



# Piper M350 (PA-46-350P) Transition Training Manual. Four day course.

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For Personal Owner-Pilot Transition Training

Aircraft: Piper M350 (PA-46-350P Malibu Mirage)

Avionics: Garmin G1000 NXi Integrated Flight Deck

Reference: Piper PA-46-350P Pilot's Operating Handbook (Report VB-1710, Rev. 2004)

## **Instructor:**

ATP, CFI, CFII, MEI, SES, Glider Commercial, Tailwheel, Advanced Aerobatics, Cirrus CSIP, Mooney MAPA, Sabreliner Typed, Advanced Ground Instructor. Over 16,000 hours total time, over 8,000 hours as instructor. Former FAA examiner.

No insurance claims or FAA violations. Over 270 hours in type.

## Section 1 – Program Overview

This transition training manual provides a structured course designed for experienced pilots transitioning into the Piper M350. It focuses on systems knowledge, automation management, performance, and high-altitude operations, with ground and flight lessons tailored to align with the official Piper PA-46-350P POH (Report VB-1710).

### Training Standards

Upon completion, the pilot will demonstrate proficiency in systems operation, avionics management, and normal and emergency procedures. Performance standards meet or exceed FAA Airman Certification Standards for high-performance, complex, and technically advanced aircraft.

### Course Structure

- Ground Training: 5 Lessons
- Flight Training: 5 Lessons
- Written Knowledge Review per Lesson
- Checklists and Proficiency Standards
- Instructor and Pilot Endorsement Pages

## Section 2 – Ground Training Lessons

### Lesson 1 – Aircraft Overview & Limitations

Objective: Gain comprehensive understanding of the Piper M350 design, systems, and operating limitations.

References: POH Sections 1 (General), 2 (Limitations)

Content Outline:

- Airframe, engine, and propeller overview
- Performance characteristics
- Weight and balance data interpretation
- Operating limitations and placards
- V-speeds and performance boundaries

Knowledge Review:

1. What is the maximum takeoff weight of the M350?
2. Define VLO and VLE per the POH.
3. Explain the significance of maneuvering speed.
4. What is the pressurization limit of the M350?
5. Describe the POH revision control system.

### Lesson 2 – Powerplant, Fuel, and Electrical Systems

Objective: Understand the Lycoming TIO-540-AE2A engine operation, fuel, and electrical systems.

References: POH Sections 7 (Systems), 2.7 (Powerplant Limitations)

Content Outline:

- Turbocharged engine operation and limits
- Fuel system routing and management
- Electrical power distribution and alternator redundancy
- Engine monitoring through the G1000 NXi MFD
- Common abnormal indications

Knowledge Review:

1. What is the maximum manifold pressure limit per POH?
2. Describe the dual alternator system design.
3. What is the function of the wastegate?
4. Identify typical causes of low bus voltage.
5. What procedures apply for an alternator failure?

### **Lesson 3 – Environmental, Pressurization, and Oxygen Systems**

Objective: Learn the operation of cabin pressurization, air conditioning, and oxygen systems.

References: POH Section 7 (Environmental Systems), Sec 2.27 (Cabin Pressurization Limits)

Content Outline:

- Environmental Control System (ECS)
- Cabin pressurization operation and limitations
- Oxygen system use and high-altitude physiology
- Pressurization loss procedures

Knowledge Review:

1. What is the M350's maximum cabin differential pressure?
2. Describe the cabin pressurization indicator function.
3. Explain oxygen usage above FL250.
4. What emergency action is required for a rapid decompression?
5. How does the air conditioning system integrate with pressurization?

### **Lesson 4 – Avionics and Automation (Garmin G1000 NXi)**

Objective: Master the G1000 NXi flight deck functions and automation management.

References: Garmin G1000 NXi Pilot Guide, POH Section 7 (Avionics)

Content Outline:

- G1000 PFD and MFD layout
- Flight plan creation, modification, and execution
- Autopilot and flight director modes
- System reversionary modes and backup instruments
- Engine indication system (EIS) monitoring

Knowledge Review:

1. Explain the reversionary display function.
2. What does the flight director command bar represent?
3. Describe the autopilot engagement sequence.
4. How are system alerts displayed in the G1000 NXi?
5. What backup systems exist for total PFD failure?

### **Lesson 5 – Performance, Weight & Balance, and Flight Planning**

Objective: Apply the M350's performance data for planning and safe operation.

References: POH Sections 5 (Performance), 6 (Weight & Balance)

Content Outline:

- Takeoff and landing distance calculations
- Cruise and endurance charts
- Weight and balance computation
- Density altitude effects
- Flight planning with Garmin G1000 NXi

Knowledge Review:

1. Define maximum zero fuel weight.
2. Compute takeoff distance for a 4,300 lb aircraft at 3,000 ft elevation.
3. Explain the effect of aft CG on stability.
4. How is climb performance affected by temperature?
5. Describe the use of the performance tables in Section 5 of the POH.

## Section 3 – Flight Training Lessons

### Flight Lesson 1 – Aircraft Familiarization & Basic Handling

Objective: Develop proficiency in ground handling and basic flight operations.

References: POH Sections 4 (Normal Procedures), 7 (Systems)

Maneuvers:

- Preflight inspection and cockpit setup
- Taxiing and run-up procedures
- Takeoff and climb profiles
- Basic attitude flying
- Autopilot introduction

Completion Standards: Maintain  $\pm 100$  ft altitude,  $\pm 10^\circ$  heading,  $\pm 10$  knots airspeed.

### Flight Lesson 2 – Slow Flight, Stalls, and Emergencies

Objective: Demonstrate aerodynamic control and confidence in abnormal operations.

References: POH Sections 3 (Emergency Procedures), 4 (Normal Procedures)

Maneuvers:

- Slow flight (clean and configured)
- Power-on/off stalls
- Engine failure procedures
- Emergency descent
- Pressurization failure drill

Completion Standards: Maintain control throughout; follow POH checklist sequences accurately.

### Flight Lesson 3 – Instrument Procedures & Automation Integration

Objective: Utilize the G1000 NXi for IFR flight and automation management.

References: Garmin G1000 NXi Pilot Guide, POH Section 4

Maneuvers:

- IFR departure and enroute automation
- GPS and ILS approaches
- Missed approach procedures
- Automation reversion exercises

Completion Standards: Maintain IFR tolerances  $\pm 100$  ft altitude,  $\pm 10^\circ$  heading,  $\pm 10$  knots airspeed.

### **Flight Lesson 4 – Performance & High-Altitude Operations**

Objective: Conduct operations in high-altitude and pressurized environments.

References: POH Section 7 (Environmental Systems), Section 5 (Performance)

Maneuvers:

- High-altitude climb/cruise/descent
- Oxygen use and monitoring
- Pressurization management
- Emergency descent from altitude

Completion Standards: Demonstrate control and system management per POH limits.

### **Flight Lesson 5 – Proficiency Check and Review**

Objective: Integrate all normal and emergency procedures in a complete flight scenario.

References: POH Sections 3–7 (Integrated)

Maneuvers:

- Complete start-to-shutdown profile
- Simulated emergencies
- Full avionics integration
- Cross-country navigation

Completion Standards: Demonstrate safe, competent operation of all aircraft systems in accordance with the POH and ACS criteria.

## Section 4 – Training Checklists (Abbreviated)

Normal Procedures (Ref: POH Section 4)

- Preflight Inspection
- Engine Start
- Taxi
- Before Takeoff
- Climb, Cruise, Descent
- Before Landing
- After Landing
- Shutdown

Emergency Procedures (Ref: POH Section 3)

- Engine Failure
- Electrical Failure
- Pressurization Loss
- Fire (Engine/Cabin)
- Emergency Descent
- Landing Gear Malfunction

Abnormal Procedures (Ref: POH Section 7)

- Vacuum Failure
- Alternator Failure
- Turbocharger Malfunction
- Door Open Light

## Section 5 – Proficiency Standards

To complete the M350 transition course, the pilot must:

- Demonstrate system knowledge of all major aircraft systems.
- Conduct all checklist procedures from memory or reference.
- Manage automation effectively under IFR and VFR conditions.
- Exhibit sound aeronautical decision-making (ADM).
- Operate within the aircraft's limitations (POH Sections 2-5).

## Section 6 – Instructor Endorsement & Pilot Sign-Off

Instructor Endorsement (FAR 61.31(f)):

I certify that \_\_\_\_\_ has received flight instruction in the Piper M350 (PA-46-350P) and is proficient in the operation of this high-performance, pressurized, complex aircraft in accordance with the manufacturer’s Pilot Operating Handbook.

Instructor Signature: \_\_\_\_\_

CFI #: \_\_\_\_\_ Date: \_\_\_\_\_

Pilot Certification:

I have completed all required ground and flight training and demonstrated proficiency in accordance with this syllabus.

Pilot Signature: \_\_\_\_\_ Date: \_\_\_\_\_