

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 page/paragraph associated with that concept/maneuver. The last column contains the material to be covered in the lesson.

The opening paragraph of each lesson contains a completion standard. To determine satisfactory completion of the lesson your instructor will evaluate whether you did/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 is a homework assignment. You are expected to complete the assignment before you come to fly. Your instructor will ask some basic questions during your preflight 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 in 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 ABBREVIATIONS:

FTH = FLIGHT TRAINING HANDBOOK

IFT = INSTRUMENT FLIGHT TRAINING HANDBOOK

AIM = AIRMAN'S INFORMATION MANUAL

FAR = FEDERAL AVIATION REGULATIONS

TOH = PIPER TOMAHAWK INFORMATION MANUAL

WOH = PIPER WARRIOR INFORMATION MANUAL

PTS = PRIVATE PILOT PRACTICAL TEST STANDARDS

CTS = COMMERCIAL PILOT PRACTICAL TESTS STANDARDS

ITS = INSTRUMENT PILOT PRACTICAL TEST STANDARDS

5-1

This lesson is complete when the student can demonstrate the ability to act as pilot-in-command on a cross-country flight with a landing at a point more than 50 N.M. from the original departure point.

<u>FLIGHT LESSON</u>	<u>TEXT</u>	<u>PAGE/ PARAGRAPH</u>	<u>MATERIAL TO BE COVERED</u>
5-1	FTH	71-84 113-119	Airport Traffic Patterns Emergency Approaches and Landing (Actual),Emergency Approaches (Simulated)
		125-130 165-179 181-191	Faulty approaches and landings Cross-country Flying Emergency flight by reference to Instruments
		300-325	Weight and Balance, Effects of weight on flight performance, Effects of weight on airplane structure, Effects of weight on stability and controllability, Effect of load distribution, Weight and balance control, Airplane performance, Straight and level flight, Climb performance, Range Performance, Takeoff and landing performance, Importance of performance data, Atmospheric Pressure, Pressure altitude, Density altitude, Performance speeds
	IFT	59 93 111-134 133-154 161-190 191-199	Basic instrument maneuvers Basic instrument flight patterns Electronic aids to instrument flying Navigation instruments Federal airways and airspace system Air traffic control
	AIM	1-1-2/1-1-7 4-1-3 4-1-4 4-2-1/4-2-14	Navigation aids Information provided by Flight Service Station Designated Unicom/Multicom Radio Communications Phraseology and Techniques

	4-3-3	Visual Indicators at Uncontrolled Airports
	4-3-13	Traffic Control Light Signals
	5-1-1	Preflight Preparation
	5-1-4	Flight Plans—VFR Flights
	5-1-12	Closing VFR/DVFR Flight Plans
	6-1-2/6-4-3	Emergency Procedures
	7-1-1/7-1-28	Meteorology
	7-2-1/7-2-5	Altimeter Setting Procedures
	9-1-1/9-1-6	Aeronautical Charts and Related Publications
FAR	91.117	Aircraft Speeds
	91.119	Minimum Safe Altitudes: General
	91.120	Altimeter Settings
	91.123	Compliance with ATC Clearances and Instructions
	91.130	Operating In Class C Airspace
	91.131	Operating in Class B Airspace
	91.133	Restricted and Prohibited Areas
	91.151	Fuel Requirements for Flight on VFR Conditions
	91.153	VFR Flight Plan: Information Required
	91.155	Basic VFR Weather Minimums
	91.157	Special VFR Weather Minimums
	91.159	VFR Cruising Altitude or Flight Level
	91.203	Civil Aircraft and Certification and Requirements
	91.205	Instrument and Equipment Requirements
	91.215	ATC Transponder and Altitude Reporting Equipment and Use
TOH	Section 2	Limitations
	Section 3	Emergency Procedures
	Section 5	Performance
	Section 6	Weight and Balance
	Section 7	Description and Operation of the Airplane and Systems

HOMEWORK ASSIGNMENT

1. As the completion standards are stated, this lesson is complete when you demonstrate your ability to act as PIC on a cross country flight. Therefore, if your instructor has not already assigned a flight to plan, you pick a place and make all planning and preparations prior to your scheduled departure time.

NOTE: This is a rather independent course with you, the student, having a good deal of input as to just what you see and where you go. Take advantage of this fact and plan flights to all different type of airports, Large and small, and get us out and experience the airway system . Use the following. Get accustomed to their help. It will prepare you for the next step, instrument flying. Be a part of the system. Don't hide from it or avoid it.

2. As this class has you out using the airway and airspace system , a thorough understanding of the airspace is essential. Therefore, for the flight that you planned in question #1, discuss your flight through the various types of airspace you will encounter. Include names of the airspace, weather minimums, entrance requirements, etc.

5-2

Successful completion of this lesson is indicated by the student's demonstration of the Correct operating procedures for night cross-country flights. The student must demonstrate the ability to safely act as PIC during a night flight with a landing more than 50 N.M. from the original point of departure.

5-2	FTH	85-93 95-124 193-203	Takeoff and Departure Climbs Landing Approaches and Landing Night Flights Night Flying
	AIM	2-3-1/2-3-14 4-1-11 4-3-1/4-3-23 8-1-1/8-1-8	Aeronautical Lighting and Airport Marking Aids Designated Unicom/Multicom Frequencies Airport Operations Medical Factors for Pilots
	FAR	91.209	Aircraft Lights
	W O H	Section 3 4-12/4-14 Section 5 Section 6 Section 7	Emergency Procedures Takeoff, Climb, Cruising, Descent, Approach and Landing Performance Weight and Balance Description and Operation of the Airplane Systems

HOMEWORK ASSIGNMENT

1. As the lesson objective and completion standards state, this cross-country must be to a point at least 50 N.M. away. Plan this cross-country to a point of your choice and make sure that your planning includes applicable radio navigational aids and pilotage check points that can be seen at night. Have all planning and preparations ready by your scheduled departure time. Include takeoff and landing distances, weight and balance and fuel requirements.
 2. What is the required minimum equipment and instruments for VFR night?
 3. What are the required preflight actions for flights not in the vicinity of an airport?
 4. What are the night VFR flight fuel requirements?
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5-3

The student will show added skill in cross-country planning by selecting optimum cruising altitudes and appropriate check points for a flight with a landing at a point more than 50 N.M. from the original point of departure. Additionally, fuel planning will be accurate and allow for an adequate reserve.

HOMEWORK ASSIGNMENT

1. This lesson stresses fuel planning and preparations for a proper reserve. Be accurate in your fuel planning estimate and show it, along with your other cross-country preparations to your instructor for approval at your scheduled time.
 2. What are the daytime requirements for VFR fuel?
 3. List the ATC light gun signals and their meaning for both in-flight and Ground operations?
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5-4

This lesson reviews full panel attitude instrument flying to prepare the student for the later introduction of partial panel air work.

IFT	55-92	Basic Instrument attitudes
TOH	4-1/4-10	Normal procedures section

HOMEWORK ASSIGNMENT

1. The student should have a full understanding of Basic Instrument Attitude flying. The student should have a basic understanding of which instruments operate from what system. The student will also need to know how to overcome instrument failures.
 2. What type of instruments run off the gyroscopic system?
 3. What instruments run off the pitot-static system?
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5-5

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 point of departure. The student should attempt to gain proficiency in the accurate tracking of selected VOR radials and NDB bearings.

HOMEWORK ASSIGNMENT

1. Use your navigation radios. This one should take you to or past VOR and NDB stations. Get comfortable using this equipment. It will pay off during your instrument training. Be on time for your flight with all preparations ready for your instructor's approval.
 2. List the dimensions and entry requirements, if any, for the type of airspace you will be flying in on this flight.
 3. Plan to use your VOR and NDB navigation aids on this flight, and show your instructor which facilities you plan to use.
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5-6

This lesson has two objectives to teach orientation in relation to VOR stations, NDB's, Localizer, and to intercept and track specific courses and radials.

IFT	55-92	Basic Attitude Instrument Flying, Fundamental skills, Straight and Level, Turns, Climbs, Descents, Unusual Attitudes, IFR Takeoffs
AIM	A-1/A-11	NDB's, VOR's, DME's, Service Volumes, ILS, and the Localizer System

HOMEWORK ASSIGNMENT

1. Student should have knowledge of the operating with VOR, NDB, ILS, and Localizer Systems. The student should be capable to navigate to these stations, and courses when under IFR or simulated conditions.
 2. Describe how you would use each navigation system, and how accurate each system is?
 3. Describe and draw the service volumes of VOR and NDB'S.
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5-7

This lesson introduces the student to non-precision instrument approach procedures and missed approach planning.

IFT	55-92	Basic Attitude Instrument Flying, Fundamental Skills, Straight and Level, Turns, Climbs, Descents, Unusual Attitudes IFR Takeoffs
	111-154	Basic Radio Navigation, VOR's, DME's , Radar Systems, NDB's, ILS, Tracking and Intercepting both VOR and NDB courses and approaches.
	167-190	Approaches: How to read and understand the different types of approaches.
AIM	A-262/A-269	Approach Chart Information, Instrument Chart Information, Clearances and Procedures.

HOMEWORK ASSIGNMENTS

1. Student should be able to demonstrate proficiency to navigate to a fix and execute a non-precision approach. Student should be able to read and understand various approach plates.
2. Describe the four segments of an instrument approach?
3. Describe what the difference between straight-in and circling minimums?

5-8

During this lesson, the student will plan and conduct a short IFR cross-country flight. During the flight, the student will become familiar with IFR departure and arrival procedures.

IFT	133-154	Using navigation instruments, VOR, NDB, Orientation, Tracking, Intercepting, DME Arcs
	167-190	Approaches: how to read and understand all types of approaches.
	206-218	Instrument arrival procedures, Approaches, Canceling IFR, Missed Approaches, Emergencies.
	219-236	E6B flight computer, NOTAM's, Weather reports, VFR& IFR flight planning.
AIM	A-259/A-264	Arrival procedures, Approach control, Instrument approach charts
TOM	4-1/4-27	Safe operating speeds, Normal procedures Checklist, Engine: start, warm-up, taxi Climb, cruise, landing parking.
	5-1/5-29	All performance data pertaining to the flight

HOMEWORK ASSIGNMENT

1. Student should be able to plan an IFR cross-country with all arrival and departure procedures.
2. What are the fuel requirements for IFR flight?
3. Describe how you would use a SID or STAR during an IFR cross-country flight plan?

5-9

In this lesson you will continue to practice cross-country planning and accurate navigation. The flight will include a landing at a point more than 50 N.M. from the original point of departure.

IFT	133-154	Use of navigational aids, VOR, NDB, Tracking, Intercepting, and Orientation
FTH	165-179	Cross-country flying, flight logs, navigation aids.
TOH	5-1/5-29	All performance data pertaining to flight

HOMEWORK ASSIGNMENT

1. The student will plan a VFR cross-country using weather data received from flight service station (FSS), along with all performance data pertaining to the flight. This flight should be planned to an airport more than 50 N.M. away from the original point of departure.
2. Locate the Dallas Class B sectional and list the following:
 - vertical limits
 - speed limits
 - lateral limits
 - pilot requirements
 - entry requirements
 - equipment requirements
 - weather minimums

5-10

This lesson is complete when the student has conducted a solo cross-country that is more than 50 N.M. from the original point of departure. During the preflight evaluation, the student should display efficient use of applicable FAA publications, weather analysis, and accurate flight planning.

HOMEWORK ASSIGNMENT

1. The student upon completion of this lesson should show ability to plan and execute a cross-country that is more than 50 N.M. from the original point of departure. Navigational efficiency should increase both knowledge of pilotage and dead-reckoning, but also VOR and NDB use.
2. Describe how a Victor Airway works?
3. Describe the dimensions of a Victor Airway?

5-11

This lesson is complete when the student has conducted a solo cross-country with landings at a minimum of three points, one at which has to be at least 250 N.M. straight line distance from the original point of departure. During the preflight orientation and Postflight evaluation, the student shall display efficient use of applicable FAA publications, correct weather analysis, and accurate flight planning.

HOMEWORK ASSIGNMENT

1. The entire class leads to this flight, not your stage check. This is where it all comes together. This flight fills the long cross-country requirement for commercial pilot certificate. You must plan a three leg flight with a landing that should be 250 N.M. straight line distance away from Norman. Go somewhere else interesting and challenging. Pay strict attention to your weather data and fuel requirements and plan accordingly. Have all preparations ready for approval at your assigned departure time.
2. When does “night” begin and end, according to the FAR’s?

5-12

HOMEWORK ASSIGNMENT

The student should have knowledge of all of the previous lessons to pass a quiz over the contents of the whole stage. The student has completed this lesson when a 70% or better grade is reached on the test, and of the missed questions reviewed.

5-13

This lesson is complete when the student can demonstrate the ability to act as PIC on a cross-country flight with a landing at a point more than 50 N.M. from the original point of departure.

FLIGHT
LESSON

TEXT

PAGE/
PARAGRAPH

MATERIALS
TO BE COVERED

5-13	FTH	71-84 113-119 125-130 165-179 181-191	Airport traffic patterns Emergency approaches and landings (actual) and (simulated). Faulty approaches and landings Cross-country flying Emergency flight by reference to instruments
		300-325	Weight and balance, effects of weight on flight performance, Effects of weight and balance section, Airplane structures, effects on stability and controllability with weight and balance, effects of load distribution, weight and balance control, airplane performance, straight and level flight, climb performance, range performance, takeoff and landing performance, importance of performance data, atmospheric pressure, standard atmosphere, pressure altitude, density altitude, airplane performance speeds.
	AIM	1-1-2/1-1-7 4-1-3 4-1-11 4-2-1/4-2-14 4-3-3 4-3-13 5-1-1 5-1-4 5-1-12 6-1-2/6-4-3 7-1-1/7-1-28 7-2-1/7-2-5 9-1-1/9-1-6	Navigation aids Information provided by the Flight Service Station Designated Unicom/Multicom Frequencies Radio communications and phraseology techniques Visual indicators at uncontrolled airports Traffic control light signals Preflight preparation Flight plans: VFR flights Closing VFR/DVFR flight plans Emergency procedures Meteorology Altimeter setting procedures Aeronautical charts and related publications

IFT	59	Basic instrument maneuvers
	93	Basic instrument flight patterns
	111-134	Electronics aids to instrument flying
	133-154	Navigation instruments
	160-190	Federal airway and airspace system
	191-199	Air Traffic Control
FAR	91.117	Aircraft speed
	91.119	Minimum safe altitudes: General
	91.121	Altimeter settings
	91.123	Compliance with ATC clearances and instructions
	91.130	Operating in class C airspace
	91.131	Operating in class B airspace
	91.151	Fuel requirements for flight in VFR conditions
	91.153	VFR flight plan: Information required
	91.155	Basic VFR weather minimums
	91.157	Special VFR weather minimums
	91.159	VFR cruising altitudes or flight level
	91.203	Civil aircraft: certification required
	91.205	Instrument and equipment requirements
	91.215	ATC transponder and altitude reporting equipment and use
	TOH	Section 2
Section 3		Emergency procedures
Section 5		Performance
Section 6		Weight and Balance
Section 7		Description and operation of the airplane And its systems

HOMEWORK ASSIGNMENTS

1. As the completion standards stated, this lesson is completed when you demonstrate your ability to act as PIC on a cross-country flight. Therefore, if your instructor has not already assigned you to make a flight plan then you pick a place that is 50 N.M. from the original point of departure, and plan the appropriate flight for the lesson.

NOTE: This is rather an independent course with few exceptions to the instrument phase of the course. You, the student, having a good deal of input on where you go and what you see. Take advantage of this fact and plan flights to all different types of airports, whether for VFR or IFR conditions. Experience the airway system to its fullest extent. Do not hide from flight following; it will be the same as on a IFR flight plan, so get used to ATC's help.

2. As this class has you out using the airway and airspace system, a thorough understanding of airspace is essential. Therefore, for the flight that you have planned in question #1, discuss your flight through the various types of airspace you will encounter. Include names of the airspace, weather minimums, and other requirements.