SAFT

INTERNATIONAL

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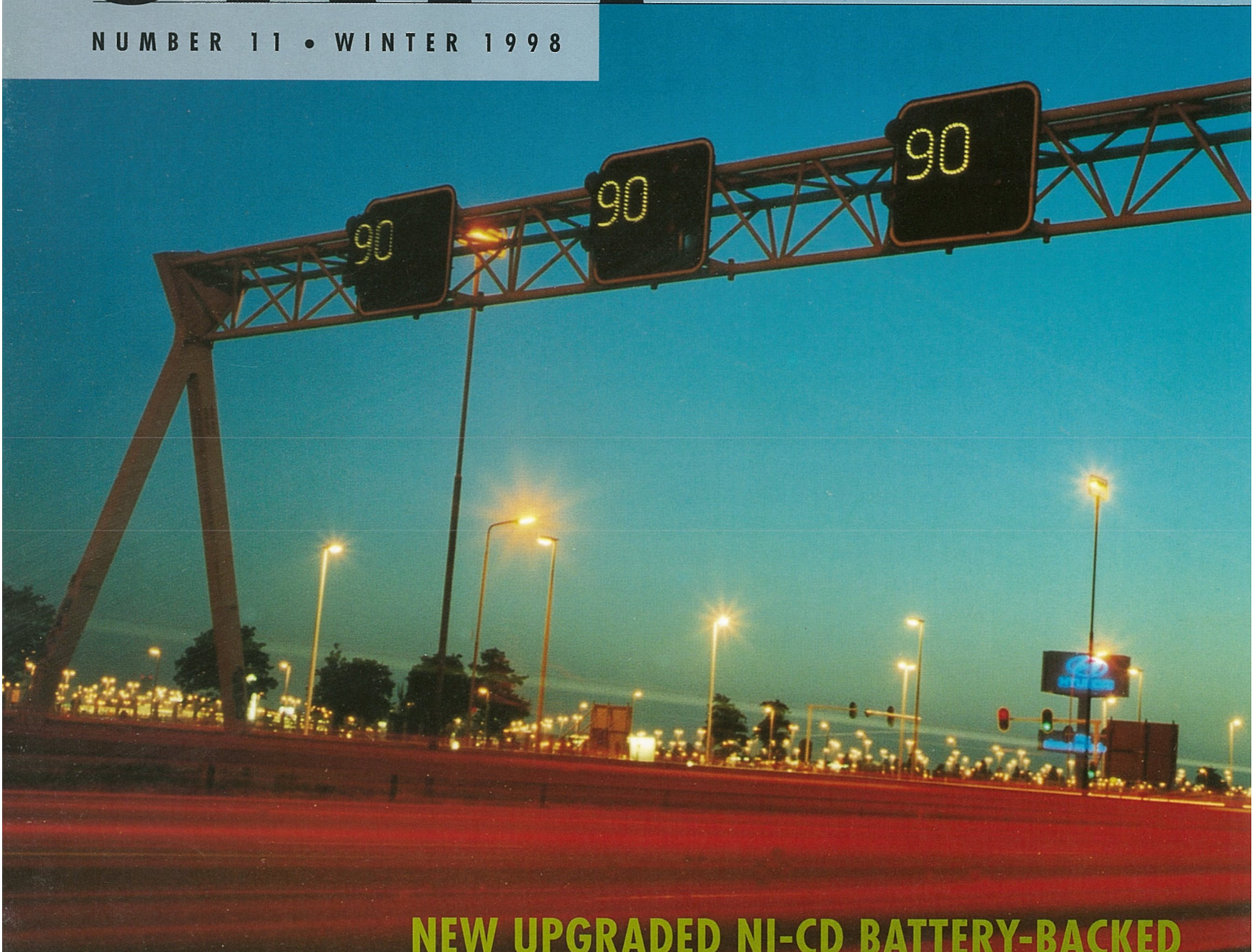

NEW UPGRADED NI-CD BATTERY-BACKED

DC POWER UPS SYSTEM FOR NETHERLANDS MOTORWAYS

THE BEST PRODUCT: RIGHT TIME, RIGHT PRICE

We at Saft have an ambition: to be recognized by our customers as providing the best product, at the right time, at the right price. This is the only way we can credibly build on our leadership position. To make this ambition a reality, in 1997 we embarked on a massive reengineering program which we baptized World Class 2000.

One of the first things we did was bring all of our production plants into the 21st century. Somtimes, this has involved simple actions such as improving our working environment, for example. It has also meant reorganizing and streamlining workflows, and establishing flexible and autonomous production teams to oversee the production, logistics and quality of specific products. Of course, such actions continue to increase productivity.

Parallel to these autonomous production teams, we've set up project teams that comprise all the skills required to take a product innovation from A to Z. This structure allows us to better coordinate our own efforts. It also makes it possible for us to enhance customer service by offering you a structure that, increasingly, mirrors yours.

Thanks to these reengineered structures and a new impetus in our logistics and purchasing policies, improvements are being made daily in the on-time delivery that we know you expect from us.

We are proud of what we've accomplished over the last year, but we recognize that we're only part way there. We hope you appreciate what we have done so far and promise you that the coming months will bring you even more.


Peet Simard

Jean Brunol,
Managing Director

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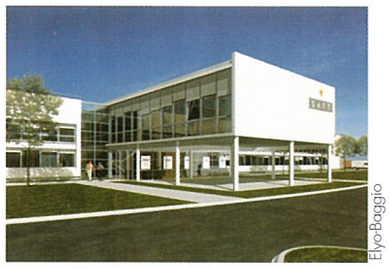


Elyo-Baggio

Boeing

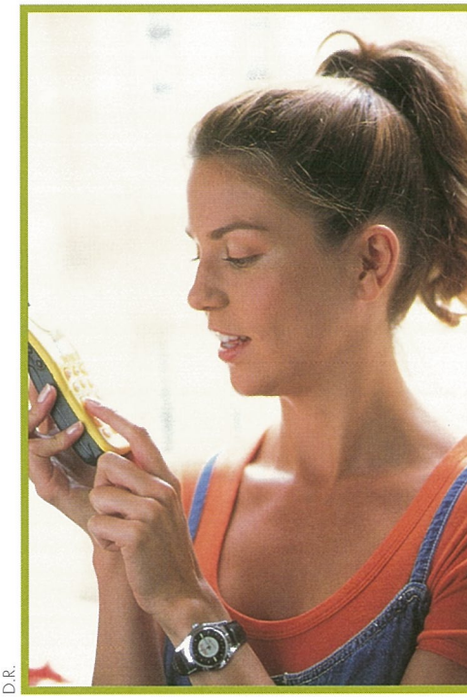
A BOOMING MARKET FOR P

IN 1997, THERE WERE 110 MILLION PORTABLE TELEPHONES SOLD WORLDWIDE. BY 2000, THAT FIGURE WILL CLIMB TO 205 MILLION – VIRTUALLY DOUBLE IN JUST THREE YEARS! SAFT IS RESPONDING TO THESE MARKET TRENDS WITH INNOVATIVE TECHNOLOGY AND AN ADAPTED ORGANIZATION.

D.R.

Batteries not only provide essential power to portable telephones; "the battery determines their size, weight and design," says Jean-Pierre Rousse, Saft's key account manager for Alcatel (see box). After all, telephone manufacturers can only reduce the size of their devices so much. "They need a minimum surface for the user interface: the screen and keyboard," explains Patrick Houzé, director for strategy and development of Saft's Portable Battery Group. The result? **"A very strong demand from customers for us to reduce the size and the weight of our batteries."** Serge Simon, the buyer in charge of batteries at Alcatel, concurs. "We need technological innovation to move from project to project," he says – and that's only the beginning. "This market moves so fast, our suppliers need to be reactive in all areas, from sales to technology. Logistics are particularly critical, since we need to be able to deliver our products anywhere in the world within 48 hours, and we can't do this without our suppliers."

One of the characteristics of such a high growth market is that demand is very difficult to forecast – a factor which complicates the production planning for customers and Saft alike. Rousse explains that Saft has firm orders for 15 days only, and modifiable orders for the next 15 days. Anything beyond that period is only an estimate.



D.R.

Saft delivers its 3 millionth Ni-MH battery to Alcatel

Saft has delivered its 3 millionth nickel metal hydride battery to Alcatel, which uses the line in its One Touch Easy and One Touch Club consumer GSM telephones. The batteries, which are 3.6 VH AA nickel metal hydride cells, have been produced since April 1997. Deliveries are made on a weekly basis; average monthly deliveries have hovered around the 200,000 mark. ●

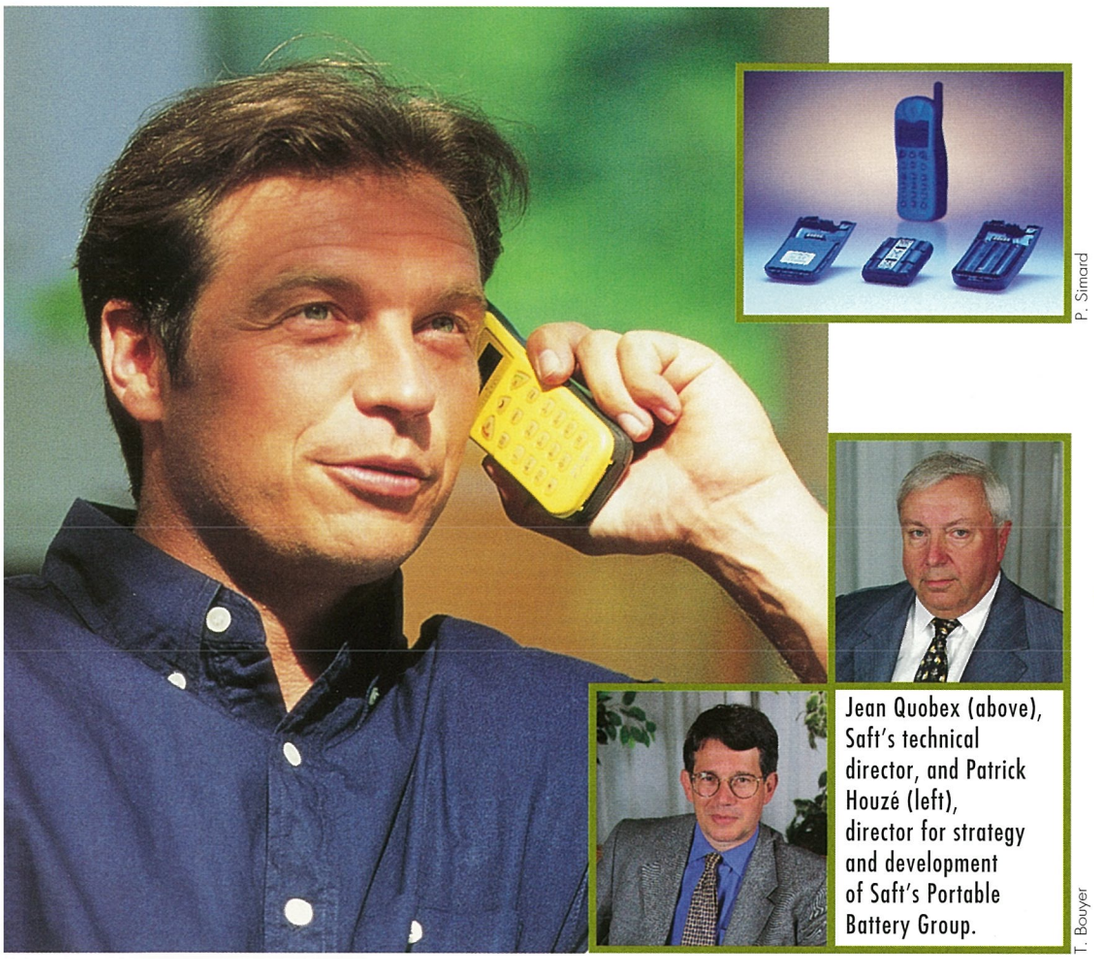
D.R.

A MULTI-LEVEL RESPONSE

Saft has responded to these new challenges with both innovative technology and organizational change. **Technologically, the company will be among the first to market a lithium polymer battery** (see Innovation) which is thinner, more flexible, and more lightweight than 'regular' lithium-ion, which in itself is highly appealing for portable applications because of its autonomy (which is twice that of nickel cadmium's). Though nickel metal hydride (Ni-MH) is the technology that currently obtains the largest market share – 60% – **Houzé believes that lithium-ion and lithium polymer will be fully 80% of the telecom market by 2001.** And then what? Another challenge is simply preparing for tomorrow. "The components for the telephone of the year 2001 don't exist yet," says Houzé. Given that a telephone has a market life of about 18 months, OEMs and their suppliers must constantly anticipate new demands – and new solutions.

In the meantime, Saft has augmented its production volume of Ni-MH batteries to better serve the current market. Just last year, it opened new production lines in Tijuana, Mexico. Saft has also addressed specific parts of the portable market with its new medium prismatic (MP) lithium-ion battery – which targets military radio-

ORTABLES



P. Simard

Jean Quobex (above), Saft's technical director, and Patrick Houzé (left), director for strategy and development of Saft's Portable Battery Group.

T. Bouyer

communications applications and hand-held terminals – as well as with its nickel metal hydride battery for cordless power tools. "Ni-MH is appropriate here because **it offers 25% more energy than Ni-Cd, and more power than lithium-ion,"** says Jean Quobex, Saft's director of research and development.

A PROJECT-DRIVEN APPROACH

Above and beyond technology, Saft has thoroughly reorganized its work processes to increase its overall effectiveness. This reorganization, part of a re-engineering program baptized World Class 2000, is based on the systematic implementation of project-driven work methodologies, and **its goal is no less than halving new product development time.** "These methods have long been present at Saft but they were not used in a systematic way," he says. The World Class 2000 program ensures that all Saft products are developed in this manner.

According to Quobex, **all projects now follow a Master Product Development Program,** which consists of five phases. The first is the market phase, "which consists not only of determining market needs, but seeing if we have a technological concept which can meet those needs," he explains. "Once the market has evolved to warrant the industrialization of the concept, we attack the development phase." The next step, then, is planning this development phase: defining tasks, attributing resources and so on. Then comes the actual development phase – typically the longest phase of all. "How do we reduce this phase? By making sure we get phases one and two right," he continues. It is also during this phase that multi-project teams very similar to those found at Saft's key accounts are created. **These teams regroup the full range of skills required to get a product from the development phase onto the market:** marketing, purchasing, R&D, quality and production. "All of these people then get the benefit of having the same level of knowledge about the project at each phase of its progression," explains Quobex.

WORKING IN TANDEM

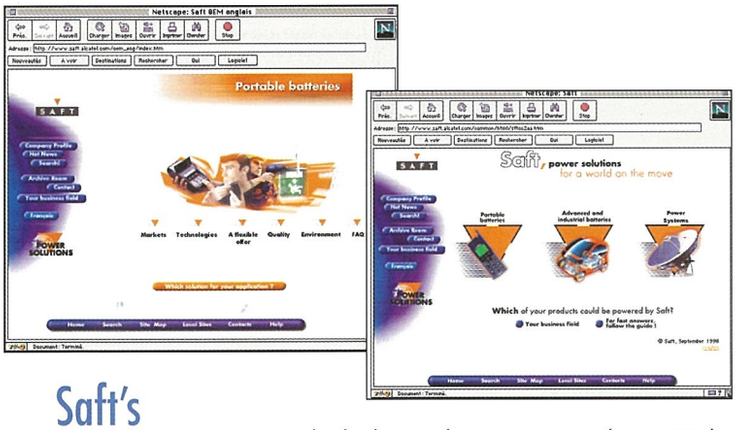
This approach has been successful with customers, most of whom have also implemented similar approaches. "Our project teams work in tandem with their project teams," explains Houzé. Moreover, "we also have marketing and purchasing teams who work with their counterparts at the customer's to prepare the materials which will be required for products that are slated for 2000."

The last two phases are qualifying and preparing industrial implementation, and finally, industrialization, complete with follow-up of the first runs in order to make any last-minute modifications.

Saft's recent lithium polymer program has followed these processes. Taken out of Saft's laboratories in September 1997, where it had been **in preparation for at least seven years, it took only four months to create a 25-person team in Valdese, North Carolina.** "It's important that these teams be located in the same physical space," says Quobex. Saft will be ready to start industrial production of the new battery in the first half of 1999. ●

WINNING PRACTICES FOR CUSTO

MEETING CUSTOMER NEEDS MEANS MANY THINGS: DEVELOPING INNOVATIVE NEW TECHNOLOGY, UPGRADING CURRENT PRODUCTS AND ADAPTING EXISTING RESOURCES FOR NEW APPLICATIONS. IT ALSO MEANS ON-TIME DELIVERY AND RELIABILITY.



Saft's Internet site in full growth

Saft is taking every advantage of the internet to provide its customers with constantly updated and new information. Users consulting the Saft site at www.saft.alcatel.com now have access to some 60 extra pages on the company's Portable division. The site is practically exhaustive, with absolutely everything a customer needs to know about portable batteries. Another even more recent feature is the possibility of downloading the components maintenance manuals for aviation batteries. Of course, this service is only available to customers who subscribe to certain sections of the site. The Saft Web site has had considerable success since it first came online in November 1997, the number of consultations increases every month. During the three month period from May to July 1998, over 50,000 documents were consulted on a monthly basis, while an average of 6,000 user connections were made daily. During September, more than 200,000 connections were made for the first time.●

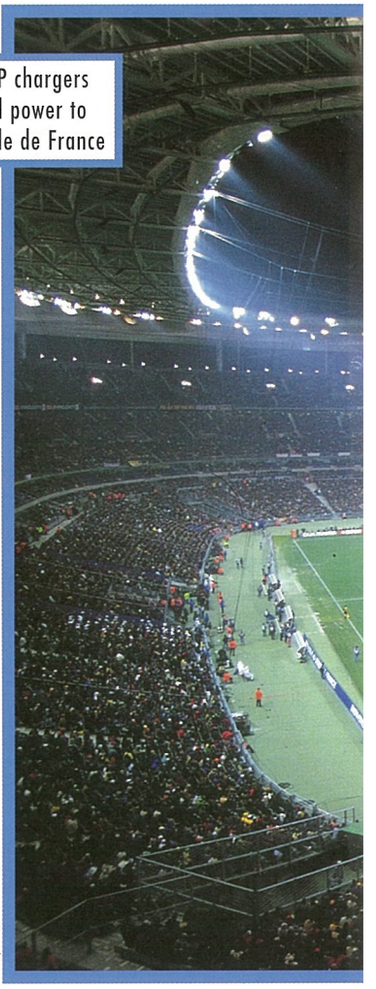
http://www.saft.alcatel.com

"We were the only ones to manufacture, install and put our products into operation, something our competitors could not do."

Alain Deloizon,
Saft account manager for the Stade de France

Saft MTP chargers supplied power to the Stade de France

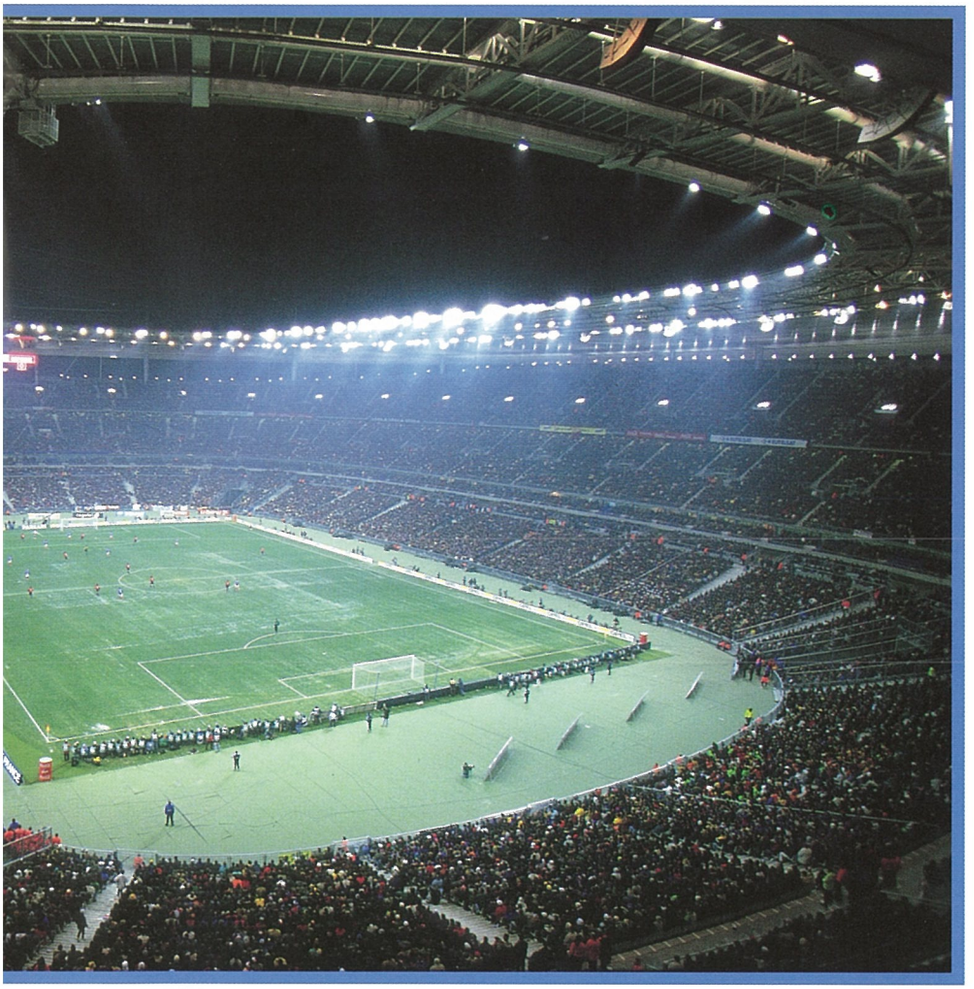

Alcatel


Graphix/A. Da Silva

BRINGING THE WORLD CUP INTO WORLD'S LIVING ROOMS

Last summer's World Cup was not only thrilling, it was decidedly high-tech – and Saft played a key role in making sure that all went smoothly. Eight of the ten stadiums which hosted games were equipped with state-of-the-art technologies such as ATM for transmitting images, voice and data to the Paris-based International Radio Television Center. This Center then disseminated the information to some 280 press organizations – including those on the internet – throughout the world.
Saft's MTP chargers supplied power to France Telecom's transmission equipment in five of the stadiums – including the newly-built Stade de France, which had three transmission sites. The France Telecom equipment was used for both classic

MER SATISFACTION



and GSM voice as well as for image transmission through some 40 television signals throughout the Cup (and through fully 70 of them during the opening ceremony and the final!).

Saft was chosen to play this critical role because it was one of the few suppliers to manufacture these products quickly and in sufficient volumes, thus ensuring the chargers could be available when needed.

"We were also the only ones to manufacture, install and put our products into operation, something our competition could not do," says Alain Deloizon, who handled the Stade de France account for Saft.

Now that the Cup is over, "the IMC's have been taken down and reinstalled in some of France Telecom's switching centers – proof that they performed well," adds Bernard Gardelle, who sold the MTP chargers to the stadiums outside Paris. ●

More back-up power to the NYCT!

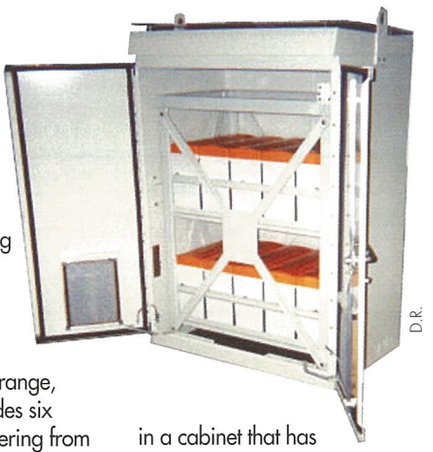
The New York City Transit authority is adding some 1080 state-of-the-art cars to its 6,000-car subway system – and once again, Saft nickel cadmium SRX batteries will be onboard to provide back-up emergency power. These sintered plastic bonded electrode batteries offer enhanced performances for less volume than pocket plate batteries – a key advantage for rail operators who increasingly need extra space for other rail technologies. Saft has been supplying virtually 100% of emergency back-up batteries to the NYCT since 1992. Indeed, Saft supplies 85-90% of the rail transit vehicle business in North America. Getting this latest contract, however, "was a long process," says Carl Wikse, Saft's director of North American railway sales. The contract actually calls for Saft to deliver 648 batteries (the cars are organized into 5-car trains and not all of them require batteries) to car manufacturers Bombardier and Kawasaki, who are both selling their new cars with the battery. "We have supplied prototypes and will be making shipments in the third quarter of 1998," says Wikse. The contracts are expected to run until late 2000 or early 2001. ●

Alcatel

New Ni-Cd batteries target the telecoms market

Saft has launched the new Ultima.plus range of nickel cadmium batteries to provide back-up power in telecoms outdoor installations such as cabinets, vaults and hubs. Based on pocket-plate recombination technology, the range offers an immediate and practically maintenance-free solution to operators installing new outdoor shelters.

At the moment, this market is served by valve-regulated lead acid (VRLA) batteries, which suffer dramatic loss of life when exposed to high temperatures. Indeed, the life cycle of these batteries in some areas of the U.S. is only two years – thus increasing maintenance costs and undermining reliability. "Our battery can go up to 20 years without topping up under normal temperatures," says Tony Green, marketing and sales development manager of the Standby Division of Saft's Advanced and Industrial Battery Group. "Even at high temperatures, it can last 15 years, though it would probably need topping up once during that period."



D.R.

The new Ultima.plus range, which includes six products offering from 55 Ah to 200 Ah, can be used in new or modified outdoor cabinets. "We cannot provide a direct replacement for VRLA: given that Ni-Cd has only half its energy density, we need twice the volume for the same electrical capacity," explains Green. However, "we can provide the product in a cabinet that has been designed to Bellcore standards." Reaction to the battery has been positive. "The Ultima.plus is the only Ni-Cd battery available today for this market," he says. Saft is also developing a battery using sintered plastic bonded electrode techology for the replacement market (see Innovation). ●

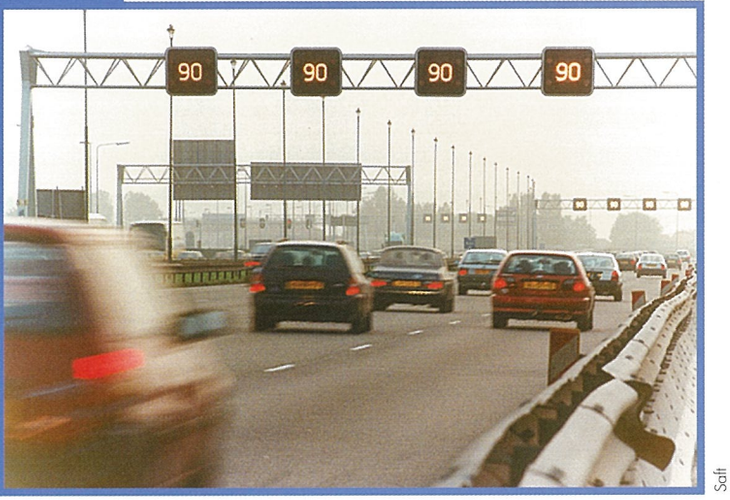
The new generation of Saft DC power systems.

New UPS upgrade increases safety of Dutch motorways

Saft has started supplying the latest upgrade of its Ni-Cd battery-backed DC "no-break" power UPS system to the Netherlands Motorway Traffic Management System (MTMS). The UPS will provide back-up power for 500 new outstations along the country's motorways. These outstations collect and transmit traffic data to both the overhead motorway signs that keep drivers informed and to a central control center.

This latest UPS upgrade, which is currently in the process of being certified, "offers more functionality than the previous one," says Peter Bon, managing director of Saft BV. "It offers the possibility of remote sensing and controlling, can store 200 events and detects more parameters." Moreover, the system is also available in 4 configurations (600 W, 800 W, 1000 W and 1500 W) instead of just one.

The MTMS has long relied on Saft for this important motorway application. The reliability of Ni-Cd, which enables back-up times of up to two hours, has been a critical factor in this application, where highway safety is paramount. "We have supplied some 2400 UPS systems to the MTMS over the last 15 years," continues Bon. "We worked directly with the client to develop this new upgrade." The current contract will be carried out over the next two to three years. ●



Saft

"With the MTP 1800 and 1100 rectifiers, Saft is once again in a technological leadership position on the global telecom power systems market"
Greg Olivier, *Saft's Power Systems general manager.*

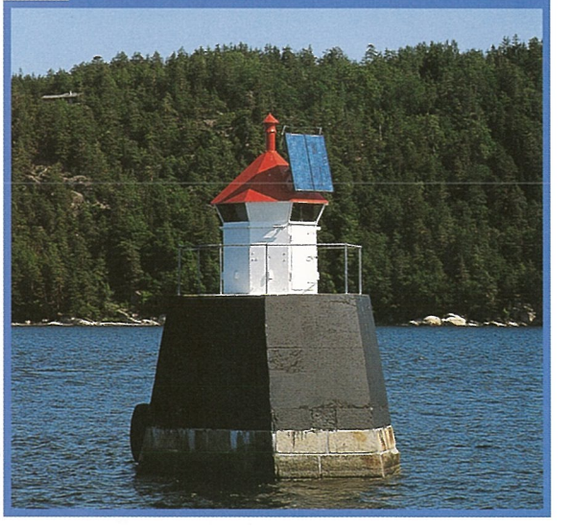
Kevin Mead

NEW GENERATION DC POWER SYSTEMS PRESENTED AT INTELEC

Saft Power Systems presented a new generation of DC power systems at Intelec in San Francisco at the beginning of October. The new MTP 1800 and 1100 rectifiers represent a real technological breakthrough, with the highest power density on the market — 225 W/l. They are fully digital and feature futuristic design and the 'Saft self protection concept,' introducing a new era of flexibility and reliability. The systems are global products for an international clientele, in the new telecom markets.
"With the MTP 1800 and 1100 digital, Saft is once again in a technological leadership position on the global telecom power systems market," notes Greg Olivier, Saft's Power Systems general manager. The systems, manufactured at Saft's UK plant, were a total success at Intelec and seven systems will be in test phase with international customers by the end of 1998. They will be commercially available at the end of the first quarter of 1999. ●

Solar Ni-Cd batteries make inroads in Russian lighthouses

The lighthouses that guard the Barents Sea coast off Russia's Kola Peninsula, just next to Norway, will be outfitted with Saft Sunica photovoltaic batteries. These batteries, in addition to improving reliability and drastically reducing maintenance needs, will also bring considerable environmental advantages. Russian lighthouses are currently powered by nuclear reactors using strontium-90, a highly radioactive material. The project is a cooperative venture between the Norwegian and Russian coast guards. "We started last year with one lighthouse and have since added a few more," says Trond Beyer, who is sales manager for Saft's Advanced Industrial Battery Group in Scandinavia. Deliveries should continue until the 132 lighthouses that have been designated by Norway as sensitive are outfitted.
Saft has long supplied the Norwegian Coast Guard with Sunica batteries for their full range of lighthouses, from small lights with a peak power of 60W to major lighthouses with installed peak panel power of 4.4kW. The Sunica batteries are particularly attractive for this application because they can function in extreme temperatures, provide power without a recharge during three months of permanent darkness in the winter, and are easily installed and maintained. ●



Studio Inge

GAINING SPEED, GETTING BETTE

WORLD-CLASS PRODUCTS REQUIRE FIRST-CLASS FACILITIES. SAFT IS INVESTING IN ITS FUTURE, WHETHER IT BE THROUGH ACQUISITIONS THAT REINFORCE ITS PRESENCE IN CERTAIN SECTORS, OR THROUGH ORGANIZATIONAL IMPROVEMENTS THAT ARE YIELDING SIGNIFICANT PRODUCTIVITY GAINS.

T. Bouyer

Assembling batteries for miners' headlamps, part of the production activities at Saft's plant in Raskovice, in the Czech Republic.

Saft strengthens its offer in power systems

D. R.

Saft is expanding its industrial capacity in power systems – one of its three key activities – thanks to a major acquisition in Germany. AEG SVS Power Supply Systems GmbH and AEG SVS Power Supply Systems Sörnewitz GmbH, which represent some 460 employees in two sites, Warstein-belecke (photo) and Sörnewitz, and sales revenues of FF350 million (1997), produce mostly rectifiers and UPS in two plants in central Germany. The AEG SVS acquisition allows Saft to reinforce its presence in the German market, where AEG holds a leadership position. It also reinforces the company's strength in the high-growth AC/AC UPS sector, and allows Saft to offer its customers a wider range of products thanks to AEG's activities in power control devices. For its part, Saft's international network will enable AEG SVS to increase its exports, which currently stand at 30% of annual production. ●

"The product quality is now in line with the best Western standards."

Hakan Hammarstrom
General manager, Saft Ferak a.s.

SAFT PLANT IN THE CZECH REPUBLIC REACHES (HI)SPEED

It took only 12 months for the Saft plant in Raskovice, located near the Polish and Slovak borders in the Czech Republic, to obtain a first ISO 9001 certification for its activities in producing industrial nickel cadmium cells for rail applications. The result? Saft is now ready to serve a broadening range of customers in central and eastern European markets – at World Class 2000 standards. Saft has invested some US$ 2 million in Raskovice since 1995, when it first bought the plant. Working in tandem with other Saft plants – notably Oskarshamn – it has improved its cell design. Of course, Raskovice, like all of Saft's plants,

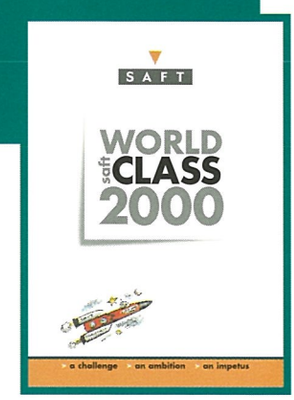
R

has been motivated by Saft's World Class 2000 program, which has guided its modernization. The plant has been cleaned, painted and is now more logically organized. Improvement road maps for each of its functions have been established. Moreover, plant managers have installed new software to better manage production and inventory. Raskovice is already seeing the results of its efforts. By May 1998, deliveries were on time in fully 91% of orders. Moreover, the plant is set to increase its production volumes by 14% this year, and 30% for 1998-1999. The plant is now preparing to meet yet another challenge: it hopes to receive ISO 14000 certification for environmental management standards during 1999. ●

New methods lead to big improvements at the Valdosta plant

The Saft plant in Valdosta, Georgia, has improved its manufacturing performance significantly thanks to its World Class 2000 efforts. Highlights include a 33% improvement in productivity, an almost 50% reduction in both surface usage and inventory, as well as simplified and more efficient work flows. According to Peter Denoncourt, director of manufacturing for the transportation division of the Valdosta plant, some of these improvements have come about after relatively small changes. Take work flows, for instance. "The product now moves half as far as it used to, just because we've reorganized our work so that it flows in a logical order rather than a random one," he says. These reorganized work flows have freed up significant space, which will then be used for expansion.

In terms of productivity, the plant made a dramatic improvement early in the program (late 1997), and reduced overtime by the equivalent of 10 employees. Total productivity has now improved another 5% since then. In terms of inventory, "we're living with having less on the shelf. Our business is such that we can pretty much manufacture to order," says Denoncourt. The plant is now into its second phase of the World Class 2000 program. "We're working more closely with suppliers, trying to get them to improve their on-time reliability," he says. There is also a massive training program underway, aimed at preparing the staff for the just-in-time manufacturing methods that will be implemented in January 1999. ●



SETTING OUR SIGHTS ON THE LO

TRUE INNOVATION IS ONLY POSSIBLE IF WE PREPARE TOMORROW'S SOLUTIONS TODAY. THAT'S WHY WE AT SAFT WORK CLOSELY WITH CUSTOMERS TO IDENTIFY NOT ONLY NEEDS, BUT THE MATERIALS, PROCESSES AND STRUCTURES REQUIRED TO MEET THEM MOST EFFECTIVELY.

Photo Iso

Saft seminar commits to auto industry

Fifty people representing 35 customers – including all of Europe's auto manufacturers – attended a seminar in Bordeaux to review Saft's technological and industrial commitment to electric and hybrid vehicles. The seminar, held September 9 - 10, coincided with new U.S. regulations that now stipulate that by 1999, 4% rather than 10% of all cars sold in New York and California must be electric, while 6% must be hybrid. Jean-Claude Dutailly, general manager of Saft's Advanced and Industrial Battery Group (AIBG), summarized the results of Saft's many projects in both high-energy lithium-ion for EV applications, and high-power lithium-ion for hybrid applications. Saft also introduced customers to its new lithium-ion pilot line (see article below). "We were very transparent vis à vis our customers. For example, we showed them a video of our security tests," says Thierry Faugeras, sales and marketing director for AIBG's Advanced Technology division. If the seminar allowed Saft to confirm its commitment to lithium-ion, it also underscored its partnership approach to the industry. "We've used modular integration concepts in our products, allowing us to both reduce the costs of our batteries and custom design them," continues Faugeras. Moreover, "we have adopted a platform approach to manufacturing, which reflects the structure of the auto industry as a whole." The result? Customers who are now convinced that Saft has both the technological solutions and the industrial capacity to meet industry demands. ●

Saft's new Technical Center in Bordeaux, France.

Elyo-Baggio

"It seemed critical to the effectiveness of R&D to have a geographical and physical regrouping of teams working on the same projects."

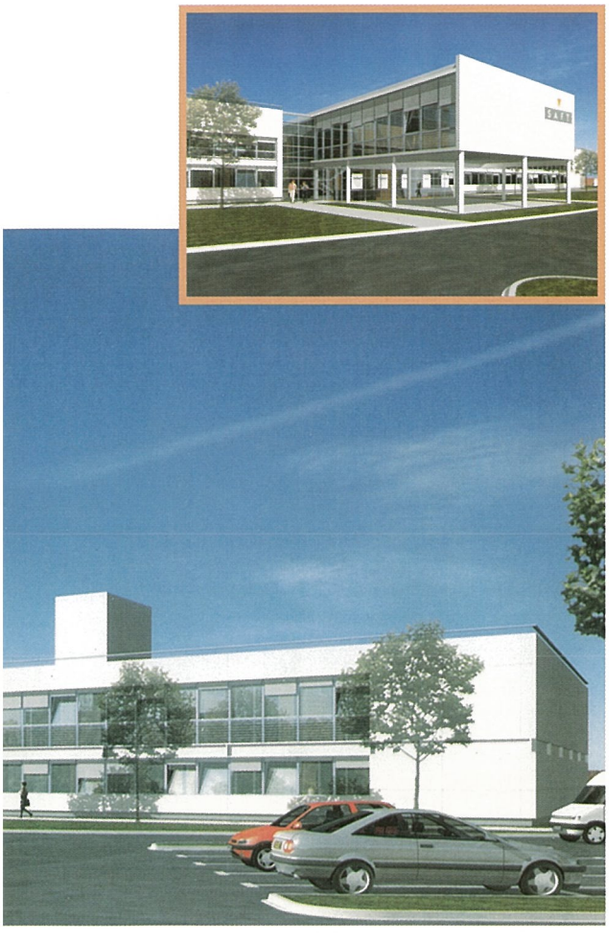
Jean-Claude Dutailly, *general manager, Advanced and Industrial Battery Group*

NEW CENTER IN BORDEAUX FOCUSES ON LI-ION, NI-MH

The new Technical Center in Bordeaux, due to be inaugurated in spring 1999, is the concrete manifestation of Saft's commitment to nickel metal hydride and rechargeable lithium-ion – key technologies for not only electric vehicle applications but for space and telecommunications as well.

For the first time, the bulk of R&D efforts on these key technologies will be regrouped under the same roof. According to Khushrow Press, director of the Advanced Technology Division of Saft's Advanced Industrial Battery Group, greater proximity means greater efficiency, which in turn, means shorter development times – a key objective of Saft's World Class 2000 program.

NG-TERM



T. Bouyer

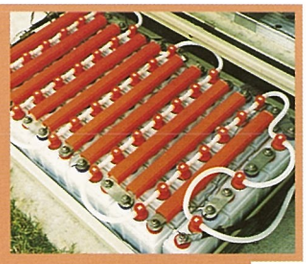
Saft's chairman, Jacques Leclercq, talking to Ric Raines on a lithium polymer-powered portable.

New technology for portable market

Saft will be among the first companies to market a lithium polymer battery for portable telephone applications. "The market is eager for this product because it's thinner, lighter and can be configured in more flexible shapes than prismatic lithium-ion," says Ric Raines, general manager of Saft's lithium polymer project in Valdese. Electronically, lithium polymer has the same qualities as lithium-ion; its singularity is in its form. "One main advantage is that it can be very thin – as thin as 1 mm," he explains. The smallest available prismatic lithium-ion battery is 5 mm. Lithium polymer's thinness is due to its separator, formed directly onto one of the electrodes, creating a rigid cell housable in a flexible pouch rather than a steel or aluminum casing. The lithium polymer pouch does not require an electronic mechanism to control surcharges. The pouch enables an easy evacuation of heat, making it extremely safe. After working on the lithium polymer for a decade, Saft took the technology into the industrial arena in August 1997. An operational pilot line is now being upgraded for industrial production. ●

Thanks to the new center, "we will work by platform, one for each electrochemical couple," explains Gabriel Meyer, director of the Bordeaux plant.
Each platform will have access to sophisticated, large-scale pilot lines, which though not quite of industrial scale, will allow Saft to test its manufacturing processes.
Of course, Saft has not waited to have this center to start work on the two couples. For the last four years, a significant R&D team has been working on Ni-MH in Bordeaux, where there is already a pilot line. Rechargeable lithium-ion, for its part, is currently being worked on by a team of 15 in Poitiers (plus a team of five in Tours).
As soon as the center is operational, AIBG's only other R&D activities on Ni-MH and rechargeable Li-ion will be in Cockeysville, Maryland, which will complement Bordeaux by adapting its efforts for the U.S. market. ●

Saft prepares new battery for telecoms outdoors infrastructure market



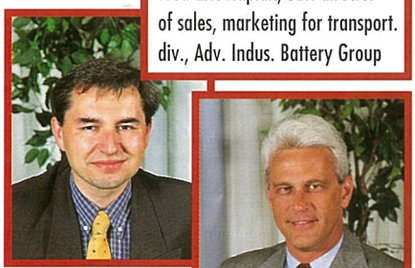
D.R.

As a parallel initiative to its Ultima.plus range (see Power Solutions), Saft is developing the NCX Ni-Cd battery to address the fast-growing telecoms outdoor installations market. Operators are seeking an alternative to the valve-regulated lead acid batteries currently used in such installations because they suffer dramatic loss of life in high temperatures. Unlike Ultima.plus pocket plate technology, the NCX is a sintered plastic-bonded electrode battery, designed in Bordeaux to meet precisely the same specifications as the VRLAs. As a result, the NCX will be able to replace these batteries in current installations. The NCX has an estimated life span of 15-20 years. Moreover, its topping up intervals are expected to be between three and five years – longer than current VRLA life spans! "We designed a special system for this battery that makes it possible to top up in less than five minutes; it's not a complicated procedure," says Loïc Mahé, general manager for telecom programs in Saft's Advanced and Industrial Battery Group. "We already have a collection of single cells on trial at RBOCs (regional Bell operating cos.) in the U.S.," says Mahé. "Two of the companies are now qualifying the cells to gain time on their purchasing process." Saft expects to complete the NCX's industrialization phase by 2nd quarter 1999, and to generate multi-million dollar revenues as of that year. Given the market's 15-20% annual expansion, sales projections increase to the tens of millions by the end of 2003. ●

COMPETING UNDER PRESSURE WITH BOEING

WITH REVENUES OF $45.8 BILLION IN 1997, 238,000 EMPLOYEES AND MORE THAN 12,200 AIRPLANES BUILT SINCE THE LATE 50'S, THE BOEING COMPANY REMAINS THE WORLD'S LARGEST AEROSPACE COMPANY AND IS THE WORLD LEADER IN COMMERCIAL FLIGHT. OVER THE PAST 25 YEARS, SAFT HAS EVOLVED FROM BEING A REFERENCED AIRLINE OPTION FOR AVIATION BATTERIES TO BEING THE COMPANY'S PRIMARY SUPPLIER.

Boeing



Fred-Eric Hapiak, Saft director of sales, marketing for transport. div., Adv. Indus. Battery Group

Sydney Reames, Saft N. American vice-president for sales, marketing transportation batteries

Saft and the aviation industry

Saft has a commanding lead of the aviation market share worldwide – some 50 to 60%. Saft serves the aviation market in a number of ways. Some aircraft manufacturers choose to buy the batteries directly and integrate them themselves. Others work with a third party system integrator. This is the case of Boeing, who counts on Eldec, which manufactures the battery charger, to integrate the battery. "We consider both of them our customers," says Reames. ●

Boeing, whose jetliners transport some 2.5 million passengers every day, has long held a dominant position in the market. Its business, however, has changed dramatically in recent years: greater competition, coupled with sudden spurts in demand, has put it – and its suppliers – under increasing pressure to speed up production and improve quality, all while reducing costs.

Saft, for whom Boeing is the largest OEM customer for aviation batteries, is working hard to meet these new challenges.

"As a primary supplier, we have to constantly remain competitive with regards to technology and price," says Fred-Eric Hapiak, Saft's director of sales and marketing for the transportation division of Saft's Advanced and Industrial Battery Group. "We also have to provide first-rate logistical support that can adapt to Boeing's varying production rhythms." Roger Alberts, the Boeing buyer for batteries, concurs: though all Boeing suppliers must meet a host of stringent requirements, the three critical factors are "quality of the product, on-time deliveries and price."

What is Saft doing to meet these needs? First of all, "we're adapting to Boeing's needs," says Sydney Reames, Saft's North-American vice-president for sales and marketing of transportation batteries.

"We're working with our suppliers to get them to step up their production, and we've taken one-and-a-half miles out of our production process by reorganizing work flows."

"Doing business with Boeing has also driven our quality efforts quite significantly," he continues. "We've gone up several levels in the last few years, and in December 1998, we will complete the upgrade of our system to meet Boeing D1-9000 quality requirements."

A RELATIONSHIP IN EVOLUTION

The efforts deployed by Saft to satisfy Boeing mirror the efforts that it has made over the years to develop the relationship. "We started out as a little-known European supplier. Nonetheless, many of the airlines to which Boeing sold airplanes knew and wanted our products," recalls Hapiak.

So the relationship began quietly in 1975, when Saft was referenced as an option for aviation batteries.

FACING NEW CHALLENGES

Since then, "our relationship with Boeing has done nothing but evolve," he continues – partly because of product performance and quality, but also because "our U.S. presence in Valdosta, Georgia, has made it possible for us to offer highly competitive customer service. Finally, our partnership with Eldec has been another strong factor in our success."

Indeed, the relationship with Boeing jumpstarted in 1980, when Saft forged a partnership with Eldec, which manufactures a wide range of electronic components for Boeing, including the battery charger. Eldec is thus the actual battery system integrator. It was then that Saft moved from being an airline option to being the battery supplier for the 757 and 767 programs.

Today, Saft supplies aviation batteries for all models of Boeing's commercial airplane fleet except for two, giving it an 80% market share of the company's current production of 550 planes per year. Saft batteries are found on the 737, 747, 757, and 767 models.

PROVIDING ADAPTED SOLUTIONS

Saft does not sell one type of product to Boeing, but two, depending on the airplane model. The 747, 757, 767, and classic 737's are outfitted with the Delta Plus, a sintered/sintered Ni-Cd battery.

"The airlines are happy with this product," says Alberts – and if customers are happy, Boeing is happy.

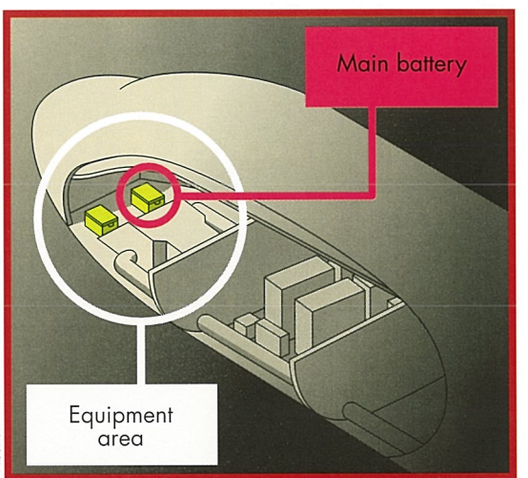
Since 1997, however, the Boeing Next-Generation 737 has been outfitted with Saft's newer battery, the ULM (ultra-low maintenance), which is a sintered/plastic bonded electrode Ni-Cd battery that offers higher energy density and lower water consumption than the Delta-Plus.

"The Next-Generation 737 needed a stronger battery because of its larger load requirements electrically. Different instrumentation had different power requirements," explains Alberts. "We therefore needed to go with a new battery, so we decided to go with a new technology as well." Boeing has since specified the ULM battery on its new generation airplanes. Today, this includes the 737 as well as the 767-400.

WORKING IN TANDEM

Saft's relationship with Boeing is longstanding and close. "Our contracts are very long term – Saft has been the exclusive supplier of batteries for the 757 and the 767 for 18 years, for instance. Boeing looks for solid partners so they don't have to go through the whole selection process every year," says Bruce McRae, Saft's technical sales manager for Boeing. "We support them in every aspect, from product support to engineering. On the technical side, when a new program comes along, they call us, we identify the technology requirements and if possible, we supply them with test results we already have. On the product support side, Saft can provide training to the battery shop personnel to ensure optimum maintenance procedures."

Moreover, "we support their new development programs, such as the one for the 767-400. We've also taken the initiative to develop a battery for the 777, which we will present to them as a non-solicited proposal. (The Boeing 777 and the 717 are the only two airplanes which Saft does not equip.) Our objective is to earn 100% of Boeing aircraft," adds Reames. ●

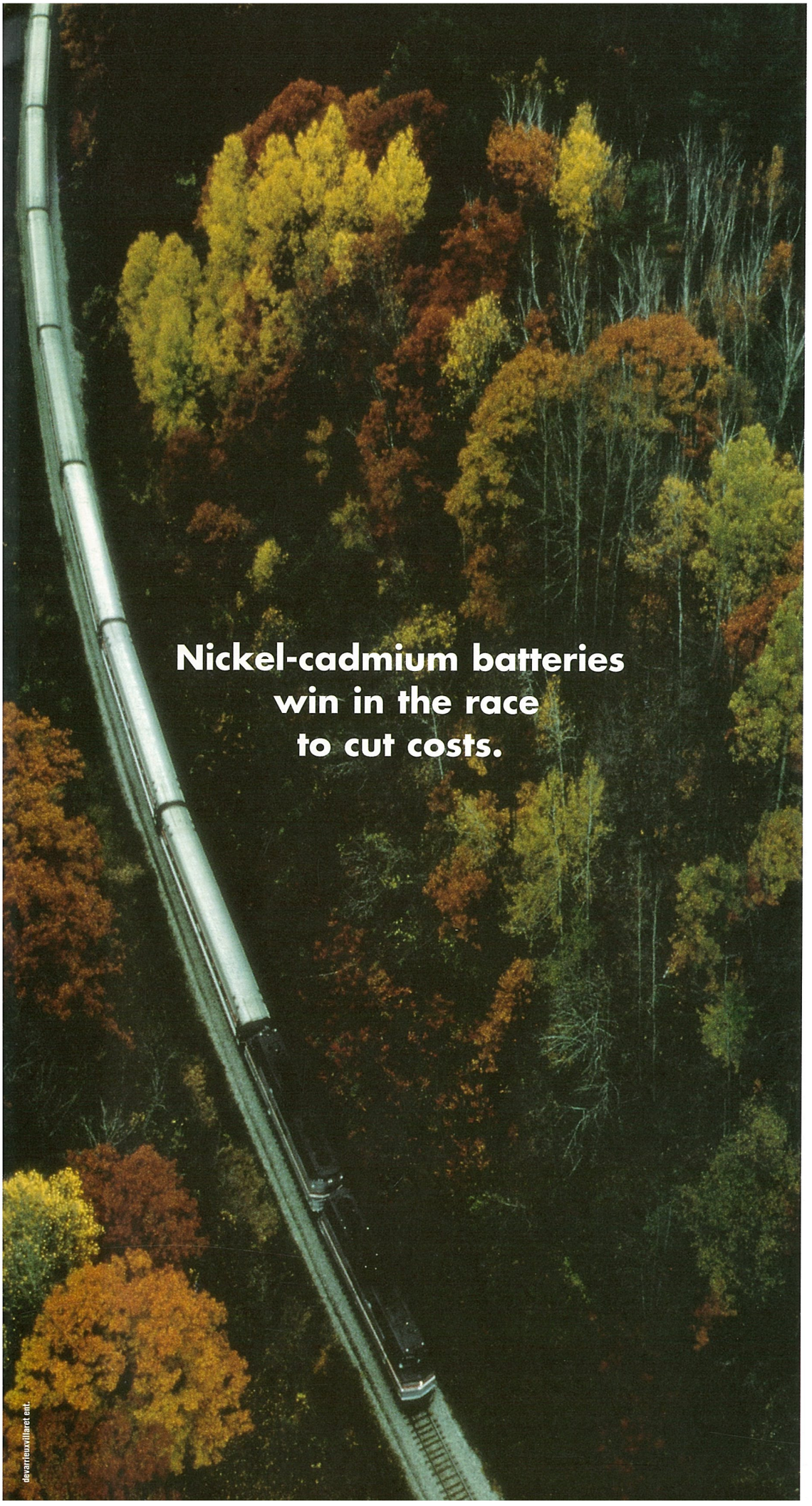


Picotto

What do Saft batteries do on Boeing airplanes?

The ULM and Delta Plus batteries perform two essential functions. The first is to provide electrical power to the aircraft's auxiliary power unit, which in turn starts up the main engine. It also supplies emergency fill-in power for the plane's avionics and navigation equipment.

The 539CH-1 ULM battery is a very large battery with high starting power and low maintenance requirements. Indeed, it extends the battery maintenance interval up to one year, which is a considerable improvement over the former product, which needed to be maintained every three months. The ULM also provides Boeing with 17% more capacity (more flying time) for the same weight as the Delta Plus 4579. ●



Ni-Cd batteries won't cost you much in the long run. Of course you've got the initial investment. But on operation and maintenance, Ni-Cd batteries are very cost effective. Operating costs are reduced because Ni-Cd batteries are light and compact. And, with topping-up necessary only once every 2-3 years, preventive maintenance is reduced to a minimum while Ni-Cd's built-in reliability makes corrective maintenance negligible too. Taking into account Ni-Cd's long lifetime, you arrive at a life-cycle cost that really puts you ahead. Which means not only does Ni-Cd come out a winner. So do you.

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