

King Air C90 | Limitations

TRAINING REFERENCE ONLY — NOT A SUBSTITUTE FOR THE AFM

This document is a training summary compiled from the aircraft's POH/AFM. In any conflict, the FAA Approved Airplane Flight Manual for the specific airplane, including all applicable Temporary Changes and Supplements, is the governing authority. Verify limitations against the AFM for the serial number being flown.

Source: Raytheon (Beechcraft) King Air C90 Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, P/N 90-590010-61B, Revision B10 (April, 2002) — Section 2, Limitations (pages 2-1 through 2-25), including the January, 1987 Interim Addendum (Elevator Trim System Check), Temporary Change P/N 90-590010-61BTC1 (December, 1997 — In-Flight Beta Range prohibited) and Temporary Change P/N 90-590010-61BTC3 (December, 2011 — Cabin Pressurization and Structural Limitations). Airplane serials LJ-668 thru LJ-1010, except LJ-670, LJ-986 and LJ-996.

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1. AIRSPEED

AIRSPEED LIMITATIONS

POH 2-3

The limitations included in this section have been approved by the Federal Aviation Administration and they must be observed in the operation of the BEECHCRAFT King Air C90.

SPEED	KCAS	KIAS	REMARKS
Maximum Operating Speed V_{mo}	208	208	Do not exceed this airspeed in any operation.
Maneuvering V_a	169	169	Do not make full or abrupt control movements above this speed.
Maximum Flap Extension/Extended V_{fe} — 35% (APPROACH)	174	178	Do not extend flaps or operate with flaps extended above this speed.
Maximum Flap Extension/Extended V_{fe} — 100% (FULL DOWN)	130	137	Do not extend flaps or operate with flaps extended above this speed.
Maximum Landing Gear Operating — Extension	156	156	Do not extend or retract the landing gear above this speed.
Maximum Landing Gear Operating — Retraction	130	129	Do not extend or retract the landing gear above this speed.
Maximum Landing Gear Extended V_{le}	156	156	Do not exceed this speed with the landing gear extended.
Air Minimum Control V_{mca}	92	90	This is the lowest speed at which the airplane is directionally controllable after sudden loss of engine when the remaining engine is at take-off power.

MARKING	KCAS VALUE OR RANGE	KIAS VALUE OR RANGE	SIGNIFICANCE
Red Line	208	208	Maximum Operating Limit Speed
White Arc	74 to 130	76 to 137	Full Flap Operating Range
Green Arc	89 to 208	89 to 208	Normal Operating Range

NOTE

** The Airspeed Indicator is marked in CAS values.

2. POWER PLANT

POWER PLANT LIMITATIONS

POH 2-4

NUMBER OF ENGINES	2
ENGINE MANUFACTURER	Pratt & Whitney Aircraft of Canada Ltd.
ENGINE MODEL	PT6A-21

POWER PLANT LIMITATIONS — POWER LEVERS (TEMPORARY CHANGE)

TEMPORARY CHANGE

POH 1 of 2

Applicability: Temporary Change to the King Air C90 Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, P/N 90-590010-61BTC1, December, 1997 (Raytheon Aircraft Company). Description: Provides a Limitation prohibiting the selection of Beta Range in flight. Publication affected: P/N 90-590010-61B, Reissued April, 1980 or Subsequent. Airplane serial numbers affected: LJ-668 thru LJ-1010, except LJ-670, LJ-986 and LJ-996. File following page 2-4.

Do not lift the power levers in flight. Lifting the power levers in flight, or moving the power levers in flight below the flight idle position, could result in a nose-down pitch and a descent rate leading to aircraft damage and injury to personnel.

ENGINE OPERATING LIMITS

POH 2-4

The following limitations shall be observed. Each column presents limitations. The limits presented do not necessarily occur simultaneously. Refer to Pratt & Whitney Engine Maintenance Manual for specific actions required if limits are exceeded.

OPERATING CONDITION	SHP (11)	TORQUE FT-LBS	MAX OBSERVED ITT °C	GAS GENERATOR N1 — RPM	GAS GENERATOR N1 (5) — %	PROP RPM N2	OIL PRESS PSI (3)	OIL TEMP °C
STARTING	---	---	1090 (4)	---	---	---	---	-40 (min)
LOW IDLE (2)	---	---	660 (7)			---	40 (min)	-40 to 99
HIGH IDLE (1)	---	---	---	---	---	---	---	0 to 99
TAKEOFF (5 Minute Limit)	550	1315	695	38,100	101.5	2200	80 to 100	10 to 99
MAX CONT (6) AND MAX CRUISE	550	1315	695	38,100	101.5	2200	80 to 100	10 to 99
CRUISE CLIMB	538	1315	665	---	---	2200	80 to 100	0 to 99
CRUISE	495	1315 (9)	635	---	---	2200	80 to 100	0 to 99
MAX REVERSE (8)	---	---	695	---	88	2100	80 to 100	0 to 99
TRANSIENT (10)	---	1500 (4)	825 (4)	38,500 (10)	102.6 (10)	2420	---	0 to 99

NOTE

1. At approximately 70% (N1).
2. At 51% (N1) minimum.
3. Normal oil pressure is 80-100 psig at throttle settings above 72% N1 (27,000 rpm) with oil temperature between 60°C and 70°C. Oil pressures below 80 psig are undesirable, and should be tolerated only for the completion of the flight, preferably at reduced power setting. Oil pressures below normal should be reported as an engine discrepancy, and should be corrected before next takeoff. Oil pressures below 40 psig are unsafe, and require that either the engine be shut down, or a landing be made as soon as possible, using the minimum power required to sustain flight.
4. This value is time-limited to two seconds.
5. For every 10°C below -30°C ambient temperature, reduce maximum allowable N1 by 2.2%.
6. Maximum continuous power is intended for Emergency use at the discretion of the pilot.
7. High ITT at ground idle may be corrected by reducing accessory load and/or increasing N1 speed.
8. This operation is time-limited to one minute. Do not select reverse while airborne.
9. Cruise torque limits vary with altitude and temperature. Refer to Maximum Cruise Power graph in PERFORMANCE SECTION.
10. High generator loads at low N1 speeds may cause the ITT acceleration temperature limit to be exceeded. This does not apply during engine start. Observe generator load limits.
11. Observance of recommended propeller RPM N2 will ensure that shaft horsepower limits will not be exceeded if torque limits are not exceeded.

FUEL PRESSURE

POH 2-5

Operation of either engine with its corresponding fuel pressure light (L FUEL PRESS or R FUEL PRESS annunciator) illuminated is limited to 10 hours before overhaul or replacement of the engine-driven fuel pump.

NOTE

Windmilling time need not be charged against this time limit.

GENERATOR LOAD	GROUND — ALL ALTITUDES	FLIGHT — 5000 FT	FLIGHT — 25,000 FT	FLIGHT — 30,000 FT
0 to .25	51%	51%	58%	60%
.25 to .5	51%	60%	67%	70%
.5 to .75	57%	65%	74%	78%
.75 to .9	60%	68%	78%	82%
.9 to 1.0	63%	69%	80%	85%

STARTERS OPERATING TIME LIMIT

Use is limited to 40 seconds on, 60 seconds off, 40 seconds on, 60 seconds off, 40 seconds on, then 30 minutes off.

PROPELLERS

POH 2-7

NUMBER OF PROPELLERS	2
PROPELLER MANUFACTURER	Hartzell Propeller, Inc.

PROPELLER HUB AND BLADE MODEL NUMBERS

Reversing Installation:

Airplanes LJ-668 through LJ-953 except LJ-670: Two full-feathering, constant-speed, reversing, three-bladed propellers consisting of T10173E-8 or T10173B-8 blades and HC-B3TN-3, HC-B3TN-3B, or HC-B3TN-3M hubs.

Airplanes LJ-954 and after: Two full-feathering, constant-speed, reversing, three-bladed propellers consisting of T10173K-8 blades and HC-B3TN-3M, HC-B3TN-3, or HC-B3TN-3B hubs.

Non-Reversing Installation:

Two full-feathering, constant speed, three-bladed propellers consist of T10173B-8 blades and HC-B3TN-2(B) hubs.

PROPELLER DIAMETER (Reversing and Non-Reversing) — Maximum Diameter	93 3/8 inches
PROPELLER DIAMETER (Reversing and Non-Reversing) — Minimum Diameter	90 3/8 inches
PROPELLER BLADE ANGLES AT 30-INCH STATION — Reversing Installation — Feathered	87°
PROPELLER BLADE ANGLES AT 30-INCH STATION — Reversing Installation — Reverse	-11°
PROPELLER BLADE ANGLES AT 30-INCH STATION — Non-Reversing Installation — Low Pitch	20.2° ± 1°
PROPELLER BLADE ANGLES AT 30-INCH STATION — Non-Reversing Installation — Feathered	87°

PROPELLER ROTATIONAL SPEED LIMITS

POH 2-8

Transients not exceeding 5-seconds	2420 rpm
Reverse	2100 rpm
All other conditions	2200 rpm

PROPELLER ROTATIONAL OVERSPEED LIMITS

POH 2-8

The maximum propeller overspeed limit is 2420 rpm and is time-limited to five-seconds. Sustained propeller overspeeds faster than 2200 rpm indicate failure of the primary governor. Sustained propeller overspeeds faster than 2288 rpm indicate failure of both the primary governor and the secondary governor, and such overspeeds are unapproved.

INSTRUMENT	RED LINE — MINIMUM LIMIT	GREEN ARC — NORMAL OPERATING	YELLOW ARC — MAXIMUM OPERATING	RED LINE — MAXIMUM LIMIT
TORQUE METER		0 to 1315 ft lbs		1315 ft lbs
PROPELLER RPM		1800 to 2200 RPM		2200 RPM
GAS GENERATOR RPM				101.5%
INTERSTAGE TURBINE TEMPERATURE*		400° to 695°C		695°C
OIL TEMPERATURE		10° to 99°C		99°C
OIL PRESSURE	40 psi	80-100 psi		100 psi

NOTE

* Starting Limit (Dashed Red Radial): 1090°C.

3. FUEL

APPROVED FUEL GRADES AND ADDITIVE — RECOMMENDED ENGINE FUELS POH 2-5

COMMERCIAL GRADES	Jet A, Jet A-1, Jet B
MILITARY GRADES	JP-4, JP-5, JP-8

EMERGENCY ENGINE FUELS

POH 2-5

COMMERCIAL AVIATION GASOLINE GRADES	80 Red (Formerly 80/87); 100LL Blue*; 100 Green (Formerly 100/130)
MILITARY AVIATION GASOLINE GRADES	80/87 Red; 100/130 Green; 115/145 Purple

NOTE

* In some countries, this fuel is colored Green and designated "100L."

LIMITATIONS ON THE USE OF AVIATION GASOLINE

POH 2-6

1. Operation is limited to 150 hours between engine overhauls.
2. Operation is limited to 8000 feet pressure altitude or below with boost pumps inoperative.
3. Crossfeed capability is required for climbs above 8000 feet pressure altitude.

Anti-icing additive conforming to Specification MIL-I-27686 is the only approved fuel additive.

Engine oil is used to heat the fuel on entering the fuel control. Since no temperature measurement is available for the fuel at this point, it must be assumed to be the same as the OAT. The graph in the handbook is supplied for use as a guide in preflight planning, based on known or forecast operating conditions, to allow the operator to become aware of operating temperatures where icing at the fuel control could occur. If the plot should indicate that oil temperature versus OAT is such that ice formation could occur during takeoff or in flight, anti-icing additive per MIL-I-27686 should be mixed with the fuel at refueling to ensure safe operation.

CAUTION

Anti-icing additive must be properly blended with the fuel to avoid deterioration of the fuel cells. The additive concentration by volume shall be a minimum of [illegible]% and a maximum of 0.15%. Approved procedure for adding anti-icing concentrate is contained in Section VIII.

JP-4 fuel per MIL-T-5624 has anti-icing additive per MIL-I-27686 blended in the fuel at the refinery, and no further treatment is necessary. Some fuel suppliers blend anti-icing additive in their storage tanks. Prior to refueling, check with the fuel supplier to determine whether or not the fuel has been blended. To assure proper concentration by volume of fuel on board, blend only enough additive for the unblended fuel.

FUEL MANAGEMENT LIMITATIONS

1. Do not take off if fuel quantity indicator is in yellow arc or if fuel quantity is less than 265 pounds in each wing system.
2. Operation on aviation gasoline is limited to 150 hours during any one engine overhaul period.
3. Operation is limited to 8000 feet when operating on aviation gasoline with boost pumps inoperative.
4. Both boost pumps must be operable prior to take-off.
5. Operation with the fuel pressure light on is limited to 10 hours between main engine driven fuel pump overhaul or replacement period, (See FUEL PRESSURE this section).
6. Crossfeeding of fuel is permitted only in the event of:
 - a) electric boost pump failure; or,
 - b) engine failure.

FUEL QUANTITY

Total Capacity	387 U.S. gallons
Total Usable Fuel	384 U.S. gallons

4. OIL

OIL SPECIFICATION

Any oil specified by brand name in the latest revision of Pratt & Whitney Service Bulletin Number 1001 is approved for use in the PT6A-21 engine.

APPROVED ENGINE OILS:

- 7.5 Centistoke Turbine Engine Oils
- 5 Centistoke Turbine Engine Oils

5. INSTRUMENT MARKINGS

MISCELLANEOUS INSTRUMENT MARKINGS

POH 2-8

FUEL QUANTITY INDICATOR — Yellow Arc	0 to 265 lbs
CABIN DIFFERENTIAL PRESSURE — Normal Operating Range (Green Arc)	0 to 4.7 psi
CABIN DIFFERENTIAL PRESSURE — Maximum Operating Limit (Red Arc)	4.7 psi
PNEUMATIC PRESSURE — Operating Range (Green Arc)	12 to 20 psi
PNEUMATIC PRESSURE — Maximum (Red Line)	20 psi

PROPELLER DEICE AMMETER

POH 2-9

Operating Range (Green Arc)	14 to 18 amps
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VACUUM (SUCTION)

POH 2-9

30,000 ft to 15,000 ft (Narrow Green Arc)	3.0 to 4.3 in. Hg
15,000 to Sea Level (Wide Green Arc)	4.3 to 5.9 in. Hg
or: 35,000 ft to 15,000 ft (Narrow Green Arc)	2.8 to 4.3 in. Hg
or: 15,000 ft to Sea Level (Wide Green Arc)	4.3 to 5.9 in. Hg

6. WEIGHT AND BALANCE

WEIGHT LIMITS

POH 2-9

Maximum Ramp Weight	9705 lbs
Maximum Take-Off Weight	9650 lbs
Maximum Landing Weight	9168 lbs
Maximum Zero Fuel Weight	No Structural Limitation
Maximum Rear Baggage Compartment Load	*350 lbs
Maximum Nose Avionics/Baggage Compartment Load	350 lbs

NOTE

* This value could vary with cabin arrangement.

AFT LIMIT:

160.0 inches aft of datum at all weights.

FORWARD LIMITS:

153.2 inches aft of datum at 9650 lbs.

151.4 inches aft of datum at 9168 lbs.

144.7 inches aft of datum at 7400 lbs or less.

DATUM is 83.5 inches forward of the center of front jack point.

MAC leading edge is 135.9 inches aft of datum.

MAC length is 75.9 inches.

7. FLIGHT AND OPERATING LIMITS

MANEUVER LIMITS

POH 2-9

This is a normal category airplane. Acrobatic maneuvers, including spins, are prohibited.

FLIGHT LOAD FACTOR LIMITS (9650 POUNDS)

POH 2-9

FLAPS UP	FLAPS DOWN
3.70 positive g's	2.00 positive g's
1.68 negative g's	0.00 g

MINIMUM FLIGHT CREW

POH 2-9

One Pilot

MAXIMUM OCCUPANCY

POH 2-9

Ten People

MAXIMUM OPERATING PRESSURE ALTITUDE LIMIT

POH 2-10

30,000 feet

OUTSIDE AIR TEMPERATURE LIMIT

POH 2-10

Operation — Maximum	ISA plus 37°C
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CABIN PRESSURIZATION AND STRUCTURAL LIMITATIONS

POH 2-10

Maximum Cabin Differential Pressure	4.7 psi
Fuselage Pressure Vessel Structure	Inspection in Chapter 5 and 53-10-00 of the Beech King Air 90 Series Maintenance Manual are required for continuous airworthiness.

CABIN PRESSURIZATION AND STRUCTURAL LIMITATIONS (TEMPORARY CHANGE) **TEMPORARY CHANGE**

POH 1 of 2

Applicability: Temporary Change to the King Air C90 Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, P/N 90-590010-61BTC3, December, 2011 (Hawker Beechcraft Corporation). Description: Replace Structural Limitations with reference to the King Air 90 Series Airworthiness Limitations Manual. Publication affected: P/N 90-590010-61B, Reissued April, 1980 or later revision. Airplane serial numbers affected: LJ-668 thru LJ-1010, except LJ-670, LJ-986 and LJ-996. File following page 2-10 (Section II - LIMITATIONS).

Maximum Cabin Differential Pressure	4.7 psi
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Refer to the King Air 90 Series Airworthiness Limitations Manual for structural limitations.

CABIN SEATS

POH 2-10

Only aft-facing seats (placarded as such on the leg crossmember) are authorized in the aft-facing position.

Prior to LJ-693:

During takeoff and landing, occupied seats must be in the outboard position with seat backs upright. Aft facing seats must have the headrests properly positioned.

LJ-963 and after:

During takeoff and landing, shoulder harness must be worn, and occupied seats must be in outboard position with backs upright and headrests properly positioned.

OXYGEN REQUIREMENTS

POH 2-10

One mask coupled to the outlet and immediately available with a 10-minute supply of oxygen for each occupant when operating above 25,000 feet.

AUTOPILOT LIMITATIONS

POH 2-10A

14 CFR PART 91 OPERATIONS:

Refer to the applicable FAA Approved Airplane Flight Manual Supplement in the SUPPLEMENTS Section.

8. ICE AND RAIN PROTECTION

APPROVED AIRPLANE DEICING/ANTI-ICING FLUIDS

POH 2-10

SAE AMS 1424 Type I

ISO 11075 Type I

SAE AMS 1428 Type II

ISO 11078 Type II

SAE AMS 1428 Type IV. Only the following type IV fluids are approved:

Clariant Safewing MP IV 1957

Clariant Safewing MP IV 2001

UCAR ULTRA+ (Approved for use down to -15°C)

Octagon Max Flight Type IV

ICE VANES (INERTIAL SEPARATOR SYSTEM) LIMITATIONS

POH 2-10A

The ice vanes shall be extended for operations in ambient temperatures of +5°C or below when flight free of visible moisture cannot be assured.

WARNING

Severe icing may result from environmental conditions outside of those for which the airplane is certificated. Flight in freezing rain, freezing drizzle, or mixed icing conditions (supercooled liquid water and ice crystals) may result in ice build-up on protected surfaces exceeding the capability of the ice protection system, or may result in ice forming aft of the protected surfaces. This ice may not be shed using the ice protection systems, and may seriously degrade the performance and controllability of the airplane.

1. During flight, severe icing conditions that exceed those for which the airplane is certificated shall be determined by the following visual cues. If one or more of these visual cues exists, immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the icing conditions.
 - a. Unusually extensive ice accumulation on the airframe and windshield in areas not normally observed to collect ice.
 - b. Accumulation of ice on the upper surface of the wing aft of the protected area.
 - c. Accumulation of ice on the engine nacelle and propeller spinner farther aft than normally observed.
2. Since the autopilot, when installed and operating, may mask tactile cues that indicate adverse changes in handling characteristics, use of the autopilot is prohibited when any of the visual cues specified above exist, or when unusual lateral trim requirements or autopilot trim warnings are encountered while the airplane is in icing conditions.
3. All wing icing inspection lights must be operative prior to flight into icing conditions or forecast icing conditions at night. [NOTE: This supersedes any relief provided by the Master Minimum Equipment List (MMEL).]

9. PLACARDS

PLACARDS

POH 2-17

On Overhead Panel in Pilot's Compartment:

AIRSPPEED LIMITATIONS — FLAP EXTENSION (APPROACH) 174 KNOTS (200 MPH); FLAP EXTENSION (DOWN) 130 KNOTS (150 MPH); MAX GEAR EXTENDED (NORM) 156 KNOTS (180 MPH); MIN SINGLE ENGINE CONTROL 92 KNOTS (106 MPH); MAXIMUM MANEUVERING 169 KNOTS (195 MPH); MAX GEAR RETRACT 130 KNOTS (150 MPH). THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS AND MANUALS. NO ACROBATIC MANEUVERS INCLUDING SPINS ARE APPROVED. Airspeeds marked in CAS values.

CAUTION

STANDBY COMPASS IS ERRATIC WHEN WINDSHIELD ANTI-ICE AND/OR AIR CONDITIONER AND/OR ELECTRIC HEAT IS ON.

On Instrument Panel Adjacent to Each Gyroscopic Instrument (Depending on Gyro's Power Source): AIR / AC / DC

On Curved Pedestal Adjacent to Power Levers:

CAUTION

REVERSE ONLY WITH ENGINES RUNNING

PLACARDS (continued)

POH 2-18

On Right Side Panel: PILOT'S EMERGENCY STATIC AIR SOURCE — NORMAL / ALTERNATE. WARNING SEE FLIGHT MANUAL PERFORMANCE SECTION FOR INSTR CAL ERROR

On Copilot's Sidepanel: STATIC AIR LINE DRAIN

On Pilot's Side Window Sill When Strobe Lights Are Installed: TURN OFF STROBE LIGHTS WHEN TAXIING IN VICINITY OF OTHER AIRCRAFT OR DURING FLIGHT THROUGH FOG OR CLOUDS. STD POSITION LIGHTS TO BE TURNED ON FOR ALL NIGHT OPERATIONS

WARNING

On Lower Left Corner of Center Subpanel: PROP SYNC SWITCH MUST BE IN OFF POSITION FOR TAKE-OFF AND LANDING

On Upper Fuel Control Panel: TRANSFER PUMP ON/OFF; BOOST PUMP ON/OFF; FUEL QUANTITY (L H / R H); TRANSFER TEST (L / R); FUEL QUANTITY TOTAL / NACELLE; SEE MANUAL FOR FUEL CAPACITY; CROSS FEED OPEN / AUTO / CLOSED; NORMAL CROSSFEED SWITCH POSITION AUTO. SEE FAA FLIGHT MANUAL FOR EMERGENCY PROCEDURES.

PLACARDS (continued)

POH 2-19

Aft of Overhead Light Panel: OXYGEN PULL-ON

WARNING

On Each Oxygen Panel and Aft Compartment Passenger Light Assembly Prior to LJ-674: DO NOT SMOKE WHILE OXYGEN IS IN USE. PULL CONNECTING PLUG TO STOP OXYGEN FLOW.

WARNING

On Pilot's and Copilot's Window Sills: DO NOT SMOKE WHILE OXYGEN IS IN USE. HOSE PLUG MUST BE PULLED OUT TO STOP FLOW OF OXYGEN

WARNING

On Pedestal Adjacent to Cabin Pressurization Controller: DE-PRESSURIZE CABIN BEFORE LANDING

PLACARDS (continued)

POH 2-20

On Floor Aft of Pedestal: LANDING GEAR EMERGENCY EXTENSION — 1. PULL UP HANDLE AND TURN CLOCKWISE TO LOCK. 2. REMOVE LEVER FROM SECURING CLIP AND PUMP

Inside Airstair Door Between Folding Steps: WHEN HANDLE IS IN LOCKED POSITION-ARM SHOULD BE AROUND PLUNGER AS SHOWN

Inside Airstair Door Behind Handle: CAUTION - DO NOT OPEN DOOR WHEN CABIN IS PRESSURIZED. CAUTION - DO NOT ATTEMPT TO CHECK SECURITY OF CABIN DOOR BY MOVING DOOR HANDLE UNLESS CABIN IS DEPRESSURIZED AND AIRCRAFT IS ON THE GROUND. PUSH BUTTON & TURN HANDLE TO OPEN DOOR. (OPEN / LATCH / LOCK)

PLACARDS (continued)

POH 2-21

Center of Cabin on Light Channel prior to LJ-674: NO SMOKING / FASTEN SEAT BELT

Center of Cabin on Passenger Service Unit LJ-674 and after: NO SMOKING / FASTEN SEAT BELT

On Window Frame Escutcheon Adjacent to Couch or Sewn to Front of Cushion (airplanes equipped with couch): COUCH NOT TO BE OCCUPIED AS CHAISE LONGUE DURING TAKE-OFF AND LANDING. or: COUCH NOT TO BE OCCUPIED AS CHAISE LOUNGE DURING TAKE-OFF AND LANDING.

Above the Curtain at the Emergency Exit Door prior to LJ-674: EMERGENCY EXIT — PULL CURTAIN FOR ACCESS TO HANDLE

On Emergency Exit Hatch Release Cover LJ-674 and after: EMERGENCY DOOR RELEASE. CAUTION: DO NOT OPEN ESCAPE HATCH WHEN CABIN IS PRESSURIZED. OPEN COVER, PULL HOOKS TO OVERRIDE PRESSURE LOCK, PUSH BUTTON AND PULL HANDLE.

PLACARDS (continued)

In Nose Baggage Compartment: BAGGAGE AND/OR EQUIPMENT COMPARTMENT CAPACITY 350 LB. SEE WEIGHT & BALANCE SECTION OF FLIGHT MANUAL FOR LOADING INSTRUCTIONS.

On Aft Wall of Baggage Compartment: NOTICE — THIS COMPARTMENT CAN BE OCCUPIED DURING TAKEOFF AND LANDING ONLY IF EQUIPPED WITH A SEAT BELT. COMPARTMENT CAPACITY — TOTAL COMPARTMENT CAPACITY INCLUDING BAGGAGE AND/OR PASSENGER AND/OR EQUIPMENT NOT TO EXCEED 350 LB. SEE WEIGHT AND BALANCE SECTION OF FLIGHT MANUAL FOR LOADING INSTRUCTIONS.

On Cupholders and Tables When Installed: STOW BEFORE TAKE-OFF AND LANDING

PLACARDS (continued)

On Window Frame Escutcheon Adjacent to Aft Facing Seats (Prior to LJ-693 Shoulder Harness Equipped Seats): ALL AFT FACING SEATS MUST HAVE BACK UPRIGHT AND HEADREST FULLY RAISED DURING TAKEOFF AND LANDING

Adjacent to Lateral-Tracking Seats When Installed — Aft Facing Seats With Shoulder Harnesses and Forward-Facing Seats (With and Without Shoulder Harness): SEAT MUST BE LOCATED IN OUTBOARD POSITION FOR TAKEOFF AND LANDING

Aft-Facing Seats (Without Shoulder Harness): ALL AFT FACING SEATS MUST BE IN OUTBOARD POSITION BACK UPRIGHT AND HEADREST FULLY RAISED DURING TAKEOFF AND LANDING

On Shoulder Harness Assemblies For All Cabin Chairs LJ-693 and after: SHOULDER HARNESS MUST BE WORN DURING TAKE-OFF AND LANDING WITH SEAT IN OUTBD POSITION, SEAT BACK UPRIGHT AND HEADREST FULLY EXTENDED

PLACARDS (continued)

On Left Hand Aft Compartment Sidewall (airplanes not equipped with shoulder harness): NOTICE — FASTEN SAFETY BELT DURING TAKEOFF AND LANDING

On Left Hand Aft Compartment Sidewall When Equipped With Shoulder Harness: NOTICE — FASTEN SHOULDER HARNESS AND SEAT BELT DURING TAKEOFF AND LANDING

On Outside of Each Oxygen Access Door LJ-674 and after: OXYGEN—PUSH

WARNING

On Inside Surface of Each Oxygen Access Door LJ-674 and after: DO NOT SMOKE WHILE OXYGEN IS IN USE. HOSE PLUG MUST BE DISCONNECTED TO STOP FLOW OF OXYGEN

10. KINDS OF OPERATION

KINDS OF OPERATION LIMITS

POH 2-11

The Beechcraft King Air C90 is approved for the following types of operations when the required equipment is installed and operational as defined within the listing of REQUIRED EQUIPMENT FOR VARIOUS CONDITIONS OF FLIGHT contained in this LIMITATIONS Section of the handbook:

1. VFR Day
2. VFR Night
3. IFR Day
4. IFR Night
5. Icing Conditions
6. FAR Part 91 operations, when all pertinent limitations and performance considerations are complied with.

REQUIRED EQUIPMENT FOR VARIOUS CONDITIONS OF FLIGHT

POH 2-11

Federal Aviation Regulations Part 23 and Part 91 specify the minimum numbers and types of airplane instruments and equipment which must be installed and operable for various kinds of flight conditions. This includes VFR day, VFR night, IFR day, IFR night, and flight into icing conditions.

No distinction is made between standard and optional equipment. The "Number Installed" column indicates the number of items normally found on the airplane when that item is installed; however, in some cases the actual number may vary due to customized installations. For the sake of brevity, the Required Equipment Listing does not include obviously required items such as wings, rudder, engines, landing gear, etc. However, ALL ITEMS WHICH ARE RELATED TO THE AIRWORTHINESS OF THE AIRPLANE AND NOT INCLUDED ON THE LIST ARE AUTOMATICALLY REQUIRED TO BE OPERATIVE.

NOTE

LEGEND — Numbers refer to quantities required to be operative for the specified condition.

(-) Indicates that the item may be inoperative for the specified condition.

(*) Refers to the REMARKS AND/OR EXCEPTIONS column for explicit information or reference.

(V) Indicates that the number of items installed varies.

(L) Indicates that the item on the left side of the airplane is required to be operative.

GENERAL

POH 2-12

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	REMARKS and/or EXCEPTIONS
Overwater Flight	*	*	*	*	*	*	*Per FAR 91.33

COMMUNICATIONS

POH 2-12

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	REMARKS and/or EXCEPTIONS
VHF Communications System	2	*	*	*	*	*	*Per FAR 91.33
Static Discharge Wicks	10	-	-	5	5	5	Minimum required - one wick at the outboard end of each control surface plus top of vertical stabilizer.

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITION S	REMARKS and/or EXCEPTIONS
Battery	1	1	1	1	1	1	
Battery Charge Annunciator	1	1	1	1	1	1	
DC Generator	2	1	1	2	2	2	
DC Loadmeter	2	2	2	2	2	2	One may be inoperative provided corresponding generator caution light is monitored.
DC Generator Caution Annunciator	2	2	2	2	2	2	One may be inoperative provided corresponding loadmeter is monitored.
Inverter	2	1	1	2	2	2	
Inverter Warning Annunciator	1	-	-	1	1	1	May be inoperative provided both inverters are operative.
AC Volts/Frequency Meter	1	-	-	1	1	1	LJ-674 and after

ENGINE INDICATING INSTRUMENTS

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITION S	REMARKS and/or EXCEPTIONS
Chip Detector Annunciator	2	2	2	2	2	2	
Fuel Flow Indicator	2	2	2	2	2	2	One may be inoperative provided fuel quantity gages are operative.
Gas Generator Tachometer	2	2	2	2	2	2	
ITT Indicator	2	2	2	2	2	2	
Oil Pressure Indicator	2	2	2	2	2	2	
Oil Temperature Indicator	2	2	2	2	2	2	
Propeller Synchroscope	1	-	-	-	-	-	
Propeller Tachometer	2	2	2	2	2	2	
Torque Indicator	2	2	2	2	2	2	

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	REMARKS and/or EXCEPTIONS
Altitude Warning Annunciator	1	1	1	1	1	1	May be inoperative provided airplane remains unpressurized.
Cabin Rate of Climb Indicator	1	1	1	1	1	1	
Differential Pressure/Cabin Altitude	1	1	1	1	1	1	
Outflow Valve	1	1	1	1	1	1	
Pressurization Air Source	2	1	1	1	1	1	
Pressurization Controller	1	1	1	1	1	1	
Safety Valve	1	1	1	1	1	1	

EQUIPMENT/FURNISHINGS

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	REMARKS and/or EXCEPTIONS
Emergency Locator Transmitter	1	*	*	*	*	*	*Per FAR 91.52
Seat Belts	V	*	*	*	*	*	*Per FAR 91.33
Shoulder Harness	V	*	*	*	*	*	*Required for pilot and copilot. Required for each additional forward-facing occupant

FIRE PROTECTION

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	REMARKS and/or EXCEPTIONS
Smoke Detector System	*	-	-	-	-	-	*Optional equipment
Fire Detector System	-	-	-	-	-	-	
Engine Fire Extinguisher	*	-	-	-	-	-	*Optional equipment
Portable Fire Extinguisher	*	-	-	-	-	-	*Optional equipment

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITION S	REMARKS and/or EXCEPTIONS
Trim Tab Indicator - Rudder, Aileron and Elevator	3	3	3	3	3	3	May be inoperative provided that the tabs are visually checked in the neutral position prior to each take-off and checked for full range of operation.
Flap Position Indicator	1	1	1	1	1	1	May be inoperative provided that the flap travel is visually inspected prior to take-off.
Flap System	1	-	-	-	-	-	
Stall Warning	1	1	1	1	1	1	

FUEL EQUIPMENT

POH 2-13

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	REMARKS and/or EXCEPTIONS
Electrical Fuel Boost Pump	2	2	2	2	2	2	Both required for Takeoff and operation on Aviation Gasoline above 8000 feet.
Fuel Transfer Pump	2	-	-	-	-	-	For usable fuel with pump inoperative, see "FUEL TRANSFER PUMP" in SYSTEMS DESCRIPTION Section.
Firewall Shutoff Valve	2	2	2	2	2	2	
Fuel Quantity Indicator	2	2	2	2	2	2	One may be inoperative provided other side is operational and amount of fuel on board can be established to be adequate for intended flight. Fuel flow on affected side must be operational and monitored.
Fuel Quantity Gage Selector Switch	1	1	1	1	1	1	May be inoperative provided NACELLE quantity indicators are operational.
Crossfeed System	1	1	1	1	1	1	May be inoperative provided consideration is given for reduced range.

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	REMARKS and/or EXCEPTIONS
Crossfeed Annunciator	1	1	1	1	1	1	May be inoperative provided proper operation of crossfeed system is checked prior to take-off. Both fuel pressure lights must be operative.
Fuel Flow Indicator	2	2	2	2	2	2	One may be inoperative provided fuel quantity gages are operative.
Fuel Pressure Warning Annunciator	2	2	2	2	2	2	
No Fuel Transfer Annunciator	2	-	-	-	-	-	Both may be inoperative provided nacelle fuel is monitored by use of the fuel quantity gages.

ICE AND RAIN PROTECTION

POH 2-14

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	REMARKS and/or EXCEPTIONS
Fuel Control Heat	2	2	2	2	2	2	
Airfoil Deice System (Wing, Vertical, and Horizontal Stabilizer)	1	-	-	-	-	1	
Engine Inertial Ice Vanes	2	2	2	2	2	2	
Engine Lip Boot Heat	2	-	-	-	-	2	
Windshield Heat, Left and Right	2	-	-	-	-	1	Right side may be inoperative.
Windshield Wiper	2	-	-	-	-	-	
Auto Ignition System and Annunciator	2	2	2	2	2	2	
Pitot Heater	2	-	-	1	1	1	Right side may be inoperative.
Emergency Static Air Source	1	-	-	-	-	1	
Propeller Deice System (Auto)	1	-	-	-	-	1	
Heated Fuel Vent	2	-	-	-	-	2	
Stall Warning Heater	1	-	-	-	-	1	

LANDING GEAR

POH 2-14

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	REMARKS and/or EXCEPTIONS
Landing Gear Motor	1	1	1	1	1	1	May be inoperative provided operations are continued only to a point where repairs can be accomplished.
Landing Gear Position Indication Lights	3	3	3	3	3	3	One of three may be inoperative provided gear handle light is monitored.
Gear Handle Light	1	1	1	1	1	1	
Landing Gear Aural Warning	1	1	1	1	1	1	

LIGHTS

POH 2-15

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITION S	REMARKS and/or EXCEPTIONS
Cabin Door Caution Annunciator	1	1	1	1	1	1	May be inoperative provided visual indicators are checked prior to each takeoff.
Caution Flasher Lights	1	-	-	-	-	-	
Cockpit and Instrument Lights	*	-	*	-	*	-	*Lights must illuminate all instruments and controls.
Landing Light	2	-	*	-	*	-	*One required for night flight if operated for hire.
Passenger Notice System (Fasten Seat Belt and No Smoking)	1	1	1	1	1	1	May be inoperative provided adequate passenger briefing has been accomplished.
Position Lights	3	-	3	-	3	-	
Rotating Beacon	2	-	2	-	2	-	
Strobe Lights	3	-	-	-	-	-	
Taxi Light	1	-	-	-	-	-	
Warning Flasher Lights	2	-	-	-	-	-	
Wing Ice Lights	2	-	-	-	-	*	*One required for night icing flight.

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITION S	REMARKS and/or EXCEPTIONS
Airspeed Indicator	2	1*	1*	1*	1*	1*	*One pneumatic airspeed indicator is required for all operations. If the airspeed indicator on the pilot's panel becomes inoperative, flight in instrument meteorological conditions is approved only (1) with a standby airspeed indicator on the pilot's panel or (2) with a qualified copilot.
Clock	1	-	-	1	1	1	
Directional Gyro	2	-	-	L	L	L	
Distance Measuring Equipment	V	*	*	*	*	*	*Per FAR 91
Horizon Indicator	2	-	-	L	L	L	
Magnetic Compass	1	1	1	1	1	1	
Navigation Equipment	V	-	-	*	*	*	*Per FAR 91
Outside Air Temperature Gage	1	1	1	1	1	1	

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	REMARKS and/or EXCEPTIONS
Sensitive Altimeter	2	1*	1*	1*	1*	1*	*One pneumatic altimeter is required for all operations. If the altimeter installed on the pilot's panel becomes inoperative, flight in instrument meteorological conditions is approved only (1) with a standby altimeter on the pilot's panel or (2) with a qualified copilot.
Transponder	V	*	*	*	*	*	*Per FAR 91
Turn and Bank Indicator	2	-	-	L	L	L	
Vertical Speed Indicator	2	-	-	-	-	-	

OXYGEN

POH 2-16

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	REMARKS and/or EXCEPTIONS
Oxygen System	1	*	*	*	*	*	*Per FAR'S

PROPELLERS

POH 2-16

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITION S	REMARKS and/or EXCEPTIONS
Propeller Primary Low Pitch Stop	2	2	2	2	2	2	
Propeller Overspeed Governor	2	2	2	2	2	2	
Propeller Governor Test Switch	2	2	2	2	2	2	
Autofeathering System	1	-	-	-	-	-	
Propeller Synchrophaser	1	-	-	-	-	-	
Reverse Not Ready Annunciator	1	1	1	1	1	1	May be inoperative provided propeller controls are in FULL INCREASE RPM position for reversing.

VACUUM

POH 2-16

SYSTEM and/or COMPONENT	INSTALLED	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITION S	REMARKS and/or EXCEPTIONS
Instrument Bleed Air Source	2	-	-	1	1	2	
Suction Gage	1	*	*	1	1	1	*May be inoperative provided airplane remains unpressurized.
Vacuum System	1	*	*	1	1	1	*May be inoperative provided airplane remains unpressurized.

11. V-SPEED DEFINITIONS (GENERAL REFERENCE)

Takeoff and Initial Climb

V-Speed	Name	Meaning
V1	Takeoff decision speed	Maximum speed at which a reject may be initiated; at or above it the takeoff must be continued.
Vr	Rotation speed	Speed at which the pilot rotates to raise the nose.
Vlof	Lift-off speed	Speed at which the aircraft first becomes airborne.
V2	Takeoff safety speed	Target climb speed with the critical engine inoperative.
V2min	Minimum takeoff safety speed	Lowest allowable V2 .
Vef	Engine-failure speed	Speed at which the critical engine is assumed to fail (certification).
Vmu	Minimum unstick speed	Slowest speed at which the aircraft can safely lift off.
Vfto	Final takeoff speed	Speed in the final takeoff / climb segment.

Climb Performance

V-Speed	Name	Meaning
Vx	Best angle of climb	Most altitude gained per distance over the ground.
Vy	Best rate of climb	Most altitude gained per unit of time.
Vxse	Best angle, single-engine	Vx with one engine inoperative (multiengine).
Vyse	Best rate, single-engine	Vy with one engine inoperative — the blue line .

Stall Speeds

V-Speed	Name	Meaning
Vs	Stall speed	Minimum steady flight speed at which the aircraft is controllable.
Vs0	Stall speed, landing configuration	Stall with full flaps and gear down — bottom of the white arc.
Vs1	Stall speed, clean configuration	Stall in a specified (usually clean) configuration — bottom of the green arc.
Vsr	Reference stall speed	Certification reference stall speed.
Vsse	Safe single-engine speed	Minimum speed for intentionally cutting one engine.
Vsw	Stall warning speed	Speed at which the stall warning activates.

Airspeed Indicator Limit Speeds

V-Speed	Name	Meaning
Va	Design maneuvering speed	Maximum speed for full or abrupt control inputs without overstress.
Vno	Maximum structural cruising speed	Normal operating limit — top of the green arc, start of the yellow arc.
Vne	Never-exceed speed	The red line — never exceed.
Vfe	Maximum flap-extended speed	Top of the white arc.
Vle	Maximum landing-gear-extended speed	Maximum speed flying with the gear down.
Vlo	Maximum landing-gear-operating speed	Maximum speed to extend or retract the gear.
Vmo / Mmo	Maximum operating limit speed / Mach	Maximum operating airspeed and Mach number.

Approach and Landing

V-Speed	Name	Meaning
Vref	Landing reference speed	Threshold-crossing speed, typically 1.3 x Vs0 .
Vapp	Approach speed	Target speed on final approach.
Vbg	Best glide speed	Speed for maximum glide distance (best lift-to-drag ratio).

Multiengine Control

V-Speed	Name	Meaning
Vmc / Vmca	Minimum control speed (airborne)	Minimum speed to maintain control with the critical engine inoperative — red radial line.
Vmcg	Minimum control speed (ground)	Minimum control speed on the takeoff roll.
Vmcl	Minimum control speed (landing)	Minimum control speed in the landing configuration.
Vmbe	Maximum brake energy speed	Maximum speed from which the brakes can absorb a rejected takeoff.

Design and Certification Speeds

V-Speed	Name	Meaning
Vb	Design gust-intensity speed	Turbulence-penetration design speed.
Vc	Design cruising speed	Certification design cruising speed.
Vd / Vdf	Design / demonstrated diving speed	Certification dive speed.
Vf	Design flap speed	Certification design flap speed.
Vh	Maximum level-flight speed	Maximum speed in level flight at maximum continuous power.

NOTE

These are certification design speeds. They are rarely referenced in day-to-day operations.

Airspeed Indicator Colour Markings

V-Speed	Name	Meaning
White arc	Flap operating range	Vs0 to Vfe .
Green arc	Normal operating range	Vs1 to Vno .
Yellow arc	Caution range	Vno to Vne — smooth air only.
Red line	Never exceed	Vne .
Blue line	Best rate, single-engine	Vyse (multiengine).
Red radial	Minimum control speed	Vmc (multiengine).

NOTE

The colour markings are defined by the V-speeds above, so a change to a limitation speed changes the arc.