THE CHANGING FACE OF PREDICTIVE AND PREVENTIVE AIRCRAFT ENGINE MAINTENANCE

News / Business aviation, Maintenance / Trainings

Pratt & Whitney Canada's engines cover the spectrum, from the hugely popular PT6A turboprop and turboshafts for helicopters to larger turboprops for regional airliners and turbofans for business jets. The worldwide fleet of engines has achieved 700 million flight hours and clocks over 30 million more annually. The company has also taken on the parent corporation's auxiliary-power-unit business.

In maintaining its position as a world leader in aircraft propulsion, P&WC not only designs its products for high performance and reliability—"Dependable Engines" is the company's motto—but also dedicates itself to providing and continually developing integrated solutions that service and support those engines throughout their lifetimes.

Those solutions not only address regular maintenance and repair issues through ever more sophisticated diagnostics but increasingly focus on prognostics that allow potential issues to be identified, planned for and rectified with minimum impact on day-to-day operations. The company has devised innovative pay-per-hour (PPH) programs such as the **Eagle Service Plan** to provide maintenance schedules with predictable pricing, as well as guaranteed repairs and parts replacement. These are becoming increasingly popular as operators seek stable, predictable maintenance environments while increasing the long-term value of their engines and aircraft.

Cost reduction and maximizing aircraft availability for customers lie at the heart of all of P&WC's service and support initiatives. The company's heavy investment in data-driven turnkey diagnostic/prognostic solutions, such as **FAST** (Flight, Acquisition, Storage and Transmission),

which delivers full-flight engine and aircraft data analysis to customers in near real time, and its new **Oil Analysis Technology** (currently in customer trials), increase engine on-wing time and performance, reduce life-cycle costs and maximize the overall asset value to the customer. At the same time, the company strives to make the day-to-day tasks of overseeing engine maintenance as trouble-free and satisfying as possible through 24-hour call centers and the new **MyP&WCPower** web portal.

RIGHT FOR YOU

P&WC's wide product range powers many types of aircraft, from small bush planes to regional airliners to ultra-long-range business jets. That means the company serves diverse customer populations, each of which has different requirements. Some of those customers operate in harsh conditions or in developing regions. For example, in the low-cost airline and offshore helicopter sectors a "one size fits all" approach is simply not appropriate.

To answer these wildly varying needs, the company offers a portfolio of service plans, from simple solutions—under which, say, a single-aircraft owner-operator buys servicing and parts on an ad-hoc basis—to integrated pay-per-hour programs and fleet-management solutions, each tailored to the particular demands of operators and how they use their aircraft.

Having never retired a product line, and with its revolutionary PT6A engine continuing to push the boundaries of innovation, P&WC is proud to fully support operators with older engines and offers solutions under which they can enjoy the benefits of newer maintenance initiatives, such as the **P&WCSMART** program. Wherever possible, technology and servicing advancements that have been devised for the latest engines are cascaded back to the older products.

THE FUTURE OF ENGINE SUPPORT

In 2018 the PurePower PW800 turbofan engine enters service on the Gulfstream G500 business jet, and with itP&WC is introducing its most advanced and all-encompassing service plan yet, **ESP PurePower PW800**. Based on an evolution of current ESP offerings, the new plan will provide a concierge "white glove" approach to engine support that brings a step change in the large-bizjet market.

P&WC's ESP PurePower PW800 plan reflects the increasing importance that life-cycle management plays in engine design. Working closely with Gulfstream, P&WC has crafted a high-performance engine that has a number of interesting integrated accessibility features. The cowl door has been designed with built-in ledges for technicians, and maintenance requires no dedicated tools. Even the core section access-door has been made large enough for a technician to gain entry.

For those working on the engine there is even more assistance available. Manuals are being produced in 3D, and through greater connectivity with P&WC's specialists, the opportunity for "live chat" is possible, allowing remote analysis of complex issues. Increasing use of online technology at a "tactical" maintenance level means that any time spent on the telephone is high value. Such innovations are already being cascaded to legacy engine types.

P&WC’s main focus is now on driving further proactive maintenance through the increasing use of sophisticated prognostics, as exemplified by the FAST solution, and investment in its oil analysis technology currently in the final development stages. These innovations are delivering deep insight into the engine and aircraft, enabling proactive and predictive maintenance—leading to greater aircraft availability, reduced costs and ultimately increased customer satisfaction

LARGEST GLOBAL NETWORK

Pratt & Whitney Canada has built a worldwide support network with 30 locations—some P&WC-owned, some designated service facilities, and all offering a high level of service. Moreover, the network is expanding to meet market growth and emerging requirements.

At the heart of the customer support network are the two Customer First—or CFirst—call centers in Montreal and Singapore. Operating around the clock, these centers integrate the control of all elements of the support network, including logistics, responders and engineers. From the first minute of a call for assistance, the CFirst team can quickly arrive at a decision and implement an action plan with the aim of achieving a 24-hour-or-less turnaround time.

To back up the call centers, which offer detailed assistance in a growing number of languages, P&WC has over 100 field service representatives and 100 mobile repair teams stationed at strategic locations around the world. The company also holds a stock of approximately 850 rental engines that can replace a customer’s engine while it is away for scheduled or unscheduled work.

PAY-PER-HOUR PLANS

P&WC's pay-per-hour maintenance plans include its Eagle Service Plan (ESP) and Fleet Management Program (FMP), which cover all planned and unplanned maintenance/repair events through a simple per-flying-hour cost. Increasingly, operators and airlines are turning to this form of service plan, and P&WC already has close to 10,000 engines enrolled in its pay-per-hour programs.

The benefits to the operator are many: guaranteed service and parts from P&WC to P&WC-designated service centers; carefully managed and planned schedules that minimize downtime; life-cycle cost reductions; rapid access to maintenance; and, above all, predictable maintenance costs. Moreover, enrolling in an ESP or FMPmaintenance plan significantly enhances the residual value of the asset, and the plan is transferrable if the aircraft is sold.

P&WC continues to evolve these programs as it looks for new ways to deliver value. For example, the company recently launched the ESPECIALLY for Your PT6 initiative, which provides up to the first 400 hours of coverage under the maintenance plan free to customers of new PT6A engines. The new offering represents up to $50,000 of coverage toward future engine maintenance events.

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