DENTAL LIGHT

048 CE

Operating Instructions

Belmont

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Intended Use of the Product

This product is intended for the exclusive use for diagnoses, treatments and relative procedures of dentistry, and must be operated or handled by the qualified dentists or by dental staffs under the supervision of the dentist.

Such dentists or dental staffs should instruct and/or assist the patients to approach to and leave from the product.

Patients should not be allowed to operate or handle the product unless he/she is so instructed.

Environmental Requirements

Ambient Temperature	Operating +5℃ - +40℃	Storage -10℃ - +50℃
Humidity	10 % - 80%	
Atmospherical Pressure	600 hPa - 1060 hPa	

Important Notes

In case of the troubles, please contat Takara Belmont offices or your dealers.

Do not disassemble or attempt to repair.

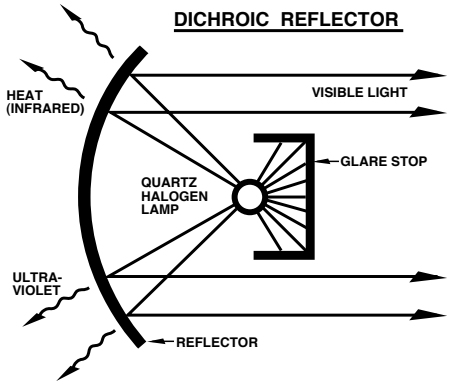
Disassembly, repair or modifications shoud only be done by a qualified repair technician.

Attempts at disassembly, repair or modifications may lead to abnormal operation and accidents.

[1] SPECIFICATIONS

Rated Voltage .....AC 230V
Output Voltage .....12V High, 10.5V Low
Power Output .....55W High, 42W Low
Bulb Type.....Tungsten Halogen
Type JA 12V-55W
Focal Distance.....725mm

Light Output.....28,000 Lux High
18,000 Lux Low
Color Temperature .....3,700 Kelvin High
3,600 Kelvin Low
Light Pattern.....200 x 80 at 725mm
Service Life.....10 years

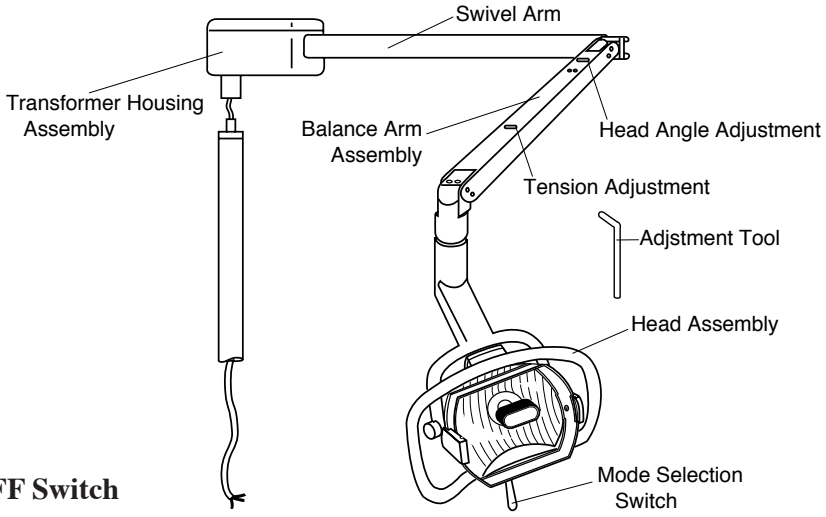


The Dichroic Reflector allows heat (infrared) and ultraviolet to pass harmlessly through the back of the lamp housing. Only white light is focused on the patient for reduced eyestrain and comfort.

The **Belmont** lights incorporate the latest advances in dental lighting technology. The light is color matched to natural daylight, is easily cleaned, has a dual intensity on-off control and smooth easy positioning.

[2] OPERATING INSTRUCTIONS

2-1. Major Parts Identification



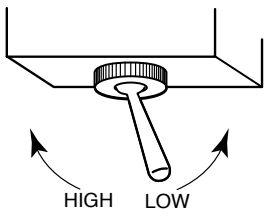
2-2. Dual Intensity ON/OFF Switch

1. High Beam; push toggle to left
2. Low beam; push toggle to right

Switch is conveniently located in light head enabling intensity to be changed from seated position.

Low intensity - for longer bulb life and examining facial surfaces.

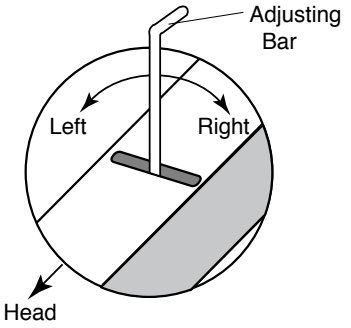
High intensity - for color matching and examining lingual surfaces.



[3] ADJUSTMENT COMPONENTS

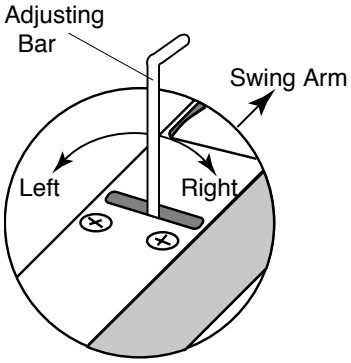
3-1. Balance Arm Adjustment. (Should drifting occur)

IMPORTANT; Use slot closest to head when making adjustment for drifting of balance arm. Insert adjusting bar into slot on top of balance arm, turn spring adjustment nut clockwise for more tension; counterclockwise for less tension.

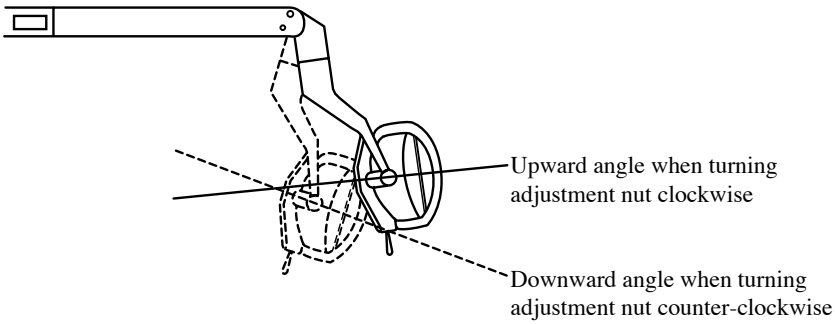


3-2. Head Angle Adjustment.

IMPORTANT; Use slot closest to swing arm (H-shaped casting bracket) when adjusting angle of head. Insert adjusting bar into slot on top of balance arm, turn head angle adjustment nut clockwise for downward angle; counterclockwise for upward angle.



*Adjusting bar is supplied in envelope with allen wrenches.



[4] Halogen Bulb Changing

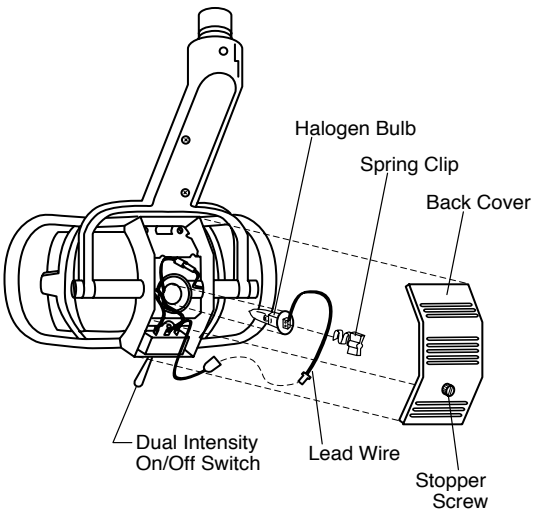
4-1. Halogen Bulb Changing

⚠CAUTION;

Halogen bulb and sorrounding parts may be hot immediately after the lamp goes off. Wait unit they get cool down.

IMPORTANT; Do not touch glass with bare hand. Halogen bulb surface must be clean. Oil or body moisture will affect bulb span of life. If glass surface is touched, clean with alcohol.

1. To install replacement halogen bulb, turn light off and remove back cover, by loosening stopper screw.
2. Push in spring clip and turn it counterclockwise to remove spring clip.
3. Pull off halogen bulb from lamp socket. Disconnect lead wire when bulb is completely removed.
4. Replace new Halogen bulb into the lamp socket, and connect lead wire.
5. After new bulb is seated in housing, insert and lock spring clip into position.
6. Reattach back cover.



[5] Maintenance Information

5-1. Cleaning

Allow light to cool prior to cleaning.

Use only soft cloth to prevent surfaces from being scratched. Cloth may be moistened with ethanol.

REFLECTOR : Extreme care should be taken to prevent scratching reflector surfaces, as this will degrade the performance of the light.

5-2. Lubrication

A drop of oil once a year at each pivot point will provide ample lubrication.

[6] ELECTROMAGNETIC COMPATIBILITY(EMC)

Medical electrical equipment needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in this manual.
Portable and mobile RF communications equipment can affect medical electrical equipment.
The equipment or system should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the equipment or system should be observed to verify normal operation in the configuration in which it will be used.

Guidance and manufacture's declaration - electromagnetic emissions		
The 048 is intended for use in the electromagnetic environment specified below. The customer or the user of the 048 should assure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment - guidance**
RF emissions CISPR 11	Group 1	The 048 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The 048 is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ Flicker emissions IEC 61000-3-3	Complies	

Guidance and manufacture's declaration - electromagnetic immunity			
The 048 is intended for use in the electromagnetic environment specified below. The customer or the user of the 048 should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic file. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	± 1 kV differential mode ± 2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycle 70% U_T (30% dip in U_T) for 25cycle <5% U_T (>95% dip in U_T) for 5 s	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycle 70% U_T (30% dip in U_T) for 25cycle <5% U_T (>95% dip in U_T) for 5 s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the 048 requires continued operation during power mains interruptions, it is recommended that the 048 be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE U_T is the a.c. mains voltage prior to applications of the test level.			

Guidance and manufacture's declaration – electromagnetic immunity

The 048 is intended for use in the electromagnetic environment specified below. The customer or the user of the 048 should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment — guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the 048, including cables, than the recommended separation distance calculated from the equation applications to the Frequency of the transmitter. **Recommended separation distance**
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz outside ISM bands[a]	3 Vrms	$d = 1.2 \sqrt{P}$
Radiated RF IEC 61000-4-3	3V/m 80 MHz to 2.5 GHz	3 V/m	$d = 1.2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2.3 \sqrt{P}$ 800 MHz to 2.5 GHz Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,[a] should be less than the compliance level in each frequency range.[b] Interference may occur in the vicinity of equipment marked with the following symbol: 

NOTE 1 At 80 MHz and 800MHz, the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by adsorption and reflection from structures, objects and people.

a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the 048 is used exceeds the applicable RF compliance level above, the 048 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the 048.

b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3V/m.

Essential performance (purpose of IMMUNITY testing)

There is no essential performance.

Recommended separation distances between Portable and mobile RF communications equipment and the 048

The 048 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the 048 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the 048 as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d = 1.2 \sqrt{P}$	80 MHz to 800 MHz $d = 1.2 \sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3 \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1 At 80 MHz and 800MHz, the separation distance for the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by adsorption and reflection from structures, objects and people.

EC REP

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