Section 6 Safety Assurance System: Process a Part 121, 125, 135, or 145 Service Difficulty Report or Part 91K Mechanical Reliability Report

8-425 REPORTING SYSTEM(S).

A. Program Tracking and Reporting Subsystem (PTRS). Use activity code 3325 or 5325 to process Service Difficulty Reports (SDR)/Mechanical Reliability Reports (MRR). Use activity code 3326 or 5326 when a significant event is under review.

B. Safety Assurance System (SAS). For Title 14 of the Code of Federal Regulations (14 CFR) parts 121 and 135, this section is related to SAS Element 4.4.2 (AW) MIS/SDR. For 14 CFR part 145 repair stations, this section is related to SAS Element 4.4.6 (AW) Record Systems.

8-426 OBJECTIVE. This section provides guidance concerning regulatory requirements to report failures, malfunctions, or defects as they occur or are detected, as they relate to aircraft and articles. The requirements in parts 121, 125, 135, and 145 are titled SDR, while the 14 CFR part 91 subpart K (part 91K) title is MRR. Although the titles are different, their purpose is the same.

8-427 PARTS 121, 125, 135, AND 145 SERVICE DIFFICULTY REPORTING AND PART 91K MECHANICAL RELIABILITY REPORTING REQUIREMENTS.

A. Submitting Reports. The manner prescribed by the Administrator to submit this information is via the SDR website, at http://av-info.faa.gov/sdrx/. Using Federal Aviation Administration (FAA) Form 8010-4, Malfunction or Defect Report, also meets these requirements. However, the website is more efficient and FAA preferred.

NOTE: Principal inspectors (PI) should ensure that operators are aware of the Service Difficulty Reporting System (SDRS), at http://av-info.faa.gov/sdrx/.

B. Operator Requirements. Title 14 CFR requires fractional ownership operations subject to part 91, § 91.1415; air carriers subject to part 121, § 121.703 and part 135, § 135.415; and operations subject to part 125, § 125.409 to report the occurrence or detection of each failure, malfunction, or defect.

C. Repair Station Requirements. Part 145, § 145.221 requires repair stations to report to the FAA within 96 hours after discovering any serious failure, malfunction, or defect of an article.

NOTE: A serious failure, malfunction, or defect is any failure, malfunction, or defect in an aircraft or its related parts and articles that occurs or is detected at any time if, in the opinion of the repair station, that failure, malfunction, or defect...
has endangered or may endanger the safe operation of an aircraft. 
The requirements in §§ 91.1415, 121.703, and 135.415 list required issues that 
must be reported for those operations. It includes failures, malfunctions, and 
defects, as described in this note.

NOTE: Articles received for maintenance, preventive maintenance, or alteration 
by repair stations undergo preliminary, in-process, hidden damage, and/or final 
inspections. When an unusual or unknown discrepancy is the cause of the article’s 
failure or malfunction, or the failure or malfunction was caused by a design or 
production defect, it shall be further evaluated to determine if the condition would 
have required a specifically enumerated design approval holder (DAH) or 
operator report. If such a report would have been required, a § 145.221 report 
must be generated and reported. However, not all parts that require repair need to 
be reported: only serious failure, malfunction, or defects. To avoid overreporting, 
§ 145.221 reporting requirements are intended to ensure that unknown, 
unanticipated, and serious matters that compromise the aircraft’s ability to 
continue safe flight and/or landing are reported. To align the repair station 
requirements with the operational reports so that serious failures, malfunctions, 
and defects that endanger the safe flight and landing of an aircraft can be 
identified, the following process should apply.

1) A certificated repair station (CRS) may submit an SDR for which parts 121, 125, 
and 135 operators are responsible, provided that the report meets the applicable requirements of 
each part. The repair station must submit the reports to the FAA within 96 hours. A repair station 
authorized to report a failure, malfunction, or defect for a part 121, 125, or 135 certificate holder 
must not report the same failure, malfunction, or defect required by § 145.221(a). A copy of the 
report submitted for a part 121, 125, or 135 certificate must be forwarded to the certificate 
holder.

2) A repair station that is also the holder of a part 121, 125, or 135 certificate; 
type certificate (TC) (including a Supplemental Type Certificate (STC)); Parts Manufacturer 
Approval (PMA); or Technical Standard Order (TSO) authorization, or that is the licensee of 
a TC holder, does not need to report a failure, malfunction, or defect under § 145.221 if the 
failure, malfunction, or defect has been reported under 14 CFR part 21, 121, 125, or 135.

D. Other Part 91 Operators. Although not mandatory for part 91 general operators or 
part 91K operations without a Continuous Airworthiness Maintenance Program (CAMP), it is 
strongly encouraged that service-related failures, malfunctions, and defects found by any 
maintenance person on any aircraft, engine, appliance, part, or product, regardless of the 
operating rule, be reported utilizing this system. Advisory Circular (AC) 20-109, Service 
Difficulty Program (General Aviation), provides guidance for those without a reporting 
requirement. All operators, mechanics, and pilots may use the reporting system described in 
AC 20-109.
8-428 GENERAL.

A. SDRS. The SDRS is intended to predict service-related malfunctions, defects, or failures that occur as a result of aircraft/system operation. Damage that occurs due to accidental causes (e.g., a belt loader punching a hole in the fuselage skin) is not considered a reportable item. The completion of SDRs and MRRs requires careful review by the submitter and the FAA. The reports must correctly identify the problem (failures, malfunctions, or defects as they occur or are detected), supporting data, full evaluation to the extent of the problem, and the associated root causes. When a system component or part of an aircraft (e.g., powerplant, propeller, or appliance) functions badly or fails to operate in the normal or usual manner, it has malfunctioned and should be reported. Also, if a system, component, or part has a flaw or imperfection that impairs function or that may impair future function, it is defective and should be reported. While at first sight it appears this will generate numerous insignificant reports, the SDR program is designed to detect trends. This accurate and complete reporting is essential for determining effective corrective action. Repeat problems affecting the same type of aircraft, powerplant, propeller, appliance, or system must be reported after each occurrence to enable the Aviation Data Systems Branch (AFS-620) to detect possible trends or systemic issues.

B. Manual Requirements. Part 121 certificate holders, part 125 operators, part 135 certificate holders (other than those authorized to use only a single pilot or a single pilot in command (PIC)), part 145 repair stations, and part 91K CAMP operations are required to prepare and keep current a manual with procedures and policies acceptable to the Administrator telling when and how these required reports of failures, malfunctions, or defects are submitted as they occur or are detected.

NOTE: All operators should clearly understand the SDR/MRR reporting process. Although some operations are not required (by regulation) to have written procedures and controls, having them aids in consistency and the reduction of risk.

C. Submitting Reports. Sections 91.1415(d), 121.703(d), 125.409(b), and 135.415(d) require each certificate holder to submit each report required by these sections, covering each 24-hour period, beginning at 0900 local time of each day and ending at 0900 local time on the next day. Per § 145.221(a), a repair station must report to the FAA within 96 hours after it discovers any serious failure, malfunction, or defect of an article. Submitting the report via http://av-info.faa.gov/sdrx/ meets the intent of the part 121, 125, 135, and 145 sections that require report submission to the FAA offices in Oklahoma City, OK, and the part 91K requirement for the program manager to send each report to the Flight Standards District Office (FSDO) that issued them their management specifications (MSpecs). Submitting FAA Form 8010-4 to the FAA offices in Oklahoma City, OK or the FSDO also meets these requirements; however, the FAA prefers that reports be submitted via the website because it is much more efficient.
1) Each report of occurrences during a 24-hour period shall be submitted to the collection point within the next:

- 96 hours for part 121, 125, 135, and 145 operations; or
- 72 hours for part 91K operations.

NOTE: A report due on a Saturday or Sunday may be submitted on the following Monday, and a report due on a holiday may be submitted on the next business-day.

2) The above-mentioned reporting schedule is reasonable for aircraft operating in a line operation environment, where single-component failures or damage are generally identified, diagnosed, and corrected in a short timeframe. The reporting deadlines are not specific concerning aircraft undergoing scheduled maintenance visits and are out of service for extended periods of time. When an aircraft has been scheduled out of service for more than 72 hours and upon completion of the aircraft log or when signature of an airworthiness release is accomplished and the aircraft is returned to service, the intent of §§ 91.1415(d), 121.703(d), 125.409(b), 135.415(d), and 145.221(a) are met when the required reporting is accomplished within:

- 96 hours for part 121, 125, 135, and 145 operations; or
- 72 hours for part 91K operations.

D. Evaluation of the Data.

1) Data within SDRS is intended to identify service-related malfunctions, defects, or failures that occur as a result of aircraft/system operation. This information is especially valuable when evaluating the effectiveness of a CAMP. Submitting information directly to http://av-info.faa.gov/sdrx/, or when a § 145.221 repair station submits it on behalf of the operator (via the SDR website or FAA Form 8010-4), bypasses the certificate-holding district office’s (CHDO) review. The PI or a designated inspector should review the online SDRS’s ad hoc query function to review individual operators’ reports to detect possible trends or systemic issues.

   a) Consider retaining PTRS codes that account for PI/aviation safety inspector (ASI) SDR reviews (all 14 CFR parts).

   b) The Safety Performance Analysis System (SPAS) SDR database query can also be used.

   c) Access SAS Previous History reports of SAS Element 4.4.2 (AW) for parts 121 and 135 certificate holders or SAS Element 4.4.6 (AW) for part 145 repair stations.

2) PIs with oversight of CAMP operations should ensure that SDRS data is evaluated and used internally by CAMP organizations’ Continuing Analysis and Surveillance Systems (CASS).
3) If the initial evaluation indicates a serious airworthiness problem, the FAA Aircraft Certification Office (ACO) and the Aircraft Evaluation Group (AEG) responsible for the product must be informed of the equipment service difficulty and any recommendations for corrective actions. Corrective action recommendations may include the following:

- Airworthiness Directives (AD),
- Product modifications,
- Revised inspection techniques,
- Directed safety investigations,
- SAS Element Design Assessments (EDA) (if applicable), and
- SAS System or Subsystem Performance Assessments (SPA) (if applicable).

NOTE: PIs for air carriers whose oversight is conducted under SAS should include a review of the reports submitted to the SDRS during the development of their Comprehensive Assessment Plan (CAP) and during the planning review, as outlined in Volume 10.

E. Checking for Trends. The primary purpose of the SDRS is to help identify negative trends so that mitigating actions can be accomplished as soon as possible. If an evaluation of data indicates possible negative trends, the PI should review prior reports for similar irregularities (e.g., vendor problems, manufacturer equipment problems, training, or procedural problems).

8-429 PREREQUISITES AND COORDINATION REQUIREMENTS.

A. Prerequisites. Knowledge of the SDR process and equipment involved.

B. Coordination. This task may require external coordination with operators and equipment manufacturers. It will also require internal coordination with Operations inspectors, other district offices, other certificate management offices (CMO), AEGs, the ACOs, and AFS-620.

8-430 REFERENCES, FORMS, AND JOB AIDS.

A. References (current editions):

- Title 14 CFR Parts 43, 91, 91K, 121, 125, 129, 135, and 145.
- Manufacturers’ and Operators’ Manuals.
- AC 20-109, Service Difficulty Program (General Aviation).
- Service Difficulty Reporting Website (http://av-info.faa.gov/sdrx/).

B. Forms. FAA Form 8010-4, Malfunction or Defect Report (acceptable but not preferred).
C. Job Aids:


8-431 PROCEDURES.

A. Electronic Transmittal of Reports. SDRS online reporting is available to operators at http://av-info.faa.gov/sdrx/. AFS-620 will provide information and assistance to operators desiring to input data electronically. Electronic transmittal will measurably reduce the time between service difficulties and database entry.

1) For reports that are submitted electronically, the database can be updated with supplemental information by revising the original report and submitting it by using the same operator control number. The computer will display the operator control number and overwrite the original record with the corrected information.

2) For more information concerning electronic transmittals, contact AFS-620 by email at 9-AMC-SDR-ProgMgr@faa.gov; by phone at 405-954-4391; by fax at 405-954-4655; or by mail at:

Manager, Aviation Data Systems Branch (AFS-620)
P.O. Box 25082
Oklahoma City, OK 73125

B. Submitting a Report. Certificate holders should report serious airworthiness problems to AFS-620 and the AEG immediately. The ACO responsible for the product must be informed of the equipment service difficulty, along with any recommendations for corrective actions. PIs and ASIs should help facilitate this reporting.

1) If the airworthiness problem is critical to safe flight, report it immediately by telephone, followed with a written report within 24 hours.

2) If the airworthiness problem is determined not to be critical to safe flight, it must be reported within 96 hours by part 121, 125, 135, and 145 operations or within 72 hours by 91K program managers. If the information available within that time is incomplete, all known conditions must be reported. The report must indicate whether followup action is required.

C. Reporting Format. Reports may be submitted by accessing the Service Difficulty Reporting website at http://av-info.faa.gov/sdrx/. To encourage reporting, the FAA allows reporting by phone, fax, letter, email, FAA Form 8010-4, or any other means, to the phone, fax, email, or address identified in subparagraph 8-431A2); however, electronic reporting is the means that is most efficient and preferred by the FAA. The following regulations require the listed information be included in the report.
### Table 8-1. Required Service Difficulty Report Information

<table>
<thead>
<tr>
<th>§ 145.221(b)</th>
<th>§ 91.1415(e)</th>
<th>§ 135.415(e)</th>
<th>§ 121.703(e)</th>
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<tbody>
<tr>
<td>Aircraft registration number.</td>
<td>The type and identification number of the aircraft.</td>
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<td>The type and identification number of the aircraft.</td>
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<tr>
<td>Type, make, and model of the article.</td>
<td>The name of the program manager.</td>
<td>The name of the operator.</td>
<td>The name of the operator.</td>
</tr>
<tr>
<td>Date of the discovery of the failure, malfunction, or defect.</td>
<td>The date.</td>
<td>The date.</td>
<td>The date, flight number, and stage during which the incident occurred (e.g., preflight, takeoff, climb, cruise, descent landing, or inspection).</td>
</tr>
<tr>
<td>Nature of the failure, malfunction, or defect.</td>
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<td>Nature of the failure, malfunction, or defect.</td>
</tr>
<tr>
<td>Time since last overhaul, if applicable.</td>
<td>Identification of the part and system involved, including available information pertaining to type designation of the major component and time since last overhaul, if known.</td>
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<tr>
<td>Apparent cause of the failure, malfunction, or defect.</td>
<td>Apparent cause of the failure, malfunction, or defect (e.g., wear, crack, design deficiency, or personnel error).</td>
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<tr>
<td>Other pertinent information that is necessary for more complete identification, determination of seriousness, or corrective action.</td>
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**NOTE:** Additionally, part 121 certificate holders are required by § 121.703(e) to include:

- The emergency procedure effected (e.g., unscheduled landing and emergency descent).
- Whether the part was repaired, replaced, or sent to the manufacturer, or other action was taken.
- Whether the aircraft was grounded.
8-432 REVIEW THE OPERATOR’S REPORT. Operators must ensure that the data is as complete as possible. PIs and ASIs should contact the operator for clarification, if necessary. The SDRS website provides instruction and information as to its use.

NOTE: Repeat problems affecting the same aircraft, powerplant, propeller, appliance, or system must be reported to enable AFS-620 to detect possible trend items.

A. Parts 91K, 121, and 135 Reportable Failures, Malfunctions, and Defects. Each program manager or certificate holder shall report the occurrence or detection of each failure, malfunction, or defect concerning:

1) Fires during flight and whether the related fire warning system functioned properly;

2) Fires during flight not protected by related fire warning systems;

3) False fire warning during flight;

4) An exhaust system that causes damage during flight to the engine, adjacent structure, equipment, or components;

5) An aircraft component that causes accumulation or circulation of smoke, vapor, or toxic or noxious fumes in the crew compartment or passenger cabin during flight;

6) Engine shutdown during flight because of flameout;

7) Engine shutdown during flight when external damage to the engine or aircraft structure occurs;

8) Engine shutdown during flight due to foreign object ingestion or icing;

9) Shutdown of more than one engine during flight;

10) A propeller feathering system or ability of the system to control overspeed during flight;

11) A fuel or fuel-dumping system that affects fuel flow or causes hazardous leakage during flight;

12) An unwanted landing gear extension or retraction or opening or closing of landing gear doors during flight;

13) Brake system components that result in loss of brake actuating force when the aircraft is in motion on the ground;

14) Aircraft structure that requires major repair;
15) Cracks, permanent deformation, or corrosion of aircraft structures, if more than the maximum acceptable to the manufacturer or the FAA; and

16) Aircraft components or systems that result in taking emergency actions during flight (except action to shut down an engine).

17) Additionally, part 121 certificate holders are required by § 121.703 to report emergency evacuation systems or components, including all exit doors, passenger emergency evacuation lighting systems, or evacuation equipment found to be defective, or that fail to perform the intended functions during an actual emergency or during training, testing, maintenance, demonstrations, or inadvertent deployments.

18) Part 91K program managers and parts 121 and 135 certificate holders, per §§ 91.1415(c), 121.703(c), and 135.415(c), shall report any failure, malfunction, or defect in an aircraft that occurs or is detected at any time if, in its opinion, the failure, malfunction, or defect has endangered or may endanger the safe operation of the aircraft.

B. Part 125 Reportable Failures, Malfunctions, and Defects. Each part 125 certificate holder (including A125 Letter of Deviation Authority (LODA) holders) shall report the occurrence or detection of each failure, malfunction, or defect.

C. Part 145 Repair Station Reportable Failures, Malfunctions, and Defects. Repair stations must report to the FAA within 96 hours after discovering any serious failure, malfunction, or defect of an article. Reportable malfunctions and defects are unusual discrepancies, or unanticipated and serious matters that compromise the aircraft’s ability to continue safe flight and landing, or the failure or malfunction of which was caused by a design or production defect. However, not all parts that require repair need to be reported: only serious failure, malfunction, or defects. A repair station may submit SDRs for part 121, 125, or 135 certificate holders provided the report meets the applicable requirements for those certificate holders. A repair station authorized to report SDRs for part 121, 125, or 135 certificate holders must not report the same failure, malfunction, or defect as part of their § 145.221(a) requirements. A copy of the SDR submitted for the part 121, 125, or 135 certificate holder must be forwarded to the certificate holder. Critical safety issues should be reported to the owner/operator and the FAA as soon as possible after discovery.

D. Assess the Reported Data. Verify that the operators performed a thorough investigation, determined the cause of the discrepancy, and reported it accurately. PIs and ASIs must follow up accordingly to ensure discrepancies are accurately reported, the causal factors are fully identified to the best of the operator’s ability, and the problems are corrected. PIs and ASIs are available and should work with the operator to facilitate fixes with the AEG, ACOs, and manufacturers, when necessary.

1) If the investigation reveals inadequacies in the operator’s maintenance or inspection procedures, ensure that procedures are changed to prevent a recurrence of the discrepancy.

2) If the investigation reveals a lack of training and/or inadequate training, evaluate the training program and incorporate procedural changes to correct the deficient areas.
3) If the investigation reveals a serious manufacturing defect or a controversial airworthiness issue, see Volume 3, Chapter 60, Section 2 to resolve the issue.

NOTE: FAA policies and procedures require all ASIs to eliminate single-person and subjective determinations. ASIs must practice interdependence and seek guidance as necessary from internal FAA resources such as PIs, Front Line Managers (FLM), office managers, AEGs, the ACOs, and the appropriate Office of Safety Standards divisions.

8-433 TASK OUTCOMES.

A. Review Operator Data on the SDR Website. Data provided for and included in an SDR is used to:

- Determine maintenance trends that may affect aviation safety;
- Reveal other trends, such as problems with vendors, manufacturers, training, or procedures; and
- Evaluate the overall effectiveness of an inspection and maintenance program.

B. Review the Electronic SDR Data Submissions. Review the data submissions of assigned operators to ensure that all related information is complete and timely, and in accordance with §§ 91.1415, 121.703, 125.409, 135.415, and 145.221, as applicable.

C. Document the Task. Use PTRS when processing SDRs/MRRs as described in paragraph 8-425. Use SAS Data Collection Tool (DCT) 4.4.2 (AW) MIS/SDR when evaluating the design or performance of a part 121 or 135 SDR process. Use SAS DCT 4.4.6 (AW) Record Systems when evaluating the design or performance of a part 145 SDR process.

D. Complete the Task. Completion of this task may result in the following:

- Followup action for discrepancies, and
- Compliance Action (CA) per Volume 14, Chapter 1, Section 2 to correct an airman/organization/noncertificated person’s deviation from standards or communicate nonregulatory safety hazards, risks, concerns, or recommendations.

NOTE: Reporting aircraft or article failures, malfunctions, or defects as they occur or are detected, or working to resolve these mechanical or reliability issues, is not a CA. Flight Standards personnel (not the certificate holder) take CA to: 1) correct an airman/organization/noncertificated person’s deviation from standards when the deviation was not a result of intentional, reckless, or criminal behavior, or a pattern of negative behaviors or performance; or 2) communicate nonregulatory safety hazards, risks, concerns, or recommendations.
8-434 EMERGENCY. In the unlikely event there is an emergency problem or outage of the SDR electronic submission system, please submit your SDRs to the following emergency email address and fax number:

- Email: 9-AMC-AFS-SDR@faa.gov.
- Fax: 405-954-4655.

NOTE: As a reminder, AFS-620 (not the FSDO) must receive all parts 121, 125, 135, and 145 operations SDRs within 96 hours and part 91K MRRs within 72 hours.

8-435 FUTURE ACTIVITIES.

- Maintain open lines of communication with the operator, AEGs, ACOs, and equipment manufacturer to ensure the problem is fully diagnosed and corrected.
- Schedule followup, as necessary.
- Adjust SAS oversight priorities per Volume 10, if needed.

RESERVED. Paragraphs 8-436 through 8-447.