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SYMBOLS USED IN THIS MANUAL



Danger

The paragraphs marked with this symbol contain instructions to be followed carefully to avoid damage to the device, the operator and the patient.



Prohibition

This icon identifies what to prevent doing to avoid damage to the device.



Warning

These instructions warn to be very careful to avoid situations which could damage the device.



Suggestions

With this icon information is supplied permitting more effective use of the device.

SAFETY RULES

Follow all instructions set forth in this manual.



- **The device is to be used in a dental practice only by medical personnel .**
- **The device must be sterilized before use it each time.**

- **The device is not delivered sterilized, therefore it must be sterilized before use it.**



- **Sterilization parameters must be in conformity with the Official Pharmacopoeia 121°C (249,8°F) to 135°C (275°F).**

- **Do not immerse the device in any disinfecting liquid.**
- **Before sterilization the device must always be cleaned (see page 37).**

- The device must be installed by the user on a specific power supply system (dental unit) and be connected to a cable.



- **Never push the button when the Turbine is still rotating.**
- **Systems of clamping to the cables meet with EN standards 29168.**



- **Fit in the turbine only burrs with stems meeting with ISO standards 1797.**

- **Make sure the burr is perfectly seated.**

- **The DELTA version with light is not protected against liquids penetration.**



- **Do not attempt to repair the device yourself. Only perform operations set forth in this manual. Any operation not described in this manual could prejudice the safety designed into the device. In all other cases apply to our Service Department.**



- The "DELTA" turbines must be used only for the purpose described.
- When the equipment is packed for shipment or stock, it can lie for maximum 15 weeks to environment conditions that do not exceed the following ranges:
 - ⇒ **Sorrounding temperature of -20°C (-4°F) or +70°C (158°F)**
 - ⇒ **Relative humidity from 10% to 90%**
 - ⇒ **Atmospheric pressure from 500 to 1060 mBar.**
- **This turbine in the version with light must be powered in conformity with CEI EN 60601-1.**

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FEATURES

The purpose of the device is to provide movement to a rotating body (i.e. a burr) for performance of specific dental operations.

"DELTA" turbine is produced in the following versions:

Delta P/1 with push button Borden - 4 ways or Quick Connection coupling

Delta P/3 with push button Borden - 4 ways or Quick Connection coupling

Delta LP/1 with push button light and Quick Connection

Delta LP/3 with push button light and Quick Connection



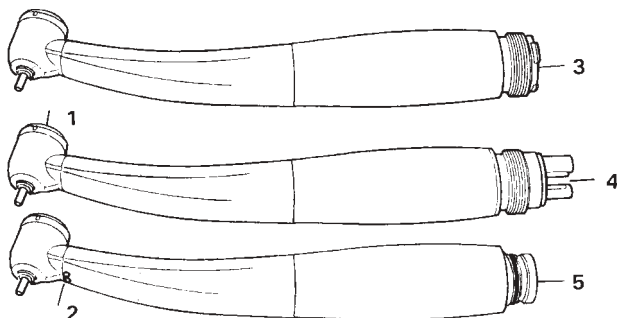
ALL DELTA TURBINES HAVE A CONTAMINATED-LIQUID HOLDING SYSTEM.

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- **Delta 1 and Delta 3 turbine versions have two different cooling systems.**
 - ⇒ Cooling with one spray jet gives a better view of the operating area.
 - ⇒ Cooling with three spray jets gives total spreading of spray for specific operations.
- **Burr replacement system by pressing push button is provided on the turbine head.**
- **Versions with Borden and 4-ways connections to cable.**
- **Quick connection system to cable.**
- **Optical fiber version** providing illumination of the operating area and Quick connection system to cable.
- **All DELTA versions can be sterilized in an autoclave in conformity with the Official Pharmacopoeia 121°C (249,8°F) to 135°C (275°F).**

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DESCRIPTION OF PARTS



- 1 Push button
- 2 Optical fiber
- 3 Borden coupling
- 4 4-ways coupling
- 5 Quick Connection

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INSTALLATION

Check to make sure the following items are received:

- Dental turbine (Delta)
- Pins
- Operating manual

THE DEVICE CAN BE INSTALLED BY USER.

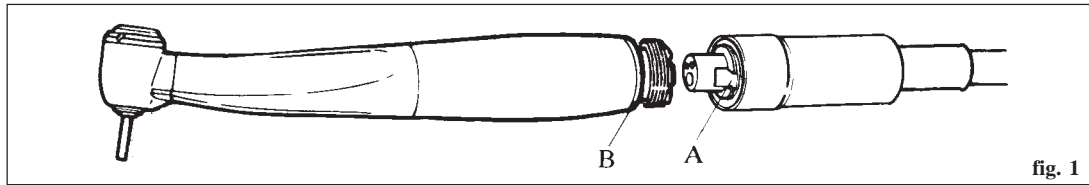
- Make sure that compressed air is dry and oilfree filtered.
- Screw the turbine to the ringnut of cable or fit it in the quick connection if there is one.
- In the **Quick connection** version fit the Quick connector in axial direction in the turbine, taking care **NOT** to hold it on the connecting ringnut.

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OPERATING INSTRUCTIONS



Test the turbine to make sure it rotates and air and water come out of the holes (spray). To prevent exhausted air from striking the hand, **DELTA turbines with Borden coupling** are made to exhaust into FARO cable. If the cable doesn't have this exhaust "A", **remove the O-ring "B"** using a small tool (fig. 1).



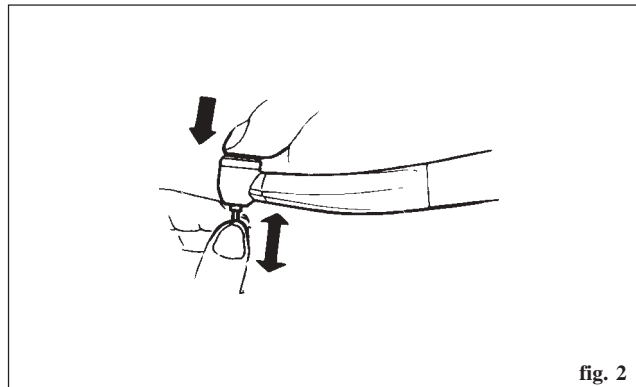
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Replacing the burr

To replace the burr in DELTA turbines just press the push button located on the head of the device (fig. 2).



The push button burr locking system is designed to be fully effective when it is rotating. Therefore do not attempt to remove the burr with the turbine stopped, without pressing the push button, to avoid damaging the locking system.



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MAINTENANCE

Cleaning



This device can be sterilized in conformity with the parameters of the Official Pharmacopoeia (for example 121°C [249,8 °F] to 135°C [275 °F]).

The device must be sterilized after each patient.



Before sterilization the device must always be cleaned externally with a brush under running water or with an alcohol-based solution.



DELTA turbines can be disinfected externally with a chemical disinfectant (disinfection with spray or with moistened cloth).

Do not leave DELTA turbines immersed in a disinfection liquid.

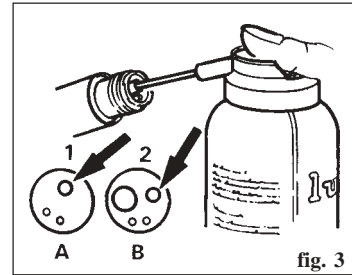
This device cannot be cleaned in thermodisinfectors.

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Lubrication

DELTA turbines must be lubricated either daily and before and after each sterilization by spraying the special FARO lubricant into the rear (do not use other lubricants). To lubricate the turbines with Borden "A" or 4-ways "B" couplings, proceed as follows (fig. 3):

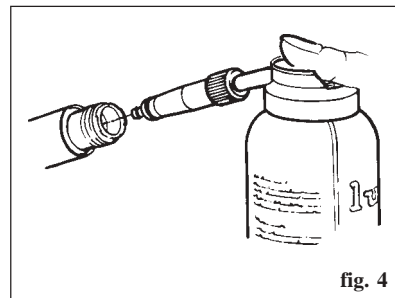
- Unscrew the ringnut connecting the cable to the turbine.
- Spray lubricant into the device by inserting the white aerosol bottle injector in holes "1" and "2".
- Reconnect the cable to the device and run it in vain for a few seconds.



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To lubricate turbines designed for "QUICK CONNECTOR" proceed as follows (fig. 4):

- Disconnect the turbine by sliding the ringnut of the Quick connector axially.
- Fit the lubricant aerosol bottle injector in the hole of the turbine and spray in the lubricant.
- Remove the injector from the turbine and connect it to the Quick connector. Run the device in vain for a few seconds.



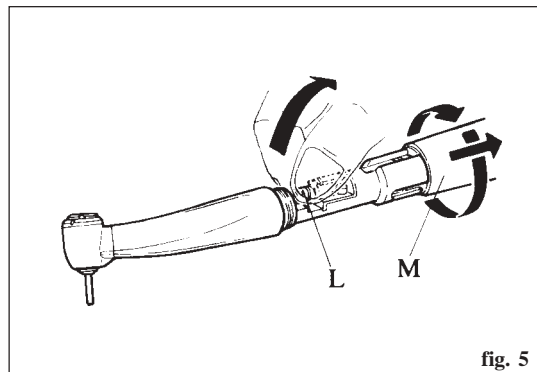
ALWAYS LUBRICATE THE TURBINE BEFORE AND AFTER EACH STERILIZATION.

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Changing light bulb

To change light bulb "L", proceed as follows (fig. 5):

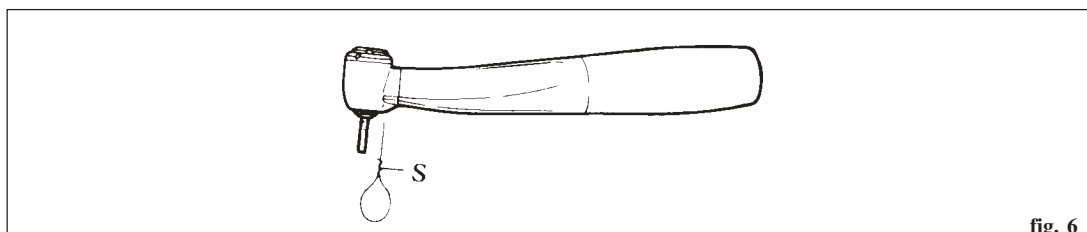
- Disconnect the turbine by sliding the ringnut of the Quick connector axially.
- Unscrew the sleeve "M" of the turbine body counterclockwise and withdraw it up to stop.
- Remove light bulb with fingers.
- Fit the new light bulb being careful to snap it correctly into position in its seat.
- Screw down the sleeve and connect the cable.



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Cleaning nozzles

If the small holes from which emerge water and air are clogged, free the passage **using the provided pin "S"** (fig. 6). It is recommended to carry out this operation regularly once a week.



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TROUBLESHOOTING

The turbine sounds different, it vibrates too much and cutting power is reduced.

- Call our Service Department.

The optical fiber turbine does not light.

- Check light bulb condition and replace it if necessary (see page 40).
- In case of difficulty call our Service Department.

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No water or spray comes out of the turbine.

- Disconnect the turbine from the power supply and check if water comes out. If not, call our Service Department.
- Check to see if the holes in the turbine are clogged and if necessary clean them (see page 41).
- In case of difficulty, call our Service Department.

The burr locking system or the rotor are damaged.

- Call our Service Department.

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DATA SHEETS

Direct coupling Delta turbine

Borden 3 ways

4 ways

Rotation Speed [rpm]	: 425.000	420.000
Power output [W]	: 12,5	12,3
Operating pressure [bar]	: 2,4 ± 0,2	2,4 ± 0,2
Air consumption [l/min]	: 43	41
Max water consumption [ml/min]	: 80	80
Noise level [dB (A)]	: < 60	< 60
Vibrations [m/s ²]	: < 2,5	< 2,5
Head dimensions [mm]	: Ø 11,7 / H 14	Ø 11,7 / H 14
Weight [g]	: 71	74

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Quick connection Delta turbine / Delta light turbine

3 ways

4 ways / lux

Rotation Speed [rpm]	: 420.000	410.000
Power output [W]	: 10,5	10,9
Operating pressure [bar]	: 2,6 ÷ 0,2	2,6 ÷ 0,2
Air consumption [l/min]	: 43	45
Max water consumption [ml/min]	: 80	80
Noise level [dB (A)]	: < 60	< 60
Vibrations [m/s ²]	: < 2,5	< 2,5
Head dimensions [mm]	: Ø 11,7 / H 14	Ø 11,7 / H 14
Weight [g]	: 69	69/70

Light bulb data sheets

Power supply [V]	: 3,5
Current input [mA]	: 760
Power input [W]	: 2,6

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The Quick connection DELTA turbines are designed to be powered with higher pressure supply. In the device pressure is regulated automatically by a flowrate limiting valve.

CLASSIFICATION OF "DELTA Turbine with light" DEVICE

- Device of Class II.
- Device of Type B.
- Device not protected against liquids penetration.
- Device not suitable for use in presence of anesthetic mixtures inflammable with air, oxygen or nitrous oxide.



To obtain a safe system the use of a FARO electronic circuit is recommended.

GUARANTEE CERTIFICATE

FARO grants to the final customer a **12-months** guarantee for the device and **6-months** guarantee for the rotor starting from the date of the purchase invoice. Repairs under the guarantee shall be done at the **FARO** premises or by an authorized **FARO Service** person with transportation costs and risks at the expense of the purchaser. The guarantee certificate found on the endleaf of this booklet is considered valid only if it is entirely completed and bears the reseller's stamp. Repairs under guarantee (during the period of effectiveness) will be done only if the article to be repaired is accompanied by the shipping note or purchase invoice. The guarantee covers failures due to poor material quality or manufacturing defects and in case of legitimate claim the guarantee will allow repair or replacement free of charge. **No compensation for damages and/or interest will be recognized.** The guarantee is not deemed valid in the final judgment of FARO in case of tampering, damage, incorrect use, faulty maintenance or normal wear. The guarantee does not cover light bulbs and fuses.

DECLARATION OF CE CONFORMITY

The manufacturer: **FARO S.p.A.**
Via Faro, 15
20060 Ornago (Milano) ITALY

declares under its own responsibility that following product:

Product name: **Dental Office Turbine**

Model in the version: **Delta**

It is factory new in accordance with the provisions of art. 6 para 2 of D.L. 626/94

It fully conforms to the following European directives and national acceptances:

93/42/CEE (medical devices directive)

Class which the equipment belongs to: **IIa**

It conforms to the following standards:

CEI EN 60601-1

CEI EN 50081-1

CEI EN 50082-1

CEI EN 55022

IEC 801-2

IEC 801-3

IEC 801-4

Dott. Angelo Favonio
Managing Director

DATA SHEETS

Direct coupling Delta turbine

	<i>Borden 3 ways</i>	<i>4 ways</i>
Rotation Speed [rpm]	: 425.000	420.000
Power output [W]	: 12,5	12,3
Operating pressure [bar]	: 2,4 ± 0,2	2,4 ± 0,2
Air consumption [l/min]	: 43	41
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Vibrations [m/s ²]	: < 2,5	< 2,5
Head dimensions [mm]	: Ø 11,7 / H 14	Ø 11,7 / H 14
Weight [g]	: 71	74

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<i>Quick connection Delta turbine / Delta light turbine</i>	<i>3 ways</i>	<i>4 ways / lux</i>
Rotation Speed [rpm]	: 420.000	410.000
Power output [W]	: 10,5	10,9
Operating pressure [bar]	: 2,6 ÷ 0,2	2,6 ÷ 0,2
Air consumption [l/min]	: 43	45
Max water consumption [ml/min]	: 80	80
Noise level [dB (A)]	: < 60	< 60
Vibrations [m/s ²]	: < 2,5	< 2,5
Head dimensions [mm]	: Ø 11,7 / H 14	Ø 11,7 / H 14
Weight [g]	: 69	69/70
<i>Light bulb data sheets</i>		
Power supply [V]	: 3,5	
Current input [mA]	: 760	
Power input [W]	: 2,6	

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Managing Director

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