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Pilot Judgment Training and Evaluation Volume III

Embry-Riddle Aeronautical University
Regional Airport, Daytona Beach, FL 32014

June 1982

Instructor Manual

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16. Abstract This manual explains how the flight instructor is to present the judgment training to the students, outlines the content of the Student Manual, presents two sets of lessons for the instructor to conduct during flight training, and contains support materials for the instructor. The Introduction discusses the instructor's role as a coach of learning and the value of using behavior modification in teaching. Units I, II, and III are teaching outlines for parallel units in the Student Manual presenting judgment concepts, behavioral aspects and applications of judgment training. Units IV and V contain instructor initiated exercises designed to develop, focus, and reinforce the student's judgment-making abilities during flight training activities. Unit VI recites basic management principles of the judgment training course, and the Appendices contain various forms and other instructional support documents. The associated volumes of the document are Volume I--Technical Summary, and Volume II--Student 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	meters	m
yd	yards	0.9	kilometers	km
m	miles	1.6		
AREA				
sq in	square inches	6.5	square centimeters	cm ²
sq ft	square feet	0.09	square meters	m ²
sq yd	square yards	0.8	square meters	m ²
sq mi	square miles	2.6	square kilometers	km ²
acres	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				
teaspoons	teaspoons	5	milliliters	ml
tablespoons	tablespoons	15	milliliters	ml
fluid ounces	fluid ounces	30	milliliters	ml
cups	cups	0.24	liters	l
pints	pints	0.47	liters	l
quarts	quarts	0.95	liters	l
gallons	gallons	3.8	liters	l
cubic feet	cubic feet	0.03	cubic meters	m ³
cubic yards	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
Fahrenheit temperature	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

1 in. = 2.54 cm (exact); 1 lb = 0.45359237 kg (exact); 1 gal = 3.785411784 l (exact); 1 cu yd = 1.35 cubic meters (exact).
Units of Weight and Measure, 1974, 22, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	3.4	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	ac
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	ton
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

This manual contains instructions for administering the training program contained in the Student Manual, and two sets of in-flight training activities that you, the flight instructor, present directly to each student. The Instructor Manual supplements the Student Manual, and is not designed to be a stand-alone document. It is essential that you use the Student Manual as the primary teaching document.

Learn the Student Manual. The material contained in the Student Manual constitutes about 80 percent of the judgment training course. This Instructor Manual outlines the material contained in the Student Manual, explains how to present the material to your students, and provides guidance on how to resolve student difficulties regarding the material.

This Instructor Manual will not, however, teach you the material that students must learn from the Student Manual itself. This material is critical to the success of the judgment training program. You must carefully study and complete all of the lessons contained in the Student Manual. Merely becoming familiar with the material is not sufficient. You must know the material as well as, or better than, your best student. Learning the material is not difficult because the Student Manual requires a minimum of study and memorization. By reading the lessons and completing the exercises you, as well as your students, will learn most or all of the material.

Use the scenarios to full advantage. The Student Manual contains numerous brief stories and examples of pilots using judgment. The "scenarios" are taken from reports of actual accidents and incidents. Some have been slightly altered to fit requirements of the lesson. Aviation traditionally tries to learn from its mistakes, and it is to this end that numerous "actual event" scenarios are presented. Use these scenarios in two ways. First, emphasize to the student the reality of the situations. They are not like word problems thought up as practice exercises for algebra students. They are flight judgment situations which have actually occurred. Similar situations continue to occur year after year. Second, discuss the scenarios and the accompanying exercises with your students. If possible, enrich these discussions by adding stories from your own experiences. This is to be encouraged because discussion of actual incidents and personal experiences may lead the student to improve his own judgment.

In-flight training is entirely up to you. This Instructor Manual contains two sets of training activities (in units IV and V) which you are to present to the student in conjunction with flight training. These lessons do not appear in the Student Manual because they depend entirely upon your interaction with the student. No learning of new material is necessary because the lessons are experiential exercises. In these lessons, the students apply what they have learned from the judgment training materials to actual flight situations. As you study units I through III of this Instructor Manual, be alert to ways to incorporate the judgment training materials into your own methods of flight instruction. This will help prepare you for teaching units IV and V.

THE INSTRUCTOR'S ROLE IN TRAINING.

This training is designed to help pilots overcome a variety of circumstances which may result in poor pilot judgment. As the flight instructor, you are the key part of this program. Your attitude and your approach to flying may often influence students more than any specific lesson in the judgment training program. Help your students develop good judgment and sound flying practices by always setting a good example and by giving them your support and encouragement throughout this program.

To help prepare yourself for your role, think about the difference between the instructor as an evaluator and the instructor as a coach. The flight instructor who acts as an evaluator sees his role as one of telling the student what to do, and then monitoring the student's performance. He makes assignments, watches performance, answers questions, measures performance, and indicates how well the student has done. The amount of learning accomplished is basically up to the student. The flight instructor spends most of his time observing the student and reporting on his or her performance.

In contrast, think of the instructor as a coach. In this role, the instructor actively stimulates learning. The instructor not only makes assignments and watches to see what happens, he also helps the student learn through demonstration and personalized instruction. He does more than just answer questions - he asks them. He does more than point out errors - he encourages the correct ways of doing things.

Similarly, the baseball umpire who calls balls and strikes is only concerned with evaluating performance; he is not interested in helping the pitcher get the batter out. In contrast, the pitching coach instructs the pitcher during practice and then supports the pitcher as much as he can during the game. A win for the pitcher is a win for the team, so the coach plays an active role in his pitcher's development and performance. Simply put, your approach to your flight students should match that of the pitching coach.

How do you instruct as a coach? First, be actively involved with your students as people. A student learns more when he realizes that his instructor knows him as an unique individual. Determine what makes the student unique. What are his or her interests, strengths, and weaknesses? Show the student that you know and care about him or her. One day a student is alert and ready to learn; another day the student is tired or has something on his or her mind. Respond to changes in the student from day to day.

Students, like other people, will often find it difficult to tell you what is on their minds. How can you help a student learn to be more open? Listen and respond constructively. If a student admits a mistake, praise him for his willingness to be objective, discuss the reasons for the mistake, and help him correct the situation.

BEHAVIOR MODIFICATION.

An excellent way to be a learning coach is to practice methods of behavior modification. In behavior modification, you deal only with the actual behavior of the student. There is no attempt to guess at his or her motives, change his or her ideas, or develop his or her will power. Your attention is focused completely on what the student actually says or does. Your responses to the students are most effective when they relate directly to specific observable actions or statements.

The basic concepts of behavior modification are simple, but the applications take some practice. When you first try to apply them, you may feel somewhat awkward. With practice, you will feel increasingly comfortable and after the first few months, the use of these principles will become as automatic as doing flight maneuvers.

The first thing to remember is:

BEHAVIOR FOLLOWED BY REINFORCEMENT WILL CONTINUE

A reinforcement is simply anything desirable which follows a specific behavior. In practice, this may consist of such ordinary things as a smile, praise, or information that the student has done something correctly.

The second thing to remember is:

BEHAVIOR FOLLOWED BY PUNISHMENT MAY DECREASE

Generally, punishment is not an effective way to correct erroneous or undesirable behavior. If the punishment is potent or highly painful, it will reduce the likelihood of repeating undesirable behavior. However, it does not teach the student to substitute the correct response for the error. The student is as likely to substitute a different mistake as he or she is likely to learn the correct response. Mild punishment may cause the student to associate attention received from the instructor with a behavior and thereby increase the chances that he or she will repeat the mistake. In addition, any type of punishment may have a variety of undesirable side effects which could range from student discomfort to active anger or hostility directed against the flight instructor.

Still, punishment related training techniques are often thought to work. At one time, Israeli flight instructors were convinced that punishment worked. They yelled at students who made bad mistakes, and the mistakes were rarely repeated. However, a close examination of the flight records showed that bad mistakes were not often made to begin with. Whether instructors yelled or not, the mistakes were unlikely to happen again. Researchers found no hard evidence that threats, yelling, making students feel guilty, or other forms of punishment actually improved learning.

There is also little evidence that pleading, persuasion, or appeals to a student's better nature will improve learning. Appropriate learning is most effectively achieved by the systematic rewarding of correct responses. The problem is to identify objectives - the exact behavior responses you wish to occur - and then to reward or reinforce them when they happen.

RULES FOR BEHAVIOR MODIFICATION.

To become a behavior modifier you should apply these four basic rules:

1. BE VERY CLEAR ABOUT LEARNING OBJECTIVES. Exactly what behaviors do you want the student to learn? The judgment training program spells out many of the specific things that the student is to learn. For example, the three subject areas and the six action ways.

2. IN THE EARLY STAGES OF LEARNING, REINFORCE GENEROUSLY. The entire course of learning is influenced by its early stages. In the first parts of any sequence, proceed slowly but reinforce or reward as frequently as possible. You should look for responses that can be rewarded. After a firm beginning, later stages can be handled more quickly and simply. Reinforcements range from a smile, to verbal approval, to simple close attention, to making a special record of excellent performance.

3. SHIFT SLOWLY FROM CONTINUOUS TO OCCASIONAL REWARDS. In the early stages, all correct responses should be rewarded. As time passes and responses become automatic, you should decrease the frequency of your praise or attention. The strongest learning is established in the final stages when rewards are irregularly made at fairly long intervals. If the student has come to expect continuous rewards from his instructor and they suddenly cease, there is a good chance that the established learning pattern will break down and that learning will cease. However, if the reinforcement becomes less and less frequent, the behavior will more easily come under control of other rewards such as the student's own satisfaction or competence.

4. SHAPE EXISTING BEHAVIORS INTO DESIRED BEHAVIORS. You cannot wait for the desired behavior to occur and then reinforce it. It is necessary to shape current behaviors into the required form.

In learning to taxi an airplane, for example, students are not able to directly transfer automobile driving experiences to the aircraft where feet and hands are used quite differently. In shaping behavior, your goal is to move the student's responses through a series of closer and closer approximations until they match the required standards. Do this by reinforcing behaviors near the desired performance, then gradually increase the performance requirements until the desired behavior is reached.

Critique and correct the existing behavior, not the person. In other words, tell the student specifically what needs to be changed to meet the learning objective. Do not make general

statements of disapproval or correction. Say, "You need to be firmer on the rudder pedals as you flare," NOT, "Your landings are sloppy and need more work."

BEHAVIOR MODIFICATION REVIEW.

1. Behavior followed by reinforcement will continue.
2. Behavior followed by punishment may decrease. However, punishment does not help the student substitute the correct behavior for the error.
3. Be very clear about learning objectives.
4. In the early stages of learning, reinforce generously.
5. Shift slowly from continuous to occasional reinforcement.
6. Shape existing behaviors into desired behaviors.

UNIT I

TEACHING JUDGMENT CONCEPTS

OBJECTIVES OF THE UNIT.

Unit I of the student manual contains concepts and terms which are used throughout the judgment training course. The success of this training greatly depends upon getting the student to think more carefully and more thoroughly about his judgment process at all times. Traditional pilot training emphasizes the pilot's knowledge about the aircraft and the flight environment. Judgment training focuses on the pilot's need for accurate and complete self-knowledge.

These terms and concepts of unit I have been especially designed to help you lead the student into modified patterns of thinking so as to produce better judgment. The terminology also provides the most concise, objective means possible of discussing pilot behavior in judgment related situations. For these reasons, it is essential that you know this new terminology and use it as often as possible during all flight training activities.

Students become acquainted with the terms and concepts by carefully reading unit I. These three lessons contain no student exercises. Memorization is not required. Rather, the exercises in unit III of the student workbook reinforce the learning of these new terms and concepts, as will your use of them throughout the student's flight training.

After your students have completed reading unit I, be sure that they understand each lesson. You may wish to give them a brief oral quiz to be certain that they do. Be prepared to discuss any problems and clear up any confusion. If a student does not clearly understand, review lessons 1 through 3 as necessary.

COMPLETION SCHEDULE.

Students should complete unit I as they work through the first 10 percent of their standard ground school training materials.

INDIVIDUAL LESSON CONTENT.

LESSON 1. This lesson introduces the student to three subject areas relevant to pilot judgment: the Pilot (P), the Aircraft (A) and the Environment (E). Conventional flight training focuses subject areas A and E. This judgment training focuses on the pilot's need to know more about area P, the pilot and how the pilot interacts with the aircraft (PA), the flight environment (PE), and the combination (PAE).

Lesson 1 also presents easy-to-learn terms for six decisive actions - the actions which result from pilot judgments. These decisive actions are verb phrases called "action ways". The six possible action ways are:

- 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 should have done less.
- EARLY DO = The pilot reacted too early when he should have waited.
- LATE DO = The pilot reacted too late when he should have reacted sooner.

The repetitive use of action ways in the following lessons will support you in teaching the student to substitute the desired response for the erroneous response.

LESSON 2. Lesson 2 introduces the Poor Judgment Behavior Chain. Once a poor judgment (PJ) is made, the probability is greater that another PJ will follow, until a sequence of poor judgments (a PJ chain) is established. As the PJ chain grows, the number of safe alternatives available to the pilot diminishes very rapidly. If the PJ chain is broken early the pilot may have more alternatives for successful recovery. The student is also taught what must be done to break the chain. The judgment training program uses elementary behavior modification to teach new responses to the pilot to effectively break the PJ sequence chain.

LESSON 3. In lesson 3, the student is taught to understand and apply the Three Mental Processes of Safe Flight. The pilot who consistently exercises good judgment is engaged in at least two of the three mental processes at all times during a flight. You will train the student to utilize these perceptual-motor skills during the flight training increments presented in unit IV of this manual.

The first of the three processes is called "Automatic Reaction" (AR). Two types of Automatic Reactions are taught. One type concerns maintaining positive, on-going control of the aircraft with a minimum of attention. The other concerns responses to unusual or emergency situations.

The second mental process is called "Problem Resolving" (PR). Problem Resolving is the mode of thinking that a pilot uses to overcome undesirable situations by means of a systematic process. The process consists of four steps:

- 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.
- Step 4. Obtain feedback about how the solution is working.

You may already have an approach to teaching problem resolution in the aircraft, or you may wish to use the four steps presented here as the basis of your instruction. Use whichever you prefer, but be certain that the student learns to view Problem Resolving as a mental process and not just an instant reaction involving no systematic forethought.

The third mental process is called "Repeated Reviewing" (RR). This is the mode of thinking used to find or to anticipate situations which may eventually require Problem Resolving or Automatic Reaction. It is the mental process that keeps the pilot constantly aware of all factors (Pilot/Aircraft/Environment) that contribute to safe flight.

UNIT II

TEACHING BEHAVIORAL ASPECTS OF JUDGMENT

OBJECTIVES.

Unit II of the student manual is designed to redirect a pilot's thinking in order to promote the consistent use of good judgment. This is done through two approaches. The first addresses the pilot's hazardous thought patterns. Specific hazardous thoughts are identified, and a way for pilots to substitute thoughts which promote good judgment is promoted. The second approach addresses the reduction in judgment-making ability that results from high stress levels. Students are taught how to deal with unusually high stress which threatens the effectiveness of their judgment-making ability.

COMPLETION SCHEDULE.

Unit II of the student manual should be completed during the first 20 to 25 percent of the student's standard private pilot training course. There is no material in this unit which requires advanced knowledge from the ground school training materials or from flight experience. Students must be exposed to this material early on in the pilot training process. The sooner the students know this foundation material, the sooner the knowledge can be put to applied use in conjunction with regular flight training activities.

INDIVIDUAL LESSON CONTENT.

LESSON 4. This lesson contains a brief self-assessment inventory to help the student gain an understanding of the relative strength of each of his or her hazardous thought patterns. If you have not as yet done so, please complete and score your own inventory before continuing. You will find the experience helpful in understanding the program and in assisting your students.

As your students work through this part of the program, explain how each of these thoughts can create trouble for the pilot - how they can lead to errors in pilot judgment. It is important for you to guide students without condemning them for having hazardous thoughts. We all may experience each of the five hazardous thoughts at one time or another. It is not intended that you analyze how the students think or that you "cure" them of hazardous thinking. This lesson's only purpose is to make the student pilot aware that various hazardous thought patterns exist which are likely to interfere with safe flying. The student manual is aimed at teaching the student the importance of moving away from such hazardous thinking to thinking that promotes good judgment.

By completing the self-assessment inventory, the student gains appreciation of the degree to which he or she may be influenced by one or more of the hazardous thoughts. The inventory is scored by

the student, and the score remains confidential. Be prepared, however, to answer any questions the student might have about how to complete the inventory.

The score profile is a self-diagnostic tool used only by the person taking the test. It provides an indication of the relative strength of each hazardous thought for that person at that time. It helps to personalize the program by suggesting which thoughts are most likely for each individual. Under no circumstances should it be used to label a student.

Reassure your students that they will not be asked to reveal their scores to you or to anyone else. It is important that they feel free to answer the items truthfully, without worrying about what others might say. Be sure each student realizes the seriousness of the task. This is the critical lesson in redirecting the student's awareness toward a greater concern for the "Pilot" subject area. Help students see that the tendency to use these thoughts is commonplace, that it is a habit to be broken, not an insurmountable fault. Again, the inventory is to help students gain a better self-understanding, not to find faults or defects!

LESSONS 5-9. These five lessons teach students to identify and understand the five hazardous thoughts. Each lesson is devoted to one particular thought. The lessons are intentionally repetitive. Students, by working through them, will gain a full understanding of each hazardous thought. When the students point out how repetitious they are - and they will - explain the purpose of the repetition.

These five lessons use a design known as "programmed text." Although anyone who reads and follows the directions carefully should be able to work through the lessons, some students may have difficulty with the format and will need your help. A programmed text allows each student to proceed at his or her own pace. Each paragraph calls for a response on the part of the student. The student makes the response by selecting one of the alternatives given and is then directed to turn to a different page in the manual. If he or she has chosen the correct alternative the student will be directed to a different page for the next paragraph or situation. If not, the student is told that the answer is incorrect, given the reason why the answer is incorrect, and directed to return to the paragraph that he or she was working on and to select another alternative. The process is then repeated. Students who select the correct alternative on their first try each time will go through the lessons very rapidly. Those who select incorrect alternatives will take longer. Thus, the more practice the student needs, the more he gets. If you have not completed these five lessons please do so at this time.

LESSON 10. This lesson is important because it specifies substitute thoughts, called "antidotes," for the five hazardous thoughts. The tendency to act on hazardous thoughts can be reduced once the pilot is aware of them. Lessons 4 through 9 are designed to provide this awareness. To completely overcome these thoughts, the pilot must become aware of thinking them and must substitute different thoughts, thoughts that promote good judgment.

EACH STUDENT MUST MEMORIZE THE HAZARDOUS THOUGHTS ANTIDOTES PRESENTED IN LESSON 10. Merely being familiar with them is not enough. They must be memorized word for word. Help your students understand that memorization is absolutely necessary so they can quickly and automatically substitute the new good judgment thought for the hazardous thought.

After the student memorizes each antidote, he or she will read a description of a pilot's thoughts and actions in a particular situation. Whenever the student identifies actions representing a hazardous thought, he or she will write the name of that hazardous thought on the right side of the page and the antidote for that thought immediately after it. You must be sure that the student completes this exercise in its entirety. The hazardous thoughts are repetitive, but repetition aids learning. The student needs to reach a point in learning where, the instant a hazardous thought comes to mind, the antidote will also come to mind. This will come only with repeated practice. Explain this to the student - and keep him working.

Included in the student manual is a key for the student to use for grading the exercise. When discussing the answers with the student, bear in mind that there is some room for differences of opinion. Thus, the student may attribute some action to a hazardous thought which the key has not identified. You and your student should come to some agreement as to whether or not the answer is logically acceptable.

Although it is permissible for the student to find some extra instances of hazardous thoughts, it is not permissible to leave any out. Also, the correct antidote must be supplied word-for-word in each case. Review the student's work to be certain these requirements have been met before assigning lesson 11.

LESSON 11. Lesson 11 requires the student to reinforce his or her knowledge about replacing hazardous thoughts through the use of antidotes. The lesson consists of ten paragraphs describing situations in which the pilot must make and implement a decision. The student specifies the hazardous thought evidenced by the description of the pilot's thinking, writes in the appropriate antidote, and writes a brief description of good pilot judgment for the same situation.

Check the student's work on the first five situations. Use your own understanding of the pilot judgment training materials to evaluate the student's responses. Previously it was mentioned that discussion with an experienced teacher or expert helps improve a student's judgment. The effectiveness of this lesson, therefore, greatly depends on your discussion of the answers with the student. There are no absolutely right answers, and no answer key is provided. Your reasoning with the student as you discuss the answers should be convincing and should eliminate any confusion or uncertainty on the part of the student.

If the student does well on the first five situations, advance him or her to lesson 12. If not, you may have the student practice further on situations 6 through 10.

LESSON 12. Lesson 12 deals with stress and methods to reduce it. The lesson has two objectives: 1) To teach students to identify when they are being affected by stress; and 2) To help them reduce their stress quickly.

First, students are taught to identify for themselves the conditions of overload by using what is known as SUDS. SUDS stands for Subjective Units of Discomfort System. The lesson materials explain the use of the SUDS system.

The second part of the lesson teaches students to begin to relax. Many people do not know how to relax - at least they cannot relax themselves deeply in a few minutes. The students, and you, will learn to relax by using the relaxation techniques described in this lesson. The first technique uses a deep breath as a relaxation cue. This technique also uses imagery as a practice method. If students are dissatisfied with this method, they are encouraged to try using the progressive relaxation technique provided at the end of the lesson. You should be familiar with both techniques.

Perhaps you have seen a student who was so overloaded, who was under so much anxiety and stress, that he could not think clearly. Through the use of one or both of the techniques described in the lesson, students should be able to significantly reduce their stress levels. Remember to remind students that they can, and should use the stress reduction techniques whenever it is appropriate to reduce their stress while flying.

LESSON 13. After the initial training of judgment has been completed, administer this progress check to see if the student has retained his or her mastery of the ideas from lessons 4 thru 11. To do this you will use one of the three postcheck forms. (For master copies of the forms, see page 6-5.) Each form consists of two scenarios of the type used previously. Provide the student with a quiet place to work and assign Postcheck A, B, or C. The postcheck is not a speed test. Allow the student as much time as he or

she needs, within reasonable limits. Score the form using the keys provided at the end of this unit. For a successful postcheck, the student must do two things:

- 1) Omit not more than three of the keyed responses.
- 2) Respond at least once to each of the five hazardous thoughts, correctly producing the antidotes.

Use your own judgment when grading the postcheck. Extra responses should not be penalized unless they are clearly incorrect. If both of these grading criteria are not met, tell the student that he will be checked again at a later date. Suggest that the student review the appropriate materials and remind him of the seriousness of the training. In the recheck, use a second form. A third form is provided if necessary. Please keep in mind that this material is to be presented as a lesson. It is meant to be a learning experience, not just an evaluation of what the student knows. Help the unsuccessful student learn the material in unit II before allowing him or her to move on to unit III.

Remember that your central concern as a flight instructor is the safety of your students. Unit II has been carefully designed to make them aware of some of the thoughts that could endanger them and to help them deal with stress situations. The success of this part of their flight training will depend largely on your own attitudes, for your students will take their cues from you. If they are to obtain the greatest gains possible, it will be because of your support and assistance.

UNIT III

TEACHING APPLICATIONS

OBJECTIVES.

Unit III of the Student Manual contains written lessons to relate the concepts of units I and II to actual flight situations. No new flight or judgment information is taught. Rather, these lessons are intended to reinforce the student's understanding of, and appreciation for importance of the judgment training concepts by integrating these concepts with true-to-life examples of flight situations.

This unit is composed of exercises centered about scenarios in which pilots are carrying out some sort of flight activity. These scenarios are based upon official reports of real occurrences, but have been modified somewhat to fit the needs of this training program. Stress to your students that the scenarios provide opportunities to learn from the mistakes of others. Relate some of your own flying experiences and some of the experiences of your students to appropriate scenarios in the workbook. Relate these experiences to components of the judgment training program, i.e., subject areas, action ways, poor judgment sequence chain; the three mental processes of safe flight, the five hazardous thoughts and their antidotes, stress, and relaxation. Make judgment training seem real, make it "come alive" by your presentation of the lessons in this unit.

COMPLETION SCHEDULE.

These lessons are intended to be integrated into the traditional ground training sequence. The following approach is recommended. The lessons in units I and II are presented during the first 25 percent of the regular ground training materials. The lessons in unit III are then integrated into the lesson topics of the ground training syllabus. The following list of Lesson topics is representative of most ground training syllabi:

1. The aircraft: components and types, aerodynamics and basic performance.
2. Aircraft systems: flight control systems, flight instruments, the reciprocating engine, fuel systems and electrical systems.
3. Airports and communications: runways, lighting, traffic, radio communications, and air traffic control.
4. Weight and balance: theory and calculations.
5. Meteorology: weather theory, weather reports and forecasts.
6. Federal Aviation Regulations.
7. Airman's Information Manual.

8. Flight computer.
9. Basic navigation: aeronautical charts (sectional and world aeronautical charts); airspace utilization and plotter and wind triangles.
10. Radio navigation: VOR (visual omni range) navigation system, DME (distance measuring equipment) and area navigation, ADF (automatic direction finder) and radar and transponders.
11. Medical factors of flight: oxygen and altitude, vertigo, vision, alcohol and drugs.
12. Cross-country flying: flight planning, pilotage, dead reckoning navigation, flying a VFR trip and night operations.

It is suggested the lessons of unit III be integrated into the syllabus as follows:

Judgment Lesson 14: After the aircraft and aircraft systems lessons

Judgment Lesson 15: After the performance and weight and balance lessons

Judgment Lesson 16: After airports and communications, Federal Aviation Regulations, and Airman's Information Manual lessons

Judgment Lesson 17: After basic navigation and radio navigation lessons

Judgment Lesson 18: After medical factors and cross-country flying lessons

INDIVIDUAL LESSON CONTENT.

LESSONS 14-18. Each lesson contains an introduction and three exercise sections. The introduction identifies the area to be addressed. The areas include preflight and aircraft systems (lesson 14), weight/balance and performance (lesson 15), official procedures and communications (lesson 16), cross-country flying (lesson 17) and physiological factors and night flying (lesson 18). The lessons relate to the types of poor judgments which pilots may make with regard to each of the areas of aviation knowledge. The exercises require the student to use all the terms and concepts learned in units I and II to answer the questions. Encourage the students to review the lessons pertaining to subjects in which they feel they are deficient.

After the student has completed the exercise, discuss the answers with the student. No answer key is provided.

Although responses to most of the questions are relatively obvious, there are no absolutely right or wrong answers. Rather, the exercises are intended to stimulate learning in two ways. First having the student look for the subject areas and action ways in "real life" flight situations reinforces the student's knowledge of these concepts and their relevance in redirecting his or her pilot judgment process. Second, your interaction with the student while discussing the answers should improve student awareness of the judgment aspects of all flight situations. Use these exercises to teach your students that there is not always a clearly defined right or wrong answer to every problem encountered while flying; but, the use of the judgment training concepts will allow the best answer possible.

UNIT IV

IN-FLIGHT INSTRUCTION: CONCEPT LESSONS

How does a flight instructor combine behavior modification with the judgment concepts to help students learn better judgment? Do this by giving your students a series of lessons in which you observe and respond to their behavior. As a behavior modifier, you will observe the performance of the student and comment only on specific behaviors. You do not comment on intentions or motivations, only on behavior. Further, you will use rewards (praise) frequently, avoiding criticism (punishment) as much as possible. Errors by the student are to be seen as opportunities for learning, not as occasions for criticism.

INTRODUCING THE LESSONS.

In this unit, you will give your students a flight activity to perform. Each activity is designed to develop the student's learning of Automatic Reaction (AR), Problem Resolving (PR), or Repeated Reviewing (RR). Of course, a lesson designed for AR might also include PR and RR elements as well, but each activity is designed to focus on one of these processes. After observing the student's response to your instructions, use the subject area, action way, and PJ chain concepts of the Judgment Training program to give positive reinforcement when the student has done well and to correct the student when performance was unacceptable. For example, you might say, "You did X early with respect to your airplane." (early do A-subject area), or "You did not do Y concerning the environment." Each time you point out an error, indicate which of the six action ways and which of the three subject areas is involved. When one error follows another, point out that this is an example of a poor judgment behavior chain. Use of these terms and concepts will assure the student proper feedback. It will also help you considerably with a very difficult part of the instructor's role in the judgment training program. It will keep your instruction focused on pilot judgment and not on flight skills.

You will need 15 minutes or so for lesson preparation the first few times you work with each lesson. As with any new activity, you should allow yourself two or three trials with each lesson before the lesson is established as a solid part of your instructional techniques. After that, you will feel much more comfortable teaching these lessons, and you will need little preparation time to assure proper instruction.

Remember that your style of delivery and your professional approach to these lessons is critical for improving pilot judgment. If you

know the lesson plan and then deliver the lesson using the principles of behavior modification explained in the introduction, you will assure that these lessons favorably affect your student's judgment.

WHEN TO BEGIN.

Start these lessons when the student has attained the ability to confidently control the aircraft during most basic maneuvers. Use your own judgment, but a suggested starting point is about three lessons before you expect the student to solo. Also, the student must complete unit I of the student manual before you begin work on this unit.

USING THE LESSON PLANS.

You will devote at least three lessons to teaching each mental process, or a total of nine lessons. Each lesson should take less than 5 minutes. Do only one lesson per training flight. However, one of these lessons and three or more judgment situations from unit V may be accomplished during the same flight.

At the end of this section, you are provided 18 sample lesson plans for in-flight teaching of the three mental processes. These lesson plans are designed to correctly structure each lesson for you and your student. As part of your lesson preparation, you should copy the essential information from the sample lesson plan on to one of the combination instructor lesson plans and checklist blanks. These are provided in your Instructor Materials Packet.

The 18 sample lessons do not include each and every valid way to accomplish this unit's training objective. You may wish to modify, or to substitute for, parts of sample lessons. Or, you may wish to develop your own lesson plans to suit your student and your own style of teaching. This is perfectly acceptable, so long as you meet the objective of this unit. Your mission is to encourage better judgment through coaching and behavior modification techniques, not to give students more flight skills practice. The principles of lesson delivery listed below must be observed in order for you to teach this unit effectively.

PRINCIPLES OF LESSON DELIVERY.

1. Assign an activity to develop one specific mental process. This is the lesson's focus - not the flight activity.
2. Monitor the student's behavior in terms of the objective: Does the observed student behavior indicate success at using the mental process being developed?

3. Praise correct behavior (reinforcement).
4. Coach the student to correct errors using the three subject areas, the six action ways and the poor judgment chain.
5. Coach the student to correct errors, and at the same time occasionally offer some sort of reward (not punishment).
6. Encourage the student to be aware of hazardous thinking and high stress levels.

INDIVIDUAL LESSON CONTENT.

Before meeting your student for his or her flight, select the lesson plan you want to use. Review it carefully as follows:

- Part I: Objective. Know which mental process you are going to present. Can you also teach another mental process along with this one? If so, examine the rest of the lesson plan to see how this might be accomplished.
- Part II: Activity. Where will this activity best fit into the rest of the flight activity? You may want to do the judgment increments early in the lesson so that you can work with the student again later in the lesson if he or she needs additional practice.
- Part III: Observable Behavior Sought. Be sure that you know what you expect the student to do when he is correctly demonstrating the selected mental process. It is acceptable to evaluate other flight skills during this time as long as you are certain to reinforce the student for demonstrating the desired behavior.
- Part IV: Reinforcement. Be prepared to give the student positive reinforcement. Remember, you are the student's coach for learning. This is an ideal time to use some behavior modification teaching techniques. Use the three subject areas as a focus for finding a reason to give the student positive feedback. You may use your own positive reinforcers, but have at least three of them

prepared before the training flight begins. If the student's stress level appears high, call attention to the stress reduction techniques.

Part V: Making Corrections. If the student's performance is unsatisfactory in some way, describe the erroneous behavior in relation to the six action ways and three subject areas. Describe how the behavior could develop into a PJ chain.

Part VI: Student Debriefing. Immediately after the lesson, discuss the overall performance with the student. Determine whether the student was aware of any hazardous thoughts during the exercise. Do not try to figure out why a hazardous thought may have occurred. Simply make the student more aware of his or her own behavior by directing attention to the need for pilot self-awareness of hazardous thoughts.

CONCEPT LESSONS CHECKLIST.

1. Focus on one mental process.
2. Before the lesson, plan positive reinforcements for each of the three subject areas.
3. Observed behavior is to indicate success at using the mental process being practiced.
4. Praise correct behavior.
5. Correct errors by coaching. Use the judgment concepts to do this.
6. Debrief afterwards, encouraging the student to reflect on how he or she handled potential hazardous thoughts, stress, and poor judgment behavior chains.

INSTRUCTOR CHECKLIST AND LESSON PLAN FORM.

This form is to be used during the lesson and for the debriefing. Before the flight, fill in the information about the lesson you will be using. See page 6-23 for complete directions on how to use this form and page 6-8 for form blanks. If you wish to make up your own lessons, refer to page 6-10 for a blank master copy of the Instructor Lesson Plan form.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR x PR RR

PART II Activity: Flap Operation

PART III Observable Behavior Sought: This student consistently makes
immediate and appropriate corrections, when flaps are moved, to
maintain altitude and heading within your acceptable limits.

PART IV Reinforcements (give positive reinforcements by focusing on the three subject areas).

1. Pilot: You showed that you can handle the aircraft properly
while your attention was directed to the flap operations.
2. Aircraft: You are handling the aircraft well as the flaps
change.
3. Environment: You did a good job of watching for other traffic
in the airport area as you were doing this.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR X PR RR

PART II Activity: The student will taxi the aircraft, positioning
aileron and elevator for existing wind conditions.

PART III Observable Behavior Sought: The student consistently moves yoke
or stick to climb into a headwind or dive away from a tailwind
while taxiing.

PART IV Reinforcements (give positive reinforcements by focusing on the
three subject areas).

1. Pilot: You remembered to correct for the wind while
taxiing.

2. Aircraft: You successfully adjusted the yoke while in a turn
to compensate for new wind position.

3. Environment: You were aware of the wind direction and taxi
direction and properly adjusted the yoke.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR X PR RR

PART II Activity: The student will experience a complete communication
failure.

PART III Observable Behavior Sought: Student quickly and accurately
completes a process to confirm that he has lost communication and
maintains safe control of aircraft while doing so.

PART IV Reinforcements (give positive reinforcements by focusing on the three subject areas).

1. Pilot: You seemed confident in taking the proper action.

2. Aircraft: You knew which switches and fuses to check to try
and solve your problems.

3. Environment: You were alert for other aircraft. You took
the proper actions to inform the tower of your problem.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR X PR RR

PART II Activity: Transition from cruise to minimum controllable flight
using various flap settings.

PART III Observable Behavior Sought: The student automatically coordinates
pitch and power for various slow flight configurations.

PART IV Reinforcements (give positive reinforcements by focusing on the
three subject areas).

1. Pilot: I believe you understand pitch power relationship.

2. Aircraft: You remembered to add power before pitching up in
climbing slow flight, and the aircraft did not stall.

3. Environment: You cleared the area for traffic while setting
up for slow flight.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR X PR RR

PART II Activity: Control the aircraft's altitude by using only one of
the available pitch instruments. (Repeat using a second
instrument if time allows).

PART III Observable Behavior Sought: The student properly interprets the
trend indicated by the instrument, and immediately corrects when
the aircraft strays from the assigned flight path.

PART IV Reinforcements (give positive reinforcements by focusing on the
three subject areas).

1. Pilot: You seem to understand that "Aircraft Control and
Power Control equals Aircraft Performance."

2. Aircraft: You made smooth adjustments and did not over
correct.

3. Environment: You showed me a good scan between instrument
references and visual cues.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR X PR RR

PART II Activity: Control the aircraft by using only one of the available
bank instruments (Repeat using a second instrument if time
allows).

PART III Observable Behavior Sought: The student properly interprets the
trend indicated by the instrument, and immediately corrects
any time aircraft strays from the desired bank.

PART IV Reinforcements (give positive reinforcements by focusing on the
three subject areas).

1. Pilot: You have shown me that you thoroughly understand the
information available from this instrument.

2. Aircraft: You made positive corrections for each instrument
and its trends.

3. Environment: You keep a good scan for traffic while
practicing turns.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR___ PR X RR___

PART II Activity: Electrical System Failure Simulation - loosen one or two fuses.

PART III Observable Behavior Sought: The student continues to fly the aircraft straight and level, maintaining attention to safe operations, while he searches for the cause of the electrical problem and resolves it.

PART IV Reinforcements (give positive reinforcements by focusing on the three subject areas).

1. Pilot: You did not get rattled when you realized you had electrical problems, and you did a fine job of locating the cause.

2. Aircraft: You noticed the tripped circuit breaker and compensated for it.

3. Environment: You did well by avoiding any situation that required the use of failed system(s).

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR___ PR X RR___

PART II Activity: The student will experience a total loss of communications equipment.

PART III Observable Behavior Sought: Student demonstrates correct procedures to find the source of failure and takes proper actions to determine the extent of failure.

PART IV Reinforcements (give positive reinforcements by focusing on the three subject areas).

1. Pilot: You quickly and accurately recognized the equipment failures and proceeded to check it out and confirm the extent of the problem.

2. Aircraft: You landed the aircraft and notified ATC of the problem.

3. Environment: You interpreted the light gun signals correctly, and maneuvered the aircraft accordingly.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR__ PR X RR__

PART II Activity: VOR orientation and tracking.

PART III Observable Behavior Sought: The student quickly orients himself
without being distracted from flying the aircraft. He or she
intercepts the desired radial smoothly and tracks within your
acceptable limits.

PART IV Reinforcements (give positive reinforcements by focusing on the
three subject areas).

1. Pilot: By remembering your procedures, you were able to fly
the airplane better.

2. Aircraft: You started your turn to roll out on the desired
radial and not fly through the course.

3. Environment: You avoided ground obstacles, clouds, traffic,
etc., when you needed to and still maintained the course.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR___ PR X RR___

PART II Activity: Takeoffs and landings after a jet to practice
wake turbulence avoidance.

PART III Observable Behavior Sought: The student demonstrates an awareness
of the presence of wake turbulence and alters his flight path to
avoid it or delays his take offs and landings.

PART IV Reinforcements (give positive reinforcements by focusing on the
three subject areas).

1. Pilot: You told me about the other aircraft's wake turbulence
and then avoided it. That was excellent.

2. Aircraft: You kept your final high and landed long to avoid
the jet's vortices. Nice job.

3. Environment: It was a good idea to stay on the ground that
extra minute to avoid the departing 747's vortices.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) - AR___ PR X RR___

PART II Activity: The student will transition through various flight conditions without assistance of trim.

PART III Observable Behavior Sought: The student correctly and consistently transitions from one flight attitude to another, and maintains the new flight attitude, despite resistance of the aircraft.

PART IV Reinforcements (give positive reinforcements by focusing on the three subject areas).

1. Pilot: You seem more confident of yourself on controlling the aircraft without using trim.

2. Aircraft: You controlled the aircraft to make it do what you wanted it to.

3. Environment: You remained aware of the outside environment even though you were having a difficult time flying the airplane.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR___ PR X RR___

PART II Activity: Practice of stall entry, recognition, and recovery

PART III Observable Behavior Sought: The student can identify the cues of a stall and recover from a full stall.

PART IV Reinforcements (give positive reinforcements by focusing on the three subject areas).

1. Pilot: You realized that a nose high attitude can lead into a stall. You were not afraid of the aircraft today.

2. Aircraft: You maintained direction with rudder instead of doing your usual aileron trick.

3. Environment: You flew well clear of the airport traffic area before commencing stall practice.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR__ PR__ RR X

PART II Activity: Control of the aircraft in crosswind conditions.

PART III Observable Behavior Sought: Student should correct for wind while doing maneuvers, and apply correction to maintain a ground track.

PART IV Reinforcements (give positive reinforcements by focusing on the three subject areas).

1. Pilot: You did a good job of adjusting your usual flying style to cope with the effects of the wind on the aircraft.

2. Aircraft: You knew how to experiment with the aircraft to establish the proper track over the ground.

3. Environment: You knew how to check the wind direction, and how to tell if you were making proper corrections.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR___ PR___ RR X

PART II Activity: Make a standard pattern landing while in a heavy
airport traffic situation.

PART III Observable Behavior Sought: Constant checking of the aircraft's
track for conformance to the pattern. Regular observation of
traffic and areas of potential. Continual attention to radio
transmissions.

PART IV Reinforcements (give positive reinforcements by focusing on the
three subject areas).

1. Pilot: You did a nice job of keeping ahead of the aircraft.
2. Aircraft: You managed your approach descent very well.
3. Environment: You were very observant of other traffic in the
pattern - you responded well to radio directions from the
controller.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR___ PR___ RR X

PART II Activity: The student will point out all aircraft in his vicinity within a 30 second period.

PART III Observable Behavior Sought: The student scans for aircraft in his immediate vicinity and takes necessary evasive maneuvers when required.

PART IV Reinforcements (give positive reinforcements by focusing on the three subject areas).

1. Pilot: You were more observant of the traffic today.

2. Aircraft: You turned away from the aircraft you felt to be dangerous. That was well done.

3. Environment: You looked for traffic entering the pattern before turning downwind.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR___ PR___ RR X

PART II Activity: You (or ATC) will radar vector the student and the student must maintain basic VFR.

PART III Observable Behavior Sought: The student will make proper diversions from clouds to maintain basic VFR.

PART IV Reinforcements (give positive reinforcements by focusing on the three subject areas).

1. Pilot: You were confident of the actions required to maintain basic VFR.

2. Aircraft: You anticipated the 2000 foot ceiling and leveled off at 1500 feet while you advised ATC.

3. Environment: You saw that the weather was deteriorating and started heading back to the airport. Asking the air traffic controller for a special VFR clearance was good judgment.

INSTRUCTOR LESSON PLAN

PAR Objective (Mental Process Presented) - AR___ PR___ RR X

PART II Activity: To practice ground reference maneuvers.

PART III Observable Behavior Sought: The student selects a field that
allows a safe landing if necessary. The student continually
scans the area and aircraft for hazardous conditions while
performing the maneuver.

PART IV Reinforcements (give positive reinforcements by focusing on the three subject areas).

1. Pilot: You have learned how to transfer ground reference
practice to the traffic pattern.

2. Aircraft: Your scanning between visual and instrument
references was good.

3. Environment: I like the field you chose.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR__ PR__ RR X

PART II Activity: The student taxies the aircraft and continually scans and corrects for changing wind conditions.

PART III Observable Behavior Sought: The student is aware of constantly changing wind direction and compensates by "climbing into a headwind and diving away from a tailwind."

PART IV Reinforcements (give positive reinforcements by focusing on the three subject areas).

1. Pilot: You realized that wind is not constant all over the field and kept a good scan of different wind indications.
2. Aircraft: You recognized changing wind conditions and adjusted taxi speed and yoke positions for new winds.
3. Environment: You knew that the front passing over the field would shift the wind 180 degrees.

UNIT V

IN-FLIGHT INSTRUCTION: BEHAVIORAL SITUATIONS

The purpose of this unit is to stimulate the student to depend on himself to exercise good judgment. Your role is to encourage the student's self-reliance in this respect by providing coached practice. Unit V plans appropriate practice situations for you. As with unit IV, you may modify or replace these situations. Just be certain that what you do continues to meet the unit's objectives.

You have two activities to perform. First, you must set up a situation to engage the student in a judgment making process. Second, using principles of behavior modification, you must respond to the students' behavior in a manner that discourages poor judgment and encourages good judgment.

Practice situations are provided at the end of this unit. Each situation creates circumstances that may encourage the student to make a poor pilot judgment or series of poor judgments. Why do this? Because it is important to force the student to practice good judgment behavior, to become skilled at recognizing and replacing hazardous thought and poor judgment tendencies. It does little good to "teach students about" the principles and importance of good judgment. Rather, exercising good judgment must become a habit, and habits are formed by practicing the behavior in realistic situations.

SETTING UP THE SITUATIONS.

When to Begin.

Introduce this phase of judgment training when the student has established his or her ability to act as pilot in command of the aircraft and feels somewhat confident about his or her understanding of general aviation knowledge and of pilot operations. You must use your discretion about this, but a good point may be after the student has flown solo three or four times. Also, the student must complete unit II of the student manual before you begin work on this unit.

What to do First.

Advise the student that, after this one briefing session, you will be introducing these practice behavioral situations into the training activities. There is to be no further advanced notice, and the practice situations are to occur at random intervals. The student must always be alert for possible poor judgment situations without further promptings.

It is very important: 1) that the student be given only one briefing to be alert for the practice situations; 2) that the situations be presented at random intervals (NOT every other lesson or every Saturday session, for instance); 3) that the student understand you will not allow him or her to become endangered at any time.

It is possible that a situation could arise in which you would not wish to have your instructions questioned, such as at the approach of another aircraft. When you tell the student that you will sometimes be leading him into a poor judgment situations, you should also arrange a clear signal to end the testing, such as saying "Testing off." This signal will tell him that he should do as you say immediately and without question, or should relinquish control of the aircraft to you.

Introducing the Sessions.

First read over the situation you are going to use. Carefully formulate in your mind these things:

1. What materials do I need?
2. How must I act to make the student believe I am sincere, that the situation is "for real." (The better you prepare and the better actor you are, the better these situations will succeed.)
3. How might the student react?
4. At what points do I end the practice and review it with the student?

Set up the situations in a realistic manner, at the same time occupying the student's attention with customary flight training activities.

RESPONDING TO THE STUDENT.

Why Response Is Important.

Lesson 2 of the student manual emphasizes that breaking a poor judgment chain requires the pilot to be supplied with corrective information, or feedback, about the judgment. It is also noted that generally the pilot's first feedback comes from an outside observer: the instructor. Your responses to the student's pilot judgment are important for two reasons. First, you are teaching the student to recognize what is good judgment and what is poor judgment. Second, you are establishing a model, setting a standard, for the student to copy when providing his or her own feedback. This unit not only furnishes judgment behavior practice

for the student, but it also challenges you to favorably influence the student's judgment by responding with the best possible feedback.

When To Respond.

Stop the practice session and begin giving feedback immediately at one of the two points explained below.

1. The student has recognized the situation as one inviting poor judgment and has objected to following your suggestions or to continuing within the arranged circumstances.

Praise the student for recognizing the judgment practice situation. Discuss the situation briefly using the judgment concepts. Point out the "worst possible case" that could result for a pilot who did begin a chain of poor judgments in such a situation.

You do not have to reveal the practice situation immediately when the student first challenges you. Part of good judgment is to be assertive, when appropriate, against the suggestions of others - even those in authority such as flight instructors.

For example, you attempt to get the student to fly the aircraft with loose "junk" in the cockpit. The student suggests cleaning out the aircraft before the pre-flight, or begins removing the junk on his own. Rather than stop the exercise at that point, try to convince the student that you are in a hurry or that it's someone else's responsibility to clean up the mess. Make the student assert that he or she believes it would be poor judgment to fly without removing the junk, and that there is no way to rationalize (remember the five hazardous thoughts?) flying the aircraft in such a condition.

2. The student fails to recognize the practice situation and makes a decision representing poor judgment. Allowing the student to continue will either present no further opportunities for judgments related to the situation, or will possibly allow the student to get into dangerous or unauthorized circumstances.

First question the student as to why he or she has made the decision or is taking the action. Try to give the student the opportunity to explain the decision or action based on general pilot knowledge. See if the student becomes caught up in contradictions due to incorrect judgments about Pilot-Aircraft-Environment.

Then announce that this was a judgment practice situation in which the student failed to demonstrate good judgment. Follow with a

discussion of the student's judgment based on the judgment concepts, the possibility of hazardous thinking, and the influence of a high stress level.

How To Respond.

Your responses must use the principles of behavior modification to provide the highest quality feedback. Remember, punishment does not work - positive reinforcement does. You are correcting specific poor judgment actions to shape existing behavior into desired behavior. You are not to criticize the student's judgment making abilities in general, and you are not to indicate disappointment in the student's level of flight skill and aviation knowledge.

The judgment concepts will help you to focus on proper judgment feedback using principles of behavior modification. Be careful, however, in working with the hazardous thoughts and stress. Do not try to analyze, criticize or correct the student's behavior based on your opinion of the possible presence of hazardous thinking or high stress. Do encourage the student to consider the possible influence of these factors influencing judgment with regard to the practice situation. Here you are again acting as a coach to reinforce the necessity and importance of the student providing self-generated feedback as to the status of the "Pilot" subject area.

The student may question legitimate suggestions that you make even when you are not involved in judgment training. In these cases, you will have an opportunity for a short discussion of the situation. This is appropriate and is a valuable aid to learning.

Always try to end your responses with some sort of positive reinforcement. Remind the student that better pilot judgment comes through practice. Some errors are to be expected during practice sessions. That is what practice is for!

COMPLETION SCHEDULE.

The practice situations included at the end of this unit are divided according to the phase of flight. Choose situations which match the student's level of experience.

Plan on scheduling the situations so that you finish as many as possible during the student's training. You should develop a tentative schedule for when to introduce each situation and record the schedule in an appropriate place, such as the margin of your syllabus or on your personal lesson plans. Keep in mind that you may need to change your schedule based upon each student's rate of progress. Remember, judgment situations should be distributed

evenly over the student's flight training and should be presented using a random schedule.

Suggested Format.

The lessons and judgment situations should be related to allow for a smooth sequence of flight activities. A suggested format for a judgment training mission is as follows:

- 1 lesson from the concept lesson plans (AR, PR, RR subject areas).
- 3 or more judgment situations.

If the student has trouble identifying or understanding these situations, schedule more until he or she reacts properly. It is much better to have him or her question too much than too little. At this stage in the training, it is important to keep the student aware of the judgment process and talk about it as much as possible. Your reinforcement is essential.

BEHAVIORAL SITUATIONS CHECKLIST.

1. Set up the situation in advance, and plan your actions to convince the student this is a routine flight.
2. Anticipate the student's possible reactions. Be ready to discuss the student's initial questioning or poor judgment behaviors.
3. Give the student feedback using the judgment concepts.
4. Encourage the student to review his or her own handling of hazardous thinking and stress after the practice.

INSTRUCTOR CHECKLIST AND LESSON PLAN FORM.

The form is to be used in conjunction with instruction involving the behavioral situations. See page 6-8 for form blanks. See page 6-23 for complete directions on how to use this form.

JUDGMENT SITUATIONS

The remainder of this unit contains a series of pilot judgment situations. Each situation contains the applicable phase of flight for the situation, a brief description of the situation, and the observable behavior(s) which indicate the proper response to the situation.

Use your own imagination and creativity to lead the student astray, to make it likely for him to overlook proper procedures, and to ignore previous training.

If you wish to make up your own situations, refer to page 6-11 for a blank master copy of the Judgment Situation Record form.

JUDGMENT SITUATION RECORD

I. TITLE Entire Flight - Checklist

II. SITUATION Checklist use.

The more experienced a pilot becomes the less he "relies"
on the checklist. This does not relieve his
responsibility to use it.

Therefore, he must use a checklist from before "interior
inspection" to after "engine shutdown."

III. CRITICAL ACTIONS (BEHAVIORS)

Use the checklist for the entire flight.

JUDGMENT SITUATION RECORD

- I. TITLE Flight Planning - Execute and File
- II. SITUATION Cross-Country without flight plan.
The student conducts a flight without flight planning or
VFR planning or filing a VFR flight plan.
- III. CRITICAL ACTIONS (BEHAVIORS)
Complete required flight planning.
File flight plan.
Close out flight plan.

JUDGMENT SITUATION RECORD

I. TITLE Flight Planning - Chart Currency

II. SITUATION Out of date sectional.

Student conducts a VFR cross country with an expired
sectional chart.

III. CRITICAL ACTIONS (BEHAVIORS)

Replace the sectional.

JUDGMENT SITUATION RECORD

I. TITLE Flight Planning - Weather Check

II. SITUATION Destination Airport, weather is marginal.

III. CRITICAL ACTIONS (BEHAVIORS)

Check weather.

JUDGMENT SITUATION RECORD

- I. TITLE Preflight - Inspection

- II. SITUATION Aircraft within a few hours of a required
inspection.

- III. CRITICAL ACTIONS (BEHAVIORS)
Student states, "The aircraft needs an inspection."
Terminate flight.

JUDGMENT SITUATION RECORD

- I. TITLE Preflight - Door Handle

- II. SITUATION Door handle screw missing.

- III. CRITICAL ACTIONS (BEHAVIORS)
Locate screw and replace prior to flight.

JUDGMENT SITUATION RECORD

- I. TITLE Preflight - Shoulder Harness
- II. SITUATION Stowed shoulder harness.
The FAR's require pilots to wear a lap belt and a shoulder
belt.
Many pilots leave the shoulder belt stowed because it is
uncomfortable.
- III. CRITICAL ACTIONS (BEHAVIORS)
Unstow shoulder harness.
Wear it for the entire flight.

JUDGMENT SITUATION RECORD

I. TITLE Pre-flight - Fuel Selector Screw

II. SITUATION Fuel selector screw missing or loose.

III. CRITICAL ACTIONS (BEHAVIORS)

Replace or tighten the screw prior to flight. Check for
proper operation.

JUDGMENT SITUATION RECORD

I. TITLE Preflight - Weight and Balance (1)

II. SITUATION A full fuel load is in the aircraft, and four
persons board for the flight.

I. CRITICAL ACTIONS (BEHAVIORS)

A weight and balance calculation is made.

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JUDGMENT SITUATION RECORD

- I. TITLE Preflight - Weight and Balance (2)
- II. SITUATION Aircraft improperly loaded. The aircraft is
over-loaded or loaded out of balance.
- III. CRITICAL ACTIONS (BEHAVIORS)
Consult operators manual. Consider removing some of the
load or repositioning the load.

JUDGMENT SITUATION RECORD

I. TITLE Preflight - Post-Refueling Check (1)

II. SITUATION The aircraft is being refueled during the
preflight. The student has to decide if he should
delay the fuel sump checks until refueling is completed.

III. CRITICAL ACTIONS (BEHAVIORS)

Student checks fuel sumps after refueling.

JUDGMENT SITUATION RECORD

I. TITLE Preflight - Post-Refueling Check (2)

II. SITUATION Aircraft has to be refueled after the student
has performed the exterior preflight. The student must
decide whether or not to check the fuel caps a second
time.

III. CRITICAL ACTIONS (BEHAVIORS)

Student checks each fuel tank after refueling.

JUDGMENT SITUATION RECORD

- I. TITLE Preflight - Missing Screws
- II. SITUATION Screws missing or loose on aircraft surface.
The aircraft will fly normally with one or two cowlings
screws missing. The student must decide when too many
screws are missing.
- III. CRITICAL ACTIONS (BEHAVIORS)
Student states, "There are some loose and missing screws."
Replace and tighten screws as required.

JUDGMENT SITUATION RECORD

- I. TITLE Preflight - Loose Items
- II. SITUATION Loose articles in the cabin.
Empty soda cans, paper, books, etc. spread about the
cabin.
- III. CRITICAL ACTIONS (BEHAVIORS)
Remove such loose items.

JUDGMENT SITUATION RECORD

I. TITLE Preflight - Compass Card

II. SITUATION Compass card missing.

III. CRITICAL ACTIONS (BEHAVIORS)

Search aircraft.

JUDGMENT SITUATION RECORD

- I. TITLE Preflight - Thorough
- II. SITUATION The aircraft is being preflighted by the
student.
- III. CRITICAL ACTIONS (BEHAVIORS)
A thorough preflight, with knowledge of oil and fuel
levels, inspections due, etc. (In response to questions
by instructor).

JUDGMENT SITUATION RECORD

I. TITLE Preflight - Tire Pressure

II. SITUATION Low tire pressure.

A tire does not have enough air for normal operations.

III. CRITICAL ACTIONS (BEHAVIORS)

Add air as required.

JUDGMENT SITUATION RECORD

I. TITLE Preflight - Bird Nest

II. SITUATION Bird nest inside cowling.

III. CRITICAL ACTIONS (BEHAVIORS)

Remove the nest.

Check other open areas of the aircraft for nests.

JUDGMENT SITUATION RECORD

- I. TITLE Pretlight - Windscreen
- II. SITUATION Dirty windscreen.
- III. CRITICAL ACTIONS (BEHAVIORS)
Clean the windscreen.

JUDGMENT SITUATION RECORD

I. TITLE Preflight - Magneto Switch

II. SITUATION Magneto switch mounting loose.

III. CRITICAL ACTIONS (BEHAVIORS)

Tighten mounting nut.

JUDGMENT SITUATION RECORD

I. TITLE Pretlight - Hydraulic Leak

II. SITUATION Hydraulic fluid on ground or brake assembly.

III. CRITICAL ACTIONS (BEHAVIORS)

Inspect for obvious leaks.

Have a mechanic check the brake system for leaks and
proper operation.

JUDGMENT SITUATION RECORD

I. TITLE Preflight - Over Oil

II. SITUATION Over oil.

The aircraft has too much oil for normal operations.

III. CRITICAL ACTIONS (BEHAVIORS)

Student states, "There is too much oil in this aircraft."

Drain enough oil to place quantity within acceptable
range, consult mechanic if necessary.

JUDGMENT SITUATION RECORD

- I. TITLE Preflight - Oil Leak
- II. SITUATION Oil on engine cowl and ramp.
- III. CRITICAL ACTIONS (BEHAVIORS)
- Inspect the engine compartment for oil leaks.
- Inspect the oil filler cap area for signs of oil spill.
- Check the engine oil level.
- If all indications point to an engine leak, have a mechanic check it prior to flight.

JUDGMENT SITUATION RECORD

I. TITLE Preflight - Low Oil

II. SITUATION Low Oil -- Engine quantity is marginal or low
for normal operations.

III. CRITICAL ACTIONS (BEHAVIORS)

Check oil.

Add oil as required.

JUDGMENT SITUATION RECORD

- I. TITLE Taxi - Controls for wind
- II. SITUATION The student is taxiing the aircraft in winoy
conditions (above 5 knots).
- III. CRITICAL ACTIONS (BEHAVIORS)
Student places aircraft controls as needed for the
prevailing wind.

JUDGMENT SITUATION RECORD

I. TITLE Taxi - Across Runway

II. SITUATION The instructor draws the student's attention
inside the cockpit immediately prior to crossing a
runway.

III. CRITICAL ACTIONS (BEHAVIORS)

Student looks outside the aircraft along the runway to
check for traffic.

JUDGMENT SITUATION RECORD

I. TITLE Takeoff - Aircraft Separation

II. SITUATION Takeoff from an uncontrolled field is
conducted behind another aircraft.

III. CRITICAL ACTIONS (BEHAVIORS)

Maintenance of adequate aircraft separation. A delay
on the runway may be required, especially in the case
of touch-and-go landings.

JUDGMENT SITUATION RECORD

- I. TITLE Takeoff - Intersection
- II. SITUATION A departure from a runway intersection is
suggested by the instructor. The runway remaining would
make a safe takeoff difficult; the aircraft is fully
loaded and the weather is hot.
- III. CRITICAL ACTIONS (BEHAVIORS)
The student decides to use the full length of the runway.

JUDGMENT SITUATION RECORD

I. TITLE Take-off - Engine Failure

II. SITUATION Engine failure on take-off.

III. CRITICAL ACTIONS (BEHAVIORS)

Land straight ahead.

JUDGMENT SITUATION RECORD

I. TITLE Enroute - Low-Speed Turn

II. SITUATION The aircraft is set up at low altitude (500-800 feet) and low airspeed ($V_S + 20$ knots). The need for a sharp turn is simulated.

III. CRITICAL ACTIONS (BEHAVIORS)

The student adjusts the aircraft pitch attitude to avoid a stall.

JUDGMENT SITUATION RECORD

I. TITLE Enroute - VFR Altitude

II. SITUATION Improper VFR Altitude.

III. CRITICAL ACTIONS (BEHAVIORS)

Correct the altitude.

JUDGMENT SITUATION RECORD

I. TITLE Enroute - over water

II. SITUATION Over water operations without required
equipment.

III. CRITICAL ACTIONS (BEHAVIORS)

Student does not fly farther than power-off gliding
range of land.

JUDGMENT SITUATION RECORD

I. TITLE Enroute - Weather Avoidance

II. SITUATION Bad weather. The 180° turn is a maneuver the
pilot uses to get himself out of rapidly deteriorating
weather.

III. CRITICAL ACTIONS (BEHAVIORS)

Execute 180° turn.

JUDGMENT SITUATION RECORD

- I. TITLE Enroute - Engine Failure

- II. SITUATION An engine failure is simulated at a low altitude (500-1000 feet). Only an expeditious turn towards a field will produce a safe landing.

- III. CRITICAL ACTIONS (BEHAVIORS)
Turning the aircraft towards the field and establishing best glide speed attitude before attempting restart.
Attempting restart only altitude permitting.

JUDGMENT SITUATION RECORD

I. TITLE Enroute - Aircraft Location

II. SITUATION The flight is being conducted in the local
practice area.

III. CRITICAL ACTIONS (BEHAVIORS)

Constant awareness of aircraft's location (in response to
question by instructor).

JUDGMENT SITUATION RECORD

- I. TITLE Enroute - Communications Versus VFR
- II. SITUATION The aircraft is headed towards cloud formations
at the time contact should be made with ATC for arrival
control.
- III. CRITICAL ACTIONS (BEHAVIORS)
The student controls the aircraft to avoid the clouds
before contacting ATC.

JUDGMENT SITUATION RECORD

I. TITLE Enroute - Clearing Turns

II. SITUATION No clearing turns.

Student begins various flight maneuvers in the practice
area.

III. CRITICAL ACTION (BEHAVIORS)

Execute clearing turns prior to flight maneuvers.

JUDGMENT SITUATION RECORD

- I. TITLE Enroute - Low Airwork
- II. SITUATION Airwork at low altitude.
< 1,500 ft. AGL.
- III. CRITICAL ACTIONS (BEHAVIORS)
Climb to higher altitude.

JUDGMENT SITUATION RECORD

- I. TITLE Inroute - Congested Area Maneuvers
- II. SITUATION Ground reference maneuvers over a congested
area. Ground reference maneuvers are generally done at
800 ft. AGL. The FARs require that an aircraft must
maintain at least 1000 ft. AGL. over congested areas.
- III. CRITICAL ACTIONS (BEHAVIORS)
Continue ground reference maneuvers over non-congested
areas.

JUDGMENT SITUATION RECORD

- I. TITLE Enroute - Traffic Avoidance
- II. SITUATION Traffic avoidance vigilance is not emphasized
by the instructor during the flight.
- III. CRITICAL ACTIONS (BEHAVIORS)
Maintaining of traffic avoidance vigilance continuously.

JUDGMENT SITUATION RECORD

I. TITLE Enroute - Pilotage Awareness

II. SITUATION VFR checkpoints are being followed to navigate
(pilotage).

III. CRITICAL ACTIONS (BEHAVIORS)

Constant ability to pinpoint location of aircraft using
charts, even between checkpoints.

JUDGMENT SITUATION RECORD

- I. TITLE Enroute - Communications in TRSA
- II. SITUATION The route of flight passes through a terminal radar service area (TRSA).
- III. CRITICAL ACTIONS (BEHAVIORS)
- Communication is established with ATC for VFR flight following.

JUDGMENT SITUATION RECORD

I. TITLE Enroute - Endurance

II. SITUATION A cross-country or local flight.

III. CRITICAL ACTIONS (BEHAVIORS)

Constant awareness of aircraft endurance (in response to
question by instructor).

JUDGMENT SITUATION RECORD

- I. TITLE Descent - V_{FE} Limit
- II. SITUATION The instructor directs the flight so as to
require a descent over a short distance. He tells the
student to lower the flaps and descend at a rate (in feet
per minute) that will cause V_{FE} to be exceeded.
- III. CRITICAL ACTIONS (BEHAVIORS)
The student points out the conflict and does not exceed
 V_{FE} .

JUDGMENT SITUATION RECORD

- I. TITLE Landing - Collision Avoidance
- II. SITUATION On Base Leg, the instructor tells the student
to observe the approaching runway and the glide path he
will follow.
- III. CRITICAL ACTIONS (BEHAVIORS)
The student should direct his visual attention to the
extended runway centerline beyond his approach path and
check for in-coming traffic.

JUDGMENT SITUATION RECORD

- I. TITLE Landing - Disturbed approach path

- II. SITUATION Following a slip demonstration, the instructor
lets the aircraft fly to the right or left of the runway
centerline to a position which would make an attempted
landing possible, but dangerous. He gives control of the
aircraft to the student.

- III. CRITICAL ACTIONS (BEHAVIORS)
Go-Around.

JUDGMENT SITUATION RECORD

- I. TITLE Landing - Checklist Versus Communications
- II. SITUATION The instructor tells the student to call
ground control prior to reaching that item on the check-
list, or prior to completing the post landing check.

- III. CRITICAL ACTIONS (BEHAVIORS)
The student completes the post landing check prior to
calling ground control.

JUDGMENT SITUATION RECORD

- I. TITLE Landing - Runway Occupied
- II. SITUATION An aircraft pulls out onto the runway
(simulated).
- III. CRITICAL ACTIONS (BEHAVIORS)
Go-around.

JUDGMENT SITUATION RECORD

I. TITLE Landing - High Approach

II. SITUATION The approach is too high.

III. CRITICAL ACTIONS (BEHAVIORS)

Go-around.

JUDGMENT SITUATION RECORD

- I. TITLE Landing - Radio Reports
- II. SITUATION Failure to make radio reports in the traffic
pattern.
- III. CRITICAL ACTIONS (BEHAVIORS)
Make radio reports.

JUDGMENT SITUATION RECORD

- I. TITLE Landing - Pattern entry
- II. SITUATION Improper traffic pattern entry. Student enters
pattern on leg other than downwind. This is applied at a
non-controlled airport.
- III. CRITICAL ACTIONS (BEHAVIORS)
Enter the pattern on the proper leg.

JUDGMENT SITUATION RECORD

- I. TITLE Landing - Cloud Clearance
- II. SITUATION Clouds are present 100 to 300 feet above
pattern altitude, while aircraft is operating in the
traffic pattern.
- III. CRITICAL ACTIONS (BEHAVIORS)
Maintain cloud clearance required by the regulations for
VFR flight.

JUDGMENT SITUATION RECORD

- I. TITLE Landing - Aircraft Separation
- II. SITUATION An approach to a runway is made with another
aircraft ahead. The separation between aircraft is
decreasing.
- III. CRITICAL ACTIONS (BEHAVIORS)
Evasive action is being taken, such as a decrease in
airspeed or a go-around.

JUDGMENT SITUATION RECORD

- I. TITLE Landing - Crosswind when busy
- II. SITUATION A suggestion is made by the instructor to
conduct crosswind landings at an uncontrolled field. The
field is busy with four or more aircraft in the traffic
pattern.
- III. CRITICAL ACTIONS (BEHAVIORS)
The student suggests that the landings be made on the
runway being used by the other aircraft for safety
reasons.

JUDGMENT SITUATION RECORD

- I. TITLE Landing - Communications awareness
- II. SITUATION Traffic pattern operations at an uncontrolled
field are conducted with other aircraft in the pattern.

- III. CRITICAL ACTIONS (BEHAVIORS)
Constant awareness of other aircrafts' communications to
unicom, in response to a question regarding another
aircraft's position.

JUDGMENT SITUATION RECORD

- I. TITLE Landing
- II. SITUATION The approach to landing is being made in gusty conditions.
- III. CRITICAL ACTIONS (BEHAVIORS)
- Partial flap extension, and higher approach speed.

UNIT VI

MANAGEMENT OF INSTRUCTION

This judgment training program is more than just a collection of related facts and ideas for students to learn. It is a carefully designed educational system. Using this system produces an overall result that is greater than what is attainable by random presentation of the individual parts. To achieve the maximum benefits of this system, it needs management.

This unit is a guide to effective instructional system management. The materials presented here are to keep everything orderly, to optimize judgment training. These materials are designed to aid both the individual instructor in managing the training of his or her students and the training supervisor for a group of flight instructors engaged in judgment training activities.

Items provided include the following:

- PRINCIPLES OF JUDGMENT INSTRUCTION PAGE 6-2
This summary of the principles of judgment instruction is an aid to thoroughly understanding the program's various segments.
- SCHEDULE OF STUDENT WORK PAGE 6-4
This is a master plan for scheduling training activities for your students.
- SET OF MASTER COPIES PAGE 6-5
A set of original documents of all the instructional materials and forms required. Page 6-5 provides information about how many copies of each are needed.
- USE OF THE INSTRUCTOR CHECKLIST
AND LESSON PLAN. PAGE 6-23
This reference tells you how to prepare for the in-flight training sessions and how to use the instructor checklist and lesson plan in conjunction with your teaching activities.
- TRAINING MISSION EXAMPLE PAGE 6-25
This is a narrative description of a sample judgment training mission.
- ANSWER KEYS FOR POSTCHECK. PAGE 6-30
This is the answer key for the postcheck which is lesson 13 in the Student Manual.

PRINCIPLES OF JUDGMENT INSTRUCTION

Knowing the principles upon which this entire program is founded will help you to deliver it with more positive effect upon your students. Although a discussion of each principle listed below is presented within the body of the Instructor Manual, this summary review may help you to more clearly understand each segment of the program.

1. The Student Manual is simple to understand, and it is repetitive. This is for two beneficial reasons: 1) the simplicity produces frequent success experiences giving the student a continuing exposure to positive reinforcement; 2) the repetition builds good judgment habits and refreshes the memory so that information can be readily recalled in a variety of circumstances, not just in the context in which it was learned.
2. The Student Manual presents numerous true stories to stimulate the student's interest in and appreciation of the need for good pilot judgment. Discussions of these stories and similar ones from the instructor's personal experience are important for developing the student's judgment.
3. The instructor profoundly affects the student as a role model and as an opinion shaper. The instructor's attitudes to safe flying and to the judgment training material may influence the student's judgment more than does the content of the flight training program.
4. Instruction is greatly improved when the instructor acts as a coach and consistently uses the principles of behavior modification.
5. Use of the special judgment concepts in conversations with the student effectively focuses instruction on judgment related training, encourages proper use of behavior modification, and increases the student's ability to provide the self-generated feedback upon which good judgment depends.
6. Knowing how to recognize and respond to hazardous thinking and high stress is very important to exercising good pilot judgment. The instructor encourages the student to develop these skills, but never attempts to analyze or to modify the student's personality.
7. The student learns concepts and behavioral techniques, then repeatedly applies this learning to relevant flight situations during ground and flight training. The five

applications lessons and the in-flight experiential activities are purposely spaced throughout the standard private pilot training course in order to build new behavior habits through repeated reinforcement and continuing student involvement. Having a student merely "learn about" the judgment concepts and behavioral aspects cannot be expected to change pilot judgment. Therefore, an intensive learning format which teaches only the content of the Student Manual over a few days is not acceptable. Spaced practice that includes repetition and feedback with positive reinforcement is essential to the success of this judgment training program.

PILOT JUDGMENT TRAINING

SCHEDULE OF STUDENT WORK

TRAINING SEGMENT	NUMBER OF LESSONS	WHEN TO SCHEDULE	EXERCISE REVIEW
Unit I of Student Manual	3	During student's work on the first 10 percent of standard ground school training.	None required; oral quizzing is suggested
Unit II of Student Manual	10	During student's work on the first 25 percent of standard ground school training.	Lessons 11, 13
Unit III of Student Manual	5	At same time student is working on similar materials in standard ground school training: See suggested schedule on page 3-2.	Lessons 14, 15, 16, 17, 18
In-Flight Concept Lessons	9 lessons total: 3 on each mental process	Randomly during flight training. Suggested starting point is about three lessons before the student is expected to solo. PREREQUISITE: Student Manual unit 1.	
In-Flight Behavioral Situations	9 or more lessons total: 3 or more per lesson	Randomly during flight training. Suggested starting point is after the student has flown solo 3 to 4 times. PREREQUISITE: Student Manual unit 2.	

SET OF MASTER COPIES

Immediately following this page are the master copies of every form you will need for delivering judgment training. BE VERY CAREFUL NOT TO MARK ON THESE MASTER COPY PAGES OF YOUR INSTRUCTOR MANUAL! You may want to remove the pages listed below and keep them in a file for safekeeping and for easy access when you need to make more copies. It would be wise to remove them now and to make a set of copies which you insert into the manual in place of the original pages.

ITEM	PAGE	NEED
Student Progress Record I and II	6-6 6-7	1 each per student
Instructor Checklist/ Lesson Plan Form	6-8	10 to 20 per student (you may wish to print page 6-9 on the back)
Instructor Lesson Plan Blank (unit IV)	6-10	1 for each unit IV concept lesson you make up yourself
Judgment Situation Record Blank (unit V)	6-11	1 for each unit V behavioral situation you make up yourself
Postcheck Forms (lesson 13 in Student Manual) Note: Answer keys for the postchecks appear beginning on page 6-30	6-12 thru 6-22	1 to 3 per student

PILOT JUDGMENT TRAINING
STUDENT PROGRESS RECORD I: STUDENT MANUAL LESSONS

Student _____		Instructor _____		
Unit	Lesson	Student Assignments	Assigned	Completed
I	1	Read.		
	2	Read.		
	3	Read. Do drills.		
II	4	Read. Do Assessment Inventory.		
	5	Read. Do Situation Exercises.		
	6	Read. Do Situation Exercises.		
	7	Read. Do Situation Exercises.		
	8	Read. Do Situation Exercises.		
	9	Read. Do Situation Exercises.		
	10	Memorize Antidotes. Do Exercises.		
	11	Do Exercises. Discuss.		
	12	Practice Relaxation Technique.		
III	13	Take Postcheck - Form Used: A B C		
	14	Do Exercises. Discuss.		
	15	Do Exercises. Discuss.		
	16	Do Exercises. Discuss.		
	17	Do Exercises. Discuss.		
	18	Do Exercises. Discuss.		

PILOT JUDGMENT TRAINING

STUDENT PROGRESS RECORD II: IN-FLIGHT LESSONS

Student Name _____		Instructor Name _____						
Concept Lessons				Behavioral Situations				
Lesson Number	Mental Process	Page Number	Performance Pass Fail	Date	Lesson Number	Page Number	Performance Pass Fail	Date
1					1			
2					2			
3					3			
4					4			
5					5			
6					6			
7					7			
8					8			
9					9			
10					10			
11					11			
12					12			
13					13			
14					14			
15					15			
16					16			
17					17			
18					18			
19					19			
20					20			

CONCEPT LESSONS CHECKLIST

1. Focus on one mental process.
2. Before the lesson, plan positive reinforcements for each of the three subject areas.
3. The chosen observable behavior is to indicate success at using the mental process being practiced.
4. Praise correct behavior.
5. Correct errors by coaching. Use the judgment concepts to do this.
6. Debrief afterwards, encouraging the student to reflect on how he or she handled potential hazardous thoughts, stress, and poor judgment behavior chains.

BEHAVIORAL SITUATIONS CHECKLIST

1. Set up the situation in advance, and plan your actions to convince the student this is a routine flight.
2. Anticipate the student's possible reactions. Be ready to discuss the student's initial questioning or poor judgment behaviors.
3. Give the student feedback using the judgment concepts.
4. Encourage the student to review his or her own handling of hazardous thinking and stress after the practice.

INSTRUCTOR LESSON PLAN

PART I Objective (Mental Process Presented) = AR__ PR__ RR__

PART II Activity: _____

PART III Observable Behavior Sought: _____

PART IV Reinforcements (give positive reinforcements by focusing on the three subject areas).

1. Pilot: _____

2. Aircraft: _____

3. Environment: _____

JUDGMENT SITUATION RECORD

I. TITLE _____

II. SITUATION _____

III. CRITICAL ACTIONS (BEHAVIORS)

Postcheck: Form A

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

Student Name _____ Date _____

INSTRUCTIONS

You will recognize the form of the following two scenarios from unit II of your earlier training. Underline the hazardous thought. Write its name and the correct antidote next to it in the space provided to the right. Do this for both scenarios. Remember that there will be several hazardous thoughts in each. This is not a timed test, and it is important that you identify all of the hazardous thoughts. Check your responses after you have finished, then return the postcheck to your flight instructor for grading.

FORM A

Situation One.

On a pleasure flight with 2 passengers, the pilot was told that one of the passengers had become very ill. He was a diabetic who apparently was in shock. Unable to stand the pressure of the decision, the pilot quickly asked the other passenger what to do. Should he continue the flight in the hope that the passenger would recover, or should he return home for medical attention: The other passenger became angry and said, "That is not for me to decide. Don't you have any regulations that tell you what to do in this situation? Call the airport for instructions." Since he was not sure what to do, and since the passenger was so demanding in his comments, the pilot thought, "Yeah, I better call for instructions. No sense getting that guy more upset than he is. I guess the customer is always right."

He called ahead and was told to return to the departure point where an ambulance would be waiting to take the sick man to the hospital.

He said to the passenger, "I hate to inconvenience you this way but orders are orders. It's not my decision. I'm only doing what I'm told to do."

The passenger seemed surprised at this statement and became further irritated saying, "You're really some pilot! I'd hate to have my life in your hands if I got sick!"

The pilot became angry and said, "Look, I'm the boss here and what I say goes. Your lives are in my hands now and I'm the one who is handling this situation. Just because someone feels sick is no reason to change a flight plan. I don't care what the airport says. That guy might be drunk for all I know. Those bureaucrats

in Washington are forever making rules. Who are they to tell me when to turn back or continue?"

As he calmed down, however, he thought to himself, "Maybe the man is really sick; perhaps I'd better get him help immediately."

He returned to the departure airport and the sick passenger, who had lapsed into a coma, was rushed to the hospital.

The pilot was deeply disturbed by his near mistake and immediately decided never to fly again.

Situation Two.

George and Jack are on a pleasure flight late in the afternoon. George, the pilot, has been flying for almost six months and he is feeling quite proud of his flying ability. He brags to Jack that he is one of the best pilots at the local airport, and that he knows more about flying than a lot of the old timers who seem to be doing everything by the book. He says, "Flying by the book is unnecessary. All of those regulations are devised by some petty bureaucrats in Washington who probably have never been in an airplane."

Jack has heard all of this before and is irritated by it. He feels that George brags too much. He reminds George that he is not so great since he does not have much night flying and is not instrument rated.

George is irritated by this. He tells Jack that he has never had an accident, and that he is sure that he never will. He decides to fly to another airport, two hours away, thinking, "I'll show him that I can handle night flying." He tells Jack that it would be better to fly on since the new destination has more "action" in its area than the airport they were originally approaching. Jack does not

seem to mind, though he does remark that this will mean flying in one half hour of darkness. George says, "Don't worry; nothing bad can happen to us." They both have a laugh and the decision does not bother Jack.

As they fly into darkness, George becomes a bit nervous since he cannot locate the landmarks. He thinks, "Why don't they provide better lighting in these areas so a pilot can see." He does not let Jack know about his apprehension, but rather continues to boast about how well he is flying his aircraft.

Finally George sees an airport ahead and makes his approach. He is so nervous that he hardly listens to his landing instructions. He lands without a problem and feels quite relieved. Jack apologizes to George saying that he had underestimated his abilities.

As they taxi the airplane to the parking area, George realizes that he has landed at the wrong airport, that the one he intended to land at is 10 miles further east. He thinks, "You would think they'd identify the airports better so pilots would not be misled."

Postcheck: Form B

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

Student Name _____ Date _____

INSTRUCTIONS

You will recognize the form of the following two scenarios from unit II of your earlier training. Underline the hazardous thought. Write its name and the correct antidote next to it in the space provided to the right. Do this for both scenarios. Remember that there will be several hazardous thoughts in each. This is not a timed test, and it is important that you identify all of the hazardous thoughts, so check your paper after you have finished, then return it to your flight instructor for grading.

FORM B

Situation One.

The pilot and his companion had been drinking for two hours before their flight from a local airport. As they walked toward their airplane the pilot said, "I can drink with the best of them and still fly at the same time." He continued by telling his friend that there is less chance of an accident in the air than there is for someone who drives a car. "After all," he said, "there's nothing up here but fresh air. Who is going to run into us at this height?"

As the flight began, the airplane was flown somewhat erratically but neither man noticed it. Instead they had a few more drinks and thoroughly enjoyed them. The companion suggested that they do a few loops, just to keep the flight interesting. The pilot remarked, "Loops? I don't think I know how to do them. Ah, let's try a few anyway. After all, the only thing that could go wrong is for us to get upset from the dizziness."

He then started to do his loops without checking his altitude, which was quite low. The companion noticed this and screamed, "You're too low for this. You want to get us killed?" The pilot was very annoyed and answered, "Who is in charge of this airplane, you or me? I know what I'm doing. Now you just relax and watch me put her through some action. If things go wrong, it's not our doing. It's in the cards if your time is up. But don't worry, Lady Luck is going to be with me."

Observers on the ground reported later that they had seen the aircraft making repeated loops at low altitude. During the last loop, the pilot had exceeded the design limitations of the airplane and both wings separated from the aircraft.

Both men were killed. Autopsies showed that both men had blood alcohol levels exceeding .085%.

Situation Two.

On a flight from Baltimore to Hartford, the pilot neglected to get an up-to-date weather forecast. In fact, he left Baltimore in such a hurry that he did not take the time to do a proper preflight inspection of the engine. He felt that he had to arrive at Hartford before 4 p.m. so that he would not miss an important engagement. He had therefore dispensed with the preflight check and the weather briefing.

Enroute to Hartford, the weather was getting progressively worse, and snow was beginning to fall. He noticed that ice was beginning to form on his wings. This frightened him and he quickly went to a lower altitude, hoping that this would help the icing problem. It did not and ice continued to form. He was now flying below the recommended altitude.

He was not sure what to do. In fact, in his fear, he was almost unable to do anything. He thought, "Perhaps I should radio for help; no, I won't radio for assistance. What would they think of me if they knew the problem I got myself into. Better to let sleeping dogs lie."

"But what if my carburetor starts to ice? I'm not even sure what procedure I should use in that situation. I better fly close to the ground so I can be sure of where I'm going." He descended even further, despite knowing that this violated regulations and jeopardized his safety even further. He was confused and not certain what to do.

As he flew on, he narrowly missed a small mountain ridge. This panicked him further and he decided to make an emergency

landing. He started making an approach even though he had not decided where to land.

Finally, at an altitude of 250 feet, he picked a paved road. Without checking for traffic, he pointed his airplane toward it and made an emergency landing. Two cars ran off the road to avoid colliding with the oncoming airplane. He stopped the plane and left it on the road, cursing about the bad weather that caused his problems.

Postcheck: Form C

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

Student Name _____ Date _____

INSTRUCTIONS

You will recognize the form of the following two scenarios from unit II of your earlier training. Underline the hazardous thought. Write its name and the correct antidote next to it in the space provided to the right. Do this for both scenarios. Remember that there will be several hazardous thoughts in each. This is not a timed test, and it is important that you identify all the hazardous thoughts, so check your paper over after you have finished, then return it to your flight instructor for grading.

FORM C

Situation One.

On a flight over hilly terrain, the pilot notices that her fuel gauge is not operating. She calculates that she has approximately two hours of flight before reaching her destination, a small airport in western Pennsylvania. But she is not certain of the amount of fuel in the tanks, since she neglected to refuel at the last airport. She has also neglected to monitor the operation of the fuel gauge during the flight.

She thinks, "I should have topped off the tanks at the last stop. That would have given me plenty of fuel to make the trip. But who has time to follow all those procedures that are written for novices who don't know anything about flying and make dumb mistakes. Besides, nothing has ever happened to me, even in situations worse than this."

She quickly decides to keep flying, thinking that "If something goes wrong, well, that's life."

As she flies on, it suddenly occurs to her that she may be nearly out of fuel. She suddenly thinks, "Maybe I have a fuel leak and the fuel tanks are empty!" She immediately begins to make a emergency landing.

She begins her descent to a hilly and forested area. She says to her passengers, "We're practically out of fuel. I'm heading for that small clearing before the engines quit. Fasten your seatbelts tightly and hold on, because we're probably going to make a very hard landing."

The landing damages the left wing and tail section but no one is injured. After she gets out of the airplane, she checks the fuel tanks and finds them half-full. She

says to herself, "Dumb mechanics, if they did their job carefully, my gauge would not have broken."

Situation Two.

A pilot and his friend were flying a Cessna Skylark cross country to Tucson under visual flight rules.

Halfway to his destination, the pilot noticed the weather was deteriorating.

This concerned him because he wanted to reach his destination that day. He calculated his fuel reserve, and determined that he had just enough to make it to Tucson. He then decided not to make a planned refueling stop. He reasoned, "what can go wrong? I should make it with some to spare. I'd rather get to Tucson right away than be struck at some small airport waiting for weather to improve."

Approaching the Tucson area, he realized that the weather was worse than he had anticipated, and strong headwinds had caused the airplane to use far more fuel than he had allowed for. He thought, "This crummy weather is really botching up my flight." His friend remarked that he should have refueled. He answered "Once I make up my mind that I have made the right decision, nobody is going to tell me differently."

As he made his landing approach to Tucson, he could not see the runway clearly. Instead of going around for a second try, he landed anyway. The aircraft was not aligned with the runway, and it ran off the surface into the grass. The pilot blamed the landing mishap on the bad weather and the distraction of arguing with his friend.

USE OF THE
INSTRUCTOR CHECKLIST AND LESSON PLAN

USE THIS FORM TO:

- 1) Plan and Prepare for the in-flight judgment training session;
- 2) Record notes about student performance; and,
- 3) Guide debriefing afterwards.

CONCEPT LESSONS USAGE

- 1) Before the training session, fill in parts I, II, and III of the INSTRUCTOR LESSON PLAN (the right side of the form). Use the appropriate lesson plan from unit IV to guide you.
- 2) On the INSTRUCTOR CHECKLIST side of the form (the left side), enter these two reference information items:
 - a) Directly below the "CONCEPT LESSON" subheading enter in the (#) box the lesson number for this student's concept lessons. Obtain this from the Student Progress Record. For instance, if this is the student's second concept lesson, then enter a "2".
 - b) In the (p.) box, enter the page number in the Instructor Manual where the original lesson plan is located. If you have created your own lesson plan, write a brief description of the lesson itself.
- 3) During the lesson, use the concept lesson section of the Instructor Checklist to make notes on student performance. In the performance columns, place a letter for the subject area or areas of the student's poor judgments beneath the column heading of the related action way. For example, if the student does not lower the flaps far enough, you probably would write "A/E" in the "Under Do" column.
- 4) Make general notes for the debriefing session in one of two places, across the bottom of the "Concept Lesson" section of the "Performance" column, or in the "Comments" section of the Instructor Lesson Plan.

- 5) Notes for debriefing should include:
- a) What the student did well
 - b) What the student needs help with
 - c) An outline of any poor judgment chains you thought could be developing
 - d) Reminders about the hazardous thoughts and stress reduction if you believe the student should take special note of these factors with regard to his or her performance on this lesson's activities.

BEHAVIORAL SITUATIONS USAGE:

- 1) Before the training session, fill in the following reference information beneath the BEHAVIORAL SITUATIONS subheading.
 - a) In the (#) box, write the lesson number for this student's behavioral situations lessons. Obtain this from the Student Progress Record. For instance, if this is the student's sixth concept lesson, then enter a "6".
 - b) In the (p.) box, enter the page number in the Instructor Manual where the original "Judgment Situation Record" is located. If you have created your own lesson plan, write a brief description of the lesson's content.
- 2) During the lesson, make notes on student performance in the "Behavioral Situations" section of the checklist. Write the subject area code letters in the appropriate action way columns to outline each poor judgment. When the student uses good judgment and does not go along with the situation, write "OK" or place a checkmark in the "Do" column. You might also write brief notes on things especially well done, so you can compliment the student on it as soon as possible after the situation practice has ended.
- 3) You may wish to use this form to review student's overall performance on the Behavioral Situations as you do your Concept Lesson debriefing at the end of the training session. This is okay, but do not fail to respond to the student immediately after each behavioral situation.
- 4) Remember to keep this portion of the form out of the student's view to avoid revealing the situations being presented.

TRAINING MISSION EXAMPLE

This is an example of a judgment training mission. The concept lesson to be administered and the behavioral situations have been selected for the flight and are recorded on the instructor's checklist. All necessary preparation has been completed before the student's expected arrival time.

Concept lesson to be administered:

Transitions using flaps

Judgment situations to be administered:

Pre-flight - fuel selector screw

Pre-flight - shoulder harness

Enroute - VFR altitude

Enroute - over water

Instructor Preparation:

Remove fuel selector screw

Stow shoulder harness

Locate available over-water practice area

Locate area of scattered clouds at 3,000
to 8,000 feet.

MISSION NARRATIVE

The instructor informs the student they will meet at 2:00 p.m. for a training flight. The student is told to have the aircraft ready to fly. The instructor arrives at the appointed time and verifies that the student has the aircraft ready to fly. The instructor intentionally makes no attempt to release the stowed shoulder harness.

Pre-flight - Fuel Selector Screw

The student advises the instructor that he discovered the fuel selector screw missing during the pre-flight check. He found it on the carpet, and used a screwdriver from one of the mechanics to replace the screw. While buckling his seat belt, the instructor offers positive reinforcement for the student's act of good judgment regarding the fuel selector. Instructor, "You were very alert to fix the loose fuel selector. Good work." The student also buckles his seat belt but makes no attempt to remove the stowed shoulder harness.

Pre-flight - Shoulder Harness

The student continues with the pre-flight. At this time, the instructor says in a non-critical manner, "I notice that you don't have your shoulder harness on. Are you aware of the FARs concerning seat belts?" The student replies affirmatively. The instructor then asks, "What type of poor judgment action way does this represent?" The student answers, This was a No Do; I should have fastened my should harness, but I did not do it." The instructor gives positive reinforcement (praise, smile) for this correct poor judgment diagnosis, and he adds "Don't let my poor judgment influence yours - you must always make your own judgment."

They both then fasten their shoulder harnesses and continue with takeoff preparations. The run-up and takeoff proceed normally. The aircraft is in flight at 2,000 feet AGL in the local practice area. The instructor directs the student to climb to 4,000 feet and "to head out in that direction for some air work" (the instructor points east toward the ocean). The student replies, "Sir, the FARs state that for flights above 3,000 feet AGL on an easterly heading, we must maintain odd thousands plus 500 feet. Wouldn't 5,500 be a better choice?" The instructor compliments the student (positive reinforcement) for recognizing a potential poor judgment situation.

Transitions Using Flaps

The concept lesson is then conducted by the instructor. It is devoted to training in transitions from cruise to minimum controllable flight using various flap settings. Emphasis is

placed on developing the student's learning of the automatic reaction (AR) mental processes. The instructor provides positive reinforcement when appropriate, and when an error occurs, points out the subject areas and action ways in question.

The student is told to establish slow flight at minimum controllable airspeed (MCA), which he does by reducing power and extending flaps, adding power as MCA is neared to avoid a stall. The instructor queries the student, "you are sure we are clear of other traffic in the area?" The student replies, "No, I should have made clearing turns while I was setting up the aircraft." The instructor reinforces this, "Yes, that was a No Do action. You should have been more aware of your environment. What you are doing well however, is understanding and controlling the pitch-power relationship." The student replies, "Yes, I feel I am doing pretty well with that." The instructor then says, "Very good. Now retract the flaps, maintaining your present airspeed and altitude." The student retracts the flaps and reduces power as he raises the aircraft pitch attitude. Pointing to the altimeter, which reads 100 feet below target altitude, the instructor comments, "You should have raised your pitch a little more - that was an Under Do with regard to the aircraft. Not a bad job though!" Recovery from slow flight is then initiated, and the airwork continues.

Enroute - VFR altitude

The airwork continues. Over the water the student notices an increasing presence of clouds at their current altitude. He says to the instructor, "Soon we will be unable to maintain VFR at this altitude. Why don't we descend to 3,500 to get beneath these clouds." "Good observation and decision," the instructor replies. "Your repeated reviewing of the environment has helped you avoid getting into a poor judgment situation." The student maintains 3,500 feet and continues to head northwest away from the shoreline.

Enroute - Over Water

The instructor queries the student, "As a test of your problem resolving abilities tell me what would you do now if you lost all power and needed to make an immediate emergency landing?" The student thinks for a few moments, and then answers "I might have to ditch in the water. I'm afraid I wasn't paying attention, and possibly we are beyond our power-off gliding distance to land." The instructor pursues, "That's correct. In your favor, though, you have broken your poor judgment chain by correctly identifying your judgment error of flying an unknown distance from land. Now tell me, what was the subject area and the action way for this judgment?"

The student answers, "Well, the subject area is a combination of aircraft and environment because I didn't consider the limited gliding range of my aircraft in relation to how far I had travelled over water and away from land. The action way is Do. I should have not let myself unintentionally get that far from land." The instructor replies, "Very good. You clearly understand your error. Let's call it a day. Head us back to the airport."

Debriefing

On the ground, the instructor and the student review the flight in a debriefing session. The instructor begins by saying, "You did pretty well today. I planned five judgment training activities for you, and you handled three of them correctly on your own: the missing screw for the fuel selector, the suggestion to fly at an incorrect altitude, and the encounter with clouds while VFR. You did fail to make proper use of the shoulder harness, and you almost let yourself get too far from land at one point."

The instructor continues the discussion with the student about how a poor judgment chain could develop if the pilot over found himself over water with engine problems and was aware of whether or not he could glide back to land. Lesson two is discussed, the student being queried which mental processes he was using. "It seemed I was using automatic reaction," he says. The instructor then reminds the student of the observable behavior sought in each subject area, and provides any useful advice for possible improvements.

At the end of the discussion, the instructor asks, "Do you remember having any hazardous thoughts during the flight?" The student says "no". The instructor then asks, "How about your stress level - did it ever increase to where you felt uneasy or distracted?"

The student says, "Most of the flight I was calm and doing fine. I did get a bit rattled after I realized I didn't know whether or not I could get back to land in an emergency situation. It didn't last very long, but I did think to relax myself and to deal with the situation at hand." The instructor positively affirms the student's self awareness of a change in stress level. He then declares that the flight has ended, and they make arrangements for the next training session.

INSTRUCTOR CHECKLIST IN-FLIGHT LESSONS

Student Name SAMPLE MISSION Date

ACTIVITY		PERFORMANCE					
CONCEPT LESSON		Do	No Do	Under Do	Over Do	Early Do	Late Do
●	P. 4-8						
Transitions Using Flaps		P	E	A (pitch)			
BEHAVIORAL SITUATIONS		Do	No Do	Under Do	Over Do	Early Do	Late Do
●	P. 5-14						
1) Preflight Fuel Selector Screw		OK					
●	P. 5-13						
2) Preflight Shoulder Harness							
●	P. 5-37						
3) Enroute VFR Altitude		OK	- Good	RR			
●	P. 5-38						
4) Enroute - Over Water		A/E					
●	P.						

COMMENTS: Stopped PJ chain when realized he was over water.

INSTRUCTOR LESSON PLAN CONCEPT LESSONS

PART I Mental Process = AR X PR RR

PART II Activity Transitions from cruise to minimum controllable flight using various flap settings

PART III Reinforcements

Pilot: Good understanding of the pitch-power relationship

Aircraft: Good job of avoiding a possible stall by adding power before raising the nose.

Environment: Cleared the area for traffic while setting up for slow flight.

COMMENTS: No clearing turns. Real good pitch-power

ANSWER KEY FOR POSTCHECK
(Student Manual Lesson 13)

Postcheck: Form A

Situation One.

On a pleasure flight with 2 passengers, the pilot was told that one of the passengers had become very ill. He was a diabetic who apparently was in shock. Unable to stand the pressure of the decision, the pilot quickly asked the other passenger what to do. Should he continue the flight in the hope that the passenger would recover, or should he return home for medical attention? The other passenger became angry and said, "That is not for me to decide. Don't you have any regulations that tell you what to do in this situation? Call the airport for instructions." Since he was not sure what to do, and since the passenger was so demanding in his comments, the pilot thought, "Yeah, I better call for instructions. No sense getting that guy more upset than he is. I guess the customer is always right."

He called ahead and was told to return to the departure point where an ambulance would be waiting to take the sick man to the hospital.

He said to the passenger, "I hate to inconvenience you this way but orders are orders. It's not my decision. I'm only doing what I'm told to do."

The passenger seemed surprised at this statement and became further irritated saying, "You're really some pilot! I'd hate to have my life in your hands if I got sick!"

The pilot became angry and said, "Look, I'm the boss here and what I say goes. Your lives are in my hands now and I'm the one who is handling this situation. Just because someone feels sick is no reason

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EXTERNAL CONTROL:
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I can make a difference.

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MACHO: Risks don't make me fly better, they make me a fool.

to change a flight plan. I don't care what the airport says. That guy might be drunk for all I know. Those bureaucrats in Washington are forever making rules. Who are they to tell me when to turn back or continue?"

As he calmed down, however, he thought to himself, "Maybe the man is really sick; perhaps I'd better get him help immediately."

He returned to the departure airport and the sick passenger, who had lapsed into a coma, was rushed to the hospital.

The pilot was deeply disturbed by his near mistake and immediately decided never to fly again.

Situation Two.

George and Jack are on a pleasure flight late in the afternoon. George, the pilot, has been flying for almost six months and he is feeling quite proud of his flying ability. He brags to Jack that he is one of the best pilots at the local airport, and that he knows more about flying than a lot of the old timers who seem to be doing everything by the book. He says, "Flying by the book is unnecessary. All of those regulations are devised by some petty bureaucrats in Washington who probably have never been in an airplane."

Jack has heard all of this before and is irritated by it. He feels that George brags too much. He reminds George that he is not so great since he does not have much night flying and is not instrument rated.

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George is irritated by this. He tells Jack that he has never had an accident, and that he is sure that he never will. He decides to fly to another airport, two hours away, thinking, "I'll show him that I can handle night flying." He tells Jack that it would be better to fly on since the new destination has more "action" in its area than the airport they were originally approaching. Jack does not seem to mind, though he does remark that this will mean flying in one half hour of darkness. George says, "Don't worry; nothing bad can happen to us." They both have a laugh and the decision does not bother Jack.

As they fly into darkness, George becomes a bit nervous since he cannot locate the landmarks. He thinks, "Why don't they provide better lighting in these areas so a pilot can see." He does not let Jack know about his apprehension, but rather continues to boast about how well he is flying his aircraft.

Finally George sees an airport ahead and makes his approach. He is so nervous that he hardly listens to his landing instructions. He lands without a problem and feels quite relieved. Jack apologizes to George saying that he had underestimated his abilities.

As they taxi the airplane to the parking area, George realizes that he has landed at the wrong airport, that the one he intended to land at is 10 miles further east. He thinks, "You would think they'd identify the airports better so pilots would not be misled."

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

MACHO: Risks don't make me fly better, they make me a fool.

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Sit on One.

The pilot and his companion had been drinking for two hours before their flight from a local airport. As they walked toward their airplane the pilot said, "I can drink with the best of them and still fly at the same time." He continued by telling his friend that there is less chance of an accident in the air than there is for someone who drives a car. "After all," he said, "there's nothing up here but fresh air. Who is going to run into us at this height?"

As the flight began, the airplane was flown somewhat erratically but neither man noticed it. Instead they had a few more drinks and thoroughly enjoyed them. The companion suggested that they do a few loops, just to keep the flight interesting. The pilot remarked, "Loops?" I don't think I know how to do them. Ah, let's try a few anyway. After all, the only thing that could go wrong is for us to get upset from the dizziness.

He then started to do his loops without checking his altitude, which was quite low. The companion noticed this and screamed, "You're too low for this. You want to get us killed?" The pilot was very annoyed and answered, "Who is in charge of this airplane, you or me? I know what I'm doing. Now you just relax and watch me put her through some action. If things go wrong, it's not our doing. It's in the cards if your time is up. But don't worry, Lady Luck is going to be with me."

Observers on the ground reported later that they had seen the aircraft making repeated loops at low altitude. During

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the last loop, the pilot had exceeded the design limitations of the airplane and both wings separated from the aircraft. Both men were killed. Autopsies showed that both men had blood alcohol levels exceeding .085%.

Situation Two.

On a flight from Baltimore to Hartford, the pilot neglected to get an up-to-date weather forecast. In fact, he left Baltimore in such a hurry that he did not take the time to do a proper pre-flight inspection of the engine. He felt that he had to arrive at Hartford before 4 p.m. so that he would not miss an important engagement. He had therefore dispensed with the pre-flight check and the weather briefing.

Enroute to Hartford, the weather was getting progressively worse, and snow was beginning to fall. He noticed that ice was beginning to form on his wings. This frightened him and he quickly went to a lower altitude, hoping that this would help the icing problem. It did not and ice continued to form. He was now flying below the recommended altitude.

He was not sure what to do. In fact, in his fear, he was almost unable to do anything. He thought, "Perhaps I should radio for help; no, I won't radio for assistance. What would they think of me if they knew the problem I got myself into. Better to let sleeping dogs lie."

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"But what if my carburetor starts to ice? I'm not even sure what procedure I should use in that situation. I better fly close to the ground so I can be sure of where I'm going." He descended even further, despite knowing that this violated regulations and jeopardized his safety even further. He was confused and not certain what to do.

As he flew on, he narrowly missed a small mountain ridge. This panicked him further and he decided to make an emergency landing. He started making an approach even though he had not decided where to land.

Finally, at an altitude of 250 feet, he picked a paved road. Without checking for traffic, he pointed his airplane toward it and made an emergency landing. Two cars ran off the road to avoid colliding with the oncoming airplane. He stopped the plane and left it on the road, cursing about the bad weather that caused his problems.

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Situation One.

On a flight over hilly terrain, the pilot notices that her fuel gauge is not operating. She calculates that she has approximately two hours of flight before reaching her destination, a small airport in western Pennsylvania. But she is not certain of the amount of fuel in the tanks, since she neglected to refuel at the last airport. She has also neglected to monitor the operation of the fuel gauge during during the flight.

ANTI-AUTHORITY: Use the rules, they are usually right.

She thinks, "I should have topped off the tanks at the last stop. That would have given me plenty of fuel to make the trip. But who has time to follow all those procedures that are written for novices who don't know anything about flying and make dumb mistakes? Besides, nothing has ever happened to me, even in situations worse than this."

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INVULNERABILITY:
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INVULNERABILITY:
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She quickly decides to keep flying, thinking that "If something goes wrong, well, that's life."

As she flies on, it suddenly occurs to her that she may be nearly out of fuel. She suddenly thinks, "Maybe I have a fuel leak and the fuel tanks are empty!" She immediately begins to make a emergency landing.

IMPULSIVITY: Not so fast. Think first.

She begins her descent to a hilly and forested area. She says to her passengers, "We're practically out of fuel. "I'm heading for that small clearing before the engines quit. Fasten your seatbelts tightly and hold on, because we're probably going to make a very hard landing."

The landing damages the left wing and tail section but no one is injured. After she gets out of the airplane, she checks the

fuel tanks and finds them half-full. She says to herself, "Dumb mechanics, if they did their job carefully, my gauge would not have broken."

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Situation Two.

A pilot and his friend were flying a Cessna Skylark cross country to Tucson under visual flight rules.

Halfway to his destination, the pilot noticed the weather was deteriorating.

This concerned him because he wanted to reach his destination that day. He calculated his fuel reserve, and determined that he had just enough to make it to Tucson. He then decided not to make a planned refueling stop. He reasoned, "what can go wrong? I should make it with some to spare. I'd rather get to Tucson right away than be struck at some small airport waiting for weather to improve."

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INVULNERABILITY:
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Approaching the Tucson area, he realized that the weather was worse than he had anticipated, and strong headwinds had caused the airplane to use far more fuel than he had allowed for. He thought, "This crummy weather is really botching up my flight." His friend remarked that he should have refueled. He answered "Once I make up my mind that I have made the right decision, nobody is going to tell me differently."

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As he made his landing approach to Tucson, he could not see the runway clearly. Instead of going around for a second try, he landed anyway. The aircraft was not aligned with the runway, and it ran off the surface into the grass. The pilot blamed the landing mishap on the bad weather and the distraction of arguing with his friend.

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