

ACOUSTICS AND NOISE CONTROL IN CANADA

THE CANADIAN ACOUSTICAL ASSOCIATION

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L'ASSOCIATION CANADIENNE DE L'ACOUSTIQUE

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CONTRIBUTIONS

Articles in English or French are welcome. They should be addressed to a regional correspondent or to a member of the editorial board.

SUBSCRIPTIONS

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CONTRIBUTION

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ONTARIO'S VEHICLE NOISE PROGRAMME

D.N. May
Noise Pollution Control Section, Ministry of the Environment,
880 Bay Street, Toronto, Ontario M5S 1Z8

The Noise Pollution Control Section of Environment Ontario is moving with considerable urgency in the field of vehicle noise abatement. Social survey data has revealed traffic noise as the chief source of noise complaint - since aircraft noise is confined to particular areas.

The Ontario position on vehicle noise has necessarily to start with the federal law which limits the noise output of new vehicles measured according to an SAE drive-by procedure which brings out the maximum noise the vehicle can make. Although we may hope that the various federal limits will be lowered in future years, the law is basically effective as far as it goes - and is necessarily a kind of datum point from which provincial vehicle noise programmes can work. Eric Welbourne described the federal programmes in the April 1974 issue.

The Ontario programme aims to control two noise parameters which the federal law does not cover.

The first parameter is the driver's consideration for others. Noise limits are being researched which will establish the maximum levels which a considerate driver may make - giving limits rather lower than the federal limits since they will apply to reasonable driving habits in various speed zones and not to the maximum noise potential of the vehicle itself. Drivers who accelerate violently, screech tires and squeal their brakes may find themselves in violation of the limits.

The second parameter is the vehicle's maintenance, which will cover, for example, leaking muffler systems and also include matters like the replacement of original equipment with inherently noisy sporty features.

These philosophies are not by themselves very new, but the progress in implementing them does appear to give some encouragement for the hope that traffic noise, one of the more satanic evils of our civilization, may be reduced in Ontario, if not this year, then perhaps this century.

The first point of the programme is the promulgation of Regulations under the Ontario Environmental Protection Act 1971. These are in the final stages of preparation as this report is being written. Several thousands of measurements we have carried out have revealed the statistical distributions of noise for (a) a range of vehicles categories, and (b) a number of combinations of speed zones, grades and distances from signs and stop lights, all measured in real-life conditions at test sites which meet certain acoustic and other criteria. These will allow us to set limits which place a realistic proportion of the more noisy vehicles in violation of the Regulations.

The enforcement just described will take place at a number of sites on city (and rural) streets, but is expected to be supplemented by an off-road test site to which vehicles may be directed if they are believed to be in violation of the Regulations but were not perhaps caught in an on-road test site. A third part of the Regulations may simply prohibit various noisy equipment and driving habits, without specifying noise limits. Among these may be banging-and-clanking trucks and their loads, mufflers with cut-outs, squealing tires and so on. This section of the Regulations will resemble various older laws and by-laws. In contrast to most of those laws and by-laws, however, we expect to enforce ours.

The field operations involved in launching the enforcement activity have begun in Hamilton and Toronto where noise indicators are being used in public awareness campaigns. Drivers have been invited to drive their vehicles in the curb lane past a noise indicator which presents (and holds for a second or two) the sound level recorded on a microphone the vehicle has just passed. The vehicle's sound level may be compared with the proposed limits for the vehicle category in that location, which are indicated on a sign.

The enforcement activities themselves have been introduced in the same cities on a "friendly co-operation" basis. Uniformed noise inspectors in the presence of a police officer stop vehicles exceeding the proposed limits, and give out a "courtesy violation", with an emphasis on voluntary action. At the same time, information is collected on the offending vehicle and its condition for our own data bank.

The measurements are taken in accordance with a procedures manual established to ensure that the public is never prosecuted on the basis of an inadequate set of readings. The manual describes the geometry of the site, the background noise limits and the measurement and communications routine to detect and stop a vehicle.

Time will establish the success we achieve, but a serious and substantial effort is underway.

REPORT ABSTRACT: NOISE PROPAGATION NEAR VANCOUVER INTERNATIONAL AIRPORT

Piercy J.E., and Embleton, T.F.W., Effect of Weather and Topography on the Propagation of Noise - Vancouver Airport, Report APS 526, Acoustics Section, Physics Division, National Research Council of Canada, Ottawa, Ontario K1A 0S1, June 1974

The effects of weather and topography particularly, as well as one or two other factors, most notably the directionality of the jet, are examined with particular reference to current problems at Vancouver International Airport (YVR). The presentation is designed to be accessible to non-specialist and specialist alike. It features a detailed analysis of the factors influencing noise levels from operations on the ground (aircraft accelerating down the runway for takeoff, decelerating after landing by reverse thrust, and stationary engine testing) and in the air (angle of aircraft above horizon at listener greater than about 5°). The former are found to be strongly dependent on both weather and topography (shallow hillside or flat land around YVR) and the latter to be essentially independent. The effect of hillside and inversions in reducing the ground shielding is calculated by a new method using measurements of the ground impedance. The directionality of the jet engine as a noise source is found to introduce substantial errors into the accepted method of calculating NEF contours for distances greater than about 2,000 feet, particularly in the side-line areas. The noise levels to be expected in specific areas surrounding YVR are discussed in the light of this general analysis.

* * * * *

SEMINAR ON NOISE IN INDUSTRY

A three day seminar on noise problems encountered in industry will be held on October 7,8 and 9 at the Edmonton Inn, Edmonton, Alberta. The seminar which is sponsored by the University of Alberta Extension Department will feature knowledgeable lecturers from government, industry and universities.

The material in the seminar will include introductory acoustics, subjective acoustics, noise control for mechanical equipment indoors and outside, personnel protection, examples of specific problems and solutions.

This seminar will be of interest to those concerned with the control of noise in their work who wish to become acquainted with some of the techniques available to accomplish this end.

The fee for this seminar is \$150. For further information please contact:

Susan Pierce
Department of Extension
University of Alberta
Edmonton, Alberta
Telephone: (403) 432-5038

1974 MEETING OF THE CANADIAN ACOUSTICAL ASSOCIATION

The Canadian Acoustical Association (formerly the Canadian Committee on Acoustics) will hold its 1974 Annual Meeting at the University of Alberta, Edmonton, Alberta, on October 10 and 11. This meeting will follow a three day seminar on Noise in Industry which is being given under the auspices of the University of Alberta Department of Extension.

Members planning to attend the meeting may obtain information on hotel and motel accommodation as well as campus maps from:

Dr. G. Faulkner,
Associate Professor,
Mechanical Engineering,
University of Alberta,
Edmonton 7, Alberta.

* * * * *

EMPLOYMENT

Physicist: Ph. D. October 1974 (expected). Thesis in ultrasonic studies of material properties using modulus and attenuation measurement in polycrystalline metals. Two years research experience in industry. Seeking R&D or teaching position. Will relocate. James Nan-Chu Chen, 35 Glenmont Road, Brighton, Massachusetts 02135.

* * * * *

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We wish to thank General Radio for their kind donation of \$50 to our Association.

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