

STATEMENT OF FREDERICK A. MEISTER, ACTING ASSOCIATE ADMINISTRATOR FOR POLICY DEVELOPMENT AND REVIEW, FEDERAL AVIATION ADMINISTRATION, DEPARTMENT OF TRANSPORTATION, BEFORE THE HOUSE COMMITTEE ON SCIENCE AND ASTRONAUTICS, SUBCOMMITTEE ON AERONAUTICS AND SPACE TECHNOLOGY, JULY 25, 1974, REGARDING AIRCRAFT NOISE ABATEMENT EFFORTS.

Thank you for the opportunity to appear before you today, Mr. Chairman. I am Frederick A. Meister, FAA Acting Associate Administrator for Policy Development and Review. Appearing with me today are Charles R. Foster, Director of the Department of Transportation Office of Noise Abatement, and Richard P. Skully, Director of the FAA Office of Environmental Quality.

In passing the Noise Control Act of 1972 the Congress declared it to be the policy of the United States "to promote an environment for all Americans free from noise that jeopardizes their health or welfare." The Congress further authorized and directed Federal agencies to carry out the programs within their control in such a manner as to further that declared policy of the United States "to the fullest extent consistent with their authority under Federal laws administered by them." Section 7(b) of the Noise Control Act directs the Administrator of the Federal Aviation Administration to prescribe such regulations as the FAA may find necessary to provide for the control and abatement of aircraft noise "in order to afford present and future relief and protection to the public health and welfare." (emphasis added).

By statute it is the FAA which has the responsibility, after consultation with the Secretary of Transportation and EPA, to prescribe standards for measuring aircraft noise and for prescribing regulations for the control and abatement of aircraft noise.

Mr. Chairman, the FAA is taking this Congressional mandate seriously and is in the process of implementing an aggressive program to control and abate aircraft noise. As evidence of our resolve to help achieve a better environment for all Americans, steps have been taken to double the size of the FAA Office of Environmental Quality. In addition, the Administrator has recently released a draft FAA Five Year Environmental Program which defines FAA environmental policy and delineates a five-year program designated to implement that policy.

Three parts of our overall noise abatement program relate to the design and operation of aircraft.

First is the imposition of maximum noise limits for all types of aircraft to insure that individual aircraft noise levels will not increase as newer, more powerful aircraft types are designed, and to insure that the best available noise reduction technology is included in the design of all new aircraft. In 1969 the FAA promulgated Federal Aviation Regulation Part 36 which put a lid on the escalation of aircraft noise levels of new subsonic turbojet transport aircraft. In 1973, Part 36 was amended to include newly produced aircraft, including those of older designs not previously covered. As you know, we have proposed a retrofit regulation to cover all large civil transport aircraft, requiring that older models not previously covered be modified to lower their noise levels to at least Part 36 limits. That proposal will be the subject of detailed discussion in a moment. We will soon promulgate a regulation limiting the noise levels of propeller-driven airplanes. The final Environmental Impact Statement for this regulatory action is in the process of being forwarded to the Council on Environmental Quality. We have solicited public reaction to our proposal to establish noise limits for short haul aircraft, and we are preparing a proposal for noise limits for civil supersonic aircraft. In this step-by-step manner, we are setting maximum noise limits for all categories of civil aircraft.

The second step in our program involves the use of approach and departure operational procedures which will reduce noise impact around our airports. The FAA views the control of aircraft noise through the use of operational procedures to be a promising and practical means for obtaining early noise relief. We have for many years been experimenting with takeoff and approach procedures, passive and dynamic preferential runway procedures, noise abatement routing, and terminal area handling of aircraft to achieve noise control.

Noise abatement takeoff operating procedures designed to provide maximum separation between aircraft and the communities overflown were developed jointly by FAA and ATA and are now in wide use.

Noise abatement approach operating procedures developed jointly by FAA and NASA include a two-segment glide slope which provides noise reduction by use of lower power settings and higher altitudes during the initial phase of an approach. A few airlines have been using two-segment approaches safely and efficiently for over one year during VFR weather conditions. The joint NASA/FAA research

on two-segment approaches has reached the point where in-service operational implementation is progressing under instrument flight rule (IFR) conditions as well. In fact, a major airline has conducted in-service operations for NASA with a B-727 aircraft under VFR and IFR weather conditions. NASA is currently working with United Air Lines on two-segment approaches utilizing Douglas DC-8 aircraft. The FAA has recently issued an Advance Notice of Proposed Rule Making seeking advice and comments on this two segment approach procedure. I will give you a rundown of the comments received to date later on.

Another means of maximizing aircraft to ground separation distances to provide community noise relief is to change allowable minimum altitudes. The utilization of higher minimum altitudes as a means of achieving noise reduction has been implemented and is providing significant noise relief. An Advisory Circular was published in August 1972 to deal directly with VFR flight near noise sensitive areas. This has resulted in pilots making VFR flights near recreational and park areas, churches, hospitals, schools, and similar areas at higher altitudes than previously flown and permitted by regulation in order to reduce aircraft noise impact on the ground.

The third step in our program, oriented more for the future, is the progressive reduction of present permissible noise levels. We are not content with present noise levels -- we are striving constantly to improve the state of the art to lower these noise levels. Part 36 limits have now been in effect four and one-half years, and we are giving serious consideration to proposing a lowering of those limits to increase their stringency. We will of course continue to support effective research to develop and demonstrate just what future reductions may be feasible. And so, in brief, this covers that portion of our aircraft noise abatement program relating to the design and operation of aircraft.

I would like to turn now to a discussion of the retrofitting of the current commercial jet fleet to meet FAR 36 standards.

The technical development of means for quieting the present fleet has been underway for more than six years. This joint industry-government effort has resulted in the expenditure of well in excess of \$100 million. The major steps taken in this program were as follows: first, an early NASA program provided proof of the technical concept of using sound-absorbing materials in nacelles, which I shall refer to as SAM, to control aircraft noise; second, an FAA nacelle jet suppression and flight test program was conducted; third, feasibility studies and flight demonstrations were made, followed by actual certification of the Boeing 727 and 737 and the Douglas DC-9; and, finally, a decision was made that

we were ready to initiate formal regulatory action as required by law. On March 27, 1974, a Notice of Proposed Rule Making was published which, if adopted, will provide the means of assuring that all currently available acoustic technology is applied to in-service commercial aircraft. The rule would require that subsonic turbojet aircraft, having maximum weights of 75,000 pounds or more, to conform to Part 36 noise levels by not later than July 1, 1978. Behind this proposed rule is our conviction that utilizing the technology of sound absorbing material in engine nacelles is available now for providing additional, significant relief from aircraft noise.

Before we embarked upon this rulemaking procedure, Mr. Chairman, we had to assure ourselves that the SAM nacelle treatment would provide meaningful relief, that is, we were looking for a reduction in noise levels which would be sufficient to significantly reduce annoyance levels for persons living near airports. I would like to point to three important items of evidence which in my view go a long way toward dispelling any doubts that the SAM retrofit program would provide that meaningful relief.

First, it is a fact that today's airport neighbors notice and appreciate the reduced noise levels of the new wide bodied aircraft. These aircraft meet the same Part 36 noise levels as the older aircraft would meet with SAM retrofit.

Second, a joint FAA-Boeing Company project, which culminated in May 1973 flyover demonstrations for members of Congress and the public at Dulles International Airport, demonstrated that takeoff noise reductions of 11 EPNdB and approach noise reductions of 15 EPNdB were achievable using nacelles quieted with sound absorbing material on a JT3D powered Boeing 707 aircraft. There was general agreement among those witnessing the flyovers of a B-707 treated with sound absorbing material in a configuration capable of being certificated and a B-707 without such material, that the noise reduction was highly significant and clearly perceivable.

Third, a NASA-sponsored approach noise study conducted by Professor Paul N. Borsky of the Columbia University Noise Research Unit has concluded that significant reductions in annoyance resulted from the use of exposure to synthesized nacelle treatments equivalent to a JT8D-powered Boeing B-727 with the SAM treatment as compared to a standard B-727 aircraft. Professor Borsky, of Columbia's School of Public Health, College of Physicians and Surgeons, is one of the world's leading experts in assessing community response to aircraft noise. He used test subjects living in the vicinity of Kennedy International Airport. Significantly,

there was a 50% reduction in the number of test subjects who had expressed highest annoyance to the standard Boeing 727 aircraft as compared to the acoustically treated B-727. This 50% reduction was achieved with a difference of 6 EPNdB between the two aircraft. We would anticipate a very meaningful response from the 11 EPNdB takeoff and 15 EPNdB approach reductions for the Boeing 707 mentioned a few moments ago relative to the Dulles flyover demonstrations.

I would also like to point out that in addition to the SAM retrofit it is possible to tailor approach and departure procedures to achieve even greater relief than can be achieved by SAM. The two-segment approach procedure and a power reduction on takeoff are examples of procedures we are investigating.

Next I would like to give you a rundown of the comments received on the fleet retrofit NPRM and the two-segment approach Advance NPRM. Nearly 600 comments were received on the retrofit NPRM, of which some 500 were from private citizens or citizen groups. The overwhelming majority of citizens and citizen groups were for immediate promulgation of the final rule. With regard to the industry, the Air Transport Association and commenting air carriers expressed total opposition to the proposed rule as written. Particular concern was expressed over the possibility of performance penalties and the amount of benefit considering the price tag. Regarding the manufacturers, the Aerospace Industries Association of America and The Boeing Company, while not opposing the rule as such, expressed little enthusiasm and support for an immediate go ahead, while the Douglas Aircraft Company was firm in its opposition to the rule. The international carrier community, represented by IATA, and several foreign governments expressed opposition for several reasons. A further discussion of the international reaction will be given a little later.

U. S. Airport Operators, whose jurisdictions are facing a total of some \$4 billion in aircraft noise damage claims, strongly endorsed and urged immediate adoption of the rule. From this group we heard from some 25 city, county and state airport or transportation authorities plus the airport operator associations.

Private aircraft owners and operators did not, in general, support the rule, expressed doubt that SAM would produce appreciable relief and expressed concern over the program's expense.

We also heard from the Department of State, which expressed concern over unilateral U. S. action, and the Environmental Protection Agency, which concluded that the proposed regulation represents a substantial step in the right direction.

By the way, with regard to comments received on the two-segment approach Advance NPRM, the line-up was roughly the same. Private citizens, citizen groups, city governments and airport operators favored adoption of the two-segment approach. Those opposed included ALPA, AOPA, NBAA and the International interests. Those expressing strong reservations were ATA, Boeing and GAMA.

There are two basic problem areas associated with putting the retrofit rule into effect, namely, the international implications of the rule and the problem of how the retrofit program should be financed. I would now like to discuss two problem areas.

The retrofit NPRM applies not only to U. S. registered aircraft, but also to foreign civil subsonic turbojet powered aircraft of 75,000 pounds or more that land or takeoff in the United States. The inclusion of foreign civil aircraft was considered essential because the airports having the most serious noise problems are generally those served most frequently by foreign operators. The bulk of the comments received from the international community took strong exception to the proposed rule on the basis that it amounted to unilateral action in an area which ICAO should coordinate. The Department of State expressed concern over possible proliferation of conflicting standards affecting international civil aviation if the United States took unilateral action without either reaching agreement through ICAO, or at least by coordinating plans with other major civil aviation countries.

The international problems associated with the rule are difficult, but their impact has not been ignored. In fact, last month Administrator Butterfield met in Montreal with ICAO President Binaghi, the Secretary General of ICAO, a number of the members of the Secretariat, Council members and Air Navigation Commissioners. The Administrator made it clear to Dr. Binaghi that it was not the desire of FAA to act unilaterally and that we continued to support a multilateral approach. He did not, however, commit the United States to multilateral agreement with respect to the retrofit requirement because we are still considering foreign aircraft operating into the United States for inclusion in our aircraft noise reduction actions. We are hopeful that our actions in this area will stimulate multilateral action similar to the multilateral action which followed the issuance of Part 36.

The question of financing the retrofit program is central to a decision to put the proposed rule into effect. We know the program will be expensive, some \$600 to \$700 million to retrofit the existing fleet. I believe this issue, more than any other, accounts for the industry's lack of support.

In issuing the NPRM we solicited recommendations for financing the cost of the retrofit program. A number of suggestions were made, including use of the Airport and Airways Trust Fund, long term, low interest government loans to private operators, surcharges on passenger tickets and cargo way bills and increased air fares to allow the carriers to recover costs.

We have reviewed the various financing alternatives, and, while we have reached no conclusions on the shape of a final plan, some tentative decisions have been made. First we are opposed to direct Federal funding; we believe, instead, that the users of our air transportation system, the passengers and shippers, should, as a matter of principle, pay for the costs of retrofit. At present we believe that the best means to achieve this goal would be the establishment of a special fund, supported by nominal enplanement and cargo way bill surcharges proportionate to the aircraft modification costs for each segment of the air carrier industry. Such a plan would cover only domestic operations; the international operations of U. S. carriers would have to be handled separately.

Mr. Chairman, NASA has played a vital role with us in the abatement of aircraft noise. Through the Joint DOT/NASA Office of Noise Abatement we have an effective vehicle for assuring an integrated research and technology program. We have both supported and worked with EPA in its role in coordinating noise research as specified in the Noise Control Act. The three agencies have worked closely together at the staff and Administrator levels to marshal the federal aircraft noise abatement effort. For example, this Monday I represented Administrator Butterfield, who was appearing before the Senate Appropriations Subcommittee, in a meeting with Undersecretary Barnum, Administrator Fletcher and Assistant Administrator Strelow representing Administrator Train, to review our efforts, particularly with respect to the refan program and FAA's regulatory actions. The DOT/FAA position expressed at that meeting was that there is more than an adequate technical and economic basis for

a decision at this time to proceed with regulatory action. Assuming that all objectives of the refan program would be achieved, the cost-effectiveness picture, in our view, will be unchanged.

In considering the relative merits of SAM versus refan in our rule-making efforts, we have considered the following factors as being of primary significance.

First, the SAM modification offers the earliest meaningful relief. With reference to time, we believe that completion of a refan retrofit program would be at least three years behind completion of the SAM retrofit program.

Second, the refan program does not apply to the noisiest aircraft in the fleet, the JT3D-powered Boeing 707 and Douglas DC-8.

Third, refan represents at best a promise of future relief since the present program is limited to flight testing of the Douglas DC-9 and ground testing of the Boeing 727. No work is presently being done with the JT8D-powered Boeing 737. Work on the B-737 terminated with the Phase I design effort. Additional work and funding would be required for the refanned B-737 to be a candidate for any future rulemaking.

Fourth, the refan program is considerably more costly than the SAM retrofit program. For example, the SAM retrofit of the entire fleet is estimated to cost approximately \$600 to \$700 million for investment with total program cost over the remaining life of the modified aircraft approaching \$1 billion. In comparison, the combination program of using refan for JT8D-powered aircraft and the use of SAM for JT3D-powered aircraft would cost approximately \$2.8 billion for investment with total program cost of \$5 billion. In terms of one aircraft, the Boeing 727, the cost of refanning would be roughly eight to ten times the cost of using the SAM retrofit. The B-727 with the SAM modification provides the same noise reduction on approach as the refanned B-727.

The relative cost-effectiveness of the two aircraft modification programs has, as you know, been a part of our 23 U. S. airport analysis. This effort, begun some time ago, provides the DOT/FAA with information needed to evaluate a wide range of aircraft and airport noise abatement alternatives. We have completed this 23-airport study, and the cost-effective results have not changed substantially from those reported to you last December on the basis of the first six airports.

These results are presented in terms of (1) airport neighbors subjected to two levels of noise exposure, (2) land areas around the 23 airports impacted by airport noise, and (3) effective changes in the noise exposure index. All of these indicators provide the same conclusions: first, the SAM program is significantly more cost-effective than the potential SAM/Refan program; and, second, effectiveness will be obtained earlier with the SAM program.

For example, with respect to the people removed from the noise exposure areas of NEF 30 and NEF 40, and looking forward to 1987, the end period of the study, we find that for an expenditure of \$1 billion for SAM, we remove 125,000 of the 300,000 people that would be residing in the NEF 40 area. For an expenditure of \$5 billion for refanning the JT8D and SAMming the JT3D, 220,000 people would be removed. An additional expenditure of \$4 billion dollars for the refan/SAM program would remove 95,000 people from the NEF 40 area. In the NEF 30 contour, the \$1 billion SAM program will remove 600,000 of the 2,700,000 people, whereas the \$5 billion refan/SAM program will remove 1,900,000 people.

In brief, the results of this study are consistent with our earlier conclusion that the action proposed in our Notice of Proposed Rule Making on March 27, 1974, will provide the earliest meaningful relief to airport neighbors through a program which is technologically available and economically reasonable. I am submitting a detailed Information Brief describing the results of this study for the record, Mr. Chairman. And, Mr. Foster is prepared to provide a brief summary of this study if you desire.

With regard to the goal of 10 EPNdB reduction per decade identified in the CARD study, we feel that for this first decade we will be able to achieve the goal, generally speaking. Looking ahead to the next and succeeding decades, however, we are reaching the point of diminishing returns with foreseeable technology. We will continue to assess developing noise reduction technology with the idea of keeping our regulatory program apace.

In concluding, I would like to make the following remarks.

Noise is a major problem impeding further growth of the air transportation industry. Aircraft noise has brought increased pressure to limit flight operations and restrict flight paths as well as to impose night curfews. Airport operators are faced with aircraft noise related suits involving potential multimillion dollar judgments.

Congress recognized this serious impediment to air transportation industry growth and the serious implications regarding the health and welfare of the Nation's population when it passed the Noise Control Act of 1972.

We have developed a retrofit program which offers great promise of the earliest relief which Congress mandated be afforded. There has been some concern expressed by Congressional Committees about our moving ahead with the retrofit rule prior to obtaining the final results of the refan test to be completed next year. We of course fully appreciate these views, and before publishing a final rule we will present to those committees our reasons for moving forward. We feel confident that we will have their support for any action that we take to advance our noise abatement program in a cost-effective way. Our present posture is to continue with the regulatory process to work toward a resolution of the difficult problems associated with the proposed rule, such as the financing and international aspects. Only when we are satisfied that we have solved these problems will we be in a position to make a final decision on the rule.

Thank you for your attention to this rather lengthy testimony, Mr. Chairman. I and my associates are available to answer any questions you may have.