



Airlines for
America



A4A NDT FORUM - 2026



Springfield Hail Damage Mapping

A dentCHECK® Case Study

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THE EVENT

What Happened at Springfield

Date & Location

Apr-May 2026 SFG Outstation

Aircraft Affected

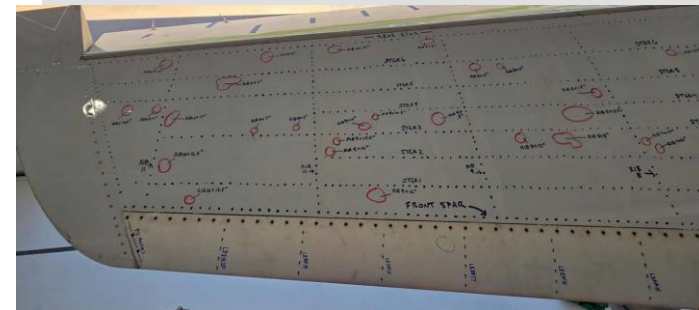
325 CRJ-900 N325PQ 15325

Damage Profile

The hail event resulted in multiple dent damage across the aircraft structure, affecting numerous areas including fuselage, wings, nacelles, and empennage

Urgency Level

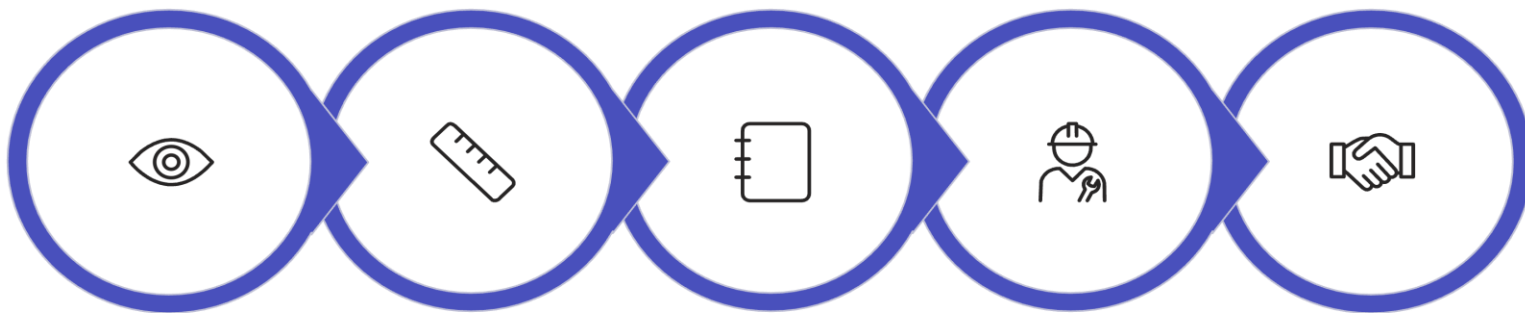
A/c required engineering disposition prior to return to service. Ferry flight restrictions would apply. Operational pressure to assess, document, and return aircraft safely.



Damage location overview on RH H-stab upper skin, RHS

How We Responded on Day One

Deployed three scanners and a team of 7 to SFG to map damage and categorize by structural zones and severity.



Damage Discovery

Reported by crew

Grounding Decision

900+ dents
triggers
MOC decision

Team Mobilization

- Inspectors (x2)
- Inspection Mgr (x1)
- Sheetmetal (x3)
- 8tree dentCHECK tools (x2)

Manual Survey

Mapping time: 3 days
Reporting time (includes OEM (MHI) review): 3-days

Job completion: 6-days

OEM Notification

THE CHALLENGE

Why Manual Assessment Wasn't Enough

Extensive dent population across multiple structures (hundreds documented across tables and figures)

Challenge	Impact on This Event
High dent volume	900 Plus
Wide surface area	Nose and forward fuselage, winglets, slats, nacelles, horizontal stabilizer, and empennage
Measurement consistency	Length, Width, depth, and W/D ratio tracking
OEM data requirements	Location specific measurements ties to structure
Time-to-return pressure	Ferry flight restrictions demonstrated urgency. Time, weather, crew, permit

- ❏ • **Traditional “manual” assessment methods –**
 - Cumbersome and subjective manual measurements
 - Subjectivity is magnified with multiple manual inspectors
 - Increased inspection time
 - Prolonged OEM back-and-forth due to the volume and precision required
- Digital assessment methods ensured –**
 - high-quality consistent measurements
 - prompt communication with the OEM

THE SOLUTION

Bringing dentCHECK® to Springfield



→ Decision to Deploy

- High dent volume
- Requirement for consistent, repeatable measurement.
- Several years of dentCHECK use (for spot checks) made it a natural decision

→ Setup & Activation

Once on site the tool was immediately ready after a quick validation.

→ Team Readiness

Technicians leveraged structured process to capture detailed dent data for engineering.

IN THE FIELD

How the Damage Mapping Operation Unfolded

Resources Deployed: 3 Inspectors / 3 Sheetmetal / 3 dentCHECK tools

Methodology: Coordinated zone-by-zone workflow. As the scale of the damage became apparent, the inspection scope was prioritized to focus on structurally significant areas, while sections already destined for replacement were excluded from detailed mapping.

Zone-by-Zone Survey

Aircraft divided by structural zones per SRM criteria

Dent Capture

Each dent recorded with location. Length, width, depth, and w/d ratio.

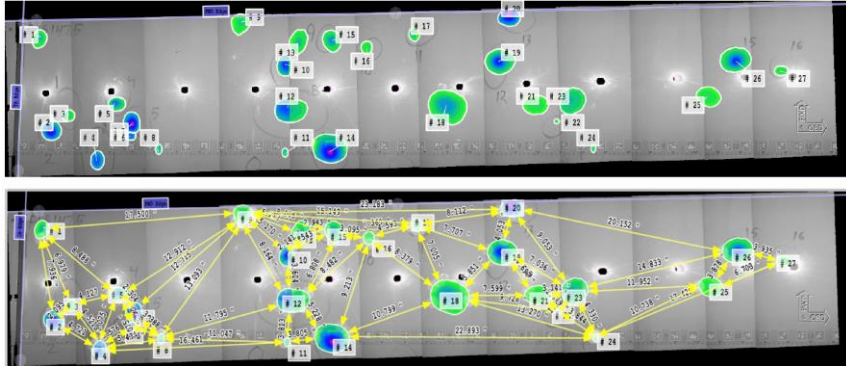
Real-Time Review

Data compiled into tables and figures for engineering review

Completion & Handoff

Final output included comprehensive dent tables, and visual mapping. Delivered to OEM via EDV Engineering for disposition.

What dentCHECK® Delivered at Springfield



"The Springfield hail event reinforced that large scale damage response is no longer just about inspection effort- it is about quality, speed, and precision."

Joe Valentino, Manager of Inspection Atlanta, Endeavor Air

Dents Mapped

900 Plus

Time to Complete Survey

Took approximately 6 days to map and process reports

OEM Report Turnaround

Full engineering package submitted for evaluation around D-5

Return to Service

28 Days for mapping and dent repair

LESSONS LEARNED

What Springfield Taught Us

Every major damage event is a learning opportunity.

1 Process Insight

- Endeavor's existing damage assessment process was good
- Communication with MHI needed some work. Multiple email threads; key stakeholders not copied, causing confusion and delays.
- Digital methods enabled streamlined and efficient single pathway of communication between Endeavor and MHI



Tool Performance

The dentCHECK tool worked very well. 8tree's support was 'second-to-none'.



Team Capability

Learned to ensure that all dentCHECK inspection & reporting tools had up-to-date login credentials, to ensure fast and efficient mapping



Future Preparedness

- Digital workflow helped streamline communication between Endeavor & MHI
- Always utilize dentCHECK's automatic stitching from the very beginning
- Involve technicians who are familiar with and proficient with dentCHECK
- This high-pressure event served as the best training experience for technicians, and ideal proving ground for dentCHECK

SUMMARY

Springfield: Before vs. After dentCHECK®

Comparison

Without dentCHECK

- Manual dent-by-dent measurement
- Paper sketches and handwritten logs
- Multiple technician iterations
- Inconsistent depth readings
- Days of OEM back-and-forth
- The whole hail-damage mapping would've taken months

With dentCHECK

- Digital capture across all zones
- Structured data report, ready to submit
- Single-pass survey per aircraft
- Repeatable, calibrated measurements
- OEM report delivered in a week
- The mapping event took 3 days working around the clock and 3 days to process the reports between EDV and MHI.

Note: Ultimately, this Springfield hail-incident established that our ability to respond effectively is directly tied to how quickly we can deliver reliable data-driven answers - not just how fast we can inspect.



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(Supported by 8tree)