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Challenger 601, MSG3 Observations from an Operator's Perspective.

Is MSG3 for me? How do I rationalize the buy-in cost, and what do I get?

As a Challenger 601 operator we're consistently confronted with the four letter word "COST". As my research has confirmed, in the case of the new MSG3 program, "COST" seems to be the issue with regards to operator enrollment. Let me share with you, what our research showed us when we crunched the numbers, and the conversion process, as we experienced it. I must disclose that as a member of the Challenger Steering Committee, I have been a firm believer in the program from the start. I believe that the MSG3 program is for the airframe, what the -3A upgrade was for the engines -- SIMPLY, A MUST HAVE.

Our 601 historical inspection data has been used to rationalize the RJ, and 604 MSG3 programs, why shouldn't it be applied to the Classic Fleet too; over the last 20 years, we've all picked up the tab of having the redundant inspections done, we might as well reap the benefits of our labor. Although the increased inspection intervals, and reduced inspection frequency benefits have been touted, I still find that most operators, and regulatory agencies, don't understand the difference in the two program philosophies (MSG2 vs. MSG3). Although both programs are *Manufacture's Recommended*, due to the way they were developed, they are drastically different. The MSG2 design process, is not unlike having reliability engineers from each system getting together, and throwing in their recommendations for maintenance tasks, and intervals; the program was only as good as they, and their data was. Whereas, in the MSG3 program, an industry developed *decision-tree* is utilized, taking into consideration, historical failure data, cost and airworthiness implications due to component or system failure. The end result of the MSG3 process is a very well thought out, and refined inspection program. Good examples of the beneficial changes are, many of the corrosion inspections we were routinely doing, on a very frequent basis. When was the last time you found surface corrosion on the vertical stab? The historical inspection data supports more frequency flexibility, and increased intervals of these types of inspections. Therefore, the MSG3 program moved them to higher packages like the 60 and 120 month inspections. These 60, and 120 month inspections, in-turn, have been made larger, but there is a significant advantage gained financially, and in the reduced downtime, due to the access already provided during the parallel inspection, and better downtime utilization of the previously scheduled maintenance event. Another great advantage not talked about much is the incorporation of the new CPCP requirements into the MSG3 program. Operators on the older MSG2 program have been forced to incorporate a mess of new inspection requirements. Although, the Bombardier engineers did a great job trying to incorporate the new requirements with the current MSG2 inspection frequency, there are

many inspections that either fall on their own frequency or are in areas that are not easily accessible during the parallel inspection. Where MSG2 did not, MSG3 takes CPCP into consideration during the development of the program. Because of this, an AMOC is applicable for MSG3 operators to comply with CPCP inspection requirements thus making old CPCP inspections not applicable.

And now to the greatest advantage, increased flight time to inspection ratio. How many of us would give anything to fly out that 300 hour inspection another 100 hours. What would those 100 hours have been worth to you then? The fact of the matter is, a 400 hour interval better represents the traditional Classic Challenger flying throughout the industry. The math is simple on the 400 hour inspection alone; during the first 1200 hours of operation, the 400 hour is done one less time than the traditional 300 hour inspection. We all know, what not having to do an additional 300 hour inspection saves us, but ask yourself what are the cost savings for not having to put the aircraft down that additional period? This is only one example of the benefits gained by the new MSG3 program. Compound the benefits gained on the 400 hour, and now apply it to the additional inspections in the program. Still having a problem rationalizing the buy-in cost? Many operators on a 135, have difficulties incorporating the *Flexible Maintenance Program* into their approved Inspection program, because the Flexible Maintenance program rule is only found in the MPD. As those of us who have been down this path know, the MPD is NOT an approved inspection program like those found in the TL/MC. The New *MSG3 Manufacture's Recommended Program* includes the verbiage to operate by the Flexible Maintenance Program. (Flex Maintenance allows non-airworthiness inspections to be done early without a penalty in addition to the standard 10% overrun. An example is the new 400 hour, can be started 40 hours early and completed up top 40 hours late without penalty. Completing the inspection early or late will not change next due time. That's 80 hours to complete the inspection = More Cost Savings)

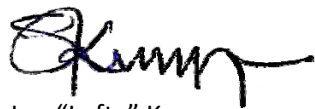
How many of you remember the old JIC (Job Instruction Cards), and were upset when they went away? Me too. With the new MSG3 program, each task has a printable Job Instruction Card. No more digging through the Maintenance Manual, trying to find the proper task. Incorporated in the Task Cards is all of the applicable information to complete the task. The new MSG3 program utilizes a zonal inspection methodology, so it is imperative that a comprehensive task description is given, so even the least experienced technicians can follow it step by step. As a side note, Bombardier has incorporated a Technician, and Inspector sign off, next to each step of the process, to improve continuity while performing the task.

How long will it take to get on the program, and how extensive is the Bridging Inspection? I have now worked with, and enrolled, three Challenger 601s on the program, and can share with you my experience. Once a Purchase Order is sent to Tech Pubs requesting the S/B incorporation, it is routed to engineering. Engineering will then contact you with an inspection status survey to fill out. Those of us, who were the first, worked closely with Engineering to refine the form, so it should be pretty straight forward, and painless to fill out. Once Engineering has your inspection status, they will begin the intense process of generating your Bridging Report. The Bridging report will contain a list of one-off inspections that will need to be done in conjunction with your next MSG2 inspection (ie. 6/12 month or 100/300

hour). Not to speak for all Bridging Reports, but my experience with the three I've been involved with (two 601-1A, and one 601-3R), was that the inspection is very easily done with one or two additional days of down time. I had my first 601-1A Bridge Inspection completed in conjunction with a 12 month, while in the service center, and it took less than 30 man-hours to accomplish.

CAMP, and the new MSG3 program. Short and sweet, they have the MSG3 program template set up, and are ready to start rolling the aircraft on. I had the privilege of working with Jeff Robinson, my CAMP analyst in Canada. Jeff, like any analyst you'll work with in this process, was instrumental with smoothly transitioning my programs. Keep in mind, this is also a great time to audit your current inspections, and verify that your ICAs, and S/N specific TL/MC requirements are tracking properly. I also spent some extra time, and worked with Jeff, verifying, and cleaning up completion's items that have been superseded or changed over the years. In other words, it's a great time to accomplish a CAMP system, Spring Cleaning.

Still not sold? As an operator of the Challenger product line for the last ten years, I'm vested in keeping the product line in the air. I would be more than happy to consult with any operator to help answer any of your questions, or aid in with the transition process.



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