

# ALERT BULLETIN

AB 2006:28/2-3  
5/30/06  
689460

TO: Cirrus Aviation Inc., Teledyne Continental Motors

INFO: FAA (AFS-230, AFS-200, AFS-300, AFS-800, MKC-AEG), AACs, AIA, AOPA, AMFA, EAA, GAMA, IAM, ICASS, NTSB, PAMA, TWU

FROM: Linda J. Connell, Director  
NASA Aviation Safety Reporting System

SUBJ: CIRRUS SR-20 ENGINE CASE CRACKS

We recently received an ASRS report describing a safety concern which may involve your area of operational responsibility. We do not have sufficient details to assess either the factual accuracy or possible gravity of the report. It is our policy to relay the reported information to the appropriate authority for evaluation and any necessary follow-up. We feel you should be aware of the following:

ASRS received a report from a maintenance technician who indicated that during oil leak inspections, cracks were found on two aircraft in the engine case near the front alternator #1 mount. The reporter indicated that both aircraft involved had experienced prop strikes, but that in each case the repair shop had certified the subject case as serviceable. The technician stated that the histories of the subject engines were known, but believed that, "...the cracking was due to a design flaw or possibly a bad batch of cases...". The reporter stated that both engine cases were replaced.

(Keywords: Engine Case Cracks)

To properly assess the usefulness of our FYI service, we would appreciate it if you would take the time to give us your feedback on the value of the information that we have provided. Please contact Harvey Hartmann or Don Purdy at (408) 541-2800 or email at [hhartmann@mail.arc.nasa.gov](mailto:hhartmann@mail.arc.nasa.gov), [dpurdy@mail.arc.nasa.gov](mailto:dpurdy@mail.arc.nasa.gov).



Aviation Safety Reporting System  
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## ACN: 689460

### Time

Date : 200603

Day : Wed

### Place

Locale Reference.Airport : ZZZ.Airport

State Reference : US

Altitude.AGL.Single Value : 0

### Aircraft / 1

Make Model : SR20

### Person / 1

Function.Oversight : Supervisor

ASRS Report : 689460

### Person / 2

Function.Maintenance : Technician

### Person / 3

Function.Maintenance : Technician

### Events

Anomaly.Aircraft Equipment Problem : Critical

Independent Detector.Other.Other : 2

Resolatory Action.None Taken : Detected After The Fact

Consequence.Other : Aircraft Damaged

Consequence.Other : Company Review

Consequence.Other : Maintenance Action

### Narrative

AN SR20 ACFT IN OUR FLEET WAS SQUAWKED WITH AN OIL LEAK. UPON PRESSURIZING THE CASE, A CRACK WAS FOUND IN THE VICINITY OF THE FRONT ALTERNATOR #1 MOUNT AND THE PROP THRUST BEARING. TWO MONTHS LATER, ANOTHER SR20 WAS SQUAWKED WITH AN OIL LEAK AND A CRACK WAS FOUND IN THE SAME LOCATION. EACH ACFT HAS EXPERIENCED A PROP STRIKE, ONE LIGHT AND ONE MORE SEVERE. EACH OF THE ENGS WERE REPAIRED, YELLOW TAGGED, AND REINSTALLED FOR SVC. THE ENGS ARE TCM IO-360-ES6 WITH SERIAL NUMBERS JUST 4 APART. THIS ENG IS UNIQUE TO THE SR20 WITH THE FORWARD ALTERNATOR #1 PLACEMENT. WE HAVE HEARD OF OTHER SIMILAR INCIDENTS FROM THE ENG OVERHAUL SHOP AND ALSO CIRRUS, AND ARE WORKING CLOSELY WITH THE ACFT COMPANY AND ALSO THE ENG MANUFACTURER. ONE ENG IS 757 HOURS TT SINCE NEW, 305 HOURS SINCE OVERHAUL FOLLOWING A PROP STRIKE. THE OTHER 875 TT SINCE NEW, 132 HOURS SINCE OVERHAUL FOLLOWING PROP TIP STRIKE. EACH CASE WAS CERTIFIED AS SERVICEABLE BY A REPAIR SHOP FOLLOWING THE PROP STRIKES. WE REALIZE THE HISTORY OF THESE ENGS, BUT FEEL THE CRACKING IS DUE TO A DESIGN FLAW OR POSSIBLY A BAD BATCH OF CASES. WE'VE BEEN IN CONTACT DIRECTLY WITH CONTINENTAL MOTORS, WITH FULL DISCLOSURE OF THE ACFT'S HISTORIES AND THEY'VE AGREED TO SUPPLY 2 NEW CASES. AFTER FURTHER QUERY THROUGH CIRRUS, TCM HAS AGREED TO COMPLETELY REBUILD ONE OF THE ENGS FREE OF CHARGE. WE DO NOT KNOW FOR SURE, BUT WE SUSPECT A DESIGN FLAW IN THE CRANKCASE OF THESE IO-360-ES6 ENGS. WE CONTINUE TO MONITOR OUR REMAINING FLEET CIRRUS SR20 ENGS FOR SIGNS OF CRACKING EVERY 25 HOURS.

CALLBACK CONVERSATION WITH RPTR REVEALED THE FOLLOWING INFO: THE RPTR STATED THE ENGS ARE TCM IO-360-ES6 AND ARE UNIQUE TO THE SR20 WITH THE FORWARD ALTERNATOR #1 PLACEMENT. THE ENGS HAVE BEEN SHIPPED OFF TO THE MANUFACTURER AND THE CASES WILL BE REPLACED. THE RPTR INDICATED SOME CONTACTS IN THE INDUSTRY RPT THE CRACK CAN BE REPAIRED BY WELDING BUT DOES NOT CORRECT A DESIGN FAULT.

### **Synopsis**

A CIRRUS SR20 OPERATOR RPTS TWO ENG CASE CRACKS AT THE FRONT ALTERNATOR #1 MOUNT AND PROP THRUST BEARING. FOUND BY OIL LEAKAGE.