

ARIBEX™

NOMAD® DENTAL



*Portable X-ray System for
Intraoral Radiographic Imaging*

USER MANUAL







Disclaimer: NOMAD Dental is sold with the understanding that the user assumes sole responsibility for radiation safety (as well as any state, provincial, or local regulatory compliance) and that Aribex, Inc., its agents or representatives, do not accept responsibility for:

- a) injury or danger to personnel from x-ray exposure,
- b) image overexposure due to poor operating techniques or procedures,
- c) equipment not properly serviced or maintained in accordance with instructions contained in this publication, and
- d) equipment which has been modified or tampered with in any way.

DO NOT OPERATE THIS DEVICE UNTIL YOU HAVE READ THIS MANUAL and reviewed the accompanying materials.

See the *Certificate of Conformance* accompanying your device. NOMAD Dental is also cleared by the US Food and Drug Administration (FDA) as a medical device and complies with DHHS Radiation Performance Standard, 21 CFR Subchapter J.

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The symbols used in this publication and used to mark the equipment have the following meanings:	
	Caution or Attention, review documentation
	Ionizing Radiation
	Electrical Shock Hazard
	Instructions for handling product at end of life
	Double Insulation
	Type BF Equipment (providing a degree of protection against electric shock, pertaining particularly to allowable leakage currents)



NOMAD[®]

Dental

USER MANUAL

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Thank you for choosing the Aribex NOMAD® as your x-ray solution!

At Aribex we value your business and we would like to hear from you, because your feedback or suggestions are important to us. If you have comments, please email us: NOMAD@aribex.com

NOMAD Dental Features

- **Performance** – battery power source delivers dependable high voltage (60kV, true DC) and direct current (2.3mA).
- **Consistent Emission Radiation** – high-frequency, constant-potential x-ray generator provides high quality images, with a lower radiation dosage to the patient than standard AC x-ray systems.
- **Radiation Protection** – operator shielded from source and backscatter radiation.
- **Simple Operation** – exposure time is the only setting requiring operator input, digitally displayed on the user-friendly control panel along with indicators for machine and battery status.
- **Lightweight and Ergonomic** – design provides complete flexibility and convenience, enabling exposures without moving the patients.
- **Exposure Safety Feature** – cannot emit x-rays with insufficient voltage (low battery).
- **Engineered for Compatibility** – works with both film and digital imaging systems.
- **Authorized Service** – complete support and maintenance from Aribex and our authorized distributors.

1.0 Getting Started

1.1 Intended Use

The NOMAD Dental X-ray System is designed to be used for both adult and pediatric patients by trained dentists and dental technicians for producing diagnostic x-ray images.

1.2 Unpack, Check, and Register NOMAD

1 Unwrap individual components from the protective plastic and check for any noticeable signs of damage. The standard package system includes the following items:

- NOMAD Device with a Backscatter Shield attached
- 2 Non-Charged Batteries
- Battery Charger (the charger should be appropriate for local AC line voltage)
- Certificate of Conformance, User and Battery Charger Manuals, Warranty Card, and NOMAD Operator Training CD



2 Preliminary Checks:

Item	Check
Device Labels	Verify that the device labels (Serial Number Label on lower side of unit in front of the handle and Warning Label on the lower side behind the handle) are legible and in place.
Other Labels	Verify that the serial number on the Warranty/Registration card matches the device serial number and the device carrying case serial number.
Collimator Cone	Inspect for damage. The lead lining must cover the entire interior surface.
Control Panel	Should be smooth and free of nicks, scratches, or damage.
Trigger Switch	Should move freely in when depressed and out when released.
Device Housing	Should be free of cracks or fractures.

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③ Complete the product Warranty/Registration card and mail it with proper postage to Aribex today. Completing the card fulfills a condition of warranty coverage (see the inside back cover of this manual) and enables you to receive valuable product news and updates.

1.3 Charging the Battery

NOTE: Batteries are not charged at the factory and must be charged before the initial use of the NOMAD.

① Unwrap the power cord of the battery charger and connect it to an AC electrical outlet (110/120V or 220/240V, dictated by the country/region).

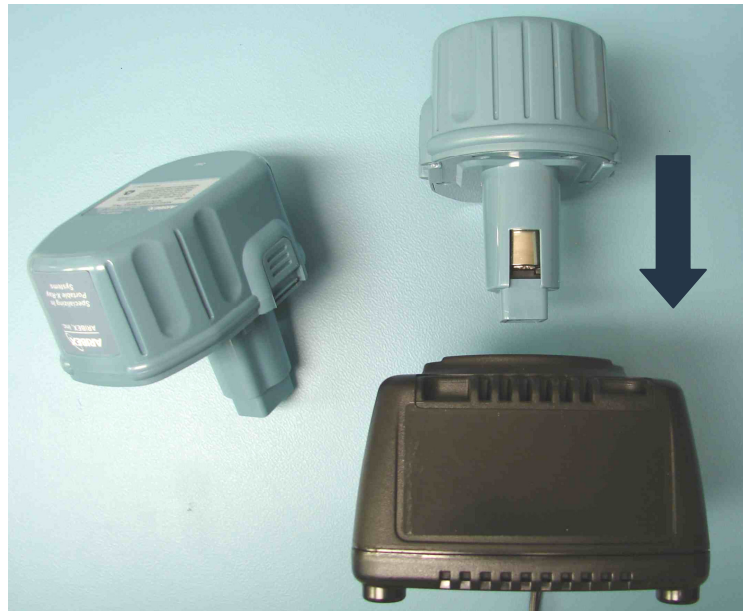
Position the battery charger away from the normal patient environment. A plug adapter may be used as needed; use only the supplied battery charger (for manufacturer and model info, see section 6.3, *Repair and Maintenance*).

② Invert one of the batteries and carefully plug it into the charger (do not force the battery into the charger or damage to the battery may result). The red indicator light ☀ on the top of the charger will flash at a steady rate while the battery is charging.

The required charge time varies (normally between 30 to 45 minutes). Battery and charger may become warm to the touch while charging, which is a normal condition.

③ When the battery is fully charged and ready to use, the indicator light ☀ will stop flashing and remain on continuously. Remove the charged battery and charge the second battery for future use.

④ Optimal battery life and performance occurs when the NiCad battery is fully discharged prior to recharging. (For more information review the accompanying battery charger Instruction Manual, also see section 5.0, *Battery Replacement*.)



2.0 Safety Precautions

2.1 Radiation Safety

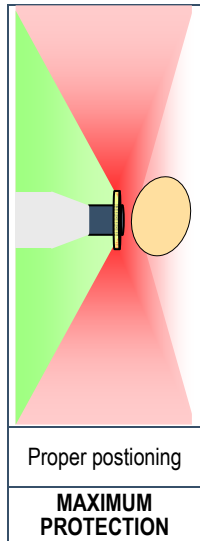
⚠ This x-ray unit may be dangerous to operator and bystander unless safe exposure factors and operating instructions are observed.



- ⚠ Operators must follow all guidelines dictated by applicable regulations and in-house radiation protection program in regard to patients and operators who are pregnant or expect to become pregnant.
- ⚠ Operators must be fully acquainted with safety recommendations and established maximum permissible doses.
- ⚠ Optimal operator radiation backscatter protection exists when:
 - a) the operator remains within the cone-shaped backscatter protection zone immediately behind the backscatter shield,
 - b) the backscatter shield is positioned at the outer end of the collimator cone,
 - c) the patient tilts their head when needed to accommodate exposures (see section 4.7), and
 - d) the backscatter shield is close to the patient.
- ⚠ Do not enable NOMAD until patient and operator are positioned and ready for the exposure, diminishing the likelihood of interruption and preventing inadvertent exposure of anyone to x-rays.
- ⚠ Do not attempt an exposure if anyone else is in the same room unless it is necessary that the patient be accompanied by another person, then that person must stay out of the direct beam and wear protective clothing.
- ⚠ When selecting and using Position Indicating Devices (PIDs), preference should be given to models that allow the backscatter shield to remain at the outer end of the collimator cone for maximum operator protection.

NOMAD

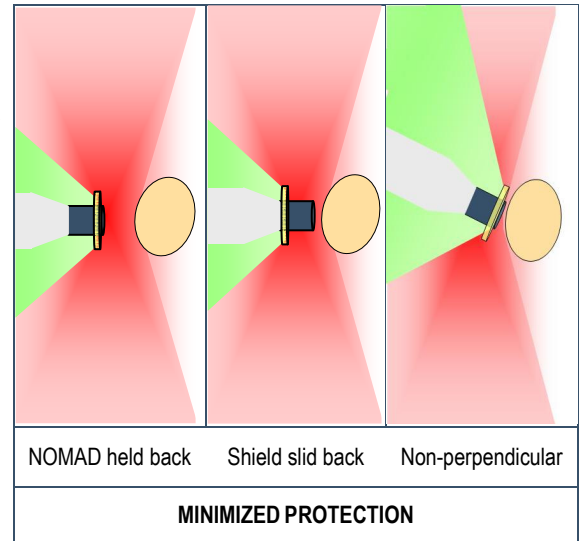
☢ An exposure can be terminated for any reason by abruptly releasing the depressed trigger (for more information see section 4.0, *Operation*).



☢ As shown in graphic representations, maximum protection (green area) from backscatter radiation (red area) exists when the NOMAD is positioned near the patient, is perpendicular to the operator (with the patient's head tilted if needed), and the backscatter shield is fully extended toward the patient.

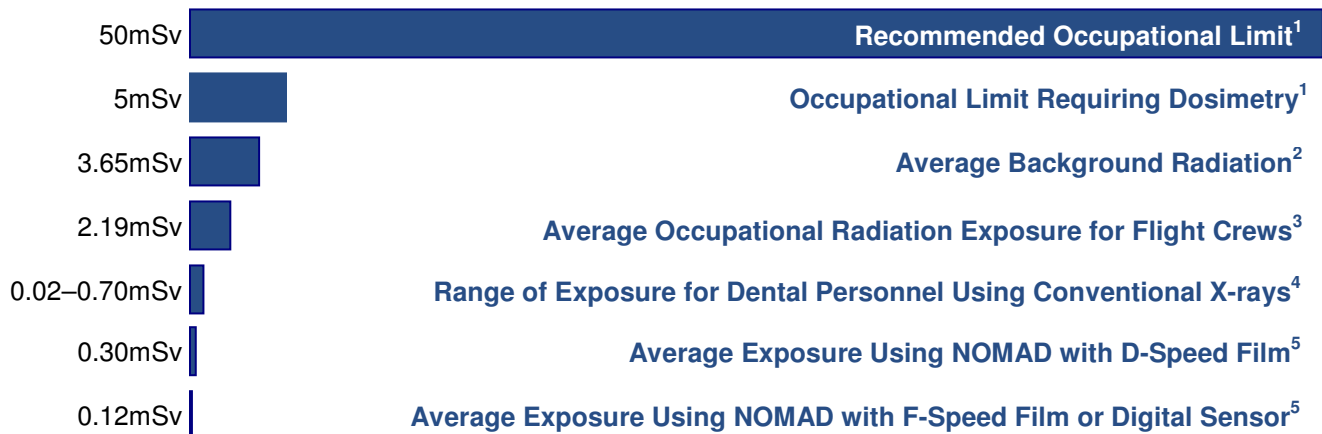
☢ Operation outside the protection zone (or with a diminished protective zone) requires proper precautions such as the use of lead aprons.

☢ **Do not operate with the backscatter shield removed!**



NOTE: In implementing a radiation protection program, please consult all applicable (state, provincial, and local) regulations governing radiation protection and the use of x-ray equipment, and ensure full compliance with any such regulations.

Comparative Data for Whole Body Exposure (Annual)



1) Standards for Protection against Radiation, 10 CFR 20 (US Federal Standards), 1994

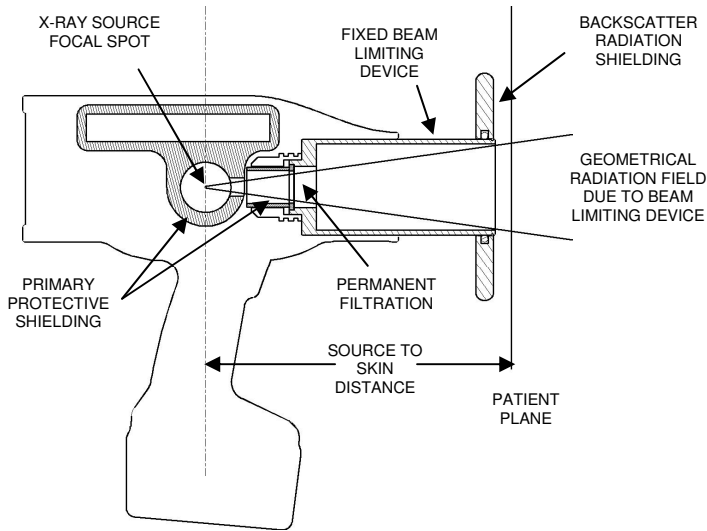
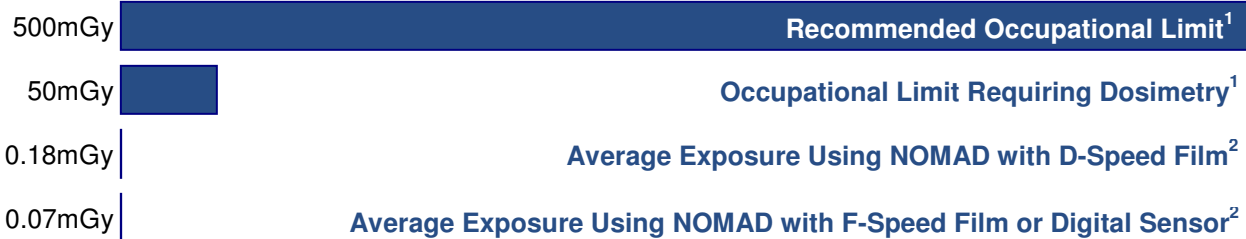
2) NCRP Report No. 145 (National Council on Radiation Protection and Measurements), p7

3) "Estimated Cosmic Radiation Doses for Flight Personnel", Feng YJ et al, *Space Medicine and Medical Engineering*, 15(4) 2002, p265-9

4) NCRP Report No. 145, p9

5) Normalized average assumes 7,200 exposures per year, and the average length of exposure for D-speed = 0.50 seconds, F-speed = 0.25 seconds, digital sensor = 0.20 seconds

Comparative Data for Hand and Extremity Exposure (Annual)



- Standards for Protection against Radiation, 10 CFR 20 (US Federal Standards), 1994
- Normalized average assumes 7,200 exposures per year, and the average length of exposure for D-speed = 0.50 seconds, F-speed = 0.25 seconds, digital sensor = 0.20 seconds

2.2 Usage

As a safety feature, NOMAD will not emit x-rays with insufficient voltage (low battery).

The NOMAD is also designed to avoid damage from overheating. The minimum duty cycle rating (the relationship between duration and frequency of exposures) is 1:60. Examples of optimal use:

Duration	0.25s	0.46s	0.50s	0.99s
Cycle	Every 15 sec	Every 28 sec	Every 30 sec	Every 60 sec



Do not operate NOMAD or the battery charger if either was immersed in liquid or subjected to an undue amount of moisture.

NOMAD



- There are no user serviceable parts inside the NOMAD.
- Do not open the device housing. Doing so will void the warranty.
- NOMAD should not be used in environments where flammable cleaning agents are present.
- Locate the battery charger away from the normal patient environment (see section 5.0, *Battery Replacement*).

2.3 Cleaning

- 1 Turn off the power and detach the battery before cleaning. Ensure the battery charger is unplugged before attempting to clean it.
- 2 Use a **non-acetone** based disinfectant wipe or a cloth to wipe the exterior surfaces of the NOMAD and charger.

NOTE: NOMAD and the accompanying battery charger are not designed to be subjected to any kind of sterilization procedure.

2.4 Security, Storage, and Transportation

- **NOMAD must be kept in a secure location**, such as a locked cabinet, when not in use to prevent unauthorized access.
- **The battery serves as the device *security key***. When finished with NOMAD for the day, detach the battery and lock it away in a separate location to prevent unauthorized use.
- Make sure NOMAD will not be knocked to the ground when not in use. Lay it on its side if necessary. Power will automatically shut off after a period of inactivity (approximately 2.5 minutes).
- Some battery charge is lost during extended inactivity (leading to fewer exposures between the battery charging).
- Do not store or carry batteries so that metal objects can contact exposed battery terminals.

- Do not store the NOMAD, battery charger, or batteries in extreme conditions: below -20°C / -4°F or above $+40^{\circ}\text{C}$ / $+105^{\circ}\text{F}$, or beyond 95% relative humidity (non-condensing). This storage location should be cool, dry, and away from direct sunlight.

3.0 Setup and Check

3.1 The Backscatter Shield

In addition to the lead-lined cone, the backscatter shield provides additional protection to you, the operator, and features an adjustable position to permit exposures made at various angles.

① Ideally, the shield should remain fully extended to the outer edge of the cone, as close to the patient as possible for each image taken (see 2.1, *Radiation Safety*).

② You may find that the backscatter shield needs to be adjusted to accommodate position indicating devices or angled exposures. If adjustments are needed, stand the NOMAD on-end on a stable surface and, while holding the backscatter shield perpendicular to the collimator cone (tube-shaped cone), gently glide the shield up or down along the cone using equal pressure to maintain a perpendicular alignment and avoid binding.

③ To keep the shield securely on the cone a retainer o-ring is permanently attached in the groove at the outer cone end. Do not attempt to remove this o-ring or to remove the backscatter shield, attempting to do so will result in damage to your device.



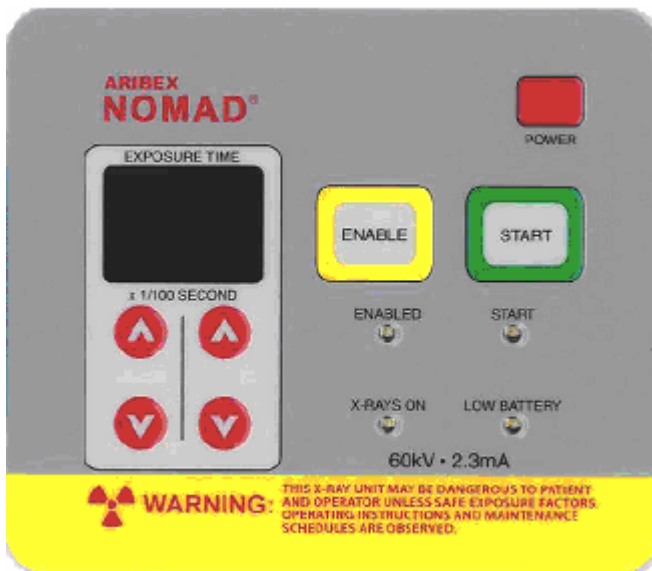
3.2 Attaching a Charged Battery

- 1 Properly orient and carefully insert the newly charged battery into the base of the NOMAD handle, (a properly oriented battery should click into place without force, forcing the battery into position may damage the battery and/or the NOMAD). The clicking sound ensures the snaps on both sides of the handle bottom are fastened.
- 2 Make sure the battery is secure by giving it a tug. NOMAD can be placed into service after the check for power (section 3.3).
- 3 Read the battery charger instruction manual for complete information on how to achieve the longest life and best performance from your batteries.



3.3 Checking for Power and Adequate Charge

NOMAD Control Panel



- 1 After inserting a fully charged battery, press and release the **POWER** button. The numeric (LED) display should illuminate, accompanied by a single, long audible signal ➤.
- 2 Check for adequate battery charge by making a non-patient test exposure, in a protected area so that it will not result in bystander or operator exposure.
- 3 If the battery is too low, the yellow **LOW BATTERY** indicator ⚠ at the lower right of the control panel will flash (accompanied by an intermittent audible signal ➤).

- 4 Once a battery is depleted, indicated by the **LOW BATTERY** alert, it **must** be recharged before use.
- 5 For continued use, insert the secondary, replacement battery (which should be charged in advance).

NOTE: See section 5.0, *Battery Replacement*, for more information.

3.4 Optional Checks

The NOMAD is factory calibrated and tested prior to release (see your *Certificate of Conformance*), there are no adjustment options. However, the optional checks listed below may be performed by a qualified technician as desired.



Test firing this x-ray unit may be dangerous to the testing technician or bystanders unless safe test exposure techniques are used such as the use a lead lined cap to cover the end of collimator or test firing in a protected area.

ON/OFF Switch: Install fully charged battery to NOMAD device. Press the **POWER** button and verify the ON and OFF conditions.

Increase/Decrease Switch (Up and Down Arrows): With the device turned ON, press each of the Increase then Decrease buttons and verify that the exposure times as displayed on the LED display change appropriately.

Enable Switch: With the device turned ON and the LED display set at 50 (500ms), press the **ENABLE** button and verify functional conditions. Wait approximately 30 seconds, at which point the enabled condition should expire.

Automatic Shut-Off: Press the **POWER** button to turn the device ON and wait for it to automatically shut off after approximately 2.5 minutes of inactivity.

See section 6.1, *Alarms and Alerts*, for more information.

4.0 Operation

4.1 Powering Up



POWER

Press and release **POWER** button to turn NOMAD on (after approximately 2.5 half minutes of inactivity, NOMAD shuts off automatically).

When the power is turned on a single, long audible signal \Rightarrow and an illuminated numeric (LED) display indicate the unit has power.



example

4.2 Ensuring Battery Charge Is Adequate

If the **LOW BATTERY** indicator \odot flashes, accompanied by an intermittent audible signal \Rightarrow , see sections 3.3, *Checking for Power and Adequate Charge* and 5.0, *Battery Replacement*.

For other error conditions, please see sections 6.1, *Alarms and Alerts* or 6.2, *Troubleshooting*.

LOW BATTERY



4.3 Ensuring the Right Exposure Time Is Set



increase

When power is turned off, the most recent setting for exposure time is stored in memory and redisplayed when power is turned back on. (However, if the battery is replaced, the display is reset to the 00 default value.)



decrease

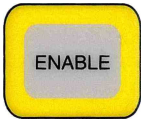
To change exposure settings press the increase or decrease buttons (by tenths / hundredths of a second). A single, short audible signal \Rightarrow confirms input when a button is pressed/released. (For example, **08** LED setting = 0.08 seconds; **35** LED setting = 0.35 seconds.)



example

4.4 Situating the Patient and Enabling the Device

Properly position the patient and yourself before enabling NOMAD (to prevent accidental exposure).



Press and release **ENABLE** to ready the device; be sure to re-enable NOMAD if any subsequent changes are made to the time setting prior to exposure.

The flashing, green **ENABLED** indicator ☼ and audible signal ⇒ (intermittent, double beep) confirm that NOMAD is enabled. This continues for 30 seconds or until an exposure is initiated.



4.5 Initiating and Completing an X-ray Exposure

NOTE: An exposure can be prematurely terminated for any reason by abruptly releasing the depressed trigger.



To begin the exposure, squeeze the handle trigger (or press and hold **START**). The **ENABLED** indicator ☼ stops flashing, and the green **START** and yellow **X-RAYS ON** indicators ☼ illuminate.

To ensure complete exposure, keep the trigger or **START** button depressed until the audible, continuous-tone signal ⇒ ends and both indicators ☼ are off.

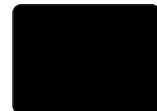


4.6 Powering Down



POWER

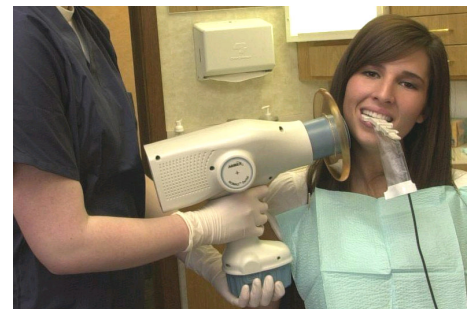
Press and release **POWER** to turn NOMAD off. (NOMAD automatically shuts off after approximately 2.5 minutes of inactivity.)



4.7 Exposure Techniques

NOMAD provides a high degree of flexibility, making it possible for exposures to be produced while the patient is reclined, lying on their back, or sitting upright.

- 1 When taking images, hold the NOMAD using two hands; one on the handle and the other under the battery for increased stability and patient safety.
- 2 To minimize cone-cutting, NOMAD must be properly positioned relative to the imaging system. (Check compatibility with film holding kits or aiming devices in advance. See comments pertaining to PIDs in section 2.1, *Radiation Safety*.)
- 3 Exposure times increase proportionally when the imaging angles vary from 90° or perpendicular to the film or sensor. To maintain low patient x-ray doses and keep the operator within the protection zone, request that the patient slightly tilt their head, and/or raise or lower their chin as needed. (Also see section 2.1, *Radiation Safety*.)
- 4 When angled shots are required and the operator cannot be completely within the protection zone, ensure operator protection through the use of proper safety measures such as the use of a lead apron. (Also see section 2.1, *Radiation Safety*.)
- 5 Avoid touching the patient with the cone or backscatter shield; and/or use disposable plastic coverings.
- 6 Determine what NOMAD time settings deliver optimal results for the type of digital or film-based imaging that is done on a regular basis. Note that digital imaging sensors and film speeds can vary somewhat in their characteristics and could require different exposure settings than the suggested nominal exposure times in the *Technique Factor Chart*. Adjust as needed to meet density preference.
- 7 For an explanation of the relationship between shot duration and rest cycle between exposures (duty cycle), see section 2.2, *Usage*.



Technique Factor Chart 2.3mA 60kV

Recommended exposure settings (X 1/100 second) with cone perpendicular to film/sensor.

			Incisors	Premolars & Canines	Molars	Bitewings	
Digital Sensor	Schick Sensor	Adult	Maxilla (upper)	09	12	12	12
		Sensor #1 & #2	Mandible (lower)	07	10	10	
		Child	Maxilla (upper)	08	09	10	10
			Sensor #1	Mandible (lower)	07	08	
	Air Techniques Accent Sensor	Adult	Maxilla (upper)	15	15	20	20
			Sensor #1 & #2	Mandible (lower)	12	12	
		Child	Maxilla (upper)	10	15	16	16
			Sensor #1	Mandible (lower)	08	10	
	Planmeca DIXI 3	Adult	Maxilla (upper)	15	15	20	20
			Sensor #1 & #2	Mandible (lower)	12	12	
		Child	Maxilla (upper)	10	15	16	16
			Sensor #1	Mandible (lower)	08	10	
Phosphor Plate	Air Techniques ScanX PSP	Adult	Maxilla (upper)	18	18	20	20
		Mandible (lower)	13	13	18		
		Child	Maxilla (upper)	10	15	16	16
			Mandible (lower)	8	10	14	
Film	Kodak Insight	Adult	Maxilla (upper)	35	35	40	40
		Mandible (lower)	25	25	35		
		Child	Maxilla (upper)	20	30	32	32
	Mandible (lower)		15	20	28		
	Kodak Ultraspeed	Adult	Maxilla (upper)	48	60	70	60
		Mandible (lower)	40	49	58		
Child		Maxilla (upper)	32	40	50	50	
	Mandible (lower)	28	32	40			

The settings in this chart are based upon an independent university study and are intended as a reference point only. Individual results may vary based upon a number of factors including the various imaging sensors and film speeds and brands available, patient mass, and the technician techniques.

5.0 Battery Replacement

A flashing, yellow **LOW BATTERY** indicator ☼ (control panel) and intermittent audible signal ➤ indicate the need for a freshly charged battery. NOMAD cannot emit x-rays with a low, depleted battery (insufficient voltage). Follow these steps to clear the **LOW BATTERY** alert.

① Press and release **POWER** on the control panel in order to turn NOMAD off.

② Grasp and depress the buttons on both sides of the battery to release it from the handle. You may have to put pressure at the very top of the buttons (nearest the handle).

③ Then pull the battery away from the handle.

④ Carefully insert a newly charged battery into the base of the NOMAD handle (a properly oriented battery should click into place without force, forcing the battery into position may damage the battery and/or the NOMAD). A clicking sound ensures that the snaps on both sides of the handle bottom are fastened. Make sure the battery is secure by giving it a tug. When a battery is detached, any stored exposure time is erased from memory and has to be reset when the unit is turned on again.

⑤ Always unplug the charger from the power supply when it is not in service. For additional information, specifically about the charger, see the accompanying instruction manual for the battery charger.

⑥ Each battery can go through the discharge/charge cycle approximately 100 times. When the battery charger senses a bad battery, it is spent and must be taken out of service. Do not attempt to charge damaged batteries. An authorized distributor, Aribex, and your local recycling center will accept spent or damaged batteries. Order new 14.4V batteries from Aribex or your authorized distributor, do not use batteries from other sources, which invalidates the warranty.







Risk of Shock – There is high electrical current present at the battery charger terminals. Do not probe with fingers or conductive objects.

6.0 Keeping NOMAD Up and Running


6.1 Alarms and Alerts

The visual/audible alarm signals a programmed action designed to prevent harm to operator, patients, and/or NOMAD.

The visual/audible alerts confirm normal conditions or draw the operator's attention to a required action.

Condition	Visual Indicator ☀	Audible Signal ➡	Function / Resolution
Overheating Alarm	LED display begins flashing 	Series of long beeps	Operation suspends if the device overheats; after cooling for approximately 5 minutes (or longer depending upon room temperature), power on (see Duty Cycle in section 2.2, <i>Usage</i>)
Low Battery Alert	Yellow LOW BATTERY indicator flashes 	Slow series of short beeps	Replace the battery and reset exposure time (for information see section 5.0, <i>Battery Replacement</i>)
X-ray Exposure Alert	Green START and yellow X-RAYS ON indicators illuminate 	Continuous tone (for the duration of the timed exposure)	At the end of the successful exposure, audible signal and indicators stop
Incomplete Exposure Alert	Green START and yellow X-RAYS ON indicators flash 	Series of long beeps	Activates if trigger is released before the timed x-ray exposure finishes and ends automatically after 15 seconds or if power is manually turned off/on

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Condition	Visual Indicator ☀	Audible Signal ➡	Function / Resolution
System Readiness Alert	Green ENABLED indicator flashes 	Slow series of short, double beeps	Activates when ENABLE is pressed/released; ends automatically after 30 seconds or when an exposure starts (trigger is depressed or START is pressed)
Invalid Input Error Alert	N/A	Two short beeps	Invalid input (for example, triggering prior to enabling) activates alert, which then ends automatically
Valid Input Alert	For numeric LED display, time setting increments or decrements	Single short beep	Valid when panel button is pressed/released
System Alert Alert	LED display turns off Followed by a system shutdown	Two short beeps	X-ray emissions are not detected during timed exposure but the battery is OK
Power OFF Alert	LED display turns off Followed by a system shutdown	Two short beeps	POWER button is pressed and released (while power is on)
Power ON Alert	LED display lights up	Single long beep	POWER button is pressed and released (while power is off)

6.2 Troubleshooting

If you encounter results and/or errors in the operation of NOMAD that are not explained in the previous sections, check the following table on user troubleshooting to determine the need for authorized service.

Device Symptom	Potential Problem	Corrective Action
6.2.1 Image from x-ray exposure does not have sufficient contrast	Underexposure (too light).	Increase the exposure time setting; or see Incomplete Exposure below.
	Overexposure (too dark).	Decrease the exposure time setting, also check film expiration date (old film can produce dark grainy/foggy images).
	Chemical developer (for film-based imaging).	Ensure chemical freshness and proper temperature.
6.2.2 Image from x-ray exposure is blurred	Combined movements of operator and patient during exposure produced too much distortion.	Check the exposure time setting and re-enable when operator and patient are again properly situated.
6.2.3 Green ENABLED indicator stops flashing (and corresponding, short double beeps end) before an exposure is started	NOMAD is no longer enabled. If an x-ray exposure is not initiated within 30 seconds of enabling, the System Ready condition will terminate.	Double-check the exposure time setting and re-enable when operator and patient are again properly situated.
6.2.4 Green START and yellow X-RAYS ON indicators flash (with corresponding series of long beeps)	Incomplete exposure – the depressed trigger was released before the timed exposure was able to complete.	This condition is cleared automatically within 15 seconds or by manually turning NOMAD off and back on. The exposure will likely need to be repeated.

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Device Symptom	Potential Problem	Corrective Action
6.2.5 Yellow X-RAYS ON indicator does not illuminate	No exposure – a subsequent Low Battery alert will signal whether a low battery is the source of the problem.	Follow proper procedures for replacing the battery; see section 5.0, <i>Battery Replacement</i> .
	If within a few seconds, two short beeps are emitted and the system automatically shuts down, a different problem exists (see section 6.1, <i>Alarms and Alerts</i>).	NOMAD will require authorized service; see section 6.3, <i>Repair and Maintenance</i> .
6.2.6 NOMAD automatically shuts down	After about 2.5 minutes of inactivity, NOMAD emits two short beeps and shuts off automatically – the system has timed out.	Manually turn on NOMAD when you are ready to use the device.
	However, if while attempting an x-ray exposure two short beeps were emitted and shutdown occurred, a different problem exists (see section 6.1, <i>Alarms and Alerts</i>).	If this condition persists, NOMAD will require authorized service; see section 6.3, <i>Repair and Maintenance</i> .
6.2.7 There is no power to the NOMAD control panel	If pressing POWER several times does not cause the numeric (LED) display to illuminate, the attached battery is the likely problem.	Ensure battery is securely attached.
		Replace with a newly charged battery before continuing. Use the battery charger to determine if the first battery is spent and must be taken out of service, or if it can be recharged.
	However, if while attempting an x-ray exposure two short beeps were emitted and shutdown occurred, a different problem exists (see section 6.1, <i>Alarms and Alerts</i>).	NOMAD will require authorized service; see section 6.3, <i>Repair and Maintenance</i> .

If you have additional questions or need additional help contact: support@aribex.com

6.3 Repair and Maintenance

NOMAD is a maintenance-free product, except for routine cleaning. Make sure the power is off while cleaning, detach the battery. It is unnecessary to detach anything else in order to clean the unit. Use a **non-acetone** based disinfectant wipe or a cloth to wipe the exterior surfaces of the NOMAD and charger.



The NOMAD and the battery charger are NOT designed to be user serviceable. Do not open the device housing, doing so will void the warranty.

Repairs can only be undertaken by trained service personnel. Direct all questions to an authorized distributor.

The following are factory serviceable parts and components:

- NOMAD Dental, main apparatus assembly – item AP-0001
- Retainer o-rings – item CP-0046
- Backscatter shield / inner o-ring assembly – item AP-0012
- Batteries – item CP-0001
- 110/120V AC battery charger w/ manual (DeWalt, model DW9116) – item CP-0002
- 220/240V AC battery charger w/ manual (DeWalt, model DE9116) – item CP-0045
- Hard-shell carrying case (accessory) – item MP-0018



Instructions for handling product at end of life – Please, protect the environment and do not improperly dispose of any part of the NOMAD system, battery, or charger; contact an authorized distributor or Aribex, Inc. regarding assistance in returning the product for proper disposal.

If product return is required, contact Aribex for a Return Material Authorization (RMA) number and shipping instructions to return the product to the proper facility. If the product is under warranty, you will be required to provide the serial number from the label affixed on the underside of the NOMAD.

Be sure to include the RMA number on the package you are returning. Products without a RMA number cannot be serviced or given credit consideration.

Aribex will not assume responsibility for shipping damages; however, it will help you file a claim with the freight carrier. Please see warranty information at the end of this manual.

LIMITED WARRANTY

COVERAGE. Aribex, Inc. warrants its medical and dental x-ray equipment to be free from any defects in material or workmanship for a period of one (1) year from the date of purchase. Aribex, Inc. also warrants any accessories purchased from Aribex to be free from any defects in material or workmanship for the period of one (1) year from the date of purchase.

The liability of Aribex, Inc. is limited to repair or replacement of any parts that Aribex or its authorized resellers determine to be defective. Contact Aribex for a Return Material Authorization (RMA) number and shipping instructions. Parts proving defective shall be repaired or replaced free of charge (labor and domestic shipping included), if defective equipment is returned freight collect to Aribex (Utah, USA) or the location of the authorized service center. Equipment repaired or replaced under warranty shall continue to be warranted for the balance of the original warranty term. All warranty claims must be made not later than ten (10) business days following the expiration of the applicable warranty period.

LIMITATIONS OF COVERAGE. This warranty does not apply to equipment that is or has been abused, misused, or altered (including opening enclosure or tampering), improperly maintained, subjected to use beyond rated conditions, or damaged as a result of any carelessness or accidents. This warranty does not cover ordinary wear and tear or maintenance.

LIMITATIONS OF LIABILITY. Aribex, Inc. makes no other warranty, either expressed or implied, with respect to any equipment purchased from Aribex, including without limitation any implied warranties of merchantability or fitness for a particular purpose, whether or not Aribex may have been informed of the actual uses to which any of such equipment may be put. Aribex, Inc. shall not under any circumstance be liable for incidental, indirect, consequential, punitive or exemplary damages, including without limitation damages for delay or lost profits, and in no event shall liability of Aribex arising from the purchase, sale or use of the equipment, or breach of any warranty made above, exceed in the aggregate the purchase price paid therefore.



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English is the original draft language for this manual.

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