

Beechcraft King Air Pilot Training

**Beechcraft King Air Initial Transition Course**  
 (Beechcraft Turbopropeller A90,90,99,100 and 200)

**Enrollment Prerequisites:** A pilot may enroll for King Air initial/transition training, provided the pilot:

1. Holds a private pilot certificate, commercial pilot certificate, ATP certificate, ICAO recognized license.
2. Holds an instrument airplane rating or an ATP certificate with an airplane rating
3. Holds an airplane multiengine land rating
4. Meets the recent flight experience requirements of 61.57 (a) (1) for take off and landings in the preceding 90 days. \*

**Description of Course:** The King Air Initial/Transition Course is scheduled for four days and consist of the following minimum programmed hours:

Classroom training .....	14 .0
Systems Integration .....	2.0
FTD training.....	8.0
Post/Preflight Brief.....	1.0

**Course Objectives:**

Upon the completion of this course, the pilot will have the necessary knowledge and skills to demonstrate that he/she meets the requirements of FAR 61.56(e) for the Flight Review, 61.57(c)(i-iii) for recent Flight Experience – Instrument, and 61.57(d)(1) for the Instrument Proficiency Check will be met. The student will acquire knowledge for understanding the basic functions of aircraft systems, the use of the systems, controls, and operational procedures for the aircraft.

**1. Classroom Training**

**General Operating Subjects –6 hours**

**A. Standard Operating Procedures.**

1. Objectives
2. Departure S.O.P.s (Take-off Planning Single and Multi-Engine)
3. Enroute S.O.P.s
4. Arrival S.O.P.s
5. Approach Chart Review
6. Altitude Calls

\* The prerequisite for 61.57 (a) (1) are not required if 61.56 (e) will not be issued.

7. Landing S.O.P.s
8. Checklist Usage
- B. Low Visibility Approaches**
  1. Objectives
  2. Requirements For Descending Below MDA or DH
  3. Flight Visibility VS. Surface Visibility
  4. Ceiling Reports
  5. Precision VS. Non-Precision Approaches
  6. Lights, Pavement, Paint
  7. Normal Descent Rates and Maneuvers
  8. The Missed Approach
- C. Multi-Engine Departure (Multi-Engine IFR Currency Course Only)**
  1. Objectives
  2. Flight Instrument Configuration
  3. Restarting
  4. Procedures For Initial Engine-Out
  5. Three Segments of Departure
  6. The 60 Mile Approach
  7. Pre-Take-Off Briefing
- D. ATC and Emergencies**
  1. Objectives
  2. ATC's and FAA's Role in Reporting Emergencies
  3. Where To Go in an Emergency
  4. When to Declare an Emergency
  5. Maximizing ATC's Assistance
- E. Weather Avoidance**
  1. Objectives
  2. Order and Methods
  3. Pre-Flight Weather Briefing
  4. Radar Summaries
  5. Ground and Airborne Weather Radar
  6. Turbulence Probability Chart
  7. Conclusion
- F. FAR's 61 & 91**
  1. Recency of experience
  2. Pilot privileges
  3. Pilot logbooks
  4. General operating and flight rules
  5. VFR requirements
  6. IFR requirements

### **Completion Standard**

The student will have completed this lesson by achieving a score of 70% or better on each end of lesson test and corrected it to 100%

**A. AIRCRAFT GENERAL MODULE ELEMENTS**

- 1) General
  - a. Beech 90, 100, 200
  - b. Pilot's Operating Handbook and Training Manuals
  - c. New equipment, procedures, or techniques, as appropriate
- 2) Structures Elements
  - a. Wing
  - b. Nose Section/Windshield
  - c. Fuselage
  - d. Empennage
  - e. Cockpit
    - (1) Cockpit Layout
    - (2) Seats and Shoulder Harnesses
  - f. Cabin
  - g. Emergency Exit
  - h. Airstair Door/Cargo Door
    - (1) Door Closed/Locked Indication
    - (2) Door Closed/Locked Index Marks
    - (3) CABIN DOOR Annunciator
  - i. Toilet and Pilot Relief Tube
  - j. Controls/Components
    - (1) Control Locks
    - (2) External Covers
- 3) Operational Elements
  - a. Airstair Door Annunciator Circuitry Check
  - b. Securing Cargo
- 4) Limitation Elements
  - a. Emergency Airspeeds
  - b. Additional Airspeed Limits
  - c. Airspeeds for Safe Operation
- 5) Emergency/Abnormal Procedure Elements
  - a. Airstair Door/Cargo Door Unlocked
  - b. Emergency Exit

**B. MASTER WARNING SYSTEM MODULE**

1. General Elements
  - a. System Description
    - (1) Annunciator Panels
    - (2) Flashers
    - (3) Dimming
  - b. Controls and Components
    - (1) Flasher Reset
    - (2) Test Button
    - (3) Items That Affect Dimming
    - (4) CAUT LGND OFF Switch

- c. Indicators/Indications
  - (1) Master Warning Flasher
  - (2) Master Caution Flasher
  - (3) Warning Annunciators
  - (4) Caution Annunciators
  - (5) Advisory and Status Annunciators
- d. Annunciators
  - (1) MASTER WARNING
  - (2) MASTER CAUTION
  - (3) CAUT LGND OFF
- 2. Operational Elements
  - a. Perform Annunciator Test
- 3. Limitation Elements
  - a. System Must Be Operational for Flight
- 4. Emergency/Abnormal Procedure Elements
  - a. Bulb Replacement

### C. *ELECTRICAL SYSTEM MODULE*

- 1. General Elements
  - a. System Description
    - (1) Battery Power
    - (2) Generator Power
    - (3) DC/AC-115/AC26V
    - (4) Sub panel feed buses/Dual fed bus/Triple Fed bus
    - (5) NiCad/Lead Acid battery
    - (6) Inverters
    - (7) Avionics
    - (8) DC Power Distribution
    - (9) Circuit Protection
    - (10) Ground Power
    - (11) AC Power
  - b. Controls and Components
    - (1) Avionics Master
    - (2) Battery Switch
    - (3) External Power Switch
    - (4) Generator Switches
    - (5) Inverter Switch
    - (6) Frequency Voltmeter for AC
    - (7) Master Switch (GANG BAR)
  - c. Indicators/Indications
    - (1) DC Volt/Loadmeters
  - d. Annunciators
    - (1) INVERTER (B200)
    - (2) INST INV (200)
    - (3) L/R DC GEN
    - (4) BATTERY CHARGE
    - (5) EXT PWR
    - (6) L/R GEN Out
  - e. Servicing/Preflight/Postflight
    - (1) Static Wicks

- (2) Inverter Cooling Louvers
- (3) Generator Air Intake
- (4) Battery Air Inlet
- (5) Battery Box Drain
- (6) Battery Air Exhaust
- (7) Battery Access Panel
- (8) External Power Door
- (9) Battery Voltage
- (10) Battery Switch
- 2. Operational Elements
  - a. Perform Electrical Systems Checks
  - b. Nickel-Cadmium Battery Check
  - c. Perform Inverter Checks
- 3. Limitation Elements
  - a. Generator
  - b. Starter
- 4. Emergency/Abnormal Procedure Elements
  - a. BATTERY CHARGE Annunciator Illuminated
  - b. Circuit Breaker Tripped
  - c. Generator Failure with Avionics Failure
  - d. Inverter Failure
  - e. Generator Failure
  - f. Dual Generator Failure
  - g. Excessive Loadmeter(s) Indication
  - h. Generator Overheat
  - i. Electrical Smoke or Fire

#### D. LIGHTING SYSTEM MODULE

- 1. General Elements
  - a. System Description
    - (1) Interior
    - (2) Exterior
  - b. Controls/Components
    - (1) Baggage Compartment Light Switch
    - (2) Cabin Light Switch
      - (a) Start Position
      - (b) No Smoking and FSB Position
    - (3) Landing Light Switch
    - (4) Recognition Light Switch
    - (5) Strobe Light Switch
    - (6) Tail Floodlight Switch
    - (7) Rotating Beacon Light Switch
    - (8) Navigation Light Switch
    - (9) Taxi Light Switch
    - (10) Icing Light Switch
    - (11) Master Panel Light Switch
    - (12) Cockpit Lighting Switching
    - (13) Approach Plate Light Switch
  - c. Indicators/Indications

- (1) No Smoking/Fasten Seat Belt Sign
- d. Annunciators
  - (1) LANDING LIGHT or LDG/TAXI LIGHT
- e. Servicing/Preflight/Postflight
  - (1) Ice Lights
  - (2) Landing Lights
  - (3) Taxi Lights
  - (4) Navigation Lights
  - (5) Recognition Lights
  - (6) Strobe Lights
- 2. Operational Elements
  - a. Perform Interior Lights Check
  - b. Perform Exterior Lights Check

## *E. FUEL SYSTEM MODULE*

- 1. General Elements
  - a. System Description
    - (1) Main and Auxiliary
    - (2) Fuel Drains
    - (3) Venting Auxiliary Fuel Transfer
    - (4) Crossfeed
  - b. Controls/Components
    - (1) Fuel Caps
    - (2) Firewall Fuel Valve Switches
    - (3) Low Pressure & High Pressure Pumps
    - (4) Boost/Standby Pump
    - (5) Firewall Shut Off Switches
    - (6) Connection to HOT BATTERY BUS
    - (7) Cross Feed Power Source
    - (8) Transfer/Jet Pumps and Mode of Fuel Transfer
    - (9) Gravity Feed
    - (10) Fuel Return Line
    - (11) Fuel Filler Positions & Drains
    - (12) Fuel Quantity Indications
    - (13) Limitations about minimum fuel for takeoff
    - (14) Vent Heat
    - (15) Auxiliary Transfer Override Switches
    - (16) Crossfeed Flow Switch
    - (17) Fuel Quantity Switch
  - c. Indicators/Indications
    - (1) Fuel Quantity Gages
    - (2) Fuel Flow Gages
    - (3) No Transfer Lights
  - d. Annunciators
    - (1) L/R FUEL PRESS
    - (2) FUEL CROSSFEED
  - e. Servicing/Preflight/Postflight
    - (1) Flush Outboard Fuel Drain
    - (2) Siphon Break Vent
    - (3) Main Fuel Tank Quantity

- (4) Main Fuel Tank Cap
  - (5) Leading-Edge Fuel Drain
  - (6) Gravity-Line Drain
  - (7) Flush Fuel Vent
  - (8) Heated Fuel Vent
  - (9) Fuel Strainer Drain
  - (10) Fuel Filter Drain
  - (11) Auxiliary Fuel Tank Quantity
  - (12) Auxiliary Fuel Tank Cap
  - (13) Auxiliary Fuel Tank Drain
  - (14) Tip Tank (If Installed)
2. Operational Elements
    - a. Fuel System Check
    - b. Fuel Quantity Check
  3. Limitation Elements
    - a. Fuel Pressure Limits
    - b. Recommended Engine Fuels
    - c. Emergency Engine Fuels
    - d. Approved Fuel Grades
    - e. Use of Aviation Gasoline
    - f. Approved Fuel Additives
    - g. Fuel Management
    - h. Usable Fuel
    - i. Zero-Fuel Weight
  4. Emergency/Abnormal Procedure Elements
    - a. Fuel Pressure Low
    - b. Crossfeed
    - c. Auxiliary Fuel Transfer Failure (NO Transfer)
    - d. To Discontinue Crossfeed

## *F. ENGINE SYSTEM MODULE*

1. General Elements
  - a. System Description
    - (1) Major Sections
    - (2) Operating Principles
    - (3) Associated Systems
    - (4) Power Sources
    - (5) Engine Accessories
    - (6) Subsystems
      - (a) Air
      - (b) Fuel
      - (c) Ignition
      - (d) Oil System
  - b. Controls/Components
    - (1) Engine Instruments
    - (2) Power Levers
    - (3) Propeller Levers
    - (4) FCU operation
    - (5) Engine Low Pressure & High Pressure Fuel System

- (6) Difference Between Igniter/Glow Plugs
- (7) Low Idle/High Idle Position Levers
- (8) Use of Power Levers in Reverse Range
- (9) Rated Power Output from Engine
- (10) Synchroscope & Sychrophaser & Max Authority
- (11) Use & Necessity of Auto Ignition
- (12) Engine Accessory Drive Components (front & rear end)
- (13) Bleed Air Off L/R
- (14) Friction Locks
- (15) Ignition and Start Switches
- (16) Auto-Ignition Switches
- (17) Oil Vent
- c. Indicators/Indicating
  - (1) ITT
  - (2) Torque
  - (3) N1
  - (4) Propeller RPM
  - (5) Fuel Flow
  - (6) Oil Pressure/Temperature
- d. Annunciators
  - (1) L/R FUEL PRESS
  - (2) L/R OIL PRESS
  - (3) L/R CHIP DETECT
  - (4) L/R IGNITION
- e. Servicing/Preflight/Postflight
  - (1) Power Levers
  - (2) Propeller Levers
  - (3) Condition Levers
  - (4) Oil Radiator Air Intake and Exhaust
  - (5) Oil Quantity
  - (6) Oil Cap
  - (7) Cowling Air Exhausts
  - (8) Cowling, Doors, and Panels
  - (9) Exhaust Stacks
  - (10) Cowling Cam Locks and Latches
  - (11) Engine Air Intake
  - (12) Bleed Valve Exhausts
  - (13) Oil Vent
- 2. Operational Elements
  - a. Engine Start—Battery
  - b. Engine Start External Power
  - c. Monitor Engine Instruments
  - d. \*Hot Start
  - e. \*Hung Start
  - f. \*No-Light Start
  - g. \*Engine Clearing
  - h. Fuel Heating Function
  - i. Engine Fuel X-Feed Function
  - j. Inertial Separators/Ice Vanes (manual & electric)
  - k. Power Check
  - l. Simulating One Engine Inoperative (Zero Thrust)

3. Limitation Elements
  - a. Engine Operating Limits
  - b. Low Pitch Stop Activated
  - c. Inverter Fail
  - d. Limitations on Suction Feed of HP Engine Fuel Pump
  - e. Limitations on use of AVGAS
4. Emergency/Abnormal Procedure Elements
  - a. Engine Fire or Failure in Flight
  - b. Engine Fire on Ground
  - c. Engine Failure at or below V1
  - d. Engine Failure at or above V1
  - e. Engine Failure in Flight below VMCA
  - f. Low Oil Pressure
  - g. Fuel Pressure Low
  - h. L or R CHIP DETECT Annunciator Illuminated
  - i. Location of Engine Fire Detectors, Fire Extinguisher Bottle
  - j. Glide

#### *G. FIRE PROTECTION SYSTEM MODULE*

1. General Elements
  - a. System Description
    - (1) Fire Detection
    - (2) Fire Extinguishing
  - b. Controls/Components
    - (1) Fire Detectors
    - (2) Fire Extinguisher Buttons
    - (3) Extinguishing Bottles
    - (4) Engine Fire Test Switches
    - (5) Portable Fire Extinguishers
  - c. Indicators/Indications
    - (1) Fire Extinguisher Pressure Gage
  - d. Annunciators
    - (1) L/R ENG FIRE
    - (2) L/R ENG FIRE PUSH TO EXT
  - e. Servicing/Preflight/Postflight
    - (1) Fire Extinguisher Pressure
    - (2) Engine Fire Test
    - (3) Portable Fire Extinguishers
2. Operational Elements
  - a. Engine Fire Test
  - b. Extinguisher Pressure Check
3. Limitation Elements
  - a. Pressure Chart
4. Emergency/Abnormal Procedure Elements
  - a. Engine Fire in Flight
  - b. Engine Fire on Ground
  - c.

#### *H. PROPELLER SYSTEM MODULE*

1. General Elements

- a. System Description
  - (1) Propeller
  - (2) Blade Angles/Normal, Beta, Reverse
  - (3) Primary/Over-speed Governor
  - (4) Fuel Topping Governor
  - (5) Operation in Beta Range
  - (6) Reverse Range Operation
  - (7) Primary/Secondary Low Pitch Stop
  - (8) Primary Governor /Underspeed, Overspeed, Speed & Feather
  - (9) Propeller Governing
  - (10) Reduction Gear Ratio
  - (11) Low Pitch System
  - (12) Autofeather System
  - (13) Synchrophaser
- b. Controls/Components
  - (1) Propeller
  - (2) Manual Feathering
  - (3) Propeller Heating
  - (4) Reduction Gear Ratio
  - (5) Oil Filtering/Scavenging/Chip Detect
  - (6) Propeller Levers
  - (7) Governor Test Switch
  - (8) Autofeather Switch
  - (9) Synchrophaser Switch
  - (10) Synchrophaser
- c. Indicators/Indications
  - (1) Propeller RPM
  - (2) Synchroscope
- d. Annunciators
  - (1) L/R AUTOFEATHER
  - (2) PROP SYNC ON (Type I only)
  - (3) RVS NOT READY
- e. Servicing/Preflight/Postflight
  - (1) Propeller
- 2. Operational Elements
  - a. Overspeed Governor Check
  - b. Primary Governors Check
  - c. Autofeather Check
  - d. Manual Feathering Check
- 3. Limitation Elements
  - a. Rotational Speeds
- 4. Emergency/Abnormal Procedure Elements
  - a. Propeller 2,080 RPM (Primary Governor Failure)
  - b. Propeller Blade Angle Stuck (Fixed-Pitch Propeller)
  - c. Propeller Will Not Manually Feather
  - d. Propeller Will Not Autofeather

## I. *PNEUMATICS SYSTEM MODULE*

### 1. General Elements

- a. System Description
  - (1) Pneumatic System
  - (2) Vacuum System
- b. Controls/Components
  - (1) Bleed-Air Valve Switches
- c. Indicators/Indications
  - (1) Pneumatic Pressure Gage
  - (2) Gyro Suction Gage
- d. Annunciators
  - (1) L/R BL AIR FAIL
  - (2) L/R BL AIR OFF
  - (3) L/R BLEED AIR LINE FAILURE
- e. Servicing/Preflight/Postflight
  - (1) Ejector Exhaust
- 2. Operational Elements
  - a. Instrument Vacuum and De-ice Pressure Check
- 3. Limitation Elements
  - a. Pneumatic Pressure
  - b. Gyro Suction
- 4. Emergency/Abnormal Procedure Elements
  - a. Bleed-Air Failure

## J. *AIR-CONDITIONING SYSTEM MODULE*

- 1. General Elements
  - a. System Description
    - (1) Temperature Control
    - (2) Heating
    - (3) Cooling
  - b. Controls/Components
    - (1) Radiant Heat Switch
    - (2) Aft Blower Switch
    - (3) Bleed-Air Valve Switches
    - (4) Cabin Temperature Mode Control
    - (5) Cabin/Cockpit Air Knob
    - (6) Defroster Air Knob
    - (7) Electric Heat Switch
    - (8) Manual Temperature Control Switch
    - (9) Vent Blower Switch
    - (10) Pilot Air Knob
    - (11) Copilot Air Knob
    - (12) Ceiling Outlets
    - (13) Floor Outlets
    - (14) Cabin Temperature Rheostat
    - (15) Environmental Bleed-Air Switch
  - c. Indicators/Indications
    - (1) Cabin Air Temperature
  - d. Annunciators
    - (1) DUCT OVERTEMP
    - (2) ELEC HEAT ON

- (3) AIR COND N1 LOW
- e. Servicing/Preflight/Postflight
  - (1) Air Conditioner Condenser Exhaust Duct
  - (2) Air Conditioner Condenser intake Duct
  - (3) Heat Exchanger Air Intake and Exhaust
- 2. Operational Elements
  - a. Environmental System Check
  - b. Normal Operation
  - c. Maximum Heating in the Cabin
  - d. Maximum Cooling in the Cabin
- 3. Limitation Elements
  - a. Minimum N1 for Air Conditioner Operation
- 4. Emergency/Abnormal Procedure Elements
  - a. Duct Overtemperature
  - b. Smoke and Fume Elimination
    - (1) General Elements
    - (2) Electrical Smoke or Fumes
    - (3) Environmental Smoke or Fumes

## K. *PRESSURIZATION SYSTEM MODULE*

- 1. General Elements
  - a. System Description
    - (1) Air Inflow/Outflow
    - (2) Tapping Bleed Air/Bleed Air Pressure & Temperature
    - (3) Generation of Suction
    - (4) Bleed System for Auto Pilot
    - (5) Rudder Boost & Yaw Damp system
    - (6) Pressure Differential Control
    - (7) In-Flight Operation
  - b. Controls/Components
    - (1) Bleed-Air Valve Switches
    - (2) LH/RH Passenger Air Flow Switch
    - (3) Wind Shield Blower
    - (4) Pressurization – Panel
    - (5) Pressurization Check & Dump Switch
    - (6) Cabin Pressurization Controller
    - (7) Cabin Altitude Selector Knob
    - (8) Cabin Pressure Switch
    - (9) Rate Control Selector Knob
  - c. Indicators/Indications
    - (1) Cabin Altitude (On Controller)
    - (2) Aircraft Altitude (On Controller)
    - (3) Suction for gyro driven Instruments R/side Failure Indicator
    - (4) Recudtion in Suction w/Gain of Altitude & Min/Max Markings
    - (5) Cabin Climb Indicator
    - (6) Cabin Altimeter
    - (7) Pressure Differential
  - d. Annunciators
    - (1) ALT WARN

- (2) L/R BL AIR OFF
- e. Servicing/Preflight/Postflight
  - (1) Cabin Air Exhaust (If Installed)
- 2. Operational Elements
  - a. Pressurization Check
  - b. Combination of Bleed/Suction
  - c. Controller Operation
- 3. Limitation Elements
  - a. Cabin Differential Pressure
  - b. Controller Setting for Landing
- 4. Emergency/Abnormal Procedure Elements
  - a. Pressurization Loss
  - b. Running of System in Case of Engine Out
  - c. Bleed Air Leak/Bleed Air Loss/Associated Lights
  - d. Rapid Decompression—Emergency Descent
  - e. Cracked Windshield
  - f. Cracked Cabin Window
  - g. Differential Pressure High

#### L. *OXYGEN SYSTEM MODULE*

- 1. General Elements
  - a. System Description
    - (1) Automatic
    - (2) Manual
  - b. Controls/Components
    - (1) Crew Masks
    - (2) Mic Selector Switch
    - (3) Oxygen Supply Control Handle
    - (4) Passenger Masks
    - (5) Passenger Manual Drop-Out Control
    - (6) First-Aid Oxygen Mask
  - c. Indicators/Indications
    - (1) Oxygen Pressure Gage
  - d. Annunciators
    - (1) PASS OXY ON
    - (2) ALT WARN
  - e. Servicing/Preflight/Postflight
    - (1) Oxygen Overpressure Discharge Tube
    - (2) Oxygen Service Access Door
    - (3) Oxygen Pressure
    - (4) Oxygen Masks
- 2. Operational Elements
  - a. Quick-Donning Crew Mask Check
  - b. Auto Deployment
  - c. Manual Deployment
  - d. Oxygen Mask Flow Check
  - e. Oxygen Pressure-Verify Adequate for Flight
- 3. Limitation Elements
  - a. Operation
  - b. Average Time of Useful Consciousness Table

- c. Oxygen Duration
- 4. Emergency/Abnormal Procedure Elements
  - a. Smoke or Fumes in Cockpit
  - b. Emergency Descent
  - c. Pressurization Loss
  - d. Auto-Deployment Oxygen System

## M. *ICE AND RAIN PROTECTION SYSTEM MODULE*

- 1. General Elements
  - a. System Description
    - (1) Engine Inlet Lip Heat
    - (2) Ice Vane
    - (3) Engine Auto-ignition
    - (4) Windshield Anti-ice
    - (5) Windshield Wipers
    - (6) Propeller De-ice
    - (7) Fuel Vent Heat
    - (8) Pitot Heat
    - (9) Stall Warning Heat
    - (10) Surface D-ice
    - (11) Brake De-ice
  - b. Controls/Components
    - (1) Ice Vane Switches
    - (2) Ice Vane Emergency Manual Extend Handles
    - (3) Engine Auto-ignition Switches
    - (4) Windshield Anti-ice Switches
    - (5) Windshield Wipers Switch
    - (6) Automatic Propeller De-ice Switch
    - (7) Manual Propeller De-ice Switch
    - (8) Fuel Vent Heat Switches
    - (9) Pitot Heat Switches
    - (10) Stall Warning Heat Switch
    - (11) Surface De-ice Switch
    - (12) Brake De-ice Switch
    - (13) Ice Vane Control Cbs
  - c. Indicators/Indications
    - (1) Propeller De-ice Ammeter
    - (2) Pneumatic Pressure Gage
    - (3) Gyro Suction Gage
  - d. Annunciators
    - (1) L/R ICE VANE EXT
    - (2) L/R ICE VANE
    - (3) BRAKE DEICE ON
    - (4) L/R IGNITION ON
  - e. Servicing/Preflight/Postflight
    - (1) Brake De-ice Plumbing
    - (2) Surface De-ice Boots
    - (3) Ice Vane Exhaust
    - (4) Ice Vanes and Bypass Doors
    - (5) Engine Inlet Lips

- (6) Propeller De-ice Boots
- (7) Windshield Wipers
- 2. Operational Elements
  - a. Brake De-ice Check and Operation
  - b. Surface De-ice Boots inflation Check
  - c. Engine Anti-ice System Check
  - d. Ice Protection Equipment Checks
  - e. Propeller De-ice System Check
- 3. Limitation Elements
  - a. Minimum Airspeed for Sustained Icing Flight
  - b. Brake De-ice
  - c. Windshield Anti-ice
  - d. Ice Bane
  - e. Surface De-ice Boots
- 4. Emergency/Abnormal Procedure Elements
  - a. Propeller De-ice System Failure
  - b. Ice Vane Failure

## N. *LANDING GEAR AND BRAKE SYSTEM MODULE*

- 1. General Elements
  - a. System Description
    - (1) Electro Mechanical/Electro Hydraulic
    - (2) Landing Gear Extension and Retraction System
    - (3) Alternate Landing Gear Warning and Indication
    - (4) Brake System
  - b. Controls/Components
    - (1) Brakes
    - (2) Downlock Release Button
    - (3) Alternate Extension Handle
    - (4) Location of Hydraulic Reservoir
    - (5) Reservoir Low Level Warning Light
    - (6) Main Landing Gear Assembly
    - (7) Nose Gear Assembly
    - (8) Landing Gear Handle
    - (9) Parking Brake
    - (10) Landing Gear Relay Circuit Breaker
    - (11) Warning Horn Silence Button
    - (12) Hydraulic Fluid Test Button
    - (13) Landing Gear Handle Light Test Button
    - (14) Stall Warning and Landing Gear Warning Test Switch
    - (15) Emergency Engage Handle
  - c. Indicators/Indications
    - (1) Landing Gear Warning Horn
  - d. Annunciators
    - (1) Landing Gear Handle Lights
    - (2) GEAR DOWN Lights
    - (3) HYD FLUID LOW
  - e. Servicing/Preflight/Postflight
    - (1) Brake Reservoir Vent

- (2) Brakes
  - (3) Hydraulic Gear Service Door
  - (4) Hydraulic Gear Overfill and Vent Lines
  - (5) Landing Gear Shock Struts
  - (6) Landing Gear Doors and Wheel Wells
  - (7) Landing Gear Handle
  - (8) Tires
  - (9) Parking Brake
  - (10) Shimmy Damper
  - (11) Torque Knee Assembly
  - (12) Nose Gear Steering Stop
  - (13) Safety Switches
- 2. Operational Elements
    - a. Landing Gear Handle Lights Test
    - b. Hydraulic Fluid Sensor Test
    - c. Landing Gear Warning Test
    - d. Practice Landing Gear Manual Extension
    - e. Landing Gear Retraction After Practice Manual Extension
  - 3. Limitation Elements
    - a. Landing Gear Operating Airspeeds
    - b. Landing Gear-Extended Airspeed
    - c. Landing Gear Cycle Limit
  - 4. Emergency/Abnormal Procedure Elements
    - a. Landing Gear Manual Extension
    - b. Landing Gear Will Not Retract
    - c. Hydraulic Fluid Low
    - d. Landing Unsafe Gear (Type I, II, III)

## O. *FLIGHT CONTROLS SYSTEMS MODULE*

- 1. General Elements
  - a. System Description
    - (1) Primary Controls
    - (2) Trim System
    - (3) Stall Warning
    - (4) Flap System
    - (5) Rudder Boost System
    - (6) Yaw Damper System
  - b. Controls/Components
    - (1) Flaps
    - (2) Ailerons and Tabs
    - (3) Ailerons Trim Tab Selector Knob
    - (4) Elevator and Tabs
    - (5) Pitch Trim Switch
    - (6) Pitch Trim Control Switch
    - (7) Pitch Trim Tab Wheel
    - (8) Rudder Pedals
    - (9) Rudder and Tab
    - (10) Rudder Trim Tab Selector Knob
    - (11) Rudder Boost Switch

- (12) Yaw Damper Switch
- (13) Stall Warning Test Switch
- (14) Control Locks (Gust Locks)
- c. Indicators/Indications
  - (1) Flap Indicator
  - (2) Aileron Trim Indicator
  - (3) Pitch Trim Indicator
  - (4) Rudder Trim Indicator
- d. Annunciators
  - (1) ELEC TRIM OFF
- e. Servicing/Preflight/Postflight
  - (1) Control Surfaces (Condition and Freedom of Movement)
  - (2) Elevator
  - (3) Ailerons
  - (4) Flaps
  - (5) Rudder
  - (6) All Trim Tabs
  - (7) Flap-Limit Switches
  - (8) Split-Flap Protection
  - (9) Stall Warning Vane
- 2. Operational Elements
  - a. Stall Warning Test
  - b. Flaps Check
  - c. Electric Pitch Trim Control Check
  - d. Yaw Control Check
  - e. Rudder Boost Check
- 3. Limitation Elements
  - a. Airspeeds
  - b. Yaw Damper Operation
- 4. Emergency/Abnormal Procedure Elements
  - a. Unscheduled Rudder Boost Activation
  - b. Unscheduled Electric Elevator Trim Activation
  - c. Yaw Damper Inoperative
  - d. Electric Pitch Trim Inoperative

P. *AIRCRAFT PERFORMANCE MODULE*

- 1. Elements
  - a. Definitions
  - b. Takeoff Weight to Meet Aircraft Certification Takeoff and Climb Criteria
    - (1) Maximum Takeoff Weight
    - (2) Accelerate-Stop Graphs
    - (3) Accelerate-Go Graphs
    - (4) Takeoff Flight path
    - (5) Net Gradient of Climb
    - (6) Takeoff Distance
    - (7) Landing Distance
    - (8) Checklist Distance
    - (9) Practice Problems

## *Q. WEIGHT AND BALANCE MODULE*

1. Elements
  - a. Definitions
  - b. Basic Empty Weight and Balance Form
  - c. Weight and Balance Loading Form
  - d. Typical Cabin Configuration
  - e. Useful Load Weights and Moments
    - (1) Baggage
    - (2) Cabinet Contents
    - (3) Cargo
    - (4) Occupants
  - f. Useful load Weights and Moments Usable Fuels
  - g. Moments Limits vs. Weight
  - h. Limitations
  - i. Practice Problems

## *R. FLIGHT PLANNING MODULE*

1. Elements
  - a. Time, Fuel, and Distance to Climb
  - b. Time, Fuel, and Distance to Descend
  - c. Recommended Cruise Power (200)
  - d. Normal Cruise Power (B200)
  - e. Maximum Cruise Power
  - f. Maximum Range Power
  - g. Holding Time
  - h. Checklists Charts

### **Systems Integration**

#### **Lesson 1**

**1 Hours**

**Objective:** Demonstrate and teach normal procedures and use of checklist for King Air  
The systems integration module is accomplished using the Cockpit Procedures Mockup (CPM) and the Computer Based Interactive Software Training (CBT)

- A. Computer Based Interactive Software Training
  1. Engine Start Procedures
    - a. Battery Start
    - b. External Power Start
    - c. Hung Start
    - d. Air Start
  2. Normal Procedures
    - a. Fuel Panel Check
    - b. Overspeed Governor & Rudder Boost Test
    - c. Electrical Checks
    - d. AutoFeather Check
    - e. Annunciator Panel Check
    - f. Pressurization Check
    - g. Landing Checks
- B. Cockpit Procedures Mockup Training

1. Normal Procedures
  - a. Airspeed for Safe Operation
  - b. Before Engine Starting
  - c. Hot or Hung Start
  - d. No Light Start
  - e. Engine Clearing
  - f. Before Taxi Checks
  - g. Before Take-Off Checks (runup)
  - h. Before Take-Off (final items)
  - i. Take-Off
  - j. Climb
  - k. Descent
  - l. Before Landing
  - m. Landing ( normal & max reverse thrust)
  - n. Balked Landing
  - o. After Landing
  - p. Shutdown & Securing

## **Systems Integration**

### **Lesson 2**

**1 Hours**

**Objective:** Demonstrate and teach abnormal procedures and use of checklist for King Air. The systems integration module is accomplished using the Cockpit Procedures Mockup (CPM) and the Computer Based Interactive Software Training (CBT)

- . A. Computer Based Interactive Software Training
  1. Abnormal & Emergencies
    - a. Emergency Engine Shutdown
    - b. Fuel System Low Pressure
    - c. Aux Fuel No Transfer
    - d. Door Unlocked
    - e. Smoke in Cockpit
    - f. Loss of Pressurization
    - g. Cabin Over Pressure
    - h. Inverter Failure
    - i. Generator Failure
    - j. Bleed Air Fail
    - k. Chip Detect
    - l. Fuel Crossfeed (one engine inop)
    - m. Excessive loadmeter indication
    - n. Duct Overtemperature
    - o. Abnormal Propeller De-Ice
    - p. Engine Anti-Ice Failure
  2. Abnormal & Emergency Procedures
    - a. Emergency Airspeeds (engine failure )
    - b. Fuel Pressure Low
    - c. Smoke in Cabin
    - d. Inverter Failure
    - e. Unscheduled Electric Trim
    - f. Unscheduled Rudder Boost

- g. Loss of Pressurization
- h. Cabin Over Pressure
- i. Air Start
- j. Landing Flaps Zero
- k. Low Oil Pressure
- l. Fuel Crossfeed (one engine inoperative)
- m. Generator Failure
- n. Static Air system Failure

## Flight Training Device FTD Lessons

### Lesson 1

**2 Hours**

**Objective:** Introduce student to simulator. Demonstrate and teach normal procedures and use of checklist for King Air

Preflight discussion

Before Starting Engines Checks

- a. Airspeeds for Safe operation
- b. Electrical System Checks
- c. Fuel Panel Check
- d. Stall Warning
- e. Annunciator Panel Check
- f. Fire Detectors
- g. Landing Gear Handle & Lights

Normal Engine Start

Before Taxi Checks

- a. Transfer Pumps
- b. Crossfeed Auto
- c. Load Meters Checked
- d. Inverters
- e. Lights
- f. Flight Instruments

Before Take-off

- a. Auto Crossfeed Check
- b. Overspeed Governor Test
- c. Pressurization Check
- d. Autopilot Checks
- e. Trim Tabs & Flaps set
- f. AutoFeather Check

Maneuvers: Normal Take-off

- (a) Climb ( power settings)
- (b) Straight and Level (power Settings)
- (c) Shallow, Medium, Steep turns
- (d) Takeoff and departure stalls
- (e) Approach to landing stalls
- (f) Minimum controllable airspeed
- (g) VMC demonstration
- (h) VOR Tracking

Before Landing Checks

(a) VOR approach via procedure turn (power settings & configurations)

(b) Normal Landing

After Landing Shut down and Securing

Post flight critique and preview of next lesson.

**Completion standards:** Student will use checklists Communicate in timely manner  
Use appropriate power settings maintain a/c control +/-100ft +/-10 kts +/-10 hdg

## **.Lesson 2**

**2 hours**

**Objective:** Demonstrate instrument proficiency FAR 61.57 (d) or meet instrument experience FAR 61.57 (c). With the use of checklist accomplish all normal procedures and checks. Learn abnormal procedures and the use of emergency checklist.

**Events:** IFR local flight

Before Starting Engines Checks

- h. Airspeeds for Safe operation
- i. Electrical System Checks
- j. Fuel Panel Check
- k. Stall Warning
- l. Annunciator Panel Check
- m. Fire Detectors
- n. Landing Gear Handle & Lights
- o. Handle & Lights

Engine Start

1. Battery Start
2. External Power Start
3. Hung Start

Before Taxi Checks

- a. Transfer Pumps
- b. Crossfeed Auto
- c. Load Meters Checked
- d. Inverters
- e. Lights
- f. Flight Instruments

Before Take-off

- a. Auto Crossfeed Check
- b. Overspeed Governor Test
- c. Pressurization Check
- d. Autopilot Checks
- e. Trim Tabs & Flaps set
- f. AutoFeather Check

Maneuvers:

- a) Normal Take-off
- b) Climb
- c) Instrument Approaches \*
  1. Nonprecision VOR
  2. Nonprecision GPS
  3. Nonprecision NDB
  4. Precision ILS

5. Approach gyro failure

6. Airborne Holding

Before Landing Checks

a) Normal Landing

b) After Landing Shut down and securing

\*Not all approaches have to be flown.

The number and type will vary to be a representative number of tasks required by the instrument rating practical test

### Abnormal Events

Conditions : Position Simulator in level cruise flight

Abnormal & Emergencies

a) Emergency Engine Shutdown

b) Fuel System Low Pressure

c) Aux Fuel No Transfer

d) Door Unlocked

e) Inverter Failure

f) Generator Failure

g) Bleed Air Fail

h) Chip Detect

i) Fuel Crossfeed (one engine inop)

j) Excessive loadmeter indication

k) Duct Overtemperature

l) Abnormal Propeller De-Ice

m) Engine Anti-Ice Failure

- The abnormal events should be completed as an instructional event to the student. After completing each event the simulator should have all faults corrected before proceeding to the next event.

Completion standards same as:

Instrument Rating Practical Test Standards as outlined in FAA Practical Test Standards Publication. The abnormal events are instructional only

## Lesson 3

2 hours

**Objective:** Scenario Based Instructional Flight, gain experience in abnormal situations. Practice loss of engine power on take-off. IFR flight from ALN to UIN and then a second leg from UIN to ARR

**Leg 1:** ALN to UIN

## Events:

### Before Starting Engines Checks

1. Airspeeds for Safe operation
2. Electrical System Checks
3. Fuel Panel Check
4. Stall Warning
5. Annunciator Panel Check
6. Fire Detectors
7. Landing Gear Handle & Lights

### Before Starting Engines Checks

1. Airspeeds for Safe operation
2. Electrical System Checks
3. Fuel Panel Check
4. Stall Warning
5. Annunciator Panel Check
6. Fire Detectors
- p. Landing Gear Handle & Lights

### Engine Start

4. Battery Start
5. External Power Start
6. Hung Start

### Before Taxi Checks

1. Transfer Pumps
2. Crossfeed Auto
3. Load Meters Checked
4. Inverters
5. Lights
6. Flight Instruments

### Before Take-off

1. Auto Crossfeed Check
2. Overspeed Governor Test
3. Pressurization Check
4. Autopilot Checks
5. Trim Tabs & Flaps set
6. AutoFeather Check

### Maneuvers:

1. Take-off Power Failure below Vr
2. Take-off Power Failure above Vr  
note: after practicing power loss event on take-off give both engines back and resume a normal climb to flight levels
3. Normal Climb to Flight Levels
4. Smoke in Cockpit
5. Loss of Pressurization & Emergency Descent
6. Cabin Over Pressure  
Note; the abnormal events should be completed as an instructional events to the student. After completing each event the simulator should have all faults corrected before proceeding to the next event. After completion of these events resume leg 1 inbound to UIN
7. Normal descent

8. Before Landing Checks
9. VOR 4 Approach at UIN full procedure
10. Normal Landing
11. After Landing Shut down and securing

**Leg: 2 UIN to MDW**

**Events:**

Before Starting Engines Checks

1. Airspeeds for Safe operation
2. Electrical System Checks
3. Fuel Panel Check
4. Stall Warning
5. Annunciator Panel Check
6. Fire Detectors
7. Landing Gear Handle & Lights

Before Starting Engines Checks

1. Airspeeds for Safe operation
2. Electrical System Checks
3. Fuel Panel Check
4. Stall Warning
5. Annunciator Panel Check
6. Fire Detectors
7. Landing Gear Handle & Lights

Engine Start

1. Battery Start
2. External Power Start
3. Hung Start

Before Taxi Checks

1. Transfer Pumps
2. Crossfeed Auto
3. Load Meters Checked
4. Inverters
5. Lights
6. Flight Instruments

Before Take-off

1. Auto Crossfeed Check
2. Overspeed Governor Test
3. Pressurization Check
4. Autopilot Checks
5. Trim Tabs & Flaps set
6. AutoFeather Check

Maneuvers:

1. Normal Take-off
  2. Normal Climb to Flight Levels
  3. Abnormal & Emergencies
- n) Emergency Engine Shutdown
- o) Fuel System Low Pressure
- p) Aux Fuel No Transfer

- q) Door Unlocked
- r) Inverter Failure
- s) Generator Failure
- t) Bleed Air Fail
- u) Chip Detect
- v) Fuel Crossfeed (one engine inop)
- w) Excessive loadmeter indication
- x) Duct Overtemperature
- y) Abnormal Propeller De-Ice
- J) Engine Anti-Ice Failure

Note; if not completed on first leg. the abnormal events should be completed as an instructional events to the student. After completing each event the simulator should have all faults corrected before proceeding to the next event.

**Completion Standard:** Scenario Based Instructional Flight No Jeopardy  
The abnormal events should be completed as an instructional event to the student.

#### Lesson 4

**2 hours**

**Objective:** Scenario Based Instructional Flight, gain experience in unusual or abnormal procedures. IFR flight MDW to DEC

#### Events:

Before Starting Engines Checks

Engine Start

Before Taxi Checks

Before Take-off Checks

Maneuvers:

12. Normal Take-off
13. Normal Climb
14. Enroute Cruise
15. Flight Instrument Failure
16. Normal descent
17. Before Landing Checks
18. ILS Rwy 6 ( or ASR approach at CMI )
19. Normal Landing
20. After Landing Shut down and securing

Additional Abnormal Events ( \* indicates training items the instructor has the option to review as time permits )

1. Normal Take-off
2. Normal Climb
3. Enroute Cruise
4. Landing Gear fails to extend \*
5. Communication failure \*
6. Normal descent/ Emergency descent \*

7. Unplanned holding \*
8. Before Landing Checks
9. LOC BC Rwy 24 at DEC
10. Normal Landing
11. After Landing Shut down and securing

**Completion Standard:** Scenario Based Instructional Flight No Jeopardy  
The abnormal events should be completed as an instructional event to the student

**Optional Differences Training:**

**Objective:** To review and provide differences knowledge to the pilot that will be flying more than one model in this series of aircraft. or fly's an aircraft in another series.

**Lesson 1 Classroom**

**2 hours**

1. General Specifications
2. Limitations
3. Powerplant
4. Landing Gear
5. Flight Controls
6. Environmental Systems
7. Electrical System
- 8 Fuel System
- 9 Normal Procedures
10. Emergency Procedures
- 11 Performance Charts

**Completion Standard**

Completion Standards. This lesson will be successfully completed when, by oral examination the student displays a basic understanding of the aircraft systems and instruments.

**Lesson 2 Flight Training Device FTD \*\***

**2 hours**

**Objective:** Demonstrate and teach normal and abnormal procedures and use of checklist for other aircraft.

1. Before Starting Engines Checks
2. Engine Start
3. Before Taxi Checks
4. Before Take-off Checks
  1. Normal Take-off
  2. Normal Climb
  3. Enroute Cruise
  4. Landing Gear fails to extend \*
  5. Communication failure \*
  6. Normal descent/ Emergency descent \*
  7. Unplanned holding \*
  8. Engine failure \*

9. Electrical System failures \*
10. Fuel System Crossfeed \*
11. Before Landing Checks
12. Instrument Approach
13. Normal Landing
14. After Landing shut down and securing

*\*\* FTD lesson is for pilots doing differences training for another make and model aircraft series that they currently fly*

*\*Abnormal Events ( \* indicates training items the instructor has the option to review as time permits )*