COMPARATIVE LIABILITY

OF

AIR TRAFFIC SERVICES

by

© Peter Marn

A thesis submitted to the Faculty of Graduate Studies and Research of McGill University, Montreal, in partial fulfillment of the requirements for the Degree of Master of Laws

Institute of Air and Space Law
McGill University, Montreal
October 15, 1980

To Natasa

SUMMARY

This thesis seeks to present primarily the technological and organizational form of work as it is performed by a pilot and a controller during the process of flying. The collected information leads to the conclusion that air traffic is a team effort where the work of either parties has to be precise and efficient.

Historical development of techniques used aboard an aircraft and in air traffic services units has caused the assignment of ever more decisive duties to a controller and consequently of greater responsibility.. In the light of the work described above international and national regulation is considered. Systems of penal, civil and state liability in FR of Germany and in SFR of Yugoslavia are described and compared to one another.

Further, the overview of past and present attempts to evaluate international technical and legal regulation is given together with proposals for international regulation of the liability of air traffic services agencies.

From the thesis stems the idea that the substantive reconsideration of Annexes 2 and 11 for the Chicago Convention might be necessary and that the time is ripe to conclude international agreement on the liability of air traffic services agencies.

Sommaire

Cette thèse présente premièrement la forme technologique et organisationnelle du travail exécuté par le pilote et le contrôleur pendant le vol. L'information recueillie nous amène à la conclusion que le vol aérien est un effort d'équipe, où le travail de chacun doit être précis et utile.

Le développement historique de la technique utilisée à bord de l'avion et dans différentes unités des services de la circulation aérienne, une nouvelle distribution des tâches, et par le fait même provoque une augmentation de responsabilités pour le contrôleur. Par rapport au travail, les règles internationales et nationales sont considérées.

Ci-haut mentionné les systèmes civils et les responsabilités des états civils et criminels et aussi en Allemagne de l'Ouest et en SFR de la Yougoslavie sont décrits et analysés de manière comparative.

Plus loin, nous présentons une revue des efforts passés et présents pour évaluer les règles internationales techniques et légales, ainsi que l'ensemble des propositions en rapport avec les règles internationales de responsabilité des agences des services de la circulation aérienne.

La thèse avance l'idée qu'il faut reconsidérer les annexes 2 et 11 et que le temps est venu de conclure un accord international de la Convention de Chicago sur la responsabilité des services des agences de la circulation aérienne.

ACKNOWLEDGEMENTS

I would like to thank Prof. Martin A. Bradley who was not only the supervisor of the thesis but also the man who motivated me to enjoy intellectual work with its unlimited possibilities for exploration.

I would like to thank John M. Corrigan whom I met by chance and who unselfishly offered me his assistance particularly in the proofreading of the text.

Finally, I would like to thank everybody whom I met during my stay in Montreal, which I enjoyed very much, and who directly or indirectly had a positive influence on me in order to realize my desire which was to get as much legal knowledge and general knowledge about Canada as possible.

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

On September 10th, 1976 a fatal mid-air accident occurred in the airspace over Yugoslavia. At 10.15 a.m. (G.M.T.) two aircraft, one Yugoslave the other a British plane, collided over the Zagreb VOR in the vicinity of the small town of Vrbovec. Though the accident occurred near Vrbovec, the accident is commonly known as the Zagreb crash. Both aircraft were completely destroyed and all persons on board were killed in the collision. At that time the accident was held to be the worst mid-air collision to date.

A reprint of the first chapter of the report of the accident investigation report issued by the Aircraft Accident Investigation Commission in Yugoslavia,[1] is appended to this paper in order to present the actual picture of this accident, which will clarify the legal problems discussed in this thesis.

Immediately following the accident the controllers, who were involved in the crash, were taken into custody and the prescribed legal process were imposed. The Director of the Federal Civil Aviation Administration set up the Accident Investigation Commission and the Okružni istražni sudija (District Judge Investigator) started the necessary inquiries together with the collection and preservation of evidence.

Both processes usually operate independently of one another, although, whenever necessary, the investigation commission and

the judge investigator will cooperate. The Accident Investigation Commission, which had to investigate the cause of the collision, completed its work by 25th December, 1976 and issued the accident report containing the conclusion about probable cause of the crash.[2] In chapter 3, paragraph 3 is given the conclusion about causes of the accident which reads as follows:

> "This collision was caused by a failure:
> - to provide the prescribed separation between the aircraft;
> - untimely recognition of conflict situation;
> - application of unprecise measures for prevention of the collision;
>
> This resulted from the following:
>
> a) non-application of rules and regulations by the competent air traffic controllers;
> b) the overloading of the Upper Sector Controller in a critical situation due to the absence from his post of the Upper Sector Assistant Controller.
>
> Besides the failure attributable to the air traffic controllers, a series of circumstances contributed to the collision of the aircraft which were flying in the conditions of great visibility."

It was mentioned above that accident investigation and criminal investigation were conducted separately and independently of one another. Obviously, the Judge Investigator and the Commission provided necessary assistance to each other and co-operated as far as it was useful. Different purposes and different goals call for different methods of work. The criminal investigation was more exhaustive and more complex and therefore was completed later. The Judge Investigator trans-

ferred the whole file to the Javni Tužilac (Public Prosecutor) who submitted an indictment against eight air traffic controllers.[3]

The public trial against the indicted controllers began on 11th April, 1977, and concluded on 16th May, 1977 with the conviction of Gradimir Tasić who was sentenced to seven years imprisonment. The other seven indictees were all acquitted. Gradimir Tasic appealed the judgment. The Supreme Court, when assessing his appeal, changed the decision of the lower court and reduced the sentence to 3 year and 6 months imprisonment. After spending about 2 years and 8 months in the jail, Gradimir Tasić was amnestied and released from the prison.

All activities which took place immediately after the accident and, in particular, the trial of the eight controllers sparked high interest in professional circles and in the public as well. The International Federation of Air Traffic Controllers Associations (IFATCA) was very concerned about the trial. Since this case was the first one which received so much publicity, IFATCA reacted to the verdict by sending a petition to Josip Broz Tito, the late president of the SFRY of Yugoslavia. The petitioners asked the President to review the criminal proceedings and to take steps to terminate it without consequences for any person.[4]

The adequacy of the criminal prosecution and its impact on the quality of the work of controllers were discussed many times at national and international levels. The main remark and even the disagreement were expressed against it, arguing that was the first time that a controller had to stand trial. It was also argued that such a criminal penalty of this kind would be a dangerous precedent for future cases in Yugoslavia or in other countries.

It was said by many people, that similar crashes had occurred before the Zagreb accident and that there was no evidence of a controller being charged with the commission of a criminal offence

The fact that the trial in Okružni Sud Zagreb (District Court) might be unique, motivated the author of this paper to look at the whole case more closely and to compare Yugoslav law in this particular field with the laws of other countries and with existing international regulations in order to make his own assessment regarding the adequacy of Yugoslav practice in comparison with other states.

CHAPTER 2

AIR TRAFFIC SERVICES

2.1. Historical Background

It was not too long, after people began flying, that there was a need for some form of regulation. Technical facilities and the duration of flights required that first rules be borrowed from ground and marine regulation. The pilot of an aircraft is responsible for the safe and the successful performance of the flight and he has to obey some basic rules of air. At that time there was no assistance or surveillance from the ground.[5]

The first attempt to establish some standard rules of the road dates as early as 1910. However, it took nine years before the first international convention was concluded and which was the basis for the establishment of a particular international body. This body was called International Commission for Air Navigation - ICAN. Among its other duties, it had to establish "general rules for air traffic" which were obligatory for states, which were parties to the Paris Convention.[6] At that time aircraft were not equipped with instruments for any other kind of flying, but visual flight. Accordingly, the rules were based on the principle "to see and be seen" and warned the pilot to be cautious when flying in bad weather or even not to fly at all.[7]

More and more flying, particularly under bad condition, brought

about the radio communication between the pilot and the ground. Radio communication enabled the transfer of information, (especially weather data) on the ground, while aircraft was flying en route. Another aid to navigation was also set up at that time. This was a radio beacon which provided guidance to the aircraft when it was flying from one point to another.

For a further description of technical development of ATC, I refer to the development in the USA of such services and facilities. The reason for this selection is the fact that the US has been a leading force in this field until today, and that present results of research show the same trend in the future, too. Besides this, American materials were available to the author in greater quantity and quality than from other states.[8]

Despite the fact that the U.S. was not a party to the Paris Convention, it developed a similar pattern of regulatory framework. By 1926, the U.S. had adopted the Air Commerce Act which provided for the establishment of the Aeronautics Branch (subsequently called the bureau of Air Commerce) within the Department of Commerce. The New Act was accompanied by a program "to establish air traffic rules as to safe altitudes of flight and rules for prevention of collision between vessels and aircraft." The program also established a Federal Airways System with a network of radio beacons and later a similar network of four-course low-frequency radio was laid out. It also provided for

the installation of light beacons in order to facilitate the performance of night flights.

The installation of radio communication began in 1930 and by 1932 all commercial aircraft were being equipped with the radio equipment. Increasingly frequent flights required augmented coordination between the traffic offices of the different airlines. This led to the conclusion of agreements in order to provide the coordination and the safe handling of air traffic at major airports such as Newark and Chicago.

The Aeronautics Branch, which from its beginning was the regulatory body performing the en route control function, was reorganized and given a new regulatory form under the Civil Aeronautics Act of 1938. The act created a new agency called the Civil Aeronautics Authority which incorporated the Airway Traffic Control organization in it. The legislative powers of the C.A.A. were extended and enlarged to include new subjects. These new regulations were more comprehensive and much more detailed. It also took into account the technical level of ground and airborne equipment and thus developed new rules of flying. Contact flight rules (CFR) and instrument flight rules (IFR) were adopted. The new rules also motivated the adoption of expanded programs. These included the use of advances equipment, particularly for communication between control centers. However, airport control towers were still under municipal authority and

this fact did not permit the creation of an overall and unified system of control. The inadequacies and inefficiency of a divided system vis-à-vis technical capacities eventually led to the take over of airports' towers by the federal government agency and integrated in a comprehensive system.

Glen A. Gilbert divides the development of ATC in the U.S.A. into four generations. Distinction points or periods are linked to the introduction of new and more sophisticated equipment. It enabled controllers to assume new duties and to perform them on ever higher level. First and second generation are already in the past, we are in the third generation at this time, whereas the fourth is presumed to come in the near future. Technical and organizational characteristics of each generation, are described in very telegraphic style.

First generation. It began with the adoption of the Civil Aeronautics Act in 1938 and lasted about 20 years. Air traffic control became a system in the real sense of the word. It included people, equipment and regulation in a centralized governmental organization. New devices for communication such as teletype and interphone between aeronautical communication stations and airports, which were added to existing systems, completed the network of the air traffic control. In this generation, the crowning point was reached with the establishment of direct controller-pilot communication. The application of radar for the surveillance of an airport area marked the beginning of the end of the first generation.

Second generation. The increased volume of traffic and the higher speed of aircraft affected the technical development of the A.T.C. Direct radio communication with a pilot became common in every control station. Even more important than radio, was radar which enabled controllers to survey every aircraft in flight within controlled airspace. Simple radio beacons were superseded with uncomparably more sophisticated VHF omnidirectional range (VOR) and with distance measuring equipment (DME). For more precise and consequently safer landings, the imprecise beacon approach system was superseded by instrument landing systems (ILS). Radar had many different uses and applications and thus became the basic tool in the controller's hands. The secondary surveillance radar (SSR) eliminated all defficiencies in the primary radar and simultaneously diminished the need for communication between controller and pilot. The picture of the second generation would be incomplete without a few words about legislation and organization. The Civil Aeronautics Act of 1938 was in 1958 replaced by Federal Aviation Act. Both acts have common characteristics, namely, both established an aviation authority as independent body and both after a while lost its independency and became part of a larger body. In the case of former it was the Department of Commerce and in the case of the latter it was the Department of Transport (DOT). Federal Aviation Agency which got its name in 1958 with the new FAA Act changed its name to the Federal Aviation Administration in 1967 when it was transferred into the D.O.T. Fast and enormous

technical progress was followed by constant growth of regulations and consequently CAR's were transformed into FAR - Federal Aviation Regulations.

Third Generation. Constant growth in air traffic has continuously required improvement in the ATC system and for additional capacities in its work. Since, it is not possible to cope with the constant new demands with an infinite number of people engaged in the service, attention was focused in the substitution of the controller's manual work with mechanical processes. The advent of this generation can be placed in 1962 and 1963 when the first computers were included in daily operations. Actually, the third generation is the generation of our time. A modern ATC system is armed with the most sophisticated technical and electronical equipment. Flight data processing, (FDP) radar data processing (RDP) and advanced communication systems are fundamental parts of an ingerated scheme which increase the capacity of ATC. Computers, radars and correspondent airborn equipment are interelated and enable the controller to fulfill his duties in an adequate manner. Although the volume of air traffic has increased beyond man's ideas the safety of air traffic has been steadily improving or at least has been maintaining the same level.[9]

Obviously, the safety of air traffic cannot only be ascribed to the quality of air traffic control systems, but must be ascribed to every participant in this kind of human activity which is

characterised by a sophisticated technology and proficient human skills. The most advanced and also the most busiest ATC systems, such as those in the USA, carry more traffic in one day than it carried about 40 years ago. The search for new and advanced technology, as well as improved and more sophisticated equipment is constantly on-going. An example of this is the area navigation system (RNAV), which allows an increase in the capacity of the ATC services and which improves the safety of air traffic at the same time. About fifteen years ago some authors predicted a dark future for the safety of air traffic.[10] Fortunately, these forecasts were not accurate. The ICAO statistics for the period 1960 to 1979 disprove such gloomy predictions:

Aircraft accidents involving passenger fatalities on scheduled air services, 1960-1979. (Only scheduled services)

(1979 figures are preliminary)

Year	Aircraft Accidents	Passengers Killed	Passenger fatalities per 100 million Pass.-km	Pass.-mile
1960	34[2]	873	0.80	1.29
1961	25	805	0.69	1.11
1962	29	778	0.60	0.97
1963	31	715	0.49	0.78
1964	25	616	0.36	0.58
1965	25	684	0.35	0.56
1966	31[1]	1001	0.44	0.70
1967	30	678	0.25	0.40
1968	35	912	0.29	0.47
1969	32	946	0.27	0.43

Year	Aircraft Accidents	Passengers killed	Passenger fatalities per 100 million Pass.-km.	pass.-mil
1970	28	687	0.18	0.29
1971	31	867	0.21	0.34
1972	42[3]	1210	0.26	0.42
1973	36	862	0.17	0.27
1974	29	1299	0.24	0.38
1975	20	443	0.08	0.13
1976	20[3]	734	0.12	0.19
1977	24	516	0.07	0.11
1978	25	755	0.09	0.15
1979	31	871	0.10	0.16

1. Owing to incomplete data the USSR is not included.
2. Includes one mid-air collision, shown here as one accident.
3. Includes two mid-air collission, shown here as two accidents.

Source: ICAO Bulletin, June 1980

Past and present trends itself does not allow us to draw conclusions for the future. But, if these trends are combined with existing and expected technical invention and design, then it might be said that situation in the near future should not be any worse than it is at present.

Fourth generation. This future system does not have a definite form as yet. However, one thing is for certain. Air traffic, as a whole, has not reached the end of its technological development yet. We are already witnesses to the design of a new generation of aircraft-borne radar which can be used for the avoidance of mid-air collisions.

It is undoubtedly clear that the inclusion of newer and more advanced techniques in the work of controllers has thus enabled them to accept increasingly greater duties and responsibilities, for the normal and safe movement of air traffic. But it is not so clear when the future comes into the picture.[11] Even the FAA, whic probably operates one of the most advanced systems in the world, recognizes present and future problems which must be resolved.[12]

> "But even with the proposed new technologies, other air safety problems will remain. These include questions of the extent to which ground controllers or pilots are responsible for keeping traffic separated, of whether the demands or air traffic controllers are too great during crisis situation, of how to handle the mix of large and small planes into and out of terminals and of the overall density of air traffic."[13]

Finally, one could ask why it is not possible to regulate air traffic like ground or sea traffic. The crucial distinction between them is, than one can slow or stop ground and sea traffic when it is necessary, but one can only slow air traffic to a particular speek, and cannot stop it under any condition. The flight must be performed from the take-off to the landing without any interuption. This basic request requirement forced the adoption of certain rules of flight very soon after increasingly frequent flights had started. More and more flights, increased speeds, larger and larger aircraft molded the formation of an organization that uses sophisticated techniques in order to assure the safe and normal performance of flights.

> "In its broadest sense, the ATC System involves airports, a variety of facilities, and rules and procedures. It involves the airspace in the manner in which it is subdivided for different uses; rules and procedures governing flights within different kinds of airspace; and navigation through the airspace by a variety of techniques and devices, some ground based, others self-contained within the aircraft. The management of air traffic utilizes a complex of personnel, airground - air and point - to point communications navigation aids, displays, radar, computers, and airways/air routes. It involves circulating air, abundance of papers containing flight information, charts, criteria, regulation and procedures, all aimed at making the system function according to certain established ideas of how its operation should be conducted."[14]

The above description could be described in a nutshell as a system which included highly sophisticated equipment on the ground and in the air, highly skilled professionals on the ground and in the air, national and a international organization, and finally international and national regulation. The system has been undergoing unending changes and development, and the same is expected in the future.

2.2. Regulation of Air Traffic Services

It has been mentioned above, that first rules regulating flying date from the beginning of 1920's and that they have been of an international character since their very inception.

The first principles were laid down in the Paris Convention and were later elaborated by ICAN, which was the first international regulatory body in the field of aviation. The states which

participated in the creation of that convention had already recognized the necessity for the establishment of regulations of universal application and included that statement in the preamble of the Convention. The principle of regulation for universal application was further elaborated in eight annexes, among them two, which regulated air traffic and navigational aids.[15] The present scheme for international and national regulation of air traffic services is the following:

1. The Convention on International Civil Aviation concluded in Chicago in 1944 (Chicago Convention)
2. Annexes to the Chicago Convention
3. National regulation

2.2.1. Chicago Convention

The Chicago Convention imposes upon a contracting state a two-fold obligation. The first one, which is of legal nature is the subject of article 12, and the second one, which is of an organizational and technical nature is the subject of article 28. Article 12 pre-supposes the existence of national rules and regulations, which should conform, to the greatest extent possible with those established from time to time under the Chicago Convention by ICAO Council.[16] For the safe conduct of flights it is not enough that a territorial state adopt relevant rules and regulations. In order to assure acquiesence and compliance with national rules, the Convention provides that each state insure that its aircraft comply with local rules and regulations.[17]

The Convention also stipulates a general compliance with rules of the air adopted by ICAO Council for flights over the high seas.[18]

Air traffic is of universal character and the main portion of it is performed beyond national borders.[19] It would be ideal if every state could have the same level of technical equipment, equivalent organizational and uniform regulations to enable pilots to fly around the earth under the same conditions. But the reality is quite different from ideal situation. The reasons for this are numerous and can not be discussed here, although it might suffice merely to mention them. Uniformity of service is very much desired in air traffic systems and article 28 speaks to the subject by setting out the obligation and responsibility of every state to provide for adequate equipment, to adopt appropriate standard systems and to collaborate in international measures.[20]

It is worth mentioning at this point, that the states which participated in the Chicago Conference of 1944 were not only aware of the necessity for uniformity, but also of the fact that some states did not have enough and adequate material and human resources in order to establish uniform system to facilitate air navigation. Therefore a separate chapter was included in part III of the Convention which regulates airports and air navigation facilities. This is the only field of international aviation where a cooperation between ICAO and particular states have achieved material results.[21]

2.2.2. Annexes to Chicago Convention

The international regulatory body of law is completed with the inclusion of the Annexes to the Chicago Convention. They have their legal basis in the Art. 37 which lists eleven different areas where uniformity is most desirable and at the end gives general statement about other matters which may appear appropriate.[22] Among others, one area is entitled "Rules of the air and air traffic control practices " and was, as such, elaborated as early as 1946 in one comprehensive document.[23]

This first document was the subject matter of further discussion which resulted in the issuance of two separate documents - Annex 2, Rules of the Air and Annex 11, Air Traffic Services.[24] But both Annexes are part of one whole and govern much more detailed Procedures of Air Navigation Services.[25] Annex 11 is a basic document which governs the organization, regulation and operations of air traffic services in every state that is party to the Convention. Together with Annex 2, which incorporates the basic rules of flying, it forms the legal background for coordinated work of a controller and a pilot.

Annex 2 defines in chapter 1 the term air traffic service as "a generic term meaning variously flight information service, alerting service, air traffic advisory, service, air traffic control service, area control service, approach control service or aerodrome control service." This definition shows that air traffic control service represents one part, most likely the

largest and the most vital part of one broad activity, which is carried out on the ground, in order to assist and help aircraft to perform their flights in an orderly and safe manner. For a better understanding it is necessary to also define other activities which are encompassed with the term "services". These activities are: Flight information service. A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

Alerting service. A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organization as required. Air traffic advisory service. A service provided within advisory airspace to ensure separation in so far as possible, between aircraft which are operating on IFR flight plans.

As noted above, relevant provisions of the Chicago Convention and particular Annexes form the legal background for national regulation. Therefore, it is useful and necessary to present its basic provisions and to recognize what are the substantial obligations of states which are parties to the Convention.

First of all a contracting state is obliged to determine portions of air space and aerodromes where air traffic services will be provided. Secondly, when air traffic services have been determined, the contracting state has to designate the authority which is responsible for providing such services.[26] Thirdly,

the Annex sets out objectives which have to be accomplished through the function of the organization designated for air traffic services. According to 2.2. of the Annex its objectives are to:

> "1) prevent collisions between aircraft;
> 2) prevent collisions between aircraft on the manoeuvring area and obstructions on that area;
> 3) expedite and maintain an orderly flow of air traffic;
> 4) provide advice and information useful for the safe and efficient conducts of flights;
> 5) notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required."

The objectives set out above are the determining factors for the establishment of different organizational units. The objectives from number 1 to 3 included, belong to control services; number 4 belongs to information service and number 5 to alerting service. Later on, the Annex sets out each service in more details in order to give adequate guidance for national regulation and through it for the establishment of the international regulatory framework.[27]

2.2.3. Yugoslav Regulation

Only when the Annexes to the Chicago Convention are brought into national legislations do they get their legal identity and can be applied. As long as they are not adopted and promulgated according to the legislative practice of the particular state, the Annexes cannot be applied in daily life except in case of the

traffic over the high seas.[28] The adoption of Annexes to the national legislation of a state is the point at which conflicts arise between different national legislation and between national legislation and international documents. The ICAO Council recognized this unwelcomed possibility and as early as 1948 the council adopted a resolution in order to spur states in their efforts to be as uniform as possible when adopting the texts of the Annexes into their national legislation.[29]

National regulation of the present matter is more or less equal in every state, although numerous differences could be found when looking through the list which is attached to the Annex. In this paper, the Yugoslav legislation will be described and compared with the Convention and the appropriate Annexes. One of the reasons for this is the fact that one of the worst mid-air collision occured in Yugoslav airspace and that a Yugoslav aircraft was involved in it.

The basis of civil aviation legislation of Yugoslavia is its Zakon O Vazdušnoj Plovidbi (Law on Air Navigation) of April 19, 1978.[30] The law has 345 articles which are divided into five parts, though, air traffic control is elaborated in chapter 2 of part 3, Safety in Air Navigation.[31] According to the federal Constitution, the regulation and the assurance of safety in air navigation is within competence of federal organs which represent and work on behalf of federal state.[32]

In the area of air traffic control, a Savezna Uprava za Kontrolu Letenja (Federal Air Traffic Control Agency) was established. For the performance of its duties it has several regional units which are as follows:

- area air traffic control
- terminal air traffic control
- airport air traffic control

The basic duty of every regional unit is to control air traffic and to guide aircraft when flying. The control of air traffic and guidance of aircraft includes:

1. aircraft flying on airways and out of them - under the rules for instrumental flying (IFR);
2. aircraft flying in particular part of air space - under the rules for visual flying (VFR);
3. aircraft on the airport, where the unit of air traffic control is organized.[33]

Airport air traffic control must be organized on every public airport, airports for training of transport pilots and on military airports, on other airports only if it is necessary for the safety of air navigation.[34]

The control of air traffic and guidance of aircraft is performed in the time when an aircraft is flying in Yugoslav air space and in the time when it is moving on manoeuvring areas of an airport.[35]

From the above mentioned information it may be concluded that almost the whole Yugoslav air space where public transport and military flights are performed, is controlled and aircraft are guided. The question which comes to mind is what is the statutory meaning of word control and guidance. According to Article 13, air traffic control is the control of flying and guidance of aircraft in air and on manoeuvring area of an airport, whereas, the guidance of aircraft are specific acts connected with its navigation which are performed by air traffic control with a radar in a prescribed manner.

Now, we come back to the regional units of air traffic control with the question of how the workload is divided among them. All units perform air traffic control and guidance of aircraft in their assigned regions. Besides that, they have other duties which are following:

1. area control-coordinates work of terminal and airport controls; permits the firing of rockets against hail or other flying objects in air space beyond the terminal; cooperates with other authorized organs in the identification of aircraft and in the recognition of presence of flying objects in the air space above the region of area control; initiates the action for search and rescue in its region, and, generally, performs other activities which are provided for in its constituting document;

2. terminal control - has the same duties and functions described above for area control except that its territory is

smaller than that of area control;

3. airport control - performs the control function in the air space above the region of airport departure and approach control; accepts from and transfers aircraft to the terminal control or area control; approves flight plan; starts the action for search and rescue in its region; performs other activities that are provided for in document on its establishment.[36]

The assignment of duties to different units is rather general and this is the reason why it does not include precise delimitation between different units either upon regions or upon activities. If the federal government wants to assure safety of air navigation, appropriate administration and organization of territorial units have to be connected in the comprehensive and uniform system. And this is the reason why, the establishment, organization and assignment of activities is in the competence of the Savezno Izvršno Veće (Federal Executive Council).[37]

All provisions which were mentioned hitherto have common characteristics that they are general and lack of clarity. There is no elaboration what the words control of air traffic and guidance of aircraft mean. Therefore, it is possible that objectives of air traffic control that are declared as only and primary in Annex 11 become secondary and supplementary to some general legislative provision, which is even not defined in the statute.

Exactly how did this happen to Yugoslav law, Article 207 des-

cribes duties and activities of every units of air traffic control in addition to these above described:

> "1) to assure prescribed distance between aircraft and prevent collisions between aircraft during the flight,
> 2) to prevent collisions between aircraft and obstruction on manoeuvring areas and assist in prevention of collision between aircraft on manoeuvring areas
> 3) to participate in the identification of flying objects in the air space and in the assurance of its inviolability,
> 4) to expedite and maintain an orderly flow of air traffic and collaborate with adjoining units of air traffic control,
> 5) to inform competent state organs and organizations about aircraft that are in danger and proceed with prescribed measures for search and rescue of aircraft.
> 6) to notify interested state organs, organizations of associated labor and other self-management organizations and communities upon their request about movement of aircraft in air traffic."

The air traffic control uses in its work the following forms:

- an order which is a verbal form of communication to the pilot to perform some acts during the flight,
- an instruction which is a verbal form of communication to the pilot to perform the flight on particular manner,
- a clearance which is a verbal permission, given to the pilot to perform the flight according his suggestion under particular conditions;
- information which is the transfer of necessary information, relating to the movement of an aircraft, about the meteorological situation and other circumstances which are important for safe flying.

Since Yugoslavia has not notified the ICAO Council of any reservation or difference and did not comment on Annexes 2 and 11, it is worthwhile to make a short comparison and conclude whether it should have given notice of reservations or differences or not. There are no differences with respect to the organizational requirement since the government designated a special authority for providing air traffic services. The difference which arises from the narrower title used in Yugoslav law is not as important, for it is external and the actual organization covers all three main parts of services - control, information and alert.[38]

The first difference between Yugoslav law and Annex 11 appears when one analyses the duties and responsibilities which are set out in the national regulation and the objectives which are contained in the Annex. According to the Yugoslav statute the main duty of every air traffic control unit is to control aircraft in flight and to guide them with a radar. One must admit that the statutory definition, (see p. 22 above) it is not precise enough in order to provide a clear and unambigous description of the duties of a controller on one side and of the rights of a pilot on the other. From the point of legislation, the limitation of guidance of aircraft when a radar alone is used is clearer since if there is no guidance, such as the situation where there is no radar or it is out of use. However, the question what does the word guidance mean still remains open. Is a controller, who uses radar in his work, responsible

for proper and safe navigation? If so, then Yugoslav law provides for something which is not known in international standards and which imposes additional obligations upon the air traffic control authority. Unfortunately, this definition as a whole is not of such content that it could not cause any controversy or at least misunderstanding about what is at certain moment the role of pilot or of controller.[39]

The preventative measures used against hail is set up so that special equipment will fire rockets into hail-bearing clouds in order to destroy them. Obviously, such rockets could endanger aircraft in flight. Thus, the prior consent of the territorialy competent control unit is required when and in which direction rockets could be shot, is adequate safety measure in those parts of air space where air traffic circulates.

As far as the other activities of the air traffic control units are concerned, they are of an organizational and operational nature, and they do not have any impact on its role in air traffic operations. But a closer look is required at the provisions for what Annex 11 calls "Objectives of the air traffic services"[40] and what is in the Yugoslav law in Article 207.[41] The first point is broader in scope since it adds words "ensure prescribed separation between aircraft", which could lead to the conclusion that this provision is stronger than that found in the Annex.

The second point is the same as the second provision in the Annex but only in a certain sense. Both provisions provide the prevention of collisions between aircraft and obstructions on manoeuvring areas, but the Yugoslav statute provides only assistance in the prevention of collisions between aircraft on manoeuvring areas. At a glance it seems that the legislator just wanted to impose a burden of the avoidance of collisions upon aircraft crews similar to that placed on vehicles operators on the road. Small damages could happen on the manoeuvring area very often, thus foreign crews should be informed about the difference in Yugoslav regulation which imposes practically the complete responsibility for avoiding collisions upon them.

The third provision provides for the collaboration in the identification of flying objects in the air space and in assuming responsibility of protecting national air space. This duty is closely related to defence of the state and to the protection of sovereign air space. Such provision could be explained by article 9 of the Law on Air Navigation which in paragraph 2 stipulates that "the control of flying and guidance of aircraft, military aircraft inclusively, is performed according the uniform system." Actually, the cooperation between military authorities and air traffic services was discussed in ICAO Council in 1975. Then, the Annex 11 was amended with a new paragraph which regulates this form of coordination.[42] International regulation seeks such coordination in order to secure the safe and the expeditious conduct of flights which can be

affected by military activities in air space. Thus some differences, however small do exist between the international standard and national regulation for Yugoslavia. The differences relate to the type and final goals of coordination between civil and military authority which are different from those proposed by the international body.

The fourth provision relates to the duty to expedite and maintain an orderly flow is in accord with the counterpart provision of the international standard except that it includes an additional provision which relates to the collaboration with adjoining units which seems to be superfluous.

The notification of competent state bodies about aircraft which are in distress and the taking of necessary steps in such cases is the matter of the fifth provision. It has its counterpart in Annex 11 and thus no difference could be filed.

The fourth objective in Annex 11 which states that air traffic services have to "provide advice and information for the safe and efficient conduct of flights" is regulated by Art. 217, par. 2 of the Yugoslave law.[43] Given the fact that this provision is placed in a separate article indicates that some difference with the ICAO Annexes do exist. But it is not only the location of this provision it is also the text itself which requires some comment. Since the provision uses the words "prescribed informations", it means that ATC unit which

is supposed to give information is not obliged to give more than is prescribed if it is not willing to. Whereas, the words useful, safe and efficient lead to the conclusion that the ATC is not only supposed to give all kind of information but also to give advice which is useful for safe and efficient flying. It is hoped, and experience has shown, that cooperation between controllers and pilots is in reality much better than is set out on the paper, so this difference is merely academic in nature.

The last activity mentioned in the Yugoslav law is the transfer of informations to state organs and organizations about the movement of aircraft in the air space. This is a very general provision and is not further elaborated in the statute. Thus, its practical value is questionable or at least it is not of any practical value for international air traffic.

At the end of this short survey it can be concluded that differences do exist though some are important and some are not. Two of them seem to be so important that notification should be given to the ICAO Council. The first is the guidance of flying aircraft which is not mentioned in international standard and which imposes quite heavy burden on a controller. As a matter of fact, the guidance is provided only when radar is used. The second relates to the assistance in the prevention of collisions between aircraft when they are moving on manoeuvring areas. This provision supposes that air crews have the primary res-

ponsibility to avoid collisions since they are in control of aircraft and they should take care of it. It is doubtful if such provision could stand at a very busy airport.

2.3. Duties of Air Traffic Controller which Require Active Participation in the Performance of Flights

2.3.1. International Standards and Recommended Practices

It was mentioned above that Annexes 2 and 11 and Doc 4444-RAC/-501/11 define the scope of work of acontroller and a pilot. The fundamental provisions which must be borne in mind is that whenever one considers the range of activities of different subjects which participate in the air traffic control process and the resulting liabilities which flow from these include the following obligations:

> "the pilot-in-command of an aircraft shall, whether manipulating the controls or not, be responsible in accordance with the rules of the air, except that he may depart from these rules in circumstances which render such departure absolutely necessary in the interests of safety",[44]
>
> and
>
> "the pilot-in-command of an aircraft shall have final authority as to disposition of the aircraft while he is in command."[45]

The allocation of final authority in regard to safe and efficient conduct of flight is a logical consequence of the fact, that only the pilot can consider all circumstances and possible consequences of a decision, including what steps to take and when

to take them. But, since he is not aware of every thing which may affect his flight, he has an "assistant" on the ground who supplies him with information about other things which he would not know otherwise. This is particularly important when IFR flights are performed because pilots flying in instrument meteorological conditions (IMC) can not look out and make appropriate maneuvres to avoid collisions with other aircraft or with the ground.

Annex 11 in its chapter 3 sets out that control service shall be provided:

"1) to all IFR flights in controlled airspace

2) to all VFR flights in controlled airspace (instrument/visual)

3) to all aerodrome traffic at controlled aerodromes."

The operation of air traffic control services includes following activities:

- collection of information on the intended movement of each aircraft and on the actual progress.
- determination of relative positions of aircraft to each other.
- issuance of clearances and information for the purpose of preventing collision and of expediting and maintaining an orderly flow of traffic.
- coordination of clearances as necessary with other units.[46]

The most often used forms of control activities are clearances and different information. Clearances are issued in order to provide separation between controlled aircraft regardless under

which type of flight rules they are operating. Besides the simple control, air traffic control service or special unit flight information service provides aircraft with following:

> "a) SIGMET information;
> b) information on changes in the service ability of navigational aids;
> c) information on changes in condition of aerodromes and associated facilities, including information on the state of the aerodrome movement areas when they are affected by snow, ice or significant depth of water; and of any other information likely to affect safety."[47]

The above cited information is available to every aircraft which could benefit from it. In addition to this information, aircraft flying under IFR rules are supplied with following:

> "a) weather conditions reported or forecast at departure, destination and alternate aerodrome;
> b) collision hazards to aircraft operating outside of control areas and control zones;
> c) for flight over water areas, in so far as practicable and when requested by a pilot, any available information such as radio call sign, position, true track, speed, etc. of surface vessels in the area."[48]

In order to complete the picture of how air traffic control is designed by international aviation standards, the term clearance has to be described. The definition is identical in both Annexes 2 and 11 and is following:

> "Air traffic control clearance. Authorization for an aircraft to proceed under conditions specified by an air traffic control unit."[49]

With the provisions of Annexes 2 and 11 the role of the air traffic controller is defined. Additionally to it PANS

elaborate upon the work and duties of controller in more detailed form.[50]

2.3.2. Yugoslav Regulation

There is no equivalent provision about pilot-in-command position in Yugoslav law as there is in the International Standards.

Art. 13 of a particular law includes in definition no. 36 a description of term pilot-in-command, who is a person who directs every work in the airplane, represents

> "the airplane and is responsible for its safety and for the order in it during the flight."

It is rather difficult to include ICAO definition in such broad and general statement. Directing work and being responsible for safety does not necessary mean that pilot-in-command has final authority and responsibility regarding the conduct of flight. Particularly, the question remain open vis-à-vis the controller and his right to interfere in the manner in which a flight is performed. If the pilot's final authority is explicit in Annex 2 it is only implicit in Yugoslav law. This results from the last sentence in para. 3 of art. 209 which says:

> "The pilot-in-command, who cannot fulfill an additional order of an additional instruction, must refuse it, and advise the air traffic control unit which issued the order of his refusal."

Obviously, pilot cannot fulfill orders or information that are against regulations or can jeopardize the safety of aircraft and people or cargo carried.

In above context the whole status of the pilot in Yugoslav law differs from that found in the International Standard. The best explanation for this is found in the article itself, so that it is reproduced here in its entirety:

> "In Yugoslav airspace, every aircraft must fly under prescribed manner and according orders, clearances or information of competent air traffic control unit.
>
> If during the flight an aircraft does not perform it according prescribed way and orders, clearances or information of competent air traffic control unit, it must intervene and take prescribed measures.
>
> If the pilot-in-command obeying orders or instructions of competent air traffic unit would endanger the safety of air navigation or if because of technical characteristics of the aircraft he cannot perform the order or instruction he has received, he must inform the competent air traffic control, irrespective of the provision of the first paragraph and request that the order or instruction be changed."

Similar to Annex 11, Chapter 3, point 3 (see above p. 31) the Yugoslav law obliges the control unit to collect and elaborate upon information about intended and permitted flights of aircraft under its control and information about their actual position and movement. On the basis of this collected data, the control unit has to determine the relative position of all aircraft in its region and to assure prescribed distance between them.[51]

According to the article 219 of the Law on Air Navigation every flight in Yugoslav air space has to be permitted in advance. The permission is issued by Federal Air Traffic Agency in the

form of permission of flight and of confirmation of flight plan, respectively. However, for scheduled public transportation a time table has to be submitted instead of request for permit.

Whenever reasons of air navigation safety demand an air traffic control unit is allowed to change the flight plan or time table and fix another time and priority for take off, landing and for entry into or exit from Yugoslav air space and to assign another airway or altitude.[52] This provision seems to be narrower than the particular provisions in Annex 11 which give ATC some authority to control and adjust air traffic flow according to capacity.[53] The difference also shows in the wording. Where International Standard uses word "shall", there Yugoslav rule uses "is allowed" which is again much more restrictive.

Article 224 again contains some provisions which could be marked with a question mark or at least require some clarification. The first paragraph stipulates as follows:

> "Airport control unit may forbid take-off to the aircraft, which do not satisfy the conditions for safe flight."

A very obvious question is how and in what circumstance does the controller obtain the information about the state of the aircraft. Furthermore, this provision seems to be in contradiction with the rights and duties of the inspection which is also part of Yugoslav law.[54] Finally, how can an officer, who has his working place on the top of an airport tower supervise an air-

craft which is staying on its stand. Justification for such a provision if any should be specifically included in the law statute.

The second paragraph of the same article gives the ATC the authority "to forbid the take off or landing of an aircraft if conditions on the airport are such that they cannot possibly make a safe take off or landing and if other conditions for safe air navigation are not accomplished except when an aircraft is in peril." Such provision arise the question: why are so strong words used and what happens when the controller just does not issue a clearance or refuses to issue it? From the wording in Annex 2 it is clear that the pilot is just not supposed to undertake the flight unless he gets the clearance which he had requested when he had submitted the flight plan.[55] Such a provision might be useful and justified under some special conditions, although, obviously is a departure from International Standard.

The last paragraph of the Article 224 contains the provision which regulates the duties of the controller when an aircraft is in an emergency situation. It says:

> "If an aircraft is in a dangerous situation, the airport control unit must give to the pilot-in-command the necessary help and perform or order airport services, respectively, to do whatever necessary for a safe landing."

In this provision particular emphasis should be placed on the duty of airport control to assist and help an aircraft in any

emergency in spite of the fact that meteorological condition at the airport are below minimum. And naturally, in case of an emergency a control unit ought not to refuse to accept an aircraft. It also must be mentioned that this is not the only provision in the statute relating to matters of emergenc es and search and rescue.[56]

From point of view of daily operations by controllers, a very important provision imposes upon the control unit the obligation that it must

> "inform the pilot of an aircraft about meteorological appearances changes in conditions of technical equipment and conditions on maneuvring areas and also about other data which are important for safe flight of an aircraft."[57]

The above text provides for the duty of control unit to continuously watch every essential element that can affect the conduct of a flight for better or for worse. Of course, each change has to be transmitted to the flying pilot immediately or as soon as possible. This provision has its counterpart in Annex 11, Chapter 4, Flight Information Service. But, point 4.2.2. contains provisions which cannot be found, even in different form, in the national law. It relates to the service which could be declared essential for the conduct of IFR flights.[58]

A competent unit of air traffic control is obliged and authorized to take all necessary measures, in order to turn away dangers arising when a pilot-in-command is endangering the safety of air navigation.[59] In addition, a control unit must

notify the occurance of a violation to the Komisija za Vazduhoplovne Prekršaje (Commission for Aviation Violations). Taking care of safety in the air is very obvious purpose and goal of ATC in spite of the fact that International Standards do not have any provisions in this area. Violation of the rules and regulations which are applicable in air traffic seem to be self-explaining offence and a threat to safety and any law should contain some sanctions for any breach of rules and regulations or create the mechanism for prevention of further violations.

Besides the provisions which were described above, the Law on Air Navigation involves controller and pilot in a special chapter which regulates the jeopardizing of air safety, search and resue of aircraft, and aviation accidents. In addition to the previous provisions, the law imposes an explicit duty upon a pilot-in-command and on a controller to take all measures in order to avert the danger of collision.[60] Practically identical wording in both cases could confuse a reader upon the first reading. But this is not the case, for the duties of both parties are described in the previous articles and only in accordance with them necessary measures can be taken. Such an explicit duty imposed upon the controller, not even upon a unit, means the departure from a certain degree of the general rule that obliges the airport control only to assist and help aircraft in avoiding collision on manoeuvring areas. Nevertheless, such provision seems to be adequate, especially because it is

imposed upon a particular person who must react immediately whenever and wherever he realizes that could lead to the collision. Dangerously manoeuvring aircraft close to one another is a major deviation from prescribed rules and standards that such an occurance must be recorded, analyzed and adequate improvements or prevantative measures established. This is exactly the purpose of subsequent provisions which regulate the authority and procedure of work of the Commission for Safety which is established under further provisions.[61]

The final field which involves air traffic control is search and rescue of aircraft. The statutory provisions are divided into eight articles. They cover, in general, the matter which is elaborated in some details in Annex 11, Chapter 5 - Alerting Service and in Annex 12, Search and Rescue. The provisions are mostly of an organizational nature, whereas, the issuance of more elaborated regulations is provided for in part five of the law.[62]

2.4. Pilot - Controller, Team Work.

Recent development of the ATC System is based upon the supposition of a distribution of roles between pilot and controller. The pilot, who still has the final authority and responsibility for conduct of a flight, has to navigate the airplane and to keep it on course according to the flight plan, whereas the controller has to monitor the traffic and to regulate it in the way which ensures the avoidance of collisions and permits an orderly flow of air traffic. It could be assumed that this distribution of activities is going to remain unchanged in the

future, when more automation is expected to be introduced into the system.[63]

Regardless of the present situation, the fact is that the controller's function has been subject to permanent changes. The present volume of air traffic and its expected growth already dictate that control units must devote a major part of their work to programming flights in advance in order to assure the safe and undisturbed flow of traffic. The operational control is not losing its importance but when compared to the preparatory and planning function, the latter is becoming more and more involved.[64] Thus, the cooperation does not only involve the pilot and controller. It goes beyond that and includes the control units or even control authorities and operators who coordinate timetables, routes, airports, etc.

Despite the fact that the future system should rely upon the pre-flight organization and a minimum of in-flight intervention, it is impossible to imagine that every possible situation can be foreseen and provided for in advance. In addition to this, it must be stressed that in case of a system's failure either aboard the aircraft or on the ground there is a person who can solve problems as they occur and can carry out all of the necessary duties.

It seems that the future development of technology and organization in air traffic control will still be based on the notion

that it is an auxilliary phase of the actual performance of flight, although it plays a considerable role in assisting the pilot. But, in the phase of planning of traffic the role of control should be predominant in view of coordination of timetables, routes, airports, procedures, etc. Obviously, the legal process will have to follow it and to evaluate the regulation adequately.

It might be useful to say, that it looks as if there will be more and more restrictions and limitations for every individual user of air space if we want to have more safety and more access for those wishing to use the air space.

Besides everything what was said above, the matter has been discussed in a text which was written in the International Labor Organization offices, for a special tripartite meeting was held in 1977. Part of the text relates to this subject and reads as follows:

> "As the intensity of air traffic has increased and will doubtless continue to do so, techniques for the safe control of aircraft in airways and the approach zones of airports have needed constant updating. The computer has entered this field and with the aid of more sophisticated radar and radio position alerting systems is increasingly assisting the air traffic controller on the ground. The latter is not only informed of the correct spatial position of the aircraft he is guiding, but can be warned of a critical traffic situation before it actually arises. But despite the increasing sophistication of such equipment the burden on the individual controller has not lessened. Next to the pilot he has the greatest responsibility for air safety, and in busy terminal areas the air traffic con-

> troller is subjected to a high degree of stress. Future development of computerized position alerting systems, both on the ground and in the aircraft, should ultimately reduce the present heavy reliance on human intervention."[65]

As early as 1964 the Sub-Committee of the Legal Committee of ICAO concluded that:

> "Air navigation will tend to be more and more dependent upon the control services which will in a larger measure participate in the activities relating to the movement of aircraft."[66]

The above prediction has become a fact which has many time been confirmed by courts in different countries.

It is interestingly enough to see how private pilots see the role of the controller. Christopher Johnston,[67] in his paper among other things concludes the following:

> "Aviation is, of necessity, a team effort. Any pilot who feels he can fly solely on the basis of his own efforts is a menace to himself, his passengers, and other pilots. Air traffic controllers are important members of the team, and the courts realize the important position which controllers occupy in the guest for aviation safety."

CHAPTER 3

LIABILITIES FOR AIR TRAFFIC SERVICES IN YUGOSLAV LAW

In this chapter the basic information and consideration about Yugoslav law will be made. The scope of the study will be determined by the need to clarify some questions which arose in international circles after the mid-air-collision over Zagreb in 1976.

For the purpose of analysing the legal status of the air traffic controller it is necessary to study the system of liability for criminal offences, and civil liability as well as the system of liability of the state. Some necessary information regarding labor law will be discussed as well, since it regulates the relations between an employer and an employee in the situation where damage has occurred in connection with the performance of work, which is usually the case with a controller.

3.1. Penal Liability

The first adoption of the Krivicnizakonik (Criminal Code) was in 1951. It was a federal code applicable throughout all Yugoslavia. As in other fields of legislation, that code was subject to frequent changes and amendments which were necessary because of changes in the socio-economical relations in Yugoslave society. On the basis of the present Ustav (Constitution) a new legislative framework of federal, republican, and provincial statutes was established. The former Criminal Code was re-

placed by the Krivični zakon (Penal Law of SFR of Yugoslavia) and with separate Penal Law for each of the Republics and Autonomous Province respectively.[68]

The matter of legislative regulation is divided between federal and other regional statutes, so that the federal statute takes jurisdiction over the basic principles and concrete offences which are provided for in the federal legislation, whereas the Republics and the Provinces have jurisdiction over offences which fall under their competence.

Since the regulation of air navigation is declared to be federal matter,[69] offences against air navigation laws and regulations are dealt with by federal statute. Furthermore, the fundamental principles governing criminal liability are also the subject matter of federal legislation. As a result, only federal law will be examined.

Before undertaking the examination of federal law, some very basic constitutional principles must be mentioned. They are as follows:

- no one shall be punished for any act which was before its commission not defined as a punishable offence by statute or a legal provision based on statute or for which no penalty has been established;
- criminal offences and criminal law sanctions may only be established by statute;
- sanctions for criminal offences shall be imposed by a competent court in proceedings regulated by statute;

- no one may be considered guilty of a criminal offence until so proven by a final judgment of a court of law;
- any person who has been unjustifiably convicted of a criminal offence or who has been deprived of liberty without cause shall be entitled to rehabilitation and compensation for damage by society and to other statutorily established rights.[70]

3.1.1. Elements of Criminal Act

According to the criminal law doctrine the basic elements of criminal act are:

- human act of will
- danger upon the society
- unlawfulness
- provision in the law
- perpetretor's penal responsibility[71]

A legal act can be done exclusively by human act which is geared by his will. Accidental occurances or acts of animals can never be declared deeds which are punishable. The majority of criminal acts is done by commission which means that a prohibition was violated. The omission, which is the second form of criminal action presupposes existence of a legal obligation. Whereas, prohibitions are provided for in the Penal Law, obligations can be the subject matter either of penal or other statutory text.[72] The man's act must bring about forbidden consequence which is part of the description of the fact that state of criminal offence. The establishment of consequence

on the basis of objective facts is important for the consideration of the causal relation and of the question if the accused person is the reabffender. If there is no causal relation between the consequence and human act the penal act does not exist or the suspected person cannot be accused. The Yugoslav criminal judicial practice uses the principle condicio sine qua non for the establishment of causality between the consequence and human act.[73]

Article 8 of the present Penal Law defines a criminal offence as an act which is dangerous to the society and is provided for in the statute. The question is how the danger is to be measured and does it also encompasses the notion of illegality. According to the opinion of the majority of experts theoretically and practically the danger of an offence is to be measured by objective and subjective criteria, yet, the illegality is considered as part of the danger.

3.1.2. Penal Responsibility - Guilt

> "Penaly responsible is a doer who is conscious of the act and has committed an offence intentionaly or negligently. For a criminal offence, which is committed by negligence, a doer is criminally responsible only if it is so provided for in the statute."[74]

The above provision means that someone will be convicted of every criminal offence listed in the law, whereas otherone who is responsible for negligence shall be convicted of those offences which explicitely include negligence too. Criminal responsibility includes two conditions: consciousness and

deliberation or negligence. The first condition must be present every time, whereas second is changeable.

After the causal relation between a deed and a perpetrator is established the court must ask itself whether the accused person has the capacity necessary for being responsible or not.[75] The law regulates the situation where somebody does not possess adequate maturity and intellectual capability to understand the character of his performance or can not control it. It speaks about nonconsciousness and diminished consciousness which exclude the guilt or mitigate it substantively. Latin expression actio libera in causa found its place in the third paragraph of Article 12. This rule relates to the perpetrator who was unconscious at the moment of criminal performance but who had caused this by the use of alcohol, drugs or otherwise to be in such a state and despite the knowledge about possible consequences he had done it intentionally or negligently. The law deems persons over fourteen years old to be capable to be subject of penal responsibility although the law contains the provisions about punishment of people who are younger than eighteen years.

Thus the person who has the capacity to be responsible can be held guilty. It has two distinctive forms intent and negligence. The theory and jurisprudence recognizes direct and eventual intent, the difference between them being the intensity of will and awarness to act wrongfully and to cause unlawful consequences.[76] One can speak about direct intent wherever

a perpetrator has the knowledge about every element of the criminal offence and wants to give rise to it. At the eventual intent the level of knowledge is reduced, a perpetrator is not completely sure about the probability of forbidden consequence and he just consents to the occurance of forbidden consequence.

The level of will is distinctive sign between the eventual intent and conscious negligence. A person is negligent: a) who is aware that his commission or omission can initiate a forbidden consequence, but he thinks he can prevent it or that it will not arise; b) who is unaware that forbidden consequence will arise, but on the basis of all circumstances and of his personal ability he should and could be aware of it.[77]

It is obvious that in such a definition there is no place for certain objective criteria. When considering the question of negligence or an absence of negligence, the court has to analyze very carefully the personality of the accused person and to weigh each specific circumstance.

Theory distinguishes two kinds of negligence, one is conscious and other is unconscious. This distinction is based upon the state of awarness of possible consequences. In the first case, a person is aware that his commission or omission can cause forbidden consequences but carelessly believes that he can prevent it or that it will not rise at all. In the second situation, a person is not aware of a possible prohibited

consequence, although, given according his personal ability, he should and could be aware of it. The key word in conscious negligence is carelessness. There is no doubt about the will to act or omission from acting. In any case, a person is determined to do something in spite of his knowledge that it can have forbidden consequences. However, at the same time, he is convinced, though carelessly, that he can prevent it or that it will not arise. This kind of negligence is present in a majority of crimes against the safety of street traffic. While in every kind of guilt only the intellectual or the psychological side of person is being weighed, this is not a case with unconscious negligence. Obviously, since the unconscious person is not aware of his act he can not be asked why has done something. For, if he were aware, he would probably not be negligent. Thus, the subjective criterion must here be substituted by an objective test in order to establish a standard. This standard is the average person of similar knowledge, skill, and other personal abilities to whom the question is put: would he be aware of the danger and probabilities of the forbidden consequence? The possibility of being aware (could) is assessed subjectively, whereas the capacity (should) is assessed objectively. The court must have positive answers to both questions before it can decide about someone's negligence.[78] However, this kind of guilt does not come before the courts very often, and it must be admitted that the doctrine suggests it to be used very carefully and restrictively.

The law also regulates the situation where an offence presents very little danger, for it is insignificant and a situation where perilous consequences are minimal or they do not exist at all. In both cases a doer will not be punished despite the fact that an act contains essential elements of a criminal offence.[79] Those limitations are completely in accordance with the principle that criminal sanctions are the ultimate measures which a society uses to prevent wrongful acts or to punish them when wrong-doing it has been committed. On the other side the law regulates the question of what happens when a negligently committed offence results in more serious consequences. The incident of more serious consequences gives the court the right to impose upon the offender the penalty which is provided for in the case of a premeditated act. This provision is based upon the premise that each offender has to be judged with the subjective criteria and the seriousness of the consequences which have resulted from the act or omission. This rule broadens the use of negligence from articles where it is explicitly provided for to every offence which, although they are negligent in execution, have worse consequence as a result.[80] The kinds of consequences are determined exclusively by objective criteria.

3.1.3. Situations Excluding Guilt or Mitigating Punishment

The law also recognizes some situations in which a person could not be found guilty or a punishment could be mitigated.

They are:

- self defense,
- extreme necessity,
- error about a matter of fact, and
- legal error.

In the above cases the accused person may defend and be acquitted in spite of the fact that some acts have all characteristics of a criminal offence. The self-defense is covered by Article 9. It is described in the article as one inevitably necessary defense used by someone in order to divert an unlawful attack from himself and or somebody else. An accused person who has committed an unlawful act, can argue self-defense whenever he can prove that he did not have any other alternative but to protect himself or some other person. The effort to divert the attack must be contemporary with the unlawful danger. The reaction before or after the actual danger can be considered as separate offence. In addition to the element of contemporaneousness, the self-defense must be of sufficient strength as to thwart the attack but not so excessive as to cause unnecessary injury or damage.[81]

Extreme necessity. According to the Article 10, this is known as an act which is done in order to divert simultaneous but not unlawful danger. An act, to be declared "of extreme necessity", must be only employed to divert "threatening danger". A balance between the force of the self-defence i.e. the necessity on one hand and the threat on the

other, must be achieved if a party does not want to be held responsible.[82]

The error about a matter of fact is described as a lack of awareness that an act includes elements of penal act, or as a misunderstanding of some existing circumstances which make an act permissable. This error can only relate to various characteristics or circumstances of a criminal act which all have the common characteristic that a person has misunderstanding or does not have any understanding at all of any of the factual elements of the penal act.[83]

The person, who has committed a penal act, can be leniently sentenced or the sentence can be forgiven, if for justifiable reasons he did not know that the act was prohibited. This error is different from the previous legal point of view, although both types of error have very similar effects upon an offender. These are namely, that legal error does not exclude penal responsibility, which means that a doer will be found responsible for a penal act, but because of a legal error the sentence can be reduced or completely forgiven.[84] Of course, this is a matter considered and weighed by the court which is dealing with the case.

3.1.4. Should Air Traffic Controller be Responsible for Criminal Negligence?

It is public knowledge that the 1976 Zagreb accident case caused much discussion and many disputes about the question of whether

the criminal process should continue or should be terminated and the persons who have been involved should be pardoned. The International Federation of Air Traffic Controllers Associations (IFATCA) used every means including a petition to the late President Tito to rectify the injustice which penalized the convicted controller and a member of their organization.[85]

Since it seems that, from a legal point of view, negligence is matter of permanent debate and the cause of discontent, particularly among controllers, a closer look at the question is justified.[86] In addition to those complaints, criminal negligence is also an institution in civil penal law which is not known in common law, where mens rea is the condicio sine qua non for penal act.[87] A further analysis will be divided in two parts. Firstly, a discussion of the theoretical approach will be made. Secondly, through an explanation of the verdict and how it was arrived at by the trial court, will give us an answer to the question stated above.

Penal negligence is a product of modern times. The efficient and safe use of various machines, the prevention of damages, and even catastrophes which may occur because of new kinds of energy, require highly skilled people and a far higher level of vigilance than ever before. This, together with the higher risk of danger involved resulted in negligence becoming a kind of guilt. Actually, it is still an exceptional kind as it can be an element of penal act only, if it is provided for in the law.[88] Putting together provisions of aviation and penal law

one can come to the conclusion that many of the controllers' duties can be affected by negligence and can cause catastrophic consequences. Instead of answering the question posed in the title of this section counter question could be asked. Why should air traffic controllers be exempted from penal responsibility if their position completely meets all of the tests recognized by theory and provided for in law? In the next section the negligence of the controller who was held liable for the mid-air-collision over Zagreb will be described as it was proved and understood by the trial court. The application of the provision in real life is the best way to show whether it works or does not work.

In the criminal proceeding before the Okruzni Sud Zagreb (District Court in Zagreb), air traffic controller Tasic was found guilty and sentenced to seven years imprisonment.[89] He was convicted on the basis that he,

> "negligently endangered air traffic, placed into jeopardy lives of people and property of greater value causing the death of many persons. By this he committed criminal act against general safety of people and property, and a serious act against general safety by endangering the public and traffic described in article 273 paragraph 5 and in connection with article 271 paragraphs 2 and 3 of Penal Code."

The Court explained the criminal negligence of the accused as follows:

> "The Court believes that in the act of the first accused Tasic the form of negligent fault was realized. From the description of facts and the explanation in the charge emerges that the accused became aware that a conflict

situation was developing at the time when the crew of JP-550[90] reported to him and informed him about crossing level 325 with estimated time of flying to the Zagreb VOR by 10 14; that report was made at 14th minute and 10 seconds. From then until the moment of contact which followed at 14th minute and 42 seconds 32 seconds were left or less, for the crew's report lasted for a certain period of time. From the processes of the accused and the words he has spoken it is possible to conclude that his desire is clear and doubtless, he wishes to keep this aircraft on any level which is below critical one; he attempts twice at 14th minute and 22 seconds and in 14th minute and 29 seconds, he attempts this, imprecisely but clearly expressing his wishes the aircraft remain on any height below that which leads into the conflict. When trying, although inadequately, to stope the aircraft climbing, he does not agree that the people in it are exposed to danger, he does not take this into account, there does not exist any motivation for such his behaviour or any indication whatsoever for it. (paras.34 Page 45)

The Court thinks, that for the existence of eventual intent the element of will is missing i.e. acceptance. The accused has never accepted the consequence of danger. In this case, the conviction that the anticipated consequence will never occur is the motive of behaviour of the accused. While trying to stop the aircraft climbing, he thinks that he can avoid the forbidden consequence, that is, endangering of air traffic, by maintaining the aircraft on specific height, although, not designated by number. This court finds that in the performance of the accused in the last minute, when he is giving instructions to the pilot, the element of conscious negligence is realized. Every acceptance of the consequence would be very close to an intent, so when considering that, one has to analyse and assess this element of will with extreme caution. Finally during the trial, the expert Marsavelski testified that he believes that the accused Tosic has wished to do the best in the critical moments. (Page 46, para. 2)

> Statements of one representative of the persons who suffered damage, that practical reasons speak against liability for negligence and that exclusively guilty-minded performance has to be the basis for guilt, create a conception which is unrealistic. For the negligent actor, a retribution is sometimes not proper, indeed a punishment sometimes does not make sense, but, this conception goes too far, when requiring negligence to be taken out of the penal law so allowing many types of dangerous behaviour go unpunished. Judicial practice, when establishing general rules of carefulness, must follow the middle way, since the age of technique can not be conceived within a museum world of absolute safety nor as an invitation to a dangerous kind of life. Therefore, court has not accepted that the accused had committed the deed by eventual intent as has been stated in the charge. (Page 47, para. 3)
>
> 176 people lost their lives in this catastrophe. The accused never accepted this consequence that the first consequence, that was, endangering of air traffic. With respect of these acts, the relation to the consequence is located in the foreseeability of the probability of occurrence so that it has to be ascribed to his unconscious negligence. (Page 47, para. 4)"

An appeal was brought against the judgment to the Vrhovni Sud SR Hrvatske (Supreme Court of Socialist Republic of Croatia). It confirmed the substantive part of judgment without reservation, but it found the sentence too high and reduced it to 3 years and 6 months.[91]

3.1.5. Penal Responsibility of Air Traffic Controller

In the previous law there was no specific provision relating to air traffic control. It was part of general category which included every kind of traffic in the chapter of the law about crimes against the common safety of people and property. The

new Criminal Law devoted one chapter, Chapter 21, with 4 articles specifically assigned to crimes against the safety of air traffic.[92] Those articles encompass acts and offences which are the subject matter of international conventions and they represent the international obligations of the Yugoslav state.[93] In addition, they also cover the content of provisions which defined a penal act against traffic in general which were in the previous law.

For the present analysis the content of article 241 of the penal law is important since it contains statements, which are applicable to the duties of controllers as described in the Law on Air Navigation and in other regulations. The giving of wrong notices and the omission of some duty or supervision in respect of safety of air traffic are two factual matters which fit in the work and purpose of the existence of air traffic control. These two provisions themselves can be applied in every case of commission of a criminal act. Nevertheless, the description of the work and duties of the controller, as set out in the law and in other regulations, are, in most cases, precise enough and represent an adequate definition of the level of care or of professionalism required on the job. The rules, which define the work of people in the control units, mainly impose duties which call for active work and not merely for passive assistance. Thus, the basic kind of penal act would be an omission to do some duty or carry out an activity.[94] World wide experience with aviation crashes has shown that they

usually have serious effects upon human lives and material. This was the reason the legislator included two paragraphs which provide for the negligence as a form of guilt and as a condition for giving rise to very serious consequences with an accordingly stronger punishment. Such a provision can only be justified to prevent great damage which can occur to people and material whenever the rules of safety are infringed.

Besides the above mentioned offences one more should be mentioned, for it also may be invoked in the process of the consideration of some unlawful acts. That offence is entitled Unconscientious Work in a Service and is the subject of Article 182 which is part of Chapter 19 dealing with Crimes of Civil Servants in Federal Organs in respect of their official duty. However, it is expected that this type of crime will only occur very rarely and for this reason, it is merely mentioned here without any further explanation.[95]

3.2. Civil Liability

Sedes materiae for civil liability is in the Zakon O Obligacionim Odnosima (Law on Obligation Relations) which was adopted on March 30, 1978 and came in force on October 1, of the same year. Before that date old rules had been applied on the basis of a special statute[96] which had permitted their use whenever they had not been contrary to the socialist legal system. Thus, before the adoption of the new law practically every obligation has been regulated according to the Austrian Civil Code of 1811,

which has also been subject to several amendments and changes in its home state. The Austrian Code was applied in a majority of Yugoslav regions. The more than one hundred year old legislation did not cover every situation or was obsolete or in conflict with the new socio-political system in Yugoslavia, so that the adoption of various specific statutes was necessary.[97] After some years of existence of the socialist state the Main State Arbitrage adopted and issued General Usages of Trade which tried to fulfil the need to provide a basis for commercial transactions and eliminate the diversity of prescriptions in the former commercial codes.[98]

Causing Damage is the subject matter of the second division in the second chapter that covers the broad area entitled "Origin of Obligations". The first article in this division answers the question: which kind of liability is recognized by Yugoslav law. Primary liability is subjective or fault with the burden of proof on the side of damage-feasor and the secondary is objective. Namely, the first paragraph of article 151 prescribes that

> "the person, who has caused the damage to another, is obliged to compensate for the damage, unless he proves that the damage has arisen without his fault."

The second paragraph introduces objective liability by saying that

> "for damage caused by things or activities from which stems greater danger of damage for surroundings, one is responsible regardless of fault."

The third paragraph provides for the possibility that objective liability can also be prescribed also by other special statutes.

At the very beginning it must be mentioned that there are very few differences between contractual and tortious liability in Yugoslav law. The principles, upon which tortious or non-contractual liability for causing damage is based, are the same for contractual liability, except when specific solutions are explicitly provided for in the law.[99]

Today, in Yugoslav legislation, theory, and practice the following conditions are declared as requirements for the existence of fault liability:

- damaging fact,
- unlawful damage,
- causal relation between damage and damaging fact, and
- liability for damage.[100]

The damaging fact is usually deemed to be a human act interfering with some legally protected right or interest.[101] An accident can also be damaging even though it can not be attributed to someone unless so prescribed by the law. A human act can be considerd as a damaging fact because it is unlawful on the basis of the legislative provision or because it is damaging the lawful right or interest in spite of its legal permission. It is at this element that the major dividing line between noncontractual and contractual obligations to recover damage can be drawn. Whether the claimant is entitled to

demand recovery on the basis of the contract or the claim is founded on the basis of the legally protected right determines the answer to the question about the nature of the obligation.[102] Not only a violation of the law but also of the principles of the morality may constitute a damaging fact.

Pursuant to Art. 16 of the Law on Obligation Relations, everyone must refrain from causing damage which means that every act is in a principle unlawful if it can bring about the damage. However, not every type of damage is of such a nature that somebody can be held responsible for it. From a legal point of view the unlawful damage is every curtailment of rights or legally protected interests.[103]

At this occasion the term damage should be touched upon for it does not contain any further description. It is given in the Article 155 of The Law on Obligation Relations that determines the damage as:

- common damage,
- loss of profit, and
- nonmaterial damage.[104]

These provisions are further elaborated in articles which regulate the kinds of compensations and the amounts of damages. The basic kind of making good the damage is restitucio ad integrum. The compensation in money is applied whenever the injured person requires or when the restitution is not possible

or is improper. In addition, the compensation in money is usually applied in the cases of nonmaterial damages as bodily injuries, pain and suffering etc.

According to the Yugoslav legal doctrine the causal relation between damage and damaging fact must be firmly established. It is condicio sine quo non for further consideration of the liability. First of all the causality must be looked at through the meaning of the legal provision -- ratio legis and its intention: what kind of right and how far it should be protected. In case that the causal relation cannot be determined in the light of legal provisions the method of adequate causality is used.[105]

The old rules held that the burden of proof was on the side of defendant as an exception of general rule that the person, who has suffered damage, had to prove the responsibility on the side of damage-feasor. However, the old principle became obsolete and inadequate to even greater probability of occurrence of personal or material damage. This leads to changes that are justified by the need for adequate protection and compensation for the injured person.[106] What was said in relation to the burden of proof leads to the conclusion that an injured person who wants to recover damages suffered by him has only to prove the damaging fact and that the damage was caused by an act of commission or omission by the defendant. It should be also mentioned that Yugoslav doctrine distinguishes fault and unlaw-

fulness, since the fault does not necessarily always include the unlawfulness.[107]

The analysis of every condition for civil liability would lead to separate paper. Therefore, it suffices to enumerate them without particular explanation except the liability that is subject-matter of this paper.

3.2.1. Fault Liability

The consideration of liability for damage must begin with the general principle that is neminem laedere. It means that everybody must refrain from causing damage to other persons. Causing damage is prohibited unless it is explicitly allowed by law.[108]

Who can be at fault? The law provides for the fault for every person who causes damage by premeditation or by negligence. Similar to guilt, civil fault is composed of two elements, one is awareness and other is will. To give a guide to the measure of the kinds of fault, different degress of both elements must be present simultaneously and be assessed cumulatively. Premeditation presupposes the awareness of the possibility of damage, though the intensity of will can differ. Thus, we speak about direct intent, when an actor wants damage to be caused by his act and about eventual intent, when an actor indifferently accepts the possibility of damage. Whenever an intentional act is being considered, the actual person is being

analysed with his intellectual and emotional characteristics. For negligence, the person and the level of awareness and will is lower than for premeditation. As far as awareness is concerned, the principle distinguishes between situations in which a person is aware of the possible consequences of the unlawful act and those in which he is not aware of them. Parallel to changes in the state of awareness are also changes in the level of will. In case of awareness a person does not want damaging effects to result or at least hopes he will be able to prevent them or even they will not arise, whereas in state of nonawareness the factor of will is not involved.

For the examination of fault liability the objective criterion is more important than the subjective criterion which is not the case with penal responsibility. Somebody's negligence is being weighed in comparison with other people. Historical developments created different levels of negligence. There are three:

- culpa lata-gross negligence,
- culpa levis-slight negligence, and
- culpa levissima-slightest negligence.[109]

An air traffic controller would be responsible for gross negligence when he commits an unlawful act which an ordinary man would not do in similar circumstances. The ommission of issuance of the prohibition to take off to the pilot who wants to perform the flight in spite of obviously bad weather, could

be declared as gross negligence. Namely, it can be assumed that every person knows or is aware of the danger of flying in adverse weather conditions. For gross negligence the level of care is quite low, for people in general cannot be ascribed as being very careful particularly because they are not exposed to high danger.

The omission of the duty to inform a pilot about some changes on runway or in equipment, because they seem to be unimportant, could be used as an example for slight negligence. In this situation the answer to the question would be, - would another controller of the same knowledge and of the same experience act in the same manner or not. If the answer is in the negative, the controller can be held responsible for slight negligence. Yugoslav legal writers name slight negligence as common and give a description how careful someone should be:

> "Like every person who has essentially the same abilities as the doer and these abilities are important when considering the question of fault for an act which has been made."[110]

Culpa levissima or the slightest negligence could be determined as very high, extraordinary level of care. The responsibility of a damage-feasor would be assessed by the care of a very careful person in the same circumstances. The question would be asked whether the man of the same knowledge and of the same personal abilities, but who is extremely careful, would do the same thing or not. An extremely careful person could not be

responsible for being negligent in the slightest way for he would do everything possible to avoid the danger of damage. According to doctrinal opinions the slightest negligence could be used when answering the question of objective liability. A person who is objectively liable can not be freed of responsibility even if the slightest lack of care is proved.[111]

As it was mentioned above a person can be obliged to give compensation if he is responsible. However the responsibility is not isolated concept, it is the product of personal capability to understand and appreciate the nature of his act. Thus the person, who is mentally ill or feeble-minded or because of some other reason, incapable of understanding, is not liable for the damage he causes to someone else.[112] A person who causes damage in the state of temporary incapacity, is not at fault if he proves that he is not responsible for the incapacity. This is so called responsibility for casus mixtus which is applicable also to the third person who has brought the damage-feasor into the state of incapacity.

Youth between the ages of seven and fourteen years can be held responsible if it has been proved that he could appreciate the nature of the act. However in this instant the burden of proof is shifted from the defendant to the plaintiff. After fourteen a person is deemed to be capable i.e. responsible, in accordance with the general rules of liability.[113]

3.2.2. Defences in the System of Fault Liability

A damage-feasor is not liable if he can prove that he is not at fault. At first glance it seems that a provision like this cannot give the accused person many possibilities to avoid the responsibility. But in reality such a broad and simple provision gives the possibility to use every defence in order to be exculpated. Besides that, in the law it is also provided for situations which can exculpate a person. Articles 161 through 163 of the Law on Obligation Relations regulate self-defence, distress, prevention of the damage from other persons, permitted self-help and consent of the injured party which are statutory recognized defences.[114] The statutory text regulating self-defence, distress, prevention of the damage from other person ensures that someone can be freed of the obligation to compensate if the damage has been done in a proper manner and if the strength of reaction has not exceeded the actual danger. If the damage has been brought about because of distress, the claimant can demand recovery from the person who has caused the endangering situation and consequently the act of distress. If the person acting in distress suffers damage, he can claim recovery from the person who has had benefit of the protection against the danger. The person acting in self-help is not obliged to compensate the person who has caused the need of self-help. The person who has consented to the probable occurrance of the damage (volenti non fit iniuria) is not authorized by the statute to claim compensation.

3.2.3. Objective Liability

It was already noted (see 3.2.) that the objective liability is the second kind of obligation to recover for damage. The principle that the responsibility for the higher danger exists regardless of the fault[115] is further elaborated in the Art. 173 of the Law on Obligation Relations which says:

> "The damage brought about in the connection with dangerous thing and dangerous activity respectively is deemed to originate from that thing or activity respectively, unless it is proved that that thing or activity has not been the cause."

Here, we operate with presumed causality which means that basically every defendant sued on the basis of it must prove nonexistence of causal relation between its thing or activity and occurred damage. Thus, there do not exist other excuses like lawfulness etc.[116]

Until now we have spoken about objective liability and no responsible person has been mentioned. Therefore the law contains the provision deciding who is responsible for the damage. Article 174 stipulates that:

> "1. For the damage from danger thing is responsible its possessor; for the damage from danger activity is responsible who carries it on.
> 2. The owner of the thing is deemed its possessor as well as the social juristic person who has the right of disposition and who has got the thing in temporary use respectively."

The doctrine and judicial practice has elaborated in some detail various situations in respect of the responsible person.[117] However, here might be worth mentioning that in the case of

several danger things or activities their possessors or performers are jointly responsible.

3.2.4. Defences in the System of Objective Liability

In line with the preceeding statements about the only possibility of avoiding the liability there are some defences which can be used by a defendant in order to be relieved of the liability. According to the Article 177 these defences are as follows:

- force majeure,
- act of the injured person and,
- act of the third person.[118]

Yugoslav legal doctrine calls the force majeure "qualified accident " and describes the essential elements of force majeure. They are the invincibility, unsurmountability, and unpreventability of the event. The event has to be brought about from outside of the person who is presumed to be liable. In regard to the acts of the injured, it is held that he can not only be at fault but also objectively liable, whereas the act of third person can be done only by fault. However, the responsible person can be tried only if the acts of the injured and third person respectively have been unexpected and there has not been any possibility to divert or to avoid them. Paragraph 3 regulated the apportionment of the responsibility if the injured person is partially liable for fault. The law also recognizes the joint responsibility of the defendant and of the third person in the case where that person has partially con-

tributed to the damage. However, the apportionment of the damage among jointly responsible persons will be made according to the principles of fault liability.

3.2.5. Connection between Civil and Penal Liability

As has been already seen above, there is a fundamental distinction between civil and penal liability. The purpose of the former is the restitution to the state of that which had existed before the unlawful act was done and the latter is the repression of an offender and prevention of further crimes by isolation. Thus, various legal systems developed theories under which there is no connection between either theory or that there are some connections. Yugoslav theory and legislation, however, adopted the ideaabout the relationship between the both kinds of liability.

The relation between civil and penal liability are manyfold from substantive items to procedural matters. They relate to the notion of similar terms in both branches of law like premeditation, negligence, fault, damage, and others to interdependence of judgments and relationship between both processes. Since we have to deal with questions which have arisen from the particular case and only with the controller's liability, our consideration will be oriented to that. The basis for analysis is the fact of existence of the final criminal judgment by which the accused controller was found guilty and sentenced.[11]

Does the issuance of a final criminal judgment have any significant influence upon civil court in a subsequent civil suit? In accordance with the article 12 of the Law on Civil Procedure[120] a civil court is bound by decision of criminal court in terms of existence of the penal act and of the penal responsibility. This means, that a civil court can not change the legal qualification of the criminal court and in the case of the same actual state of either liability has to take it for the basis of determining civil liability, whenever it is a constituent part of it.[121]

In cases like air crashes it can happen that both processes run simultaneously, so that either of the courts may have to decide some preliminary questions from the other process. Both the civil and criminal procedure allow courts to consider and judge preliminary question until the moment when such a question has been finally adjudged. But, when a question has been decided in civil process it does not bind criminal court in respect of its consideration whether penal act has been done or not. This is not the situation for the civil court.

3.3. Liability of State

Since the beginning of new Yugoslav state there have been several systems of state liability.[122] As early as 1946 the Act on State Employees accepted the system of the subsidiary liability of the state. This meant that the employee who has acted wrongly or unlawfully was responsible for the damage,

and only if the suit against the employer was brought because the employee could not satisfy the judgment against him, was it possible to bring the action against the state. In order not to lose the right to sue the state, the person who had suffered the damage had to bring the suit against the employee and against the state simultaneously or at least before the expiration of prescription which started running in the same moment for the employee and for the state. However, the execution against the state was possible only if the requesting person has presented official document that the execution against the employee had been unsuccessful.

The first major change was the introduction of primary responsibility of the state. It was declared firstly in 1953 including it in the Constitutional Law and later in 1957 when it was elaborated in the Act on Public Employees. The new state responsibility was original and independent of employee's eventual responsibility. That liability was conditioned by the fact that public employee had caused the damage when he had been exercising an official duty and had committed a crime. Until the adoption of the Law on Obligation Relations in 1978 the state liability was the subject matter of Labor Law. Despite the fact that in the period from 1965 to 1976 labor legislation was subject to several changes, the principle of state liability remained unchanged all that time.[123]

As it has been stated above, with the coming in force of a new more comprehensive system of obligations, the provisions about liability of state organs have been translated into the new law which contains particular provisions in section four of division two of Chapter two. The respective section is entitled Liability of Organizations of Associated Labor and of Other Juristic Persons towards Third Persons and comprises three articles, 170 to 172. For the present analysis articles 170 and 171 are relevant so that the discussion will be only directed to them.

The provisions of article 170 are founded upon the recognition of the fact that workers work as part of the activity of an organization and even within the defined limitations determined by a technological process or assigned duties. This article stipulates only the responsibility of the Organizations of Associated Labor, whereas the next article extends it to other juristic persons doubtless included among these are state organs and institutions which perform public activities, and also to individuals who carry on some kind of private business.

The statutory provision of responsibility of basic organization is following:

> (1)" The organization of associated labor, where a worker was working when the damage was caused, is liable for the damage which was caused by the worker when he was working or in connection with it, unless it is proved that the worker was working in prescribed manner.
> (2) The injured damaged person has the right to seek the indemnification of damage directly from the worker, if the damage has been caused by premeditation.
> (3) The provision of the first paragraph of this article does not interfere with the rule on liability for damage which originates from dangerous thing or dangerous activity."

First of all it can be seen that the principle of liability was undoubtedly established and that it gives a high degree of protection to the injured person and even to a damage-feasor. The passive legitimacy of the organization is presumed in every case when the damage has been caused during the work or in connection with it. In this respect the liability of an organization of associated labor is objective. It alone is liable except in the case of premeditation when the claimant has the possibility, of choosing to sue either the organization or its worker. Nevertheless, even when the damage has been done intentionally, the injured person would not sue the worker since he knows that an organization is economically much stronger than an individual. Since the first adoption of liability of juristic persons for their workers there has been comprehensive and exhaustive court practice about the question of the meaning of the stipulation "during the work and in

connection with it". Following practice until the present time, an ommission of a controller to inform a pilot about slippery runway that causes partial destruction of an aircraft, would involve the liability of his organization and consequently of the state. By comparison, causing injuries to another controller in the office because of fighting would involve the liability exclusively of involved person.

The fact that an organization is under an objective liability for damage caused by its worker does not mean that it will be automatically liable. Before the question of liability arises, the performance of a worker has to be considered and decided upon. The worker's performance is incorporated in words "has been working in prescribed manner". As it can be seen the word "fault" from article 154 paragraph 1 of the Law on Obligations was replaced by prescribed manner. Obviously, a mining company or an air carrier does not have the same general rules, so that the fault or responsibility of its worker can be measured on the basis of its organization and its rules merely because they ought to be complied with. Such documents are at least so specific that they can not be compared with others. Besides that they are in the broadest sense ingredients of the activity of a juristic person and they determine it. However, neither the law nor the doctrine or judicial practice have not taken the position yet and answered the question whether the rules and regulations had to be made in written form or did the words "prescribed manner" include operational instructions too?

That means that an organization can be exculpated when it proves that its worker was working in prescribed manner which means according its instructions when the damage aroused. Although, it seems logical, at least two questions arise from this. Firstly, is it possible, that an organization is responsible even though the worker is not? The answer is positive for it could happen that a worker has not the ability for the proper performance of a certain job or duty, which absolutely can not be his fault. Secondly, what is the determining factor for the necessary or prescribed manner? Very often workers operate properly but the equipment or machine is obsolete and by virtue of this obsolence there is certain level of probability that damage can be caused at a certain time- The author's opinion is that in interpreting the phrase "prescribed manner", a broad approach should be used. Consequently not only internal regulations but also the general principles of a profession should be taken into account. In addition, we often witness various complaints that equipment for air traffic control in some countries is not adequate for modern needs. This is not the consequence of the lack of proper devices but due to budgetary limitations. Which course will be selected by courts in the future is impossible to predict.

Finally, it can be concluded that the liability of legal persons is not vicarious; it is specific and original in spite the fact the injured person, pursuant the second paragraph, can choose among the juristic person and its worker when submitting a suit.

The third paragraph that regulates noncollision of provisions included in article 170 with provisions on dangerous things or activities opens a particular question i.e. about the nature of air traffic control activity. Is it the activity fraught with greater danger or not? Strictly, from technical point of view the answer would be in favor of subjective liability. By virtue of the various devices and equipment used in air traffic services they do not represent any particular danger to anybody. The activity alone also could not be declared to be dangerous since it is only advisory to aircraft in the air or on the ground. There is a myriad of similar reasons. But, whenever someone starts talking about air traffic as a whole, the way of thinking tends to follow a different pattern. It is true, air traffic is the safest kind of traffic but when a crash occurs it is usually catastrophic. In most air accidents air traffic services are in some way involved, either they have contributed directly or have not prevented it in spite the fact that they have or should have been aware of what was going to happen. Besides that, as long as the statements about pilot-controller team work are valid, the conclusion about the objective liability of organizations for air traffic services is justified.

As was mentioned above, Article 171 extends the applicability from the Organizations of Associated Labor to other juristic persons and persons who perform some kind of independent business.[124] At this point the question emerges about the legal foundation of

state liability for damage caused by air traffic controllers. In the previous chapter the organization of Yugoslav air traffic services was shortly described. On the top of that organization is the Federal Air Traffic Control Agency which is also the headquarters of the whole Yugoslav organization which is composed of area, terminal and airport control centers. The establishment of the Federal Air Traffic Control Agency, a description of its activities, its organizational structure and other matters are stipulated in a specific act on state administration.[125] According to this law the Federal State assumes the responsibility for Federal organs, whereas Republics and Autonomous Provinces are responsible for their respective organs. In court proceedings the state is represented by the Federal Public Attorney.

The second paragraph of article 171 stipulates the right of recourse:

> "Whoever has compensated damage to the suffered person, which was caused by the worker by intent or gross negligence, has the right to request of the worker the indemnification."

This means that in case of premeditation or of gross negligence the state can sue its employee and seek the reimbursement. The probability of such litigation, especially a successful one, is questionable. This is particularly true when the amount is high, for the bound person should not be impoverished not to ensure his minimal social protection.[126] This may be the reason, why the legislator prescribed a very short limitation time.

It is only six months after the amount has been effectively paid out.

Articles 170 and 171 stipulate the obligation of a juristic person for the damage done by its worker or employee. This liability arises only when legal right or interest of some third person has been affected. There is no word about the situation when it is an organ, organization or enterprise itself that has suffered damage. Delition of it is logical since the relations among workers are not obligation relations. They are, according to the Federal Constitution, rights of workers in associated labor.[127] In light of the above provisions the mutual relation between a worker and its organization can be understood. Reciprocal relations are stipulated in the Law on Associated Labor and further in the Law on Labor Relations which was adopted in every Republic and Autonomous Province. The basic principle is

> "the worker, who causes the damage to the basic organization by intent or by gross negligence has to compensate for it"[128]
>
> and
>
> "if the worker suffers the damage during the work or in connection with it, he has the right to request the compensation from the basic organization according to the general principles on liability for indemnification.[129]

It can be seen that the basic organization, which is generic term for association of workers, can be held responsible for every damage, whereas a worker will be responsible only for damage caused willfully or by gross negligence. At the moment,

when the accident over Zagreb occurred the liability or organs, organizations, enterprises and other juridical persons was regulated at that time by the valid Law on Labor Relations. The provisions of article 97 of that law impose responsibility upon the state as the new law.[130]

CHAPTER 4

LIABILITIES FOR AIR TRAFFIC SERVICES IN THE LAW OF FEDERAL REPUBLIC OF GERMANY

The fact that the great majority of passengers who lost their lives in the accident over Zagreb, were German citizens, is one of principal reasons for selecting their law. In addition several German life and health insurance companies have brought suits against the Yugoslav state together with some companies requesting reimbursement of amounts that had been paid out to relatives of deceased persons. From this viewpoint it is worthwhile to examine the domestic law of the affected people. Finally, Germany is among the most advanced states, at least in Europe, in air traffic particularly in terms of volume of domestic and international air transport with generally sophisticated equipment, elaborate organization, and skilled people in air traffic services.

This analysis will, similarly to previous chapter, be divided in three parts:

- penal liability,
- civil liability, and
- state liability.

4.1. Penal Liability

Criminal legislation was first adopted as early as 1532 when Constitutio Criminalis Carolina was enacted. The Caroline as it is popularly known has established two vital principles

(a) only persons acting with intent were culpable, and

(b) judges in criminal matters can only act in accordance with the enacted law.

These principles remained the keystone of German criminal law for over three centuries notwithstanding the fragmented nature of Germany prior to the establishment of the Reich. Upon the foundation of the Reich in 1871 the Carolina was superseded by the German Criminal Code. Major deviation of criminal law began in 1933 when:

> "The National Socialist seized on German law, as the best vehicle for conveying and putting into practice their political ideology. So many new concepts and basic alternations were introduced into the Criminal Code that German criminal law became in their hands a veritable charter of cruelty.[131]

After the end of second World War the criminal legislation remained valid unless it has been expressly annulled or amended, its object no longer existed or it was based on Nazi ideology. The last major reform was completed in 1975 when a renewed Criminal Code was adopted.

Despite the fact that Germany is federal state, there is no distribution of legislative power between the federal state and the Lander According to the Introductory Act to Criminal

Code the Länder can regulate only questions that are not completely regulated by federal law. Moreover, it can be presumed that the Länder do not touch this branch of the law.[132]

Like other systems the German penal legislation rests on two maxims which are nullum crimen sine lege and nulla poena sine lege. First maxim means that only law can answer the question whether an act is criminal or not and that a certain act must be outlawed in the law at the time when it is committed, otherwise an actor can not be found liable. The same is true for second maxim with the addition that a punishment can be assessed only within statutory limits and according statutory provisions.

The present code, in contrast to its predecessor recognizes only two kinds of criminal acts:

- felonies, and
- misdemeanours

There are differences between both in respect of the weight of violation and the consequences and, accordingly, there is a differentiation of punishment.[133]

4.1.1. Elements of Criminal Act

German criminal law recognizes three fundamental elements of a criminal act:

- **factual state,**
- **unlawfulness, and**
- **guilt**

Factual state is an abstract description of the essential

elements of a criminal act which is punishable.[134] The establishment of factual state is not in itself sufficient for someone to be guilty. In fact, it defines the determining elements but these elements when they are ingredients of an action, must violate a legally protected right or interest. Since, there is a distinction made between offences which are crimes merely because they show the will to act unlawfully, and as such are per se criminal, and crimes the consequences of which render them criminal. Factual state is important for establishing causality and whether the result is unlawful or not. A criminal act is described as an unlawful act provided for in the law for which an actor is guilty. Penal science has elaborated the performance of criminal act dividing it into commissions or omissions, which are two forms of behaviour and performance. Commission, the active form of an action, can be done:

(a) with knowledge of the unlawfulness of the deed and its consequences and with an intention to produce the result, and
(b) with knowledge of the unlawfulness of the deed but without an explicit intention to produce the result.

Omission is a failure to act in circumstances in which it is unlawful to do so, but which does not necessarily involve a consciousness of the consequences of the omission.[135] According to the theory of performance, the commission of a criminal deed with prior knowledge and intention to cause the consequence and an omission with consciousness of possible consequence are fundamental types of intent. Whereas, the unknown or unintended result of commission and unconsciousness of possible consequences of an omission can be related to the concept of the negligent

performance of criminal act. Under German law, like under its Yugoslav counterpart, negligent performance in punishable only when explicitly provided for in the law.

It is also part of the theory of performance that the description of factual state does not include the unlawfulness, but, it merely indicates it.[136] The conceptual understanding of unlawfulness does not only include the objective fact that something is against the law but includes also the subjective attitude of a person who has committed a crime.[137] It can happen that an act which presupposes or includes unlawfulness will not be considered unlawful because there exists a decisive element which justified such an action or even the particular act is rendered lawful by another branch of law. Finally, it has to be noted that there is no difference between the notion of unlawfullness in civil and penal law. For example, what is lawful according to provisions of civil law can not be made an unlawful matter in penal law.[138]

4.1.2 Guilt

Guilt is the central point in the system of penal law. It answers the question whether someone can be blamed for committing a particular deed or not. Concrete guilt discloses the subjective attitute towards the prohibition or the obligation provided for in the code. There is no exception; guilt must be present in either the commission or omission and is in two

forms, intent or negligence.[139] The intent always comprises knowledge about a consequence: a distinction is made only between direct will to cause the forbidden consequence and eventual will or consent to the forbidden consequence occurring. Sentences like "you should have known that your act was unlawful and you could have done it differently" explain the connotation of negligence in German law. Judicial practice has enlarged the concept of negligence on personal capability to knowing and understanding what someone is supposed to do. In addition, there exists an aggravated level of conscious and unconscious negligence. An illustration of this is when a perpetrator has done a deed recklessly. The question of guilt has always been assessed exclusively by subjective and concrete criteria, in which only the personality and the capability of accused person are weighed. It should also be mentioned that for intentional crimes at least eventual intent suffices unless direct intent is explicitly provided for in the offence.

4.1.3. Situations Excluding Guilt or Mitigating Punishment

There exist several defences that excuse a perpetrator from conviction in spite of the fact that he has actually committed an act which would otherwise be a criminal offence. Among these are following provided in the law:

- self-defence,
- necessity, and
- consent by the injured party.

The self-defence is defined as every action which is oriented towards the prevention of present and unlawful attack.[140] There is no distinction made between whether the attack is threatening the accused person. However the attack and act of self-defence must be simultaneous. Self-defence presupposes that the attack or threat are authored by human action. Excessive self-defence is punishable unless is done in the state of consternation, fear or fright.[141]

The necessity can be a justification for an act and consequently for the ambivalence of punishment when the act is done in an emergency. The defence of necessity may only successfully be pleaded if the danger threatening the accused or his relatives is an immediate one and this was only possible way for him to act.[142] Legal theory suggests various situations on the basis of conflicts of rights and interests, where a balance between defending and threatening force is necessary and also when the sacrifice of some right or interest is inevitably necessary for preservation of another higher or more important one.[143] It is not difficult to imagine a controller invoking the defence of necessity. In air traffic, there can occur unforeseen or unexpected situations where controller must take unusual or even illegal measures in order to ensure avoidance of collision of aircraft. He can commit an offence by endangering safety but with the same action can escape a mid-air-collision which is, obviously, much more worthy than the comfort of passenger or some less important limitation. German law also recognises

the exclusion of this defence in the case where a person has created the danger himself or where he has voluntarily exposed himself to the danger. Consent by the injured party is a further ground for exemption from punishment. The law stipulates that a person who inflicts a bodily injury with the consent of the injured person does not commit an unlawful act unless it is against basic morals.[145] Although the content of this provision refers to the bodily injury, legal science has extended it to other situation with consequence that the rule has general application.[146]

In addition to circumstances described above some other laws may have provisions which can enable an offender to escape punishment.[147]

In the whole context of penal law, as illustrated above, there are some circumstances in which guilt is excluded. The first is the question whether a perpetrator has the capacity to understand that what he is doing is wrong.[148] A minimum level of mental and moral maturity is required. Normally a person over the age of 14 will be considered mature unless any of the explicitly provided circumstances are not fulfilled. Accordingly the law contains various protective measures in order to ensure the juvenile aged between 14 and 18 adequate treatment in the trial before special court. The maturity must be proven in each case. Persons, who have mental disturbances, or are

feeble-minded lack mental or moral maturity.[149] Loss of capacity can be permanent or temporary where it is possible that a person commits a crime during a so called lucidum intervalum. Further the law contains provision for reduced capacity[150] which has to be determined exactly prior deciding about guilt and it has also to be taken into account when sentencing a perpetrator. However, a person who has caused himself to be in state of irresponsibility and has known about probability that he could commit a crime, would not be considered irresponsible.[151]

A major reform of penal law in 1970s solved the question of the error and its role in legislative and judicial practice. The error usually has two forms, legal and factual, and is the subject matter of two articles.

Article 16 contains provisions about factual error.[152] The first sentence of the article is based on the presupposition that a perpetrator does not have any knowledge of the circumstances which are ingredients of by the statute prescribed the factual state, and therefore excludes the possibility of intentional performance being invoked under this defence. But he can still be punished for negligence. The second sentence allows a milder penalty to be imposed in the case where a perpetrator has an erroneous assumption about the factual elements which are part of a less severe statutory provision and the perpetrator may be punished for intentional commission

only in accordance with the less severe provision. Neither of the above provisions exclude guilt but only provide the possibility of pleading mitigating circumstances. The practical value of the Article 16 seems to be small for it regulates intentional acts only.

The next Article regulates error about the prohibition of an act. It reads as follows:

> "The perpetrator, who in committing the act erroneously assumes that he is not acting wrongfully, acts without guilt if he could not avoid this error. If he can be blamed for the error, the punishment may be mitigated in accordance with the article 49, paragraph 1."

The key words in the above provision are "erroneously assumes that he is not acting wrongfully." The question is, whether the erroneous assumption is limited or not. Theoretically, there is no limitation in terms of statutory provisions or judicial practice.[153] When someone has no knowledge of the unlawfulness of his act, he will be acquitted, but as soon as it can be proved that he has some slight knowledge he will be held guilty.[154] Nevertheless, in such a case the last sentence of the article is applicable and the punishment can be mitigated. The provisions of article 17 seem to be a useful aid for an accused controller. At his work, mistakes can occur so easily and unexpectedly, that a reaction which objectively is inappropriate and accompanied by bad consequences may still be justifiable.

The article which follows can also be important for a controller. Contrary to preceeding, Article 18 regulates the assessment of the person whose act has caused severe consequences. In this instance, a higher punishment can be imposed even when the act is done only with negligently performance.[155] This provision is important in the light of criminal offences against the safety of air traffic which will be discussed next.

4.1.4. Penal Responsibility of Air Traffic Controller

Criminal offences which relate to the air traffic are the subjects of Articles 315, 315a and 316c.[156] Whereas, Articles 315 and 315a are only slightly modified versions of the former law, Article 316c has been adopted recently presumably in consequence of the obligations imposed upon states by three conventions regulating offences and certain other acts against safety of aircraft.[157]

In a case similar to the one in Yugoslavia, the German controller can be held responsible on a basis of the paragraph 2. Article 315a entitled Causing Peril to Rail, Ship, or Air Traffic which provides as follows:

(1) "With the imprisonment up to five years or with a fine shall be punished anybody who

1. operates a rail or monorail vehicle, ship or aircraft, although as a result of using alcoholic

beverages or other intoxicants or as a result of mental or physical impairment he is not in condition to operate the vehicle safely, or

2. as an operator of such vehicle or person otherwise responsible for safety, violates legal provisions relating to the safety of rail, monorail, ship or air traffic by conduct grossly in breach of duty, and thereby imperils life or limb or another or another's valuable property."

Controllers are persons who are "otherwise responsible for safety" and the above provision can be applied upon them. Moreover, they are engaged in the particular state agency which has as its primary objective the Flugsicherung (safety of flights). The words "by conduct grossly in breach of duty" describe the level of consciousness and of the desire of a doer to give rise to danger, injury or damage and can be considered to be equal to intent.[158] The correctness of this opinion is implicitly confirmed by the law itself which in paragraph 3 reads as follows:

> "Anybody who in the cases specified in the first paragraph:
> 1) negligently causes or
> 2) negligently performs and negligently causes the danger,
> shall be punished by imprisonment for a time of up to two years or a fine."

Obviously, this provision would not have been written if the intention of the legislator in the first paragraph had not been to regulate intentionally committed acts. At this point one more matter should be mentioned. It is firmly established

conviction of German doctrine that the violation of duty can only relate to legal regulations.[159] This means that they must be made in proper form to have the nature of legislative documents.

4.2. Civil Liability

Germany is one among several European states which adopted a comprehensive Civil Code as early as the very beginning of the 20th century. Since its adoption it has been undergoing a large number of changes and the text valid on January 1, 1977 contained 2385 articles.[160] The Law on Obligations, that determines the legal position of a controller from point of view of civil liability, is the subject matter of the second book. In order to have the idea about the construction of civil law in Germany, it has to be noted that despite the comprehensiveness of the code, there exist special statutes like for example Commercial Code or the Act on Air Navigation which govern particular branch of law. However, if some questions are not regulated in special statutes the general rules of Civil Code apply. The Code begins with a general part containing general principles which have to be applied in every legal situation regardless whether it is regulated in later parts of Civil Code or in other legislation. The Law on Obligations, which is the second part of the code, is based on the principle that all obligations, either contractual or noncontractual, have much in common. Therefore, the second book begins with a

general part again, although it does not bear such a title.[161] After general rules, come provisions for various obligation relations beginning with rules about sale and finishing with delictual obligations. The interest of this paper will be oriented towards following:

- delict in general,
- absolute liability, and
- responsibility of and for officials[162]

However, some provisions from general part will be mentioned for they are necessary for presentation of the whole picture.

Provisions which are relevant for this paper are collected in the Title number 25 Non-Allowed Acts (Unerlaubte Handlungen). Since this does not have any proper meaning in English legal language, the terms delict or delictual obligation will be used.

4.2.1. Delictual Liability

German rules on delicts are based upon three presuppositions which are set out in articles 823 and 826. The first paragraph of article 823 reads as follows:

> "A person, who willfully or negligently, and unlawfully injured the life, body, health, freedom, property or any other right of another is bound to compensate him for any damage arising therefrom."

The second paragraph of article 823 of Civil Code regulates liability in cases where injury has been caused by infringement of a statutory provision intended to protect other persons.

The law further provides that, even in the case where the statutory provision can be infringed without fault, the obligation to compensate arises only when some fault can be imputed.[163] It is plain that certain situations may arise in air traffic control which could involve violations of statutory provisions intended to protect other persons.

Third form of delictual liability arises when someone intentionally causes damage to another in a manner contra bonos mores.[164] This provision confers on the courts the power to apply general principles of morality and decency wherever some acts have obviously infringed them.[165]

An act of a person can be considered as delictual provided that it has caused an injury which has affected material or non-material rights of other person. Accordingly, there is no doubt about protection of absolute rights against injury or damage and about exclusion of contractual obligations and damages. A delictual action can be performed by an act of commission or omission with further theoretical reasoning that an omission can only occur when a person is bound by some duty and infringes it by nonperformance.[166]

Fault is a firmly established principle of liability and it can result from an intentional or negligent action. According to German legal science an intent is expressed with words "know" and "want" which means that a damage-feasor has known and foreseen the unlawful consequence, yet there can be a

difference in the strength of will. The question whether someone intends the consequence or simply consets to it is an important one for direct and eventual intent.[167] However, this distinction is not important for the law does not make a distinction and, wherever the law uses word intent, the eventual form is sufficient for fault.

The second sentence in article 276 of Civil Code defines negligent act as the lack of ordinary care and the jurisprudence elaborates it making further distinction between conscious and unconscious mind. In addition it is divided into three grades:

- slight negligence,
- gross negligence, and
- slightest negligence.

These grades are expressions for levels of carelessness which are weighed objectively only; therefore, the law speaks about ordinary care and not about reasonable care.[168]

Whether someone can be blamed for a delict or not depends in every case on his capacity to understand and regulate his behaviour. Person who does not have this capacity cannot be at fault. A clear connection between fault and capacity is made in article 276 which refers to articles 827 and 828. These two articles deal with responsibility, impaired responsibility and the responsibility of youths and deaf-mutes respectively. Article 276 also provides that they are applicable when fault is being considered. Moreover, articles 827 and 828

are applicable to every obligation relation unless the Code itself or other statute contains a different stipulation. Obviously, a person cannot be charged for a deed, if he has done it while being unconscious, mentally ill or disturbed except in case where he unlawfully and negligently caused himself to be in such state. A juvenile aged between seven and eighteen is not responsible if he has not been aware of responsibility. The same is true for a deaf-mute.[169]

A causal relation between delictual action and the injury or damage is absolutely necessary for the establishment of liability. It seems, however, that there are as many approaches to the matter as there are laws. German legal theory has developed the so called doctrine of adequacy of causation. Under this for something to be the cause of certain consequence, it is not necessary to be a direct relationship in strict sense because the relationship need only be adequate. Such a theory is particularly applicable when two or more causes or consequences respectively are to be analyzed and right one to be chosen.[170] This distinction is pertinent whenever air traffic controller is involved in an accident and it was necessary to establish the proper cause of accident. Of course, lack of causality would be the first and the main defence of every participant in an accident.

4.2.2. Defences in the System of Delictual Liability

Besides lack of causality a defendant can use several other statutory defences:

- contributory fault of the injured party,
- self-defence,
- state of distress, and
- consent of the injured person.

All defences are used by a defendant, when the factual state, injury of other person, unlawfulness, causal relation, and liability is in process of being established. Some defences are oriented towards justification of the deed asserting that it is lawful or that there are no signs of guilt. From the point of view of an air traffic controller the important defences are contributory fault and self-help. First point about contributory fault is that its existence depends upon the facts of each case and that, when it is possible to invoke it, the conduct of the plaintiff must be weighed as to the same degree as that of the defendant. Therefore, the law included only general conditions under which contributory fault can be found when:

- an act on the part of the injured person has contributed to causing the damage
- an omission has been made to warn the defendant of a danger of serious injury, which, the defendant neither knew nor ought to have known, provided that such injury, notwithstanding the

rule of adequate causation, renders the defendant liable - the plaintiff has omitted to avert or mitigate the injury.[171] All three possibilities can easily be imagined in work of a controller. They can range from inpreci e flying to failure to report or to taking improper procedures after the damage has occurred. Despite the fact that the rule speaks about fault, it is widely recognized that it is applicable also in cases when performance or behaviour of injured person (the plaintiff) contributed the damage.[172] When there is sufficient evidence of contributory fault on the part of the plaintiff the burden of proof shifts to him to show that he was not guilty of contributory fault.

Acts which would otherwise be unlawful can be justified when they are done in state of self-defence. Self-defence is the effort of a person to protect himself or other persons or property from imminent danger stemming from another person or object. In the case when the source of the danger is man the law speaks about a self-defence and in the other case about a state of distress or need.[173] Either kinds of self-help have in common a limitation on the strength of the measures used for protection and diversion of danger. In principle any use of defence is covered by article 228 of Civil Code which frees from guilt if he brings about damage when trying to divert imminent danger. However, the law imposes the obligation that the measures taken for protection should not use more force than necessary. But, self-help is not justifiable if the con-

ditions which gave rise to need for measures of self-help were caused by the person invoking the defence.[174] When someone wants to justify his act he must prove that he did it as a form of self-help and that it was a form recognized by the law. However, a misconception about the scope of the defence does not exculpate.[175] The law also contains a supplemental provision that provides for the right of the defendant to use the property of others or to damage it in order to exercise the right of self-help. Notwithstanding the justification any damage caused has to be compensated.[176] It is submitted that an air traffic controller could successfully invoke this defence when in the presence of imminent danger he takes necessary measures to avert thus causing damage but the damage is substantially less than what would have happened if he had not taken these measures. An illustration of the circumstances in which this principle could be applicable is a mid-air-collision.

As mentioned above when discussing delictual liability that the defendant has the burden of showing that he was not responsible, the burden lies on the plaintiff to prove not only causality and damage but also the quantum of damages. As far as kinds of damages are concerned, German law recognizes actual damage which is the reduction in already existing value and loss of present and future income. Similar to other European countries and unlike the common law system, German law provides for restitucio ad integrum as first form of recovery. In

addition German rules are stricter in favour of restitution, than in many other countries in Europe. Compensation is strictly a secondary form of recovery and is subject to precise provisions.[177] It can be demanded only in the following cases:

- when the injury of the person or the damage of the thing has to be compensated,[178]
- when a person has been required to make restitution in given period of time and has been warned that upon failure to do so compensation in money is required,[179]
- when restitution is impossible or insufficient,
- when restitution would require disproportionate expenditure on the part of the defendant.[180]

In accordance with these principles Article 253 stipulates that compensation in money for personal injury is possible only in cases specified by the law. Such a case is compensation for pain and suffering which is not pecuniary damage and if it were not exempted from general rule it could not be compensated.[181]

4.2.3. Objective Liability

In German Civil Code, there is no general provision about objective liability. The Code only includes some provisions regulating specific cases and these cannot be applied to air transport.[182] The scope of objective liability ranges from the liability with the defences as force majeure, act of third person, contribution of the injured person and the prove of all possible and necessary measures respectively have been taken

to the very strict form with only one defence or without a defence at all. Thus it can be said that German law recognizes objective liability with different systemsof defences which vary from statute to statute.[183]

However at very early stage liability for risks became part of aviation law when the first law was enacted in 1922. This law imposed upon the owner the operator or person for the time being in charge of the aircraft absolute liability for damage caused by the operation of the aircraft, for they had no defences whatsoever. Under the influence of the Warsaw Convention changes were made which are still part of present Air Traffic Act that was promulgated in 1968. It imposes strict liability[185] but maintains certain defences and explicitly distinguishes between liability imposed for damage caused to persons and things which are not carried and for damage caused to persons and things on board an aircraft.[186]

The liability for damage caused to persons and things on the ground is absolute and gives the injured person the possibility to recover the damage in the whole. It seems that it is based upon the idea that persons on the ground should not bear any risk for eventual damage. To balance the favorable position of the injured person, which is favorable only from legal viewpoint, the legislation limits the liability of the aircraft to 135.000 German Marks per person.[187] Nevertheless, the law imposed upon holder of an aircraft the obligation to insure against the

liability for amounts specified in the law that are related to the maximum weight of aircraft.[187] The law also give the operator of an aircraft the defence of contributory fault. This defence seems to have little value for it is very difficult to imagine how could a possessor of property contribute to the damage. The only possibility is failure on the plaintiff's part to mitigate the damage or to prevent its enhancement.[188]

The liability towards persons and things which is based upon the contract of carriage binds the carrier to compensate death or personal injury and loss of things which are carried by aircraft.[189] In addition to the contributory fault of an injured person a carrier has the possibility to state that he has taken all necessary measures to avert the damage or that it has been impossible for him to take them. The burden of proof lies upon the carrier so that he must prove very high level of care and professional work.[190] In practice this means that the carrier is often unable to exculpate himself unless the responsibility can be ascribed to the plaintiff himself or to a third person. Here again the law introduces the limitation of highest amounts of damages which can be awarded in single case for different kinds of damages. For example, the limit for death is 67.500 D.M. which is exactly one half of the limit provided for death occurred on the ground.[191] However the carrier cannot avail himself to the above limits in case that the damage has been caused by intent or gross negligence. The carrier is

obliged to carry compulsory insurance in order to be able to pay out all probable damages, although the minimum amount is only 35.000 DM. Yet this amount shall be paid out in any case whether the carrier is liable or not since the law provides for that the amount covers life or injury insurance too.[192] The above system of liability of an air carrier is applicable only in internal traffic for international flights and any subsequent damages regulated by the Warsaw system far as it is adopted in German legislation. In substance this system is the same as it is for domestic flights though the amounts are lower and depend upon the rate of exchange for U.S. dollars.[193]

4.2.4. Connection between Civil and Penal Liability

In German law, the principle of independence of criminal and civil matters is accepted. It rests upon the reasoning that the validity of legal acts can be recognized only within the same branch of law. Criminal and civil law, however, are not the same branches so that there does not exist any legally relevant connection between them.[194] There exists one exception to this rule, criminal courts have the authority to award compensation in claims involving property when the damage originates in a criminal act. As matter of fact, courts do not very often decide upon material damage, they direct claimant party to civil procedure.[195]

4.3. Liability of State.

It is worthwhile to start consideration of state liability by comparing the favorable position of a private employer for the acts of his servants with that of the state. Obviously, both are vicariously responsible for their employees or officials a matter which will be discussed later with reference to the position of the state. The situations differ from each other with respect to exculpation. For example, a private employer can exculpate himself in cases where the damage has been caused by his employee if the employer

> "had exercised ordinary care in the selection of the employee, and, where he has to supply appliances or implements or to superintend the work, has also exercised ordinary care as regards such supply or superintendence, or if the damage would have arisen, notwithstanding the exercise of such care."[196]

From the above it can be concluded that employer's obligation is not only selection but also education and instruction of worker who is entrusted certain work.[197] It must also be admitted that the burden of proof lies upon him, yet this is only a difficult task in an otherwise easier position as compared to state liability, for the responsibility of state is absolute and rests on an essentially different basis. Whenever the liability of state is being assessed two articles must be applied, firstly article 34 of Federal Constitution and article 839 of Civil Code. It can be said that they form a substantive whole. Article 34 of Constitution provides

> "If an official during the performance of work in the office entrusted to him violates an official duty imposed upon him as against a third party, responsibility rests in the first instance upon the state or public corporation in whose service the official is employed. When the damage has been caused with intent or with gross negligence, the right of indemnification is retained. Regular judicial way must not be excluded for request for compensation and for indemnification."

Article 839 of Civil Code so far as it is material reads as follows:

> If an official wilfully or negligently commits a breach of an official duty owed by him to a third party, he shall compensate the third party for any damage arising therefrom. If only negligence is imputable to the official, he can be held liable only if the injured party is unable to obtain compensation elsewhere.
>
> ...
>
> The duty to make compensation does not arise if the injured party has wilfully or negligently omitted to obviate the injury by making use of a legal remedy.

The first sentence of first paragraph of article 839 defines as the basis of the official's liability negligence or intent provided that the act is a breach of an official duty. An official duty must be imposed in writing and must be part of the rules of work. The second sentence modified the position of officials by requiring that when the defendant has been guilty only of negligence the injured person must first try to obtain

compensation elsewhere before seeking it from the official. Official's responsibility is also excluded in cases where the injured person has intentionally or negligently refrained from averting the damage by making use of any existing legal remedies. Judicial interpretation of these articles has established that these articles are the source of the liability of the state inter alia, in the Abstract, and that the state is liable for the acts of its servants provided that these servants are personally liable.[198] But the injury or damage must be brought when the servant is acting within the scope of his official duties or in connection with these duties: In fact the state is vicariously liable for the acts or omissions of its servants while they are acting within the scope of their employement, the scope of their employment being defined by their written duties. Consequently if the act or omission is not connected with their written duties, notwithstanding that it occurs in the course of their employment, the state is not vicariously liable for the servants.

The text of article 34 which uses words "work in the office entrusted to him" and "official duty" could be subject of disputes. Judicial practice and legal science have the meaning of these words developing the principle that provisions of specific statutes and other regulations define what is an official duty in a particular case. In regard to work entrusted to the official it is considered that this is not a legal matter but factual one, provided that the distribution of work and duties

is made within the activities of a state body or public corporation. Before the court, the state could argue that an employee has exceeded the duty or that alleged duty has not been prescribed or regulated. A similar defence was often used by the government of the U.S.A. in cases of controller's negligence and was repealed as often by American courts. The provisions of the Constitutional Law transfers original responsibility from the official to the state so that it becomes firstly responsible. A legal construction of this kind leads to the conclusion that the state's liability is still a vicarious and not original one.[199]

Third sentence of Article 34 empowers the state to seek indemnification from the employee if he has caused the injury intentionally or by gross negligence. This provision seems to be a mere declaration than an effective device in hands of state against its officials. This is particularly true for air traffic where damages are so high that even the whole association of controllers cannot afford to pay them.[200]

What is the legal foundation for classifying air traffic services organization as a state organ and consequently the controller a state employees? In 1953 Western Germany adopted the Act on the Federal Agency for Air Navigation. A new agency was established the main function of which is to watch over the safety of air navigation. This includes the provision of air traffic services

and the construction and maintenance of navigational aids.[201] This agency does not possess legal personality, for it is subordinate to the Minister of Transport.[202] Moreover, employees of the agency are declared state employees by an explicit statutory provision.[203]

In the respect to the question of the official duty, the duties of air traffic controllers are prescribed by the Federal Minister of Transport in the form of various executive regulations and instructions. This is one of the most important authorities given to the minister by provision of article 10 of the Act on the Federal Agency for Air Navigation. Paragraph two of the same article merits attention here since it contains a provision which limits the authority of the minister and binds him to issue regulations which are in accordance with Annexes to the Chicago Convention. Consequently regulations which are not in line with Annexes have to be approved by the Parliament. One can presume that the Minister of Transport must have compelling reasons supported by strong arguments when he proposes some regulation which is different of international standards.

German law also makes the distinction between domestic and foreign claimants. A foreign claimant's suit cannot be entertained unless his country has enacted a law under which it accepts liability for suits in similar circumstances from German citizens and it has officially informed the German Government of this.[204]

In these circumstances, the only possible way to recover is by a direct action against the official who has caused the damage. As far as the liability of air traffic controller is concerned recovery remains a dead letter because the damages arising from air accidents are so great that even the association of controllers cannot compensate them.[205] In the matter of state liability a very recent and decisive judgment was rendered. The Bundesgerichtshof (Federal Supreme Court) considered the legal position of a foreign company in the case of Capitol International Airways Inc., Smyria, Tennessee 37167, U.S.S. vs. Bundesrepublik Deutschland in an appeal on the question of law. Put in the nutshell, the question for the court was whether the Agreement on Friendship, Trade and Ship Traffic concluded on October 29, 1954 between the U.S.A. and the FR of Germany published in the Bundesgesetzblatt (Federal Official Gazette) was the proper manner to make public reciprocity or not. While the court held the view that the agreement between two states can not formally replace reciprocity it simultaneously accepted the right of the claimant on the basis of factul equal treatment which has to be extended to citizens or legal persons of one state in the other.[206] A short description of the court's opinion was in the Frankfurter Zeitung (Frankfurt Newspaper) on July 1, 1980. The relevant part of the commentary reads as follows:

> "In the case of the U.S. airline the high judges determined that the action of air

traffic controller was equivalent to expropriation acts in protected business. In their sense, the striking measures were so closely connected to the performance of so called quasi policy functions that even the work according to the regulation can be put on the same level as sovereignty actions.

If the expropriation has not brought benefit to anybody as in the present case should the injured person actually direct his claim against the officials who have brought about the damage by their unlawful acts. But, it would not be equitable in terms of constitutional protection of property, declared federal judges. The agency, in whose activity the unlawful action took place, is liable already because of this. The Federal State can sue the Association of the Controllers for the costs since it has already been held responsible by several courts. In regard to this it is already bankrupt because of judgments which mounted to more than a million DM in connection with the same action in 1973; the Federal State will also here have the obligation to pay itself. (File No.: BGH III ZR - 131/77)"

Bearing in mind the fact that in German decision of the Bundesgerichtshof have binding effect upon lower courts this decision seems to open new possibilities for foreign carriers in the field of the liability of German state and consequently of controllers with their status of state employees.

CHAPTER 5

COMPARISON OF GERMAN AND YUGOSLAV LAW

In this paragraph the substantive differences between German and Yugoslav law will be reviewed insofar as it is possible in the same order as they were discussed in the preceeding chapters.

The criminal law is similar in both systems. The first differences emerge in the regulation of errors. While the error about matter of fact does not exclude guilt in German law, it does exclude guilt in Yugoslav law. In regard to legal error the picture is reversed. However, as was mentioned above, the factual effect of both kinds of error is similar in both legal systems, although it is only in the Yugoslav system that the offender who has acted in the legal error can be acquitted. The criminal laws of both countries contain provisions about criminal acts which can be applied to an air traffic controller but the Yugoslav law does not contain the provision which reflects the obligations imposed upon states by the Convention for the Suppression of Unlawful Acts against the Safety of Criminal Aviation, Montreal 1971 which is similar to the Article 316C of the German Criminal Code. There exists some differences between both systems of penal liability, but, in spite of these, it can be concluded that in a case similar to the Zagreb crash a German controller would be held liable unless some other reasons prevented the running of criminal procedure.

German law provides for the maximum punishment of five years for the intentional endangering of air traffic and two years for negligent acts. This

Article contains the provision devoted exclusively to the subject of endangering the body, life or property which means that it does not cover, unlike Yugoslav law, death of a passenger or of a third person. In the case of death the responsible controller should be charged on basis of Article 222 which provides for the Negligent Homicide. The question is whether he would be charged for cumulative offences and then sentenced to cumulative punishment or not. Nevertheless, the fact that there exists two articles and two offences in certain way gives the accused person a greater chance to defend himself and to avoid compound punishment than in Yugoslav law where endangering of air traffic and the killing of people are elements of one offence. The killing of another person is considered as a consequence of negligently endangering air traffic whereas in German law it is a separate offence.

The basic rules about delictual liability are similar in both systems as well as the defences which are available to the defendant. When compared the legal systems differ in the understanding of causal relationship. The German doctrine developed the idea of adequate causality which considers as causes of the damage only normal causes. According to this theory the relationship between the cause and the consequence as it appears in daily life can be considered as being adequate. The Yugoslav jurisprudence accepted the idea of ratio legis causality which is basically the theory of adequacy where the element of daily and natural relationship is replaced by the provision and intention

of the law. However, the adequate causality is accepted as the second method and is used whenever the legally relevant causality cannot be applied.

The first main difference arises from the question of objective and absolute liability respectively. The Yugoslav law recognizes general principles of liability for things or activities which produce higher levels of danger, whereas the German law does not contain similar provisions and regulates this sphere of liability by separate statutes. From this it can be concluded that the objective liability of controllers cannot be taken into the consideration at all. This is not the case in Yugoslav law. There, at least the question about the possibility of subsuming the ATC activity under the system of objective liability can be asked.

Because of the various laws in Germany there are different defences to absolute liability in German law, while in Yugoslavia the system is uniform, unless a particular law contains a different solution, for the general principles are set out in the Law on Obligation Relations. But there are few specific laws of this kind.

The Yugoslav law, when speaking about objective liability, provides for the presumed causal relation between the damage which has occurred and the dangerous thing or activity. This provision seems to be in line not only with the principle that the burden of proof should lie on the defendant in system of fault

liability, but also in recognition of the fact that in the modern age various causes can concur and this is why the causality is so important if the right person is to be held responsible.

The second difference appears on the question of liability of legal persons. In this regard the German legal persons who are subject of vicarious liability can be held liable only if their employees are liable. On the basis of Article 831 the employer has still one defence even in the case where the employee has performed his work unlawfully. He can raise the defence that he had been exercising ordinary care when he appointed the employee and had given him the particular job. However, the German state is deprived of this defence and is automatically liable when its servant is liable. In Yugoslav law the liability of the employer is its own liability and thus genuine. Whenever a worker causes damage, the company will be held responsible unless it proves that the worker has worked in the prescribed manner. Therefore, the same defence is available to the state since there is no difference between an organization and the state in regard to the liability to compensate damage caused by its employees. The potential conflict between the liability of a legal person and objective liability is avoided by the provision which provides that the liability of a legal person can not interfere with the system of objective liability. However, in German law absolute liability relates only to legal persons with the consequence that the absolute liability of individuals is practically nonexistent. The right of indemnification in both systems depends upon the intent or gross negligence of the employee who has

caused the damage, whereas in Yugoslav law there do not exist any provisions which require reciprocity if a foreign plaintiff brings a suit against the state.

The relationship between the criminal process and the civil process which is recognized in Yugoslavia, but not in Germany, gives certain advantages to the claimant who seeks recovery of damages. For example, in our case every plaintiff who has filed a suit against the Yugoslav state has done it mainly because of the existence of the criminal judgment. The formal relation which is established between criminal and civil procedure binds civil court to accept the criminal judgment as long as the factual state of the criminal offence and of civil damage claimed are the same. Obviously, in a Yugoslav accident both states are the same and consequently the liability of the state is present. Admittedly, the state has at its disposal other defences which can be used in this case. In a similar situation in Germany the civil suit would run independently of the criminal proceedings.

CHAPTER 6

PAST AND PRESENT ATTEMPTS FOR INTERNATIONAL REGULATION

Since its very beginning the International Civil Aviation Organization - (ICAO) has been more productive and successful in the field of technical regulation of international transport than in other fields. Although it has recently become active in the field of air transport regulation.[207]

6.1. ICAO Technical Legislation

I.C.A.O. technical regulation is now very elaborate and a comprehensive international framework has been built up during the whole period of its existence. It can be expected that in the future the progress of technology and equipment will require normal adjustments.[208] For example Annexes 2 and 11 have gone through six and seven editions respectively. They are still undergoing amendments and changes thus follow the advances in basic technology. All this has been made possible and will continue to evolve in the future, because of the fact that, technical regulation does not involve to the same degree, state's political interests than the other spheres of its activities do. An overview of all Annexes shows that the Annex 9 (Facilitation) is the only one which is not widely accepted by states.[209] From this fact it cannot play an important party in some areas but the attitude of state to individual Annexes is revealed by the number of differences filed to each Annex as the failure to file any differences at all.

6.2. Regional organizations

In the aviation world today there is a substantial amount of formal cooperation between states in the field of air traffic control activities. Western Europe, Central America and Africa are three regions where almost simultaneously regional organizations have been established.[210] Although several reasons motivated states to start considering the possibility of regional cooperation, the main purpose for establishing formal organizations was to secure the conditions necessary for the safe and regular flight of jet aircraft, while at the same time taking into account the obligations imposed upon them in terms of ICAO Standards and Recommended Practices.[211] In addition, the economic factor ought not to be forgotten. A very broad view of the reasons for and consequences of creation of regional ATC organizations was expressed by C. Bosseler:

> "Although the imperatives that brought about the creation of international air traffic control agencies do not require the complete transfer of national sovereignty over airspace, the exercise of national sovereignty has been curtailed insofar as competency in certain fields has been transferred to the international control body to which the States belong. Responsibility for control services is accepted by modern States. Transfer of competence for those services by two or more neighbouring States to an international agency created by them implies no desire on their part to rid themselves of this responsibility; rather, it indicates a keener awareness of it. It is an act dictated by political, financial, and technical imperatives. The Member States retain their ultimate responsibility to each other and to third States; their financial commitment to the ATC is an expression of that responsibility."[212]

Since all three organizations have legal personality, they can be

the subject of a court process if damage is caused in scope of their activities.

Whereas the Central American and African Conventions contain only implicit provisions about the liability of their organizations, Eurocontrol is liable on the basis of an obligation to conclude insurance agreements in order to protect it against possible claims arising from its activities,[213] In addition to the insurance this organization has the right to ask for assistance from France and the states parties to the convention, whenever it has to defend itself in court proceeding.[214]

The Constitutive Charter of the Central American Corporation for Air Navigation services obliges the Corporation to ensure its protection from damages which can arise from its civil responsibilities. This protection, which must be in the form of insurance with one or more insurance companies, must be established from the very beginning of performance of its activities.[215]

The Eurocontrol Convention, as said above, contains an explicit provision about its delictual or tortious liability. This provision reads as follows:

> "With regard to non-contractual liability, the Organization shall make reparation for damage caused by the negligence of its organs, or of its servants in the scope of their employment, insofar as that damage can be attributed to them. The foregoing provision shall not preclude the right to other compensations under the national law of the Contracting Parties."[216]

Both of the other conventions leave open the questions of the limits

of liability, the kinds of liability, and applicable laws. This is not the case with Eurocontrol which can be liable only if the damage has been caused by negligent act of its organs or servants. So, the system is based on fault but there does not exist any limitation of amount of damages. None of three conventions contains any provision about the applicable law and in what circumstances the defendant party would be one of the regional organizations. This particular matter can bring about many legal complications since there are as many potentially interested parties as there are member states, neighbouring states and states whose aircraft benefit from the services of the regional organizations.[217]

If nothing else, the solution of the conflict of laws justifies the conclusion of international convention regulating liability of air traffic services.

6.3. The Contribution of ICAO Legal Committee

The Legal Committee became involved in the matter of air traffic controller in 1962 when it established the Sub-Committee with the task of studying the subject of Liability of Air Traffic Control Agencies.[218] In years between 1962 and 1967 two meetings of the Sub-Committee and two meetings of the Legal Committee were held where the subject was discussed. The Sub-Committee being faced with many substantive differences in national laws which might impair the probability of successful work sent to States, Parties to the Chicago Convention, two questionnaires. The first

was concerned with information about national regulation of the liability of ATC agencies and the second one with the answers of states relating to conclusions made by Legal Committee at its fifteen Session. Twenty six states replied to the first questionnaire and forty to the second.

Armed with the answers to the questionnaires and with various materials[219] two questions were posed for consideration:

1. is it necessary or desirable to have international regulation, and

2. if so what method should be used to create it?[220]

The Sub-Committee reached the consensus that the answer to the first question should be in the affirmative with the arguments that the importance of air traffic services can be expected to increase in the future.[221] This is exactly what has happened since then. The second issue could be resolved in four ways, the Sub-Committee reported. After a comprehensive analysis it was decided to present to the Legal Committee the results of its work and to seek its guidelines for future work.[222] The Committee instructed the Sub-Committee to continue with the work and to explore every possibility which might arise. The second questionnaire was sent to states asking them for their opinion about desirability of the convention on the liability of air traffic control agencies and about the content of the eventual convention.[223] The work of the Sub-Committee was crowned with the well elaborated material which could be used later for drafting a new conven-

tion. This material was discussed at the twenty-third meeting of the Legal Committee in September 1967 when it was agreed that the work of the Sub-Committee should continue taking into account the decisions made by the Committee.[224] Despite the fact that 26 states expressed their opinion in favour of a new convention on the liability of air traffic controller agencies and that three regional organizations already existed nothing has been done since that time. Moreover, materials of the 23rd meeting show that at that time a sufficient number of the states expressed their consent about most of the substantive issues such as: the scope of convention, the system of liability, and the limitation of it, the defences and jurisdiction.[225]

6.4. Survey of Other Proposals

As early as 1965 Paul B. Larsen elaborated the question of air traffic controllers liability in the light of possibility to create a form of international regulation. In his Master's thesis[226] he proposed that the future Convention would be based on following principles:

- the proof of fault system based on tort with the unlimited liability,
- the exclusion of the waiver of liability and acting in an emergency as possible defences, inclusion of the assumption of risk on the plaintiff's side and of the violation of the terms of the Convention,
- the liability of state for any private agency performing ATC activity on the basis of Art. 28 of Chicago Convention,

- the single forum system, and

- two year limitation on claims.

The same author developed, in the paper, the idea and proposition that the Convention on the International Responsibility of States for Injuries to Aliens as it has been drafted by Professors Louis B. Sohn and R.R. Baxter from the Harvard Law School should be concluded as this covers the subject of air traffic control liabilities. He thought that there existed elements of great value to regulation of ATC liability because:

> "It lifts the problem of ATC negligence out of the restricted specialization of air law and places it in the right international law perspective.
>
> It shows faith in the local court systems, by compelling the alien to exhaust local remedies before the Convention on State Responsibility comes into effect. Instead of representing interference into another state's activities, it strengthens national courts by giving them the dignity they should merit, by placing the alien on equal footing with citizens.
>
> It shows concern for an international minimum standard of justice. According to Art. 2, if the national regulation falls below a reasonable standard, the alien is entitled to preferential treatment. If, however, the national standard meets, or is better, than the minimum one provided in the Convention, that is the one which the alien will accept.
>
> It provides a proof of fault system with unlimited liability which suits our subject very well."

C.S. Dahl in his thesis[227] very strongly advocates the unification of the liability of air traffic control agencies by saying that:

> "A Convention should, as the author has described above, have a wide scope and liability should be based on proof of fault, except for so-called technical failures where liability should either

> be presumed or strict. Liability would, eventually be limited; it is, in this respect, of importance that the limits as far as possible, are uniform with the limitations in the other private air law Conventions."

Since it is impossible to conceive the future attitudes of the states in the light of the substantive changes which have been made in the matter of limited liability, the author of this paper suggests that the materials which have already been produced by the Sub-Committee of Legal Committee of ICAO be used as the basis for further work and that a draft Convention be prepared. It is the author's opinion that we are faced with the fact that the problem is no longer in the future. The Zagreb crash sparked off the following court proceedings:

1) Seventeen different insurance and health companies from W.G. sued the Yugoslav State, Inex Adria Airways and its insurer Dunav Beograd for reimbursement of amounts which have been paid because of above catastrophe

2) Both air carriers involved in the crash and their insurers or reinsurers sued the Yugoslav State for reimbursement of amounts or for recovery of damages which has not been covered by insurance.

3) The government of Socialist Republic of Hrvatska (Croatia) is suing Inex Adria Airways and its insurer Dunav Beograd for the damage suffered on the ground and for the indemnification of all expenses which it has had with the crash.

And now imagine how many international relations would be involved if carriers and ATC agency belonged to different states.

Finally, this subject became again the matter of interest of ICAO and member States which at 23rd Assembly[228] decided to approach this question again in the near future.

CHAPTER 7

CONCLUSION

The following conclusions emerge from the discussion carried out in this thesis:

1. The development of the technology has made so much progress in recent years that an additional distribution of work between pilot and controller had to made. The introduction of new equipment, particularly computers, gave controllers additional instrumentalities to perform their duties in a more efficient as well as a safer way. It seems to the author that the present Annexes 2 and 11 are ready for serious reconsideration and are due for substantive changes is the de facto situation, in which air crew and air traffic control work as a team with a different distribution of right and duties from the past is to be legally recognized.

2. The legislative system in Germany which authorizes the Minister of Transport to directly adopt the Standards and Recommended Practices to the Chicago Convention in national legislation is doubtless a very efficient way to transfer as fast as possible international regulation into national legislation. However, whenever specific reasons require it, the national Parliament can adopt the solution which is deemed to be different from that found in the ICAO Standards and Recommended Practices. It is recommended that ICAO should first collect information of all member States about their practice and then ask States to adopt the same or similar procedure because it might result in a higher degree of uniformity.

3. A short look at both systems of civil and state liability shows certain differences between compared legislations. Although, closer analysis discloses that those differences are only fictidus. The best example is the liability of state. It shows that according to the German law the state follows the fault liability of its employee though the Yugoslav state is objectively liable. However, there exist the defence which is not available under the German legislation so that it can be concluded both systems lead towards very similar results. From this and from materials collected in the same subject by ICAO in 1960s it can be presumed that there no longer exist unsurmountable substantive differences among states as far as the liability of air traffic services agencies are concerned.

4. From the obligation imposed upon states in Article 28 of the Chicago Convention stems the necessity that states are directly or indirectly responsible and obliged to compensate all damage which has been caused by the conduct of the activity called air traffic services.

5. The eventual principle of reciprocity between states in the case that a foreign carrier pursue a claim should also be internationally resolved because the unilateral declaration of obligatory reciprocity can block every possibility to obtain compensation from the state with which reciprocity does not exist.

6. There is no longer a question whether the international regulation of liability of air traffic services agencies is necessary or not. Two cases mentioned in this paper besides

those pending in different countries where international elements are involved show that international regulation of the liability of air traffic services agencies is necessary. It can be hoped therefore, that a future convention will get a proper number of ratifications. An encouraging fact is the decision adopted by 23rd Assembly of ICAO which gave this subject priority so that certain progress can be expected in the near future.

FOOTNOTES

1. The Aircraft Accident Investigation Commission was set up by the Federal Civil Aviation Administration immediately after the accident and began its work on the same day. According to Annex 13 of the Chicago Convention, English and West German authorities were informed about the accident and were invited to send observers in order to participate in the work of the Commission. Members of the Commission and foreign observers collected all available information, documents, wreckages of destroyed aircraft, heard witnesses and made all technical and navigational calculation which are necessary for as authentic as possible determination of the probable cause or causes. The report on the accident was finished on December 25, 1976 and later translated in English and sent to concerned states. A special report was also sent to ICAO.
2. The report and particularly the statement about probable causes were recognized as proper by all participants in the inquiry including observers of concerned states.
3. The accusation was submitted against: Gradimir Tasic, Controller - Upper Air Space Section; Mladen Hochberger, Controller - Upper Air Space Section; Nenad Tepes, Assistant Flight Controller - Upper Air Space Section; Bojan Erjavec, Controller - Middle Air Space Section; Gradimir Pelin - Assistant Flight Controller Middle Air Space Section; Ante Delic, Head of Flight Control Service; Milan Munjas, Head of Area Flight Control; Julije Dajcic, Head of Shift of Area

Flight Control

4. The petition was published in the whole text in The Controller - Journal of the International Federation of Air Traffic Controllers Associations, Vol. 16; No. 4; November 1977; page 15. The petition was delivered to the Minister of Justice of SFRY of Yugoslavia, Mr. Ivan Franko, for President Tito, on September 8, 1977. See also The Controller Vol. 16, No. 4, Nov. 1977.

5. Glen A. Gilbert - Air Traffic Control, The Uncrowded Sky; Smithsonian Institute Press, 1973.
and Glen A. Gilbert & Associates - The United States Air Traffic Services Corporation, A New Concept of Government Organization for Aviation, - Washington, D.C., May 1, 1975.

6. Ibidem, - p. 8 et seq. and p. 2 through 6.

7. Ibidem, - p. 8. The particular rule was following:
"Every aircraft in cloud, fog, mist or other condition of bad visibility shall proceed with caution, having careful regard to the existing circumstances."

8. Historical development of ATC in the U.S. is described in different materials but Glen A. Gilbert gives details description in his both books, see note 4.

9. High Field - Airline Safety, First Assessment of 1979; Flight International, 26 January, 1980. In his article author gives the following statements: "There were 20 fatal accidents during public transport

flights carrying passengers in 1979. Altogether 1.267 passengers were killed. Another 12 accidents involved public - transport aircraft during training, freight or positioning flights and these brought the total of flight-deck and cabin-crew fatalities to 149. The figures can be summarized as showing a smaller number of accidents than in 1978 (27) but an increased total of fatalities. The increase from the 962 deaths in 1978 is almost 32 per cent and is, therefore, out of line with the traffic growth which ICAO has provisionally estimated at 10 per cent. In the last paragraph of the same article it is stated: "Determination of the safety trend is clouded by changing parameters. A strict interpretation of the fatal accidents occuring during scheduled public-transport flights would indicate that the rate has held steady during 1979. Adding in the 237 passengers killed in Antarctica suggests that there has been a slight deterioration. We have remarked before that the widespread use of wide-body-airliners lends a random element to safety statistics. Where the load on one aircraft can be as high as one-third of one year's casualities the sample is gratifyingly small. When the sample is weighted against the world-wide achievement of the airlines - 1979 returns are almost certain to show

a total passenger uplift exceeding 800 million - airline safety is seen in its true perspective.

10. Paul B. Larsen - The Regulation of Air Traffic Control Liability by International Convention - Institute of Air and Space Law McGill University, Montreal, 1965 (unpublished master's thesis).

11. Glen A. Gilbert in his book raises many questions: "In looking to the future design of the ATC System, perhaps the single most decisive conceptual question to be answered is the extent to which traffic management in the system should be distributed as between the pilot and the controller. Should the pilot be able to play an active part in the traffic management process or just a passive role? Should the pilot be given more capability to independently monitor the ground system? Should a new generation of cockpit instrumentation, such as proximity warning indicators, collision avoidance systems and traffic situation displays, be developed to give the pilot more redundancy for the purpose of traffic separation assurance and navigation? On the other hand, should the present concept of centralized ground control be continued without change to provide aircraft separation assurance? Is there a need for a redundant navigation system to back up or, perhaps ultimately, replace VORTAC and/or radar surveillance? Where do we stand on constant re-evaluation of existing ATC System engineering programs? What might be the role of such concepts as airborne area navigation equipment to provide automatic position reporting via data-link to the ground

system as well as data-link monitoring between aircraft for collision avoidance purposes? What are the ATC System design requirements to permit most efficient handling of the wide aircraft speed ranges (0 to Mach 3+) with which the system will need to cope? How can the nation's total airport plant capacity be used more efficiently so as to avoid the constant need to think in terms of more and more airports, which in turn are becoming more and more difficult and costly to acquire? What about dynamic programs to introduce VTOL and STOL type aircraft in mass transit applications? What about dynamic programs to provide landing/take-off facilities to accomodate vehicles of this type? What are the life cycle costs and cost benefit considerations that should be applicable to all candidate ATC system options with respect to both government and the airspace users of all categories? Since the users pay a substantial portion of ATC System costs, how effective is their role in the decision making process?"

12. John Noble Wilford - Air Control Technology Refined to Meet Hazards - The New York Times, January 22, 1980, p. C1. Among other things in the last paragraph it is said: "Although such extensive automation is considered inevitable, F.A.A. officials and representatives of pilots and controllers may take years deciding how to plan the transition period. It could not begin until an entirely new generation of computers and auxiliary electronics is introduced to air traffic control. Despite pressure to hasten that day the F.A.A. doubts that such an advanced system could be ready before 1990."

13. Ibidem.

14. Ibidem.

15. Annex D was entitled "Rules" as to Light and Signals - Rules for Air Traffic. It was divided into seven sections. Annex F was entitled "Aeronautical Maps and Ground Markings". It was divided into two sections.

16. Article 12 of the Chicago Convention reads as follows: "Rules of the air - Each contracting State undertakes to adopt measures to insure that every aircraft flying over or maneuvring within its territory and that every aircraft carrying its nationality mark, wherever such aircraft may be, shall comply with the rules and regulations relating to the flight and maneuver of aircraft there in force. Each contracting State undertakes to keep its own regulations in these respects uniform, to the greatest possible extent, with those established from time to time under this Convention. Over the high seas, the rules in force shall be those established under this Convention. Each contracting State undertakes to insure the prosecution of all persons violating the regulations applicable."

17. See supra 16.

18. See supra 16.

19. In 1979 more than 58 per cent of passengers kilometres flown were performed in international transport. Source: IATA World Air Transport Statistics No. 24, 1979.

20. Article 28 of the Chicago Convention imposes all basic obligations upon the states. Its text is following:

Air navigation facilities and standard systems - Each contracting State undertakes, so far as it may find practicable, to:

a) Provide, in its territory, airports, radio services, meteorological services and other air navigation facilities to facilitate international air navigation, in accordance with the standards and practices recommended or established from time to time, pursuant to this Convention;

b) Adopt and put into operation the appropriate standard system of communications procedure, codes, markings, signals, lighting and other operational practices and rules which may be recommended or established from time to time, pursuant to this Convention;

c) Collaborate in international measures to secure the publication of aeronautical maps and charts in accordance with standards which may be recommended or established from time to time, pursuant to this Convention.

21. For more details see The Chicago Convention Part III, Chapter XV

22. For more details see The Chicago Convention Art. 37 and 38.

23. See ICAO Annexes 2 and 11 - Foreword Historical Background - par. 1.

24: International Civil Aviation Organization - International Standard, Rules of the Air, Annex 2 to the Convention of International Civil Aviation, Sixth edition, September 1970. Since the issuance of sixth edition the annex has been undergoing several amendments, the last one was published in 1979.

International Civil Aviation Organization - International Standard and Recommended Practices, AIR TRAFFIC SERVICES, Air Traffic Control Service, Flight Information Service, Alerting Service - Annex 11 to the Convention on International Civil Aviation, Seventh edition - April 1978.

25. International Civil Aviation Organization, Doc. 4444-RAC/501/11 - Procedures for Air Navigation Services, Rules of the Air and Air Traffic Services, - Eleventh edition, 1978. The title of this document shows the complexity of air traffic.
The legal nature of this document is as follows: "Procedures for Air Navigation Services (PANS) are approved by the Council for world-wide application. They contain, for the most part, operating procedures regarded as not yet having attained a sufficient degree of maturity for adoption as International Standards and Recommended Practices, as well as material of a more permanent character which is considered too detailed for incorporation in an Annex, or is susceptible to frequent amendments, for which the processes of the Convention would be too cumbersome.

26. For more details see Annex 2, Chapter 2, 2.11 to 21.4.

27. Annex 11 is divided in these seven chapters:

1) Definitions,

2) General,

3) Air traffic control service,

4) Flight information service,

5) Alerting service,

6) Air traffic services, requirements for communication,

7) Air traffic services requirements for information.

To the basic text are added two appendixes and six attachments.

28. The Chicago Convention, Art. 12.

29. Obviously, the ICAO Council had in mind the desirability of uniform legislation when adopted following paragraph in Annex 11: "Use of the text of the Annex in national regulations. The Council, on 13 April 1948, adopted a resolution inviting the attention of Contracting States to the desirability of using in their own national regulations, as far as practicable, the precise language of those ICAO Standards that are of regulatory character and also of indicating departures from the Standards, including any additional national regulations that were important for the safety or regularity of air navigation. Wherever possible, the provisions of this Annex have been written in such a way as would facilitate incorporation, without major textual changes, into national legislation."

Almost every Annex to the Convention includes the above provision.

30. After World War II. In 1949 Yugoslavia adopted for first time, the Decree on Air Navigation that superseded the previous Air Navigation law which was adopted in 1928. The Decree was valid until March 24, 1965 when it was superseded by the Law on Air Navigation. Fast progress in Yugoslav civil aviation caused the preparation of a new Law which was promulgated in 1973. The present Law, which was adopted in 1978

is the consequence of constitutional changes in Yugoslavia and also represents an effort to organize Yugoslav activity in this field, in an efficient and adequate manner as much as possible.

31. The content of the Law on Air Navigation is following:

Part one

Fundamental provision - articles from 1 to 14 incl.

Part two

Air Navigation

Chapter 1

General provisions - articles from 15 to 32 incl.

Chapter 2

Air Traffic and other activities in air navigation

Division 1

Special conditions for the performance of public transport in air navigation - articles 33 to 43 incl.

Division 2

Special condition for the performance of other activities in air navigation - articles 44 to 47 incl.

Chapter 3

Airports - articles 48 to 61 incl.

Chapter 4

State nationality, identification and registration of aircraft

Division 1

State nationality and identification of aircraft - articles 62 to 66 incl.

Division 2

Registration of aircraft - articles 67 to 82 incl.

Part 3

Safety of air navigation.

Chapter 1

Conditions for safe use of aircraft and airports and conditions that have to be fulfilled by flying personnel

Division 1

Conditions for safe use of aircraft

General provisions - articles 83 to 89 incl.

Building of aircraft - articles 90 to 98 incl.

Maintenance of aircraft - articles 99 to 104 incl.

Airworthiness - articles 105 to 166 incl.

Documents and books of aircraft - articles 117 to 125 incl.

Division 2

Conditions for safe use of airports and of landing areas

General provisions - art. 126 to 127 incl.

Building of airports - art. 128 to 137 incl.

Maintenance of airports and landing areas and airports services - art. 138 to 145 incl.

Division 3

Flying and other professional personal

General condition that must be fulfilled by flying and other professional personnel - articles 146 to 161 incl.

Aircraft (s) crew - art. 162 to 172 incl.

Aircraft commander - art. 173 to 185 incl.

Professional education and responsibility of the inspector - art. 296 to 297 incl.

Division 3

Duties of inspection - art. 298 to 301. - art. 298 to 301

Part 4

Punitive provision

Chapter 1

Violations in aviation - art. 302 to 325 incl.

Chapter 2

Organs for conduct of process for violation - art. 326 to 327 incl.

Part 5

Authorizations, transitional and final provisions

Chapter 1

Authorizations - art. 328 to 340 incl.

Transitional and concluding provisions - art. 341 to 345 incl.

32. The present Constitution of the Socialist Federative Republic of Yugoslavia (SFRY) was adopted in the Federal Assembly on February 22, 1974. In article 281 the rights and duties of the federation are specified. Among them in the number 11 of the first paragraph provides for: "regulates and assures safety of the air navigation."

33. Article 217, Paragraph 1 of the Law on Air Navigation.

34. Art. 203 of the Law on Air Navigation.

35. Art. 208 of the Law on Air Navigation.

36. Articles 214 to 216 included of the Law on Air Navigation.

37. Article 202, para. 2 of the Law on Air Navigation.

38. Article 220 of the Law on Air Navigation includes following provision: "The competent unit fo air traffic control must inform pilot of an aircraft about important meteorological appearances, changes in the conditions of technical means (navigational aids) and about the condition of maneuvring areas on the airports as about other data which are important for safe conduct of a flight." The obligation to provide information service is provided for in various articles and will be discussed later.

The alerting service is subject matter of special chapter in the law and it would suffice to say that search of aircraft is a duty of the unit which had the last contact with the missed aircraft; Article 357 of the Law on Air Navigation.

39. This principle has to be looked at through the provisions of Annexes 2 and 11 which impose final authority and responsibility upon the pilot-in-command.

40. Annex 11, chapter 2, point 2.2 includes following formulation: "The objective of the air traffic services shall be to:

1) prevent collisions between aircraft;
2) prevent collisions between aircraft on the manoeuvring area and obstructions on that area;
3) expedite and maintain an orderly flow of air traffic;
4) provide advice and information useful for the safe and efficient conduct of flights;
5) notify appropriate organizations regarding aircraft in need of search and rescue aid and assist such organizations as required.

41. See above p. 22.

42. Annex 11 - 2.13. - Coordination between military authorities and air traffic services:

2.13.1. Air traffic services authorities shall establish and maintain close co-operation with military authorities responsible for activities that may affect flights of civil aircraft.

2.13.2. Arrangements shall be made to permit information relevant to the safe and expeditious conduct of flights of civil aircraft to be promptly exchanged between air traffic services units and appropriate military units.

2.13.2.1. Air traffic services units shall, either routinely or on request in accordance with locally agreed procedures, provide appropriate military units with pertinent flight plan and other data concerning flights of civil aircraft.

2.13.2.2. Procedures shall be established to ensure that air traffic services units are advised if a military unit observes that an aircraft which is, or is believed to be, a civil aircraft is approaching, or has entered, an area in which interception might become necessary. Such advise shall include any necessary corrective action which might avoid the necessity for interception."

43. The wording of Art. 217, para. 2 of the Law on Air Navigation is the following: "Aircraft which fly out of airways or are on airports, where air traffic control unit is not organized, get from competent unit only prescribed informations relating to the flight."

44. Annex 2 - Rules of the Air, 2.3.1. Responsibility of pilot-in-command.

45. Annex 2 - Rules of the Air, 2.4. Authority of pilot-in-command of an aircraft.

46. Annex 11 - 3.3.1. p. 18.

47. Annex 11 - 4.2.1. p. 22.

48. Annex 11, 4.2.2. p. 22.

49. For a more detailed description of clearance see PANS Rules of the Air and Air Traffic Services DOC 4444-RAC/501/11 Part II - General Provisions, P. Clearances and Information; p. 2-6.

50. See note 43.

51. Art. 218 of Law on Air Navigation.

52. Ibidem Art. 221.

53. 3.7.4. Control of air traffic flow - Annex 11, See also 3.3.3.

54. For better understanding below is given first paragraph of article 280 of Law on Air Navigation:

"The inspection of application of statutory provisions and of regulations on safety of air navigation which are issued on the basis of this law and relate: to the aircraft and air traffic; to the airport and air-strip; to the aviation and other professional personnel; to the service for handling of aircraft, passengers and cargo, - fire service, - first aid service and service for supply with fuel and lubricant (further named airport services); to the service for control and guidance of aircraft and to the meteorological service as the personnel in these services; performs Federal Aviation Inspectorate and sets in with measures that is authorized for with this law."

55. For more detailed description of clearances see Annex 2, 3.6.1 Air traffic control clearances.

56. Safety, search and rescue are subject of chapter III. which includes articles 243 through 261 inclusively.

57. Article 220 of Law on Air Navigation.

58. See above p. 33 and 34 and note 48.

59. Article 225 of Law on Air Navigation.

60. Ibidem Article 244 and 245.

61. The Commission for Safety is a permanent and independent body that works on the basis and in accordance with the law. Members of the Commission are experts for different part of the field of aviation. The basic purpose of its existence is to analyze every incident or jeopardy of safety and to propose adequate steps for prevention of later occurances. Five articles are dedicated to the composition of the authority and procedures of the commission.

62. In the Law on Air Navigation there is provision for the issuance of the following regulations relating to the work of ATC service:

- on search and rescue of aircraft
- on flying of aircraft (rules of the air)
- on investigation of jeopardizing of aircraft during the flight
- on system of air traffic control and guidance of aircraft
- on procedures and other conditions for safe taking off and

landing of aircraft on public airports and on airport where an air traffic control unit is established

- on manner for issuance of clearance for conduct of flight.

63. Presumably in 1974 in Great Britain a study group composed of experts in aviation field was set up. Members of the group were pilots, navigators, and controllers who had very known goal. They were turned forward and tried to design and to propose long-term developing concepts of the future ATC system. The group published its results in The Controller, Journal of the International Federation of Air Traffic Controllers Associations in Volumes 13 No. 4, November 1974, 14 No. 2, May 1975, and 15 No. 3, August 1976. In its first article, the group described ideas about the role of pilot and controller in a new system: "In the automated system, a major task of the controller and pilot is to act as monitors; the controller of the separation navigation and achieved flow within the total system, the pilot of the navigation both horizontal and vertical, flight progress (time) and other related flight systems in his aircraft."

See also Glen A. Gilbert, The Uncrowded Sky, p. 38 and following

64. See The Controller, Vol. 13, no. 4, 1974. Members of the group were convinced about a need which urges transition to the strategic concept: "The case for a basically strategic Air Traffic Control system, as opposed to one which is predominantly tactical, depends upon an apparent need, at least within Europe, to use the limited resources of airspace,

communications, manpower and, to some extent, the airports in an economic manner. The very notion that mainly tactical forms of control would suffice springs from a false assumption that capacity within the system is to be had just for the asking."

65. For all of the material prepared by International Labor Organization see in 1977 published document code ISBN 92-2-101786-9. See also Institute du transport aérien - Studies and Documents, Paris, 1968/7-E Liability of Public Bodies Providing Assistance to Air Navigation - M. Beaubois p. 1-38.

66. Legal Committee Fifteen Session Volume II, ICAO DOC 8582-LC/153-2 at p. 14.

67. Christopher Johnston - Legal Liability of Individuals Employed by the United States Government as Air Traffic Controllers (term paper), McGill University, Institute of Air and Space Law, 1980 at p. 46. The author reached his conclusion after he has assessed several court judgments in regard to controllers and states liability respectively.

68. The Former Penal Code was adopted in 1951 and was valid until July 1, 1977 when a new Penal Law was adopted and came into force on that date. Besides the federal statute, each Republic and Autonomous Province adopted a separate Penal Law with the same date of entrance in force as the federal statute. Thus, the continuity of legislation was provided. Through close cooperation in the process of drafting, a high level of uniformity among republical and provincial laws was reached. It should be mentioned too, that on the basis of statutory

provision criminal acts can be provided for not only in penal laws but also in various statutes regulating other matters. Therefore, one should look for some provisions in the Law on Air Navigation as well. However, at the present time, there do not exist any provisions about criminal offences.

69. See page 20.

70. Article 181 of the Constitution of the SFRY. Besides this provision, some other principles such as the right of defence, right of procedure and others are also regulated in the Constitution.

71. Dr. Ljubo Bavcon and Dr. Alenka Selih, Kazensko pravo, Splosni del (Criminal Law, General Part) Casopisni zavod Urad list SRS Slovenije Ljubljana 1978 (hereafter cited as Bavcon & Selih Criminal Law) at p. 118 through 119.

72. Ibidem at p. 121 and following.

73. Ibidem at p. 127.

74. Article 11 of the Penal Law of SFR of Yugoslavia (hereafter cited as Penal Law).

75. Article 12 of The Penal Law contains the following provision: "(1) A doer who, when was committing criminal act could not understand the meaning of his act or could not control his action because of permanent or temporary mental disease, temporary mental disturbances or feeble-minded, is not conscious (unconsciousness). (2) A doer of criminal offence, whose capability to understand meaning of his act or capability to control his action was essentially diminished because of some state from first paragraph is allowed to be

punished leniently (essentially diminished consciousness).

(3) A doer criminally responsible for a criminal offence, who has caused himself to be in the state which has disabled him and which prevents him from understanding his act or to control his actions if before that an intention had existed in respect to the criminal act or if negligence had existed in cases when law provides for that some act is criminal even if it is done negligently."

76. Criminal intent is regulated in article 13 of the Penal Law: "Criminal act is committed with premeditation, if the offender has been aware of his act and has wanted to do it; or if he has been aware that because of his commission or omission can arise a forbidden consequence or has consented to its arousal."

77. Ibidem, Article 14.

78. Bavcon selih, Penal Law at page 197: "Namely, we must not forget that guilt, in this case unconscious negligence and the charge which the base for it, must be proved but not supposed, assumed or based on suspicious legal conclusions."

79. Ibidem Article 8, para. 2.

80. Ibidem Article 15.

81. See Bavcon & Selih, Penal Law at p. 140 and following.

82. Ibidem at p. 144 and following.

83. Detailed description of the error about a matter of fact see the same authors at page 206 and following.

84. Ibidem, at p. 209 and following. In this connection article 43 has to be mentioned, since it is basically dealing with the reduction of the sentence. That article does not contain any

word about possibility to completely forgive the punishment. From this viewpoint the provision of article 17 is exceptional. However, the practical effect of that provision is to create parity between legal error and error about a matter of fact.

85. See note 4.

86. E. McClousky, Legal Liability of the Controller, in The Controller, Journal of the International Federation of Air Traffic Controllers Associations (IFATCA), Volume 19, 1st Quarter 1980. In his article author discusses criminal laws and criminal responsibility in various states: "In the Socialist State the controller has a legal duty to be familiar with and to apply the relevant provisions of the aviation code which may go as far as to include rules relating to the construction of aircraft, transport of passengers, baggage and merchandise on national airlines as well as other standards laid down by the competent Ministry aimed at ensuring safety in flight. Whereas the aim of such rules may be ensuring safety of flight, the extra burden placed upon the controller must from a stress point of view have the opposite effect. Air transport workers are held responsible criminally when violation of these rules leads to an accident involving persons or property or has other serious consequences. Even if no actual damage results, criminal liability is invoked if a controller wittingly violates the rules and so causes a risk of such damage. This in effect in tantamount to saying that there can be a crime simply because one is a controller. Controllers in the Socialist States are those most in need of

a complete revision of the penal code and as there are variations from State to State this can only come about by a properly constituted international convention which would forbid what amounts to Statutory crime for the controller."

87. See O. Hood Phillips and A.H. Hudson, A First Book of English Law, Sweet & Maxwell at page 270 and following.

88. Bavcon and Selih, Penal Law at page 194: "As it has been already said, some act can be negligently committed only if it is so provided for in the law and in such cases the prescribed punishment is considerably lower than for intentionally committed acts. There are very few, maybe about 40, crimes in Penal Law of the SFRY and in Penal Law of the SR Slovenia where this provision could be found. But on the other side, those forty acts represent nearly a half of all judged crimes in Slovene judicial practice. In the first row are unlawful acts against safety of street traffic which alone are 35% of yearly judged cases. Therefore for judicial practice, negligence as kind of penal responsibility is as important as premeditation."

89. The charge originally contained accusations against eight persons. During the trial seven persons were acquitted by the Court.

90. JP-550 was the flight number, JP is the code for Adria Airways and 550 is the flight number.

91. The Supreme Court of the Socialist Republic Croatia when it was analysing the judgment of the first-level court devoted the main part of its explanation to the question of unconscious

negligence. It confirmed and further elaborated the conclusions reached by the lower court. The judgment of the High Court, April 7, 1978, No. KZ 1490/1977-15.

92. Penal Law, Chapter 21, Crimes against Safety of Air Traffic

Article 240:

Hi-jacking of Aircraft

(1) A person, who with force or serious treath that will hi-jack the aircraft, takes possession of control of the aircraft that is in flight, shall be punished by jailing of at least one year.

(2) In the case that the act from first paragraph is very malicious, perpetrator shall be punished by jailing at least five or twenty years.

Article 241

Endangering of Safety of Aircraft during the Flight

(1) A person, who places or brings into an aircraft explosive or similar devices or materials, destroys or damages other navigational devices or produces on an aircraft other damage, gives wrong notice regarding the flight, does not navigate the aircraft according regulations or does not navigate it correctly, omits some duty or supervision regarding safety of air traffic, or with some other means endangers safety of flight, shall be punished by imprisonment from one to ten years.

(2) If an act prescribed in the first paragraph causes the death of one or more persons or the destruction of aircraft, the perpetrator shall be punished by jailing of at least five or twenty years.

(3) If someone is killed intentionally, when the crime prescribed in the first paragraph is being committed, a perpetrator shall be punished by jailing of at least ten years or to death.

(4) If the crime from the first paragraph is committed negligently, a perpetrator shall be punished by jailing up to three years.

(5) If the crime from fourth paragraph causes death of one or more persons or destruction of aircraft, a perpetrator shall be punished by jailing from one to eight years.

Article 242

Destruction and Removal of Signs Designed to Safety of Air Traffic

A person, who destructs or removes a sign that is designed to safety of air traffic, shall be punished by jailing up to three years.

Article 243

Misuse of Telecommunicational Signs

A person, who with malicious purpose of unnecessarily emits international signal for help or signal that he is in danger, or who with the telecommunicational signal misleads that the danger is present, or who misuses international telecommunicational signal, shall be punished by jailing from three months to three years.

The last article should be placed in another chapter since it has broader sense and its provision relates not only to air traffic.

93. Yugoslavia ratified all three conventions which regulate various acts against safety of air traffic:

a) the Convention on Offences and Certain Other Acts Committed on Board Aircraft, Tokyo 1963, on February 12, 1971;

b) the Convention for the Suppression of Unlawful Seizure of Aircraft, Hague 1970 on October 2, 1972;

c) the Convention for the Suppression of Unlawful Acts against the safety of Civil Aviation, Montreal 1971 on October 2, 1972.

94. For a description of the duties of a controller, see above chapter 2.

95. Article 182 of Penal Law contains following provision:

(1) A civil servant, who violates a statute, other regulation or general acts, omits obligatory supervision or otherwise obviously unconscientiously works during service, although knows or should and could know that because of that can arise worse violation of someone's rights or material damage and such violation or damage really arises and exceeds ten thousand dinars, shall be punished by jailing up to three years.

(2) If the crime from first paragraph causes worse violation of someone's right or material damage that exceeds one hundred thousand dinars, a perpetrator shall be punished by jailing from six months to five years.

96. The Law on Invalidity of Legal Regulations Adopted Before April 6, 1941 and During the Enemy's Occupation, The Official Gazette FPRY 86-605/1945.

97. Some statutes which regulated particular fields were:

- on prescription of claims of 1953,
- on trade on grounds and buildings of 1954, and
- on exploitation of ships of 1959.

98. The General Usages of Trade were published in the Official Gazette No. 15/1954. With the adoption of the new law they became invalid.

99. Article 269 of the Law on Obligation Relations contains following provision: "Unless in stipulations of this section otherwise prescribed, provisions in this law about compensation of noncontractual damages are used according to their sense for the compensation of this damage." The section, which was referred to is part of the chapter about Effects of Obligations that regulates debtor's rights and creditor's obligations and among them the right to get compensation for damage in the case of nonperformance of an obligation on the side of a debtor. Referring to the general provision of indemnification it makes a connection between contractual and noncontractual obligations for damages. It shows, that Yugoslav legal system in general recognizes a uniform regime of liability except in cases when statutes contain explicitly different provisions.

100. Detailed analysis of obligations for indemnification is given in Dr. Stojan Cigoj, Yugoslav Law on Compensation, (hereafter Cigoj Law on Compensation), Ljubljana 1972 at page 86 and following.

101. Ibidem at p. 91 and following.

102. Dr. Stojan Cigoj Obligation Relations, The Law on Obligation

Relation with the Commentary (hereafter Cigoj, Law on Obligations), Casopisni zavod Uradni list SR Slovenije, Ljubljana 1978 at pages 162 through 163.

103. Cigoj, Law on Compensation at p. 131 through 198. The author derides the term damage in material and nonmaterial damage and elaborates either kind in a detailed manner.

104. See Dr. Cigoj Law on Obligations p. 199 and following. See also Article 185 which contains the following provisions about the recovery of material damage:

"(1) The responsible person is obliged to bring about the state which had existed before the damage has occurred.

(2) If the restitution of the former state does not render the damage, legal, the bound person has to give compensation for the rest of the damage in money.

(3) Whenever the restitution of the former state is not possible or the court holds it not to be necessary to be done by the person who's liable, the court decides that the injured person has to receive adequate amount of money for compensation.

(4) If the suffered person requires the compensation in money the court adjudges it unless the circumstances of a given case justify the restitution of the former state.

Article 189 of the Law regulates the amount of the compensation for material damage:

(1) The injured person has the right to recover for the common damage as well as for lost profit.

(2) The compensation if determined upon the prices existing in the time of the delivery of the court decision un-

less otherwise provided in law.

(3) When estimating the lost profit, it is the profit which could have been reasonably expected in regard to the normal running of the thing or in regard to the particular circumstances but which because of the commission or of the omission of the damage-feasor was not made.

(4) If a thing has been destroyed or damaged by intentional criminal act a court can determine the compensation in relation to the value which the thing had had for the owner."

Article 200 provides for the monetary compensation for different limits of nonmaterial damages.

105. The doctrine recognizes also so called alternative and reserve causality which is elaborated in Cigoj Law on Obligation at p. 165 and Law on Compensations at p. 201 through 244 where different theories about the causality are discussed.

106. For more comprehensive study of unlawfulness see Cigoj Law on Compensation at page 94 and following.

107. Ibidem at page 258 and following.

108. Article 16 of the Law on Obligation Relations.

109. Cigoj, Law on Obligations at page 173.

110. Ibidem at page 173.

111. Ibidem.

112. Article 159 of the Law on Obligation Relations in its third paragraph extends the liability on the person who has caused the damage-feasor to be in the state of unconsciousness.

113. Ibidem, article 160.

114. The doctrine considers the defences as the circumstances which exclude unlawfulness. See Cigoj Law on Compensations page 120 through 129. However, the article which regulate the defences are included in the division Fault Responsibility of Law. For our study articles 161 and 163 are of particular interest. They read as follows:

Article 161.

Self-Defence, Distress, Prevention of Damage from Other Person

(1) Whoever in self-defence causes damage to an aggressor is not obliged to compensate the aggressor except in case of an excess of self-defence.

(2) If somebody in distress causes damage, the person who has suffered damage can request the compensation from that person who is responsible for the arousal of the damaging danger or from those persons from whom the damage has been prevented, yet not more can be claimed from the latter than the amount of benefit they have received from it.

(3) The person, who suffers the damage while protecting another from others from damaging danger has the right to request the compensation of that damage to which the person has been reasonably exposed.

Article 162.

Allowed Self-Help

(1) Whoever during the permitted self-help causes damage to the person, who has caused the need for self-help, such person is not obliged to compensate for such damage.

(2) Permitted self-help is the right of everyone to divert

violation of right, when direct danger is threatening, if such protection is necessary and if the manner of diverting violation is adequate to circumstances in which danger is rising.

115. The objective liability is first time regulated in Article 151 paragraph 2; see page 41.

116. Cigoj, Law on Obligations pages 186 and 187.

117. Ibidem, pages 188 and 189.

118. Article 177 which is entitled Discharge of the Responsibility contains the following provisions:

"(1)A possessor is discharged of the responsibility if he proves that the damage has been caused by some reason which has been outside of the thing and its effect could not have been expected, avoided or diverted.

(2) A possessor is also discharged of the responsibility if he proves that the damage has arisen exclusively due to the act of injured person or someone else and the act could not have been expected and its consequence avoided or diverted.

(3) A possessor is partially discharged of the responsibility if the injured person is partially at fault for the damage.

(4) If the third person is partially at fault for the damage, this person is with the possessor of the thing jointly liable against the injured person, yet he is obliged to compensate according to his fault.

119. See above page 2.

120. The Law on Civil Procedure which is uniform for the whole territory of Yugoslavia was promulgated in the Official Gazette

SFRY No. 4, 1977.

121. A more elaborated analysis can be found in Cigoj Yugoslav Law on Compensations at page 47 and following.

122. Ibidem. For more details at page 350 and following.

123. In 1965 the Basic Law on Labor Relations was adopted. It was a uniform act, valid in the entire country, and applicable to each category of workers or employees.

124. The para. 1 of Art. 171 is as follows: "The provisions of the preceeding article are also applicable to other juridicial persons and persons who by their personal work perform an activity in respect of liability which has been caused by workers who work with them, during the work or in connection with it.

125. The Law on Foundation of State Administration, on Federal Executive Council and Federal Administrative Organs, Official Gazette SFRY No. 23, 1978.

126. The protection of workers against to high seizure of his salary, which is normally the only kind of income, is stipulated in article 137 of Law on Associated Labor. It permits the seizure of a maximum of one third of the worker's salary. That means that the possibility of having damage repaid is not especially good when the amount is high which is usually the case in aviation accidents.

127. The Yugoslav Constitution in its second part about socio-economical system elaborates the position of men in associated labor and social property. To give a better idea about relations among people who associate their work in various forms

of associated labor organizations some constitutional provisions are set out thusly:

"Man's economic and social status is determined by labour and the result of his labour, an the basis of equal rights and responsibilities. No one may gain any material or other benefits, directly or indirectly, by exploiting the labor of others. No one may in any way prevent a worker from deciding, on equal terms with other workers, about his own labour and about the conditions and results of his labour, or restrict his decision-making rights thereto. (Art. 11).

The means of production and other means of associated labour, products generated by associated labour and income realized through associated labour, resources for the satisfaction of collective and general social needs, natural resources and goods in public use, are all socially-owned property. No one may acquire the right of ownership over social resources which are conditions of labour in basic and other organizations of associated labour, or which are essential for the realization of the functions of self-managing communities of interest, other self-managing organizations and communities, and socio-political communities. Socially owned resources may not be used for appropriating the surplus-labour of others, or for creating conditions for such appropriation. (Art. 12).

Workers in associated labour working with socially-owned resources have the inalienable rights to work with these resources to satisfy their personal and social needs, and to manage, freely and on equal terms with other workers in

associated labour, their labour and the conditions and results thereof. (Art. 13 para. 1).

In exercising the right to work with socially-owned resources, workers in associated labour are, in the common and general interest mutually responsible for using these resources in a socially and economically opportune manner, for constantly renewing, expanding and improving them, and for fulfilling their working obligations conscientiously. In exercising their right to work with socially-owned resources, they may not acquire material benefits or other advantages that are not based on their labour. (Art. 15).

128. Article 205 paragraph 1 of the Law on Associated Labor.

129. Ibidem. Article 208 paragraph 1.

130. Basic Law on Labor Relations, Official Gazette SFRY No. 7, 1965.

131. Great Britain - Foreign Office, Manual on German Law, Volume 2, Her Majesty's Stationery Office, London 1952 (hereafter cited as British Manual Volume 2) at page 72.

132. Paul Bockelmann, StrafrechtAllgemainer Teil, Verlag C.M. Beck, Munchen 1975 at page 14.

133. Paul Bockelmann, Strafrecht, page 27.

134. Schwarz - Dreher, Strafgesetzbuch und Nebengesetze C.M. Beck'sche Verlagsbuchhandlung, Munchen nud Berlin 1967, (hereafter cited as Schwarz-Dreher Strafgesetzbuch) at page 11.

135. Ibidem, page 43.

136. Schwarz - Dreher, Strafgesetzbuch, page 11.

137. Ibidem, page 17.

138. Ibidem, page 17.

139. Paul Bockelmann, Strafrecht, page 71 and pages 149 and following. See also Schwarz-Dreben, page 18.

140. Ibidem, page 91 and following.

141. Ibidem, see also Schwarz-Dreben, page 91 and following.

142. Ibidem, page 98 and following.

143. Schwarz-Dreher, page 98 and following.

144. Ibidem, page 125 and following.

145. Paul Bockelmann, page 101 and following.

146. Schwarz-Dreher, page 101 and following.

147. Ibidem, page 89.

148. Paul Bockelmann, page 106 and following.

149. Ibidem, page 111 and following.

150. Ibidem, page 117 and following.

151. Ibidem, page 118.

152. Article 16 of the Penal Law contains the following provision about factual error:

"(1)Anybody who in committing the act does not know a circumstance which is part of the definitional elements, acts without intention. The liability for negligent commission remain unaffected.

(2) Anybody who, in committing the act, erroneously assumes the circumstances which are part of the definitional elements of a less severe statutory provision may be punished for intentional commission only in accordance with such less severe provision."

153. Legal error is discussed in Bockelman Strafrecht at p. 119 and following. See also British Manual Volume 2, p. 83.

154. Ibidem at page 121: An offender does not act in the legal error "if he only recognizes that his act is punishable."

155. Article 18 of Penal Law reads as follows:

"Whenever the law subjects a certain consequence of an act to a more severe punishment, only the principal or accessory who can be charged with negligence with respect to such consequence can be subjected to the more severe punishment."

156. Article 315 of Penal Law reads as follows:

"Dangerous Interference with Rail, Ship or Air Traffic.

(1) Anybody who jeopardizes the safety of rail, monorail, ship or air traffic by

1. destroying, damaging or removing installations or public conveyances,
2. preparing obstacles,
3. giving false signs or signals, or
4. performing any similar, equally dangerous interference

and thereby imperils life or limb of another or another's valuable property shall be punished with imprisonment from three months to five years.

(2) An attempt is punishable.

(3) If the perpetrator acts

1. with the intention of causing an accident,
2. with the intention of making possible or concealing another crime,

the punishment shall be confinement in a penitentiary not less than one year and in mitigated cases, jailing from six months to five years.

(4) Anybody who, in cases under paragraph 1, causes the peril negligently shall be punished with jailing up to five years or a fine.

(5) Anybody who, in cases under paragraph 1, acts negligently and negligently causes the peril shall be punished with imprisonment up to two years or a fine.

(6) The court may mitigate the punishment provided in paragraphs 1 to 4 in its discretion (Art. 49, paragraph 2) or refrain from punishment, if the perpetrator voluntarily averts the peril before serious damage occurs. Under the same circumstances, the perpetrator shall not be punished under paragraph 5. If the peril is averted apart from any doing of the perpetrator, his voluntary and earnest endeavor to attain such goal shall suffice.

157. Article 316c of Penal Law contains the following provisions:

Attack on Air Transport

(1) Punishment of not less than 5 years, in cases of less importance 1 year or more, is due to anyone who

1. uses force, or threat, or similar action, in order to gain the control over an aircraft in flight and engaged in civil aviation, or to exercise control over its command, or
2. uses firearms or initiation of an explosion or fire, in order to destroy or damage such aircraft or its cargo on board.

Equivalent to an aircraft in flight is an aircraft which has already been entered by members of the crew or by passengers or the loading of which has started, or which has not yet been left by members of the crew or by passengers, or the unloading of which has not yet been terminated, in accordance with the schedule.

(2) Punishment is life imprisonment or detention for not less than 10 years, if the act has deliberately caused the death of a person.

(3) Punishment is between 6 months and 5 years, for anyone who in the preparation for the punishable act under para. 1, produces, procures for himself or another person, keeps or leaves to anyone firearms, explosives or other materials or installations for an explosion or fire.

(4) In cases of paras. 1 and 3 the Court may reduce the punishment in accordance with its discretion it the wrongdoer gives up his enterprise on his own will and prevents the finalization before considerable damage results. Is the finalization prevented without action of the wrongdoer, his free and serious efforts to prevent it suffice.

158. Schwarz - Dreher Strafgesetzbud at page 1027.

159. Ibidem at page 1026.

160. The German Civil Code was brought into force on January 1, 1980.

161. The Code is composed of five basic parts which are the following:

1. General Part - Article 1 through 240;

2. Law on Obligations - Article 247 through 853;

3. Law on Things - Article 854 through 1296;

4. Family Law - Article 1297 through 1921;

5. Law on Succession - Article 1922 through 2385;

Second part of the Code begins with general provisions which are subject matter of Articles 241 through 432.

162. The Law on Delicts covers Articles 823 through 853.

163. British Foreign Office Manual of German Law Volume 1, London 1950 (hereafter British Manual Vol. 1) at page 102 and following.

164. Article 826 of the Civil Code.

165. Ibidem as note 163 at page 103. According to the opinion expressed there the contra bonos mores system gives courts useful tool to apply principles of morality and ethics as they are viewed by the majority of society at certain moment or period of time.

166. Von Mehren, The Civil Law System , Cases and Materials for the Comparative Study of Law, Englewood Cliffs, N.J., 1957 (hereafter cited as Von Mehren, The Civil Law System) at page 351.

167. Palandt, Bürgerliches Gesetzbuch, C.M. Beck'sche Verlagsbuchhandlung, München 1977 (hereafter cited as Polandt, Burgerliches Gesetzbuch) at page 284.

168. Ibidem.

169. Ibidem at page 841. See also Von Mehren, The Civil Law System at page 353.

170. British Manual Volume 1 at page 66 and Von Mehren, The Civil

Law System at page 359.

171. Article 254 of the Civil Code.

172. British Manual Volume 1 at page 67.

173. Self-defence and state of distress are subject matter of article 227 and 228 respectively.

174. Ibidem, the last sentence of the Article 228 of Civil Code.

175. British Manual, Volume 1, at page 57.

176. Article 904 of the Civil Code.

177. Ibidem, Article 249.

178. Ibidem.

179. Ibidem, Article 250.

180. Ibidem, Article 251.

181. Ibidem, Article 847. See also Von Mehren, The Civil Law System at page 361.

182. Articles 833 through 836 of Civil Code establish the principle of objective liability in cases of damages caused by animals or by fall of building or part of it due to defective construction or insufficient maintenance. The defendant can argue and prove necessary surveillance or care as well as that the damage would have taken place regardless of such surveillance or exercise of care. However in the case of building the burden of proof leads back close to the fault liability although it is not mentioned. See also British Manual Volume 1, page 108 and following.

183. Von Mehren, The Civil Law System at page 416 and following as well as British Manual Volume 1 at page 104.

184. Von Mehren, The Civil Law System at pages 451 and 452.

185. Ibidem.

186. The responsibility for the damage caused to persons and things which are not aboard the aircraft is regulated in Articles 33 through 43 of the Law on Air Traffic.

187. Ibidem Article 37.

188. See above pages 75 and 76.

189. The liability from the contract of carriage is regulated in Articles 44 through 52 of the Law on Air Traffic.

190. Ibidem, Article 45.

191. Ibidem, Article 46.

192. Ibidem, Article 50.

193. Ibidem, Article 51.

194. Cigoj Law on Compensations at page 47.

195. John M. Longbein Comparative Criminal Procedure: Germany, American Casebook Series, West Publishing Co. 1977. The author elaborates quite extensively the question of "Joining a Civil Claim to the Prosecution" at pages 111 through 118.

196. Article 831 of Civil Code for detailed commentary of vicarious liability see Von Mehren The Civil Law System at page 434 and following. It is worth to mention that this system is not applicable for mangers and organs of a corporation or other legal person.

197. The description of the selection and supervision of the employee is done in the commentary to the article in Polandt Burgerliches Gesetzbuch at pages 845 to 849.

198. For extensive analysis of the relationship between the liability of a servant and of the state see dr. Herman von Mangoldt

Das Bonner Grundgesetz (hereafter Mangoldt Constitution) Berlin and Frankfurt a.M., 1966 at page 824 and following.

199. Ibidem at page 825 it is stated that: "the state steps on the position of the servant as it is provided for in the Article 831 of Civil Code.

200. See IFATCA Circular, February 1978 at pages 17 and 18.

201. Article 2 of the GESETZ UBER DIE BUNDESANSTALT FUR FLUGSICHERUNG (Act on the Federal Agency for Air Navigation).

202. Ibidem, Article 1.

203. Ibidem, Article 4, para 1.

204. British Manual Volume 1 at page 111. See also Larsen Regulation of Air Traffic Control Liability by International Convention at page 29.

205. See note 199.

206. The Supreme Court in the case Capitol International Airways Inc., Smyrna, Tennessee 37167 U.S.A. vs. BUNDESREPUBLIK DEUTSCHLAND, file no. III, ZR 131/77.

207. In 1977 and in 1978 two Special Air Transport Conferences were held at ICAO.

208. Thomas Burgenthal Law - Making in the International Civil Aviation Organization, New York 1969 at pages 57 through 122.

209. The Annex 9 did not get any acceptance into national regulation without the reservation or without the answer. 72 states informed ICAO about existing differences and 71 did not answer at all.

210. The respective conventions were concluded as follows:

- Asecna December 12, 1959,

- Cocesna February 26, 1960, and
- Eurocontrol December 13, 1960.

211. See the preambles to the conventions on Eurocontrol and Cocesna respectively as well as The Article 1 of the Asecna Convention.

212. See note 217, same author, at p. 467.

213. Asecna - Cahier de Charges, Comprenant l'Avenaut du 6 juillet 1960 - Article 13 para. 1.

214. Ibidem, Article 13, para. 2.

215. Constitutive Charter of the Central American Corporation for Air Navigation Services, Article 5.

216. Eurocontrol Convention, Article 25, para. 2.

217. C. Bosseler, International Problems of Air Traffic Control and Possible Solutions 34 JALC, 1968 at pages 471 and 472.

218. C.S. Dahl, Air Traffic Control Liability in Norway and from Viewpoint of International Unification, 1975 (McGill, unpublished thesis) at pages 71 and 72.

219. ICAO DOC 8582-LC/153-2, 1964 contains the material presented by the Sub-Committee for the fifteenth session with the reference sign LC/WD No. 701 which at page 12 enumerates the materials on disposal to the Sub-Committee.

220. Ibidem, at pages 13 and 14.

221. Ibidem, page 14.

222. Ibidem at pages 33 and 34.

223. For answers of states see ICAO DOC 8787-LC/156-2 at pages 315 and following.

224. ICAO DOC 8787-LC/156-1.

225. Ibidem at page 148 the following conclusion was adopted: "The Chairman, summing up the discussions on paragraph 48, said that the opinion of the Committee appeared to be that it was appropriate for the study of this matter to continue."

226. Paul B. Larsen, The Regulation of Air Traffic Control Liability by International Convention (unpublished McGill thesis), 1965 at pages 134 and 135.

227. Cristen Sverdrun Dahl, Air Traffic Control Liability in Norway and from Viewpoint of International Unification at page 111.

228. The Legal Commission reported to the Assemblies adoption of following conclusion:

(a) to retain the subject of Liability of Air Traffic Control Agencies as an important item in the General Work Programme of the Legal Committee;

(b) that Contracting States and International Organizations should be requested to reply to a detailed and precise Questionnaire which would elicit a statement of legal problems of sufficient magnitude to require urgent action, together with an indication of possible solutions.

(A23-WP/126).

The above proposal was apparently adopted in its entire text.

BIBLIOGRAPHY

Books and Theses

dr. Ljubo Bavcon in dr. Alenka Selih, "Kazensko pravt Splosni del", Casopisni zavod Uradni list SR Slovenije, Ljubljana 1978.

Paul Bockelman, "Strafrecht Allgemainer Teil", Verlag C.M. Beck, Munchen 1975.

Thomas Buergenthal, "Law-Making in the International Civil Aviation Organization", Syracuse University Press, New York 1969.

Great Britain - Foreign Office, "Manual on German Law" Volumes 1 and 2, Her Majesty's Stationery Office, London 1952.

dr. Stojan Cigoj, "Odskodninsko pravo Jugoslavije", Casopisni zavod Uradni list SR Slovenije, Ljubljana 1972.

dr. Stojan Cigoj, "Obligacijska razmerja Zakon o obligacijskih razmerjihs komentarjem", Casopisni zavod Uradni list SR Slovenije, Ljubljana 1978

Cristen Sverdrup Dahl, "Air Traffic Control Liability in Norway and from a Viewpoint of International Unification", Unpublished Thesis, McGill University, Montreal, 1975.

Glen A. Gilbert, "Air Traffic Control, The Uncrowded Sky", Smithsonian Institute Press, Washington 1973.

Gilbert & Associates," The United States Air Traffic Services Corporation", Washington, 1975.

Jan Huner, "The Responsibility of States for the Provision of Air Traffic Control Service: The Eurocontrol Experiment", Unpublished Thesis, McGill University, Montreal, 1977.

Paul B. Larsen, "The Regulation of Air Traffic Control Liability by International Convention", Unpublished Thesis, McGill University, Montreal, 1965.

John M. Longbein, "Comparative Criminal Procedure: Germany, American Casebook Series, West Publishing Co., St. Paul, 1977.

dr. Merman von Mangoldt, "Don Bonner Grundgesetz", Verlag Franz Vahlen G.m.b.H., Berlin und Frankfurt a.M., 1966.

dr. René M. Mankiewiecz, "Yearbook of Air and Space Law," 1965 McGill University Press, Montreal, 1967.

Arthur T. von Mehren, "The Civil Law System, Cases and Materials for the Comparative Study of Law," Englewood Cliffs, N.J., 1957.

Gerhard O.W. Mueller and Thomas Buergenthal, "The German Penal Code of 1871," Fred B. Rothmann E.W., South Mackensach, N.J., 1961.

Palandt, "Bürgerliches Gesetzbuch", C.M. Beck'sche Verlagsbuchhandlung, Munchen, 1977.

D. Hood Phillips and A.H. Hudson, "A First Book of English Law", Sweet & Maxwell, London, 1977.

Schwarz-Dreher, "Strafgesetzbuch und Nebengesetze", C.M. Bech'sche Verlagsbuchhandlung, Munchen, 1967.

Wegerdt-Reuss, "Deutsche Luftfahrtgesetzgebung", Sudwestdeutsche Verlagsanstult G.m.b.H., Mannheim, 1970.

Arturo Vallejo Saenz, "The Central American Air Navigation Services Corporation", Unpublished Thesis, McGill University, Montreal, 1978.

Articles and Papers

M. Beaubois, "Liability of Public Bodies Providing Assistance to Air Navigation", ITA Studies and Documents, Paris, 1968/7-E.

S. Bhatt, "Safety in Air - Recent Developments", 14 Indian Journal of International Law, New Delhi, 1974.

C. Bosseler, "International Problems of Air Traffic Control and Possible Solutions," 34 Journal of Air Law and Commerce, Dallas, 1968.

R. Bulin, "Eurocontrol - A European Organization", Journal of the Royal Aeronautical Society, London, March 1965.

Controller - Pilot Group, "Future Air Traffic Control Systems (unsigned articles)", The Controller Vol. 13, No. 4, November 1974; Vol. 14, No. 2, May 1975; and Vol. 15, No. 3, August 1976.

Editorial Article, "Mid-Air Collision on 10th September 1976 between British Airways Trident 111 G-AWZT and Inex-Adria DC-9 YU-AJR at Vrbovec Near Zagreb, Yugoslavia," The Controller, Vol. 16 No. 4, Frankfurt am Main, November 1977.

High Field, "Airline Safety First Assessment of 1979," Flight International, January 26, 1980.

Gilbert Guillanme," La Responsabilité des services de contrôle de la circulation aérienne en droit francais," Annals of Air and Space Law Vol. 111, Montreal, 1978.

Cristopher Johnson, "Legal Liability of Individuals Employed by the United States Government as Air Traffic Controllers", Unpublished Paper, Institute of Air and Space Law, McGill University, Montreal, 1980.

John Noble Wilford, "Air Control Technology Refined to Meet Hazards" The New York Times, January 22, 1980

Statutes, Documents and Cases

Bundesgerichtshof, Urteil in dem Rechtsstreit du Capitol International Airways Inc., Smyrna, Tennessee 37167/USA gegen die Bundesrepublik Deutschland, Aktenzeichen BGH 111 ZR 131/77.

Convention on International Civil Aviation, Fifth Edition, ICAO DOC 7300/5, 1975.

Convention Relating to the Regulation of Aerial Navigation Dated 13th October 1919, International Commission for Air Navigation, April 1937.

SFR of Yugoslavia, Federal Civil Aviation Administration, Aircraft Accident Investigation Commission, "Report on the Accident of the Trident Three Aircraft, G-AWZT and the DC-9 Aircraft, YU-AJR above Zagreb VOR," Blograd, December 25, 1976.

IATA, "World Air Transport Statistics No. 24," 1979.

ILO, - Document Code ISBN 92-2-101786-9, Geneva, 1977.

International Federation of Air Traffic Controllers Association, IFATCA Circular, February, 1978.

Okružni sud u Zagrebu, Presude u krivičnom postupku, protiv optuženih Tasić Gradimira i drugih, Zagreb, 16 svibnja 1977, Poslovni broj K-125/77.

Vrhovni sud hrvatske, Presuda Broj KZ 1490/1977-15, Zagreb, 27.4.1978.

Kazenski zakon SFRJ, Ur. list SFRJ, 44/1976.

Ustava Socialistične Federativne Republike Jogoslavije, 21 februar, 1974.

Zakon o pravdnem postopku, Ur. list SFRJ 4/1977.

Zakon o temeljih državne uprave, Zveznem izvršnem svetur in zveznih upravnih organih Ur. list SFRL, 23/1978.

Zakon o združenem delu, 24. november 1976.

Zakon o zračni provbi, Ur. list SFRL, 23/1978.

International Civil Aviation Organization, International Standard, Rules of the Air, Annex 2 to the Convention of International Civil Aviation, Sixth Edition, Sept. 1970.

International Civil Aviation Organization, International Standards and Recommended Practices, Air Traffic Services, Annex 11 to the Convention of International Civil Aivation, Seventh Edition, April 1978.

ICAO - DOC 4444-RAC/501/11, Procedures for Air Navigation, Rules of the Air and Air Traffic Services, Eleventh Edition 1978.

ICAO DOC 8582-LC/153-1 and 2, Legal Committee, Fifteenth Session.

ICAO DOC 8787-LC/156-1 and 2, Legal Committee, Sixteenth Session.

ICAO 23rd Assembly, Report of the Legal Commission, A23-WP/126, 1980.

Appendix

Extract from the Report on the Accident of the Trident Three Aircraft, G-AWZT and the DC-9 Aircraft, YU-AJR above Zagreb Vor

1. INFORMATION ABOUT THE ACCIDENT

1.1 HISTORY OF THE FLIGHT

a) Trident Three Aircraft

The Trident Three was on a scheduled transport flight (Bealine 476) from the airport Heathrow - London (England) to Istanbul (Turkey) carrying 54 passengers and a crew of 9.

The aircraft took off from Heathrow airport at 08:32 (GMT). The flight (BE 476) proceeded normally via West Europe and a portion of the airway UB5 above Yugoslavia until the collision near Zagreb with an aircraft of Inex Adria, flight JP 550.

First contact with the Area Control Centre - "upper sector" in Zagreb was established on the frequency 134,45 MHz at 10.04'12" GMT. The conversation was: "Zagreb, Bealine 476, good afternoon" and Zagreb response was: "Bealine 476, good afternoon, go ahead".

10.0419" BE 476: 476 Klagenfurt at 02, 330 estimating Zagreb 14.

Zagreb: Bealine 476, roger, call me passing Zagreb, flight level 330, SQUAWK Alfa 2312.*

10.04'40" BE 476: 2312 is coming.

No further calls were received from the aircraft which was required only to keep a listening watch until the time of the next

---

* SQUAWK Alfa 2312 means: select the secondary radar transponder to Mode/Code Alfa 2312. Upon selecting, the radar display at the controller's position shows a symbol of the aircraft or 315 degrees and the number A/2312 and flight level 330 in front of it. On the basis of this information the controller identifies the aircraft.

call over Zagreb VOR.**

Immediately after the previous call, the crew heard a Turkish Airlines aircraft reporting to Zagreb Control its position over point "Charlie" (just ahead of the Trident) at flight level (FL) 350. A remark by one of the Trident crew members recorded on the Cockpit Voice Recorder (CVR) indicates that they saw the other aircraft passing overhead in the opposite direction shortly afterwards".

The aircraft mantained a heading of 120-122° until 2 min. 50 sec. before ZAG VOR at flight level 330, recorded indicated airspeed (hereinafter speed) 295 Kts, Ground speeds: 489 Kts (905 km/h). The aircraft flew along the airway centreline with slight side deviation (1-2 km) to theright due to wind angle of 220°/45 Kts. (measured at 12:00 hours) and probably due to tolerance in the existing characteristics of ZAG VOR.

At 2 min. 50 sec. before the collision, the aircraft changed heading to 115°. Five seconds before the collision heading was 116° and it was maintained until the collision. From plotted data it could be concluded that at the moment of collision the aircraft was 1.5 - 2 km. north-east of the high cone of ZAG VOR at flight level 330 and at a speed of 295 Kts.

The collision between Bealine 476 at JP 550 occured between the hours 10.14'38" when the aircraft JP 550 reported maintaining flight level 330, and 10.15'06" when Bealine 476 did not reply to a call from Zagreb control.

Subsequent examination of the wreckage showed that the left wing of the DC-9 cut through the flight deck and forward passenger compartment of the Trident. Both aircraft fell to the ground.

** VOR: VHF omni-directional range (radio navigational beacon)

b) DC-9 Aircraft

The purpose of the flight was transportation of 108 West German tourists from Split to Cologne.

The aircraft, with a crew of 5, took-off from Split airport at 09:48 (GMT) on flight JP 550.

In coordination between the Approach control in Split and the Area Control Centre in Zagreb - "Lower sector east", the aircraft JP 550 was cleared to climb to flight level 180 and to cross Split VOR at flight level 120. After take-off the aircraft climbed overhead the airport and Split VOR. Seven minutes later, on passing flight level 130, it switched to frequency 124.6 MHz of the Area Control Centre in Zagreb (lower sector east) as follows:

09.54'49" JP 550: Dobar dan Zagreb, Adria 550. (Good morning Zagreb, Adria 550). crossing 130, climbing 180, heading Kostajnica.

Zagreb: Roger, recleared 240, Adria 550.

09.55'01" JP 550: Recleared 240.

The aircraft JP 550 proceeded climbing to the cleared flight level 240 along the airway B9 maintaining heading from 359° to 004° with average recorded speed of 285 Kts.

09.55'50" Zagreb: Adria 550, recleared 260, call crossing 220.

As the crew did not call back and did not repeat the instruction, Zagreb air traffic control called again:

09.56'02" Zagreb: Adria 550, Zagreb

JP 550: 550, cleared 260 and call you crossing 240 do you read me?

09.56'12" Zagreb: Call me crossing 220.

JP 550: I will call you crossing 220.

After about 3,5 minutes ATC Zagreb required a level check.

09.59'53" Zagreb: Adria 550, level check.

JP 550: 550, crossing 183.

Zagreb: Thanks.

Crossing flight level 220, required by ATC, the crew reported as follows:

10.02'44" JP 550: Zagreb, Adria 550 crossing 220.

Zagreb: Zagreb, Adria 135,8 Good day.

JP 550: Good bye.

From this moment the aircraft JP 550 switched to operation with the middle sector on the frequency 135,8 which is responsible for safety and regulation of traffic between flight levels 250 and 310.

10.03'21" JP 550: Dobar dan Zagreb, Adria 550. (Good morning Zagreb, Adria 550), crossing 225, climbing 260.

Zagreb: 550, good morning, SQUAWK Alfa 2506, continue climb 260.

Approximately 18 minutes after took-off the aircraft levelled out at flight level 260, heading 359° and speed of 316 Kts. At 10:04 hours the aircraft was 62 km., to the south from Kostajnica. At that time, Bealine 476 was crossing Yugoslav-Austrian border. The crew reported to the ATC middle sector as follows:

10.05'57" JP 550: Adria 550, levelling 260, standing by for higher.

Zagreb: 550, sorry 330 ..e... 310 is not available, are you able to climb may be to 350?

JP 550: affirmative, affirmative, with pleasure.

The aircraft was retained 1 min. 48 sec. at flight level 260 in a horizontal flight and only then it was cleared to climb to flight level 350 as follows:

10.07'40"Zagreb: Adria 550 recleared flight level 350.

10.07'45"JP 550: Thank you, climbing 350, Adria 550.

Immediately after this transmission, Zagreb middle sector assistant controller telephoned to Vienna that JP 550 would be at flight level 350 and Vienna acknowledged affirmatively. At 10.09'18" Zagreb control informed JP 550, under radar supervision, that it was approaching Kostajnica, that it should proceed to Zagreb and Graz and report passing flight level 290. The crew acknowledged affirmatively.

The aircraft assumed a heading of 353° and a speed of 273 Kts. towards Zagreb VOR. It passed abeam and to the west of the KOS NDB, approximately 2-3 km. from the airway centreline.

10.09'53" JP 550: Zagreb. Adria 550 is out of 290.

Zagreb: Roger, call me crossing 310, now.

JP 550: Roger.

The aircraft was climbing 2 minutes and 14 seconds from flight level 290 to flight level 310 maintaining constantly the same flight elements.

Flying on this heading it had slightly diverted to the right crossing the airway centreline towards Zagreb VOR.

10.12'03" JP 550: Zagreb, Adria 550 out of 310.

Zagreb: 550, for further Zagreb 134,45 SQUAWK stand by*, and good day, Sir.

---

* Switch the transponder off and keep a listening watch.

10.12'12" JP 550: SQUAWK stand by. 134,45 Good day.

At this time the upper sector controller, frequency 134,45 was very busy in conversation with other aircraft. There were four aircraft in radio communication and in addition from 10.13'30" there was a telephone conversation with Beograd in connection with the transfer of two aircraft flying to Sarajevo and proceeding to Kumanovo. One minute and 52 sec. passed from the time of the last transmission by JP 550 with the middle sector to the time when the first contact was established at 10.14'04" with the upper sector. In this period 8 messages were transmitted by Zagreb control - upper sector - and 11 messages received.

Flight JP 550 established its first contact with the upper sector as follows:

10.14'04" JP 550: Dobar dan Zagreb, Adria 550.
(Good morning Zagreb, Adria 550).

14'07" Zagreb: Adria 550, Zagreb dobar dan (good morning) Go ahead.

10.14'10" JP 550: 325 crossing. Zagreb at 14.

This message reported to ATC indicated that the aircraft was crossing flight level 325 and that it would be at Zagreb VOR at 10'14", continuing its previously cleared climb to flight level 350. It is probable that the crew's watch was not set according to the watch of ATC as there was a difference of approximately 1 minute.

10.14'14" Zagreb: What is your present level?

14'17" JP 550: 327

14'22" Zagreb: (Stuttering) ... e ... zadrzite se za sada na toj visini i javite prolazak Zagreba. (... e ... maintain now that level and report passing Zagreb)

14'27" JP 550: Kojoj visini? (What level?)

14'20" Zagreb: Na kojoj ste sada u penjanju jer ... e ... imate avion pred wama na isn ... (unintelligible) 335 sa leva na desno. (At which you are now climbing, because ... e ... you have an aircraft in front of you at ... (unintelligible) 335 from left to right

14'38" JP 550: OK, ostajemo toćno 330. (OK maintain precisely 330).

This was the last message from the aircraft JP 550.

From flight level 327, 12 seconds passed until the crew realized that they were required to maintain their present level. In these 12 seconds the aircraft gained 150 feet, reaching 32850 feet. During the next 9 seconds, when the crew reported "OK maintain precisely 330", the aircraft gained another 100 feet and reached 32950 feet (330)

The Flight Data Recorder readout shows that before the collision the aircraft was in horizontal flight at a speed of 261 Kts., flight level 330.

Half a minute later, exactly at 10.15'06" Zagreb called the crew of Bealine 476 to report passing Nasice. The crew did not respond to this message because, most probably, the collision between BE 476 and JP 550 had already occurred.

The collision was seen by the crew of a Lufthansa aircraft which was operating along UB 5 in the direction of ZAG VOR some 15 miles behind the Trident Three at flight level 290. According to the statement of the Lufthansa pilot-in-command Captain J. KROESE, who believes he first saw the Trident Three 10 to 15 miles ahead of him, the collision was seen as a flash of lightning and afterwards, out of a ball of smoke, two aircraft falling towards the ground.

From 10.15'36" until 10.18 hours the crew of the Lufthansa aircraft reported several times to the Middle Sector Controller the sighting of what they believed was a mid-air collision. Captain of the Lufthansa aircraft repeated his message several times on the request of the Middle Sector Control until the message was understood. Mr. Kroese was called to Zagreb in order to give statement as a witness. On that occasion he was listening to the message which he transmitted to the air traffic control. He had to listen to it several times in order to understand each word. The words were spoken with excited voice and were not quite clear.

According to the statement of witnesses on the ground, the DC-9 aircraft entered a steep dive rolling around the longitudinal axis. The Trident aircraft initially entered a steep dive, pitching occasionally nose upwards. According to the statement of the witnesses on the ground the Trident aircraft started to turn to the left at the height of about 2,000 meters. A substantial part of the aircraft detached during the first turn and descended separately without turning.

The collision occurred above Zagreb VOR 45°53'33"N, 16°18'38"E, in daylight.

The impact location of the DC-9 aircraft was 1 km. castward from the village Dvoriste.

The impact location of the Trident aircraft was 1.5 km. south of the village Gaj near Vrbovec.

The distance between the impact locations was 7 km.

1.2 INJURIES TO PERSONS

a) Trident Three Aircraft

Injuries	Crew	Passengers	Others
Fatal	9	54	-
Serious	-	-	-
Minor/None	-	-	-

b) DC-9 Aircraft

Injuries	Crew	Passengers	Others
Fatal	5	108	-
Serious	-	-	-
Minor/None	-	-	-

c) Total

Injuries	Crew	Passengers	Others
Fatal	14	162	-
Serious	-	-	-
Minor/None	-	-	-

1.3 DAMAGE TO AIRCRAFT

The Trident Three aircraft, registration marks G-AWZT and the DC-9-32 aircraft, registration marks YU-AJR were completely destroyed in this accident.

1.4 OTHER DAMAGE

a) The Trident aircraft fell on a corn field and damaged an area of approximately 70 x 70 m. Other parts of the aircraft which were

scattered over an area of 7 km., caused, in certain places, slight damage to crops. It was not possible to evaluate this damage.

b) The DC-9 aircraft fell in a forest area. The impact and fire damaged the forest vegetation over an area of approximately 70 x 70 m. No other damage on the ground was observed.