# Conditions of Employment in International Civil Aviation

by

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*With the rapid development of international civil aviation a number of problems have arisen concerning the conditions of work of persons engaged in this new industry. The need for a study of these problems has been pointed out by the International Labour Conference, at its 31st Session (1948), and more recently by the I.L.O. Inland Transport Committee.*

*The following article presents a survey of the working conditions of aircrews engaged in international civil aviation.*[1] *The author is at present preparing a thesis on "International Civil Aviation Organisation" at the Graduate Institute of International Studies, Geneva.*

## INTRODUCTION

CONDITIONS of employment in civil aviation are determined, even more than in other transport services, by two major sets of factors, one technical and the other social. The complexity of civil air transport operations makes it impossible to establish a sharp distinction between the necessarily inter-related technical and social aspects of any given condition. Nevertheless an attempt will be made in the following pages to treat the social aspects of the conditions of work of persons employed in international civil aviation in the light of the recommendations made by the International Labour Organisation and the International Transport-workers' Federation.

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The author also wishes to state that the views expressed in the article are his own and do not necessarily represent the views of the I.C.A.O. or the I.L.O.

In a resolution adopted at its 31st Session in 1948 the International Labour Conference recommended that special attention should be given to the working conditions of persons employed in civil aviation and requested that the Office should undertake a study of the subject in consultation with the International Civil Aviation Organisation. The Inland Transport Committee of the I.L.O. made the same request in 1949 and at its Fourth Session (1951) recommended that further studies be undertaken, in particular regarding holidays with pay, social security and hours of work in this industry. It also asked the Governing Body of the I.L.O. to give consideration to the creation of a special section within the Office competent to deal on a continuing basis with the problems of the industry. The International Transportworkers' Federation has recently suggested that a permanent commission be set up for civil aviation, a suggestion which is now under consideration by the Governing Body.

Since it would not be possible to deal in one article with all the problems involved in the social aspects of working conditions in civil aviation, it is proposed to give here an outline of the characteristics of the industry and then to discuss certain selected subjects. It would likewise be impossible to examine these few problems as they affect all the categories of personnel employed; attention will therefore be confined to a particular category, the aircrews, because the problems of the flying staff call for more immediate action than those of ground personnel. Furthermore working conditions in non-scheduled air transport, which are more irregular than those in scheduled air transport, will not be dealt with here.

## General Background

Perhaps the chief characteristic of the industry is its extraordinarily rapid evolution and growth in the short half-century since man began to fly heavier-than-air machines. The year 1953, the fiftieth anniversary of powered flight, marked the end of the third decade of air transport and saw the opening of a new phase in this industry, the use of jet-powered aircraft. The aircrews and ground personnel employed in all parts of the world can look with pride on the achievements they have shared in since the pioneering days of civil aviation and they are ready to face the new duties to which they will be called in the development of this new world-wide service which, by shrinking distances, is bringing people ever closer together, thus contributing to the trend towards "one world".

The early activities of this young and rapidly expanding

industry have been described by many writers and cannot even be summarised here. Nevertheless, some idea may be given of the wide range covered by the term " civil aviation ". The aeroplane is nowadays put to many and varied uses. Among these may be mentioned aerial surveys (topographic and geologic reconnaissance and commercial and industrial air surveys of all types), aerial photography and pipe-line inspection. Aviation has had a particularly rapid and useful development in agriculture : in the United States alone farmers and ranchers own approximately 10,000 aircraft ; more than 2,000 aircraft were used in 1952 in spreading insecticide on agricultural and forest land ; aircraft are also used for pest control, for feeding cattle in remote areas and for the spraying of fertilisers. It is estimated that 10,000 aeroplanes are used by business and industry in the United States, more than 1,500 of them multi-engined machines.

There is no doubt that, as these various activities develop, new problems will arise concerning employment and the establishment of adequate working conditions within the profession. It is well to keep this in mind in considering the specific theme of this article and to recall that air transport is only one part of this new and complex activity called civil aviation.

### *The Human Factor*

The men who operate these aircraft have been intimately associated with the developments brought about through technical improvements. In the process of testing new aircraft and in pioneering new air operations, their courage and readiness to experiment and to endure hardships and danger have been a constant factor in giving reality to the conceptions of the engineers. While the aeronautical engineer has solved many of the problems of high-altitude high-speed flying through pressurisation and other advances, these solutions could not have been worked out solely on the drawing board or in the aeronautical testing laboratories. The men who fly these aircraft have, in many ways, made vital contributions to the development of aviation. Leaders in the industry have tended to concentrate attention on the highly complex problems of technical developments and to pay insufficient attention to the irreplaceable element in all these processes—the men who operate these aircraft. The time has come to recognise this fact when considering future developments of the industry.

The definition of international scheduled air transport as finally adopted by the Council of the International Civil Aviation Organisation on 28 March 1952 is as follows :

A scheduled international air service is a series of flights that possesses all the following characteristics :

*(a)* it passes through the air space of the territory of more than one State ;

*(b)* it is performed by aircraft for the transport of passengers, mail or cargo for remuneration, in such a manner that each flight is open to use by members of the public ;

*(c)* it is operated so as to serve traffic between the same or more points, either—

(i) according to a published timetable ; or

(ii) with flights so regular or frequent that they constitute a recognisably systematic service.[1]

The need for international standards to regulate the conditions of work of the persons who gain their livelihood in this particular activity of the air transport industry will be illustrated by reference to the problems of a single group—the aircrews engaged in civil air transport. At the outset it should be noted that the problems in this kind of operation vary greatly as between short-distance flights, referred to as "short-haul operations", and long-distance flights, or "long-haul operations".

### *The Growth of Commercial Air Transport*

Some figures may not be out of place here to illustrate the very recent development of the scheduled air transport industry and its extraordinarily rapid growth, particularly since the Second World War.

For example, the cruising speed and normal operating altitude of commercial aircraft have increased respectively from about 300 km. per hour and about 3,600 metres in 1944 to about 500 km. per hour and about 7,000 metres in 1950. The recent entry of jet-powered aircraft into commercial operations has raised cruising speeds to 750 km. per hour and operating altitude to 11,000 metres (the *Comet* of 1952).

Some indication of the growth in the number of passengers transported is provided by the following figures taken from a report issued by the International Civil Aviation Organisation : in 1936 some 2.5 million passengers were carried by scheduled air transport services, in 1947 21 million and in 1952 45 million. According to a statement made by the Director-General of the International Air Transport Association, Sir William Hildred, at the Ninth Assembly of the Organisation in Montreal in October 1953, 5 million more passengers had been carried during the first nine months of 1953 than during the whole of the previous year, so that the total

[1] *I.A.T.A. Bulletin*, No. 16, Dec. 1952, p. 75.

number of passengers carried by air in 1953 will be well over 50 million.

The distances flown by aircraft in scheduled air transport operations have also increased at an extraordinary rate : 266 million km. in 1937 ; 1,140 million km. in 1947 ; 1,680 million km. in 1952.

### *Types of Transport Aircraft and Working Conditions*

The conditions of work of flight crews are strongly influenced by the type of aircraft they are required to operate. It is evident that the crew of, let us say, the DC–3 (a twin-engined aircraft normally carrying 21 passengers, with a cruising speed of 260 km. an hour) works under conditions very different from those of the crew responsible for the operation of one of the large long-range aircraft such as the DC–6B (a four-engined aircraft normally carrying 50 passengers—77 passengers in the newly introduced tourist class—and with a cruising speed of 440 km. per hour).

Furthermore, the types of aircraft in use on the airlines have tended to determine a number of working standards, such as duties, employment, mileage flown, earnings, etc. One of the most widely used types of plane is the DC–3. It was first introduced in air transport in 1936 in the United States and has been used on most of the world's airlines ; nearly two-fifths of the approximately 4,000 aircraft in scheduled air transport in operation throughout the world are still DC–3s.[1] This aircraft has been used by the airlines for a longer period than any other, and consequently working conditions and other employment standards have tended to develop on the basis of the type of operation carried out by it. The more recent DC–6B is now being increasingly used by the world's airlines, and working conditions and employment practices are, in the same way, likely to be developed out of experience gained in the operation of this aircraft.

### *The International Civil Aviation Organisation*

A few words should be said at this point regarding the activities of the I.C.A.O. (International Civil Aviation Organisation), in which 62 governments are represented and which contributes permanently to the development and promotion of international co-operation in civil aviation. Today 95 per cent. of the world's aircraft operate under regulations prescribed by the I.C.A.O. These regulations are directed essentially to facilitating the safe

[1] Report of the Council of the I.C.A.O. to the Assembly on the activities of the Organisation in 1952.

and efficient operation of international civil air transport services but they naturally have some effect on the conditions of work of aircrews, above all on their safety. The standard of safety in civil aviation is also likely to have considerable influence on its success in attracting passengers and therefore on the ability of the industry to employ flight crews. The I.C.A.O., being in this matter primarily concerned with safety, has dealt directly to only a limited extent with the general working conditions of aircrews but, because many aspects of working conditions have a potential effect on safety, they are of direct concern to the I.C.A.O. In the field of working conditions the I.L.O. can play an important role in helping to secure improvements in the conditions of civil aviation personnel, as well as in contributing to the smooth operation of the air transport industry as a whole.

## The Profession

While the romantic aspects of the industry tend to draw many men and women to it, its severe requirements exclude all but a few, who then discover in the course of their professional advancement the many inconveniences of the profession. Its requirements are unusually strict, determined as they are principally by safety considerations and by the hazards of the industry itself, though they naturally vary for the different categories of crew members. The technical qualifications, in particular, required of members of the operating crew (pilot, flight engineer, navigator, etc.) differ from those of the non-operating members of the crew (steward, hostess, etc.).

### *Employment Standards*

Strict technical qualifications with regard to education, training, physical fitness, etc., for the personnel engaged in civil aviation have generally been established by national regulations. The I.C.A.O. has done a great deal to establish international standards and recommended practices, which are applicable to the 62 member nations as regards their international air transport operations. These " Standards and Recommended Practices " may be found in Annexes 1 and 6 to the International Convention on Civil Aviation adopted on 7 December 1944. With some minor variations, national regulations have in general tended to follow the I.C.A.O. standards, which represent an important step towards the international regulation of the professional standards required of flight personnel.

The high performance demanded of the profession requires high standards in the selection of aircrews, for they must be capable

of operating safely the increasingly large and fast aircraft in use today. The minimum age varies between 18 and 21, according to the category of crew ; for instance, the minimum for flight radio operators is 18, for airline pilots, flight navigators and flight engineers 21, and for other members of the aircrew 20. Although no maximum age has been fixed, because of the difficulties of establishing one, in practice the age limit of a member of the aircrew is determined by his continued ability to meet the severe periodical tests that he is required to undergo. In particular, strict medical examinations, which naturally vary according to occupation and the type of licence granted, are compulsory for entering the profession and also throughout the period of employment.

The suitability of persons who wish to be pilots, for instance, is determined by elaborate medical and other tests, which they must undergo when they apply for their professional pilot's licence, a primary condition of employment. The obtaining of this licence is a complicated and lengthy procedure, since a candidate must first qualify for all the pilot categories below that of airline pilot. Hence, a beginner must be young and will usually enter employment on a scheduled airline as a co-pilot. In selecting personnel, employers usually also give careful consideration to various factors such as personality, temperament, appearance and height.

Requirements for other operating members of the aircrew vary slightly and are determined by the particular duties that they will have to perform. Non-operating personnel—stewards, stewardesses, etc.—are required to meet somewhat simpler standards. A stewardess will be required to meet strict medical examinations, to have a pleasing appearance and personality, minimum height, and so on. The minimum age limit is in the twenties and unmarried women are preferred. Candidates are required to have an elementary nurse's training and certain minimum educational standards, normally about two years of college, with a knowledge of foreign languages.

### *Disadvantages of the Profession*

The disadvantages of the profession are many. The first is the noise and vibration prevailing on the flight deck of even the largest modern aircraft, to which the flight crew are submitted day in and day out. Furthermore, members of the aircrew cannot enjoy a normal family life because of the necessity of long absences during flights away from the home base. They are also subject to constantly changing climatic and meteorological conditions and to the strain resulting from ever-increasing speed and high-altitude flying,

especially on long-distance flights, when, in addition, night operations frequently deprive them of adequate sleep. The irregularity of the service itself also puts an additional strain on them. All these factors tend to impose abnormal fatigue and strain on the physical and nervous systems of the members of the aircrew.

Furthermore a pilot may find his career cut short when he is still relatively young because of inability to meet medical or other technical standards. Through a minor accident he may find himself deprived of his livelihood at an age which is generally regarded as the prime of life. A pilot who hopes to stay long in his profession must observe in daily life the strictest precautions and give up many activities that are normal for people employed in other professions.

## Composition of Aircrews

In the " International Standards and Recommended Practices for Operation of Aircraft in International Commercial Air Transport " adopted by the International Civil Aviation Organisation [1], a crew member is defined as " a person assigned by an operator to duty on an aircraft during flight time ", and a flight crew member, as " a licensed crew member charged with duties essential to the operation of an aircraft during flight time ". The aircrew may vary—according to the size of the aircraft, the number of passengers to be carried, the type of operation and other factors—from a crew of three on a DC–3 to about a dozen crew members on a DC–6B, for instance, consisting of a captain, co-pilot, flight engineer, flight navigator, flight radio officer, and sometimes additional flight crew members, together with a number of stewards or stewardesses and sometimes a purser.

### *The Operating Crew*

The pilot (captain, first pilot) is in charge of the aircraft. More often than not there is no special commander on board, and it is the pilot who assumes command and is responsible for the safe completion of the flight. His is the most important position on board ; he is responsible for handling the flight controls while the aircraft is under way and for keeping it on course from take-off until landing.

The co-pilot (second pilot, first officer), whose functions are in general similar to those of the pilot, performs his duties under the

[1] I.C.A.O. : *Standards and Recommended Practices : Operation of Aircraft—International Commercial Air Transport*, Annex 6 to the Convention on International Civil Aviation (Montreal, 1952), Ch. I.

direction of the pilot in charge. He is required to relieve the first pilot during long-range flight operations. When necessary he takes full charge and command of the aircraft if the first pilot is suddenly incapacitated. During take-off and landing he sits at the controls by the side of the first pilot. In many cases he is required to act as navigator or radio-operator or in other capacities according to the type of aircraft, length of flight or regulations of the particular airline.

The flight navigator plots the course to be followed, periodically ascertains the position of the aircraft with respect to the flight plan, and supplies the pilot with the data necessary to enable him to keep the aircraft on the proper course. The navigator's duties are also sometimes combined with those of other flight crew members.

The flight radio operator (radio officer) maintains communication between the aircraft and the ground and with other planes in the air. His duties include obtaining radio bearings and sending and receiving weather information and other messages as necessary. He operates the radio-navigational equipment and instruments carried on board. In restricted crews he sometimes assumes other duties, for example, supervision of the engine panels.

The flight engineer's duties are confined to the supervision of the technical equipment of the aircraft, the running of the engines and the maintenance of the mechanical parts of the aircraft in good order. He operates certain controls under the direction of the captain, and is also responsible for certain repairs during the flight and after emergency landings. His duties also are sometimes combined with those of another member of the aircrew.

In the above brief description of the aircrew's work, reference has been made to purely flight duties only (i.e., those performed in the air). Other duties of a preparatory nature are performed on the ground by the various members of the aircrew before the flight and after landing. For example, the following must be regularly attended to : preparation of the flight plan, meteorological briefings, pre-flight cockpit check, check of flight instruments, radio equipment, engine, etc., together with general flight preparations, post-flight reports, etc., all of which involve a great deal of time and work.

### *Non-operating Flying Personnel*

The cabin staff—stewards, pursers, stewardesses or hostesses—do not have to deal with any operating controls. Their duties are not in fact peculiar to aircraft, and are similar to those of members of their profession employed on the ground, though this

does not mean that these duties are as easy as on the ground. They work as a team and their duties are interchangeable so that they can relieve one another; these duties can therefore be described collectively.

The work of stewards and stewardesses (hostesses) is complementary. Where there are two or more they may all be on duty at certain times (e.g., mealtimes); at other times they relieve one another. They are responsible for attending to the passengers' needs and comforts and giving minor medical aid when necessary to passengers during the flight.

When there is a sufficiently large crew, a purser is carried. He is responsible for the administrative part of the work of the aircrew—keeping records, collecting tickets, keeping the stock, clerical work, filling out forms and so on.

### *Aircrew Regulations*

We have already noted that the composition of aircrews varies according to a number of factors. It is also determined by the regulations in force in different countries, and the various national regulations do not adopt the same standards for a given type of equipment or length of flight, or other relevant factor. Regulations are not in force in all countries and, where they exist, their application is not always satisfactory, since it tends to be determined to some extent by financial considerations.

Standards concerning the composition of flight crews have, however, been established by the International Civil Aviation Organisation. These standards apply to the operation of aircraft in scheduled services and in non-scheduled air-transport operation for remuneration or hire, though non-scheduled operations were recognised by the I.C.A.O., and with reason, as most urgently requiring the establishment of international standards. In establishing these standards the I.C.A.O. has contributed to safety of operations by providing criteria for the proper composition of aircrews. The third edition of the *Standards and Recommended Practices* (May 1952) reads as follows:

Article 9.2. *Composition of the Flight Crew.*

9.2.1. The flight crew shall not be less than that specified in the Operations Manual. The flight crew shall include flight crew members in addition to the minimum numbers specified in the certificate of airworthiness of the aeroplane or the Aeroplane Flight Manual or other documents associated with the certificate of airworthiness when necessitated by considerations related to the type of aeroplane used, the type of operation involved and the duration of flight between points where flight crews are changed.

9.2.2. *Radio Operator.* The flight crew shall include at least one member who holds a valid licence, issued or rendered valid by a State of registry, authorising him to operate the type of radio transmitter equipment to be used.

9.2.3. *Flight Engineer.* When a separate flight engineer's station is incorporated in the design of an aeroplane, the flight crew shall include at least one flight engineer who shall be assigned to that station, unless the duties associated with that station can be satisfactorily performed by another flight crew member holding a flight-engineer licence, without interference with his regular duties.

9.2.4. *Flight Navigator.* The flight crew shall include at least one member who holds a flight navigator licence in all operations where navigation cannot be accomplished by the use of visual or non-visual ground aids.

The regulations adopted by various countries in this matter, though based on these standards, vary substantially on particular points.

In the United Kingdom, for example, it is the Air Navigation Order of 1949 and the Air Navigation General Regulations of 1949 that regulate the number and duties of the operating crew to be carried in an aircraft ; these are prescribed according to the class, type and description of the aircraft or the circumstances of the flight on which it is engaged. Thus a flight engineer must be carried unless the operating crew includes a person who, although acting in another capacity, is licensed for the flight duties and is able, without interference with his normal duties, to carry out the duties of the flight engineer in addition to his own. The conditions in which a flight navigator must be carried are likewise prescribed.

In France the law concerning the composition of aircrews states that the employer has to compose his flight crew according to the prescribed regulations.

In the United States, on the other hand, regulations issued by the Civil Aeronautics Authority correspond in general with those adopted by the I.C.A.O.

However, though regulations exist in a number of countries, many have not as yet adopted any.

Some of the provisions of these regulations have given rise to misunderstanding in their practical application by airline operators, who determine the composition of aircrews primarily on the basis of type of aircraft and flight, flight duration and nature of operation. Different points of view are held by the various airline operators as to the necessity of having, for example, a flight navigator, a flight engineer and a radio operator in addition to the pilot. This results in many serious conflicts between aircrews and airline operators and has been a cause of strikes by aircrews when agreement has not been reached.

## Working Conditions

### *Hours of Work*

Before discussing working conditions it is necessary to explain some of the terms in use. The time spent by a pilot in operating the aircraft—his " flying time "—represents only a part, though a major one, of his total working hours or " duty time ", which consists of " stand-by " time, as required by the various airline regulations, and study time, and may include travel time to and from the airport. The above applies with variations to other members of the aircrew.[1]

The problem of limiting the flying time of flight personnel is complicated by the difficulties encountered in reconciling the time-tables and operating conditions of the aircraft with a satisfactory limit to the number of hours worked by the employees. Their periods of continuous duty and their activities and responsibilities during that time vary considerably as between short-haul and long-haul operations. Furthermore, aircrews' duties may cover both day and night work according to the schedule operated. In consequence it has only been possible to establish maximum flight time limits on a weekly, monthly, quarterly or annual basis.

The following pilot's schedule [2] illustrates the problems involved. It gives a typical working day for a pilot on a short-haul operation.

08.00 Commencement of duties at airport. Pre-flight planning.
09.00 Take-off, for instance, to Paris.
11.00 Arrival at Paris, immediately followed by pre-flight planning for return, meteorological briefing, etc.
11.45 Take-off from Paris. Meal on board, consisting of sandwiches and tea or coffee.
13.45 Arrival at base, followed by hurried lunch and preparation for next flight.
15.10 Take-off for Brussels.
17.10 Arrival at Brussels, followed by more pre-flight planning.
17.50 Take-off from Brussels. Meal on board.
19.50 Arrival back at base. Post-flight report.
20.20 Sign off duty.

[1] The International Civil Aviation Organisation defines flying time as " the total time from the moment an aircraft first moves under its own power for the purpose of taking off until the moment it comes to rest at the end of flight ". It thus corresponds to " block to block time " or " chock to chock time ", terms in general use meaning time elapsed from the moment the aircraft moves from the loading point until it stops at the unloading point. Cf. I.C.A.O., op. cit.

[2] Contributed by a Swiss pilot in connection with a study of the deleterious effects of flying prepared for the International Transportworkers' Federation.

This example shows clearly the intensity of the work involved in normal short-haul operations. The pilot cannot rest for any length of time between the several flights he must perform in one day. As pointed out in the above-mentioned report—

> . . . The two flights shown in this example thus comprise about 12 hours of duty, inclusive of preparatory work, During the summer months it often happens that a pilot performs such flights on five consecutive days before his day off comes round. Sixty working hours in five days on a job requiring so much concentration must undoubtedly be considered as excessive. It should furthermore be added that the figures contained in the above example are if anything conservative, since delays resulting from engine trouble, adverse weather conditions, etc., are frequent and add to the total duty hours performed by the pilot.

The International Civil Aviation Organisation has given consideration to this difficult question of limiting flying and working hours. In regard to flight time the *Standards and Recommended Practices* specify :

> An operator shall establish limitations on flight time of flight crew members. These limitations shall be such as to ensure that fatigue, occurring either on the flight or on successive flights accumulating over a period of time, does not endanger the safety of the flight. The limitation shall be approved by the State of registry.

It appears from an inquiry made by the I.C.A.O. among member governments some four years ago that in practice flying time is limited by regulations in some countries only. About half of the 19 States that participated in the inquiry reported that they had regulations covering flight time limitation. In certain countries existing legislation does not apply to all categories of aircrew. In other countries where regulations exist, there is no uniformity in the limitation of hours flown or duty time of pilots and that of other crew members.

The standard laid down in Annex 6 to the I.C.A.O. Convention on International Civil Aviation [1] requires operators to establish flight time limitations, which must be approved by the State of registry. No details are prescribed, however. The possibility of establishing a more precise limitation was carefully considered within the I.C.A.O. Although the suggestions made during these discussions led to no conclusions, some of them may be worth mentioning here. For example, the recommendations put forward by the Operations Division of the I.C.A.O. in 1947, which did not

[1] Fourth Edition, paragraph 4.2.7.4.

receive the approval of the Air Navigation Commission [1], included a daily limit of eight hours' flying time, which is similar to the flight time regulations in a number of countries. In other countries ten hours of flying time are allowed. In yet others a maximum of 24 hours of flying time is permitted, which must be followed by at least 24 hours' rest. The countries that adopted the daily limit of eight hours have also adopted a weekly maximum of 32 flying hours. In general the weekly maximum adopted varies between 30 and 48 flying hours.

In practice flying time has also been fixed through collective agreements between the airline operators and the flying personnel. On the employees' side the I.F.A.L.P.A. (International Federation of Air Line Pilots' Associations) has proposed a weekly total maximum of 36 hours on short-haul and 60 hours on long-haul operations.

With regard to limitations on the monthly maximum flying hours, the Operations Division of the I.C.A.O. has suggested about 100 hours, to apply to both long-haul and short-haul operations. On the other hand, the I.F.A.L.P.A. proposed 85 hours for short-haul and 110 hours for long-haul operations. It should be noted that one month is the shortest period on which a number of countries have established a limit for flying hours.

The suggestions prepared by the Operations Division of the I.C.A.O. in 1947 regarding flight time (which have not been adopted) state—

> 8.6.1. Each State shall take such steps as are considered necessary to limit the flight time of flight crew members engaged in air transportation, according to the type of operation, in order to guard against the dangers of flight crew fatigue. To the same end an airline shall take such steps as are practicable to provide rest facilities for flight crews.
>
> 8.6.2. No pilot shall serve in air transportation for more than 1,000 hours and 300 hours flight time in periods over 12 and three consecutive calendar months respectively.
>
> 8.6.3. Each State shall take such steps as may be necessary to ensure that flight crew members other than pilots do not average more flight time than that mentioned in paragraph 8.6.2.
>
> *Notes.* (1) In order to avoid the danger of flight crew fatigue, each State shall take such steps as are considered necessary to ensure that relief members of the flight crew are carried in airplanes on individual flights.
>
> (2) Each State should give continuing study to the method to be adopted for limiting the flight time of aircrew members over short periods of time so that eventual international agreement may be reached....

The Operations Division of the I.C.A.O. has also suggested the

[1] The Operations Division reports to the Air Navigation Commission, of which it is in effect a subcommission. Its recommendations are subject to the subsequent approval of the Commission.

limitation of flying time to 225 hours a quarter (in practice this time limit varies, in the several countries which regulate it, between 255 and 390 hours) and 1,000 hours a year. The International Air Transport Association has proposed an annual limit of 1,200 hours. In practice the limit is between 1,000 and 1,200 hours. Finally, the International Transportworkers' Federation, taking guidance from the suggestion by the International Federation of Air Line Pilots' Associations, has suggested a standard of 900 hours as the annual maximum total flight time.

The provisions of collective agreements with respect to working hours vary considerably from one country to another and are based on different considerations, such as length of service, seniority and duties performed.

Included in the aircrews' total working hours are certain duty times while the aircraft is on the ground—from 30 minutes to an hour before take-off and usually 30 minutes after landing—which are counted as flying time, provided the company does not instruct its flying personnel to report at other times for duties before or after flight. When the time between the landing and subsequent departure of the aircraft is less than three hours the entire time is considered working time. Assignments such as training flights, tests, etc., are also considered as working hours, but do not count as flight time and are not paid at " flying pay " rates. Some of the agreements in question provide that, for a period of seven consecutive days, scheduled working time must not exceed 54 hours on short routes or 80 hours on long-distance flights. In the case of a schedule of 30 consecutive days, working hours are limited to 200.

Some other collective agreements make a clear distinction between long-haul and short-haul operations and provide entirely different limitations on working hours. On long-haul operations the hours counted include one-and-a-half hours before the scheduled time of departure and one hour after the actual time of arrival if the flight does not entail a night's stop. Certain European collective agreements provide that regular flights shall not exceed 16 hours per day and 56 per week in Europe, and 85 hours per week on long-haul operations. Where an aircrew serves alternately on short-haul and long-haul operations, the limit is applied proportionately to the hours worked on the short hauls and long hauls respectively.

Some agreements contain no provisions with regard to total duty hours and deal only with flight time. Since air transport services operate, in the same way as railroad or steamship services, on a 24 hours per day and seven days per week basis, aircrews are required to work at night and on Saturdays, Sundays and

other holidays. In practice a policy of rotation is usually established, sometimes with special compensation in addition to the normal scale of pay.

These operating complexities account for the position taken by the various organisations representing flight personnel which concern themselves with this question. These organisations have suggested, for example, that on short-haul routes limitation of working hours should be based on duty time rather than flight time, since the ratio of duty time to flight time is greater than in the case of long hauls.

As to the non-operating part of the aircrew, the Civil Aviation Section of the International Transportworkers' Federation prepared in July 1953 a model collective agreement for airline steward personnel with a view to achieving uniformity in the regulation of conditions of employment for as many categories of staff as possible. This model agreement runs as follows :

*Hours of Service.*

(a) *Flying Hours.* (i) The hours of work shall not exceed 85 hours per calendar month or more than 255 hours in every three consecutive calendar months, with a maximum of 950 hours per year.

(b) *Ground Hours.* (ii) The hours of work shall not exceed 36 hours in any calendar month or 108 in any three consecutive calendar months. All hours of work in addition to the above *(a)* (i) and *(b)* (ii) ... are overtime.

A specific case quoted in a report of the Civil Aviation Section of the I.T.F. will give an idea how far these provisions differ from the actual conditions in regard to stewardesses' work, for instance. These figures, which are taken from statistics issued by an airline company, represent the number of hours a stewardess is on duty during an average week in the normal season.

| Day | Route worked | No. of hours on duty |
|---|---|---|
| Thursday | Home station — Manchester | 6.00 |
| Friday | Manchester — Home station — Manchester | 11.45 |
| Saturday | Manchester — Home station<br>Home station — Stockholm | 13.10 |
| Sunday | Stockholm — Home station | 7.05 |
| Monday | Home station — Barcelona | 6.40 |
| Tuesday | Barcelona — Home station | 6.30 |
| | Total of duty hours for six days . . . | 51.10 |

During these six days, the report states, the stewardess spent only 24 hours in her own home. The rest of the time she was away from her base and had to spend her time off in hotels abroad.

### *Rest Periods*

Limitation of flight time and of total working hours is closely linked with the problem of rest periods and holidays with pay, and these must be considered together.

Adequate regulations covering rest periods are very important, especially for crews flying on aircraft in which no sleeping accommodation is provided for them, and aircraft with tourist-class seating arrangements in which the normal rest accommodation has been eliminated.[1]

In view of the tendency to allocate all the seats in the plane for the use of passengers, the provision of rest possibilities for the crew merits special attention. The closely related problem of rest periods has been given consideration by the international organisations concerned.

### *Holidays with Pay*

Proposals concerning holidays with pay and containing special provisions for aircrews have been submitted by the International Transportworkers' Federation to the Governing Body of the I.L.O. Every aircrew member, it was proposed, should be entitled to an annual holiday with pay of at least 21 days for each year of continuous service, this minimum to apply to all categories of aircrew at the home base and to be raised to 30 days for aircrews stationed abroad. The International Federation of Air Line Pilots' Associations recommends annual holidays with pay of 30 days for all aircrew members. The purpose of these two organisations and others that have concerned themselves with the problem is to achieve uniformity of standards on an international basis.

In most countries where holidays with pay are regulated the legislation covers all categories of workers and no special provision is made for aircrews.[2]

### *Fatigue*

Closely linked with the problems of flying time and the limitation of duty hours is the problem of fatigue. Its solution, which has a special bearing on the problem of safety, is related to the measurement of fatigue in flight. It is difficult to accept the views expressed by certain officials representing the airline operators'

[1] This problem is less important where the aircrews are provided with sleeping berths on board and where the plane carries relief crew members.

[2] I.L.O. : *Holidays with Pay*, Report IV (1), International Labour Conference, Thirty-Sixth Session, 1953 (Geneva, 1952).

organisation, who deny any relation between fatigue and the need for limiting the working hours of flying personnel. The points of view that have been put forward represent a real danger as regards the safe operation of aircraft. They imply a conviction that technical improvements can exclude the fatigue factor to an extent that is not confirmed by experience. While it is true that technical improvements have to a certain extent helped to minimise fatigue, the problem is much wider, and no satisfactory solution is in sight. According to the report of the Medical Committee of the International Air Transport Association, for instance: " . . . controlled observations performed by means of special tests showed that there is less fatigue among aircrews flying in pressurised aircraft that in non-pressurised aircraft on the same routes ". This conclusion, however, does not deny the existence of or dispose of the problem of fatigue on the part of aircrews operating even the most modern type of aircraft.

Aircrews' fatigue and flight time have been the subject of deliberations by all the international organisations concerned, but without result so far. There is no doubt that the invention of new instruments and their improvement both in precision and number, though they tend to help the pilot in his work, do not make his duties any easier, since they require more time and attention on his part and hence do not decrease the element of fatigue. Aside from this a pilot still flies by his " eyes, ears and feeling ", so that any emphasis on technical improvements as factors in reducing fatigue and as justification for neglecting the limitation of hours of work cannot be accepted.

The problem of fatigue is complicated by the lack of room in the cockpit of even large aircraft, where the complex controls, instruments, safety devices and radio communication equipment constantly require more space and increase the discomfort of the flying personnel. There is urgent need for those responsible for the design and layout of the cockpits to give greater attention to the provision of better accommodation and arrangements for the rest and recreation of the crew during flight, including attention to pressurising, ventilating, heating, etc. The provision of such facilities for the aircrews has in many cases been over-ruled on account of technical and economic considerations. As a result of these conditions, a pilot on a long flight is engaged in working not only while at the controls of the aircraft but also when released by his colleagues for a rest. Under existing arrangements there is often no suitable place for a member of the aircrew to benefit by a few hours of sleep. The generally prevailing situation is such that the pilot, for instance, practically too tired to keep his eyes open, may doze fitfully on a bunk that is too cramped for proper rest.

There are a number of reasons that make it essential to provide adequate working and resting quarters for aircrew on board the plane, especially on long-range operations, both from the point of view of operational safety and from that of the crew's own well-being. It is obvious that the crew should be in good physical and mental condition at all times. When they become excessively fatigued, pilots and other members of the flight crew will have a tendency to make more errors in flight, especially when coming in after a long-distance flight for a landing through a crowded control zone. Moreover, the crews must have adequate rest facilities if their fitness is to be maintained and their working lives extended.

## EARNINGS

The earnings of some categories of aircrew are comparatively high owing to the fact that flight personnel are highly skilled, that the work entails a larger element of danger than other professions, and that they have to earn sufficient money during a relatively short and uncertain working life to support themselves and their families after they retire from the profession.

### *Calculation of Salary*

Salaries are normally regulated by collective agreements entered into between the operators and the various categories of aircrew. The salaries are based on seniority and consist of a fixed basic salary plus a functional allowance and flying pay. These three elements are based on a seniority scale, which varies according to the type of aircraft flown. For example, when a pilot flies a DC–4, he earns more than when flying a DC–3. An established scale-of-payment system is used which takes into account the number of day and night hours flown on a given type of aircraft, the rates for night flying hours being one-and-a-quarter times those for day flight.

The calculation of flying pay is not the same in all collective agreements. Some require the monthly salary and functional allowance to be paid monthly in arrears, others do not. Flying pay is sometimes paid three or four months in arrears. In some cases the company is required to pay the employee, at the end of each month, a sum equivalent to flying pay earned during the month.

In addition to these payments each member of the crew receives a daily allowance, which is the same for all members. This is not paid at a specially appointed time.

The payment of mileage bonuses (i.e., additional pay based on the number of miles flown per pay period) is of great importance

as regards earnings, since such payments are intended to provide compensation for the reduced flying time resulting from the increased speed of new equipment. The introduction of new equipment will necessitate a change in the salary structure, which will have to be based differentially on the pay-load and speed of each type of aircraft and kind of operation. Negotiations are now proceeding concerning claims for a change in the earnings system as new equipment is introduced.

### *Promotion*

Collective agreements prescribe the conditions governing the promotion of flight crew members, and practice varies. In some countries promotion is at the exclusive discretion of the employers, though the agreements provide that due regard is to be given to length of service, efficiency, merit and proved abilities. In other countries questions of promotion are dealt with by a special company board which includes a representative of the particular category of aircrew in question. The rank assigned to a flight crew member by one airline is not always recognised by another company should the employee change employers. Sometimes flight captains are required by the provisions of the agreements to carry out co-pilot's duties, but in such cases they retain their service rank and payment. A different system of grading for promotion applies to each professional group. For example, pilots are promoted from second officer to first officer, junior captain, senior captain second class, senior captain first class, etc. Promotion is usually made according to the vacancies available in the different categories. The principle of seniority of service is observed.

Promotion is slow, especially for pilots. Aside from the technical requirements, skill, prescribed qualifications and special medical examinations testifying to the fitness of the candidate, consideration is given to matters outside the candidate's main duties, such as his ability to look after the general interests of the company, services rendered to passengers, understanding and general conduct. Here again, there is no uniformity in regard to personnel policy.

## Social Security

### *Retirement Provisions*

Despite the relatively high earnings of several categories of aircrew members, the problem of social security is an exceptionally acute one for them, owing principally to the special hazards of the profession and the uncertainty of the age of retirement. It is

practically impossible to establish a normal retirement age for aircrew; in practice it is low when compared with that of other professions, particularly for pilots, though it varies for the different categories of aircrew.

### *Protection during Employment*

Another series of social security problems relate to the hazards of exercising the profession itself. These include arrangements to ensure further employment should an aircrew member become physically disqualified from flying at an early age. The problem is rendered particularly difficult because aircrew members do not fall under the normal social security provisions provided by national regulations, which usually prescribe an age too high for aircrews' retirement, with the result that in many cases aircrew members do not become eligible for these benefits for a number of years after compulsory retirement from the profession.

Another problem relates to unemployment resulting from disability preventing further professional employment as well as temporary unemployment arising from sickness or accident. In this case also, because of their relatively high incomes, aircrew members frequently find themselves excluded from the scope of social security legislation, since many countries prescribe that no benefits will be paid to persons with an income above a certain figure. There is at present no established policy in a number of countries regarding such important aircrew problems as life insurance or accident insurance. Furthermore, according to an inquiry made by the International Social Security Association [1], only a few countries make special provisions for aircrews in their social security legislation.

### *Social Security Provisions in Collective Agreements*

Although social security provisions are now written into most collective agreements applicable to aircrews, it must be borne in mind that disputes have constantly arisen, and still arise, between employers and employees concerning the interpretation of these provisions.

Adequate pension schemes are essential for aircrews in view of their relatively short professional life, coupled with the stringent medical standards imposed. It is therefore necessary to provide

[1] " The Social Security of Aircrews in Civil Aviation ", in INTERNATIONAL SOCIAL SECURITY ASSOCIATION: *Ninth General Meeting: Proceedings, Reports and National Monographs, Resolutions and Conclusions* (Geneva, 1950), pp. 532-573.

separate schemes for flying personnel in addition to existing national pensions schemes. Furthermore, since the relatively high salaries of aircrews exclude them from the scope of most general national social insurance legislation, there exists a special need for arrangements between aircrews and their employers for adequate protection through private insurance schemes against such major risks as accidental death and temporary or permanent incapacity. Existing pensions funds or insurance schemes are normally established by the airlines with joint contributions by employers and employees, and are so designed as to meet the special problems of aircrews in regard to the professional hazards mentioned above.

The problem of social security for aircrews has international aspects also. First, as a result of the international nature of civil aviation, many aircrews exercise their profession over the territory of more than one State ; secondly, a number of airlines tend to have an increasing number of aircrews of foreign nationality. As a result of their special social security problems, the benefits derived by aircrews from national social insurance are very small compared with those provided through collective agreements or individual service contracts and insurance policies. Although this problem is, as yet, not particularly serious because of the relatively small number of persons employed in international air transport operations, especially as aircrew, the problem will soon require attention as the number of such persons increases.

## Special Problems

### *Grounding*

A most difficult problem resulting from the permanent grounding (i.e., retirement from flying duties) of an aircrew member—for instance a pilot—on account of disability occurring at an early age is that of finding suitable employment. Some collective agreements contain special provisions relating to possible office or technical assignments for aircrew members who are grounded, but always with the reservation that the employer shall not be obliged to provide such employment. Because of the relatively low average age of members of the profession, this problem has only recently become a subject for serious consideration, but it is growing in importance with the increase in the number of the people concerned.

It has always been a difficult problem for pilots because of the special difficulties they encounter in learning in advance another job to which they can transfer when faced with retirement from

flying duties. In addition, most pilots' contracts prevent them from engaging in any other business as long as they are working as pilots. The problem has been given serious consideration by aircrews, and many suggestions have been put forward by their organisations. Some of these proposals include providing air personnel, pilots in particular, with an opportunity, whilst still engaged in flying duties, to undertake short assignments to different ground duties in order to learn the organisation of the industry as a whole. It has also been suggested that certain non-flying positions in the industry might be considered suitable for a pilot retiring from flying duties—positions as station managers, inspectors, instructors, employees in flight and operation planning, liaison officers, external relations representatives of the airline, superintendents and air freight managers. In practice this would mean that a pilot intending to seek this kind of occupation later would have to devote some of his stand-by time and leave time to studying the work attached to these positions. This problem will become urgent within a very few years.

### *Industrial Disputes*

Reference has been made earlier to the frequent industrial disputes arising over earnings, retirement provisions, reductions in the aircrew complement, the introduction of dual-capacity working (the requirement, for example, that co-pilots shall perform, in addition to their normal functions, duties usually performed by radio operators or by flight navigators) and other matters. Many industrial disputes, however, relate to the working conditions of aircrews during the flight—a very serious matter. An example of this type of dispute is the strike of aircrews that took place in 1951 on several airlines because of a reduction in the number of seats reserved for them for their rest periods.

### *The Employment of Women*

So far women have been employed mainly as stewardesses, but it is clear that in the near future problems will arise in connection with their employment in other capacities, for example as members of operating aircrews.

### *Nationality Problems*

Another problem requiring attention results from the tendency in certain countries to limit employment on the airlines to the nationals of that country, either by legislation or by collective

agreements. As in practice a large proportion of flight personnel in some countries is at present of foreign nationality, especially in those countries where air transport is new, these provisions would seem to be a discrimination against aircrews of other nationalities in a profession that is essentially international in character and to constitute an obstacle to the creation of common standards of employment as between nationals and aliens. On the other hand the employment of foreigners by national airlines introduces certain problems : foreigners often enjoy special conditions, such as earnings higher than those of the nationals employed by the same airlines ; they are, however, at a disadvantage with regard to national social security arrangements compared with the nationals of the country in question, as they often find themselves outside the scope of these schemes. International action in this field would be valuable in bringing about greater uniformity of treatment for nationals and foreigners in these respects.

## Conclusion

There is an essential link between the social and technical aspects of the problems outlined above, and solutions must be sought through close co-operation between organisations representing the main participants of the industry—governments, employers and workers—for the benefit of all concerned in the industry and the development of the industry itself.

### *International Action*

Action should be taken both at the national and the international level in this international industry. The International Labour Organisation, because of its tripartite structure and its special responsibilities, deals with the social aspects of the rather special conditions of employment in civil aviation. These problems are of direct concern to other international organisations, however. The International Civil Aviation Organisation, in particular, approaches the problem of employment in civil aviation from the technical and safety angle, and has achieved much in this field. Its extensive activities affecting conditions of work alone cannot even be outlined here—work accomplished and being undertaken in developing safety standards for the protection of aircrews, passengers, etc., including attempts to determine limitations that could be enforced on flight time, etc. It must not be forgotten, however, that not everything worked out or proposed by the I.C.A.O. is accepted by those concerned.

Nevertheless, mention should be made here of a recent regional activity of the I.C.A.O. that is of world-wide interest and application and represents a remarkable step towards international regulation in the field of working conditions in civil aviation. This is the establishment of an International Training Centre for Civil Aviation in Mexico. For the present the Centre is preparing only ground personnel, but its activities promise possible future developments of a similar type for aircrews. Action of this kind should prove most useful not only in encouraging and co-ordinating various national and regional activities but also in developing on an international basis improved methods and techniques of training in the profession. Activities of this type contribute to the promotion of close and sound international relations.

Existing mutual agreements entered into by the various specialised agencies of the United Nations provide expressly for such collaboration ; this is a primary condition of success because social and technical aspects of problems in civil aviation cannot be separated in practice.

### *International Organisations of Employers and Workers*

The problem of conditions of employment in civil aviation provides scope for international action by other agencies besides these two, however. The International Air Transport Association, representing the airline operators, is vitally concerned with all aspects of working conditions, as are the bodies representing the workers, such as the International Transportworkers' Federation through its Civil Aviation Section, and the organisations representing the several categories of aircrews. Unfortunately these latter are not united in one single international body but are split into smaller associations representing particular professional groups, such as the International Federation of Air Line Pilots' Associations, the International Air Navigators' Council, the Flight Engineers' International Association and the International Radio Air Safety Association.

This situation, which may in part be accounted for by the relative youth of the industry, prevents the co-ordinated presentation of a united opinion and is contrary to the principle of international trade union solidarity. It is important that the need be recognised for bringing the aircrews' professional organisations into closer unity. A first objective should be unity among the aircrews' organisations in requests for adequate representation in discussions by the intergovernmental organisations concerned with matters of vital importance to their well-being and safety. The professional organisations at present enjoy consultative status

only. Their influence on the deliberations concerning their problems is therefore limited, and a single collective body is necessary to defend adequately the rights of the workers concerned. The organisation of all categories of flight personnel in a single staff association is desirable not only for this purpose but also to support day-by-day negotiations and labour relations between employers and employees. Such a development would in time prove of benefit to the employers also, since it would lead to more orderly and stable relations and to a reduction in current industrial disputes.

It is difficult to forecast the technical changes or future trends that will have a special influence on the working conditions of aircrews, especially as the industry is again entering a new period of development. In a few years jet-powered aircraft are likely to be in general use on the world's airlines ; the nature of the duties to be performed by the crews and their conditions of work may be substantially affected by the different operating characteristics of these aircraft. The sensational progress of air transport in the last few years is a pointer to the important role that this relatively new form of transport is bound to play in the future. Its universal character has been stressed—the part it plays and will play, not only in highly industrialised countries but even more in the vast territories of underdeveloped countries, to which it offers an important means of development.

The role of aircrews in the development of civil aviation in the past has been pointed out. There is no doubt that the contribution of this body of men and women will also in the future remain of necessity an irreplaceable one. This leads to the simple conclusion that the improvement and care of their working conditions is not only a necessity but a fundamental condition for the continuing development of this industry. We are now on the threshold of a new era in the industry, the full development of which no one can foresee. It means that for aircrews the pioneering days are not gone. They have a major job ahead and they have not seen the last of the unknown or of danger. They will be faced with new problems in their working conditions, which will call for new solutions as they conquer new air routes and fly new equipment. The ultimate success of air transport will depend on the extent to which the characteristic problems and human needs of its operating and maintenance personnel are understood. Their problems and difficulties must therefore be recognised, looked into more closely and solved, so that, by improving present working conditions, the industry will be better able to face future problems.

Action based on an international approach is urgently needed, especially in regard to such problems as the limitation of total duty

time (including flying hours), holidays with pay, rest periods and social security measures. The solution of these major problems, as well as others which have technical aspects, such as the determination of minimum aircrew complements and conditions for dual-duty assignments, should lead to the establishment of more satisfactory standards for the profession and should also prove beneficial to the industry.