As we begin a new year I would like to take this opportunity to thank you, our valued customers, for your continued business.

As you are aware, RDI has been a wholly owned subsidiary of IBA (Ion Beam Applications) and an integral branch of their industrial accelerator business since 1999. As we integrate our accelerator manufacturing and support business globally we are striving to provide improvements in support and service to our customers.

A part of this integration is the re-branding of RDI as you can note in our new color. This new look serves to show the strength of the relationship and commitment between IBA and RDI.

As in the past, we will continue to be in direct contact with you supplying you with quality improvements, superior customer service, 24-7 technical assistance and the latest technological advancements such as the MILLENNIUM Control Console.

As always we will continue to listen to your needs and provide you with the best possible solution to your individual requirements. Please do not hesitate to call me to discuss your future needs.

Sincerely,

Rick Galloway
V.P., General Manager

“The Industrial Business Unit, with its Dynamitron® and Rhodotron® equipment, provides Industrial Irradiation solutions using electron beam and x-ray technologies. RDI is an important division of this Business Unit. On top of its Dynamitron® development and manufacturing activities, RDI strives to promote irradiation technology in both accelerator and application fields. Irradiation configuration testing, in electron beam and x-ray mode, is available at their Long Island facility thanks to the permanent equipment in their double vault.”

Jean-Louis Bol
President, IBA Industrial
IBA is committed to the growth and development of RDI business.

This is exemplified by:

- the new configuration 500 keV EasyBeam® accelerator recently completed.
- a new Dynamitron® based proton accelerator system which has been sold and is currently in development at RDI.
- the support for recent sales of three new Dynamitron® systems in the past 18 months.
- additionally we expect to be closing orders on three new Dynamitron® systems by mid-year.

IBA is the world leader in accelerator business

With its complete range of accelerators, it offers you a solution adapted to your needs.

You may not be aware of this fact, but the Dynamitron® is the most widely used industrial accelerator in the world and IBA is the world's leader in the business of industrial Sterilization & Ionization, Advanced Radiotherapy and Radioisotopes. IBA Industrial is comprised of companies that produce electron beam and x-ray equipment which is used to sterilize medical devices, conduct analytical laboratory testing, enhance food safety, and improve material characteristics.

IBA offers a complete range of accelerators from 500 KeV to 10 MeV. In addition, we benefit from shared R&D facilities, joint production capacity and comprehensive after sales service. As a result, we can now meet an ever-greater range of needs, service a wider range of user requirements and better serve our customers worldwide.
Announcing European Spare Parts Hub

Creation of the RDI-IBA global spare parts network.

Starting mid year, a pilot project will begin with a group of consumable parts centrally located within the EU. These parts were chosen as a result of our study of the most often purchased items from the EU. It will still be necessary to contact RDI’s customer service department to place all spare parts orders, but depending upon the item, it may be dispatched from the new hub to cut transit times considerably.

We are also in the process of training field service engineers to be stationed within the EU. We expect to begin dispatching service personnel in 2008. Please look for this future announcement.

RDI has always made excellence in customer service its number one priority. The addition of an EU Spare Parts Hub will help us continue to achieve this goal.

HINTS AND TIPS:

RDI always recommends that you have a complement of spare parts on hand to reduce downtime to a minimum.

Customer Service Corner

Important shipping information. Procedure for repairs returns and spare parts shipments.

Please follow the instructions to expedite repairs and ensure prompt shipment of spare parts:

FOREIGN REPAIR RETURNS.

Please contact customer service at RDI to determine if parts should be returned for evaluation or repair. If these are repairable components, you will be issued a return authorization number (RA-XXX)

Important points for returning parts:
• Documentation should reference the RA number issued by customer service
• The airway bill must be filled out completely and correctly
• All return paperwork must be marked “U.S. GOODS BEING RETURNED FOR REPAIR”
• The portion of the airway bill that indicates “Temporary Import” and “Repair and Return” must also be checked.

OSCILLATOR TUBE SHIPMENTS.

Please note that oscillator tubes will be strapped to an oversized skid for shipping purposes.

We have encountered a few situations in which the shock indicator on the box was broken but because there was no visible outside damage to the box, the freight company denied the damage claim. Note that due to size there may be a delay for next day or same day air freight shipments. Please make sure to have a spare tube on hand to avoid delays.

HINTS AND TIPS:

Please be cautious regarding the value of the shipment, as these parts are older and possibly damaged and do not carry the full value of new components. If the airway bill is not filled out correctly, these items may be held in customs which would delay the repair and return to you, as well as add duties and taxes which you would be responsible for.
Control System

Software Updates & Enhancements

RDI quotes special prices on new items.

Special prices are in effect until the end of May on new items listed below.

1. **Signal Splitter.**
   **NOW available for the Millennium AR and KR control systems.**

   The signal splitter option is now available for the Millennium AR and KR control systems. This option has been used for many years on our DPC-1000 and DPC-2000 control systems, allowing the customer to duplicate the many important analog signals used by the control system for processing and alarms.

   The customer can then use these signals by sending them to a recording device such as a chart recorder or data logger for later analysis or process record.

   There are 8 signals from which each one can be duplicated from any of the 32 analog input or output signals used by the Millennium controller. Typically these signals are the dose related parameters such as high voltage, beam current, scan length pick up, tachometer feedback along with other important monitoring signals such as oscillator tube voltage and current, and beam tube vacuum.

   The Analog Signal Splitter assembly is a typical 19” rack mountable assembly that is about 3 ½ inches high and attached to the analog rack assembly in the main Millennium cabinet with 4 included cables. The outputs from the Splitter are typical 0-10V DC signals that can be scaled appropriately and connect by way of RG-58 cables to external equipment.

2. **Pamux Upgrade.**
   It provides a release from the confines of using the co-processor board, faster communication to the I/O and better resilience to being outdated.

   The original method that the DPC-2000 used for communication to remote Oscillator and Vessel I/O junction boxes was through RS-485. The third party co-processor board used for that communication is no longer available to us and can no longer be supported. The new method of communication used on all Millennium Consoles and later DPC-2000 can be used on older DPC-2000 systems by upgrading the hardware and software. This upgrade provides a release from the confines of using the co-processor board, faster communication to the I/O, and better resilience to being outdated by using more industry common components.

   The upgrade consists of a replacement board for the computer, replacement I/O interface cards (which plug into the existing I/O tracks), replacement cable for the RS-485 cable from console to I/O junction boxes, and software upgrade to handle the new I/O communications.

3. **History Screen.**
   It provides the ability to see the status of some inputs before an error occurs.

   The ability to see the status of some inputs just before an error occurs can be very helpful in the determination of cause and aid in the diagnosis of a problem with the system. The Analog History Screen provides the ability to see any of the 24 analog inputs at the system sample frequency up to ¼ of a second before the system initiates a shutdown on an alarm condition. This information helps the operator to better ascertain the root cause of a shutdown when many possibilities may be the cause.
Soft Ramp Down.
It allows the Dynamitron® to be shut down in a controlled manner for non-critical faults.

The soft ramp down is a software option for the DPC-2000 and Millennium systems that allows the Dynamitron® system to be shut down in a controlled manner for non-critical faults.

Certain faults, such as a safety system violation, require an immediate shutdown of the beam current and accelerating voltage. In such cases, that immediate shutdown is necessary to prevent personal injury or damage to equipment. However, such shutdowns induce additional stresses on the system and excessive use of immediate shutdowns can shorten components lifetime.

Other faults, while requiring immediate action, do not require the system to be terminated instantaneously. In these cases, the beam power can be ramped down normally thereby avoiding unnecessary stresses on the system.

This also allows, depending on underbeam interface, the ability to continue processing until the beam is fully off. The soft shutdown option distinguishes between these two types of faults. This feature helps to eliminate avoidable stresses thereby improving component lifetime while still providing full personnel and equipment protection.

The system can, for some errors, allow the product to continue processing just as if the operator commanded the system to ramp down, or it can close the shutter and halt processing while the system lowers beam. The system can distinguish between errors that need to ramp beam down and allow high voltage to stay on or force both beam and high voltage to ramp off before the operator can clear the errors (and fix the problem) and then continue processing.

HVD and BTD Compare.
It provides an accurate representation of the voltage present on the high voltage terminal or dome of the machine.

HVD and BTD are two independent resistor strings that go from the high voltage terminal within the machine all the way down to electrical ground at the output of the system through the console. The currents running through these two strings can be calibrated to provide an accurate representation of the voltage present on the high voltage terminal or dome of the machine.

The software interprets the voltage measurement for each string based on a calibrated curve and then compares the resultant voltage measurement to ensure there is agreement.

If the measured voltages vary by more than a predetermined percentage (typically 5% to 25%), then an error condition is generated.

**Hints and Tips:**

**Drawings in digital format**
are now available on CD to allow customers to print or view them anytime they want!

RDI has the ability to recreate the customer drawing package sent with each machine in an electronic format suitable for distribution on a CD. This allows the customer with worn out, missing, or damaged drawing packages to print them as required on site and also view the drawings (and parts lists) on their computer in the office or on the plant floor. Cost of the package will vary depending on age of the machine since not all drawing parts lists may be readily available.

Please contact our customer service department for pricing and availability.
Basic training, DPC-2000 or Millennium:

Basic classroom training for everyone connected with the Dynamitron®: technicians, operators, supervisors, engineers, radiation safety officer (RSO), etc. Includes description of Dynamitron® components and their function, radiation safety, operating procedures, control circuits, preventive maintenance, and dose control.

Benefits: Gives employees important information about all aspects of Dynamitron® operation and safety. Provides a more complete understanding of Dynamitron® functions than on the job training alone. Recommended for all new Dynamitron® employees. This course may help meet radiation safety training requirements in some states.

Arrangements: Usually given at the customer’s site because many employees can then attend the parts of the course of interest to them. The standard course lasts 2 days, but the topics, hours and duration can be customized to suit the customer’s requirements.

Advanced training, DPC-2000 or Millennium:


Benefits: Improved maintenance and faster repairs can significantly reduce accelerator down-time and lower costs.

Arrangements: Held at RDI for a group of customers when there is sufficient demand (10 person minimum). The advanced course lasts 4 1/2 days, but the topics, hours and duration can be customized to suit the customer’s requirements. The cost is $3000 per person or $2500 each for two or more persons from the same company.

Please contact: rdi.sales@iba-group.com for more information
Helpful maintenance procedure

How to change out an electron gun.

The following checks must be completed prior to replacing an electron gun in the accelerator.

1. Check the filament for proper centering within the grid plate.
2. Check the filament for proper recess below the surface of the grid plate, which should be equal to .030" or more (using depth micrometer).
3. Check the filament chucks to make sure the filament legs are secure and that the legs are clamped V-groove to flat plate.
4. Make sure the aluminum o-rings for both the electron gun and the electron gun spacer have been removed.
5. Inspect the sealing surfaces on the electron gun, the electron gun spacer, and the beam tube terminal. Polish out any scratches found with a light emery cloth.
6. Clean all surfaces with alcohol.
7. Replace both o-rings (B-00-10464-001).
8. Install the electron gun and spacer and torque to 40 ft. lbs. in 20-30-40 ft. lb. increments.
9. Reassemble the filament transformer assembly and heat sinks on the electron gun and tighten all connections.

NOTE: After gun and filament transformer assembly has been connected, check the spark gap settings on the filament transformer and the heat sink on the gun for proper spacing (.010").

To replace electron gun filament.

1. Measure the recess of the original filament, if possible, before removal. It should be .030" below grid plate (see note above for different filament recess).
2. Remove old filament and clean electron gun with alcohol.
3. Set legs of new filament into the grooves in the chucks and position filament with the top surface of the grid plate. Make sure that the filament legs are not clamped with V-grooves facing each other. The legs should be clamped V-groove to flat plate.
4. Very lightly, tighten chucks so that the filament legs stay in the grooves but filament can move up and down.
5. Use .030" recess device or a depth micrometer on the grid plate to push the filament down to .030" (or whatever depth has been decided upon) below the surface of the grid plate.
6. Complete steps 1-9 which refer to checks required when replacing an electron gun.

24-7 Customer Service

RDI's Emergency Technical Assistance
1-800-949-4646 Pin # 111-7008 (in the United States)
1-214-210-0401 Pin # 111-7008 (outside the United States)

RDI's Customer Service
631-254-6800 X 110

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