

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

A31CE
Revision 9
Beechcraft
F90
September 23, 2013

TYPE CERTIFICATE DATA SHEET NO. A31CE

This data sheet which is part of Type Certificate No. A31CE 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	Beechcraft Corporation 10511 East Central Wichita, KS 67206
Type Certificate Holder Record:	Beech Aircraft Company transferred to Raytheon Aircraft Company on April 15, 1996 Raytheon Aircraft Company transferred to Hawker Beechcraft Corporation on March 26, 2007 Hawker Beechcraft Corporation transferred to Beechcraft Corporation on April 12, 2013

I. Model F90, King Air, 7-10 PCLM (Normal Category), approved May 18, 1979

Engine	2 Pratt & Whitney Aircraft of Canada, Ltd., PT6A-135 (LA-1 through LA-204, except LA-202), PT6A-135A (LA-202, LA-205 and after) (turboprop) per Beech Specification BS 23046 and BS 23549 respectively.
Fuel	JP-4, JP-5 (MIL-T-5624); JP-8 (MIL-T-83133); JET A, JET A-1, and JET B conforming to P&WC S.B. 1244 or ASTM Spec. D1655. See NOTE 6 for emergency fuels.
Oil (Engine & Gearbox)	P&WC PT6 Engine Service Bulletin NO. 1001 Lists approved brand oils

Engine Limits

	Shaft Horsepower	N ₁ Gas Generator Speed	Prop Shaft Speed	Max. Permissible Turbine Interstage Temp. (Deg. C.)
Takeoff (5 min.)	750	101.5%	1900*	805
Max. continuous (enroute emergency)	750	101.5%	1900*	805
Starting transient (2 sec.)				1000
Max. reverse (1 min.)	720	88.0%	1815	805

*See NOTE 4

At low altitude and low ambient temperature the engines may produce more power at takeoff than that for which the airplane has been certificated. Under these conditions the placarded torque meter limitations shall not be exceeded.

Oil temperatures	Minus 40° C. minimum starting Minus 40° C. to 99° C. low idle 10° C. to 99° C. max continuous
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Page No.	1	2	3	4
Rev. No.	9	3	6	3

I. Model F90 (cont'd)

Propeller and propeller limits	<p>2 Hartzell HC-B4TN-3B hubs (effective LA-1 through LA-120 except LA-20 and LA-97), HC-B4TN-3A or HC-B4TN-3B hubs (effective LA-20, LA-97, and LA-121 through LA-130) with Hartzell T10173FB-10.5 or T10173FNB-10.5 aluminum alloy blades and Hartzell C-3425P, C-3425-!P, C3425-2P, or C-3425-3P spinner assembly.</p> <p>(For Aircraft S/N LA-131 and after) 2 Hartzell HC-B4TN-3A or HC-B4TN-3B hubs with Hartzell T10173FK-10.5 or T10173FNK-10.5 aluminum alloy blades and Hartzell C-3425-2P or C-3425-3P spinner assembly.</p> <p>Diameter: 92.0 in. (maximum) No further reduction permitted. Pitch settings at:</p> <table border="0" style="margin-left: 40px;"> <tr> <td>Flight idle stop</td> <td>(See NOTE 5(a))</td> </tr> <tr> <td>Secondary flight idle stop</td> <td>(See NOTE 5(b))</td> </tr> <tr> <td>Reverse</td> <td>8.5° ± 0.4°</td> </tr> <tr> <td>Feathered</td> <td>87.5° ± 0.5°</td> </tr> </table> <p>Avoid continuous operation on ground below 1200 rpm.</p>			Flight idle stop	(See NOTE 5(a))	Secondary flight idle stop	(See NOTE 5(b))	Reverse	8.5° ± 0.4°	Feathered	87.5° ± 0.5°
Flight idle stop	(See NOTE 5(a))										
Secondary flight idle stop	(See NOTE 5(b))										
Reverse	8.5° ± 0.4°										
Feathered	87.5° ± 0.5°										
Airspeed Limits (IAS)	<table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;"><u>LA-1 through LA-204</u> <u>except LA-202</u></td> <td style="text-align: center;"><u>LA-202, LA-205</u> <u>and after</u></td> </tr> </table>	<u>LA-1 through LA-204</u> <u>except LA-202</u>	<u>LA-202, LA-205</u> <u>and after</u>								
<u>LA-1 through LA-204</u> <u>except LA-202</u>	<u>LA-202, LA-205</u> <u>and after</u>										
Maximum operating speed	253 knots (291 mph) up to 12,600 ft.	253 knots (291 mph)									
Max operating Mach No.	.48	.48									
Maneuvering speed	171 knots (197 mph)	170 knots (196 mph)									
Maximum flap extension speed											
Approach position 32.5%	184 knots (212 mph) up to 27,700 ft.	183 knots (211 mph)									
100% position 40°	144 knots (166 mph)	146 knots (168 mph)									
Landing gear extended	184 knots (212 mph)	183 knots (211 mph)									
Landing gear operation											
Extension	184 knots (212 mph)	183 knots (211 mph)									
Retraction	166 knots (191 mph)	165 knots (190 mph)									
C.G. Range (landing gear extended)	<p>(+154.8) to (+164.0) at 10,950 lbs. (+150.0) to (+164.0) at 9,484 lbs. or less Straight line variation between points given. Moment change due to retracting landing gear (-5340 in.-lb.)</p>										
Empty Weight C.G. Range	None										
Maximum Weight	Ramp	11,030 lbs.									
	Takeoff	10,950 lbs.									
	Landing	10,950 lbs.									
	Zero fuel	9,600 lbs.									
	See NOTE 1.										
Minimum Crew	One pilot										
No. of seats	Crew (+129), passenger variable, see loading instructions. Maximum passengers: 9										
Maximum Baggage	403 lbs. (+276)										

I. Model F90 (cont'd)

Fuel Capacity	<u>Tank</u>	<u>Cap. Gal.</u>	<u>Usable Gal.</u>	<u>Arm</u>
	Auxiliary LH	41.5	41	+173
	Auxiliary RH	41.5	41	+173
	Main LH	195	194	+154
	Main RH	195	194	+154

See NOTE 1(a) for data on unusable fuel.

Oil Capacity 29 qt. total at +92 (includes 12 qt. usable in two integral engine tanks
See NOTE 1(b) for data on undrainable oil.

Maximum Operating Altitude 31,000 ft.

Control Surface Movements	Wing flap	Maximum	40°	
	Aileron tab	Up	15°	Down 15°
	Aileron	Up	16°	Down 22°
	Elevator tabs	Up	0°	Down 15°
	Elevator	Up	20°	Down 17°
	Rudder tab	Right	15°	Left 15°
	Rudder	Right	25°	Left 25°

Serial numbers eligible LA-2 and up

Datum Located 160 in. forward of the wing main (forward) spar centerline.

Leveling Means Two external screws on left side of fuselage forward of entrance door.

Certification Basis FAR Part 23 dated February 1, 1965, as amended through 23-16 except FAR 23.967(a)(5) is to be as amended through 23-18; FAR Part 36 dated December 1, 1969, as amended through 36-5; SFAR 27 dated February 1, 1974, as amended through 27-2; and Special Conditions 23-85-CE-11, as amended.

Compliance with ice protection has been demonstrated in accordance with FAR 23.1419 when ice protection equipment is installed in accordance with the airplane equipment list.

Equivalent Safety Findings:

FAR 23.621 (S/N LA-2 through LA-186), 23.1323, 23.1545, 23.1583(a), FAR 23.1305(v)

Application for type certificate dated January 12, 1977. Type Certificate No. A31CE issued May 18, 1979, obtained by the manufacturer under delegation option procedures.

Production Basis Production Certificate No. 8. Delegation Option Manufacturer No. CE-2 authorized to issue airworthiness certificates under delegation option provisions of Part 21 of the Federal Aviation Regulations.

I. Model F90 (cont'd)

Equipment

The basic required equipment as prescribed in applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification.

In addition, the following items of equipment are required:

1. Stall warning lift transducer, P/N 101-380005-9, and lift computer, P/N 101-380005-17.
2. Maximum allowable airspeed indicator, P/N 109-384003-3, Pilot's and Copilot's sides.
3. Pilot's Operating Handbook, P/N 109-590010-3, S/N LA-2 through LA-204, except LA-202.
4. Pilot's Operating Handbook, P/N 109-590010-57, S/N LA-202, LA-205 and after.

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

- (a) Basic empty weight includes unusable fuel of 41 lbs. at (+157 in.) with 9 lbs. being undrainable.
- (b) Basic empty weight includes engine oil of 58 lbs. at (+92 in.)

NOTE 2. All placards required in the approved Airplane Flight Manual must be installed in the appropriate location.

NOTE 3. Mandatory retirement times for all structural components are contained in the FAA Approved Limitation Section, Chapter 4, of the Beechcraft F90 Maintenance Manual. These limitations may not be changed without FAA Engineering approval.

NOTE 4. The maximum propeller shaft overspeed limit is 110 percent (2090 rpm). 100 percent propeller shaft speed is defined as 1900 rpm and is the normal steady state operating limit. Gas generator speeds up to 102.6 percent are permissible for 2 seconds and to 101.5 percent for unlimited periods subject to applicable temperature and other limits. 100 percent gas generator speed is defined as 37,500 rpm.

NOTE 5. (a) Flight idle propeller low pitch is set so that at 1800 rpm there shall be an indicated 600 \pm 40 ft.-lb. torque corrected to sea level standard day.
(b) (Secondary flight) and ground low pitch stop is set so that at 1800 rpm there shall be an indicated torque of 350 \pm 40 ft.-lb. torque corrected to sea level standard day.

NOTE 6. Emergency use of MIL-G-5572:
Grades 80/87, 91/98, 100/130 and 115/145 are permitted for a total time period not to exceed 150 hours time between engine overhaul periods. It is not necessary to purge the unused fuel from the system when switching fuel types.

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