

CORROSION PREVENTION PROGRAM

1. General

This section is provided as an aid to operators of the CL-415 aircraft in salt water environments and to assist in the development of a customized program of corrosion prevention.

Airplanes that are operated in a salt-water environment must have inspection and maintenance schedules that emphasize special care and precautions.

Some maintenance tasks in the Scheduled Inspection and Maintenance Intervals sections are noted as “**Yes**” in the “**Environment Sensitive**” column. This notation is made to alert the operator that a more restrictive and intensive means of determining the effect of operating in a salt-water environment on the condition of an area, system, or component is required.

An essential part of a customized corrosion prevention program is the organization and record keeping. Inspections, repairs, and deferred defects must be recorded in the applicable aircraft log books in order that the results of the program can be traced and evaluated. Log book records of each inspection and tasks must be signed by the technician responsible for performing the task and co-signed by a designated quality assurance inspector.

The following recommended tasks and frequencies must be a basis for any program of customized corrosion prevention:

A. Recommended Corrosion Preventive Tasks – Daily

- (1) Perform a rinsing of the aircraft exterior. Refer to PSP 492, Chapter 12, AIRCRAFT CLEANING and AIRCRAFT EXTERNAL/INTERNAL CLEANING.

Amplifying details are as follows:

- (a) Inspect the aircraft for areas of frequent corrosion damage and salt residue build-up such as:
 - Nose landing gear,
 - Main landing gear,
 - Nose and main landing gear wheel wells,
 - Flight control leading edges.
- (b) Use fresh water brushes to thoroughly remove all traces of salt residue.
- (c) Open fuselage hull plugs to ensure drainage and to allow air circulation in to the hull.
- (d) If practical, open water doors to allow air circulation.

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- (2) Perform a rinse of the water tanks with fresh water.

NOTE: This daily task is applicable to aircraft which have finished a salt-water scooping operation and no final fresh water scoop was done prior to landing.

- (3) Perform an engine compressor wash using distilled water. Refer to PSP 492, Chapter 12, COMPRESSOR WASH – SERVICING.

NOTES: 1. This daily task is applicable to aircraft which have finished a salt-water scooping operation.

- (4) Daily Inspection

- (a) During a walk around or on a daily inspection, the aircraft exterior structure is to be continuously monitored for evidence of corrosion.

In the case that corrosion is discovered, the damage must be evaluated in accordance with the procedures described in PSP 497, Chapter 51, CORROSION INVESTIGATION – GENERAL PROCEDURES. An assessment of the corrosion must determine the type, the extent of the damage relative to the allowable damage limits, the required repair action, and the corrective preventative treatment to be applied.

During a fire season, minor damage that requires corrective action exceeding the application of surface treatment (ie. corrosion removal and application of anodizing solution, primer, and paint) may be logged as deferred and treated when the tempo of operational requirement is reduced.

- (b) The aircraft interior must be inspected for evidence of foam agent leaks or spills. Any leak must be immediately repaired and any spillage must be cleaned. Particular attention should be given to the hull interior and surfaces between the floor boards and sub-floor structure after a spillage of foam agent has been detected.

B. Recommended Corrosion Preventive Tasks – Weekly

- (1) Perform a rinsing of the hull interior under the floor boards (WL 144.00).

Amplifying details are as follows:

- (a) Remove a sufficient number of floor boards and all floor board access panels to gain access to the complete hull interior.
- (b) Direct water on to the hull interior and the sub-floor structure to thoroughly flush and dissolve any salt or foam agent residue.
- (c) Open the hull drain plugs and allow the water to drain the hull completely. The floor boards and access panels should remain off for as long as practical to allow for evaporation of residual water.
- (d) Perform a visual inspection of the hull interior to verify that there is no trapped water on structures such as longitudinal stringers and that the corrosion preventive compound application is in good condition.

If necessary apply corrosion preventive compounds by touch up method. Refer to PSP 492, Chapter 51, CORROSION PREVENTATIVE COMPOUND – MAINTENANCE PRACTICES.

- (2) Perform an external engine wash using distilled water. Refer to PSP 492, Chapter 71, EXTERNAL ENGINE WASH – OPERATION.

NOTE: The external engine wash must be carried out at least once in the last 7 days.

C. Recommended Corrosion Preventive Tasks – Maintenance Season

In salt water environments, the corrosion which is experienced often accelerates wear damage to moving joints. Given this tendency, it is recommended to increase the frequency of certain inspections and maintenance actions to a 12 month interval for those systems or components which are most corrosion susceptible in a saline environment.

Refer to the Inspection/Check and Fits and Clearance Page blocks in PSP 492 and PSP 498 to determine wear limits of various components and to the PSP 497 for descriptions of allowable damage and repair instructions.

In cases where damage exceeds allowable damage limits and there is given repair procedure, the operator may request a specific repair. Direct all such requests to Bombardier Aerospace, Amphibious Aircraft, Technical Support Group. All request for specific repairs must be accompanied with detailed information describing the depth, extent, and location (water line: WL, buttock line: BL, and fuselage station: FS) of damage.

The following are the minimum recommended maintenance actions to be performed at every 12 month intervals, coinciding with the annual maintenance season:

- (1) Remove, inspect, and restore the nose and main landing gear. Refer to PSP 492, Chapter 32.

Amplifying details are as follows:

- (a) Thoroughly clean and inspect all components for evidence of corrosion, excessive wear, and other damage.
- (b) Check the fits and clearance of all suspect components in accordance with the fits and clearance tables as described in either PSP 492 or PSP 498, Chapter 32.
- (c) Replace the affected parts or repair as described in either PSP 492, PSP 497, or PSP 498.
- (d) Ensure that prior to, during, and after re-installation of the landing gear, sufficient and correct corrosion prevention compounds and lubricants are applied. Refer to PSP 492, Chapter 12, LANDING GEAR SYSTEM LUBRICATION – SERVICING.

- (2) Remove, inspect, and restore the nose and main landing gear doors. Refer to PSP 492, Chapter 32.

NOTE: The areas of the attachment fittings for the nose and main landing gear doors are highly susceptible to the formation of salt deposits which, due to their location, are difficult to clean.

Amplifying details are as follows:

- (a) Thoroughly clean and inspect the door structure, the hinges, and the brackets for evidence of corrosion, excessive wear, and other damage.
- (b) Check the fits and clearance of all suspect components in accordance with the fits and clearance tables as described in either PSP 492 or PSP 498, Chapter 32.
- (c) Replace the affected parts or repair as described in either PSP 492, PSP 497, or PSP 498.
- (d) Ensure that prior to, during, and after re-installation of the landing gear doors, sufficient and correct corrosion prevention compounds and lubricants are applied. Refer to PSP 492, Chapter 12, LANDING GEAR LUBRICATION – SERVICING.

- (3) Remove, inspect, and restore the water door operating mechanism, the water doors, the water door dampers, the above floor water reservoirs, and torque shafts.

Amplifying details are as follows:

- (a) Thoroughly clean and inspect the components of the water door operating mechanism for evidence of corrosion, excessive wear, and other damage. Check the fits and clearance of all suspect components in accordance with the fits and clearance tables as described in either PSP 492 or PSP 498, Chapter 42. Evaluate any damage in accordance with the allowable damage limits described in PSP 497. Replace affected parts or repair as described in either PSP 492, PSP 497, or PSP 498.
- (b) Thoroughly clean and inspect the interior of the above floor water reservoirs for evidence of corrosion, excessive wear, and other damage. Check the fits and clearance of all suspect components in accordance with the fits and clearance tables as described in PSP 492. Evaluate any damage in accordance with the allowable damage limits described in PSP 497. Replace affected parts or repair as described in either PSP 492, PSP 497, or PSP 498.

NOTE: The above floor water reservoirs may not necessarily be removed provided that adequate access and lighting is made through the hull water tank.

- (c) Thoroughly clean and inspect the water doors for evidence of corrosion, excessive wear, and other damage. Check the fits and clearance of all suspect components in accordance with the fits and clearance tables as described in PSP 492. Evaluate any damage in accordance with the allowable damage limits described in PSP 497. Replace affected parts or repair as described in either PSP 492, PSP 497, or PSP 498.
- (d) Thoroughly clean and inspect the water door dampers for evidence of corrosion, excessive wear, and other damage. Check the fits and clearance of all suspect components in accordance with the fits and clearance tables as described in either PSP 492 or PSP 498. Evaluate any damage in accordance with the allowable damage limits described in PSP 497. Replace affected parts or repair as described in either PSP 492, PSP 497, or PSP 498.
- (e) Thoroughly clean and inspect the torque shafts for evidence of corrosion, excessive wear, and other damage. Check the fits and clearance of all suspect components in accordance with the fits and clearance tables as described in either PSP 492 or PSP 498. Evaluate any damage in accordance with the allowable damage limits described in PSP 497. Replace affected parts or repair as described in either PSP 492, PSP 497, or PSP 498.
- (f) Ensure that prior to, during, and after the re-installation of the water drop system, sufficient and correct corrosion prevention compounds and lubricants are applied. Refer to PSP 492, Chapter 12,

- (4) Remove, inspect, and restore the floor boards.

Amplifying details are as follows:

- (a) Thoroughly clean and inspect the floor boards and the sub-floor structure for evidence of corrosion, excessive wear, and other damage. Evaluate any damage in accordance with the allowable damage limits described in PSP 497. Replace affected parts or repair as described in either PSP 492, PSP 497, or PSP 498.
- (b) Ensure that prior to, during, and after the re-installation of the floor boards, sufficient and correct corrosion prevention compounds and lubricants are applied. Refer to PSP 492, Chapter 51, CORROSION PREVENTION – MAINTENANCE PRACTICES and PSP 497, Chapter 51, CORROSION PREVENTIVE TREATMENT – STANDARD PRACTICES.

D. Recommended Corrosion Preventive Tasks – Low Aircraft Utilization

The following tasks must be accomplished during periods of low flight activity such as flight training, before and after a fire season. During these periods, exposure to a salt air environment alone will cause corrosion damage given sufficient time and neglect.

- (1) Perform a rinsing of the aircraft exterior every seven days using fresh water. Refer to PSP 492, Chapter 12, AIRCRAFT CLEANING and AIRCRAFT EXTERNAL/INTERNAL CLEANING.

Amplifying details are as follows:

- (a) Inspect the aircraft for areas of frequent corrosion damage and salt residue build-up such as:
 - Nose landing gear,
 - Main landing gear,
 - Nose and main landing gear wheel wells,
 - Flight control leading edges.
- (b) Use brushes to thoroughly remove all traces of salt residue.
- (c) Open fuselage hull plugs overnight to ensure drainage and to allow air circulation in to the hull.
- (d) Open water doors if practical to allow air circulation.

E. Recommended Corrosion Preventive Tasks – Increased Frequency of Lubrication

Aircraft which are routinely operated in a salt water environment will be susceptible to higher rate of corrosive damage. In addition, the protective compound and lubricants will degrade at a correspondingly high rate.

An increase in the frequency of routine application of corrosion prevention compounds and lubricants is described as follows:

- (1) Lubricate the components of the the nose and main landing gear and the water drop system. Refer to PSP 492, Chapter 12, LANDING GEAR LUBRICATION – SERVICING and WATER DROP SYSTEM LUBRICATION – SERVICING.

Amplifying details are as follows:

- (a) Inspect and lubricate the components of both the landing gear and the water drop system.

For the landing gear, particular attention must be given to areas such as hinge points, attach fittings and hardware.

For the water drop system, particular attention must be given to the areas inside the hull section of the water tanks such as hinge points, attach fittings, structure and hardware.

- (b) Inspect and lubricate all flight control hinge points.
- (c) Inspect internal flap hinges and re-apply corrosion inhibiting compound as necessary.
- (d) Repair or replace damaged parts in accordance to the instruction described in PSP 492, PSP 497, or PSP 498.

F. Unpaved/Gravel Runway Operation

When operating on unpaved/gravel runways, visually check the following for stone damage and/or paint chips:

- (1) Clean airplane as required.
- (2) The nose landing gear, wheel well and doors.
- (3) The main landing gear.
- (4) The four water doors and hull.