Reference

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REPORTS BIBLIOGRAPHY, SUPPLEMENT II JULY - DECEMBER 1973

UNLIMITED DISTRIBUTION REPORTS

Transportation Systems Center Management Services Division Information Services Branch Kendall Square Cambridge MA 02142



JANUARY 1974

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Washington DC 20590

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Supplementary Notes

Abstract

This publication supplements the "Reports Bibliography -December 1972," and "Reports Bibliography, Supplement 1 - January - June 1973. It provides a listing of all reports with unlimited distribution, which have seen published by the Transportation Systems Center, DOT, from July through December 1973.

The Reports Bibliography, Unlimited Distribution edition, lists only those reports which are available through the National Technical Information Service. These reports are classified according to their sponsoring agency. A copy of the title page (which contains an abstract of the report) is included for each report.

Key Words	18	. Distribution States	nent		-
Report Bibliography Unlimited Distribu	tion	DOCUME	NT IS AVAILABLE TO TH	E PUBLIC	
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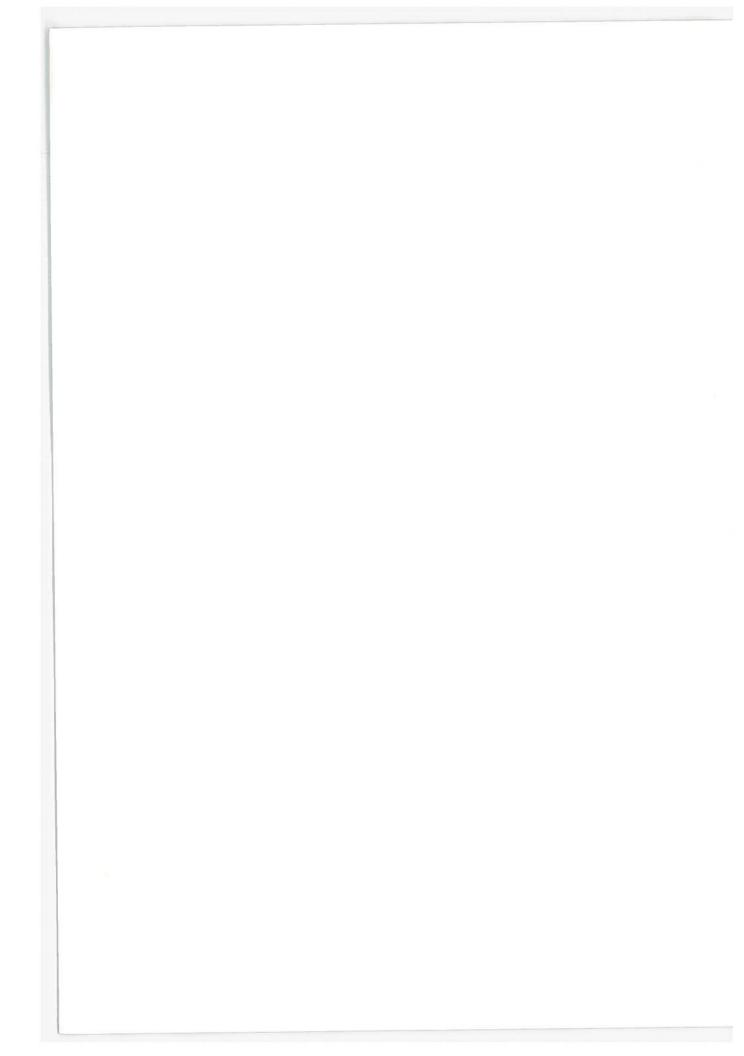
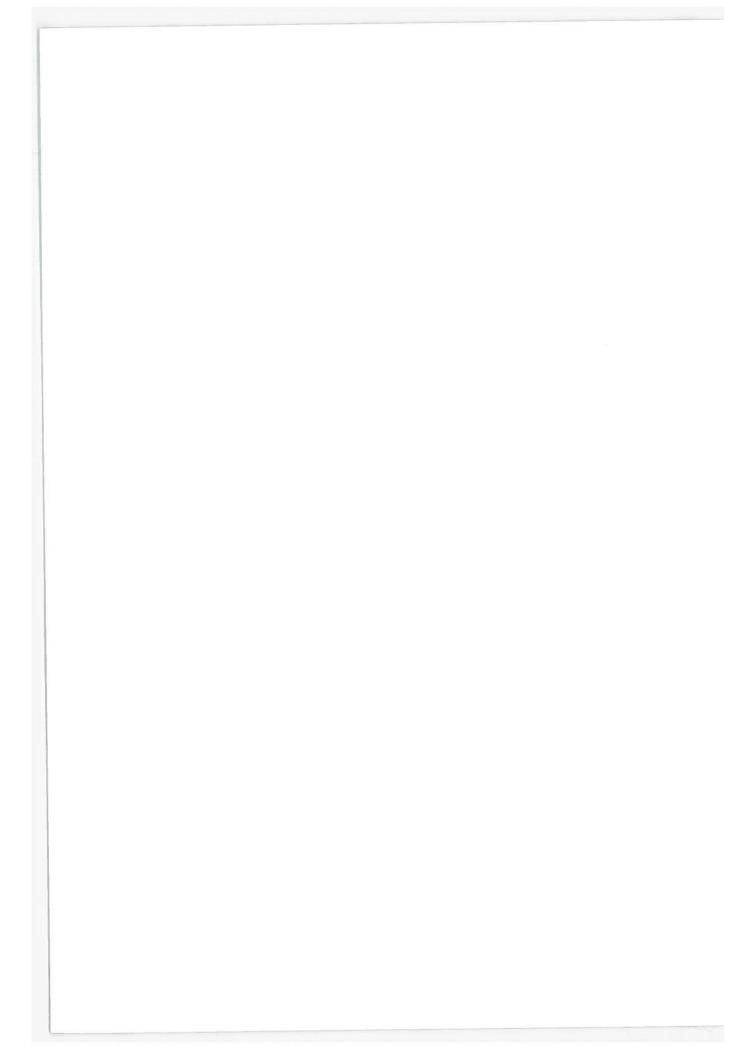


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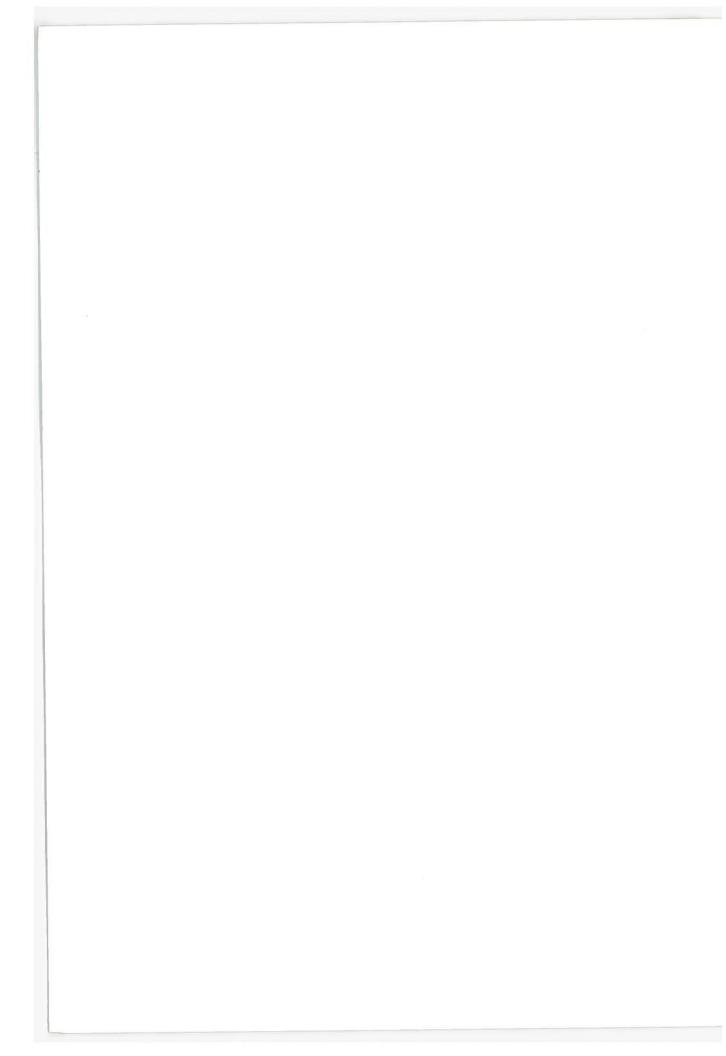
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AVAILABILITY OF REPORTS

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NTIS Springfield, Virginia 22151



UNLIMITED DISTRIBUTION REPORTS FEDERAL AVIATION ADMINISTRATION

DOT-TSC-FAA- /FAA-ED-08-1

Engineering and Development Program Plan - Airport Surface Traffic Control, by Airport Surface Traffic Control Program Office, April 1973.

DOT-TSC-FAA-72-27/FAA-RD-73-31

AD765 761/2

Evaluation of ILS Localizer Signal Specification During Ground Rollout, by J. S. Koziol, Jr., Final Report, August 1973.

DOT-TSC-FAA-73-2/FAA-RD-73-193

Evaluation of the Watertown Arsenal Building #311 as an ILS Model Range, by Robert M. Weigand and Francis J. LaRussa Interim Report, December 1973.

DOT-TSC-FAA-73-13/FAA-RD-73-76

User's Manual for ILSLOC: Simulation for Derogation Effects on the Localizer Portion of the Instrument Landing System, by G. Chin, L. Jordan, D. Kahn, S. Morin, D. Newsom, and A. Watson,
Operational Handbook, August 1973.

DOT-TSC-FAA-73-16/FAA-RD-73-77

Airport Information Retrieval System (AIRS) System Design, by M. F. Medeiros and J. Sussman, Final Report, July 1973.

DOT-TSC-FAA-73-17/FAA-RD-73-69

Human Factors Experiments for Data Link: Interim Report No. 3, by E. H. Hilborn and R. W. Wisleder, Interim Report, August 1973.

DOT-TSC-FAA-73-20/FAA-RD-73-120

Aircraft Vortex Wake Descent and Decay Under Real Atmospheric Effects, by P. B. S. Lissaman, S. C. Crow, P. B. MacCready, Jr., F. H. Tombach and E. R. Bate, Jr., Final Report, February 1973 (Contractor Report).

DOT-TSC-FAA-73-23, II/FAA-RD-112, II

North Atlantic (NAT) Aided Inertial Navigation System Simulation - Volume II: Computer Program NAT NAV User's Manual, by W. C. Hoffman and K. G. Bowie, Final Report, July 1973 (Contractor Report).

DOT-TSC-FAA-73-24/FAA-RD-121

Airport Information Retrieval System (AIRS) User's Guide, by M. F. Medeiros and J. Sussman, Final Report, August 1973.

DOT-TSC-FAA-73-25/FAA-RD-73-122

Airport Information Retrieval System (AIRS) System Support Manual, by M. F. Medeiros and J. Sussman.

		FECHNICAL REPORT STANDARD TITLE PAGE
1. Report No.	2 Gavernment Accession No.	3. Recipient's Catalog No.
FAA-ED-08 1		
4. Title and Subtitle		5. Report Date
ENCINEEDING & DEVELOPME	NE BROGRAM BLAN ATBRON	April 1973
SURFACE TRAFFIC CONTROL	NT PROGRAM PLAN-AIRPORT	6. Performing Organization Code
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7. Author(s) Airport Surface Office	Traffic Control Program	8. Performing Organization Report No.
9. Performing Organization Name and Addres	16	10. Werk Unit No.
Airport Surface Traffic	Control Program Office	
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15. Supplementary Notes	2	
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Reprinted July 1973		• @

16. Abstract

Background, requirements, system descriptions, task descriptions, Background, requirements, system descriptions, task descriptions, activities, schedules and funding levels are presented for the Airport Surface Traffic Control (ASTC) program for the years 1972-1979. Systems, subsystems proposed concepts and equipments are to be defined and specified in a system context and will then be designed, developed tested, and evaluated for introduction, in modular fashion into the existing airport environment. Modular structure of the system will permit system configurations to be tailored to the needs of the individual airport and will permit modular expansion of either capacity or function to meet the airport's needs as they evolve with time. function to meet the airport's needs as they evolve with time.

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	Airports, Surface Traffic	
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FAA-RD-73-31			
4. Title and Subtitle EVALUATION NAL SPECIFICATION DURIN	5. Report Date August 1973		
		6. Performing Organization Code	
7. Author(s)		8. Performing Organization Report No.	
Joseph S. Koziol, Jr.		DOT-TSC-FAA-72-27	
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Department of Iransport	ation	Final Report July 1971 - July 1972	
Federal Aviation Administration Systems Research and Development Service Washington, DC 20591		July 13/1 - July 19/2	
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16. Abstract The International Civil Aviation Organization (ICAO) has developed a specification for localizer information on the runway surface appropriate for rollout guidance during Category III B operations. The suitability of this specification was evaluated by systems analysis and simulation and is reported herein. The results of the performance evaluation for a representative rollout guidance system indicate that the specification is too stringent especially for higher frequency type localizer disturbances and therefore should consider the spectral characteristics of the localizer disturbance. A more relaxed specification was therefore developed by taking additional advantage of the sensitivity effect of the localizer receiver and the attenuating effect of the rollout guidance system on localizer disturbances. The revised specification is recommended for future localizer signal specification since it could allow Category III B certification, without degradation of overall rollout system performance or safety, that the current specification might otherwise preclude. Practical means for applying the revised localizer signal specification are discussed but other more simpler and practical means should be examined.

17. Key Words		18. Distribution States	nent	
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FAA-RD-73-193			
4. Title and Subtitle	MOUNT ADDRESS TO THE PARTY OF T	5. Report Date	
EVALUATION OF THE WATERTOWN ARSENAL BUILDING #311 AS AN ILS MODEL RANGE		December 1973	
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7. Author(s)		B. Performing Organization Report No.	
Robert M. Weigand, Francis J. LaRussa		DOT-TSC-FAA-73-2	
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Department of Transportation Federal Aviation Administration Systems Research and Development Service		Sep. 1972 - March 1973	
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15. Supplementary Notes			

The Watertown Arsenal Building #311 was evaluated for use as an indoor ILS model range using upward frequency scaling of 100 to 1. To model the effects of small buildings and aircraft in the vicinity of an airport ILS, any model range has to have very low background reflections. If background reflections are large, they will obscure the desired measurements. Sets of measurements designed to determine the amplitude and location of undesirable background reflections due to structural objects around the proposed model site show that it will be necessary to completely enclose the range with high quality absorber.

Using 200 square feet of inexpensive absorber to cover regions causing the largest background reflections and using antennas of narrow beamwidth, measurements of the effects of several large scattering objects were made. The scattered energy due to the largest target (3 feet x 3 feet) is in good agreement with calculations based on geometrical optics.

17. Key Words ILS	18. Distribution Statement		
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LOCALIZER PORTION OF THE	HE INSTRUMENT	LANDING	erforming Organization	
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G. Chin, L. Jordan, D. D. Newsom, A. Watson	Kahn, S. Mor		-TSC-FAA-73	3-13
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16. Abstract				
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Manuel F. Medeiros an	d Julie Sussman	DOT-TSC-FAA-73-16
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Department of Transpor Federal Aviation Admin	istration	Final Report
Systems Research and De Washington DC 20591	evelopment Service	14. Sponsoring Agency Code
5. Supplementary Notes		
6. Abstract		
This report presents the	ne system design for a	prototype air traffi

This report presents the system design for a prototype air traffic flow control automation system developed for the FAA's Systems Command Center. The design was directed toward the immediate automation of airport data for use in traffic load predictions and flow control operational support. The system employed computer services offered by commercial time-sharing companies. The system was also designed to serve as a technology foundation and an experimental tool from which subsequent automation specifications could be derived. The report covers the design decisions associated with the data base, the user interface, the user language, the special processing and the numerous operational considerations. Also included are the supporting program designs for data base updating and integrity maintenance. Finally, the report presents several recommended improvements to the automation system.

17. Key Words Flow Control, Air Traffic Control, Central Flow Control
Facility, Automation, Information
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HUMAN FACTORS EXPERIM	ENTS FOR DATA LINK	August 1973
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7. Author(s) Edwin H. Hilborn and	Robert W. Wisleder	DOT-TSC-FAA-73-17
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15. Supplementary Notes		

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16. Abstract

The results of three experiments involving eight FAA NAFEC test pilots are reported. Section I describes the evaluation of four prototype Data Link displays in a GAT-1 simulator. While there was lack of agreement among the pilots as to the relative merits of the four displays, their opinions concerning Data Link as a concept were generally favorable.

Section 2 describes reaction time and error rate measurements made as 144 slides were presented containing a variety of short ATC messages. It was determined that differences in type font were not significant, that arrows were generally better than words for altitude and heading commands, and the "L" or "R" as heading commands in messages such as HDGL230 were extremely difficult to comprehend.

Section 3 describes a second laboratory experiment which studied the differences between long and short abbreviations with and without spaces. The need for the use of spaces was demonstrated.

The results of the experiments described in Sections 2 and 3 closely parallel those previously obtained using TSC engineers as experimental subjects.

'Air Traffic Control 'Data Link 'Message Coding 'Simulators	THROUGH TH	S AVAILABLE TO THE I TE NATIONAL TECHNIC IN SERVICE, SPRINGFIE	AL
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AIRCRAFT VORTEX WAKE DI	ESCENT AND		October 19	73
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7. Author(s) *P.B.S. Lissamar	ı, S.C. Cro	w.P.R.	DOT-TSC-FA	
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7. Author(s)				
*William C. Hoffman, Ka	thrvn G. Bow		-TSC-FAA-7	3-23, II
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16 Confementary Notes D	epartment of	Transportation	50	
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16. Abstract

This handbook is a user's guide for a prototype air traffic flow control automation system developed for the FAA's System Command Center. The system is implemented on a time-sharing computer and is support. The User's Guide is a reference manual designed for use by experience. The AIRS request (command) language is explained along terminals in working with the time-sharing computer. The manual tells plots, arrival delay predictions and flow control assistance. It also estimates and how to add (or cancel) flight schedules to the AIRS centerly flight schedules to the AIRS.

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4. Title and Subtitle AIRPORT INFORMATION RET SYSTEM SUPPORT MANUAL	RIEVAL SYSTEM (AIRS)	5. Report Date October 1973 6. Performing Organization Code
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7. Author's) Manuel F. Medeiros and	Julie Sussman	DOT-TSC-FAA-73-25
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15. Supplementary Notes		

16. Abstract

This handbook is a support manual for a prototype air traffic flow control automation system developed for the FAA's Systems Command Center. The system is implemented on a time-sharing computer and is designed to provide airport traffic load predictions and flow control support. The System Support Manual is designed for use by an experienced computer programmer. It contains instructions on performing the monthly AIRS data base updating including the Official Airline Guide data tape processing, the merging with the existing data base and the maintenance of the associated supporting data files. The manual describes the duties associated with monitoring nightly file checking and failsafe programs to assure data base integrity. The daily processing and troubleshooting of the system's usage records are also described. Other support functions involving data base maintenance are presented.

17. Key Words Flow Control, Air Traffic Control, Central Flow Control Facility, Automation, Information Retrieval, Airport Information, Flow Control Procedures

18. Distribution Statement

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DOT-TSC-FHWA-73-12

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Some Considerations on the Problem of Non-Steady-State Traffic Flow Optimization, by D. Kahn and R. Mintz, Final Report, October 1973.



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16. Abstract

This report contains our initial efforts aimed at extending the steady state freeway model for optimizing freeway traffic flow to a non-steady state model. The steady-state model does not allow reaction to continuously changing conditions which are often important. The non-steady state or dynamic model will allow this and is intended to be used whenever a metering rate which changes with time is needed. The dynamic modeling is accomplished by developing optimization procedures based on the principles of traffic dynamics, specifically, the continuum equations. In this initial effort only a tunnel roadway and

a single lane freeway (but with exits and ramps) are considered.

17. Key Words

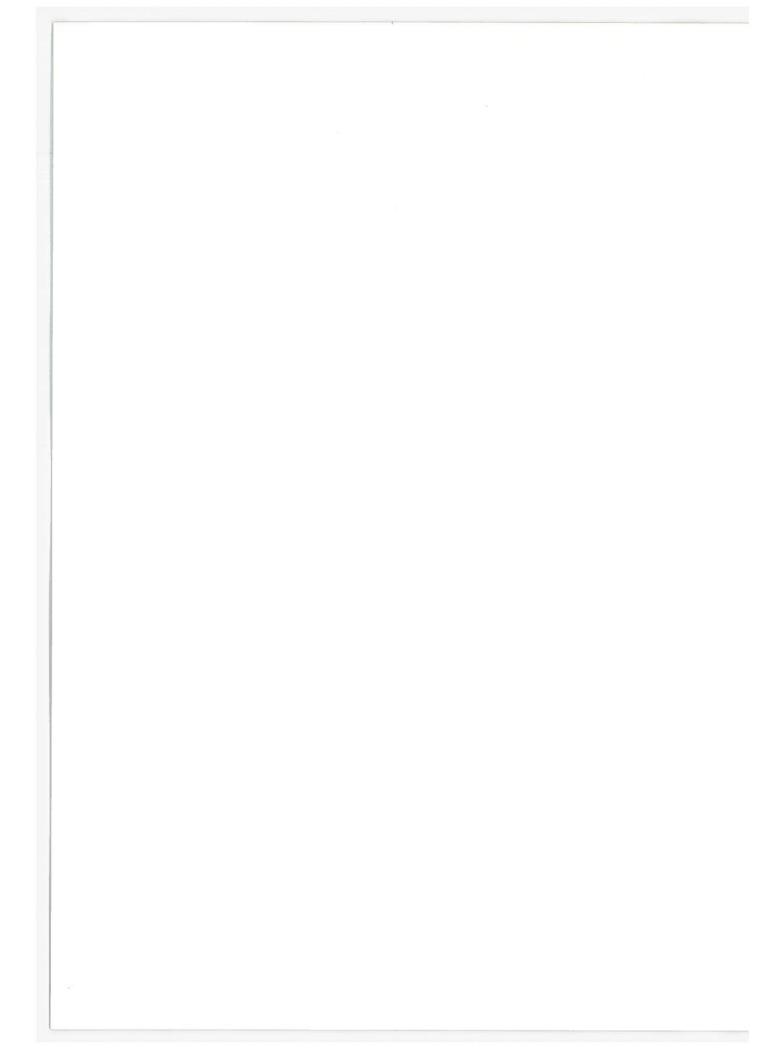
Traffic Flow, Steady State,
Dynamic, Tunnel, Freeway,
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Enhancement of Train Visibility, by J. B. Hopkins, Final Report, September 1973.

DOT-TSC-FRA-73-3/FRA-ORD&D-74-14

PB 223902/8

Grade Brossing Protection in High-Speed, High-Density, Passenger-Service Rail Corridors, by J. B. Hopkins, September 1973.

DOT-TSC-FRA-73-4/FRA-ORD&D-74-20

PB 226281

Input Power Characteristics of a Three-Phase Thyristor Converter, by Raymond A. Wlodyka, Joseph D. Abbas and George Ploetz, Final Report, December 1972.

DOT-TSC-FRA-73-7/FRA-RT-74-1

Guidelines for Writing Railroad Operating Rules, by D. B. Devoe and A. W. Story, Technical Report, July 1973.

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PB 222476/4

Towing Tank Tests on a Ram Wing in a Rectangular Guideway, by Y. A. Boccadoro, Final Report, July 1973 (Contractor Report).

DOT-TSC-FRA-73-9/FRA-ORD&D -74-21

PB 212358

Assessment of Control Techniques for Reducing Emissions from Locomotive Engines, by J. O. Storment and K. J. Springer Final Report, June 1973 (Contractor Report).

DOT-TSC-FRA-73-12/FRA-ORD&D-74-24

Input Power Characteristics of the Thyristor Variable Voltage Power Conditioner, by John J. Stickler, George P. Ploetz and Frank L. Raposa, Final Report, June 1973.



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16. Abstract				
This report describes a study of the most effective and practical means of enhancing the conspicuity of the trailing end of train in order to reduce the possibility of train-train collisions. There are five elements: (a) definition of a usable number of categories target, background, and ambient conditions which include the great majority of situations actually encountered; (b) estimation of the stimuli required for each category to increase significantly the detection probability for typical observers; (c) examination of all potentially feasible visibility aids in terms of these criteria; (d) determination of estimated costs, lifetime, and power consumption techniques which appear promising in terms of effectiveness, and (e) delineation of alternative systems, consistent with one another comprising a hierarchy of effectiveness and cost. Special deficient cies, advantages, and implications for policy which may be associated with particular realizations are indicated. The devices suggested optimal include large areas of fluorescent material arranged in a distinctive pattern, retro-reflectors at each corner, and flash lam of moderate intensity. Detailed specifications are given for such aids.				of trains, ns. There tegories of he great n of the ly the on of all teria; consumption ness, and e another, deficien- associated uggested as ed in a flash lamps
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Office of Research, Dev Washington, DC 20590	elopment, and Demon.	14. Sponsoring Agency Code
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16. Abstract This report is a preliminary examination of special aspects of grade crossing protection for operation of high-speed passenger trains in rail corridors for which complete grade separation is not possible. Overall system needs and constraints are indicated, and their implications examined. Application of conventional and improved hardware is considered, with special attention to activation criteria, appropriate motorist-warning devices, stalled-vehicle indicators, and trainmounted components. Non-technical aspects of the problem are also discussed, and areas for which future research efforts may be appropriate are identified.

Grade crossing protection; High speed passenger trains; Rail corridors; Rail passenger safety

18. Distribution Statement

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16. Abstract

A phase delay rectifier operating into a passive resistive load was instrumented in the laboratory. Techniques for accurate measurement of power, displacement reactive power, harmonic components, and distortion reactive power are presented. The characteristics of the phase delay rectifier operating with unfiltered and inductively filtered resistive loads are presented using both derivations and measurements. The changes of the phase delay rectifier characteristics with a free wheeling diode in the circuit are also presented.

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16. Abstract

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This report constitutes an aid to persons or groups who must create or revise railroad operating rules. It provides guidance for avoiding confusion, ambiguity and misconceptions in the wording of rules. Content, style and organization are discussed, with illustrations of both desirable and undesirable practices taken from current codes of operating rules.

Railroad Operating Rules
Writing
Guidelines

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15. Supplementary Notes

*Under Contract to: Department of Transportation, Transportation Systems Center, Kendall Square, Cambridge MA 02142

6. Abstract

The object of this study was to set the theoretical and experimental basis for a preliminary design of a ram wing vehicle. A simplified one-dimensional mathematical model is developed in an attempt to estimate the stability derivatives of this type of vehicle. Although very basic, the approach that was taken allows for any geometry of both the model and the guideway. A survey is made of various possible testing techniques. The experimental results obtained using the towing tank technique are reported and compared with the computed estimates. Although many results are very encouraging, the limited data do not allow for a precise estimation of the validity of the mathematical model. It is concluded that the towing tank technique is adequate for the type of investigation that is required at this early stage of the design.

17. Key Words Vehicle, ram-wing:test, tank	towing-	THROUGH TH	AVAILABLE TO TE E NATIONAL TECH IN SERVICE, SPRING 151.	NICAL
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7. Author's) John J. Stickler,		DOT-TSC-FRA-73-12	
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16 Abstract

A laboratory study was made of transformer and thyristor voltage control for speed control of a rotary induction motor. The test program consisted of two parts; the first dealing with measurements of the induction motor characteristics and the second with the distribution of complex electric power in the system with both types of voltage-control. The current harmonics which are generated by thyristor control are shown to give rise to additional motor losses and reduction in motor efficiency. The non-sinusoidal currents present with thyristor control produce reactive distortion power. Suggestions are made regarding the suitable instrumentation to use in measuring the distortion power as well as the other components of complex power in the system.

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 Thyristor Control Variable Voltage Power Conditioner Linear Induction Motor 	1	DOCUMENT IS AVAILABLE TO THE THROUGH THE NATIONAL TECH NFORMATION SERVICE, SPRING //RGINIA 22151.	NICAL
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DOT-TSC-NHTSA-72-11

Feasibility of High-Resolution Ultrasonic Pulse-Echo Techniques for Automobile Tire Inspection, by R. P. Ryan, Interim Report, June 1973.

DOT-TSC-NHTSA-73-2/DOT-HS-800-970

Automobile Crash Sensor Signal Processor, by C. J. Bader, Final Report, March 1973.

DOT-TSC-NHTSA-73-5

PB 223141/3

Occupant Motion Sensors: Development and Testing of a Piezoresistive Mouthpiece Rotational Accelerometer, by G. Plank, D. Ofsevit and A. Warner, Interim Report, July 1973.

DOT-TSC-NHTSA-73-7/DOT-HS-800-969

Fabrication Techniques and Principles for Flat Plate Antennas, by Emerson Electric Company, Final Report, September 1973 (Contractor Report).

DOT-TSC-NHTSA-73-8/DOT-HS-800-968

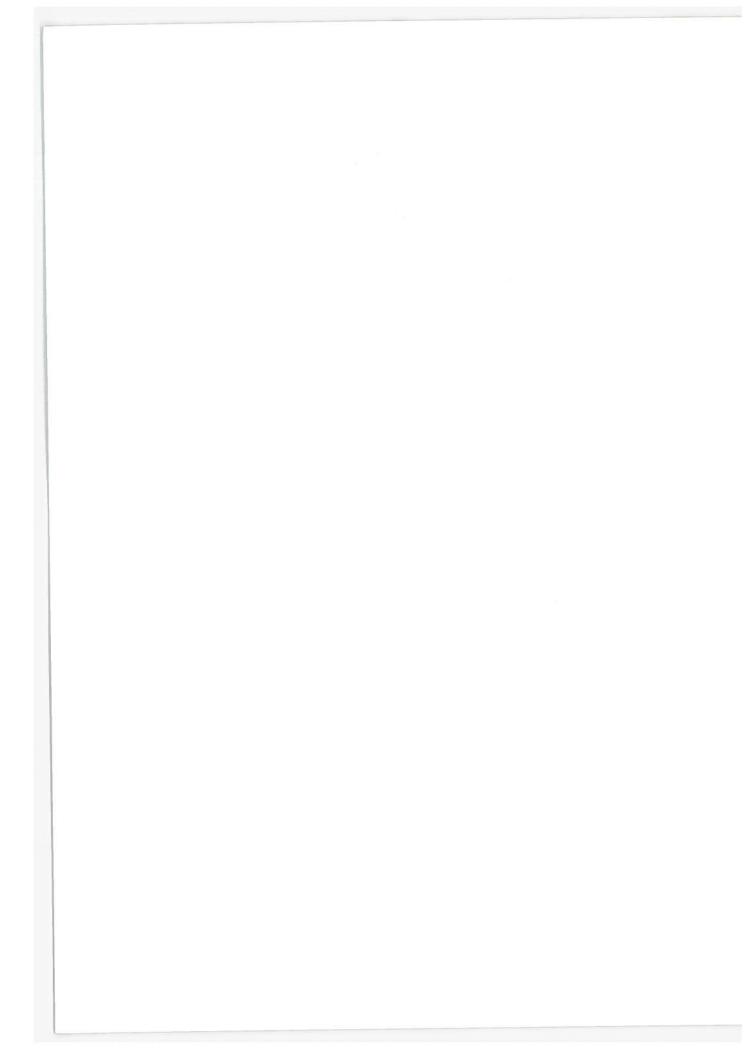
Model 0102 Flat Plate Antenna for Use in Automobile Radar Anticipatory Crash Sensors, by K. V. Toth and R. M. Rudish, Final Report, September, 1973 (Contractor Report).

DOT-TSC-NHTSA-73-9/DOT-HS-800-967

Experimental Evaluation of Second-Generation Alcohol Safety-Interlock Systems, by John F. Oates, Jr., Interim Report, December 1973 (Contractor Report).

DOT-TSC-NHTSA-73-10/DOT-HS-801-020

Legal Issues Raised by Orbis, a Motor Vehicle Speed Detection Device Taking Photos of Speeders, by David Glater, Interim Report, December 1973.



1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
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16. Abstract

This report presents ultrasonic A-scan reflection oscillograms and B-scan one-dimensional scanning displays for small sections of automobile tires, and for tire-like rubber and cord composite structures, using impulse excitation of l-MHz and 5-MHz transducers. Adequate penetration and resolution are exhibited to permit depth characterization of structures and defects. Small reflections at bonding interfaces exhibit variations indicating a potential capability for detection of interface bonding anomalies in tires.

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9. Performing Organization Name and Addre Transportation Systems	Center	1	R3406/HS	รักร
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		1	1. Contract or Grant No	
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15. Supplementary Notes				
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16. Abstract				
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17. Key Words Occupant Motio	n, Crash	18. Distribution Stateme	nt	
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Photogrammetry, High-Sp	eed Film.	VIRGINIA 22151.	TOL, SERINGFIELD,	
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4. Title and Subtitle			ptember 19	7 7
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FLAT PLATE ANTENNAS		6. F	erforming Organizati	on Code
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7. Author(s)		DO	T-TSC-NHTS	4-73-7
9. Performing Organization Name and Addres	5	10.	Work Unit No. (TRAI	5)
Rantec Division		R3	403/HS304	
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Calabasos CA 91302		DO.	Γ-TSC-390	
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12. Sponsoring Agency Name and Address		Fin	nal Report	
Department of Transport	ation	Ma	y-August 19	972
National Highway Traffi	c Safety Adı	ministration		
Office of Vehicle Struc	tures Resea	rch 14.	Sponsoring Agency C	ode
Washington DC 20591				
15. Supplementary Notes	4 4 . 4		-	
Report prepared under c	ontract to:	Department of	Transporta	tion
		Transportation		Center
		Cambridge MA	02142	
16. Abstract		1	1.1. 15	,
This final report of	ocuments th	e work performe	d by Rante	c under
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are the fabrication tech	niques and	principles kant	ec nas sel	ected to
produce one million and	ten million	riat plate ant	ennas per	year.
An engineering anal	ysis of the	reliability, e	lectrical	intergrity,
and repeatability is made	e, and a co	st analysis sum	mary is in	cluded for
a production run of both	the maximum	n militon units	per year,	and a
technical discussion of tion techniques can be e	veended wit	hout performance	o doggadat	ese rabrica-
major cost increase is i	ncluded wit	nout periormane	e degradat	ion and/or
The fabrication ted	hrianes sel	astad by Dantas	to mandua	a 1 and 10
million flat plate anter	nniques sei	m include die	osting ni	e I and IO
blanking, injection mold	ing and co	1d heading The	flot plot	erce and
would be fabricated in s	iv elements	using these to	chniques	An automatic
assembly center would be	need to ac	hieve the high	volume pro	duction
runs. One such unit open	ating at ma	vimum efficienc	volume pro v will pro	duce 1 mil-
lion units per year at a				
will achieve production				
of \$0.30 per unit, not i			on per yea	ac a cost
The flat plate ante	nnas can be	scaled to a fr	equency of	17 5 GH2
with no cost impact or s	ignificant	effect on nerfo	rmance. Sc	aling to a
frequency of 21 GHz is p	ossible but	at a higher co	st ner uni	t.
17. Key Words		18. Distribution Statement	por will	
Flat plate antenna		DOCUMENT	VAILABLE TO THE	DUDLIC
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4. Title and Subtitle		5. Report Date
MODEL 0102 FLAT PLATE A	NTENNA FOR USE IN	September 1973
AUTOMOBILE RADAR ANTICI SENSORS		6. Performing Organization Code
		8. Performing Organization Report No.
7. Author/s) Kalman V. Toth and Rona	ld M. Rudish	DOT-TSC-NHTSA-73-8
9. Performing Organization Name and Address AIL Division	is .	10. Work Unit No. (TRAIS) R3403/HS304
Cutler Hammer Deer Park, Long Island	NY 11729	11. Contract or Grant No. DOT - TSC - 437
		13. Type of Report and Period Covered
12. Sponsoring Agency Name and Address		Final Report
Department of Transport	ation	June-Sept. 1972
National Highway Traffi Office of Vehicle Struc Washington DC 20591	c Safety Administration tures Research	14. Sponsoring Agency Code
Report prepared under c		of Transportation

Cambridge MA 02142

16. Abstract

AIL has analyzed alternative methods of construction and production costs for a flat plate antenna based on the use of etched circuit techniques. The antenna is proposed for use in certain new automotive radar anticipatory crash sensor systems now under development.

The antenna is a minimal volume planar array structure, ideally suited for low cost production. Using a design approach that was previously developed for advanced battlefield radars, the antenna is unique in that the radiating elements and feed circuitry are etched on the same substrate.

The antenna is $2-5/8 \times 4-5/8 \times 15/16$ inches (exclusive of output connector). Although its active region is only a fraction of this space, a breadboard version of this highly efficient antenna achieves more than 13-dB gain over the required one percent region of X-band, with radiation patterns having excellent suppression of side lobes.

A production design is postulated which is suitable for automated production processes. The resulting antenna is a simple sandwich of one printed circuit between two layers of foam; this sandwich is encased in a molded, metalized lexan housing, and is faced with a lexan radome.

In quantities of at least one million antennas, the estimated OEM selling price is under 3 dollars each, not including the cost of preparing for large-scale production. In quantities in excess of ten million antennas, the estimated selling price is under 2 dollars each, also not including the cost of preparing for large-scale production.

Flat Plate Antenna,	THROUGH T		AILABLE TO THE P	AL.
automobile radar anticip	INFORMATIC		ATIONAL TECHNICA	
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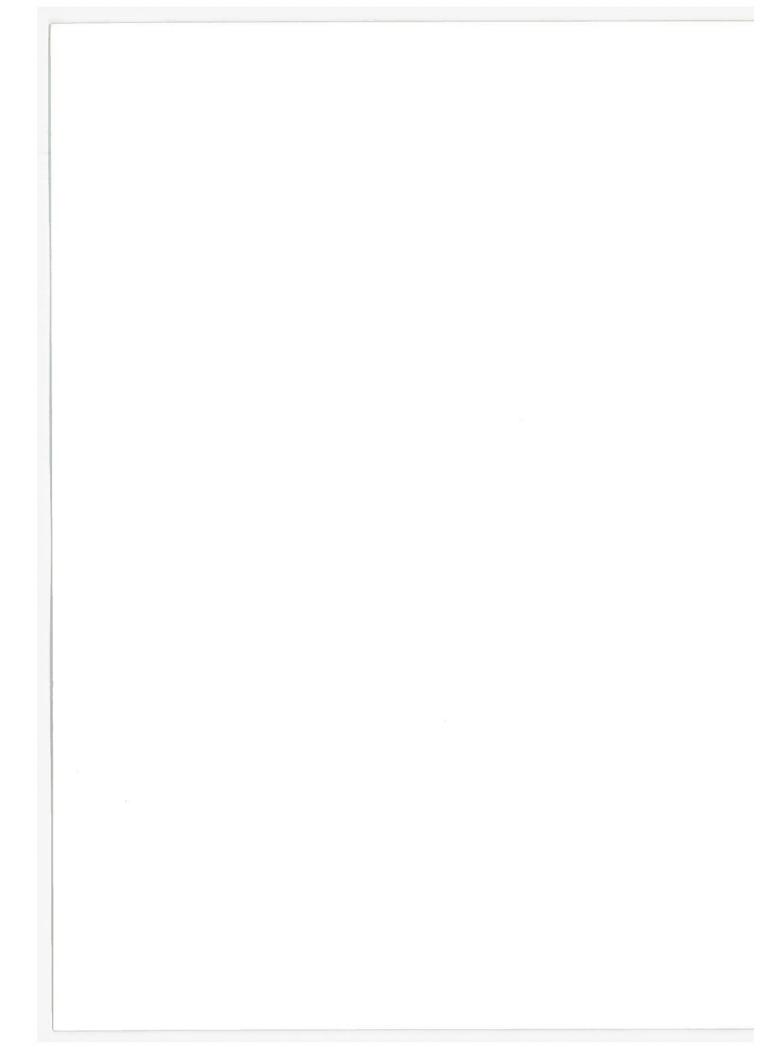
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4. Title and Subtitle EXPERIMEN	CAL EVALUATION	J OF SECOND- 5.	Report Date			
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3			Performing Organiza	tion Code		
7. Author(s)	-	8.	Performing Organiza	tion Report No.		
John F. Oates, Jr.		1	OT-TSC-NHT	SA-73-9		
9. Performing Organization Name and Add	7011	10	. Work Unit No.			
Dunlap and Associate:	s, Inc.					
One Parkland Drive		111	11. Contract or Grant No.			
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6. Abstract						
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VEHICLE SPEED DETECTION	DEVICE TAKING PHOTOS	o. Ferrorming Organizati	on Code
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7. Author/s)		DOT TOO NUTC	A 77-10
David Glater 9. Performing Organization Name and Address		DOT-TSC-NHTS	
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Off. Prog. Eval. & Trf.		14. Sponsoring Agency C	ode
Washington DC 20591			
15. Supplementary Notes			
16. Abstract			
This report review	s the legal basis for	certain poten	tial
challenges to the use of	of unmanned mechanical	devices which	(a)
detect motor vehicles e	exceeding predetermined	speed limits	, and
(b) photograph both the	front portion of thes	e vehicles an	d the
faces of their drivers	and passengers. In pa	rticular, the	report
is focused on the opera	tion of Orbis, a membe	r or this cla	SS OI
speed-detection devices	manufactured by the B	oeing Corpora	tion.
Three aspects of the de	vice's legality are di	scussed: (1)	the
question of whether its	operation violates in	dividuals' ri	ght of
"privacy" as protected	by the rederal Constit	ution, State	statues,
and common-law preceden	its; (2) the issue to u	niawrui inequ	ities in
traffic-law enforcement limitations, which perm	it some speeders to be	evice's opera	tionai
and (3) the admissibili			
of photographs taken by	the device.	couring prosec	4610115
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lance, Orbis, Speed Det	ection- DOCUME	NT IS AVAILABLE TO TH H THE NATIONAL TECHN	
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7. Author(s) R. Buck, M. Unkauf	M. Unkauf				
9. Performing Organization Name and	Address		DOT - TSC - OS		
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7. Author's) T.F. McDonough			DOT-TSC-OST-72	- 34
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16. Abstract				
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7. Author/s)		8. Performing Organization Report No.	
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7. Author(s)			erforming Organizatio	n Report No.
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12. Sponsoring Agency Name and Address			Final Re	port
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Washington D.C. 15. Supplementary Notes	0590			
*Under contract to:	Department	of Transportat	ion	
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	Kendall Sq	uare, Cambridge	MA 02142	
16. Abstract				
Exhaust and air	intake nois	e is studied or	five truc	k and bus
diesel engines; the De				
250 and NTC-350 and th	e Mack ENDI	-675 The nois	e source i	s isolated
and its sound level me				
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Detailed exhaust	tests are c	Ta in Delibration	engines w	th curee
basic styles of exhaus	t systems.	Each system is	tested wi	th several
mufflers from differen				
are also measured on	each engine.	The results of	of these te	ests are
	d comparisons are made of exhaust system		systems, en	gines, and
mufflers.				
Air intake noise				
ers installed. At lea	st two diff	erent air clear	n <mark>ers are</mark> te	sted on
each engine. A compa:	ison is mad	le of air intake	e sound lev	rels between
the engines and intak				
A survey is made		and air cleaner	manufactu	rers to
obtain information on				
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DOT-TSC-OST-73-18	II.	
4. Title and Subtitle		5. Report Date
Wayside Noise and Vibr	ation Signatures of	September 1973
High-Speed Trains in t	the Northeast Corridor	6. Performing Organization Code
7 Author(s)		8. Performing Organization Report No.
Edward J. Rickley, Rob	ert W. Quinn,	
Norman R. Sussan	V.	DOT-TSC-OST-73-18
 Performing Organization Name and Addre 		10. Work Unit No.
U.S. Department of Tra	unsportation	R3530/OS-307
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Office of the Secretar	·у	Nov 1971 - Oct 1972
Office of Noise Abatem		14.: Sponsoring Agency Code
Washington D.C. 2059	0	
15. Supplementary Notes		
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Measurements were made of the wayside noise and ground vibration levels generated during the passby of high-speed Metroliner and Turbotrains operating on the tracks of the Penn Central Railroad. The Metroliner in operation on the New York-to-Washington line was measured in Plainsboro, New Jersey. The Turbotrain in operation on the Boston-to-New York line was measured in West Mansfield, MA. In addition, freight trains and conventional passenger trains were measured and recorded.

This report contains tabulations of the passby noise and vibration levels measured, time history level recordings and 1/3-octave frequency analyses of representative passby data. Pertinent comments on information obtained are included.

17. Key Words		18. Distribution Statement		
Metroliner, Turbotrain High-Speed Ground Tran Noise, Vibration	s, sportation	DOCUMENT IS AV THROUGH THE N	/AILABLE TO THE F !ATIONAL TECHNIC/ ERVICE, SPRINGFIEI	AL
19. Security Classif. (of this report) Unclassified	20. Security Class Unc	lassified	21. No. of Pages 144	22. Price

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16. Abstroct

This report presents a summarization and assessment of available information pertaining to the potential for implementing mass production of gas turbine engine-powered automobiles. The main topic covered is the schedule requirement for that implementation. Emphasis has been directed toward identifying those critical or limiting factors affecting timely introduction of gas turbine engine concepts on a mass production basis. A description of basic automotive product development phases, engine manufacturing processes, and gas turbine engine current technology status are included to clarify and augment the discussions, and to permit the necessary understanding of the developed implementation schedules.

Based on data acquired during the period February 28 to April 30, 1973, a period of 8 to 10 years is a best estimate of the elapsed time until 300,000 gas turbine engines are mass produced annually. This estimate is based on a postulated overall product development schedule of slightly more than 11 years. Prior to major commitment of capital resources necessary for adherence to this schedule, automobile manufacturers must resolve three major issues: 1) improvements in engine fuel economy and exhaust emissions, 2) development of new mass production fabrication processes directed at reducing engine unit cost, and 3) statistical evidence of engine durability in fleet test cars.

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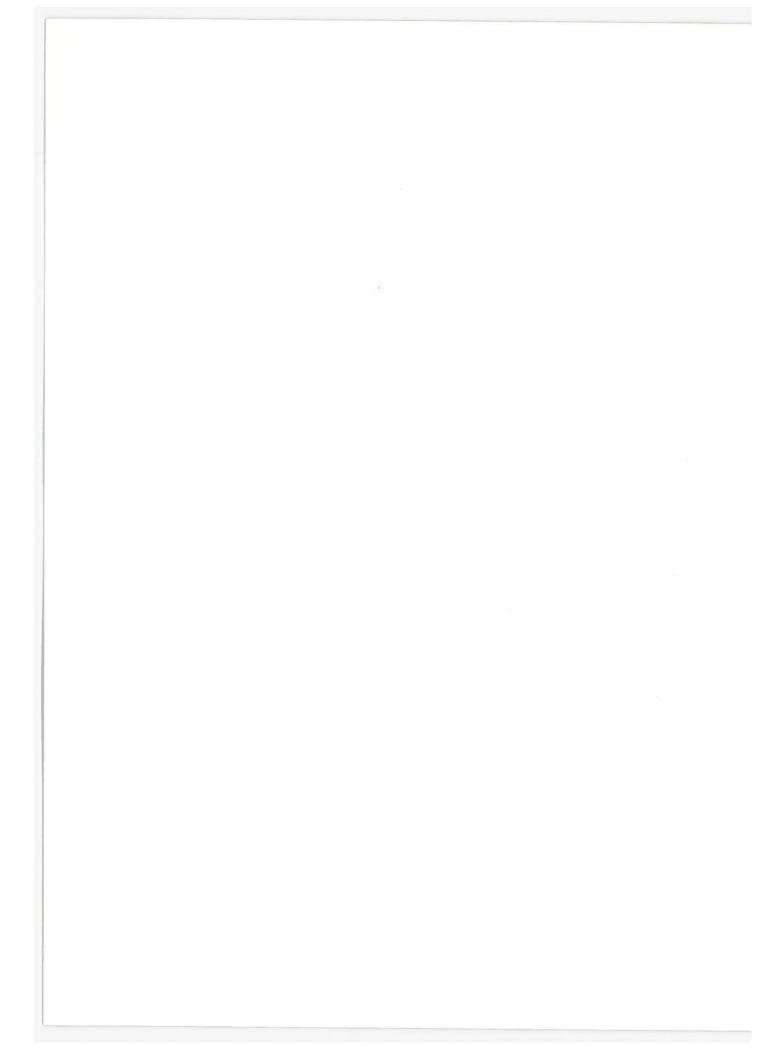
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16. Abstract

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An instrumented revenue type car was used for the measurement of track geometry, ride roughness, and interior noise. Actual car speed was approximately the same as normal revenue speed. The objectives of the tests were to identify critical track sections for improvement to quantify the benefits produced by the track rehabilitation program, and to provide data for TSC's development of an advanced track geometry measurement system.

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Volume II presents track geometry analog data plots for the complete length of track.

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Volume III presents the track profile computer printout for the Eastbound Track.

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Volume V presents the gage computer printout for the complete length of track.

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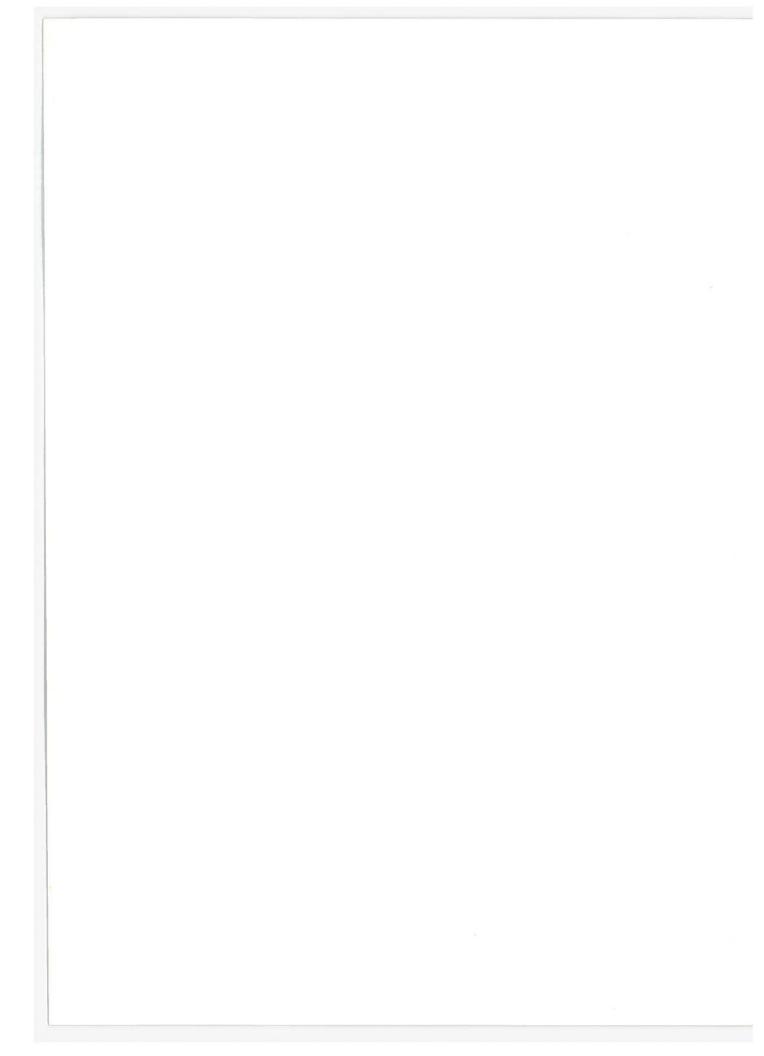
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Coast Guard District have I These measurements were permain propulsion units, ship diesel engines varied in sunits to 3600 h.p. turbo-ci measured were carbon monoxinitrogen. Particulate emis	peen measured rformed on 57 peservice gen lze from two- narged units. Ide, carbon desion rates businn rates business busines	under typical diesel engine erators and ho cylinder, natu The gaseous ioxide, total y the gravimet se measured co	s and boilers configured as tel-service boilers. The rally aspirated, 35 h.p. emission concentrations bydrocarbons, and exides of			
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