AC 20-109

DATE 1/8/79

ADVISORY CIRCULAR

DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Washington, D.C.

Subject: SERVICE DIFFICULTY PROGRAM (GENERAL AVIATION)

1. PURPOSE. This advisory circular (AC) describes the Service Difficulty Program as it applies to general aviation activities and provides instructions for completion of the Malfunction or Defect Report (M or D), FAA Form 8010-4. It solicits your participation in the Service Difficulty Program and your cooperation in improving the quality of M or D Reports.

2. CANCELLATION. AC 20-23D, Interchange of Service Experience Mechanical Difficulties, dated 2/12/71, is canceled.

3. FORMS. FAA Form 8010-4 (OMB: 04-R0003) Malfunction or Defect Report. National Stock Number (NSN) 0052-00-039-1003. Unit of issue (U/I) book (25 forms per book) available from FAA General Aviation, Air Carrier, and Flight Standards District Offices.

4. DISCUSSION. The Service Difficulty Program is an information system designed to provide assistance to aircraft owners, operators, maintenance organizations, manufacturers, and FAA in identifying aircraft problems encountered during service. The program provides for the collection, organization, analysis, and dissemination of aircraft service information so as to improve service reliability of aeronautical products. The primary sources of this information are the aircraft maintenance facilities, owners, and operators. General aviation aircraft service difficulty information is normally submitted to FAA by use of M or D Reports, FAA Form 8010-4. Information will, however, be accepted in any usable form except when use of FAA Form 8010-4 is required by regulation.

a. Input. General aviation reports (M or D) are received by local General Aviation or Flight Standards District Offices (GADO/FSDO), reviewed for immediate impact items, and then forwarded to the Safety Data Branch, AFS-580, Flight Standards National Field Office, Oklahoma City, for processing. The information contained on the M or D card is stored in a computerized data bank for retrieval and analysis. Items potentially

hazardous to flight are telephoned directly to the Safety Data Branch by FAA District Office inspectors. These items are immediately referred to the type certificate holding region, Flight Standards Division, for expeditious handling.

(1) Submission of service difficulty information by the aviation public is voluntary, although certificated repair stations and air taxi/commercial operators are required by FAR's 145 and 135 to submit certain specific information.

(2) Additional service difficulty information is collected by FAA inspectors in the performance of routine aircraft and maintenance facility surveillance, accident and incident investigations, during the operation of rental aircraft, and during the conduct of pilot certification flights.

(3) Service difficulty data is retained in the computer data bank for a period of five years providing a base for the detection of trends and failure rates.

b. Output. Analysis of service difficulty information is done primarily by the Safety Data Branch. When trends are detected, they are made available to pertinent FAA field personnel for their investigation.

5. THE SAFETY DATA BRANCH. The Safety Data Branch is also an information center which responds to individual requests from the aviation community concerning service difficulties.

a. Products. The Safety Data Branch issues the Flight Standards Service Difficulty Reports (General Aviation (RIS: FS 8070-2)) daily which contains significant M or D Reports and those service difficulties reported by telephone. Highly significant items are highlighted by a black border. Items are sometimes highlighted by a black border slashed by white. This indicates a highly significant item derived from other than M or D Reports. Flight Standards Service Difficulty Reports are distributed internally to FAA Flight Standards Offices.

b. AC 43-16, General Aviation Airworthiness Alerts, contains information that is of assistance to maintenance and inspection personnel in the performance of their duties. These items are developed from M or D Reports which have been submitted. The publication is distributed free of charge to certificated repair stations, mechanics holding an inspection authorization, air taxi operators, and aviation maintenance technician schools.

c. Automatic Data Processing (ADP) Printouts. Other products available are ADP printouts, through interrogation of the computer data bank. There are 26 special "sorts" of service difficulty data which can be presented in any one of 21 formats.

d. For details regarding service difficulty computerized data, contact the Federal Aviation Administration, Flight Standards National Field Office, Maintenance Analysis Center, P.O. Box 25082, Oklahoma City, Oklahoma 73125; or phone 405-686-4171.

6. IMPORTANCE OF REPORTING. The Federal Aviation Administration requests the cooperation of all aircraft owners, operators, mechanics, pilots, and others in reporting service difficulties experienced with airframe, powerplants, propellers, and appliances/components.

a. M or D Reports provide FAA and industry with a very essential service record of mechanical difficulties encountered in aircraft operations. Such reports contribute to the correction of conditions or situations which otherwise will continue to prove costly and/or cause a serious accident or incident.

b. Reportable Service Difficulties. Whenever a system, component or part of an aircraft, powerplant, propeller, or appliance functions badly or fails to operate in the normal or usual manner, it has malfunctioned and it should be reported. Further, if a system, component, or part has a flaw or imperfection which impairs its function or which may impair its future function, it is defective and should be reported. While at first sight it would appear this will generate numerous insignificant reports, the Service Difficulty Program is designed to detect trends and any report can be very constructive in evaluating design or maintenance reliability.

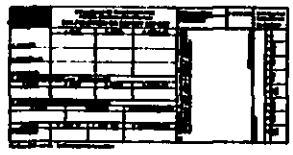
c. When preparing a report, please furnish as much information as possible. Attachments, such as photographs, sketches, and parts forwarded under separate cover, should bear identifying information.

d. Public cooperation in submitting service information is greatly appreciated by the FAA and others who have an interest in safety. The quantity of reports received precludes individual acknowledgement of each report. M or D Reports (FAA Form 8010-4) are free and available at all FAA General Aviation, Air Carrier, and Flight Standards District Offices.

7. INSTRUCTIONS FOR COMPLETION OF MALFUNCTION OR DEFECT REPORT, FAA FORM 8010-4.

ITEM 1. REGISTRATION NUMBER: Enter the complete aircraft registration number. Example: N-7523Q.

1. REGISTRATION NO.	DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION MALFUNCTION OR DEFECT REPORT
N-7523Q	



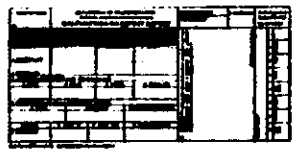
ITEM 2. AIRCRAFT: (Note: Always supply aircraft data if available.)

A. MAKE: Enter the aircraft manufacturer's name. Any meaningful abbreviation will be acceptable. Example: Beech, Rckwl.

B. MODEL: Enter aircraft model as identified on the aircraft data plate. Example: 180, 183, PA23-200.

C. SERIAL NUMBER: Enter the serial number assigned by the manufacturer.

	A. MAKE	B. MODEL	C. SERIAL NO.
2. AIRCRAFT	Cessna	172 B	1722036



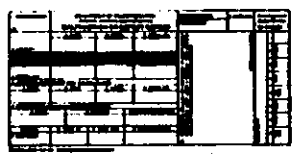
ITEM 3. POWERPLANT:

A. MAKE: Enter engine manufacturer's name. Any meaningful abbreviation will be acceptable. Example: Lyc., Cont., P&W.

B. MODEL: Enter engine model as identified on the engine data plate. Example: I0540, 0470R.

C. SERIAL NUMBER: Enter serial number assigned by the engine manufacturer.

	A. MAKE	B. MODEL	C. SERIAL NO.
3. POWERPLANT	Cont.	O 470R	L63279



NOTE: Propeller information, if available, should be included when engine failure is structural in nature.

ITEM 4. PROPELLER: (Complete only if pertinent to the problem being reported.)

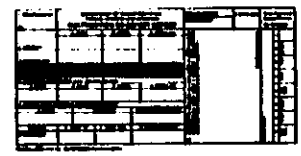
NOTE: Engine information, if available, should be completed on propeller reports for correlation with engine and propeller history.

A. MAKE: Enter the manufacturer's name. Any meaningful abbreviation will be acceptable. Example: Hartzl, Hamstd.

B. MODEL: Enter propeller model as identified in FAA type certificate data sheet/propeller specifications. Example: DHCC2Y, M74CC.

C. SERIAL NUMBER: Enter serial number assigned by the propeller manufacturer.

	A. MAKE	B. MODEL	C. SERIAL NO.
4. PROPELLER	HARTZEL	HCC3Y	HC2YL2



ITEM 5. APPLIANCE/COMPONENT: (Assembly that includes part)

A. NAME: Enter the name of the appliance/component. The appliance/component is the assembly which includes the part. Example: When the part is a burnt wire, the component should be the system using the wire, such as VHF communication system. When the part is a bearing, the appliance should be the unit using the bearing, such as alternator, generator, starter, etc. When the part is a stringer, the component name should be fuselage, wing, or stabilizer, etc.

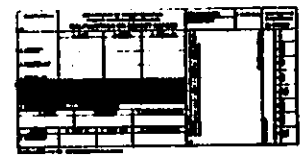
NOTE: Appliance/component information should not be a repeat of major equipment identified above.

B. MAKE: Enter the name of the appliance/component manufacturer. Example: Bendix, Prestolite, etc. If aircraft, engine, or propeller manufacturer is the component manufacturer, leave blank.

C. MODEL: Enter the manufacturer's identification of the appliance/component. Example: AVQ75, RNA26C, S4LN20. If same as aircraft engine, or propeller, leave blank.

D. SERIAL NUMBER: Enter serial number assigned by manufacturer.

5. APPLIANCE/COMPONENT (assy. that includes part)			
A. NAME	B. MAKE	C. MODEL	D. SERIAL NO.
Alternator	Prestolite	ALY6408	B625



ITEM 6. SPECIFIC PART:

A. NAME: Enter the manufacturer's name of the specific part causing the problem. Example: Bearing, stringer, hinge.

B. NUMBER: Enter the manufacturer's part number. Example: 503445, 35K493V.

C. PART/DEFECT LOCATION: Enter location of discrepant part or the defect. Example: right gear box, left outboard, right inboard.

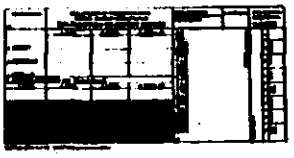
D. FAA USE: Self-explanatory.

E. PART TT: (Part Total Time): Enter the service time of the part in whole hours. (If Part TT is unknown, use aircraft, engine, propeller, or appliance/component total time, whichever is applicable.) Example: 04278, 00032, 83568.

F. PART TSO: (Part Time Since Overhaul): Enter the service time of the part since it was last overhauled, in whole hours. (If part TSO is unknown, use an aircraft, engine, propeller, or appliance/component time since last overhaul, whichever is applicable.) Example: 00427, 03393.

G. PART CONDITION: Enter the word(s) which best describe the part condition. Example: cracked, broken, corroded, chafed, worn.

6. SPECIFIC PART (of component) CAUSING TROUBLE			
A. NAME	B. NUMBER		C. PART/DEFECT LOCATION
Bearing	35K493V		Slip ring end
FAA USE	E. PART TT	F. PART TSO	G. PART CONDITION
D. ATA CODE	02756	00351	disintegrated

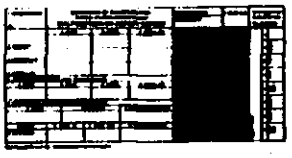


ITEM 7A. COMMENTS: Describe the malfunction or defect and the circumstances under which it occurred. State probable cause and recommendations to prevent recurrence. Continue on reverse side if needed. Powerplant TT and TSO should be shown in this block when it is a secondary item.

7A. COMMENTS (*Describe the malfunction or defect and the circumstances under which it occurred. State probable cause and recommendations to prevent recurrence.*)

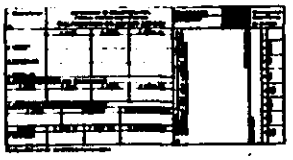
Inspection revealed Slip Ring end bearing failed due to lack of lubrication. Cause of lack unknown.
Eng. TT 03872
Eng. TSO 00250

Continue on reverse



ITEM 8. DATE SUB: Enter the date of submission, day, month, year. Example: 11/12/77, 2/5/78.

FAA USE ONLY | 8. DATE SUB. | Form Appr. Budget Bureau No. 04-R00...



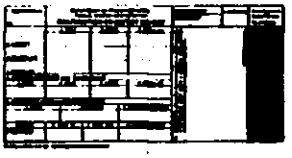
SUBMITTED BY: Enter the name (and certificate number if appropriate) of person submitting the report. This is not mandatory. The report will be entered in the system even if unsigned.

FAA district office inspectors reviewing this report should show district office symbol in this area.

Check the appropriate block to identify the organization/ person initiating the report.

SUBMITTED BY M. Signature

B.	C.	D.	E.	F.	G.	H.	I.
REP. STA.	OPER.	MECH. X	AIR TAXI	MFG.	FAA	OTHER	



J. A. Ferrarese

J. A. FERRARESE
Acting Director, Flight Standards Service, AFS-1

APPENDIX 2
Index of TSO's By Subject Matter

Subject Title	TSO Number
Air Conditioning	
Combustion Heaters	TSO-C20
Auto Flight	
Automatic Pilots	TSO-C9c
Airborne Auxiliary Power	
Gas Turbine Auxiliary Power Units	TSO-C77a
Communications	
Amplifiers	
Audio Selector Panels and Amplifiers	TSO-C50c
Microphones	
Aircraft Headsets and Speakers	TSO-C57a
Aircraft Microphones (For Air Carrier Aircraft)	TSO-C58a
Selective Calling Equipment	
Airborne Selective Calling Equipment (For Air Carrier Aircraft)	TSO-C59
VHF	
VHF Radio Communications Transmitting Equipment Operating Within 117.975 to 136.000 Megahertz	TSO-C37c
VHF Radio Communications Receiving Equipment Operating Within 117.975 to 136.000 Megahertz	TSO-C38c

Subject Title	TSO Number
HF	
High Frequency (HF) Radio Communication Transmitting Equipment Operating within the Radio Frequency Range of 1.5 to 30 Megahertz	TSO-C31d
High Frequency (HF) Radio Communication Receiving Equipment Operating within the Radio Frequency Range of 1.5 to 30 Megahertz	TSO-C32d
Voice Recorders	
Cockpit Voice Recorder	TSO-C84
Electrical Power	
Airborne Static ("DC to DC") Electrical Power Converter (For Air Carrier Aircraft)	TSO-C71
Engine-Driven Direct Current Generators/Starter-Generators	TSO-C56a
Lithium Sulfur Dioxide Batteries	TSO-C97
Static Electrical Power Inverter	TSO-C73
Equipment/Furnishings	
Aircraft Fabrics	
Aircraft Fabric Intermediate Grade; External Covering Material	TSO-C14a
Aircraft Fabric, Grade A; External Covering Material	TSO-C15c
Special Aircraft Turnbuckle Assemblies and/or Turnbuckle Safetying Devices	TSO-C21a