

Piper Navajo Pilot Training

Piper PA23,31,34 Initial Transition Course

Enrollment Prerequisites: A pilot may enroll for PA23,31,34 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 PA23,31,34 Initial/Transition Course is scheduled for four days and consist of the following minimum programmed hours:

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

Course Objectives:

Upon the completion of this course, the pilot will learn the aircraft's powerplant, major components, systems, appliances, and operational procedures. 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.

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

** _A pilot may use this course as preparation for acquiring a multi-engine rating or instrument rating in the aircraft. The prerequisite for 61.57 (a) (1) are not required if 61.56 (e) will not be issued*

6. Altitude Calls
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%

Aircraft Systems

8 hours

- A. General
 - a. Pilots Operating Handbook
 - b. Airframe
 - c. Instrument Panel
 - d. Engines
 - e. Propellers
 - f. Fuel
 - g. Oil
 - h. Maximum Certified Weights
 - i. Cabin, Baggage and Entry Dimensions
 - j. Standard Airplane Weights
 - k. Specific Loadings

- B. Limitations
 - a. General
 - b. Airspeed Limitations and markings
 - c. Powerplant Limitations and markings
 - d. Powerplant door and flap settings
 - e. Weight Limits and C.G.
 - f. Maneuver Limits
 - g. Flight Load Factor Limits
 - h. Flight Crew Limits
 - i. Type of operation Limits
 - j. Altitude Limits
 - k. Required Placards

- C. Powerplant
 - a. Engine type
 - b. Engine Controls
 - c. Engine Oil System
 - d. Ignition System
 - e. Fuel Injection System
 - f. Cooling System
 - g. Induction Air
 - h. Starting System
 - i. Engine Instruments
 - j. Turbo-System
 - k. Operational Elements
 - i. Before Starting Engines
 - ii. Starting Engines
 - iii. Engine Runup-checks
 - iv. Pneumatic malfunction light

- D. Propeller System
 - a. Governors
 - b. Centrifugal Latching Pins
 - c. Propeller Synchrophaser
 - d. Operational Elements
 - i. Propeller Governor Check

- E. Pneumatic System
 - a. Pitot Pressure
 - b. Static Pressure System
 - c. Vacuum System
 - d. Flight Instruments
 - e. Suction Gauge
 - f. Operational Elements
 - i. Suction Gauge Check

- F. Control Systems
 - a. Aileron System
 - b. Aileron Trim System
 - c. Elevator System
 - d. Elevator Trim System
 - i. Manual Trim System
 - ii. Electric Trim System
 - e. Wing Flap System
 - f. Stall Warning System
 - g. Operational Elements
 - i. Electric Trim System Check

- G. Landing Gear & Brakes
 - a. Hydraulic system
 - b. Landing gear selector handle
 - c. Position Lights
 - d. Warning Horn
 - e. Manual Extension and hand pump
 - f. Safety Switch
 - g. Brake system
 - h. Operational Elements
 - i. Landing gear hydraulic test
 - ii. Landing Gear Positioning Lights Check
 - iii. Pilot's Brakes Check
 - iv. Parking Brakes

- H. Electrical System
 - a. Battery
 - b. Alternators
 - c. Starters
 - d. Ammeter and press to test switch
 - e. Circuit Breakers
 - f. External Power Receptacle
 - g. Lighting System
 - i. Exterior Lighting
 - ii. Interior Lighting
 - h. Operational Elements
 - i. Alternator output check

- I. Fuel System
 - a. Outboard fuel tanks

- b. Inboard fuel tanks
- c. Fuel Selectors
- d. Crossfeed
- e. Emergency fuel pumps
- f. Fuel Drain Valves
- g. Fuel Flow Gage
- h. Fuel Quantity Gage
- i. Engine Driven Fuel Pumps
- j. Operational Elements
 - i. Fuel valves check
 - ii. Fuel Quantity Gauge Check
 - iii. Emergency pump

J. Environmental Systems

- a. Cabin Air System
 - i. Heating Operation
 - ii. Aft cabin heater
 - iii. Heat Regulation
 - iv. Heater Blower
 - v. Cabin Ventilation
 - vi. Defroster
 - vii. Individual Fresh Air Outlets
 - viii. Air Conditioning system
- b. Oxygen System
 - i. System Operation
 - ii. Warnings

K. Ice Protection

- a. Windshield Anti-ice
- b. Propeller De-Ice System
- c. Wing De-Ice Boot System
- d. Stall Warning Anti-ice
- e. Pitot Heat
- f. Fuel Vents
- g. Operational Elements
 - i. Electrical Windshield Limitations
 - ii. Prop De-ice ammeter
 - iii. Wing De-Ice Boots Operational Check
 - 1. Preflight check
 - 2. De-icer electric timer malfunction

L. Performance Envelope

- a. Maximum Takeoff Weight
- b. Accelerate Stop Graphs
- c. Accelerate Go Graphs
- d. Take-off Distance
- e. Landing Distance

M. Weight and Balance

- a. Definitions
- b. Basic Empty Weight
- c. Useful Load Weights
- d. Baggage

- e. Occupants
- f. Fuel
- g. Moments Limits vs. Weight

N. Flight Planning

- a. Time, Fuel and Distance Climb
- b. Time, Fuel and Distance to Descend
- c. Normal Cruise Power
- d. Economy Cruise Power
- e. Holding Time

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.

Flight Training Device FTD Lessons

Lesson 1

2 Hours

Objective: Introduce student to simulator. Demonstrate and teach normal procedures and use of checklist for PA23,31,34 aircraft.

Preflight discussion

Before Starting Engines Checks

- a. Airspeeds for Safe operation
- b. Electrical System Checks
- c. Fuel Quantity & Selectors
- d. Annunciator Lights Check
- e. Landing Gear Handle & Lights

Normal Engine Start

Before Taxi Checks

- a. Aux Fuel Pumps
- b. Charging Instruments Checked
- c. Vacuum System Check
- d. Lights
- e. Flight Instruments

Before Take-off

- a. Engine Runup
- b. Ice Protection
- c. Pressurization set
- d. Autopilot Checks
- e. Trim set
- f. Flaps set

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) Non precision instrument 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

- f. Airspeeds for Safe operation
- g. Electrical System Checks
- h. Fuel Quantity & Selectors
- i. Annunciator Lights Check
- j. Landing Gear Handle & Lights

Normal Engine Start

Before Taxi Checks

- a. Emergency Fuel Pumps
- b. Alternators Checked
- c. Vacuum System Check
- d. Lights
- e. Flight Instruments

Before Take-off

- a. Engine Runup
- b. Ice Protection
- c. Trim set
- d. Flaps set

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) Engine driven fuel pump failure
 - b) Alternator failure
 - c) Blocked static source
 - d) Induction air icing
 - e) Loss of oil pressure
 - f) Fuel Crossfeed (one engine inop)
 - g) Smoke in cockpit
- 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.

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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

- k. Airspeeds for Safe operation
- l. Electrical System Checks
- m. Fuel Quantity & Selectors

- n. Annunciator Lights Check
- o. Landing Gear Handle & Lights

Normal Engine Start

Before Taxi Checks

- a. Aux Fuel Pumps
- b. Charging Instruments Checked
- c. Vacuum System Check
- d. Lights
- e. Flight Instruments

Before Take-off

- a. Engine Runup
- b. Ice Protection
- c. Trim set
- d. Flaps set

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 cruise altitude
3. Normal Climb to cruise altitude
4. Smoke in Cockpit
5. Loss of Pressurization & Emergency Descent
6. Cabin Over Pressure
 - Note; the abnormal events should be completed as 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

- p. Airspeeds for Safe operation
- q. Electrical System Checks
- r. Fuel Quantity & Selectors
- s. Annunciator Lights Check
- t. Landing Gear Handle & Lights

Normal Engine Start

Before Taxi Checks

- a. Aux Fuel Pumps
- b. Charging Instruments Checked
- c. Vacuum System Check
- d. Lights
- e. Flight Instruments

Before Take-off

- a. Engine Runup
- b. Ice Protection
- c. Trim set
- d. Flaps set

Maneuvers:

1. Normal Take-off
2. Normal Climb to Flight Levels
3. Cruise
4. Normal descent
5. Instrument approach
6. Landing
7. 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.

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. Instrument approach
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. Instrument approach
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)*