

Beechcraft 76 Duchess Model Guide

The Beechcraft 76 Duchess is a four-seat, twin-engine piston airplane built from 1978 to 1982. It has two 180 hp Lycoming engines with counter-rotating propellers. The handbook is FAA approved in the Normal category. Maximum takeoff weight is 3900 lbs. The sources give no registry range or ceiling data, so this guide covers only handbook, checklist and training-material figures.

KEY TAKEAWAYS

- The Beechcraft 76 Duchess seats 4 and has two 180 hp Lycoming engines (O-360-A1G6D left, LO-360-A1G6D right) that turn in opposite directions.
- Standard empty weight is 2446 lbs and maximum useful load is 1470 lbs. Fuel is 100 gallons usable, so a full-fuel airplane cannot also carry four full-size adults and baggage without checking weight and balance.
- Handbook cruise at 8,000 ft is 127 kts economy, 155 kts normal and 160 kts maximum true airspeed. Fuel flow runs from 12.4 to 19.6 gph for the settings listed.
- Single-engine performance is modest. One training packet lists about 50 fpm single-engine climb at 3,900 lbs in a certification comparison at 5,000 ft ISA. Blue-line speed is 85 kts.
- Check propeller hub inspection status (Hartzell service bulletin HC-ASB-61-297 and AD 2009-22-03) and the wing structure inspection schedule in the handbook.

POWERPLANT, FUEL AND WEIGHTS

The Beechcraft 76 Duchess has two Avco Lycoming four-cylinder, direct-drive engines, each rated 180 hp at 2700 rpm. The propellers are Hartzell two-blade, constant-speed and full-feathering, 76 inches in diameter. Fuel is 100 or 100LL avgas. Total capacity is 103 gallons and usable fuel is 100 gallons. Maximum ramp weight is 3916 lbs and maximum takeoff and landing weight is 3900 lbs. Maximum zero fuel weight is 3500 lbs and the baggage limit is 200 lbs. Standard empty weight is 2446 lbs and maximum useful load is 1470 lbs. The cabin is 3 ft 8 in wide, 7 ft 11 in long and 4 ft high, with a 36 x 38 in door. Baggage volume is 19.5 cu ft.

PERFORMANCE AND HANDLING

Handbook cruise at 8,000 ft TAS is 127 kts economy, 155 kts normal and 160 kts maximum. Checklist fuel flows are 12.4 gph at 18.0 in Hg and 2100 rpm, 18.4 gph at 21.9 in Hg and 2300 rpm, and 19.6 gph at 21.9 in Hg and 2500 rpm. Rotation and best-angle climb are 71 kts, and best rate of climb is 85 kts. Stall is 70 kts clean and 60 kts with flaps. Short-final speed is 76 kts and maximum demonstrated crosswind is 25 kts. Because the propellers counter-rotate, the training study guide says there is no critical engine on the Beechcraft 76 Duchess.

PRE-BUY CHECKS FROM THE DOCUMENTS

Hartzell Alert Service Bulletin HC-ASB-61-297 applies to Beech 76 Duchess installations with left-hand compact aluminum-hub propellers whose lubrication holes are on the hub blade socket shoulder. Hubs with an A or B serial suffix, or with the hole at the hub parting line, are not affected. A two-blade propeller must also meet the eddy-current hub inspection in HC-SB-61-269 and AD 2009-22-03. The handbook revision history shows a Wing Structure Inspection Schedule was added and the Structural Life section was revised, so confirm those inspections are recorded. The handbook also warns to use only genuine Beechcraft or Beechcraft-approved parts. Salvaged or unknown-history parts are called unsafe. Confirm the airplane has the current handbook (the latest revision log is A9, July 1994). The handbook must be carried in the airplane.

SPECIFICATIONS

Seats	4
Engine Power Hp	180
Engine Count	2
Fuel Capacity Total Gal	103
Fuel Capacity Usable Gal	100
Wingspan Ft	38
Length Ft	29
Tail Height Ft	9.5
Propeller Diameter In	76

PERFORMANCE

Cruise Speed Economy 8000ft Kts	127
Cruise Speed Normal 8000ft Kts	155
Cruise Speed Maximum 8000ft Kts	160
Fuel Flow 2100 Rpm Gph	12.4
Fuel Flow 2300 Rpm Gph	18.4
Fuel Flow 2500 Rpm Gph	19.6
Max Demonstrated Crosswind Kts	25
Best Glide Full Gross Kts	95
Approach Speed Kts	76

V-SPEEDS

Vne Kts	194
Vno Kts	154
Va Full Gross Kts	132
Vfe Full Flaps Kts	110
Vle Kts	140
Vlo Kts	140
Gear Retract Max Kts	112
Vmca Kts	65
Vx Kts	71
Vy Kts	85
Vyse Kts	85
Vso Kts	60
Vs Kts	70

WEIGHT & BALANCE

Max Ramp Weight Lbs	3916
Max Takeoff Weight Lbs	3900
Max Landing Weight Lbs	3900
Max Zero Fuel Weight Lbs	3500
Max Baggage Weight Lbs	200
Standard Empty Weight Lbs	2446
Max Useful Load Lbs	1470

SAFETY NOTES

- Engine-out single-engine performance is limited. Fly the 85 kt blue line, with gear and flaps up and a feathered propeller, and plan takeoffs

accordingly. The training material calls takeoff the most critical phase of light twin flying.

- Do not take off with the fuel quantity indicators in the yellow band. The cabin heater draws fuel from the right wing tank system only.
- Landing gear and flap limits: do not extend or retract gear above 140 kts, do not extend full flaps above 110 kts, and never exceed 194 kts.
- Follow the handbook over any school checklist if they disagree.