

AIN 2009 PRODUCT SUPPORT SURVEY

part 1: aircraft

Gulfstream again claims the highest overall rating for jets, while Pilatus leads in the newer-turboprop category and Bell takes the top spot among helicopters.

by Matt Thurber

Aircraft manufacturers last year were struggling to build their service networks and capabilities to help a growing number of operators worldwide keep their aircraft flying safely and efficiently. Order backlogs were at record highs and manufacturing and product support resources were stretching thin.

Everything has changed since then, and now manufacturers are struggling to balance declining backlogs with shrinking workloads in their service centers while continuing to support their extensive fleets. This year both Gulfstream and Cessna closed factory-owned service centers (in Minneapolis and Toledo, respectively) and Hawker Beechcraft and Cessna each relocated facilities, consolidating former California bases in business-friendly Mesa, Ariz. Whereas maintenance shops used to be booked months in advance, now operators can easily get multiple competitive bids with much shorter notice.

Once again, in the newer business jets (10 years or younger), older jets and the combined category, Gulfstream Aerospace's overall average in the 2009 AIN Product Support Survey topped the charts. Readers rated Gulfstream's overall averages for newer jet product support at 8.26, older jets at 7.77 and newer and older jets combined at 8.04. (This year, we made changes to more accurately reflect the way Gulfstream now supports the newer and older aircraft in its fleet, so the numbers aren't precisely comparable to last year's results.)

Cessna's Citation fleet remains in second place this year for newer jets and jumped to second place for older jets. Cessna's overall average for new jets is 7.81, down slightly

from last year's 7.88. Boeing's BBJ support moved up to third place for newer jets this year at 7.80, nearly catching up to second-place Cessna with a jump from last year's 7.47.

Bombardier's newer-Challenger support made a substantial jump this year into fourth place with an overall average of 7.56, up from last year's seventh place and 7.07. This pushes Dassault Falcon into fifth place at 7.52, slightly down from last year's 7.64. Hawker Beechcraft's Premier and 400 (née Beechjet) take sixth place with a ranking of 7.40, up from last year's 7.36, followed closely by Bombardier's Learjet series, making a significant jump to 7.39, up from last year's 6.93.

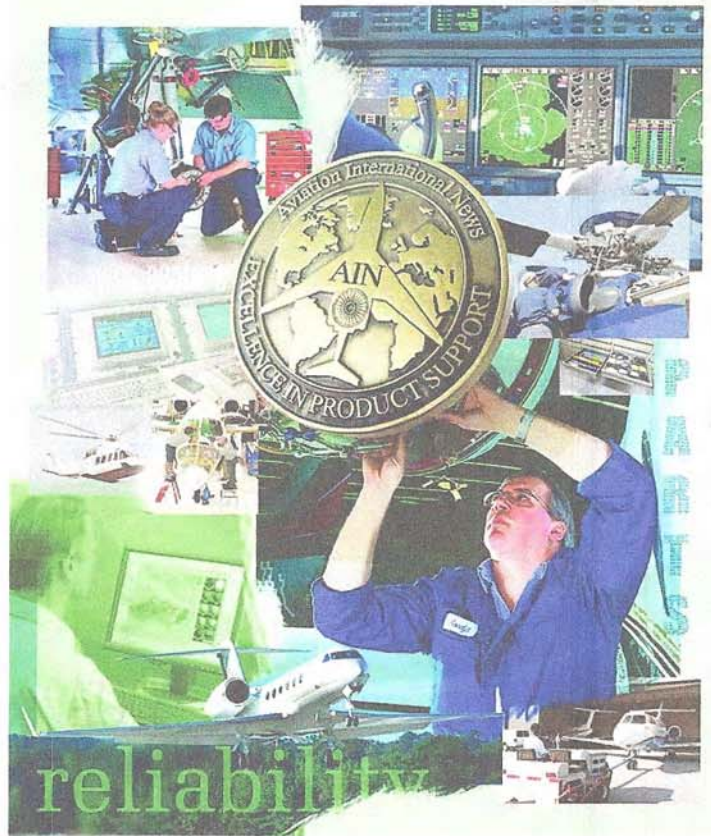
Hawker Beechcraft's midsize Hawker series is next at 7.29, up by a positive 0.20 from last year. Embraer's Legacy support continues to improve, climbing a substantial 0.39 to 7.22 this year. Bombardier's Global line also climbed to 6.73 from last year's 6.56.

In the new-turboprop category, Pilatus and its single-engine PC-12 once again led the field, with a ranking of 7.72, up from last year's 7.37. Hawker Beechcraft's King Air series climbed to 7.41 from 7.23.

The helicopter results show Bell Helicopter at the top of the list with a rating of 6.97, up slightly from last year. Sikorsky moved into second place this year with 6.88, jumping substantially from last year's third-place 6.45. AgustaWestland came in a close third with 6.85, also a clear increase from last year's 6.13.

Companies that were not included in the chart this year due to insufficient responses were Airbus, Eclipse, Embraer (Phenom 100), Piaggio and Socata.

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Overall Average Ratings of Newer and Older Aircraft Combined (in order of 2009 ratings)

The chart below provides the overall average rating of each manufacturer when the newer and older aircraft scores are combined. This gives OEMs and readers a glimpse of a manufacturer's overall support ratings for all its products. The chart is broken down by jets and turboprops, as the level of service and support can vary widely between the two segments.

	Overall Average 2009	Overall Average 2008	Rating Change from '08 to '09	% Change
JETS				
Gulfstream (Astra through G550)	8.04	N/A*	N/A*	N/A*
Boeing (BBJ)	7.80	7.47	0.33	4.47%
Cessna (Citation)	7.65	7.64	0.01	0.17%
Dassault (Falcon)	7.38	7.43	-0.05	-0.69%
Sabreliner	7.27	7.62	-0.35	-4.56%
Bombardier (Learjet)	7.26	6.81	0.45	6.66%
Embraer (Legacy 600)	7.22	6.82	0.40	5.80%
Hawker Beechcraft (Hawker)	7.19	7.01	0.18	2.58%
Bombardier (Challenger)	7.16	6.97	0.19	2.75%
Hawker Beechcraft (Premier I, Diamond, Beechjet 400A, Hawker 400XP)	7.04	7.26	-0.22	-3.09%
Bombardier (Global Express/XRS, Global 5000)	6.73	6.56	0.17	2.62%
TURBOPROPS				
Mitsubishi (Marquise, MU-2, Solitaire)	8.81	9.17	-0.36	-3.92%
Pilatus (PC-12)	7.70	7.56	0.14	1.88%
Hawker Beechcraft (King Air)	7.14	7.16	-0.02	-0.33%
Piper (Cheyenne)	5.71	5.96	-0.25	-4.21%

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

Bold indicates highest number in each category.

* Last year's ratings for Gulfstream are not included due to changes made to more accurately reflect the way Gulfstream now supports newer and older aircraft in its fleet. As a matter of record, Gulfstream's support of both newer and older jets was rated at the top of the list in 2008.

Source: AIN 2009 Product Support Survey

How the Survey Was Administered

AIN's 2009 Product Support Survey offered 14,948 subscribers the opportunity to rate on a scale of 1 to 10 the service and support they receive from manufacturer support operations and factory-authorized independent service centers. This was up from 13,552 invitations sent out last year. Readers were asked to rate their aircraft, engines and avionics in up to 10 categories; one new category (see below) was added for this year's survey. On the one-to-10 rating scale, one is considered inadequate and 10 is excellent. To be listed in the results, a manufacturer had to garner at least 28 ratings; some aircraft types/manufacturers, such as Lockheed's JetStar, no longer have enough aircraft flying to generate sufficient responses to make the survey statistically useful. The aircraft results are published in this issue, while the avionics report will be featured in September and the engines report in October. The Product Support Survey was conceived by AIN editors and developed and administered by aerospace research firm Forecast International of Newtown, Conn.

The following are the 10 ratings categories, including explanations of the key points that survey participants were asked to consider when submitting their opinions. Note that new this year is the "Maintenance Tracking Programs" category. This was added as a result of feedback from last year's survey and in recognition of the increasing importance of tracking programs for preservation of aircraft value and in keeping maintenance requirements up to date.

- **Authorized Service Centers**—cost estimates versus actual, on-time performance, scheduling ease, service experience.
- **Factory Service Centers**—same as above.
- **Parts Availability**—in-stock versus back order, shipping time.
- **Cost of Parts**—value for price paid.
- **AOG Response**—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.
- **Maintenance Tracking Programs**—cost, ease of use, accuracy, reliability.
- **Overall Product Reliability**—how the product's overall reliability and quality stack up against the competition's.

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.

2009 RATINGS

Aircraft are listed in the order of their 2009 overall averages.

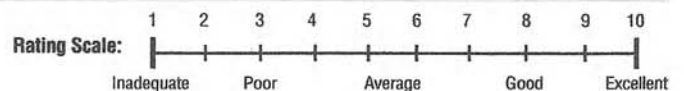
	Overall Average 2009	Overall Average 2008	Rating Change from '08 to '09	% Change	Auth. Service Centers	Factory Service Centers	Parts Availability	Cost of Parts	AOG Response	Warranty Fulfillment	Technical Manuals	Technical Reps	Mix Tracking Programs	Overall Aircraft Reliability
NEWER BUSINESS JETS ↑														
Gulfstream (G100 through G200, GIV-SP through G550)	8.26	N/A*	N/A	N/A	7.93	8.15	8.33	6.48	8.69	8.49	8.15	8.80	8.50	8.86
Cessna (Citation)	7.81	7.88	-0.07	-0.88%	7.50	7.80	8.20	6.42	7.99	7.90	7.72	8.01	7.90	8.49
Boeing (BBJ)	7.80	7.47	0.33	4.47%	7.59	7.20	7.74	6.68	7.52	7.64	8.17	8.13	7.78	9.08
Bombardier (Challenger)	7.56	7.07	0.49	6.91%	7.46	7.46	7.13	6.01	7.45	7.83	7.66	8.37	7.80	8.33
Dassault (Falcon)	7.52	7.64	-0.12	-1.62%	7.31	6.83	7.80	5.85	7.73	7.81	7.40	8.07	7.78	8.47
Hawker Beechcraft (Premier I, Diamond, Beechjet 400A, Hawker 400XP)	7.40	7.36	0.04	0.56%	7.17	7.43	6.95	6.19	7.43	8.03	7.88	8.11	7.52	7.37
Bombardier (Learjet)	7.39	6.93	0.46	6.59%	7.25	6.95	7.34	5.74	7.39	7.41	7.59	8.37	7.53	8.12
Hawker Beechcraft (Hawker)	7.29	7.09	0.20	2.88%	7.28	7.16	6.99	5.92	7.09	7.54	7.05	7.77	7.64	8.44
Embraer (Legacy 600)	7.22	6.82	0.39	5.74%	6.90	6.92	6.60	5.93	6.97	7.07	7.38	7.59	7.71	8.84
Bombardier (Global Express/XRS, Global 5000)	6.73	6.56	0.17	2.62%	6.67	6.40	5.88	5.08	6.42	6.72	7.35	8.01	7.15	7.52
OLDER BUSINESS JETS ↑↑														
Gulfstream (Astra, G100, GII, GIII, GIV, GIV-SP, GV)	7.77	N/A*	N/A	N/A	7.53	7.48	7.66	5.71	7.96	7.40	7.97	8.43	8.61	8.75
Cessna (Citation)	7.39	7.26	0.13	1.80%	7.22	7.32	7.68	6.13	7.47	6.96	7.47	7.56	7.61	8.28
Sabreliner	7.27	7.62	-0.35	-4.56%	7.39	7.93	6.69	6.23	7.41	7.32	7.06	7.41	7.70	7.81
Dassault (Falcon)	7.21	7.13	0.08	1.16%	7.32	6.52	7.43	5.12	7.45	7.39	7.23	7.56	7.58	8.39
Bombardier (Learjet)	7.11	6.61	0.50	7.56%	7.32	6.92	7.03	6.03	6.98	6.16	7.39	7.49	7.31	8.07
Hawker Beechcraft (Hawker)	7.03	6.90	0.13	1.95%	7.27	6.79	6.72	5.78	6.82	6.63	7.03	7.65	7.56	7.93
Hawker Beechcraft (Premier I, Diamond, Beechjet 400A, Hawker 400XP)	6.74	7.12	-0.38	-5.30%	6.56	6.79	6.21	5.50	6.93	6.49	7.19	7.09	6.76	7.88
Bombardier (Challenger)	6.66	6.85	-0.19	-2.73%	7.10	6.23	6.20	5.00	6.20	6.16	7.01	7.54	7.29	7.75
NEWER TURBOPROPS ↑														
Pilatus (PC-12)	7.72	7.37	0.35	4.81%	7.73	7.53	7.67	6.14	7.85	7.54	7.60	7.84	8.36	8.96
Hawker Beechcraft (King Air)	7.41	7.23	0.18	2.49%	7.64	7.32	7.41	6.18	7.36	7.62	7.47	7.27	7.12	8.58
OLDER TURBOPROPS ↑↑														
Mitsubishi (Marquise, MU-2, Solitaire)	8.81	9.17	-0.36	-3.92%	8.83	9.05	8.86	7.80	9.07	8.77	8.82	8.98	8.56	9.32
Hawker Beechcraft (King Air)	7.06	7.14	-0.08	-1.07%	7.06	6.82	7.40	5.74	6.90	6.84	7.22	7.15	7.13	8.24
Piper Cheyenne	5.71	5.96	-0.25	-4.21%	6.13	4.79	5.67	5.53	5.26	5.36	5.89	5.44	5.66	6.90
ROTORCRAFT (All Ages)														
Bell	6.97	6.94	0.03	0.49%	7.28	7.17	6.44	5.35	6.27	7.14	7.60	7.95	7.15	7.65
Sikorsky	6.88	6.45	0.44	6.82%	6.76	6.41	6.29	5.74	6.87	6.81	7.26	7.44	7.61	7.63
AgustaWestland	6.85	6.13	0.72	11.68%	6.00	6.94	6.31	6.13	6.10	7.35	7.35	7.37	7.04	7.69
Eurocopter	6.50	5.86	0.64	10.84%	6.38	6.19	5.17	5.08	5.84	6.96	7.01	7.70	6.48	8.14
MD	6.29	6.78	-0.49	-7.20%	6.36	6.48	5.84	5.43	6.34	6.21	6.35	6.16	6.50	7.36

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

* Last year's ratings for Gulfstream are not included due to changes made to more accurately reflect Gulfstream's model breakdown.

Bold indicates highest number in each category.

↑ Less than 10 years old
↑↑ More than 10 years old



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Authorized Service Centers

Gulfstream's ranking in this category was one of its lowest, possibly reflecting the company's long-standing policy of not granting service center authorization to independent companies in the U.S. Although Gulfstream parent General Dynamics owns both Jet Aviation (including Midcoast Aviation) and Savannah Air Center, those facilities are not official Gulfstream-authorized service centers. Boeing's ranking jumped more than half a point to 7.59, putting the company into second place in this category, a fairly significant move and pushing Cessna down to third at 7.50.

For newer turboprops, Pilatus and Hawker Beechcraft were ranked fairly closely at 7.73 and 7.64, respectively. In the older turboprops category, Mitsubishi MU-2 owners expressed their fanatical loyalty with a high ranking for authorized service centers of 8.83.

Bell Helicopter outpaced its competitors in this category with a rating of 7.28, well above the next highest ranking for Sikorsky at 6.76.

Factory Service Centers

Gulfstream operators, despite some complaints to the contrary, clearly are happy with the service they receive from the company's factory service centers, ranking the manufacturer's service for newer jets at 8.15. In the older jets category, Sabreliner owners signaled their satisfaction, placing the company in first place with a ranking of 7.93, moving Gulfstream to the number-two position for older factory service centers, followed by Cessna. Embraer's ranking this year climbed to 6.92 from 6.59



Getting an AOG aircraft back in the air is the primary goal, and OEMs are stepping up efforts to make sure those parts are available.



Readers were vocal about the quality of the technical manuals the OEMs provide.



Gulfstream once again claimed the top spot for product support for newer jets, such as the G550, above, and older jets. In this year's survey, as in last year's, AIN readers had glowing praise for the Mitsubishi MU-2, below, and the support they receive for the out-of-production airplane.



last year, possibly reflecting an increase in service center capability, especially with the new Mesa, Ariz. factory-owned service center. As more Phenom 100s enter service this year, Embraer should get more opportunities for customers to rate its services.

Pilatus also took the lead in factory service centers for newer turboprops, while Mitsubishi's factory service centers ranked even higher than the authorized service center scoring a high 9.05.

Bell Helicopter also ranked highest for helicopter manufacturers in this category, perhaps reflecting the company's purchase of a variety of aftermarket service businesses in recent years. Sikorsky has also added a number of formerly independent companies to its factory-owned system and it ranked third in this category for helicopter manufacturers, at 6.41, behind AgustaWestland's 6.94.

Parts Availability

Availability of parts is a Gulfstream and Cessna strength for newer jets, according to the rankings, and Dassault Falcon ranked relatively high in this category in third place. Supporting the parts needs of older jets is far more challenging, however, and the rankings showed Cessna in the lead, followed by Gulfstream and Dassault Falcon.

Rankings were relatively high for turboprop manufacturers, with Mitsubishi's ongoing support for the long-out-of-production MU-2 recognized with a strong rating of 8.86.

Helicopter rankings in this category were uniformly low, with Bell the highest at 6.44.

Cost of Parts

Cost of parts remains a perennial favorite complaint of aircraft operators worldwide, and there is a clear disparity between this category for newer and older

aircraft. Manufacturers are keenly aware of this issue and most have enacted programs to keep parts prices down, and the results seem to show that these efforts are paying off with newer aircraft fleets. Parts costs seem to be a significant issue for Bombardier Global and Challenger operators.

Turboprop operators express low opinions of the cost of parts, although MU-2 operators seem somewhat satisfied, ranking Mitsubishi at a relatively high 7.80.

AgustaWestland topped the list for helicopter manufacturers, although its ranking of 6.13 was not much higher than those for the rest of the companies, except for Eurocopter with its 5.08.

AOG Response

Operators are passionate about their aircraft-on-ground (AOG) experiences, and the many comments on this subject ranged from high praise to severe criticism. Gulfstream's AOG efforts were recognized with a strong rating for newer aircraft of 8.69. Dassault Falcon has strengthened its support network during the past year and its third-place ranking for AOG response may reflect these efforts. The other manufacturers enjoyed decently high rankings, indicating how seriously they all take AOGs. In the older aircraft AOG response category, Gulfstream again tops the rankings followed by a near tie for second-place Cessna and third-place Dassault Falcon.

Pilatus again bested Hawker Beechcraft in AOG response for newer turboprops, while Mitsubishi topped the rankings for older turboprops at a high 9.07.

The helicopter manufacturers are ranked more closely together in this category, but Sikorsky is the leader this time at 6.87, followed by MD Helicopters, which has seen a significant turnaround under new ownership in the past few years, then Bell.

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What Have You Done for Me Lately?

In preparing for the annual Product Support Survey, AIN asks aircraft manufacturers to summarize improvements to their product support programs during the past year. Not all manufacturers respond, however, and this year the following companies did not provide any new information: AgustaWestland, Boeing, Eurocopter, Piper, Sikorsky and Socata.

Airbus Corporate Jets

- Tailored support package: now offering flight-by-the-hour maintenance solutions, ranging from simple component support to heavy maintenance and technical fleet management.
- Added dedicated customer support.
- Created a new team whose role is to interface between customers and outfitter after-sales departments to ensure high-quality technical and spares support for the VIP cabin.

Bell Helicopter

- Conducted customer survey to establish the next generation of parts plan and service offerings for the 429 and existing customers.
- Decreased customer turnaround time at blade repair facility Rotor Blades by implementing Six Sigma lean processes.
- Expanded facilities at Edwards & Associates.

Bombardier

- Launched Bombardier PartsExpress in Europe, augmenting the PartsExpress service already in place in North America that leverages a fleet of aircraft for parts deliveries.
- Introduced mobile repair and response teams at all Bombardier service centers in North America and at Bombardier Belfast to serve customers in Europe.
- Increased network of authorized service and line maintenance facilities to 43 in 21 countries.

Cessna Aircraft

- Opened a new Cessna Citation service center in Mesa, Ariz. The service center replaces the former Long Beach center and is much larger, with room for future growth.
- Cessna will build its new European Citation service center at Valencia Airport in Spain.
- Continued to expand mobile service units. Citation service centers have deployed more of the specially outfitted trucks to other areas, including Arizona, Southern California and North Carolina, with more set to roll soon.

Dassault Falcon Jet

- Opened new factory-owned service centers in Reno, Nev., and São Paulo, Brazil.
- Permanently reduced the price on more than 22,000 Falcon spares.
- Launched Falcon E-Forum online series to provide an exchange of information and best practices with Falcon operators.

Embraer

- Expanded the worldwide service center network to 37 by adding new wholly owned and authorized service facilities in more regions.
- Launched FlyEmbraer, a new customer relationship Web portal that provides integrated Web tools, including technical publications, training and maintenance tracking, as well as e-Parts, the online software that expedites all Embraer Executive Care and warranty transactions with the service centers, resulting in faster claim processing.
- Improved parts availability in the distribution centers and added mission-critical item inventory at the service centers.

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Warranty Fulfillment

Gulfstream shines in the newer jet warranty area, according to survey respondents, at 8.49, followed by second-place Hawker Beechcraft Premier through 400-series jets at 8.03, then Cessna in third place. Operators of Gulfstream's older jets also ranked the company high for warranty fulfillment, but with a 7.40 rating. Dassault Falcon came a close second at 7.39, followed by Sabreliner at 7.32.

At 7.62, Hawker Beechcraft's King Air series ranked number one for newer turboprops, bettering Pilatus's 7.54. For older turboprops, Mitsubishi again takes the lead at 8.77.

AgustaWestland is the clear leader among the helicopter manufacturers at 7.35, followed by Bell (7.14) then Eurocopter (6.96).

Technical Manuals

Boeing edged out Gulfstream's 8.15 in this category with a first-place ranking of 8.17, followed in third place by Hawker Beechcraft's Premier through 400 series in the newer jets category. For older jets, Gulfstream took the lead at 7.97, followed by Cessna then Bombardier Learjet.

Pilatus and Mitsubishi outranked their competitors in the newer and older turboprop arenas.

Helicopter operators ranked Bell at the top for technical manuals, followed by AgustaWestland then Sikorsky.

Technical Reps

Gulfstream took the top ranking for both newer and older jet technical representatives, scoring 8.80 and 8.43, respectively. Bombardier's newer Challengers and Learjets tied for number two for the newer jets, followed by Boeing Business Jets. Hawker



Bell Helicopter claimed the top spot among helicopter manufacturers, as it did in 2008.

Beechcraft's Hawker series tech reps helped the company score a second-place ranking for older jets, while Cessna and Dassault Falcon tied for third place.

Pilatus operators rated their tech reps the highest, while Mitsubishi stood more than a point-and-a-half above its nearest competitor, the older King Airs.

Eurocopter again showed well against its competitors, placing second in the tech reps category at 7.70 to Bell's first-place 7.95. Sikorsky came in third at 7.44.

Maintenance Tracking Programs

This category is new this year, in recognition of the importance of aircraft records for preserving asset value and ensuring regulatory compliance. With Cessna having sold its Cescom tracking program to Camp Systems, the trend is for manufacturers to leave the development and support of maintenance-tracking programs to third-party companies such as Camp, Avtrak and others.

Most new aircraft include a temporary subscription to whatever system the manufacturer promotes, but operators eventually settle on whatever they like best, and these rankings reflect their opinions of the maintenance-tracking programs themselves, not the aircraft manufacturer.

Gulfstream, whose CMP.net runs on Avtrak's system, ranked first, followed by Cessna, which developed Cescom internally then sold that system to Camp Systems. In third place is Bombardier's Challenger program; Camp also supports most Bombardier aircraft, having signed an

agreement with the manufacturer in 2004.

Many operators of older jets stick with whatever maintenance-tracking system their aircraft used when they bought the jet, so the rankings probably reflect the same system providers. Gulfstream operators are happy with their service, ranking it at 8.61, followed by 7.70 for Sabreliner and 7.61 for Cessna.

Among the turboprops, Pilatus came out on top for the newer aircraft and Mitsubishi ranked highest for older aircraft.

Bell, ranked second in this category, bucked the trend and bought maintenance-tracking provider SkyBooks and provides a free two-year subscription with every new helicopter. Sikorsky ranked first and AgustaWestland third.

Overall Aircraft Reliability

The reliability category represents one of the most important criteria for aircraft operators, and respondents gave Boeing Business Jets the nod with a ranking of 9.08 for newer jets, followed by Gulfstream at 8.86, then Embraer with 8.84. In the older jets category, Gulfstream took the lead at 8.75. Dassault Falcon placed second with 8.39, followed by Cessna at 8.28.

Pilatus ranked number one for overall aircraft reliability for newer turboprops at 8.96, but Hawker Beechcraft's King Airs were not far behind at 8.58. Mitsubishi topped the older turboprop rankings with a ranking of 9.32, followed by older King Airs at 8.24 and Piper Cheyennes at 6.90.

In the helicopter section, Eurocopter led the pack with an 8.14, outpacing second-place AgustaWestland at 7.69 and Bell with 7.65.

Sennheiser Headset Winners

In appreciation of readers' participation in the annual AIN Product Support Survey, we hold a random drawing and award a prize to three survey respondents. This year, the prize is a Sennheiser noise-canceling headset. Winners of Sennheiser headsets for 2009 are Joe Delaney, a pilot for Executive Jet Management in Henderson, Nev.; Juan Sierra, a captain for Jet Logistics in Whitsett, N.C.; and Paul Kennedy, director of maintenance for JJ Gumberg Co. in Pittsburgh.

In Their Own Words starts on page 24 ►

What Have You Done for Me Lately?

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Gulfstream Aerospace

- Opened a state-of-the-art APU test cell in Savannah, Ga., and continues work on Phase II of the Savannah service center expansion project, due to open later this year.
- Continued to enhance worldwide product support, parts depots and field service representative networks. The addition of Jet Aviation to the General Dynamics Aerospace Group also adds to the service network.
- Continuing attention to and action on competitive parts pricing programs.

Hawker Beechcraft

- Investing in company-owned service centers, including a new facility in Mesa, Ariz., construction of a new facility in Indianapolis and expanded capabilities, including paint, in Chester, UK.
- Enhanced call-center/support staff, industry-leading hold times.
- Global support growth, with new authorized service centers (ASCs), including Arabasco in Jeddah, Saudi Arabia; AeroData in Braunschweig, Germany; Lider Aviação in Rio de Janeiro, Brazil; and Hawker Pacific in Manila, Philippines. Added new model ratings at existing ASCs.

MD Helicopters

- Reduced aircraft on ground to lowest average in 10 years; many weeks at zero aircraft on the ground awaiting needed parts.
- Put plans in place to double the size of the technical support staff and upgrading all technical publications and support.
- Opened a new maintenance training facility and a help desk for customer support.

Pilatus

- Customer support department launched Query Answering System to better track customer feedback and long-term projects.
- Life-extension program (LEP) for PC-12 (original life limit 20,000 hours/27,000 flights): LEP 1 (completed 2008)—airframe life extended to 25,000 hours/30,000 flights; and LEP 2 (in progress 2009)—target 50,000 hours/60,000 flights.
- Made additional technical publications available online.

Sabreliner

- Employing an independent company to conduct aircraft "intake to delivery" analysis and training. By examining and enhancing this process, the company has increased on-time aircraft completions, improving the level of customer satisfaction.
- Working with suppliers to examine and develop solutions to parts issues that affect the operation of the Sabreliner. These suppliers have been more quickly able to resolve parts obsolescence issues by locating suitable replacement parts that can be used across multiple platforms. The resulting increased usage volume significantly lowers the price of those specific parts. —M.T.



Comments about the quality of tech reps ran the gamut, from praise for proactive consistent effort and troubleshooting to "I've never seen him."

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In their own words

While the manufacturers and their authorized maintenance facilities eagerly await the rankings in the charts on page 18 and 19, the meat of the annual AIN Product Support Survey is in the comments from survey participants. Each year, we ask those who take the time to fill out the survey to provide additional detail about their experiences with the factory-owned and -authorized service facilities that they frequent as well as other factors involved in maintaining and operating business aircraft. We publish a balanced selection of comments that have a direct bearing on the quality of service provided in the hope that the companies that maintain the survey respondents' aircraft will take the criticism and kudos to heart and make changes where necessary.

Based on feedback from last year's survey, this year AIN added a new category—maintenance tracking programs—for the airframe portion of the survey. This is in recognition of the fact that most business aircraft maintenance requirements are tracked using programs such as Avtrak, Camp or manufacturer-owned programs (most of which are administered by either Camp or Avtrak). The value of a particular aircraft is increasingly tied to the quality of its records, and thus it made sense to add this new category.

As always and despite frequent requests, AIN never shares the raw survey data with any aircraft manufacturer or service provider. Respondents are asked whether they would like their name and/or company attached to their comments, and if the answer is no, AIN will not reveal the respondent's identity information. —M.T.



A number of AIN readers singled out Sikorsky's Keystone Helicopter for comment in this year's survey.

Authorized Service Centers

An AgustaWestland operator likes the service at Motorflug Baden Airpark in Germany. Another complained that the authorized service center is "Very willing but not able to effectively deal with Agusta."

"Century Helicopters does good, on-time work," said Tom Dey, captain at Bell Helicopter operator Med-Trans. While one operator said that there is not enough competition among Bell-authorized service centers, another likes the Bell system. "Having service centers that, in a customer's eyes, appear to be an extension of Bell. This is the way to support a product!"

Boeing BBJ operators were lavish in their praise of Associated Air Center in Dallas. "They have done work on our Boeings for years and have always been great to us," said one operator.

A number of Bombardier Challenger operators complained that there are not enough authorized service facilities.

Two Challenger 601 operators praised the service they are getting from Gulfstream-owned service facilities in Appleton, Wis., and Dallas. "Midcoast Aviation does a great job," wrote another operator, and this facility is now Gulfstream-owned as well.

A Global 5000 operator finds service better at authorized facilities: "These service centers seem better at troubleshooting than the factory centers." Joe McCoy, chief of maintenance for Global Express operator Acme Operating, wrote, "Midcoast-Cahokia performed my 4A and 4C. Everything went terrific."

Learjet 31A captain Hector Rios gave a "job well done" to Averitt Air of Nashville, Tenn.

Semitool director of maintenance Reed Lamb found that for a Europe-based Cessna Citation CJ1 that, "Marshall [Aviation Services] has been hit-and-miss on performance; CSE was excellent, jobs done on time and reasonable cost." "Very good response in TAM Cessna service center Brazil," wrote a 560 operator.

While a Bravo operator had problems with West Star's Alton, Ill. facility, an Encore operator was impressed. "We had interior redone and added new avionics," said the Bravo operator. "Prices were very high, warranty service was quite poor, quality of installation very unsatisfactory." The Encore operator wrote, "West Star Alton provided excellent service at very competitive price."

For Conquest II turboprop service, West Star Aviation and Jet Aviation's Basel, Switzerland facilities earned kudos from operators.

Duncan Aviation received compliments for service on both older and newer Falcon jets. Falcon 2000 operators cited "excellent service from Western Aircraft, Boise, Idaho," and

"positive experience to date" at West Star's Alton, Ill. base. "Service is excellent" at Jet Aviation in Basel, said another Falcon 2000 operator, while a 900EX operator complained that "Jet Aviation Basel—struggling with expansion—interior refurbishment extremely poor—maintenance OK but slow and expensive."

Jorge Lara, flight operations director for Falcon 50 operator Corbantrade, noted, "Most of the authorized service centers perform great jobs on Falcon aircraft...they work better than Dassault factory-owned centers and are always more customer-oriented."

Embraer Legacy 600 operators complimented Constant Aviation in Cleveland: "Constant Aviation does a very good job and has great customer support." Other Legacy 600 operators were not so happy: "Most authorized centers were unable to troubleshoot items that had plagued the aircraft for a long time."

In the U.S., Gulfstream operators don't have many choices for authorized service centers besides Pentastar Aviation in Michigan, which received many positive comments. Outside the U.S., Jet Aviation facilities [especially the company's Basel, Switzerland facility] received high marks from Gulfstream operators.

Todd Fox, a pilot for Beechjet 400A operator Carecore National, wrote, "Good people, good work, Stevens Aviation, Greenville, S.C." "Jet Works in Denton, Texas, is great," wrote another 400A operator.

An operator of an older Hawker 700A wrote, "Aerodynamics at Pontiac, Mich., does a great job for us." "Penta Aviation, Vancouver (Canada) response excellent," wrote Ian Struthers, aviation manager for 700A operator Air 700. An 800A operator wrote, "Penta Aviation is well equipped, experienced and adequately staffed; however, it is very expensive and would have replaced every component on the aircraft had we let them."

Two Hawker operators praised General Dynamics Aviation Services facilities, including the Appleton, Wis. base.

Six Westwind operators praised Trimec Aviation of Fort Worth, Texas. "Honest, knowledgeable. The Westwind experts," wrote Steve Toutant, chief pilot for McNichols.

There were no negative comments about Mitsubishi MU-2 authorized service centers. Dennis Wolf, chief pilot for Itinerant Airways, summed up: "I am very happy with the support Mitsubishi provides for its out-of-production aircraft."

Two Piaggio Avanti operators report good results with Jet Works Air Center in Denton, Texas.

"Skytech Rockhill, S.C., has been very helpful in helping us with our PC-12," said one Pilatus PC-12 operator. Aviation Sales of Englewood, Colo., "is very good," and "continues to impress with the quality of work," two PC-12 operators said.

Piper Cheyenne owners have few choices for service, and one operator warned, "Piper centers may not be experienced with Cheyennes. You must find Cheyenne specialty shops."

Twin Commander owners need to be careful, too, according to Semitool director of maintenance Reed Lamb. "It has been hit-and-miss lately."

"Avmat does an excellent job," according to one Sabreliner 40 operator, among four who praised this company.

Socata TBM 700/850 operator Renton Coil Spring rates Avex of Camarillo, Calif., with high marks for service—"first rate in every way,"

Factory Service Centers

An AgustaWestland operator wrote that the company's Philadelphia service center "needs improvements and better understanding of customer support."

"Best in the business. I use [Bell-owned] Edwards & Associates in Piney Flats, Tenn., and couldn't ask for better service," said Allen Lambert, chief pilot for Cambata Aviation.

Stephen Stodolski, director of maintenance for Bombardier Challenger 300 operator Hubbell, said the Bombardier facility in Wichita "did a great job during our last visit." "The Fort Lauderdale facility has gone beyond the call of duty to fulfill our servicing requirements," said Jay Fromer, director of maintenance for Challenger 300 operator Arven.

Without specifying a Bombardier facility, Ken Lavine, director of maintenance for Challenger 604/605 operator Whitewind, wrote, "The experience level of the technicians continues to drop." "Hartford, Conn., is the best Challenger service center," wrote another 604/605 operator.



While readers were not shy about offering criticism, they were also quick to praise facilities that had gone above and beyond in the last year.

"Very responsive, but not too careful sometimes with the aircraft. Scratched our windshield and won't own up to it," said Global 5000 captain Andrew Milewski. "Good people with our best interests at heart in Dallas. They seem to have conquered their turnover problem," wrote a Global operator.

"Our airplanes will never be sent to a factory service center," said a Learjet 31A operator. "The work is never timely, always needs to be re-accomplished and the people have a poor attitude with regard to customers' needs."

Director of operations for a Learjet 40/40XR operator Roger Lipcamon noted, "Bombardier Aviation Services facilities have improved tremendously over each of the last three years."

Cessna's "Orlando service center always does a great job," said Marc Salvesson, chief pilot of CJ operator Hiller Group. "Wichita and San Antonio have scheduling problems, especially with their paint shop," wrote an XLS operator.

Falcon operators were vocal in this year's comments. "Dassault Aircraft Services Little Rock needs more attention to detail and follow-through," wrote a 2000EX operator.

A 900EX operator said, "Dassault Little Rock, excellent personnel and support. Wilmington, not there yet." A Falcon 50 operator wrote: "Dassault Wilmington, inconsistent quality of service, can be slow to complete."

Dassault's Paris Le Bourget facility received these comments from two 900-series operators: "Dassault Paris slow and not customer-minded." "Paris knows its product. This is the

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facility to go to when you have a problem that others struggle with. We have had outstanding service here."

Embraer Legacy 600 operators were mostly complimentary, except one, who wrote, "Not impressed with the service or support." One operator said, "Gavião Peixoto (Brazil) service center has good knowledge of the aircraft. Does not have enough space and work force for the number of customers it has, though." And of the new service center in Arizona, a Legacy 600 operator said, "Embraer Mesa is a phenomenal facility!"

Eurocopter operators aren't happy. One wrote, "Factory service centers are even worse than authorized service centers with the addition of higher cost."

A Gulfstream G150 operator didn't mention a particular factory-owned service center, but complained, "In March 2009 they didn't want to be responsible for items covered under warranty." Another G150 operator said, "I prefer Dallas. Savannah is improving and is finally overcoming the negative side effects of rapid growth, namely lack of experience."

"If you are not in a GIV or larger, Gulfstream would prefer you just go away," wrote a G200 operator.

"Used General Dynamics in Dallas twice this year. Very pleased!" wrote a GIII operator. A GIV-SP operator said, "Savannah maintenance quality is poor, communication terrible, on-time departure always difficult."

"Gulfstream (Luton, England) is always too busy and can only just cope with genuine AOGs," said a GV operator. G400 chief pilot Ignacio Morillo said, "Gulfstream Luton is good" but, wrote another, "needs to improve."

Hawker Beechcraft's Little Rock, Ark. facility "has a bottomless amount of talented people," according to a Premier operator.

"Atlanta Fulton County is great," said Hawker 400A captain Dean Austin. "Chester in the UK is excellent but slow," said James Lloyd, chief pilot for Hawker 400A operator African Air Sol.

An operator who flies the Hawker 750 through 900XP wrote, "Wichita service center needs to do a much better job of paying attention to final details."

"Houston has excellent support and is committed to customer satisfaction," said C90GT chief pilot Bayron Lima of Westrade Air Services.

A Sabreliner 40 operator wrote, "Sabreliner personnel are good to work with all the way around."

Some Sikorsky operators complimented the company's factory service: "Knows its product, excellent test delivery pilots, very good delivery personnel."

Others commented, "Keystone Helicopter's quality and timeliness of service are substandard."

According to a TBM 700/850 operator, "Socata has done whatever it took to resolve problems efficiently and quickly."

Another TBM operator said he had this experience with Socata's Florida factory-owned facility. "Awful. Over-tempered my engine and didn't tell me about it. Found out when I downloaded the engine recording device installed on the airplane." (AIN followed up with this owner, and he confirmed that Socata paid for engine repairs after this incident. —Ed.)

Parts Availability

There is not a lot of satisfaction among AgustaWestland operators when it comes to parts availability. Three out of 10 respondents reported "just satisfactory," "satisfactory" and good results from the newest 109 models to the oldest.

The rest of the AgustaWestland commenters complained about no parts availability even in AOG situations.

Bell Helicopter garnered a number of positive comments, including "excellent and fast," "has improved" and "most parts available immediately," but negative comments were unusually specific. One operator complained, "Bell will not allow drop shipment directly to purchaser. Must first ship to service center then to customer. Huge waste of time and money."

Four Boeing BBJ operators submitted comments, ranging from "timely" to "terrible."

Bombardier's Challenger 300 appears to be having some problems, identified in nine comments, which included three mostly positive remarks. Stephen Stodolski, director of maintenance for Connecticut-based electronics manufacturer Hubbell, wrote, "To Bombardier's credit, it has invested in solving the long-running 'no fault found' plague." Another Challenger 300 operator revealed that Bombardier "still has difficulty delivering parts in a timely manner and we still receive parts that are DOA [dead on arrival]."

The parts situation seems much better for Challenger 604/605 operators, although there remain some negative comments like "slow and costly," "some parts are few and far between." Elite Air maintenance manager Robert Plowman said, "Bombardier is just getting better and better."

Cessna Citation operators provided many positive comments about parts availability, generally across a large number of models. "Cessna has taken parts off production airplanes for us when it could not produce one and I was AOG," one operator said. "Their inventory and its control is fantastic."

Even with older Citation models, parts availability seems to get high marks from operators. Paul Lucas, chief pilot for Estoar, is happy with parts availability for his older Citation, but did have a problem with a replacement for a wrongly shipped part getting lost in counter-to-counter shipping. Another Citation II-series operator wasn't as happy, however: "Cessna's parts availability for the Citation II is a joke. It seems that they don't want to support older Citations."

Falcon operators report positive experiences with parts availability, but a 900EX operator complained, "Most parts are usually available, have received a number of dead-on-arrival parts."

According to Embraer Legacy 600 operators, the company needs to improve in parts availability. One operator wrote, "Parts ordering is difficult, no online system like other OEMs and little to no tracking provided." Not all Legacy operators were unhappy, and some cited "excellent" and "very, very good" parts availability.

Eurocopter operators were voluble in their assessment of parts availability for their helicopters, with many concerned about long waits for parts shipping from Europe and some parts that never arrive. "Needed a part that is found on all models of AS 350 and it took three months!" wrote one operator.

One G150 operator said that availability is "mostly very good, but occasionally lacking. It appears to be because of the extraordinary amount of NFF [no-fault-found] components."

While one G550 operator said, "Simply the best. I have never had to wait for a part," another, director of maintenance Mike Glick, complained, "Have to go AOG a lot to get parts."

In the older Gulfstream category (GII, GIII), operators are fairly satisfied, but many said this is because they are able to get parts from non-Gulfstream sources.

Older Hawker models are experiencing scarcity of parts, according to operators, but that problem is also showing up for operators of modern Hawker models. "Terrible—they never have anything," said one operator.

Gatlin Development chief pilot Aaron Turner had a problem with a new 800A part: "Hawker Beechcraft failed us completely on a structural part that was so badly corroded it could be bent in half in your hands. AOG desk could not get us the part for weeks." Mike Strader, chief pilot at Regal Beloit in Madison, Wis., was more positive: "Great. No back orders or delays."

King Air operators report many positive experiences with parts availability from Hawker Beechcraft, although one B200 operator wasn't so happy: "Ordering online is a crapshoot, by phone, not much better. Normal-use parts are typically back-ordered for months."

IAI scored high for parts support for Westwind jets, aided by third-party support from Westwind experts such as Trimec Aviation and Worthington Aviation. "We have never had an AOG situation where parts were not available," wrote captain Keith Cook at Basler Electric of Worden, Ill.

MD Helicopters has been trying to rectify parts availability, and some customers are seeing improvements. "They are out there and the factory is getting better," reported Eric Mouritsen, director of maintenance for Aris Helicopters.

Mitsubishi Heavy Industries America's ongoing support for the MU-2 turboprop garnered several positive comments, with the only negative a complaint that "availability of structural parts is poor." A typical positive comment was this from Richard Shine, CEO of Manitoba Corp.: "For an out-of-production airplane, it is amazing how easy it is to obtain parts as needed."

Only two operators commented on Piaggio Avanti parts, with one saying parts are available "in a timely manner," and another just "bad."

Pilatus PC-12 operators were split almost evenly between positive and negative experiences. Carl Hauprich, captain and director of maintenance for Sunstate Aviation, doesn't like that "the owner of the aircraft is required to call and order parts." Others noted that parts take much longer when shipped from Pilatus headquarters in Switzerland. Loren Hofer, chief pilot for J&L Management Services, said, "We have rarely had to wait more than 24 hours for parts."



For many survey respondents communication is key: facilities got high marks for keeping the customer informed about aircraft downtime and pricing.

Piper Cheyennes are increasingly running into spares problems, but one operator of a 400LS praised third-party provider Cheyenne Aircraft Services.

Sabreliner operators rate parts availability as "generally quite good" to "parts are becoming an issue." One Sabreliner 40 operator said, "Some parts are getting hard to find."

Most Sikorsky operators are happy, like this one: "To date all required parts have been available in reasonable time." However, one operator complained, "Lack of spare parts on site for a fleet of 10 S-76s, ranging from one A++, five C+ and four C++, is due to management decisions to save costs by reducing inventory."

TBM 700/850 parts availability "has improved dramatically," said one operator, and others indicate that this "has never been an issue," and "better recently." Another operator, however, complained, "Socata continues to prevent owners from getting overhauls on common components (such as landing gear) at our preferred qualified centers."

Cost of Parts

"Always too expensive" is how an AgustaWestland operator described the cost of parts.

Comments about Bell ranged from "Raised the cost of parts over 40 percent to cover sagging sales" to "better than most."

Parts for the BBJ are "competitively priced."

Comments about the Bombardier series ran the gamut. "Not worth it," said one Challenger 300 operator. Of the Challenger 600, comments ranged from "reasonable" to

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"Parts are ridiculously expensive due to their no longer being produced," said Greg Cayon, director of business aviation and travel.

Citation operators expressed similar concerns, ranging from "good" to "always out of line."

Larry Adams, maintenance director for **Encore** operator HealthSouth Aviation, wrote, "Sometimes I think parts pricing is excessive, and if I was not on ProParts I would use someone else because they are not competitive."

Falcon 50 series operators agree that prices have improved in the last few years "but are still higher than other manufacturers'." A **900-series** operator noted, "High, but due to the reliability of the aircraft you do not have to replace parts that often."

Jason Smith, **Embraer Legacy 600** captain, wrote, "This is where Embraer seems to win the ballgame in my view."

Eurocopter operators were in agreement that "the cost of parts through the factory is going out of sight. We find ourselves going to alternate sources and overseas vendors."

Gulfstream operators commented on the high cost of parts but acknowledged that the company is working with operators. "High, but now they are matching prices," said Carl Hauprich, captain/director of maintenance, Sunstate Aviation.

"It's not cheap to operate a **G550** and some of the parts are outrageously expensive, but the Meet the Quote program is quite good," wrote Michael Magnani, director of maintenance for Central management Services.

"Have found parts less expensive than from Hawker Beechcraft but they have been willing to adjust prices," said Andrew Atwater, aircraft maintenance crew chief for a **Hawker 400A**.

"Parts cost are rising rapidly. Core charges are becoming excessive," said **IAI Westwind** operator Daniel Carrigan.

Operators of **MD Helicopters** agreed: "Some extremely too high."

MU-2 operators reported fair parts pricing. "Reasonable based on the complaints I hear from owners of competing turboprops," said Earle Martin, chief pilot for Mid Coast Air Charter.

Comments on the **Pilatus PC-12** ran the gamut from "Most parts are available at a reasonable cost" to "Very high—the reason to flip the aircraft after warranty expires."

"Due to ordering in small numbers from the manufacturer, the cost is exorbitant," reported a **Piper Cheyenne** operator.

Sabreliner operators labeled parts "reasonable" or "expensive and difficult to find sometimes."

There was a similar pattern among **Sikorsky** operators, who said prices "continue to escalate at an alarming rate" or are "average for the industry."

A **Socata TBM** owner wrote, "Simple parts can be astoundingly expensive."

AOG Response

An **AgustaWestland** operator noted, "One week to one month is the average time to AOG response."

"Fast," wrote an **Airbus ACJ** operator.

"Bell does a good job if the 407 is AOG," said a **Bell** helicopter operator. "Different story with the 212, since the company has stopped supporting this airframe."

"**Boeing** takes AOG orders very seriously—that's good!" wrote Seymour Pacific Development aviation manager



Parts pricing is a perennial complaint among operators, but many pointed out that OEMs are exhibiting a willingness to meet quotes from third-party providers.

and chief pilot Satoshi Enoue.

A **Bombardier Challenger 300** operator reported, "Very weak." Another **300** operator said, "Bombardier has really stepped up its AOG response program."

"AOG response is hit or miss," said a **Global Express** operator.

A **Learjet 45** operator reported, "Outstanding AOG response from the customer services hotline."

"Cessna has gone above and beyond to do everything needed to keep our aircraft on schedule with various AOG issues," said a **Sovereign** operator.

Falcon 50 maintenance manager Dave Dolack appreciates Dassault's AOG efforts: "In the rare occurrence of Dassault Falcon Jet needing to acquire a spare part from France, it surely knows how to play the 'customs game.'"

For one **Embraer Legacy 600** operator, "Only lots of pressure will get the thing moving." Another commented, "There have been only two times we were AOG and both times they came through and got the aircraft flying again."

Sam Miller, chief pilot for **Eurocopter** operator Miller-Crestar Helicopters, noted, "Some items were quickly supplied; others took the slow boat from France." "AOG response is getting more unresponsive every day," wrote another.

"Too many unqualified techs set out on an AOG," said Mike Glick, director of maintenance for a **G550** operator. "I've had to wait 30 hours for AOG response from one hour away."

"Outstanding support from Gulfstream," wrote another **G550** operator.

A **Hawker Beechcraft 750** to **900XP** series operator got back in the air quickly after a starter/generator bearing failed. "Little Rock had one and expressed it to us. We put it on and flew away at scheduled departure time same day."

"Good luck," wrote a **King Air B200** operator. "Unless I stay on top of it every step of the way, the parts will inevitably be late."

According to a **Mitsubishi MU-2** operator, "[We have] never not received any part. Always got it the next day. Mitsubishi is great."

"They don't know the word 'AOG,'" said Matthieu Berthet, chief pilot for Piaggio **Avanti** operator Pan Européenne Air Service.

According to a **Pilatus PC-12** operator, AOGs are "good, unless the part has to come from the factory."

"Piper does not know what AOG means," wrote Royce Riggs, chief pilot for **Cheyenne II** operator Air Partners.

James Robinson, chief pilot for a **Sabreliner 65** operator, noted, "Parts response is a little slow."

"Having an AOG center only in the U.S. is not helping European operators," said one **Sikorsky** operator. "Outstanding," concluded another.

Socata TBM 700/850 series pilot Antal Rajnak said that AOG service was "Above expectations (based on a single event). Technician sent from factory with tools and parts to Vienna within hours."

Warranty Fulfillment

Bell Helicopter "is good for Bell parts and engine parts, fair for accessories and non-Bell parts," according to Nigel Reynolds, engineering manager for a Bell operator.

"I'm disappointed with **Boeing** warranty, mostly with coverage of vendor-supplied parts," wrote Avjet chief of maintenance/BBJ Bruce Vogt.

"Our aircraft is under warranty, and the warranty department of Bombardier is absolutely criminal," said a **Challenger 300** operator. "They authorize our warranty work and then deny everything after the fact. Spending over a year to rectify the issue is another story in itself. It's absolutely horrible customer service." Another **300** operator is happy that "finally, online warranty is available."

"Bombardier extends a shorter warranty period than is being offered by the vendor—unacceptable," wrote a **Global Express/XRS** operator.

"Pathetic," said an **Encore** operator. "Cessna [offered a warranty on] an FCU for six months. I found out by doing my own research that Hamilton Standard's vendor warranty is one year or 1,000 hours."

"Eventually obligations are completed," said **Falcon 900DX** chief of maintenance David Weger. "The approval is slow and follow-up is required."

According to a **900EX** operator, "Outstanding response from the current leaders of the support group."

Two **Embraer Legacy 600** operators expressed opposing opinions: "If you aren't in the Embraer Executive Care program, the warranty is almost worthless; no real claim system." Shawn Pacheco, crew chief for a **Legacy 600**, said, "Way above and beyond. No issues ever!"

A **Gulfstream G350** operator eventually was satisfied, according to this report: "Had one issue of refusal to honor an interior issue under warranty after interior warranty was expired. Since we had the problem multiple times before warranty expiration, we felt it should be covered. Took a little coaxing, but got it covered."

A **Hawker Beechcraft 750** through **900XP** operator wrote that "Hawker Beechcraft has honored everything we asked for." "Warranty and SupportPlus are lacking in user ease," said another Hawker operator. "Their accounting system is a nightmare."

"Honor is paramount among Mitsubishi and those in our MU-2 community," said Earle Martin, chief pilot for **MU-2** operator Mid Coast Air Charter.

"It should not take so much effort from the customer to get timely and accurate services," said a **Sikorsky** operator.

According to **Socata TBM 700/850** pilot Antal Rajnak, "We have no reasons to complain. The factory has been generous even after the warranty has expired."

Technical Manuals

AgustaWestland technical manuals are "well written and illustrated," according to director of maintenance Michael Waters. **AgustaWestland** captain Peter Row, however, noted that "often, manuals don't match the real aircraft."

"Bell has too many manuals and is too slow in updating them," according to one operator. Another operator said, "Bell manuals and tech pubs are the best in the industry."

"Boeing manuals and the MyBoeingFleet Web site really are excellent!" according to Satoshi Inoue, aviation manager and chief pilot for **BBJ** operator Seymour Pacific Developments.

Bombardier's "SmartFix Internet-based program is phenomenal," wrote a **Challenger 300** operator.

"The new version of SmartPubs has some large deficiencies—for example, search functions for the entire illustrated parts catalog are not possible," according to a **Challenger 604/605** operator.

"Good and getting better," a **Global Express/XRS** operator noted.

"Poor updates, inconclusive information buried in ATA chapters that you wouldn't normally look [at]," wrote **Citation II** manager of flight operations Michael Bohling.

"Errors are not corrected," reported a **Dassault Falcon 2000EX** operator, "even after being identified for years."

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"I would put Dassault Aviation's field technical manual DVD against any other OEM's out there," said 900EX senior aircraft technician John Alexander.

Embraer Legacy 600 captain Jason Smith wrote, "Best ever written. Very informative."

A Eurocopter operator said "manuals are typically French and they change format between models—very annoying."

A Gulfstream G150 operator wrote that technical manuals "need to be updated to reflect latest changes to aircraft design."

"Very high quality," said Michael Magnani, director of maintenance for G550 operator Central Management Services.

"Very few illustrations, poor search engine on CD, no access to component maintenance manual or parts," wrote a GIV operator.

A Hawker Beechcraft Hawker 750 through 900-series operator opined: "Stink! Hard to find the information you are looking for."

"Technical directions vague," said a King Air B200 operator. "Many times the system under maintenance cannot be found in manual."

"Manuals lack precise information. Very few tolerances are shown for acceptable wear limits," according to Paul Likens, lead pilot for an MD Helicopters operator.

"Could use some help, but the factory keeps updating them," said a Mitsubishi MU-2 operator.

Pilatus PC-12 captain and director of maintenance Carl Hauprich complained that technical manual viewing software "is not compatible with Microsoft Windows Vista."

"Some of the easiest to use and find the information one needs," commented a Sabreliner 40 operator.

"Technical manuals are easily available and keep a high standard," said TBM 700/850 pilot Antal Rajnak.

Technical Reps

AgustaWestland tech representatives "are slow to respond, slow to get back with information," said lead pilot Paul Likens. "Well trained and personable," wrote aeromedical pilot Robert Steinbrunn.

"The guys really try to help, but their hands are often tied on the supply side," said one Bell operator. Added another, "Tech reps are the best in the industry; they get complete information back to us quickly."

Boeing tech reps "are very knowledgeable and quick to return phone calls or research a question and provide the answer," said BBJ aircraft manager David Rolander.

"We have a field rep who is readily available and is extremely helpful!" said a Bombardier Challenger 300 operator. "Are great but are hindered by the OEM policy in regard to not supporting classics," said a Challenger 600 operator.

Cessna Citation Encore chief pilot Ronald Larson wrote, "I have been contacted regularly by a Cessna tech rep. He'll always follow up on any issue we discuss."

Dassault Falcon tech reps are "knowledgeable, want to help troubleshoot problems and prevent recurrence," according to a Falcon 2000EX operator. David Weger, chief of maintenance for a 900DX operator, wrote, "Average. The complexity of the aircraft and software driving many of the issues force the field service rep to go to engineering for advice and guidance."

"I rate the U.S. tech reps very highly," said an Embraer Legacy 600 operator.

"Here is where Eurocopter shines," said one operator.



In an effort to keep aircraft flying, OEMs are building centrally located parts warehouses.

"The tech reps are world class." Another operator complained, "Eurocopter here and in Europe has no idea how to communicate or share information."

"Tech reps are not completely spooled up on the aircraft," noted a Gulfstream G150 operator. "Sometimes it's better to talk to an Astra tech rep." A G450 operator wrote, "Gulfstream tech reps are superb and very knowledgeable."

"Our Hawker Beechcraft tech rep is great," according to a Hawker 800A operator.

"Pretty good folks," said a B200 operator. "Knowledgeable if you get one of the old timers."

"They try, but lack knowledge," wrote Paul Likens, lead pilot for an MD Helicopters operator.

"The technical reps are very generous with their time to explain systems and inform users about the intricacies of the aircraft," said Scott Martin, chief pilot for Mitsubishi operator Zwana.

Pilatus, wrote a PC-12 operator, "needs work, never contacts customer."

Sikorsky "tech reps need to reply to requests more hastily," wrote one operator.

A Socata TBM 700/850 operator said that the manufacturer's technical representatives are "extremely knowledgeable and available on a near real-time basis."

Maintenance Tracking Programs

Operators must track the maintenance they perform on their aircraft, but how they do so is up to them. Avtrak, Camp and Flight Docs offer some of the more popular tracking systems.

Avtrak is "excellent" said one AgustaWestland operator. "I love CMP (powered by Avtrak) and use it for all seven of my aircraft," wrote one Gulfstream G550 operator. Another commented, "Lots of mistakes on a factory-new aircraft. Tasks that don't apply [were] activated and tasks that do were not."

"We use the Flight Docs factory program and have had really good success with it," wrote a Boeing operator.

"Camp program is a good system," wrote a Challenger 601-1A operator, while a 2000EX operator commented, "Camp is not in tune with Dassault."

A Legacy 600 operator wrote that Embraer's tracking service is the "Best around. Embraer tracks every single part and knows when they tend to break. They will give you a heads up on a precautionary replacement so you don't wind up stranded somewhere."

"The Russell Adams [software] used by our company is a good program," noted an MU-2 operator.

Overall Aircraft Reliability

AgustaWestland captain Peter Row noted "A lot of teething problems, especially with hydraulics, nose gear actuators, air conditioning and moisture in electronics." "Aircraft is very reliable," reported another AgustaWestland operator.

An Airbus Corporate Jet operator said, "Wing rib 5 cracks seem to be endemic across all of the Airbus product range."

"Have not missed a flight yet!" said one Bell operator, while another wrote, "Supply issues from Bell have lowered overall dispatch reliability."

Bruce Vogt, chief of maintenance/BBJ for Boeing operator Avjet, wrote, "The Boeing airplane is exceptionally reliable."

Bombardier's Challenger 300, according to an operator, "Has let us down on several occasions (low serial number) but Bombardier has been there for us." Dispatch reliability of "99 percent, not bad for a 26-year-old cream puff," said a Challenger 600 operator. "The Challenger 604 is bullet-proof in reliability. Rare issues, good performance make it a great aircraft for our department," reported one operator.

One Global Express/XRS operator commented, "Haven't missed a trip in three years. Dependable as long as you can deal with the known glitches and don't get alarmed at every CAS message."

"This is our second Learjet 45. I have found the reliability much improved over the last few years!" A Learjet 60 operator wrote, "Our dispatch reliability is over 99 percent, but if we make a list of all that has gone wrong in the past three years, it is a long list."

"Our Citation Bravo has been an amazing performer," wrote operator Stephen Stilling.

"Overall reliability good although a few items have been a nightmare to diagnose," said a Sovereign operator.

According to a Dassault Falcon 2000EX operator, reliability is "getting better, lousy at first." Falcon 50 flight operations director Jorge Lara of Corbantrade added, "Dassault builds a superb aircraft, a product that is infinitely reliable." One Falcon 7X operator said, "Many minor avionics-related problems. Aircraft seems to be 'unfinished' from testing."

"This is the toughest airplane flying," wrote Embraer Legacy 600 captain Jason Smith. "In nine years of Embraer flying I have had to abort only two times."

"The Dauphin is very reliable," a Eurocopter operator wrote, "but is getting more maintenance intensive and more expensive to operate as years go by."

Gulfstream's G150 "is getting better with time; seems most teething problems are getting resolved," an operator said. A G200 operator wrote, "Spends more time in maintenance than flying." "We have never missed a trip with the Gulfstream," said one G550 operator. "Totally unacceptable! AOG six times and in a service center three times for 38 days in first six months from delivery," wrote another.

According to a Hawker Beechcraft Premier operator, "It is impossible to fly more than 400 hours a year due to maintenance-based ground time." Capt. Jim Cauthen said this about his company's Premier: "We have missed one trip in three years."

Operators of the Hawker 750 through 900XP reported, "Overall, few maintenance discrepancies, but when there are discrepancies they are often intermittent and hard to troubleshoot. Aircraft is a true workhorse and we have had great reliability success with all our Hawkers."

"A King Air just goes and goes," said a B200 operator. According to Hans Bruening, president of C90GT operator Avia Mobil, "Factory-new aircraft delivered with too many necessary complaints, in this case specifically in landing-gear and brake issues."

A Westwind II operator wrote, "Postponed one flight in 21 years."

CSIM Air director of maintenance Andy Lindborg said his company's Avanti II is "not as reliable as the Falcon. Maybe it is just new-airplane growing pains."

Loren Hofer, chief pilot for Pilatus PC-12 operator J&L Management Service, wrote, "We love it. It is hard to complain about an airplane that rarely has a squawk." Wrote PC-12 captain and director of maintenance Carl Hauprich, "I would not recommend buying one for a prospective owner due to support issues."

Despite complaints of lack of support for Piper's Cheyenne turboprops, chief pilot Royce Riggs said of his company's Cheyenne II, "Reliability is fantastic."

"Undoubtedly the best 30-year-old aircraft still flying," wrote a Sabreliner 65 operator.

"The airplane has been almost flawless since new," said a Socata TBM 700/850 operator. "Only two minor problems that were fixed immediately and required no AOG." □

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