

Propeller and Propeller Limits

2-Hamilton Standard Model 14SF-7

Blade SFA13(-)0A

Diameter 3.96M (13 Ft)

Pitch settings at 0.75 radius:

Feather 77.5°

Flight fine 10.5°

Ground fine -5.5°

Full reverse -18.5°

Propeller (Np) -	Takeoff	1212 r.p.m.
	Max Continuous	1212 r.p.m.

(See Data Pertinent to All Models Except as Indicated)

<u>Airspeed Limits</u> <u>(IAS)</u>			<u>Knots</u>	<u>m.p.h.</u>
<u>V_{MO}</u> (Maximum operating)	0 to 14000 ft		242	279
			239	275
			223	257
			207	238
	<u>V_{FE}</u> (Flaps extended)	Flaps 5°	148	170
		Flaps 15°	148	170
		Flaps 35°	130	150
	<u>V_A</u> (Maneuvering) (-101, -102, -103)		163	188
	<u>V_A</u> (Maneuvering)(-106)		164	189
	<u>V_{LO}</u> (Landing gear operation)		158	182
	<u>V_{LE}</u> (Landing gear extended)		172	198
	<u>V_B</u> (Rough Air)		180	207
	Landing Gear Doors Open Operative		140	161
	Speed (Max. speed for operation following an alternate landing gear extension)			
	<u>V_{MCA}</u> (Minimum control speed) Flaps	5°	79	91
15°		75	86	

Maximum Weight
(Mass)

DHC-8-101	Take-off weight 14,970 kg (33,000 lb)
DHC-8-102	Take-off weight 15,649 kg (34,500 lb)
DHC-8-103	Take-off weight 15,649 kg (34,500 lb)
DHC-8-106	Take-off weight 16,466 kg (36,300 lb)

(For other weights see AFM as listed under Approved Publications)

CG Limits

See AFM as listed under Approved Publications

Maximum Baggage

454 kg (1000 lb) (See Weight and Balance Manual for mixed passenger cargo configuration) 907 kg (2000 lb) with Mod 8/0063 or 8/0083

2. DHC-8-200 Series

Model -201 - Approved January 4, 1996, by the FAA and August 24, 1995, by the Canadian Department of Transport

Model -202 - Approved April 19, 1995, by the FAA and March 9, 1995, by the Canadian Department of Transport

Engines

2-Pratt & Whitney Canada, Inc., PW123C (201)

2-Pratt & Whitney Canada, Inc., PW123D (202)

(See Data Pertinent to All Models Except as Indicated)

Fuel

ASTM D1655 Jet A, Jet A1, Jet B and MIL-T-5624 JP-4 & JP-5 conforming to Pratt and Whitney Canada, Inc. Specification No. CPW 204

Oil

Oils conforming to Pratt and Whitney Canada, Inc. Specification No. PWA 521 Type II (MIL-L-23699).

Engine Limits

See AFM as listed under Approved Publications

Propeller and Propeller Limits

2-Hamilton Standard Model 14SF-23

Blade SFA13()-0A

Diameter 3.96M (13 Ft)

Pitch settings at 0.75 radius:

Feather 77.5°

Flight fine 10.5°

Ground fine -5.5°

Full reverse -18.5°

Propeller (Np) - Takeoff 1212 r.p.m.

Max Continuous 1212 r.p.m.

(See Data Pertinent to All Models Except as Indicated)

<u>Airspeed Limits</u> <u>(IAS)</u>			<u>Knots</u>	<u>m.p.h.</u>
V_{MO} (Maximum operating)	0 to 14000 ft		242	279
	15000 ft		239	275
	20000 ft		223	257
	25000 ft		207	238
V_{FE} (Flaps extended)	Flaps 5°		148	170
	Flaps 15°		148	170
	Flaps 35°		130	150
V_A (Maneuvering)			164	188
			158	182
V_{LO} (Landing gear operation)			172	198
V_{LE} (Landing gear extended)			180	207
V_B (Rough Air)			140	161
Landing Gear Doors Open Operative				
Speed (Max. speed for operation following an alternate landing gear extension)				
V_{MCA} (Minimum control speed)	Flaps 5°		80	91
	15°		74	86

Maximum Weight (Mass)

All Models, Take-off weight 16,466 kg (36,300 lb)

(For other weights see AFM as listed under Approved Publications)

CG Limits

See AFM as listed under Approved Publications

Maximum Baggage

907 kg (2000 lb) (See Weight and Balance Manual for mixed passenger cargo configuration)

3. DHC-8-300 Series

Model -301-	Approved June 8, 1989, by the FAA and Feb. 14, 1989, by the Canadian Department of Transport
Model -311-	Approved September 14, 1990, by the FAA and July 31, 1990, by the Canadian Department of Transport
Model -315-	Approved June 28, 1995, by the FAA and June 2, 1995, by the Canadian Department of Transport

Engines

2-Pratt & Whitney Canada, Inc., PW123 (-301 and -311)
 2-Pratt & Whitney Canada, Inc., PW123E (-315)
(See Data Pertinent to All Models Except as Indicated)

Fuel

ASTM D1655 Jet A, Jet A1, Jet B, and MIL-T-5624 JP-4 & JP-5 conforming to Pratt and Whitney Canada, Inc. Specification No. CPW 204

Oil

Oils conforming to Pratt and Whitney Canada, Inc. Specification No. PWA 521 Type II (MIL-L-23699).

Engine Limits

See AFM as listed under Approved Publications

Propeller and Propeller Limits

2-Hamilton Standard Model 14SF-15 or 14SF-23

Blade	SFA13 ()-0A
Diameter	3.96M (13 Ft)

Pitch settings at 0.75 radius:

Feather	77.5°
Flight fine	11.5°
Ground fine	-7.5°
Full reverse	-18.5°

Propeller (Np) -	Takeoff	1212 r.p.m.
	Max Continuous	1212 r.p.m.

(See Data Pertinent to All Models Except as Indicated)

<u>Airspeed Limits (IAS)</u>			<u>Knots</u>	<u>m.p.h.</u>
<u>V_{MO}</u> (Maximum operating)	0 to 17000 ft		243	280
	20000 ft		232	267
	25000 ft		214	246
<u>DHC-8-301</u>				
<u>V_{FE}</u> (Flaps extended)	Flaps 5°		160	184
	Flaps 10°		149	171
	Flaps 15°		149	171
	Flaps 35°		127	155
<u>V_A</u> (Maneuvering)			176	203
<u>V_{LO}</u> (Landing gear operation)			158	182
<u>V_{LE}</u> (Landing gear extended)			173	199
<u>V_B</u> (Rough Air)			188	216

3. DHC-8-300 Series (cont'd)

		<u>Knots</u>	<u>m.p.h.</u>
Landing Gear Doors Open Operative Speed (Max. speed for operation following an alternate landing gear extension)		140	161
V _{MCA} (Minimum control speed)	Flaps 5 ⁰	83	96
	Flaps 15 ⁰	78	89
<u>DHC-8-311 and 315</u>			
V _{FE} (Flaps extended)	Flaps 5 ⁰	163	187
	Flaps 10 ⁰	154	177
	Flaps 15 ⁰	150	173
	Flaps 35 ⁰	138	159
V _A (Maneuvering)		177	204
V _{LO} (Landing gear operation)		163	187
V _{LE} (Landing gear extended)		173	199
V _B (Rough Air)		190	219
Landing Gear Doors Open Operative Speed (Max. speed for operation following an alternate landing gear extension)		140	161
V _{MCA} (Minimum control speed)	Flaps 15 ⁰	78	90
	Flaps 10 ⁰	80	92
	Flaps 5 ⁰	83	95
	Flaps 0 ⁰	94	109

Maximum Weight
(Mass)

DHC-8-301	Take-off weight 18,643 kg (41,100 lb)
DHC-8-311 and 315	Take-off weight 18,643 kg (41,100 lb) 18,997 kg (41,880 lb) (with CR803SO00001 incorporated) 19,505 kg (43,000 lb) (with CR803SO00002 incorporated)
(For other weights see AFM as listed under Approved Publications)	

CG Limits

See AFM as listed under Approved Publications

Maximum Baggage

1,130 kg (2500 lb) for standard baggage compartment (See Weight and Balance Manual for other configurations)

Cargo/Combi
(DHC-8-311)

All cargo, 20, 40 or 48 passenger configurations with a moveable passenger/cargo bulkhead located at station 197.0, 354.0, 515.0 or 579.0 respectively

4. DHC-8-400 Series

Model 400	Approved January 26, 2000 by the FAA and July 30, 1999 by the Canadian Department of Transport			
Model 401	Approved January 26, 2000 by the FAA and August 3, 1999 by the Canadian Department of Transport			
Model 402	Approved January 26, 2000 by the FAA and August 4, 1999 by the Canadian Department of Transport			
Engines	2 Pratt & Whitney Aircraft of Canada engines as follows: DHC-8-400, 401 and 402 PW150A			
Fuel	Kerosene Type: ASTM D1655 JET A, ASTM D1655 JET A1 MIL-T-5624 JP-5, MIL-T-5624 JP-8 Wide Cut Type: ASTM D1655 JET B, MIL-T-5624 JP-4 conforming to Pratt & Whitney Canada, Inc. Specification No. CPW 204			
Oil	Oils conforming to specification MIL-L-23699 (See AFM as listed in Approved Publications.)			
Engine Limits Propeller and Propeller Limits	See AFM as listed in Approved Publications. Dowty Aerospace Model R408/6-123-F/17			
	Blade Diameter	4.11 M (13.5 ft.) nominal		
	Pitch setting at 0.75 radius:			
	Feather	84.5°		
	Flight fine (Electronic)	16.5°		
	Flight fine (Hydraulic)	16.0°		
	Ground fine	-3.5°		
	Full reverse	-19.0°		
	Propeller (NP) - Take-off	1020 rpm		
	Max. continuous	1020 rpm		
Airspeed Limits (IAS)	V _{MO} (Maximum Operating) 0 to	8,000 ft	Knots 245	m.p.h 282
		10,000 ft	282	325
		18,000 ft	286	329
		20,000 ft	275	316
		25,000 ft	248	285
	V _{FE} (Flaps extended)	Flap 5°	200	230
		Flap 10°	181	208
		Flap 15°	172	198
		Flap 35°	158	182

V _A (Maneuvering)		204	235
V _{LO} (Landing gear operation)		200	230
V _{LE} (Landing gear extended)		215	247
V _B (Rough Air)		210	242
Landing Gear Door Open Operative Speed (Max. Speed for operation following an alternate landing gear extension)		185	213
V _{MCA} (Minimum control speed)	Flap 15°	91	105
	Flap 10°	95	109
	Flap 5°	98	113
	Flap 0°	113	130

(Refer to AFM for airspeed limits)

Maximum Weight	Take-off weight: Models 400, 401 and 402 (With Modsum 4-201539 incorporated)	27,987 Kg	(61,700 lb)
	(With Modsum 4-308807 incorporated)	28,998 Kg	(63,930 lb)
	(With Modsum 4-308907 incorporated)	29,257 Kg	(64,500 lb)
C.G. Limits	See AFM as listed in Approved Publications.		
Maximum Baggage	For standard baggage compartments Aft baggage compartment: 1669 Kg (3680 lb) Fwd baggage compartment: 413 Kg (910 lb) See Weight and Balance Manual for other configurations		

DATA PERTINENT TO ALL MODELS EXCEPT AS INDICATED:

Series 100, 200 and 300:

Propeller and Propeller Limits

The following Hamilton Standard Propeller combinations are approved.

Basic Aircraft			
Model	Models	Models	Models
101	102, 103 & 106	201 & 202	301, 311, & 315
14SF-7 & -7	14SF-7 & -7	14SF-23 & -23	14SF-15 & 15 14SF-23 & -23

Modification 8/2579 allows the following additional Hamilton Standard Propeller combinations.

Models 102, 103, & 106	Models 201 & 202	Models 301, 311, & 315
14SF-15 & 14SF-15	14SF-15 & 14SF-15	14SF-15 & 14SF-23
14SF-15 & 14SF-7	14SF-15 & 14SF-23	
14SF-15 & 14SF-23		
14SF-23 & 14SF-23		
14SF-23 & 14SF-7		

Engines The following Pratt & Whitney Aircraft of Canada engine combinations are approved. Any combination of original engines and/or optional engines within each aircraft model is permitted. For series 200 and 300 aircraft, optional engines must incorporate modification 8/2735

Approved Engine Combinations		
Aircraft Model	Original Engine	Optional Engine
102	PW120A	PW121
201	PW123C	PW123 PW123B PW123D PW123E
202	PW123D	PW123 PW123B PW123E
301 and 311	PW123	PW123B PW123E

The following P&WC Service Bulletin matrix lists the service bulletins which must be incorporated to change an optional engine to the rating of an original engine. The cancelling derate service bulletin is also shown.

P&WC Service Bulletin Matrix			
Optional Engine	Original Engine Rating	P&WC S.B. Derate	P&WC S.B. Cancel Derate
PW123	PW123C PW123D	21501	21502
PW123B	PW123 PW123C PW123D	21499	21500
PW123D	PW123C	21503	21504
PW123E	PW123 PW123C PW123D	21497	21498

Reference Datum

(Series 100, 200, 300) Plate located on centerline at Station 423.0 in. (1074.4 cm) on underside of fuselage.
 (Series 400) Plate located on centerline at "Station 428.0 in" (1087.1 cm) on underside of fuselage.

Leveling Means

Plum bob and target in RH emergency exit opening.

Minimum Crew

2 (Pilot and Copilot)

Maximum

Series 100 and 200

Occupants

Not to exceed 44, including 2 pilots, 1 attendants and 1 check pilot (40 passengers when fitted with an approved interior)

Series 300

Not to exceed 61, including 2 pilots, 2 attendants and 1 check pilot (56 passengers when fitted with an approved interior)

Series 400

Model 400:

Not to exceed 74, including 2 pilots, maximum 3 attendants, minimum 2 attendants and 1 check pilot (68 passengers when fitted with an approved interior)

Model 401:

Not to exceed 76, including 2 pilots, maximum 3 attendants, minimum 2 attendants and 1 check pilot (70 passengers when fitted with an approved interior)

Model 402:

Not to exceed 84, including 2 pilots, maximum 3 attendants, minimum 2 attendants and 1 check pilot (78 passengers when fitted with an approved interior)

<u>Flight Load Factors</u>	Flaps Up	+2.5g;	-1.0g.		
	Flaps extended	+2.0g;	0.0g.		
<u>Fuel Capacity</u> (Series 100, 200, 300)		<u>kg</u>	<u>lb</u>	<u>US Gal</u>	<u>Imp Gal</u>
	Usable	2575	5678	835	695
	Unusable	40	87	13	11
	Total	2615	5765	848	706
(Series 400)	Usable	5318	11724	1724	1436
	Unusable	73	160	24	20
	Total	5391	11884	1748	1456
<u>Oil Capacity Per Engine</u>				<u>US Gal</u>	<u>Imp Gal</u>
	PW120/120A/121		Usable	1.0	0.83
			Total	4.7	3.9
	PW123/123B/123E		Usable	1.9	1.6
			Total	5.5	4.57
(Series 400)	PW150A		Usable	1.48	1.23
			Total	6.58	5.48
<u>Maximum Operating Altitude</u>	Take-off and landing		10,000 feet		
	Enroute		25,000 feet		
<u>Outside Air Temperature Limits</u>	See AFM, as listed under Approved Publications				
<u>Control Surface</u>	See Maintenance Manual:	Series 100	PSM 1-8-2		
		Series 200	PSM 1-82-2		
		Series 300	PSM 1-83-2		
		Series 400	PSM 1-84-2		
<u>Import Eligibility</u>	A U.S. Airworthiness certificate may be issued on the basis of the Canadian Department of Transport "Certificate of Airworthiness for Export" signed by the Minister of Transport. This form must contain the following statement: "This certifies that the aircraft described above has been manufactured in conformity with the data forming the basis for the DOT Aircraft Type Approval No. A-142 as modified in accordance with the requirements for U.S. registered airplanes FAA Type Certificate No. A13NM defined in AEROC 8.1.AC.1."				

Certification BasisSeries 100, 200 and 300:

FAR Part 25 dated February 1, 1965 including Amendments 25-1 through 25-51; FAR 25.832, Amendment 25-56; FAR 36 dated December 1, 1969 including Amendments 36-1 through 36-12; SFAR 27 dated December 12, 1973 including Amendments 27-1 through 27-5.

Application for Type Certificate: March 31, 1980 (Series 100)

Series 200 Additional Requirements:

FAR Part 25, Amendments 25-52 through 25-66; FAR 25.963(e), Amendment 25-69; FAR 25.361, Amendment 25-72; FAR 25.729(e), Amendment 25-75; FAR Part 34 dated September 10, 1990 (Replaces SFAR 27); FAR Part 36, Amendments 36-1 through 36-20

With the following exceptions (*See Note 6*)

FAR 25.365(e), Amendment 25-54; FAR 25.561, Amendment 25-64; FAR 25.562, Amendment 25-64; FAR 25.783, Amendment 25-54; FAR 25.785, Amendment 25-64; FAR 25.904, Amendment 25-62; FAR 25.1091(e), Amendment 25-57

Series 300 Additional Requirements:

All Models;

FAR 25.812, Amendment 25-58

DHC-8-301;

FAR 25.853, Amendment 25-59

DHC-8-311 and 315;

FAR 25.853, Amendment 25-66

DHC-8-315;

FAR Part 34 dated September 10, 1990 (Replaces SFAR 27); FAR Part 36, Amendments 36-1 through 36-20

Series 100, 200 and 300Items of Equivalent Safety

1. Pilot compartment view FAR 25.773(b)(2).
2. Ditching emergency exits FAR 25.807(d)(2) Amdt. 25-55. (DHC-8-311 and 315 with CR803SO00001 or CR803SO00002 incorporated)
3. Cargo compartment classification FAR 25.857(b)&(d) Amdt. 25-60, for the 20, 40 & 48 passenger configurations. DHC-8-311 Flight Manual Suppl. 42, Iss. 3, Cargo Loading Manual PSM 1-83-8A, Suppl. 1, Iss. 3 and Weight & Balance Manual PSM 1-83-8C are required. (S/N 230 & 242)

Special Conditions

1. Automatic take-off power control system (ATPCS) (ref. FAA Special Conditions No. 25.-ANM-3).

Exemptions

1. FAR 25.571(e)(2) Propeller Debris (ref. FAA exemption No. NM-102)
2. FAR 25.807(c)(1) 40 passenger configuration Series 100 and 200 (ref. FAA exemption No. 4723 dated October 24, 1986)

Compliance with the following additional optional requirements has been established:

Ice Protection - FAR 25.1419

Compliance with FAR 25.801 has been established when the safety equipment requirements of FAR 25.1411 and the ditching equipment requirements of FAR 25.1415 are satisfied.

Certification BasisSeries 400:

Federal Aviation Regulations (FAR) Part 25, Airworthiness Standards: Transport Category Airplanes, dated 01 February 1965, Amendments 25-1 through 25-83
 Federal Aviation Regulations (FAR) Part 34, Fuel Venting and Exhaust Emission Requirements for Turbine Engine Powered Airplanes, effective 10 September, 1990, including Amendment 34-3 effective February 3, 1999.

Federal Aviation Regulations (FAR) Part 36, effective 1 December, 1969, including Amendment 36-1 through 36-21.

Additional Requirements:

Federal Aviation Regulations (FAR) Part 25, Airworthiness Standards: Transport Category Airplanes, dated 01 February 1965, Amendments 25-84 through 25-86, and 25-92.

Items of Equivalent Safety:

FAA Issue Paper F-1. "Use of 1-g Stall Speed Criteria Instead of Minimum Speed in the Stall"

Special Condition:

1. Special Condition No. 25-ANM-121, High Intensity Radiated Fields (HIRF)
2. Special Condition No. 25-154-SC, Automatic take-off power control system (ATPCS)

Exemptions:

1. Exemption No. 6790 to FAR 25.571(e)(1) "Damage Tolerance (Discrete Source) Evaluation at Amendment 25-72"
2. Exemption No. 6833 to FAR 36 Appendix C, Section C36.3©. "Definition of noise Sideline Point [compliance will be shown with ICAO Annex 16, Vol. 1, Iss. 3, Amendment 5, Chapter 3, Section 3.3.1(a)(2)]"
3. Exemption No. 6864 to FAR 25.1435(b)(1) "Hydraulic System – Test and Analysis, at Amendment 25-72"

Optional Requirements:

1. Ice Protection: FAR 25.1419

2. Ditching: Compliance with FAR 25.801 has been established when the safety requirements of FAR 25.1411 and the ditching equipment requirements of FAR 25.1415 are satisfied

Serial Numbers EligibleSeries 100

Serial number 2 and subsequent

Series 200

Serial number 391 and subsequent

Series 300

Serial number 100 and subsequent

Series 400

Serial 4001 and subsequent

Equipment

The basic required equipment as prescribed in the applicable airworthiness requirements (See Certification Basis) must be installed in the aircraft.

Approved Publications

Flight Manual

Series 100: PSM 1-81-1A (Models 101, 102, 103 and 106)

Series 200: PSM 1-82-1A (Model 201, 202)

Series 300: PSM 1-83-1A (Models 301, 311 and 315)

Series 400: PSM 1-84-1A (Models 400, 401 and 402)

Airworthiness Limitations (Part 2) and MRB Report (Sections 2 and 3) of the Maintenance Program

Series 100: PSM 1-8-7

Series 200: PSM 1-82-7

Series 300: PSM 1-83-7

Maintenance Requirements Manual, MRM (Section 1, MRB report and Section 2, Airworthiness Limitation Items

Series 400: PSM 1-84-7

Definition Report AEROC 8.1.AC.1

Service Information

Service Bulletins, structural repair manuals, and aircraft flight manuals which contain a statement that the document is Transport Canada approved or Transport Canada approved through the Manufacturers Design Approval Representative are accepted by the FAA and are considered FAA approved. These approvals pertain to the type design only.

Life Limited Parts

Components which are life limited are listed in the "*Airworthiness Limitations*" section of the *Maintenance Program*. (See Note 3).

Note 1.

A current weight and balance report including list of equipment included in certificated empty weight, and loading instructions must be in each aircraft at the time of original certification and at all times there after except in the case of operators having an approved weight control system. The aircraft total system fuel must be included in the empty weight. System fuel is the amount of fuel required to fill the system plumbing and tanks to the undrainable level plus unusable fuel in the tanks established under FAR 25.959.

The aircraft must be loaded so that the C.G. is within specified limits at all times, considering fuel loading and usage, gear retraction, and movement of crew and passengers from their assigned positions.

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- Note 2. The aircraft must be operated in accordance with the FAA Approved Airplane Flight Manual.*
- Note 3. Compliance with the frequencies for "Threshold" and "Repeat" inspection specified in the "Airworthiness Limitations", Volume 1, Part 2 of the Maintenance Program (PSM 1-8-7, PSM 1-82-7 and PSM 1-83-7) and MRB report Volume 1, Part 1 of the same document, are required to ensure continuing compliance with the type certification basis. For Series 400, the "Threshold" and "Repeat" inspections are specified in Part 2 of the MRM (Airworthiness Limitations) and Part 1 of the MRM (MRB report).*
- Note 4. For mixed passenger/cargo configurations see weight and balance manual.*
- Note 5. Modifications required to convert a Model DHC-8-101 to a 102, a 102 to a 103, a 102/103 to a 106, and a 311 to a 315 are identified in Bombardier Definition Report AEROC 8.1.AC.1 listed in Approved Publications.*
- Note 6. The DHC-8 Series 200 was certificated as a derivative of the Series 100 aircraft. The applicable basis of certification is the same as the Series 100, but the manufacturer elected to demonstrate compliance with FAR Part 25, up to Amendment 25-66, less the exceptions shown under the Series 200 Certification Basis.*

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