

16. POWER PLANT MAKE/MODEL/SERIES

CONT MOTOR IO-550-B/UE IO-550 SERIES

33. NARRATIVE

ON JUNE 7, 2018, THE AIRMAN, MR. CARL WALKER, DEPARTED FROM HIS HOME BASE OF LIVE OAK COUNTY (8T6) ENROUTE TO SIERRA BLANCA REGIONAL AIRPORT (KSRR).

WHILE FLYING NEAR CONCAN, TEXAS, THE AIRMAN EXPERIENCED THE FOLLOWING EVENTS: A DROP IN MANIFOLD PRESSURE, AN EXPLOSION IN THE ENGINE COMPARTMENT, OIL DISCHARGE, AND A FIRE. IT WAS NOTED THAT THE ORDER OF EVENTS IS UNCLEAR (SEE THE LAST PARAGRAPH OF BOX 43 FOR ADDITIONAL INFORMATION).

THE AIRMAN DECLARED AN EMERGENCY WITH DEL RIO APPROACH AND WAS VECTORED TO AN AIRSTRIIP WHILE FLYING AT 8,500 FEET. ACCORDING TO THE AIRMAN'S WRITTEN STATEMENT, HE HAD A HARD TIME CONTROLLING THE AIRCRAFT'S PITCH AND GLIDE BECAUSE IT APPEARED TO HIM THAT IT WANTED TO PITCH UP ON ITS OWN.

FALCON RADAR DATA SHOWS THE AIRMAN ENTERING A MODIFIED TRAFFIC PATTERN AND A 4-MILE FINAL APPROACH AT 4,400 FEET FOR ANNANDALE RANCH AIRPORT (2XS7). THE AIRMAN DID NOT MANAGE TO MAKE IT TO THE AIRPORT, CRASHING INTO TREES APPROXIMATELY 0.66NM WEST OF THE AIRPORT ON FINAL.

ON IMPACT, THE AICRAFT'S LEFT HORIZONTAL STABILIZER AND ELEVATOR WERE SHEARED OFF FIRST, FOLLOWED BY THE LEFT WING, THE LEFT WING TIP TANK AND NOSEWHEEL. THE RIGHT WING, RIGHT WING TIP TANK, FUSELAGE, MAIN GEAR, AND ENGINE/ENGINE COMPARTMENT REMAINED INTACT ALL THE WAY TO THE FINAL RESTING POSITION. THE DAMAGE TO THE TIP TANKS AND MAIN TANKS CAUSED A LARGE FIRE DUE TO THE AMOUNT OF FUEL THAT WAS ONBOARD. ACCORDING TO THE AIRMAN'S STATEMENT, HE WAS TOPPED OFF WITH FUEL BEFORE DEPARTING 8T6. ACCORDING TO THE FALCON RADAR DATE, THE AIRCRAFT HAD BEEN FLYING FOR A LITTLE UNDER AN HOUR FROM TAKEOFF TO IMPACT.

AFTER THE IMPACT, THE AIRMAN MANAGED TO EVACUATE THE WRECKAGE AND LEFT THE AREA WHERE HE WAS FOUND BY A TEXAS STATE DPS TROOPER. AN AIRCRAFT FROM LAUGHLIN AFB WAS DISPATCHED TO LOCATE, ORBIT, AND REPORT THE FINAL LOCATION OF THE WRECKAGE.

THE AIRMAN WAS AIRLIFTED TO BROOKE ARMY MEDICAL CENTER IN SAN ANTONIO WITH 2ND AND 3RD DEGREE BURNS TO HIS FACE, HANDS, ARMS, AND LEGS. THE AIRMAN WAS NEVER INTERVIEWED OVER THE PHONE OR IN PERSON DUE TO DAMAGE TO HIS VOCAL CORDS, SO HIS DAUGHTER, CARRIE WALKER, ASSISTED WITH THE WRITTEN STATEMENT.

AMENDED ON JULY 30, 2018:

RECEIVED PILOT HOURS AND TRAINING INFORMATION. UPDATED 8020-23 TO REFLECT CHANGES.

43. BRIEF EXPLANATION OF ISSUES INVOLVED

AIRWORTHINESS:

ON-SITE INVESTIGATION BY THE FAA IIC (OPS) AND THE AVAILABLE FAA AVIONICS INSPECTOR REVEALED SEVERE FIRE DAMAGE TO THE ENGINE COMPARTMENT, LIMITED TO THE ACCESSORY SIDE/COMPARTMENT ONLY. IT WAS NOTED THAT A THICK WHITE-LIGHT GRAY AND POWDERY ASH WAS ALL OVER THE DAMAGED AREA. IN ADDITION, DAMAGE TO THE CRANKCASE WAS DISCOVERED UNDER THE LEFT MAGNETO. WHEN THE LEFT MAGNETO WAS REMOVED, AN APPROXIMATELY 8" HOLE WAS DISCOVERED. THE PISTON, ROD, AND CRANKSHAFT APPEARED CONNECTED. CLOSER INSPECTION REVEALED LITTLE TO NO OIL INSIDE THE ENGINE/IN THE HOLE AND VERY LITTLE OIL AROUND THE OUTSIDE OF THE HOLE AND CYLINDER. THE UPPER FRONT SECTION OF THE ENGINE REMAINED FAIRLY CLEAN. INSPECTION OF THE EXHAUST TUBING AND ROUTING FOR THE TURBO-NORMALIZING SYSTEM SHOWED NO FAULTS OR DAMAGE. WHEN CONDUCTING A VISUAL INSPECTION OF THE OIL TUBING, FILTER, AND COOLER, IT WAS DISCOVERED THAT A FEW TUBES WERE NO LONGER CONNECTED TO ANYTHING, POSSIBLY DUE TO THE FIRE DAMAGE. IN ADDITION, THE OIL FILTER FELT LOOSE. INSPECTION OF THE SAFETY WIRE REVEALED THE APPEARANCE OF A POSSIBLE NEGATIVE/BACKWARDS INSTALLATION. A VIDEO WAS TAKEN THAT RECORDED THE ORIGINAL POSITION AS IT WAS FOUND, WITH THE FAA IIC TURNING THE FILTER TO TIGHTEN. IT TOOK APPROXIMATELY ONE-HALF OF A FULL TURN TO TIGHTEN THE FILTER UNTIL IT COULDN'T BE TIGHTENED ANYMORE DUE TO THE SAFETY WIRE PREVENTING IT. IT WAS ALSO NOTED THAT IT COULD HAVE BEEN TIGHTENED MORE, BUT IT IS UNKNOWN IF THE FIRE CONSUMED THE OIL FILTER GASKET LEAVING A GAP BEHIND, OR IF IT WAS LOOSE REGARDLESS. INSPECTION OF THE EXHAUST MANIFOLD DIRECTLY UNDER THE OIL FILTER AND COOLER REVEALED SCORCH/BURN MARKINGS FROM SOMETHING DRIPPING FROM ABOVE IT.

INSPECTION OF THE AIRCRAFT LOGBOOKS INDICATED THAT AN ANNUAL INSPECTION WAS COMPLETED ON JUNE 6, 2018, A DAY BEFORE THE ACCIDENT.

ON JUNE 13, 2018, THE NTSB SUCCESSFULLY COORDINATED THE RECOVERY OF THE WRECKAGE, WITH SPECIAL EMPHASIS ON THE ENGINE AND ENGINE COMPARTMENT. FURTHER FUTURE EXAMINATION OF THE ENGINE, COMPONENTS, AND COMPARTMENT WILL INDICATE WHAT CORRECTIVE ACTION (MDR OR MAINTENANCE INVESTIGATION) THIS OFFICE WILL TAKE AS SPECIFIED IN BOX 32 OF THIS 8020-23.

THE AIRCRAFT WAS EQUIPPED WITH AN IO-550 ENGINE WITH A TURBO-

FLITE/TORNADO ALLEY TURBO-NORMALIZING MODIFICATION. THE OPERATIONS AND MAINTENANCE MANUAL, DATED SEPTEMBER 1988, STATES THAT THE AUTOMATIC WASTEGATE ACTUATOR AND CONTROLLER USE THE ENGINE'S OIL FOR POWER SUPPLY. THE TROUBLESHOOTING SECTION OF THIS MANUAL STATES THE LACK OF OIL PRESSURE AS A REASON WHY THE ENGINE WILL EXPERIENCE A DROP IN MANIFOLD PRESSURE. [REDACTED]

[REDACTED]

[REDACTED]