



2006 AIN Product Support Survey

PART TWO: ENGINES

In their own words: the operators speak

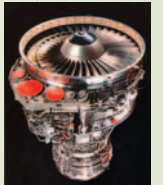
by Nigel Moll

We invited readers to provide feedback beyond merely assigning numerical values to the quality of support they received for engines, and some of their experiences are presented below. Some feedback carries no attribution or operator name because we honor respondent requests that we not reveal either their name or the name of their employer.

Our survey suggests that operators are generally satisfied with the engine product support they receive, and the comments that follow are indicative of their excursions (positive and negative) from that middle course.

Comments on the cost of parts ran the gamut: "silly question...fair...fortunately we are MSP Gold...MSP cost is ridiculous...parts is parts...wow, they like their parts, both GE and R-R...in line with expectations...extremely high...typical airplane stuff...exorbitant but expected...everything costs more than it should, because the owners can afford it...it's a jet engine, welcome to aviation," illustrating if nothing else that the eye of each beholder has its own view of things.

AOG response and warranty fulfillment by engine manufacturers drew largely positive reviews, with a few exceptions noted below. Technical manuals for the most part received acceptable ratings, but one respondent renewed his request that all OEMs adopt a common standard for the format of manuals. A number of operators urged all manufacturers to reissue the whole manual each time rather than send a stream of technical revisions for updating. With some exceptions (in particular, stealth reps who never drop in on operators' hangars and those who lack the required knowledge), tech reps received generally good grades.



CFM INTERNATIONAL

"CFM56 very reliable but burns oil," was one of the few comments made about the top-ranking turbofan manufacturer's product.

ROLLS-ROYCE

Authorized Service Centers | One operator said that his chosen authorized service center "never has any parts availability for the Rolls-Royce 250-C40B, is never on time and has poor customer liaison."

Chris Behn, maintenance supervisor with Deere & Co's aviation department, finds Standard Aero "an excellent organization for AE3007 work."

A Gulfstream II operator said, "Dallas Airmotive has really gone above and beyond to make the midlife inspections

Continued on page 52 ▶



AIN's readers this year have chosen CFM as the best provider of product support for turbofan engines (the CFM56s on Boeing Business Jets), and Pratt & Whitney Canada as the leader in turboprop support.

In this, AIN's first electronically conducted product support survey, compiled with the assistance of Newtown, Conn.-based Forecast International, we selected more than 16,000 readers to provide input on their experiences dealing with manufacturers of airframes, engines and avionics. In last month's issue we presented the results for airplane and helicopter manufacturers (as well as a full description of the methodology used to create the survey), and this month we present the results for manufacturers of turbofan and turboprop engines. Next month we will conclude the 2006 survey with the results for avionics manufacturers.

The electronic format used for the survey this year produced a substantial improvement in the number of respondents and in the depth of their responses, and what follows examines the mood and experiences of the operators who responded.

2006 RATINGS

Products are listed in the order of their 2006 overall averages.

	2006 OVERALL AVERAGE	2005 OVERALL AVERAGE	PERCENTAGE CHANGE	AUTH. SERVICE CENTER	FACTORY SERVICE CENTER	PARTS AVAILABILITY	COST OF PARTS	AOG RESPONSE	WARRANTY FULFILLMENT	TECHNICAL MANUALS	TECHNICAL REPS	OVERALL ENGINE RELIABILITY
TURBOFAN ENGINES												
CFM INTERNATIONAL (CFM56)	7.57	N/A	N/A	7.35	7.64	7.32	6.68	7.60	7.53	7.62	7.86	8.54
ROLLS-ROYCE (AE3007)	7.43	7.03	5.69%	7.58	7.55	7.65	6.11	7.50	7.67	7.08	7.40	8.36
ROLLS-ROYCE (Tay)	7.39	7.25	1.93%	7.28	7.40	7.25	6.15	7.52	7.65	6.97	7.62	8.67
WILLIAMS (FJ44)	7.29	7.18	1.53%	6.94	7.17	7.30	6.45	7.54	7.48	7.37	7.50	7.85
RR-DEUTSCHLAND (BR710)	7.24	6.87	5.39%	7.19	7.40	7.07	5.78	7.38	7.44	6.89	7.66	8.35
CFE (CFE738)	7.16	6.83	4.83%	7.25	7.26	6.96	5.75	7.13	7.62	7.08	7.46	7.95
GE (CF34)	7.11	6.75	5.33%	7.10	7.11	7.11	5.77	7.10	7.22	7.07	7.19	8.28
P&WC (PW Series)	7.11	6.98	1.86%	7.09	7.21	7.10	5.87	7.25	7.22	6.98	7.37	7.91
ROLLS-ROYCE (Spey)	7.08	7.37	-3.93%	7.00	6.90	6.97	5.65	7.12	7.00	7.24	7.41	8.48
HONEYWELL (TFE731)	7.02	6.80	3.24%	7.21	6.98	6.93	5.82	7.01	7.19	7.01	7.24	7.75
P&WC (JT15D)	6.93	6.66	3.74%	6.99	6.79	7.07	5.58	6.99	6.79	7.08	7.10	8.01
TURBOPROP/TURBOSHAFT ENGINES												
P&WC (PT6)	7.05	6.75	4.44%	7.13	6.95	7.09	5.71	6.96	6.97	7.12	7.20	8.27
ROLLS-ROYCE (250)	6.62	6.83	-3.07%	6.74	6.29	6.62	5.63	6.53	6.63	6.86	6.61	7.63
HONEYWELL (TPE331)	6.52	7.00	-6.86%	6.98	6.36	6.80	5.33	6.24	6.12	6.81	6.51	7.52
TURBOMECA (all models)	5.94	N/A	N/A	5.95	6.00	5.17	4.98	5.44	6.23	4.89	6.63	7.15

Bold Type indicates highest rating in each category.

Rating Scale:





2006 AIN Product Support Survey

► Continued from page 50

on our Spey engines as painless as possible. They are doing a fantastic job.”

Aviation manager Marvin Knecht spoke of “good engine maintenance at Appleton and GDAS at Minneapolis” for his company’s GIV-SP. But “Savannah Gulfstream will test run your engines for hours and hours and not accomplish much. Gulfstream Savannah [also] told me the only engine bleed-air valves in the world were in Savannah. I flew there for a valve R&R and learned there were replacement valves much closer.”

Factory Service Centers | A Citation X operator noted that “Cessna factory service centers have been able to accomplish all required maintenance in timely fashion.”

Warranty Fulfillment | A line captain with NetJets asserted that with the AE3007 this is “the one area where R-R really drops the ball. Seems like they’re always looking for even the tiniest excuse not to cover something under warranty.”

Technical Manuals | A Citation X chief pilot rated the AE3007 manuals “hard to use.”

“Rolls-Royce manuals have always been a drag and could do with some work,” wrote one operator; another claimed it is “almost impossible to navigate through a Rolls-Royce Tay manual.” Said another: “Difficult to navigate, with many places to go.” And on cost, one said: “Rolls-Royce is far too proud of its engine manuals. They cost too much by far.”

Tech Reps | For the Tay, “Harvey Bullis and his team at Gulfstream Savannah provide consistent, exceptional service to Rolls-Royce customers. They deserve recognition,” wrote Bob Bauer, maintenance manager with United Technologies’ flight department.

Overall Engine Reliability | Operators like the AE3007: “Great. It just goes and goes”... “Almost bulletproof. Runs like a fine watch”... “Top notch! Too bad Cessna doesn’t build the rest of the plane to match this engine’s reliability. It’s the only part of the plane I’m sure won’t flicker, quit or fall off.”

WILLIAMS

CitationJet pilot Todd Sayre would like to see more FJ44 service centers.



Williams FJ44



Rolls-Royce Tay

Eddie Yell, a CJ1 pilot with Boyd Aviation, was impressed with Williams’ service: “The hot section [inspection] went as advertised, with excellent service. On return there was slight damage to an engine in the shipping crate (bent drain tube on bottom of engine). Williams covered the cost completely.”

A Citation 525 operator had this to say of Williams’ factory support: “Walled Lake has turned out 10 engines for us on budget and on time, and loaners, parts and tools have been perfect.”

ROLLS-ROYCE DEUTSCHLAND

“What a fine engine [BR710] to have behind us when we are over the pond,” wrote one operator.

CFE

Authorized Service Centers | Art Trouville, who flies a Falcon 2000, says that Duncan Aviation in Lincoln, Neb., has taken good care of his company’s CFE and TFE engines.

Parts | A Falcon 2000 operator noted it has “experienced some long waits for engine parts.”

GENERAL ELECTRIC

Authorized Service Centers | For the CF34, “MTU is an excellent facility,” wrote one operator. Another CF34 operator had this to say: “I rate all categories an 8 because [engine support] has not been an issue in 1,600 hours. We have not had to deal with service centers, parts, AOG, warranty and so on. We expect it to continue.”

Michael Hudgin, a mechanic with Challenger 601-3A operator Swagelok, says he has had good experience with GDAS Appleton, making note of the facility’s after-service follow-up and squawk-free operation of the CF34s following any service work.

Factory Service Centers | One operator observed that factory service for both the CF34 and Honeywell TFE731 “tends to be overpriced” and has a “higher out-the-door cost than authorized service centers.”

Parts | On CF34 parts costs, a Challenger 601-3A pilot said that “containment case

Continued on page 54 ►



2006 AIN Product Support Survey

► Continued from page 52

and thrust reverser parts are rather pricey. It is hard to tell about other parts because they are so seldom needed!”

Technical Manuals | A Challenger 604 operator suggested that too many technical revisions are distributed without reissuance of the manuals for the CF34, and another felt the manuals are “not very intuitive in navigating data and information.” Another, however, rated them “easy to use and comprehend.”

Overall Engine Reliability | “This thing [CF34] seems to be practically bulletproof.”

PRATT & WHITNEY CANADA

Authorized Service Centers | “Bizjet is the place to go with engine hot section and overhaul on JT15Ds. Well under budget and finished early, as well as being kept in the loop; our first choice,” said one operator.

“Elliott Aviation has been great with maintaining our PT6s,” said another.

Mark Gardner, a Gulfstream G200 mechanic with EJM, says that “Gulfstream and GDAS Dallas have been good to work with. I had an issue with N459BN last year that turned into an extended downtime, but that was due to P&W, not Gulfstream and GDAS.”

Falcon 2000EX pilot Marcus Brunner said that Jet Aviation Basel’s “Mr. Ammacher has excellent knowledge and staff.”

Chris Tamerius Antrobus with Sky Work in the UK said he gets good JT15D support from H&S Aviation, and that “lead times are OK.”

A Cessna Bravo pilot noted that Monarch Air in Addison, Texas, “has done a great job for us.”

Christopher Peachey in Indonesia wrote, “PT6 service centers abound, and most are specialized and good. TPE331 authorized service centers are few and appear to be fickle.” Of factory service centers, he said, “PT6 factory support has been slow, although in recent years the factory has tried to provide better support.”

A Hawker 1000 operator was pleased with the service at Million Air TEB (now Meridian), which “diagnosed and fixed our issue quickly. Great service.”

Factory Service Centers | A Citation Encore operator said that P&WC’s Dallas service center provides service that is “somewhat less than desirable.”

Citation Excel operator Walter Devasier asserted that “P&W has cost us money in not honoring what it promised when our engine, almost new, needed whole new burner cans.”

Parts | A Citation Bravo operator reported that “During PW530A overhaul several

parts were rejected because there was no repair process (yet). Those units were exchanged out for substantial savings over a new part, but it would seem that a lot more money could be saved when (if) the repair processes are developed.”

A Learjet 60 operator said parts availability for the PW300 series is “bad and getting worse. I don’t think I should have to fax orders in, especially in AOG situations.”

Citation II pilot/mechanic Thomas Gaydos reported “waiting four weeks for parts during a JT15D hot section on a quoted seven- to 10-day turn.”

Technical Manuals | A Citation II operator suggested that P&WC needs help with its manuals; “the CD-ROM index is not labeled.”

HONEYWELL

Authorized Service Centers | A Falcon 20-5 operator is pleased with Garrett Aviation’s (Landmark) work on its TFE731-5BR-2Cs, saying the facility “has been my choice for many years. Their knowledge and support are the best.”

Westwind I operator Danair said that Advantage Aircraft of Corpus Christi, Texas, does a “great job.”



Honeywell TFE731

Donald Paddock, a pilot with S.C. Johnson, said that at Dallas Airmotive “core overhaul cost [TFE731-5 on a Falcon 900B] was high and manhours were high.”

David Keys, who flies a Citation VII, finds that Duncan Aviation “knows the engine and does great work.” Another operator of six TFE731s also was pleased with Duncan: “We have had excellent support for these engines in 2005.”

Francisco Gonzales, who flies a Falcon 50, said that “Garrett Houston, now Landmark, has given excellent TFE731 support through the years,” and a Hawker 800XP operator also rated the facility highly.

A Falcon 50 operator described Landmark Augusta as “a very good service facility, and top notch for the TFE731.”

Falcon 10 pilot Larry Richards said, “Landmark shot themselves in the foot when they let their engine work go from SPI [Springfield, Ill.]”

One pilot described being caught in the middle between manufacturer and authorized service center: “There is a big difference in dealing with a Honeywell authorized service center and dealing with Honeywell. I think the authorized service

Continued on page 56 ►



2006 AIN Product Support Survey

► Continued from page 54

centers tend to push Honeywell and the customer around, and Honeywell does not catch on until it is too late. If Honeywell makes a promise to the customer, the authorized service center does not have to honor the promise and will take the frustration out on the customer.”

Factory Service Centers | A Westwind operator said that for factory support of the TFE731 he finds it “very difficult to obtain needed service under MSP Gold.”

Parts | “TFE731-5 parts availability poor,” said two operators, one of whom also labeled -40 parts availability poor; “TFE731-2 and -3 adequate,” said one of them.

“Hard to get simple orders for O-rings and filters filled from Honeywell directly; need to call service center,” said another.

While many operators reported that TFE731 parts availability is good, another said it has become “abysmal, with many operators forced to rent engines to continue operation.”

AOG Response | Honeywell earned a lot of “excellent” verdicts on this score, but one “Honeywell does not rush for anything.” One Falcon 900EX operator was expansive: “AOG response from Honeywell has been beyond good, and AOG support has been excellent whenever we have encountered engine problems, with quick responses and answers so we can remain flying. Honeywell has worked hard to find and supply a limited number of rental engines, and has supported and communicated with us and our engine service provider in excellent fashion. Recently we had engine performance issues, and the solution was to remove the engine for repair. Honeywell located an engine in Europe and, because of our demands on the aircraft, was able to have the engine brought back to the U.S. A chartered cargo aircraft brought the engine to our airport of operations. All done to support us, and so as not to have a significant effect on the aircraft owner. This was the first time we have ever heard of such exceptional support from Honeywell. They are trying very hard to support the engine fleet, even though they have encountered parts availability issues of their own. I don’t think we could have expected anything more from Honeywell.”

But then this from a Learjet 35 operator in the Midwest: “It is difficult to get an answer from Honeywell. You leave a message and maybe someone will call you back, but usually not.”

Warranty Fulfillment | “Honeywell is so big now that it is still difficult to get to the correct person when something unusual happens. If you are not on MSP, you are not a customer in their eyes. They’re hard to deal with when you don’t have an MSP number,” wrote one operator.

Technical Manuals | A mechanic in the Midwest suggested that the TFE731 manuals “could have been made a little more user-friendly; even with years of experience, it takes a while to find your way around.”

TURBOMECA

Enrique Zepeda, with Mexican operator Transportes Aereos Pegso, pulled no punches in his verdict on the French engine manufacturer’s support: “Turbomeca has been the worst company on this planet.”

Factory Service Centers | The pilot of a Eurocopter said that “Turbomeca engine factory repair experience has been completely unsatisfactory, with two engines having been returned to Turbomeca four times for rework after in-flight failures. Reps repeatedly fail to return calls or follow up on agreed-upon plans and agendas.”

Parts | Arriel 2B parts availability “extremely poor for an in-production engine. Five years of promises to improve still not seen,” lamented one helicopter operator.

AOG Response | “Turbomeca was slow in getting a replacement T4 harness for us,” noted one operator. Another said that the company’s “response in providing rental engine replacements when necessary is excellent,” but “work on owner engines is excruciatingly slow and completely inadequate.”

Overall Engine Reliability | On its Arrius 2B1, one operator complained of “continuous oil seepage from number-two engine after numerous O-ring changes. Origin of seepage not determined.” An Arriel 2B operator wrote about a “long-running problem with power shaft issues (torque pins/torque failure codes). Still not fully resolved.”

“Engine [Arriel 1E2] performance is good, but after-sales support is very poor.” □

Engine Manufacturer Rankings

(in order of the highest 2006 ratings)

	2006	2005 ¹	Change from 2005
TURBOFANS			
CFM	7.57	—	—
Rolls-Royce	7.30	7.13	▲
Williams	7.29	7.18	▲
Rolls-Royce			
Deutschland	7.24	—	—
CFE	7.16	6.83	▲
General Electric	7.11	6.75	▲
P&WC	7.02	6.83	▲
Honeywell	6.40	6.80	▼
TURBOPROPS/TURBOSHAFTS			
P&WC	7.05	6.75	▲
Rolls-Royce	6.62	6.83	▼
Honeywell	6.52	7.00	▼
Turbomeca	5.94	—	—

¹ No rating in 2005 means these are new additions in 2006.