

# COMMISSION OF THE EUROPEAN COMMUNITIES

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Proposal for a  
**COUNCIL DIRECTIVE**  
on the limitation of noise emission from  
civil subsonic jet aeroplanes  
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(presented by the Commission)

## SUMMARY

Action already taken by the Community will ensure that there will be no more very noisy subsonic jet civil aeroplanes using Community airports after 1988. Therefore, ignoring the noise effects of any increase in air traffic, the noise climate in the vicinity of airports will improve gradually until it would level out during 1988. However Chapter 2 aeroplanes are still relatively noisy and will still be operating. The best available environmental climate will only occur when all subsonic jet civil aeroplanes meet the noise standards of Chapter 3 of Annex 16. It follows that from an environmental standpoint it is necessary to as a first step to prevent any further Chapter 2 aeroplanes being added to the air registers of the Community;

This action should be followed by the removal of all Chapter 2 aeroplanes already on the registers within an agreed time-scale and in cooperation with other international organisations.

It is essential that operators are given a clear indication of exactly how and when proposed rules will come into force both to signal the Community's intent and to allow operators and manufacturers as much notice as possible. Thus it is essential for the Community to introduce realistic, comprehensive rules in a reasonable time-scale to ensure that a harmonized approach prevails throughout the Community. This is particularly important in view of the recent shift towards deregulation of European air traffic.

This impetus towards deregulation should be encouraged and, in conjunction with the creation of an area without internal frontiers, the proposal applies to the addition to the total Community fleet, rather than to individual national registers. As a consequence of the freedom of movement that such a rule would allow, it is essential that exemptions should be limited and that those granted under this proposal should be closely monitored and restricted in time.

The proposal for a Directive is a dual purpose instrument concerned on the one hand with the Environment, the improvement of the acoustic environment of people living in the vicinity of airports and under enroute traffic and on the other hand, with Industry and Transport, in that it aims to ensure that a harmonized approach to the problem of accelerated retirement of Chapter 2 aeroplanes prevails throughout the European Community.

## EXPLANATORY MEMORANDUM

### Background

This proposal for a Directive falls within the Programmes of Action of the European Communities on the Environment (1) and 1977 (2). The 4th Programme of Action (3) specifically mentions Community work on a non-addition rule. Furthermore, the Council, in reply to Written Question N° 654/73 put by Members of the European Parliament on the subject of aeroplane noise, stated that "the environment programme of the European Communities provides for mounting a campaign against environmental and noise pollution caused by aeroplanes".

The Council has already taken action in respect of propeller-driven and subsonic jet aeroplanes (4); this proposal is to establish a uniform Community approach to further limit noise from civil subsonic jet aeroplanes, bearing in mind the Council's statement that account should be taken of the work done by international organisations.

### Aeroplane Noise Standards

With the introduction of commercial jet aeroplanes in the early 1960's, aeroplane noise in the vicinity of airports and under enroute traffic increased to such an extent that there was a public outcry. An international conference was held in London in 1966 at which it was agreed that the problem of aeroplane noise had to be dealt with on an international basis and that means of control were necessary to prevent the noise issue from becoming a major deterrent to the orderly and successful development of the air transport system. This was taken up by the International Civil Aviation Organisation, (ICAO) which, in 1968, set up a Committee on Aeroplane Noise, (CAN), which was assigned the task of defining, measuring and creating standards for aeroplane noise. By 1970 there was international agreement on the noise standards for civil subsonic jets designed after 1 January 1969 (with an exception for a period for certain high by-pass ratio engined aeroplanes). These standards are published in Volume 1, Chapter 2 of Annex 16 to the Convention on International Civil Aviation. In 1977, after further research and experience, those standards were made significantly more severe. They are published in Volume 1, Chapter 3 of Annex 16.

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(1) OJ N° C 112, 20.12.1973, p.1.

(2) OJ N° C 139, 13.06.1977, p.1.

(3) OJ N° C 328, 07.12.1987, p.28.

(4) OJ N° L 18, 24.01.1980, p.26.

Chapters 2 and 3 of Annex 16 require all civil subsonic jet aeroplanes whose designs were accepted after 1. January 1969 to be noise certificated to one or other of the standards, depending on the date of acceptance of the certificate of airworthiness, (C of A), of the prototype. Thus these ICAO actions have caused there to be 3 groups of aeroplanes flying today with significantly different noise levels:

- GROUP 1** Non-noise certificated aeroplanes, i.e. those whose prototypes received their C of A before 1. January 1969 such as the B 707, DC-8, DC-9, Caravelle, B 727, B 737, VC-10, Trident, BAC 1-11 etc.
- GROUP 2** Aeroplanes whose prototypes received their C of A after 1. January 1969 and before 6. October 1977, which have to meet the standards of Chapter 2 of Annex 16. This group includes the DC-10, Tristar, most marks of the B 747, Airbus A 300, plus aeroplanes of group 1 which were manufactured after 1. January 1976, or, if manufactured before that date, have been modified to reduce noise, and tested and accepted to the standards of Chapter 2.
- GROUP 3** Aeroplanes whose prototypes received their C of A on or after 6. October 1977, which have to meet Chapter 3 standards; such as the B 757, B 767, BAe 146, A 320. It also happens that the Airbus A 300, Tristar and B 737-300, amongst others, meet Chapter 3 and therefore can be considered as being in this group.

#### **Initial Community Legislation**

Initial action to reduce the noise from aeroplanes was taken by the Community through the Directive on aeroplane noise - 80/51/EEC, which prevents any further group 1 aeroplanes, i.e. non-noise certificated, being added to the civil air registers of Member States and required the removal of such aeroplanes already on the registers by 31. December 1986, (a possible exemption would enable a few group 1 aeroplanes to continue flying until - at the latest - 31. December 1988). ICAO, for its part, by its standards, has prevented any further manufacture of group 1 aeroplanes. By an amendment to 80/51/EEC, the Community has prevented foreign register group 1 aeroplanes landing in the Community since 1. January 1988, although some exemptions have been granted until 31. December 1989. After this final cut-off date group 1 noisy aeroplanes will no longer be an environmental nuisance in the Community. Unfortunately, group 2 aeroplanes are not a great deal quieter; the noise difference between these and group 3 aeroplanes is significant, particularly in the important - and numerous - short/medium range category.

Action already taken by the Community will ensure that there will be no more very noisy subsonic civil jet aeroplanes using Community airports after 1989. However

aeroplanes that only meet the standards of Chapter 2 of Annex 16 are still relatively noisy and will still be operating. The best available environmental climate will only occur when all subsonic civil jet aeroplanes meet the noise standards of Chapter 3 of Annex 16. It follows that from an environmental standpoint it is necessary to prevent any further Chapter 2 aeroplanes being brought into the Community. This action should be followed by the removal of all Chapter 2 aeroplanes already on the civil air registers of Member States within an agreed timescale.

### **The Problem of Chapter 2 Aeroplanes**

With existing regulations Chapter 2 aeroplanes may continue to be imported into the Community even though they are considerably noisier than aeroplanes of a similar weight that meet the standards of Chapter 3 of Annex 16. A Chapter 3 aeroplane has a considerably higher capital cost than its equivalent Chapter 2 aeroplane, and Chapter 2 aeroplanes can be bought second-hand, or leased on favourable terms. Therefore, in spite of the fact that a Chapter 3 aeroplane has greater fuel efficiency and that this fact, plus several others, means lower direct operating costs, (DOCs) (1) the purchase or leasing of a Chapter 2 aeroplane as a replacement or to meet a new operational requirement, particularly when profits are low, can be attractive to an airline.

A newly manufactured Chapter 2 can remain in service for more than 25 years. Chapter 2 aeroplanes appeared in airline service about 1970 and are still coming into service, although since 1987 only as second-hand aeroplanes, and therefore we can expect them still to be in use into the next century - unless regulatory action is taken to restrict them. The sub-group of the group of experts on the abatement of nuisance caused by air transport, (ANCAT) which was established to investigate the possible consequences of a Chapter 2 non-addition rule, using the United Kingdom Department of Trade and Industry's fleet forecasting model, stated that in the year 2000 there could still be 352 aeroplanes flying in European registration in the short/medium range category that only meet the noise standards of Chapter 2 of Annex 16.

The ANCAT figures are considered conservative by the airlines as represented by the Association of European Airlines, (AEA) and the Association des Compagnies Aériennes, (ACE), which in their reports to the ANCAT sub-group suggested that airlines will still be adding Chapter 2 aeroplanes to their fleets in the early 1990's. ACE go further and suggest it will be "well into the 1990's". These associations also consider that the in-use life of a Chapter 2 aeroplane is greater than 25 years. (This must be compared with the ANCAT sub-group recommendation of 20 years and the 22 years suggested in research carried out for the Commission). If both of the airline association's suppositions are correct then in the year 2000 there could be nearer 400 Chapter 2 short/medium range category aeroplanes flying on Community civil air registers, and in the year 1995 as many as 518.

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(1) Airbus Industry claim that a B 737-200, (Chapter 2) relative DOC per seat is 24% higher than that of the A 320, (Chapter 3).

### **Chapter 3 - The Most Stringent Existing Standard**

It is generally agreed that aeroplanes that meet Chapter 3 noise standards represent the latest major development in aeroplane noise reduction, specifically engine noise reduction. It is obvious therefore that aeroplanes that meet Chapter 3 noise standards represent the most up to date acoustical development that will be incorporated in manufacture and that will be operational for the foreseeable future. It follows that the best noise environmental situation in the vicinity of airports will occur when all aeroplanes using that airport meet Chapter 3 standards. Although this is obvious, evidence that it is so is apparent from measurements taken and calculations done in Austria which show a significant reduction in aeroplane noise annoyance at Vienna airport following the replacement of some non-noise certificated aeroplanes by those meeting Chapter 3 noise standards.<sup>(1)(2)</sup> Similar studies were undertaken in France and the Netherlands which indicated that improvements of up to 5 dBs could be achieved at certain airports.<sup>(3)</sup>

A Chapter 2 aeroplane is significantly more noisy than an equivalent in size Chapter 3 aeroplane. The following footprints were produced in the Commission's own CANAR computer program using the FAA INM Data Bank version 3. For instance the Chapter 2 aeroplane B 727-200, (approximately 145 passengers and with a gross weight of around 190.000 lbs), gives a 90 EPNL noise footprint of 75.29 km<sup>2</sup> whereas the Chapter 3 aeroplane B 757, (approximately 180 passengers and with a gross weight of 200.000 lbs), gives a 90 EPNL footprint of only 11.22 km<sup>2</sup>. Similarly a Chapter 2 DC 9-30, (115 passengers/100.000 lbs), gives a 90 EPNL footprint of 43.55 km<sup>2</sup> whilst the more capacious and heavier Chapter 3 B 767, (230 passengers/ 260.000 lbs), gives a 90 EPNL footprint of only 9.07 km<sup>2</sup>. More modern types of aeroplane, the BAé 146 and the Fokker 100 for example, are even quieter. The areas quoted will differ very slightly according to the engines actually used on a particular type of aeroplane but they are sufficiently accurate for comparative purposes.

Even if it can be shown that the actual number of Chapter 2 aeroplanes remaining in operation at a specific time hardly affects the noise/annoyance contours around an airport, as calculated by the presently accepted methodology, the significant increased noise level of a single Chapter 2 aeroplane in a stream of Chapter 3 aeroplanes, on a route to or from an airport, is known to be an annoyance in itself, whatever the smoothed numeric effect that aeroplane - or several similar aeroplanes - has in an annoyance assessment over a long period of operation.

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(1) ANCAT working paper ANCAT/21, WP/2, Appendix C.

(2) ANCAT working paper ANCAT/22, WP/2.

(3) ANCAT working paper ANCAT/21, WP/5.

### **Costs to Airlines.**

When both the Commission and ECAC proposals were first drafted, i.e. when they included both a non-addition and a non-operation rule, they were attacked by airline associations on the grounds that they imposed excessive and unreasonable costs on that industry. In order to quantify costs, ECAC undertook a detailed and comprehensive study<sup>(1)</sup> of airline costs, fleet replacement plans, aeroplane availability etc. The final conclusions of that study are quoted below:

"46. The sub-group considers that the costs of the proposals (*i.e. both the non-addition and the non-operation rules*) are likely to be of the order of \$500 million - measured at 1986 prices, i.e. costs discounted to the value of 1986 - but they could well be less because of a balance of factors that tend to lower costs - such as the 10% rule and exemption clauses - which have not been taken into account.

47. The total cost of \$500 million US should be looked at in the relation of ECAC (*i.e. 22 member states*) airline operating expenditures, - \$24.000 million US in 1985. This would indicate that the proposals would increase the costs to ECAC airlines, and hence fare levels, by about a half of one percent."

While some airline associations may argue about details of the exact amount, most responsible authorities agree that this report is a good indication of the true cost to the airline industry. It is interesting to note that the ECAC methodology has been accepted by ICAO as a basis for a world-wide costing exercise being carried out for the next ICAO Assembly meeting in October 1989.

### **The Present Proposal**

The present proposal is largely based on the work of a sub-group of ANCAT. This sub-group was constituted primarily to review the report prepared by the European Commission on the feasibility of introducing a non-addition rule for Chapter 2 aeroplanes. This sub-group consisted of four members of ANCAT who were coincidentally also Community Member States, (Denmark, France, the Netherlands and the United Kingdom) and Austria. It met three times and at the meeting of ANCAT 21 in October 1985 it presented a draft European Civil Aviation Conference, (ECAC), Recommendation on Chapter 2 limitation. This draft recommendation included both a non-addition and a non-operation rule.

Following ANCAT 22 and a meeting of national technical experts of the Member States on aeroplane noise, the Commission prepared a proposal which took into account the work undertaken by ECAC in its essential aspects. The minor differences reflected the Commission's experience in the application of the two previous Directives, 80/51/EEC and 83/206/EEC. In October 1986, at the 26th Session of the ICAO Assembly contracting states, including all Member States of the Community, adopted a resolution, (A26-11), which requested that no legislation restricting the operation of Chapter 2 aeroplanes should be enacted before the next full meeting of the ICAO Assembly to be held in October 1989. Consequently both ECAC and the Commission redrafted their proposals to limit the application to a non-addition rule.

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(1) ANCAT working paper ANCAT/24, WP/2.

In May 1988, at a meeting of the Directors General of Civil Aviation of the ECAC member states, the field of application of the ECAC proposal was changed. Unfortunately this change split an agreed and recognized international standard, introducing exemptions based upon an aeroplane's engine type. The amended proposal was adopted at the ECAC triennial meeting in June 1988. Whilst understanding the reasoning behind the ECAC change, the Commission believes that it sets an unfortunate example. Consequently it has chosen to exempt only those aeroplanes which are likely to be bought by small, regional airlines in the process of starting operations - those aeroplanes of 34,000 k.g. and below. The argument that some Boeing 747s almost meet Chapter 3 and therefore should also be exempted would establish a dangerous precedent which the Commission feels is unjustified.

**Article 1.** establishes the objective of the proposal and exempts aeroplanes of 34,000 k.g. or less.

**Article 2.** is the essence of the non-addition rule, i.e. after 1. November 1990, aeroplanes may not be brought into the Community for addition to Member States' registers unless they meet the standards of Chapter 3 of Annex 16. This article includes aeroplanes leased - but not necessarily added to the national register.

**Article 3.** lays down exemptions that may be granted, without time limit, by Member States.

**Article 4.** is the standard exemption article, similar to Article 4 of 80/51/EEC, although provisions have been added to address the problem of leased aeroplanes. The exemptions are limited in time.

**Article 5.** covers the way in which exemptions may be granted and ensures the recognition of these exemptions.

#### **Consultation**

The Commission has held numerous meetings with aeroplane manufacturers, airline and airport operators and other interested parties. In addition, meetings of national technical experts were held in October 1986 and April 1988.

#### **Conclusions**

The annexed proposal for a draft Directive is a dual purpose instrument concerned on the one hand with the *Environment*, in particular the improvement of the acoustic environment of people living in the vicinity of airports and under enroute traffic and on the other hand, with *Industry and Transport*, in that it aims to ensure that a harmonized, Community approach is taken to the problem of Chapter 2 aeroplanes.

As a balance to the ICAO decision to delay any implementation of further aeroplane noise legislation, it should be noted that the meeting of OECD Environmental Ministers, which took place in Paris in June 1985<sup>(1)</sup> called for further action on aeroplane noise. This proposal for a Directive, which builds on existing Community instruments in the field, can also be seen as a response to that request.

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(1) On 20. June 1985, the OECD Council adopted a Recommendation on strengthening Noise Abatement Policies, (C. (85) 103).



Finally and most importantly, work undertaken by the Commission in co-operation with other international bodies indicated that limiting the addition into the Community of aeroplanes which were unable to meet the noise certification standards specified in Chapter 3 of Annex 16, would in itself be of limited environmental benefit, and should therefore be considered only as a first stage, to be followed by measures to limit the operation of aeroplanes which only comply with the standards of Chapter 2 of Annex 16.

Draft Proposal for a  
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THE COUNCIL OF THE EUROPEAN COMMUNITIES;

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

Having regard to the proposal of the Commission,

Having regard to the opinion of the European Parliament (1),

Having regard to the opinion of the Economic and Social Committee (2),

Whereas the application of noise emission standards to civil subsonic jet aeroplanes has significant consequences for the provision of air transport services in particular where such standards impose restrictions on the type of aeroplanes that may be operated by airlines, encourage investment in the latest and quietest aeroplanes available and facilitate the better use of existing capacity, including that of airports; and whereas Council Directive 80/51/EEC (3), as amended by Directive 83/206/EEC (4) fixes limits on emission of such noise;

Whereas the priority programme of the Council for the study of air transport questions refers to emissions from aeroplanes including noise;

Whereas the programme of action of the European Communities on the environment (5) shows clearly the importance of the problem of noise and, in particular, the need to take action against noise due to air traffic;

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(1)

(2)

(3) OJ N° L 18, 24.1.1980, P. 26

(4) OJ N° L 117, 4.5.1983, p. 15

(5) OJ N° C 328, 7.12.1987, p. 1

Whereas aeroplane noise should be further reduced, taking into account environmental factors, technical feasibility and economic consequences;

Whereas therefore, it is appropriate to restrict the addition of civil subsonic jet aeroplanes to Member States' registers to those which comply with the standards specified in Part II, Chapter 3, Volume 1 of Annex 16 to the Convention on International Civil Aviation, 1st edition, (November 1981), and, in conjunction with the creation of an area without internal frontiers, it would be reasonable to exclude from this non-addition rule aeroplanes on national registers of Member States on 1 November 1990; whereas, due to the freedom of movement such a rule would allow, it is essential that exemptions are limited and that those granted, closely monitored and restricted in time;

Whereas common rules for this purpose should be introduced in a reasonable timescale to ensure that a harmonized approach prevails throughout the Community, supplementing existing rules; whereas this is particularly important in view of the recent impetus given to limited de-regulation of European air traffic;

Whereas the work undertaken by the Community in co-operation with other international bodies indicated that limiting the addition to Member States' registers of aeroplanes which are unable to meet the noise certification standards specified in Chapter 3 of Annex 16, would in itself be of limited environmental benefit, and should therefore be considered only as a first stage, to be followed by measures to limit the operation of aeroplanes which do not comply with the standards of Chapter 3 of Annex 16;

HAS ADOPTED THIS DIRECTIVE

### **ARTICLE 1**

1. The objective of this Directive is to lay down stricter rules for the limitation of noise emission from civil subsonic jet aeroplanes.
2. This Directive does not apply to aeroplanes with a maximum take-off mass of 34,000 kg or less.

### **ARTICLE 2**

1. Member States shall ensure that as from 1st November 1990, civil subsonic jet aeroplanes registered or leased for use after that date in their territory, or in the territory of another Member State may not be operated in their territory unless granted a noise certificate to the standards at least equal to those specified in Part II, Chapter 3 Volume 1 of Annex 16 to the Convention on International Civil Aviation, 1st edition (November 1981).
2. Paragraph 2.1. does not apply to aeroplanes on the national registers of Member States on 1 November 1990

### **ARTICLE 3**

Member States may grant exemptions from the provisions of Article 2 for:

- (a) aeroplanes of historic interest;
- (b) aeroplanes which replace an equivalent number of aeroplanes which have been accidently destroyed.

### **ARTICLE 4**

1. Member States may grant exemptions from the provisions of Article 2, on an annual basis and for no more than 5 years in total, for:
  - (a) aeroplanes which were used by the operator, being an operator of a Member State, before 1st January 1989, under hire purchase or leasing contracts still in effect, and which for that reason have been registered in a non-Member State;

- (b) aeroplanes leased to an operator of a non-Member State which for that reason have been temporarily removed from a Member States register;
- (c) aeroplanes which are leased from a non-Member State on a short-term basis provided that the operator demonstrates that this is the normal practice in its sector of the industry and that the pursuit of his operations would otherwise be adversely affected.

**ARTICLE 5**

1. A Member State granting exemptions shall inform the competent authorities of the Member States and the Commission of the fact and of the criteria for their decision.
2. Member States shall recognize the exemptions granted by other Member States in respect of aeroplanes on the registers of those Member States.

**ARTICLE 6**

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 30 September 1989.
2. Member States shall communicate to the Commission the text of the provisions which they adopt in the field covered by this Directive.

**ARTICLE 7**

This Directive is addressed to the Member States.

## FICHE D'IMPACT SUR LA COMPETITIVITE ET L'EMPLOI

I. **Quelle est la justification principale de la mesure ?**

Protection of the environment by an extension of Community legislation in this field.

II. **Caractéristiques des entreprises concernées. En particulier :**

a) **Y a-t-il un grand nombre de PME ?** No

b) **Note-t-on des concentrations dans des régions**

i. **éligibles aux aides régionales des Etats membres ?** No

ii. **éligibles au Feder ?** No

III. **Quelles sont les obligations imposées directement aux entreprises ?**

Airlines may not import elderly, noisy aeroplanes into the Community although imports from other M. S. are permitted but Airlines will benefit from lower Direct Operating Costs of modern aeroplanes.

IV. **Quelles sont les obligations susceptibles d'être imposées indirectement aux entreprises via les autorités locales ?**

Nil

V. **Y a-t-il des mesures spéciales pour les PME ?  
Lesquelles ?**

Nil

VI. **Quel est l'effet prévisible  
a) sur la compétitivité des entreprises ?**

No - the Directive applies equally to all airlines

**b) sur l'emploi ?**

The creation of orders for new civil subsonic jet aeroplanes -  
- with subcontracts spread throughout the entire European  
Aerospace Industries.

VII. **Les partenaires sociaux ont-ils été consultés ?** No  
**Quels sont leurs avis ?**

N/A.