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REGULATION OF PARACHUTE JUMPING

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HEARING
BEFORE THE
AVIATION SUBCOMMITTEE
OF THE
COMMITTEE ON COMMERCE

UNITED STATES SENATE
NINETIETH CONGRESS

FIRST SESSION

ON

S. 2137

TO PROVIDE, IN THE INTERESTS OF SAFETY, FOR THE
REGULATION OF SPORT AND COMMERCIAL PARACHUTE
JUMPING

SEPTEMBER 25, 1967

Serial No. 90-53

Printed for the use of the Committee on Commerce

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HEARING

BEFORE THE

AVIATION SUBCOMMITTEE

OF THE

COMMITTEE ON COMMERCE

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 Maryland
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 Board, Washington, D.C., accompanied by Robert E. Allen, Director,
 Office of Aviation Safety, National Transportation Safety Board
 David M. Thomas, Deputy Administrator, Federal Aviation Agency,
 Washington, D.C., accompanied by James Rudolph, Director, Flight
 Standards Section, Federal Aviation Agency, Washington, D.C.
 Eugene A. Jurek, member, board of directors, National Association
 of Aviation and Pilotage, Inc., Chicago, Ill.
 Norman E. Hansen, executive director, U.S. Parachute Association,
 accompanied by Alvin Hanson, general counsel, U.S.P.A., Manassas,
 Va.
 William Henry Gump, executive director, National Pilot Association,
 Washington, D.C.
 Ralph L. J. ... member, landing committee on air traffic control, Air
 Line Pilots Association, Chicago, Ill., accompanied by Thomas Houston,
 Jr., and James E. Clark, Washington, D.C.

REGULATION OF PARACHUTE JUMPING

MONDAY, SEPTEMBER 25, 1967

U.S. SENATE,
COMMITTEE ON COMMERCE,
AVIATION SUBCOMMITTEE,
Washington, D.C.

The subcommittee met at 10 a.m., in room 5110, New Senate Office Building, Hon. A. S. Monroney (chairman of the subcommittee) presiding.

Senator MONRONEY. The Aviation Subcommittee will be in session.

OPENING STATEMENT BY THE CHAIRMAN

This morning the subcommittee will commence its hearings on S. 2137, a bill to provide, in the interests of safety, for the regulation of sport and commercial parachute jumping.

I wish to make it clear at the outset in introducing this bill, it is not the intention of the chairman to prejudge the issue as to the need for regulation, but rather to provide a vehicle for discussion as to the extent of existing regulation, the need or desirability for future regulations, and whether additional statutory authority is necessary. The bill is not intended to interfere with the prerogatives of individuals to freely engage in sports of their choice. The regulation is contemplated only to the extent necessary so as not to unreasonably compromise the safety of others, particularly innocent third-party users of the airways.

(The bill and agency comments follow:)

[S. 2137, 90th Cong., first sess.]

A BILL To provide, in the interests of safety, for the regulation of sport and commercial parachute jumping

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 101(7) of the Federal Aviation Act of 1958 (49 U.S.C. 1301(7)) is amended by inserting before the period at the end thereof a semicolon and the following: "and any individual who makes a parachute jump from an aircraft for sport or for monetary consideration".

Sec. 2. Section 601(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1421(a)) is amended by redesignating paragraphs (5) and (6) as paragraphs (6) and (7), respectively, and by inserting immediately after paragraph (4) the following new paragraph:

"(5) Reasonable rules and regulations and minimum standards governing practices, methods, and procedures in connection with parachute jumps from aircraft for sport or for monetary consideration, including, but not limited to, the adequacy of courses of instruction, suitability and airworthiness of equipment, competency of instructors, and such other practices, methods, and procedures as the Administrator may find necessary to provide adequately for the safety of persons making such parachute jumps and for the safety of persons and property on the ground;"

OFFICE OF THE SECRETARY OF TRANSPORTATION,
Washington, D.C., October 12, 1967.

HON. WARREN G. MAGNUSON,
*Chairman, Committee on Commerce,
U.S. Senate, Washington, D.C.*

DEAR MR. CHAIRMAN: This is in reply to your request for the views of this Department on S. 2137, a bill to provide, in the interests of safety, for the regulation of sport and commercial parachute jumping. The bill would amend the Federal Aviation Act of 1958 to authorize the Administrator of the Federal Aviation Administration to establish a program for the certification of persons making parachute jumps for sport or for monetary consideration. It would also direct the Administrator to issue such rules and standards governing practices in connection with parachute jumps as the Administrator may find necessary to provide adequately for the safety of persons making such jumps.

The Department does not recommend enactment of this legislation. Under existing authority found in the Federal Aviation Act, the Federal Aviation Administration has prescribed a number of regulations governing parachuting. These rules are designed primarily to prevent the jumper from creating a hazard to aircraft operating in the airspace or to persons and property on the ground. S. 2137 raises the question whether the Federal Government should undertake the regulation of sport parachuting for the purpose of protecting the individuals engaging in such activity from exposing themselves to hazards.

We recognize that parachute jumping presents definite hazards to individual jumpers, but we believe that persons who contemplate engaging in the sport also are aware of the nature of the activity. Parachute jumping is not too much unlike other sporting activities, which, in a similar fashion, present a definite risk to the participant, where Government regulation is limited, and where the individual must determine for himself whether he should take the risk. Among these activities are ski jumping, scuba diving, and mountain climbing. We do not believe that every individual who wants to try his hand at activities of this nature should be required to undergo screening by the Government as would be the case if a program were established for the certification of parachute jumpers.

Many of the parachute rules already issued by FAA for the protection of air traffic and persons on the ground provide a great deal of protection for the jumper himself. FAA rules as to required equipment, its manufacture, servicing and use, provide the jumper with a considerable amount of basic protection. Under existing authority we will continue to issue such regulations as we find them to be necessary and feasible. We believe our present regulations on parachute jumping provide a reasonable degree of safety for air traffic and persons on the ground, and that existing statutory authority will allow us to expand the scope of these regulations to the extent such expansion may be necessary.

We have been advised by the Bureau of the Budget that there would be no objection to the submission of this report from the standpoint of the Administration's program.

Sincerely,

JOHN L. SWEENEY,
Assistant Secretary for Public Affairs.

DEPARTMENT OF TRANSPORTATION,
NATIONAL TRANSPORTATION SAFETY BOARD,
Washington, D.C., October 3, 1967.

HON. WARREN G. MAGNUSON,
*Chairman, Committee on Commerce,
U.S. Senate, Washington, D.C.*

DEAR MR. CHAIRMAN: This is in response to your letter of September 14, 1967, inviting comments on S. 2137, a bill to provide, in the interest of safety, for the regulation of sport and commercial parachute jumping. This bill would amend the Federal Aviation Act of 1958 to provide that the Administrator of the Federal Aviation Administration has the duty to prescribe reasonable rules and regulations and minimum standards governing practices, methods, and procedures in connection with parachute jumps from aircraft for sport or for monetary consideration.

The National Transportation Safety Board does not view the proposed legislation with favor and does not recommend its enactment.

We view the proposal to extend the Federal Aviation Administration's regulatory responsibility so as to cover the training, qualification and licensing of parachutists as an unwarranted extension of federal responsibility. All accidental deaths are tragic, of course, and accidental deaths which occur as a result of parachuting activities are not only no less tragic than others but in some respects more dramatic and concern-provoking than others. However, it is the view of the Board that to create a federal training and licensing system in this field, which has always been considered as a sport, is not warranted by any accepted or reasonable theory of federal responsibility, particularly in view of the fact that records available to us indicate that parachute fatalities have been running not above an average of 20 per year for the past five years.

The general tenor and purpose of existing federal regulation is to protect air traffic and persons or property on the ground from parachutists and their activity. It is our view that existing FAA regulations are adequate for that purpose, or that if they are not they can be made so as a result of changes in them as experience dictates. On the other hand, to direct the FAA to undertake a program designed primarily to protect the parachutists would involve a basic change in the theory of federal responsibility in this area. In our view such a change is unwarranted.

The Bureau of the Budget advises that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely yours,

JOSEPH J. O'CONNELL, Jr., *Chairman.*

Senator MONRONEY. We are pleased to have the Honorable Sam Friedel, chairman of the Aviation Subcommittee of the Committee on Commerce of the House of Representatives. We are glad to have you, Mr. Congressman.

In these matters of aviation, you have been particularly helpful in your leadership in the House.

**STATEMENT OF HON. SAMUEL N. FRIEDEL, REPRESENTATIVE IN
THE CONGRESS OF THE UNITED STATES, FROM THE SEVENTH
DISTRICT, STATE OF MARYLAND**

Mr. Chairman, it is always a pleasure to appear before the distinguished Senate Commerce Committee and I appreciate the opportunity you have given me to testify in support of legislation to regulate the sport of skydiving.

I first became interested in this problem in June 1966, when a 19-year-old Marylander was killed in a skydiving accident and subsequent investigation brought out that his parents were opposed to his skydiving and repeatedly urged the owners of the club not to permit him to engage in this sport. I reintroduced my bill this year as H.R. 3557.

Skydiving is a rapidly growing and, from what I am told, tremendously attractive and exciting sport. What once was only a military necessity has become a pleasurable activity for thousands of Americans. I heartily support participation in this sport for all those who enjoy it.

However, in line with the growth of this sport in terms of numbers of participants, fatalities in parachute jumping have also increased at an alarming rate. During the 5-year span, from 1956 to 1960, 22 fatalities were recorded by the Parachute Club of America—directly resulting from skydiving, though admittedly the records are incomplete for those years. However, in the next 5 years, from 1961 to 1965, deaths rose to 125, an increase of 468 percent. The reason for this rise in number of deaths appears to be the large number of new participants and the lack of adequate regulations in regard to this new sport.

I believe that statistics bear out these explanations of the increased fatality rate. The number of parachute jumps in America has risen dramatically in the past decade. It has been estimated that 200 parachute jumps took place in 1956. This figure rose sharply to approximately 60,000 in 1961, and then to over 1 million by 1966, and the number appears to be increasing steadily.

However, this growth for the most part, has not been accompanied by effective safety regulations. For example, the Parachute Club of America requires that a novice have only 3 hours of training before his first jump. Not only does this training period seem too short, a jumper need not even belong to the PCA in order to participate in the sport. It seems quite significant that there are two skydiving centers in this country with stringent regulations in regard to training, equipment, and the actual jump itself, and the injury rate is under three-tenths of 1 percent at these centers, with no fatalities in one of them since it opened in 1959.

Jacques Andre Istel, who founded the two parachuting centers I just mentioned, is honorary president for life of both the International Parachuting Commission and of the Parachute Club of America. Significantly, he has always strongly supported Government safety regulations in the sport of skydiving. However, the Government has always rejected his advice in this matter, holding to the belief that the jumper can only harm himself.

I do not believe we can continue such a callous attitude. I feel very strongly that there should be very definite age and parental consent requirements in the case of minors and that the parents should be contacted personally by the skydiving club and advised of the risks involved in this sport. You will all recall that an 11-year-old boy was killed recently in Virginia when his auxiliary chute failed to open. This is not the only incident of a jumper losing his life in skydiving accidents. Just recently, 21 parachutists jumped out of a plane over Lake Erie; only four survived that jump. And this summer, a young relative of Senator Symington lost her life while skydiving.

Recent reports in the press indicate that the major danger in skydiving is drowning. In a recent study of the sport, medical scientists discovered that a third of all skydivers killed in 1963-64 came down unintentionally in water. The scientists stated that 90 percent of the fatalities could have been prevented if the jumpers had followed proper procedures. The researchers blamed most of the 1963-64 deaths on ignorance, inexperience—60 percent of those killed had made fewer than 25 jumps—or carelessness.

My bill does not, in itself, establish any regulations, as I do not consider myself an expert on the sport of skydiving. My bill authorizes the Federal Aviation Administrator, who has acquired a working knowledge of the sport and its problems and dangers, to develop rules to provide the maximum safety with minimum intervention.

It seems to me that definite changes are needed in the regulations of this sport. For example, I cited previously the fact that only 3 hours of training are needed by a novice skydiver. I strongly question whether this is enough. The Army requires a 3-week intensive training course before its paratroopers are allowed into the field to make sure its men are in proper physical condition and well versed in emergency procedures. My bill would allow the FAA to decide what length training period safety requires.

It seems to me that regulations must be considered in the adequacy of courses of instruction, suitability and airworthiness of equipment, competency of instructors, and all other areas that involve the safety of the skydiver.

I have no wish to damage the sport of parachute jumping in any way. My sole purpose is to establish safety regulations which would allow all those who wish to participate in this exciting and growing sport to do so with the least risk of injury or death. We cannot let the potential danger of skydiving get out of control. We have waited for the States to act, but, with few exceptions, they have not done so. Therefore, I strongly believe it is incumbent upon the Federal Government to establish uniform safety regulations to protect the lives of Americans engaged in this sport.

I am not particularly wedded to the wording of my bill. It may well be that it is not strong enough and that the distinguished chairman's bill, S. 2137, could more appropriately control the sport. I would certainly support the chairman's bill. However, I cannot emphasize strongly enough the need for Federal initiative in this area and I urge favorable consideration of such legislation.

Senator MONRONEY. Thank you very much, Mr. Chairman, for your splendid testimony. Could you give us just a word about where our jurisdiction would fit in for this? In the Federal Aviation Act it pre-emptes the airspace for navigation and air commerce.

Mr. FRIEDEL. Also safety, too.

Senator MONRONEY. Air safety?

Mr. FRIEDEL. Air safety.

Senator MONRONEY. And that would include, I guess, as possible airmen, the definition under airmen would be amended to include one who uses a parachute in his use of airspace?

Mr. FRIEDEL. The one big fault I find with the bill is that these youngsters generally come in, say they have an affidavit saying my parents agree, and the parachute clubs, they don't investigate or try to find out if the parents have agreed or not. This happened in Maryland, as I mentioned in my statement. I believe that they need more than 3 hours of training. Maybe your bill will cover it much better.

Senator MONRONEY. How many hours?

Mr. FRIEDEL. Only 3 hours of training is required today.

Senator MONRONEY. What would you recommend?

Mr. FRIEDEL. I don't recommend anything; I'm not an expert.

Senator MONRONEY. Your bill would provide a suitable time for training, certified by the FAA?

Mr. FRIEDEL. Right; let them set up the regulations.

Senator MONRONEY. It does seem 3 hours is inadequate training to risk one's life in landing, what with weather conditions, and many other things to contend with.

Mr. FRIEDEL. Considering what a dangerous sport it is, 3 hours doesn't seem to be enough.

Senator MONRONEY. Your bill primarily goes to the thrust of the length of training and to the competency of instructors; does it not?

Mr. FRIEDEL. My statement, my bill, left it up to the FAA to set up their own regulations.

Senator MONRONEY. Yes; but it would provide that they would be certified as being competent instructors.

Mr. FRIEDEL. That's correct.

Senator MONRONEY. Do you have any age limitation? You mentioned the death of, I think, a 12-year-old.

Mr. FRIEDEL. An 11-year-old. I don't have any recommendations, but I think an 11-year-old child is too immature for such a dangerous sport. I think the age limit should be raised.

Senator MONRONEY. In other words, you could leave that largely up to regulations to be prescribed by the Federal Aviation Agency; is that correct?

Mr. FRIEDEL. That's correct.

Senator MONRONEY. They could work that out better, perhaps. They might even have an age limit for oldsters, so no one over 95 or something could parachute jump.

Mr. FRIEDEL. That's possible.

Senator MONRONEY. Are there any other suggestions you have to make? We compliment you on your initiative. I believe this bill was in one of the House aviation bills at one time; was it not?

Mr. FRIEDEL. I introduced it back in 1966 and then again in 1967.

Senator MONRONEY. Has it ever passed the House?

Mr. FRIEDEL. No; it never passed the House. In fact, we never had hearings on it.

Senator MONRONEY. I thought there was some kind of parachute bill that passed several years ago.

Mr. FRIEDEL. I don't remember.

Senator MONRONEY. We are very grateful to you, Mr. Chairman, for appearing and for your courtesy in testifying before this committee. We will certainly give due attention to your suggestions.

Mr. FRIEDEL. I want to thank you for bringing up this very important bill, Senator.

Senator MONRONEY. Thank you indeed, sir. Our next witness will be making a return engagement before this committee when he has appeared many times as Chairman of the Civil Aeronautics Board and other aviation specialties; a man, who, out of all the people in America, was chosen by President Johnson to become Chairman of the newly formed National Transportation Safety Board.

It is an honor to welcome you back to this committee and we deeply appreciate your courtesy in appearing here.

STATEMENT OF HON. JOSEPH J. O'CONNELL, JR., CHAIRMAN, NATIONAL TRANSPORTATION SAFETY BOARD, WASHINGTON, D.C.; ACCOMPANIED BY BOBBIE R. ALLEN, DIRECTOR, BUREAU OF AVIATION SAFETY, NATIONAL TRANSPORTATION SAFETY BOARD

Senator MONRONEY. Mr. Chairman, we welcome you to the committee in a return engagement of an old role, this time specializing only in safety. You specialized in not only that but in many other parts of the aviation spectrum as a member of the Civil Aeronautics Board. You have been conducting, I believe, hearings on this accident that cost so many lives over Ohio, and have investigated it, and we appreciate your bringing to this committee for the first time a report on the investigation. And also whatever recommendations that you might have to make, not only based on this one accident of course, but on your broad knowledge of aviation air safety.

You may proceed in your own way.

Mr. O'CONNELL. Thank you, Mr. Chairman.

It is always a delight to be here.

With your permission, I would like to report briefly on the results of the National Transportation Board's investigation of the recent multiple-jump civilian parachute accident which took the lives of 16 parachuters near Wakeman, Ohio, last August.

As you know, our group has been conducting an investigation of this accident, we only completed it and our Board acted on the final report Friday afternoon and it seems quite appropriate that our report would first see the light of day before your committee.

With your permission, I will summarize the findings of our group with respect to that accident.

The accident took place a few minutes after 4 o'clock on Sunday afternoon, August 27th, when 18 of 20 sports parachuters were dropped from an altitude of 20,000 feet from a civilian B-25 aircraft. The intended drop zone was to be at the Ortner Airport at Wakeman, Ohio. Actually, however, the chutists descended into Lake Erie some 4 or 5 nautical miles off-shore and about 12 to 13 miles north-northwest of the intended drop zone. Two of the chutists were rescued by an operator of a pleasure boat, and the other 16 drowned. The remaining two jumped on a second higher altitude run several minutes later and landed safely in the Ortner drop zone.

As you know, Mr. Chairman, the Safety Board instituted an investigation of this tragic accident immediately after we were notified of its occurrence. Four days later we convened public deposition proceedings and questioned a number of eyewitnesses and others involved.

Here is what we learned: During the initial drop run, cloud coverage below the B-25 aircraft, which was carrying the chutists, prevented the pilot from determining his position by visual reference to the ground. The coverage was so complete that the pilot of the B-25 was unable to determine whether his aircraft was over ground or water. Thus, the B-25 pilot could not determine his position over the ground by visual means, and because of the requirement for maintaining continuous two-way radio communications with the FAA Center during the drop run, he was unable to use his radio navigation equipment for determining his position. Under these circumstances the Safety Board believes the B-25 pilot should have terminated the mission without releasing the jumpers.

At the same time, Mr. Chairman, our investigation revealed that the B-25 was being provided with radar position reports from the FAA Cleveland Center, which would help position the B-25 over the planned drop point. However, when the B-25 departed from the Ortner Airport, a pilot of another aircraft, a Cessna 180, also took off with the intention of photographing the parachuters. Our evidence shows that the Cessna flight was flown over nearly the same track necessary for the B-25's operations, and studies reveal that the position of the radar targets which the FAA controller attributed to the B-25 were at times more fitting to the flight path of the Cessna aircraft. As a result of our studies of the flight paths of both airplanes, and from other testimony and evidence, we concluded that the radar target which the FAA controller identified as that of the B-25 could not have been the B-25. It might well have been the Cessna, but in any event

the situation resulted in erroneous position information being provided to the B-25.

Because of the weather situation and erroneous position information given to the B-25 pilot, we have determined the cause of the accident to be as follows:

The failure of the B-25 pilot to terminate the mission under a condition of cloud coverage which precluded visual reference to the ground, coupled with an erroneous radar identification of the B-25 by the FAA controller, which resulted in inaccurate radar positioning of the aircraft.

From the evidence developed during this investigation, we also became keenly aware that persons involved in parachute jumping must govern themselves under the existing rules of the Federal Air Regulations and, consequently, we added this to our probable cause:

The parachutists, all of whom were experienced and aware of the hazards of jumping under the existing condition, were not without fault.

These parachutists were all veteran jumpers, half of them averaging more than 200 jumps each, and the least of them having jumped on 75 separate occasions.

Our complete accident report, copies of which I have with me and which I have submitted to the committee, present the chronological details of our investigation and all pertinent information relating to the development of the case.

After this hearing, copies of our complete report will also be available at the public information office of our Board.

That completes my summary report of the accident investigation, Mr. Chairman.

Senator MONRONEY. Thank you very much.

Would you like to discuss the report at this time or go ahead and complete your statement and then come back to it?

Mr. O'CONNELL. If it is agreeable with you, I would like to complete my statement. It is very brief and I would like to make our position clear on S. 2137.

Turning now to S. 2137, which is the prime purpose of the committee hearing this morning, the National Transportation Safety Board does not view the proposed legislation with favor and does not recommend its enactment.

Quite simply, we view the proposal to extend the Federal Aviation Administration's regulatory responsibility so as to cover the training, qualification and licensing of parachutists as an unwarranted extension of Federal responsibility.

All accidental deaths are tragic, of course, and accidental deaths which occur as a result of parachuting activities are not only no less tragic than others but in some respects more dramatic and concerning than others.

Be this as it may, it is the view of the Board that to create a Federal training and licensing system in this field, which has always been considered as a sport, is not warranted by any accepted or reasonable theory of Federal responsibility, particularly in view of the fact that records available to us indicate that parachute fatalities have been running not above an average of 20 per year for the past 5 years.

The general tenor and purpose of existing Federal regulation is to protect air traffic and persons or property on the ground from parachutists and their activity. It is our view that existing FAA regula-

tions are adequate for that purpose, or that if they are not they can be made so as a result of changes in them as experience dictates.

On the other hand, to direct the FAA to undertake a program designed primarily to protect the parachutists would involve a basic change in the theory of Federal responsibility in this area. In our view, such a change is unwarranted.

That completes my statement, Mr. Chairman.

Senator MONRONEY. Thank you very much, Chairman O'Connell, for your very helpful statement.

Turning first to the bill, and your opposition to regulation, do you not feel that with the large numbers—I forget how many people are now engaged in this sport, some professionally, of course, and some on an amateur basis—require some competency of training personnel to be certain that people are given the proper instruction in how to fold their parachute, the fundamental principles of jumping, in order to have some gage at least on the basic information to prevent a larger incidence of accidents due to ignorance or lack of experience or incompetence or plain negligence?

Mr. O'CONNELL. I couldn't agree with you more, Senator, in saying that better instruction would undoubtedly improve the mortality rate among parachutists. My only question or reservation has to do with whether that type of improvement justifies a Federal regulatory system. I think much can be done in the field of education. The FAA is doing quite a bit in the field, with minimum standards of the parachutes themselves, and are giving advice, not binding regulations, but giving advice on how to pack and how to jump and the parachute association is encouraging people to get more instruction before they engage in this sport.

My only difficulty is not with the desirability of improving the chances of living with this sport, but rather the vehicle for bringing that about.

Senator MONRONEY. Of course, we do encourage and require the licensing, and I presume it would be not solely for the protection of the airmen but for sport aviation. I mean in many phases of general aviation the exercise is purely for sport, although it is connected in more cases, perhaps, with business or convenience of transportation. But in those cases we do require that the instructors and eventually the airmen receive licensed instruction, instruction by licensed instructors, and qualification as to their competence to engage in this field of general aviation.

I would think that there would be some degree of precedents, although not complete, indicating that this might be a possible extension of the FAA authority which has already undertaken by laws which this committee previously passed to regulate the diving, to keep it off airways and out of zones that would be dangerous to air commerce.

Mr. O'CONNELL. As you know, the existing regulations are primarily addressed to the proposition that this is a sport and the Federal agency's preoccupation is solely to keep them from jumping in such a fashion so as to interfere with commerce or endanger other people. The regulations are pointed in that fact and I believe they have been quite effective in protecting air commerce from the parachutists.

My difficulty, as I said before, is in extending the principle of existing Government regulation to take care of the training and qualifica-

tions and licensing of this group of people. Admittedly, general aviation airmen are licensed. They are an integral part of air commerce, though, it seems to me, and there are some 500,000 of them, including over 100,000 general-aviation aircraft.

I do not myself believe the analogy between any form of commercial or general aviation and the parachutists is very close, at least I had not thought so.

Senator MONRONEY. At least, they go on and off, generally, airports that are used by aircraft distinctly engaged in air commerce.

Mr. O'CONNELL. Yes.

Senator MONRONEY. And they generally fly the airways, which are reserved to air commerce. Parachutists are warned, I guess, or prohibited by interpretations of law, to stay off the airways.

Mr. O'CONNELL. That is right.

Senator MONRONEY. You would say then your position is that Federal regulation be limited to that necessary to prevent compromising the safety of others?

Mr. O'CONNELL. That is true. I would go along with the idea of encouraging FAA to do more in the field of education, more in the field of advisory service, but a required system of training and licensing I do not believe is warranted.

Senator MONRONEY. You don't think the Federal Government is required, as a part of its duties, to protect the people from themselves?

Mr. O'CONNELL. No, I do not.

Senator MONRONEY. Even down to the extent of safeguarding the minors—as Chairman Friedel of the Subcommittee on Aviation of the House just testified, even 11-year-olds.

Mr. O'CONNELL. I may be wrong on that, but my impression is that 11-year-old child had the permission of his parents.

Senator MONRONEY. Well, maybe the parents were parachutists, too, and they think it is a great sport.

Mr. O'CONNELL. I would say if we are going to have a rule, I would have a minimum age that would be well above 11 years; there is no doubt about that.

Senator MONRONEY. I would think so. I would think maybe a health examination also would be important and maybe on the basis of reaction, something like a pilot's license.

Mr. O'CONNELL. I would think all those things would be part of it.

Senator MONRONEY. If you are going into it, I think you should provide for health and for other attributes that come somewhat in the field of aviation safety.

Mr. O'CONNELL. I would think so.

Senator MONRONEY. Would this lead, do you think, if we did take a position on this legislation of requiring licensing, on the basis not to protect commerce from the parachutists but on the basis we feel the sport is so dangerous it should be regulated, what about other dangerous sports such as deep sea diving, mountain climbing, skiing, other accidents that sometimes take as many lives perhaps as the 20 which you mentioned which was an average over the years?

Mr. O'CONNELL. There was consideration of some of those and that helped to lead me to the conclusion that in this area of sport we should put a great deal of weight on the proposition that there is

an assumption of risk, that they freely understand except in rare cases of minors, and for the Federal Government to be that paternalistic would be going beyond its sphere.

Senator MONRONEY. You might include drag racing and some of these other things. Would you be in favor of any regulation to insure that minors didn't engage in parachuting?

Mr. O'CONNELL. That certainly would seem so clear that it should not be permitted. I cannot quarrel with it.

Senator MONRONEY. Even parental consent wouldn't be sufficient, would it, under a certain age?

Mr. O'CONNELL. I wouldn't think so.

Senator MONRONEY. And certainly something should be provided, I think, if we have legislation to be sure that the authorization of the parents for the minor to engage in this sport, that it require verification, an affidavit, something more than a written notice signed by an alleged parent.

Mr. O'CONNELL. It would impose quite a burden on the regulating agency, too.

Senator MONRONEY. What is that?

Mr. O'CONNELL. I say that type of thing would impose quite a burden on the regulating agency, to verify the permission, that sort of thing. It would require a fairly detailed type of surveillance, on top of the regulation.

Senator MONRONEY. Yes. Perhaps Mr. Thomas, the Chief of the Aviation Safety Division, the Deputy Administrator of the FAA, will touch on it when he testifies later, but what business do you consider it was of the FAA to furnish this plane with its advisory as to its position?

Mr. O'CONNELL. Are you talking about the accident in Ohio?

Senator MONRONEY. Yes.

Mr. O'CONNELL. It certainly was clearly within the scope of the service which the FAA control towers normally provide in areas where control towers exist, and I have no particular quarrel with that. The regulations actually specifically required the parachuter to be in constant touch with the tower for the few minutes before and after the jump actually took place, which was intended to implement the general FAA regulations which was trying to make it clear that these people don't jump where they would interfere with air commerce. They actually jumped where there was a cloud coverage, which should have precluded them from jumping at all, although that was not the responsibility of the FAA, because the FAA in the control tower had no way of knowing, let us say, whether the condition where the jump took place would have permitted the jump or not. But the radar, or radio communication between the tower and the—or between the center and the aircraft, in my understanding, is a quite conventional and I believe necessary type of control if they are going to be permitted to jump at all.

Senator MONRONEY. Yes. But the question is should they have been permitted, if we had a Federal law, would a Federal law have permitted them to make a jump with this heavy overcast and in the region of a large body of water such as Lake Erie?

Mr. O'CONNELL. Well, the existing Federal regulation prohibited this jump.

Senator MONRONEY. The existing regulations did prohibit it?

Mr. O'CONNELL. Exactly. The existing regulation prohibits the parachutists from jumping, or the pilot to permit a jump, through clouds. It was overcast where they jumped.

Senator MONRONEY. Is there any evidence on the tape that the control tower that was in contact with this plane advised them of the heavy overcast all of the way down and called attention to the fact that under the present safety regulations that such a jump under these conditions would have been illegal?

Mr. O'CONNELL. No; there was nothing on the tape that indicated any discussion on either end with respect to the weather conditions.

Senator MONRONEY. Was there any discussion on the tape that indicated a discussion of the prospective jump, all of the men and women who were going to risk their lives?

Mr. O'CONNELL. Yes.

Senator MONRONEY. The tower knew it was monitoring this plane for the purpose of positioning it for a jump?

Mr. O'CONNELL. Yes.

Senator MONRONEY. And there was no mention of the weather?

Mr. O'CONNELL. No.

Senator MONRONEY. Or that such a jump under these conditions would be contrary to Federal regulation?

Mr. O'CONNELL. No.

Senator MONRONEY. But you are confident the Federal regulations would have prohibited the jump had it been enforced?

Mr. O'CONNELL. That is true. I believe that the responsibility for observing the regulation was primarily on the parachutists and the pilot of the aircraft.

Senator MONRONEY. Now I don't imagine it is a regulation, but there are advisories, I understand, from various parachute experts and perhaps the clubs, that limit jumping under wind conditions that are above so many miles per hour.

Mr. O'CONNELL. I believe there are, although I am not familiar with them.

Senator MONRONEY. We will get to that later. But this also would be, perhaps, along with the weather, one of the points to regulate, should the Congress decide this would be a field it would be wise to implement the safety in the air code to provide for. Is that correct?

Mr. O'CONNELL. Yes.

Senator MONRONEY. Now turning to this monitoring of this flight and your mention of the Cessna being in a position to try to photograph the jump, was there anything on the tape to indicate to the air traffic controllers in their directives that it knew the Cessna and the B-25 were in close proximity to one another?

Mr. O'CONNELL. I am not sure I understand the question, Senator.

Senator MONRONEY. Actually, there were two planes in the air at the time, two planes in the vicinity?

Mr. O'CONNELL. Yes.

Senator MONRONEY. You and I both know the radar pip would look identical on a B-25 or a Cessna, if it was on the scope. What I am trying to find out, was there any evidence in the tape to show that the control tower operator was aware of the proximity of the two planes? And to give the exact position of the B-25 for the purpose of jumping, he should have required several means of identification which, lacking

in the alpha numeric system which has not yet come along, would have enabled him to be more sure he was monitoring the proper plane?

Mr. O'CONNELL. It is clear the controller knew both the Cessna and the B-25 were in the air. It is not clear, in fact it is quite clear the other way, that in the last few moments of his contact with the B-25, he did not have the B-25 on his scope. He had another airplane. He was giving him his position as being just east of and then west of the Ortner Airport at the very moment the parachutists jumped, and when they jumped they were over Lake Erie, which was about 12 miles north-northwest of Ortner Field. So the controller had something on his scope which he identified as the B-25, which, whatever it was, was not the B-25, because the B-25 was not there.

Senator MONRONEY. Was there anything on the tape that would indicate he asked the pip on the scope to identify himself by making a right or left turn, so he could be sure he was in communication with him?

Mr. O'CONNELL. No; there is not. He did not appear to have any doubt that he had the B-25. But it is clear he did not have the B-25.

Senator MONRONEY. But if he knew he had both planes in that region, to have been sure—was he aware of the fact it was a complete cloud cover beneath the plane?

Mr. O'CONNELL. I beg your pardon?

Senator MONRONEY. Was the tower aware of the fact that the ground was obscured?

Mr. O'CONNELL. No; he could not reasonably have been. It was a scattered to broken cloud condition and where the jump took place was physically 12 or 15 miles from the tower. And my understanding is that not only the tower gave him no information about weather, but it was not expected to, and the responsibility for knowing when you are jumping into a cloud is not for the FAA to advise you, but rather for you to determine yourself.

So I believe as far as the jumping is concerned, those responsible for determining whether the jump was under proper conditions was the pilot and the parachutists.

Senator MONRONEY. Your finding on page 4 that the parachutists, all of whom were experienced, were not without fault. But even though they had made 200 jumps, in a B-25 they were not necessarily able to determine how thick the cover was going to be, or how obscured the land area must have been, because they certainly would not have jumped over Lake Erie, which they presumably did.

Mr. O'CONNELL. That is true. They couldn't see Lake Erie.

Senator MONRONEY. And apparently the pilot could not see the lake?

Mr. O'CONNELL. No; he could not. I agree that under the conditions in the airplane, mind you, that the parachutists were hardly in a position, because of the configuration of the airplane and the fact that there are no windows on the sides, the parachutists were probably not in a very good position to determine not to jump at the last minute. I think they made their decision when they got aboard the airplane.

Senator MONRONEY. Did Ortner Airport have an omni?

Mr. O'CONNELL. No; they were using Cleveland.

Senator MONRONEY. But there was no marker of any kind, radio beacon of any kind, to identify Ortner approach or anything of that kind?

Mr. O'CONNELL. Not as far as I know; no.

Senator MONRONEY. So the only instrument navigation possible was radar?

Mr. O'CONNELL. Right. And his own instruments.

Senator MONRONEY. Sir?

Mr. O'CONNELL. I say in the airplane. I think I made reference to the fact that since he was in constant communication with the tower with respect to the position of his airplane, he was not able to use his radio for determining, independent of the tower, his actual position, because he could only have one frequency on his radio at one time. He could have shifted from his communications frequency to a navigation frequency.

Senator MONRONEY. You mean his radio finder, he could have shifted?

Mr. O'CONNELL. He could have shifted to another frequency and determined his own position, but he couldn't do that and be in touch with the center at the same time. He only had a single instrument.

Senator MONRONEY. Was there a pilot and copilot?

Mr. O'CONNELL. Yes.

Senator MONRONEY. There was no way the FAA could have prevented or had legal authority to prevent the takeoff for the jumping on such a day or the jump itself?

Mr. O'CONNELL. That is right.

Senator MONRONEY. It was strictly within the realm of the parachutists?

Mr. O'CONNELL. That is correct.

Senator MONRONEY. And the only relationship FAA had was the communications with the tower?

Mr. O'CONNELL. That is right.

Senator MONRONEY. And you say there was no information given by the tower relative to the cloud cover?

Mr. O'CONNELL. No; none at all.

Senator MONRONEY. And he was in communication with Cleveland and not with Ortner.

Mr. O'CONNELL. That is right.

Senator MONRONEY. What kind of communications does Ortner have?

Mr. O'CONNELL. We are clear that he was not in communication with Ortner.

Senator MONRONEY. What I am trying to determine, and I think it is rather important in this, if weather was a factor, and undoubtedly it was, and he was supposed to have this jump over Ortner for the landing, if there were communications there, it seems like he would have called on his radio and gotten the latest weather from the tower or from whoever, even a fixed-base operator.

Mr. O'CONNELL. In this whole situation, there was no particular attempt to ascertain anything about the weather from the standpoint of the aircraft. One of the parachutists made a call 5 hours before departure and asked what the Cleveland weather was at that time. We have no record that there was ever any interest or inquiry about weather after that.

Senator MONRONEY. How far was Ortner from Cleveland?

Mr. O'CONNELL. It's about 30 miles southwest of Cleveland.

Senator MONRONEY. It's right in the Cleveland area?

Mr. O'CONNELL. Oh yes.

Senator MONRONEY. It is a satellite airport?

Mr. O'CONNELL. That's right. It's about 25 miles southwest of Hopkins and I would say 6 or 7 miles south of the lake.

Senator MONRONEY. The Cessna, is there anything on the tape indicating any communications at all with the Cessna?

Mr. O'CONNELL. Could I ask Mr. Allen to answer that, please?

Senator MONRONEY. Surely.

Mr. O'CONNELL. I should have indicated Mr. Allen, the Director of the Bureau of Aviation Safety, is with me. He can answer that particular question.

Mr. ALLEN. Mr. Chairman, the Cessna was in communication with the Cleveland Center, and had reported in the vicinity of the Cleveland VORTAC at approximately the same time the B-25 was circling over that vicinity. And they were both in communication with the Cleveland Center.

Senator MONRONEY. The VORTAC was what, about 8 miles from Ortner, is that correct?

Mr. ALLEN. It is approximately 10 miles east-northeast of Ortner Airport.

Senator MONRONEY. This has some, I think, degree of confusion on our safety of the air, operating aircraft, if your control tower operators at Cleveland weren't able to give any better identification of the B-25 than they did, to be that far off where he actually was. In other words, he was approximately 11 miles, nautical miles, according to the diagram you furnished, away from Ortner, at the time of the communications, and it shows the position radar had him was that he was right on course. Is that true?

Mr. O'CONNELL. Yes, sir; and to make it a little more revealing in a way, I didn't point out in detail, but that B-25 made a second run after the first 18 parachutists had jumped. He circled, came back over the VORTAC and made a second run to Ortner and went on course the way he intended to go the first time, and the last two jumpers jumped over Ortner in the second run of the airplane. I don't know what that proves.

Senator MONRONEY. Was there any SOS or anything that went out when the pilot realized he had misgaged his position?

Mr. O'CONNELL. I don't think the pilot realized he had misgaged his position for quite some time, because his testimony indicated that after his parachutists had jumped at this point over Lake Erie, he turned north and then east to go back over the VORTAC and sometime during that period he observed to his copilot, at a time when he was able to see through a hole in the clouds, that he was over Lake Erie, and he said in effect that "I hope those fellows didn't jump in the lake." After that, he continued on to the VORTAC, went back out to Ortner with his last two jumpers. So I'm clear that he could not have had any information or reason for, outside of his own thinking, for concern, until after he made the second run.

Senator MONRONEY. Well, using this as an example, wouldn't this in itself be some evidence that some regulations somewhere, either State or Federal, should be seriously considered—I wouldn't say necessarily passed, but I would certainly say seriously considered—to make sure

this doesn't happen again? Eighteen deaths. The pilot apparently was a very competent pilot, but one who was perhaps not as well in navigation as he should have been, and certainly no one in charge of these 18 jumpers, to give them the weather, which was as you state in your statement, on page 4, the parachutists all of whom were experienced and were aware of the hazards of jumping under existing conditions were not without fault, but we certainly are spending a lot of money on other safety measures to protect people engaged in pleasure driving, automobile touring, things of that kind, from being unnecessarily killed or maimed, and I don't know of anyone else in the State that could have the influence or the expertise or the knowledge of air traffic control or matters affecting the weather forecasts or weather reporting as well as the FAA.

Mr. O'CONNELL. Well, Senator—

Senator MONRONEY. I am not trying to crab any sport or anything of that kind, but I do feel that even though the average might be, as you say, only 20 deaths a year, as we get up into the number of jumps which Congressman Friedel mentioned having grown from about 200 a year to about a million a year, we get into a very important area of air use and your numbers of chance for disaster would be quite spectacular, I would think.

Mr. O'CONNELL. That is true.

Senator MONRONEY. Certainly if it is all right for 18 to jump at one time in a mass jump, when they get the 747's here, we might see 300 making a jump sometime.

Mr. O'CONNELL. That is not planned, I'm sure.

Senator MONRONEY. I hope not.

Mr. O'CONNELL. Well, Senator, I'm not clear what precise moral can be drawn from this Lake Erie accident. It was, of course, a tragic accident. It was a combination of a couple of mistakes. I do not know how that type of mistake could have been corrected or could be prevented by a system of regulations of the orthodox type. In the first place, that pilot and those parachutists were just as skilled as anybody could expect to be after any given amount of training I can think of. Training or listing those people would not have had any affect upon the way they conducted themselves that day, at least that's my judgment, because they were well enough skilled so they could be teaching in a school, rather than just jumping out of airplanes.

The air traffic controller, in our view, made a mistake. Now he thought he had the B-25 and he didn't. So we have a combination of that mistake, plus a very bad exercise of judgment on the part of the pilot. And contributed to slightly by a group of highly skilled parachutists, and I cannot draw from that combination of circumstances a belief that a system of regulations and licensing is the answer.

Senator MONRONEY. It seems to me like somebody has to be responsible in a situation like this for certainly multijumping and perhaps for private single jumping, to be able to give the FAA authority, or through the pilot in charge of the cargo, to decline to fly the mission, or to say the weather in that area was unsafe for parachute jumping. Parachutists have no chance to know, they probably couldn't even see out.

Mr. O'CONNELL. That's true. They were in no position in the airplane to observe the weather.

Senator MONRONEY. The pilot apparently, since he was getting his information from Cleveland Center, was depending on the radar direction and not on visual observation. So he knew the weather was bad.

Mr. O'CONNELL. That's right.

Senator MONRONEY. He could have said we will fly around for an hour or two and maybe it will clear or something. And certainly I have heard for many years that when the wind is beyond 45 miles an hour, some such speed—I don't remember exactly the speed—that wise parachutists scrub the operation and don't hazard the jump. All of these things seem to me to need some kind of assistance, and also the matter of proper training and not let these people feel they are qualified jumpers after maybe only 3 hours of instruction.

Mr. O'CONNELL. A great deal more can be done. I have a feeling that a great deal can be done by education and by advisory assistance from FAA and through increased activity of the parachute clubs, in ways which will bring about a better degree of awareness of the hazards and reduce the fatalities due to those hazards, without having a Federal licensing system.

Senator MONRONEY. Is there anything now that FAA, definitely having adequate authority, since it had control over the aircraft, could have forbidden the jump?

Mr. O'CONNELL. I don't believe so. I think you would have to ask Mr. Thomas about that. But I do not believe they would have had any basis for forbidding the jump, I mean for forbidding the aircraft to take off. The aircraft was not in violation of anything as far as I know, when it took off, and had the weather been different—and it might have cleared up, because actually when the last two parachuters jumped, Ortner was open, they could see the ground. It was a changing condition. And that condition, the condition that existed when the jump took place, could not have been observed with any degree of intelligence except by the pilot.

Senator MONRONEY. What was the time span between the two jumps, approximately?

Mr. O'CONNELL. It was about 16:25, which would be 23 minutes after the first jump.

Senator MONRONEY. In other words, it was up and down, scattered, occluded, and the pilot could have, had he exercised firmness in judgment, could have said, "Well, let's fly around awhile until we can see the airport and then jump." But he had no authority to do that, did he, as a captain?

Mr. O'CONNELL. I think he had complete control of that airplane. He could have decided the jump was not feasible and he could have either stayed up there or come back. No one was in control of that airplane except the captain.

Senator MONRONEY. He could have been absolutely sure of his position, had he flown around awhile and waited?

Mr. O'CONNELL. That's true. It is a terribly unfortunate combination of circumstances. Had he been where he thought he was when they jumped, they wouldn't have jumped in the lake. But by the same token, he permitted the jump under conditions that were not permissible, whether he was over a lake or not.

Senator MONRONEY. Was there any regulation against jumping where they did jump? In other words, if it had been a clear day, and

they wanted to be extra daring, they could have jumped over Lake Erie and maneuvered their chutes, perhaps, to a landing—I don't know what the wind directions were—they would have been perfectly free to jump in the middle of Lake Erie had the weather been all right?

Mr. O'CONNELL. They would have been perfectly free to jump in the middle of Lake Erie had the weather been all right.

Senator MONRONEY. But with the weather closed down, and the fault of the pilot and the FAA, in misjudging the location, are you sure the controller in the Cleveland center knew that the weather over Ortner was such that the jumpers couldn't—

Mr. O'CONNELL. No; I am not sure at all. I don't think the controller knew a thing about it. The controller had no information on weather.

Senator MONRONEY. He was only 15 miles from the Cleveland center. It would seem to me like he would have had a pretty general knowledge, because if you are coming in in a light plane or anything—

Mr. O'CONNELL. I'm not too clear about that, and I have been around Cleveland and you find lots of weather; sometimes you have overcast and 4 or 5 miles away it is free as a bell. But I do know there was no passage of information between the center controller and the pilot with respect to the weather at all. His whole function was to direct him to a point over Ortner Airport and that is what he thought he did, and it was what he did not do.

Senator MONRONEY. Was the plane based in the Cleveland region or where was the plane based?

Mr. O'CONNELL. At Ortner.

Senator MONRONEY. The plane was based at Ortner, so the pilot should have had familiarity, if anything had been open, to judge—if he just had one open point, a tower, lake, railroad, or highway, anything like that, he could have marked his position, probably.

Mr. O'CONNELL. I believe he was very familiar with the area. The aircraft was based there, he had been flying around there for some time.

Senator MONRONEY. Is there anything magic about the 20,000 feet? Is there anything magic about that altitude? If he was in doubt of where he was, he could have come down through the overcast?

Mr. O'CONNELL. No; it's quite different than that. Actually, I think the decision was made, they all agreed to jump at 20,000 feet. The overcast was not near up to 20,000 feet. They were clear up there. The overcast was down around 5,000 or 6,000 feet, and those who jumped didn't come to the overcast until they were about 4,000 or 5,000 feet above the ground. So the overcast was well below the level of the aircraft, way below.

Senator MONRONEY. We are very, very happy to have this report and your testimony, Mr. Chairman, on this. I know the full committee or the subcommittee will probably want to go into this further later, because of the importance of this particular example and the growing number of cases where carelessness or lack of instruction, faulty equipment, things of that kind, have undoubtedly caused unnecessary fatalities, even though they were engaged in sporting activities. For this reason, we will keep the record open and we may wish to have more information on it. We are deeply appreciative of you making this appearance before our committee again in the role of champion of air safety and we are glad to have you back.

The next witness is the Honorable David D. Thomas, Deputy Administrator, FAA, Washington, D.C.

STATEMENT OF HON. DAVID D. THOMAS, DEPUTY ADMINISTRATOR, FEDERAL AVIATION AGENCY, WASHINGTON, D.C.; ACCOMPANIED BY JAMES RUDOLPH, DIRECTOR, FLIGHT STANDARDS SERVICE, FEDERAL AVIATION AGENCY, WASHINGTON, D.C.

Senator MONRONEY. Mr. Thomas, we are very happy to have you before our committee again. You have been very helpful on many, many occasions in air safety and on legislation affecting air safety. We appreciate your appearing and you may proceed in your own way.

We may wish to ask you questions that might not be covered by your written statement with reference to this accident in Ohio.

Mr. THOMAS. Thank you, sir.

Senator MONRONEY. Might I say again for the record that this bill was introduced before the accident in Ohio, and the feeling of need for at least a study in depth as to the necessity of legislation had been made by the Aviation Subcommittee prior to this particular example, so that the bill doesn't necessarily swing on whether it would or would not have prevented this accident.

Mr. THOMAS. Thank you, Mr. Chairman.

My name is David D. Thomas. I am Deputy Administrator of the Federal Aviation Administration, and I am accompanied by Mr. James Rudolf, who is the Director of our Flight Standards Service.

I would at the proper moment, Mr. Chairman, appreciate commenting on the conversation between the controller—

Senator MONRONEY. We appreciate that, because we know of your competence in this field and your keen interest in improving our radar devices and air traffic control.

Mr. THOMAS. I believe I can shed some light on those conversations.

We appreciate this opportunity to appear before you today to discuss, in general, the subject of regulating commercial and sport parachute jumping, and, in particular, S. 2137, a bill expanding the responsibilities of the Administrator of the Federal Aviation Administration with respect to promoting safety in parachute jumping.

I would like first to discuss the scope of the FAA's existing authority in the field of parachute jumping as set forth in the Federal Aviation Act of 1958, and the scope of the regulations we have promulgated pursuant to that authority.

The basic provisions of the Federal Aviation Act applicable to parachute jumping are sections 601 and 307. Section 601 obligates the Administrator to promote safety of flight of civil aircraft by prescribing such reasonable rules, regulations, and standards as are authorized in that section.

Section 307 of the act directs the Administrator to assign by rule the use of the navigable airspace under such conditions as he may deem necessary to insure the safety of aircraft and the efficient utilization of the airspace. Section 307 also directs the Administrator to prescribe air traffic rules and regulations governing the flight of aircraft, for the navigation and protection of aircraft, and for the protection of persons and property on the ground, including rules for the prevention of collision between aircraft and airborne objects.

Under these statutory provisions we have, since 1963, prescribed a part 105 of the Federal Aviation Regulations applying to intentional parachute jumps, or sport parachuting. These regulations basically prescribe operating rules for the jumps and equipment requirements for the parachute used by the jumper.

The operating rules for the jump include such items as:

1. Radio equipment on the aircraft from which the jump is to be made;
2. Restrictions upon jumps over congested areas, an open-air assembly of persons, airports, and controlled airspace;
3. Prior notice of jumps to be made within controlled airspace; and
4. Minimum visibility and distance from cloud requirements.

The equipment requirements include—

1. Restrictions upon who may pack the parachute used; and
2. Requirements for an approved auxiliary parachute and a light for night jumps.

These rules are designed to prevent the jumper from creating a hazard to aircraft operating in the airspace and to persons and property on the ground. Almost all of these rules also provide some degree of protection for the jumper himself, although none are designed solely for that purpose. In fact, such regulation would be beyond the present scope of the Administrator's authority under the act.

The question raised by S. 2137 is whether the Federal Government should expand its existing regulatory scheme respecting parachute jumping, and add a program aimed primarily at affording protection to the jumper himself. S. 2137 would include jumpers in the statutory definition of "airman" as set forth in the Federal Aviation Act and thereby empower the Administrator to establish for jumpers a program for the issuance of airman certificates similar to existing programs for pilots and other flightcrew members, flight instructors, and certain ground personnel. Further, the bill would direct the Administrator to prescribe, as he might deem necessary, rules for the safety of persons making parachute jumps, including rules pertaining to the adequacy of courses of instruction and the competency of instructors.

The basic consideration in this matter is whether the Federal Government should undertake a supervisory role in a field which essentially is a sport for the purpose of protecting individuals from exposing themselves to hazards. We do not believe that an individual should be given free rein where his jumping activities may present a hazard to other users of the airspace or to persons on the ground. And I believe that if the present FAA regulatory program is not adequate to protect these others today, we have the necessary statutory authority to provide such protection.

The basic question is whether we should attempt to protect the safety of the jumper by substituting the judgment of the Government for the judgment of the individual when the jumper is capable of sizing up the situation for himself, and no hazard to third parties is created. But notwithstanding any such efforts by the Government much is being done in this area by the several parachute jumping clubs in existence who are vitally concerned with the safety of the jumper. They provide courses of instruction for prospective jumpers and they establish various safety rules and procedures.

The individual who undertakes a parachute jump for sport presumably is aware of the nature of the activity. Obviously, the sport presents definite hazards. Unfortunately, a mistake in the course of jumping activities may be fatal. However, parachute jumping is not too much unlike other sporting or commercial activities, which, in a similar fashion, present a definite risk to the participant, but where Government regulation is limited, and where the individual must determine for himself whether he should undertake the risk. Among these activities are ski jumping, scuba diving, and mountain climbing. We do not believe that every individual who wants to try his hand at activities of this nature should be required to undergo screening by the Government.

We would like to emphasize again that, many of the parachute rules already issued by FAA for the protection of air traffic and persons on the ground do in fact provide a great deal of protection for the jumper himself. The rules as to required equipment, its manufacture, servicing and use, provide the jumper with a considerable amount of basic protection. We believe that our equipment rules are particularly beneficial to the jumper because they assure him of reasonable protection in an area over which he has a particularly limited capability to provide for his own protection.

Under existing authority, we will continue to promulgate additional regulations in these areas as we find them to be necessary and feasible. In fact, we have just issued a regulatory proposal which would require the use of a deployment assist device on the main parachute for static line jumps.

We believe that an important function FAA can perform is in the area of educating individual or prospective jumpers as to procedures required by FAA regulations as well as to good operating practices which the jumper should follow on his own initiative. We have recently reviewed our efforts in this area and are in the process of drafting for distribution to the public a comprehensive advisory circular containing a discussion of safety recommendations.

One other factor the committee may wish to consider in its deliberations on the proposed bill pertains to the cost of implementing a certification program for parachute jumpers. We do not have exact figures on the number of persons who engage in parachute jumping activities or the extent of those activities. If the bill were enacted, however, and the responsibility placed on FAA to establish such a certification program, it would not be possible for the agency to administer the program with our present staffing. We would need additional personnel and appropriations to process applications for certificates, administer written and practical examinations, and to maintain surveillance over jumping activities and parachute centers. According to our best estimates, there could be an initial manpower requirement of as many as 136,000 hours to certificate present jumpers and to certificate the necessary jumpmasters. In addition, there could be a recurring manpower requirement of 45,000 man-hours annually to administer the program.

In conclusion, Mr. Chairman, we do not recommend enactment of S. 2137. We believe that a program for the certification of parachute jumpers is unnecessary to improvement in safety. We believe our present regulations provide a reasonable degree of safety for air traffic and

persons on the ground, and that existing statutory authority will allow us to expand the scope of our regulations to the extent such expansion may be necessary.

Mr. Chairman, that concludes the written statement and at the appropriate time I would like to discuss the communication with the B-25.

Senator MONRONEY. Yes. Under your present rules, you detail your present restrictions, which are based primarily on the protection of other aircraft, or on the protection of the public on the ground rather than from the individuals engaging in the sport of parachuting. This is the philosophy on which you base, or one of the reasons you base the opposition of FAA to the need for additional regulation?

Mr. THOMAS. Yes, sir; our feeling is we have adequate authority for where the jumps are made and the type of equipment that is used, both the aircraft and parachute. And having done this, we protect all others but the jumper himself. As a matter of fact, in so doing quite a bit of protection is afforded to the jumper, but we do not in detail examine each jumper.

Senator MONRONEY. Some of the things in here would be very definitely I think helpful to the jumper. That would be the restriction upon who may pack the parachute used, for instance, and requirements for an improved auxiliary parachute and a light for night jumps. All of these are certainly no more in line with Federal authority than some of the things you might initiate as safety air regulation under the bill?

In other words, where does this right of an individual to risk his life leave off?

I think if we provide for restrictions on who may pack the parachute, we ought to be able to move into a field perhaps for instruction in parachuting, and a number of hours that are required, more than the 3 that are now customary, and other means of acquiring the approval of the strength or airworthiness, shall we say, of the parachute, both the main parachute and the auxiliary parachute that is used. You have no authority over the approval of these as being airworthy, do you?

Mr. THOMAS. Yes, sir. On the parachute, in the Federal Aviation Act, a parachute is listed as an appliance. We also consider a parachute is an emergency device, and may be used—I am talking about the reserve parachute—may be used in an emergency aboard the aircraft, as well as an emergency for intentional jumping. We do have very specific requirements on packing of the reserve chute, and its makeup, who may pack it, and the equipment contained on it.

Insofar as sport parachuting is concerned, as you know, we do permit—the parachute has to be either packed by the person who intends to jump it, or by an experienced parachute rigger. I must admit it is a gray line, and many of our equipment requirements are for the protection of the person who would use the parachute. We don't know if it will be used for an emergency or an intentional jumping.

Senator MONRONEY. But since you must either use a professional rigger to pack the parachute, or the person who is to jump it, but is there anything requiring a person who is going to jump it have enough instruction to know how to pack it?

Mr. THOMAS. No, sir; there is no regulation, but as a matter of fact, they do all get instruction from professional riggers.

Senator MONRONEY. There is nothing in the law that requires it. In other words, if they are on a small airport, where there is no professional rigger, with a little brief instruction they could pack their own parachutes.

Mr. THOMAS. Their main parachutes, but they would be required to carry a reserve parachute that had been packed within 60 days by a professional rigger.

Senator MONRONEY. How often does the reserve parachute have to be tested?

Mr. THOMAS. It has to be repacked every 60 days, I believe as far as drop testing, only on modification.

Senator MONRONEY. I mean the packing.

Mr. THOMAS. Yes, every 60 days.

Senator MONRONEY. You have had some accidents from parachutes being faultily packed, have you not?

Mr. THOMAS. I don't know that I can answer that question. I don't know of a case where it has been demonstrated that a professionally packed parachute has been faultily packed. I don't know of such a case. There may be some.

Senator MONRONEY. Does FAA know anything, or have any requirements for a professional teacher in parachuting, instructor?

Mr. THOMAS. No, sir; there are no instructor requirements for sport parachuting, as far as the FAA is concerned. There are requirements of course as far as the clubs are concerned, but not as far as we are concerned.

Senator MONRONEY. But it would not be illegal for anyone to run an ad and hold himself out as a professional instructor in parachuting and take on all comers that wanted to be instructed; is that correct?

Mr. THOMAS. No, sir; it would not be illegal.

Senator MONRONEY. And this is a very dangerous sport as you recognize, dangerous not only to the individual, but to various other things, where you have made certain requirements for at least the aircraft to be under proper control and the drops to be off airways, not over congested areas, things of that kind.

Mr. THOMAS. Yes, sir. It can be dangerous if improperly done, and when properly done, and properly supervised, the accident record is reasonably good considering the amount of activity.

Senator MONRONEY. I wonder about the accuracy of your estimate of the vast costs. We certainly don't want to incur a lot of extra costs. But it seems to me like a rather high figure, that it would take a total of 136,000 man-hours to certificate the present jumpers.

Mr. THOMAS. This is done on an estimate, Senator.

Senator MONRONEY. How many present jumpers do you figure there are?

Mr. THOMAS. We think, since there is no central record-keeping on the jumpers, we have estimates of jumpers running from below a million a year to nearly 2 million a year.

Senator MONRONEY. A million a year to what?

Mr. THOMAS. Of jumps made by something more than 100,000 jumpers. And we believe there are around 6,000 people in the country who are jumpmasters or instructors.

Senator MONRONEY. One hundred thousand sport parachutists and 6,000 instructors or professional experts?

Mr. THOMAS. Yes, sir. We don't know these are right. There are not good statistics in the field. We estimated that each of them would take an examination if a certificate is worth anything, and we would have to give them some sort of a practical test, so we estimated our man-hours at about 4 hours for each jumper, running a little over 400,000 hours. On instructors, we would spend more time with them, and we estimated about 36,000 hours on the instructors, for the time to process the application, give them a written examination, a practical examination and issue the certificate. In my own view, that is a minimal time if the Federal certificate is to mean any more than rubberstamping an application.

Senator MONRONEY. Would there be a flight test, so to speak, of the professional jumper required?

Mr. THOMAS. No, sir; because somehow he would have to have made his first jump. If we required a so-called flight test—I am not real sure.

Senator MONRONEY. The first one has to be good?

Mr. THOMAS. The first one has to be accurate; yes, sir.

Senator MONRONEY. But this would be more or less certification of his record, who he was instructed by, and the hours he had of instruction and things of that kind?

Mr. THOMAS. Yes. Obviously we would have to rely heavily on designees who are present instructors.

Senator MONRONEY. Do you think it is a good public policy not to have any requirement for instruction before somebody bails out of an aircraft at 20,000 feet?

Mr. THOMAS. Well, Mr. Chairman, we believe that if we control the aircraft properly, and accidents have occurred where there were a series of violations, but we believe if the aircraft pilot is controlled and regulated, as he is, that if the equipment is controlled and regulated as it is, and we can go further in that area if need be, that we would highly encourage adequate training courses, but I think our real question is where do we enter into a sport by Federal regulation. Certainly I think good instruction is a necessity for it to be a safe and practical sport. And I believe most of the organized and professional people in the field feel the same way.

Senator MONRONEY. This would include the certification of equipment?

Mr. THOMAS. We do now certificate the equipment.

Senator MONRONEY. That is what we do now. It would include the regulation or prohibition against diving in weather that was unsuitable?

Mr. THOMAS. Yes, sir, that now exists.

Senator MONRONEY. It would include radio equipment on aircraft from which the jump is made, which now exists. And limitation over violation of controlled airspace, airport areas.

Mr. O'CONNELL. Right.

Senator MONRONEY. And prior notice of jumps to be made within controlled airspace.

Mr. O'CONNELL. Yes, sir.

Senator MONRONEY. No. 4, the minimum visibility and distance from cloud requirements. What exactly are those?

Mr. THOMAS. They are generally the same as VFR minimums for flying light aircraft. Within the airspace it is 1,000 feet under or above, or 1 mile horizontally from any cloud formation.

Senator MONRONEY. What is that? One mile horizontally or vertically?

Mr. THOMAS. Horizontally, or 1,000 feet vertically from any cloud formation. And in the lower airspace it is 500 feet under, 1,000 feet over, or 2,000 feet horizontally from any cloud formation.

Senator MONRONEY. Is there any need, in light of this past experience in this accident in Ohio, for revising that cloud cover minimum visibility regulation?

Mr. THOMAS. It is apparent that the regulations we have now were violated in that one.

Senator MONRONEY. To what degree? I think you better detail it.

Mr. THOMAS. Well, from the testimony given by the surviving jumpers, as I understand it, they did go through clouds, and the lake was obscured when they did jump. And there is a flat prohibition to jump through any clouds. This information was available to the pilot, it was available to the jumpers, because obviously they were looking down on it. And any person, and that includes the jumper, whether certificated or not, is now prohibited from diving through a cloud, and any pilot is prohibited from releasing them. So the regulations on the face of it were violated by diving through the clouds.

Senator MONRONEY. In other words, there was clear visibility above the cloud cover, but it did them no good, because the surface was obscured through that entire area, including the airport, the jump area, and the marker and the lake which could have been easily identified had there been no cloud cover.

Mr. THOMAS. The lake and shoreline would have been clearly visible.

Senator MONRONEY. You could get into an argument on the case that well, the clouds were scattered or broken.

Mr. THOMAS. That had been reported. I think, if I may, I would like to read from the Board's report two or three statements that the pilot and controller made, and it might clarify this.

Senator MONRONEY. Yes, sir.

Mr. THOMAS. First of all these two aircraft did not file flight plans, nor were they required to do so, since this was a VFR visual flight rule operation. They were popups, as far as the controller was concerned, and he was giving them additional radar service without having them on the flight plan.

I am reading from the Board release, page 11. It says that the pilot of N-3443G called the Cleveland Center and was advised to stand by. At 1532 the controller returned the call and the pilot advised that N43G was presently westbound, climbing VFR through 6,000 feet, but would be unable to maintain VFR and requested an IFR climb. When queried concerning the aircraft's position—this is the first the controller knew about it—the pilot replied "We are in a left turn now climbing. We are VFR, but we are on top of a layer and we would like to hold over the Ortner Airport until the cloud layer breaks up a little bit." The controller then asked whether parachute jumps would be made, whereupon the pilot replied "Only if the cloud layer breaks. If it doesn't break we will have to go west and let down VFR."

A little later he said the pilot then advised that VFR conditions existed, the flight could be continued in those conditions and there was a broken cloud layer below them.

Later on page 12, the bottom of the page, the controller stated he would try to give N-3443G a vector to Ortner Airport. The pilot reported that he was on top of a broken cloud condition, could see Amherst, Ohio, but did not have the Ortner Airport in sight. At this time he stated he believed he had him in radar contact.

So apparently there was a broken cloud layer there, there was some ground visibility, and the controller was told he would only jump if he could do so properly.

Senator MONRONEY. Where is that?

Mr. THOMAS. That was my own words, but I was using the words on page 11. The controller asked whether parachute jumps would be made, whereupon the pilot replied "Only if the cloud layer breaks. If it does not break, we will have to go west and let down VFR." So I think the controller assumed he would make them only in a proper flight condition. But it was clear to me from a lifetime of flying that he could easily distinguish the lake from 30,000 feet, had you been able to see down through the cloud layer.

Senator MONRONEY. Yes. How about the confusion that apparently existed on the two targets? The controller testified that he knew there were two targets in the vicinity of Cleveland VORTAC.

Mr. THOMAS. Yes, sir; there were actually more than two. The Cessna and the B-25 were both what the controller would call pop-up targets. They had no flight plan. They were flying under VFR conditions, responsible for their own navigation or separation, and he was trying to give them radar advisory service as he could. It is evident, I think, that there was radar misidentification, or the pilot would not have gone into the lake, if the pilot relied on radar position. It is also evident when you read the whole transcript that, I believe, I think I have the pilot leaving the center's communication and only later did we learn that he had only one receiver on board, it was a navigation receiver, which is used both for communication and navigation. So he was using that same receiver for two different functions, rather than having two receivers. When he left they quit following him; that is, when he left the communications frequency, they quit following him, and they attempted to reidentify him when he came back. But I don't have any doubt but what it was a misidentification, but he was not on a flight plan and was not following the normal procedures.

Senator MONRONEY. Now clear up one thing for the record which I think is quite important. Since he was far above the cloud cover, he was at least flying VFR and had a clear range of unlimited visibility above him and below him.

Mr. THOMAS. Yes, sir; as far as I know the visibility was excellent above.

Senator MONRONEY. This would not have required him to have been on a controlled instrument plan in that region.

Mr. THOMAS. No, sir.

Senator MONRONEY. Since he had clear airspace above, had he anticipated a landing or anticipated penetrating the cloud bank below him, he would have had to have gotten clearance from the Cleveland Center; is that right?

Mr. THOMAS. Yes, sir. As a matter of fact, he did get a clearance to climb, because he said he couldn't do it later on and the Cessna also got a clearance to climb, because the Cessna said he could not maintain VFR at the lower levels.

Senator MONRONEY. Is there any testimony in the record that you have studied from the two surviving jumpers as to whether anyone protested against jumping or any reluctance of the jumpers to bail out with the cloud cover or whether they knew the cloud cover existed there?

Mr. THOMAS. No, sir. There is some testimony in here that they did not observe the sky conditions until they were ready to jump. On page—I am sorry, I though I could place my hand on it. There is such testimony from the surviving jumpers. The first part is principally the testimony of the pilot. The story of the survivors starts on page 21.

Senator MONRONEY. Yes.

Mr. THOMAS. They described the climbout to altitude as being without incident except for a short period when the pilot leveled off at about 6,000 feet and momentarily descended before continuing to climb. They further stated due to the construction of the aircraft, they were unable to observe the clouds or surface directly below the aircraft during the climbout and the initial jump run.

The survivors stated that the first group of jumpers departed the aircraft from four separate exits within 15 to 20 seconds after the jump signal was given by the pilot. One of the two parachutists who remained in N-3443G after the first jump testified that when the bomb bay doors were opened just prior to the first drop he observed intermittent dark surface areas through the undercast but that visual reference was insufficient to determine whether these areas represented ground or water.

One of the two parachutists who were rescued after landing in Lake Erie testified that, on emerging from the aircraft, he noted that the undercast below him appeared to be solid. These two jumpers descended in a free-fall, while tracking in a random manner, from the jump altitude to 3,000 feet, at which point they opened their parachutes. They stated that they entered the top of a cloud layer at approximately 4,000 to 5,000 feet at which time they had their first indication that they were over water.

So I think that is the description of their observation of the weather conditions.

Senator MONRONEY. If the jumpers were going to proceed in the normal routine of jumping, it was the pilot's signal that the bomb bay doors were open and they were to cut loose at that point?

Mr. THOMAS. Yes, sir; and by practice the jumpmaster is also—we hold the pilot responsible. But most of the clubs holds the jumpmaster also responsible for determining that they are at the right point and the jump can be made in a safe manner and that the weather conditions are correct. In addition, we hold each jumper responsible, because he can see out before he jumps.

Senator MONRONEY. Well, he didn't have much opportunity here, did he, if they were jumping through a bomb bay?

Mr. THOMAS. No, sir; but if I looked through a bomb bay and saw solid clouds, I don't think I would go.

Senator MONRONEY. His visibility would be rather limited to straight down. He wouldn't have the visibility the pilot would have.

Mr. THOMAS. No; he wouldn't have the visibility the pilot would have, but he has quite a cone of visibility looking straight down through a bomb bay.

Senator MONRONEY. But the pilot would have been the one to give the jump signal?

Mr. THOMAS. I assume so—in some places the jumpmaster gives the jump signal. In this case I assume it was the pilot.

Senator MONRONEY. Do you have licensed pilots that qualify in any way as pilots for parachuting?

Mr. THOMAS. No, sir; there is no special rating for it.

Senator MONRONEY. It is any pilot that is certified for general aviation, they can take up parachutists?

Mr. THOMAS. If he has a type rating in the aircraft to carry passengers in that aircraft, he may. Now we have certain restrictions on the airplane, such as door openings, or removable doors, and other aircraft equipment. But as far as the pilot is concerned, if he is certificated to carry passengers, he may carry jumpers.

Senator MONRONEY. So a man who has never made a flight to release jumpers could go up this afternoon and release them under conditions which he thought were in line with—

Mr. THOMAS. If he complied with the aircraft equipment requirements; yes, sir.

Senator MONRONEY. And with the rules of FAA regarding jumping?

Mr. THOMAS. Yes, sir.

Senator MONRONEY. But it is not necessary that he know about those rules, if he is just a general aviation pilot and takes the door off his small plane and carries a couple or three parachutists up?

Mr. THOMAS. That might be so, sir. I would believe that there is enough information out on parachute jumping and special requirements that at least he would have some knowledge. And they could get the information very quickly by asking any of the general inspection officers or any of the parachute clubs.

Senator MONRONEY. It wouldn't be too much difficulty to require any pilot who is going to fly jumpers to pass a brief written test, qualifying test, would it? In that way you would probably get away from the person who never had any experience with parachuting, and who was willing to go up and make a few dollars, not having complete knowledge of what the FAA safety requirements were, even the few we have written regarding parachuting?

Mr. THOMAS. No, sir; we could require a rating. We now require a rating on aircraft to carry passengers. In this particular case the pilot was not type rated in the aircraft.

Senator MONRONEY. He was not?

Mr. THOMAS. No, sir; he was not. The aircraft was not properly equipped to carry passengers. It did not have the capability of simultaneous navigation and communication equipment.

Senator MONRONEY. Where would that have helped? I think it would be interesting for the record, on the record on that point, where would that have helped.

Mr. THOMAS. It would have helped considerably, because the first contact the controller had with this man was asking for a VFR-IFR climb and he would assume he was capable of doing all of the things that are necessary for an IFR climb and for a parachute drop. This

would require navigation information to the pilot. It would require continuous communications with the center. The pilot could not do both at the same time. So when they were communicating with each other with regard to position, the controller thought at least the pilot would have had navigation equipment aboard his aircraft to know where he was at that time. But as a matter of fact at any time he is communicating with the center, he was totally relying, we found out later, on radar information.

Senator MONRONEY. He had other means, other electronic devices, or different systems, by which he could identify his position, didn't he, as he passed over them?

Mr. THOMAS. If you look at the sketch the Board made on the last page and see where the Board thought the airplane was, and look at Ortner Airport in relation to the Cleveland VOR, you could identify yourself with VOR-DME, but at least with VOR only, which he had on board, there is just no way he could have been there and been looking at VOR.

Senator MONRONEY. Do that again, please.

Mr. THOMAS. If he had his receiver tuned to the Cleveland VORTAC, as shown in that place—

Senator MONRONEY. That is called the computed track of the B-52?

Mr. THOMAS. Yes, sir. If you look at the point where he released them, if he had the VOR tuned in he could have been 10 miles from Ortner Airport and thinking he was over Ortner, if he had been cross-checking on VOR or his navigation equipment would have been seriously off. The controller thought at least he had some navigation capability.

Senator MONRONEY. There are no electronics at all at Ortner; is that correct?

Mr. THOMAS. None to my knowledge.

Senator MONRONEY. So his only way of positioning would have been the Cleveland VORTAC?

Mr. THOMAS. Yes, sir.

Senator MONRONEY. He was coming in from over the water east of Huron.

Mr. THOMAS. Right.

Senator MONRONEY. So his tuning in on VORTAC would have brought him safely south at least of the lake area.

Mr. THOMAS. It should have at least been—if you notice, there is a 249 degrees there. That radial of 249 degrees is the centerline of an airway called V-14, which passes over the Ortner Airport. So he should have been showing a heading, a track, I am sorry, a radial of 249 degrees. If you will notice the edge of the shoreline is 278 degrees, and that depicts another airway, V-6, and he was north of there. So he would have had to have a heading of around 283 to 284 degrees instead of 249 degrees. Had he been observing his location on VOR.

Senator MONRONEY. In other words, you think the pilot was not checked out properly on operating under this type of instrument condition?

Mr. THOMAS. No, sir. What I was really trying to say, it doesn't look like he was taking full advantage of the navigation he had probably because he was using the same piece of equipment to communicate with the center and not using it as a navigation receiver. And we

would not have authorized him flying under those conditions had we known it, or that is, the rules do not authorize it.

Senator MONRONEY. But he was under, he was not under an instrument flight plan.

Mr. THOMAS. He had obtained a clearance to climb through the clouds. And he did have a requirement at that time.

Senator MONRONEY. At 20,000 feet it was clear and he had adequate visibility.

Mr. THOMAS. Yes, sir; and he was under VFR, but—

Senator MONRONEY. What kind of an airfield is Ortner? General aviation airport?

Mr. THOMAS. Yes, sir.

Senator MONRONEY. They have no electronics on it at all?

Mr. THOMAS. They may have what is called a Unicon, but I don't know. This is two-way communication.

Senator MONRONEY. That would just be two-way communication, but giving no position of where the field was?

Mr. THOMAS. I know of no precision instrumentation there.

Senator MONRONEY. You feel there is nothing in the legislation pending, S. 2137, that would have been especially helpful if enacted to prevent this accident?

Mr. THOMAS. Mr. Chairman, the total experience of the jumpers, the least experienced jumper had 75 jumps, and the average was 200 or thereabouts. The pilot was an experienced pilot. It just so happened he was not rated in this airplane. But I am sure we would have certificated every jumper on that airplane. I am sure they would have met all of our knowledge, experience and training and every other, and health requirements that we might visualize. We did have regulations which were violated in this accident and the additional ones, as envisioned by the bill, I don't believe would have had any bearing on this one way or the other.

Senator MONRONEY. In other words, had they observed the weather requirements on unobstructed view of the landing area there would have been no accident.

Mr. THOMAS. That is correct.

Senator MONRONEY. It was a disregard, primarily, of releasing parachutists in an area where the cloud cover blanketed out the pilot's certainty of his position and also denied the parachutists the involvement of weather conditions, that they did not have time to observe, I believe. I doubt if, from the description of where the parachutists were in the aircraft, I would doubt very much whether they would have had a chance to see what was underneath them.

Mr. THOMAS. No, sir; they only had obviously a few seconds, and I don't know how many seconds, but let's say 10 or 15, to look out and observe and then make a decision. But it was rather obvious that they were looking down on a rather substantial cloud cover and this would be immediately apparent to anyone.

Senator MONRONEY. With 18 ready to go it would be pretty hard.

Mr. THOMAS. Yes, sir; I am sure they were psychologically determined to jump from the time the aircraft left the ground.

Senator MONRONEY. Regardless of cloud cover.

Mr. THOMAS. No, sir; I would hate to say that. But they were all set up, geared to go.

Senator MONRONEY. You say in your statement, "The basic consideration in this matter is whether the Federal Government should undertake a supervisory role in a field which essentially is a sport for the purpose of protecting individuals from exposing themselves to hazards." We do this all of the time in the field of safety at sea, particularly with small boat operations, pleasure boats, where we insist on communication equipment, a certain amount of lifesaving gear of all kinds, and certain requirements for obtaining a master's license to run a small cruiser or small ship carrying friends for non-commercial operation.

Mr. THOMAS. Mr. Chairman, I am sure that is correct, and as I said previously, a lot of this obviously is in a very gray area, because the lifesaving devices, whether a lifeboat or a liferaft or a lifevest in the maritime field is aimed at virtually the same purpose as the parachute for nonintentional jumping in the aviation field. And we do give a great deal of attention to the parachute and its equipment for emergency and lifesaving use. And certainly the pilots in the aircraft are certificated as they are in the maritime field.

I think the analogy is a little bit difficult to follow, because I don't know of any parallel of people using maritime lifesaving equipment as a sport. Certainly we have surfing, with a high degree of accidents involved in surfing. So this is one that is very difficult, I realize, for Congress to determine, because it is gray.

We want to go as far as we can in equipment. I think what we are shying away from is the certification of the individual parachutists who we consider a sportsman like many other sports.

Senator MONRONEY. Would you favor or consider the possibility of a flotation packet with a gas capsule or something for areas where parachutists jump over or near large bodies of water?

Mr. THOMAS. Yes, sir; and I think we can do this within our existing authority, and should and will. As a matter of fact you are never clear in an emergency where one might land. It could be in the middle of a prairie and still be the one waterhole there and drown. There is some difficulty in determining a good flotation gear. We need some more research on this. But I think this is an area that we should have, whether it is for sport parachute jumping or not, because there is always a farm pond as well as a Lake Erie that could be involved and this seems to me to be a very reasonable precaution to take on all parachuting.

Senator MONRONEY. I notice on page 22 of the Air Safety Board report it says:

After landing in the water, one of the jumpers was able to stay afloat by using his inverted helmet for buoyance, while the second jumper remained on the surface while being dragged downwind by his partially inflated canopy.

But it would not be too hard to add to the survival chute, would it?

Mr. THOMAS. Many of the reserve chutes now do have flotation gear on them. Obviously they didn't have in this case, or weren't used. But there are difficulties with practically all existing flotation gear. I think we need to do some more work on it and we will, and I think this is one that does come within the purview of equipment we should require.

Senator MONRONEY. Thank you very much, Mr. Thomas, for your helpful interest in this and also in helping to clarify some of the situation that existed at the time this tragic accident occurred.

Would you say that if they had had flotation equipment on their parachutes that there would have been a great many more survivors?

Mr. THOMAS. My guess, and this is pure guess, the water temperature was 72 degrees, and this saps out life, too. But my guess is had they had adequate flotation gear that most, if not all of them, would have survived.

Senator MONRONEY. Thank you very much for your helpful interest in this.

Senator MONRONEY. Our next witness is Mr. Norman E. Heaton, executive director, U.S. Parachute Association, accompanied by Mr. Mark Baron, general counsel, USPA, Monterey, Calif.

Mr. HEATON. Since the National Aeronautic Association is our parent association, would it be possible for him to give his statement before ours?

Senator MONRONEY. You would like to follow Mr. Istel, representing the National Aeronautic Association?

Mr. HEATON. Yes, sir.

Senator MONRONEY. That is perfectly all right.

STATEMENT OF JACQUES ANDRE ISTELE, MEMBER, BOARD OF DIRECTORS, NATIONAL AERONAUTIC ASSOCIATION, PRESIDENT, PARACHUTES INC., ORANGE, MASS.

Senator MONRONEY. Mr. Istel, we welcome you to the Committee and we appreciate your giving us advice in making parachuting safer for people to engage in.

Mr. ISTELE. Thank you, Mr. Chairman.

Mr. Chairman and distinguished members of the committee and gentlemen, my name is Jacques Andre Istel. I am a director of the National Aeronautic Association, honorary president of the U.S. Parachute Association, and chairman of the finance subcommittee of the 60-country Federation Aeronautique Internationale.

It is an honor to appear before this committee.

Prior to reading my prepared statement, Mr. Chairman, I would like to have the privilege after the statement to make certain comments about the testimony that has been given and about some of the questions that were posed, since I believe that some of those questions can best be answered, perhaps, by a parachutist.

Senator MONRONEY. That would be fine. We will be glad to have you add at any time to your statement.

Mr. ISTELE. Thank you.

Senator Monroney is to be congratulated for the introduction of Senate bill 2137. As stated in the Congressional Record of 21 July 1967, his major concern is the protection of the novice jumper who knows little or nothing about sport parachuting. This sentiment echoes precisely our request, reported as far back as 1957 by Time magazine, to have the Federal Government regulate parachuting schools and parachuting instructors. At that time, because of the omission of the word "parachutist" in the Civil Aeronautics Act of 1938, the Federal Aviation Administration—then the CAA—did not control parachuting except for some rules concerning emergency parachutes and except, in an indirect manner, by regulating pilots of jump aircraft.

ENDORSEMENT OF S. 2137

We heartily endorse the concept of regulation of the parachuting schools and the licensing of parachuting instructors by the Government. Indeed, it has already been proven that at carefully supervised centers the safety record of sport parachuting is acceptable. The world's first private parachuting center was created at Orange, Mass., in 1959. Almost 8½ years later, as of September 1, 64,751 jumps, of which 6,297 were first-time jumpers, have been launched at the field and owing in part to providence there has never been a fatality. The student rate of injury is under two-tenths of 1 percent including sprains. I mention providence, for as we all know when one mixes aircraft, parachutes, the general public, the force of gravity, and human frailty, accidents can happen. But safety requires more than providence.

Indeed, this safety record was not easy to come by. Parachuting in the 1950's was hazardous indeed. And, gentlemen, I insert a parenthesis here, on some of the questions I have heard, it is possible that some of the persons who are testifying in this room are not completely up to date on the progress that has been made on parachuting. The parachutes back in the 1950's had a great horizontal landing shock since they traveled laterally with the speed of the wind. They oscillated upon landing and since they also had great vertical speed the total landing shock was considerable. If one pulled a ripcord while in a back to earth position, the parachute could wrap around one's body. If the parachute did open properly, the opening shock was considerable. Finally, the choice of a landing site was very difficult to determine, partly because the parachutes were not really steerable. The problems of reducing the opening and landing shocks and of landing accurately have all been resolved.

It seems strange in light of the Lake Erie incident, Senator, but we will discuss that point.

And these problems were resolved in 2 years of self-financed research before opening the world's first parachuting center for the general public at Orange, Mass.

In the case of the Orange center, safety requires sophisticated communications—five nets, one of which include radios mounted on the reserve parachute of each student parachutist. Safety requires a permanent professional staff of trained instructors. Safety requires the best equipment available. And safety requires constant watchfulness, discipline, and a complex system of administration. We believe that most of these elements are necessary in any school charged with the responsibility of introducing the general public safely to the realm of the sky. Thus, we endorse heartily the general concept of S. 2137.

SUGGESTED MODIFICATION TO S. 2137

Individual sport parachutists should not be licensed. However, we suggest a modification to the bill. A modification which would state in effect that individual parachutists jumping for sport only should not be individually licensed by the Federal Government, just as individual skiers and swimmers are not licensed. We believe that individual parachutists should be free to practice parachuting without

undue restriction or administrative burden other than existing Federal and State regulations and such additional regulations as the Federal Aviation Administration may decree in the interest of public safety. The circumstances governing where and when a parachutist may jump are already covered by existing Federal regulations—part 105—as well as by the regulations of many States.

A. The licensing of individuals is not necessary for the safety of air traffic: For instance, horizontal air traffic is already partially protected from vertical air traffic by the rule that there can be no parachuting through clouds.

I had not until this morning seen the final report on the recent Lake Erie tragedy. If, however, it is true that parachutists jumped through the clouds, their act was not only illegal and contrary to the rules of commonsense, but immoral in that innocent bystanders riding in commercial aircraft could have been imperiled. It should be pointed out here that the decision to jump or not to jump is strictly that of the parachutist. A point that has been much discussed this morning.

The parachutist is the man who is looking out the door and he is the man who makes the decision as to when and where to jump. The pilot of the jump plane is a chauffeur.

Further, the pilot in the cockpit looks at the ground at an angle and only the parachutist looks straight down and can determine exactly where he is. Obviously he cannot do this when he is above a cloud cover. No judgment is intended at this time of either pilot or parachutists in the Lake Erie incident.

The point being made is that a parachutist is a responsible party and has volition, both in the aircraft and in free fall.

Let's talk for a moment about volition in free fall.

For during free fall descent a parachutist can vary his vertical rate of descent from 180 to 230 miles an hour at the lower altitudes. A parachutist can stop his descent by opening his parachute. A parachutist can travel laterally from 0 to 65 miles an hour during his free fall. In fact, he has as much controllability as many aircraft and as much time for and possibility of taking evasive action as much of the predominantly horizontal traffic. Thus, the parachutist operating under existing regulations is not the menace on the airways and most emphatically not the vertical missile that has been described by only partially informed persons.

I would liken the parachutist to the pedestrian and airways to turnpikes. It is strictly illegal to walk across the Massachusetts or New Jersey Turnpikes. If a pedestrian does this, he is justifiably liable to a severe fine. On the other hand, the pedestrian does not carry a license to walk.

The point, gentlemen, is that existing regulations if obeyed are quite probably adequate to protect air traffic. Thus, as far as the safety of air traffic is concerned, licensing individual parachutists would accomplish nothing. Another parenthesis not covered in my testimony, gentlemen.

There are various types of facilities. Norman has been particularly concerned with the Lake Erie tragedy this morning, which was a tragedy caused directly apparently, according to the Board's ruling, by violation of existing rules. But I believe that Senator Monroney instinctively feels, and that he has pointed out, that there are other types of facilities, and these have not all been discussed; these are

facilities caused by ignorance and negligence. And those, gentlemen, can be resolved by thorough education and by licensing of schools and instructors.

Licensing is not necessary for the safety of the individual parachutist if schools and instructors are licensed. As far as safety of the individual is concerned, licensing would also accomplish nothing or almost nothing. The parachutists, particularly if trained by a federally licensed instructor at federally licensed schools will learn to parachute safely. He will learn existing techniques and existing regulations. He can and should be punished for disobeying the rules. And those persons who do disobey rules probably will do so whether or not they are licensed.

B. Other reasons for not licensing individual parachutists: Further, licensing individual parachutists would lessen the participation in the sport and would be a costly administrative burden for the Federal Aviation Administration as Mr. Thomas testified this morning.

The present language of S. 2137 gives the right to license every single parachutist to the Federal Aviation Administration. We have worked for many years with FAA personnel. We have constantly been impressed by the fairness, the dedication, and the thoughtfulness of these able public servants as well as by the assistance that they have given us. These are not empty words. If we have something harsh to say, gentlemen, we say it.

But the FAA has maintained extraordinarily high standards in their Administration.

The rulemaking of the FAA in parachuting so far has been excellent.

We do, however, fear Parkinson's law and fear that gradually, through normal bureaucratic process over a period of years, more and more regulations will be created, and eventually every parachutist will be licensed. This as we have pointed out is not necessary either for the safety of air traffic or for the safety of the individual parachutist. Further it can be detrimental to the United States. We must keep in our country the liberty to experiment particularly since it is this liberty which has permitted us to obtain and retain at no cost to the Government a commanding lead in sport parachuting equipment and techniques.

I have seen the French develop an extraordinary parachute. This parachute was brought to the United States, further modified here, and used to beat the French team year after year while owing to French bureaucracy the national team of France was not allowed to use the French invention with which the United States was winning competitions against France. This is but one of the incidental hazards of bureaucracy.

Taking all the above factors into consideration I respectfully suggest that S. 2137 be modified by adding the phrase "provided however that individual sport parachutists jumping for pleasure will not be required to be licensed by the Federal Government."

Anyone jumping for exhibition or commercial reasons definitely should be licensed in my opinion also.

Now we go to a couple of other subjects, gentlemen.

Parachuting can and must be made safer. And Senator Monroney, I have taken the liberty of covering one or two general topics, questions that are frequently asked about parachuting and questions of general safety, because I believe that they are of interest to this committee.

It is a fact that sport parachuting is one of the fastest growing sports in the world. It is a fact that there is an element of danger in the sport. But much of this danger can be resolved by a slight advance in the state of the art. This advance is well within our grasp. During the year 1961 through 1965 inclusive, there were 125 sport parachuting fatalities, that is total. During this period perhaps a million jumps were made by sport parachutists.

Of those 125 fatalities 51.2 percent can be avoided by a reliable device to open the reserve parachute and we have already requested a research grant in this field. I personally favor a fail-safe type of device and possibly one that will give control of the reserve parachute to the ground instructor through a remote control radio switch. Of course the parachutist himself would also keep manual control of his reserve parachute but in cases of illness, collision in free fall with another parachutist, carelessness or whenever necessary, the reserve parachute could be activated from the ground.

Another 20 percent of these 125 fatalities were caused by drowning. There is no reason for this. Many parachuting competitions are purposely conducted in water. I have competed in the Adriatic Cup on the coast of Yugoslavia and it is a wonderful, colorful, exciting, and safe event.

Gentlemen, to my knowledge there has not been a single drowning during intentional water jumps. Drownings are caused by the fact that parachutists do not wear flotation gear. With a little research and with flotation gear almost three-quarters of parachuting fatalities can be eliminated within months or possibly weeks.

And education and discipline can greatly reduce the remaining 25 percent of fatalities. Thus, through research, education, and enlightened regulations, parachuting can be rendered almost as safe as flying model aircraft.

Did you know for instance that several people were killed by model aircraft?

Air traffic safety suggestion: There are possibilities for rendering air traffic even safer. It is conceivable that on free fall jumps with delays of 60 seconds or more from altitudes of 12,500 feet or more above the ground where you are almost reaching jet altitudes, sport parachutists should use smoke so as to be seen from great distances by pilots of transient aircraft. It is possible that spotting devices should be used at high altitudes so that the parachutists will see exactly where he is in relation to the ground. These ideas and others will be discussed in detail with representatives of the Federal Aviation Administration.

Recommendation to the Federal Aviation Administration: One particular recommendation that I would like to mention before this committee, that I have made consistently verbally and in writing to the Government over a period of years is to chart continuous and busy parachuting areas on the maps used by pilots.

Prominent parachuting areas are vertical funnels of air extending normally to 15,000 feet over the surface. These funnels are only 3 miles in diameter since the exit point is rarely if ever more than 1½ mile from one's target. The funnels that I recommend marking are busy ones—funnels with a volume of at least 8,000 jumps a year. I have heard many theories as to why these funnels need not be marked, but

I have never heard really satisfactory reason for not marking maps with a specific parachuting symbol for locations such as the sport parachuting centers at Lakewood, N.J., Orange, Mass., and Elsinore, Calif., where a total of approximately 40,000 jumps took place during the year 1966. And, of course, there are many other busy parachuting locations.

Perhaps one should also mark parachuting locations on IFR charts for even in good weather a number of pilots choose to fly IFR and subconsciously may look around a little less carefully than they would if they were flying VFR.

Sport parachuting as a growing industry: Sport parachuting is not just a sport. It is a growing industry. In 1957 the volume of business in sport parachuting was approximately \$10,000 a year. By 1962 it was about \$500,000 and in 1967 it is estimated at \$5 million. And this is a rather low estimate.

One firm in the field, Parachutes, Inc., had a payroll of 73 full-time and part-time employers at one point this year.

The growth of this sport may never equal that of skiing but it gives every indication of creating a small industry. This budding industry should not be stifled by undue regulations.

Why parachute? Finally, I wish to close this testimony answering two of the most frequently asked questions about parachuting. The first is why do people jump?

In part—beauty. The beauty of parachuting is not to be confused with psychedelic joy. It is rather comparable with the sensation of communing with nature that one has on a mountain top or a wooded ski trail or looking at fish under the sea. There is the silence, the incredible view of the earth as a small mosaic below, the feeling of being at one with the sky.

Another reason to parachute is the controlled risk. I, for one, am willing to accept a tiny additional statistical risk and do everything in my power to minimize that risk in order to reap the benefit of a balanced life. As Samuel Johnson said "A touch of danger adds spice to life." And, gentlemen, this does not—repeat—does not mean flirting with danger.

A lecturer at Oxford and Princeton, Mr. A. Alvarez, made this point clear when he stated:

I would like to make very plain that flirting with danger for kicks bores me. It is a form of exhibitionism, a vulgarity to oneself. The pleasure is in doing something difficult, something that extends your concentration and effort and resourcefulness without ever losing control.

In other words, gentlemen, parachuting is a matter of skill.
To go on quoting Mr. Alvarez:

Within the edgy terms they set up, the risky sports provide an area in which you must take complete responsibility for your own life; that is, they provide precisely the occasions for choice and responsibility that never quite arrive in clear, recognizable form in the routine world. However, trivial the context—who, finally, cares about a piece of rock, or a big wave, or a parachuting record that will be broken next year?—the element of risk can turn a week-end hobby into a small-scale model for living, a life within a life.

In the final analysis there is only one reason to parachute for sport—because one wants to. And in this great free country individual choice still exists.

Advantages of sport parachuting:

The second question is what if anything does sport parachuting contribute to our society?

Our scientific progress in sport parachuting has yielded the stable body position and controlled free fall. This control can allow a downed flyer to glide his body 1 mile or more away from enemy fire or from obstacles below during a free fall of 10,000 feet. Certainly this training could have saved many lives of our many flyers who have been downed in Vietnam.

Sport parachuting has yielded the lift concept in parachutes which lowers the landing shock. This concept is being actively studied by NASA for the controllable reentry of space vehicles.

Finally—and this one is just an opinion—parachuting has yielded, in my opinion, psychological benefits for thousands of participants. All this still at the cost of too many lives—although less apparently than such relatively noncontroversial sports as surfing.

A national magazine recently reported that surfing had claimed 500 lives in 1 year, almost 20 times as many as parachuting in 1 year.

But, as in aviation, technology is changing the state of the art and parachuting, carefully conducted and nurtured by enlightened regulations will be so safe in the foreseeable future that one may have to look to Chinese checkers for excitement.

Summary:

We appreciate and are grateful for S. 2137 but request that the language of the act exempt specifically parachutists jumping for pleasure from being licensed by the Federal Government.

It is an honor to have appeared before this committee.

Thank you.

Senator MONRONEY. Thank you very much, Mr. Istel, for your very comprehensive statement and for your summation of the bill.

You endorse all sections of the bill with the exception of the requirements for the licensing of nonprofessional parachutists; is that correct?

Mr. ISTEEL. That is affirmative, Senator.

Senator MONRONEY. Why is there a difference? Or what is the difference between nonrequirement for pleasure parachuters and—why should we regulate the commercial?

Mr. ISTEEL. Let me make a point very clear, Senator. I do endorse the licensing of instructors and schools, so that the parachutist jumping for pleasure would have learned in an approved manner at an approved school. The requirement that is different is that a parachutist jumping for pleasure will normally be very careful to have good weather conditions—I say normally—will normally have good wind conditions, will have a place where he can enjoy himself, while the professional parachutist, jumping for pay at an exhibition jump, at a State fair or in a shopping center, is jumping under very dangerous circumstances often.

Senator MONRONEY. And you mean he would be more inclined to take chances with his life, because he is receiving a fee for it?

Mr. ISTEEL. Yes; and because his reputation is at stake, and because he is under pressure he will tend to push matters a little more perhaps.

Senator MONRONEY. I see. But you feel the nonprofessional would be one who would, if given an opportunity to avoid the unnecessary risks and go up only when it is a nice day, when the wind is not too high, when the visibility is good, et cetera?

Mr. ISTEEL. If he has been properly instructed and if he is being properly supervised by licensed instructors, Senator.

Senator MONRONEY. All of these 20 that were aboard this plane in the Ohio case were experienced well-trained and qualified parachutists. They knew the danger of jumping through a cloud cover. And apparently some of them had up to 200 jumps.

Can you give the committee any information as an expert in this field, why these very skilled men went forward with the jump? They were the ones, as you say, that finally made the decision on whether they were to jump or weren't to jump. There was no professional fee involved, it was merely the sport of the thing.

Mr. ISTEEL. There are several points, Senator. One of the problems with parachuting is that when something goes wrong, it is very difficult to interview the person afterwards. So any point that I will make now will be a guess.

I would hazard, however, certain guesses—

Senator MONRONEY. You have the qualification of being years in this business and you know the psychology of many men undoubtedly that you have trained and have cautioned about jumping into cloud cover, things of that kind.

Mr. ISTEEL. Yes, sir. Certain facts first.

In a group jump, Senator, the jumpmaster is in the door. He is the man who looks out and who states whether the conditions are good. It is important in parachuting that everyone get out of the aircraft as fast as possible, since the aircraft is traveling at 80 miles per hour or more over the ground. Therefore, since it will spread the parachutist away from the best exit point it is important to get out quickly.

The persons in the back of the aircraft are trusting the jumpmaster. So in this case it is the responsibility of the one, two, or three jumpmasters to jump or not to jump.

Now in many clubs there are great financial difficulties. These people have gotten together, they have hired this aircraft, they were looking forward to a high jump, and probably they decided, well, we will take a chance, we will rely perhaps on radar, we know it is illegal to jump through the clouds—and here I am completely guessing—we have paid a lot of money for this, our chances are good that we are over the general area of the airport, once we penetrate through the clouds we can make up a great distance in free fall, we can make up some of it with steerable parachutes, we can steer away from a house or a tree, and therefore they probably decided to go ahead or at least the responsible ones did.

If there had been a poll taken within the airplane and they had been apprised of the fact that they might be over Lake Erie, I venture to state not one of them would have left that aircraft.

Senator MONRONEY. But the pilot's determination that they were over the airport had some influence, undoubtedly, a great influence on the jumpmaster.

Mr. ISTEEL. This brings up a point we have been making for years. It is the pilot who is the chauffeur and the responsibility is definitely that of the jumpmaster. I feel that the concept of putting in specialists for jump pilots is probably not only not necessary, but would almost lead to an erroneous concept at professional parachuting centers. The jumpmaster is not only the responsible individual, he has a control

board with a duplicate altimeter, with a plan of the field, and with a large signal system so he can tell the pilot whether to go right or left and the pilot actually is practically on instruments during a jump run. It is almost like a navigator telling the bombardier pilot during the war where to go so he may release his bombs. This would be the best analogy I can think of.

Senator MONRONEY. You are very strong, in fact insistent, on the need for licensing the schools and instructors. This is because of the hazard involved in packing of the parachute, instructing them how far to fall before opening, things of that kind? Alerting them to dangers that an inexperienced instructor, a nonprofessional instructor might fail to give them.

Mr. ISTEEL. Senator, I am a prejudiced party in that I founded some schools in this country. But now I do other things, I extend my business management to other areas. The packing of the parachute is emphasized very much, but it is not the critical point. Packing a parachute is almost as easy as folding an umbrella.

The supervision and the training of the student, making sure that he is dropped at the proper point, making sure he has a steerable parachute, making sure that there is coordination between the ground instructor, the jumpmaster and the pilot, close coordination, making sure that the person is dropped at the proper altitude, making sure that no packing pins have been left in the parachute, making sure that there is a parachute assist system, those are all functions of professional schools and professional instructors, and all of the points I am making have led in the United States to a great many fatalities. And those are absolutely unnecessary fatalities and they are fatalities that really hurt, because they could have been prevented so easily.

They are based basically upon ignorance and upon lack of attention. This is not to mean that there is very wide lack of attention to safety in the United States. We are in a new area, this is a new field, and we are all learning together.

Senator MONRONEY. Should the Government protect the professional parachutist from himself? You say we have no reason to protect the nonprofessional, let him assume the hazards at his own risk. Why shouldn't the professional men, if it is not necessary for the amateurs, be protected against himself.

You mentioned a few reasons, but these seem to be rather fragile reasons for the fact that he is licensed and the other classes of parachutists are not.

Mr. ISTEEL. That is open to question, Senator. I would not insist on that point. The point I feel very strongly about is that the complete innocent, the person who knows absolutely nothing about parachuting is entitled to protection in the initial stages of parachuting. In other words, a person who has never jumped before and knows absolutely nothing is entitled to know they will receive approved equipment, approved instruction, and they are going to be released for their first jump under approved circumstances.

Senator MONRONEY. How much time should a student have in instruction in a parachute school before he would be qualified to go out on his own?

Mr. ISTEEL. Well, Senator, I am personally responsible for instituting the 3-hour course in the United States, and as for safety record of,

for instance the Orange School over the last 8½ years points out, this does make some sense.

The main point about a parachute, about parachute instruction is that a sport parachute jump, properly conducted, is extremely simple. The only thing the parachutist needs to know is how to leave the aircraft, how to maneuver the parachute, how to land, how to clasp the parachute and emergency procedures, and I could teach you that in 45 minutes, Senator.

Senator MONRONEY. Teach my aide, I am too old.

Mr. ISTEEL. But the point is where do you go from there? From then on you have to have coordination between all of the parties who are taking part in the jump. You preferably have to have radio control to talk you down, et cetera.

In other words, it is possible to have a short course of instruction perfectly safely if you add all of the other ingredients. Most clubs in the United States where amateur groups of highly conscientious people and highly dedicated people get together to teach parachuting on a somewhat reduced scale perhaps, do it quite successfully. They have a longer course, and they have a longer course because they do not have all of the aids.

An example I can give in aviation is, for instance, transition to jet training, where you have a \$3 million simulator, you can make the transition much more quickly than you can if you don't have any of these devices.

Senator MONRONEY. In this training program of 3 hours, what is a major part of the time spent on?

Mr. ISTEEL. Approximately 45 minutes is spent in a lecture. Ten minutes is spent on film, which takes care of the first hour. After that there is a short period to relax. And incidentally one reason that there is only a 3-hour course, Senator, we have studied this exhaustively with psychologists and psychiatrists, from Massachusetts General Hospital and other places, and a person under the circumstances of a first jump retains very little instruction. You have to simplify matters just as much as possible. But to go on, after that there is instruction in how to land.

Remember, the landing shock has been reduced, because the parachutes come down more slowly, they don't oscillate, they don't swing over the ground with the speed of the wind and the shock is about equal to jumping off a chair these days and it is going to become less.

So there is little landing instruction.

There is exit instruction, the parachutes are put on and the parachutist is taken up and makes a jump. You may ask why don't we have towers. The answer is that jumping off a tower has absolutely nothing to do with a parachute jump. It is probably the most frightening experience I can think of.

Senator MONRONEY. The military abandoned that, didn't they?

Mr. ISTEEL. I think in most cases they abandoned the higher tower.

Senator MONRONEY. But can you teach them all that is necessary in the 3-hour period? What is the maximum wind you can safely take in a parachute jump?

Mr. ISTEEL. That is open to question. At our school we use 12 miles an hour as a maximum for students and 20 miles an hour as a maximum for experts. Remember the vehicles we use now have a variable for-

ward speed for the experts of up to 12 miles an hour, so they are landing laterally at only 8 miles an hour.

It is another world in which I started jumping, which incidentally I gave up parachuting because I considered it too dangerous. I had reached the ripe old age of 22 and I felt I couldn't go on taking such chances.

Senator MONRONEY. Were you a professional parachute jumper?

Mr. ISTEEL. After getting out of college, Senator, I learned to parachute, because I was flying a single-engine plane at night, in order to have any commercial pilots license and I wanted to learn how to make a jump, and there were no schools in the United States, so I made a jump on my own, and in those days a man with one jump was a highly qualified expert. So I went out and gave demonstrations. I made six jumps, incidentally, over an airport 1 mile by 1 mile and never hit the airport.

Recently at the national championships there were 2,000 jumps made in Oklahoma, and if a parachutist landed farther than 5 yards from center of target he was not scored. Ninety percent of the jumpers were within 5 or 10 yards.

Senator MONRONEY. We have some fine jumpers in Oklahoma.

Mr. ISTEEL. They were coming from all over the country, but Oklahoma is a wonderful State—

Senator MONRONEY. They enjoy pride in being the parachute capital of the world there now, a very nice airport.

You feel that licensing of schools though would be most important?

Mr. ISTEEL. I would recommend it, Senator, that if anything is licensed, the schools should be licensed. And I would very strongly recommend the individual parachutist not be licensed.

Senator MONRONEY. If he is, only the professionals, is that correct?

Mr. ISTEEL. That is correct.

Again this is not a particularly strong point. But I could see a point to licensing professional parachuters.

For your information, this is already being done effectively. Professional parachuting is required to have State approval in many of the States of the Nation already. If you wish to make a jump at other than an approved location in Massachusetts or California or New Jersey or New York, just to name a few States, you must have State approval.

Senator MONRONEY. These parachute funnels you talked about in your statement, they would be shown on air maps, would they, to warn private flyers, general aviation, away from them?

Mr. ISTEEL. Not away, Senator. We have never stopped flying because of parachuting activities. At the Lakewood, New Jersey Airport, which was a tiny airport that had one airplane on it, we built for our parachuting aircraft a 2,700-foot paved runway. Now as a result of that, there are over 70 airplanes based on that field. It is a busy general aviation field and there is absolutely no conflict whatever between the 13,000 jumps and the 70 airplanes.

On the contrary, we feel we can fit in twice as many with no trouble.

Senator MONRONEY. You land on the airport itself?

Mr. ISTEEL. No problem. It is just that the parachutes have a pattern and the aircraft have a pattern.

Senator MONRONEY. You land on an upwind pattern or downwind?

Mr. ISTEEL. Well the parachutes go with the wind, so they come in at one direction, the airplanes head into the wind, so they are down underground as the parachutists are landing a half mile or mile away from them.

Senator MONRONEY. There is no such thing as air traffic for parachutists yet? You don't have to get clearance from the tower to come in?

Mr. ISTEEL. No. One point, Senator, is that we are running a parachuting safety seminar in Massachusetts, and we will have experts such as Professor Beer of Harvard, head of the Department of Government, and the Chairman of the ICC and we certainly hope either you or members of your committee or members of your staff would come and honor us with your presence.

Senator MONRONEY. What is the date of that?

Mr. ISTEEL. The 19th and 20th of October, at Orange, Mass. I will leave a brochure with your staff.

Senator MONRONEY. We appreciate the invitation very, very much.

We thank you for taking time to come down here and give us the advantage of your vast experience.

Mr. ISTEEL. Thank you very much.

Senator MONRONEY. We are going to try to finish up today if we possibly can. We likely will have to adjourn for lunch following Mr. Heaton's testimony, and come back about 2:30 or 3. You may proceed, Mr. Heaton. We have your statement up here.

Mr. HEATON. Yes, sir. And with me is the general counsel of the U.S. Parachute Association, Mr. Mark Baron. I would like to make a couple of introductory points before I get into my statement.

The U.S. Parachute Association was, until about the second or third day of July, the Parachute Club of America and the U.S. Parachute Association. They are both the same. Quite a bit of time has been spent this morning in discussing the recent accident which occurred in Lake Erie. It just so happens that I was personally on the scene immediately following this tragedy. I assisted the National Transportation Safety Board in its investigation and did testify as an expert in the field of parachuting at the deposition hearing which was conducted by that board.

The Aviation Subcommittee of the Senate Committee on Commerce is soon to consider a bill proposed by Senator A. S. Monroney, "The Regulation of Sport and Commercial Parachute Jumping." The very foundation and purpose of the U.S. Parachute Association constitute our vital interest in this bill. Therefore we offer our services, eminent knowledge and expertise to the Aviation Subcommittee and the Senate of the United States.

STATEMENT OF MR. NORMAN E. HEATON, EXECUTIVE DIRECTOR, UNITED STATES PARACHUTE ASSOCIATION, INC.

I. INTRODUCTION

Mr. HEATON. Members of the subcommittee have stated (Congressional Record, July 21, 1967), they are not experts on the subject of parachuting, that parachuting is a "potentially dangerous sport." These are but two of the reasons our organization has requested to

be present at this hearing. The United States Parachute Association is an expert in the field of parachuting; in fact, the only such expert in the country. We bring to this hearing years of experience, work, and progress in the field of general aviation and parachuting.

That parachuting is a "potentially dangerous sport" is a matter of conjecture.

Parachuting enjoys, and has enjoyed for a number of years, throughout the world, a commendable safety record. Compared to some other sports activities and to everyday occurrences in the home, in our daily lives, and in the execution of our daily chores, parachuting is an extremely safe activity. Yet it may be made safer.

In our presentation before this distinguished committee we should like to point up several important theses—each of which will be elaborated upon in the course of this paper and in personal testimony.

1. Current, existing Federal aviation regulations are now adequate for experienced parachutists.

2. Current and existing FAR's need only slight modification to apply to all parachutists, including the novice or beginner jumper.

3. The only comprehensive, proven, and working safety regulations in the United States today are those compiled, tested, and put into effect by the United States Parachute Association through its basic safety regulations (BSR's) and its recommended procedures (doctrine).

4. Parachuting is an integral part of general aviation and a legitimate user of airspace.

5. Parachuting activities may safely be conducted in all areas, in all types of airspace, and in complete coordination with all other users of airspace.

6. Parachuting is a safer activity than the general public is aware.

7. The majority of fatalities occurring in parachuting are the result, not of improper equipment, inadequate training, and incompetent instruction, but human error. Parachuting has endangered no one but the participant himself.

II. FEDERAL AVIATION REGULATIONS AND BASIC SAFETY REGULATIONS

FAR part 106—Parachute Jumping—now governs parachuting activities and parachutists in the United States. The USPA maintains that this existing regulation is sufficient to protect experienced and practicing parachutists.

Part 105.13 (General) states:

No person may make a parachute jump, and no pilot in command of an aircraft may allow a parachute jump to be made from that aircraft, if that jump creates a hazard to air traffic or to persons or property on the surface.

That part of the existing FAR's is most specific: A person may not make a parachute jump and no pilot may allow a parachute jump to be performed, if that jump creates this hazard.

It will be granted, however, that a void may exist concerning the novice or beginner parachutist as he may not be fully cognizant of what he may or may not do and still maintain safety in the sport.

To fill this void the Federal Aviation Administration need only to add a paragraph or subparagraph under the existing part 105 by adopting regulations similar to the basic safety regulations and doc-

trine of the United States Parachute Association. These would more than adequately meet the stipulation in Senator Monroney's bill of "reasonable rules and regulations and minimum standards governing practices, methods, and procedures * * *"

This course of action is recommended for several reasons. Foremost among these reasons has been briefly stated above: the safety regulations and recommended procedures of the United States Parachute Association are the only comprehensive and proven parachuting rules in existence today. The major concern of the USPA is safety in parachuting; safety for the parachutists themselves, safety for other facets of aviation, and safety for the general public. All these areas of safety are totally covered by an adherence to and compliance with the safety regulations and doctrine of the national parachuting organization.

This great concern for safety led the USPA, in its early and formative years, to establish a comprehensive set of safety regulations for parachuting. These safety regulations have been revised and updated as time and improved techniques dictated; but not without that all-important and vital concern—progress through safety.

There is little doubt but what the majority of the parachutists in the United States comply with the stipulations of our basic safety regulations, regardless of their personal affiliation with the national body. The reason is clear. These basic safety regulations represent the work, the experience, the trial and error, and the proof that these are the minimum guidelines one should follow to insure safe parachuting operations.

What is our attitude and/or policy toward these "basic" regulations we have formulated? Briefly, the USPA policy may be summed up thusly:

1. There are certain principles and procedures that are fundamental to safety in parachuting;
2. The most influential medium in which to embody these principles and procedures is in the form of regulations; and,
3. These regulations must be common to and reflective of the national activity.

The basic safety regulations of the USPA are carefully designed and worded keys to survival. It is the design of the BSR's to be so commonly essential for safety that experienced parachutists will use them almost subconsciously. Even more than being "regulations," the BSR's are a belief of the experienced parachutist, and serve as guidelines to the novice until such time as they are fully understood and natural to him. The idea of "policing" is not applicable to the BSR's; with basic safety there is nothing to police, only knowledge to be learned.

It would be quite easy for these regulations and recommended procedures to be modified and incorporated into existing Federal aviation regulations. The most convenient manner would be the addition of a paragraph under FAR part 105.13.

Already the Federal Aviation Administration has recognized the effectiveness and competency of the national parachuting organization. Some 4 years ago the FAA issued Advisory Circular 105-1 to supplement FAR part 105 and give additional "guidance on intentional parachute jumping." In AC 105-1 the United States Parachute Association was recognized as the national experts. We stand always ready to assist the FAA and this committee in the interest of aviation safety through improvements in existing parachuting regulations.

III. SAFETY IN PARACHUTING

Fatal accidents in parachuting may be categorized as having occurred due to—

1. A violation of current regulations or laws (FAR's);
2. A violation of commonsense practices and accepted procedures (the USPA basic safety regulations and/or doctrine); and
3. Pure accident.

If a fatal accident occurs because an existing FAR was violated—such as evidently occurred in the Lake Erie tragedy on August 27—there is little the USPA, the FAA, this committee, or the entire Federal Government can do. You cannot outlaw a violation.

It is the nature of the alien and potentially hostile environments of the sky and sea that those persons operating within them must be self-responsible for their conduct, as police actions on the high seas and in the skies are handicapped to the point of fiscal and physical impracticality by the very secretiveness of these relatively unpopulated areas. Violations of these regulations, be they at sea, in the air, or in deep space, are rarely disclosed to the agency responsible for the enforcement of these regulations except when the violation leads to an accident or near accident. At that time, the regulations, being initially based upon the characteristics of nature, are often enforced by nature, to the exclusion of the responsible agency. As in the case of the Ohio parachutists in August, there seems to have been a clear violation of FAR 105.19. This law was violated and nature gave the majority of the violators an immediate death penalty.

Deaths in the activity under discussion caused by pure accident or so-called acts of God are also outside the realm of prevention and preventive measures. A bolt of lightning, for example, may at some time strike a parachutist or an airplane. Regulations and laws cannot prevent such an occurrence, remote as it may be and as imaginative as it may seem.

Therefore, what we are basically concerned with are those violations of commonsense rules and guidelines that may ultimately lead to a fatal accident. If these commonsense rules, principles, and procedures that are fundamental to parachuting safety were embodied in the form of a Federal aviation regulation, would the sport become safer? We steadfastly believe that it would. A modified version of the basic safety regulations and portions of the doctrine of the United States Parachute Association placed into existing FAR's, would provide "reasonable rules and regulations and minimum standards governing practices, methods, and procedures in connection with parachute jumps from aircraft for sport or for monetary consideration, including, but not limited to, the adequacy of courses of instruction, suitability and air-worthiness of equipment, competency of instructors, and such other practices, methods, and procedures * * *" or, essentially, the bill that has been proposed by Senator Monroney.

If this course of action were pursued there would be no need for congressional action; proven and accepted standards are already available to the responsible agency, enforcement by that agency would be a minimum of effort, the activity of parachuting would not be restricted nor stifled, and adequate safety precautions would be taken by both experienced and novice parachutists.

IV. STATISTICAL INFORMATION

The U.S. Parachute Association estimates there are some 30,000 active parachutists in the Nation. "Active" is defined as anyone who makes at least five jumps annually. There are more people in the United States, of course, that have made a parachute jump. It has also been determined that an average of 55 jumps per parachutist are made in the United States. This means that some 1,650,000 parachute jumps are made annually in the United States. In the past 2 years there have been 53 fatalities in parachuting. This represents one fatality every 62,000 jumps or a fatality ration of 0.0000016 per jump.

Although there are well over 1 million parachute jumps made each year, parachutists' use of airspace and time in the air is small indeed. The average parachute jump is made from an altitude of 7,000 to 7,500 feet—depending on sea level—allowing the parachutist to make a 30-second delay while deploying his main parachute at an altitude of 2,000 to 2,500 feet above the surface. From an altitude of 2,500 feet, a parachutist under an open canopy will be airborne some 2 to 2½ minutes. For an average jump, then, the parachutist is in the air seldom more than 3 minutes from time of aircraft exit to landing.

Using the figure of 1,650,000 parachute jumps per year for 1965 and 1966 and the figure of 3 minutes for the average jump—which is a maximum figure—we find that U.S. parachutists are utilizing the airspace above the surface of the Nation for a total of 82,500 hours annually.

Let us compare this figure to that of general aviation. Using the data provided by the FAA Statistical Handbook of Aviation and the U.S. Book of Facts, Statistics, and Information (1967), we find that general aviation accounted for 16,733,000 hours in 1965. Therefore, the total activity of parachuting is only .005 percent of all civil aviation time and less than 2 percent of airline time.

It should be noted, however, that the majority of parachute jumps made in the United States—and elsewhere—are group jumps consisting of two or more jumpers exiting the aircraft at the same time. Therefore, there is considerable overlap in our total use time of airspace; that is, three parachutists jumping at the same time from the same aircraft would be using the airspace for a total of 3 minutes instead of 9 minutes. As this would be more the rule than the exception, we can safely state that parachutists make use of the airspace in the United States some 30,000 hours annually, or less than .002 percent of total civil aviation time.

The average expenditure, per parachutist, for aircraft rental is slightly less than \$200 per year. This means some \$5½ to \$6 million is expended annually for aircraft rental or lease. Parachutist also spend some \$6 million annually on parachuting equipment.

V. SHARING OF AIRSPACE

Some commercial users of our Nation's airspace as well as members of the public at large have pictured today's parachutist as an irresponsible and undisciplined individual, flinging himself out of airplanes to plummet earthward in a daring attempt to blindly crash into an unsuspecting airliner carrying Girl Scouts, Peace Corps volunteers, expectant mothers, and the President of the United States, thereby

causing their demise as he recklessly slams into the cockpit and totally destroying the airplane.

Only by the sheerest of imaginative minds can one dream of such an occurrence if one has explored all the possibilities of such an event happening. But this has been a constant bone of contention with particular segments of our Nation's air users. Using the totally unrelated tragic occurrence of the Lake Erie accident last month, representatives of the airlines have speculated what would happen should some carefree skydiver gaily fall earthward and crash into a "passenger-laden" airliner. The extreme proposal to sectify such a speculation is to deny the use of a large segment of airspace to parachutists.

Not only has the Federal Aviation Administration delved into all facets of this "problem" they have ascertained, most recently in fact, that present, existing regulations are adequate to prevent the occurrence of such a catastrophe.

Returning to FAR part 105 we find that not only does FAR 105.13 prohibit a person making a parachute jump "if that jump creates a hazard to air traffic or to persons or property on the surface," we find that FAR 105.15, 105.17, 105.19, 105.21 and 105.23 regulate the conduct of jumping into controlled airspace, and the specific requirements for authorization and notification of each section are commensurate with the control necessary over the particular airspace. Where there is a greater possibility of danger, the Administrator requires greater control factors in the way of authorization and notice.

Parachuting is an unusual aviation activity in that it is vertical while most other forms of air traffic are horizontal. Yet the two often compliment each other in spite of natural prejudices among many pilots. Parachutists can safely operate in any category of airspace provided that proper controls and communications are maintained.

Proof exists that the safest and most natural place to conduct and control sport parachuting activities is at and onto airports. The necessary control and communication features are already established on site and traffic pattern altitudes generally conform to parachute opening altitudes. Further, both aircraft and parachutists are in an established area, route, and pattern. In brief, parachutists exit from aircraft upwind and drift downwind while aircraft generally land into the wind, thus placing both activities at opposite ends of the airport.

Commonsense and the common law—liability for intentional or negligent acts causing injury—dictate that a parachutist about to make a jump will take every effort to avoid coming in contact or close proximity with an aircraft in flight, and, until demonstrated otherwise, we must assume that a parachutist will act in a reasonable and prudent manner.

It is a basic premise that all have the right to use the Nation's airspace provided that safety is not compromised. Although parachuting may be irritating to some it is not a compromise with safety in regard to other air traffic. The impression which is often created by some members of the aviation community is that parachutists resemble a heavy shower of hail making it impossible for an aircraft to thread its way between the hailstones.

It is agreed that a "potential" hazard does exist, just as being struck by a meteor or driving on the highways is a potential hazard.

However, the absence of any accident to date is witness the fact that the hazard must, indeed, be small.

Keeping in mind the figures of the total time of our Nation's airspace used by parachutists we would like to bring to the committee's attention a mathematical analysis of the chances of a random collision between a large aircraft (a Boeing 707) and a parachutist in free fall. The analysis was conducted by Dr. Leonard Thompson, resident in aerospace medicine at Ohio State University in October of 1965, and is a matter of permanent record with the Federal Aviation Administration. In his analysis, Dr. Thompson states that a "realistic figure for random collision would be one every 300 to 500 years." (Transcript of proceedings, Federal Aviation Administration, "Notice of Proposed Rules Making 65-23," docket No. 6772, November 4, 1965).

However, jumping cannot be described as a random event. Parachutists, too, value their lives and are fully aware of their responsibilities to other users of airspace. Normal prudent practices can reduce the small chance of collision to zero. Jumpers have, in fact, maintained a no-collision record and this is a little hard to improve upon. Perhaps some of our parachuting's critics would care to match this record.

Omitted from these considerations is the situation which exists from approximately 2,500 feet down to the ground when the jumper's parachute is open. We contend that a multicolored mass with minimum dimensions of 24 feet is perfectly visible to all aircraft. Because of its slow speed, a parachute cannot sneak up on an aircraft from the side or from behind, so the only possible collision course is from dead ahead of the aircraft. Any pilot who cannot avoid such an object under VFR conditions—under which parachuting is conducted—would not be able to avoid another aircraft and should not hold a license.

Therefore, the chances of random collision between an aircraft and a parachutist are small. A parachutist is not a helpless inanimate pawn in a game of chance. He is capable of exercising such reasonable precautions and standards of airmanship as to eliminate all collisions.

Since the Federal Aviation Administration has already delved into this problem concerning the protection of third parties—that is, other aircraft—we feel there is no need for this distinguished committee to take further action.

VI. CONCLUSION

The U.S. Parachute Association compliments the Aviation Subcommittee and its chairman in their interest and concern in the activity of parachuting. We stand ready to assist the committee and the Federal Aviation Administration in the adoption of any regulation which encourages participation in parachuting, fosters the growth of the sport, insures continuous safety in the activity and promotes general and sporting aviation in this country.

Please do not hesitate to call upon us for our assistance.

Senator MONROEY. Thank you very much for your very fine statement. I wondered if you do support or do not support the licensing or certification of parachute schools. I tried to follow your statement carefully, but I don't believe you took a position on that.

Mr. BARON. Senator, our basic position would be contingent on this committee deeming it necessary to pass a law for our segment of the

general public, that only a slight modification of FAR 105.13, indicating or defining a hazard to be some, something of the nature of any jumper who has not graduated from a certificated school or no jumper who has received or who lacks the receipt of approval of a licensed instructor. If those men are defined as hazards, under the existing law, that would weed them out right there and would give full and adequate protection to all students.

Senator MONRONEY. I don't know whether it would or not. I mean whether you could have people who know more than I do about parachuting presumably going into the business and trying to teach ambitious youngsters or even oldsters the fine arts and skills of parachuting. I listened to the testimony today and you can't tell me we should open to every child or to any adult the right to open a school of parachuting when perhaps the person might not know the first thing about it, I think what you want to do, if you are going to continue this sport, which seems to be growing and spreading, you should have some certified instructors and certified schools.

Mr. BARON. That is our position, Senator.

Senator MONRONEY. I didn't find that. I tried to find it in your statement, and it may have been in your endorsement of the parent association. But all of the safety features you advocate so strongly as being a part of general aviation, the things that are needed to make it safer, could I think only be brought about by improving the instructional capabilities of the schools and getting away from the fly-by-nighters or the ones who might be exploiting the youngsters without knowing anything about the business themselves.

Mr. BARON. The best example we could give is if a parachutist was defined as any person not under the age of 16, the fatality that Representative Friedel spoke about possibly could have been avoided.

Senator MONRONEY. But I still think anyone representing the U.S. enthusiasts of parachuting should be concerned with the relative quality, just like the National Aeronautical Association was concerned about the relative quality of the teaching of this art and it is not an art that is easy to come by, I wouldn't presume it to be.

Mr. HEATON. We are very much interested in the quality of instruction, because our entire activity rests on the fact that we have to have new participants coming in each year and the most vital thing to this is the fact that they have to get started right, they must maintain this vital safety factor in the activities. I think what we are saying here, Senator, is we agree that there is a need for this. I think that where we may differ is how this is to come about. We say the existing regulations, No. 1, are adequate for the experienced parachutists, as they stand now and with only slight modification the existing regulations can be made to cover every area in parachuting to include the establishment of instructional procedures or outlines or guidelines by this simple factor. And if they incorporate a few well known already established rules, although they belong to a private organization, they are not only going to be easier to incorporate, they will be easier to enforce.

Senator MONRONEY. I think it is a little hard for a Government agency to incorporate in completeness any program of an established organization. We simply don't do this in Government. But if the rules of the private organization are wise, and if their suggestions or

codes are good, they always find some incorporation in Federal regulations, although they may be different in language, the purpose of achieving safety would certainly be there.

I don't know how you would expect, if we do nothing other than using our present legislative standards, how we would improve the teaching and the responsibility of the parachutists schools that we have in the country or that would be established.

Mr. HEATON. I think when we say parachute schools, Senator, there are not very many parachute schools in the United States.

Senator MONRONEY. There are parachute instructors though.

Mr. HEATON. We are getting into a different realm when you say parachute instructors.

Senator MONRONEY. The purpose of both is to instruct.

Mr. HEATON. Yes, sir.

Senator MONRONEY. Certainly someone holding himself out to be a parachute instructor should be a certified and qualified person who understands the hazards as well as the techniques of parachuting. I would think they would have to be licensed by a Federal agency if you are going to keep out those who may know nothing about the art and may know less about teaching it.

Mr. BARON. If you please, Senator, we feel that a pilot at the present time is regulated by the Federal Aviation Administration and the pilot may not drop a person out of an aircraft who has received no instruction because under the existing regulations that person would undoubtedly be construed as a hazard. Our position is that if this committee deems it necessary and Congress deems it necessary to perhaps elaborate on when a man ceases to become a hazard and by the incorporation of similar rules, similar to our basic safety regulations, into this section, in a definition of hazard would in effect take care of the regulation of all parachuting instructors, because it would regulate the students and give them a minimum.

Senator MONRONEY. In other words they would be able—if the instructor is regulated and licensed, then the quality of the instruction and the dangers and hazards and the blending of parachuting in with the other air traffic control systems would be less frightening and probably less hazardous?

Mr. BARON. That is our position.

Senator MONRONEY. That is the position of your association?

Mr. HEATON. Yes, sir.

Senator MONRONEY. What you are saying, however, differing from the committee's bill is that the FAA can do this by regulation and it does not need specific statutory authority.

Mr. HEATON. Yes, sir.

Mr. BARON. That is our position.

Senator MONRONEY. Fine. We thank you very, very much for your appearance here, your courtesy in giving the committee the advantage of your testimony.

The committee will stand in recess until 3 o'clock and we will hear Mr. William Henry Ottley, executive director of National Pilots Association, Washington, D.C., and Mr. Ralph E. Larsen, member, Standing Committee on Air Traffic Control, Air Line Pilots Association, at that time.

(Whereupon, at 1:15 p.m., the subcommittee recessed, to reconvene at 3 p.m. of the same day.)

AFTERNOON SESSION

Senator MONRONEY. The Aviation Subcommittee will resume our hearings.

We are honored to have Mr. William Henry Ottley, executive director of the National Pilots Association, Washington, D.C., here to give his testimony on this. We appreciate your coming, Mr. Ottley.

**STATEMENT OF WILLIAM HENRY OTTLEY, EXECUTIVE DIRECTOR,
NATIONAL PILOTS ASSOCIATION, WASHINGTON, D.C.**

Mr. OTTLEY. Thank you, Mr. Chairman.

I have recently taken over NPA from David Scott, who I think has known you for many years.

Senator MONRONEY. He is a very old friend of this committee. He has been very helpful in aviation hearings.

Mr. OTTLEY. I would like to try to fill his footsteps.

Mr. Chairman, I appreciate the opportunity to appear before you today.

I am William Ottley, executive director of the National Pilots Association with headquarters here in Washington, D.C. I hold a commercial single engine land and glider license and am an owner personally of a Cessna light aircraft. I have on many occasions flown as pilot of a jump aircraft inside the so-called Golden Triangle high-density area, and have participated in parachute jumping myself over a period of years.

However, Mr. Chairman, I will restrict myself in this statement to speaking of the general aviation aspects of the proposed bill, S. 2137 for the regulation of sport and commercial parachute jumping.

ECONOMIC IMPLICATIONS

To begin with, I would like to point out the ever-increasing economic importance of sport parachuting as an aviation activity. Skydiving today is no longer a fringe use of airspace or aviation equipment. Published estimates last year by the U.S. Parachute Association suggest conservatively a total of 1½ million jumps per year nationwide. Each of these jumpers must be hauled aloft in a light airplane—generally the small, four-seat variety. A good pilot can exit 12 to 15 jumpers per hour under normal operating conditions. That is VFR, good wind.

Thus this jumpers' airlift creates between 150,000 and 180,000 hours of flight time per year, which at current east coast prices represents expenditure by jumpers of something between \$3,750,000 and \$4,500,000 per year for aircraft alone.

This income each year grows with the demonstrated explosive growth of this new sport itself. Inevitably most of this income—and more—filters down directly to the fixed base operators and aviation maintenance people and represents for them an entirely new and eminently desirable source of income.

Most parachuting activity takes place at small airports, the type owned and operated by an independent entrepreneur, the type of airports which today are largely free of subsidies and other support from Federal or other government units. The strength of our national avia-

tion system is directly reflected in the strength of our total airport capacity, and thus sport parachuting represents an important new way to increase the healthy condition of these small airports. Often these fields are among those which have been mentioned by this committee, by aviation spokesmen, Secretary Boyd and others, as satellite reliever airports for the crowded major hubs.

It would seem to me unwise, therefore, to impede the growth of this sport in any way not absolutely necessary; since to discourage its growth is to remove an important source of potential income and health for small airports across the Nation.

Incidentally, NPA has been able to discover no published evidence anywhere that any activity involving jumpers exiting from an aircraft has ever caused an aircraft to crash or caused an aircraft to do damage to persons or property on the ground. All accidents known to me in which jumpers were aboard or which were connected in any way with jump activity—aircraft accidents I am speaking of here—were incidents involving pilot error not connected with skydiving, or accidents which occurred after the jumpers had exited the aircraft involved.

If I may insert a comment here, as a jump pilot I have many times flown jumpers on both accuracy and higher altitude jumps and I would concur with Mr. Istel and others who have indicated that licensing or specially qualifying the pilot or making him ultimately responsible is not the effective and practical solution. I feel I am truly the servant of the jumpmaster who is truly the bombardier in this instance, in that he guides the aircraft.

And I personally, in order to give him the best possible platform for selecting his exit point, I go on instruments for 15 or 10 seconds prior to exit. This means I fly straight and level, watching the needle ball and the gyro, and I do not feel that I am responsible for the ultimate exit point.

I will certainly give guidance and advice if I am asked and I would certainly not permit a jumper to exit my aircraft if there are clouds beneath me or there is some obvious infraction I know is about to take place. But I would not feel the final responsibility is mine.

POSSIBILITY OF MIDAIR COLLISIONS

Secondly, I would like to comment on the possibility of midair collisions between jumpers and aircraft. I am presently serving as a permanent member of the National Collision Prevention Advisory Group which meets monthly here in the Capitol, as I believe you know, to consider all aspects of this continuing problem. The National Pilots Association has been on record for some time as endorsing the urgent need for improved methods and devices to guard against any and every possibility of midair collisions of any type, however remote. The National Pilots Association surely stands four-square in favor of safety.

However, during the testimony in November of 1966 on amendments to the Federal Air Regulations part 105—concerning control of parachutists—Dr. Leonard Thompson presented to the FAA impressive testimony concerning the mathematical probability of an aircraft/jumper midair collision. Dr. Thompson postulated hypothetically that a Boeing 707 would fly over a parachute drop zone every

hour on the hour, and that the pilot onboard would be blindfolded. He then blindfolded all the jumpers using the same drop zone. He followed with a three-dimensional statistical analysis which showed that even with both parties blindfolded there would be a collision only once every 20 years.

We know that every pilot is expected, under existing FAA regulations, to review the Notices to Airmen, the Airman's Information Manual, and other published material which tells him of parachute jumping or other special aviation activities along his planned route of flight. And I think we might agree that a prudent pilot, so forewarned, will avoid these areas.

We submit that no pilot flies blindfolded and no jumper jumps blindfolded. Furthermore, jumpers have the ability as Mr. Istel and Mr. Heaton pointed out, to control their path through the air horizontally, as well as vertically. Given these additional collision avoidance capabilities on the part of both the aircraft pilot and the jumpers, then the likelihood of a midair collision seems infinitely small.

ADEQUACY OF PRESENT PROCEDURES AND REGULATIONS

In the opinion of the National Pilots Association, the safety and operating procedures of the Parachute Club of America—now the U.S. Parachute Association—as presented in their communication to the Federal Aviation Agency dated June 30, 1966, are adequate to provide safe operation of jumpers simultaneously with other airspace users.

It seems apparent that the proposals of the U.S. Parachute Association at that time, and the endorsements which they got from groups such as the Aircraft Owners & Pilots Association and our own group, were persuasive, since Gen. William McKee in disposing of the petition of the Air Transport Association of America, Docket 6762, stated, and I quote—

The amendment of Part 105 at this time or the institution of rule making procedures is not justified as to all the amendments requested by ATA . . . including its basic request to prohibit non-emergency parachute jumps within all controlled airspace and in or into approved off airway routes outside of the controlled airspace.

General McKee continues—

However, rulemaking procedures are justified for consideration of the less restrictive requirements of authorization—and not merely notification—for all jumps in controlled airspace as well as the other indicated subjects.

This statement by General McKee later was the basis of amendments to FAR 105, which amendments are currently in force and operative. It appears to the National Pilots Association that these amended regulations, which were promulgated by the Federal Aviation Administration under the authority of the existing Federal Aviation Agency Act were and are adequate to control parachuting even in the high density "Golden Triangle" area.

However, the problem is that these regulations are not always followed by the aviation community. This is a problem with which I'm sure this distinguished subcommittee is familiar: there is no way yet to compel or even persuade all pilots at all times to read all Notices to Airmen or to review the current issues of the Airman's Information

Manual or to contact regularly all flight service stations on their route of flight.

As a representative of the National Pilots Association, I have been privileged to serve for some months now as a member of the Flight Information Advisory Committee, which counsels the Federal Government in the preparation of graphic material of all types for the use and guidance of pilots. Mr. Russell Brahmaer, Assistant Chief, Flight Information Division of the Federal Aviation Administration and chairman of this committee, presently has under consideration a proposal—responsive to this admitted unwillingness of the average weekend pilot to read a NOTAM or listen to an FAA radio broadcast—to inaugurate a new type of chart where parachute drop zones, as one item, "Oil Burner" low altitude Strategic Air Command training routes and other areas of potential airspace conflict would be regularly and effectively highlighted for the benefit of all airspace users, and particularly for the benefit of the so-called weekend pilots, the only group not likely to keep current on airspace use in accordance with existing FAA procedures.

In our opinion, this proposal or others like it which may be developed will serve most effectively to reduce even more the unlikely possibility that a jumper and a plane will meet.

IN SUMMARY

In hearings before the Federal Aviation Agency a year ago, the National Pilots Association endorsed the position as a representative of general aviation, then taken by the Parachute Club of America in recommending changes to FAR part 105 as promulgated in proposed rule 66-18. These changes have been implemented and the National Pilots Association is satisfied with them at this time.

In summary, we would suggest that increased safety for all users of the airspace can be achieved, first, through increased education of pilots and aircraft owners.

Second, safety can be further improved through enforcement of existing rules and regulations of the Federal Aviation Administration and such additional rules and regulations as the FAA may see fit—after due process—to introduce.

But we do not believe that further legislative regulations of sport parachutists as a group is warranted. The legislation as proposed in S. 2137 will place an additional burden on the FAA and its officials without increasing the safety of parachute jumpers or the safety of persons or property on the ground in any way which can be demonstrated or documented.

Thank you for this opportunity to appear before you.

Senator MONRONEY. Thank you very much, Mr. Ottley.

I wonder whether you ignored or failed to approve the provisions for the establishment of, particularly, certification of qualified parachute instructors. Do you think we ought to have these kids of 10 years of age or so, or even grown people making their initial jumps without any kind of training whatsoever, without skills taught in packing parachutes and things?

Mr. OTTLEY. Emphatically not, Mr. Chairman. I am speaking now as a parachutist who has been around for a number of years, and who

has made almost 900 jumps. What happened with young Rutledge a year ago was a horrible crime against commonsense. He had his parents' permission to do it. They were there when it happened. I feel that some sort of certification or training, or perhaps some word we haven't come up with yet, of instructors is highly desirable.

However, the existence of a specific school which in some sense means buildings with white paint and audiovisual equipment and complicated front porches, may not be necessary. Some of the best instruction I have ever seen given in parachuting came in a pasture, a small grass field from a dedicated man who had perhaps a blackboard as his sole teaching aid, but who cared enough and was knowledgeable enough not to let anyone into or out of an airplane until he was entirely satisfied that that person, whatever his age, knew what he was doing. This kind of control I think is called for at this time. It has been called for for a long time. Perhaps the U.S. Parachute Association, through their own voluntary system, can supply this. If it were made a rule of the Parachute Club of America—I am not suggesting how this can be done, because it is hard to put this power in the hands of a voluntary organization—that no one who was not taught by a certificated instructor would be entitled to receive licenses or credits for jumps made, you might be able to create a system that would meet Mr. Thomas' objections to the administrative burden created by FAA certification of instructors, and yet at the same time remove the scruffy, outlaw, slaphappy fringe parachute instructor, which admittedly has existed, and does exist today.

I would make one final comment if I could, Mr. Chairman. There are not as many of these as I think you guess from looking at the populace. The average experienced jumper in America today is represented by the men who have appeared before you who are dedicated to making this a safe and fun sport for everyone and not an exercise in foolishness.

Senator MONRONEY. Yes, but it is still necessary, I think, for those going into the sport to have an adequate amount of responsible and reliable instruction. And I think only by certification or registration of these parachute instructors—I agree with you you don't have to have a school in the regular sense—but only by the use of instructors who are certificated can you enforce the type of instruction that I think is necessary.

I don't think you can have 1-day courses or things of that kind and say the man is qualified to go up and be a jumpmaster or something. I think we need to have these people who know their business and knowing it, know where to be careful and wary of the dangers that exist and then can plan on leading a long life.

Mr. OTTLEY. I think this is absolutely true.

Senator MONRONEY. I think some authority, rather than the club, as finely organized as it would be, would be essential to get the type of instruction that would be needed and to insist that a certain number of hours of instruction is taken in the care and maintenance and packing of the chutes, and all of the elemental rules of safety, I think that would be important in this course. This, after all, is a highly hazardous sport and certainly one that requires great care and knowledge. And those who love it I think would be so proud of it that they would see that no fly-by-nighters would come in to encourage careless acts or sloppy instruction.

Mr. OTTLEY. This is absolutely true; and those of us who are in a position of leadership in the sport I think have done everything—well, we have brought it as far as we have, hopefully without the kind of tragedies that have occurred this summer, by doing just this, encouraging commonsense and safe and sound operations, discouraging foolishness.

Senator MONRONEY. I ran into a Swiss the other day, visiting over here with the Swiss Parliamentarians. He started jumping in 1905 as a balloonist and he still enjoys the parachute jumps. So if you know how and you respect the air and respect the necessary provisions for safety, you can go much further than if it is something like somebody going out on the spur of the moment and making a parachute jump.

Mr. OTTLEY. There is no doubt that this is true, Mr. Chairman. And there is no age limit or even physical conditioning. I don't know if you know Mr. Sharpell, the founder of the Aircraft Owners & Pilots Association. He is in his seventies, and he made his first parachute jump without telling his wife about it a year ago. But he checked with his doctor first, and he came home thoroughly excited about the whole thing and he was seventy-plus.

Senator MONRONEY. I note the implications of this to the general aviation pilots. Their training also might be subject to some improvement if you had parachute instructors available at many of the general aviation airports to instruct them in how to be helpful to the people who are making the jumps.

Furthermore, I doubt very much if you have many jumpmasters in the light planes; do you? It would be instructors?

Mr. OTTLEY. Well, the jumpmaster would not ordinarily be the pilot. A pilot would not ordinarily be jumpmaster qualified. Some of us can do both. We find most pilots who are around jumpers for a while become jumpers, and most jumpers eventually decide they want to fly. It is also working out as a fine path toward airline certification, because it is a wonderful way for the pilot growing in his business to build up air time. And you can log a great deal of time flying jumpers, and most of it is very precise flying, since it is takeoffs and landings, and what I keep referring to as bomb runs, you have to be right where you are going, otherwise the jumpers are not interested in paying you to fly them if you don't put them where they want to be.

Senator MONRONEY. If they jump 5 or 6 miles off course, they are not very happy.

Mr. OTTLEY. If the pilot is wandering all over the sky, and fails to maintain a track across the ground, he hears about it very quickly.

Senator MONRONEY. We thank you very much for your appearance here and the representation of the National Pilots Association.

Senator MONRONEY. Our next witness is Mr. Ralph Larsen, an old-time friend of this committee, representing the Committee on Air Traffic Control of the Air Line Pilots Association.

We are happy to have you, and you may come forward and introduce your colleagues at the committee table and we will be happy to hear your statement.

**STATEMENT OF RALPH E. LARSEN, MEMBER, STANDING COMMITTEE
ON AIR TRAFFIC CONTROL, AIR LINE PILOTS ASSOCIATION, CHI-
CAGO, ILL.; ACCOMPANIED BY THOMAS BASNIGHT, JR., DIRECTOR
OF REGULATORY MATTERS, AND JAMES E. MEALS, LEGISLATIVE
REPRESENTATIVE, WASHINGTON, D.C.**

Mr. LARSEN. Thank you, Mr. Chairman.

My name is Ralph E. Larsen and I am currently a line pilot for one of the major carriers of this country, as well as a member of the Air Line Pilots Association's Standing Committee on Air Traffic Control. I have with me Mr. Thomas Basnight, Jr., on my left, director of regulatory matters, and Mr. James E. Meals, legislative representative in our office here in Washington.

I am pleased and privileged to appear before your committee today in support of S. 2137, and want to thank you for the opportunity to present our association's position on this bill.

The airline pilots are increasingly concerned about the threat to their safety and that of their passengers resulting from the activities of the sport parachutist. Our position is that present rules governing this activity are inadequate for the protection of our commerce and the protection of the parachutists themselves.

We must admit candidly, however, that it is our position that the act of 1958 does provide sufficient authority to the Administrator of FAA for the promulgation of regulations which could provide the desired safety. Be this as it may, we support the proposed changes contained in S. 2137.

We have learned, as others have over the years, that even though adequate authority exists, it is sometimes necessary to remind those responsible for exercising this authority.

We think it is readily apparent to everyone in the United States that the threat of collision between an air carrier aircraft and the human body of the parachutist is an intolerable situation. Our accident investigators, and those of the Government agencies, have collected ample evidence of aircraft damage and loss, including lost lives from collision between birds and aircraft. Some of the birds involved weighed less than a full-grown chicken.

Impact of a human body upon the cockpit area, outer wing surfaces, horizontal or vertical stabilizer, or fin—and this includes practically all of the frontal area exposed to such an impact—would, without any doubt, be fatal to the parachutist. Most likely it would also be fatal to all those on board the aircraft involved.

Whether it be a general aviation, military, or airline aircraft, such a grave expectation, we think, is amply supported by the results of FAA's own experiments in which objects, such as bird carcasses, have been projected into wing and tail structures of aircraft causing destruction of the structure.

In addition to these experiments, there has been at least one known case of catastrophe to a four-engine air carrier aircraft from a bird colliding with its tail structure. We have little or no control over bird activities, but the Congress has wisely seen fit to give the Administrator control over human use of our airspace.

We believe it is reasonable for all citizens to expect proper regulation of airspace so that the unsuspecting traveler is not exposed to the

dangers of collision with a sport parachutist. Existing rules are inadequate in that they do not limit parachutist activities to areas not occupied by aircraft.

The airline pilots have known for many years that the see-and-be-seen concept of safe separation between aircraft is inadequate. Obviously, expecting a pilot to see and avoid an object the size of a human body is ridiculous. Nevertheless, I believe two jump areas with which I am familiar continue to be used. These are: one, approaching runway 32 at Omaha, Nebr., and the other, approaching runway 1 right at Dulles; and of course there are other areas throughout the United States.

In reality, the sport parachutist is a hazard, we submit, which cannot be effectively seen and avoided. The heart of the parachuting sport, as we are told, is the free fall. The canopy of the parachute, if it is opened, is often camouflaged by natural background, and by that we mean clouds, and the free-falling body is as dangerous a missile as a rocket or antiaircraft artillery.

The existence of sport parachuting and other air commerce cannot continue to safely exist in the same airspace. If this hazardous sport is to be condoned in areas of active commerce, and there are ample areas where other hazardous activity is going on, such as artillery ranges which could be utilized on a part-time basis by the parachutist and through which scheduled air commerce will not travel.

Alternatively, in controlled airspace, we could have a TC separation provided, such as is done with other traffic, which cannot be seen.

Now if I may comment on some of the things I have heard here today just a bit, I would like to endorse Mr. Istel's proposal for a smoke trail behind parachutists. It would certainly help in being able to see the parachutist as he descends. On the other hand, I seriously question the suggestion that the parachutist can maneuver adequately to avoid air traffic as he descends.

The comparison was made, I believe, with a pedestrian crossing a superhighway, and I think this is quite an apt comparison in that the pedestrian is maneuverable to a certain extent, and the autos are maneuverable to a certain extent, but while traveling at a high speed the result is still quite unsatisfactory.

It has been mentioned that the mathematical probability of a random collision is very small. I point out if you compute the mathematical probability of a specific pair of automobiles at some time colliding during the day, that those mathematical chances would be astronomical also and yet we all know those two cars collide sometime during the day hundreds of times a day.

I would add too that given enough time if we have even the smallest chance of a collision, then eventually it becomes a mathematical certainty rather than something that is unlikely.

As to the economics of the sport, I think it was mentioned that something like \$5 million a year is estimated to this year to go into the parachutist industry, if we can call it that, and I would point out this is approximately the price of one jet aircraft in a bare bones condition without anybody on it. When we consider that we may have 100 people, possibly in the fairly near future 400 or 500 people on board this jet, then the value of the aircraft and its people goes up tremendously.

We very much appreciate the opportunity to be with you and we support Senator Monroney's effort to bring this matter into sharp focus. Perhaps the FAA now recognizing the interest of the Congress will proceed forthwith to provide the desired protective regulations.

In closing, Senator Monroney, as a representative of the Air Line Pilots Association, I would like to express our sincere appreciation for your well-known efforts and many contributions to air safety.

Thank you.

Senator MONRONEY. Thank you very much, Mr. Larsen. We appreciate your testimony, and also your kind words.

The thrust of the bill as I see it would be to try to improve our regulations without dampening the fun of the sport. And also to provide a greater responsibility as to where to jump, when to jump and how to jump through perhaps increasing the responsibility of the instructors and those who teach the sport of parachuting. I think if as many people as has testified here today are interested in it, it needs to be channeled in the right direction and toward observing of reasonable safety regulations through qualified and I believe certified or certificated instructors who will be able to teach them the elements of safety and the means of proper use of the airspace.

You would approve of not necessarily licensing—the bill doesn't necessarily provide for that—provide for the licensing of the parachutists, but at least those who are instructors of the parachutists as a part of the way of putting more stability into the sport than now exists, would you not?

Mr. LARSEN. I think we could say that the airline pilots certainly have no quarrel with this concept. We are directly concerned with the effect of the parachutists' activity as a whole upon us. And, of course, the effect of this proposal you are making would be to insure them greater safety through their instructors and their organizations which is not directly our concern.

Senator MONRONEY. Of course their safety is your safety. If they come into collision with a 707—

Mr. LARSEN. Right. To the extent that they are indoctrinated to follow their regulations and the FAA regulations, we would certainly heartily endorse this.

Senator MONRONEY. You mentioned two areas of danger, one runway 32 at Omaha. Is that the municipal airport at Omaha where your certificated air carriers come in?

Mr. LARSEN. Yes, sir. And I haven't been flying in there for a little while, so I am not really sure of the extent of their activities as of this moment.

Senator MONRONEY. I have never observed any parachute activities around an airliner or interstate airport. I have seen them on small general aviation airports, which are generally off airways.

Mr. LARSEN. Let me make this comment, if I may. I haven't observed them, either. I have been warned about them and I have flown by when I was told they were in operation. However, this is one of our main points. We do not observe them, because they are so hard to see. This is true both at Omaha and Dulles and no doubt at many other places.

Senator MONRONEY. I am surprised. I have never seen or heard of any parachuting activities at Dulles, although there may be. This is

approaching runway 1 right you say in your statement. That would not necessarily be on the airport?

Mr. LARSEN. Yes. I believe it is associated with the Manassas Airport. Is that right, Tom?

Mr. BASNIGHT. It is the old Manassas Airport, and that pasture the preceding witness spoke of is approximately, in my judgment, 5 miles from Dulles Airport.

Senator MONRONEY. Is it in the line of landing?

Mr. BASNIGHT. One of the operations is in line with the runway.

Senator MONRONEY. I see. Do you have any others in mind that are conflicting? With all of the airspace we have got not necessarily used by the air traffic control systems, I wouldn't think we would be having too much trouble in accommodating the sport parachuting.

Mr. LARSEN. Offhand I don't have specific examples quite as bad as those. An effective example I think is Mr. Istel's own operation, which is on a rather busy airway between Albany and Boston. This is probably about as good an example as you could use. Considering the relative height of his activity.

Senator MONRONEY. I don't know where his airport is located. Is it on an airway?

Mr. LARSEN. My understanding is that it is pretty much directly on the airway there. If I am wrong, I would like to hear somebody correct me. But I believe this is so. I might point out that one of his suggestions that such areas be marked on charts I think is a good one, and it would be worth something at least in view of lack of more effective regulation, it would help us know where these areas are.

Senator MONRONEY. Yes. I think that there is a willingness on the part of everybody to stay off the airways in this. We had some testimony this morning by the U.S. Parachute Association as follows: "We contend a multicolored mass with minimum dimensions of 24 feet is perfectly visible to all aircraft. Any pilot who cannot avoid such an object under VFR conditions, under which parachuting is conducted, would not be able to avoid another aircraft and should not hold a license." This is the testimony. And it seems to me the movements of the body downward in a parachute might be somewhat confusing if suddenly observed coming down directly in front of a jet or something of that order.

Mr. LARSEN. Right. I think it might be. I would like to make two comments here. The first is to refer to my previous statement that a free-falling body, which is really as I understand it the heart of the sport, this would be essentially impossible to see and avoid. You just would never see it unless you happened to see it go by your window and make a near miss. Secondly, I would suspect that the open parachute canopy would approximate the visibility of a light plane, which I submit also is not good enough. I have had a light plane call out to me, just as an example—this was approaching Omaha, and the direction and distance given to me was accurate. We had three crew members looking for it and didn't see it until it went right over our airplane. This is all too possible, and it is just something we have to protect ourselves against to the maximum extent possible.

Senator MONRONEY. I would think, though, that the free-falling body going down, say 7,000 feet, I mean to the point where he opens his chute, would be almost impossible to collide with, if you tried your dead level best, it would be impossible to do.

Mr. LARSEN. I grant if you tried to do it, you would find it just about impossible. On the other hand, to me this corresponds to the practice of, say firing artillery shells through a busy airway, or dropping sandbags from 20,000 feet. Most of the time they will miss. Occasionally they will not.

Senator MONRONEY. But I don't think just because the parachutists are off airways that we ought to put them on an artillery range.

Mr. LARSEN. The meaning there was possible use during the periods artillery ranges are not used for that purpose.

Senator MONRONEY. Most all of the light planes have to stay out of the way of the artillery ranges, and I am sure, unless you are at a considerable altitude, you would have to do also.

Mr. LARSEN. I think the real possibility here is for those who want to conduct operations on airways, or in controlled airspace, is to enter the ATC system and receive separation provided by that system, which is provided for all air traffic, all other air traffic which we cannot see and avoid.

Senator MONRONEY. Yes. But I didn't know they were doing much jumping on airway routes. Knowing where the airway routes are, they avoid those, because it is to their interest the same as it is to the airlines to stay out of that steady stream.

Mr. LARSEN. Yes. Of course by controlled airspace, we include not only the busiest of air routes, but if you look at the charts, to an extent unfortunately most of the U.S. airspace in the lower levels I think now, at least in the eastern portion of the country, you will find in controlled airspace. It is pretty hard to find an area that is not on it now.

Senator MONRONEY. But a lot of that is well above it; isn't it? I mean in other words the jet routes, for example, are above 20,000 feet and so on.

Mr. LARSEN. Well, you get up into the jet area and you get into positive control airspace, in which presently is required what we are advocating for all controlled airspace and that is these people would then be separated by air traffic control.

Senator MONRONEY. But they are not above, not 20,000 feet up, they are not in any airspace that is being used except on a letdown pattern by the jet traffic today, are they?

Mr. LARSEN. I didn't quite follow that.

Senator MONRONEY. Well, I mean your jet traffic, in line of flight, will be above about 20,000 feet; will it not?

Mr. LARSEN. Cruise altitude; yes.

Senator MONRONEY. Yes; and when they are climbing or letting down, they are coming through that space, but that would be taking off or approaching an airport for landing.

Mr. LARSEN. That is quite true. The real problem is below these levels and here is where we are concerned.

Senator MONRONEY. Yes. Of course they point out they would be violating the law as it exists today if they were diving into clouds or making jumps where cloud cover obscured the landing in any way.

Mr. LARSEN. Right. Our point here is that we do not need the clouds to have the problem. The type of operation is such that we just can't see these people and avoid them.

Senator MONRONEY. But you would approve, you think, the suggestions for smoke trails would be especially good for identification?

Mr. LARSEN. I think it would help quite a bit.

Senator MONRONEY. You get some glare and other things that might make it difficult, and although there would be little chance of hitting the body, with the laws of probability, you eventually might?

Mr. LARSEN. I think if we continue, I think as I suggested, it is almost a certainty that eventually such a collision would happen. And I regret to hear people say that because it hasn't happened yet this is firm evidence it will not happen.

Senator MONRONEY. If we have enough activity, you think the probabilities get greater? If you have enough men and women jumping, the probability of an accidental contact will be greater?

Mr. LARSEN. Yes. With the amount of exposure, then the possibility increases.

Senator MONRONEY. As long as they are off airways, that presents no real hazard to you?

Mr. LARSEN. The hazard then diminishes to the extent that I think we would have to say it is acceptable. Of course, we do have some air-line operations off airways as well.

Senator MONRONEY. Yes; but infrequent.

Mr. LARSEN. Yes.

Senator MONRONEY. We thank you very much, Mr. Larsen, for the courtesy you have made this committee in giving us the benefit of your views and those of the Air Line Pilots Association. You would be, of course, in favor of any act that would provide for adequate supervision of instructional facilities, so that those engaged in this sport would be better trained for parachuting?

Mr. LARSEN. Yes, sir; we would.

Senator MONRONEY. And anything that adds to the responsibility and reliability of the training and the observance of air traffic control and rules, such as that, would be helpful to the cause of air safety?

Mr. LARSEN. Right.

Senator MONRONEY. Thank you very much. I apologize for not being able to finish the hearings this morning, but we had a rollcall in the Senate that I had to participate in at 3 o'clock. Thank you very much.

The committee will stand in adjournment and we will give anyone 10 days to file any further comment they wish to file in the record.

(Whereupon, at 3:55 p.m., the subcommittee was adjourned.)



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