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REPORT

drawn up on behalf of the Committee on Transport

on ~~the~~ safety measures in aircraft

Rapporteur: Mr M. JUNOT

PE 77.676/fin.

At its plenary sitting of 16 November 1981 the European Parliament referred to the Committee on Transport the motion for a resolution by Mr SHERLOCK and Mr COTTRELL (Doc. 1-701/81) tabled pursuant to Rule 47 of the Rules of Procedure.

At its meeting of 27 November 1981 the Committee on Transport decided to draw up a report on this subject. At its meeting of 26 February 1982, it appointed Mr JUNOT rapporteur.

At its meetings of 13 July, 23 September, and 19 October 1982, the Committee on Transport considered the draft report and at the last meeting it unanimously adopted the motion for a resolution as a whole.

The following took part in the vote: Mr Seefeld, chairman; Mr Carossino, second vice-chairman; Mr Kaloyannis, third vice-chairman; Mr Michel Junot, rapporteur; Mr Albers, Mr Cardia, Mr Gabert, Lord Harman-Nicholls, Mr Hoffmann, Mr Key, Mr Klinkenborg, Mr Moreland (deputizing for Mr Marshall), Mr M. Martin and Mr Tolman (deputizing for Mr Vandewiele).

C O N T E N T S
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	<u>Page</u>
A. MOTION FOR A RESOLUTION	5
B. EXPLANATORY STATEMENT	8
I. INTRODUCTION	8
II. GENERAL CONSIDERATIONS ON AIR SAFETY	10
III. PLANE ACCIDENTS : MAIN FEATURES	11
IV. ANALYSIS OF CAUSES OF DEATH AND INJURY IN SURVIVABLE ACCIDENTS	14
(a) fires	14
(b) emergency evacuation of passengers	17
(c) transformation into projectiles of baggage and other objects in the cabin	18
(d) insufficient resistance of internal cabin equipment, seats, seat-belts, various other equipment	19
V. POSSIBLE SAFETY MEASURES	22
(a) aircraft manufacturers	22
(b) airlines	23
(c) airport and aviation authorities	23
VI. FOR A EUROPEAN AIRCRAFT SAFETY POLICY	24
(a) current regulatory framework	24
(b) possible structures to improve safety actions in aircraft	26
(c) importance and limitations of Community action	27
(d) conditions for and means of a European aircraft safety policy	29
VII. CONCLUSIONS	31
<u>Annex I</u> : Motion for a resolution by Mr SHERLOCK and Mr COTTRELL (Doc. 1-701/81)	
<u>Annex II</u> : Council Directive of 16 December 1980 on future cooperation and mutual assistance between the Member States in the field of air accident investigation	

The Committee on Transport hereby submits to the European Parliament the following motion for a resolution, together with explanatory statement :

MOTION FOR A RESOLUTION

on safety measures in aircraft

The European Parliament,

- having regard to the motion for a resolution tabled by Mr SHERLOCK and Mr COTTRELL pursuant to Rule 47 of the Rules of Procedure on safety measures in aircraft (Doc. 1-701/81),
- recalling its previous resolutions on air transport safety (Doc. 1-211/82, 1-274/80, 1-106/79 and 49/78),
- having regard to the report of the Committee on Transport (Doc. 1-788/82),

A. recognizing the high level of safety in civil aviation,

B. considering however that the adoption and strict application of certain measures would probably lead to a sharp reduction in the effects on passengers of survivable accidents;

C. having regard to experts' reports into air accidents and studies currently being carried out,

1. Draws the attention of the national and international authorities and the manufacturers to the need to review safety standards in aircraft, particularly with regard to the following points:

- inflammability and toxicity of materials used for the fitting out of the inside of aircraft,
- design, construction and fixing of seats,
- design and resistance of seat belts (need for shoulder straps),
- closing of overhead lockers,

- explicit instructions on the outside of aircraft for all professional or voluntary rescue workers concerning the mechanisms for opening doors and emergency exits,
 - quantity and size of objects allowed in the passenger cabin;
2. Expresses the wish that the airline companies, notwithstanding their commercial considerations which are perfectly understandable, ensure that passengers comply more strictly than hitherto with cabin regulations, in particular as regards the number of objects allowed in the cabin and the space taken up by such articles, and that they apply very strict security rules on the admission of dangerous substances into the baggage hold;
 3. Requests airport and aviation authorities to participate in this attempt to improve safety by setting up effective rescue facilities for possible accidents, most of which occur at or in the immediate proximity of airports, and by stricter control of practical safety rules during the boarding of aircraft;
 4. Considers that the international organizations responsible for these matters such as ICAO and IATA should step up efforts to enable the rapid modification of regulations;
 5. Takes the view, however, that a specific European contribution should be made to international cooperation;
 6. Is convinced that the Member States of the Community have a direct interest in coordinating their own safety standards with a view both to saving human lives and protecting and developing the Community aeronautics industry;
 7. Is aware of the disadvantages involved for the Community in the first instance of introducing excessively specific and discriminatory regulations;
 8. Considers that uniformity of Community safety rules within the framework of international standards is likely to strengthen the Community's role in international organizations, by enabling it to re-activate the work carried out in such organizations and, at the same time, successfully defend its own interests;

9. Believes that it is therefore essential for the Community to promote an aircraft safety policy;
10. Calls upon the Council and the Commission to study the following recommendations and to submit to the Council appropriate proposals:
 - uniformity of ICAO safety standards at European level through the coordination at Community level of 'differences' regarding the provisions of and annexes to the Chicago Convention. This coordination has begun following the setting up within the ECAC of a group which has studied the work done jointly by France, Germany, Italy, Spain and Belgium,
 - creation of non-binding Community structures at the level of the Member States' airlines and of civilian airports with a view to studying, among other things, problems of safety;
11. Takes the view that these measures should constitute an integral part of a general air safety policy, to complement air traffic safety, as called for by the European Parliament for many years;
12. Requests the Council, therefore, to take the necessary steps as soon as possible with a view to defining an overall air transport policy within the framework of a Community transport policy;
13. Instructs its President to forward this resolution to the Council and the Commission of the European Communities, the national Parliaments and the IATA, and to request the Commission to forward it to the ICAO, the ECAC and other organizations concerned.

EXPLANATORY STATEMENTI. INTRODUCTION

1. For many years the European Parliament has concerned itself with the safety of air transport.

It has already made a substantial contribution in this field, as evidenced by the numerous reports drawn up on this subject, such as those by Mr NOE in 1978 and 1979 and, more recently, by Mr JANSSEN VAN RAAY in 1980 and Mr ALBERS this year¹.

It will also be recalled that a public hearing on the promotion of effective air traffic control was held in Paris in 1979, on the initiative of the Committee on Regional Policy, Regional Planning and Transport.

2. However, Parliament's work has principally concerned air traffic safety, in other words the improvement of conditions governing the movement of air traffic.

A further aspect of air transport safety concerns safety inside aircraft, and this is the subject of the motion for a resolution by Mr SHERLOCK and Mr COTTRELL which is the starting-point for this report.

3. The authors of the motion for a resolution consider that a number of accidents could have been avoided, or would have been less serious, if additional safety standards had been adopted.

As noted by Mr SHERLOCK and Mr COTTRELL, various reports of accidents clearly indicate that in many cases the number of victims of air disasters was increased by:

¹ Doc. 49/78 - Mr Luigi NOE : Promotion of efficient air traffic control;
 Doc. 106/79 - Mr Luigi NOE : Promotion of efficient air traffic management and control;
 Doc. 1-274/80 - Mr J. JANSSEN VAN RAAY : Coordinated European air traffic control system;
 Doc. 1-211/82 - Mr Wilhem ALBERS : Improvement of the European system of air traffic control

- passengers being unable to reach the emergency exits,
- the lateness and inadequacy of the rescue operations,
- injuries caused by the poor equipment in aircraft,
- the failure to observe regulations concerning baggage in the cabin.

4. Given this consideration, it is quite possible that the tightening up of certain regulations or certain minor technical adjustments could increase the reliability of air transport and should therefore be adopted as an objective at European level.

5. However, in such a highly technical field, the Committee on Transport would not presume to put forward definitive solutions.

Effective action could be obtained on the other hand, at the more general level of the principles to be adopted as a basis for a Community aircraft safety policy.

6. Account should also be taken of the fact that a specifically European policy in the field of air transport - a field which is necessarily international - might carry risks, either by increasing costs for the airline companies, which would reduce their competitiveness, or by causing the re-routing of traffic to the benefit of countries neighbouring the Community such as Switzerland or Austria.

7. There is therefore a need to fix possible fields of application of Community measures in close support of the specialized international organizations.

8. To ensure that this report falls within a sufficiently precise frame of reference, problems concerning security within aircraft will not be taken into consideration. Your rapporteur feels that questions of safety and security cannot be dealt with together, given that the causes thereof are respectively accidental and voluntary.

Furthermore, the report will deal solely with commercial aviation. This does not mean that aviation in general is not equally concerned, but it would be difficult in this particular report to deal in an identical manner with two such specific fields.

II. GENERAL CONSIDERATIONS ON AIR SAFETY

9. It is something of a paradox that, whereas air transport is objectively one of the safest means of travel which exists, public opinion remains extremely sensitive to problems of safety in air transport.

However, it is hardly possible to compare the 300,000 deaths caused each year throughout the world by road transport and the average of 800 deaths a year which occur in commercial aviation, even if these figures are weighted by the number of passengers transported and kilometres travelled.

10. In addition, not only is the standard of safety in air transport extremely high, but it has been consistently improved in recent years as shown by the following table :

Accidents having caused the death of passengers - scheduled air services

1962 - 1980

Year	Number of aircraft accidents	Passengers killed	Number of deaths per 100 million passenger/kilometres	Number of fatal accidents	
				Per 100 million kilometres	Per 100,000 hours flight time
1962	29	778	0.60	0.90	0.37
1964	25	616	0.36	0.68	0.30
1966	31	1,001	0.44	0.69	0.33
1968	35	912	0.29	0.58	0.32
1970	28	687	0.18	0.40	0.23
1972	42	4,210	0.26	0.58	0.34
1974	29	1,299	0.24	0.39	0.23
1976	20	734	0.12	0.26	0.15
1978	25	755	0.09	0.29	0.18
1980	20	747	0.08	0.21	0.13

Source : ICAO (not including USSR)

It may be further deduced from these statistics that the number of accidents per million flights has fallen to 1 for Europe and the United States as against 3 for the world as a whole (excluding China and the USSR).

11. There is only a superficial contradiction, however, between these considerations on the existing safety conditions in air transport and the aim of this report, which is to reduce the number of persons injured or killed in air disasters. These considerations serve simply to point out that the Committee on Transport is fully aware of the significant progress made in this field and the high level of safety which currently exists. They also enable us to understand more fully the areas in which further progress can be made and under which conditions.

III. PLANE ACCIDENTS : MAIN FEATURES

12. In the field of transport, detailed enquiries into circumstances and causes of air disasters far outnumber those into other accidents.

Governments, airlines, manufacturers and the specialized international organizations devote themselves to a considerable amount of work in this field, and indeed this is one of the reasons for the low number of accidents. Conclusions are drawn after each accident which make it possible to avoid the repetition of identical disasters or at least minimize the possibility thereof. Analyses of these accidents are to be found in the immense volume of documentation published by the ICAO, IATA or national authorities¹.

13. The main feature of the causes of these accidents (even though these causes are many and inter-related) is the determinant significance of the human factor.

In such an extremely technical field in which there is relatively little chance of mechanical failure, there is no doubt that the influence of man is decisive. Two examples will suffice to illustrate this point.

¹ One such source are the ICAO circulars entitled 'Aircraft accident digest' which list accidents which occur over a given period. For each accident, a whole range of detailed information is provided covering the weather conditions at the time of the accident, the recording of communications, the examination of the aircraft involved in the accident and conclusions on the probable causes.

The disaster which occurred in 1977 at TENERIFE in the Canary Islands involving two BOEING 747s as each was advancing on a runway of the airport was apparently due, according to the results of the enquiry, to a misunderstanding caused by the poor quality of instructions given by the control tower. This collision, which occurred on the ground, caused the death of 573 persons, representing the most serious accident in the history of aviation.

Yet more recently, in September 1981, the accident involving a Yugoslav charter plane on its approach to AJACCIO airport was apparently due to an incorrect interpretation by the pilot of instructions given by the control tower. Human failure is by no means limited to communications between the plane and ground control and may also result from non-compliance with existing regulations or improper utilization of equipment.

This influence of the human factor is confirmed by the fact that there are three times fewer accidents in the USA and Europe, where the training of personnel is particularly thorough, than in the rest of the world.

13. The second feature of air disasters is that most of them occur near an airport, as shown by the following table which concerns 79 cases studied by the American National Transportation Safety Board:

Aircraft stationary or advancing on runway	5
Takeoff	24
Gaining flight	6
Cruising	12
Descending	4
Approaching	25
Landing	24
Total	100%

Overall, the above figures are similar to those of the Technical service for air navigation in France, according to which 75% of accidents occur within a radius of 3 kilometres from runways.

This information demonstrates the importance of and need for safety installations at airports.

14. Finally, unlike accidents which occur in other modes of transport, the proportion of deaths by comparison with the number of passengers involved in accidents is extremely high, as shown by the following table published by the ICAO concerning the period 1975-1980:

	1975	1976	1977	1978	1979	1980
Accidents having caused the deaths of passengers.....	20	20	24	25	31	20
Passengers killed.....	443	734	516	755	879	747
Passenger survivors.....	72	122	169	731	239	635

15. A distinction should be drawn here between 'survivable' and 'non-survivable' accidents. A survivable accident is one in which the force by which the occupant is struck through his or her seat and seat-belt does not exceed the limits of human tolerance to violent acceleration and in which the structure of the environment remains substantially intact, thereby enabling the occupant to survive.

This definition used by the National Transportation Safety Board, which is admittedly subjective, is designed to identify those cases where improved safety could reduce the number of deaths and injured. Survivable accidents therefore constitute a significant area of our investigation.

IV. ANALYSIS OF CAUSES OF DEATH AND INJURIES IN SURVIVABLE ACCIDENTS

16. The causes of death and injuries in survivable accidents may be divided into four categories:

- (a) fire and its consequences, i.e. burns or intoxication;
- (b) difficulties in evacuating passengers;
- (c) transformation of baggage or other objects in the passenger cabin into projectiles;
- (d) insufficient resistance of equipment inside the passenger cabin (seats, seat-belts, various other equipment).

(a) fires

17. Estimates of the number of deaths due to fires vary considerably (principally as regards the definition of death caused by fire). At the very least, over 50% of deaths are considered to be caused by fire.

The accident in 1973 involving a Boeing 707 of the Brazilian airline VARIG is undoubtedly the accident which has most contributed towards recognition of the seriousness of fires in the passenger cabin.

The fire broke out in the toilets a few minutes before landing and it proved impossible to put it out with portable extinguishers. The pilot made a forced landing, after smoke had invaded the passenger cabin and the cockpit, in the course of which the plane did not suffer any serious structural damage. However, the plane's fuel caught fire after the plane had come to a halt.

Only the ten members of the crew and one passenger survived. Most of the victims were found still attached to their seats. They had not been burnt alive but asphyxiated by the smoke and toxic combustion gases.

18. A standard long-haul carrier contains approximately 4 tonnes of material of organic origin, most of which is synthetic, in particular plastic. Such material is used for the fitting out and decoration of the passenger cabin (covering of the walls, ceiling, floor, seats, etc.). All the materials used are governed by specific standards¹ as regards their degree of inflammability, flame propagation, emanation of smoke and toxic gas.

Thus accidents cannot simply be ascribed to the absence of any rules in this area, although many specialists maintain that these rules are not appropriate in practice.

In an article which appeared in INTERAVIA magazine on the resistance of aircraft to fire², the author states that, in theory, it should be easy, in most cases, to select material which is 'safe'. But an analysis of real accidents and simulated passenger cabin fires indicates that materials classified as 'self-extinguishable' spread flames. There is increasing feeling that laboratory tests on small heated or inflamed samples under meticulously controlled conditions are not realistic inasmuch as they do not faithfully reproduce the conditions of real fires.

This opinion would seem justified by the fact that the FAA has undertaken very large scale tests in this field in recent years which apparently have not yet been completed. The systematic replacement of at least the most inflammable materials, by other conventional but unflammable materials would lead to a significant increase in weight and hence the need to reduce the number of seats.

This would raise problems at the level of competition for manufacturers and airlines obliged to accept such changes.

¹The ICAO, with the assistance of the Airworthiness Committee, has produced a document entitled 'The Airworthiness Technical Manual (Doc. 9051 AN 896)', which contains inter alia a chapter on the inflammability features of interior materials.

²INTERAVIA magazine No. 8 - 1979 - p. 557 - Resistance of aircraft to fire - new standards are necessary - Chris Bulloch.

19. Research is also being undertaken with a view to reducing the risks of conflagration of accidentally spilt fuel. Such spillages are fairly frequent in accidents in which the plane has been unable to jettison its fuel. In particular, consideration is being given to the use of a process whereby an additive is mixed with the fuel, the emulsive action of which would prevent the fuel from spreading as highly inflammable flames.

20. Still as regards protection against the danger of fire in aircraft, Mr SHERLOCK and Mr COTTRELL, in their motion for a resolution, point to the 'extra danger caused by the presence within the cabin of considerable quantities of inflammable liquid such as alcohol and perfumes', the absence of which would reduce the weight carried and thus fuel consumption, as well as noise during take-off and landing. They advocate changes in the rules on duty-free purchases in order to remedy this situation.

By comparison with the 100-200,000 litres of fuel carried by long-haul carriers, approximately 100 litres of inflammable products on board would not seem to provide serious grounds for concern. This is merely a secondary factor, as is also the weight of such products and, consequently, their influence on noise and fuel consumption.

21. Finally, with regard to the possibilities of fire or the propagation thereof, and the cause of other possible dangers to passengers on aircraft, we come to the transport of dangerous substances.

Planes frequently carry in their holds, as freight, potentially dangerous goods: explosive substances and objects, compressed, liquefied or pressurized gas, inflammable substances, combustive, toxic, infectious, corrosive or radioactive matter, etc. ...

The transport of such goods may expose passengers to serious risk in the event of inadequate packaging, the simultaneous carriage of incompatible substances or the accidental deterioration of such goods. Above all, they may be a source of fire or become an aggravating factor in the event of minor accidents and particular precautions must be taken.

It is something of a paradox that, with the exception of the self-regulatory actions taken by IATA members, the transport of dangerous goods

by plane is not subject to any international norms. However, the council of the ICAO adopted, on 26 June 1981, an Annex 18 to the Chicago Convention on the safety of the carriage by air of dangerous goods. Nevertheless, this annex will take effect only on 1 January 1983 and will become applicable on 1 January 1984. This lack of regulations, which will undoubtedly be made good in the near future, is somewhat alarming, given that the transport of dangerous substances is governed by specific norms for the other modes of transport. Careful attention must be paid to the application of these future norms in order to reduce a risk factor which is far from negligible. Some countries are however already adopting national regulations identical with those of the ICAO.

(b) Emergency evacuation of passengers

22. The accident which occurred in 1980 involving a Saudi Arabian Airlines' plane which caused the death of 301 persons, cited in the motion for a resolution by Mr SHERLOCK and Mr COTTRELL, is significant.

A fire broke out on board (probably caused by a passenger using a gas cooking appliance) and the rescue teams were unable to open the doors: the passengers were burnt alive or asphyxiated inside the cabin.

23. The evacuation of passengers is not only linked to the dangers of fire which we have considered above, but is also a factor in each accident. The evacuation of passengers is not always carried out under the best of conditions, and the natural atmosphere in such situations is one of panic.

At the level of the construction of aircraft, given the standards required by certificates of airworthiness, the design of doors and emergency exits would not seem to raise major problems.

Although comprehensive rules exist as regards emergency evacuation¹, certain specialists believe that they could be tightened up.

For example, as regards operating emergency exits from the outside, instructions on the exterior would facilitate the provision of more rapid assistance in the event of accidents, particularly when they occur outside airports, given that airport firemen are trained to be able to open emergency exits from the outside.

¹ -----
- JAR Rules - FAR - 25811 and 812
- Airworthiness Technical Manual (Doc. 9051 AN/896)
Chapter I - Emergency provisions - ICAO

Emphasis should be laid on the vital importance of airport emergency services, the quality, size in terms of personnel and equipment of which is a factor in reducing the number of deaths and injured in air disasters.

24. One of the factors frequently cited as an obstacle to emergency evacuations is the quantity and size of baggage permitted within the cabin. The problem here is not one of regulations, for they are extremely precise in this matter¹, but of their application by the airline companies. It frequently happens that passengers insist on carrying with them considerable amounts of baggage, either because they are carrying fragile objects or in order to avoid waiting at the airport. The airlines, for commercial reasons, do not apply the rules on personal hand baggage sufficiently strictly.

However, action should be taken by, on the one hand, all the airlines at the level of their commercial services to make passengers understand that stricter compliance with the rules is nothing less than an effective safety measure and, on the other hand, by the aviation authorities with a view to carrying out frequent checks on board at the time of take-off.

(c) Transformation into projectiles of baggage and other objects in the cabin

25. Hand baggage may not only constitute a physical obstacle to the evacuation of passengers but may also be transformed into dangerous projectiles. This may even occur in the event of minor incidents during the flight which should not normally cause any damage to passengers.

A restriction on hand-baggage is one of the first measures to be taken in order to reduce this type of accident. However, further risk is represented by overhead lockers which sometimes fail to remain closed.

The experts consulted feel that this is more of a problem of the standard of maintenance of aircraft than an unsatisfactory design of the system for closing lockers. They base this view on the fact that, in identical planes, lockers remain closed more or less often depending on the company in question (cases of lockers which fail to close properly mainly concern planes belonging to non-Western companies).

¹ FAR Regulations 91-201 b.

Whatever the rights and wrongs of this argument, it should be acknowledged that progress at the level of the design of such lockers, in particular as regards systems for closing them, could be achieved without undue difficulty.

If we believe, as indicated above, that purchases of alcohol in duty-free shops do not increase the risk of fire, there is no doubt that the transport of duty-free articles purchased upon departure take up considerable room in cabins and may be transformed into dangerous projectiles.

Mr SHERLOCK and Mr COTTRELL make the interesting suggestion that purchases should be made on arrival and not on departure, but this would raise certain problems. First of all, it is contrary to the principle of remission of duty for export, i.e. upon departure from a country; it would therefore be a contradiction in terms. In addition, passengers have more time at their disposal when leaving an airport than on arrival, when they wish to leave the airport as rapidly as possible.

Finally, your rapporteur, aware of the revenue which these shops provide for airports, does not wish to enter into the discussion of whether they should be maintained or abolished in a Europe without frontiers. However, if we were to consider this possibility of purchasing duty-free goods from a practical viewpoint, i.e. as a privilege granted to travellers crossing Community frontiers by boat or plane, we could then envisage that purchases might be made upon arrival.

According to the specialists with whom your rapporteur has been in contact, an extremely useful measure which could be taken immediately would be the compulsory packaging of alcohol and perfumes in order to reduce the risk of these objects being transformed into sharp-edged projectiles.

(d) Insufficient resistance of internal cabin equipment, seats, seat-belts, various other equipment

26. In many accidents the survival of passengers is determined not by the limits of human tolerance to acceleration but by the nature of the equipment inside the cabin such as seats and seat-belts.

This opinion is contained in a recent publication of the American National Transportation Safety Board (NTSB) on safety in aircraft cabins.

27. The experts entrusted with this report studied 77 cases of survivable accidents which occurred after 1970 and involved over 4,800 passengers. In 85% of the cases studied, seats failed to resist or to remain fixed to the floor.

In 22% of the cases seat-belts failed to remain fastened.

Other equipment inside the cabin, such as the panels located above the passenger seats, parts of the baggage lockers and folding tables, was a contributory factor in 78% of the cases examined.

Finally, various other equipment, particularly that used in the kitchen including containers and utensils, caused damage in 62% of the cases examined.

28. The consequences of this situation can be seen at two levels: directly in the form of injuries which are sometimes fatal resulting from the non-resistance of internal equipment, and indirectly by their preventing passengers from evacuating the aircraft in the event of fire, particularly by making passengers lose consciousness - even for a few moments - which may be of vital importance in such cases.

29. Furthermore, the report calls into question the design of the seats (resistance and ergonomics) and the ineffectiveness of seat-belts. On this last point, it is indeed surprising that use is made exclusively of 'abdominal' belts fixed at two points. Even if, in the event of a sudden jolt, the abdominal belt prevents the body from being thrown out of the seat, it does not prevent a violent jolt forwards which can cause extremely serious injury to the vertebral column, which could almost always be avoided by the fixing of a shoulder-strap. In addition, the NTSB calls directly into question current rules on the points mentioned above and points out that these rules are based on standards laid down over thirty years ago.

This judgement of the NTSB is undoubtedly severe. However, given that it comes from an official American control organization, we have no choice but to take account of these observations. It would be interesting to undertake comparable studies in Europe.

30. In short, this analysis of the causes of death and injury in accidents demonstrates that the safety of passengers in air transport could be further improved in a number of significant areas.

V. POSSIBLE SAFETY MEASURES

31. Without attempting to draw definitive and exhaustive conclusions on this subject, it would seem that passenger safety could be promoted by a series of actions at the following three levels:

- aircraft manufacturers
- airlines
- airport and aviation authorities

(a) Aircraft manufacturers

32. Manufacturers are reasonably aware of the fact that progress can and must be achieved. In 1980, the FAA and NASA granted a total of 300,000 dollars to BOEING, LOCKHEED AND MACDONNELL DOUGLAS for studies on types of accidents and causes of death. This research also concerns cabin equipment, the main structure of the fuselage, the fixing of engines and fuel tanks.

33. It would appear that the manufacturers should pay particular attention to the following areas:

- re-examination of the design of all cabins in the light of the NTSB study and other complementary studies which may be undertaken; particular attention should be paid to the fixing and design of seats, the use of seat-belts fixed at three points, the closing of baggage lockers, and all internal equipment factors which may, by not resisting sufficiently, cause death and injury;
- standards governing the inflammability and toxicity of internal equipment should be reviewed under conditions effectively corresponding to those under which accidents occur;
- more detailed research into fire-fighting methods, particularly with the aim of reducing the degree of conflagration;
- possibly, placing on the outside of the aircraft of instructions which should be as explicit as possible thereby making it possible to open doors and emergency exits from the outside in all situations, in particular to assist non-specialized rescue teams.

(b) Airlines

34. The most effective regulations are valid only if they are properly complied with by the airlines and this is not always the case, as is demonstrated by the examples of fines imposed on airlines in the USA. In 1979 four large airlines were sentenced to heavy fines for alleged violations of safety regulations. This non-compliance with the rules concerned, for example, the maintenance of aircraft by PACIFIC SOUTHWEST, and the use by BRANIFF INTERNATIONAL of a B 747 with reclining seats which made it difficult or impossible to open the emergency exits.

We should not generalize or exaggerate on the basis of these cases, but it is nevertheless necessary to ensure compliance with the existing rules and control thereof.

35. Airlines should concentrate their efforts on the following:

- compliance with the norms laid down in Annex 18 to the Chicago Convention, if possible without waiting for its entry into force on 1 January 1984, for the transport of dangerous goods;
- strict compliance by passengers with the number of hand baggage articles allowed per passenger in the cabin and possible restriction on such hand baggage in terms of weight and size;
- maintenance of internal fixed elements such as baggage lockers to ensure that their deterioration does not give rise to potential danger;
- scrupulous carrying out of the safety drill by the crew for the benefit of passengers; it might also be possible to increase the frequency of these compulsory drills although this might instil fear into passengers which is of course undesirable.

(c) Airport and aviation authorities

36. A considerable proportion of plane accidents take place in the immediate proximity of airports, which therefore have a leading role to play in the organization of rescue procedures.

Airports must possess effective means in terms of manpower and equipment, enabling them to intervene rapidly and deal with all the different situations which may arise.

Permanent intensive training courses for staff on the organization of rescue

work in all commercial airports would also prove extremely useful, notwithstanding the fact that in many cases the probability of having to deal with an accident is extremely low.

37. The aviation authorities have an extremely important role to play in ensuring compliance with rules by manufacturers and, above all, by the airlines. Frequent and random controls backed by sanctions should facilitate a stricter application of the existing regulations.

VI. FOR A EUROPEAN AIRCRAFT SAFETY POLICY

38. Consideration should be given to the most suitable framework in which the measures advocated for improving safety in aircraft (fixing of new standards, changes to regulations, etc.), should be carried out.

Even if the international nature and historical traditions of air transport would seem to rule out purely national solutions, international cooperation alone, however highly desirable at world level, is subject to serious natural limitations, owing to its non-binding nature and the slowness of decision-making.

Community measures, given that they may be carried out over a vast territory with a high density of air traffic, could be integrated into an overall policy of air transport safety and would therefore be of particular importance. Nevertheless, other factors come into play which, without calling into question the possibility of Community measures, show the limitations to which they would be subject.

(a) current regulatory framework

39. A distinction should be drawn, at the level of safety standards, between international and national measures.

At international level, the principal framework is the Convention relating to civil and international aviation and the ICAO recommended norms and practices annexed thereto. The ICAO was set up within the framework of the 1944 Chicago Convention in which 52 States participated, with the exclusion of Russia and China, and which led to the adoption of the Convention on International Civil Aviation. This text, although it constitutes the essential basis of public law in the field of air transport with regard to scheduled services, is nevertheless limited by the text of its first article which stipulates that each Member State possesses complete and exclusive sovereignty over the atmospheric air space above its territory. According to Articles 37 and 38 of the Chicago Convention, States undertake to contribute towards the attainment of the highest possible degree of uniformity in regulations and standards and, where necessary, to communicate

any differences which exist between the standards laid down by the ICAO and their own national regulations and practices. The following annexes particularly concern safety problems:

- * Annex 1 : personnel licences
- * Annex 2 : rules of the air
- * Annex 6 : technical use of aircraft
- * Annex 8 : airworthiness certificates of aircraft
- * Annex 12 : search and rescue
- * Annex 13 : inquiries into plane accidents
- * Annex 18 : (draft) transport of dangerous goods.

At the level of the airlines, we should note the importance of the International Air Transport Association (IATA). The purpose of IATA is to facilitate international air transport and, through the cooperation of its members, to ensure coordination in a large number of areas for the benefit of passengers. Not only does it deal with air fares, but also with technical problems such as the standardization of in-flight equipment and ground installations, the fitting out of airports, etc., together with problems relating to environmental protection. Some interesting work has also been done by the Atlas group and NSFF (Netherlands, Scandinavian countries, Switzerland and France).

Since 1967 IATA has compiled analytical data supplied by its member companies concerning 'near-misses'.

Safety therefore constitutes a direct or indirect objective of many of its activities.

40. At national level, States have their own rules. In France, manufacturers and users are subject to:

- * the certification rules of [SFACT]¹, Service de la Formation Aéronautique et du Contrôle Technique,
- * the technical control and operational and maintenance rules of SFACT¹,
- * controls carried out by the VERITAS office amongst others, on behalf of SFACT¹.

These rules and controls come under the Directorate-General for Civil Aviation and are applicable to planes constructed in France and to those built abroad but registered in France.

¹ in accordance with the Civil Aviation Code

41. In the other Community countries an identical regulatory framework exists, such as the rules of the Civil Aviation Authority in the United Kingdom or those of the Luftfahrt Bundesamt in Germany, etc.

42. National rules resemble each other closely and are largely based on those of the American Federal Aviation Agency (FAA) except, to a certain extent, in France and in the United Kingdom.

By law, in order to ensure compliance with its own rules, a country may prohibit any plane which fails to comply from flying over its territory. However, for export purposes, manufacturers must obtain not only a national airworthiness certificate but also a certificate of the country to which they hope to sell their planes.

(b) Possible structures to improve safety actions in aircraft
Cooperation in Europe

43. Any discussions of air transport problems in Europe is bound to refer to the role played by the European Civil Aviation Conference (ECAC), especially on economic questions. This body, like the Conference of European Ministers of Transport (CEMT), was set up on the initiative of the Council of Europe by the Conference on the coordination of air traffic in Europe convoked by the ICAO in Strasbourg in April 1954. Since its creation in 1955, the Conference has constituted a sort of regional branch of ICAO in Europe.

Its tasks include the monitoring of the development of air traffic in Europe with a view to promoting coordination between its members and hence improved profitability in this sector of transport.

Originally consisting of 19 States, the Conference currently has 21 members (including Yugoslavia which joined ECAC in 1977). Although it is not subordinate to the ICAO, the programmes of work of the ICAO and ECAC are closely coordinated. ECAC concentrates mainly on air transport problems. However, ECAC's technical committee also considers the European aspects of the implementation of the recommended rules and practices laid down by the ICAO in the field of air transport.

44. Mention should also be made of the European Group on Air Transport Planning, which is directly responsible to the ICAO and concerns itself with air transport problems in the European region. It undertakes a continuous examination of the situation in Europe and recommends any appropriate action to the European States.

Your rapporteur would also recall the existence of Eurocontrol, on which Parliament has recently again expressed a favourable opinion.¹

¹ Resolution voted on 16 July on the basis of the report by Mr. ALBERS on behalf of the Committee on Transport: 'Improvement of the European system of air traffic control' Doc. 1-211/82

These different specialized authorities, of which there are many more, have a decisive role to play in strengthening safety standards in Europe. However, it should be pointed out that none of them possesses the power of decision.

Community action

45. The European Community, although it has not so far defined any specific political line aimed at improving air transport safety, adopted on 16 December 1980 a directive 'on the future cooperation and mutual assistance between the Member States in the field of air accident investigation'¹, the text of which is annexed. This directive provides for mutual assistance in the form of exchanges of information concerning accidents involving civil aircraft.

It should be noted that the Council did not consider it necessary to ask for Parliament's opinion on this directive (drawn up on the basis of a German proposal).

The existence of this text, even if its scope is extremely limited, indicates that the Council attaches some importance to action at Community level in the field of air transport safety.

c) Importance and Limitations of Community action

46. The framework of the Community affords certain evident advantages in terms of a sufficiently extensive geographical area, economic unity, advanced economic integration at the level of aircraft construction (the airbus) and an institutional framework under which rules can be introduced fairly rapidly and applied directly.

In addition, the need for a European system of air traffic control, as requested by Parliament on numerous occasions, would undoubtedly have the effect of strengthening the idea of instituting specifically Community rules governing safety within aircraft, the second aspect of air safety.

47. It might seem tempting to propose the setting up at Community level of an authority responsible for the enactment of and compliance with air safety rules, on the lines of the Federal Aviation Agency in the United States. However, in addition to the political factors connected with the degree of willingness of the national authorities to transfer their authority in this field to a

¹ Directive 80/1266/EEC, OJ No.L375,31.12.1980

European body of this nature, other obstacles exist which cannot be ignored.

Indeed, the question might be asked as to whether the European Community is able to lay down specific rules, different from those which currently exist in other countries, with the risk of the Community becoming isolated within a sector which is nothing if not international.

48. The consequences of such a situation may be perceived at several levels:

- for the manufacturers, the adaptation of aircraft to specific EEC standards would involve additional expenditure for research and construction and hence an increase in the cost of production. European manufacturers would be placed in a particularly delicate situation: would they be compelled to manufacture all their products in accordance with Community standards or would they have a production line for the rest of the world with a lower level of reliability ?

- for European airlines, apart from the fact that their competitiveness would be reduced by the obligation to purchase more sophisticated and therefore more expensive aircraft, they would also be subject to further controls. Finally, if airlines from outside the EEC were to be forced to comply with additional rules, they might well - over and above the resulting risk of latent conflict - reroute flights to and from the countries neighbouring the Community, such as Switzerland, Austria or Sweden.

In any case, the open structure of the European market, and its partial technological dependence on the United States, would make such measures dangerous and above all, ineffective as regards attainment of the desired aim, and thus forms a limit to any isolated European action.

d) Conditions for and means of a European aircraft safety policy

49. There would seem to exist a middle way between international cooperation limited by the slowness of procedures (or indeed the lack of decisions) and the constitution of a body of specifically Community rules. This middle course would be for measures to be introduced in compliance with the existing international measures and stimulate international cooperation through a close and balanced relationship with the United States with a view to improving air safety rules.

50. The effectiveness of a policy depends above all on the extent to which it is realistic. We cannot ignore the fact that the situation varies considerably from one Community country to another. Your rapporteur would point out again that States notify the ICAO of differences which may exist between the ICAO Rules and their own.

Any analysis of the position of each Member State of the Community will indicate significant differences by comparison with the situation in the other Member States.

51. Initial and substantial progress would be achieved by attempting to define common 'differences' within the Community as compared with ICAO Rules.

It should be relatively easy in this particular field, once agreement has been reached on the principle involved, to coordinate such differences progressively at Community level, annex by annex, according to their degree of difficulty or significance.

Negotiations could be opened simultaneously with the Community's neighbouring countries, in particular Switzerland, Austria, the Scandinavian States and the candidate countries, with a view to defining a joint line of action and selecting joint options in the field of air safety.

52. By adopting rules which are identical for all the Member States, the Community

would also be in a position to play a more effective role within the various international organizations which work for the improvement of air safety standards.

At present, European countries are unable in isolation to counterbalance the role played by the United States, which undoubtedly possesses a technological hold over this sector notwithstanding striking success, such as the Airbus Industries, for example.

53. A further useful element in the Community approach would be action to incite European airlines to introduce a code of conduct governing the practical adoption of certain safety standards, such as those indicated above, which might concern either the strict limitation of the number and size of cabin baggage, or a certain tightening up of the rules for maintaining aircraft, or indeed by studying the introduction of seat-belts with shoulder-straps.

The need here would be to set up among the European airlines a specific structure comparable to that of the 'Group of 10' for railway undertakings, the effectiveness of which has been clearly proved.

The same mechanism could also be applied, through close collaboration, to the airports of the Community countries by setting up an autonomous group within the International Civil Airports Association (ICAA).

54. Although he has dealt mainly with the problems of safety in aircraft, the subject of this report, your rapporteur is well aware that safety in the field of air transport represents an overall concept. It is essential to harmonize the various measures concerned on the basis of an overall approach to safety problem, and also to supplement the recommendations made by the European Parliament in its previous report on air transport safety.

55. With this aim in view, it would be of the greatest value if the Commission were to establish or have established as soon as possible and prior to any specific

proposal for action, possible main lines of a European policy in the general field of air transport safety, while taking account of the views of representatives of specialized organizations and the need to comply with existing international rules and paying due regard to the possible consequences of such action on problems of competition.

VII. CONCLUSIONS

56. The merit of the motion for a resolution tabled by Mr. SHERLOCK and Mr. COTTRELL, without which this report would not have been drawn up, is to have brought into focus the fact that, even within a field such as air transport where the level of safety is particularly high, possibilities exist for improving safety still further, thereby saving human lives.

57. The above analysis of air accidents makes the point that all disasters could not be ascribed to fate alone and that many plane accidents are survivable, in other words, the manner in which they occur does not necessarily exclude the survival of passengers.

58. Particular emphasis should be laid on the examination of the four categories of causes of death and injury in survivable accidents: burns or intoxication following fires, difficulties in evacuating passengers, baggage projected in the cabin, insufficient resistance of seats and seat-belts, and cabin equipment.

The main conclusions to be drawn are that relatively little is still known about the toxicity and inflammability of materials contained in planes, and that the evacuation of passengers - when this is possible - may be hindered by baggage or other objects, although this would not be the case if the existing rules were strictly complied with.

It would also appear that many items of equipment making up the structure of the interior of planes are transformed into dangerous projectiles. However, perhaps one of the most alarming factors is the defects frequently noted concerning seats (in particular, the way in which they are fixed to the floor) and seat-belts (as regards which the lack of a shoulder-strap is a particular shortcoming).

59. Your rapporteur takes the view that, in order to effectively improve safety in aircraft, the rules must be tightened or changed with regard to the points mentioned in the above paragraphs, and the airlines must comply more strictly with existing regulations. Action with this aim in view must be pursued at three levels: the manufacturers, the airlines, and the airport and aviation authorities.

60. If the recommendations formulated are to become anything more than good intentions, thought must be given to their implementation.

The practical structure for the effective development of these safety standards exists within international organizations such as IATA and the ICAO. However, the lack of a proper decision-making framework makes it necessary for the European countries to refer these problems to the European Community to ensure that our views can be properly coordinated and a stimulus be given to international action in the field of safety.

61. Your rapporteur would consider this an attractive solution which should be carefully sought within the framework of close cooperation at world level, in order to avoid falling into the trap of over-restrictive rules from which the European countries would be the first to suffer.

62. With a view to standardizing European rules, a decisive step would be constituted by the coordination at Community level of 'differences' by comparison with the ICAO Rules.

63. Finally, it would be of the greatest value if the Community were to promote the bringing together of European airlines and civil airports within an organized framework, with a view to achieving in a non-binding manner improvement of safety in aircraft, with regard to the aspects of safety which we have stressed above and which are not the responsibility of the manufacturers.

64. Such Community action can be undertaken only inasmuch as it is integrated

within an overall programme for air safety, on the lines of the requests made by Parliament to the Commission for many years.

MOTION FOR A RESOLUTION (Doc. 1-701/81)

tabled by Mr SHERLOCK and Mr COTTRELL

pursuant to Rule 47 of the Rules of Procedure
on Safety Measures in Aircraft

The European Parliament,

- Concerned that, despite the generally high standard of safety in commercial aviation, many passengers lose their lives in accidents which need not always be fatal, such as those caused by fire, aborted take-offs, burst tyres on take-off or landing and collisions on the ground,
 - noting that 75% of air transport accidents occur within 3 kilometres of the runway and that 71% of deaths in aircraft are due to fire,
 - recalling that in 1980 all 301 occupants of a Saudi Arabian airliner were killed by fire when the aircraft was on the ground and that there are many similar, though smaller incidents of death or injury being caused by what were initially relatively minor incidents,
 - believing that many such deaths or injuries could be avoided through the taking of relatively simple safety measures which would not involve excessively large expenditure by airline operators,
1. Calls upon the Commission to draw up a set of simple but effective standards to be applied and enforced in respect of airlines based within the Community and to examine the possibility of extending the application of these standards to all commercial aircraft using Community airports;
 2. Asks the Commission, in formulating these standards, to pay particular attention to the following aspects of safety:
 - (a) the amount and size of luggage permitted in the passenger cabin, which at present is such as to frequently constitute a danger in the event of an emergency by obstructing floors, aisles and exits;
 - (b) the fitting of burst-proof catches to overhead lockers to prevent the injuries which have often been caused to passengers by objects falling from these lockers in the event of sudden or violent movement of the aircraft;
 - (c) changes in the rules on duty-free purchases so as to allow passengers to buy these goods on arrival, rather than before departure, thus removing the extra danger caused by the presence within the cabin of considerable quantities of inflammable liquid such as alcohol and perfumes, packed in glass bottles, and thereby also reducing the weight carried and thus fuel consumption; such a measure would also improve the quality of, and noise generated during, take-off and landing;

- (d) improvements in aircraft seating, including dynamic as well as static testing of seats and the use of new materials to replace polyurethane foam which is at present widely used even though it is liable rapidly to give off toxic fumes and smoke in the event of a fire;
 - (e) the marking of emergency exits on the exterior, as well as the interior, of the aircraft thereby considerably assisting the work of rescuers in the event of fire or an accident on the ground.
3. Instructs its President to forward this resolution to the Council and the Commission of the European Communities.

COUNCIL DIRECTIVE
of 16 December 1980
on future cooperation and mutual assistance between the Member States in the field of air
accident investigation

(80/1266/EEC)

THE COUNCIL OF THE EUROPEAN
COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 84 (2) thereof,

Whereas the technical complexity of large modern aircraft is constantly increasing; whereas, pursuant to Chapter 5 of Annex 13 to the International Civil Aviation Convention, it is incumbent upon the Contracting States to have accidents involving such aircraft investigated immediately at the request of the competent Member States by independent experts from a wide range of specialized technical and operational fields;

Whereas not all Member States are able to keep permanently or fully available the specialist staff and appropriate technical facilities required for investigating major accidents;

Whereas the homogeneous technical development of and the uniform performance standards in aviation in the Member States make it possible for them to cooperate in the investigation and prevention of air accidents;

Whereas more than 90 % of accidents involve aircraft of up to and including 5 700 kg maximum permissible take-off weight and whereas it is advisable for air safety and for the prevention of accidents that such accidents also form the subject of an exchange of information,

HAS ADOPTED THIS DIRECTIVE:

Article 1

1. In the event of an accident involving a civil aircraft, each Member State shall, by way of mutual

assistance, endeavour to make available, on request by the Member State conducting the investigation, within the limits of its possibilities and as appropriate:

- (a) installations, facilities and equipment owned by its authorities for:
- the technical investigation of wreckage and aircraft equipment and other objects relevant to the investigation,
 - the evaluation of information from flight parameter recorders and communications and sound-alarm recorders in the cockpit,
 - and the computer storage and evaluation of air accident data;
- (b) accident investigation experts to undertake specific tasks, but only where an investigation is opened following a major accident.

2. Such mutual assistance should be given, as far as possible, free of charge.

Article 2

Member States shall periodically inform one another of incidents not resulting in accidents and of the results of investigations of accidents involving aircraft of a maximum permissible take-off weight up to and including 5 700 kg provided that such results are available in a form corresponding to that of the accident/incident data reporting form drawn up by the International Civil Aviation Organization.

Such information and such results shall be exchanged in so far as they contribute to the improvement of air safety and accident prevention.

Article 3

After consulting the Commission, Member States shall adopt the measures necessary for the implementation of this Directive with effect from 1 July 1981.

Article 4

This Directive is addressed to the Member States.

Done at Brussels, 16 December 1980.

For the Council
The President
Colette FLESCH