

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u><b>AIRCRAFT<br/>TYPE</b></u>                                  | <u><b>MANEUVER</b></u>                                                                                                                                | <u><b>SUMMARIZED<br/>ROOT CAUSE</b></u>                                                                                                                                        | <u><b>REPORT<br/>ID/<br/>MATL ID</b></u>                      | <u><b># CREW/<br/>FATALI<br/>TIES/<br/>INJURIES</b></u> | <u><b>DATE</b></u> | <u><b>LOCATION</b></u>                      |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------|--------------------|---------------------------------------------|
| <b>G650 #2</b><br>Large Biz Jet<br>(Gulfstream)                  | <b>Takeoff performance<br/>Testing – Simulated Eng<br/>Out; Wing drop @rotation,<br/>wing tip contacted Grnd,<br/>A/C spun off runway,<br/>burned</b> | <b>TBD</b>                                                                                                                                                                     | <b>Avia<br/>Week<br/>04/2011</b>                              | <b>4/4/0</b>                                            | <b>04/03/2011</b>  | <b>Roswell,<br/>New<br/>Mexico,<br/>USA</b> |
| <b>HJT-36 Sitara</b><br>Interm Mil Jet Trainer<br>(HAL)          | <b>Routine flight testing; details<br/>TBD</b>                                                                                                        | <b>TBD</b>                                                                                                                                                                     | <b>Avia<br/>Week<br/>04/2011</b>                              | <b>2/0/0</b>                                            | <b>05/2?/2011</b>  | <b>Southern<br/>India</b>                   |
| <b>An-148</b><br>Twin turbofan<br>Regional Airliner<br>(Antonov) | <b>Broke up in flight due to<br/>overspeed</b>                                                                                                        | <b>Initial data indictes A/S<br/>indic failed to slow<br/>speed</b>                                                                                                            | <b>Wikipedia</b>                                              | <b>6/6/-</b>                                            | <b>03/05/2011</b>  | <b>Garbuzov<br/>o. Russia</b>               |
| <b>SARAS #2</b><br>Twin Turboprop<br>Utility Trnsprt<br>(HAL)    | <b>Lost directional cntrl during<br/>eng airstart. Cntrl being<br/>regained as ground<br/>contacted</b>                                               | <b>Prop pitch lever put in<br/>FINE pos prior to fuel-<br/>on, High drag<br/>developed &amp; ac rolled<br/>off. Fuel not put on for<br/>some time, High drag<br/>continued</b> | <b>Gov of<br/>India<br/>DGAC<br/>dept<br/>Accdnt<br/>Rprt</b> | <b>3/3/-</b>                                            | <b>03/06/2009</b>  | <b>Bidadi,<br/>India</b>                    |
| <b>Jetpod</b><br>Short T/O&ldg Twuin<br>Eng “Air taxi”           | <b>Crash shortly after takeoff.<br/>Details TBD</b>                                                                                                   | <b>An article, claims the<br/>aircraft "would be able to<br/>become airborne in just<br/>125m (410ft) and cruise at<br/>300kt." Details TBD</b>                                | <b>Flight<br/>Internatio<br/>nal</b>                          | <b>1/11-</b>                                            | <b>08/16/2010</b>  | <b>Taiping,<br/>Malaysia</b>                |

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| <b>SPn #2</b><br>Small Bus Jet<br>(Grob Aerospace)                   | <b>“lost control surfaces during<br/>a demonstraiton flight”<br/>shortly after takeoff</b> | <b>TBD</b>                                        | <b>AV Week<br/>Art<br/>1/1/07</b>        | <b>?/1/?</b>                                            | <b>11/29/06</b>    | <b>Mattsies-<br/>Tussenhou<br/>sen,Germ</b> |
| <b>A-67 Dragon<br/>#1 (POC)</b><br>SE turboprop<br>Counterinsurgency | <b>Upon landing of 1<sup>st</sup> flt, RH<br/>landing Gr collapsed</b>                     | <b>TBD</b>                                        | <b>AV Week<br/>Art<br/>10/16/06</b>      | <b>0/1/0</b>                                            | <b>10/06/06</b>    | <b>Monett<br/>Muni, Mo</b>                  |
| <b>Spectrum 33<br/>Exp “#VLJ”</b>                                    | <b>Upon T/O from maintence<br/>effort, A/C immeduately<br/>rolled to right and crashed</b> | <b>Found ail cntrl sys<br/>linkages reversed.</b> | <b>NTSB<br/>SEA06FA14<br/>6</b>          | <b>2/2/0</b>                                            | <b>02/25/06</b>    | <b>Spanish<br/>Fork,<br/>Utah</b>           |

## FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS

| <u>AIRCRAFT TYPE</u>                                | <u>MANEUVER</u>                                                                                                                                                    | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                              | <u>REPORT ID/ MATL ID</u>    | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>          |
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| PC-21 #2<br>SE Turboprop<br>Trainer<br>(Pilatus)    | A/C practicing airshow routine w/ #1 AC. Struck wing doing 360 turn @ low alt. Cartwheeled over dam                                                                | Were doing same routine done @ airshow in Sept.                                                                                                                           | AVWeek<br>Article<br>1/31/05 | 1/1/-<br>(+1 on<br>grnd)             | 01/13/05    | Buochs,<br>Switzerland   |
| F-22 #TBD<br>Mil Fighter<br>(Lockheed)              | FOT&E Phase; After liftoff, pilot put in NU command, nose went down.                                                                                               | Pilot ejected, details TBD                                                                                                                                                | AV Week<br>Art<br>01/03/05   |                                      | 12/20/04    | Nellis<br>AFB,<br>Nev    |
| F-22 #TBD<br>Mil Fighter<br>(Lockheed)              | FOT&E Phase; W/ ext fuel tanks, flew thru wake of F-16. Input produced violent pitch reaciton.                                                                     | Pilot able to land, but AC overstressed to 10-11 Gs. Details TBD                                                                                                          | AV Week<br>Art<br>01/03/05   |                                      | 09/xx/04    | ?Nellis ?<br>AFB,<br>Nev |
| Wing D-1<br>2-Eng GA AC<br>(Operated by<br>NTPS)    | FT training flight w/ Instruc pilot & student. Points were cruise, stalls & Vmca. Control Lost. Impacted in flat spin type condition.                              | Radar reconst inds PA stall done by student which became spin. Imact after 7-8 turns. Exact reason control not recovered not known.                                       | NTSB<br>LAX04FA<br>057       | 2/2/-                                | 12/04/03    | Rosa-<br>mond,<br>Calif  |
| SJ-30 #2?<br>Small Biz Jet<br>(Sino-<br>Swearingen) | 2 <sup>nd</sup> flt of Flutter clearance Mmo to Md phase. Setting up for 2nd point at .894Mn. Went into uncontrollable rolls, Impacted @ high Speed & high neg FPA | This AC reqd lat trim incr w/ speed. Gurney flap reduced lat rim. Other test AC sym . Decision made to accept need for full lat trim +pilot force. Rudder trim also used. | NTSB<br>IAD03MA<br>049       | 1/1/-                                | 04/26/03    | Loma<br>Alta,<br>Texas   |

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| Gyroplane (Cartercopter)                              | End of dev test flt. Making “short roll” ldg. Pilot saw A/C back taxiing, made extra pattern, hovered, then forgot to Ext gear. Gear-up landing. Composite fuse cracked | Grnd crew alerted flt crew at ~30ft, G/A attempted, R/D too high to avoid contct. No injuries, crew had 5-point harness and helmuts on. | NTSB FTW03LA 125            | 2/0/0                                | 04/08/03    | Olney, Texas                          |
| Eurofighter #6 (Typhoon) Advanced Mil Tactical        | !5 min ater takeoff suffered dual eng failure @ 0.7 M, 45Kft lvl flight. 2-person crew ejected safely. Details TBD                                                      | TBD                                                                                                                                     | AVW&ST; Eurofighter Website | 2/0/0                                | 11/21/02    | Near Toledo, Spain                    |
| A340-600 #1? Large 4-eng Civil Jet Transport (Airbus) | High energy braking test conducted. Details TBD. A/C has 3 MLG bogies. Tires burst on RH bogie & on CL gear. Some structural damage.                                    | Details TBD                                                                                                                             | E-mail photos               | ?/?/?                                | 03/??/02    | Istres, France (National FT Facility) |
| F-16                                                  | A/C was acting as safety/photo chase for airlaunched decoy flight test. Crashed. Details TBD                                                                            | Details TBD                                                                                                                             | AVW&ST 7/23/01              | 2/2/0                                | 07/17/01    | EAFB, Calif.                          |

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| <b>An-70 #2<br/>4-eng<br/>contrarotating<br/>turboprop<br/>(Antonov)</b>    | <b>A/C conducting ferry flt<br/>staging for cold weather<br/>testing. After liftoff from<br/>refueling stop, suffered dual<br/>engine failure. Crew made<br/>gear up emerg ldg.</b> | <b>Hyd line failed which<br/>controlled rear blade<br/>pitch on #3 eng. Caused<br/>strong vibr. Malf RPM<br/>sensor on #1 eng<br/>caused auto FADEC<br/>shutdown</b>             | <b>AVW&amp;ST<br/>02/05/01<br/>and<br/>04/09/01</b>        | <b>33/0/3</b>                                           | <b>01/27/01</b>    | <b>Omsk,<br/>Siberia<br/>Russia</b> |
| <b>MH-2000 #1?<br/>Helicopter<br/>(Mitsubishi<br/>Heavy<br/>Industries)</b> | <b>Crashed, Details TBD</b>                                                                                                                                                         | <b>TBD, 6 AC built,<br/>program cncl'd 2005</b>                                                                                                                                  | <b>Web<br/>Search<br/>Nagoya<br/>Newspaper</b>             | <b>6/1/?</b>                                            | <b>12/07/00</b>    | <b>Suzuka<br/>City,<br/>Japan</b>   |
| <b>CL-604 #1<br/>"Challenger"<br/>Biz Jet<br/>(Bombardier)</b>              | <b>!st flt w/ rvisd stick force feel<br/>sys. A/C loaded to Aft Lim<br/>CG. Rapid rotation to high<br/>pitch att, A/C rolled RT.<br/>Lvld, rlld RT, crashed.<br/>Apparent stall</b> | <b>Rot rate ~2X normal,<br/>att to ~20deg, 12deg is<br/>manual. Invest reveal'd<br/>fuel could shift in tanks<br/>so that CG in rotnn<br/>was 3 1/2 %MAC<br/>behind Aft Lim.</b> | <b>Newspaper<br/>Article;<br/>NTSB<br/>CHI<br/>0IMA006</b> | <b>3/3/-</b>                                            | <b>10/09/00</b>    | <b>Wichita.<br/>Kansas</b>          |

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| <b>C-27J #1<br/>Mil Utility<br/>Transport<br/>(Alenia/<br/>Lockheed)</b> | <b>Simulated RTO from<br/>landing for test of<br/>FADEC/engine to respond to<br/>rapid change from T/O<br/>(forward) thrust to max<br/>reverse. Upon ldg A/C was<br/>acclcd to target (130) w/ T/O<br/>pwr &amp; max Rev selected.<br/>Run was 4<sup>th</sup> of series &amp; was<br/>endpoint.</b> | <b>A/C swerved to right<br/>upon sel of max rev.<br/>Pilot reduced power,<br/>applied rudder, felt<br/>recover, reapplied<br/>power, A/C then<br/>swerved to right again<br/>&amp; departed runway<br/>side.</b> | <b>Private<br/>Comm</b>                                            | <b>3/0/0</b>                                     | <b>09/~20/00</b> | <b>Turin,<br/>Italy</b>    |
| <b>BD-700 #?<br/>“Global<br/>Express”<br/>Bizjet<br/>(Bombardier)</b>    | <b>Returning from Prod test<br/>flight found elevators<br/>jammed; crew used thrust<br/>and stab trim to control<br/>A/C; diverted to longer<br/>runway; RH elev finally<br/>“broken loose”; emerg<br/>landing w/o further damage<br/>accomplished</b>                                              | <b>Found elevator system<br/>rig pin (w/o flag)<br/>engaged under pedestal</b>                                                                                                                                   | <b>Canada<br/>TSB<br/>Occurr-<br/>ence<br/>Report<br/>A00O0150</b> | <b>2/0/0</b>                                     | <b>07/21/00</b>  | <b>Toronto,<br/>Canada</b> |

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| <b>ERJ-135 #1<br/>Regional<br/>Jetliner<br/>(Embraer)</b>                                      | <b>Remote base operation for<br/>FAA/JAA Certif; Vmu tests<br/>being conducted. Just after<br/>L/O (@ g.t. tail limiting att)<br/>AC rolled to left and<br/>dragged wingtip &amp; aileron.<br/>Takeoff continued &amp;<br/>uneventful ldg made.</b> | <b>135 is shortest member<br/>of 135/140/145 family<br/>of same A/C (ie, highest<br/>geom limited attitude).<br/>MLG more aft of cntr<br/>of lift requiring more<br/>elev input at L/O. Att<br/>increased to ~ stall.</b> | <b>NTSB<br/>Summary<br/>SEA99IA1<br/>48;<br/>Personal<br/>Know-<br/>ledge</b> | <b>3/0/0</b>                                            | <b>08/24/99</b>    | <b>Moses<br/>Lake,<br/>Wash.,<br/>USA</b> |
| <b>G164B Modfd<br/>“AgCat”<br/>orig manuf<br/>Grumman</b>                                      | <b>An STC effort was<br/>underway whereby a<br/>turboprop engine was<br/>installed. Upon ldg the FAA<br/>pilot selected “Beta” range<br/>causing tail to lift up and<br/>A/C to fully nose over</b>                                                 | <b>Details TBD.</b>                                                                                                                                                                                                       | <b>FAA<br/>Incident<br/>Report<br/>199904070<br/>19289G</b>                   | <b>1/0/0</b>                                            | <b>04/07/99</b>    | <b>Nunica,<br/>MI, USA</b>                |
| <b>HS-748 SR2<br/>Twin Eng<br/>Turboprop<br/>Transport,<br/>“AWACS”<br/>Type<br/>Prototype</b> | <b>Assembled by HAL Co in<br/>India. Crashed 2.5km from<br/>airport in dense forest. A/C<br/>had been modified to carry<br/>“rotordome” above fuselage.</b>                                                                                         | <b>Report implies<br/>rotordome collapsed<br/>onto fuselage. Details<br/>TBD</b>                                                                                                                                          | <b>Aviation<br/>Safety<br/>website</b>                                        | <b>8/8/-</b>                                            | <b>01/11/99</b>    | <b>Athur,<br/>India</b>                   |

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| <b>Learjet 45 #4<br/>Businessjet<br/>(Bombardier)</b> | <b>80kt run thru H2O trough as part of new NG certif.; Was 11<sup>th</sup> run of the day. Conducted from ldg. Used T/Rs to control/reduce speed after T/D. A/C departed side of rnwy, struck support vehicle, sheared wings off, fuse rolled inverted and burned</b> | <b>Slight track off CL due max reverse. Had rudder and NG steering input in &amp; T/Rs deployed when entered pit. Detailed reason for loss of control after entering pit TBD. Crew cites training &amp; coord as reason for successfully evacuating hull.</b> | <b>NTSB Narrative IAD99FA 008</b> | <b>3/0/2<br/>First ARFF unit onsite had malof water canno n.</b> | <b>10/27/98<br/>1456est</b> | <b>Wallops Island, Va. (On NASA facility)</b> |
| <b>CitationJet #1<br/>Model 525<br/>(Cessna)</b>      | <b>Fuel starvation, landed safely on state highway</b>                                                                                                                                                                                                                | <b>Fuel quantity indicated 500lbs, fuel low light ON; Details TBD</b>                                                                                                                                                                                         | <b>AVW&amp;ST</b>                 | <b>3/0/0</b>                                                     | <b>07/09/98</b>             | <b>Wichita, Kansas</b>                        |
| <b>KA-50<br/>“Black Shark”<br/>Helicopter</b>         | <b>Rotor blade section separated during aerobatic, high speed turns, 50-100m height</b>                                                                                                                                                                               | <b>TBD</b>                                                                                                                                                                                                                                                    | <b>AVW&amp;ST</b>                 | <b>X/X/1</b>                                                     | <b>06/??/98</b>             | <b>Torzhok, 140mi NW Moscow, Russia</b>       |
| <b>RANS-160F16<br/>SEL<br/>“Shekari”</b>              | <b>Homebuilt A/C being used to flight test new wooden prop. Prop failed/departed during cruise @5k ft. Safe emerg ldg in field adjacent to airport.</b>                                                                                                               | <b>“Suspect harmonic vibr between prop and crankcase flange”</b>                                                                                                                                                                                              | <b>FAA Incident data Base</b>     | <b>1/0/0</b>                                                     | <b>04/16/98</b>             | <b>Booneville , Ark</b>                       |



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| BE-95(T42A)<br>(Beech)                                                                     | A/C conducting spin tests. Gear retracted under G loads, would not lock. Gear extended, would not lock down. Emerg landing w/ minor damage.                                                                                                                                   | “Gear retract rod had failed”                                                                                                                                                                                                          | FAA incident data Base              | 1/0/0                                | 09/09/97    | Wichita, Kansas.  |
| CN-235 (Mil Version of N-250) Twin Turboprop Transport                                     | “LAPES” b/u @1100ft; extraction chute broke away leaving 4tonne load in AFT part of A/C; load jammed in pos; control lost                                                                                                                                                     | Reportedly cable with lower strength rating was inadvertently used (Apparently looked identical)                                                                                                                                       | ICAO 97/0153                        | 6/6/-                                | 05/22/97    | Serang, Indonesia |
| BD-700 #?<br>“Global Express”<br>(Canadair)                                                | GPWS disabled per test card; Landed w/ gear retracted                                                                                                                                                                                                                         | TBD; crew stated they did not follow checklist                                                                                                                                                                                         | ICAO 97/2369                        | 5/0/0                                | 04/25/97    | Toronto, Canada   |
| MD600N #?<br>Single turboshaft Helicopter<br>“Notar” No tail rotor – air jet used<br>(MDC) | Series of FAA Certif H-V test points being conducted @ high alt location. 1-sec delay used. On 5 <sup>th</sup> run (150ft, 85knts), High R/D developed, which could not be arrested. Hard T/D, skids collapsed, rotor severed tail boom, AC rolled over onto side off runway. | Previous accdnts of this type had occurred to this manuf. Apparently corrective action studies not completed, & info re prev accident not made avail to this pilot & test engr. Studies imply diff of ~1sec in cntrl input is critical | NTSB Synopsis; Report # LAX97FA 091 | 1/0/0                                | 01/18/97    | Flagstaff, Az     |

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| MD600N<br>Prototype<br>“Notar”<br>Helicopter<br>1-eng<br>turboshaft<br>(MDC Hel) | Certif H-V test points being conducted at high alt @ max wt. On 4 <sup>th</sup> run (800ft, 0knts) High R/D developed which could not be arrested. Hard T/D w/ struc damage.                                        | Min alt not observed. Autorotation implied to be initiated late. Alt readouts critiqued in report.                   | NTSB<br>Synopsis;<br>Report #<br>Lax97LA0<br>61 | 1/0/0                                | 11/21/96    | Flagstaff,<br>Az. |
| MD600N<br>Prototype<br>“NOTAR”<br>(MDC Hel)                                      | A/C conducting high alt, max wgt H-V testing. 10 <sup>th</sup> autorotation of series (15ft, 60knts). Conducted “running” T/D, rotors deflected down & contacted/severed tail boom. A/C made 180 turn. Minor damage | Report refers to “blowback” of main rotor dusk as std phenon on hel, but exacerbated on this A/C due several factors | NTSB<br>Synopsis;<br>Report #<br>LAX97LA<br>034 | 1/0/0                                | 11/04/96    | Flagstaff,<br>Az  |

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| <b>BV-107II (HKP-4) 2-eng turboshaft, 2 main rotor helicopter (Boe Vertol) (Modfd and Oper by Columbia Helicopters)</b> | <b>First A/C of program to convert Mil version (HKP-4) to civil version. 2<sup>nd</sup> flt since modif cmpltd. 37min into flt. A/C observed to be erratic, to “flip” just prior to crash.</b> | <b>Investigation revealed incorrect p/n bellcrank (a – 8 ilo –9) used in aft rotor “mech mixer” assy. –8 is thicker which prevented “per print” instl of two clevis assys (pilot inputs). One clevis instld using thinner than specified washers, which allowed cotter pin instl, but other clevis instld with per print washers which prevented instl of cotter pin. Lack of cotter pin apparently allowed nut to come off, and clevis to disengage, which caused loss of control to aft rotor</b> | <b>NTSB Synopsis; Report # SEA97FA 001</b> | <b>3/3/-</b>                         | <b>10/04/96</b> | <b>Aurora, Oregon</b>     |
| <b>Torenado Mil Tactical</b>                                                                                            | <b>TBD</b>                                                                                                                                                                                     | <b>TBD</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                            | <b>2/0/0</b>                         | <b>09/28/96</b> | <b>Blackpool, England</b> |
| <b>BH407 Helicopter (Bell)</b>                                                                                          | <b>A/C experienced FADEC fault on first leg of delivery flight mission. Pilot made troubleshooting flt from first leg field. Got fail lt/horn. Made autorotation, landed very hard</b>         | <b>Manufacturing defect in FADEC found, Pilot did not follow procedure for fail indic, which ends with ‘Land ASAP’. Report implies fault requires maintenance action.</b>                                                                                                                                                                                                                                                                                                                           | <b>NTSB Report # FTW96LA 395</b>           | <b>1/0/1</b>                         | <b>09/21/96</b> | <b>Kerrville, Texas</b>   |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                             | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                                                        | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                                                 | <u>REPORT ID/ MATL ID</u>                                                                | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>                                  |
|------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------|-------------|--------------------------------------------------|
| UH-1H (205A) Helicopter (Bell – Operator, Farm Development Corp) | FAA certif of 2 “STC” mods relating to engine & “tractor” tail boom. Tests were autorotations to determine low-end of H-V curve. Could not arrest sink rate, A/C landed hard, both skids and tail boom separated.                                                                                                                      | Tail boom had hit ground on 2 prev runs, indicating @ limit of vehicle. Reason for not discontinuing & other details TBD                                                                                                                                                     | NTSB Narrative FTW96LA 380; ICAO 96/1064                                                 | 2/0/2                                | 09/10/96    | Leadville, Co. (High elev heli-copter test site) |
| EH-101 #? Helicopter (Westlund)                                  | Experienced control difficulties during airspeed calcs; attempting emergency ldg A/C rolled onto side                                                                                                                                                                                                                                  | TBD                                                                                                                                                                                                                                                                          | ICAO 96/0372                                                                             | 5/0/0                                | 08/20/96    | Malpensa, Italy                                  |
| F/A-18C Mil. Tactical (MDC)                                      | New AC leased back to manuf. Pilot new to Co. Inflt “partial” routine practice done enroute, followed by 1k ft floor practice. Refueled and full practice routine started. Crashed attempting 3 <sup>rd</sup> maneuver – reverse one-half cuban eight. Could not pull out from loop. Chf pilot obs from ground called abort, not done. | Maneuver not done per briefed parameters. Started pullout @ 2300 ft, s/b @ 3500ft. & low on speed. Two higher alt “builddown” practice runs apparently not done. Pilot currently doing airshow routine in Pitts Special. (Had invited family & friends to witness practice!) | NTSB Report # CHI96FA 211; Personal knowledge (Controversy as to resp for investigation) | 1/1/-                                | 06/19/96    | Bethalto, Ill                                    |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                    | <u>MANEUVER</u>                                                                                                                                                                                                                                  | <u>SUMMARIZED ROOT CAUSE</u>                                                              | <u>REPORT ID/ MATL ID</u>                                  | <u># CREW/ FATALITIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>           |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------|-------------------------------------|-----------------|---------------------------|
| <b>AV-8B Harrier Mil Tactical (MDC)</b> | <b>TBD</b>                                                                                                                                                                                                                                       | <b>TBD</b>                                                                                |                                                            | <b>1/0/0</b>                        | <b>06/??/96</b> | <b>China Lake, Calif.</b> |
| <b>MD-600N #1 Helicopter (MDC)</b>      | <b>During conduct of “strain survey” flight test involving cyclic control reversals main rotor contacted and caused separation of tail boom. Resulting L yaw only controllable w/ power off. Pilot made autorotation to semi controlled ldg.</b> | <b>Chase A/C reported contact. Flexure of rotor and boom not as expected. Details TBD</b> | <b>NTSB Narrative LAX96LA 207</b>                          | <b>1/0/0</b>                        | <b>05/28/96</b> | <b>Thermal, Calif.</b>    |
| <b>205A #? Helicopter (Bell)</b>        | <b>Engaged exprmntl FBW system; spurious inputs resulted in unusual attitude &amp; vibr during recovery, precautionary ldg</b>                                                                                                                   | <b>TBD; Found distortion of structure in engine/transmission area</b>                     | <b>ICAO 96/2204; Canada TSB Occurrence report A96O0089</b> | <b>2/0/0</b>                        | <b>05/24/96</b> | <b>Ottawa, Canada</b>     |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                                | <u>MANEUVER</u>                                                                                                                                                                                                                                                                        | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                                                                                                                                                                                | <u>REPORT ID/ MATL ID</u>        | <u># CREW/ FATALI TIES/ INJURIES</u>                  | <u>DATE</u> | <u>LOCATION</u>   |
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| PA-25-150<br>"Pahnee"<br>Cropduster<br>(Modified & operated by "B&E" Co)<br>(Piper) | A/C modified for dual controls. Undergoing FAA certif for STC. 3 <sup>rd</sup> FAA flt. 2nd Flight at max WT & full Fwd CG. No climb perf after L/O, & A/C crashed attempting return to field. Perf low but OK on 1 <sup>st</sup> flt, but 28 vs 64 deg F diff (some 7 weeks earlier). | A/C did not have wing root fairing instld (decreasing lift & elev power), nor ldg gr struts fairings. Docs don't state if two fairings were installed on 1 <sup>st</sup> flts. Statement of conformity did not mention these two differences from std config. Post event computations indicated CG was Fwd of Fwd limit by ~30% of allowable travel. Ques exists as to GW/CG envelope w/w/o "hopper" instld | NTSB Report<br>CHI96FA<br>141    | 2/1/1<br>(FAA Pilot Injured ; FAA Test Engr Perished) | 04/24/96    | Buffalo, Mo., USA |
| R-22 Beta<br>LT Helicopter<br>(Robinson)                                            | A/C conducting "High" alt VH testing. 200ft, 60kt point. Excessive sink rt developed, could not arrest w/ power. Hard lnding                                                                                                                                                           | 12/13kt hdwind reported to suddenly decrease during maneuver.                                                                                                                                                                                                                                                                                                                                               | FAA Incident Report Data Base    | 1/0/0                                                 | 11/21/95    | Big Bear, Calif   |
| PJ-2 #1<br>"Peregrine"<br>Personal Jet<br>(Fox)                                     | During Go-around pilot reported split flap situation; A/C spiraled in                                                                                                                                                                                                                  | Pin in LH flap drive shaft found broken; pilot response & aerodynamic aspects TBD                                                                                                                                                                                                                                                                                                                           | NTSB Narrative<br>LAX95LA<br>278 | 1/1/-                                                 | 08/04/95    | Minden, Nev.      |
| EH-101 #4<br>Helicopter<br>(Westlund)                                               | Maneuvers @ 12k ft., crew reported problem, began spinning. Crashed w/o fire                                                                                                                                                                                                           | TBD, 3 of crew bailed out @ 10k ft, pilot @ 3K ft.                                                                                                                                                                                                                                                                                                                                                          | AVW&ST                           | 4/0/1                                                 | 04/07/95    | Yeovil, England   |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u><b>AIRCRAFT<br/>TYPE</b></u>                                       | <u><b>MANEUVER</b></u>                                                                                                                                                                                                 | <u><b>SUMMARIZED<br/>ROOT CAUSE</b></u>                                                                                                                                                     | <u><b>REPORT<br/>ID/<br/>MATL ID</b></u>                                | <u><b># CREW/<br/>FATALI<br/>TIES/<br/>INJURIES</b></u> | <u><b>DATE</b></u> | <u><b>LOCATION</b></u>   |
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| <b>AN-70 #1<br/>Prototype<br/>Propfan<br/>Transport<br/>(Antonev)</b> | <b>Setting various control surf<br/>defls; sudden flt path<br/>change; collided w/ chase<br/>plane; destroyed fin; spun in</b>                                                                                         | <b>TBD; had accumulated<br/>3 flt hrs; apparently no<br/>radio comm w/<br/>chase??.; program<br/>known to be under<br/>great pressure</b>                                                   | <b>ICAO<br/>95/0034</b>                                                 | <b>7/7/-</b>                                            | <b>02/10/95</b>    | <b>Kiev,<br/>Ukraine</b> |
| <b>777-200 #2<br/>Civil<br/>Transport<br/>(Boeing)</b>                | <b>Flight on Battery power</b>                                                                                                                                                                                         | <b>Pressurization system<br/>failed; rapid cabin alt<br/>rise</b>                                                                                                                           | <b>Seattle<br/>newspaper</b>                                            | <b>X/x/4<br/>(4 sick,<br/>2<br/>passed<br/>out)</b>     | <b>02/02/95</b>    | <b>Seattle,<br/>Wash</b> |
| <b>X-31 Swept<br/>Fwd Wing<br/>Research A/C<br/>(NASA)</b>            | <b>Last flt in program, 7<sup>th</sup> in 2<br/>days. PID data objective.<br/>Mid alt reqd. A/C operated<br/>between cloud levels.<br/>Eroneous IAS decrease<br/>occurred, FBW sys went<br/>divergent. A/C crashed</b> | <b>Pitot not ice-protected;<br/>used to schedule gains<br/>for FBW sys; did<br/>accum ice. Pilot turned<br/>on pitot I/P sw, data<br/>center delay in<br/>reporting I/P not<br/>active.</b> | <b>2<sup>nd</sup> FT<br/>Safety<br/>Workshop<br/>Presenta-<br/>tion</b> | <b>1/0/1</b>                                            | <b>01/19/95</b>    | <b>EAFB,<br/>Calif.</b>  |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u><b>AIRCRAFT<br/>TYPE</b></u>                                                                               | <u><b>MANEUVER</b></u>                                                                                                                                                                                                                                                      | <u><b>SUMMARIZED<br/>ROOT CAUSE</b></u>                                           | <u><b>REPORT<br/>ID/<br/>MATL ID</b></u>      | <u><b># CREW/<br/>FATALI<br/>TIES/<br/>INJURIES</b></u> | <u><b>DATE</b></u> | <u><b>LOCATION</b></u>            |
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| <b>BD-10 #?<br/>Personal Jet<br/>(Orig design by<br/>Bede,<br/>purchased by<br/>Peregrine<br/>Flight Int)</b> | <b>Flutter clearance testing @<br/>high alt, followed by points<br/>@ 380kts @ 14k-15k ft;<br/>violent pitchup resulted in<br/>structural failure; high<br/>vertical loads on earlier flt<br/>resulted in limitation against<br/>rudder kicks (vertical<br/>excitation)</b> | <b>LH vertical tail failed<br/>first ; reason for high<br/>vertical loads TBD</b> | <b>NTSB<br/>Narrative<br/>LAX95LA<br/>067</b> | <b>1/1/-</b>                                            | <b>12/30/94</b>    | <b>Gardner-<br/>ville, Nev</b>    |
| <b>TU-204<br/>(Tupolev)</b>                                                                                   | <b>TBD</b>                                                                                                                                                                                                                                                                  | <b>TBD</b>                                                                        | <b>ICAO<br/>94/0380</b>                       | <b>TBD</b>                                              | <b>11/02/94</b>    | <b>Russia</b>                     |
| <b>F-20 #1 or 2<br/>Tigershark<br/>Mil Tactical<br/>(Northrop)</b>                                            | <b>Near end of demonstration<br/>flight, A/C conducted<br/>climbing roll to inverted w/<br/>Flaps &amp; gear dwn. A/C<br/>control lost &amp; crash ensued</b>                                                                                                               | <b>A/C stalled while<br/>inverted. Altitude too<br/>low to allow recovery</b>     | <b>SFTE NL</b>                                | <b>1/1/-</b>                                            | <b>10/10/94</b>    | <b>Suwon,<br/>South<br/>Korea</b> |



**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                                        | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                 | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                 | <u>REPORT ID/ MATL ID</u>                               | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>               |
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| MD520N<br>“NOTAR”<br>Helicopter<br>(MDC)                                                    | After acting as traffic/visibility chase for AH-64 Apache foreign sales demo, the NOTAR collided w/ Apache shortly before landing back @ home base. Rotor of NOTAR struck aft portion of LH stub wing of AH-64. Collision observed by ramp controller, who reported no time to radio info back. | Nighttime VFR ops, AH-64 pilot using nightvision goggles which reduce sideline vision. NOTAR had one pilot w/ foreign observer in other seat. A/C were on same VHF freq. Duties of “ramp control” not precisely defined      | NTSB<br>Narrative<br>LAX94FA<br>383A                    | 2/1/1<br>NOTA<br>R<br>2/0/0<br>AH-64 | 09/27/94    | Mesa,<br>Arizona              |
| TU-134<br>(Tupolev)                                                                         | Photo chase; collided w/ TU-22 (Bomber)                                                                                                                                                                                                                                                         | TBD                                                                                                                                                                                                                          | ICAO<br>94/0274                                         | 8/8/-                                | 09/09/94    | Yegoryevsky, Russia           |
| S-64F<br>Skycrane<br>Helicopter<br>(Sikorsky –<br>Operated by<br>Erickson Air<br>Crane Co.) | Forest fire water tank sys test; after “some” filling of tank could not climb; could not jettison; A/C settled into lake. Quantity sys noted as erratic upon initial filling. Emerg tank jettison sys also malfunctioned.                                                                       | Tank quantity sys malf; only sensed/indicated no water; jettison sys programmed to require some water quantity for it to function. Limited perf. data avail. Data for “similar” used. A/C likely above “max wt” for alt/OAT. | NTSB<br>Narrative<br>SEA94LA<br>228;<br>ICAO<br>94/0404 | 3/0/2                                | 09/01/94    | Libby ,<br>Mont.<br>(~6000ft) |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                          | <u>MANEUVER</u>                                                                                                                                                      | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                      | <u>REPORT ID/ MATL ID</u>                                      | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>   |
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| Modified 707-300 Mil intel gathering equipment vehicle (IAI)  | Reportedly engaged in develop Test; Some “malfunction” disabled RH MLG; Landed w/ 2 gr extended; rel minor damage                                                    | TBD                                                                                                                                                                               | ICAO 94/0545                                                   | 12/0/0                               | 07/04/94    | Tel Aviv, Israel  |
| A330 #? Civil Transport (Airbus)                              | Combination customer demo & engr test flight. Conducted engr test card of Simulated Eng-Out Go-Around @ low height. Speed decayed, A/C rolled off & crashed on field | Autopilot control laws allowed speed to decay below Vmca and Vstall as A/C entered Alt Capture mode from G/A mode. Customer pilot in RH seat.                                     | ICAO 94/0173; AVW&ST; Avia-net website; French accident report | 7/7/-                                | 06/30/94    | Toulouse, France  |
| JAS-39 1 <sup>st</sup> Prod A/C, “Viggen” Mil Tactical (SAAB) | With 40 hours flight time, A/C conducted airshow demo. Upon rollout from steep turn entered PIO. Pilot ejected. A/C crashed in view of 100,000 spectators.           | Manuf duplicated PIO in simul next day! A/C has sophisticated FBW system. Control system become “Rate Limited”. Control surface could keep up w/ command and became out-of-phase. | SETP “Cockpit”                                                 | 1/0/0                                | 08/08/93    | Stockholm, Sweden |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                             | <u>MANEUVER</u>                                                                                                                                                                                                                            | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                   | <u>REPORT ID/ MATL ID</u>                                                    | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>             |
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| <b>Ranger 2000 #2<br/>Prototype<br/>Mil Jet Trainer<br/>US JPATS<br/>Program</b> | <b>Moderate roll rate evals w/ speed brakes extended; large sideslip developed; rudder went hardover; pilot used high pedal forces in attempt to cause rudder movement . A/C rolled &amp; dived. Pilot attempted ejection, A/C crashed</b> | <b>Earlier testing had revealed reduced directional stab w/ speed brakes extended; briefing included limitation against crossed controls w/ speed brakes extended; cause of rudder motion TBD, apparently was overbalanced</b> | <b>ICAO 93/0114;<br/>Private translation of German Accident Board Report</b> | <b>1/0/1<br/>US pilot</b>            | <b>07/27/93</b> | <b>Dollenstein, Germany</b> |
| <b>CL-600 #1<br/>“Regional Jet”<br/>Civil<br/>Transport<br/>(Canadair)</b>       | <b>Engr develop tests of several config changes. Low speed full rudder sideslip test point planned. Briefing was to terminate at stall warning. Occurred close to full rudder, full rudder then attained. Roll-off occurred</b>            | <b>Wing stall w/ attempted roll thru and then entry into deep stall; pilot called to deploy drogue chute; deploy mortar fired before chute anchored to A/C</b>                                                                 | <b>NTSB Report # CHI93MA 276</b>                                             | <b>3/3/-</b>                         | <b>07/26/93</b> | <b>Byers, Kansas</b>        |
| <b>IL-114 #?<br/>Turboprop<br/>Civil transport<br/>(Illushin)</b>                | <b>Some sort of engine problem, on initial climb-out rolled &amp; pitched up, then stalled</b>                                                                                                                                             | <b>TBD</b>                                                                                                                                                                                                                     | <b>AV Sfty Ntwrk</b>                                                         | <b>8/3/5<br/>(9/5/?)</b>             | <b>07/05/93</b> | <b>Zhukovsky, Russia</b>    |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u><b>AIRCRAFT<br/>TYPE</b></u>                                              | <u><b>MANEUVER</b></u>                                                                                                                                                           | <u><b>SUMMARIZED<br/>ROOT CAUSE</b></u>                                                                                                                                    | <u><b>REPORT<br/>ID/<br/>MATL ID</b></u>              | <u><b># CREW/<br/>FATALI<br/>TIES/<br/>INJURIES</b></u> | <u><b>DATE</b></u> | <u><b>LOCATION</b></u>                                    |
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| <b>F-100 #?<br/>Civil<br/>Transport<br/>(Fokker)</b>                         | <b>High speed ldg (no flaps) w/<br/>new ldg gr; skipped upon<br/>T/D; vibration felt; only one<br/>reverser deployed; A/C went<br/>off side of rnwy; Both MLGs<br/>collapsed</b> | <b>Lt wt, high speed<br/>condition caused<br/>coupled vibration of<br/>gear &amp; strut; known<br/>occurrence on other<br/>A/C</b>                                         | <b>ICAO<br/>93/0442</b>                               | <b>7/0/0</b>                                            | <b>06/10/93</b>    | <b>Groningen,<br/>Netherlands</b>                         |
| <b>Il-62 #?<br/>Civil<br/>Transport<br/>(Ilyushin)</b>                       | <b>TBD</b>                                                                                                                                                                       | <b>TBD</b>                                                                                                                                                                 | <b>ICAO<br/>93-0287</b>                               | <b>9/5/4</b>                                            | <b>07/05/93</b>    | <b>Ramenskoye,<br/>Russian<br/>Flight Test<br/>Center</b> |
| <b>F-16 #?<br/>Mil Tactical<br/>(Gen Dyn)</b>                                | <b>TBD</b>                                                                                                                                                                       | <b>TBD</b>                                                                                                                                                                 | <b>TBD</b>                                            | <b>1/1/-</b>                                            | <b>05/24/93</b>    | <b>TBD,<br/>Texas</b>                                     |
| <b>Ranger 2000??<br/>(DASA)</b>                                              | <b>Due to inflt problem w/ gear<br/>doors, had to conduct ldg w/<br/>RH MLG retracted. Damage<br/>TBD</b>                                                                        | <b>Some sort of hyd<br/>failure prevented RH<br/>gear extension.</b>                                                                                                       | <b>ICAO<br/>93/0134</b>                               | <b>1/0/0</b>                                            | <b>04/29/93</b>    | <b>Manching,<br/>Germany</b>                              |
| <b>“HTTB” Engr<br/>Testbed,<br/>Highly<br/>Mdified C-130)<br/>(Lockheed)</b> | <b>Vmcg testing as part of<br/>FBW rudder control eval;<br/>A/C lost directional control;<br/>lifted off; crashed on field</b>                                                   | <b>Rudder became hinge<br/>moment limited and sys<br/>sensed diff between<br/>actual and commanded<br/>position as a failure<br/>and took self out of<br/>control loop</b> | <b>NTSB<br/>ATL93M<br/>A055;<br/>m/f #<br/>52843A</b> | <b>7/7/-</b>                                            | <b>02/03/93</b>    | <b>Marietta,<br/>Georgia</b>                              |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                      | <u>MANEUVER</u>                                                                                                                                       | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                     | <u>REPORT ID/ MATL ID</u>                                                         | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>            |
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| <b>EH-101 #2 Helicopter (Westlund)</b>                                    | <b>A/C was conducting tests measuring its noise on ground while in flight, details TBD</b>                                                            | <b>“Uncommanded application of rotor brake”, details TBD</b>                                                                                                                     | <b>AW&amp;ST</b>                                                                  | <b>4/4/0</b>                         | <b>01/21/93</b> | <b>Cameri, Italy</b>       |
| <b>328-100 #? Turboprop Civil transport (Dornier)</b>                     | <b>Full Rudder Sideslip as part of FAR/JAR compliance; buffeting started; prop blades sheared at root; A/C rolled; pilot took it thru 360 degrees</b> | <b>Revised aero fairings installed; asym of prop flow caused tail buffeting; prop certif did not require degree of sideslip encountered w/ advancing/retreating blade cycle.</b> | <b>ICAO 92/0162; private translation of German authority investigation report</b> | <b>2/0/0</b>                         | <b>12/14/92</b> | <b>Memmingen , Germany</b> |
| <b>AN-124 #? Mil/Civil Transport (Antonov)</b>                            | <b>High Speed descent; some sort of structural failure; emergency landing being attempted when crashed</b>                                            | <b>Nose cargo door reported to begin to break away</b>                                                                                                                           | <b>ICAO 92/0456</b>                                                               | <b>9/8/?</b>                         | <b>10/13/92</b> | <b>Keiv, Ukraine</b>       |
| <b>Jetstream Super 32 #? Twin Turboprop Transport (British Aerospace)</b> | <b>Simulates Engine failure just after L/O. Roll to RT could not be controlled &amp; A/C crashed inverted.</b>                                        | <b>Jetstream uses 2 propellers. One on S32 requires diff idle fuel flow setting on fuel control unit to maintain proper torque (ie; drag). Wrong idle fuel flow was set.</b>     | <b>AAIB Bulletin #11/93; CAA Summary 9204093D</b>                                 | <b>2/2/-</b>                         | <b>10/06/92</b> | <b>Prestwick, Scotland</b> |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                                                                       | <u>MANEUVER</u>                                                                                                                                                                                   | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                                                                                                                          | <u>REPORT ID/ MATL ID</u>                                                          | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>                   |
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| <b>LR-60 #2?<br/>Twin Eng<br/>Businessjet<br/>(Learjet)</b>                                                                | <b>80ft height intentional<br/>Autopilot malf insertion;</b>                                                                                                                                      | <b>Malf inserted by<br/>engineer in cabin who<br/>did not have Radar Alt<br/>info</b>                                                                                                                                                                                                                                                                 | <b>NTSB<br/>Synopsis<br/>CHI92LA<br/>289;<br/>(m/f #<br/>50976A)</b>               | <b>4/0/0</b>                         | <b>09/24/92</b> | <b>Hutchinson,<br/>Kansas.</b>    |
| <b>SA227 III<br/>Merlin? Twin<br/>Turboprop<br/>Civil<br/>Transport<br/>(Fairchild)</b>                                    | <b>Longit control test point;<br/>engines retarded to flt idle;<br/>could not raise nose; hard<br/>ldg resulted</b>                                                                               | <b>TBD</b>                                                                                                                                                                                                                                                                                                                                            | <b>ICAO<br/>92/1130;<br/>NTSB<br/>Synopsis<br/>FTW<br/>92LA228</b>                 | <b>2/0/0</b>                         | <b>09/18/92</b> | <b>San<br/>Antonio,<br/>Texas</b> |
| <b>DHC4<br/>“Caribou”<br/>Turboprop<br/>Conversion #1<br/>Twin Eng<br/>Mil/Civil<br/>Transport<br/>(NewCal Av<br/>Inc)</b> | <b>10 months into Turbine<br/>engine conversion program;<br/>normal takeoff; @ ~35ft A/C<br/>pitched up and conducted<br/>ever steepening wingover<br/>followed by steep dive &amp;<br/>crash</b> | <b>Rudder gust lock found<br/>engaged; evidence from<br/>data film that elev and<br/>ail locks were also<br/>engaged; interconnect<br/>designed to prevent<br/>throttle advance w/<br/>lock lever engaged;<br/>possible failure of one<br/>axis lock; no control<br/>system preflight<br/>controls rollout<br/>observed or noted on<br/>data film</b> | <b>ICAO<br/>92/0359;<br/>Canada<br/>TSB<br/>Occurrence<br/>Report<br/>A92C0154</b> | <b>3/3/-</b>                         | <b>08/27/92</b> | <b>Gimli,<br/>Canada</b>          |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                        | <u>MANEUVER</u>                                                                                                                          | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                              | <u>REPORT ID/ MATL ID</u>                         | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>    |
|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|--------------------------------------|-------------|--------------------|
| V-22 #4<br>"Osprey"<br>Mil Tiltrotor<br>(Bell)              | Relocation flight from Eglin back north w/ stopover at Quantico, Va marine base; lineup for final approach following fly-by; lost engine | Pooling fluid ingested when nacelles tilted; causes engine fire; fire destroys composite rotor interconnect shaft                                                                         | AVW&ST: Newspaper; Philadelphia Inquirer 11/14/93 | 7/7/-                                | 07/21/92    | Quantico, Virginia |
| T-45 #1<br>"Goshawk"<br>Mil Trainer<br>(MDC)                | Normal ldg; upon T/D A/C darted to side;                                                                                                 | FT instrumentation sensor jammed brake pedal on; initial MDC LB SRB called for special periodic inspection due to tight clearances; requirement lost upon xfer of program to MDC St Louis | AVW&ST; Personal knowledge                        | 1/0/0                                | 06/04/92    | EAFB, Calif.       |
| S-3 #?<br>Twin Jet<br>Mil Utility<br>"Viking"<br>(Lockheed) | Simulator upgrade maneuvers; rudder "sweeps" @ 5K ft 365kts caused struc failure of vert fin followed by one elev; crew ejected          | Design criteria used for vertical fin apparently not known; is common to not design for rudder reversals in sideslip on "transport" sized A/C                                             | Flying the Edge; Wilson; P195                     | 2/0/2                                | 04/29/92    | Patuxent River, MD |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u><b>AIRCRAFT<br/>TYPE</b></u>                                                 | <u><b>MANEUVER</b></u>                                                                                                                                           | <u><b>SUMMARIZED<br/>ROOT CAUSE</b></u>                                                          | <u><b>REPORT<br/>ID/<br/>MATL ID</b></u>                                 | <u><b># CREW/<br/>FATALI<br/>TIES/<br/>INJURIES</b></u> | <u><b>DATE</b></u> | <u><b>LOCATION</b></u>         |
|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------|--------------------|--------------------------------|
| <b>F-22A<br/>Prototype Mil<br/>Tactical<br/>(Lockheed)</b>                      | <b>A/C began violent pitch oscillations upon Gear Retractn during normal Go-Around. Pancaked onto runway. Pilot climbed out. A/C burned .</b>                    | <b>Software anomaly, large change in gains upon gear retractions</b>                             | <b>AVW&amp;ST</b>                                                        | <b>1/0/1</b>                                            | <b>04/25/92</b>    | <b>EAFB, Calif.</b>            |
| <b>XXXX<br/>Helicopter<br/>(?Manuf)<br/>(Modified by<br/>“Enstrom “<br/>Co)</b> | <b>Series of high elev H-V test points being conducted – implies to be FAA certif. High R/D developed which could not be arrested. Hard T/D w/ struc damage.</b> | <b>400ft, 46kt test point being attempted. Pilot reported “heavy blade stall” and downdraft.</b> | <b>NTSB<br/>AC/Incid<br/>Data Base;<br/>Report #<br/>DEN92<br/>LA036</b> | <b>1/0/0</b>                                            | <b>02/29/92</b>    | <b>Leadville,<br/>Colorado</b> |
| <b>BHT206L3 #?<br/>“Longranger”<br/>Helicopter<br/>(Bell)</b>                   | <b>Series of H-V test points being conducted for L4 series. High R/D developed which could not be arrested. Hard T/d w/ struc damage.</b>                        | <b>30ft, 50kt test point being attempted. Rotor RPM decreased more than expected.</b>            | <b>NTSB<br/>acc/Incd<br/>data base;<br/>Report #<br/>FTW92LA<br/>040</b> | <b>2/0/0</b>                                            | <b>12/10/91</b>    | <b>Arlington,<br/>Texas</b>    |
| <b>V-22 #x<br/>Mil Tiltrotor<br/>(Bell/Boe)</b>                                 | <b>Crashed on T/O</b>                                                                                                                                            | <b>TBD</b>                                                                                       | <b>SAE AE<br/>Mag</b>                                                    | <b>2/0/2</b>                                            | <b>06/??/91</b>    | <b>Wilmington,<br/>Del</b>     |



**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                                             | <u>MANEUVER</u>                                                                                                                                                                                                                               | <u>SUMMARIZED ROOT CAUSE</u>                                                                                              | <u>REPORT ID/ MATL ID</u>                                | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>               |
|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------|-------------|-------------------------------|
| DHC6-300<br>4-Eng<br>Turboprop<br>Civil<br>Transport<br>(deHavilland)                            | Upon start up of engines;<br>prop came out of feather<br>causing forward motion and<br>collision w/ other A/C                                                                                                                                 | Hyd C/Br left out<br>causing no brakes avail<br>to pilot upon motion                                                      | ICAO<br>91/0211                                          | 1/0/0                                | 06/12/91    | Denver,<br>Colorado           |
| A-6<br>“Intruder”<br>Mil Attack<br>(Grumann)                                                     | New-to-A/C bomb qual;<br>”sinusoidal stick pumps” @<br>500kts @ 5K ft; Horiz Stab<br>failure to NU resulted in<br>severe ND pitch & crash                                                                                                     | TBD                                                                                                                       | Flying the<br>Edge;<br>Wilson;<br>P210                   | 2/1/1                                | 08/15/90    | Patuxant<br>River, MD         |
| BN2T<br>“Islander”<br>Twin<br>Turboprop<br>Civil<br>Transport<br>(Pilatus<br>Brittan-<br>Norman) | Certif demo of Vmcg/Vmca<br>capability (Old BCAR<br>rules); first test point – fail<br>of LH eng OK; on RH eng<br>point A/C drifted off<br>runway, flyaway attempted,<br>could not climb, speed<br>decayed, nose high T/D @<br>55mph resulted | Pilot stated gust of<br>wind got A/C off slower<br>than planned; & then<br>loss of gust contributed<br>to failure to fly. | British<br>CAA<br>Accident<br>Report<br>EW/G90/0<br>6/25 | 2/0/0                                | 06/27/90    | Isle of<br>Wright,<br>England |
| F-18A Mil.<br>Tactical<br>(MDC)                                                                  | Spin Accident                                                                                                                                                                                                                                 |                                                                                                                           |                                                          |                                      | 11/30/89    |                               |
| USN E-6A #?<br>“TACAMO”<br>(Mil 707)<br>(Boeing)                                                 | Flutter (Lost top ¼ of<br>Vertical)                                                                                                                                                                                                           | TBD                                                                                                                       | Seattle<br>Newspape<br>r                                 | ?/?/?                                | 09/28/89    | Seattle,<br>Wash.             |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                                                | <u>MANEUVER</u>                                                                                                                                                                        | <u>SUMMARIZED ROOT CAUSE</u>                                           | <u>REPORT ID/ MATL ID</u>                             | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>         |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------|-------------|-------------------------|
| USN E-6A #1<br>"TACAMO"<br>(Mil 707)<br>(Boeing)                                                    | During flutter test (460kt @15k ft) for wingtip mods/problem, made strong pilot rudder input. Top 1/3 of Vertical separated from A?C                                                   | TBD                                                                    | AVW&ST                                                | ?/?/?                                | 02/16/89    | Seattle, Wash.          |
| JAS-39 #1<br>"Gripen"<br>Mil Tactical<br>(SAAB)                                                     | A/C had accumulated 5 flights for ~5 hours. Upon landing encountered "Fly-by-Wire" system divergence                                                                                   | TBD; 18 month slip in first flight                                     | SFTE NL                                               | 1/0/1                                | 02/02/89    | ?, Sweden               |
| SX-300<br>Mil POC<br>(Swearingen)                                                                   | USAF Demo flt; massive structural failure                                                                                                                                              | TBD; pilot told acquaintance he "routinely" exceeded redline by 85kts. | NTSB Synopsis<br>ATL<br>89MA070;<br>(m/f #<br>38326A) | 2/2/-                                | 01/09/89    | Dayton, Ohio<br>(WPAFB) |
| B707-300 w/<br>"Hush Kit"<br>nacelles;<br>4-Eng Jet<br>Transport<br>(Modfd by<br>XXXXX)<br>(Boeing) | Implies that event occurred at end of certif flight. FAA test Engr flying as pilot making visual approach. Hard T/D with T&G made. Normal ldg at normal base. Minor struc damage found | Slightly slow, & pulled throttles at 50 ft                             | NTSB<br>Data Base;<br>Report #<br>MIA89IA0<br>35      | 12/0/0                               | 11/16/88    | Orlando, Fla.           |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                               | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                         | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                                                                    | <u>REPORT ID/ MATL ID</u>                   | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>                        |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------|-----------------|----------------------------------------|
| <b>C152 Weatherplane (Cessna)</b>                  | <b>A/C modified to carry weather sampling equipment to support FAA Cert “Flyover Noise” testing. During sampling run A/C stalled &amp; spun in from low alt. A/C made descending RH turn from 800 to 50ft, followed by climb to 100ft and turn to align with runway heading for continuation of run</b> | <b>Subject test required to be conducted w/i certain weather conditions &amp; said conditions be recorded/sampled on regular basis during test runs. A/C stalled during LH turn to align w/ runway. A/C was overweight due equip, fuel &amp; second person onboard. Level of exceedance unk</b> | <b>NTSB Data Base; Report # LAX89LA 035</b> | <b>2/0/2</b>                         | <b>11/04/88</b> | <b>Chandler, Az</b>                    |
| <b>F-100 #? 2-Eng Jet Civil Transport (Fokker)</b> | <b>A/C was conducting “failure condition” test point landing w/ flaps &amp; LE devices retracted. Severe MLG virba ensued w/ gear failure – details TBD</b>                                                                                                                                             | <b>Details of test point TBD. MLG torque links lengthened as result.</b>                                                                                                                                                                                                                        | <b>Aviation Safety Website</b>              | <b>12/0/0</b>                        | <b>07/31/87</b> | <b>Amsterdam-Schiphol, Netherlands</b> |
| <b>USAF “Stealth” Fighter</b>                      | <b>TBD</b>                                                                                                                                                                                                                                                                                              | <b>TBD</b>                                                                                                                                                                                                                                                                                      | <b>Newspapers</b>                           | <b>X/x/x</b>                         | <b>07/11/86</b> | <b>Bakersfield, Calif.</b>             |
| <b>Hawk200 Mil Tactical (British Aerospace)</b>    | <b>TBD</b>                                                                                                                                                                                                                                                                                              | <b>TBD</b>                                                                                                                                                                                                                                                                                      | <b>Newspaper</b>                            | <b>1/1/0</b>                         | <b>07/02/86</b> |                                        |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                           | <u>MANEUVER</u>                                                                                                                                       | <u>SUMMARIZED ROOT CAUSE</u>                                                                                           | <u>REPORT ID/ MATL ID</u>                                    | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>                  |
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| <b>“Helistat” Airship</b>                                                      | <b>Attempted T/O due wind shift during mooring; Ldg gr began shimmying; caused all 4 helicopter fuselages to vibrate and break away from airship.</b> | <b>Reported as “Lack of structural dynamics analysis of very complex structure”</b>                                    | <b>ICAO 86/1191; NTSB Synopsis NYC86FH D01; (m/f 32618A)</b> | <b>5/1/4</b>                         | <b>07/01/86</b> | <b>Lakehurst , NJ</b>            |
| <b>Seastar Amphibian (Dornier)</b>                                             | <b>Had elec sys probs following flt tests; GR believed to be UP, was down; landed on water; A/C nosed over</b>                                        | <b>No way to determine GR pos w/o elec sys, no 2-way radios w/o elec</b>                                               | <b>ICAO 85/0159</b>                                          | <b>4/0/0</b>                         | <b>07/24/85</b> | <b>Friedrichs hafen, Germany</b> |
| <b>DC-8-62 w/ Mod Nacelles (Douglas, Modfd/tested by Burbank Aeronautical)</b> | <b>A/C experienced large lateral upset during conduct of FAA Cert FT of Static Direc Stab. Lost ~6K ft in recovery</b>                                | <b>Ques as to spoiler sys working properly; large wheel input made to check, then apparent large reversal of input</b> | <b>1999 FTSW presento</b>                                    | <b>X/0/0</b>                         | <b>03/??/85</b> | <b>Mojave, Calif.</b>            |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                                                                       | <u>MANEUVER</u>                                                                                                                                                                                                                                                                              | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                 | <u>REPORT ID/ MATL ID</u>                            | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>        |
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| <b>Model 425<br/>(Cessna)</b>                                                                                              | <b>A/C fitted w/ 4-bladed props; ldg test to eval characteristics following throttle chop @ 50ft; 3<sup>rd</sup> run; first 2 Ok; on 3<sup>rd</sup>, A/C yawed and rolled upon more brisk chop; sheared off all 3 grs.</b>                                                                   | <b>TBD</b>                                                                                                                                                                                                                   | <b>NTSB Synopsis CHI85FA 218; (m/f 3 29274A)</b>     | <b>4/0/1</b>                         | <b>05/25/85</b> | <b>Dayton, Ohio</b>    |
| <b>DHC3<br/>“Otter”<br/>2-eng Civil/Mil<br/>LT transport<br/>(deHaviland of<br/>Canada,<br/>Modified by<br/>Cox AC Co)</b> | <b>Turbine Eng version of A/C w/ modified fuel system – details TBD. During test flight fuel sys probs noted. Pilot stayed over ocean to troubleshoot. Noted gauge staying full. Headed home, ran out of fuel over Seattle, landed in athletic field, bounced into residential backyard.</b> | <b>Probs started with ice blockage of vent line, causing string of events. Erroneous full reading locked out xfer tank pumps apparently. Main tank ran dry. Config status of engine and fuel sys not clear at this time.</b> | <b>NTSB Synopsis SEA85FA 034 (Microfishe 26670A)</b> | <b>X/x/3</b>                         | <b>12/19/84</b> | <b>Seattle, Wash.</b>  |
| <b>R695A #1?<br/>“Commander”<br/>Lt Twin Eng<br/>980<br/>(Rockwell Int)</b>                                                | <b>A/C conducting series of Single-eng climb &amp; Vmc test points. Exact sequence/details TBD. Stalled @ low alt &amp; crashed.</b>                                                                                                                                                         | <b>TBD</b>                                                                                                                                                                                                                   | <b>NTSB Synopsis; Report # FTW85FA 010</b>           | <b>2/2/-</b>                         | <b>10/09/84</b> | <b>Checotah, Okla.</b> |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                       | <u>MANEUVER</u>                                                                                                                                                        | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                               | <u>REPORT ID/ MATL ID</u>                                                        | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>        |
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| <b>B-1A #2<br/>“Lancer”<br/>Bomber<br/>(North American)</b>                | <b>Reactivated as B-1B prototype. Inter-maneuver Wing Sweep; A/C went out of control &amp; crashed. Crew deployed escape capsule which malfunctioned (details TBD)</b> | <b>A/C CG in range for initial sweep (Aft) position, not changed &amp; thus out of range for final sweep position (details TBD). Warning Lt system changed to positive interlock as result this event.</b> | <b>SFTE NL &amp; USAF Museum Website; Airplane S&amp;C, Abzug &amp; Larrabee</b> | <b>3/1/2<br/>(Doug Benefield)</b>    | <b>08/24/84</b> | <b>EAFB, Calif.</b>    |
| <b>CL-600<br/>“Challenger”<br/>Twin-jet<br/>Businessjet<br/>(Canadair)</b> | <b>Ldg from FAA cert flt; sys’s failures; ldg on wet rnwy; went off end, collapsed NG</b>                                                                              | <b>Wheel speed sensors found swapped on LH gear</b>                                                                                                                                                        | <b>NTSB Synopsis MKC84F A114; (m/f 3 24506A)</b>                                 | <b>8/0/0</b>                         | <b>04/02/84</b> | <b>Little Rock, Ak</b> |
| <b>Peregrine<br/>(Gulfstream Aerospace)</b>                                | <b>New Ailerons installed; roll tests to evaluate; dead band noted on earlier flight; PIO resulted</b>                                                                 | <b>TBD</b>                                                                                                                                                                                                 | <b>NTSB Synopsis FTW84FA 075; (m/f # 23461A)</b>                                 | <b>1/0/1</b>                         | <b>11/23/83</b> | <b>El Reno, Okla</b>   |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u><b>AIRCRAFT<br/>TYPE</b></u>                                                     | <u><b>MANEUVER</b></u>                                                                                                                                                             | <u><b>SUMMARIZED<br/>ROOT CAUSE</b></u>                                                                                   | <u><b>REPORT<br/>ID/<br/>MATL ID</b></u>                                 | <u><b># CREW/<br/>FATALI<br/>TIES/<br/>INJURIES</b></u> | <u><b>DATE</b></u> | <u><b>LOCATION</b></u>           |
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| <b>R-22 #?<br/>Helicopter<br/>(Robinson)</b>                                        | <b>FAA cert H-V test point series. FAA pilot attempting to duplicate Co pilot run. High R/D developed. Could not be arrested, hard ldg resulted. Main rotor severed tail boom.</b> | <b>Details TBD, crew stated they had not defined division of responsibilities clearly.</b>                                | <b>NTSB<br/>Acc/Incid<br/>data Base;<br/>Report<br/>#LAX83F<br/>A226</b> | <b>2/0/0</b>                                            | <b>05/12/83</b>    | <b>Torrance;<br/>Calif.</b>      |
| <b>AS-350 #?<br/>ASTAR<br/>Helicopter<br/>(Operator<br/>TBD -<br/>Aerospatiale)</b> | <b>Uncommented engine shutdown @800ft. Lndd hard on skid heel. Blades contacted tail boom and caused separation (sequence TBD).</b>                                                | <b>Flight to test new engine torque &amp; temp limiting device. Device apparently malfunctioned &amp; caused shutdown</b> | <b>NTSB<br/>Synopsis<br/>LAX83FA<br/>096;<br/>(m/f<br/>#33746)</b>       | <b>4/0/0</b>                                            | <b>02/09/83</b>    | <b>Pacoima,<br/>Calif</b>        |
| <b>F-117A #1<br/>Prod A/C Mil<br/>Tactical<br/>(Lockheed)</b>                       | <b>First flight takeoff; A/C went inverted &amp; traveled backwards; crashed</b>                                                                                                   | <b>Fly-by-wire sys hooked up backwards</b>                                                                                | <b>Elevon<br/>Website</b>                                                | <b>1/0/1</b>                                            | <b>04/20/82</b>    | <b>Groom<br/>Lake, Nev</b>       |
| <b>DO-28D2<br/>"Skyservant"<br/>Twin Eng Civil<br/>Transport<br/>(Dornier)</b>      | <b>Full ND stab trim input to simul a runaway; pilot distracted; both pilots could not overcome ND moments;</b>                                                                    | <b>High pilot forces resulted in disconnect of stab trim clutch thus preventing ability to retrim stab</b>                | <b>ICAO<br/>82/0048</b>                                                  | <b>3/3/0</b>                                            | <b>03/26/82</b>    | <b>Aichach,<br/>Germany</b>      |
| <b>Merlin III<br/>Civil Twin<br/>Turboprop<br/>Transport<br/>(Swearingen)</b>       | <b>Ldg w/ RH prop feathered; upon retarding LH power lever A/C rolled left w/ hard resulting T/D</b>                                                                               | <b>Was a FAA cert flt;<br/>TBD</b>                                                                                        | <b>ICAO<br/>81/0072;<br/>(NTSB<br/>m/f #<br/>1083A)</b>                  | <b>4/0/0</b>                                            | <b>03/24/81</b>    | <b>San<br/>Marcos,<br/>Texas</b> |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                       | <u>MANEUVER</u>                                                                                                                                                                                                                                | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                                                                                                    | <u>REPORT ID/ MATL ID</u>                                                 | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>         |
|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------|-----------------|-------------------------|
| <b>MD-80 #2<br/>Twin Jet Civil<br/>Transport<br/>(MDC)</b> | <b>Full Hydraulic Failure Ldg<br/>FAA Demo; procedure<br/>called for min braking as<br/>anti-skid turned off w/ max<br/>reverse; directional control<br/>lost; A/C ground looped,<br/>went off side of runway &amp;<br/>collapsed all gear</b> | <b>Max reverse caused<br/>blanking of rudder;<br/>lack of rudder<br/>effectiveness resulted in<br/>use of brakes; lightness<br/>on gear caused wheels<br/>to lock up with only<br/>light braking &amp;<br/>resulting tire failure</b>                                                                                           | <b>NTSB<br/>Report #<br/>AAR-81-<br/>16<br/>NTIS<br/>PB81-<br/>910416</b> | <b>3/0/0</b>                         | <b>06/19/80</b> | <b>Yuma, Az</b>         |
| <b>MD-80 #1<br/>Twin Jet Civil<br/>Transport<br/>(MDC)</b> | <b>FAA Certif of “Ldg Air &amp;<br/>Ground Distance”; A/C<br/>touched down @ ~17fps;<br/>empennage separated &amp; fwd<br/>fuse bent</b>                                                                                                       | <b>3rd day of intensive<br/>effort; quick pattern<br/>resulted in short final<br/>w/ small windshear;<br/>resulted in less than<br/>true thrust required<br/>being used down to 50ft<br/>where throttles were<br/>reduced to idle; just<br/>above 50ft shear<br/>reduced and A/C<br/>arrived at 50ft below<br/>target speed</b> | <b>NTSB<br/>Report #<br/>AAR-82-2;<br/>NTIS<br/>PB929104<br/>02</b>       | <b>7/0/1</b>                         | <b>05/02/80</b> | <b>EAFB,<br/>Calif.</b> |



**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                                       | <u>MANEUVER</u>                                                                                                                                                                                                           | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                 | <u>REPORT ID/ MATL ID</u>                                                  | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>         |
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| CI-600 #?<br>“Challenger”<br>Twin Jet<br>Businessjet<br>(Canadair)                         | Non-scheduled stall done to investigate intermittent banging occurring during previous scheduled stalls; AOA increased unexpectedly; drogue chute deployed; AOA reduced, but chute could not be jettisoned; RH eng failed | Stall warning and pusher sys’s had been deactivated prior to flt; this was development testing; jettison failure<br>TBD                                                                                                      | ICAO<br>80/0139;<br>(NTSB<br>m/f #<br>16563A,<br>Rprt #<br>LAX80FA<br>073) | 3/1/1<br>(2<br>bailed<br>out)        | 04/03/80    | Calif City,<br>Calif    |
| SA-226TC<br>“Metro II”<br>Twin<br>Turboprop<br>Transport<br>(Swearingen)                   | FAA Cert Flt; ldg @ Hvy Wt, Fwd Cg w/ RH eng feathered; @50ft as LH power reduced LH prop went into Beta range; hard ldg; ldg gr collapsed                                                                                | TBD                                                                                                                                                                                                                          | ICAO<br>79/0218;<br>(NTSB<br>m/f #<br>15454A)                              | 4/0/4                                | 05/31/79    | San<br>Marcos,<br>Texas |
| C-130 #?<br>Special STOL<br>Prototype<br>Multiple<br>Rocket Assists<br>(Lockheed/<br>USAF) | A/C had rockets installed to cause deceleration upon landing. 1 set to be fired just prior T/D, 2 set to be fired upon T/D. A/C impacted hard, slewed and wing separated                                                  | Hastily organized, secret test program to develop A/C capable of landing & T/O in soccer stadium. Demo; 1 <sup>st</sup> set fired @higher alt than briefed, 2 <sup>nd</sup> set fired @prebriefed<br>Delta time after first. | Janes<br>Defense<br>Weekly<br>3/97<br>Plus other<br>sources                | X/x/x                                | ~1980       | ~Georgia,<br>USA        |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                    | <u>MANEUVER</u>                                                                                                                                  | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                    | <u>REPORT ID/ MATL ID</u>                                        | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>                     |
|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------|-------------|-------------------------------------|
| Have Blue #2 (F-117 Stealth Prototype) (Lockheed)                       | Engine fire , then fire caused hyd line burn thru; followed by ejection                                                                          | TBD                                                                                                                             | JBaugher website                                                 | 1/0/?                                | 07/??/79    | Groom Lake, Nev                     |
| NA-265 #? Lt Twin (Namer)                                               | Encountered severe hail while searching for icing for FAA certif test point                                                                      | Details TBD                                                                                                                     | FAA Incident Data Base                                           | 3/0/0                                | 02/22/79    | Fort Smith, Ark.                    |
| Have Blue #1 (F-117 Stealth Prototype) (Lockheed)                       | Hard ldg resulted in RH gear jamming in mid pos; attempts to shake free failed;deliberate ejection ordered rather than land                      | TBD; pilot injured upon ejection                                                                                                | JBaugher website                                                 | 1/0/1                                | 05/04/78    | Groom Lake, Nev                     |
| N24 #1 "Nomad" Twin Turboprop Light Xport (Government Aircraft Factory) | Initial T/O w/ modified tailplane; flutter occurred on initial climbout; partial tailplane disintegration; A/C made descending LH turn to impact | Flutter analysis method (Broadbent criterion) found to be too simplistic for tail config (Full span elev tab w/ T-strips at TE) | ICAO 76/0474; Aus D.O.T. Air Sfty Invest Brnch Special Rprt 77-1 | 3/2/1                                | 08/06/76    | Avalon, Australia                   |
| YF-16 #1 Mil Tactical (General Dynamics)                                | Unintended first flight as rapid lateral oscill occurred at high taxi speed & pilot decided to takeoff as safest course of action                | Gains for new sidestick found to be ~2x required                                                                                | JBaugher website                                                 | 1/0/0                                | 01/20/74    | Edwards USAFB? or Fort Worth, Texas |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                   | <u>MANEUVER</u>                                                                                                                            | <u>SUMMARIZED ROOT CAUSE</u>                                                                                           | <u>REPORT ID/ MATL ID</u>     | <u># CREW/ FATALITIES/ INJURIES</u>            | <u>DATE</u> | <u>LOCATION</u>                                         |
|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------|-------------|---------------------------------------------------------|
| F-14A #5<br>"Tomcat" Mil Tactical<br>(Grumman)         | Sparrow missile envelope expansion test; missile pitched up after launch & struck A/C; crew ejected                                        | TBD                                                                                                                    | JBaugher website              | 2/0/2                                          | 06/20/73    | Point Mugu, Calif                                       |
| TU-144 #2<br>SST<br>(Tupolev)                          | Paris Airshow low level flyby down rnwy 06 followed by steep pull-up. Left canard separated and struck wing & punctured fuel tank. Crashed | Never officially released; pilot may have "bunted" (sharp pitchover) due to sudden appearance of French photorecon A/C | AV Sfty Ntwrk Website Plus TV | 6/6/0<br>(8 fatalities of on-ground villagers) | 06/03/73    | Paris, Fr (Crashed into small village of Goussainville) |
| F-14A #10<br>"Tomcat" Mil Tactical                     | Airshow prep flight; A/C crashed                                                                                                           | TBD                                                                                                                    | JBaugher website              | ?/1/0                                          | 06/30/72    | Pax River, Md                                           |
| VFW 614 #1<br>Twin Jet Civil Transport<br>(VFW Fokker) | Believed to be on flutter test flt; entered near vertical dive and crashed, crew bailed out                                                | TBD                                                                                                                    | AV Sfty Ntwrk                 | 3/1/?                                          | 02/01/72    | Bremen, Germany                                         |
| Concorde #?<br>SST<br>(Anglo/French)                   | During artificial icing testing behind EAFB KC-135 had #2 engine compressor stall                                                          | Shutdown eng. Found guide vanes broken off & went thru engine                                                          | Avweb website                 | X/0/0                                          | ~1971       | Great Britain                                           |
| NF-104A #3<br>(Research A/C)<br>(Lockheed)             | Inflight break-up due rocket motor explosion; pilot ejected                                                                                | TBD                                                                                                                    | JBaugher website              | 1/0/?                                          | 06/??/71    | Edwards USAFB                                           |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u><b>AIRCRAFT<br/>TYPE</b></u>                                                                 | <u><b>MANEUVER</b></u>                                                                                                                               | <u><b>SUMMARIZED<br/>ROOT CAUSE</b></u>                                                                                                                                                                     | <u><b>REPORT<br/>ID/<br/>MATL ID</b></u>                                    | <u><b># CREW/<br/>FATALI<br/>TIES/<br/>INJURIES</b></u> | <u><b>DATE</b></u> | <u><b>LOCATION</b></u>                    |
|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------|--------------------|-------------------------------------------|
| <b>SN-601 Proto-<br/>type #1<br/>“Corvette”<br/>Twin Jet<br/>Businessjet<br/>(Aerospatiale)</b> | <b>TBD</b>                                                                                                                                           | <b>TBD</b>                                                                                                                                                                                                  | <b>ICAO</b>                                                                 | <b>?/?/?</b>                                            | <b>03/??/71</b>    | <b>Spain??</b>                            |
| <b>F-14A #1<br/>“Tomcat”<br/>Mil Tactical<br/>(Grumman)</b>                                     | <b>On 2<sup>nd</sup> flight, suffered dual<br/>hyd failure, pilots attempted<br/>emerg landing; control lost,<br/>pilots ejected at last instant</b> | <b>Certain hyd line<br/>exposed to high freq<br/>short time fatigue<br/>failur e; earlier failure<br/>during eng runs<br/>occurred but lab<br/>analysis in feedback<br/>loop &amp; not<br/>disseminated</b> | <b>JBaughner<br/>Website;<br/>5<sup>th</sup> FT<br/>Safety<br/>Workshop</b> | <b>2/0/2</b>                                            | <b>12/30/70</b>    | <b>Calverton,<br/>Long<br/>Island, NY</b> |
| <b>Arava 101 #2<br/>Twin Eng<br/>Businessjet<br/>(Israeli Aircraft<br/>Idustries)</b>           | <b>TBD</b>                                                                                                                                           | <b>TBD</b>                                                                                                                                                                                                  | <b>Av Sfty<br/>Ntwrk</b>                                                    | <b>4/3/?</b>                                            | <b>11/19/70</b>    | <b>Tulkam,<br/>Israel</b>                 |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                                | <u>MANEUVER</u>                                                                                                               | <u>SUMMARIZED ROOT CAUSE</u>                           | <u>REPORT ID/ MATL ID</u>                    | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>             |
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| <b>B747-100 #3?<br/>4-eng Civil transport (Boeing)</b>                              | <b>A/C being ferried to facility for refurbishment after completion of FT program; landed short, much damage but repaired</b> | <b>Short runway at edge of lake, details TBD</b>       | <b>NTSB report AAR70-19; NRS # PB-195193</b> | <b>?/0/?</b>                         | <b>09/02/70</b> | <b>Renton, Wash- ington</b> |
| <b>C-5A #1 or #11<br/>4-Eng Mil Transport (Lockheed)</b>                            | <b>Fire consumed A/C during ground operations</b>                                                                             | <b>TBD</b>                                             | <b>JBaughner website</b>                     | <b>TBD</b>                           | <b>??/??/70</b> | <b>Edwards USAFB</b>        |
| <b>Model 1121 #?<br/>“Jet Commander” (TBD)</b>                                      | <b>Rejected takeoff test series;LH MLG strut failed</b>                                                                       | <b>TBD</b>                                             | <b>ICAO 70/1584</b>                          | <b>TBD</b>                           | <b>05/22/70</b> | <b>Pomona; NJ</b>           |
| <b>X-22 #1<br/>Exp vectored lift fan (Bell)</b>                                     | <b>TBD</b>                                                                                                                    | <b>TBD</b>                                             | <b>Designers &amp; Test Pilots p142</b>      | <b>TBD</b>                           | <b>??/??/??</b> | <b>TBD</b>                  |
| <b>“Guppy” (Modified Boe 377 transport)</b>                                         | <b>Eng-fail T/O @ Vmcg; rudder defl reduced; lost control</b>                                                                 | <b>Evidence of rudder cable becoming disconnected,</b> | <b>Web search Sure.net</b>                   | <b>4/4/-</b>                         | <b>05/12/70</b> | <b>EAFB, Calif</b>          |
| <b>CL44 (Modfd w/ much Lrgr Fuse Diam)<br/>4-Eng Turboprop Transport (Canadair)</b> | <b>FAA certif demo of Md/Vd characteristics; buffeting caused damage to vertical &amp; horiz stabs</b>                        | <b>TBD</b>                                             | <b>ICAO 70/1419 (NTSB LAX70FU 704?)</b>      | <b>TBD</b>                           | <b>04/08/70</b> | <b>Santa Barbara, Calif</b> |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u><b>AIRCRAFT<br/>TYPE</b></u>                                        | <u><b>MANEUVER</b></u>                                                                                           | <u><b>SUMMARIZED<br/>ROOT CAUSE</b></u>        | <u><b>REPORT<br/>ID/<br/>MATL ID</b></u>      | <u><b># CREW/<br/>FATALI<br/>TIES/<br/>INJURIES</b></u> | <u><b>DATE</b></u> | <u><b>LOCATION</b></u>    |
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| <b>Aero Cmmdr<br/>690</b>                                              | <b>Aft Lim CG test flt for stalls<br/>&amp; Vmca. Crashed during<br/>recovery "from spin"</b>                    |                                                | <b>NTSB<br/>Summary<br/>(FTW69A<br/>008D)</b> | <b>2/0/0</b>                                            | <b>05/05/69</b>    | <b>Rosedale,<br/>Okla</b> |
| <b>727-200 #1<br/>3-Eng Jet<br/>Airliner<br/>(Boeing)</b>              | <b>FAA Cert Lnding Dist Test<br/>Hard NG Touchdown</b>                                                           | <b>Structural Damage to<br/>Fuselage</b>       | <b>NTSB<br/>Summary<br/>(SEA68A0<br/>52)</b>  | <b>18/0/0</b>                                           | <b>02/16/68</b>    | <b>Seattle,<br/>Wash</b>  |
| <b>F-111A #9<br/>Twin Jet Mil<br/>Tactical/Bmber<br/>(GenDynamics)</b> | <b>Crashed short of runway on<br/>approach</b>                                                                   | <b>Wings were swept in<br/>wrong direction</b> | <b>JBaugher<br/>website</b>                   | <b>?/?/?</b>                                            | <b>01/19/67</b>    | <b>Edwards<br/>USAFB</b>  |
| <b>XC-142A<br/>VSTOL XPRT</b>                                          | <b>3 AC crashed during flight<br/>test program;<br/>simulated rescue mission<br/>hard landing<br/>taxi event</b> | <b>Details TBD</b>                             |                                               |                                                         | <b>~1966</b>       |                           |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                                  | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                                                            | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                                                | <u>REPORT ID/ MATL ID</u>                                           | <u># CREW/ FATALITIES/ INJURIES</u>            | <u>DATE</u>            | <u>LOCATION</u>                  |
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| <p><b>XB-70 #2<br/>“Valkyrie”<br/>4-eng Mil Bomber Prototype (North American)</b></p> | <p><b>PR Photo mission of 6 GE eng powered A/C @ EAFB; F-104N on Rh side, its horiz contacted wing droopTE. 104 then rolled up &amp; over B-70 impacting both its verticals. 104 disintegrated in-flight. Films show 104 slowly moving fwd relative to B-70.</b></p>                                                                       | <p><b>Probably wing tip vortices caused impact. ED note; This event caused much speculation &amp; rumors. “Liteness” of tech tests beyond the PR photo test lead some to believe reason for this flight was the photos. Accident report has “cause” blackened out.</b></p>  | <p><b>USAF Accident Report; Test Pilots;Hall ion; p246</b></p>      | <p><b>3/2/1<br/>Carl Cross, Joe Walker</b></p> | <p><b>06/08/66</b></p> | <p><b>Barstow, Calif.</b></p>    |
| <p><b>Trident I<br/>3-Eng Jet Civil Transport (Hawker Siddeley)</b></p>               | <p><b>Prod Test plan reqd stalls w/ stall warning &amp; stick pusher operative and then deactivated; purpose of last set was to go slightly beyond pusher setting and ensure no wing drop; upon initiating recovery A/C remained in slow speed, high descent rate, then entered slow spin and crashed w/ very little forward speed</b></p> | <p><b>Pilot apparently delayed recovery beyond targeted 3-4kts below pusher schedule; test point was @ ldg flaps, gr dwn, which produces flat attitude; margin from nominal pusher actuation schedule to “superstall” regime of this model quoted as 4 1/2 degrees.</b></p> | <p><b>British Investigation Report EW/C/0130, dtd July 1968</b></p> | <p><b>4/4/-</b></p>                            | <p><b>06/03/66</b></p> | <p><b>Felthorpe, England</b></p> |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                     | <u>MANEUVER</u>                                                                                                         | <u>SUMMARIZED ROOT CAUSE</u>                                | <u>REPORT ID/ MATL ID</u>                  | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>  |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------|--------------------------------------|-------------|------------------|
| T-210F Cessna Centurion                  | Tests to “calibrate autopilot sensitivity”. Observed to enter climb then dove into ground                               | TBD                                                         | NTSB Summary MKC66A0 036                   | 2/2/-                                | 01/04/66    | Mayfield, Kansas |
| XV-5A VSTOL XPRT (GE-RYAN)               | “series of accidents”, details TBD                                                                                      | TBD                                                         |                                            |                                      | ~1965/66    |                  |
| Convair 240-D Conversion N94294          | Flutter test, details TBD                                                                                               | TBD                                                         | NTSB Summary LAX66A0 015                   | 3/0/0?                               | 08/04/65    | San Diego, Calif |
| HFB 320 #1 “Hansajet” 2-Eng Bizjet (MBB) | A/C conducting stall tests of some type @ ~22k ft. A/C reportedly entered “superstall” and then into flat spin. Crashed | 121st flight. Two crew members parachuted safely. Cause TBD | Aviation Safety Website; FS design Website | 3/1/?                                | 05/12/65    | Torrejon, Spain  |
| C337 2eng util (Cessna)                  | Wheels up landing                                                                                                       | TBD                                                         |                                            | 0/0/1                                | 01/14/65    | Wichita, Kansas  |
| F-111A #1                                | First flight; shortened due to “flap malfunction”                                                                       | TBD                                                         | JBaugher website                           | ?/?/?                                | 12/21/64    | Carswell USAFB   |



**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                        | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                                                                  | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                  | <u>REPORT ID/ MATL ID</u>                                   | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>                               |
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| <b>BAC 1-11 #?<br/>Twin-Jet Civil Transport<br/>(British Aircraft Corp)</b> | <b>7<sup>th</sup> stalling flt since accident on #1 A/C; in recovery from 1<sup>st</sup> stall, pilot had perception A/C was in a stable superstall due to high R/D; drogue chute deployed ; ldg flaps deployed, full power applied, R/D reduced ; gr retracted landing on downsloped, wet grassy meadow accomplished; minimal damage to A/C</b> | <b>Pilot misinterpreted cues and didn't believe gauges (AOA); config was LE and TE (flaps) devices retracted; speed was above 200kts when chute deployed so produced small ND pitching thus reaffirming impression of being in superstall</b> | <b>British investigation Report EW/C/07, December, 1964</b> | <b>4/0/0</b>                         | <b>08/20/64</b> | <b>Tilshead, England</b>                      |
| <b>M23 #1?<br/>2-Eng Biz Jet<br/>(Learjet)</b>                              | <b>Attempted T/O w/ spoilers extended, crashed</b>                                                                                                                                                                                                                                                                                               | <b>TBD</b>                                                                                                                                                                                                                                    | <b>NTSB summary</b>                                         | <b>0/0/2</b>                         | <b>06/04/64</b> | <b>Wichita, Kansas</b>                        |
| <b>B-52H<br/>8-Eng Bomber<br/>(Boeing)</b>                                  | <b>Reportedly encountered "mountain wave" turbulence &amp; lost most of Vertical (&amp; rudder). Crew elected to proceed to SAC base @ Blytheville KA</b>                                                                                                                                                                                        | <b>Not known what if any maneuvers were being conducted. Boeing test crew was onboard.</b>                                                                                                                                                    | <b>Cool wings Website</b>                                   | <b>X/0/0</b>                         | <b>01/07/64</b> | <b>Over Rockies, Landed Blytheville , Ka.</b> |
| <b>VC-10 #1<br/>4-Eng Jet Civil Transport</b>                               | <b>Upon recovery from "clean" stall had severe vibr. Slowed and discovered struc damage. Made emerg ldg w/many sys inop</b>                                                                                                                                                                                                                      | <b>RhInbd elev had failed. Escape hatch sys fired but chute left A/C with hatch. Root cause TBD</b>                                                                                                                                           | <b>VC-10 Website</b>                                        | <b>?/?/?</b>                         | <b>12/31/63</b> | <b>Wisley, England</b>                        |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                   | <u>MANEUVER</u>                                                                                                | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                  | <u>REPORT ID/ MATL ID</u>                                                    | <u># CREW/ FATALITIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>       |
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| NF-104A<br>Research Vehicle #2<br>Modfd Mil Tactical<br>(Lockheed)     | Modified from "A" Config;<br>Loss of control @ 104,000ft<br>followed by spin to 11000ft;<br>pilot then ejected | AOA for spin caused<br>by gyro effects of jet<br>engine spooling down<br>w/ little /no A/C control<br>@ that flight condition | JBaugher<br>website                                                          | 1/0/1<br>(C.<br>Yeager<br>burned)   | 12/10/63    | Edwards<br>USAFB      |
| BAC 1-11 #1<br>Twin-Jet Civil<br>Transport<br>(British<br>Aircraft Co) | Deep Stall                                                                                                     |                                                                                                                               | British<br>investigati<br>on report<br>EW/C/039<br>, dtd<br>November<br>1964 | 7/7/0                               | 10/22/63    | Chicklade,<br>England |
| YF-12A(A-12)<br>Twin-jet SS<br>Recon<br>(Lockheed)                     | Nominal flight; entered<br>moisture; A/C stalled; pilot<br>ejected                                             | Water vapor caused<br>blockage in pitot<br>probe; caused<br>erroneous air-data;                                               | Amer Mil<br>Acft<br>website                                                  | 1/0/?                               | 05/24/63    | Wendover<br>, Utah    |
| B-58 #8<br>"Hustler"<br>4-Eng Bomber<br>(Convair)                      | "normal flight"                                                                                                | "loss of control due....<br>Atmospheric conditions<br>& subsequent<br>abandonment in<br>supersonic flight"                    | Amer Mil<br>Acft<br>website                                                  | 3/3/0<br>(Conv<br>air<br>crew)      | 06/04/60    | Lubbock,<br>Texas     |
| B-58 #30<br>"Hustler"<br>4-Eng Bomber<br>(Convair)                     | "normal flight"                                                                                                | "loss of control due<br>Mach/airspeed/airdata<br>sys failure                                                                  | Amer Mil<br>Acft<br>website                                                  | 3/2/?<br>(Conv<br>air<br>Crew)      | 04/22/60    | Ogden,<br>Utah        |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                         | <u>MANEUVER</u>                                                                                                                                                                                                                       | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                   | <u>REPORT ID/ MATL ID</u>                          | <u># CREW/ FATALI TIES/ INJURIES</u>                     | <u>DATE</u>     | <u>LOCATION</u>        |
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| <b>B-58 #?<br/>“Hustler”<br/>4-Eng Bomber<br/>(Convair)</b>  | <b>Planned #4 eng failure at Go/NoGo speed. Immediate one tire failure leading to failure of remaining 6 of7 on one side. Debris caused failure of two hydraulic systems. Dropped CL pod, burned fuel, made ldg on foamed runway.</b> | <b>Small tires rotating at very high speed. Details TBD</b>                                                                                                                    | <b>EAFB History website</b>                        | <b>X/0/0</b>                                             | <b>04/13/60</b> | <b>EAFB, Calif</b>     |
| <b>B-58 #5<br/>“Hustler”<br/>4-Eng Bomber<br/>(Convair)</b>  | <b>Inflt refueling test failed due sys malf. Decision w/ test control to do test point consisting of sudden eng failure at Mn2.0 @FL370. Telemetry in use. A/C yawed and then disintegrated upon eng shutdown.</b>                    | <b>“Apparent mismatch between A/C design and test conditions”. Not known if test point was preplanned or ad/hoc addition. 42<sup>nd</sup> flt &amp; 58:55 flt hours on A/C</b> | <b>Amer Mil Acft website; USAF Accident Report</b> | <b>2/2/0<br/>(Conv air Crew; 1Plt, 1 FTE)</b>            | <b>11/07/59</b> | <b>Lawton Okla</b>     |
| <b>B-58 #10<br/>“Hustler”<br/>4-Eng Bomber<br/>(Convair)</b> | <b>“loss of control during normal flight” – during climb from FL305 to 345 A/C rolled to RT. After ~2 turn “spin” capt ordered ejection</b>                                                                                           | <b>TBD</b>                                                                                                                                                                     | <b>Amer Mil Acft website; USAF Accident Report</b> | <b>3/1/2<br/>(Convair Crew, 1 of 2 FT Engr perished)</b> | <b>10/27/59</b> | <b>Hattiesburg, Ms</b> |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                               | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                       | <u>REPORT ID/ MATL ID</u>                                                                                  | <u># CREW/ FATALI TIES/ INJURIES</u>      | <u>DATE</u>     | <u>LOCATION</u>                              |
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| <b>YF4H-1 #1<br/>“Phantom II”<br/>Mil Tactical<br/>(McDonnell)</b> | <b>Crash following failure of<br/>RH eng aft access door</b>                                                                                                                                                                                                                                   | <b>TBD</b>                                                                                                                                                                                                                                         | <b>JBaugher<br/>website</b>                                                                                | <b>1/1/0</b>                              | <b>10/21/59</b> | <b>~near St.<br/>Louis,<br/>Missouri</b>     |
| <b>707-227 #?<br/>4-Eng Civil<br/>Jet Transport<br/>(Boeing)</b>   | <b>1<sup>st</sup> Prod –200 A/C on combo<br/>customer acceptance, crew<br/>training &amp; cust guarantee<br/>flt; dutch rolls (DR) were<br/>conducted, #1,2,&amp;4 engines<br/>were slung off; #3 eng<br/>dislodged, fire from it burned<br/>off flap &amp; into wing struc.<br/>Crash ldg</b> | <b>High side loads<br/>developed during<br/>sideslip generated in<br/>DR maneuver; roll<br/>angle limits for DR<br/>demo exceeded (limit<br/>25, actual 40-60). Subsq<br/>mods to 707 made,<br/>larger vert, added<br/>ventral fin, &amp; Y/Dr</b> | <b>AV Sfty<br/>Ntwrk;<br/>Jet Age<br/>Test Pilot,<br/>Johnson,<br/>p251;<br/>CAB<br/>Report<br/>SA-347</b> | <b>8/4/?</b>                              | <b>10/19/59</b> | <b>Arlington,<br/>Washing-<br/>ton State</b> |
| <b>YF-107A #3<br/>Mil tactical<br/>(North Amrcn)</b>               | <b>Takeoff aborted w/ resulting<br/>major damage</b>                                                                                                                                                                                                                                           | <b>Both tires blew and<br/>LH brake burst;<br/>reasons TBD</b>                                                                                                                                                                                     | <b>JBaugher<br/>website</b>                                                                                | <b>1/0/0<br/>Scott<br/>Crosfi<br/>eld</b> | <b>09/01/59</b> | <b>Edwards<br/>USAFB</b>                     |
| <b>DC-8 #2<br/>4-Eng Civil<br/>Jet Transport<br/>(Douglas)</b>     | <b>FAA certif test of Ldg Air<br/>Distance; hard touchdown<br/>short of runway on lakebed<br/>overrun; flung #1 pylon/eng<br/>off wing, fractured fuse just<br/>aft of wing</b>                                                                                                                | <b>Throttle retard at<br/>slightly higher alt than<br/>planned, coupled w/<br/>min scheduled<br/>approach speed<br/>resulted in limited flare<br/>capability</b>                                                                                   | <b>Personal<br/>Knowledge</b>                                                                              | <b>8/0/0</b>                              | <b>05/14/59</b> | <b>EAFB,<br/>Calif.</b>                      |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                                      | <u>MANEUVER</u>                                                                            | <u>SUMMARIZED ROOT CAUSE</u>                                                                     | <u>REPORT ID/ MATL ID</u>          | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>                | <u>LOCATION</u>                        |
|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------|--------------------------------------|----------------------------|----------------------------------------|
| <b>Model 152 #?<br/>4-Eng Civil Jet Transport<br/>(East Germny)</b>                       | <b>Crashed enroute to Flyby demo for N. Kruschev; may have been practicing</b>             | <b>Believed to be bubbles in fuel lines</b>                                                      | <b>A&amp;S;<br/>Feb/Mar<br/>96</b> | <b>5/5/-</b>                         | <b>03/14/59</b>            | <b>Klitzsche,<br/>East<br/>Germany</b> |
| <b>HPR-100 #?<br/>“Herald”<br/>(Handley Page)</b>                                         | <b>FT A/C; Enroute to airshow, eng fire broke out, required immed crash ldg</b>            | <b>TBD</b>                                                                                       | <b>Av Sfty Network Website</b>     | <b>9/0/?</b>                         | <b>08/30/58</b>            | <b>Milford,<br/>England</b>            |
| <b>CF-105 #1<br/>Mil Tactical<br/>(Avro Canada)</b>                                       | <b>LH landing gear failed upon landing &amp; A/C skidded off runway w/ moderate damage</b> | <b>Upon extension strut did not align w axis of A/C; details TBD</b>                             | <b>JBaugher website</b>            | <b>?/?/?</b>                         | <b>06/11/58</b>            | <b>TBD</b>                             |
| <b>F-27 #1<br/>“Friendship”<br/>TwinTurboprop<br/>Civil<br/>Transport<br/>(Fairchild)</b> | <b>TBD, indications was ground event</b>                                                   | <b>TBD</b>                                                                                       | <b>AV Sfty Network Website</b>     | <b>TBD</b>                           | <b>05/09/58</b>            | <b>?,US</b>                            |
| <b>YF-104A<br/>17 Srv Tst A/C<br/>Mil tactical<br/>(Lockheed)</b>                         | <b>Several A/C crashed during flight test program</b>                                      | <b>TBD. Several pilots perished. ? upon low level ejections, 1 upon landing loss of control.</b> | <b>JBaugher website</b>            | <b>?/?/?</b>                         | <b>~56/57<br/>02/15/57</b> | <b>?Edwards<br/>USAFB</b>              |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                      | <u>MANEUVER</u>                                                                                                                                              | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                | <u>REPORT ID/ MATL ID</u>                           | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>         |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------|-----------------|-------------------------|
| <b>Model 175 Britannia 301 (Bristol)</b>                  | <b>Engr test flight for prop strain gauge measurements and FAA cert; upon initiation of LH turn to base, sharp right roll developed w/ crash</b>             | <b>TBD, possibility related to autopilot</b>                                                                                                | <b>AV Sfty Ntwrk Website</b>                        | <b>15/15/-</b>                       | <b>11/06/57</b> | <b>Downend, England</b> |
| <b>A-4D #tbd Mil Tactical (Douglas)</b>                   | <b>A/C lost in early flight tests (Details TBD)</b>                                                                                                          | <b>Later publ states cause as powered ail sys failure coupled with fuel shift in wing tank (implies due to sustained wing down flight)</b>  | <b>Airplane S&amp;C, Abzug &amp; Larrabee' p204</b> | <b>1/1/0 (James Virdin)</b>          | <b>??/??/??</b> | <b>TBD</b>              |
| <b>YF-100 #TBD "SuperSabre" Mil Tactical (North Amer)</b> | <b>Func check flight of external wing tanks. 50 gal loaded of 275 capacity. After L/O A/C went thru series of pitch oscillations. Was damaged but landed</b> | <b>Later publ states CG shifted aft due fuel shift aft in external tanks &amp; using fwd fuse tank fuel. CG went aft of maneuver point.</b> | <b>Airplane S&amp;C, Abzug &amp; Larrabee' P204</b> | <b>1/0/0</b>                         | <b>??/??/??</b> | <b>WPADC, Ohio</b>      |
| <b>XF-104 #1 Mil Tactical (Lockheed)</b>                  | <b>While acting as chase , tail group broke away inflt due flutter; plot ejected</b>                                                                         | <b>TBD</b>                                                                                                                                  | <b>JBaugher Website</b>                             | <b>1/0/?</b>                         | <b>07/11/57</b> | <b>?Edwards USAFB</b>   |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                       | <u>MANEUVER</u>                                                                                                                              | <u>SUMMARIZED ROOT CAUSE</u>                         | <u>REPORT ID/ MATL ID</u>                              | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>                | <u>LOCATION</u>                     |
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| <b>YF-104A #8<br/>Mil Tactical<br/>(Lockheed)</b>                          | <b>Departure during sideslip test, upon divert to EAFB, A/C became uncontrollable &amp; pilot ejected. Some items in report blocked out.</b> | <b>Tip tanks not installed properly, details TBD</b> | <b>The Ejection Seat Website; USAF Accident Report</b> | <b>1/0/1</b>                         | <b>05/01/57</b>            | <b>Barstow/<br/>EAFB,<br/>Calif</b> |
| <b>F-100C<br/>2-seater<br/>Prototype<br/>Mil tactical<br/>(North Amer)</b> | <b>Crashed, details TBD</b>                                                                                                                  | <b>TBD</b>                                           | <b>Geocities Website</b>                               | <b>1/?/?</b>                         | <b>04/07(or<br/>09)/57</b> | <b>?Edwards<br/>USAFB</b>           |
| <b>B-52B #24?<br/>(Boeing)</b>                                             | <b>Conducted 0G maneuver as part of loads testing; A/C broke up, details TBD</b>                                                             | <b>TBD</b>                                           | <b>FTSC Workshop (B. Wygle)</b>                        | <b>X/X/X</b>                         | <b>03/29/57</b>            | <b>Wichita,<br/>Kansas</b>          |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                                                                                                                                     | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                                                                                                                                                           | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                                                                                                                                               | <u>REPORT ID/ MATL ID</u>                                                     | <u># CREW/ FATALI TIES/ INJURIES</u>       | <u>DATE</u> | <u>LOCATION</u>                              |
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| F-106A #1<br>Mil Tactical<br>(Convair)                                                                                                                                                   | First flight; speed brakes opened but would not close; precautionary ldg made                                                                                                                                                                                                                                                                                                                                                             | TBD                                                                                                                                                                                                                                                                                                                                                                        | JBaugher website                                                              | 1/0/0                                      | 12/26/56    | Edwards USAFB                                |
| XP6M-1 #2<br>"Seamaster"<br>(Four jet flying boat)<br>Advanced A/C for its day.<br>Fully hyd powered flt controls.<br>Flying horiz tail w/ elev mechanically geared to stab.<br>(Martin) | #1 A/C crashed in 55. Following chgs, addn of instrumentation, T/M & ejection seats, program restarted FT in 5/56. Airframe vibr investig resulted in some config change nearly every flight. On 24 <sup>th</sup> flight, shallow dive @.90Mn conducted for vibration data. Upon recovering w/ slight +G A/C continued to pitch up into tight inside loop. Pulled 9G. Crew ejected at ~vertical. A/C entered spiral w/ explosion @ ~5k ft | Elevs fixed to stab this flt. Flt planned w/ .87 Mn limit. As vibr much reduced @ .87Mn, T/M data center requested point @ .90 Mn. Investig revealed error in tail hinge moment computation, and large increase in level at the high speed test cond. Reanalysis w/ correct data <u>and previously unanalyzed</u> "elev fixed" config showed stab hyd actuator undersized. | USAF Accident Report: Test Pilots;Hall ion; p227: Glenn Martin Museum Website | 4/0/0<br>Crew ejected as airframe broke up | 11/09/56    | Patuxent River, Md Based @ Middle River, Md. |
| XV-3 #1<br>Exp Tiltrotor<br>Bell A/C Co.                                                                                                                                                 | Uncontrollable descent and Hard landing                                                                                                                                                                                                                                                                                                                                                                                                   | "Rotor instability problem"                                                                                                                                                                                                                                                                                                                                                | Air & Space Magazine                                                          | ?/?/?                                      | 10/??/56    | TBD, Texas                                   |
| YF-107A #1<br>Mil Tactical<br>(North Amer)                                                                                                                                               | First flight; drogue failed upon ldg; A/C ran past end of runway into ditch                                                                                                                                                                                                                                                                                                                                                               | TBD                                                                                                                                                                                                                                                                                                                                                                        | JBaugher website                                                              | 1/0/0                                      | 09/10/56    | Edwards USAFB                                |



**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                           | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                                                                                                                                                                                                              | <u>REPORT ID/ MATL ID</u>               | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>                                   | <u>LOCATION</u>    |
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| FJ-3 Fury<br>13th Prod A/C<br>Mil Tactical     | Pilot got lost, ran out of fuel, had to ditch                                                                                                                                                                                                                                                                                                                                                                                                                      | TBD                                                                                                                                                                                                                                                                                                                                                                                                                                       | Cybertron website                       | 1/??/?                               | ??/??/??                                      | Patuxent River, Md |
| FJ-3 Fury<br>12th Prod A/C<br>Mil tactical     | Mid-air explosion and crash                                                                                                                                                                                                                                                                                                                                                                                                                                        | Some sort of foreign object injection                                                                                                                                                                                                                                                                                                                                                                                                     | Cybertron website                       | 1/??/?                               | ??/??/??                                      | Patuxent River, Md |
| XB-51 #1<br>3-Eng Jet Bomber<br>(Martin)       | During ferry flight to Florida from EAFB related to filming of movie "Toward the Unknown" crashed during takeoff                                                                                                                                                                                                                                                                                                                                                   | TBD, one document mentions "pilot error"                                                                                                                                                                                                                                                                                                                                                                                                  | SFTE NL (R. Hallion)                    | 2/2/-                                | 03/25/56                                      | El Paso, Texas     |
| YF-105A #1<br>Jet Attack<br>(Republic A/C Co.) | S&C Flt early in program. After tests @ 30k & 20k conducted lvl flt turns @ 0.9Mn w/ increasing G; 2,3,4,5 & 6G. On 6G run at ~5.5G, Ldg gear extended. Violent P/U & P/D. RH gear torn away. Emergency ldg w/ LE devices & partial flaps & remaining Gr Up. Pilot Ok, substantial damage to A/C. Prior to 10k points pilot had pulled various fuel pump C/Brs for CG cntrl. Fuel C/Brs were not reset, A/C lndd w/ only 300lb fuel in the one tank supplying eng. | The uuplock mech. failed. There was deform. of various parts & of attach structure. LH gear mech was nearly unlatched. "Buried" statement says uplock mech "only" tested to 3G load level. Pilot report states longit control difficult at high subsonic Mn, and lat cntrl had too large a deadband. "Classic" lakebed crash ldg; CFR lined runway, canopy blown @ T/D, chase called height, switches off @ stop, pilot stepped up & off. | USAF Accident report; JBaughter website | 1/0/0<br>(Chase Pilot was Bob White) | 12/16/55<br>(Accident brd chair was Milt Apt) | Edwards USAFB      |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                                                                                                                                      | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <u>REPORT ID/ MATL ID</u>                                                                   | <u># CREW/ FATALI TIES/ INJURIES</u>                                                                                                              | <u>DATE</u>                                                                                                                                           | <u>LOCATION</u>                                             |
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| <p><b>XP6M-1 #1 “Seamaster” (4-Eng Mil Jet Flying Boat) Advanced A/C for its day. Fully hyd powered flt controls. Flying horiz tail w/ elev mechanically geared to stab. (Martin)</b></p> | <p><b>40<sup>th</sup> flt &amp; early flt of “prelim Navy eval”. Inflt msrmt of loads/moments not accmpshd as yet due instrum and schedule. Long control anomaly reported on previous flt that day. First flt in A/C for navy pilot. Static Long stab points planned in 10k ft, @ “Vmax” regime. @ ~.85Mn in shallow dive A/C nosed over into tighter outside loop. Inflt struc breakup occurred. Fire/explosion coincident /preceded nose over. No radio following, chase A/C, nor T/M. Intercom recording “wire” found jammed from last ldg.</b></p> | <p><b>Believed to be runaway stabilizer. Exact cause not determined. 7 possible causes of stab movement considered, 3 deemed “unlikely”. 4 most likely; a) Explosion in wing stub or fwd plumbing area; b) Broken or snagged cable; c) Loss of Feel System; d) Loss of one hyd sys. Navy “eval” was to be w/i contractor tested envelope. While individual test point variables (GW, CG, Speed/Mn) were within previously test points, combination <u>not</u> previously tested (Ed determination). Rime ice noted on flaps on prev flt of day, I/P use not noted.</b></p> | <p><b>USAF Accident Report; Test Pilots; Hallion; p227; Glenn Martin Museum Website</b></p> | <p><b>4/4/-<br/><br/>Plt &amp; C/P stayed w/ A/C; FE &amp; FTE ejected, did not survive. FTE had not attached auto-matic opening lanyard.</b></p> | <p><b>12/07/55<br/><br/>FE had done so, chute opened, but he believed unconscio us, did not have automatic inflating mae west, and so drowned</b></p> | <p><b>Patuxent River, Md. Based @ Middle River, Md.</b></p> |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                   | <u>MANEUVER</u>                                                                                                                                                                                                                                                                       | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                             | <u>REPORT ID/ MATL ID</u>                            | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>      |
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| <b>X-2 R&amp;D Rocket Plane (Bell)</b> | <b>13<sup>th</sup> powered flt; first flt in A/C for pilot; first flight to reach Mach 3.0, unexpected turn initiated above M3.0; Diverging rolls followed by tumbling;</b>                                                                                                           | <b>Example of “inertial coupling” phenomenon; documents refer to “poor test planning”; implies high level pressure to attain M3.0. Reports imply pilot was instructed/advised to not turn at high Mn</b> | <b>NASA DFRC Website; Test Pilots; Hallion; p215</b> | <b>1/1/0 (Mel Apt)</b>               | <b>09/27/55</b> | <b>Edwards USAFB</b> |
| <b>X-1 Adv “A” Rocket Plane (Bell)</b> | <b>While being transported to launch alt, X-1 sustained low order explosion. Pilot scrambled into mother ship. Passed out due lack of O2 bottle. Assessed damage. Reentered X-1 to jettison fuel &amp; remove ejection seat. “Cooking peroxide” reported. A/C was then jettisoned</b> | <b>LOX tank blew out at aft lower area. Leakage of leather seals found to be root cause</b>                                                                                                              | <b>SFTE NL; X-15 Diary; Tregaskis</b>                | <b>1/0/0; 7/0/0 (B-29)</b>           | <b>08/08/55</b> | <b>Edwards USAFB</b> |

## FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS

| <u>AIRCRAFT TYPE</u>                                                                   | <u>MANEUVER</u>                                                                                                                  | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                          | <u>REPORT ID/ MATL ID</u>                   | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>                   |
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| <b>XF-84H #1 &amp; 2 Mil tactical (jet fighter refitted with turboprop) (Republic)</b> | <b>Twelve flights over 15 months on 2 prototypes. Ten flights ended in emergency landings. Details TBD</b>                       | <b>TBD</b>                                                                                                                            | <b>Worlds Worst A/C; pg 110; Bill Yenne</b> | <b>?/?/?</b>                         | <b>07/22/55</b> | <b>TBD</b>                        |
| <b>YC-130 #1 Mil Transport (Lockheed)</b>                                              | <b>Eng Fire on Ldg</b>                                                                                                           | <b>TBD</b>                                                                                                                            |                                             | <b>?/</b>                            | <b>04/14/55</b> | <b>Marietta, Ga.</b>              |
| <b>XF-104 #? Mil Tactical (Lockheed)</b>                                               | <b>Following cannon firing severe vibrations w/ loss of pressure; pilot ejected</b>                                              | <b>Some sort of gun malf</b>                                                                                                          | <b>JBaughner website</b>                    | <b>1/0/?</b>                         | <b>04/14/55</b> | <b>Edwards USAFB</b>              |
| <b>F-100 #? "Super Sabre" Mil Tactical (North Amer)</b>                                | <b>Some sort of failure of controls in a dive. Pilot ejected at Mach 1.05 – first successful ejection from supersonic flight</b> | <b>TBD Pilot remained unconscious for 5 days but made full recovery</b>                                                               | <b>Guinness Book of Aircraft; Monday</b>    | <b>1/0/1 (George F. Smith)</b>       | <b>02/26/55</b> | <b>Laguna Beach, California</b>   |
| <b>XF-104 #2 "Starfighter" (Lockheed)</b>                                              | <b>Vulcan cannon envelope expansion testing; engine ran rough; was shutdown and dead stick landing made</b>                      | <b>Round exploded in breech, blowing bolt back into fuel cell w/ fuel running into gun bay &amp; then into eng inlet flooding eng</b> | <b>JBaughner website</b>                    | <b>1/0/0 (Tony LeVier)</b>           | <b>12/17/54</b> | <b>Edwards USAFB</b>              |
| <b>XF9F-9 (F11F-1 prototype) #1 "Tiger" (Grumman)</b>                                  | <b>Crashed attempting dead stick landing following engine flameout</b>                                                           | <b>Wright J65-W-7; TBD</b>                                                                                                            | <b>JBaughner website</b>                    | <b>1/?/?</b>                         | <b>10/20/54</b> | <b>Calverton, Long Island, NY</b> |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                  | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <u>REPORT ID/ MATL ID</u>                                                       | <u># CREW/ FATALI TIES/ INJURIES</u>                                                                        | <u>DATE</u> | <u>LOCATION</u>                   |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------|
| YF2Y-1 Sea Dart #2 (“YF”) (Convair)                   | Low Alt, High Subsonic Speed Pass for Press & Naval Officers                                                                                                                                                                                                                                                                                                                                                                                                       | Divergent longitudinal Pitching followed by structural breakup                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Test Pilots;Hall ion; p226; JBaughter Website                                   | 1/1/0                                                                                                       | 11/04/54    | San Diego Bay, Calif              |
| F-100A #9 “Super Sabre” Mil Tactical (North American) | 48 <sup>th</sup> test flt. A/C conducting “Struc Integrity Demo” program, coupled w/ other develop tests. 50k ft test point done on 1 <sup>st</sup> flt of day. Attempt @ structural demonstration “end point” – design “G’ (7.33) @ “max” speed & Mn. A/C had slight yaw upon entry: A/C attained 8.6 G @ ~1.5Mn where yaw increased dramatically, followed by in-air disintegration. No chase used. “Short vertical” config. Taller vertical became prod config. | Flight loads testing not done as yet. Earlier B/U flt attained 1.47Mn @ 6.9G w/ yaw building up. Per one docmnt: pilot attained 6 1/2G, short of max, pulled again, went past 7.33 max value to 8+G. “SID” test plan rvsd twice , then completely rewritten. First versions had definition of “max” Mn, but final version just used “Max”. “S&C” testing only done to 1.2Mn. Many differing values (Mn, G, A/S) used in the various documents for same thing. NAA engr stated “we have said direct stability could be improved” | USAF Accident Report; JBaughter Website; X-15 Diary Pg 30; History zone website | 1/1/0 (George Welch North Amrcn Chief pilot) (Lt. Col. John Stapp (of sled testing fame) performed autopsy) | 10/12/54    | Edwards USAFB (Lancaster , Calif) |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                 | <u>MANEUVER</u>                                                                                                                                                                           | <u>SUMMARIZED ROOT CAUSE</u>                                                                           | <u>REPORT ID/ MATL ID</u>                                                 | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>                |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------|-------------|--------------------------------|
| Model 175<br>Brittania 101<br>(Bristol)              | Following stall test #3 eng fire ensued, #4 S/D as precaution, close to airport #3&4 engines failed, emergency Gr Up ldg made on river mud flat                                           | Possibly related to prop reduction gear                                                                | AV Sfty Ntwrk Website                                                     | 13/0/?                               | 02/04/54    | River Severen Estuary, England |
| Model 120<br>Delta Research A/C #1<br>(Boulton Paul) | Low Alt, high sped flutter test (4000ft, 450kts) experienced large vibr, attempted emerg Ldg, too diff, ejected (great pilot report; immed upon parachute opening had rough ldg in trees) | Elevon attachment fitting compression failed, lost balance weights, connecting rod failed in buckling. | British investigati on report ID; RAE Structures note 248, dtd March 1953 | 1/0/?                                | 08/29/54    | Boscombe Down, England         |
| XF3H-1 #1<br>“Demon”                                 | Crashed following engine explosion                                                                                                                                                        | Westinghouse J-40; TBD                                                                                 | JBaughner website                                                         | ?/?/?                                | 03/18/54    | TBD                            |
| XF-104 #1<br>“Starfighter”<br>(Lockheed)             | First flight; gear would not retract                                                                                                                                                      | Details TBD; low pressure in hydraulic system                                                          | JBaughner website                                                         | 1/0/0                                | 03/04/54    | Edwards USAFB                  |
| TU-95 #1<br>“Bear”<br>(Tupolev)                      | “Destructive crash” - Details TBD                                                                                                                                                         | TBD                                                                                                    | Brazilian Flight magazine                                                 | ?/?/?                                | ??/?/53     | TBD, Russia                    |
| X-1A<br>Research A/C<br>(Bell)                       | After dive in which new world speed record attained, A/C encountered “inertial coupling”                                                                                                  | Details TBD. A/C tumbled, severe physical beating of pilot.                                            | X-15 Diary; Tregaskis                                                     | 1/0/1<br>(Yeager)                    | ??/?/53     | Edwards USAFB                  |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                                                                          | <u>MANEUVER</u>                                                                                                                                                                                                                                                | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                      | <u>REPORT ID/ MATL ID</u>                                | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>      | <u>LOCATION</u>                       |
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| <b>YF-102 #1<br/>Mil Tactical<br/>(Convair)</b>                                                                               | <b>Inflight engine failure resulting in forced lndg w/ substantial damage</b>                                                                                                                                                                                  | <b>Some sort of failure in eng fuel control (Bendix)</b>                                                                                                                                                                          | <b>JBaugher website</b>                                  | <b>1/0/1</b>                         | <b>11/02/53</b>  | <b>Edwards USAFB</b>                  |
| <b>A2D #?<br/>"Skyshark"<br/>(Douglas)</b>                                                                                    | <b>The two propellers departed A/C, canopy jammed closed, safe emergency landing on lakebed</b>                                                                                                                                                                | <b>TBD</b>                                                                                                                                                                                                                        | <b>USAF Accident report</b>                              | <b>1/0/0</b>                         | <b>10/14/53</b>  | <b>Edwards, USAFB</b>                 |
| <b>X-5 #2<br/>Variable Sweep Research A/C<br/>(Bell)</b>                                                                      | <b>Pilot famil/qualif flight. Last flt before turnover to NACA. High alt stalls done. O2 press reported low, rapid descent made. Some residual press left. Stalls @12k ft conducted. Upon full sweep stall (60 deg) A/C rolled over into spin and crashed.</b> | <b>Not exactly known. Low O2 press may have resulted in pilot not receiving sufficient O2 @12/13K if on normal demand. Pilot had received thorough briefing. Project pilot was in chase A/C. Stall char known to be "sporty".</b> | <b>Test Pilots; Hallion; p217: USAAF Accident report</b> | <b>1/1/0<br/>(Ray Popson)</b>        | <b>10/13/53</b>  | <b>Edwards USAFB</b>                  |
| <b>XA2D-1 #?<br/>"Skyshark"<br/>Two fuse mounted turbine engs driving contrarotating prop assy thru gearbox<br/>(Douglas)</b> | <b>Gearbox failure. Details TBD</b>                                                                                                                                                                                                                            | <b>TBD;<br/>Allison XT40 Engine with complex gearbox.</b>                                                                                                                                                                         | <b>Worlds Worst A/C, pg 96;<br/>Bill Yenne</b>           | <b>1/0/1</b>                         | <b>Summer/53</b> | <b>Southern Calif.; exact loc TBD</b> |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u><b>AIRCRAFT<br/>TYPE</b></u>                                                    | <u><b>MANEUVER</b></u>                                                                                                                                                                                                                                                           | <u><b>SUMMARIZED<br/>ROOT CAUSE</b></u>                                                                                                                          | <u><b>REPORT<br/>ID/<br/>MATL ID</b></u>                                                           | <u><b># CREW/<br/>FATALI<br/>TIES/<br/>INJURIES</b></u>                                                          | <u><b>DATE</b></u> | <u><b>LOCATION</b></u>                           |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------------|
| <b>XA2D-1 #?<br/>“Skyshark”<br/>(Douglas)</b>                                      | <b>Upon pullout from dive<br/>(details TBD) props pulled<br/>out from A/C. Pilot managed<br/>to land A/C. details TBD.<br/>Engine apparently still<br/>running.</b>                                                                                                              | <b>TBD</b>                                                                                                                                                       | <b>Worlds<br/>Worst<br/>A/C;<br/>Pg 96;<br/>Bill Yenne</b>                                         | <b>1/0/0</b>                                                                                                     | <b>06/??/53</b>    | <b>Southern<br/>Calif;<br/>Exact loc<br/>TBD</b> |
| <b>X-2 #2/B-50<br/>Rocket Research<br/>&amp; Mothership<br/><br/>(Bell/Boeing)</b> | <b>Captive carry test of rocket<br/>research A/C w/ “mother”<br/>ship; fire &amp; explosion; X-2<br/>ripped out of bay; mother<br/>ship damaged but made<br/>successful emergency ldg &amp;<br/>was then scrapped. X-2<br/>remains at bottom of Lake<br/>Ontario to this day</b> | <b>Document states<br/>critical propellant tank<br/>gasket material<br/>deteriorated w/ time<br/>which then allowed<br/>explosion when tank<br/>pressurized.</b> | <b>Av Hstry<br/>Website;<br/>NASA<br/>DFRC<br/>website;<br/>Test<br/>Pilots;Hall<br/>ion; p214</b> | <b>1/1/-<br/>4?/1/?<br/>Jean<br/>Zieler<br/>(Bell<br/>pilot)<br/>Frank<br/>Walco<br/>(B50<br/>Test<br/>crew)</b> | <b>05/12/53</b>    | <b>Lake<br/>Ontario,<br/>NY</b>                  |



**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                                                 | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                                                                                 | <u>REPORT ID/ MATL ID</u>    | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>            |
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| <b>F-84B Prod B-29 #093<br/>2 F-84s &amp; B-29 modified w/ 2 point coupling mech.<br/>(Republic)</b> | <b>Secret USAF test effort whereby fighters are attached to bomber wing-tips for lesser drag. Upon engaging A/P F-84 pitched up and rolled. Struck B-29 wing inverted. Otbd 5ft of B-29 wing separated, then entered LH spiral. RH wing failed followed by empennage separation inflight. A/C crashed in ocean. F-84 made series of split S maneuvers followed by semicontrolled descent with crash near a town. Emergency release system based on attitude malfunctioned</b> | <b>Over 100 couplings totaling over 26 hours had been accomplished over 3 year span of program. Same F-84s and pilots had been used. 5th flight of phase oriented to use of A/P on F-84s while coupled. Previous flight resulted in violent roll upon A/P engagement. Ground tests and adjustments made.</b> | <b>USAF Accident Report</b>  | <b>1/1/-<br/>5/5/-</b>               | <b>04/24/53</b> | <b>Peconic Bay, LI, NY</b> |
| <b>XP-86 #1<br/>"Sabrejet"</b>                                                                       | <b>TBD, crash (5 years after first flight)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>TBD</b>                                                                                                                                                                                                                                                                                                   | <b>JBaugher Website</b>      | <b>?/?/?</b>                         | <b>~09/52</b>   | <b>TBD</b>                 |
| <b>Model 630 #1<br/>"Viscount"<br/>(Vickers)</b>                                                     | <b>Tropical climate eval; RH Gr collapsed some time during ldg</b>                                                                                                                                                                                                                                                                                                                                                                                                            | <b>TBD</b>                                                                                                                                                                                                                                                                                                   | <b>Av Sfty Ntwrk Website</b> | <b>5/0/?</b>                         | <b>08/27/52</b> | <b>Khartum, Sudan</b>      |
| <b>XF3H-1 #1<br/>"Demon"</b>                                                                         | <b>Damaged during landing following engine failure</b>                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>TBD</b>                                                                                                                                                                                                                                                                                                   | <b>JBaugher Website</b>      | <b>?/?/?</b>                         | <b>08/??/52</b> | <b>TBD</b>                 |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                              | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                            | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                              | <u>REPORT ID/ MATL ID</u>                   | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>                | <u>LOCATION</u>       |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------|----------------------------|-----------------------|
| Javelin #1 Twinjet Delta interceptor (Gloster)    | On 99 <sup>th</sup> flight, encountered violent flutter. Elevators departed A/C. Emergency ldg made using thrust & trimmable tailplane                                                                                                                                                                     | TBD                                                                                                                                                                                                                                                       | Guinness Book of Aircraft; Mondey           | 1/0/0                                | 06/29/52                   | TBD, England          |
| XB-51 #2 3-Eng Jet Bomber (Martin)                | Func Check Flt for Gr & Bomb Bay ops. Then 4 low lvl high speed twr passes for photo coverage made. Test cntr had started taking film of activities for range commanders regular mtng. On last pass @ `50ft Rwd ail roll attempted. LH wing struck ground just 30 deg from level. A/C crashed & destroyed. | Lvl passes approved, but no acrobatic maneuvers. Armed forces day airshow 2 weeks ahead. Desire to roll A/C @ that airshow mentioned by pilot. Manuf had sent telegram requesting no acrobatic maneuvers as interim restriction. Pilot was aware of this. | USAF Accident Report; Amer Mil Acft website | 1/1/-                                | 05/09/52 (151hrs, 193flts) | Edwards USAFB         |
| Canberra B Mk2 Bomber (British Electric - Martin) | British built A/C being used as 2 <sup>nd</sup> B-57 prototype; while pulling 4.8Gs LH Otbd wing failed; A/C crashed; details TBD                                                                                                                                                                          | Crew mismanaged fuel resulting in too Aft CG; details TBD                                                                                                                                                                                                 | Amer Mil Acft & USAF Museum website         | 2/1/?                                | 12/21/51                   | Centerville, Maryland |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                               | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                  | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                       | <u>REPORT ID/ MATL ID</u>                                                            | <u># CREW/ FATALI TIES/ INJURIES</u>                       | <u>DATE</u>     | <u>LOCATION</u>                   |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------|-----------------|-----------------------------------|
| <b>X-1 #3/B-50 Rocket Research (Bell)</b>          | <b>Captive flt aborted due to inadvertent actuation of propellant sws by pilot upon strapping in. Decision to land w/ propellant still in X-1. After landing propellant jettisoning initiated w/ X-1 mated to B-50. Small then larger explosion &amp; fire destroyed X-1 &amp; most of B-50.</b> | <b>Ground jettison while mated had been done before. Propellant leaks common on X-1 series. Apparently collected midships &amp; unknown elec source caused ignition. 3 personnel close to X-1. Pilot in cockpit conducting jettison procedure.</b> | <b>USAF Accident Report</b>                                                          | <b>1/0/2*<br/>*Pilot Joe cannon &amp; fire-man injured</b> | <b>11/09/51</b> | <b>Edwards USAFB</b>              |
| <b>Model 88 #1 Prototype Bomber (Handley Page)</b> | <b>Qualitative envelope expansion to clear airshow demo; flt to ~.85Mn @ 10K ft scheduled; @ ~500kts &amp; “low alt” pitch oscillations increased &amp; structural breakup occurred</b>                                                                                                          | <b>Pitch oscillation noted on past flts; elev TE mds instled; combo of high Q and Mn possible factor</b>                                                                                                                                           | <b>NTIS N84-26678/2/H DM; (British report ID; RAE struc note 245, dtd July 1952)</b> | <b>1/1/-</b>                                               | <b>08/26/51</b> | <b>Stanstead Airport, England</b> |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                            | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                                                                        | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                                                           | <u>REPORT ID/ MATL ID</u>           | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>             |
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| <b>X-1 Adv “D” Research rocket plane (Bell)</b> | <b>First attempt at powered flight. During inflight prep in bay of mother ship noted low propellant press. Aborted launch. Conducted press &amp; vent test. Upon jettisoning propellant small explosion &amp; fire occurred. X-1 jettisoned from B-50 mother ship as fire increased. Pilot jumped from X-1 to mother ship seconds before jettison.</b> | <b>Accumulation of fuel vapors in aft/dorsal area of A/C, w/ ignition source from elec power cord or radio believed to be cause. Unknown if press &amp; vent test was ad-hoc or preplanned. Obvious from report that first priority was to jettison X-1 even if pilot still in it.</b> | <b>USAF Accident Report</b>         | <b>1/0/0 (Pete Everest)</b>          | <b>08/22/51</b> | <b>Edwards AFB</b>          |
| <b>HP.82 Hermes V #1 (Handley Page)</b>         | <b>While on test flt, 3 engines failed, emergency GR Up ldg on waterlogged field</b>                                                                                                                                                                                                                                                                   | <b>TBD</b>                                                                                                                                                                                                                                                                             | <b>Av Sfty Ntwrk Website</b>        | <b>5/0/?</b>                         | <b>04/10/51</b> | <b>Chilbolton , England</b> |
| <b>XA2D-1 #? “Skyshark” (Douglas)</b>           | <b>Navy prelim eval flt. Two high speed dives w/ high g pullouts made. Vapor from aft end of A/C noted by ground radio car observers. Low pass requested. Upon maneuvering for said pass A/C struck ground with high sink rate. No chase A/C.</b>                                                                                                      | <b>RH engine believed to have failed. Pilot did not declutch from (other) LH engine &amp; did not feather prop(s) as had no indic of eng failure. Windmilling props created very high drag &amp; bad airflow over wing.</b>                                                            | <b>Navy Accident Summary Report</b> | <b>1/1/-</b>                         | <b>12/19/50</b> | <b>Edwards AFB</b>          |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                   | <u>MANEUVER</u>                                                                                                                                                                                                                                              | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                     | <u>REPORT ID/ MATL ID</u>                   | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>          | <u>LOCATION</u> |
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| Various                                |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                  | X-15 Diary                                  | 13 test pilots perished              | Mid 1956 To mid 1950 | Edwards AFB     |
| Type 707 #1 Research Delta Wing (Avro) | Essentially scaled version of Vulcan Bomber. Lost in accident, TBD                                                                                                                                                                                           | TBD                                                                                                                                                                                                                              | Guinness Book of Aircraft; Mondey           | ??/?                                 | ??/??/50             | TBD, England    |
| YB-49 #1 Flying Wing Bomber (Northrup) | High speed taxi test to determine min NG liftoff speed. Done on lakebed. NG shimmy upon reset followed by NG strut failure; Wing LE dug in, A/C broke in 2, fire resulted, engs continued to run, A/C destroyed. 3 of 4 crew seats pulled loose from mounts. | A/C had history of NG shimmy events. Nrthrp had made several field changes to shimmy damper. Specific cause not in report. A/C had seats for 4, 6 on-board. Shoulder harnesses not used. Fire equip did not follow onto lakebed. | USAF Accident Report: Amer Mil Acft website | 6/0/6                                | 03/15/50             | Edwards USAFB   |
| F4D-1 #TBD Mil Tactical (Douglas)      | Low altitude speed record attempted. Pilot used nose-up trim to offset nose down tuck near Mn One. Upon decel A/C pitched up rapidly to ~9G. A/C locally buckled & over-stressed, but landed.                                                                | Sensitivity of deflec & forces not known. This was second attempt, on first try pilot noted increased force to overcome tuck, & force reversal upon slowdown.                                                                    | Airplane S&C, Abzug & Larrabee, P169        | 1/0/0                                | ??/??/4?             | Edwards, AFB    |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                      | <u>MANEUVER</u>                                                                                                     | <u>SUMMARIZED ROOT CAUSE</u>                                                             | <u>REPORT ID/ MATL ID</u>    | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>      | <u>LOCATION</u>                     |
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| <b>XF-89 #1<br/>“Scorpion”<br/>(Northrup)</b>             | <b>Low altitude, high speed USAF officer demo run; horiz stab peeled off w/ resulting full break-up &amp; crash</b> | <b>Horiz stab flutter, details TBD, external mass balance horns added as part of fix</b> | <b>JBaugher website</b>      | <b>2/1/?</b>                         | <b>02/22/50</b>  | <b>? Edwards AFB</b>                |
| <b>XB-47 #?<br/>Bomber<br/>(Boeing)</b>                   | <b>TBD</b>                                                                                                          | <b>Ejection seat malf; details TBD</b>                                                   | <b>Amer Mil Acft website</b> | <b>?/1?/?</b>                        | <b>??/?~/~49</b> | <b>TBD</b>                          |
| <b>XB-45 #?<br/>Bomber</b>                                | <b>TBD</b>                                                                                                          | <b>TBD</b>                                                                               | <b>Amer Mil Acft website</b> | <b>?/?/?</b>                         | <b>06/?~/49</b>  | <b>TBD</b>                          |
| <b>Model 170<br/>Freighter 31<br/>(Bristol)</b>           | <b>Prod A/C leased back to manuf; test flt to measure perf; structural breakup occurred.</b>                        | <b>Massive structural failure; TBD</b>                                                   | <b>AV Sfty Ntwrk Website</b> | <b>7/7/0</b>                         | <b>05/06/49</b>  | <b>Portland Lighthouse, England</b> |
| <b>YB-49 #1<br/>Flying Wing<br/>Bomber<br/>(Northrup)</b> | <b>Upon return from Wash DC display &amp; Wright Field display; Emergency landing in AZ due fire in 4 engines</b>   | <b>Reported that engine oil not serviced at Wright field; Details TBD</b>                | <b>Amer Mil Acft website</b> | <b>?/0/0</b>                         | <b>02/23/49</b>  | <b>Winslow, AZ</b>                  |
| <b>SO-6000N #4<br/>“Triton”<br/>(SNCASO)</b>              | <b>Crashed, TBD</b>                                                                                                 | <b>TBD</b>                                                                               | <b>Av Hstry Website</b>      | <b>?/?/?</b>                         | <b>??/?~/49</b>  | <b>TBD, France</b>                  |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                            | <u>MANEUVER</u>                                                                                                                                | <u>SUMMARIZED ROOT CAUSE</u>                                                                         | <u>REPORT ID/ MATL ID</u>                         | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>  |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|---------------------------------------------------|--------------------------------------|-------------|------------------|
| XF-85 #2<br>"Goblin"<br>(McDonnell)                             | Concept of having fighter carried by bomber; upon first attempt at "rehook" collided w/ hook and canopy shattered, emergency landing conducted | Turbulence due to non-aerodynamic geometry of launch/recovery bay                                    | JBaugher Website                                  | ?/0/0                                | 08/28/48    | Muroc AFB        |
| YB-49 #2<br>Flying Wing Bomber<br>(Northrup)                    | Massive structural failure following high speed descent from 40000ft                                                                           | Outer wing panels failed; source states could have been due to exceeding red-line                    | Amer Mil Acft Website                             | 5/5/0<br>Glen Edwards                | 06/05/48    | Muroc AFB        |
| D-558-1 #2<br>"Skystreak"<br>Research A/C<br>(Douglas)          | Operated by NACA @ Muroc; During takeoff @ ~100ft lost control & crashed                                                                       | J35 engine disintegrated severing fuel & control lines.<br>*Crash Helmut & shoulder straps NOT used. | USAAF Accident Report: Test Pilots;Hall ion; p208 | 1/*1/0<br>(Howard Tilly)             | 05/03/48    | Muroc AFB, Calif |
| XF9F-2 #1 or 2<br>"Panther"<br>(Grumman)                        | Tail section separated during arrested landing                                                                                                 | TBD                                                                                                  | JBaugher website                                  | 1/?/?                                | ??/?/?/48   | Pax River, Md    |
| Model 118<br>ConvAirCar #2<br>Flying Car<br>(Convair)<br>"0502" | Emergency Ldg on dirt road. Details TBD. Wings sheared off, body badly damaged.                                                                | Ran out of fuel                                                                                      | Worlds Worst A/C;<br>Pg 117;<br>Bill Yenne        | ?/0/0                                | 11/?/?/47   | San Diego        |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                   | <u>MANEUVER</u>                                                                   | <u>SUMMARIZED ROOT CAUSE</u>                                                           | <u>REPORT ID/ MATL ID</u>   | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>                            |
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| XP4M-1 #1<br>"Mercator"<br>Mil Flying Boat<br>(Martin) | 10 months into flight test program, main fuel line burst. Details TBD             | TBD                                                                                    | Glenn Martin Museum Website | ?/1/2                                | 08/??/47    | TBD<br>East Coast USA                      |
| Model 689<br>Tudor 2<br>(Avro)                         | Upon takeoff, RH wingtip struck trees                                             | TBD, suspicion related to aileron control sys                                          | AV Sfty Ntwrk Website       | 6/4/?                                | 08/23/47    | Shirfold Farm, England                     |
| XB-42A #1<br>"Mixmaster"<br>Research A/C               | Hard ldg in tail low attitude; details TBD; resulted in structural damage to tail | TBD                                                                                    | Amer Mil Acft Website       | ?/0/?                                | 08/15/47    | Muroc AAFB                                 |
| XB-45 #?<br>Bomber (North Amer)                        | TBD                                                                               | TBD                                                                                    | Amer Mil Acft website       | ?/2/?                                | ~06/47      | Muroc AAFB                                 |
| AM-1 #?<br>"Mauler"<br>USN Attack<br>(Martin)          | During carrier trails had entire aft section of A/C separate                      | TBD                                                                                    | Glenn Martin Museum Website | ?/??/?                               | ~06/47      | TBD                                        |
| "High Speed"<br>Propeller Testbed (P47)                | High speed dive w/ pullout to constant alt/target speed                           | Hyd torque meter failed spraying hot fluid over canopy and cockpit; loss of visibility | Test Pilots;Hall ion; p206  | 1/0/1<br>Herb Fisher                 | ??/??/47    | Caldwell, NJ<br>(Curtis-Wright home field) |



**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                            | <u>MANEUVER</u>                                                                                                                  | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                | <u>REPORT ID/ MATL ID</u>                                                                                        | <u># CREW/ FATALI TIES/ INJURIES</u>           | <u>DATE</u>     | <u>LOCATION</u>              |
|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-----------------|------------------------------|
| <b>N9M #?<br/>Flying Wing<br/>Research A/C<br/>Northrup</b>                     | <b>crashed during FT, details<br/>TBD</b>                                                                                        | <b>“...lost due to aileron<br/>upfloat (Sears 1987)”</b>                                                                                                                                                    | <b>Airplane<br/>S &amp; C<br/>Abzug &amp;<br/>Larabee</b>                                                        | <b>X/X/X</b>                                   | <b>??/??/??</b> | <b>TBD</b>                   |
| <b>D.H. 108<br/>“Swallow”<br/>(deHavilland)</b>                                 | <b>High speed run below 10k ft</b>                                                                                               | <b>Structural failure due<br/>violent pitching<br/>oscillation</b>                                                                                                                                          | <b>Test<br/>Pilots;Hall<br/>ion; p196</b>                                                                        | <b>1/1/-<br/>Geoffrey<br/>deHavill<br/>and</b> | <b>09/27/46</b> | <b>Hatfield,<br/>England</b> |
| <b>XP-83 #1<br/>Twinjet fighter<br/>(Bell)</b>                                  | <b>R&amp;D effort, ramjet slung<br/>under each wing; crash<br/>following ramjet fire w/ pilot<br/>&amp; engineer parachuting</b> | <b>TBD</b>                                                                                                                                                                                                  | <b>JBaugher<br/>website</b>                                                                                      | <b>2/0/?</b>                                   | <b>09/14/46</b> | <b>TBD, New<br/>York</b>     |
| <b>C-74 #2<br/>4-Eng Prop<br/>Mil Transport<br/>“Globemaster”<br/>(Douglas)</b> | <b>Crashed during flight test,<br/>details TBD.</b>                                                                              | <b>“...elevator fabric<br/>bulging between ribs<br/>increased trailing edge<br/>angle, causing pitch<br/>oscillations that broke<br/>off wingtips. ...<br/>elevators were metal<br/>covered after that”</b> | <b>Geocities<br/>website;<br/>Airplane<br/>Stability<br/>&amp;Control:<br/>Abzug &amp;<br/>Larrabee’<br/>P65</b> | <b>x/x/x</b>                                   | <b>08/??/46</b> | <b>TBD</b>                   |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                       | <u>MANEUVER</u>                                                                                                         | <u>SUMMARIZED ROOT CAUSE</u>                                                            | <u>REPORT ID/ MATL ID</u>                                             | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>           |
|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------|-----------------|---------------------------|
| <b>XF-11 #1 Hughes (Photorecon)</b>                        | <b>First flight; RH engine lost prop pitch control; high asym drag</b>                                                  | <b>XX</b>                                                                               | <b>World's Worst Airplanes; p70</b>                                   | <b>1/0/1 Howard Hughes</b>           | <b>07/07/46</b> | <b>Los Angeles</b>        |
| <b>Model 491 Viking 1A #1 (Vickers)</b>                    | <b>During E/O climb test @ ~1000ft w/ RH eng S/D, LH eng failed; Gr Up crash ldg made</b>                               | <b>TBD, suspicion that fuel inadvertently shutoff</b>                                   | <b>Av Sfty Ntwrk</b>                                                  | <b>4/0/?</b>                         | <b>04/23/46</b> | <b>Effingham, England</b> |
| <b>YP-80A #5</b>                                           | <b>While being operated by English agency (TBD), crashed attempting dead stick ldg following engine failure</b>         | <b>A/C was being used as testbed for prototype version of Rolls-Royce "Nene" engine</b> | <b>JBaugher website</b>                                               | <b>1/?/?</b>                         | <b>11/14/45</b> | <b>TBD, England</b>       |
| <b>XP-79B #1 Jet Flying Wing Rammer/Fighter (Northrup)</b> | <b>First flight; 15min into flight entered spin; pilot bailed out but was struck by wing &amp; chute failed to open</b> | <b>TBD</b>                                                                              | <b>JBaugher Website; Test Pilots, Hallion, p150; AV Hstry Website</b> | <b>1/1/0 Harry Crosby</b>            | <b>09/12/45</b> | <b>Muroc Dry Lake</b>     |
| <b>JRM-1 #1 MARS Flying Boat (Martin)</b>                  | <b>Two weeks into flight test program A/C crashed during landing</b>                                                    | <b>TBD</b>                                                                              | <b>Glenn Martin Museum Website</b>                                    | <b>?/?/?</b>                         | <b>~07/45</b>   | <b>Chesapeake Bay, MD</b> |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                | <u>MANEUVER</u>                                                                                   | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                     | <u>REPORT ID/ MATL ID</u>                            | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>             | <u>LOCATION</u>               |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------|-------------------------|-------------------------------|
| <b>XP-80A #1<br/>Single-Eng Jet<br/>Mil Tactical<br/>(Lockheed)</b> | <b>Shallow dive to accelerate to test point speed; Engine came apart; tail assembly separated</b> | <b>Turbine wheel disintegrated; sawed thru fuselage; chronic failure caused by manufacturing process; impurities settled to bottom of ingots</b> | <b>Test Pilots;Hall ion; p177; JBaughner website</b> | <b>1/0/1<br/>Tony LeVier</b>         | <b>03/20/45</b>         | <b>Muroc Dry Lake</b>         |
| <b>YP-80A #3<br/>(Lockheed)</b>                                     | <b>First flight, TBD</b>                                                                          | <b>TBD</b>                                                                                                                                       | <b>JBaughner website</b>                             | <b>1/1/0<br/>Milo Bircham</b>        | <b>10/20/44</b>         | <b>TBD (Van Nuys) Calif</b>   |
| <b>F.9/40<br/>“Meteor”<br/>(Gloster)</b>                            | <b>TBD</b>                                                                                        | <b>TBD</b>                                                                                                                                       | <b>Testing Time; (C.B-S); p172</b>                   | <b>1/0/1</b>                         | <b>03/??/44</b>         | <b>xx</b>                     |
| <b>F.9/40<br/>“Meteor”<br/>(Gloster)</b>                            | <b>TBD</b>                                                                                        | <b>TBD</b>                                                                                                                                       | <b>Testing Time; (C.B-S); p172</b>                   | <b>1/1/0<br/>John Crosby Warren</b>  | <b>03/??/44</b>         | <b>xx</b>                     |
| <b>F.9/40<br/>“Meteor”<br/>(Gloster)</b>                            | <b>TBD</b>                                                                                        | <b>Engine disintegrated</b>                                                                                                                      | <b>Testing Time; (C.B-S); p171</b>                   | <b>1/1/0<br/>Douglas Davie</b>       | <b>01/04/44</b>         | <b>xx</b>                     |
| <b>XB-42 #2<br/>“Mixmaster”<br/>Bomber Douglas</b>                  | <b>TBD</b>                                                                                        | <b>TBD: possible fuel starvation</b>                                                                                                             | <b>Amer Mil Acft website</b>                         | <b>?/0/?</b>                         | <b>12/16/44 or 1945</b> | <b>Bolling Field; Wash DC</b> |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u><b>AIRCRAFT<br/>TYPE</b></u>                                    | <u><b>MANEUVER</b></u>                                                                    | <u><b>SUMMARIZED<br/>ROOT CAUSE</b></u>                                                                                        | <u><b>REPORT<br/>ID/<br/>MATL ID</b></u>  | <u><b># CREW/<br/>FATALI<br/>TIES/<br/>INJURIES</b></u> | <u><b>DATE</b></u> | <u><b>LOCATION</b></u>         |
|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------------------|--------------------|--------------------------------|
| <b>XP-77 #2<br/>(Bell)</b>                                         | <b>Inverted spin from<br/>immelman maneuver w/<br/>resulting crash</b>                    | <b>TBD</b>                                                                                                                     | <b>JBaughner<br/>website</b>              | <b>1/0/?</b>                                            | <b>10/02/44</b>    | <b>Elgin field,<br/>Fla</b>    |
| <b>XP-72 #2 (P-47<br/>derivative)<br/>(Republic)</b>               | <b>Takeoff crash</b>                                                                      | <b>TBD</b>                                                                                                                     | <b>JBaughner<br/>website</b>              | <b>1/?/?</b>                                            | <b>~07/44</b>      | <b>TBD</b>                     |
| <b>XP-67 #1<br/>(McDonnell)</b>                                    | <b>Emergency landing w/<br/>engine fire; fire severely<br/>damages fuselage</b>           | <b>TBD</b>                                                                                                                     | <b>JBaughner<br/>website</b>              | <b>1/0/0</b>                                            | <b>~7/44</b>       | <b>Around St<br/>Louis, Mo</b> |
| <b>XP-80A #1<br/>(Lockheed)</b>                                    | <b>First Flight; Pitch instability</b>                                                    | <b>No ammo in nose; CG<br/>computation assumed<br/>ammo (i.e. CG way<br/>Aft)</b>                                              | <b>Test<br/>Pilots;Hall<br/>ion; p174</b> | <b>1/0/0</b>                                            | <b>06/11/44</b>    | <b>Muroc<br/>Dry lake</b>      |
| <b>NA-98X (B-25<br/>replacement<br/>proposal)<br/>(North Amer)</b> | <b>TBD test points followed by<br/>low speed low alt pass with<br/>structural failure</b> | <b>Outer wing panels<br/>departed during pass,<br/>source states evidence<br/>of exceeding red-line on<br/>previous points</b> | <b>Amer Mil<br/>Acft<br/>website</b>      | <b>2/2/0</b>                                            | <b>04/24/44</b>    | <b>Mines<br/>Field, LA</b>     |
| <b>XP-80 #1<br/>(Lockheed)</b>                                     | <b>First Flight; No gear<br/>retraction after T/O</b>                                     | <b>Gear Pin left in</b>                                                                                                        | <b>Test<br/>Pilots;Hall<br/>ion; p172</b> | <b>1/0/0</b>                                            | <b>01/09/44</b>    | <b>Muroc<br/>Dry Lake</b>      |
| <b>XB-29 #3<br/>Bomber</b>                                         | <b>TBD</b>                                                                                | <b>TBD</b>                                                                                                                     | <b>Amer Mil<br/>Acft<br/>website</b>      | <b>?/?/?</b>                                            | <b>??/??43</b>     | <b>TBD</b>                     |
| <b>XP-67 #1<br/>(McDonnell)</b>                                    | <b>High Speed taxi run w/ fire<br/>breaking out in both engines</b>                       | <b>TBD</b>                                                                                                                     | <b>Amer Mil<br/>Acft<br/>website</b>      | <b>1/0/0</b>                                            | <b>12/08/43</b>    | <b>St Louis,<br/>Mo</b>        |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                        | <u>MANEUVER</u>                                                                               | <u>SUMMARIZED ROOT CAUSE</u>                                            | <u>REPORT ID/ MATL ID</u>  | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>           |
|---------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|----------------------------|--------------------------------------|-------------|---------------------------|
| P-59A Airacomet (Bell)                      | Max Speed Dive Test; Lost Tail assembly                                                       | High Buffeting Loads                                                    | Test Pilots;Hall ion; p175 | 1/0/0                                | ~12/43      | Buffalo, NY               |
| XP-55 #1 "Ascender" (Curtis Wright)         | Uncontrolled inverted spin following stall test; pilot bailed out; A/C crashed                | TBD (design change incorporated artificial stall warning, one of first) | JBaugher website           | 1/0/0                                | 11/15/43    | TBD (around St Louis, Mo) |
| XP-56 #1 Flying Wing Fighter (Northrup)     | High-speed taxi run w/ LH main wheel tire blow out resulted in A/C somersaulting; total wreck | TBD                                                                     | JBaugher website           | 1/??/?                               | ~10/43      | Muroc Dry Lake            |
| N-9M #2 Flying wing research A/C            | On first flight Cockpit canopy blew off after takeoff; emergency landing made                 | TBD                                                                     | Amer Mil Acft website      | 1/0/0                                | 06/24/43    | TBD                       |
| XB-38 (B-17 w/ Allison Engines)             | TBD                                                                                           | Engine fire which could not be extinguished; details TBD                | Amer Mil Acft website      | ?/?/?                                | 06/16/43    | TBD                       |
| XP-63 #2 Kingcobra (Bell)                   | Cockpit filled w/ smoke, pilot bailed out w/ ensuing A/C crash                                | Engine blew rod while at altitude                                       | JBaugher website           | 1/0/?                                | 05/25/43    | TBD, New York             |
| N-9M #1 Flying Wing Research A/C (Northrup) | TBD                                                                                           | TBD                                                                     | Amer Mil Acft website      | 1/1/0                                | 05/19/43    | TBD                       |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                      | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                                                               | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                                                                                                                                                   | <u>REPORT ID/ MATL ID</u>                                | <u># CREW/ FATALI TIES/ INJURIES</u>      | <u>DATE</u>     | <u>LOCATION</u>       |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------|-----------------|-----------------------|
| <b>XB-32 #1 Bomber “Dominador” (Consolidated)</b>         | <b>After 30 test flights; Crash just after takeoff. (Original dual vertical config)</b>                                                                                                                                                                                                                                                       | <b>Flap malfunction; details TBD</b>                                                                                                                                                                                                                                                                                                                                           | <b>Amer Mil Acft &amp; USAF Museum website</b>           | <b>7/1/6</b>                              | <b>05/10/43</b> | <b>TBD</b>            |
| <b>XB-29 #2 Bomber (Boeing) (Ed. – Read this report!)</b> | <b>Co. FT prgm plagued w/ eng probs. Flt for eng ops &amp; climb perf. #1 Eng Fire ntd, CO2 bottle apparently put it out. Fire reappeared &amp; burned wing spar. A/C turned home early in sequence but crashed short of Runway into packing plant. 3 crew jumped prior to impact but perished. Inflt records thrown out prior to impact.</b> | <b>Report surmises that overwing fill caps leaked fuel into wing LE &amp; into nacelle where fire started. Fire spread inbd to #2 &amp; believed inbd into bomb bay. Magnesium valve likely triggered spar fire. Burned thru wing spar; Report recommended several design changes to add fire barriers and ventilation. Hallion implies QC short-coming @ Eng Manufacturer</b> | <b>USAAF Accident Report: Test Pilots; Hallion; p165</b> | <b>11/11/- (+19 on ground) (E. Allen)</b> | <b>02/18/43</b> | <b>Seattle, Wash.</b> |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                              | <u>MANEUVER</u>                                                                                      | <u>SUMMARIZED ROOT CAUSE</u>                                                              | <u>REPORT ID/ MATL ID</u>                                          | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>                |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------|-----------------|--------------------------------|
| <b>XB-29 #2 Bomber (Boeing)</b>                   | <b>RTO upon first flight takeoff attempt. Controls reversed</b>                                      | <b>Aileron control cables found crossed</b>                                               | <b>Airplane Stability &amp; Control, Abzug &amp; Larrabee' P65</b> | <b>?/?/?</b>                         | <b>??/??/43</b> | <b>Boeing Field, Seattle</b>   |
| <b>XP-63 #1 King cobra (Mil Tactical) (Bell)</b>  | <b>Following stuck gear &amp; fuel burn off, attempted belly landing, landed in trees w/ breakup</b> | <b>Fuel burnoff ran into evening, pilot mistook runway edge lighting for end lighting</b> | <b>JBaugher website</b>                                            | <b>1/0/0</b>                         | <b>01/28/43</b> | <b>TBD, New York</b>           |
| <b>XP-49 (Mil Tactical)(P-38 deriv)</b>           | <b>TBD</b>                                                                                           | <b>Simultaneous failure of elec &amp; hyd syss</b>                                        | <b>Amer Mil Acft website</b>                                       | <b>1/0/?</b>                         | <b>01/01/43</b> | <b>Muroc AAFB</b>              |
| <b>XB-32 #1 Bomber "Dominator" (Consolidated)</b> | <b>First flight; control probs after takeoff; necessitated emergency landing "E"</b>                 | <b>Rudder trim tab actuating rods; TBD</b>                                                | <b>Amer Mil Acft website</b>                                       | <b>2?/0/0</b>                        | <b>09/07/42</b> | <b>North Is NAS; San Diego</b> |
| <b>XP-47B #1 "Thunderbolt" (Republic)</b>         | <b>Destroyed, TBD</b>                                                                                | <b>TBD</b>                                                                                | <b>JBaugher website</b>                                            | <b>1/?/?</b>                         | <b>08/08/42</b> | <b>TBD</b>                     |
| <b>P-47B #5 Prod A/C "Thunderbolt" (Republic)</b> | <b>Portion of tail assembly broke off in flight</b>                                                  | <b>TBD</b>                                                                                | <b>Amer Mil A/C Website</b>                                        | <b>1/1/0 (George Burrell)</b>        | <b>03/26/42</b> | <b>Long Island, NY</b>         |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u><b>AIRCRAFT<br/>TYPE</b></u>                           | <u><b>MANEUVER</b></u>                                            | <u><b>SUMMARIZED<br/>ROOT CAUSE</b></u>         | <u><b>REPORT<br/>ID/<br/>MATL ID</b></u> | <u><b># CREW/<br/>FATALI<br/>TIES/<br/>INJURIES</b></u> | <u><b>DATE</b></u> | <u><b>LOCATION</b></u> |
|-----------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------|------------------------------------------|---------------------------------------------------------|--------------------|------------------------|
| <b>XSB2C-1<br/>Prototype<br/>“Helldiver”<br/>(Curtis)</b> | <b>High speed dive followed by<br/>massive structural failure</b> | <b>Wings and tail failed<br/>during pullout</b> | <b>Amer Mil<br/>Acft<br/>website</b>     | <b>1/0/?</b>                                            | <b>12/21/41</b>    | <b>TBD</b>             |



**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                        | <u>MANEUVER</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                                                                                                                                                                                                  | <u>REPORT ID/ MATL ID</u>                                                                | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>     | <u>LOCATION</u>         |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------|-----------------|-------------------------|
| <b>XPB2M-1 #1 MARS Flying Boat (Martin)</b> | <b>During initial taxi testing, one wood laminate prop separated. Narrowly missed flight engineer. Caused fire in nacelle</b>                                                                                                                                                                                                                                                                                                                                                                     | <b>TBD<br/>Had to tow A/C closer to shore so firefighters could attack fire</b>                                                                                                                                                                                                                                                                                                                                               | <b>Glenn Martin Museum Website</b>                                                       | <b>?/??</b>                          | <b>12/05/41</b> | <b>Middle River, Md</b> |
| <b>YP-38 #1 "Lightning" (Lockheed)</b>      | <b>5<sup>th</sup> flight w/ new added elev tabs activated at ~30lbs pilot force. A/C had accum 142hrs in 14mnths as test vehicle. Pilot had conducted 3 power-off dives at high alt prior to event. Higher speed dives conducted OK on previous flights w/ same config w/ buffeting. A/C was observed to initiate dive @ about 5000ft &amp; then tail parts/assy separated from A/C. A/C somersaulted and then entered inverted spin. Portion of "test instructions" sheet found in wreckage.</b> | <b>Max speed to be obtained in dives @ pilot's discretion. High flexing of stab/elev &amp; wrenching off of balance weights denoted flutter. Lkhhd believed tab attchmnt failed. After dives pilot was to make "high speed" low altitude pass over Lockheed facility for Army officer gathering related to employee morale. Event may have occurred as lead-in dive to said pass. Some difference in later documentation.</b> | <b>Test Pilots;Hall ion; p185; JBaughner Website; USAAF Accident Report; P-38 Online</b> | <b>1/1/- (Ralph Virden)</b>          | <b>11/04/41</b> | <b>Glendale, Calif.</b> |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                   | <u>MANEUVER</u>                                                                     | <u>SUMMARIZED ROOT CAUSE</u>                  | <u>REPORT ID/ MATL ID</u> | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>                   | <u>LOCATION</u>             |
|--------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------|--------------------------------------|-------------------------------|-----------------------------|
| XP-50 #1<br>(Grumman)                                  | TBD                                                                                 | Turbosupercharger explosion, pilot bailed out | JBaugher website          | 1/0/1                                | 05/14/41                      | Long Island Sound, New York |
| XP-47B #1<br>"Thunderbolt"<br>(Republic)               | On first flight, emergency ldg due leakage of eng exhaust fumes into cockpit        | TBD                                           | JBaugher website          | 1/0/0                                | 05/06/41                      | TBD, NY                     |
| YP-39 13 A/C<br>"Airacobra"<br>(Bell)                  | "Most lost during testing"                                                          | TBD                                           | JBaugher website          | ?/?/?                                | 41-42<br>08/13/42<br>08/28/42 | TBD, Muroc AAFB, CA         |
| NA-73X (P-51 Prototype)<br>(North American)            | 5 <sup>th</sup> flight; ran out of fuel; dead stick ldg w/ substantial damage       | Pilot forgot to switch fuel tanks             | JBaugher website          | 1/0/1                                | 11/20/40                      | TBD, Calif                  |
| XF4U Prottyp<br>"Corsair"<br>(Chance Vought)           | Fifth Flight; emergency ldg on golf course; A/C badly damaged but repaired          | Ran out of fuel; exact cause TBD              | JBaugher website          | 1/0/0                                | 06/??/40                      | TBD                         |
| XF4U Prottyp<br>"Corsair"<br>(Chance Vought)           | First Flight; elev trim tabs failed due flutter; emergency ldg                      | TBD                                           | JBaugher website          | 1/0/0                                | 05/29/40                      | TBD                         |
| P-66 prototype #1 Model P-48<br>"Vanguard"<br>(Vultee) | Mid-air collision w/ Sirius severed one ldg gear leg; landed w/ little addnl damage | TBD                                           | JBaugher website          | 1/0/0                                | 05/09/40                      | Vultee Field (Downey) Calif |
| XP-39B #1<br>"Airacobra"<br>(Bell)                     | Destroyed while conducting<br>TBD                                                   | TBD                                           | JBaugher website          | 1/?/?                                | 02/??/40                      | Bolling Field, Wash DC      |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                                  | <u>MANEUVER</u>                                                                                                                                                                                                                | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                                                      | <u>REPORT ID/ MATL ID</u>                                                                               | <u># CREW/ FATALI TIES/ INJURIES</u>                          | <u>DATE</u> | <u>LOCATION</u>           |
|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------|---------------------------|
| XP-39B #1<br>"Airacobra"<br>(Bell)                                    | Belly landing following<br>TBD; damage                                                                                                                                                                                         | TBD                                                                                                                                                                                                                                                                               | JBaughner<br>website                                                                                    | 1/??/?                                                        | 01/06/40    | Wright<br>Field,<br>Ohio  |
| XP-37 #?<br>Mil tactical<br>(Curtis)                                  | Functional test flight<br>following test program. First<br>flt by pilot in Model. Had<br>erroneous IAS coupled with<br>engine cooling failure.<br>Emergency ldg reqd head<br>out of canopy as windshield<br>covered w/ glycol  | During<br>"refurbishment" by<br>NACA from test<br>program, T in pitot<br>system left open. No<br>functional ground test<br>done.                                                                                                                                                  | Geocities<br>Website                                                                                    | 1/0/0                                                         | ??/??/??    | TBD                       |
| NA-40B (B-25<br>prototype)<br>North<br>American                       | "an engine -out test"<br>resulted in crash                                                                                                                                                                                     | "Lost control" - TBD                                                                                                                                                                                                                                                              | Amer Mil<br>Acft<br>website                                                                             | 2/0/2                                                         | 04/11/39    | Wright<br>Field,<br>Ohio  |
| Model 307 #1<br>"Stratoliner"<br>4-Eng Civil<br>Transport<br>(Boeing) | Original "no dorsal" vert fin<br>instl. S&C demos for KLM<br>customer; slow speed yaw w/<br>asym power. Entered<br>spinning dive from unk slow<br>speed S&C test point;<br>started pullout resulting in<br>structural failure. | Later publ states cause<br>was "rudder lock"<br>whereby hinge<br>moments reverse at<br>high sideslip angles. On<br>manual controls mech<br>advant can be such<br>pilot cannot overcome.<br>307 had many aspects<br>same as B-17. Dorsal<br>added to both as result<br>this event. | Vision;<br>Mansfield;<br>p78:<br>Airplane<br>Stability<br>&<br>Control;<br>Abzug &<br>Larrabee,<br>p215 | 11/11/0<br>(2 <sup>nd</sup><br>source<br>says 13<br>on board) | 03/18/39    | Mount<br>Rainer,<br>Wash. |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                      | <u>MANEUVER</u>                                                                                                                                                             | <u>SUMMARIZED ROOT CAUSE</u>                                                         | <u>REPORT ID/ MATL ID</u>              | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>                                      |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------|-------------|------------------------------------------------------|
| XP-38 #1<br>(P-38 Prototype)<br>“Lightning”<br>(Lockheed) | 15 days after 1 <sup>st</sup> flight, co. attempted transcontinental record flight. On final of 3 legs A/C lost power on approach & crashed on golf course short of runway. | Carb icing during the prolonged approach caused “loss of power”. Further details TBD | JBaugher Website; WW2 Aviation Website | 1/0/0                                | 02/11/39    | Mitchell Field, Long Island, NY Hamstead Golf Course |
| XP-38 #1<br>(P-38 Prototype)<br>“Lightning”<br>(Lockheed) | Upon L/O on first flt had vibr. Landed fast, dragged tail. (10/04)                                                                                                          | Flap support rods failed                                                             | P-38 Online Website                    | 1/0/0                                | 1/27/39     | March Field, Calif                                   |
| A-20 Prototype<br>(Model 7B)<br>(Douglas)                 | “demonstration of single – engine handling qualities w/ co-incident engine failure”                                                                                         | TBD; French mil personnel onboard. Public furor as many in US favored neutrality     | Amer Mil Acft website                  | ?/1/1?                               | 01/23/39    | ~Southern Calif                                      |
| JU-90 #1<br>4-Eng Civil Transport<br>(Junkers)            | “lost during flutter testing....broke up in-flight”                                                                                                                         | TBD                                                                                  | Book on Junkers                        | X/x/x                                | 02/06/38    | ?, Germany                                           |
| PB-2A(P-30)<br>#1 Mil tactical<br>(Consolidated)          | First fighter w/ retractable gear, constant speed prop, & successful supercharger. Crashed; TBD                                                                             | TBD                                                                                  | JBaugher website                       | 1/?/?                                | 05/??/36    | Wright Field, Ohio                                   |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                      | <u>MANEUVER</u>                                                                                                                                                                 | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                                                                                                                                     | <u>REPORT ID/ MATL ID</u>                            | <u># CREW/ FATALI TIES/ INJURIES</u>   | <u>DATE</u>     | <u>LOCATION</u>        |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|----------------------------------------|-----------------|------------------------|
| <b>B-17 Prototype (Model 299) (Boeing)</b>                | <b>A/C had recently begun gov eval @ Wright field. Nrml T/O for climb perf tests. A/C lifted off, climbed in very nose high att, fell off on LH wing @ 150ft &amp; crashed.</b> | <b>Gust Locks Left Engaged, Checklists not Std usage @ this time. Gust lock lever small &amp; not obvious. Report recommended specific division of duties be defined. Service eval pilots response was creation &amp; std use of checklists.</b> | <b>USAAF Accident Report: Vision; Mansfield; P57</b> | <b>5/2/3 (P. Hill &amp; Les Tower)</b> | <b>10/30/35</b> | <b>Dayton, Ohio</b>    |
| <b>YA-19 prototype (V11) (Vultee)</b>                     | <b>Takeoff of 2<sup>nd</sup> flight</b>                                                                                                                                         | <b>TBD</b>                                                                                                                                                                                                                                       | <b>Amer Mil Acft website</b>                         | <b>2/2/0</b>                           | <b>09/17/35</b> | <b>Mines Field, LA</b> |
| <b>Ant-20 #1 “maxim Gorky” 8-eng transport (Tuplolev)</b> | <b>After year of flying, conducted some TBD demo flight. Acompaining small plane attempted loop around it but collided. Both crashed.</b>                                       | <b>TBD</b>                                                                                                                                                                                                                                       | <b>Worlds Worst A/C; Pg 53; Bill Yenne</b>           | <b>43/43/0 1/1/0</b>                   | <b>05/18/35</b> | <b>Russia; TBD</b>     |

## FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS

| <u>AIRCRAFT TYPE</u>                                 | <u>MANEUVER</u>                                                                                                                                                    | <u>SUMMARIZED ROOT CAUSE</u>                                                                                                               | <u>REPORT ID/ MATL ID</u>                    | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>           | <u>LOCATION</u> |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------------------|-----------------------|-----------------|
| DC-1 (DC-2/3 prototype)<br>Civil Transport (Douglas) | Customer guarantee test flight – fail engine takeoff from high/hot airport (Winslow, Az) @ max weight. A/C sank while gear being retracted but continued T/O       | A/C owned/operated by Customer TWA. Plan was to feather prop. Contract test copilot (Eddie Allen) shutoff engine instead.                  | Skymaster , page 222; Cunningham am          | X/0/0                                | Late 1933, early 1934 | Winslow, Az     |
| L-10? #1 “Electra”<br>Civil transport (Lockheed)     | Early in flight test program, LH MLG would not extend for Indg. A/C diverted to longer runway, fuel used up, wing kept up as long as possible, min damage resulted | TBD                                                                                                                                        | Designers & Test Pilots, P53/4; Hallion      | X/0/0                                | Late Feb 1934         | Burbank, Calif. |
| K-7 #1<br>7-eng bomber prototype (Kalinin)           | Struc failure and crash                                                                                                                                            | PH tail boom wrenched off.                                                                                                                 | Worlds worst A/C; Pg 52; Bill Yenne          | ?/?/? (Sever al on Board)            | 11/21/33              | Russia; TBD     |
| DC-1 (DC-2/3 prototype)<br>Civil Transport (Douglas) | During FT & demonstration program, two instances of MLG downlock overcenter feature failing (“limber knees”) w/ A/C Indng on nacelles.                             | Overcenter mech held by hyd pressure, no mech latch initially. Several instances of limber knees w/o damage. Said latch added as response. | Madcaps, Millionaires & Mose, P67; Underwood | X/0/0                                | Last half 1933        | Western US      |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                                 | <u>MANEUVER</u>                                                                                                                                                    | <u>SUMMARIZED ROOT CAUSE</u>                                                                           | <u>REPORT ID/ MATL ID</u>                   | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u> | <u>LOCATION</u>      |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------|-------------|----------------------|
| DC-1 (DC-2/3 prototype)<br>Civil Transport (Douglas) | On third flight of A/C, the new flight observer was not told to crank down the retractable landing gear. A/c made perfect belly landing.                           | Retractable landing gear new system on A/C. Duties not clearly defined. Checklist apparently not used. | Madcaps, Millionaires & Mose; P67 Underwood | X/0/0                                | 07/0?/33    | Glover Field, Calif. |
| DC-1 (DC-2/3 prototype)<br>Civil Transport (Douglas) | On first flight, just after liftoff at ~100ft port engine "sputtered". Nosed over engine recovered. Engines sputtered each time nose pulled up. A/C landed safely. | Carburetor floats hinged at rear which resulted in shutoff at nose up attitudes                        | Skymaster , page 220; Cunningham am         | 2/0/0                                | 07/01/33    | Clover Field, Calif. |
| P-30/A-11 #2 prototype Mil tactical (Consolidated)   | TBD                                                                                                                                                                | TBD                                                                                                    | Amer Mil Acft website                       | 1/?/?                                | 01/2?/33    | TBD                  |
| P-30/A-11 #1 prototype Mil tactical (Consolidated)   | TBD                                                                                                                                                                | TBD                                                                                                    | Amer Mil Acft website                       | 1/?/?                                | 01/13/33    | TBD                  |
| YP-24 #1 (Lockheed)                                  | Pilot ordered to bail out following ldg gear lever breaking off, crashed                                                                                           | TBD                                                                                                    | JBaughner website                           | 1/0/0                                | 10/19/31    | TBD                  |
| BM-1 #1&2 Dive Bomber (Martin)                       | Both crashed during flight testing, details TBD                                                                                                                    | TBD                                                                                                    | Glenn Martin Museum Website                 | ?/?/?                                | Mid 1931    | TBD                  |

**FLIGHT TEST AIRCRAFT ACCIDENTS AND SIGNIFICANT INCIDENTS**

| <u>AIRCRAFT TYPE</u>                     | <u>MANEUVER</u>                                                  | <u>SUMMARIZED ROOT CAUSE</u>                   | <u>REPORT ID/ MATL ID</u>           | <u># CREW/ FATALI TIES/ INJURIES</u> | <u>DATE</u>       | <u>LOCATION</u>            |
|------------------------------------------|------------------------------------------------------------------|------------------------------------------------|-------------------------------------|--------------------------------------|-------------------|----------------------------|
| <b>XP-15 #1 (Boeing)</b>                 | <b>Engine shook out of airframe following prop blade failure</b> | <b>TBD</b>                                     | <b>JBaugher website</b>             | <b>1/??/?</b>                        | <b>02/07/31</b>   | <b>Near Seattle, Wash.</b> |
| <b>XP-13 Mil tactical (Thomas Morse)</b> | <b>Caught Fire, Crashed Details TBD</b>                          | <b>TBD</b>                                     | <b>JBaugher website</b>             | <b>?/?/?</b>                         | <b>?/?/30</b>     | <b>TBD</b>                 |
| <b>Christmas "Bullet" #2</b>             | <b>First Flight T/O</b>                                          | <b>"Flappable" wings wrenched off aircraft</b> | <b>World's Worst Airplanes; p46</b> | <b>1/1/0</b>                         | <b>??/?/?/~20</b> | <b>East Coast, USA</b>     |
| <b>Christmas "Bullet" #1</b>             | <b>First Flight T/O</b>                                          | <b>"Flappable" wings wrenched off aircraft</b> | <b>World's Worst Airplanes; p46</b> | <b>1/1/0</b>                         | <b>12/~26/18</b>  | <b>East Coast, USA</b>     |