

# WestWind Airlines

## Pilots Operating Handbook Beechcraft 1900-D



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### Section One: *Aircraft Description:*

The WestWind Beechcraft 1900-D was developed by Hal Groce (hgroce@mindspring.com), using Flight Shop, for the use of the virtual airline WestWind Airlines. Flight Shop (by BAO Software -- now part of Microsoft) is required to use this aircraft. This aircraft is based on the Beechcraft 1900-D and the flight and visual models were developed using the following reference materials: Jane's: All The World's Aircraft, 1991-92, Observers Aircraft (By William Green and Gordon Swanborough, Copyright 1992). The flight model is geared to provide similar performance to the actual 1900-D. This is a two engine, turboprop aircraft with a range of 1,498 nautical miles. The seating arrangement accommodates a flight crew of two and 19 passengers.

NOTAM: Since FS5 and Flight Shop do not support turboprop engines, this aircraft was created using the jet model as it more accurately simulates the higher performance characteristics of a turboprop aircraft. Perhaps someday Microsoft will grace us with a turboprop model.

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### Section Two: *Aircraft Operations:*

Please read the Flight Shop manual for information regarding flight and visual models of Flight Shop developed aircraft. This aircraft is freeware and can be distributed as such, AS LONG AS THE VISUAL AND FLIGHT MODEL IS NOT CHANGED. Please note the original and modified specifications if you plan to distribute a modified version of this aircraft.

**Taxi:** Safe taxi speed is 15 knots. Do not use brakes and turn at high speeds as this may trigger crash detection -- particularly if in Flight Shop ATC Adventure mode.

**Takeoff:** Normal takeoff should be performed with 20 degrees of flaps and full throttle. Rotate by applying and holding back pressure at 105 KIAS (Knots Indicated Airspeed) until the aircraft transitions to full flight. Retract gear once positive climb rate is established. Retract flaps one notch at 1,000 feet above departure airport elevation and fully at 2,000 feet above departure airport elevation. This aircraft is capable (as are most FS generated aircraft) of F-16-like initial climb characteristics. Forward yoke pressure and/or trim adjustment recommended to maintain climb rate of no greater than 2,500 fpm (feet per minute).

**Climb:** If using auto pilot for ascent (recommended), shortly after takeoff, throttle back slightly to a turbine setting of 93% to avoid overspeed. This setting will carry you, without further adjustment to FL200 (20,000 feet) with an airspeed of around 172 KIAS (mach 0.38). To climb beyond FL200, you will need to apply more power to avoid stalling but be careful to not exceed mach 0.44 as overspeed will occur.

**Cruise:** At cruise altitude, reduce throttle to a 590 EGT/Temp setting. Depending on your altitude, your turbine gauge will read between 83% and 85% and your RPMs will read between 65% and 72%. A 590 EGT/Temp power setting will provide an ideal cruise speed of about mach 0.42 at ALL Altitudes. DO NOT EXCEED THIS SETTING as overspeed will occur. Maximum KIAS is altitude dependent. Focus on your EGT/Temp gauge while cruising.

NOTE: Maximum cruise airspeed for the Beechcraft 1900-D is 274 KIAS (mach 0.45).

**Descent:** If using auto pilot for descent (recommended), dial in new altitude and throttle back to a turbine setting of 60%. This will assure a safe descent airspeed at all altitudes without overspeed problems. To cover more ground during auto pilot descent, it is possible to go with a slightly "hotter" throttle at the lower altitudes but you'll have to closely monitor airspeed to be certain it never exceeds mach 0.44. Remember, KIAS is altitude-dependent. Focus on your mach speed.

**Approach:** In the vicinity of the arrival airport, the aircraft should be at or below 160 KIAS. Begin to slow aircraft by no later than 8 miles out. Note: With auto pilot engaged, flaps fully retracted and a power setting of 70% turbine this aircraft will cruise at about 160 KIAS (mach 0.25). Use of speed brake to control airspeed on final is effective. Just don't forget it's on. On approach, feed flaps as follows: 10 miles out - 8 degrees flaps, 6 miles out - 20 degrees flaps, 3 miles out - full flaps. Lower gear at 3 to 5 miles out. Final approach should be flown at 120-115 KIAS to provide appropriate control.

**Landing:** Landing should be at an airspeed of between 115 to 100 KIAS. Once all gear are on the ground, apply brakes, speed brakes, reverse thrusters (or any combination) and exit runway at or below 30 KIAS.

NOTE: Always go around if a safe landing can not be performed.

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### **Section Three: Aircraft Specifications**

#### **Taxi Speed:**

15 Knots

#### **Takeoff:**

Flaps 20 deg. = 110 Knots

Distance = 4,100 feet

#### **Climb:**

Initial 2,500 ft./min.

Average 1,800 ft./min

(Average climb rate from sea level to FL200)

#### **Cruise:** (with 590 EGT/Temp setting)

@FL050 = 255 KIAS = mach 0.42

@FL100 = 232 KIAS = mach 0.42

@FL150 = 212 KIAS = mach 0.42

@FL200 = 196 KIAS = mach 0.42

@FL250 = 175 KIAS = mach 0.42

@FL300 = 160 KIAS = mach 0.42

@FL330 = 150 KIAS = mach 0.42

#### **Descent:** (From FL330 with 60% turbine setting & auto pilot on)

@FL300 = 164 KIAS = mach 0.44

@FL250 = 177 KIAS = mach 0.43

@FL200 = 186 KIAS = mach 0.41

@FL150 = 192 KIAS = mach 0.38

@FL100 = 201 KIAS = mach 0.37

@FL050 = 211 KIAS = mach 0.35

#### **Final Approach and Landing Speed:**

120 to 115 KIAS (Full Flaps, Gear Down)

Average Landing Distance = 3,300 feet

#### **Stall Speeds:**

Power ON, "Clean" Configuration (Flaps fully retracted, gear up): 92 KIAS

Power ON, "Dirty" Configuration (Full flaps, gear down): 85 KIAS

Power OFF, "Clean" Configuration (Flaps fully retracted, gear up): 100 KIAS

Power OFF, "Dirty" Configuration (Full flaps, gear down): 90 KIAS

NOTE: Stalls can occur at any speed and configuration. Turns and high pitch angles can lead to stalls. Be aware of your airspeed (and speed brake) and configuration. Adding flaps at airspeeds below 135 KIAS will help maintain controllable flight.

#### **Flight Shop Settings:**

**Climb Specs:** (average to FL250 w/auto pilot engaged)

Rate = 1,800 ft./min.

Speed = 207 KIAS (mach 0.40)

**Cruise Specs:**

Altitude = Your Choice (Max of FL330)

Speed = @FL330 - 150 KIAS

@FL300 - 160 KIAS

@FL250 - 175 KIAS

@FL200 - 196 KIAS

@FL150 - 212 KIAS

@FL100 - 232 KIAS

@FL050 - 255 KIAS

@FL030 - 262 KIAS

**Descent Specs:** (average from FL250 w/auto pilot engaged)

Rate = 1,600 ft./min.

Speed = 194 KIAS (mach 0.39)