DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

A00010WI
Revision 7 |
Raytheon
390
July 6, 2005 |

TYPE CERTIFICATE DATA SHEET NO. A00010WI

This data sheet, which is part of Type Certificate No. A00010WI, prescribes conditions and limitations under which the product for which the Type Certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder: Raytheon Aircraft Company
9709 East Central
Wichita, Kansas 67201

I. MODEL 390 (PREMIER I) (NORMAL CATEGORY) APPROVED MARCH 23, 2001

Engine — Two Williams-Rolls, Inc. International FJ44-2A Turbofans

Fuel — Commercial kerosene JET A, JET A-1, per ASTM -D-1655, or JP-8 per MIL-T-83133 (Limited use Av-gas 100LL per ASTM D910. Limited to 5,000 gallons per engine between major periodic inspections. Operation is limited to 10,000 feet and below with the electric boost pumps on per AFM procedures).

Fuels not containing icing inhibitors must have MIL-I-27686 or MIL-I-85470 fuel system icing inhibitor added in amounts of not less than 0.10% nor more than 0.15% by volume. Minimum fuel icing inhibitor content during refueling is 0.10% by volume.

Dupont Stadis 450 anti-static additive or equivalent is permitted to bring fuel up to 300 conductive units, but not to exceed 1 part per million.

SOHIO Biobor JF biocide additive or equivalent is permitted at a concentration not to exceed 20 parts per million (270 ppm total additive) of elemental boron.

Engine Limits Static, Sea Level, Standard Day

Takeoff (5 minutes) static thrust, sea level	2300 lbs.
Maximum Continuous static thrust, sea level	2300 lbs.
Maximum permissible engine rotor (Operating speed)	
Low pressure rotor, N1 (30 seconds)	106.4%
Low pressure rotor, N1	105.2%
High pressure rotor, N2	98.8%
Maximum permissible Interstage Turbine Temperature (ITT)	
Take-off (10 second)	835°C
Take-off (5 minutes)	820°C
Maximum Continuous	805°C
Engine Starting	805°C
Engine Starting (30 second)	900°C
Engine Starting (15 seconds)	1000°C

All other engine limits as noted in engine TCDS E3GL.

Airspeed Limits (KCAS)	Vmo (Maximum Operating Speed)	320
	Sea Level to 27,600 feet	
	Mmo (Maximum Operating Mach No.) (above 27,600 feet)	.80
	VF (Flap Extension Speed)	
	Flaps 10 °	200
	Flaps 20°	200
	RB-4 thru RB-69 and aircraft not modified per kit 390-3203	
	RB-2, RB-3, RB-70 and after and aircraft modified per kit 390-3203	201
	Flaps 30°	170
	V_{LO} (Retraction)	180
	V_{LO} (Extension) RB-4 thru RB-69 and aircraft not modified per kit 390-3203	200
	RB-2, RB-3, RB-70 and after and aircraft modified per kit 390-3203	201
	V_{LE} RB-4 thru RB-69 and aircraft not modified per kit 390-3203	200
	RB-2, RB-3, RB-70 and after and aircraft modified per kit 390-3203	201
	VO Operating Maneuvering Speed	200
	VMCA (Min. Control Speed)	
	Flaps UP	102
	Flaps 10°	97
	Flaps 20°	93
	VMCL (Flaps 30°)	91

Datum	F.S. 0.00 is located 34.00 inches forward of the nose of the aircraft.	
Mean Aerodynamic Chord	66.24 inches. The leading edge of the mean aerodynamic chord is 278.471 inches aft of the datum.	
C.G. Range (Gear and Flaps Extended)	Allowable Forward C. G. Up To 12,500 lbs	F.S. 294.37
	Aft C. G. Up To 10,000 lbs	F.S. 303.97
	Aft C. G. Up To 12,500 lbs	F.S. 300.14
	Straight line variation between given points	
Leveling Means	Level is determined with a level gauge placed on the cabin door floor longeron.	
Maximum Weights	Ramp	12,591 LBS
	Takeoff	12,500 LBS
	Landing	11,600 LBS
	Zero Fuel	10,000 LBS
Minimum Crew	One Pilot	
No. of Seats	2 Crew 6 Passengers	
Maximum Baggage	Nose Baggage	150 lb.
	Aft Cabin Baggage	140 lbs.
	Aft Fuselage Baggage –Forward	200 lbs.
	Aft Fuselage Baggage –Aft	200 lbs.

Fuel Capacity (Total Airplane)

	U.S. CAP. GAL.	U.S. USABLE GAL.	ARM
Gravity Fill	552.8	539	290.8
Single Point	541.8	528	289.8

For aircraft serial numbers RB-75 and after, or prior aircraft that embody Kit No. 390-9200:

Gravity Fill	552.8	547.8	290.5
Single Point	541.8	537.0	289.5

See Note 1. for data on unusable and undrainable fuel

Oil Capacity: 2.5 Quarts usable per engine - ARM 390.5

See Note 1. for data on undrainable oil.

Maximum Operating Altitude: 41,000 feet

Serial Numbers Eligible: RB-2 and after

Control Surface Movements

Rudder	Right	25° +1°/-0°
	Left	25° +1°/-0°
Rudder Trim	Right	20° +1°/-0°
	Left	20° +1°/-0°
Elevators	Up	20° +1°/-0°
	Down	9.6° +1°/-0°
Horiz. Tail Incidence	Leading Edge Up	1.4° ± 0.2°
	Leading Edge Down	7° ± 0.2°
Elevator Trim	Up	3.06° ± 0.5°
	Down	12.6° ± 0.5°
Ailerons	Up	15.5° +0.5°/-0°
	Down	12.5° + 0°/-0.5
Aileron Trim	LH Up	20° ± 1°
	Down	20° ± 1°
	RH Up	20° ± 2°
	Down	20° ± 2°
Wing Flap	Takeoff	0º, 10º, 20° *Multiple tolerances
	Landing	30° *Multiple tolerances
Roll Spoiler-flaps > 20°	Outboard Panels	9.0º ± 0.7º
	Mid panels	8.05º ± 1.05°
Roll Spoiler-flaps down	Outboard Panels	4.3º ± 0.4°
	Mid panels	3.55º ± 0.75°

Control Surface Movements (cont'd)	Speedbrake	Outboard Panels	23° ± 0.3°
		Mid panels	23° + 0°/-1.8°
	Lift Dump	Inboard Panels	60° ± 4°
		Outboard Panels	45° +1°/-1.5°
		Mid Panels	45° +0°/-3.1°

*See Specification BS25190, BS25191 and BS25192 or maintenance manual for rigging tolerances.

Certification Basis

(1) 14 CFR part 23, effective February 1, 1965, as amended by Amendments 23-1 through 23-52.

(2) 14 CFR part 36 effective December 1, 1969, as amended by 36-1 through 36-22.

(3) 14 CFR part 34 as amended by Amendments 34-1 through 34-3.

(4) Title 49 U.S.C. Section 44715:

(5) Special Conditions as follows:

(a) 23-096-SC and 23-096A-SC-additional requirements for:
Performance, stalling speed, takeoff speeds, takeoff performance, accelerate-stop distance, takeoff path, takeoff distance and takeoff run, takeoff flight path, climb, climb all engines operating, takeoff climb one engine inoperative, climb one engine inoperative, reference landing approach speed, landing distance, balked landing, longitudinal control, minimum control speed, control during landings, trim, stability, static longitudinal stability, demonstration of static longitudinal stability, static directional and lateral stability, dynamic stability, wings level stall, turning flight and accelerated turning stalls, stall warning, vibration and buffeting, high speed characteristics, out-of-trim characteristics, flutter, takeoff warning system, engine fire extinguishing system, fire extinguishing agents, extinguishing agent containers, fire extinguishing system materials, airspeed indicating system, static pressure system, operating limitations and information, airspeed limitations, minimum control speed, minimum flight crew, markings and placards, airspeed indicator, airplane flight manual and approved manual material, operating limitations, operating procedures, and performance information. Effects of Contamination on Natural Laminar Flow Airfoils.

(b) 23-122-SC-HIRF

(6) Exemptions as follows:

(a) No. 6558 for landing gear loads from §§ 23.25, 23.29, 23.235, 23.471, 23.473, 23.477, 23.479, 23.481, 23.483, 23.485, 23.493, 23.499, 23.723, 23.725, 23.726, 23.727, 23.959, 23.1583(c)(1) and (2), Appendix C23.1, Appendix D23.1. Compliance has been shown for the additional requirements as specified in the exemption and identified as paragraphs 1 through 25. Any change in type design must also show compliance with these additional requirements.

(b) No. 7190 partial exemption from the requirements of 23.181(b).

Certification Basis (cont'd) (7) Equivalent Level of Safety Findings as follows:

(a) No. ACE-99-11 §23.853(a) for small parts that would not contribute significantly to the propagation of fire. The compensating feature for this equivalent level of safety was compliance with the vertical burn requirements of CFR 14 Part 23, Appendix F for larger interior furnishings and panels.

(b) No. ACE-00-02 §§23.1305 (a) (2), (a)(3), (c)(2), (c)(5) and 23.1549 (a) through for direct reading digital only displays.

(c) No. ACE-05-04 to use 1-g stall speeds rather than traditional Vsmin stall speed as the reference datum for regulatory compliance.

(8) Compliance with ice protection has been demonstrated in accordance with 14 CFR 23.1419.

Application for type certificate May 6, 1996. Type Certificate A00010WI issued March 23, 2001, obtained by the manufacturer using Delegation Option Authorization Procedures of Part 21 of the Federal Aviation Regulations.

Production Certificate No. PC-8 Delegation Option Manufacturing No. DOA-230339-CE.

Equipment The basic required equipment as prescribed in applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification. (See Limitations Section of FAA Approved Airplane Flight Manual for Kinds of Operation Equipment List.)

NOTE 1. Current weight and balance data, loading information and a list of equipment included in empty weight must be provided for each airplane at the time of original certification.

(a) Basic empty weight includes unusable fuel of 105.2 lbs for gravity fill (12.5 lbs undrainable); 109.2 lbs for single point refueling (16.5 lbs undrainable).

For aircraft serial numbers RB-75 and after, or prior aircraft that embody Kit No. 390-9200:

Basic empty weight includes unusable fuel of 45.4 lbs for gravity fill (14.4 lbs undrainable); 49.4 lbs for single point refueling (18.4 lbs undrainable).

(b) Basic empty weight includes engine oil of 17.2 lbs.

(c) Basic empty weight includes hydraulic fluid of 18.1 lbs.

NOTE 2. All placards required in the FAA Approved Flight Manual P/N 390-590001-3A1 or later FAA Approved version must be installed in the appropriate location.

NOTE 3. The aircraft must be operated in accordance with FAA Approved Airplane Flight Manual P/N 390-590001-3A1 or later FAA Approved version.

NOTE 4. The Model 390 is approved for the single seating installation shown in the AFM. Removal, alteration or relocation of seats, restraint systems, cabinets or tables is subject to approval by the Wichita ACO.

NOTE 5. See Model 390 Maintenance Manual, P/N 390-590001-15, Chapter 4, "Airworthiness Limitations" for inspections, mandatory life information and other requirements for continued airworthiness. These requirements may not be changed without approval by the Wichita ACO.

NOTE 6. The Model 390 has been approved for Group Reduced Vertical Separation Minimum (RVSM) as described below:

(a) Serials RB-70 and after.
(b) Serials RB-2, RB-3, RB-46, RB-51, RB-60, RB-66 when modified by kit 390-3205. (c) Serials RB-4 through RB-69 with Kits 390-3205 and 390-3203 installed, exceptions are outlined in notes 2.,4., and 5.
(d) Currently non-group RVSM approved serials RB-27, RB-35, which have been modified by kit 390-3203, and 390-3205.
(e) Currently non-group RVSM approved serials RB-21, RB-29, RB-48, and RB-10, which have been modified by kit 390-3205.

Final certification for RVSM operations must be obtained by the operator from the local FAA Flight Standards District Office (FSDO) or Certificate Management Office (CMO).

END