

Beech Aircraft Corporation

Performance Reference Data for Model 35

- 1. STARTING ENGINE, CAUTION:** Never engage starter when propeller is turning. Starter gear teeth will be damaged.
- 2. REVERSING PROPELLER:** When oil temperature is less than 45°F, the propeller should NOT be turned backwards. When reversing the direction of travel of the propeller, the flow of oil is reversed and cannot flow back past the check valve into the tank, and a connection may be blown off. If flooded, open throttle fully and turn prop in normal direction with the mixture control in the "idle cutoff" position.
- 3. FUEL TANKS:** ALWAYS use from the left tank first. The pressure carburetor has a flow back of unused gas to the left tank at the rate of approximately 3 gal. per hour. If fuel is forced into a full tank, it will overflow and cause a syphoning of that tank. If left tank is used to the $\frac{1}{2}$ full mark and then fuel is used from the right tank, enough space will be available in left tank to hold flow back; after right tank is empty, return valve to left tank for full use of gasoline available.
- 4. BRAKES — GOODYEAR EXTERNAL:** To set parking brakes, pull parking brake handle to the rear — this action closes a valve. Then pump the pilot's brake pedals until pressure is set hard. To release, push the parking brake handle forward.
- 5. WOBBLE PUMP & GAS TANK SELECTOR:** These are combined into one unit. Pump up pressure while starting engine.
- 6. PROCEDURE FOR MANUAL OPERATION OF GEAR:** Slow airplane to under 100 MPH. Turn off the MASTER AND GENERATOR SWITCHES and put the gear position switch in the DOWN position. The manual crank is located behind the pilot seat — unfold crank to the engaged position. Crank gear COUNTER-CLOCKWISE until it reaches the end of travel. This will be approximately 50 turns. Disengage crank and close throttle completely, then turn on the MASTER & GENERATOR SWITCHES. If the gear is fully down, the horn should not BLOW and you should have a GREEN light and the FLAG on the pedestal should show DOWN.
- 7. THE LANDING GEAR** is equipped with a safety knee switch that will not allow the gear to retract while the weight of the airplane is on the shocks. The gear position switch should not be in the "up" position during the take-off, as a sudden gust could extend the shocks, causing the gear to retract.
IF LANDING GEAR SWITCH will not operate gear in normal directions, shut off MASTER and GENERATOR SWITCH, crank gear down by hand and leave THESE SWITCHES OFF until airplane is on jacks.
- 8. TAKE-OFF:** When airspeed of 55 MPH is reached, pull back gradually on the wheel to increase angle of attack on wings and obtain lift. For cross-wind take-offs, leave nose wheel on ground until 70 MPH I.A.S. and then pull airplane off ground.
- 9. CLIMB:** Best climbing speed is 100 MPH at sea level, less 1 MPH for each 1000 ft. of altitude — Example, 95 MPH at 5000 ft. Best angle of climb speed is 77 MPH at sea level, less 1 MPH for each 1000 ft. of altitude.
- 10. CRUISE:** Normal cruise is 70% power or 115 H.P. at 2050 RPM. The proper manifold pressure can be obtained from the horsepower chart. This manifold pressure will vary, depending upon temperature and altitude.
FUEL CONSUMPTION at normal cruising power of 70% will be approximately 10 gal. per hr. Most economical cruise will be 40% power or 66 H.P. at 1500 RPM, or at a constant I.A.S. of 125 MPH, fuel consumption will be approximately 6 gal. per hr.
MAXIMUM I.A.S. for smooth air — NEVER EXCEED 202 MPH.
MAXIMUM I.A.S. cruising, smooth air — 160 MPH.
- 11. GLIDE:** 80 MPH I.A.S. is SUFFICIENT speed for final approach. This gives ample margin for flare out before stalling at 55 MPH I.A.S. Any additional speed will cause "floating" or use of additional landing run.

12. **STALLING** at standard temperatures and full gross load of 2550#:
POWER OFF — wheels & flaps UP — 64 MPH — I.A.S.
POWER OFF — wheels & flaps DOWN — 55 MPH — I.A.S.
13. **GEAR OPERATION** — maximum I.A.S. for lowering gear — 100 MPH.
FLAP OPERATION — maximum I.A.S. for lowering flaps — 100 MPH.
14. **LANDING:** Normal landing is tail low. For cross-wind landings, put the nose wheel on the ground immediately AFTER main wheels are on the ground.
15. **FLAPS** are electric and can be stopped anywhere within their 20° range of travel. Normal procedure, take-off, no flaps — landing, full flaps; 10° down flap as measured by black line on left flap will assist take-off from small areas.
16. **CIRCUIT BREAKERS** are used for landing gear, flaps, radio, generator, etc. An overload of current will cause the circuit breaker to disconnect. It is necessary to PUSH the circuit breaker to restore the connection.
17. **CARBURETOR MANIFOLD HEAT:** This is not actually manifold heat, but is alternate air taken from inside the engine compartment. Because of a pressure carburetor and the intake air being warmed by the oil flow, there is no tendency to ice.
18. **LANDING LIGHTS:** Do not use continuously in excess of five minutes to avoid overheating.
19. **OIL TEMPERATURE (ENGINE)** Normal Range 120° to 180°F — Maximum 215°F.
OIL PRESSURE (ENGINE) Normal Range 40 to 70# — Minimum 40# — Maximum 80#.
FUEL PRESSURE (ENGINE) Normal Range 11 to 14# — Minimum 9# — Maximum 14#.
HEAD TEMPERATURE (ENGINE) Normal Range 400° to 460°F — Maximum 525°F.
MANIFOLD PRESSURE (ENGINE) Maximum continuous operation 29.6" @ 2050 RPM.
20. **COWL FLAPS:** Open for ground operation and take-off — fully closed for cruising.
21. **FLARES:** To use, turn on the MASTER FLARE SWITCH on the electrical control panel, then three 1½ minute flares can be released individually.
22. **FIRE: Air Flow Shut-Off Valve:** This valve is located at the extreme right of the electrical control panel. This is NOT a fire extinguisher but a valve that will shut off the flow of air from the heating and cooling ducts.
23. **SHOCK STRUTS:** The main strut extension should be 1½", the nose wheel strut 2½". These will vary with difference in temperature and should be adjusted.
24. **TIRE PRESSURES:** The main tires should carry 28# pressure, nose tire 18#.
25. **OIL** — 10 qts. capacity — see engine manual.
26. **CROSS-COUNTRY PERFORMANCE:** Proper cruising for flights of 250 miles or more should be as near optimum altitude as conditions will permit. Optimum altitude for the Model 35 is 8,000 feet pressure altitude which will vary as to indicated altitude under different temperature conditions but will be roughly the maximum altitude at which you can obtain 70% power output when the throttle is full forward. On flights of distances under 250 miles, an altitude in proportion to the distance will be of some advantage in obtaining efficiency from the airplane. True airspeed will be approximately 10 MPH higher at 8,000 feet than at 5,000 feet for the same power setting. Also, the higher altitude will normally take you above the rough air. At a cruising climb of 130 MPH, slightly more horsepower should be used than is anticipated for level cruising operation.
Letdown — depending on tail and head winds, letdowns can be started at a rate of not over 500 feet per minute descent from 30 to 60 miles from destination. The maximum I.A.S. for cruising letdown in smooth air is 160 MPH. Reduce if air turbulent.
27. **STOPPING ENGINE:** Pull out mixture control to idle cutoff position.