

# **FLYING**

SAFETY

NOVEMBER 1996

U.S. AIR FORCE



1947 - 1997



# LOOKING FORWARD to 1997

**ES-3**  
*Flying*  
SAFETY



T-38 from Laughlin, TX Photo by SSgt Andrew N. Dunaway, II

F-15 USAF cover photo by SSgt Andrew N. Dunaway, II

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
December S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	February S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28		New Year's Day 1957 - Lackland AFB, Texas, became the single site for Air Force basic training.			
5	6	7	1	2	3	4
12	13	14	8	9	10	11
				1957 - Three B-52s flew around the world, covering 24,325 statute miles and averaging 536 mph. This was the first nonstop globe-circling flight by jet aircraft.		
19	Martin Luther King, Jr's Birthday 20	21	22	23	1949 - The Air Force adopted blue uniforms. 24	25
26	1973 - The Vietnam conflict cease fire. 27	28	29	30	31	

Like our calendar, when it comes to SAFETY, we want to have YOU hanging around for the whole year...year after year after year!

**January 1997**

**Eye**  
*Flying*  
SAFETY



A-10 USAF Photo MSgt Boyd Belcher (Ret)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
January S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	March S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29					1
2	3	4	5	6	7	8
9	10	11	Lincoln's Birthday Ash Wednesday 1973 - The beginning of Operation Homecoming. During this operation the Military Airlift Command flew missions into North Vietnam to repatriate 591 American POWs.	13	Valentine's Day 14	15
16	Presidents' Day 17	1965 - The first USAF raids were flown against enemy concentrations in South Vietnam. B-57 Canberras and F-100 Super Sabres flew against the Viet Cong near An Khe. 18	19	20	21	Washington's Birthday 22
23	24	25	26	1991 - Kuwait City was liberated and the 41-day war against Iraq ended. 27	28	

Maintain Situational Awareness--  
 Things are not always what they wæs

**February 1997**



**Flying**  
SAFETY

E3A AWACS U.S. Air Force photo by TSgt Marvin Krause

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
February S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	April S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	<i>St. Patrick's Day</i> 1981 - The first KC-10A "Extender" was delivered to SAC.	18	19	1974 - TAC's last EB-66C was retired from the active inventory.	21	22
23/30	24/31	25	26	27	28	<i>Good Friday</i> 29
<i>Palm Sunday</i>	Easter (24th) In 1977 the first production E-3A (AWACS) aircraft was accepted by the Tactical Air Command at Tinker AFB OK.					

If you take the risk, can you live with the consequence? Use **ORM!**

**March 1997**









**52**  
**Flying**  
SAFETY

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
April S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	June S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30					
				1	2	3
4	5	6	7	8	9	10
<i>Mother's Day</i>						<i>Armed Forces Day</i>
11	12	13	14	15	16	17
		1951 - Capt James Jabara became America's first jet ace by shooting down his fifth and sixth MiGs in the Korean War.				
18	19	20	21	22	23	24
	<i>Memorial Day</i>		1980 - The first women graduated from the Air Force Academy--97 were commissioned second lieutenants			
25	26	27	28	29	30	31

"You have the authority and responsibility to make the 'Knock It Off' call." General Ronald R. Fogleman

**May 1997**

**3**  
*Flying*  
SAFETY



T-43A USAF Photo by SMSgt Robert Wickley (Ret.)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1949 - General of the Army H.H. "Hap" Arnold was given permanent five-star rank of general of the Air Force.	1959 - The Air Force Academy graduated its first class--207 new second lieutenants.				
1	2	3	4	5	6	7
						Flag day
8	9	10	11	12	13	14
Father's Day						
15	16	17	18	19	20	21
			1950 - Korean War begins.			
22	23	24	25	26	27	28
1955 - First B-52 Stratofortress was delivered to Strategic Air Command.						
29	30				May S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	July S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

**YOU** are this Nation's most valuable resource.  
 Don't take an UNNECESSARY risk!

**June 1997**

**FLYING**  
SAFETY



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
June S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	August S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30				Independence Day	
		1	2	3	4	5
6	7	8	9	10	11	12
		1961 - First Minuteman wing was activated, 341st Strategic Missile Wing, Malmstrom AFB, Montana.		1962 - First space flight of a manned aircraft by Major Robert White piloting the X-15.		1980 - The McDonnell-Douglas KC-10 Extender made its first flight.
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

You wouldn't think of flying without strapping yourself in, so why not do it in your car? There's no excuse. Wear your seatbelts.

**July 1997**

**Flying**  
SAFETY







*It's worth repeating...*

**“It is better to be careful a hundred times  
than to be killed once.”**

Mark Twain

**Flying**  
SAFETY



C-141B USAF by SSgt Andrew N. Dunaway, II

<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>
July S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	September S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30				1971 - Jeanne M. Holm became the first woman promoted to brigadier general in the Air Force.	
<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>
1978 - The Air Force accepts the first production F-16.						
<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>
<b>24</b> <b>/</b> <b>31</b>				1972 - Captain Steve Ritchie became the first Air Force Ace of the Vietnam War.		
	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>

Since 1940, lightning has been the leading cause of weather-related deaths! Don't take chances. Avoid the JOLT from the BOLT!

**August 1997**

**Eye**  
**Flying**  
SAFETY



F-15C USAF Photo by SSgt Andrew N. Dunaway, II

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Labor Day					
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	1947 - U.S. Air Force became a separate military service.	18	19
21	22	23	24	25	1947 - General Carl Spaatz became the first Chief of Staff of the Air Force.	20
21	22	23	24	25	26	27
28	1976 - First Air Force women pilots entered undergraduate pilot training	29	30		August S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	October S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

**CRM** Crew Resource Management--  
YOU can LIVE with it!

**September 1997**

**ES**  
*Flying*  
SAFETY



HH-60G SrA Jeffrey Allen

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
September S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	November S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29			Rosh Hashanah	1967- Tactical Air Command accepted its first F-4E Phantom.	
			1	2	3	4
5	6	7	8	9	10	11
	Columbus Day	1947 - Captain Charles "Chuck" E. Yeager exceeded the speed of sound in level flight for the first time. He flew the Bell X-1.				1984 - B-1B made its first flight.
12	13	14	15	16	17	18
19	20	21	22	23	24	25
Daylight Savings Time Ends					Halloween	
26	27	28	29	30	31	

**AVOID SELF-MEDICATION**  
See your flight surgeon.

**October 1997**



**Flying**  
SAFETY



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday			
October S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	December S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31					1			
2	3	<i>Election Day</i>	4	5	6	7	8		
<small>1948 - HQ Strategic Air Command moved from Andrews Field, Maryland, to Offutt AFB, Nebraska.</small>	<small>1988 - The F-117A "Stealth Fighter" was publicly unveiled.</small>	<i>Veterans' Day</i>	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25
23/30	24	25	26	<i>Thanksgiving Day</i>	27	28	29	30	31

Icing dangers exist beyond aircraft--drive smart during holiday vacations and know your limits!

**November 1997**

**EX-3**  
**Flying**  
SAFETY



KC-135R Refueling in flight. USAF Photo by MSgt Dave Nolan

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
1903 - The world's first powered airplane flight, Kitty Hawk NC, by Wilbur Wright--105 feet in 3.5 seconds.	1969 - First C-5 was delivered to the Military Airlift Command.					
14	15	16	17	18	19	20
1964 - Maiden flight of the F-111A			Hanukkah	Christmas Day		
21	22	23	24	25	26	27
28	29	30	31		November S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	January S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Enjoy the season, but please, stay within reason.  
 Happy holidays from Flying Safety Magazine!

**December 1997**



**THE  
AFFSA  
INSTRUMENT QUIZ**

**MAJ KEVIN JONES**  
AFFSA/XOFD

■ This month's quiz will test your 60-to-1 skills as well as make sure you've posted IMC 96-1 to AFMAN 11-217, Volume 1. Answer these questions by referring to the TACAN RWY 23 approach at Pope AFB, North Carolina. Unless called otherwise, your aircraft is a Category C aircraft maneuvering at a speed of 180 KTAS, and there is no wind. Good luck!

You are south of Pope at 3,000 feet MSL when you receive the following clearance: "Echo 25, cleared direct to BENTN, hold as published." As you expertly maneuver your aircraft to proceed direct to BENTN, you realize you will be conveniently aligned to perform a teardrop entry.

**QUESTIONS**

1. Upon reaching BENTN, what teardrop heading will you fly which will give you the proper displacement to roll out on course inbound?
  - a. 035°
  - b. 060°
  - c. 050°

After your turn inbound (which was flawless), you proceed inbound to BENTN. As you roll out heading 080 after turning outbound and holding, ATC gives you the following clearance: "Echo 25, cleared the TACAN RWY 23 approach."

2. When can you begin your turn inbound to begin the approach?
  - a. Immediately.
  - b. Outbound abeam or wings level outbound if unable to determine abeam.
  - c. Upon reaching 16 DME outbound.
3. What is the earliest point you may depart 3,000 feet MSL?
  - a. Once established on the 12 DME arc.
  - b. When I am established on an intercept for the 12 DME arc.
  - c. Immediately.
4. What will be your lead point for the turn onto the 12 DME arc?
  - a. 13 DME
  - b. 14 DME
  - c. 11 DME
5. What is your lead radial for turning to the 222° course inbound?
  - a. R-047
  - b. R-052
  - c. R-227
6. What is the earliest point you may leave 2,000 feet MSL inbound?
  - a. Established on the 222° course inbound.
  - b. Within one dot width of the 222° course inbound.
  - c. Upon reaching my lead radial and beginning my turn inbound.
7. What is your VDP for a 3° glidepath?
  - a. 2.6 DME
  - b. 2.8 DME
  - c. 3.0 DME
8. What descent gradient is required to reach your MDA by the VDP (3 glidepath)?
  - a. 382 feet/NM
  - b. 350 feet/NM
  - c. 280 feet/NM
9. How is the missed approach point defined?
  - a. 2.0 DME
  - b. 2.6 DME
  - c. 1:12 at 150 knots groundspeed
10. Can you identify the missed approach point by timing?
  - a. No, timing is not authorized.
  - b. Yes, but you must compute your own timing based on your groundspeed.
  - c. I'm not sure; I'd ask Stan/Eval.

**BONUS QUESTION**

What constant bank angle will keep you on the 12 DME arc?

**ANSWERS**

1. C. To compute your proper teardrop offset, first you must compute your speed in miles per minute. In this case, with no wind, just divide your TAS by 60 and you get 3 nm/min. There are several formulas to compute your turn radius. We'll use nm/min <sup>-2</sup> which gives us a turn radius of 1 nm. The last formula will give you your proper teardrop offset in degrees:

$$\frac{60(\text{turn diameter})}{\text{Leg Length}} = \frac{60(2)}{4} = 30 \text{ degrees} = 050^\circ$$

2. C. (AFMAN 11-217, Volume 1, paragraph 11.4.6) This is a change from AFM 51-37. AFMAN 11-217 says, "...if established in holding and cleared for the approach, complete the holding pattern to the IAF unless an early turn is approved by ATC." Holding patterns must be flown as depicted. If you want to turn early, just ask ATC.

3. B. (AFMAN 11-217, Volume 1, paragraph 12.4) Once you reach 13 DME and begin your intercept of the 12 DME arc, you may descend to 2,000 feet MSL. For those of you who chose answer "a," that's a more conservative answer and it's also correct; however, it's not the earliest point you may leave 3,000 feet MSL. For those

who chose answer "c," you probably are justifying your answer with AFMAN 11-217, Volume 1, paragraph 10.8. In this case, there is no published minimum holding altitude. The altitude at BENTN is a recommended altitude; therefore, you must "maintain the last assigned altitude until established on a segment of the instrument approach procedure being flown."

4. A. We've already established that our turn radius is 1 mile, so 12 DME + 1 mile = 13 DME.

5. A. To figure out a lead radial for an arc-to-radial intercept, the first step is to determine how many radials exist per mile for the arc you are on. In this case, just divide 60 by the DME of the arc (60/12 = 5 radials/mile). You have a 1-mile turn radius, so you need to lead your turn by 5 radials. The inbound course is on the R-042, so just add 5 and you get R-047.

6. C. (AFMAN 11-217, Volume 1, paragraph 12.4) Once you hit the R-047 and begin your turn inbound, you may leave 2,000 feet MSL. When turning from an arc to a radial, "Once a lead point is reached, and a turn to the next segment is initiated, the pilot may descend to the next applicable altitude restriction."

7. B. To compute a VDP for a 3° glidepath, use the following formula:

$$\frac{\text{HAA}}{300} = \frac{460}{300} = 1.5 \text{ miles from the threshold}$$

The threshold is 1.3 miles from the TACAN, so 1.5 + 1.3 = 2.8 DME.

8. A. To figure your descent gradient, divide the altitude to lose by the distance to lose it in:

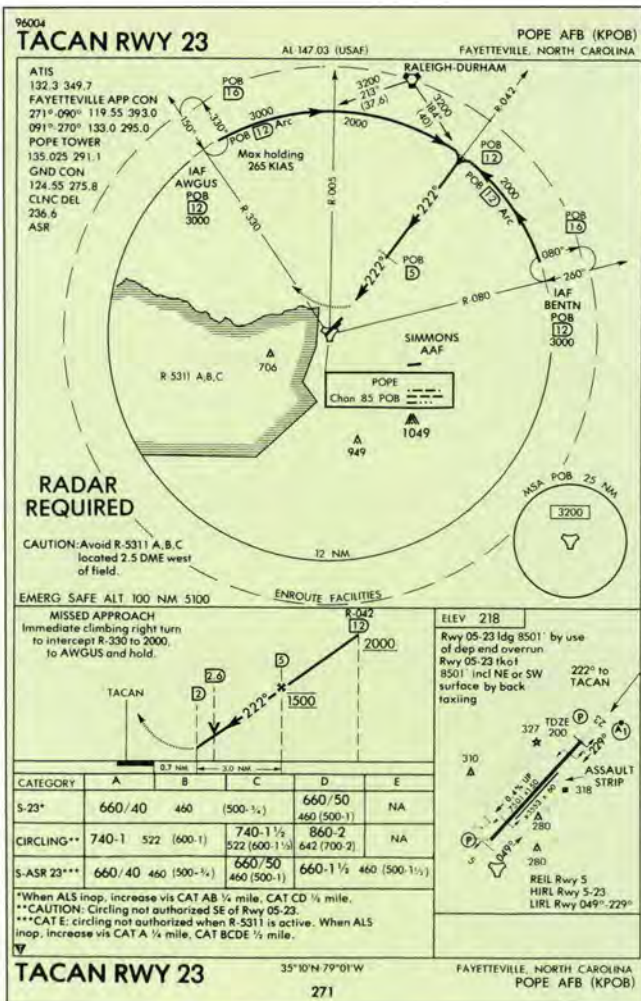
$$\frac{1500 - 660}{5 - 2.8} = \frac{840}{2.2} = 382 \text{ feet/NM}$$

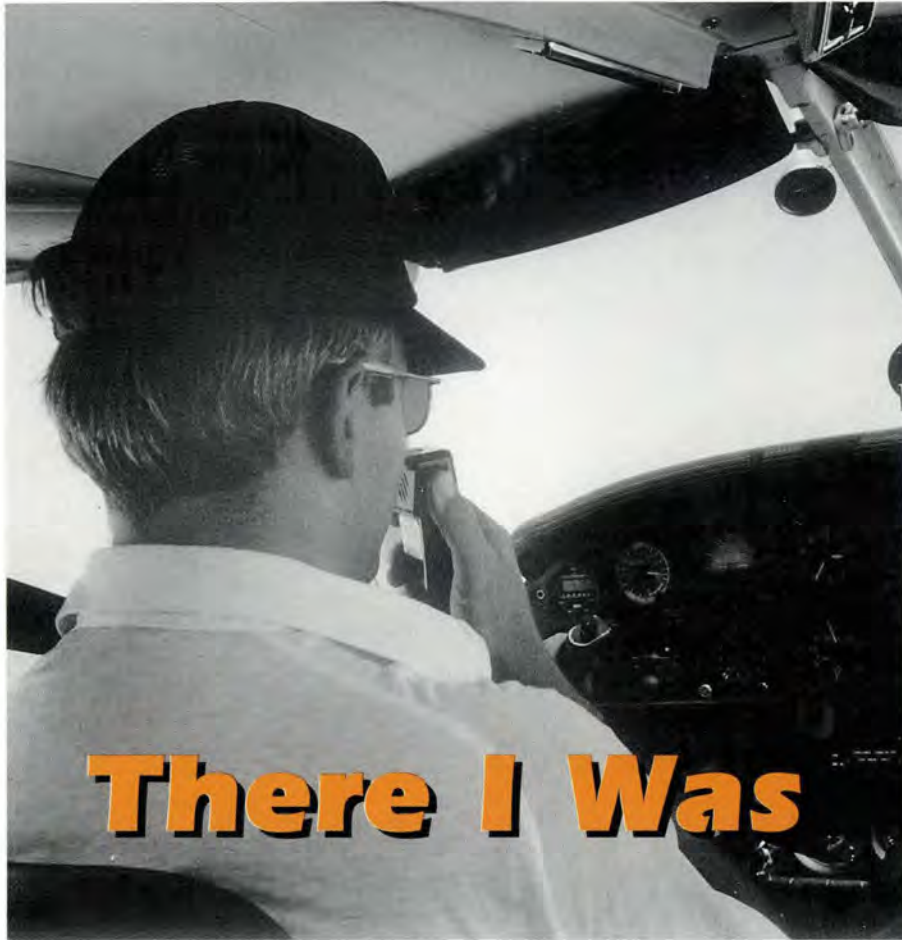
9. A. (AFMAN 11.217, Volume 1, paragraph 16.2) The only way to identify the missed approach point on this approach is by DME. The missed approach point is 2 DME off of the Pope TACAN.

10. A. (AFMAN 11-217, Volume 1, paragraph 14.1.1.2.2) This paragraph was recently changed by IMC 96-1. The last sentence now reads, "...if timing is not published on the approach chart, timing is not authorized as a means of identifying the missed approach point."

**Bonus Question:** 2.5°. To figure the constant bank angle required to keep you on the arc, use the following formula:

$$\frac{30(\text{turn radius})}{\text{DME}} = \frac{30(1)}{12} = 2.5^\circ \text{ or } \frac{1}{2} \text{ of the lead radials } (5/2 = 2.5^\circ)$$





Official USAF Photo

■ This story may not raise the hair on the back of your neck, but the mental images it conjures up in my mind still send shivers down my spine and remind me of a point my instructor pilot often drove home to me.

I learned to fly at the Eglin AFB Aero Club while stationed at Hurlburt Field, Florida. One day, during a routine solo flight to Crestview, Florida, I was sharing the traffic pattern with some Navy trainers from Pensacola. We were all practicing touch-and-go's. I was in a slower Piper Tomahawk and was concerned about not "getting in their way."

Armed with this attitude, I was coming in on final a little high and fast but pushed the plane down onto the runway at about 75 knots. I glanced down for a few moments to raise the flaps and turn off the carb heat. That's when I felt the plane start to pitch to the left. Looking up, I saw what seemed like nothing but

runway, and I was gritting my teeth for what I thought was the inevitable. I quickly leveled the plane, gave it full throttle, and was off into the wide blue yonder for yet another try.

Instantly, my instructor's voice rang in my ears as if he were sitting there with me. "Fly the airplane first!" he always reminded me. As a student pilot, I would easily get intimidated by distractions like the radio, instrument panel, and landing procedures. A simple 30-degree bank would turn into a 45 while I fumbled for the mike. "Fly the airplane first, then call..." or whatever the case was.

At Crestview that day, I was trying to land an airplane that still wanted to fly because the Navy pilots were there, and I had to get the flaps up, and I had to set the carb heat... I was putting everything else first, except flying the plane. ✈



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DEPARTMENT OF THE AIR FORCE —  
THE CHIEF OF SAFETY, USAF

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■ This story was a long time in writing. I always planned to send it in, but I managed to stay too busy. Now that I'm sitting at the Safety Center, I feel a little obligated.

This story happened more than 10 years ago when I was a

T-37 FAIP at sunny Del Rio by the sea. I was one of the more experienced pilots in the squadron (which in FAIP terms means I was 6 months away from pinning on captain) and had about 800 hours in the Tweet. As one of the "senior" pilots in the flight, you occasionally were asked to fly with students who were "having a little trouble." That was certainly the case on this flight.

This student had progressed to the instrument phase with average to above-average performance. His instrument flying was generally average also, but for some reason he refused to level off at his MDA when shooting nonprecision approaches. You would think this would be easy to correct, but several IPs had tried, both in the sim and the aircraft, to bang into this guy's head that you *had* to level off at the MDA! His overall performance was still satisfactory, and I think he had "slipped" through a few flights because of this.

Here's where I enter the picture. The flight commander called me aside and said this guy couldn't finish the program unless he figured out this MDA stuff. I was supposed to *thoroughly* brief this stud and go fly with him on an instrument ride. My flight commander said, "If you bust him, I need a *clean kill*." Now I was set up.

We spent a great deal of time on the ground talking about nonprecision approaches, both technique and procedure. I remember emphasizing bringing the power in 100 feet prior to MDA. The Tweet engines take awhile to spool up, and this is the only way to level at the MDA and keep your airspeed. "If you don't get the power in 100 feet prior to the MDA," I said, "you've already screwed up."

The weather for the mission was about 500 overcast with excellent visibility underneath. We launched into the radar pattern for multiple approaches. For the first four approaches, the "stud" was 2 for 4 at leveling at the MDA. I was also giving a lot of verbal cues to the guy. We were just about bingo for our alternate and had time for one or two more approaches. I decided if he could safely shoot two more nonprecisions with *no instruction*, I would pass him. Otherwise, he busts.

The approach of choice was the ASR. The MDA had a



Official USAF Photo

height above touchdown somewhere around 400 feet. As always, the "stud" began the approach well with excellent course and airspeed control. At 100 feet above MDA, there

was no power input. "Here we go," I thought. "I need a *clean kill*."

At the MDA we were on course at 1,000 fpm sink rate, no power input, no attempt to level. One hundred feet below MDA — 1,000 fpm, on course. Two hundred feet below MDA (200 feet AGL). "I've got the aircraft," I said as I raised the speed brakes and pushed the power to mil. One potato, two potato, three potato...boy! These Tweet engines sure wind up slow...six potato...now the ground is getting really big. I began to raise the nose and bleed off speed, but I was still sinking.

The terrain off the runway at Laughlin is very flat, and the highest obstruction would be mesquite trees at about 20 feet AGL. I remember three things: My airspeed hit 75 knots, a cow next to a mesquite tree turned around to look at us, and I lost sight of the runway. We were actually level with or slightly *below* the runway about 3 miles out! I honestly believe if the T-37 had a better ejection seat, I would have used it, but I knew it wouldn't help me here. I had told the student to look up and pull off the hood, so he was watching the whole thing.

Then the wonderful push of 1,600 (yes, 1,600 installed) pounds of thrust kicked in, and we were climbing away from the dirt. I reestablished a normal glide path and made my second mistake of the day by letting the student take the landing. I guess he was a little shook up (a little?), because he tried to flare at 20 feet. I took the jet and landed safely.

What did I learn from this? Well, I should have listened to my own instruction. If the power didn't come in 100 feet above MDA, *the student had already screwed up!* Was it really necessary to let him go so far for a "clean kill"? Probably the most important thing I learned is when you're the "old head" in the squadron and getting close to a PCS, *you're dangerous*, or at least you have the potential to be. I've thought about this several times in my career and tried to be on guard.

On a lighter note, the student in question learned his lesson. He did well in the rest of the T-37 course and was above average in T-38s. He went on to fly RF-4s, and I'll bet he never went below his MDA again! ➔



# *Best Wishes*

to all for a happy and safe holiday  
season from the Air Force Safety  
Center and the staff at Flying Safety  
Magazine.