

The “Myth” of Dispatch Reliability

What is dispatch reliability, how is it measured and is there a better benchmark?

by Michael Dwyer

Growing up, I spent a lot of time in my family’s graphite machine shop. Working amongst the tools, noise, dust and machines, I gained a kinship for the people who build and maintain airplanes – those folks who are on the floor, driving rivets and turning wrenches.

Remember Homer Hickham, the protagonist in the movie “October Sky,” who looked at the stars in the sky as he descended into the coal mine? I remember having the same expression of yearning as a youth through my twenties, envisioning the career that I now enjoy. In the graphite machine shop, imagine a loud coal mine that has carbon dust the consistency of flour flying everywhere. We milled it, drilled it, honed it, turned it, swallowed it and breathed it. And while I never became an A&P mechanic, every time I see a red, rolling toolbox on a plant or hangar floor, I think of tool and die makers, micrometers, calluses and coffee trucks.

Great aircraft maintenance technicians are cut from the same cloth as great machinists. They start by being very smart, add a work ethic and then finish with attitude. The people who are shaping how we will build and maintain airplanes in the future do not ignore the wisdom of the past – they use it as a foundation to build upon.



In this article, I want to examine dispatch reliability and then discuss the higher principle of aircraft availability. We'll conclude with how the manufacturer impacts the equation and ways the operator can employ best practices to improve both.

To research this article, I visited with two of the most highly respected professionals in the business: Jim West, vice president of aviation for Altria (formerly Philip Morris) and Jim Janaitis, director of maintenance for IBM. They took time out of their busy schedules to discuss this topic and leave us with some great advice.

Jim West is one of the smartest and funniest guys in this business, not to mention he has an almost infallible BS meter. You need a thick skin around Jim. But if you can hang on for the ride, you will learn a lot about airplanes and taking care of them. Jim is a former NBAA Maintenance Committee Chairman and has been on or courted by every airframe manufacturer advisory board.

Jim Janaitis also has the heavy credentials from an industry perspective, including membership on the Maintenance Committee and chairing the Maintenance Training Committee. He is a former Bombardier Field Service Representative and Chief Inspector for the Challenger Hartford Service Center. He is recognized as a forward-looking thinker. Aircraft availability has just recently become a hot topic in the industry and Jim has been measuring it for years.

Having worked customer service issues with both men as a manufacturer's representative, I have found they possess the refreshing professional trait that is not hard to find in this business. They are more interested in solving the problem and doing things right, rather than "who shot Johnny or who's to blame." But this article is not about fixing problems; it's how to avoid them.

Dispatch Reliability Defined

Let's start with dispatch reliability. The National Business Aircraft Association, in an effort to create an industry standard, defines aircraft reliability, which I will use interchangeably with dispatch reliability, as;

"The percentage of time that an aircraft departure occurs within 30 minutes of the scheduled time and completes the trip without a maintenance event that would change the schedule."

This definition comes from a technical sub-committee, FERMS (Forum for Enhanced Reliability and Maintainability) that was initiated to focus on "development of aircraft maintenance and reliability efforts to reduce operator costs while increasing both dispatch reliability and availability."

Across the board, manufacturers report that greater than 90 percent of turbojet operators are diligent in reporting maintenance activity and flight hours.

Since airframe manufacturers often report reliability figures, the need for an objective standard is obvious. But when you consider these statistics, it's important to understand how they are derived. All airframe manufacturers have maintenance tracking programs, either in-house (Cessna has Cescom, Raytheon has FACTS) or an endorsed independent contractor, such as CAMP or CMP. Each month, operators report on maintenance activity that occurred and flight operations, recording flight times and cycles. Airframe manufacturers also request participation in monthly reporting of flight activity in regard to delays and cancellations. Participating in a documented maintenance-tracking program makes sense from an

operational perspective, as well as increasing residual value for the aircraft.

Across the board, manufacturers report that greater than 90 percent of turbojet operators are diligent in reporting maintenance activity and flight hours. Again, common sense and self-interest are the rule here. The tracking programs are not only a tool for analyzing historical data. They can quickly produce forward-looking reports that project maintenance activities. For example the Cescom 10 report gives an airplane status relative to inspections, and the Cescom 20 and 100 reports project maintenance out three and 12 months respectively.

CAMP has the "due list" for any number of months you want to look forward. When selling an airplane today, it would be the exception, not the rule, to find a turbine aircraft that had sloppy maintenance records. Poor record keeping has significant impact on the value of an aircraft.

A much lower percentage of operators, more like 60 percent, reports on the timeliness of departures relative to scheduled and missed segments. It is also interesting to note that the FERMS committee, which produced the NBAA definition, is relatively new. FERMS was established in 2002. Prior to that, sophisticated operators who tracked reliability to better manage the aviation department had their own criteria for reliability and what constituted a missed segment. It is not a stretch to consider that the 60 percent of the operators who have the resources and orientation to measure and report reliability have better operating results than operators who don't.

In addition, it is interesting to note that all manufacturers have slightly different statistical models. In fact, some manufacturers use different criteria for different product classes. You could get dizzy (not to mention bored) comparing all of the variables that have gone

into the calculations that result in the percentages through the years.

I am not interested in discrediting the validity of published statistics – quite the contrary. Using the word “myth” in the title of this article was, in part, to grab your attention. There are a great number of dedicated professionals across the entire spectrum of the industry that work hard to build and operate aircraft as safely and effectively as possible. Measuring results is an important part of that process.

Jack Olcott, president of the NBAA, has said many times that what we can measure, we can improve.

A New Way of Thinking: Aircraft Availability

The second rationale for using the word “myth” in the title is to focus your maintenance thinking in a different, perhaps better, direction. Start thinking about “*aircraft availability*” as the benchmark for a reliable and easily maintainable aircraft. Aircraft availability is defined simply as;

“The percentage of calendar days that an aircraft is available to perform a trip.”

Remember that dispatch reliability only measures the percentage of times that the engines spool up when you punch the start button. If you don’t schedule a trip because the airplane is down for scheduled or unscheduled maintenance, reliability doesn’t take a hit. Typical light to mid-size jets have reliability numbers between 98 and 99.

Here’s an example of Jim West’s attitude when discussing these statistics. Would you be happy if your car started 99 out of 100 times? Probably not. True, your car has fewer parts and operates in a more forgiving environment. But that same car doesn’t have a dedicated maintenance staff; it isn’t hand built; and it sure doesn’t cost millions of dollars.

Availability is a much tougher and germane number. Can the aircraft fly today or can’t it?

Let’s look at the manufacturer’s part of the equation:

Inspection Schedules – Inspection schedules become crucial because a plane that is being inspected can’t be flown. New models of aircraft being built today are designed around an MSG-3 (Maintenance Steering Group) standard that has – you guessed it – fewer scheduled inspections. That doesn’t mean that quality suffers, actually the opposite occurs. The whole idea of a maintenance steering group is that the inspection schedule is designed with input from the engineers, builders, operators and service centers. If it sounds like common sense, it is.

West again says that unfortunately common sense isn’t, or wasn’t, common. In the past, schedules were more arbitrary. MSG-3 says, “Hey if we’re in this part of the airplane for a critical issue, let’s see what else is here that we can look at.”

Janaitis says there is a very real phenomenon of inspection-induced maintenance that MSG-3 programs are designed to eliminate. When operators and service centers with decades of experience of examining aircraft get involved in driving the schedules, the schedules get more practical. The amount of flexibility designed into the schedule is also critical. The more options the manufacturer gives the operator to comply with the schedule, the better.

Parts inventory – Parts inventory has an obvious correlation to availability. The investment that a manufacturer is willing to make to support the fleet is crucial. Also, what access do you have to the inventory information? Will the vendor deliver the part overnight, door to door or personally?

Service Center Network – Cessna is famous for this. I have heard the comment that finding a Citation

Service Center is like finding a 7-Eleven store. Even within a network, it pays to know what work to send where, or when to go to sophisticated independent contractors.

Field Service Representatives – These individuals are there to support the entire fleet. Make sure you know that. Many pre-owned operators assume that these qualified individuals are only in place for buyers of new aircraft. They are not. Although they do not fix airplanes, they do quarterback solutions.

Design Philosophy – What would you rather have: an airplane with an outstanding support network or one built not to break? Despite the obvious answer, which is both, there is often a choice.

The Owner’s Role

You might say, “All of this NBAA business is fine, but I’m not Altria or IBM with a FAR Part 145 repair station in house. What can I, the owner-operator, do to affect reliability and availability?”

Perhaps you own a cabin-class twin that you fly yourself. Alternatively, you may fly a turbo-prop or straight-wing Citation without a mechanic on the payroll. On top of that, you have a business to run.

Regardless of your circumstances, great maintenance is still great maintenance. Here is a list of suggestions from two pros, with two of my own.

1. Jim West: Have an annual maintenance plan. Good maintenance is proactive. Whether it is January 1, the date you put your aircraft in service, your birthday, or any other date, at least once a year commit to writing your plans to pamper, maintain and improve your aircraft. Drive the schedule or it will drive you. Plan the events so that you can get the airplane to the facility best suited for the work you need done. Communicate in advance with the facility and monitor the work at the appropriate level.

Minimum Equipment List – N1234A

Item Description	Number on Board	Number of crew required	Operatioanl Procedure	Maintenance Procedure
<i>(Example)</i> Tire	3	3	Do not fly	Change tire
Audio panel	2	1	Fly single-pilot ops	Placard audio panel Inop until replaced

2. Mike Dwyer: Join NBAA and or AOPA. Depending on your aircraft, the right organization has a wealth of information. One call to the technical operations or an attendance at a convention will justify joining. You want partners in this process.

3. Jim West: Have a Minimum Equipment List. For turbine aircraft, you should have an MEL (Minimum Equipment List) in the airplane and on file at your local Flight Standards District Office. An MEL is a detailed list of the equipment on your aircraft of what you need to do if you have a malfunction. Essentially the list has five columns and looks like the simplified example above.

It is true that the MMEL (Master Minimum Equipment List) is published by the manufacturer and is public domain (www.opspecs.com/afldata/mmels/final/transport). However, you do not automatically receive the benefit of the MMEL simply by operating the airplane. Until you have an MEL accepted by the FSDO for your aircraft, if as much as a light bulb burns out on the airplane, it is not airworthy. Part 91 MEL applications are not as difficult to obtain as 121 or 135, but the logic is still the same.

4. Jim West: Take advantage of maintenance training. Maintenance training is an integral part of safe operations whether you have a mechanic on staff or not. When buying a new aircraft, training is included in the package. Take advantage of this with you, your pilot or a local maintenance technician at your home base of opera-

tions. If you don't want to sit through the whole course, let the service provider prepare a customized version of a program that fits your needs. All large flight departments let their training providers know exactly what they expect their employees to walk away with.

5. Mike Dwyer: Build a relationship with your manufacturer. Don't underestimate how much your airframe manufacturer is interested in you. Attend conferences, contact local representatives and stay in touch. As an independent consultant, I am quick to point out that there are times when a direct relationship with the airframe manufacturer can be a great advantage. Any consultant or third party who doesn't want you to talk to an airframe manufacturer is insecure. It is an absolute must to know the local field service representative in your area. They provide a wealth of information and are picked not just for their technical abilities but also for communication skills. These are the front-line troops tasked with keeping you airborne and typically are among the best the manufacturer has to offer. By the way, FSRs know everything that is going on in their territory. I even keep in touch with retired FSRs, as they are that good a resource.

6. Jim Janaitis: Form an association with maintenance groups. – There is a local chapter of a national group such as PAMA (Professional Aircraft Maintenance Association) that meets once a month near you. Join and make an appearance for a number of rea-

sons. You'll get a newsletter that will allow you to keep an eye out for topics of interest. Most likely, there will be at least one per year, and probably more. It is a great place to make contacts, and the local Board of Directors will be able to answer any question or point you to the right person. That person is someone near you who might be an independent contractor, an experienced technician who works on the same model that you have or the field service representative. These individuals are all invaluable additions to your Rolodex. Pay attention to areas that you travel to regularly and know who to call for maintenance issues. That can make all the difference when you are on the road.

7. Jim Janaitis: Build a travel kit. Start a travel kit with small, light, simple things that can keep you flying. The first item is a phone directory that has all the numbers that you generated from your association with maintenance groups. The next is a small tool kit that includes spare fuses, oil, rags and a second flashlight. Your manufacturer is keeping track of the highest failure items on your airplane. Take a look at that and see if any of the items can easily be stored on board. More often than not, weight or the legality of repairing it yourself will limit what you are willing or able to carry. However, don't rule out heavier spares for specific trips. In certain circumstances, don't rule out bringing a maintenance technician. This is very common on international trips for large-cabin flight departments. Having a smaller plane doesn't make a bad idea out of a good one.

8. Jim Janaitis: Associate with similar operators. Associating with similar operators is common sense. If all of these resources seem out of reach to a one-ship operator, pool your resources with nearby owners. It is common for flight departments to help each other on a daily basis. Having good neighbors means being a good neighbor. But it can pay enormous dividends when you least expect it.

9. Jim Janaitis: Associate with attitude. When you are doing all of your associating, look for people with an attitude that is conscientious. You can solve almost any problem in this equation with money, parts, tools and ingenuity. But you can't make someone care. Keep yourself focused on best practices and not what went wrong.

10. Jim West: Keep some hand grenades around. Every now and then, you have to be willing to pull the pin out of the hand grenade. Don't accept the way things are, don't take no for an answer, and keep asking why. There is a right way to operate and the focus must be on continuous improvement.

11. Jim West: Pay me now or pay me later. When you are shopping for heart surgeons, skydiving instructors and maintenance advice, don't go for the lowest bidder. Spending incrementally more on a maintenance budget based on priorities – rather than requirements – is money well spent. There is not a more controllable component in an airplane budget than maintenance, and that includes unscheduled items. Get advice from people that build, fix and improve airplanes every day. It will be money well spent. If you don't want to take the time, there are plenty of independent contractors and consultants who can help you.

Is It a Myth?

Dispatch reliability isn't really a myth. However, it's important to step back from the statistics and begin thinking about the concept of aircraft availability. They are both important parts of the puzzle. We all have the same picture on the cover of the puzzle box and it includes a plane flying, not one being repaired. It can be frustrating to open the box and find pieces of the puzzle missing. Put the ideas of Jim Janaitis and Jim West to the test. You won't be disappointed.



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