Raytheon Aircraft

Beech King Air® C90

(Serials LJ-668 thru LJ-1010, except LJ-670, LJ-986 and LJ-996)

Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

FAA Approved in the Normal Category based on 14 CFR Part 3. This document must be carried in the airplane at all times, and be kept within reach of the pilot during all flight operations. This handbook includes the material required to be furnished to the pilot by 14 CFR Part 3.

Airplane Serial Number: _____

Airplane Registration Number: _____

FAA Approved by: [redacted]
John Tigue
Raytheon Aircraft Company
DOA-230339-CE

P/N 90-590010-61B
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P/N 90-590010-61B10
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BEFORE STARTING ENGINES

1. Cabin Door - LOCKED. (Check security by attempting to turn handle toward unlocked position without depressing release button. Handle should not move.)

WARNING

Only a crew member should close and lock the door.

2. Baggage - SECURE; Weight and CG - CHECKED
3. Emergency Exit - LATCHED
4. Seats - POSITIONED; Seatbacks - UPRIGHT; Lateral-tracking Seats - OUTBOARD POSITION
5. Seat Belts and Shoulder Harnesses - FASTENED
6. Parking Brake - SET
7. Control Locks - REMOVE

WARNING

Remove all locking devices before starting engines.

8. Pedestal Circuit Breakers - IN
9. Overhead Panel - CHECK
10. Oxygen Control - ON then OFF
11. Oxygen System Pressure - CHECK - Refer to ENVIRONMENTAL SYSTEMS, OXYGEN SYSTEM, *PREFLIGHT* in this section
12. Emergency Static Air Valve - NORMAL
13. Right Circuit Breaker Panel - CHECK
14. Cabin Temp Mode - OFF; Vent Blower - AUTO
15. Landing Gear Handle - DOWN
16. Condition Levers - CUT OFF
17. Propeller Levers - FULL FORWARD - HIGH RPM
18. Power Levers - IDLE
19. Left Subpanel Switches - OFF

20. Fuel Panel - CHECK

    *a. Circuit Breakers - IN
    *b. Fuel Valves (Firewall) - CLOSED
    *c. Crossfeed - OPEN (Check FUEL CROSSFEED light on), then CLOSED
    *d. Boost Pumps - ON (listen for operation)

21. Battery Switch - ON (Check left and right fuel pressure lights on.)

    e. Fuel Valves (Firewall) - OPEN (Check left and right fuel pressure lights off.)
    f. Fuel Quantity - CHECK
    g. Transfer Pumps - ON (listen for operation), then OFF. If either or both pumps fail to operate, press the Transfer Test Switch and monitor the NO FUEL TRANSFER light.

22. Fire Detectors - CHECK
23. Voltmeters - CHECK Battery Voltage (No voltage on one side indicates current limiter out)
24. Cabin Sign Switch - BOTH or NO SMOKE & FSB

**May be omitted for quick turn-around at pilot's discretion.*

ENGINE STARTING

1. Right Ignition and Engine Start Switch - ON (Right Ignition Annunciator, Illuminated)
2. Right Condition Lever:
   On Airplanes Prior to LJ-923;
   LOW IDLE (after N_1 rpm stabilizes for 5 seconds; 12% minimum)
   On Airplanes LJ-923 and after;
   LOW IDLE (after N_1 rpm Stabilizes; 12% minimum)
3. ITT and N_1 - MONITOR (1090°C maximum)

CAUTION

If no ITT rise is observed within 10 seconds after moving the Condition Lever to LOW IDLE, move the Condition Lever to CUT-OFF and Start Switch to OFF. Allow 30 seconds to drain fuel; then follow the Engine Clearing Procedure.

If starting attempt is discontinued, the entire starting sequence must be repeated after allowing the engine to come to a complete stop.

4. Right Ignition and Engine Start Switch - OFF (at 51% N_1 or above)
5. Right Condition Lever - HIGH IDLE
6. Right Generator - ON. CHARGE BATTERY until loadmeter reads approximately .50 or below.

CAUTION

Generators should not be ON until External Power Unit has been disconnected.

NOTE

On serials LJ-678 and after: In order to turn the generator ON, the generator control switch must first be held upward in the spring-loaded RESET position for a minimum of one second, then released to the ON position.

7. Right Oil Pressure - CHECK (Right propeller unfeathered indicates oil pressure)
8. Left Ignition and Engine Start Switch - ON (Left Ignition Annunciator, Illuminated)
9. Left Condition Lever:
   On Airplanes Prior to LJ-923;
   LOW IDLE (after N_1 rpm stabilizes for 5 seconds; 12% minimum)
   On Airplanes LJ-923 and after;
   LOW IDLE (after N_1 rpm stabilizes; 12% minimum)
10. ITT and N_1 - MONITOR (1090°C maximum)
11. Left Ignition and Engine Start Switch - OFF (at 51% N_1 or above)
12. Left Generator - ON (UNLESS EXTERNAL POWER IS USED)
13. Right Condition Lever - LOW IDLE
14. External Power (If used) - DISCONNECT; Access Door - SECURED
15. If External Power was used:
    a. Right Generator - ON (see note)
    b. Battery Condition - CHECK (Refer to NICKEL CADMIUM BATTERY CONDITION CHECK, this section)
    c. Left Generator - ON (see note)
16. Right and Left Oil Pressure - CHECK by gage pressure

USE OF EXTERNAL POWER

CAUTION

NEVER CONNECT AN EXTERNAL POWER SOURCE TO THE AIRPLANE UNLESS A BATTERY INDICATING A CHARGE OF AT LEAST 20 VOLTS IS IN THE AIRPLANE. If the battery voltage is less than 20 volts, the battery must be recharged, or replaced with a battery indicating at least 20 volts, before connecting external power.

When an external power source (auxiliary power unit) is used, ascertain that the polarity of the APU is the same as that of the airplane. If polarity of the APU is unknown, use a voltmeter to assure correct polarity before connecting it to the airplane.

The battery switch must be ON when starting engines with auxiliary power and the generators should be OFF until the auxiliary power has been disconnected.

The APU must be regulated at 28.25 volts DC and be capable of supplying at least 1000 amperes at a minimum of 16 volts DC during the start cycle.

1. AVIONICS MASTER PWR Switch (pilot's left subpanel) - OFF
2. GENerator 1 and GENerator 2 Switches - OFF
3. BATTery Switch - ON (The battery will tend to absorb transients that are present in some auxiliary power units.)
4. Volt/Loadmeter - DEPRESS SWITCH on face of either meter, and read battery voltage.
5. Auxiliary Power Unit Output Voltage - SET AT 28.25 ± .25 VOLTS
6. Auxiliary Power Unit - TURN OFF before connecting to airplane

CAUTION

Only use an external power source fitted with an AN-type male-three pin-plug. If uncertain of the polarity, check it with a voltmeter to ensure that it is a negative-ground plug. Connect the voltmeter positive lead to the larger center post of the receptacle, and connect the voltmeter negative-ground lead to the remaining large post. The small post is the polarizing pin; it must have a positive voltage applied to it in order for the external power relay to close.

7. APU Output Plug - INSERT INTO AIRPLANE APU RECEPTACLE, located on the underside of the wing just outboard of the nacelle.
8. APU - ON

CAUTION

Do not exceed 400 amperes continuous power load.

9. Engine Start - SAME AS BATTERY STARTS, except that the generators must remain OFF until the APU has been disconnected.
10. After the second engine has been started - DISCONNECT and SECURE the Access Door

ENGINE CLEARING

1. Condition Lever - CUT-OFF
2. Ignition and Engine Start Switch - OFF
3. Battery Switch - ON
4. Boost Pump - ON
5. Ignition and Engine Start Switch - STARTER ONLY (for a minimum of 15 seconds)

CAUTION

Do not exceed starter time limits. See LIMITATIONS Section.

6. Ignition and Engine Start Switch - OFF
7. Boost Pump - OFF

AFTER STARTING AND TAXI

1. Transfer Pumps - ON
2. Crossfeed Switch - AUTO
3. D.C. Voltage and Loadmeters - CHECK
4. Inverter - CHECK BOTH and SELECT inverter to be used
5. Avionics Master Switch - ON
6. Lights - AS REQUIRED
7. Fuel Control Heat - ON
8. Cabin Temperature and Mode - AS REQUIRED (Observe N_1, ITT and generator limits if air conditioning or electric heat is used.)
9. Annunciator Lights - TEST, then CLEAR
10. Instruments - CHECK
11. Brakes - CHECK

NOTE

Propeller Beta range may be used during taxi with minimum blade erosion up to the point where N_1 increases. Care must be exercised when taxiing on unimproved surfaces. If possible conduct engine check-out on a hard surface, free of sand and gravel to preclude pitting of propeller blades and airplane surfaces.

CAUTION

If either CHIP DETECT annunciator illuminates during runup, do not take off. Shut down the engine, investigate the cause, and initiate necessary repairs.

BEFORE TAKEOFF (RUNUP)

1. Boost Pumps and Auto Crossfeed - TEST

   a. Left Boost Pump - OFF (LH FUEL PRESSURE light off and FUEL CROSSFEED light on)
   b. Left Boost Pump - ON
   c. Crossfeed - CLOSED, then AUTO
   d. Right Boost Pump - OFF (RH FUEL PRESSURE light off and FUEL CROSSFEED light on)
   e. Right Boost Pump - ON
   f. Crossfeed - CLOSED, then AUTO

2. Avionics and Radar - CHECK
3. Pressurization - CHECK and Set

   a. Cabin Altitude Selector Knob - ADJUST SO THAT INNER SCALE (ACFT ALT) INDICATES PLANNED CRUISE ALTITUDE PLUS 500 FEET. (If this setting does not result in an outer scale (CABIN ALT) indication of at least 500 feet above take-off field pressure altitude, adjust as required.)
   b. Rate Control Selector Knob - SET as desired

4. Autopilot - CHECK, then OFF
5. Electric Elevator Trim Control - CHECK

   a. Tab Control Switch - ON
   b. Pilot's and Copilot's Switches - CHECK OPERATION
   c. Trim Disconnect - DEACTIVATION OF SYSTEM
   d. Tab Control Switch - OFF, then ON

WARNING

Operation of the electric trim system should occur only by movement of pairs of switches. Any movement of the elevator trim wheel while depressing only one switch denotes a system malfunction. The elevator tab control switch must then be turned OFF and flight conducted only by manual operation of the trim wheel.

6. Trim Tabs - SET
7. Engine Control Friction Locks - SET
8. Flaps - CHECK AND SET
9. Flight Controls - CHECK FREEDOM OF MOVEMENT AND PROPER RESPONSE
10. Autofeather - CHECK then ARM (LO IDLE)
*11. Overspeed Governors - TEST:

    a. Propeller Controls - FULL INCREASE RPM
    b. Power Levers - BELOW 1900 RPM
    c. Overspeed Governor Test Switches - HOLD TO PROP GOV TEST
    d. Power Levers - INCREASE TO STABILIZED RPM (1900 to 2100; observe ITT and Torque Limits)
    e. Power Levers - REDUCE TO 1900 RPM
    f. Overspeed Governor Test Switches - RELEASE

*12. Primary Governors - EXERCISE AT 1900 RPM
*13. Engine Ice Protection Controls - CHECK (at 1900 rpm): EXTEND (Check torque drop): RETRACT (Regain original torque)
14. Instrument Vacuum and Deice Pressure - CHECK (1900 rpm)
15. Power Levers - IDLE
16. Propeller Feathering (manual) - CHECK (LO IDLE)
17. Flight and Engine Instruments - CHECK (See LIMITATIONS Section for Oil Temperature Required for Flight.)
18. Bleed Air Valves - OPEN
19. Ice Protection - AS REQUIRED (See ICING FLIGHT, this section)

*May be omitted for quick turn-around at pilot's discretion.

TAKEOFF

WARNING

If a CHIP DETECT annunciator light illuminates during takeoff, return to the field for investigation of the cause and initiate corrective action.

Refer to PERFORMANCE Section for minimum take-off power, take-off speed, distance, and climb data. Monitor ITT and engine torque, and ascertain that the AUTOFEATHER armed lights illuminate while applying power. Increasing airspeed will cause torque and ITT to increase.
Rotating beacons and strobe lights and tail flood lights (if installed) should be turned off at the pilot's discretion when encountering conditions of haze, fog, or clouds.

1. Propeller Levers - HIGH RPM
2. Power Levers - ADVANCE TO MAXIMUM POWER (1315 ft lbs TORQUE and/or 695°C ITT, 2200 RPM)
3. Airspeed - TAKEOFF SPEED
4. Landing Gear - RETRACT after airplane is positively climbing and insufficient runway remains for landing.

CLIMB

1. Climb Power - SET (Observe maximum ITT, torque and N_1 rpm limits.)
2. Propeller - 2000 RPM (Cruise Climb) or 2200 RPM (Maximum Climb)
3. Propeller Synchrophaser - ON
4. Autofeather Switch - OFF
5. Engine Instruments - MONITOR
6. Cabin Sign - AS REQUIRED
7. Pressurization Rate Control - SET AS DESIRED

CRUISE

WARNING

DO NOT LIFT POWER LEVERS IN FLIGHT.

1. Cruise Power - SET per CRUISE POWER GRAPH OR TABLES
2. Engine Instruments - MONITOR

WARNING

Any illumination (or flicker) of either CHIP DETECT annunciator light requires immediate shutdown of the affected engine. See EMERGENCY PROCEDURES Section, "ENGINE FAILURE/ILLUMINATION OF MAGNETIC CHIP DETECTOR ANNUNCIATOR". After securing the engine, proceed to the nearest facility for investigation and necessary corrective action prior to further flight.

3. Battery Condition - MONITOR Battery Charge annunciator. If annunciator illuminates in flight, perform the IN FLIGHT BATTERY CONDITION CHECK.

CABIN PRESSURIZATION FOR CRUISE

If revised flight plan calls for an altitude change, select the new cruise altitude plus 500 feet on the ACFT ALT dial of the cabin pressurization controller.

DESCENT

1. Cabin Pressurization Controller - SET
   a. Cabin Altitude Selector Knob - SET per PRESSURIZATION CONTROLLER SETTING FOR LANDING graph, or so that "CABIN ALT" DIAL INDICATES LANDING FIELD PRESSURE ALTITUDE PLUS 500 FEET.
   b. Rate Control Selector Knob - SET INDEX AS REQUIRED.
2. Altimeter - SET
3. Cabin Sign Switch - AS REQUIRED
4. Windshield Anti-Ice - AS REQUIRED (TURN ON well before descent into warm, moist air, to aid in defogging)
5. Power - AS REQUIRED to give desired rate of descent.

NOTE

Approximately 75% N_1 is required to maintain the pressurization schedule during descent.

MAXIMUM TWO ENGINE CRUISE POWER

ISA - 20° 1900 RPM

PRESSURE ALTITUDE FEET	IOAT °C	IOAT °F	TORQUE PER ENGINE FT LBS	FUEL FLOW PER ENGINE LBS/HR	TOTAL FUEL FLOW LBS/HR	AIRSPEED KNOTS 9500 LBS CAS	9500 LBS TAS	8500 LBS CAS	8500 LBS TAS	7500 LBS CAS	7500 LBS TAS
SL	-1	30	1202	310	620	208	201	208	201	208	201
2000	-5	23	1232	306	612	208	206	208	206	208	206
4000	-9	16	1266	305	610	208	212	208	212	208	212
6000	-12	10	1300	306	612	208	218	208	219	208	219
8000	-16	3	1315	305	610	205	222	207	224	208	225
10000	-20	-4	1315	302	604	203	226	205	228	206	230
12000	-24	-11	1258	288	576	197	227	199	229	201	230
14000	-28	-18	1190	273	546	191	226	193	228	195	230
16000	-32	-25	1124	258	516	184	225	187	228	188	230
18000	-36	-33	1058	243	486	177	224	180	227	182	229
20000	-40	-40	993	229	458	170	222	173	225	176	228
22000	-44	-47	907	210	420	161	216	164	221	167	225
24000	-48	-55	819	190	380	150	209	155	215	158	220
26000	-53	-63	731	171	342	137	198	144	207	149	214
28000	-57	-70	648	153	306	121	182	132	197	138	206
29000	-59	-79	608	145	290	108	164	125	190	133	202