

# AVIATION WEEK

# SHOWNEWS BRIEFING

## MRO ASIA

SEPTEMBER 19-21, 2006

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Overhaul action in Xiamen is exemplified as Boeing last month re-delivered this Pratt & Whitney-powered 747-400BCF (Boeing Converted Freighter) to Korean Air Cargo. The modification was done here by Taikoo (Xiamen) Aircraft Engineering Co. (TAECO) under Boeing's full supervision; a second is underway for delivery next month to Singapore Airlines. Korean Air began work in Pusan last month on another passenger 747, to be converted to a freighter and certified as such, so that Korean can convert its own and other carriers' aircraft. Korean Air has six freighter kits on firm order with options for 13 more. Singapore Airlines is embarking on a similar program, with seven Boeing conversion kits on order.

## The Asian MRO Boom Continues

MRO in Asia? Booming. Here in China, some 650 aircraft are expected in the next five years and an astonishing 240,000 trained people will be needed to maintain them over the next 20 years.

Boeing is planning MRO centers in Shanghai with Shanghai Airlines and airport authorities, and in Nagpur, in the State of Maharashtra in central India, with partners to be determined.

Singapore, Asia's largest MRO center (its MRO business grew 17% last year to \$3.3 billion), is trumpeting its educated workforce and support industries as it promotes a new MRO hub at the Seletar airport. Goodrich, in its seventh expansion since opening for business in Singapore in 1995, is more than doubling its facility near Changi.

### NEWSMAKERS



### China Launches Trade Group

CAMAC, a new trade group for MRO companies in China, was approved by the CAAC on June 28. The first head of the China Civil Aviation Maintenance Association will likely be He Li, former president & CEO of Ameco Beijing, says Chai Weixi (left), who now heads China's biggest MRO—a major CAMAC supporter.



### HEICO Breaks Down Barriers

U.S.-Based HEICO Aerospace has taken a radical step to speed the importation of PMA parts into China—forming a joint venture with the state-owned China Aviation Import and Export Group Corp. So far, HEICO Parts president Robb Baumann says, the move seems to be paying off. *—Story Page 11*



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*Tan Kong Hwei, Workshop Engineer, Eagle Services ASIA*

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# Region's Most Critical Issue Is Training, Says Ameco Beijing

"We are managing growth by training, training, training," says Ameco Beijing general manager Dr. Hans Schmitz.

"We have to add staff—we've added 400 last year. We have four major expansions going on, and we are introducing new products. Now we have to keep those three balls flying."

China will need 100,000 MRO technicians in the next decade, and it takes seven years to fully train a mechanic, Schmitz told *Show News Briefing*.

Ameco Beijing has an advantage: its own in-house training program. It is quadrupling its intake to 1,400 students a year from 350, but cannot do it alone. "We are cooperating with two universities who will do more of the theoretical



Dr. Hans Schmitz.

training, while we do the technical," Schmitz says.

A trained workforce is crucial to Ameco Beijing's growth plans and to capture more market share. From January to June its revenues from third party international business doubled from

a year before, contributing greatly to an overall 24% increase in sales.

The pace is likely to continue as Ameco Beijing trains for the future.

Schmitz believes Ameco Beijing—a long-term joint venture between Air China and Lufthansa Technik—has another advantage: a very low turnover rate and an ability to retain trained mechanics. Location has a lot to do with it, along with a very carefully developed social environment.

Other companies may fare less well as higher salaries lure trained mechanics to India, the Middle East and Singapore as MRO expands in the region.

"There is money enough to buy airplanes, but it takes a long time to train mechanics," says Schmitz. —John Morris



JAL Boeing 747s at TAECO in Xiamen.

## Xiamen: MRO Central

MRO enterprises here include Taikoo Aircraft Engineering Company Limited (TAECO, a JV owned primarily by Hong Kong's HAECO with Cathay Pacific), established in 1993 and now with a fifth Xiamen hangar under construction; GE Engines Services, a JV with partners including China Eastern and Hainan Airlines, and TAECO; GE On-Wing Support, a wholly owned subsidiary of GE; Hamilton Sundstrand Qinling Aerospace, a JV of Hamilton Sundstrand (65%) and Shaanxi Aero Electric Company supporting Hamilton Sundstrand electric power systems; Honeywell TAECO Aerospace Co., or HTAC, with partners including Hongkong Aircraft Engineering; Goodrich TAECO Aeronautical Systems, for aerostructures, avionics, landing gear, engine components, and more (Goodrich is celebrating 10 years of China-based customer service this week); and Meggitt (Xiamen) Sensors & Controls, which commenced operations in 2004.

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## Kingfisher May Tackle Heavy MRO

With nearly 300 Airbus aircraft on order by India's growing airlines, heavy MRO in the country is possible by mid-2008, says Hitesh



Hitesh Patel.

Patel, vp for maintenance and engineering at Kingfisher Airlines.

There appears to be room for two heavy maintenance providers, he says, to cover the new Airbus aircraft expected by Kingfisher, Air Deccan, and IndiGo.

Kingfisher itself flies Airbus A320-family jets and on the eve of MRO Asia was to choose between GAMCO in Abu Dhabi and Lufthansa Technik Philippines in Manila for upcoming C check requirements.

That could go by the board if Kingfisher enters into a joint venture to do the work itself. "I'd like to see MRO here in India, that's for sure," Patel says.

He has already reviewed

several business plans. "This is all just kicking up in the last two to three months," he told *Show News Briefing*.

Kingfisher currently does all of its own line maintenance. Engine work on its A320-family jets is done by Lufthansa Technik in Hamburg, while Pratt & Whitney Canada itself supports the engines on Kingfisher's ATRs.

Patel will discuss 'Airlines on the Cutting Edge' at the conference here Wednesday morning. —Rich Piellisch

## Goodrich Grows, Again, in MRO in Singapore, Even Moving R&D There

"You have to have state-of-the-art MRO capability and sufficient capacity," says Goodrich aerostructures vp Bob Gustafson. And while that's true anywhere, the second half of the statement is particularly true in Asia, which is why Goodrich has expanded its MRO facility in Singapore six times since opening its doors in 1995, and this past June broke ground on a seventh.

The latest expansion, to be complete in December 2007, will add 300,000 sq. ft. to an existing 230,000 sq. ft. already in place near Changi airport.



Bob Gustafson.

The company's nacelle/thrust reverser MRO team, known as GASCA (for Goodrich Aerostructures Service Center—Asia, said to be the first MRO unit in the world to overhaul and refurbish thrust reversers for Trent 800 and PW4000 engines on the Boeing 777), will occupy three quarters of the expanded facility, the company says.

The new Goodrich campus will also house the firm's Singapore-based centers for customer services and aircraft interior products (mostly safety slides and rafts).

And, says Gustafson, "We're actually relocating some of our R&D efforts from California to Singapore," specifically composite materials and nacelle R&D. That decision especially has pleased the Singapore government.

Since his company's 2004 expansion in Singapore, "the demand for our services outperformed any of our expectations," he told *Show News Briefing*.

"It's the kind of problem you like to have."

—Rich Piellisch

## United Services: 'Back, Strong & Ready'



United Services (Booth 502/4) is here with a new managing director, who says the MRO operation is better than ever thanks to a concerted efficiency drive. "We're back, strong and ready," says Chuck Doyle, a 21-year United Services veteran who took over the top MRO job just one month ago. San Francisco-based United (which has a line maintenance facility in Beijing) has the world's only assembly line-type process for engine work, Doyle says, while turnaround times for Boeing 737 landing gear have been halved. United has a new contract for heavy maintenance of ten PW4077D and ten PW4056/4060 engines for Air China 777s.

## LT Shenzhen Components Breakthrough

Lufthansa Technik Shenzhen has signed its first three Mainland customers for Total Component Support. Shenzhen Donghai Airlines, Shenzhen Airlines and Jade Cargo have subscribed to access LT's worldwide parts pool instead of maintaining their own inventories. "Chinese airlines were very resistant at the beginning to the pool concept," says LT Shenzhen president and CEO Wolfgang Breckau, but a stock of parts in China and access to the German warehouse with three flights a day has convinced them parts will be readily available. "We're now in discussions with other airlines," he said. Jade has also tapped LT for Total Engine Support of CF6-80C2s powering six 747-400ER freighters. The TCS and TES contracts for Jade are together valued at more than \$100 million.



## API Logistics & Distribution in Shanghai

U.S.-based API (Booth 202) opened its newest distribution and logistics center in the WaiGaoQuao Free Trade Zone in Pudong (Shanghai) in July. Aerospace Products International (Shanghai), Ltd. is a foreign enterprise, 100% owned by API's parent First Aviation Services. Since opening for business in the Philippines in 2000, API has grown to serve more than 400 customers in 34 countries throughout the region.

## Nordam Doubling in Singapore

Nordam (Booth 620) plans to double the size of its Singapore operation to 125,000 sq ft to accommodate the CF6 thrust reverser repair business acquired from Middle River Aircraft Systems (work is now performed in Thailand). The new facility is expected to handle future nacelle and aerostructures repairs and, possibly, component manufacturing for Nordam's interiors and structures and nacelle/thrust reverser units. Nordam is also considering a new thrust reversers parts pool with contract MRO service for airlines.

## Shanghai SR Aircraft Technics Is Born

Operations have commenced at Shanghai SR Aircraft Technics, a joint venture of Europe's SR Technics and the Shanghai Foreign Aviation Service Corp (Shanghai FASCO) providing technical services at Shanghai International (Pudong). Shanghai SR's first contract is with Malaysian cargo specialist Transmile for MD-11 line maintenance. SR Technics has contracts for support of CFM56-7B engines on China United Airlines'



737s and PW4158 engines on Air Macau's Airbus A300-600, and is finalizing a new joint venture (an MoU was disclosed late last year) with Tianjin-based Okay Airways.

## World-Class Capability? Yes, but Technician Shortage Leads to Rising Salaries

Chinese-based MRO companies may see their low-cost advantage erode as a shortage of skilled technicians in the region forces salaries higher.

That means the companies must have world class quality and service to compete, says Wolfgang Breckau, president and CEO of Lufthansa Technik Shenzhen, which repairs and overhauls composite airframe parts, thrust reversers and components.

Growth at Lufthansa Technik Shenzhen in the four years since it opened its doors has boosted the number of employees to 110. "Our challenge," says Breckau, "is not the size of the facility but in getting qualified people"—and keeping them.

Salaries are increasing (Shenzhen is already 50% higher than many other Chinese cities), and LT Shenzhen is having to offer more benefits and quality-of-life incentives. "It's easy to buy planes, find pilots and train flight attendants. But the hardest people to find in China are experienced mechanics," he says.

Apprenticing helps; LT Shenzhen just hired ten young graduates it's trained for the past year. Many train with Lufthansa Technik in Hamburg, and take courses offered by Lufthansa Technik Training.

"We still enjoy lower costs than our competitors," Breckau says. "But world class quality and turnaround times are as important as price." —John Morris



Wolfgang Breckau at LT Shenzhen facility.

## LT's TTS for Japan's Starflyer

Japan's new Starflyer commenced scheduled service between its Kitakyushu base and Tokyo's Haneda earlier this year, backed by Lufthansa Technik's Total Technical



Support program. "Never before had the authorities granted a foreign MRO provider permission to provide such extensive support services to a Japanese airline,"

LT says. Starflyer has three A320s with CFM56-5B engines. Each has been flying the Kitakyushu-Haneda route four times daily—"so far without any technical problems," LT says. Airframe checks are done at LT Philippines.

## Wencor Plans an Asian Expansion

U.S.-based Wencor (Booth 715) is promoting an expanding range of PMA and other parts, and says it's stepping up its presence in the Asian market. "We recognize the value of being local," Wencor Asia vp Steve Johnson told *Show News Briefing*. "We will be expanding our presence in this market. It will be sooner rather than later." Wencor stocks PMA parts, including pumps and valves, applicable to environmental control, pneumatic, hydraulic, power generation, fuel, engine, APU and airframe components.

## LT Philippines Wins More PAL Heavy MRO



Philippine Airlines has selected Lufthansa Technik Philippines for 8C/10Y checks on its 12 A330/340 widebody airliners. PAL was the launch customer for LTP's heavy maintenance operation in 2002.

## BCIT for Aerospace Training in Canada

The British Columbia Institute of Technology is promoting aerospace education at Booth 320, noting that Chinese and other Asian aerospace students will have new options when BCIT opens a 300,000-sq.-ft, \$58 million (U.S.) Aerospace Technology Campus at Vancouver International next year. The new BCIT campus is buoyed by \$2 million from Honeywell Aerospace for digital avionics instruction. MRO Asia is BCIT's first aerospace foray into China, although the Institute provides course materials and helps train teachers here, as well as in Korea and Indonesia.



## Zip-Chem for Cleaners and Solvents

U.S.-based Zip-Chem (Booth 204) is promoting its range of corrosion inhibitors, lubricants, adhesives and cleaners for aircraft maintenance. The Zip-Chem line includes Aero-Prep brand surface preparations and cleaners, Aero-Lube lubricants and compounds, Cor-Ban corrosion inhibiting compounds and Calla finishing products.

## Sargent Avborne Plans Asia Facility

Watch for U.S.-based Sargent Avborne to locate some customer service functions and a project team in Asia next year, with an eye to siting and setting up a full-fledged component MRO facility by late 2007. The increasing prevalence of integrated service packages necessitates a move closer to customers, says business development vp Marcel Zondag. His new Asia vp, Tracy Darrow, is on hand at Booth 601.



# P&W Drives Combined OEMRO™ Business Strategy

Aggressive growth of its maintenance, repair and overhaul business is a strategic priority for Pratt & Whitney, which last year reaped more than 50% of its record revenues of \$9.3 billion from spare parts and after-market activities.

The results were up \$1 billion from 2004, with MRO contributing strongly to the growth.

Last year's rebranding of Pratt & Whitney's commercial MRO services under the Global Service Partners banner has provided a launch pad for future expansion.

"We're focused on looking for unique additional opportunities such as line maintenance, the EcoPower™ engine wash, or the blade blending borescope that we introduced a few years ago," says Pratt & Whitney president Steve Finger.

"These are things that conventionally an airline did itself

and now we have some new technologies that we think let us do it better. So we listen to customers, and if it works, we do it."

Finger notes that P&W is unique as an OEMRO™—an engine OEM

that has embraced the entire MRO market from overhauling its own engines to those of its competitors. In its latest move, called Global Material



President Steve Finger.

Solutions, P&W is making its own replacement gas path and life-limited parts for the popular CFM56-3 engine. The first new parts will be delivered early next year.

One might ask if Pratt & Whitney is an engine OEM or an MRO business. Last year it produced over 2,600 new engines (including the V2500) and overhauled about

2000 more, while its revenues from MRO activities exceeded those from selling new engines.

"You could argue we're a little bit more an OEM company than an MRO company or vice versa, and that's going to continue roughly in balance," said Finger. "I believe if you are going to be the best MRO provider you also need to be the best OEM provider. And if you are going to be the best OEM then customers are going to count on you to bring them MRO solutions."

## P&W Launches Future MRO Leadership Initiative

Airlines and MRO providers must form stronger partnerships in the future if both are to succeed. Now is the time to start grooming the MRO leaders of the future and to develop a new business model if all are to prosper, says Pratt & Whitney president Steve Finger.

"Leadership is the foundation for great results and leadership development is one of the most important things we do."

P&W last April launched an industry-wide initiative to secure MRO talent for the future.

It has tasked an internal team of experts to create a curriculum for future MRO leaders at all levels from the line up. This will be available to the industry through the MRO Advisory Board in conjunction with the Air Transport Association's Engineering, Maintenance and Materiel Council. Outside participation is welcome, Finger noted.

# China's Airline Boom Spurs Demand for MRO Services

Lyman Marshall, long-time president of Pratt & Whitney China, is a jack-of-all-trades.

He used to just sell engines. But since P&W embraced both MRO and China as strategic imperatives he has a lot more to do. This week he could be selling Pratt & Whitney-repaired engine parts



P&W China: Lyman Marshall.

to China's three engine overhaul shops (MTU Maintenance-Zhuhai, Sichuan-Snecma and Ameco Beijing), and next week helping cement Pratt & Whitney's joint venture with China Eastern for the country's fourth engine center, for CFM56s, in Shanghai. At the same time he's talking up an expansion of P&W's Beijing training center (the only one in the world outside the U.S.)

to include management as well as technical courses.

Marshall still sells engines — as well as the growing range of services to support and overhaul them, from line maintenance to Fleet Management Programs.

"It really is busy in China" says Marshall, as its airlines and P&W expand in parallel.

Indicative of the business expansion is an unprecedented jump in the number of Pratt & Whitney engines in service in China. Three years ago it had about 220 engines there (PW2000s on Boeing 757s, PW4000s on 747s and 767s, and 80 JT8D/JT9Ds); Marshall is now looking at another 140-plus PW4000s joining the fleet as Cathay Pacific, Air China Cargo, Dragonair and Oasis

Hong Kong all add 747s, Shanghai and Hainan Airlines add 767-300ERs, and Air Macau adds A300-600s.

The number of V2500s on narrowbodies is also growing rapidly, as is the tally of CFM56s—providing another opportunity.

"There's a lot of emphasis on new programs," said Marshall, who has already signed up four Chinese airlines for Pratt's CFM56 overhauls, and three for V2500 overhauls in its Christchurch, New Zealand facility. "We are in further discussions and hope for some decisions by year end."

P&W's Global Material Solutions business to manufacture replacement parts for the CFM56-3 has sparked considerable interest, he noted. "We are actively working with three customers and the CAAC on certification" of the new parts, he said.



## Global Service Partners Set to Grow in Asia

Growth in Asia Pacific is a strategic priority for Pratt & Whitney Global Service Partners, the umbrella formed a year ago to bring together all its commercial engine MRO and support activities.

"Today, GSP has more employees located in Asia Pacific than in any other region of the world, including the U.S.," says Jim Keenan, SVP and general manager of



P&W's Jim Keenan.

Global Service Partners. "I anticipate that migration will continue to a point where we will probably have a majority of GSP employees and operations in Asia Pacific."

GSP already employs 2,000 in the region, mostly in Singapore where it has eight joint venture and wholly owned operations. It has shops in Taiwan and Japan, a

V2500 and JT8D overhaul center in Christchurch, New Zealand, and is in negotiations to set up a CFM56 engine overhaul center in Shanghai with China Eastern.

"We are very well positioned in Asia Pacific, and we expect to improve

that position in the future," said Keenan. "We have very active discussions going on with a number of customers on expanding our operations in other parts of Asia Pacific, including India."

Growth will also come through new businesses and services, Keenan said. Two launched this year include Line

Maintenance, and the EcoPower™ engine wash service (which scored an early success with Singapore Airlines, and is now offered at Changi). Both are drawing strong interest in Asia Pacific, Keenan noted.

So is the prospect of using alternative OEM-pedigree parts manufactured by Pratt & Whitney for the CFM56-3 engine, which will allow GSP to offer greater value in its engine overhaul and repair business.

"In summary we are very deeply involved in the Asia Pacific region, and we are investing there now to grow our presence even further," Keenan said. "You will continue to see us doing things like the EcoPower engine wash venture with SIA at Changi, expanding our stronghold in Singapore, and continuing to put capabilities in other parts of the region like India and other countries where it makes sense for ourselves and our customers."

## China Venture Will Aid P&W's CFM56 Plans

Asia will play a crucial role in Pratt & Whitney's goal to become the world's largest independent provider of parts, repairs and services for the hugely popular CFM56 engine that powers the majority of narrowbody airliners around the globe.

"We already perform more CFM56 part repairs in Asia than in any other part of the world, partly because the cost is very competitive and partly because we have such a concentration of MRO activities there," said Jim Keenan, SVP and general manager of Pratt & Whitney Global Service Partners. P&W has eight joint venture or wholly owned MRO operations in Singapore (of which Turbine Overhaul Services, a jv with ST Aerospace, performs extensive CFM56 repairs), as well as parts repair shops in Taiwan and Japan and an engine overhaul center in Christchurch, New Zealand.

Keenan anticipates future expansion in Singapore, and CFM56 repair capabilities in the region will receive another boost when a proposed Pratt & Whitney-China Eastern engine center begins operations in

Shanghai. Groundbreaking could be late this year or early in 2007 after the two companies firm up their current MoU into a formal joint venture, he said.

The Shanghai center will be "the most capable, productive and profitable in the world" thanks to a clean-sheet approach that will allow it to be designed for minimum inventory and space and paperless processes from day one. It will combine China Eastern's operating experience with Pratt's MRO capabilities, SAP platform and ACE business practices. And it will have a "deep" parts repair capability drawn from the more than 2,000 CFM56 repairs listed by Pratt & Whitney, many of which it developed itself.

As a node in Pratt & Whitney's supply network the center will enjoy an economy of scale that will add value for China Eastern and other customers. As such, Keenan noted, its success is based from the start on creating value for customers, not on securing and capturing work that can be then exported elsewhere.

The center will incorporate a test cell

capable of handling engines well past the thrust range of the CFM56, Keenan said. "This is just another element of value we can provide, bringing flexibility to handle light repairs or removals from wing for simple diagnostics instead of having to export engines across the world."

### A Quarter Century in Singapore

Turbine Overhaul Services, a joint venture between Pratt & Whitney and ST Aerospace, this year celebrated a quarter of a century of MRO activities in Singapore. TOS opened its doors in 1981 with 11 staff and now employs more than 800 in the repair, refurbishing and upgrading of turbine airfoils and compressor blades for all Pratt & Whitney engines as well as the V2500 and CFM56. Booming business resulted in TOS expanding into a fourth building in February.



# Global Material Solutions Readies First CFM Parts

Pratt & Whitney is on track to deliver its first production parts for its competitor's CFM56-3 engine by the end of March 2007.

That event will mark the next step in its goal to become the world's largest independent provider of CFM56 services as it brings its OEM expertise to bear in manufacturing MRO parts for the popular narrowbody engine.

P&W president Steve Finger now describes the company as unique in being the world's first OEMRO™.

First deliveries will include the 1st – 4th stage LPT blades, LPT 1st vane cluster, HPT 1st blade, HPT 1st vane assembly and HPT shroud, according to Jim Pennito, program director for CFM Products in the Pratt & Whitney Global Material Solutions business set up to offer customers competitively priced new parts.



P&W's Jim Pennito.

GMS is bringing parts to market in two phases. The first is for gas-path parts including the blades and vanes; the second calls for the major life-limited rotating parts including shafts and disks to be available one year later, in early 2008.

Pennito pointed out the parts

are P&W engineered interchangeable parts, not copies, and all are equal to or better than the originals.

They have been engineered by P&W using its latest technologies in metallurgy and coatings and unique gas-flow and life-calculating software programs validated by its engines in 1.3 billion hours of operation, said Pennito.

P&W will manufacture some 48 parts—

19 of which are life-limited—for the CFM56-3 engine. This is the first time the FAA will approve life-limited parts made by someone other than the original OEM.

United Airlines is the launch customer for the life-limited parts, and active negotiations are under way with potential customers around the world, he said.

Meanwhile development of the Phase

Two life-limited parts continues apace. The schedule calls for the first to undergo aggressive rig testing for FAA validation during the second quarter next year.

Pennito said P&W and the FAA are in active pre-certification talks that focus on two areas: application of the lifing software that Pratt & Whitney uses in all

its engines and parts, and preparations to provide airlines with full support of CFM56 engines containing P&W parts.



Castings of P&W's first CFM56 parts are on show here at MRO Asia.



**“IT’S MORE THAN JUST HOW EACH PART WORKS, IT’S HOW THE ENGINE WORKS.”**

*George Ambulos, Validation Manager, Global Material Solutions*

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## Asiana Sees Lower Fuel Costs With EcoPower™ Engine Wash

Asiana Airlines could save more than \$3 million a year in fuel costs just by washing its engines with Pratt & Whitney's new EcoPower on-wing engine wash.

That's the belief of Asiana's P&W engine manager Sung Chul Yoon, after a trial wash of 84 engines in South Korea.

"We EcoPower washed our CF6-80C2, PW4000 and V2500 engines, and each type showed between 5-11% improvement in



EcoPower™ wash in action.

EGT margin and a 0.3% to 0.6% decrease in fuel burn at cruise," he said.

"If we assume deterioration over three months, and fuel at \$2.10 per gallon, we could save \$830,000 in each quarter. And all for an investment of \$300,000."

Asiana knew the benefits of water-washing its engines from long ago. But it had found its home-base procedure too time consuming as an aircraft had to

be taken from service and towed to a remote environmentally engineered wash area, tying up staff and equipment for an inordinate amount of time.

Then one day at the end of last year a PW4090 showed signs it would need removing due to minimal EGT margins.

"We asked P & W to wash it at San Francisco," said Sung Chul Yoon. "The result was a 7-8% improvement in EGT margin and 4-5 more months on wing."

Asiana was impressed that P&W's new—and mobile—EcoPower engine wash could be brought to the aircraft. And also that EcoPower's closed-loop technology would meet South Korea's very strict environmental rules. "EcoPower wash saved us once," he said. "So we agreed to a trial at Seoul" for which EcoPower was flown in.

EcoPower engine wash uses water in a patented atomized spray, and captures the effluent as it exits the engine, making it environmentally safe. The procedure takes less than two hours at the gate, with the engines just motoring.

"We don't have to move the airplane or use up manpower," said Sung Chul Yoon.

Asiana sees EcoPower wash as a part of its future, he said.



P&W's 34,000 sq. ft. China Customer Training Center opened in 2002.

## MRO Training Expands in U.S. and China

A major expansion is under way in Pratt & Whitney's global customer training activities, with China playing a crucial role.

"The goal is to offer more training to customers more often, and to make it more accessible," says Laura Holmes, general manager of customer training. "We are continuously developing new courses to fit the various needs of our customers."

Pratt & Whitney has two training centers: one at Pratt & Whitney headquarters in East Hartford, Connecticut, and the China Customer Training Center in the Beijing Shunyi district, which serves customers throughout Asia Pacific.

Courses are constantly being added in both centers, and web-based training resources will be introduced by year-end through P&W Online Services. Initial courses will focus on human factors awareness, FOD, and simplified English, and will be available at any time.

In addition, both locations are teaming up with the Pratt & Whitney 24 Hour Help Desk to make training solutions available round the clock.

The Beijing center's bilingual instructors taught over 1,000 student days in 2005, and will likely reach 1,200 this year. Its bilingual courses include line and base maintenance, borescope inspection, engine design and repair, and engine fleet management, as well as an introduction to P&W's ACE quality processes.

Further growth in training is expected as P&W introduces new MRO products, supports their regulatory approval at the CAAC, and prepares to set up a CFM56 MRO center in Shanghai in a joint venture with China Eastern.

Pratt & Whitney Customer Training also plans to offer V2500 and other engine courses utilizing its global network of satellite facilities.

## Line Maintenance Grows for All Makes of Engines

Line Maintenance Services is a fast growing part of Pratt & Whitney's Global Service Partners airline support business. The engine maker grouped its functions such as EcoPower engine wash, line maintenance rapid response, borescope and blade blending under that banner this year, and performed 200 jobs on all makes of engines

for over 100 customers in the first half of 2006, notes Line Maintenance Services general manager Anupam Bhargava.

"These services help complete our MRO portfolio for our airline customers," he said. The next step will be a broadening of its global reach, often with strategic partners.

An example is EcoPower engine wash,

now at four U.S. locations, at Changi in Singapore (through Eagle Services ASIA, P&W's jv with SIA Engineering Company), and on the way in Europe at Amsterdam and Incheon in South Korea.

Some 500 EcoPower engine washes have been carried out in the last two years, 141 in the last quarter alone, he said.



# Asia Growth Challenges P&WC for More Support

Pratt & Whitney Canada is expanding its Asian support capabilities to support customers of its fast growing fleet of engines in the region.

India is a particular hotbed of activity. Airlines there have ordered at least 100 regional airliners powered by PW100-series turboprop engines, which will quadruple the fleet of those powerplants there by 2009 and double the total of P&WC engines in country to nearly 450.

“Our goal is to do more local training and make more support available close by,” says Maria Della Posta, vp for customer support. “We have already doubled the number of support people we have in India and we will continue to adjust as the fleet grows.”

Plans call to set up a facility in India to provide line maintenance, hot section inspections, mobile repair teams



P&WC president Alain Bellemare and Kingfisher chairman and CEO Dr. Vijay Mallya recently signed a \$60 million, five-year contract to support 77 PW127F engines for the Mumbai-based airline's ATR 72-500 fleet.

and on-wing support, with a long-term objective of expanding into a full-blown MRO capability, said Benoit Brossoit, vp for service centers. Eventually it would complement P&WC's other major MRO centers in Singapore and Brisbane, which are both seeing increased activity.

India might be the hot spot but the whole Asian market is exciting, with nearly 4,300 P&WC engines in service in the region, said Della Posta. Economic growth is spurring greater use of Pratt & Whitney Canada engines in aircraft and helicopters and greater demand for MRO support, noted Brossoit.

Top of the agenda for the two executives is to further improve support in Asia by speeding up the availability of parts and engines, they noted.



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*George Nader  
General Sales Manager*

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## HEICO Breaks Ground with State-Owned CASGC 'Eliminating Old Barriers'

U.S.-based HEICO Aerospace comes to MRO Asia following a deal earlier this year with China Aviation Import and Export Group Corporation (CASGC)—a state-owned entity—for the sale of FAA-approved aircraft and engine replacement products in China.

"The importation of PMAs into China is a relatively new concept and there is still a huge learning curve associated with informing the airlines and MRO providers in China about the use, regulatory requirements and allowance of PMA parts," says HEICO Parts president Robb Baumann.



Robb Baumann.

"Our agreement with the CASGC is greatly facilitating this process as they bring enormous credibility and access to key airline personnel."

HEICO says it's the world's largest independent supplier of such parts, holding 4,000 certificates and producing "more than 300 new, highly engineered products each year."

"Working diligently hand-in-hand with the CASGC we are beginning to eliminate previously existing barriers," Baumann told *Show News Briefing*.

To further launch the concept of after-market parts, HEICO and CASGC are holding a conference in Qingdao exactly one month from now.

HEICO is at Booth 401/3 here.

—Rich Piellisch

## Goodrich to Maintain Asiana Gear

Asiana Airlines has picked Goodrich for landing gear overhauls for the Korean carrier's 737, 767, 747 and 777 aircraft. The contract is expected to be worth up to \$4 million to Goodrich over the next five years. Goodrich (Booth 301/3) says it's the OEM for main and nose landing gear on the four Boeing types and that it "supplies many systems found from nose to tail on all these aircraft." A 777 nose gear assembly is shown.



## AFI's First GE90 Job, for Vietnam Air

Air France Industries signed its first support contract with an external customer for GE90 engines, inking a three-year contract with Vietnam Airlines covering six Boeing 777s at the Singapore airshow. AFI (Booth 217/23) will support Vietnam Air's GE90s on a time and materials basis, and will provide spare engine and operational support, and on-wing engine services at all line stations.



## Asia to Account for 1/4 of Global MRO

MRO spending by Asian carriers represents about 21% of global demand, or roughly \$7.7 billion annually, says AeroStrategy, which expects that number to grow at a healthy 7.4% annually to nearly \$16 billion in 2014. By the middle of the next decade, Asia is expected to generate 25% of world demand. Kevin Michaels, an AeroStrategy principal, is to discuss market forecasts and key trends here Wednesday morning.

## AAR for Two Carriers' 767-300 Gear

AAR Engineering has been tapped by China Eastern Airlines (Yunnan) and Shanghai Airlines for landing gear MRO for Boeing 767-300s. AAR is also trumpeting a new landing gear overhaul procedure for Boeing 717s developed for Hawaiian, and further



reports that AAR Landing Gear Services, a joint venture with AIROD operating at Kuala Lumpur's Subang Airport, has won its Malaysian Department of Civil Aviation certification and passed its U.S. FAA certification audit. AAR is at Booth 614.

## JAL Signs on for More LT Shenzhen Work

Emerging from a quality audit by Japan Airlines with "high satisfaction" was a major milestone for Lufthansa Technik Shenzhen, says president Wolfgang Breckau. Even better: JAL subsidiary Japan Transocean Air, which has had its CFM56-3 reversers overhauled at LT Shenzhen since 2004, has signed up for a long term Total Component Maintenance contract for its fleet of 23 Boeing 737-400s.

## Singapore Plans Seletar MRO Hub

Citing record MRO business worth \$3.3 billion (U.S.) in 2005, representing a 17% increase over 2004, and stating that Asia is "expected to double its fleet of aircraft by 2015," the Singapore Economic Development board is moving to establish an MRO hub at the Seletar airport. "Aerospace companies in Singapore are able to leverage on our highly skilled and productive workforce, capable local supporting industry and strong fundamentals in mechanical and electronic engineering," says EDB chairman Teo Ming Kian.



## New Leadership, Growing Lead Position at Aviation Week

"This year we are celebrating our 20th year of doing business in China," says Tom Henricks, who is attending his first MRO Asia since taking over as president of Aviation Week earlier this year.

The Group claims the pole position in the Asian aviation information industry, with conferences like MRO Asia just one of its activities.



Tom Henricks.

"Our China strategy has been focused on partnership and collaboration with the leaders who are effecting transformation and growth in the Chinese airline industry," Henricks says.

"For example, we have a long-standing cooperative agreement with Beijing-based International Aviation Group, which publishes the Chinese-language *International Aviation* magazine including content from our *Aviation Week & Space Technology* and *Overhaul & Maintenance* magazines.

"And, our advisory team for MRO Asia includes the CAAC, CASC, all Chinese airlines and most of the major airlines throughout Asia."

"Earlier this year," Henricks adds, "we became the Official Media Partner for the Singapore Air Show. This is an important step in our growth in Asia, where we already have a larger audience than any other aerospace and defense media/information company.

"Our combined Aviation Week product portfolio serves 76,000 Asian aerospace and defense professionals, which is more than three times that of the closest competitor."

## SIA Engineering, Parker Team in Singapore

A \$19 million hydraulics overhaul shop, claimed to be the first in the world to offer non-OEM service for 5,000-psi systems, has been opened by SIA Engineering and Parker Aerospace in Singapore. Their Aerospace Component Engineering Services jv is housed in a custom-built, 32,000-sq.-ft. facility at Loyang Aerospace Park near Changi Airport. Capacity for 5,000-psi means ACE can support the lightweight hydraulics in such new aircraft as the Airbus A380 and Boeing 787 (shown). ACE will also be the first facility in the region to provide original-equipment MRO support of Parker components and systems. Parker is at Booth 418.



## LT Shenzhen Thrusts Into Big Reversers

Repair of thrust reversers for big engines is a growing business at Lufthansa Technik Shenzhen (Booth 319/23), which recently added the PW4000—one of the most widely used engines in Asia Pacific—to its portfolio. Late last year it added reverser repair for the CF6-80, and has already signed long term contracts with Thai Airways and another customer it hasn't identified. Meanwhile the first CF6-80 thrust reverser from Japan Airlines has arrived in Shenzhen (JAL's reversers previously went to the LT shop in Hamburg).

## PAS Technologies Makes MRO Debut

U.S.-based PAS Technologies (Booth 306) is making its debut on the world MRO scene, as its principal owner this year acquired the component repair business of Praxair Surface Technologies. PAS claims some 250 aviation customers worldwide and certifications at five U.S. locations and the Asian Surface Technologies facility in Singapore. Bob Weiner, a veteran of Pratt & Whitney and GE, was named president of the 520-employee PAS in July. He is here this week.

## Ghafari Emphasizes 'Lean Design'

"We deliver comprehensive design solutions," says Ghafari Associates, for hangars and maintenance shops and their associated parts, materials and tooling systems. The firm offers facility master planning and redevelopment too, and says it's supporting MRO operations in eleven countries. Ghafari notes that it's an ISO 9000:2000 design company with Six Sigma certified engineering staff. It's at Booth 322 here.



## Want More on MRO? *Overhaul & Maintenance*

The current issue of *Overhaul & Maintenance* features a cover story on manpower in China by managing editor Lee Ann Tegtmeier. As many as 650 aircraft will be delivered to Chinese carriers in the next five years and 240,000 more trained staff will be needed in the next 20 years to maintain the expanding fleets, she reports. Tegtmeier is moderating a session on airliner outsourcing here Thursday morning.

**Aviation Week  
MRO Conferences**

• **MRO EUROPE**  
Oct 24-26, 2006  
Amsterdam, Holland

• **MRO 2007 (with MRO Military)**  
April 17-19  
Atlanta, Georgia, USA