

TC-755 N5383

1964 Beechcraft Baron B55

| Configuration | Speed (knots) |
|------------------|---------------|
| V _r | 84 |
| V _y | 107 |
| V _x | 84 |
| V _a | 157 |
| V _{fe} | 122 |
| V _{le} | 153 |
| V _{sse} | 84 |
| V _{yse} | 100 |
| V _{xse} | 91 |
| V _{mc} | 78 |
| V _g | 120 |
| V _{s0} | 68 |
| V _{cc} | 120 |
| V _{no} | 183 |
| V _{ne} | 224 |

Powerplants

- Two Continental IO-470-L, six-cylinder, air-cooled, direct-drive, horizontally-opposed, naturally aspirated, fuel-injected engines, each rated at 260 HP at 2625 RPM
- L is the model of crankshaft
- 470 cubic inches of displacement
- Wet oil sump
 - Engine driven pump
 - 9-12 quarts of oil (prefers to sit at 10 quarts)
 - Phillips 20XC50
 - Reusable oil filter by STC
 - Oil filler neck caps are a little loose, ensure they are on tight

Propellers

- Two three 78" blade, fully feathering Hartzell propellers with an un-feathering accumulator
- No synchronizer/synchrophaser
- 16° to 80° pitch
- Internal pitch stops limit pitch
- Feathering is accomplished by reduced oil pressure, butterfly valves, springs, and fly-weights
 - Locking pins prevent feathering when rpm is below 800 rpm
- During cold weather operations, cycle propellers periodically to keep the oil in the propeller hubs warm.

Fuel System

- Total capacity of 142 gallons, 136 usable
- Acceptable fuel grades: 100LL, G100UL
- Four fuel tanks, 2 per wing
 - Main tanks are inboard, auxiliary tanks are outboard
 - Main tank capacity is 37 gallons, auxiliary tank capacity is 31 gallons
- Four positions of the fuel selector
 - OFF—MAIN—AUX—CROSSFEED arrangement
 - 4 drains on each side (3 in front, 1 in back under flap)
- Fuel pumps: 5 in total, 2 engine driven pumps and 2 electrically driven auxiliary pumps and 1 pump for the Janitrol cabin heater
- HI pressure used before start and for engine-driven fuel pump failure
- LO pressure used for high ambient temperatures to reduce pressure fluctuations
 - Use on takeoff only above 90°
- Cabin heater draws from left main tank (2-4 GPH)
- **Limitations**
 - Takeoff and landing only on main tanks
 - Must take off with a minimum of 13 gallons per main tank
 - No turning takeoffs (the tanks are not baffled)
 - Fuel return line goes to the tank from which the fuel was drawn from
 - Crossfeed used only during single-engine operation
 - Cannot cross-feed both engines at the same time
 - No pump to transfer fuel to main from aux or vice versa
 - Auxiliary tanks to be used in straight and level flight only
 - Suggested fuel management strategy:
 - Take off and land on main tanks
 - After takeoff, switch to auxiliary tanks and burn them dry, then switch to main

Engine Indicators

- Tachometer (RPM) (tach-generator)
- Manifold Absolute Pressure (MAP)
 - Before start indicates ambient pressure
- CHT, EGT and oil temperature are electrically-powered transducers

Electrical System

- 28 volt electrical system
- Two electrical buses
 - Left and right half system
 - Connected with a common bus bar (located in the nose baggage compartment)
 - Guarded by circuit breakers
- Battery
 - One 17 amp-hour, 24V battery (located beneath floor of nose baggage compartment)
- Alternators
 - Two 50A, 28V belt-driven alternators.
 - Controlled by two voltage regulators selectable by switch below pilot subpanel.
 - Output indicated by loadmeters, should be less than .2 after two minutes at 1000 – 1200 RPM after start
 - Alternator warning lights indicate failure
 - Both alternators share the electrical load of the system
- Voltage regulators
 - Two regulators that sense the bus voltage on the common bar
 - One is in use, the other is a backup

- Adjusts the output to a constant voltage (28.25)

External Power

- Located on outboard side of left engine nacelle
- Power unit should be capable of delivering 300A
- Turn electrical systems OFF prior to connecting external power unit
 - Once connected, turn BAT switch ON.
- Total electrical load of twin-engine airplanes usually limited to 80% of combined output. Includes paralleling features that distribute electrical system demands between power sources. If only one generating system is operating, the electrical load may exceed the output rating of the remaining alternator, so the pilot must monitor the electrical system.

Landing Gear System

- Adjustable linkage connected to an actuator assembly located under front seats. Actuator driven by an electric motor. The landing gear may be electrically retracted and extended, and may be extended manually (no manual retraction).
 - Approximately 50 cranks on emergency extension handle to fully extend the gear
- Control switch is a 2-position switch on right side of center console
- Gear position lights – one green lights, one red light
- Gear warning horn – Either or both throttles retarded to below approximately 13" MAP
- Left main strut safety switch to prevent gear retraction on the ground

Flaps

- Slotted fowler type
- 28° maximum deflection
- No approach detent (approximately 5 seconds of extension)
- Long chord (please step OVER flap)

Hydraulic System

- Only hydraulic system on the Baron controls the brakes. Brakes installed only on pilot's side.
- Parking brake T-handle located just left of elevator trim wheel. Pull handle and depress brakes until firm.
- Hydraulic fluid reservoir accessible through nose baggage door. Dipstick attached to reservoir cap.

Cooling and Exhaust

- Air-cooled engines
- Electronically actuated cowl flap for each engine.
 - Indicator light illuminates when either cowl is open (switch down is open)
- Generally, cowl flaps are OPEN for ground operations or climbs, and CLOSED for cruise and descent
- Each engine equipped with automatic alternate air source

Cabin Environmental System

- Combustion heater located in nose cone
- Heat-actuated CB located on heater
- 3-position switch: BLOWER – OFF – HEATER
 - Blower automatically shuts off when landing gear is retracted or CABIN AIR T-Handle is pulled approximately halfway out
 - CABIN AIR T-Handle regulates intake air - push control full forward for max intake air volume
 - CABIN HEAT control regulates temperature of heated air - pull control to increase temperature of heated air

- DEFROST – Push for windshield defrosting.
- PILOT AIR – Pull out to direct heated air to pilot's feet.
- COPILOT AIR – Directs air to co-pilot's feet and right rear passenger seat.
- To provide unheated air to same cabin outlets as heated air, push CABIN AIR and CABIN HEAT controls full forward
- Individual Fresh Air Outlets – Master control in overhead panel – Volume of air regulated at each outlet

De-Ice/Anti-Ice Systems

- No de-ice equipment
- **Not certified for FIKI**
- Anti-ice
 - Pitot heat
 - Propeller boots
 - Pump delivers anti-icing fluid (alcohol) to anti-ice boots that direct fluid along propeller blades
 - Pump controlled by ON-OFF switch

Avionics/Autopilot

- King Silver Crown avionics package
- KFC 200 Autopilot
 - 2 axis
 - Modes: FD, ALT HOLD, HDG, NAV, APPR, BC
- KLN-89b: Can be used for non-precision approaches (non-WAAS)
- Two flush static sources located on each side of the fuselage
- Alternate static source switch located under pilots-side instrument panel
- Engine performance is monitored with the JPI (EGT, CHT and fuel flow)
 - LOP is typically 9-11 gallons per hour per side based on altitude at 20" MP / 2,400 RPM
 - Oil pressure and temperature is monitored using the round gauges

Preflight

- There are a few things specific to the Beechcraft line that should be checked on preflight inspection.
- Gear uplock springs
- Gear uplock rollers
- Gear downlock lever and cable
- Emergency gear extension handle (locked behind pilot/copilot seats)
- Locking nuts securing connecting rods to elevator trim tabs should turn freely
- Flap to fuselage sight line, aileron to wing tip sight line

Weight and Balance

- Basic empty weight (3426 lbs)
- Useful Load (1674 lbs, 858 lbs with full fuel)
- Max ramp weight (5100 lbs)
- Maximum take-off weight (5100 lbs)
- Maximum landing weight (5100 lbs)
- No zero-fuel weight
- C.G.: 79.33 inches. aft
- Moment: 279,069

Power Settings

- Takeoff / Go Around: Full Power / Props full forward
- Climb: 25 mp / 2,500 rpm

- Cruise: 24 mp / 2,400 RPM
- Training: 18 mp / 2,500 RPM
- Descent: 17 mp / 2,400 RPM

Maximum demonstrated crosswind component: 22 knots