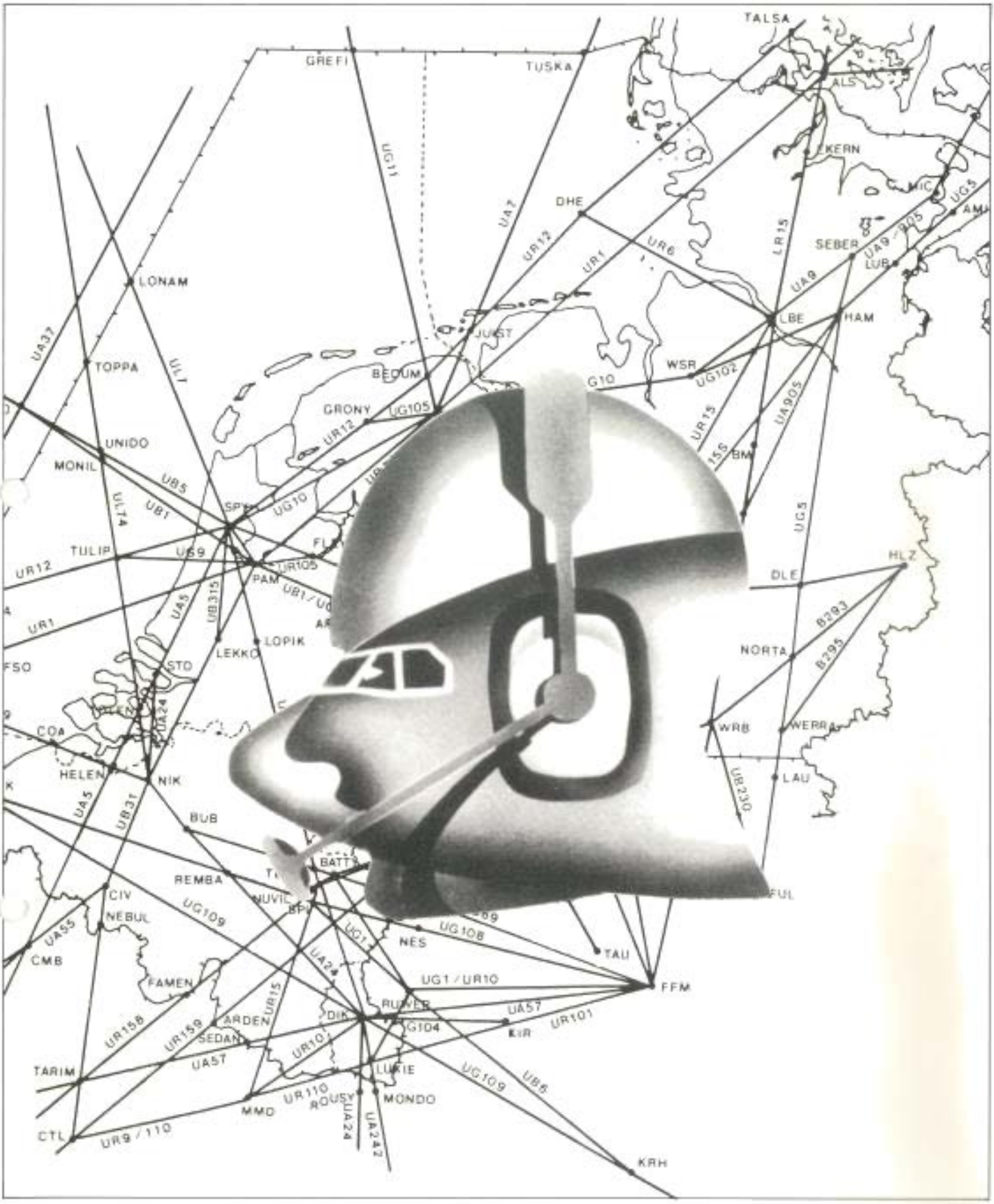

EUROCONTROL GUILD OF AIR TRAFFIC SERVICES

INPUT

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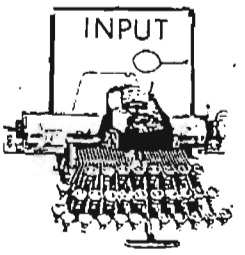

Recent conversations with Operations Room colleagues have led me to conclude that there is a definite air of uncertainty as to the actual difference in meaning between the role of the Guild as a body and that of the Union.

Far be it from me to lecture on the pros. and cons. of either the one or the other. I do wish, however, to outline the basic background and aims of the two in order to let the reader have a clear understanding, which is necessary in order to chart the future course of professional attitudes in the Operations Room, given the present working environment.

Guild or Union

A Guild, by definition is: "A medieval European association formed for mutual aid and protection, also for the furtherance of professional interests". Or as the Oxford Dictionary defines it: "A society for mutual aid or prosecution of common object".

A Union, or Trade Union to give it the proper name is defined as: "An association of labourers in a particular trade, industry or plant, formed to obtain, by collective action, improvements in pay, working conditions and social and political status".

Therein lies the subtle difference.

The Merchant Guilds, the forerunners of the present-day guilds were associations of international traders which were at their most powerful in the twelfth and thirteenth centuries.

From the times of ancient Egypt and Babylon training for the various crafts was organised in order to assure a regular, adequate number of craftsmen. In the Roman empire many of these craftsmen were slaves and later organised themselves into "collegia" in order to set and maintain their own standards.

The Craft Guilds appeared in the thirteenth century. They were organised in order to supervise the quality and method of production and to regulate the conditions of employment for each trade in each town or city.

The guilds were controlled by Master Craftsmen who operated on their own premises where the apprentices, who served for seven years, also lived as well as worked. A sort of family relationship was therefore built up.

Over the years governments were forced to bow to these exclusive bodies who because of their exclusivity had not only great wealth, but also the monopoly of their trades in each town. Outsiders were prevented from joining by means of very large fees and thus apprenticeship was more or less artificially restricted to sons of guild members or very wealthy friends or neighbours.

With the arrival of the so-called Industrial Revolution attitudes were necessarily altered. Machines created a need for unskilled labour which meant that a formal, lengthy training period was necessary. Even so, craftsmen were needed to build the machines and to keep them working, all this led to a change from domestic industry to a factory system where the employer was the factory owner and the apprentice, after his training, a factory worker.

The Trade Unions, however, originated in the nineteenth century stemming from fraternal and self-help association of

don't forget (WRITE IT DOWN!)

NEXT COPY DEADLINE:

7 DECEMBER

the workers in the eighteenth century. Developing from exclusivity based on a single craft to a more general, large-scale union, due to industrialisation. These organisations turned their attention to political and economic matters and so began to encounter organised hostility on the parts of employers and governments. British trades unions developed a strong inclination to political activity which ended in the formation of the Labour Party in 1906.
During the twentieth century the strength of the labour movement has depended largely on the general economic conditions; in times of full employment and rising wages unionism tended to lose some of its appeal, whilst in times of recession it has tended to attract members. The success of trade unionism in winning a strong voice for its members has been silently acknowledged in the adoption of many of its goals and tactics, by professional associations and other groups traditionally thought to be beyond the scope of unionism.
Without delving into Marx, strikes, employer-union bargaining and political interference which are the modern basics of trade unionism and which the guilds, despite their power never used to their advantage, being more professionally orientated bodies, these are the main differences between the two.
I do not wish to extol or decry either of the two but I hope that I have been able to clarify things by explaining the basic differences between them.
It is up to the individual member to decide which path suits him best. The two can work together - apart.*

Compilation sources: Encyclopedia Britannica
: The Concise Oxford Dictionary.

CORP REPRESENTATIVES

EGATS
EUROCONTROL GUILD OF AIR TRAFFIC SERVICES

CORP stands for: Confidential Occurence Reporting and Procedure

Your representatives are:

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DISCUSSIONS

(intentionally left blank)

FROM THE EXECUTIVE BOARD

from the secretary

Discussion in the Operations Room and canteen states clearly that many of the control staff are no longer satisfied with their existence.
A major annoyance still appears to be the Caisse Maladie. Payments take too long a time and people are bothered continuously because they lack a stamp or signature on their bills as proof of payment.
It is as if we are all criminals looking for more money than we are entitled to.
The continuous saga of the Early Retirement is dragging along. Why can the issue not be solved for us?
Many of the controllers i the surrounding member countries have an early retirement scheme. We even have the same ministers of transport in our Permanent Commission!
So what is keeping the scheme away?
Is it the people in the Organisation itself? Inefficiency or what?
Why did the Staff Committee resign in toto this Spring; a similar action to the action of the Staff Committee in Brussels last year.

Apparently, it is so frustrating not to be able to reach any arrangement with Management. The Staff Committee should have certain rights and a say in matter.
There is definitely something wrong if Management is able to make the members of the Staff Committee resign by just talking and talking without any outcome.
BUT ..... WHY DO WE ACCEPT THIS?
At this moment there is no representation at all. Employees surely have possibilities to negotiate. The present situation should not be tolerated!
Remember : WE DON'T JUST WORK HERE, MAASTRICHT RUNS ON US!
The atmosphere of the Management usually shines over the Company. Clarity, responsibility and integrity, are the ingredients of good management. Decisions should be made from the feeling of responsibility towards the people, not from a position of power. It is not possible any longer to live in the "j'ai décidé" decade, the social distance between Management and the employees is too big.
As already mentioned in the EGATS report on the future of the Centre, the Air Traffic Staff should be upgraded. Operational "A" grades for Control Staff is the new slogan! The frustration of flow control rules and regulations are significant. Flow control is necessary without doubt but everybody is wondering why aircraft from London with destination Nairobi are heading for "Peter" in Sweden. This goes against the controllers natural senses of an expeditious flow of traffic.
The airlines themselves are definitely also to blame. Take the London-Hamburg route. In the early morning the following airlines chase each other: British AIrways, Hamburg Airlines, Lufthansa, Pan American and Delta airlines, often following one another five minutes apart.
In talks with airline representatives it appears they expect big changes in 1992, easier access to traffic rights,

better route systems and a well arranged European flow system.
I think one may as well forget the big changes. It will surely not get easier. The further flow control is taken away from the air traffic controller the less flexible it seems to get.
Further some important dates for 1991: 19, 20, 21 February : Air Traffic Control Exhibition & Conference in the MECC, organised by Expoconsult (UK) and the Jane's Information Group.

Further news in the next issue of INPUT.

On the 24th September, 1990, three representatives from K.L.M., Messrs. Asjes, Schoen an Van De Kaay were guests of the Guild on a visit to Eurocontrol Maastricht UAC.
As usual our guests were favourably impressed by the professional attitude displayed in the Operations Room, but had some hard criticisms to make about the effect Flow Control was having on the profitability of their airline.
A frank discussion took place with members of Management present and a good foundation was laid for further contact and consultation. The Guild anticipates a reciprocal visit in the near future.*

Annual General Meeting EGATS 1991:
AlteA Hotel, 11-02-1991.
Reserve this date!!!

MORE CRUISING LEVELS EXPECTED

------ AT HIGHER ALTITUDES ------

The proposed introduction of six more flight levels should provide immediate benefits to congested airspace in some regions.

Steadily increasing air traffic in recent years, combined with the need to apply generous separation minima between aircraft to assure flight safety, are causing significant delays in several regions where traffic demand at times exceeds system capacity. However, plans are under way to effect measures that will permit the introduction of six additional cruising levels between Flight Level (FL) 290 and FL 410 (29,000 feet and 41,000 feet or 8,850 m and 12,500 m), thus increasing system capacity.

When jet aircraft entered commercial aviation in the late 1950s, the need arose to extend the then existing cruising level system above 9,300 metres (30,500 ft). Because the accuracy of pressure sensing of barometric altimeters decreased with increasing altitude and, consequently, larger height deviations could result, it was considered necessary to increase the interval between cruising levels from 300 m, (1.000 ft) to 600 m (2.000 ft) above Fl 290.

This system of cruising levels, established in 1966, still exists today (see Figure 1). As a result, only a limited number of economical cruising levels are available for use by jet aircraft. There followed the obvious question: Is a reduction in vertical separation minima possible?

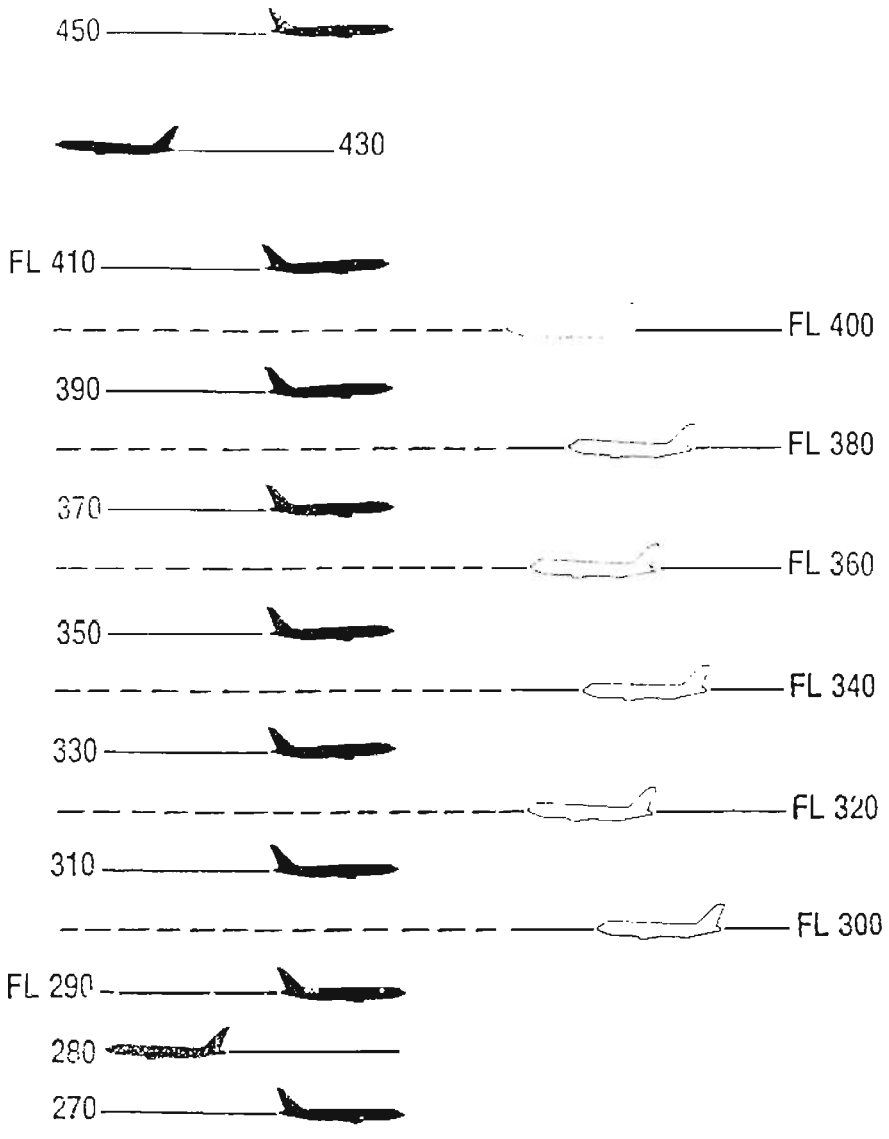
Shortly after the introduction of the 600-m (2,000 ft) vertical separation minimum (VSM) above FL 290, efforts were initiated to show that this VSM could safely be reduced to make available more economical cruising levels for jet aircraft. However, it was recognised that any such reduction could not be based on operational judgement alone, but it should be supported by a thorough risk assessment, for which no method was readily available.

Fuel shortages and escalating fuel prices in the mid-1970s caused a renewed interest in determining the feasibility of reduction in separation minima.

In the North Atlantic Region, based on collision risk modelling (CRM) and a target level of safety (TLS), it proved possible to reduce the lateral distance between parallel tracks from 120 to 60 nautical miles (NM). This permitted more aircraft to take advantage of the prevailing winds (jet stream), and temporarily reduced the need for additional cruising levels in this region. However, in view of the large economic benefit anticipated from a reduction in the VSM, the ICAO Air Navigation Commission's Review of the General Concept of Separation Panel (RGCSP) continued its studies and in 1980 it recommended that a major effort be made by several States in different ICAO Regions to study the impact on safety of a 300-m VSM above FL 290. The ICAO Council endorsed the Panel's recommendation. which facilitated the allocation of funds for this purpose in the States concerned.

Feasibility study undertake

Four EUROCONTROL Member States (France, Federal Republic of Germany, Kingdom of the Netherlands and the United Kingdom), Canada, Japan, Union and Soviet Socialist Republics and the United Sates participated in the international effort, coordinated by the RGCSP members nominated by these States. To establish the feasibility of a reduced VSM above Fl 290, the Panel based its judgement on major data collections on height-keeping accuracy, data analysis and collision risk analysis, and on an assessment of the operational requirements to support safe implementation and operation of a 300 m VSM.
Precision radar measurements were made in Canada, France, Federal Republic of Germany, Japan, United Kingdom and the United States to determine the geometric height of aircraft, using a total of 16 radar sites and data comprising some 45,000 tracks. In addition, secondary surveillance radar (SSR) Mode C data (pressure altitude reports) were collected, as well as digital flight data recordings and ancillary data concerning altimetry systems, certification and maintenance procedures, and air traffic system data.
Analysis of the vast amount of data collected resulted in values for assigned altitude deviation (AAD), altimetry system error (ASE), flight technical error (FTE) and total vertical error (TVE) i.e. the vertical geometrical difference between the actual pressure altitude flown by the aircraft and its assigned flight level. Both the EUROCONTROL and the United States data



With the future changes planned, six additional cruising levels will be introduced as shown on the right.

sets showed good agreement in the resulting AAD, ASE and TVE, with a similar agreement between the EUROCONTROL and Japan data collections using paired aircraft deviations.

A collision-risk assessment was made, using the collision-risk modelling/-target level of safety (CRM/TLS) methodology and an assessment TSL value of 2,5 x 10" fatal accident per flight hour due to loss of vertical separation. For current operations in a defined part of the North Atlantic (NAT) region known as minimum navigation performance specifications (MNPS) airspace, risk estimates were well within the assessment TLS value, demonstrating that a 300-m VSM was technically feasible.

However, for European and United States continental airspace, the risk estimates were considerably higher than the assessment TLS value. The lower risk estimate for the NAT airspace compared to continental airspace resulted from the lower passing frequency of aircraft flying at proximate flight levels, and the generally better height-keeping performance of aircraft crossing the North Atlantic.

Based on the collision-risk assessment, TGCSP concluded in late 1988 that global application of a 300-m VSM between Fl 290 and FL 410 was feasible int he longer term, subject to the introduction of a global altimetry specification to improve aircraft height-keeping capability, new operating procedures and system performance monitoring.

In the interim period before introduction of such global standards, implementation of a reduced VSM was considered feasible on a regional basis, subject to the outcome of a safety assessment, which should meet an interim TLS of 5 x 10- fatal accident per flight hour. Guidance material is being developed now to provide a sound basis for a regional air navigation agreement concerning the introduction of a 300-m VSM (refer to figure 2).

In March 1989, the Air Navigation Commission endorsed the Panel's conclusions on the feasibility of a reduced VSM, and States have been informed accordingly.

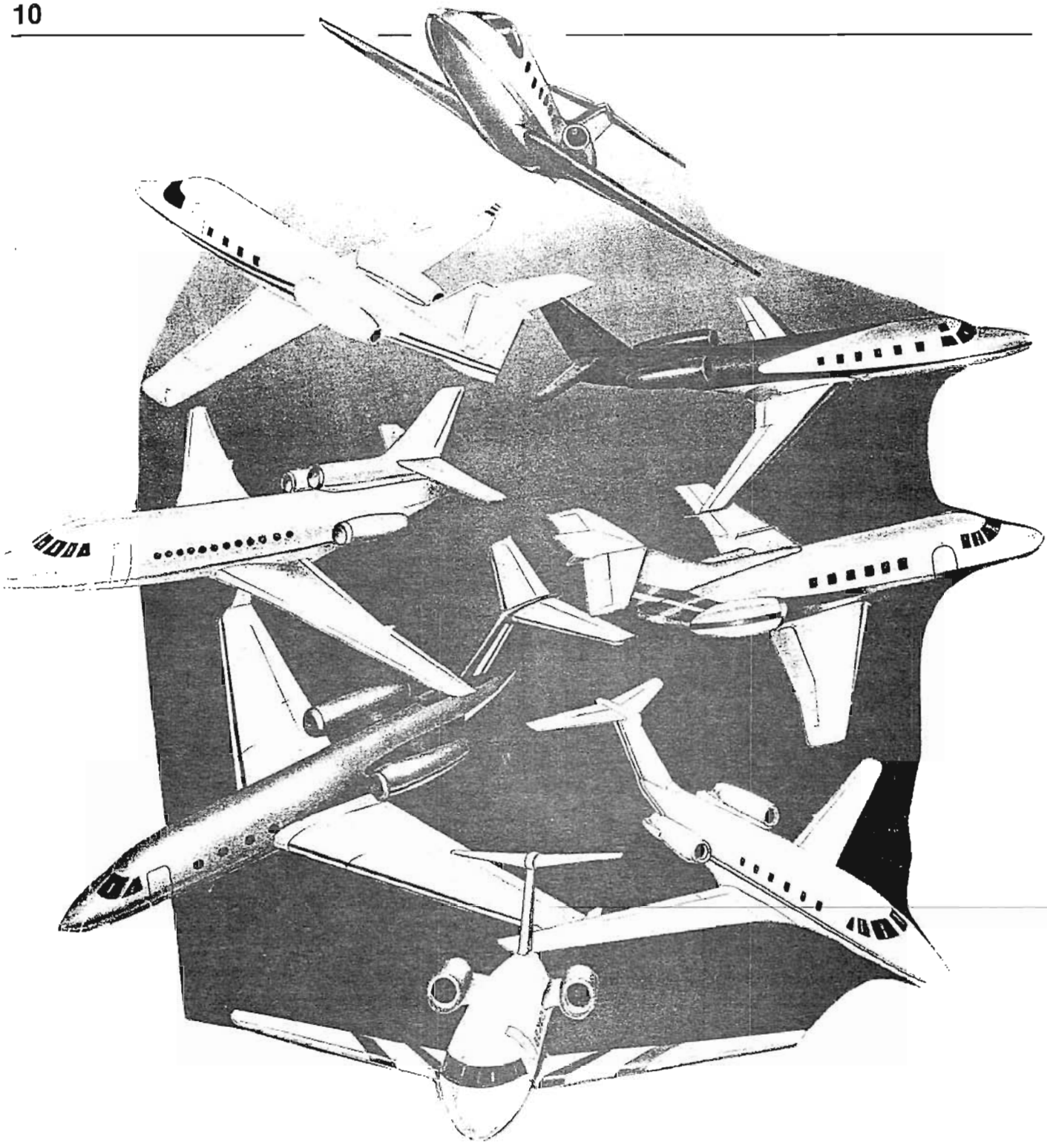
As a first step towards an ultimate global application of a 300-m VSM above Fl 290, implementation on an interim regional basis is presently envisaged.

In areas such as the NAT Region, the prevailing height-keeping performance of the aircraft population and the regional passing frequency would permit the introduction of a reduced VSM without major modifications to aircraft altimetry equipment. In the final instance, such regional agreement requires sound operational judgement. However, guidance material now being developed by the RGCSP will assist in the decision-making process, with the objective that adequate safety will be maintained.

To assess the system performance when a 300-m VSM above Fl 290 is being employed, a number of factors will need to be considered. Based on a regional passing frequency and typical height-keeping capability tot he aircraft population, and using the CRM/TLS methodology, the ability to meet the interim regional TLS should be assessed. Operational procedures should be developed for air traffic control, airworthiness and operational approval to operate in a reduced VSM environment, as well as procedures to ensure and verify continued system safety and integrity. Adequate notification of the intended application of a reduced VSM is required to permit timely preparation by all concerned, airworthiness authorities, aircraft operators, flight crew, maintenance personnel and air traffic control staff alike.

Benefits expected are significant

Initially, it was considered that a reduced VSM at high altitude would primarily benefit flight economy through fuel savings attainable as a



result of the availability of more economical cruising levels for jet aircraft. Recently, however, a rapid increase in air traffic caused the air traffic control system in several areas to reach its maximum capacity. As a result, peak traffic demands could no longer be accommodated without delays before departure. Such delays, apart from the inconvenience to the travelling public, added considerably to the cost for airline operators.

The implementation of a 300-m VSM between FL 290 and FL 410 would result in the availability of six extra cruising levels for jet aircraft,

This would be a welcome asset to increase air traffic control flexibility and airspace capacity, while maintaining or even increasing the current level of aviation safety.

Such benefits in airspace capacity and economy may be attainable in several regions within the next few years, if the responsible authorities are prepared to use sound operational judgement on the basis of the guidance material presently being finalised.*

SPIJKERBOORSTEEG

by Winfried Lumpe

Since the 1 March 1986 the Amsterdam sector is incorporated in the MADAP system. (Flight Level 300 +).
At first a reasonable quiet sector but things have changed.

Really, is this Amsterdam Upper Sector still a relaxing suite for "oldies" and early retirement aspirants ?
The facts related to the traffic counts teach us different !!

Despite common opinion it is now the busiest sector.
On the tabula traffic at and above FL 390 is not taken into consideration for the whole MADAP area.
Then the following Flight Levels are available in the three Maastricht sectors.

Brussels sectors 14 Flight levels	Hannover sectors 9 Flight Levels	Amsterdam sector 4 Flight Levels.
370	370	370
¦	¦	¦
200	250	310

The daily average in August 1990 according the official traffic statistics:

1170	1053	442

devided by the number of working positions:

3	3	1

equals the total number of aircraft per working position:

390	351	442

devided by the number of Flight Levels as stated above:

14	9	4

gives an average of

27.9 a/c per FL.	39 a/c per FL.	110,5 a/c per FL.

As you can see, statistics can really open your eyes.
Next time you walk into the Amsterdam sector, please, come quietly and check the traffic level first.
You may disturb MEN AT WORK.*

RADIO - TELEPHONY INTELLIGIBILITY

An article with a surprising conclusion about having interference and comprehension of r/t messages.

Published with the cooperation of "Op de Bok" - the Dutch Pilots' Association.
G.W. VANDEELEN, M.D., Ph.D. J.H. BLOM.

Airline pilots with a mild to moderate hearing loss are regularly examined in the Netherlands National Aerospace Medical Centre. If this hearing loss exceeds the national hearing standards not only a tone-audiometric test but also routine speech-audiometry is performed. The maximal discrimination of phonetically balanced monosyllable words (20 words lists) in 16 airline pilots (32 ears) with such a hearing loss varies between 65% - 100%. However, none of these pilots complains of a bad speech-intelligibility in the cockpit. This may indicate that there is a poor relation between the routine speech discrimination and the speech intelligibility in the working situation. We developed a "speech-audiometric" test (RT-test) which is completely based on the aviation jargon used in radiotelephony (RT) communications. In our group of 16 pilots the maximal discrimination in the RT-test was excellent. Even for ears with a maximal discrimination of 65% - 70% in; the routine speech-audiometric test the maximal RT-discrimination was 99% - 100%. These pilots were all very experienced (average" 14,360 flying hours). Undoubtedly, this experience is of great importance in radiotelephony-intelligibility.

In the Netherlands National Aerospace-Medical centre we perform about 6,000 aviation medical examinations a year. Audiometry is one of the routine tests and a mild to moderate sensorineural hearing loss is found in approximately 5% of the applicants. Sometimes this hearing loss exceeds the national hearing standards (table 1). Usually, these pilots have a cochlear hearing loss caused by a chronic noise-trauma and/or presbycusis. Decreased speech-intelligibility in a noisy environment (e.g. the cockpit) is a wellknown phenomenon in this type of hearing loss. However, applicants with such a hearing loss are mostly experienced airline pilots who seldom complain of an impaired speech-intelligibility in the cockpit.
If the thresholds in tone-audiometry exceeded the earlier mentioned standards, we like other investigators, performed a speech-audiometric test.

This routine speech discrimination test consists of a list of phonetically balanced monosyllable words. However, it contains words from everyday speech and is not related to the aviation jargon at all.
Both the applicants and the medical examiners in our centre are of the opinion that the correlation between this routine speech discrimination test and the hearing performance in the working situation in the cockpit is very poor. In cases in which the speech audiometric score was less than 100%, the correlation between the test and the working situation was regularly discussed. When both tone and speech audiometric scores were not optimum, an actual inflight evaluation of the adequacy of hearing was advised. This check confirmed our opinion on the poor relationship between real-world working- and clinical test-situations; most pilots demonstrated a good radio-telephony (RT) intelligibility.
The pilot's ability to discriminate RT seems not only a function of hearing level but it also depends on, for instance, knowledge of aviation jargon and experience.
A specially developed "audiometric" test, based on RT communication might give more insight in this problem which is clearly not only audiological. In this paper we not only describe the development of such a test, but also the first results on civilian airmen with normal or impaired hearing.

Material and methods

The 32 civilian airline pilots reported in this study were divided into two groups: Group A, 16 pilots (32 ears) with normal hearing; and Group B, 16 pilots (32 ears) with a hearing loss exceeding the national hearing standards. All audiological tests were performed in a sound-insulated test room. Statistical analysis showed no statistical difference between the thresholds of the left and right ears (0.25, 0.50, 1, 2, 3, 4 and 8 KHz),

Fig.1 shows the mean audiogram (averaging the hearing thresholds for both ears), mean age, and average flying hours of both groups. The hearing of the 16 pilots from group B was not only tested by tone-audiometry but also by a phonetically balanced monosyllable speech discrimination test used for routine clinical evaluations (list developed at Leiden University). Each list contains 20 words (80 phonemes). This speech discrimination test was performed on each ear separately; the contra-lateral ear was kept uncovered. Free field background noise consisted of 78 dBA "speech noise". Also the maximal discrimination scores for all left and right ears did not differ significantly. Fig. 2 shows the maximal discrimination for these 32 ears.
The radiotelephony speech audiometric test we developed is totally based on the aviation jargon used in RT. This

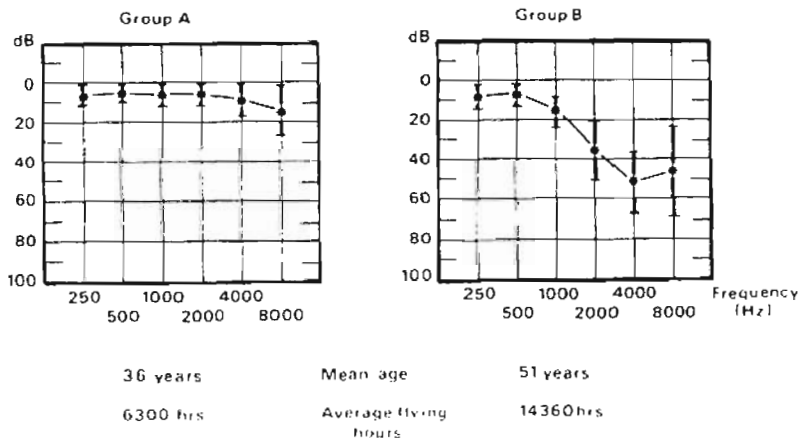


Fig. 1. Mean pure-tone-audiogram with standard deviations, mean age and average flying hours for the 32 ears with normal hearing (Group A) and for the 32 ears with impaired hearing (Group B).

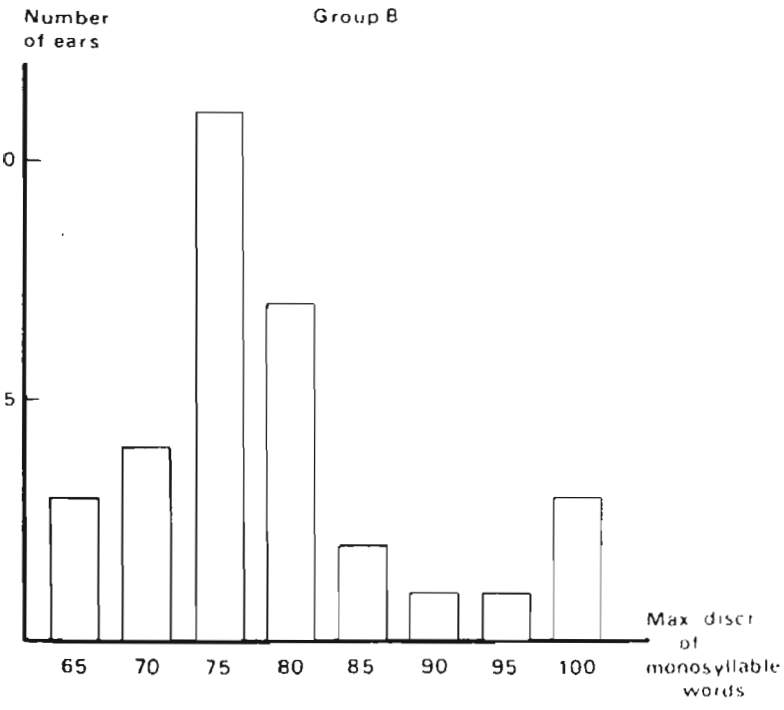


Fig. 2. Maximal speech discrimination of monosyllable words (20 words lists) for the 32 ears with impaired hearing (Group B).

communication consists of standard sentences with one or more variable items, which contain the relevant information. Each of our RT speech lists contains 20 sentences, in logical sequence with a total of 100 variable items (words, numbers or figures). The applicant had to repeat the whole sentence. Each item is counted as good or fault. Examples of three sentences are (the variable items are underlined):
PAPA HOTEL BRAVO ROMEO MIKE
CONTACT RADAR 1 2 6.9 5
MAINTAIN FL 60, IT WILL BE AN ILS APPROACH FOR RUNWAY 27.
The pilots chose the most favourable intensity to maximize their chance of understanding. Both ears were tested separately; the tested ear by using a regularly used headset among aviators, while the contra-lateral ear was kept uncovered. Free field background noise consisted of "speech noise" (78 dBA). This noise approximates to the frequency spectrum of cockpit noise in a Boeing 747 (Table II).

Results.

The results of both groups are shown in Table III. The scores in both groups are excellent and even slightly better for the group with the failing hearing loss. In group A, 17 out of 3,200 variables were scored "fault" (0,5 %); in group B, 6 out of 3,200 (0.3 %).

Even for the ears with a maximal monosyllabic word discrimination of 65 - 70 % the RT intelligibility was excellent (99 - 100 %).

Discussion.

In 1982, the American Medical Association (AMA) reported on the revised medical standards for civilian airmen. This AMA report recommended the development of a tape recording of radio communications; the tape could be used to test an airman's ability to understand speech as it would be heard in

TABLE II. FREQUENCY SPECTRA OF USED "SPEECH-NOISE" FROM A MADSEN OB 822 AUDIOMETER AND MEASURED COCKPIT-NOISE IN A BOEING 747.

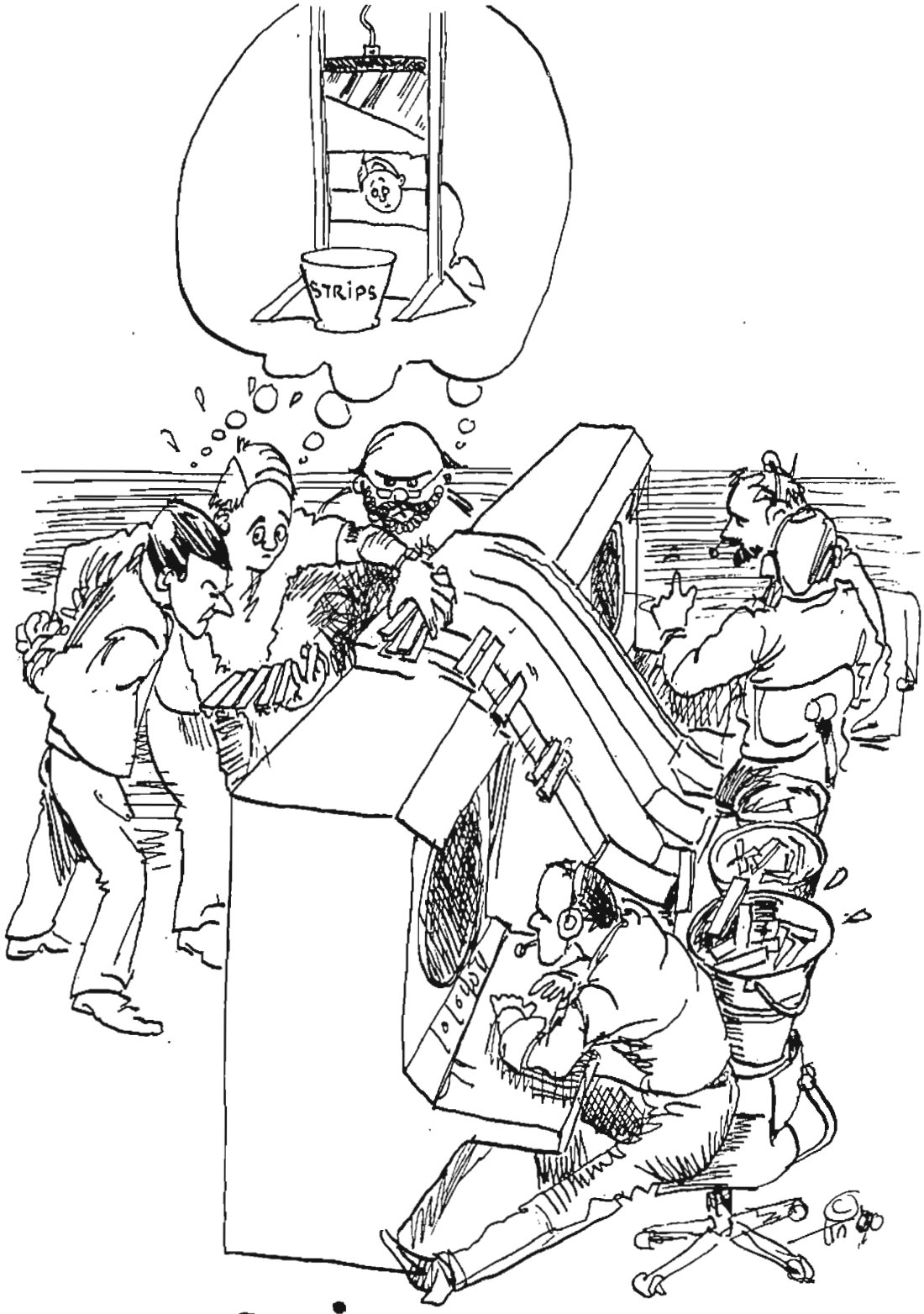
Boeing 747	Frequency (Hz) in octave bands	Speech Noise
38 dB	31.5	37 dB
57 dB	63	58 dB
75 dB	125	76 dB
73 dB	250	74 dB
73 dB	500	72 dB
76 dB	1000	74 dB
74 dB	2000	68 dB
65 dB	4000	60 dB
45 dB	8000	47 dB
31 dB	16000	33 dB
78 dBA	Average Intensity	78 dBA

radio communications in a cockpit.
All tested pilots, from both groups A and B, are of the opinion that the RT speech discrimination test corresponds very well with the listening situation in the cockpit. We think that the RT test is a realistic simulation of radiocommunication and can be very helpful to get an impression of the speech intelligibility in the cockpit.
The RT discrimination appeared to be excellent in all tested pilots, even in those cases where maximal speech discrimination of the routine phonetically balanced, monosyllable speech list was only 65 - 70 %.
In RT almost all variables are words, numbers, or figures from a very limited collection; we are convinced that recognition is of the utmost importance in RT discrimination. All pilots from group B were very experienced, with a mean of 14,360 flying hours. Undoubtedly this experience is of great importance in RT discrimination, which is not only an audiological problem. RT intelligibility is a complex matter of information processing in which hearing is one of the affecting factors.
The importance of experience and knowledge of the aviation jargon is also illustrated by the results of one of our still unpublished studies in which we tested the RT intelligibility in young subjects who have attended the civil aviation school for 1 year Average flying hours: 60). In this group of young people with normal hearing, the mean RT discrimination was only 72 %. This score is much lower than the scores of both groups described in this study.
We have used the RT test instead of the routine speech audiometry for several months. We think that in cases of questionable hearing loss the RT test gives us the opportunity to express a more valuable opinion on the functional hearing performance of the experienced airman. In addition to its use as a routine test we have planned to investigate other scientific and practical possibilities.
- In the study we made use of a high quality tape recording, whereas we currently use a tape that was recorded via a simulator to approximate the sound of a broadcasted and received message.
- The RT test gives us the opportunity to test various electroacoustics receiving systems; i.e. the advantages and disadvantages of open-system, closed-system, and insert headphones.
- Various types of background noise, as present in different types of airplanes, can be studied for their influence on RT discrimination.
- The frequency spectrum of the voice of the air traffic controller might influence the RT discrimination as well. It would be interesting to compare the intelligibility of a male and a female voice, especially in subjects with a high-frequency hearing-loss.
- The RT discrimination in the cockpit may be influenced by the presence of competing messages (i.e. another cockpit member speaking while radio communications are being received) or competing tasks in the cockpit, which can be simulated with a flight simulator. We are interested in the RT intelligibility under these circumstances.
- The study was performed in a sound-insulated test room. This is probably not the most suitable place for this purpose. Resonance and acoustics of the surroundings may be important factors influencing the RT discrimination. We have planned to continue some parts of our study in a cockpit simulator.

The excellent scores by the pilots from group B might suggest that the validity and discrimination of our RT-test are insufficient. However, these results correlate well with our experience; it is rather rare that a civilian airman appears to have an insufficient intelligibility in the real-world working situation. Therefore, it will be difficult to find a proper criterion (minimal score). We will collect more data, especially from the tests which simulate the real-working situation even better than the test we have used up till now (e.g. tape-recording via a simulator, various receiving systems). Thus we hope to obtain enough information to be able to set a reliable dividing line between pass and fail.✱

TABLE III. RADIOTELEPHONY DISCRIMINATION RATE FOR THE 32 EARS WITH NORMAL HEARING (GROUP A) AND FOR THE 32 EARS WITH IMPAIRED HEARING (GROUP B).

	100%	99%	98%
Group A	18	11	3
Group B	26	6	-



STRIP CHECK-OUT

RADAR CHECK-OUT

•WALKING YOUR WAY TO FITNESS•

from "THE CONTROLLER" IFATCA

Walking is probably one of the most overlooked and underrated forms of exercise. Yet the benefits of walking are many. it is an ideal way to control weight. It strengthens the heart and lungs. It shapes and tones the muscles. It reduces stress and increases energy levels. And contrary to some other forms of exercise, walking requires no special training or equipment. it is safe, convenient and pleasant: you can walk virtually at any time of the day, at any place and at any age.
If you are thinking about starting a walking program, there are a few guidelines you should follow so your activity will be both enjoyable and beneficial to your health.

Frequency
Plan on walking three to five times a week. Exercising less than three times per week does not contribute to cardiovascular fitness. Exercising more than five times per week produces no greater improvement and it also increases the risk of injury.

Duration
You should walk for a minimum of 15 minutes each time, not including warm-up and cool-down. Each session should include a 5-10 minute warm-up period in which you exercise the same muscles used during your walk. You should allow a 5-10 minute cool-down period of low-intensity exercise. Of course you can walk longer than 15 minutes, but always make sure you are not overexerting yourself.

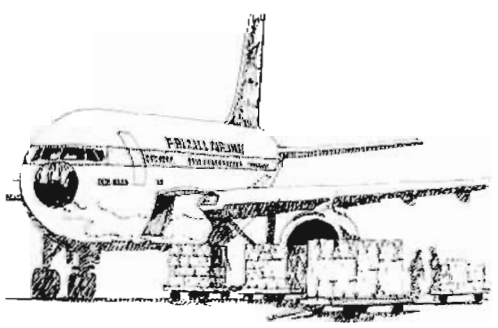
Intensity
The faster you walk, the shorter time you will need to walk to obtain the maximum benefit. You should begin any walking program at both low intensity and duration. Gradually increase the intensity and duration over a period of weeks. You may prefer to walk faster for a shorter period, or take a longer stroll for 30 to 60 minutes. It is unrealistic and potentially harmful to attempt to increase the intensity of any exercise program too rapidly.

Always try and make your walk a pleasurable experience. Look for something new each time you walk. You may want to walk in a scenic area, such as a park, or in different places each week. Walking is a good time for meditation and creative thinking. It could also be a good time to 'tune out the world' by bringing a portable cassette or a radio. Many people use the occasion for self-improvement by listening to motivational tapes. Walking will eventually take on its own sense of pleasure and regularity. And when it does, you will not even notice that you are exercising.*

EUROPEAN ATC REQUIREMENTS

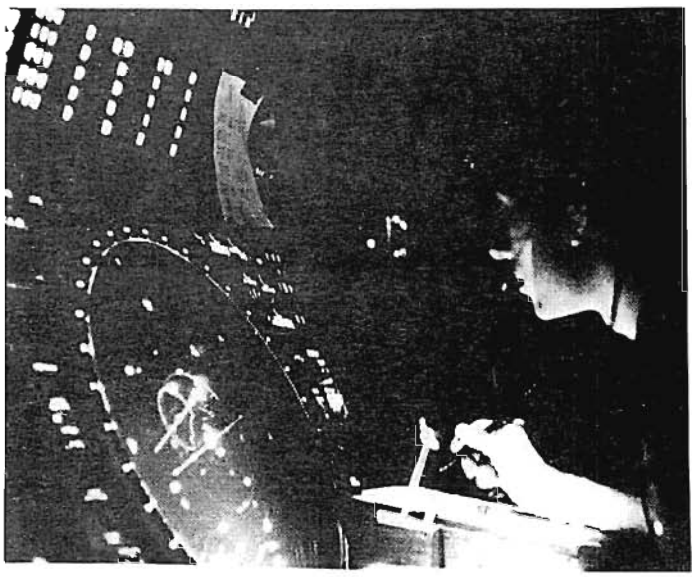
During the latter part of 1989, IFALPA was invited to submit evidence to the European Communities Committee of the British House of Lords on the subject of European air traffic control vis-à-vis the serious airspace capacity problems arising with Europe during the Summer months.
The Federation's submission focused upon the fragmented nature of ATC facilities in the Region and the need to develop an efficient, integrated communications/navigation/surveillance system using the technology already available for this purpose. IFALPA believes that the European Communities have a positive role to play in this connection, principally in providing the jurisdictional and legislative cornerstones of a unified ATC system and in persuading Member States to overcome the issues of sovereignty which presently inhibit this development.
In presenting various suggested courses of action for the attainment of a safe and orderly European air traffic system, IFALPA also took the opportunity to articulate, in somewhat greater detail, the individual pilot's requirements and expectations in respect of Europe's ATC services. Written by Captain Denis Leonard - Chairman of the IFALPA ATS Committee - a Dan-Air B-727 pilot, and recipient in 1989 of the IFALPA Scroll of Merit - the text of this supplementary submission is reproduced below.

At the outset, it should be stated what the pilot requires for the optimum achievement of his responsibility and tasks; then we may observe how the deficiencies in the present environment degrade that optimum situation or even prevent the proper completion of the pilot's task.
First, the pilot needs to know well in advance just when and where his duty will begin and end. This is necessary for his preparation for his work, so that he may arrive at the point of departure physically and mentally refreshed for a period of duty of uncertain duration in the course of which he must be ready and able to handle all events, normal or abnormal, in a competent and safe manner. In theory, the start of the duty will be about one hour before the scheduled departure of the flight and it will end about half an hour after the last arrival. Also in theory, the flight may take as much as fourteen hours or only half an hour. In reality we find that the thirty minute flight may need many more hours of patient waiting, and the longer flights may have to be completed at the captain's discretion extending the normal duty time limits or even after taking an unscheduled rest somewhere away from his base. The cause of this difference is often a delayed departure directly attributable to lack of system capacity in the air or on the ground at his destination, or indirectly to those same causes as a result of previous delays to the aeroplane on a previous journey.



When the pilot does report for duty, he needs to know with some certainty that he can fly the route and timing laid down in his flight plan, whether that flight plan has been filed just a short time earlier, or several months in advance as a repetitive plan (RPF). In the event, the aircraft is often still in the air with another crew inbound and the exact time of its landing uncertain because of runway congestion. If that results in loss of the scheduled departure slot, the actual time of departure again is uncertain and the least delay may sometimes be obtained by cancelling the original flight plan and filing another to take an alternative route.

In these days of high fuel prices, and the ecological effects of un;necessary fuel burn, there is pressure on the commander to load the least amount of fuel for the journey compatible with the regulations, basic airmanship and flight safety. Any change in the plan-



ned route must then be assessed as to the difference in winds and weather, revised fuel consumption and the fuel load adjusted accordingly, and that itself takes additional time and may cause another slot to be lost even if there is instant access to the source of fuel supply. It is not advantageous to be required to stop on the way to pick up additional fuel as one might do in a car. Because of the uncertainties in the present crowded system, many captains are now carrying more fuel than the minimum, and, consequently burning more just to carry it in the tanks.

Once cleared for take-off, the crew needs the assurance that the flight path is clear at an economical cruise altitude right through to destination, preferably without any delay to landing. An Air Traffic Control clearance is issued before departure, but that is often modified en-route, not always to the advantage of that flight. It is often found necessary to fly at altitudes or speeds which are not the planned optimum; in regards to fuel consumption or time, simply because of other types of aircraft in the same airway which require the same flight levels and operate at faster or slower airspeeds. (A Boeing 747 is about 30 MPH faster than a 727 which is in turn about 60 MPH faster than a 737). Outside radar cover, it is usually not possible for one aircraft to overtake another at the same level. For reasons such as these, IFALPA has argued that an alternative route should be preplanned and be available on call from the computer system if the original route is subject to excessive delay. The prime purpose of this alternative plan would be to reduce to minimum the time delay and disruption to departure procedures caused by such a change.

The departure slot time should, and within Europe usually does, take account of the expected traffic at the destination when the flight should arrive. Many of the European destinations are very small airports with little annual amounts of traffic. The difficulty arises in that most of that traffic arrives all at once, placing heavy stress on the facilities of all kinds, ATC, surface movement, parking and ground handling during just one or two days each week during the holiday season. In these circumstances, there is also difficulty in getting the aircraft unloaded, serviced and out again still leaving enough time for the return flight within the safe limits of crew duty hours. Whereas a flight incurring a long delay at the main base of the operator may be despatched with a different crew who reported for duty much later than the original rostered crew, or using a different aeroplane perhaps even of a different type, at an intermediate point of departure, no such facility may exist and any further delays may well involve a minimum of ten or twelve hours for mandatory crew

rest. This causes additional problems of providing proper accommodation and facilities for hundreds of passengers, and places extra pressure on the crew to get in and out as fast as possible. Facilities which are provided at the operator's main base are often not available at these outstations and the burden of flight planning an alternative routing now becomes an additional task for the crew.

It is not the intention of this submission to suggest that the present situation is inherently dangerous. Any decrease in safety that might arise would occur due to additional stress leading to human error, most likely at the end of extended duty periods particularly in the early hours of morning after a long flight, or to the need for aircraft to be turned around in the shortest possible time under pressure to meet slot times or airport curfews, rather than performing a thorough ground servicing procedure.

Flying is safer now than ever before because of the lessons we learn from our experience and from a thorough investigation of incidents and the much rarer accidents. The tragedy is that all too often we have to experience major disasters like the runway collisions at Madrid and Teneriffe before action is taken on points hat have been foreseen but discarded as unimportant. Now we have to face the expectation expressed in the ICAO FANS COmmittee that traffic levels around the world will increase by 50 % in the next twenty years, and the ICAO forecast of 100 % increase by 2000 AD in the European Region. In order even to keep the present standard of safety, there must be a massive investment in new resources, human and technical, to contain the growth of traffic.

The concept of ATC is to keep aeroplanes form bumping into each other. This is achieved by providing a separation between them, vertically, laterally or longitudinally, the dimensions of that separation being determined by several factors most particularly the nature of the control service available. With the objective of stopping collisions, it may seem strange that a separation standard may have to be as much as 120 miles int he airspace over the oceans, but the reason for such a large space is that it may then be grossly eroded by error, loss of communications or other unforeseen circumstances without actually leading to a collision. When the separation is only five miles, as it may be with radar surveillance in the vicinity of an airport, the margin for error is very fine and any event such as the loss of radar cover or computer failure places a very great burden on controllers and pilots alike because the conditions which would permit such close proximity no longer exist. It is obvious then that when the tools of the controller become overloaded or just too old and unreliable, the level of stress and risk is substantially increased. The United Kingdom keeps controlled traffic separated from uncontrolled flights and as yet has not actually had a collision between two aircraft in controlled airspace. Europe generally has a fine safety record, but it is no secret that the load on the system has increased rapidly and the system itself is obsolescent, the safe-

ty then becoming increasingly dependent on the skills and quality of the people so long as they stand up to the stress. In view of the massive increase expected in all sections of civil aviation over the next decades, every effort should be made to extend controlled airspace, both horizontally and vertically, until it is sufficient to contain all air transport operations, including standard instrument departures (SIDs) routes and standard arrival routes (STARs). Under the new proposals developed by the ICAO VFO Panel, only the airspace types A to C of the table of airspace types would conform to this requirement.
We are very lucky in this part of the world to have controllers and pilots of a very high standard, and a supervisory system which is intended to keep it that way. Even so there are situations when aircrew with a lower level of proficiency arrive on the scene or occasional lapses when a person becomes fatigued, distracted, or has to deal with something which should not have occurred, and during that time, matters can get slightly out of hand. That is when the separation standard is tested or an airmiss may occur. All pilots are required to pass a competence check every six months, and most of them fly with at least one other crew member to assist and monitor his actions, but no such back-up is found in ATC where a controller's actions go almost entirely unchecked.

IFALPA notes with interest the reference in documents to "Conflict Alert". Most newer air traffic control centres have an alert function in the radar computer. This acts to draw attention to two aircraft which are on converging flight paths if the resulting miss distance would not meet the required separation standard. For some time past, the controllers in the United Kingdom have opposed the introduction of conflict alert at the London Centre on the grounds that in that airspace which they control, it would produce too many false or undesirable warnings. There is also now being developed an airborne collision avoidance system (ACAS) which will indicate to the pilot the proximity of adjacent traffic and caution him against making any manoeuvres which would conflict with that traffic or even advise him how to take an avoiding action. This also is treated with some reservations by the controllers on the grounds that any such move by a pilot may negate the plan of action that the controller has in mind to keep specific flights properly separated. There is no doubt, however, that this equipment would have prevent development of two of the more serious airmisses recently reported and, had it then been available, some actual collisions such as the Trident/DC9 near to Zagreb in 1976.
At present, a pilot wears a radio headset in which he hears not only those messages addressed directly to him, but also those addressed to and from other aircraft in the air around him. From that mass of communication he can usually build up a mental picture of the traffic situation even though he cannot see all or any of the other aircraft, and can plan the conduct of his flight accordingly. It is of course essential for this purpose that these conversations are conducted in a language that all can understand, and ICAO recognises that the only common international aviation language is that which is based on English, yet in many southern European countries, controllers still use their own national language when speaking to their own pilots. In some cases, the ability of the controllers to converse in English is limited to the conventional control phrases and not sufficient to handle non-standard messages in emergency situations. In the near future, most of that communication will change from audible voice messages which can be heard by all crews working on that radio frequency, and be replaced by digital data link transmissions which will be specifically addressed in written form to or from a single aircraft and not received by any other crew. This will be a very useful tool for ATC but it will have the effect of rendering crews deaf and dumb and leaving them with no picture of the traffic situation around them. It will be rather like driving at very high speed on a crowded motorway without any external cues, visual or audible, other than the painted lines as steering guidance. e hope that the ACAS system may be developed to provide us with some larger picture of the adjacent traffic.

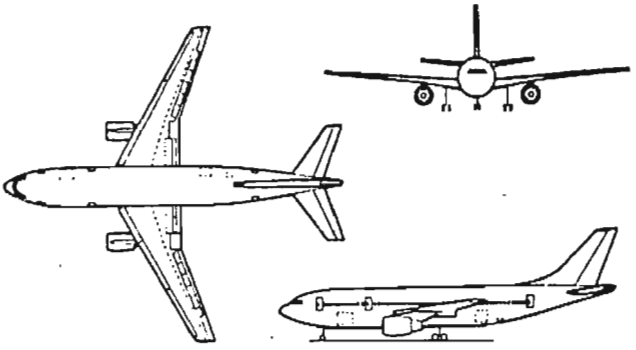
By improving the accuracy of navigation in four dimensions (4D, that is including time), with much more automation of the control system, it should be possible to increase the capacity of the airspace, particularly in the oceanic and remote regions and to a lesser extent in the densely packed airspace of Europe and North America. The major restrictions will then be imposed by runway capacity at the principal centres of population including London. At present one runway achieves a capacity which is frequently five or ten percent higher than the theoretical maximum number of movements in an hour. This is done only by the most skilful judgement by approach controllers and by the skill and cooperation of large numbers of pilots familiar with the procedures there. That capacity cannot easily be increased because of the requirements for aircraft to vacate a runway before the next landing or departure and because of the separation required between arrival to allow for the dissipation of the dangerous turbulent wake created in the air by a heavy aircraft. What may be possible with 4D navigation will be the consistent maintenance of that high flow rate without so much dependence on the skills of individual people by providing the controller with the calculated arrival time of wheels on concrete to within just a very few seconds rather than half minutes, and providing the pilot with similar ability to comply with ATC instructions to that same degree of accuracy. To increase capacity by any large amount, it will obviously be necessary to increase the runway availability as well as occupancy, and that can only be achieved by a combination of new runways and less restrictions on the use of existing concrete. If steps are not planned now, the capacity will not be available as and when the traffic grows and the delays we experienced this Summer will be a regular feature of air travel in the next two decades and beyond.

The most obvious way of accommodating growth in the number of passengers and freight would be to make use of much larger aeroplanes. This is the method presently employed in Japan where the vast domestic travel market is supplied with large numbers of seats by using a version of the Boeing 747 specially developed to fly short range sectors with many more landings during its useful life. That has not yet happened in Europe although the trend is to use some large aircraft such as the Airbus on routes like London-Paris. There is considerable scope for development of this trend and most of the British airlines are gradually acquiring fleets of larger aircraft for use on their principal routes. There is still, however, a need for capacity to accommo-

date smaller aircraft on the ever increasing network of business and feeder type of services between the major international airports and those regional airports serving smaller centres of population which could not support their own international or intercontinental services, or which have limited amounts of charter passenger flights to holiday resorts. But while a very large aircraft carrying up to 600 passengers is a practical proposition on major routes, and requires only one airspace slot and one use of the runway for a take-off and landing, it does not quite have the same effect on runway capacity that might be expected. It does unfortunately create a very heavy turbulent wake and therefore no smaller aircraft can approach closely behind it or take off from the same runway immediately after it.

Over some years past, there has been much pressure to show that the capacity of the upper airspace, that is altitudes above 25,000 feet, could be greatly increased by reducing vertical separation. A separation standard of 1,000 feet between opposite direction aircraft is used up to 29,000 feet, and above that it is 2,000. There is no doubt that raising the demarcation level again would provide not only a considerable increase in flow rate but also a very great saving in costs because more aircraft would operate close to the optimum cruising altitudes for their size and weight. Unfortunately, there is a major snag in that with present methods of altimetry, that standard of separation does not meet the target level of safety in European airspace. IFALPA cannot support the suggestion that the level of safety should therefore be lowered to allow the gain in capacity and reduction in costs. Over the Atlantic, lower occupancy of the routes might allow the target level of safety to be met with 1,000 feet vertical separation, but that must be offset against the fact that the new methods of very precise area navigation will place opposite direction traffic so close to each other that if they lose that slight vertical separation for any reason, they are almost certain to collide rather than just have a near miss.

There is, however, an alternative which would offer almost the same increase in capacity and improved economics as



1,000 foot separation. It was developed and verified at the University of Oslo for an ICAO Panel starting in 1969. A that time it was called the "ICA" system and relied on a more sophisticated altimeter. The reason it was not accepted then or since was that it required the design, manufacture and fitment in every aircraft of new instruments, obviously a time and money consuming process. Now, however, the same results can be achieved without any new hardware, simply by inserting the same mathematical formula which was researched by the University for the design of the ICA meter into the software of the air data computer or altimeter correction device which is already carried in all aircraft using the upper airspace. It has been given the name "Constant Optimum Separation Lane" (COSLane). It would provide large economic and capacity benefits without that lowering of the safety level.

It must be recognised that a large part of the capacity of an airport is lost if it has only one runway to handle both arrivals and departures. In the end, more traffic has to mean more aircraft movements, but not necessarily in the same proportion if some larger aircraft are introduced. Only a small apart of that increase will be accommodated by greater system efficiency. The remainder will have to be found by a combination of new runways at existing airports, some new regional airport development with associated reallocation of airspace and defined routes, and by relaxing restrictions on the use of existing facilities.

Of those methods, only one, the last mentioned, is available immediately. That would mean of course a comprehensive new study of the noise abatement regulations, not with the intent of allowing a large and deplorable increase in the noise nuisance, but rather to ensure that existing runways

are not wasted unnecessarily by the need to adhere to rigid rules in regard to time, minimum noise routes and aircraft handling techniques, all originally developed during the noisy aircraft years in the fifties and sixties when most jet aircraft were powered by first generation engines like the Spey, Conway and JTD3 and every take-off was indeed earsplitting and landings not much better. New aircraft types like the Bael46, the new American MD and Boeings with their latest large fan engines have the capacity to be operated in a much more efficient manner and to cause a much lower noise footprint if only they were allowed.

We know of course that aircraft noise is a highly emotional subject and has political implications that go far beyond the reason of the average man, but it is a nettle that has to be grasped. Proposals have been put forward which would actually have reduced the noise footprint of a route, saved time and fuel, money, pollution and irritation, yet they were lost before they were debated because they varied even only slightly the established minimum noise route. It is not suggested that the peace of the night should be split by the crackle of the 1-11 at all hours, but the newer quieter types of engines would come into service much quicker if airlines were encouraged to introduce them by recognition that the noise they make is often drowned out with the passing of a train or motor car which nobody notices or cres about. The 1-11 is still a good aeroplane and could be equipped with a new generation quiet engine if the conditions were sufficiently encouraging. These quiet engines would be of benefit in regard to the environment both by day and by night, and they are much more fuel efficient.

Safety of flight is the pilot's prime responsibility and has to be his first consideration. Most airlines like to say the same of themselves and some of them actually mean it though commercial pressure tends to weaken that resolve from time to time. There is not much that is frightening about public transport flying but one item that was scaring more than twenty years ago is still there. It was all perfectly legal then and still is. This Summer, many pilots have had the most unpleasant experience of operating aeroplanes form airports such as Gatwick to some other European destination, starting in the late evening and to meet curfew restrictions, waiting there for two hours or more before returning to join a queue for landing nt earlier than six o'clock in the morning, not because Gatwick closes, but because jets of that kind are not allowed at that hour. To make it worse, it is common to find that this duty was preceded by a rest period of twenty four hours in which one had to attempt two periods of sleep and adjust the body to working at night. No wonder then that there have been numerous reports of crewmembers actually falling asleep in flight, not only during the monotonous boring hours of cruise, but even during the descent and approach phase of flight when the aircraft can easily be flown into collision with another on the ground. At the time of the morning when a runway is most likely to be covered in fog, it

requires a pilot to use his greatest skills and judgement just when medical evidence shows that his ability to do so is at the lowest ebb. A crew may have been on duty for thirteen hours or more, most of that time in a noisy environment at a cabin altitude of nearly nine thousand feet. Even with a three man crew the risk of an undetected error is quite high and many more very large aircraft are now being flown with only a two man crew. It is lawful, but is it safe? In attempting to make the fullest use of quiet aircraft for overnight operations and the maximum use of airport facilities during those slack hours, great care must be taken to ensure that the human factors element is not overlooked so that crews continue to be faced with this dangerous and frightening problem. The United Kingdom has taken some small steps to alleviate it by a reduction in the night flying duty limits, but many pilots still believe that this was not sufficient and other European states may not be so firm in this respect.

Conclusion

There will be a massive increase in traffic over the next two decades, well beyond the present system capacity. The European Community will need to provide a very large investment in increased resources to meet this demand, and to ensure that the high standards of safety which the travelling public demand are not diminished to meet commercial pressures or for lack of proper facilities.*

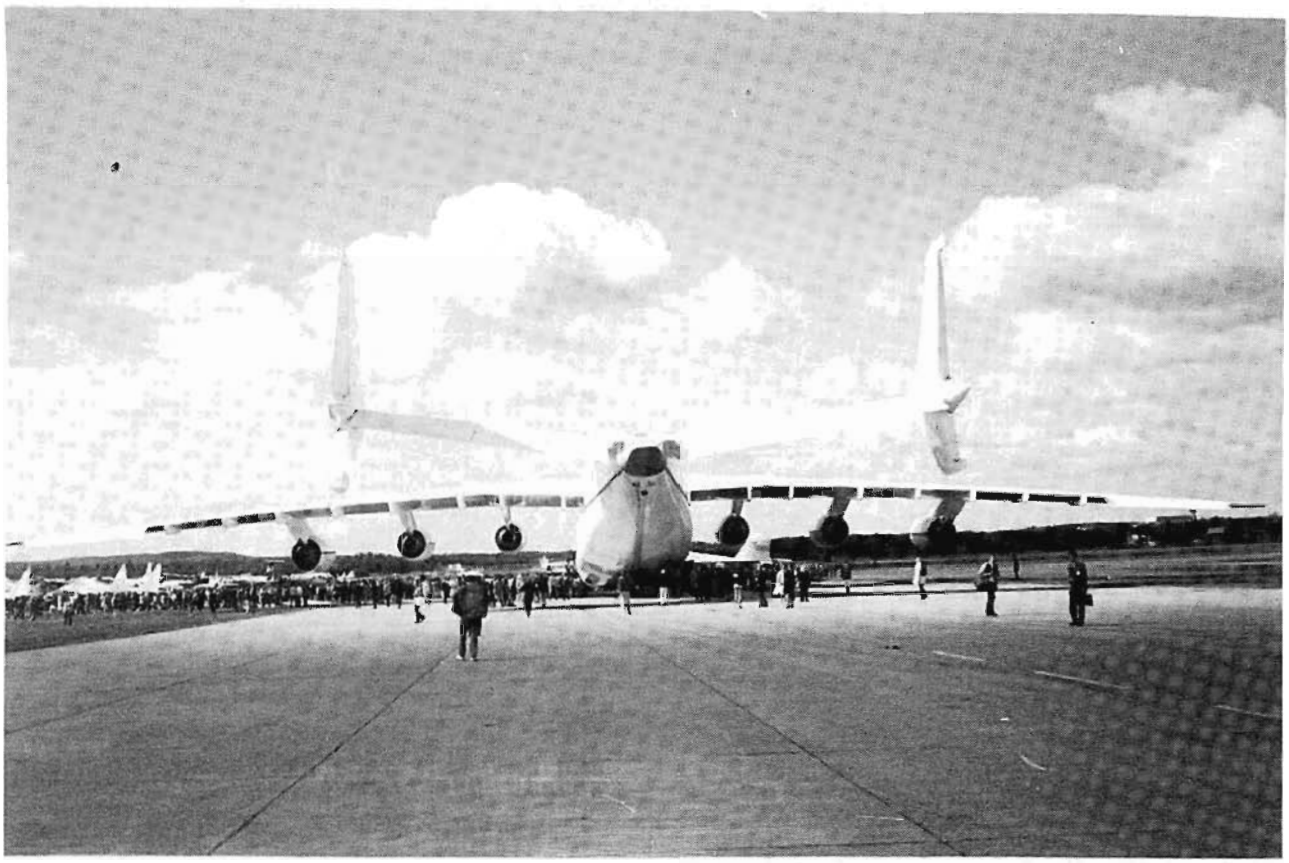
IFALPA - Quarterly Review.

SEEN AT FARNBOROUGH

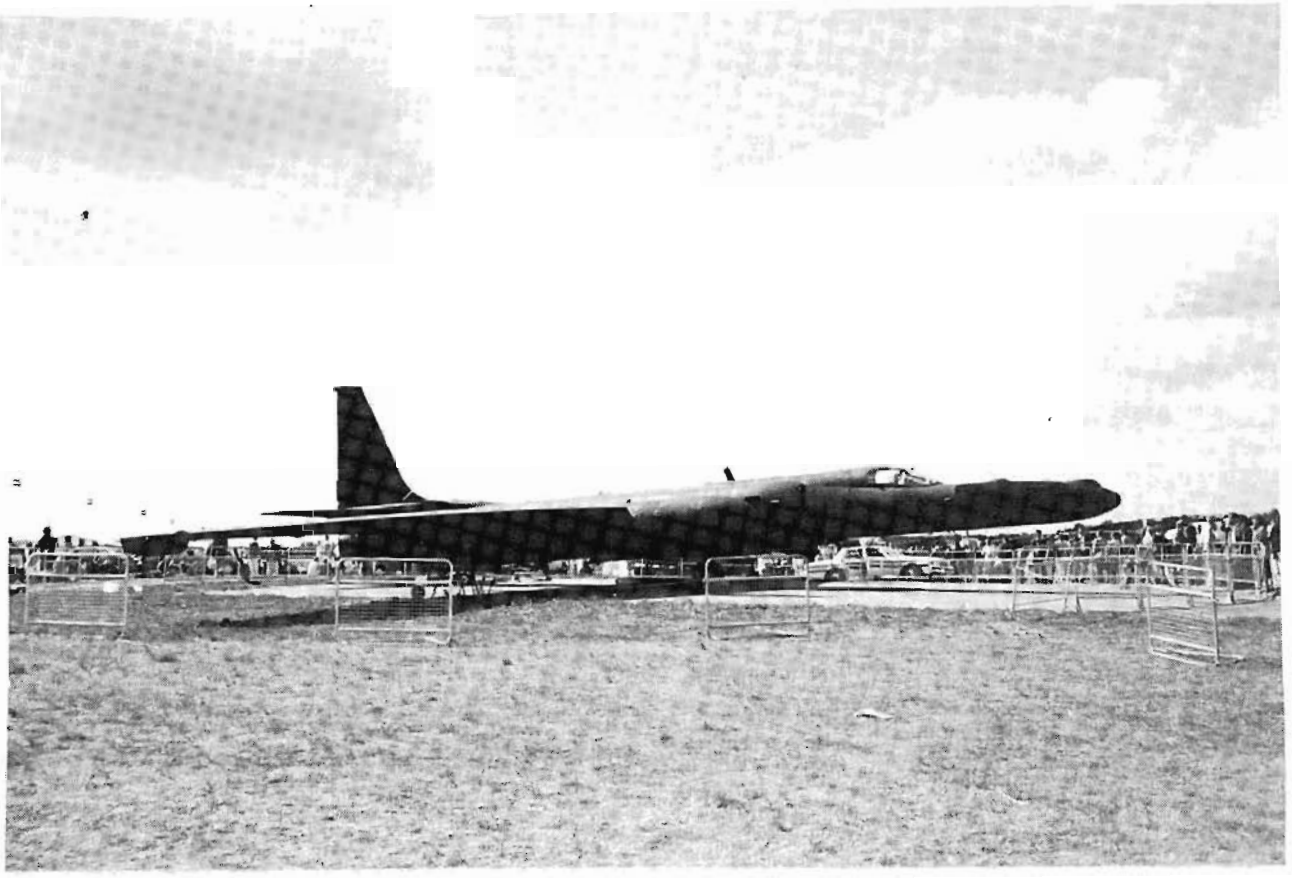
BAe-ATP

THE ONLY AIRCRAFT WHERE THE DRIVER FACES BACKWARDS!
-BEECH STARSHIP

-ANTONOV 225



PUSH.BOYS....PUSH!
-ANTONOV 225



AS SEEN IN THE FPL "EHV-OAT ABOVE FL600"
-TR 1

WHILE WAITING FOR A SLOT WE ALL HAD A PICNIC!
-SAAB 340

MILITARY MATTERS

The Lippe Page

Since August LtCol. Dieter Neßel is the new Commanding Officer of LIPPE Radar. He took over from LtCol. Faber, who has taken over command of the GAF ATC school in Kaufbeuren. LtCol. Neßel was previously assigned to the 4.ATAF in Heidelberg, before he had been the Commanding Officer of Weser Radar.

There is no further news about the privatisation of German ATC. It seems that problems arising due to the reunification of Germany are to be solved first. Reunification will have effects on the military ATC though, a Berlin division is presently being set up. It is not known yet whether LIPPE personnel will have to be considered.

Two of our "new" trainees, Dirk Renno and Thomas Straub, successfully completed their training lately. What seems like good news is just a bit of light in the dark. Out of the last 9 trainees that have been assigned to us without previous centre experience, these are the only two that made it yet. One other failed the ATC school, 5 went back to the bases after training, only 1 is still trying.

End of September, a long standing LIPPE and EGATS member is going to retire. Capt. Horst KLEIN (also known as "LITTLE") was one of the first to arrive in Maastricht. His last functions with LIPPE were Watch Supervisor Team B and up to September 30, Training Officer of LIPPE Radar.*

MAASTRICHT - MONASTIR AND BACK

***

A familiarisation flight with AIR HOLLAND.

On March 20, 1990, I had the opportunity to take part in an AIR HOLLAND flight from Maastricht Airport to Monastir in Tunesia and back as a crew member.
This familiarisation flight was made possible by the EGATS Flight Department, J. Falkingham and D. Grew in this case. Before describing my impressions I would like to express my thanks to all people involved in the pre-planning of this familiarisation flight. Before carrying on, however, it should be mentioned that this article is written from the point of view of a military flight data assistant. Weather conditions on the morning of March 20, 1990, were not very promising - quite cloudy and considerable dust. Nevertheless I looked forward to being introduced to sophisticated airborne equipment and navigation systems respectively. After having boarded the B757, which had just arrived from Amsterdam, I introduced myself to captain Steve Holden and his crew. I was offered the seat behind the co-pilot and was given a headset in order to be able to listen to the R/T, which was one of my goals. Scheduled time of departure was 0930Z, and I was able to survey the crew's activities within the last 20 minutes before take-off. These few minutes were quite hectic, firstly because the so-called "Passenger and Loading Sheet" had to be completed again, and secondly - and more striking to me - because the planned route via France was made impossible due to non-acceptance of the requested slot. A new flight plan had to be file, the routeing being completely different from the previous one, now leading via LNO - DIK - NTM - TRA - SRN, To my great astonishment the whole action turned out to be quite easy by making use of the excellent navigational equipment that the B757 carries, the core of which being the flight management computer (for detailed information please refer to the August 7, 1989, issue of Aviation Week & Space Technology, pages 32 - 36). But then everything was straight and we were cleared for take-off on runway 22. Actual time of departure was 0936Z, and after being airborne the climb to FL 130 initially was carried out very fast, with about 3500 ft.min for the first 7000 ft. I guess one can say that the B757 is

really not underpowered. We encountered considerable cloud coverage, and visibility to the ground was very limited. In flight we were recleared via NTM - FFM and even restricted to FL 270 as well - this of course caused considerable concern in the cockpit. We passed KRH at 1001 Z having completed our climb to FL 370 by then. The further route lead us via SRN - VOG - GEN to ELB (Elba), where visibility to the ground became quite fair and offered a great view: Italy to the left, Elba below and Corsica and Sardinia to the right. This definitely one of the finest views I have ever enjoyed. I think it should be mentioned that the english of the controller of Milano Control was more than interesting, including some extra-ordinary phraseology that was used. I should not forget as well to mention that captain Holden was quite intrigued about the fact that the controller of Roma Control was in radio contact with aircraft from Fl 120 up to our Fl 370, so that he was really extremely busy. On the approach to the African coast line the crew contacted Tunis Control, and I experienced how difficult R/T can be; the controller was really hardly readable, especially when he delivered a direct clearance to Cap Bon, which caused the crew to do some guesswork regarding the abbreviation CBN of this navigational aid.
The final landing at Monastir (DTMB) was carried out visually by the co-pilot, and one could certainly feel his concentration during the landing, which he managed to complete quite smoothly. ATA was 1148Z.
Take-off from Monastir was scheduled for 1315Z, and this time the slot - for the return flight - was accepted by France. Actual time of departure was 1312Z - again after having had trouble with the "Passenger and Loading Sheet", which to my experience bothers pilots more than ATC in any country. The return flight was smooth and filled with information about the aircraft's performance and equipment, especially about the digital cockpit - in this connection the HSID (see article and drawing in INPUT 1990-1, pages 5-15) should be mentioned. This device (HSID - Horizontal Situation Indicator Display) in connection with the flight management computer offers several applications that are similar to TID features of the MADAP system, e.g. extrapolation of routes and tracks. With the HSID of course, things are displayed in a 6-colour mode.
The landing at Beek was carried out by captain Holden in adverse weather, ATA was 1520Z - even 9 minutes early. Most striking to me - beside the extra-ordinary performance and sophisticated equipment of the Air Holland's B757 - is the fact that despite considerable problems (new Flight plan, re-routeing, restriction to Fl 270, for the flight to Monastir; delay in take-off and adverse weather back to Beek) the time schedule was nearly exactly adhered to. it must be said that the equipment of the B757 is at least as capable as the ATC ground equipment, the NAV-computer's data base even contained information about US aerodromes and airways, and that due to this fact, nearly everything runs automatically in flight. Climb: turn a button; descent: turn a bottom; rerouted: use the flight management computer; etc...
The hardest problem, and a source of possible danger, seems to be R.T, especially in southern Europe.
Finally, I think this should be mentioned as well, I learned that pilots obviously only have a vague knowledge of the ATC units and authorities controlling their flights, e.g. EUROCONTROL, which I tried to describe to my best knowledge.
Again I would like to thank all persons who made this experience possible for me, especially Air Holland, Captain Holden and his crew.
This flight added considerably to my knowledge of civil aviation and I do hope that colleagues of mine will be given the chance of gaining equivalent experience through similar familiarisation flights. I would like to ask the EGATS Flight Department to make this possible, as such an experience definitely influences one's attitude towards civil aviation and the corresponding ATC.*

Oberfeldwebel E.J. Kiehn "Lippe Radar".