

REPORT DOT-HS-4-00865  
BELT RETRACTOR TESTING WITH  
STANDARD VEHICLE SEAT  
(APPENDIX D)

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16. Abstract <p>This report discusses a series of tests conducted on the DOT Standard Seat. These tests were conducted using several child restraint systems restrained to the bench seat by various 3-point automobile harness systems. Two different acceleration sled pulses were used in this study. The performance of the restraint systems under the different test conditions is given in tabular form as well as all of the test data.</p>			
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Test data summary

Test Setup photograph

Graph-check camera sequence photograph

Summary Data Head accelerations

Summary Data Chest accelerations

Resultant acceleration/Severity Index - Time Curves

TEST NO.	RESTRAINT DESCRIPTION	RETRACTOR	SLED ACCEL. ANGLE	G's	IMPACT DIRECTION	SEAT
A-775	Ford Tot Guard (passenger side)	GM	22.3	(QT)	F	St
A-776	"	"	18.68	(CT)	F	St
A-777	Ford Tot Guard (PS)	GM	19.0	(CT)	F	St
A-778	"	"	19.2	(CT)	F	St
A-779	Peterson 75, Infant Seat (PS)	"	19.1	(CT)	F	St
A-780	"	"	18.8	(CT)	F	St
A-781	"	"	19.0	(CT)	F	St
A-782	"	"	22.7	(QT)	F	St
A-783	Bobby Mac Infant Seat (PS)	"	22.4	(QT)	F	St
A-784	Kantwet Harness (PS)	"	22.4	(QT)	F	St
A-785	Kantwet Model 884 (PS)	VW	18.6	(CT)	F	St
A-786	Peterson 75, Child Seat (PS)	"	21.8	(QT)	F	St
A-787	"	Toyota	21.8	(QT)	F	St
A-788	"	"	16.6	(QT)	R	St
A-789	Peterson 75, Child Seat (DS)	Datsun	16.8	(QT)	R	St
A-790	GM Child Love Seat (DS)	Chrysler	16.8	(QT)	R	St
A-791	Peterson 75, Infant Seat (DS)	GM	16.8	(QT)	R	St
A-792	Peterson 75, Child Seat (DS)	Ford	16.8	(QT)	R	St
A-793	Kantwet Model 884 (DS)	GM	16.8	(QT)	R	St

QT = Qualifying Trapezoidal, QHS = Qualifying Half Sine, CT = Compliance Trapezoidal  
 F = Front, S = Side, R = Rear, St = Standard, PS = Passenger Side,  
 DS = Driver Side, Pr = Production

TEST NO.	RESTRAINT DESCRIPTION	RETRACTOR	SLED ACCEL. ANGLE G's	IMPACT DIRECTION	SEAT
A-794	Ford Tot Guard (DS)	Amer. Mot.	16.7 (QT)	R	St
A-795	"	VW	16.6 (QT)	R	St
A-796	Bobby Mac Infant (PS)	GM	13.8 (CT)	S	St
A-797	Bobby Mac Infant (PS)	GM	16.2 (QT)	S	St
A-798	Peterson 75 Child Seat (PS)	GM	16.1 (QT)	S	St
A-799	GM Child Love Seat (PS)	Chrysler	16.2 (QT)	S	St
A-800	Ford Tot Guard (PS)	VW	16.2 (QT)	S	St
A-801	GM Infant Carrier (PS)	GM	21.0 (HSRI St)	F	Pr
A-802	"	"	17.8 (HSRI St)	S	Pr
A-803	GM Infant Carrier (DS)	"	17.6 (HSRI St)	R	Pr
A-804	Ford Tot Guard (DS)	VW	17.0 (QT)	R	Pr
A-805	Ford Tot Guard (PS)	GM	23.2 (QT)	F	Pr
A-806	"	"	22.4 (QT)	F	Pr
A-807	"	"	20.4 (CT)	F	Pr
A-808	"	GM	19.2 (CT)	F	Pr
A-811	"	"	26.0 (QHS)	F	Pr
A-812	"	"	28.8 (QHS)	F	St

## FIGURES

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## APPENDIX D TEST PROGRAM SUMMARY

The accompanying test data met the test objectives as follows:

- 1) safety problems with various 1974 belt systems and child restraints during crash conditions were investigated;
- 2) acceptability of use of such systems with the DOT Standard Vehicle Seat versus the GM Production seats was verified;
- 3) data were collected on differences between using non-retractor belts per Federal Standard No. 213 and retractor belt systems now used in current production automobiles;
- 4) effects of various sled pulses as shown in Figure D-1 and D-2, on retractor, vehicle seat, and child restraint performance was investigated;
- 5) quick-look test data on performance and repeatability on the new infant dummy were obtained.

The various belt systems were mounted in locations similar to actual vehicle positions. A new vehicle belt system, child restraint system, and vehicle seat (where used) was used for each test. Replaceable cushions on the standard seat were replaced after each test, so that a new cushion area was available for each test. Unused 1974 Chevrolet Impala Vehicle seats were used both braced and unbraced. The reinforced seats were braced at end mounts and behind the seat back to limit seat back deflections, lateral and rear, to  $\pm 1$  inch at the top of the seat back.

Test data is presented in columnar form in Tables D-1 and D-2, and include child seat manufacturer and model, impact direction, retractor type, dummy age and seating position, sled parameters, head and chest accelerations, belt loads, and head excursion data.

Dynamic restraint characteristics of the various belt systems are discussed below.

All belt systems tested functioned properly. The VW belt loosened on rebound, but provided dynamic restraint on impact. The Toyota belt acted in the same way as the VW belt, but with generally smaller excursions.

It was found that with any shielded device such as the Tot Guard, placement of the shoulder belt under the shield prevented rotation of the system on impact. It was also found that on side impact, the shoulder belt aided in preventing rotation of the child seat when impact occurred on the same side that the shoulder belt goes around the seat.

Head excursion values appeared to be independent of the type of sled pulse for both standard and production seats.

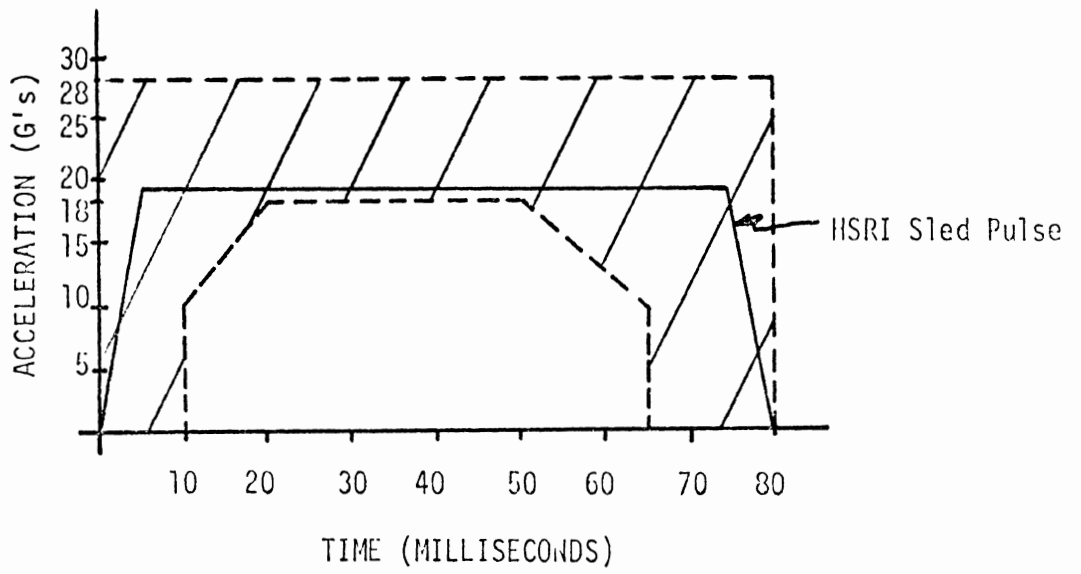
Head excursion values obtained in the Tot Guard Child Seating System were an average of 3.5 inches higher for the standard seat compared to the production seat. This additional head travel was probably due to child restraint interaction with the leading edge of the seat cushion frame during foam bottoming, indicating that the standard seat was more compliant in this region.

The Qualifying Trapezoidal sled pulse generally resulted in higher HIC and Severity Index values than the Compliance Trapezoidal or the Qualifying Half-sine sled pulses for both the standard and production seats.

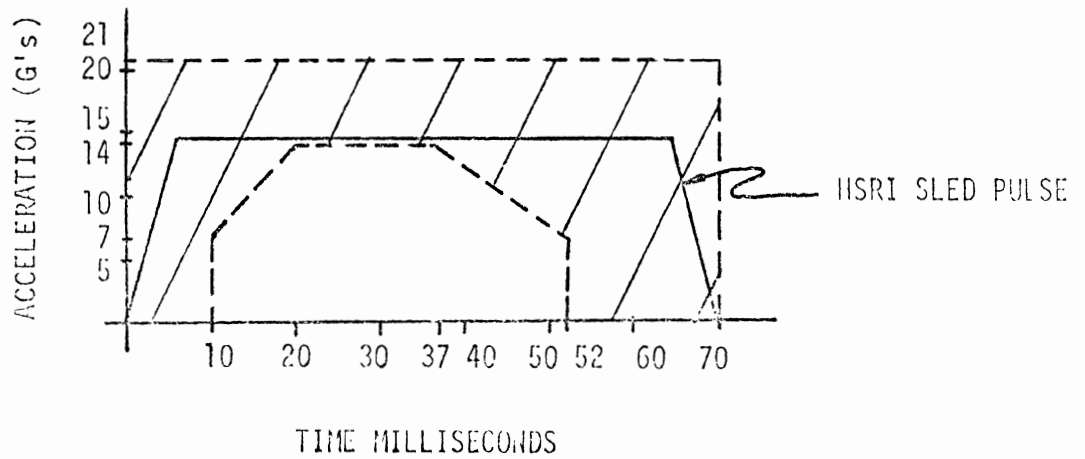
The standard seat tended to produce somewhat lower peak resultant, acceleration, HIC, and Severity Index values in both frontal and rear impacts than the production seat, as a result of its greater head excursion values.

It should be noted that the belts tested which were not GM belts did not strictly meet their design use configurations. Consequently, head excursions obtained with a VW belt system on a GM test buck, for example, would not be representative of a head excursion obtained with a VW belt on a VW test buck; hence, detailed specific comparisons are not valid; however, gross relative comparisons can be made.





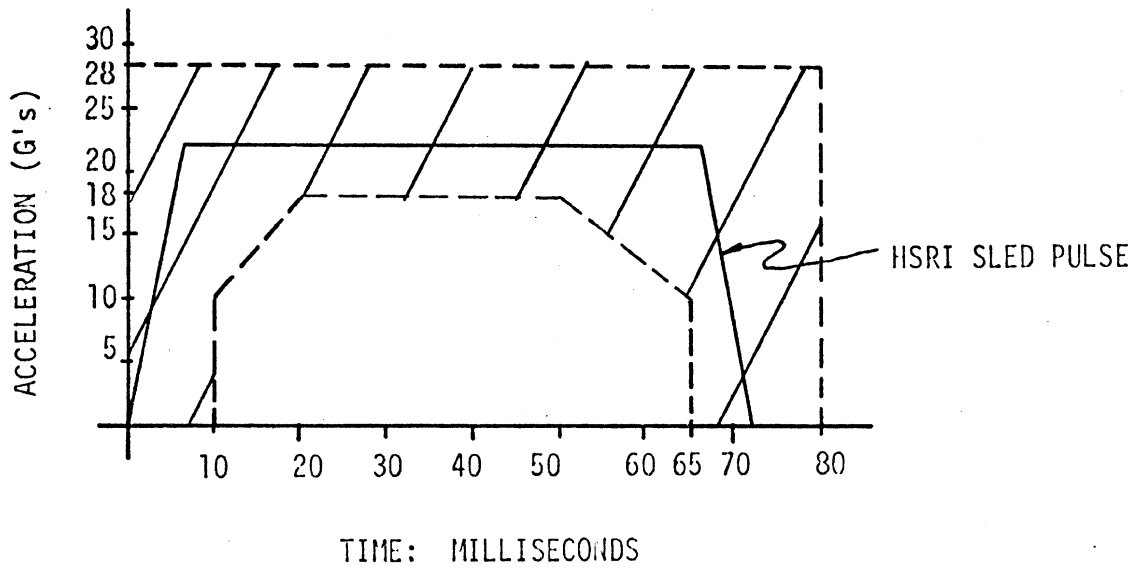
D-1 A: 30 MPH COMPLIANCE TRAPEZOIDAL SLED PULSE



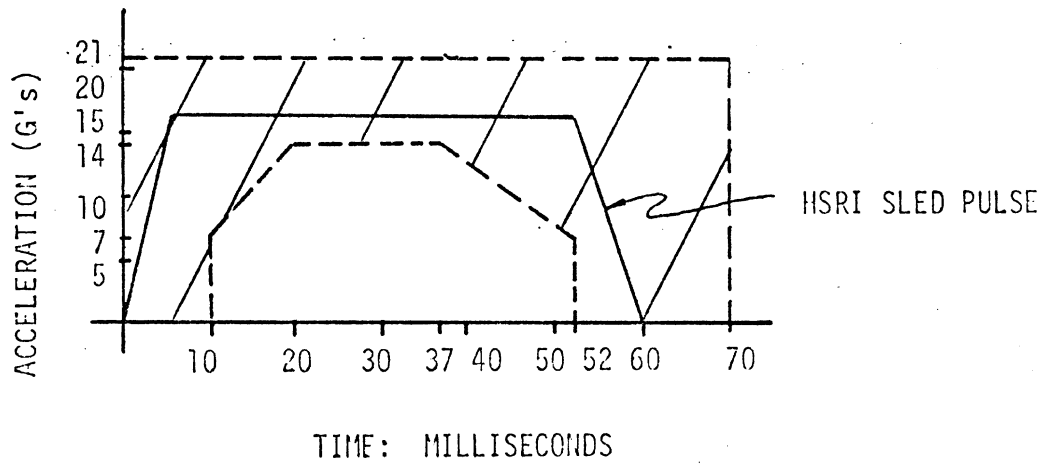
D-1 B: 20 MPH COMPLIANCE TRAPEZOIDAL SLED PULSE

FIGURE NO. D-1 : COMPLIANCE ACCELERATION ENVELOPES

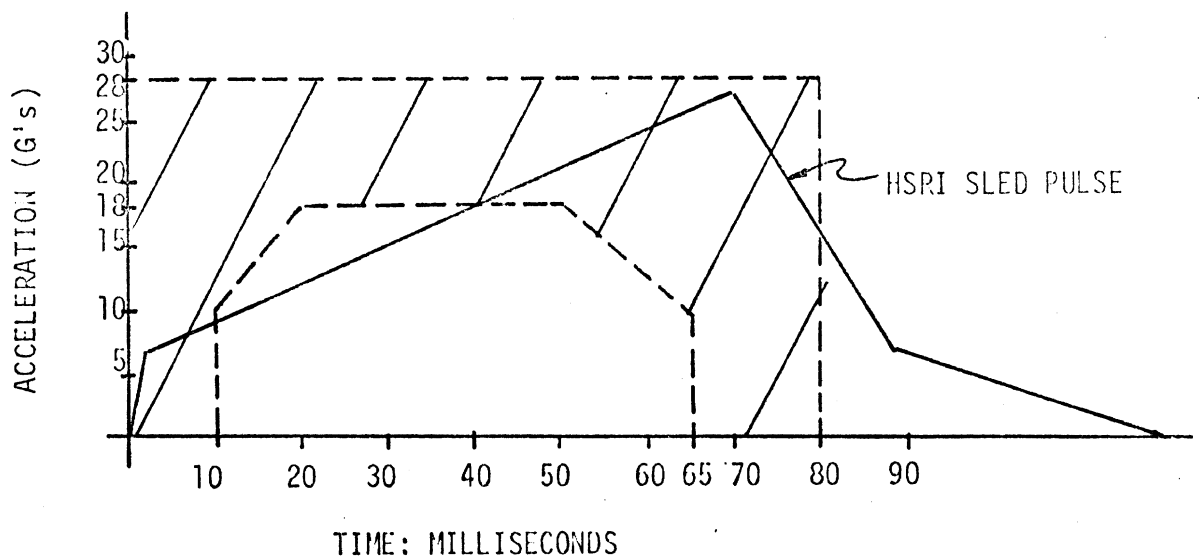
ACCELERATION ENVELOPE



D-2 A: 30 MPH QUALIFYING TRAPEZOIDAL SLED PULSE



D-2 B: 20 MPH QUALIFYING TRAPEZOIDAL SLED PULSE



D-2 C: 30 MPH QUALIFYING HALF-SINE SLED PULSE

TABLE D-1A CHILD RESTRAINT TEST SUMMARIES

MANUFACTURER AND MODEL	TEST NO.	DIRECTION	TYPE RETRACTOR	SEAT TYPE	SEATING POSITION	DUMMY	PULSE SHAPE	SLID				HEAD ACCELERATION					HEAD EXCURSION	
								VEL. ft/sec	ACC. G's	AP G's	SI G's	LR G's	RES. G's	SEV. INDEX	HIC INDEX	HEAD MAKE in	HEAD MAKE in	
Ford Tot Guard	795	Rear	GM	Standard	D	3 yr.	Q Trap	29.3	16.6	19	34	19	37	94	76	NA	-	
Ford Tot Guard	804	Rear	GM	Production	D	3 yr.	Q Trap	29.8	17.0	28	14	15	32	121	95	NA	-	
Ford Tot Guard	775	Front	GM	Standard	P	3 yr.	Q Trap	45.0	22.3	72	28	58	79	926	798	-	20.1	
Ford Tot Guard	805	Front	GM	Production	P	3 yr.	Q Trap	43.7	23.2	66	19	49	73	773	657	-	25.0	
Ford Tot Guard	806	Front	GM	Production	P	3 yr.	Q Trap	45.9	22.4	72	35	40	75	1095	755	-	16.0	
Ford Tot Guard	776	Front	GM	Standard	P	3 yr.	C Trap	43.2	16.7	60	23	10	NA	NA	NA	-	16.9	
Ford Tot Guard	777	Front	GM	Standard	P	3 yr.	C Trap	43.2	19.0	51	23	43	61	548	434	-	18.7	
Ford Tot Guard	778	Front	GM	Standard	P	3 yr.	C Trap	43.4	15.2	72	20	45	79	245	696	-	19.1	
Ford Tot Guard	807	Front	GM	Production	P	3 yr.	C Trap	44.9	20.4	78	36	35	83	996	731	-	15.2	
Ford Tot Guard	808	Front	GM	Production	P	3 yr.	C Trap	44.2	19.2	63	24	35	72	765	603	-	16.9	
Ford Tot Guard	812	Front	GM	Standard	P	3 yr.	Q-Half-sine	44.8	28.8	57	15	40	59	552	484	-	20.5	
Ford Tot Guard	811	Front	GM	Production	P	3 yr.	Q-Half-sine	45.5	26	73	37	20	76	859	644	-	16.3	
GM Infant Carrier 801		Front	GM-1	Production Back Re- strained	P	6 mo.	Trap	44.9	21.0	NI	NI	NI	NA	NA	NA	30.6	-	
GM Infant Carrier 802		Side	GM-1	Production Back Re- strained	P	6 mo.	Trap	30.1	17.8	NI	NI	NI	NA	NA	NA	32.4	-	
GM Infant Carrier 803		Rear	GM-1	Production Back Re- strained	D	6 mo.	Trap	29.9	17.6	NI	NI	NI	NA	NA	NA	NA	-	

\* Dummy Contacted Shield Low on Chest Resulting in High Head Excursion

TABLE D-10 CHILD RESTRAINT TEST SUMMARIES

TEST NUMBER AND DATE	TEST NO	DIRECTION	TYPE REFRACTOR	SEAT TYPE	SEATING POSITION	DUMMY	PULSE SHAPE	SLED VEL. Ft/sec	ACC. G's	CHILD ANTHROPOMETRY				Preload Torque on Right Bolt lbs	Right Load lbs	Left Load lbs	Shoulder Bolt lbs	Child Seat Creep-on Back Strap lbs.
										Wt G's	Ht G's	LR G's	RS G's					
Ford Tot Guard	795	Rear	AM	Standard	D	3 yr.	Q Trap	29.3	16.6	72	11	7	24	NP	0	0	0	NI
Ford Tot Guard	804	Rear	VM	Production	D	3 yr.	Q Trap	29.8	17.0	27	12	6	20	NP	0	0	0	NI
Ford Tot Guard	775	Front	GM	Standard	P	3 yr.	Q Trap	45.0	22.3	69	17	25	49	18	0	0	0	NI
Ford Tot Guard	805	Front	GM	Production	P	3 yr.	Q Trap	43.7	23.2	60	23	12	57	18	0	0	0	NI
Ford Tot Guard	806	Front	GM	Production	P	3 yr.	Q Trap	45.9	22.4	60	27	15	64	18	0	0	0	NI
Ford Tot Guard	776	Front	GM	Standard	P	3 yr.	C Trap	43.2	18.7	35	15	13	NA	17	0	0	0	NI
Ford Tot Guard	777	Front	GM	Standard	P	3 yr.	C Trap	43.2	19.0	37	15	12	43	17	0	0	0	NI
Ford Tot Guard	778	Front	GM	Standard	P	3 yr.	C Trap	43.4	19.2	40	19	19	49	18	0	0	0	NI
Ford Tot Guard	807	Front	GM	Production	P	3 yr.	C Trap	44.9	20.4	40	25	13	42	15	0	0	0	NI
Ford Tot Guard	808	Front	SM	Production	P	3 yr.	C Trap	44.2	19.2	42	22	14	43	14	0	0	0	NI
Ford Tot Guard	812	Front	GM	Standard	P	3 yr.	Q Half-sine	44.8	20.8	46	12	24	49	15	0	0	0	NI
Ford Tot Guard	811	Front	GM	Production	P	3 yr.	Q Half-sine	45.5	26	50	23	19	51	15	0	0	0	NI
GM Infant Carrier	801	Front	GM-1	Production Back Re-strained	P	6 mo.	Trap	44.9	21.0	NI	NI	NI	NA	NP	0	0	0	NI
GM Infant Carrier	802	Side	GM-1	Production Back Re-strained	P	6 mo.	Trap	30.1	17.8	NI	NI	NI	NA	NP	0	125	0	NI
GM Infant Carrier	803	Rear	GM-1	Production Back Re-strained	D	6 mo.	Trap	29.9	17.6	NI	NI	NI	NA	NP	0	150	0	NI

TABLE D-2A CHILD RESTRAINT TEST SUMMARIES

MANUFACTURER AND MODEL	TEST NO.	DIRECTION	TYPE RETRACTOR	SEAT TYPE	SEATING POSITION	DUMMY	PULSE SHAPE	SLED VEL. ft/sec	ACC. G's	AP G's	SI C's	IN G's	RES. G's	FIELD ACCELERATION		SEV. INDEX	HIC INDEX	HEAD EXCursions	
														SEV. INDEX	RES. G's			MAX. IN	MIN. IN
Peterson 75	779	Front	GM	Standard	D	6 mo.	C Trap.	44.0	19.1	NI	NI	NI	NA	NA	NA	NA	NA	-	22.1
Peterson 75	780	Front	GM	Standard	D	6 mo.	C Trap.	42.3	18.8	NI	NI	NI	NA	NA	NA	NA	NA	-	31.0
Peterson 75	781	Front	GM	Standard	P	6 mo.	C Trap.	43.1	19.0	NI	NI	NI	NA	NA	NA	NA	NA	-	32.1
Peterson 75	782	Front	GM	Standard	P	6 mo.	Q Trap.	45.8	22.7	NI	NI	NI	NA	NA	NA	NA	NA	-	32.1
Collier Keyworth Dobby Mac	783	Front	GM	Standard	P	6 mo.	Q Trap.	44.3	22.4	NI	NI	NI	NA	NA	NA	NA	NA	-	35.9
Kantwet Harness	784	Front	GM	Standard	P	6 yr.	Q Trap.	44.1	22.4	10	3	32	33	144	97	NA	NA	-	34.6
Kantwet 884	785	Front	VW	Standard	D	3 yr.	C Trap.	43.3	18.5	64	7	32	70	426	331	NA	NA	-	16.4
Peterson 75	786	Front	VW	Standard	P	3 yr.	Q Trap.	45.7	21.8	71	36	43	77	632	431	NA	NA	-	24.7
Peterson 75	787	Front	Toyota	Standard	P	3 yr.	Q Trap.	45.2	21.8	30	37	52	83	623	392	NA	NA	-	27.7
Peterson 75	788	Rear	Toyota	Standard	P	3 yr.	Q Trap.	29.5	16.6	25	0	5	27	67	55	NA	NA	-	-
Peterson 75	789	Rear	Datsun	Standard	P	3 yr.	Q Trap.	29.1	16.8	20	5	3	20	47	41	NA	NA	-	-
GM Love Seat	790	Rear	Chrysler	Standard	D	3 yr.	Q Trap.	29.9	16.8	25	5	6	24	73	62	NA	NA	-	-
Peterson 75	791	Rear	GM	Standard	D	6 mo.	Q Trap.	32.0	16.8	NI	NI	NI	NA	NA	NA	NA	NA	-	-
Peterson 75	792	Rear	Ford	Standard	D	3 yr.	Q Trap.	**	16.6	23	11	10	24	76	67	NA	NA	-	-
Kantwet Harness	793	Rear	GM	Standard	D	3 yr.	Q Trap.	29.5	16.8	22	0	-	23	61	49	NA	NA	-	-
Ford Tot Guard	794	Rear	AM	Standard	D	3 yr.	Q Trap.	29.1	15.7	20	0	15	21	63	55	NA	NA	-	-
Bobby-Mac	796	Side	GM	Standard	P	6 mo.	C Trap.	30.2	13.8	NI	NI	NI	NA	NA	NA	NA	NA	25.8	-
Bobby-Mac	797	Side	GM	Standard	P	6 mo.	Q Trap.	29.8	16.2	NI	NI	NI	NA	NA	NA	NA	NA	23.6	-
Peterson 75	798	Side	GM	Standard	P	3 yr.	Q Trap.	25.6	16.1	8	27	15	29	99	82	NA	NA	17.9	-
GM Love Seat	799	Side	GM	Standard	P	3 yr.	Q Trap.	29.9	16.2	16	35	13	40	150	119	NA	NA	13.4	-
Ford Tot Guard	800	Side	VW	Standard	P	3 yr.	Q Trap.	29.8	16.2	22	31	36	48	176	117	NA	NA	32.0	-

TABLE D-28 CHILD RESTRAINT TEST SUMMARIES

TEST NO.	DIRECTION	TYPE RETRACTOR	SEAT TYPE	SEATING POSITION	DUMMY	PULSE SHAPE	SLID VIL.		ACC. G's	CHLST. ACCELERATION				BELT LOADS				Child Seat Crater-Size Sac Strc. lbs.	
							ft/sec	ft/sec <sup>2</sup>		AP G's	SI G's	LR G's	RLS G's	Preload Taken on Right Belt lbs	Rebound Load Right Lap lbs	Left Lap lbs	Rebound Load Left Lap lbs		Shoulder Belt lbs.
Peterson 75	Front	GM	Standard	D	6 mo.	C Trap.	44.0	19.1	NI	NI	NI	NA	12	300	0	400	0	75	NI
Peterson 75	Front	GM	Standard	D	6 mo.	C Trap.	42.3	18.9	NI	NI	NI	NA	12	300	0	400	0	100	NI
Peterson 75	Front	GM	Standard	P	6 mo.	C Trap.	43.1	19.0	NI	NI	NI	NA	13	350	0	350	0	75	NI
Peterson 75	Front	GM	Standard	P	6 mo.	C Trap.	45.8	22.7	NI	NI	NI	NA	14	375	0	525	0	175	NI
Center Seatbelt	Front	GM	Standard	P	6 mo.	Q Trap.	44.3	22.4	NI	NI	NI	NA	15	400	0	575	0	100	NI
Center Seatbelt	Front	GM	Standard	P	6 yr.	Q Trap.	44.1	22.4	22	13	6	22	5	250	0	570	0	900	NI
Center Seatbelt	Front	VW	Standard	D	3 yr.	C Trap.	43.3	18.6	31	22	5	34	NP	320	0	NI	0	200	450
Peterson 75	Front	VW	Standard	P	3 yr.	Q Trap.	45.7	21.8	38	11	9	39	NP	700	0	NI	0	450	NI
Peterson 75	Front	Toyota	Standard	P	3 yr.	Q Trap.	45.2	21.9	30	17	6	32	NP	700	0	850	0	NI	NI
Peterson 75	Rear	Toyota	Standard	P	3 yr.	Q Trap.	29.5	16.6	21	10	4	22	NP	0	50	0	50	NI	NI
Peterson 75	Rear	Datsun	Standard	P	3 yr.	Q Trap.	29.1	16.8	19	8	2	19	12	0	0	0	75	NI	NI
Child Seat	Rear	Conyster	Standard	D	3 yr.	Q Trap.	29.9	16.8	16	11	3	16	17	NI	0	200	0	NI	NI
Peterson 75	Rear	GM	Standard	D	6 mo.	Q Trap.	32.0	16.8	NI	NI	NI	NA	6	100	0	150	0	0	NI
Peterson 75	Rear	Ford	Standard	D	3 yr.	Q Trap.	**	16.8	24	10	5	24	17	50	0	100	0	0	NI
Center Seatbelt	Rear	GM	Standard	D	3 yr.	Q Trap.	28.5	16.8	15	15	3	16	8	100	0	170	0	25	NI
Ford Tot Guard	Rear	AM	Standard	D	3 yr.	Q Trap.	29.1	16.7	24	10	6	25	19	100	0	100	0	0	NI
Center Mac	Side	GM	Standard	P	6 mo.	C Trap.	30.2	13.8	NI	NI	NI	NA	12	225	0	150	0	0	NI
Center Mac	Side	GM	Standard	P	6 mo.	Q Trap.	29.8	16.2	NI	NI	NI	NA	12	250	0	150	0	0	NI
Peterson 75	Side	GM	Standard	P	3 yr.	Q Trap.	25.6	16.1	8	5	26	26	17	450	0	200	0	220	NI
Peterson 75	Side	GM	Standard	P	3 yr.	Q Trap.	29.9	16.2	10	23	29	31	17	560	0	0	0	NI	200
Ford Tot Guard	Side	VW	Standard	P	3 yr.	Q Trap.	29.8	16.2	13	18	26	31	NP	450	0	NI	0	150	NI

<u>Symbols</u>	<u>Sled Pulse Descriptions</u>	<u>Head Excursion Terms</u>
P - Passenger seat	Q Trap - qualifying trapezoidal	MAHE - Maximum absolute head excursion
D - Driver seat	C Trap - compliance trapezoidal	MRHE - Maximum relative head excursion
NI - Not instrumented	Q Half- - qualifying halfsine	
NA - Not available	sine	
NP - No Belt Preload used		

SLED VELOCITY AND ACCELERATION ARE AVERAGE VALUES; ALL OTHER READINGS ARE PEAK VALUES

The Maximum Absolute Head Excursion (MAHE) is the total head excursion measured at the leading edge of the dummy's head. The Maximum Relative Head Excursion (MRHE) is the forwardmost excursion of the head relative to the vehicle seat. The NHTSA proposed revised performance requirements to MVSS 213 limits the forward MRHE to 18 inches (45.7 cm) relative to the vehicle seat back. The vertical MRHE is limited to 27 inches (68.6 cm) relative to the vehicle seat bottom. Side excursion is limited to a MAHE of 19 inches (48.3 cm). The initial and maximum back angle of the infant system as measured with respect to the vertical are also given below.

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-775

Test Date: 9-6-74

Restraint Description: Ford Tot Guard (passenger side)

Harness Configurations: GM retractor

Dummy 3 year

Sled Velocity (avg., ft/sec) 45.04

Sled Acceleration ( avg. g's) 22.3 Qualifying trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>600</u>
	Left Lap	<u>1000</u>
	Shoulder*	<u>800</u>

Impact Direction: Front

Seat Standard

Test Observations: The GM belt restraint system worked well.

\* asterisk on belt load value indicates load was on over back strap





Figure D-1 Test Setup for A-775



Test No. A-775

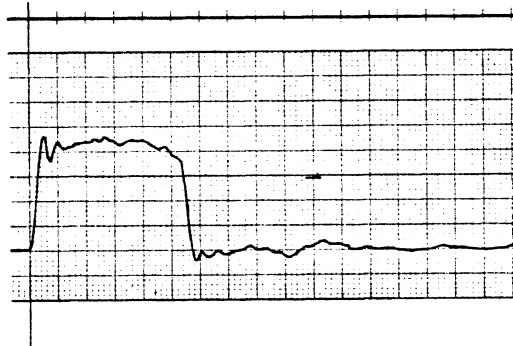
Figure D-2 Graph-Check Camera Sequence

SUMMARY DATA HEAD ACCELERATIONS

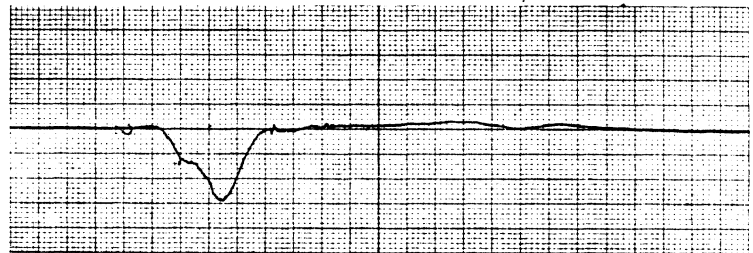
Test Number A775  
Dummy Sierra 3yr  
Sled Velocity 45.04ft/sec

Test Type Front  
Tot Guard  
Standard

Sled Pulse  
5 g's/Division  
Filtered  
Class 60



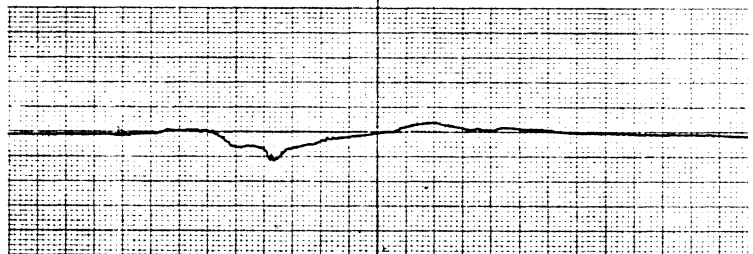
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



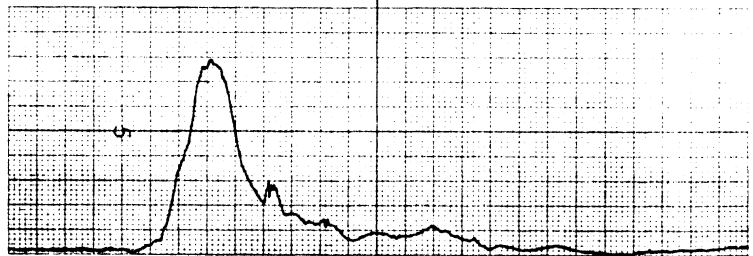
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



1-12.5 MSEC

SUMMARY DATA CHEST ACCELERATIONS

Test Number A 775

Test Type Front

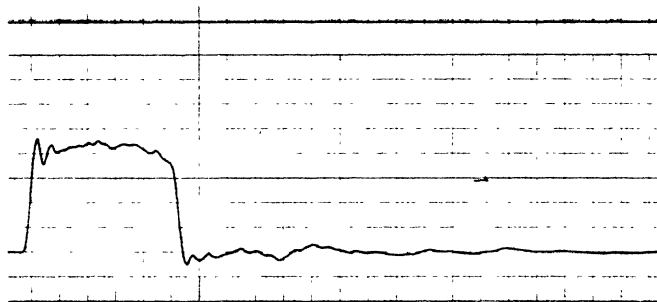
Dummy Sierra 3yr

Tot Guard

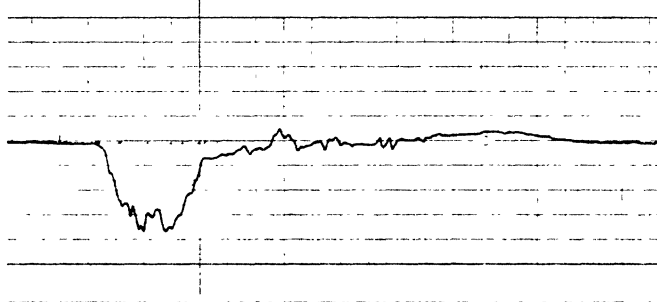
Sled Velocity 45.04 ft/sec

Standard

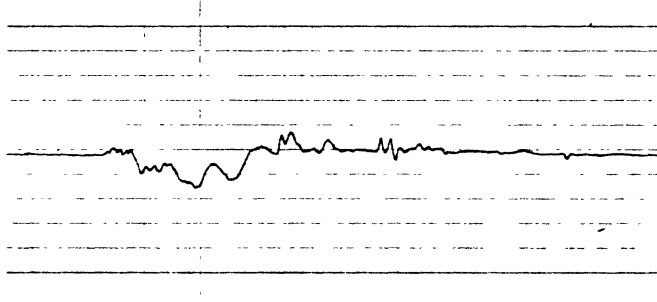
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



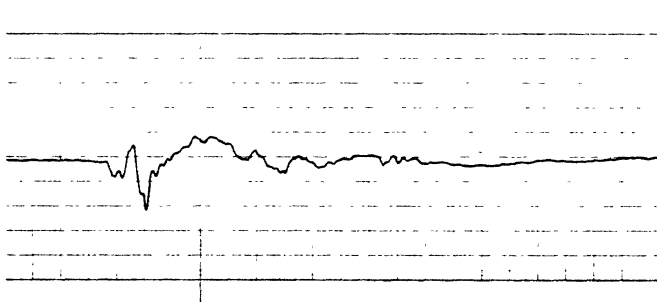
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



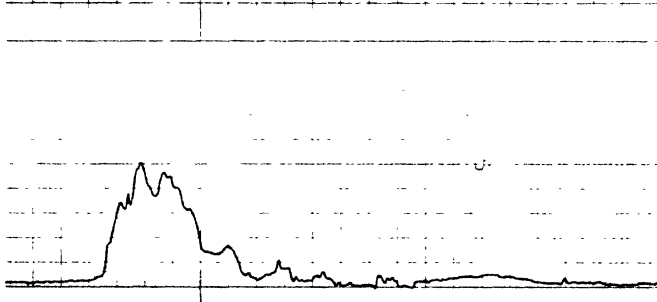
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180

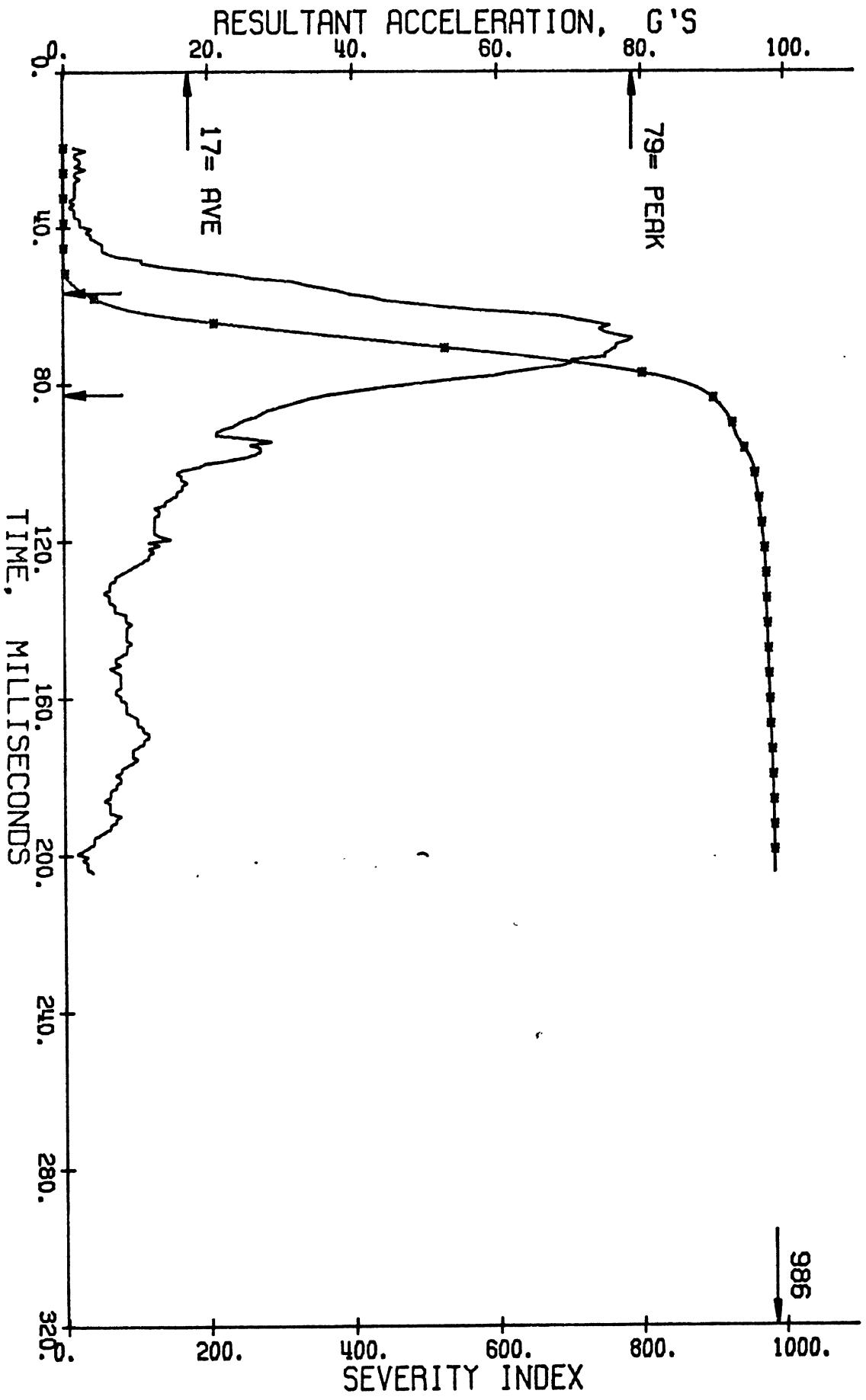


1-12.5 MSEC

SEP 27, 1974

H.I.C. = 798

S.I. = 986



R-775

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-776

Test Date: 9-6-74

Restraint Description: Ford Tot Guard (passenger side)

Harness Configurations: GM retractor

Dummy 3 year

Sled Velocity (avg., ft/sec) 43.15

Sled Acceleration ( avg. g's) 18.68 (compliance trapezoidal)

Belt Loads (peak pounds):  
Right Lap 340  
Left Lap 650  
Shoulder 500

Impact Direction: Front

Seat Standard

Test Observations: The GM belt restraint system worked well.

Loss of tape and thus no HIC, Resultant, or SI.

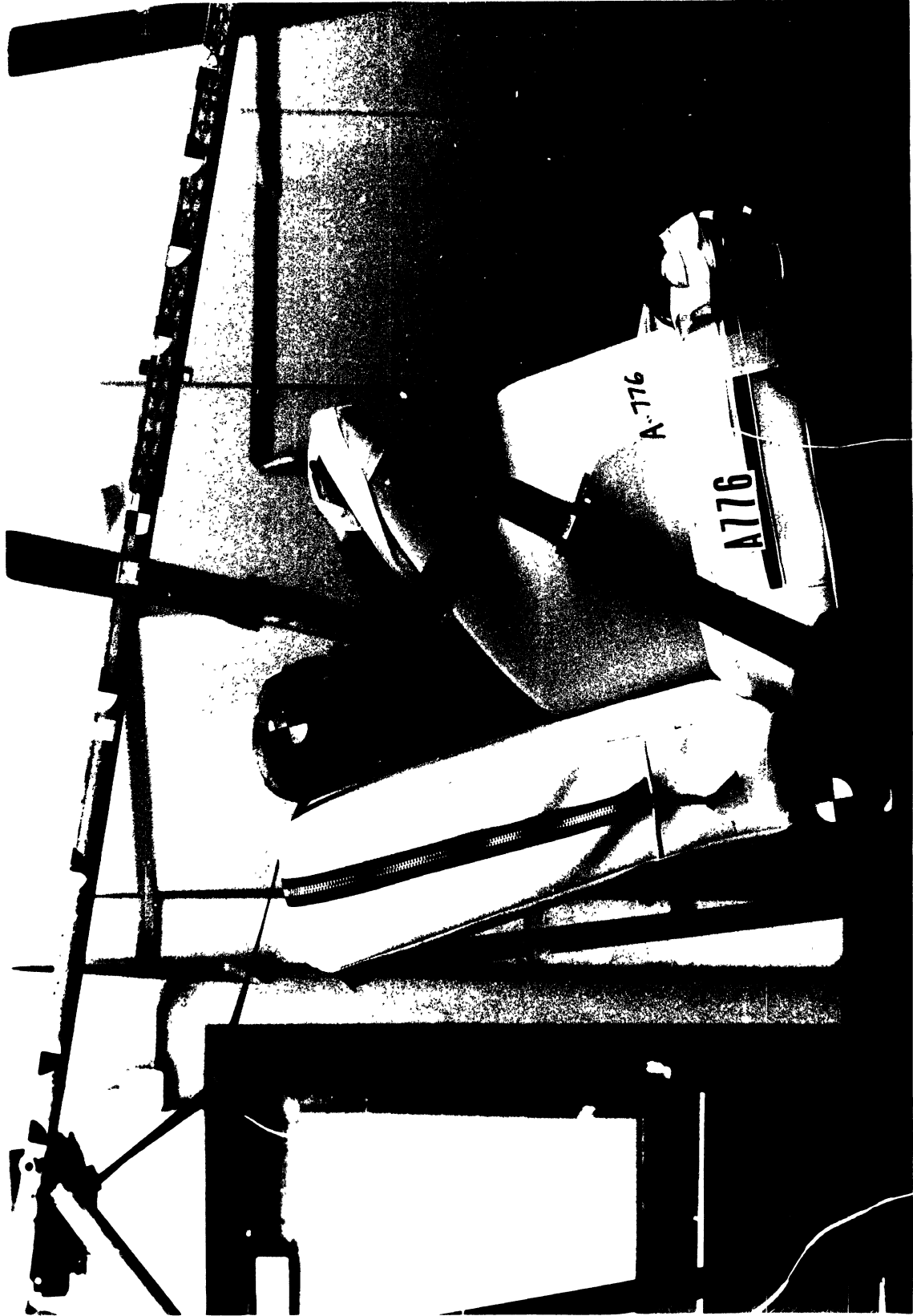


Figure D-3 Test Setup for A-776



Test No. A-776

Figure D-4 Graph-Check Camera Sequence



Velocity = 12" pulse

Shoulder 1000 lbs/in

Left Lap 1000 lbs/in

Right Lap 1000 lbs/in

Chest L.R. 50 G/in

Chest S. I. 50 G/in

Chest A.P. 50 G/in

Head L. R. 50 G/in

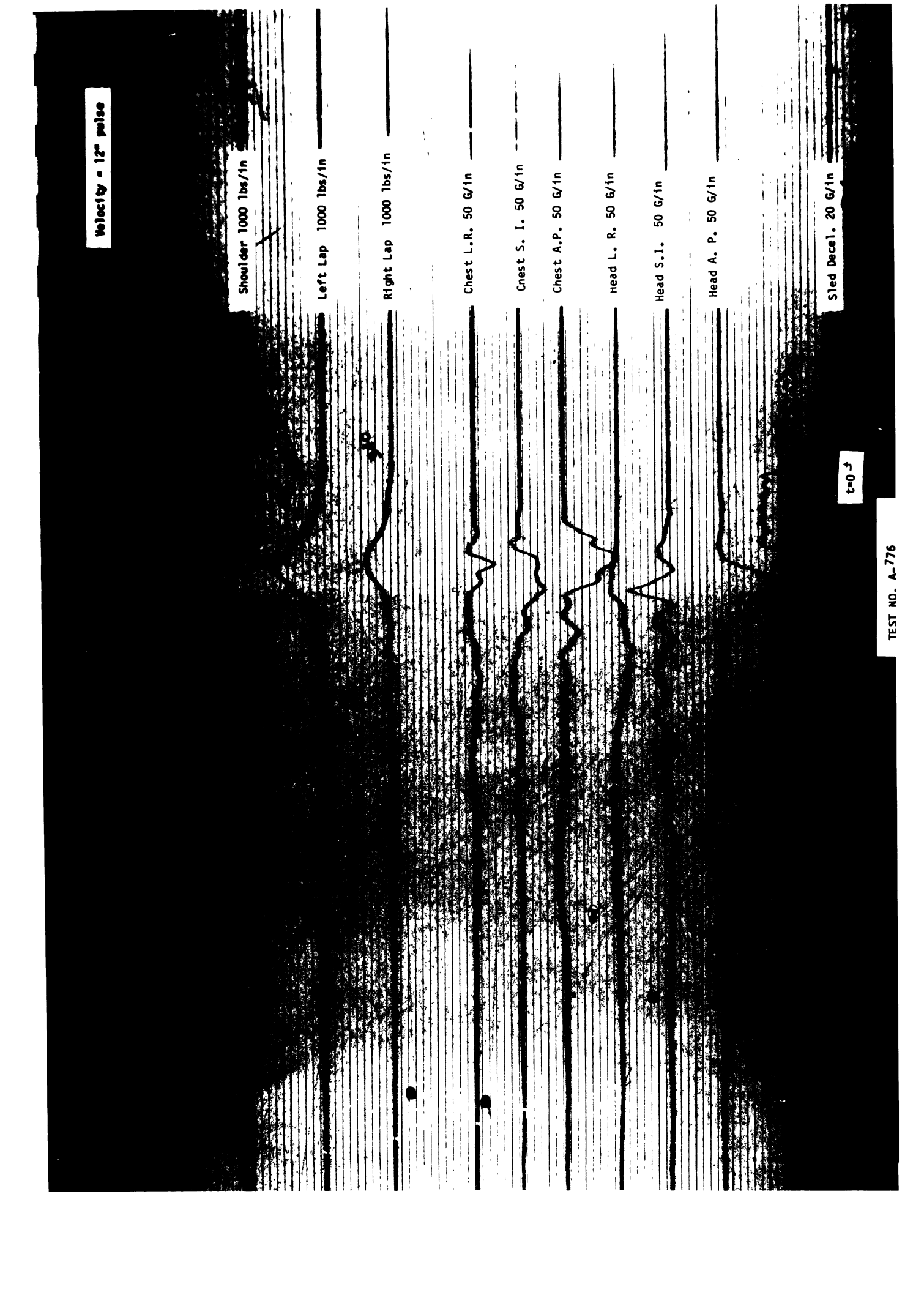
Head S.I. 50 G/in

Head A. P. 50 G/in

Sled Decel. 20 G/in

t=0 →

TEST NO. A-776



HSRI CHILD SEAT DATA SUMMARY

Test Number: A-777

Test Date: 9-6-74

Restraint Description: Ford Tot Guard (passenger side)

Harness Configurations: GM retractor

Dummy 3 year

Sled Velocity (avg., ft/sec) 43.22

Sled Acceleration ( avg. g's) 19 (compliance trapezoidal)

Belt Loads (peak pounds):	Right Lap	<u>430</u>
	Left Lap	<u>900</u>
	Shoulder	<u>680</u>

Impact Direction: Front

Seat Standard

Test Observations: The GM belt restraint system worked well.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Figure D-5 Test Setup for A-777



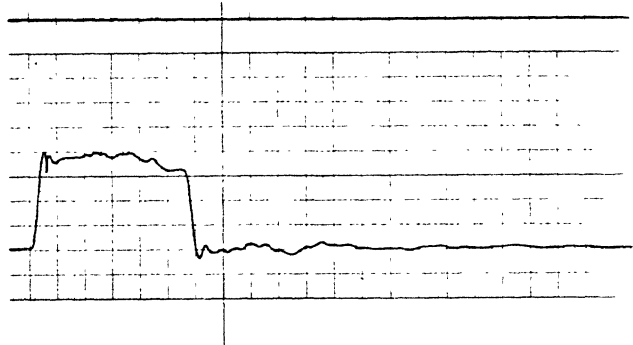
Test No. A-777

Figure D-6 Graph-Check Camera Sequence

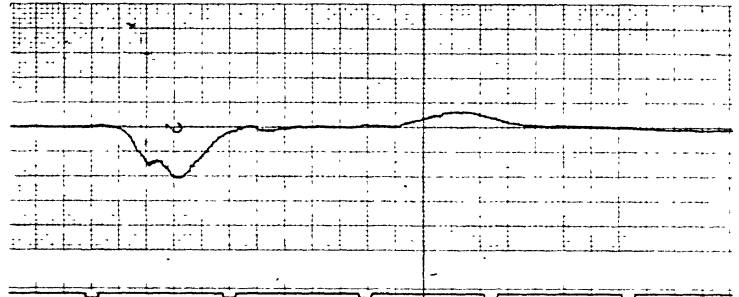
Test Number A-777  
Dummy Sierra 3yr  
Sled Velocity 43.22 ft/sec

SUMMARY DATA HEAD ACCELERATIONS  
Test Type FRONT  
STANDARD

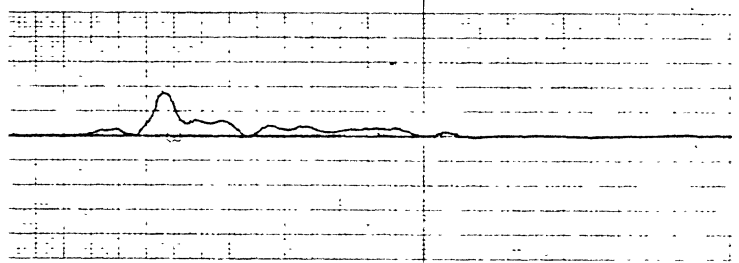
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



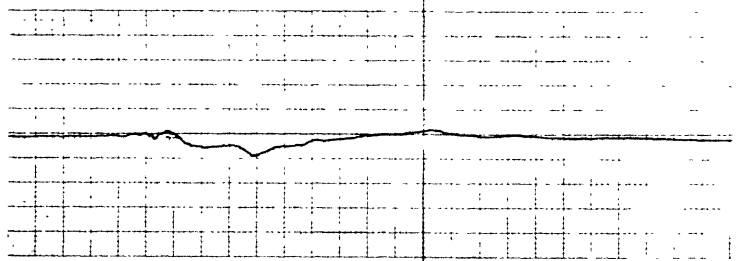
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



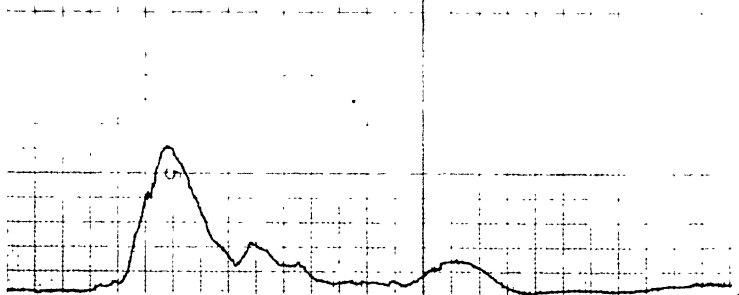
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



1-12.5 MSEC

SUMMARY DATA CHEST ACCELERATIONS

Test Number A 777

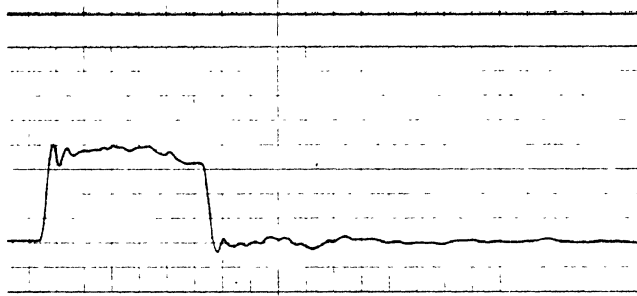
Test Type FRONT

Dummy Sierra 3yr

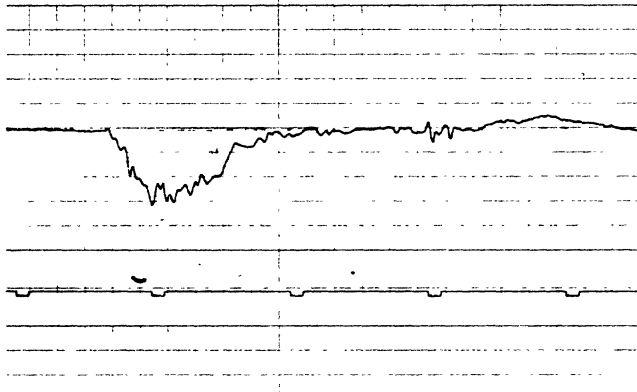
Sled Velocity 43.22 ft/sec

STANDARD

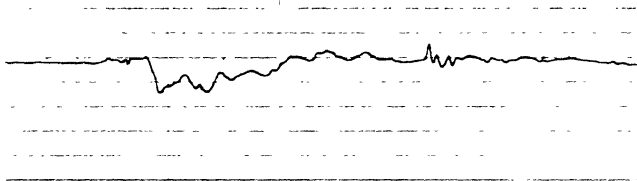
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



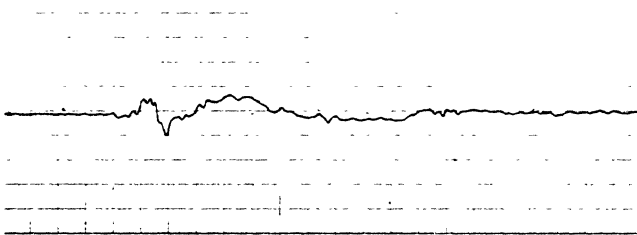
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



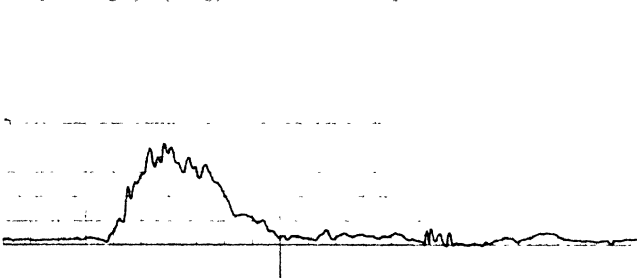
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180

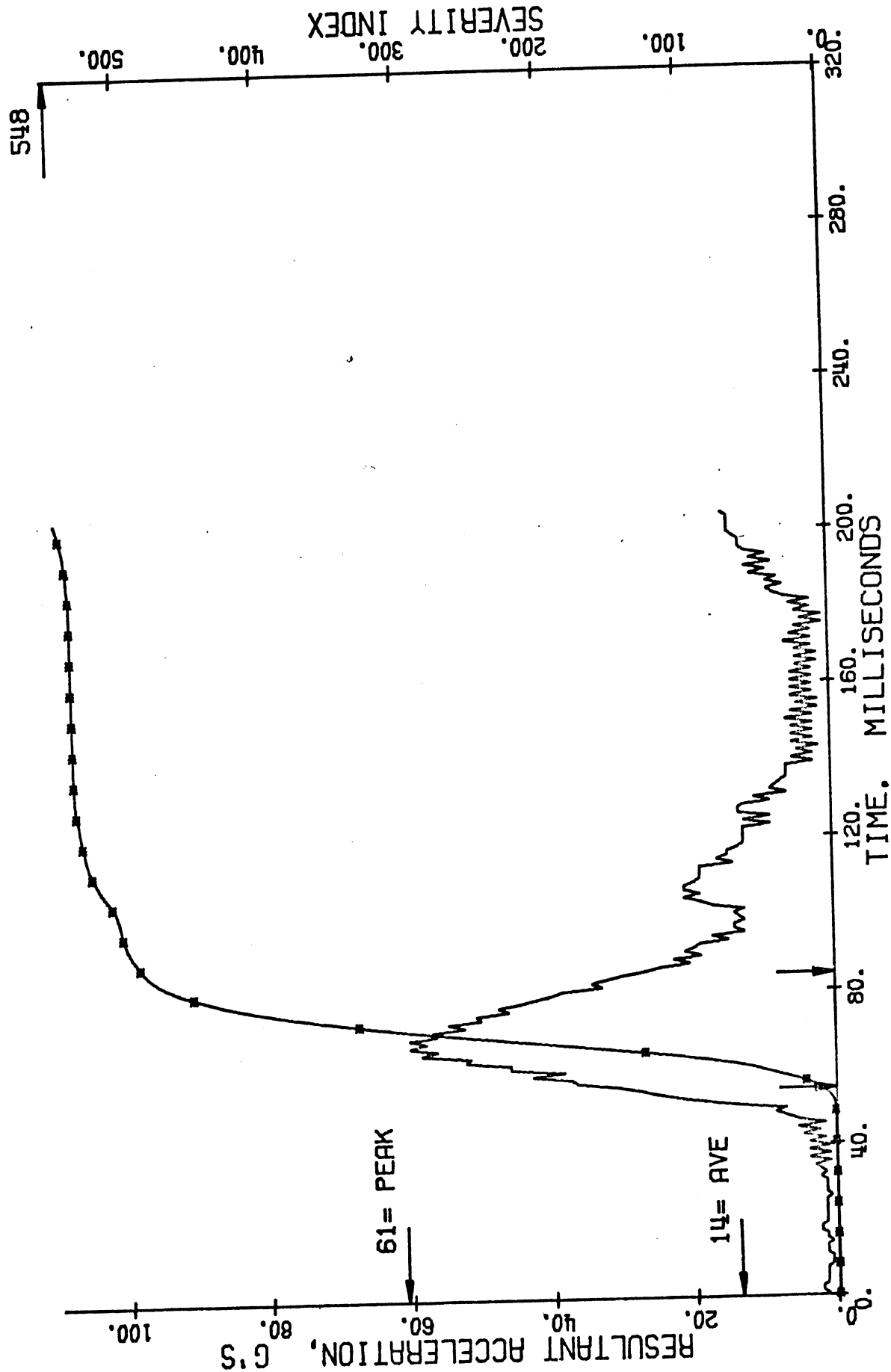


1-12.5 MSEC

SEP 27, 1974

H.I.C. = 434

S.I. = 548



A-777

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-778

Test Date: 9-6-74

Restraint Description: Ford Tot Guard (passenger side)

Harness Configurations: GM retractor

Dummy 3 year

Sled Velocity (avg., ft/sec) 43.38

Sled Acceleration ( avg. g's) 19.2 (compliance trapezoidal)

Belt Loads (peak pounds):	Right Lap	<u>500</u>
	Left Lap	<u>900</u>
	Shoulder	<u>750</u>

Impact Direction: Front

Seat Standard

Test Observations: The GM belt restraint system worked well.



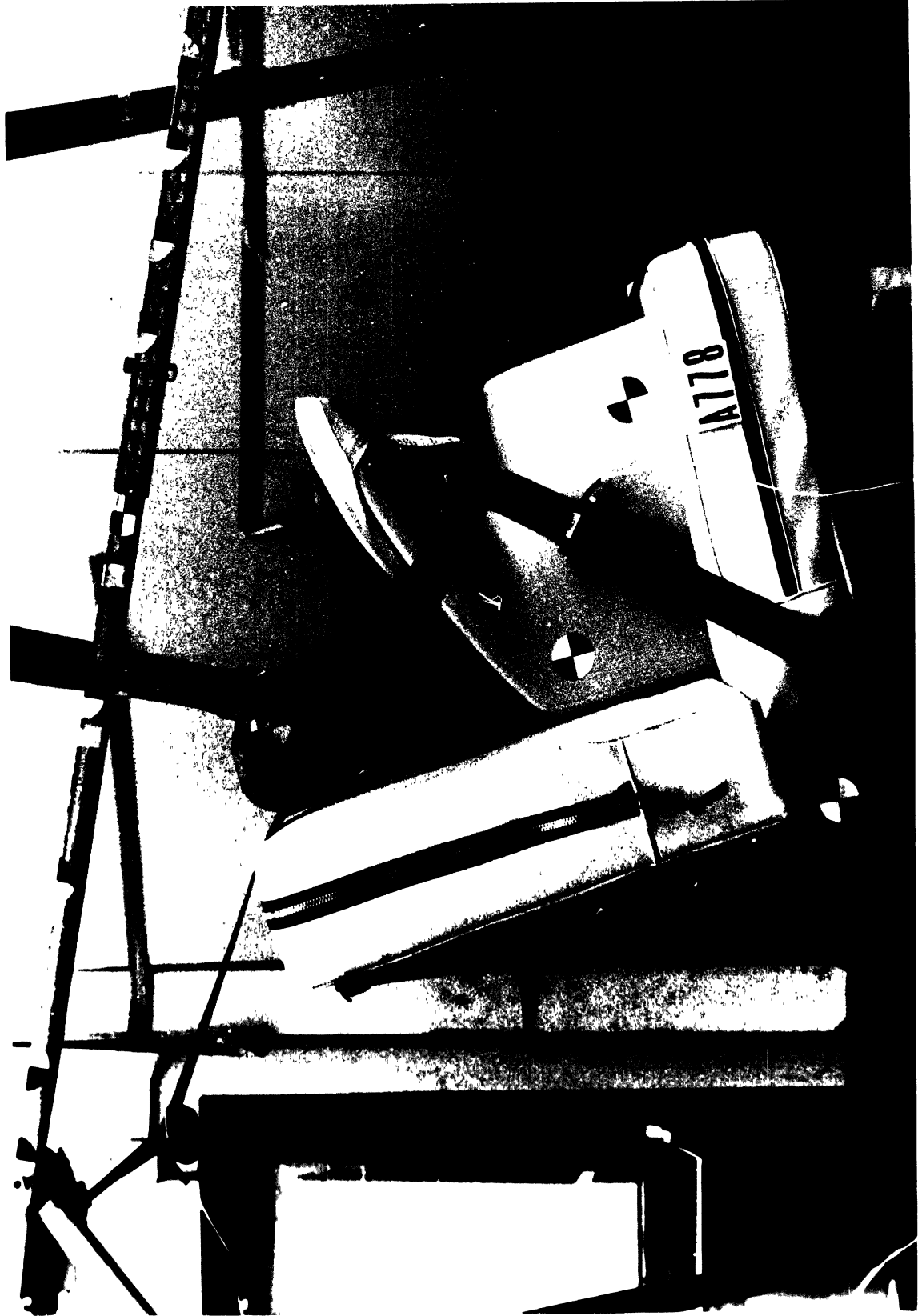


Figure D-7 Test Setup for A-778



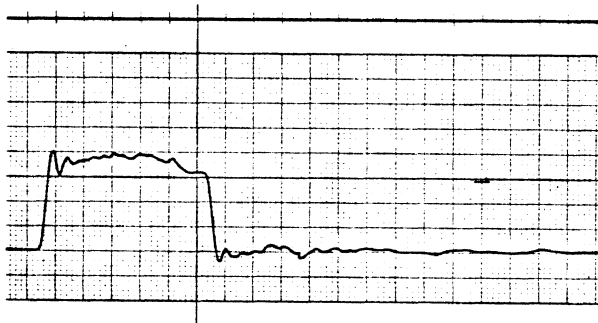
Test No. A-778

Figure D-8 Graph-Check Camera Sequence

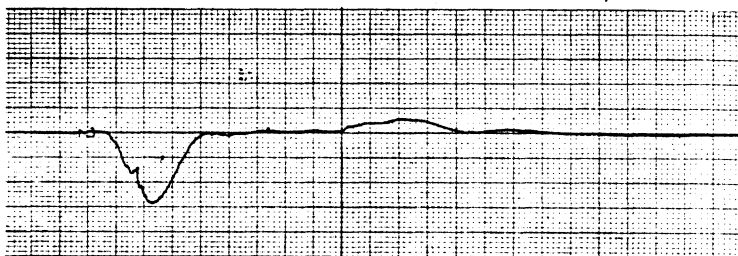
Test Number A-778  
Dummy Sierra 3yr.  
Sled Velocity 43.38ft/sec

SUMMARY DATA HEAD ACCELERATIONS  
Test Type Front  
STANDARD

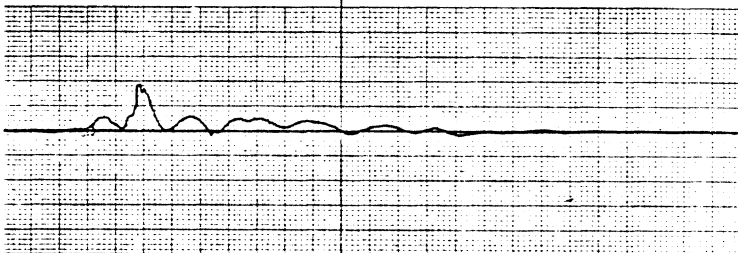
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



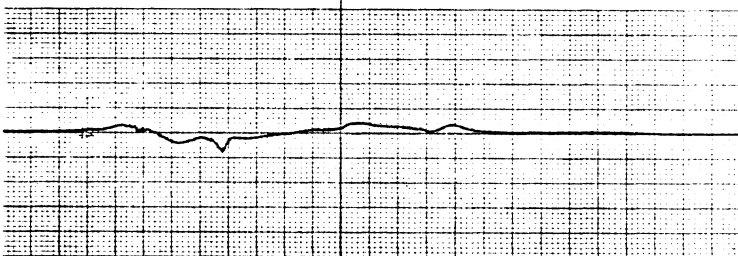
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



SUMMARY DATA CHEST ACCELERATIONS

Test Number A 778

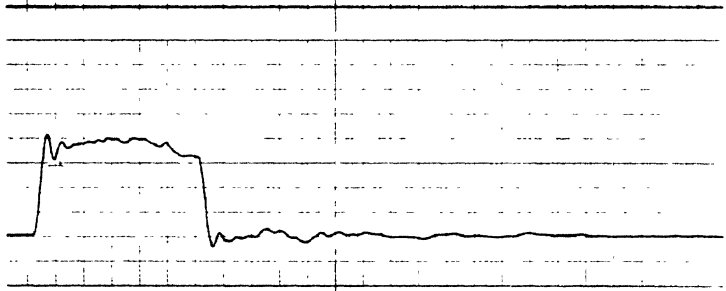
Test Type FRONT

Dummy Sierra 3yr

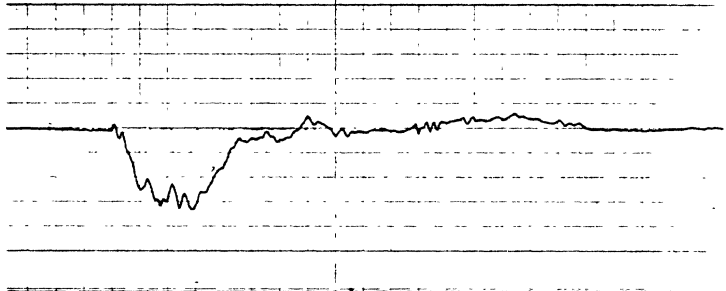
Sled Velocity 43.38ft/sec

STANDARD

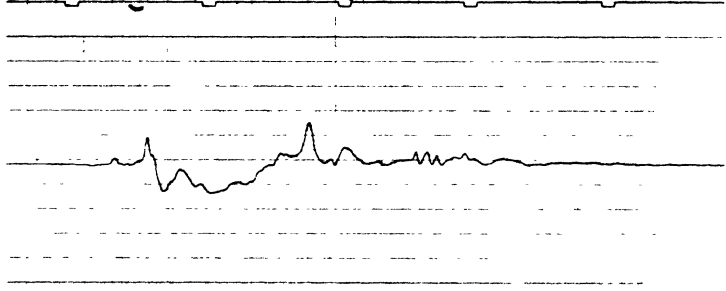
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



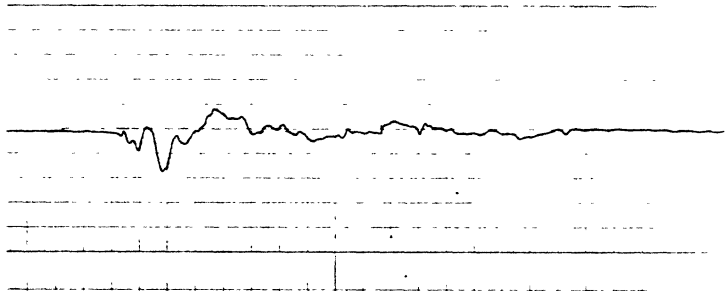
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



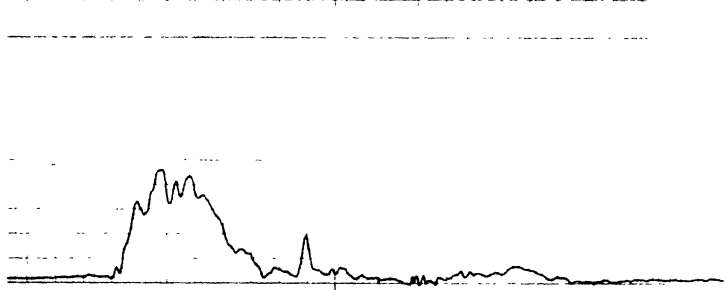
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
12.5 g's/Division  
Filtered  
Class 180

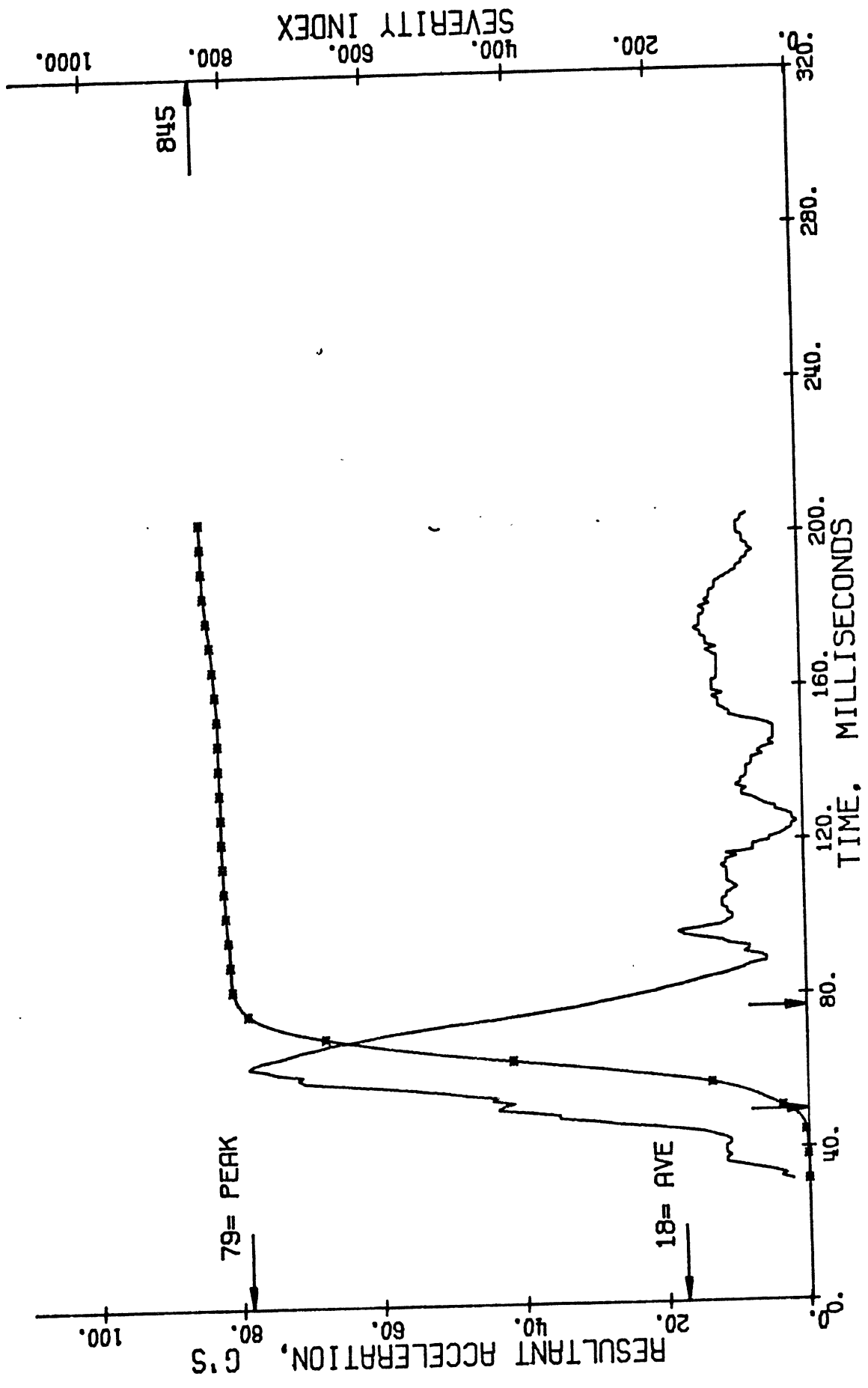


12.5 MSEC

SEP 27, 1974

H.I.C. = 696

S.I. = 845



A-778

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-779

Test Date: 9-7-74

Restraint Description: Peterson 75, infant seat (passenger side)

Harness Configurations: GM retractor

Dummy 6 month

Sled Velocity (avg., ft/sec) 44.01

Sled Acceleration ( avg. g's) 19.1 (compliance trapezoidal)

Belt Loads (peak pounds):	Right Lap	<u>300</u>
	Left Lap	<u>400</u>
	Shoulder	<u>75</u>

Impact Direction: Front

Seat Standard

Test Observations: The GM belt restraint system worked well. Insert for infant adapter pulled out.

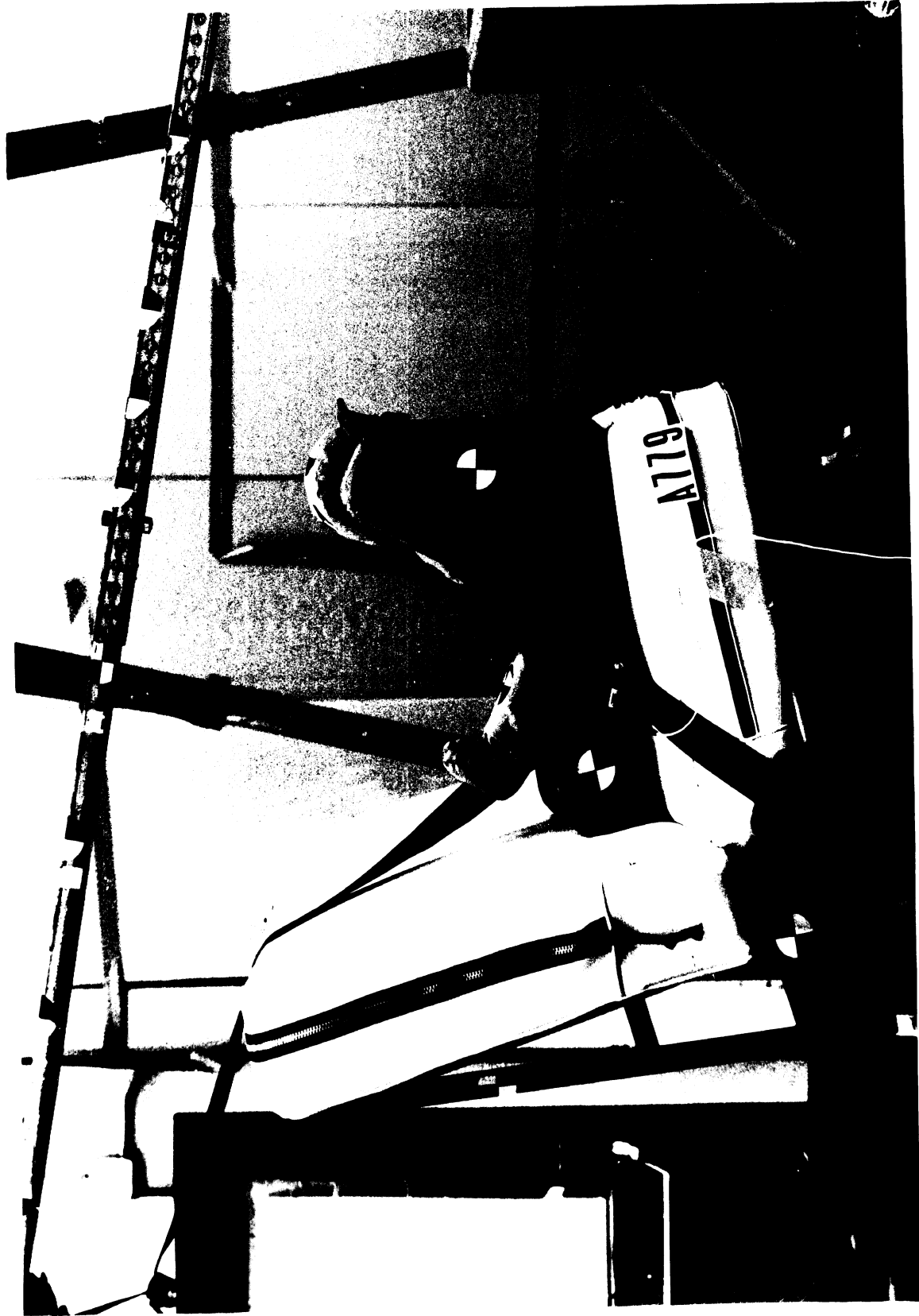


Figure D-9 Test Setup for A-779



Test No. A-779

Figure D-10 Graph-Check Camera Sequence

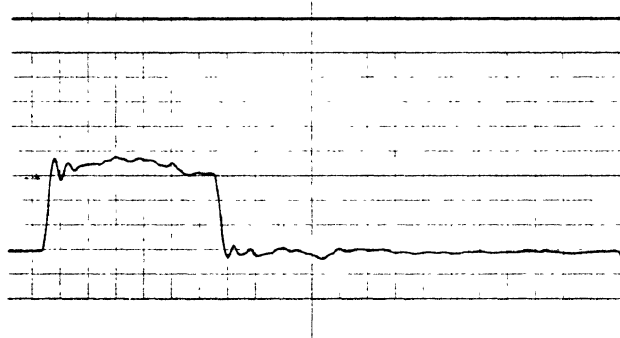


SUMMARY DATA HEAD ACCELERATIONS

Test Number A 779  
Dummy 6 month  
Sled Velocity 44.01 ft/sec

Test Type FRONT  
Peterson  
Standard

Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-780

Test Date: 9-7-74

Restraint Description: Peterson 75 infant seat (Passenger side)

Harness Configurations: GM retractor

Dummy 6 month

Sled Velocity (avg., ft/sec) 42.34

Sled Acceleration ( avg. g's) 18.8 (compliance trapezoidal)

Belt Loads (peak pounds):	Right Lap	<u>300</u>
	Left Lap	<u>400</u>
	Shoulder	<u>100</u>

Impact Direction: Front

Seat Standard

Test Observations: The GM belt restraint system worked well. Insert for infant adapter pulled out.

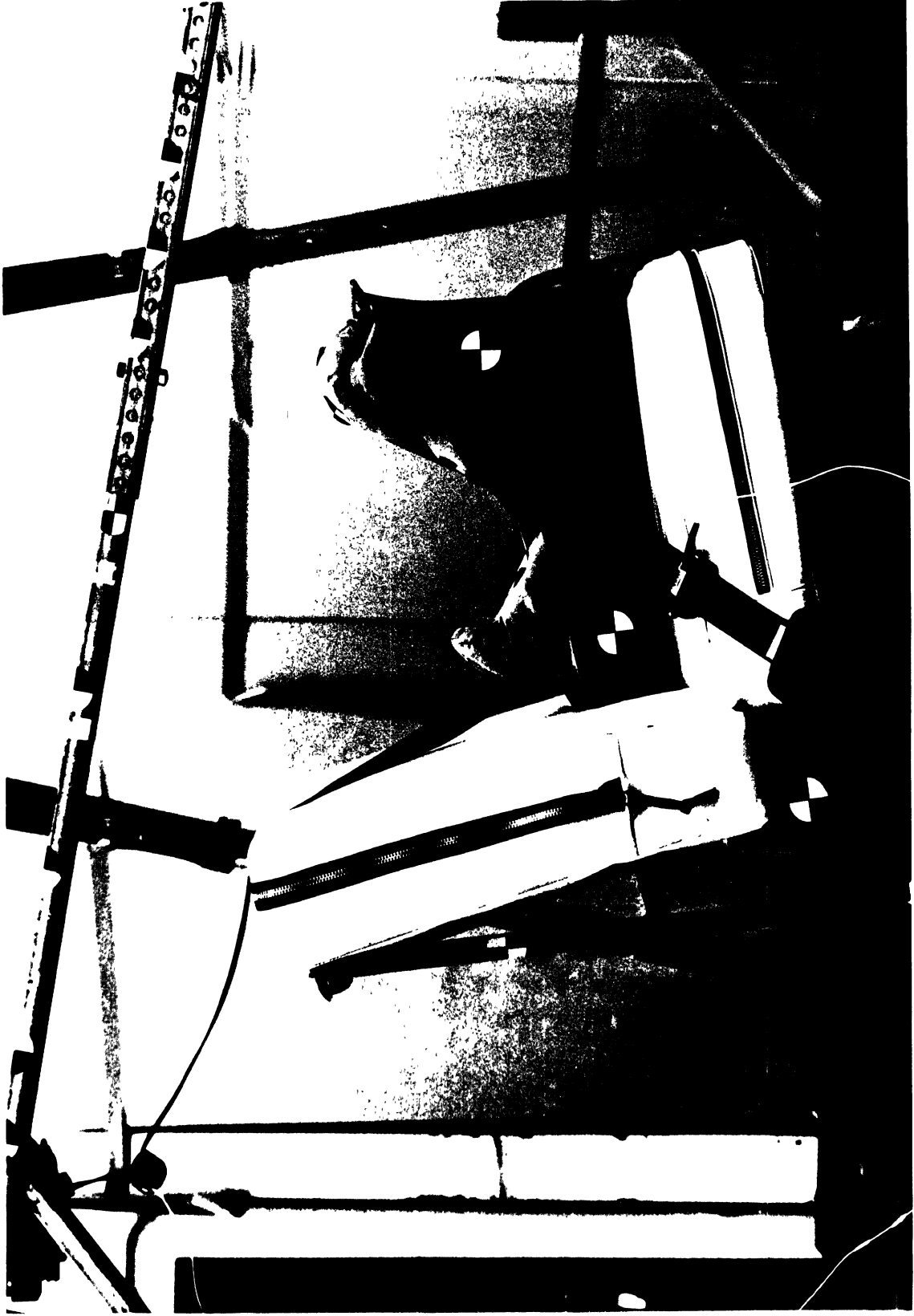


Figure D-11 Test Setup for A-780



Test No. A-780

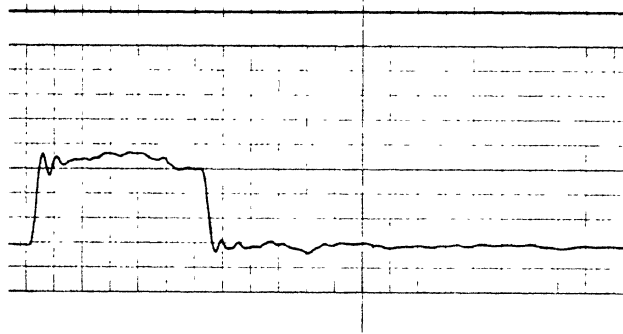
Figure D-12 Graph-Check Camera Sequence

Test Number A 7 8 0  
Dummy 6 month  
Sled Velocity 42.34 ft/sec

SUMMARY DATA HEAD ACCELERATIONS

Test Type FRONT  
PETERSEN  
STANDARD

Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-781

Test Date: 9-7-74

Restraint Description: Peterson 75 infant seat (passenger side)

Harness Configurations: GM retractor

Dummy 6 month

Sled Velocity (avg., ft/sec) 43.08

Sled Acceleration ( avg. g's) 19 (compliance trapezoidal)

Belt Loads (peak pounds):	Right Lap	<u>350</u>
	Left Lap	<u>350</u>
	Shoulder	<u>75</u>

Impact Direction: Front

Seat Standard

Test Observations: The GM belt restraint system worked well.

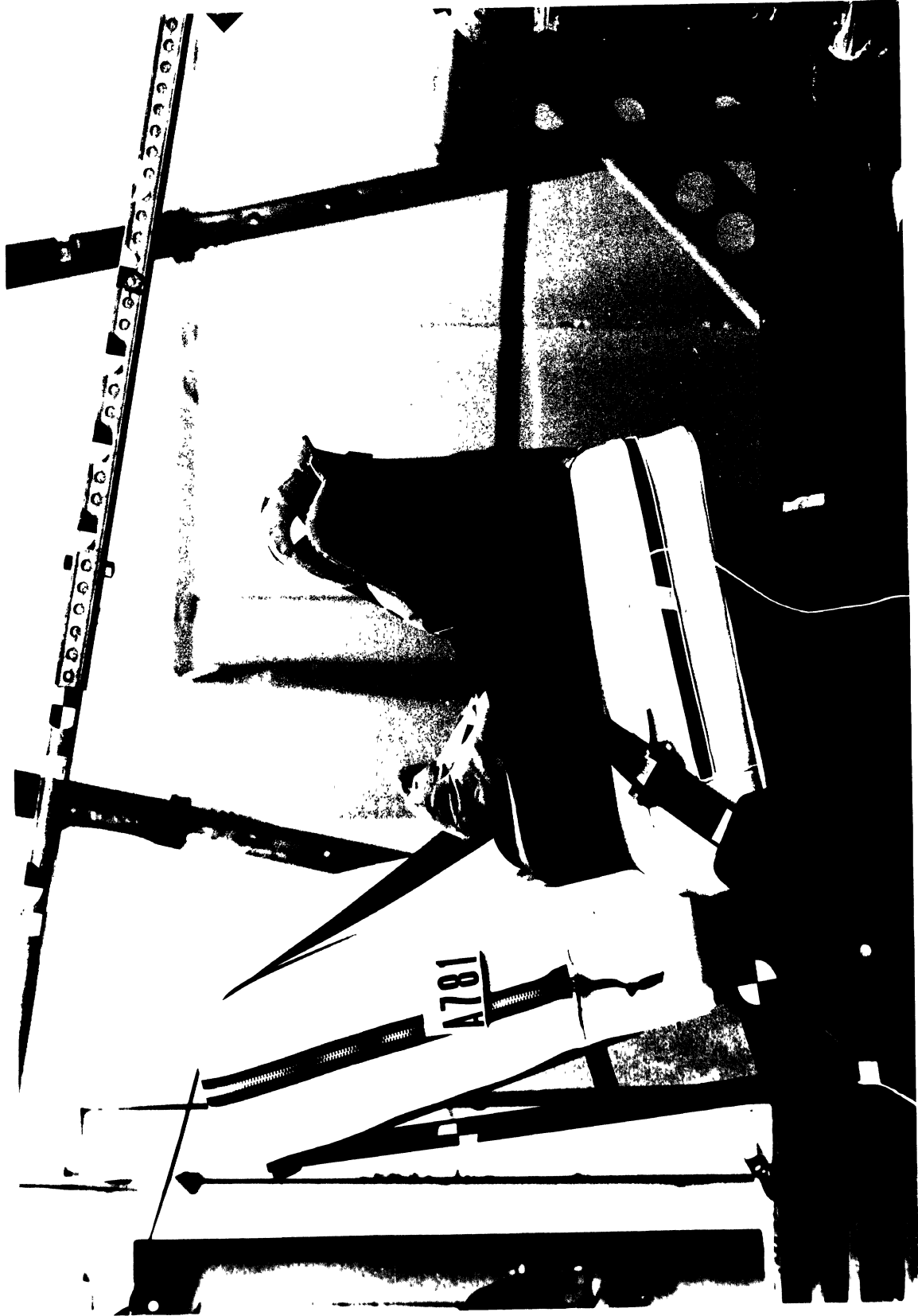


Figure D-13 Test Setup for A-781



Test No. A-781

Figure D-14 Graph-Check Camera Sequence

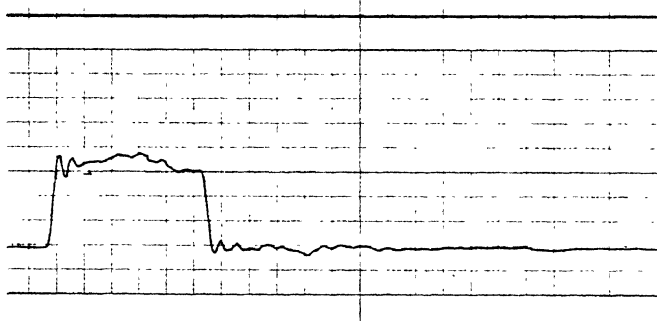


SUMMARY DATA HEAD ACCELERATIONS

Test Number A 781  
Dummy 6 MONTH  
Sled Velocity 43.09 ft/sec

Test Type FRONT  
PETERSON  
STANDARD

Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-782

Test Date: 9-7-74

Restraint Description: Peterson 75 infant seat (passenger side)

Harness Configurations: GM retractor

Dummy 6 month

Sled Velocity (avg., ft/sec) 45.76

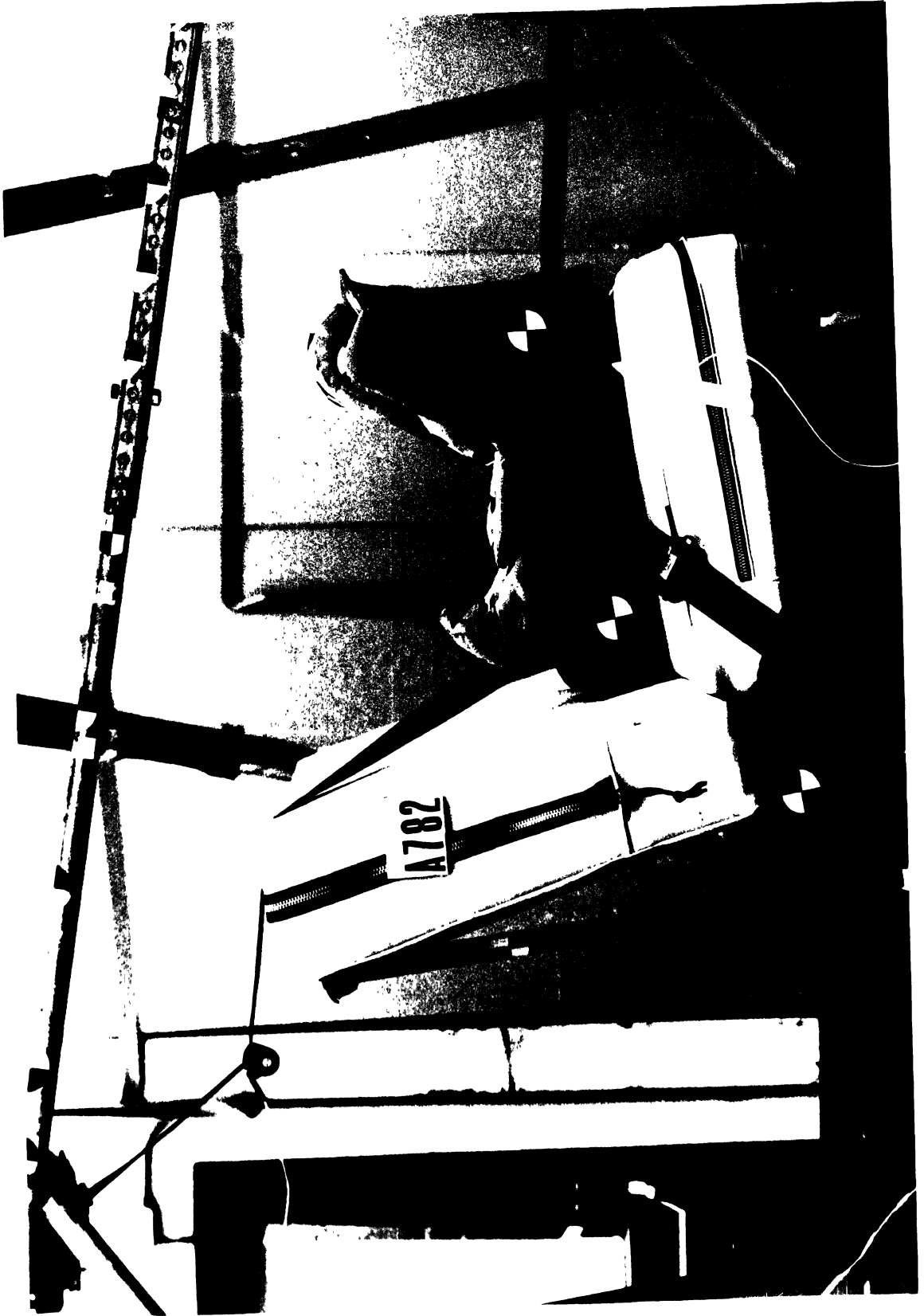
Sled Acceleration ( avg. g's) 22.7 Qualifying Trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>375</u>
	Left Lap	<u>525</u>
	Shoulder	<u>175</u>

Impact Direction: Front

Seat Standard

Test Observations: The GM belt restraint system worked well. Insert for  
infant adapter pulled out, and back of infant seat split.



Test Setup for A-782

Figure D-15



Test No. A-782

Figure D-16 Graph-Check Camera Sequence



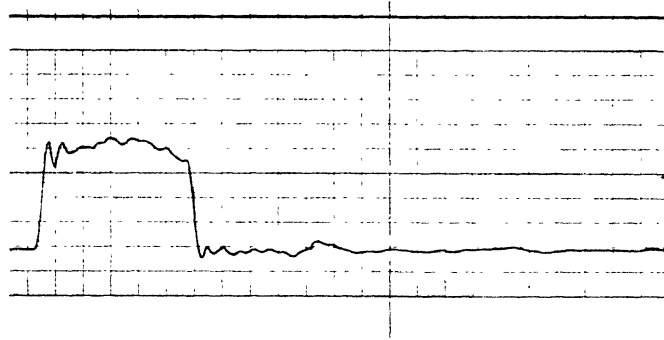
Figure D-17 Post Impact for A-782

SUMMARY DATA HEAD ACCELERATIONS

Test Number A 782  
Dummy 6 month  
Sled Velocity 45.76ft/sec

Test Type FRONT  
PETERSON  
STANDARD

Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-783

Test Date: 9-7-74

Restraint Description: Bobby-Mac infant seat (passenger side)

Harness Configurations: GM retractor

Dummy 6 month

Sled Velocity (avg., ft/sec) 44.34

Sled Acceleration ( avg. g's) 22.4 (Qualifying Trapezoidal)

Belt Loads (peak pounds):	Right Lap	<u>400</u>
	Left Lap	<u>575</u>
	Shoulder	<u>100</u>

Impact Direction: Front

Seat Standard

Test Observations: The GM belt restraint system worked well

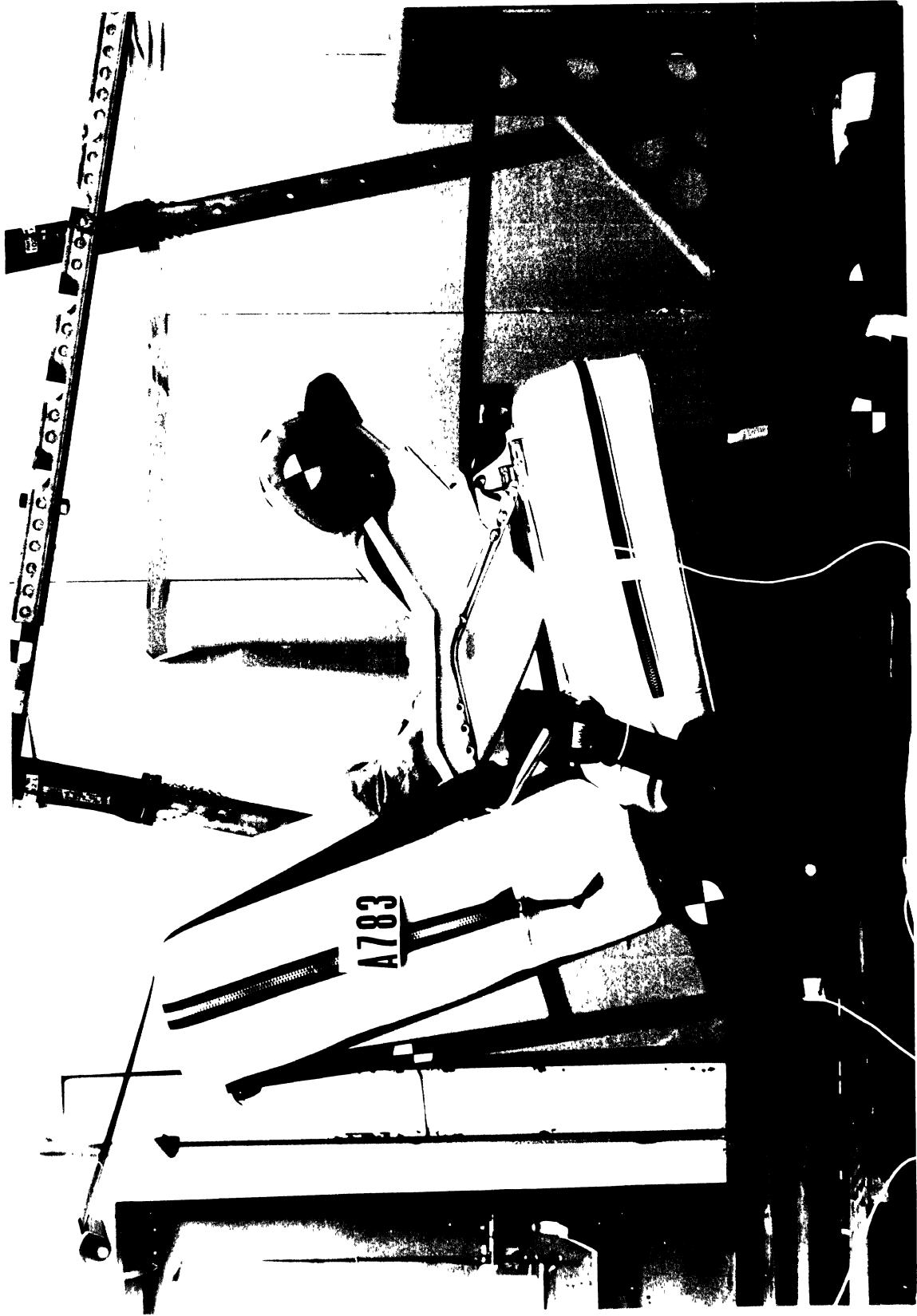


Figure D-18 Test Setup for A-783





Test No. A-783

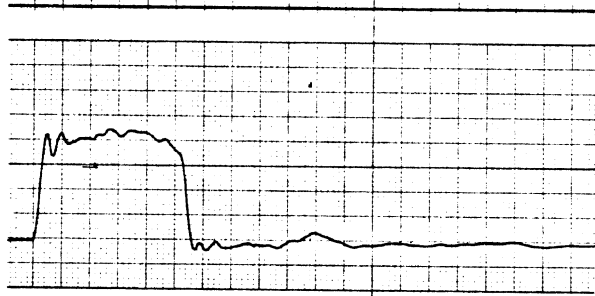
Figure D-19 Graph-Check Camera Sequence

SUMMARY DATA HEAD ACCELERATIONS

Test Number A 783  
Dummy 6 MONTH  
Sled Velocity 44.34 ft/sec

Test Type FRONT  
Bobby Mac  
STANDARD

Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-784

Test Date: 9-7-74

Restraint Description: Kantwet Harness (passenger side)

Harness Configurations: GM retractor

Dummy 6 year

Sled Velocity (avg., ft/sec) 44.07

Sled Acceleration ( avg. g's) 22.4 Qualifying trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>350</u>
	Left Lap	<u>570</u>
	Shoulder	<u>900</u>

Impact Direction: Front

Seat Standard

Test Observations: The GM belt restraint system worked well. Back connection on harness belt loads pulled apart.



Figure D-20 Test Setup for A-784



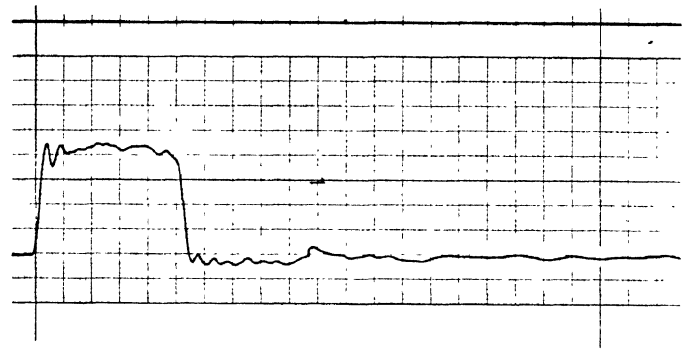
Test No. A-784

Figure D-21 Graph-Check Camera Sequence

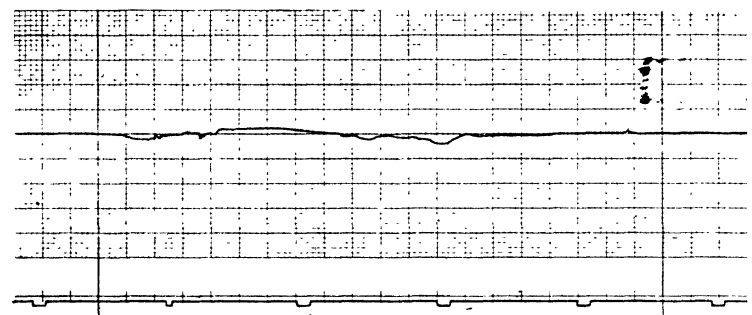
1-  
Test Number A-784  
Dummy SIERRA 6 YEAR  
Sled Velocity 44.07ft/sec

SUMMARY DATA HEAD ACCELERATIONS  
Test Type FRONT  
KANTWET HARNESS  
STANDARD

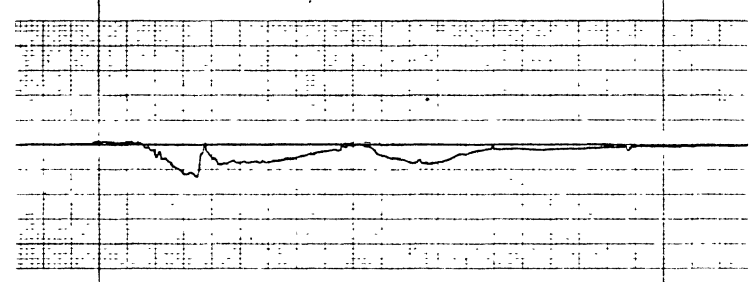
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



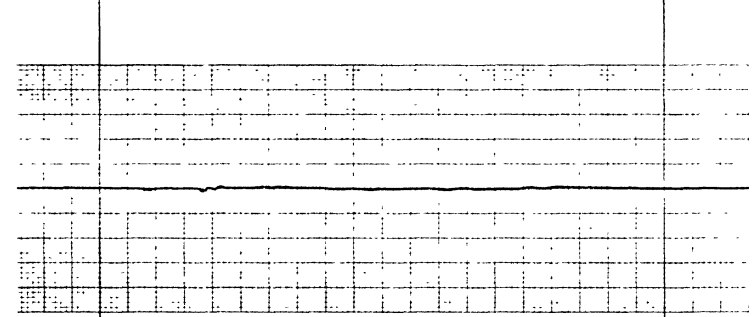
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



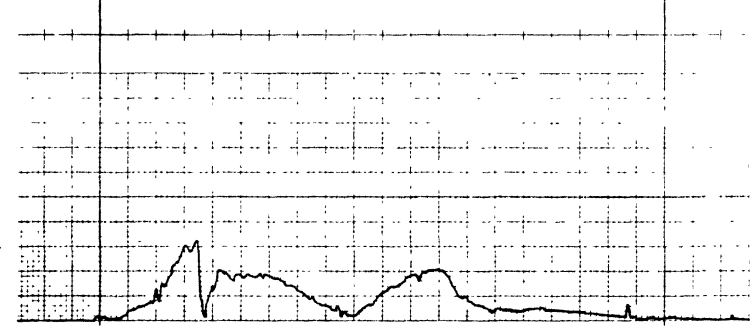
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



1-12.5 MSEC

SUMMARY DATA CHEST ACCELERATIONS

Test Number A 784

Test Type Front

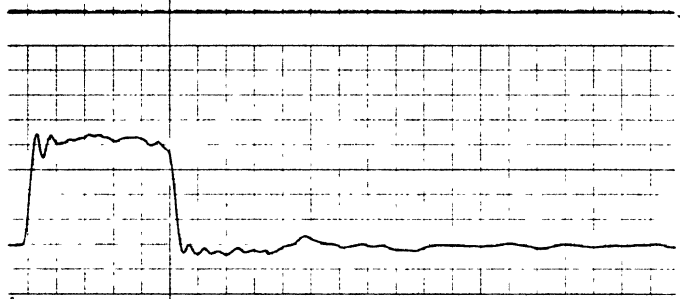
Dummy SIERRA 6 YEAR

KANTWET HARNESS

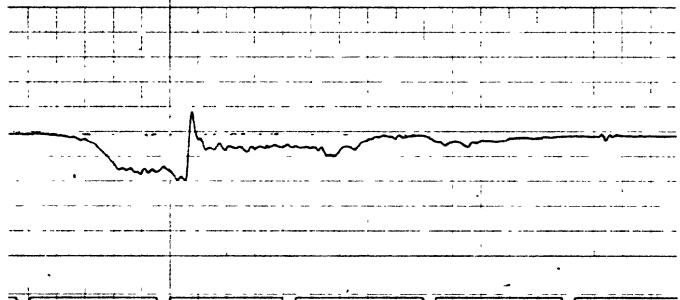
Sled Velocity 44.07 ft/sec

Standard

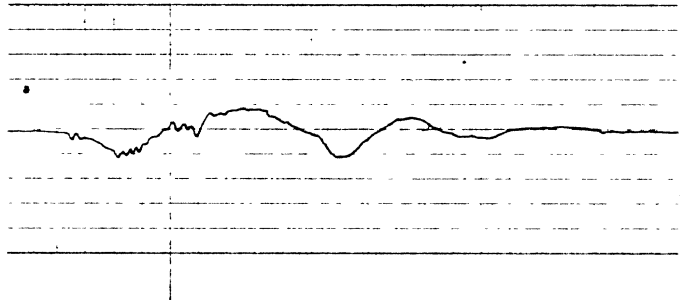
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



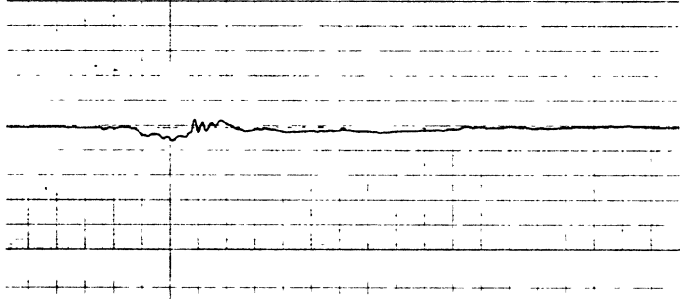
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



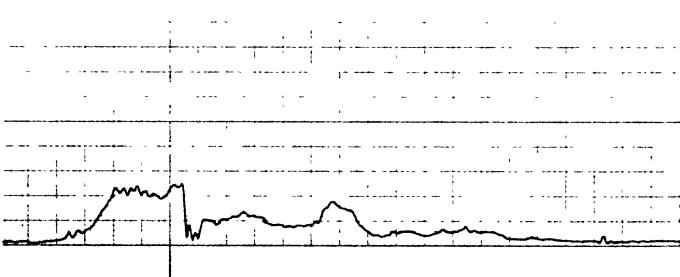
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180

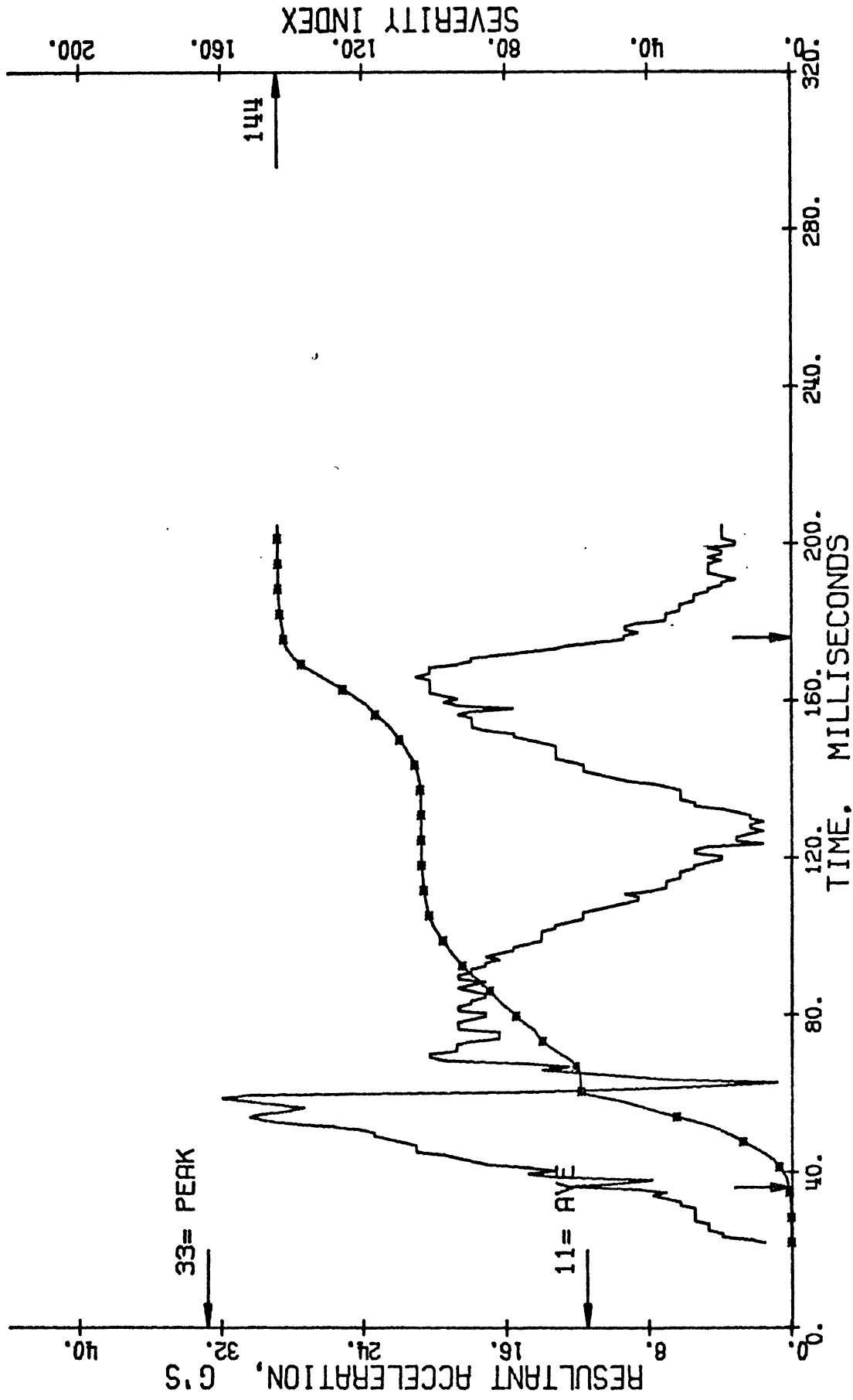


| 1-12.5 MSEC

SEP 27, 1974

H.I.C. = 97

S.I. = 144



A-784



HSRI CHILD SEAT DATA SUMMARY

Test Number: A-785

Test Date: 9-7-74

Restraint Description: Kantwet Model 884 (Passenger side)

Harness Configurations: Volkswagon retractor, left end of lap belt made of cable which prevented load cell mounting. Rear strap used on child seat.

Dummy .3 year

Sled Velocity (avg., ft/sec) 43.33

Sled Acceleration ( avg. g's) 18.6 compliance trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>320</u>
		<u>NI</u>
	Left Lap	<u>200, 840*</u>

Impact Direction: Front

Seat Standard

Test Observations: The Volkswagen belt restraint system worked well. The belts cannot be preloaded.

\*asterisk on belt load value indicates load was on over back strap.



Figure D-22 Test Setup for A-785



Test No. A-785

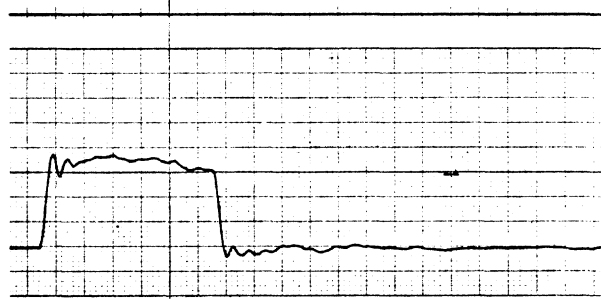
Figure D-23 Graph-Check Camera Sequence

Test Number A-785  
Dummy Sierra 3yr  
Sled Velocity 43.33 ft/sec

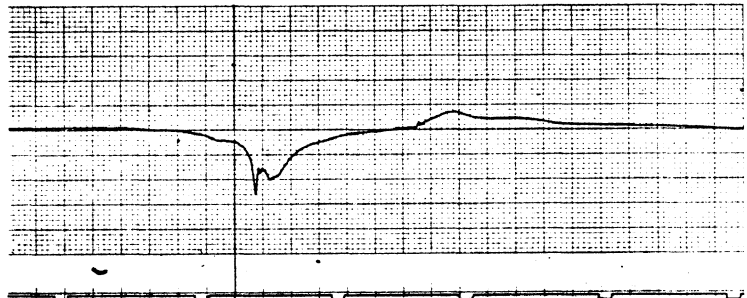
SUMMARY DATA HEAD ACCELERATIONS

Test Type FRONT  
KANTWET  
STANDARD

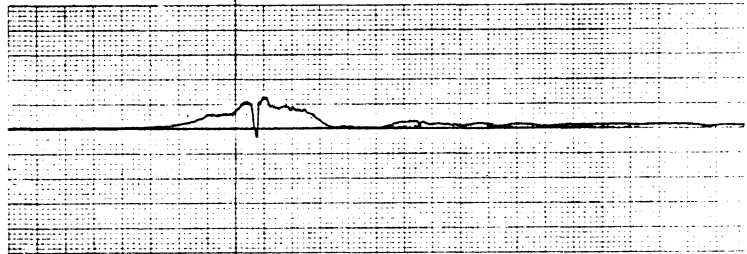
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



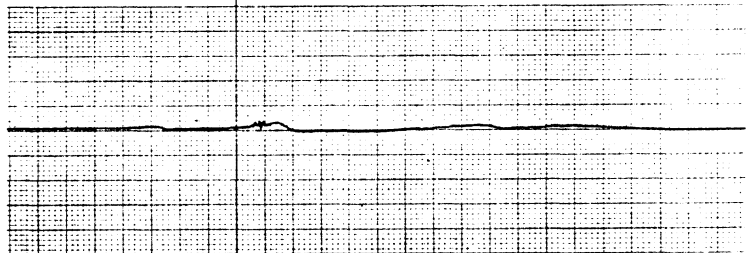
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



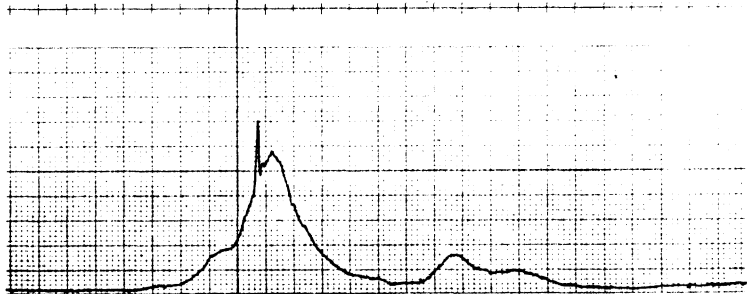
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



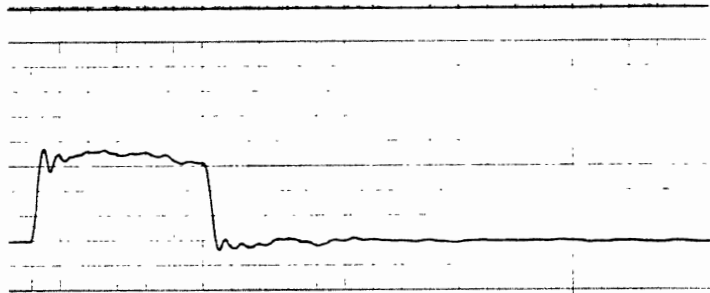
1-12.5 MSEC

SUMMARY DATA CHEST ACCELERATIONS

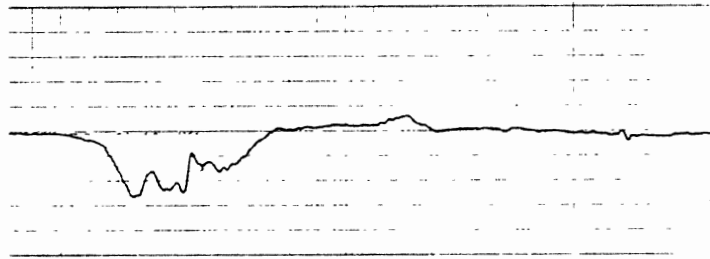
Test Number A785  
Dummy Sierra 3yr.  
Sled Velocity 43.33 ft/sec

Test Type Front  
KANTWET  
STANDARD

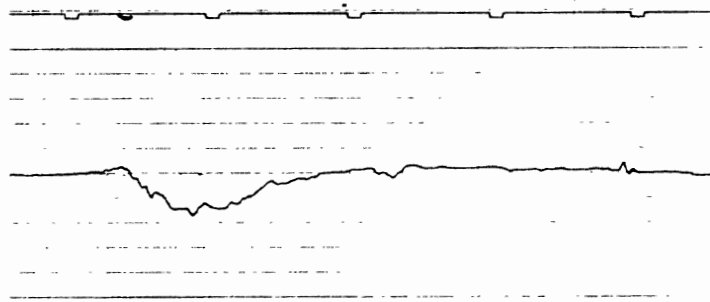
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



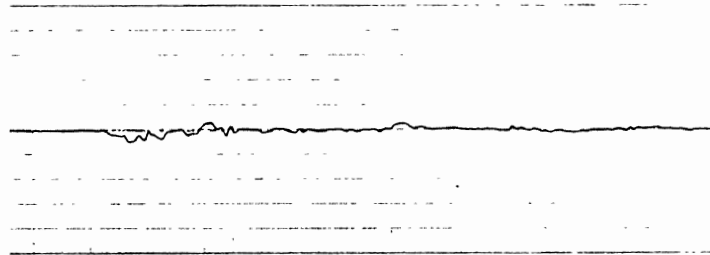
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



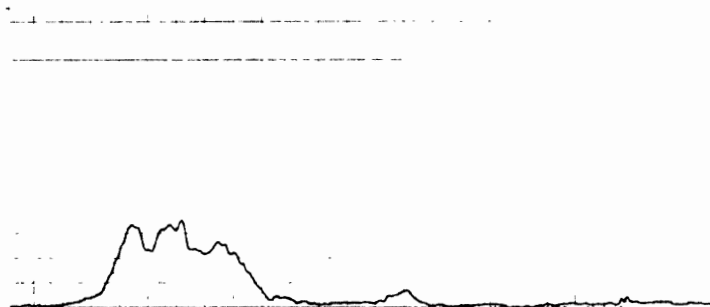
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180

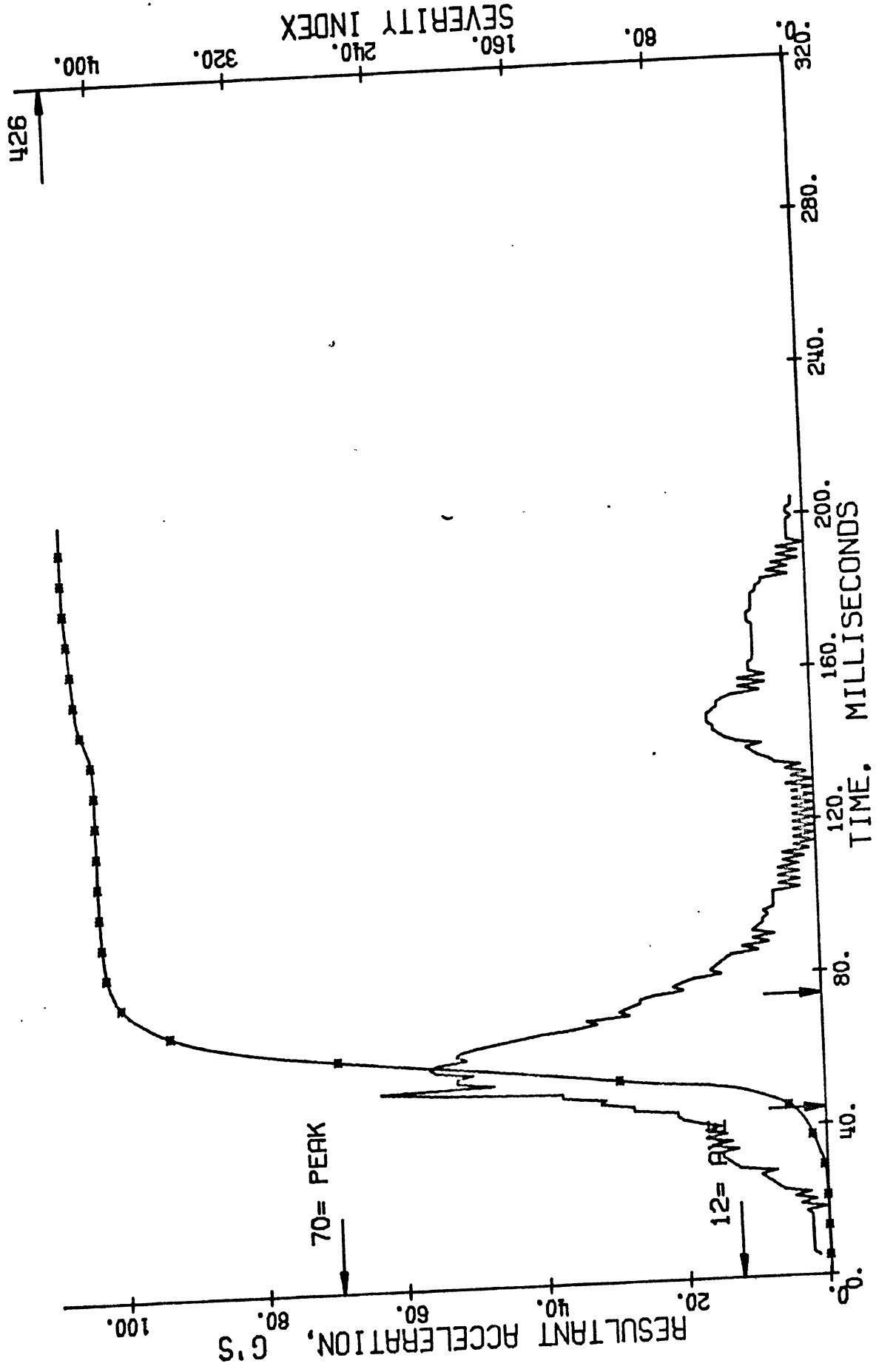


-12.5 MSEC

SEP 27. 1974

H.I.C. = 331

S.I. = 426



A-785

# HSRI CHILD SEAT DATA SUMMARY

Test Number: A-786

Test Date: 9-7-74

Restraint Description: Peterson 75 child seat (passenger side)

Harness Configurations: Volkswagen retractor, left lap belt made of cable  
which prevented load measurement.

Dummy 3 year

Sled Velocity (avg., ft/sec) 45.71

Sled Acceleration ( avg. g's) 21.8 Qualifying Trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>700</u>
	Left Lap	<u>-</u>
	Shoulder	<u>460</u>

Impact Direction: Front

Seat Standard

Test Observations: The Volkswagen belt restraint system worked well.  
The belts cannot be preloaded.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

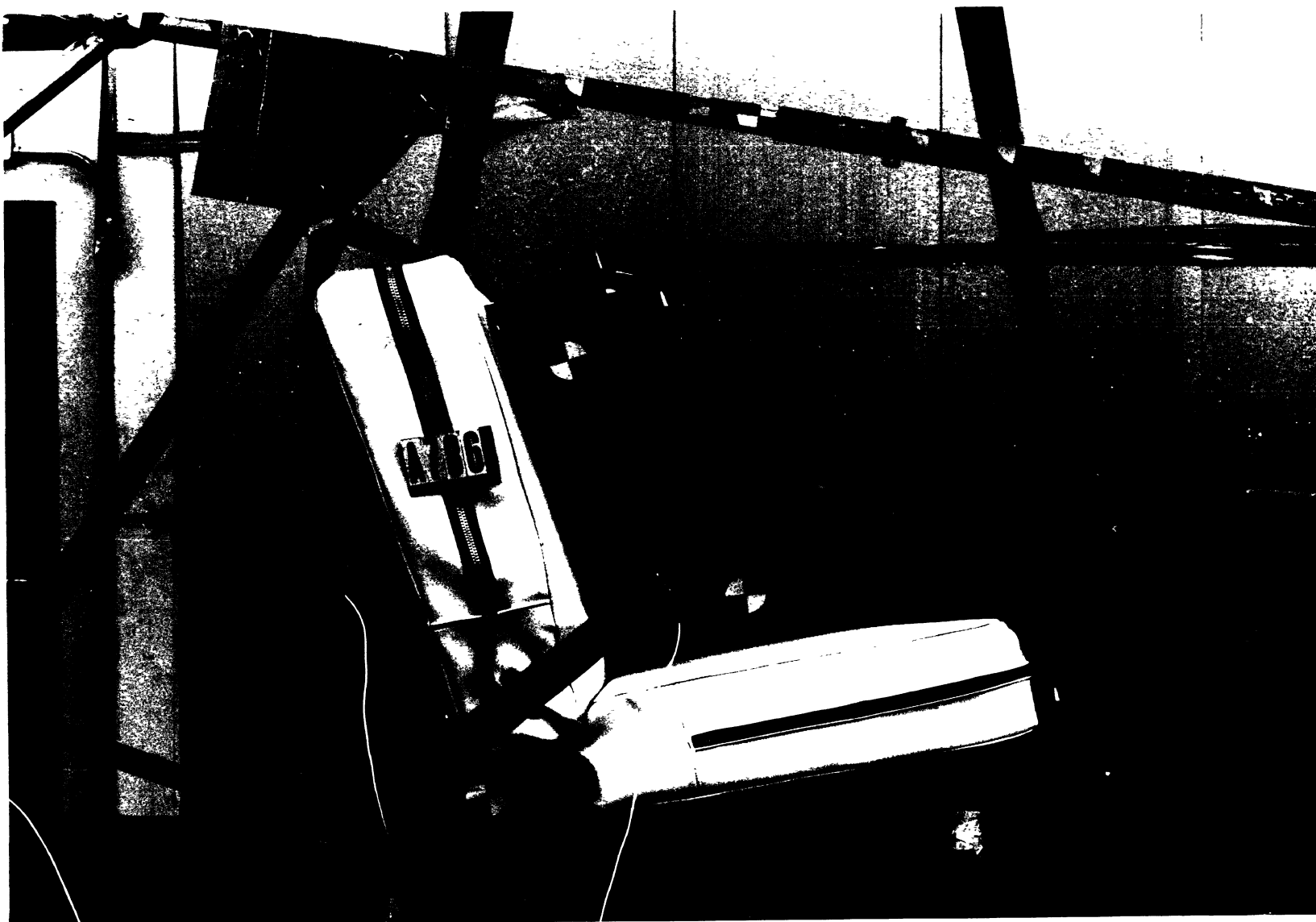


Figure D-24 Test Setup for A-786





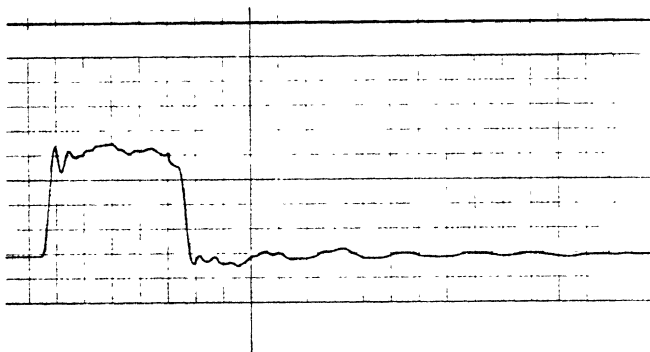
Test No. A-786

Figure D-25 Graph-Check Camera Sequence

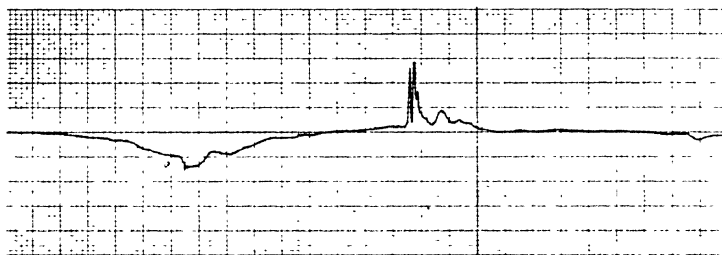
Test Number A-786  
Dummy Sierra  
Sled Velocity 45.71 ft/sec

SUMMARY DATA HEAD ACCELERATIONS  
Test Type FRONT  
PETERSON  
STANDARD

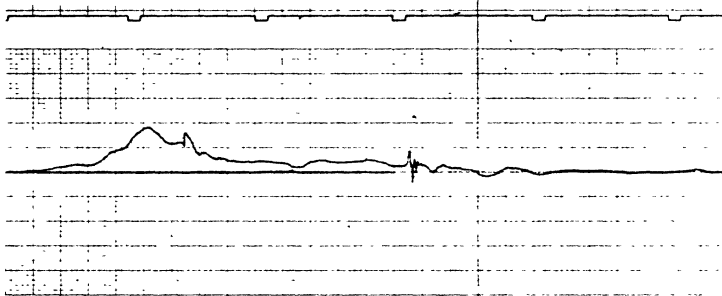
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



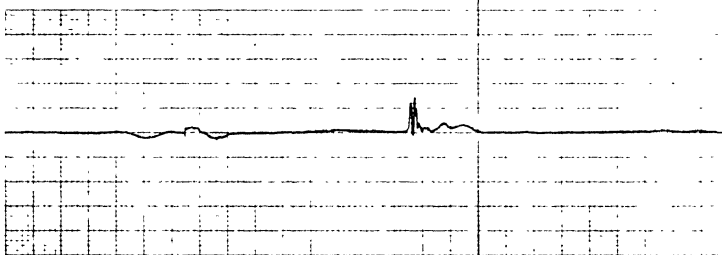
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



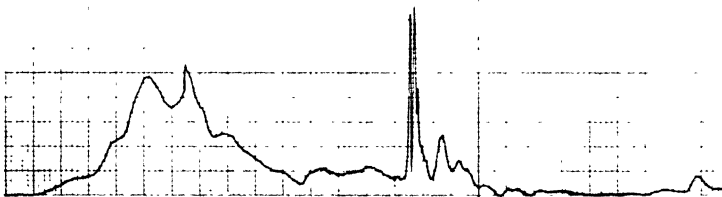
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



SUMMARY DATA CHEST ACCELERATIONS

Test Number A 786

Test Type Front

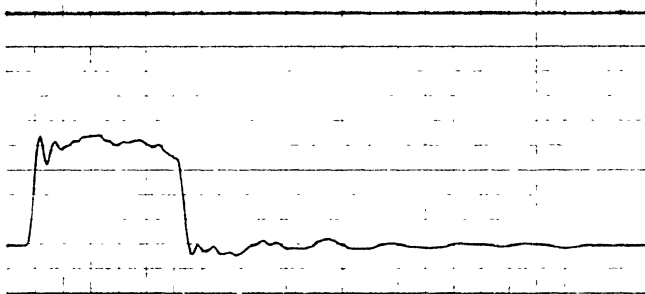
Dummy Sierra 3yr

Peterson

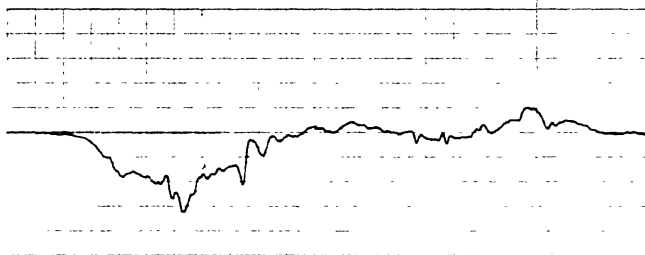
Sled Velocity 45.71 ft/sec

Standard

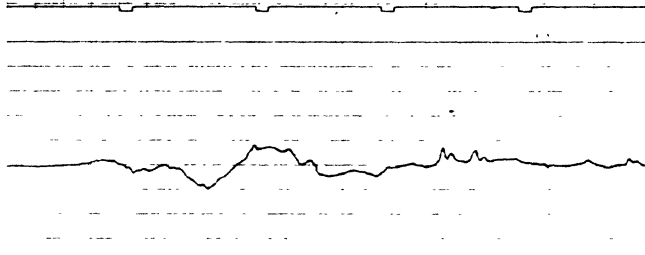
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Chest Accelerations  
2.5 g's/Division  
Filtered  
Class 180

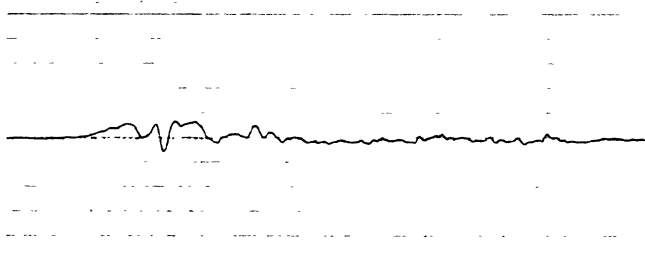


Superior-Inferior  
Chest Accelerations  
2.5 g's/Division  
Filtered  
Class 180

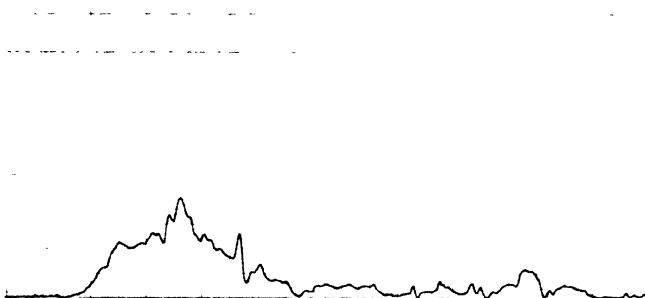


Gould Inc., Instrument Systems Division

Left-Right  
Chest Accelerations  
2.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180

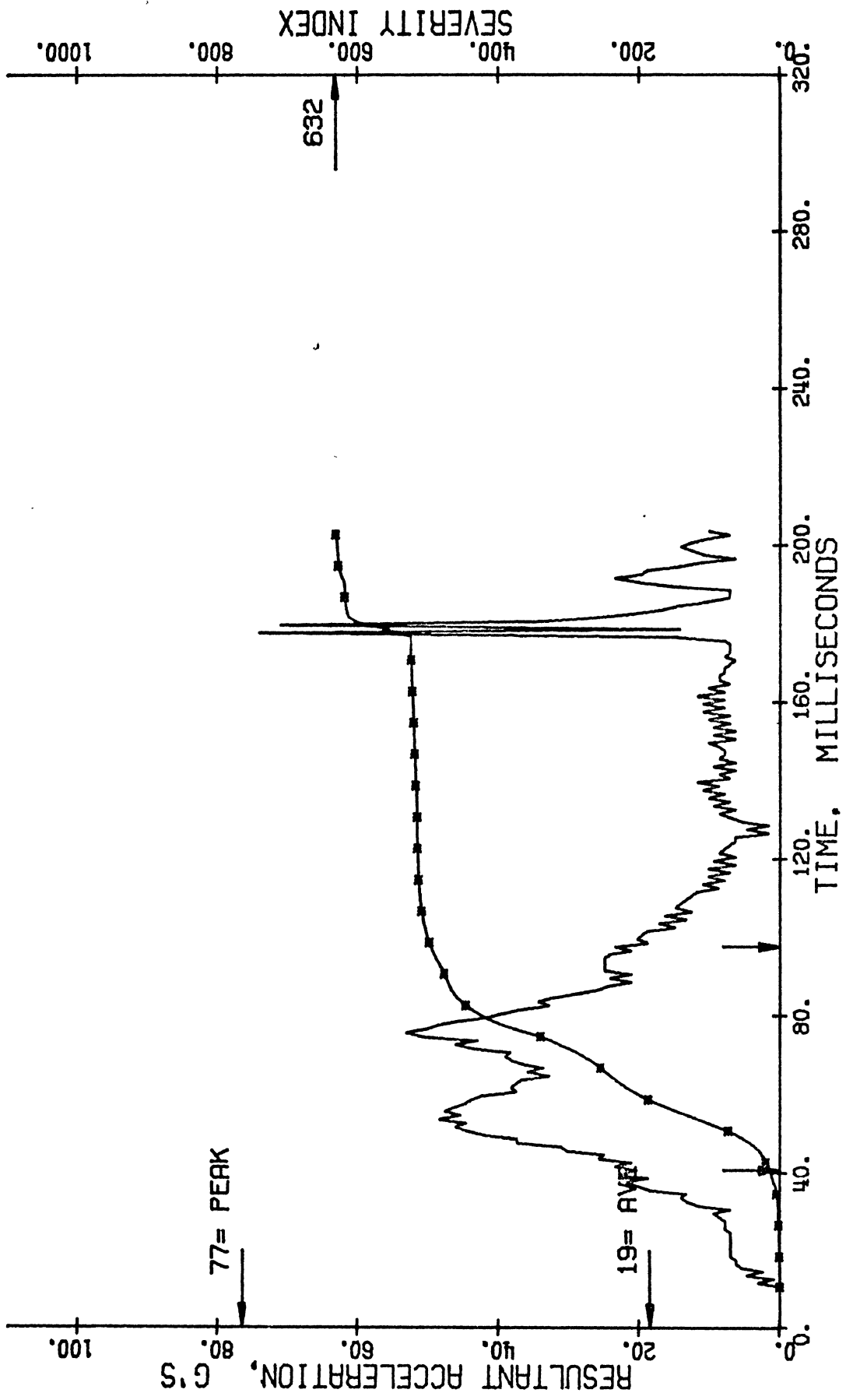


1-12.5 MSEC

SEP 27, 1974

H.I.C. = 431

S.I. = 632



A-786

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-787

Test Date: 9-7-74

Restraint Description: Peterson 75 (child seat) (passenger side)

Harness Configurations: Toyota retractor, lap belt only

Dummy 3 year

Sled Velocity (avg., ft/sec) 45.15

Sled Acceleration ( avg. g's) 21.8 Qualifying Trapezoidal

Belt Loads (peak pounds):           Right Lap       700

  Left Lap         850

  Shoulder       Not used

Impact Direction: Front

Seat                               Standard

Test Observations: The Toyota belt restraint system, lap belt only worked well.  
The shoulder belt is not needed when a Peterson child seat is used in a front  
impact test. The belts cannot be preloaded.

:

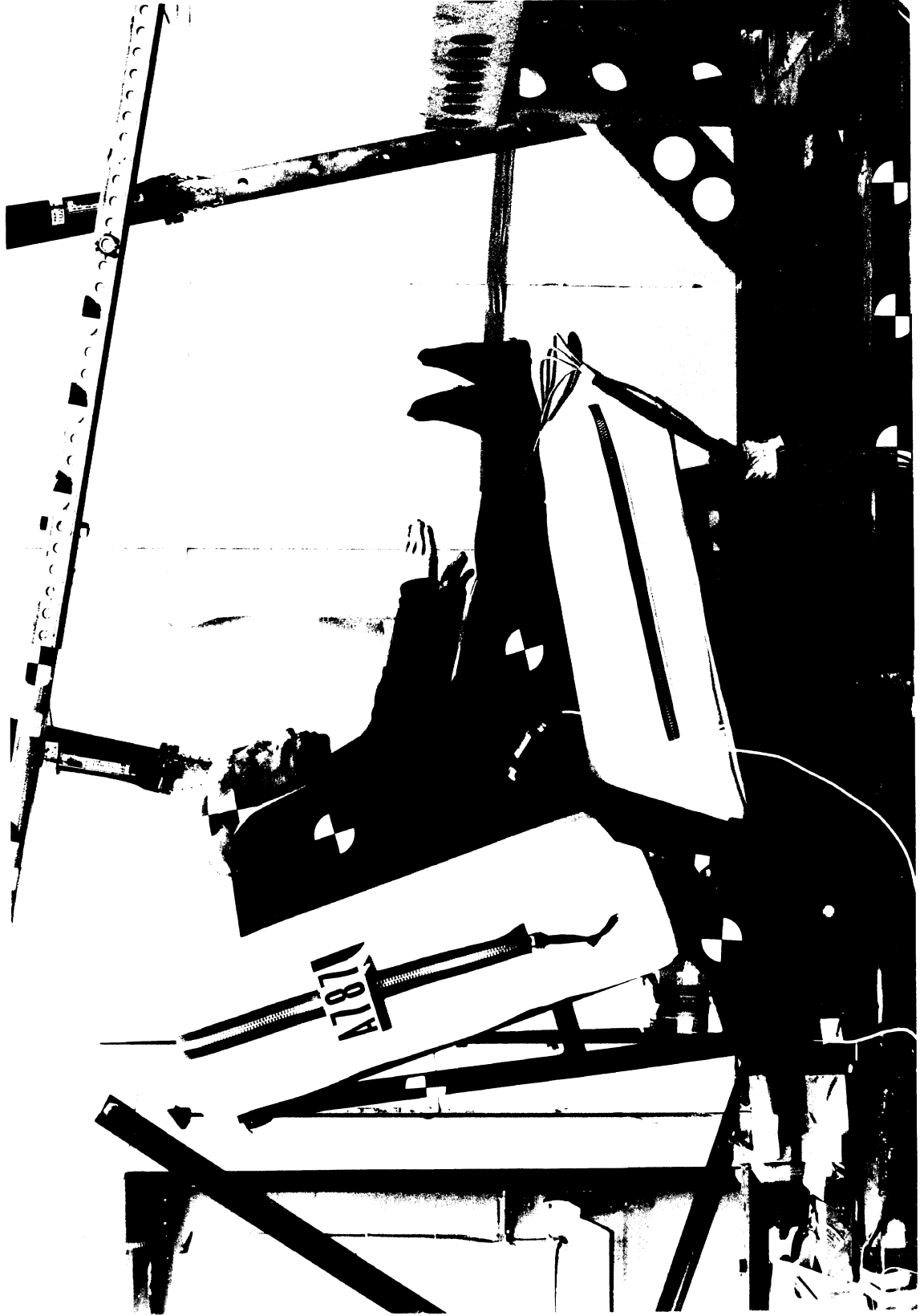


Figure D-26 Test Setup for A-787



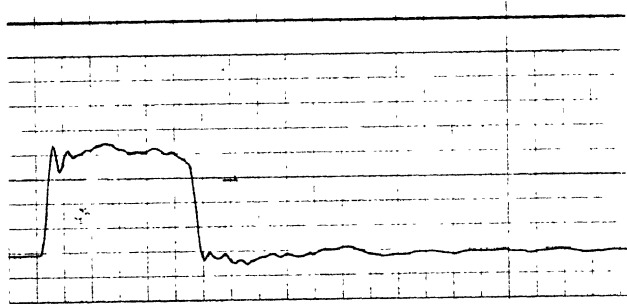
Test No. A-787

Figure D-27 Graph-Check Camera Sequence

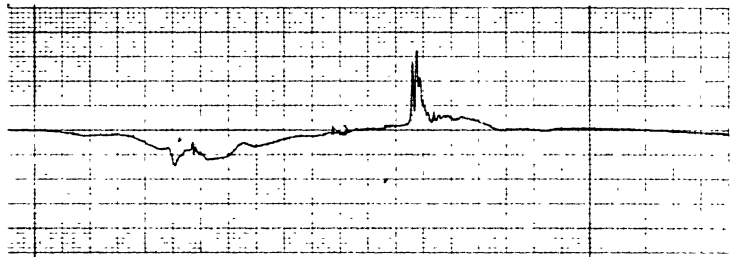
Test Number A-787  
Dummy Sierra 3yr  
Sled Velocity 45.15 ft/sec

SUMMARY DATA HEAD ACCELERATIONS  
Test Type FRONT  
PETERSON  
STANDARD

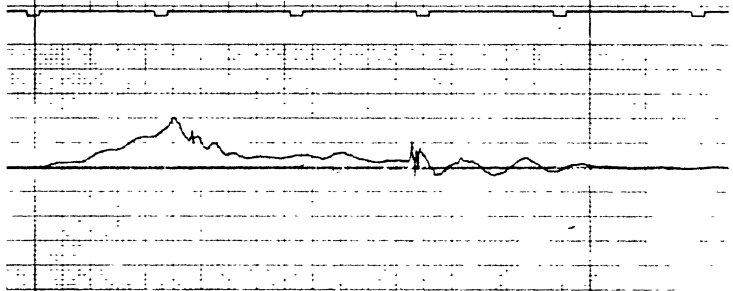
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



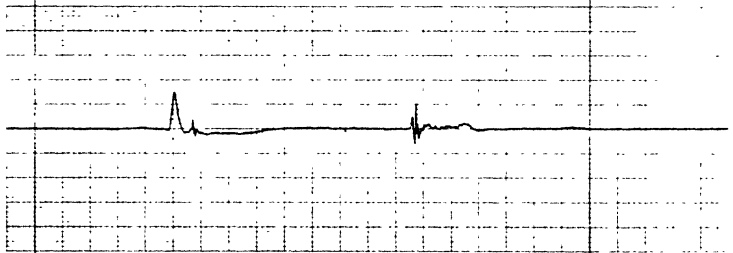
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



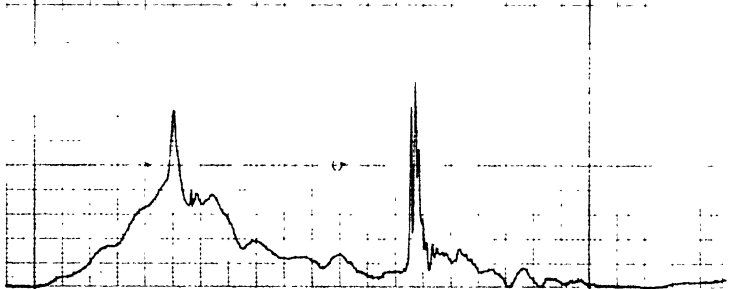
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



1-12.5 MSE



SUMMARY DATA CHEST ACCELERATIONS

Test Number A 787

Test Type FRONT

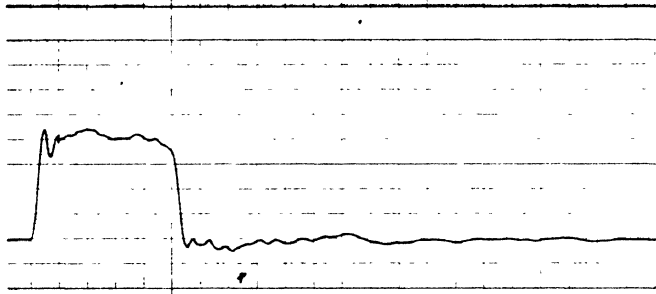
Dummy Sierra 3yr

PETERSON

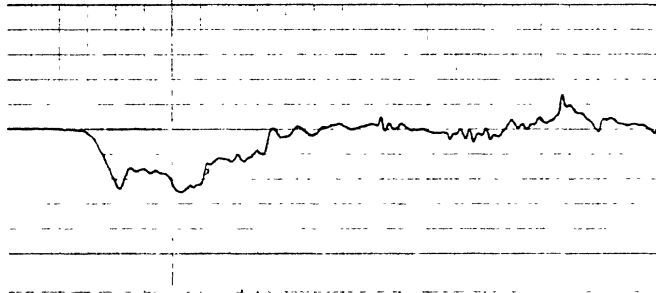
Sled Velocity 45.15 ft/sec

STANDARD

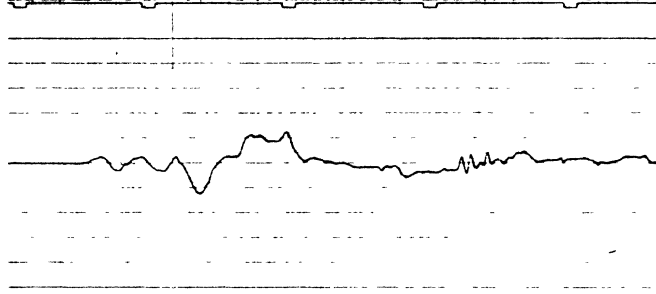
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



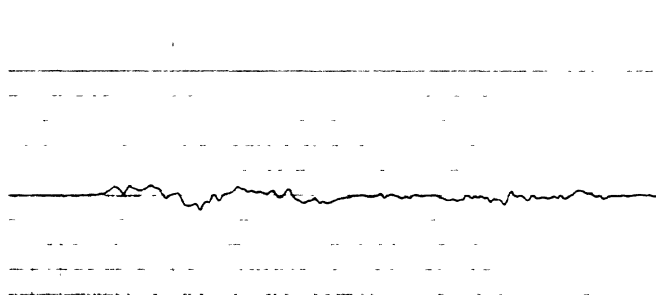
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



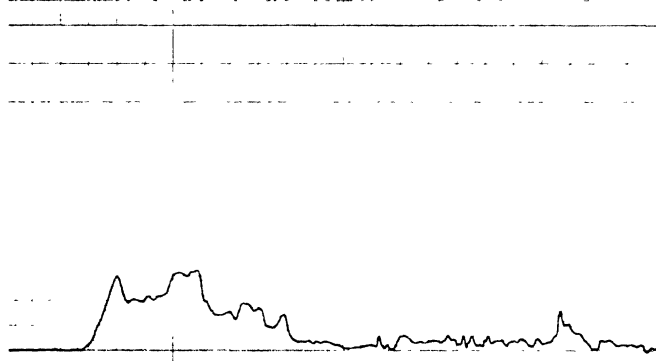
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180

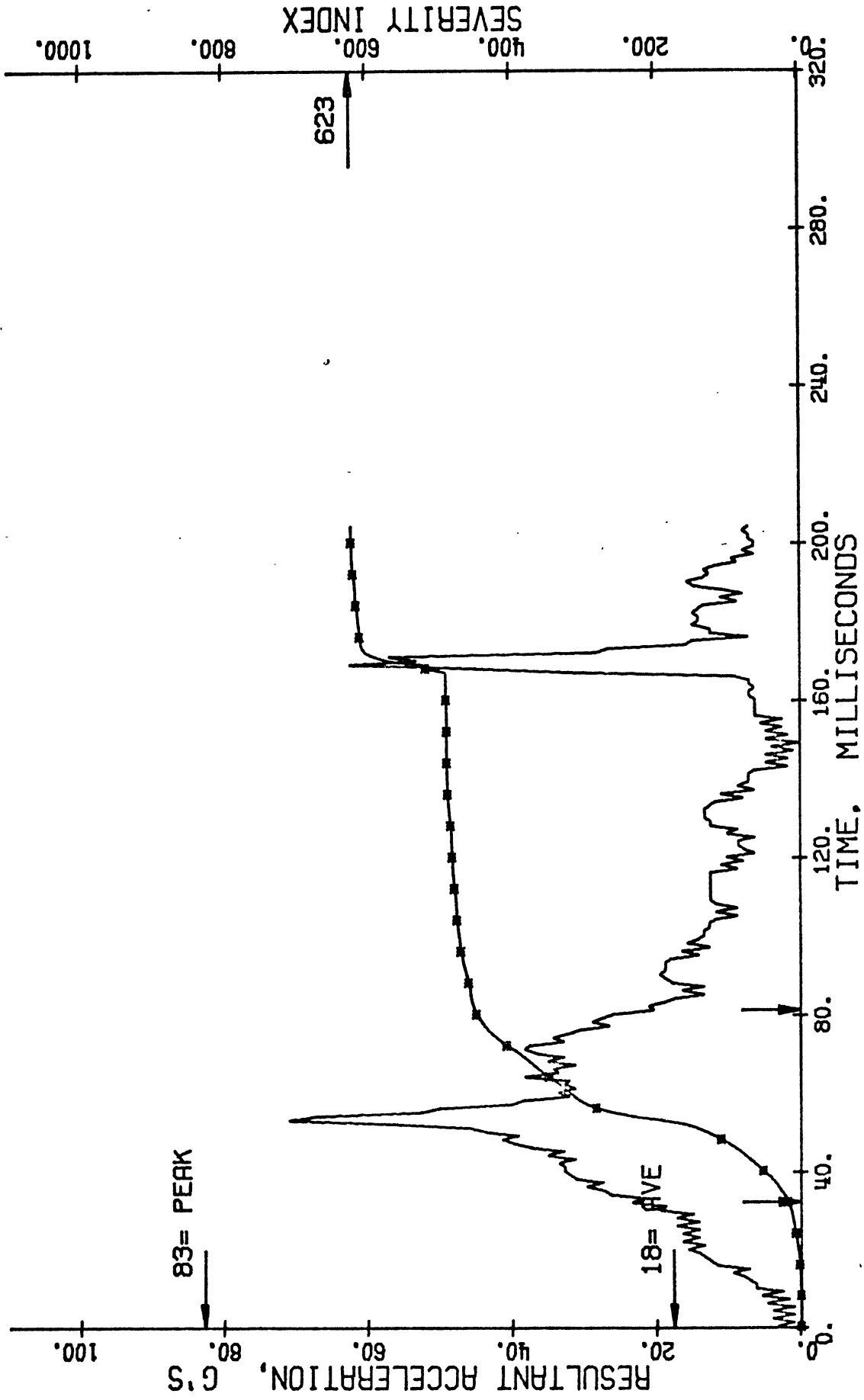


1-12.5 MSEC

SEP 27, 1974

H.I.C. = 382

S.I. = 623



A-787

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-788

Test Date: 9-8-74

Restraint Description: Peterson 75 child seat (passenger side)

Harness Configurations: Toyota retractor, lap belt only

Dummy 3 year

Sled Velocity (avg., ft/sec) 29.54

Sled Acceleration ( avg. g's) 16.6 Qualifying Trapezoidal

Belt Loads (peak pounds):  
Right Lap 0, Rebound 50  
Left Lap 0, Rebound 50  
Shoulder Not used

Impact Direction: Rear

Seat Standard

Test Observations: The Toyota belt restraint system worked well. The belts cannot be preloaded.

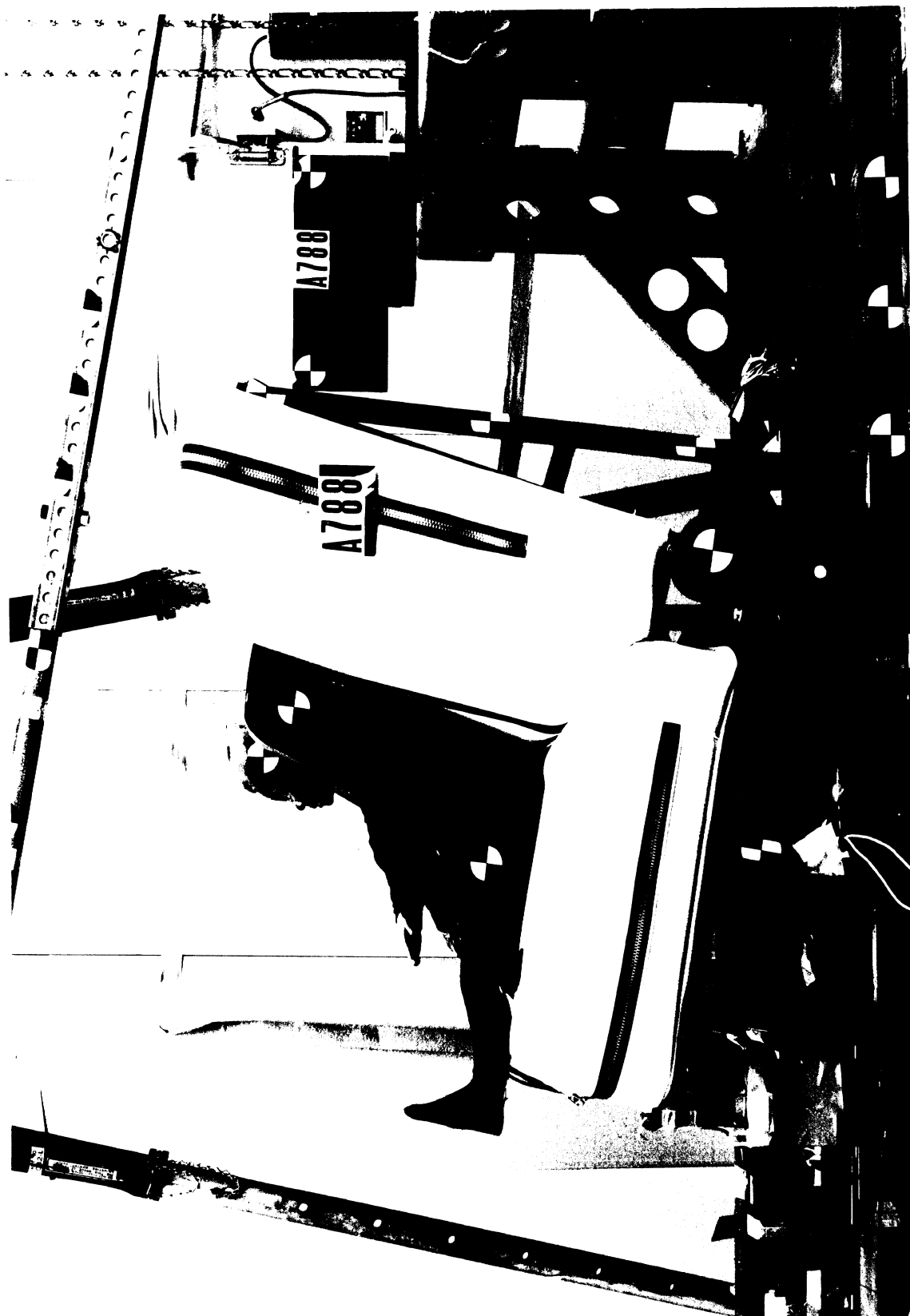


Figure D-28 Test Setup for A-788



Test No. A-788

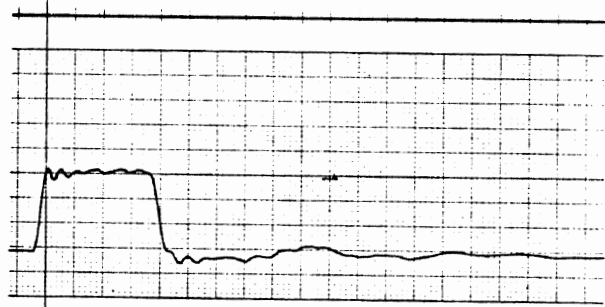
Figure D-29 Graph-Check Camera Sequence

Test Number A-788  
Dummy Sierra 3yr  
Sled Velocity 29.54 ft/sec

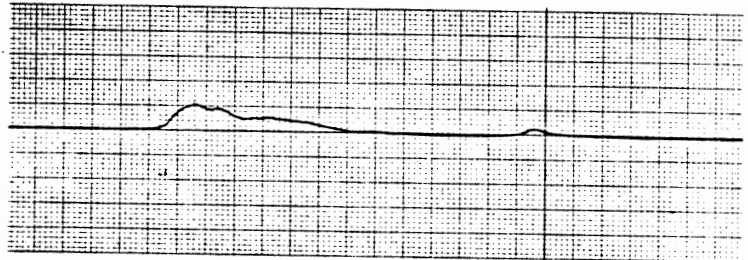
SUMMARY DATA HEAD ACCELERATIONS

Test Type REAR  
PETERSON  
STANDARD

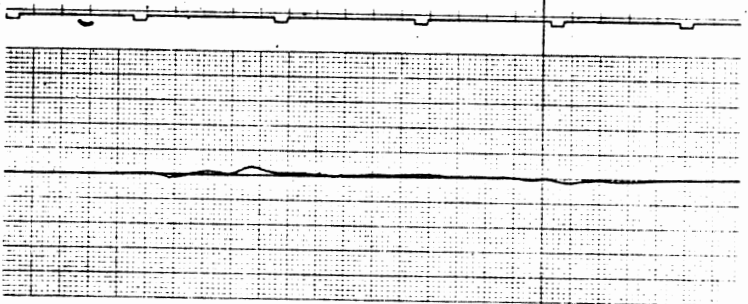
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



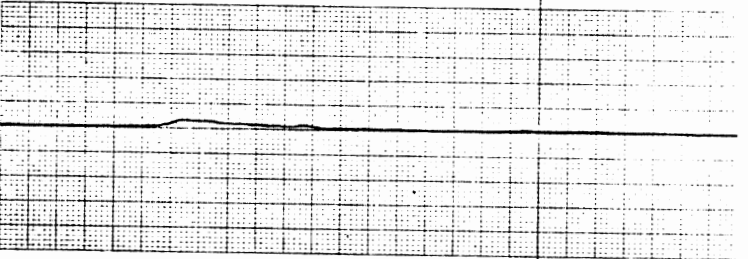
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



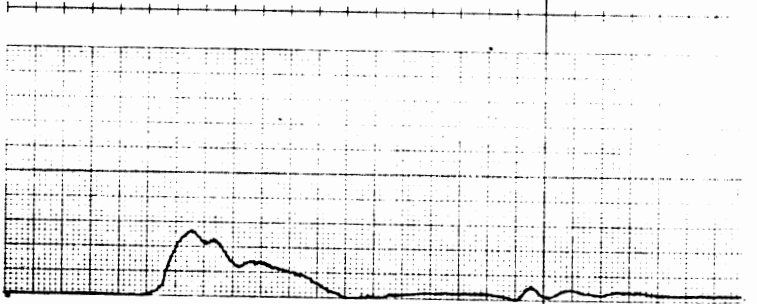
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



1-12.5 MSEC

SUMMARY DATA CHEST ACCELERATIONS

Test Number A 788

Test Type REAR

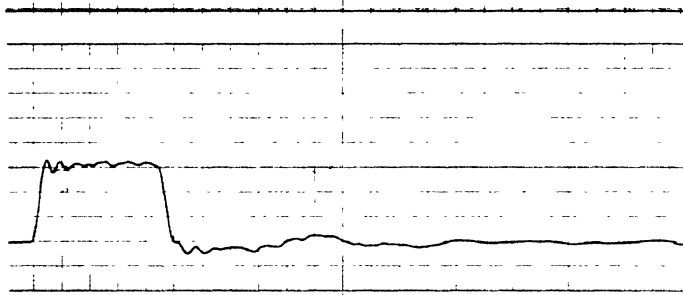
Dummy Sierra 3yr

PETERSON

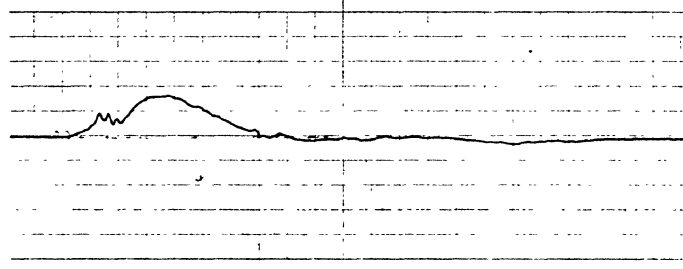
Sled Velocity 29.54 ft/sec

STANDARD

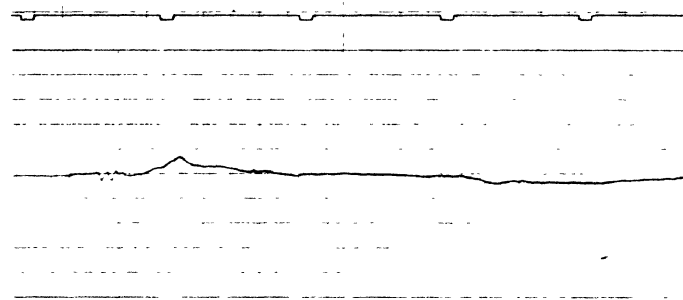
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



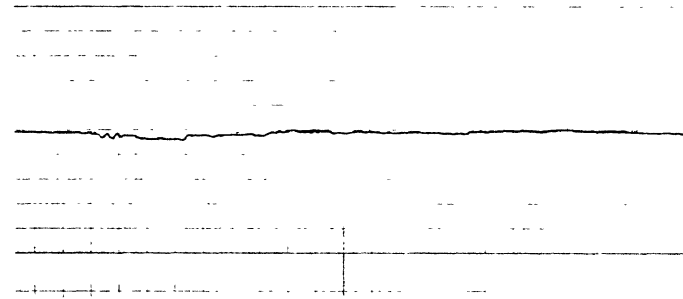
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



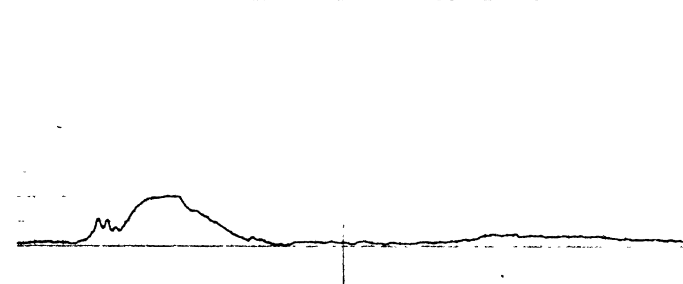
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180

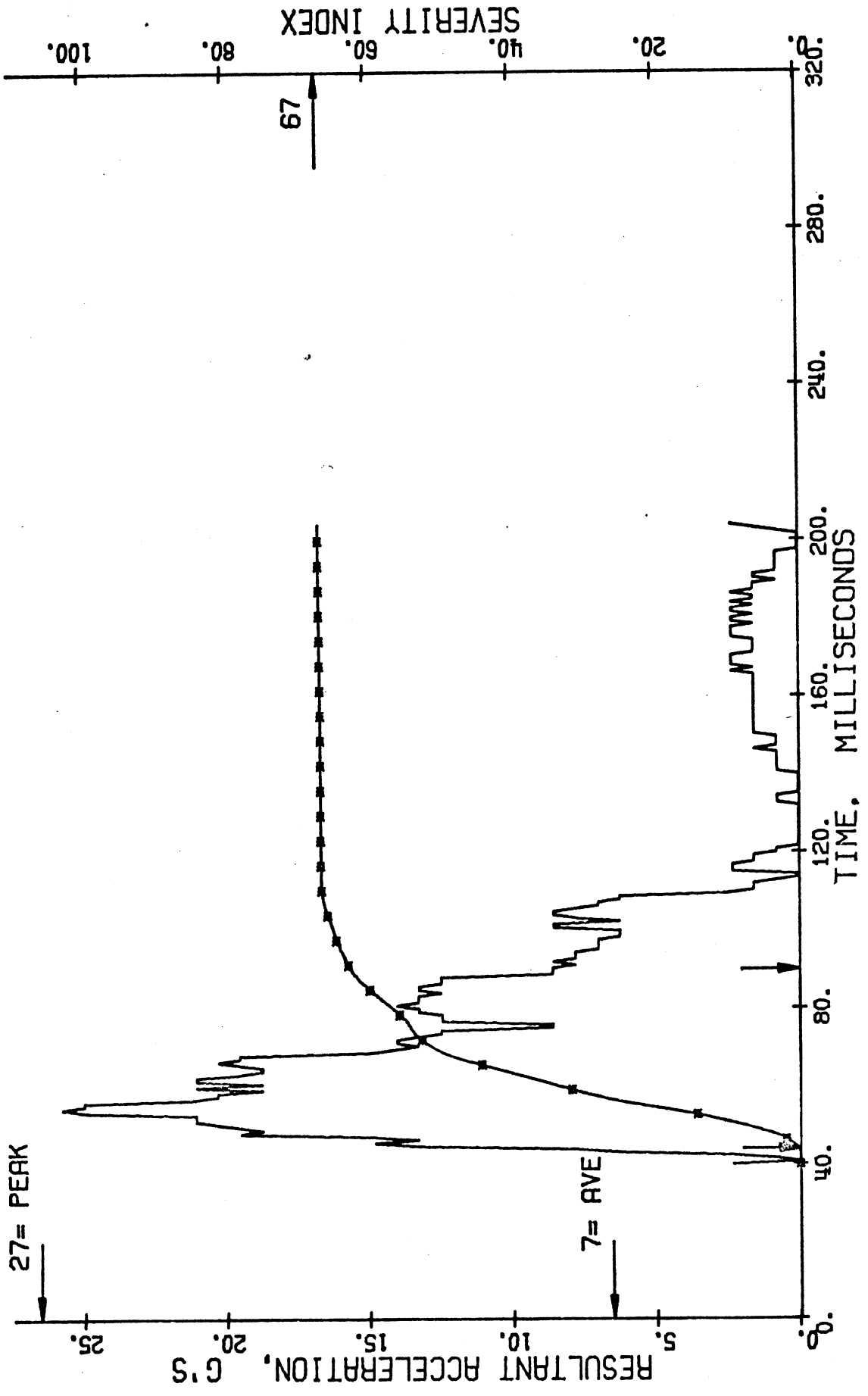


1-12.5 MSEC

SEP 27, 1974

H.I.C. = 55

S.I. = 67



A-788



HSRI CHILD SEAT DATA SUMMARY

Test Number: A-789

Test Date: 9-8-74

Restraint Description: Peterson 75 Child seat (driver side)

Harness Configurations: Datsun retractor, lap belt only, right lap belt made of cable prevented right lap belt load measurement.

Dummy 3 year

Sled Velocity (avg., ft/sec) 29.06

Sled Acceleration ( avg. g's) 16.8 Qualifying trapezoidal

Belt Loads (peak pounds):  
Right Lap -  
Left Lap 0, Rebound 75  
Shoulder Not used

Impact Direction: Rear

Seat Standard

Test Observations: The Datsun belt restraint system, lap only, worked well.  
The shoulder belt is not needed when a Peterson Child seat is used in a front impact test.

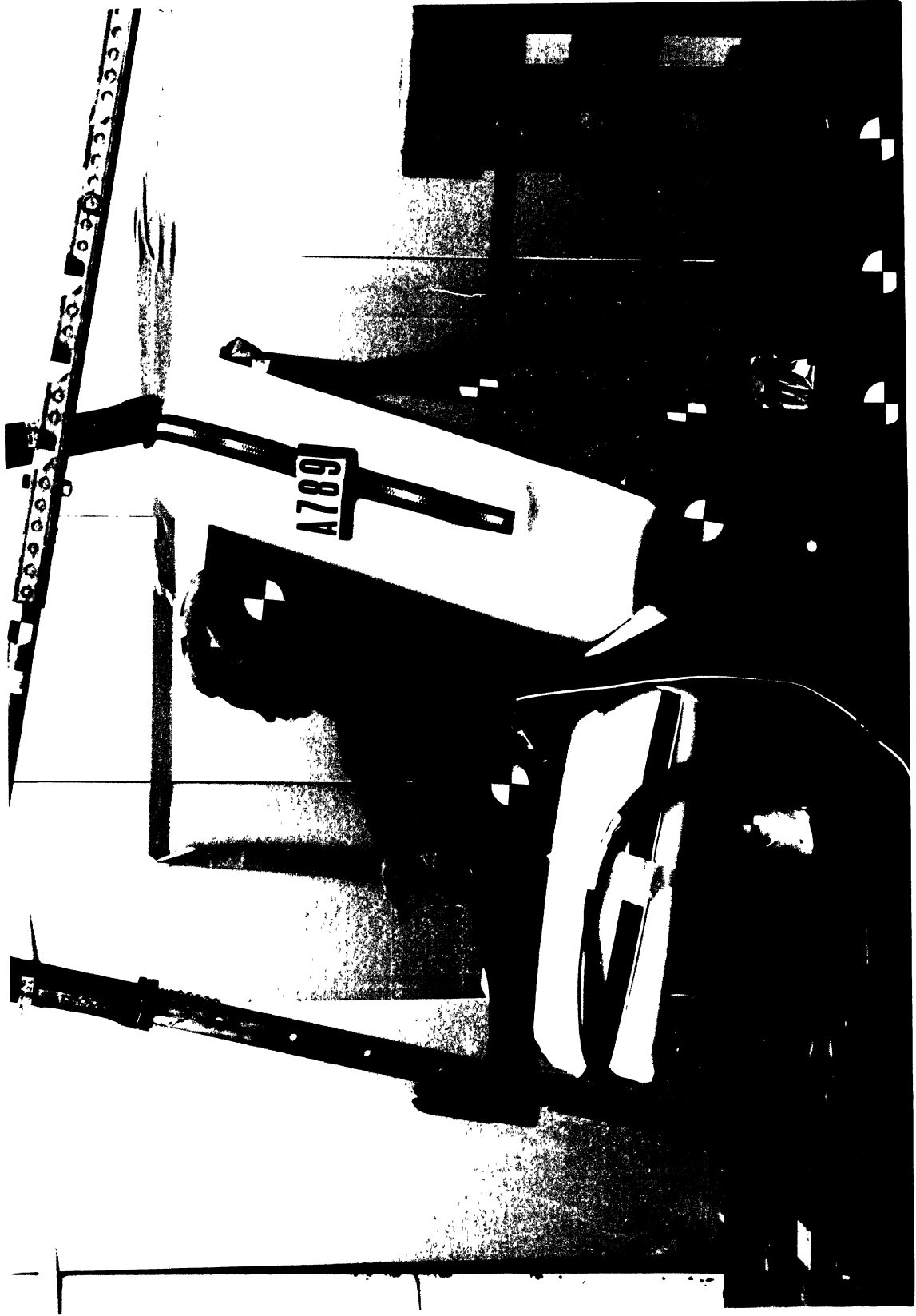


Figure D-30 Test Setup for A-789



Test No. A-789

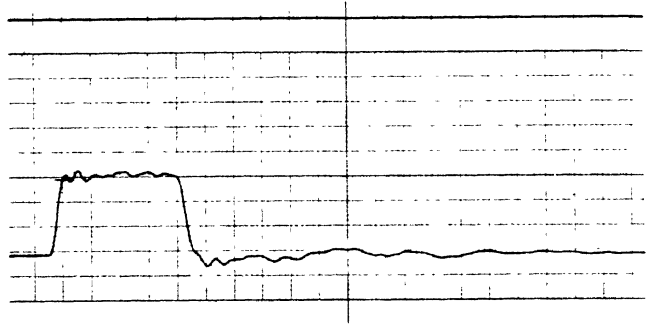
Figure D-31 Graph-Check Camera Sequence

Test Number A-789  
Dummy Sierra 3yr  
Sled Velocity 29.06ft/sec

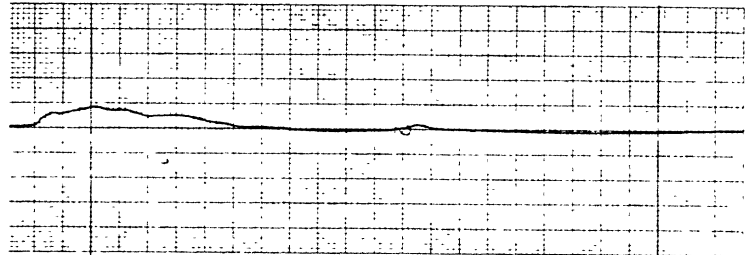
SUMMARY DATA HEAD ACCELERATIONS

Test Type REAR  
PETERSON  
STANDARD

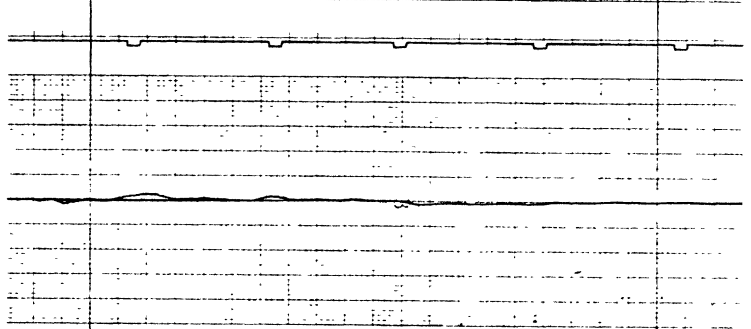
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



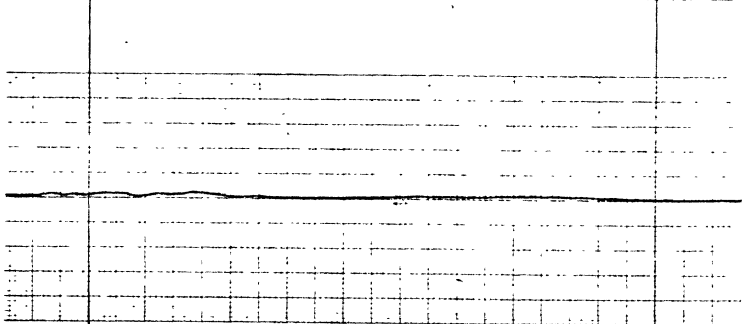
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



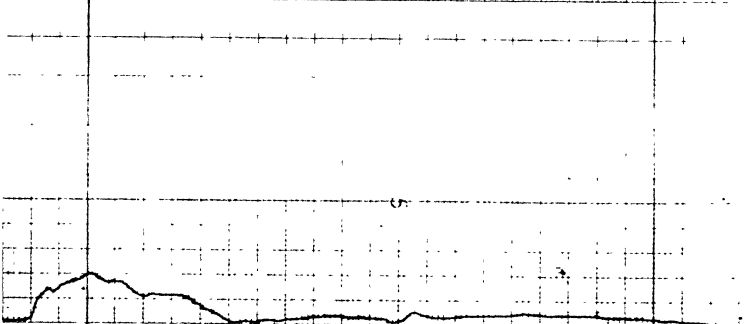
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



1-12.5 MSEC

SUMMARY DATA CHEST ACCELERATIONS

Test Number A 789

Test Type REAR

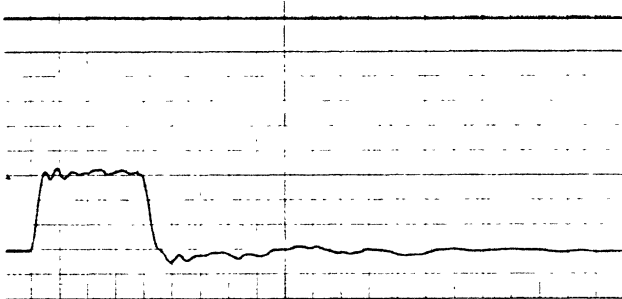
Dummy Sierra 3yr

PETERSON

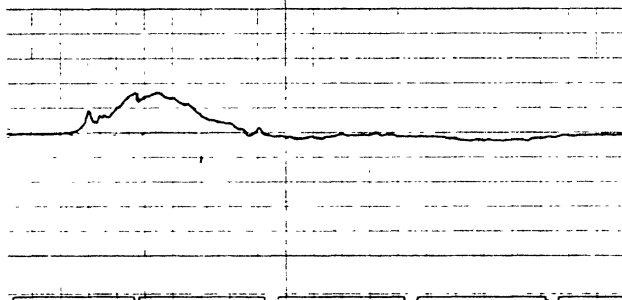
Sled Velocity 29.06ft/sec

STANDARD

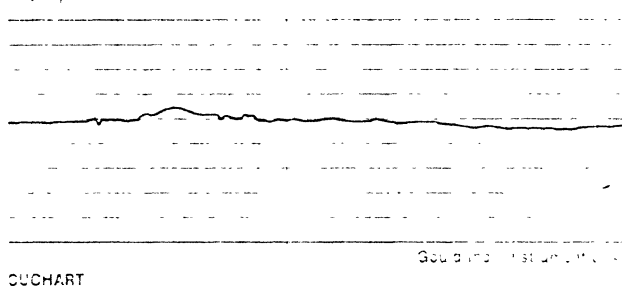
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Chest Accelerations  
2.5 g's/Division  
Filtered  
Class 180

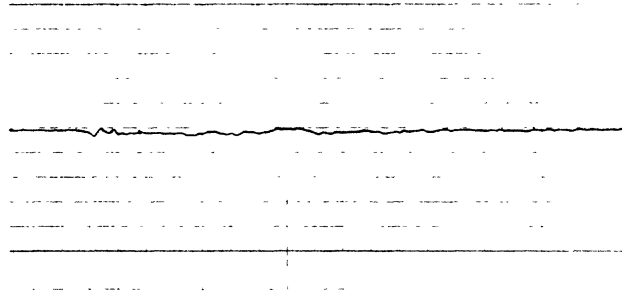


Superior-Inferior  
Chest Accelerations  
2.5 g's/Division  
Filtered  
Class 180

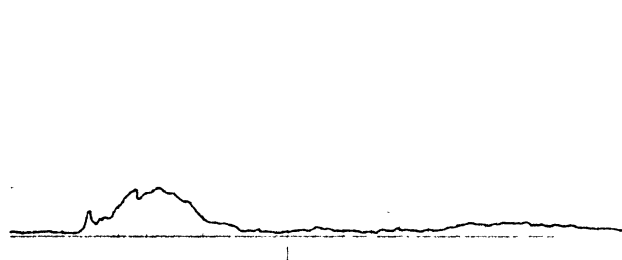


DUCHART

Left-Right  
Chest Accelerations  
2.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
1.0 g's/Division  
Filtered  
Class 180

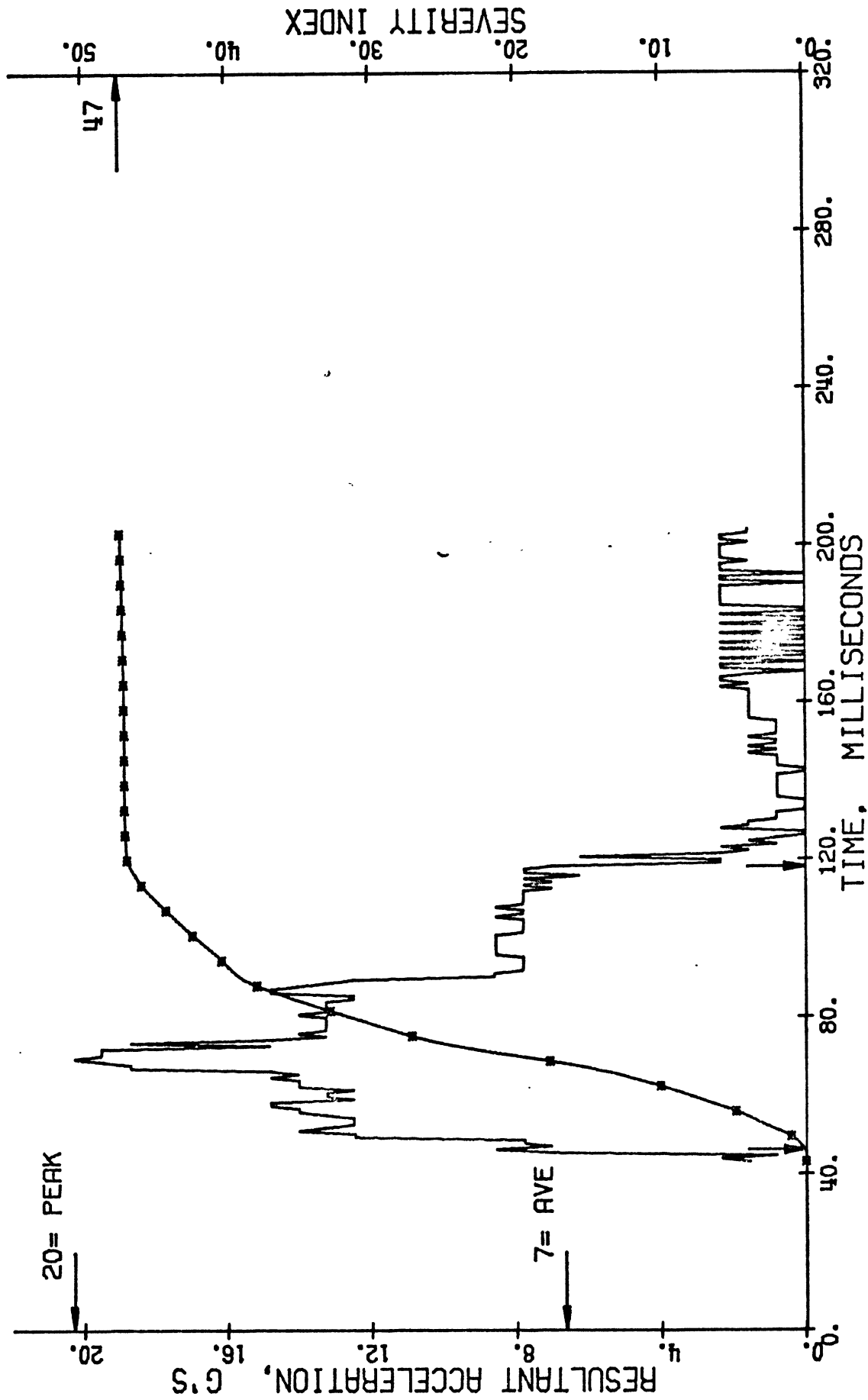


1-12.5 MSEC

SEP 27, 1974

H.I.C. = 41

S.I. = 47



A-789

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-790

Test Date: 9-8-74

Restraint Description: GM Child Love Seat (driver side)

Harness Configurations: Chrysler retractor, double belt prevented right lap  
belt load measurement.

Dummy 3 year

Sled Velocity (avg., ft/sec) 29.9

Sled Acceleration ( avg. g's) 16.8 Qualifying trapezoidal

Belt Loads (peak pounds):  
Right Lap -  
Left Lap 200  
Shoulder 0

Impact Direction: Rear

Seat Standard

Test Observations: The Chrysler belt restraint system worked well. The  
shoulder belt is not needed when a GM child love seat is used in a front  
impact test.



Figure D-32 Test Setup for A-790





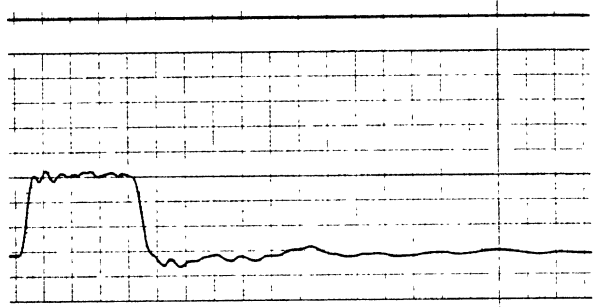
Test No. A-790

Figure D-33 Graph-Check Camera Sequence

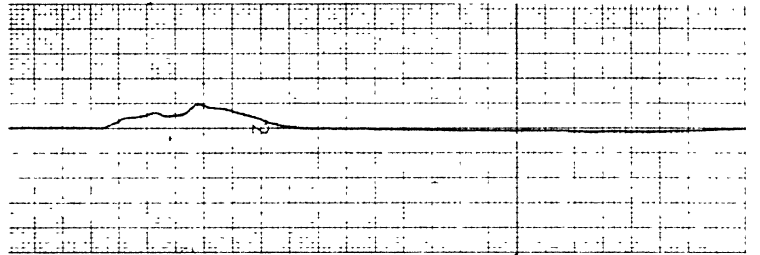
Test Number A-790  
Dummy Sierra 3yr  
Sled Velocity 29.90ft/sec

SUMMARY DATA HEAD ACCELERATIONS  
Test Type REAR  
LOVE SEAT  
STANDARD

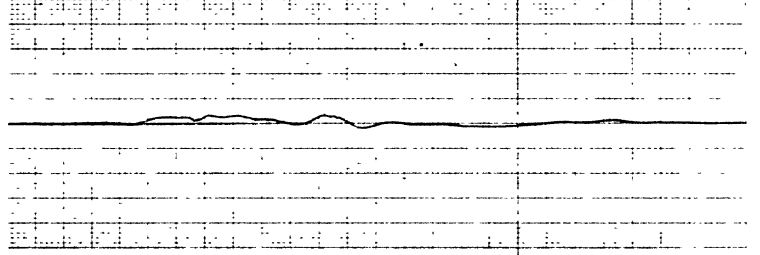
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



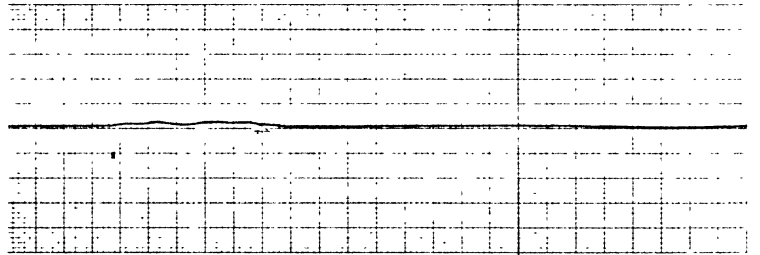
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



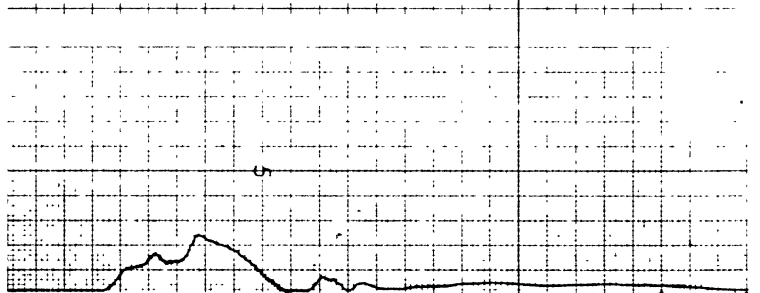
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



SUMMARY DATA CHEST ACCELERATIONS

Test Number A 790

Test Type REAR

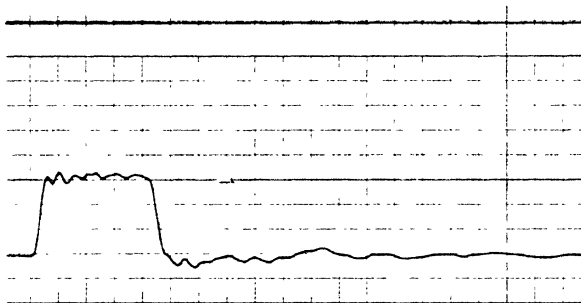
Dummy Sierra 3yr

LOVE SEAT

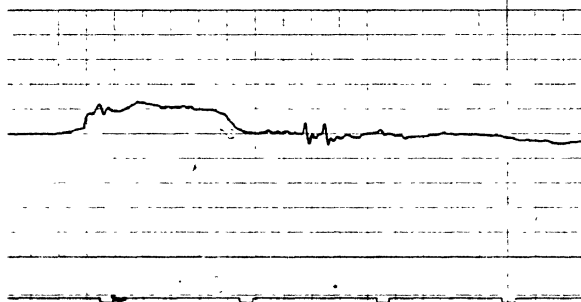
Sled Velocity 29.90ft/sec

STANDARD

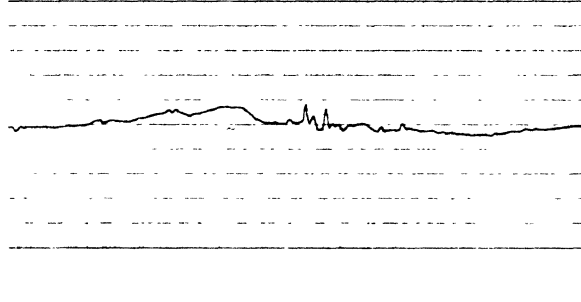
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



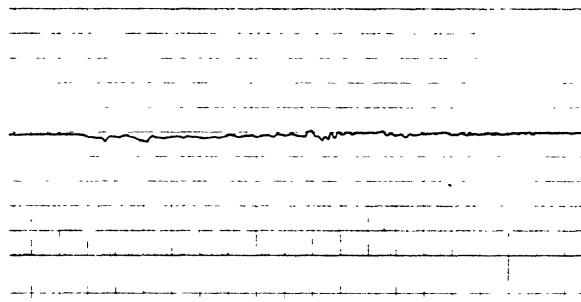
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



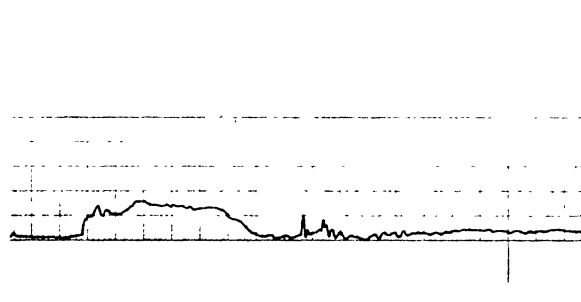
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180

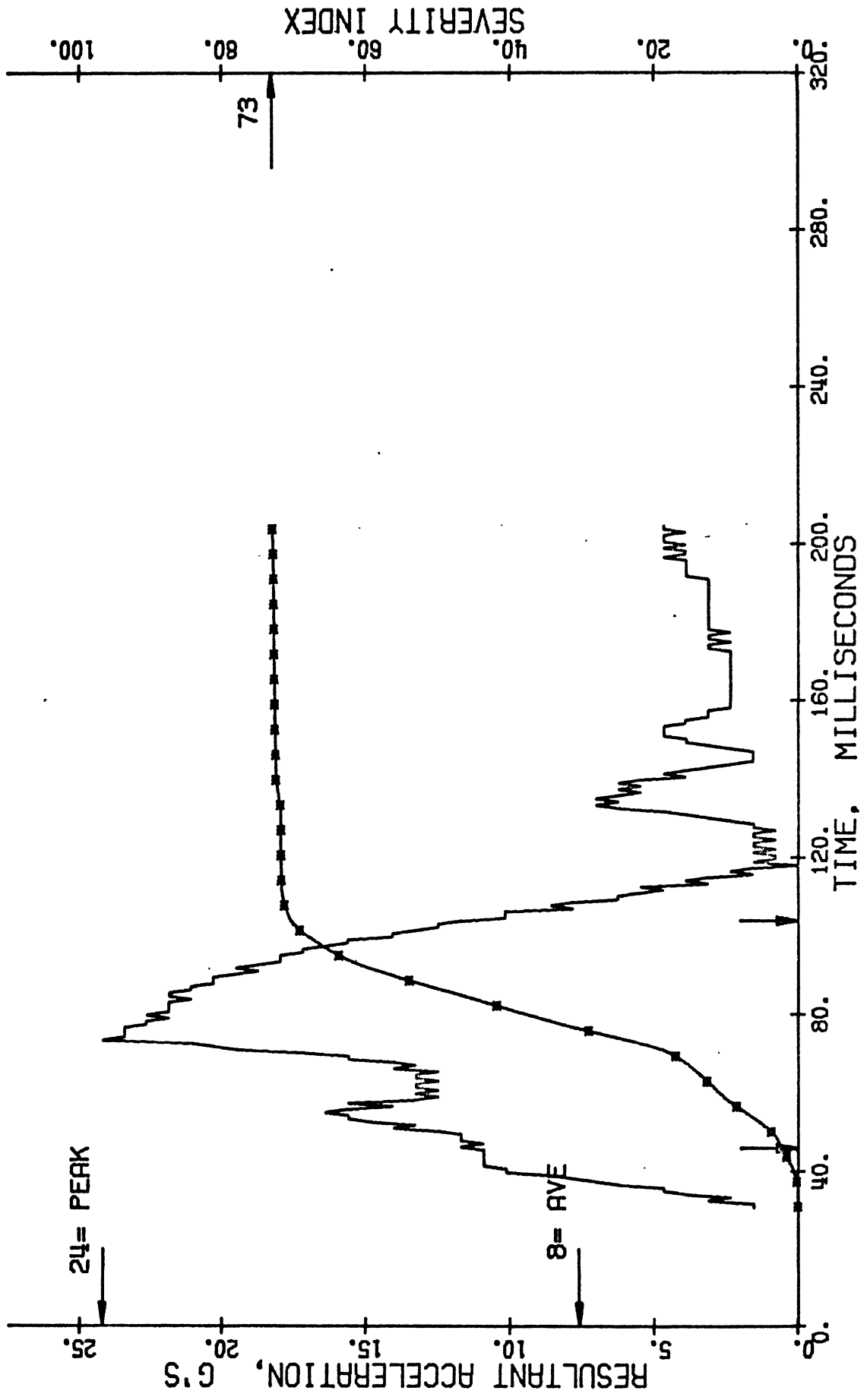


1 | 12.5 MSEC

SEP 27, 1974

H.I.C. = 62

S.I. = 73



A-790

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-791

Test Date: 9-8-74

Restraint Description: Peterson 75 infant seat (driver side)

Harness Configurations: GM retractor, lap belt only

Dummy 6 month

Sled Velocity (avg., ft/sec) 32.00

Sled Acceleration ( avg. g's) 16.8 Qualifying trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>100</u>
	Left Lap	<u>150</u>
	Shoulder	<u>0</u>

Impact Direction: Rear

Seat Standard

Test Observations: The GM belt restraint system worked well.

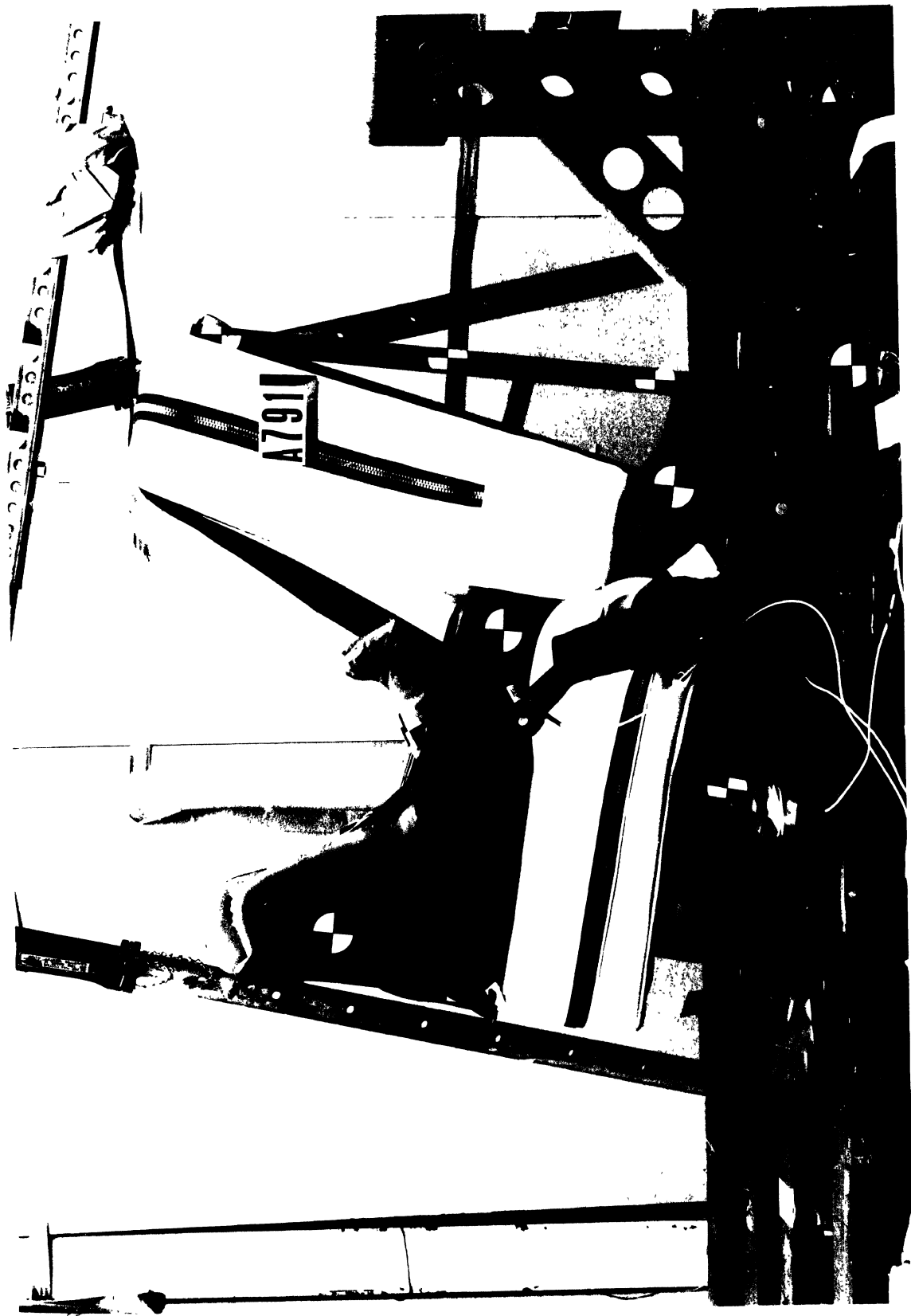


Figure D-34 Test Setup for A-791



8

Test No. A-791

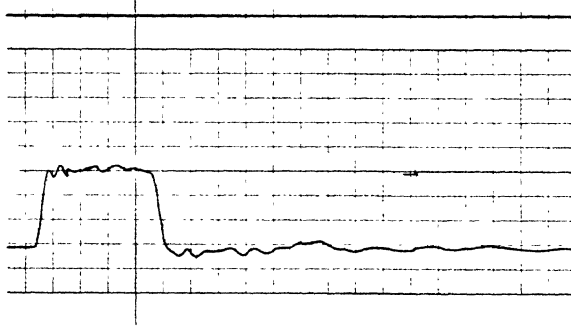
Figure D-35 Graph-Check Camera Sequence

SUMMARY DATA HEAD ACCELERATIONS

Test Number A 791  
Dummy 6 month  
Sled Velocity 32.00ft/sec

Test Type REAR  
PETERSON  
STANDARD

Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



HSRI CHILD SEAT DATA SUMMARY

Test Number: A-792

Test Date: 9-8-74

Restraint Description: Peterson 75 (child) (driver side)

Harness Configurations: Ford retractor, lap belt only

Dummy 3 year

Sled Velocity (avg., ft/sec) Loss of data

Sled Acceleration ( avg. g's) 16.8 Qualifying Trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>50</u>
	Left Lap	<u>100</u>
	Shoulder	<u>0</u>

Impact Direction: Rear

Seat Standard

Test Observations: The Ford belt restraint system worked well.

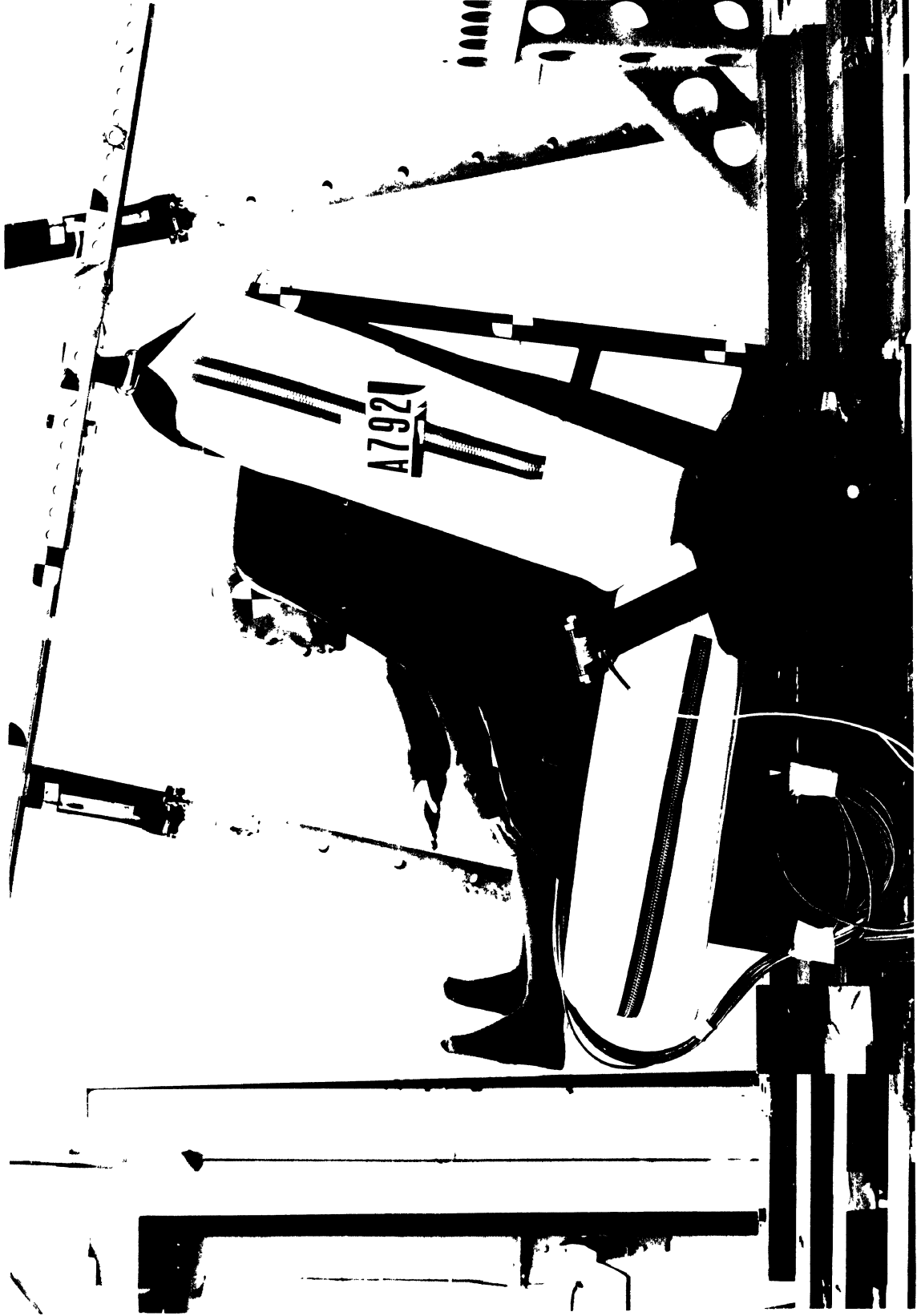


Figure D-36 Test Setup for A-792



Test No. A-792

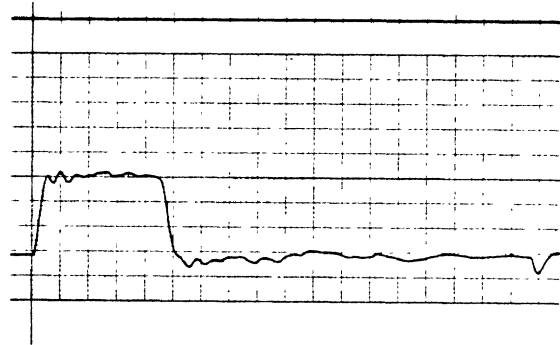
Figure D-37 Graph-Check Camera Sequence

Test Number A-792  
Dummy Sierra 3yr  
Sled Velocity \_\_\_\_\_ ft/sec

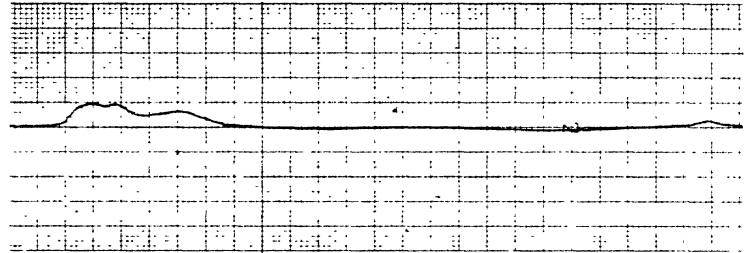
SUMMARY DATA HEAD ACCELERATIONS

Test Type REAR  
PETERSON  
STANDARD

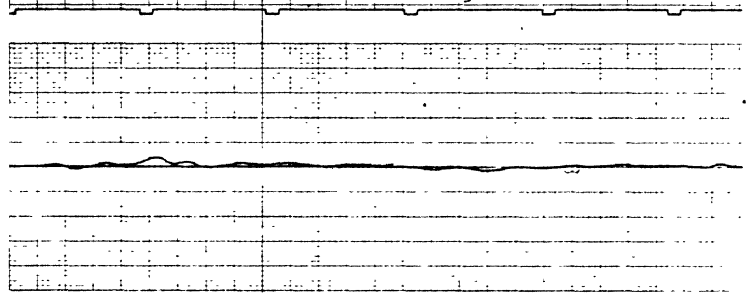
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



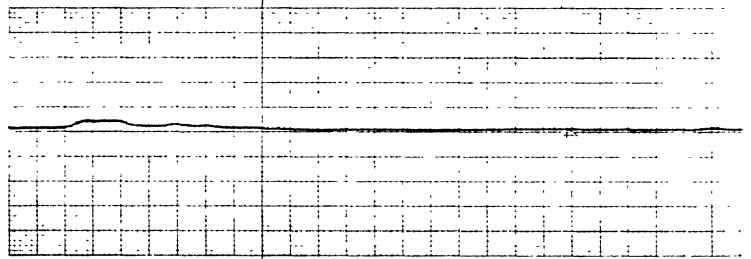
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



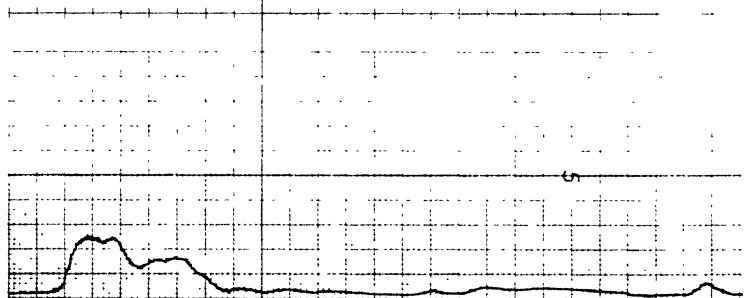
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



SUMMARY DATA CHEST ACCELERATIONS

Test Number A 792

Test Type REAR

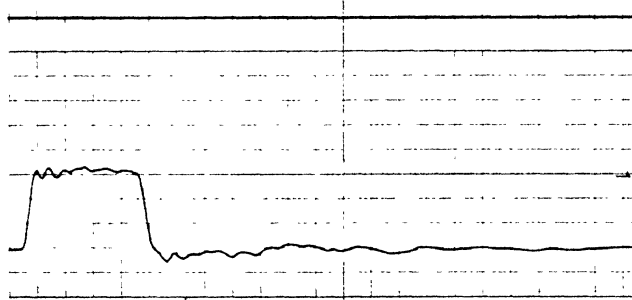
Dummy Sierra 3yr

PETERSON

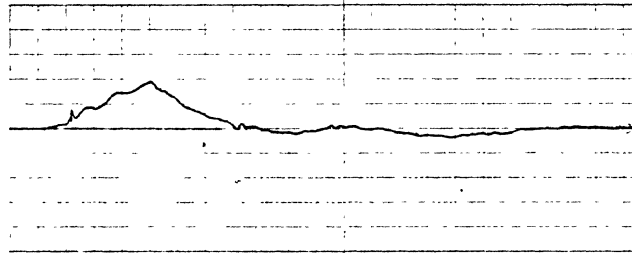
Sled Velocity \_\_\_\_\_ ft/sec

STANDARD

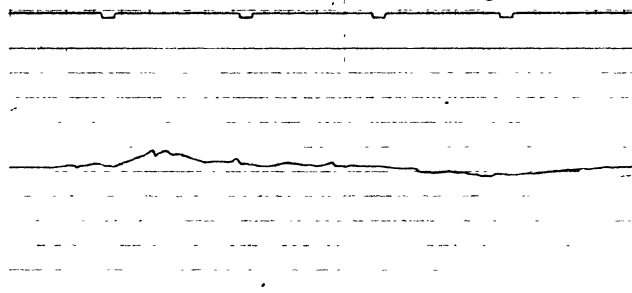
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Chest Accelerations  
2.5 g's/Division  
Filtered  
Class 180

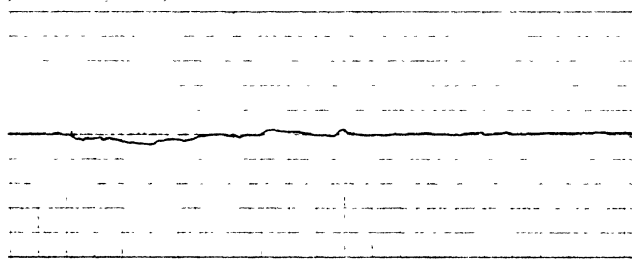


Superior-Inferior  
Chest Accelerations  
2.5 g's/Division  
Filtered  
Class 180

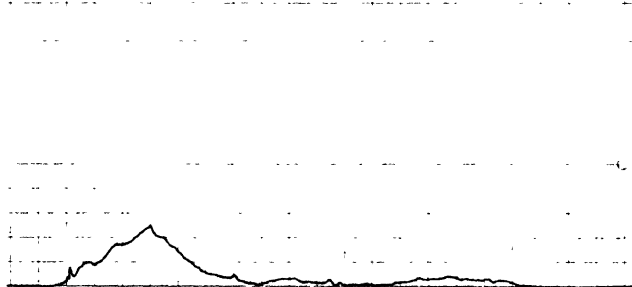


Instrument Systems Division

Left-Right  
Chest Accelerations  
2.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
1.0 g's/Division  
Filtered  
Class 180

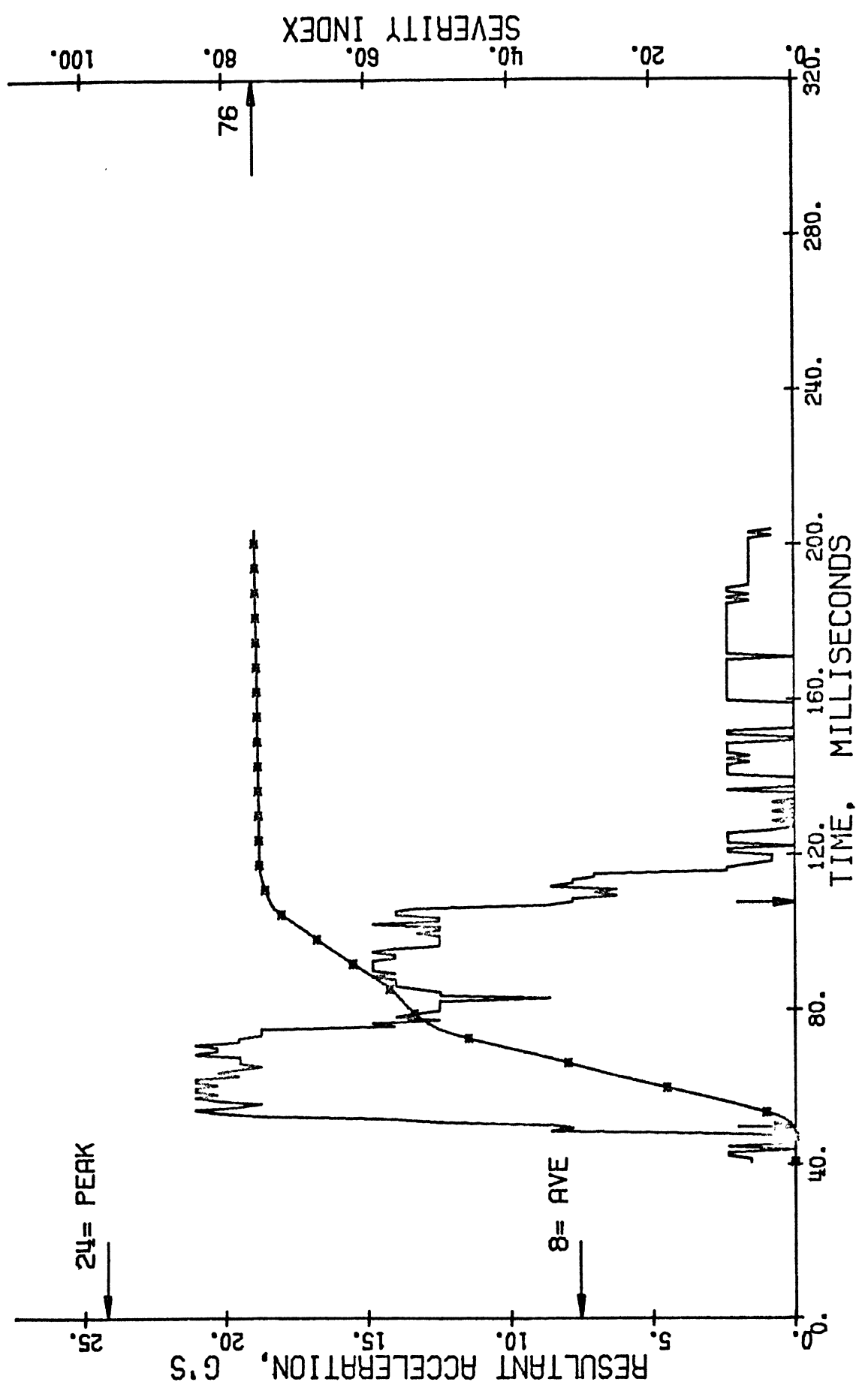


1-12.5 MSEC

SEP 27, 1974

H.I.C. = 67

S.I. = 76



A-792

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-793

Test Date: 9-8-74

Restraint Description: Kantwet Model 884 (driver side)

Harness Configurations: GM retractor

Dummy 3 year

Sled Velocity (avg., ft/sec) 28.49

Sled Acceleration ( avg. g's) 16.8 Qualifying Trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>100</u>
	Left Lap	<u>170</u>
	Shoulder	<u>25</u>

Impact Direction: Rear

Seat Standard

Test Observations: The GM belt restraint system worked well.



Figure D-38 Test Setup for A-793





Test No. A-793

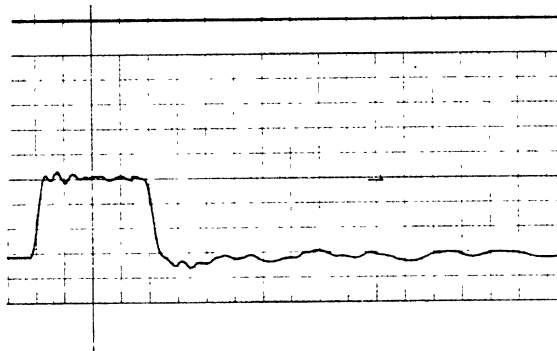
Figure D-39 Graph-Check Camera Sequence

Test Number A-793  
Dummy Sierra 3yr  
Sled Velocity 28.49ft/sec

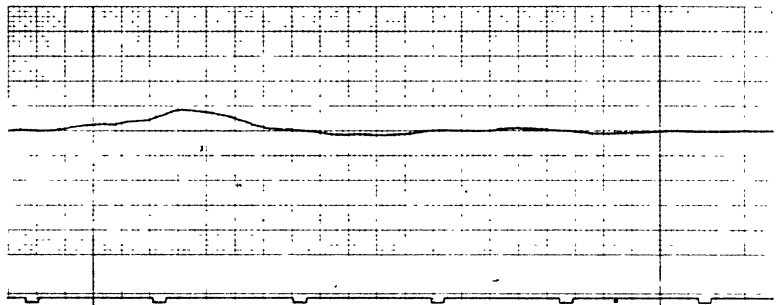
SUMMARY DATA HEAD ACCELERATIONS

Test Type REAR  
KANTWET  
STANDARD

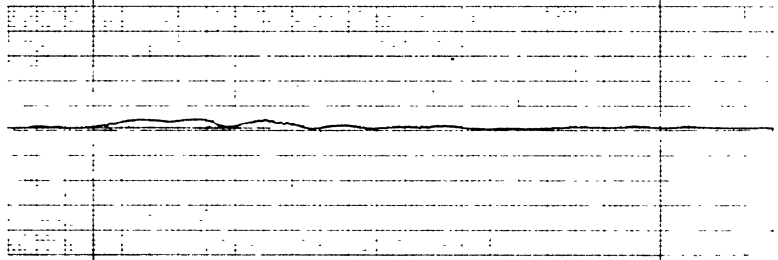
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



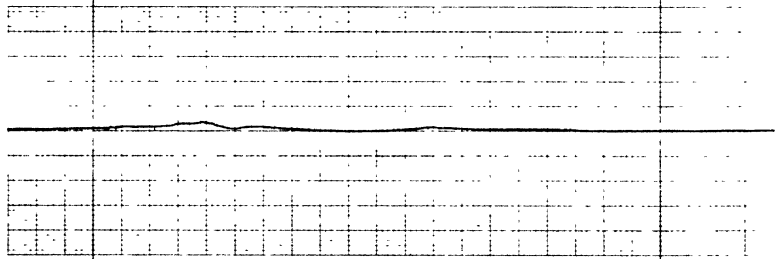
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



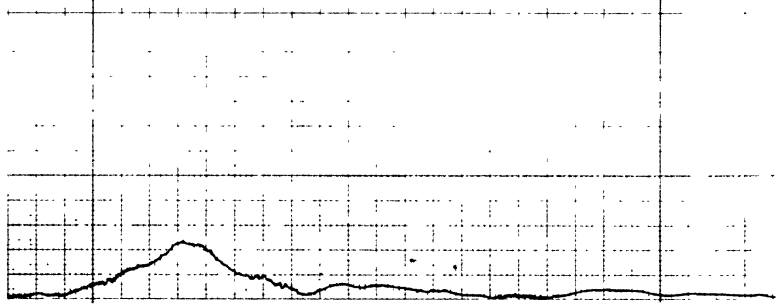
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



SUMMARY DATA CHEST ACCELERATIONS

Test Number A793

Test Type REAR

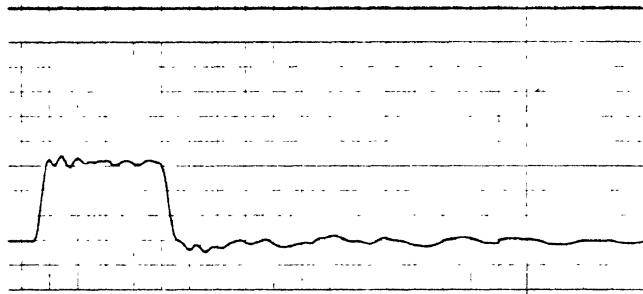
Dummy Sierra 3yr

KANTWET

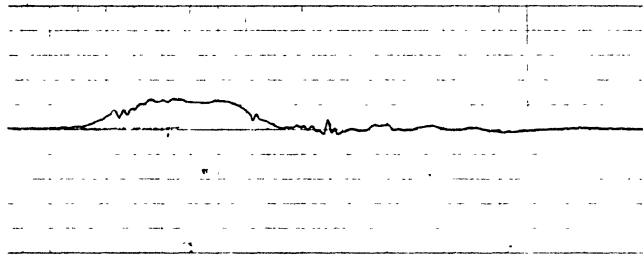
Sled Velocity 28.49ft/sec

STANDARD

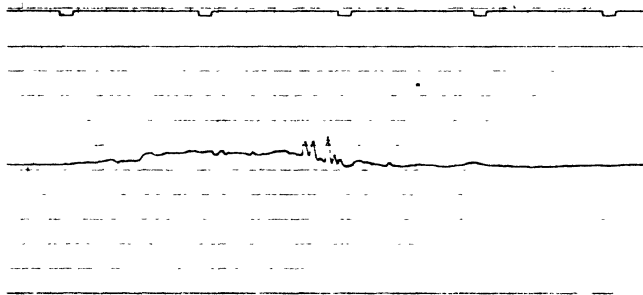
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



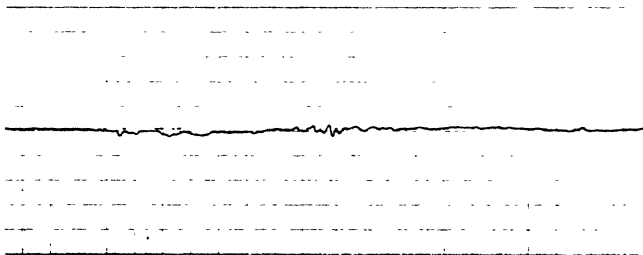
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



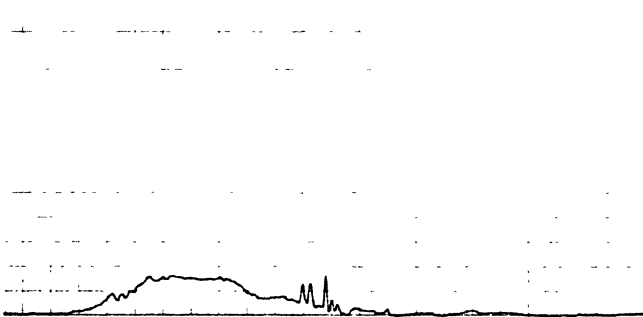
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180

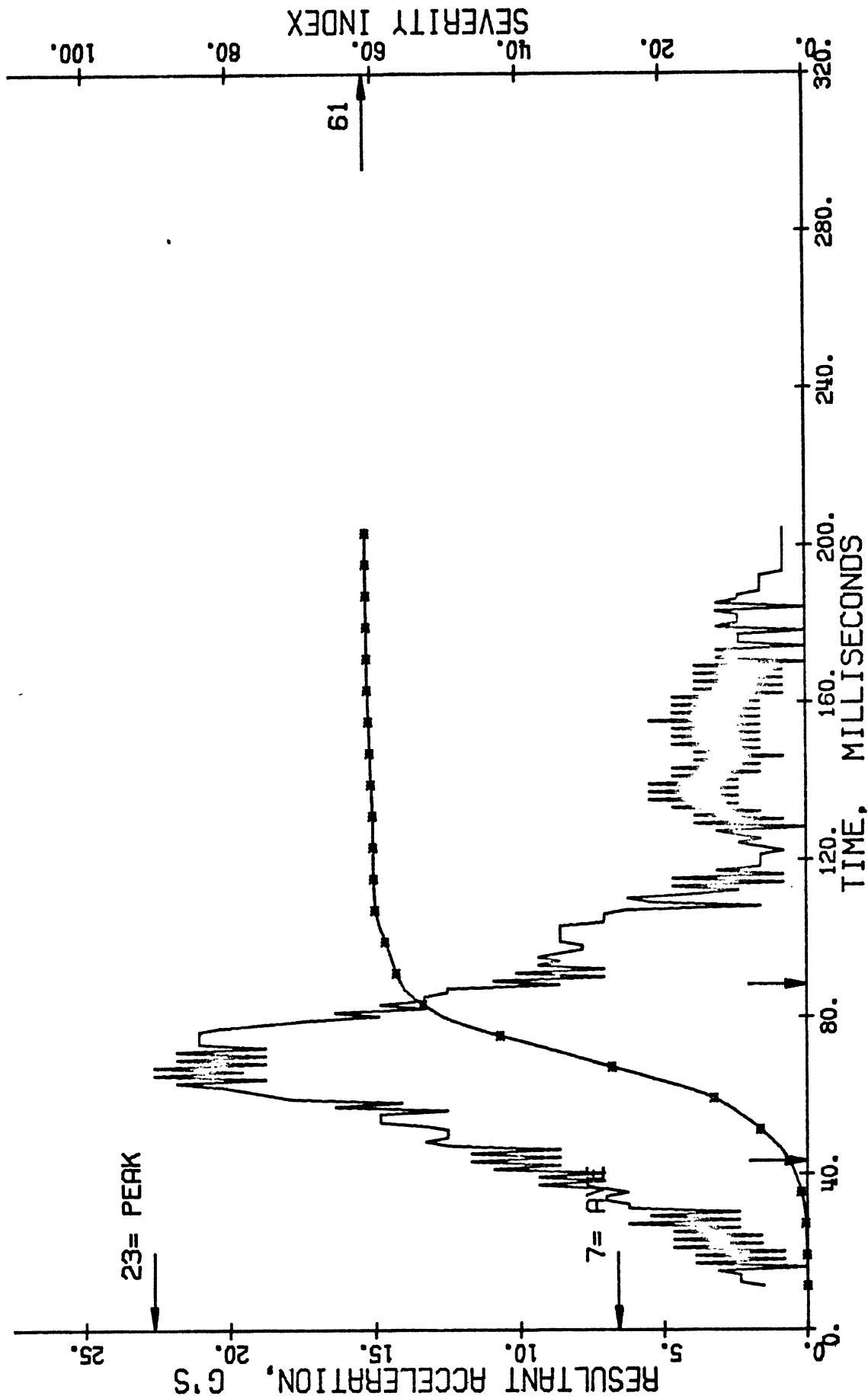


|-12.5 MSEC

SEP 27, 1974

H.I.C. = 49

S.I. = 61



A-793

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-794

Test Date: 9-8-74

Restraint Description: Ford Tot Guard (Driver Side)

Harness Configurations: American Motors retractor

Dummy 3 year

Sled Velocity (avg., ft/sec) 29.14

Sled Acceleration ( avg. g's) 16.7 (Qualifying Trapezoidal)

Belt Loads (peak pounds):  
Right Lap 100  
Left Lap 100  
Shoulder 0

Impact Direction: Rear

Seat Standard

Test Observations: Upon impact, the face-shield usually rotates upward (aided by the shoulder belt) and the seat tends to slide underneath the belt in this rearward configuration. Use of the American Motors belt system, which is capable of holding a preload, prevented this occurrence. The American Motors restraint system worked well.

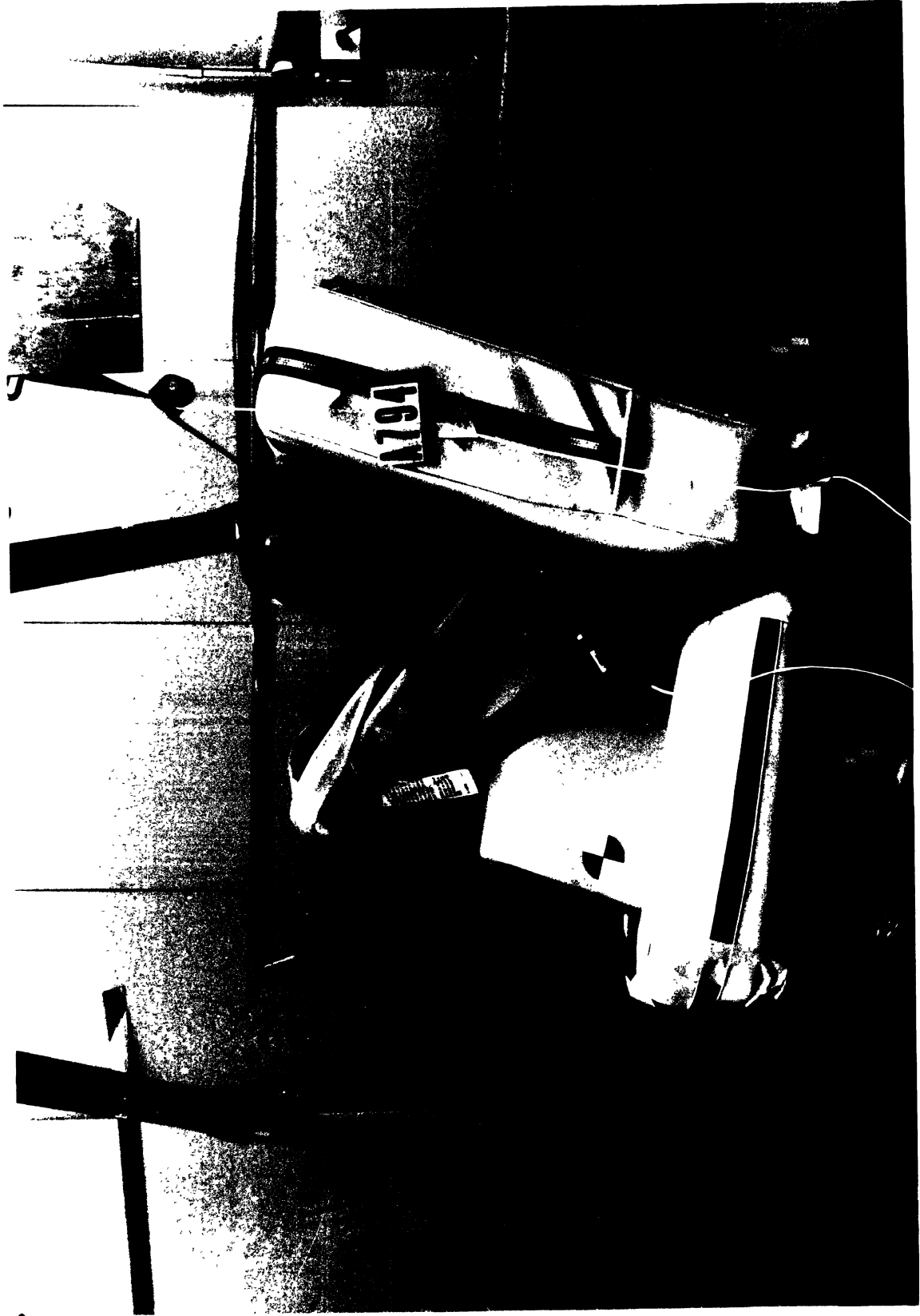


Figure D-40 Test Setup for A-794



Test No. A-794

Figure D-41

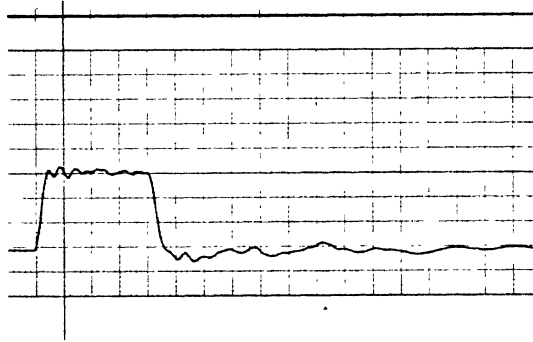
Graph-Check Camera Sequence

Test Number A-794  
Dummy Sierra 3 yr  
Sled Velocity 29.14 ft/sec

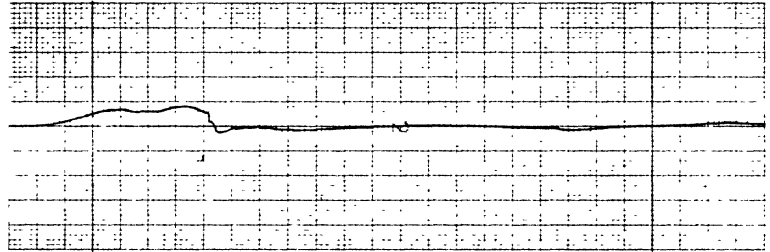
SUMMARY DATA HEAD ACCELERATIONS

Test Type REAR  
Tot Guard  
Standard

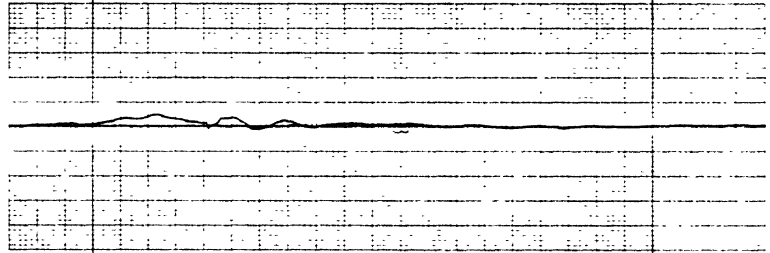
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



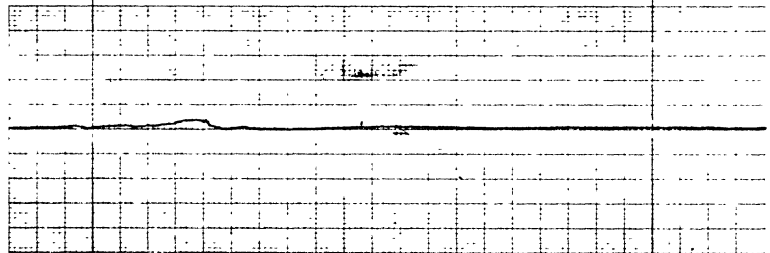
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



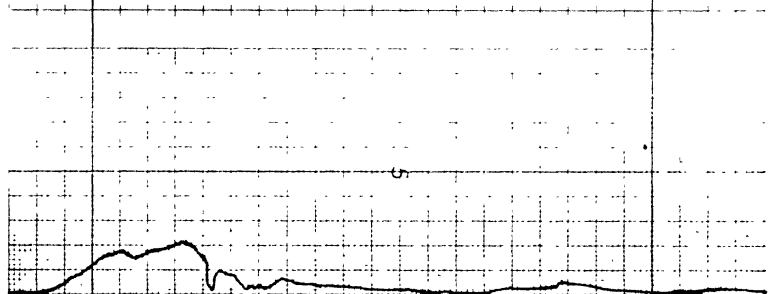
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



1-12.5 MSEC



SUMMARY DATA CHEST ACCELERATIONS

Test Number A 794

Test Type REAR

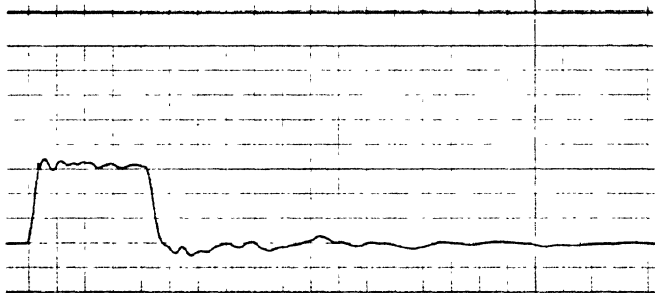
Dummy Sierra 3yr

Tot Guard

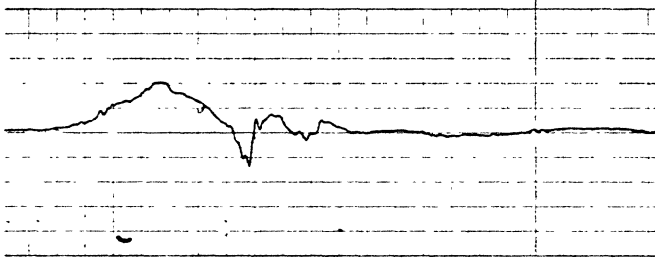
Sled Velocity 29.14 ft/sec

STANDARD

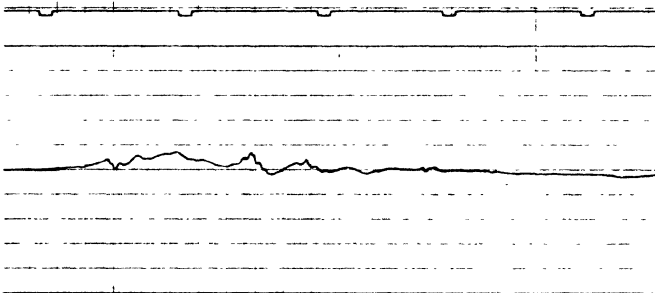
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



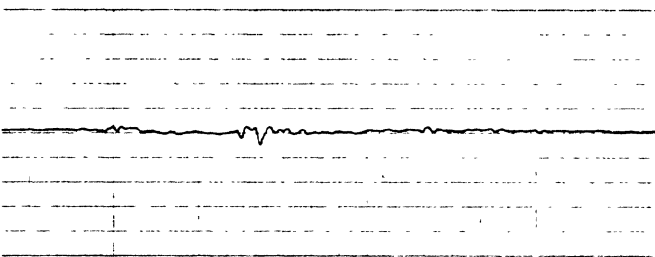
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



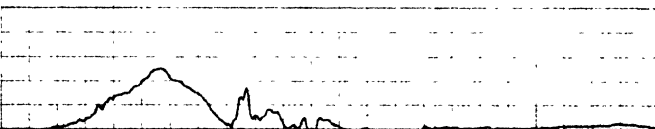
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
12.5 g's/Division  
Filtered  
Class 180

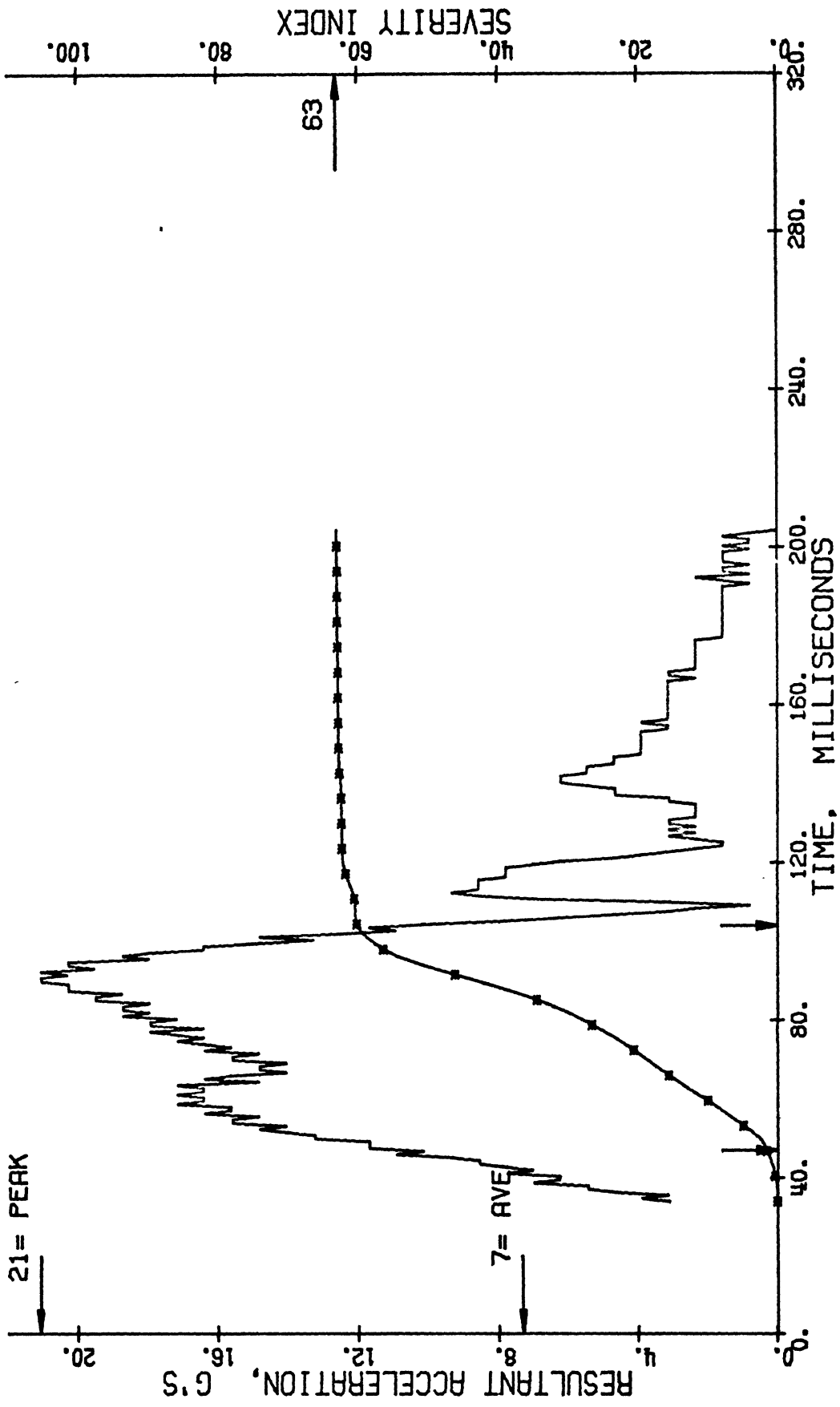


1-12.5 MSEC

SEP 27, 1974

H.I.C. = 55

S.I. = 63



A-794

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-795

Test Date: 9-8-74

Restraint Description: Ford Tot Guard (driver side)

Harness Configurations: Volkswagen retractor, cable prevented right lap belt load adjustment.

Dummy 3 year

Sled Velocity (avg., ft/sec) 29.31

Sled Acceleration ( avg. g's) 16.6 Qualifying Trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>-</u>
	Left Lap	<u>80</u>
	Shoulder	<u>0</u>

Impact Direction: Rear

Seat Standard

Test Observations: The Volkswagen belt system does not allow a pre-load.

Consequently, in contrast to the preceding test, the Tot Guard rotated underneath the belt (aided by the shoulder belt) and allowed the dummy and Tot Guard to fall to the floor upon rebound.



Figure D-42 Test Setup for A-795



Test No. A-795

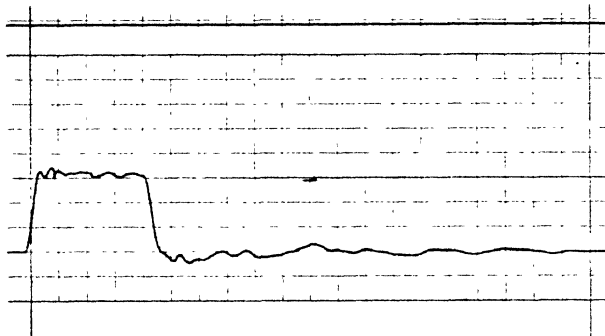
Figure D-43 Graph-Check Camera Sequence

Test Number A-795  
Dummy Sierra 3 yr  
Sled Velocity 29.31 ft/sec

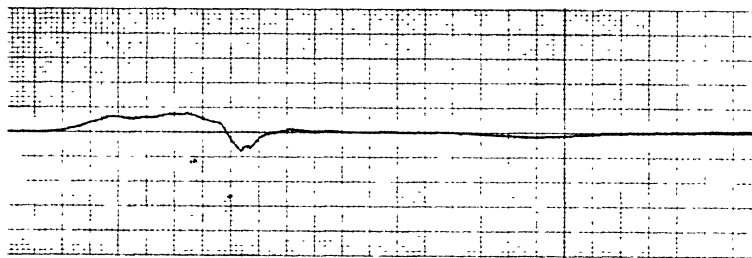
SUMMARY DATA HEAD ACCELERATIONS

Test Type REAR  
Tot Guard  
STANDARD

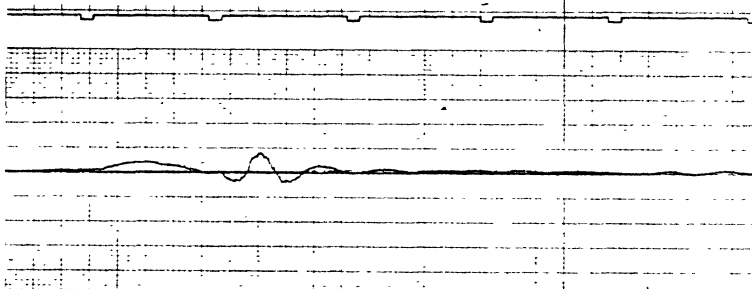
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



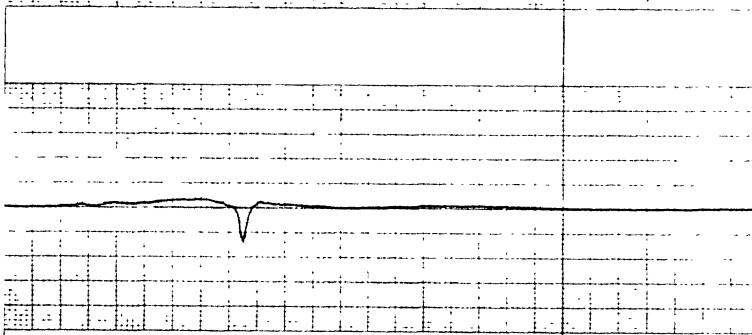
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



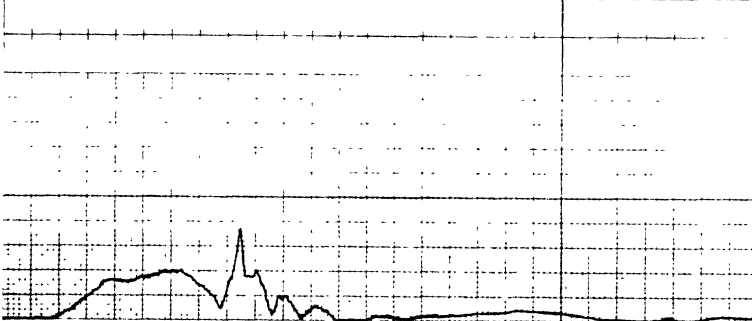
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000

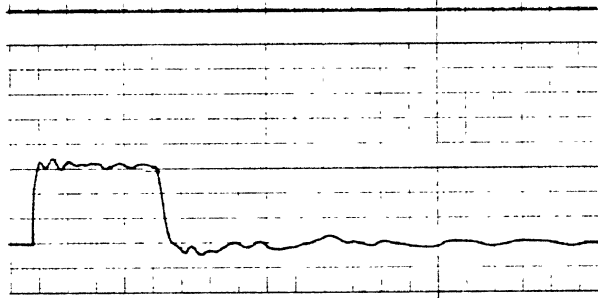


SUMMARY DATA CHEST ACCELERATIONS

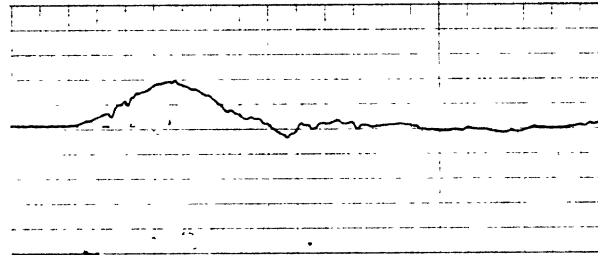
Test Number A 795  
Dummy Sierra 3yr  
Sled Velocity 29.31 ft/sec

Test Type REAR  
Tot Guard  
STANDARD

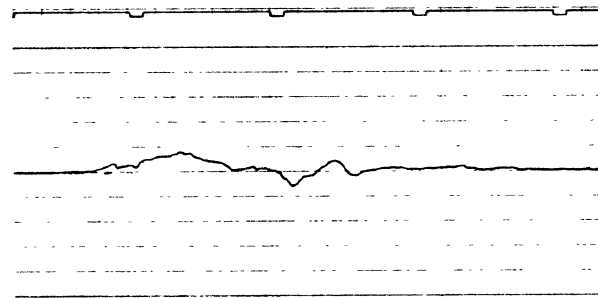
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180

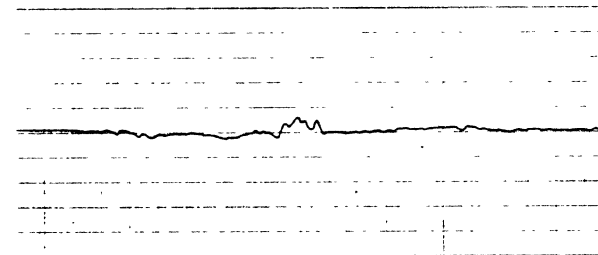


Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180

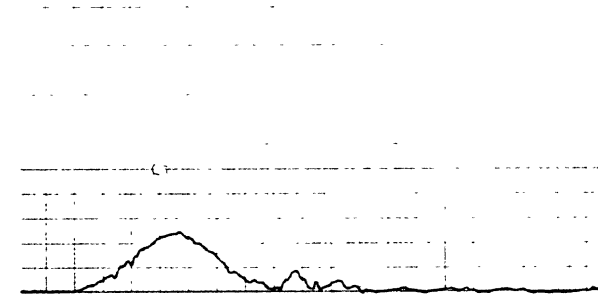


BRUSH ACCUCHART

Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180

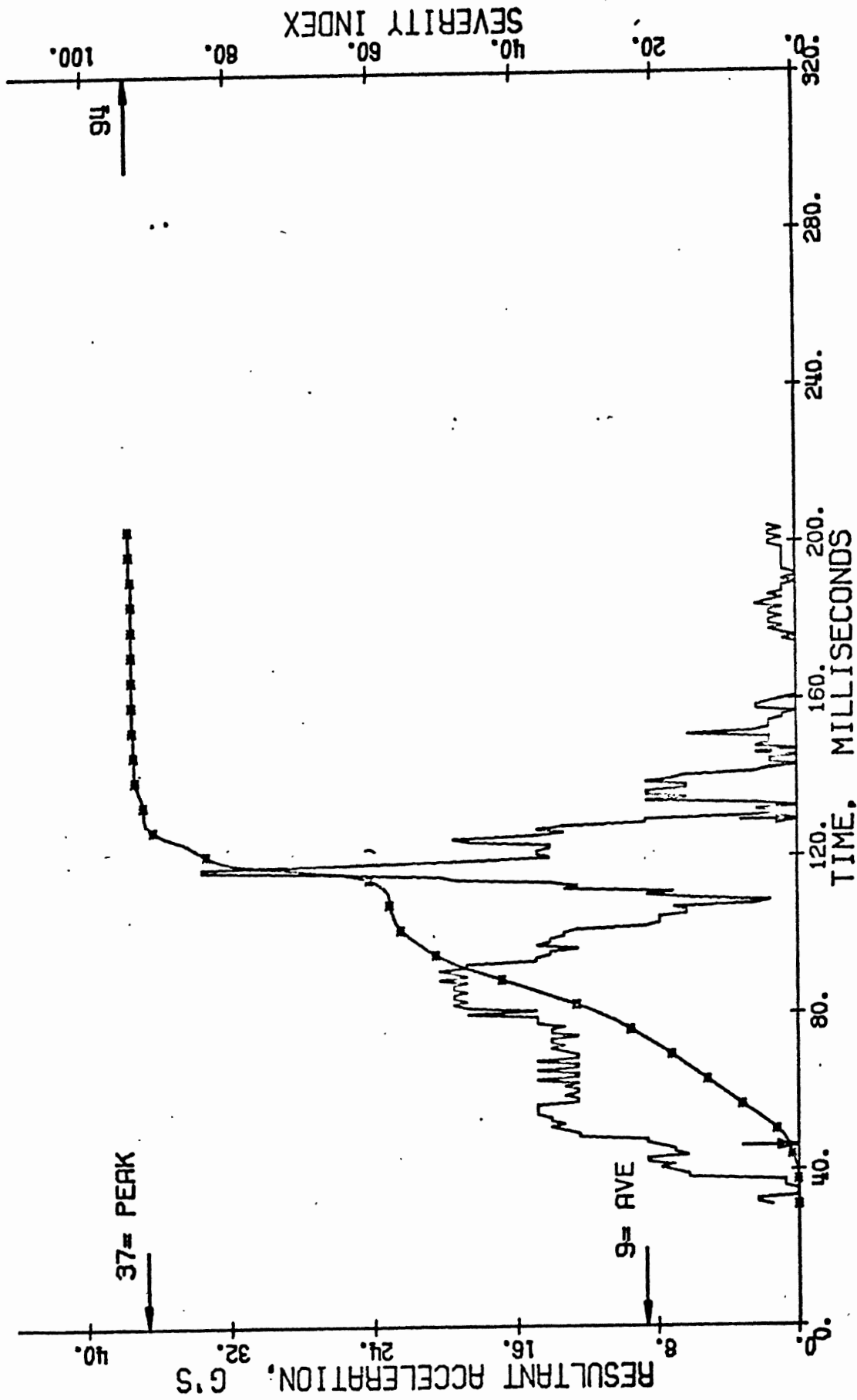


1-12.5 MSEC

SEP 27, 1974

H.I.C. = 76

S.I. = 94



A-795



HSRI CHILD SEAT DATA SUMMARY

Test Number: A-796

Test Date: 9-8-74

Restraint Description: Bobby Mac (infant) (passenger side)

Harness Configurations: GM retractor

Dummy 6 month

Sled Velocity (avg., ft/sec) 30.18

Sled Acceleration ( avg. g's) 13.8 Compliance Trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>225</u>
	Left Lap	<u>150</u>
	Shoulder	<u>0</u>

Impact Direction: Side

Seat Standard

Test Observations: The GM belt restraint system worked well. No Graph-  
check photo.

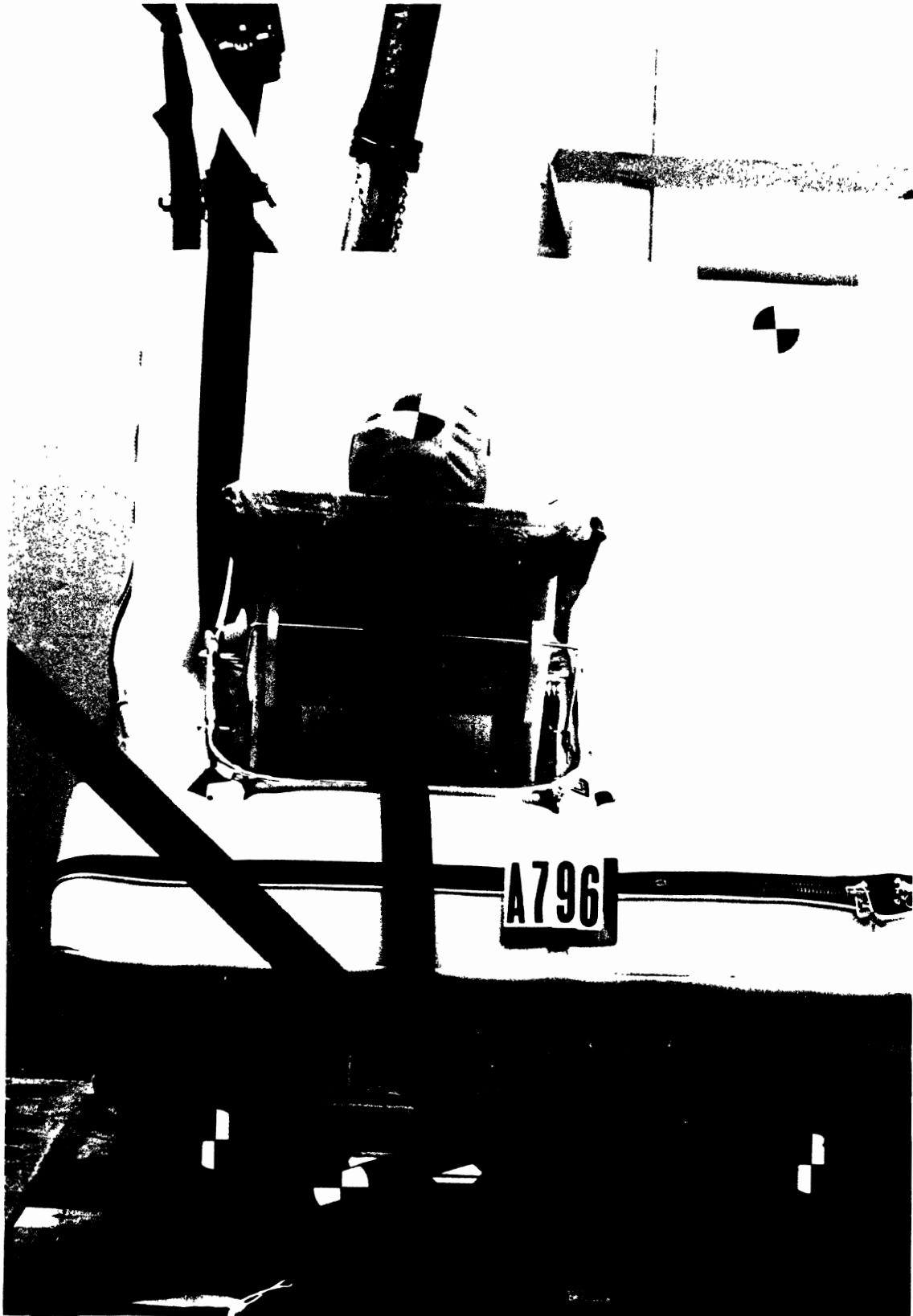


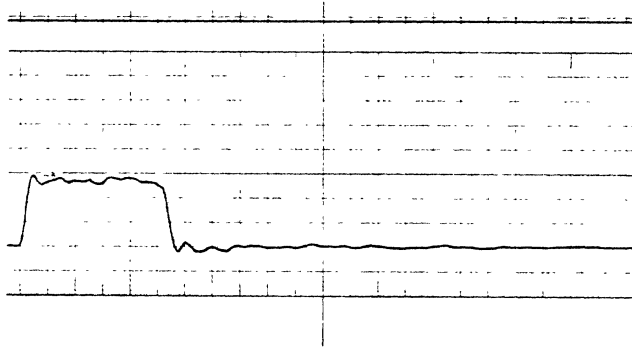
Figure D-44 Test Setup for A-796

SUMMARY DATA HEAD ACCELERATIONS

Test Number A 796  
Dummy 6 MONTH  
Sled Velocity 30.18ft/sec

Test Type SIDE  
Bobby Mac  
STANDARD

Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-797

Test Date: 9-8-74

Restraint Description: Bobby Mac infant (passenger side)

Harness Configurations: GM retractor, lap belt only

Dummy 6 month

Sled Velocity (avg., ft/sec) 29.83

Sled Acceleration ( avg. g's) 16.2 Qualifying Trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>250</u>
	Left Lap	<u>150</u>
	Shoulder	<u>0</u>

Impact Direction: Side

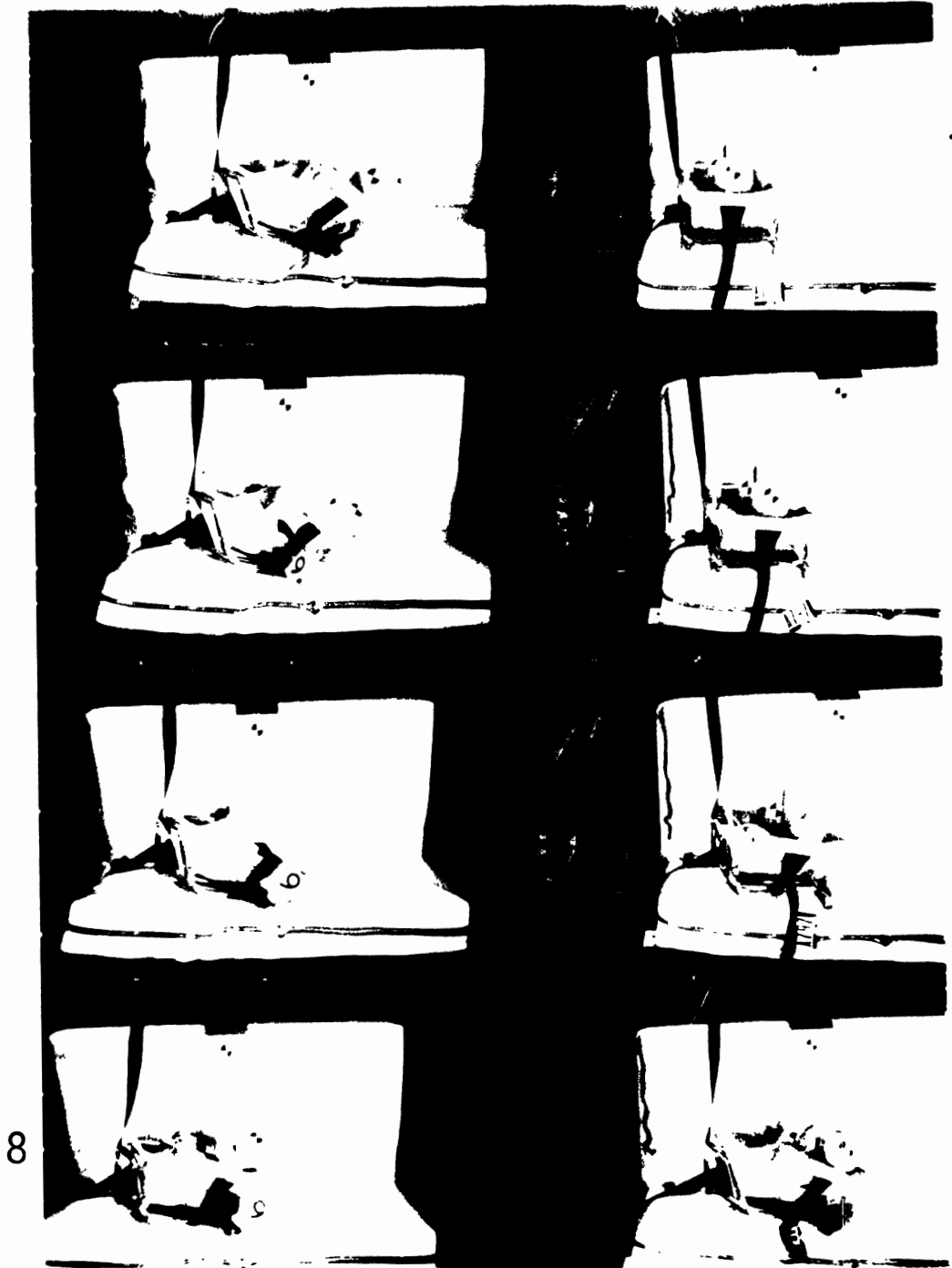
Seat Standard

Test Observations: The GM belt restraint system worked well.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Figure D-45 Test Setup for A-797



Test No. A-797

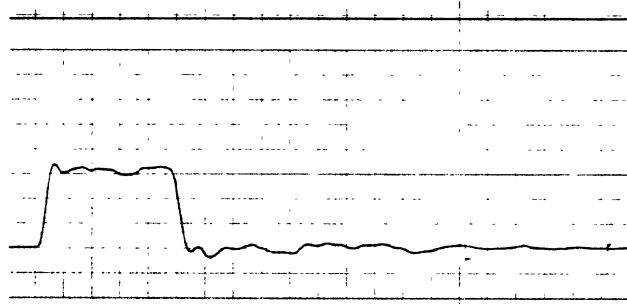
Figure D-46 Graph-Check Camera Sequence

Test Number A 797  
Dummy 6 MONTH  
Sled Velocity 29.83ft/sec

SUMMARY DATA HEAD ACCELERATIONS

Test Type SIDE  
Bobby Mac  
STANDARD

Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-798

Test Date: 9-8-74

Restraint Description: Peterson 75 Child seat (passenger side)

Harness Configurations: GM retractor, lap belt only

Dummy 3 year

Sled Velocity (avg., ft/sec) 25.59

Sled Acceleration ( avg. g's) 16.1 Qualifying Trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>450</u>
	Left Lap	<u>150</u>
	Shoulder	<u>220</u>

Impact Direction: Side

Seat Standard

Test Observations: In side impacts, the presence of the integral GM shoulder belt beside the Peterson seat tends to lower resultant head and child seat excursion in the direction of the impact. The GM belt restraint system worked well.





Figure D-47 Test Setup for A-798



Test No. A-798

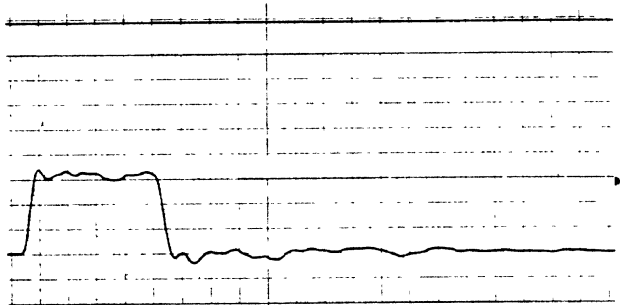
Figure D-48 Graph-Check Camera Sequence

Test Number A-798  
Dummy Sierra 3yr.  
Sled Velocity 25.59ft/sec

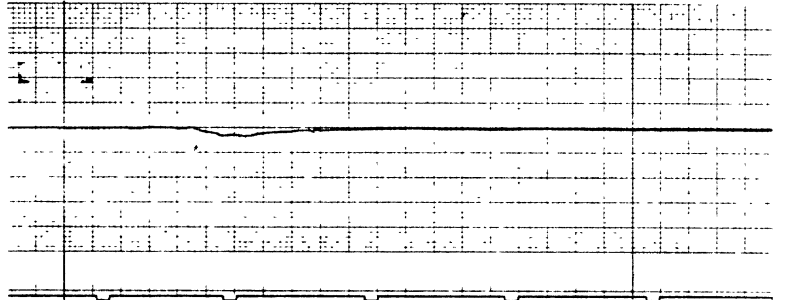
SUMMARY DATA HEAD ACCELERATIONS

Test Type Side  
PETERSON  
STANDARD

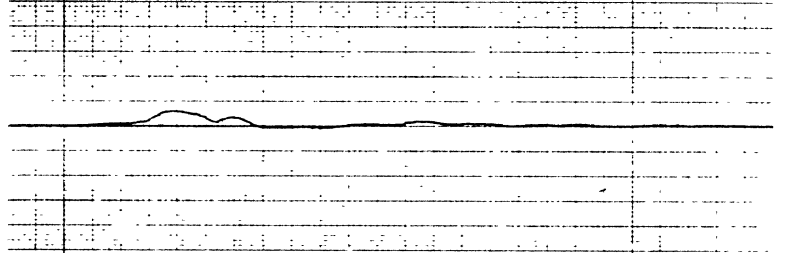
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



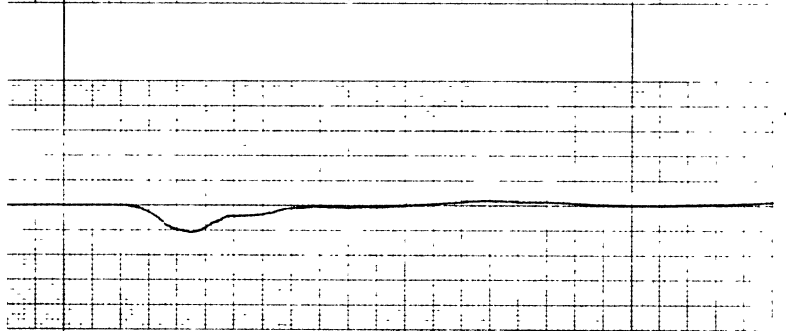
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



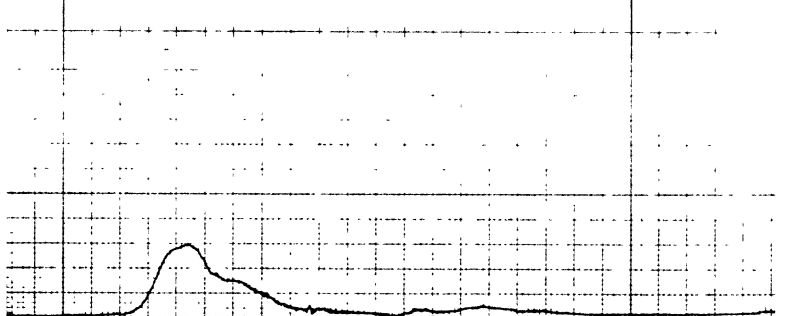
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



SUMMARY DATA CHEST ACCELERATIONS

Test Number A 798

Test Type Side

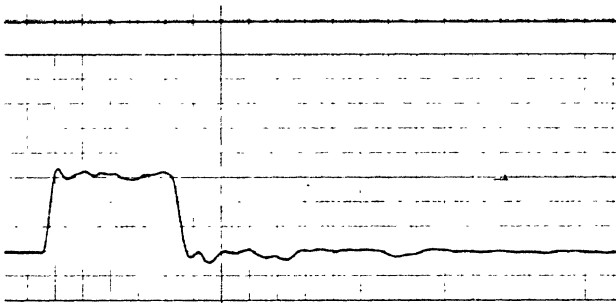
Dummy Sierra 3yr

Peterson

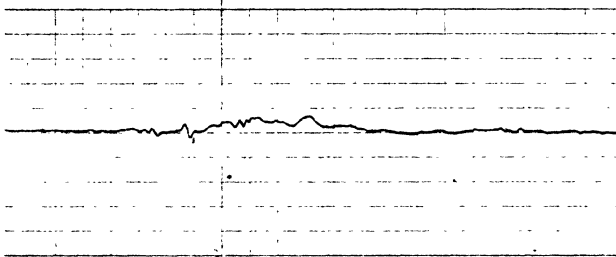
Sled Velocity 25.59 ft/sec

STANDARD

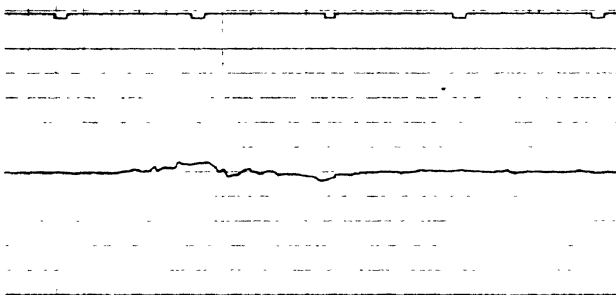
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



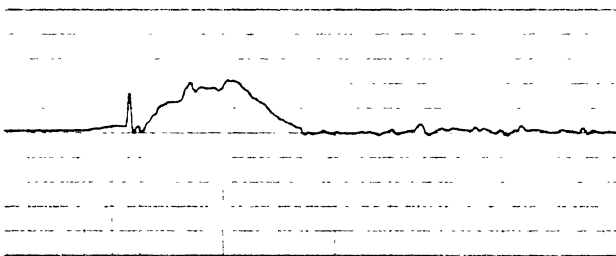
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



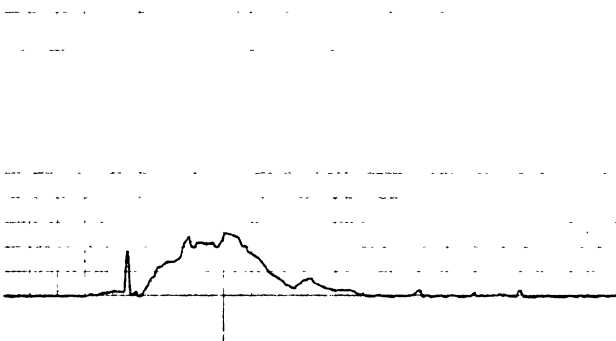
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180

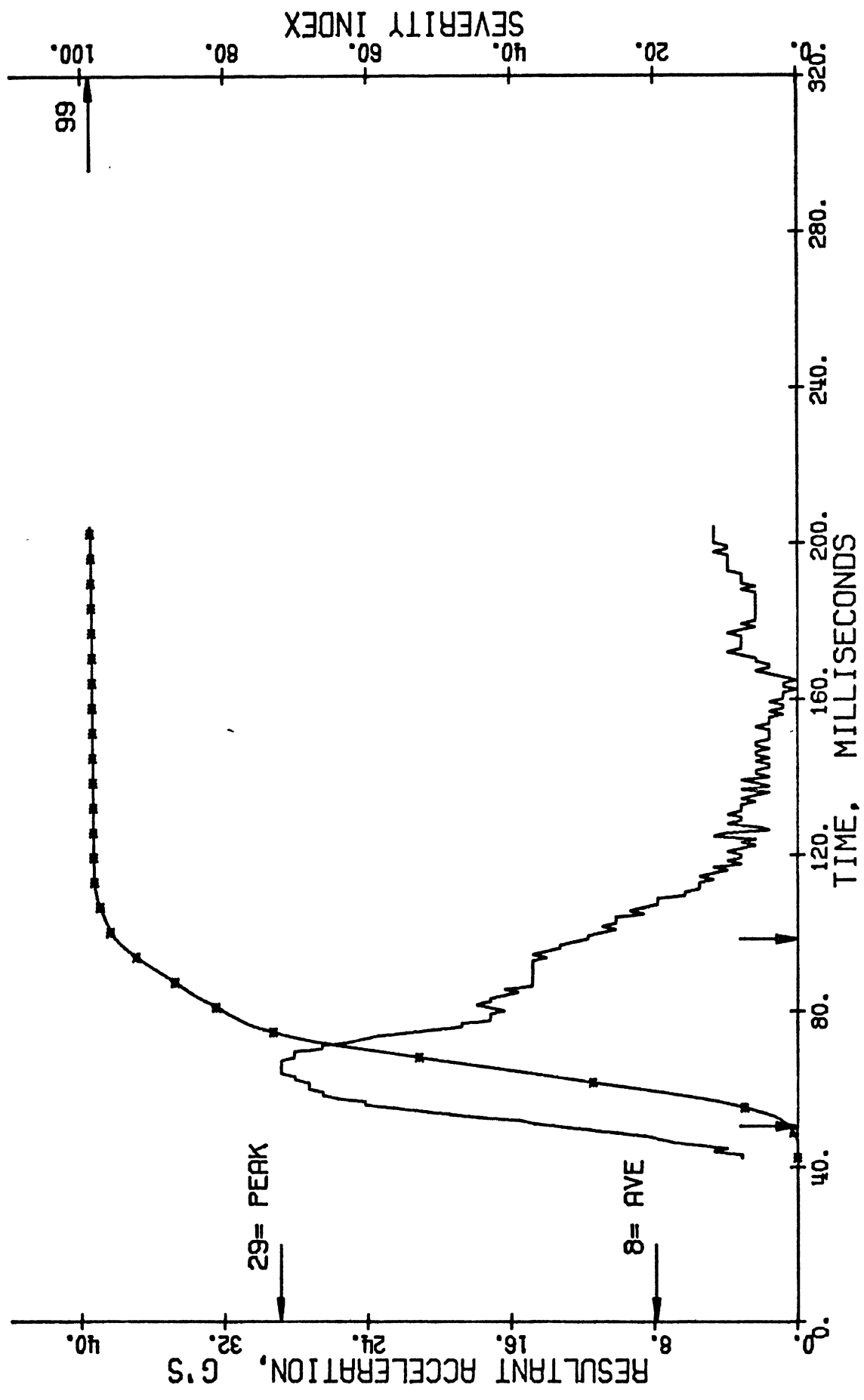


| 12.5 MSEC

SEP 27, 1974

H.I.C. = 82

S.I. = 99



A-798

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-799

Test Date: 9-9-74

Restraint Description: GM Child Love Seat (passenger side)

Harness Configurations: Chrysler Retractor, Double belt prevented left lap belt  
Load measurement

Dummy 3 year

Sled Velocity (avg., ft/sec) 29.89

Sled Acceleration ( avg. g's) 16.2 Qualifying trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>560</u>
	Left Lap	<u>-</u>
	Shoulder	<u>200</u>

Impact Direction: Side

Seat Standard

Test Observations: In this side impact, the presence of the integral Chrysler  
shoulder belt beside the Love Seat reduced head and seat excursions. The  
Chrysler belt restraint system worked well.



Figure D-49 Test Setup for A-799



Test No. A-799

Figure D-50 Graph-Check Camera Sequence

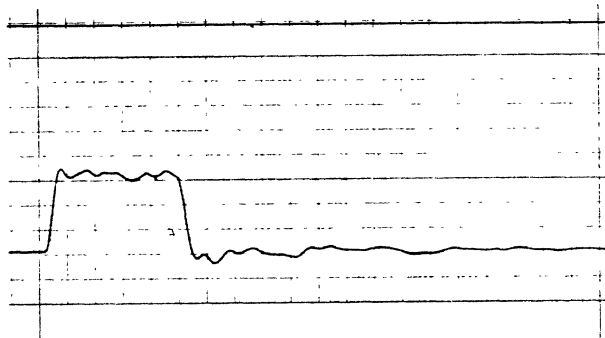


Test Number A-199  
Dummy Sierra 3yr.  
Sled Velocity 29.89ft/sec

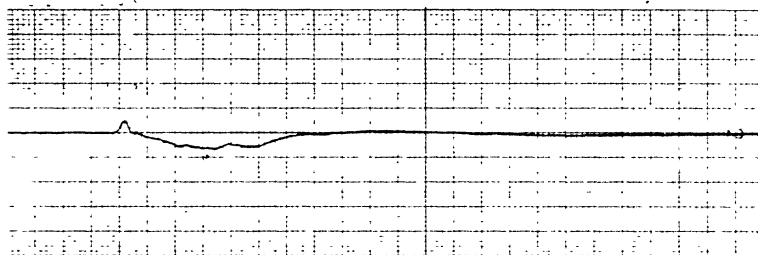
SUMMARY DATA HEAD ACCELERATIONS

Test Type Side  
LOVE SEAT  
STANDARD

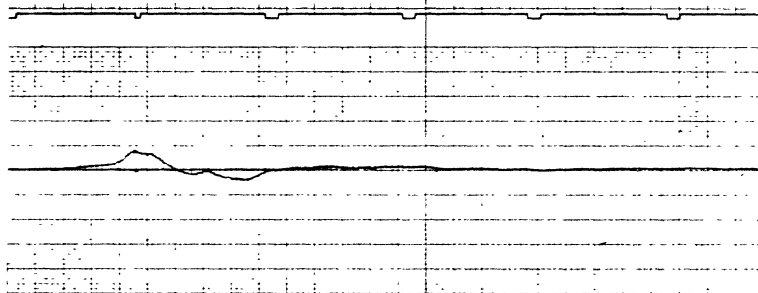
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



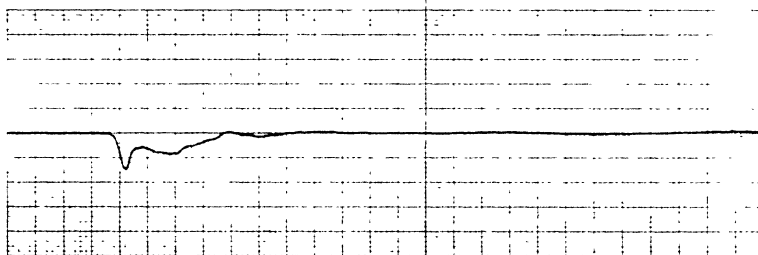
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



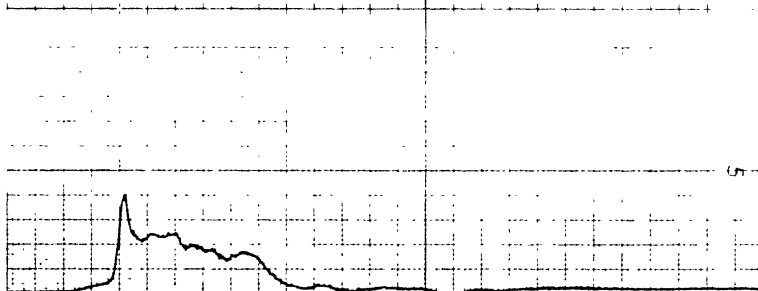
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



SUMMARY DATA CHEST ACCELERATIONS

Test Number A-799

Test Type SIDE

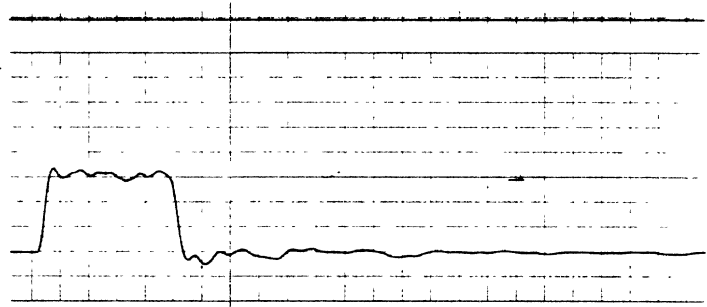
Dummy Sierra 3 yr

LOVE SEAT

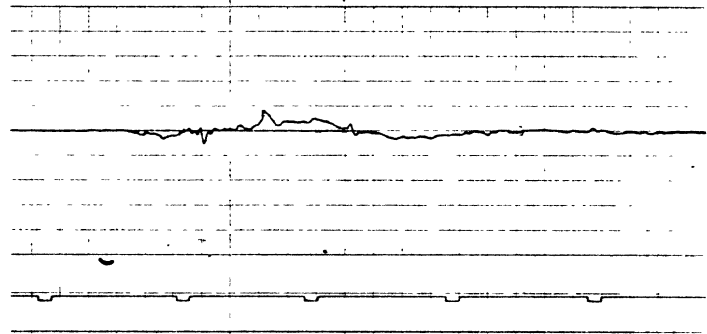
Sled Velocity 29.89ft/sec

STANDARD

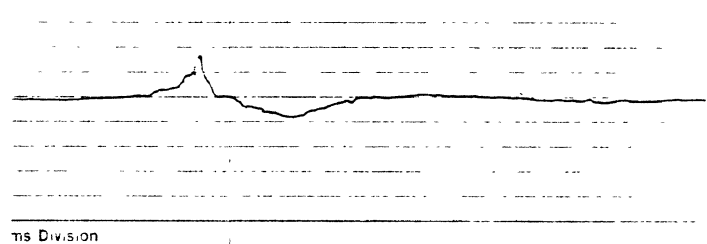
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



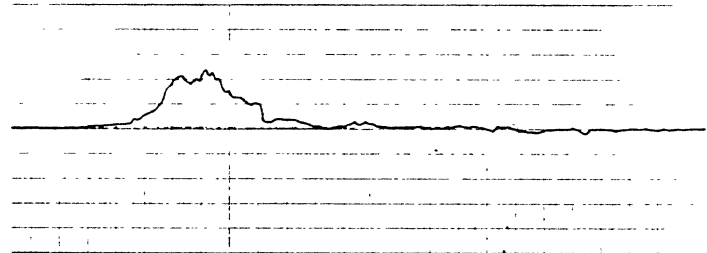
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



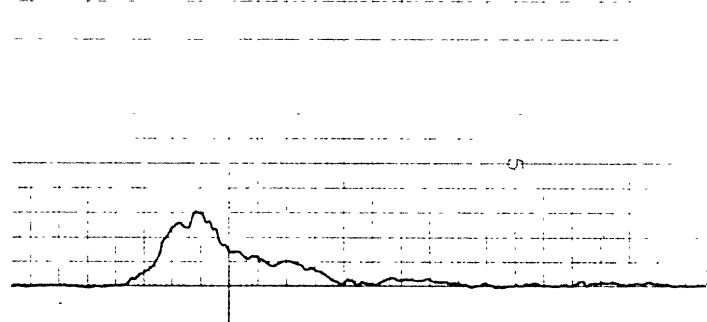
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180

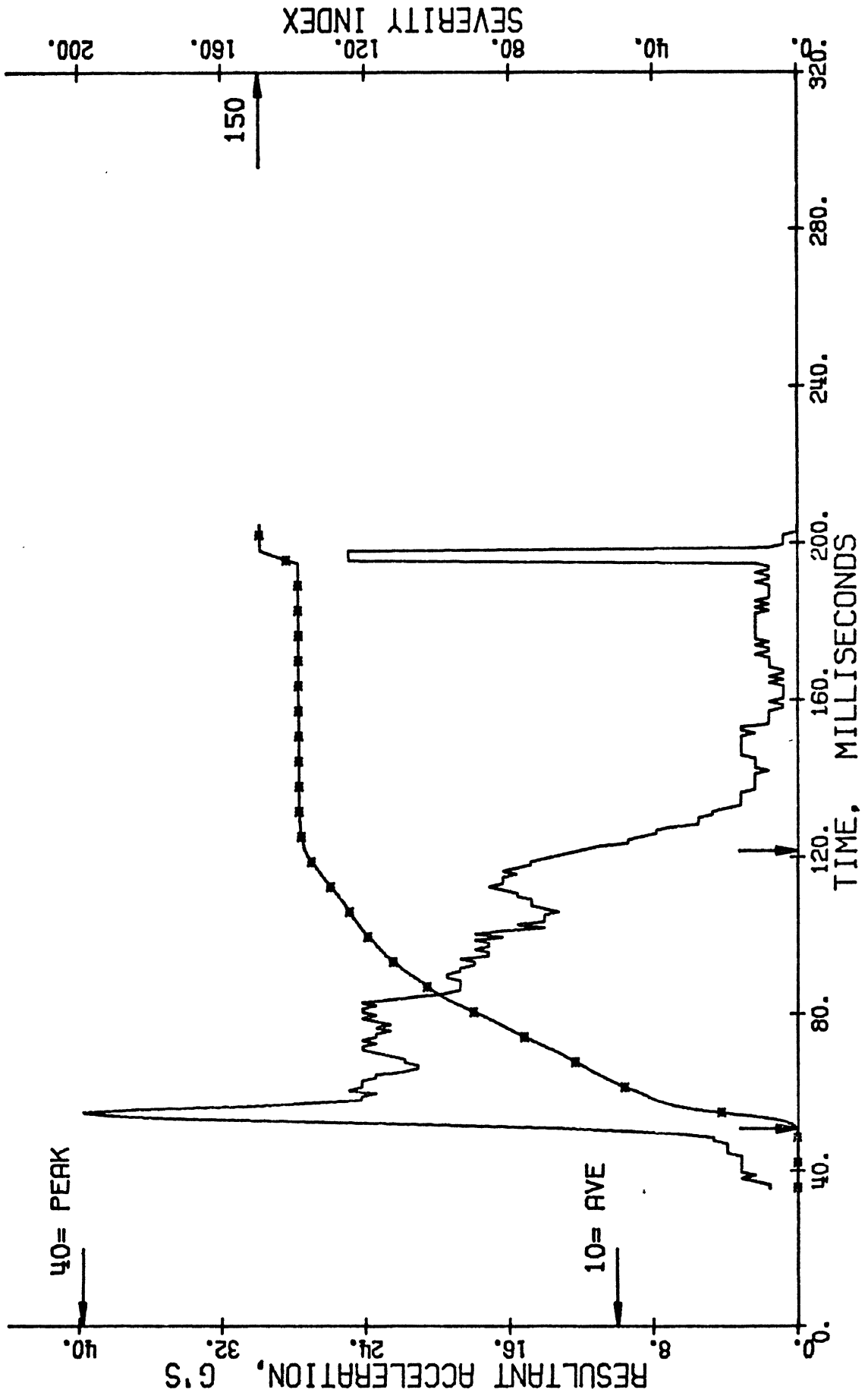


12.5 MSEC

SEP 27, 1974

H.I.C. = 119

S.I. = 150



A-799

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-800

Test Date: 9-9-74

Restraint Description: Ford Tot Guard (passenger side)

Harness Configurations: Volkswagen retractor, cable prevented inboard lap  
belt load measurement

Dummy 3 year

Sled Velocity (avg., ft/sec) 29.78

Sled Acceleration ( avg. g's) 16.2 Qualifying Trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>450</u>
	Left Lap	<u>NI</u>
	Shoulder	<u>150</u>

Impact Direction: Side

Seat Standard

Test Observations: The Volkswagen belt restraint system worked well. The belts  
cannot be preloaded.



Figure D-51 Test Setup for A-800



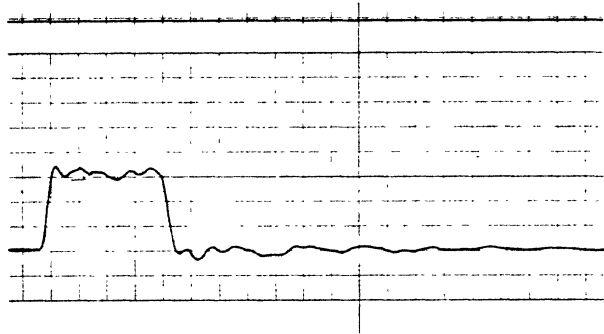
Test No. A-800

Figure D-52 Graph-Check Camera Sequence

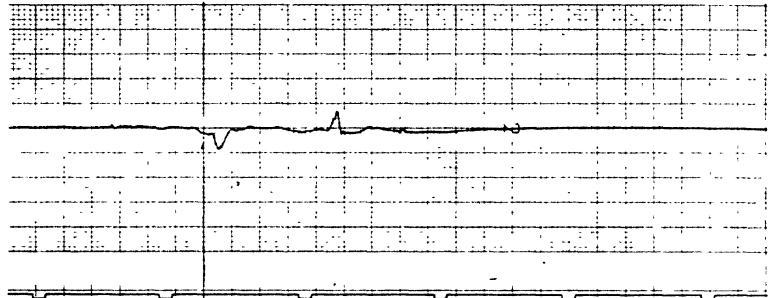
Test Number A-800  
Dummy Sierra 3yr  
Sled Velocity 29.78 ft/sec

SUMMARY DATA HEAD ACCELERATIONS  
Test Type Side  
Tot Guard  
Standard

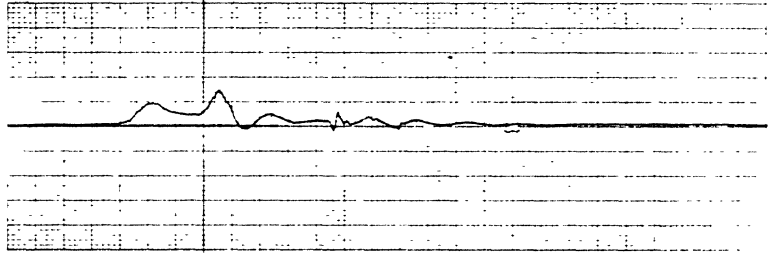
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



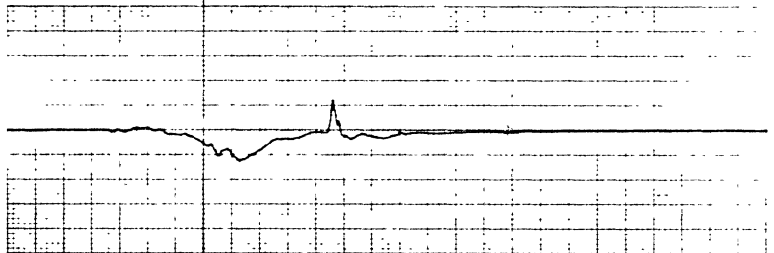
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



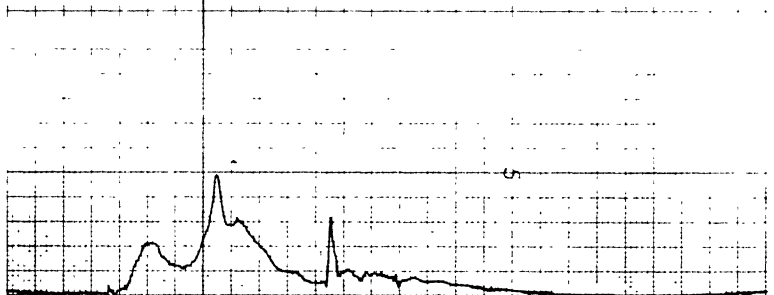
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



SUMMARY DATA CHEST ACCELERATIONS

Test Number A 800

Test Type SIDE

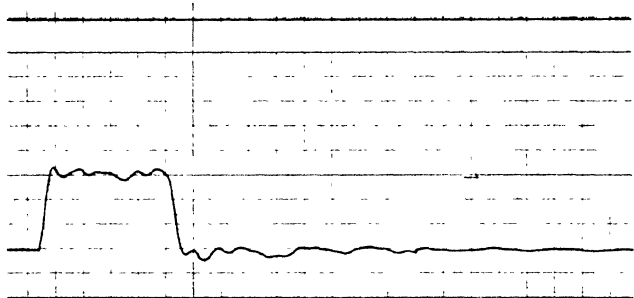
Dummy Sierra 3yr

Tot Guard

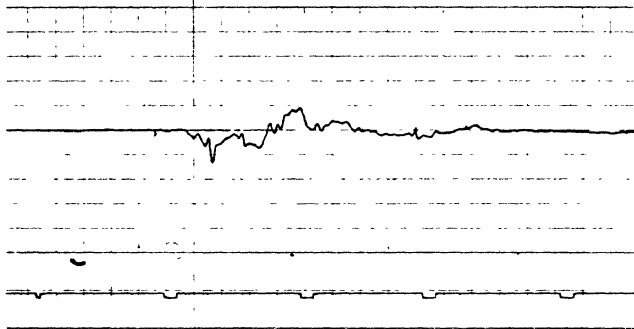
Sled Velocity 29.78 ft/sec

STANDARD

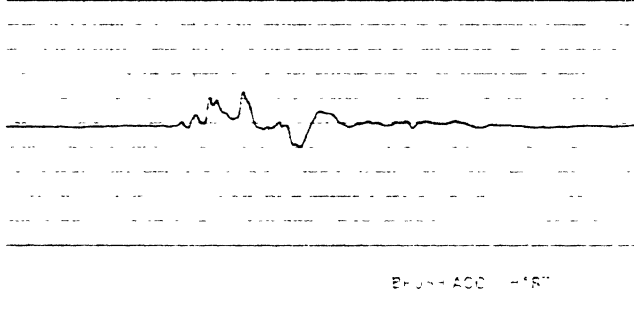
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



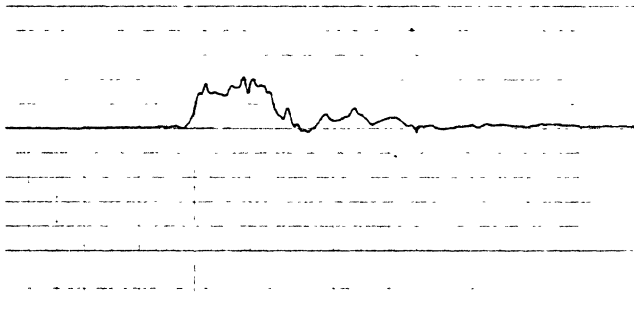
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



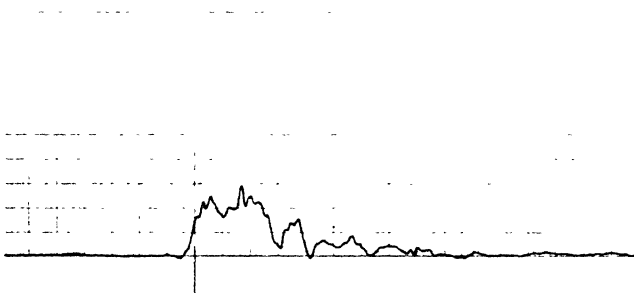
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180



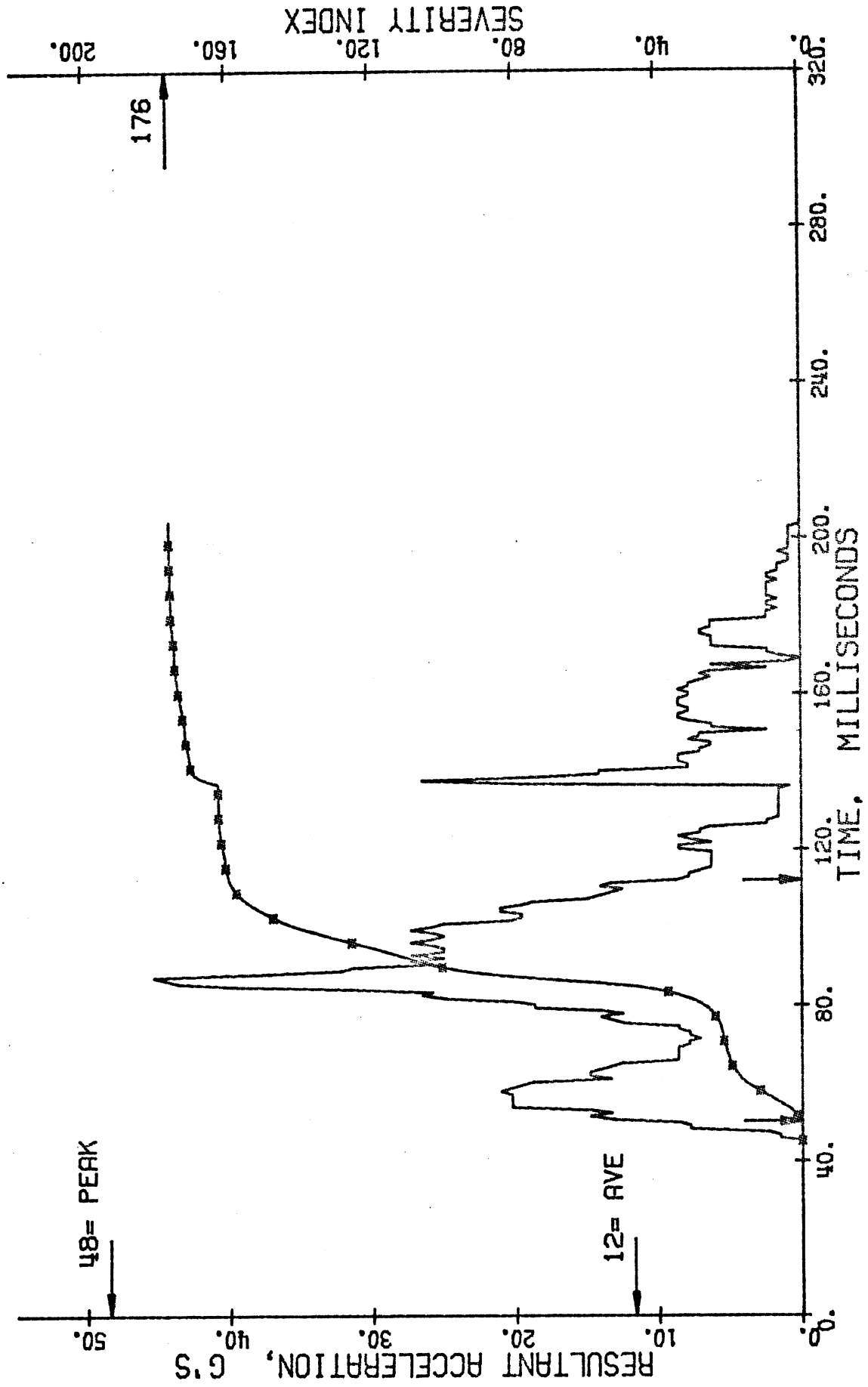
-12.5 MSEC



SEP 27, 1974

H.I.C. = 117

S.I. = 176



A-800

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-801

Test Date: 9-9-74

Restraint Description: GM Infant Carrier (passenger side)

Harness Configurations: GM lap belt only

Dummy 6 month

Sled Velocity (avg., ft/sec) 44.94

Sled Acceleration ( avg. g's) 21 (HSRI standard)

Belt Loads (peak pounds):	Right Lap	<u>600</u>
	Left Lap	<u>600</u>
	Shoulder	<u>NI</u>

Impact Direction: Front

Seat Production - restrained

Test Observations: The GM belt restraint system worked well!



Figure D-53 Test Setup for A-801



Test No. A-801

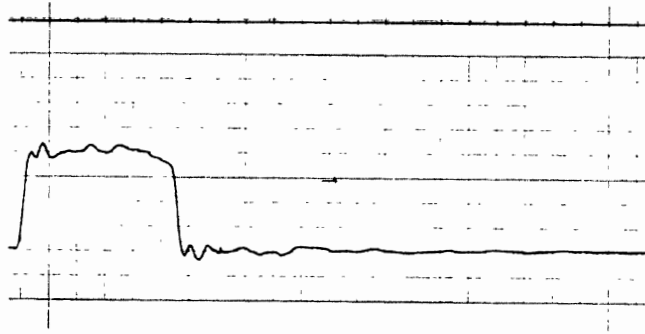
Figure D-54 Graph-Check Camera Sequence

SUMMARY DATA HEAD ACCELERATIONS

Test Number A 801  
Dummy 6 MONTH  
Sled Velocity 44.94 ft/sec

Test Type FRONT  
GM INFANT CARRIER  
IMPALA

Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-802

Test Date: 9-9-74

Restraint Description: GM Infant Carrier (passenger side)

Harness Configurations: GM lap belt, no retractor

Dummy 6 month

Sled Velocity (avg., ft/sec) 30.10

Sled Acceleration ( avg. g's) 17.8 HSRI (Standard)

Belt Loads (peak pounds):           Right Lap       30.0

  Left Lap       125

  Shoulder      NI

Impact Direction: Side

Seat                   Production - restrained

Test Observations: The left harness slipped off dummy. The GM belt restraint system worked well.

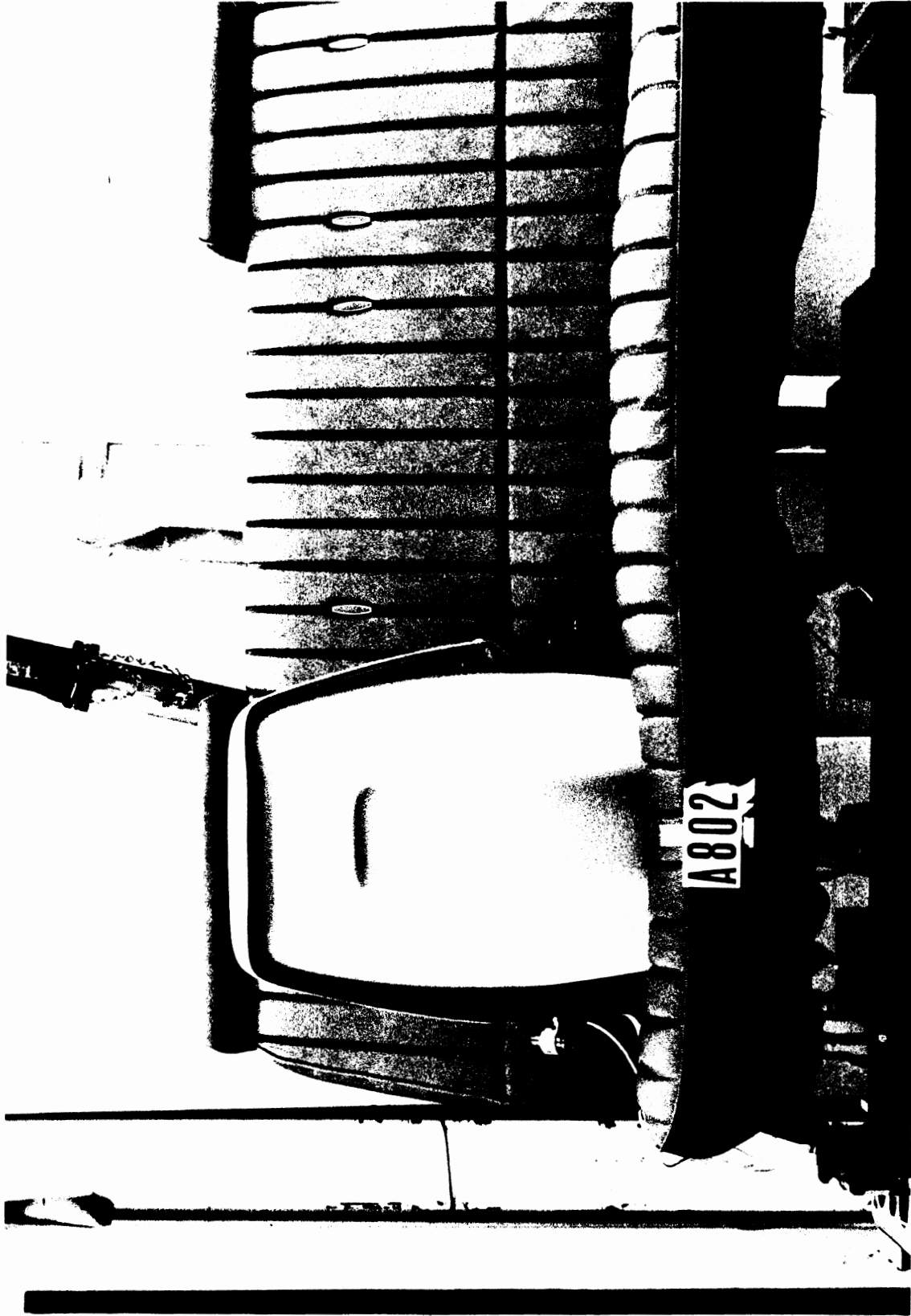


Figure D-55 Test Setup of A-802



Test No. A-802

Figure D-56 Graph-Check Camera Sequence



SUMMARY DATA HEAD ACCELERATIONS

Test Number A-802

Test Type Side

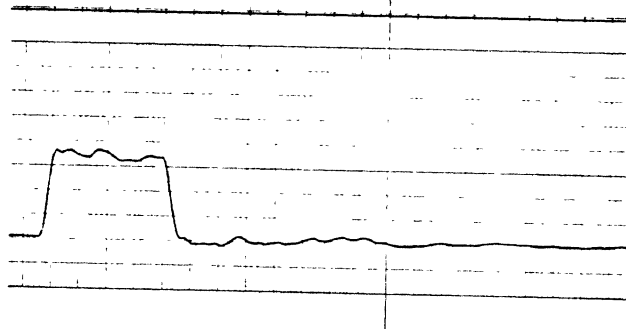
Dummy 6 MONTH

GM INFANT CARRIER

Sled Velocity 30.10 ft/sec

Impala

Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-803

Test Date: 9-9-74

Restraint Description: GM Infant Carrier (driver side)

Harness Configurations: GM lap belt, no retractor

Dummy 6 month

Sled Velocity (avg., ft/sec) 29.92

Sled Acceleration ( avg. g's) 17.6 (HSRI standard)

Belt Loads (peak pounds):	Right Lap	<u>150</u>
	Left Lap	<u>150</u>
	Shoulder	<u>NI</u>

Impact Direction: Rear

Seat Production - restrained

Test Observations: Child system worked well.

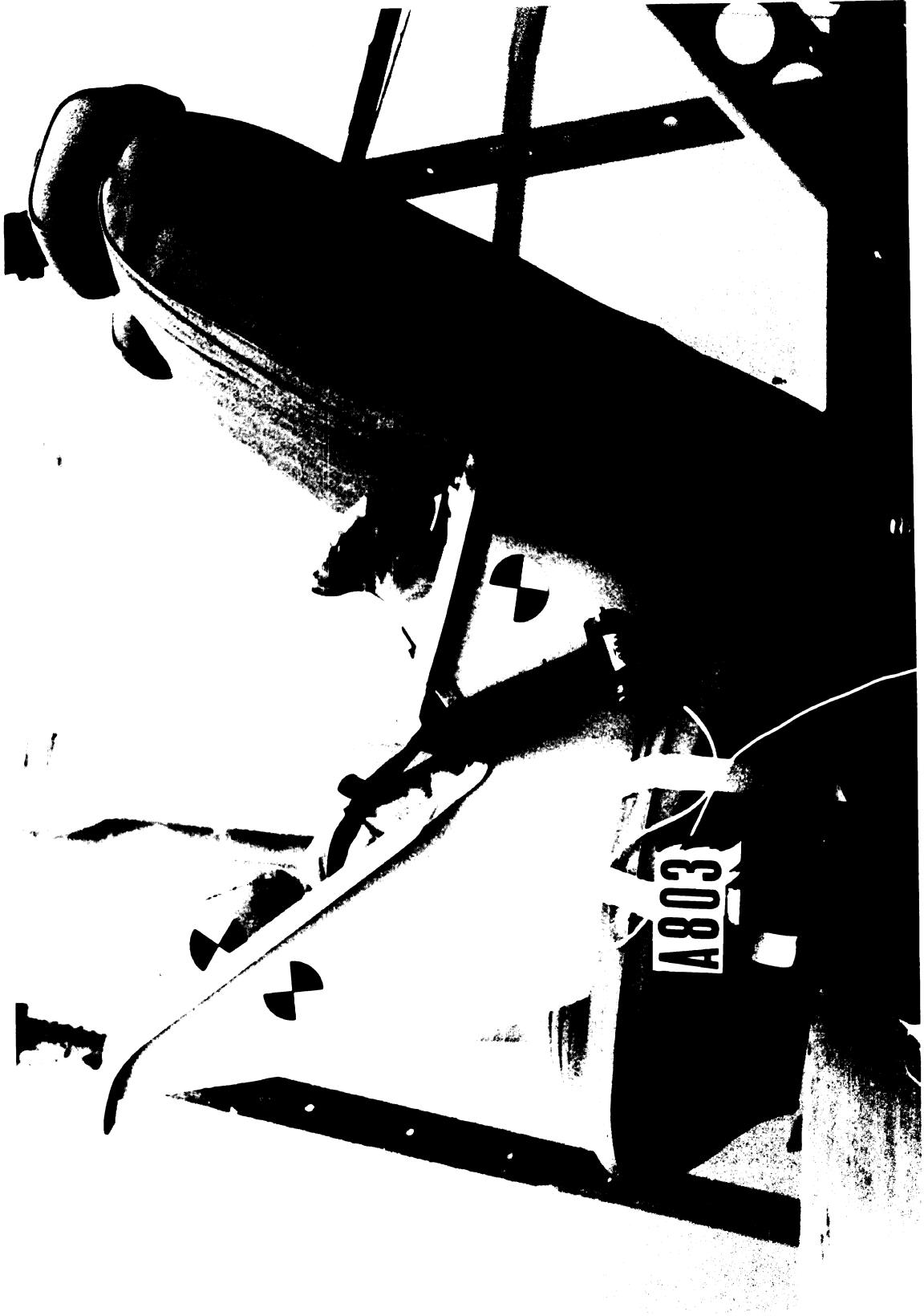


Figure D-57 Test Setup of A-803



Test No. A-803

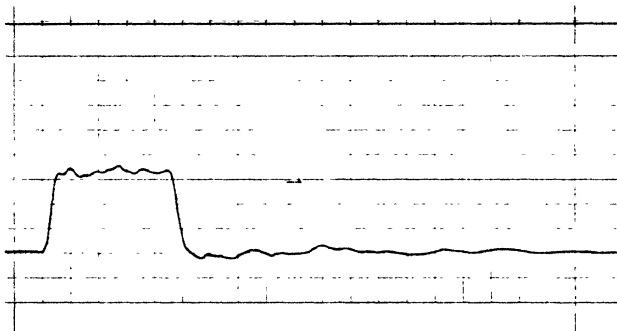
Figure D-58 Graph-Check Camera Sequence

Test Number A-803  
Dummy 6 MONTH  
Sled Velocity 29.92 ft/sec

SUMMARY DATA HEAD ACCELERATIONS

Test Type REAR  
GM INFANT CARRIER  
ImpA/A

Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000

Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-804

Test Date: 9-10-74

Restraint Description: Ford Tot Guard (driver side)

Harness Configurations: Volkswagen retractor, cable prevented right belt load measurement.

Dummy 3 year

Sled Velocity (avg., ft/sec) 29.80

Sled Acceleration ( avg. g's) 17.0 Qualifying trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>NI</u>
	Left Lap	<u>90</u>
	Shoulder	<u>80</u>

Impact Direction: Rear

Seat Production - unrestrained

Test Observations: Same configuration as test A-794.



Figure D-59 Test Setup of A-804



Test No. A-804

Figure D-60 Graph-Check Camera Sequence



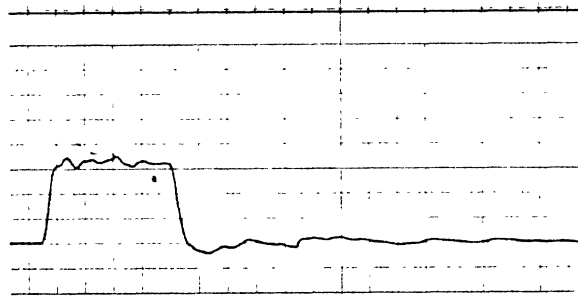


Figure D-61 Post Impact for A-804

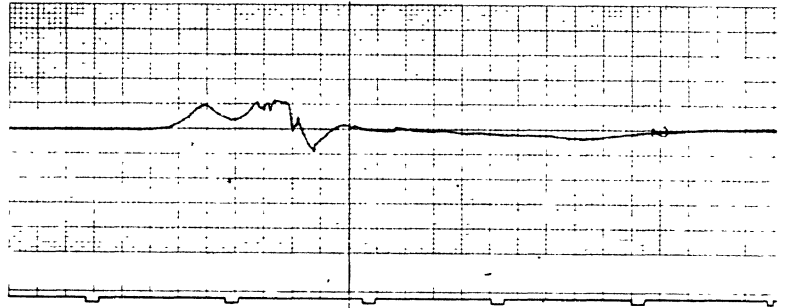
Test Number A-804  
Dummy Sierra 3yr  
Sled Velocity 29.80 ft/sec

SUMMARY DATA HEAD ACCELERATIONS  
Test Type REAR  
Tot Guard  
Impala

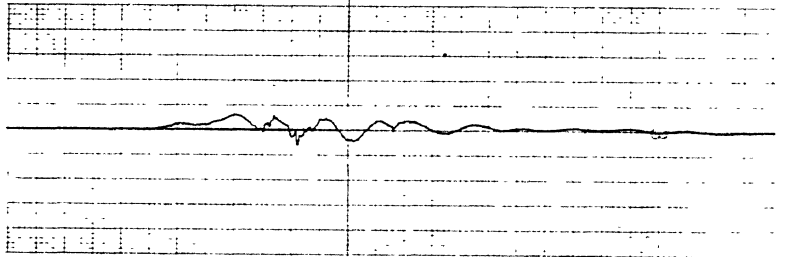
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



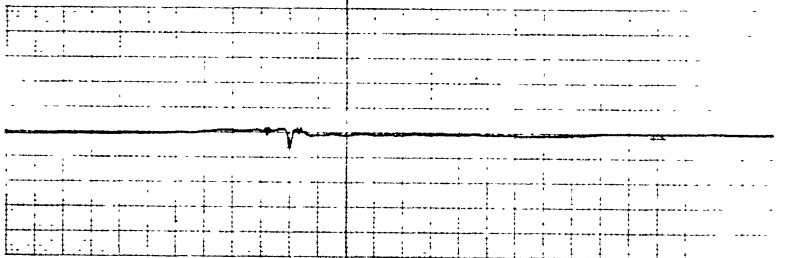
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



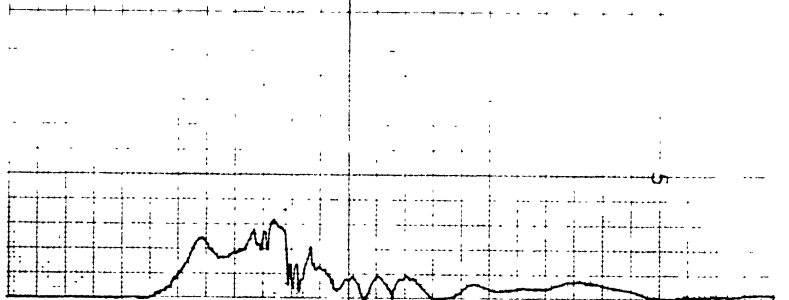
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



SUMMARY DATA CHEST ACCELERATIONS

Test Number A 804

Test Type REAR

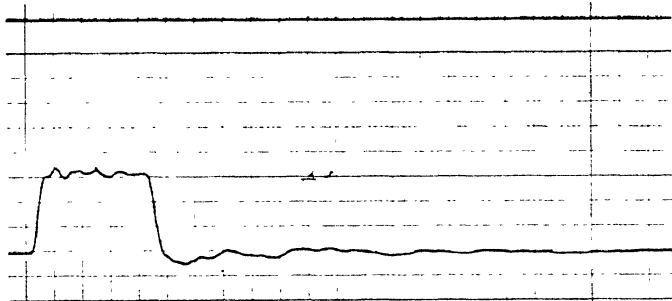
Dummy Sierra 3yr

Tot Guard

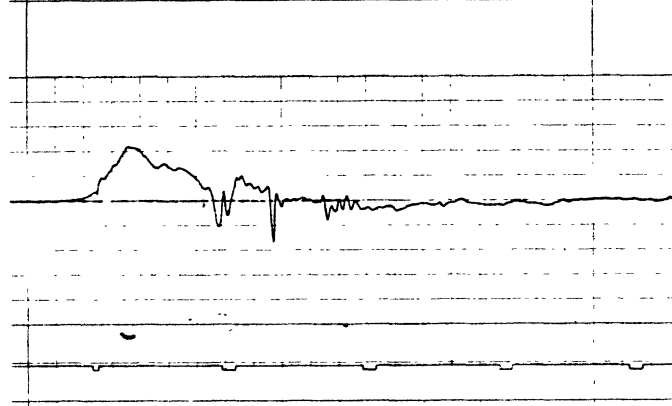
Sled Velocity 29.80 ft/sec

Impa/A

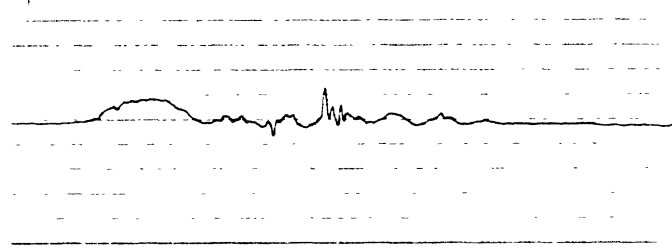
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



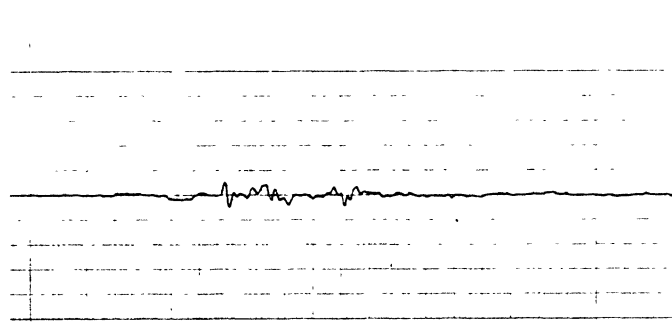
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



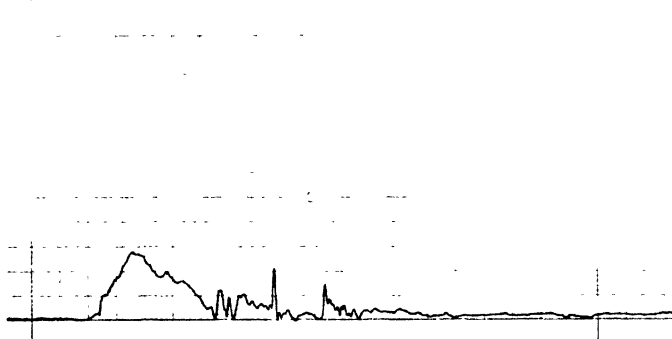
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
12.5 g's/Division  
Filtered  
Class 180

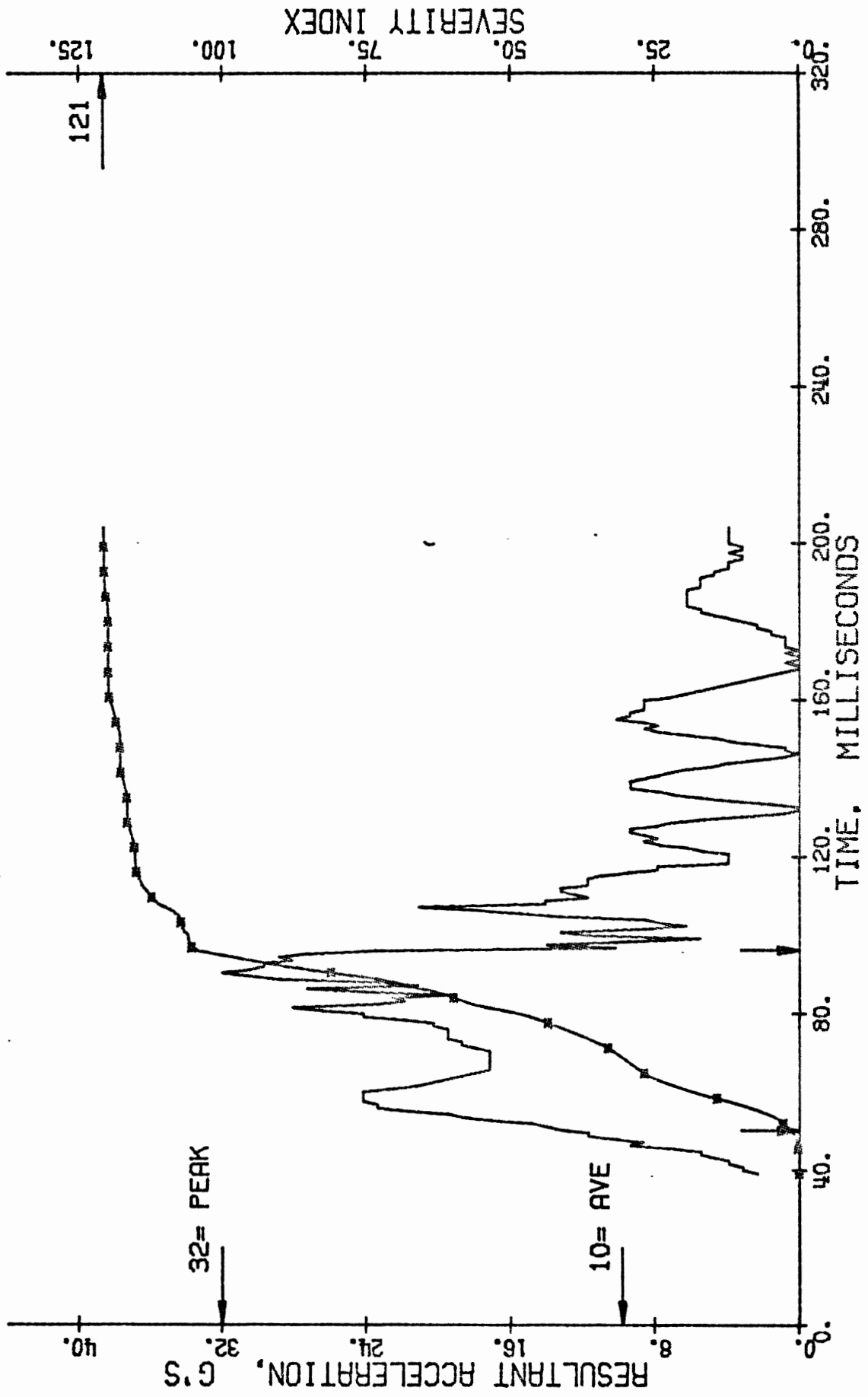


1-12.5 MSEC

SEP 27, 1974

H.I.C. = 95

S.I. = 121



A-804

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-805

Test Date: 9-10-74

Restraint Description: Ford Tot Guard (passenger side)

Harness Configurations: GM retractor

Dummy 3 year

Sled Velocity (avg., ft/sec) 43.71

Sled Acceleration ( avg. g's) 23.2 (Qualifying trapezoidal)

Belt Loads (peak pounds):	Right Lap	<u>870</u>
	Left Lap	<u>1050</u>
	Shoulder	<u>500</u>

Impact Direction: Front

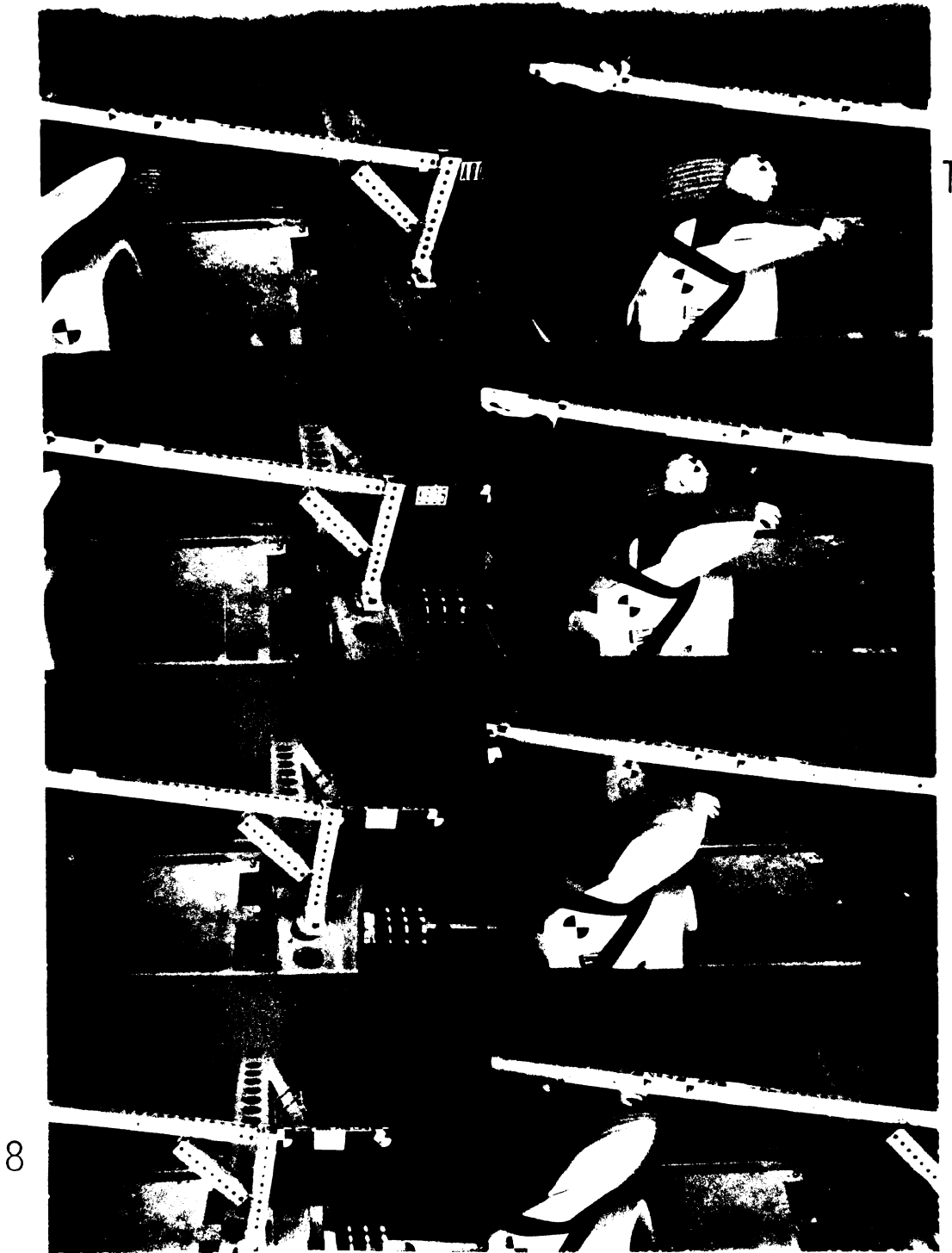
Seat Production - unrestrained

Test Observations: The GM belt restraint system worked well.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Figure D-62 Test Setup of A-805



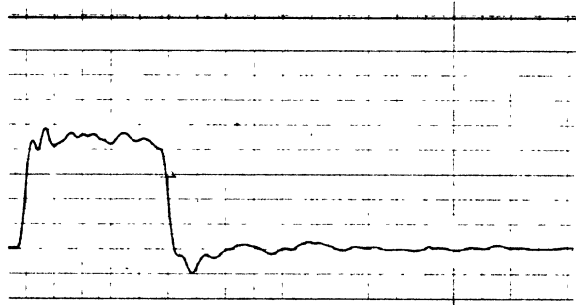
Test No. A-805

Figure D-63 Graph-Check Camera Sequence

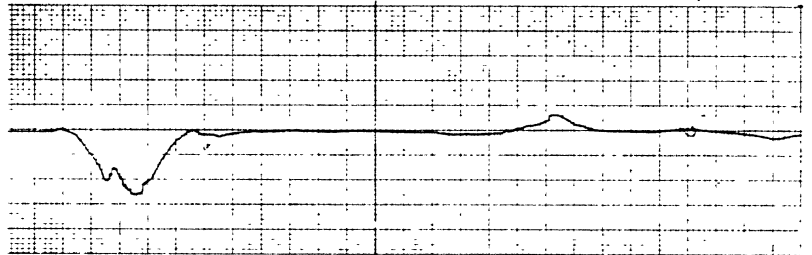
Test Number A-805  
Dummy Sierra 3yr  
Sled Velocity 43.71 ft/sec

SUMMARY DATA HEAD ACCELERATIONS  
Test Type FRONT  
Tot Guard  
Impala

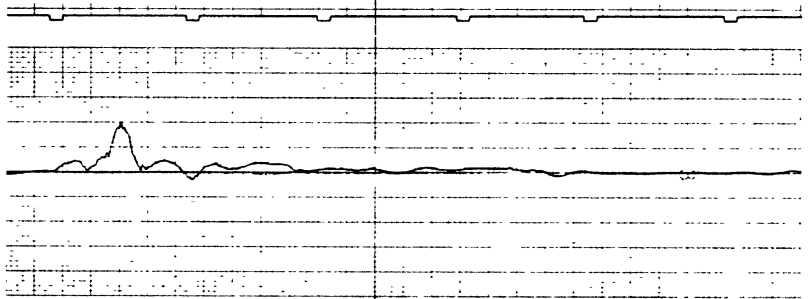
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



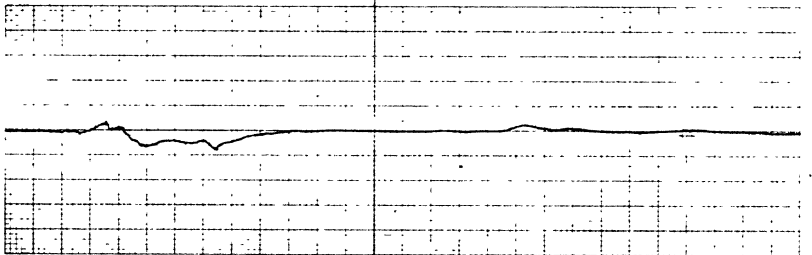
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



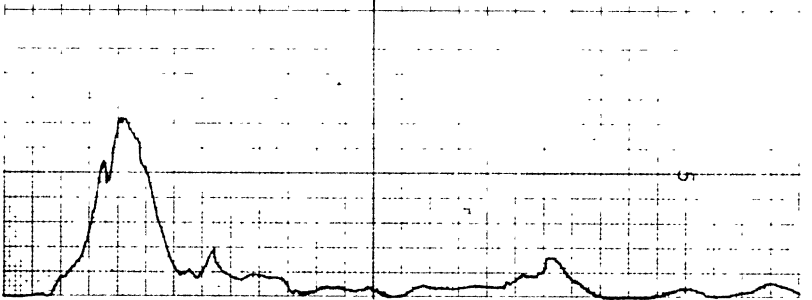
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



1-12.5 MSEC



SUMMARY DATA CHEST ACCELERATIONS

Test Number A 805

Test Type FRONT

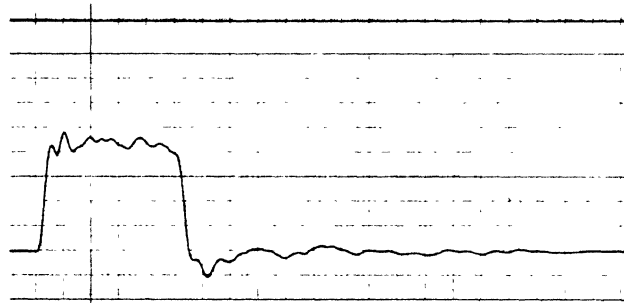
Dummy Sierra 3yr

Tot Guard

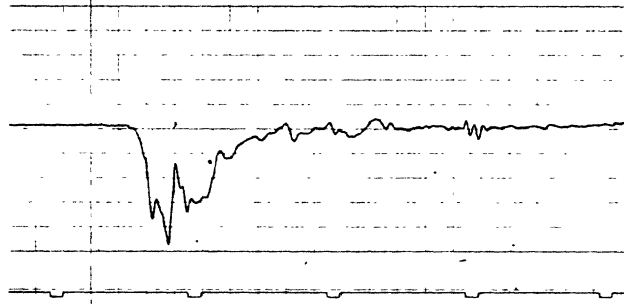
Sled Velocity 43.71 ft/sec

Impala

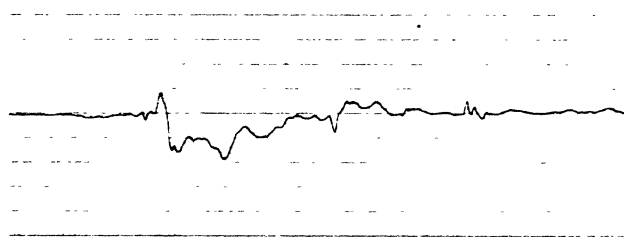
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



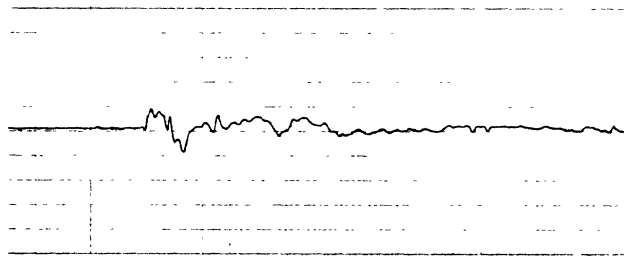
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



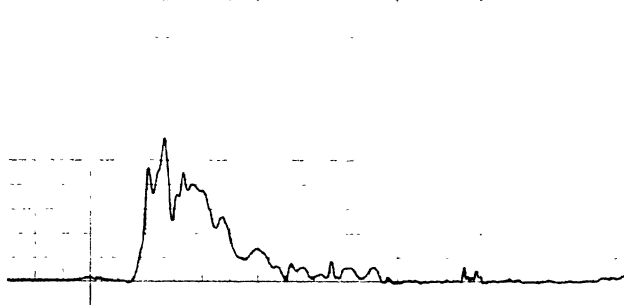
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180

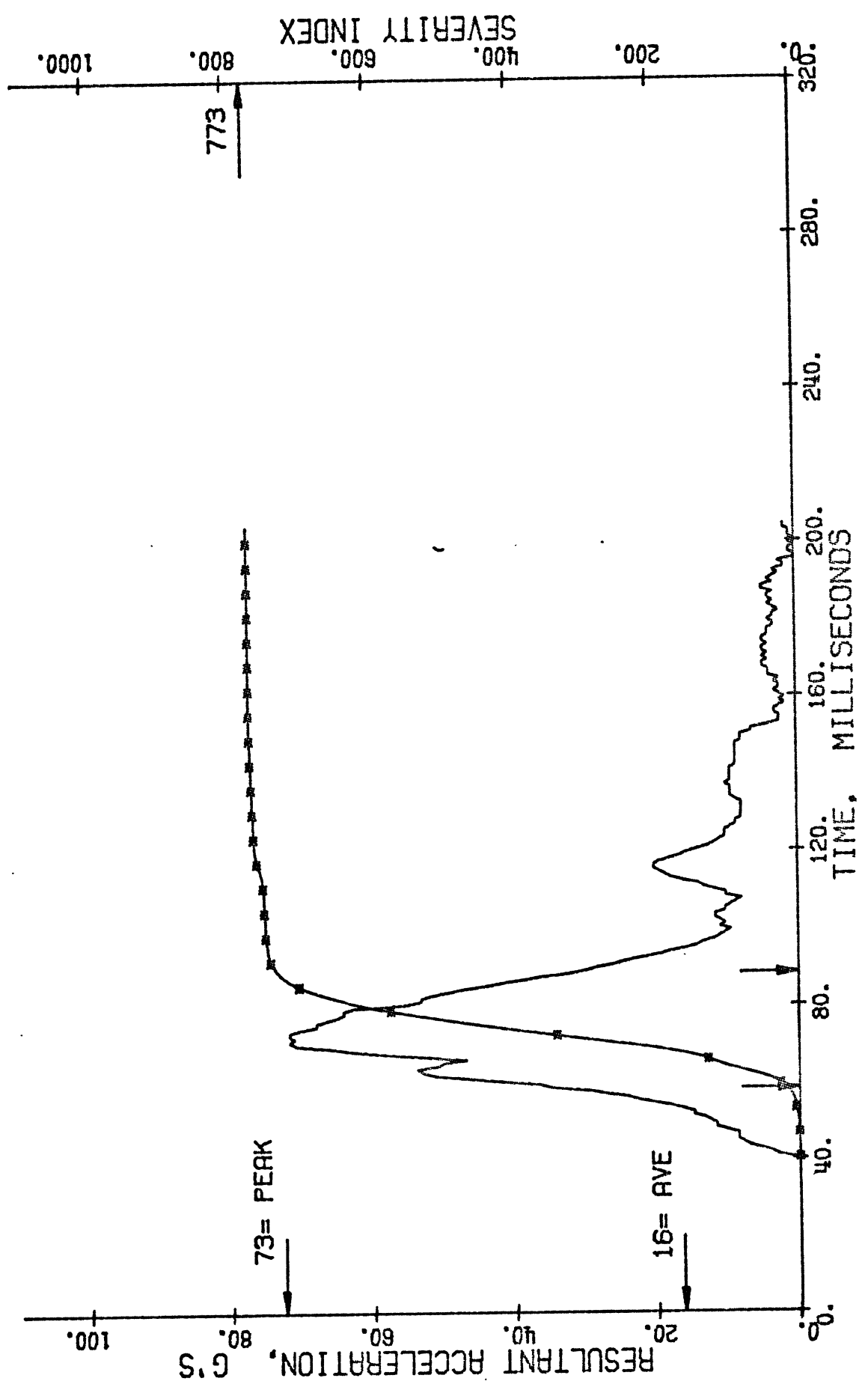


1-12.5 MSEC

S.I. = 773

H.I.C. = 657

SEP 27, 1974



A-805

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-806

Test Date: 9-10-74

Restraint Description: Ford Tot Guard (passenger side)

Harness Configurations: GM retractor

Dummy 3 year

Sled Velocity (avg., ft/sec) 45.85

Sled Acceleration ( avg. g's) 22.4 (qualifying trapezoidal

Belt Loads (peak pounds):  
Right Lap 570  
Left Lap 1060  
Shoulder 800

Impact Direction: Front

Seat Production unrestrained

Test Observations: The GM belt restraint system worked well. Forward, on rebound, the tot-guard came out from under the belt system (See Post impact photo.)



Figure D-64 Test Setup of A-806



Test No. A-806

Figure D-65 Graph-Check Camera Sequence

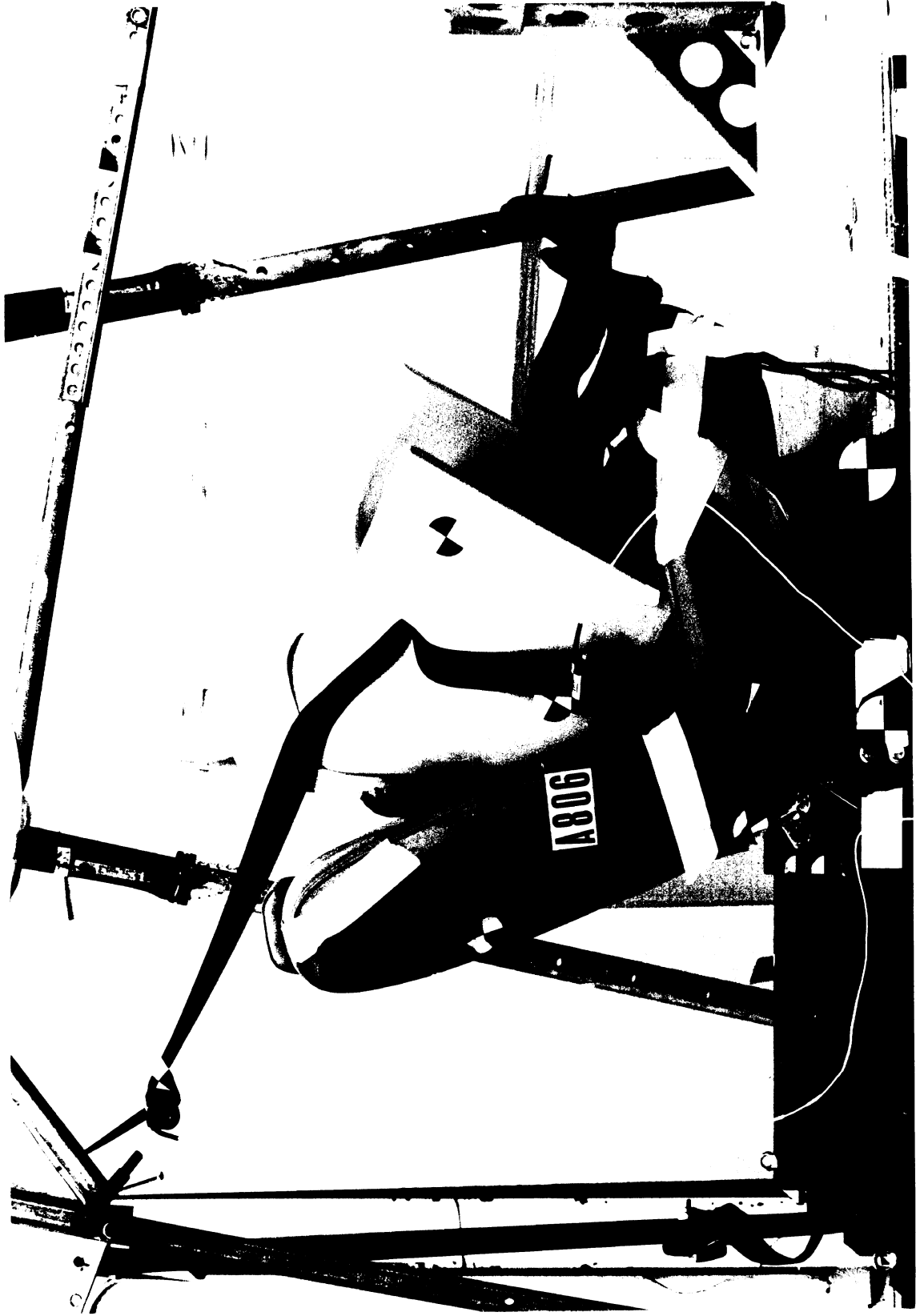


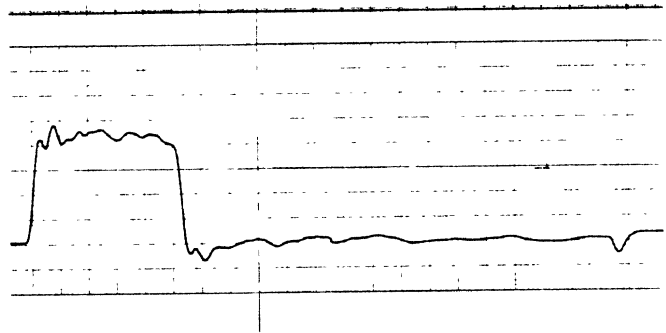
Figure D-66 Post Impact for A-806

Test Number A-806  
Dummy Sierra 3 yr.  
Sled Velocity 45.85 ft/sec

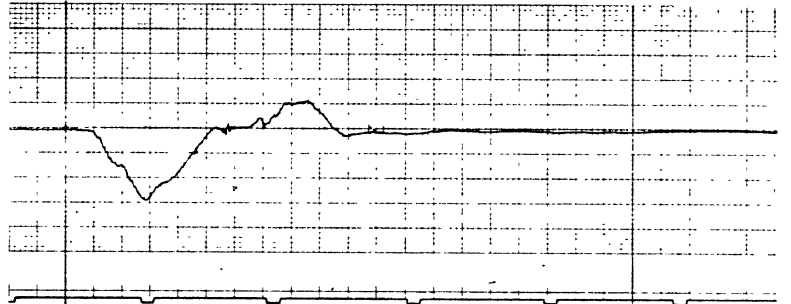
SUMMARY DATA HEAD ACCELERATIONS

Test Type Front  
Tot Guard  
Impala

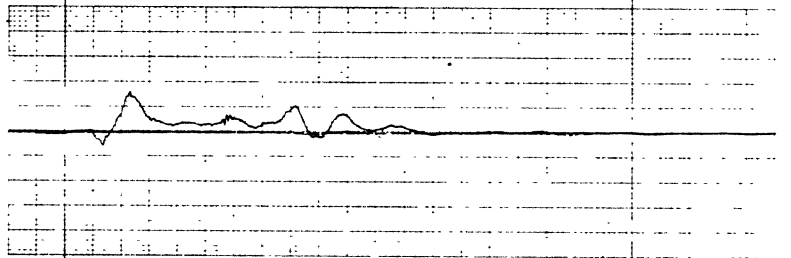
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



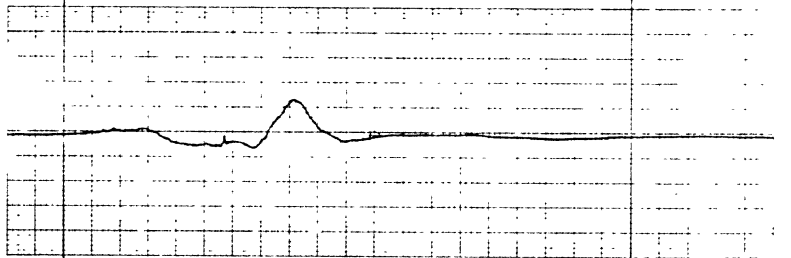
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



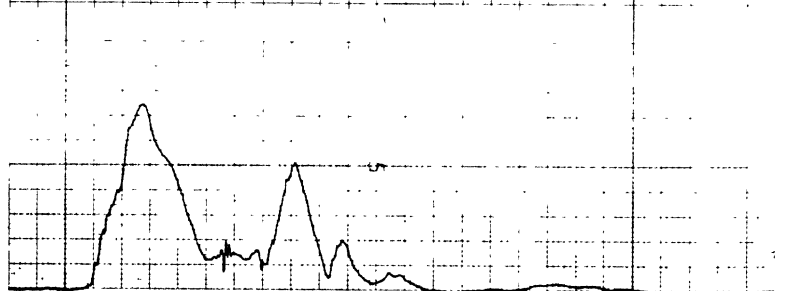
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000

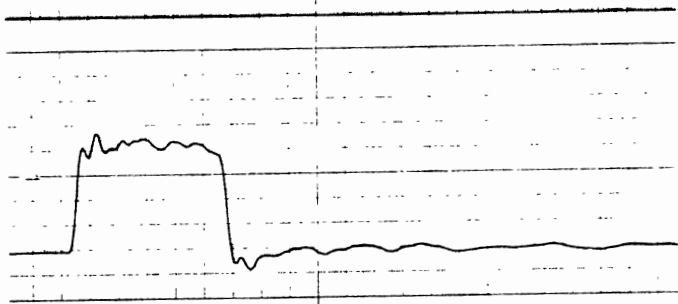


SUMMARY DATA CHEST ACCELERATIONS

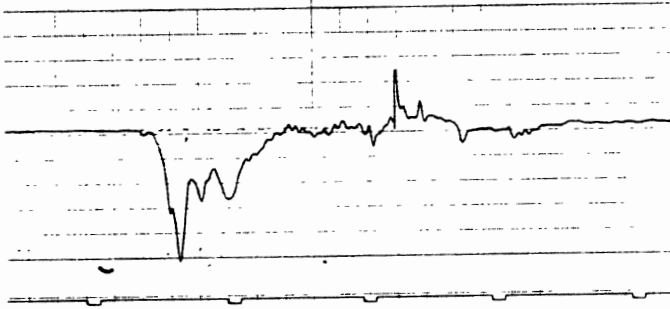
Test Number A 806  
Dummy Sierra 3yr  
Sled Velocity 45.85ft/sec

Test Type Front  
Tot Guard  
ImpA/A

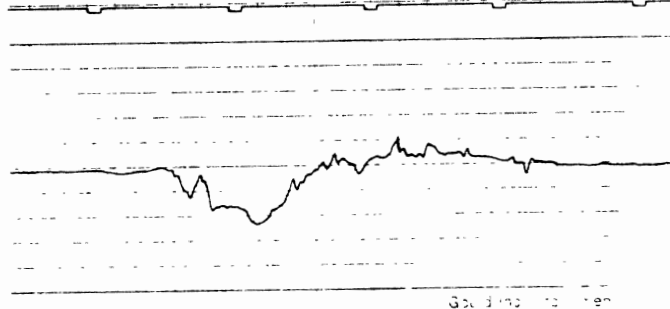
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180

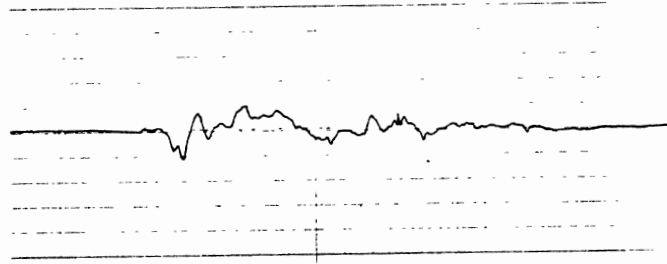


Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180

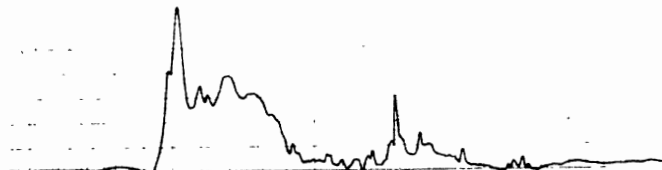


ACCELCHART

Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180



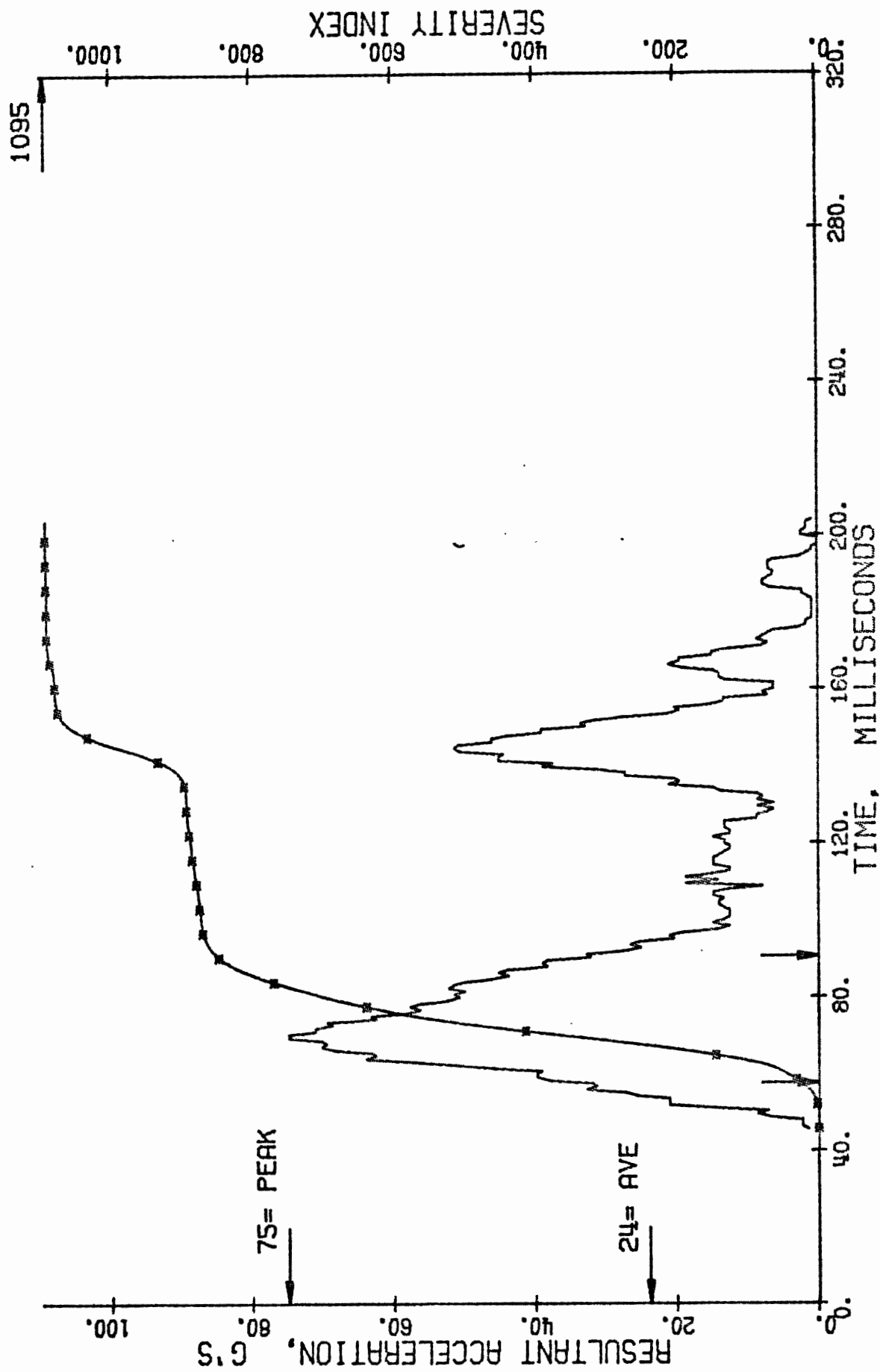
-12.5 MSEC



SEP 27, 1974

H.I.C. = 755

S.I. = 1095



A-806

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-807

Test Date: 9-10-74

Restraint Description: Tot Guard (passenger side)

Harness Configurations: GM retractor

Dummy 3 year

Sled Velocity (avg., ft/sec) 44.85

Sled Acceleration ( avg. g's) 20.4 Compliance Trapezoidal

Belt Loads (peak pounds):  
Right Lap 650  
Left Lap 960  
Shoulder 800

Impact Direction: Front

Seat Production-unrestrained

Test Observations: The GM belt restraint system worked well. No graph-check photo.



Figure D-67 Test Setup of A-807

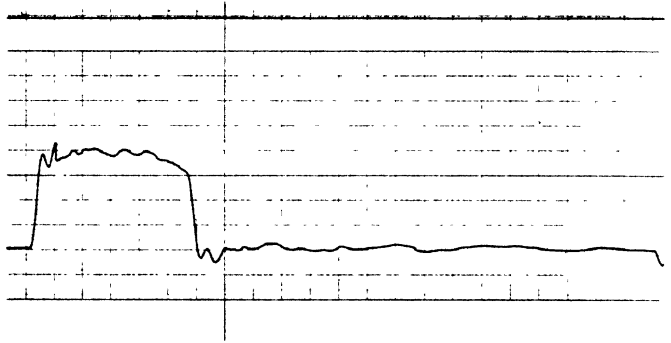


Figure D-68 Post Impact for A-807

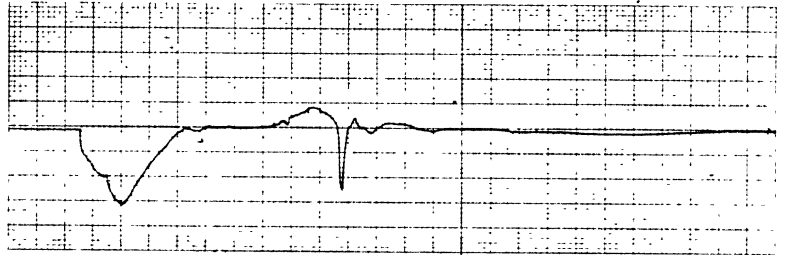
Test Number A-807  
Dummy Sierra 3yr  
Sled Velocity 44.85 ft/sec

SUMMARY DATA HEAD ACCELERATIONS  
Test Type FRONT  
Tot Guard  
Impala

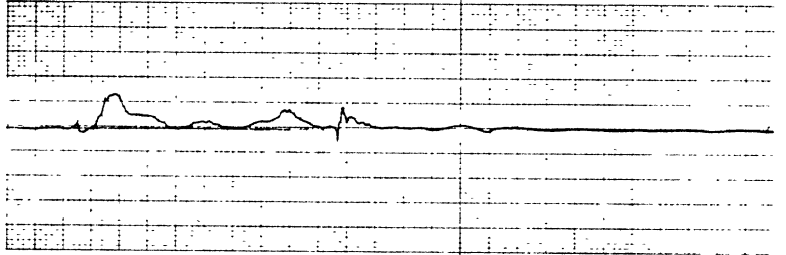
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



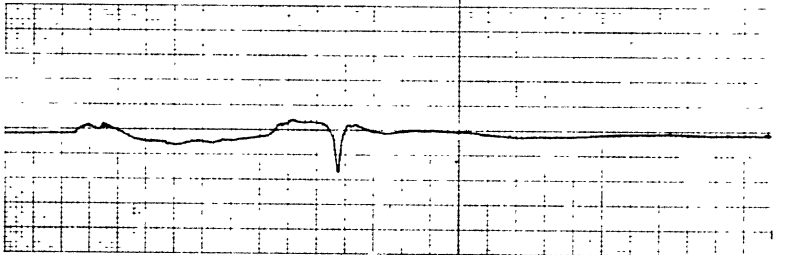
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



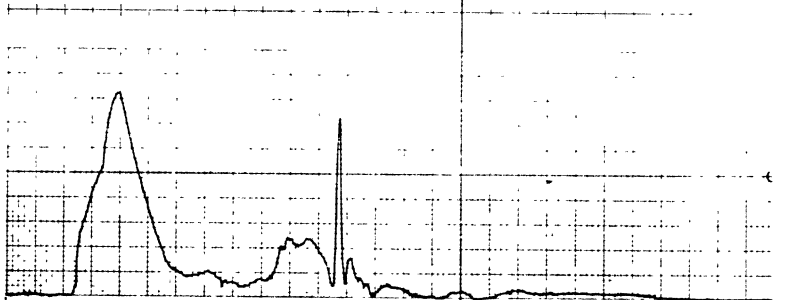
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



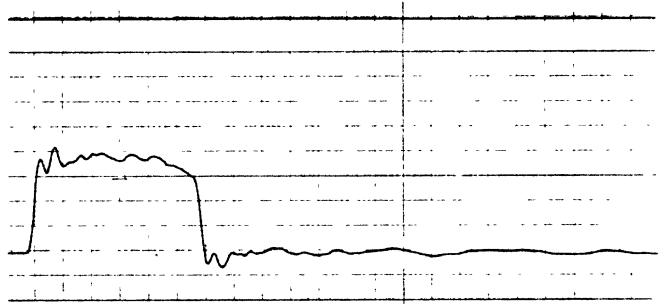
1 -12.5 MSEC

SUMMARY DATA CHEST ACCELERATIONS

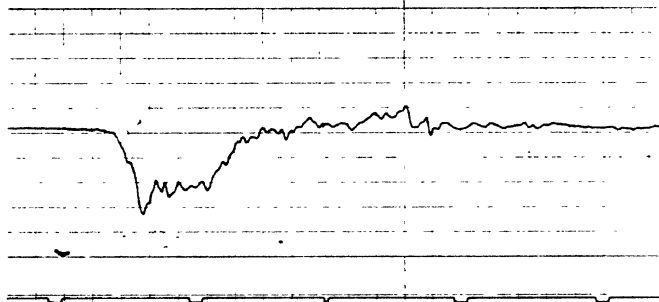
Test Number A 807  
Dummy Sierra 3yr  
Sled Velocity 44.85 ft/sec

Test Type Front  
Tot Guard  
Impala

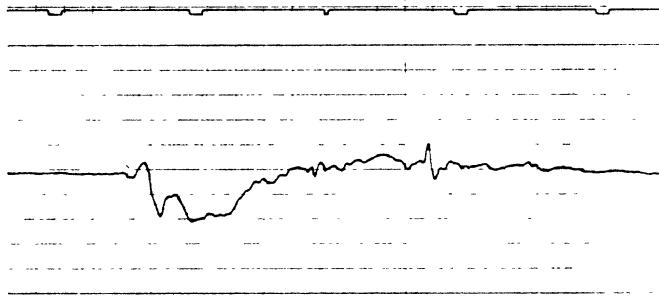
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



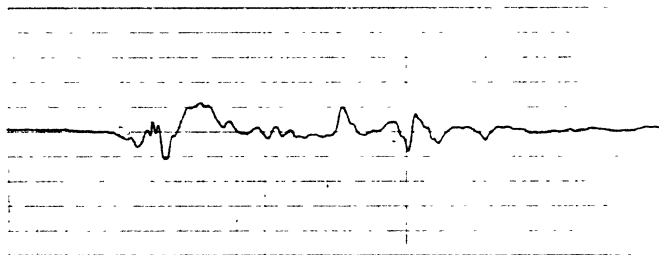
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



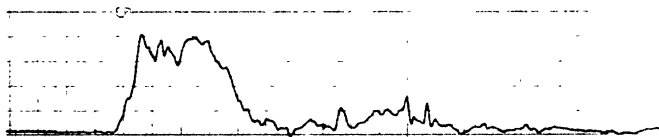
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180

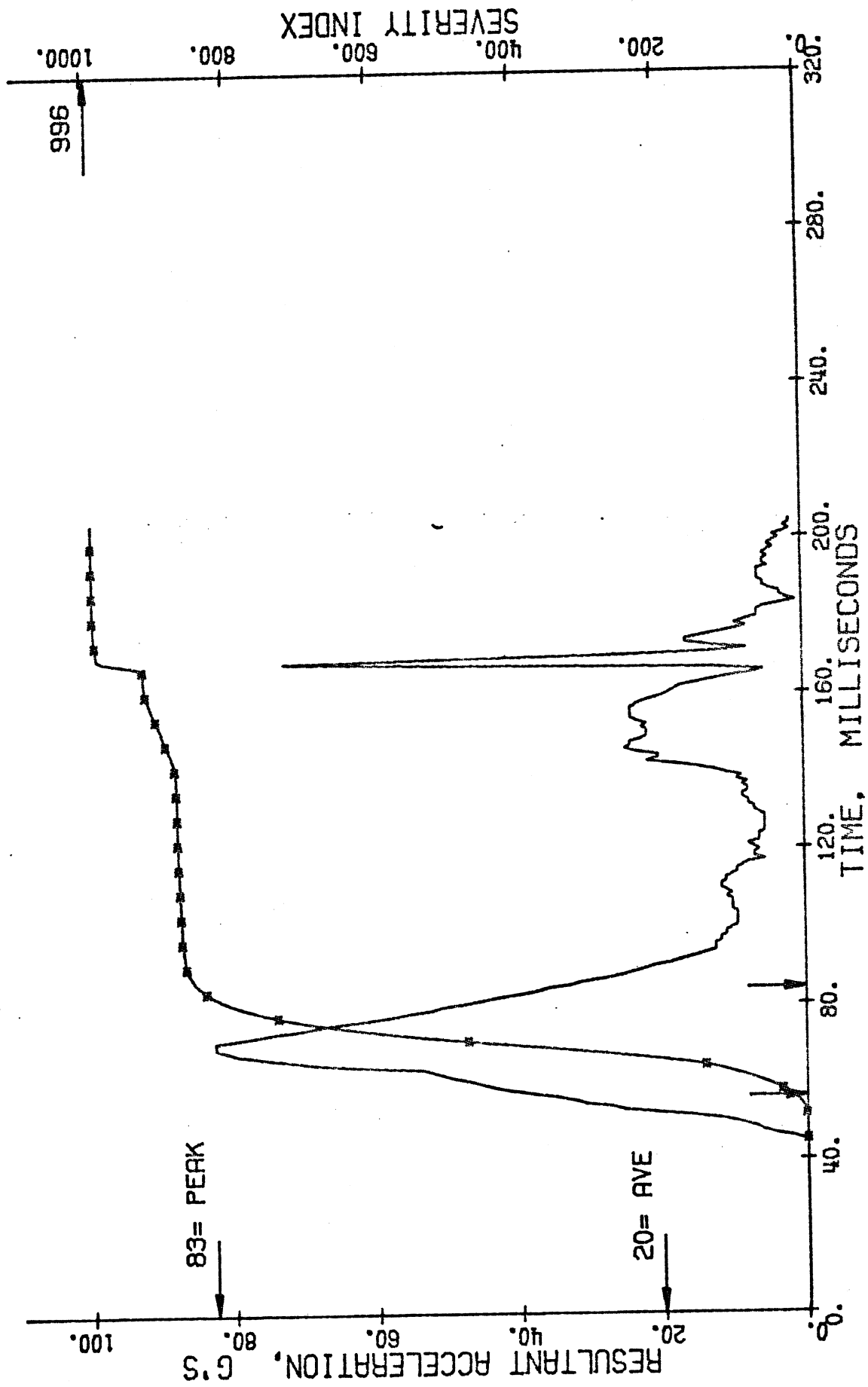


12.5 MSEC

SEP 27, 1974

H.I.C. = 731

S.I. = 996



A-807

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-808

Test Date: 9-10-74

Restraint Description: Ford Tot Guard (passenger side)

Harness Configurations: GM retractor

Dummy 3 year

Sled Velocity (avg., ft/sec) 44.15

Sled Acceleration (avg. g's) 19.2 compliance trapezoidal

Belt Loads (peak pounds):	Right Lap	<u>650</u>
	Left Lap	<u>950</u>
	Shoulder	<u>700</u>

Impact Direction: Front

Seat Production - unrestrained

Test Observations: The GM belt restraint system worked well.





Figure D-69 Test Setup of A-808



Test No. A-808

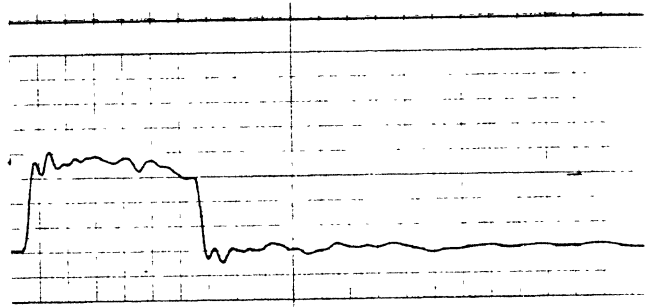
Figure D-70 Graph-Check Camera Sequence

Test Number A-808  
Dummy Sierra 3 yr  
Sled Velocity 44.15 ft/sec

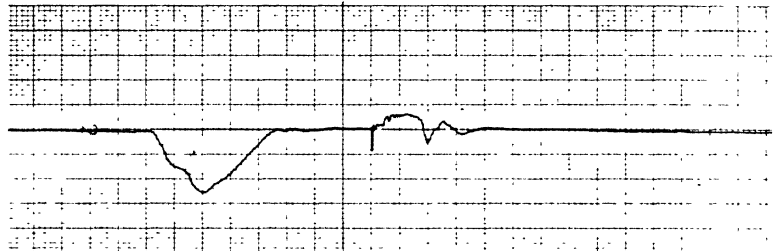
SUMMARY DATA HEAD ACCELERATIONS

Test Type Front  
Tot Guard  
Impala

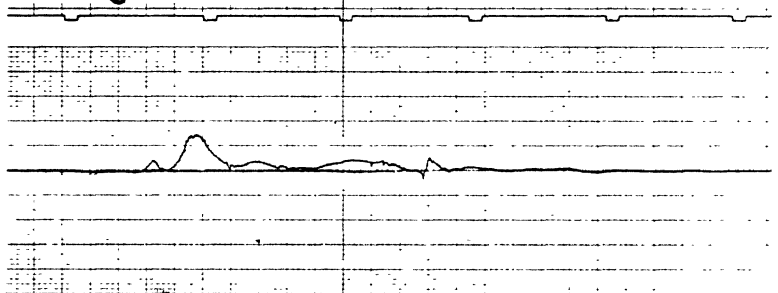
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



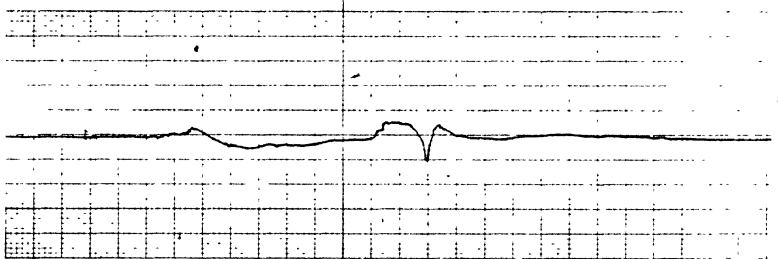
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



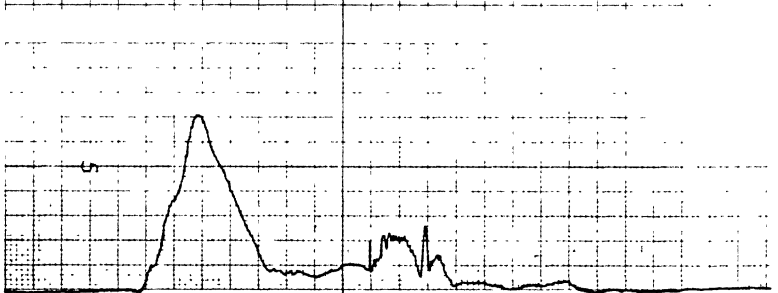
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000

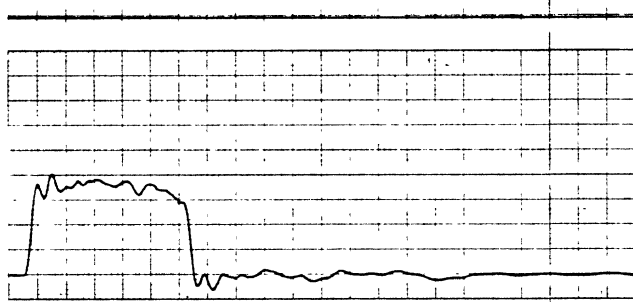


Test Number A-808  
Dummy 3 Year  
Sled Velocity 44.15 ft/sec

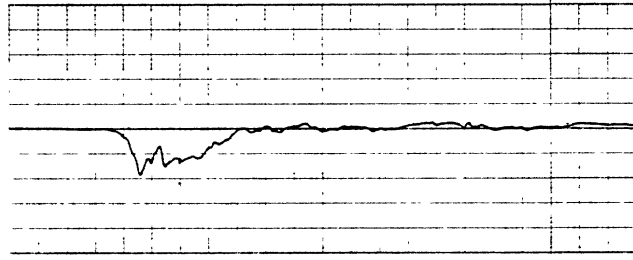
SUMMARY DATA CHEST ACCELERATIONS

Test Type Front  
Ford Tot Guard  
Production

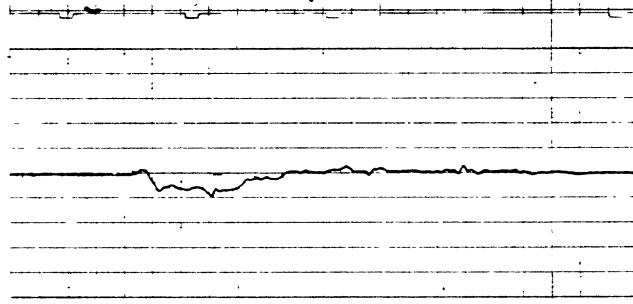
Sled Pulse  
5g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Chest Accelerations  
25g's/Division  
Filtered  
Class 180



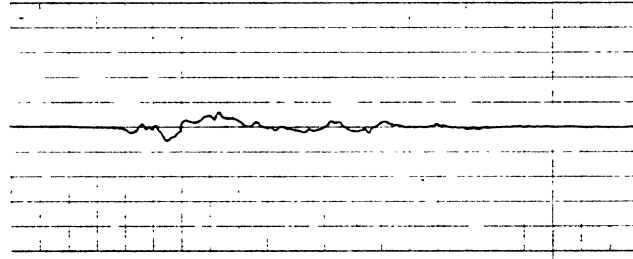
Superior-Inferior  
Chest Accelerations  
25g's/Division  
Filtered  
Class 180



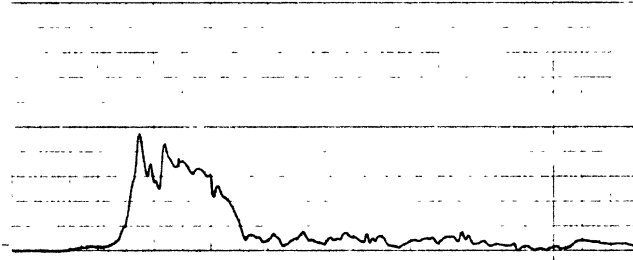
Gould Inc. Instrument Systems Division

Cleveland Ohio Printed in U.S.A.

Left-Right  
Chest Accelerations  
25g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10g's/Division  
Filtered  
Class 180

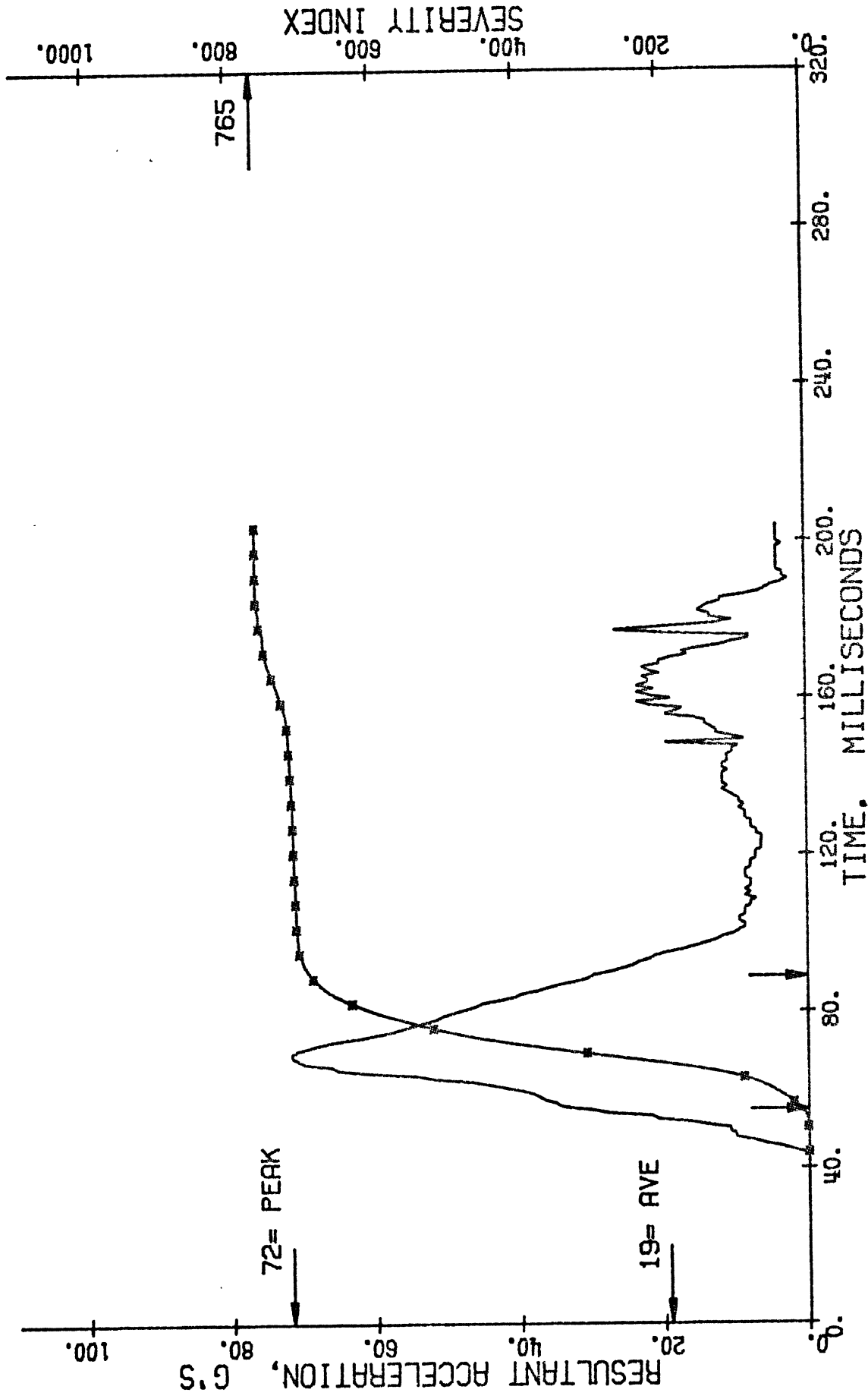


1-12.5 MSEC

SEP 27, 1974

H.I.C. = 603

S.I. = 765



A-808

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-811

Test Date: \_\_\_\_\_

Restraint Description: Ford Tot Guard (passenger side)

Harness Configurations: GM retractor

Dummy 3 year

Sled Velocity (avg., ft/sec) 45.52

Sled Acceleration (peak g's) 26 Qualifying half sine

Belt Loads (peak pounds):	Right Lap	<u>650</u>
	Left Lap	<u>900</u>
	Shoulder	<u>700</u>

Impact Direction: Front

Seat Production, unrestrained

Test Observations: The GM belt restraint system worked well.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Figure D-71 Test Setup of A-811



TEST NO. A-811

Figure D-72 Graph-Check Camera Sequence

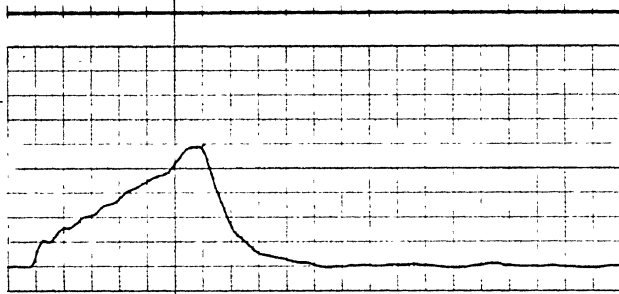


SUMMARY DATA HEAD ACCELERATIONS

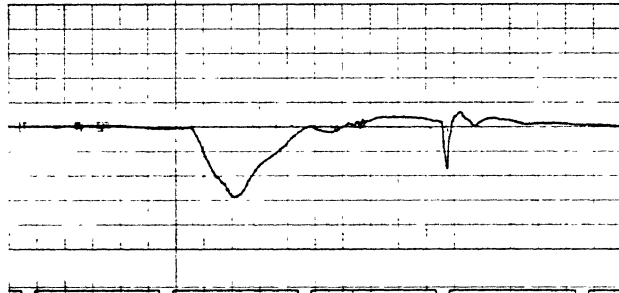
Test Number A-811  
Dummy SIERRA 3 YEAR  
Sled Velocity 45.52 ft/sec

Test Type FRONT  
FORD TOT GUARD  
IMPALA SEAT

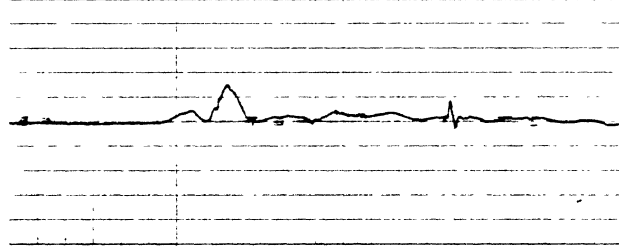
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



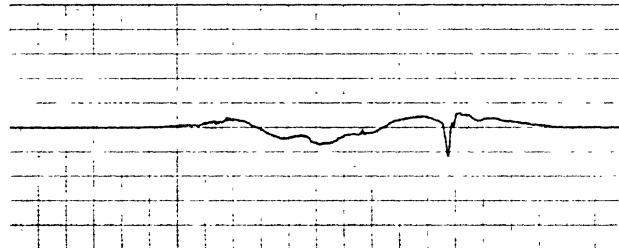
Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



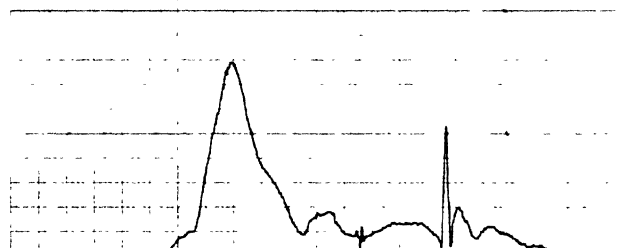
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



SUMMARY DATA CHEST ACCELERATIONS

Test Number A-811

Test Type FRONT

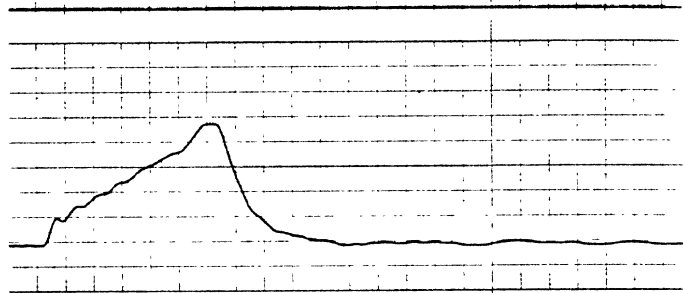
Dummy Sierra 3yr

FORD TOT GUARD

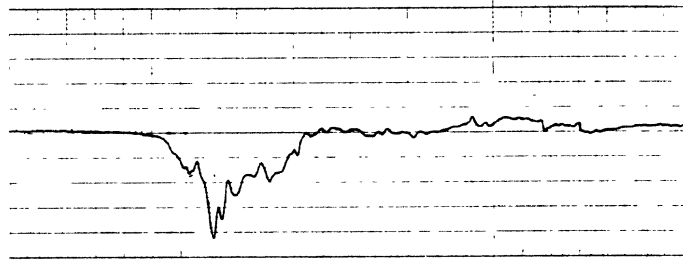
Sled Velocity \_\_\_\_\_ ft/sec

Impala

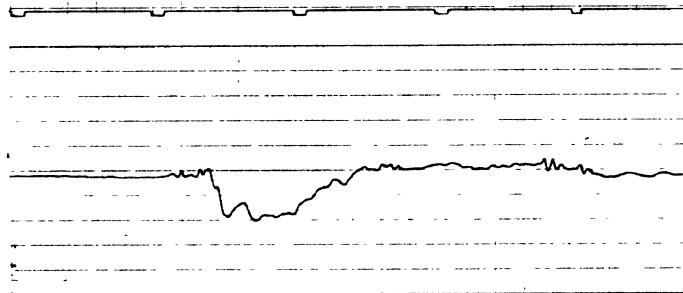
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Chest Accelerations  
2.5 g's/Division  
Filtered  
Class 180



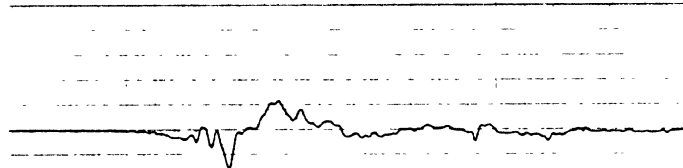
Superior-Inferior  
Chest Accelerations  
2.5 g's/Division  
Filtered  
Class 180



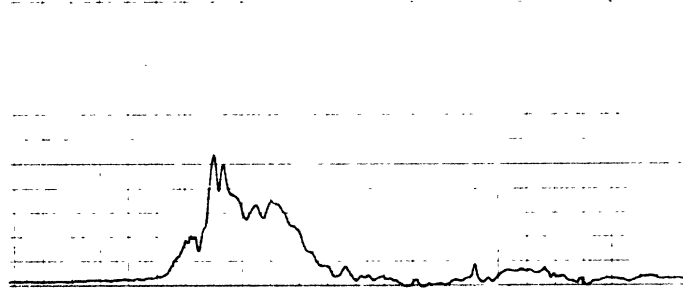
Gould Inc., Instrument Systems Division

Westland Ohio Printed in U.S.A.

Left-Right  
Chest Accelerations  
2.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180

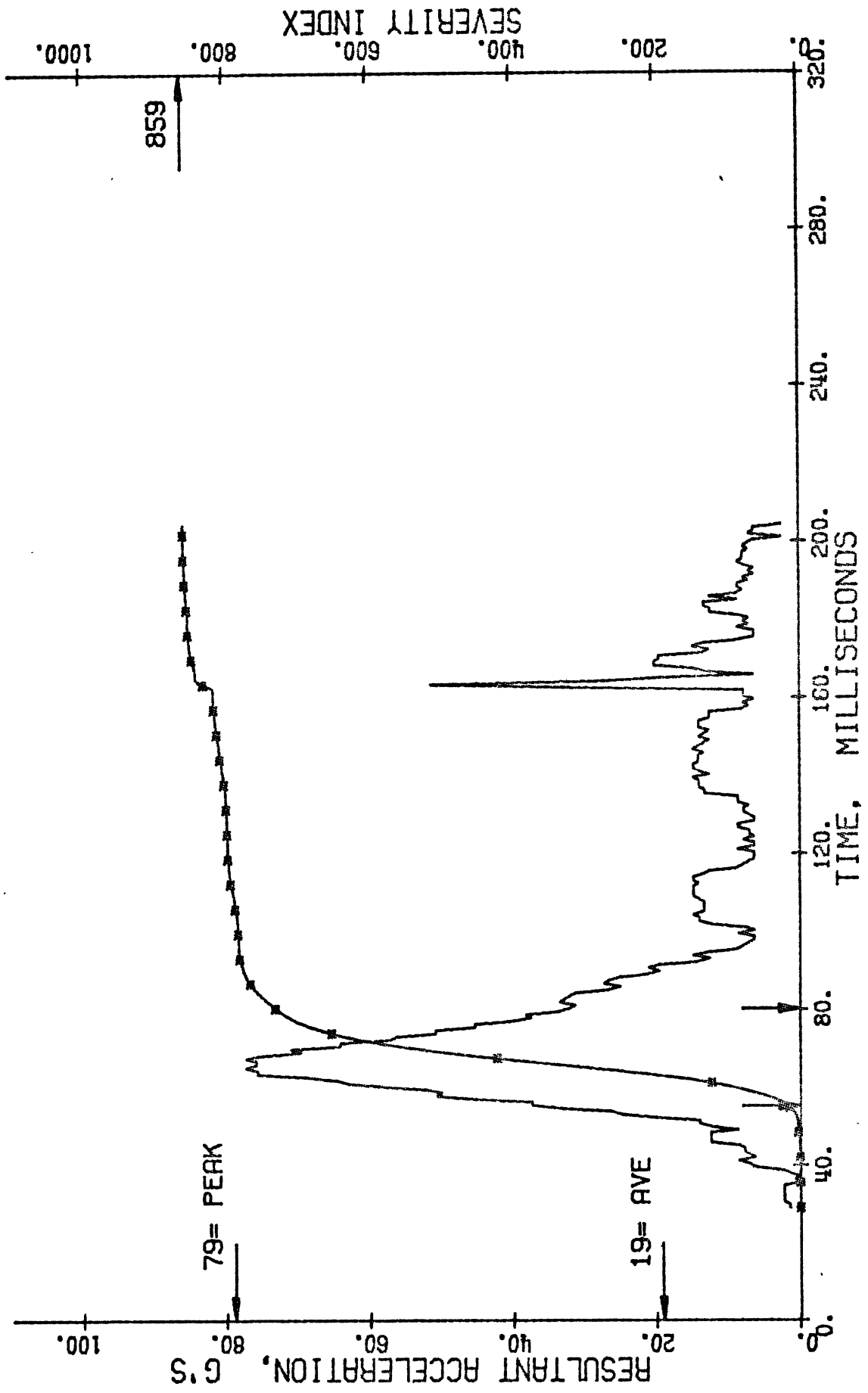


12.5 MSEC

SEP 27, 1974

H.I.C. = 644

S.I. = 859



A-811

HSRI CHILD SEAT DATA SUMMARY

Test Number: A-812

Test Date: \_\_\_\_\_

Restraint Description: Ford Tot Guard (passenger side)

Harness Configurations: GM retractor

Dummy 3 year

Sled Velocity (peak ft/sec) 44.85

Sled Acceleration ( avg. g's) 28.8 Qualifying half sine

Belt Loads (peak pounds):	Right Lap	<u>625</u>
	Left Lap	<u>950</u>
	Shoulder	<u>750</u>

Impact Direction: Front

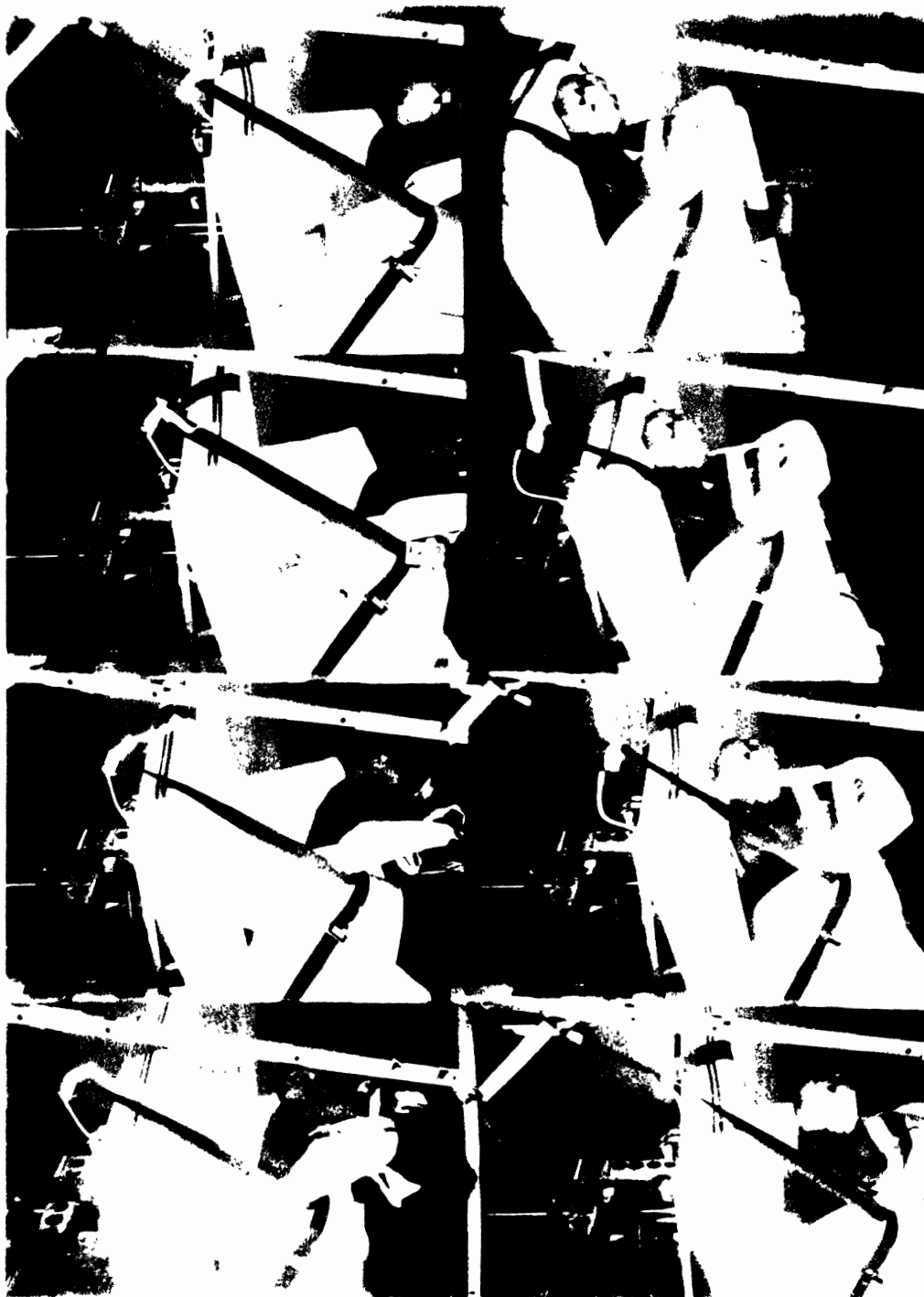
Seat Standard

Test Observations: The GM belt restraint system worked well.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Figure D-73 Test Setup of A-812



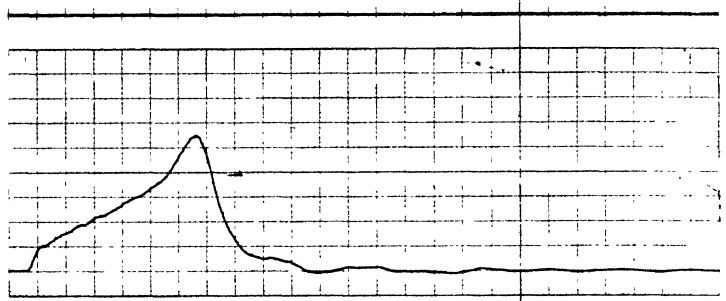
TEST NO. A-812

Figure D-74 Graph-Check Camera Sequence

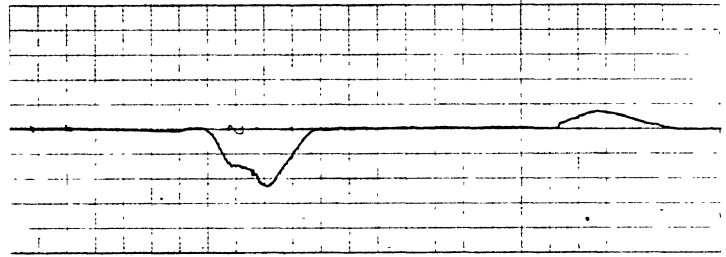
Test Number A-812  
Dummy SIERRA 3 YEAR  
Sled Velocity 44.85 ft/sec

SUMMARY DATA HEAD ACCELERATIONS  
Test Type FRONT  
FORD TOT GUARD  
STANDARD SEAT

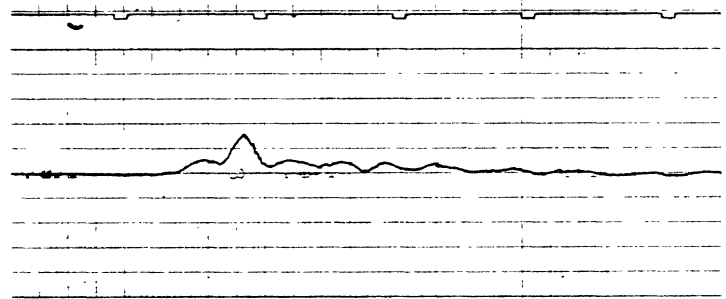
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



Anterior-Posterior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



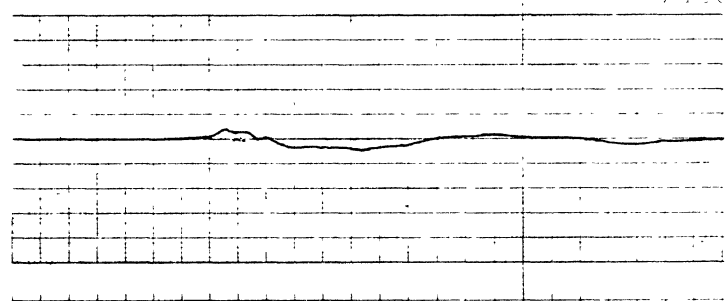
Superior-Inferior  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



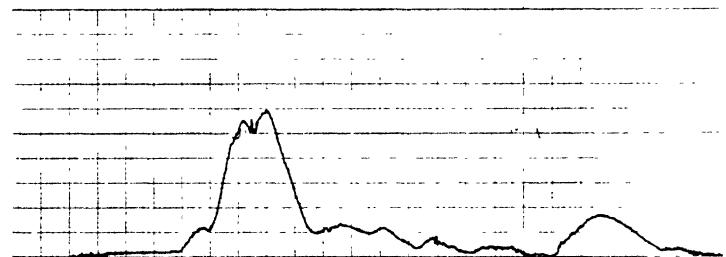
BRUSH ACCUCHART

Gould Inc

Left-Right  
Head Accelerations  
25 g's/Division  
Filtered  
Class 1000



Resultant Head  
Accelerations  
10 g's/Division  
Filtered  
Class 1000



1-12.5 MSE

SUMMARY DATA CHEST ACCELERATIONS

Test Number A812

Test Type Front

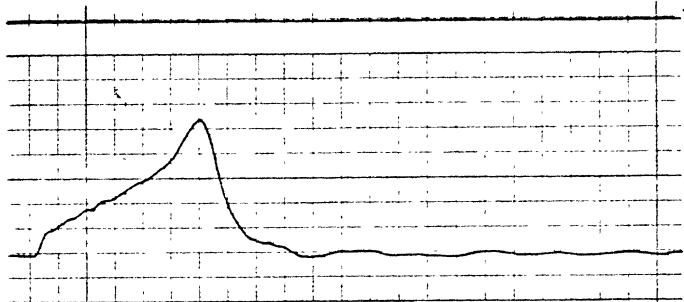
Dummy Sierra 3yr

FORD TOT GUARD

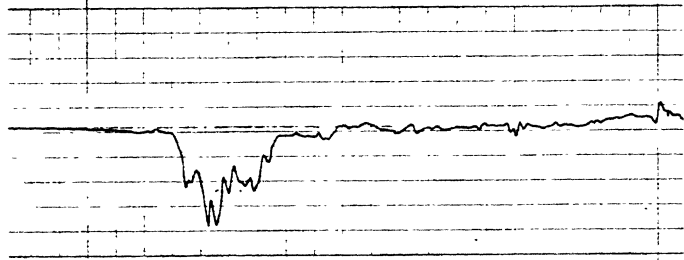
Sled Velocity \_\_\_\_\_ ft/sec

STANDARD

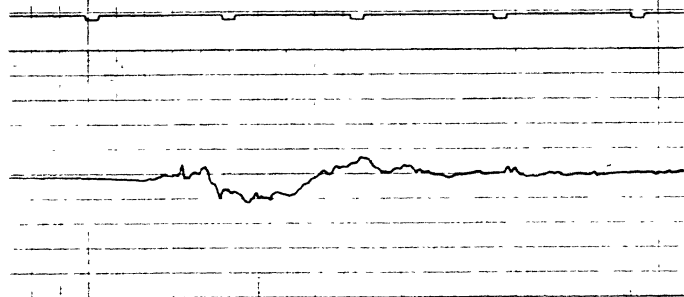
Sled Pulse  
5 g's/Division  
Filtered  
Class 60



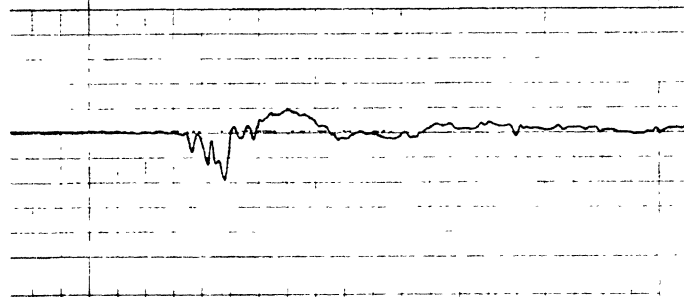
Anterior-Posterior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



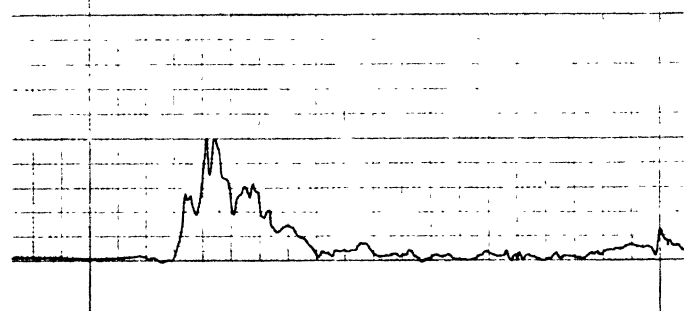
Superior-Inferior  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Left-Right  
Chest Accelerations  
12.5 g's/Division  
Filtered  
Class 180



Resultant Chest  
Accelerations  
10 g's/Division  
Filtered  
Class 180



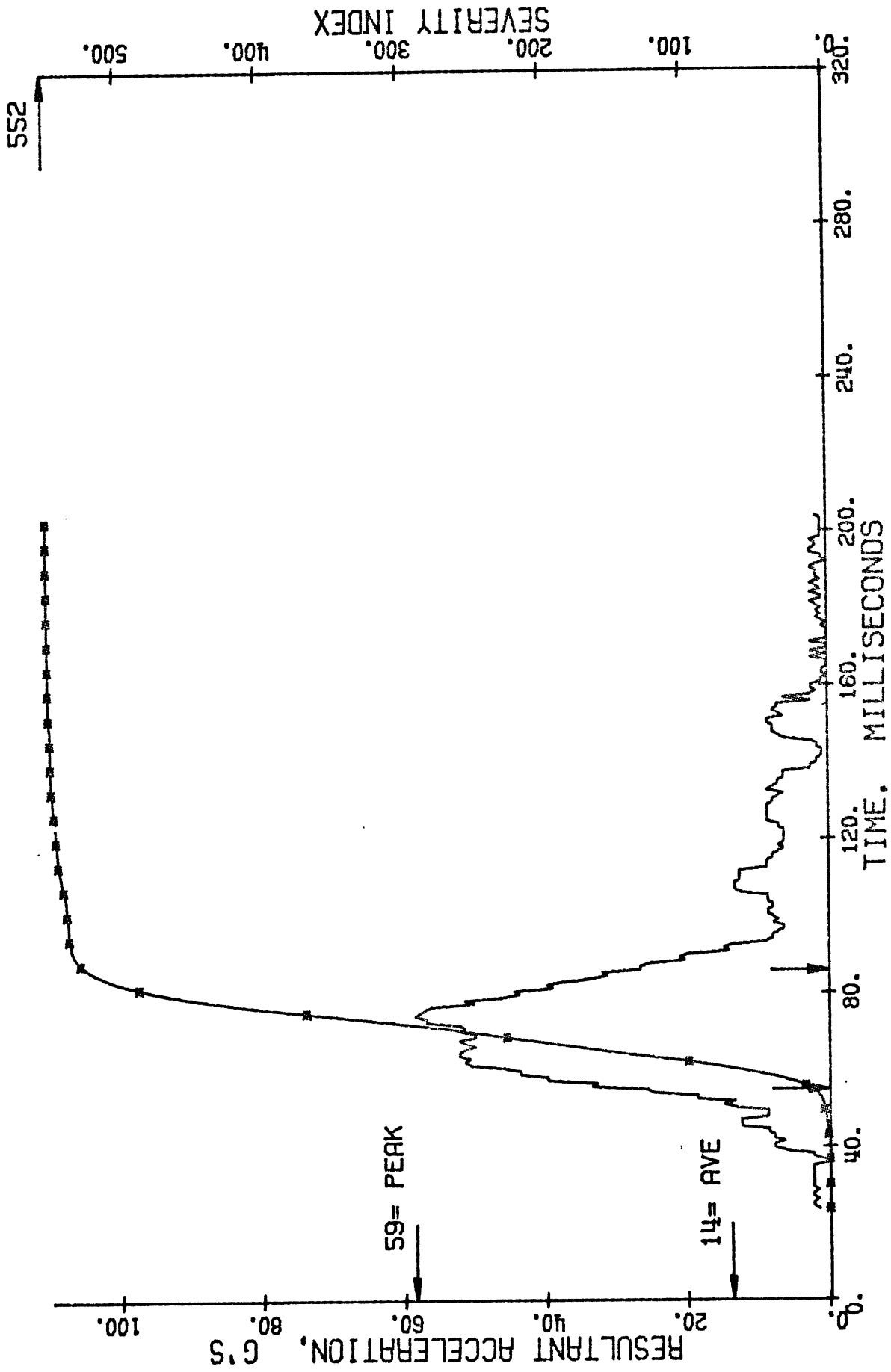
1-12.5 MSEC



SEP 27, 1974

H.I.C. = 484

S.I. = 552



A-812