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FOR THE SAFETY OF AIR NAVIGATION



EUROCONTROL EXPERIMENTAL CENTRE

SYNONYM AIRCRAFT REPORT FOR THE BASE OF AIRCRAFT DATA (BADA) - REVISION 3.7

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Abstract : The BADA data files provide performance and operating procedure data for a set of aircraft known as BADA aircraft original models. A further set of aircraft types have been identified as being 'equivalent' to these original aircraft models. They are referred to as synonym aircraft. To coincide with the BADA 3.7 release the BADA synonym aircraft have been up-dated and revised through the use of a new BADA Synonym Search Tool and a dedicated aircraft performance database (Navion). In total BADA 3.7 provides equivalences for 191 aircraft types. 105 of them have been reassigned a new BADA original model in BADA 3.7.						

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FOREWORD

This document presents a revision of the synonym aircraft modifications for Base of Aircraft Data (BADA) Revision 3.7.

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1. INTRODUCTION

1.1. IDENTIFICATION AND SCOPE

This document presents a revision of the synonym aircraft modifications for Base of Aircraft Data (BADA) Revision 3.7 [RD1].

This revision is two fold; it allows for the addition of new synonym aircraft since BADA 3.6, but also a general reevaluation of all previously assigned aircraft with the aid of a new BADA Synonym Search Tool. This tool is provided as a new function of the existing BADA Calculation Tool (web application) as described in Section 3.

The acceptance criteria for aircraft equivalences is also specified in Section 3.

1.2. ORGANISATION

This document is presented in three sections. The first section includes a list of referenced documents and a glossary of acronyms.

The results of the equivalence analysis are summarised in Section 2.

Section 3 briefly describes the synonym and BADA aircraft performance comparisons made using a BADA synonym search function. A final conclusion is provided.

Appendix A contains an aircraft equivalence report for each of the aircraft under consideration.

1.3. REFERENCED DOCUMENTS

RD1 User Manual for the Base of Aircraft Data (BADA) Revision 3.7; EEC Technical Report 003/2009, March 2009.

RD2 EEC Note No. 13/04. Coverage of 2004 European Traffic For the Base of Aircraft Data (BADA), Revision 3.6. September 2004.

RD3 BADA Product Management Document, EEC Technical Report No. 2009-008, March 2009.

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2. SYNONYM AIRCRAFT MODEL IDENTIFICATION

The BADA data files provide performance and operating procedure data for a set of aircraft known as BADA aircraft original models. A further set of aircraft types have been identified as being 'equivalent' to these original aircraft models. They are referred to as synonym aircraft. For all BADA releases, a list of synonym aircraft types is provided.

2.1. SYNONYM SEARCH TOOL

To facilitate the task of synonym identification a Synonym Search function was developed within the already available internet based BADA Calculation Tool. This new function:

- provides a means of searching the BADA original aircraft model data parameters using a predefined search criteria,
- proposes the BADA original aircraft model(s) that fit the search criteria,
- allows the comparison of a set of aircraft operational parameters against the BADA original aircraft models by providing a difference error.

The search criteria parameters currently implemented in the tool are:

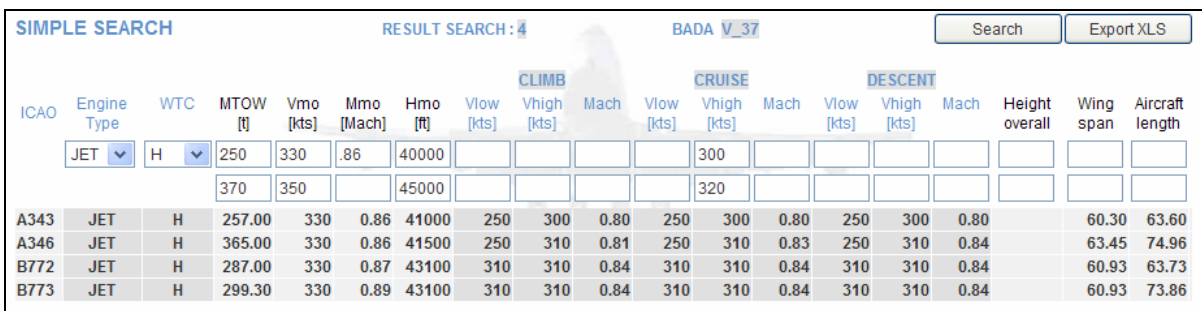
- engine type;
- wake turbulence category (WTC)
- maximum take-off weight (MTOW);
- max operating speed (Vmo)
- maximum mach operating speed (Mmo);
- maximum operational height (Hmo) - service ceiling (or max operating altitude)
- Normal Climb Speed CAS below 10000ft (Vlow_climb)
- Normal Climb Speed CAS above 10000ft (Vhigh_climb)
- Normal Climb Speed Mach (Mach_climb)
- Normal Cruise Speed CAS below 10000ft (Vlow_cruise)
- Normal Cruise Speed CAS above 10000ft (Vhigh_cruise)
- Normal Cruise Speed Mach (Mach_cruise)
- Normal Descent Speed CAS below 10000ft (Vlow_descent)
- Normal Descent Speed CAS above 10000ft (Vhigh_descent)
- Normal Descent Speed Mach (Mach_descent)
- Height overall
- Length
- Wing span

The tool offers two possibilities for search: “simple” and “advanced”. Both of the functions are based on the same principles in searching for the closest fit amongst the BADA original models and a presentation of the results. The main difference is in the way the aircraft performance parameters used as search criteria are provided to the tool.

In the simple search function the user manually enters different minimum/maximum search criteria values.

A screenshot of the Synonym Simple Search result interface is given in Figure 2-1:

Figure 2-1: Synonym Simple Search



The screenshot shows a search interface with the following search criteria: Engine Type: JET, WTC: H, MTOW: 250, Vmo: 330, Mmo: .86, Hmo: 40000. The results table is as follows:

ICAO	Engine Type	WTC	MTOW [t]	Vmo [kts]	Mmo [Mach]	Hmo [ft]	CLIMB			CRUISE			DESCENT			Height overall	Wing span	Aircraft length
							Vlow [kts]	Vhigh [kts]	Mach	Vlow [kts]	Vhigh [kts]	Mach	Vlow [kts]	Vhigh [kts]	Mach			
	JET	H	250	330	.86	40000				300								
			370	350		45000				320								
A343	JET	H	257.00	330	0.86	41000	250	300	0.80	250	300	0.80	250	300	0.80		60.30	63.60
A346	JET	H	365.00	330	0.86	41500	250	310	0.81	250	310	0.83	250	310	0.84		63.45	74.96
B772	JET	H	287.00	330	0.87	43100	310	310	0.84	310	310	0.84	310	310	0.84		60.93	63.73
B773	JET	H	299.30	330	0.89	43100	310	310	0.84	310	310	0.84	310	310	0.84		60.93	73.86

The advanced synonym search function makes use of a dedicated database which contains information on various aircraft performances and other relevant parameters (such a physical dimensions), called Navion. This database was created and is maintained by the BADA project team at EUROCONTROL. At present, the Navion database holds information on various aircraft parameters for approximately 270 aircraft types. The principal reference data sources for Navion are “Jane’s All the World’s Aircraft”, aircraft manufacturers web sites, aircraft operational data processed by RDAP tool and other data sources that were available to EUROCONTROL. Due to the lack of regularity and uniformity of the data coming from different sources, the data parameters have been analysed and selected in an attempt to populate NAVION in consistent manner and with the best information and knowledge currently available to EUROCONTROL.

The tool calculates, for each search criteria, the difference between the synonym type values (V_{SYN}) and values of the BADA aircraft models (V_{BADA}). The difference is expressed in percentage and calculated as follows:

$$error = \frac{(V_{BADA} - V_{SYN})}{V_{SYN}} \cdot 100$$

The number of the criteria (n) may vary depending on the data available in Navion. The user has however the possibility to manually insert any missing data. A final averaged % error difference value is then provided for each of the BADA types.

$$average = \sum \frac{error}{n}$$

The resulting list of BADA aircraft models is presented in order of the average % error. The results are provided directly on screen in the tool application and can also be downloaded in .csv files format.

A screenshot of the Synonym Advanced Search result interface is given in Figure 2-2.

Figure 2-2: Synonym Advanced Search

ADVANCED SEARCH			RESULT SEARCH : 9													BADA V_37		Search	Export XLS			
NAVION REFERENCE :			Version : SYN_JANES_4_16.14.csv				ICAO : B77W			MODEL : BOEING 777-300ER												
ICAO	Engine Type	WTC	MTOW [t]	Vmo [kts]	Mmo [Mach]	Hmo [ft]	CLIMB			CRUISE			DESCENT			Height overall	Wing span	Aircraft length	All Data			
							Vlow [kts]	Vhigh [kts]	Mach	Vlow [kts]	Vhigh [kts]	Mach	Vlow [kts]	Vhigh [kts]	Mach							
B77W	JET	H	345.05	330	0.89	45000									0.84				18.57	64.80	73.86	
Manual Other: % <input type="checkbox"/> % Auto Interval <input type="checkbox"/>			30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	All	All	All	--	
<input type="button" value="All"/> <input type="button" value="All"/>			241.53	231	0.623	31500									0.588							
			448.56	429	1.157	58500									1.092							% Err
A346	JET	H	365.00	330	0.86	41500	250	310	0.81	250	310	0.83	250	310	0.84				63.45	74.96		3.10
B773	JET	H	299.30	330	0.89	43100	310	310	0.84	310	310	0.84	310	310	0.84				60.93	73.86		3.35
B743	JET	H	377.80	360	0.90	45000	250	330	0.84	250	340	0.85	250	300	0.85				59.64	70.66		4.74
B744	JET	H	396.80	365	0.92	45000	250	340	0.84	250	340	0.84	250	340	0.84				64.44	70.67		4.84
B742	JET	H	356.00	375	0.92	45000	340	340	0.82	340	340	0.86	330	330	0.86				59.64	70.66		4.98
B772	JET	H	287.00	330	0.87	43100	310	310	0.84	310	310	0.84	310	310	0.84				60.93	63.73		6.14
A343	JET	H	257.00	330	0.86	41000	250	300	0.80	250	300	0.80	250	300	0.80				60.30	63.60		9.05
MD11	JET	H	285.99	365	0.87	43000	250	330	0.82	250	345	0.83	250	300	0.82				51.66	61.21		10.43
DC10	JET	H	250.00	375	0.88	39000	320	320	0.82	330	330	0.82	320	320	0.82				50.42	55.20		15.07

2.2. DEFAULT SEARCH CRITERIA FOR BADA APM

Driven by a requirement to provide a generic synonym aircraft model in BADA enabling its use for diverse nature of ATM applications and related studies, a set of BADA default search criteria was established.

Amongst the list of available search criteria mentioned above, the following ones were used for the BADA synonym model identification:

- engine type;
- wake turbulence category (WTC)
- maximum take-off weight (MTOW);
- max operating speed (VMO)
- maximum mach operating speed (MMO);
- maximum operational height (HMO) - service ceiling (or max operating altitude)
- Normal Cruise Speed CAS above 10000ft (Vhigh_cruise)
- Normal Cruise Speed Mach (Mach_cruise)

The choice of an equivalent synonym aircraft type is made by selecting the aircraft type which matches best the search criteria. In some cases where search is not successful due to difficulty to match the selected criteria with BADA aircraft model, some assumptions and changes to search criteria are required. The general approach and process is briefly described below.

Wake Turbulence Category (WTC) and engine type were selected to match the aircraft type being sought. Cruise speeds and HMO were then prioritised. In the case of search results providing two or more similar BADA direct model types, the type which provided the least average error was favoured. However, in certain cases the WTC or engine types were disregarded due to the poor search results. In some results turboprop matches are proposed for piston types. This is partially due to the limited number of aircraft available in BADA.

3. BADA 3.7 SYNONYM REVISION

The CFMU air traffic is used as a representative sample to identify the current European traffic mix of aircraft types. The choice of BADA aircraft models are targeted to reflect this traffic make up. When a corresponding BADA model is not available, a synonym equivalent can be proposed. The EEC Note No.13/04, Coverage of 2004 European Traffic for the Base of Aircraft Data (BADA) [RD2] has been used to identify the aircraft types for identification. In addition to this representative sample of aircraft types new synonym aircraft have been added following specific user demand.

The modifications covered in this chapter are designed for inclusion in BADA Revision 3.7.

A total of 191 synonym aircraft types are proposed for BADA Revision 3.7. Since the release of BADA 3.6, 4 new synonym types have been added (**B77L**, **B77W**, **HS25B**, **JS31** and **SW3**), 4 previous synonym types have been remodelled as direct models (**BE58**, **SW4**, **CRJ2** and **A346**) and 7 synonym types have been withdrawn (**AC80**, **BER4**, **C526**, **CONC**, **D28D**, **J728**, and **R135**) due to a poor coverage representation in [RD2]. Note however, that the 3 generic fighter models (FGTN, FGTH, and FGTL) and generic helicopter (HELI) do not hold an official ICAO code. They do therefore not appear amongst the CFMU traffic data nor appear in the Navion database synonym revision equivalence reports All the fighter aircraft types and helicopters were assigned to one of the fighter models or HELI. Due to that, a total of 155 synonym aircraft were reevaluated for BADA 3.7. 105 of these synonyms were reassigned different BADA reference models then in BADA 3.6.

The detailed results are provided in Appendix A of this document.

A summary list of BADA 3.7 synonyms with their associated reference aircraft is provided in Table 3-1.

Table 3-1: BADA 3.7 Synonym Revision

	ICAO	MANUFACTURER	Version	BADA 3.6	BADA 3.7
1	A10	FAIRCHILD	THUNDERBOLT II	FGTN__	FGTN__
2	A124	ANTONOV	AN-124 RUSLAN	B732__	A346__
3	A318	AIRBUS	A318	A319__	A319__
4	A342	AIRBUS	A340-200	A343__	A343__
5	A345	AIRBUS	A340-500	A343__	A346__
6	A3ST	AIRBUS	A-300ST Beluga	B732__	A321__
7	A4	DOUGLAS	SUPER SKYHAWK	FGTN__	FGTN__
8	A6	GRUMMAN	INTRUDER	FGTN__	FGTN__
9	A7	VOUGHT	CORSAIR II A7	FGTN__	FGTN__
10	A748	AVRO	AVRO 748	AT72__	ATP__
11	AA5	GULFSTREAM AMERICAN	Cheetah AA-5	P28A__	P28A__
12	AC90	ROCKWELL	TURBO COMMANDER 690B	BE20__	PAY3__
13	AC95	GULFSTREAM AEROSPACE	Jetprop Commander 980	BE20__	PAY3__
14	AEST	TED SMITH	AEROSTAR	PAY3__	MU2__
15	AJET	DASSAULT	ALPHA JET	FGTN__	FGTN__
16	AMX	EMBRAER	AMX	FGTN__	FGTN__
17	AN12	ANTONOV	AN-12	C130__	C130__
18	AN24	ANTONOV	AN-124	F27__	F27__
19	AN26	ANTONOV	AN-26	F27__	AT72__
20	AN72	ANTONOV	AN-72	F28__	F28__
21	ASTR	IAI	1125 Astra	LJ45__	FA10__
22	AT44	ATR	ATR 42-400	AT43__	AT45__
23	ATLA	DASSAULT	1150 ATLANTIC	C130__	E120__
24	B1	ROCKWELL	B1 LANCER	FGTL__	FGTL__
25	B190	BEECH	1900	JS31__	JS32__
26	B350	BEECH	SUPER KING AIR 350	BE20__	PAY3__
27	B461	BAE	146-100/RJ	B462__	B462__
28	B463	BAE	146-300/RJ	B462__	B462__
29	B52	BOEING	B-52 Stratofortress	FGTL__	FGTL__
30	B701	BOEING	707-100	B703__	B752__
31	B720	BOEING	B720B	B703__	B752__
32	B721	BOEING	727-100	B722__	B752__
33	B731	BOEING	737-100	B732__	T134__

	ICAO	MANUFACTURER	Version	BADA 3.6	BADA 3.7
34	B739	BOEING	737-900	B738__	B738__
35	B741	BOEING	747-100	B742__	B743__
36	B74D	BOEING	747-400 DOMESTIC	B744__	B744__
37	B74S	BOEING	747-SP	B744__	B742__
38	B77L	BOEING	777-200 LRF, LR		B744__
39	B77W	BOEING	777-300 ER		B744__
40	BDOG	BAE	SA-3 BULLDOG	P28A__	PA34__
41	BE10	BEECH	KING AIR 100	BE20__	D228__
42	BE30	BEECH	SUPER KING AIR 300	BE20__	PAY3__
43	BE33	BEECH	BONANZA 33	PA34__	TRIN__
44	BE36	BEECH	BONANZA 36	PA34__	DA42__
45	BE40	BEECH	BEECHJET 400	FA10__	C560__
46	BE55	BEECH	BARON 55	D228__	BE58__
47	BE60	BEECH	DUKE 60	C421__	PA31__
48	BE76	BEECH	DUCHESS 76	PA27__	DA42__
49	BE95	BEECH	TRAVEL AIR 95	PA31__	TRIN__
50	BN2P	BRITTEN NORMAN	MARITIME DEFENDER	PA31__	PA34__
51	C135	BOEING	STRATOLIFTER C-135C	B703__	B703__
52	C141	LOCKHEED	STARLIFTER C-141	DC87__	A310__
53	C17	BOEING	GLOBEMASTER 3	B763__	B764__
54	C170	CESSNA	170	PA34__	P28A__
55	C172	CESSNA	SKYHAWK 172	P28A__	P28A__
56	C177	CESSNA	CARDINAL 177	P28A__	P28A__
57	C182	CESSNA	SKYLANE 182	P28A__	TRIN__
58	C208	CESSNA	CARAVAN	PA27__	PA27__
59	C210	CESSNA	CENTURION	PA31__	TRIN__
60	C212	CASA	T-12 AVIOCAR	D228__	D228__
61	C303	CESSNA	CRUSADER 303	PA31__	PA31__
62	C30J	LOCKHEED MARTIN	C130J HERCULES	C130__	C130__
63	C310	CESSNA	310	PA31__	PA34__
64	C337	CESSNA	SUPER SKYMASTER	PA34__	PA27__
65	C340	CESSNA	C-340/340A	PA31__	PA31__
66	C402	CESSNA	402	PA31__	PA34__
67	C414	CESSNA	CHANCELLOR 414	C421__	PA31__
68	C425	CESSNA	CORSAIR	PAY2__	PAY2__
69	C441	CESSNA	Conquest	BE20__	PAY3__

	ICAO	MANUFACTURER	Version	BADA 3.6	BADA 3.7
70	C5	LOCKHEED	L-500 GALAXY	B742__	A346__
71	C500	CESSNA	CITATION 1	C550__	C550__
72	C501	CESSNA	CITATION 1SP	C550__	C550__
73	C525	CESSNA	CITATION JET	C550__	C550__
74	C551	CESSNA	CITATION 2SP	C550__	C550__
75	C56X	CESSNA	CITATION Excel	FA10__	C560__
76	C650	CESSNA	CITATION VII	LJ35__	H25A__
77	C72R	CESSNA	CUTLASS RG	P28A__	TRIN__
78	C77R	CESSNA	CARDINAL 177RG	P28A__	P28A__
79	C82R	CESSNA	SKYLANE R182 RG	P28A__	TRIN__
80	CN35	CASA	CN-235	AT43__	AT43__
81	CRJ7	CANADAIR	REGIONAL JET CRJ-700	CRJ1__	CRJ9__
82	CVLT	CANADAIR	CC-109 COSMOPOLITAN	AT43__	DH8C__
83	DC3	DOUGLAS	DC-3	DH8C__	C421__
84	DC85	MCDONNELL DOUGLAS	DC-8-50	DC87__	A310__
85	DC86	MCDONNELL DOUGLAS	DC-8-60	DC87__	DC87__
86	DC91	MCDONNELL DOUGLAS	DC-9-10	DC94__	B712__
87	DC92	MCDONNELL DOUGLAS	DC-9-20	DC94__	DC94__
88	DC93	MCDONNELL DOUGLAS	DC-9-30	DC94__	DC94__
89	DC95	MCDONNELL DOUGLAS	DC-9-50	DC94__	DC94__
90	DH8B	DE HAVILLAND	DASH 8-200	DH8C__	DH8C__
91	E110	EMBRAER	BANDEIRANTE	D228__	SW4__
92	E3CF	BOEING	E-3 SENTRY	B703__	B762__
93	E3TF	BOEING	E-3A SENTRY	B703__	B762__
94	ETAR	DASSAULT	ETENDARD 4	FGTN__	FGTN__
95	EUFI	EUROFIGHTER	2000	FGTN__	FGTN__
96	F1	MITSUBISHI	F1	FGTN__	FGTN__
97	F104	LOCKHEED	STARFIGHTER	FGTN__	FGTN__
98	F117	LOCKHEED	NIGHTHAWK	FGTN__	FGTN__
99	F14	GRUMMAN	TOMCAT	FGTN__	FGTN__
100	F15	MCDONNELL DOUGLAS	EAGLE	FGTN__	FGTN__
101	F16	GENERAL DYNAMICS	FIGHTING FALCON	FGTN__	FGTN__
102	F18	MCDONNELL DOUGLAS	HORNET	FGTN__	FGTN__
103	F2TH	DASSAULT	FALCON 2000	F900__	F900__
104	F4	MCDONNELL DOUGLAS	PHANTOM	FGTN__	FGTN__

	ICAO	MANUFACTURER	Version	BADA 3.6	BADA 3.7
105	F5	NORTHROP	F-5	FGTN__	FGTN__
106	G222	ALENIA	SPARTAN C-27A	ATP__	ATP__
107	GALX	IAI	1126 GALAXY	LJ45__	C750__
108	GLAS	STODDARD-HAMILTON	GLASAIR	P28A__	BE58__
109	GLEX	BOMBARDIER	BD-700 Global Express	B744__	CRJ9__
110	GLF2	GULFSTREAM	GULFSTREAM II	LJ45__	CRJ2__
111	GLF3	GULFSTREAM	GULFSTREAM III	LJ45__	CRJ2__
112	GLF4	GULFSTREAM	GULFSTREAM IV	LJ45__	CRJ9__
113	GLF5	GULFSTREAM	GULFSTREAM V C37	LJ45__	CRJ9__
114	H25B	HAWKER SIDDELEY	HS 125-700/800	H25B__	H25A__
115	H25C	RAYTHEON	HAWKER 1000	H25B__	FA20__
116	HAR	HAWKER SIDDELEY	HARRIER	FGTN__	FGTN__
117	HAWK	HAWKER SIDDELEY	HAWK	FGTN__	FGTN__
118	HELI	GENERIC	HELICOPTER	P28A__	P28A__
119	IL18	ILYUSHIN	IL-18	C130__	C160__
120	IL62	ILYUSHIN	IL-62 /-62M / MK	B703__	A30B__
121	IL76	ILYUSHIN	IL-76	A30B__	B764__
122	IL86	ILYUSHIN	IL-86	DC87__	B763__
123	IL96	ILYUSHIN	IL-96	DC87__	A343__
124	J328	FAIRCHILD DORNIER	328 Jet	F28__	E135__
125	JAGR	SEPECAT	JAGUAR	FGTN__	FGTN__
126	JS1	JETSTREAM	JETSTREAM 1	JS31__	BE20__
127	JS20	JETSTREAM	JETSTREAM 200	JS31__	D228__
128	JS31	BAE	JETSTREAM 31	JS31__	JS32__
129	K35A	BOEING	STRATOTANKER KC-135A	B703__	B703__
130	K35E	BOEING	STRATOTANKER KC-135D/E	B703__	B703__
131	K35R	BOEING	STRATOTANKER K35R	B703__	B703__
132	L159	AERO (2)	L-159	FGTN__	FGTN__
133	L188	LOCKHEED	ELECTRA L-188	C130__	C160__
134	L29A	LOCKHEED	JETSTART	CL60__	CL60__
135	L29B	LOCKHEED	L1329 JETSTAR	CL60__	CL60__
136	L410	LET	TURBOLET 410	D228__	D228__
137	LJ24	LEARJET	24	FA10__	C560__
138	LJ25	LEARJET	25	LJ35__	LJ45__
139	LJ31	LEARJET	31	LJ35__	LJ45__
140	LJ55	LEARJET	55	LJ35__	LJ45__

	ICAO	MANUFACTURER	Version	BADA 3.6	BADA 3.7
141	LJ60	LEARJET	60	LJ45__	LJ45__
142	M20P	MOONEY	MARK 201	TRIN__	TRIN__
143	M20T	MOONEY	MARK 20T	TRIN__	TRIN__
144	MD81	MCDONNELL DOUGLAS	MD-81	MD83__	MD82__
145	MD87	MCDONNELL DOUGLAS	MD-87	MD83__	MD82__
146	MD88	MCDONNELL DOUGLAS	MD-88	MD83__	MD82__
147	MD90	MCDONNELL DOUGLAS	MD-90	MD83__	MD83__
148	MG21	MIKOYAN	MIG-21	FGTN__	FGTN__
149	MG23	MIKOYAN	MIG-23	FGTN__	FGTN__
150	MG25	MIKOYAN	MIG-25	FGTN__	FGTN__
151	MG29	MIKOYAN	MIG-29	FGTN__	FGTN__
152	MIR2	DASSAULT	MIRAGE 2000	FGTN__	FGTN__
153	MIR4	DASSAULT	MIRAGE IV	FGTN__	FGTN__
154	MRF1	DASSAULT	MIRAGE F1	FGTN__	FGTN__
155	MU30	MITSUBISHI	MU-300	C550__	C560__
156	N262	NORD	262	JS41__	JS41__
157	NIM	HAWKER SIDDELEY	NIMROD	B703__	B738__
158	P180	PIAGGIO	P180 AVANTI	F70__	C550__
159	P28B	PIPER	PA-28-236 DAKOTA	P28A__	TRIN__
160	P28R	PIPER	PA-28R-201 ARROW	TRIN__	DA42__
161	P28T	PIPER	PA-28RT TURBO ARROW 4	TRIN__	DA42__
162	P3	LOCKHEED	ORION P-3	C130__	C130__
163	P32R	PIPER	PA-32R-301 SARATOGA SP	PA34__	TRIN__
164	P68	PARTENAVIA	P-68 Observer	PA31__	PA27__
165	PA18	PIPER	PA-18 SUPER CUB	P28A__	PA34__
166	PA23	PIPER	APACHE PA23-150/160	PA27__	PA27__
167	PA32	PIPER	PA-32 CHEROKEE SIX	PA34__	TRIN__
168	PA44	PIPER	PA-44 SEMINOLE	PA27__	TRIN__
169	PAY1	PIPER	PA-A-31T1-500 CHEYENNE I	PA31__	PAY2__
170	PAY4	PIPER	PA-42-1000 CHEYENNE 400	PAY3__	C510__
171	PC12	PILATUS	PC-12 SPECTRE	PAY3__	BE9L__
172	RJ1H	AI(R)	RJ-100 Avroliner	F28__	RJ85__
173	RJ70	AI(R)	RJ-70 Avroliner	B462__	RJ85__
174	S601	AEROSPATIAL	SB 601 CORVETTE	C550__	C550__
175	SB05	SAAB	SAAB 105	C550__	C510__

	ICAO	MANUFACTURER	Version	BADA 3.6	BADA 3.7
176	SB32	SAAB	LANSEN	FGTN__	FGTN__
177	SB35	SAAB	DRAKEN	FGTN__	FGTN__
178	SB37	SAAB	VIGGEN	FGTN__	FGTN__
179	SB39	SAAB	GRIPEN	FGTN__	FGTN__
180	SBR1	ROCKWELL	SABRELINER	FA20__	FA10__
181	SH33	SHORTS	SH3-330	SH36__	SH36__
182	SW2	SWEARINGEN	MERLIN II	SW3__	SW4__
183	SW3	SWEARINGEN	MERLIN III	SW3__	PAY3__
184	T204	TUPOLEV	TU 204	B752__	T154__
185	TBM7	TBM	TBM-700	PAY3__	PAY3__
186	TOBA	SOCATA	TOBAGO TB-10	P28A__	TRIN__
187	TOR	PANAVIA	TORNADO	FGTN__	FGTN__
188	VC10	VICKERS	VC10	B703__	B762__
189	WW24	IAI	1124 WESTWIND	H25B__	FA10__
190	YK40	YAKOLEV	YAK-40	DH8C__	AT43__
191	YK42	YAKOLEV	YAK-42	B462__	DC94__
new synonym additions appear in bold					

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4. CONCLUSION

BADA 3.7 is the first BADA release to avail of the BADA synonym search function to assist in the comparison of aircraft performances. One main obstacle encountered when identifying the synonym aircraft was the difficulty to establish the necessary database. Indeed the availability of uniform 'reliable' performance data was of a high concern. In most cases the speed data provided did not match the BADA speed references. The lack of data accounts for the missing result values in the some of the final equivalence reports.

Difficulty to identify a BADA model for a synonym proved subjective for some aircraft when 2 models were proposed. It is judged that in such cases, depending on performance capabilities required by the end-user, that certain aircraft behaviours could be favored over others e.g. speed Vs altitude capability.

It is worth emphasizing that the proposed synonyms are based on the best information currently available to EUROCONTROL and for the BADA APM selected (default) search criteria. The choice of search criteria and the way priorities are defined may not be the best appropriate for all applications and uses of BADA. For example the use of BADA in a trajectory prediction tool may place priorities on speed and maximum operational altitudes when it is used in upper airspace, while a WTC may be of greater priority in the TMA. Environmental studies may put greater priority to aircraft engine type and fuel flow and so on. This is to say that it is not possible to identify a synonym aircraft which meets all user needs.

Considering the difficulties described above, it is envisaged the the BADA user can change the choice of synonym aircraft. To facilitate that work the Synonym Search Function shall be made available to the BADA licensed user with the BADA release 3.7. More information on how to obtain access rights is explained in [RD3] BADA Product Management Document.

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APPENDIX A

BADA 3.7

Aircraft Equivalence Reports

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These summary reports compare the attributes of the synonym and BADA reference models. The following unit values apply in the result equivalence reports:

- MTOW (tons)
- VMO (kts)
- MMO (Mach)
- HMO (feet)

	<i>Synonym Aircraft</i> <i>ANTONOV An-124 Ruslan</i>	<i>Reference Aircraft Model</i> <i>AIRBUS A340-600</i>	
ICAO	A124	A346	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	405	365.00	9.88%
VMO		330	
MMO	0.8	0.86	7.50%
HMO	40000	41 500	3.75%
Normal Cruise speed IAS kts		310	
Normal Cruise speed Mach	0.8	0.83	3.75%
<i>Average Error</i>			<i>6.22%</i>

	<i>Synonym Aircraft</i> <i>AIRBUS A-318</i>	<i>Reference Aircraft Model</i> <i>AIRBUS A-319</i>	
ICAO	A318	A319	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	68	70.00	2.94%
VMO	350	350	0.00%
MMO	0.82	0.82	0.00%
HMO	39800	39 000	2.01%
Normal Cruise speed IAS kts	280	300	7.14%
Normal Cruise speed Mach	0.78	0.78	0.00%
<i>Average Error</i>			<i>2.02%</i>

	<i>Synonym Aircraft</i> <i>AIRBUS A-340-200</i>	<i>Reference Aircraft Model</i> <i>AIRBUS A-340-300</i>	
ICAO	A342	A343	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	275	257.00	6.55%
VMO		330	
MMO	0.86	0.86	0.00%
HMO	41000	41 000	0.00%
Normal Cruise speed IAS kts	300	300	0.00%
Normal Cruise speed Mach	0.82	0.80	2.44%
<i>Average Error</i>			<i>1.80%</i>

	<i>Synonym Aircraft</i> <i>AIRBUS A-340-500</i>	<i>Reference Aircraft Model</i> <i>AIRBUS A-340-500</i>	
ICAO	A345	A346	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	368	365.00	0.82%
VMO		330	
MMO	0.86	0.86	0.00%
HMO	41000	41 500	1.22%
Normal Cruise speed IAS kts	300	310	3.33%
Normal Cruise speed Mach	0.82	0.83	1.22%
<i>Average Error</i>			<i>1.32%</i>

	<i>Synonym Aircraft</i> <i>AIRBUS A-300ST Beluga</i>	<i>Reference Aircraft Model</i> <i>AIRBUS A-321</i>	
ICAO	A3ST	A321	% error
Engine type	JET	JET	
WTC	H	M	
MTOW	86.5	83.00	4.05%
VMO		350	
MMO	0.82	0.82	0.00%
HMO	35000	39 100	11.71%
Normal Cruise speed IAS kts		300	
Normal Cruise speed Mach	0.7	0.78	11.43%
<i>Average Error</i>			<i>6.80%</i>

	<i>Synonym Aircraft</i> <i>AVRO748</i>	<i>Reference Aircraft Model</i> <i>BRITISH AEROSPACE</i>	
ICAO	A748	ATP	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	21.09	22.93	8.72%
VMO		225	
MMO		0.50	
HMO	25000	25 000	0.00%
Normal Cruise speed IAS kts	190	205	7.89%
Normal Cruise speed Mach		0.40	
<i>Average Error</i>			<i>5.54%</i>

	<i>Synonym Aircraft</i> <i>GULFSTREAM AMERICANcheet</i>	<i>Reference Aircraft Model</i> <i>BOEING B737-600</i>	
ICAO	AA5	P28A	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1	1.11	11.00%
VMO		126	
MMO		0.24	
HMO	12650	12 000	5.14%
Normal Cruise speed IAS kts	100	110	10.00%
Normal Cruise speed Mach		0.24	
<i>Average Error</i>			<i>8.71%</i>

Synonym Aircraft		Reference Aircraft Model	
ROCKWELL Turbo Commander 6!		Piper Cheyenne 3	
ICAO	AC90	PAY3	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	4.68	5.08	8.55%
VMO	246	246	
MMO		0.52	
HMO	31000	33 000	6.45%
Normal Cruise speed IAS kts		220	
Normal Cruise speed Mach		0.46	
<i>Average Error</i>			7.50%

Synonym Aircraft		Reference Aircraft Model	
GULFSTREAM AEROSPACE Jetprop Com		PIPER CHEYENNE 3	
ICAO	AC95	PAY3	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	5.08	5.08	0.00%
VMO		246	
MMO	0.6	0.52	13.33%
HMO	35000	33 000	5.71%
Normal Cruise speed IAS kts		220	
Normal Cruise speed Mach		0.46	
<i>Average Error</i>			6.35%

Synonym Aircraft		Reference Aircraft Model	
Smith Aerostar		Mitsubishi MU-300	
ICAO	AEST	MU2	% error
Engine type	PST	TBP	
WTC	L	L	
MTOW	2.5	4.75	90.00%
VMO		250	
MMO		0.57	
HMO	22000	28 000	27.27%
Normal Cruise speed IAS kts		210	
Normal Cruise speed Mach		0.57	
<i>Average Error</i>			58.64%

Synonym Aircraft		Reference Aircraft Model	
ANTONOV AN12		LOCKHEED Hercules	
ICAO	AN12	C130	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	61	81.54	33.67%
VMO	260	310	19.23%
MMO		0.64	
HMO	33500	32 000	4.48%
Normal Cruise speed IAS kts		220	
Normal Cruise speed Mach		0.61	
<i>Average Error</i>			19.13%

	Synonym Aircraft ANTONOV AN24	Reference Aircraft Model FOKKER F-27	
ICAO	AN24	F27	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	21	20.00	4.76%
VMO		223	
MMO		0.50	
HMO	27560	25 000	9.29%
Normal Cruise speed IAS kts	190	170	10.53%
Normal Cruise speed Mach		0.50	
<i>Average Error</i>			8.19%

	Synonym Aircraft ANTONOV 26	Reference Aircraft Model AEROSPATIALE ATR-72	
ICAO	AN26	AT72	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	24	21.50	10.42%
VMO	290	250	13.79%
MMO		0.55	
HMO	24600	25 000	1.63%
Normal Cruise speed IAS kts	200	220	10.00%
Normal Cruise speed Mach		0.45	
<i>Average Error</i>			8.96%

	Synonym Aircraft ANTONOV An-72	Reference Aircraft Model FOKKER F-28	
ICAO	AN72	F28	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	34.5	33.00	4.35%
VMO		335	
MMO		0.75	
HMO	35100	35 000	0.28%
Normal Cruise speed IAS kts	280	300	7.14%
Normal Cruise speed Mach		0.70	
<i>Average Error</i>			3.93%

	Synonym Aircraft IAI 1125 Astra	Reference Aircraft Model DASSAULT Falcon 10	
ICAO	ASTR	FA10	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	10.66	8.76	17.82%
VMO	360	370	2.78%
MMO	0.85	0.87	2.35%
HMO	45000	45 000	0.00%
Normal Cruise speed IAS kts	300	300	0.00%
Normal Cruise speed Mach		0.75	
<i>Average Error</i>			4.59%

Synonym Aircraft		Reference Aircraft Model	
AEROSPATIALE ATR-42-400		AEROSPATIALE ATR-42-500	
ICAO	AT44	AT45	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	18.6	18.60	0.00%
VMO	250	250	0.00%
MMO	0.55	0.55	0.00%
HMO	25000	25 000	0.00%
Normal Cruise speed IAS kts	210	210	0.00%
Normal Cruise speed Mach		0.45	
<i>Average Error</i>			0.00%

Synonym Aircraft		Reference Aircraft Model	
BREGUET 1150 Atlantic		EMBRAER 120 Brasilia	
ICAO	ATLA	E120	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	43.5	11.50	73.56%
VMO		270	
MMO		0.52	
HMO	32800	32 000	2.44%
Normal Cruise speed IAS kts		225	
Normal Cruise speed Mach		0.47	
<i>Average Error</i>			38.00%

Synonym Aircraft		Reference Aircraft Model	
BEECH 1900		BRITISH AEROSPACE Jetstream 31	
ICAO	B190	JS32	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	7.69	7.35	4.42%
VMO	248	250	0.81%
MMO		0.52	
HMO	25000	25 000	0.00%
Normal Cruise speed IAS kts	190	200	5.26%
Normal Cruise speed Mach		0.41	
<i>Average Error</i>			2.62%

Synonym Aircraft		Reference Aircraft Model	
Beech Super King Air 350		Piper Cheyenne 3	
ICAO	B350	PAY3	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	6.8	5.08	25.29%
VMO		246	
MMO		0.52	
HMO	35000	33 000	5.71%
Normal Cruise speed IAS kts	200	220	10.00%
Normal Cruise speed Mach		0.46	
<i>Average Error</i>			13.67%

<i>Synonym Aircraft</i>		<i>Reference Aircraft Model</i>	
<i>BRITISH AEROSPACE BAe-146-100</i>		<i>BRITISH AEROSPACE BAe146-200</i>	
ICAO	B461	B462	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	38.1	42.20	10.76%
VMO	300	295	1.67%
MMO	0.73	0.73	0.00%
HMO	31000	31 000	0.00%
Normal Cruise speed IAS kts		280	
Normal Cruise speed Mach		0.68	
<i>Average Error</i>			3.11%

<i>Synonym Aircraft</i>		<i>Reference Aircraft Model</i>	
<i>BAE146-300</i>		<i>BRITISH AEROSPACE BAe146-200</i>	
ICAO	B463	B462	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	44.23	42.20	4.59%
VMO	305	295	3.28%
MMO	0.73	0.73	0.00%
HMO	31000	31 000	0.00%
Normal Cruise speed IAS kts	260	280	7.69%
Normal Cruise speed Mach	0.64	0.68	6.25%
<i>Average Error</i>			3.64%

<i>Synonym Aircraft</i>		<i>Reference Aircraft Model</i>	
<i>BOEING 707-100</i>		<i>BOEING B757-200</i>	
ICAO	B701	B752	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	116.58	115.90	0.58%
VMO	350	350	0.00%
MMO		0.86	
HMO	39000	42 000	7.69%
Normal Cruise speed IAS kts		290	
Normal Cruise speed Mach	0.8	0.80	0.00%
<i>Average Error</i>			2.07%

<i>Synonym Aircraft</i>		<i>Reference Aircraft Model</i>	
<i>BOEING 720</i>		<i>BOEING B757-200</i>	
ICAO	B720	B752	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	103.87	115.90	11.58%
VMO	360	350	2.78%
MMO		0.86	
HMO	40000	42 000	5.00%
Normal Cruise speed IAS kts		290	
Normal Cruise speed Mach	0.82	0.80	2.44%
<i>Average Error</i>			5.45%

	Synonym Aircraft BOEING 727-100	Reference Aircraft Model BOEING B737-600	
ICAO	B721	B722	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	72.58	86.40	19.04%
VMO		360	
MMO	0.85	0.90	5.88%
HMO	36500	37 000	1.37%
Normal Cruise speed IAS kts	320	350	9.38%
Normal Cruise speed Mach	0.84	0.82	2.38%
<i>Average Error</i>			<i>7.61%</i>

	Synonym Aircraft BOEING 737-100	Reference Aircraft Model TUPOLEV Tu-134	
ICAO	B731	T134	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	44	47.00	6.82%
VMO	350	323	7.71%
MMO	0.86	0.82	4.65%
HMO	35000	39 000	11.43%
Normal Cruise speed IAS kts	300	297	1.00%
Normal Cruise speed Mach	0.78	0.80	2.56%
<i>Average Error</i>			<i>5.70%</i>

	Synonym Aircraft BOEING 737-900	Reference Aircraft Model BOEING B737-800	
ICAO	B739	B738	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	74.84	78.30	4.62%
VMO	340	340	0.00%
MMO	0.82	0.82	0.00%
HMO	41000	41 000	0.00%
Normal Cruise speed IAS kts	280	280	0.00%
Normal Cruise speed Mach	0.78	0.78	0.00%
<i>Average Error</i>			<i>0.77%</i>

	Synonym Aircraft BOEING 747-100	Reference Aircraft Model BOEING B747-300	
ICAO	B741	B743	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	322.05	377.80	17.31%
VMO		360	
MMO	0.89	0.90	1.12%
HMO	45000	45 000	0.00%
Normal Cruise speed IAS kts	320	340	6.25%
Normal Cruise speed Mach	0.84	0.85	1.19%
<i>Average Error</i>			<i>5.18%</i>

	<i>Synonym Aircraft</i> <i>BOEING 747-400 (domestic, no win)</i>	<i>Reference Aircraft Model</i> <i>BOEING B747-400</i>	
ICAO	B74D	B744	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	378.18	396.80	4.92%
VMO	365	365	0.00%
MMO	0.92	0.92	0.00%
HMO	45000	45 000	0.00%
Normal Cruise speed IAS kts	340	340	0.00%
Normal Cruise speed Mach	0.84	0.84	0.00%
<i>Average Error</i>			<i>0.82%</i>

	<i>Synonym Aircraft</i> <i>BOEING 747SP</i>	<i>Reference Aircraft Model</i> <i>BOEING B747-200</i>	
ICAO	B74S	B742	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	299.37	356.00	18.92%
VMO	375	375	0.00%
MMO	0.92	0.92	0.00%
HMO	45100	45 000	0.22%
Normal Cruise speed IAS kts	340	340	0.00%
Normal Cruise speed Mach	0.84	0.86	2.38%
<i>Average Error</i>			<i>3.59%</i>

	<i>Synonym Aircraft</i> <i>BOEING 777-200LR</i>	<i>Reference Aircraft Model</i> <i>BOEING 747-400</i>	
ICAO	B77L	B744	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	347.82	396.80	14.08%
VMO	330	365	10.61%
MMO	0.89	0.92	3.37%
HMO	45000	45 000	0.00%
Normal Cruise speed IAS kts		340	
Normal Cruise speed Mach	0.84	0.84	0.00%
<i>Average Error</i>			<i>5.61%</i>

	<i>Synonym Aircraft</i> <i>BOEING 777-300ER</i>	<i>Reference Aircraft Model</i> <i>BOEING 747-400</i>	
ICAO	B77W	B744	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	345.05	396.80	15.00%
VMO	330	365	10.61%
MMO	0.89	0.92	3.37%
HMO	45000	45 000	0.00%
Normal Cruise speed IAS kts		340	
Normal Cruise speed Mach	0.84	0.84	0.00%
<i>Average Error</i>			<i>5.79%</i>

Synonym Aircraft		Reference Aircraft Model	
SCOTTISH AVIATION SA-3 Bulld		PIPER Seneca PA34	
ICAO	BDOG	PA34	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.07	2.07	93.46%
VMO	141	165	17.02%
MMO		0.34	
HMO	20000	25 000	25.00%
Normal Cruise speed IAS kts	130	130	0.00%
Normal Cruise speed Mach		0.34	
<i>Average Error</i>			33.87%

Synonym Aircraft		Reference Aircraft Model	
BEECH 100 King Air		DORNIER 228	
ICAO	BE10	D228	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	5.35	6.40	19.63%
VMO	220	220	0.00%
MMO		0.41	
HMO	29100	28 000	3.78%
Normal Cruise speed IAS kts	180	180	0.00%
Normal Cruise speed Mach		0.34	
<i>Average Error</i>			5.85%

Synonym Aircraft		Reference Aircraft Model	
BEECH 300 Super King Air		Piper Cheyenne 3	
ICAO	BE30	PAY3	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	6.35	5.08	20.00%
VMO		246	
MMO	0.58	0.52	10.34%
HMO	35000	33 000	5.71%
Normal Cruise speed IAS kts	220	220	0.00%
Normal Cruise speed Mach		0.46	
<i>Average Error</i>			9.01%

Synonym Aircraft		Reference Aircraft Model	
BEECH 33 Bonanza		SOCATA Trinidad	
ICAO	BE33	TRIN	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.54	1.40	9.09%
VMO	182	185	1.65%
MMO		0.35	
HMO	17800	20 000	12.36%
Normal Cruise speed IAS kts	130	150	15.38%
Normal Cruise speed Mach		0.35	
<i>Average Error</i>			9.62%

	<i>Synonym Aircraft</i> <i>BEECH Bonanza (36, piston)</i>	<i>Reference Aircraft Model</i> <i>BOEING B737-600</i>	
ICAO	BE36	DA42	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.66	1.79	7.83%
VMO		155	
MMO		0.23	
HMO	18500	18 000	2.70%
Normal Cruise speed IAS kts	130	124	4.62%
Normal Cruise speed Mach		0.23	
<i>Average Error</i>			<i>5.05%</i>

	<i>Synonym Aircraft</i> <i>HAWKER BEECHCRAFT Hawker</i>	<i>Reference Aircraft Model</i> <i>CESSNA Citation 5</i>	
ICAO	BE40	C560	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	7.3	7.21	1.23%
VMO	320	292	8.75%
MMO	0.78	0.76	2.56%
HMO	45000	45 000	0.00%
Normal Cruise speed IAS kts		200	
Normal Cruise speed Mach	0.75	0.73	2.67%
<i>Average Error</i>			<i>3.04%</i>

	<i>Synonym Aircraft</i> <i>BEECH Baron (55)</i>	<i>Reference Aircraft Model</i> <i>BEECH Baron 58</i>	
ICAO	BE55	BE58	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	2.41	2.45	1.66%
VMO	208	203	2.40%
MMO		0.36	
HMO	19000	20 688	8.88%
Normal Cruise speed IAS kts	155	164	5.81%
Normal Cruise speed Mach		0.25	
<i>Average Error</i>			<i>4.69%</i>

	<i>Synonym Aircraft</i> <i>BEECH 60 Duke</i>	<i>Reference Aircraft Model</i> <i>Piper PA31-350 Chieftain</i>	
ICAO	BE60	PA31	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	3.07	2.95	3.91%
VMO	170	185	8.82%
MMO		0.44	
HMO	30000	23 000	23.33%
Normal Cruise speed IAS kts	150	160	6.67%
Normal Cruise speed Mach		0.44	
<i>Average Error</i>			<i>10.68%</i>

	<i>Synonym Aircraft</i> <i>BEECH 76 Duchess</i>	<i>Reference Aircraft Model</i> <i>Diamond DA42</i>	
ICAO	BE76	DA42	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.77	1.79	1.13%
VMO	160	155	3.13%
MMO		0.23	
HMO	19000	18 000	5.26%
Normal Cruise speed IAS kts	130	124	4.62%
Normal Cruise speed Mach		0.23	
<i>Average Error</i>			<i>3.53%</i>

	<i>Synonym Aircraft</i> <i>BEECH 95 Travel Air</i>	<i>Reference Aircraft Model</i> <i>SOCATA Trinidad</i>	
ICAO	BE95	TRIN	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.91	1.40	26.70%
VMO	182	185	1.65%
MMO		0.35	
HMO	18100	20 000	10.50%
Normal Cruise speed IAS kts	140	150	7.14%
Normal Cruise speed Mach		0.35	
<i>Average Error</i>			<i>11.50%</i>

	<i>Synonym Aircraft</i> <i>BRITTEN-NORMAN BN-2A Maritime D</i>	<i>Reference Aircraft Model</i> <i>PIPER Seneca</i>	
ICAO	BN2P	PA34	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	2.73	2.07	24.18%
VMO	150	165	10.00%
MMO		0.34	
HMO	16200	25 000	54.32%
Normal Cruise speed IAS kts	120	130	8.33%
Normal Cruise speed Mach		0.34	
<i>Average Error</i>			<i>24.21%</i>

	<i>Synonym Aircraft</i> <i>BOEING C-135C Stratolifter</i>	<i>Reference Aircraft Model</i> <i>BOEING B707-300</i>	
ICAO	C135	B703	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	135	140.00	3.70%
VMO		375	
MMO		0.90	
HMO	50000	42 000	16.00%
Normal Cruise speed IAS kts	300	300	0.00%
Normal Cruise speed Mach	0.79	0.80	1.27%
<i>Average Error</i>			<i>5.24%</i>

	<i>Synonym Aircraft</i> LOCKHEED C-141 Starlifter	<i>Reference Aircraft Model</i> AIRBUS A310	
ICAO	C141	A310	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	146.56	150.00	2.35%
VMO		360	
MMO		0.84	
HMO	41000	41 000	0.00%
Normal Cruise speed IAS kts		310	
Normal Cruise speed Mach	0.76	0.80	5.26%
<i>Average Error</i>			<i>2.54%</i>

	<i>Synonym Aircraft</i> Globemaster 3	<i>Reference Aircraft Model</i> BOEING B767-400	
ICAO	C17	B764	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	263.08	204.10	22.42%
VMO	350	360	2.86%
MMO		0.86	
HMO	45000	45 000	0.00%
Normal Cruise speed IAS kts		290	
Normal Cruise speed Mach	0.77	0.80	3.90%
<i>Average Error</i>			<i>7.29%</i>

	<i>Synonym Aircraft</i> CESSNA 170	<i>Reference Aircraft Model</i> PIPER PA28	
ICAO	C170	P28A	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1	1.11	11.00%
VMO	100	126	26.00%
MMO		0.24	
HMO	15500	12 000	22.58%
Normal Cruise speed IAS kts	90	110	22.22%
Normal Cruise speed Mach		0.24	
<i>Average Error</i>			<i>20.45%</i>

	<i>Synonym Aircraft</i> CESSNA 172 SKYHAWK	<i>Reference Aircraft Model</i> PIPER PA28	
ICAO	C172	P28A	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.09	1.11	1.83%
VMO	123	126	2.44%
MMO		0.24	
HMO	15000	12 000	20.00%
Normal Cruise speed IAS kts	90	110	22.22%
Normal Cruise speed Mach		0.24	
<i>Average Error</i>			<i>11.62%</i>

	<i>Synonym Aircraft</i> <i>CESSNA 177 Cardinal</i>	<i>Reference Aircraft Model</i> <i>PIPER PA28</i>	
ICAO	C177	P28A	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.07	1.11	3.74%
VMO		126	
MMO		0.24	
HMO	13000	12 000	7.69%
Normal Cruise speed IAS kts	105	110	4.76%
Normal Cruise speed Mach		0.24	
<i>Average Error</i>			5.40%

	<i>Synonym Aircraft</i> <i>CESSNA 182 Skylane</i>	<i>Reference Aircraft Model</i> <i>SOCATA Trinidad</i>	
ICAO	C182	TRIN	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.41	1.40	0.71%
VMO	146	185	26.71%
MMO		0.35	
HMO	20000	20 000	0.00%
Normal Cruise speed IAS kts	126	150	19.05%
Normal Cruise speed Mach		0.35	
<i>Average Error</i>			11.62%

	<i>Synonym Aircraft</i> <i>CESSNA 208 CARAVAN</i>	<i>Reference Aircraft Model</i> <i>PIPER PA-23-250 Aztec</i>	
ICAO	C208	PA27	% error
Engine type	TBP	PST	
WTC	L	L	
MTOW	3.31	2.36	28.70%
VMO	175	215	22.86%
MMO		0.37	
HMO	30000	20 000	33.33%
Normal Cruise speed IAS kts	135	140	3.70%
Normal Cruise speed Mach		0.50	
<i>Average Error</i>			22.15%

	<i>Synonym Aircraft</i> <i>CESSNA 210 Centurion</i>	<i>Reference Aircraft Model</i> <i>SOCATA Trinidad</i>	
ICAO	C210	TRIN	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.75	1.40	20.00%
VMO	175	185	5.71%
MMO		0.35	
HMO	16000	20 000	25.00%
Normal Cruise speed IAS kts	210	150	28.57%
Normal Cruise speed Mach		0.35	
<i>Average Error</i>			19.82%

	<i>Synonym Aircraft</i> CASA T-12 Aviocar	<i>Reference Aircraft Model</i> Dornier 228	
ICAO	C212	D228	% error
Engine type	TBP	TBP	
WTC	M	L	
MTOW	7.7	6.40	16.88%
VMO	200	220	10.00%
MMO		0.41	
HMO	25000	28 000	12.00%
Normal Cruise speed IAS kts	164	180	9.76%
Normal Cruise speed Mach		0.34	
<i>Average Error</i>			12.16%

	<i>Synonym Aircraft</i> CESSNA Crusader	<i>Reference Aircraft Model</i> PIPER PA31	
ICAO	C303	PA31	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	2.34	2.95	26.07%
VMO	164	185	12.80%
MMO		0.44	
HMO	25000	23 000	8.00%
Normal Cruise speed IAS kts	160	160	0.00%
Normal Cruise speed Mach		0.44	
<i>Average Error</i>			11.72%

	<i>Synonym Aircraft</i> LOCKHEED MARTIN C-130J Herc	<i>Reference Aircraft Model</i> EED MARTIN Hercules C130 Hercules	
ICAO	C30J	C130	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	70.31	81.54	15.97%
VMO		310	
MMO		0.64	
HMO	31000	32 000	3.23%
Normal Cruise speed IAS kts	230	220	4.35%
Normal Cruise speed Mach	0.6	0.61	1.67%
<i>Average Error</i>			6.30%

	<i>Synonym Aircraft</i> CESSNA 310	<i>Reference Aircraft Model</i> PIPER PA34 Seneca	
ICAO	C310	PA34	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	2.36	2.07	12.29%
VMO	205	165	19.51%
MMO		0.34	
HMO	20000	25 000	25.00%
Normal Cruise speed IAS kts	100	130	30.00%
Normal Cruise speed Mach		0.34	
<i>Average Error</i>			21.70%

	Synonym Aircraft CESSNA SUPER SKYMASTER	Reference Aircraft Model PIPER PA27 Aztec	
ICAO	C337	PA27	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	2	2.36	18.00%
VMO	173	215	24.28%
MMO		0.37	
HMO	19500	20 000	2.56%
Normal Cruise speed IAS kts	145	140	3.45%
Normal Cruise speed Mach		0.50	
<i>Average Error</i>			12.07%

	Synonym Aircraft CESSNA 340	Reference Aircraft Model PIPER PA31 Navajo	
ICAO	C340	PA31	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	2.72	2.95	8.46%
VMO	180	185	2.78%
MMO	0.4	0.44	10.00%
HMO	29800	23 000	22.82%
Normal Cruise speed IAS kts	170	160	5.88%
Normal Cruise speed Mach	0.38	0.44	15.79%
<i>Average Error</i>			10.95%

	Synonym Aircraft CESSNA 402	Reference Aircraft Model PIPER PA-34 Seneca	
ICAO	C402	PA34	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	3.11	2.07	33.44%
VMO	180	165	8.33%
MMO	0.37	0.34	8.11%
HMO	26900	25 000	7.06%
Normal Cruise speed IAS kts	120	130	8.33%
Normal Cruise speed Mach	0.27	0.34	25.93%
<i>Average Error</i>			15.20%

	Synonym Aircraft CESSNA 414 Chancellor	Reference Aircraft Model PIPER PA31 Navajo	
ICAO	C414	PA31	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	3.06	2.95	3.59%
VMO	183	185	1.09%
MMO	0.39	0.44	12.82%
HMO	30800	23 000	25.32%
Normal Cruise speed IAS kts	152	160	5.26%
Normal Cruise speed Mach	0.37	0.44	18.92%
<i>Average Error</i>			11.17%

	<i>Synonym Aircraft</i> <i>CESSNA Corsair</i>	<i>Reference Aircraft Model</i> <i>BOEING B737-600</i>	
ICAO	C425	PAY2	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	3.72	4.08	9.68%
VMO	220	246	11.82%
MMO	0.45	0.47	4.44%
HMO	34700	29 000	16.43%
Normal Cruise speed IAS kts	190	220	15.79%
Normal Cruise speed Mach		0.44	
<i>Average Error</i>			11.63%

	<i>Synonym Aircraft</i> <i>CESSNA 441 Conquest</i>	<i>Reference Aircraft Model</i> <i>PIPER Cheyenne 3</i>	
ICAO	C441	PAY3	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	4.47	5.08	13.65%
VMO	250	246	1.60%
MMO	0.5	0.52	4.00%
HMO	35000	33 000	5.71%
Normal Cruise speed IAS kts	190	220	15.79%
Normal Cruise speed Mach	0.45	0.46	2.22%
<i>Average Error</i>			7.16%

	<i>Synonym Aircraft</i> <i>LOCKHEED L-500 Galaxy C5</i>	<i>Reference Aircraft Model</i> <i>AIRBUS A340-600</i>	
ICAO	C5	A346	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	379.66	365.00	3.86%
VMO	350	330	5.71%
MMO	0.83	0.86	3.61%
HMO	35750	41 500	16.08%
Normal Cruise speed IAS kts	320	310	3.13%
Normal Cruise speed Mach	0.5	0.83	66.00%
<i>Average Error</i>			16.40%

	<i>Synonym Aircraft</i> <i>CESSNA Citation 1</i>	<i>Reference Aircraft Model</i> <i>CESSNA Citation 2</i>	
ICAO	C500	C550	% error
Engine type	JET	JET	
WTC	L	L	
MTOW	5.39	6.03	11.87%
VMO	350	277	20.86%
MMO		0.70	
HMO	41000	43 000	4.88%
Normal Cruise speed IAS kts	220	220	0.00%
Normal Cruise speed Mach	0.6	0.63	5.00%
<i>Average Error</i>			8.52%

	Synonym Aircraft CESSNA 501 Citation 1SP C50	Reference Aircraft Model CESSNA Citation II-S2	
ICAO	C501	C550	% error
Engine type	JET	JET	
WTC	L	L	
MTOW	5.38	6.03	12.08%
VMO		277	
MMO		0.70	
HMO	41000	43 000	4.88%
Normal Cruise speed IAS kts	220	220	0.00%
Normal Cruise speed Mach	0.6	0.63	5.00%
<i>Average Error</i>			<i>5.49%</i>

	Synonym Aircraft Cessna Citation Jet 525	Reference Aircraft Model Cessna Citation 2	
ICAO	C525	C550	% error
Engine type	JET	JET	
WTC	L	L	
MTOW	4.81	6.03	25.36%
VMO	260	277	6.54%
MMO	0.7	0.70	0.00%
HMO	41000	43 000	4.88%
Normal Cruise speed IAS kts	210	220	4.76%
Normal Cruise speed Mach	0.6	0.63	5.00%
<i>Average Error</i>			<i>7.76%</i>

	Synonym Aircraft CESSNA 551 Citation 2SP	Reference Aircraft Model CESSNA Citation 2	
ICAO	C551	C550	% error
Engine type	JET	JET	
WTC	L	L	
MTOW	6.03	6.03	0.00%
VMO	277	277	0.00%
MMO	0.71	0.70	1.41%
HMO	43000	43 000	0.00%
Normal Cruise speed IAS kts	260	220	15.38%
Normal Cruise speed Mach	0.64	0.63	1.56%
<i>Average Error</i>			<i>3.06%</i>

	Synonym Aircraft CESSNA 560XL CITATION	Reference Aircraft Model CESSNA Citation 5	
ICAO	C56X	C560	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	8.71	7.21	17.22%
VMO	305	292	4.26%
MMO	0.77	0.76	1.30%
HMO	45000	45 000	0.00%
Normal Cruise speed IAS kts	250	200	20.00%
Normal Cruise speed Mach	0.74	0.73	1.35%
<i>Average Error</i>			<i>7.36%</i>

	<i>Synonym Aircraft</i> <i>CESSNA CITATON VII</i>	<i>Reference Aircraft Model</i> <i>BOEING B737-600</i>	
ICAO	C650	H25A	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	10.18	9.85	3.24%
VMO	278	285	2.52%
MMO	0.85	0.76	10.59%
HMO	45000	41 000	8.89%
Normal Cruise speed IAS kts	270	270	0.00%
Normal Cruise speed Mach	0.78	0.75	3.85%
<i>Average Error</i>			<i>4.85%</i>

	<i>Synonym Aircraft</i> <i>CESSNA Cutlass RG</i>	<i>Reference Aircraft Model</i> <i>SOCATA Trinidad</i>	
ICAO	C72R	TRIN	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.2	1.40	16.67%
VMO	145	185	27.59%
MMO		0.35	
HMO	16800	20 000	19.05%
Normal Cruise speed IAS kts	110	150	36.36%
Normal Cruise speed Mach		0.35	
<i>Average Error</i>			<i>24.92%</i>

	<i>Synonym Aircraft</i> <i>CESSNA 177RG Cardinal RG</i>	<i>Reference Aircraft Model</i> <i>PIPER Cherokee 140</i>	
ICAO	C77R	P28A	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.07	1.11	3.74%
VMO	123	126	2.44%
MMO		0.24	
HMO	12700	12 000	5.51%
Normal Cruise speed IAS kts	90	110	22.22%
Normal Cruise speed Mach		0.24	
<i>Average Error</i>			<i>8.48%</i>

	<i>Synonym Aircraft</i> <i>CESSNA R182 Skylane RG</i>	<i>Reference Aircraft Model</i> <i>SOCATA TRINIDAD</i>	
ICAO	C82R	TRIN	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.41	1.40	0.71%
VMO	187	185	1.07%
MMO		0.35	
HMO	20000	20 000	0.00%
Normal Cruise speed IAS kts	130	150	15.38%
Normal Cruise speed Mach		0.35	
<i>Average Error</i>			<i>4.29%</i>

	Synonym Aircraft AIRTECH CASA	Reference Aircraft Model ATR 43	
ICAO	CN35	AT43	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	15.1	16.70	10.60%
VMO	240	250	4.17%
MMO		0.55	
HMO	25000	25 000	0.00%
Normal Cruise speed IAS kts		210	
Normal Cruise speed Mach		0.45	
<i>Average Error</i>			4.92%

	Synonym Aircraft Candadair Regional Jet 700	Reference Aircraft Model Candadair Regional Jet 900	
ICAO	CRJ7	CRJ9	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	33	38.00	15.15%
VMO		335	
MMO	0.81	0.85	4.94%
HMO	41000	41 000	0.00%
Normal Cruise speed IAS kts		300	
Normal Cruise speed Mach	0.81	0.80	1.23%
<i>Average Error</i>			5.33%

	Synonym Aircraft CANADAIR CC-109 Cosmopolit	Reference Aircraft Model DE HAVILLAND Dash8-300	
ICAO	CVLT	DH8C	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	25.86	19.50	24.59%
VMO	290	283	2.41%
MMO		0.66	
HMO	26200	25 000	4.58%
Normal Cruise speed IAS kts	240	245	2.08%
Normal Cruise speed Mach		0.45	
<i>Average Error</i>			8.42%

	Synonym Aircraft DOUGLAS DC-3	Reference Aircraft Model CESSNA Golden Eagle 421	
ICAO	DC3	C421	% error
Engine type	PST	PST	
WTC	M	L	
MTOW	11.43	3.09	72.97%
VMO		201	
MMO		0.48	
HMO	23200	23 500	1.29%
Normal Cruise speed IAS kts	150	160	6.67%
Normal Cruise speed Mach		0.45	
<i>Average Error</i>			26.98%

	<i>Synonym Aircraft</i> <i>DOUGLAS DC-8-50</i>	<i>Reference Aircraft Model</i> <i>AIRBUS A310</i>	
ICAO	DC85	A310	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	147.42	150.00	1.75%
VMO		360	
MMO		0.84	
HMO	35000	41 000	17.14%
Normal Cruise speed IAS kts	310	310	0.00%
Normal Cruise speed Mach		0.80	
<i>Average Error</i>			<i>6.30%</i>

	<i>Synonym Aircraft</i> <i>MCDONNELL DOUGLAS DC-8-70</i>	<i>Reference Aircraft Model</i> <i>MCDONNELL DOUGLAS DC-8-70</i>	
ICAO	DC86	DC87	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	147.42	152.00	3.11%
VMO		375	
MMO		0.90	
HMO		42 000	
Normal Cruise speed IAS kts	300	300	0.00%
Normal Cruise speed Mach	0.8	0.80	0.00%
<i>Average Error</i>			<i>1.04%</i>

	<i>Synonym Aircraft</i> <i>MCDONNELL DOUGLAS DC-9-1</i>	<i>Reference Aircraft Model</i> <i>B717-200</i>	
ICAO	DC91	B712	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	35.25	52.60	49.22%
VMO	340	340	
MMO	0.81	0.82	1.23%
HMO	35000	37 000	5.71%
Normal Cruise speed IAS kts	280	275	1.79%
Normal Cruise speed Mach	0.77	0.75	2.60%
<i>Average Error</i>			<i>12.11%</i>

	<i>Synonym Aircraft</i> <i>MCDONNELL DOUGLAS DC-9-2</i>	<i>Reference Aircraft Model</i> <i>MCDONNELL DOUGLAS DC9-40</i>	
ICAO	DC92	DC94	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	44.45	51.70	16.31%
VMO		340	
MMO		0.80	
HMO	35000	35 000	0.00%
Normal Cruise speed IAS kts	340	340	0.00%
Normal Cruise speed Mach	0.8	0.80	0.00%
<i>Average Error</i>			<i>4.08%</i>

<i>Synonym Aircraft</i>		<i>Reference Aircraft Model</i>	
<i>MCDONNELL DOUGLAS DC-9-30</i>		<i>MCDONNELL DOUGLAS DC9-40</i>	
ICAO	DC93	DC94	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	44.45	51.70	16.31%
VMO		340	
MMO		0.80	
HMO	35000	35 000	0.00%
Normal Cruise speed IAS kts	340	340	0.00%
Normal Cruise speed Mach	0	0.80	0.00%
<i>Average Error</i>			4.08%

<i>Synonym Aircraft</i>		<i>Reference Aircraft Model</i>	
<i>MCDONNELL DOUGLAS DC-9-30</i>		<i>MCDONNELL DOUGLAS DC9-40</i>	
ICAO	DC95	DC94	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	54.89	51.70	5.81%
VMO		340	
MMO		0.80	
HMO	35000	35 000	0.00%
Normal Cruise speed IAS kts	340	340	0.00%
Normal Cruise speed Mach		0.80	
<i>Average Error</i>			1.94%

<i>Synonym Aircraft</i>		<i>Reference Aircraft Model</i>	
<i>DE HAVILLAND CANADA Dash 8 (400)</i>		<i>DE HAVILLAND CANADA Dash 8 (300)</i>	
ICAO	DH8B	DH8C	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	16.47	19.50	18.40%
VMO	282	283	0.35%
MMO		0.66	
HMO	25000	25 000	0.00%
Normal Cruise speed IAS kts	245	245	0.00%
Normal Cruise speed Mach		0.45	
<i>Average Error</i>			4.69%

<i>Synonym Aircraft</i>		<i>Reference Aircraft Model</i>	
<i>EMBRAER SC-95 Bandeirante</i>		<i>FAIRCHILD Merlin IIA</i>	
ICAO	E110	SW4	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	5.67	5.75	1.41%
VMO		248	
MMO		0.53	
HMO	22500	25 000	11.11%
Normal Cruise speed IAS kts	180	200	11.11%
Normal Cruise speed Mach		0.52	
<i>Average Error</i>			7.88%

	<i>Synonym Aircraft</i> BOEING SENTRY	<i>Reference Aircraft Model</i> BOEING 767-200	
ICAO	E3CF	B762	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	150.82	160.00	6.09%
VMO		350	
MMO	0.82	0.86	4.88%
HMO	43000	43 000	0.00%
Normal Cruise speed IAS kts	300	310	3.33%
Normal Cruise speed Mach	0.76	0.80	5.26%
<i>Average Error</i>			3.91%

	<i>Synonym Aircraft</i> BOEING E-3A (TF33) Sentry	<i>Reference Aircraft Model</i> B762	
ICAO	E3TF	B762	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	150.82	160.00	6.09%
VMO		350	
MMO	0.82	0.86	4.88%
HMO	43000	43 000	0.00%
Normal Cruise speed IAS kts		310	
Normal Cruise speed Mach	0.76	0.80	5.26%
<i>Average Error</i>			4.06%

	<i>Synonym Aircraft</i> FALCON 2000	<i>Reference Aircraft Model</i> DASSAULT Falcon 900	
ICAO	F2TH	F900	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	19.2	21.00	9.38%
VMO	370	350	5.41%
MMO	0.85	0.87	2.35%
HMO	47000	49 000	4.26%
Normal Cruise speed IAS kts	300	300	0.00%
Normal Cruise speed Mach	0.8	0.80	0.00%
<i>Average Error</i>			3.56%

	<i>Synonym Aircraft</i> ALENIA Spartan (C-27A)	<i>Reference Aircraft Model</i> Bae Advanced Turboprop	
ICAO	G222	ATP	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	28	22.93	18.11%
VMO	210	225	7.14%
MMO		0.50	
HMO	25700	25 000	2.72%
Normal Cruise speed IAS kts	180	205	13.89%
Normal Cruise speed Mach		0.40	
<i>Average Error</i>			10.47%

	Synonym Aircraft <i>IAI 1126 Galaxy</i>	Reference Aircraft Model <i>Cessna C750 Citation 10</i>	
ICAO	GALX	C750	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	15.81	16.19	2.40%
VMO	360	350	2.78%
MMO	0.85	0.92	8.24%
HMO	45000	51 000	13.33%
Normal Cruise speed IAS kts	300	300	0.00%
Normal Cruise speed Mach	0.82	0.82	0.00%
<i>Average Error</i>			4.46%

	Synonym Aircraft <i>NEW GLASAIR Glasair</i>	Reference Aircraft Model <i>BEECH Baron 58</i>	
ICAO	GLAS	BE58	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	0.95	2.45	157.89%
VMO	207	203	1.93%
MMO		0.36	
HMO	19000	20 688	8.88%
Normal Cruise speed IAS kts		164	
Normal Cruise speed Mach		0.25	
<i>Average Error</i>			56.24%

	Synonym Aircraft <i>BOMBARDIER Global Express</i>	Reference Aircraft Model <i>ANADAIR Regional Jet CRJ-900</i>	
ICAO	GLEX	CRJ9	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	42.41	38.00	10.40%
VMO	340	335	1.47%
MMO	0.89	0.85	4.49%
HMO	51000	41 000	19.61%
Normal Cruise speed IAS kts	320	300	6.25%
Normal Cruise speed Mach	0.85	0.80	5.88%
<i>Average Error</i>			8.02%

	Synonym Aircraft <i>GRUMMAN GULFSTREAM 2</i>	Reference Aircraft Model <i>ANADAIR Regional Jet CRJ-200</i>	
ICAO	GLF2	CRJ2	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	31.62	23.13	26.85%
VMO		335	
MMO	0.85	0.85	0.00%
HMO	45000	41 000	8.89%
Normal Cruise speed IAS kts	300	300	0.00%
Normal Cruise speed Mach	0.77	0.77	0.00%
<i>Average Error</i>			7.15%

Synonym Aircraft		Reference Aircraft Model	
<i>GULFSTREAM AEROSPACE Gulfstream</i>		<i>ANADAIR Regional Jet CRJ-200</i>	
ICAO	GLF3	CRJ2	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	31.62	23.13	26.85%
VMO		335	0.00%
MMO	0.85	0.85	0.00%
HMO	45000	41 000	8.89%
Normal Cruise speed IAS kts	300	300	0.00%
Normal Cruise speed Mach	0.77	0.77	0.00%
<i>Average Error</i>			<i>5.96%</i>

Synonym Aircraft		Reference Aircraft Model	
<i>GULFSTREAM4</i>		<i>ANADAIR Regional Jet CRJ-900</i>	
ICAO	GLF4	CRJ9	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	33.84	38.00	12.29%
VMO	340	335	1.47%
MMO	0.88	0.85	3.41%
HMO	45000	41 000	8.89%
Normal Cruise speed IAS kts	300	300	0.00%
Normal Cruise speed Mach	0.8	0.80	0.00%
<i>Average Error</i>			<i>4.34%</i>

Synonym Aircraft		Reference Aircraft Model	
<i>GULFSTREAM 5</i>		<i>ANADAIR Regional Jet CRJ-900</i>	
ICAO	GLF5	CRJ9	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	40.37	38.00	5.87%
VMO		335	
MMO	0.9	0.85	5.56%
HMO	51000	41 000	19.61%
Normal Cruise speed IAS kts		300	
Normal Cruise speed Mach	0.8	0.80	0.00%
<i>Average Error</i>			<i>7.76%</i>

Synonym Aircraft		Reference Aircraft Model	
<i>PIPER PA-31T1-500 Cheyenne WKER</i>		<i>SIDDELEY DOMINE HS125</i>	
ICAO	H25B	H25A	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	12.43	9.85	20.76%
VMO	0	285	0.00%
MMO	0.77	0.76	1.30%
HMO	43000	41 000	4.65%
Normal Cruise speed IAS kts	270	270	0.00%
Normal Cruise speed Mach	0.75	0.75	0.00%
<i>Average Error</i>			<i>4.45%</i>

Synonym Aircraft		Reference Aircraft Model	
RAYTHEON HAWKER 1000		ASSAULT BREGUET Falcon 20	
ICAO	H25C	FA20	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	14.06	12.00	14.65%
VMO		350	
MMO	0.87	0.85	2.30%
HMO	43000	42 000	2.33%
Normal Cruise speed IAS kts	300	320	6.67%
Normal Cruise speed Mach		0.76	
<i>Average Error</i>			6.49%

Synonym Aircraft		Reference Aircraft Model	
ILYUSHIN II-18		TRANSALL C160	
ICAO	IL18	C160	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	61.2	49.15	19.69%
VMO		240	
MMO		0.67	
HMO	32800	30 000	8.54%
Normal Cruise speed IAS kts	220	160	27.27%
Normal Cruise speed Mach	0.75	0.38	49.33%
<i>Average Error</i>			26.21%

Synonym Aircraft		Reference Aircraft Model	
ILYUSHIN II-62		AIRBUS A-300B4-200	
ICAO	IL62	A30B	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	162	165.00	1.85%
VMO		345	
MMO	0.86	0.82	4.65%
HMO	39000	39 000	0.00%
Normal Cruise speed IAS kts	280	300	7.14%
Normal Cruise speed Mach	0.78	0.78	0.00%
<i>Average Error</i>			2.73%

Synonym Aircraft		Reference Aircraft Model	
ILYUSHIN II-76 GajaraJ		BOEING B767-400	
ICAO	IL76	B764	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	170	204.10	20.06%
VMO		360	
MMO		0.86	
HMO	45000	45 000	0.00%
Normal Cruise speed IAS kts		290	0.00%
Normal Cruise speed Mach	0.78	0.80	2.56%
<i>Average Error</i>			5.66%

	<i>Synonym Aircraft</i> <i>IL-86</i>	<i>Reference Aircraft Model</i> <i>BOEING B767-300</i>	
ICAO	IL86	B763	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	206	181.40	11.94%
VMO	350	350	0.00%
MMO		0.86	
HMO	39000	43 000	10.26%
Normal Cruise speed IAS kts		310	
Normal Cruise speed Mach	0.8	0.80	0.00%
<i>Average Error</i>			<i>5.55%</i>

	<i>Synonym Aircraft</i> <i>ILYUSHIN II-96</i>	<i>Reference Aircraft Model</i> <i>AIRBUS A340-300</i>	
ICAO	IL96	A343	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	216	257.00	18.98%
VMO		330	
MMO	0.86	0.86	0.00%
HMO	39000	41 000	5.13%
Normal Cruise speed IAS kts		300	
Normal Cruise speed Mach	0.8	0.80	0.00%
<i>Average Error</i>			<i>6.03%</i>

	<i>Synonym Aircraft</i> <i>DORNIER 328 JET</i>	<i>Reference Aircraft Model</i> <i>EMBRAER EMB-135</i>	
ICAO	J328	E135	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	15.2	19.99	31.51%
VMO		320	
MMO		0.78	
HMO	35000	37 000	5.71%
Normal Cruise speed IAS kts	260	270	3.85%
Normal Cruise speed Mach	0.66	0.60	9.09%
<i>Average Error</i>			<i>12.54%</i>

	<i>Synonym Aircraft</i> <i>HANDLEY PAGE HP-137 Jetstrea</i>	<i>Reference Aircraft Model</i> <i>BEECH Super King Air 200</i>	
ICAO	JS1	BE20	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	5.67	5.67	0.00%
VMO		270	
MMO		0.48	
HMO	30000	32 000	6.67%
Normal Cruise speed IAS kts	260	225	13.46%
Normal Cruise speed Mach		0.48	
<i>Average Error</i>			<i>6.71%</i>

	<i>Synonym Aircraft</i> <i>HANDLEY PAGE HP-137 Jetstream</i>	<i>Reference Aircraft Model</i> <i>DORNIER 228</i>	
ICAO	JS20	D228	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	19.5	6.40	67.18%
VMO		220	
MMO		0.41	
HMO	27900	28 000	0.36%
Normal Cruise speed IAS kts		180	
Normal Cruise speed Mach		0.34	
<i>Average Error</i>			33.77%

	<i>Synonym Aircraft</i> <i>JETSTREAM 31</i>	<i>Reference Aircraft Model</i> <i>JETSTREAM Super 31</i>	
ICAO	JS31	JS32	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	6.9	7.35	6.52%
VMO		250	
MMO		0.52	
HMO	25000	25 000	0.00%
Normal Cruise speed IAS kts	211	200	5.21%
Normal Cruise speed Mach	0.38	0.41	7.89%
<i>Average Error</i>			4.91%

	<i>Synonym Aircraft</i> <i>BOEING KC-135A Stratotanker</i>	<i>Reference Aircraft Model</i> <i>BOEING 707-300</i>	
ICAO	K35A	B703	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	134.69	140.00	3.94%
VMO		375	
MMO	0.93	0.90	3.23%
HMO	40000	42 000	5.00%
Normal Cruise speed IAS kts	300	300	
Normal Cruise speed Mach		0.80	0.00%
<i>Average Error</i>			3.04%

	<i>Synonym Aircraft</i> <i>BOEING KC-135 Stratotanker</i>	<i>Reference Aircraft Model</i> <i>BOEING 703-300</i>	
ICAO	K35E	B703	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	143.34	140.00	2.33%
VMO		375	
MMO		0.90	
HMO	45000	42 000	6.67%
Normal Cruise speed IAS kts	270	300	11.11%
Normal Cruise speed Mach	0	0.80	0.00%
<i>Average Error</i>			5.03%

	<i>Synonym Aircraft</i> <i>BOEING KC-135R Stratotanker</i>	<i>Reference Aircraft Model</i> <i>Boeing 707-300</i>	
ICAO	K35R	B703	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	146.3	140.00	4.31%
VMO		375	
MMO	0.93	0.90	3.23%
HMO	50000	42 000	16.00%
Normal Cruise speed IAS kts	300	300	0.00%
Normal Cruise speed Mach		0.80	
<i>Average Error</i>			<i>5.88%</i>

	<i>Synonym Aircraft</i> <i>LOCKHEED Electra (L-188)</i>	<i>Reference Aircraft Model</i> <i>TRANSALL C160</i>	
ICAO	L188	C160	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	52.67	49.15	6.68%
VMO		240	
MMO		0.67	
HMO	28400	30 000	5.63%
Normal Cruise speed IAS kts		160	
Normal Cruise speed Mach		0.38	
<i>Average Error</i>			<i>6.16%</i>

	<i>Synonym Aircraft</i> <i>LOCKHEED L-1329 Jetstar</i>	<i>Reference Aircraft Model</i> <i>TRANSALL C160</i>	
ICAO	L29A	CL60	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	19.05	20.23	6.19%
VMO		365	
MMO		0.85	
HMO	39400	41 000	4.06%
Normal Cruise speed IAS kts	280	280	0.00%
Normal Cruise speed Mach		0.77	
<i>Average Error</i>			<i>3.42%</i>

	<i>Synonym Aircraft</i> <i>LOCKHEED L-1329 Jetstar 2</i>	<i>Reference Aircraft Model</i> <i>TRANSALL C160</i>	
ICAO	L29B	CL60	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	19.84	20.23	1.97%
VMO		365	
MMO	0.87	0.85	2.30%
HMO	36000	41 000	13.89%
Normal Cruise speed IAS kts	280	280	0.00%
Normal Cruise speed Mach	0.77	0.77	0.00%
<i>Average Error</i>			<i>3.63%</i>

	Synonym Aircraft L-410 Turbolet	Reference Aircraft Model DORNIER DO 228-100-200	
ICAO	L410	D228	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	6.4	6.40	0.00%
VMO	180	220	22.22%
MMO		0.41	
HMO	20000	28 000	40.00%
Normal Cruise speed IAS kts	170	180	5.88%
Normal Cruise speed Mach		0.34	
<i>Average Error</i>			17.03%

	Synonym Aircraft GATES LEARJET 24	Reference Aircraft Model CESSNA Citation II-S2	
ICAO	LJ24	C550	% error
Engine type	JET	JET	
WTC	L	L	
MTOW	5.9	6.03	2.20%
VMO	0	277	0.00%
MMO	0	0.70	0.00%
HMO	45000	43 000	4.44%
Normal Cruise speed IAS kts	230	220	4.35%
Normal Cruise speed Mach	0.78	0.63	19.23%
<i>Average Error</i>			5.04%

	Synonym Aircraft GATES LEARJET 25	Reference Aircraft Model LEARJET45	
ICAO	LJ25	LJ45	% error
Engine type	JET	JET	
WTC	L	M	
MTOW	6.8	9.30	36.76%
VMO		330	
MMO	0.81	0.81	0.00%
HMO	51000	51 000	0.00%
Normal Cruise speed IAS kts		300	
Normal Cruise speed Mach	0.77	0.76	1.30%
<i>Average Error</i>			9.52%

	Synonym Aircraft GATES LEARJET 31	Reference Aircraft Model LEARJET 45	
ICAO	LJ31	LJ45	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	7.71	9.30	20.62%
VMO		330	
MMO	0.81	0.81	0.00%
HMO	51000	51 000	0.00%
Normal Cruise speed IAS kts		300	
Normal Cruise speed Mach	0.77	0.76	1.30%
<i>Average Error</i>			5.48%

	<i>Synonym Aircraft</i> <i>GATES LEARJET 55</i>	<i>Reference Aircraft Model</i> <i>LEARJET 45</i>	
ICAO	LJ55	LJ45	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	8.62	9.30	7.89%
VMO		330	
MMO	0.82	0.81	1.22%
HMO	51000	51 000	0.00%
Normal Cruise speed IAS kts		300	
Normal Cruise speed Mach	0.8	0.76	5.00%
<i>Average Error</i>			<i>3.53%</i>

	<i>Synonym Aircraft</i> <i>LEARJET 60</i>	<i>Reference Aircraft Model</i> <i>LEARJET 45</i>	
ICAO	LJ60	LJ45	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	10.66	9.30	12.76%
VMO	340	330	2.94%
MMO	0.81	0.81	0.00%
HMO	51000	51 000	0.00%
Normal Cruise speed IAS kts		300	
Normal Cruise speed Mach	0.8	0.76	5.00%
<i>Average Error</i>			<i>4.14%</i>

	<i>Synonym Aircraft</i> <i>MOONEY 201</i>	<i>Reference Aircraft Model</i> <i>SOCATA TRINIDAD TB-20</i>	
ICAO	M20P	TRIN	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.24	1.40	12.90%
VMO	175	185	5.71%
MMO		0.35	
HMO	18800	20 000	6.38%
Normal Cruise speed IAS kts	140	150	7.14%
Normal Cruise speed Mach		0.35	
<i>Average Error</i>			<i>8.04%</i>

	<i>Synonym Aircraft</i> <i>MOONEY 20T</i>	<i>Reference Aircraft Model</i> <i>SOCATA TRINIDAD TB-20</i>	
ICAO	M20T	TRIN	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.32	1.40	6.06%
VMO		185	
MMO		0.35	
HMO	20000	20 000	0.00%
Normal Cruise speed IAS kts	140	150	7.14%
Normal Cruise speed Mach		0.35	
<i>Average Error</i>			<i>13.20%</i>

	<i>Synonym Aircraft</i> <i>MD81</i>	<i>Reference Aircraft Model</i> <i>MCDONNELL DOUGLAS MD-82</i>	
ICAO	MD81	MD82	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	63.51	67.81	6.77%
VMO	340	340	0.00%
MMO		0.84	
HMO	37000	37 000	0.00%
Normal Cruise speed IAS kts		290	
Normal Cruise speed Mach	0.76	0.76	0.00%
<i>Average Error</i>			1.69%

	<i>Synonym Aircraft</i> <i>MD87</i>	<i>Reference Aircraft Model</i> <i>MCDONNELL DOUGLAS MD-82</i>	
ICAO	MD87	MD82	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	63.51	67.81	6.77%
VMO	340	340	0.00%
MMO		0.84	0.00%
HMO	37000	37 000	0.00%
Normal Cruise speed IAS kts		290	0.00%
Normal Cruise speed Mach	0.76	0.76	0.00%
<i>Average Error</i>			1.13%

	<i>Synonym Aircraft</i> <i>MD88</i>	<i>Reference Aircraft Model</i> <i>MCDONNELL DOUGLAS MD82</i>	
ICAO	MD88	MD82	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	67.81	67.81	0.00%
VMO		340	
MMO		0.84	
HMO	37000	37 000	0.00%
Normal Cruise speed IAS kts		290	
Normal Cruise speed Mach	0.76	0.76	0.00%
<i>Average Error</i>			0.00%

	<i>Synonym Aircraft</i> <i>MD90</i>	<i>Reference Aircraft Model</i> <i>MCDONNELL DOUGLAS MD-83</i>	
ICAO	MD90	MD83	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	70.76	72.58	2.57%
VMO		340	
MMO	0.84	0.84	0.00%
HMO	37000	37 000	0.00%
Normal Cruise speed IAS kts		290	
Normal Cruise speed Mach	0.76	0.76	0.00%
<i>Average Error</i>			0.64%

	<i>Synonym Aircraft</i> <i>MITSUBISHI MU-300 Diamond</i>	<i>Reference Aircraft Model</i> <i>CESSNA CITATION V</i>	
ICAO	MU30	C560	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	7.36	7.21	2.04%
VMO	320	292	8.75%
MMO	0.78	0.76	2.56%
HMO	41000	45 000	9.76%
Normal Cruise speed IAS kts		200	
Normal Cruise speed Mach	0.73	0.73	0.00%
<i>Average Error</i>			<i>4.62%</i>

	<i>Synonym Aircraft</i> <i>AEROSPATIALE Frégate</i>	<i>Reference Aircraft Model</i> <i>BAE 4100 JETSTREAM 41</i>	
ICAO	N262	JS41	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	10.8	10.43	3.43%
VMO		250	
MMO		0.52	
HMO	28500	26 000	8.77%
Normal Cruise speed IAS kts	180	200	11.11%
Normal Cruise speed Mach		0.42	
<i>Average Error</i>			<i>7.77%</i>

	<i>Synonym Aircraft</i> <i>HAWKER SIDDELEY Nimrod</i>	<i>Reference Aircraft Model</i> <i>BOEING 737-800</i>	
ICAO	NIM	B738	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	80.51	78.30	2.75%
VMO		340	
MMO		0.82	
HMO	42000	41 000	2.38%
Normal Cruise speed IAS kts		280	
Normal Cruise speed Mach	0.72	0.78	8.33%
<i>Average Error</i>			<i>4.49%</i>

	<i>Synonym Aircraft</i> <i>PIAGGIO Avanti</i>	<i>Reference Aircraft Model</i> <i>CESSNA CITATION II S2</i>	
ICAO	P180	C550	% error
Engine type	TBP	JET	
WTC	L	L	
MTOW	5.24	6.03	15.08%
VMO		277	
MMO	0.67	0.70	4.48%
HMO	41000	43 000	4.88%
Normal Cruise speed IAS kts		220	
Normal Cruise speed Mach	0.65	0.63	3.08%
<i>Average Error</i>			<i>6.88%</i>

	Synonym Aircraft <i>PIPER PA-28-236 Dakota</i>	Reference Aircraft Model <i>SOCATA TRINIDAD TB20</i>	
ICAO	P28B	TRIN	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.36	1.40	2.94%
VMO	148	185	25.00%
MMO		0.35	
HMO	17900	20 000	11.73%
Normal Cruise speed IAS kts	143	150	4.90%
Normal Cruise speed Mach		0.35	
<i>Average Error</i>			11.14%

	Synonym Aircraft <i>PA-A-28R-201 Arrow</i>	Reference Aircraft Model <i>DIAMOND Twin Star</i>	
ICAO	P28R	DA42	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.25	1.79	43.20%
VMO	160	155	3.13%
MMO		0.23	
HMO	16200	18 000	11.11%
Normal Cruise speed IAS kts	110	124	12.73%
Normal Cruise speed Mach		0.23	
<i>Average Error</i>			17.54%

	Synonym Aircraft <i>PIPER PA-28RT-201T Turbo Arro</i>	Reference Aircraft Model <i>DIAMOND TWIN STAR</i>	
ICAO	P28T	DA42	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.25	1.79	43.20%
VMO	149	155	4.03%
MMO		0.23	
HMO	18400	18 000	2.17%
Normal Cruise speed IAS kts	120	124	3.33%
Normal Cruise speed Mach		0.23	
<i>Average Error</i>			13.18%

	Synonym Aircraft <i>LOCKHEED P-3 Orion</i>	Reference Aircraft Model <i>LOCKHEED HERCULES</i>	
ICAO	P3	C130	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	61.24	81.54	33.15%
VMO	330	310	6.06%
MMO		0.64	
HMO	28300	32 000	13.07%
Normal Cruise speed IAS kts	225	220	2.22%
Normal Cruise speed Mach		0.61	
<i>Average Error</i>			13.63%

		<i>Synonym Aircraft</i>	<i>Reference Aircraft Model</i>	
		<i>PIPER PA-32R-301 Saratoga Sl</i>	<i>SOCATA TRINIDAD TB-20</i>	
ICAO		P32R	TRIN	% error
Engine type		PST	PST	
WTC		L	L	
MTOW		1.63	1.40	14.11%
VMO			185	0.00%
MMO			0.35	
HMO		20000	20 000	0.00%
Normal Cruise speed IAS kts		135	150	11.11%
Normal Cruise speed Mach			0.35	
<i>Average Error</i>				<i>6.31%</i>

		<i>Synonym Aircraft</i>	<i>Reference Aircraft Model</i>	
		<i>PARTENAVIA Observer P68</i>	<i>PIPER Aztec PA23--235/250</i>	
ICAO		P68	PA27	% error
Engine type		PST	PST	
WTC		L	L	
MTOW		1.99	2.36	18.59%
VMO		174	215	23.56%
MMO			0.37	
HMO		19200	20 000	4.17%
Normal Cruise speed IAS kts		140	140	0.00%
Normal Cruise speed Mach			0.50	
<i>Average Error</i>				<i>11.58%</i>

		<i>Synonym Aircraft</i>	<i>Reference Aircraft Model</i>	
		<i>PIPER PA-18 Super Cub</i>	<i>PA34-200T SENECA III</i>	
ICAO		PA18	PA34	% error
Engine type		PST	PST	
WTC		L	L	
MTOW		0.79	2.07	162.03%
VMO		112	165	47.32%
MMO			0.34	
HMO		19000	25 000	31.58%
Normal Cruise speed IAS kts		130	130	0.00%
Normal Cruise speed Mach			0.34	
<i>Average Error</i>				<i>60.23%</i>

		<i>Synonym Aircraft</i>	<i>Reference Aircraft Model</i>	
		<i>PIPER Apache</i>	<i>PIPER AZTEC</i>	
ICAO		PA23	PA27	% error
Engine type		PST	PST	
WTC		L	L	
MTOW		2.18	2.36	8.26%
VMO			215	
MMO			0.37	
HMO		17200	20 000	16.28%
Normal Cruise speed IAS kts		135	140	3.70%
Normal Cruise speed Mach			0.50	
<i>Average Error</i>				<i>9.41%</i>

	Synonym Aircraft <i>PIPERPA-32 Cherokee Six</i>	Reference Aircraft Model <i>SOCATA TRINIDAD TB-20</i>	
ICAO	PA32	TRIN	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.63	1.40	14.11%
VMO		185	
MMO		0.35	
HMO	14100	20 000	41.84%
Normal Cruise speed IAS kts	140	150	7.14%
Normal Cruise speed Mach		0.35	
<i>Average Error</i>			21.03%

	Synonym Aircraft <i>PIPER Seminole</i>	Reference Aircraft Model <i>SOCATA TRINIDAT TB20</i>	
ICAO	PA44	TRIN	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.72	1.40	18.60%
VMO		185	
MMO		0.35	
HMO	17100	20 000	16.96%
Normal Cruise speed IAS kts	130	150	15.38%
Normal Cruise speed Mach		0.35	
<i>Average Error</i>			16.98%

	Synonym Aircraft <i>PIPER PA-31T1-500 Cheyenne 1</i>	Reference Aircraft Model <i>PIPER PA-31T-620 CHEYENNE</i>	
ICAO	PAY1	PAY2	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	3.95	4.08	3.29%
VMO	230	246	6.96%
MMO		0.47	
HMO	28200	29 000	2.84%
Normal Cruise speed IAS kts	200	220	10.00%
Normal Cruise speed Mach	0.4	0.44	10.00%
<i>Average Error</i>			6.62%

	Synonym Aircraft <i>PIPER Cheyenne 400</i>	Reference Aircraft Model <i>CESSNA CITATION MUSTANG</i>	
ICAO	PAY4	C510	% error
Engine type	TBP	JET	
WTC	L	L	
MTOW	5.47	3.92	28.34%
VMO	246	250	1.63%
MMO	0.62	0.63	1.61%
HMO	41000	41 000	0.00%
Normal Cruise speed IAS kts	220	200	9.09%
Normal Cruise speed Mach	0.58	0.56	3.45%
<i>Average Error</i>			7.35%

	<i>Synonym Aircraft</i> <i>PILATUS Spectre PC12</i>	<i>Reference Aircraft Model</i> <i>BEECH KING AIR 90</i>	
ICAO	PC12	BE9L	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	4	4.58	14.50%
VMO	240	226	5.83%
MMO		0.68	
HMO	30000	31 000	3.33%
Normal Cruise speed IAS kts	190	194	2.11%
Normal Cruise speed Mach		0.40	
<i>Average Error</i>			<i>6.44%</i>

	<i>Synonym Aircraft</i> <i>Avro RJ100</i>	<i>Reference Aircraft Model</i> <i>Air RJ-85 Avroliner</i>	
ICAO	RJ1H	RJ85	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	46.04	44.00	4.43%
VMO	305	295	3.28%
MMO	0.73	0.71	2.74%
HMO	35000	35 000	0.00%
Normal Cruise speed IAS kts		280	
Normal Cruise speed Mach	0.7	0.71	1.43%
<i>Average Error</i>			<i>2.38%</i>

	<i>Synonym Aircraft</i> <i>RJ70 AVROLINER</i>	<i>Reference Aircraft Model</i> <i>Air RJ-85 Avroliner</i>	
ICAO	RJ70	RJ85	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	43.09	44.00	2.11%
VMO	300	295	1.67%
MMO	0.73	0.71	2.74%
HMO	35000	35 000	0.00%
Normal Cruise speed IAS kts		280	
Normal Cruise speed Mach	0.7	0.71	1.43%
<i>Average Error</i>			<i>1.59%</i>

	<i>Synonym Aircraft</i> <i>AEROSPATIALE Corvette</i>	<i>Reference Aircraft Model</i> <i>CESSNA CITATION I</i>	
ICAO	S601	C550	% error
Engine type	JET	JET	
WTC	L	L	
MTOW	6.6	6.03	8.64%
VMO		277	
MMO		0.70	
HMO	41000	43 000	4.88%
Normal Cruise speed IAS kts	240	220	8.33%
Normal Cruise speed Mach	0.65	0.63	3.08%
<i>Average Error</i>			<i>6.23%</i>

	Synonym Aircraft SAAB 105	Reference Aircraft Model CESSNA CITATION MUSTANG	
ICAO	SB05	C510	% error
Engine type	JET	JET	
WTC	L	L	
MTOW	4.05	3.92	3.21%
VMO		250	
MMO		0.63	
HMO	44300	41 000	7.45%
Normal Cruise speed IAS kts		200	
Normal Cruise speed Mach	0.64	0.56	12.50%
<i>Average Error</i>			<i>7.72%</i>

	Synonym Aircraft NORTH AMERICAN ROCKWELL Sabre	Reference Aircraft Model DASSAULT FALCON 10	
ICAO	SBR1	FA10	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	9.15	8.76	4.26%
VMO		370	
MMO		0.87	
HMO	45000	45 000	0.00%
Normal Cruise speed IAS kts	300	300	0.00%
Normal Cruise speed Mach	0.75	0.75	0.00%
<i>Average Error</i>			<i>1.07%</i>

	Synonym Aircraft SHORT C-23 Sherpa	Reference Aircraft Model SHORTS SH3 - 360	
ICAO	SH33	SH36	% error
Engine type	TBP	TBP	
WTC	M	M	
MTOW	10.39	12.29	18.29%
VMO		200	
MMO		0.44	
HMO	22000	20 000	9.09%
Normal Cruise speed IAS kts	150	180	20.00%
Normal Cruise speed Mach		0.33	
<i>Average Error</i>			<i>15.79%</i>

	Synonym Aircraft SWEARINGEN Merlin 2	Reference Aircraft Model SWEARINGEN MERLIN IV	
ICAO	SW2	SW4	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	5.67	5.75	1.41%
VMO		248	
MMO		0.53	
HMO	27000	25 000	7.41%
Normal Cruise speed IAS kts	200	200	0.00%
Normal Cruise speed Mach		0.52	
<i>Average Error</i>			<i>2.94%</i>

	<i>Synonym Aircraft</i> <i>SWEARINGEN Merlin3</i>	<i>Reference Aircraft Model</i> <i>PIPER PA-42-720 CHEYENNE III</i>	
ICAO	SW3	PAY3	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	5.67	5.08	10.41%
VMO		246	
MMO		0.52	
HMO	28900	33 000	14.19%
Normal Cruise speed IAS kts	223	220	1.35%
Normal Cruise speed Mach	0.42	0.46	9.52%
<i>Average Error</i>			<i>8.87%</i>

	<i>Synonym Aircraft</i> <i>TUPOLEV Tu-204</i>	<i>Reference Aircraft Model</i> <i>TUPOLEV Tu-204</i>	
ICAO	T204	T154	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	93.5	100.00	6.95%
VMO		320	
MMO		0.86	
HMO	40000	41 000	2.50%
Normal Cruise speed IAS kts		297	
Normal Cruise speed Mach	0.78	0.80	2.56%
<i>Average Error</i>			<i>4.01%</i>

	<i>Synonym Aircraft</i> <i>TBM700</i>	<i>Reference Aircraft Model</i> <i>PA-42-720 CHEYENNE III</i>	
ICAO	TBM7	PAY3	% error
Engine type	TBP	TBP	
WTC	L	L	
MTOW	2.98	5.08	70.47%
VMO		246	
MMO		0.52	
HMO	31000	33 000	6.45%
Normal Cruise speed IAS kts	180	220	22.22%
Normal Cruise speed Mach	0.46	0.46	0.00%
<i>Average Error</i>			<i>24.79%</i>

	<i>Synonym Aircraft</i> <i>SOCATA TB-10 Tobago</i>	<i>Reference Aircraft Model</i> <i>SOCATA TRINIDAD TB20</i>	
ICAO	TOBA	TRIN	% error
Engine type	PST	PST	
WTC	L	L	
MTOW	1.15	1.40	21.74%
VMO		185	
MMO		0.35	
HMO	13000	20 000	53.85%
Normal Cruise speed IAS kts		150	
Normal Cruise speed Mach		0.35	
<i>Average Error</i>			<i>37.79%</i>

	Synonym Aircraft VICKERS VC-10	Reference Aircraft Model BOEING 767-200	
ICAO	VC10	B762	% error
Engine type	JET	JET	
WTC	H	H	
MTOW	141.52	160.00	13.06%
VMO		350	
MMO	0.86	0.86	0.00%
HMO	42000	43 000	2.38%
Normal Cruise speed IAS kts		310	
Normal Cruise speed Mach	0.82	0.80	2.44%
<i>Average Error</i>			<i>4.47%</i>

	Synonym Aircraft IAI Westwind (1124)	Reference Aircraft Model DASSAULT FALCON 10	
ICAO	WW24	FA10	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	10.36	8.76	15.44%
VMO		370	
MMO	0.76	0.87	14.47%
HMO	45000	45 000	0.00%
Normal Cruise speed IAS kts		300	
Normal Cruise speed Mach	0.75	0.75	0.00%
<i>Average Error</i>			<i>7.48%</i>

	Synonym Aircraft YAKOVLEV YAK40	Reference Aircraft Model ATR 42-300	
ICAO	YK40	AT43	% error
Engine type	JET	TBP	
WTC	M	M	
MTOW	16	16.70	4.38%
VMO	297	250	15.82%
MMO	0.7	0.55	21.43%
HMO	26600	25 000	6.02%
Normal Cruise speed IAS kts		210	
Normal Cruise speed Mach		0.45	
<i>Average Error</i>			<i>11.91%</i>

	Synonym Aircraft YAKOVLEV YAK42	Reference Aircraft Model CDONNELL DOUGLAS DC-9-40	
ICAO	YK42	DC94	% error
Engine type	JET	JET	
WTC	M	M	
MTOW	52	51.70	0.58%
VMO		340	
MMO		0.80	
HMO	31500	35 000	11.11%
Normal Cruise speed IAS kts	300	340	13.33%
Normal Cruise speed Mach	0.77	0.80	3.90%
<i>Average Error</i>			<i>7.23%</i>

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