COLLOQUIUM ON ENVIRONMENTAL ASPECTS OF AVIATION

(Montreal, 9 - 11 April 2001)

BACKGROUND INFORMATION PAPER

AIRCRAFT NOISE — ICAO'S EXISTING POLICIES

(Presented by the Secretariat)

SUMMARY

In addressing aircraft noise, ICAO has developed policies on reducing noise at source, on operating restrictions, on noise abatement procedures, on land-use planning and on noise charges. This background information paper briefly summarizes these policies and explains where more detailed information can be found.

1. REDUCTION OF NOISE AT SOURCE

1.1 Much of ICAO's effort to address aircraft noise over the past 30 years has been aimed at reducing noise at source. Aeroplanes and helicopters built today are required to meet the noise certification Standards adopted by the Council of ICAO. These are contained in Annex 16 — *Environmental Protection*, Volume I — *Aircraft Noise* to the Convention on International Civil Aviation, while practical guidance to certificating authorities on implementation of the technical procedures of Annex 16 is contained in the *Environmental Technical Manual on the use of Procedures in the Noise Certification of Aircraft* (Doc 9501).

1.2 The first generation of jet-powered aeroplanes was not covered by Annex 16 and these are consequently referred to as non-noise certificated (NNC) aeroplanes (e.g. Boeing 707 and Douglas DC-8). The initial standards for jet-powered aircraft designed before 1977 were included in Chapter 2 of Annex 16. The Boeing 727 and the Douglas DC-9 are examples of aircraft covered by Chapter 2 . Subsequently, newer aircraft were required to meet the stricter standards contained in Chapter 3 of the Annex. The Boeing 737-300/400, Boeing 767 and Airbus A 319 are examples of "Chapter 3" aircraft types. Recently, CAEP/5 recommended a new noise standard, more stringent than that contained in Chapter 3 (details to be presented during Session 3 of the Colloquium).

2. OPERATING RESTRICTIONS

2.1 Noise concerns have led some States, mostly developed countries, to consider banning the operation of certain noisy aircraft at their airports. In the 1980s, the focus was on NNC aircraft; in the 1990s, it moved to Chapter 2 aircraft; today, it has moved to certain Chapter 3 aircraft. However, operating restrictions of this kind can have significant economic implications for the airlines concerned, both those based in the States taking action and those based in other States (particularly developing countries) that operate to and from the affected airports. Unless they are able to transfer the aircraft concerned to other routes, they have either to replace them with newer aircraft or to retrofit them with quieter engines or hush-kits. In the case of both NNC aircraft and Chapter 2 aircraft, the ICAO Assembly played a leading role in developing a worldwide approach for phasing out operations by these aircraft at noise-sensitive airports that was acceptable to all States.

2.2 In the case of Chapter 2 aircraft, the ICAO Assembly in 1990 adopted a resolution[1] on a worldwide policy framework on operating restrictions that represented a careful balance between the interests of developing and developed States and took into account the concerns of the airline industry, airports and environmental interests. The resolution urges States not to restrict aircraft operations without considering other possibilities first. It then provides a basis on which States wishing to restrict operations of Chapter 2 aircraft may do so. States may start phasing out operations of Chapter 2 aircraft from 1 April 1995 and have all of them withdrawn from service by 31 March 2002. However, prior to the latter date, Chapter 2 aircraft are guaranteed 25 years of service after the issue of their first certificate of airworthiness. Thus Chapter 2 aircraft which had completed less than 25 years of service on 1 April 1995 were not immediately affected by this requirement. Similarly, wide-body Chapter 2 aircraft and those fitted with quieter (high by-pass ratio) engines were not immediately affected after 1 April 1995. The resolution also includes a provision urging States, if and when any new standards are introduced which are more stringent than those in Chapter 3, not to impose any operating restrictions on Chapter 3 compliant aircraft.

2.3 More recently, European States have focussed on preventing an increase in operations at European airports of aircraft which have been recertificated to Chapter 3 standards through re-engining or hush-kitting. In April 1999, the EU Council adopted a regulation[2] on this subject which became applicable on 4 May 2000. This regulation recently became the subject of a complaint filed by the United States with ICAO under the Chicago Convention's provisions for settling disputes (Article 84) and the relevant procedures for dealing with such issues are now under way.

2.4 In June 1999, in the light of these developments, the ICAO Council established a mandate for CAEP to explore possible technical options for the implementation of operating restrictions on Chapter 3 aircraft. The results of that work will be presented to the Colloquium under Session 3. [Note regarding terminology: In CAEP's latest discussions, "operating restrictions" are considered in a much broader sense than currently used in Resolution A32-8, Appendix D in that they encompass any measure which could limit or control the access of an aircraft to an airport].

3. NOISE ABATEMENT PROCEDURES

3.1 Noise abatement procedures enable reduction of noise during aircraft operations to be achieved at comparatively low cost. There are several methods, including preferential runways and routes, as well as noise abatement procedures for take-off, approach and landing. The appropriateness of any of these measures depends on the physical lay-out of the airport and its surroundings, but in all cases the procedure must give priority to safety considerations. ICAO's noise abatement procedures are contained in Annex 16, Volume I, Part V and *Procedures for Air Navigation Services — Aircraft Operations* (PANS-OPS, Doc 8168), Volume I — *Flight Procedures*, Part V. Proposals for new take-off abatement procedures will be presented under Session 3.

4. LAND-USE PLANNING

4.1 Land-use planning is an effective means to ensure that the activities nearby airports are compatible with aviation. Its main goal is to minimize the population affected by aircraft noise by introducing land-use zoning around airports. Compatible land-use planning and control is also a vital instrument in ensuring

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[1]Adopted as Assembly Resolution A28-3. Subsequently incorporated into Assembly Resolution A32-8: *Consolidated statement of continuing ICAO policies and practices related to environmental protection*, as its Appendix D. At the Assembly Session in 1998, the 37 States members of ECAC made a statement expressing reservations regarding Appendix D.

[2]Council Regulation (EC) No 925/1999 of 29 April 1999 on the registration and operation within the Community of certain types of civil subsonic jet aeroplanes which have been modified and recertificated as meeting the standards of Volume I, Part II, Chapter 3 of Annex 16 to the *Convention on International Civil Aviation*, third edition (July 1993).

that the gains achieved by the reduced noise of the latest generation of aircraft are not offset by further residential development around airports. ICAO guidance on land-use planning is contained in Annex 16 , Volume I , Part IV and in the *Airport Planning Manual*, Part 2 — *Land Use and Environmental Control* (Doc 9184). A revised edition of this manual is currently being produced. The manual provides guidance on the use of various tools for the minimization, control or prevention of the impact of aircraft noise in the vicinity of airports and describes the practices adopted for land-use planning and control in several States. In addition, with a view to promoting a uniform method of assessing noise around airports, ICAO recommends the use of the methodology contained in *Recommended Method for Computing Noise Contours around Airports* (Circular 205).

5. NOISE CHARGES

5.1 ICAO's policy with regard to noise charges was first developed in 1981 and is contained in *ICAO's Policies on Charges for Airports and Air Navigation Services* (Doc 9082/6). The Council recognizes that, although reductions are being achieved in aircraft noise at source, many airports need to apply noise alleviation or prevention measures. The Council considers that the costs incurred may, at the discretion of States, be attributed to airports and recovered from the users. In the event that noise-related charges are levied, the Council recommends that they should be levied only at airports experiencing noise problems and should be designed to recover no more than the costs applied to their alleviation or prevention; and that they should be non-discriminatory between users and not be established at such levels as to be prohibitively high for the operation of certain aircraft.

5.2 Practical advice on determining the cost basis for noise-related charges and their collection is provided in the ICAO *Airport Economics Manual* (Doc 9562), and information on noise-related charges actually levied is provided in the ICAO *Manual of Airport and Air Navigation Facility Tariffs* (Doc 7100).

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