



BPPP Beechcraft Essential Systems and Techniques ("BPPP BEST")

Bonanza/Debonair S35-V35B; C33A, E33A/C, F33A/C; 36, A36

The BPPP BEST program is the course for **INITIAL** transition training in the airplane type, as well as the preferred program for pilots experienced in type who have not had formal type-specific training in the airplane they fly and wish a detailed, **type-specific education** on the specific systems or their Beechcraft and suggested techniques for safe operation in normal, abnormal and emergency situations.

The BEST course includes approximately six hours of self-paced online training covering those items most essential to safely and efficiently flying the specific model of Beechcraft. Each module concludes with a short quiz highlighting the most important points of that presentation. The online ground school pairs with and is a prerequisite for the approximately four-hour BPPP BEST initial pilot training syllabus, the same initial pilot program ABS pioneered and has taught for nearly 40 years. Completing both the online program and the flight syllabus results in award of a full BPPP course completion certificate recognized by virtually all insurers as *the best in Beechcraft pilot training.*™

BPPP Beechcraft Essential Systems and Techniques course description

#01 Engine Systems and Operation

19 minutes

This module explains the design and operation of the systems that combine to create engine power. After completing this program you will understand:

- Design of the induction air system, including normal and alternate air.
- Design of the Continental Continuous Flow fuel injection system
- Design and testing of the dual ignition system
- The basics of engine operation under normal, abnormal and emergency conditions

#02 Engine Limitations and Starting

12 minutes

This module explains the Limitations that apply to IO-520 and IO-550 engines, and how to perform a normal, hot and flooded start using knowledge of the fuel injection system. After completing this program you will understand:

- The Limitations that apply to operation of your engine
- The Normal ("Cold") Start procedure
- The Hot Start procedure
- The Flooded Start procedure

#03 Engine Temperature Management

10 minutes

This module describes the components of cylinder and bottom end cooling in IO-520 and IO-550 engines. After completing this program you will understand:

- The relative importance of air, fuel and oil in engine cooling
- Why the #2 and #6 cylinders typically run hottest
- The cylinder head temperature “yellow arc”
- Techniques for increased cylinder cooling

#04 Engine Temperature Management

16 minutes

This module reviews the theory of mixture management as it applies to IO-520 and IO-550 engines. After completing this program you will understand:

- The relationship between fuel flow, engine temperatures and power output
- The differences and use of Best Power and Best Economy mixture settings
- How to find the most efficient mixture setting for maximum speed or maximum endurance
- Considerations for avoiding potentially high cylinder temperatures and pressures

#05 Practical Engine Management

17 minutes

This module combines what you’ve learned about your engine’s systems, and the theory of mixture control, into suggested techniques for power, engine cooling and performance. After completing this program you will understand:

- The appropriate mixture settings for each phase of flight
- How to obtain maximum power for takeoff and climb, including high density altitudes
- When the cowl flaps should be open, and when they should be closed
- Engine techniques for reducing pilot workload for go-around or a missed approach

#06 Engine Emergencies

26 minutes

This module combines what you’ve learned about your engine’s systems to explain why as well as how to respond to emergencies. After completing this program you will understand:

- How knowing the components of power development—fuel, ignition and air—makes it easy to remember how to respond to engine emergencies
- How to quickly detect whether an engine restart action is successful
- Techniques for obtaining Best Glide performance, and for visually and electronically predict whether you can glide to a specific location
- How to respond to an engine fire in flight

#07 Fuel System Design

11 minutes

This module details the design of the fuel system from a pilot's standpoint. After completing this program you will understand:

- The fuel delivery system from the tanks to the Continental Continuous Flow fuel injection system, and return
- The location, design and purpose of fuel vents, and the need to inspect them before flight
- Operation of the fuel quantity indication system
- Design and operation of the fuel flow monitoring system

#08 Fuel System Limitations

6 minutes

This module reviews the operational limitations that apply to the fuel system. After completing this program you will understand:

- Where to find operating limitations for the fuel system
- The specific limitations that apply to fuel type and quantity requirements
- How STCs and Airworthiness Directives can add, modify or remove limitations

#09 Fuel System Operation

10 minutes

This module reviews procedures and suggests techniques that derive from POH recommendations and the design of the fuel system. After completing this program you will understand:

- The difference between operational procedures and techniques
- How POH recommendations and fuel system design help you adopt and adapt operational techniques
- How to set up your personal fuel management plan

#10 Fuel System Abnormal and Emergency Procedures

7 minutes

This module reviews abnormal and emergency procedures related to the Bonanza/Debonair fuel system. After completing this program you will understand:

- How to respond to emergencies related to the fuel system
- What fuel system components to inspect before flight, and what to look for
- The unusual indications of fuel cap venting in flight, and blocked fuel vents
- Your pilot-in-command responsibilities related to the fuel system

#11 By the Numbers

14 minutes

This module reviews techniques for increasing precision and reducing pilot workload by using the "by the numbers" flying technique. After completing this program you will understand:

- What is meant by flying “by the numbers”
- The advantages of using pre-planned combinations for power, attitude and aircraft configuration for each phase of flight
- The specific “numbers” that apply to your Beechcraft, and how to fine-tune them for different flight conditions

#12 Electrical System Design

17 minutes

This module reviews the design and operation of the Beechcraft electrical system. After completing this program you will understand:

- The four functions of the airplane battery
- How electricity is generated and distributed throughout the airplane
- The types and purpose of circuit protection devices
- The information provided by different types of electric system monitoring system

#13 Electrical System Operation

14 minutes

This module reviews the Beechcraft electrical system in normal, abnormal and emergency operations. After completing this program you will understand:

- Limitations that apply to the electrical system, including inoperative equipment
- The electric starter including a starter energized condition
- Procedures for testing and using standby electric systems
- Electrical system failure modes and checklists
- The Engine Fire or Overheat procedure

#14 Practical Aerodynamics I: Airspeed Indicator Markings

8 minutes

This module reviews practical aspects of aerodynamics affecting Beechcraft operations. After completing this program you will understand:

- The marked airspeeds and speed ranges on your Beechcraft’s airspeed indicator
- The difference between structural-based and angle of attack-based speed limitations
- The effect of weight and G load on stall speed
- Special considerations for operating in the airspeed yellow arc
- How maximum speed for normal operation and never exceed speed are determined

#15 Practical Aerodynamics II: Performance Speeds

17 minutes

This module reviews practical aspects of aerodynamics affecting Beechcraft operations. After completing this program you will understand:

- How V_x , V_y , Best Glide and V_A speeds are related to angle of attack
- The effect of airplane weight and G load on performance speeds
- The relationship between pitch attitude and weight-adjusted performance speeds
- What speed you should fly in turbulence, and when and how much you should slow down

#16 Landing Gear System, Operation and Limitations *17 minutes*

This module reviews the Beechcraft landing gear system design, operation and limitations. After completing this program you will understand:

- How the design of the landing gear system affects normal operation
- Landing gear system operating limitations
- Gear indication systems
- Landing gear safety systems

#17 Landing Gear Abnormal and Emergency Procedures *17 minutes*

This module reviews dealing with unusual conditions and failures of the Beechcraft landing gear system. After completing this program you will understand:

- Your priorities and sequence of actions when faced with a landing gear malfunction
- The landing gear-related checklists in the Pilot's Operating Handbook
- How to troubleshoot landing gear malfunctions
- How to apply the emergency checklists in the POH to other than their intended scenario
- Abnormal and emergency landing gear operations using past experience of Beech pilots

#18 Landing Gear Manual Extension *13 minutes*

This module details the Landing Gear Manual Extension procedure. After completing this program you will understand:

- Your priorities when a manual landing gear extension is required
- The importance of each step of the manual extension checklist
- A technique for reducing workload during manual extension both using an autopilot and hand-flying the airplane
- How to ensure the landing gear is fully down following manual extension
- Ways to ensure you are prepared for manual extension in the event of a gear malfunction

#19 Avoiding Gear Up and Gear Collapse Accidents *23 minutes*

Gear up and gear collapse mishaps are the most common accident scenario in Beech piston airplanes. After completing this program you will understand:

- The common scenarios that lead to gear up and gear collapse mishaps
- How to minimize and manage the risk of landing gear accidents
- Techniques for avoiding the common gear mishap scenarios
- Landing Gear Best Practices to avoid gear up and gear collapse mishaps

#20 Performance I: Introduction and Takeoff Performance *11 minutes*

POH Performance charts are sometimes challenging to use. The results are based on certain assumptions and the use of specific technique. This segment explains how to use Beech performance charts and details takeoff performance data. After completing this program you will understand:

- The three parts of most Beech performance charts
- How and why the charts' recommended airspeeds are chosen
- The Associated Conditions, and why they're critical to obtaining computed performance
- Using the Takeoff Performance chart, and how to apply takeoff data to normal, short field and nonstandard takeoffs

#21 Performance II: Using Flaps for Takeoff, and Performance Corrections *18 minutes*

Most Beech Pilot's Operating Handbooks provide no performance information for the use of flaps for takeoff. Using those few charts that are available we can derive some basic guidance for whether and when to take off with partial flaps. Also, there is an unusual set of performance chart correction values for certain IO-550-equipped A36s that may apply to any airplane retrofitted with this engine. This segment explores the effect of using flaps for takeoff, and why and how the IO-550 correction values apply. After completing this program you will understand:

- The limitations, or lack of limitation, on using partial flaps for takeoff
- The expected effect of using flaps for takeoff and obstacle clearance at different airplane weights and density altitudes
- Why and how to employ the Required Performance Corrections for certain IO-550-equipped Beechcraft
- The need to carefully evaluate your specific airplane's performance using the techniques you employ to fly it

#22 Performance III: Climb, Cruise and Landing Performance *17 minutes*

Beech Pilot's Operating Handbooks contain performance charts for most phases of flight. This segment reviews the climb, cruise and landing performance charts. After completing this program you will understand:

- How to use climb, cruise and landing performance charts
- The specific techniques required to get charted performance
- Notes and assumptions that apply to performance charts
- Considerations for variation from performance chart techniques

#23 Weight and Balance I: Limitations and Loading

18 minutes

This segment reviews the limitations that apply to Beech weight and load distribution, including the special notes and assumptions that apply to the loading charts. By watching this presentation you'll learn:

- Where to find limitations that apply to weight and balance, including aftermarket modifications
- The difference between Maximum Takeoff Weight, Maximum Ramp Weight and Zero Fuel Weight, and how to use these limitations when loading your Beechcraft
- How to use the POH weight and balance charts, including an alternative CG determination
- A shortcut for determining whether the airplane will remain within limits throughout a flight
- How to validate the results of an app- or software-based weight and balance program

#24 Weight and Balance II: Weight, Balance and Performance

8 minutes

This segment reviews the real-world performance impact of Beech weight balance. By watching this presentation you'll learn:

- What defines the maximum weight, forward and aft limits of the loading envelope
- The specific hazards of operating forward or aft of limits
- Performance considerations when operating within the envelope near the forward CG limit
- Performance considerations when operating within the envelope near the aft CG limit

#25 Door Open in flight

9 minutes

It happens to almost everyone: the forward cabin door comes open in flight. By watching this presentation you'll learn:

- Why the door will pop open if not properly secured
- How to properly latch the door, and to confirm it is secure
- The performance impact of an open forward cabin door
- Techniques for flying and landing with an open forward cabin door

BPPP BEST flight syllabus

The BPPP BEST flight syllabus transfers the information the pilot learns in the online ground school into practical type-specific techniques to use in the airplane. The flight syllabus consists of approximately four hours of flight instruction, plus briefings, covering a wide variety of normal, abnormal and—to the extent they can be safely simulated in an airplane—emergency procedures, conducted by a highly experienced Beech instructor who has earned accreditation from the American Bonanza Society through a process of application, instructional techniques ground school, interview, and a standardization flight with a senior BPPP instructor.

Upon successful completion of the flight syllabus the pilot will be awarded a BPPP Ground School and Flight Completion Certificate and, if the pilot participates, a full level of FAA WINGS. At the discretion of the BPPP instructor the pilot will receive a Flight Review endorsement and, if time permits and the pilot flies all FAA-required items to FAA Instrument Pilot standards, an Instrument Proficiency Check endorsement.