



The Aircraft Parts Problem

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General aviation's parts industry, an unheralded multi-million dollar operation which has flourished and expanded about 2,000% since 1950, is plagued with sticky problems most manufacturers fervently wish would go away. Just as fervently, they are groping for ways to cope with the problems.

One cure-all quietly being discussed by some industry officials would see initiation of "planned criteria for service"—commonly called "planned obsolescence"—for all existing and future general aviation aircraft.

Though reportedly not to be put into practice in the immediate future, "planned criteria for service" is inevitable, according to some industry spokesmen. It would involve establishment of firm dates to halt further production of replacement parts for certain models of aircraft. Most major manufacturers now pledge to provide replacement parts for practically all models they have produced since World War II.

Consideration of built-in obsolescence, or "planned criteria for service," stems from increasing financial and physical demands on manufacturers to maintain parts inventories to meet the needs of general aviation's current fleet of about 125,700 aircraft.

The road toward planned obsolescence also is paved with continuing complaints that manufacturers are too busy selling new airplanes to provide adequate and efficient support services after making the sales.

These complaints have hounded the general aviation manufacturers over the years and normally involve charges of excessive delays and foul-ups in parts shipments from factories and their outlets, leading to expensive down-time and loss in utility of aircraft.

Interviews with the nation's three biggest general aviation manufacturers, along with extensive talks with a random selection of widely scattered dealers and distributors, plus aircraft insurance adjusters, produced conflicting assessments of the extent, importance, and causes of problems associated with parts shipments, parts costs and time required to get an airplane repaired.

Those contacted, however, agreed almost unanimously that one contributing

factor to the admittedly far-from-perfect service picture could be traced to extreme shortages of qualified radio technicians and airframe and powerplant (A&P) mechanics.

Not unexpectedly, the nation's three largest general aviation manufacturers—Cessna Aircraft Company, Beech Aircraft Corporation, and Piper Aircraft Corporation—claimed excessive delays and incorrect shipments from their warehouses and outlets represent only a small amount of total shipments and do not constitute a major problem.

On the other hand, a spokesman for the National Aviation Trades Association (NATA), which represents about 390 fixed-base operators across the nation, said he believed parts problems were on the increase. He indicated a desire for his association to compile problems in a mentally digestible form, then submit recommended changes to manufacturers.

Among the most vehement detractors of current parts shipments practices carried on by manufacturers was a spokesman for the Organized Flying Adjusters (OFA), an organization representing about 40 of an estimated 150 aircraft insurance adjusters in the nation who make their livelihood from getting aircraft repaired.

"The problem of obtaining parts to repair a damaged aircraft, especially airframe parts, from the manufacturer is about on a par with the auto parts situation just after World War II," said Jay E. Wright (AOPA 193442), head of Wright Adjusters, Oakland, Calif., and editor of the OFA Newsletter.

"The manufacturers are so busy ful-

filling the demand for new planes that they have little time or interest in maintaining a spare parts inventory," Wright claimed. "Hence, many parts that are ordered are not on hand and must be built to order. This would not be a catastrophic problem if the orders were executed as soon as they were received. For some reason, known only to the manufacturer, this is seldom done and an order, even 'AOG' [aircraft on ground], will [lie] around the dusty recesses of the order desk until it has been followed up by a couple of inquiries, a telegram and finally an irate phone call. Then the order makes its way, by osmosis probably, down into the plant where it [lies] around on the superintendent's desk until he gets tired [of] moving it out of the way and gives it to someone to execute.

"Many manufacturers will regale you, with little prompting, [with] the mysterious wonders of their 'IBM parts inventory system,'" Wright continued. "Don't you believe it! IBM is really the initials of a 17-year-old plant sweeper who has been granted the additional title of 'parts expediter,' in lieu of a \$5 raise. When he can be trapped near the Coke machine, he is handed the parts order. Sometime in the ensuing weeks he will stealthily remove the part from the assembly line during the lunch hour, and it will eventually be shipped to the distributor."

Continuing his indictment of current practices, Wright said, "In the meantime the poor owner is desperate, especially if his plane is a business tool or an income-producing aircraft. While his bent bird is gathering dust in the

Disagreement reigns throughout the general aviation community on the extent and causes of alleged delays in obtaining replacement parts, but most persons agree there is room for improvement



Cessna Customer Services Director L. C. Gartin inspects a plastic-like substance sprayed on a cabin section for protection during shipment to Green River Aviation, Ogden, Ut. The order was received at the factory Dec. 10 and was being readied for shipment Dec. 16.

corner of the repair hangar, it is not earning him a dime, but the bank still insists on receiving its payments every month, and the insurance, taxes, etc., continue on.

"The owner, understandably, lays the blame indiscriminately [on] the repair shop, the dealer, the distributor, his insurance carrier, the adjuster, his agent. But he cannot believe that the large corporate body that built his plane and was so eager to get his purchase dollar could be so unfeeling and devoid of responsibility as to ignore an order for a few small parts that would put him back in the air."

Frank Kingston Smith (AOPA 124393), NATA executive director, said, "We've had quite a bit of trouble, especially with propellers and propeller assemblies. I have been lucky myself, but I have heard a lot of people have had their airplanes grounded for weeks and months while they were trying to get parts which should be available. Wheels, brake parts, cowlings, spinners—things like that."

Smith said his own airplane "was in the shop for four months for an annual inspection just waiting for a lot of little parts. When they'd ship parts from the factory, they'd be the wrong size, or they might be a slightly different design. Apparently almost nobody can go to the factory and say, I want a certain part, and get that part shipped, and be sure it's the right part and that it's going to fit.

"I have an idea that it [parts problem] is getting worse," Smith related. "This is because of the increasing complexities of the airplane; and there are more airplanes in the [production] lines. I have an idea you're going to find that more and more when you want to go in to get a piece of equipment for a certain airplane, you're going to be told they have parts for a number of airplanes but not for yours."

Though admitting they encountered some problems on from 5% to 10% of their total shipments, Cessna, Beech, and Piper officials stoutly defended their current practices and somewhat proudly pointed to individual accomplishments in utilizing computers, closed-circuit television hook-ups to computers, Telex, and expanded work forces to speed up and improve efficiency in parts shipments.

They indirectly pointed accusing fingers at dealers and distributors for not maintaining a sufficient level of inventory to provide off-the-shelf service for customers and to avoid current practices which find many orders for individual aircraft shuttled directly to the factory for filling.

The three manufacturers also shed the first light on the dollar contribution of parts sales to the overall aviation manufacturing industry, and revealed the "planned criteria for service" approach under consideration for solving a multitude of parts problems.

As reported by the three companies, parts sales now account for 6½% to 8% of their total commercial aircraft sales. Commercial aircraft retail sales of the entire general aviation industry have been estimated at \$559 million for calendar 1968. Applying an average of 7.3% attributable to parts sales for the three leaders produces a figure of \$40.8 million in replacement parts sales for the year.

Comparative growth of parts sales is depicted in figures provided by Cessna, consistently the largest producer of general aviation aircraft over the past decade. In 1946, Cessna's parts sales amounted to only \$100,000. By 1950 this figure had risen to about \$500,000. Cessna's parts sales increased about 100% over the next five years to exceed \$1 million in 1955. By 1958 they approached \$2 million. In 1961, Cessna's parts sales amounted to nearly \$3 mil-

lion, and by 1965 they exceeded \$4 million. Sales expanded to \$7 million in 1966.

L. C. Gartin (AOPA 363681), Cessna's customer services director, predicted Cessna's parts sales for fiscal 1969 would climb about 20% over 1968's \$10 million and stated a conservative future annual growth figure was between 20% and 24%.

Beech revealed similar dollar growth in parts sales since 1950, when the company registered an estimated \$2.2 million in retail parts sales. By 1967, the figure had blossomed to \$10.3 million; and for fiscal 1968, parts accounted for approximately \$12.3 million of the company's total \$160 million in commercial aircraft sales.

Lester Diehl, manager, Piper customer service sales, said parts sales in fiscal 1968 totaled about \$7 million, or approximately 7% of Piper's total of \$96.5 million in commercial aircraft sales for the year.

Diehl reported Piper expected to sell about \$7½ million in parts during fiscal 1969. Cessna's Gartin projected a figure of \$12 million for his company for the same period. H. S. Gregory, manager of Beech's commercial service and technical training, said his company anticipated selling about \$15 million in parts this year.

All three companies sell parts through distributor-dealer organizations and use various means to induce distributors and dealers to maintain certain levels of parts stock. Each manufacturer also maintains its own warehouse stock at its respective factory locations.

Cessna estimated its current warehouse stock amounts to about \$10 million retail and covers approximately 73,000 different parts required on 163 different Cessna models. The company currently has about 100 persons working in its parts supply division at Cessna's Wichita, Kan., factory.

Gartin estimated Cessna's distributors carry "as much as \$500,000" in parts inventory, "and that's light in some cases. At the dealer level, we really don't know accurately, but the dealers we do have reporting maintain in the area of about \$50,000.

"Less than 10% of our parts orders are actually in the problem area," Gartin stated. "With the exception of difficult export orders, we'll normally ship out 85% of today's or yesterday's orders today, right off our shelves. Of the remaining 15%, a high percentage of those items are available from our production lines.

"On any AOG order, it's our pledge that we'll ship it in 24 hours if it's domestic and in no less than 48 hours if it's export," he continued. "A true AOG order to us carries priority over any other item in our facility, and that in-

cludes parts required for our production line."

Gartin, as did his counterparts at Beech and Cessna, punched holes in rumors which have persisted over the years that slowness in delivery of parts from the manufacturers' subcontractors and suppliers is a contributing factor to alleged delays in delivering parts. "We have had some problems with vendors going out of business and no longer making the parts, but this has not been a chronic problem area," Gartin stated.

"We've worked with our vendors for many years and they're very cooperative," said Piper's Diehl. "We arrange for direct shipments from vendors quite regularly when an item is depleted here," he continued. "We have had some problems, but they are a very small percentage."

Diehl said Piper's Lock Haven, Pa., factory maintained an estimated \$1.8 million in parts inventory, and the company's Vero Beach, Fla., facility had approximately \$400,000 in inventory.

Piper reported parts stock carried by its distributors and dealers ran anywhere from "upwards to a couple of hundred thousands of dollars to some of the smaller ones that might only be in the area of from \$60,000 to \$75,000. This thing varies quite a bit due to the concentration of aircraft, and of course the concentration of distributors."

Diehl said Piper has three categories of parts orders. "We have what we call an 'emergency AOG order,' a normal parts order, and in between the two, we have what we call a 'rush order.'"

He stated the company recently de-

D. F. Scherer, Cessna service parts manager, points to a list of company distributors who are telephoned daily to obtain their parts orders and work out problems.

L. A. "Sonny" Weber, Cessna order desk supervisor, checks a video display screen which is hooked up to a computer to give instantaneous information on the current quantity and usage history on each of about 73,000 different parts stocked by the company.

vised a method whereby it could receive an "emergency AOG order" at its Lock Haven plant and within four hours have it at the closest point for air shipment. The speedy service is limited to off-the-shelf items, he added. "We were running about six to seven hours previously," Diehl said of the same type orders.

"Rush" orders require three full working days between receipt and shipment, Diehl reported. "On normal parts orders, it's five to six working days. These normal parts orders usually are just stock order requirements to replenish the distributor's stock," he said.

Beech officials said, "At the present time, we average shipment of over 90% of our parts orders from our factory within a 24-hour period. It's that other 10% that you hear about." Beech said it maintains "roughly about \$10 million" in inventory at its Wichita plant, "and this doesn't include parts that we have the right to rob right off the [production] line."

H. J. Agnew, manager, Beech policies and procedures, parts and service operations, said the company currently stocks about 55,000 different parts for the various models produced by Beech

when asked if his organization suffered parts problems:

"Normally not much, except with Continental, and everybody has problems with Continental. We have had stuff on back order as much as six or seven months from them. It's their [manufacturer's] contention that we ought to stock more, but heck, we can't even get the parts to store."

Referring specifically to parts shipments from Beech, Cutter said, "We don't normally have any problems. Once or twice we've had problems, but it's usually on something they've had to build up. If it's just a regular stock order [off Beech's shelf] we'll normally get it within six days."

Cutter estimated his firm carried a combined total of about \$400,000 in inventory at its three locations, which also do repair work. "We try to have the parts on hand for the customers, especially at Phoenix where there are a lot of transients. If we've got the parts, we can do the job in a hurry; and the faster we can do it, the happier everyone is, including us, because it allows us to take on new work."

Assessing the shortage of mechanics and radio technicians, Cutter stated,



since World War II and earlier. Referring to items not normally stocked, Beech said, "It normally takes about 30 days for anything that is not connected with a current model or is not a normal usage part."

Overall, distributors contacted by The PILOT indicated they received fair-to-good service on parts shipments from their respective airframe manufacturers, but they registered some complaints over parts shipments from engine manufacturers. Comments from the dealer level were heavily laden with complaints over delays and back orders from both airframe and engine manufacturers on orders placed with distributors.

William Cutter of Cutter Aviation, Inc.—a Beech distributor at Sky Harbor Airport, Phoenix, Ariz.; Albuquerque, N.M. (Cutter Flying Service, Inc.); and El Paso, Tex. (Cutter Flying Service, Inc.)—made the following response

"There's a tremendous shortage of qualified A&P's, and a lot of it is because we have to compete with the airlines for them. Our labor rate is up to \$10 per hour [to customers] and I fully expect it to go up to \$15 by the end of the year."

Five years ago Cutter Aviation's labor rates were about \$6 per hour, he reported. Wages for mechanics have gone up 10-15% over the past five years, Cutter said. Though declining to state the wage scale paid the estimated 40 mechanics at Cutter's three locations, he said it was competitive with the airlines, "who are paying \$4.05 per hour for mechanics."

Cutter, along with others contacted to determine the extent and causes of parts problems, was asked how individual pilots and aircraft owners might assist in overcoming excessive delays in connection with repair work.





Lester Diehl, manager, Customer Service Sales, Piper Aircraft Corporation, checks an incoming parts order at the company's Lock Haven, Pa., plant. Parts orders are received via a Telex machine. Photo by Piper

"I think it's important for the pilot to help us troubleshoot a problem," Cutter stated. "Rather than just coming in and saying, 'Hey, my motor's running rough, will you check it out,' then running away, if he'll tell us it's running rough at what r.p.m. and help us isolate the problem more, we can do the job better and faster for him at less cost.

"They need to give us more of a detailed analysis of their problems; in fact they should write it down on paper when the problem arises. It'll save them money and us time. The same thing applies to navigational equipment. If they'll give us a little more detailed analysis, like it isn't working on so many channels or what, then we can do a faster and more efficient job." Similar recommendations were voiced by other distributors and dealers.

"I'd say it's a minimal problem," responded L. D. McGarvey, parts manager, Muncie (Ind.) Aviation Corporation, when asked about parts shipment problems with manufacturers. "We do have some problems on some parts, but they're only a very few items."

Muncie Aviation is the Indiana distributor for Piper and Lycoming. It services about 23 Piper dealers, plus another 125 non-Piper dealers desiring Piper parts, according to McGarvey. "Our inventory for 1969 may run as high as \$300,000 to \$400,000," McGarvey said.

On problems of orders being shipped incomplete from the factory, he said, "Oh, we get them but I'd say they [Piper] usually do a good job." Normal deliveries from Piper and Lycoming take "from one to two weeks" from placement of the order until receipt of the parts, he stated.

McGarvey, who said he had been in the aircraft parts business for about 25 years, said he seldom encountered problems with incorrect shipments from the

factory. On the shortage of mechanics, he added, "We could use some more right now. They're pretty hard to find. I'd say there's a shortage all over the country."

His recommendations to aircraft owners desiring the most efficient repair and maintenance service included the following: "I think it's pretty generally known that if a person wants the fastest service, he'll go to the distributor or dealer that handles that model airplane. Going to the factory doesn't help him; they'll just refer him back to us."

Contrasting sharply with the generally favorable comments from distributors over the parts situation were statements from scattered dealers. Robert Meehan, service manager, Martin Aviation, Santa Ana, Calif., emphatically stated a parts problem existed and should be solved.

"Are we ever," Meehan replied, when initially asked if Martin was having parts problems. "We're a Piper dealer here in the field and get our parts from SPAD. [Piper distributor with warehouse facilities at Long Beach and San Jose, Calif., and Phoenix, Ariz.]

"We've had a good many instances where none of these [three] places stocked the parts that we need, and a call was made back to Lock Haven or Vero Beach. And if anything is called back to Lock Haven, even air shipped, about the quickest we can get it is 10 days.

"I'd say 60% to 70% of each of the orders we put in are either back ordered or take excessive time [to be delivered]," Meehan continued. "I think that with three branches here this is bad news. San Jose, Phoenix and here [Long Beach] should have everything we need. I'll retract that 60% to 70% somewhat," he stated. "They're very weak in supplying new airplane parts, so I'd say that this 70% figure would fall in new airplanes—a new line of parts. By this I mean we get a new airplane in here [to repair], we need a part for it, and we call our distributor. We might as well not have called.

"We've sold more Navajos and serviced more than any other dealer in the state," Meehan continued. "We've had a terrible time getting Navajo parts. For example, hinges—we needed some hinges. I finally got them, but I had to make a special order to the factory and they didn't have hinges. And brake linings—no brake linings. And brake discs—no brake discs in stock, none in stock at any branch, no matter where you're talking about. It all has to be specially ordered from the factory. We're a little bit disgusted with it, really."

Meehan also leveled blasts at the reported special attention afforded AOG orders by everyone from the factory on down through the parts distribution pipeline. "This, of course, should be a special effort, which everybody tells us it is, but I'm not too sure it is. We're not happy with the situation really. Some AOG's come in well; others come

in like they couldn't care less. It really doesn't seem to mean too much.

"Unless you constantly make calls, write them, or panic them in some way it doesn't mean much," he continued. "But if you just say 'AOG,' you need this part, then forget it until it comes in, you've got a mad customer on your hands, plus a frustrated service manager like myself."

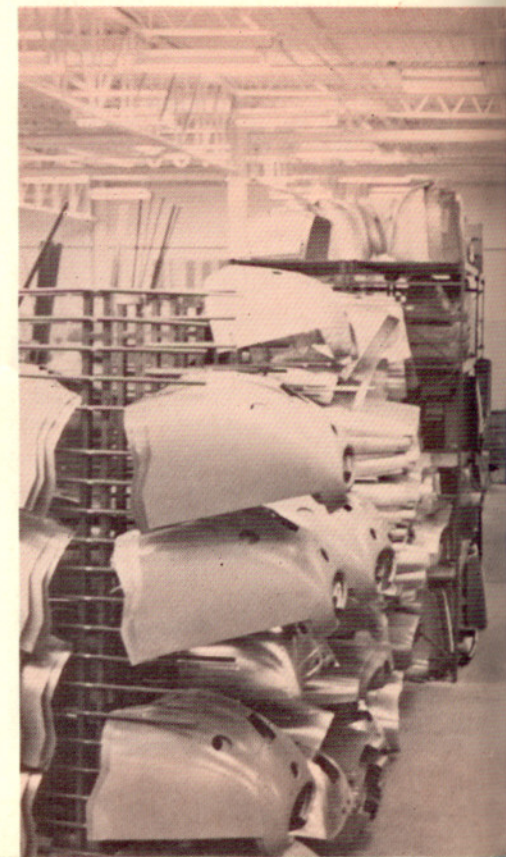
Summarizing his thoughts, Meehan said, "The parts situation really is a problem. I don't know what the solution is. We've discussed this several times when we have our meetings, but Piper will not agree it's a problem because they think their system is wonderful and there's no problem. They think their IBM system is the greatest thing going and such, but they see it from a different side of the fence."

Though parts sales make up only 6½% to 8% of the manufacturers' total commercial aircraft sales, approximately 30% of the average dealership's net profits can be traced directly to parts sales, according to Cessna's business management department.

A. M. Blake (AOPA 109494), owner-operator of Jacksonville, N. C., Air Service and a former automobile dealer, delved into the specific costs involved in maintaining and repairing aircraft. "The cost factor of flying has of itself eliminated a large segment of the population from participating in aviation and eliminated an even larger group from owning an airplane," Blake contended.

"The cost of operations and resultant prices for an operator to even break even make the average one-hour lesson

Pictured is a small section of Cessna's 96,000-square-foot Service Parts Center at Wichita, Kan., which houses the company's estimated \$10 million parts inventory.



over \$20 to a student, but to have him realize why it's so high is a bit difficult to understand, until you explain that the modern trainer aircraft, though advertised as selling for roughly \$7,000, will cost better than \$10,000 by the time instruments and goodies are installed to make it meet even the basic requirements of today."

Other cost factors mentioned by Blake as having a bearing on the overall parts problem included "that \$1 to \$2 which has to be put aside for each hour of flight for a \$2,500-plus engine replacement, more than the total price of some new automobiles, because of the restricted life expectancy [of engines] as set forth by the manufacturers and the FAA. Spark plugs are not 85¢ to \$1.25 like they are for automobiles, but rather \$3.95 for the cheap ones and up to \$12.95 each for the best. And you don't just replace them when they're worn out. Every 100 to 200 hours of flying, the whole kit and caboodle must go, to the tune of \$31.60 to \$155.40 for single-engine aircraft and double this for twins.

"If the airplane is operated on paved runways, about every 200 hours a new set of tires is required, at \$29 each, and about every 500 to 1,000 hours an ignition wire set is needed, not at \$2.95 to \$5, as is required to re-do an eight-cylinder Cadillac, but \$60 for a Cessna 150 and \$240 for an Aztec.

"Last week, I had occasion to replace a single three-way fuel selector valve on a 1962 Cessna 172," Blake reported. "I almost fainted when the part arrived at \$50 retail. Another comparison of price: the seven small springs on one leg of an Alon *Aircoupe* are \$48 net wholesale, plus I had the aggravation of ordering a set of the springs on Oct. 10 and not getting delivery until Nov. 27."

The North Carolina operator also took a swipe at the way some aircraft are engineered. "I am sure that the engineers who design airplanes must think mechanics are equipped with four arms and six-inch-long prehensile fingers that will flex in any direction with equal strength. I'm sure if they [engineers] had to replace parts or work on them, the machines would surely be different. This is one of the major costs to some owners.

"For instance," Blake related, "On a Cessna 182, to refill the shimmy damper for the nosewheel requires removing both the upper and lower cowling and removing a pin from a rather weird position on the firewall. The cylinder can be filled in about three minutes, if you know how, but it takes better than an hour to get it off, then put the airplane back together.

"Also, to remove and charge the battery of a pre-1964 Mooney requires 1½ hours of labor, which includes removing and replacing 186 screws because they are steel and subject to oxidation. To remove and replace a generator on a Piper or Mooney is a full day's work, not counting the time required to repair it.

"So what happens?" Blake asked



Mrs. Molly Ho, key punch operator in Beech's computerized parts section, processes IBM card orders from company's network of distributors.



Beech Aircraft Corporation's Parts and Equipment Order and Receiving Section is a vital link in the process of getting parts from the manufacturer to repair and maintenance stations across the country.



Don King, one of a number of desk order salesmen at Beech's Wichita, Kan., factory checks with a distributor in the field on a pending parts shipment.

rhetorically. "Either the owner screams if the work is correctly charged for, or the operator loses his shirt if he attempts to pay for part of his own time and adjusts the charge to the customer. How would you like to get a bill for \$80 for replacing a \$1 set of generator brushes in a 1963 Mooney?" he asked.

The disparity between those believing that general aviation's parts industry is doing well and has no significant problems and those who feel just the opposite is best shown by statements from Organized Flying Adjusters (OFA) Newsletter Editor Jay E. Wright and Piper's Parts Manager Lester Diehl.

"The simple answer to this problem," stated Wright, "is for the manufacturers to face up to their responsibilities to their customers. This should not be too difficult. With the present parts price structure, the sale of parts should be a lucrative part of their sales income. They might also remember that a customer usually buys more than one airplane during his lifetime, and it is an

old axiom of our free enterprise system that a disgruntled customer will make his next purchase from the opposition.

"One can only assume," Wright continued, "that those who breathe the rarified air of the corporate board room are completely unaware of this problem and those who labor further down the lane just don't give a damn."

"I'd like to think it was excellent," Diehl said, in assessing the overall support provided by Piper on replacement parts. "On a whole, I think we do an exceptionally good job." □