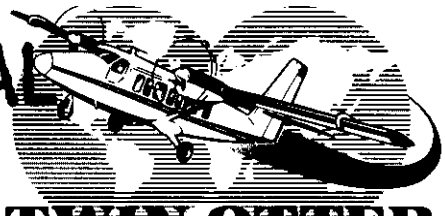
ORIGINAL

60495



TWIN OTTER
INTERNATIONAL

DEPT. OF TRANSPORTATION
DOCKETS

99 AUG -2 AM 11:05

ALAN R. STEPHEN
President

July 29, 1999

U.S. Department of Transportation Dockets
Docket Number FAA-1999-5401 - 24
400 Seventh Street, SW., Room Plaza 401
Washington, D.C. 20590

Re: PROPOSED RULE: Aging Airplane Inspections/Adoption of Damage-Tolerance Criteria

Ladies and Gentlemen:

Twin Otter International, Ltd. ("TOIL"), is pleased to offer the following comments for Docket FAA-1999-5401 on behalf of itself and its various affiliates and customers which operate under lease in Part 121 scheduled airline service deHavilland DHC-6 aircraft owned by TOIL.

(1) TOIL Has Long and Extensive Expertise with the DHC-6:

By way of introduction, TOIL is uniquely situated to evaluate the proposed rule and whether any airworthiness or safety benefit is gained for the DHC-6 by adopting it. TOIL and its various affiliates own thirty-eight DHC-6-300 and one DHC-6-100 which are in operation in the United States and abroad. (A list of those aircraft by serial number, year of manufacture, total time since new and total cycles since new is included in Attachment 1 to this document.)

TOIL's US. Part 121 affiliates and customers include ERA Aviation, Grand Canyon Airlines, Scenic Airlines and Seaborne Aviation each of which operate specially modified Twin Otters called "Vistaliners." These aircraft are produced in accordance with Supplemental Type Certificates TOIL holds. TOIL's shop is an FAA-approved repair station, station number SCIR012A.

4511 West Cheyenne Ave., Suite 500 • North Las Vegas, Nevada 89032-2440 • Phone: (702) 646-8837 • Fax: (702) 646-1493

We believe it is very important for FAA to understand what TOIL does with its Twin Otter aircraft. TOIL purchases DHC-6-300 aircraft, delivers them to R.W. Martin Incorporated (Palomar, CA) where extensive fuselage modifications are incorporated per our STC. TOIL then returns its aircraft to our repair station for complete rehabilitation and refurbishment before sending the finished Vistaliners to customers. Because of this process, both R.W. Martin and TOIL have ample opportunity to evaluate and correct any structural deficiencies due to normal wear and tear or damage. The extent of this work includes a comolete corrosion inspection, cockpit refurbishment including the installation of a standard avionics suite, comolete systems refurbishment (such the fuel system), new cabin interior. air conditioninn and an extensive list of deHavilland service bulletin upgrades in order for all of our aircraft to meet the same configuration standards. We have our own sheet metal, avionics, interior and engine shops. The major repair work is performed in accordance with approved data. It is our general policy never to deliver a finished Vistaliner with any discrepancy and at delivery we will have performed the complete deHavilland inspection program per the Inspection Requirements Manual, PSM l-6-7.

(Likewise, when Vistaliner aircraft come back to us at the completion of a lease, we determine what work needs to be performed to bring the aircraft up to our zero discrepancy standard before the aircraft is sent to the next customer.)

Because of this internal assessment and repair capability in coniunction with R.W. Martin. Inc., TOIL buys Twin Otter aircraft in any condition and from anywhere around the world, damaged or not, corroded or not, worn out or not. There is virtually nothing we have not seen and repaired over the nineteen years we have been in the DHC-6 business. Structural fatigue damage simply has been non-existent on Twin Otters we have repaired and refurbished.

We direct FAA to Attachment 1. Please note that our fleet of DHC-6 aircraft range from 1967 to 1981 in year of manufacture. Our fleet leader aircraft in hours has nearly 50,000 hours while the fleet leader in cycles has 97,000. In total, our fleet of Twin Otter aircraft has accumulated 1.13 million flight hours and 1.76 million cycles since manufacture. Surely with that broad actual field experience to draw on, we are in a unique position to evaluate whether DHC-6 aircraft should he inspected in accordance with damage-tolerance criteria. Clearly, they should not.

This NPRM is, in our view, another case of "one size tits all" rulemaking. It ignores the thoughtful and appropriate recommendations developed by members of the Aviation Rulemaking Advisory Committee in 1994 who have expertise in Part 23 aircraft like the Twin Otter. It also second-guesses deHavilland engineers and the data they submitted to validate to the satisfaction of Transport Canada that DHC-6 aircraft could be flown to a safe-life of 66,000 hours/132,000 cycles in accordance with manufacturer's programs and directives without having to meet damage-tolerance inspection criteria.

In the next few pages, TOIL will lay out why the DHC-6 should be exempted from having to comply with damage-tolerance inspection techniques even if FAA adopts this proposal for other models of commuter aircraft.

(2) The DHC-6 Structural Design Does Not Warrant the Burden of Damage-Tolerance Inspections:

Dehavilland designed the Twin Otter with the intention that fatigue critical components--the fuselage mainframe, wing struts and wing boxes--must be replaced upon reaching either a flight hour or cycle limit which ever occurs first. Those limits vary depending on the model of Twin Otter and for the purpose of this rulemaking, TOIL will comment on the 300 series Twin Otter which TOIL's Part 121 scheduled airline customers use exclusively.

Originally, the life-limit of the wing struts and fuselage mainframe was set at 30,000 hours/60,000 cycles each, but in revision 4 to the life-limits manual (Structural Components Service Life Limits Manual, PSM l-6-l 1), Transport Canada approved raising wing strut life to 36,000 hours/72,000 cycles and mainframe to 39,000 hours/78,000 cycles. (We note that FAA, due to lack of resources, still only recognizes revision 2.) Obviously these increases would not have been approved had there been any fatigue-related damage histories with either component. We also note that these components are inspected frequently in accordance with strict damage criteria. Upon reaching life, both the fuselage mainframe and wing struts must be replaced and the used units scrapped.

The original DHC-6-300 wing boxes also had a life of 30,000 hours/60,000 cycles, and like the mainframe and struts, there has been no fatigue related service history. Those limits can be raised to 33,000 hours/66,000 cycles with incorporation of a service bulletin which adds structural reinforcement. Routine inspection of the wing structure for fatigue, corrosion or other damage is required.. Upon reaching the life-limit, the traditional procedure has been for DHC-6 operators to "re-life" the wings. The deHavilland re-life process entails purchasing new wing boxes, stripping the run-out wings of all components such as flight controls, engine nacelles, hinge arms etc., then re-installing those components, if serviceable, on the new wing boxes. This process may be accomplished only once. Hence, this was the basis by which Transport Canada established a safe life for the DHC-6 of 66,000 hours/l 32,000 cycles.

Between the three models of DHC-6, there are about 600 Twin Otters flying worldwide. None, as yet, have reached the fuselage safe life limit. We estimate that Twin Otter fleet has accumulated in excess of 15 million flight hours.

We also want to bring to FAA's attention that two STC's have been certified to extend the life of DHC-6-300 wing boxes. One STC takes the wing on-condition by

incorporating certain modifications and requiring a periodic (each 1,000 flight hours), thorough inspection of the fatigue-critical wing structure using an ultra-sound technique and damage-tolerance calculations. The other STC for the DHC-6-300 wing box calls for the replacement of all fatigue-critical wing components at which time the run-out wing becomes zero time and is again good for service for 33,000 hours/66,000 cycles. TOIL has DHC-6 aircraft in service under all three methods of wing life extension.

No other component of the DHC-6 structure is considered to be fatigue-critical. However, two DHC-6 structures--the main landing gear and tail assembly--are required to be inspected each 60 calendar months. The main landing gear are stripped internally and checked for pitting or cracking. The tail structure is disassembled and inspected and may be re-installed unless fatigue related damage or corrosion is detected.

(3) The DeHavilland DHC-6 Inspection and Maintenance Program Has Proven Reliable and is Quite Thorough:

TOIL's DHC-6 aircraft are required to be maintained in accordance with the factory inspection and maintenance program known as "EMMA" (Equalized Maintenance for Maximum Availability) which is set out in Attachment 2. That program is not based on event maintenance where the aircraft needs to be out-of-service for an extended period of time on a re-occurring basis. Instead, the EMMA program sets out a certain schedule of inspections which are performed each 100 hours and the specific set of inspections that are to be performed are spelled out on "cards" adapted from the Inspection Requirements Manual. To complete a full EMMA cycle requires 4,800 flight hours at which time EMMA Card number 1 is once again used.

The EMMA program requires great attention to be paid to inspecting the entire structure for any sort of damage. We remind FAA that the Twin Otter is not pressurized and the structure is easily accessible for complying with the inspection requirements. DeHavilland sets out strict criteria for how much damage, of what kind. is allowable. If followed, there is no additional benefit in adding a damage-tolerance inspection procedure bevond complying with the structural life-limits. airworthiness directives and the EMMA maintenance program

(4) Corrosion, not Fatigue, is the Largest Single Cause of Structural Damage on the DHC-6:

In this rulemaking, FAA notes that it intends to proceed at some future date with a corrosion inspection program as part of addressing aging aircraft airworthiness. TOIL believes FAA to have put the "damage tolerance cart before the corrosion horse" with respect to the Twin Otter. We remind FAA that Transport Canada issued nearly five years

ago (August 23, 1994) an airworthiness directive requiring all DHC-6 aircraft to be subject to exhaustive, and repetitive, corrosion inspections. **To date, FAA has not acted on Transport Canada's corrosion AD and U.S. registered DHC-6 aircraft are not required to comply with it.**

TOIL has voluntarily chosen to follow Transport Canada's corrosion AD as it converts Twin Otter aircraft into Vistaliners. **We have found overwhelmingly that corrosion, not structural fatigue, is the cause of structural damage and often that corrosion damage is present and that exceeds amounts allowable per deHavilland inspection requirements.** We fix such damage without hesitation. Virtually every airworthiness authority with which we deal in leasing DHC-6 aircraft abroad requires compliance with this AD We believe firmlv that corrosion. and not structural fatigue, is the most messing issue concerning the continuing airworthiness of Twin Otter aircraft. Given that the corrosion inspection program already exists, and it is Transport Canada-approved, mandating the corrosion inspection program should be an FAA priority. Transport Canada has also mandated in revision 4 of the DHC-6 life-limits manual that DHC-6 flight control cables be changed out--not just inspected on-condition--at intervals not to exceed five years (and annually for DHC-6 aircraft on floats or operated in corrosive environments). TOIL has also adopted this control cable replacement schedule even though FAA has not.

(5) DeHavilland followed the 1994 recommendations of Aviation Rulemaking Advisory Committee on Achieving Structural Integrity for the DHC-6:

Part 23 aging commuter aircraft issues were first defined by a joint GAMA/RAA conference in 1989. Following that, FAA convened an ARAC working group which included a representative from deHavilland. The group reviewed technical information relating to commuter aircraft structural integrity, aging-related inspections and structural life limits with the goal of assuring continuing airworthiness for this class of aircraft. Several manufacturers, including deHavilland for the DHC-6, then developed aging aircraft structural intemitv programs based structural fatigue analyses, fatigue testing and field service data bases. To assure compliance, deHavilland went a step further by submitting its structural integrity program to Transport Canada where it was adopted as an AD The resulting inspection requirements and service limits are what has just been summarized.

It is important to remind FAA that the Aging Aircraft Safety Act of 1991 does not specify that damage-tolerance analysis and inspection techniques be mandated. The Act recognized, as did the ARAC working group, that the continuing airworthiness of aircraft like the DHC-6 could be assured through other means particularly for those aircraft designs not based on damage-tolerance. Given the 15 million hours of field service experience the DHC-6 has accumulated, one must conclude that the DHC-6 is one of the most durable and reliable aircraft designs of the past quarter century.

At the time ARAC made its recommendations, the Technical Oversight Group for Aging Aircraft (TOGAA) completed a series of visits to the manufacturer's of commuter aircraft. As TOIL recalls, TOGAA generally accepted the method of assuring continuing structural integrity based on structural fatigue analysis, fatigue tests and field experience correlation. **Why then, now five years later, have TOGAA and FAA chosen to ignore these good faith manufacturer efforts--which have also proven reliable--to propose damage-tolerance as the only acceptable technique?** The NPRM is virtually silent--there is no justification, no factual basis, no service history difficulties that backs up why damage-tolerance must be adopted particularly for aircraft like the Twin Otter that are not pressurized and that were not designed to damage-tolerance standards.

(6) TOIL is Mystified at the Regulatory Scheme Envisioned by Proposed Section 121.386 and what FAA Expects to Accomplish by Mandating it:

New Section 121.386 would require that no air carrier could operate an affected airplane after a certain date based on age "unless the Administrator has notified the certificate holder that the Administrator has completed" an aging airplane record review and inspection as contained in FAR 121.368. One cannot fathom what FAA hopes to achieve and where it will derive sufficient manpower to accomplish this fleet-wide within five years.

First, what does proposed FAR 121.368 do that isn't already required by existing FAR 121.380 when an airline adds an aircraft to its certificate?

Second, it is duplicative of existing regulations that require airlines to provide for the continuing airworthiness of the aircraft that it operates and of records that can be audited during an inspection to validate compliance.

Third, it could result in enormous costs to operators, should FAA or alternatively its designated airworthiness representatives, fail to timely make such reviews and inspections. An affected airplane would be grounded. During peak periods of passenger traffic several of TOIL's affiliates and customers generate $4-6,000 per day in ticket revenues. This provision clearly is as onerous as it is unnecessary.

(7) Proposed Section 121.370 Must Provide for Structural Integrity Programs Like deHavilland's as an Acceptable Means of Compliance:

For the reasons outlined previously, FAA must provide for alternative inspection techniques than just damage-tolerance. Not only is maintaining a damage-tolerance inspection and records program administratively cost prohibitive, especially for smaller carriers with perhaps 4-6 Twin Otters, FAA has failed to demonstrate that such alternative approaches are not effectively as safe.

TOIL has worked with a leading firm in the field of damage-tolerance, Structural Integrity Engineering (SIB). Our presumption is that deHavilland will not fund a damage-tolerance program for the Twin Otter as the aircraft has been out-of-production since 1988. Our presumption also is that for liability reasons, deHavilland will not provide the necessary engineering and test data upon which a damage-tolerance program could be developed by a company like ourselves. (Even if deHavilland would do so, it is deHavilland's policy to require perpetual contractual indemnification in the event deHavilland ever got sued for liability based on its engineering released to, and used by, a company like TOIL--TOIL must defend deHavilland. Such liabilitv is not insurable.) Therefore, TOIL would have retain a company like SIE to develop its damage-tolerance inspection program.

SIE has expertise with the Twin Otter and it is qualified to evaluate what it would take to develop a damage-tolerance inspection program and attendant equations. SIE reports that we should expect to spend $500-600,000 on the analysis and another $250,000 in flight testing to validate flight loads, etc. SIB believes that some non-critical structure would require infrequent inspection, while it would be cost effective modify other areas of structure to reduce or eliminate repetitive inspections. TOIL cannot put a price tag on the costs of such modifications or lost revenue for aircraft down time to accomplish the work.

Because of liability concerns, TOIL would not sell its damage-tolerance inspection program to other DHC-6 operators as a means of defraying the up-front investment of at least $750,000.

In addition, since most of TOIL's customers could not afford to maintain personnel trained and certified in ultra-sound inspection techniques, TOIL would have to add additional personnel and keep them qualified so we could support our customers. To what degree we could be reimbursed for such services by our customers is questionable. There is a limit to how much one can charge before operating a DHC-6 is unprofitable. It is our sense that lease rents will decline in proportion to increased maintenance costs particularly by our customers in managing their individual damage-tolerance inspection and records programs. We cannot put a cost on a reduction in rents or in how that stream of income loss could reduce DHC-6 hull values. We estimate that it would be at least $100,000 annually in additional personnel costs for TOIL while potentially reducing the DHC-6 hull values by $400-500,000 ($15.6-19.5 million for TOIL's fleet of thirty-nine DHC-6s)

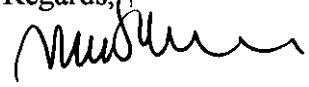
Summary:

While TOIL believes that this rulemaking has many flaws and is poorly justified, TOIL fully supports efforts to assure that aging commuter aircraft like the Twin Otter continue to have a valid means of assessing continuing airworthiness. DeHavilland and Transport Canada have adopted such a program. As we have described, TOIL believes firmly that the combination of service life-limits on fatigue

critical structure, an airframe safe-life, compliance deHavilland Inspection Requirements Manual through the EMMA program, and continuing evaluation of service information is adequate to assure continuing structural integrity of the DHC-6. Five years ago, TOGAA seemed to embrace this alternative concept. Now, for little justification or explanation, it has been discarded in favor of damage-tolerance. As we previously stated in this document, TOGAA and FM apparently believe they are more qualified to assess techniques for assuring airworthiness than the engineers at foreign commuter transport manufacturers and ultimately airworthiness authorities at agencies like Transport Canada that have taken time and effort to put in place structural integrity programs for aircraft like the Twin Otter. Please shed this "one sire fits all" method of regulation. Please drop proposed Section 121.368 and modify proposed Section 121.370 to provide for alternative structural integrity programs rather than damage-tolerance; particularly for non-pressurized and non-damaged-tolerance designed aircraft like the DHC-6 which have structure that can readily he inspected.

Thank you for your interest in the views of Twin Otter International, Ltd

Regards,



Alan R. Stephen
President

Standard DHC-6-300 Vistaliner

ATTACHMENT 1

TOIL AFFILIATED DHC-6 FLEET

SERIAL NUMBER	YEAR MFG'D	TOTAL TIME	TOTAL CYCLES	SERIAL NUMBER	YEAR MFG'D	TOTAL TIME	TOTAL CYCLES
59	1967	25439.8	49637	440	1974	28366.3	36674
241	1970	48203.4	68594	468	1975	32510.9	66574
247	1970	34213.2	40520	514	1976	40502.8	44285
253	1970	49848.7	89806	515	1976	21559.8	25073
263	1970	44672.7	97171	517	1976	41297.5	71079
264	1970	33697.0	51530	524	1977	16086.9	22690
267	1970	41788.2	58418	537	1977	35542.4	40257
295	1971	42757.6	78437	556	1977	38412.4	42432
297	1971	44785.6	72392	559	1977	28939.2	41108
337	1971	25848.7	41814	585	1978	2162.8	2151
350	1972	28879.3	56665	591	1978	29757.2	35995
359	1972	24397.2	29500	614	1979	30282.6	59353
365	1973	30633.9	43573	615	1979	16929.3	26124
388	1973	31786.8	44744	683	1980	21510.4	24709
389	1973	33855.5	51818	692	1980	21580.5	25406
406	1974	36689.1	75902	697	1980	10957.4	17170
409	1974	37977.9	57084	772	1981	24198.5	50803
421	1974	27479.4	36071	773	1981	25662.5	54868
433	1974	20760.8	28590			1,129,974	1,759,017

INDEX CARD (1) (Cont'd)

EMMA Check No.	Card No. (See note)
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35	1, 3, 5, 7, 12, 17, 19, 31, 36, 37, 38
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47	1, 3, 5, 7, 12, 36, 37, 38, 43
48	2, 4, 6, 8, 13, 14, 36, 37, 39

NOTE: Some cards have trailers; example of numbering: SP.0, SP.1, etc. Refer to List of Effective Cards for current status. Review SP, CT and Function cards at each check for applicableitems.

EMMA Check No.	Card No. (See note)
1	1, 3, 5, 7, 9, 10, 16, 21, 36, 37, 38, 40
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31	1, 3, 5, 7, 12, 36, 37, 38, 43, 45
32	2, 4, 6, 8, 13, 14, 36, 37, 39
33	1, 3, 5, 7, 9, 10, 16, 21, 36, 37, 38, 40, 46, 47

de Havilland
DHC-6 TWIN OTTER
EMMA Controlled Inspection Program

CARD No. 1

AREA:	TRADE:	MANHOURS:	
1 (EXTERNAL)	AIRFRAME		PREP: 0.3 HRS. TOTAL: 1.2 HRS.

PREPARATION

A Jack nose landing gear.

B Open and secure nose baggage compartment door F2 and nose cap F1 (Short nose).

C Remove nose baggage compartment radio equipment screens.

D Open panels F3 and F10.

E Special tools:

Aircraft Nose Jacking Adapter SD5506.
Nosewheel Retaining Nut Wrench SD12552.

GENERAL

1 All applicable engine and airframe manufacture's directives and local airworthiness authority regulations complied with.

INSPECTIONS

2 Hydraulic reservoir for fluid leakage: filler neck filter for damage and contamination; end of vent clear of power package tray.

*3 Hydraulic reservoir dipstick seal for deterioration.

4 Nosewheel steering actuator and valve for obvious damage and leaks; associated lines and connections for leaks and security. Pre Mod 6/1800, inspect steering cables for broken strands and corrosion and the pulleys for corrosion and security.

*5 Oxygen indicator and charging valve for cleanliness and damage.

6 Hydraulicand air conditioning pipe lines and connections for leaks, damage, chaffing, loose clamps and security of connections; flexible hoses for deterioration.

7 Nose gear shock strut for correction extension as given on data plate. Fork retaining nut properly secured.

8 Steering actuator linkage for corrosion, safety and security.

9 Remove and clean nosewheel assembly and inspect as follows:

(a) Wheel for abrasions, cracks, chipped rims.

(b) Bearings for signs of wear, corrosionfretting and blueing; lubricate in accordance with Maintenance Manual.

(c) Bushings for signs of wear and looseness.

(d) Seals for distortion, fit, deterioration and security.

Reinstall nosewheel assembly.

10 Static vents for damage and cleanliness.

11 VHF antennas for cleanliness, damage and security of antenna, mounting and adjacent structure.

12 HF antennas for cleanliness, damage and security.

13 Nose cap lightning rod for damage and security.

FINAL CLOSE UP

14 Close and secure panels.

15 Install radio equipment rack screens in nose baggage compartment.

16 Close and secure nose baggage compartment door or door nose cap.

17 Lower aircraft from jack.

de Havilland
DHC-6 TWIN OTTER
EMMA Controlled Inspection Program

INDEX CARD (1)

EMMA Check No.	Card No. (See note)
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de Havilland
DHC-6 TWIN OTTER
EMMA Controlled Inspection Program

INDEX CARD (1) (Cont'd)

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35	1, 3, 5, 7, 12, 17, 19, 31, 36, 37, 38
36	2, 4, 6, 8, 13, 14, 36, 37, 39
37	1, 3, 5, 7, 9, 10, 15, 36, 37, 38, 40
38	2, 4, 6, 11, 29, 33, 36, 37, 39, 41, 42
39	1, 3, 5, 7, 12, 23, 36, 37, 38, 43
40	2, 4, 6, 8, 13, 14, 24, 26, 36, 37, 39
41	1, 3, 5, 7, 9, 10, 16, 21, 22, 35, 36, 37, 38, 40
42	2, 4, 6, 11, 18, 20, 25, 36, 37, 39, 41, 44
43	1, 3, 5, 7, 12, 17, 19, 34, 36, 37, 38, 45
44	2, 4, 6, 8, 13, 14, 32, 36, 37, 39
45	1, 3, 5, 7, 9, 10, 15, 30, 36, 37, 38, 40
46	2, 4, 6, 11, 27, 28, 36, 37, 39, 41, 42
47	1, 3, 5, 7, 12, 36, 37, 38, 43
48	2, 4, 6, 8, 13, 14, 36, 37, 39

NOTE: Some cards have trailers: example of numbering: SP.0, SP.1, etc. Refer to List of Effective Cards for current status. Review SP, CT and Function cards at each check for applicableitems.

de Havilland
DHC-6 TWIN OTTER
EMMA Controlled Inspection Program

CARD No. FUNCTION1

AREA:	TRADE:	MANHOURS:	PREP:
			TOTAL:

OPERATIONAL TESTS

NOTE: Electrical power for the following tests is obtained by connecting a ground power source or by running the engines, whichever is more convenient.

EVERY 100 FLYING HOURS

1 Fuel shutoff valve – Return switches to NORMAL after test.
2 Fuel crossfeed valve and (if installed), position indicator.
*3 HP fuel filter for leaks after element installation.
4 Fuel pump for leaks after inlet filter screen and outlet filter installation.
5 Oil filter for leaks after installation.

EVERY 200 FLYING HOURS

6 Stall warning sensor heating elements in conjunction with pitot head heating elements.
7 All communications and navigation systems.
*8 Weather radar.
9 Interphone and audio integrating systems.
10 Wing flaps in normal and emergency.
• 11 Deleted.
12 Fuel booster pumps, Listen for evidence of rough running.
13 Fuel system strainers for leaks under system pressure after installation.
14 Deleted.
15 Run engine and check the following:
*(a) Autofeather system.
(b) Beta backup system.
(c) Propeller/power interlock.
*(d) Synchronization.
(e) Engine instruments.
(9 DC volt and loadmeters.
16 Flight controls, including trimtabsforfullandfree movement of all controls; evidence of binding or rough running of cables, pulleys, bearings and linkages.
17 Stall warning system by actuating detecting vane.

EVERY 400 FLYING HOURS

*18 Autopilot system.
• 19 Doors unlocked warning lights, including limit switch operation.
20 All flight compartment lights.
21 Panel, instrument and standby compass lights.
22 All cabin interior lights, including passenger warning.
*23 Emergency lights.
24 Front and rear baggage compartment lights, including limit switch operation.

• 25 Windshield wipers. Observe smooth operation.
*26 Heated windshield.
27 The following items, as applicable, for leaks after installation.
(a) Hydraulic filter unit.
(b) Instrument pneumatic system (bleed air) strainers.
• (c) Pneumatic package strainer.
• (d) Fuel pump outlet filter (UACL SB 206).
*(e) HP fuel filter (Mod SO0.6117).
(9 Steering actuator filter.
28 Fuel leak check after installation of motive line check valve strainers.

EVERY 800 FLYING HOURS

*29 The following items, as applicable, for leaks after installation.
(a) Instrument pneumatic system (bleed air) filters.
(b) Engine-driven air pumps system filters (nacelles and under floor).
(c) Autopilot pneumatic system filter.
30 Bleed air shutoff valves.
*31 Instrument pneumatic system for correct vacuum and/or pressure, as applicable.
*32 J.B. Air conditioner system.
33 Wing fuel system.

EVERY 1200 FLYING HOURS

'34 Flight compartment cooling/demisting fans.
35 Cabin temperature sensor blower.
36 Hot air valve.
'37 Wing and tail deicing.
• 3a Engine intake anti-icing.
• [illegible] Propeller deicing system.

EVERY 2400 FLYING HOURS

40 Static inverters.
41 Hydraulic pump pressure switch.

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CARD No. ROUTINE (A)

AREA:	TRADE:	MANHOURS:	PREP: 0.2 HRS.
	AIRFRAME		TOTAL: 1.3 HRS.

ROUTINE INSPECTIONS

EXTERNAL

1 Ventilating ram air inlet duct for obstructions and damage.

*2 Air conditioner inlet and exhaust outlet for cleanliness and freedom from obstruction.

3 Fire extinguisher indicator discs for evidence of extinguisher discharge.

4 Rudder, elevators, ailerons and flaps, with trim and geared tabs, for obvious damage and security; drain holes for obstructions.

5 Stall warning lift detector vanes for obvious damage.

6 External surfaces of fuselage, nacelles, wings and stabilizers for obvious damage; drains holes for obstruction; wing fences for damage and security; deicing boots for obvious damage.

7 Wing struts for damage and security.

*a Radome coating for peeling.

9 Fuel for water content at fuselage and fuel strainer drain points.

10 Evidence of fuel leaks on underside of fuselage; drain holes for leaks and security.

11 Fuel vent outlets for obstructions.

*12 Evidence of fuel leaks from wing tanks; fuel for water content and drain valve for leaks and security; vent outlet for obstruction.

13 Depressurize hydraulic system and check pressure in accumulators (750 +_ 50 psi).

14 Hydraulic reservoir for correct fluid level.

15 Pitot heads and static vents for obstructions.

16 Windshield for cleanliness and signs of leaks.

17 Cabin and door windows for cleanliness.

18 Nose and main wheel tires for cuts, wear, deterioration and correct inflation.

19 Nose gear for obvious damage and leaks: clean exposed surface of shock strut piston with clean cloth.

20 Main and nose wheelsforobvious damage; brake unit cylinders and associated lines for obvious damage and leaks.

NOTE: If indicator pins are flush with ends of adjustment nuts (brake pressure oft), check that brake lining wear is within limits. Refer to Maintenance Manual.

21 Tail bumper for damage and security.

INTERNAL

*22 Crew and passenger oxygen systems for correct pressure (1600 i-50 psi at 70 degrees F).

23 Escape doors for damage and security.

24 Heated windshields for discoloration, delamination and security.

25 Emergency hand pump handle for security in stowed position.

26 Cabin seats for damage and security; safety belts for cleanliness, cuts, fraying, security; buckles for proper operation.

27 Portable fire extinguisher(s) for evidence of leakage or discharge and security in stowed position.

OPERATIONAL CHECKS

28 Piton head heaters.

29 Position, anti-collision and landing lights.

30 Tad and wing inspection lights.

NOTE: Refer also to Special Inspection cards when operating under abnormal environmental conditions.

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CARD No. ROUTINE (E)]

AREA:	TRADE:	MANHOURS:
	ENGINE	PREP: 0.2 HRS. TOTAL: 0.5 HRS.

ROUTINE INSPECTIONS

1 Propellers for grease or oil leakage; shaft seals for oil leaks.

*2 Propeller deicing boots for obvious damage.

3 Engine intake deflector and screen for cleanliness.

4 Compressor inlet screen for cleanliness.

NOTE: If dirty screen warrants removal, check compressor inlet area and first stage compressor blades and vanes for dirt deposits, corrosion and erosion.

5 Check for correct oil level. Oil filler cap for condition and proper locking.

NOTE: After oil change, or if engine has been stationary for more than 12 hours, run engine at idle for two minutes; after shutdown check and replenish as required with same brand of oil.

6 Fuel, oil and bleed air pipelines and connections for security and leaks.

*7 Remove, clean and reinstall engine-drive air pump intake filter (Mod 6/1166).

8 Oil coolers and pressure transmitters for leaks and security.

*9 Drainwastefuelfromwastefuel collector tank after 20 stops and starts (Mod SOO.6153 only).

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CARD No. 2

AREA:	TRADE:	MANHOURS:
1 (INTERNAL)	AIRFRAME	PREP: 0.5 HRS. TOTAL: 1.1 HRS.

PREPARATION

A Remove overhead console face plate and disengage stop plate. See Service Bulletin No. I 6/519 (Pre Mod 6/1895 aircraft only).

GENERAL

1 All applicable engine and airframe manufacture's directives and local airworthinessauthority regulations complied with.

INSPECTIONS

2 Inspect overhead console control quadrants in accordance with Service Bulletin No.6/519 I (Pre Mod 6/1895 aircraft only).

3 Communications headsets for damage: stowage for damage and security.

*4 Crew and passenger oxygen systems for proper operation (normal and emergency) and contamination (by smell).

FINAL CLOSE UP

5 Secure overhead console stop plate and face plate (Pre Mod 6/1895 aircraft only).

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CARD No. 3

AREA:	TRADE:	MANHOURS:	
2 (EXTERNAL)	AIRFRAME	PREP: 0.3 HRS.	TOTAL: 1.3 HRS.

PREPARATION

A Jack main landing gear.

B Special tools:

Main Wheel Retaining Nut Wrench SD5523

INSPECTIONS

1 Remove and clean main wheels and inspect as follows:

(a) Wheels for abrasions, cracks, chipped rims, damaged or worn brake drive rings.

(b) Wheel bearings for signs of wear, corrosion, fretting and blueing; lubricate in accordance with Maintenance Manual.

(c) Seals for distortion, fit, deterioration and security.

(d) Brake units for evidence of overheating.

(e) Brake discs for scoring, distortion, evidence of overheating. Brake guides (when installed) for damage and security.

(9 Brake linings for wear within limits.

2 Install wheels.

FINAL CLOSE UP

3 Lower aircraft from jacks.

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CARD No. 4

AREA:	TRADE:	MANHOURS: PREP: 0.2 HRS.
2 (INTERNAL)	AIRFRAME	TOTAL: 0.8 HRS.

PREPARATION

A Remove center roof upholstery panel.

B Remove main battery compartment cover.

INSPECTIONS

1 Flap actuator for visible signs of leakage, damage and security of attachment; selector valve for visible signs of leaks and security and selector pulleys properly secured to spindle. Drip trays for fluid content; remove, dry out and reinstall pads as necessary.

*2 Air conditioner return grille in floor for cleanliness and freedom from obstruction. Filter for cleanliness; replace as necessary.

‘3 Escape doors release mechanisms for proper operation; seals for deterioration and security.

*4 Passenger oxygen outlets for cleanliness.

‘5 Passenger oxygen system indicator and charging valve for damage and cleanliness.

6 Main battery for general condition and security; insulation for deterioration and terminal for cleanlinessand security; battery compartmentfor spillage and corrosion: vent jar pad properlysaturated; jarforsecurityof mounting; hosesforcracksand looseconnections. Temperature sensor, if installed, for security.

7 Auxiliary battery for condition and security; cables for security; insulation for deterioration and connectors for cleanliness; support structure for cracks and security.

8 Floor panels for damage, cleanliness, corrosion and security. Cargo tie–down rings for damage and security.

NOTE: Ifcabinfloorpanelsareseverelydamaged, removepanelsand inspectsupporting structure for damage, buckling and cracks.

FINAL CLOSE UP

9 Install and secure roof upholstery panel and battery compartment cover.

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CARD No. 5			
AREA:	TRADE:	MANHOURS:	PREP: 0.0 HRS.
3 (EXTERNAL)	AIRFRAME		TOTAL: 0.2 HRS.

INSPECTIONS

1 Elevator and rudder hinge arms for damage and security; hinge attachment bolts for safety and security.

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CARD No. 6

AREA:	TRADE:	MANHOURS:	PREP: 0.1 HRS.
4	AIRFRAME		TOTAL 0.6 HRS.

PREPARATION

A Lower engine cowling W7.

B Remove wing tip W14 (when wing fuel tank is installed).

C Consumable items. Refer to C1 card.

INSPECTIONS

1 Engine fire extinguisher bottle for correct pressure (450 psi at 70 degrees F).

2 Lift detector vanes for free movement, corrosion, damage and security.

3 Remove fuel strainer element and check for damage, corrosion and contamination.

NOTE: If excessive foreign matter is found in fuel strainer, drain and flush system and inspect motive line checkvalve strainers for contamination.

4 Clean and install element (Pre Mod 6/1229). Replace 10-micron filter element (Mod 6/1229), as required. Inspect strainer body for safety and security of attachment bolts; drain valve and hose for security.

*5 Drainfuelfrom wing tankdrain andcheckforcontamination. Removefuelfilter (Mod 6/1398), if fitted, clean and reinstall.

NOTE: If solid contaminated is evident, remove panel at top of tank and inspect interior of tank. Drain and flush as necessary, and clean strainer at end of fuel outlet pipe. When installing panel, reseal in accordance with maintenance manual.

6 Wing flap and aileron hinge arms for damage and security: hinge attachment bolts for safety and security.

6A Inspect DeVore bleed air duct (Pre Mod 6/1614) for cracks and security. Refer to Boeing Canada De Havilland Division Service Bulletin 6/355 and DeVore Service Bulletin No DAS 1 OOOSB.

7 Perform function card requirements before final close up.

FINAL CLOSE UP

8 Secure engine cowling.

9 Install and secure wing tip (when wing fuel tank is installed).

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CARD No. 7

AREA:	TRADE:	MANHOURS:
5	AIRFRAME	PREP: 0.1 HRS. TOTAL: 0.5 HRS.

PREPARATION

A Lower engine cowling W21.

B Remove wing tip W28 (when wing fuel tank is installed).

C Consumable items. Refer to Cl card.

INSPECTIONS

1 Engine fire extinguisher bottle for correct pressure (450 psi at 70 degrees F).

2 Remove fuel strainer element and check for damage, corrosion and contamination.

NOTE: If excessive foreign matter is found in fuel stainer, drain and flush system an inspect motive line check valve strainers for contamination.

3 Clean and install element (Pre Mod 6/1229). Replace 10-micron filter element (Mod 6/1229), as required. Inspect strainer bodyforsafetyandsecurityofattachment bolts; drainvalveand hose for securii.

*4 Drainfuelfromwing tankdrainandcheckforcontamination. Remove fuel filter (Mod 6/1398), if fitted, clean and reinstall.

NOTE: If solid contaminant is evident, remove panel at top of tank and inspect interior of tank. Drain and flush as necessary, and clean strainer at end of fuel outlet pipe. When installing panel, reseal in accordance with Maintenance Manual.

5 Wingflapsandaileron hingearmsfordamageandsecurity; hingeattachmentboltsforsafety and security.

5A Inspect DeVore bleed air duct(Pre Mod 6/1 614) for cracks and security. Refer to Boeing Canada De Havilland Division Service Bulletin No. 6/355 and De Vore Service Bulletin No. DAS 100058.

6 Perform function card requirements before final close up.

FINAL CLOSE UP

7 Secure engine cowling. Install and secure wing tip (when wing fuel tank is installed).

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CARD No. 8

AREA:	TRADE:	MANHOURS:	PREP: 0.3 HRS.
1 (EXTERNAL)	AIRFRAME		TOTAL: 1 .O HRS.

PREPARATION

A Open and secure nose baggage compartment door F2 or nose cap F1 (Short Nose).

B Remove radio equipment screens in nose baggage compartment.

C Open panels F10 and Fll .

D Remove radome.

E Consumable items. Refer to Cl card.

F Remove control column covers (Pre Mod 6/1800).

INSPECTIONS

1 Thoroughly clean nose gear shock strut and inspect for leaks, damage and security; service as necessary. Remove steering actuator external filter; clean and reinstall. Lubricate nose gear torque arms (Mod 6/1377) in accordance with Maintenance Manual.

2 Hydraulic filter unit for leaks and security; remove filter element and replace with new element.

3 Accumulator air charging valves for cleanliness, damage and security.

4 Emergency hydraulic handpump for leaks and security.

5 Hydraulic pump (electric motor driven) for leaks and security.

6 Drain holes in hydraulic power package tray for freedom of obstruction.

7 Steering cables, where visible, for fraying, kinks, brokenstrands, wear, cleanliness, corrosion and security: pulleys, where visible, for wear, chipping and security. For Pre Mod 6/1800 steering cables, pay particular attention for possible cable fraying especially in the vicinity of the small diameter pulleys.

*8 Windshield washer system vent for obstructions.

*9 Taxi light for cleanliness, loose, cracked or broken lens and security.

•10 Windshield wiper blades for tears, brittleness and security of attachment; drive arms and tie rods for distortion and security. Drive arms for proper tension.

*11 VOR dual selector relay for cleanliness, damage and security.

•12 Autopilot components for cleanliness, damage and security.

13 Pitot heads for security and corrosion.

14 The following communications and navigation antennas, as applicable.

(a) VHF for loose connections; fibreglass covers for cracks and deterioration; wire whip(s) for bending and misalignment.

(b) Glide slope for antenna condition, obvious damage, loose connections and security of mounting.

(c) NAV/COMM for evidence of leakage at structure, loose connections, cracks and deformity

(d) Weather radar for damage and security, cables and connectors for cleanliness and security.

15 Flight compartment door hinges and locks for cleanliness, damage and safety; freedom of operation and proper locking; lubricate in accordance with Maintenance Manual.

16 Nose baggage compartment door hinge, stay and latch assembly for cleanliness, safety and freedom of operation; stay for condition of fastener and security in stowed position; lubricate in accordance with Maintenance Manual.

17 Instrument pneumaticsystem (bleedair) – Remove, clean and reinstallstrainers. Check for security.

18 Perform function card requirements before final close-up.

FINAL CLOSE UP

19 Close and secure panels.

20 Install and secure radio equipment screens.

21 Install and secure radome.

22 Close and secure nose baggage compartment door or nose cap (short nose).

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CARD No. 9

AREA:	TRADE:	MANHOURS: PREP: 0.2 HRS.
1 (INTERNAL)	AIRFRAME	TOTAL: 1 .O HRS.

PREPARATION

A Release upholstery as necessary and remove right hand fairing to gain access to aileron servo actuator.

B Remove cover from overhead console.

C Remove right and left upholstery panels to gain access to pitot static moisture traps.

D Remove floor panels at entrance door to gain access to air conditioner components.

INSPECTIONS

1 Pilot's and copilot's seats as follows:

(a) Seat structure and seat pan for cracks, corrosion, security and ease of adjustment,

(b) Seat rails for damage, distortion, security of stops.

(c) Shock cords for fraying, deterioration and security.

(d) Safety harness for cleanliness, broken stitching, fraying, deterioration, security; quick release for proper operation.

*(e) Inertia reel for security, proper operation.

2 Windshield washer system reservoir for leaks, cracks and security; vent and mounting tray for security.

3 Control column boot for tears and security.

4 Wheel break pedal linkage, springs and levers for damage, safety and security.

*5 Autopilot flight controller or computer/control and heading selector (if installed) for cleanliness, damage and security.

*6 Autopilotaileronservocableforfraying, kinks, flattening, properlockingandsecurity; pulleys and cable drum or capstan for damage, freedom of operation and security; turnbarrel for security; clamp for security and evidence of movement on main flight control cable; actuator or servo for damage and security of mounting.

*6A Collins AP106 Autopilot System. Comply as follows:

(a) Every 1000 flight hours remove and send the servo unit to a Collins authorized service center for inspection and test as per Collins SIL 2-81.

(b) Every 1000 flight hours perform on-aircraft slip clutch inspection and test of servo capstan assembly as per Collins SIL l-94.

7 Engine control leversforfreedom of movement and damage; stops for security; engine power and propeller levers for smooth operation, propeller/power interlock mechanism for chafing, fouling, damage, safety and security; fuel shutoff control or proper detente action.

CAUTION: With engine stopped:

1. Do not move power lever in either direction if blades are engaged.
2. Do not select reverse power if propeller is at feather.

*8 Audio system control units and power panels for damage and security of mounting: flight compartment speakers and speaker panel assembly for damage and security.

9 Stall warning light for damage and security.

*10 Stall warning horn for damage and security.

11 Beta range backup system limit switch and mechanism for cleanliness and security; wiring for cleanliness, chafing and security of connections.

12 Accessible wiring and connectors for damage and security.

13 Drain pitot static moisture traps at following locations:

(a) Adjacent to pitot masts.

(b) Below static valve on center pylon,

(c) Autopilot computer static line.

• 14 Air conditioner components for damage, security of components and pallets, and leaks; hoses for chafing and indication of leaks; condenser and evaporator for cleanliness; relay panel for security: wiring for deterioration, chafing and security of connections. Belt for tension and wear.

FINAL CLOSE UP

15 Install fairing over aileron servo actuator and install upholstery,

16 Install cover on overhead console.

17 Install floor panels.

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CARD No. 10

AREA:	TRADE:	MANHOURS:	
2 (EXTERNAL)	AIRFRAME		PREP: 0.7 HRS. TOTAL: 1.4 HRS.

PREPARATION

A Remove panels F13 and F17.

B Drain fuel tanks.

C Consumable items. Refer to Cl card.

INSPECTIONS

1 Remove, clean and reinstall fuel motive line check valve strainers.

2 HF masts for cracks and security; wire for proper tension and loose connections; covering for cracks and deterioration. Lead-in sleeves for cracks and security. Insulators for condition; connections for cleanliness and security. Evidence of water leakage into fuselage,

3 HF antenna tension unit at vertical stabilizer tip for cracks, corrosion and security.

4 VHF standby for loose connections: fibreglass cover for cracks and deterioration; wire whip for bending or misalignment.

5 ADF sense masts for cracks and security; connectors and insulators for cleanliness and security; wiresforcorrecttensionand looseconnections; coveringforcracksanddeterioration.

*6 Airstair door hinge and lock for cleanliness, damage and safety; freedom of operation and proper locking; latch pin witness marks for correct alignment; lubricate in accordance with Maintenance Manual. Inward opening cargo door hinges, stays and latches for cleanliness, safetyandfreedomofoperation; lubricate inaccordancewith Maintenance Manual; retaining straps for security and fraying.

7 Cabin door hinges and locks for cleanliness, damage,safety; freedom of operation and proper locking; lubricate in accordance with Maintenance Manual. Witness marks for correct alignment. Close cabin LH rear cargo door and position both lower and upper latches in the locked condition. Check each latch pin makes positive positive engagement with doorframe holes. Inaddition check the lowerlatchpin remains positivelyengagedwhenthelocked latch is lifted to the top of its vertical play.

8 Rear baggage compartment door hinge, stay and latch assembly for cleanliness, safety and freedom of operation; stay for condition offastenerand security in stowed position; lubricate in accordance with maintenance manual.

9 Perform function card requirements before final close up.

FINAL CLOSE UP

10 Install and secure panels.

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CARD No. 11

AREA:	TRADE:	MANHOURS:	PREP: 0.3 HRS.
2 (EXTERNAL)	AIRFRAME		TOTAL: 1.4 HRS.

PREPARATION

A Remove upholstery panel at cabin center roof to gain access to flap selector.

B Remove upholstery panels at forward cabin roof to gain access to pneumatic package and propeller limit switches.

C Remove rear baggage compartment/rear fuselage access panel.

D Consumable items. Refer to Cl card.

INSPECTIONS

*1 Autopilot rudder servo cableforfraying, kinks, flattening, proper locking and security; pulleys and cable drum or capstan for damage, freedom of operation and security; turnbuckle for security; clamp for security and evidence of movement on main flight control system cable: actuator or servo for damage and security of mounting.

*2 Autopilot elevator servo cable for fraying, kinks, flattening, proper locking and security: pulleysand cabledrum or capstan assembly for damage, freedom of operation and security; turnbuckle for security; clamp for security and evidence of movement on main flight control cable; actuator or servo for damage and security of mounting.

*3 Pitch trim servo differential pressure switch for cleanliness and security (H-14 only).

*4 Autopilot water trap assembly for cleanliness and security; drain tube for cracks or deterioration and drain hole for obstruction (H-14 only).

• 5 Automatic pitch trim servo cables and pulleys for safety, proper locking and security; turnbuckles for safety and security.

6 Automatic pitch trim cable drum for freedom of operation and security; grooves in drum for evidence of wear; turnbuckles or safety and security; clamps for security and evidence of movement on main trim cable; actuator for damage; and security of mounting, hood for damage and security (H-14 only).

*6A Every 1000 flight hours remove and send servo units to a Collins authorized service center for inspection and test as per Collins SIL 2-81.

*6B Every 100 flight hours perform on-aircraft slip clutch inspection and test of servo capstan assembly as per Collins SIL l-94.

• 7 Automatic pitch trim servo for damage and security. Cable retaining clip for damage and security (M-4C only).

8 Static inverters for damage, cleanliness and security; ‘mounting for cracks.

9 Flap selector valve follow up cables for corrosion, fraying, flattening and security.

10 Flap/elevator interconnect ball screw jack for damage, smooth operation and security; lubricate in accordance with Maintenance Manual.

11 Visible air conditioning duct assemblies for damage and obstruction.

*12 Passenger address system speakers for damage and security.

• 13 Pneumatic system strainer for security; remove element, clean and reinstall.

14 Cabin seat rail for damage, distortion and security; side rails for wear, damage and security of attachment.

*15 Baggage restraints (if installed) for damage and security. Slimline commissary (if installed) for damage and security.

16 Cabin exhaust outlet or, if pneumatic package is installed, heat exchanger, for obstructions, damage and security.

*17 Cabin roof hatch for damage and security.

18 Propeller reset limit switches and slide mechanisms for cleanliness and security; wiring for cleanliness, chafing and security of connections.

'19 Autofeather limit switches and slide mechanisms for cleanliness and security; wiring for cleanliness: chafing and security of connections.

• 20 Airframe deicing system water separator drain hole for obstruction. Inspect airframe deicing water separator filter for condition and replace as necessary.

NOTE: Replace more frequently in areas of high industrial air pollution and high humidity.

21 Perform function card requirements before final close up.

FINAL CLOSE UP

22 Install and secure roof panels.

23 Install rear baggage compartment/rear fuselage access panel.

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CARD No. 12

AREA:	TRADE:	MANHOURS:	
3	AIRFRAME		PREP: 0.2 HRS. TOTAL: 0.5 HRS.

PREPARATION

A Remove panels T2, T9, T11, T16 and T19.

INSPECTIONS

1 Rudder and elevator trim screwjacksfor wear in cable drum grooves, smooth operation and security; lubricate in accordance with maintenance manual.

2 Lubricate bushings of both elevator trim pulley brackets on elevator torque tube, in accordance with Maintenance Manual.

3 Static discharge wicks for general condition and security; minimum length of one inch wick extension from sheath.

3A Elevator quadrantfor distortion, refer to Boeing de Havilland Division Service Bulletin 6/511.

4 Deicing boots for cuts, tears, deterioration and proper adhesion.

FINAL CLOSE UP

5 Install and secure all panels.

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CARD No. 13

AREA:	TRADE:	MANHOURS:	PREP: 0.4 HRS.
4	AIRFRAME		TOTAL: 0.8 HRS.

PREPARATION

A Remove panel W12.

B Lower engine cowling W7.

C Consumable items. Refer to Cl card.

D Remove top center wing roof fairing.

INSPECTIONS

1 Static discharge wicks for general condition and security; minimum length one inch wick extension from sheath.

*2 Airframe deicing water separator drain line for security and obstruction. Inspect airframe deicing water separator filter for condition and replace as necessary.

NOTE: Replace more frequently in areas of high industrial air pollution and high humidity.

3 Flap control rod support rollers for adequate clearance and freedom of operation.

4 Exterior surfaces of wings for dents, scores, abrasions and corrosions. inboard trailing flap for cracks and loose rivets.

5 Deicing boots for cuts, tears, deterioration and proper adhesion.

6 Fuel emergency shutoff valve for leaks and security.

7 Electrical leads, wiring and connections, where visible, for obvious damage and security,

8 Lower and upper wing skins between stations 85.00 and 135.00 for corrosion, deterioration of fastener heads including paint and primer loss affected by engine exhaust.

9 Leading edge/trailing skins; dents, scores. loose rivets and fastener security.

10 Wing main hinge arms, Pre Mod 6/1334, inspect for cracks, wear and corrosion.

11 Wing hinge arm adapters, Pre Mod 6/1335, inspect for corrosion and Jo-bolt security.

12 Inb'd/Outb'd foreflaps hinge arms; Pre Mod 6/1336 and 6/1349, inspect for damage, wear, corrosion, security and bearing condition.

13 Inb'dtrailingflaps, Post Mod 6/1556, obviousdamage, drain holesforobstruction, skin dents, scores and abrasions.

14 Inb'dtrailingflap hinge arms, Pre Mod 6/1337, inspectfordamage, wear, security and bearing condition.

15 Nose/tail skins, dents, scores, abrasions, cracks and loose rivets.

16 Hinge arms, Pre Mod 6/1348, inspect for damage, wear, security and bearing condition.

FINAL CLOSE UP

17 Raise and secure engine cowling: install and secure access panel. Install fairing.

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DHC-6 TWIN OTTER
EMMA Controlled Inspection Program

CARD No. 14

AREA:	TRADE:	MANHOURS:	
5	AIRFRAME	PREP: 0.5 HRS.	TOTAL: 0.9 HRS.

PREPARATION

A Remove panel W26.

B Lower engine cowling W21.

C Consumable items. Refer to CI card.

D Remove top center wing roof fairing.

INSPECTIONS

1 Static discharge wicks for general condition and security; minimum length one inch wick extension from sheath.

*2 Airframe deicing water separator drain line for security and obstruction. Inspect airframe deicing water separator filter for condition and replace as necessary.

NOTE: Replace more frequently in areas of high industrial air pollution and high humidity.

3 Flap control rod support rollers for adequate clearance and freedom of operation.

4 Exterior surfaces of wings for dents, scores, abrasions and corrosions. Inboard trailing flap for cracks and loose rivets.

*5 Deicing boots for cuts, tears, deterioration and proper adhesion.

6 Fuel emergency shutoff valve for leaks and security.

7 Electrical leads, wiring and connections, where visible, for obvious damage and security.

8 Lower and upper wing skins between stations 85.00 and 135.00 for corrosion, deterioration of fastener heads including paint and primer loss affected by engine exhaust.

9 Leading edge/trailing skins; dents, scores. loose rivets and fastener security.

10 Wing main hinge arms, Pre Mod 6/1334, inspect for cracks, wear and corrosion.

11 Wing hinge arm adapters, Pre Mod 6/1335, inspect for corrosion and Jo-bolt security.

12 Inb'd/Outb'd foreflaps hinge arms; Pre Mod 6/1336 and 6/1349, inspect for damage, wear, corrosion, security and bearing condition.

13 Inb'd trailing flaps, Post Mod 6/1556, obvious damage, drain holes for obstruction, skin dents, scores and abrasions.

14 Inb'd trailing flap hinge arms, Pre Mod 6/1337, inspect for damage, wear, security and bearing condition.

15 Nose/tail skins, dents, scores, abrasions, cracks and loose rivets.

16 Hinge arms, Pre Mod 6/1348, inspect for damage, wear, security and bearing condition.

FINAL CLOSE UP

17 Raise and secure engine cowling; install and secure access panel. Install fairing.

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CARD No. 15

AREA:	TRADE:	MANHOURS:	
1 (EXTERNAL)	AIRFRAME		PREP: 0.3 HRS. TOTAL: 1.9 HRS.

PREPARATION

A Open and secure nose baggage compartment door F2 or nose cap F1 (Short nose).

B Remove nose baggage compartment radio equipment screens.

c Open panels F3 and F10.

*D Remove radome.

E Consumable items. Refer to Cl card.

INSPECTIONS

1 Nose baggage compartment for dents and abrasions; door for damage, dents, abrasions and security; seal for deterioration and security; fasteners for cleanliness, safety and proper operation. Equipment shelves and racks for cracks, buckling, cleanliness and corrosion.

2 Grounding and bonding leadsforfraying, broken wires, loose connections and cleanliness.

3 Windshield and flight compartment windows for scratches, cracks, crazing and discoloration; retaining strips for damage and security of attachment.

4 Remove nosewheel tire from wheel and inspect for visible cracks or chipping on rims.

NOTE: Refer also to Special Inspection card.

*5 Radome for damage, cracks and delamination.

6 Hydraulic brake system pressure relief valve, system pressure relief valve and pressure switch for leaks and security.

7 Hydraulic accumulators for leaks and security.

*8 Windshield washer pump for leaks, damage and security; piping for leaks, kinks and loose clips; connections for security.

9 Rudder control and control column quadrants for cleanliness, damage, corrosion and security; bearings for corrosion, cleanliness and security; stops for damage.

10 Rudder torque tube for damage and security.

11 Rudder gust lock control for damage and proper operation; brackets and connecting rods for cracks, buckling and security.

12 Flight control rods for damage, safety, corrosion and security, bearings for condition, cleanlinessand security. On rods with magnaformed (swaged) ends, payparticularattention toinspectionoftheswagedareaforcracksandthesleeve (if installed) for security. Onaircraft with Mods 6/1781, 6/1785, 6/1791, 6/1792 and 6/1802 refer to service Bulletin 6/502 (6-27-17).

I 13 Control cables for fraying, broken stands, flattening, corrosion and security of turnbuckles and cable ends plastic sheathing (where applicable) for cracking and deterioration; chains for twisting, corrosion and security. Replace cable where evidence of damage is found.

NOTE: It is important to operate controls through full range during inspection so that cables move away from pulleys and all portions of the cables are exposed for inspection.

13A Replace Aileron control cables every 60 months.

14 Elevator control lever and connecting rodforfull and free movement; bracket for cracks and distortion.

15 Replace instrument pneumatic system filters (Extended nose bleed air or engine-driven pump).

16 Perform function card requirements before final close up.

FINAL CLOSE UP

17 Close and secure panels.

18 install radio equipment rack screen in nose baggage compartment.

19 Close and secure nose baggage compartment door or nose cap (Short nose).

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CARD No. 16

AREA:	TRADE:	MANHOURS:	
1 (INTERNAL)	AIRFRAME		PREP: 0.5 HRS. TOTAL: 1.5 HRS.

PREPARATION

A Remove inspection covers and boot from control column.

B Remove side covers from center pylon.

C Remove covers over parking brake linkage.

D Remove cover from elevator and trim control console.

E Remove upholsteryfairing over rudder and elevatortrim cables on flight compartment/cabin bulkhead.

F Remove cover over flap position indicator at windshield center post.

G Remove overhead console face plate and disengage stop plate.

H Consumable items. Refer to Cl card.

INSPECTIONS

1 Panel and instrument lights for cleanliness and security.

2 Heated windshield elements and wiring for loose or dirty connections.

3 Navigation instruments asfollowsfor damage, legibility of dial markings and security; cables and connectors for cleanliness and security; electrical wiring and hoses, as applicable, for cleanliness, chafing or deterioration.

(a) Turn and Slip indicator.

(b) Directional Gyro; check caging mechanism for proper operation.

(c) Airspeed Indicator.

(d) Attitude Indicator; check caging mechanism for proper operation.

(e) Vertical Speed Indicator.

(f) Altimeter.

(g) Radio Magnetic Indicator and Annunciator (if fitted).

4 Standby compass for damage, discoloration of fluid, air bubbles and security.

5 Aileron trim tab position indicator for damage and security.

6 Deicing pressure and suction indicator for damage and security.

7 Replace instrument pneumatic system filters, (short nose bleed air only).

8 Control column for damage, full and free movement and security; surface around torque tube to column welds for corrosion and cracks, for Pre Mod 6/1433 control columns, refer to de Havilland Service Bulletin No 6/180 Rev F (Part A and B), centering strut for proper operation and security; chains and sprockets for evidence of binding; chainstocontrolwheelsprockets for security of attachment; turnbuckles for safety; sprockets for worn or damaged teeth. Lubricate in accordance with Maintenance Manual.

9 Nosewheel steering lever for binding and security; steering cables (Post Mod 6/1800) for cleanliness, fraying, kinks, broken strands, wear and security; pulleys for evidence of wear, chipping and security.

10 Rudder pedal support assembly, push rods, levers and linkage for damage, safety and security; pedals for cracks, full and free movement and security.

11 Parking brake rods and linkage for signs of wear, safety and security. Lubricate in accordance with Maintenance Manual. Wheel brake valve for cleanliness, leaks and security.

12 Rudder and elevator trim controls for full and free movement; pulleys for chipping and smooth running; pullet brackets for cracks; cables for fraying, corrosion, flattening and security.

13 Windshield washer piping for leaks and security.

14 Flap position cable for fraying, flattening, corrosion and security; springforadequatetension, cracks and security; indicator for legibility and smooth operation.

15 Caution lights panel for cleanliness, cracked covers, legibility and security.

Overhead console engine controls as follows:

(a) Cables for fraying, corrosion, flattening: connectors for security.

(b) Pulleys and control quadrants for chipping, damage, roughness and security.

(c) Pulley brackets for condition, damage and security.

I 16 17 Perform function card requirements before final close up.

FINAL CLOSE UP

I 18 Reinstall covers, fairings and control column boot; secure overhead console stop plate and face plate.

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CARD No. 17

AREA:	TRADE:	MANHOURS:	PREP: 0.7 HRS.
2 (EXTERNAL)	AIRFRAME		TOTAL: 1.4 HRS.

PREPARATION

A Remove panels F4, F5, F7, F8, F9, F12, F13, F14, F17, F18 and F20.

INSPECTIONS

1 Fuel ejectors for leaks and security. Crossfeed valve for evidence of leaks, security and corrosion.

2 Fuel booster pumps for leaks and security of attachment bolts. Radio suppressors for security and corrosion.

3 Fuel system pipe lines and connections for leaks, chafing, corrosion and security; flexible hosesfordeterioration; sump platesforevidence leakage and corrosion; bolts for safety and security.

4 Fuel system electrical wiring and connections for cleanliness, deterioration, chafing, loose clamps and security; connectors for damage, cleanliness and security.

5 Fuel gallery structure for corrosion.

6 Capacitance tank units for security and evidence of leakage.

7 External structure for dents, scores, abrasions and cracks.

8 Fuel tank filler caps for cleanliness, security and proper fit; seals for deterioration and leaks; filler necks for cleanliness, scoring and chipping.

9 Main gear fairings for cracks, delamination and security; seals for tears, deterioration and security; fairings supporting structure for cracks, corrosion, buckling and loose anchor nuts.

10 Inspect shock absorber blocks for cleanliness, free from oil and grease, deterioration, splitting on surface adjacent to bolt holes and displacement of blocks. Discard blocks that have sustained permanent set due to displacement beyond edge of scuff plate.

NOTE: Displacement within boundaries of scuff plate edge is allowed and not detrimental to aircraft safety.

Inspect for bubbles close to vertical face of block by smearing surface with water and using strong light viewed from opposite side of block. For bubble criteria refer to Maintenance Manual

11 Remove tires from main wheels and inspect for visible cracks or chipping on rims.

NOTE: Refer also to Special Inspection card.

12 Grounding and bonding leads for fraying, broken wires, loose connections, cleanliness and corrosion.

*13 The following antennas, as applicable:

(a) Glide slope for loose connections and security of mounting.

(b) Loop for cracked covers, surface deterioration, entry of moisture and security; connectors and insulators for cleanliness and security.

(c) Marker beacon for loose connections, entry of moisture and security.

(d) VOR No 1 and No 2 antenna for evidence of leakage at structure and loose connections.

14 External power receptacle for broken or burnt pins, cleanliness and security.

Control cables for fraying, broken strands, flattening, corrosion and security of turnbuckles and cable ends. Deterioration of protective coating. Special attention on either side of pulley clusters at stations 267.00, 332.00 and 376.00 for corrosion. Apply corrosion preventive compound in accordance with Maintenance Manual.

NOTE 1: It is important to operate controls through full range during inspection so that cables move away from pulleys and all portions of cables are exposed for inspection.

NOTE 2: Remove all access panels that are required to get free and clearview of area being inspected.

NOTE 3: Replace control cables every 60 months (Landplanes only).

NOTE 4: Stainless Steel control cables are available in lieu of Carbon Steel cables when operating on floats or in a marine or saline environment.

FINAL CLOSE UP

16 Install and secure all panels.

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CARD No. 18

AREA:	TRADE:	MANHOURS:	
2 (INTERNAL)	AIRFRAME		PREP: 0.5 HRS. TOTAL: 1.6 HRS.

PREPARATION

A Remove battery access panel in rear compartment floor.

B Remove forward left floor panel in rear baggage compartment.

C Remove rear baggage compartment/rear fuselage access panel.

D Remove either front or rear aft baggage compartment extension floor panel.

E Remove all cabin roof center and side panels.

F Consumable items. Refer to Cl card.

INSPECTIONS

*1 Autopilot pneumatic filter, install new element. Check for security.

*2 Airframe deicing timer and connectors for damage and security.

3 Flap/elevator interconnect system and flap indicator cables for corrosion, fraying. flattening and security; pulleys for chipping and smooth running.

4 Stall warning and propeller reset (Pre Mod 6/1 223) microswitches for damage and security.

*5 Flap system thermal relief valves for leaks and security.

6 Control cables for fraying, broken strands, flattening, corrosion and security of turnbuckles and cable ends. Deterioration of protective coatings. Special attention on either side of pulley clusters at stations 267.00, 332.00 and 376.00 for corrosion. Apply corrosion preventive compound in accordance with Maintenance Manual.

NOTE 1: It is important to operate controls through full range during inspection so that cables move away from pulleys and all portions of cables are exposed for inspection.

NOTE 2: Removeall accesspanelsthatarerequiredtogetfree and clearview of area being inspected.

NOTE 3: Replace control cables every 60 months (landplanes only).

NOTE 4: Stainless Steel control cables are available in lieu of Carbon Steel cables when operating on floats or in a marine or saline environment.

7 Aileron control quadrants for cleanliness, damage, corrosion and security; bearings for corrosion, cleanliness and security.

8 Flap push-pull rods for damage, safety, corrosion and security; bearings for corrosion, cleanliness and security; draught excluder boots for splitting, deterioration and security. On rods with magnaformed (swaged) ends, pay particular attention to inspection of the swaged area for cracks and the sleeve (if installed) for security. On aircraft with Mods 6/1781, 6/1785, 6/1791, 6/1792 and 6/1802 refer to Service Bulletin 6/502 (6-27-17).

NOTE: Inboard Foreflap Control rod end can be checked by untying draught excluder boots at the large end, inspecting rods, and retying.

9 Cabin interior lights for cracked or broken lens and securii.

10 Rear baggage compartment for dents and abrasions: equipment shelves for cracks, buckling, cleanliness and corrosion.

11 Radio equipment racks for cracks, buckling, cleanliness and corrosion. Vibration isolators for deterioration.

12 Navigation equipment for damage and security of mounting; cables, connectors and terminal blocks for cleanliness and security.

'13 Airframe deicing system as follows:

(a) Ejector for obstruction, cleanliness and security.

(b) Distributor valve for leaks and security.

(c) Distributor valve heating jacket for securii. Electrical connections for corrosion and security.

(d) Horizontal stabilizer deicing failure warning system pressure switches for security; electrical connections for corrosion and security.

(e) Pipe lines and connections, check for loose connections, chafing and secure clipping; flexible hoses for deterioration.

14 Cabin windows for scratches, cracks, crazing and discoloration.

15 HF antenna coupler for cleanliness and loose connections; mounting for security.

16 VOR antenna disconnect for cleanliness and security.

17 Grounding and bonding leads for fraying, broken wires, loose connections and cleanliness.

16 Voltage regulators for damage, cleanliness and security; mounting for cracks.

19 External power and battery relays for security, corrosion and cracked bus-bars.

FINAL CLOSE UP

20 Install and secure all cabin roof center and side panels.

21 Install and secure battery access panel and rear baggage compartment floor panels.

22 Install rear baggage compartment/rear fuselage access panel.

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CARD No. 19

AREA:	TRADE:	MANHOURS:	
3	AIRFRAME		PREP: 0.3 HRS. TOTAL: 1 .0 HRS.

PREPARATION

A Remove panels T3, T4, T5, T6, T7, T8, T9. Tl 1, T13 AND T14.

INSPECTIONS

1 Control cables for fraying, broken strands, flattening, corrosion and security of turnbuckles and cable ends; plastic sheathing, where applicable. for cracking and deterioration.

NOTE 1: It is important to operate controls through full range during inspection so that cables move away from pulleys and all portions of the cables are exposed for inspection

NOTE 2: Removeallaccess panelsthatare requiredtogetfreeand clearview of area being inspected.

NOTE 3: Replace control cables every 60 months (Landplane only).

NOTE 4: Stainless Steel control cables are available in lieu of Carbon Steel cables when operating on floats or in a marine or saline environment.

2 Flight control rods for damage, safety, corrosion and security. bearings for corrosion, cleanliness and security. On rods with magnaformed (swaged) ends, pay particular attention to inspection of the swaged area for cracks and sleeve (if installed) for security. On aircraft with Mods 6/1781, 6/1785, 6/1791, 6/1792 and 6/1802 refer to Service Bulletin 6/502 (6-27-17).

3 Elevator quadrant for cleanliness, damage, corrosion and security; bearings for corrosion, cleanliness and security.

4 Elevators and tabs for skin damage and distortion. Lubricate tab hinges in accordance with Maintenance Manual.

5 Rudder for skin damage, distortion, corrosionandsecurity; leading edgesilicone rubber wipers for security. Rudder trim tab and geared tab for skin damage, distortion and security. Lubricate tab hinges in accordance with Maintenance Manual.

6 Rudder and elevator trim tab and gear tab mechanisms as follows:

(a) Gear box for security of cover and mounting; evidence of roughness with rudder movement.

(b) Linkages for damage, safety and security.

7 Positionanti-collision andstrobelightsfor cleanliness, crackedor broken lens and security.

FINAL CLOSE UP

8 Install and secure all panels.

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CARD No. 20

AREA:	TRADE:	MANHOURS:	
4	AIRFRAME		PREP: 0.4 HRS. TOTAL: 1.7 HRS.

PREPARATION

A Remove panels W3, W4, W8, W9, W10, W11, W12 and W13.

B Remove wing tip W14 (when wing fuel tank is installed).

C Remove top center wing root fairing.

INSPECTIONS

1 Position light for cleanliness, cracked or broken lens and security,

2 Wing tank fuel system components at wing tip for damage, security and leaks; pipe lines for security and leaks; electrical wiring and connections for deterioration of insulation, chafing, bonding for condition.

3 Ailerons and tabs for dents, scores, abrasions, cracks and loose rivets. Lubricate tab hinges in accordance with Maintenance Manual.

4 Aileron trim tab actuatorforsmooth operation and security; electricalwiring and connections for security; linkages for damage, safety and security; position transmitter for cleanliness, loose connections and security of mounting.

5 Flaps for dents, scores, abrasions, corrosion, cracks and loose rivets.

6 Aileron and flap attachment brackets for damage and security; bearings for freedom of operation and security.

7 Landing light for cleanliness, cracked or broken lens end security.

*8 Airframe deicing system as follows:

(a) Distributor valves for leaks and security.

(b) Distributor valves heaterjacketsforsecurity; electrical connections for corrosion and security.

(c) Piping for loose connections, chafing and secure clipping: flexible hoses for deterioration.

9 Allaccessibleelectricalwiringfordeterioration, chafing, bonding jumpersforfraying, cleanliness, corrosion and security of attachment; connectors for cleanliness and security.

10 Flight control rods and aileron quadrants for damage, corrosion and security; bearings for corrosion, cleanliness and security; control rods for safety; draught excluder boots, where applicable, for splitting, deterioration and security. On rods with magnaformed (swaged) ends, pay particular attentionto inspection of the swaged area for cracks and the sleeve (if installed) for security. On aircraft with Mods 6/1781, 6/1785, 6/1791 6/1792 and 6/1802 refer to Service Bulletin 6/502 (6–27–17).

11 Control cables for fraying, flattening, corrosion and security of turnbuckles and cable end plasticsheathing (whereapplicable) forcrackinganddeterioration; chains for twisting, corrosion and security. Replace cable where evidence of damage is found.

NOTE: It is important to operate controls through full range during inspection so that cables move away from the pulleys and all portions of cables are exposed for inspection.

11A Replace Aileron Control cables every 60 months.

12 Trim/gear tab hinge; inspect for corrosion, wear, security and free movement.

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13 Aileron trim/gear tabs, inspect for obvious damage and free movement.
14 Trim/gear tab skins. inspect for damage, dents and scores.
15 Tab hinge, inspection for corrosion, wear, security and free movement.
16 Tab hinge arms, inspect for damage, wear and free movement.

FINAL CLOSE UP

17 Install and secure panels and fairings.
16 Install and secure wing tip (when wing fuel tank is installed).

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CARD No. 21

AREA:	TRADE:	MANHOURS:	PREP: 0.4 HRS.
5	AIRFRAME		TOTAL: 1.7 HRS.

PREPARATION

A Remove panels W17, W18, W22, W23, W24, W25, W26 and W27.

Remove wing tip W28 (when wing fuel tank is installed).

Remove top center wing root fairing.

INSPECTIONS

Position light for cleanliness, cracked or broken lens and security

Wing tank fuel system components at wing tip for damage, security and leaks; pipe lines for security and leaks; electrical wiring and connections for deterioration of insulation, chafing, bonding for condition.

3 Ailerons and tabs for dents, scores, abrasions, cracks and loose rivets. Lubricate tab hinges in accordance with Maintenance Manual.

4 Flaps for dents, scores, abrasions, corrosion, cracks and loose rivets.

5 Aileron and flap attachment brackets for damage and security; bearings for freedom of operation and security.

6 Landing light for cleanliness, cracked or broken lens and security.

*7 Airframe deicing system as follows:

(a) Distributor valves for leaks and security.

(b) Distributorvalves heaterjacketsforsecurity; electrical connections for corrosion and security.

(c) Piping for loose connections, chafing and secure clipping; flexible hoses for deterioration

8 All accessibleelectricalwiringfordeterioration, chafing, bondingjumpersforfraying, cleanliness, corrosion and security of attachment; connectors for cleanliness and security.

9 Flight control rods and aileron quadrants for damage, corrosion and security; bearings for corrosion, cleanliness and security; control rods for safety; draught excluder boots, where applicable, for splitting, deterioration and security. On rods with magnaformed (swaged) ends, pay particular attention to inspection of the swaged area for cracks and the sleeve (if installed) for security. On aircraft with Mods 6/1781, 6/1785, 6/1791 6/1792 and 6/1802 refer to Service Bulletin 6/502 (6-27-17).

I 10 Control cables for fraying, flattening, corrosion and security of turnbuckles and cable end plasticsheathing (where applicable) for cracking and deterioration; chains for twisting, corrosion and security. Replace cable where evidence of damage is found.

NOTE: It is important to operate controls through full range during inspection so that cables move away from the pulleys and all portions of cables are exposed for inspection.

10A Replace Aileron Control cables every 60 months.

11 Trim/gear tab hinge; inspect for corrosion, wear, security and free movement.

12 Aileron trim/gear tabs, inspect for obvious damage and free movement.

13 Trim/gear tab skins, inspect for damage, dents and scores.

14 Tab hinge, inspection for corrosion, wear, security and free movement.

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15 Tab hinge arms, inspect for damage, wear and free movement.

FINAL CLOSE UP

16 Install and secure panels and fairings.

17 Install and secure wing tip (when wing fuel tank is installed).

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CARD No. 22			
AREA: 1 (EXTERNAL)	TRADE: AIRFRAME	MANHOURS:	PREP: 0.2 HRS. TOTAL: 1.3 HRS.

PREPARATION

A Open and secure nose baggage compartment door F2, or nose cap F1 (Short nose).

B Open panels F3 and F10.

C Remove radio equipment screens in nose baggage compartment.

INSPECTIONS

1 Ram air inlet inner and outer scoops for cracks and delamination,

‘ 2 Nose baggage compartment door lock for cleanliness, safety and proper operation.

3 Nose baggage compartment light for cleanliness, loose, cracked or broken lens, and security; navigationequipmentfordamageandsecurityof mounting; cablesandconnectors for cleanliness and security; terminal blocks for cleanliness and security.

*4 Door unlocked warning limit switches and actuator mechanisms for damage and security.

5 Radio equipment shock mounts for cracks, corrosion and security; vibration isolators for deterioration and damage; proper bonding, where required.

6 Windshield wiper motor and converters for smooth operation and security; flexible drives for kinks; damaged casing, loose connections, smooth operation and evidence of water ingress.

*7 Oxygen system pipe lines and connections for nicks, dents, chafing , cleanliness and security.

6 Electrical wiring and connectionsforward of instrument panel for cleanliness, chafing, insulation deterioration, evidence of overheating; clipping and connections for security; bonding as applicable, for cleanliness, fraying and security of attachment.

9 Flight compartment RH and LH doors for damage and security. Seals for deterioration and security.

10 Ram air and cabin air control valves, flexible control clamps and brackets for cracks an security.

11 Heater ejector for cracks, damage and security.

12 Heater silencer for cracks, damage and security; insulation for tears and security.

*13 Main ram air duct ground operable fan for security.

14 Flight compannmentand cabin heaterductsfordamage, evidence of overheat, loose connections and security; synthetic assemblies for cracks and delamination; supporting structure for damage.

15 Heating system hot air valve for security.

16 Electrical wiring and connectors under flight compartment floor for cleanliness, chafing, loose clamps, deterioration and security; connectors for damage where wiring enters connector, cleanliness and security.

17 Instrument pneumatic system (Extended nose bleed air or engine driven pump) as follows.

(a) Pressure regulators for damage and security.

(b) Pressure relief valves for damage and security.

(c) Mounting plate for cracks, damage and security.

(d) Piping for chafing, loose connections and security, flexible hoses for deterioration.

18 Nose landing gear links and bushings for wear, damage, safety and security; pip-pin and chain for secure installation; chain for security.

19 Nosegearattachmentfttingsforcorrosion and cracks, pre load bolttorquemarksforproper alignment.

FINAL CLOSE UP

20 Install and secure radio equipment screens in nose baggage compartment.

21 Close and secure panels and nose baggage compartment door or nose cap (Short nose).

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CARD No. 23

AREA:	TRADE:	MANHOURS:	PREP: 0.5 HRS.
1 (INTERNAL)	AIRFRAME		TOTAL: 1.2 HRS.

PREPARATION

A Remove panels covering static system piping in right hand and left hand flight compartment locations.

B Remove upholstery panels in flight compartment as required to gain access to electrical wiring and connectors.

C Remove cover from overhead console.

INSPECTIONS

1 Instrument panels for damage and security; bonding jumpers for cleanliness, loose connections, fraying and security.

2 Flap selector lever for damage, proper detent action and security; lubricate in accordance with Maintenance Manual.

3 Ram air and cabin air control valves operating mechanisms for ease of operation and security.

• 4 Instrument pneumatic system (vacuum operated) as follows:

(a) Emergency instrument vacuum valve for ease of operation, damage and security.

(b) Pressure and suction indicators for cracked glass, damage and security.

(c) Piping for chafing, loose connections and security; flexible hoses for deterioration.

5 Power and propeller levers friction controls for proper operation.

6 Air temperature indicator for damage and security.

7 Indicatorsasfollowsforcracked glassandsecurity; range markings, as applicable, for condition and legibility.

(a) Gas Generator Tachometer.

(b) Turbine Temperature.

(c) Propeller Tachometer.

(d) Torque pressure.

(e) Oil Pressure.

(f) Oil Temperature.

(g) Intake Deflector.

(h) Fuel Flow.

(i) Crossfeed Valve Position.

(j) Volt and Loadmeters.

(k) Fuel Quantity.

(l) Hydraulic and Brake System Pressure.

8 Flight compartment lights for cracked or broken lens and security.

9 Circuit breaker panels for loose circuit breakers; panels for security.

*10 Crew oxygen system as follows:

(a) Regulators for cleanliness, damage and security of mounting.

(b) Masks and hoses for cleanliness, damage and deterioration; fittings for security.

(c) Pipe lines and connections for dents, nicks, cleanliness and security.

11 Passenger oxygen system continuous flow regulator and panel for cleanliness, damage and security; panel for security of mounting.

12 Pitotstaticsystemsselectorvalveforsecurityandsmoothoperation; pipingforchafing, loose connections, deterioration and securely clamped.

13 ADF flexible drives outer casing is securely clamped; check for kinks, chafing and sharp bends; rotate crank and insure free rotation of drive cable.

14 Electrical wiring and connections in flight compartmentfor chafing, loose clamps, deterioration and security; connectors for security.

15 Flight compartment upholstery and trim for cleanliness, tears, wear and security of attachments.

*16 Instrument pneumatic system (short nose bleed air or engine driven pump) as follows:

(a) Pressure regulators for damage and security.

(b) Pressure relief valves for damage and security.

(c) Mounting plate for cracks, damage and security.

(d) Piping for chafing, loose connections and security; flexible hoses for deterioration.

(e) Pressure indicators.

17 Navigation equipment control units and indicators for damage and security; wiring and connectors for cleanliness, deterioration and security; dial markings for legibility.

FINAL CLOSE UP

18 Install and secure panels and overhead console cover.

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CARD No. 24

AREA:	TRADE:	MANHOURS:	PREP: 0.6 HRS.
2 (EXTERNAL)	AIRFRAME		TOTAL: 1 .O HRS.

PREPARATION

A Remove panels F4, F5, F8, F9, F18 and F20.

B Remove panels W5, W6, W19 and W20.

C Jack aircraft.

*D Remove anti-collision light lens.

INSPECTIONS

1 Wing struts links, bushings and attachment fittings for security.

2 Main landing gear roller blind assembly for adequate spring tension; blind for fraying, tears and security; rollers for free running and security.

3 Main landing gear shock absorbing blocks; check for permanent set and gaps between blocksandseparatorplates; preload dimensionwithin limits (Pre Mod 6/1469). Refer to Maintenance Manual.

4 Landing gearstaystrutsfor cracks, corrosion and security. Main landing gear upper and lower fuselage attachment fittings for damage and security.

5 Cabin RH and LH doors for damage and security; seals for deterioration and security.

*6 Airstair door for damage and security; seals for damage and security; handrail and spring for proper stowage; spring for security; cables for fraying and security; protective covers for tears and deterioration; restraint unit, if installed, for security of attachment and smooth operation

7 Rear baggage compartment door for damage, dents, abrasions and security; seals for deterioration and security.

*8 Anti-collision lights for brush wear.

9 Hydraulic lines and connections for leaks, damage , chafing, loose clamps and security of connections; flexible hoses for deterioration. Waste fuel return lines (if installed) for leaks, chafing, corrosion and security (where visible).

FINAL CLOSE UP

10 Install panels.

11 Lower aircraft from jacks.

12 Install anti-collision light lens.

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CARD No. 25

AREA:	TRADE:	MANHOURS:	PREP: 0.3 HRS.
2 (INTERNAL)	AIRFRAME		TOTAL: 0.8 HRS.

PREPARATION

A Releaseupholsteryincabinrooftogainaccesstoflappush-pull rodsandstrobelightflasher unit.

B Remove seats and/or other installations in area of fuselage frame at station 239.88. Remove upholstery from cabin roof and walls in this area, as necessary to gain access to left and right sides of frame.

INSPECTIONS

1 Flap push rods seals for deterioration and security.

2 Toiletinstallationfordamage, cleanliness, security; surrounding structure for evidence of corrosion.

3 Heated windscreen temperature controllers for damage and security; connectors for security.

4 Windshield heat relays box for damage and security; connectors for security.

5 Cabin temperature sensor for damage and security.

6 Passengerwarning lights for cleanliness, cracked glassandsecurity. Strobe lightflasher unit (if installed) for security.

7 Circuit breaker panels for loose circuit breakers; panels for security.

*8 Emergency lights for cracked or broken lens and security; retaining mechanisms or mounting for security.

9 First aid kit for required content, proper stowage and security.

*10 Camera operator's seat and equipment for damage and security.

*11 Passenger oxygen system masks and hoses for cleanliness, damage, deterioration and proper stowage; stowage for security; pipe lines and connections for chafing, dents, nicks, cleanliness and security.

12 Baggage compartment light for cleanliness, loose, cracked or broken lens and security.

*Baggage and cabin doors limit switches and mechanisms for damage and security.

13 All electrical wiring and connections for cleanliness, chafing, loose clamps, deterioration and security.

14 Inspect left and right hand side of fuselage frame at station 239.88 for cracks in accordance with Service Bulletin 6/521.

NOTE: NOTE: If cracks are fund which are within tolerance specified by Service Bulletin, repeat inspection every600 hours or6 months, whichever comes first, until frame is replaced.

FINAL CLOSE UP

15 Reinstall upholstery and seats and/or other installations.

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CARD No. 26

AREA:	TRADE:	MANHOURS:	
3	AIRFRAME		PREP: 0.3 HRS. TOTAL: 0.6 HRS.

PREPARATION

A Remove vertical stabilizer panels T5, T6, T12 and T13.

B Remove rudder panels T8, T9 and T10.

C Remove elevator panels T16, T17, T18, T19, t20 and T21

D Remove anti-collision light lens T1.

INSPECTIONS

1 Accessible internal structure of elevator, rudder and vertical stabilizer for corrosion, cracks, buckling and security.

(a) Vertical stabilizer/rudder hinge arms pre mod 6/1339 and 6/1340 for cracks and corrosion.

NOTE: Pay particular attention to immediate areas around bolt holes and bearings, where visible, along attachment and pick-up fitting mating edges. Evidence of corrosion at areas indicated above requires removal of bolts for internal examination of bolts; evidence of internal corrosion will necessitate disengaging fitting forfurther inspection and treatment as required. Corrosion around bonding jumpers where fitted, will necessitated cleaning and re-priming of affected areas, as applicable.

2 External structure for dents, scores, abrasions and cracks.

3 Electrical wiring and connections for chafing, cleanliness, loose clips, deterioration and security; bonding jumpers for fraying, cleanliness and security of attachment.

4 Anti-collision light for brush wear.

FINAL CLOSE UP

5 Install and secure panels and anti-collision light lens

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CARD No. 27

AREA:	TRADE:	MANHOURS:	PREP: 0.5 HRS.
4	AIRFRAME		TOTAL: 0.6 HRS.

PREPARATION

A Raise hinged leading edge W2.

B Remove wing panels W6, W8, W9, W10 and W12.

C Lower engine cowling W7.

D Remove wing tip W28 if strobe light power supply installed.

INSPECTIONS

1 Nose spar adapter D nose section, damage, corrosion, hinges for cracks, missing sections and smooth operation of D nose cover.

2 Wing tip for cracks, delamination and security. Strobe light power supply (if installed) for security.

*3 Instrumentpneumaticsystem (engine driven air pump) pressure regulating valve and piping for damage and security.

3A Elevatorquadrantfordistortion, refer to Boeing Canadade Havilland Division Service Bulletin 6/511.

4 Wing inspection light for cleanliness, loose, cracked or broken lens and security.

5 Wing fuel tank filler cap for cleanliness, security and proper fit; seal for deterioration; filler neck for cleanliness, scoring and chipping.

6 Fuel flow transmitters for leaks and security.

7 Internal structure of wing and nacelle, where accessible, for damage, cracks, buckling and corrosion. Waste fuel return lines (if installed) where visible, for leaks, chafing, corrosion and security.

7A Inspect DeVore bleed air duct (Pre Mod 6/1614) for condition and security. Refer to Boeing Canada de Havilland Division Service Bulletin No 6/355 and DeVore Service Bulletin DAS 1 000SB.

8 Aileronandflap bellcranksforcorrosionandsecurity; bearings for corrosion, cleanliness and security.

8A On aircraft pre mod 6/1 334 – inspect flap hinge arm upper attachments for corrosion (five locations at each wing box).

FINAL CLOSE UP

9 Raise and secure engine cowling. Secure hinged leading edge and install panels. Install wing tip.

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CARD No. 28

AREA:	TRADE:	MANHOURS:	
5	AIRFRAME		PREP: 0.5 HRS.
			TOTAL: 0.7 HRS.

PREPARATION

A Raise hinged leading edge W16.

B Remove wing panels W22, W23, W24, W26 and W27.

C Lower engine cowling W21.

D Remove wing tip W14 if strobe light power supply installed,

INSPECTIONS

1 Nose spar adapter D nose section, damage, corrosion, hinges for cracks, missing sections and smooth operation of D nose cover.

2 Wing tip for cracks, delamination and security. Strobe light power supply (if installed) for security.

*3 Instrument pneumatic system (engine driven air pump) pressure regulating valve and piping for damage and security.

*4 Wing inspection light for cleanliness, loose, cracked or broken lens and security.

5 Flux detector for damage and securii; cables and connectors for cleanliness, chafing and security.

*6 Wing fuel tank filler cap for cleanliness, security and proper fit; seal for deterioration and leaks; filler neck for cleanliness, scoring and chipping.

7 Fuel flow transmitters for leaks and security.

8 Internal structure of wing and nacelle, where accessible, for damage, cracks, buckling and corrosion. Wastefuel return lines (iinstalled) where visible, for leaks, chafing, corrosionand security.

8A Inspect DeVore bleed air duct (Pre Mod 6/1614) for condition and security. Refer to Boeing Canada de Havilland Division Service Bulletin No 6/355 and DeVore Service Bulletin DAS 1 000SB.

9 Aileron and flap bellcranksforcorrosionandsecurity; bearingsforcorrosion, cleanlinessand security.

9A On aircraft pre mod 6/1334 – Inspect flap hinge arm upper attachments for corrosion (five locations at each wing box).

FINAL CLOSE UP

10 Raise and secure engine cowling. Secure hinged leading edge and install panels. Install wing tip.

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CARD No. 29

AREA:	TRADE:	MANHOURS:	PREP: 0.1 HRS.
1 (EXTERNAL)	AIRFRAME		TOTAL: 0.5 HRS.

PREPARATION

A Open panels F3 and F10.

B Open and secure nose baggage compartment door F2 or nose cap F1 (Short nose).

INSPECTIONS

1 Nose cap back-up structure for corrosion.

2 Nose leg attachment fittings (C6FSM1234 and C6FSM2282) for corrosion, cracks and security.

3 Nosewheel steering cables for tension.

4 Outside air temperature sensor for security.

5 Oxygen system indicator and charging valve for cracked glass and security of mounting: caution labels legible and secure.

6 Oxygen cylinder for scratches, dents, cleanliness and security; cylinder straps and mounting tray for safety and security. Check support brackets for cracks.

7 Audio and communication transceivers and control units for damage and security of mounting.

8 Cables, connectors and terminal blocks for cleanliness, deterioration, security of clamping; connections for security; bonding, where applicable, for condition and security.

9 Autopilot component mountings for cracks and security.

10 Duct temperature sensor and overheat switch for security.

11 Recirculated air duct for cracks, damage and security.

12 Bleed air duct for cracks, damage and security; clamps and brackets for security; bleed air shutoff valves for security.

13 Fakings, access and inspection panels for damage and security; fasteners for damage, proper operation, safety and security.

14 instrument pneumatic system – automatic water drains for security.

FINAL CLOSE UP

15 Close and secure panels and nose baggage compartment door or nose cap (Short nose).

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CARD No. 30

AREA:	TRADE:	MANHOURS:	PREP: 0.2 HRS.
1 (INTERNAL)	AIRFRAME		TOTAL: 1.5 HRS.

INSPECTIONS

1 Remove clevis pins and upper bolts from rudder pedal push rod ends and wheel brake rod ends; inspect pins, bearings and rod ends for wear. Install clevis pins.

• 2 Instrumentpneumaticsystem (vacuum-operated) – by-passvatve, suction reliefvalve, air ejectors and low pressure warning switch for damage and security.

3 Instrument vibration isolators for security.

4 Heating system outlets for cleanliness, damage and security.

5 Flight compartment ventilating ducts for damage, cracks, loose connections and security; ventilating louvers for proper operation.

*6 Cooling/Demisting fans for damage and security; mounting brackets for security.

• 7 Autopilot disengage switch for cleanliness and damage.

*8 Oxygen pressure indicator for cleanliness, damage, cracked glass and security.

*9 Oxygen shutoff valve and passenger to crew transfer valve for cleanliness and security.

*10 Flight compartment to cabin sliding door for damage, smooth operation; magnetic catch for cleanliness and proper operation.

11 Circuit breaker panels for legibility; pull out panels and check connections for security and cleanliness.

• 12 Aileron servo actuator mounting bracket for cracks, buckling and security.

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CARD No. 31

AREA:	TRADE:	MANHOURS:	
2 (EXTERNAL)	AIRFRAME	PREP: 1.3 HRS.	TOTAL: 1.9 HRS.

PREPARATION

A Remove fakings W1 and W15.

B Remove panels F4, F5, F8, F9, F13, F14, F17, F18 and F20.

C Remove main leg fairings F19 and F21.

D Remove strut fakings W6 and W20.

INSPECTIONS

1 Inspect the following for cracks, corrosion and security.

NOTE: Pay particular attention to immediate areas around bolt holes, bushings and bearings, where visible, and along attachment and pickup fittings mating edges. Evidence of corrosion at areas indicated above requires removal of bolts for internal examination of holes and condition of bolts; evidence of internal corrosion will necessitate disengaging fitting for further inspection and treatment as required. Corrosion around bonding jumpers, where fitted, will necessitate cleaning and priming of affected area. Also see figures in Part 3, PSM l-6-7.

(a) Landing gear/fuselage attachment fittings (figure 3).

(b) Wing strut pickup fitting on wing and fuselage (figure 3).

(c) Wing strut upper and lower fittings and link (figure 4).

(d) Wing/fuselage attachment fittings, front and rear.

2 Main landing gear legs for cracks at welds, lugs, and brake flanges at lower ends. Also see figure 2 Part 3, PSM 1-6-7. Refer also to Service Bulletin 6/380 Rev C, June 22 1990. Ensure that Basic inspection – 32, item 16, Part B is completed every 2nd 'D' check or 5 years whichever comes first.

3 Cabin exhaust outlet scoop for cracks, delamination and security.

4 Screens in ventilating ram air inlet duct for cleanliness and damage.

5 Fuel low pressure switches for security.

FINAL CLOSE UP

6 Install and secure all panels and fairings.

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CARD No. 32

AREA:	TRADE:	MANHOURS:	
2 (INTERNAL)	AIRFRAME		PREP: 0.6 HRS. TOTAL: 8.0 HRS.

PREPARATION

A Remove electrical control box covers.

B Release upholstery in cabin roof to gain access to pneumatic package and autopilot electrical components.

C Remove cabin seats.

D Remove floor panels in cabin area.

E Remove rear baggage compartment/rear fuselage access panel.

F Special tools:

Roof Hatch Seal Installation Tool SD3103.

INSPECTIONS

1 Sub floor for corrosion,

2 Check all flight control cable tensions.

3 Cabin and flight compartment bulkheads for damage: equipment stowagesand brackets for damage and security.

4 Cabin ventilating ducts for damage, cracks, loose connections and security; ventilating louvers for proper operation.

*5 Autopilot solenoid engage air valve for security. Autopilot pipe lines and connections for damage, chafing, loose connections and security.

6 Automatic temperature controller for damage and security; mounting brackets for security.

• 7 Propeller deicing timer and control box for damage and security; connectors for security.

8 Pneumatic system as follows:

(a) Piping for chafing, loose connections and security.

(b) Pressure regulator valve for security; mounting plate for cracks, damage and security.

(c) Low pressure warning switch for security.

(d) Dual pressure switch for security.

*9 Propeller synchronizer system control box and autofeather system relay box for security of mounting and internal cleanliness.

10 Beta range backup system control box for security of mounting and internal cleanliness,

11 Power distribution and generator control box (reverse current relay) for internal cleanliness and security of terminals; connectors and relays for damage and security; box for security. Limiters (Mod 6/1651) for serviceability.

12 Circuit breakers panels for legibility; pull out panels and check connections for security and cleanliness. Main distribution box for internal cleanliness and security of terminals and connectors; relays for discoloration and security; box for security.

13 Overvoltage relay (Pre Mod 6/1590 or 6/1636) for cleanliness, discoloration and security.

• 14 Passenger oxygen outlets for damage and security.

*15 Cabin roof hatch for proper operation; seal for deteriorationand security; use specialtool No. SD31 03 to reinstall hatch and seal.

• 16 Passenger oxygen cylinders for scratches, dents, cleanliness and security; cylinder straps and support installations for cracks, safety, security; felt padding for cuts, tears, cleanliness and security; mounting and support structure for cracks, corrosion and security.

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17 Passengeroxygensystem indicatorfor cracked glass and security of mounting; caution label for legibility and security.

*18 Autopilot rudder, elevator and pitch trim servo mounting brackets for cracks, buckling and security.

18A Every 1,000 Flight hours remove and send servo units to a Collins authorized service center for inspection and testing of autopilot servo units as per Collins SIL-2-81

FINAL CLOSE UP

19 Install electrical control box covers and cabin roof upholstery.

20 Install floor panels and cabin seats.

21 Install and secure rear baggage compartment/rear fuselage access panel.

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CARD No. 33

AREA:	TRADE:	MANHOURS:	PREP: 0.4 HRS.
3	AIRFRAME		TOTAL: 0.7 HRS.

PREPARATION

A Remove fairings and panels T2, T6, T7, T8, T11, T15, T17, T18, T19 and T20.

B Remove fuselage panel F22.

INSPECTIONS

1 Inspect the following for cracks and corrosion, bearings for freedom of operation and security.

NOTE: Pay particular attention to immediate areasaround bolt holes and bearings, where visible, and along attachment and pickup fittings mating edges, Evidence of corrosion at areas indicated above requires removal of bolts for internal examination of holes and condition of bolts; evidence of internal corrosion will necessitate disengaging fitting for further inspection and treatment as required. Corrosion around bonding jumpers, where fitted, will necessitate cleaning and repriming of affected areas.

(a) Vertical stabilizer/rudder hinge arms (Post Mod 6/1339 and 6/1340).

(b) Horizontal stabilizer /elevator hinge arms.

(c) Vertical and Horizontal stabilizers attachment fittings on stabilizerand fuselage Refer to de Havilland Service Bulletin 6/454 (Pre Mods 6/1841, 6/1842, 6/1843, 6/1844, 6/1845 and 6/1846.

(d) Where accessible examine each vertical and horizontal stabilizer adapter plate for security and condition. Remove barrel nut and visually inspect recess hole for corrosion and condition (Post Mods 6/1843, 6/1844, 6/1845 and 6/1846 aircraft).

(e) Where accessible examine each adapter plate for security and condition. Visually examine the bolt holes in vertical stabilizer Fwd and Aft spar attachment adapter plates and adjacent structure for corrosion and condition (Post Mod 6/1841 and 6/1842).

2 Horizontal stabilizer as follows:

(a) Bottom skin at stations 30.00 to 35.00 for distortion and security of rivets.

(b) Front spar between and at attachment fittings for cracks, corrosion and security of rivets.

(c) Rear spar at stabilizer centerline for cracks and distortion.

(d) Leading edge, immediately aft of optional deicer boots for corrosion.

(e) Top skin, skin doubler beneath center pickup fitting for cracking.

3 Elevator torque tube for cracks, distortion, corrosion and security.

3A Root rib, cracking pre Mod 6/1769 inaccordancewith de Havilland Service Bulletin No. 6/399 Rev F.

General Condition for Post Mod 6/1769.

4 Rudder mass balance weights for security; move control surfaces vigorously to detect movement of internal weights. Elevator mass balanceweightsfor security and signs of corrosion.

*5 Fairings, access covers, inspection panels for proper fit, damage and security; fasteners for damage, proper operation and security; Fiberglas panels for cracks and delamination.

6 Tail bumper axle and attachments for security; shock absorber pad for deterioration and security of bonding.

FINAL CLOSE UP

7 install and secure fairings and panels.

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CARD No. 34)

AREA:	TRADE:	MANHOURS:	
4	AIRFRAME		PREP: 0.2 HRS. TOTAL: 1.2 HRS.

PREPARATION

A Lower engine cowling W7.

B Remove engine cowling W29.

C Lower flaps.

D Open inspection panel on top of wing tank.

E Open inspection panels W8, W9 and W10.

F Consumable items. Refer to Cl card.

G Refer to service Bulletin No. 6/295 (Pre Mod 6/1301 only).

H Refer to Service Bulletin No. 6/511.

INSPECTIONS

1 Lower wing skin between stations 97.00 and 235.00 (wing strut pick-up area) for cracks, buckling, security of rivets.

2 Upper wing skin between stations 147.00 and 210.00 for cracks, buckling, security of rivets.

3 Inspect the following for cracks and corrosion: bearings for freedom of operation and security.

NOTE: Pay particular attention to immediate areasaround bolt holes and bearings, where visible, and along attachment and pickup fittings mating edges. Evidence of corrosion at areas indicated above requires removal of bolts for internal examination of holes and condition of bolts; evidence of internal corrosion will necessitate disengaging fitting for further inspection and treatment as required. Corrosion around bonding jumpers, where fitted, will necessitate cleaning and repriming of affected area.

(a) Wing/flap hinge arms and attachment brackets. On aircraft Post Mod 6/1334, inspect flap hinge arm upper attachments for corrosion (five locations at each wing box).

(b) Aileron/flap hinge arms.

4 The following nacelle items for cracks and corrosion:

(a) Engine mount fittings.

(b) Lower longerons aft of engine mount fittings.

(c) Lower longeron forward of and at intersection with wing.

5 Aileron mass balance weights for security and signs of corrosion.

5A Inspect Aileron mass balance weight retention channel for corrosion (refer to de Havilland Service Bulletin No. 6/507).

5B Inspect face and surrounding area of leading edge of aileron for corrosion.

6 Check all flight control cable tensions.

*7 Wing tank internally for corrosion, strainer for cleanliness.

8 Aileron control pulley brackets for distortion and security.

9 Firewall for distortion, buckling and cracks.

10 Fairings, access and inspection panels for proper fit and security; fasteners for damage, proper operation, safety and security.

11 Wing rear spar cap in accordance with Service Bulletin No. 6/295 (Pre Mod 6/1301 only).

11 A Inspect wing to fuselage special steel adapter EO69080-1 for corrosion and securii. Refer to TAB 678/6.

12 Wing hinge arm adapters, Poet MOd 6/1335, inspect for corrosion and jo-bolt security.

13 Inb'd/outb'd foreflaps hinge arms, Post Mod 6/1336 and 6/1349, inspect for damage, wear, security and bearing condition.

14 Inb'd trailing flap hinge arms, Post Mod 6/1337, inspect for damage, wear, securii and bearing condition.

FINAL CLOSE UP

15 Raise flaps.

16 Install and secure engine cowlings and wing panels.

17 Install and secure inspection panels on top of wing tank. Check condition of 0 -ring. Reseal inspection panel in accordance with Maintenance Manual.

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CARD No. 35

AREA:	TRADE:	MANHOURS:	
5	AIRFRAME		PREP: 0.2 HRS. TOTAL: 1.2 HRS.

PREPARATION

A Lower engine cowling W21.

B Remove engine cowling W33.

C Lower flaps.

D Open inspection panel on top of wing tank.

E Open inspection panels W22, W23 and W24.

F Consumable items. Refer to CI card.

G Refer to service Bulletin No. 6/295 (Pre Mod 6/1301 only).

H Refer to Service Bulletin No. 6/511.

INSPECTIONS

1 Lower wing skin between stations 97.00 and 235.00 (wing strut pick-up area) for cracks, buckling, security of rivets.

2 Upper wing skin between stations 147.00 and 210.00 for cracks, buckling, security of rivets.

3 Inspect the following for cracks and corrosion; bearings for freedom of operation and security.

NOTE: Pay particular attention to immediate areas around bolt holes and bearings, where visible, and along attachment and pickup fittings mating edges. Evidence of corrosion at areas indicated above requires removal of bolts for internal examination of holes and condition of bolts; evidence of internal corrosion will necessitate disengaging fitting for further inspection and treatment as required. Corrosion around bonding jumpers, where fitted, will necessitate cleaning and repriming of affected area.

(a) Wing/flap hinge arms and attachment brackets. On aircraft Post Mod 6/1334, inspect flap hinge arm upper attachments for corrosion (five locations at each wing box).

(b) Aileron/flap hinge arms.

4 The following nacelle items for cracks and corrosion:

(a) Engine mount fittings.

(b) Lower longerons aft of engine mount fittings.

(c) Lower longeron forward of and at intersection with wing.

5 Aileron mass balance weights for security and signs of corrosion.

5A Inspect Aileron mass balance weight retention channel for corrosion (refer to de Havilland Service Bulletin No. 6/507).

5B Inspect face and surrounding area of leading edge of aileron for corrosion.

6 Check all flight control cable tensions.

7 Wing tank internally for corrosion, strainer for cleanliness.

8 Aileron control pulley brackets for distortion and security.

9 Firewall for distortion, buckling and cracks.

10 Fairings, access and inspection panels for proper fit and security; fasteners for damage, proper operation, safety and security.

11 Wing rear spar cap in accordance with Service Bulletin No. 6/295 (Pre Mod 6/1301 only).

11A Inspectwing to fuselage special steel adapter EO69080-2 for corrosion and security. Refer to TAB 678/6.

Wing hinge arm adapters, Post Mod 6/1335, inspectfor corrosion and jo-bolt security.

Inb'd/outb'd foreflaps hinge arms, Post Mod 6/1336 and 6/1349, inspect for damage, wear, security and bearing condition.

12 13 14 Inb'd trailing flap hingearms, Post Mod 611337, inspectfor damage, wear, security and bearing condition.

FINAL CLOSE UP

Raise flaps.

Install and secure engine cowlings and wing panels.

I 15 16 17 Install and secure inspection panels on top of wing tank. Check condition of O-ring. Reseal inspection panel in accordance with Maintenance Manual.

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CARD No. 36

AREA:	TRADE:	MANHOURS:	PREP: 0.3 HRS.
4 (P/PLANT LH)	ENGINE		TOTAL: 1.2 HRS.

PREPARATION

A Lower engine cowling W7.

B Remove engine cowling W29.

C Remove propeller spinner.

D Remove panels W31 and W32.

E Consumable items. Refer to CI card.

INSPECTIONS

1 Constant speed and overspeed governors for leaks, damage and security.

2 Propeller synchronizer master pickup for damage and security.

3 Propeller tachometer generator and torque pressure transmitter for leaks and security.

4 Fuel control unit for security and leakage. Linkages and sense lines for security; sense line heaters for damage and security. Fuel pump for leaks and security.

5 Gas generator tachometer generator for damage and security of installation.

6 Engine fireseals for cracks and security.

7 External tubing and controls for cracks and security of all accessible connections, clamps and brackets; tubing for fuel or oil leaks, leads for chafing, cleanliness and security of connections.

8 Gas generator case for cracks, bulges and hot spots. Turbine exhaust cases and ducts for cracks and distortion.

9 Starter generator for security of installation; leads for chafing, wear and security; electrical connectors for cleanliness and security.

10 Current regulator unit for security; ignition leads for chafing and security.

11 Starting control unit for leaks and security.

12 Lubricate interconnecting rod ball ends in accordance with Engine Maintenance Manual.

13 Beta backup system carbon block retaining pin for freedom of movement; lubricate in accordance with Engine Maintenance Manual.

14 Propeller blades for freedom on hub pilot tubes by rocking slightly using counterweights as levers; grease blade clamps.

15 Fuel pump filter screen (inlet) for foreign matter or distortion; clean and reinstall, or fit new screen if damaged.

CAUTION: Whenever any component upstream of the filter is replaced, check screen after runup or first flight.

16 Fuel pump outlet filter (UACL SB208) for foreign matter.

17 Remove element from HP fuel filter (Mod SOO.6117), and inspect for foreign matter.

NOTE: If excessive contamination is found on fitter elements, remove and inspect main fuel strainer elements.

18 Remove and check oil filter for foreign matter. Check magnetic chip detector in reduction gearbox for continuity.

NOTE: Clean or replace fitter in accordance with Engine Maintenance Manual. Oil changes to be made in accordance with UACL Service Bulletin No. 1001.

*19 Perform and clean compressor discharge P3 fitter (Mod SOO.6177).

NOTE: Install newfiiter elementatamaximum of 1000 hours based on service experience and environment.

20 Perform function card requirements before final close up.

FINAL CLOSE UP

21 Install spinner. Install and secure cowlings and panels.

0 Special tools:

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CARD No. 37

AREA:	TRADE:	MANHOURS:	PREP: 0.3 HRS.
5 (P/PLANT RH)	ENGINE		TOTAL: 1.2 HRS.

PREPARATION

A Lower engine cowling W21.

B Remove engine cowling W33.

C Remove propeller spinner.

D Remove panels W35 and W36.

E Consumable items. Refer to Cl card.

INSPECTIONS

1 Constant speed and overspeed governors for leaks, damage and security.

*2 Propeller synchronizer master pickup for damage and security.

3 Propeller tachometer generator and torque pressure transmitter for leaks and security.

4 Fuel control unit for security and leakage. Linkages and sense lines for security; sense line heaters for damage and security. Fuel pump for leaks and security.

5 Gas generator tachometer generator for damage and security of installation.

6 Engine fireseals for cracks and security.

7 External tubing and controls for cracks and security of all accessible connections, clamps and brackets; tubingforfueloroilleaks. leads for chafing, cleanliness and security of connections.

6 Gas generator case for cracks, bulges and hot spots. Turbine exhaust cases and ducts for cracks and distortion.

9 Starter generator for security of installation; leads for chafing, wear and security; electrical connectors for cleanliness and security,

10 Current regulator unit for security; ignition leads for chafing and security.

11 Starting control unit for leaks and security.

12 Lubricate interconnecting rod ball ends in accordance with Engine Maintenance Manual.

13 Beta backup system carbon block retaining pin for freedom of movement; lubricate in accordance with Engine Maintenance Manual.

14 Propeller blades for freedom on hub pilot tubes by rocking slightly using counterweights as levers; grease blade clamps.

15 Fuel pump titter screen (inlet) for foreign matter or distortion; clean and reinstall, or fit new screen if damaged.

CAUTION: Whenever any component upstream of the filter is replaced, check screen after runup or first flight.

*16 Fuel pump outlet filter (UACL SB208) for foreign matter.

'17 Remove element from HP fuel filter (Mod SOO.6117), and inspect for foreign matter.

NOTE: If excessive contamination is found on filter elements, remove and inspect main fuel strainer elements.

18 Remove and check oil fitter for foreign matter. Check magnetic chip detector in reduction gearbox for continuity.

NOTE: Clean or replace fitter in accordance with Engine Maintenance Manual. Oil changes to be made in accordance with UACL Service Bulletin No. 1001.

*19 Perform and clean compressor discharge P3 filter (Mod SOO.6177).

NOTE: Install newfilter elementatamaximum of 1000 hours based onserviceexperience and environment.

20 Perform function card requirements before final close up.

FINAL CLOSE UP

21 Install spinner. Install and secure cowlings and panels.

de Havilland
DHC-6 TWIN OTTER
EMMA Controlled Inspection Program

CARD No. 38

AREA:	TRADE:	MANHOURS:	
4 (P/PLANT LH)	ENGINE		PREP: 0.1 HRS. TOTAL: 0.6 HRS.

PREPARATION

A Remove engine cowling W29.

B Lower engine cowling W7.

INSPECTIONS

1 Propeller blades for nicks and cracks. Remove nicks at leading edge.

*2 Propeller deicing boots for cuts, tears, burns, deterioration, proper adhesion.

3 Propellerdeicing brush blockandslipringfordamageandcleanliness, brushesforwearand security.

4 Exhaust duct deflector vanes for cracks, distortion, looseness and erosion.

5 Remove glow plugs; clean and function test. Install glow plugs.

6 Fire detecting thermal units and wire loops for damage and security; loops securely connected to thermal units.

FINAL CLOSE UP

7 Install and secure upper cowling.

8 Raise and secure lower cowling.

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CARD No. 39

AREA:	TRADE:	MANHOURS:	
5 (P/PLANT RH)	ENGINE		PREP: 0.1 HRS. TOTAL: 0.6 HRS.

PREPARATION

A Remove engine cowling W21.

B Lower engine cowling W33.

GENERAL

1 Propeller blades for nicks and cracks, Remove nicks at leading edge.

*2 Propeller deicing boots for cuts, tears, burns, deterioration, proper adhesion.

3 Propellerdeicing brush blockandslipringfordamageand cleanliness, brushesforwearand security.

4 Exhaust duct deflector vanes for cracks, distortion, looseness and erosion.

5 Remove glow plugs; clean and function test. Install glow plugs.

6 Fire detecting thermal units and wire loops for damage and security; loops securely connected to thermal units.

FINAL CLOSE UP

7 Install and secure upper cowling.

8 Raise and secure lower cowling.

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CARD No. 40

AREA:	TRADE:	MANHOURS:	PREP: 0.4 HRS.
4 P/PLANT LH	ENGINE		TOTAL: 1.5 HRS.

PREPARATION

A Remove panels W30 and W31.

B Remove engine cowling W29.

C Lower engine cowling W7.

D Consumable items. Refer to CI card

INSPECTIONS

*1 Engine intake anti-icing boot for deterioration, proper adhesion and evidence of burning,

2 Intake deflector system:

(a) Exit door for damage and security.

(b) Actuators for leaks, damage and security.

(c) Locking and release levers for damage, safety and security.

(d) Air control valves for leaks, damage and security; associated lines for condition and leaks.

(e) Cables and linkages for fraying and kinks, connectors for security; rod ends and bearings for damage, security; brackets for damage.

3 Oil temperature bulb for leaks and security.

4 Propeller sinner for dents and security; hub for grease or oil leakage.

5 Propeller linkages for cleanliness, damage and security.

6 Power control mechanisms and linkages, including beta backup for chafing, fouling, damage, safety and security.

*7 Propeller synchronizer system speed setting actuator, flexible shaft and rod end trimmer for damage and security.

8 Starter generator brushes for condition and wear. Drive splines for wear and lubricate.

9 Electrical wiring and connections for cleanliness, damage and security.

10 Replace fuel pump outlet filter (UACL SB 206).

11 Remove element for HP fuel filter (Mod SOO.6117) (between fuel pump and fuel control unit) and install new element.

12 Perform function card requirements before final close up.

FINAL CLOSE UP

13 Install and secure panels and cowlings.

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CARD No. 41

AREA:	TRADE:	MANHOURS:	
5 (P/PLANT RH)	ENGINE	PREP: 0.4 HRS.	TOTAL: 1.5 HRS.

PREPARATION

A Remove panels W34 and W35.

B Remove engine cowling W33.

C Lower engine cowling W21.

D Consumable items. Refer to Cl card

INSPECTIONS

1 Engine intake anti-icing boot for deterioration, proper adhesion and evidence of burning.

2 Intake deflector system:

(a) Exit door for damage and security.

(b) Actuators for leaks, damage and security.

(c) Locking and release levers for damage, safety and security.

(d) Air control valves for leaks, damage and security; associated lines for condition and leaks.

(e) Cables and linkages for fraying and kinks, connectors for security; rod ends and bearings for damage, security: brackets for damage.

3 Oil temperature bulb for leaks and security.

4 Propeller sinner for dents and security; hub for grease or oil leakage.

5 Propeller linkages for cleanliness, damage and security.

6 Power control mechanisms and linkages, including beta backup for chafing, fouling, damage, safety and security.

*7 Propeller synchronizer system speed setting actuator, flexible shaft and rod end trimmer for damage and security.

8 Starter generator brushes for condition and wear. Drive splines for wear and lubricate.

9 Electrical wiring and connections for cleanliness, damage and security.

*10 Replace fuel pump outlet filter (UACL SB 266).

*11 Remove element for HP fuel filter (Mod 500.6117) (between fuel pump and fuel control unit) and install new element.

12 Perform function card requirements before final close up.

FINAL CLOSE UP

13 Install and secure panels and cowlings.

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EMMA Controlled Inspection Program

CARD No. 42

AREA:	TRADE:	MANHOURS:	PREP: 0.1 HRS.
4 (P/PLANT LH)	ENGINE		TOTAL: 0.4 HRS.

PREPARATION

A Lower engine cowling W7.

B Remove engine cowling W29.

C Remove propeller spinned.

D Consumable items. Refer to Cl card.

INSPECTIONS

1 Air intake duct for damage and cracks.

2 Fireextinquisher bottleforevidenceofleaks, damageandsecurityofattachmenttostructure; piping, electrical connectors for condition and security.

3 Engine mounts for seperation, deterioration and security.

4 Intake deflector air line filters for cleanliness; remove and inspect. (Filters are at inlet and return ports of air control valves).

5 Grounding and bonding leads for fraying, broken wires, loose connections and cleanliness.

*6 Propeller deicing system electrical harness for chafing and security of connections.

FINAL CLOSE UP

7 Install and secure engine cowlings.

8 Install propeller spinner.

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CARD No. 43

AREA:	TRADE:	MANHOURS:	PREP: 0.1 HRS.
5 (P/PLANT RH)	ENGINE		TOTAL: 0.4 HRS.

PREPARATION

A Lower engine cowling W21.

B Remove engine cowling W33.

c Remove propeller spinned.

D Consumable items. Refer to Cl card.

INSPECTIONS

1 Air intake duct for damage and cracks.

2 Fire extinquisher bottle for evidence of leaks, damage and security of attachment to structure; piping, electrical connectors for condition and security.

3 Engine mounts for seperation, deterioration and security.

4 Intake deflector air line filters for cleanliness; remove and inspect. (Filters are at inlet and return ports of air control valves).

5 Grounding and bonding leads for fraying, broken wires, loose connections and cleanliness.

6 Propeller deicing system electrical harness for chafing and security of connections.

FINAL CLOSE UP

7 Install and secure engine cowlings.

8 Install propeller spinner.

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CARD No. 44

AREA:	TRADE:	MANHOURS:	
4 (P/PLANT LH)	ENGINE		PREP: 0.2 HRS. TOTAL: 0.9 HRS.

PREPARATION

A Lower engine cowling W7.

B Remove upper cowling W29.

C Remove panels W30, W31 and W32.

INSPECTIONS

1 Intake deflector and exit door hinges for cracks, corrosion and security: release lever solenoids and limit switches for cleanliness and security.

2 Engine compressor wash spray ring for obstructions, damage and security.

3 Oil cooler mounting for cracks, corrosion and security.

4 Engine drains collector tank for leaks, damage and security.

5 Engine and propeller controls as follows:

(a) Cables for fraying, corrosion, flattening: connectors for security.

(b) Pulleys for chipping, damage, roughness and security.

(c) Levers, pushrods and reversing linkage for safety and security; springs for condition and security; stops for security.

(d) Teleflex control to reverse valve for kinks, smooth operation and security.

(e) Constant speed governor, speed adjusting lever, tightly clamped to shaft (TAB 63514 refers).

*6 Fuel heater for leaks, damage and security.

7 Instrument pneumatic system engine-driven air pump for damage and security.

8 Power plant electrical wiring and connectorsforchafing and security; insulation for deterioration.

9 Power plant pipe lines and connectors for chafing, kinks, dents and security; flexible lines for deterioration.

FINAL CLOSE UP

10 Install and secure panels and engine cowling,

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CARD No. 45

AREA:	TRADE:	MANHOURS:	PREP: 0.2 HRS.
5 (P/PLANT RH)	ENGINE		TOTAL: 0.9 HRS.

PREPARATION

A Lower engine cowling W21.

B Remove upper cowling W33.

C Remove panels W34, W35 and W36.

INSPECTIONS

1 Intake deflector and exit door hinges for cracks, corrosion and security; release lever solenoids and limit switches for cleanliness and security.

*2 Engine compressor wash spray ring for obstructions, damage and security.

3 Oil cooler mounting for cracks, corrosion and security.

4 Engine drains collector tank for leaks, damage and security.

5 Engine and propeller controls as follows:

(a) Cables for fraying, corrosion, flattening: connectors for security.

(b) Pulleys for chipping, damage, roughness and security.

(c) Levers, pushrods and reversing linkage for safety and security; springs for condition and security; stops for security.

(d) Teleflex control to reverse valve for kinks, smooth operation and security.

(e) Constant speed governor, speed adjusting lever, tightly clamped to shaft (TAB 635/4 refers).

*6 Fuel heater for leaks, damage and security.

*7 Instrument pneumatic system engine-driven air pump for damage and security.

8 Power plant electrical wiring and connectorsforchafing and security; insulation for deterioration.

9 Power plant pipe lines and connectorsforchafing, kinks, dents and security; flexible lines for deterioration,

FINAL CLOSE UP

10 Install and secure panels and engine cowling.

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CARD No. 46

AREA:	TRADE:	MANHOURS:	PREP: 0.1 HRS.
4 (P/PLANT LH)	ENGINE		TOTAL: 0.2 HRS.

PREPARATION

A Remove panel W30

B Lower engine cowling W7.

INSPECTIONS

1 Engine control pulley brackets for condition, damage and security.

2 Generator cooling duct for cracks, damage and security.

3 Engine cowlings for damage, distortion and cracks; fasteners for damage, security, proper operation and positive locking; cowling pins for wear and security. Upper cowling exhaust air duct for cracks and security. Chafing strips for deterioration, tears and security.

FINAL CLOSE UP

4 Install and secure engine cowling and panel.

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CARD No. 47

AREA:	TRADE:	MANHOURS:	PREP: 0.1 HRS.
5 (P/PLANT RH)	ENGINE		TOTAL: 0.2 HRS.

PREPARATION

A Remove panel W34.

B Lower engine cowling W21.

INSPECTIONS

1 Engine control pulley brackets for condition, damage and security.

2 Generator cooling duct for cracks, damage and security.

3 Engine cowlings for damage, distortion and cracks; fasteners for damage, security, proper operation and positive locking: cowling pins for wear and security. Upper cowling exhaust air duct for cracks and security. Chafing strips for deterioration, tears and security.

FINAL CLOSE UP

4 Install and secure engine cowling and panel.

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