For reasons that are not clear, every engine manufacturer scored fewer points in this year’s survey than in last year’s, something that did not happen with the airframers and avionics makers. Williams International retains the number-one spot among turbosfans for the quality of product support it provides our readers (its customers), and Rolls-Royce remains in the number-two spot. Pratt & Whitney Canada makes a big stride into third place (from fifth last year), Rolls-Royce Deutschland drops to fourth from third, its score falling the most at -5.47 percent; Honeywell climbs to fifth from sixth; CFE drops to sixth from fourth; and GE remains at the bottom in seventh.

Among engine models, the Williams FJ44 achieves the top average score this year, moving up from last year’s second place. Last year’s top-scoring Honeywell HTF7000 moves into fifth place this year, and it also topped the charts for both authorized and factory service centers, AOG response and tech reps. These rankings take the Tay to third place overall this year, up three rungs from last year. The Tay’s Indianapolis stablemate, the AE3007, earned the most points for parts availability.

Pratt & Whitney Canada’s diminutive PW600, which powers the Cessna Mustang, Embraer Phenom 100 and Eclipse 500 VLJs, ranked highest for warranty fulfillment and technical manuals.

Taking top honors for fairness in the cost of parts and (a new category this year) cost-per-hour maintenance programs is overall winner Williams International.

Among turboprops and turboshasts, Honeywell’s TPE331 topped every single category in its resounding overall victory, the second consecutive year it has achieved this notable distinction.

The box on the facing page explains how Forecast International calculated the numerical scores for each manufacturer and engine series, and it is those numbers that decide the final rankings. However, readers’ comments hang the flesh on the bare bones, conveying a fuller picture of the body of evidence upon which this survey depends, and for that reason we devote the bulk of the narrative here to what our readers had to say beyond assigning scores for each category. We endeavor to place the comments in perspective by noting whether they represent the majority or minority verdict, and we stand by the confidentiality we pledge to readers who participate in the survey. Beyond what we print here for all to see, none of the information on the questionnaires is shared with anyone outside AIN and survey administrator Forecast International.

**WILLIAMS**

For the most part, readers had little to add in words that they hadn’t said with numbers. As befitting the overall winner, the comments were largely positive in all categories, but a few mentioned specific issues and are presented here so that Williams can see what tugged at the top dog’s leash this year.

Thomas Swanson, chief pilot for Papa Golf Aviation, noted that while “Cessna parts [availability was] great, getting Williams to release probes etc was a challenge sometimes.” Under technical manuals, one reader described the online presentation as “confusing and hard to access.” Said another: “Guidance needs to be distributed to operators with regard to the new Fadec software upgrade.” On its cost-per-hour program, one operator said, “Jim Wilson has built Total Assurance into a superior engine.” Regarding overall reliability, one reader said, “A few engine probe heat issues, Fadec glitches… but the fuel economy is priceless.” Papa Golf’s Swanson added, “We did encounter a number of engine-related issues, but most were normal situations. We had an unusual Fadec/PMA shaft issue that perplexed both Cessna and Williams for months.”

**ROLLS-ROYCE**

Again this year, Rolls-Royce turbosfans held onto their number-two slot despite the fall of the Spey to 12th place from fourth last year, thanks to gains by the AE3007 and Tay. Authorized service centers for the AE3007 singled out for praise were the KSMF Citation Service Center and (described as “bulletproof”) Standard Aero. For the Spey, kudos to Dallas Airmotive and Jet Aviation Basel. For the Tay, Dallas Airmotive again and “Once again, Pentastar Aviation shines here. They have an incredible team of powerplant technicians who know the engines as well as Rolls-Royce. They have pulled a few rabbits out of hats for me at the last minute,” according to Ken Brickett, director of maintenance for Paraffin Air. For the Rolls-Royce 250, service centers named for a job well done are Standard Aero Charlotte and Vector Aerospace. One operator was “not too impressed” with
2009 RATINGS

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<th>Overall Average 2009</th>
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<th>Rating Change from '08 to '09</th>
<th>% Change</th>
<th>Authorized Service Centers</th>
<th>Factory Service Centers</th>
<th>Parts Availability</th>
<th>Cost of Parts</th>
<th>AOG Response</th>
<th>Warranty Fulfillment</th>
<th>Technical Manuals</th>
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<td>7.06</td>
<td>7.38</td>
<td>7.40</td>
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| **TURBOPROPS/TURBOSHAFTS** | | | | | | | | | | | | | | | | |
| Honeywell (T731)     | 8.02                | 8.10                          | -0.08    | -1.02%                    | 8.44                    | 8.22                | 8.12           | 7.04          | 8.12            | 8.09             | 8.17           | 8.31                   | 7.62                      | 8.95                    |
| P&W (PT6)            | 7.41                | 7.57                          | -0.16    | -2.13%                    | 7.72                    | 7.59                | 7.83           | 6.13          | 7.52            | 7.50             | 7.69           | 7.73                   | 6.92                      | 8.66                    |
| Rolls-Royce (250)    | 6.98                | 7.17                          | -0.19    | -2.72%                    | 7.15                    | 7.08                | 7.16           | 5.82          | 7.06            | 7.20             | 7.39           | 7.42                   | 6.39                      | 8.08                    |
| Turbomeca (all models)| 6.71                | 6.66                          | 0.06     | 0.86%                     | 6.63                    | 6.71                | 6.45           | 5.55          | 6.82            | 6.90             | 7.02           | 7.62                   | 6.63                      | 7.77                    |

The following are the engines ratings categories, including explanations of the key points that survey participants were asked to consider when submitting their opinions.

- **Technical Reps**—speed, accuracy, cost.
- **Warranty Fulfillment**—ease of paperwork, extent of coverage.
- **Technical Manuals**—ease of use, formats available, timeliness of updating.
- **Technical Reps**—response time, knowledge, effectiveness.
- **Cost-per-hour Programs**—scope of coverage, cost versus benefit, ease of administration.
- **Overall Engine Reliability**—how the product's overall reliability and quality stack up against the competition.

Of the 14,948 subscribers invited to participate this year, 1,832 submitted information online; we did not offer paper ballots this year as only 29 paper ballots were returned last year. This is the fourth year that AIN and Forecast International have administered the Product Support Survey electronically, with participants inputting ratings via a Forecast International Web site. The return rate for the 2009 Product Support Survey was 12 percent, up from 10.28 percent last year. The number of ratings for the aircraft segment climbed to 3,767 in 2009 from 3,029 in 2008. We added four days to the survey period this year to ensure that all who wanted to participate had plenty of time to fill out the online survey. While we did receive some comments critical of the multiple invitations that we sent via e-mail, postcard and magazine and online advertisements, we do wish to thank all those who participated. AIN could not conduct this important survey without your help. We believe the multiple contacts were necessary to make sure all invitees had every opportunity to participate and we hope the invitations were not too intrusive.

AIN welcomes participant input about the survey process and how it can be improved. Comments on the survey process this year included kudos and critiques. “Quick and easy. I hope the results are useful to operators,” wrote one pilot. A director of maintenance wrote: “It was easy to navigate and not very time consuming.” An aviation manager expressed this sentiment, no doubt reflective of the increased workload everyone is enduring during the recession: “Survey is OK, but as a manager I receive too many and can’t take time to participate in all of them.”

Surprisingly, an aircraft owner who shared some pertinent and important safety-related information about his experiences with product support thought the survey was a “waste of time.” Hopefully he realizes surveys like this help disseminate important safety information and that manufacturers do pay attention to this kind of input. Or as one survey respondent put it, “This, as with all surveys, is a great way of providing feedback and gaining an insight into customer satisfaction. It is beneficial to both the customer and the service provider.”

—M.T.

Compiled by Jane Campbell with data provided by Forecast International of Newtown, Conn.

www.ainonline.com • October 2009 • Aviation International News
-ever see a solution to this? It is absurd to expect someone to pay $20+ million for an aircraft that requires a maintenance event every 70 hours.”

**PRATT & WHITNEY CANADA**

Authorized service centers were generally well regarded, with Duncan Lincoln and Dallas Airmotive named for the high quality of their JT15D work. PT6 operator Gary Cox, however, singouted Dallas Airmotive for its “terrible” customer service. “They took six months to overhaul our PT6A-60As. They have a Web site called Turbine Update where you can monitor the progress of your engines, but I was never granted access after several attempts in the six months they had my engines.” Other PT6 operators singled out Jet Aviation Dusseldorf, Aeronomotors in Guatemala, ProStar, Stephens Aviation GSP, Banyan Air Service and the very same Dallas Airmotive as good providers. PW300 operators had mixed feelings: “excellent work and response” but also this, “We have our IBR inspections done by Atlantic Aero in GSO. They send a team to support our engines during the A Check. Due to scheduling they are working weekends a lot, and this leaves us paying double or triple time to the local shop to be here when the IBR team is around.”

Of P&W’s factory service centers, readers had similarly mixed verdicts. JT15D operators’ comments ran the gamut: “Extremely inadequate…Excellent response to AOG and scheduled hot shots… Go somewhere else for 200+ hours. No engine failures but two fuel feed pumps in the past (tolerances were too close).” The verdicts on warranty fulfillment, most operators satisfied but not all: “Very slow issuing credits [PW500].… Lots of paperwork to get what’s coming to you…” JT15D and PT6 tech manuals get generally good grades, but not so positive for the PW300 manuals: “Cumbersome… Not as intuitive as I would like. Seems a little difficult to navigate smoothly…” User interface needs to improve… CD manual is a bit old-fashioned in its operation and layout, but it works… Need work.” The PW500 manuals are generally well regarded but “they can be cumbersome to navigate, and Pratt should try to pattern theirs after Cessna’s.” Greece’s Hellenic Air Force said “it has been hard to establish a subscription with P&W for [PW600] online manuals.” P&W’s tech reps garnered mostly favorable comments (“they’re the glue that holds customer service together,” according to one PT6 operator) but not all: “Nobody can tell me when a JT15D compressor wash is recommended?... Unaccountable, unreliable [JT15D]… Haven’t ever met the guy in three years and he lives in the same town [PW300].”

**HONEYWELL**

The HTF7000’s overall average took top honors last year among turboshafts, and it scored highest in parts availability, AOG response, tech manuals, tech reps and overall product reliability. This year, however, despite what is regarded as a trouble-free entry into service aboard the Challenger 300 and despite its being chosen to power Embraer’s two new midsize jets and Bombardier’s Learjet 85, the engine fell to fifth place overall and did not lead in any category, a major reversal for the top-turboshaft engine in the industry, and no amount of customer pressure has caused Rolls-Royce to commit the time and money to improve them. The standard response from R-R is “They are what they are.”

BR710 operators, too, singouted tech rep Jennifer Laing for her good work, along with Gordon Clarke. Singled out as a group the tech reps garnered zero negative comments.

**ROLLS-ROYCE DEUTSCHLAND**

A BR710 operator complained that “parts availability continues to depend on participation in the Corporate Care program hourly program. No hourly program, no cost-per-hour program, one comment succinctly summed up the reality: “This program is expensive but preserves the value of the asset for the owner.” Said another, “Not acceptable, too expensive. Preferential treatment for Corporate Care customers is disgusting.” And another, “$544 per airframe hour. Very expensive.”

With a couple of not very informative exceptions (“Room for improvement… Had various problems in the first 200 hours since new”), operators responding to the survey are awed by the reliability of the BR710: “Hardly ever open the cowlings. Best in the industry…the Aeromanager site has an oil leak that was very difficult to the survey are awed by the reliability of the BR710: “Hardly ever open the cowlings. Best in the industry…the Aeromanager site has an oil leak that was very difficult to...”

**Continued on page 54**
overall engine reliability: “Super engine. No leaks, no problems except thrust reverser issues... Good... Excellent... Outstanding.”

The TFE731 turbofan moves up two places to eighth this year, and the TPE331 continues to reign supreme, topping every category in turboprops. First, operator comments on the turbos:

Authorized service centers: “Honeywell Frankfurt is recommended... Standard Aero Los Angeles could not meet the downtime they set for two MPIs due to manpower... [says CSIM Air director of maintenance Andy Lindburg]... Last used Landmark...”

but it was a tossup between them and Dallas Airmotive. Both have done a good job for us... Duncan LNK and Landmark DAL good... Bizjet is excellent... Dallas Airmotive handled the MPI/CFI on one of our -5s last year. Did an excellent job facilitating the rental swap, getting the engine back on the airplane and making sure all was working. Also upgraded us to the N1 DEECs... [says Gatlin Development chief pilot Aaron Turner]... Most centers do a great job... Great work by Turbine Turner... Most centers do a great job... Duncan LNK does a terrific job... Dassault Falcon service center: efficient and professional.”

Parts availability, AOG response, warranty fulfillment, tech reps, all positive. Technical manuals, all positive except one: “need improvement in user interface.” Cost-per-hour programs, all positive except one: “Fairly high.” And overall engine reliability, unanimously good, very good or excellent.

GENERAL ELECTRIC

In overall engine reliability, the CF34 scored the same as the FJ44 from survey winner Williams, and yet CF34 builder GE again finished last in product support for turbosfans. No authorized service center got a negative review. GE’s factory service facilities got good reviews too, except for “Just getting a quote is a bad experience. Do not allow an engine to go through their shop without oversight. When the invoice comes, be prepared to reference your discussions on what was promised vs what you got... Not competitively priced.”

Parts availability good except for “Engine fan blade forging issue is absurd. GE wants customers to pay for a known manufacturing defect. Not what I would expect from GE.”

AOG response OK to excellent if ever used by respondent. Warranty fulfillment good except for “The fan disc and blade replacement for engines in warranty is a horrible program on the part of GE... Some open issues that do not get resolved, now more than two years old... Slow... Submitted one $1,200 claim; got denied... No issues, no failures yet.”

Tech manuals generally good except for “Need more online access... Difficult to move around in... The new DVD format is nice but a little stiff to use.”

Tech reps 75 percent good, 25 percent predominantly negative... “Horrible... Poor... Quality of work seems to be declining... We were asked to pay a very high price to rent special tooling. I was disappointed... Overhaul of current engine is approaching 60 days...”

Cost-per-hour programs: more than half the comments were positive (“We have been most pleased with GE Engine Services for the value received for the money paid, but the accounts receivable department seems overly aggressive... Competition seems to have brought down the price of GE’s OnPoint program”). Others: “Program costs increase excessively... Too expensive... Do not include enough.”

Overall engine reliability almost completely “outstanding... excellent... bulletproof... 100%... a 10.” Exceptions: “Is it a good thing that the CF34 is used in low-utilization business jets?... Few can accumulate thousands of hours/cycles, exhibit its weaknesses and cause us low-utilization business jet operators hundreds of thousands of dollars in engine work? I’m still trying to answer that question,” says Pittco’s George Linder. Perhaps most telling: “Outstanding reliability. This is a saving grace in some of the other attributes covered under this survey and hides some of the lack of product support,” raising the question of whether it’s better to have lackluster support for a sturdy engine that hardly ever breaks or effective support for less reliable power.

TURBOMECa

After rising to third place among four turboprop/turbohaft manufacturers last year, Turbomeca this year is back at the bottom, not just in overall average score but in every category except for tech reps and cost-per-hour programs, both of which were claimed by Rolls-Royce. For authorized service centers, a prevalent theme was that there aren’t any. For factory service centers, responses were predominantly negative “Horrible... Poor... Quality of work seems to be declining... We were asked to pay a very high price to rent special tooling. I was disappointed... Overhaul of current engine is approaching 60 days...”

Parts availability mostly negative: “What parts? Do they make parts?... They rarely have any in stock. Extremely difficult to deal with. They will issue a mandatory service bulletin and not back it up with enough spare parts. You have to wait your turn... Spare engines in U.S. are in short supply. Maybe only one or two.” All manufacturer’s attracted mostly negative comments for parts prices, but Turbomeca drew intense criticism from all but one respondent, who ventured a timid “seem a little high.”

AOG response was evenly split between positive and negative but tended to fly to the extremes: “They can’t spell AOG... Terrible” and “Excellent... Very good... Excellent. Personnel are courteous and professional... Very good. They do what it takes.”

On warranty fulfillment, one operator fumed at length: “We tend to spend more time debating what the contract said than what we are going to do to get the aircraft back in service. We have to talk to six different people via phone and e-mail to arrange a module change or part change in the field; we used to talk to only two (the CSR and the tech rep), who both knew our business and staff. Now it seems like all the communications is at our end, and we have to chase them down at times to get a follow-up on support requests. We have noticed a decline in the past four months, January to April 2009.” However, there were two positive comments for each negative.

On technical manuals, the mix was about even: “Need to be able to speak French... Poorly written... Poor structure, mixed parts numbers... OK... Bad.”

Mostly positive comments on tech reps: “Tech reps are the only thing that saves Turbomeca. Chris Woosley and Grant are some of the best I’ve worked with... Jason Mitchell is a great asset to his organization... Grant Wythman is outstanding... Blair Peddle is best tech rep for Canada.”

On overall reliability, positive outweighed negative by a factor of more than two to one, summed up best by “Works well, but if you have a problem, oh boy.”