

CORROSION PREVENTION AND CONTROL PROGRAM (APPENDIX) - DESCRIPTION AND OPERATION**1. Appendix A - Development Of The Baseline Program**

A. The Corrosion Prevention and Control Program Baseline Program.

- (1) The function of the Corrosion Prevention and Control Program (CPCP) is to give the minimum procedures necessary to prevent and control corrosion so that continued airworthiness is not risked. The Principle Structural Elements (PSEs) are areas where the CPCP applies.
- (2) The CPCP Baseline Program consists of a Corrosion Program Inspection (CPI), Implementation Threshold (IT), and a Repeat Interval (RI). Each inspection is to be done in an airplane zone.
- (3) The corrosion reports that are sent to Cessna Aircraft Company and data from the FAA Service Difficulty Records from 1995 to 2002 were used to identify the inspection areas of the Baseline Program. When more than one incident of corrosion was identified at a specified location, an inspection was included for that location in the Baseline Program.
- (4) When corrosion was found once, the data was examined to find if the corrosion was caused by one specified occurrence or if other airplanes could have corrosion in the same location. If so, this inspection was added to the Baseline Program.
- (5) The inspection interval was specified by the duration and corrosion severity.

2. Appendix B - Procedures For Recording Inspection Results

A. Record the Inspection Results.

- (1) It is not an FAA mandatory procedure to record the CPCP results, but Cessna Aircraft Company recommends that records be kept to assist in program adjustments when necessary. The inspection of records will make sure the identification, repeat, and level of corrosion is monitored. The data can identify whether there is more or less corrosion at repeat intervals. The data can also be used to approve increased or decreased inspection intervals.

3. Appendix C - Guidelines

A. Glossary

- (1) The following additional information clarifies the previous sections of this document.

B. The Glossary of General Descriptions. Refer to Table 1, Figure 1, Figure 2, Figure 3, and Figure 4.

WORD	GENERAL DESCRIPTION
Allowable Limit	The allowable limit is the maximum amount of material (usually expressed in material thickness) that may be removed or blended out without affecting the ultimate design strength capability of the structural member. Allowable limits may be established by the design approval holder. The FAA (or applicable regulatory authority) may also establish allowable limits. The design approval holder normally publishes allowable limits in the structural repair manual or in service bulletins.
Baseline Program	A Baseline Program is a CPCP developed for a specific model airplane. The design approval holder typically develops the Baseline Program. However, it may be developed by a group of operators who intend to use it in developing their individual CPCP. It contains the corrosion program inspection, an implementation threshold, and a repeat interval for the procedure accomplishment in each area or zone.
Basic Task	Refer to corrosion program inspection.
Corrosion Program Inspection (CPI)	The corrosion program inspection (CPI) is a specific and fundamental set of work elements that should be performed repetitively in all task areas or zones to successfully control corrosion. The contents of the CPI may vary depending upon the specific requirements in an airplane area or zone. The CPI is developed to protect the primary structure of the airplane.
Corrosion (Metal)	The physical deterioration of metals caused by reaction to an adverse environment.

Corrosion Prevention and Control Program (CPCP)	A Corrosion Prevention and Control Program is a comprehensive and systematic approach to controlling corrosion such that the load carrying capability of an airplane structure is not degraded below a level necessary to maintain airworthiness. It contains the corrosion program inspections, a definition of corrosion levels, implementation thresholds, a repeat interval for task accomplishment in each area or zone, and specific procedures if corrosion damage exceeds Level 1 in any area or zone.
Design Approval Holder	The design approval holder is either the type certificate holder for the aircraft or the supplemental type certificate holder.
Implementation Threshold (IT)	The implementation threshold for a specific airplane is the date, based on that airplane's age, by which the initial corrosion inspection task should be accomplished in an area or zone.
Inspection Area	The inspection area is a region of airplane structure to which one or more CPs are assigned. The inspection area may also be referred to as a Zone.
Level 1 Corrosion	Level 1 Corrosion is one or more of the items that follow: <ol style="list-style-type: none"> 1. Corrosion damage occurring between successive inspections, that is local and can be reworked or blended out with the allowable limit. 2. Local corrosion damage that exceeds the allowable limit but can be attributed to an event not typical of the operator's usage or other airplanes in the same fleet (e.g., mercury spill). 3. Operator experience has demonstrated only light corrosion between each successive corrosion task inspection; the latest corrosion inspection task results in rework or blend out that exceeds the allowable limit.
Level 2 Corrosion	Level 2 corrosion occurs between two successive corrosion inspection tasks that requires a single rework or blend-out that exceeds the allowable limit. A finding of Level 2 corrosion requires repair, reinforcement or complete or partial replacement of the applicable structure.
Level 3 Corrosion	Level 3 corrosion occurs during the first or subsequent accomplishments of a corrosion inspection task that the operator determines to be an urgent airworthiness concern. NOTE: If Level 3 corrosion is determined at the implementation threshold or any repeat inspection, it should be reported. Any corrosion that is more than the maximum acceptable to the design approval holder or the FAA (or applicable regulatory authority) must be reported in accordance with current regulations. This determination should be conducted jointly with the design approval holder.
Light Corrosion	Light corrosion is corrosion damage so slight that removal and blendout over multiple repeat intervals (RI) may be accomplished before material loss exceeds the allowable limit.
Local Corrosion	Generally, local corrosion is corrosion of a skin or web (wing, fuselage, empennage, or strut) that does not exceed one frame, stringer, or stiffener bay. Local corrosion is typically limited to a single frame, chord, stringer, or stiffener, or the corrosion of more than one frame, chord, stringer, or stiffener where no corrosion exists on two adjacent members on each side of the corroded member.
Principal Structural Element (PSE)	A PSE is an element that contributes significantly to carrying flight, ground or pressurization loads, and whose integrity is essential in maintaining the overall structural integrity of the airplane.
Repeat Interval (RI)	The repeat interval is the calendar time between the accomplishment of successive corrosion inspection tasks for a Task Area or Zone.
Task Area	Refer to Inspection Area.

Urgent Airworthiness Concern	An urgent airworthiness concern is damage that could jeopardize continued safe operation of any airplane. An urgent airworthiness concern typically requires correction before the next flight and expeditious action to inspect the other airplanes in the operator's fleet.
Widespread Corrosion	Widespread corrosion is corrosion of two or more adjacent skin or web bays (a web bay is defined by frame, stringer, or stiffener spacing). Or, widespread corrosion is corrosion of two or more adjacent frames, chords, stringers, or stiffeners. Or, widespread corrosion is corrosion of a frame, chord, stringer, or stiffener and an adjacent skin or web bay.
Zone	Refer to Inspection Area.

4. Application Of The Corrosion Program Inspection

NOTE: In this manual the Basic Tasks are referred to as the Corrosion Program Inspection (CPI).

A. Typical Airplane Zone Corrosion Program Inspection Procedures.

- (1) Remove all the equipment and airplane interior (for example the insulation, upper upholstery panel, lower upholstery panel) as necessary to do the corrosion inspection.
- (2) Clean the areas given in the corrosion inspection before you inspect them.
- (3) Do a visual inspection of all of the Principal Structural Elements (PSEs) and other structure given in the corrosion inspection for corrosion, cracking, and deformation.
 - (a) Carefully examine the areas that show that corrosion has occurred before.

NOTE: Areas that need a careful inspection are given in the corrosion inspection.
 - (b) Nondestructive testing inspections or visual inspections can be needed after some disassembly if the inspection shows a bulge in the skin, corrosion under the splices or corrosion under fittings.
- (4) Remove all of the corrosion, examine the damage, and repair or replace the damaged structure.
 - (a) Apply a protective finish where it is required. Refer to Chapter 20, Interior and Exterior Finish - Cleaning/Painting or Chapter 51, Corrosion - Description and Operation.
 - (b) Clean or replace the ferrous metal fasteners with oxidation.
- (5) Remove blockages of foreign object debris so that the holes and clearances between parts can drain.
- (6) For bare metal on any surface of the airplane, apply fuel and corrosion resistant primer MIL-PRF-23377.
 - (a) Apply a polyurethane topcoat paint to the exterior painted surface. Refer to the manufacturer's procedures.
- (7) Cessna Aircraft Company recommends that you apply a corrosion preventive compound once every two years to areas with a high possibility for severe corrosion identified in the corrosion inspection.
 - (a) On the Model 208, apply LPS-3 Heavy-Duty Rust Inhibitor, or equivalent, in the bilge area below the floorboards between FS 168.00 and FS 211.00. Refer to Chapter 51, Corrosion - Description and Operation.
 - (b) On the Model 208B, apply LPS-3 Heavy-Duty Rust Inhibitor, or equivalent, in the bilge area below the floorboards between FS 168.00 and FS 356.00. Refer to Chapter 51, Corrosion - Description and Operation
- (8) Apply compounds that will replace water and prevent corrosion. Refer to Chapter 51, Corrosion - Description and Operation.
 - (a) Apply one layer of LPS-3 Heavy-Duty Rust Inhibitor, or equivalent, that will soak into the fayed surfaces to replace water and prevent corrosion.

Table 1. Areas and Items Not to Apply Compounds to Replace Water and Prevent Corrosion

AREA or ITEM
Oxygen System Lines and Components
Cables, Pulleys, and Trim Tab Pushrod
Plastics, Elastomers
Lubricated and Teflon Surfaces (Greased Joints, Sealed Bearings, and Grommets)
Adjacent to Tears and Holes in Insulation (Not Waterproof)
Areas with Electrical Arc Potential, Wiring

Interior Upholstery Panels (Changes the Flammability Properties)
Cargo Pod (Changes the Flammability Properties)
Pitot Tubes
Fuel Cap
Tie Down Lugs
Chrome Items (handles, locks)
Standard Polished Spinner
Stall Warning Detector

- (9) Install the dry insulation blankets.
- (10) Install the equipment and airplane interior (upper upholstery panel, lower upholstery panel) that was removed to do the corrosion inspection.

5. Determination of the Corrosion Levels

A. Find the Corrosion Levels (Refer to Figure 5).

- (1) Corrosion found on a structure when you use the Corrosion Program and Corrosion Prevention (CPCP) Baseline Program will help find the extent of the corrosion.
- (2) The second and subsequent inspections will find how well the CPCP program has been prepared, or if there is a need to make adjustments to the Baseline Program.
- (3) A good quality CPCP is one that controls corrosion to Level 1 or better.
- (4) If Level 2 corrosion is found during the second or subsequent inspection, you must do something to decrease the future corrosion to Level 1 or better.
- (5) If Level 3 corrosion is found, you must also do something to decrease the future corrosion to Level 1. Also, a plan to find or prevent Level 3 corrosion in the same area on other airplanes must be added to the CPCP.
- (6) All the corrosion that you can repair in the allowable damage limits, found in the Model 208 Structural Repair Manual, is Level 1 corrosion.
- (7) If all corrosion is Level 1, the CPCP is correctly prepared.
- (8) If you must reinforce or replace the part because of corrosion, the corrosion is Level 2.
- (9) If the part is not airworthy because of the corrosion, you must do an analysis to find out if the corrosion is Level 3.
- (10) The chart found in this section will help find the level of the corrosion.
- (11) The probability that the same problem will occur on another airplane is dependent on several factors such as: past maintenance history, operating environment, years in service, inspectability of the corroded area and the cause of the problem.

B. Level 2 Corrosion Findings.

- (1) All Level 2 corrosion that is more than the rework limits of the Structural Repair Manual must be reported to Cessna Aircraft Company. Cessna Aircraft Company engineering will do an analysis to make sure the corrosion is not a urgent airworthiness concern.
- (2) When doing the analysis, Cessna Aircraft Company will consider:
 - (a) Can the cause of the corrosion be identified, such as a chemical spill or protective finish breakdown?
 - (b) Has the same level of corrosion been found on other airplanes?
 - (c) Are the corrosion protection procedures applied during manufacture the same for earlier and later models?
 - (d) Age of the corroded airplane compared to others checked.
 - (e) Is the maintenance history different than the other airplanes in the fleet?

6. Typical Actions That Follow the Determination of the Corrosion Level.

- A. If corrosion is found, find the corrosion level, then do the necessary steps for a specific inspection.
- B. If Level 1 corrosion is found during the first CPCP inspection.
 - (1) Repair the structure. Refer to the Model 208 Structural Repair Manual or a Cessna Aircraft Company approved repair procedure.

- (2) Continue with the Baseline Program.
 - (a) Optional: Document the results of the inspection for use in validating program compliance.
- C. If Level 2 corrosion is found during the first CPCP inspection.
 - (1) Repair the structure. Refer to the Model 208 Structural Repair Manual or Cessna Aircraft Company approved repair procedure.
 - (2) Report the details of the corrosion you see to Cessna Aircraft Company and the FAA (or applicable regulatory authority).
 - (3) Continue to use the Baseline Program but check the corroded area carefully when you do a subsequent CPCP inspection.
 - (4) It is recommended that you record the results of the inspection to show compliance with the program.
- D. If Level 3 corrosion is found during the first CPCP inspection.
 - (1) Immediately contact Cessna Aircraft Company and the FAA or regulatory authority of the corrosion you found. Refer to Reporting System.
 - (2) Give sufficient information to make sure that the condition is a possible urgent airworthiness concern for your fleet. Get assistance from Cessna Propeller Aircraft Product Support to develop a plan of action.
 - (3) Apply the corrosion program inspection, which includes the repair of the structure. Refer to the Model 208 Structural Repair Manual or a Cessna Aircraft Company approved repair procedure.
 - (4) Do a report that has the information of the findings. Refer to Corrosion Prevention And Control Program Reporting System - Description And Operation.
 - (5) Continue with the Baseline Program and other steps of procedure required by the FAA, or applicable regulatory authority. Examine this area carefully during future inspections.
- E. If no corrosion is found during the second or subsequent CPCP inspection:
 - (1) Continue with the current Corrosion Prevention and Control Program. No adjustment of the current program is required.
 - (2) It is recommended that you record the results of the inspection for a possible increase of the corrosion inspection Implementation Threshold (IT) and/or Repeat Interval (RI).
- F. If Level 1 corrosion is found on the second or subsequent CPCP inspection:
 - (1) Do the corrosion program inspection, which includes the repair of the structure. Refer to the Model 208 Structural Repair Manual or a Cessna Aircraft Company approved repair procedure.
 - (2) Continue with the Baseline Program.
 - (3) No adjustment of the existing program is required.
 - (4) It is recommended that you record the corrosion inspection number and the results of the inspection to show that the program was obeyed.
- G. If Level 2 corrosion is found on the second or subsequent CPCP inspection:
 - (1) Repair the structure. Refer to the Model 208 Structural Repair Manual or a Cessna Aircraft Company approved repair procedure.
 - (2) Do a report that shows the information about the corrosion and send it to Cessna Aircraft Company and the FAA (or applicable regulatory authority).
 - (3) If corrosion damage required the removal of material just beyond the allowable limits (within 10 percent), complete a check of the other airplanes in the fleet before you change the maintenance program.
 - (a) If the corrosion is typical of Level 2, use the fleet data to find what changes are required to control corrosion to Level 1 or better.
 - (b) If fleet damage is typically Level 1, examine the corroded area during subsequent inspections on all affected airplanes.
 - (c) Make changes to the maintenance program if the typical corrosion becomes Level 2.
 - (4) Further evaluation by Cessna Aircraft Company is recommended for Level 2 corrosion findings that are well beyond the allowable limits, and there is an airworthiness concern in which prompt action is required.

NOTE: The airworthiness concern is because of the possibility to have similar but more severe

corrosion on any other airplane in the operator's fleet prior to the next scheduled inspection of that area.

- (5) Find the action required to control the corrosion to a Level 1 or better, between future successive inspections. These can include the items that follow:
 - (a) A structural modification, such as additional drainage.
 - (b) Improvements to the corrosion prevention and control inspections, such as more care and attention to corrosion removal, reapplication of protective finish, drainage path clearance.
 - (c) Decrease the Implementation Threshold (IT) for additional airplanes that go into the program.
 - (d) Decrease the Repeat Interval (RI).
 - (6) Send a plan of corrective action to the FAA or applicable regulatory authority for approval and to Cessna Aircraft Company.
 - (7) Use the approved plan of action.
- H. If Level 3 corrosion is found on the second or subsequent CPCP inspection:
- (1) contact Cessna Aircraft Company and the FAA (or applicable regulatory authority) about the corrosion that was found.
 - (2) Send a plan to examine the same area on other affected airplanes in the operator's fleet.

NOTE: Circumstances can dictate the need to examine airplanes younger than the corresponding Baseline Program Implementation Threshold.
 - (3) Apply the corrosion program inspection, which includes the repair of the structure. Use the Model 208 Structural Repair Manual or a Cessna Aircraft Company approved repair procedure.
- I. Find the action needed to control the corrosion finding to Level 1 or better, between future successive inspections. These can include any or all of the following:
- (1) A structural modification, such as additional drainage.
 - (2) Improvements to the corrosion prevention and control inspections, such as more care and attention to corrosion removal, reapplication of protective finish, drainage path clearance.
 - (3) A decrease in the Implementation Threshold (IT) for additional airplanes entering the program.
 - (4) A decrease in the Repeat Interval (RI).
- J. Send a plan of corrective action to the FAA (or applicable regulator authority for approval) as needed.
- K. Use the approved plan of action.
- L. It is recommended that you give the details of the findings to Cessna Aircraft Company.

7. Factors Influencing Corrosion Occurrences

- A. If you find Level 2 or Level 3 corrosion, when you think about how to change your CPCP, think about the list that follows:
- (1) Is there a presence of LPS-3 Heavy-Duty Rust Inhibitor?
 - (2) Is there a presence or condition of protective finish?
 - (3) What was the Implementation Threshold (IT) of the operator's Corrosion Control and Control Program (CPCP)?
 - (4) What was the length of time since the last inspection and/or application of corrosion inhibiting compound Repeat Interval (RI)?
 - (5) Was there inadequate clean-up/removal of corrosion prior to application of corrosion inhibiting compound, during previous maintenance of the area?
 - (6) Are the moisture drains blocked or is there inadequate drainage?
 - (7) What was the environment, the time of exposure to the environment and the use of the airplane?
 - (a) Was the environment tropical, desert, salt water or industrial?
 - (b) Are there electrolytes or water and moisture, salt water or battery fluid?
 - (8) Was there a variation in past maintenance history and or use of the airplanes in the operator's fleet?
 - (9) Were there variations in the production build standard in the operator's fleet?

8. Reporting

- A. The minimum requirements to prevent or control the corrosion in the Corrosion Prevention and Control Program (CPCP) were made on the best information, knowledge and experience available at the time. As this experience and knowledge get better, the CPCPs will be changed at intervals as necessary. A reporting system for this is in Section 4.0.
- (1) You must contact the Cessna Aircraft Company about all Level 2 or 3 corrosion of the structure that is on the list in the Baseline Program that is found during the second and subsequent corrosion program inspections. Refer to Reporting System.

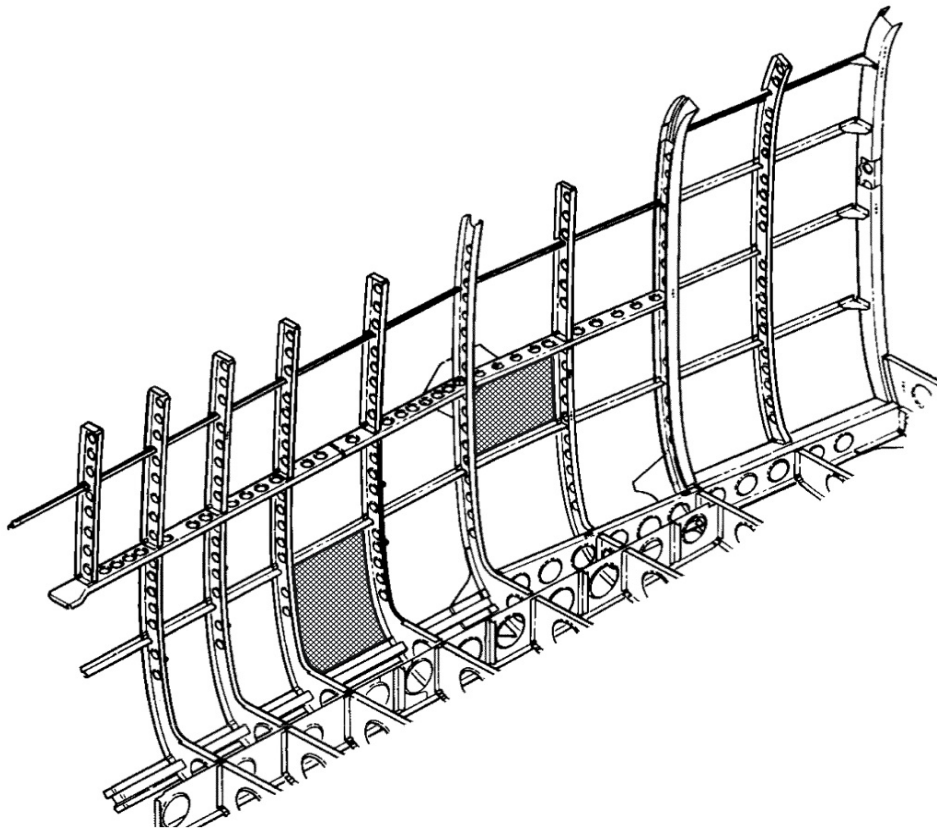
NOTE: You do not have to contact the Cessna Aircraft Company about corrosion that is found on structure that is not on the list in the Baseline Program, for example the secondary structure.

9. Program Implementation

- A. When a CPCP is started it is important to do the items that follow:
- (1) Start inspections where the airplane age is equal to or greater than the Baseline Program Implementation Threshold age (IT).
 - (2) Once the corrosion program inspection (CPI) is started, the subsequent applications of the CPI are given by the Repeat Interval (RI) for each CPI.
 - (3) You can start a CPCP on the basis of individual CPIs or groups of CPIs.
 - (4) Cessna Aircraft Company highly recommends to start all of the CPIs as soon as possible. This is the most cost effective way to prevent or control corrosion.

Figure 1 : Sheet 1 : Local Corrosion Found in Non-Adjacent Skin Panels

A17363

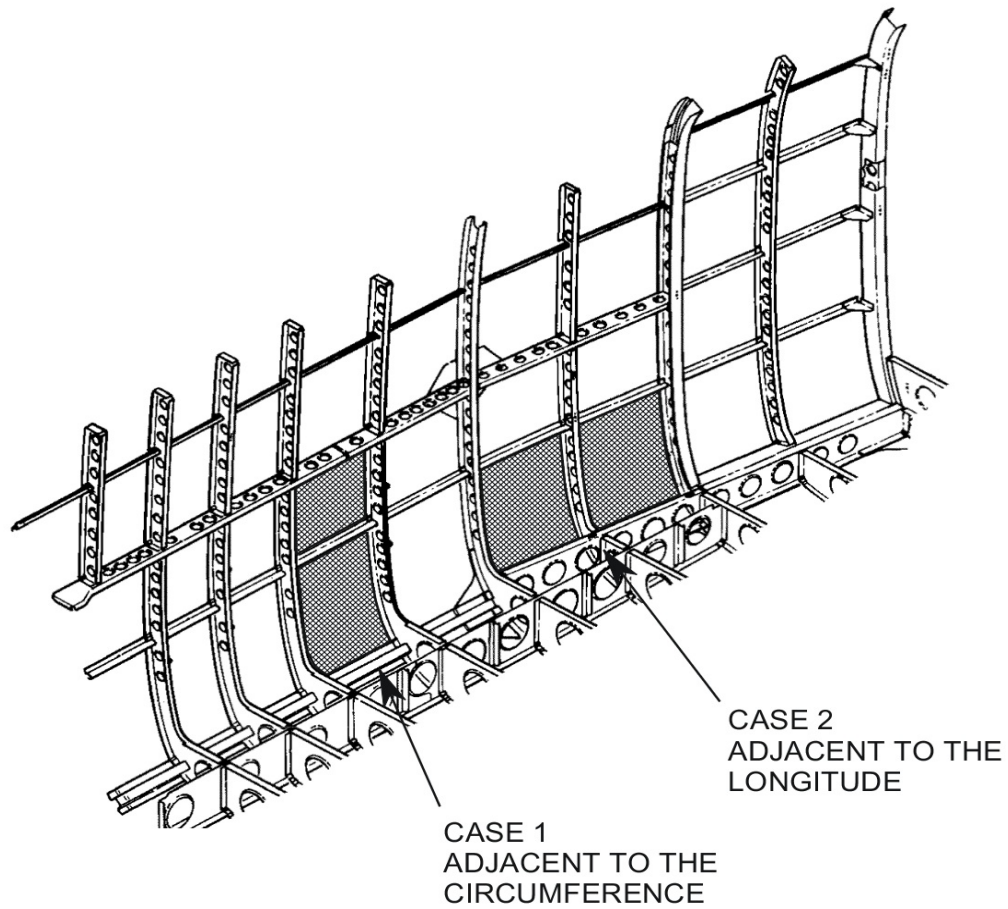


LOCAL CORROSION
(CORROSION FOUND IN NON-ADJACENT SKIN PANELS)

2611R1036

Figure 2 : Sheet 1 : Widespread Corrosion Found in Adjacent Skin Panels

A17371

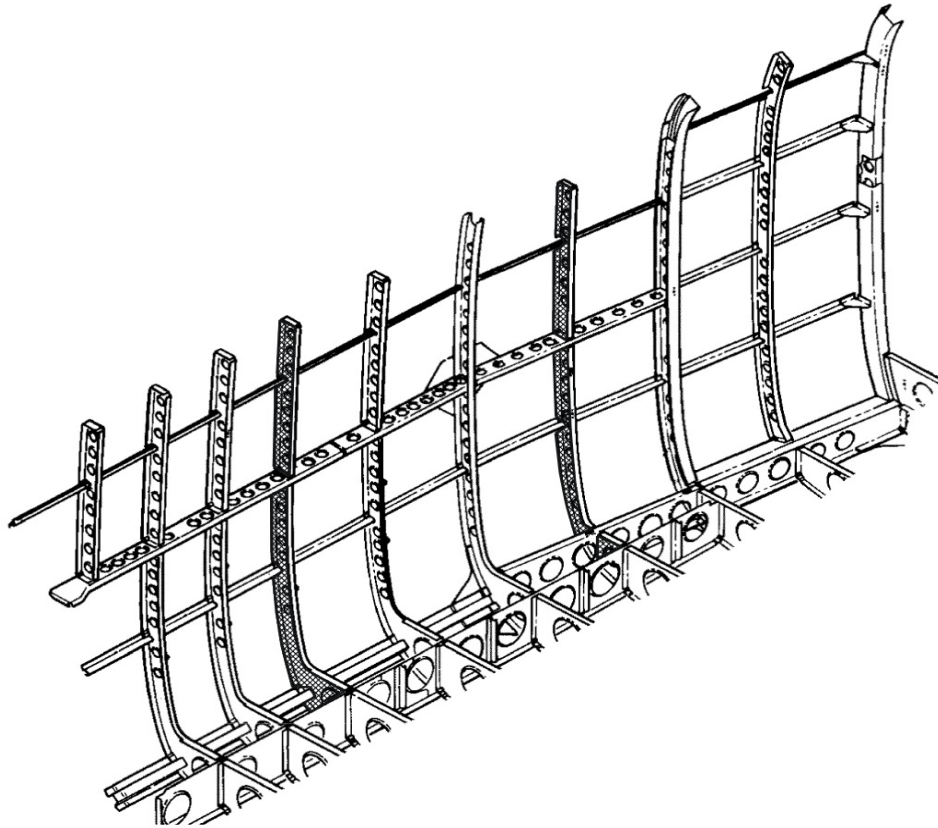


WIDESPREAD CORROSION
(CORROSION FOUND IN ADJACENT SKIN PANELS)

2611R1037

Figure 3 : Sheet 1 : Local Corrosion Found in Non-Adjacent Frames

A17375

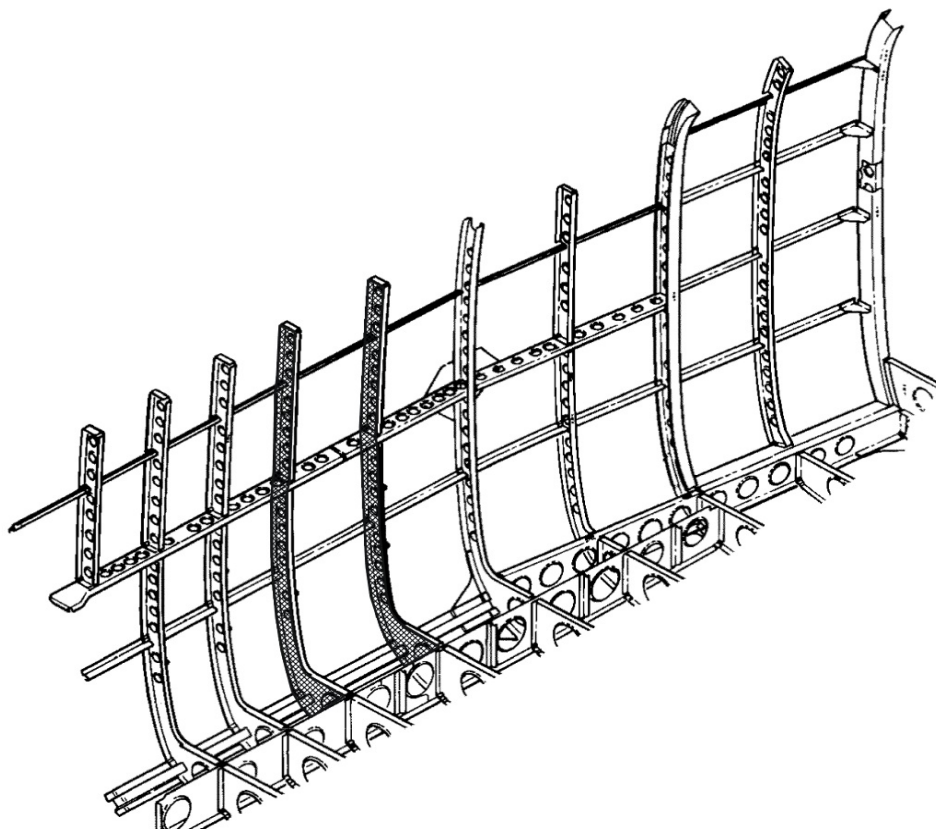


LOCAL CORROSION
(CORROSION FOUND IN NON-ADJACENT FRAMES)

2611R1038

Figure 4 : Sheet 1 : Corrosion Found in Adjacent Frames

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WIDESPREAD CORROSION
(CORROSION FOUND IN ADJACENT FRAMES)

2611R1039

Figure 5 : Sheet 1 : Determination of Corrosion Level

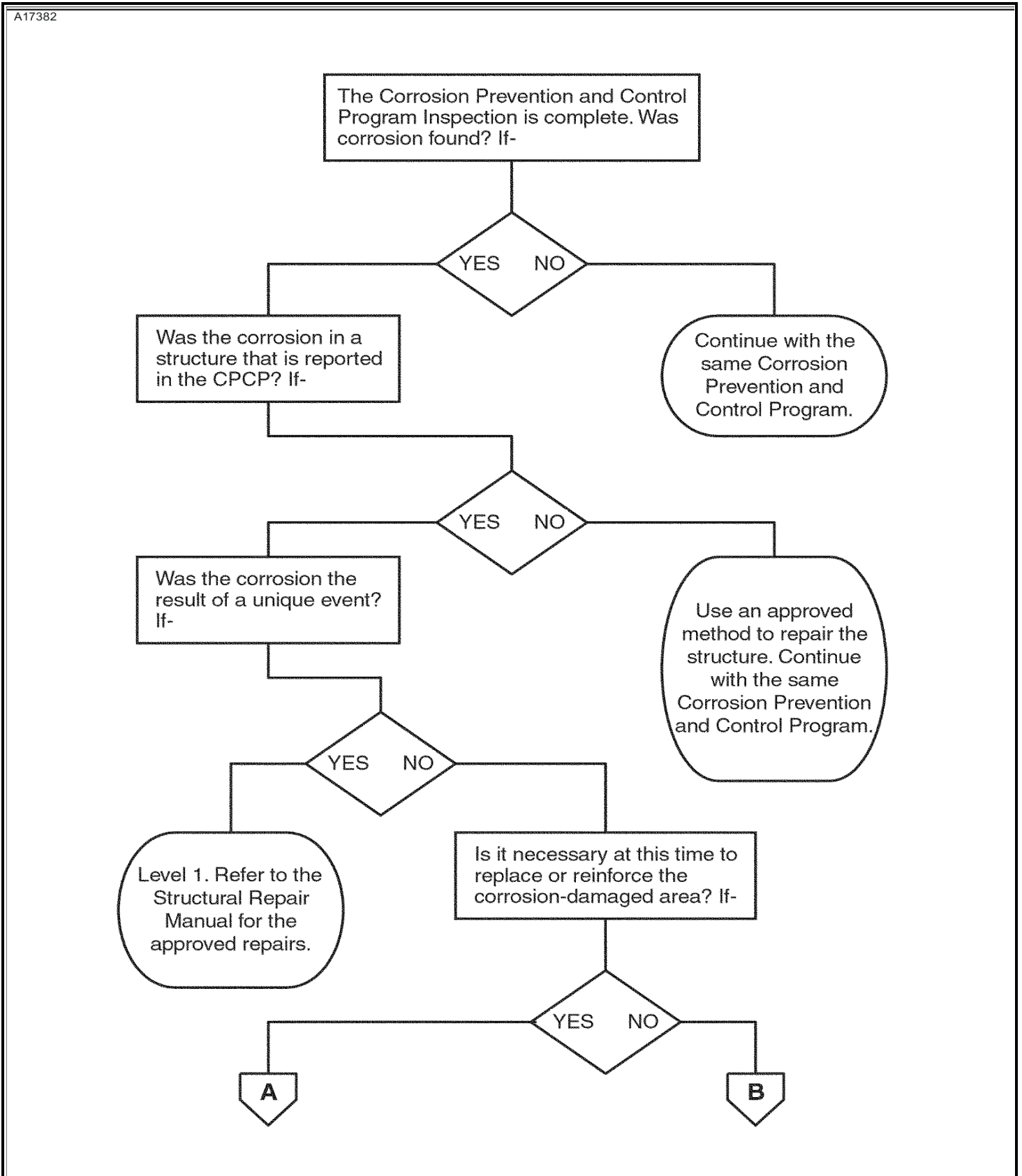


Figure 5 : Sheet 2 : Determination of Corrosion Level

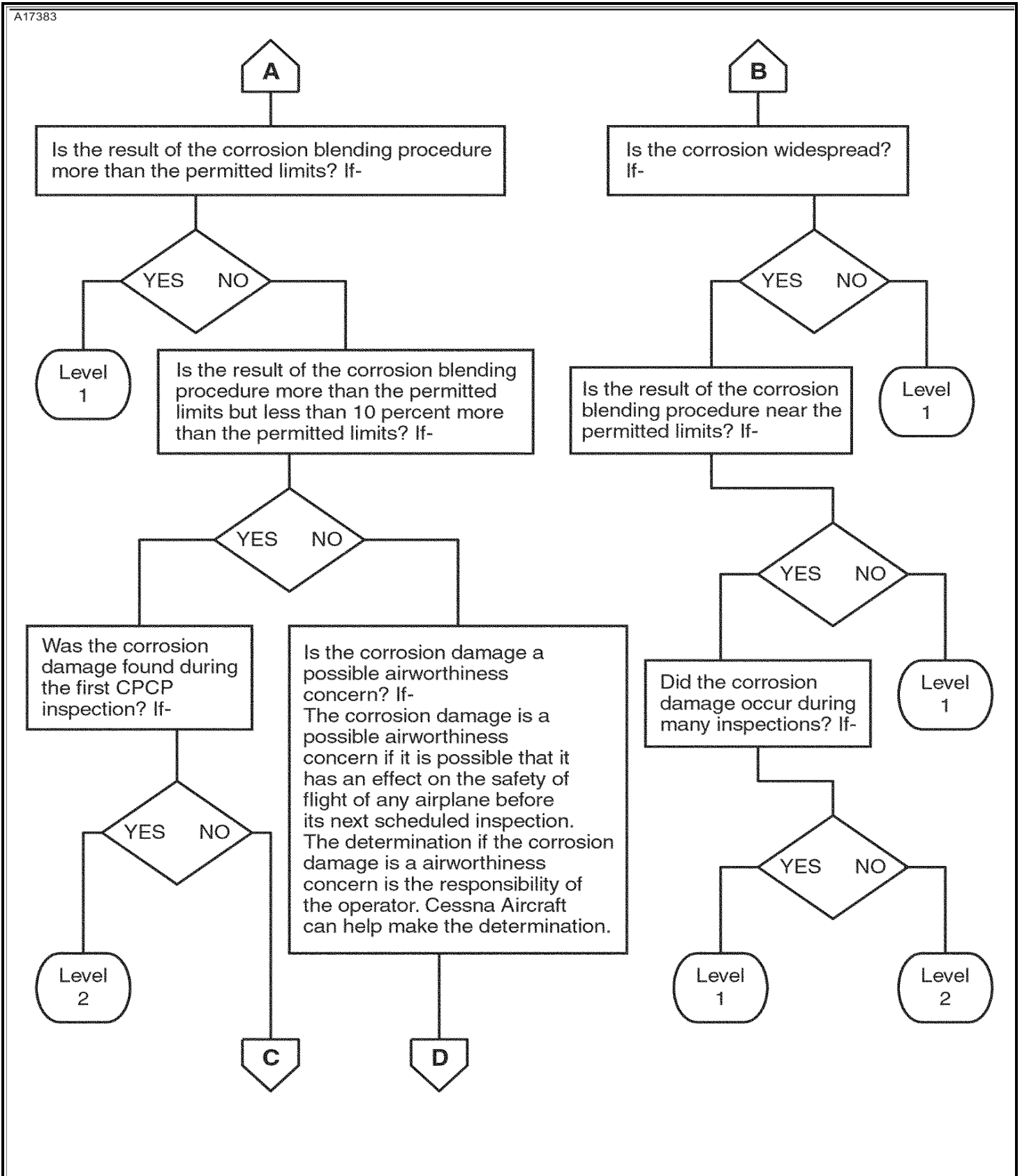


Figure 5 : Sheet 3 : Determination of Corrosion Level

