

# **FF5000**

Aircraft Route Analysis Model



## Costs Overview

### FF5000 Freight Feeder

#### Cost-Per-Lb of Feight Enplaned

200 nm	<b>\$0.05</b>
300 nm	<b>\$0.07</b>
400 nm	<b>\$0.09</b>
500 nm	<b>\$0.12</b>
600 nm	<b>\$0.14</b>
700 nm	<b>\$0.16</b>
800 nm	<b>\$0.19</b>
900 nm	<b>\$0.22</b>
1000 nm	<b>\$0.24</b>
1200 nm	<b>\$0.31</b>
1400 nm	<b>\$0.39</b>
1600 nm	<b>\$0.47</b>
1800 nm	<b>\$0.58</b>
2000 nm	<b>\$0.69</b>



The FF5000 Freight Feeder turboprop aircraft demonstrates the competitive advantage it has in the world wide freight feed air cargo market with its substantial lift capacity and low cost of operation. The FF5000 is the only turbo-prop freight feeder aircraft on the market today that has the capability to carry 6 standard AMA or AMJ containers - at half the cost-per pound of any other aircraft in its class. **FF5000 - The Next Generation of Freight Feeder Aircraft**

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# Performance Assumptions

## FF5000 Freight Feeder

### Aircraft Specifications

	FF5000				PW150A Engines	
<b>Aircraft Weights</b>	<b>MTOW</b>	<b>MLW</b>	<b>MZFW</b>	<b>BEW</b>	<b>Payload</b>	<b>Max Fuel</b>
Lbs	85,800	83,000	80,800	40,612	45,188	21,000

### General Assumptions

<b>Container Tare Weights</b>	AMA - 772 lbs
<b>Container Capacity</b>	6 - AMA, AMJ, M-1
<b>Alternate Distances</b>	100 nm
<b>Cruise Speed (kts)</b>	250
<b>Winds Aloft</b>	Average yearly recorded (IATA)

### Operating Assumptions

<b>Holding</b>	1500 ft AGL for 30 min at LRC
<b>Cruise</b>	FL 250 at MCS
<b>Climb</b>	160 kts
<b>Taxi</b>	12 min    0.2

# Airport Data Summary

## FF5000 Freight Feeder

### Associated Conditions

Performance applies to dry runways

Line up allowance: 45ft

Zero runway wind

Landing Factor: 0.6

Airport		IATA Code	ICAO Code	Elev. Ft.	OAT °C	Rwy Dir	Length Ft	MTOW Lbs.	MLW Lbs.	Limit *
1	HUB	AAA	AAAA	5,558	25	11/29	14,495	85,800	83,000	1
2	200 nm	BBB	BBBB	226	32	15/33	6,496	85,800	83,000	1
3	300 nm	CCC	CCCC	35	35	10/28	15,000	85,800	83,000	1
4	400 nm	DDD	DDDD	48	32	06/24	11,775	85,800	83,000	1
5	500 nm	EEE	EEEE	33	35	06/24	8,005	85,800	83,000	1
6	600 nm	FFF	FFFF	4,359	32	18/36	8,491	85,800	83,000	1
7	700 nm	GGG	GGGG	4,887	30	15/33	15,502	85,800	83,000	1
8	800 nm	HHH	HHHH	5,640	27	16/34	15,010	85,800	83,000	1
9	900 nm	III	IIII	3,779	31	06/24	12,998	85,800	83,000	1
10	1000 nm	JJJ	JJJJ	151	30	01/19	10,302	85,800	83,000	1
11	1200 nm	KKK	KKKK	4,035	30	10/28	11,614	85,800	83,000	1
12	1400 nm	LLL	LLLL	4,295	31	05/23	10,623	85,800	83,000	1
13	1600 nm	MMM	MMMM	4,198	25	07/25	10,171	85,800	83,000	1
14	1800 nm	NNN	NNNN	3,673	30	13/31	6,700	85,800	83,000	1
15	2000 nm	OOO	OOOO	243	24	05/23	12,190	85,800	83,000	1

Limits: (1) structural (2) Field Length (3) Obstacle

# Route Performance Analysis

FF5000 Freight Feeder

ROUTE						TIME		FUEL (lbs)				WEIGHTS (lbs)		
Flt	Depart	Arrive	Dist	Winds	FL	Flight	Block	Flight	Block	Res	Total	MORP	Lb/cu ft	LDG
1	AAA	BBB	200	12	180	0:45	0:57	1908	2108	1875	3983	38,173	10.2	83,892
2	BBB	AAA	200	-10	190	0:50	1:02	2083	2273	1875	4148	38,008	10.2	83,717
3	AAA	CCC	300	11	180	1:08	1:20	2874	3064	1875	4939	37,217	10.0	82,926
4	CCC	AAA	300	-12	190	1:15	1:27	3151	3341	1875	5216	36,940	9.9	82,649
5	AAA	DDD	400	15	190	1:30	1:42	3774	3964	1875	5839	36,317	9.7	82,026
6	DDD	AAA	400	-13	180	1:41	1:53	4219	4409	1875	6284	35,872	9.6	81,581
7	AAA	EEE	500	14	240	1:53	2:05	4735	4935	1875	6810	35,346	9.5	81,065
8	EEE	AAA	500	-15	250	2:07	2:19	5319	5509	1875	7384	34,772	9.3	80,481
9	AAA	FFF	600	11	220	2:17	2:29	5747	5937	1875	7812	34,344	9.2	80,053
10	FFF	AAA	600	-12	230	2:31	2:43	6303	6493	1875	8368	33,788	9.1	79,497
11	AAA	GGG	700	17	250	2:37	2:49	6554	6744	1875	8619	33,537	9.0	79,246
12	GGG	AAA	700	-13	240	2:57	3:09	7384	7574	1875	9449	32,707	8.8	78,416
13	AAA	HHH	800	19	250	2:58	3:10	7435	7635	1875	9510	32,646	8.8	78,365
14	HHH	AAA	800	-14	240	3:23	3:35	8475	8665	1875	10540	31,616	8.5	77,325

# Route Performance Analysis

FF5000 Freight Feeder

ROUTE						TIME		FUEL (lbs)				WEIGHTS (lbs)		
Flt	Dep	Des	Dist	Winds	FL	Flight	Block	Flight	Block	Res	Total	MORP	Lb/cu ft	LDG
15	AAA	III	900	-16	210	3:50	4:02	9615	9805	1875	11680	30,476	8.2	76,185
16	III	AAA	900	17	200	3:22	3:34	8427	8617	1875	10492	31,664	8.5	77,373
17	AAA	JJJ	1000	12	190	3:49	4:01	9542	9742	1875	11617	30,539	8.2	76,258
18	JJJ	AAA	1000	-10	180	4:10	4:22	10417	10607	1875	12482	29,674	8.0	75,383
19	AAA	KKK	1200	7	200	4:40	4:52	11673	11863	1875	13738	28,418	7.6	74,127
20	KKK	AAA	1200	-7	210	4:56	5:08	12346	12536	1875	14411	27,745	7.4	73,454
21	AAA	LLL	1400	-8	240	5:47	5:59	14463	14653	1875	16528	25,628	6.9	71,337
22	LLL	AAA	1400	5	250	5:29	5:41	13725	13915	1875	15790	26,366	7.1	72,075
23	AAA	MMM	1600	-11	230	4:11	6:53	16736	16936	1875	18811	23,345	6.3	69,064
24	MMM	AAA	1600	14	240	6:03	6:15	15152	15342	1875	17217	24,939	6.7	70,648
25	AAA	NNN	1800	22	250	6:37	6:49	16544	16734	1875	18609	23,547	6.3	69,256
26	NNN	AAA	1800	-18	240	7:45	7:57	19397	19587	1875	21462	20,694	5.6	66,403
27	AAA	OOO	2000	17	250	7:29	7:41	18727	18917	1875	20792	21,364	5.7	67,073
28	OOO	AAA	2000	-14	240	8:28	8:40	21186	21376	1500	22876	19,280	5.2	64,614

## Economic Assumptions

			<u>Source</u>
<b>Aircraft Utilization</b>			
Annual Utilization	260 days per year		Utilicraft
<b>Ownership - Hull</b>			
FF5000	16.5 M		Utilicraft
<b>Insurance</b>			
Hull Insurance	1%		Utilicraft
<b>Maintenance</b>			
Burdened labor Rate	25.00	USD per man hour (MH)	Utilicraft
Line Labor	1.2	MH/FH	
Parts & Materials	150.00	Per flight hour	
Engine Reserves	175.00	per flight hour	Bombardier
Cycles	Based on 2 FH		
<b>Revenue Payload</b>			
Revenue Pound	\$0.90	USD per revenue LBS	Utilicraft
AMA tare	772 lbs per container	Capacity 6	
AMA volume	621		
Total container volume	3726	cu / ft	
<b>Operating Costs</b>			
Fuel	2.75	USD per gallon	
Maintenance Burden	75,000	Per aircraft per year	
Overheads	100,000	Per aircraft per year	
Flight Crew	195	Per flight hour <i>includes instruction, expenses, benefits, taxes</i>	NBAA
Landing and Navigation Fees	Estimated	<i>using average international airport schedule</i>	

## Economic Performance

### FF5000 Freight Feeder

Market	1	2	3	4	5	6	7	8	9	10
Origin	AAA	BBB	AAA	CCC	AAA	DDD	AAA	EEE	AAA	FFF
Destination	BBB	AAA	CCC	AAA	DDD	AAA	EEE	AAA	FFF	AAA
Distance	200	200	300	300	400	400	500	500	600	600
Winds	12	-10	11	-12	15	-13	14	-15	11	-12
<b>Operational</b>										
MORP	38,173	38,008	37,217	36,940	36,317	35,872	35,346	34,772	34,344	33,788
Flight Time	0:45	0:50	1:08	1:15	1:30	1:41	1:53	2:07	2:17	2:31
Block Time	0:57	1:02	1:20	1:27	1:42	1:53	2:05	2:19	2:29	2:43
Block Fuel	2108	2273	3064	3341	3964	4409	4935	5509	5937	6493
<b>Operating Costs</b>										
Fuel \$USD	865	933	1257	1371	1627	1810	2025	2261	2437	2665
Line Maintenance	23	25	34	38	45	51	57	64	69	76
Parts & Materials	115	125	172	189	226	253	284	319	345	378
Engines	134	146	201	221	264	295	331	372	402	441
Landing Fee	252	251	249	248	246	245	243	241	240	238
Enroute Charges	81	81	121	121	162	162	202	202	243	243
Flight Crew	149	163	224	246	294	329	369	415	448	492
<b>Direct Operating Costs</b>	<b>\$1,618</b>	<b>\$1,724</b>	<b>\$2,260</b>	<b>\$2,434</b>	<b>\$2,865</b>	<b>\$3,145</b>	<b>\$3,513</b>	<b>\$3,875</b>	<b>\$4,184</b>	<b>\$4,533</b>
Overheads	144	144	144	144	144	144	144	144	144	144
Maint. Burden	192	192	192	192	192	192	192	192	192	192
<b>Total Operating Costs</b>	<b>\$1,954</b>	<b>\$2,060</b>	<b>\$2,596</b>	<b>\$2,771</b>	<b>\$3,202</b>	<b>\$3,481</b>	<b>\$3,849</b>	<b>\$4,212</b>	<b>\$4,521</b>	<b>\$4,869</b>
<b>TOC per NM</b>	<b>\$9.77</b>	<b>\$10.30</b>	<b>\$8.65</b>	<b>\$9.24</b>	<b>\$8.00</b>	<b>\$8.70</b>	<b>\$7.70</b>	<b>\$8.42</b>	<b>\$7.53</b>	<b>\$8.12</b>
<b>Cost-per-Lb</b>	<b>\$0.05</b>	<b>\$0.05</b>	<b>\$0.07</b>	<b>\$0.08</b>	<b>\$0.09</b>	<b>\$0.10</b>	<b>\$0.11</b>	<b>\$0.12</b>	<b>\$0.13</b>	<b>\$0.14</b>
<b>TOC per Block Hour</b>	<b>\$2,560</b>	<b>\$2,472</b>	<b>\$2,259</b>	<b>\$2,198</b>	<b>\$2,121</b>	<b>\$2,063</b>	<b>\$2,032</b>	<b>\$1,980</b>	<b>\$1,967</b>	<b>\$1,932</b>

## Economic Performance

<b>Market</b>	11	12	13	14	15	16	17	18	19	20
Origin	AAA	GGG	AAA	HHH	AAA	III	AAA	JJJ	AAA	KKK
Destination	GGG	AAA	HHH	AAA	III	AAA	JJJ	AAA	KKK	AAA
Distance	700	700	800	800	900	900	1000	1000	1200	1200
Winds	17	-13	19	-14	-16	17	12	-10	7	-7
<b>Operational</b>										
MORP	33,537	32,707	32,646	31,616	30,476	31,664	30,539	29,674	28,418	27,745
Flight Time	2:37	2:57	2:58	3:23	3:50	3:22	3:49	4:10	4:40	4:56
Block Time	2:49	3:09	3:10	3:35	4:02	3:34	4:01	4:22	4:52	5:08
Block Fuel	6744	7574	7635	8665	9805	8617	9742	10607	11863	12536
<b>Operating Costs</b>										
Fuel \$USD	2768	3109	3134	3556	4025	3537	3999	4353	4869	5145
Line Maintenance	79	89	89	102	115	101	115	125	140	148
Parts & Materials	393	443	446	508	577	506	573	625	700	741
Engines	459	517	520	593	673	590	668	729	817	864
Landing Fee	238	235	235	232	229	232	229	226	222	220
Enroute Charges	283	283	324	324	364	364	405	405	486	486
Flight Crew	511	576	580	661	750	657	744	813	911	963
<b>Direct Operating Costs</b>	<b>\$4,731</b>	<b>\$5,252</b>	<b>\$5,329</b>	<b>\$5,977</b>	<b>\$6,733</b>	<b>\$5,987</b>	<b>\$6,732</b>	<b>\$7,276</b>	<b>\$8,146</b>	<b>\$8,568</b>
Overheads	144	144	144	144	144	144	144	144	144	144
Maint. Burden	192	192	192	192	192	192	192	192	192	192
<b>Total Operating Costs</b>	<b>\$5,068</b>	<b>\$5,588</b>	<b>\$5,665</b>	<b>\$6,313</b>	<b>\$7,070</b>	<b>\$6,324</b>	<b>\$7,068</b>	<b>\$7,613</b>	<b>\$8,482</b>	<b>\$8,904</b>
<b>TOC per Nautical Mile</b>	\$7.24	\$7.98	\$7.08	\$7.89	\$7.86	\$7.03	\$7.07	\$7.61	\$7.07	\$7.42
<b>Cost-per-Lb</b>	<b>\$0.15</b>	<b>\$0.17</b>	<b>\$0.17</b>	<b>\$0.20</b>	<b>\$0.23</b>	<b>\$0.20</b>	<b>\$0.23</b>	<b>\$0.26</b>	<b>\$0.30</b>	<b>\$0.32</b>
<b>TOC per Block Hour</b>	\$1,933	\$1,892	\$1,905	\$1,862	\$1,838	\$1,876	\$1,852	\$1,827	\$1,817	\$1,803

## Economic Performance

### FF5000 Freight Feeder

Market	21	22	23	24	25	26	27	28
Origin	AAA	LLL	AAA	MMM	AAA	NNN	AAA	OOO
Destination	LLL	AAA	MMM	AAA	NNN	AAA	OOO	AAA
Distance	1400	1400	1600	1600	1800	1800	2000	2000
Winds	-8	5	-11	14	22	-18	17	-14
<b>Operational</b>								
MORP	25,628	26,366	23,345	24,939	23,547	20,694	21,364	19,280
Flight Time	5:47	5:29	4:11	6:03	6:37	7:45	7:29	8:28
Block Time	5:59	5:41	6:53	6:15	6:49	7:57	7:41	8:40
Block Fuel	14653	13915	16936	15342	16734	19587	18917	21376
<b>Operating Costs</b>								
Fuel \$USD	6014	5712	6952	6297	6868	8039	7764	8774
Line Maintenance	174	165	201	182	199	233	225	254
Parts & Materials	868	824	1004	909	993	1164	1124	1271
Engines	1012	961	1172	1061	1158	1358	1311	1483
Landing Fee	214	216	207	212	208	199	201	194
Enroute Charges	567	567	648	648	729	729	810	810
Flight Crew	1128	1071	1305	1182	1290	1513	1461	1653
<b>Direct Operating Costs</b>	<b>\$9,977</b>	<b>\$9,514</b>	<b>\$11,489</b>	<b>\$10,490</b>	<b>\$11,445</b>	<b>\$13,235</b>	<b>\$12,895</b>	<b>\$14,439</b>
Overheads	144	144	144	144	144	144	144	144
Maint. Burden	192	192	192	192	192	192	192	192
<b>Total Operating Costs</b>	<b>\$10,314</b>	<b>\$9,851</b>	<b>\$11,825</b>	<b>\$10,827</b>	<b>\$11,781</b>	<b>\$13,571</b>	<b>\$13,232</b>	<b>\$14,775</b>
<b>TOC per Nautical Mile</b>	<b>\$7.37</b>	<b>\$7.04</b>	<b>\$7.39</b>	<b>\$6.77</b>	<b>\$6.55</b>	<b>\$7.54</b>	<b>\$6.62</b>	<b>\$7.39</b>
<b>Cost-per-Lb</b>	<b>\$0.40</b>	<b>\$0.37</b>	<b>\$0.51</b>	<b>\$0.43</b>	<b>\$0.50</b>	<b>\$0.66</b>	<b>\$0.62</b>	<b>\$0.77</b>
<b>TOC per Block Hour</b>	<b>\$1,783</b>	<b>\$1,794</b>	<b>\$1,766</b>	<b>\$1,786</b>	<b>\$1,780</b>	<b>\$1,749</b>	<b>\$1,766</b>	<b>\$1,743</b>