

EXTRACTS FROM  
CAA. G.A.S.I. 10/82

6. WATER IN THE FUEL !!!

Aircraft : Grumman G164D Ag Cat  
Date : June 1982  
Engine : United Aircraft PT6A

P/E

While flying at 800 ft the engine flamed out. Minor airframe damage as well as a bent propeller resulted from the ensuing forced landing.

Water was found in the fuel filters and in the fuel tank. The filler cap (Shaw Aero Devices 416-50) is in the centre of the upper wing, and is sealed with an 'O' ring P/N M83248/1-212. The 'O' ring was found to be swollen and had become rucked up under the cap when it was last secured. In the normal ground attitude about  $\frac{1}{4}$ " to  $\frac{1}{2}$ " of water can collect around the filler cap. Prior to the flight the aircraft had been standing outside in a thunderstorm.

The operator has amended the Maintenance Schedule to amplify checks on the filler cap seal, as well as amending the pre-flight check to ensure filler cap security is correct. (See also item 30).

Aircraft : Gulfstream American AA5 Registration G-BFPC  
Date : May 1982  
Notifiable Accident at Ballycarry, N Ireland

P

While passing through 650 ft agl the engine failed to respond when the throttle was opened to check the descent. Pumping the throttle and changing tanks did not help, cockpit indications were normal. A heavy landing with extensive damage resulted as the choice of landing sites was limited by hills and power cables. Inspection revealed water in the fuel.

Aircraft : DH82A Tiger Moth Registration G-ARTL  
Date : June 1982  
Notifiable Accident at Sunderland

P

The engine failed shortly after take-off, the aircraft suffering considerable damage when it overturned during the subsequent forced landing.

A considerable quantity of water was found in the fuel tank, which was heavily contaminated with fungal growth. The carburettor main jet was partially blocked and on removal was found to be seized. The bottom of the fuel filter bowl was so corroded as to have pin-holes. It is thought that the water contamination had existed for some time.

CAA Comment:

We have often highlighted the problems of water contamination, and seemingly must continue to do so.

7. ENGINE OIL CONTAMINATED BY MAGNETO IMPULSE BREAK-UP

E

Aircraft : Cessna 206  
Date : August 1982  
Engine : Continental IO-520A

Before shut-down a dead-cut check showed that the right-hand magneto had failed. The magneto was removed and it was found that the impulse coupling had broken up. One tang on the coupling body was missing and the other was found worn and distorted. Both pins holding the pawl mechanism of the coupling were found sheared. There were steel particles around the magneto drive assembly and in the engine oil filter. The oil sump was drained and particles were found in the oil, indicating that the engine required further work before it would be serviceable. The magneto was a Slick 662, and had been used for 275 hours since overhaul.

THE FOLLOWING AIRWORTHINESS DIRECTIVE /AD 82-20-01/ CONCERNING BENDIX MAGNETOS MODEL S4LN/S6LN-20 SERIES, -200 SERIES, -1200 SERIES D4LN/D6LN-2000 SERIES, -3000 SERIES, WAS ISSUED BY PRIORITY MAIL ON SEPTEMBER 17, 1982, AND IS BEING TRANSMITTED TO YOU BY TELEGRAM TO AVOID UNNECESSARY DELAYS IN RECEIPT. ALTHOUGH THE FIGURE INCLUDED IN THE AD COULD NOT BE SENT TO YOU BY TELEGRAM, IT WAS FELT THAT THE INFORMATION IN THE FOLLOWING TEXT WOULD BE OF ASSISTANCE SHOULD YOU RECEIVE INQUIRIES ABOUT THE AD REQUIREMENTS. THE LETTER AD AND FIGURE I HAVE ALREADY BEEN MAILED TO YOU.

THIS EMERGENCY AIRWORTHINESS DIRECTIVE /AD 82-20-01/ IS APPLICABLE TO OPERATORS AND OWNERS OF AIRCRAFT EQUIPPED WITH BENDIX MAGNETOS OF TYPE DESIGNATION IDENTIFIED BELOW. ENGINE STOPPAGE, ATTRIBUTED TO FAILURE OF THE MAGNETO IMPULSE COUPLING, HAS OCCURRED IN TWO AIRCRAFT (LESS THAN 200 HOURS OPERATING TIME). IT WAS FOUND THAT THE IMPULSE COUPLING FLYWEIGHTS HAD BEEN IMPROPERLY HEAT TREATED /SOFT/ AND HAD WORN RAPIDLY AND JAMMED. IT IS BELIEVED THIS DAMAGED THE ENGINE ACCESSORY DRIVE RESULTING IN ENGINE FAILURE. PURSUANT TO THE AUTHORITY OF THE FEDERAL AVIATION ACT OF 1958, DELEGATED TO ME BY THE ADMINISTRATOR, THE FOLLOWING AD IS EFFECTIVE IMMEDIATELY UPON RECEIPT.

BENDIX/ APPLIES TO ALL BENDIX MAGNETOS WITH TYPE DESIGNATIONS AS FOLLOWS/ S4LN-21/1225/1227 S4RN-21/1225/1227 S6LN-21/23/25/1225/1227 S6RN-21/23/25/1225/1227 S4LN-200 P/N 10-163005-7 D-2021/2031 ALL D-3000 EXCEPT BENDIX BLUE LABEL IMPULSE COUPLED MAGNETOS SERIAL NUMBER 8236001 AND ABOVE AND EXCEPT BENDIX RED LABEL IMPULSE COUPLED MAGNETOS WITH THE FOLLOWING SERIAL NUMBERS AND ABOVE

S-20 SERIES B-001171 OR A297043

S-200 SERIES B-001732 OR A297043

S-1200 SERIES B-001162 OR A297043

D-2000 SERIES 35550

D-3000 SERIES B-000249 OR 5806

COMPLIANCE REQUIRED WITHIN NEXT 10 HOURS OF ENGINE OPERATION UNLESS ALREADY ACCOMPLISHED. FOR ALL AFFECTED IMPULSE COUPLINGS HAVING LESS THAN 300 OPERATING HOURS.

TO PREVENT FAILURE OF IMPULSE COUPLING DUE TO IMPROPERLY HEAT TREATED /SOFT/ FLYWEIGHTS RESULTING IN ENGINE DAMAGE OR FAILURE, ACCOMPLISH THE FOLLOWING/ /REF. BENDIX SERVICE BULLETIN NO. 623 DATED SEPTEMBER 1982./ NOTE- THE MAGNETO SHOULD BE REMOVED FROM THE ENGINE ONLY TO THE EXTENT NECESSARY TO PERFORM THE INSPECTION DESCRIBED HEREIN. DEPENDING ON THE ENGINE APPLICATION IT MAY NOT BE NECESSARY TO REMOVE THE HARNESS FROM THE MAGNETO FOR THE INSPECTION PROCEDURE. NOTE- ALL MAGNETOS WITH THE IMPULSE COUPLING RECESSED INTO

THE MAGNETO FLANGE MUST HAVE THE IMPULSE COUPLING REMOVED FROM THE MAGNETO TO PERFORM THE INSPECTION. THIS IS A BENCH OPERATION AND WILL REQUIRE THE MAGNETO TO BE COMPLETELY REMOVED FROM THE ENGINE AND THE HARNESS REMOVED FROM THE MAGNETO.

NOTE- WHENEVER AN IMPULSE COUPLING IS REMOVED FROM A MAGNETO IT MUST BE REMOVED FOLLOWING MANUFACTURERS PUBLISHED PROCEDURES PAYING STRICT ATTENTION TO NOTES AND CONDITIONS. UPON REASSEMBLY THE CASTELLATED NUT SECURING THE IMPULSE COUPLING TO THE DRIVE SHAFT MUST BE TORQUED TO 18 - 28 FT. LB. THE COTTER PIN BENDIX PN 10-90751-18 REMOVED DURING DISASSEMBLY MUST BE DISCARDED AND REPLACED.

1. REMOVE MAGNETO FROM THE ENGINE IN ACCORDANCE WITH ENGINE/ AIRCRAFT MANUFACTURERS PUBLISHED INSTRUCTIONS.
2. PLACE THE MAGNETO IN A SUITABLE WORK STAND WITH THE IMPULSE COUPLING FACING UP.
3. USE FINGER PRESSURE TO PUSH INWARD ON THE TOE /SEE FIGURE 1/ OF EACH FLYWEIGHT SO THAT THE FLYWEIGHT HEEL PROTRUDES OUTWARD.
4. USING A FINE NUMBER 1 DOUBLE CUT 1/2 INCH WIDE FILE AT LEAST 3/32 INCH THICK PASS THE FILE ACROSS THE HEEL OF THE FLYWEIGHT ATTEMPTING TO REMOVE MATERIAL. /SEE FIGURE 1/ IF THE FLYWEIGHT HAS BEEN PROPERLY HEAT TREATED THE FILE WILL GLIDE SMOOTHLY OVER THE HEEL OF THE FLYWEIGHT REMOVING NO MATERIAL. IF THE FLYWEIGHT IS NOT PROPERLY HEAT TREATED /SOFT/ THE FILE WILL NOT GLIDE EASILY ACROSS THE SURFACE OF THE FLYWEIGHT HEEL AND MATERIAL WILL BE REMOVED.
5. IF AN IMPROPERLY HEAT TREATED /SOFT/ FLYWEIGHT IS FOUND IMMEDIATELY REMOVE AND REPLACE THE CAM ASSEMBLY AND/OR THE IMPULSE COUPLING ASSEMBLY WITH AN ASSEMBLY MEETING REQUIREMENT OF THIS AD FOLLOWING PROCEDURES IN THE MAGNETO OVERHAUL INSTRUCTIONS AND PAYING STRICT ATTENTION TO NOTES AND CAUTIONS.
6. INSPECT THE IMPULSE COUPLING STOP PINS FOR WEAR AND REPLACE AS NECESSARY.
7. AFTER FLYWEIGHTS HAVE BEEN IDENTIFIED STOP PINS INSPECTED AND THE IMPULSE COUPLING REINSTALLED ON THE MAGNETO /IF REMOVED/ IDENTIFY THE MAGNETO BY STAMPING A 1/16 INCH LETTER F IN THE UPPER RIGHT CORNER OF THE IDENTIFICATION PLATE TO INDICATE THAT THIS AD AND BENDIX SERVICE BULLETIN NO 623 HAVE BEEN COMPLIED WITH.
8. REINSTALL THE MAGNETO ON THE ENGINE FOLLOWING MANUFACTURERS PUBLISHED PROCEDURES.

9. MAKE AN APPROPRIATE ENGINE LOG BOOK ENTRY RECORDING MAGNETO SERIAL NUMBER TO INDICATE THAT THIS AD AND BENDIX SERVICE BULLETIN NO. 623 HAVE BEEN COMPLIED WITH.

10. INSPECT ALL SPARE IMPULSE COUPLING ASSEMBLIES CAM ASSEMBLIES AND MAGNETOS FOLLOWING THE SAME PROCEDURES DESCRIBED IN STEPS 3 AND 4 OF THIS AIRWORTHINESS DIRECTIVE. IF BOTH FLYWEIGHTS ARE FOUND ACCEPTABLE IDENTIFY THE CAM ASSEMBLY BY APPLYING YELLOW DYKEM OR YELLOW LACQUER TO THE HEEL OF EACH FLYWEIGHT. STAMP F ON DATA PLATE AS DESCRIBED IN STEP 7.

11. AN EQUIVALENT METHOD OF COMPLIANCE WITH THIS AIRWORTHINESS DIRECTIVE MAY BE USED IF APPROVED BY THE MANAGER NEW YORK AIRCRAFT CERTIFICATION OFFICE FEDERAL AVIATION ADMINISTRATION 181 SOUTH FRANKLIN AVENUE ROOM 202 VALLEY STREAM NEW YORK 11581. FOR FURTHER INFORMATION CONTACT/ IRVING MANKUTA, FEDERAL AVIATION ADMINISTRATION ANE-174 181 SOUTH FRANKLIN AVENUE ROOM 202 VALLEY STREAM NEW YORK 11581 TELEPHONE/516/791-7421.

ISSUED IN BURLINGTON MASSACHUSETTS ON SEPT 17, 1982  
WHITTINGTON, DIRECTOR, NEW ENGLAND REGION

Civil Aviation Authority  
Brabazon House  
Redhill  
Surrey RH1 1SQ  
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Airworthiness Division

9/97/LTO/526

28 SEP 1982

22 September 1982

LETTER TO OPERATORS NO.526  
FAA EMERGENCY AIRWORTHINESS DIRECTIVE 82-20-01  
BENDIX MAGNETOS  
INSPECTION OF IMPULSE COUPLING

This Letter to Operators is used to transmit the attached copy of FAA  
Emergency Airworthiness Directive 82-20-01.

These units are known to be fitted to numerous types of aircraft and recipients of this LTO are requested to disseminate the advice of the FAA AD as widely as possible. CAA Area Surveyors will transmit the information where it can be ascertained that an Operator will be effected by the requirement. Additionally reference will be made to this matter in the next issues of the General Aviation Safety Information Leaflet and the Occurrence Digest published by the CAA.

A handwritten signature in cursive script, appearing to read 'K. C. Sabin', is written over a horizontal line.

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