IMPROVED PERFORMANCE OF SMALL SIGN SUPPORTS
PHASE I
Test No. 3, Rigid Pole Impact
SECTION 1
INTRODUCTION

A full scale crash test was performed to determine front end crush stiffness of a 1981 Dodge Colt when impacting a rigid pole at at speed of 20 mph.

Test installation and procedures are described in Section 2; test results are discussed in Section 3; photographic coverage is included in Section 4. NHTSA Dynamic Crash Test Information Sheets are included as Appendix A. Two sets of 35mm framed color slides documenting pre and post test vehicle and site conditions, are included as part of this report, as well as high speed motion picture footage covering the event.

SECTION 2
TEST INSTALLATION AND PROCEDURE

The rigid pole test installation consisted of a schedule 120 steel pipe filled with concrete, 8 inches in diameter, supported in the vertical position by a rigid back-up structure firmly anchored to the ground. The pole had one degree of freedom in the direction of vehicle travel, was supported vertically by a flexure, and impact loads were reacted through load cells as shown in Figure 2-1.

The installation was offset with respect to the guide rail to be impacted 9 3/4 inches off center, towards the passenger side of the vehicle.

The test vehicle was a 1981 Dodge Colt 2 door hatchback with a test weight of 2,265 lbs. including dummies and instrumentation. The impact velocity was 20.01 mph.

Two 50th-percentile anthropomorphic dummies, fully instrumented, were placed in the driver and passenger seats respectively. The driver dummy was fully restrained with a lap and shoulder belt, and the passenger dummy was unrestrained.

Instrumentation onboard the vehicle was the following:

Vehicle accelerometers
- Front bumper, left and right, uniaxial
- Chassis cross member, left and right, uniaxial
- Engine, triaxial
- Firewall, uniaxial
- Center of Gravity, triaxial
- Front floor pan, left and right, uniaxial
- Rear floor pan, left and right, uniaxial

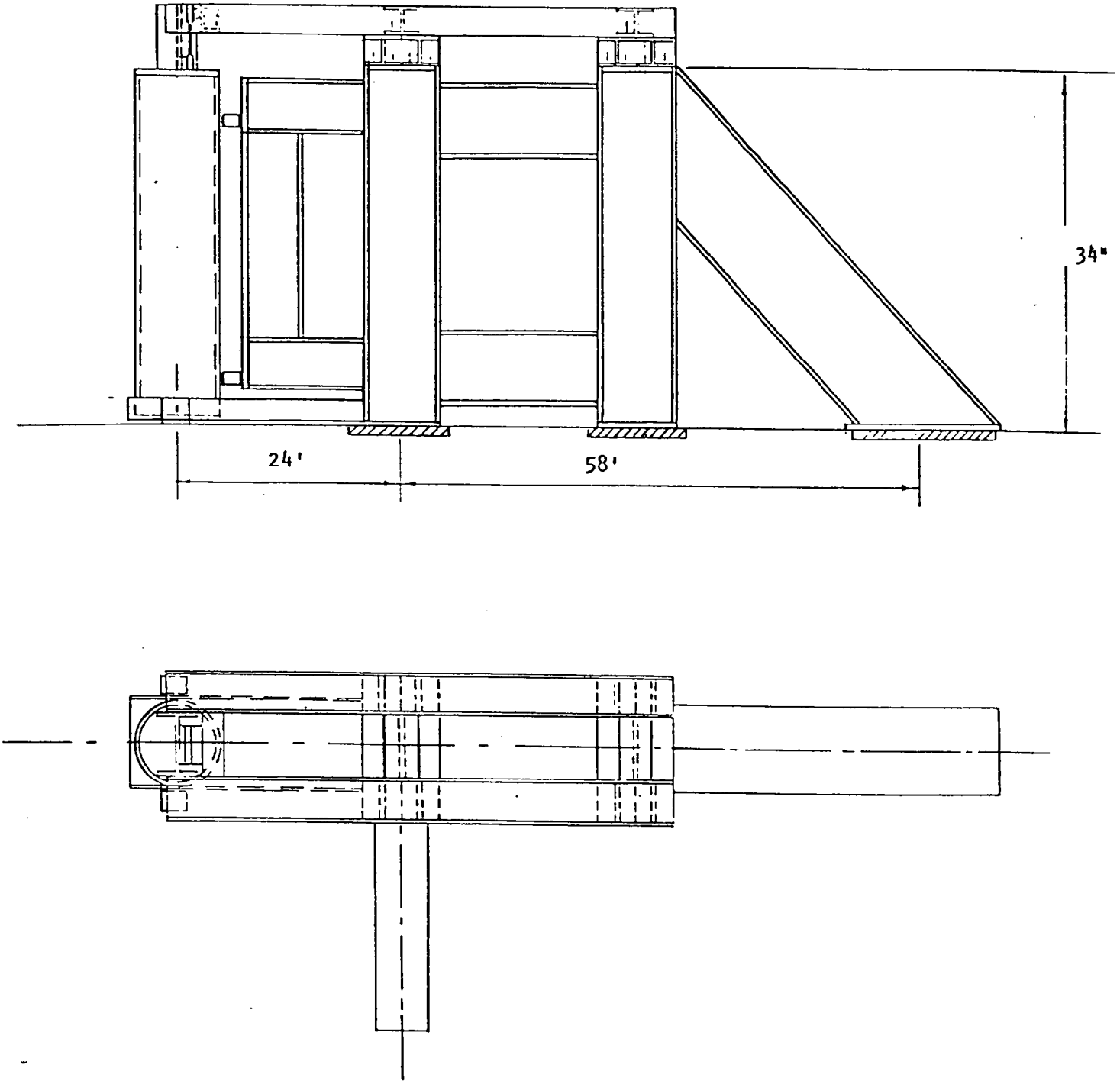


FIGURE 2-1 FRONTAL CRUSH STIFFNESS TEST STRUCTURE

Dummy accelerometers, triaxial

Driver head

Driver chest

Passenger head

Passenger chest

Femur load cells

Driver, left and right

Passenger, left and right

All the above instrumentation was connected to recording equipment via a 40 channel umbilical cord.

The actual vehicle speed was recorded by two electro optical speed traps placed approximately 25 feet prior to the impact zone.

Recording equipment outboard the vehicle consisted of four high speed motion picture cameras, located as follows:

- Overhead, 1000 fps
- Overhead, 600 fps
- Driver side, 600 fps
- Passenger side, 600 fps

In addition, a real time documentary motion picture camera was used to film before and after test conditions, and pan the vehicle trajectory. Black and white still photography was extensively used to record the test site, instrumentation, and vehicle condition; 35mm color slides were shot to cover before and after test vehicle and test article conditions.

SECTION 3
TEST RESULTS

The test was conducted March 3, 1982 at approximately 14:45, with a 1981 Dodge Colt weighing 2,265 lbs. including dummies and instrumentation. The vehicle impact speed was 20.01 mph, into the rigid pole structure described in Section 2. The selected impact offset was 9 3/4 inches to the right of the center line (passenger side). It appears that the actual impact was approximately 2 3/4 inches toward the vehicle center line from this 9 3/4 inch offset location. The impact caused a permanent deformation of approximately 15 inches.

The bumper buckled into essentially a v shape at the point of impact. The front end crush included deformation of the hood and also the transverse member below the bumper. The impact displaced the right front wheel rearward approximately 2 inches. However the posttest wheel location was such that it did not rub against the edge of the wheel opening in the front quarter panel.

The crushed front end made contact with the transmission mounting bracket, although it was not centered right on it, and the transmission housing on the right side of the vehicle was cracked open. On the driver's side of the vehicle there was no obvious damage to the engine or components. Neither the engine nor the transmission were pushed into the bulkhead. The fuel line and some wires were pushed back into it but there was no contact with the manifold or other rigid components. The only structural and body damage that was apparent to the vehicle was in the front. Neither of the front quarter panels showed any deformation and there was no deformation of the doors or indication that the quarter panels were displaced rearward longitudinally. The damage was essentially isolated to the area of the pole impact destroying the hood, the bumper, transmission, fan, radiator etc.

The passenger dummy impacted the windshield perhaps with the top of the head or high on the forehead, about 3 to 4 inches below the upper boundary of the windshield frame and then slid downward as the impact progressed. The windshield severely cracked and bulged out approximately 2 inches but no penetration occured. There was no indication that the passenger dummy impacted his head against the instrument panel. The knees of the passenger dummy were forced into the instrument panel to the point that they were completely into the glove compartment. The metal support member for the instrument panel was buckled as well as the panel material. Posttest the dummy was lying back against the seat back but his knees were not jammed into the glove compartment.

The driver dummy was restrained with both the lap and shoulder belt. On the driver's side of the vehicle there was damage to the cover over the fuse box located immediately to the left of the steering column. The driver's knee impacted this area and knocked the cover loose from the fuse panel. The driver's forehead impacted the top of the steering wheel. There was no other secondary impact noted from the driver on the vehicle and there was no residual deformation of the steering wheel.

TABLE 1 - VEHICLE ACCELEROMETER READINGS

PHASE 1 TEST No. 3 TEST DATE 3/3/82

TEST VEHICLE 1981 Dodge Colt TEST WEIGHT 2,265 Lbs.

TEST ARTICLE Rigid Pole TEST SPEED 20.01 MPH

LOCATION	READING	REMARKS
FRONT BUMPER		
Left	26 g pk	Good Data
Right	62 g pk	Good Data
CROSS MEMBERS		
Left	30 g pk	Good Data
Right	50 g pk	Good Data
ENGINE		
Longitudinal	64 g pk	Good Data
Lateral	58 g pk	Good Data
Vertical	38 g pk	Good Data
FIREWALL	40 g pk	Good Data
CENTER OF GRAVITY		
Longitudinal	33 g	Good Data
Lateral	8 g	Good Data
Vertical	12 g	Good Data
FRONT FLOOR PAN		
Left	21 g pk	Good Data
Right	31 g pk	Good Data
REAR FLOOR PAN		
Left	32 g pk	Good Data
Right	23 g pk	Good Data

TABLE 2 - DUMMIES' INSTRUMENTATION READINGS

PHASE I TEST No. 3 TEST DATE 3/3/82

TEST VEHICLE 1981 Dodge Colt TEST WEIGHT 2,265 Lbs.

TEST ARTICLE Rigid Pole TEST SPEED 20.01 MPH

INSTRUMENT	READING	REMARKS
DRIVER		
HEAD ACCELEROMETER		
Longitudinal	44 g pk	Good Data
Lateral	6 g pk	Good Data
Vertical	25 g pk	Good Data
CHEST ACCELEROMETER		
Longitudinal	25 g pk	Good Data
Lateral	6 g pk	Good Data
Vertical	6 g pk	Good Data
FEMUR LOAD CELLS		
Left	511 lbs. (Compression)	Good Data
Right	100 lbs. (Tension)	Good Data
PASSENGER		
HEAD ACCELEROMETER		
Longitudinal	41 g pk	Good Data
Lateral	9 g pk	Good Data
Vertical	49 g pk	Good Data
CHEST ACCELEROMETER		
Longitudinal	50 g pk	Good Data
Lateral	14 g pk	Good Data
Vertical	17 g pk	Good Data
FEMUR LOAD CELLS		
Left	520 lbs. (Compression)	Good Data
Right	471 lbs. (Compression)	Good Data

TABLE 3 RIGID POLE INSTALLATION - LOAD CELL DATA

PHASE I TEST No. 3 TEST DATE 3/3/82

TEST VEHICLE 1981 Dodge Colt TEST WEIGHT 2,265 Lbs.

TEST ARTICLE Rigid Pole TEST SPEED 20.01 MPH

	Initial Peak	Ave. 1st. Level	Ave. 2nd. Level	Max. Peak
Upper Load Cell	N/A	N/A	N/A	17,600 lbs.
Lower Load Cell	N/A	N/A	N/A	26,400 lbs.

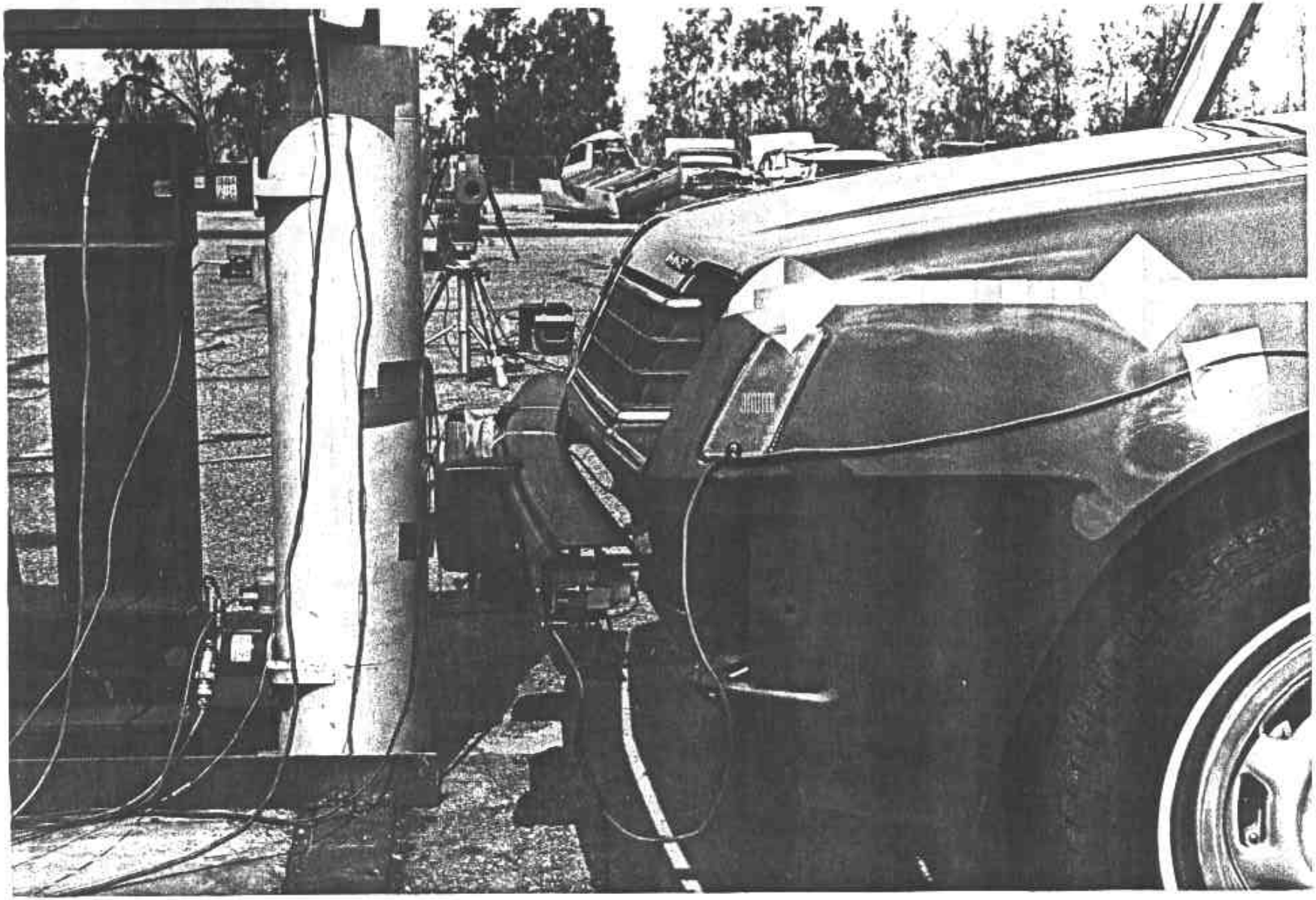
POLE ACCELEROMETERS DATA

	UNFILTERED	FILTERED
Upper Load Cell	32 g pk	6.6 g pk
Lower Load Cell	36 g pk	7.5 g pk

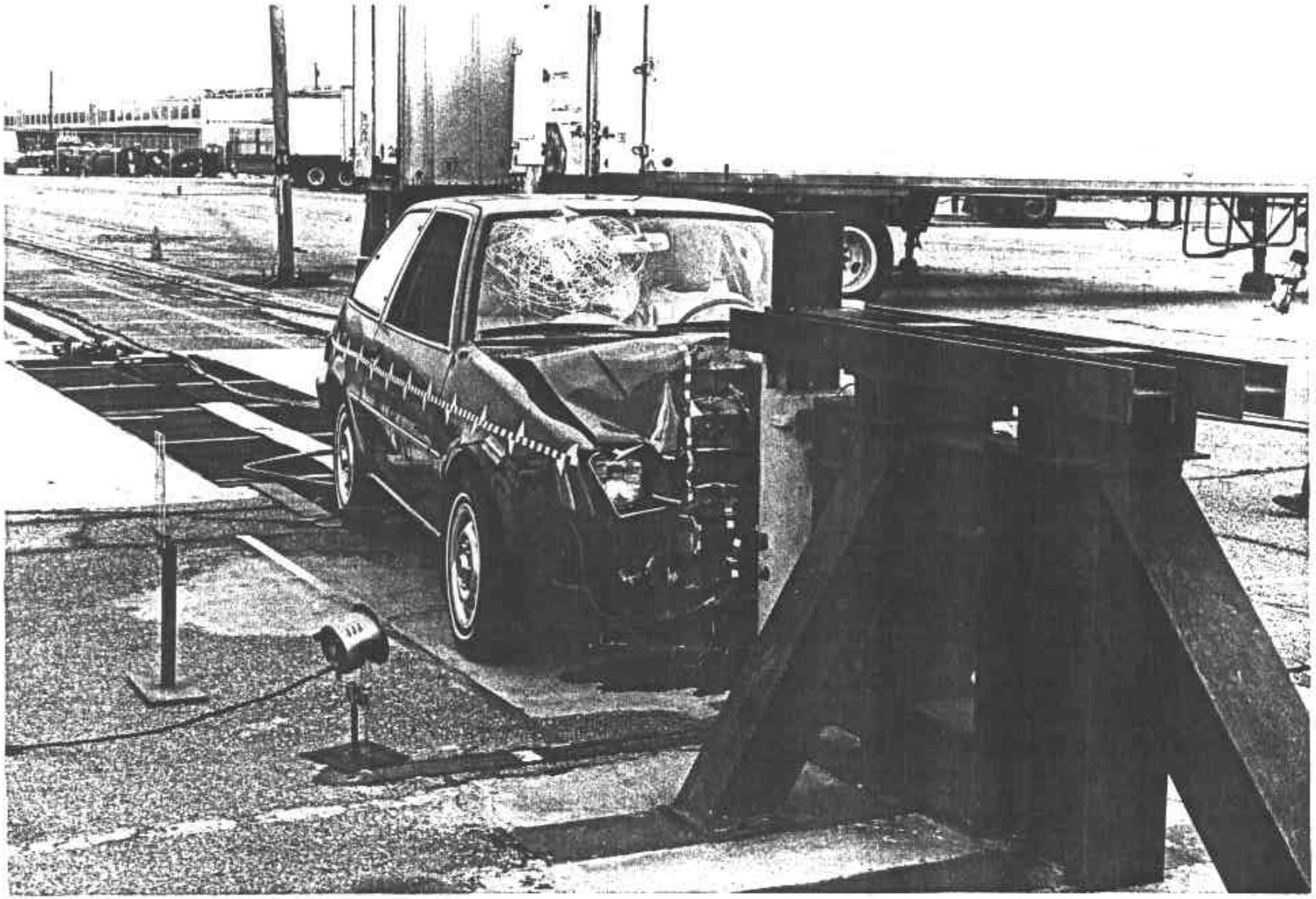
SECTION 4

PHOTOGRAPHIC COVERAGE

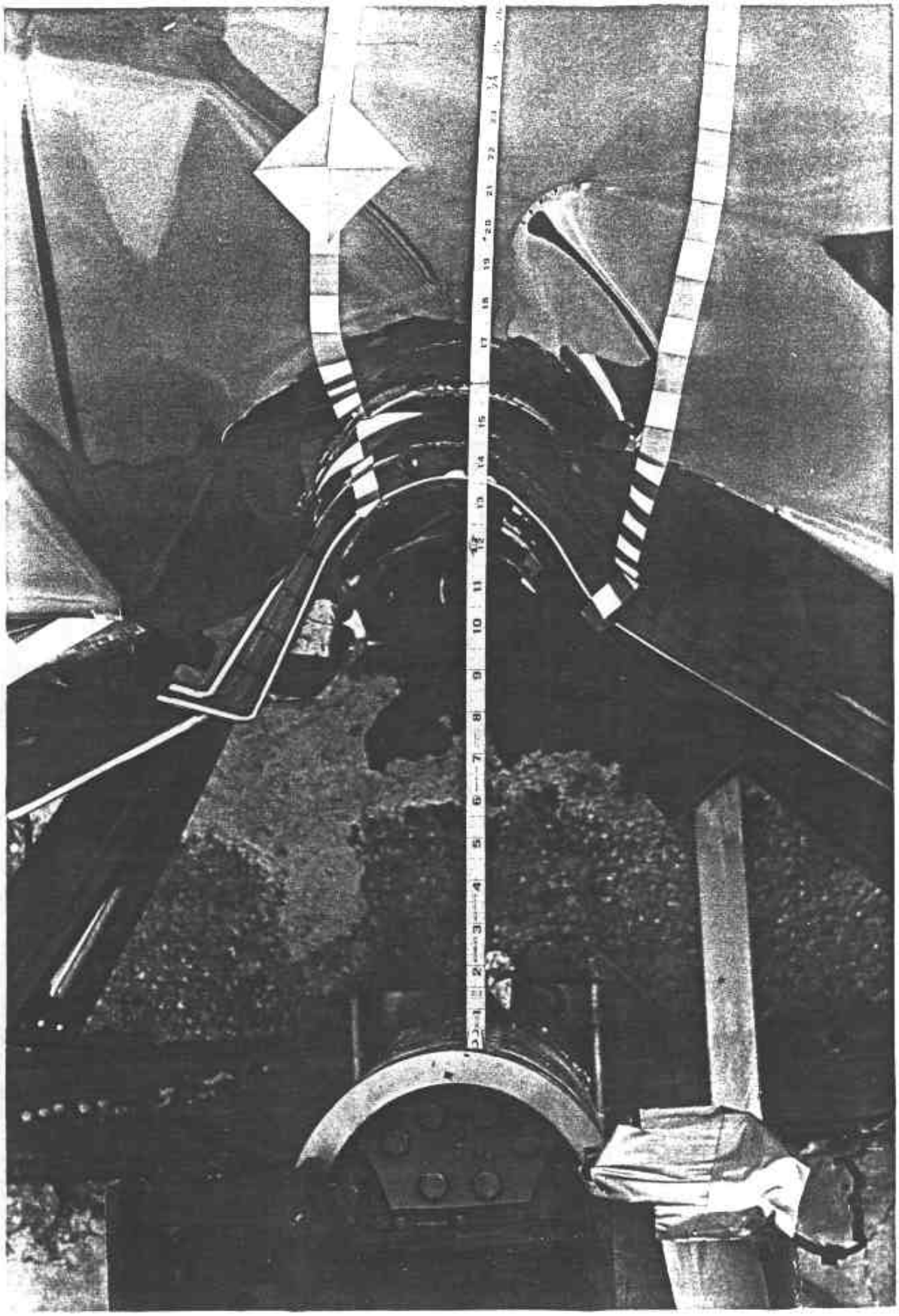
Pre-Test – Test Vehicle and Structure



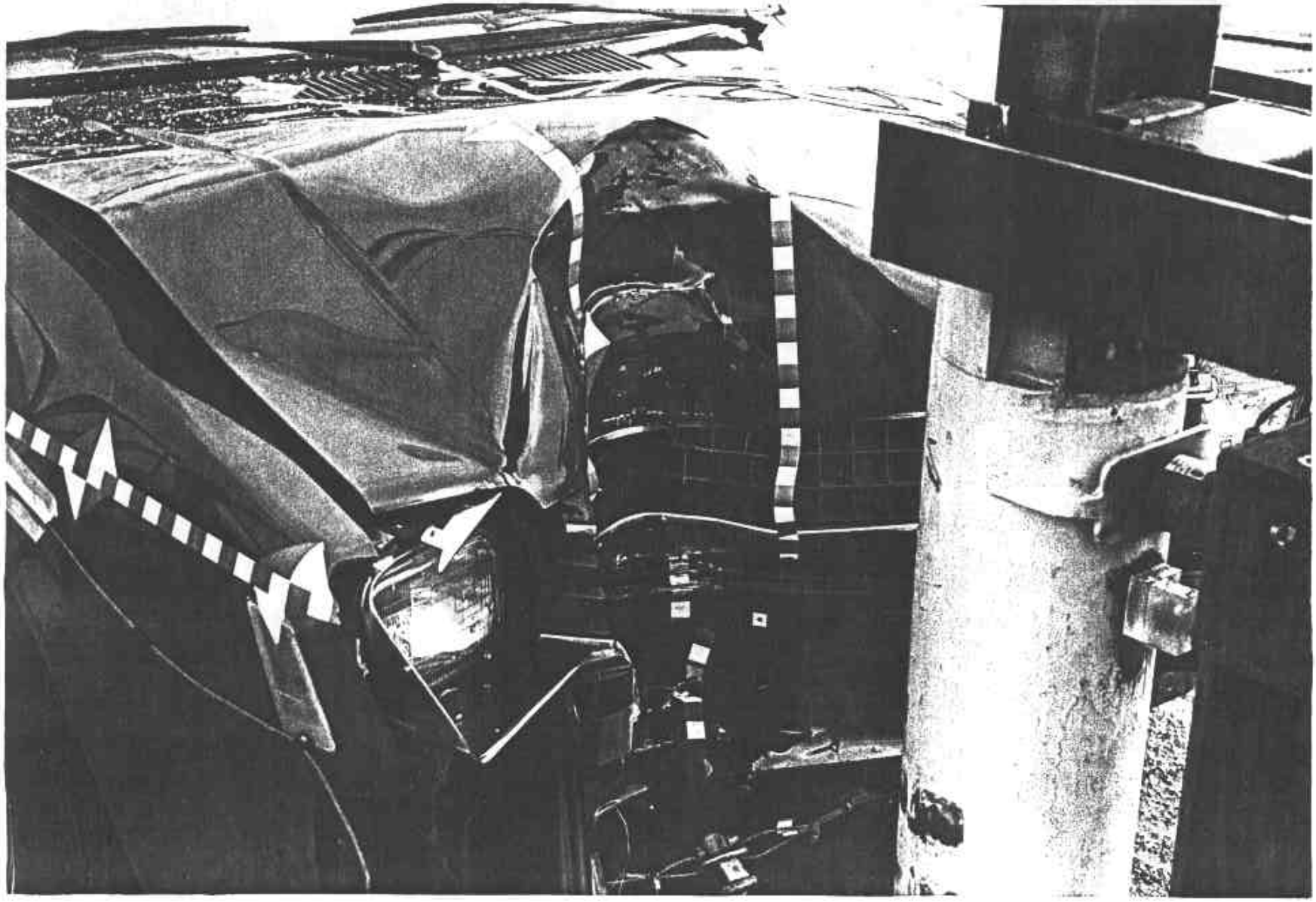
Pre-Test - Bumper/Pole Interface



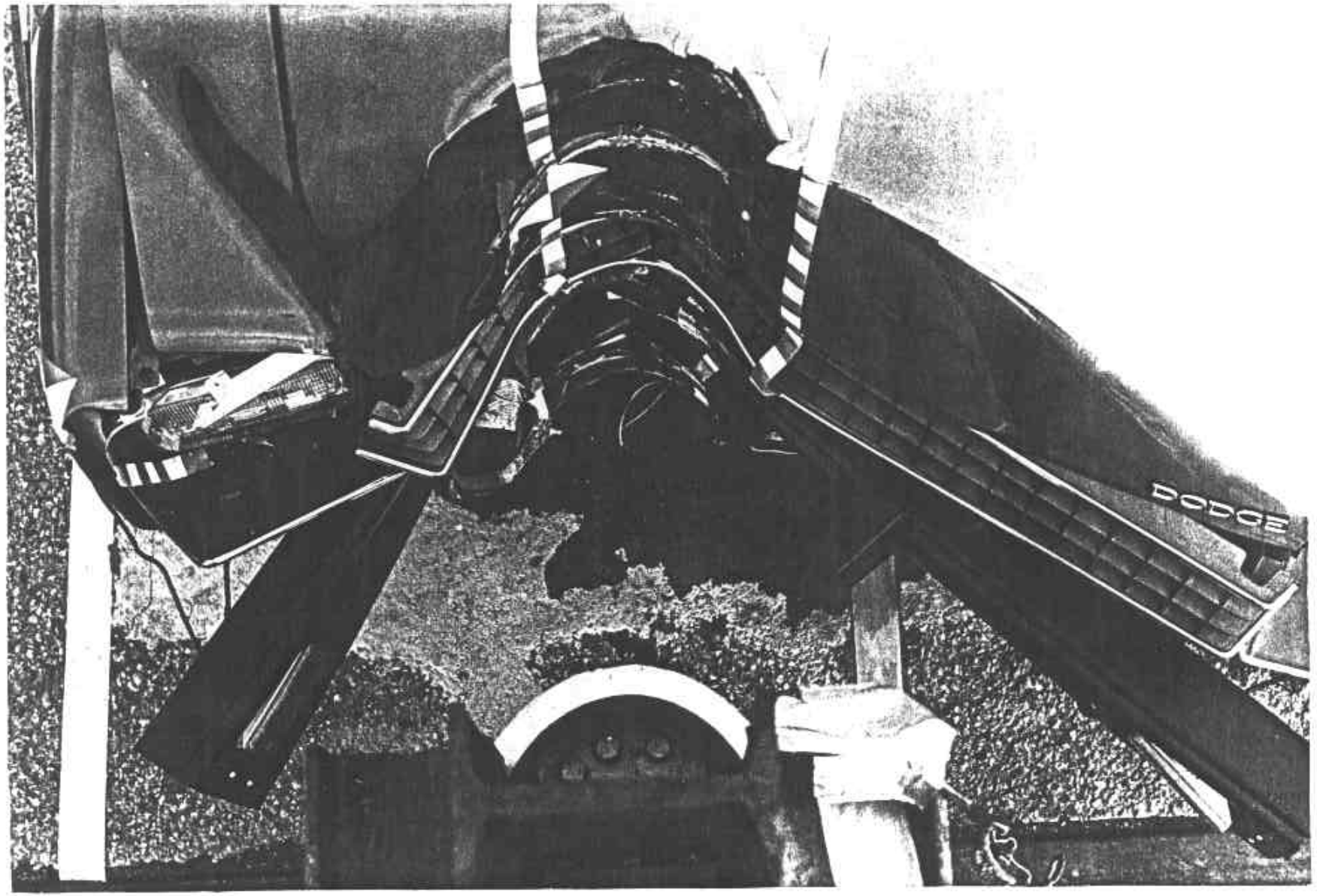
Post-Test - Vehicle Arrest Position



Post-Test - Vehicle Rebound



Post-Test – Detail of Vehicle Damage



Post-Test – Front End Crush

APPENDIX A

DYNAMIC CRASH TEST INFORMATION

Department of Transportation
tional Highway Traffic Safety
Administration

DYNAMIC CRASH TEST INFORMATION

GENERAL TEST INFORMATION

PLEASE COMPLETE ACCORDING TO INSTRUCTIONS GIVEN IN THE
"GUIDE FOR PREPARING DYNAMIC CRASH TEST INFORMATION FORMS"

IDENTIFIER - *FOR KEYPUNCH PURPOSES ONLY*: 1

FOR KEYPUNCH PURPOSES ONLY (CARD ID) (79-80): 1 1

TITLE - *TEST TITLE*

27) PHASE 1 TEST 3 RPI

81 DODGE

1.3 TSTDAT - *TEST DATE (MM/DD/YY)* (29-36): 03/03/82

TSTPRF - *TEST PERFORMER*

-40) (MSE) *Mobility Systems (Agbabian)* | DYS *Dynamic Science* | MIN *Minicars* | NHT *NHTSA* | 999 *Unknown*
GEC *General Environment Corp.* | NFC *NAFEC* | ØTH *Other*
CAL *Calspan*

CONNO - *CONTRACT NUMBER*

-55) DTFH61800C00170

TSTREF - *TEST REFERENCE NUMBER (ASSIGNED BY PERFORMER)*

-64) TEST 2

FOR KEYPUNCH PURPOSES ONLY (CARD ID) (79-80): 1 2

TSTOBJ - *TEST OBJECTIVES*

73) MEASUREMENT OF CRU

SHOCK STIFFNESS OF 19

81 DODGE COLT

KEYPUNCH PURPOSES ONLY (CARD ID)

-80) 1 3

TSTTYP - *TEST TYPE*

4) DAS *Baseline test of conventional vehicle(s)* | DEV *Test procedure development effort* | MØD *Test of vehicle containing structural and/or interior modifications*
ELE *Electric vehicle test*
CØM *Test for compliance with FMVSS* | ØTH *Other* | 999 *Unknown*
CRC *Crash recorder collision*

TSTCFN - *TEST CONFIGURATION*

8) (VSB) *Vehicle into stationary barrier* | RØL *Rollover*
MBV *Moving barrier into vehicle* | ØTH *Other*
VTV *Vehicle to vehicle* | 999 *Unknown*

1.10 CLSSPD - *CLOSING SPEED BETWEEN VEHICLES OR BETWEEN VEHICLE AND BARRIER (MPH)* (10-11): 20.0

1 IMPANG - *IMPACT ANGLE BETWEEN VEHICLES OR BETWEEN VEHICLE AND BARRIER (DEGREES)*

-19) 000

1.12 OFFSET - *OFFSET DISTANCE (INCHES). ENTER ONLY FOR FRONTAL OR REAR-END COLLISIONS. NOTE SIGN CONVENTION.* (20-24): -4.7

3 - IMPPNT - *SIDE IMPACT POINT (INCHES). REFERS TO ORIENTATION OF STRIKING VEHICLE OR BARRIER WITH RESPECT TO STRUCK VEHICLE C.G. ENTER ONLY FOR SIDE COLLISIONS. NOTE SIGN CONVENTION.*

-30)

SURF - TEST TRACK SURFACE

[ASH] Asphalt
[CØN] Concrete
[DØS] Dirt or sand
[ØTH] Other
[999] Unknown

COND - TEST TRACK CONDITION

[DRY] Dry
[WET] Wet
[SNØ] Snowy
[ICY] Icy
[MUD] Muddy
[SAN] Sandy
[ØTH] Other
[999] Unknown

MP - AMBIENT TEMPERATURE (°F)

[ ][7][5]

1.17 RECTYP - TYPE OF RECORDER USED WITH TEST INSTRUMENTATION

(44-46)
[FMT] FM tape recorder
[FMM] FM multiplexor tape recorder
[DIG] Digital tape recorder
[ØSC] Oscillograph
[ØTH] Other
[999] Unknown

INK - DATA LINK TO RECORDER

[UMB] Umbilical cable
[TEL] Telemetry
[UCT] Umbilical cable and telemetry
[ØTH] Other
[999] Unknown

NOMAL - TEST ANOMALIES

[NØN] None
[SPD] Speed outside of acceptable range
[PNT] Impact point unacceptable
[ELE] Electrical interference in data
[INT] Intermittent data output
[CUT] Instrumentation wires cut
[ZER] Zero shifts in data
[EST] Estimated time zero
[ØTH] Other (describe below in 1.20)
[999] Unknown

SCAN - DESCRIPTION OF OTHER ANOMALY - (LEAVE BLANK IF NOT NEEDED)

[ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

[ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

YPUNCH PURPOSES ONLY (CARD ID)

[1][4]

. Department of Transportation
tional Highway Traffic Safety
Administration

DYNAMIC CRASH TEST INFORMATION

VEHICLE INFORMATION (Fill in one form for each vehicle in a test.)

PLEASE COMPLETE ACCORDING TO INSTRUCTIONS GIVEN IN THE "GUIDE FOR PREPARING DYNAMIC CRASH TEST INFORMATION FORMS"

IDENTIFIER - *FOR KEYPUNCH PURPOSES ONLY*: 2

FOR KEYPUNCH PURPOSES ONLY (CARD ID) (72 79 80): 2 | | 1 — *FILL IN COLUMN 79 WITH VEHICLE IDENTIFICATION NUMBER (1 or 2) - SEE ITEM 2.2*

VEHNO - *VEHICLE IDENTIFICATION NUMBER. IF BARRIER COLLISION OR ROLLOVER, CIRCLE 1.*: (1) 2

MAKE - *VEHICLE MAKE*

5)	11 American	15 Datsun	18 Mazda	05 Plymouth
	12 Audi	(07) Dodge	09 Mercury	03 Pontiac
	04 Buick	19 Fiat	25 MG	24 Porche
	10 Cadillac	02 Ford	06 Oldsmobile	17 Renault
	01 Chevrolet	23 Honda	20 Volvo	26 Subaru
	12 Chrysler	13 Lincoln	14 Peugeot	16 Toyota
			99 Not on list or unknown	08 Volkswagen

MODEL - *VEHICLE MODEL. ENTER MODEL CODE FROM APPENDIX A OF THE "GUIDE FOR PREPARING DYNAMIC CRASH TEST INFORMATION FORMS".*
8): 0 7

YEAR - *LAST TWO DIGITS OF THE MODEL YEAR*
-11): 8 1

ENGINE - *ENGINE TYPE*

-17)	4-ILF 4 cylinder inline (front)	(4-TVF) 4 cylinder transverse (front)	RØTRY Rotary
	5-ILF 5 cylinder inline (front)	4-MID 4 cylinder mid	ELECT Electric motor
	V6-IL V6 inline	4-RER 4 cylinder rear	ØTHER Other
	V8-IL V8 inline	6-ILF Straight 6 cylinder inline (front)	99999 Unknown

ENGDSP - *ENGINE DISPLACEMENT (CU. IN., CC, OR LITERS)*
-30): 1.410 | LITER

TRANSM - *TRANSMISSION TYPE*

-33)	AF Automatic, front wheel drive	(MF) Manual, front wheel drive	FW Four wheel drive	99 Unknown
	AR Automatic, rear wheel drive	MR Manual, rear wheel drive	ØT Other	

BODY - *BODY TYPE*

-36)	2D Two door (coupe)	5D Five door (hatchback)	TR Truck (larger than pickup)	99 Unknown
	2S Two door (sedan)	SW Station wagon	MH Motorhome	
	4D Four door (sedan)	VN Van	BU Bus	
	(3D) Three door (hatchback)	PU Pickup truck	ØT Other	

0 TESTWT - *TEST WEIGHT (LBS)*
-41): 2265

2.11 WHLBAS - *WHEELBASE (INCHES)*
(43-47): 90.6

2 VLNGTH - *VEHICLE LENGTH (INCHES)*
-63): 156.9

2.13 VWIDTH - *VEHICLE WIDTH (INCHES)*
(64-68): 62.4

VCGLOC - *VEHICLE C.G. DISTANCE BEHIND FRONT AXLE (INCHES)*
-73): 32.6

FOR KEYPUNCH PURPOSES ONLY (CARD ID) (78 79 80): 2 | | 2 — *FILL IN COLUMN 79 WITH VEHICLE IDENTIFICATION NUMBER (1 or 2) - SEE ITEM 2.2*

VEHICLE INFORMATION
(Continued)

STRCOL - *STEERING COLUMN ATTACHMENT TO DASH*

[S] *Shear capsule* (N) *No shear capsule* [9] *Unknown*

COLMEC - *STEERING COLUMN COLLAPSE MECHANISM*

[BWU] *Behind wheel units* [EMB] *Embedded ball* [999] *Unknown*

[CYL] *Cylindrical mesh tube* (ØTH) *Other energy absorbing method*

[CØN] *Convoluted tube* [NØT] *Not collapsible*

MODINO - *VEHICLE MODIFICATION INDICATOR*

[M] *Vehicle contained structural or interior modifications for research purposes* (P) *Production vehicle (unmodified)* [9] *Unknown*

MODDSC - *GENERAL DESCRIPTION OF VEHICLE MODIFICATIONS (IF ANY)*

3)

KEYPUNCH PURPOSES ONLY (CARD ID)

(78)	79	80)
2		3

FILL IN COLUMN 79 WITH VEHICLE IDENTIFICATION NUMBER (1 or 2) - SEE ITEM 2.2

VSPEED - *VEHICLE ABSOLUTE SPEED (MPH)*

2	0	.	0

2.20 TRVANG - *TRAVEL ANGLE MEASURED CLOCKWISE FROM THE LONGITUDINAL AXIS (POINTING TOWARD FRONT OF VEHICLE) TO THE VEHICLE VELOCITY VECTOR (DEGREES)*

(7-9)

0	0	0

PDOF - *PRINCIPAL DIRECTION OF IMPACT FORCE MEASURED CLOCKWISE FROM THE LONGITUDINAL AXIS (POINTING TOWARD FRONT OF VEHICLE) TO THE CLOSING VELOCITY DIRECTION (DEGREES)*

13)

0	0	0

2.22 VDI - *VEHICLE DAMAGE INDEX (SAE J224a)*

(15-21)

1	2	F	C	H	N	2

BMPENG - *BUMPER ENGAGEMENT IN LONGITUDINAL COLLISIONS (VEHICLE-TO-VEHICLE)*

[E] *Engagement (direct contact between bumpers)* [U] *Underride of other bumper*

[Ø] *Override of other bumper* (9) *Unknown or not applicable (not a longitudinal impact between vehicles)*

SILENG - *SILL ENGAGEMENT*

[E] *Engagement (direct contact) by colliding object* (9) *Unknown or not applicable (vehicle not impacted on side)*

[N] *No direct engagement (override)*

APLENG - ***A-PILLAR ENGAGEMENT***

[E] *Engagement (direct contact) by colliding object* (9) *Unknown or not applicable (vehicle not impacted on side)*

[N] *No direct engagement (missed A-pillar)*

LENCNT - *LENGTH OF DIRECT CONTACT DAMAGE (INCHES)*

33)

		8	.	0

DIRECT DAMAGE PENETRATION DISTANCES (DESCRIBE BY 2, 4 OR 6 POINTS AS APPROPRIATE)

PD1 - *POINT NUMBER 1 (INCHES)*

33) −

	3	.	0

2.28 PD2 - *POINT NUMBER 2 (INCHES)*

(40-43)

	5	.	3

2.29 PD3 - *POINT NUMBER 3 (INCHES)*

(45-48)

1	5	.	3

PD4 - *POINT NUMBER 4 (INCHES)*

53)

1	7	.	5

2.31 PD5 - *POINT NUMBER 5 (INCHES)*

(55-58)

1	3	.	3

2.32 PD6 - *POINT NUMBER 6 (INCHES)*

(60-63) −

	3	.	8

DAMDST - DISTANCE BETWEEN CENTER OF DAMAGE AREA AND C.G. AXIS (INCHES). NOTE SIGN CONVENTION.
(68)

	9	.	7

CRDIST - MAXIMUM CRUSH DISTANCE (INCHES)
(73)

1	7	.	5

KEYPUNCH PURPOSES ONLY (CARD ID)

(78	79	80)
2		4

FILL IN COLUMN 79 WITH VEHICLE IDENTIFICATION NUMBER (1 or 2) - SEE ITEM 2.2

NOTE: IF THIS IS A VEHICLE-TO-VEHICLE TEST, FILL IN ANOTHER SET OF VEHICLE INFORMATION FORMS FOR THE SECOND VEHICLE AND OMIT THE FORMS FOR BARRIER INFORMATION.
IF THIS TEST INVOLVES A BARRIER OR ROLLOVER, FILL IN FORMS FOR BARRIER INFORMATION.

Department of Transportation
Federal Highway Traffic Safety Administration

DYNAMIC CRASH TEST INFORMATION

BARRIER OR ROLLOVER INFORMATION

PLEASE COMPLETE ACCORDING TO INSTRUCTIONS GIVEN IN THE "GUIDE FOR PREPARING DYNAMIC CRASH TEST INFORMATION FORMS"

IDENTIFIER - *FOR KEYPUNCH PURPOSES ONLY*

3

FOR KEYPUNCH PURPOSES ONLY (CARD ID)

(78-80) 3 0 1

BSHAPE - *TYPE OF BARRIER (LEAVE BLANK IF NOT APPLICABLE)*

) FFB *Flat, fixed barrier (SAE 850a or equivalent)*

ANG *Flat, fixed, angled barrier*

POL *Fixed, pole barrier*

MCB *Moving, contoured barrier (SAE J972a)*

MFB *Moving, flat barrier (SAE J972a or FMVSS 208)*

ØTH *Other*

999 *Unknown*

BARDIA - *DIAMETER OF POLE BARRIER (INCHES) - (LEAVE BLANK IF NOT APPLICABLE)*

) 8.0

3.4 BARANG - *ANGLE OF FIXED BARRIER (DEGREES) - (LEAVE BLANK IF NOT APPLICABLE)*

(11-12)

BSPEED - *ABSOLUTE SPEED OF BARRIER IF MOVING (MPH) - (LEAVE BLANK IF NOT APPLICABLE)*

17)

3.6 BTOTWT - *TOTAL WEIGHT OF BARRIER IF MOVING (LBS) - (LEAVE BLANK IF NOT APPLICABLE)*

(19-22)

BRIGID - *RIGID OR YIELDING BARRIER - (LEAVE BLANK IF NOT APPLICABLE)*

R *Rigid (undeformable) barrier*

Y *Yielding (deformable) barrier*

9 *Unknown*

3.8 ROLTYP - *ROLLOVER TEST TYPE - (LEAVE BLANK IF NOT APPLICABLE)*

(26)

C *Moving cart (FMVSS 208 or other)*

R *Stationary ramp (SAE J857a or other)*

9 *Other or unknown*

CARTSP - *SPEED OF ROLLOVER TEST CART (MPH) - (LEAVE BLANK IF NOT APPLICABLE)*

31)

3.10 CARTAN - *ANGLE OF ROLLOVER TEST CART (DEGREES) - (LEAVE BLANK IF NOT APPLICABLE)*

(33-34)

VEHOR - *VEHICLE ORIENTATION ON ROLLOVER TEST CART (DEGREES) - (LEAVE BLANK IF NOT APPLICABLE)*

37)

FOR KEYPUNCH PURPOSES ONLY (CARD ID)

(78-80) 3 0 2

2 BRDSN - *ADDITIONAL DESCRIPTION OF BARRIER OR ROLLOVER TEST - (LEAVE BLANK IF TEST IS STRAIGHTFORWARD AND FULLY DESCRIBED BY INFORMATION PREVIOUSLY ENTERED)*

73)

KEYPUNCH PURPOSES ONLY (CARD ID)

-80) 3 0 3

Department of Transportation
Nat'l Highway Traffic Safety Administration

DYNAMIC CRASH TEST INFORMATION

OCCUPANT INFORMATION (Fill in one form for each occupant in a test.)

PLEASE COMPLETE ACCORDING TO INSTRUCTIONS GIVEN IN THE "GUIDE FOR PREPARING DYNAMIC CRASH TEST INFORMATION FORMS"

IDENTIFIER - *FOR KEYPUNCH PURPOSES ONLY*: 4

FOR KEYPUNCH PURPOSES ONLY (CARD ID)

(77	78	79	80)
4			1

FILL IN COLUMN 78 WITH VEHICLE IDENTIFICATION NUMBER (1 or 2) - SEE ITEM 4.2. FILL IN COLUMN 79 WITH OCCUPANT SEATING POSITION (1-9) - SEE ITEM 4.3

VEHOCC - *VEHICLE CONTAINING OCCUPANT*: [1] (2)

STPSTN - *SEATING POSITION*

(1) Front seat, left position (driver)
[2] Front seat, right position
[3] Rear seat, right position
[4] Rear seat, left position
[5] Front seat, center position
[6] Rear seat, center position
[7] Third seat, left position (station wagon)
[8] Third seat, center position (station wagon)
[9] Third seat, right position (station wagon)
[0] Other or out of position
[U] Unknown

STLOC - *SEAT LOCATION (FORE-AFT)*

[C] Center position of adjustment range
(R) Rearward of center position
[F] Forward of center position
[N] Not adjustable (fixed seat)
[9] Unknown

4.5 OCTYPE - *OCCUPANT TYPE* (8)

(D) Anthropometric dummy
[C] Cadaver
[H] Human volunteer
[A] Animal
[9] Unknown or other

OAGE - *OCCUPANT AGE (YEARS) - (LEAVE BLANK IF A DUMMY)* (11)

4.7 OHEIGH - *OCCUPANT HEIGHT (INCHES) - (LEAVE BLANK IF A DUMMY)* (13-14)

OWEIGH - *OCCUPANT WEIGHT (LBS) - (LEAVE BLANK IF A DUMMY)* (18)

4.9 OPCENT - *OCCUPANT SIZE PERCENTILE (ADULT DUMMY) - (LEAVE BLANK IF NOT APPLICABLE)* (20-21)

OSEX - *OCCUPANT SEX (ADULT DUMMY) - (LEAVE BLANK IF NOT APPLICABLE*

[M] Male [F] Female [9] Unknown

4.11 CDAGE - *OCCUPANT SIMULATED AGE (CHILD DUMMY) - (LEAVE BLANK IF NOT APPLICABLE)* (25-26)

DUMAN - *MANUFACTURER OF DUMMY AND SERIAL NUMBER (LEAVE BLANK IF UNKNOWN OR NOT APPLICABLE)* (55)

HUMANOID SYST. 505

KEYPUNCH PURPOSES ONLY (CARD ID)

(77	78	79	80)
4			2

FILL IN COLUMN 78 WITH VEHICLE IDENTIFICATION NUMBER (1 or 2) - SEE ITEM 4.2. FILL IN COLUMN 79 WITH OCCUPANT SEATING POSITION (1-9) - SEE ITEM 4.3

CLEARANCE DISTANCES (INCHES) - APPROXIMATE LOCATION OF A GIVEN SUBJECT WITHIN THE VEHICLE AND RELATIVE DISTANCES FROM INTERIOR COMPONENTS - (LEAVE BLANK IF UNKNOWN OR NOT APPLICABLE)

HH - *HEAD TO WINDSHIELD HEADER* (5): 5.5

4.14 HW - *HEAD TO WINDSHIELD* (7-10): 13.0

4.15 HR - *HEAD TO SIDE HEADER* (12-15): 3.5

HS - *HEAD TO SIDE WINDOW* (-30): 5.0

4.17 CD - *CHEST TO DASH* (22-25): 19.0

4.18 CS - *CHEST TO STEERING WHEEL* (27-30): 12.0

AD - *ARM TO DOOR* (-35): 2.0

4.20 HD - *HIP TO DOOR* (37-40): 6.0

4.21 KD - *KNEE TO DASH* (42-45): 6.0

OCCUPANT INFORMATION
(Continued)

Driver

.22 RESTRN - *RESTRAINT SYSTEM TYPE*

(47-49)

NØN	None	ABG	Air bag	CHD	Child restraint
LAP	Lap belt only	ABT	Air belt	ØTH	Other
(3PT)	Three point belt (lap and shoulder)	PAS	Passive belt system	999	Unknown

.23 KNEDSC - *KNEE RESTRAINT DESCRIPTION*

(51-53)

(STD)	Standard dash panel	RER	Rear of seat
BAR	Knee bar provided by manufacturer for occupant restraint	ØTH	Other
MØD	Modified knee restraint for research purposes	999	Unknown

4.24 AIRDEP - *AIR BAG/BELT DEPLOYMENT - (LEAVE BLANK IF THIS TYPE OF RESTRAINT WAS NOT USED)*

(55-56)

DE	Deployed properly	NØ	Did not deploy properly	99	Unknown

4.25 CNTRG1 - *HEAD CONTACT REGION*

(59-53)

NØ	None	SG	Side glass	SB	Seat back
WS	Windshield	SP	Side pillar	ØT	Other
(SW)	Steering wheel	HR	Windshield or side header	99	Unknown
DP	Dashpanel	ØC	Another occupant		

4.26 CNTRG2 - *CHEST OR ABDOMEN CONTACT REGION*

(61-62)

(NØ)	None	DP	Dashpanel	ØT	Other
SW	Steering wheel	SB	Seat back (rear seat dummy)	99	Unknown

4.27 CNTRG3 - *LEG CONTACT REGION*

(64-65)

NØ	None	SB	Seat back (rear seat dummy)	99	Unknown
(DP)	One or both legs contacted dashpanel	ØT	Other		

FOR KEYPUNCH PURPOSES ONLY (CARD ID)

(77	78	79	80)
4			3

FILL IN COLUMN 78 WITH VEHICLE IDENTIFICATION NUMBER (1 or 2) - SEE ITEM 4.2. FILL IN COLUMN 79 WITH OCCUPANT SEATING POSITION (1-9) - SEE ITEM 4.3

NE OF THESE FORMS MUST BE COMPLETED FOR EACH OCCUPANT. USE ADDITIONAL CODING FORMS IF MORE THAN ONE OCCUPANT WAS USED IN A TEST.

Department of Transportation
nal Highway Traffic Safety
Administration

DYNAMIC CRASH TEST INFORMATION

OCCUPANT INFORMATION (Fill in one form for each occupant in a test.)

PLEASE COMPLETE ACCORDING TO INSTRUCTIONS GIVEN IN THE "GUIDE FOR PREPARING DYNAMIC CRASH TEST INFORMATION FORMS"

IDENTIFIER - FOR KEYPUNCH PURPOSES ONLY: 4

FOR KEYPUNCH PURPOSES ONLY (CARD ID) (77 78 79 80): 4 | | | 1

FILL IN COLUMN 78 WITH VEHICLE IDENTIFICATION NUMBER (1 or 2) - SEE ITEM 4.2. FILL IN COLUMN 79 WITH OCCUPANT SEATING POSITION (1-9) - SEE ITEM 4.3

VEHOCC - VEHICLE CONTAINING OCCUPANT: [1] (2)

STPSTN - SEATING POSITION

- [1] Front seat, left position (driver)
- (2) Front seat, right position
- [3] Rear seat, right position
- [4] Rear seat, left position
- [5] Front seat, center position
- [6] Rear seat, center position
- [7] Third seat, left position (station wagon)
- [8] Third seat, center position (station wagon)
- [9] Third seat, right position (station wagon)
- [0] Other or out of position
- [U] Unknown

STLOC - SEAT LOCATION (FORE-AFT)

- [C] Center position of adjustment range
- (R) Rearward of center position
- [F] Forward of center position
- [N] Not adjustable (fixed seat)
- [9] Unknown

4.5 OCTYPE - OCCUPANT TYPE (8)

- (D) Anthropometric dummy
- [C] Cadaver
- [H] Human volunteer
- [A] Animal
- [9] Unknown or other

OAGE - OCCUPANT AGE (YEARS) - (LEAVE BLANK IF A DUMMY) (11):

4.7 OHEIGH - OCCUPANT HEIGHT (INCHES) - (LEAVE BLANK IF A DUMMY) (13-14):

OWEIGH - OCCUPANT WEIGHT (LBS) - (LEAVE BLANK IF A DUMMY) (18):

4.9 OPCENT - OCCUPANT SIZE PERCENTILE (ADULT DUMMY) - (LEAVE BLANK IF NOT APPLICABLE) (20-21):

OSEX - OCCUPANT SEX (ADULT DUMMY) - (LEAVE BLANK IF NOT APPLICABLE)

- [M] Male
- [F] Female
- [9] Unknown

4.11 COAGE - OCCUPANT SIMULATED AGE (CHILD DUMMY) - (LEAVE BLANK IF NOT APPLICABLE) (25-26):

DUMAN - MANUFACTURER OF DUMMY AND SERIAL NUMBER (LEAVE BLANK IF UNKNOWN OR NOT APPLICABLE) (35): HUMANOID SYST.3O4

KEYPUNCH PURPOSES ONLY (CARD ID) (77 78 79 80): 4 | | . | 2

FILL IN COLUMN 78 WITH VEHICLE IDENTIFICATION NUMBER (1 or 2) - SEE ITEM 4.2. FILL IN COLUMN 79 WITH OCCUPANT SEATING POSITION (1-9) - SEE ITEM 4.3

DISTANCE DISTANCES (INCHES) - APPROXIMATE LOCATION OF A GIVEN SUBJECT WITHIN THE VEHICLE AND RELATED DISTANCES FROM INTERIOR COMPONENTS - (LEAVE BLANK IF UNKNOWN OR NOT APPLICABLE)

4.13 HH - HEAD TO WINDSHIELD HEADER (5): 5.5

4.14 HW - HEAD TO WINDSHIELD (7-10): 13.0

4.15 HR - HEAD TO SIDE HEADER (12-15): 4.5

4.16 HS - HEAD TO SIDE WINDOW (-30): 8.0

4.17 CD - CHEST TO DASH (22-25): 18.0

4.18 CS - CHEST TO STEERING WHEEL (27-30): //./

4.19 AD - ARM TO DOOR (-35): 5.0

4.20 HD - HIP TO DOOR (37-40): 5.5

4.21 KD - KNEES TO DASH (42-45): 4.0

OCCUPANT INFORMATION
(Continued)

PASSENGER

22 RESTRN - RESTRAINT SYSTEM TYPE

(47-49)

[NØN]	None	[ABG]	Air bag	[CHD]	Child restraint
[LAP]	Lap belt only	[ABT]	Air belt	[ØTH]	Other
[3PT]	Three point belt (lap and shoulder)	[PAS]	Passive belt system	[999]	Unknown

23 KNEDSC - KNEE RESTRAINT DESCRIPTION

(51-53)

[STO]	Standard dash panel	[RER]	Rear of seat
[BAR]	Knee bar provided by manufacturer for occupant restraint	[ØTH]	Other
[MØD]	Modified knee restraint for research purposes	[999]	Unknown

24 AIRDEP - AIR BAG/BELT DEPLOYMENT - (LEAVE BLANK IF THIS TYPE OF RESTRAINT WAS NOT USED)

(55-56)

[DE]	Deployed properly	[NØ]	Did not deploy properly	[99]	Unknown

25 CNTRG1 - HEAD CONTACT REGION

(59-60)

[NØ]	None	[SG]	Side glass	[SB]	Seat back
[WS]	Windshield	[SP]	Side pillar	[ØT]	Other
[SW]	Steering wheel	[HR]	Windshield or side header	[99]	Unknown
[DP]	Dashpanel	[ØC]	Another occupant		

26 CNTRG2 - CHEST OR ABDOMEN CONTACT REGION

(61-62)

[NØ]	None	[DP]	Dashpanel	[ØT]	Other
[SW]	Steering wheel	[SB]	Seat back (rear seat dummy)	[99]	Unknown

27 CNTRG3 - LEG CONTACT REGION

(64-65)

[NØ]	None	[SB]	Seat back (rear seat dummy)	[99]	Unknown
[DP]	One or both legs contacted dashpanel	[ØT]	Other		

FOR KEYPUNCH PURPOSES ONLY (CARD ID)

(77	78	79	80)
4			3

FILL IN COLUMN 78 WITH VEHICLE IDENTIFICATION NUMBER (1 or 2) - SEE ITEM 4.2. FILL IN COLUMN 79 WITH OCCUPANT SEATING POSITION (1-9) - SEE ITEM 4.3

NE OF THESE FORMS MUST BE COMPLETED FOR EACH OCCUPANT. USE ADDITIONAL CODING FORMS IF MORE THAN ONE OCCUPANT WAS USED IN A TEST.

1	NUMBER	SENTYP	SENLOC	OCCATT	SENATT	MATPRO	PREFIL ✓	DMPRTO	NOPTS	TOPT ✓	DELY ✓	UNITS	AXIS	INTVEL	QUALTY
	2-3	5-6	8-9	11	13-15	17-21	23-27	29-33	35-38	40-43	45-50	52-54	56	58-61	START A NEW CARD 8-31
S	21	AC	01		LFF	2800		0000.75	5000			GIS	X		
S	22	AC	01		RFF	2800		0000.75	5000			GIS	X		
S	23	AC	01		ϕTH	2800		0000.75	5000			GIS	X		
S	24	AC	01		ϕTH	2800		0000.75	5000			GIS	Y		
S	25	AC	01		ϕTH	2800		0000.75	5000			GIS	Z		
S	26	AC	01		LRF	2800		0000.75	5000			GIS	X		
S	27	AC	01		RRF	2800		0000.75	5000			GIS	X		
S	28	LC	01	1	LFM	9999		99995	000			LBS	N		
S	29	LC	01	1	RFM	9999		99995	000			LBS	N		
S	30	LC	01	2	LFM	9999		99995	000			LBS	N		
S	31	LC	01	2	RFM	9999		99995	000			LBS	N		
S															
S															
S															
S															
S															
S															
S															
S															
S															
S															

NUMBER 2-5	SENTYP 5-6	SENLOC 8-9	OCCATT 11	SENATT 13-15	MATRNO 17-21	PREFIL 23-27	OMPNTO 29-33	NOPTS 35-38	TOPT 40-42	DELT 45-50	UNITS 52-54	AXIS 56	INIVEL 58-61	QUALTY 2-31 START A NEW CARD	PUNCHES ONLY 79-80
1	AC	01	1	HED	28000		0000.7	5000			G,S	X			
2	AC	01	1	HED	28000		0000.7	5000			G,S	Y			
3	AC	01	1	HED	28000		0000.7	5000			G,S	Z			
4	AC	01	1	CST	28000		0000.7	5000			G,S	X			
5	AC	01	1	CST	28000		0000.7	5000			G,S	Y			
6	AC	01	1	CST	28000		0000.7	5000			G,S	Z			
7	AC	01	2	HED	28000		0000.7	5000			G,S	X			
8	AC	01	2	HED	28000		0000.7	5000			G,S	Y			
9	AC	01	2	HED	28000		0000.7	5000			G,S	Z			
10	AC	01	2	CST	28000		0000.7	5000			G,S	X			
11	AC	01	2	CST	28000		0000.7	5000			G,S	Y			
12	AC	01	2	CST	28000		0000.7	5000			G,S	Z			
13	AC	01		FBR	28000		0000.7	5000			G,S	X			
14	AC	01		FBR	28000		0000.7	5000			G,S	Y			
15	AC	01		ENG	28000		0000.7	5000			G,S	X			
16	AC	01		ENG	28000		0000.7	5000			G,S	Y			
17	AC	01		ENG	28000		0000.7	5000			G,S	Z			
18	AC	01		FFC	28000		0000.7	5000			G,S	X			
19	AC	01		FFC	28000		0000.7	5000			G,S	Y			
20	AC	01		FWL	28000		0000.7	5000			G,S	X			