

ORDER

8010.2

**FLIGHT STANDARDS
SERVICE DIFFICULTY PROGRAM**



February 22, 1978

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

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FOREWORD

The Flight Standards Service Difficulty Program objective is to achieve prompt and appropriate correction of conditions adversely affecting continued airworthiness of aeronautical products, through the collection of Service Difficulty and Malfunction or Defect Reports; their consolidation and collation in a common data bank; analysis of that data; and the rapid dissemination of trends, problems, and alert information to the appropriate segments of the aviation community and the FAA.

The program provides the Flight Standards Service with reliability and airworthiness statistical data necessary to the planning, direction, control and evaluation of certain assigned programs through multiple methods of specialized data retrieval.



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Acting Director
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TABLE OF CONTENTS

	<u>Page No.</u>
CHAPTER 1. INTRODUCTION	1
SECTION 1. FLIGHT STANDARDS RESPONSIBILITY.	1
1. Purpose.	1
2. Distribution.	1
3. Cancellation.	1
4. Washington.	1
5. Field.	1
6. Airworthiness.	1
7. Engineering and Manufacturing.	2
8. Service Difficulty Board.	3
9. Safety Analysis Staff, AFS-80.	4
10. Safety Data Branch, AFS-580.	4
11. Regional Flight Standards.	4
12. Service Difficulty Coordinator.	5 (and 6)
13.-19. RESERVED.	5 (and 6)
CHAPTER 2. COLLECTION OF SERVICE DIFFICULTY INFORMATION	7 (and 8)
SECTION 1. GENERAL.	7 (and 8)
20. Authority.	7 (and 8)
21. Purpose.	7 (and 8)
22.-29. RESERVED.	7 (and 8)
SECTION 2. THE SERVICE DIFFICULTY REPORT (AIR CARRIER).	9
30. Responsibility.	9
31. Source of Information.	9
32. SDR Preparation.	9
33. Instructions for Completing FAA Form 8070-1.	11
34. Service Difficulty Reports, Processing Procedures.	18
35.-45. RESERVED.	20 (thru 22)
SECTION 3. THE MALFUNCTION OR DEFECT REPORT.	23
46. General.	23
47. Responsibility.	23
48. Sources of Information.	23
49. M or D's of Major Significance.	24
50. Recommendations.	24
51. Release of Failed Parts.	24
52. Instructions for Completing FAA Form 8330-2.	24
53. Distribution and Routing of FAA Form 8330-2.	26

	<u>Page No.</u>
SECTION 4. MANUFACTURERS' REPORTS OF FAILURES, MALFUNCTIONS, OR DEFECTS.	29
54. Authority.	29
55. Notification of Manufacturers.	29
56. Report Processing.	30
57. Public Availability.	31 (and 32)
58.-59. RESERVED.	31 (and 32)
CHAPTER 3. ANALYSIS OF SERVICE DIFFICULTY INFORMATION	33
SECTION 1. DUTIES AND RESPONSIBILITIES.	33
60. Safety Data Branch, AFS-580.	33
61. FAA District Office.	34
62. FAA Regional Office.	35
63. FAA Air Carrier/General Aviation Divisions, AFS-200/800.	36 (thru 38)
64.-69. RESERVED.	36 (thru 38)
SECTION 2. DIRECTED SAFETY INVESTIGATION (DSI).	39
70. General.	39
71. Implementation.	39
72. Summary - Directed Safety Investigation, RIS: FS 8330-9.	40
73. Directed Safety Investigation - Followup Review.	41 (thru 44)
74.-99. RESERVED.	41 (thru 44)
CHAPTER 4. SERVICE DIFFICULTY PROGRAM - DATA SYSTEM PRODUCTS AND SERVICES	45 (and 46)
SECTION 1. COMPUTER PRINTOUTS.	45 (and 46)
100. Available Printouts.	45 (and 46)
101. Scheduled Computer Printouts.	45 (and 46)
102. Special Computer Printouts.	45 (and 46)
103.-109. RESERVED.	45 (and 46)
SECTION 2. REPORT PREPARATION AND DISTRIBUTION.	47
110. Flight Standards Service Difficulty Reports, Daily Summary, RIS: FS 8070-2.	47
111. System Analysis and Summary Report, RIS: FS 8070-53.	47
112. Post Accident/Incident Report.	48 (thru 50)
113.-119. RESERVED.	48 (thru 50)
SECTION 3. REQUEST FOR INFORMATION.	51
120. General.	51
121. Service Difficulty Information.	51

	<u>Page No.</u>
122. Other Aeronautical Information.	51
123. Release of Service Difficulty Reports to the Public.	52 (thru 54)
124.-129. RESERVED.	52 (thru 54)
CHAPTER 5. PRODUCTS OF THE SERVICE DIFFICULTY PROGRAM	55
SECTION 1. GENERAL AVIATION INSPECTION AIDS DEVELOPMENT AND PREPARATION.	55
130. Purpose.	55
131. Selection of Items.	55
132. Regional Coordination.	56 (thru 58)
133.-149. RESERVED.	56 (thru 58)
SECTION 2. MANUFACTURERS' SERVICE DOCUMENTS.	59
150. Authority.	59
151. Purpose.	59
152. General.	59
153. Procedures.	59
APPENDIX 1. REGIONAL SDR COORDINATORS AND SAFETY DATA BRANCH (1 page).	1
APPENDIX 2. AIR TRANSPORT ASSOCIATION OF AMERICA SPECIFICATION FOR MANUFACTURERS' TECHNICAL DATA (54 pages).	1
APPENDIX 3. FORMS AND REPORTS OF THE SERVICE DIFFICULTY PROGRAM (12 pages).	1
Figure 1. Service Difficulty Report (Air Carrier), FAA Form 8070-1.	1
Figure 2. Service Difficulty Report (Reverse Side), FAA Form 8070-1.	2
Figure 3. Daily Summary of Service Difficulty Reports (Air Carrier), RIS: FS 8070-2.	3
Figure 4. Malfunction or Defect Report, FAA Form 8330-2.	4
Figure 5. Malfunction or Defect Report (Reverse), FAA Form 8330-2 (General Aviation).	4
Figure 6. Daily Summary of Service Difficulty Reports (General Aviation).	5

2/22/78

	<u>Page No.</u>
Figure 7. Segment of FAA Form 8340-6 (Reduced). Produced Annually; Also Quarterly, See Figure 8.	6
Figure 8. Quarterly Air Carrier Aircraft Utilization.	7
Figure 9. System Analysis and Summary Report (RIS: FS 8070-53).	8
Figure 10. First Page of a Notice, Initiating a DSI.	9
Figure 11. Maintenance Difficulty Record, AC Form 8330-3.	10
APPENDIX 4. AVAILABILITY OF FORMS (1 page).	1

CHAPTER 1. INTRODUCTION

SECTION 1. FLIGHT STANDARDS RESPONSIBILITY

1. PURPOSE. This order sets forth the policy and procedures, and assigns duties and responsibilities to Washington headquarters, regional, and field personnel, to ensure the Service Difficulty Program effectively and economically meets its objectives.
2. DISTRIBUTION. This order is distributed to all Flight Standards offices in Washington headquarters, the regions, and the Aeronautical Center to the branch level; to all General Aviation, Air Carrier, Engineering and Manufacturing and Flight Standards District Offices; and to all International, International Aviation, and Aeronautical Quality Assurance Field Offices.
3. CANCELLATION. Order 8000.24A, Flight Standards Service Difficulty Program, dated June 14, 1973, is canceled.
4. WASHINGTON. The Service Difficulty Program is a jointly shared endeavor of the pertinent divisions/staffs of the Flight Standards Service. They are responsible for the formulation and dissemination of the general procedures and concepts of the program. Through their subordinate elements, they will monitor, on an overall basis, the program operational functions and amend any procedure when conditions or circumstances dictate. These divisions will, on a continuing basis, be apprised by the regions of the program's effectiveness. Washington, Oklahoma City, and regional personnel, involved in the Service Difficulty Program, should attend the program improvement meeting which will be convened annually at a designated location.
5. FIELD. The Service Difficulty Program is executed by field elements, including the Flight Standards National Field Office at the Aeronautical Center, using guidelines established by the Washington divisions. The authority to function in accordance with these policies is found in the present FAR and existing, new, or amended directives. Field elements will provide feedback to Washington divisions, as necessary, to assure program accomplishment. They will also recommend, to the Washington division, needed changes to the FAR and/or policy. Field personnel, associated with this program on a continuing basis, will monitor the overall program and, when so directed, participate in the annual meetings to discuss program effectiveness and provide assistance in making changes to improve the program.
6. AIRWORTHINESS.
 - a. Washington. The Air Carrier/General Aviation Divisions will be jointly responsible with other pertinent divisions for establishing, revising, and disseminating maintenance practices and general procedures necessary to accomplish the intended functions and meet the responsibilities of the Service Difficulty Program. This order will serve as general guidance. Technical

2/22/78

personnel will be utilized in monitoring and effecting coordinated changes as necessary. The Washington Flight Standards Divisions will evaluate data, provided by the field, on the airworthiness aspects of the program. Agenda items will be prepared for the annual meeting of key service difficulty personnel. Meeting arrangements will be disseminated to pertinent field offices.

b. Field. Regional Flight Standards Divisions, including the Flight Standards National Field Office at the Aeronautical Center, will participate in this program to assure prescribed policies and procedures are implemented and monitored, and branch responsibilities are accomplished. Procedures for program accomplishment may require general amendment or supplemental information due to unique regional operations or organizational structure. It is the responsibility of assigned personnel to establish and implement such amended or supplemental information. The Air Carrier/General Aviation Divisions, AFS-200/800, shall be informed of significant concerns of the program and shall be provided recommendations for program improvement.

7. ENGINEERING AND MANUFACTURING.

a. Washington. The Engineering and Manufacturing Division will be jointly responsible, with other pertinent divisions, for establishing, revising, and disseminating practices and general procedures for the Service Difficulty Program. This order will serve as the general guidance source. Division personnel will be utilized in monitoring and effecting procedural changes. The division will evaluate data from field input and prepare agenda items for the annual meeting of service difficulty personnel. Meeting arrangements will be disseminated to pertinent field offices.

b. Field.

(1) Regional engineering and manufacturing personnel will participate in this program to assure prescribed policies and procedures are implemented, monitored, and that branch responsibilities are accomplished. The procedures for the accomplishment of the program may require general amendment or supplemental information due to unique regional operations or organizational structure. It will be the responsibility of assigned personnel to establish and implement such amendments or supplemental information. The Engineering and Manufacturing Division, AFS-100, will be informed of significant concerns of the program and will be provided recommendations for program changes.

(2) Field Engineering and Manufacturing Branches will be responsible for using service difficulty data to accomplish their program objectives. Specifically, the prime objective in evaluating reported service difficulties is to determine if corrective action should be required by an Airworthiness Directive to correct an "unsafe condition" as envisaged by FAR Parts 21.99(a) and 39.1, or to determine if design changes should be suggested to the manufacturer for safety improvement as envisaged by FAR Part 21.99(b).

Active participation by engineering and manufacturing inspection personnel in this program is essential to assure:

(a) The timely finding of type design and quality control deficiencies which may result in unsafe or undesirable conditions, and

(b) The taking of appropriate corrective action.

(3) It is essential that good interface exists and prevails between engineering and manufacturing personnel and the appropriate general or air carrier inspector(s), so as to better achieve the overall program objectives in a well-balanced (design vis-a-vis maintenance) manner.

8. SERVICE DIFFICULTY BOARD.

a. Organization. The Service Difficulty Board (SDB) is located in Washington headquarters, Flight Standards Service, and consists of:

(1) A Chairman and four Board Members.

(2) The Deputy Director will serve as Chairman and the Chiefs of the Air Carrier, General Aviation, Engineering and Manufacturing Divisions, and the Chief of the Safety Analysis Staff will serve as Members of the Board.

(3) The Deputy Director, Division, and Staff Chiefs may, because of changing priorities and to enhance the continuity of the Board, find it desirable to delegate their Board duties to subordinate representatives on a continuing basis. Delegations should be made to persons fully familiar with the Service Difficulty Program.

(4) Other technical personnel may participate when requested by the Board.

b. Responsibilities. The responsibilities of the SDB are as follows:

(1) Monitor the effectiveness of the Service Difficulty Program.

(2) Provide guidelines and direction in matters of practice and procedure for the Service Difficulty Program.

(3) Assure prompt appropriate corrective action on service difficulty items when such action cannot be, or is not, resolved; i.e., the SDB will act as a mediating body to ensure prompt action.

(4) Maintain close coordination with AFS-580 through the appropriate coordinator who performs the following functions:

(a) Coordinate procedural changes to be initiated by the SDB.

(b) Coordinate Directed Safety Investigations.

9. SAFETY ANALYSIS STAFF, AFS-80.

a. Organization. The Safety Analysis Staff is established within the Flight Standards Service in the Washington headquarters.

b. Responsibilities. The Safety Analysis Staff is the principal element of Flight Standards Service with respect to aviation safety data systems pertaining to Flight Standards programs and related industry activity. The Safety Analysis Staff provides the Service's principal point of coordination with the Safety Data Branch and related automatic data processing (ADP) functions. The Service Difficulty Report system is part of an overall safety data base developed to improve the effectiveness of safety programs at all levels, allow analysis of national or local safety problems, and detect trends which may indicate future safety problems.

10. SAFETY DATA BRANCH, AFS-580.

a. Organization. The Safety Data Branch is established within the Flight Standards National Field Office at the Aeronautical Center (AFS-500).

b. Responsibilities. AFS-580 correlates service difficulty data for the general aviation and air carrier fleets. This includes coding of each report, programing data into the computer, analysis of printout data, and dissemination of data to appropriate offices.

11. REGIONAL FLIGHT STANDARDS. The Regional Flight Standards organization is responsible for taking quick and appropriate corrective action as a result of analysis of data provided by the Service Difficulty Program. (In the Western Region, the responsibility is shared with the Aircraft Engineering Division.) In addition, the regional Flight Standards organization administers the Service Difficulty Program by:

a. Monitoring the SDRs and M or Ds submitted by the district offices, within the region, to ensure that they contain complete information and are accurately executed.

b. Fostering district office support for the Service Difficulty Program through education of field office inspectors in the program's capabilities and services.

c. Devising a system to ensure effective use of Service Difficulty Program products within the region.

12. SERVICE DIFFICULTY COORDINATOR.

a. Responsibilities. The Regional Service Difficulty Coordinator is responsible for:

(1) Serving as the focal point within the region for receiving service difficulty information and ensuring that information and documents received are disseminated to the appropriate branches for action.

(2) Performing staff functions in overseeing and assessing the Division's Service Difficulty Program management and accomplishments.

(3) Making recommendations to the Division Chief to revise national, regional, or division procedures.

(4) Effecting good communication and coordination with other branches within the division.

(5) Keeping the Division Chief advised on safety issues.

b. Specific Duties. The Regional Service Difficulty Coordinator is responsible for performing the following specific duties:

(1) Reporting, at the direction of the Division Chief, to the appropriate coordinator of the Service Difficulty Board on service difficulty items when corrective action CANNOT BE, or IS NOT, resolved between regions in a time period commensurate with safety implications.

(2) Coordinating Service Difficulty Reports (telephonic significant reports) from the field on products for which his region holds Type Certificate (TC), Parts Manufacturer Approval (PMA), or Supplemental Type Certificate (STC) responsibility.

(3) Following up the status of actions taken in response to Maintenance Difficulty Records (telephonic significant reports) of service difficulties occurring in his region.

(4) Submitting to AFS-580 a monthly report of items to be published in Advisory Circular 20-7, General Aviation Inspection Aids. The region holding TC, PMA, or STC responsibility will make the report.

(5) Ensuring that AFS-580 is informed of TC, PMA, or STC address changes.

c. Regional Coordinators' names and locations (see Appendix 1).

13.-19. RESERVED.

CHAPTER 2. COLLECTION OF SERVICE DIFFICULTY INFORMATION

SECTION 1. GENERAL

20. AUTHORITY. Title VI of the Federal Aviation Act, Federal Aviation Regulations (FAR) Parts 21.3, 37.17, 121.703, 121.705, 123.27, 127.313, 127.315, 135.2, 135.57, 135.59, and 145.63.

21. PURPOSE. The service difficulty information provides the personnel of Flight Standards Service with reliability and airworthiness statistical data necessary for planning, directing, controlling, and evaluating certain assigned programs. This system also provides agency managers and inspectors with a means for measuring the effectiveness of the self-evaluation techniques being employed by certain segments of the civil aviation industry. There are three basic forms used in collecting service difficulty information: Service Difficulty Reports (FAA Form 8070-1) for air carrier, Malfunction or Defect Reports (FAA Form 8330-2) for general aviation, and the Maintenance Difficulty Record (AC Form 8330-3) used to record telephonic reports.

22.-29. RESERVED.

SECTION 2. THE SERVICE DIFFICULTY REPORT (AIR CARRIER)

FAA FORM 8070-1 (RIS: FS 8070-1) (SDR)

30. RESPONSIBILITY. The responsibility for completion and submission of this report rests with the FAA district office inspectors. The inspector will normally acquire the needed information from two primary sources.

31. SOURCE OF INFORMATION. The following paragraphs outline the primary information sources for completion of the SDR, FAA Form 8070-1.

a. The first information source is the reporting by air carrier organizations in compliance with Federal Aviation Regulations (FAR) Parts 121.703, 123.27, 127.313, and 135.2.

b. One exception is the submission by air carrier organizations, in compliance with FAR Parts 121.705, 123.27, 127.315, and 135.2, of the Mechanical Interruption Summary (MIS) reports which are retained by the district office. Only those reports citing an occurrence significantly related to safety will be transcribed to the SDR form, and identified as FAA submitted SDRs.

c. The second information source are those significant malfunctions, failures, or conditions, brought to the attention of, or noted by, the inspector during surveillance of the aviation industry activities in all categories. They will be identified as FAA submitted.

32. SDR PREPARATION. The following procedures outline the action to be taken by the aviation industry, FAA district office, the Flight Standards National Field Office, the Safety Data Branch, and the regions.

a. The Aviation Industry. The air carrier industry shall submit information in accordance with applicable Federal Aviation Regulations. The industry organization submitting the report may use FAA Form 8070-1; however, this does not prohibit the organization from submitting the required information in a manner that is suitable to its management system.

b. The FAA District Office. When a required report is received from the industry or is originated by the inspector, the district office is responsible for the processing of a complete and accurate SDR, FAA Form 8070-1. Thorough preparation requires consideration of the following:

(1) The regulations require a report for each malfunction, failure, or defect that occurs under the reportable categories. This includes any such failure that occurs subsequent to a similar failure previously reported. One-time reporting of similar defects is unacceptable. In addition, each certificate holder shall report any other failure, malfunction, or defect in an aircraft that occurs or is detected at any time, if in the holder's opinion that failure, malfunction, or defect has endangered or may endanger the safe operation of an aircraft used by the holder.

2/22/78

(2) Industry reports which are not required by the FAR will be processed only if a significant occurrence is indicated and they are identified as FAA submitted.

(3) The text of a report must identify and describe the cause of the malfunction, failure, or defect. It should contain descriptive information concerning the component and part identification number, time since overhaul, total time, inspection findings, and corrective action taken to prevent recurrence.

(4) The airworthiness/avionics/manufacturing inspector will review all reports coming from industry to ensure that all required information is included in the report.

(5) Editorial corrections will be made to the reports as necessary. Words and sentences that are not appropriate and necessary for a complete explanation of the difficulty will be eliminated from the report.

(6) In the case of an interchange agreement, the operator is responsible for submitting the report under his name. The text of the report should indicate that the occurrence involved an interchange aircraft, by including the air carrier letter symbols of the aircraft owner.

(7) If the airworthiness/avionics inspector has additional information concerning the particular malfunction, failure, or defect being reported by industry that he feels may be useful to FAA personnel, it will be telephoned through channels to the Air Carrier Division, AFS-200, and Maintenance Analysis Center (MAC) Section, AFS-581. Such remarks or opinions will not be included on FAA Form 8070-1. The SDRs are available to the public; therefore, the reports must not contain opinions, statements related to accident causes, etc.

(8) Reports that are submitted in an open status require prompt action to assure that the report is closed as soon as possible. Airworthiness/avionics inspectors will review the open reports on a monthly basis to determine the action being taken on the cause of the reported condition. The assigned inspectors will furnish a status report on open reports ten days after the month ends to their respective regional offices.

(9) Supplemental reports shall be transmitted using the same format and procedures as for the original report. The symbol S/D (Supplemental Data) should immediately precede the supplementary information in the TEXT block. For original "open" or "closed" reports, AFS-580 assigns a control number to the FAA Form 8070-1. In case of a supplemental report, the air carrier inspector should enter the control number originally assigned by AFS-580 and the same date as on the original report.

(10) Recommendations concerning maintenance alert bulletins will be handled in accordance with instructions contained in Order 8340.1A, Maintenance Bulletins. Recommendations for Airworthiness Directive action should be

submitted through the inspector's regional organization with substantiative data for further handling to the type certificate-controlling region, with a copy to AFS-580 and AFS-200. The substantiative data should contain: an accurate description of the problem; explanatory drawings; photographs if possible; descriptive information relative to the events of the malfunction, failure, or defect; and recommendations concerning the action required to correct the problem.

(11) Unreported hazardous conditions that are uncovered during surveillance activities should be discussed with the appropriate industry organization to determine whether it is reportable in compliance with regulatory requirements. In cases of nonagreement and legal guidance is required, the appropriate regional organization should be contacted. If it is nonreportable, under the applicable FAR, the inspector shall process, identify as FAA-submitted, and forward.

(12) Inspectors are likely to become aware of important service difficulties affecting safety during accident/incident investigations. Experience indicates that inspectors often neglect to report these findings assuming that the accident/incident reports will suffice. All inspectors are urged to report these findings by SDR promptly as there is a long timelag between the accident/incident and cause determination. When preparing reports found during these investigations, the inspector should bear in mind that the NTSB is responsible for determining the accident cause. Therefore, the inspector should frame the report carefully so that readers of the report cannot conclude that what is being reported was the cause of an accident. The FAA inspector shall identify the SDR as FAA submitted.

33. INSTRUCTIONS FOR COMPLETING FAA FORM 8070-1. The responsibility for completing this form rests with the FAA district office inspector and the personnel of AFS-580. The reports must be typed in duplicate. The following is an explanation of the data to be entered in each block:

a. Report Identification.

(1) Control No. This is the control number of the report, to be assigned by AFS-580. The control number indicates the month, day, and year the report was processed by AFS-580. Also indicated is the region holding type certificate responsibility for the product being reported. The form of this number will be 04168014CE, and indicates April 16, 1978, the 014 report of the day, and the Central Region has TC responsibility for the product.

RIS: FS 8070-1	
CONTROL NO	
ATA	CODE

(2) ATA. This is a modified ATA Specification 100 number to be assigned by AFS-580. The ATA Specification 100 identifies the aircraft systems and subsystems (see Appendix 2).

(3) Code. A four-digit code representing a computer index term or component name. This code will be assigned by AFS-580.

2/22/78

b. Major Equipment Identity. These blocks are to identify major assemblies of parts and components and must not be repeated in the component/appliance blocks at the bottom of the "problem description" of the form.

Enter pertinent data	MANUFACTURER	MODEL/SERIES	SERIAL NUMBER	N-
AIRCRAFT			(E)	(G)
POWERPLANT			(F)	(G)
PROPELLER			(H)	(I)

(1) Aircraft Manufacturer. The aircraft manufacturer's name. Any meaningful abbreviation will be acceptable.

(2) Aircraft Model/Series. This information must be the official designation of the aircraft as listed in the FAA Aircraft Specification or Type Certificate Data sheets.

(3) Aircraft Serial Number. The serial number assigned by the manufacturer.

(4) Powerplant-Propeller. The powerplant and propeller manufacturers' name, model/series, and serial number will be entered when the information is pertinent to the problem being reported. The above aircraft instructions will serve as guidelines when making these entries. When the information is available, the inspector should fill out all the blocks in the top section except E, G, and I.

(5) N-Number. Enter the complete aircraft registration number.

(6) Model Codes. The three blocks marked with a circled E, G, and I will be completed by AFS-580 and are used for ADP input or model/series data.

c. Problem Description. This section will be used for the production of a daily summary of Service Difficulty Reports.

(1) Date. Enter the date the problem or condition being reported occurred. Example: 02-16-78.

DATE	STATUS	CARRIER	ATA	AIRCRAFT TYPE	N-	CONTROL NO
TEXT						
SPECIFIC PART CAUSING PROBLEM						
PART NAME	MFG PART NUMBER	PART CONDITION	PART/DEFECT LOCATION			
(J)	(K)	(L)	(M)			
COMPONENT/APPLIANCE ABOVE PART INSTALLED ON					Report whole hours	PART TT
COMP/APPL NAME	MANUFACTURER	MFG MODEL/NUMBER	PART TSO			
(P)	(Q)	(R)	(S)			

(2) Status. Report status; enter "ORIG-OPEN," "ORIG-CLOSED," "SUPP-OPEN," or "SUPP-CLOSED" to indicate if this is an original or supplemental report. The open-closed indicates whether additional information will follow.

(3) Carrier. Enter the appropriate symbol if the product reported is operated by an operator listed in Order 8320.12, Air Carrier Airworthiness Inspector's Handbook.

(4) ATA. Enter the aircraft system and subsystem, respectively, by the numerical symbols (ATA Spec 100) listed in Appendix 2 of this order. Use the subsystems numbers where possible. In coding the subsystem, it is important to select the code applicable to the part or component which malfunctioned or failed. AFS-580 WILL NOT CHANGE THE INSPECTOR'S CLASSIFICATION UNLESS IT IS OBVIOUSLY MISCODED.

(5) Aircraft Type. The aircraft model and series must be identified in accordance with the FAA Type Certificate Data Sheet or Specification.

(6) N-Number. Enter the complete aircraft registration number.

(7) Control No. This is the control number of the report to be entered by AFS-580 and is a duplicate of the control number listed in 33.a.(1).

d. Problem Description, General. This series of blocks contain a complete description of the problem including the text or narrative, and part component identification. All blocks must be complete and accurate in order to realize full utilization of the system interrogation capabilities. This will expedite MAC responses to field requests for information.

NOTE: Do not enter any information in any block except that specified. Do not use "N/A," "see text," "unknown," dashes, etc.

(1) Text. The text must identify and describe the cause of the malfunction, failure, or defect. It should contain descriptive information concerning the part/component that caused the difficulty, inspection findings, and corrective action taken to prevent recurrence.

NOTE: The inspector should remember that what is entered in this section must enable someone not familiar with the problem to understand what the problem is. It should also assist in the development of a fix, if warranted. The inspector should enter data important to the particular problem; e.g., calendar dates, cycles, etc., in addition to that specified in the above paragraph. If the text of the report requires more typing space than the text block provides, the last line in the text block shall state, "TEXT continued." Continue the text on an 8" by 10 1/2" sheet of white paper as required. Attach the continuation sheet to the FAA Form 8070-1.

2/22/78

(2) Part Name. Enter the manufacturer's name of the specific part causing the problem. The part name must be limited to 16 characters.

(3) Mfg. Part Number. Enter the manufacturer's part number but DO NOT include any special characters such as dashes, slashes, blank spaces, etc. Example: 3/SXK-856 A116 would be entered 3SXK856A116. The part number must be limited to 16 characters.

(4) Part Condition. Enter the word(s) which best describes the part condition, but limit the entry to 16 characters. Example: Broken, Chafed, Corroded, etc.

(5) Part/Defect Location. Locate the discrepant part or the defect, but limit the entry to 16 characters/blanks. Example: Rt. Gear Box, Jacking Point, Left Outboard, etc.

(6) Part TT. Part total time; enter the total service time of the part in whole hours. When an entry is made, it must contain five numbers. Example: 03617, 00099, 52187.

(7) Part TSO. Part time since overhaul; enter the service time of the part since it was last overhauled, in whole hours. When an entry is made it must contain five numbers. Example: 316.3 hrs. would read 00316, 2281.9 would be 02282.

(8) Comp/Appl Name. The component is the assembly which includes the part. Example: When the part is a burnt wire, the component must be the system using the wire, such as VHF comm. system; when the part is a stringer, the component name could be fuselage, etc.

NOTE: Component-appliance information must not be a repeat of major equipment identified above.

(9) Manufacturer. Enter the name of the component manufacturer. This entry must be limited to 12 characters.

(10) Mfg. Model/Number. Enter the manufacturer's identification of the component. The entry must be limited to 12 characters and contain no special characters such as dashes, slashes, or blanks. Example: AVQ75, RNA26C, S4LN20.

(11) Serial No. Enter the manufacturer's serial number of the component.

2/22/78

8010.2

e. Submitted by. This series of blocks identifies the person/organization initiating the report; also, special computer input coding.

SUBMITTER (Check one)										(S)	A	B	C	D	E	F	G	H	I	PSL	ALERT	OPER/DO
											CARRIER	REP STA	OPER	MECH	AIR TAXI	MFG	FAA	OTHER	Spec			
PREC PROC	NATURE	STAGE	STAT	ROLL	FRAME	SYS	SYS															
(T)	(U)	(V)				(1)	(2)															
ADDITIONAL COMMENTS																						

(1) Submitter. The FAA inspector should enter his name and district office symbol (Jim Higgins, AEA-ACD0-31) and check the appropriate block (check one only). If the report is being prepared as a result of FAR requirement, the following guidelines apply:

CHECK BLOCK

IF REQUIRED BY FAR

A.

121.703, 123.27, 127.313, 135.2

F.

21.3, 37.17

SUBMITTER CODE "G" should be checked when the report is initiated by FAA personnel as a result of a condition noted by the inspector and when a report is not required by 121.703, 123.27, 127.313, or 135.2.

(2) P.S.L. A one-character code to indicate if the report included a picture, sketch/drawing or lengthy comment. AFS-580 will code this block:

P

Picture

S

Sketch

L

Lengthy Comment

(3) Alert. A one-character code to indicate that this report was urgent in nature and transmitted to AFS-580 by telephone, or if the report was alerted in the daily summary of SDR's, or both.

This will be coded by AFS-580.

T

Telephone Report.

A

Daily Summary Report.

B

Both of the above.

2/22/78

(4) Oper/D0. This block will be completed by AFS-580. It will contain the three or four letter air carrier symbols as listed in the carrier block when the report is initiated by an air carrier. When the report does not show a carrier symbol, the region and district office of the reviewing inspector will be entered in this block.

(5) Prec. Proc. Precautionary Procedures; enter the code symbol(s) for the precautionary procedure(s) effected by the flightcrew as the result of a technical fault. The coding of these data requires a minimum of one code and permits a maximum of four codes. More than one code letter should be recorded as necessary, to show all events that were involved in the precautionary procedures. (Example: an engine was shutdown, fuel was dumped, and an unscheduled landing was made; enter code AEJ to describe these conditions.)

<u>Code Identifier</u>	<u>Precautionary Procedure Effected</u>	<u>Code Identifier</u>	<u>Precautionary Procedure Effected</u>
A	Unscheduled landing.	H	Deactivate system.
B	Emergency descent.	I	Depressurization.
C	Aborted takeoff.	J	Fuel dumped.
D	Return to blocks.	K	None.
E	Engine shutdown.	L	Aborted approach.
F	Activate fire extinguisher.	O	Other.
G	Oxygen mask deployed.		

(6) Nature. Nature of condition; enter the symbol(s) that best describe the nature of the condition resulting from the reported failure, malfunction, or defect. The coding of these data requires a minimum of one code and permits a maximum of three. These are entered in whatever order best describes observed conditions resulting from the reported component/part malfunction.

Code

A - Flame: visible fire.

B - Smoke: fumes, odors.

C - Foreign object impact: bird, hail, lightning, ground debris.

D - Inflight separation: inflight loss of any aircraft part.

- E - Vibration/buffet: rough engine, clear air turbulence, flight controls.
- F - Flight controls affected: any malfunction affecting flight controllability.
- G - Multiple failure: multiple failure of like systems or units.
- H - Electrical power source loss exceeding 50 percent: alternators, buss, circuits.
- I - Flight attitude instrument malfunction.
- J - Warning indications.
- K - Fluid loss: any malfunction resulting in loss of fuel, oil, gas, etc.
- L - No test: the malfunction of a system being tested or the test circuit itself.
- M - Over temperature condition: not fire.
- N - False warning.
- O - Other.
- P - No warning indication.
- S - Other systems affected.
- T - Engine case punctured.
- X - Engine flame out
- Y - Engine stoppage in flight (except flame out) all engines.
- Z - Significant failure reports.

(7) Stage. Enter the stage of flight or ground operation the aircraft was engaged in when the reported failure, malfunction, or defect occurred or was observed.

<u>Code</u>	<u>Stage of Operation</u>	<u>Code</u>	<u>Stage of Operation</u>
IN -	Inspection/maintenance.	DE -	Descent.
TX -	Taxi/ground handling.	AP -	Approach.
TO -	Takeoff.	LD -	Landing.

2/22/78

<u>Code</u>	<u>Stage of Operation</u>	<u>Code</u>	<u>Stage of Operation</u>
CL -	Climb.	HO -	Hovering.
CR -	Cruise.		

(8) Stat. (Status). This is a coded entry to indicate if the report is "open" or "closed"; i.e., is additional information forthcoming? The entry will be made by AFS-580.

(9) Roll. The microfilm roll identification will be entered by AFS-580. All Service Difficulty Reports will be stored on microfilm the first and 16th day of each month.

(10) Frame. The microfilm frame identification of the individual report. The frame number will be assigned by AFS-580.

(11) Sys. (systems) (Sys. subsystems). Affected systems; enter the first three digits of the ATA subsystem which identifies those aircraft functions affected or whose capability has been degraded by the reported malfunction. Example: A tire tread comes loose damaging the flaps and engine compressor. The affected systems reported would be flaps (275) and the engine compressor (723). The fourth digit of the ATA subsystem code will not be entered in these blocks. AFS-580 will complete these entries.

(12) Text Summary. AFS-580 is responsible for condensing the text of the report into 115 characters for computer input.

NOTE: See Appendix 3, Figures 1 and 2, for a complete FAA Form 8070-1.

34. SERVICE DIFFICULTY REPORTS, PROCESSING PROCEDURES.

a. The District Office.

(1) The original and one legible copy of FAA Form 8070-1 (Service Difficulty Report) should be mailed to the Safety Data Branch, AFS-580, on the SAME DAY that the information is received in the district office. Prior to forwarding to AFS-580, ensure reports initiated by FAA inspectors and those received from industry include sufficient information to allow analysis.

(2) Do not fold FAA Form 8070-1 for mailing; folding will result in processing difficulties in the Safety Data Branch.

(3) Significant reports that warrant immediate notification of the FAA offices responsible for the failed products should be telephoned to the Maintenance Analysis Center Section, AFS-581 (see Appendix 1 for telephone numbers) and other interested regions (see paragraph 34a.(6)). The inspector will be provided, if appropriate, a telephone conference with the region holding the type certificate for the product. The information given during

2/22/78

8010.2

the telephone report should follow the format of AC Form 8330-3, Maintenance Difficulty Record (see Appendix 3, page 10). An SDR will then be prepared by AFS-584; all members of the telephone conference will receive copies as well as the SDR Coordinator of the region of occurrence. The Regional Service Difficulty Program Coordinator will distribute this report through his region in accordance with regional procedure. These reports, being of an alert nature, require that the inspector consider and provide the following information when available and relevant:

- (a) Aircraft owner's name and address.
- (b) Was an accident or incident involved?
- (c) Certificate information - TC, STC, PMA, etc.
- (d) Related service bulletins, service letters, airworthiness directives.
- (e) What is the disposition of the defective part?
- (f) Photographs should be obtained when possible.

(4) In order to provide maximum utilization of the telephone conference described above, the readily available data will be placed on AC Form 8330-3, Maintenance Difficulty Record, by the persons initiating the report prior to placing the conference call. AFS-580 personnel and personnel of the controlling region will utilize the same format in recording the data. Regions may acquire forms from AFS-580.

(5) Matters to be telephoned should include at least one or more of these items:

- (a) Primary structure failures.
- (b) Control system failures.
- (c) Fire in the aircraft.
- (d) Engine structural failures.
- (e) Any other condition considered an imminent hazard to safety.

(6) The MAC specialist will gather all related data and immediately forward it by telephone to the controlling region, if that region was not a part of the original notification telecon.

(7) Service difficulty reports will be processed according to this section whenever significant information becomes available during accident or incident investigation as well as during everyday activities. No instructions in Order 8020.11 (Aircraft Accident and Incident Notification, Investigation and Reporting) are to be construed as negating this requirement.

2/22/78

The inspector should be careful not to usurp the NTSB responsibility for determining the cause of accidents when complying with this section.

b. The Safety Data Branch, AFS-580.

(1) The incoming SDR will be processed as the first order of business each workday.

(2) AFS-580 specialists will review all incoming reports to ensure that they are correct, relative to codes, status, and suitability of the reports. Errors that will result in computer processing problems will be corrected.

(3) AFS-580 specialists will encode the necessary information on FAA Form 8070-1. The key information should be carefully selected from the report text to ensure that the problem is identified in the space allotted for the condensed text (115 characters maximum). Abbreviations of words are acceptable provided they do not distort the clarity and usefulness of the text information. Care should be taken to select, insofar as possible, standard word abbreviations understood by all concerned.

35.-45. RESERVED.

SECTION 3. THE MALFUNCTION OR DEFECT REPORT

FAA Form 8330-2 (RIS: FS 8330-11) (OMB 04-R0003)

46. GENERAL. The Malfunction or Defect (M or D) Report, FAA Form 8330-2, is to be used for collecting data on general aviation products. (See Appendix 3, Figures 4 and 5.)

47. RESPONSIBILITY. FAA General Aviation/Flight Standards District Office Inspectors are responsible for the completeness and accuracy of M or D Reports submitted to their offices, and for submitting M or D Reports when malfunctions or defects come to their attention through any other means.

48. SOURCES OF INFORMATION.

a. Certificated repair stations are required by FAR 145.63 to submit reports of serious defects and recurring unairworthy conditions on a form and in a manner prescribed by the Administrator. Field inspectors should supply and encourage their use of FAA Form 8330-2.

b. Air taxi operators are required by FAR 135.57 to report, for multi-engine aircraft, any failure, malfunction, or defect which has or may, in the operator's opinion, endanger the safe operation of the aircraft, in addition to 16 specifically reportable items. The use of FAA Form 8330-2 is required by FAR 135.57(e), for these reports. Further, they are required by FAR 135.59 to submit for multi-engine aircraft a report (form and manner not specified) for each unscheduled change of aircraft en route, interruption to a flight, unscheduled stop or diversion from a route caused by known or suspected mechanical difficulty or malfunction. These will be reported, by field inspectors, on the M or D Report when it is confirmed that the cause was a service difficulty.

c. Amateur-built aircraft, Experimental Aircraft Association (EAA). GADO/FSDO inspectors are urged to encourage submission of M or D Reports on this type aircraft and process them as any other M or D Report. The Great Lakes Region has been designated as the controlling region for experimental amateur-built aircraft of EAA members. Insofar as the Service Difficulty Program is concerned, the EAA may function as though they were the manufacturer of the aircraft.

d. Field inspectors (all specialties) will report on the M or D Report all service difficulties which come to their attention during accident/incident investigations; surveillance of aircraft, agencies and airmen; or which come to their attention in any other manner.

e. Malfunctions caused by lack of maintenance or obvious "wear-out" should not normally be reported into the service difficulty system. It is possible, however, that a design feature could materially contribute to lack of maintenance and thereby render the malfunction reportable.

2/22/78

49. M OR D's OF MAJOR SIGNIFICANCE. Inspectors becoming aware of service difficulties of a hazardous nature or of other major significance should call the MAC (see Appendix 1 for telephone numbers). The MAC will make a conference telephone call involving MAC, the inspector, the Regional Service Difficulty Coordinator and, when required, the technical specialist in the region most familiar with the affected item. In addition, the SDR coordinating region of occurrence will be informed of the telephonic report by receiving a copy of the record of the conference call prepared by the MAC specialist. This procedure is particularly applicable to items found during accident/incident investigations. M or D Reports must contain only factual information when initiated as a result of accident investigation and **SHOULD NOT INDICATE ACCIDENT CAUSE.** (Causal factors in accidents are determined by the National Transportation Safety Board.) If the inspector believes the service difficulty may have been a causal factor and wishes to lend importance to the report or give special alert notice, the information should be transmitted by phone to the Regional Service Difficulty Coordinator.

50. RECOMMENDATIONS. Recommendations for airworthiness directive action should be submitted through the appropriate regional organization with substantiation for further handling to the type certificate controlling region, with a copy to AFS-580 and AFS-800. Substantiation should be in the form of a description of the problem, drawings, photos if possible, information relative to the events of the malfunction, failure, or defect, and the inspector's recommendation concerning the corrective action to be taken.

51. RELEASE OF FAILED PARTS. When a failed part is obtained for forwarding with an M or D Report, the instructions as prescribed in Order 8020.11, Chapter 4, Section 2, paragraph 89, shall be followed.

52. INSTRUCTIONS FOR COMPLETING FAA FORM 8330-2. In some cases, it will be difficult for the inspector to obtain all of the needed information. In these cases, the inspector will have to judge whether or not he has enough information for the report to be useful. Sometimes, just the number of happenings is an important factor in taking corrective action, while in others, complete details are needed. Complete details may be available for just one instance, and it is suspected that numerous others, for which data is lacking, were similar. Such circumstances shall be considered by the inspector when processing reports. The inspector should provide full information on reports vitally affecting safety, regardless of effort required, and should endeavor to provide sufficient data for analysis. Data to be entered in each block:

- a. Block 1-Registration Number - Self-explanatory.
- b. Block 2-Aircraft.

- (1) Column A. Make - name of manufacturer.
- (2) Column B. Model - as listed on FAA Type Certificate Data Sheets.
- (3) Column C. Serial Number - manufacturer assigned.

c. Block 3-Powerplant - Enter make, model, and serial number, under Columns A, B, and C, in same manner as for aircraft.

d. Block 4-Propeller - Enter make, model, and serial number in same manner as for aircraft and powerplant. Serial numbers are important for propeller problems; and inspectors should bear in mind that combinations of propellers, engines, and airplanes sometimes cause problems, therefore, requiring complete information in A, B, and C of 2, 3, and 4.

e. Block 5-Appliance/Component - Blocks A, B, C, and D are to be filled out for all reports along with 2, 3, and 4, A, B, and C. If an appliance or component report is being processed for a repair shop and it is not known what aircraft, powerplant, or propeller it was removed from, "component only" should be written across blocks 2, 3, 4, A, B, C. Some problems are brought about by a combination of an appliance/component and an aircraft, powerplant, or propeller. It is important in these cases that all information available be supplied. The above is especially applicable, but not limited to avionic equipment and instruments.

f. Block 6-Specific Part (of component) Causing Trouble. In all cases, the inspector should strive to furnish the information for A, B, C, D, E, F, and G. It will sometimes be difficult to complete E and F, and possibly B, but the inspector must decide if TIME is an important factor in solving the problem. If it is, he should make every effort to find the information.

- (1) Block A - Name of specific part.
- (2) Block B - Part number of part assigned by the manufacturer.
- (3) Block C - Where on the part the defect is located.
- (4) Block D - ATA Code from Appendix 2.
- (5) Block E - Total time on part in hours.
- (6) Block F - Time since overhaul on part in hours.
- (7) Block G - Cracked, corroded, broken off, etc.

2/22/78

g. Block 7A-Comments. The information to be entered here is perhaps the most important on the form. It must identify and describe the malfunction, failure, or defect and contain descriptive information concerning the part/component that caused the difficulty. It must enable someone not familiar with the problem to understand the problem and provide information to assist in the development of a fix. Data important to the particular problem; i.e., calendar dates, inspection findings, cycles, etc., that are not included in other blocks on the form should be included. If the malfunction, failure, or defect is the result of, or is related to, a Supplemental Type Certificate (STC), the STC number should be shown. This will enable AFS-580 to send the report to the proper controlling region.

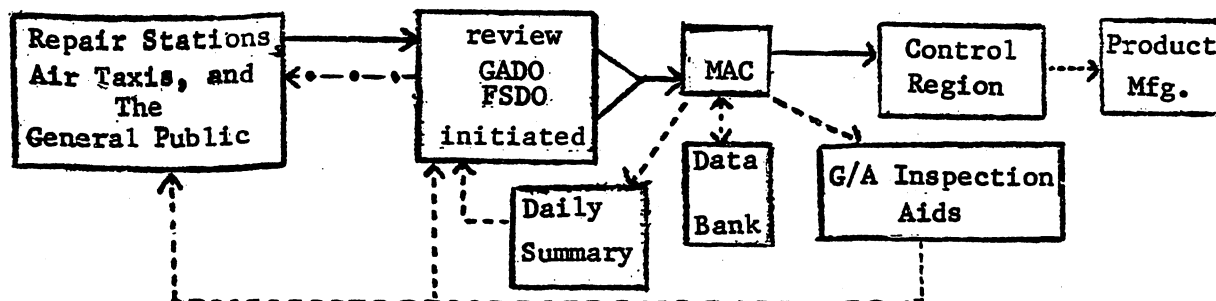
(1) The submitter should use the space headed "7A Comments" first. If additional space is required, half of the reverse side should be used and a separate 8" by 10 1/2" sheet of paper attached if necessary. The submitter should be careful to leave enough space on the franked side of the form so that the pre-stamped General Aviation/Flight Standards District Office address can be plainly deciphered.

(2) Submitted by - Except for air taxis and certificated repair stations, it is not important that this block identify the submitter. There have been reports that repair stations have suffered economic reprisals after submitting M or Ds on certain products; therefore, field inspectors should do what they can to guard against such action. In all cases where the FAA inspector or an air taxi is the submitter, the identity will be indicated. In cases where a repair station or other submitter are reluctant to identify themselves, for any reason, the inspector should identify himself as the submitter and check the appropriate block B through H. In all cases, block B, C, D, E, F, G, or H should be filled out as no individual identification is indicated.

h. Block 8 Date Submitted - Self-explanatory.

i. Block 9 Control Number - For use of AFS-580.

53. DISTRIBUTION AND ROUTING OF FAA FORM 8330-2.



2/22/78

8010.2

Self-addressed forms (indicated -- -- -->) are distributed to the general aviation public by GADO/FSDO personnel. The completed forms and those initiated by GADO/FSDO personnel (indicated ----->) are forwarded to MAC where pertinent data is extracted. The forms are then forwarded to the region in whose area the product reported on is manufactured (controlling region). The extracted data is entered into the data bank for further use and study, and it also forms the basis for the General Aviation Daily Summary of Service Difficulties and the General Aviation Inspection Aids (AC 20-7). The publications are the media used to disseminate the information to GADO/FSDO personnel and the general aviation public (indicated ----->).

SECTION 4. MANUFACTURERS' REPORTS OF FAILURES, MALFUNCTIONS, OR DEFECTS

54. AUTHORITY. FAR Parts 21.3 and 37.17 require that the FAA be notified of certain failures, malfunctions, or defects. These rules apply to the holders of type certificates (including supplemental type certificates) or their licensees, holders of a parts manufacturing approval, or holders of a technical standard order authorization. FAR Parts 21.3(c) and 37.17(c) list the occurrences requiring a report from the above certificate holders. Additional information to assist manufacturers in complying with FAR Parts 21.3 and 37.17 is given in Advisory Circular 21-9, Manufacturers Reporting Failures, Malfunctions, or Defects. Among other things, the advisory circular states the following:

a. The manufacturer should have an established system to identify service difficulties which he is required to report in accordance with the rules.

b. Under certain circumstances, the manufacturer is not required to report a service difficulty resulting in an occurrence listed in FAR Parts 21.3(c) or 37.17(c). These circumstances include a definite determination that the service difficulty has already been reported to the FAA in accordance with other reporting rules, or a determination that the service difficulty was a result of improper maintenance or usage. The applicable requirements are contained in FAR Parts 21.3(d) and 37.17(d).

55. NOTIFICATION OF MANUFACTURERS. Manufacturers should be informed in writing of their responsibilities. The controlling region can do this when issuing certificates or other approval documents. The following, or a similar statement, should be included in the notification letter:

"As recipient of the approval, you are required to report any failure, malfunction, or defect in any product, part, or article manufactured by you that you have determined has resulted, or could result, in any of the occurrences listed in Parts 21.3(c) and/or 37.17(c), whichever is appropriate. The report should be communicated initially by telephone and subsequently in writing to (organizational title of recipient), (routing symbol), (telephone number), (mailing address). The first contact shall take place within 24 hours after it has been determined that a failure required to be reported has occurred."

2/22/78

The Service Difficulty Report, FAA Form 8070-1, or the Malfunction or Defect Report, FAA Form 8330-2, or any other appropriate format is acceptable for transmitting the required details. In addition to the information requested on the above forms and the requirements of FAR Parts 21.3 and/or 37.17 for the occurrence, the following information may be desirable in the written report:

- a. Description of the investigation of the occurrence and results of that investigation.
- b. Results of any other inspections the manufacturer may have made because of the occurrence.
- c. Number of products in service possibly affected by the defective part, component, etc.
- d. General distribution of times-in-service for similar parts.
- e. Additional actions contemplated by the manufacturer (if any) for products in service.

56. REPORT PROCESSING.

a. FAR Parts 21.3 and 37.17 make allowances for receiving reports during regular working hours. Should the region desire to establish an "all hours" reporting system, it is suggested that procedures for receiving the reports be worked out with manufacturers and the regional Communications Center. A form should be developed containing the desired information, with the form available to both manufacturer's reporting representative, and FAA personnel receiving the reports. The reports should be promptly transmitted to the regional Engineering and Manufacturing Branch/Aircraft Engineering Division.

b. The Engineering and Manufacturing Branch/Aircraft Engineering Division will:

- (1) Establish a single office responsibility for the receipt and processing of the manufacturer's reports.
- (2) Identify or mark each report to indicate it is a FAR 21.3 or FAR 37.17 required report.
- (3) Provide a copy of the report to the regional Service Difficulty Coordinator.
- (4) Maintain a file of the manufacturer's report and the actions taken to prevent recurrence of the reported condition. Disposition of the files is controlled by Order 1350.15, Records Organization, Transfer and Destruction Standards.

2/22/78

8010.2

c. Manufacturers' reports must NOT be submitted to the Safety Data Branch, nor added to the Service Difficulty Program data system.

57. PUBLIC AVAILABILITY. The Administrator has determined that the reports of certain manufacturers required by FAR Parts 12.3 and 37.17 shall be withheld from public disclosure. A list of those manufacturers exempted is maintained by the Engineering and Manufacturing Division, AFS-100. Therefore, the release of reports or information contained therein must be approved, in writing, by the Chief, Engineering and Manufacturing Division, AFS-100.

58.-59. RESERVED.

CHAPTER 3. ANALYSIS OF SERVICE DIFFICULTY INFORMATION

SECTION 1. DUTIES AND RESPONSIBILITIES60. SAFETY DATA BRANCH, AFS-580.

a. Significant malfunctions, failures, and defects will be highlighted in the "Flight Standards Service Difficulty Reports, RIS: FS 8070-2," during the initial review of the Service Difficulty and Malfunction or Defect Reports. (See Appendix 3, Figure 6.) The specialist will use the following guidelines when selecting reports to be highlighted:

- (1) Powerplants. Major internal components and parts thereof: noncontainment of parts, case burnthroughs and cracks, unwanted thrust reverser operation, and engine fires.
- (2) Structure. Major primary structural parts (unusual cracks, corrosion, and deformation).
- (3) Flight controls/control surfaces. Structural damage, unusual trim problem, vibration, flutter, cable failures, actuator failures, etc.
- (4) Hydraulic power. Fluid/pressure loss, affecting controllability of the aircraft or landing gear actuation.
- (5) Autoflight. Problems affecting controllability.
- (6) Communications. Partial or complete loss of communication resulting in emergency action.
- (7) Instrumentation. Multiple failure of like systems or equipment.
- (8) Electrical power. Partial or complete loss of electrical power and fires resulting from electrical system malfunctions.
- (9) Environmental Control Systems. Cabin pressurization or ventilation system failures which result in taking unscheduled or emergency corrective action.

b. AFS-580 will maintain the microfilm files of all service difficulty reports and control the microfilm distribution subject to disposal Order 1350.15, Records Organization, Transfer and Destruction Standards.

c. To detect adverse trends, AFS-580 will continually review all service difficulty information. When an adverse situation is noted, the specialist will prepare a System Analysis Summary Report. This report will be distributed to the responsible regional Engineering, Airworthiness Branches, or district office for action as necessary. The preparation and distribution of these reports are outlined in Chapter 4 of this Order.

2/22/78

d. When an AFS-580 specialist detects a problem area that requires emergency action, the specialist will notify, by telephone, the Service Difficulty Coordinator in the region having responsibility for the product, the principal inspector responsible for the maintenance or inspection system, and the appropriate Washington division.

61. FAA DISTRICT OFFICE. The following tasks will be accomplished by airworthiness/avionics/manufacturing inspectors in the review and followup of Service Difficulty and Malfunction or Defects Reports.

a. Review and provide follow-up action on all reported malfunctions, failures, and defects that are significant from a safety standpoint, on a daily basis.

b. Review the daily summary of Flight Standards Service Difficulty Reports, RIS: FS 8070-2, for problems that may be significant to the type aircraft or maintenance/inspection systems within their district. Particular attention should be given to those reports that are enclosed by a bold black border. Such reports should be brought to the attention of the operator, repair station, or manufacturer as appropriate. The operator's inspection program should be reviewed to ensure sufficient inspection of the areas where the failure occurred.

c. Review the System Analysis and Summary Reports (RIS: FS 8070-53) that are compiled by the Maintenance Analysis Center. Those systems which reflect failure trends should be investigated to determine whether the assigned operator, repair station, or manufacturer is experiencing similar problems and their course of action. Maintenance and inspection programs should be evaluated to assure appropriate inspection and time limitations are provided for the affected part of the system. Information developed from an investigation, triggered by an SAS report concerning significant failures of systems which could have an effect on the safety of the aircraft, should be furnished to the airworthiness and engineering elements of the controlling region, through channels. A copy of this report should be forwarded to the appropriate Washington division.

d. When contacting operators, airmen, and air agencies, regarding daily "Flight Standards Service Difficulty Report" and "System Analysis and Summary Report" items, assure that they are advised to report all subsequent occurrences to FAA.

e. Engineering and manufacturing inspectors should review the above reports to determine if there are any indicated deficiencies in their certificate holder's production or quality control systems. If need arises, the responsible EMDO/AEDO should investigate and take necessary corrective action in accordance with regional policy.

62. FAA REGIONAL OFFICE.

a. The following procedures will be observed by responsible regional personnel in monitoring field activities in the SDR reporting program:

(1) Review the "Flight Standards Service Difficulty Reports" (daily summary) for completeness of information relative to regulatory requirements and a thorough description of the problem. Particular attention should be given to correction of erroneous sentences and improper coding.

(2) Review the requested computer listings, for significant problems and trends that may need further investigation.

(3) Initiate followup action on the System Analysis and Summary Report (RIS: FS 8070-53) on systems and/or parts thereof that indicate a significant failure pattern. Systems that have the most effect on safety should receive first consideration.

(4) Maintain followup with FAA engineering elements on failures that indicate a design deficiency in a system or part thereof.

(5) Provide feedback information on failures that are significant from a national standpoint to the appropriate Washington division.

(6) Maintain followup with appropriate FAA offices on progress of actions taken in response to problems indicated by service difficulty data.

b. The following procedures and specific duties, as appropriate, should be covered in the individual REGIONAL SERVICE DIFFICULTY PROGRAM and applied by assigned engineering and manufacturing (E&M/AED) personnel to achieve the timely resolution of significant service difficulty problems.

(1) Review and monitor all incoming SDR/M or D Reports, as well as all other available sources of service difficulty information.

(2) From this information, b.(1) above, identify those items which if uncorrected, could possibly have a significant adverse effect on the operational safety of the product involved. Prepare a listing of these significant service difficulty items.

(3) From this listing, b.(2) above, keep Chief (E&M/AED) advised, as directed, of all urgent safety related items.

(4) To facilitate and achieve the timely resolution of those significant items identified in b.(2) above, utilize all available service difficulty tools and techniques such as:

2/22/78

- (a) Computer printouts (Refer to Chapter 4, Section 1);
 - (b) System Analysis Summary Reports and Accident/Incident Reports (Refer to Chapter 4, Section 2);
 - (c) Directed Safety Investigation (DSI) (refer to Chapter 3, Section 2);
 - (d) Coordination with and/or feedback from FAA airworthiness inspectors, manufacturing inspectors, and flight test specialists, as appropriate, as well as affected industry; and
 - (e) Maintaining an adequate followup system.
- (5) Develop and finalize appropriate corrective action (e.g., Airworthiness Directive, Manufacturer Service Documents, etc.)

63. FAA AIR CARRIER/GENERAL AVIATION DIVISIONS, AFS-200/800. The following procedures will be observed by air carrier/general aviation airworthiness and avionics specialists of the divisions:

- a. The Daily Summary of Flight Standards Service Difficulty Reports (RIS: FS 8070-2) will be monitored for compliance by field personnel with processing instructions contained in this order. Particular attention should be given to report accuracy and completeness, compliance with regulatory requirements coding, and timeliness of processing.
- b. Staff specialists will monitor the Daily Summary of Service Difficulty Reports and the requested computer listings related to the assigned program area for significant problems and trends. Appropriate followup action will be taken as necessary. Indication of design deficiencies will be brought to the attention of the Engineering and Manufacturing Division, AFS-100.
- c. A distribution list of recipients of the Daily Summary of Service Difficulty Reports will be maintained. Additions to the distribution list will be approved, in writing, by the appropriate Washington division.

64.-69. RESERVED.

SECTION 2. DIRECTED SAFETY INVESTIGATION (DSI)
(RIS: FS 8330-8)

70. GENERAL. Occasions may arise when there is a critical need for service difficulty information that is available only by survey of the district offices. Such information may be obtained through a DSI (RIS: FS 8330-8).

71. IMPLEMENTATION. There are basically three techniques for conducting a DSI. These are: (1) telephone, which requires about one to three days; (2) telegraph, requiring one to three weeks; and (3) a written notice requiring three to six months (see Appendix 3, Figure 10). The technique selected depends on the urgency of the requirement and the amount of information to be collected. A DSI may be initiated in one of four ways:

a. The Maintenance Analysis Center. Trends or patterns detected from analysis of ADP printout provide the basis for DSI initiation. MAC, after consultation with the controlling region, will prepare a draft notice identifying the problem and requesting specific information. This draft notice will be forwarded to the appropriate division, which will be responsible for final decision on issuance of the notice.

b. Region Offices. The CONTROLLING REGION will contact the Maintenance Analysis Center (MAC) and make its needs known. It is possible that MAC will already have the information needed by the region in the data bank. On the other hand, MAC and the region, concurrently, may determine that a DSI is needed to collect the information. (The urgency of the situation under consideration will dictate whether MAC telephones the draft notice to the appropriate division (HQ) and Service Difficulty Board or forwards it routinely by mail.) In the event the controlling region wishes to utilize a DSI to determine the effectiveness of prior action such as an AD, the request for the DSI will be forwarded to the appropriate headquarters Division for consideration.

c. Any non-controlling region may contact MAC with suggestions for a DSI. MAC will be responsible for coordinating a conference call between the three parties (MAC, controlling region, and non-controlling region) for the purpose of evaluating the suggestions and determining if a DSI is needed. If the decision is made that a DSI is not needed and the non-controlling region does not concur, they may ask for reconsideration by submitting their suggestions to the Service Difficulty Board (SDB) with copies to the controlling region and MAC. After a complete evaluation, the Board will render a decision.

d. The Service Difficulty Board.

(1) The SDB may determine that a DSI is in order. In this case, the matter will be forwarded to MAC who will coordinate it with the controlling region and check it against the data bank. It will then be processed into notice form and handled as in paragraph a.

2/22/78

(2) On occasion, when dictated by unusual circumstances, extremely rapid collection, consolidation, and reporting may be required by the SDB. In this event, a telephonic DSI will be conducted by MAC. The SDB will advise MAC by telephone of the specific data required. MAC will then inform the Service Difficulty Coordinator in the appropriate regional office by telephone of the DSI. MAC will then telephone each appropriate Flight Standards District Office involved, inform them that a DSI is being conducted, state the purpose, and provide the specific questions. Every effort will be made to restrict the amount of data requested to the minimum required. Field personnel will obtain the data and supply it to MAC by telephone as rapidly as possible. MAC personnel will consolidate and telephone it to the SDB, providing ONLY the data requested. MAC will then provide a summary of the DSI to the SDB as specified in paragraph 72.b of this order.

NOTE: Regardless of the method of initiation, the MAC will request the region to advise the manufacturer and make a note for the record. It is NOT intended that concurrence of the manufacturer be obtained. It is intended to give the manufacturer an opportunity to comment.

72. SUMMARY - DIRECTED SAFETY INVESTIGATION, RIS: FS 8330-9. This report, prepared by the Maintenance Analysis Center, AFS-581, incorporates the information obtained from the complete DSI (RIS: FS 8330-8) consolidated with other pertinent data.

a. The format of this report should be as follows:

- (1) Table of Contents.
- (2) Executive Briefing.
- (3) The Problem, Related Facts, and Discussion of Collected Data.
- (4) DSI Notice and Questionnaire.
- (5) Supporting Information.
- (6) Summary of Completed Questionnaires.

b. Two copies of the Summary-DSI should be distributed to the Flight Standards Division in the region having type certificate product responsibility, a copy to the appropriate headquarters program division, and if the DSI was originated by the SDB, the SDB will be provided a copy.

c. Two copies of the executive briefing, the problem, related facts, and discussion section will be forwarded to Flight Standards Divisions of all other regions. AFS-580 will provide additional copies on request.

2/22/78

8010.2

d. Section a(3) of the DSI report will be published in the next advanced copy of the Inspection Aids. This will serve as feedback to field inspectors of the DSI results.

e. In addition to the summary, AFS-580 will prepare an administratively restricted summary letter of transmittal, which will include conclusions derived from this investigation. This letter should be sent to the region with responsibility for the investigated product, appropriate headquarters divisions, and if the DSI was originated by the SDB, to the SDB.

73. DIRECTED SAFETY INVESTIGATION - FOLLOWUP REVIEW. The controlling region will keep AFS-581 advised of actions taken as a result of the summary report data. In the event that regional action reports have not been made to AFS-581 within 60 days after receipt of the summary of a DSI, AFS-581 will institute a followup, by letter, to the region having type certificate responsibility. The region's response should briefly describe any corrective action taken and the results thereof, if available. AFS-581 will continue to monitor the system input until such a time as the rate of submission indicates the service difficulty has been resolved or that further corrective action is required.

74.-99. RESERVED.

CHAPTER 4. SERVICE DIFFICULTY PROGRAM - DATA
SYSTEM PRODUCTS AND SERVICES

SECTION 1. COMPUTER PRINTOUTS

100. AVAILABLE PRINTOUTS. The data system of this program is capable of producing all or part of the stored information by interrogation. There are 21 listings that can be produced and 26 sorting routines that can be applied to these listings. Therefore, the user can be furnished the information by using any input factor as the key.

101. SCHEDULED COMPUTER PRINTOUTS. There will be no scheduled computer printouts sent to any FAA office unless requested by that office in writing. Each regional office desiring a scheduled printout shall request what they need from:

Department of Transportation
Federal Aviation Administration
Flight Standards National Field Office
Safety Data Branch, AFS-580
P.O. Box 25082
Oklahoma City, Oklahoma 73125

The request shall include the type of report needed and the schedule desired. It is suggested that the request be discussed by telephone, FTS-732-4171, with the Maintenance Analysis Center (MAC). In this manner, the user can discuss his needs in plain language and let MAC choose the computer listing and the sort required to tailor the report to the user's need. After initial request, the requested reports will be sent routinely.

102. SPECIAL COMPUTER PRINTOUTS. In addition to any requested printouts routinely received by an FAA office, there is also available on request special computer printouts tailored to the user's needs to assist in studies, accident analysis, etc. These should be requested in the same manner as the scheduled printouts except that urgent requests may be telephoned.

103.-109. RESERVED.

SECTION 2. REPORT PREPARATION AND DISTRIBUTION

110. FLIGHT STANDARDS SERVICE DIFFICULTY REPORTS, DAILY SUMMARY, RIS: FS 8070-2. This report is a daily compilation of all air carrier reports received on FAA Form 8070-1, Service Difficulty Report, and a selection of M or D Reports citing significant occurrences that warrant dissemination to FAA Flight Standards personnel and certain segments of the aviation industry. (See Appendix 3, Figures 3 and 6).

a. During the initial review of the reports, the Safety Data Branch specialist will select significant reports for which segments of the FAA and industry have immediate need. Selected general aviation reports will be assembled into a daily publication. All air carrier reports are published daily.

b. Those reports in the summaries that cite occurrences of a critical nature will be highlighted by a bold black outline. Within the text block or directly beneath the report, a statement may be added to indicate that similar reported conditions were received this day or have been previously published. In some cases, a single report may be of sufficient magnitude to warrant an alert.

c. The Safety Data Branch, AFS-580, will produce the Flight Standards Service Difficulty Reports (RIS: FS 8070-2) and maintain a current distribution list of recipients in accordance with instructions of Washington divisions (AFS-200/800).

111. SYSTEM ANALYSIS AND SUMMARY REPORT, RIS: FS 8070-53. When analysis of Service Difficulty Program products indicates a specific problem and/or developing trends, the AFS-580 specialist will prepare a System Analysis Summary Report.

a. The report should highlight the components and parts of the system that are causing the problems and include a brief history of reporting to show the rate of problem development. Graph charts may be used for this purpose.

b. This report must be distributed to AFS-804, AFS-206, AFS-200, AFS-800, AFS-100, and the Flight Standards Division of all regions holding certificate responsibility for the aircraft, product, or maintenance system covered by the report; i.e., Type Certificate (TC), Parts Manufacturer Approval (PMA), or the maintenance system of an air carrier. This will automatically notify the region holding certificate responsibility for the aircraft, product, or maintenance system covered by the report; i.e., type certificate, parts manufacturing approval, air carrier maintenance system, or inspection program.

c. This procedure will also facilitate accurate distribution by the regions to those inspectors having certificate or surveillance responsibility for maintenance or inspection programs for that type aircraft.

2/22/78

d. If a trend or pattern continues after a System Analysis Summary Report has been forwarded to the office concerned, notification will be repeated in accordance with these procedures, unless the receiving office advises AFS-580 to withhold repetition.

112. POST ACCIDENT/INCIDENT REPORT. Following any accident or incident MAC will, when requested, immediately provide a report to the requesting office.

a. The report will include the following information for the most current one year-period.

(1) SDRs for the aircraft involved in the accident/incident.

(2) Operators' utilization for the aircraft type versus industry utilization.

(3) Operators' engine shutdown rate per 1,000 hours versus industry shutdown rate for the aircraft type.

(4) The number of engines shutdown by the operator versus industry shutdowns for the aircraft type.

(5) Any other information specifically requested.

b. When the requesting office can identify the suspect system(s) and so requires, AFS-580 will research and provide copies of other relevant information, such as ADs, service bulletins, and inspection aids.

c. The FAA coordinator/investigator will be furnished a copy of this report at the scene of the accident/incident by the most expeditious means. The person making the report request must provide AFS-580 with the necessary address. When the accident/incident is being investigated by the NTSB, two copies of the report will be sent to the FAA coordinator (one copy for the NTSB investigator).

113.-119. RESERVED.

SECTION 3. REQUEST FOR INFORMATION

120. GENERAL. The Safety Data Branch, AFS-580, maintains the Service Difficulty Program data system, a technical library of most common aviation products, and has access to a great variety of aviation information.

121. SERVICE DIFFICULTY INFORMATION. Personnel of Flight Standards and NTSB may request information from the data system of this program. The request should indicate the type of information needed, the time period over which data should be searched, and the type of report desired (computer listing, summarized report, etc.). It is also important that the AFS-580 specialist know what use is to be made of the report. He can then assure the user of the best possible product. Every effort will be made to provide the report in a timeframe that will most benefit the user.

a. Persons requesting service difficulty data need not be concerned with computer sorting formats. They should state, in plain language, the kind of information that is desired; and the Maintenance Analysis Center specialist will select the computer format that will present the information in the most usable manner. For example, if a person wants information concerning failures of retract cylinders on a Beech 99 or Boeing 707, ask for it in that manner (e.g., how many retract cylinder failures reported within the last year?), rather than trying to specify the computer sort. This will provide only that information that is requested rather than the whole computer printout. This saves computer and user time and allows better utilization of the system resources.

b. The request should specify when the information is needed. In high priority situations, such as an accident or serious incident, the Maintenance Analysis Center can provide the information within two hours. In other cases, depending upon the situation, it can be furnished in 24 hours, within a week, two weeks, or a month. The user is requested to apply good judgment relative to priorities since computer programs must be interrupted in order to make the interrogation for requested data.

c. Technical data requested may be furnished via telephone, telecopier, special printout, or in summary form. (Printouts and summaries are mailed.) The MAC specialist will make every effort to provide the data to the individual in the most expeditious manner.

122. OTHER AERONAUTICAL INFORMATION. Personnel of Flight Standards may request technical data other than service difficulty information to assist in identification of problem areas in aircraft and/or a particular fleet. When possible, AFS-580 will research Aeronautical Center data sources and furnish such information.

123. RELEASE OF SERVICE DIFFICULTY REPORTS TO THE PUBLIC. Service Difficulty Reports are releasable to the public under the provisions of the Freedom of Information Act (5 U.S.C. 552), as implemented by Part 7 of the Department of Transportation Regulations. Payment of fees will be in accordance with Section 7.38 of Title 49, Part 7, Department of Transportation Regulations.

a. Obtaining Service Difficulty Data. All requests for copies of service difficulty information will be handled by the Safety Data Branch, AFS-580. Inquiries should be addressed to:

Department of Transportation
Federal Aviation Administration
Flight Standards National Field Office
Safety Data Branch, AFS-580
P.O. Box 25082
Oklahoma City, Oklahoma 73125

b. Service Difficulty Reports Which Were Submitted Subsequent To July 7, 1973, are available for retrieval and copying at AFS-580. Certain Service Difficulty Reports or records submitted prior to July 7, 1973, are not available in AFS-580. In this instance, AFS-580 will request the necessary copies from the appropriate region in which the records are located.

c. Persons Requesting Service Difficulty Information should allow sufficient time between their request and the need for the information to meet the above.

(1) Regional offices receiving direct requests for copies of Service Difficulty Reports should acknowledge those requests with a Correspondence Acknowledgement Card, FAA Form 1360-15. The request, along with a statement that FAA Form 1360-15 has been sent to the requester, will be forwarded to AFS-580.

(2) When copying of local region records is necessary, the copies should be made and accompany the request that is forwarded to AFS-580.

(3) AFS-580 will advise requester of the cost for services and respond to all requests.

(4) Requests directed to AFS-580. The Safety Data Branch will attempt to satisfy requests from the storage/retrieval system at the Aeronautical Center and will call upon the region in those cases where records/reports are only available locally.

124.-129. RESERVED.

CHAPTER 5. PRODUCTS OF THE SERVICE DIFFICULTY PROGRAM

SECTION 1. GENERAL AVIATION INSPECTION AIDS--
DEVELOPMENT AND PREPARATION

130. PURPOSE. The General Aviation Inspection Aids provide a common communications channel through which the aviation community can economically interchange service experience and thereby cooperate in the improvement of aeronautical product durability, reliability, and safety.

131. SELECTION OF ITEMS. Items suitable for publication as General Aviation Inspection Aids, AC 20-7, will be generated and developed by personnel of AFS-580, by the region having type certificate responsibility, or by direction of the Service Difficulty Board. The following procedures outline methods of selection:

a. Personnel of AFS-580, while analyzing readout data from the ADP data bank, shall select safety information concerning noteworthy or unsafe conditions for publication in AC 20-7. Items selected should be of assistance to maintenance and inspection personnel in performance of their duties. The items selected should be in brief descriptive language and in a form suitable for publication in order that time-consuming rewrite and editing are not required. For example:

BEECH	WINDSHIELD	Reports indicate the P/N50-380050-windshield wiper arms are cracking and breaking.
MODEL 99	WIPER	
<hr/>		
GRUMMAN	FIRE WARNING	A number of reports indicate shorts in the sensing elements and fire detector unit connector are attributable to the presence of moisture.
MODEL G-159	SYSTEM	

However, brevity should not compromise clarity. If time is not a factor, AFS-580 may coordinate the item with the type certificate holding region.

b. Personnel of regions holding type certificate responsibility shall select items such as those described above. Items which do not concern a specific aeronautical product, or which may apply to several products, may be selected as "general information" items. Selected items will be forwarded monthly to the FAA, Flight Standards National Field Office, AFS-580, in a report, Summary Report of Safety Items Reviewed (RIS: FS 8330-2), containing a summary of the items selected for publication in AC 20-7.

2/22/78

(1) The items should be in brief, descriptive language similar to the illustrations in paragraph 131a.

(2) From time-to-time, a region may determine that an item should receive expeditious treatment. These items should be marked "Preferred Handling." AFS-580 personnel will process these items accordingly.

c. On occasion, the Service Difficulty Board will determine the need for items to be published in AC 20-7. In this event, the data will be transmitted to AFS-580 who will prepare it for publication in accordance with subparagraph a. of this paragraph.

132. REGIONAL COORDINATION. Hazardous or alert type service difficulty items reported under the provisions of paragraph 110 of this order, which by their very nature have a strong possibility of regional corrective action in process, will be withheld from the General Aviation Inspection Aids (AC 20-7) publication for a period of 15 days after the telecon prescribed by paragraph 34a(3). During this time, it is the responsibility of the controlling region to either:

a. Advise AFS-580 that the item should be published as an "Aid"; or

b. Advise AFS-580 that the corrective action instituted by the region precludes the necessity for such publication.

c. In the event that the region does not advise AFS-580 per a. or b. above, the item will be subject to processing by AFS-580 for publication.

133.-149. RESERVED.

SECTION 2. MANUFACTURERS' SERVICE DOCUMENTS

150. AUTHORITY. Federal Aviation Regulations Part 21.99 provides for issuance of information by the manufacturers for design changes that are required to correct unsafe conditions (in support of Airworthiness Directives), or designed to improve safety or serviceability of the product.

151. PURPOSE. This section provides procedures for the review and coordination of manufacturers' service documents for aeronautical products or components thereof required to be submitted for approval.

152. GENERAL. Responsibility for review, evaluation, and coordination of manufacturers' service information rests with the Engineering and Manufacturing Branch (Aircraft Engineering Division in the Western Region). Service information may be in the form of service bulletins, service letters, notices, etc.

153. PROCEDURES. The following procedures outline the actions to be taken by the controlling region, Flight Standards Division:

a. All manufacturers' service documents will be routed to the appropriate Engineering and Manufacturing Branch (Aircraft Engineering Division in the Western Region) for review, evaluation, coordination, and filing as appropriate.

b. All manufacturers' service documents that require FAA approval will be appropriately marked (e.g., "FAA APPROVED," "FAA DER APPROVED," "DOA APPROVED"), or clearly identified in some other manner. Service documents not so marked are not FAA approved.

c. Technical review shall be made to determine safety implications, regulatory compliance, technical adequacy, and need for followup action.

d. Engineering must ensure that all documents having Operations or Maintenance significance will be coordinated with the appropriate group.

e. The operations and maintenance specialists shall evaluate and determine:

(1) The operational and/or maintenance significance of the service information, with respect to the operators procedures, training manuals, operations manuals, and the issuance of the operations alert and or maintenance bulletins. Copies of all service bulletins that have operational significance should be forwarded to AFS-200/800.

(2) The need for maintenance bulletins or alerts directing other field offices attention to the service information.

2/22/78

8010.2
Appendix 1

APPENDIX 1. REGIONAL SDR COORDINATORS AND SAFETY DATA BRANCH

<u>Region</u>	<u>Coordinator & Alternate</u>	<u>Phone No.</u>
AAL	Edward Allen (AAL-252)	FTS (8) 907/265-4252
	alt. Dale L. Hanson (GADO-1)	FTS (8) 907/265-4657
ACE	Glenn Martin (GADO-22)	FTS (8) 752-6523 Comm 316/943-3244
AEA	Donald J. Wisner (AEA-250)	FTS (8) 665-3300
	alt. Daniel V. Radice (AEA-250)	Comm 212/995-3300
* AEU		
AGL	Gregory W. Tomsic (AGL-217)	FTS (8) 384-9460 Comm 312/694-4500/9460
ANE	Robert A. Schilling (ANE-251)	FTS (8) 836-1326/1344
	alt. Edward L. Park (ANE-256)	Comm 617/273-7326/7344
ANW	Marion Shaw (ANW-254)	FTS (8) 396-2773 Comm 206/767-2773
APC	Richard G. Teixeira (APC-240)	FTS (8) 808/546-8652
	alt. Gary K. Nakagawa (APC-210)	FTS (8) 808/546-8650
ASO	Richard L. Aaron (ASO-250)	FTS (8) 246-7411 Comm 404/763-7411
ARM	Charles R. Taylor (ARM-250)	FTS (8) 327-4188
	alt. Roman B. Mueller (ARM-250)	Comm 303/837-4455
ASW	Stanley S. Carter (ASW-256)	FTS (8) 736-9543
	alt. John P. Donnelly (ASW-257)	Comm 817/624-4911
AWE	Jerry Presba (AWE-104)	FTS (8) 966-6351 Comm 213/536-6351

* No coordinator assigned.

Safety Data Branch, AFS-580

FTS (8) 732-4391
Comm 405/686-2542

Maintenance Analysis Center, AFS-581

FTS (8) 732-4171
Comm 405/686-2542

AIR TRANSPORT ASSOCIATION OF AMERICA SPECIFICATION FOR
MANUFACTURERS' TECHNICAL DATA

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
<u>GROUP - AIRFRAME SYSTEMS</u>			All airframe systems except the Power Plant package.
21	<u>Air</u> <u>Conditioning</u>		Those units and components which furnish a means of pressurizing, heating, cooling, moisture controlling, filtering, and treating the air used to ventilate the areas of the fuselage within the pressure seals. Includes cabin supercharger, equipment cooling, heater, heater fuel system, expansion turbine, valves, scoops, ducts, etc.
-00	General		
-10	Compression		That portion of the system and its controls which supply compressed air to the cabin. Includes items such as controls and indicating systems related to the compressors, wiring, etc. Does not include the pressure control and indicating system for the cabin pressurization.
-20	Distribution		That portion of the system used to induct and distribute air. Includes equipment rack cooling systems and items such as blowers, scoops, ducting, inlets, check valves, wiring, etc. Does not include valves which are part of pressurization and temperature control.
-30	Pressurization Control		That portion of the system used to control the pressure within the fuselage. Includes items such as control valves, relief valves, indicators, switches, amplifiers, wiring, etc.
-40	Heating		That portion of the system and its controls which supply heated air to the cabin. Includes items such as heater units, fuel system and control, ignition, indicating systems related to heater operation, wiring, etc. Does not include the temperature control and indicating systems.
-50	Cooling		That portion of the system and its controls which supply cooled air to the cabin. Includes items such as the cooling unit, indicating systems related to the cooler operation, wiring, etc. Does not include the temperature control and indicating systems.

APPENDIX 2

8010.2
Appendix 2

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
	-60	Temperature Control	That portion of the system used to control the temperature of the air within the cabin. Includes items such as control valves, thermal sensing devices, switches, indicators, amplifiers, wiring, etc.
	-70	Moisture/Air Contaminant Control	That portion of the system used to control moisture in the air, to control ozone concentrations, to filter radioactive debris from conditioned air, and to treat the air with deodorizers, insecticides, etc.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
22		<u>Auto Flight</u>	Those units and components which furnish a means of automatically controlling the flight of the aircraft. Includes those units and components which control direction, heading, attitude, altitude, and speed.
	-00	General	
	-10	Autopilot	That portion of the system that uses radio/radar beam, directional and vertical gyro, pitot static, and manually induced inputs to the system to automatically control yaw, pitch, and roll of the aircraft. This includes power source devices, interlocking devices, and computing, amplifying, integrating, controlling, actuating, indicating, and warning devices such as computers, servos, control panels, indicators, warning lights, etc. <u>FAA NOTE:</u> Also includes yaw damper, yaw damp coupler, and yaw damp actuator.
	-20	Speed- Attitude Correction	That portion of the system that automatically maintains a safe flight attitude by correcting for effects of speed, such as mach trim and speed stability. This includes sensing, computing, actuating, indicating, and warning devices such as computers, servos, actuators, warning lights, etc.
	-30	Auto Throttle	That portion of the system that automatically controls the position of the throttles to properly blend engine power with flap position and aircraft pitch attitude during landing/approach and go around procedures. This includes engaging, sensing, computing, amplifying, controlling, actuating, and warning devices such as amplifiers, computers, servos, limit switches, clutches, gear boxes, warning lights, etc.
	-40	System Monitor	That portion of the system that monitors the flight of aircraft during approach and landing. This includes sensing, computing, indicating, and warning devices such as computers, indicators, warning lights, etc.

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
23		<u>Communications</u>	Those units and components which furnish a means of communicating from one part of the aircraft to another and between the aircraft and other aircraft or ground stations, includes voice and C-W communicating components, PA system, intercom, and tape recorder-record player.
-00	General		
-10	High Frequency (HF)		That portion of the system which is used for aircraft to ground communications utilizing HF carriers. Includes items such as transmitters, receivers, power supply, control panel, antenna, antenna coupler, etc.
-20	Very High and Ultra High Frequency (VHF/UHF)		That portion of the system which is used for aircraft to ground communication utilizing VHF or UHF carriers. Includes items such as transmitters, receivers, control panel, selcal decoder, antenna, etc.
-30	Passenger Address and Entertainment		That portion of the system used to address and entertain the passengers. Includes items such as amplifiers, speakers, handsets, reproducers, control panels, etc. Also includes items of audio, video, and film equipment.
-40	Interphone		That portion of the system which is used by flight and ground personnel to communicate between areas on the aircraft. Includes items such as amplifier, handset, etc. Does not include the interphone system within the flight compartment which is part of the integrating system.
-50	Audio Integrating		That portion of the system which controls the output of the communications and navigation receivers into the flight crew headphones and speakers, and the output of the flight crew microphones into the communications transmitters. Includes items such as audio selector control panel, microphones, headphones, cockpit loud speakers, etc.
-60	Static Discharging		That portion of the system which is used to dissipate static electricity.
-70	Voice Recorders		That portion of the system used to record crew member conversation.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
24		<u>Electrical Power</u>	Those electrical units and components which generate, control, and supply AC and/or DC electrical power for other systems, including generators and relays, inverters, batteries, etc., through the secondary busses. Also includes common electrical items such as wiring, switches, connectors, etc.
	-00	General	
	-10	Generator Drive	Mechanical devices that drive the generators at a desired RPM. Includes items such as oil system, connecting devices, indicating and warning systems for the drive, etc.
	-20	AC Generation	That portion of the systems used to generate, regulate, control, and indicate AC electrical power. Includes items such as inverters, AC generators/alternators, control and regulating components, indicating systems, etc., all wiring to but not including main busses. <u>FAA NOTE:</u> Also includes generator control relays (GCR). Components should be identified by location in aircraft.
	-30	DC Generation	That portion of the systems used to generate, regulate, control, and indicate DC electrical power. Includes items such as generators/alternators, transformers, rectifiers, batteries, control and regulating components, indicating systems, etc., all wiring to but not including main busses.
	-40	External Power	That portion of the system within the aircraft which connects external electrical power to the aircraft's electrical system. Includes items such as receptacles, relays, switches, wiring, warning lights, etc.
	-50	Electrical Load Distribution	That portion of the systems which provides for connection of AC or DC power to using systems. Includes items such as AC and DC main and secondary busses, main system circuit breakers, power system devices, etc. <u>FAA NOTE:</u> Also includes buss tie breakers (BTB), generator circuit breakers (GCB), auxiliary power breakers (APB), and split system breakers (SSB).

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
25		<u>Equipment/ Furnishings</u>	Those removable items of equipment and furnishings externally mounted on the aircraft or contained in the flight, passenger, cargo, and accessory compartments. Includes emergency, buffet, and lavatory equipment. Does not include structures or equipment assigned specifically to other chapters.
-00		General	
-10		Flight Compartment	The compartment above the floor and between the forward passenger partition and the forward pressure dome. Includes items such as flight crew seats, tables, pilot checklists, pilot food containers, curtains, manuals, electronic equipment racks, spare bulbs, fuses, etc. Does not include cargo compartments.
-20		Passenger Compartment	The areas in which the passengers are seated. Includes lounges but not dressing rooms. Includes items such as seats, berths, hatracks, curtains, wall coverings and sound-proofing, carpets, magazine racks, movable partitions, wall-type thermometers, spare bulbs, fuses, etc. <u>FAA NOTE:</u> Also includes doors in movable partitions.
-30		Buffet/ Galley	The areas in which food and beverages are stored and prepared. Includes items such as removable and fixed cabinets, ovens, refrigerators, garbage containers, dish racks, coffee maker and dispensers, curtains, electrical outlets, wiring, etc.
-40		Lavatories	The toilet and dressing room areas containing wash basins, dressing tables, and water closet. Includes items such as mirrors, seats, cabinets, dispensing equipment, electrical outlets, wiring, etc. Wash basins and water closets are included in Chapter 38.
-50		Cargo Compartments	Those compartments for storage of cargo and those components which are or can be mounted on the aircraft and used to load/unload, restrain, guide, or service cargo. Includes drive systems, rollers, latches, restraint nets, etc.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
-60	Emergency		Those items of equipment carried for use in emergency procedures. Includes items such as evacuation equipment, life rafts and jackets, first aid kit, landing and signal flares, drag parachutes, etc. Does not include fire extinguishers, oxygen equipment, or masks.
-70	Accessory Compartments		Those compartments used for the housing of various components or accessories. Includes wheel wells, tail-hydraulic-electrical/electronic equipment racks, main battery structure, insulation blankets, etc. <u>FAA NOTE:</u> Also battery rack structure.

2/22/78

8010.2
Appendix 2

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
26		<u>Fire Protection</u>	Those fixed and portable units and components which detect and indicate fire or smoke and store and distribute fire extinguishing agent to all protected areas of the aircraft; including bottles, valves, tubing, etc.
-00		General	
-10		Detection	That portion of the system which is used to sense and indicate the presence of overheat, smoke, or fire.
-20		Extinguishing	That portion of those fixed or portable systems which is used to extinguish fire.
-30		Explosion Suppression	That portion of the system which is used to sense, indicate, and extinguish a flame propagating into the fuel vent or scoop to prevent an explosion in the fuel system.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
27		<u>Flight Controls</u>	Those units and components which furnish a means of manually controlling the flight attitude characteristics of the aircraft, including items such as hydraulic boost system, rudder pedals, control column linkages, control cables, tab controls, mounting brackets, etc. Also includes the functioning and maintenance aspects of the flaps, spoilers, and other control surfaces, but does not include the structure which is covered in the Structures Chapters. Does not include rotorcraft rotor controls which are covered in the Rotors Chapters.
			<u>FAA NOTE:</u> Also includes actuator support fittings, associated hydraulic, pneumatic, and electrical system components, wiring, and lines including self-contained systems, but excludes hinges and flap tracks/carriages/rollers that do not cause movement of the surface.
	-00	General	
	-10	Aileron & Tab	That portion of the systems which controls the position and movement of the ailerons and aileron tabs. Includes items such as the control wheels, cables, boosters, linkages, control surfaces, indicators, etc.
	-20	Rudder & Tab	That portion of the systems which controls the position and movement of the rudder and rudder tabs. Includes items such as the rudder pedals, tab control wheel, cables, boosters, linkages, control surfaces, position indicators, etc.
	-30	Elevator & Tab	That portion of the systems which controls the position and movement of the elevator/elevon and tabs. Includes items such as the control column, stickshaker units, automatic stall recovery devices, tab control wheels, cables, boosters, linkages, control surfaces, position indicators, stall warning systems, etc.
	-40	Horizontal Stabilizers	That portion of the system which controls the position and movement of the horizontal stabilizer/canard. Includes items such as control handle, cables, jackscrews, motors, warning systems, linkages, control surfaces, position indicators, etc.

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
-50		Flaps	That portion of the systems which controls the position and movement of the trailing edge flaps. Includes items such as control handles, cables, actuators, warning systems, linkages, control surfaces, position indicators, etc.
-60		Spoiler, Drag Devices and Variable Aerodynamic Fairings	That portion of the systems which controls the position and movement of the spoilers, drag devices, and variable aerodynamic fairings. Includes items such as control handles, cables, warning systems, linkages, spoilers, drag devices, position indicators, etc.
-70		Gust Lock & Dampener	That portion of the systems which protects the control surfaces from movement by wind while the aircraft is on the ground. Does not include locking the control by means of flight control boost system.
-80		Lift Augmenting	That portion of the systems which controls the position and movement of variable opening wing slots, leading edge wing flaps, and other similar auxiliary devices used for increasing aerodynamic lift. Includes items such as control handles, cables, actuators, linkages, warning systems, control surfaces, position indicators, etc. Does not include trailing edge flaps.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
28		<u>Fuel</u>	Those units and components which store and deliver fuel to the engine. Includes engine driven fuel pumps for reciprocating engines, includes tanks (bladder), valves, boost pumps, etc., and those components which furnish a means of dumping fuel overboard. Includes integral and tip fuel tank leak detection and sealing. Does not include the structure of integral or tip fuel tanks and the fuel cell backing boards which are covered in the Structures Chapters. Does not include fuel flow rate sensing, transmitting and/or indicating, which are covered in Chapter 73.
	-00	General	
	-10	Storage	That portion of the system which stores fuel. Includes tank sealing, bladder type cells, ventilating system, cell and tank interconnectors, over wing filler necks and caps, etc. Also includes reservoir feed pumping systems and reservoirs within the tanks which are not a part of the distribution system. <u>FAA NOTE:</u> Integral tank fuel leaks when caused by defects other than structural.
	-20	Distribution	That portion of the system which is used to distribute fuel from the filler connector to the storage system and from the storage system to and including the power plant fuel quick disconnect. Includes items such as plumbing, pumps, valves, controls, etc. <u>FAA NOTE:</u> Also boost pumps, filler manifolds, and connections. Excludes engine driven pumps.
	-30	Dump	That portion of the system which is used to dump fuel overboard during flight. Includes items such as plumbing, valves, chutes, controls, etc.
	-40	Indicating	That portion of the system which is used to indicate the quantity, temperature, and pressure of the fuel. Includes pressure warning systems for pumping systems within the tank, etc. Does not include engine fuel flow or pressure.

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
29		<u>Hydraulic Power</u>	Those units and components which furnish hydraulic fluid under pressure (includes pumps, regulators, lines, valves, etc.) to a common point (manifold) for redistribution to other defined systems.
	-00	General	
	-10	Main	That portion of the system which is used to store and deliver hydraulic fluid to using systems. Includes items such as tanks, accumulators, valves, pumps, levers, switches, cables, plumbing, wiring, external connectors, etc. Does not include the supply valves to the using systems.
			<u>FAA NOTE:</u> Includes all systems other than those designated emergency or standby.
	-20	Auxiliary	That portion of the system which is classified as auxiliary, emergency or standby, and which is used to supplement or take the place of the main hydraulic system. Includes items such as tanks and accumulators which are separate from the main system, hand pumps, auxiliary pumps, valves, plumbing, wiring, etc.
	-30	Indicating	That portion of the system which is used to indicate the quantity, temperature, and pressure of the hydraulic fluid. Includes items such as transmitters, indicators, wiring, warning systems, etc.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
30		<u>Ice and Rain Protection</u>	Those units and components which provide a means of preventing or disposing of formation of ice and rain on various parts of the aircraft. Includes alcohol pump, valves, tanks, propeller/rotor anti-icing system, wing heaters, water line heaters, pitot heaters, scoop heaters, windshield wipers, and the electrical and heated air portion of windshield ice control. Does not include the basic windshield panel. For turbine type power plants using air as the anti-icing medium, engine anti-icing is contained under Air System.
	-00	General	
	-10	Airfoil	That portion of the system which is used to eliminate or prevent the formation of ice on all airfoil surfaces. Includes wings, airfoil sections of the empennage, and pylons. <u>FAA NOTE:</u> Excludes ducting upstream of air foil control/selector valves.
	-20	Air Intakes	That portion of the system which is used to eliminate or prevent the formation of ice in or around air intakes. Includes power plant cowlings anti-icing.
	-30	Pitot and Static	That portion of the system which is used to eliminate or prevent the formation of ice on the pitot and static systems. <u>FAA NOTE:</u> Excludes malfunction/defects other than anti-icing/deicing.
	-40	Windows and Windshields	That portion of the system which is used to eliminate or prevent the formation of ice, frost, or rain on the windows and windshields. <u>FAA NOTE:</u> Excludes glass panels.
	-50	Antennas and Radomes	That portion of the system which is used to eliminate or prevent the formation of ice on antennas and radomes.

2/22/78

8010.2
Appendix 2

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
	-60	Propellers/ Rotors	That portion of the system which is used to eliminate or prevent the formation of ice on propellers or rotors. Includes all components up to but not including rotating assembly.
	-70	Water Lines	That portion of the system which is used to prevent the formation of ice in water supply and drain lines.
	-80	Detection	That portion of the system which is used to detect and indicate the formation of ice.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
31		<u>Instruments</u>	Pictorial coverage of all instruments, instrument panels and controls. Necessary procedural coverage of instruments not related to any specific system. Includes those systems, units, and components which record or compute data of the aircraft configuration and performance which are not related to any specific system.
	-00	General	
	-10	Panels	The instrument and control panels which are removable for service. Includes pictorial representation of instruments and control installations.
	-20	Independent Instruments	Those instruments, units, and components which are not related to specific systems. Includes items such as inclinometers, clocks, timers, central aural warning systems, etc.
	-30	Recorders	Those units and components used for recording data not related to specific systems. Includes items such as flight recorders, performance or maintenance recorders, VG recorders, etc.
	-40	Computers	Those units and components used for computing data not related to specific systems. Includes items such as weight and balance computers, SST operations computers, etc.

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
32		<u>Landing Gear</u>	Those units and components which furnish a means of supporting and steering the aircraft on the ground or water, and make it possible to retract and store the landing gear in flight. Includes tail skid assembly, brakes, wheels, floats, skids, skis, doors, shock struts, tires, linkages, position indicating, and warning systems. Also includes the functioning and maintenance aspects of the landing gear doors but does not include the structure which is covered in Chapter 52, Doors.
-00		General	
-10		Main Gear And Doors	That portion of the system which provides the major support for the aircraft while on the ground. Includes items such as shock struts, bogie axles, drag struts, linkages, attach bolts, etc. <u>FAA NOTE:</u> Excludes retracting, steering systems, and door actuating systems/structure.
-20		Nose Gear And Doors	That portion of the system which supports the nose of the aircraft while the aircraft is on the ground. Includes items such as shock struts, drag struts, doors, linkages, attach bolts, etc. <u>FAA NOTE:</u> Excludes retracting systems, steering systems, and door actuating systems/structure.
-30		Extension and Retraction	That portion of the system which is used to extend and retract the landing gear and open and close the landing gear doors. Includes items such as actuating mechanisms, bogie trim, bungees, up and down latches, operating controls, valves and motors, cables, wiring, plumbing, etc. <u>FAA NOTE:</u> Also includes leveling cylinders/switches and centering switches. Specify position on aircraft.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
-40	Wheels and Brakes	That portion of the system which provides for rolling and stopping the aircraft while on the ground and stopping wheel rotation after retraction. Includes items such as bearings, tires, valves, de-boosters, swivel glands, anti-skid devices, pressure indicators, plumbing, etc.	
		<u>FAA NOTE:</u> Specify position on aircraft.	
-50	Steering	That portion of the system which is used to control the direction of movement of the aircraft on the ground. Includes items such as actuating cylinders, controls, bogie swivel unlock, etc.	
		<u>FAA NOTE:</u> Includes main gear steering systems.	
-60	Position and Warning	That portion of the system which is used to indicate and warn of the position of the landing gear/doors. Includes items such as switches, relays, lights, indicators, horns, wiring, etc.	
		<u>FAA NOTE:</u> Includes gear safety switches and air/ground sensors.	
-70	Supplementary Gear	Devices used to stabilize the aircraft while on the ground and prevent damage by ground contact. Includes items such as shock strut, skid block, wheels, etc.	

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
33		<u>Lights</u>	Those units and components which provide for external and internal illumination such as landing lights, taxi lights, position lights, rotating lights, ice lights, master warning lights, passenger reading and cabin dome lights, etc. Includes bulbs, light fixtures, switches, and wiring. Does not include warning lights for individual systems.
-00	General		
-10	Flight Compartment		The lighting subsystems in the compartment above the floor and between the forward passenger partition and the forward pressure dome. Does not include cargo compartment. Includes direct and indirect illumination of work areas, panels, and instruments. Does not include bulbs and wiring inside of instruments which are removed with the instrument. Includes the master warning light system and the warning light dimming systems. <u>FAA NOTE:</u> Also includes annunciator panels.
-20	Passenger Compartment		The lighting subsystems in the areas in which the passengers are seated and in buffet/galley, lavatories, lounges, and coat rooms. Includes items such as direct and indirect illumination, passenger call system, lighted signs, etc.
-30	Cargo and Service Compartment		The lighting subsystems in the compartments for stowage of cargo and the housing of various components or accessories.
-40	Exterior		The lighting subsystems used to provide illumination outside of the aircraft. Includes lights such as landing, navigation, position indicating, wing illumination, rotating, courtesy, taxi, etc.
-50	Emergency Lighting		The separate and independent subsystems used to provide illumination in case of primary electrical power failure. Includes items such as inertia flashlights, lanterns, etc. <u>FAA NOTE:</u> Includes emergency lighting system batteries.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
34		<u>Navigation</u>	Those units and components which provide aircraft navigational information. Includes VOR, pitot, static, ILS, flight director, compasses, indicators, etc.
	-00	General	
	-10	Flight Environmental Data	That portion of the system which senses environmental conditions and uses the data to influence navigation. Includes items such as pitot, static, air temperature, rate-of-climb, airspeed, high speed warning, altitude, altitude reporting, altimeter correction system, etc.
	-20	Attitude & Direction	That portion of the system which uses magnetic, gyroscopic, and inertia forces. Includes items such as gyro horizons, directional gyros, magnetic compasses and magnetic heading systems, turn and bank, amplifiers, servos, and flight director, etc. <u>FAA NOTE:</u> Also includes vertical gyro, PDI, RMDI, and CDI.
	-30	Landing and Taxiing Aids	That portion of the system which provides guidance during approach, landing, and taxiing. Includes items such as localizer, glide slope, ILS, markers, paravisual director, ground guidance systems, etc.
	-40	Independent Position Determining	That portion of the system which provides information to determine position and is mainly independent of ground installations. Includes items such as inertial guidance systems, weather radar, doppler, proximity warning, collision avoidance, star tracker, etc. Also includes sextants/octants, etc.
	-50	Dependent Position Determining	That portion of the system which provides information to determine position and is mainly dependent on ground installations. Includes items such as DME, transponders, radio compass, LORAN, VOR, ADF, etc.
	-60	Position Computing	That portion of the system which combines navigational information to compute the aircraft's geographical location. Includes items such as course computers, etc.

2/22/78

8010.2
Appendix 2

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
35		<u>Oxygen</u>	Those units and components which store, regulate, and deliver oxygen to the passengers and crew including bottles, relief valves, shut-off valves, outlets, regulators, masks, walk-around bottles, etc.
	-00	General	
	-10	Crew	That portion of the system which furnishes oxygen to the crew.
	-20	Passenger	That portion of the system which furnishes oxygen to the passengers.
	-30	Portable	That portion of the system which has an independent oxygen supply and which can be transported about the airplane.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
36		<u>Pneumatic</u>	Those units and components (Ducts and Valves) which deliver large volumes of compressed air from a power source to connecting points for such other systems as air conditioning, pressurization, deicing, etc.
	-00	General	
	-10	Distribution	That portion of the system which is used to distribute high or low pressure air to using systems. Includes items such as ducts, valves, actuators, heat exchangers, controls, etc. Does not include the supply valves to the using systems. <u>FAA NOTE:</u> Excludes systems such as engine and airfoil anti-icing/deicing.
	-20	Indicating	That portion of the systems which is used to indicate temperature and pressure of the pneumatic system. Includes temperature and pressure warning systems. <u>FAA NOTE:</u> Applicable to the common manifold excluding the using systems.

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
37		<u>Vacuum</u>	Those units and components used to generate, deliver, and regulate negative air pressure, including pumps, regulators, lines, etc., through and including the manifold.
	-00	General	
	-10	Distribution	That portion of the system which is used to distribute negative pressure air to using systems.
	-20	Indicating	That portion of the system which is used to indicate pressure. Includes pressure warning system.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
38		<u>Water/Waste</u>	Those fixed units and components which store and deliver for use, fresh water, and those fixed components which store and furnish a means of removal of water and waste. Includes wash basins, toilet assemblies, tanks, valves, etc.
	-00	General	
	-10	Potable	That portion of the system which is used to store and deliver fresh drinking water. Includes wash water system if the potable water is also used for washing.
	-20	Wash	That portion of the system which is used to store and deliver wash water which is not potable.
	-30	Waste Disposal	That portion of the system which is used for disposal of water and waste. Includes items such as wash basins, water closets, flushing systems, etc.
	-40	Air Supply	That portion of the system common to more than one subsystem which is used for pressurizing supply tanks to insure fluid flow.

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
49		<u>Airborne Auxiliary Power</u>	Those airborne power plants (engines) which are installed on the aircraft for the purpose of generating and supplying a single type or combination of auxiliary electric, hydraulic, pneumatic, or other power. Includes power and drive section, fuel, ignition, and control systems; also wiring, indicators, plumbing, valves, and ducts up to the power unit. Does not include generators, alternators, hydraulic pumps, etc. or their connecting systems which supply and deliver power to their respective aircraft systems.
-00		General	
-10		Power Plant	For definitions see Chapter 71.
-20		Engine	For definitions see Chapter 72.
-30		Engine Fuel and Control	For definitions see Chapter 73.
-40		<u>Ignition/ Starting</u>	For definitions see Chapters 74 and 80.
-50		<u>Air</u>	For definitions see Chapter 75.
-60		Engine Controls	For definitions see Chapter 76.
-70		Indicating	For definitions see Chapter 77.
-80		Exhaust	For definitions see Chapter 78.
-90		Oil	For definitions see Chapter 79.

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
<u>GROUP - STRUCTURE</u>			
51		<u>Structures</u>	Those subjects that are general in nature to the entire structure of the aircraft and are not specifically covered under the following structure chapters. Includes standard practices applicable to structures.
			<u>FAA NOTE:</u> Also includes lightening strikes where multiple sections of the aircraft are affected.
-00		General	

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
52		<u>Doors</u>	Those removable units used for entrance or exit, and for enclosing other structure contained within the fuselage. Includes passenger and crew doors, cargo doors, emergency exits, etc. Electrical and hydraulic systems associated with door control are included as appropriate.
	-00	General	
	-10	Passenger/ Crew	The doors used for entrance and exit of the passengers and crew to and from the aircraft. Includes items such as structure, latching mechanisms, handles, insulation, lining, controls, integral steps, ramps, and handrails, etc.
	-20	Emergency Exit	The exit doors used to facilitate evacuation that are not normally used for exit. Includes items such as structure, latching mechanisms, handles, insulation, lining, controls, etc.
	-30	Cargo	The exterior doors used primarily to gain access to cargo compartments. Includes items such as structure, latching mechanisms, handles, insulation, lining, controls, integral steps, ramps, and handrails, etc.
	-40	Service	The exterior doors used primarily to gain access for servicing aircraft systems and equipment. Includes items such as structure, latching mechanisms, handles, insulation, lining, controls, integral steps, and handrails, etc.
			<u>FAA NOTE:</u> Includes galley doors.
	-50	Fixed Interior	The doors inside the fuselage installed in fixed partitions. Includes items such as structure, latching mechanisms, handles, lining, etc. Does not include doors installed in movable partitions which are covered in Chapter 25.
	-60	Entrance Stairs	The stairs which operate in conjunction with but are not an integral part of entrance doors. Stairs whose primary structure is a door will be covered under the appropriate topic. Includes items such as structure, actuating mechanisms and controls, handrails, etc.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
-70	Door Warning		That portion of the system which is used to indicate whether the doors are closed and properly latched. Includes items such as switches, lights, bells, horns, etc. Does not include landing gear door warning which is covered in Chapter 32.
-80	Landing Gear		The structure of the doors used to enclose the landing gear compartments.
			<u>FAA NOTE:</u> Includes hinges and seals on wing mounted landing gear doors as well as on the fuselage but excludes operating mechanism to be coded in 3230.

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
53		<u>Fuselage</u>	The structural units and associated components/members which make up the compartments for equipment, passengers, crew and cargo; including skin, belt frames, stringers, floor beams, floor, pressure dome, scuppers, tail cone, fuselage to wing and empennage fillets, etc. <u>FAA NOTE:</u> Specify station location.
	-00	General	
	-10	Main Frame	The primary skeleton of the fuselage. Includes frames, bulkheads, formers, longerons, stringers, keel, frames around openings, etc. <u>FAA NOTE:</u> Includes floor support structure.
	-20	Auxiliary Structure	The secondary structure of the fuselage. Includes floors, internal stairs, and fixed partitions. Does not include movable partitions which are covered in Chapter 25.
	-30	Plates/Skin	The exterior covering of the fuselage including access covers and doublers.
	-40	Attach Fittings	The fittings on the fuselage used for the attachment of doors, wings, stabilizers, landing gear, engine and rotor pylons, and for the support of equipment within the fuselage. Includes items such as seat tracks, cargo basket rails, instrument brackets, etc. <u>FAA NOTE:</u> Specify fitting location on aircraft (wing or fuselage) and station location. Excludes flight control or landing gear actuator support fittings which should be coded in the appropriate 2700 or 3200 subsystem.
	-50	Aerodynamic Fairings	The structure of fixed or variable aerodynamic fairings such as those on the nose and tail and between the fuselage and the wing and the stabilizers. Includes items such as wing/fuselage fillets, nose and tail cones, radome, visor and droop nose, etc. Does not include the functioning and maintenance aspects of variable aerodynamic fairings which are covered in Chapter 27.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
54		<u>Nacelles/ Pylons</u>	Those structural units and associated components/members which furnish a means of housing and mounting the power plant or rotor assembly. Includes skin, longerons, belt frames, stringers, clamshells, scuppers, doors, nacelle fillets, etc. Also includes the structure of power plant cowlings.
	-00	General	
	-10	Main Frame	The primary skeleton of the nacelle or pylon. Includes items such as frames, bulkheads, firewalls, stringers, keel, frames around openings, etc.
	-20	Auxiliary Structure	The secondary structure in the nacelle pylons. Includes leading and trailing edge structure, etc. Does not include plates/skin.
	-30	Plates/Skin	The exterior covering of the nacelle or pylon. Including access covers, cowlings, and doublers.
	-40	Attach Fittings	The fittings on the nacelles/pylons used for the attachment to its connecting structure, power plant, thrust reverser, and for the support of equipment within the nacelle/pylon. <u>FAA NOTE:</u> Specify fitting location on aircraft. Excludes actuator support fittings which should be coded in the appropriate action system, i.e., landing gear, 3230.
	-50	Fillets/Fairings	The aerodynamic fairings between the nacelle or pylon and its connecting structure.

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
55		<u>Stabilizers</u>	<p>The horizontal and vertical stabilizers include the structure of the elevator and rudder.</p> <p><u>FAA NOTE:</u> Includes hinge fittings on stabilizers and control surfaces but excludes actuating mechanism that creates movement which should be coded in 2700.</p>
	-00	General	
	-10	Horizontal Stabilizers	The horizontal airfoil of the tail/nose section to which the elevator/canard is attached. Includes items such as spars, ribs, stringers, plates/skin, access covers, tips, etc.
	-20	Elevator/ Elevon	The removable airfoil which is used for longitudinal and longitudinal/lateral control. Includes items such as spars, ribs, stringers, plates/skin, access covers, tabs, balance devices, etc.
	-30	Vertical Stabilizer	The vertical airfoil to which the rudder is attached. Includes items such as spars, ribs, stringers, plates/skin, access covers, tips, etc.
	-40	Rudder	The removable airfoil which is attached to the vertical stabilizer and is used for yaw control. Includes items such as spars, ribs, stringers, plates/skin, access covers, tabs, balance devices, etc.
	-50	Attach Fittings	<p>The fittings on the stabilizers used for the attachment of stabilizers, elevators, rudder tabs, fillets/fairings, and for the support of equipment within the stabilizer.</p> <p><u>FAA NOTE:</u> Specify fitting location on empennage. Excludes flight control actuator support fittings which should be coded in the appropriate 2700 subsystem.</p>

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
56		<u>Windows</u>	Those fuselage and crew compartment windows inclusive of windshields; also those windows installed in doors.
-00		General	
-10		Flight Compartment	The compartment above the floor and between the forward passenger partition and the forward pressure dome. Includes items such as the transparent material and its frame of sliding and fixed windows and windshields, handles, latching mechanisms, etc. Does not include door or inspection/observation windows. <u>FAA NOTE:</u> Includes electrically heated glass breakage regardless of cause.
-20		Cabin	The area in which the passengers are seated. Includes lounges, lavatories, buffets/galleys and coatrooms. Includes items such as transparent material, its frame, frost shield, etc.
-30		Door	The doors used for entrance and exit of the passengers, flight crew, and service personnel to and from the airplane. Includes items such as transparent material, its frame, etc. Does not include emergency exit windows.
-40		Inspection and Observation	The windows used for examining compartments and equipment in and about the airplane, and astrodomes used for celestial navigation. Includes items such as transparent material, its frame, etc.

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
57		<u>Wings</u>	Those center wing and outer wing structural units and associated components/members which enable the atmosphere to lift the aircraft, integral fuel tank structure, and components that make up these units, such as spars, skin, ribs, stringers, clamshells, scuppers, etc. Includes the structure of the flaps, ailerons and spoilers. <u>FAA NOTE:</u> Excludes fuel tank sealing.
-00	General		
-10	Main Frame		The primary skeleton of the wing. Includes spars, ribs, stringers, integral fuel tank structure, tip tank supporting structure, and frames around openings.
-20	Auxiliary Structure		The second structure of the wing. Includes leading edge, trailing edge, wing tip, tip fuel tank, and fuel or water cell backing boards. Does not include plates/skin.
-30	Plates/Skin		The exterior covering of the wing including access covers, doublers, and tip tank fillets/fairings. <u>FAA NOTE:</u> Includes leading edge/trailing edge skin and wing mounted fuel panel access doors.
-40	Attach Fittings		The fittings on the wing used for the attachment of fuselage, nacelle/ pylon, and landing gear to the wing and for the support of equipment within the wing. <u>FAA NOTE:</u> Specify fitting location on wing. Excludes flight control or landing gear actuator support fittings which should be coded in the appropriate 2700 or 3200 subsystem.
-50	Flight Surfaces		The structure of removable airfoils attached to the wing. Includes items such as ailerons, flaps, spoilers, tabs, drag and balancing devices. <u>FAA NOTE:</u> Also includes flight control hinges, flap tracks, carriages, and rollers that do not cause movement of the surface.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
<u>GROUP - PROPELLER/ROTOR</u>			Complete propeller/rotor system excluding propeller/rotor anti-icing system.
61		<u>Propellers</u>	The complete mechanical or electrical propeller, pumps, motors, governor, alternators, and those units and components external to or integral with the engine used to control the propeller blade angle. Includes propeller spinner, synchronizers, etc.
	-00	General	
	-10	Propeller Assembly	That portion of the system which rotates except the engine propeller shaft. Includes items such as blades, dome, hub, spinner, slip ring, deicer boot, distributor valve, etc. <u>FAA NOTE:</u> Excludes controlling aspects of propellers.
	-20	Controlling	That portion of the system which controls the pitch of the propeller blades. Includes items such as governor, synchronizers, switches, wiring, cables, levers, etc. Does not include any parts which rotate with the propeller assembly. <u>FAA NOTE:</u> Includes all controlling units regardless of type of propeller concerned.
	-30	Braking	That portion of the system which is used to decrease run-down time or stop propeller rotation during engine power-off conditions. Includes brake mechanisms, levers, pulleys, cables, switches, wiring, plumbing, etc.
	-40	Indicating	That portion of the system used to indicate operation or activation of propeller systems. Includes items such as lights, switches, wiring, etc.

2/22/78

8010.2
Appendix 2

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
65		<u>Rotors</u>	The complete rotor system including transmission, rotor heads, rotor blades and accessory drives. Also includes rotor braking and blade angle and attitude control system but does not include the rotor anti-icing system which is covered in Chapter 30, Ice and Rain Protection.
-00		General	
-10		Main Rotor	That portion of the system which rotates about a substantially vertical axis to provide lift and thrust or lift only. Includes items such as blades, heads, gear boxes, rain shields, transmissions, fairings, etc. Also includes the rotating portion of the ice and rain protection system.
-20		Anti-torque Rotor Assembly	That portion of the system which rotates in a plane substantially parallel to the plane of symmetry, to furnish a thrust which counteracts the torque of the main rotor and provides directional control. Includes items such as blades, hubs, shafts and couplings, gearboxes, transmissions, etc. Also includes the rotating portion of the ice and rain protection system.
-30		Accessory Driving	That portion of the system which provides for mechanical power take-offs to drive accessories. Includes items such as gears and gear boxes, seals, pumps, etc.
-40		Controlling	That portion of the system which controls the pitch and angle of attack of the rotor blades. Includes items such as governors, synchronizers, switches, wiring, cables, levers, etc. Does not include any parts which rotate with the rotor assembly.
-50		Braking	That portion of the system which is used to decrease rundown time or stop rotor rotation during engine power off conditions. Includes brake mechanisms, levers, pulleys, cables, switches, wiring, plumbing, etc.
-60		Indicating	That portion of the system used to indicate operation or activation of rotor systems. Includes items such as lights, gauges, switches, wiring, etc.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
<u>GROUP - POWER PLANT</u>			The complete power unit which develops thrust either through the exhaust or through a propeller. Excludes items such as generators, cabin superchargers, etc., which are covered under their respective systems.
71		<u>Power Plant</u>	Overall power package inclusive of engine, mount, cowling, scoops, cowl flaps.
	-00	General	This topic is intended to include general information, limits, and procedures. In the maintenance manual, this section shall cover subjects such as engine changes, run-up, externally-mounted spare power plants, etc. In the overhaul manual, this section shall cover subjects such as power plant buildup, tear-down, etc.
	-10	Cowling	Those removable coverings which extend over and around the power plant assembly. Includes the functioning and maintenance aspects of items such as nose ring cowls, accessory section cowls, cowl flaps, cowling supports, and attach mechanisms, etc., but does not include the structure which is covered in the Structures Chapter.
	-20	Mounts	The framework, either of build-up construction or forgings which support the engine and attach it to the nacelle or pylon. Includes items such as engine mounts, vibration dampeners, support links, mounting bolts, etc.
	-30	Fireseals	Those fire-resistant partitions and seals mounted on or about the power package for the purpose of isolating areas subject to fire. Does not include those fire-walls which are included in Chapter 54.
	-40	Attach Fittings	Those fittings and brackets which are used for the support of equipment in and about the power package.

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
	-50	Electrical Harness	Those electrical cables, conduits, plugs, sockets, etc., which serve several power plant systems, but which are banded together to facilitate removal and installation of the power plant. Does not include that wiring which is specifically covered under another system.
	-60	Air Intakes	That portion of the power plant system which directs and may or may not vary the mass air flow to the engine. Includes items such as nose ring cowls, scoops, compressor fan cowls, buried engine ducts, vortex generators, actuators, control handles, cables, wiring, plumbing, linkages, doors, warning systems, position indicators, etc. Does not include integral structure with the airframe, which shall be included in the applicable Structures chapter.
	-70	Engine Drains	Those components and manifold assemblies which are used to drain off excess fluids from the power plant and its accessories. Includes drainlines, manifolds, tanks, vents, and their supporting brackets, etc. Also includes components that are an integral part of, or fitted to the power plant cowlings.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
72	<u>Engine</u>	Those units and components which are:	<p>Used to induce and convert fuel-air mixture into power. Includes, for the turbine engine, air inlet, compressor, diffuser, combustion chambers, turbine and exhaust; and for the reciprocating engine, blower and clutch, clutch control valve, cylinders, cylinder baffles, intake pipes, crankshaft assembly, etc.</p> <p>Used to transmit power to the propeller shaft, if any, and accessory drives. Includes reduction gearing, gear trains, extension shaft, and torque-meter.</p> <p>Within the profile of the basic engine, used to supplement the functioning of other defined systems external to the engine. Includes items such as accessory drive, mechanical portion of the spark advance mechanism, oil transfer tubes from the propeller governor pad to the propeller shaft, BMEP section, etc.</p> <p>Used to control and direct the flow of lubrication through the engine from the inlet fitting to the outlet fitting. Includes engine pumps (pressure and scavenger) pressure relief valves, screens, oil lines (internal and external), etc.</p>

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
72		<u>Engine Turbine/ Turbo-Prop</u>	
-00	General		<p>This topic is intended to cover general information, limits, and procedures. In the engine overhaul manual this section would include such subjects as tear down, cleaning, inspection, assembly, testing, etc.</p> <p><u>FAA NOTE:</u> Includes internal lubrication of turbine engines such as oil scavenge systems, rotor bearings/seals, etc. Component parts are to be identified by name and position in the engine and associated with the ATA subsystem code (section of engine) in which they are physically located. Example: No. 6 rotor bearing, located in the turbine section, would be coded in 7250.</p>
-10	Reduction Gear & Shaft Section (Turbo-Prop)		The section of the engine which contains the propeller shafts and reduction gears. Includes items such as drives for nose mounted accessories, etc.
-20	Air Inlet Section		The section of the engine through which the air enters the compressor section. Includes items such as guide vanes, shrouds, cases, etc.
-30	Compressor Section		<p>The section of the engine in which the air is compressed. Includes items such as cases, vanes, shrouds, rotors, diffusers, etc. Also includes the maintenance and overhaul of stator blades but not the operation of variable stator blades which is covered under Chapter 7530. Does not include compressor bleed system.</p> <p><u>FAA NOTE:</u> Includes the rotating portion of bypass sections such as blades, but excludes ducting.</p>
-40	Combustion Section		The section of the engine in which the air and fuel are combined and burned. Includes items such as burner cans, cases, etc.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
-50	Turbine Section	The section of the engine containing the turbines. Includes items such as turbine nozzles, turbine rotors, cases, etc.	
-60	Accessory Drives	<p>The mechanical power take-offs to drive accessories. Includes items such as engine-mounted gear boxes, gears, seals, pumps, etc. Does not include remotely installed gear boxes which are covered in Chapter 83.</p> <p><u>FAA NOTE:</u> Also includes oil pressure pumps, relief valves, and filters.</p>	
-70	By-Pass Section	<p>The section of the engine which by-passes a portion of the normal engine airflow (either ram or compressed air) for the prime purpose of adding to engine thrust or reducing specific fuel consumption.</p> <p><u>FAA NOTE:</u> Pertains to non-rotating portion of by-pass airflow sections such as ducting, seals, etc.</p>	

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
72		<u>Engine</u> <u>Reciprocating</u>	
-00	General		This topic is intended to cover general information, limits, and procedures. In the engine overhaul manual this section would include such subjects as tear down, cleaning, inspection, assembly, testing, etc.
-10	Front Section		The section of the engine which contains the propeller shafts and reduction gears. Includes items such as drives for nose mounted accessories, etc.
-20	Power Section		The section of the engine which contains the crankshaft, master and link rod assemblies, cams, cam drive gears, tappet guides, rollers, carriers, etc.
-30	Cylinder Section		The section of the engine which contains the cylinders, valves, pistons, push rods, intake pipes, baffles, etc. Also includes rocker arm assembly, valve springs, etc.
-40	Supercharger Section		The section of the engine which contains cases, shroud plates, PRT coupling and gearing, impeller and drives, accessory drives, bushings, etc.
-50	Lubrication		Those units and components which are used to distribute oil throughout the engine. Includes front and rear pressure and scavenger pumps, sump, strainers, valves, etc. Also includes those oil lines not included in Chapter 79. Does not include those items which form integral passages within the engine.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
73		<u>Engine Fuel and Control</u>	<p>For turbine engines, those units and components and associated mechanical systems or electrical circuits which furnish or control fuel to the engine beyond the main fuel quick disconnect; and thrust augmentor, fuel flow rate sensing, transmitting and/or indicating units whether the units are before or beyond the quick disconnect. Includes:</p> <p>Coordinator or equivalent, engine driven fuel pump and filter assembly, main and thrust augmentor fuel controls, electronic temperature datum control, temperature datum valve, fuel manifold, fuel nozzles, fuel enrichment system, speed sensitive switch, relay box assembly, solenoid drip valve, burner drain valve, etc.</p> <p>For reciprocating engines, those units and components which deliver metered fuel and air to the engine. The fuel portion includes the carburetor/master control from the inlet side to the discharge nozzle(s), injection pumps, carburetor, injection nozzles, and fuel primer. The air portion includes units from the scoop inlet to the vapor vent return, and the impeller chamber.</p>
-00	General		
-10	Distribution		<p>That portion of the system from the main quick disconnect to the engine, which distributes fuel to the engine burner section and the thrust augmentor. Includes items such as plumbing, pumps, temperature regulators, valves, filters, manifold, nozzles, etc. Does not include the main or thrust augmentor fuel control.</p> <p><u>FAA NOTE:</u> Includes fuel heaters in turbine engines but excludes fuel indication.</p>
-20	Controlling		<p>The main fuel controls which meter fuel to the engine and to the thrust augmentor. Includes items such as levers, cables, pulleys, linkages, etc., which are components of the fuel control units.</p> <p><u>FAA NOTE:</u> Includes "P & D" valves.</p>

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
	-30	Indicating	That portion of the system which is used to indicate the flow rate, temperature, and pressure of the fuel. Includes items such as transmitters, indicators, and wiring.

FAA NOTE: Also includes pressure warning systems.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
74		<u>Ignition</u>	Those units and components which generate, control, furnish, or distribute an electrical current to ignite the fuel air mixture in the cylinders of reciprocating engines or in the combustion chambers or thrust augmentors of turbine engines. Includes induction vibrators, magnetos, switches, lead filters, distributors, harnesses, plugs, ignition relays, exciters, and the electrical portion of spark advance.
	-00	General	
	-10	Electrical Power Supply	That portion of the system which generates electrical current for the purpose of igniting the fuel mixture in the combustion chambers and thrust augmentors. Includes items such as magnetos, distributors, booster coils, exciters, transformers, storage capacitors and compositors, etc.
	-20	Distribution	That portion of the system which conducts high or low voltage electricity from the electrical power supply to the spark plugs, or igniters. Includes wiring between magneto and distributor in those systems where they are separate units. Includes items such as ignition harness, high tension leads, coils as used in "low tension" systems, spark plugs, igniters, etc.
	-30	Switching	That portion of the system which provides a means of rendering the electrical power supply inoperative. Includes items such as ignition switches, wiring, connectors, etc.

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
75	<u>Air</u>		For turbine engines, those external units and components and integral basic engine parts which go together to conduct air to various portions of the engine and to the extension shaft and torquemeter, assembly, if any. Includes compressor bleed systems used to control flow of air through the engine, cooling air systems, and heated air systems for engine anti-icing. Does not include aircraft anti-icing, engine starting systems, nor exhaust supplementary air systems.
-00	General		
-10	Engine Anti-Icing		That portion of the system which is used to eliminate and prevent the formation of ice by bleed air in all parts of the engine, excluding power plant cowling which is covered under Chapter 30. Includes items such as valves, plumbing, wiring, regulators, etc. Electrical anti-icing is covered in Chapter 30.
			<u>FAA NOTE:</u> Excludes cowling anti-icing which should be coded in 3020.
-20	Accessory Cooling		That portion of the system which is used to ventilate engine compartments and accessories. Includes items such as valves, plumbing, wiring, jet pumps, vortex spoilers, etc.
-30	Compressor Control		That portion of the system which is used to control the flow of air through the engine. Includes items such as governors, valves, actuators, linkages, etc. Also includes the operation of variable stator blades, but not the maintenance and overhaul, which shall be covered under 7230.
-40	Indicating		That portion of the system which is used to indicate temperature, pressure, control positions, etc. of the air systems. Includes items such as transmitters, indicators, wiring, etc.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
76		<u>Engine Controls</u>	Those controls which govern operation of the engine. Includes units and components which are interconnected for emergency shutdown. For turbo-prop engines, includes linkages and controls to the coordinator or equivalent and from the coordinator or equivalent to the propeller governor, fuel control unit, or other units being controlled. For reciprocating engines, includes controls for blowers. Does not include units or components which are specifically included in the other chapters.
	-00	General	
	-10	Power Control	That portion of the system which furnishes a means of controlling the main fuel control or coordinator. Includes controls to the propeller regulator on turbo-prop engines. Includes items such as linkages, cables, levers, pulleys, switches, wiring, etc. Does not include the units themselves.
	-20	Emergency Shutdown	That portion of the system which furnishes a means of controlling the flow of fluids to and from the engine during emergency procedures. Includes items such as levers, cables, pulleys, linkages, switches, wiring, etc. Does not include the units themselves.

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
77		<u>Engine Indicating</u>	Those units, components and associated systems which indicate engine operation. Includes indicators, transmitters, analyzers, etc. For turbo-prop engines, includes phase detectors. Does not include systems or items which are specifically included in other chapters.
-00		General	
-10		Power	That portion of the system which directly or indirectly indicates power or thrust. Includes items such as BMEP, pressure-ratio, RPM, etc.
-20		Temperature	That portion of the system which indicates temperatures in the engine. Includes items such as cylinder head, exhaust (turbine inlet), etc.
-30		Analyzers	That portion of the system which is used to analyze engine performance or condition by means of instruments or devices such as oscilloscopes, etc. Includes items such as generators, wiring, amplifiers, oscilloscopes, etc.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
78		<u>Exhaust</u>	<p>Those units and components which direct the engine exhaust gases overboard.</p> <p>For turbine engines, includes units external to the basic engine such as thrust reverser and noise suppressor.</p> <p>For reciprocating engines, includes augmentors, stacks, clamps, etc. Excludes exhaust-driven turbines.</p>
-00		General	
-10		Collector/ Nozzle	<p>That portion of the system which collects the exhaust gases from the cylinders or turbines and conducts them overboard. Includes items such as collector rings, exhaust and thrust augmentor ducts, variable nozzles, actuators, plumbing, linkages, wiring, position indicators, warning systems, etc. Does not include power recovery turbines, turbo-superchargers, etc., nor noise suppressors or thrust reversers where they are not an integral part of the nozzle system.</p>
-20		Noise Suppressor	<p>That portion of the system which reduced the noise generated by the exhaust gases. Includes items such as pipes, baffles, shields, actuators, plumbing linkages, wiring, position indicators, warning systems, etc. Use -10 where integral part of nozzle system.</p>
-30		Thrust Reverser	<p>That portion of the system which is used to change the direction of the exhaust gases for reverse thrust. Includes items such as clamshells, linkages, levers, actuators, plumbing, wiring, indicators, warning systems, etc. Use -10 where integral part of nozzle system.</p> <p><u>FAA NOTE:</u> Includes fan reversing system.</p>
-40		Supplementary Air	<p>That portion of the system which varies and controls supplementary air flow to the exhaust system. Includes items such as tertiary air doors, actuators, linkages, springs, plumbing, wiring, position indicators, warning systems, etc.</p>

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
79		<u>Oil</u>	Those units and components external to the engine concerned with storing and delivering lubricating oil to and from the engine. Covers all units and components from the lubricating oil engine outlet to the inlet, including the inlet and outlet fittings, tank, radiator, by-pass valve, etc., and auxiliary oil systems.
-00	General		
-10	Storage		That portion of the system used for storage of oil. Includes items such as tanks, filling systems, internal hoppers, baffles, tank sump and drain, etc. Does not include tanks which are an integral portion of the engine.
-20	Distribution		That portion of the system which is used to conduct oil from and to the engine. Includes items such as plumbing, valves, temperature regulator, control systems, etc.
			<u>FAA NOTE:</u> Excludes engine internal lubrication systems.
-30	Indicating		That portion of the system which is used to indicate the quantity, temperature, and pressure of the oil. Includes items such as transmitters, indicators, wiring, warning systems, etc.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
80		<u>Starting</u>	Those units, components, and associated systems used for starting the engine. Includes electrical, inertia air, or other starter systems. Does not include ignition systems which are covered in Chapter 74, Ignition.
	-00	General	
	-10	Cranking	That portion of the system which is used to perform the cranking portion of the starting operation. Includes items such as plumbing, valves, wiring, starters, switches, relays, etc.

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
81		<u>Turbines</u>	For reciprocating engines only. Includes power recovery turbine assembly and turbo-supercharger unit when external to the engine. <u>FAA NOTE:</u> Does not include turbines in air conditioning/pressurization systems covered by ATA system 2100.
	-00	General	
	-10	Power Recovery	The turbines which extract energy from the exhaust gases and are coupled to the crankshaft.
	-20	Turbo- Supercharger	The turbines which extract energy from the exhaust gases and drive an air compressor.

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
82		<u>Water Injection</u>	Those units and components which furnish, meter, and inject water or water mixtures into the induction system, includes tanks, pumps, regulators, etc.
	-00	General	
	-10	Storage	That portion of the system which is used for the storage of water or water mixtures. Includes tank sealing, attachment of bladder type cells, ventilating system, cell and tank interconnectors, filling systems, etc.
	-20	Distribution	That portion of the system which is used to conduct water or water mixtures from the tanks or cells to the engine. Includes items such as plumbing, crossfeed system, pumps, valves, controls, etc.
	-30	Dumping and Purging	That portion of the system which is used to dump injection water and to purge the system. Includes items such as plumbing, valves, controls, etc.
	-40	Indicating	That portion of the system which is used to indicate the quantity, temperature, and pressure of the water or water mixtures. Includes items such as transmitters, indicators, wiring, etc.

2/22/78

SYSTEM/ CHAPTER	SUB- SYSTEM	TITLE	DEFINITION
83		<u>Accessory Gear Boxes</u>	Those units and components which are remotely installed and connected to the engine by a drive shaft and which drive multiple types of accessories. Does not include those accessory drives which are bolted to and are immediately adjacent to the engine. The latter item shall be covered under Chapter 72, Engine.
	-00	General	
	-10	Drive Shaft Section	That portion of the system which is used to conduct power from the engine to the gearbox. Includes items such as drive shaft, adapters, seals, etc.
	-20	Gearbox Section	The case which contains the gear trains and shafts. Includes items such as gears, shafts, seals, oil pumps, coolers, etc.

2/22/18

8010.2
Appendix 2

SERVICE DIFFICULTY PROGRAM CODING SHEET

NATURE OF CONDITION		STAGE		PRECAUTIONARY PROCEDURE	
A FLAME	1 FLT. ATTITUDE INST.	IN INSP/MAINT	DE DESCENT	A UNSCHED LANDING	G MANUAL O ₂ MASK
B SMOKE	J WARNING INDICATION	TX TAXI/GND HDL	AP APPROACH	B EMER, DESCENT	H DEACTIVATE CIRCUITS
C F.O.D.	K FUEL LOSS	TO TAKEOFF	LD LANDING	C ABORTED TAKEOFF	I INTENTIONAL DEPRESSURE
D INFIGHT SEPARATION	L NO TEST	CL CLIMB	HO HOVERING	D RETURN TO BLOCK	J DUMP FUEL
E VIBRATION/BUFFET	M OVER TEMP	CR CRUISE		E ENGINE SHUTDOWN	K NONE
F FLT CONT EFFECTED	N FALSE WARNING			F ACTIVATE FIRE EXT.	L ABORTED APPROACH
G MULTIPLE FAILURE	O OTHER				O OTHER
H ELECT, POWER LOSS - 50%	P NO WARNING INDICATION				
	Q AFFECTED SYSTEMS				
	R ENGINE CASE FUNCTIONED				
NOTE: ENTER ONE TO THREE CODES IN WHATEVER ORDER BEST DESCRIBES ALL CONDITIONS OBSERVED.		NOTE: ENTER STAGE OF FLIGHT OR GROUND OPERATIONS WHEN SDR OCCURRED OR WAS OBSERVED.		NOTE: ENTER ONE TO FOUR CODES IN WHATEVER ORDER BEST DESCRIBES ALL EVENTS OF THE PRECAUTIONARY PROCEDURE.	

System Sub Title	System Sub Title	System Sub Title	System Sub Title	System Sub Title	System Sub Title	System Sub Title
21 AIR CONDITIONING	26 FIRE PROTECTION	32 LANDING GEAR	38 WATER/WASTE	54 FACELLES/PYLONS	71 POWERPLANT	76 ENGINE CONTROLS
00 General	00 General	00 General	00 General	00 General	00 General	00 General
10 Compressor	10 Detection	10 Main Gear	10 Potable	10 Main Frame	10 Cowling	10 Power Control
20 Distribution	20 Extinguishing	20 Nose Gear/Tail Gear	20 Wash	20 Auxiliary Structure	20 Mount	20 Emergency Shutdown
30 Pressurization Control	30 Explosion Suppression	30 Extension & Retraction, Level Switch	30 Waste Disposal	30 Plates/Skin	30 Firewalls & Shrouds	
40 Heating		40 Wheels and Brakes	40 Air Supply	40 Attach Fittings	40 Attach Fittings	77 ENGINE INDICATING
50 Cooling	27 FLIGHT CONTROLS	50 Steering		50 Fillets/Fairings	50 Electrical Harness	00 General
60 Temperature Control	00 General	60 Position, Warning & Ground	39 ELECTRICAL/ELECTRONIC PANELS & MULTIPURPOSE COMPONENTS	59 STABILIZERS	60 Engine Air Intakes	10 Power
70 Moisture/Air Contaminant Control	10 Aileron and Tab	70 Safety Switch	00 General	00 General	70 Engine Drive	20 Temperature
	20 Rudder/Ruddervator and Tab		10 Instrument & Control Panels	10 Horizontal Stabilizers/Stabilator		30 Analyzers
22 AUTO FLIGHT	30 Elevator and Tab	33 LIGHTS	20 Electrical & Electronic Equipment Racks	20 Elevator/Blown	72 (T) TURBINE/TURBOPROP	78 ENGINE EXHAUST
00 General	40 Horizontal Stabilizers/Stabilator	00 General	30 Electrical & Electronic Junction Boxes	30 Vertical Stabilizer	00 General	00 General
10 Autopilot	50 Flaps	10 Flight Compartment & Annunciator Panels	40 Multipurpose Electronic Components	40 Rudder/Ruddervator	10 Reduction Gear & Shaft Section	10 Collector/Nozzle
20 Speed-Altitude Correction	60 Spoiler, Drag Devices & Variable Aerodynamic Fairings	20 Passenger Compartments	50 Integrated Circuits	50 Attach Fittings	20 Air Inlet Section	20 Compressor Section
30 Auto Throttle	70 Gust Lock and Damper	30 Cargo and Service Compartments	60 Printed Circuit Card Assemblies		30 Combustion Section	20 Noise Suppressor
40 System Monitor	80 Lift Augmenting	40 Exterior Lighting	49 AIRBORNE AUXILIARY POWER	56 WINDOWS	40 Turbine Section	30 Thrust Reverser
		50 Emergency Lighting	00 General	00 General	60 Accessory Drives	40 Supplemental Air
23 COMMUNICATIONS	28 FUEL		10 Power Plant	10 Flight Compartment	70 By-pass Section	79 ENGINE OIL
00 General	00 General	34 NAVIGATION	20 Cabin	20 Cabin		00 General
10 High Frequency (HF)	10 Storage	00 General	30 Engine Fuel and Control	40 Inspection and Observation	73 (R) ENGINE RECIPROCATING	10 Storage (Dry Sump)
20 VHF/UHF	20 Distribution/Drain Valves	10 Flight Environment Data	40 Ignition/Starting		00 General	20 Distribution
30 Passenger Address and Entertainment	30 Dump	20 Attitude and Direction	50 Air	57 WINGS	10 Front Section	30 Indicating
40 Interphone	40 Indicating	30 Landing and Taxiing Aids	60 Engine Controls	00 General	20 Power Section	
50 Audio Integrating		40 Independent Position Determining	70 Indicating	10 Main Frame	30 Cylinder Section	80 STARTING
60 Static Discharging	29 HYDRAULIC POWER	50 Dependent Position Determining	80 Exhaust	20 Auxiliary Structure	40 Supercharger Section	00 General
70 Audio and Video Monitoring	00 General	60 Position Computing	90 Oil	30 Plates/Skin	50 Lubrication	10 Cranking
	10 Main			40 Attach Fittings		
24 ELECTRICAL POWER	20 Auxiliary	35 OXYGEN	31 STRUCTURES	50 Flight Surfaces	74 ENGINE FUEL & CONTROL	81 TURBINES (RECIPROCATING ENG)
00 General	30 Indicating	00 General	00 General		00 General	00 General
10 Generator Drive		10 Crew	32 DOORS	33 PROBLEMS	10 Distribution	10 Power Recovery
20 AC Generation	30 ICE AND RAIN PROTECTION	20 Passenger	00 General	00 General	20 Controlling/Governing	20 Turbo-Supercharger
30 DC Generation	00 General	30 Portable	00 General	10 Propeller Assembly	30 Indicating	
40 External Power	20 Air Intakes		10 Passenger/Crew	20 Controlling	75 POSITION	82 WATER FUNCTION
50 Electrical Load Distribution	30 Pilot and Static	36 PNEUMATIC	20 Emergency Exit	30 Braking	00 General	00 General
	40 Windows and Windshields	00 General	30 Cargo	40 Indicating	10 Electrical Power Supply	10 Storage
25 EQUIPMENT/FURNISHINGS	50 Antennas and Radomes	10 Distribution	40 Service		20 Distribution	20 Distribution
00 General	60 Propellers/Rotors	20 Indicating	50 Fixed Interior	43 MOTORS	30 Switching	30 Dumping & Purging
10 Flight Compartment	70 Water Lines		60 Entrance Stairs	00 General	40 Indicating	40 Indicating
20 Passenger Compartment	80 Detection	37 VACUUM/PRESSURE	70 Door Warning	10 Main Rotor	76 WIND AIR	
30 Buffet/Galley		00 General	80 Landing Gear	20 Anti-torque Rotor Assembly	00 General	83 REMOTE GEAR BOXES (ENG DR)
40 Lavatories		10 Distribution		30 Accessory Driving	10 Engine Anti-icing	00 General
50 Cargo Compartments/AG Spray Apparatus	INDICATING/RECORDING SYSTEMS	20 Indicating	53 FUSELAGE	40 Controlling	20 Accessory Cooling	10 Drive Shaft Section
60 Emergency	00 General		00 General	50 Indicating	30 Compressor Control	20 Gearbox Section
70 Accessory Compartments	10 Unassigned		10 Main Frame		40 Indicating	
	20 Unassigned		20 Auxiliary Structure			
	30 Recorders		30 Plates/Skin			
	40 Central Computers		40 Attach Fittings			
	50 Central Warning System		50 Aerodynamic Fairings			

2/22/78

8010.2
Appendix 3APPENDIX 3. FORMS AND REPORTS OF THE SERVICE DIFFICULTY PROGRAMFIGURE 1. SERVICE DIFFICULTY REPORT (AIR CARRIER), FAA FORM 8070-1DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**Service Difficulty Report**
AERONAUTICAL EQUIPMENT

RIS: FS 8070-1	
CONTROL NO.	
ATA	CODE

MAJOR EQUIPMENT IDENTITY

Enter pertinent data	MANUFACTURER	MODEL/SERIES	SERIAL NUMBER	N-
AIRCRAFT			D	E
POWERPLANT			F	G
PROPELLER			H	I

PROBLEM DESCRIPTION

DATE	STATUS	CARRIER	ATA	AIRCRAFT TYPE	N-	CONTROL NO.
TEXT						
SPECIFIC PART CAUSING PROBLEM						
PART NAME		MFG. PART NUMBER		PART CONDITION		PART/DEFECT LOCATION
J	K	L		M		
COMPONENT/APPLIANCE ABOVE PART INSTALLED ON					Report whole hours	PART TT
COMP/APPL NAME		MANUFACTURER		MFG. MODEL/NUMBER		SERIAL NO.
P		Q		R		

SUBMITTED BY

SUBMITTER (Check one)										S	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
										CARRIER	REP STA	OPER	MECH	AIR TAXI	MFG	FAA	OTHER	Spec	P.S.L.	ALERT	OPER/D.O.															
PREC. PROC	NATURE	STAGE	STAT	ROLL	FRAME	SYS	SYS																													
T	U	V				W	X																													
ADDITIONAL COMMENTS																																				

2/22/78

FIGURE 2. SERVICE DIFFICULTY REPORT (REVERSE SIDE), FAA FORM 8070-1

ALL SUBMITTERS- INSTRUCTIONS FOR COMPLETING FAA FORM 8070-1

MAJOR EQUIPMENT IDENTITY

TITLE	ENTRY
AIRCRAFT POWERPLANT PROPELLER	Identify major equipment related to problem. Enter manufacturer, model, and serial number per FAA/MANUFACTURER type certificate data sheet. If amateur built, use plan or kit name. Use military model designators when appropriate. Avoid colloquial names and market titles.
N-	Aircraft Registration Number.

PROBLEM DESCRIPTION

DATE	Give date problem occurred (i.e., 5-25-73).
TEXT	Whenever possible, describe conditions subsequent to, or leading up to, the reported problem: (a) Identify the cause for malfunction and emergency measures executed. (b) Include compliance or non-compliance with Airworthiness Directives, Service Bulletins, STC's, and PMA's. (c) Provide any significant fact you feel may help to reduce or eliminate recurrence (i.e., cycles, landings, and suggested changes.)
PART NAME	Skin, rib, shaft, venturi, transistor, capacitor, etc. Avoid colloquial names.
MFG. PART NUMBER	Alphanumeric part identifiers assigned by manufacturer.
PART CONDITION	Cracked, bent, burned, corroded, shorted, etc.
PART/DEFECT LOCATION	L.H. alternator, audio, R.H. outboard, range switch, etc.
PART TT	Total service time on part in whole hours (i.e., 00531).
PART TSO	Service time on part since overhaul in whole hours (i.e., 00200).
COMP/APPL NAME	Fuselage, wing, alternator, carburetor, VOR receiver, etc.
MANUFACTURER	Comp/appl manufacturer: Beech, Cessna, Prestolite, Bendix, Collins, etc.
MFG. MODEL/NUMBER, SERIAL NUMBER	Alphanumeric model and serial numbers or identifiers assigned by comp/appl manufacturer (i.e., AL18403, KAS3A1, 51RV1). Do not repeat "MAJOR EQUIPMENT IDENTITY" in these locations.

SUBMITTED BY

SUBMITTER	As noted on form.
------------------	-------------------

FAA DISTRICT OFFICES- SUPPLEMENTAL INSTRUCTIONS (REF: FAA DIRECTIVE 8000.24)

PROBLEM DESCRIPTION

STATUS	Orig-Open, Orig-Closed, Supp-Open, Supp-Closed.
CARRIER	Approved 3 or 4 digit symbol (i.e., AAL, ANET, PSAT, See 8300.4).
ATA	ATA Spec. 100, 4 digit code related to malfunction (i.e., 2820, 3410, 7230, See 8000.24 Appendix 2 & 3).
AIRCRAFT TYPE	Abbreviated make plus approved model/series identify shown on FAA/MANUFACTURER type certificate data sheet (i.e., B-707-321, BE-99A).
N-	Aircraft registration number.
CONTROL NUMBER	When "STATUS" is supp-open or supp-closed enter original "CONTROL NUMBER"; otherwise leave blank.

SUBMITTED BY

SUBMITTER	Enter inspector's name and office symbol (i.e., Jim Higgins, EA-31), check the appropriate block	<table border="1"> <tr> <th>CHECK BLOCK</th> <th>IF REQ'D BY FAR</th> </tr> <tr> <td>A</td> <td>121, 123, 127, (135.2)</td> </tr> <tr> <td>B</td> <td>145, 63</td> </tr> <tr> <td>F</td> <td>21, 39, 37, 17</td> </tr> <tr> <td>I</td> <td>135, 57</td> </tr> <tr> <td>C</td> <td>NONE</td> </tr> </table>	CHECK BLOCK	IF REQ'D BY FAR	A	121, 123, 127, (135.2)	B	145, 63	F	21, 39, 37, 17	I	135, 57	C	NONE
CHECK BLOCK	IF REQ'D BY FAR													
A	121, 123, 127, (135.2)													
B	145, 63													
F	21, 39, 37, 17													
I	135, 57													
C	NONE													
PREC. PROC.	A thru I, enter one to four codes which best describe Precautionary Procedure (see 8000.24, appendix 3).													
NATURE	A thru S, enter one to three codes which best describe the nature of conditions present (see 8000.24, appendix 3).													
STAGE	Enter one bi-digit code which best describes the stage of operation when problem occurred (see 8000.24, appendix 3).													

FAA OFFICES ONLY, PREPARE FORMS IN DUPLICATE. REMAINING BLOCKS WILL BE COMPLETED AT TIME OF COMPUTER PROCESSING. DO NOT UTILIZE REMAINING SPACE FOR OTHER PURPOSES.

FOLD

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AERONAUTICAL CENTER, AAC-230
P. O. Box 25082
OKLAHOMA CITY, OKLAHOMA 73125**

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE, \$300

**POSTAGE AND FEES PAID
FEDERAL AVIATION ADMINISTRATION
DOT-515**



**FEDERAL AVIATION ADMINISTRATION
AERONAUTICAL CENTER, AAC-230
P. O. BOX 25082
OKLAHOMA CITY, OKLAHOMA 73125**

2/22/78

8010.2
Appendix 3

FIGURE 3. DAILY SUMMARY OF SERVICE DIFFICULTY
REPORTS (AIR CARRIER), RIS: FS 8070-2

AIR CARRIER

FLIGHT STANDARDS SERVICE DIFFICULTY REPORTS



FLIGHT STDS SERVICE

RIS: FS 8070-2

Friday, November 11, 1977

AIRFRAME

DATE 102677	STATUS ORIG-CLOSED	CARRIER NWA	ATA 2910	AIRCRAFT TYPE 707-351C	N- 384US	CONTROL NO. 11117001
TEXT HND - AFTER TAKEOFF LOST UTILITY SYSTEM HYDRAULIC FLUID. RETURNED TO FIELD. FOUND FLUID LOSS OCCURRING AT NR 3 ENGINE DRIVEN PUMP DUE TO PUMP FAILURE. REPLACED NR 2 AND NR 3 ENGINE DRIVEN HYDRAULIC PUMPS. REPLACED FILTERS AND REPLENISHED FLUID SUPPLY. SYSTEM CHECK NORMAL.						
SPECIFIC PART CAUSING PROBLEM						
PART NAME PUMP	MFG. PART NUMBER 10-60470	PART CONDITION FAILED	PART/DEFECT LOCATION NR 3 ENGINE			
COMPONENT/APPLIANCE ABOVE PART INSTALLED ON			Report whole hours	PART TT	PART TSO	
COMP/APPL NAME	MANUFACTURER	MFG. MODEL/NUMBER	SERIAL NO.			

DATE 10 25 77	STATUS Orig-Closed	CARRIER BNF	ATA 2730	AIRCRAFT TYPE 727-2B7	N- 404 BN	CONTROL NO. 11117002
TEXT DEN During taxi to runway lost 'A' hydraulic quantity and pressure. Towed aircraft to gate. Found cracked cap on bottom of elevator feel computer. Replaced cap and serviced system.						
SPECIFIC PART CAUSING PROBLEM						
PART NAME Feel Comp. Cap	MFG. PART NUMBER AN8146DL	PART CONDITION Cracked	PART/DEFECT LOCATION			
COMPONENT/APPLIANCE ABOVE PART INSTALLED ON			Report whole hours	PART TT	PART TSO	
COMP/APPL NAME	MANUFACTURER	MFG. MODEL/NUMBER	SERIAL NO.			

1. REGISTRATION NO. N-		DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION MALFUNCTION OR DEFECT REPORT				Form Approved Budget Bureau		8. DATE SUB.		FOR FAA USE ONLY CONTROL NO.													
2. AIRCRAFT		A. MAKE		B. MODEL		C. SERIAL NO.		7A. COMMENTS (Describe the malfunction or defect and the circumstances under which it occurred. State probable cause and recommendations to prevent recurrence.)															
3. POWERPLANT																							
4. PROPELLER																							
5. APPLIANCE/COMPONENT (assy. that includes part)																							
A. NAME		B. MAKE		C. MODEL		D. SERIAL NO.																	
6. SPECIFIC PART (of component) CAUSING TROUBLE		A. NAME		B. NUMBER		C. PART/DEFECT LOCATION		Continue on reverse															
FAA USE		E. PART TT		F. PART TSO		G. PART CONDITION		SUBMITTED BY															
D. ATA CODE								B. REP. STA.		C. OPER.		D. MECH.		E. AIR TAXI		F. MFG.		G. FAA		H. OTHER		I.	

FAA FORM 8330-2 (9-70) SUPERSEDES PREVIOUS EDITIONS

FIGURE 5. MALFUNCTION OR DEFECT REPORT (REVERSE),
FAA FORM 8330-2 (GENERAL AVIATION)

USE THIS SPACE FOR ADDITIONAL COMMENTS IF NEEDED

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, D.C. 20590

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300



Local FAA District Office
address should be inserted
on this portion of the form.

2/22/78

8010.2
Appendix 3

FIGURE 6. DAILY SUMMARY OF SERVICE DIFFICULTY REPORTS (GENERAL AVIATION)

GENERAL AVIATION

FLIGHT STANDARDS SERVICE DIFFICULTY REPORTS



FLIGHT STDS SERVICE

RIS: FS 8070-2

Wednesday, July 6, 1977

AIRFRAME

DATE 7-5-77	STATUS	CARRIER	ATA 3210	AIRCRAFT TYPE BL-7GCAA	N- 6336N	CONTROL NO. 07067028
TEXT THE LEFT LANDING GEAR "LEG" BROKE ON LANDING. THE RIGHT LEG WAS MAGNAFLUXED AND REVEALED STRESS CRACKS AT SAME POINT OF LEFT GEAR FAILURE. FAILURE AND CRACKS OCCURRED AT BEND IN GEAR LEG WHERE IT ATTACHES TO FUSELAGE BY A "U" BOLT.						
SPECIFIC PART CAUSING PROBLEM						
PART NAME LDG GEAR LEG - LT	MFG. PART NUMBER	PART CONDITION BROKE	PART/DEFECT LOCATION AT BEND & U BOLT			
COMPONENT/APPLIANCE ABOVE PART INSTALLED ON					Report whole hours 1600	PART TSO
COMP/APPL NAME	MANUFACTURER	MFG. MODEL/NUMBER	SERIAL NO.			

DATE 6-23-77	STATUS	CARRIER	ATA 2210	AIRCRAFT TYPE C-T210L	N- 22592	CONTROL NO. 07067029
TEXT AUTOPILOT NAV 1-NAV 2 SELECTOR SWITCH JAMMED IN FLIGHT CAUSING BOTH NAV CDI NEEDLES TO BE ELECTRICALLY PARALLELED. THIS RESULTED IN INCORRECT & POTENTIALLY HAZARDOUS NAVIGATION INFORMATION BEING PRESENTED ON BOTH CDI INDICATORS WITHOUT THE DISPLAY OF WARNING FLAGS. ALSO, AUTOPILOT WOULD COUPLE TO INCORRECT NAV INFORMATION.						
SPECIFIC PART CAUSING PROBLEM						
PART NAME SELECT SW	MFG. PART NUMBER 12707161	PART CONDITION FAILED	PART/DEFECT LOCATION INST PANEL			
COMPONENT/APPLIANCE ABOVE PART INSTALLED ON					Report whole hours	PART TSO
COMP/APPL NAME AUTOPILOT SYS	MANUFACTURER	MFG. MODEL/NUMBER	SERIAL NO.			

Distribution: ZC-327

2/22/78

FIGURE 7. SEGMENT OF FAA FORM 8340-6 (REDUCED). PRODUCED ANNUALLY; ALSO QUARTERLY, SEE FIGURE 8.

ANNUAL AIRCARRIER AIRCRAFT UTILIZATION			
AIRLINE OPERATOR	AIRCRAFT MAKE	AVERAGE NUMBER OF AIRCRAFT	TOTAL FLIGHT TIME
AAA	B 707		
	B 727		
	BC111	31	84,002
	CV580	24	39,617
	DC9	40	115,961
	F 27		
	FH227		
	TOTAL	96	239,580
AAAX	DC3		
	DC6		
	TOTAL		
AACX	B 707		
	TOTAL		
AAIX	B 720	2	1,615
	TOTAL	2	1,615
AAL	B 707	93	271,600
	B 720	2	185
	B 727	99	262,919
	B 747	13	21,146
	BC111	1	
	DC10	24	56,342
	DC8		
	TOTAL	233	612,192
AAMX	DC4		
	DC6		
	TOTAL		
ACAX	B 737	8	19,547
	L 188	1	987
	TOTAL	9	20,534
ACTC	DC8		109
	TOTAL		109
AERX	B 377		
	B 377S		
	B 377T		
	TOTAL		
AFAX	B 727		
	DC8		
	L 188		
	TOTAL		
AFFX	DC3	1	450
	DC9		
	TOTAL	1	450
AFIX	DC6	1	1,306
	DC8		
	TOTAL	1	1,306
AFLX	B 707		
	L 188	3	2,427
	TOTAL	3	2,427
AHIC	DC6		
	TOTAL		
AHJT	HF320		

2/22/78

8010.2
Appendix 3

FIGURE 8. QUARTERLY AIR CARRIER AIRCRAFT UTILIZATION

QUARTERLY AIR CARRIER AIRCRAFT UTILIZATION								01-16-75	
AIRLINE OPERATOR	AIRCRAFT MAKE	OCTOBER		NOVEMBER		DECEMBER		QUARTER AVERAGE NUMBER OF AIRCRAFT	RIS FS8340-4 TOTAL FLIGHT TIME
		NUMBER OF AIRCRAFT	FLIGHT TIME	NUMBER OF AIRCRAFT	FLIGHT TIME	NUMBER OF AIRCRAFT	FLIGHT TIME		
AAA	B 707								
	B 727								
	BC111	31	7,341	31	6,796	31	6,971	31	21,108
	CV580	27	4,422	27	4,028	27	4,083	27	12,533
	DC9	43	10,513	44	10,224	43	10,455	43	31,192
	F 27								
	FH227								
	TOTAL	101	22,276	102	21,048	101	21,509	101	64,833
AAAX	DC3								
	DC6								
	TOTAL								
AACX	B 707								
	TOTAL								
AAIX	B 720	3	144	3	168	4	149	3	461
	TOTAL	3	144	3	168	4	149	3	461
AAL	B 707	91	24,675	91	22,480	91	23,727	91	70,882
	B 720					3		1	
	B 727	98	24,214	98	22,386	98	23,252	98	69,852
	B 747	11	1,417	12	1,594	12	2,445	12	5,456
	RC111					5		2	
	DC10	24	5,216	24	4,819	23	5,541	24	15,576
	DC8								
	TOTAL	224	55,522	225	51,279	232	54,965	227	161,766
AAMK	DC4								
	DC6								
	TOTAL								
ACAX	B 737	7	1,553	7	1,506	7	1,569	7	4,628
	L 188	1	48	1	97	1	66	1	211
	TOTAL	8	1,601	8	1,603	8	1,635	8	4,839
ACTC	DC8	1	35	1	40	1	40	1	115
	TOTAL	1	35	1	40	1	40	1	115
AERX	B 377								
	B 377S								
	B 377T								
	TOTAL								
AFAX	B 727								
	DC8								
	L 188								
	TOTAL								
AFFX	DC3								
	DC9								
	TOTAL								
AFIX	DC6								
	DC8								
	TOTAL								

FLIGHT STANDARDS SERVICE
SERVICE DIFFICULTY REPORT - SYSTEM ANALYSIS AND SUMMARY REPORT

AIRCRAFT Rockwell 112 Aircraft Group
REPORT NO. 76-12-10
ATA SYSTEM/SUBSYSTEM 7610
SUBJECT Power Lever
REPORT PERIOD 5/75 thru 12/76
MAC SPECIALIST W. T. Edmonds

AIRCRAFT <u>Rockwell 112 Aircraft Group</u>		CONDITION FOUND										PERTINENT DATA	
REPORT NO. <u>76-12-10</u>												No. Rpts Year	
ATA SYSTEM/SUBSYSTEM <u>7610</u>												2 1975 (1 mo)	
SUBJECT <u>Power Lever</u>												10 1976 (5 mo)	
REPORT PERIOD <u>5/75 thru 12/76</u>												AC MODEL NO. RPTS	
MAC SPECIALIST <u>W. T. Edmonds</u>												112 10	
												112A 2	
COMPONENT/PART NAME/NUMBER		Broken	Seized	Kinked	Failed	Worn-broken	Separated	Worn				TOTAL	Average T.T. and T.S.O. 622 hrs. per report.
Cable/461351/461353/461357		2	1	1	1							5	
Throttle/Blank/461353		1				1						2	
Throttle Cable/46135501							1					1	
Bracket/Blank/620501B		2										2	
Rttd Eng/SPF 35								1				1	
Rttd/End/600700								1				1	
GRAND TOTALS		5	1	1	1	1	1	2				12	334 population of aircraft as of 10/76.
NATURE OF CONDITION	TOTAL	STAGE OF OPERATION		TOTAL	COMMENTS The alert standard has been exceeded five times on the monthly count, five times on the monthly average, one time on the rate per 1000 aircraft, and five times on the rate per 1000 aircraft hours with a common accident relationship. P/N 461353 had the highest number (4) of SDRs. P/N 620501B is a mixture control bracket.								
0-Other	9	IN-Insp/Maint		7									
OS-Other/Affected Sys.	3	TX-Taxi/Grnd Hdl		1									
		CR-Cruise		1									
		LD-Landing		1									
		UK-Unknown		2									

RIS: FS 8070-53

Prepared by the Safety Data Branch, AFS-581

FIGURE 9. SYSTEM ANALYSIS AND SUMMARY REPORT
(RIS: FS 8070-53)

2/22/78

2/22/78

8010.2
Appendix 3

**FIGURE 10. FIRST PAGE OF A NOTICE, INITIATING
A DIRECTED SAFETY INVESTIGATION**

NOTICE

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

N8010.2

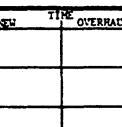
9/29/76

**Cancellation
Date: 12/1/76**

**DIRECTED SAFETY INVESTIGATION (RIS FS 8330-8), SMALL TURBINE
SUBJ: POWERED ROTORCRAFT FLAME OUT AND POWER LOSS STUDY**

1. **PURPOSE.** This notice transmits a questionnaire to provide information for analysis to uncover possible design, operations or maintenance problems relating to engine flame out or power loss of Detroit Diesel Allison 250 series engines installed on Bell, Bolkow, Hiller, and Hughes rotorcraft.
2. **DISTRIBUTION.** This notice is distributed to Flight Standards Offices in Washington headquarters, the regions, and the Aeronautical Center, to the branch level and above; and to General Aviation and Flight Standards District Offices (GADO/FSDO).
3. **ACTION.** Flight Standards and General Aviation District Office inspectors are requested to complete questionnaire (Appendix 1) on all Bell 206, Bolkow BO-105, Hughes 369, and Hiller FH-1100 rotorcraft powered by Detroit Diesel Allison 250 series engine in their district. Petroleum Helicopters, Inc., is excluded from this DSI. Forward reports to AAC-232 as data is gathered. Return completed questionnaires to AAC-232, DOT, FAA Aeronautical Center, P. O. Box 25082, Oklahoma City, Oklahoma 73125.
4. **EFFECTIVE DATE.** Action required by paragraph 6 is effective immediately upon receipt of this notice.
5. **BACKGROUND.** Information derived from Service Difficulty Reports (SDR) and accident investigations indicates that Bell 206, Hughes 369, Bolkow BO-105, and Hiller FH-1100 series rotorcraft have recently experienced a number of unexplained engine flame outs and power losses. Detroit Diesel Allison has issued several service bulletins in an attempt to correct situations which they felt may have contributed to these failures; however, there is to date no indication that these failures are design-related in nature. To make meaningful corrective action possible, and to determine if it is required, a survey of the operators of these rotorcraft is dictated to gather further and much needed information as quickly as possible.

**Distribution: WRCFS-3; FFS-1,7 (wide); AAC-952 (80 cys) Initiated By: AGL-210/AAC-200/
AAC-840 (1 cy) AFS-800**

MAINTENANCE DIFFICULTY RECORD				RIS: FS 8330-10	
TELECON <input type="checkbox"/>	LISTING <input type="checkbox"/>	CALLER _____		DATE _____	
AID <input type="checkbox"/>	ALERT AID <input type="checkbox"/>	LOCATION _____		TIME _____	
DATE/PREVIOUS AID _____					
IDENTIFICATION DATA					
AIRCRAFT # _____	MAKE _____	MODEL/PART NO. _____	SERIAL NO. _____	NEW <input type="checkbox"/>	TIRE OVERHAUL <input type="checkbox"/>
POWERPLANT _____					
PROPELLER _____					
COMPONENT (ASSY. THAT INCLUDES PART)					
NAME _____					
PART (OF COMPONENT)					
NAME _____					
AIRCRAFT OWNER _____		OWNER ADDRESS _____		AIRCRAFT USE _____	
PROBLEM DISCUSSION				SUPPLEMENTARY FACTS	
REPORTED PROBLEM				DATE OF OCCURRENCE _____	
				OCCURRENCE CAUSED	
				ACCIDENT <input type="checkbox"/>	
				INCIDENT <input type="checkbox"/>	
				DISCREPANCY NOTED DURING	
				TAXI <input type="checkbox"/>	
				TAKEOFF <input type="checkbox"/>	
				CRUISE <input type="checkbox"/>	
				LANDING <input type="checkbox"/>	
				INSPECTION <input type="checkbox"/>	
				OTHER <input type="checkbox"/>	
				SUPPLEMENTAL TYPE CERTIFICATE	
				NO. _____	
				DATE _____	
				COMPLIANCE DATA	
				AD NO. _____	
				SB NO. _____	
				SL NO. _____	
CONTRIBUTING FACTORS				DEFECTIVE PART	
				CURRENT LOCATION	
				DIST OFFICE <input type="checkbox"/>	
				ON AIRCRAFT <input type="checkbox"/>	
				REPAIR STA <input type="checkbox"/>	
				MANUFACTURER <input type="checkbox"/>	
INSPECTOR RECOMMENDATION				PART SENT TO:	
				PART TAGGED <input type="checkbox"/>	
				N or D SUBMITTED <input type="checkbox"/>	
				WITH PHOTO <input type="checkbox"/>	
				WITH SKETCH <input type="checkbox"/>	
				WITH PART <input type="checkbox"/>	
MAC HISTORY					
REMARKS				RELATED DATA	
				NUMBER OF REPORTS _____	
				AVERAGE TIME _____	
				N or D THIS COMPONENT _____	
				N or D THIS PART _____	
				MDR ALERT <input type="checkbox"/>	
				ACCIDENT <input type="checkbox"/>	
				INCIDENT <input type="checkbox"/>	
OFFICES CONTACTED _____		PERSONS CONTACTED _____		MAC SPECIALIST _____	

2/22/78

8010.2
Appendix 4

APPENDIX 4. AVAILABILITY OF FORMS

<u>Form Number</u>	<u>Title</u>	<u>NSN</u>	<u>U/I</u>
AC Form 8330-3	Maintenance Difficulty Record	NONE	NONE
FAA Form 1360-15	Correspondence Acknowledgement	0052-00-602-5002	SH
FAA Form 8070-1	Service Difficulty Report	0052-00-600-2002	PD
FAA Form 8330-2	Malfunction or Defect Report	0052-00-039-1002	BK
FAA Form 8340-6	Annual or Quarterly Air Carrier Aircraft Utilization Report	NONE	NONE

NOTE: AC Form 8330-3 is normally executed by AFS-581 only.

FAA Form 8340-6 indicates format for automatic data output.

U.S. GOVERNMENT PRINTING OFFICE: 1985 461-816/10302