

Final Report

"COLLISION DATA GATHERING AND  
ANALYSIS PROJECT"

AMA GRANT #UM 7003-G129

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Highway Safety Research Institute  
The University of Michigan  
Ann Arbor

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This final report describes the research conducted by HSRI in implementing the "Collision Data Gathering and Analysis Project" from September 1, 1970 through August 31, 1971. The work performed was sponsored by the Automobile Manufacturers Association (AMA) under a grant #UM 7003-G129; however, the opinions, findings, and conclusions expressed in this report are those of the Institute and not necessarily those of any supporting or sponsoring individual or organization.

Although this is the final report under an AMA sponsored grant, "Collision Data Gathering and Analysis" is a continuing activity at HSRI to insure completeness and timeliness of the accident data files which exist at HSRI. Thus, one can treat this final report as a major phase in a continuing project.

The report has been organized into two major categories concerning "Mass Collision Data" and "In-Depth Off-Scene Accident Studies."

#### PART I - MASS COLLISION DATA

The major objective of collecting Part I data was to establish a base line of driver, vehicle, highway and exposure data within Washtenaw County, Michigan and to collect the police-reported accidents within the county. In August, 1969, HSRI conducted a survey of driver exposure in Washtenaw County which served as a pilot for the national exposure survey conducted in March, 1970 under NHTSA contract. A digital file of this data is available and accessible for SR and SPAD system users.

To accomplish this objective, steps were taken to acquire the entire Michigan Driver Record file from the Secretary of State's Office (SOS). With the cooperation of the SOS we copied ninety-six computer tapes containing the driver identification, accident, and violation information. From this bank of base data we developed subsets of the Michigan driver population as follows:

1. Washtenaw County (sample of 20,000 drivers)
2. Oakland County (sample of 10,000 drivers)
3. Two percent Michigan State sample

These files have allowed researchers to analyze the distribution of varied driver record elements to better understand and describe the driving population within the geographical study areas.

In addition to the driver records, HSRI acquired the Michigan Motor Vehicle Registration files from the SOS for 1968, 1969 and 1970 license years. These tapes have been processed to allow the matching of the accident report file for both Washtenaw and Oakland counties with the vehicle registration records, thus providing the VIN and associated vehicle variables (illustrated in appendix A) to be added to the accident data files. With such detail, various vehicle-oriented analyses can be made by interested users. During the grant period this match-merge operation has been completed for those 1969 licensed vehicles contained in the 1969 Oakland County accident file. Remaining

processing will involve the 1968-1970 Washtenaw accident file and the 1970 Oakland file. Upon completion of the match-merge operation, steps will be taken to subset vehicle records that describe the registered vehicle populations within Washtenaw and Oakland counties.

Highway inventory information is published in the State Highway Department Annual Report for each county within the state. Such records are readily accessible to describe both Washtenaw and Oakland counties (see appendix B).

Vehicle inspection records have been a subject of the project plan which has received a low priority due to the lack of usage by researchers at HSRI and within industry. However, data for the 1968 calendar year has been built into a Washtenaw County Checklane File of 11,500 vehicles containing sixty-eight reported variables. This file is available for conducting analyses and steps can be implemented to obtain 1969 and 1970 data if users establish the need. It should be appreciated that one of the major reasons the checklane data has not been used is the fact that vehicles inspected are biased toward older vintage vehicles. The dictionary and codebook for the 1968 Checklane file is included in this report as appendix C.

Accident reports from Washtenaw County have been acquired under this grant and previously with certain limitations. Originally reports were collected from the Ann Arbor City Police Department and the Washtenaw County Sheriff's Office, thus

providing only a portion of the entire county. To improve this situation the Institute borrowed from the State Police microfilm copies of all other cases reported within Washtenaw County for 1968 through 1970, and we have implemented a plan to receive all 1971 reports regardless of county reporting agency. The file now contains 21,261 accident cases for the three-year period.

In addition to assuring content completeness, HSRI has taken steps to improve the quality or scope of the file by adding forty-three additional variables. These new variables include, but are not limited to, Dr. Huelke case numbers, HSRI Level II case numbers, vehicle identification items, location coordinates and some variables necessitated by the new Michigan UD-10 report form. The dictionary processor has been distributed to AMA member companies and is included in the SPAD user system distribution package.

Washtenaw County accident reports for 1971 have been coded through July, and keypunched through April. Key punching is continuing and the first six months of 1971 data are scheduled for file build in October. Normally this file would be updated quarterly, but, due to the effort required to improve the 1968-1970 file, we have been forced to make a semi-annual update.

Documentation and instructions to provide interrogation capabilities by AMA member companies has been a continuous effort at HSRI. During September, 1970 handbooks entitled "Speedy Access

to Data (SPAD)" were distributed to AMA and member companies. These handbooks contained instructions for assessing various data files and executing analysis programs, and dictionaries of the existing data files.

In addition to the instructional documentation, HSRI conducted a two-day course to familiarize AMA and member company personnel with the Michigan Terminal System (hardware) and the Statistical Research System (software). Representatives from General Motors, Ford, Chrysler, AMC, Jeep and AMA were in attendance. Lecture presentations were separated by computer terminal practice sessions to assure a computer terminal level of competency by the attendees. Since that time data file and SPAD revisions have been distributed to system users via the "SPAD Newsletter." The newsletter has and will continue to act as a vehicle for informing the system users of pertinent changes, additions, and special notes of information regarding HSRI data files.

In March, 1971, a revised edition of the Handbook for Spad was issued. The revised edition offers clarified instructions for both file use and access, and program operation. It also includes additional descriptive material for beginning users of the Michigan Terminal System and HSRI's Statistical Research System. At present, the manual consists of the documentary section issued in March, 1971 and dictionary processor (dictionary/codebook/univariate listing) documents for each of the data files

available to SPAD users. This format will be followed, and dictionary processors will continue to be issued for new and updated files, until the documentary section of the manual is eventually replaced by an SR System Primer.

The primer, planned for release in December, 1971 will replace the SPAD documentation with similar write-ups for those programs now contained in SPAD, and with additional operation instructions for some of the other SR System programs not now available to SPAD users. It will offer an introduction to the MTS system in a form similar to the present MTS Manual, Volume 1. Together with the dictionary processors, this Primer will constitute the documentation for SPAD.

Efforts have also begun toward the formation of a keyword access system that would replace the present SPAD line file system. Information for the use of such a system would be added to the SR System Primer. This keyword information is scheduled to be released in the first quarter of 1972.

The HSRI SR System Manual--the revised version of the OSIRIS System used by the University's Institute For Social Research--now in use has been extensively revised and improved, and will be distributed some time in December, 1971. Formats have been edited for consistency, program write-ups have been clarified, and additional programs recently generated have been integrated into the manual, with the hopes that the document as a whole will be an improved and useful tool to the user of MTS and the SR System.



Additional Michigan accident data has been acquired and maintained during the grant period. Specifically this includes Level I police reports from Oakland County and fatal reports from the entire state. Oakland County data now exists for the complete calendar years of 1968, 1969 and 1970. Dictionary/Codebooks with self-contained univariate frequencies for 1968 and 1969 have been processed and distributed. The 1970 Oakland dictionary and univariate listing was not completed and ready for distribution at the close of the grant period; however, access to the 1970 Oakland data file is available to all users, since the dictionary is unchanged from the 1969 file.

The Michigan Fatal File now consists of seven years of data--1964 through 1970. It is updated each spring to add the previous years' data. Sixty-seven variables for each of these reports have been built into a digital file. Twenty-four of the variables describe accident-related information, while the remaining forty-three pertain to the driver and vehicle. Since this file covers seven years of fatal accident data from a defined geographical area, it represents an ideal data base for time series analysis. Due to limitations by the State Police, access to this file can be obtained only through the HSRI Systems Analysis Group.

To establish a nationally representative accident data system, HSRI has selected areas in Colorado, Washington, Texas, and Florida. These areas were selected because they each incorporate a population approximating that of Oakland County, and because

their accident records were in digital form. We have found that accident files containing approximately twenty-five thousand cases are sufficient for making valid statistical analyses of detailed questions without the high processing costs connected with larger mass files. The following descriptions represent the accomplishments toward establishing a nationally representative accident data system.

Denver, Colorado - This file contains 25,581 police reported accidents occurring within the Denver City/County during the 1969 calendar year. It contains 234 variables and should be considered one of the most detailed Level I files available. Access instructions, dictionary, codebook, and univariate distributions were published and distributed to AMA in August, 1971.

Digital tapes for 1970 Denver have been acquired and are being processed with a target completion date of October, 1971. The standard accident report for Colorado was moderately changed for 1970 which caused us to implement program changes to process the 1970 data. The 1970 dictionary/codebook will reflect the applicable changes.

Seattle, Washington - The file contains 28,572 accident cases from King, Snohomish, and Spokane Counties (less the city of Seattle) for the calendar year 1969. There are 194 variables per accident record. The city of Seattle is not included because the city police do not use

the standard state accident report form and, therefore, the data does not exist in digital form at the state level. Access and documentation instructions for this file were originally distributed in February, 1971, and, were followed by the dictionary/codebook/univariate listing in August, 1971.

Steps have been taken to acquire 1970 data; however, at the close of the grant period we had not received the material.

Texas - Approximately 375,000 1969 accident cases from the State of Texas have been acquired by HSRI. From these data, six files have been built. The first of these, the Texas Fatal Accident Data File, contains only fatal accidents extracted from the Texas data as a whole. Each accident is treated as a case and the cases number approximately 4,000. Accompanying this fatal file is a Fatal Accident Vehicle File in which each driver and vehicle is treated as a separate case. Another file has been constructed with accident cases from the San Antonio (Bexar County) area. This file contains 26,673 cases of fifty-six variables with a corresponding vehicle file containing 45,859 vehicle-driver combinations with 139 variables. These two files offer a variety of analysis opportunities since they resemble the Oakland County file in size and composition. Lastly, two files have been built which represent approximately a five percent sample of the state data. The Texas

Accident Data Sample File contains some 10,000 cases and is accompanied by a sample vehicle file. Each of the six files offers extensive user capabilities. The 1970 calendar year data has been received from Texas and is presently undergoing processing. Access and documentation will be available in November, 1971 under the continuing program.

Dade County, Florida - HSRI has acquired the data tapes from Florida for the period July 1, 1969 through December 30, 1970 and has been processing the material. The completed files are being structured by calendar year, since there are over 50,000 reported accidents annually consisting of approximately 80 variables each. File building and documentation for the Florida data will be completed and distributed in November, 1971. Updates will be processed annually.

During the course of the grant period, AMA asked HSRI to evaluate the feasibility of adding Cornell Aeronautical Lab Level IIA cases to the HSRI data bank. As a result of this request, HSRI built a CAL digital file for the first segment of level IIA cases covering 4,416 accidents of 77 variables each. Access to this file, including dictionary and codebook, was established in August, 1971. This file will be updated under the continuing support of AMA.

Efforts have continued at HSRI to encourage all accident

reporting agencies to appreciate the need for improving the quality and scope of their reporting. We have no direct authority in this area, but do take every opportunity to inform the applicable agencies of the need and usefulness of such information. The univariate distributions of data files have proved an effective tool in pointing out both deficiencies in reporting and the need for additional variables.

To supplement these efforts, HSRI is interfacing Oakland and Washtenaw County accident records with the SOS vehicle registration files, as mentioned previously, to upgrade the vehicle information available to researchers.

Another approach toward improving accident reporting is the bi-level reporting for special study projects. The first of this approach was implemented in March of 1971 concerning a "MINI-CAR STUDY." The State Police asked every police agency in the state (over 800) to complete a bi-level report whenever a Vega, Pinto, Gremlin, Colt, Cricket, Opel or Cortina was involved in an accident. Appendix D illustrates the reporting form. Although we at HSRI had anticipated the program would yield some 3,000 reports, it actually provided only 300 reports. Quality of reporting was excellent but the quantity was very disappointing. We have gained some valuable operational experience from this first attempt which should assure greater success in the future. The main lesson gained involved the sampling of agencies which will allow direct contact and personal

monitoring--an approach which is impossible with over 800 agencies. The "Mini-Car" data will be built into a digital file and an analysis report on the data will be published in HIT LAB Reports in the near future.

The computer terminal network which allows direct access to the accident data banks and analysis programs was originally established during the original contract and has been maintained throughout the grant period. This has proven to be a useful tool to industry as determined by their continued use. Acquisition and file building of collision data has continued under AMA sponsorship, while the individual member companies contract separately with HSRI for computer services and analysis support. Organizations with active contracts are:

General Motors Proving Ground

General Motors Research Lab

Ford Motor Company

Chrysler Corporation

American Motors Corporation

An important part of HSRI's efforts under the present contract involve the development, improvement, and maintenance of the computer system at the Institute. As mentioned above, there have been continuing efforts to improve and revise the SR System Manual, to produce an SR System Primer which will improve the quick-access SPAD system, and to generate a keyword access system for improved SPAD maintenance and use.

In addition, there have been a number of specific changes and additions to the system that are intended to enhance the continuing efforts of file building and maintenance. Several programs have been added to the system, notably Multiple Classification Analysis, Factor Analysis, a Dictionary Processor program that generates the codebook and univariate listing documents for all SPAD files, and an improved Histogram program which allows greater user capabilities.

Also, a number of program options have been incorporated into the system. The temporary recode option is now available. This feature of the system enables the user to reassign code values according to his preferences within a given analysis run. Although none of the accident data bases at HSRI presently include data which conforms to the requirements for the multiple response filter, this option offers the capability of filtering on more than one code for a given variable applicable to a single data case.

HSRI intends to continue their efforts in program improvement and development, generation of options geared to user needs, and general improvement of both data base documentation and software, in an effort to make the system most efficient for both institute and industry users.

In the area of clinical case collision studies conducted by the University of Michigan, Cornell Aeronautical Lab and UCLA, the Institute was responsible for acquiring the "Collision

Performance and Injury Reports" for processing to provide computer accessibility. In accomplishing this task HSRI has received 506 U of M cases, 463 UCLA cases, and 300 CAL reports. Of these 1028 have been processed and incorporated into the Revision 2 or 3 Long Form files. The Revision 2 file is complete and contains 716 case vehicles investigated by U of M and UCLA. All CAL cases and the more recent U of M cases are being processed into the Revision 3 file. The formation of two Long Form files was dictated by the data variable differences between the earlier "Collision Performance and Injury Reports" (Revision 2) and the last version, Revision 3. Documentation for accessing these files along with univariate listings was distributed in March, 1971, and updated as of July, 1971.

#### PART II - IN-DEPTH, OFF-SCENE ACCIDENT STUDIES

The primary objective of this study was to establish an investigation program within Washtenaw County which would yield sufficient detailed information to evaluate vehicle crash performance. This program was expected to provide approximately 350 case reports of recent model year vehicles which sustained sufficient damage to require towing from the scene, resulting in limited or no injuries to the occupants. In contrast to this program of essentially positive measures of vehicle performance, Dr. Huelke was, under separate contract, to investigate the injury producing cases.

In setting up this program we contacted the local police



agencies in cooperation with the program established by Dr. Huelke to assure timely notification of "acceptable" collisions. From this point we have continued to build upon experience gained from conducting investigations and the assistance provided by Dr. Huelke and Harold Sherman in the areas of equipment and investigative techniques. Our investigators have been continually up-graded by broad exposure to investigative processes (i.e., CAL three-week training class, "The Initial Management of the Acutely Ill or Injured Patient" course, vehicle subsystem and barrier crash demonstration by Ford Motor Company, and internal HSRI seminars).

In our first year of operation we achieved a level of 300 cases and although this is slightly below the expected annual level, we feel that from this point on the present system will confidently achieve 350 cases annually.

At the close of the grant period 131 of these Level II cases have been incorporated into the Revision 3 Long Form File and 125 cases have been submitted to AMA in duplicate for distribution to AMA member companies. Duplicates for fifty additional cases are being prepared every four to six weeks in an attempt to eliminate the backlog of case material requested by AMA. The backlog developed during the grant period as a result of re-evaluating the Long Form and 35 mm slide needs of AMA member companies. Final results of the evaluation established the requirement at "two" copies of each applicable case and

corresponding slides.

HSRI has developed a software program which renders each Level II into the requested AMA case summary format. An example is included as appendix E.

Approximately six oral presentations of selected Level II cases were made to the AMA member companies. The scope of this effort is considered a vital element in the continuing data collection and analysis program for Washtenaw County.

In conclusion, we at the Institute would like to express our appreciation for the support and personal cooperation of AMA staff personnel and member company representatives. This cooperation and the resulting communication have made this project one that all of us can be proud of. The emphasis during the grant period was toward the gathering of data and building of data files and analysis programs. We look forward now to shifting the emphasis toward increased analysis of the data by both industry and HSRI. During the grant many analyses were conducted and some of these were published monthly in a document entitled "HIT LAB REPORTS." An index of these articles is contained as appendix F.

## APPENDIX A

### Variables extracted from vehicle registration files

Model year  
Make  
Style  
Vehicle Identification Number  
Weight  
County  
Insurance Company  
ZIP code  
Owner's Driver License Number

### Variables generated from the VIN program

Driver/Owner Relationship  
Model year  
Make  
Body Size  
Body Style  
Number of Cylinders  
Cubic Inch Displacement  
Horsepower  
VIN (Less Production S/N)  
Production Serial Number

### Additional variables to be generated

Cubic Inch Displacement Bracketed  
Horsepower bracketed  
HP/WT Ratio  
HP/WT Ratio Bracketed

## PASSENGER VEHICLES ADT

1969

WASHTENAW

ALL TRUNKLINE SYSTEMS

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	INTERSTATE			OTHER LIMITED ACCESS			NON-LIMITED ACCESS		
	MILEAGE	ADT	AVM (000)	MILEAGE	ADT	AVM (000)	MILEAGE	ADT	AVM (000)
ANN ARBOR	3.019	21,759	23,976,	2.540	16,527	15,322,	7.779	19,099	54,229,
CHELSEA	0.000	0	0,	0.000	0	0,	2.626	5,715	5,478,
MANCHESTER	0.000	0	0,	0.000	0	0,	1.634	3,280	1,956,
MILAN	0.000	0	0,	0.521	12,449	2,367,	0.000	0	0,
SALINE	0.000	0	0,	0.000	0	0,	1.847	6,945	4,682,
YPSILANTI	1.489	40,851	22,202,	0.000	0	0,	4.355	19,023	30,238,
TOTAL INCORPORATED	4.508	28,065	46,178,	3.061	15,833	17,689,	18.241	14,506	96,583,
TOTAL UNINCORPORATED	28.876	24,471	257,923,	34.381	18,340	230,145,	59.444	6,688	145,114,
TOTAL URRANIZED AREA	14.983	31,187	170,554,	10.537	17,612	67,737,	22.189	17,996	145,749,
TOTAL NON-URBANIZED AREA	18.401	19,884	133,548,	26.905	18,339	180,098,	55.496	4,737	95,947,
COUNTY GRAND TOTAL	33.384	24,957	304,101,	37.442	18,135	247,835,	77.685	8,524	241,696,
				25.810	17,032	160,450			
				122.701	14,138	633,182			
				47.709	22,054	384,039			
				100.802	11,132	409,593			
				148.511	14,641	793,632			

APPENDIX B

PASSENGER VEHICLES ADT

1969

OAKLAND

ALL TRUNKLINE SYSTEMS

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	INTERSTATE			OTHER LIMITED ACCESS			NON-LIMITED ACCESS		
	MILEAGE	ADT	AVM (000)	MILEAGE	ADT	AVM (000)	MILEAGE	ADT	AVM (000)
TOTAL UNINCORPORATED	42.802	24,162	377,482,	12.198	13,729	61,127,	76.458	15,205	425,435,
TOTAL URRANIZED AREA	47.238	35,413	610,590,	23.592	30,221	260,235,	90.417	25,300	834,965,
TOTAL NON-URBANIZED AREA	18.894	20,636	142,316,	0.000	0	0,	33.771	10,096	124,453,
COUNTY GRAND TOTAL	66.132	31,191	752,906,	23.592	30,221	260,235,	124.188	21,166	959,418,
FINAL INCORPORATED				82.254	36,923	1,108,514			
FINAL UNINCORPORATED				131.658	17,980	864,044			
FINAL URBANIZED AREA				161.247	28,983	1,705,790			
FINAL NON-URBANIZED AREA				52.665	13,878	266,769			
FINAL COUNTY TOTAL				213.912	25,264	1,972,559			

## OAKLAND

## ALL TRUNKLINE SYSTEMS

	INTERSTATE			OTHER LIMITED ACCESS			NON-LIMITED ACCESS		
	MILEAGE	ADT	AVM (000)	MILEAGE	ADT	AVM (000)	MILEAGE	ADT	AVM (000)
BERKLEY	0.000	0	0,	0.000	0	0,	0.898	57,890	18,975,
BIRMGHAM FARMS	0.000	0	0,	0.000	0	0,	1.500	39,110	21,413,
BIRMINGHAM	0.000	0	0,	0.000	0	0,	2.333	50,439	42,951,
BLOOMFIELD HILL	0.000	0	0,	0.000	0	0,	2.878	38,954	40,920,
CLARKSTON	0.000	0	0,	0.000	0	0,	1.130	8,192	3,379,
FARMINGTON	0.000	0	0,	1.452	13,120	6,953,	3.811	13,993	17,422,
FERDALE	0.000	0	0,	0.000	0	0,	1.664	65,500	39,782,
HAZEL PARK	1.184	84,430	36,487,	0.429	71,131	11,138,	0.737	84,430	22,712,
HUNTINGTON WOOD	0.000	0	0,	0.000	0	0,	0.243	58,074	5,151,
LAKE ANGELUS	0.000	0	0,	0.000	0	0,	0.000	0	0,
LAKE ORION	0.000	0	0,	0.000	0	0,	0.980	21,461	7,677,
LIVONIA	0.000	0	0,	0.000	0	0,	0.000	0	0,
MADISON HEIGHTS	2.344	61,280	52,429,	0.000	0	0,	0.000	0	0,
NOV:	4.371	38,015	60,649,	0.578	40,640	8,574,	0.188	7,830	537,
ORTONVILLE	0.000	0	0,	0.000	0	0,	0.666	4,290	1,043,
OXFORD	0.000	0	0,	0.000	0	0,	0.952	12,231	4,250,
PLEASANT RIDGE	0.000	0	0,	0.000	0	0,	0.587	63,680	13,644,
PONTIAC	0.000	0	0,	1.967	13,774	9,889,	13.910	20,065	101,872,
QUAKERTOWN	0.972	28,320	10,047,	0.000	0	0,	0.000	0	0,
ROCHESTER	0.000	0	0,	0.000	0	0,	1.256	15,791	7,239,
ROYAL OAK	0.991	64,640	23,381,	0.000	0	0,	4.517	63,364	104,468,
SOUTHFIELD	2.630	46,915	45,036,	4.968	63,914	162,555,	5.264	32,579	62,597,
SYLVAN LAKE	0.000	0	0,	0.000	0	0,	0.025	30,280	276,
TROY	8.870	38,670	125,196,	0.000	0	0,	4.391	11,029	17,676,
WIXOM	1.968	30,901	22,197,	0.000	0	0,	0.000	0	0,
TOTAL INCORPORATED	23.330	44,087	375,423,	11.394	47,876	199,109,	47.530	30,780	533,983,

## APPENDIX C

### Vehicle Check Lane Data File Description

This file contains approximately 11,000 cases coded for 68 variables on vehicles inspected by the Michigan State Police and by the Ann Arbor and Kalamazoo Police Departments during 1968. The Michigan State Police cases cover those vehicles which were inspected in Kalamazoo, Washtenaw, and Muskegon Counties. The city police information was naturally collected within the department's local jurisdictions. The file is located, effective January 10, 1970, on tape G319 which has a tape id of "WK3." SR System DDEF parameters are as follows:

The variables included are:

<u>Number</u>	<u>Designation</u>
01	Organization
02	Team
03	County -- MSP Code
04	County -- HSRI Code
05	Location
06	Car Number
07	Month
08	Day
09	Year
10	Days after 5/1
11	2 weeks after 5/1
12	Month of Project
13	Car Make
14	Car Year
15	Car Age
16	Car Age (3YR Grps)
17	Car Type
18	Car Miles (1000's)
19	Car Miles (10000's)
20	Pass or Fail
21	Pass or Fail ex HLA
22	Total Defects
23	Total Vehicle Defects
24	Total Defects ex HLA
25	Total Veh. Def. ex HLA

<u>Number</u>	<u>Designation</u>
26	Total Lighting Def.
27	Total Lights ex HLA
28	Total Rear Light
29	Total Control System
30	Total Vision
31	Total Misc.
32	Safety Glass
33	Vision Impared
34	Other Glass--Mirrors
35	Wipers
36	Washers
37	Front Directional
38	High Beam HL
39	Low Beam HL
40	Head Light Aim
41	Head Light Output
42	Tail Lights
43	Stop Lights
44	Rear Directional
45	Plate Light
46	Beam Indicator
47	Horn
48	Steering
49	Foot Brake
50	Hand Brake
51	Tire Body
52	Tire Tread
53	Exhaust Noisey
54	Exhaust Smokey
55	Total Driver
56	Driv. Lic. NOP
57	Driv. Lic. IMP
58	Registration NOP
59	Registration IMP
60	Insurance NOP
61	Insurance IMP
62	Summons
63	Inspection Num
64	Seat Belt Use
65	Reg. Num.
66	Veh. Pass-Fail
67	Veh. Pass-Fail ex HLA
68	Driver Pass-Fail ex HLA



A more complete listing of the variables and their codes is shown below:

- Variable 1      Organization  
 Police Organization conducting inspection.  
 1 = Ann Arbor Police Department  
 2 = Kalamazoo Police Department  
 3 = Michigan State Police Department  
 4 = Missing Data Code 2  
 9 = Missing Data Code 1
- Variable 2      Team  
 Specific group within police organization conducting inspection.  
 10 = Ann Arbor Police Department  
 20 = Kalamazoo Police Department  
 26 = Ypsilanti State Police Post  
 41 = Jackson State Police Post  
 46 = Battle Creek State Police Post  
 51 = Paw Paw State Police Post  
 64 = Grand Haven State Police Post  
 65 = Missing Data Code 2  
 99 = Missing Data Code 1
- Variable 3      County--MSP Code  
 Indicates which county in which inspection was conducted. Michigan State Police codes are used.  
 39 = Kalamazoo County  
 61 = Muskegon County  
 81 = Washtenaw County  
 99 = Missing Data
- Variable 4      County--HSRI Code  
 Indicates which county in which inspection was conducted. HSRI code for project is used.  
 1 = Washtenaw County  
 2 = Kalamazoo County  
 3 = Muskegon County  
 4 = Missing Data Code 2  
 9 = Missing Data Code 1
- Variable 5      Location  
 Four digit code indicating which location for a particular team was used in conducting the inspection. First two digits indicate team number and last two digits the specific location. For city police departments location numbers correspond to the sequential number of the inspection for the year.  
 Example:

- 10001 would be the first inspection of the year for the Ann Arbor Police Department.  
 2601 would be location number one for team 26, Ypsilanti State Police Post.  
 6500 = Missing Data Code 2  
 9999 = Missing Data Code 1
- Variable 6      Car Number  
 Six digit code giving sequential number of car inspected for each team. First two digits indicate team number, last four digits indicate car sequence. Example: 510956 would be the 956th car inspected by team 51.  
 650000 = Missing Data Code 2  
 999999 = Missing Data Code 1
- Variable 7      Month  
 Calendar month in which inspection was conducted.  
 01 = January  
 12 = December  
 13 = Missing Data Code 2  
 99 = Missing Data Code 1
- Variable 8      Day  
 Day of calendar month in which inspection was conducted.  
 01 = First day of month  
 31 = 31st day of month  
 32 = Missing Data Code 2  
 99 = Missing Data Code 1
- Variable 9      Year  
 Last two digits of calendar year in which inspection was conducted.  
 68 = 1968  
 69 = Missing Data Code 2  
 99 = Missing Data Code 1
- Variable 10     Days after 5/1  
 Number of calendar days elapsed after May 1 on which inspection was conducted.  
 001 = May 1  
 143 = August 31  
 144 = Missing Data Code 2  
 999 = Missing Data Code 1
- Variable 11     2 Weeks after 5/1  
 Two two week period after May 1 in which the inspection was conducted.

01 = May 1 - May 14  
 02 = May 15 - May 28  
 03 = May 29 - June 11  
 04 = June 12 - June 25  
 05 = June 26 - July 9  
 06 = July 10 - July 23  
 07 = July 24 - August 6  
 08 = August 7 - August 20  
 09 = August 21 - August 31  
 12 = Missing Data Code 2  
 99 = Missing Data Code 1

- Variable 12      Month of Project  
 The month of the project during which the inspection was conducted.  
 1 = May, 1968  
 2 = June, 1968  
 3 = July, 1968  
 4 = August, 1968  
 5 = Missing Data Code 2  
 9 = Missing Data Code 1
- Variable 13      Car Make  
 Make of car inspected. See Hitlab codes for coding of this variable.
- Variable 14      Car Year  
 Model year of car inspected.  
 68 = 1968 Model Car  
 69 = Missing Data Code 2  
 99 = Missing Data Code 1
- Variable 15      Car Age  
 Age of car inspected  
 01 = 0-1 year old car  
 02 = 1-2 year old car  
 69 = Missing Data Code 2  
 99 = Missing Data Code 1
- Variable 16      Car Age (3YR GRP)  
 Age of car inspected in three year intervals.  
 1 = 0-3 years old  
 2 = 4-6 years old  
 7 = 19-21 years old  
 8 = 22 years and older  
 9 = Missing Data

- Variable 17      Car Type  
 0 = Full size passenger car  
 1 = Intermediate size passenger car  
 2 = Compact size passenger car  
 3 = Sports car  
 4 = Station bus, caryall  
 5 = Jeeps  
 6 = Pickup or panel truck  
 7 = Unit truck or straight tractor  
 8 = Semi-tractor  
 9 = Other or missing data
- Variable 18      Car Miles (1000's)  
 Car mileage in 1000 mile units  
 00 = 0-998 miles  
 01 = 1000-1999 miles  
 97 = 97000-97999 miles  
 98 = 98000 miles and up  
 99 = Missing Data
- Variable 19      Car miles (10,000's)  
 Car mileage in 10,000 miles units  
 0 = 0 - 9999 miles  
 1 = 10000-19999 miles  
 7 = 70000-79999 miles  
 8 = 80000 miles and up  
 9 = Missing Data
- Variable 20      Pass or Fail  
 Indicates whether vehicle and driver as a whole  
 passed or failed inspection.  
 0 = Pass  
 1 = Fail  
 2 = Missing Data Code 2  
 9 = Missing Data Code 1
- Variable 22      Total Defects  
 The total number of defects observed in the vehicle  
 and in the driver as a whole.  
 00 = No defects found  
 01 = 1 defect found  
 29 = 29 defects found  
 30 = Missing Data Code 2  
 99 = Missing Data Code 1
- Variable 23      Total Vehicle Defects  
 The total number of defects observed in the vehicle  
 as a whole.  
 00 = No defects found  
 01 = 1 defect found  
 23 = 23 defects found  
 24 = Missing Data Code 2  
 99 = Missing Data Code 1

- Variable 24      Total Defects ex HLA  
The total number of defects observed in the vehicle and  
in the driver with the exception of headlight aim.  
00 = No defects found  
01 = 1 defect found  
29 = Missing Data Code 2  
99 = Missing Data Code 1
- Variable 25      Total Veh. Def. ex HLA  
The total number of defects observed in the vehicle  
with the exception of head light aim.
- Variable 26      Total Lighting Def.  
The total number of defects observed in the vehicle  
lighting system including turn signals (front and  
rear), headlight output, headlight aim, stop, tail,  
and plate lights.  
0 = No defects found  
1 = 1 defect found  
8 = 8 or more defects found  
9 = Missing Data
- Variable 27      Total Lighting Def ex. HLA  
Same as variable 26 with the exception of headlight aim.
- Variable 28      Total Rear Light  
Total number of rear lighting defects including stop,  
plate, tail, and rear turn lights.  
0 = No defects found  
1 = 1 defect found  
4 = 4 defects found  
5 = Missing Data Code 2  
9 = Missing Data Code 1
- Variable 29      Total Control System  
Number of defects found in the control system components  
including brakes, tires, and steering.  
0 = No defects found  
5 = Five defects found  
6 = Missing Data Code 2  
9 = Missing Data Code 1

- Variable 30      Total Vision  
 Number of defects found in the visual components  
 including safety glass, wipers, washers, mirrors,  
 and other glass.  
 0 = No defects found  
 5 = Five defects found  
 6 = Missing Data Code 2  
 9 = Missing Data Code 1
- Variable 31      Total Misc.  
 Defects found in other components including beam  
 indicator, headlight aim, exhaust, and horn.  
 0 = No defects found  
 5 = Five defects found  
 6 = Missing Data Code 2  
 9 = Missing Data Code 1
- Variable 32      Safety Glass  
 0 = Pass  
 1 = Fail  
 2 = Missing Data Code 2  
 9 = Missing Data Code 1
- Variable 33      Vision Impaired  
 0 = Pass  
 1 = Fail  
 2 = Missing Data Code 2  
 9 = Missing Data Code 1
- Variable 34      Other Glass -- Mirrors  
 0 = Pass  
 1 = Fail  
 2 = Missing Data Code 2  
 9 = Missing Data Code 1
- Variable 35      Wipers  
 0 = Pass  
 1 = General Fail  
 2 = Arms Failed  
 3 = Blades Failed  
 4 = Both arms and blades failed  
 5 = Missing Data Code 2  
 9 = Missing Data Code 1
- Variable 36      Washers  
 0 = Pass  
 1 = General fail  
 2 = Not equipped fail  
 3 = Not operable fail  
 4 = Missing Data Code 2  
 9 = Missing Data Code 1

Variable 37 Front Directional (Turn Signal)  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1

Variable 38 High Beam HL (Headlight)  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1

Variable 39 Low Beam HL  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1

Variable 40 Headlight Aim (HLA)  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1

Variable 41 Headlight Output  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1

Variable 42 Tail Lights  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1

Variable 43 Stop Lights  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1

Variable 44 Rear Directional (Turn Signal)  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1

Variable 45 Plate Light  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1

Variable 46      Beam Indicator  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1

Variable 47      Horn  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1

Variable 48      Steering  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1

Variable 49      Foot Brake  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1

Variable 50      Hand Brake  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1

Variable 51      Tire body  
0= Pass  
1= Buldge or Break  
2= Buldge  
3= Break  
4= Buldge and Break  
5= Missing data code 2  
9= Missing data code 1

Variable 52      Tire tread  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1

Variable 53      Exhaust Noisey  
0= Pass  
1= Fail  
2= Missing data code 2  
9= Missing data code 1



- Variable 54. Exhaust Smokey  
 0= Pass  
 1= Fail  
 2= Missing data code 2  
 9= Missing data code 1
- Variable 55 Total Driver.  
 Number of defects or errors found  
 in driver's license, registration,  
 and insurance regulation compliance  
 of vehicle operator.  
 0= No defects  
 6= Six defects  
 7= Missing data code 2  
 9= Missing data code 1
- Variable 56 Driv Lic NOP  
 No drivers license on person  
 0= Pass (Had license)  
 1= Did not have license on person  
 2= Missing data code 2  
 9= Missing data code 1
- Variable 57 Driv Lic  
 Improper drivers license of some  
 nature.  
 0= No problems discovered  
 1= Suspended or revoked license  
 2= Suspended license  
 3= Revoked license  
 4= Other license violation  
 5= Multiple license violations  
 6= Missing data code 2  
 9= Missing data code 1
- Variabel 58 Registration NOP  
 No registration certificate on person  
 0= Registration on person and valid  
 1= No registration on person  
 2= Missing data code 2  
 9= Missing data code 1
- Variable 59 Registration Imp  
 Improper registration of some nature  
 such as expired, altered, or for wrong  
 vehicle.  
 0= Registration proper  
 1= Registration improper  
 2= Missing data code 2  
 9= Missing data code 1

Variable 60 Insurance NOP  
Insurance certificate not with operator  
0= Insurance certificate proper  
1= Insurance certificate not on person  
2= Missing data code 2  
9= Missing data code 1

Variable 61 Insurance Imp  
No compliance with requirement for  
liability insurance.  
0= Complied  
1= Not complied  
2= Missing data code 2  
9= Missing data code 1

Variable 62 Summons  
Type of summons issued  
0= No summons issued  
1= Equipment summons issued  
2= Other summons issued  
3= Multiple summons issued  
4= Missing data code 2  
9= Missing data code 1

Variable 63 Inspection number  
Number of times the given vehicle  
had been inspected with current  
inspection.  
1= Initial inspection  
2= First reinspection  
7= Sixth reinspection  
8= Seventh or subsequent reinspection  
9= Missing data

Variable 64 Seat Belt Use  
0= Equipped and used  
1= Equipped and not used  
2= Not equipped  
3= Missing data code 2  
9= Missing data code 1

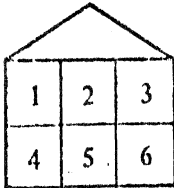
Variable 65 Reg Num  
1968 Michigan Vehicle Registration Number  
(Alphabetic variable)  
999998=Out of state vehicle  
999999=Missing data

Variable 66      Vehicle Pass-Fail  
0= Passed  
1= Failed  
9= Missing Data

Variable 67      Vehicle Pass-Fail except Headlight Aim  
0= Passed  
1= Failed  
9= Missing Data

Variable 68      Driver Pass-Fail  
0= Passed  
1= Failed  
9= Missing Data

APPENDIX D  
Supplemental Report - Mini Car



Mini-Car Name

- Vega
- Pinto
- Gremlin
- Colt
- Cricket
- Opel
- Cortina

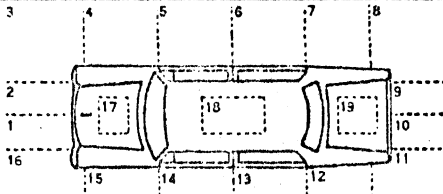
POS	WT	HT	LAP BELT WORN	SHOULDER BELT WORN	EJECTED THRU	INJURY DESCRIPTION/ SOURCE OF INJURY

SMALL CAR  
VEHICLE IDENTIFICATION

SMALL CAR  
ODOMETER READING

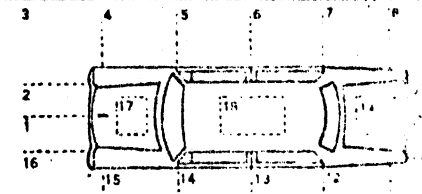
VEHICLE DAMAGE SEVERITY (Enter codes in vehicle damage area(s) - Severity Codes: 1-Slight or Minor 2-Moderate 3-Severe or Extreme)

MINI CAR



20 Undercarriage

OTHER VEHICLE



20 Undercarriage

ALLEGED MINI CAR MALFUNCTION

COMPONENT PERFORMANCE (Check all applicable boxes)

Steering Column

- No Visual Displacement
- Visual Forward Displacement
- Visual Rearward Displacement
- Visual Side Displacement

Steering Wheel

- Undamaged
- Damaged (Describe) \_\_\_\_\_  
i.e. bent rim, broken spokes, etc.

Windshield

- Undamaged
- Struck by Hood
- Struck by Occupant (Give Seated Position) \_\_\_\_\_
- Penetrated by Occupant
- Separated from Mounting \_\_\_\_\_%

Instrument Panel

- Undamaged
- Damaged by Occupant Contact
- Damaged by Collision

Passenger Compartment Reduced in Size

- Yes \_\_\_\_\_%
- No

Fuel Tank

- Undamaged
- Deformed
- Leakage
- Caught Fire

Front Seat

- Undamaged
- Seat Back Latch Damaged
- Seat Adjuster Damaged

Tire Wear

- Light
- Medium
- Heavy
- Bald

Door Latches	LF	RF	LR	RR
<input type="checkbox"/> Undamaged				
<input type="checkbox"/> Released during Collision				
<input type="checkbox"/> Separated from Mountings				
Doors				
<input type="checkbox"/> Undamaged				
<input type="checkbox"/> Sheet Metal Damage - Door Still Functional				
<input type="checkbox"/> Torn Open in Collision				
<input type="checkbox"/> Flew Open in Collision				

Judgment remarks about mini car - i.e. visual inspection from original factory equipment, accident causation, suggested design changes to reduce injuries, etc.

\_\_\_\_\_

\_\_\_\_\_

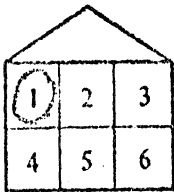
Date \_\_\_\_\_

Dept. \_\_\_\_\_

INSTRUCTIONS FOR COMPLETING MINI CAR REPORT

Supplement 1 HSRI

MINI CAR INFORMATION



POS	WT	HT	LAP BELT WORN	SHOULDER BELT WORN	EJECTED THRU	INJURY DESCRIPTION/ SOURCE OF INJURY
1	185	6'1"	YES	NO	N/A	FACIAL LACERATION / STEERING WHEEL AREA

1. Circle the seated locations occupied by driver and passengers of the mini car.
2. Insert position (POS) number, weight (WT), height (HT), and lap/shoulder belt usage for each occupant regardless of injury code.
3. If occupant was ejected from the vehicle indicate the specific vehicle component occupant was ejected thru (i.e. left-front door window glass, right front door, windshield etc.).
4. For an injured occupant, write the name of the body part injured (i.e. eye, nose, skull, leg, hand, etc.) and the nature of injury (i.e. bruises, lacerations, abrasions, fractures, burns, internal injuries, etc.)
5. If you are reasonably assured that specific vehicle components contacted by the occupant resulted in an associate injury enter that component adjacent to the indicated injury description as illustrated above.

MINI CAR VEHICLE IDENTIFICATION	166396F162098	SMALL CAR ODOMETER READING	3,421
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6. Record the vehicle identification number located on the left side of the instrument panel adjacent to the windshield mounting. VIN can be viewed from exterior of the vehicle or recorded from the vehicle registration record.
7. Record odometer reading disregarding tenths of a mile.

VEHICLE DAMAGE SEVERITY (Enter codes in vehicle damage area(s) - SEVERITY CODES: 1-SLIGHT OR MINOR 2-MODERATE 3-SEVERE OR EXTREME)	
<p>MINI CAR</p> <p>20 Undercarriage _____</p>	<p>OTHER VEHICLE *</p> <p>20 Undercarriage _____</p>

8. Estimate the severity of damage to the mini-car and the other vehicle if applicable. Then enter the appropriate code values in the diagram(s) as illustrated in the example.
9. If you feel a mini-car malfunction was a contributing accident causation factor indicate the specific vehicle component, and explain in remarks section.
10. Check all applicable boxes of mini-car component performance. Codes for door information are:  
 LF = Left Front (Driver's Position)  
 RF = Right Front  
 LR = Left Rear  
 RR = Right Rear
11. Enter date, department and complaint number along with any judgement remarks concerning the mini-car.
12. Attach supplemental report to the UD-10 report and forward through normal reporting channels.

APPENDIX E

UNIVERSITY OF MICHIGAN, HIGHWAY SAFETY RESEARCH INSTITUTE  
 ACCIDENT INVESTIGATION SUMMARY  
 SEPT-OCT 1971

HSRI 263

HSRI 263

CASE NUMBER

	UM DATA	AMA NOTES
CASE VEHICLE	1970 FORD FULL SIZE 2 DOOR SEDAN.	
OBJECT STRUCK		
OTHER VEHICLE	1971 FORD COMPACT 2 DOOR SEDAN.	
COLLISION TYPE	INTERSECTION	
DAMAGE INDEX	PRIMARY 03-FYHW-3 SECONDARY 02-RFEE-6	
OCCUPANT I. D.	DRIVER /24YRS, 200LBS, 72IN. , MALE. LC-FRONT /29YRS, 180LBS, 69IN. , FEMALE. R-REAR /32YRS, 120LBS, 65IN. , MALE. C-REAR /30YRS, 110LBS, 65IN. , FEMALE.	
INJURY SEVERITY	DRIVER /MINOR LC-FRONT /MODERATE R-REAR /CRITICAL C-REAR /CRITICAL	
RESTRAINTS USED	DRIVER /LAP BELT LC-FRONT /LAP BELT UPPER TORSO R-REAR /NONE C-REAR /NONE	
EST. IMPACT SPEED	CASE VEHICLE-10 MPH. OTHER VEHICLE-30 MPH.	
ST.G. COL. COLLAPSE: E. A. DEVICE CAPSULES	5.9IN. COMPRESSION 4.1IN. SEPARATION	
SEAT PERFORMANCE: LATCH TRACK OTHER	NO DAMAGE	
GENERAL COMMENTS	66IN. CRUSH TO FRONT 12IN. CRUSH, L. SIDE 10IN. CRUSH, R. SIDE FUEL TANK FIRE	

# HIT LAB REPORTS: ANNUAL INDEX

## September 1970-August 1971

- Age and Sex of Drivers Involved in Fatal Crashes in Michigan During 1968/*T. L. McDole*, February 1971 (pp.10-12).
- Analyses of Truck Crash Data/*J. O'Day*, October 1970 (pp.1-3).
- Analysis of Collisions Involving Rear Vision/*R. G. Mortimer, T. J. VanderMey*, March 1971 (pp.4-5).
- Arvai, E.S. The Effect of Salt on the Number of Winter Accidents.
- Bicycle Transportation: Inferences from Mass Accident Data/*H. L. Smith*, June 1971 (pp.7-18).
- Brown, B.* Small Car Accident Involvement.
- Can the Effect of Changes in Vehicle Design Be Seen in Mass Accident Data?/*J. O'Day, J. S. Creswell*, February 1971 (pp.1-9).
- Carlson, W. L.* Induced Exposure Revisited.
- .Snowmobile Crash Analysis.
- Carroll, P. S.* The Meaning of Driving Exposure.
- Characteristics of Alcohol Involvement in Michigan Fatalities 1966-1969/*J. O'Day*, October 1970 (pp.4-10).
- Comparison of Driver Age with Number of Passengers and Passenger Ages/*W. T. Pollock*, October 1970 (pp.11-12).
- Damage Patterns for Passenger Sedans and Trucks/*R. E. Scott*, November 1970 (pp.5-6).
- Darby, R. E., Jr.* HSRI Accident Data Banks--March.
- .Injury Level by Vehicle Age.
- (A) Determination of the Relative Collision Involvement of Trucks and Other Vehicles/*D. D. van der Zwaag*, July 1971. (pp.1-5).
- Drinking Involvement and Age of Young Drivers in Fatal Accidents/*J. O'Day*, October 1970 (pp.13-14).
- Drinking Involvement in 1968 Michigan Fatal Accidents/*J. O'Day*, November 1970 (pp.7-10).
- (The) Effect of Salt on the Number of Winter Accidents/*E. S. Arvai*, January 1971 (pp.9-11).
- (An) Empirical Analysis of Accident Data Using Induced Exposure/*W. K. Hall*, September 1970 (pp.6-12).
- Epstein, J.* A Preliminary Report on Alcohol-Involved Crashes in Washtenaw County, Michigan.
- Green, J. A.* Vital Statistics of Passenger-Car Occupants for Each Vehicle Seating Position.
- Hall, W. K.* An Empirical Analysis of Accident Data Using Induced Exposure.
- Highway Behemoths: Dump Trucks and Transit Mix Trucks Compared/*J. O'Day*, July 1971. (pp.6-7).
- HSRI Accident Data Banks--March/*R. E. Darby, Jr., B. Brown*, March 1971 (pp.1-3).
- HSRI Accident Data Banks--September/*J. O'Day, R. E. Darby, Jr.*, September 1970 (pp.1-5).
- Induced Exposure as a Tool to Determine Passenger Car and Truck Involvement in Accidents/*D. D. van der Zwaag*, January 1971 (pp.1-8).
- Induced Exposure Revisited/*W. L. Carlson*, November 1970 (pp.1-4).
- Injury Level by Vehicle Age/*R. E. Darby, Jr., J. O'Day*, September 1970 (pp.13-15).
- Letters from our Readers/*J. D. States*, June 1971 (pp. 1-2); *E. F. Westrum*, August 1971 (p.8).
- Marsh, J. C., IV.* The Multi-Disciplinary Accident Investigation (MDAI) Data Bank.
- .The Multi-Disciplinary Accident Investigation Data Bank: January 1971 Status.
- .The Multi-Disciplinary Accident Investigation Data Bank: July 1971 Status.
- McDole, T. L.* Age and Sex of Drivers Involved in Fatal Crashes in Michigan During 1968.
- .Motorcycles: Random Particles in the Traffic Stream.
- .So You Want to Sell Safety.
- (The) Meaning of Driving Exposure/*P. S. Carroll*, April 1971 (pp.1-3).
- Mortimer, R. G.* Analysis of Collisions Involving Rear Vision.
- Motorcycles: Random Particles in the Traffic Stream/*T. L. McDole*, December 1970 (pp.1-8).
- (The) Multi-Disciplinary Accident Investigation (MDAI) Data Bank/*J. C. Marsh, IV*, December 1970 (pp.9-11).
- (The) Multi-Disciplinary Accident Investigation Data Bank: January 1971 Status/*J. C. Marsh, IV*, January 1971 (p.12).
- (The) Multi-Disciplinary Accident Investigation Data Bank: July 1971 Status/*J.C. Marsh, IV*, July 1971 (p.8).
- O'Day, J.* Analyses of Truck Crash Data.
- .Characteristics of Alcohol Involvement in Michigan Fatalities 1966-1969.
- .Drinking Involvement and Age of Young Drivers in Fatal Accidents.
- .Drinking Involvement in 1968 Michigan Fatal Accidents.
- .Highway Behemoths: Dump Trucks and Transit Mix Trucks Compared.
- .HSRI Accident Data Banks--September.
- Pollock, W.T.* Comparison of Driver Age with Number of Passengers and Passenger Ages.
- A Preliminary Report on Alcohol-Involved Crashes in Washtenaw County, Michigan/*J.D. Epstein*, August 1971 (pp.1-7).
- Recognizing the Drinking Driver/*C.A. Rosenblatt*, May 1971 (pp.1-4).
- Rosenblatt, C.A.* Recognizing the Drinking Driver.
- Scott, R.E.* Damage Patterns for Passenger Sedans and Trucks.
- Small Car Accident Involvement/*B. Brown*, November 1970 (pp.11-12).
- Smith, H. L.* Bicycle Transportation: Inferences from Mass Accident Data.
- Snowmobile Crash Analysis/*W. L. Carlson, M. Compton*, March 1971 (pp.6-8).
- So You Want to Sell Safety/*T. L. McDole*, May 1971 (pp.5-8).
- States, J. D.* Letters from our Readers.
- van der Zwaag, D. D.* A Determination of the Relative Collision Involvement of Trucks and Other Vehicles.
- .Induced Exposure as a Tool to Determine Passenger Car and Truck Involvement in Accidents.
- .A Vehicle Interaction Model: A Method for Determining Exposure to Several Types of Accident Situations.
- (A) Vehicle Interaction Model: A Method for Determining Exposure to Several Types of Accident Situations/*D. D. van der Zwaag*, June 1971 (pp.3-6).
- Vital Statistics of Passenger-Car Occupants for Each Vehicle Seating Position/*J. A. Green*, April 1971 (pp.1-3).
- Westrum, E. F., Jr.* Letters from our Readers.

