "lighting" modes are memorized for each instrument separately. All settings are stored in the non-volatile memory of the microcontroller.

Adjusting the "spray" and "illumination" modes for I-IV instruments:

1. Take off the instrument from the holder.
2. Switch on (or switch off) the “lighting” of the instrument. Indicator lights up - " lighting " is on.
3. Switch on (or switch off) the “spray” for cooling the instruments. Indicator lights up - "spray" is on.
4. Insert the tool into the holder.
5. **When the instrument is taken off from the holder again, the “spray” and “illumination” mode will be the same as when the instrument was last used.**



When the instrument is operating in "SPRAY" mode, after releasing the foot control, the water-air mixture stops being supplied to the instrument. Then, with a pause of 0.5 seconds, water is blown from the "spray" channel for 1 second.

ATTENTION! The function of blowing water after releasing the foot control can be disabled or re-enabled.

It is recommended to configure this function with the involvement of a qualified technician or a representative of the PC Galit service department.

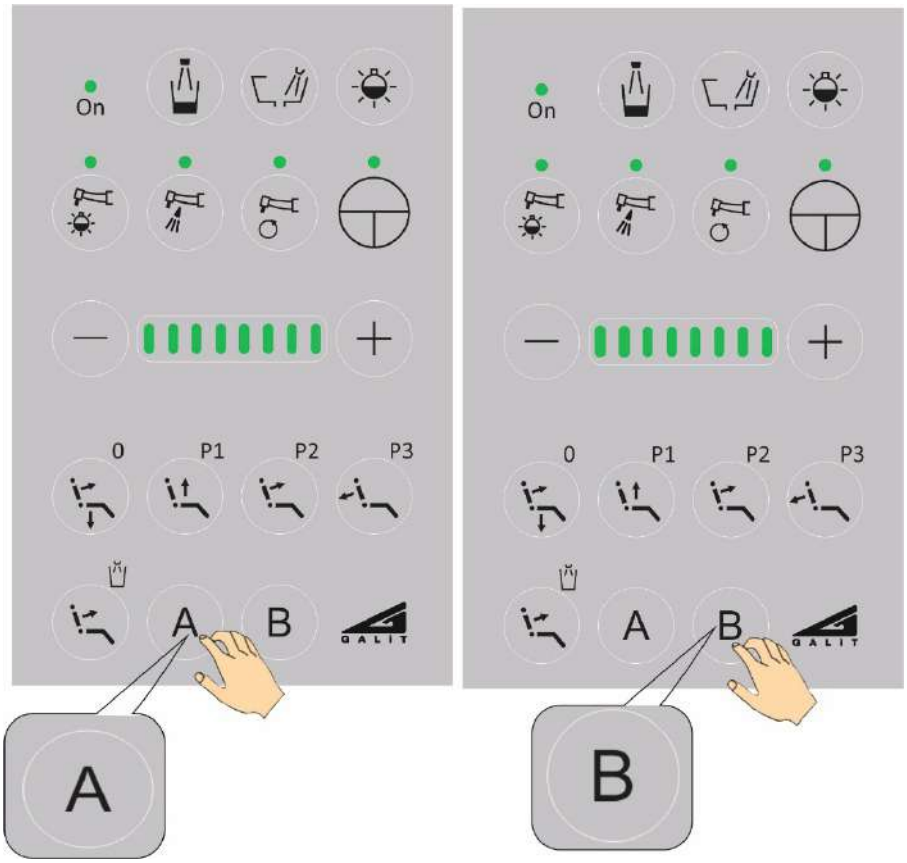
*1. The "illumination" memory function **is switched on** by DIP switch 4 in the ON position.*

*2. The "illumination" memory function is **switched off** by DIP switch 4 in the OFF position in the case of using micromotors MCX and MX2 of company "Bien Air".*

3. Regardless of the position of DIP switch 4, the function is disabled for the scaler at the IV workplace.

6.1.5 Adjusting the air-water mixture (SPRAY)

Adjustment is carried out on the remote control with the help of buttons "A" and "B" with a short press-release of the button, provided that at least one instrument is selected. Each time you press the "B" button, the flow of water changes, increasing stepwise by one gradation, from the initial value to the maximum value of 90 ml/min. When the maximum amount of water in the spray is reached and the button is pressed again, the amount of water remains constant. Each time you press the "A" button, the water flow changes, decreases by one gradation, from the initial value to a minimum of 10 ml/min. When the minimum amount of water in the spray is reached and the button is pressed again, the amount of water remains constant. There are five working water positions: 10 ml/min, 20 ml/min, 30 ml/min, 50 ml/min, 90 ml/min.



Level of water in the spray is set and memorized for each dental instrument separately.

When all instruments are inserted, the servo valve stops working and spray adjustment is impossible. It should also be noted that in this version of the doctor table there are no manual water flow regulators for each instrument separately.

7 Maintenance

7.1 Recommended products for care, cleaning and disinfection

<u>ATTENTION!</u> It is STRICTLY forbidden to use solutions containing CHLORINE for disinfection of the dental unit!
It is RECOMMENDED to use disinfectants from Durr Dental, Orochemie and METASYS.

WARNING! Perform maintenance work only after switching off the equipment.

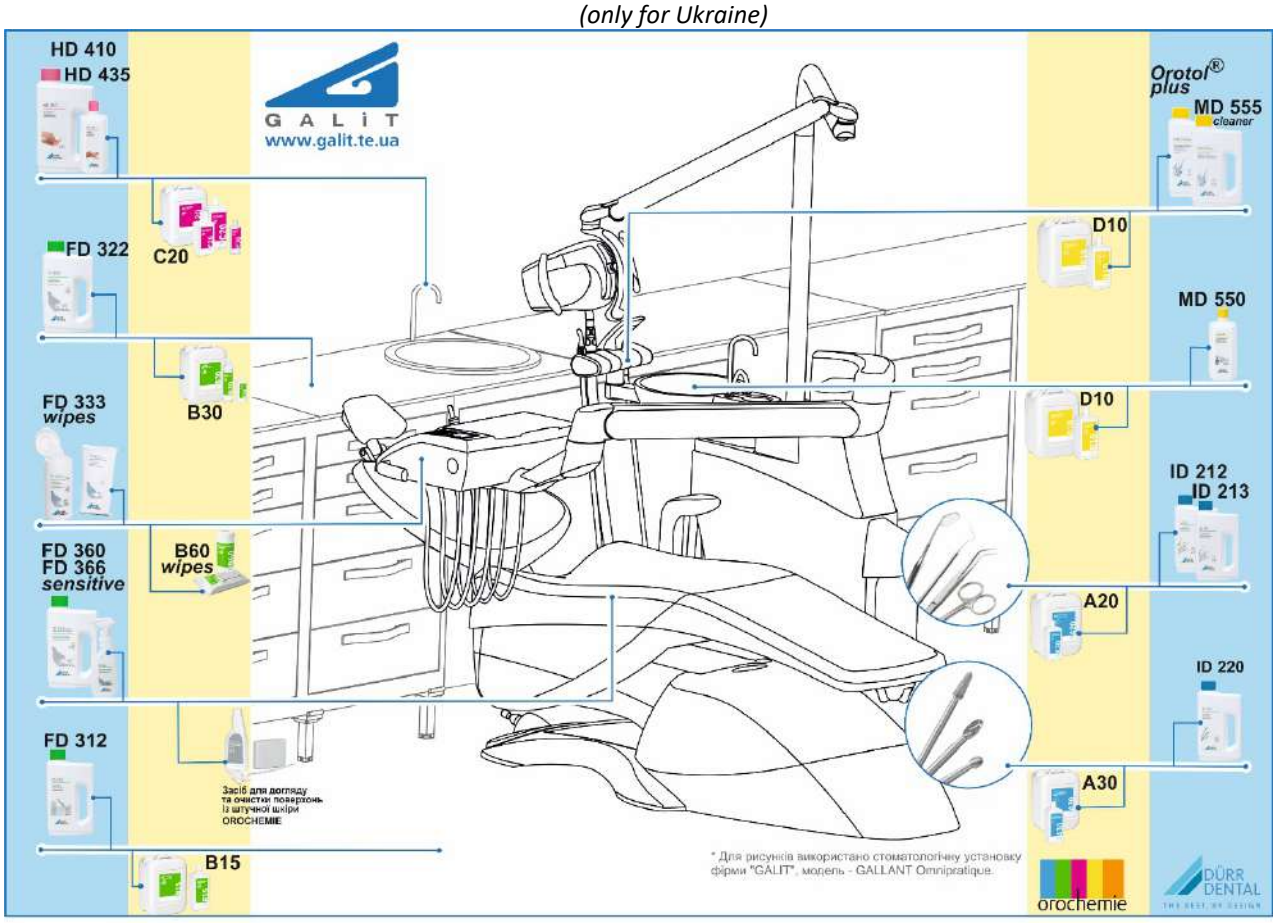
WARNING! It is forbidden to pour or spray solutions directly on the surface of the unit to prevent them from getting inside.
Before processing sensitive surfaces, check the compatibility of materials with disinfectants in an inconspicuous place.

WARNING! Before use, be sure to read the labelling and information about the product that will be used for cleaning and disinfection.

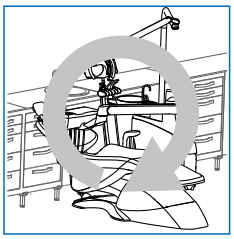
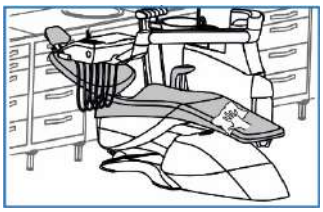
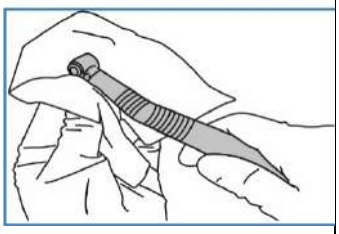
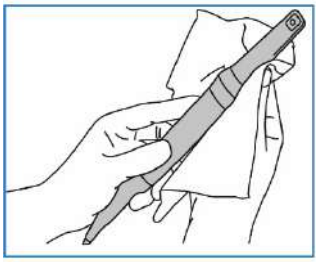
The materials from which the unit is made provide convenient and easy cleaning and disinfection.
Use only a soft cloth moistened with a cleaning or disinfecting solution.
Use disinfectants only as intended, in accordance with the recommendations provided by manufacturers of disinfectants and dental equipment.

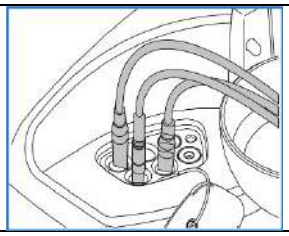
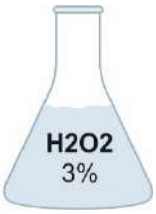
National hygiene and disinfection requirements and recommendations must be followed, e.g. B. Robert Koch Institute (RKI), American Dental Association (ADA), Centres for Disease Control and Prevention (CDC), etc.

Disinfection scheme using Durr Dental GmbH & Co. KG" and "Orochemie GmbH + Co. KG"
(only for Ukraine)



Products recommended for cleaning and disinfection care (*only for Ukraine*)

		Durr Dental GmbH & Co. KG	Orochemie GmbH + Co. KG
	**Quick disinfection of surfaces**	 **FD322**	 **B30**
	**Disinfection of delicate surfaces, for example, plastic, vinyl upholstery, displays, acrylic glass**	 **FD366**	
	**Cleaning and care of vinyl upholstery**	 **FD360**	 **Facility for cleaning and care of artificial leather products Orochemie *** ** Do not use special sponges to clean the skin.*
	**Disinfection of dental handpieces**	 **FD333 wipes**	 **B60**
	**Disinfection of intraoral camera**	 **FD350 wipes**	
	**For disinfection and cleaning of instruments**	 **ID212**  **ID213**	 **A20**
	**For disinfection and cleaning of rotating instruments (including burs, cutters and drills)**	 **ID220**	 **A30**

	For disinfection and cleaning of suction systems and cuspidors	 Orotol® plus  MD555	 D10
	For disinfection and cleaning of cuspidors	 MD550	
	For disinfection of surfaces (floors, walls, etc.)	 FD 312	 B15
	Hand disinfection and cleaning	 HD 410  HD435	 C20
		METASYS Medizintechnik GmbH	**Hydrogen peroxide 3%**
	For internal hose channels and unit water ways	 GREEN&CLEAN WK	

Detailed information on these disinfectants can be obtained from the website of the product manufacturers:
1) www.duerrdental.com - site of company Durr Dental GmbH & Co.;
2) www.orochemie.de/ - site of company "Orochemie GmbH + Co. KG";
3) www.metasys.com - site of company Metasys.

7.2 Care of instruments

Constant care is necessary for the perfect functioning of each instrument. This is simple care and is provided by special means. Lubrication and maintenance of instruments should be carried out together with cleaning, disinfection and sterilization.

For each specific instrument, it is necessary to use means and recommendations that are indicated in the passport (instructions) for this instrument. Use of other means, not specified in the passport (instructions) or not agreed with the Galit company, voids the warranty for this instrument.

Bien-Air instruments care products

Cleaning 	**Spraynet** (order code REF 1600036-006) aerosol with cleaning agent for instruments and devices. It is recommended to use before sterilization. Dissolves and rinses even heavy pollution. For cleaning and maintenance of hoses, cables and surfaces of devices, as well as electric micromotors, it is recommended to use a napkin well moistened with Spraynet cleaning agent. Spraynet aerosol is suitable for cleaning all turbines, straight and angular handpieces, as well as air motors and electric micromotors without angular brushes. All instruments cleaned from the inside with Spraynet must be lubricated before sterilization and storage.
Grease 	**Lubrimed** (order code REF 1600037-006) medical consistency grease for bearing turbines. Greasing of the turbine head is carried out with Lubrimed greasing instrument (order code REF 1000003-001). Instruments must be greased before each sterilization or at least twice a day.
Lubrication 	**Lubrifluid** (order code REF 1600064-006) is an aerosol for lubricating contra angles, air motors and electric micromotors.
Sterilization	• in an autoclave up to 136 °C / 2.2 bar for 10-30 minutes; • by ethylene oxide at 60°C; • drying cycle: maximum 136 °C for a maximum of 30 minutes

Detailed recommendations and rules for the care of instruments are presented in the passport (instructions) for this instrument.

Detailed recommendations for use of instruments care products are presented in the instructions for using these instruments.

7.3 Cleaning the exhaust air filter of pneumatic outlets

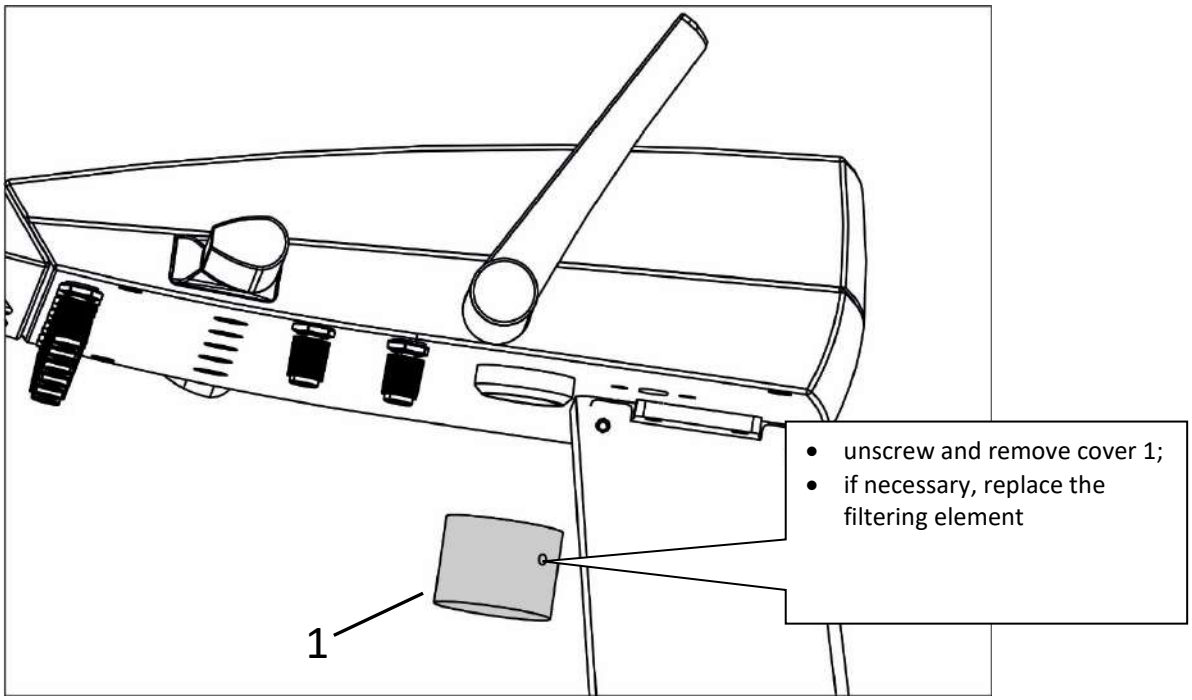


Figure 7.3.1

7.4 Draining the water condensate from the dental unit

When the air pressure in the unit system drops below 1 bar, the fine air filter valve opens and the condensate collected in the tank of this filter is drained. If necessary, draining of condensate is allowed to be carried out forcibly, for this purpose:

- place a container for draining condensate under the hose;
- lift the filter valve up;
- drain the condensate completely;
- turn the filter valve according to Figure 5.4.1.

Codes of filtering elements for ordering:

Degree of filtration	Code
25 µm	C104-F20/3 Camozzi
5 µm	C104-F21/3 Camozzi
0,01 µm	C104-F26 Camozzi

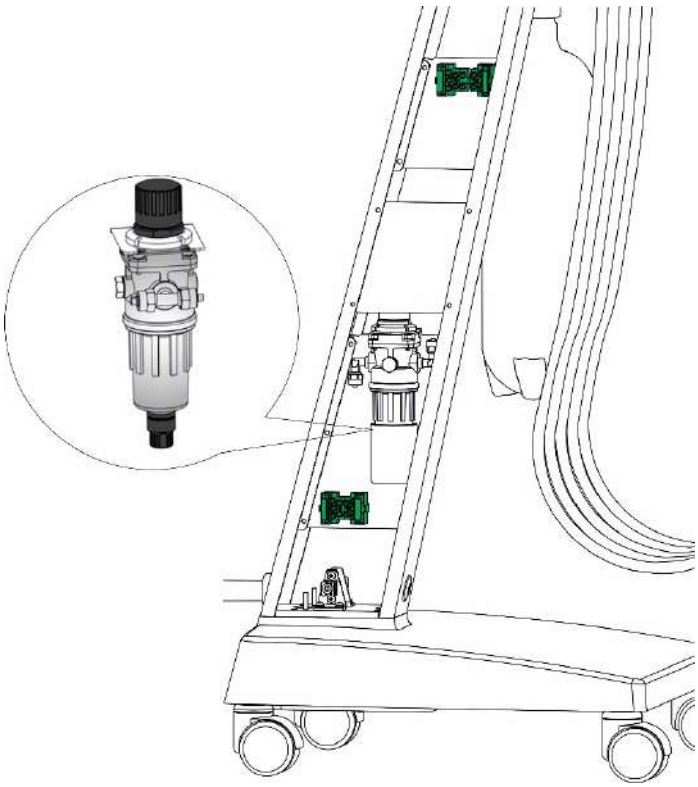


Figure 5.4.1

7.5 Replacement of fuse links

<u>ATTENTION!</u> Before replacing the fuse links, switch off the unit: disconnect from the power supply, switch off the main switch, turn the air supply valve handles to the CLOSED position.

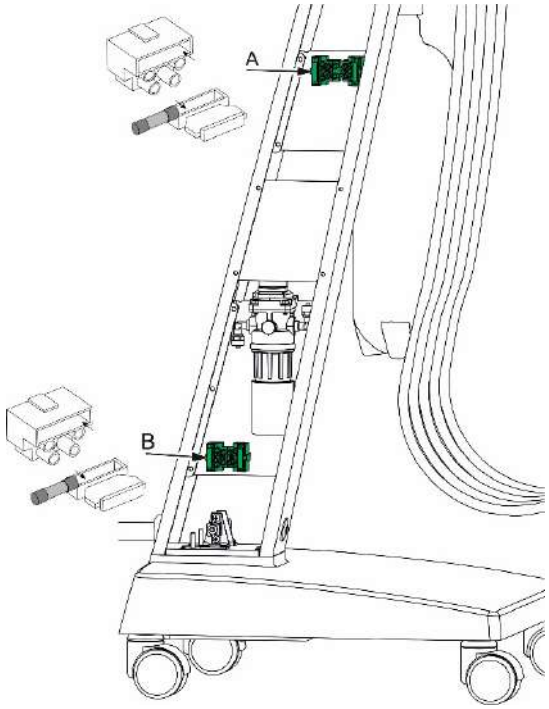


Figure 7.5.1

A - 24V -4A	Power bus 24V AC
B -4A, 220B;	Fuse links (network)

7.6 Adjusting the Height of Medical Block for Telescopic Cart

To adjust height of doctor table, you need to press the button and move the doctor table to the desired height.
When you lower the doctor table, there is a 3-5 second delay and there should be a hissing sound.
Descent is carried out without additional efforts.

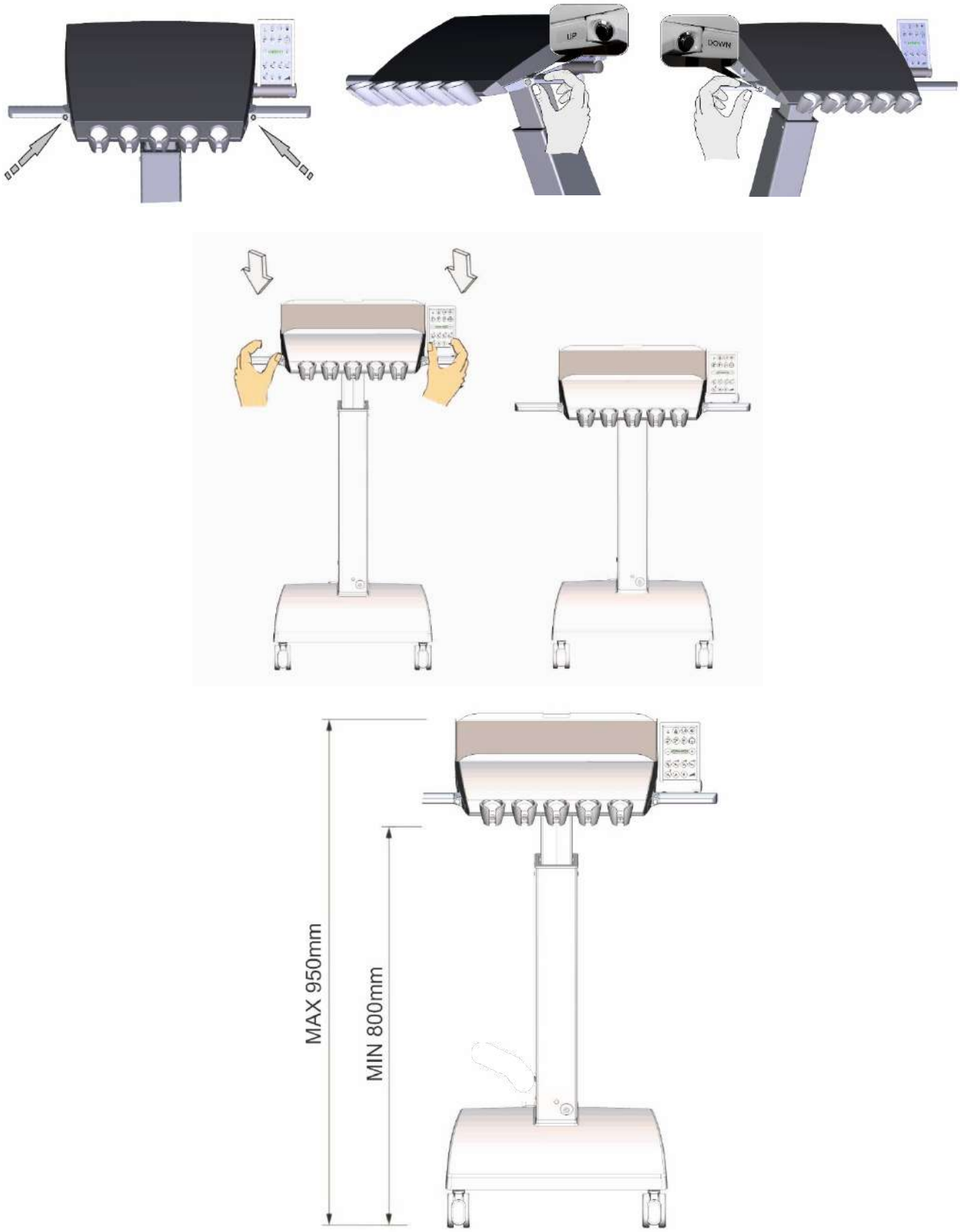


Fig. 7.6.1

8 Recommended Maintenance Frequency

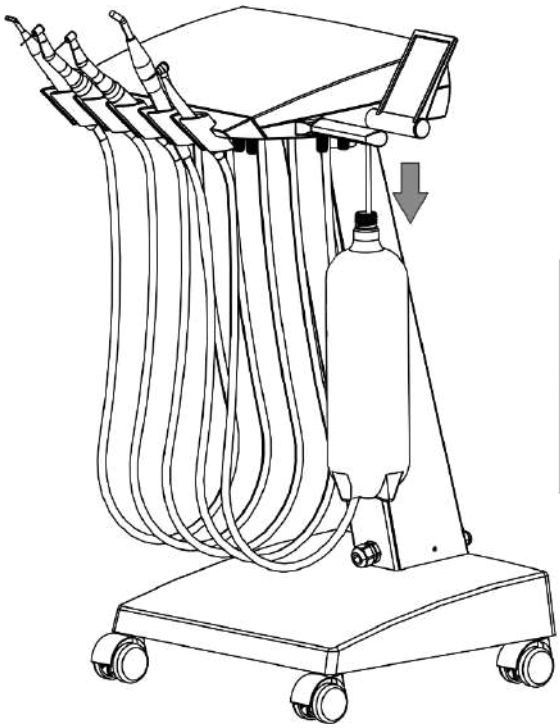
Subassemblies	Periodicity
• Exhaust air filter of the pneumatic outlet	One time per month
• Turbine handpieces (sterilization, cleaning and lubrication)	after receiving the patient
• Electric micromotor (sterilization, cleaning and lubrication)	after receiving the patient
• Electric micromotor (disinfection of external surfaces)	after receiving the patient
• Piezoscaler (sterilization or disinfection of external surfaces)	after receiving the patient
• Dental syringe (sterilization or disinfection of external surfaces)	after receiving the patient
• Cleaning and disinfection of the external surfaces of the unit.	at the end of the work
• Disinfection. Flushing the internal channels of the hoses of the dental unit	after receiving the patient

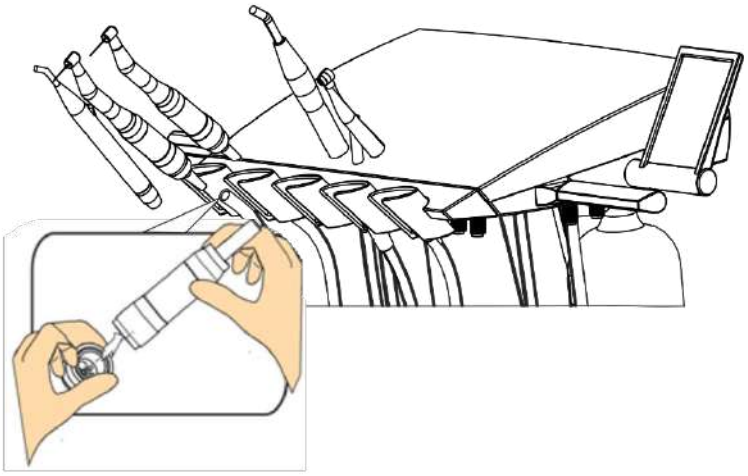
8.1 Technical malfunctions and methods of their elimination

ATTENTION! Before carrying out troubleshooting work, disconnect the unit from the electrical network: turn off the main switch, turn the handles of the water and air supply taps to the unit to CLOSED position.

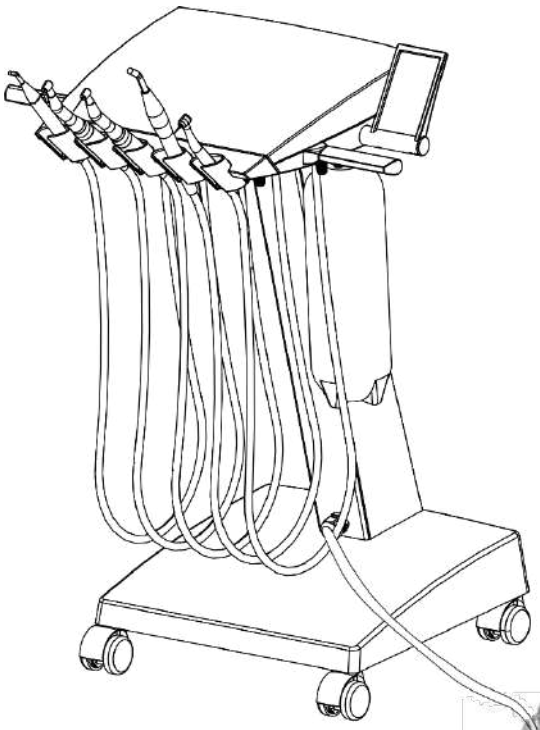
Fault	Reason	Remedy
There is no light indication when the switch is in the on position.	No voltage in the power mains.	Check presence of voltage in the electrical network.
	The fuses are blown.	Replace the fuses with working ones from the delivery set.
There is no water supply through the dental syringe.	Clogged syringe tip channel.	Clean the water supply channel of the tip with a mandrel from the turbine handpiece delivery set.

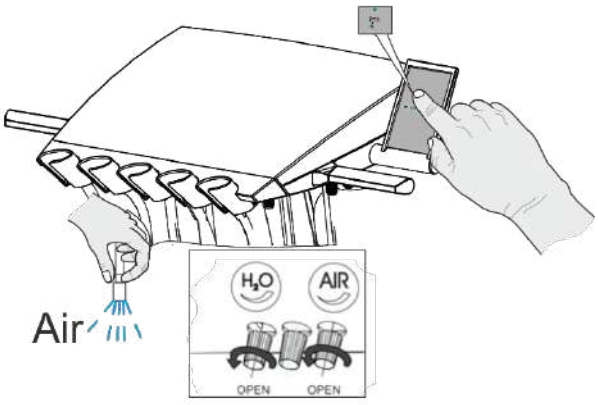
6.2 Disinfection. Flushing the internal channels of the hoses of the dental unit





1. Disconnect container of the distilled water system.
Drain water. Screw the empty container.



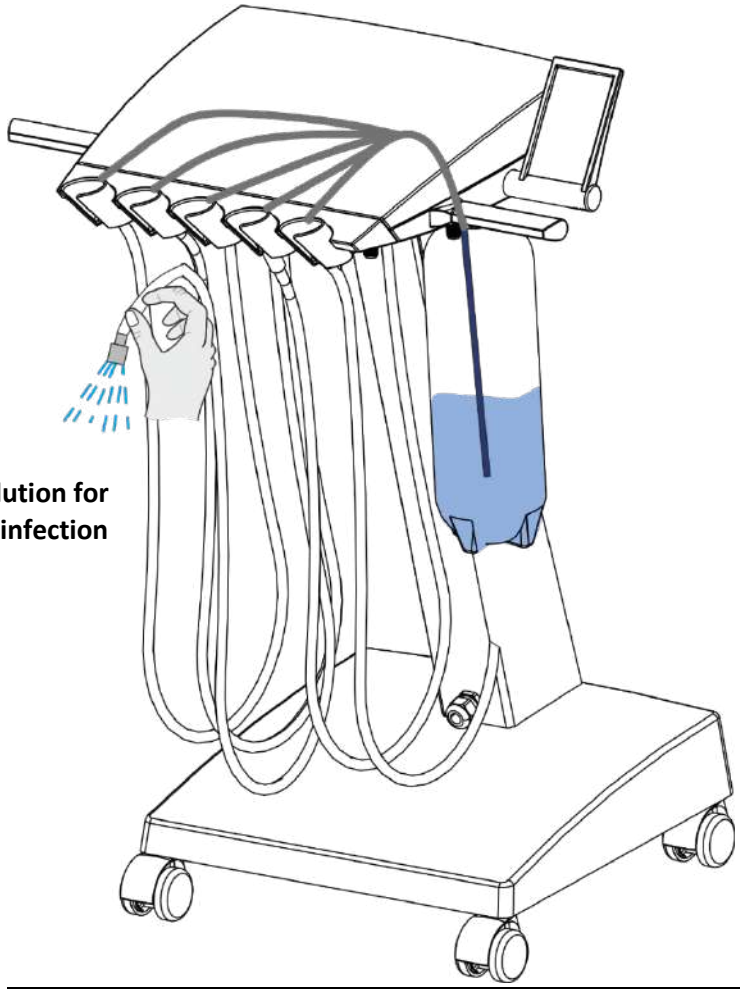


3. Unscrew the AIR supply with the regulator located at the bottom of the doctor table.
Press SPRAY button on the control panel лікаря.

ATTENTION! **The DWS/water pipe switch (if present in the unit) must be in the DWS position during disinfection (DWS (СЧВ) – distilled water system).**

4. Pour a solution of 20 ml of 3% hydrogen peroxide per 1 liter of distilled water into the container.

5. Fill all instruments with hydrogen peroxide solution. Press the control pedal. Press the button on the control panel of the doctor table. So that the solution reaches the instruments.



Solution for disinfection

6. Leave the solution for disinfection for 20 minutes

7. Blow out the air channels of the hoses again to clean them from the disinfectant solution according to point 3.

<u>ATTENTION!</u> Do not leave the hydrogen peroxide solution in the unit for more than 1 month.

7 Electromagnetic compatibility (EMC) (МЕК 60601-1-2)

Important operating characteristics during EMC testing

№	Function check	Normative data
1.	Checking the adjustment of the rotation frequency of the instrument with a micromotor, rpm.	The function is being tested "regulated / not regulated"
2.	Checking the adjustment of the rotation frequency of the air turbine instrument, rpm.	The function is being tested "regulated / not regulated"
3.	Turning on reverse, spray, negatoscope, lamp	The function is being tested "turns on / does not turn on"
4.	Checking the operation of the dental syringe	The function is being tested "turns on / does not turn on"

GALLANT K-5" installation locations sensitive to electrostatic discharge are marked with warning symbols and inscriptions:

It is forbidden to touch the contacts of the connections that have a warning symbol on the marking about sensitivity to electrostatic discharge.

Precautions must be taken before connecting to these connections.

	Manufacturer's manual and declaration (electromagnetic radiation)		
	Dental unit "GALLANT K-5" is intended for use in the following electromagnetic environment. The customer or user is obliged to ensure operation under the following environmental conditions.		
	Radiation test	**Conformity**	**Electromagnetic environment (recommendations)**
	RF radiation CISPR 11	Group 1	Dental unit "GALLANT K-5" uses high-frequency energy only for its internal functioning. Therefore, its high-frequency radiation is insignificant and is unlikely to cause any interference in the electrical equipment located nearby.
	RF radiation CISPR 11	Class B	Dental unit "GALLANT K-5" is intended for use in residential and non-residential premises, as well as in premises connected to a low-voltage power network, which is supplied to the premises for domestic use.
	Harmonic radiation МЕК 61000-3-2	Class A	
	Fluctuation voltage/ flicker МЕК 61000-3-3	Conforms	

Manufacturer's manual and declaration. Electromagnetic immunity			
The dental unit "GALLANT K-5" is intended for use in the following electromagnetic environment. The user of the dental unit "GALLANT K-5" is obliged to ensure operation in the same electromagnetic environment.			
Immunity test	**Test level МЕК 60601**	**Compatibility level**	**Electromagnetic environment (recommendations)**
Electrostatic discharge (ESD) МЕК 61000-4-2	±6 кV, contact discharge ±8 кV, air discharge	±6 кV, contact discharge ±8 кV, air discharge	The floor should be made of wood, concrete or ceramic tiles. If the floor is covered with a synthetic coating, the relative humidity should be at least 30%.
Short-term impulse disturbances МЕК 61000-4-4	±2 кV for the power line ±1 кV for line in/out	±2 кV for the power line ±1 кV for line in/out	The requirements for the electrical network as a power source are the same as for medical premises.
Impulse disturbances of great energy МЕК 61000-4-5	±1 кV between the lines ±2 кV between lines and ground	±1 кV between the lines ±2 кV between lines and ground	The requirements for the electrical network as a power source are the same as for medical premises.
Voltage drops, short-term voltage interruptions and changes in the mains supply voltage МЕК 61000-4-11	<5% U_T (voltage drop U_T >95%) for 0.5 period 40% U_T (voltage drop U_T 60%) for 5 periods 70% U_T (voltage drop U_T 30%) for 25 periods <5% U_T (voltage drop U_T >95%) during 5 seconds	<5% U_T (voltage drop U_T >95%) for 0.5 period 40% U_T (voltage drop U_T 60%) for 5 periods 70% U_T (voltage drop U_T 30%) for 25 periods <5% U_T (voltage drop U_T >95%) during 5 seconds	The requirements for the electrical network as a power source are the same as for medical premises. If uninterrupted operation of the "GALLANT K-5" dental unit is required, in the event of interruptions in the power supply network, it is recommended to power the "GALLANT K-5" dental unit from an uninterruptible power source or batteries.
Magnetic fields with the frequency of the network МЕК 61000-4-8	3 A/m	3 A/m	The requirements for the magnetic field of the industrial frequency must correspond to the values established for medical premises.
Note. U_T – changeable voltage in network before applying the test level.			

Manufacturer's manual and declaration. Electromagnetic immunity

The dental unit "GALLANT K-5" is intended for use in the following electromagnetic environment. The user of the "GALLANT K-5" installation is obliged to ensure operation in the same electromagnetic environment.

Immunity test	Test level МЕК 60601	Conformity level	Electromagnetic environment (recommendations)
Conductive radio interference МЕК 61000-4-6	3 V (root mean square value) from 150 kHz to 80 MHz, except for the bands ПНМ[a]	3 В	The distance between the used portable or mobile RF communication equipment and any node of the "GALLANT K-5" dental unit, including cables, should be at least the recommended minimum distance, which is calculated from the formula for the corresponding part of the transmitter. **Recommended distance:** $d = 1{,}2\sqrt{P}$
Radiated radio interference МЕК 61000-4-3	3 V/m from 80 MHz to 2.5 GHz	3 В/м	$d = 1{,}2\sqrt{P}$ (from 80 MHz to 800 MHz) $d = 2{,}3\sqrt{P}$ (from 800 MHz to 2.5 GHz) where P is the maximum output power of the transmitter in watts (W) according to the data of the transmitter manufacturer, and d is the recommended distance of the equipment in meters (m).[b] The intensity of the field created by stationary radio transmitters is determined by electromagnetic research,[a] should be less than the level of compatibility in each frequency range.[b] Interference may appear near equipment marked with the following symbol: 

***Note 1.** At 80 MHz and 800 MHz, the value for the upper frequency range applies.

***Note 2.** These recommendations do not apply to all situations. The propagation of electromagnetic waves is affected by absorption and reflection caused by structures, objects and people.

a The field strength generated by fixed transmitters, such as radiotelephone (mobile/wireless) base stations, land mobile radio stations, amateur radio stations, AM and FM radio broadcast transmitters, and television broadcast transmitters, cannot theoretically be accurately predicted. In order to assess the electromagnetic environment affected by fixed radio transmitters, an on-site electromagnetic immunity study should be provided.

If the measured values of the field strength at the place of operation of the dental unit "GALLANT K-5" exceed the compatibility level specified above for this case, then the normal functioning of the dental unit "GALLANT K-5" should be checked for some time. If there are deviations from normal functioning, then additional measures should be taken, for example, change the location of the dental unit "GALLANT K-5".

b In the entire frequency range from 150 kHz to 80 MHz, the field strength must be at least 3 V/m.

Recommended safe distance between portable and portable radio communication devices and the equipment or system

The dental unit "GALLANT K-5" is intended for use in an electromagnetic environment in which radiated radio interference is controlled. The user of the dental unit "GALLANT K-5" can ignore electromagnetic interference if he observes the minimum distance between portable and mobile radio communication devices (radio transmitters) and the recommendations below, in accordance with the maximum output power of the radio communication equipment.

Standardized maximum output power of the transmitter, W	**Distance depending on the frequency of the transmitter, m**		
	From 150 kHz to 80 MHz $d = 1,2\sqrt{P}$	**From 80 MHz to 800 MHz** $d = 1,2\sqrt{P}$	**From 800 MHz to 2.5 GHz** $d = 2,3\sqrt{P}$
0,01	0,12	0,12	0,24
0,1	0,37	0,37	0,74
1	1,17	1,17	2,34
10	3,69	3,69	7,38
100	11,67	11,67	23,34

For transmitters whose maximum output power is not listed above, the recommended distance in meters (m) can be calculated using the formula applied to the frequency of the transmitter, where P is the maximum rated output power of the transmitter in watts (W) as specified by the manufacturer of that radio transmitter.

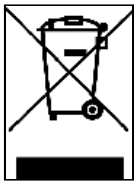
Note 1. At 80 MHz and 800 MHz, a higher frequency range is used.

**** Note2.*** These recommendations do not apply to all situations. The propagation of electromagnetic waves is affected by their absorption and reflection from premises, objects and people.

8 Disposal

Disposal of units

According to directive 2002/96/EC, to prevent environmental pollution and injury during disposal, please follow the disposal laws.



It is possible that the unit is infected. Be sure to report this to the business so that appropriate security measures can be taken.

Uncontaminated plastic parts can be sent for plastic renewal.

Electronic boards and electronic components must be disposed of as electronic scrap.

Other metal parts (e.g. housing) must be disposed of as scrap metal.

Other components of the installation can be disposed of in accordance with the applicable local disposal instructions.

If the installation must be permanently decommissioned, contact the manufacturer or seller of this installation.

Appendix A. Checking parameters of dental equipment.

product	Dental unit “GALLANT K-5”
Serial number	
date	

In the interests of personnel safety and the proper functioning of the equipment, it is necessary to conduct an electrical safety inspection of the dental unit every year in accordance with the IEC 60601-1-1 standard
The owner is responsible for organizing this inspection, as well as for ensuring that the technicians who carry out the inspection of electrical safety equipment are highly qualified specialists.

Table 1

№	Electrical safety parameter	Item of standard IEC 60601-1-1	Normative index	Available Index (Filled in by a representative of Quality Dpt.)	Available Index (Filled in by the person responsible for installing the unit)
1.	Checking the protective grounding, Ohm	i. 8.6	< 0,2		
2.	Checking the leakage current to the ground, µA	i. 8.7.4.5	< 500		
3.	Checking the leakage current per patient, µA	i. 8.7.4.7	< 100		

Representative of Quality Dpt. _____ (_____)

Person responsible for mounting the unit _____ (_____)

For convenience, the form of the electrical safety equipment inspection report is provided below:

after 1 year

Check date	№	Electrical safety parameter	Normative index	Available index	Signature
	1	Checking the protective grounding, Ohm	< 0,2		
	2	Checking the leakage current to the ground, µA	< 500		
	3	Checking the leakage current per patient, µA	< 100		

after 2 years

Check date	№	Electrical safety parameter	Normative index	Available index	Signature
	1	Checking the protective grounding, Ohm	< 0,2		
	2	Checking the leakage current to the ground, µA	< 500		
	3	Checking the leakage current per patient, µA	< 100		

after 3 years

Check date	№	Electrical safety parameter	Normative index	Available index	Signature
	1	Checking the protective grounding, Ohm	< 0,2		
	2	Checking the leakage current to the ground, µA	< 500		
	3	Checking the leakage current per patient, µA	< 100		

after 4 years

Check date	№	Electrical safety parameter	Normative index	Available index	Signature
	1	Checking the protective grounding, Ohm	< 0,2		
	2	Checking the leakage current to the ground, μA	< 500		
	3	Checking the leakage current per patient, μA	< 100		

after 5 years

Check date	№	Electrical safety parameter	Normative index	Available index	Signature
	1	Checking the protective grounding, Ohm	< 0,2		
	2	Checking the leakage current to the ground, μA	< 500		
	3	Checking the leakage current per patient, μA	< 100		

after 6 years

Check date	№	Electrical safety parameter	Normative index	Available index	Signature
	1	Checking the protective grounding, Ohm	< 0,2		
	2	Checking the leakage current to the ground, μA	< 500		
	3	Checking the leakage current per patient, μA	< 100		

after 7 years

Check date	№	Electrical safety parameter	Normative index	Available index	Signature
	1	Checking the protective grounding, Ohm	< 0,2		
	2	Checking the leakage current to the ground, μA	< 500		
	3	Checking the leakage current per patient, μA	< 100		

after 8 years

Check date	№	Electrical safety parameter	Normative index	Available index	Signature
	1	Checking the protective grounding, Ohm	< 0,2		
	2	Checking the leakage current to the ground, μA	< 500		
	3	Checking the leakage current per patient, μA	< 100		

after 9 years

Check date	№	Electrical safety parameter	Normative index	Available index	Signature
	1	Checking the protective grounding, Ohm	< 0,2		
	2	Checking the leakage current to the ground, μA	< 500		
	3	Checking the leakage current per patient, μA	< 100		

after 10 years

Check date	№	Electrical safety parameter	Normative index	Available index	Signature
	1	Checking the protective grounding, Ohm	< 0,2		
	2	Checking the leakage current to the ground, μA	< 500		
	3	Checking the leakage current per patient, μA	< 100		

Approved
Director of PC “Galit”
_____Zolotyy V.P.
«___»_____20___

9. General warranty terms and conditions

1. PC "GALIT" provides a guarantee for products of its own production and products of other manufacturers, sold by the company, within 12 months from the date of sale, unless other terms are specified in the accompanying documentation for the products.

2. Warranty services are performed by free repair or replacement of a defective part (subassembly).
Cost of arrival of a service employee (or a technical specialist of a sales representative) to fulfil warranty obligations is a paid service according to the approved rates of the Service Center of PC "GALIT". Decision on the method of repair is made by the service department of PC "GALIT", provided that the defects are caused by poor-quality assembly, or poor-quality materials and components within no more than 10 working days from the receipt of the malfunction registration sheet. The term can be extended up to 30 working days if the malfunction requires sending the product for repair or analysis of the occurrence of the malfunction to a foreign company of the manufacturer.

3. A necessary condition for provision of warranty services is presence of the following documents:
1) this duly completed Warranty card, which must be kept;
2) a completed and registered Tear-off coupon, which must be sent to the manufacturer;
3) a completed and certified Record of Warranty Repair, which must be sent during the repair;

4. **Acceptance of equipment for performance of warranty services is carried out by GALIT company at the address**:

PC GALIT, 6 Є, 15 Kvitnya str., v. Baikivtsi, Ternopil region, 47711, Ukraine.

5. The buyer, on his own or through regional representatives of PC GALIT, at his own expense, ensures delivery of defective parts (assemblies) with the Failure Registration Sheet to the above address. Defective parts (assemblies) delivered to PC GALIT must be disinfected and sterilized (for products subject to autoclaving). Defective parts (assemblies) must have original packaging that guarantees safe delivery to the Service Centre.

6. The decision whether a defective component is covered by the warranty is up to PC Galit.

7. Performance of warranty services for overall equipment at the place of installation is provided by regional representatives of the service department of PC GALIT, or technical specialists of sales representatives through whom the equipment was purchased. The condition for the technician's visit to the place of installation of the equipment is a properly filled out and certified malfunction registration sheet and sent to the address of the regional representative of PC "Galit".

8. The warranty does not apply to:
- products with damaged control seals that prevent unauthorized intervention,
- products damaged during transportation or storage;
- products in which arbitrary intervention or arbitrary modifications have been carried out;
- products with defects caused by violation of operating instructions;
- products, in case of non-fulfilment of the requirements for care and maintenance according to the operating instructions (including the materials used and the periodicity of routine work), or other accompanying documents;
- defects in the operation of products and defects caused by non-compliance with the requirements of accompanying documents regarding networks of compressed air, drainage (sewage), electricity and water supply;
- parts and assemblies, the defects of which are caused by natural wear, mechanical damage or the action of chemicals not provided for in the accompanying documents, during operation;
- light bulbs, micromotors, tips, turbines and other tools.
- bulbs of shadowless and surgical lamps.
- all types of electric fuse links.
- nozzles of pneumatic and ultrasonic scalers.
- LEDs of photopolymerization lamps and lights.

9. The warranty conditions do not provide for periodic maintenance and routine work, which the user of the equipment must perform independently in accordance with the operating instructions for the products

10. In the case of an unjustified request for warranty service, the Buyer is obliged to compensate for all expenses of PC "Galit" (or a sales representative) related to the arrival of a technician, according to the approved prices of the Service Centre. In the event of the Buyer's refusal of compensation, the warranty for this product is removed. The decision on the validity of the appeal is taken by PC "Galit" (or its sales representative).

Form №2-warranty

Manufacturer : Private Company “GALIT”
Identification code by ЄДРПОУ: 30938037
Address: 6 Є, 15 Kvitnya str., v. Baikivtsi, Ternopil region, 47711, Ukraine.
Telephone #: (0352) 43 38 07

WARRANTY COUPON
Valid after completion

To be filled by Manufacturer-enterprise	
Dental equipment	Model
Factory №	Date of Manufacture
Representative of Quality Dpt. Of Manufacturer-enterprise	(Quality Dpt. stamp)
Address for submitting claims to the quality of work:	PC “GALIT”, 6Є, 15 Kvitnya Str., vil. Baikivtsi, Ternopil region, 47711, Ukraine Tel. (0352) 43 38 07
To be filled by trade enterprise	
Date of sale _____ (day, month, year)	Sales clerk _____ (signature or stamp)
Shop stamp	

The reverse side of the warranty coupon

To be filled by the executor of the warranty service	
The name of the company performing warranty service	
Address of the company performing warranty service	
Number, name of the month, year of acceptance for warranty service	
The number under which the dental unit is registered under warranty	

Accounting for maintenance and warranty repair work			
Date	Description of shortcomings	The content of the work performed, the name and type of the replaced components, component parts	Signature of the executor with decipherment / sealer's number

The warranty period of operation has been extended

till ____ _____ 20____ .

till ____ _____ 20____.

till ____ _____ 20____.

_____ _____

(full name of the responsible person of the executor) (signature)

LOG BOOK of accounting for warranty repair (maintenance)

The number under which the product is registered under warranty	Registration date	Full name, address, phone number of the consumer	Product name and factory number. Factory number of the component product, component part	Nature of the shortcomings	Remarks of the performer during the acceptance of the goods for repair	Repair deadline	Date and signature of the consumer on receipt of the goods after repair

The number under which the product is registered under warranty	Registration date	Full name, address, phone number of the consumer	Product name and factory number. Factory number of the component product, component part	Nature of the shortcomings	Remarks of the performer during the acceptance of the goods for repair	Repair deadline	Date and signature of the consumer on receipt of the goods after repair

COUPON for putting into operation within 12 months of the warranty period of operation

Valid after filling

COUPON for putting into operation the dental unit "GALLANT K-5" must be sent to the address of the company "Galit" within 10 days from the moment of installation.

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Regional Representative	
Dental Unit User	
Dental Unit GALLANT K-5	
Model	
Factory №	
Date of Manufacture	
Date of putting the dental unit into operation	
Address of the Dental Unit location:	
Postal code of the city	
City	
Street	
Building	
Apartment (Office)	
Signature and full name of the person or service department that installed and connected the dental unit	
Contact telephone	
Signature and full name of the unit owner to confirm the commissioning of the dental unit	
Contact Telephone №	

==========

COUPON for putting into operation “GALLANT K-5” DENTAL UNIT

(reverse side)

Composition of the dental unit

NAME OF COMPONENT	FACTORY NUMBER
Foot control	
Lamp	
Micromotor	
Micromotor	
Micromotor	
Syringe	
Curing lamp	
Coagulator	
Scaler	
Separator	
Water unit heater	
Doctor table heater	
Monitor	
Camera	

The person responsible for packing _____ (_____)

Representative of Quality Dpt. _____ (_____)