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Regional Airport, Daytona Beach, FL 32014

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Student Manual

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16. Abstract

This manual contains instructional material for student use in conjunction with the pilot judgment training program. It contains 18 lessons which are divided into three units. Unit I presents terms and concepts designed to develop modified patterns of thinking and to give students and instructors the most objective means possible for discussing pilot behavior. Unit II addresses behavioral aspects of judgment, including hazardous thoughts and stress. Unit III relates the learning of Units I and II to actual flight situations using scenarios based on actual pilot accident reports.

This manual is intended as a training aid and workbook requiring a minimum of supplemental teaching by the flight instructor. The material contained herein constitutes about 80% of the judgment training course. The remaining 20% is delivered by the flight instructor utilizing the Instructor Manual, which is Volume III of this report. The associated volumes of the document are Volume I--Technical Summary, and Volume III--Instructor Manual.

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METRIC CONVERSION FACTORS

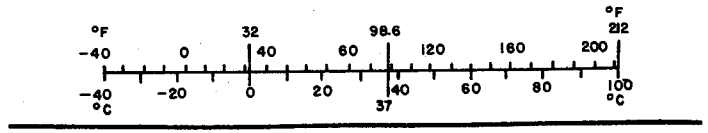
Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
	AREA			
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
	MASS (weight)			
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
	VOLUME			
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
	TEMPERATURE (exact)			
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price $2.25, SD Catalog No. C13.10:286.

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
	AREA			
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
	MASS (weight)			
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
	VOLUME			
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
	TEMPERATURE (exact)			
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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INTRODUCTION

A safe pilot consistently makes good judgments. At a first glance, this statement probably seems easy enough to believe. But, what is "judgment", and is it really possible to learn to improve one's judgment making ability through training?

There is no simple explanation of what judgment means in relation to being a good pilot. We know that dangerous flight situations and accidents do occur - that all pilots do not fly safely all of the time. For situations within the pilot's control, the problem may be caused by poor training, or it may be caused by poor pilot judgment. When poor training is the cause, the pilot has never learned the appropriate knowledge, skills and behavior to avoid the situation. When poor judgment is the cause, the pilot has learned the appropriate knowledge, skills, and behavior, but does not choose to use them or does not use them correctly.

DEFINITION OF PILOT JUDGMENT.

Still, judgment is not simply defined. One definition is that judgment is "sense" applied to the making of decisions, especially correct ones. Now it becomes necessary to define "sense". Sense relates to an intense awareness, realization, and understanding of the factors which are forcing a person to respond in some way, and is generally applied to the ability to act effectively in any situation. The important aspect of judgment, then, is the outcome -- a decision to act and the action. Therefore, judgment is not an end; it is the process through which a decision is made to take some sort of action. In making the decision, the pilot must consider all the factors which have, or should have, influence upon his or her decision-making process. These factors shall include all pilot, aircraft, and environmental considerations. Based upon these considerations, judgment is defined as follows:

> Pilot judgment is the mental process by which the pilot recognizes, analyzes, and evaluates information regarding himself, the aircraft, and the outside environment. The final step in the process is to make a decision pertaining to the safe operation of the aircraft and to implement the decision in a timely manner.

Thus it can be said that if a pilot properly recognizes, analyzes, and evaluates the factors and subsequently makes the proper decision, then he or she exercises good judgment. If he or she

does not properly recognize, analyze, or evaluate the factors or subsequently makes a poor decision which leads to improper action, then he or she exercises poor judgment.

RELATIONSHIP OF TRAINING TO JUDGMENT.

Conventional flight training prescribes the knowledge, procedures and flight skills necessary to conduct safe flight within a limited environment. This environment consists of the aircraft and its systems, and the global environment within which the aircraft and pilot are operating. The effectiveness of pilot training is very much related to the level of exposure to the flight environment provided by the instructor. The low time pilot has limited experiences in uncontrolled or unpredictable flight situations, so the instructor attempts to teach good judgment behavior and performance from a set of supervised flight situations.

The flight instructor teaches the student the aviation knowledge and the skills required to execute specific flight maneuvers. In addition, the instructor teaches the student to apply the learned knowledge and skills to environmental situations. Since the instructor cannot teach the student about every possible situation, the instructor tries to provide a representative range of learning experiences that the student pilot can later apply to similar, but new and unusual situations. As the pilot displays competence and organized behavior in representative flight situations provided during instruction, he increases his ability to perform safely in similar or more unusual situations. In new situations, the pilot's decision will be based upon two considerations: (1) what the pilot has previously learned that may be applicable to the situation; and (2) what the pilot chooses to consider as relevant information for arriving at a decision.

This reveals an important distinction for describing pilot judgment. There are decisions which result from judgment, and there are decisions which result from training. Poor training decisions are those in which the necessary knowledge and skills were never taught or were never sufficiently learned for effective recall. Poor judgment decisions are those in which the desired knowledge and skills were learned but were not used or not used correctly.

Basic flight instruction gives a student pilot the opportunity to acquire the resources necessary to make good pilot judgments: aviation knowledge, flying skills, and experience at performing in a representative variety of typical environmental situations. Judgment training develops the pilot's ability to effectively use all of these resources as a means to making safe, legal, responsible and timely decisions about the aircraft's operation.

PILOT RESPONSIBILITY.

Flying offers tremendous benefits to our society. It is a means of fast, direct transportation for people and goods. It provides a uniquely effective way to accomplish valuable scientific goals such as weather research and aerial mapping. It is a source of pleasure and recreation for pilots and passengers.

Along with all these beneficial activities, flying also offers possibilities for great harm. A pilot can annoy, terrify, injure or kill others. This can include people in the aircraft and in other aircraft, as well as people on the ground. Due to an aircraft's speed and mobility, activities can be disrupted and property can be destroyed in a matter of seconds. There are criminal activities and threats to national security that are most easily accomplished by aircraft.

The government controls the airways and licenses pilots in the best interest of everyone. When the government licenses a pilot, this action represents the granting of a very special privilege to use the nation's air space and air navigation facilities. Along with accepting this privilege, the pilot is expected to act in a manner that takes advantage of flying's benefits without engaging in any undesirable activities which might infringe on the rights and the safety of others.

The pilot-in-command always has direct responsibility for the operation of his aircraft. This responsibility is not shared by him with anyone - not with controllers, passengers or flight instruction personnel. Furthermore, all the specific responsibilities of general aviation pilots are not spelled out in detail in any official document. Rather, it is expected that a pilot will use his good judgment to understand and interpret the rules in individual situations.

Nearly 90 percent of all general aviation accidents may be attributed to pilot error, including poor judgment. The exercise of good judgment is critical to safe flying. As you take your first steps toward becoming a pilot, recognize that 100 percent of all aviation activities take place in public airspace. Use of

that airspace is a privilege granted only to a select few. As you are earning that privilege, remember that it is always your responsibility to operate your aircraft legally, safely and carefully at all times.

The authors wish to gratefully acknowledge the following sources of aviation accident reports upon which the examples and scenarios related in this text are based:

Aviation Monthly
Callback (Aviation Safety Reporting System)
Flightline Times
Flying Magazine
Monthly Aviation Safety Summary and Report
The Aviation Consumer

UNIT I

JUDGMENT CONCEPTS

This unit contains concepts and terms which are used throughout the judgment training course. These terms and concepts have been especially designed to lead you to think more carefully about your flight activities and to guide you toward exercising better pilot judgment.

LESSON 1

THE THREE SUBJECTS AREAS AND THE SIX ACTION WAYS

THREE SUBJECT AREAS.

There is no need to memorize a lot of material in this training program in order to improve your judgment. However, you must know the meanings of a few terms - and know them well.

One term you must know is called SUBJECT AREA. Subject Area refers to the subject about which a judgment is made. In aviation there are three subject areas:

The pilot himself - P
His or her aircraft - A
The rest of the environment - E

Pilot - Aircraft - Environment. This is what you must remember! Every judgment is made about Pilot - P; and/or Aircraft - A; and/or Environment - E. Now, let's look at these individually.

PILOT - P.

Judgments are always being made about such things as the pilot's own competency, state of health, level of fatigue and many other variables. It is factors such as these that we call the subject area Pilot. Example:

> The pilot had only 4 hours of sleep the night before. A friend then asked the pilot to fly him to a meeting in a town 700 miles away. Using good judgment about his state of fatigue, the pilot said no.

AIRCRAFT - A.

Decisions are frequently based on judgments about the aircraft, such as its power, equipment, or state of repair. Any judgment about the airplane and its equipment is lumped into the subject area Aircraft. Example:

During the preflight, the pilot noticed the gas cap did not seem to lock securely. The pilot decided to delay takeoff while a mechanic checked the situation. The pilot's good judgment was confirmed when the mechanic strongly suggested installing a new cap.

ENVIRONMENT - E.

The Aircraft subject area is really part of the pilot's environment, but because it is such a critical and frequent focus of judgments, we separate it. Everything else, everything "out there" besides the aircraft, is the subject area Environment. Example:

The pilot was landing a small, single-engine aircraft just after a helicopter had departed. The pilot made a poor judgment when he assumed that wake turbulence would not be a problem. The aircraft spun on final approach due to the wake turbulence from the helicopter.

COMBINATIONS.

The last concept that must be remembered about subject areas is that judgments often combine Pilot-Aircraft-Environment. Examples:

PILOT/AIRCRAFT - P/A.

The pilot reported to approach control that her attitude indicator (A) had failed. She asked for a routing back to her origin airport. The controller instructed the pilot to make a right turn to a new heading, but noticed on the radar that the aircraft was turning left (P). The controller advised her to continue the left turn to the new heading and to be aware that she was losing altitude. "Stand by, I'm trying to control a little trouble here," was the pilot's reply.

PILOT/ENVIRONMENT - P/E.

Example: With a 30 knot left crosswind at 90 degrees (E), the pilot attempted to make a landing. The pilot's left leg was in a cast (P), and he had trouble using the rudder. Upon touchdown, the aircraft veered sharply to the right and collided with an embankment.

AIRCRAFT/ENVIRONMENT - A/E.

Example: The aircraft was heavily loaded (A). The pilot was attempting to depart from a short runway of soft grass (E). Acceleration was slow, and the pilot wisely decided to abort the takeoff run.

PILOT/AIRCRAFT/ENVIRONMENT - P/A/E.

Example: Ideal conditions for carburetor icing in cruise existed, and ice did develop (E). However, the pilot concluded that the engine was running roughly due to a mechanical failure, and he did not apply carburetor heat (A). Instead, the pilot rushed into an emergency landing attempt, landed downwind unnecessarily, and ground looped the airplane (P).

SIX ACTION WAYS.

Another term you must know for this training program is called ACTION WAY. Action Way refers to the way in which a pilot carries out or performs a poor judgment. There are six action ways, and they can be grouped in three pairs:

1 & 2	One pair is: DO - NO DO
3 & 4	Another pair is: UNDER DO - OVER DO
5 & 6	A third pair is: EARLY DO - LATE DO

Know that every time a pilot carries out a poor judgment, his action results in one of the six action ways: DO - NO DO; UNDER DO - OVER DO; EARLY DO - LATE DO.

Now let's learn more about each of the six action ways. Remember, in each case the pilot does or does not do something. The action ways tell us whether, how, or when the pilot performed the action. In each case, the action performed by the pilot is based on a decision resulting from a poor judgment.

DO...The pilot did something which he should not have done.

NO DO...The pilot did not do something which he should have done.

UNDER DO...The pilot did not do enough when he should have done more.

OVER DO...The pilot did too much when he or she should have done less.

EARLY DO...The pilot acted too early when he should have delayed acting.

LATE DO...The pilot acted too late when he should have acted earlier.

LESSON 2

THE POOR JUDGMENT BEHAVIOR CHAIN

INTRODUCTION.

Most aircraft accidents result from a combination of circumstances rather than from a single cause, such as pilot error, aircraft defect or environmental stress. Aircraft accidents are most often the end result of a chain of causes that involves a variety of pilot-aircraft-environment factors. Similarly, most accidents do not result from one error in judgment. Accidents more frequently occur as a result of a series of errors in judgment. This series of errors in pilot judgment is called the POOR JUDGMENT BEHAVIOR CHAIN (PJ CHAIN).

PJ CHAIN: AN EXAMPLE.

Here is an example of a PJ chain. The pilot has a strong desire to arrive at his destination by a certain time and he is already 30 minutes late. The pilot has little experience flying in rough weather and is not instrument rated. Despite these facts, he decides to make his flight through an area of possible thunderstorms. He will reach this area just before dark. The pilot elects not to route himself around the thunderstorm area because it would cause him further delay. When the pilot arrives in the thunderstorm area, he encounters lightning, turbulence and heavy clouds. Night is approaching, and it is very dark because of the thick cloud cover. The PJ chain continues as the pilot panics and becomes disoriented.

This pilot made several errors in judgment. First, he let his desire to arrive at his destination on time override his concern for a safe flight. He then overestimated his flying abilities and decided to fly via a route that took him through a possible thunderstorm area. Next, the pilot entered conditions of lightning, turbulence and darkness instead of changing course.

In the darkness and turbulence, the pilot became confused and then disoriented because he failed to trust his instruments.

In this example, as in any flight, an accident could have resulted at any time from any cause. However, this pilot placed himself in an increasingly dangerous situation as he pressed on into the bad weather. Conversely, the pilot could have broken the PJ chain at any time. By exercising good judgment, the pilot could have decided to route himself around the area of possible bad weather, accepting the fact that his arrival would be further delayed. Once in the area of the bad weather, good judgment could have led the pilot to decide to avoid flying into clouds and turbulence. And, before becoming disoriented in the dark, the pilot could have used good judgment to force himself to keep calm and to rely on his instruments.

PRINCIPLES OF THE PJ CHAIN.

1. One poor judgment increases the probability that another poor judgment will follow. Judgments are based on the pilot's information about himself, the aircraft, and the environment. The pilot is less likely to make a poor judgment if his information is accurate at all times. One poor judgment increases the availability of false information which may then negatively influence the judgments which follow.

2. The more poor judgments made in sequence, the more probable it is that others will continue to follow. The reasoning for this principle follows from the first principle, except here the concern is with several poor judgments made in sequence. The more erroneous information used by the pilot to make judgments, the more likely that the pilot will make subsequent poor judgments.

3. As the PJ chain grows, the alternatives for safe flight decrease. If a pilot selects one alternative among several, the option to select the remaining alternatives may be lost. For example, if a pilot makes a poor judgment to fly through a hazardous weather area, the alternative to circumnavigate the weather is lost once the severe weather is encountered.

4. The longer the PJ chain becomes the more probable it is that a mishap will occur. As the PJ chain becomes longer, the alternatives for safe flight become fewer. The greater, then, the chance becomes that a mishap will occur. Albeit

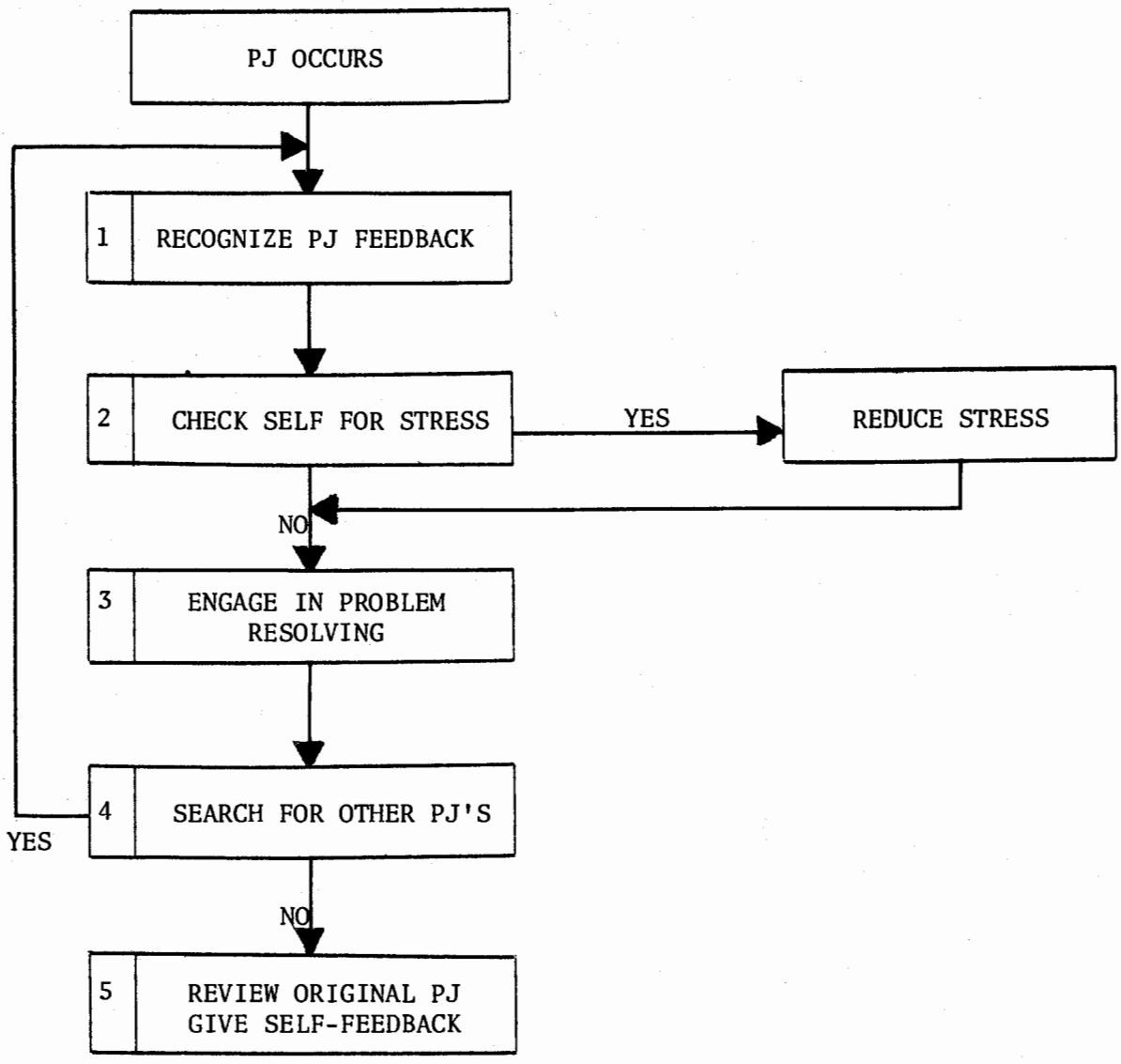
unpleasant and even disastrous, an accident or safety violation is one very possible ending to a PJ chain.

BREAKING THE PJ CHAIN.

Pilot judgment is a mental process by which pilots recognize, analyze, and evaluate information. Pilots can be trained in this process. Breaking a PJ chain is an act of good pilot judgment, and there are five steps a pilot may use to break a PJ chain. While reading the following explanations of each step, refer to figure 2-1 to better understand how the five steps all work together to break a poor judgment chain.

FIGURE 2-1

5 STEPS TO BREAK POOR JUDGMENT CHAINS



5 STEPS TO BREAK PJ CHAINS.

1. Recognize PJ: Get Feedback

   First, recognize that a poor judgment has been made, and admit to the error in judgment. If recognition of the poor judgment is not made, the pilot's ability to prevent another poor judgment is reduced. To recognize a poor judgment, the pilot requires corrective information about the judgment. This information - this feedback - must then be used to form related judgments which follow.

   A pilot generally receives feedback from two sources: the pilot's own senses, and an outside observer. Since good judgment is a learned process, generally the pilot's first feedback comes from an outside observer: the instructor. As training continues, the pilot learns to provide his or her own feedback. This is sometimes difficult, because a new pilot may be hesitant to admit an error in judgment. Yet, it is necessary to do this in order to break the PJ chain as quickly as possible.

2. Check for Stress

   A high degree of stress and anxiety can reduce a pilot's ability to exercise good judgment. Chapter twelve will show you how to estimate your own stress level and then to reduce high stress and anxiety levels.

3. Engage in Problem Resolving

   Problem resolving is the necessary activity of solving problems and correcting all hazardous situations that resulted from the poor judgment. You will be learning more about a pilot's problem resolving activities in chapter four of this manual.

4. Search for Other PJ's

   You must always remember that poor judgments tend to occur in chains. If one poor judgment is recognized, then you must be absolutely certain that it is the only one currently affecting your operation of the aircraft.

5. Review Original PJ: Give Self Feedback

After a poor judgment chain has been broken, review the original poor judgment. Critically examine what the poor judgment involved, and how you came to make it. This critical review provides you the feedback you need to avoid beginning a similar poor judgment chain in the future.

LESSON 3

THE THREE MENTAL PROCESSES OF SAFE FLIGHT

INTRODUCTION.

This lesson introduces three very important concepts called the Three Mental Processes of Safe Flight. Before learning about these concepts, do the short drills that follow this introductory paragraph. You will not be graded on these drills, but do your work carefully. It will help you to understand the explanations that follow.

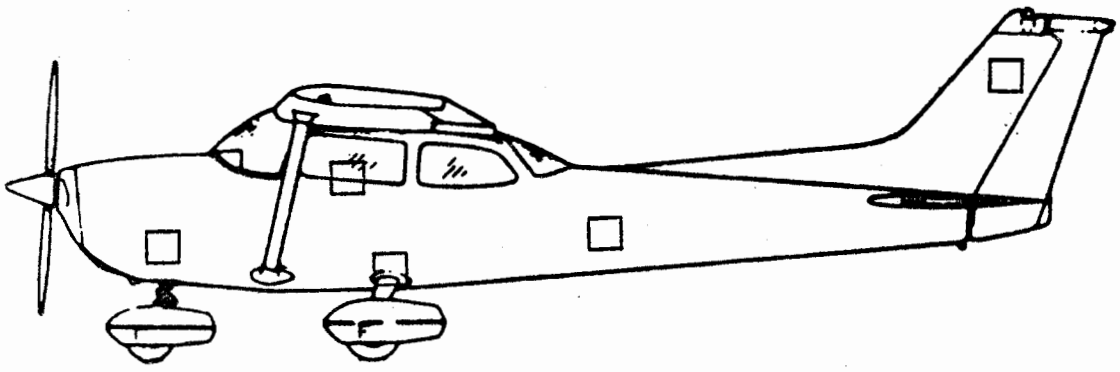
DRILL 1.

Write your signature (use your full name).

_____

DRILL 2.

Look at the picture below. Wherever you see the box symbol in the picture write inside of it this character: ς . Try to reproduce the character exactly in shape and size.



DRILL 3.

This drill requires you to use your knowledge about an aircraft's center of gravity. Some of you may still be new enough to aviation that you don't know what "center of gravity" means. Simply defined, the center of gravity (CG) is an imaginary point where all the aircraft's weight is considered to be concentrated.

In flight, the wings support the entire aircraft. It is very important for flight that the safe support zone of the wings contain the center of gravity. This safe support zone is called the center of gravity range or CG range. The extreme ends of the CG range are called forward CG limit and aft CG limit.

Since aircraft balance is so important to safe flight, aircraft manufacturers always provide at least one means whereby the pilot can accurately locate the aircraft's center of gravity. One method is by doing a series of computations which amount to working a physics problem. However, most manufacturers provide the pilot with either a graph or a chart that makes finding the center of gravity relatively simple.

TRY TO DETERMINE WHERE THE CENTER OF GRAVITY MIGHT BE ON THE AIRPLANE PICTURED IN DRILL 2. DO NOT BE CONCERNED THAT YOU HAVE LITTLE INFORMATION TO GO ON. JUST THINK CAREFULLY AND LOGICALLY ABOUT HOW TO SOLVE THIS PROBLEM, THEN DRAW A HEAVY DOT ON THE AIRPLANE'S FUSELAGE TO INDICATE YOUR ANSWER.

REVIEW OF DRILLS.

Drill 1.

Do you know that the average signature requires about 40 changes in the direction of the signer's pen? Did you stop and think about changing the movement of your pen that many times when you did the exercise? Chances are good that you did not - you just automatically signed your name without thinking at all about exactly how you were doing it.

Drill 2.

At first, did the character cause you some problem? Did it help you to realize this character is actually an inverted figure 5? Most people find it helpful to think through a new situation before actually trying to do anything. Also, learning usually takes place more quickly when a connection or an association is realized between the new information and something already learned. Was there a point in the drill when you started making the character almost automatically - much as you do your signature? Chances are, you became very good at making the character with little or no thought by the time you finished the drill.

Drill 3.

Did you notice that three things with regard to the printing style were changed within the text of drill number 3? Check your observations against this list:

1. Each paragraph is indented differently.

2. Each paragraph is printed in a different style of type.

3. Only the fourth paragraph is printed in all capitals.

If you are like most people, you skimmed through the text of drill number 3 to get the information you needed to do the drill. You were not really alert to changes in the way that the printer presented the information. However, when your attention was directed to the printing you easily recognized them all.

RELEVANCE OF THE DRILLS TO FLIGHT.

Your mental activities while doing the three drills were representative of the three mental processes of safe flight. Here is an explanation of why that is true.

MENTAL PROCESS 1 - AUTOMATIC REACTION.

In Drill number 1, you performed a rather complex activity, signing your name, without thinking much at all. Your response to the drill was automatic.

The first mental process of safe flight is AUTOMATIC REACTION (AR). Automatic Reaction is used in two ways. First, to maintain ongoing control of the aircraft, a pilot most often stabilizes his heading and altitude by making small, automatic adjustments. A good pilot learns to do many things in the aircraft simultaneously, and without thinking about each individual act. This is Automatic Reaction (AR).

Secondly, the pilot learns to respond in emergency situations by relying on Automatic Reaction. Your flight instructor will identify skills and procedures which must become Automatic Reactions. The instructor will then teach you these skills by first giving you demonstrations and directions. Gradually, with practice, you will witness the decline and elimination of your need to "think about" what to do as these skills become truly Automatic Reactions.

MENTAL PROCESS 2 - PROBLEM RESOLVING.

Drill number 2 gave you something to do that required you to understand what needed to be done and then to figure out how to do it. Once you knew how, you went ahead and did what was required.

The second mental process of safe flight is PROBLEM RESOLVING (PR). Problem Resolving can be thought of as a three step process:

Step 1: Uncover, analyze, and define the problem.

Step 2: Consider the methods and the possible outcomes of possible solutions.

Step 3: Apply the selected solution to the best of your ability.

In drill number 2, your ability to reproduce the character probably improved with practice. As you work with your instructor, you will find that you can resolve flight problems more easily and more quickly. You will also become more proficient as you gain flight experience. Remember, problem resolving is different from Automatic Reaction. In PR, you actually work through a process; in AR you just do.

MENTAL PROCESS 3 - REPEATED REVIEWING.

In the review section for drill number 3, your attention was directed to the fact that it is much more probable you will find something when you are consciously looking for it than when you are not.

The Third Mental Process is called REPEATED REVIEWING (RR). Repeated Reviewing means that you are continuously trying to find or to anticipate situations which may require you to engage in Problem Resolving or Automatic Reaction. Recognizing feedback regarding Poor Judgment Sequence Chains (lesson 2), is also a part of Repeated Reviewing.

In an airplane, almost anything is subject to change, and to change quickly. Changes can occur in any of the three subject areas, including the weather conditions (E), aircraft performance (A), or the pilot's state of health (P). Only by Repeated Reviewing can a pilot be constantly aware of all conditions that contribute to safe flight - OR - that have the potential of leading to disaster.

SUMMARY.

The Three Mental Processes of Safe Flight are:

1. AR...Automatic Reaction
2. PR...Problem Resolving
3. RR...Repeated Reviewing

AUTOMATIC REACTION is the mode of thinking that you use to maintain ongoing control of the aircraft and to respond to emergencies.

PROBLEM RESOLVING is the mode of thinking that you use to overcome undesirable situations by means of a systematic process.

REPEATED REVIEWING is the mode of thinking that keeps you constantly aware of all the factors that contribute to safe flight.

UNIT II

BEHAVIORAL ASPECTS OF JUDGMENT

This unit is designed to modify and to redirect your thinking in ways which will promote the consistent use of good judgment. This unit will teach you how to recognize and to eliminate hazardous thinking. It will also teach you about the role that stress plays in pilot judgment and how to more effectively manage your own stress levels.

LESSON 4

SELF-ASSESSMENT OF HAZARDOUS THOUGHT PATTERNS

INTRODUCTION.

In this unit you will learn the five hazardous thought patterns affecting pilot judgment. You will learn to understand these patterns as they apply to your own flying. You will also learn methods to remove your own hazardous thoughts and to reduce the effects of high stress.

As a first step, you are now to take a self-assessment inventory. This inventory will give you a personal insight for the following discussions and training. The information you gain is only for your own use. It is not intended to be shared with your flight instructor or anyone else.

INSTRUCTIONS: ASSESSMENT INVENTORY.

This assessment inventory asks you to decide why you, as a pilot, might have made certain decisions. Ten situations will be presented. Each will involve a flight decision. After each situation, you will find a list of five possible reasons for a decision. No "correct" answer is provided for any of the ten situations. You may indeed be correct in believing that a safe pilot would not choose any of the five alternatives.

First, remove the answer sheet, on page 4-9, from your manual.

Now read over each of the "Situation Questions" and the five choices. Decide which one is the most likely reason that you might make the choice that is described. Place a number 5 in the space provided on the answer sheet.

Continue by placing a number 4 by the next most probable reason, and so on, until you have filled in all five blanks with ratings of 5, 4, 3, 2 and 1.

When you have completed the first situation, continue to the second. Do all 10 situations and fill in each blank, even though you may disagree with the choices listed. Remember, there are no "correct" answers.

EXAMPLE:

__1__ a. (your least likely response)

__3__ b.

__5__ c. (your most likely response)

__2__ d.

__4__ e.

SITUATION QUESTIONS.

1. You are on a VFR flight to a small rural airport about which you know very little. Air Traffic Control suggests that you turn back since heavy cloud cover is moving into the destination airport area. The threatening weather will arrive about the time you expect to land and might limit visibility. You consider returning to your home base where visibility is still good. You decide to continue on as planned and, after some problems, land safely. Why do you reach this decision?

___ a. You hate to admit that you cannot complete your original flight plan.

___ b. You resent the controller's suggestion that you should change your mind.

___ c. You feel sure that things will turn out safely, that there is no danger.

___ d. You reason that since your actions would make no real difference, you might as well continue.

___ e. You feel the need to decide quickly so you take the simplest alternative.

2. While taxiing for takeoff, you notice that your right brake pedal is softer than the left. Once airborne, you are sufficiently concerned about the problem to radio for information. It is recommended that you abandon the flight since strong winds are reported at your destination. You chose to continue the flight and experience no further difficulties. Why do you continue?

___ a. You feel that suggestions made in this type of situation are usually overly cautious.

___ b. Your brakes have never failed before, so you doubt that they will go out this time.

___ c. You feel that you can leave the decision to the tower at your destination.

___ d. You immediately decide that you want to continue.

___ e. You are sure that if anyone could handle the landing, you can.

3. Your regular airplane has been grounded because of an engine problem. You are offered another airplane, and discover that it is a different type that you are not familiar with. You conduct a preflight inspection, and you decide to take off on your business trip as scheduled. What is your reasoning?

___ a. You feel that a difficult situation will not arise so there is no reason not to go.

___ b. You tell yourself that if there were any danger, you would not have been offered the plane.

___ c. You are in a hurry and do not want to take the time to think of alternate choices.

___ d. You do not want to admit that you may have trouble flying an unfamiliar airplane.

___ e. You are convinced that your flight instructor was much too conservative and pessimistic when he cautioned you to be thoroughly checked out in an unfamiliar aircraft.

4. You were briefed about icing conditions, but did not think there was any real problem since your home airport temperature was 60 degrees. Toward the end of the flight, you encounter severe icing, and your passenger begins to panic. You consider returning to your home airport but continue on instead. Why do you not return?

___ a. You feel that having come this far, things are out of your hands.

___ b. The panic of the passenger makes you commit yourself without thinking the situation over.

___ c. You do not want to appear afraid to the passenger.

___ d. You are determined not to let the passenger think she can influence what you do.

___ e. You cannot believe that the icing might cause your plane to crash in these circumstances.

5. You do not bother to check weather conditions at your destination. Enroute, you begin having problems with the altimeter. Your fuel supply is adequate to reach your destination, but there is almost no reserve for emergencies. You continue the flight and land with an almost dry tank. What most influenced you to do this?

___ a. Being unhappy with the pressure of having to choose what to do, you make a snap judgment.

___ b. You do not want your friends to hear that you had to turn back.

___ c. You feel that flight manuals always understate the safety margin in fuel tank capacity.

___ d. You believe that all things usually turn out well - this will be no exception.

___ e. You reason that the situation has already been determined because the destination is closer than any other airport.

6. Piloting a small aircraft, you are forty minutes late. As you walk to your airplane, you decide to skip most of the preflight check, since the aircraft handled well on the last leg of the flight. What leads you to this decision?

___ a. You simply take the first approach to making up time that comes to mind.

___ b. You feel that your reputation for being on time demands that you cut corners when necessary.

___ c. You believe that some of the preflight inspection is unnecessary, just a waste of time.

___ d. You see no reason to think that something unfortunate will happen during this flight.

___ e. If any problems develop, the responsibility would not be yours. It is the maintenance of the airplane that really makes the difference anyway.

7. You are to fly an aircraft which you realize is old and has been poorly maintained. A mechanic tells you that the spark plugs are in only fair condition and suggests cancelling the flight. Your friends, who are travelling as passengers, protest. They do not want to be delayed. After five minutes of debate, you agree to make the trip. Why would you permit yourself to be persuaded?

___ a. You feel that you must always prove your ability as a pilot, even under less than ideal circumstances.

___ b. You believe that regulations overstress safety in this kind of situation.

___ c. You think that the spark plugs will certainly last for just one more flight.

___ d. You feel that your opinion may be wrong since all the passengers are willing to take the risk.

___ e. The thought of changing arrangements is too annoying, so you jump at the suggestion of the passengers.

8. You are on final approach when you notice a large object lying on the far end of the runway. You are not sure what it is and consider coming around again. Your friend suggests landing anyway since the runway is "plenty long enough." You land, stopping at least 200 feet short of the obstacle. Why do you agree to land?

___ a. You have never had a major accident, so you feel that nothing will happen this time.

___ b. You are pleased to have someone else help with the decision and decide your friend is right.

___ c. You do not have much time, so you just go ahead and act on your friend's suggestion.

___ d. You want to show your friend that you can stop the plane as quickly as needed.

___ e. You feel that the regulations making the pilot always responsible for the safe operation of the aircraft do not apply here since it is the airport's responsibility to maintain the runway.

9. You are landing at an uncontrolled airport, and you have just completed your base leg for a landing on runway 14. As you turn on final, you see that the wind has changed to about 90°. You make two sharp turns and land on runway 11. What is your reasoning?

___ a. You believe you are a really good pilot who can safely make the sudden maneuvers.

___ b. You believe your flight instructor was overly cautious when insisting that a pilot must go around rather than make sudden course changes while on final approach.

___ c. You know there would be no danger in making the sudden turns because you do things like this all the time.

___ d. You know landing into the wind is best, so you act as soon as you can to avoid a crosswind landing.

___ e. The unexpected wind change is a bad break, but you figure if the wind can change, so can you.

10. You have flown into your destination airfield only in daylight hours but believe that you know it well. You learn that your airplane needs a minor repair which will delay your arrival until well after dark. Although a good portion of the flight is over water, you feel that you should be able to recognize some of the lighted landmarks. Why do you decide to make the flight?

___ a. You believe that when your time comes you cannot escape, and until that time there is no need to worry.

___ b. You do not want to wait to study other options, so you carry out your first plan.

___ c. You feel that if anyone can handle this problem, you can do it.

___ d. You believe that the repair is not necessary. You decide you will not let recommended, but minor maintenance stop you from getting to your destination.

___ e. You simply do not believe that you could get off course despite the flight over water and your unfamiliarity with the night ground references.

SCORING INSTRUCTIONS.

Now that you have completed taking the inventory, the next step is scoring it to develop your own hazardous thought profile. You will need to use your answer sheet (page 4-9), the scoring keys on pages 4-11 thru 4-15, and the profile graph on page 4-16.

1. Take your answer sheet and fold it at the places indicated. The extra paper on the right and left margins folds behind the center "Answer Sheet" section.

2. Place the left side of the answer sheet on top of the first scoring key (Anti-Authority, page 4-11). Position the answer sheet so that it is lined up with the scoring key blanks for question numbers 1 thru 5. Add the numbers written on your answer sheet which appear next to the x's on the answer key.

3. When you have done this for questions 1 thru 5, move the answer sheet so that its right edge now lines up with the answer key blanks for question numbers 6 thru 10. Use the total for questions 1 thru 5, and continue adding the numbers next to the x's for questions 6 thru 10.

4. Write this sum for the 10 answers from the scoring key on the top of the profile graph (page 4-16).

5. Repeat this procedure for all five scoring keys. Each time add the total of the ten numbers on the answer sheet next to the x's on the scoring key. Transfer each total to the appropriate blank at the top of the profile graph.

See figure 4-10 for an example of the use of the scoring key.

Fold this margin back from here

Fold this margin back from here

ANSWER SHEET

1. a. ___
   b. ___
   c. ___
   d. ___
   e. ___

2. a. ___
   b. ___
   c. ___
   d. ___
   e. ___

3. a. ___
   b. ___
   c. ___
   d. ___
   e. ___

4. a. ___
   b. ___
   c. ___
   d. ___
   e. ___

5. a. ___
   b. ___
   c. ___
   d. ___
   e. ___

6. a. ___
   b. ___
   c. ___
   d. ___
   e. ___

7. a. ___
   b. ___
   c. ___
   d. ___
   e. ___

8. a. ___
   b. ___
   c. ___
   d. ___
   e. ___

9. a. ___
   b. ___
   c. ___
   d. ___
   e. ___

10. a. ___
    b. ___
    c. ___
    d. ___
    e. ___

FIGURE 4-1
EXAMPLE OF SCORING KEY USE

ANSWER SHEET ANTI-AUTHORITY		SCORING KEY:	
1.	a. ____	1.	a. 4
	b. x		b. 3
	c. ____		c. 1
	d. ____		d. 5
	e. ____		e. 2
2.	a. ____	2.	a. 3
	b. ____		b. 2
	c. ____		c. 5
	d. x		d. 1
	e. ____		e. 4

3 (number next to "x" on scoring key at 1-b)
+1 (number next to "x" on scoring key at 2-d)
+...(numbers next to "x's" for questions 3-10)
= total of all 10 numbers next to x's.

Transfer this total to the "ANA" blank at the top of the profile graph, page 4-16.

ANSWER KEY
ANTI-AUTHORITY

1. a. ___
   b. x
   c. ___
   d. ___
   e. ___

2. a. x
   b. ___
   c. ___
   d. ___
   e. ___

3. a. ___
   b. ___
   c. ___
   d. ___
   e. x

4. a. ___
   b. ___
   c. ___
   d. x
   e. ___

5. a. ___
   b. ___
   c. x
   d. ___
   e. ___

6. a. ___
   b. ___
   c. x
   d. ___
   e. ___

7. a. ___
   b. x
   c. ___
   d. ___
   e. ___

8. a. ___
   b. ___
   c. ___
   d. ___
   e. x

9. a. x
   b. ___
   c. ___
   d. ___
   e. ___

10. a. ___
    b. ___
    c. ___
    d. x
    e. ___

ANSWER KEY
IMPULSIVITY

1. a. ___
   b. ___
   c. ___
   d. ___
   e. x

2. a. ___
   b. ___
   c. ___
   d. x
   e. ___

3. a. ___
   b. ___
   c. x
   d. ___
   e. ___

4. a. ___
   b. x
   c. ___
   d. ___
   e. ___

5. a. x
   b. ___
   c. ___
   d. ___
   e. ___

6. a. x
   b. ___
   c. ___
   d. ___
   e. ___

7. a. ___
   b. ___
   c. ___
   d. ___
   e. x

8. a. ___
   b. ___
   c. x
   d. ___
   e. ___

9. a. ___
   b. ___
   c. ___
   d. x
   e. ___

10. a. ___
    b. x
    c. ___
    d. ___
    e. ___

ANSWER KEY
INVULNERABILITY

1. a. ___
   b. ___
   c. x
   d. ___
   e. ___

2. a. ___
   b. x
   c. ___
   d. ___
   e. ___

3. a. x
   b. ___
   c. ___
   d. ___
   e. ___

4. a. ___
   b. ___
   c. ___
   d. ___
   e. x

5. a. ___
   b. ___
   c. ___
   d. x
   e. ___

6. a. ___
   b. ___
   c. ___
   d. x
   e. ___

7. a. ___
   b. ___
   c. x
   d. ___
   e. ___

8. a. x
   b. ___
   c. ___
   d. ___
   e. ___

9. a. ___
   b. x
   c. ___
   d. ___
   e. ___

10. a. ___
    b. ___
    c. ___
    d. ___
    e. x

ANSWER KEY
MACHO

1. a. x
   b. ___
   c. ___
   d. ___
   e. ___

2. a. ___
   b. ___
   c. ___
   d. ___
   e. x

3. a. ___
   b. ___
   c. ___
   d. x
   e. ___

4. a. ___
   b. ___
   c. x
   d. ___
   e. ___

5. a. ___
   b. x
   c. ___
   d. ___
   e. ___

6. a. ___
   b. x
   c. ___
   d. ___
   e. ___

7. a. x
   b. ___
   c. ___
   d. ___
   e. ___

8. a. ___
   b. ___
   c. ___
   d. x
   e. ___

9. a. ___
   b. ___
   c. ___
   d. ___
   e. x

10. a. ___
    b. ___
    c. x
    d. ___
    e. ___

ANSWER KEY
EXTERNAL CONTROL

1. a. ___
   b. ___
   c. ___
   d. x
   e. ___

2. a. ___
   b. ___
   c. x
   d. ___
   e. ___

3. a. ___
   b. x
   c. ___
   d. ___
   e. ___

4. a. x
   b. ___
   c. ___
   d. ___
   e. ___

5. a. ___
   b. ___
   c. ___
   d. ___
   e. x

6. a. ___
   b. ___
   c. ___
   d. ___
   e. x

7. a. ___
   b. ___
   c. ___
   d. x
   e. ___

8. a. ___
   b. x
   c. ___
   d. ___
   e. ___

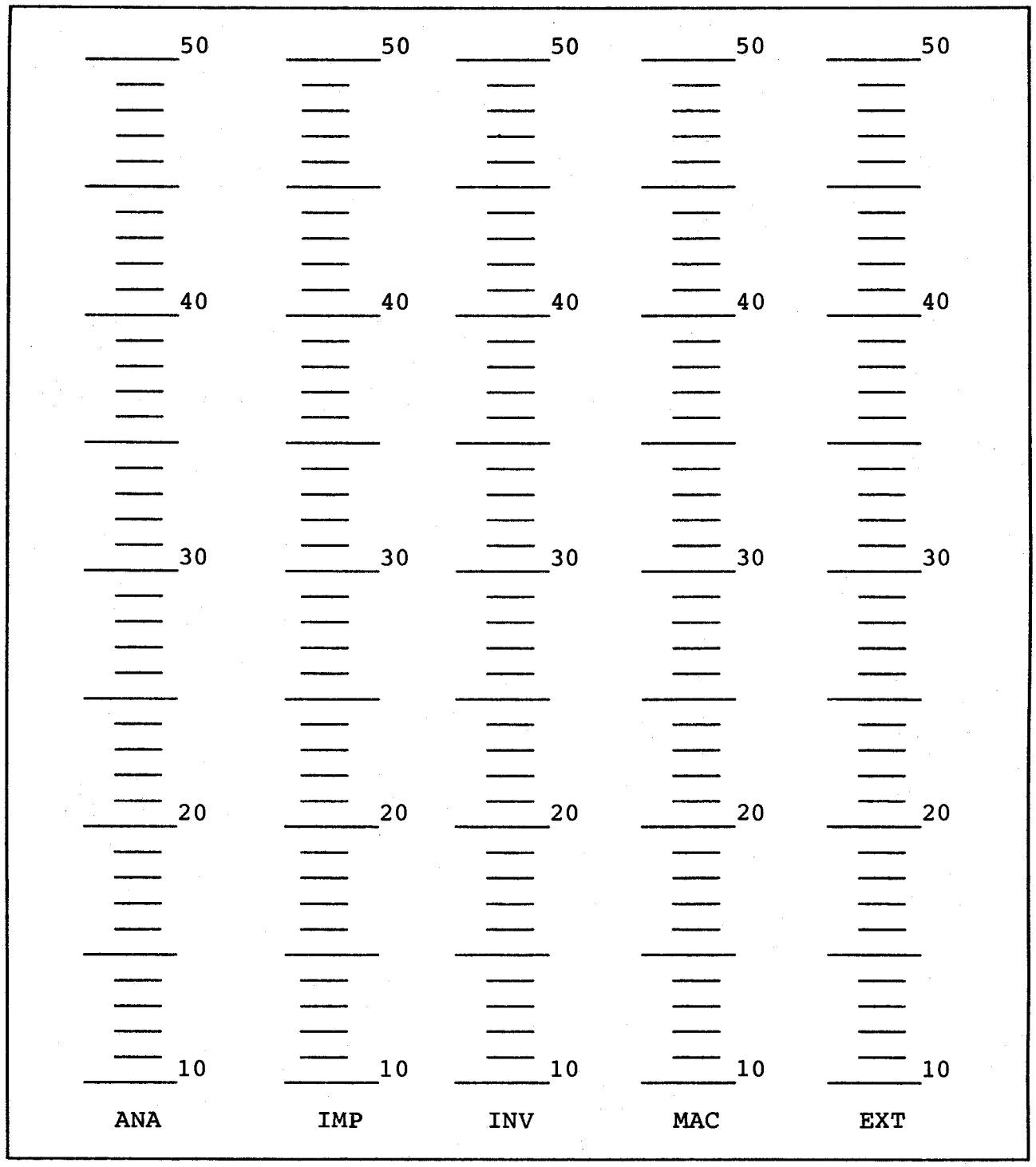
9. a. ___
   b. ___
   c. x
   d. ___
   e. ___

10. a. x
    b. ___
    c. ___
    d. ___
    e. ___

PROFILE GRAPH

I. Enter the raw score obtained from each scoring key in the correct blank space below. The sum of the five scores should equal 150. If it does not, go back and check your work.
ANA _____; IMP _____; INV _____; MAC _____; EXT _____

II. Now look at the profile form shown below. Notice that there are five vertical lines; one for each of the raw scores shown above. Place a mark on each line at the height that matches your score. Now draw lines connecting the five marks.



PROFILE EXPLANATION.

You now have a profile which indicates the comparative strength of each of five hazardous thought patterns for you right now. (Remember, these scores are confidential and need not be divulged to anyone.)

Let us begin the explanation of your profile by setting up a short description of an all-too-common flight situation.

> A pilot of a single engine airplane checks the weather and notes that there is a strong possibility of a thunderstorm at his destination airport. He has never operated an aircraft in bad weather. He knows that his flight instructor would advise him not to fly in the weather. Despite this, he takes off, crashes his airplane, and nearly kills himself.

Why does this type of situation develop so often? This is because many accidents involve pilots who allow themselves to be influenced by one or more of five basic thoughts: hazardous thoughts which get pilots into trouble by causing them to take chances and invite accidents. These five hazardous thoughts are the ones recorded on the assessment inventory which you just completed. Each hazardous thought is defined and described below.

> ANA -- ANTI-AUTHORITY: "Don't tell me!"
>
> This thought is found in people who do not like anyone telling them what to do. They think, "Don't tell me!" In a sense, they are saying, "No one can tell me what to do." The person who thinks "Don't tell me," may either be resentful of having someone tell him or her what to do, or may just regard rules, regulations, and procedures as silly or unnecessary.
>
> EXT -- EXTERNAL CONTROL: "What's the use?"
>
> Some people think, "What's the use?" These are people who do not see themselves as making a great deal of difference in what happens to them. When things go well, they think, "That's good luck." When things go badly, they think that it is either bad luck or that someone is out to get them. They do not take action. They leave action to others - for better or worse.

IMP -- IMPULSIVITY: "Do something -- quickly!"

This is the thought pattern of persons who feel the need to do something -- anything! They think to themselves, "Do something -- quickly!" They do not stop to think about what they are about to do; they do not examine a set of alternatives then select the best one -- they just do the first thing that comes to mind.

INV -- INVULNERABILITY: "It won't happen to me!"

This thought is "It won't happen to me!" It is easy for these people to think that accidents happen to others but never to them. The chance of possible misfortune seems remote to these people. They know disasters do exist; they know that anyone can be affected -- yet they know this only "in their heads." They never really feel or believe that they will be affected. Pilots who think this way are more apt to take chances and run unwise risks, thinking all the time, "It won't happen to me!"

MAC -- MACHO: "I can do it."

These people are always trying to prove that they are better than anyone else. They think, "I can do it!" They prove themselves by taking risks and by trying to impress others. While this pattern is thought to be a characteristic of male thinking, women may be equally susceptible to this thought pattern.

CONCLUSION.

If you have not already done so, look back at your profile and see which hazardous thoughts matched your own thinking most strongly at the time you answered the questions. The inventory does not show how often you use these thoughts. What it does show is which ones you tend to use when your judgment becomes influenced by hazardous thought patterns. You should be aware that sometimes the hazardous thoughts may overlap each other and run together. But the less often you allow yourself to engage in hazardous thinking, the better pilot you become, and the higher your chances of survival are. Whether you have these thoughts often or only rarely, it is well worth learning to identify them so that you can rid yourself of the hazardous thinking as quickly as possible. In lessons 5 through 9 you will work on all five hazardous thoughts; pay particular attention to the ones on which you scored the highest.

LESSONS 5 THROUGH 9 ARE TO BE COMPLETED AS SOON AS POSSIBLE AFTER YOU HAVE FINISHED THE SELF-ASSESSMENT PROFILE.

LESSON 5

DIRECTIONS FOR STUDY OF LESSONS 5-9

In lessons 5 through 9, you will find a series of situations. At the end of each situation, you will be asked to select which alternative best illustrates the reactions of a pilot who is thinking a particular hazardous thought. When you select the alternative which you believe best illustrates a pilot reaction, you will be directed to turn to a particular page in the workbook. Do this immediately. This page will tell you if your answer is correct or incorrect. If you answer correctly, you will be directed to the next situation. If you answer incorrectly you will be told why; and you will be then directed to try again: go back to the situation and select another alternative.

YOU ARE TO KEEP SELECTING ALTERNATIVES UNTIL YOU SELECT THE CORRECT ONE. Do not be concerned if you select a wrong alternative. You will learn something from the feedback given to you. The lessons are deliberately repetitious - it gets easier as you go along.

These lessons are designed to help you identify and understand the hazardous thoughts, and to see how they can influence a pilot's reaction to situations calling for judgment. After completing these exercises, you will better understand each hazardous thought and its effect on pilot actions.

THE ANTI-AUTHORITY HAZARDOUS THOUGHT

SITUATION ONE.

You do not conduct a thorough preflight check. On takeoff you notice that the air speed indicator is not working. Your passenger feels strongly that you should discontinue the flight and return to the airfield because the airplane is defective. You then become upset with your friend. Which of the following alternatives best illustrates the ANTI-AUTHORITY reaction?

a. You tell off your passenger for butting in. (Turn to page 5-5).

b. You start banging the indicator to get it working. (Turn to page 5-5).

c. You think that the preflight check is something thought up by bureaucrats just to waste a pilot's time. (Turn to page 5-6).

d. You tell the passenger that nothing dangerous will happen on the flight. (Turn to page 5-6).

e. Your passenger continues to become more upset but you do nothing, because you feel there is no use trying to calm down the fellow. (Turn to page 5-7).

SITUATION TWO.

On your approach to an airport, you are somewhat confused since the runway is only partially lighted. You are not sure if this is the airfield at which you intend to land. The surrounding buildings do not look that familiar, but it has been over a year since your last visit to the airfield. A much larger, more familiar airfield is 15 miles away. Which of the following alternatives best illustrates the ANTI-AUTHORITY reaction?

a. You decide to land anyway, thinking, "Of course I can handle the situation." (Turn to page 5-5).

b. Rather than get confused thinking about options, you decide to land to get the flight over with. (Turn to page 5-5).

c. You feel nothing will happen since you have gotten out of similar jams before. (Turn to page 5-6).

d. You decide to land since you feel that "somebody up there" is protecting you. (Turn to page 5-7).

e. You decide to land reasoning that FAA regulations do not really apply in this situation. (Turn to page 5-7).

SITUATION THREE.

On your final approach, you fly into patches of ground fog which severely limit visibility. Altitude is 150 feet and you debate whether you can level off at the correct height and land properly, or whether you should abort the approach. Which of the following alternatives best illustrates the ANTI-AUTHORITY reaction?

a. You think the rules which indicate you should abort the approach are much too rigid. (Turn to page 5-5).

b. You feel that the situation presents a challenge and decide to make the landing. (Turn to page 5-6).

c. You begin immediately to level off and say, "To heck with the fog." (Turn to page 5-6).

d. You continue, feeling that the decision has already been made. (Turn to page 5-7).

e. You say to yourself, "I'm going in because nothing is going to happen." (Turn to page 5-7).

Situation one - alternative a

By acting in a superior, bossy way, you are being macho. You are thinking, "I can do it." Go back to page 5-2 and select another alternative.

Situation two - alternative a

Thinking that you can handle the situation even when there is reason to be concerned is an example of the macho hazardous thought, "I can do it." Go back to page 5-3 and select another alternative.

Situation three - alternative a

Yes. You are correct. Regarding the rules as too rigid, illustrates the anti-authority hazardous thought, "Don't tell me." Go on to the next lesson as the directions indicate.

Situation one - alternative b

By becoming upset and banging the air speed indicator, and by not thinking about the situation, you are being impulsive, thinking "Do something - quickly!" Go back to page 5-2 and select another alternative.

Situation two - alternative b

This is the hazardous thought of impulsivity: "Do something - quickly!" Go back to page 5-3 and select another alternative.

Situation three - alternative b

Seeing a situation as a challenge, as a time to prove oneself instead of as a problem to be solved, is an illustration of the macho hazardous thought, "I can do it." Go back to page 5-4 and select another alternative.

Situation one - alternative c

Absolutely correct! Looking on rules and procedures as just a "waste of time" instead of taking them seriously is an indication of the anti-authority hazardous thought, "Don't tell me." Go on to situation two, page 5-3.

Situation two - alternative c

Anyone who thinks that nothing will happen to him, especially when he is in a problem situation, is illustrating the hazardous thought of invulnerability, "It won't happen to me." Go back to page 5-3 and select another alternative.

Situation three - alternative c

This quick decision without any real thinking of the alternatives or consequences illustrates the hazardous thought, "Do something - quickly!" It is an example of a pilot who is impulsive. Go back to page 5-4 and select another alternative.

Situation one - alternative d

Thinking that nothing will happen to you illustrates the hazardous thought of invulnerability, "It won't happen to me." Go back to page 5-2 and select another alternative.

Situation two - alternative d

The belief that "somebody up there is watching" means that the pilot expects the outcome to be decided totally by that "somebody" - he leaves himself out of the process. That is the hazardous thought of external control, "What's the use?" Go back to page 5-3 and select another alternative.

Situation three - alternative d

The belief that a decision has already been made, with the implication that you can do nothing about it, is an example of thinking, "What's the use?" - the hazardous thought of external control. Go back to page 5-4 and select another alternative.

Situation one - alternative e

By assuming that what you do has no effect on the copilot, the pilot is illustrating the external control hazardous thought, "What's the use?" Go back to page 5-2 and select another alternative.

Situation two - alternative e

Well done. Disregarding regulations - not taking them seriously - is the anti-authority hazardous thought, "Don't tell me". Go on to situation three, page 5-4.

Situation three - alternative e

The belief that "nothing is going to happen" is the hazardous thought of invulnerability. Go back to page 5-4 and select another alternative.

LESSON 6

THE EXTERNAL CONTROL HAZARDOUS THOUGHT

(Directions for study of this lesson appear on page 5-1)

SITUATION ONE.

You are quite determined to arrive at your destination by 3 p.m. If you stay on your predetermined course, you will just about make it, assuming there are no problems. Or, you can take an unauthorized route which will get you there at 2:30. If you choose the unauthorized route, it means you must fly through fog conditions. Good weather conditions prevail over the regular route. Which of the following alternatives best illustrates the EXTERNAL CONTROL reaction?

a. You take the unauthorized route believing that authorization does not apply in this situation. (Turn to page 6-4).

b. You take the unauthorized route, thinking that flying through the fog will not cause any trouble for this flight. (Turn to page 6-4).

c. You feel it will be a real victory for you if you can take the unauthorized route and arrive by 2:30 p.m. (Turn to page 6-5).

d. You tell yourself that there is no sense sticking to the scheduled route because, "there's nothing else to do to be sure to make it by 3 p.m." (Turn to page 6-5).

e. You quickly choose the unauthorized route, deciding that you just must get there on time. (Turn to page 6-6).

SITUATION TWO.

The weather briefing advises you of possible difficult weather conditions at your destination. You elect to go. You then encounter a brief snowstorm and increasingly poor visibility. You have plenty of fuel to turn back but have a hunch that the weather will improve before you reach your destination. Which of the following alternatives best illustrates the EXTERNAL CONTROL reaction?

a. You feel there is no need to worry about the weather since there is nothing one can do about it. (Turn to page 6-4).

b. You decide to continue, and block the weather conditions out of your mind. (Turn to page 6-4).

c. You feel nothing will happen to you since you have plenty of fuel. (Turn to page 6-5).

d. You think to yourself that the weather people are always complicating your flights and sometimes, such as now, it is best to ignore them. (Turn to page 6-6).

e. You fly on, determined to prove that your own weather judgment is sound. (Turn to page 6-6).

SITUATION THREE.

On your final approach, you fly into patches of ground fog which severely limit visibility. Altitude is 150 feet and you debate whether you can level-off at the correct height and land properly, or whether you should abort the approach. Which of the following alternatives best illustrates the EXTERNAL CONTROL reaction?

a. You think the rules which indicate you should abort the approach are much too rigid. (Turn to page 6-4).

b. You feel that the situation presents a challenge and that you are going to make the landing. (Turn to page 6-5).

c. You begin immediately to level off saying, "To heck with the fog." (Turn to page 6-5).

d. You continue, feeling that the decision has already been made. (Turn to page 6-6).

e. You say to yourself, "I'm going in because nothing is going to happen." (Turn to page 6-6).

Situation one - alternative a

Seeing the lack of authorization as not applying to you is a good example of the hazardous thought of anti-authority. Rules do not apply to me: "Don't tell me." Go back to page 6-1 and select another alternative.

Situation two - alternative a

Correct! Well done! If you decide that there is nothing that you can do about the situation, this is the hazardous thought of external control. People who think this way say to themselves, "What's the use?" Go on to situation three, page 6-3.

Situation three - alternative a

By regarding the rules as too rigid, you are acting on the anti-authority hazardous thought, "Don't tell me." Go back to page 6-3 and select another alternative.

Situation one - alternative b

This illustrates the hazardous thought of invulnerability: "It won't happen to me." Go back to page 6-1 and select another alternative.

Situation two - alternative b

When you block thoughts from your mind and decide to go on without considering the consequences, your thinking is, "Do something - quickly!" and this is impulsivity. Go back to page 6-2 and select another alternative.

Situation three - alternative b

Seeing a situation as a challenge, as a time to prove yourself instead of as a problem to be solved, is an illustration of the macho hazardous thought, "I can do it." Go back to page 6-3 and select another alternative.

Situation one - alternative c

Trying for a victory means you are trying to prove yourself better than others. It means making this a personal challenge rather than a problem to be solved with care. This illustrates the macho hazardous thought. "I can do it." Go back to page 6-1 and select another alternative.

Situation two - alternative c

Having plenty of fuel does not mean that nothing will happen to you. This illustrates the hazardous thought of invulnerability: "It won't happen to me." Go back to page 6-2 and select another alternative.

Situation three - alternative c

A quick decision without any real thinking through of the alternatives or consequences illustrates the hazardous thought, "Do something - quickly!" It is an example of a pilot who is impulsive. Go back to page 6-3 and select another alternative.

Situation one - alternative d

Correct! Well done! Thinking that there is nothing you can do is an illustration of the hazardous thought of external control: "What's the use?" Go on to situation two, page 6-2.

Situation two - alternative d

Having no respect for authority (the weather people) and disregarding their advice illustrates the hazardous thought of anti-authority: "Don't tell me." Go back to page 6-2 and select another alternative.

Situation three - alternative d

Nice job! You are correct in indicating that when you believe that a decision has already been made, that you can do nothing more about it, is an example of thinking, "What's the use?" - the hazardous thought of external control. Go on to the next lesson as the directions indicate.

Situation one - alternative e

A quick decision, without careful thought or consideration of the consequences, illustrates impulsivity: "Do something - quickly!" Go back to page 6-1 and select another alternative.

Situation two - alternative e

When a pilot tries to show how good he is, instead of taking careful action, he is being macho and thinking, "I can do it." Go back to page 6-2 and select another alternative.

Situation three - alternative e

The belief that "nothing is going to happen" is the hazardous thought of invulnerability. Go back to page 6-3 and select another alternative.

LESSON 7

THE IMPULSIVITY HAZARDOUS THOUGHT

(Directions for study of this lesson appear on page 5-1)

SITUATION ONE.

Visibility is just over three miles with a 1,100 foot ceiling in snow and sleet. Earlier you cleared the fuselage of accumulated snow, but takeoff has been delayed for 15 minutes due to traffic. You notice that snow and ice are forming again and wonder if you will be able to lift off. Which of the following alternatives best illustrates the IMPULSIVITY reaction?

a. You feel there is no use getting out and cleaning it since it is only going to form again. (Turn to page 7-4).

b. You believe that you can take off in these conditions and you think how impressed your friends will be when they hear of it. (Turn to page 7-4).

c. You take off immediately, thinking that any further delay will worsen the problem. (Turn to page 7-5).

d. You reason that you can do it because many other pilots you know have done so and nothing happened to them. (Turn to page 7-5).

e. You resent being delayed 15 minutes and decide you are not going to clear the snow and ice again for anybody. (Turn to page 7-6).

SITUATION TWO.

You are quite determined to arrive at your destination by 3 p.m. If you stay on your predetermined course, you will just about make it, assuming there are no problems. Or, you can take an unauthorized route which will get you there at 2:30. If you choose the unauthorized route, it means you must fly through fog conditions. Good weather conditions prevail over the regular route. Which of the following alternatives best illustrates the IMPULSIVITY reaction?

a. You take the unauthorized route believing that authorization does not apply in this situation. (Turn to page 7-4).

b. You take the unauthorized route, thinking that flying through the fog will not cause any trouble for this flight. (Turn to page 7-4).

c. You feel it will be a real victory for you if you can take the unauthorized route and arrive by 2:30 p.m. (Turn to page 7-5).

d. You tell yourself that there is no sense sticking to the scheduled route because, "there's nothing else to do to be sure to make it by 3 p.m." (Turn to page 7-6).

e. You quickly choose the unauthorized route, deciding that you just must get there on time. (Turn to page 7-6).

SITUATION THREE.

The weather forecast called for freezing rain. During the flight, you notice that ice is beginning to accumulate on the aircraft's wings. You are not sure what to do. You have never encountered this problem before. You are tempted to do nothing since the airplane is still flying well. A passenger suggests that you might radio for information. Which of the following alternatives best illustrates the IMPULSIVITY reaction?

a. You feel that there probably will not be any difficulty since you have always come out of difficult situations rather well. (Turn to page 7-4).

b. You feel that there is nothing you can really do because radio information won't change the weather conditions. (Turn to page 7-5).

c. You quickly tell the passenger to stop butting in. (Turn to page 7-5).

d. You tell the passenger that you are the boss and will handle the problem your way. (Turn to page 7-6).

e. You radio for information, but decide to ignore the advice since the airplane continues to fly well. (Turn to page 7-6).

Situation one - alternative a

When a pilot does not see himself as affecting what happens, he is illustrating the hazardous thought of external control and thinks, "What's the use?" Go back to page 7-1 and select another alternative.

Situation two - alternative a

Seeing the lack of authorization as not applying to you is a good example of the hazardous thought of anti-authority. Rules do not apply to me; "Don't tell me." Go back to page 7-2 and select another alternative.

Situation three - alternative a

Thinking that since nothing has ever happened before, nothing will happen to you in the future is the invulnerability hazardous thought. Go back to page 7-3 and select another alternative.

Situation one - alternative b

This is the hazardous thought of macho: "I can do it." Go back to page 7-1 and select another alternative.

Situation two - alternative b

Thinking that you are exempt from danger and that nothing will happen, is the hazardous thought of invulnerability; "It won't happen to me." Go back to page 7-2 and select another alternative.

Situation three - alternative b

You have decided nothing you do will make any difference. You do not even try. Such a person is thinking, "What's the use?" and is illustrating the external control hazardous thought. Go back to page 7-3 and select another alternative.

Situation one - alternative c

Right! You take off immediately. No thinking, no planning, no looking ahead. Action without thought illustrates the hazardous thought, "Do something - quickly!" This is impulsivity. Go on to situation two, page 7-2.

Situation two - alternative c

Trying for a victory means trying to prove you are better than others. It means making this a personal challenge rather than a problem to be solved with care. This illustrates the macho hazardous thought; "I can do it." Go back to page 7-2 and select another alternative.

Situation three - alternative c

Correct! The clue here is the word, "quickly." You act without thinking and that is impulsivity. "Do something - quickly!" Go on to the next lesson as the directions indicate.

Situation one - alternative d

When you think, "Nothing happened to them," you are really saying, "There is really no chance of an accident. It won't happen to me." That is the hazardous thought of invulnerability. Go back to page 7-1 and select another alternative.

Situation two - alternative d

Thinking that there is nothing you can do means that you feel helpless in the situation and expect that anything you do will make no difference. This is an illustration of the hazardous thought of external control: "What's the use?" Go back to page 7-2 and select another alternative.

Situation three - alternative d

This tendency to say, "We'll do it my way," is a good indication of the macho hazardous thought, "I can do it." Go back to page 7-3 and select another alternative.

Situation one - alternative e

Pilots who resent using appropriate safety procedures because they are prescribed by some authority are illustrating the anti-authority hazardous thought, "Don't tell me." Go back to page 7-1 and select another alternative.

Situation two - alternative e

You got it! A quick decision, without careful thought or consideration of the consequences, illustrates impulsivity: "Do something - quickly!" Go on to situation three, page 7-3.

Situation three - alternative e

Those who are in danger and ignore advice from a qualified source certainly do not take authority seriously. This illustrates the anti-authority hazardous thought of "Don't tell me." Go back to page 7-3 and select another alternative.

LESSON 8

THE INVULNERABILITY HAZARDOUS THOUGHT

(Directions for study of this lesson appear on page 5-1)

SITUATION ONE.

You are making a pleasure flight with four friends, all of whom are drinking. You refuse to drink, but your friends remind you that you have flown this route many times, and that the weather conditions are excellent. They are beginning to mock you for not drinking with them. Which of the following alternatives best illustrates the INVULNERABILITY reaction?

a. You decide to drink, thinking that a little liquor will not have any bad effect on you. (Turn to page 8-4).

b. You believe that the Federal Aviation Administration (FAA) is far too rigid in its policy about drinking. (Turn to page 8-4).

c. You resent your friends' insults and start drinking, saying to yourself, "I'll show them." (Turn to page 8-5).

d. You bend to their will saying to yourself, "If my time is up, it's up whether I drink or not." (Turn to page 8-5).

e. You suddenly decide to down a drink or two yourself. (Turn to page 8-6).

SITUATION TWO.

Weather and visibility are poor and the control tower advises you to land on a runway other than the one you prefer. You see larger airplanes using your preferred runway and wonder why you have been denied permission. Since the recommended runway is on the far side of the airport, you radio the tower and ask for a reconsideration. Which of the following alternatives best illustrates the INVULNERABILITY reaction?

a. Before you receive a reply, you start making your approach on the unauthorized runway. (Turn to page 8-4).

b. You feel that if other pilots can land their airplanes, so can you. (Turn to page 8-4).

c. You think that nothing dangerous will occur because the weather conditions are not really that bad. (Turn to page 8-5).

d. Regardless of what the tower tells you, you are going to do what you want to. (Turn to page 8-6).

e. You figure there is no sense in waiting for instructions because the tower is going to do whatever it pleases, regardless of your wishes. (Turn to page 8-6).

SITUATION THREE.

The weather briefing advises you of possible difficult weather conditions at your destination. You elect to go. You then encounter a brief snowstorm and increasingly poor visibility. You have plenty of fuel to turn back but have a hunch that the weather will improve before you reach your destination. Which of the following alternatives best illustrates the INVULNERABILITY reaction?

a. You feel there is no need to worry about the weather since there is nothing one can do about it. (Turn to page 8-4).

b. You decide to continue, and block the weather conditions out of your mind. (Turn to page 8-5).

c. You feel nothing will happen to you since you have plenty of fuel. (Turn to page 8-5).

d. You think to yourself that the weather people are always complicating your flights and sometimes, such as now, it is best to ignore them. (Turn to page 8-6).

e. You fly on, determined to prove that your own weather judgment is sound. (Turn to page 8-6).

Situation one - alternative a

Very good. Correct. Liquor affects everybody. A pilot who believes that it will not affect him considers himself invulnerable - he thinks, "It won't happen to me." Go on to situation two, page 8-2.

Situation two - alternative a

By rushing into action without waiting for a reply, and without thinking about it, your thinking represents impulsivity. Go back to page 8-2 and select another alternative.

Situation three - alternative a

Deciding that there is nothing that you can do about the situation illustrates the hazardous thought of external control. People who think this way say to themselves, "What's the use?" Go back to page 8-3 and select another alternative.

Situation one - alternative b

Regarding the authority of the FAA as too rigid is one way of thinking, "They really aren't to be taken seriously. Those rules are much more strict than they need to be, so I can disregard them." That is the hazardous thought of anti-authority and reflects the "Don't tell me" attitude. Go back to page 8-1 and select another alternative.

Situation two - alternative b

Your thinking that you can do anything that they can do is like saying, "I can do it," in an effort to prove yourself. This is a macho response. Go back to page 8-2 and select another alternative.

Situation three - alternative b

When you block thoughts from your mind and decide to go on without considering the consequences, your thinking is, "Do something - quickly!" which is impulsivity. Go back to page 8-3 and select another alternative.

Situation one - alternative c

The desire to show somebody how great you are, the need to prove yourself, represents the macho hazardous thought, "I can do it." Go back to page 8-1 and select another alternative.

Situation two - alternative c

You are correct! The tower is concerned about the weather. The fact that you are not and the fact that you feel that there is nothing to worry about, is a sign of thinking, "It won't happen to me." That is the hazardous thought of invulnerability. Go on to situation three, page 8-3.

Situation three - alternative c

Right! Good reasoning! Having plenty of fuel does not mean that nothing will happen. This illustrates the hazardous thought of invulnerability: "It won't happen to me." Go on to the next lesson as the directions indicate.

Situation one - alternative d

This indicates that you are thinking what will happen is determined by fate, that you have nothing to do with it. That is a belief in external control. Go back to page 8-1 and select another alternative.

Situation two - alternative d

That is an anti-authority response: "I'll do what I want to do, regardless of what the authority says. "Don't tell me." Go back to page 8-2 and select another alternative.

Situation three - alternative d

The pilot who has no respect for authority (the weather people) and disregards their advice thinking they are just complicating his flight illustrates the hazardous thought of anti-authority: "Don't tell me." Go back to page 8-3 and select another alternative.

Situation one - alternative e

The sudden decision to drink, omitting any serious thinking about the situation, is an example of the hazardous thought of impulsivity: "Do something - quickly!" Go back to page 8-1 and select another alternative.

Situation two - alternative e

Thinking that nothing you do will make any difference is thinking in terms of external control: "What's the use?" Go back to page 8-2 and select another alternative.

Situation three - alternative e

When a pilot tries to show how good he or she is, instead of taking careful action, the pilot is being macho and thinking, "I can do it." Go back to page 8-3 and select another alternative.

LESSON 9

THE MACHO HAZARDOUS THOUGHT

(Directions for study of this lesson appear on page 5-1)

SITUATION ONE.

Visibility is just over three miles with a 1,100 foot ceiling in blowing snow. Earlier you cleared the fuselage of snow, but takeoff has been delayed for 15 minutes due to traffic. Snow and ice are forming again and you wonder if you will be able to lift off. Which of the following alternatives best illustrates the MACHO reaction?

a. You feel there is no use getting out and cleaning it since it is only going to form again. (Turn to page 9-4).

b. You believe that you can take off in these conditions and you think how impressed your friends will be when they hear of it. (Turn to page 9-4).

c. You take off immediately, thinking that any further delay will worsen the problem. (Turn to page 9-5).

d. You reason that you can do it because many other pilots you know have done so and nothing happened to them. (Turn to page 9-5).

e. You resent being delayed 15 minutes and decide you are not going to clear the snow and ice again for anybody. (Turn to page 9-6).

SITUATION TWO.

The weather forecast called for freezing rain. During the flight, you notice that ice is beginning to accumulate on the aircraft's wings. You are not sure what to do. You have never encountered this problem before. You are tempted to do nothing since the airplane is still flying well. A passenger suggests that you might radio for information. Which of the following alternatives best illustrates the MACHO reaction?

a. You feel that there probably will not be any problem since you have always come out of difficult situations rather well. (Turn to page 9-4).

b. You feel that there is nothing you can really do because radio information won't change the weather conditions. (Turn to page 9-4).

c. You quickly tell the passenger to stop butting in. (Turn to page 9-5).

d. You tell the passenger that you are the boss and will handle the problem your way. (Turn to page 9-6).

e. You radio for information, but decide to ignore the advice since the airplane continues to fly well. (Turn to page 9-6).

SITUATION THREE.

The runway is short with a building 100 feet from the end. A strong crosswind is blowing. You are asked to take an additional passenger and this will overload the airplane by about 70 pounds. The extra passenger is waiting for your reply. Which of the following alternatives best illustrates the MACHO reaction?

a. You take the passenger, reasoning that if fate says you are going to crash, you will, with or without extra weight. (Turn to page 9-4).

b. You take the passenger, fearing that you will lose respect if you do not. (Turn to page 9-5).

c. You take the passenger, remarking to yourself that the weight and balance rules are too strict to begin with. (Turn to page 9-5).

d. Since the passenger seems friendly, you take him on board right away and do not give another thought to it. (Turn to page 9-6).

e. You accept the passenger, thinking that accidents only happen to others. (Turn to page 9-6).

Situation one - alternative a

When a pilot does not see himself as affecting what happens, he is illustrating the hazardous thought of external control. He thinks, "What's the use?" Go back to page 9-1 and select another alternative.

Situation two - alternative a

When you think that since nothing has ever happened before, nothing will happen in the future, you are thinking invulnerabilty. "It won't happen to me." Go back to page 9-2 and select another alternative.

Situation three - alternative a

Trusting in luck is the same as assuming that whatever happens will happen, in spite of anything you might do to change it. This is illustrating the hazardous thought of external control: "What's the use?" Go back to page 9-3 and select another alternative.

Situation one - alternative b

Absolutely! You want to prove yourself; to show off; to have others think that you are great. This is the hazardous thought of macho: "I can do it." Go on to situation two, page 9-2.

Situation two - alternative b

This thinking, "What's the use?" and is illustrating the external control hazardous thought. Go back to page 9-2 and select another alternative.

Situation three - alternative b

You are right! Good thinking! The pilot who is worried about losing face is more concerned about what others think of him than he is about safety. This illustrates the macho hazardous thought, "I can do it." Go on to the next lesson as the directions indicate.

Situation one - alternative c

You take off immediately. No thinking; no planning; no looking ahead. Action without thought illustrates the hazardous thought, "Do something - quickly!" This is impulsivity. Go back to page 9-1 and select another alternative.

Situation two - alternative c

Acting without thinking is impulsivity. "Do something - quickly!" Go back to page 9-2 and select another alternative.

Situation three - alternative c

This is anti-authority: you are not taking the weight limits seriously, disregarding them, thinking, "Don't tell me." Go back to page 9-3 and select another alternative.

Situation one - alternative d

When you think, "Nothing happened to them," you are really saying, "There is really no chance of an accident - it won't happen to me." That is the hazardous thought of invulnerability. Go back to page 9-1 and select another alternative.

Situation two - alternative d

Absolutely. This tendency to say, "We'll do it my way," is a good indication of the macho hazardous thought, "I can do it." Go on to situation three, page 9-3.

Situation three - alternative d

Making an immediate decision without any thought of its consequences or any consideration of alternatives illustrates impulsivity - the hazardous thought, "Do something - quickly!" Go back to page 9-3 and select another alternative.

Situation one - alternative e

Pilots who resent using appropriate safety procedures because they are prescribed by some authority are illustrating the anti-authority hazardous thought, "Don't tell me." Go back to page 9-1 and select another alternative.

Situation two - alternative e

Those who ignore the advice that the tower gives them certainly do not take authority seriously. They are determined to do what they want to do. This illustrates the anti-authority hazardous thought of, "Don't tell me." Go back to page 9-2 and select another alternative.

Situation three - alternative e

When you think that accidents happen only to other people you think you are invulnerable. The pilot in this situation is thinking, "It won't happen to me." Go back to page 9-3 and select another alternative.

LESSON 10

ANTIDOTES FOR HAZARDOUS THOUGHTS

INTRODUCTION.

You know there are five major hazardous thoughts which contribute to poor pilot judgment. Because you worked extensively with these thoughts in the previous lessons, you should already be more aware of them and more alert to them in your own thinking. This is an important first step in eliminating them from your judgments.

This lesson is designed to teach you ways to counteract hazardous thoughts so that they do not affect your actions.

You cannot think two different things at the same time. One way to keep from thinking a hazardous thought is to think another thought. By saying to yourself a statement which represents a thought other than the hazardous thought, you are "taking an antidote" and counteracting the hazardous thought. As long as you are concentrating on the antidote, you cannot be thinking the hazardous thought.

Remove a hazardous thought by substituting the antidote. Thus, if you discover yourself thinking, "It won't happen to me," note that this is a hazardous thought. What you must learn to do is to recognize when you are having a hazardous thought, correctly label the thought, and then say its antidote to yourself.

To do this, you must learn the antidote for each of the hazardous thoughts. MEMORIZE THE ANTIDOTES. Learn them thoroughly. You must know them so well that they will come to mind whenever you need them. (Note: This is the only material in the entire program which you must memorize word for word).

THE FIVE ANTIDOTES.

	HAZARDOUS THOUGHT	ANTIDOTE
ANTI-AUTHORITY:	"Don't tell me."	"Use the rules: They are usually right."
EXTERNAL CONTROL:	"What's the use?"	"I'm not helpless. I can make a difference."
IMPULSIVITY:	"Do something--quickly!"	"Not so fast. Think first."
INVULNERABILITY:	"It won't happen to me."	"Why not me? I am human, too."
MACHO:	"I can do it."	"Risks don't make me fly better. They make me a fool."

MEMORIZATION DRILL.

You must not continue with this lesson until you have learned the antidotes thoroughly. Practice this now. Without referring to the text, write the antidote to each hazardous thought below. Check your statements with the text above and, if you are correct, continue with this unit. If not, continue studying the antidotes until you can write them from memory, word for word.

HAZARDOUS THOUGHT	ANTIDOTE
ANTI-AUTHORITY:	_____
	_____
EXTERNAL CONTROL:	_____
	_____
IMPULSIVITY:	_____
	_____
INVULNERABILITY:	_____
	_____
MACHO:	_____
	_____

SITUATION EXERCISES.

Each of the following situations contains a description of what is happening in a flight situation and what the pilot is thinking. Gain practice in correctly applying the hazardous thought antidotes in flight situations by doing the following exercises.

Instructions:

1. Begin with situation one, and review the thinking and actions of the pilot. Look for signs of hazardous thoughts. Whenever you recognize one, write the name of the hazardous thought and its antidote in the space provided to the right. (In situation one, the first hazardous thought and its antidote have been provided as an example).

2. After completing your work on situation one, turn to the page indicated at the end of the situation to review the answers. Compare your answers to the ones given in the key. Your responses should closely match the hazardous thought responses identified in the key. (Different people may see the same situation slightly differently, and every one of your answers may not be identical to the key). You should have agreement with the key on at least three of the hazardous thoughts, and you should have written, word for word, the correct antidote for each hazardous thought you identified.

3. If you do not do well on situation one, study your answers to discover what misunderstandings you have about the five hazardous thoughts and the five antidotes. Return to earlier lessons in the manual to clear up any confusion before going on to the next situation.

4. Continue on with situation two, reading and reviewing the situation. Write the hazardous thoughts and antidotes in the right margin. When finished follow the instructions at the end of the situation key which will guide you to the completion of this lesson.

SITUATION ONE.

On his third solo flight, a student pilot decides to take a friend for an airplane ride. Up in the air, the pilot thinks, "This is great to be up here flying without an instructor criticizing everything I do. His do-it-by-the-book attitude takes all the fun out of flying."

ANTI-AUTHORITY
Use the rules: They are usually right.

As the pilot nears his friend's farm, he remembers that it is about 8 miles from the local airport. The pilot thinks, "I'll land on the road that runs by my buddy's farm. It won't be dangerous at all...the road's straight and wide, just like a runway. I'll just tell Hank not to tell anyone I did it so I won't get into trouble with anyone who knows it's against the rules."

"No one other than Hank's family lives anywhere near there. If anyone happens to check on me, I'll just tell them it was an emergency landing. OK. I'll do it. The plan is foolproof."

The student pilot makes a hard landing on the road and nearly runs off the pavement before he gets the aircraft stopped. However, he is very proud of himself and he thinks, "Way to go, Ace! You're a natural for being a great pilot."

The pilot secures the aircraft and starts walking towards his buddy's house as a sheriff's car drives up. Surprised that anyone observed his landing, he starts cursing this unpleasant turn of events. "Rats! I just know this cop is going to foul up my whole day. Why don't they stick to catching robbers and murderers, and leave people like me alone to have some harmless fun. If it weren't for my bad luck, this cop wouldn't have come along and this would have been a great afternoon."

TURN TO PAGE 10-11 FOR THE ANSWER KEY TO THIS SITUATION.

SITUATION TWO.

Tom and George are flying in Tom's single engine aircraft, and they decide to "buzz" some friends who are swimming in a nearby lake. Tom is an experienced pilot, who has done buzzing many times before. In fact, he takes pride in being able to do it really well. He often brags that someday he will be a stunt flier, and then everybody can see his talents on display.

George likes Tom and likes to go along on "buzzing" runs. However, George is a low time pilot and he sometimes wonders if Tom is not pushing his luck. George is not worried about an accident, however. He is convinced that Tom is a great pilot who can handle anything that might happen to the two of them in the air.

As they are buzzing the lake, both are interested in watching for the reactions of their friends on the ground. Tom descends lower than usual in their third pass. When he tries to climb out, the plane does not make it over a power transmission line. The wing brushes the power line, sparks fly, and the wing sustains minor damage. George panics and yells, "We're going to crash, we're going to crash!"

Tom is also shaken, but he maintains control of the airplane and tells George, "Calm down and help me fly this thing back to the airport, or we're going to be in big trouble over this. I told you I could handle anything in this airplane."

As they head for the airport, the airplane continues to fly without difficulty. They have a good laugh over the incident, telling one another that it is another great adventure in their flying careers. Tom tells George, "You know, if the power company had any sense, they would bury all those power lines. If they would do that, pilots like us would have an easier time of flying safely."

CHECK YOUR ANSWERS TO THIS SITUATION WITH THE KEY ON PAGE 10-13.

SITUATION THREE.

Landing at night, Bill discovers that the runway lights are not on. He thinks, "Rats! I forgot about the possibility that the airport might be closed. I should have thought to telephone ahead." He becomes angry with the airport management, thinking, "They could leave the lights on this early at night. Who are they to control how late I can land? The next time I see the manager, I will tell him a thing or two about how to run an airport."

Determined to land, Bill declares, "I'm landing here tonight, lights or no lights. I'll just have to rely on myself and show these guys how a top-notch pilot can do whatever needs doing." Bill chooses the runway which runs parallel to the highway adjacent to the airport, and he uses the streetlights as a reference point. Unsure of his height above the runway, he flares too quickly and begins to float. He immediately forces the airplane to the ground rather than going around or extending his landing.

He contacts the runway very hard. The aircraft swerves off the runway and into a fence. Bill is unhurt, but the airplane sustains serious damage. He says to himself, "Doggone this place. If the lights were on, this would not have happened."

A few minutes later some people arrive to see what has happened. Bill starts telling them how the accident is the fault of the local airport management. Someone asks Bill why he decided to land without the airport lights turned on. Bill answers, "Look, I'm an expert pilot - no lights is not a serious problem. There should be more rules about how to run an airport and less about how a guy like me is supposed to fly his airplane!"

CHECK YOUR ANSWERS TO THIS SITUATION WITH THE KEY ON PAGE 10-15.

SITUATION FOUR.

The pilot, Larry, and his wife, Kathy, are on a vacation trip with another couple. Larry has been flying for almost a year. He has decided that this trip, his first cross country with passengers, is the best opportunity to show off his new flying skills to his wife and their friends.

The airplane Larry is flying is rented. Although it is the same type he usually flies, it is a newer and better equipped model. However, Larry is sure he can fly it just fine without any special practice.

About an hour after takeoff, there is a partial loss of engine power. The engine is running rough, and the passengers suspect there are problems. Kathy says, "Larry, is the airplane alright?"

Larry immediately says, "Yes, I'll just decrease our altitude a little. That should help."

He descends 500 feet, but the engine sounds even worse, and the power loss is greater. The couple in the back is really getting worried, and the man asks Larry if they should not turn around and go back to their home airport. Larry replies, "I can handle this little problem. Just leave the flying to me."

Larry decides to make a precautionary emergency landing. He lands in a wheat field a few minutes later. No one is hurt during the emergency landing, but the aircraft is damaged. As they all climb out of the plane, Larry remarks, "This airplane is a piece of junk. I'll never fly one of these again."

CHECK YOUR ANSWERS TO THIS SITUATION WITH THE KEY ON PAGE 10-17.

SITUATION FIVE.

Amy is making a routine fight from Jacksonville to Atlanta with two friends on board. Fifty miles from Atlanta she notices the gyrohorizon is not functioning. She radios to Atlanta and is told that visibility is poor in the Atlanta Airport area due to rain. She thinks, "I can try to land at Macon or even go back to Jacksonville since I have plenty of fuel left. Returning to Jacksonville would be the safest thing to do. On the other hand, I'd really like to get into Atlanta now. Chances are nothing will happen. It is daylight, and I should have no trouble making the landing."

Still undecided about what to do, Amy decides to fly toward Atlanta for another ten minutes to see if the weather looks worse or if the gyrohorizon might start working again. Ten minutes later, the situation has not changed, and Amy begins looking at a sectional chart to find out what she will have to do to get to the Macon Airport if necessary. The rain starts and the gyrohorizon still does not work.

A passenger, sensing things are not going according to routine, asks if there is a problem. Amy says there is a minor problem that might prevent making a landing at Atlanta. The two passengers begin arguing about their own feelings on making a landing at Macon or going back to Jacksonville. The passengers do agree on one thing: they want to land at Atlanta.

Amy starts to get annoyed, but decides that all she can do to calm the passengers down is to assure them that she will go on to Atlanta and attempt to land.

She feels somewhat anxious, but she says to herself, "I'm an excellent pilot, and I know the visibility is not that bad. Only inexperienced pilots get disoriented in weather like this. I'm sure there is no chance of me getting into a dangerous situation on the landing at Atlanta." As she enters the pattern at Atlanta, the rain gets heavier.

In her anxiety to get the airplane on the ground, she keeps her speed high and dives below her assigned altitude.

CHECK YOUR ANSWERS WITH THOSE IN THE KEY ON PAGE 10-18.

KEY TO SITUATION ONE

Compare your responses in each situation with those given below. Remember that different people may see the same situation differently. As a result, all of your responses may not be identical to those in the key. Still, you should have identified most of the hazardous thoughts indicated.

On his third solo flight, a student pilot decides to take a friend for an airplane ride. Up in the air, the pilot thinks, "This is great to be up here flying without an instructor criticizing everything I do. His do-it-by-the-book attitude takes all the fun out of flying."

Anti-Authority: Use the rules: They are usually right.

As the pilot nears his friend's farm, he remembers that it is about 8 miles from the local airport. The pilot thinks, "I'll land on the road that runs by my buddy's farm. It won't be dangerous at all...the road's straight and wide, just like a runway. I'll just tell Hank not to tell anyone I did it so I won't get into trouble with anyone who knows it's against the rules."

Impulsivity: Not so fast. Think first.

"No one other than Hank's family lives anywhere near there. If anyone happens to check on me, I'll just tell them it was an emergency landing. OK. I'll do it. The plan is foolproof."

Invulnerability: Why not me? I'm human too.

The student pilot makes a hard landing on the road and nearly runs off the pavement before he gets the aircraft stopped. However, he is very proud of himself and he thinks, "Way to go, Ace! You're a natural for being a great pilot."

Macho: Risks don't make me fly better. They make me a fool.

The pilot secures the aircraft and starts walking towards his buddy's house as a sheriff's car drives up. Surprised that anyone observed his landing, he starts cursing this unpleasant turn of events. "Rats! I just know this cop is going to foul up my whole day. Why don't they stick to catching robbers and murderers,

and leave people like me alone to have some harmless fun. If it weren't for my bad luck, this cop wouldn't have come along and this would have been a great afternoon."

External Control: I'm not helpless. I can make a difference.

AFTER YOU HAVE COMPARED YOUR RESPONSES WITH THOSE ABOVE, GO ON TO SITUATION TWO ON PAGE 10-5.

KEY TO SITUATION TWO

Tom and George are flying in Tom's single engine aircraft, and they decide to "buzz" some friends who are swimming in a nearby lake. Tom is an experienced pilot, who has done buzzing many times before. In fact, he takes pride in being able to do it really well. He often brags that someday he will be a stunt flier, and then everybody can see his talents on display.

Anti-authority: Use the rules: They are usually right.

Macho: Risks don't make me fly better. They make me a fool.

George likes Tom and likes to go along on "buzzing" runs. However, George is a low time pilot and he sometimes wonders if Tom is not pushing his luck. George is not worried about an accident, however. He is convinced that Tom is a great pilot who can handle anything that might happen to the two of them in the air.

Invulnerability: Why not me? I'm human too.

As they are buzzing the lake, both are interested in watching for the reactions of their friends on the ground. Tom descends lower than usual in their third pass. When he tries to climb out, the plane does not make it over a power transmission line. The wing brushes the power line, sparks fly, and the wing sustains minor damage. George panics and yells, "We're going to crash, we're going to crash!"

Impulsivity: Not so fast. Think about it.

Tom is also shaken, but he maintains control of the airplane and tells George, "Calm down and help me fly this thing back to the airport, or we're going to be in big trouble over this. I told you I could handle anything in this airplane."

Macho: Risks don't make me fly better. They make me a fool.

As they head for the airport, the airplane continues to fly without difficulty. They have a good laugh over the incident, telling one another that it is another great adventure in their flying careers. Tom tells George, "You know, if the power company had any sense, they would bury all those power lines. If they would do that, pilots like us would have an easier time of flying safely."

Invulnerability: Why not me? I'm human too.

External Control: I'm not helpless. I can make a difference.

AFTER YOU HAVE COMPARED YOUR RESPONSES WITH THOSE ABOVE, GO ON TO SITUATION THREE ON PAGE 10-7.

KEY TO SITUATION THREE

Landing at night, Bill discovers that the runway lights are not on. He thinks, "Rats! I forgot about the possibility that the airport might be closed. I should have thought to telephone ahead." He becomes angry with the airport management, thinking, "They could leave the lights on this early at night. Who are they to control how late I can land? The next time I see the manager, I will tell him a thing or two about how to run an airport."

External Control: I'm not helpless. I can make a difference.

Anti-authority: Use the rules: They are usually right.

Determined to land, Bill declares, "I'm landing here tonight, lights or no lights. I'll just have to rely on myself and show these guys how a top-notch pilot can do whatever needs doing." Bill chooses the runway which runs parallel to the highway adjacent to the airport, and he uses the streetlights as a reference point. Unsure of his height above the runway, he flares too quickly and begins to float. He immediately forces the airplane to the ground rather than going around or extending his landing.

Macho: Risks don't make me fly better. They make me a fool.

Impulsivity: Not so fast. Think first.

He contacts the runway very hard. The aircraft swerves off the runway and into a fence. Bill is unhurt, but the airplane sustains serious damage. He says to himself, "Doggone this place. If the lights were on, this would not have happened."

External Control: I'm not helpless. I can make a difference.

A few minutes later some people arrive to see what has happened. Bill starts telling them how the accident is the fault of the local airport management. Someone asks Bill why he decided to land without the airport lights turned on.

External Control: I'm not helpless. I can make a difference.

Bill answers, "Look, I'm an expert pilot - no lights is not a serious problem. There should be more rules about how to run an airport and less about how a guy like me is supposed to fly his airplane!"

Macho:
Risks don't make me fly better. They make me a fool.

Anti-authority:
Use the rules: They are usually right.

DID YOU GET ALL ANSWERS CORRECT? IF SO, YOU HAVE FINISHED THIS LESSON. IF NOT, GO ON TO SITUATION FOUR ON PAGE 10-8 FOR MORE PRACTICE.

KEY TO SITUATION FOUR

The pilot, Larry, and his wife, Kathy, are on a vacation trip with another couple. Larry has been flying for almost a year. He has decided that this trip, his first cross country with passengers, is the best opportunity to show off his new flying skills to his wife and their friends.

Macho: Risks don't make me fly better. They make me a fool.

The airplane Larry is flying is rented. Although it is the same type he usually flies, it is a newer and better equipped model. However, Larry is sure he can fly it just fine without any special practice.

Invulnerabililty: Why not me? I'm human too.

About an hour after takeoff, there is a partial loss of engine power. The engine is running rough, and the passengers suspect there are problems. Kathy says, "Larry, is the airplane alright?"

Larry immediately says, "Yes, I'll just decrease our altitude a little. That should help."

Impulsivity: Not so fast. Think first.

He descends 500 feet, but the engine sounds even worse, and the power loss is greater. The couple in the back is really getting worried, and the man asks Larry if they should not turn around and go back to their home airport. Larry replies, "I can handle this little problem. Just leave the flying to me."

Macho: Risks don't make me fly better. They make me a fool.

Larry decides to make a precautionary emergency landing. He lands in a wheat field a few minutes later. No one is hurt during the emergency landing, but the aircraft is damaged. As they all climb out of the plane, Larry remarks, "This airplane is a piece of junk. I'll never fly one of these again."

External Control: I'm not helpless. I can make a difference.

DID YOU GET ALL ANSWERS CORRECT THIS TIME? IF SO, GREAT! YOU HAVE COMPLETED THIS LESSON. IF NOT, GO ON TO SITUATION FIVE ON PAGE 10-9 FOR MORE PRACTICE.

KEY TO SITUATION FIVE

Amy is making a routine fight from Jacksonville to Atlanta with two friends on board. Fifty miles from Atlanta she notices the gyrohorizon is not functioning. She radios to Atlanta and is told that visibility is poor in the Atlanta Airport area due to rain. She thinks, "I can try to land at Macon or even go back to Jacksonville since I have plenty of fuel left. Returning to Jacksonville would be the safest thing to do. On the other hand, I'd really like to get into Atlanta now. Chances are nothing will happen. It is daylight, and I should have no trouble making the landing."

Invulnerability: Why not me? I'm human too.

Still undecided about what to do, Amy decides to fly toward Atlanta for another ten minutes to see if the weather looks worse or if the gyrohorizon might start working again. Ten minutes later, the situation has not changed, and Amy begins looking at a sectional chart to find out what she will have to do to get to the Macon Airport if necessary. The rain starts and the gyrohorizon still does not work.

External Control: I'm not helpless. I can make a difference.

A passenger, sensing things are not going according to routine, asks if there is a problem. Amy says there is a minor problem that might prevent making a landing at Atlanta. The two passengers begin arguing about their own feelings on making a landing at Macon or going back to Jacksonville. The passengers do agree on one thing: they want to land at Atlanta.

Amy starts to get annoyed, but decides that all she can do to calm the passengers down is to assure them that she will go on to Atlanta and attempt to land.

External Control: I'm not helpless. I can make a difference.

She feels somewhat anxious, but she says to herself, "I'm an excellent pilot, and I know the visibility is not that bad. Only inexperienced pilots get disoriented in weather like this. I'm sure there is no chance of me getting into a dangerous situation on the landing at Atlanta." As she enters the pattern at Atlanta, the rain gets heavier.

Invulnerability: Why not me? I'm human too.

In her anxiety to get the airplane on the ground, she keeps her speed high and dives below her assigned altitude.

Anti-authority: Use the rules: They are usually right.

IF YOU DID WELL ON THIS SITUATION YOU HAVE COMPLETED THIS LESSON. IF YOU ARE STILL HAVING DIFFICULTY WITH THE ANTIDOTES, SEE YOUR INSTRUCTOR FOR FURTHER EXPLANATION.

LESSON 11

RECOGNIZING AND REPLACING HAZARDOUS THOUGHTS

INTRODUCTION.

In Lessons 5 through 9, you learned the meaning of the five hazardous thoughts. You saw how pilots having these thoughts might react in a variety of situations. And, in lesson 10, you learned antidote thoughts that are substituted whenever hazardous thinking might be influencing you to make unsafe decisions.

For this judgment training to be of maximum benefit to you, the mental process of recognizing a hazardous thought, of substituting the correct antidote, and of then supplying good judgment thoughts must become an automatic reaction for you.

In this lesson, you will learn by practice to recognize potential hazardous thoughts in various flight situations. In addition, you will practice recalling the correct antidote and thinking of good pilot judgment for the same situation.

INSTRUCTIONS.

1. Read each situation and the description of the pilot's thinking.

2. In the blanks beneath each situation, fill in the answers requested: the hazardous thought, the antidote for that hazardous thought, and a brief description of good pilot judgment for the same situation. (You do not need to write complete sentences.)

3. Ask your flight instructor to review your answers when you have completed the first five situations.

EXAMPLE.

Situation:

The pilot leaves his non-pilot wife at the aircraft's controls while he goes outside to see why the engine will not start. The pilot concludes that the battery is dead.

Pilot's Thinking:

I'm in a hurry. I'll just prop start it, and get the battery checked when we land again. My wife is pretty good with machinery. She will understand what to do until I get back into the cabin.

Hazardous Thought: Invulnerability

Antidote: Why not me? I am human, too.

Good Judgment: Pilot delays flight while he gets a mechanic or a line service person to charge or replace the battery.

SITUATIONS.

Situation 1:

The pilot did not allow for strong headwinds when calculating fuel consumption. With 15 minutes of fuel left, he can make an emergency landing on an abandoned dirt road just below. A second option is to fly to an airfield which he thinks is ten minutes away.

Pilot's Thinking:

I will fly on to my destination. I can be there in 10 minutes. I see no problems, I just have to keep going.

Hazardous Thought: _____

Antidote: _____

Good Judgment: _____

_____

_____

Situation 2:

The pilot is preparing to taxi his aircraft when he feels a sharp pain in his chest. He is somewhat anxious about this, even though he had a thorough physical three weeks before. He thinks it might be indigestion and is undecided if he should mention anything to his passengers.

Pilot's Thinking:

There is nothing I can say to the passengers that would help. I will continue the flight. It is just my rotten luck that I had bad food for lunch.

Hazardous Thought: _____

Antidote: _____

Good Judgment: _____

_____

_____

Situation 3:

The pilot is on a pleasure flight with a friend. Weather conditions for the area include snow showers and gusty winds. The purpose of the trip is to scout some nearby ski slopes.

Pilot's Thinking:

I am sure I'll be able to land without permission at that private airstrip near the lodge if the weather gets too bad.

Hazardous Thought: _____

Antidote: _____

Good Judgment: _____

_____

_____

Situation 4:

A passenger appears to be suffering from a sudden illness. It is still a two hour flight to the intended destination. The passenger says he is all right, but his wife is very concerned that he may need medical aid. The nearest airport is unmanned, and it is 35 miles from a hospital.

Pilot's Thinking:

This man is sick and his wife is really upset. I can't deal with this in the airplane. I better land at the nearest airport I can find on the sectional chart.

Hazardous Thought: _____

Antidote: _____

Good Judgment: _____

_____

_____

Situation 5:

It is after dark, and the pilot arrives at the airport with two friends after leaving a picnic dinner. The pilot intends to take his friends on a local VFR trip along the lake shore. The weather is officially reported as clear at the airport, but fog has begun to form over the lake 10 miles away.

Pilot's Thinking:

The beers I had this afternoon at the picnic certainly are not affecting my flying skills now. Besides, the weather looks good, and my friends will be impressed when I fly them over the lake at night.

Hazardous Thought: _____

Antidote: _____

Good Judgment: _____

_____

_____

ASK YOUR FLIGHT INSTRUCTOR TO REVIEW WITH YOU YOUR ANSWERS TO THE FIRST FIVE SITUATIONS. IF YOU HAVE DONE WELL, YOU MAY THEN MOVE ON TO LESSON 12. IF YOU NEED MORE PRACTICE WITH THE ANTIDOTES, YOU MAY BE ASSIGNED TO DO SITUATIONS 6 THROUGH 10; (Be sure to discuss your answers with your instructor).

NOTE: DO NOT BECOME DISCOURAGED WITH DOING EXERCISES THAT SEEM REPETITIVE. JUST AS REPEATED TOUCH-AND-GO LANDINGS TEACH YOU GOOD LANDING TECHNIQUES, THESE EXERCISES TEACH YOU GOOD JUDGMENT TECHNIQUES BY HELPING YOU FORM STRONG, NEW HABITS.

Situation 6:

The pilot checks twice by phone for weather in the area of his proposed VFR trip. On both occasions he receives warnings of severe or greater turbulence. He takes off as planned, despite suggestions from FSS (flight service station) personnel that a flight is very risky.

Pilot's Thinking:

I have to get there by 10 o'clock. It can't be that bad, and I've handled weather like this before without an accident. Nothing will happen to me.

Hazardous Thought: _____

Antidote: _____

Good Judgment: _____

_____

_____

Situation 7:

Pilot decides to do some night flying. He calls up two buddies and tells them that he will pick them up at 8:00 p.m. He does not check the weather. When he gets to the airport the ceiling is 250 feet with 3 miles visibility.

Pilot's Thinking:

I can't let those guys think that I'm afraid of a few little clouds. I'd never hear the end of it. Anyway, I promised them we would go, and I know I can handle the plane even when it is rough.

Hazardous Thought: _____

Antidote: _____

Good Judgment: _____

_____

_____

Situation 8:

A Cessna 152 is on final. Behind it, another aircraft is also on final. The pilot of the second plane notices that he is quickly closing the distance between himself and the plane in front. The Cessna 152 (cleared by the tower) touches down and then does a touch-and-go takeoff. The second plane, with no clearance from the tower, executes a missed approach. On climb, the Cessna almost hits the other aircraft.

Pilot's Thinking:

I should call the tower, but I'm busy. If I do a missed approach, I'll have more time to get set up right for my landing next time. I am new to this airport, so I'm sure they'll give me a break if I slip up on one procedure.

Hazardous Thought: _____

Antidote: _____

Good Judgment: _____

_____

_____

Situation 9:

The pilot decides to take a friend flying. He flys low over a swampy area to look for alligators. Flying at 50 feet, the pilot thinks he see birds which are taking off in front of the aircraft's flight path. The pilot pulls back hard on the controls and starts a climbing turn. He stalls and crashes into the trees.

Pilot's Thinking:

Those birds might knock out my engine or come right through the windshield. I'd better not take any chances. I'll get as far from them as fast as I can!

Hazardous Thought: _____

Antidote: _____

Good Judgment: _____

_____

_____

Situation 10:

The non-instrument rated pilot takes off in good weather for a local training flight. Upon return two hours later she finds the airport beacon is out due to heavy rain. The pilot is low on fuel because she stayed in the practice area longer than she intended.

Pilot's Thinking:

Gee, my practice went so well. What rotten luck to be low on gas now. I guess I'll just keep flying around out here and hope the rain stops and the airport goes back to VFR so I can land.

Hazardous Thought: _____

Antidote: _____

Good Judgment: _____

_____

_____

LESSON 12

IDENTIFYING AND REDUCING STRESS

WHAT IS STRESS?

Stress may be defined as a condition of mental pressure, urgency and tension. When a situation causes you stress, your thinking may become scattered or confused. You may be unable to focus your thinking, or you may give too much attention to details which you should ignore. An overstressed state of mind most often occurs when a pilot is trying to think about and do many things at once. This is a situation which encourages a pilot to make a poor judgment or to begin a series of poor judgments, a poor judgment chain.

When you have to think about one thing and one thing only, and then make a decision, that is not too difficult. But, what about those times when several things are happening at once? For instance, you notice that you are much lower on fuel than expected. There are cumulus clouds ahead, and they appear to be building. Your primary radio becomes difficult to understand due to static. You may be getting off course, but you cannot locate your current position on the sectional chart. Now you have a great deal to think about, and all at once. This sort of circumstance may very well lead you to feel pressured and tense and to have high stress.

The causes of stress do not include only events happening outside us. What is going on inside our minds may also cause stress. For example, suppose you take off for a flight with your mind filled with worries and concerns. You have several bills which you are late paying. You are having problems with a love relationship. You fear you have symptoms of a serious medical condition. Before leaving the airport, you become angry with an attendant working there. All this worry, concern, and anger takes energy. It distracts your attention from your flying, and it reduces the effectiveness of your reasoning powers. Any decision you must make under such circumstances may very well suffer.

A third situation may also generate stress. You make a mistake while flying which, although it is an error, is corrected. The most sensible thing to do is to forget about the matter, and to return your entire attention to flying. But you do not. You keep thinking about the mistake: "Why did I do it? How could I be so stupid? Where did I go wrong? What happens if I do it again?" Because of all this worrying, your mental energies and attention are distracted from the job of flying.

Stress, then, can reach high levels due to many causes. Because several things often happen all at once in flight, and because they happen fast, pilots are especially vulnerable to the problem of high stress which affects judgment.

IDENTIFYING STRESS LEVELS.

If you are to do anything to prevent stress from influencing your judgment, you must first be able to identify a high stress level. Many times you know you are overloaded by stress. You are tense or anxious. You feel rushed, pressured and frustrated. Anger, worry and confusion have raised your stress level to the point that you realize you are not functioning at your best. On other occasions, you may gradually slip into a high stress condition and not realize that your ability to function has undergone a change. Or, you may constantly experience so much high stress and anxiety that you do not notice you are not as calm or mentally alert as you should be.

To detect how overloaded by stress you are, you will now learn how to use SUDs. SUDs stands for the Subjective Units of Discomfort System. This system, developed by Joseph Wolpe, provides a way for people to quickly and easily identify their level of stress or overload.

Using SUDs is easy. To begin, you need to put your imagination to work for a few minutes. First, make yourself comfortable. Now think of a situation where you are completely and totally relaxed and at ease. Many people think of themselves lying on the beach on a warm, sunny afternoon. Others imagine themselves floating on a cloud. Some prefer a waterbed! Note that you do not have to visualize the scene in your mind. Just clearly think about the situation and all the details associated with it. For example, the beach scene might include thinking about the feel of the sand beneath your beach towel, the sound of the waves, the sight of a fishing boat on the horizon, and the feel of the sun beaming down.

Take a few moments, pick a scene, close your eyes and imagine yourself relaxing there. This relaxing situation rates a value of zero. Your stress level - your discomfort level - is zero: zero SUDs.

Next, think of a situation in which you are in absolute terror. Perhaps you are being held up at gunpoint in a dark alley by three very savage looking thugs. Or, your airplane has lost its engine, and you are about to plunge into the sea 50 miles from any known source of help. Imagine the most terrible, stress and anxiety producing situation you wish. A situation such as this rates a value of 100 Subjective Units of Discomfort - 100 SUDs.

You now have the reference points necessary for using SUDs to evaluate your own level of stress. When totally relaxed, comfortable and content, your SUDs level is zero. When totally terrified, anxious, confused and tense, your SUDs level is 100. You are now ready to proceed with your own SUDs test.

USING SUDS.

You can now take any situation and identify your stress level by deciding how many SUDs you are experiencing in that situation. When totally relaxed, you experience zero SUDs. When in an extremely stressful situation, whether the situation be terror or total confusion, you experience 100 SUDs. How about the first time you flew? How excited were you? 50 SUDs? 60? 75? Think about it and decide what number best represents your experience at that time.

How about right now? How aroused or excited are you right now? Probably you are experiencing fewer SUDs now than on your first flight. Think of the last time you were angry. Something got to you and you were really mad. How many SUDs did you experience then?

A bit of practice will best help you use SUDs effectively. Below is a list of situations. Think about each of them and indicate how many SUDs you would experience in each of them. Indicate your SUDs score in the blank space to the left of each choice.

SUDs

_____A) You are flying in an airplane on a clear, beautiful day.
_____B) You are on a flight and the captain announces to all the passengers that the plane is about to hit some moderate turbulence.
_____C) You are driving your car through heavy traffic during the rush hour.
_____D) You are watching a vivid scene in a scary movie.
_____E) You are on a picnic with close friends on a pleasant summer's day.
_____F) You have just been stopped by two men who are demanding your money.
_____G) You just had a fight with your best friend.
_____H) You are on your way to the airport for a flight when you discover you have forgotten your tickets.
_____I) You have just been severely criticized by someone you admire very much.
_____J) You have been waiting to buy tickets for a show for over an hour and someone crashes the line in front of you.

In the next few days, think about SUDs and note how many SUDs you experience at different times. Or, at the end of the day think of five different moments during that day and decide the SUDs for each moment. An interesting variation is to think of the moment each day which had the highest SUDs and the moment which had the fewest. Any practice method you employ will teach you to use SUDs in your flight judgment activities.

For most people a stress situation is one in which their SUDs level is 75 or higher. 75 is the number that will be used to indicate a high stress level in this lesson. As you become familiar with SUDs you can decide what number (SUDs level) represents high stress for you. At that point, use the number rather than the 75 in the lesson. Whenever you find yourself becoming "keyed up" or tense, decide the number of SUDs you are experiencing. Whenever that number reaches 75 (or the number you have personally selected) you are overly stressed. At that point, you want to consciously and deliberately reduce your SUDs level.

REDUCING STRESS: THE DEEP BREATH METHOD.

Here is a simple and easy method to reduce your stress level. Whenever you wish to reduce your SUDs level - to reduce stress - take a deep breath, hold it briefly, and then, as you let the air out slowly, say to yourself (or outloud if you wish): EASY! RELAX NOW. ONE STEP AT A TIME. Repeat it a few times. Try it for yourself now. Take a deep breath, hold it briefly, and then, as you let the air out slowly, say EASY! RELAX NOW. ONE STEP AT A TIME. Do this four or five times before continuing.

As you practice this breathing technique, notice how easy it is and how quickly it lowers any tension you are experiencing. Remember, when highly stressed, you feel so keyed up that you don't stop to think. The more you sense that you are keyed up, the more anxious and tense you may become. This simple breathing exercise will interrupt this process. Practice the technique a few more times and then read on.

Now that you know this simple technique for reducing stress, you may do it whenever you choose. However, for this technique to be of use to you when you are feeling overly stressed, you must train yourself to use it. Right now it is easy for you. But, when you are in a flight situation where things begin to happen quickly and you begin to feel stress, you must tell yourself to do the technique. That is not easy. When you are keyed up and tense and everything is happening fast, you are not apt to remember to stop, take a deep breath, and think or speak the calming words. Fortunately, you can train yourself so that is response on your part will become automatic. TO DO THIS, YOU MUST PRACTICE

REGULARLY! Whenever you note that your SUDs level has reached the critical value (75 or the number you have chosen), you must always remind yourself to take a deep breath and complete the technique. You must do this until it becomes an automatic reaction.

LEARNING THE DEEP BREATH METHOD.

Here is how to practice so that you speed up making this an automatic reaction. First, develop the habit of deciding what your SUDs level is. Anytime you find yourself becoming a little excited or tense, decide what number represents how you feel. Note that number carefully. Soon, this will become an automatic response on your part.

Second, seat yourself in a comfortable chair. Let yourself become nicely relaxed. Now imagine yourself flying - or in some other realistic situation. All you are doing is daydreaming; let your imagination be free. Then, imagine that you are becoming tense. You make a small error and are worried about it. Something goes wrong with the airplane. You are confused about a message you have received. Imagine a number of things going wrong or a number of things happening at once. About every 30 seconds in your imagining, estimate your SUDs level - decide what number represents the amount of tension you are experiencing.

When that number reaches 75 (or your own number), stop, take a deep breath, and complete the breath exercise. During each practice session, bring yourself to a high stress level and complete the breath exercise. Repeat this procedure often. Each day for at least a week, seat yourself in a comfortable chair and imagine a scene in which you reach a high SUDs level, then stop, take a deep breath, and complete the exercise.

Why will this help? Because after you have repeated this often enough, you will have developed an automatic response to high stress situations. You will have worked to the point where whenever you think your SUDs level has reached the critical value, you will automatically respond with a deep breath and the complete breath exercise. It is the repeated practice which makes the response automatic.

REDUCING STRESS: PROGRESSIVE RELAXATION.

If you find the deep breath method is not completely satisfying to you, you may prefer using a technique called "Progressive Relaxation." Progressive Relaxation has been used for many years by people in all walks of life to control stress and to reduce tension. The technique is easy and enjoyable. It involves giving yourself carefully planned suggestions to relax. After a training period to get your mind and body accustomed to these suggestions, you will be able to relax quickly and easily whenever you desire even in flight situations.

Instructions on how to learn Progressive Relaxation are printed in the appendix to this lesson which begins on page 12-7.

LESSON REVIEW.

In this lesson, you have learned about high stress levels and how this condition can make poor judgments more likely (page 12-1). You have learned how to measure or rate your own stress level using the SUDs system (page 12-2). To reduce unsatisfactorily high stress levels, you have learned two methods of stress reduction. One of these is called the deep breath method, and it may be learned quickly by doing a short practice exercise each day for a week (page 12-4). The second method of stress reduction is called Progressive Relaxation (page 12-5). It takes about 2 weeks to learn, and it may be used instead of, or along with, the deep breath method to quickly reduce your stress level at any time - and even while flying.

APPENDIX TO LESSON 12:

LEARNING PROGRESSIVE RELAXATION

There are three phases to learning the progressive relaxation technique. You must practice each phase carefully to gain maximum benefit from this method of stress reduction. Remember, relaxation is a skill, and like any other skill, you will get better at it through proper training and practice. As you begin, plan to set aside about 30 minutes a day for two or three days for Phase I and about 10 minutes a day for the following 3 to 5 days for Phase II. Phase III will require only a few minutes a day.

PHASE I - GETTING STARTED.

You will begin learning this technique by practicing with the first series of relaxation suggestions. These suggestions are presented in "Progressive Relaxation Script Number 1," which begins on page 12-13. You will also need to review three other instructional sheets in preparation for working with this script. These are: "Four ways to Deliver the Scripts" on page 12-10; "How to Read the Scripts" on page 12-11; and "How to Listen to the Scripts" on page 12-12. BEFORE ACTUALLY DOING THE PRACTICE STEPS LISTED BELOW, FIRST READ THE STEPS AND READ THE REST OF THIS APPENDIX SECTION TO FAMILIARIZE YOURSELF WITH THE PROGRESSIVE RELAXATION METHOD AND HOW TO USE IT.

Practice Steps - Phase I

1. Decide which way you will deliver the script to yourself. Get whatever you need to do this: the script, a helper, a tape recorder.
2. Find a location where you will be undisturbed for about half an hour. Sit down in a comfortable chair (Do not lie down!).
3. Now go through the entire script number 1 without interruption, following along with the script's directions and suggestions.
4. If you are disturbed for more than about 30 seconds, go back and begin again.
5. Repeat this phase using script number 1 for two or three consecutive days. Do it until you feel relaxed during the practice session. When this happens, you may move on to Phase II.
6. You may return to the Phase I script whenever you wish to treat yourself to an extra long relaxation session or to reinforce the power of the suggestions in the Phase II script.

PHASE II - BECOMING ACCUSTOMED TO RELAXATION BY SUGGESTION.

This practice phase is very much like the first one, except it is completed in a much shorter time period, about 5 minutes. The suggestions for this phase are presented in script number 2 beginning on page 12-16.

Practice Steps - Phase II

1. Get whatever you need to deliver the script, and seat yourself in a quiet location where you will be undisturbed for about 10 minutes.
2. Go through script number 2 without interruption. If you are interrupted for more than about 30 seconds, go back and begin again.
3. Repeat Phase II using script number 2 for at least 3 to 5 consecutive days. Keep at it until you feel relaxation each time you do it and until you can remember most all of the suggestions without referring to the script.
4. Do not hesitate to return to using script number 1 for a day or more if script number 2 is not relaxing enough for you.

PHASE III - PROGRESSIVE RELAXATION WITHOUT A SUGGESTION SCRIPT.

Now that your mind and body are accustomed to progressive relaxation by suggestions, you are ready to relax yourself without a script.

Practice Steps - Phase III

1. Seat yourself in a comfortable chair where you will not be disturbed for 3 to 5 minutes.
2. Close your eyes and say to yourself, "Relax now."
3. Direct your attention to the various parts of your body as you did when following script number 2. Remember to go at a moderate pace with 5 second pauses as you move from one area to another.
4. In a few sessions, you will be able to relax yourself quickly and deeply without the script.
5. Do the exercise at least once a week to maintain your ability to lower your stress level. You may do it as often as two or three times each day if you like.

REDUCING STRESS WHILE FLYING.

You have now learned how to relax. You are able to sit down, close your eyes, say, "Relax now," and in a very few minutes become quite relaxed. When in a stressful situation, even though you may not be able to get yourself deeply relaxed, you can reduce your SUDs enough to enable you to function more effectively.

You may be thinking, "That's all right in some situations, but what about when I'm flying and there is a crisis coming up? I can't stop, close my eyes, and go through all that procedure. I don't have even 3 minutes then!" You are right, of course, but you can still reduce your SUDs in such a situation. In fact, your training in dealing with overload up to this point has been to prepare you to learn to deal with exactly that type of situation.

> Take a few seconds right now to take a deep breath and say to yourself, "Relax now." No need to close your eyes. Just take a breath and say, "Relax now." Do this once or twice and then continue reading.

Notice the effect? Because of the relaxation training you have experienced, even this brief exercise results in a reduction of SUDs. You do not put yourself into a deep state of relaxation quickly this way - and you wouldn't want to be deeply relaxed in a crisis. You can reduce your stress level enough to enable you to handle the situation more effectively.

In addition to taking a breath and saying to yourself "Relax now," you may wish to add a few other words in a flight situation. You might choose the words you learned earlier in this lesson for use with the deep breathing exercise. Remember them? "Easy! Relax now. One step at a time." Or, you might wish to say to yourself, "Relax now. What is the next thing to do?"

Remember, as you do your practicing with Phase II of Progressive Relaxation, you may also practice saying to yourself a few words or a short phrase to help force your thinking on being relaxed and on dealing with your immediate priorities. The specific words are not so important, so long as they are meaningful and comfortable for you. What is most important is that you choose the words and practice them along with your stress reduction method BEFORE you actually need to quickly reduce your stress in a real situation.

FOUR WAYS TO DELIVER THE SCRIPTS.

The suggestions which train you in Progressive Relaxation may be delivered from the scripts in four ways. You may think them to yourself; you may speak them to yourself; you may have someone else speak them to you; you may tape record the suggestions and then play them back to yourself. Consider the following descriptions of the advantages and disadvantages of the different ways of practicing. Choose the way or combination of ways which is most comfortable and convenient for you. You may even wish to experiment with each of the different ways at first before choosing.

1. Thinking to yourself. This way is good because it requires no equipment and you can do it most any time and most anywhere. First, though, you must learn to recall the suggestions from your memory before you can effectively learn Progressive Relaxation without the script, which is a drawback. Also, you may tend not to pace yourself properly.

2. Reading to yourself. This way is good because it requires no special equipment, and you can do it on your own. The drawbacks are that you may not pace yourself properly, and you may find it difficult to relax at the same time you are trying to read the script correctly, since you must keep opening and closing your eyes.

3. Someone reads to you. This way is good because it allows you to completely relax and follow the suggestions and it may be done without the aid of special equipment. One difficulty is that you must find a helper whenever you wish to practice. Also, you must be certain that your helper reads the script correctly and pleasantly.

4. Tape record and play back. This way is good because you can get the script done once in a manner that pleases you, and then play it back again and again. (You may record the script yourself or have a friend with a clear, pleasant voice do it for you.) A problem is that you must have a tape recorder available for use each time that you wish to practice. If, however, it is convenient and comfortable for you to use a tape recorder, this method is recommended.

HOW TO READ THE SCRIPTS.

To learn Progressive Relaxation quickly and correctly, it is very important that you receive the suggestions properly. Follow these instructions closely:

1. The scripts should be spoken in a quiet voice, yet they should also be spoken assertively and convincingly. The reader's voice should sound pleasant and soothing.

2. The final section (the "wake up" section) should be read more loudly and energetically than the relaxation section.

3. Take the specified amount of time to complete each script. Go slowly! Wherever there are (...) separating phrases, pause about 5 seconds before going on to the next phrase. Wherever there are directions in parenthesis telling you to pause, do so for the specified amount of time. THIS IS IMPORTANT! (At first, you may wish to use a watch or clock to check your timing.)

HOW TO LISTEN TO THE SCRIPTS.

1. Be sure to do this exercise in a comfortable, quiet place where you will not be interrupted for 30 minutes.

2. As you listen, it is important to just let the suggestions guide you. You need not try to do anything - do not even try to relax! Just let go and let the relaxation come over you.

3. As you go through the suggestions, various sounds from around you, and some thoughts from within you, will come to your awareness. That is to be expected. Just leave these distractions alone - no need to worry about them - and they will go away on their own. At times your mind may wander. That, too, is quite normal. When you discover that this has happened, just return your attention to the Progressive Relaxation suggestions - no need to be concerned.

4. Do not try to listen to the suggestions when you are very tired. You are very likely to fall asleep. Also, if you choose to record the suggestions, do not play the recording while driving a car. Your level of alertness may be seriously reduced.

PROGRESSIVE RELAXATION
SCRIPT 1

(Time = 20 to 25 minutes)

This is an exercise in progressive relaxation. By following these directions, you will find yourself becoming deeply and profoundly relaxed. The experience that you are about to have is easy, comfortable, and very, very enjoyable. (Pause 10 seconds.)

To prepare for this experience, let yourself settle into the chair. Let the back of the chair support you; let the legs and seat of the chair support you. Let yourself lean into the chair. Place your arms and hands on your lap, not on the sides of the chair. And be sure that your legs and ankles are not crossed; that both your feet are on the floor. (Pause 10 seconds.)

Now that you are in this position just close your eyes and listen to my voice (Pause 5 seconds.) As you continue to hear my voice, all other sounds will simply go in one ear and out the other; and those sounds will in no way disturb your relaxation but, in fact, will help you relax. (Pause 10 seconds.)

In this exercise, you let yourself relax. You need not try to relax. Just let it happen. If distracting thoughts come into your mind, you need not force them out, because the very effort of forcing them out will keep them there. Just leave them alone - they will disappear of their own accord.

This exercise consists merely of letting your awareness rest on different parts of your body as I mention those parts. As you do, those parts of your body will relax and when we have completed the process, your entire body will be deeply relaxed. (Pause 10 seconds.)

Now just be aware of the big toe on your right foot ... Now, each of the little toes on your right foot, one at a time ... The arch of your right foot ... the heel of your right foot ... the remainder of your right foot.

Now be aware of the big toe on your left foot ... each of the little toes on your left foot, one at a time ... the arch of your left foot ... the heel of your left foot ... the remainder of your left foot ... your left ankle ... the lower half of your left leg, from your ankle to your knee ... your left knee ... your right ankle ... the lower half of your right leg from your ankle to your knee ... your right knee (Pause 10 seconds.)

You may notice different sensations and a feeling of relaxation in the lower half of your legs. Notice how good they feel. We will now let that feeling of relaxation move up through your entire body. Become aware, now, of the upper half of your right leg, from your knee to your hip ... the upper half of your left leg from your knee to your hip ... your left hip ... your right hip ... your pelvic region between your hips ... the lower half of your back, including the base of your spinal column.

Notice how, when the base of your spinal column relaxes, the rest of you relaxes with it. (Pause 10 seconds.) Now relax your stomach ... the upper half of your back, including your shoulder blades ... the big muscles relax, the little muscles relax, all the muscles relax ... your chest. Let all the muscles in your chest relax ... (Pause 10 seconds.) ... your right shoulder ... the upper half of your right arm, from the shoulder to the elbow ... your right elbow ... the lower half of your right arm, from the elbow to the wrist ... your right wrist ... the back of your right hand ... the palm of your right hand ... your right thumb ... all the fingers of your right hand, one at a time, even to the tips of your fingers. (Pause 10 seconds.)

Your left shoulder ... your left arm, from the shoulder to the elbow ... your left elbow ... the lower part of your left arm, from the elbow to the wrist ... your left wrist ... the back of your left hand ... the palm of your left hand ... your left thumb ... each of the fingers of your left hand, one at a time, even to the tips of your fingers. (Pause 10 seconds.)

Now relax the back of your neck - and notice how, when the back of your neck relaxes, the rest of you relaxes even more ... your throat ... your chin and jaw ... your lips ... your tongue ... your right cheek ... your left cheek ... your right ear ... your left ear ... your nose ... your eyes and eyelids ... your forehead and eyebrows ... and your scalp. (Pause 10 seconds.)

Now, just enjoy that feeling of deep relaxation. Enjoy the comfortable, wonderful feeling. (Pause 15 seconds.) Now take a deep breath and say to yourself, "Relax now." (Pause 10 seconds.) Continue to relax as I talk to you for a minute.

Now that you have experienced this deep relaxation, you will be able to return to this relaxed state again in a very short period of time. In later sessions, you will be seated in your chair listening to a series of suggestions like this one - only much shorter. You will take a deep breath and say to yourself, "Relax now," then progressively relax the various areas of your body in just a few minutes.

At the end of that brief period of time, you will be as deeply relaxed as you are now. (Pause 15 seconds.)

Wake-up section: (Read more energetically.)

Shortly, I am going to count from one to five. At the count of five you will be wide awake, mentally alert, and feeling good all over. You will feel refreshed, like you have had a long comfortable nap.

Each number will bring you closer to that state. One ... immediately your body begins to return to normal sensations. Two ... let the energy flow through your arms, legs, body, head - all through you. Three ... shortly your eyes will open; they will feel like they've been bathed in cool, refreshing water. Four, wider and wider awake, now, wider and wider awake. Five, wide awake!

PROGRESSIVE RELAXATION
SCRIPT 2

(Time = 3 to 5 minutes)

This is an exercise in progressive relaxation. By playing this tape and following the directions, you will find yourself becoming deeply relaxed very quickly. Be sure you are seated comfortably in your chair. Close your eyes. Let the back of the chair support you; let the legs and seat of the chair support you. Let yourself lean into the chair. Take a deep breath and say to yourself. "Relax now." (Pause 10 seconds.) Notice that feeling of deep relaxation come over you. Immediately you feel yourself going deeper and deeper into relaxation.

Expand that good feeling now by becoming aware of certain parts of your body. Feel the relaxation particularly in both your feet and ankles ... the lower parts of both your legs, up to and including your knees ... the upper parts of your legs, from you knees to your hips (Pause 10 seconds.) The lower half of your torso; your hips and pelvic region; the lower half of your back, including the spinal column; your stomach ... the upper half of your torso; the upper half of your back, including your shoulder blades; your chest (Pause 10 seconds.)
... your shoulders ... the upper half of both your arms, down through and including your elbows ... the lower half of your arms, down through and including your wrists ... your hands - backs of your hands; the palms of your hands; your thumbs; each of your fingers, even to the tips of your fingers (Pause 10 seconds.) Your neck and throat ... your chin and jaw and lips and tongue ... your cheeks ... your ears ... your nose ... your eyes and eyelids ... your forehead and eyebrows ... your scalp. (Pause 10 seconds.)

Just enjoy the relaxation. You can become even more relaxed by taking a very deep breath and saying to yourself, "Relax now." Go ahead and do that now. (Pause 10 seconds.)

You should continue working with this series of suggestions yourself becoming very deeply relaxed by following its directions. When this happens, you will then be able to relax yourself without using the script. Just make yourself comfortable, close your eyes, take a deep breath and say, "Relax now," and take yourself through your body as you have just done. This is a skill which, once learned, will always be available to you. (Pause 15 seconds.)

Wake-up section: (Read more energetically).

Shortly, I am going to count from one to five. At the count of five you will be wide awake, mentally alert, and feeling good all over. You will feel refreshed, like you have had a long comfortable nap. Each number will bring you closer to that state. One ... immediately your body begins to return to normal sensations. Two ... let the energy flow through your arms, legs, body, head - all through you. Three ... shortly your eyes will open; they will feel like they've been bathed in cool, refreshing water. Four, wider and wider awake, now wider and wider awake. Five, wide awake!

LESSON 13

HAZARDOUS THOUGHT POSTCHECK

This postcheck has two purposes. First, it is intended to reinforce your judgment training. Second, if for some reason you have not mastered any part of the hazardous thought and antidote training, the postcheck will help you identify and remedy that problem.

Your instructor will give you the postcheck, and it will take you about one hour to complete. Do the postcheck before moving on to unit III.

UNIT III

APPLICATIONS

The five lessons of unit III will not present any new information about flight or about pilot judgment. Rather, these lessons will reinforce your understanding and appreciation of the pilot judgment materials you have studied up to this point.

These exercises demand that you apply your newly acquired knowledge about judgment to true-to-life situations. The examples and scenarios used in the exercises are based on true stories of real pilots who made unfortunate errors by failing to exercise good judgment.

If you do not clearly remember the three subject areas, the six action ways, and the PJ sequence chain from unit I, you should now go back and review lessons 1 and 2 before beginning work on lessons 14 thru 18.

LESSON 14

JUDGMENT RELATED TO PREFLIGHT AND AIRCRAFT SYSTEMS

INTRODUCTION.

Any mechanical problem is a very serious and dangerous matter once an aircraft is airborne. Aircraft manufacturers, maintenance personnel and government regulatory agencies work hard to keep each aircraft as safe as possible. However, things still do go wrong, and maintenance personnel do make mistakes. It is the pilot who must make the final judgment regarding the safety conditions of his or her aircraft before each flight.

Here are some examples of common situations which involve poor judgments (PJ's) in relation to preflight actions and to aircraft systems:

1. Assuming maintenance work was done correctly.

2. Failing to do part or all of the standard preflight inspection check.

3. Carelessness during the preflight check, for example leaving gas or oil caps loose or off.

4. Incomplete checking of flight controls for freedom of operation.

5. Not adequately checking aircraft systems prior to takeoff.

6. Not acknowledging the importance of each system. Example: Taking off with an inoperative carburetor heat system.

7. Improper use of aircraft systems.

8. Inadequate understanding of aircraft systems.

EXERCISE 1: SUBJECT AREAS

DIRECTIONS

1. Read the Pilot, Aircraft and Environment sections below, and read the case history which completes each section.

2. Underline the words in the case history which tell you the pilot made a poor judgment about each section's subject.

3. If you believe another subject area is also related to the situation, circle the appropriate "Related Subject Areas" combination.

4. Be prepared to discuss your answers with your instructor after you have completed the exercise.

1.1 PILOT.

The most common PJ's in this area involve the pilot who thinks all or part of the usual preflight inspection routine is not necessary because he or she already has enough information about the aircraft's condition to ensure safe operation.

Case History 1.

Subject Area: Pilot

Related Subject Areas: P/A, P/E, P/A/E

It was the first flight for the aircraft after its required annual inspection. Maintenance personnel were careless at one point in their inspection process. Relying on the accuracy of the maintenance release prepared by a friend of his, the pilot made an incomplete preflight check prior to takeoff. The engine failed just after takeoff, the plane stalled and the pilot was unable to recover from the spin which resulted. The investigation following the accident revealed that there was no oil in the engine.

1.2 AIRCRAFT.

The most common poor judgment made about the aircraft during preflight is believing that a "quick once over" will uncover the same problems as a complete inspection.

Case History 2.

Subject Area: Aircraft

Related Subject Areas: A/P, A/E, A/P/E

The pilot's preflight inspection included a "quick look" to see that the oil filler cap was in place. He did not realize that the cap's locking gears were bent, and that the cap was not firmly secured. Shortly after takeoff the cap came loose, the engine oil escaped, and the engine seized. The pilot had no choice but to make an emergency landing in rough terrain. He escaped with minor injuries, but the aircraft was destroyed.

1.3 ENVIRONMENT.

Some poor judgments occur during preflight activities because the pilot ignores environmental conditions that should alert him to pay particular attention to certain aspects of his aircraft's readiness.

Case History 3.

Subject Area: Environment

Related Subject Areas: E/A, E/P, E/P/A

Airport weather conditions included moderate snow, a 1,600 foot ceiling, and visibility of 2 miles. Although there was a noticeable accumulation of ice and snow on the aircraft, the pilot took off without cleaning the windshield. Immediately after liftoff the pilot reported zero visibility. While attempting to turn back to the airport, the pilot crashed into a radio tower. Accident investigators noted the aircraft was equipped with an alcohol deicing system for the windshield, but the tank was empty.

EXERCISE 2: ACTION WAYS

DIRECTIONS

1. Read the true case history accident reports in each subsection below.

2. Underline the words in each accident report that express the PJ Action Way listed in the headings of the subsections.

3. Write a phrase that describes the correct (safe) action way in the space provided below each accident report.

2.1 DO.

The aircraft was placarded against takeoff or approaches using the auxiliary fuel tank. The pilot took off with the engine feeding from the auxiliary tank. The engine failed shortly after takeoff.

_____

_____

_____

2.2 NO DO.

This pilot did only part of the recommended preflight checks. He attempted to abort his takeoff when he noticed the controls binding. The pilot lost control, and the airplane slid off the end of the runway. Investigation revealed that the seat belt in the rear cockpit was fastened around the control stick.

_____

_____

_____

2.3 OVER DO.

The cabin door came open in flight, and the passenger reacted in panic. The pilot was afraid to try to correct the situation in the air. She immediately attempted an emergency landing on a road. The aircraft slid off the narrow dirt road into a ditch.

2.4 UNDER DO.

Experiencing a partial loss of power, the pilot made an emergency landing in a field where the rough terrain damaged the landing gear. A careful inspection revealed the power loss to be due to fuel contamination. Dirt and plant fibers were found caked around the area of the carburetor air intake.

2.5 EARLY DO.

The pilot landed on a grass strip. Attempting to stop as soon as possible, he applied the brakes almost immediately after touchdown. The aircraft veered off the runway and nosed over into high grass.

2.6 LATE DO.

The pilot noticed an engine vibration and a loss of power at takeoff. Instead of retracting the landing gear immediately as the approved procedure directed, the pilot first tried to improve engine operation by checking the throttle, mixture and carburetor heat settings. As the pilot began retracting the gear, the aircraft struck treetops about one mile beyond the end of the runway.

EXERCISE 3: SCENARIO ANALYSIS

DIRECTIONS

1. Read the following pilot report. The report tells a true story about a pilot who got into trouble because he made a poor decision during his preflight activities.

2. After you finish your reading, answer the questions following the scenario. (Sentences in the pilot report have been numbered for your convenience.) Circle correct answer.

Pilot's Report.

(1)I taxied out of the loading area about 15 minutes later than I had planned. (2)When I got about 1,000 feet down the taxiway, the tower called me. (3)They said they thought they could see smoke coming from around my left wheel assembly. (4)I did not want to stop and check the problem because I was determined to get to Birmingville on time to impress my boss. (5)I figured I should do something right away to get the tower off my back, so I decided to speed up. (6)I thought maybe the rush of air would blow away the smoke that had attracted the tower's attention.

(7)Then the left wheel started binding up a little. (8)The airplane was moving pretty fast, and I was having a hard time steering it in a straight line. (9)The dimly lit taxiway did not help matters. (10)Before I really knew what was happening, the left wheel was off the taxiway and onto the grass. (11)I closed the throttle and tried to stop as fast as I safely could, but the brakes were not working on the left side. (12)By then I figured there was nothing I could do to overcome this run of bad luck, so just let the plane come to a stop. (13)I was so busy cursing my bad luck that I did not notice the underground fuel system box sticking up until it was too late. (14)I hit the box at only about 5 miles per hour, but that was fast enough to do substantial damage to the landing gear. (15)It really makes me mad to think that the whole thing was due to a hydraulic fluid leak in the brake system. (16)I probably would have noticed it if I had done all of my usual preflight inspections.

Questions.

3.1 In sentence 4, the pilot's thought pattern was probably the hazardous one we call:

a. Impulsivity

b. Invulnerability

c. Macho

d. External Control

3.2 The action way represented by the pilot's decision in sentence 4 is:

a. Do

b. No Do

c. Early Do

d. Under Do

3.3 In sentence 5, the pilot's thought pattern was probably the hazardous one we call:

a. Anti-Authority

b. Impulsivity

c. Macho

d. External Control

3.4 What subject area was the pilot making a judgment about in sentence 6?

a. Pilot

b. Aircraft

c. Environment

d. Aircraft/Environment

3.5 What action way is represented in sentence 10?

a. Do

b. Under Do

c. Over Do

d. Early Do

3.6 What hazardous thought could the pilot be using in sentence 12?

a. Anti-Authority

b. Impulsivity

c. Invulnerability

d. External Control

3.7 What is the antidote for the hazardous thought displayed in sentence 12?

3.8 What subject area was the pilot's attention being directed to in sentence 13?

a. Pilot

b. Aircraft

c. Environment

d. Pilot/Aircraft

3.9 What action way is shown by sentence 16?

a. No Do

b. Under Do

c. Over Do

d. Late Do

3.10 In lesson 3 you were taught that an important step in breaking the PJ chain is to "Diagnose the original poor judgment to provide oneself feedback needed to avoid making a similar poor judgment in the future." Which sentence indicates the pilot is taking this step?

a. Sentence 4

b. Sentence 11

c. Sentence 12

d. Sentence 16

LESSON 15

JUDGMENT RELATED TO WEIGHT/BALANCE AND PERFORMANCE

INTRODUCTION.

Engineers design an aircraft to fly safely and efficiently. One design factor that is very important to an aircraft's safe operation, as well as its operating efficiency, is the weight and balance criterion. Flying an aircraft loaded beyond its weight and balance limitations always creates dangerous changes in control and performance characteristics. These unsafe changes cause or contribute to many serious accidents.

Of course, performance is dependent on factors in addition to weight and balance. For instance, density altitude is a very important consideration. Runway surface conditions can also have a noticeable effect on takeoff and landing performance.

Here are some examples of common poor judgments relating to weight and balance and to aircraft performance:

1. Estimating passenger and cargo weights instead of getting exact information.

2. Being in a hurry and not taking the time to make exact calculations.

3. Knowingly exceeding weight and balance limitations to accommodate the desires or demands of supervisors, customers, friends, etc.

4. Forgetting or ignoring such things as density altitude and runway surface conditions that affect aircraft performance.

5. Loading the aircraft as one would a car with no regard to total weight or location of the weight.

6. Failing to secure cargo to prevent the weight distribution from changing while in flight.

7. Failing to consider density altitude when flying in high temperature and high altitude conditions.

8. Trying to make a short field takeoff when other than standard conditions exist. For example, a wet runway, or one that slopes up.

EXERCISE 1: SUBJECT AREAS

DIRECTIONS

1. Read the Pilot, Aircraft and Environment sections below, and read the case history which completes each section.

2. Underline the words in the case histories which tell you the pilot made a poor judgment about the section's subject area.

3. If you believe another subject area is also related to the situation, circle the appropriate "Related Subject Areas" combination.

4. Be prepared to discuss your answers with your instructor after you have completed the exercise.

1.1 PILOT.

The most common PJ's in this area are made when pilots operate their aircraft without knowing the weight and balance data, or knowing it, do not use it. One reason this mistake is made is that in many flights it does not matter. But, when it does matter, it is extremely important!

Case History 1.

Subject Area: Pilot

Related Subject Areas: P/A, P/E, P/A/E

The aircraft was overloaded by approximately 100 lbs. The pilot was aware of this and told one of the passengers that he "knew" the manufacturers tended to exaggerate restrictions and to set them for "the low skilled pilot". He "pulled" the aircraft off the runway and the aircraft mushed into a row of hedges at the airport boundary.

1.2 AIRCRAFT.

The most frequent weight and balance PJ is related to the concept that an aircraft represents a completely fillable space without regard to how much or where. The pilot assumes that because the airplane has 4 seats, holds 42 gallons of fuel, and has 4 cubic feet of baggage space, he or she can fill them all at the same time.

Case History 2.

Subject Area: Aircraft

Related Subject Areas: A/P, A/E, A/P/E

The aircraft was loaded 150 pounds over the maximum gross weight and exceeded the aft CG limit. The pilot attempted to take off from a field with 5,500 feet density altitude using 20° flaps. The airplane stalled after the liftoff and crashed on the runway.

1.3 ENVIRONMENT.

Pilots who take weight and balance seriously may still neglect to consider the effect of the environment on aircraft performance. Factors such as outside air temperature, runway length, field conditions and pressure altitude are ESSENTIAL ELEMENTS in the weight and balance equation.

Case History 3.

Subject Area: Environment

Related Subject Areas: E/P, E/A, E/A/P

The occupants of this airplane were lucky it did not get off the ground. On a hot day at a high altitude field, the aircraft was loaded to its maximum gross weight, with load distribution aft. Takeoff performance was poor, but the pilot delayed in deciding to abort. When the pilot made the decision to abort, he could not stop the airplane on the remaining runway and ran into the boundary fence.

EXERCISE 2: ACTION WAYS

DIRECTIONS

1. Read the true case history accident reports in each subsection below.

2. Underline the words in each accident report that express the PJ action way listed in the heading of the subsection.

3. Write a phrase that describes the correct (safe) action way in the space provided below each accident report.

2.1 DO.

The aircraft was loaded 150 pounds over maximum gross weight and exceeded the aft CG limit. Takeoff was attempted using 20° flaps. The airplane stalled and crashed shortly after takeoff.

_____

_____

_____

2.2 NO DO.

The pilot neglected to secure 125 pounds of frozen fish loaded in the baggage area. The load shifted aft during climb out. Aircraft control was seriously affected and the airplane mushed in short of the runway during an emergency landing attempt.

_____

_____

_____

2.3 OVER DO.

The pilot and the passenger were hunting coyotes from the aircraft. Density altitude was 6,000 feet. The airplane stalled and crashed while the pilot was making a steep 360° turn.

2.4 UNDER DO.

The airplane was 140 pounds over maximum gross weight because the pilot estimated passenger weights too low. On landing, the airplane was slow to respond when the pilot tried to flare. The pilot's poor attempt to control the aircraft resulted in a hard landing which damaged the nose gear.

2.5 EARLY DO.

The pilot was anxious to take off from a soft field located at a high altitude. The aircraft was heavily loaded with the weight improperly distributed. He lifted the airplane off as soon as he thought it would fly. It mushed along above the runway and finally hit a truck parked at the edge of the airport.

2.6 LATE DO.

The aircraft was loaded to within 10 pounds of maximum gross weight. Takeoff was to be made under crosswind conditions on a short runway with a creek 100 feet from the end. The pilot's decision to abort the takeoff attempt came with little runway remaining, and the airplane wound up in the creek.

EXERCISE 3: SCENARIO ANALYSIS

DIRECTIONS

1. Read the following fact summary and pilot report. The report tells the true story of a pilot who got into trouble because of his poor decision-making about weight and balance and its effect on performance.

2. After you finish your reading, answer the questions following the scenario. (Sentences in the pilot report have been numbered for your convenience).

Fact Summary.

Pilot	:	168 hours total time, 76 hours in this aircraft type. Has held private pilot's license 8 months. All flying was done in the Midwestern U.S.
Aircraft	:	Single engine, 4 seats. Loaded within 20 pounds of maximum gross weight at takeoff. The CG is slightly beyond the aft limit due to cargo in the rear baggage area. All systems are operating normally.
Airport	:	Departure being made from Tombstone, Arizona, a small municipal field, elevation 4,700 feet. One runway, hard dirt, 4,200 feet, designated 6-24, slight uphill slope from east to west.
Flight Plan	:	Filed at Tucson. Depart Tucson 0700; arrive Tombstone 0730 and depart 1300; arrive Nogales 1345 and depart 1900; arrive Tucson 2000.
Current Conditions	:	Barometer 29.78, temperature 93° F, wind 260° at 7 knots, density altitude 6,200 feet, sky clear, runway dry.

Pilot's Report.

(1)Taking off from Tombstone, I knew the aircraft was only 20 pounds under maximum gross weight. (2)I failed to realize that our new cargo had moved the CG to slightly beyond the aft CG limit. (3)At our time of departure, the temperature was 93° F, and the density altitude was 6,200 feet.

(4)Because weight and balance had never created any problems for me, I did not bother to calculate takeoff distance. (5)I did try to estimate it, however, by remembering my figures from earlier in the morning at Tucson. (6)At maximum gross weight and at the Tucson density altitude of 5,000 feet, the aircraft performance chart called for 1,600 feet of takeoff roll.

(7)Since the runway at Tombstone gave me 4,200 feet, I was sure there would be no problem.

(8)The prevailing wind was from 260° at 7 knots, so I made the departure on Runway 24. (9)During the takeoff roll, the airplane accelerated very slowly. (10)About half way down the runway, I thought about aborting the takeoff attempt, but the speed gradually continued to increase. (11)I finally rotated after using about two-thirds of the runway, figuring it would either fly or it wouldn't.

(12)Then my real problems began. (13)As I attempted to establish the aircraft at its best rate-of-climb, I found the nose wanted to stabilize at a higher than normal angle of attack. (14)Next, I noticed the airplane was not gaining much altitude in relation to the ridge which was just a little over a mile ahead of us. (15)Worried, I felt I had to do something right then, so I pulled the nose up higher in an attempt to get the best-angle-of-climb airspeed. (16)The airplane was very difficult to control.

(17)As the ridge grew closer, the airplane's altitude above the ground got lower and lower. (18)With the crest of the ridge less than a mile away, I concluded it was unlikely that the airplane would climb fast enough to get over the top. (19)My height above terrain at one half mile had dipped below 300 feet, and I decided that my only hope was to turn 180° and to go back to the airport. (20)To say the least, the turn was a very unnerving experience. (21)But, it was my only way out. (22)I was flying just above stall speed, and aircraft control was unstable because of the loading beyond the aft CG limit. (23)At one point in the turn the wheels were less than 20 feet off the ground. (24)Somehow, though, I succeeded in making the turn and in getting back to the airport.

Questions.

3.1 Which sentence indicates the pilot did something he should not have done?

a. Number 1

b. Number 4

c. Number 6

d. Number 8

3.2 The pilot's thought pattern at the decision point referred to in question 3.1 was probably the hazardous one called:

a. Impulsivity

b. Invulnerability

c. External Control

d. Anti-authority

3.3 Which sentence suggests the pilot did something too late?

a. Number 7

b. Number 8

c. Number 9

d. Number 10

3.4 The pilot's thought pattern at the decision point referred to by sentence 11 was probably the hazardous one called:

a. Impulsivity

b. Invulnerability

c. Macho

d. External Control

3.5 The pilot's thought pattern at the decision point referred to in sentence 15 could be the hazardous one called:

a. Impulsivity

b. Invulnerability

c. Macho

d. Anti-authority

3.6 The correct antidote for the hazardous thought pattern referred to in question 3.5 could be expected to call the pilot's attention to:

a. The rule about loading the heaviest passengers to the front of the aircraft.

b. The real possibility that being overloaded might cause the airplane to crash.

c. A sudden change in attitude might stall the aircraft.

d. The pilot, not "Lady Luck," needs to do something quickly.

3.7 What type of poor decision making does sentence 19 best represent?

a. Do

b. No Do

c. Early Do

d. Late Do

3.8 One principle of the PJ sequence chain states that, "As the PJ chain grows, the alternatives for safe flight decrease." Which sentences best illustrates this principle?

a. Number 11

b. Number 13

c. Number 17

d. Number 19

e. Number 22

3.9 Do you think the pilot fully considered his aircraft during this series of events?

a. yes

b. no

c. Why? _____

_____

3.10 Do you think the pilot fully considered his environment during this series of events?

a. yes

b. no

c. Why? _____

_____

LESSON 16

JUDGMENT RELATED TO OFFICIAL PROCEDURES AND COMMUNICATIONS

INTRODUCTION.

Many rules, procedures and regulations control aircraft operations. The Federal Aviation Regulations (FAR) and the Airman's Information Manual (AIM) contain information that every pilot must know and use correctly at all times. Airport procedures, radio communications and radio navigation aids are all designed to make flying safer by requiring every pilot to conform to standard systems and procedures.

There are a number of ways pilots can endanger themselves and others because of poor judgments in relation to official rules and procedures.

Here are some examples:

1. Failing to learn all regulations and procedures correctly.

2. Failing to review regulations and procedures that have become unclear or have been forgotten over time.

3. Not keeping current on changes and additions to official information, such as the F.A.R.'s and sectional charts.

4. Ignoring the rules and procedures.

5. Failing to get further explanation when something seems confusing or illogical.

6. Failing to be assertive and to challenge apparent mistakes when an official source of information, such as a controller or an FAA publication, seems to be in error.

EXERCISE 1: SUBJECT AREAS

DIRECTIONS

1. Read the Pilot, Aircraft and Environment sections below, and read the case history which completes each section.

2. Underline the words in the case histories which tell you the pilot made a poor judgment about the subject area.

3. If you believe another subject area is also related to the situation, circle the appropriate "Related Subject Areas" combination.

4. Be prepared to discuss your answers with your instructor after you have completed the exercise.

1.1 PILOT.

Poor Judgments are often made when a pilot assumes his knowledge is complete about things that the official rules and procedures require him to know and to verify.

Case History 1.

Subject Area: Pilot

Related Subject Areas: P/A, P/E, P/A/E

An experienced pilot was landing at a small airport for the first time in over a year. After taxiing to a stop, he was met by the tower chief who wanted to know why the pilot had not radioed to request landing clearance. Red faced with embarrassment, the pilot explained that he did not know that a tower was now in operation where none had existed on previous visits.

1.2 AIRCRAFT.

A pilot will sometimes make a poor judgment regarding how carefully he has to follow the rules to assure safety in a particular aircraft. As a result, he or she may underestimate the potential danger of a given situation.

Case History 2.

Subject Area: Aircraft

Related Subject Areas: A/P, A/E, A/P/E

While making touch-and-go landings, the pilot of a single engine aircraft was contacted by the tower. The tower advised caution due to possible wake turbulence from a departing turboprop. The pilot executed a touch-and-go less than a minute after the turboprop's takeoff. Wake turbulence carried the single engine aircraft into uncontrolled flight, and it crashed before the pilot could recover.

1.3 ENVIRONMENT.

The most common poor judgments about the environment result when a pilot assumes that the environment will remain unchanged after receiving an official report.

Case History 3.

Subject Area: Environment

Related Subject Areas: E/P, E/A, E/P/A

The Cessna pilot was cleared for a touch-and-go landing after calling the tower from 2 miles out. A Piper aircraft entered the landing pattern with its radio turned off. The two airplanes collided on final approach. The crash seriously injured 5 people and destroyed both aircraft. Investigators noted that each pilot had over 900 hours flying time.

EXERCISE 2: ACTION WAYS

DIRECTIONS

1. Read the true case history accident reports in each subsection below.

2. Underline the words in each accident report that express the PJ action way listed in the heading of the subsection.

3. Write a phrase that describes the correct (safe) action way in the space provided below each accident report.

2.1 DO.

After landing, the pilot selected 121.7 for ground control while the correct frequency was 121.9. Taxiing to the ramp the pilot crossed the active runway. The pilot of a second aircraft was unable to abort his takeoff run, and a ground collision resulted.

_____

_____

_____

2.2 NO DO.

The pilot reported the airport in sight 10 miles out and was cleared for a visual approach. Approach control advised the pilot to contact the tower for landing clearance. The pilot landed without contacting the tower.

_____

_____

_____

2.3 UNDER DO.

The traffic pattern was congested and the unicom frequency was very busy. There were wide variations in the standard pattern because of the differing approach speeds of the variety of aircraft attempting to land. A Cessna 150 pilot, assuming he was next to land, started his turn to final after a short base leg. He failed to see a Mooney in-bound on a long final approach and the two collided in mid-air.

2.4 OVER DO.

There was ice and snow on the taxiways and runways. Light snow was falling, limiting visibility. The pilot mistook a taxiway for the active runway. Cleared for takeoff, the pilot began his roll. At the moment of liftoff the tower informed the pilot that he was taking off from a taxiway. The pilot reacted by trying to abort the takeoff. The aircraft hit a barrier chain at the end of the taxiway.

2.5 EARLY DO.

A pilot was taxiing for takeoff at a large and busy airport. He thought he heard a clearance for his aircraft to move into takeoff position. The clearance was actually for another aircraft, but the pilot moved forward immediately without waiting for the tower to respond to his readback. The jet blast from the DC-10 departing in front of him overturned the aircraft.

2.6 LATE DO.

A VFR aircraft at 17,500 feet advised the control center that he was climbing to 21,500 feet, VFR. The controller advised the pilot that Positive Control Airspace was in effect above 17,500 feet. The controller's next check showed the aircraft at 18,500 feet and climbing. The controller then forcefully advised the pilot to descend VFR to 17,500 feet. This time the pilot complied. The report of the incident notes, "He had been crossing a high altitude departure route which, luckily, was unoccupied."

EXERCISE 3: SCENARIO ANALYSIS

DIRECTIONS

1. Read the following pilot's report. Making judgments about information received is a very important part of a pilot's work. Sometimes even official information can be confusing or incorrect. The following scenario tells the true story of a pilot who was led astray by such information.

2. After you finish your reading, answer the questions following the scenario. (Sentences in the pilot report have been numbered for your convenience).

Pilot's Report.

(1)I got up early and watched the television weather. (2)Conditions looked good for the area, except for a squall line due to move in from the southeast during the afternoon. (3)At the airport, the FBO was not open and I couldn't find a pay phone nearby. (4)I therefore did not get a weather briefing. (5)I decided not to file a VFR flight plan, since I expected a routine flight. (6)Once in my aircraft, I tuned in the ATIS broadcast which reported the local weather to be VFR, wind out of 090° at 10 knots, altimeter setting 30.29 inches.

(7)I took off on runway 6L, and I switched my radio to departure control. (8)The controller said, "Left 360, climb to 3,000, follow river." (9)I read back, "Roger, a left 360, climb to 3,000." (10)The departure controller responded, "...firm, follow traffic 10 o'clock, 4 miles." (11)I replied, "doing a left 360 and looking for traffic." (12)I thought to myself that a 360° turn just after takeoff was very unusual, but I trusted the controller and did it anyway. (13)About half way around, the controller said, "What are you doing? You were supposed to roll out on a heading of 360°." (14)I immediately turned back to 360° and departed the airport traffic area without further incident.

(15)As I headed west at 4,500 feet, I could see a cumulonimbus cloud off to my left. (16)About an hour later, the weather in my vicinity had worsened to the point where I feared I would soon be flying into IFR conditions. (17)I got out my sectional chart to look for an alternate airport. (18)Fortunately, I was close to Lakeville, an airport I had landed at a few times in years past. (19)I headed there right away. (20)I arrived near the field about 10 minutes later, and I began descending from 4,500 feet to 2,000 feet to circle the field, to look for traffic and determine the active runway.

(21)All of a sudden, I saw an aircraft at my altitude (2,000 feet indicated), and it was headed right at me from my 2 o'clock position. (22)Since I was there first, I decided to continue straight on my course - the other aircraft quickly passed rapidly under my wing. (23)I then tried to establish radio contact on what I thought was the UNICOM frequency for Lakeville. (24)Another pilot answered my call, and advised me to contact Lakeville tower on 120.7 MH. (25)I thanked him and took a second look at my sectional chart: It was over 10 months old!

(26)The tower told me to enter a downwind for runway 12 at pattern altitude, and they gave me an altimeter setting of 30.31. (27)As I moved to reset my altimeter, I was surprised to find it was set at 29.29. (28)I must have erred when I set it from the ATIS broadcast at my departure airport! (29)That explained the near midair collision - I was <u>at</u> pattern altitude, not 1,000 feet above it!

QUESTIONS.

3.1 Which are the two possible action ways the pilot performed according to information in sentence 3:

a. Late Do/No Do

b. Do/Under Do

c. Late Do/ Under Do

d. No Do/Over Do

3.2 Which sentence illustrates the beginning of a PJ chain?

a. Number 2

b. Number 3

c. Number 4

d. Number 5

3.3 Which antidote is appropriate for the hazardous thought that may be present in sentence 5?

a. Not so fast. Think First.

b. Use the rules. They are usually right.

c. I'm not helpless. I can make a difference.

d. Why not me? I'm human, too.

3.4 What action way is described by the controller's instructions to the pilot in sentence 10?

a. Do

b. Early Do

c. Under Do

d. Late Do

3.5 Which hazardous thought is shown by what the pilot says in sentence 12?

a. Anti-authority

b. External Control

c. Macho

d. Impulsivity

3.6 Which combination of subject areas is of greatest concern to the pilot in sentence 21?

a. Pilot/Environment

b. Pilot/ Aircraft

c. Environment/Aircraft

d. Pilot/Aircraft/Environment

3.7 What hazardous thought might the pilot have had in ignoring the right-of-way regulations in sentence 22?

a. Anti-authority

b. Macho

c. Invulnerability

d. External Control

3.8 What action way is illustrated by the poor judgment exercised in relation to communications in sentence 23?

a. No Do

b. Under Do

c. Late Do

d. Early Do

3.9 What action way is suggested by sentence 25?

a. No Do

b. Late Do

c. Under Do

d. Do

3.10 In sentence 28 the pilot noticed he had misunderstood information from the ATIS. To which subject area or areas would a pilot have to pay careful attention in order to notice such an error?

a. Pilot

b. Environment

c. Pilot/Environment

d. Aircraft/Environment

LESSON 17

JUDGMENT RELATED TO CROSS COUNTRY FLYING

INTRODUCTION.

For many pilots, cross country flying creates a feeling of excitement. As the anticipation builds, a pilot may view his abilities in an unrealistic, overconfident manner. Another pilot may tend to view cross country flights as very routine and take a complacent attitude. In either case, poor judgments before and during the flight can lead to risky situations and accidents.

Examples of cross country related poor judgments are:

1. Carelessness when obtaining the preflight weather briefing.

2. Lack of familiarity with the aircraft.

3. Poor planning of cross country route.

4. Improper use of navigational aids and methods.

5. Poor planning of fuel load and usage.

6. Over extension of skills in weather conditions.

7. Failing to ask for help when a problem occurs.

EXERCISE 1: SUBJECT AREAS

DIRECTIONS

1. Read the Pilot-Aircraft-Environment sections below and read the case history which completes each section.

2. Underline the words in the case histories which tell you the pilot made a poor judgment about the section's subject area.

3. If you believe another subject area is also related to the situation, circle the appropriate "Related Subject Areas" combination.

4. Be prepared to discuss your answers with your instructor after you have completed the exercise.

1.1 PILOT.

Often a pilot becomes overconfident of his ability to navigate on a cross country flight. This can lead to unexpected situations which are difficult or impossible to overcome.

Case History 1.

Subject Area: Pilot

Related Subject Areas: P/A, P/E, P/A/E

The pilot was flying a single engine aircraft from Japan to Alaska using dead reckoning as his primary means of navigation. He estimated his time enroute as 13.5 hours. The pilot did not properly correct for wind and drifted off course. Seventeen and a half hours after departure he ran out of fuel and had to ditch in the ocean.

1.2 AIRCRAFT.

When preparing for a cross country flight, it is a serious mistake to not be sure that the aircraft is properly equipped to make the flight. For example, if the flight is to be conducted under night or instrument conditions, the aircraft must be equipped with the necessary lighting, instrument and anti-icing/deicing systems. The pilot must also check that the required equipment is operational.

Case History 2.

Subject Area: Aircraft

Related Subject Areas: A/E, A/P, A/P/E

The weather forecast called for icing conditions enroute. The pilot departed even though the aircraft was not equipped with wing deicers. Freezing rain and sleet were encountered causing ice to form on the wings. The pilot experienced airspeed and control problems which resulted in a stall and a fatal crash.

1.3 ENVIRONMENT.

We have defined environment as everything other than the airplane. Certainly most of what is "out there" on a cross country flight involves the weather. The most common poor judgment made about the environment is to continue flight into deteriorating weather conditions.

Case History 3.

Subject Areas: Environment

Related Subject Areas: E/P, E/A, E/P/A

Even though the pilot was not instrument rated, he continued his flight into IFR conditions (overcast, low ceiling). While attempting to get below the overcast to find a landing area, the pilot flew into high voltage power lines and crashed.

EXERCISE 2: ACTION WAYS

DIRECTIONS

1. Read the true case history accident reports in each subsection below.

2. Underline the words in each accident report that express the PJ action way listed in the heading of the subsection.

3. Write a phrase that describes the correct (safe) action way in the space provided below each accident report.

2.1 DO.

The pilot did not have an instrument rating. Even though there was a good possibility of enroute IFR conditions due to snow, the pilot decided to continue the flight. He encountered a snowstorm and low ceilings. The pilot had to make a precautionary landing on a snow covered road.

_____

_____

_____

2.2 NO DO.

The pilot had been flying above scattered clouds when she noticed the clouds beneath her had developed into a solid overcast. Trying to remain VFR, the pilot began a descent and encountered unbroken cloud cover. She then declared an emergency and requested the ATC Center to provide vectors to the nearest airport.

_____

_____

_____

2.3 OVER DO.

On a cross country flight the pilot was eastbound at 3,500 feet. She was being very careful to stay on course. While intently watching the VOR Course Deviation Indicator (CDI), she neglected to check her altimeter. She was startled to see an aircraft pass 100 feet above her. A look at the altimeter told her she was currently flying at 3,850 feet.

2.4 UNDER DO.

About 350 miles from his intended destination, the pilot experienced a rough running engine. He decided to make a precautionary landing at the nearest airport. On landing, he failed to check carefully for a "gear-down-and-locked" indication prior to landing. The gear was not locked because the hydraulic pump had stopped working when the engine had failed.

2.5 EARLY DO.

Although there had been no mention of fog in the weather forecast, the pilot ran into patches of ground fog during final approach. He continued the approach, but misjudged his ability to make the landing flare and leveled off too high. A hard landing resulted, damaging the aircraft.

2.6 LATE DO.

Flying over water, the pilot reported that he was dangerously low on fuel and was unsure of his position. Air Traffic Control radar located the aircraft, and the pilot was given a heading toward land. Minutes later, the pilot reported he was out of fuel and was ditching in the ocean. No survivors were found.

****

EXERCISE 3: SCENARIO ANALYSIS

DIRECTIONS

1. Read the following pilot report. The report tells the true story of a pilot whose judgment with regard to planning and flying a cross country trip led to disaster. This story is an excellent example of how one poor judgment often leads to another, and how the alternatives for safe flight are reduced when this happens.

2. Underline the words or phrases that express the subject areas.

3. Circle the words or phrases that express the PJ action ways.

4. Identify the sentences which suggest hazardous thoughts by writing the appropriate identifying symbol in the margins:

   ANA = Anti-authority, IMP = Impulsivity, INV = Invulnerability, MAC = Macho, EXT = External Control.

5. After you finish your reading, answer the questions following the scenario. (Sentences in the pilot report have been numbered for your convenience).

Pilot's Report.

(1) I was flying two friends from Pelltown to Astorville to look at a new boat and then returning to Pelltown with one of them. (2) The visibility at Pelltown was near VFR landing minimums during my preflight planning. (3)Enroute to Astorville I received a weather briefing from FSS (Flight Service Station) personnel telling me that the weather was probably not going to improve. (4) I was becoming somewhat concerned because I did not have an instrument rating and the aircraft was not equipped with deicing equipment.

(5) While on the ground at Astorville, I debated about refueling for the return trip. (6) I figured there was enough to get back to Pelltown with about a 25 minute reserve. (7) I expected to get back about sunset, and decided that I would not really need a 45 minute reserve for the night VFR flight. (8) I considered topping off the tanks, but I decided against that. (9) I had made this trip probably 50 times, and I was sure I could do it with no problem - bad weather or not. (10) Besides, I was in a hurry to get going before the weather got even worse.

(11) So I left the Astorville area with my passenger. (12) He asked me if I thought the weather was going to be a problem. (13) I remember telling him, "No, there's nothing to flying in this stuff." (14) At the time I really meant it. (15) About 20 miles out from Pelltown, the weather had become really nasty with steady snow flurries and gusty winds.

(16) Astorville approach control informed me that the airport was at landing minimums, and that their VASI system (Visual Approach) was inoperative. (17) I checked our fuel and as best I could tell there was only 15 minutes left. (18) This was not enough to get us to another airport, nor was I sure it was enough for a second landing attempt.

(19) With the VASI system inoperative, I knew I would have to fly a very precise approach. (20) Not wanting to alarm my friend, I simply told him, "We'll be landing as quickly as possible. (21) Let's have no conversation until we get on the ground." (22) His reply of "okay" came with a flat voice and a concerned look on his face.

(23) I decided to dip a bit below the recommended minimum altitude when I did not see the runway as soon as expected. (24) The controller then said, "Below altitude."

(25) My thought at the time was, "Don't worry, the guy who makes up these altitudes always makes them a little higher than necessary." (26) I did not adjust my descent. (27) Soon after that the aircraft struck the tree tops on the ridge a few hundred yards from the airport boundary.

QUESTIONS.

3.1 What subject area combinations concern the pilot in sentence 4?

a. Pilot/Aircraft

b. Pilot/Environment

c. Aircraft/Environment

d. Pilot/Aircraft/Environment

3.2 Considering the ending to the scenario, what action way is suggested by sentence 8?

a. Do

b. No Do

c. Over Do

d. Early Do

3.3 Which hazardous thought would you associate with the pilot's comment in sentence 9?

a. Anti-authority

b. Impulsivity

c. Invulnerability

d. External Control

3.4 Which hazardous thought would you suspect the pilot of using by what is said in sentence 13?

a. Anti-authority

b. Impulsivity

c. Macho

d. External Control

3.5 What is the subject area being considered in sentence 18?

a. Pilot

b. Aircraft

c. Environment

d. Aircraft/Environment

3.6 Which antidote would you suggest for the hazardous thought that may be present in sentence 20?

a. "Give the rules a chance. They could be right."

b. "I'm not helpless. I can make a difference."

c. "Not so fast. Think about it."

d. "Risks don't make me a better pilot. They make me a fool."

3.7 Which Action Way describes the pilot's action in sentence 23?

a. Do

b. Under Do

c. Over Do

d. Late Do

3.8 Which hazardous thought is shown by what the pilot says in sentence 25?

a. Anti-authority

b. Impulsivity

c. Macho

d. External Control

3.9 What is the action way associated with the pilot's judgment in sentence 26?

a. Do

b. No Do

c. Over Do

d. Late Do

3.10 One principle of the PJ chain states, "The more poor judgments made in sequence, the more probable that others will continue to follow." Which sentence in the scenario best illustrates this principle?

a. Number 4

b. Number 7

c. Number 13

d. Number 23

LESSON 18

JUDGMENT RELATED TO PHYSIOLOGICAL FACTORS AND NIGHT FLYING

INTRODUCTION.

Flying VFR at night introduces additional difficulties in the already challenging job of flying. Obvious dangers face the pilot who flies with a physiological impairment such as illness, fatigue, or being intoxicated. Yet, many accidents occur because pilots make poor judgments with regard to their ability to fly safely in spite of night conditions or physiological limitations.

Here are some common examples of these poor judgments:

1. Flying while under the influence of alcohol.

2. Flying with a known illness.

3. Flying when extremely fatigued due to lack of sleep or food.

4. Flying into conditions which are likely to cause vertigo.

5. Flying VFR at night without sufficient experience at recognizing landmarks.

6. Underestimating the factors which can cause disorientation at night.

EXERCISE 1: SUBJECT AREAS

DIRECTIONS

1. Read the Pilot, Aircraft and Environment sections below and read the case history which completes each section.

2. Underline the words in the case histories which tell you the pilot made a poor judgment about the section's subject area.

3. If you believe another subject area is also related to the situation, circle the appropriate "Related Subject Areas" combination.

4. Be prepared to discuss your answers with your instructor after you have completed the exercise.

1.1 PILOT.

All physiological factors obviously involve the subject area Pilot. And, as you might suspect, flying while under the influence of alcohol leads the list of problem areas. Research indicates that 16 percent of fatal general aviation accidents involved pilots with positive alcohol levels.

Case History 1.

Subject Area: Pilot

Related Subject Areas: P/A, P/E, P/A/E

The pilot was 25 years old, had 114 hours total time and 2 hours in this type aircraft. He and his three passengers were observed drinking alcoholic beverages before getting into the airplane. Even though IFR conditions existed, the non-instrument rated pilot took off. About one minute after takeoff, the airplane crashed into a nearby field and all four lives were lost.

1.2 AIRCRAFT.

Pilots often forget - or never learn - that night flying can alter the appearance of things. Visibility, both inside and outside the cockpit, must receive extra care and attention during night flying.

Case History 2.

Subject Area: Aircraft

Related Subject Areas: A/P, A/E, A/P/E

A non-instrument rated pilot was trying to land at night under VFR. Conditions included a partially obscured sky and visibility that was, at some points, less than one half mile due to patches of fog. The approach was made with the landing lights on. The pilot overshot the runway and crashed into a ravine. Investigators believed that light reflecting from the water droplets forming the fog probably reduced the pilot's visibility to nearly zero.

1.3 ENVIRONMENT.

Pilots often make poor judgments because of their inability to locate and recognize ground references when flying VFR at night.

Case History 3.

Subject Area: Environment

Related Subject Areas: E/P, E/A, E/P/A

A pilot on a night VFR flight was unable to locate the airport. Running low on fuel, the pilot circled the town for 45 minutes trying to find the airfield. He finally ran out of fuel and had to make an emergency landing.

EXERCISE 2: ACTION WAYS

DIRECTIONS

1. Read the true case history accident reports in each subsection below.

2. Underline the words in each accident report that express the PJ action way listed in the heading of the subsection.

3. Write a phrase that describes the correct (safe) action way in the space provided below each accident report.

2.1 DO.

During cruising flight the engine failed because of fuel starvation. The pilot's emergency landing attempt ended in a spin and crash. Investigation revealed: 1) The fuel selector was set on an empty tank; 2) The pilot's blood alcohol level was high enough to reduce her efficiency and judgment.

_____

_____

_____

2.2 NO DO.

It was after sunset, and the pilot was planning to land on an unlighted dirt strip. He mistook a section of road for the strip, attempted to land on his first approach, and flew into utility wires.

_____

_____

_____

2.3 OVER DO.

With no previous experience in this type aircraft, the pilot took off at night to do some low level pleasure flying. While he was attempting a low power right turn, the aircraft stalled. The airplane spun in before the pilot could make a recovery.

2.4 UNDER DO.

While the airplane was climbing to a cruising altitude of 9,500 feet, the engine failed. The pilot was unable to recover properly. The aircraft lost altitude, veered left and crashed into high terrain. Investigators concluded that the pilot's reaction abilities and his judgment were reduced by the presence of alcohol in his blood.

2.5 EARLY DO.

The pilot was attempting an engine out emergency landing at night. The weather was marginal VFR with a low ceiling. As the pilot descended out of the overcast on his final approach, he had trouble identifying the runway. However, he elected to continue his approach. He landed between two rows of blue taxiway lights and crashed into a fire truck.

2.6 LATE DO.

Because of darkness, the pilot could not accurately determine wind direction or velocity. During his approach, he noticed that he was landing with a fairly strong tailwind. The resulting high ground speed led the pilot to believe that he had plenty of airspeed. Seeing that he was going to overshoot the runway, the pilot elected to go around. He increased pitch before applying power, still believing his airspeed to be adequate. Actually, he was below normal approach speed. While he was adding power, the aircraft stalled and entered a spin from which he was unable to recover.

EXERCISE 3: SCENARIO ANALYSIS

DIRECTIONS

1. Read the following pilot report. The report tells the true story of a pilot who nearly got into trouble because of his poor decision-making related to preflight activities and the operation of an aircraft system.

2. After you finish your reading, answer the questions following the scenario. (Sentences in the pilot report have been numbered for your convenience). Circle the correct answer.

Pilot's Report.

(1)I had been flying at between 12,500 and 13,500 feet for about an hour and a half before I began my descent for landing. (2)I guess I was pushing my luck since I had no oxygen. (3)I did not think anything would happen to me because I had done similar things before and had always come out okay. (4)My altitude had dropped to below 12,000 feet for about 25-30 minutes before I began my landing approach.

(5)When I got over the runway threshold, my brain was a little foggy about how to actually land the airplane. (6)I guess "confused" is a better word for how I was feeling. (7)Well, my slow and fuzzy thinking let the airplane get ahead of me. (8)I tried to land it anyway, wanting to get on the ground and out of the airplane as soon as possible.

(9)The next thing I knew, I was porpoising down the runway. (10)The first hop scared the stuffings out of me. (11)But, surprisingly enough, it also made me more alert. (12)I got the airplane airborne again, and called the tower for a closed pattern. (13)My second landing attempt went a little better, but it was still rough because I was still feeling fuzzy in the head. (14)I guess I was lucky I made it around the second time.

(15)Right away I went to see my doctor. (16)He asked me what I had eaten before the flight. (17)When I told him my last meal was almost seven hours ago and had consisted of vending machine chicken broth and a candy bar, he was obviously annoyed with me. (18)His comments to me were, "Your story sounds like a case of hypoxia (oxygen starvation) or of hypoglycemia (low blood sugar) - or both. (19)I suspect both because you continued to feel confused at the lower altitudes. Also, your symptoms cleared rapidly after your fright reactions to your first landing attempt. (21)A surge of adrenalin in such a situation will produce a very rapid increase in blood sugar level. (22)The hypoxia may have made the blood sugar problem more severe, however."

(23)I left his office a grateful, wiser pilot. (24)I assured him that before flying I would eat a solid meal to maintain an adequate blood sugar level. (25)I also promised myself to get a supplemental oxygen system before trying another long flight at high altitudes.

QUESTIONS.

3.1 The hazardous thought best describing the pilot's thinking in sentence 3 is?

a. Anti-authority

b. Impulsivity

c. Invulnerability

d. External Control

3.2 The Subject Area mentioned in sentence 5 is?

a. Pilot

b. Aircraft

c. Environment

d. Aircraft/Environment

3.3 Which action way is most likely going to be the result of sentence 7?

a. Do

b. Early Do

c. Over Do

d. Late Do

3.4 Which sentence suggests the hazardous thought of impulsivity?

a. Number 7

b Number 8

c. Number 9

d. Number 10

3.5 Which antidote would you suggest for what the pilot is saying in sentence 14?

a. "Who says it can't happen to me? I'm human too."

b. "Not so fast. Think about it."

c. "Risks don't make me a better pilot. They make me a fool."

d. "I'm not helpless. I <u>can</u> make a difference."

3.6 What combination of subject areas does sentence 18 suggest?

a. Pilot/Aircraft

b. Pilot/Environment

c. Aircraft/Environment

d. Pilot/Aircraft/Environment

3.7 What does sentence 19 suggest to you about the doctor?

a. He knows his patient very well.

b. He does not know anything about the airplanes.

c. He knows something about psychiatry and psychology.

d. He understands flight physiology and its effect on pilot judgment.

3.8 For which subject area has the pilot gained a greater respect, as indicated by sentence 24?

a. Pilot

b. Aircraft

c. Environment

d. Pilot/Aircraft

3.9 Which combination of subject areas has the pilot become more concerned about as <u>is</u> shown by his remarks in sentence 25?

a. Pilot/Aircraft

b. Pilot/Environment

c. Aircraft/Environment

d. Pilot/Aircraft/Environment

3.10 The first principle of the PJ chain states, "One poor judgment increases the probability that another poor judgment will follow." Which sentence best represents what this principle is about?

a. Number 1

b. Number 2

c. Number 3

d. Number 5