

### HOW TO USE THIS MANUAL

The lessons are presented in numerical order just as you will fly them. It is your responsibility to be prepared for each lesson so that you will get the most out of the training hours offered. Under each lesson number you will find the reference for the concepts/maneuvers to be presented.

The opening paragraph of each lesson contains a completion standard. To determine satisfactory completion of the lesson your instructor will evaluate whether you did or did not meet the standard. In some cases, supplemental review information is also listed which you should study to gain a thorough understanding of the lesson material. After each lesson listing there is a homework assignment. You are expected to complete the assignment before you come in to fly. Your instructor will ask you some basic questions during your pre-flight session to determine your level of preparation. If he/she feels that you did not adequately prepare for the lesson then it may be terminated, and you will be required to use the time to prepare. You must be prepared for the next scheduled session. Failure to prepare wastes valuable training time/opportunities, and therefore may be reflected upon your grade. Chronic failure to arrive prepared will result in counseling, and possible course termination. Due to the costs associated with these flying courses, it is absolutely vital that you accept the responsibility for your training!

### **TEXT REFERENCES**

AFH = Airplane Flying Handbook  
FAR = Federal Aviation Regulations  
AOH = Piper Arrow Information Handbook  
WOH = Piper Warrior Information handbook  
APM = Advanced Pilot's Manual

#### IV-1

The student should be thoroughly familiar with the flight characteristics, systems, and emergency procedures associated with the airplane. The student will demonstrate PIC proficiency and the ability to perform safe solo flight.

1. List all of the pertinent V-speeds for the warrior?
2. Other than using the primer, what else can you do to prime the engine?

#### IV-2

This lesson will be complete when the student has conducted the assigned flight. During the flight, the student should attempt to increase proficiency in the smooth and accurate performance of the listed flight maneuvers in the airplane.

1. How many spark plugs are used on this airplane? Why?
2. Describe, in detail, the fuel system on the warrior?

#### IV-3

This lesson will be complete when the student can perform basic ground reference maneuvers while maintaining a specified altitude and ground track. The student will also display the correct understanding of the necessary control inputs during entry to, performance of, and recovery from, the steep turn and chandelle. The student will also display the knowledge of the cause and recovery from accelerated stalls.

1. List the procedures you would follow during an engine failure enroute?
2. Be ready to give a detailed briefing on the chandelle?
3. Be ready to give a detailed briefing on the steep spiral.

#### IV-4

This lesson is complete when the student has conducted the assigned flight. During the lesson, the student should attempt to minimize the transition and setup time between each maneuver.

1. What are accelerated stalls and why do we practice them?
2. What are you expected to do before every maneuver?

#### IV-5

The student will display increased proficiency during steep power turns by maintaining altitude within +/- 200 feet and bank within +/- 20°. The student will demonstrate the correct procedures for the chandelle. During takeoffs and landings, the student will demonstrate correct airspeed control techniques.

1. Give a briefing on the 180 degree power-off accuracy approach and landing
2. Review the V-speeds for the Cessna?

#### IV-6

This lesson is complete when the student has conducted the assigned solo flight. During the lesson, the student should attempt to gain proficiency in the listed maneuvers.

1. What is the proper procedure for handling an engine fire on start-up?
2. Why are chandelles executed into the wind?

#### IV-7

The student should show increased proficiency in the review maneuvers by demonstrating correct entry and recovery procedures and increased coordination during the performance of each maneuver. The student will also demonstrate an understanding of the important performance elements of lazy eights and eights-on-pylons.

1. Be able to describe, on a chalkboard, the elements of a lazy eight?
2. What is pivotal altitude?

#### IV-8

This lesson will be completed when the student has conducted the assigned solo flight. During the flight, the student should attempt to increase accuracy and coordination on the listed maneuvers.

1. What is gained from practicing slow flight?
2. Why do you need increased back-pressure on the yoke during steep turns?

#### IV-9

Although the student's coordination and accuracy of performance are not expected to be that of a commercial pilot, the student should demonstrate an understanding of the important performance elements of each maneuver and the correct entry, execution, and recovery techniques.

1. Explain the proper procedure to follow if you lose your alternator in flight?
2. What would you need to do if you noticed your oil pressure was low and the temperature was high?

#### IV-10

This lesson is complete when the student has conducted the assigned solo flight. During the flight, the student should attempt to perform lazy eights with symmetrical loops and eights-on-pylons, chandelles, and steep turns with smoothness and coordination.

1. How does wind speed affect eights-on-pylons?
2. What is the correct technique for a left cross wind takeoff?

#### IV-11

This lesson is complete when the student displays an understanding of night flight and the associated normal and emergency procedures.

1. List all the various colored lights used in aviation?

2. Explain why can't you see as well at night?

#### IV-12

This lesson is complete when the student has conducted solo night flight. During the flight, the student should attempt to gain proficiency in takeoffs and landings in the night environment.

1. What equipment is required for night VFR operations?
2. What techniques should you use for landing at night?

#### IV-13

At the completion of the flight, the student should display a working knowledge of the airplane systems. Additionally, the student should display at least private pilot proficiency in the performance of basic flight operations.

1. What is the minimum altitude recommended for leaning the Arrow?
2. What is the difference, in procedure, between a hot and cold start?

#### IV-14

The student should display a working knowledge of the airplane systems. Additionally, the student should display at least private pilot proficiency in the performance of basic flight operations.

1. List all the V-speeds for the Arrow?
2. Explain the correct procedure for an engine fire on start-up for the Arrow?

#### IV-15

The solo lesson is complete when the student has conducted the assigned flight. During the flight, the student should attempt to attain or maintain commercial pilot proficiency.

1. List the emergency procedures for extending the landing gear on the Arrow?
2. What is a squat switch? Where is it located on the Arrow?

#### IV-16

This lesson is complete when the student demonstrates the ability to safely act as PIC of the aircraft during cross-country flights at night.

1. What are the fuel requirements for a cross-country night flight?
2. What should you do if you get lost on a night cross-country flight?

#### IV-17

The student will show added skill in cross-country planning by selecting optimum cruising altitudes and appropriate checkpoints for a flight with a landing at a point more than 50 n.m. from the original departure point.

1. When using pilotage and dead reckoning at night, what should you consider as far as flight planning goes?
2. What should you do if you lose your engine at night?

#### IV-18

This lesson is complete when the student has conducted a solo cross-country to include a landing at a point more than 50 n.m. from the original departure point. The student should attempt to gain proficiency in cross-country operations and the use of unfamiliar airports.

1. Plan out a cross-country flight completely! Include fuel and time estimates so you can see how accurate your skills at flight planning are progressing.

#### IV-19

At the completion of this flight, the student should be thoroughly familiar with the flight characteristics, systems, and emergency procedures associated with the complex airplane. The student will demonstrate PIC proficiency and the ability to perform safe solo flights.

1. Be able to diagram and explain the prop governor and the prop itself!

#### IV-20

At the completion of this flight, the student should be thoroughly familiar with the flight characteristics, systems, and emergency procedures associated with the complex airplane.

1. What will happen to the prop pitch if you lose engine oil pressure?
2. Can you extend the landing gear without any electrical power? Why?

#### IV-21

The student's increase in night proficiency, to that of a commercial pilot will be evident during the post-flight evaluation. The student will thoroughly explain the additional operational aspects and safety considerations, which are associated with night flight.

1. How long does it take for your eyes to adapt at night?
2. At what altitude do your eyes begin to lose their effectiveness?

#### IV-22

The student will demonstrate commercial pilot proficiency in the operation of the aircraft and a basic knowledge of the advanced commercial maneuvers. At the completion of this lesson, the student should be prepared to take the Arrow quiz and they should receive their complex sign-off.

1. During stall recovery, what order do you retract the gear and flaps?
2. Describe the fuel injection system.

#### IV-23

The lesson is complete when the student has conducted the assigned flight. During the flight, the student should attempt to attain or maintain commercial pilot proficiency.

1. What are some pros/cons about a fuel injected engine?
2. What are some pros/cons for a constant speed prop?

#### IV-24

Steep power turns will be maintained within +/- 150 feet and bank angle and recovery heading within +/- 15°. The student will demonstrate the correct procedures for performing the chandelle. During takeoffs and landings, the student will demonstrate correct airspeed control techniques.

1. Describe the procedure for a short field takeoff in the Arrow?
2. List the procedure for a short field landing in a Warrior?

#### IV-25

The solo lesson is complete when the student has conducted the assigned flight. During the flight, the student should attempt to attain or maintain commercial pilot proficiency.

1. List the procedure for a soft field takeoff in a Warrior?

#### IV-26

The student should score at least a 70% on the quiz. The instructor will review those questions missed by the student.

1. Know everything you can, regarding Arrow systems for your quiz?

IV-27

The student will demonstrate commercial pilot proficiency in the operation of the aircraft and a basic knowledge of the advanced commercial maneuvers.

1. Be ready to discuss the systems and operating procedures for the Arrow!