

AIRCRAFT MAINTENANCE MANUAL

TEMPORARY REVISION 12-141

FILING INSTRUCTIONS: This Temporary Revision revises TASK 12-21-00-110-807. Put this Temporary Revision after page 323 of 12-21-00.

This Temporary Revision replaces TR 12-136. Remove and discard TR 12-136.

Record the insertion of this Temporary Revision and the removal of TR 12-136 on the yellow RECORD OF TEMPORARY REVISIONS sheet at the front of this chapter.

DESCRIPTION: This Temporary Revision revises the procedure for the external cleaning of the aircraft using dry wash method. It revises the consumable materials and adds dry-wash cleaning agents.

**ON A/C ALL

TASK 12-21-00-110-807
External Cleaning of the Aircraft using Dry Wash Method

1. General

- A. The maintenance procedure that follows gives the instructions necessary to clean the external surfaces of the aircraft using dry wash method to remove contamination. It is necessary to wash and polish the external surfaces of the aircraft frequently. This will help to prevent deterioration of the paint finish and keep the risk of corrosion to a minimum.

NOTE: Dry wash is an alternate method for wet wash, if wet wash is not possible.

NOTE: Dry wash gives a good result on smooth and shine paint finish aircraft. An old or matt paint finish aircraft will not give satisfying results on dry wash.

NOTE: Dry wash is permitted only on the external painted surface of the aircraft.

2. Job Set-Up Information

Subtask 12-21-00-943-007

A. Tools & Equipment

- | | | |
|-----|------------------|-----------------------------|
| (1) | 14-6882-6010 | Covers, Main Wheels |
| (2) | ACS28001 | Cover, Engine Air Intake |
| (3) | ACS28002 | Cover, Engine Exhaust |
| (4) | ACS28010 | Plug, Oil Cooler Vent Scoop |
| (5) | AOA 100 | Cover, Angle of Attack Vane |
| (6) | CPG2010-RC-03-23 | Cover, APU Tailcone |
| (7) | GSB1011007 | Covers, ECS Exhaust |

MASTER
EFFECTIVITY: See First Page of TR# 12-141

12-21-00

Page 1 of 7
Nov 14/2013
TR# 12-141

AIRCRAFT MAINTENANCE MANUAL

- (8) GSB1011008 Covers, Left ECS RAM Air Duct
- (9) GSB1011009 Covers, Right ECS RAM Air Duct
- (10) GSB1000016 Cover, Nose Wheel
- (11) GSB1000031 Restraint, Propeller
- (12) GSB1000033 Covers, Pitot-static
- (13) None specified Work stand
- (14) None specified Container
- (15) Commercially available Goggles
- (16) Commercially available Mop or brush (soft)

Subtask 12-21-00-944-008

B. Consumable Materials

- (1) 08-14 Solvent, Isopropanol (Isopropyl Alcohol)
- (2) 13-67 Polish, Metal, Aluminum
- (3) 14-02 Cloth, Wiping, Lint-free
- (4) 14-61 Cloth, Cleaning, Non-Woven Fabric
- (5) 14-66 Tape, Masking, General Purpose
- (6) Commercially available Compound, Hand Dishwashing (Synthetic Detergent, Liquid Form)
- (7) Commercially available Sponge

C. Dry-Wash Cleaning Agents

- (1) Commercially available Aero Cosmetic S35 (General Purpose Cleaner, Degreaser)
- (2) Commercially available Nuvite Nupower II (Dry-Wash, Polish & UV protectant)
- (3) Commercially available Aero Cosmetic's Wash Wax All Cleaner (All-in-one Waterless Wash Cleaner for Dry Washing and Waxing)
- (4) Commercially available Aero Cosmetic's Wash Wax All Degreaser (Heavy-Duty 'Waterless Wash' Cleaner)
- (5) Commercially available Nuvite CitriCut Gel (Citrus-Based Cleaner for Wet-Washing and Degreasing)
- (6) Commercially available Aero Cosmetic's PlexALL (Aircraft Window Cleaner)

AIRCRAFT MAINTENANCE MANUAL

- (7) Commercially available Aero Cosmetic's Belly Wash (Aircraft Belly Cleaner)

Subtask 12-21-00-946-007

D. Reference Information

REFERENCE	DESIGNATION
TASK 10-11-00-587-801	Parking of the aircraft
TASK 12-21-00-110-803	Cleaning of the Aircraft Windows
TASK 30-11-00-100-801	Cleaning of the Deicer Boots
TASK 30-11-60-370-802	Application of Turtle Wax on Aerazur Deicer Boots

3. Job Set-Up

Subtask 12-21-00-587-007

- A. Park the aircraft (Refer to [TASK 10-11-00-587-801](#)).

Subtask 12-21-00-941-013

- B. Make sure that all aircraft doors are closed.

Subtask 12-21-00-941-014

WARNING: DO NOT INSTALL THE COVERS WHEN THE PITOT STATIC PROBES ARE HOT. THE COVER WILL MELT AND CAUSE A BLOCKAGE OF THE HOLES IN THE PITOT STATIC PROBE. THIS CAN CAUSE INJURY TO PERSONNEL AND/OR DAMAGE TO EQUIPMENT.

- C. Install supplied covers or apply the masking tape as necessary to all the areas of the fuselage where solvents must not touch. This includes areas that follow:
 - The windshields
 - The windows
 - The wheels
 - The pitot-static probes
 - The static vents
 - All openings on the top of the aircraft.

Subtask 12-21-00-910-004

- D. Obey the safety precautions that follow when you clean the external surfaces of the aircraft:

<p>MASTER EFFECTIVITY: See First Page of TR# 12-141</p>

AIRCRAFT MAINTENANCE MANUAL

- (1) Use only the materials specified in the list of consumable materials to clean the external surfaces of the aircraft. For the dry washing at the designated areas only, use the specified Dry-Wash cleaning agents as per the manufacturer's instructions.
- (2) Make sure that you remove all rings, watches and other jewelry from your hands and wrists before you clean.

CAUTION: BE CAREFUL WHEN YOU CLEAN AN EXTERNAL SURFACE OF THE AIRCRAFT. USE A MOIST CLOTH WITH HAND PRESSURE MOVEMENTS. DO NOT RUB A DRY SURFACE OR USE TOO MUCH FORCE. YOU CAN CAUSE DAMAGE TO THE EXTERNAL SURFACE OF THE AIRCRAFT.

- (3) Always use a moist cloth to clean a dirty external painted surface.
- (4) Do not rub a dirty external painted surface with a dry cloth.
- (5) If possible, do not clean the hot external surface.
- (6) Make sure that you give sufficient time for the external surface to become cool before you clean it.
- (7) If possible, do not clean the external surfaces of the aircraft directly in the sunlight.

NOTE: This is necessary to prevent the water stains that can occur when the surface dries.

CAUTION: WHEN YOU CLEAN THE EXTERNAL SURFACES OF THE AIRCRAFT, DO NOT GET THE BRAKES WET. WET BRAKES CAN FREEZE DURING THE FLIGHT AND CAUSE BRAKE FAILURE DURING THE LANDING.

- (8) Make sure that no leakage of the cleaning solution occurs on the tires and rubber components (hoses and seals).
- E. Make sure that all doors and access panels are closed. If the doors and access panels are not closed, make sure that no cleaning agent or water goes in the aircraft. Make sure that cleaning agent does not touch the rubber seals.

Subtask 12-21-00-950-002

- F. Apply the masking tape to all joints and orifices to prevent damage caused by the ingress of cleaning material or water. Also apply the masking tape to all exposed rubber/plastic materials to prevent damage from the cleaning agent.

AIRCRAFT MAINTENANCE MANUAL

4. Procedure

Subtask 12-21-00-110-008

WARNING: OBEY THE PRECAUTIONS THAT FOLLOW WHEN YOU USE SOLVENTS:

- WEAR SAFETY GOGGLES.
- WEAR PROTECTIVE CLOTHING.
- DO NOT LET SOLVENTS TOUCH YOUR SKIN, EYES, AND MOUTH.
- DO WORK IN AN AREA THAT IS FREE FROM SPARKS, FLAMES, AND HOT SURFACES.

OBEY THE MANUFACTURER'S INSTRUCTIONS. GET MEDICAL AID IF IRRITATION OCCURS. SOLVENTS ARE POISONOUS.

WARNING: OBEY THE PRECAUTIONS THAT FOLLOW WHEN YOU DO WORK ON OR NEAR THE WINDSHIELDS OR WINDOWS:

- BE CAREFUL BECAUSE THE WINDOWS SURFACES HAVE A HIGH LEVEL OF STATIC VOLTAGE FOR MANY HOURS AFTER FLIGHT.
- MAKE SURE YOU USE ONLY APPROVED TOOLS THAT CANNOT SCRATCH THE WINDSHIELDS OR WINDOWS SURFACES.
- MAKE SURE THAT PERSONNEL DO NOT HAVE JEWELRY OR SHARP OBJECTS ON YOUR PERSON.
- USE ONLY APPROVED CLEANING AGENTS AND SOLVENTS. IF YOU DO NOT DO THIS, YOU CAN CAUSE DAMAGE TO ACRYLIC SURFACES.
- DO NOT USE DRY-WASH CLEANING AGENTS ON WINDOWS AND WINDSHIELDS.
- DO NOT USE TOO MUCH FORCE ON THE WINDOWS AND WINDSHIELDS SURFACES. THE SURFACE CAN BECOME HOT AND RESULT IN DEFORMATION.

WARNING: DO NOT STAND OR WALK ON AIRCRAFT SURFACES THAT ARE WET. IF YOU DO THIS, YOU CAN FALL OFF THE AIRCRAFT.

CAUTION: DO NOT USE DRY-WASH CLEANING AGENTS TO CLEAN THE LANDING GEAR BAY AREAS, WING AND HORIZONTAL STABILIZER LEADING EDGES, RADOME, FLIGHT DECK WINDSHIELDS AND SIDE WINDOWS, PASSENGER CABIN AND EMERGENCY EXIT WINDOWS, AFT ENTRY AND SERVICE DOOR WINDOWS, FORWARD EMERGENCY EXIT DOOR WINDOW AND ENGINE LIPSKIN. DRY WASHING MUST BE USED ON THE EXTERNAL SURFACES OF THE AIRCRAFT FUSELAGE, STABILIZER AND WING ONLY.

CAUTION: DO NOT USE HIGH PRESSURE WASHING EQUIPMENT ON LANDING GEAR COMPONENTS. HIGH PRESSURE JETS CAN PUSH CLEANING COMPOUND OR WATER INTO BEARINGS, JOINTS, BRAKES, SEALS, ELECTRICAL CONNECTORS AND OTHER SEALED COMPONENTS. LIQUIDS THAT GET INTO THESE AREAS CAN CAUSE CORROSION AND CAN FREEZE DURING AIRCRAFT FLIGHT.

CAUTION: MAKE SURE THAT NO CLEANING AGENT COMES IN CONTACT WITH RUBBER OR PLASTIC MATERIALS INCLUDING DOOR AND WINDOW SEALS. THE DRY WASHING AGENT CAN CAUSE DAMAGE TO THE RUBBER OR PLASTIC MATERIALS.

AIRCRAFT MAINTENANCE MANUAL

CAUTION: MAKE SURE THAT NO CLEANING AGENT CAN GET INTO THE STATIC PORT, FUSELAGE SKIN HOLES.

A. Clean the external surfaces of the painted fuselage as follows:

- (1) Prepare the Dry–Wash cleaning agents as per the manufacturer’s instructions.
- (2) Remove all stains immediately.

NOTE: These stains will not cause damage unless the dust contains contamination that can cause corrosion and damage to the paint finish.

- (3) Carefully apply the cleaning solution to the external surfaces with a sponge or mop soaked with the cleaning agent.

CAUTION: BE VERY CAREFUL WHEN YOU CLEAN THE AIRCRAFT EXTERIOR AROUND THE ANGLE OF ATTACK SENSORS, ANTENNAS AND PROBES.

- (4) With a mop or lint–free cloth, lightly rub the external surface to loosen the abrasive particles. Make sure that you do not cause damage to the surface.
- (5) Let the cleaning solution dry fully.
- (6) Remove the dried cleaning agent with a soft dry material like a mop or lint–free cloth. Make sure that you do not cause damage to the surface.
- (7) Remove the residue or dust caused by the removal of the dried cleaning agent from the aircraft.
- (8) Open the door and examine the door seals to make sure that the door seals are free from the cleaning agent.
- (9) If the door seals are contaminated, clean the door seals with a lint–free cloth.
- (10) Remove adhesive tape where applied.
- (11) Make sure that the static ports are not blocked and contaminated by the cleaning agent.

B. Clean the external surface of the radome as follows:

- (1) Remove all dead insects and other contamination from the surface area.
- (2) In a clean container, mix the same ratio of water and isopropyl alcohol with the applicable quantity of concentrated detergent.

NOTE: Follow the instruction on the detergent container to mix the soap solution.

CAUTION: DO NOT USE DRY–WASH CLEANING AGENTS TO CLEAN THE RADOME AND WINDOWS.

- (3) Clean only a small area of the external aircraft surface at a time.

NOTE: You must flush the solution applied to the external surface before it dries.

- (4) Remove all stains immediately.

NOTE: These stains will not cause damage unless the dust contains contamination that can cause corrosion and damage to the radome.

- (5) Apply the cleaning solution to the external surfaces with a water soaked sponge or mop.
- (6) Let the cleaning solution soak for five minutes.
- (7) With the water soaked sponge or mop, lightly rub the external surface to loosen the abrasive particles.

AIRCRAFT MAINTENANCE MANUAL

- (8) Flush the abrasive particles with a continuous flow of water where you touch the external surface.
- (9) Remove the soap from the external surface with a continuous flow of clean water.

CAUTION: BE CAREFUL WHEN YOU CLEAN AN EXTERNAL SURFACE OF THE AIRCRAFT. USE A MOIST CLOTH WITH HAND PRESSURE MOVEMENTS. DO NOT RUB A DRY SURFACE OR USE TOO MUCH FORCE. YOU CAN CAUSE DAMAGE TO THE EXTERNAL SURFACE OF THE AIRCRAFT.

- (10) Lightly buff the external surface with a clean, low-lint cloth or chamois moist with water.

CAUTION: DO NOT USE DRY-WASH CLEANING AGENTS TO CLEAN THE DEICER BOOTS.

C. If necessary, clean the deicer boots (Refer to [TASK 30-11-00-100-801](#)) and polish the deicer boots (Refer to [TASK 30-11-60-370-802](#)).

D. Clean the external surfaces exposed with bare metal as follows:

- (1) For the aluminum surfaces, do the steps as follows:

CAUTION: DO NOT USE DRY-WASH CLEANING AGENTS TO CLEAN THE EXTERNAL BARE METAL SURFACES ON THE AIRCRAFT.

- (a) Clean the aluminum surfaces with a clean water and clean cloth.
- (b) With a clean dry cloth, remove the remaining moisture.
- (c) Apply the aluminum polish with a moist cloth in a circular motion.
- (d) Let the aluminum polish to dry.
- (e) Lightly buff the surface with a clean and dry cloth until the aluminum surface shines.

CAUTION: DO NOT USE DRY-WASH CLEANING AGENTS TO CLEAN THE WINDOWS AND WINDSHIELDS.

E. If necessary, clean the windows (Refer to [TASK 12-21-00-110-803](#)).

5. Close-Out

Subtask 12-21-00-941-015

- A. Make sure that the pitot tubes and the pitot static ports are not covered.
- B. Remove all tools, equipment, and unwanted materials from the work area.

From: Gihad Khashaba [Gihad.Khashaba@aero.bombardier.com]
Sent: 15 October 2013 13:11
To: Abed Aslan; Kevin Bishop
Cc: Shabbir Mohamed
Subject: FW: Re: FW: LEXAND - DryWash procedure

Good Morning Kevin and Abed,

Please be advised, as per e-mail thread below that approval was obtained for the usage of S35 Degreaser and NuPower II. In total we currently have approval for the following materials:

Approved Materials By Kenneth Quon
Aero Cosmetic S35 Degreaser
Nuvite Nupower II
Aero Cosmetic's Was Wax All cleaner
Aero Cosmetic's Was Wax All Degreaser
Nutive CitriCut Gel
AeroCosmetics PlexALL
AeroCosmetics Belly Wash

Please be advised that approval for Safe Solve wasn't achieved due to the lack of evidence of testing (as per e-mail thread below). Please confirm if the approvals obtained thus far are sufficient and/ or if we have more info on Safe Solve if its approval is also required.

Thank you for your support,

Gihad Khashaba

Engineering Systems Analyst-GDP
In-Service Engineering
Customer Support
gihad.khashaba@aero.bombardier.com
Tel. 4163753834 # 33834

CONFIDENTIALITY NOTICE - This communication may contain privileged or confidential information.

If you are not the intended recipient or received this communication by error, please notify the sender and delete the message without copying, forwarding and/or disclosing it.

From: Kenneth Quon
Sent: Wednesday, October 09, 2013 1:29 PM
To: Gihad Khashaba
Cc: Shabbir Mohamed; Abed Aslan
Subject: RE: Re: FW: LEXAND - DryWash procedure

Gihad,

- Aero Cosmetic's S35 Degreaser: No technical objections to the use of this product. Operator to follow manufacturer's instructions on product usage. Manufacturer declared product meets Boeing's D6-17487 specification.
- Nuvite's Nupower II: No technical objections to the use of this product. Operator to follow manufacturer's instructions on product usage.

Manufacturer declared product conforms to Boeing's D6-17487, Douglas CSD#1, AMS 1650 specifications.

Other cleaners are mentioned, but they are for interior cabin cleaning, and not per the context of exterior drywash. Also, for SafeSolv, there doesn't appear to be evidence that it was tested/qualified against specifications.

Regards,

Ken Quon P.Eng

Chief - Materials and Processes Engineering
Global Product Line
BOMBARDIER AEROSPACE
kenneth.quon@aero.bombardier.com
Tel: 1-416-375-3631

(From my earlier e-mail Sept20,2013)

Below are M&P's comments to the cleaning products:

- Aero Cosmetic's Wash Wax All Degreaser: No technical objections to the use of this product. Operator to follow manufacturer's instructions on product usage. Manufacturer declared product meets Boeing's D6-17487P specification.

- Aero Cosmetic's Wash Wax All Cleaner: No technical objections to the use of this product. Operator to follow manufacturer's instructions on product usage. Manufacturer declared product meets Boeing's D6-17487P and D6-7127M specification.

- Nuvite's CitriCut Gel: No technical objections to the use of this product. Operator to follow manufacturer's instructions on product usage.

Manufacturer declared product conforms to Boeing's D6-17487P, Douglas CSD#1, AMS 1526, AMS 1527 and AMS 1533 specifications.

With regards to "Polish ALL" and "SafeSolv", M&P does not have enough information to provide you with guidance. Per my earlier e-mail, we'll need the Operator to provide Technical Data Sheets for these products.