AD 2018-03-03 Analysis

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Suddenly there comes an "Emergency" Airworthiness Directive, AD2018-03-03. This AD is a result of a completely failed lower carry-through spar found on a 402C. It is actually a mirror image of the Jan. 2 group of service bulletins released by Textron Cessna as (MEL-57-01, CQ-57-01, MEB-57-01, MEB57-02, CQB-57-01)

These bulletins affect ALL models and serial numbers of the 400-series twin Cessna's including the 425 Conquest except for the model 404.

The inspections and required access panel modification is in a location that has long exhibited cracking issues on higher time aircraft. This area was targeted previously back in 2002 with Service Bulletin MEB02-9 and -10 as well as the overlapping Supplemental Inspection Document (SID) released in the same year primarily SID57-10-10 and SID57-10-14.

While the title identifies this as a wing inspection it is not really in the wing itself. The area is the **lower fuselage stub wing carry-through section, at the lower main spar wing attach area.** At this location a wing attach fitting is bolted into the carry-through structure with multiple attach bolts. Over time, the tension loads have caused cracking to occur, primarily radiating from the various fastener holes. Cracks, even small ones, in this highly loaded area can lead to complete failure if left unattended and if any are found during this inspection mitigation is on a case by case basis with Textron Cessna developing the repair scheme.

The AD at first glance look to be extremely onerous with a lot of information but it's rather simple.

Models affected

AD defines the affected models which are all 400 series models including the 425 and all serial
numbers (except for the 404)

Initial Inspection Compliance Time (if over 24,975 hr.)

All Models the initial inspection needs to be done within 25 hours after Feb 28,2018.

Initial Inspection Compliance Time (if under 24,950 hr.)

Cessna 425:
At aircraft Total time of 11,000 hr. (if over 11,000 hr. but under 24,975 within the next 50 hrs.)

Cessna 421B and 421C:
At aircraft Total time of 12,000 hr. (if over 12,000 hr. but under 24,975 within the next 50 hrs.

Cessna 401, 401A, 401B, 402, 402A, 402B, 402C, 411, 411A, 414, 414A, 421 and 421A
At aircraft Total time of 15,000 hr. (if over 15,000 hr. but under 24,975 within the next 50 hrs.

Reoccurring Inspection Compliance Time

After initial inspection all models must be re-inspected each 50 hr.
For repetitive inspections the initially installed access panels need only to be removed consisting of
unscrewing 8 or 9 screws each to remove.
This visual inspection may take only 10 minutes or so a side.

Initial Inspection Action (access):

At the time of the initial inspection it will be necessary to add an access inspection panel over the affected area with some slight differences in the various models thus requiring three different service bulletins to define these.

MEB-57-01 (401, 401A, 401B, 402, 402B, 411, 411A, 414, 421, 421A, 421B)
MEB-57-02 (402C, 414A, 421C)
CQB-57-01 (425)

Unless previous installed during compliance with SID57-10-10 or SID57-10-14 an approximately 7"x4" or 7"x8" (dependent on model) access panel must be cut in the lower skin to see the actual stub wing spar under it. Nothing very difficult here but see the caution below. All the parts needed can be locally fabricated.

CAUTION:
WHEN CUTTING SKIN ACCESS OPENING IT IS OF UTMOST IMPORTANCE TO NOT CUT OR NICK THE UNDERLYING STUB WING SPAR CAP.

This initial action is what requires the 12 hrs. noted in AD2018-03-03 costing analysis. Once the left and right panel are installed this no longer needs to be re-accomplished for subsequent inspections.

Inspection Definition (Initial and Reoccurring) :

The inspection is the same for all models, and identical for the initial as well as reoccurring inspections, and are detailed in:

MEL-57-01 (401, 401A, 401B, 402, 402B, 411, 411A, 414, 421, 421A, 421B, 402C, 414A, 421C)
CQL-57-01 (425)

Inspection consists of cleaning the spar cap area of dirt and grease and inspecting the roughly 7" long area of the spar lower face with a bright light and a 10x magnifying glass for any cracks. Only if a crack is suspected and can not be confirmed by the visual inspection then a surface eddy current inspection would need to be done absolutely verify.

NOTE:
During inspection NO cracks, regardless of location or length are allowable for continued flight.

If cracks are found, these bulletins offer no remedy and repairs would be dictated by Textron/Cessna defined scheme on a case-by-case basis.

At this point in time there exists no beef up or reinforcement to negate these inspections, also the previous AD note mandated wing spar strap beef-up has nothing to do with this area.

Thus as can be seen no really big deal here (unless cracks are found) and the inspection call outs are for higher time aircraft and accomplishment is actually rather easy.

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