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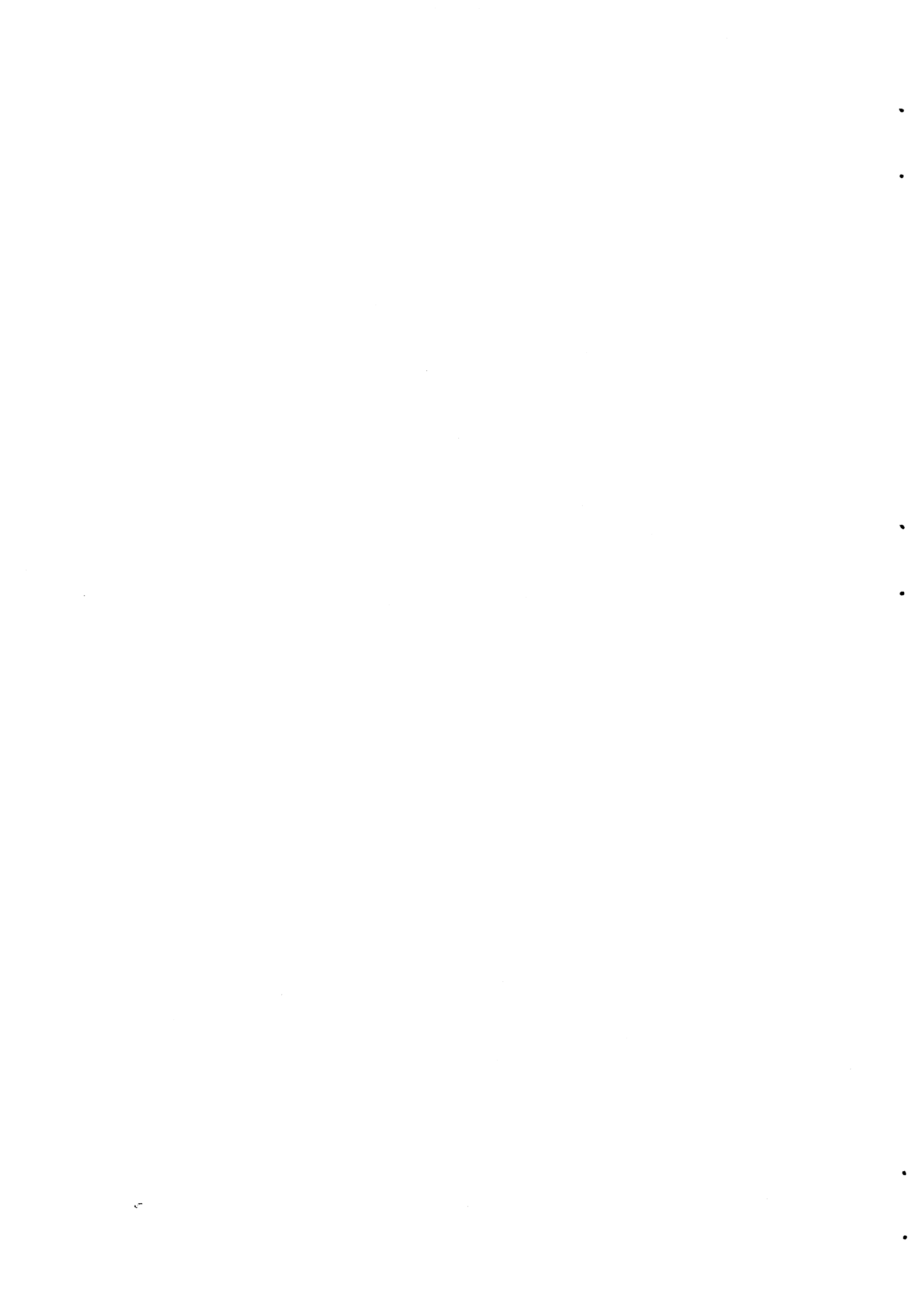
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**Oakland County In-Depth
Collision Investigation Program**

**Vehicle
Research
Institute**

**vehicle research
institute report
VRI 6.1**

SOCIETY OF AUTOMOTIVE ENGINEERS, INC.



UM-HSRI-SA-75-10

OAKLAND COUNTY IN-DEPTH
COLLISION INVESTIGATION PROGRAM

Final Report

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Report to:

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16. Abstract <p>This report covers the field accident investigations conducted in Oakland County, Michigan from February 1, 1973 to July 31, 1974. During this period a total of 258 in-depth investigations were conducted of late model cars. From March 1, 1974 to July 31, 1974 data were collected on 1973 and 1974 passenger cars for an evaluation of restraint system effectiveness. A total of 230 cars were investigated during this phase of the program.</p>					
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1. Introduction

In July of 1971 The University of Michigan's Highway Safety Research Institute (HSRI), under the sponsorship of the Motor Vehicle Manufacturers Association (MVMA), began a collision investigation program in Oakland County, Michigan. During the period from February 1, 1973 to July 31, 1974 the program was sponsored by the SAE. Since August 1, 1974 the program has continued, but again under the sponsorship of the MVMA. This report describes the program and covers the collision data collection during the period supported by the SAE.

Police-reported accident data for all of Oakland County have been maintained at HSRI in digital form since 1968. The county was originally selected for several reasons: (1) The number of reported accidents per year is approximately 35,000, an appropriate quantity considering analysis cost and statistical validity; (2) the police-reported data have been augmented with geographic location data by the Traffic Improvement Association (TIA) of Oakland County; and (3) the rapid influx of current model year cars into the population in this area. By conducting off-scene, in-depth investigations of vehicle damage and personal injury in this area, it was expected that a valuable addition would be made to the body of data available for evaluating the effectiveness of safety features in current-model-year cars soon after their introduction. Initial expectations were that about 400 cases per year could be investigated, although the actual number achieved was about 300.

Early in 1973 the project was redefined and reoriented with the objective of collecting field data for an evaluation of the efficacy of the restraint system, including the ignition interlock, of 1974 passenger cars. This latter phase of the

program, which is continuing under support from the MVMA, will be referred to as the Restraint System Effectiveness Study (RSES).

This report thus covers two related but quite different field data collection efforts. The report is accordingly divided into two sections; the first covering the original in-depth Collision Investigation Program, and the second covering data collection for the Restraint System Effectiveness Study.

2. In-Depth Collision Investigation

The collision investigation program from February 1, 1973 to January 19, 1974 was a continuation of the program started in July, 1971, without any significant changes. A brief description of the program will be given here, with a summary of investigations conducted during this period. A more detailed description of the project is given in reference 1.

2.1 Project Area

Oakland County contains a large number of political jurisdictions, including 40 cities and villages, and 24 townships. These communities have nearly 60 local police agencies. An accident investigation program drawing from such a large number of separate agencies would be unwieldy and inefficient. For these reasons, six communities were selected for the project area. The six communities (see Figure 1) of

Bloomfield Township
City of Pontiac
City of Royal Oak
City of Southfield
City of Troy
Waterford Township

were selected because they have their own police departments which investigate traffic accidents, are geographically compact, and report a large proportion of the accident experience of the county.

Oakland County, which lies just north of the city of Detroit, has a population of 908,000. The population of the six project communities is 381,000, or 42 percent of the county. They also account for 46 percent of the 35,000 accidents reported by police each year.

Holly	Groveland	Brandon	Oxford	Addison
Rose	Springfield	Independence	Orion	Oakland
Highland	White Lake	WATERFORD	PONTIAC	Avon
Milford	Commerce	West Bloomfield	BLOOMFIELD	TROY
Lyon	Novi	Farmington	SOUTHFIELD	ROYAL OAK

Figure 1. Oakland County's In-depth Accident Investigation Program. Project communities are indicated by shading.

2.2 Cooperating Agencies

The success of a collision investigation program depends on cooperation from a number of agencies involved after a crash. Early in the planning of the program, it was decided to house the field staff at a location central to the six project communities and minimize the difficulty of reaching the crash locations and agencies involved. The Traffic Improvement Association of Oakland County graciously offered to provide office space, and until the project moved into separate quarters when more space was needed, the TIA provided an excellent location. Police departments were initially contacted through the auspices of the TIA, and arrangements were made for daily contact with each department for notification of accidents meeting the project criteria.

Each community includes several towing services which remove vehicles to their own location, depending on the place of the accident. The one exception is the Bloomfield Township Police Department which has its own pound and virtually every vehicle towed from the scene is taken first to this pound. In each case, cooperation was obtained from the towing service. Their cooperation was essential since the vehicle inspection is normally conducted in their storage yards. Occasionally the vehicle has been moved to a subsequent site before inspection by the field investigators, and the cooperation of the towing services allows successful follow-up.

The principle sources of injury information on individual victims are participating physicians at each of four cooperating hospitals in the area. Early in the project, it was estimated that over 80% of the victims conveyed from crashes in the project area are taken to one of these four hospitals. Thus with a relatively small number of cooperating medical facilities, medical information is available on a large majority of seriously injured victims. Data on victims

taken to other facilities, or the less seriously injured, are obtained by phone or mail contact with individual victims, their physicians, or attorneys. Although the rate of success of collecting injury data is less for the non-hospital cases, the rate is high for victims with significant injury.

2.3 Operating Procedures

Selection of a vehicle for investigation was based on two sets of criteria-vehicle, and injury. The vehicle criteria is:

a. Passenger Cars	Current Model Year
Trucks - under 20,000 lbs. GVW	Current model year plus last two model years
- over 20,000 lbs. GVW	Current model year plus last nine model years
Multipurpose Passenger Vehicles	Current model year plus last two model years
Buses	Current model year plus last nine model years

- b. Current model is defined as the manufacturer's designated model year during the coinciding calendar year. For example, 1973 model vehicles were acceptable and desirable in 1973. Further, all reported 1974 vehicles were required beginning with the model introduction in 1973. If the above schedule did not provide a sufficient number of cases to meet the contractor work loads, 1972 vehicles were acceptable only as necessary to maintain contractor work loads until a sufficient number of cases involving 1974 or 1973 vehicles became available. In no case was an older vehicle to be covered at the expense of a newer vehicle. As a sufficient number of 1974 and 1973 vehicles became available HSRI selected a cut-off date for 1972 vehicles.

Originally, the injury criteria required that at least one occupant of a candidate vehicle was hospitalized for in-patient treatment. Early in the program it became evident that this criteria would result in far less than the expected number of cases. The criteria was broadened in the Fall of 1971, and an injury hierarchy was adopted. The hierarchy, beginning with the highest priority was:

- 1) At least one occupant admitted
- 2) At least one occupant treated in an emergency room
- 3) At least one occupant injured, but not conveyed to a hospital

Cases from the third category were only accepted when the case load would permit their inclusion without jeopardizing cases of a higher priority.

After selection of a case, the vehicle was located, usually at a towing service yard, and a Collision Performance and Injury Report (CPIR) completed on the vehicle.^{2,3} Photographs were taken of the interior and exterior of the vehicle and of the scene of the crash. Injury information on all occupants was requested from the appropriate hospital, and if occupants were not taken to a medical facility attempts were made to contact them by phone or mail.

After completion of the investigation, copies of the documentation and photographs were submitted to the MVMA and the case was placed in the digital file of all multidisciplinary and in-depth investigations sponsored by the MVMA and NHTSA. This file is maintained at HSRI under separate support.

2.4 Summary of In-Depth Cases Investigated

During the period from February 1, 1973 until the investigation of in-depth cases terminated on January 19, 1974, a total of 258 cases were investigated. A list of these cases including the case number; case vehicle make and model; model

year; Collision Deformation Classification (Formerly VDI); other vehicle make, model and year; and collision configuration is given in Appendix I. The number of cases by model year is given in Table I.

TABLE I
IN-DEPTH INVESTIGATIONS CONDUCTED
FROM FEBRUARY 1, 1973 - JANUARY
19, 1974 BY MODEL YEAR

Model Year	Number of Cases
1970	1
1971	28
1972	118
1973	102
1974	4

Two of the cases, OK-571 and 624, listed in the appendix were dropped because insufficient information was available. Case number OK-673 was never assigned. An additional 23 cases were not completed. Most of these cases were started late in the program, and were not completed because of pressures of the Restraint System Effectiveness Study.

When the in-depth program was stopped to begin the RSES data collection, a total of 750 cases had been investigated since the inception of the program in July 1971. This number includes 26 incomplete cases mentioned above.

3. Restraint System Effectiveness Study

In late 1973 the MVMA, through the SAE Project Monitor, requested a change in the Oakland County Investigation program. Nearly all of the field accident investigative effort sponsored by the SAE and MVMA was redirected to evaluate the restraint systems of 1974 passenger cars. The previous programs were not appropriate for this task and required major revisions. Usage of full restraints, i.e., lap and upper torso restraint, was so low prior to the introduction of the ignition interlock and the three point harness on domestic cars that very little data on the benefits of these restraints in real accidents existed. The introduction of the interlock was expected to alleviate this problem through greatly increased usage.

A major problem remained however. Most, if not all, of the previous in-depth and multidisciplinary accident investigation programs concentrated on accidents of substantial consequence - usually in the form of severe injury with underrepresentation of minor crashes. Thus the "failures" in the sense of casualties were represented in the data, but "successes" resulting from the benefits of vehicle safety standards and occupant restraints were underrepresented. Furthermore, previous operating procedures resulted in a sample of "convenience." If a case was difficult to investigate because the vehicle could not be found, or the injuries of occupants could not be determined, the case was often dropped rather than spending an inordinate amount of time on it at the risk of losing other cases and reducing the number that could be investigated. While the total number might be maximized in this manner, considerable missing data (cases) resulted. The combination of biased case selection and high missing data prevents drawing valid statistical inferences regarding questions such as the reduction in injury resulting from the use of restraints.

To assure a successful data collection for the restraint study, the field program was completely restructured. A research question was defined which could be examined in the context of a hypothesis, measures of performance were selected, and the data collection program was then based on techniques of experimental design. The primary questions on which the design was based was "is the incidence of severe injury to the (outboard front seat) occupants of 1974 passenger cars less than that of 1973 cars, and how much less?" Severe injury was chosen to mean injury of level two or greater on the Abbreviated Injury Scale.⁴ The objective of the design was to measure the reduction in serious injury incidence of 1974 cars compared to 1973 cars if the reduction was at least 20%. An important but secondary question is the reduction in incidence of severe injury resulting from the use of full restraints. The set of vehicles from which the cases were to be drawn was all 1973 and 1974 passenger cars towed from the scene of an accident.

The mass data (police report) files from previous years indicated that the number of candidate vehicles would be greater than could be investigated with the available resources. Therefore, it was decided to use sampling techniques and draw a sample that would be large enough to assure meeting the design objectives, yet small enough to allow completion of the selected cases with a small rate of missing data.

Sampling from all tow-aways results in a large number of minor collisions with little or no injury. Both injury data and restraint usage in these cases can only be determined by occupant interview. Once a case has been selected (sampled), considerable effort is devoted to completing the case, including finding the vehicle and interviewing the occupants.

The number of cases expected to be available in the sampling frame of Oakland County and Washtenaw County^{*} was approxi-

* Data collection in both counties was planned as a single unit although the effort in Washtenaw County is supported by MVMA.

mately 2,200 vehicles. The number that we estimated we could successfully investigate to completion with the resources available was about 1,200 of which 740 would be in Oakland County. The less-than-complete coverage indicated by these estimates lead to the selection of a sampling plan.

The plan that was selected and incorporated in a modification to the contract is as follows. All candidate vehicles for which the police report indicated at least one occupant was conveyed to a hospital are sampled at 100 percent. Non-hospital cases are sampled with a fraction of 1/3 in the case of 1973's, and 1/2 for 1974's. The latter two fractions are obtained by sampling from the last two digits of the license plate. A more detailed discussion of the design of the program is given in reference (5).

3.1 Field Operations

In order to devote enough time to each case to assure completion, and at the same time investigate a sufficient number to assure meeting the experimental objectives, only data necessary to the restraint study are collected. The principle data collected are:

- 1) Vehicle Identification (VIN Make and Model)
- 2) Collision Type and Object Struck
- 3) Vehicle Damage (Collision Deformation Classification and Crush)
- 4) Injury description using the Occupant Injury Classification (3)
- 5) Occupant description
- 6) Restraint system status and usage

Little information is collected on the other vehicle, and the scene is not visited or photographed. Efficient documentation of the data with considerable emphasis on restraint system

status and usage required the development of a new field data form. The form was developed in January and February of 1973 and is shown in Appendix II.

Data collection under original format was terminated on January 19. During the remainder of January and all of February effort was devoted to implementing the RSES. This included changing notification procedures, developing a system of monitoring the sampling procedure and assuring quality control, and developing new documentation. During February a pilot data collection was conducted to test the form and procedures.

3.2 Data Collection for the Restraint System Effectiveness Study

Data collection for the study began on March 1, 1974 with the objective of collecting twelve months of data for the evaluation. During the period from March 1, 1974 through July 31, 1974, a total of 230 cases were investigated. Computer generated summaries of these cases have been sent to the MVMA for distribution and the cases have been placed in a digital file generated specifically for the Restraint System Effectiveness Study. The distribution of the 230 cases among each of the sample strata is shown in Table II.

Table II
RESTRAINT STUDY CASES INVESTIGATED
FROM MARCH THROUGH JULY

<u>Occupant Disposition</u>	<u>Model Year</u>		<u>Total</u>
	<u>1973</u>	<u>1974</u>	
Hospital	58	40	98
Non-Hospital	72	60	132
Total	130	100	230

REFERENCES

1. Scott, R.E. Oakland County's In-Depth Collision Investigation Program. HIT LAB Reports, Vol. 2, No. 12, August, 1972.
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3. Marsh, J C. IV, Tolkin, S.E. "Multidisciplinary Accident Investigation Data File, Vol. I, Editing Manual and Reference Information", UM-HSRI-SA-75-1. Highway Safety Research Institute, The University of Michigan, March 1975, Contract DOT-HS-4-00898.
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5. Scott, R.E. and O'Day, J. "A Sampling Program for Evaluation of the 1974 Restraint Systems". Automotive Engineering Congress and Exposition, Detroit, Michigan, February 24-28, 1975, SAE paper 750188 and HIT LAB Reports, Vol. 5, No. 8, April, 1975. Highway Safety Research Institute, The University of Michigan.



APPENDIX I

List of In-Depth Cases Investigated
from February, 1973 through January, 1974



OAKLAND COUNTY CASE LIST

CASE NUMEER	CASE VEHICLE	YR	PRIMARY VDI	OTHER VEHICLE	YR	COLLISION CONFIG.
FEBRUARY 1973 CASES						
OK-493	Cadillac DeVille	71	06RLEW	Chevrolet Impala	72	Rear-impact
OK-494	Chevrolet Impala	72	12FREW	Cadillac DeVille	71	Rear-impact
OK-495	Plymouth Furyy	72	12FDEW1			Rear-impact
OK-496	Chevrolet Nova	73	01FREW1			Intersection
OK-497	Pontiac Ventura	73	04RPEN2			Intersection
OK-498	Chevrolet Vega	73	09LPAW3			Fixed object
OK-499	Plymouth Duster	72	06RDEW1	Oldsmobile Cutlass	70	Rear-impact
OK-500	GM Opel	71	10LYEW2	Ford	63	Intersection
OK-501	Pontiac Catalina	72	01LDEW2			Ran-off-road
OK-502	Pontiac Catalina	71	12FCLW1			Ran-off-road
OK-503	Mercury Comet	72	06BYEW6	Chevrolet Pickup	72	Rear-impact
OK-504	Pontiac Catalina	71	12FREN1	Buick Skylark	67	Intersection
OK-505	Pontiac Safari	72	03RBEW2	Ford Van	71	Rear-impact
OK-506	Mercury Monterey	72	12FDEW1	Ford Capri	71	Head-on
OK-507	Ford Capri	71	06BDEW1	Mercury Monterey	72	Head-on
OK-508	AMC Gremlin	72	06BDAW2			Rear-impact
OK-509	Pontiac 237	71	01FBEW3	Chevrolet Impala		Intersection
OK-510	Chevrolet Impala	72		Pontiac 237		Intersection
OK-511	Chevrolet Caprice	73			70	Intersection
OK-512	Chevrolet Impala	72	01FREW1	Plymouth Cricket	72	Intersection
OK-513	Plymouth Cricket	72	10LFEN4	Chevrolet Impala	72	Intersection
OK-514	Ford Pinto	72	11PLAW4	Plymouth Fury	67	Head-on
OK-515	Plymouth Custom	73	12FLEW2	Oldsmobile Cutlass	69	Head-on
OK-516	Ford Pinto	72	05BYEW	Chevrolet	69	Rear-impact
OK-517	Ford Mustang	71	11FDAW2	VW	67	Head-on
OK-518	AMC Gremlin	72	12FCEN1	Ford Truck	70	Rear-impact
OK-519	Ford Country Sedan	72	11FDEW	Ford Fairlane	69	Intersection
OK-520	Pontiac Gran Prix	71	11FLEE5	Ford Maverick	71	Side-swipe
OK-521	Ford Maverick	71	11FLEE3	Pontiac Gran Prix	71	Side-swipe
OK-522	Chevrolet Nova	71	12FDEW1	Chevrolet	72	Intersection
OK-523	Chevrolet Nova	72	01FREE1	Chevrolet	71	Intersection
OK-524	AMC Hornet	73	06BDEW1	Ford XF	67	Rear-impact
OK-525	Pontiac Gran Prix	72	12FDEW1	Chevrolet Impala	73	Intersection
OK-526	Chevrolet Impala	73	11LFEW2	Pontiac Gran Prix	72	Intersection
OK-527	Chevrolet Nova	73	12FLEW1			Intersection

MARCH 1973 CASES

OK-528	Ford Torino	73	01FREW1	Chevrolet	63	Intersection
OK-529	Ford Maverick	72	12FDEW1	Mercury	73	Rear-impact
OK-530	Ford Capri	71	11FLAN2			Fixed object
OK-531	Pontiac Catalina	72	01RFEW2	Chevrolet Kingswood	71	Intersection
OK-532	AMC Gremlin	71	08RFEW3			Fixed object
OK-533	Buick Electra	73	12FDEW1			Rear-impact
OK-534	Ford Maverick	71	12FDEW1			Intersection
OK-535	AMC Gremlin	72	12FDEW2	Ford Fairlane	69	Head-on
OK-536	Chevrolet Nova	72	01FRMW1			Fixed object

OK-537	Ford Country Squire	72	12FDEW2	Reo Trac.-Trail.	70	Rear-impact
OK-538	Mercury Marquis	71	10LYEW3	Pontiac	72	Intersection
OK-539	Chevrolet Pickup	71	10LFEW4	Pontiac	65	Intersection
OK-540	Mercury Comet	71	12FDEW1	Chevrolet	67	Intersection
OK-541	Ford Pinto	73	12BREW6	Ford Sports Car	68	Rear-impact
OK-542	Pontiac Catalina	72	06BLFW1	Chrysler Newport	67	Rear-impact
OK-543	Plymouth Duster	73	12FDEW1	Dodge Police	71	Rear-impact
OK-544	Chevrolet Vega	73	12FLEW1	Type II	67	Rear-impact
OK-545	Ford Galaxie	73		Plymouth	63	Intersection
OK-546	Dodge Coronet	72	01RYEW2	Pontiac	68	Intersection
OK-547	Ford Pinto	73	12FDEW3	Honda (car)	71	Head-on
OK-548	Cadillac DeVille	73	12FDAW2	Chevrolet Impala	72	Head-on
OK-549	Chevrolet Impala	72	03RDAW3	Cadillac DeVille	73	Intersection

APRIL 1973 CASES

OK-550	Ford Grouham	73	10FDEW	Buick LeSabre	72	Intersection
OK-551	Buick LeSabre	72	02RYEW3	Ford Brougham	73	Intersection
OK-552	Chevrolet Vega	72	06BYEW2	Pontiac	72	Rear-impact
OK-553	Chevrolet Impala	71	03RDAW3	Pontiac Catalina	72	Intersection
OK-554	Pontiac Catalina	72	12FDEW1	Chevrolet Impala	71	Intersection
OK-555	Chevrolet Vega	72	01FRAW2	Pontiac Wagon	66	Intersection
OK-556	Chevrolet Monte Carl	73	00TDAO2			Rollover
OK-557	Ford Pinto	72	01FREN3	Buick Riveria	70	Rear-impact
OK-558	Ford Torino	71	12FREW1	Ford Capri	71	Rear-impact
OK-559	Dodge Pickup 100	71	12FDEW	Dodge RT	69	Rear-impact
OK-560	Chevrolet Monte Carl	71	11FLEW2	Pontiac Catalina	65	Intersection
OK-561	Buick Skylark	72	11LDES1	Mercury		Intersection
OK-562	Mercury Comet	72	12FLEW3			Intersection
OK-563	Chevrolet Nova	72	12FYEW2	Chevrolet Malibu	70	Intersection
OK-564	Pontiac Gran Prix	73	07BPAW6	Buick	65	Rear-impact
OK-565	Ford Maverick	72	12FZEW2	Chevrolet	67	Rear-impact
OK-566	AMC Gremlin	71	06BDEW3	AMC Matador	72	Rear-impact
OK-567	Ford Torino	71	02RFEW2	Pontiac Catalina	72	Intersection
OK-568	Pontiac Catalina	72	12FDEW2	Ford Torino	71	Intersection
OK-569	Ford Maverick	72	07BLAW6	Pontiac		Rear-impact
OK-570	Pontiac Gran Prix	72	23FREW			Fixed object
OK-571	Ford	71	DROPPED	THIS CASE		
OK-572	Buick Electra	72	11FLEN2	Buick	67	Intersection
OK-573	Chevrolet Vega	72	01FREW2	Dodge van	71	Intersection
OK-574	Chevrolet Malibu	72	08LFEW3	GMC Truck	72	Intersection
OK-575	Pontiac Ventura II	72	12FLEW2	Dodge	8	Side-Swipe

MAY 1973 CASES

OK-576	Chevrolet Vega	73	01FLEW2	Pontiac Catalina	69	Intersection	1
OK-577	Chevrolet Vega	73	06BDEW1	Buick LeSabre	66	Rear-impact	
OK-578	Buick Electra	72	11FLEE2			Fixed Object	
OK-579	Ford Mustang	72	08LFEW2			Fixed Object	1
OK-580	Ford Pinto	71	07FREW	Ford	71	Rear-impact	1
OK-581	Chevrolet Impala	71	12FREE3	Chevrolet Impala	71	Rear-impact	1
OK-582	Ford Mustang	72	12FDEW2			Fixed Object	1
OK-583	Pontiac GranVille	72	12FCEW2			Fixed Object	
OK-584	Ford Mustang	71	12FCEW2			Fixed Object	1
OK-585	Ford Pinto	72	12FDEW3	Pontiac	67	Intersection	
OK-586	Chevrolet Vega	73	12FREW2	Mercury	73	Rear-impact	1
OK-587	Pontiac Gran Prix	73	11FLAS2	Ford	73	Head-on	
OK-588	Buick Estate Wagon	72	09LPAW3	Chevrolet	69	Intersection	3

OK-589	Lincoln Continental	71	12FREE4	Chevrolet	67	Rear-impact
OK-590	Chevrolet Nova	72	03RPEW3	Volkswagen	69	Intersection
OK-591	Chevrolet Monte Carlo	72	12FDEW1	Chevrolet	72	Intersection
OK-592	Chevrolet Impala	72	02RFEW2	International	66	Intersection
OK-593	Chevrolet Chevelle	71	12FLEW2	Pontiac	69	Intersection
OK-594	Plymouth Duster	72	12FDEW2	Pontiac	68	Intersection
OK-595	Dodge Demon	72	09LFEW2	Ford	66	Intersection
OK-596	Mercury Comet	72	12FDEW1	Buick	66	Head-on

JUNE 1973 CASES

OK-597	Plymouth Satellite	73	11FLEN3			Fixed Object
OK-598	Diamond Reo	71				Rollover
OK-599	Chevrolet Vega	73	12FDEW2	Chevrolet	71	Rear-impact
OK-600	Ford Mustang	72				Ran-off-road
OK-601	Ford Mustang	72	00TDAO3			Rollover
OK-602	Ford Galaxie	72	12FZEW2	Chevrolet Van (Ambu)	72	Intersection
OK-603	Chevrolet Van 30	72	12FZEW2			Fixed Object
OK-604	AM Gremlin	73	12FYEW2	Cadillac	72	Rear-impact
OK-605	Chevrolet Camaro	73	02LYAW3	Ford Truck	66	Intersection
OK-606	Dodge Dart Swinger	73	12LYEW1	Ford	71	Intersection
OK-607	Chrysler Newport Roy	172	12FREN2			Fixed Object
OK-608	Chevrolet Corvette	73		Plymouth Fury II	67	Head-on
OK-609	Chrysler Newport Roy	172	01RZEW3	Cadillac Coupe Devill	66	Intersection
OK-610	Pontiac Gran Prix	72	11FYEW2	Pontiac Bonneville	68	Intersection
OK-611	Ford Thunderbird	72	12FLES2	Chevrolet Impala	72	Side-swipe
OK-612	Ford Pinto	73	12FLEW2	Pontiac Tempest	68	Head-on
OK-613	Chevrolet Vega	73	06BDEW2	Cadillac	73	Rear-impact
OK-614	Pontiac Catalina	73	10LPEW2	Ford LTD	73	Intersection

JULY 1973 CASES

OK-615	DODGE DART SPORT	73	01RZEW3	CHEVROLET	65	INTERSECTION
OK-616	PONTIAC VENTURA	72	01FDEW2	PONTIAC	73	INTERSECTION
OK-617	PONTIAC GRAN PRIX	73	01FLEE1	OPEL	69	REAR-IMPACT
OK-618	CHEVROLET CAPRICE	72	11FLEE2	FORD PINTO	72	REAR-IMPACT
OK-619	PONTIAC GRAN VILLE	72	12FREN2			FIXED OBJECT
OK-620	CHEVROLET MONTE CARL	73	05FZES2	CHEVROLET CAMARO	72	INTERSECTION
OK-621	PLYMOUTH SATELLITE	72	02RYEW4	PONTIAC CATALINA	68	INTERSECTION
OK-622	CHRYSLER NEW YORKER	72	12FDLW2			SIDE-SWIPE
OK-623	OLDSMOBILE DELTA 88	73	11FRZN1	CHEVROLET NOVA	71	HEAD-ON
OK-624	CHEVROLET NOVA	73	12FLAW4	PONTIAC FIREBIRD	69	HEAD-ON
OK-625	FORD PINTO	73	02RYEW3	PONTIAC	68	INTERSECTION
OK-626	BUICK LESABRE	73	06BZEW	BUICK	72	REAR-IMPACT
OK-627	AM GREMLIN	72	12FDEW2	BUICK	73	INTERSECTION
OK-628	CLDSMOBILE CUTLASS	73	12FZEW	FORD PINTO	73	HEAD-ON
OK-629	FORD PINTO	73	FZAW5	OLDSMOBILE CUTLASS	73	HEAD-ON
OK-630	PONTIAC LEHANS 350	72	12FYEW1	CHRYSLER	71	REAR-IMPACT

AUGUST 1973 CASES

OK-631	FORD PINTO	72	12FCEW1	Foreign Compact	72	REAR-IMPACT
OK-632	CHEVROLET MALIBU	73	02KFEW3	CHEVROLET IMPALA	66	INTERSECTION
OK-633	PONTIAC GRAN PRIX	73	09LPBW2	PONTIAC FIREBIRD	67	INTERSECTION

OK-634	PONTIAC VENTURA	73	03RZEW3	CHEVROLET CAMARO	69	INTERSECTION
OK-635	AM GREMLIN	73	06BDEW1	FORD TRUCK		REAR-IMPACT
OK-636	AM GREMLIN		12FREN1			FIXED-OBJECT
OK-637	FORD BRONCO	73	00XDHO3			ROLLOVER
OK-638	PONTIAC VENTURA II	73	10FDEW1	MERCURY COUGAR	69	INTERSECTION
OK-639	AM MATADOR	73	09LDEW2	VOLKSWAGEN	63	INTERSECTION
OK-640	CHEVROLET IMPALA	72	12FYAW2	FORD	71	HEAD-ON
OK-641	OLDSMOBILE 98	73	05LPMW2	OLDSMOBILE	73	SIDE-SWIPE
OK-642	FORD PINTO	72	12FDEW1	OLDSMOBILE	72	REAR-IMPACT
OK-643	FORD GALAXIE 500	73	12FDEW2	PLYMOUTH	69	REAR-IMPACT
OK-644	PONTIAC GRAND VILLE	72	10LPAW3	PONTIAC EXECUTIVE	67	INTERSECTION

SEPTEMBER 1973 CASES

OK-645	MERCURY COUGAR	73	02RFEW4	CHEVROLET CHEVELLE	64	INTERSECTION
OK-646	FORD PINTO	73	11FLEE3	FORD MUSTANG	73	SIDE SWIPE
OK-647	BUICK ELECTRA	72	02RZEW3	PONTIAC GTO	68	INTERSECTION
OK-648	CHEVROLET CAPRICE WA	73	06BDAW2			
OK-649	CHEVROLET VEGA	73	06BDAW2	CHRYSLER NEWPORT	73	REAR IMPACT
OK-650	CHRYSLER NEWPORT	73	12FDEW1	CHEVROLET VEGA	73	REAR IMPACT
OK-651	FORD PINTO	72	12FDEW2	TOYOTA	71	REAR IMPACT
OK-652	CHEVROLET IMPALA	72	12FDMW2	CHEVROLET IMPALA	68	INTERSECTION
OK-653	BUICK APOLLO	73	00XDAO4	FORD		INTERSECTION
OK-654	BUICK LESABRE	72	01FDEW2	GMC TRUCK TRAC.SEMI		REAR IMPACT
OK-655	CHEVROLET VEGA	73	12FDEW2	PONTIAC	70	INTERSECTION
OK-656	CHEVROLET CORVETTE		00RDAO4			ROLLOVER
OK-657	FORD TORINO	73	06BDEW2	PONTIAC	71	REAR IMPACT
OK-658	CHEVROLET IMPALA	73	10FLMW2	CHEVROLET IMPALA	69	INTERSECTION
OK-659	PONTIAC VENTURA II	72	11FDEW2	PONTIAC CATALINA	67	INTERSECTION
OK-660	CHEVROLET PICKUP	73	12FLLW3			FIXED OBJECT
OK-661	FORD PINTO	73	11LFMW4	OLDSMOBILE	73	INTERSECTION
OK-662	CHEVROLET VEGA	72	06BDEW1	MERCURY	68	REAR IMPACT
OK-663	FORD MUSTANG	72	01FFAW3	CHEVROLET NOVA	73	INTERSECTION
OK-664	CHEVROLET NOVA	73	01FDEW3	FORD MUSTANG	72	INTERSECTION

OCTOBER 1973 CASES

OK-665	DODGE CRESTWOOD	72	00XDAO3			ROLLOVER
OK-666	AMC GREMLIN	72	02FDEW3	DODGE POLARA	72	INTERSECTION
OK-667	FORD PINTO	72	10FDEW1	INTERNATIONAL SEMI	72	SIDE-SWIPE
OK-668	FORD BRONCO	73	00XDHO2	CHEV. CAMARO		ROLLOVER
OK-669	FORD MAVERICK	73	09LYMW2	FORD FULL SIZE	70	INTERSECTION
OK-670	FORD MAVERICK	73	09LPAW4			FIXED OBJECT
OK-671	CHEVROLET CAMARO	73	03RYEW3	CHEVROLET NOVA	70	INTERSECTION
OK-672	DODGE SWINGER	72	01FDEW1	MERCURY	66	HEAD-ON
OK-673	NOT ASSIGNED					
OK-674	PLYMOUTH DUSTER	73	03RPEW4	CHEVROLET	74	INTERSECTION
OK-675	FORD COUNTRY SEDAN	72	09LDEW2	BUICK SKYLARK	65	INTERSECTION
OK-676	FORD GALAXIE 500	72	12FDEW2	OLDSMOBILE	67	INTERSECTION
OK-677	PLYMOUTH FURY	73	12FLEE3	DODGE DART	68	HEAD-ON
OK-678	PLYMOUTH CUDS	73	01FREW2	CADILLAC COUPE DE V.	71	INTERSECTION
OK-679	PONTIAC GRAN PRIX	73	01FREW2			FIXED OBJECT
OK-680	PONTIAC CATALINA	73	12FDEW2	CHRYSLER IMPERIAL	68	REAR-IMPACT
OK-681	FORD PINTO	72	03RZEW3	CHEVROLET VEGA	73	INTERSECTION
OK-682	FORD PINTO	72	12FDEW1	DATSUN 1800 SW	73	REAR-IMPACT
OK-683	FORD GRAN TORNOIO	73	06BZEW3	FORD LTD	73	REAR-IMPACT

OK-684 FORD LTD	73 12FYEW2	FORD GRAN TORINO	73	REAR-IMPACT
OK-685 CHEVROLET MONTE CARL	73 12FYEW2	BUICK ELECTRA 225	72	INTERSECTION
OK-686 BUICK ELECTRA 225	72 09LPEW3	CHEVROLET MONTE CARLO	73	INTERSECTION
OK-687 OLDSMOBILE 98	73 11FYEW2	PONTIAC GRAN PRIX	73	INTERSECTION
OK-688 PONTIAC GRAN PRIX	73 12FDEW2	OLDSMOBILE 98	73	INTERSECTION
OK-689 CHEVROLET VEGA	09FLAW2	CHEVROLET MALIBU	65	INTERSECTION

NOVEMBER 1973 CASES

OK-690 Plymouth Duster	72 01FDEW2	Ford Mustang	67	Intersection
OK-691 Plymouth Satellite S	73 12FDEW2			Fixed Object
OK-692 Oldsmobile Cutlass	73 02RDEW1	Ford Intermediate		Intersection
OK-693 Chrysler Imperial	72 02FFull	Size	72	Intersection
OK-694 Ford Torino	73 12FDEW1	Pontiac Catalina	65	Rear-impact
OK-695 Dodge Dart Swinger	72 12FREN1			Fixed Object
OK-696 Pontiac Trans Am	73 01FDEW2			Fixed Object
OK-697 Chevrolet Vega	72 11FLEE4	Chevrolet Full Size	73	Rear-impact
OK-698 Ford F-100 Pickup	72	Chevrolet Chevelle	68	Intersection
OK-699 Chevrolet Vega	72 12FDEW1			Rear-impact
OK-700 Dodge Van	73 12FEEW	AM Hornet	73	Intersection
OK-701 AM Hornet	73 12FYEW3	Dodge Van	73	Intersection
OK-702 Ford Maverick	73 11FLEE3			Fixed Object
OK-703 AM Gremlin	74 11FCMN1	Chevrolet Truck	69	Intersection
OK-704 Chevrolet Pickup	72 12FLEW2	Buick Special	65	Intersection
OK-705 Pontiac LeMans	72 12FLEW3			Fixed Object
OK-706 Ford Pinto	72 01FREW4			Intersection
OK-707 Chevrolet Caprice	73 10LPEW3	AM Ambassador	66	Intersection
OK-70 AM Ambassador	72 01FDEW1	Dodge Pickup	66	Intersection
OK-709 Chevrolet Nova	73 FREN2			Fixed Object
OK-710 Plymouth Fury I	72 09LPEW2	Chevrolet Deluxe 110	73	Intersection
OK-711 Ford Torino	72 10LPAW3			Fixed Object
OK-712 Ford F-100 Pickup	72 01FDEW2	Chevrolet Bel Air	68	Intersection
OK-713 Plymouth Duster	73 10LZEW2	Ford Custom	70	Intersection
OK-714 Pontiac Grand Prix	73 03RREW2	Chevrolet Pickup	72	Intersection

DECEMBER 1973 CASES

OK-715 Ford Maverick	72 06BLEW			Rear-impact
OK-716 Ford Gran Torino	72 09FLEW2	Chevrolet Belair	67	Intersection
OK-717 Chevrolet Corvette	73 08BYEE1			Ran-off-road
OK-718 Dodge Polara	73 01FREW2	Mercury Comet Sdn	71	Rear-impact
OK-719 Dodge Dart	72 02RREW1	Ford full size	70	Intersection
OK-720 Lincoln Continental	74 11FZEW1	Plymouth Interned.	71	Intersection
OK-721 Ford LTD	72 12FDEW1	Chevrolet SS 454	71	Head-on
OK-722 Chevrolet Vega	73 12FDEW2	Fiat Sport	73	Head-on
OK-723 Mercury Ccmet	74 11FDEW1	Buick Wildcat	64	Intersection
OK-724 Ford Pinto	73 11FLEW1	Buick Full size	67	Intersection
OK-725 Chevrolet Corvette	72 12FDLW2	Chevrolet C-30 truck	73	Intersection
OK-726 Dodge Colt	72 11FLEW1	Buick Skylark	64	Intersection
OK-727 Ford Pinto	72 12FZEW2	Pontiac Catalina	66	Rear-impact
OK-728 Oldsmobile Cutlass	72 01FDEW1	Ford Pickup	72	Intersection
OK-729 Plymouth Duster	72 02FZEE2	Chevrolet Full size	70	Rear-impact
OK-730 Chevrolet Pickup	72 11FYEE2	Pontiac Tempest	67	Head-on
OK-731 Ford Pinto	73 01RFEW2	AM Full size	67	Intersection
OK-732 Chevrolet Nova	73 12FYEW3	Pontiac Grand Prix	69	Head-on
OK-733 Chevrolet Pickup	73 12FLEW2	Pontiac Catalina	68	Intersection

OK-734	Buick LeSabre	72	12FZEW1	Mercury Montego GT	72	Fixed Object
OK-735	Mercury Montego	72	02RPEW3	Buick LeSabre	72	Fixed Object
OK-736	Chevrolet C-30 truck	70	01FDEW1	Buick Opel	72	Head-on
OK-737	Buick Opel	72	11FDEW2	Chevrolet C-30 truck	70	Head-on
OK-738	Chevrolet Camaro	72	11FDEW1	Chevrolet Full-size	68	Rear-impact
OK-739	Pontiac Grand Prix	73	07BDEE5	Oldsmobile Cutlass	71	Rear-ispact
OK-740	Buick Electra	73	01FZEW1	Plymouth Sport Sub.	73	Intersection
OK-741	Cldsmobile Cutlass	73	09LPAW1	Ford Thunderbird	62	Intersection
OK-742	Dodge Colt	72	11FDEW1	Dodge Pickup	68	Intersection
OK-743	Chevrolet Vega	73	12FDEW2	VW Compact	72	Head-on
OK-744	Plymouth Gold Duster	73	12FDEW1			Fixed object

JANUARY 1974 CASES

OK-745	Pontiac LeMans	73	08LPEW2	AMC Javelin	72	Intersection
OK-746	Chevrolet Monte Carl	73	01FREW1	Chevrolet Compact	67	Rear impact
OK-747	GMC Pickup	73	09LYAN3			Fixed Object
OK-748	Pontiac Catalina	72	12FDEW3	Pontiac Ventura	69	Intersection
OK-749	Ford Pinto	72	12FDEW1	Chevrolet Nova	73	Intersection
OK-750	Dodge Dart	74	09LPEW2	Pontiac Catalina	67	Intersection

APPENDIX II

Field Data Form used in the
Restraint System Effectiveness Study



RESTRAINT SYSTEM USAGE -- INJURY REDUCTION STUDY

CARD 0 1
1 2

TEAM _____

INVESTIGATOR 9 10

CASE NO. 3 4 5 6 7 8

INVESTIGATION DATE 11 12 13 14 15 16
mo day yr

REPORTING POLICE DEPARTMENT 17

P. R. REPORT NO. 18 19 20 21 22

DATE OF ACCIDENT 23 24 / 25 26 / 27 28
mo day yr

TIME OF ACCIDENT 29 30 31 32
24 Hour Clock

Case Vehicle actually towed?

³³
1 () YES → to: _____
3 () NO reason: _____

SELECTION CODE
³⁴ () 1 H Hospital
() 2 G Good Case

I. Investigation Complete:

- ³⁵
1 a () Data Complete NOTE: TO BE COMPLETED
2 b () Data Incomplete WHEN CASE SUBMITTED.

INVESTIGATION
TERMINATED

II. Investigation Incomplete:

- 3 c () No Data--case could not be investigated.
Reason: _____
4 d () Case Did Not Meet Criteria
Reason: _____

SAMPLE RULE/PERIOD

³⁶ () 1 () 3
() 2 () 4

KP (37-42)

CASE VEHICLE SLIDES 43 44

SUPPLEMENTARY DATA (7/74)

(1:45-53)

CASE VEHICLE DATA

ACRS	Cylinders	Automatic Transmission	Air Conditioning	Vehicle Loading
45() 1 Yes	1() Rotary	47() 1 Yes	48() 1 Yes	49() 4 Below
() 2 No	2() 2-Cyl	() 2 No	() 2 No	() 5 Near
() 9 Unk	4() 4-Cyl	() 9 Unk	() 9 Unk	() 6 Above
	6() 6-Cyl			() 9 Unk
	8() 8-Cyl			
	7() Other			
	9() Unknown			

Road Paved
50() 1 Yes
() 2 No
() 3 Not App
() 9 Unk

Front Seat
51,52() 19 Bench
() 29 Bucket
() 99 Unknown

MOST SEVERE INJURY CRASH EVENT NUMBER
0-7 = actual
8 = 8th +
53 9 = unknown

MICHIGAN STATE POLICE CODES

VEHICLE MAKE

TRUCKS	PASSENGER CARS
20 Chevrolet	00 American Motors
21 Diamond T	01 Buick
22 Dodge	02 Cadillac
23 Federal	03 Chevrolet
24 Ford	04 Chrysler
25 GMC	05 Dodge
26 International	06 Ford
27 Mack	07 Imperial
28 Peterbilt	08 Jeep
29 Reo	09 Lincoln
30 White	10 Mercury
31 Willys	11 Oldsmobile
32 thru 33 not assigned	12 Plymouth
39 Other Trucks	13 Pontiac
40 Motorcycles	14 Volkswagen
41 School Bus	15 Not assigned
42 Commerical Bus	16 Not assigned
43 Farm Equipment	17 Not assigned
44 Construction Equip.	18 Other foreign
45 Fire Equipment	19 Other domestic
46 Ambulance, Hearse	
47 Police Equipment	
48 Snowmobile	
49 Other or not known	
50 Dune Buggy	

VEHICLE TYPE

0 Full size
1 Intermediate
2 Compact
3 Sports car
4 Station Bus, Carryall
5 Jeep type
6 Pickup or panel
7 Straight Truck, Dump, Van, Flat Bed, Etc.
8 Truck Tractor (small)
9 Other or not known

TRAILERS

1 Car & Other Trailer
2 Not assigned
3 Not assigned
4 Not assigned
5 Single Bottom Semi
6 Double Bottom Semi
7 House Trailer

CASE VEHICLE:

MAKE _____

Make-Model Code

 9 10 11 12 13

MODEL _____

MODEL YEAR 19 ODOMETER
 14 15 16 17 18 19 20

VIN
 21 22 23 24 25 26 27 28 29 30 31 32 33

BODY STYLE

NO. OF DOORS

Shipping Weight

- ³⁴
 1 () Sedan or Coupe
 2 () Hardtop--No upper B pillar
 3 () Station Wagon
 4 () Convertible
 5 () Hatchback
 9 () Unknown

- ³⁵
 () 2
 () 3
 () 4
 () 9 Unknown

____ 00#
 36 37

UPPER B PILLAR

TRAILER BEING TOWED AT TIME OF COLLISION

- ³⁸
 2 () NO
 1 () YES
 9 () Unknown

- ³⁹
 2 () NO
 9 () Unknown
 1 () YES: _____

Type

Police Report Vehicle No. _____
 40

Other Vehicle Case No. _____
 41 42 43 44 45 46

Third Vehicle Case No. _____
 47 48 49 50 51 52

*** CARD 0 3 ***
1 2
 Dup col 3-8

OTHER VEHICLE: Police Report Vehicle No. _____
 9

THIRD VEHICLE: Police Report Vehicle No. _____
 23

MAKE _____

MAKE _____

MODEL _____

MODEL _____

MODEL YEAR 19 Make-Model Code
 10 11 _____
 12 13 14 15 16

MODEL YEAR 19 Make-Model Code
 24 25 _____
 26 27 28 29 30

VEHICLE TYPE

VEHICLE TYPE

- | Police Code | Body Style | Estimated Weight |
|----------------------------|-------------------------|-------------------------|
| ^{17,18}
() 00 | Full size | ____ 00#
19 20 21 22 |
| () 01 | Intermediate | |
| () 02 | Compact | |
| () 03 | Sports car | |
| () 04 | Carryall | |
| () 05 | Jeep type | |
| () 06 | Pickup/panel | |
| () 07 | Straight truck, Van | |
| () 08 | Truck-tractor Doubles | |
| () 09 | Other: _____, Not known | |
| () 10 | Pedestrian | |
| () 11 | Motorcycle | |

- | Police Code | Body Style | Estimated Weight |
|----------------------------|-------------------------|-------------------------|
| ^{31,32}
() 00 | Full size | ____ 00#
33 34 35 36 |
| () 01 | Intermediate | |
| () 02 | Compact | |
| () 03 | Sports car | |
| () 04 | Carryall | |
| () 05 | Jeep type | |
| () 06 | Pickup/panel | |
| () 07 | Straight truck, Van | |
| () 08 | Truck-tractor' Doubles | |
| () 09 | Other: _____, Not known | |
| () 10 | Pedestrian | |
| () 11 | Motorcycle | |

CASE VEHICLE

OBJECT CONTACTED

NOTE: A vehicle may contact an object more than once.

01 No object or vehicle--None

CARS:

- 11 Full size, Standard
- 12 Intermediate
- 13 Compact and Mini
- 14 Sports Car
- 15 Jeep type
- 19 Unknown automobile

TRUCKS & BUS:

- 21 Pick-up/Panel
- 22 Van (Econoline type)
- 23 Van (Step Van type)
- 24 Straight Truck (Dump, Van/Box)
- 25 Semi Tractor-Trailer
- 26 Double Bottom
- 27 Bus (Passenger)
- 28 Bus (School)
- 29 Unknown Truck

OTHER VEHICLE:

- 30 Bicycle
- 31 Motorcycle
- 32 Snowmobile
- 33 ATV
- 34 Farm Vehicle (Tractor, etc.)
- 35 Construction Vehicle
- 36 Train (cars)
- 37 Locomotive (engine)
- 38 Trailer: _____
- 41 Pedestrian
- 42 Pedestrian Conveyance
- 39 Unknown other vehicle
- 40 Other car, truck or vehicle:

OBJECTS

- 54 Fallen Objects
- 55 Traffic Cones, Barrels, Construction Barriers
- 56 Construction or Emergency Equip.
- 57 Large Posts/Trees, Utility Pole, Large Sign Posts
- 58 Ditch--Embankment, Snowbank
- 60 Ground (Rollover only)
- 61 Curb (Damage Producing Impacts Only)
- 62 Culvert
- 63 Fence
- 64 Hydrants, Stumps, Etc.
- 65 Small Posts/Trees, Rural Mail Boxes, Delineators
- 66 Building
- 67 Pier, Pillar
- 68 Abutment, Retaining Wall
- 70 Bridge Rail
- 71 Guard Rail
- 72 Cable, Fence Barrier
- 73 Concrete Barrier (Median)
- 74 Impact Attenuator
- 75 Breakaway Fixtures
- 78 Other: _____
- 79 Unknown Object
- 99 Unknown vehicle or object

COLLISION TYPE -- CASE VEHICLE

See also the scene schematic.

VEHICLE TO OTHER

- 01 Vehicle to Object
- 02 Rollover
- 03 Other: _____
- 99 Unknown

VEHICLE TO VEHICLE (Moving or Parked)

- 11 Head on (F to F)
- 12 Rear end (F to R)
- 13 Side swipe--same direction
- 14 Side swipe--opposite direction
- 15 Intersection Type L
- 16 Intersection Type T
- 17 Intersection Type Unknown
- 18 Other: _____
- 19 Configuration Unknown

VEHICLE DAMAGE INDEX--VDI

(FOR THE CASE VEHICLE)

LIST IN ORDER OF DAMAGE SEVERITY.

PRIMARY	37	38	39	40	41	42	43	COLLISION TYPE	44	45	OBJECT CONTACTED	46	47
	COLLISION												
	CRUSH <u> </u> in. EVENT: 50:() 1 First; () 2 Second; () 3 Third												

SECONDARY	51	52	53	54	55	56	57	COLLISION TYPE	58	59	OBJECT CONTACTED	60	61
	COLLISION												
	CRUSH <u> </u> in. EVENT: 64:() 1 First; () 2 Second; () 3 Third												

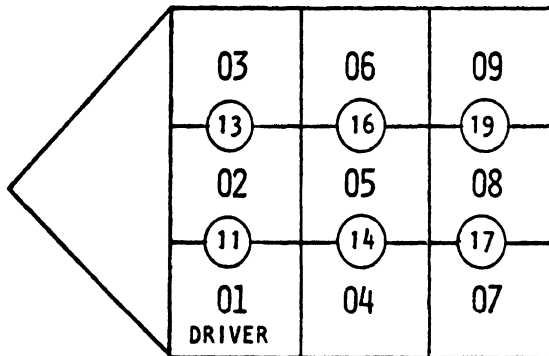
TERTIARY	65	66	67	68	69	70	71	COLLISION TYPE	72	73	OBJECT CONTACTED	74	75
	COLLISION												
	CRUSH <u> </u> in. EVENT: 78:() 1 First; () 2 Second; () 3 Third												

VDI

OCCUPANT SEAT POSITION NUMBER

Mark an X to locate the position of ALL occupants in the vehicle.

Use this number to identify the occupants in the subsequent occupant sections.



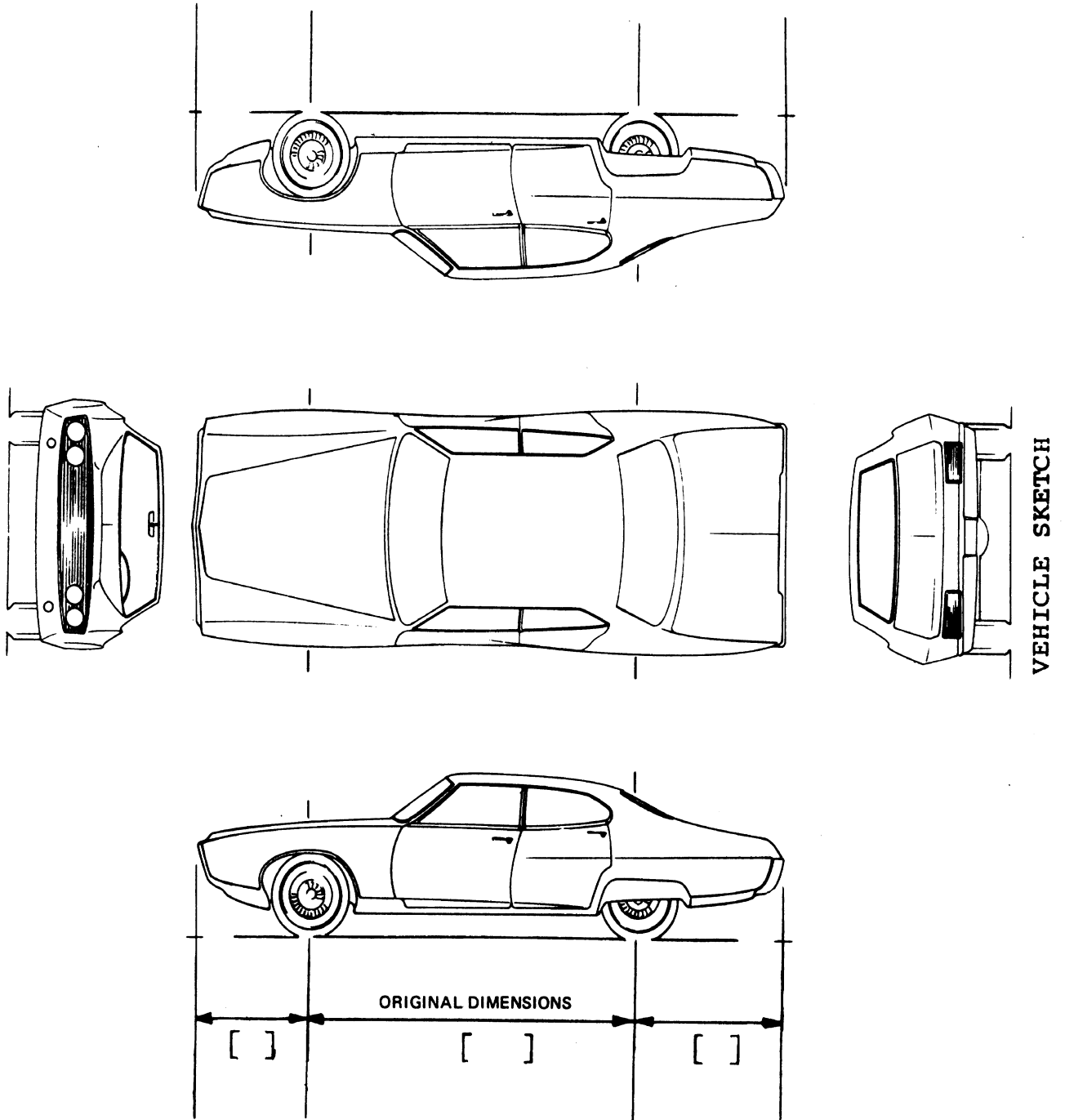
If 2 people occupy the same seat (i.e. sitting on a lap, etc.) replace the 0 in the seat number with a 2 to identify the person sitting on the lap of the other occupant.

TOTAL NUMBER OF OCCUPANTS IN VEHICLE

ATTACH POLAROID OF OTHER VEHICLE
OR OBJECT STRUCK
(optional)

ATTACH POLAROID OF SCENE
(optional)

SKETCH CASE VEHICLE DAMAGE



ATTACH POLAROID OF CASE VEHICLE

Picture should depict major damage to vehicle (corresponding to Primary VDI).

ACCIDENT SCHEMATIC

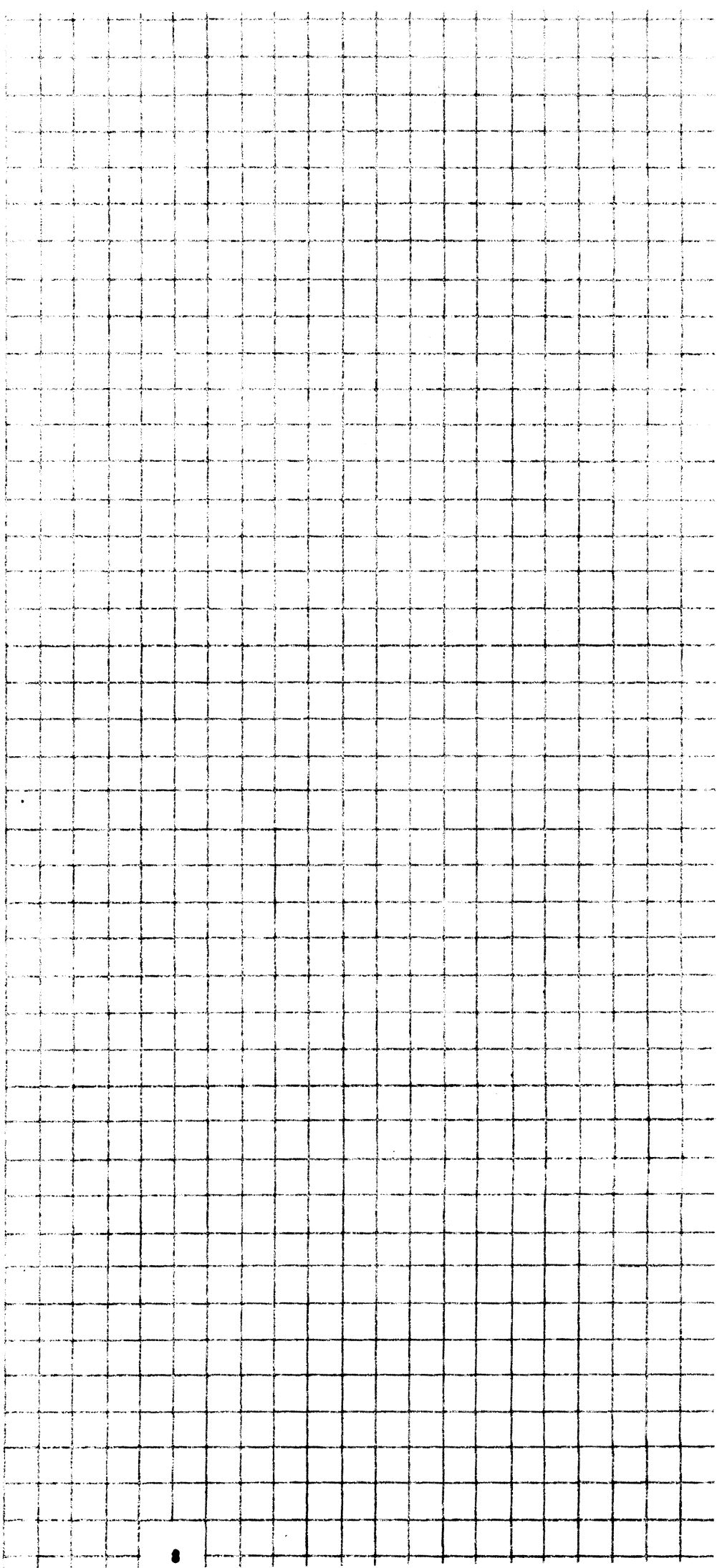
CASE VEHICLE (A): _____ ACCIDENT DESCRIPTION: _____

OTHER VEHICLE (B): _____

THIRD VEHICLE (C): _____



NORTH



CARD 0 4
1 2

CASE NO.

Dup Col 3-8 OR 3 4 5 6 7 8

OCCUPANT SECTION

OCCUPANT SEAT
POSITION NUMBER 9 10
See Page 5 for
Code Values.

OCCUPANT POSTURE
11
() 1 Normal Seated Position
() 9 Unknown
() 2 Other, Describe: _____

SEX 12
() 1 Male
Female:
() 2 Pregnancy Unknown
() 3 Pregnant
() 4 Not Pregnant
() 9 Unknown

OCCUPANT IS A:
13
() 1 Adult - over 12 years.
() 2 Child - 2 to 12 years.
() 3 Infant - under 2 years.
() 9 Unknown

AGE
14 15 Years (00, 01, 02-98)
16 17 Months if infant (to 24 months)
() Unknown age-- code appropriate line 99

WEIGHT
18 19 20 Pounds
() Unknown weight-- code 999

HEIGHT
____ Feet, ____ Inches = 21 22 In.
() Unknown Height-- code line 99

OCCUPANT SECTION SEQUENCE
No. 23 24

CRASH OCCUPANT MEDICAL
Treatment/Mortality
25.26 () 00 None
() 01 First Aid at Scene
Consulted Physician:
() 10 Unknown, but "Stated would"
() 11 Unknown, but "Directed to"
() 12 Did Consult Physician
() 02 Treated at Hospital/Clinic but Not Admitted
() 03 Hospitalized (observation less than 24 hours)
() 04 Hospitalized for Over 24 Hours or Significant Treatment
() 05 Fatal - Dead at Scene
() 06 Fatal - DOA
() 07 Fatal - Dead within 24 Hours
() 08 Fatal - Dead 24 Hours - 1 Year
() 09 Fatal - Period to Death Unknown
() 99 Unknown

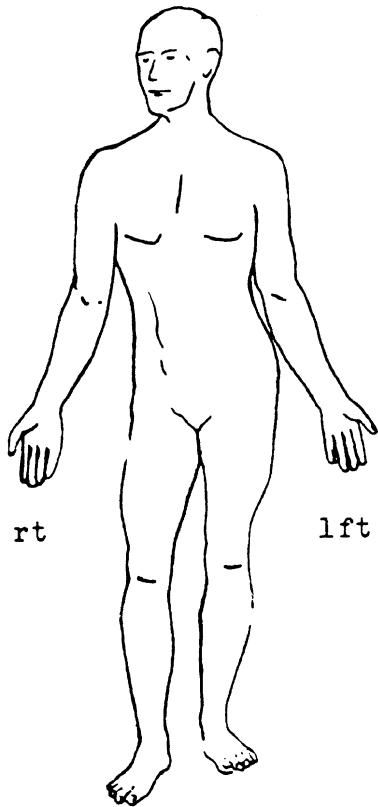
Overall Police Injury Severity (KABC)
27 NOTE: REPORT POLICE JUDGEMENT.
() 0 No Injury
() C Possible Injury
() B Nonincapacitating Injury
() A Incapacitating Injury
() K Fatal Injury
() U Unknown

OVERALL SEVERITY OF INJURIES
28.29
() 00 None
() 01 Minor
() 02 Non-Dangerous, Moderate
() 03 Non-Dangerous, Severe
() 04 Dangerous, Serious
() 05 Dangerous, Critical
() 06 Fatal Lesions in 1 Region
() 07 Fatal Lesions in 1 Region + 4 or 5 above
() 08 Fatal Lesions in 2 Regions
() 09 Fatal Lesions in 3 or More Regions
() 10 Fatal, Details Unknown
() 98 Injury Unknown
() 99 Injured, Severity Unknown

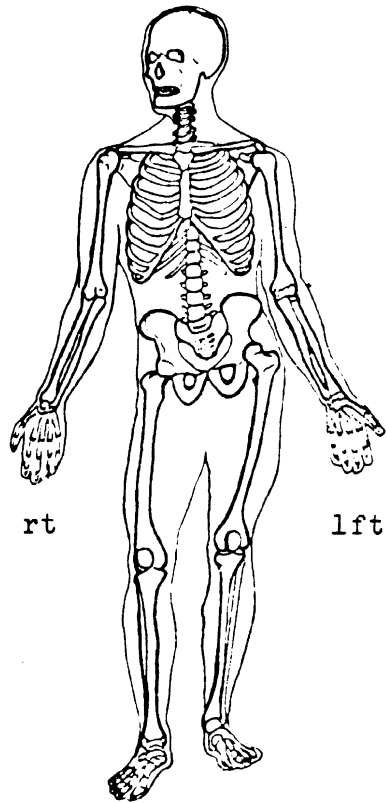
Occupant Ejection/Entrapment
30
() 9 Unknown if Ejected or Trapped
Ejection:
(No or Unknown Entrapment)
() 1 None
() 2 Partial Describe _____
() 3 Complete
() 4 Extent Unknown _____
Trapped with:
() 5 No Ejection
() 6 Partial Ejection
() 7 Unknown Ejection

INDICATE LOCATION OF INJURIES, INCLUDING MAJOR BRUISES

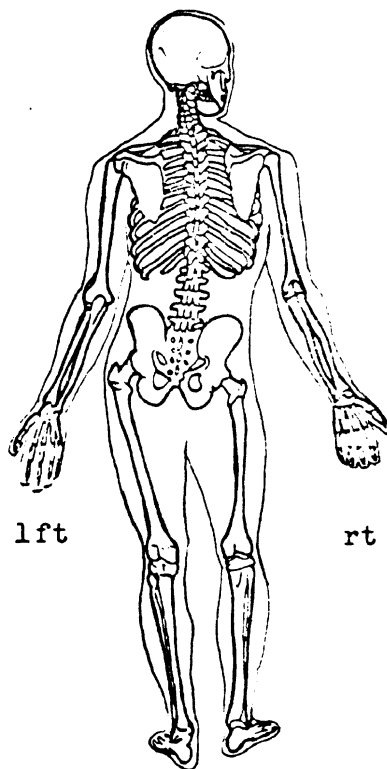
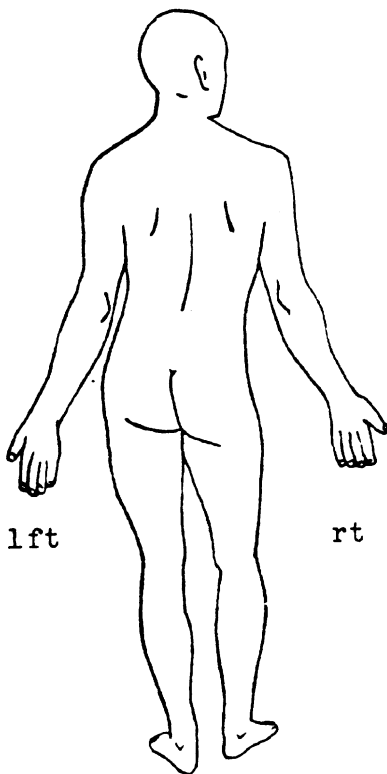
31
1 () NO INJURIES
2 () INJURED



SOFT TISSUE INJURIES



SKELETAL INJURIES



X Rays: _____

Other Tests: _____

INJURY INFORMATION

BEST SOURCE OF INJURY INFORMATION

- () ³² 1 Hospital/Doctor
- () 2 Personal interview with occupant
- () 3 Personal interview with other occupant
- () 4 Other: _____

OCCUPANT INJURY CLASSIFICATION

CARD NO.	I. D.	SEVERITY				SYSTEM/ORGAN				LESION				RESTRAINT CAUSED			
		BODY REGION	ASPECT	LESION	SYSTEM/ORGAN	BODY REGION	ASPECT	LESION	SYSTEM/ORGAN	BODY REGION	ASPECT	LESION	SYSTEM/ORGAN				
1-2	3-10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
05																	
06																	
07																	
08																	
09																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	

DUPLICATE COLUMNS 3-10

NOTE areas of occupant contact.

- 3 - DEFINITE
- 2 - PROBABLE
- 1 - POSSIBLE
- 9 - UNKNOWN

occupant seat
position number

RESTRAINT DEVICE & USAGE

CARD 2 0
1 2
Dup col 3-10

DEVICE STATUS

AT TIME OF COLLISION	SOURCE USED	LAP BELT		SHOULDER BELT		OTHER DEVICE ^①		CHILD SEAT	
		11	Original Equipment 12	13	Original Equipment 14	15	Original Equipment 16	17	Mfg: Model:
EQUIPPED for this POSITION	///	1() Y 2() N 9() U	Original Equipment 12 1() Y 2() N 9() U	13 1() Y 2() N 9() U	Original Equipment 14 1() Y 2() N 9() U	15 1() Y 2() N 9() U	Original Equipment 16 1() Y 2() N 9() U	17 1() Y 2() N 9() U	Mfg: Model:
BELTS OPERABLE	///	18 1() Y 2() N 9() U	Malfunction 19 1() ② Defeat 2() ③	20 1() Y 2() N 9() U	Malfunction 21 1() ② Defeat 2() ③	22 1() Y 2() N 9() U	Malfunction 23 1() ② Defeat 2() ③	24 1() Y 2() N 9() U	Malfunction 25 1() ② Defeat 2() ③
INTERLOCK BUZZER FUNCTIONAL	///	26 1() Y 2() N 9() U	Malfunction 27 1() ② Defeat 2() ③	28 1() Y 2() N 9() U	Malfunction 29 1() ② Defeat 2() ③	30 1() Y 2() N 9() U	Malfunction 31 1() ② Defeat 2() ③	///	///
						If ACRS --④			

CARD 2 1
1 2
Dup col 3-10

DEVICE USAGE

	Response	Judgement	Response	Judgement	Response	ACRS Deploy	Judge	Response	Judgement	
VEHICLE	11 (1)Y (2)N (7)UA	///	12,13	///	14,15	///	16 1() Y 2() N 9() U	17,18	///	19,20
INJURY DATA	21 (1)Y (2)N (7)UA	///	22,23	///	24,25	///	26 1() Y 2() N 9() U	27,28	///	29,30
INTERVIEW OCCUPANT	31 (1)Y (2)N (7)UA	32 1() Y 2() N 6() NR	33,34	35 1() Y 2() N 6() NR	36,37	38 1() Y 2() N 6() NR	39 1() Y 2() N 9() U	40,41	42 1() Y 2() N 6() NR	43,44
INTERVIEW:	45 (1)Y (2)N (7)UA	46 1() Y 2() N 6() NR	47,48	49 1() Y 2() N 6() NR	50,51	52 1() Y 2() N 6() NR	53 1() Y 2() N 9() U	54,55	56 1() Y 2() N 6() NR	57,58
INTERVIEW:	59 (1)Y (2)N (7)UA	60 1() Y 2() N 6() NR	61,62	63 1() Y 2() N 6() NR	64,65	66 1() Y 2() N 6() NR	67 1() Y 2() N 9() U	68,69	///	///
CONCLUSION	///	///	70,71	///	72,73	///	74 1() Y 2() N 9() U	75,76	///	77,78

YES NO
+3 DEFINITE -3
+2 PROBABLE -2
+1 POSSIBLE -1
00 UNKNOWN
99 NOT APPLICABLE

Y = YES
N = NO
U = UNKNOWN
NR = NO RESPONSE
UA = UNAVAILABLE

Response = Literal response of interviewee.
Judgement = Interviewer's best judgement of and confidence in interviewees response to question of restraint usage.

- ① Specify & describe device: _____
Describe irrespective of source. Source of Information
- ② Malfunction: _____
- ③ Defeat: _____
- ④ Summarize status of ACRS: _____

Occupant Seat
Position Number _ _

OCCUPANT SUPPLEMENT

CARD $\frac{2}{1}$ $\frac{2}{2}$
Dup col 3-10

Restraint Maladjustment

- 11-13
- () 991 Yes
 - () 992 No
 - () 993 Not Applicable, Not Worn
 - () 999 Unknown

Factors Determining Restraint Usage Classification

Contribution to Evaluation

Choose one of the following code values for each factor:

- (1) Supported evaluation
- (2) Contradicted evaluation
- (3) Neither supported nor contradicted evaluation
- (4) No response*
- (5) Not applicable**

Column and Factor	Factor Availability			No Resp.*	Not Applic.**
	Sup.	Cont.	Neither		
20 Belt or Fittings Damaged by Occupant Loading	1()	2()	3()	4()	5()
21 Location or Condition of Belts	1()	2()	3()	4()	5()
22 System Defeated	1()	2()	3()	4()	5()
23 Exterior Vehicle Damage or Occupant Contact Points	1()	2()	3()	4()	5()
24 Police Report	1()	2()	3()	4()	5()
25 Police or Witness Observation	1()	2()	3()	4()	5()
26 Subject Interview	1()	2()	3()	4()	5()
27 Other Interview	1()	2()	3()	4()	5()
28 Occupant Injury Pattern	1()	2()	3()	4()	5()
29 Belt Caused Injury	1()	2()	3()	4()	5()
30 Occupant Ejected	1()	2()	3()	4()	5()

* No Response - Vehicle inspected, report obtained or interview conducted but factor undeterminable or interviewee refused to respond.

** Not Applicable - No vehicle inspection, report or interview, or other not applicable.



CARD 0 4
1 2

CASE NO.

Dup Col 3-8 OR 3 4 5 6 7 8

OCCUPANT SECTION

OCCUPANT SEAT
POSITION NUMBER 9 10
See Page 5 for
Code Values.

OCCUPANT POSTURE
11
() 1 Normal Seated Position
() 9 Unknown
() 2 Other, Describe: _____

SEX 12
() 1 Male
Female:
() 2 Pregnancy Unknown
() 3 Pregnant
() 4 Not Pregnant
() 9 Unknown

OCCUPANT IS A:
13
() 1 Adult - over 12 years.
() 2 Child - 2 to 12 years.
() 3 Infant - under 2 years.
() 9 Unknown

AGE
14 15 Years (00, 01, 02-98)
↓
16 17 Months if infant
(to 24 months)
() Unknown age-- code appropriate
line 99

WEIGHT
18 19 20 Pounds
() Unknown weight-- code 999

HEIGHT
____ Feet, ____ Inches = 21 22 In.
() Unknown Height-- code line 99

OCCUPANT SECTION SEQUENCE
No. 23 24

CRASH OCCUPANT MEDICAL
Treatment/Mortality
25,26 () 00 None
() 01 First Aid at Scene
Consulted Physician:
() 10 Unknown, but "Stated would"
() 11 Unknown, but "Directed to"
() 12 Did Consult Physician
() 02 Treated at Hospital/Clinic
but Not Admitted
() 03 Hospitalized (observation
less than 24 hours)
() 04 Hospitalized for Over 24 Hours
or Significant Treatment
() 05 Fatal - Dead at Scene
() 06 Fatal - DOA
() 07 Fatal - Dead within 24 Hours
() 08 Fatal - Dead 24 Hours - 1 Year
() 09 Fatal - Period to Death Unknown
() 99 Unknown

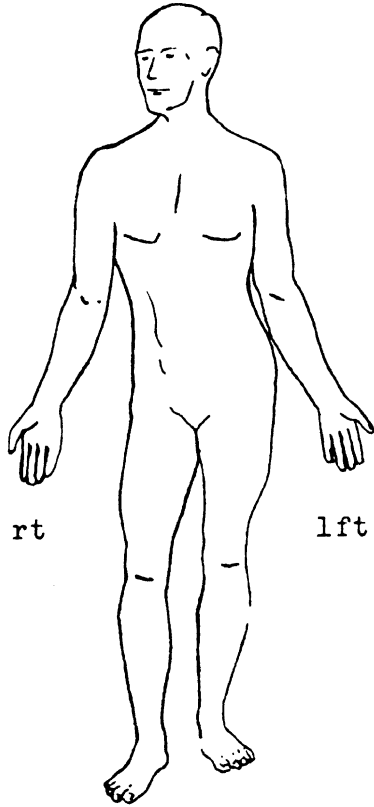
Overall Police Injury Severity (YABC)
27 NOTE: REPORT POLICE JUDGEMENT.
() 0 No Injury
() C Possible Injury
() B Nonincapacitating Injury
() A Incapacitating Injury
() K Fatal Injury
() U Unknown

OVERALL SEVERITY OF INJURIES
28,29
() 00 None **
() 01 Minor **
() 02 Non-Dangerous, Moderate **
() 03 Non-Dangerous, Severe **
() 04 Dangerous, Serious **
() 05 Dangerous, Critical **
() 06 Fatal Lesions in 1 Region **
() 07 Fatal Lesions in 1 Region
+ 4 or 5 above **
() 08 Fatal Lesions in 2 Regions **
() 09 Fatal Lesions in 3 or
More Regions **
() 10 Fatal, Details Unknown **
() 98 Injury Unknown **
() 99 Injured, Severity Unknown **

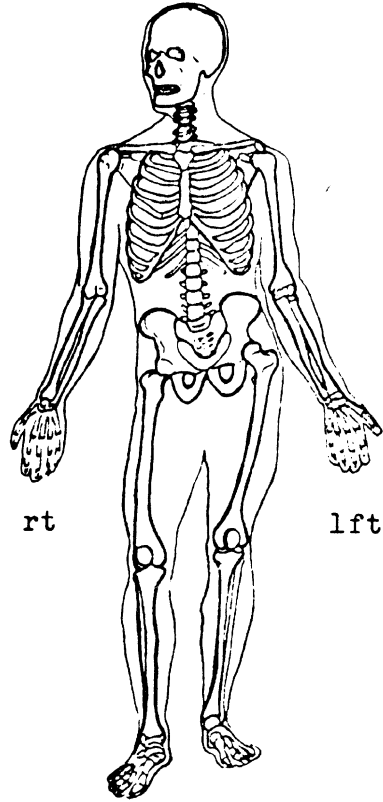
Occupant Ejection/Entrapment **
30
() 9 Unknown if Ejected or Trapped **
Ejection: **
(No or Unknown Entrapment) **
() 1 None **
() 2 Partial Describe _____ **
() 3 Complete **
() 4 Extent Unknown _____ **
Trapped with: **
() 5 No Ejection
() 6 Partial Ejection
() 7 Unknown Ejection

INDICATE LOCATION OF INJURIES, INCLUDING MAJOR BRUISES

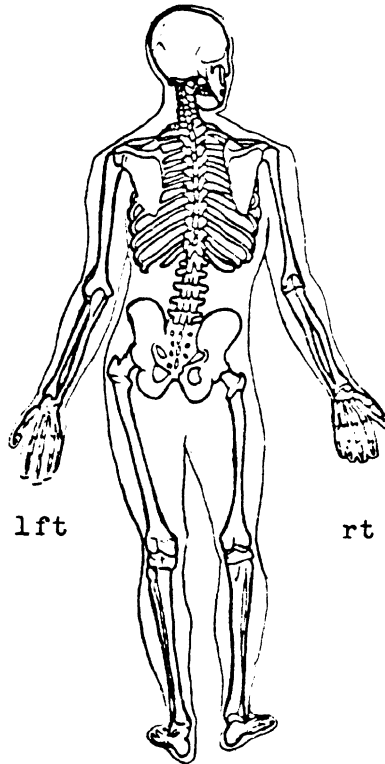
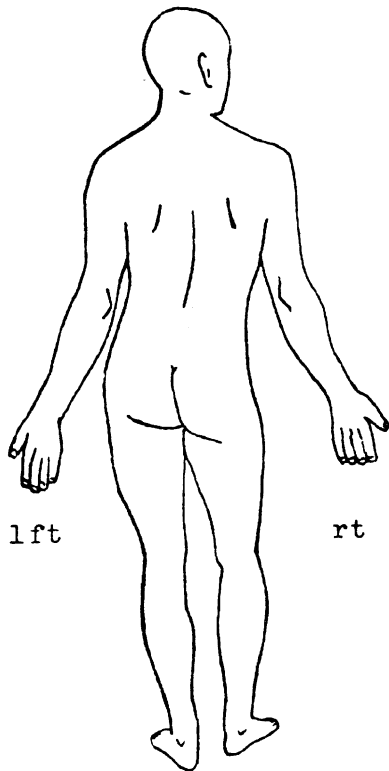
31
1 () NO INJURIES
2 () INJURED



SOFT TISSUE INJURIES



SKELETAL INJURIES



X Rays: _____

Other Tests: _____

INJURY INFORMATION

BEST SOURCE OF INJURY INFORMATION

- () 1 Hospital/Doctor
- () 2 Personal interview with occupant
- () 3 Personal interview with other occupant
- () 4 Other: _____

OCCUPANT INJURY CLASSIFICATION

CARD NO.	I. D.	SEVERITY	SYSTEM/ORGAN	LESION	ASPECT	BODY REGION	SEVERITY	SYSTEM/ORGAN	LESION	ASPECT	BODY REGION	SEVERITY	SYSTEM/ORGAN	LESION	ASPECT	BODY REGION	RESPIRANT CAUSED	
1-2	3-10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
05	DUPLICATE COLUMNS 3-10																	
06																		
07																		
08																		
09																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		

NOTE areas of occupant contact.

↓
 3 - DEFINITE
 2 - PROBABLE
 1 - POSSIBLE
 9 - UNKNOWN

**
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 **
 **

RESTRAINT DEVICE & USAGE

CARD 2 0
1 2
 Dup col 3-10

occupant seat
 position number

DEVICE STATUS

SOURCE USED	LAP BELT		SHOULDER BELT		OTHER DEVICE ^①		CHILD SEAT	
	11	12	13	14	15	16	17	Mfg:
EQUIPPED for this POSITION	1() Y	Original Equipment	1() Y	Original Equipment	1() Y	Original Equipment	1() Y	_____
	2() N	1() Y	2() N	1() Y	2() N	1() Y	2() N	Model: _____
	9() U	2() N 9() U	9() U	2() N 9() U	9() U	2() N 9() U	9() U	_____
BELTS OPERABLE	18	Malfunction	20	Malfunction	22	Malfunction	24	Malfunction
	1() Y	19 () ②	1() Y	21 () ②	1() Y	23 () ②	1() Y	25 () ②
	2() N	Defeat	2() N	Defeat	2() N	Defeat	2() N	Defeat
9() U	2() ③	9() U	2() ③	9() U	2() ③	9() U	2() ③	
INTERLOCK BUZZER FUNCTIONAL	26	Malfunction	28	Malfunction	30	Malfunction	/ / / / / / / / / /	/ / / / / / / / / /
	1() Y	27 () ②	1() Y	29 () ②	1() Y	31 () ②		
	2() N	Defeat	2() N	Defeat	2() N	Defeat		
9() U	2() ③	9() U	2() ③	9() U	2() ③	If ACRS -- ④		

CARD 2 1
1 2
 Dup col 3-10

DEVICE USAGE

	Response	Judgement	Response	Judgement	Response	Judgement	Response	Judgement	
VEHICLE	11 (1)Y (2)N (7)UA	/ / / / / / / / / /	12,13	/ / / / / / / / / /	14,15	/ / / / / / / / / /	16 (1)Y (2)N (9)U	17,18	/ / / / / / / / / /
INJURY DATA	21 (1)Y (2)N (7)UA	/ / / / / / / / / /	22,23	/ / / / / / / / / /	24,25	/ / / / / / / / / /	26 (1)Y (2)N (9)U	27,28	/ / / / / / / / / /
INTERVIEW OCCUPANT	31 (1)Y (2)N (7)UA	32 () Y 2() N 6() NR	33,34	35 () Y 2() N 6() NR	36,37	38 () Y 2() N 6() NR	39 () Y 2() N 9() U	40,41	42 () Y 2() N 6() NR
INTERVIEW	45 (1)Y (2)N (7)UA	46 () Y 2() N 6() NR	47,48	49 () Y 2() N 6() NR	50,51	52 () Y 2() N 6() NR	53 () Y 2() N 9() U	54,55	56 () Y 2() N 6() NR
INTERVIEW	59 (1)Y (2)N (7)UA	60 () Y 2() N 6() NR	61,62	63 () Y 2() N 6() NR	64,65	66 () Y 2() N 6() NR	67 () Y 2() N 9() U	68,69	/ / / / / / / / / /
CONCLUSION	/ / / / / / / / / /	70,71	/ / / / / / / / / /	72,73	/ / / / / / / / / /	74 () Y 2() N 9() U	75,76	/ / / / / / / / / /	

YES NO
 +3 DEFINITE -3
 +2 PROBABLE -2
 +1 POSSIBLE -1
 00 UNKNOWN
 99 NOT APPLICABLE

Y = YES
 N = NO
 U = UNKNOWN
 NR = NO RESPONSE
 UA = UNAVAILABLE

Response = Literal response of interviewee.
 Judgement = Interviewer's best judgement of and confidence in interviewees response to question of restraint usage.

- ① Specify & describe device: _____
 Describe irrespective of source. Source of Information
- ② Malfunction: _____
- ③ Defeat: _____
- ④ Summarize status of ACRS: _____

Occupant Seat
Position Number _ _

OCCUPANT SUPPLEMENT

CARD $\frac{2}{1}$ $\frac{2}{2}$
Dup col 3-10

Restraint Maladjustment

- ¹¹⁻¹³
()991 Yes
()992 No
()993 Not Applicable, Not Worn
()999 Unknown

Factors Determining Restraint Usage Classification

Contribution to Evaluation

Choose one of the following code values for each factor:

- (1) Supported evaluation
- (2) Contradicted evaluation
- (3) Neither supported nor contradicted evaluation
- (4) No response*
- (5) Not applicable**

Column and Factor	Factor Availability			No Resp.*	Not Applic.**
	Sup.	Cont.	Neither		
20 Belt or Fittings Damaged by Occupant Loading	1()	2()	3()	4()	5()
21 Location or Condition of Belts	1()	2()	3()	4()	5()
22 System Defeated	1()	2()	3()	4()	5()
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24 Police Report	1()	2()	3()	4()	5()
25 Police or Witness Observation	1()	2()	3()	4()	5()
26 Subject Interview	1()	2()	3()	4()	5()
27 Other Interview	1()	2()	3()	4()	5()
28 Occupant Injury Pattern	1()	2()	3()	4()	5()
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* No Response - Vehicle inspected, report obtained or interview conducted but factor undeterminable or interviewee refused to respond.
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