Radical Right Terrorists vs. Radical Left Terrorists: Their Theory and Threat

Examination of activities and membership of several terrorist groups can lead to an indication of what to expect.

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by
Thomas Strentz, Ph.D.
Supervisory Special Agent (retired)
U.S. Federal Bureau of Investigation

Mental health can be conceptualized as a wheel, with normal people at the hub and the seriously disabled at the rim. Those who seek violent solutions to domestic social or political problems in a democracy, where peaceful procedures for change are abundant, can be considered to have moved along the spokes of the wheel away from the large hub of normality toward the thin rim of pathology.

During this examination of political philosophies, it is very important to remember that while the Democratic party in the United States has a leftist orientation, and the Republican party is more to the right, left-wing and right-wing terrorist groups represent *outrageous and illegal* expressions of these diverse and legitimate political perspectives. Because of their violent opposition to constitutional democracies, extreme left-wing (communist/socialist) and radical right-wing (fascist/nazi) terrorists share some personal characteristics. However, there are several significant socio-economic, psycho-sexual, educational and religious differences between terrorist groups.

When analyzing the individual terrorist, this author does not suggest that they are suffering from an identifiable mental illness. Yet, if the elements of some mental disorders, and the basic differences between left- and right- wing political philosophies are understood, then the patterns of social interaction, thought processes, personalities, group dynamics, educational levels, tactics, and sexual preferences of hijackers and hostage takers will make more sense (Strentz, 1981).

Although these social deviants are not specifically described in the psychiatric literature, as a general rule the more democratic, open and free the society, the more psychological pathology is evident in its domestic violent dissenters. When a political or social system has adequately provided for dissenting views and orderly change, violence perpetrated by its adversaries indicates more about the aberrant personalities of these antagonists than it does about the alleged intransigence or decadence of the system.

As situations change and stress develops, healthy people adapt their behavior to deal with the new demands. Psychological adaptability can be viewed as a gradient to which unhealthy personalities do not respond (Millon, 1981). When new challenges are encountered, the psychologically infirm may become less flexible, and resort to rigid responses which usually make matters worse. The greater the demand for different or adaptive behavior, the more intransigent they become (Million, 1981 pp 9-11). Thus, when dealing with those whose stress responses are maladaptive, we frequently see behavior patterns that are predictable and lend themselves to manipulation by others. (Ault, 1990)

Most hijackers in the United States have been diagnosed as mentally ill (Salazar, 1990). Interviews with them have shown that they felt they were in a strange and very frightening environment. Few, if any of them, had flown on aircraft before. With some knowledge of their personalities, flight crew members can assist in ameliorating the crisis by talking with the hijacker. They are often afraid, more frightened than their victims, and in need of a friend. Many are more inclined to rely upon the judgment of crew members in this foreign and frightening situation than their terrorized victims might suspect.

To a degree, what is past is also prologue. Thus, an examination of those who have hijacked airplanes, or those who have been members of a terrorist group, and an examination of their behavior patterns, can provide us with some indication of what to expect in the future. After examining their activities and looking at the membership of several domestic, and a few foreign terrorist groups, it becomes clear that predictive generalizations can be made on the overall structure and functioning of

these aberrant organizations.

Sociological and Sexual Differences

Generally, extreme left-wing groups consist of persons who are single, separated or divorced. Many are involved in subconscious conflict with their parents, and radical group membership provides them with an expression for this rebellion (Salert, 1976). Others seek to complete the revolution they believe their parents began (Decter, 1975). Their ages tend to range from the mid-20s to the mid-40s. On the other hand, extreme right-wing groups frequently include entire families, and in that sense they resemble cults. It is rare to find a female leader on the right. One reason may be that the Bible speaks of the man as the head of the house and commands the female to be obedient to her husband. In left-wing groups, gender or sexual preference does not exclude one from a leadership role. Another explanation for this is the more liberal attitude of the left toward women and their rights on issues from abortion to voting. The right has a conventional, or rigid, orientation on the social role of the female versus that of the male. Groups that engage in assaults on homosexuals are usually youthful right-wing gangs. Overt homosexuality is quite acceptable on the left and is not a barrier to leadership. Homosexuality is an abhorrence on the right and may result in expulsion from leadership.

Psychological/Political Differences

Leftist groups engage in protracted reproaching sessions while the right tends to avoid this vilifying introspective activity. The right spends an equal amount of time reinforcing how genuine, pure, dedicated and godlike they are rather than engaging in the endless masochistic self-criticism so common on the left. This develops from the basic difference of the right intending to maintain, or return to, the wonderfulness of the establishment while the left sees its many imperfections and the need for a revolution to achieve social equality. The right regards the government as almost perfect while the left longs for the perfect government. In other words, left-wing groups oppose the legitimate government and desire a revolution; *they deny the authority of the establishment*. Radicals on the right want to maintain the status quo and oppose those who seek change; *they deny the legitimacy of the opposition*. (Conley, 1990)

Three personality types that are seen in most terrorist groups are described below (Strentz, 1981):

- *The Leader*: A person of high dedication, a theoretician with a strong personality. This per-

son has a pattern of social interaction and psychological reasoning which is similar to what many psychologists have labeled as a paranoid personality disorder. In left-wing groups this person can be a male or a female. On the right it is almost always a male.

- *The Activist-Operator:* a male with an antisocial personality, frequently he is an ex-convict who is action-oriented and gives the group its criminal orientation which brings it into conflict with the law.

- *The Idealist:* Often a university dropout on the left or an adolescent family member or drifter on the right, who exhibits an empty life-style and a penchant for seeking the truth to answer questions about the purpose of life. Both genders are found in this role. They are characterized as guilt-ridden hitchhikers who thumb a ride on every cause from communism to Christianity. They need a Marx, or a Christ, to worship and die for. They are the mortal enemy of the status quo and insist on sacrificing themselves for their impossible dream (Hoffer, 1952).

Educational Differences

Differences include the fact that most of those on the left are more educated. They join the group because of some deep personal conviction or unresolved psychological problem, and they understand and believe in the goals of the group. Due to their college education they have read revolutionary rhetoric and many think that the poor and other minorities have been exploited by the establishment. They are more prepared, and due to their youth, able to pay the price of incarceration for their political and criminal acts. Many seem to revel in the role of a martyr.

Conversely, those on the right are not cut from the same cloth. While one may find an articulate, university educated leader on the right, the rank and file are usually high school drop-outs who are from blue-collar families. Many were attracted to the terrorist group because of its scape-goating rhetoric and emotional — rather than intellectual — appeal to the needs of its recruits. One author has characterized them as street corner racists who lack a depth of conviction (Flynn and Gerhardt, 1989). Due to their general lack of education and limited employment skills, they are more susceptible to economic reversals. Thus they tend to be the last hired and first to be fired. Most people find it difficult to accept responsibility for serious economic problems. It is comforting for everyone to hear that they are okay and that problems are due to forces beyond their control. Those experiencing social, psycho-

logical or economic distress are especially vulnerable to charismatic leaders who mix religion, anti-Semitism, their version of history and have a pet economic theory to provide quick and simple solutions to complex social and economic problems.

Preparatory Criminal Activity

Those on the right, and most hijackers, tend to be impulsive. Once a target for their criminal activity has been identified, they usually complete the felony with considerably less planning that one sees on the left. The Symbionese Liberation Army (SLA), a leftist organization, tended to meticulously plan its felonies. Members took pictures, made diagrams, studied maps and tirelessly surveilled their targets (Hearst, 1990). Most of them seem to enjoy the planning phase more than the actual operation. The overt criminal act is almost anticlimactic.

Crimes Aboard Aircraft

A review of the U.S. Federal Aviation Administration (FAA) listing of criminal acts against the airline industry in the United States and abroad shows that between 1931 and 1989 there were more than 300 hijackings of U.S. carrier aircraft. Between 1984 and 1989 there were fewer than two dozen hijackings. Overseas departures between 1984 and 1989 resulted in United States carriers suffering seven of the two dozen hijackings. This statistic becomes significant when one considers how few foreign departures United States carriers register when compared to domestic flights. Also, when departing from non-domestic airports, the hijackers had real weapons or explosives. Domestic hijackings were perpetrated with alleged or fake devices on all occasions except one in Cleveland, Ohio, when a female hijacker shot her way past security.

A review of U.S. hijackings shows the dramatic impact 100 percent passenger screening had in the early 1970s when the number of hijackings was reduced from thirty-three in 1972 to only two in 1973. Since that time, if one deletes hijackings to Cuba* the figures remain at the level of approximately one hijacking every two months. Though one hijacking is one too many, screening points in the United States process over one billion passengers, their families and friends each year. That number represents more than four times the population of the United States walking through 1,300 checkpoints. Even with this volume, more than 3,000 weapons are confiscated annually (Salazar, 1990).

(*Note: Hijackings to Cuba during the early 1980s numbered 36 and appeared to be sponsored by the gov-

ernment of Cuba to divert attention from its internal economic and political problems. Many of these hijackers appeared to be Cuban agents who were trained for this mission. Thus, they cannot be compared with the typical, mentally-ill domestic hijacker.)

As security is tightened in one area, criminals seek another avenue of attack. The number of bombs on aircraft has, on the average, been higher each year since the beginning of 100 percent passenger screening. On a more positive note, although the number of casualties has increased, there have been only three bombs exploded on U.S. aircraft in the last six years. It is important to remember that those bombs, which have killed or injured passengers and crews, have been secreted on American carriers departing from foreign airports. The one domestic bomb exploded on the ground at Dallas-Fort Worth International Airport, Texas, U.S., and resulted in no casualties. The two foreign departure bombs were deadly. One on TWA caused the deaths of four passengers with injuries to nine others. The other on Pan Am Flight 103 resulted in 259 deaths on the aircraft and another 11 on the ground.

Since the FAA began keeping statistics in 1931, non-U.S. carriers experienced more than 500 hijackings and 75 bombings. U.S. carriers are the single most frequently hijacked and bombed. There are many reasons for this. One is that the FAA may count crimes on board U.S. aircraft more carefully than those of other nations. Another reason is the greater number of aircraft departures of U.S. carriers versus the rest of the world. U.S. carriers log more daily departures than all other carriers combined (Salazar, 1990).

Of significance is the fact that the United States represents capitalism to the rest of the world. Thus, left-wing, or communist-oriented terrorist groups seek to target U.S. carriers as symbols of their political and economic enemy. To many third world countries, the United States is a colonial or imperialistic power and the mortal enemy of their cause. The United States is allied with Israel, and therefore the target of Arab terrorist groups. Additionally, considering the caliber of people who hijack aircraft, it is unlikely that any of their constituents will be aboard the airplane (Strentz, 1988). Further, the United States is a constitutional democracy where people are innocent until proven guilty. A price democracies pay for this freedom is fewer restrictions on passengers, even when some of them are criminals. Finally, U.S. overseas carriers are especially at risk because those who seek to strike the United States need not travel to that country. U.S. aircraft serve as symbols of the nation and provide terrorists with large targets on a regularly scheduled basis.

There are other reasons that terrorists target airplanes. The adventure of flying, the drama of hijacking, the

publicity given an assault on an airplane versus the press coverage received for shooting at an embassy are also factors. Suffice it to say, the United States is the enemy of governments and people who envy the West its achievements in a world where they continue to struggle or have failed.

Sophistication of the Threat

In spite of these many reasons for terrorists to commit crimes on board U.S. aircraft, a review of hijacking statistics reflects that the vast majority of these hijackings are carried out by people who have serious mental problems. After their arrests, it was determined that many were suffering from the psychosis called paranoid schizophrenia or from a serious personality disorder (Salazar, 1990).

To put the threat in perspective, one should remember that the number of hijackings of U.S. carriers has decreased dramatically since 1972 with the introduction of 100 percent passenger screening. Air crews should know that those who commandeer planes are not particularly well-prepared nor knowledgeable about aircraft operations. Interviews with hijackers and victim crews have provided ample evidence of the level of hijacker planning or sophistication. Ora May Hayes, who tried to hijack a domestic Pan Am flight in Cleveland, Ohio, did so because that morning she saw a billboard which advertised that airline. Zvonko Busick, Ph.D., the presently incarcerated, well-educated, Croatian terrorist, along with his wife and three associates, hijacked Trans World Airlines flight 355. They selected that flight because the plane was scheduled to fly from New York to Tucson via Chicago. This measured three inches on his map. His destination was Europe, a distance of two inches. Thus the Boeing 727 bound for Tucson was commandeered and the pilot was directed to fly east (Strentz, 1976). Other examples include the Middle Eastern terrorists who attempted to hijack a Boeing 747 and could not find the cockpit. In another hijacking, the terrorists were told that the runway was blocked to prevent their 747 from landing. They insisted that the pilot land in the water and then taxi to the shore. The pilot refused saying that this was impossible. His copilot was more liberal. He said that this could be done ... once. The terrorists then produced a copy of the safety instruction card which pictures passengers deplaning in rubber rafts as proof that the flight deck crew was lying to them.

There are many examples of well-educated terrorists and mentally ill hijackers who have engaged in little planning before hijacking an aircraft, or who possess limited or erroneous knowledge of the aircraft. Interviews of flight crews have made it abundantly clear that recent terrorist hijackings have been perpetrated by people who had not been on an airplane or even in an airline terminal before the hijacking.

While it is dangerous to underestimate these adversaries, it is extremely foolish to conceptualize them as an insurmountable enemy. A review of past hijackings indicates that most hijackers are far less sophisticated, and know considerably less about aircraft operations and capabilities, than a newly hired employee of an airline company who has not yet been trained. In addition to this lack of preparation and ignorance of aircraft operations, terrorists share other characteristics.

The American Terrorist Experience

A recent research project conducted at the U.S. Federal Bureau of Investigation (FBI) Academy sought to identify the types of crimes perpetrated by people whom the media identified as terrorists. A large number of names were collected that included members of such left-wing groups as the May 19th Communist Organization, Symbionese Liberation Army (SLA), Black Liberation Army, Puerto Rican independence groups and several other communist organizations. The right wing was represented by the American Nazi Party, the National Socialist White People's Party, The Ku Klux Klan, the Aryan Nations, the Covenant, Sword and the Arm of the Lord, the Order, and others.

When the arrest records of individuals affiliated with these groups were reviewed, it was noticed that the majority of the arrests of those on the left were for such offenses as trespassing, failure to obtain a parade permit, disorderly conduct and other violations one would associate with the political demonstrations common in the late 1960s and early 1970s. There was a sprinkling of felony arrests from bombings, several bank and armored car robberies and three aircraft hijackings. The arrests of those on the right were almost all for felonies but never involved aircraft hijacking.

Air Crew Expectations

Flight crews can more reasonably expect hijackers in the United States to work alone, to be mentally ill, to have limited knowledge of the aircraft, to fake a weapon, and to have impulsively decided upon his or her criminal act earlier in the day. Their general lack of knowledge of aircraft and airport operations is further evidenced by the much smaller number of hijackings of private, and more vulnerable planes compared to those which operate commercially (FAA, 1989). These generalizations hold true for overseas incidents except that those incidents that include more than one hijacker.

Governments and law enforcement agencies throughout

Chart of U.S. Domestic Terrorist Group Differences

Issue	Right Wing	Left Wing
Legitimate Political Parties	Republican	Democrat
Radical Expression	Nazi/Fascist	Communist/Socialist
Government	Retain or Retrieve Perfect	Replace Perfectible
View of those opposed to establishment	Illegitimate	Honorable
Social Change	None/Reactionary	Revolutionary
Social Class	Lower/Middle	Lower/Middle/Upper
Leadership	Male Dominated	Male/Female Egalitarian
Sexual Orientation	Heterosexual	Homosexual
Sexual Roles	Established/Rigid	Unspecified
Marital Status	Married	Single/Divorced/Separated
Group Dynamics	Family/Cults	Single Co-equals
Age	16-76	25-45
Members, Education	High School	University
Leaders, Education	High School/University	University
Religion	Fundamental/Protestant	Agnostic/Atheistic
Criminal planning	Impulsive	Meticulous
Criminal Activity: Robbery, Bomb, Shoot, Kidnap	Yes	Yes
Aircraft Crimes	No	Yes

the free world have developed a high level of crisis management expertise since the tragedy at the 20th Olympiad in Munich in 1972. While there were some successful criminal and terrorist hijackings earlier in the 1980s, this success rate has decreased. Today, U.S. law enforcement, because of the large number of domestic hijackings, is probably one of the best in the world in its ability to manage a crisis, such as a hijacking, successfully negotiate with the hijacker and, as a last resort, engage in a successful rescue operation. Terrorists, and criminals, know this.

Leftist terrorist groups still seek to target the aviation industry generally, and United States aircraft in particular. As screening processes and crisis response capability have made hijacking more difficult, terrorists have changed their tactics. Due to the miniaturization of timing devices, the increased strength of smaller amounts of explosives, and the number of people who carry electrical items in their baggage, terrorists have returned to bombing. While this represents a lower level of group sophistication, it is more dangerous and deadly to the flight crew and passengers.

Evaluation of Sophistication

The sophistication of terrorist groups can be gauged by analyzing the types of crimes they plan and perpetrate. These acts fall into two broad categories. While both provide publicity for their cause, one cluster involves intimidation by violence while the other entails monetary returns. When considering the number of people needed and training required, those acts which result in uncontrolled violence, like bombings and shootings, are frequently the crimes of a less sophisticated group. A higher level of competence is required to commit acts that seek long-term publicity or are monetarily motivated like hijacking, or other acts which include a ransom demand. Theoretically, a so-called group that only bombs or shoots may be limited to one person. However, to successfully hijack an airplane, hold victims

for ransom and negotiate, requires several people, training and considerable planning.

Terrorist groups have conducted fewer and fewer hijackings since their sophistication peaked in 1977 with the taking of JAL 472. Not only has the number of bombs increased, but their placement has shown that at least one of our adversaries has some knowledge of aircraft vulnerabilities. Unfortunately, terrorists learn from their experiences. When an explosive device is detected or defused, they build a better bomb (Korsgard, 1990). They share this expertise during meetings around the world.

Radical Group Conferences

Most terrorist groups try to achieve some sort of solidarity with similarly oriented political organizations. When the left engages in conferences, the meetings are held at a major hotel in a large metropolitan area and features delegates from many nations who arrive by air. The larger meetings usually focus on global strategies presented by a guest speaker in a plenary session which is refined by smaller groups in breakout meetings. These conferences provide a cover for their clandestine meetings. All of this is designed to foster international cooperation and visits between the groups. Some of these travels are paid for by leftist or revolutionary foreign governments like Libya or Cuba. There is evidence that these governments have assisted left-wing domestic groups with training, refuge and generous funding. In return, domestic left-wing groups provide money from robberies of banks and armored cars to other organizations.

When the right engages in such a conference, most of the attendees are from the United States, and the meetings are held in remote rural retreats. They arrive in pick-up trucks with travel trailers and their families in tow. Their sessions feature survival lectures, firearm training, prayer sessions and war games in the woods. The conference closes with a family barbecue. They rarely travel internationally and receive no support from foreign governments. A right-wing group member recently won a large amount of money. He became less active in the organization and was evicted from the group when he refused to share his new found wealth. Yet, within the right there have been some very philanthropic individuals who, after large robberies, divided their booty with some who shared their political or religious views.

Geographic Considerations

There is a noticeable, geographic dichotomy of domestic terrorist groups. Left-wing groups are more Eastern/urban while right-wing groups are more commonly found in rural areas. The exception to this is the right-wing, racial hate groups which abound in New York, Chicago, Los Angeles and other major cities.

Religious Considerations

Because of the strong Communist influence, domestic left-wing groups tend to be atheistic or agnostic. The right incorporates religion into its political beliefs. Its members are devoted fundamentalists who seek to justify their political activity and anti-Semitic beliefs with quotations from the scriptures. They attribute their successes and failures to the will of God. Those who oppose them are considered the devil's disciples or members of an inferior race whose extinction is approved.

The Next Ten Years

Left-wing domestic violence has been on the wane for many years. With the democratization of Eastern Europe and failing communist economies around the world, it is anticipated that most domestic leftist groups will remain dormant. However, Middle Eastern-sponsored foreign and domestic groups will remain active as will those that seek independence for Puerto Rico and others which espouse racial or ethnic issues. These are the types of groups that have engaged in aircraft hijacking and bombing.

The domestic radical right has been dealt a serious blow and many of its members are now in jail. However, as we approach 2000 A.D. it can be anticipated that radical religious prophets who predict the end of the world as we enter the second millennium will surface in the United States. A close parallel exists between their teachings and those of religious cults that developed in Europe during the final decade of the Dark Ages, at the end of the 10th century, and at other significant times in history when a mathematical interpretation of the Bible provided the date for the end of the world (Vasiliev, 1944; Cohn, 1957). Among circumstances, which may serve to make these groups more dangerous tomorrow than they have been, is their belief that they must now migrate to the western mountains to escape the economic collapse, earthquakes, nuclear war and other catastrophes their prophets predict for the 1990s. This will bring them into the region of the United States which presently houses the leaderless and sympathetic remnants of the religiously oriented radical right wing. Although groups of this political orientation have not tampered with aircraft in the past, their need for publicity may cause them to change tactics.

Thoughts To Keep In Mind

It is the intention of this article to provide a few elementary considerations which delineate some tactical, social and psychological differences between right-wing and left-wing terrorist groups. Particular attention has been given to the problems of attacks on the aviation industry. These extreme groups seek violent solutions to resolve social and political differences when peaceful avenues of resolution are available. Thus their actions tell us more about them as people than about the system they seek to revolutionize. Similar personalities are seen in both groups. Yet, their reasons for joining, economic backgrounds, education and social status thrust these comparable personalities into very diverse settings. The psychologically similar individuals found in politically dissimilar groups require assorted approaches and a solid understanding of their idiosyncrasies to fully comprehend the adversary and to successfully resolve an otherwise dangerous situation.

What too many flight crews forget, or learn too late, is what interviews with incarcerated terrorist and mentally ill hijackers have established. Each reported that they were more frightened than their victims. There are several good reasons for this fear. Many more hijackers have been injured or killed than passengers or flight crew members. In fact, worldwide, more than 100 hijackers have been killed or injured. Excluding the crashes which ended the commandeering of the Malaysian flight MH 652 in 1977 and Pacific Southwest Air 1771 in 1987, the commercial airline industry has suffered the deaths of only two crew members during hijackings.

Talk as a Defuser

The hijacker is in a strange and very frightening environment; he or she is in need of a friend, and really needs the crew, every member of the flight crew. Talking with this frightened adversary can help one better determine his or her level of planning, sophistication, dedication, personality type, and gain information which can lead to a peaceful resolution of this very dangerous confrontation. ♦

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About The Author

Thomas Strentz, Ph.D., is a professional anti-terrorism expert with a background in all phases of hostage takeover, negotiation and survival. Having extensive experience with the U.S. Federal Bureau of Investigation (FBI), he has been involved in numerous terrorism situations worldwide.

An experienced instructor, public speaker, author and training film producer, Strentz aims his efforts on training persons in the psychological and sociological tactics needed to mentally and physically survive a hostage situation. He utilizes his expertise for the benefit of organizations and individuals who work and travel in high-risk areas: domestic and international airlines, law enforcement officials, government agencies and military branches.

Whose License is it Anyway?

'I was just following orders.'

———

by
Capt. N.S. Bindon
President, Canadian Air Line Pilots Association

The above quote is not an excuse at a war crimes trial. It is a recent statement by several young — and sometimes not so young — pilots and mechanics during media interviews and in testimony at Transport Canada inquiries into problematic airlines. It refers to gross violations of the [Canadian] Aeronautics Act as well as to more minor but cumulative series of actions that steadily erode the margin of safety. Included among these misdeeds are flying without a license, total disregard of flying and duty time limitations, installing worn out or time expired parts, and falsification of records.

That these individuals were cajoled, coerced, or intimidated by greedy and amoral operators who have taken advantage of the disruption in our deregulated industry is without question. That the shortage of air carrier inspectors and their less than optimal utilization has made flouting the law easier is equally apparent. But that is no excuse. There is no excuse.

These violations were committed by licensed individuals, supposedly professional pilots and mechanics blinded by their own ambitions to build their flying hours or improve their resumes so that they could escape to a better job. In the meantime, they have helped perpetuate a shoddy operation, compromising their integrity with the rationalization that "everybody does it," that "if I lose my job someone else is going to come in and get these hours." Hardly started in our profession, they have sold their souls to the devil.

And the devil, the opportunistic, quick-buck operator, will sell out his employee just as quickly as he brought him. We have heard one such operator publicly disavow any responsibility for the unacceptably low standard of safety within his company, stating that he hired licensed pilots and mechanics and if they didn't do their job properly, "It's not my fault."

Surprisingly the news media have concentrated their attention on the few unfit owners for creating the situation and on Transport Canada's shortcomings in allowing it to continue. They have been uncharacteristically lenient with those licensed employees who claim the blind obedience and giving in to pressure is necessary to keep their jobs and avoid being "blacklisted" in the industry.

If they stand up for what they know is right they probably would be blacklisted — but only from like-minded companies, companies which are few and far between in the aviation community of Canada and which can

only continue to exist when served by the morally weak. On the other hand, if they permit themselves to be suborned for personal gain, then they should be blacklisted by every responsible company.

I understand the aspirations of these young pilots and I appreciate the pressures they face, but I cannot condone their weakness.

The Aeronautics Act is clear. It establishes the pilot-in-command as the person ultimately responsible and accountable for the safety of his or her passengers, crew and aircraft. It grants him or her the authority — indeed, the duty — to say "no" to an employer when, in the pilot's judgment, the employer's orders will contravene regulations or jeopardize the safety of flight. The

pilot is the last line of defense.

Thus, a pilot's license is not just a technical qualification. It implies that a high level of public trust is placed in the individual to whom it is issued, and it demands a code of conduct commensurate with that obligation. Only those who recognize their responsibilities and faithfully discharge them deserve to be members of the airline piloting profession.

My license is for hire — but it is not for sale. ♦

[Reprinted from The Canadian Air Line Pilot *in the interest of sharing safety information with the world-wide aviation community. — Ed.]*

Reports Received at FSF
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Reports:

Secretary's Task Force on Competition in the U.S. Domestic Airline Industry. Executive Summary. — Washington, D.C.: U.S. Department of Transportation, Office of the Secretary of Transportation, February, 1990. *18p.*

Key Words
1. Aeronautics, Commercial — Law & legislation.
2. Aeronautics — Safety measures.
3. Airlines — Deregulation — United States
4. Airlines — Government Policy — United States.
5. Airlines — Mergers.
6. Airports — Traffic control.
7. Competition — United States.

The Department's Airline Competition Study examined the structure and service network of the airline industry, airport and air traffic control system impediments to new and existing carriers entering new markets, regional air service, airline passenger fares, airline marketing practices, and international airline service. These studies show that air travelers have benefited from the changes brought about under deregulation by receiving more service at a lower cost. Air service networks have expanded, providing more departure frequencies to more airports and travel markets. The wide use of discount fares has made it possible for more people to afford air travel. These studies also identify pockets of problems. Not all travelers and markets have enjoyed the same

level of benefits. Passengers departing from or traveling to some highly concentrated hub airports pay higher fares. And while hub and spoke operations have fostered industry efficiency, they have also increased airport congestion. [Executive Summary]

FAA Aviation Forecasts. Fiscal Years 1990-2001. — Washington, D.C.: U.S. Federal Aviation Administration, Office of Aviation Policy and Plans; Springfield, Va.: Available through the NTIS*, March, 1990. Report Number FAA-APO-90-1, *258p.*

Key Words
1. Aeronautics, Commercial — United States.
2. Aeronautics, Commercial — Statistics — United States.
3. Corporate flying — Statistics — United States.
4. Private flying — Statistics — United States.

This report contains the Fiscal Years 1990-2001 Federal Aviation Administration (FAA) forecasts of aviation activity at FAA facilities. These include airports with FAA control towers, air route traffic control centers, and flight service stations. Detailed forecasts were made for the four major users of the National Aviation System: air carriers, air taxi-commuters, general aviation and the military. The forecasts have been prepared to meet the budget and planning needs of the constituent units of the FAA and to provide information that can be used by state and local authorities, the aviation

industry, and by the general public. The overall outlook for the forecast period is for continued economic growth, rising real fuel prices, and moderate inflation. Based upon these assumptions, aviation activity by fiscal year 2001 is forecast to increase by 29.0 percent at towered airports, 30.1 percent at air route traffic control centers, and 5.1 percent in flight services performed. Hours flown by general aviation are forecast to increase 19.2 percent and revenue passenger miles are forecast to increase 67.8 percent.

FAA Aviation Forecasts - Atlanta. — Washington, D.C.: U.S. Federal Aviation Administration, Office of Aviation Policy and Plans, June, 1989 Report Number FAA-APO-89-3, Contract Number DTFA01-88-Y-01038, *74p.*

Key Words
1. Aeronautics, Commercial — United States — Atlanta.
2. Aeronautics — Statistics — United States — Atlanta.
3. Airports — Planning — United States — Atlanta.
4. Airports — Traffic control.

This publication contains the latest Federal Aviation Administration (FAA) forecasts of key aviation activity measures for the Atlanta "hub". The hub forecast effort was initiated because of the need for more detailed FAA forecasts of aviation activity in areas surrounding major airports. These forecasts are necessary for environmental impact statements, for evaluating the need for additional airports, and for determining the need for improved air traffic control facilities. These forecasts are meant to assist other Federal agencies, various governmental bodies, airport planners and operators, and the general public. Included are forecasts of the following types of activities: economic growth, general aviation, passenger enplanements, cargo and mail enplaned, commercial aircraft operations, traffic handled by FAA towers.

FAA Aviation Forecasts - Nashville. / Applied Systems Institute Inc. — Washington, D.C.: U.S. Federal Aviation Administration, Office of Aviation Policy and Plans, September, 1989. Report Number FAA-APO-89-12, Contract Number DTFA01-88-Y-01038, *76p.*

[Key words and abstract similar to Atlanta forecast above.]

FAA Aviation Forecasts - Dayton. / Applied Systems Institute Inc. — Washington, D.C.: U.S. Federal Aviation Administration, Office of Aviation Policy and Plans, September, 1989. Report Number FAA-APO-89-13,

Contract Number DTFA01-88-C-00059, 73*p.*

[Key words and abstract similar to Atlanta forecast above.]

FAA Aviation Forecasts - Cincinnati. / Applied Systems Institute Inc. — Washington, D.C.: U.S. Federal Aviation Administration, Office of Aviation Policy and Plans, September, 1989. Report Number FAA-APO-89-14, Contract Number DTFA01-88-C-00059, 7*3p.*

[Key words and abstract similar to Atlanta forecast above.]

The Psychology of Flight Training. / Ross Telfer (University of Newcastle, NSW), John Biggs (University of Hong Kong). — Ames, Iowa, U.S.: Iowa State University Press, 1988. 1st edition. *167p.*

Key Words
1. Flight training — Psychological aspects.

Contents: What's Involved in Learning to Fly an Aircraft — Learning and Memory — Teaching the Skills of Flying — Motivation and Arousal: General Determinants of Behavior — Motivation and Self-concept of Student Pilots — Evaluating Learning — Aspects of Training and Instruction — Conclusion — Glossary — Index.

Regulations, Advisories, Etc..

Advisory Circular 120-51, Cockpit Resource Management Training. Washington, D.C.: U.S. Federal Aviation Administration, 12/1/89. *13 pages in various pagings.*

Key Words
1. Cockpit Resource Management.
2. Air pilots — Training.
3. Flight crews — Training.

This advisory circular (AC) presents guidelines for developing, implementing, and evaluating a cockpit resource management (CRM) training program. This training is designed to be a regular part of all training for crewmembers. ♦

A Statistical Analysis of General Aviation Flying In Relation to Pilot Age and Certificate

Automobile Driving vs. Aircraft Piloting — In automobiles, drivers younger than 25 were statistically shown at higher risk because they were involved in more accidents than those 25 or older. Table 1 is a breakdown of fatal accidents, involving licensed drivers, by age groups. It shows that automobile drivers younger than 25 accounted for 17.5 percent of the total driver population, but accounted for 31.3 percent of total fatal accidents. On the contrary, drivers over 45 accounted for 37 percent of total driver population, but were involved only in 24.7 percent of total fatal accidents.

Are there any differences in safety performance between automobile driving and aircraft piloting in relation to age? What is the relationship between pilot age and accident involvement in general aviation flying? Were pilots younger than 25 involved in more accidents than older pilots? The following analysis of general aviation flying, in terms of pilot age and pilot certificate, provides a broad base for an in-depth understanding.

General Aviation Flight Profile and Accident Involvement — The following statistical analysis is based on the 1988 accident data from the U.S. National Transportation Safety Board (NTSB), airmen statistics and data from the U.S. Federal Aviation Administration (FAA). Since the FAA pilot population data by age group and by pilot certificate do not match with the NTSB statistics by pilot age group and pilot certificate, some adjustments have to be made for an appropriate comparison.

A review of general aviation activities reveals that, in 1988, U.S. general aviation activity remained level compared with the previous two years. Of the 33.5 million flying hours logged in 1988, 13 percent were flown at night and 87 percent in daytime. The ratio of flying in instrument meteorological conditions (IMC) versus visual meteorological condition (VMC)

was almost exactly the same as the ratio between day and night flying. However, only seven percent of the total accidents occurred at night and 93 percent occurred during the day. The accidents occurring in IMC were about six percent versus 94 percent in VMC. Table 2 is a breakdown of general aviation flying hours, accident and accident rates by meteorological and light conditions.

The total number of accidents in various combinations of light and weather conditions varies because the light conditions or meteorological conditions were not reported in all accidents. Table 2 shows that the accident rate for flying in IMC is better than in VMC and that the accident rate for flying at night is better than flying in daytime. Flight environments, such as weather and light conditions, affect flying in many ways. For any individual pilot, it is more hazardous to fly in IMC than in VMC if other flight conditions are similar; it is equally true that it is more difficult to fly in IMC at night than in VMC during the daytime. However, it

Table 1 — Automobile Fatal Accidents by Driver Population and Age Calendar Year 1987

Age of Drivers	Drivers Number (000)	Percent	Fatal Accidents Number	Percent
16-17	4,202	2.6	3,326	5.6
18-21	12,400	7.7	8,874	14.8
22-24	11,583	7.2	6,513	10.9
25-34	40,738	25.2	16,554	27.7
35-44	32,369	20.0	9,774	16.3
45-54	21,367	13.2	5,472	9.1
55-64	19,339	11.8	4,221	7.1
65 +	19,880	12.3	5,078	8.5
Total	161,878	100.0	59,812	100.0

Source: U.S. Federal Highway Administration

Table 2 — General Aviation Accidents By Meteorological Conditions and Light Conditions Calendar Year 1988

Light Conditions Weather Conditions	Flight Hours	Number of Accidents	Accident rate per 100,000 flight hours
Day/IMC/VMC	29,089,586	2,042	7.01
Night/IMC/VMC	4,430,771	222	5.01
Day-IMC	2,599,353	89	3.42
Day-VMC	26,485,506	1,953	7.37
Night-IMC	1,100,014	58	5.27
Night-VMC	3,353,354	164	4.89
IMC-Day/Night	3,701,432	147	3.97
VMC-Day/Night	29,745,380	2,117	7.11

Source: FAA 1988 General Aviation Aircraft Activity and Avionics Survey and NTSB 1988 General Aviation Accidents Statistics.

may not be considered as difficult to fly in IMC at night for those pilots who are qualified for night flying under IMC as compared with those pilots who are only qualified for daytime flying under VMC. Apparently, the most important factor a pilot can depend upon is his flight knowledge and skill. A pilot who has advanced aeronautical knowledge and better piloting skills should have higher confidence in all flight conditions and should operate aircraft in a more proficient and safe manner than pilots who have less knowledge and skill. Since only those pilots with more advanced aeronautical knowledge and piloting skill are eligible to fly at night or under IMC, the accident rate for flying at night is better than for flying in daytime.

Analysis — The pilot certificate is an indication of pilot knowledge and skill. In terms of aeronautical knowledge and piloting skill, an airline transport rated (ATR) pilot is superior to a commercial pilot; a commercial pilot is superior to a private pilot who, in turn, is superior to a student pilot. However, an analysis of accident involvement by pilot certificate, as shown in Table 3, reveals that student pilots, who accounted for 20 percent of total pilots, were involved in only 12 percent of the accidents, while private pilots, who accounted for 44 percent of the pilot population, were involved in 58 percent of the accidents. The acci-

dent involvement rate for commercial pilots was also higher than the students' rate with the commercial pilots accounting for 21 percent of the pilot population and 25 percent of total accidents. However, the statistics show that ATR pilots, who account for 14 percent of the pilot population, were the best of all because ATR pilots were involved in fewer than five percent of total accidents. These findings explain the statistics in Table 2. In this connection, it should be emphasized that, based on the 1988 accident data selected for this study, a comparison of accident involvement of student pilots with other pilot groups may be irrelevant, because most of the student pilots involved in accidents were in the process of learning to fly and were supervised (excluding solo) by a flight instructor. Such flights were generally under VMC and within 25 miles of the airport. The rate of accident involvement for student pilots is a combined result of the student pilots and the flight instructors, who were either commercial or ATR certificate holders. If student pilots are excluded from the overall comparison, Table 3 definitely shows that the safety record for ATR pilots is best of all, followed by commercial pilots and private pilots. The statistics again confirm the association of flight safety with pilot knowledge and piloting skill.

Table 4 shows the percentage of pilot population and the percentage of accident involvement by age group and certificate. Although the average age of student pilots is 32, young student pilots below age 25 appear to have fewer accidents than students in other age groups. (The average age for private pilots is 41. Private pilots

Table 3 — Pilot Population and Pilot Accident Involvement By Pilot Certificate Calendar Year 1988

Pilot Certificate	Population	Percent	Accidents	Percent
Student	136,913	20.2	220	12.2
Private	299,766	44.3	1,054	58.1
Commercial	143,030	21.2	446	24.8
ATR	96,968	14.3	79	4.4
Total	676,677	100.0	1,799	100.0

Table 4 - General Aviation Pilots and Accident Involvement by Type of Certificate and Age Group Calendar Year 1988.

Age Group	Student Pilot		Private Pilot		Commercial Pilot		ATR Pilot	
	1	2	1	2	1	2	1	2
14-19	12.2	7.7	1.5	0.7	0.2	0	0	0
20-24	18.8	12.8	6.9	5.0	6.2	3.8	0.5	0
25-29	19.9	17.3	10.4	8.3	12.2	8.3	6.6	9.1
30-34	19.9	17.3	13.6	12.0	11.0	10.1	14.7	10.6
35-39	17.3	11.7	14.9	13.2	11.6	16.8	16.2	9.1
40-44	13.8	11.2	13.9	15.6	11.3	15.0	18.8	19.7
45-49	10.2	10.7	11.4	12.2	15.0	16.6	16.0	16.7
50-54	3.9	5.1	8.7	10.5	12.8	11.7	12.6	10.6
55-59	2.6	4.6	7.6	10.1	9.7	6.5	8.2	7.6
60+	2.8	1.5	10.9	12.5	13.1	11.2	6.5	16.7

1 - Percent of pilot population in each age group

2 - Percent of accident involvement in each age group

below age 39 have a lower accident involvement rate than those over 40. The average age for commercial pilots and ATR pilots is 42 and 43, respectively.) The high-risk commercial and ATR pilots appear to be between 40 and 50.

ATR pilots at age 60 and over have a much higher accident rate than younger ATR pilots. This trend could be attributed to ATR pilots who, after having reached age 60 and compulsorily retirement from operating air carrier aircraft, might dedicate more time in general aviation flying. Since the hours flown by each age group are not available, an analysis of accident rates for pilots in each age group is not feasible.

Summary — An analysis of pilot certificate and accident involvement reveals that the accident ratios of pilots by age groups are compatible. In general, ATR pilots had a better accident record that all other pilots. ATR pilots are the best of all in terms of aeronautical knowledge and piloting skill.

♦

Errata

Please note the following corrections to the table titled: "1989 Worldwide Fatal Accidents in Commercial Jet and Turboprop Operations" in the February 1990 *Flight Safety Foundation Digest*.

- Page 8, under "Scheduled Commercial Passenger Turboprop Flights," the date for the Shorts 330 accident in Greece should read: Aug 3.

- Page 10, under the continuation of "Occurrences Involving Sabotage, Hijacking or Aircraft Being Shot Down: Commercial Passenger Flights," the Nov. 27 B-727-21 accident near Bogota, Columbia, the statistics under the headings "Fatalities, Pass/Crew" and "Total Occupants, Pass/Crew" should both read 101/6.

Accident/Incident Briefs

Air Carrier
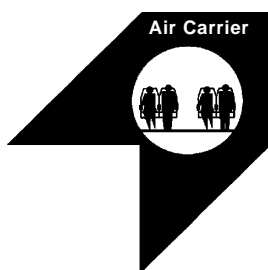
When Things get Hurried, The Harried get Hassled

Boeing 747: Damage to wing. No injuries.

The widebody aircraft unexpectedly arrived at San Francisco, U.S., 20 minutes earlier than scheduled. Thus began a chain of events that ended with a dented aircraft.

The copilot was handling the controls as the aircraft rolled in from the taxiway toward the terminal gate. There were no obstructions in sight and the Safegate Docking System (SDS) display showed two steady green lights along the bottom and two red lights at the top. As the aircraft neared the terminal building, the copilot expected the closure sequence lights to begin flashing. When no signal was forthcoming, he applied the brakes.

The aircraft stopped 30 feet beyond the designated stop position. It struck a stationary passenger loading bridge and sustained severe damage to one leading edge section and two upper leading edge composite panels between the number two engine pylon and the wing root.

Reports from the ground crew indicated that they had not been clearly apprised of the early arrival and that the aircraft showed up on the inner taxiway while ramp personnel were still preparing the apron area. The operator of the SDS had tested that unit and received normal indications. As the aircraft taxied in, he noticed that the bottom pair of green lights was on and turned his attention to check the wingtip clearance and the nosegear position of the aircraft rolling in towards the parking area. Further away, another member of the ground crew reported that he saw not only the two green lights on the SDS display, but also two red lights and noticed that the upper screen display was scrambled; the combined effect indicated a malfunction in the SDS and it automatically shut itself down. Because the aircraft already had entered the apron area, he was not able to warn the SDS operator.

The SDS operator realized that the aircraft was about to roll past the expected stopping position. He released the deadman control and then operated the emergency stop button, but neither affected the display on the SDS screen to warn the pilot, because the system had shut itself down. While this was going on, another ground crewman attempted without success to run along with the taxiing aircraft and plug in a headset to contact the crew.

There was no single explanation for the incident. The cause was attributed to: failure of the SDS operator to recognize the malfunction indications displayed and that the system self-test feature had shut it down, and failure of the flight crew to recognize the significance of the SDS indications. Among contributory factors were the early arrival of the aircraft that spawned a hurried and inadequate test of the SDS system, which was in bright sunlight that could have made a quick assessment of the display difficult; and the operator's mistaken reliance on the deadman control and emergency stop button, both of which he had believed were operational. The length and complexity of the SDS instructions provided to the flight crew was considered another contributing factor because, although comprehensive, they were considered difficult to absorb.

The cause of the SDS malfunction was traced to a circuit board in the system. An intermittent fault was discovered on a printed circuit board in the central processing unit of the SDS.

Approach Didn't Work— Neither Did 'Salvage'

Boeing 747: No damage. No injuries.

The copilot was flying the aircraft inbound on a coupled approach to Boston, U.S. Suddenly, the flight mode annunciator go-around lights illuminated and the aircraft climbed above the glidepath. The autopilot was disconnected and an attempt was made to regain the glideslope. However, a ground proximity warning sounded and a go-around was initiated. A second attempt was made and a normal coupled approach and landing were

accomplished.

Examination of the flight recorder revealed that both autopilots changed from "glideslope capture" to "go around" mode when the aircraft was at a height of 800 feet. This caused the aircraft to pitch up and fly above the glideslope. When the autopilots were disconnected and the aircraft flown manually, the resulting steep descent to regain the glideslope progressively increased the rate of descent to 2,040 fpm. This triggered a genuine Mode 1 ground proximity warning at a height of 652 feet.

Since the aircraft had no history of false go-around switching, investigators considered that the only common item on both autopilots that could trigger the go-around mode could be the thrust lever palm switches. They attributed the cause of the go-around mode activation to inadvertent activation of the palm switches while the thrust levers were being advanced in response to decaying airspeed during the failed approach.

The flight crew was counseled on the inadvisability of trying to salvage an unsuccessful coupled approach.

Into the Mists Without a Flight Plan

Cessna P206D: Aircraft destroyed. Fatal injuries to one person.

The aircraft was to carry a load of seafood from Scotland to destinations in southern Europe the next day. Upon arrival at the next day's departure airport, the pilot was advised by the flight information service controller that an "out of hours" airport operations waiver the pilot normally used was temporarily suspended. The airport would not be opened the next morning until 0830. The controller also requested the pilot to read the Notice to Airmen (NOTAM) to that effect in the control tower, to which the pilot agreed. Instead, the pilot left the airport after he parked the aircraft.

The next morning, the pilot supervised the loading of approximately 970 pounds of cargo, which was distributed in boxes over the cabin floor. Total aircraft weight was later estimated at 3,080 pounds, under the maximum permitted takeoff weight of 3,590 pounds. Center of gravity was not determined either at the takeoff or final stage of the flight.

After a blind transmission was recorded on the tower frequency that the aircraft was taxiing to the runway, eye witnesses reported that it took off at 0730 and climbed away "into the mist" of the early June morning. The pilot subsequently reported in to air traffic control at 4,000 feet on course and was given a transponder code and positively identified on radar, although altitude readout was not available.

Radar vectoring showed that the aircraft maintained a stable groundspeed of 120 knots and a southeasterly course for only a short time, after which it deviated from its intended track and turned right to a southerly heading. It continued on this heading for about three minutes with the groundspeed increasing to 135 knots, after which it entered a 360-degree turn to the left. After the aircraft completed the orbit, with the groundspeed holding at 135 knots, it continued on a south-southwesterly track heading toward a hill slightly more than 1,300 feet high. The radar recording showed that, as the aircraft approached the high ground, the groundspeed reduced to approximately 97 knots before it disappeared less than a quarter mile from the summit of the hill.

At the same time that the aircraft disappeared from radar, witnesses on the ground near its final track heard a low-flying aircraft but could not see it because of the low clouds and mist. They heard it make a turn and head toward the hill, making a sudden increase in engine noise after passing close by them followed by the sound of an impact. They alerted the police and, through a break in the clouds, saw the wreckage near the summit of the hill. There was no fire, but the aircraft was destroyed and the pilot was fatally injured.

Investigation revealed that the pilot did not enter the control tower building where a 24-hour weather information service is located to request a weather forecast. The forecast for the area of the intended flight included warnings of low clouds, mist and drizzle with cloud bases as low as 400 feet above sea level. An aftercast of the crash area indicated that the ground above 800 feet would have been covered by stratus cloud.

There was no evidence that the pilot, who was instrument-rated, had completed and carried a flight plan and there were no topographical charts for the route aboard. There were radio navigation charts aboard, but the majority were well out of date and were found stowed in their carrying case.

Forgot Something After Go-Around

Cessna 421: Substantial damage. No injuries.

The non-scheduled Australian passenger flight was about to arrive at its destination in mid-morning of a June

day. Aboard were the pilot and four passengers.

After beginning final approach, the pilot decided to land from the other direction. Retracting gear and flaps, he went around to set up an approach in the other direction.

After flying a normal traffic pattern, the aircraft landed gear up.

The landing gear mechanism and warning system were found serviceable. The pilot admitted that he had not used the checklist for the landing but had instead relied upon his memory.

No, The Other Left!

Beechcraft Model B55 Baron: No damage. No injuries.

The aircraft was cleared to depart Oslo, Norway, for the mid-afternoon flight, with a left turn after takeoff to the en route course. After the aircraft left the ground, the pilot contacted departure control and was advised to proceed as cleared.

The pilot turned right instead of left, however, and when radar controllers realized the error, they requested that he immediately turn left. The pilot complied with the controller's request and, as the Beechcraft crossed the end of one of the airport's runways at 1,350 feet a DC-9 was approaching the airport over the same point at 1,150 feet and the radar returns for both aircraft merged into one. A near miss was reported. Both aircraft were in the clouds at the time.

Continued VMC in IMC

Cessna 421: Aircraft destroyed. Fatal injuries to seven.

The aircraft was approaching its destination airport in the Federal Republic of Germany on the early April evening. Aboard the Cessna were a crew of two and five passengers.

The pilot cancelled his IFR clearance and continued the approach under VFR rules in IMC conditions. With the

ceiling at 2,000 feet msl, the mountain tops in the area were almost in the clouds. The aircraft crashed into a mountain at 2,380 feet, three miles from the destination airport.
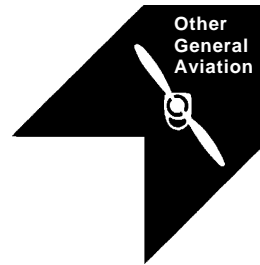
Waited too Late with Low Fuel State

Cessna 152: Major damage. No injuries.

The pilot of the single-engine aircraft was on a cross-country flight late on a winter's night in the U.S. Mid-west, cruising at 6,000 feet. He was aware that he had flown 3.7 hours out of the four hours worth of fuel originally on board.

When the pilot made radio contact with the control tower at his destination airport, he was advised that he was 12 miles away. Considering the low fuel state of the aircraft, the pilot decided to make a precautionary landing at a closer airport. However, the engine stopped before he could put his alternate plan into effect.

Fortunately, the pilot found an open field and was able to make a successful emergency landing in a hard, unused hayfield located between two cornfields. However, the aircraft ran out of hard ground before it ran out of velocity. After rolling 740 feet in the hayfield, the aircraft entered a previously harvested cornfield. This field, however, was not as solid a surface as the other one and the nose quickly sank into soft earth. The aircraft nosed over, inverted and sustained extensive damage to the nose gear, propeller, both wings and the tail section. There was no fire, and the pilot escaped uninjured.

Look What You Made Me Do

Cessna F152: Extensive damage. No injuries.

The solo private pilot was on approach for the first of a series of landings and takeoffs. The midday early fall weather in England was good and the wind was calm.

After turning onto final approach, the pilot was forced to adjust her approach because a helicopter was operating near the runway. After maneuvering to allow the

rotorcraft time to clear the runway, the Cessna pilot found herself high on short final. She elected to continue the landing attempt rather than to go around, and touched down three-quarters of the way down the runway. The aircraft landed heavily on the nose wheel which collapsed, resulting in damage to the engine cowling and to the left wing.

The pilot attributed the cause of the accident to her lack of experience in landing during calm wind conditions and to the distraction by the helicopter.

Flapless Landings Flop

Gulfstream AA-5: Substantial damage. No injuries.

The 15-knot surface wind was from 260 degrees, right down runway 26. The student pilot took advantage of the early U.K. afternoon on a summer day to practice no-flap landings.

The first three landings went without incident. However, the airspeed was too high as the aircraft passed the threshold on the fourth landing approach. The aircraft floated while the excess airspeed was bled off, and touched down long. The pilot applied, and sustained, firm forward pressure on the control column to hold the aircraft on the runway, but the result was that the aircraft began to porpoise. After a short period of porpoising, the nose gear collapsed, the propeller struck the runway and the aircraft ran off the left side of the runway. The AA-5 sustained damage to the nose gear, propeller and the engine cowling. The pilot, the only occupant, escaped without injury.

Back to the 'Good Old' Tailwheel Days

Piper PA-22-160: Substantial damage. No injuries.

The Tri-Pacer had been converted from tricycle gear to the tailwheel configuration. The U.K. pilot returned to his home airport after a pleasure flight and entered the traffic pattern for landing on runway 40, with a six-knot wind reported from 010 degrees. A standard approach was flown, followed by an uneventful touchdown and initial rollout.

As the airspeed decayed to about 35 mph, however, a swing to the left developed. The pilot tried to maintain directional control but was not successful. The aircraft left the runway and the swing developed into a ground loop. The right main gear collapsed and the aircraft came to rest on its left main gear, tailwheel and right wingtip. There was no fire. The two occupants de-

parted the aircraft without injury. The aircraft sustained damage to the right landing gear, propeller, elevator and right wing.
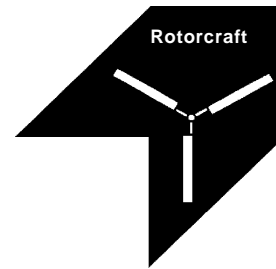
Not Enough Elbow Room

Hughes 269C: Aircraft destroyed. Minor injuries to three persons.

The pilot was attempting to take off while giving a series of sightseeing tours at a U.S. carnival. The helicopter was operating from a temporary landing site.

The main rotor blades struck a tree after liftoff and the rotorcraft descended out of control. It struck a house, wires and another tree before hitting the ground and rolling on its left side. The pilot and two passengers escaped with minor injuries but the rotorcraft was a total loss.

Low on Height and Experience

Hughes 269C: Aircraft destroyed. Fatal injuries to two persons.

The U.S. student was on his first solo cross-country flight in the rotorcraft. One passenger was aboard. The low-flying helicopter was seen by ground witnesses to fly over a highway for two miles and to fly into an electrical transmission line.

The aircraft fell to the ground and was destroyed. The two occupants suffered fatal injuries.

Reading Road Signs Can Lead to Trouble

Robinson R-22: Damage not reported. Minor injuries to two persons.

The helicopter pilot reported that he was hovering at a U.S. road intersection to read road signs. The tail rotor struck a speed limit sign and the rotorcraft's directional control was lost. The aircraft spun to the right and landed heavily on the road. There was no fire, but the pilot and a young child received minor injuries. ♦