
TWIN OTTER EXTENDED

Volume 4

Data

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RECORD OF REVISIONS

revision	Issue date	Release	Description
1.00	06 July 2013	1.00	Online release candidate
1.01	06 July 2013	1.00	Reformatting



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Model	100	300
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Engines

Manufacturer	Pratt & Whitney	
Model	2 PT6A-20	2 PT6A-27

Engine rating

Take-off (5min)	550 SHP	620 SHP
Max continuous	550 SHP	620 SHP

Engine limits:

Temperature Limits

Take-off	1.380°F (750°C)	1.336°F (725°C)
Max. Continuous	1.380°F (750°C)	1.336°F (725°C)
Starting (2 sec.)	1.994°F (1090°C)	1.994°F (1090°C)

Torque Limits

Take-off	42.5 p.s.i. (1315 ft.-lb.)	50 p.s.i. (1536 ft.-lb.)
Max. Continuous	42.5 p.s.i. (1315 ft.-lb.)	50 p.s.i. (1536 ft.-lb.)

Gas Generator

Take-off	38,100 r.p.m. (101.5%)	38,100 r.p.m. (101.5%)
Max. Continuous	38,100 r.p.m. (101.5%)	38,100 r.p.m. (101.5%)

Oil Temperature

Starting (2 sec.)	- 40°C Min.	1.336°F (725°C)
Take-off	10°C to 99°C	1.336°F (725°C)
Max. Continuous	10°C to 99°C	1.994°F (1090°C)

Propeller

Manufacturer	Hartzell	
Blade Model	T10173+1, T10173E+1	T10282H (B)+0
Diameter	8 ft. 6 in. Nominal	8 ft. 6 in. Nominal

Pitch settings at 30" Station

Feather	+87°	+87°
Take-off Low Pitch	+16°	+17°
Idle Blade Angle	+12°	+11°
Reverse Blade Angle	-14°	-15°

Propeller limits

Take-off	2.200 r.p.m. (100%)	2.110 r.p.m. (96%)
Max. Continuous	2.200 r.p.m. (100%)	2.110 r.p.m. (96%)

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	DHC-6 100			DHC-6 300		
	Floats	Ski	Wheels	Wheels	Whl/Ski	Floats

Maximum weights lbs

Take-off	11.600	11.579	11.579	12.500	12.500	12.500
Landing	11.600	11.400	11.400	12.300	12.300	12.500

Weights in lbs.

Max_gross weight	11.600	11.579	11.600	12.500	12.500	11.600
empty	6.500	6.500	6.500	7.415	7.655	6.500

Weights in kg

max_gross weight	5.262	5.252	5.262	5.670	5.670	5.262
empty	2.948	2.948	2.948	3.363	3.472	2.948

Fuel capacity:

	Liter	KG	LBS	US GAL
Forward tank	696,8	559,4	1.233,2	184,1
Rear tank	762,6	612,3	1.349,8	201,5
TOTAL	1.459,4	1.171,8	2.583,0	385,5

FSX: l/kg = 0,8 lbs/Gal = 6,7
Unusable fuel: 7,25 Gal included

Maximum operating altitude:

Both engines	25.000 ft
Single engine	11.600 ft

Airspeed limits CAS

	DHC-6 100		
	Floats	Ski	Wheels
Vne (Never exceed)	183 *	183 *	202 *
Vno (Max. struct.cruising)	160 **	160 **	160 **
Vp (Maneuvering)	130 ***	130 ***	130 ***
Vmc (Minimum control)	64	64	64
Vfe (Flaps extended) 0° to 20°	100	100	100
Vfe (Flaps extended) 20° to 40°	85	85	85

*Reduce Vne 4KTS per 1000 ft. above 10000 ft.

**Reduce Vno 3KTS per 1000 ft. above 10000 ft.

***Reduce Vp - Vno above 20000 ft.

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Airspeed limits CAS

	DHC-6 300		
	Wheels	Whl/Ski	Floats

Vmo (Max. Operating)

Sea level	160	160	160
5.000	155	155	155
10.000	150	150	150
15.000	145	145	145
20.000	130	130	130
25.000	115	115	115

Vp (Design maneuvering)	136 *	136 *	136 *
Vmc (Minimum control)	66	66	67

Vfe (Flaps extended)

0° to 20°	102	102	102
10 to 37-1/2°	95	95	95

*Reduce Vp to Vmo above 18000 ft.

Takeoff

Weight lb.	Flaps 10		Flaps 20	
	VR	V2	VR	V2
12.500	69	79	63	73
12.000	68	77	62	71
11.500	66	76	61	69
11.000	65	74	60	68
10.500	64	72	59	67
10.000	64	70	58	65
9.500	64	70	58	63

Landing

Weight lb.	Flaps 20	Flaps 40
	Vref	Vref
12.300	80	74
12.000	79	72
11.500	77	70
11.000	75	69
10.500	73	67
10.000	72	66
9.500	70	64
9.000	68	62
8.500	66	60
8.000	64	59
7.500	62	57

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All speeds IAS in KTS

CLIMB DATA GROSS WEIGHT 9.000 LBS

Pressure Altitude ft.	IAS KTS	Climb rate f.p.m.	Time min.	Fuel used lbs.
Sea level	80	1.600	00:21	0
2.000	95	1.620	01:35	19
4.000	95	1.620	02:50	35
6.000	95	1.620	04:04	49
8.000	95	1.620	05:17	65
10.000	95	1.620	06:31	79
12.000	95	1.620	07:46	93
14.000	95	1.520	09:05	109
16.000	95	1.320	10:36	125
18.000	95	1.120	12:23	141
20.000	95	920	14:34	160
22.000	95	720	17:21	182
24.000	95	540	21:03	208
26.000	95	430	25:44	240

* better Climb rate & time with 85 KTS

CLIMB DATA GROSS WEIGHT 11.000 LBS

Pressure Altitude ft.	IAS KTS	Climb rate f.p.m.	Time min.	Fuel used lbs.
Sea level	85	1.220	00:20	0
2.000	85	1.220	01:59	26
4.000	85	1.220	03:36	47
6.000	85	1.220	05:14	68
8.000	85	1.220	06:52	88
10.000	85	1.220	08:30	108
12.000	85	1.200	10:10	128
14.000	85	1.180	11:52	147
16.000	85	1.000	13:52	168
18.000	85	850	16:14	190
20.000	85	660	19:15	217
22.000	85	500	23:15	249
24.000	85	360	28:50	289
26.000	85	270	36:19	339

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CLIMB DATA GROSS WEIGHT 8.500 LBS

Pressure Altitude ft.	IAS KTS	Climb rate f.p.m.	Time min.	Fuel used lbs.
Sea level	85	1.800	00:20	0
2.000	85	1.940	01:22	19
4.000	85	2.310	02:14	32
6.000	85	2.500	03:02	44
8.000	85	2.550	03:49	56
10.000	85	2.500	04:38	67
12.000	85	2.180	05:33	79
14.000	85	1.970	06:34	92
16.000	85	1.670	07:46	106
18.000	85	1.460	09:08	120
20.000	85	1.220	10:46	136
22.000	85	1.000	12:46	152
24.000	85	800	15:17	173
26.000	85	680	18:14	194

CLIMB DATA GROSS WEIGHT 12.500 LBS

Pressure Altitude ft.	IAS KTS	Climb rate f.p.m.	Time min.	Fuel used lbs.
Sea level	85	1.300	00:26	0
2.000	85	1.300	01:58	28
4.000	85	1.430	03:22	49
6.000	85	1.500	04:42	71
8.000	85	1.520	06:01	92
10.000	85	1.360	07:29	111
12.000	85	1.170	09:12	134
14.000	85	980	11:15	159
16.000	85	790	13:47	189
18.000	85	780	16:21	215
20.000	85	610	19:37	245
22.000	85	450	24:02	282
24.000	85	300	30:42	335
26.000	85	220	39:45	399

* same Climb rate & time with 95 KTS

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Maximum Cruise Power – 91% Np -2000 RPM

Pressure Altitude ft.	IOAT		Torque per Eng. p.s.i	Fuel Flow per Eng. lb /hr	Total Fuel Flow lb /hr	Airspeed – KTS			
	°F	°C				11.579 lb.		7.400 lb.	
						TAS	IAS	TAS	IAS
Sea Level	59	15	42	310	620	153	153	155	155
2.000	52	11	42	310	620	156	151	158	153
4.000	45	7	42	310	620	158	149	161	151
6.000	37	3	42	310	620	161	148	164	150
8.000	30	-1	42	310	620	163	146	166	148
10.000	23	-5	42	310	620	166	144	169	146
12.000	16	-9	42	310	620	169	142	173	145
14.000	9	-13	42	310	620	172	140	175	143
16.000	1	-17	40	300	600	172	135	176	139
18.000	-6	-21	37	280	560	170	129	175	134
20.000	-13	-25	35	260	520	168	124	174	128
22.000	-20	-29	32	240	480	165	118	173	124
24.000	-27	-33	30	230	460	163	112	173	120
26.000	-35	-37	28	220	440	162	108	173	115

Maximum Cruise Power – 75% Np – 1650 RPM

Pressure Altitude ft.	IOAT		Torque per Eng. p.s.i	Fuel Flow per Eng. lb /hr	Total Fuel Flow lb /hr	Airspeed – KTS			
	°F	°C				11.579 lb.		7.400 lb.	
						TAS	IAS	TAS	IAS
Sea Level	59	15	42	260	520	142	142	145	145
2.000	52	11	42	260	520	145	141	147	144
4.000	45	7	42	260	520	146	139	150	142
6.000	37	3	42	260	520	148	136	152	140
8.000	30	-1	42	260	520	151	134	155	138
10.000	23	-5	42	260	520	153	132	157	136
12.000	16	-9	42	260	520	155	129	159	133
14.000	9	-13	42	260	520	157	127	162	131
16.000	1	-17	42	260	520	159	125	164	129
18.000	-6	-21	42	260	520	160	122	167	127
20.000	-13	-25	42	260	520	162	120	169	125
22.000	-20	-29	39	250	500	162	115	169	121
24.000	-27	-33	37	240	480	159	109	169	117
26.000	-35	-37	36	230	460	157	105	169	113

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Economy Cruise Power – 75% Np – 1650 RPM

Pressure Altitude ft.	IOAT		Torque per Eng. p.s.i	Fuel Flow per Eng. lb /hr	Total Fuel Flow lb /hr	Airspeed – KTS			
	°F	°C				11.579 lb.		7.400 lb.	
						TAS	IAS	TAS	IAS
Sea Level	59	15	35	240	480	135	135	138	139
2.000	52	11	35	240	480	136	133	140	137
4.000	45	7	35	240	480	139	131	143	135
6.000	37	3	35	240	480	141	129	145	133
8.000	30	-1	35	240	480	143	127	147	130
10.000	23	-5	35	230	460	145	125	149	129
12.000	16	-9	35	230	460	146	123	152	127
14.000	9	-13	35	230	460	148	120	155	125
16.000	1	-17	35	230	460	150	118	157	123
18.000	-6	-21	35	230	460	152	116	159	121
20.000	-13	-25	35	230	460	154	113	161	119
22.000	-20	-29	35	230	460	154	110	164	117
24.000	-27	-33	35	230	460	155	106	167	115
26.000	-35	-37	35	230	460	156	103	170	113

Maximum Cruise Power – 91% Np -2000 RPM

Pressure Altitude ft.	IOAT		Torque per Eng. p.s.i	Fuel Flow per Eng. lb /hr	Total Fuel Flow lb /hr	Airspeed – KTS			
	°F	°C				11.600 lb.		7.400 lb.	
						TAS	IAS	TAS	IAS
Sea Level	59	15	41	390	780	161	160	163	162
2.000	52	11	41	400	800	164	159	166	160
4.000	45	7	41	410	820	168	158	170	160
6.000	37	3	41	410	820	172	156	174	158
8.000	30	-1	41	400	800	172	152	175	155
10.000	23	-5	40	360	720	171	148	174	150
12.000	16	-9	38	340	680	170	142	173	145
14.000	9	-13	36	320	640	168	136	172	140
16.000	1	-17	34	300	600	166	130	171	134
18.000	-6	-21	32	280	560	164	125	170	129
20.000	-13	-25	30	260	520	162	119	168	124
22.000	-20	-29	29	240	480	159	114	167	119
24.000	-27	-33	28	230	460	157	109	167	115
26.000	-35	-37	27	220	440	155	103	167	111

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Maximum Cruise Power – 75% Np -1650 RPM

Pressure Altitude ft.	IOAT		Torque per Eng. p.s.i	Fuel Flow per Eng. lb /hr	Total Fuel Flow lb /hr	Airspeed – KTS			
	°F	°C				11.600 lb.		7.400 lb.	
						TAS	IAS	TAS	IAS
Sea Level	59	15	41	370	740	156	155	158	157
2.000	52	11	41	370	740	158	153	160	155
4.000	45	7	41	380	760	161	152	164	154
6.000	37	3	41	380	760	164	150	166	152
8.000	30	-1	41	370	740	165	147	167	149
10.000	23	-5	41	340	680	164	142	167	144
12.000	16	-9	41	320	640	163	137	166	140
14.000	9	-13	41	300	600	162	131	166	134
16.000	1	-17	39	290	580	161	126	166	130
18.000	-6	-21	37	280	560	159	121	165	125
20.000	-13	-25	35	260	520	158	116	165	121
22.000	-20	-29	34	240	480	156	110	164	117
24.000	-27	-33	33	240	480	154	105	164	113
26.000	-35	-37	32	230	460	153	101	164	110

Economy Cruise Power – 75% Np -1650 RPM

Pressure Altitude ft.	IOAT		Torque per Eng. p.s.i	Fuel Flow per Eng. lb /hr	Total Fuel Flow lb /hr	Airspeed – KTS			
	°F	°C				11.600 lb.		7.400 lb.	
						TAS	IAS	TAS	IAS
Sea Level	59	15	35	260	520	137	137	140	140
2.000	52	11	35	260	520	139	135	142	139
4.000	45	7	35	260	520	142	134	145	137
6.000	37	3	35	260	520	143	131	147	135
8.000	30	-1	35	260	520	145	129	149	133
10.000	23	-5	35	260	520	147	127	152	130
12.000	16	-9	35	260	520	149	125	155	129
14.000	9	-13	35	260	520	151	123	157	127
16.000	1	-17	35	260	520	154	121	160	125
18.000	-6	-21	35	260	520	156	119	162	123
20.000	-13	-25	35	260	520	157	116	165	121
22.000	-20	-29	34	240	480	156	110	164	117
24.000	-27	-33	33	240	480	154	105	164	113
26.000	-35	-37	32	230	460	153	101	164	110

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Maximum Cruise Power – 91% Np -2000 RPM

Pressure Altitude ft.	IOAT		Torque per Eng. p.s.i	Fuel Flow per Eng. lb /hr	Total Fuel Flow lb /hr	Airspeed – KTS			
	°F	°C				12.500 lb.		8.200 lb.	
						TAS	IAS	TAS	IAS
Sea Level	59	15	50	420	840	169	169	171	171
2.000	52	11	50	420	840	172	168	174	169
4.000	45	7	50	420	840	175	166	177	168
6.000	37	3	50	420	840	178	164	181	166
8.000	30	-1	50	420	840	181	162	183	163
10.000	23	-5	49	410	820	183	158	186	160
12.000	16	-9	46	380	760	182	153	185	155
14.000	9	-13	43	360	720	181	147	184	149
16.000	1	-17	40	330	660	180	141	183	143
18.000	-6	-21	37	300	600	178	135	182	138
20.000	-13	-25	34	280	560	174	128	181	133
22.000	-20	-29	31	260	520	172	122	179	127
24.000	-27	-33	29	250	500	169	115	179	122
26.000	-35	-37	28	240	480	168	110	179	119

Maximum Cruise Power – 75% Np – 1650 RPM

Pressure Altitude ft.	IOAT		Torque per Eng. p.s.i	Fuel Flow per Eng. lb /hr	Total Fuel Flow lb /hr	Airspeed – KTS			
	°F	°C				12.500 lb.		8.200 lb.	
						TAS	IAS	TAS	IAS
Sea Level	59	15	50	340	680	156	156	158	158
2.000	52	11	50	340	680	158	154	161	156
4.000	45	7	50	340	680	161	152	163	154
6.000	37	3	50	340	680	163	150	166	152
8.000	30	-1	50	340	680	165	147	168	150
10.000	23	-5	50	340	680	167	144	171	147
12.000	16	-9	50	340	680	170	142	174	146
14.000	9	-13	50	340	680	172	140	177	143
16.000	1	-17	48	320	640	172	135	177	139
18.000	-6	-21	45	300	600	172	130	177	134
20.000	-13	-25	42	280	560	169	124	176	129
22.000	-20	-29	39	270	540	166	117	175	124
24.000	-27	-33	37	260	520	165	112	176	120
26.000	-35	-37	36	250	500	163	107	177	117

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Economy Cruise Power – 75% Np – 1650 RPM

Pressure Altitude ft.	IOAT		Torque per Eng. p.s.i	Fuel Flow per Eng. lb /hr	Total Fuel Flow lb /hr	Airspeed – KTS			
	°F	°C				12.500 lb.		8.200 lb.	
						TAS	IAS	TAS	IAS
Sea Level	59	15	40	280	560	145	145	148	148
2.000	52	11	40	280	560	147	143	150	146
4.000	45	7	40	280	560	149	141	152	144
6.000	37	3	40	280	560	151	139	155	142
8.000	30	-1	40	280	560	153	136	158	140
10.000	23	-5	40	280	560	156	134	161	138
12.000	16	-9	40	280	560	158	132	163	136
14.000	9	-13	40	280	560	160	129	165	134
16.000	1	-17	40	280	560	162	127	168	131
18.000	-6	-21	40	280	560	164	124	171	129
20.000	-13	-25	40	280	560	166	122	174	128
22.000	-20	-29	39	270	540	166	117	175	124
24.000	-27	-33	37	260	520	165	112	176	120
26.000	-35	-37	36	250	500	163	107	177	117

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TAKE-OFF DISTANCE

Ground roll and total distance to 50 ft. - Distance in ft.

Pressure Altitude ft.	Gross- weight lb.	Headwind			
		-10 KTS	0 KTS	10 KTS	20 KTS
Sea level	8.000	2.000	1.650	1.350	1.000
	9.000	2.600	2.200	1.750	1.350
	10.000	3.600	3.000	2.450	1.950
	11.000	4.800	4.050	3.300	2.650

2.000	8.000	2.200	1.800	1.400	1.100
	9.000	3.000	2.450	2.000	1.600
	10.000	3.900	3.300	2.600	2.000
	11.000	5.300	4.500	3.700	3.100

4.000	8.000	2.500	2.050	1.650	1.300
	9.000	3.400	2.850	2.250	1.700
	10.000	4.700	4.000	3.300	2.650
	11.000	6.500	5.500	4.600	4.100

6.000	8.000	2.900	2.350	1.900	1.400
	9.000	3.800	3.200	2.600	2.100
	10.000	5.300	4.500	3.700	3.100
	11.000	-	6.200	5.200	4.300

8.000	8.000	3.400	2.800	2.300	1.800
	9.000				
	10.000		n.n		
	11.000				

10.000	8.000				
	9.000				
	10.000		n.n.		
	11.000				

Flaps: T/O 20°

Source: Manual DHC-6 200

Aerosoft Configuration:

Pressure Altitude ft.	Gross- weight lb.	Flaps		
		10°	20°	37,5°
Sea level	9.000	1.400	1.050	970
	11.000	2.000	1.450	1.400

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LANDING DISTANCE

Total distance from 50 ft. - Distance in ft.

Pressure Altitude ft.	Gross- weight lb.	Headwind			
		-10 KTS	0 KTS	10 KTS	20 KTS
Sea level	8.000	1.720	1.400	1.140	860
	9.000	1.880	1.560	1.260	980
	10.000	2.060	1.700	1.400	1.120
	11.000	2.220	1.860	1.560	1.200

2.000	8.000	1.820	1.480	1.200	940
	9.000	1.980	1.640	1.360	1.060
	10.000	2.160	1.800	1.500	1.200
	11.000	2.300	1.940	1.640	1.300

4.000	8.000	1.880	1.560	1.260	1.000
	9.000	2.040	1.700	1.400	1.120
	10.000	2.220	1.880	1.580	1.280
	11.000	2.400	2.220	1.700	1.380

6.000	8.000	1.940	1.620	1.300	1.040
	9.000	2.160	1.800	1.500	1.200
	10.000	2.340	1.980	1.660	1.340
	11.000	2.560	2.160	1.820	1.480

8.000	8.000	2.100	1.760	1.440	1.160
	9.000	2.240	1.900	1.580	1.280
	10.000	2.480	2.100	1.760	1.460
	11.000	2.680	2.280	1.980	1.620

10.000	8.000	2.200	1.840	1.540	1.220
	9.000	2.400	2.040	1.700	1.380
	10.000	2.600	2.240	1.880	1.560
	11.000	2.840	2.460	2.080	1.740

Flaps: Landing 40°

Source: Manual DHC-6 200

Dry Concrete Surface

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STOL TAKE-OFF DISTANCE

Ground roll and total distance to 50 ft. - Distance in ft.

Pressure Altitude ft.	Gross- weight lb.	Headwind			
		-10 KTS	0 KTS	10 KTS	20 KTS
Sea level	9.000	780	650	530	450
	10.000	900	780	650	550
	11.000	1.100	930	800	650
	12.000	1.330	1.100	950	830
2.000	9.000	850	680	600	500
	10.000	1.000	850	750	630
	11.000	1.180	1.000	850	730
	12.000	1.380	1.200	1.030	830
4.000	9.000	900	780	650	550
	10.000	1.080	900	800	650
	11.000	1.280	1.100	950	830
	12.000	1.500	1.300	1.100	950
6.000	9.000	1.000	830	730	600
	10.000	1.180	1.000	880	730
	11.000	1.450	1.230	1.050	900
	12.000	1.750	1.500	1.270	1.100
8.000	9.000	1.100	950	780	630
	10.000	1.300	1.100	950	780
	11.000	1.530	1.330	1.150	950
	12.000	1.850	1.600	1.350	1.150
10.000	9.000	1.200	1.030	850	750
	10.000	1.400	1.200	1.030	830
	11.000	1.730	1.480	1.250	1.100
	12.000	2.050	1.800	1.580	1.330

Flaps: T/O 20°
Dry Concrete Surface
Maximum Performance

Source: Manual DHC-6 300