

DECEMBER 2008

ContainerLINE

Introducing SeaCare™ Solutions

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Your Shelter in a Storm



When we planned an umbrella for the cover of this issue as a symbol of the protection provided by our new SeaCare™ programs, who could have forecast the economic downpour soaking the world at press time?

These are indeed uncertain times, not just for our industry, but also for the global economy. Recent financial storms have taken their toll on many of the world's major economies, and the shipping industry has not been spared.

With unpredictable fuel prices continuing to impact the transportation sector, Carrier products, such as the energy-efficient PrimeLINE® unit, help shelter shipping lines from high operating costs. Exemplifying our EcoDriven™ commitment, the PrimeLINE unit is proving to be the right product for these times, with more than 20,000 units sold in its inaugural year.

Our newest PowerLINE® generator sets further underscore our EcoDriven philosophy. Already offering the lowest particulate emissions, they now have an ingenious dual speed option, described on page 6, which, for most customers, can reduce fuel consumption by approximately 20 percent. That's more shelter from surging energy costs.

Our new SeaCare solutions - offering a package of support programs for both owned and leased equipment - are yet another way we protect you from uncertainty, while also helping your operations run at peak efficiency. With customizable plans for service, repairs, ship kit management and extended warranties, SeaCare programs help to provide peace of mind so you can focus on your core business.

In my new assignment as Director of Marketing and Strategic Planning for Container Products, I'm delighted to have the opportunity to communicate with you through ContainerLINE, and I'm looking forward to meeting many of you personally under the Carrier umbrella in Hamburg at Intermodal 2008, and in the coming year.

Kartik Kumar

Director of Marketing and Strategic Planning
Global Container Refrigeration

ContainerLINE

Introducing

Carrier Transicold proudly launches the container shipping industry's first worldwide program for comprehensive refrigeration service and support, SeaCare™ Global Container Solutions.

"SeaCare Solutions give our customers a better way to manage their operations, while reducing the overall costs and administrative burden related to long-term equipment care," said Phil Laros, manager - Aftermarket Service Programs.

SeaCare Solutions is a package of support programs for both owned and leased equipment. Key components are: **Warranty Renewal** and **Service Contract** programs for PrimeLINE®, EliteLINE® and ThinLINE® refrigeration units, **Preventive Maintenance** for PowerLINE® Generator Sets and **Ship Kit Management**. Other programs are under development for additional services.

"SeaCare Solutions provide an exceptionally flexible response to the needs of shipping and leasing companies," Laros said. "Customers may select whichever combination of programs that best suits their needs. Even specific programs offer a degree of customization.

"Any company that operates reefer containers and/or generator sets can benefit from SeaCare Solutions."

SeaCare Solutions can be implemented at any time during the lifetime of the equipment but are most effective when done with the purchase of new equipment, so customers derive benefits from the start.

"These programs are designed to improve our customers' operational efficiency by allowing them to focus on their core business, which is shipping goods from point A to point B," Laros said.

"Our intention is to relieve customers of the burden of administration, resources and costs associated with running reefer equipment."

When customers take advantage of SeaCare offerings, service and support will be handled under their program agreements at any Carrier-authorized service center, no matter where in the world their assets happen to be at any given time.

With 14 strategically located parts depots and more than 400 service centers in every major port in the world, Carrier already offers the most extensive customer support base in the refrigerated container industry.

"With SeaCare aftermarket support programs," Laros said, "we are taking our support to the next level."

"Any company that operates reefer containers and/or generator sets can benefit from SeaCare Solutions."

SeaCare™ Solutions

Nobody Cares for Your Equipment Like Carrier Does



Key Components of SeaCare Solutions

Carrier has introduced four programs under the SeaCare umbrella:

WR Warranty Renewal

Warranty Renewal – The industry’s first extended warranty program for container refrigeration units, this program offers flexible terms ranging from full unit coverage to coverage of individual major components, such as the compressor, controller and fan motors. Customers can tailor their selections based on specific needs or budget.

PM Preventive Maintenance

Preventive Maintenance – Designed specifically for Carrier generator sets, the SeaCare Preventive Maintenance program provides factory-authorized service to keep generators performing at optimal levels.

Through the program, Carrier organizes and manages scheduled service at 2,000- and 4,000-hour intervals, and provides recordkeeping and reporting services through Carrier’s central database.

SKM Ship-Kit Management

Ship Kit Management – Every container vessel needs an inventory of ship kits, housing repair components in the event maintenance is required at sea. Management of ship kits – making sure they are fully stocked and stowed – can be an administrative hassle for shipping lines and leasing companies. The SeaCare Solutions Ship Kit Management program not only takes on these duties, but also manages ship kit parts inventory for competitive equipment and provides global management of the entire ship kit supply chain. With guaranteed pricing for parts and service, this program even handles delivery of spare parts, including refrigerant, to replenish supplies and removal of consumed or faulty parts.

SC Service Contract

Service Contract – SeaCare Solutions Service Contracts provide full service coverage to refrigeration units by adding pre-trip inspections and consumables to a full unit warranty package. Better still, Carrier organizes and manages maintenance and repairs through the service center network, saving customers the task of doing so.

Benefits of SeaCare Solutions

- Better asset utilization
- Global consistency in service and maintenance
- Reduced service administration
- Reduced operating costs
- Management of equipment lifecycle costs
- Improved equipment reliability
- Extended equipment life
- Reduction in emergency repairs



4 Healthful Benefits Spark Blueberry Boom

Blueberries are a tasty source of vitamins, minerals and dietary fiber, to be sure. And when it comes to antioxidants, blueberries are a real powerhouse. That fact has not been lost on the health-conscious, which has led to a recent rise in the popularity of blueberries.

Antioxidants are packed into the skin of the blueberry, and studies by the U.S. Department of Agriculture have ranked blueberries tops in antioxidants compared to 40 other fruits and vegetables.

What's so great about antioxidants? In the human body, antioxidants are thought to protect cells against the effects of highly reactive free radicals, a breed of molecules produced when the body breaks down food, or by environmental exposures like tobacco smoke and radiation. Free radicals can damage cells, and may play a role in heart disease, cancer, stroke and neurodegenerative diseases.

Studies have shown that blueberries have potential to improve motor skills and reverse short-term memory loss that comes with aging, help maintain urinary tract health and may possibly block the metabolic pathways that promote cancer.

Blueberries are one of only three berries native to North America – the others being cranberry and concord grapes. It follows that Canada and the United States are the world leaders in blueberry production. Chile, with its contra-seasonal growing cycle has developed a strong blueberry industry and now is the leading producer and exporter of blueberries in the southern hemisphere, having expanded its land dedicated to blueberry production from 1,172 hectares in 1992 to 10,762 today. Chile exported 30,000 metric tons of blueberries in the 2007-2008 growing season, with 78 percent of those exports going back to the United States and Canada.

There are two main types of blueberries: the lowbush and highbush varieties. The lowbush blueberries, which are also called wild blueberries, grow naturally in the glacial soils and cool climates of Maine in the United States and in Eastern Canada. Wild blueberries are actually a mixture of many plant variations that differ in size, color and flavors. They are not planted, but grow naturally in fields that are tended to and harvested.

Somewhat larger in berry size, highbush varieties are cultivars, hybrid plants grown in other parts of the United States, and also in Chile, Argentina, Brazil, Uruguay, New Zealand, the Ukraine, Japan and elsewhere. In the United States, cultivation and domestication of blueberries began in the late 19th century, however most of the industry's growth has been in the last 40 years. Wild blueberry output has been relatively stable – production of the highbush variety is where the greatest gains have been made.

In the United States, nearly 163,600 metric tons of blueberries were produced in 2007. Of that amount, about 14 percent were exported. But as the world's largest consumer of blueberries, the United States imports even

more blueberries than it exports. Much of the imported crop comes from just north of the border in Canada.

"The interesting thing is that consumption of blueberries is going up like crazy," said Jeff Leshuk, general manager for the Professional Services unit of Sensitech, a Carrier company offering visibility solutions for cold-chain management. Leshuk noted that while airfreight is sometimes used for blueberry shipment, growers responding to the increased consumer demand are also shipping via controlled-atmosphere containers.

Using controlled atmosphere, blueberries can be kept under optimal conditions, permitting voyages of three to six weeks. With blueberries kept at temperatures of about 0.5°C (33°F), oxygen can be held to 5 percent to reduce respiration, and carbon dioxide can be elevated to 11 to 20 percent to suppress development of decay. Humidity of 90 to 95 percent is important and is usually maintained through the manner in which the blueberries are packaged, according to Leshuk.

"It's a highly sensitive, high-value product," Leshuk added, noting that shippers looking for added quality assurance can use Sensitech's Ryan® EZT strip chart recorders and TempTale4® monitors, battery-powered devices that affix to product packaging to track temperature exposures from the point that a shipment is packed to when it arrives at its final destination.

Produce exporters shipping to the United States are subject to the U.S. Department of Agriculture's Cold Treatment Program and need to monitor the pulp temperatures to assure produce remains at or under 34°F (1.1°C) to keep fruit flies at bay. Electronic probes, which enable temperature recording through the refrigeration unit's DataCorder device work well on larger fruit, such as bananas and peaches, but not on "berries, grapes and designer produce," explained Jeff Neuss, the Americas business development manager for Carrier's Performance Parts Group. "Large probes tear the fruit apart. A grape would disintegrate."

To help shippers abide by the letter of the law, Carrier developed and introduced a temperature probe in 2007 with a 3.5 mm diameter tip. It's the only probe with a tip small enough to insert into fruit as small as a blueberry. "By having a smaller probe, we can ensure it will stay in the product for the whole trip," Neuss said.

Tiny as they are, blueberries are making a big impact in supermarket sales.

Consumer interest in nutrition is one of the main sales



Carrier Temperature Probe

BLUEBERRY

drivers for the produce category in general, according to Grocery Headquarters magazine, and berries in particular are being used more in main courses and salads, not just for desserts.

Just as the produce category in the United States rang up sales increases of 4.5 percent in 2007, the value of berry sales went up 6.7 percent. And what about blueberries? Whether they came from the barrens of Nova Scotia or the fertile valleys of Chile, sales of those little antioxidant-rich blue orbs were up a whopping 18 percent.

That's a sweet, and healthy boost.

US BLUEBERRY EXPORTS



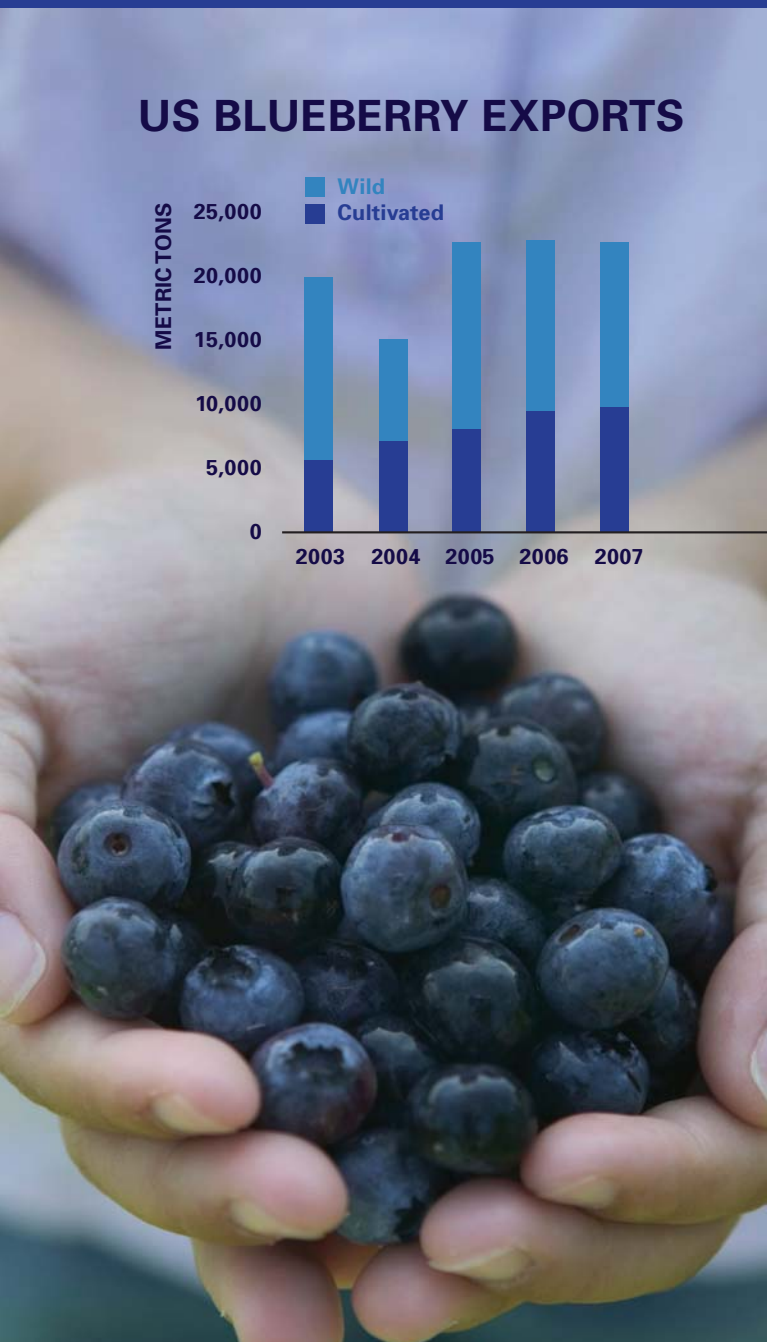
Blueberry Basics

- Blueberries' high concentration of antioxidants earned them the distinction as a "Super Food" in Steven Pratt and Kathy Matthews book *SuperFoods Rx: 14 Foods that Will Change Your Life*.
- The Wild Blueberry Association of North America is quick to point out that wild blueberries beat out cultivated blueberries in terms of antioxidants.
- A single serving of blueberries pack as many antioxidants as five servings of carrots, apples, broccoli or squash.
- Chilean farmers are working to improve blueberry cultivation and production through "fertigation," which applies water and nitrogen fertilizer through drip or spray irrigation systems directly to crop roots where they are needed.
- Maine's 76.9-million-pound 2007 blueberry harvest was the state's fourth largest on record. The crop was 3 percent larger than the 2006 harvest, but its \$71.5 million value was 20 percent higher. Maine is the only producer of wild blueberries in the United States.
- Wild Blueberry phytochemicals known as anthocyanins give the fruit its deep blue color and are at work in the body helping fend off environmental assault from poor diet, lack of exercise or other stressors.
- Northeast Native American tribes revered blueberries and much folklore developed around them. The blossom end of each berry, the calyx, forms the shape of a perfect five-pointed star. The elders of the tribe would tell of how the Great Spirit sent "star berries" to relieve the children's hunger during a famine.



Sensitech is the world's leading provider of cold chain visibility solutions. Its proprietary technology enables global customers in the food, pharmaceutical and biologics industries to track and monitor assets across the supply chain, protecting the integrity of their temperature-sensitive products.

Sensitech's portfolio includes comprehensive analytic services, validated enterprise software systems and data acquisition devices. The company became a wholly-owned subsidiary of Carrier when it was acquired in 2006. Contact your local Carrier sales rep for more information on how we can tailor Sensitech's expertise to your business.



Protecting Food Supply of Summer Games an Olympic-Sized Challenge

If they gave gold medals for food and beverage safety, Carrier Transicold and joint-venture partner Tianjin Yuanchang Reefer Container Service (TYR) would be honored as champions.

Food and beverage safety was paramount in the minds of officials for the 2008 Olympic Summer Games in Beijing. So when one of the world's leading container leasing companies needed to supply continuous monitoring and maintenance services for more than 400 Carrier ThinLINE® refrigerated containers positioned around the Olympic Village, they called on Carrier TYR.

The refrigerated container units were used to store and cool beverages, seafood, meat, fruit, vegetables and perishable medical supplies, including medical products used to treat the athletes. Each 40-foot container was capable of storing up to 28,000 bottles of mineral water.

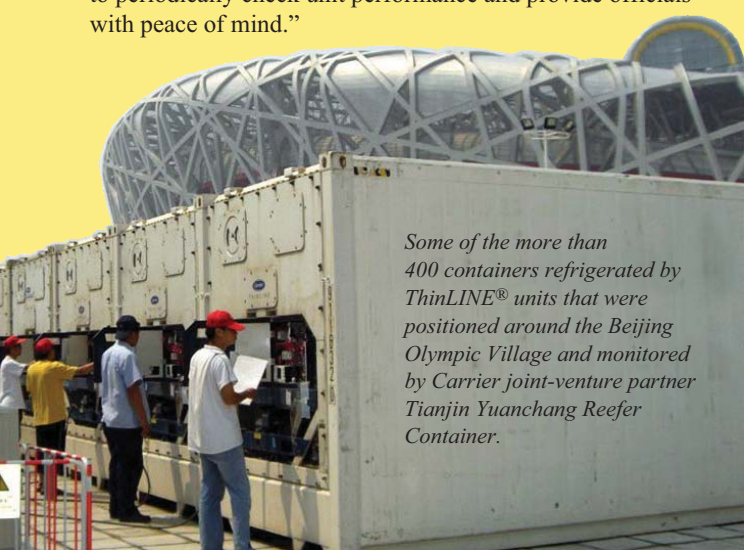
Most units were located in Beijing, where the bulk of the sports events took place, but others supported Olympic activities in Shanghai, Qinhuangdao, Shenyang and Tianjin. Serving as temporary refrigerated warehouses, the refrigerated containers were powered by continuous electrical supply, the same as if used shipboard.

Tracking and maintaining the security of food and beverage for 400,000 people a day – including athletes, officials and spectators – was no simple task. Container contents were replenished on a daily basis, as overseen by the Beijing Agricultural Bureau.

To provide safe, high-quality agricultural products for athletes and visitors, a rigorous food tracking and monitoring system was fully guaranteed by the Chinese government.

The system used a unified logistics code for all food and beverage entering the Olympic Village, including full process monitoring – from manufacturing, processing and packaging, to storing and transporting the food to the center of the village. The information was incorporated into a database that kept food supervisors fully aware of all procedures and could trace the sources.

“The TYR team was crucial to ensuring food and beverage safety during the 2008 Beijing Games,” said Chiou Fun Sin, vice president, Global Container Refrigeration, Carrier Transicold. “TYR technicians were available around the clock to periodically check unit performance and provide officials with peace of mind.”



Some of the more than 400 containers refrigerated by ThinLINE® units that were positioned around the Beijing Olympic Village and monitored by Carrier joint-venture partner Tianjin Yuanchang Reefer Container.

New

Carrier has developed a new dual speed option for generator sets that can deliver significant fuel savings for intermodal operations.

Earlier this year, Carrier introduced the latest PowerLINE® undermount and clip-on generator sets, offering reduced emissions thanks to a new diesel engine designed to meet U.S. Environmental Protection Agency (EPA) Tier 4i specifications. Building on the capabilities of the Tier 4i engine's electronic control module, the new dual speed option is another example of Carrier's EcoDrivenSM innovation, helping the shipping industry to further reduce its carbon footprint.



PowerLINE generator sets provide uninterrupted power for container refrigeration systems transported over land. The new dual speed option can be specified for both PowerLINE undermount (UG) generator sets used for trucking applications as well as PowerLINE clip-on (RG) generator sets used in rail and highway applications. This option is only applicable to units with the Tier 4i engine and provides two modes of operation: economy mode and power mode.

In economy mode, which is the default setting, the generator set runs at two speeds. Initially, the generator set runs at 1800 rpm, providing maximum power during the startup period and then automatically reduces speed to a fuel-conserving 1500 rpm for the duration of the trip.

The economy mode enables the PowerLINE generator set to accommodate two distinct power requirements common to all container refrigeration units - the ability to operate in 50 Hz and 60 Hz modes.

“With the standard generator set, the diesel engine runs at 1800 rpm all the time, providing 60 Hz of electrical power output,” said Charu Mahajan, product manager, Generator Sets.

“With 60 Hz, customers are getting the maximum pulldown capacity from the refrigeration unit. Once pulldown is achieved, the unit doesn't need to run at 60 Hz, in most cases.”

At a slower 1500 rpm, the generator operates at 50 Hz, delivering requisite power and voltage, while conserving fuel. “The moment the engine slows down, the fuel savings begin,” said Mahajan. “By saving diesel, distances traveled on a tank are extended, and the carbon footprint is reduced.”

Power and Economy

Although performance varies depending on the refrigeration unit, most customers should be able to achieve a fuel efficiency boost of approximately 20 percent, which would result in a substantial financial savings. In some test cases with various Carrier reefer machines, savings of nearly 27 percent were possible depending upon load and ambient conditions, according to Mahajan.

PowerLINE® Option Generates Fuel Savings

The economy mode is well suited to North America, where distances from ports to inland destinations are greater. As arriving inbound cargo is already at setpoint, the refrigeration unit demands less power and can take advantage of the economy mode's slower speed.

Situations such as outbound trips for hot loads through tropical environments typically require pull down times to be as fast as possible. While the economy mode can power the reefer machine in these situations, switching it to power mode ensures that pull down time is minimized.

Based on recent diesel fuel prices and typical applications, the economy mode option can provide payback in just over three months. Annual savings can be substantial for fleets.

For example, in a typical year of operation, a generator set runs for approximately 2,000 hours. When the economy mode is engaged for all trips, annual fuel savings of more than 252 gallons can potentially be achieved per unit. For a fleet with 500 generator sets, that can amount to annual savings exceeding \$370,000 based on an average of \$2.94 per gallon diesel fuel cost in the United States, the approximate price at the time of printing.

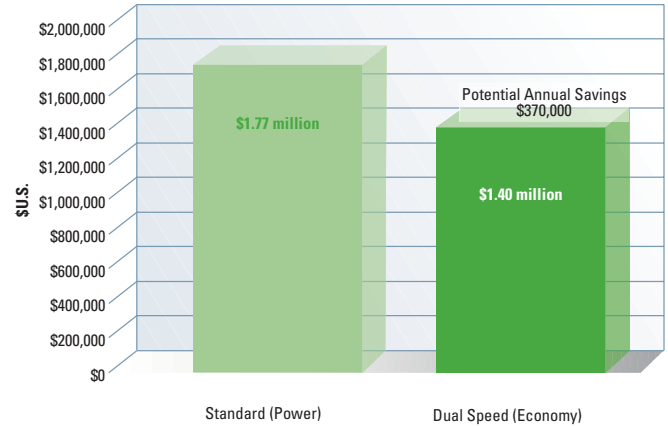
Better for the Environment

With the dual-speed mode, travel distances between fill-ups are extended. It's like getting up to an extra 20 percent more fuel in the generator set's tank without the added fuel weight.

For example, an undermount generator set with a full, 50-gallon fuel tank will typically provide 64 hours of service or about 1,900 highway miles. With dual-speed mode engaged, that distance can be extended nearly 400 miles.

Carrier's Tier 4i engine emits half the particulate matter (PM) of the model it succeeds and emits 30 percent less PM than required

Generator Set Fuel Consumption Annually for a 500-Unit Fleet*



* Based on 2,000 annual operating hours per unit and \$2.94 per gallon fuel, using a typical duty cycle of 50% frozen / 50% perishable and 20% full load / 80% part load operation, corresponding to consumption of 0.60 gal/hr in power mode and 0.47 gal/hr in economy mode. Calculations are based on assumed parameters. Actual results may vary.

by the latest EPA standard. It also beats competitive units in terms of particulates by 20 percent. "Our PM is already the lowest on the market today for generator sets," said Mahajan.

"Now, with the dual-speed mode, our carbon footprint is reduced further," she added. "The carbon footprint is dependent on the amount of fuel consumed. The less fuel consumed, the lower the carbon footprint."



The PowerLINE® clip-on generator set (shown) and PowerLINE undermount generator set can get, under certain circumstances, up to a 25 percent boost to fuel efficiency with a new dual-speed option.



Turn to the Expert Tomoaki Kakino

Having recently taken up piano lessons for the first time since his youth, Tomoaki Kakino says he aspires to some day play Chopin with the artistry of the late piano soloist Vladimir Horowitz.

Piano aspirations aside, as Carrier's General Manager for Container Products in Japan, Kakino is no solo act when it comes to customer service. From his base in Yokohama, he has the backing of Carrier's Asia Pacific Operation and the industry's most extensive container refrigeration sales and service organization.

"The Container Products Group is like a very hospitable family," he said. "My Carrier family members always help me from all over the world."

That support has certainly paid off. Since Kakino joined the organization in November 2007, Carrier's sales in Japan have grown considerably. Kakino attributes this, in part, to expansion of Japan's trade with Central and South America.

With five of the world's top 50 container ports located in Japan, Kakino keeps an active work regimen. He treats every account as a priority and counts among his many customers the three major Japanese shipping lines, NYK, MOL and K-Line. Energy prices being what they are, he said his customers have

shown a keen interest in Carrier's EcoDrivenSM product offerings, particularly the QUEST power-saving mode.

Prior to joining Carrier, Kakino oversaw the equipment disposition team responsible for maintenance and repair of a German container shipping line.

"Because of my background, I believe I understand what my shipping line customers want," he said. "As a former user of the Carrier refrigeration equipment, I am better able to understand the perspective of shipping lines and their needs."

Uniquely, according to Kakino, the Japanese business culture is especially reliant on strong interpersonal relationships. "The saying 'It's just business' does not really apply here in Japan. The personal relationships tend to be very strong.

"Often, Japanese companies take their time and are very thorough before deciding to enter into a business agreement."

Kakino adjusts his working style accordingly. "I want to be trusted by customers so much so that I am always the first person they consult when they need something," he said.

As for his piano aspirations, he notes that he is studying under the same instructor as his "current rival," his four-year-old son, Hiiragi.



Personnel Update

Zulkifli Salimon has joined the Container Products Group's Asia-Pacific Operations as a service engineer. In this capacity he provides technical support to shipping lines, vessel engineers and Carrier service centers at ports throughout Southeast Asia. His territory includes Singapore,

Malaysia, Indonesia, Thailand, Vietnam, Cambodia, Myanmar, India, Bangladesh and Pakistan. Prior to joining Carrier, Salimon

was operations manager for Reefertec Pte. Ltd., a refrigeration service and repair company and authorized Carrier service center in Singapore.

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Welcome Aboard!

Carrier offers the most comprehensive sales and service network in the industry with nearly 420 service center locations worldwide in all major and developing ports. The following service centers recently joined our ever-growing global base.

Davao – Philippines

IRS Eastern, Inc.
Contact: Mr. James Bonzon
areyes@irseastern.com | +63 (92) 85004468 (24 hours)

For more information about these and other Carrier container service centers, please visit www.container.carrier.com.

Medan – Indonesia

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