

LJ-1365, N1551C Damage Report 02-28-2017

Date of Inspection: 02-27-2017

Location: Air Salvage of Dallas, 1361 Ferris Rd, Lancaster, TX 75146

Summary: LJ-1365 was inspected at Air Salvage of Dallas by Nic Hawker, Director of Maintenance, Valair Aviation. The aircraft was parked in an unpaved section of the salvage yard. The engines, wings and horizontal stabilizers had been removed for transport to the salvage yard. The aircraft was severely damaged due to an off-airport, gear-down landing in an unpaved field. It appears that at the time of landing, the right engine was operating, but the left engine had been shut down. The aircraft appears to have absorbed a stiff impact when it came to an abrupt stop. Visual evidence shows that the nose landing gear upper drag brace snapped, the R/H engine and truss assembly was twisted upward and torn from the nacelle and it appears that the main spar is damaged or has moved in relation to the fuselage and aft spar.

The inspection was limited to an outer visual inspection per the request of Shari Thompson of Starr Adjustment Services, Inc. According to Ms. Thompson, the National Transportation and Safety Board had not yet released the aircraft, so no panels were removed for a more detailed visual inspection.

The pricing listed below is a Rough Order of Magnitude (ROM). To provide an exact quote, the aircraft would need to be relocated to the Valair facility and opened/disassembled to allow for a complete damage inspection to be performed.

Please note that this ROM includes engineering costs. Due to the extent of the structural damage and the involvement of main spar repairs, the manufacturer's engineering department, Beechcraft Repair Design Office (RDO) and other Designated Engineering Representatives (DER's) would need to be contracted to provide the FAA approvals for the repairs.

This ROM does not include post repair flight test pricing. The extent of the repairs and the reinstallation of the wings would require a full flight check to be performed. The flight check pricing would need to include fuel, pilots, etc.

List of discrepancies/recommended repairs and ROM pricing:

1. Aircraft relocation from Air Salvage of Dallas to Valair Aviation, Oklahoma City, OK.
2. Perform all Spar inspections per the SIRM –
3. Perform the 5 year Wing Bolt Fitting Inspections –
4. Replace all 8 wing bolts -
5. Perform Hard Landing Inspection -
6. Perform Phase 1-4 (Complete) Inspections to check for hidden damage –

7. Replace L/H and R/H lower forward engine cowlings (crushed beyond economical repair, IMG_6243)
8. Clean, Inspect and repair as necessary the remaining engine cowling components –
9. Remove, teardown, inspect and repair all three landing gear. –
10. Replace NLG Drag Brace (Upper drag brace is cracked in half due to the impact. Lower drag brace is suspect). IMG_6245.
11. Replace L/H and R/H NLG doors and all associated linkages.
12. Perform NDT check of NLG wheel –
13. Replace NLG tire -
14. Replace LED landing and taxi lights –
15. Send all avionics gyros out for inspection and repair. The electrical gyros were reportedly unpowered during the landing and are now suspect for internal impact damage.
16. L/H Side of fuselage is wrinkled at Stringer 7, just under the pilot's side D-window. Reference IMG_6248 -
17. Replace nose forward bulkhead under radome (radar antenna bulkhead).
18. Indications of Main and Aft Spar Damage in the aircraft Center Section:
 - a. The visible damage to the fuselage, Left Nacelle and the Non-standard movement and popping noises noted by Richard Ball of Lonestar Retrieval during lifting and transport of the aircraft leaves the wing spar center section as highly suspect of severe hidden damage.
 - b. Right wing leading edge at wing split has been flattened. Reference IMG_6288. It is suspected that when the aircraft came to an abrupt stop, the R/H outboard wing continued forward causing this portion of the leading edge to contact the aircraft center section, resulting in the flattening.
 - c. The L/H and R/H wing to body fairings are severely distorted. Reference IMG_6269 and IMG_6270. This is an indication that the center section of the wing has been moved in relation to the fuselage.
 - d. The R/H engine truss had been physically ripped upward and away from the nacelle. Reference IMG_6260, IMG_6262, IMG_6264, IMG_6267, and IMG_6302. While the truss remained bolted to the aircraft mounting areas, the mounting areas themselves had failed and were torn away from the nacelle structure. It is suspected that this upward motion was transmitted to the forward and aft spars through the keel beam structure.
 - e. Distortion is also evident on the L/H nacelle, lower outboard structure, near the main spar. Reference IMG_6253.
 - f. The L/H firewall shows signs of minor buckling. Unknown if this is a result of the landing. The firewall area would need to be fully inspected for hidden damage.

Further access would need to be gained to fully inspect the spars of the aircraft. The R/H nacelle would need to be dismantled and rebuilt in its entirety, including the keel beam structure, firewall and landing gear areas. The aircraft center section would need to be jugged to factory specifications to ensure that the structure was repaired in a manner that allows for the spars to be properly aligned. Hidden damage such as cracks may not be found until these areas are fully accessed. The spar may not show signs of cracks, but structural integrity may have been

compromised due to the force of the impact. Center Section front and rear spar replacement may be the only method to ensure the continued airworthiness of the aircraft center section.

19. Fully inspect the Nose Landing Gear Wheel Well area for distortion. Repair as necessary. This area is suspect due to the NLG drag brace being broken.
20. Replace Radar Antenna, p/n – 622-2501-001. Broken from impact.
21. Replace Glideslope antenna. Broken from Impact.
22. Replace Radome.
23. Replace lower comm antenna on fuselage. This antenna was not installed during visual inspection.
24. Repair Pilot and Co-pilot seats. Both seats were loose on the seat tracks. We suspect that the seat feet had been stretched during the impact.
25. Replace pilot and co-pilot seat belts.
26. Replace pilot and co-pilot seat tracks.
27. Replace all wheel bearings. Evidence of severe dirt intrusion and unknown loads being placed on the wheel bearings.
28. Replace L/H and R/H pitot tubes and masts. Both were snapped off during the landing.
29. Perform the 91.411 and 91.413 pitot/static and transponder checks due to the opening of the systems.
30. Replace the ELT.
31. Replace the main ship battery.
32. Replace the EFIS back-up battery.
33. Replace the R/H engine truss mount.
34. NDT inspect the L/H engine truss mount for airworthiness
35. Replace all eight engine vibration isolator mounts. Note that the current mount most likely will be refused as cores.
36. Replace the L/H and R/H propellers.
37. Replace all four engine exhaust stacks.
38. Replace the L/H and R/H generators. This is due to the report of the aircraft being without electrical power before the landing. Additionally, the position of the starter switches (IMG_6280) leads me to suspect that the starters had been left in the ON position for the duration of the flight. This would not allow the generators to generate electrical power and could lead to the generators being damaged.
39. Reinstall Wings.
40. Reinstall L/H and R/H horizontal stabilizers
41. Paint Aircraft.
42. Reinstall and rig all flight controls. Note that the control cables in the wings have been removed for wing removal
43. Replace all engine hoses due to unknown stresses and contamination.
44. Left engine prop strike damage. Awaiting estimate from Vector Aerospace Engine Services – Atlantic. Engine appears to be in decent visual condition for the aircraft damage incurred. From

the visual evidence and un-verified verbal reports, the engine appears to have been shut down with the prop feathered at the moment of impact (IMG_6296).

Initial Estimate from Vector Aerospace: :

45. Right engine sudden stoppage damage. Awaiting estimate from Vector Aerospace Engine Services – Atlantic. Engine is severely damaged (IMG_6295). From the visual evidence and verbal reports, this engine appears to have been running during impact. The Reduction Gearbox case is severely distorted/wrinkled (IMG_6300). The inlet screen is distorted, presumably from the organic material from the field clogging the inlet while the engine was still running, causing the inlet screen to be sucked into the compressor inlet (IMG_6296) ;

Initial Estimate from Vector Aerospace: :

46. Structural Repair Engineering Estimates:

Valair Aviation

Nic Hawker – Director of Maintenance

7301 NW 50th Street

Oklahoma City, OK 73132

P 405.789.5000 D 405.792.7629 C 386.795.5436 F 405.789.5995

E nich@valairaviation.com

W www.valairaviation.com