NASA Contractor Report 3917

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Design and Testing of an Energy-Absorbing Crewseat for the F/FB-111 Aircraft

Volume II—Data From Seat Testing

S. Joseph Shane

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Design and Testing of an Energy-Absorbing Crewseat for the F/FB-111 Aircraft

Volume II—Data From Seat Testing

S. Joseph Shane
Simula Inc.
Phoenix, Arizona

Prepared for
Langley Research Center
under Contract NAS1-17387

National Aeronautics
and Space Administration

Scientific and Technical
Information Branch

1985

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1.0 INTRODUCTION

This volume presents data from the testing of an energy-absorbing crewseat for the F/FB-111 crew module. A complete description of the program is contained in Volume I: Final Report. Data from the crew module drop and swing tests are contained in Volume III.

Dynamic testing of the energy-absorbing seat and comparison tests with an operational F/FB-111 seat were conducted at the Federal Aviation Administration Civil Aeromedical Institute (CAMI). The testing is described in Section 3.0 of Volume I. The resulting data are presented in Sections 2.0 through 14.0 of this volume.

Table 1 presents a description of the data recorded. The filter characteristics are defined by the Society of Automotive Engineers Recommended Practice SAE J211b. The four axes recorded on the seat pan include a measurement along the seat back tangent line as well as the three major axes. The loads and moments recorded at the base of the dummy spine are labeled "pelvis" on the CAMI plots but were referred to as "lumbar" load in Volume I. Restraint system loads in the lap and shoulder straps were measured with belt tensiometers. Shoulder belt refers to the length of belt between the power haul-back inertia reel and the shoulder harness. Reflected strap refers to the length of belt between the shoulder harness and the fixed attachment point on the seat. The reflected strap loads were measured with strain-gaged end fittings supplied by the U.S. Air Force. The seat pan deflection was measured along the seat back tangent line.

Dynamic Response Index (DRI) values were calculated using three of the acceleration data channels: two on the seat pan, vertical and along the back tangent line, and the z-axis acceleration in the dummy pelvis.

The seat tested and the test conditions are presented at the beginning of each section. The pulse number refers to the test acceleration pulse as described in Volume I. For the velocity vector to be positive, the sign convention considers the following orientations of the seat:

- Pitch - nose up
- Roll - right wing down
- Yaw - nose right.

The first page in each section after the test conditions is a list of the peak values measured on each of the data channels and the time, in milliseconds, at which the peak occurred. Following the list of peaks are the plots of the recorded data. The sign convention for the plots is positive forward, right, and downward with respect to the seat.

TABLE 1. RECORDED DATA FROM CAMI SEAT TESTING

Description of Data (Number of Channels)	Filter Class*
Acceleration	
Sled (1)	60
Simulated Floor (3)	60
Seat Pan (4)	180
Dummy Pelvis (3)	180
Dummy Chest (3)	180
Dummy Head (3)	1000
Force	
Dummy Pelvis (3)	60
Dummy Pelvis Moment (3)	60
Footrest (3)	60
Lap Belt (2)	60
Shoulder Belt (2)	60
Reflected Strap (2)	60
Seat Pan (3)	60
Seat Deflection (1)	60
Dynamic Response Index (3)	-

* Filters per SAE Recommended Practice J211b.

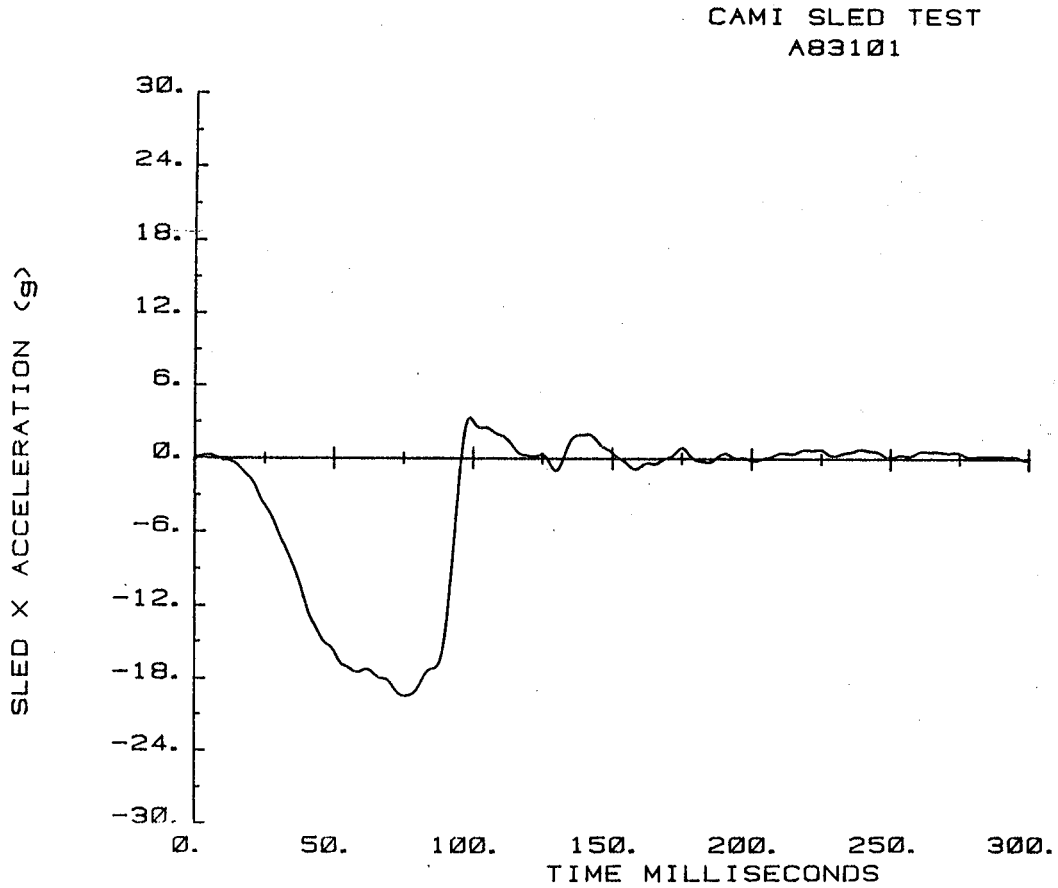
2.0 CAMI TEST NO. A83-101

SEAT: Energy Absorbing

PULSE NUMBER: 1

SEAT ORIENTATION: Pitch - 90°
Roll - 0°
Yaw - 0°

RUN#	VARIABLE		PEAK1	T	PEAK2	T	RANGE	FILE
A83101	SLED X ACCELERATION	(g)	-19.5	75			(0, 300)	* F10101
A83101	HEAD X ACCELERATION	(g)	-7.5	128	16.6	237	(0, 300)	* F10103
A83101	HEAD Y ACCELERATION	(g)	-6.0	238	1.8	262	(0, 300)	* F10104
A83101	HEAD Z ACCELERATION	(g)	-23.0	74	10.0	173	(0, 300)	* F10105
A83101	CHEST X ACCELERATION	(g)	5.7	53	-3.8	158	(0, 300)	* F10106
A83101	CHEST Y ACCELERATION	(g)	-1.8	253	.4	299	(0, 300)	* F10107
A83101	CHEST Z ACCELERATION	(g)	-23.3	72	10.6	170	(0, 300)	* F10108
A83101	PELVIS X ACCELERATION	(g)	-11.1	82	9.7	95	(0, 300)	* F10109
A83101	PELVIS Y ACCELERATION	(g)	7.8	82	-3.1	88	(0, 300)	* F10110
A83101	PELVIS Z ACCELERATION	(g)	-23.7	67	10.7	169	(0, 300)	* F10111
A83101	SIMULATED FLOOR X ACCEL.	(g)	-3.4	67	3.8	136	(0, 300)	* F10112
A83101	SIMULATED FLOOR Y ACCEL.	(g)	.9	63	-.9	131	(0, 300)	* F10113
A83101	SIMULATED FLOOR Z ACCEL.	(g)	-19.7	74	4.0	97	(0, 300)	* F10114
A83101	FOOT REST FORCE X	(lbs)	-442.4	78	819.9	99	(0, 300)	* F10115
A83101	FOOT REST FORCE Y	(lbs)	108.4	69	-101.3	138	(0, 300)	* F10116
A83101	FOOT REST FORCE Z	(lbs)	1527.7	86			(0, 300)	* F10117
A83101	LEFT SHOULDER FORCE	(lbs)	75.5	60			(0, 300)	* F10118
A83101	RIGHT SHOULDER FORCE	(lbs)	87.4	164	-19.6	285	(0, 300)	* F10119
A83101	SEAT BACK Z ACCELERATION	(g)	-22.0	91	8.8	114	(0, 300)	* F10120
A83101	SEAT PAN X ACCELERATION	(g)	-9.2	104	8.0	159	(0, 300)	* F10121
A83101	SEAT PAN Y ACCELERATION	(g)	-4.8	42	3.2	161	(0, 300)	* F10122
A83101	SEAT PAN Z ACCELERATION	(g)	-21.3	89	9.6	114	(0, 300)	* F10123
A83101	SEAT DEFLECTION	(inches)	3.2	104			(0, 300)	* F10124
A83101	PELVIC FORCE X	(lbs)	-198.1	108	51.3	267	(0, 300)	* F10125
A83101	PELVIC FORCE Y	(lbs)	-73.8	112			(0, 300)	* F10126
A83101	PELVIC FORCE Z	(lbs)	1364.2	75	-345.9	171	(0, 300)	* F10127
A83101	PELVIC MOMENT X	(in-lbs)	-249.9	110	153.5	259	(0, 300)	* F10128
A83101	PELVIC MOMENT Y	(in-lbs)	630.7	108	-369.2	269	(0, 300)	* F10129
A83101	PELVIC MOMENT Z	(in-lbs)	24.5	74	-70.7	258	(0, 300)	* F10130
A83101	LEFT LAP FORCE	(lbs)	78.4	169			(0, 300)	* F10131
A83101	RIGHT LAP FORCE	(lbs)	84.4	170			(0, 300)	* F10132
A83101	HEAD RESULTANT	(g)	23.1	74			(0, 300)	* V10101
A83101	CHEST RESULTANT	(g)	23.3	72			(0, 300)	* V10102
A83101	PELVIS RESULTANT	(g)	24.6	66			(0, 300)	* V10103
A83101	SIMULATED FLOOR RESULTANT	(g)	19.7	74			(0, 300)	* V10104
A83101	FOOT REST FORCE RESULTANT	(lbs)	1532.2	86			(0, 300)	* V10105
A83101	SEAT PAN RESULTANT	(g)	21.6	91			(0, 300)	* V10106
A83101	PELVIC FORCE RESULTANT	(lbs)	1367.2	75			(0, 300)	* V10107
A83101	PELVIC MOMENT RESULTANT	(in-lbs)	675.8	109			(0, 300)	* V10108
A83101	LAP LOOP FORCE	(lbs)	162.8	170			(0, 300)	* A10102
PELVIS DRI			24.2	108				
SEAT BACK DRI			18.4	76				
SEAT PAN DRI			18.6	76				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24.
18.
12.
6.
0.
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-18.
-24.
-30.
0.
50.
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150.
200.
250.
300.
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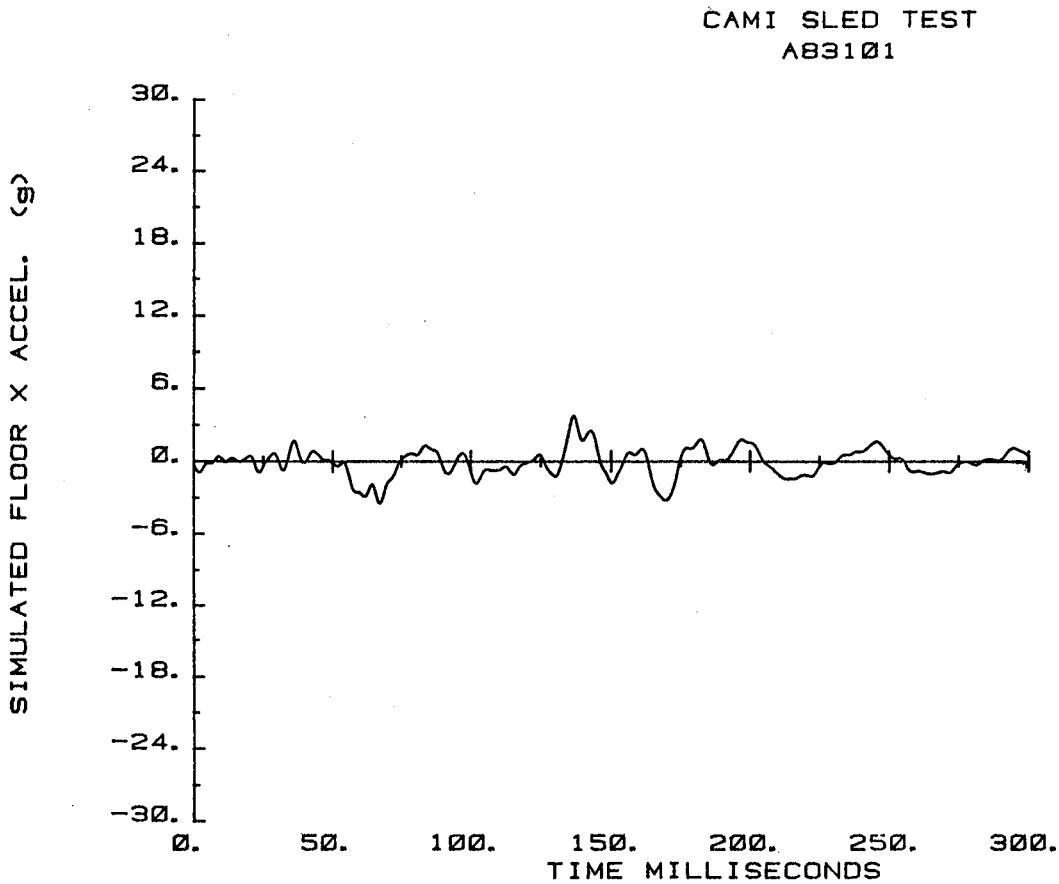
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18.
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6.
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-24.
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300.
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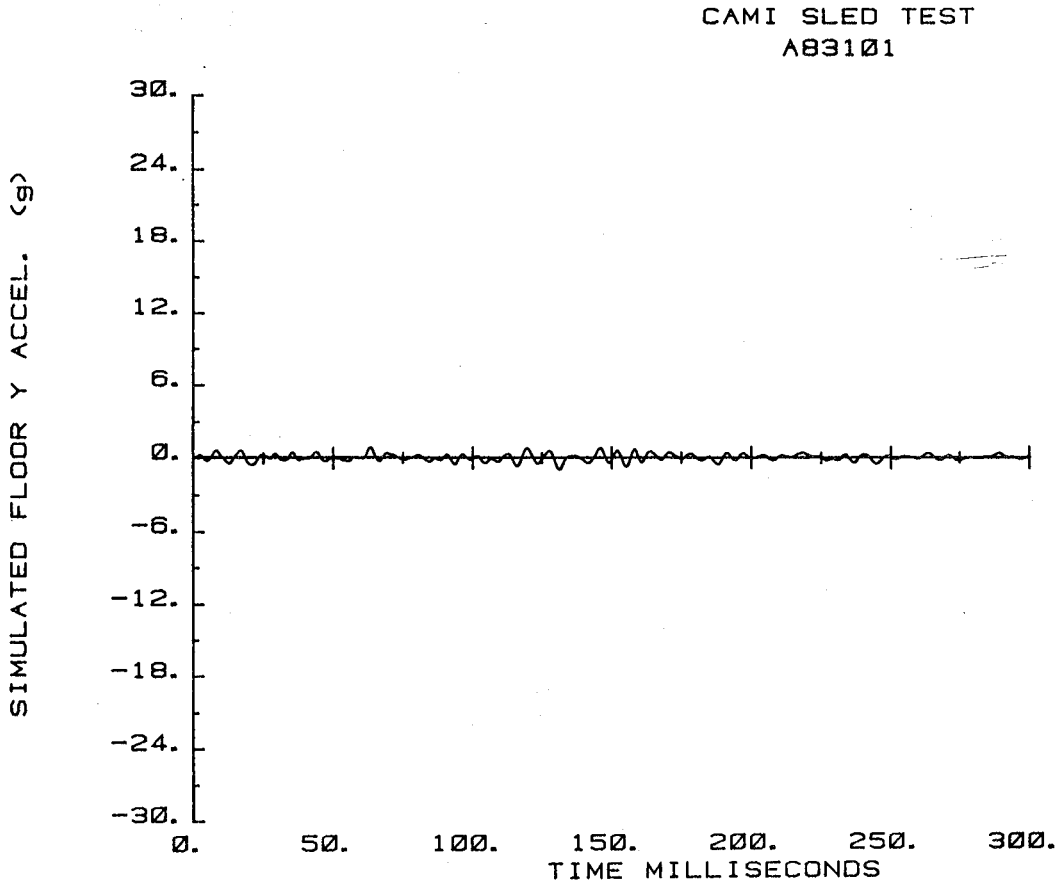
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18.
12.
6.
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-12.
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-24.
-30.
0.
50.
100.
150.
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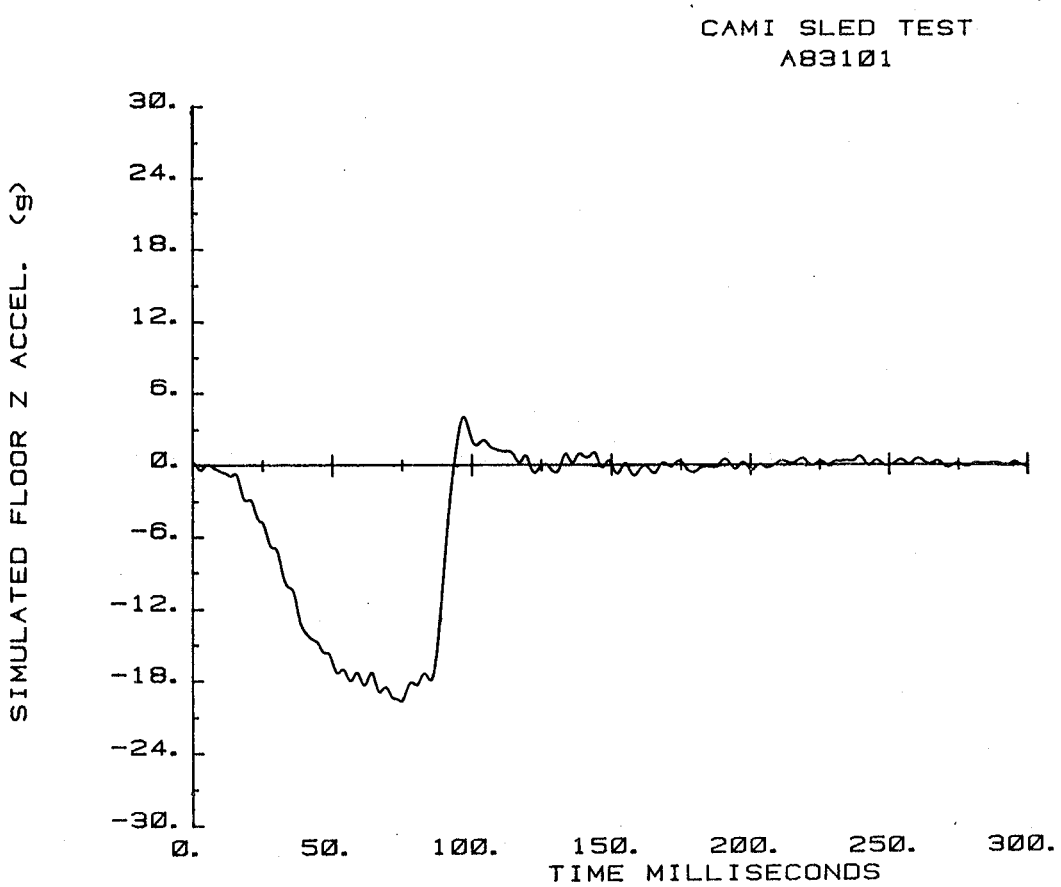
300.
TIME MILLISECONDS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24.
18.
12.
6.
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-12.
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-24.
-30.
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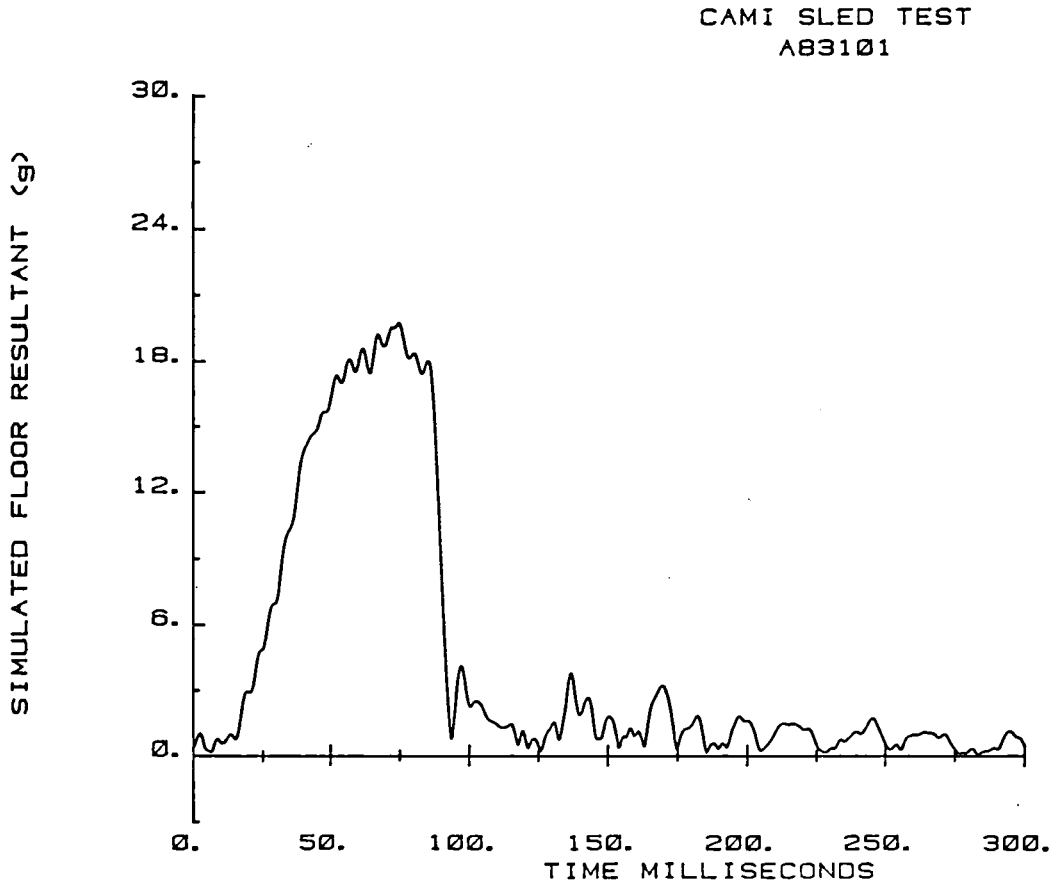
TIME MILLISECONDS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24.
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12.
6.
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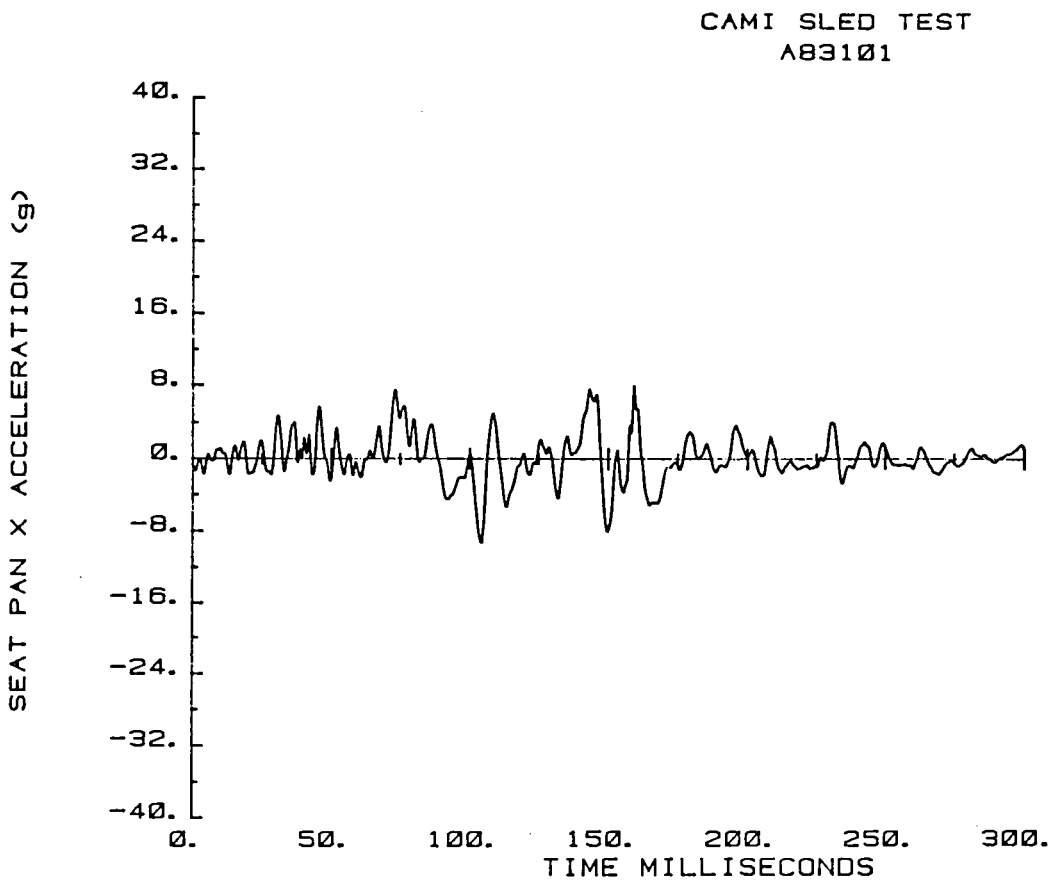
300.
TIME MILLISECONDS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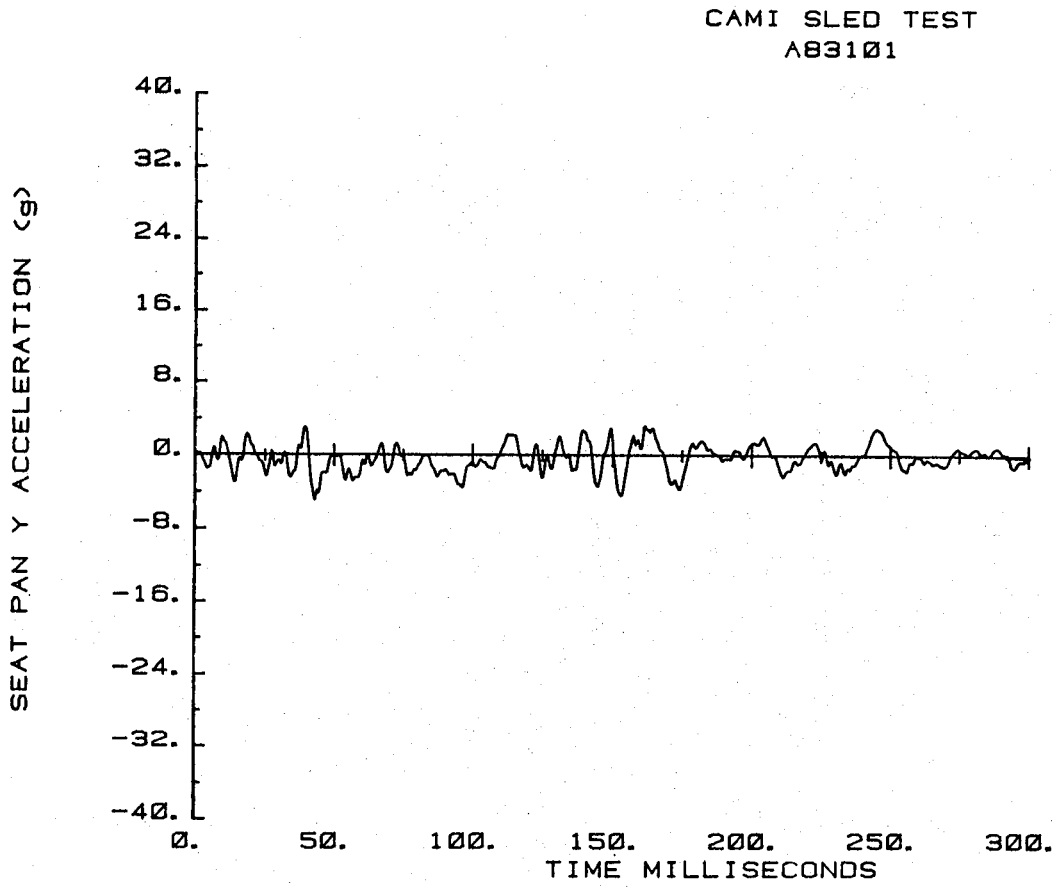
SEAT PAN X ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS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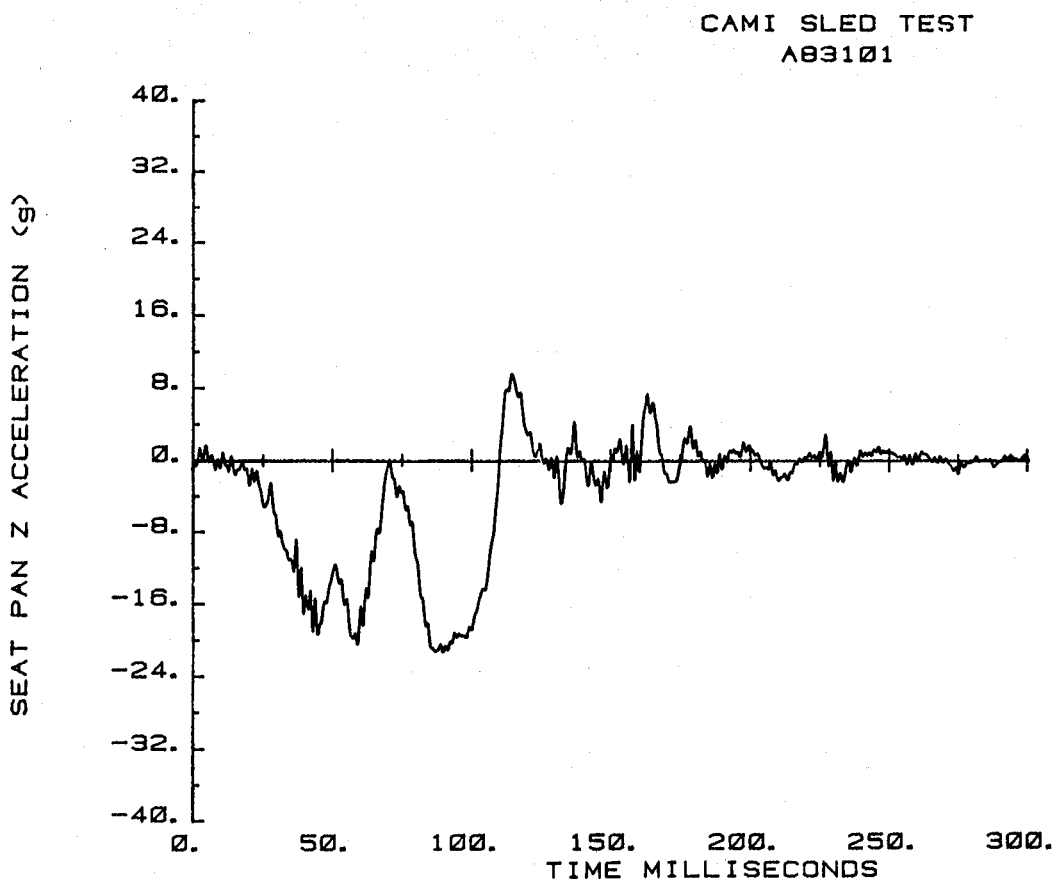
SEAT PAN Y ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS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SEAT PAN Z ACCELERATION (g)
40.
32.
24.
16.
8.
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-8.
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-24.
-32.
-40.
0.
50.
100.
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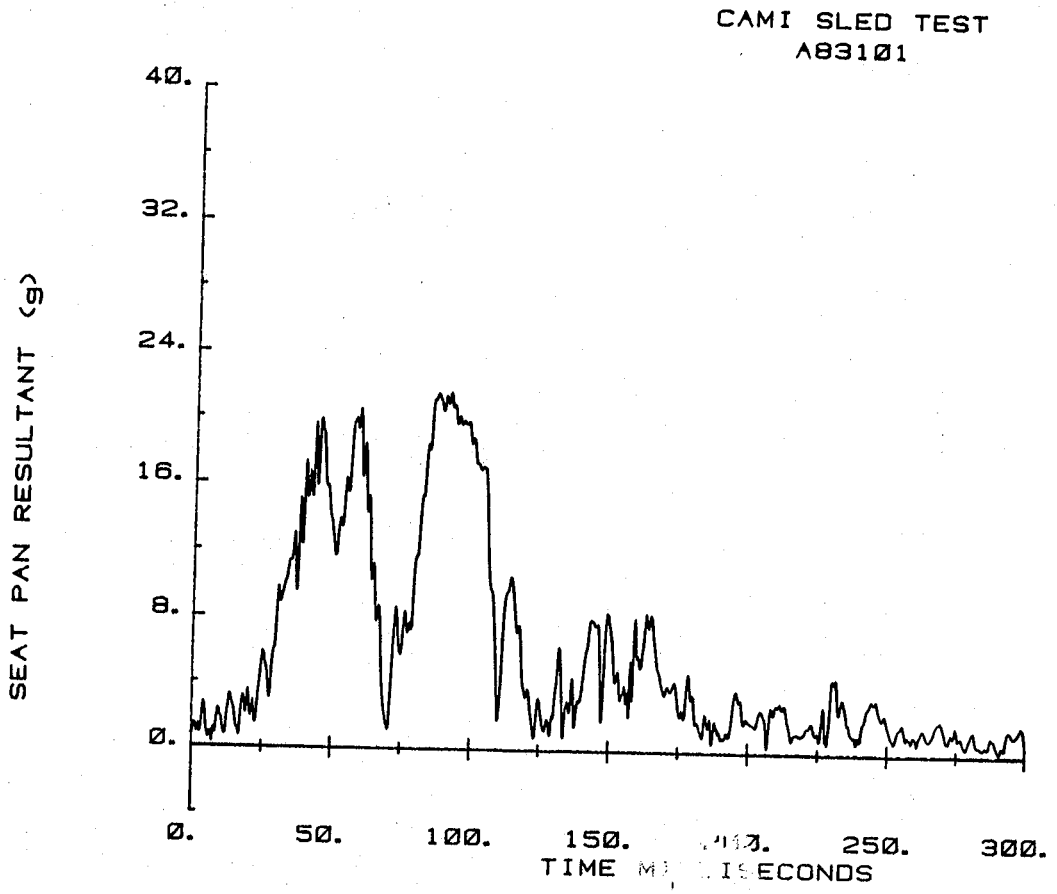
TIME MILLISECONDS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SEAT PAN RESULTANT (g)
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32.
24.
16.
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50.
100.
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250.
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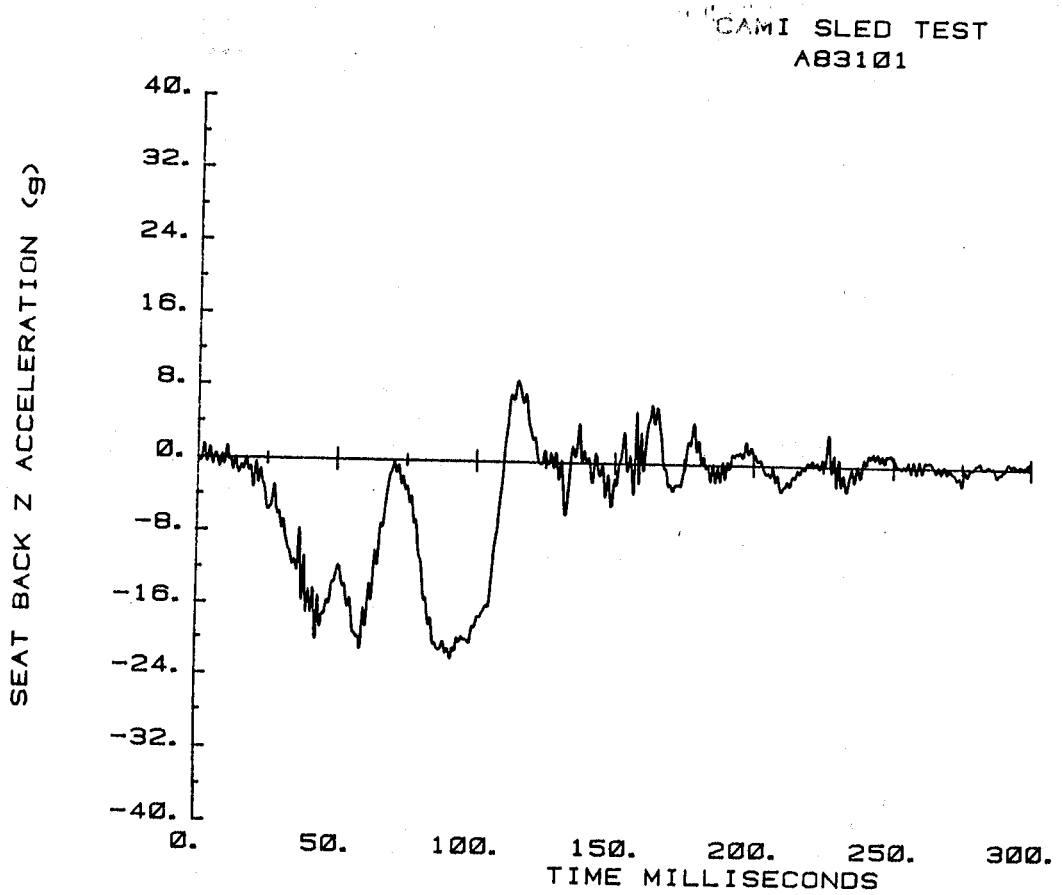
TIME MILLISECONDS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SEAT BACK Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
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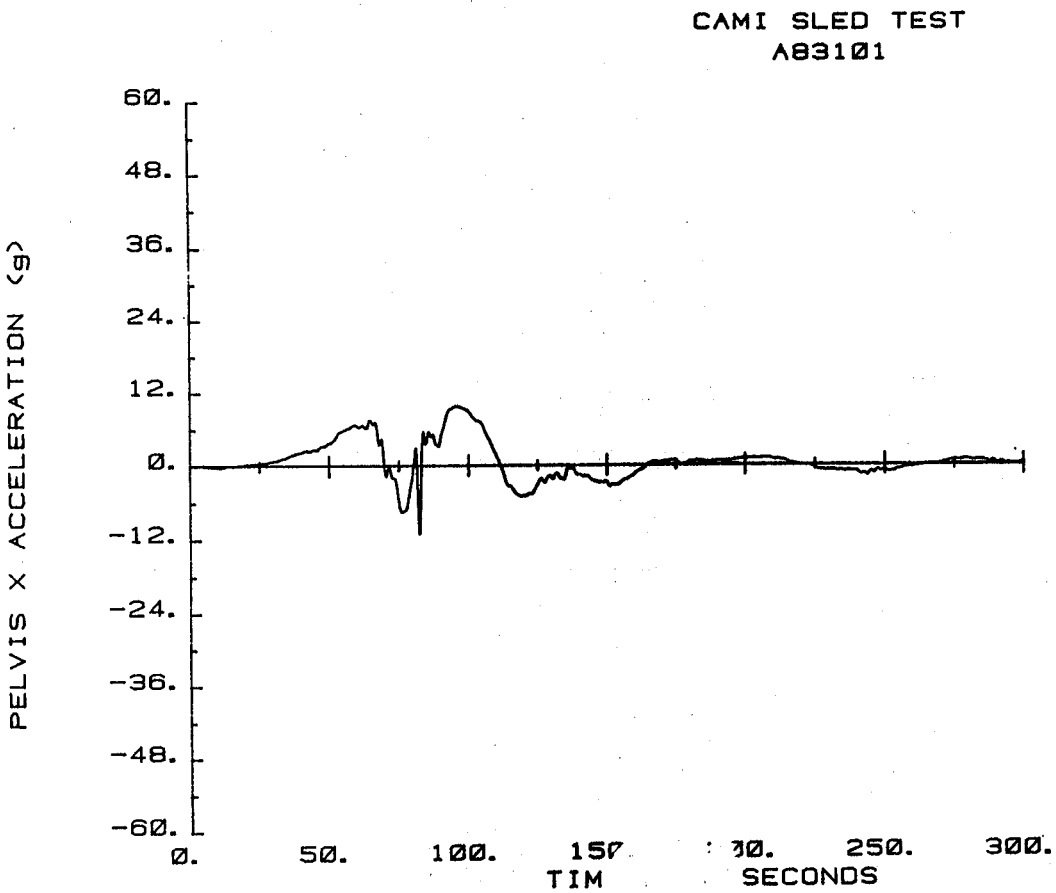
TIME MILLISECONDS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PELVIS X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
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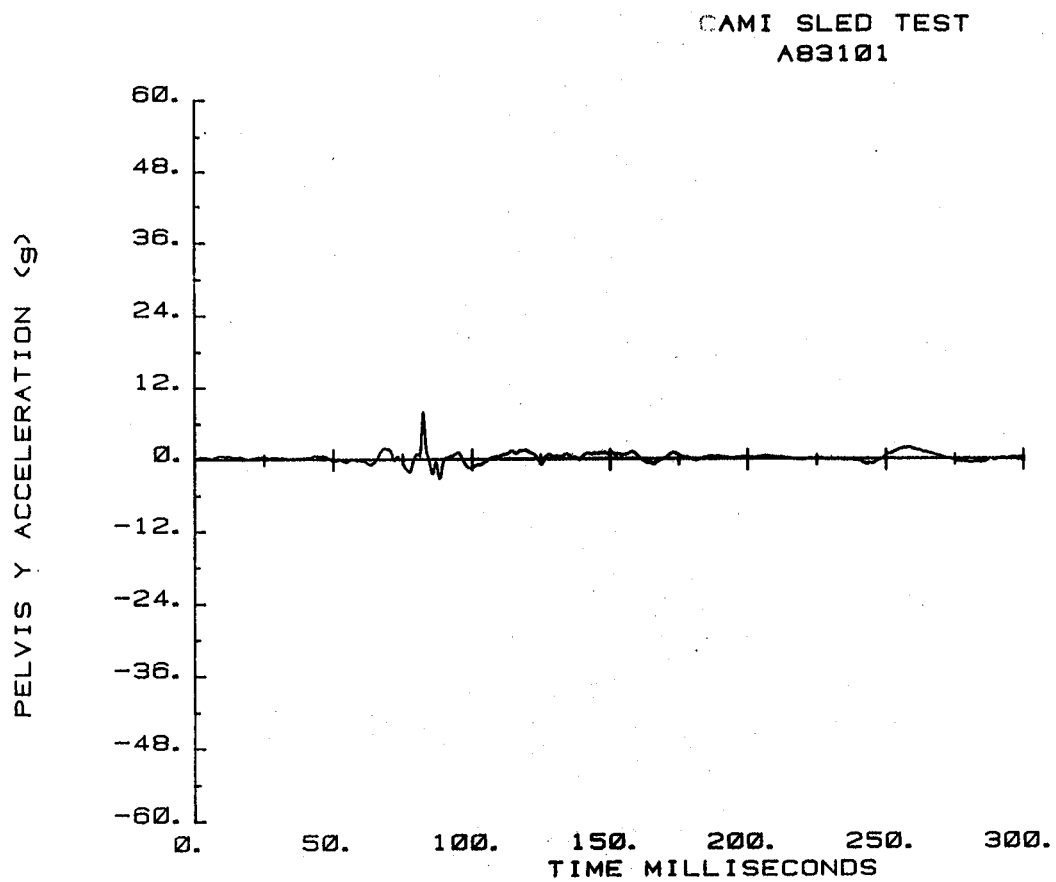
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PELVIS Y ACCELERATION (g)
60.
48.
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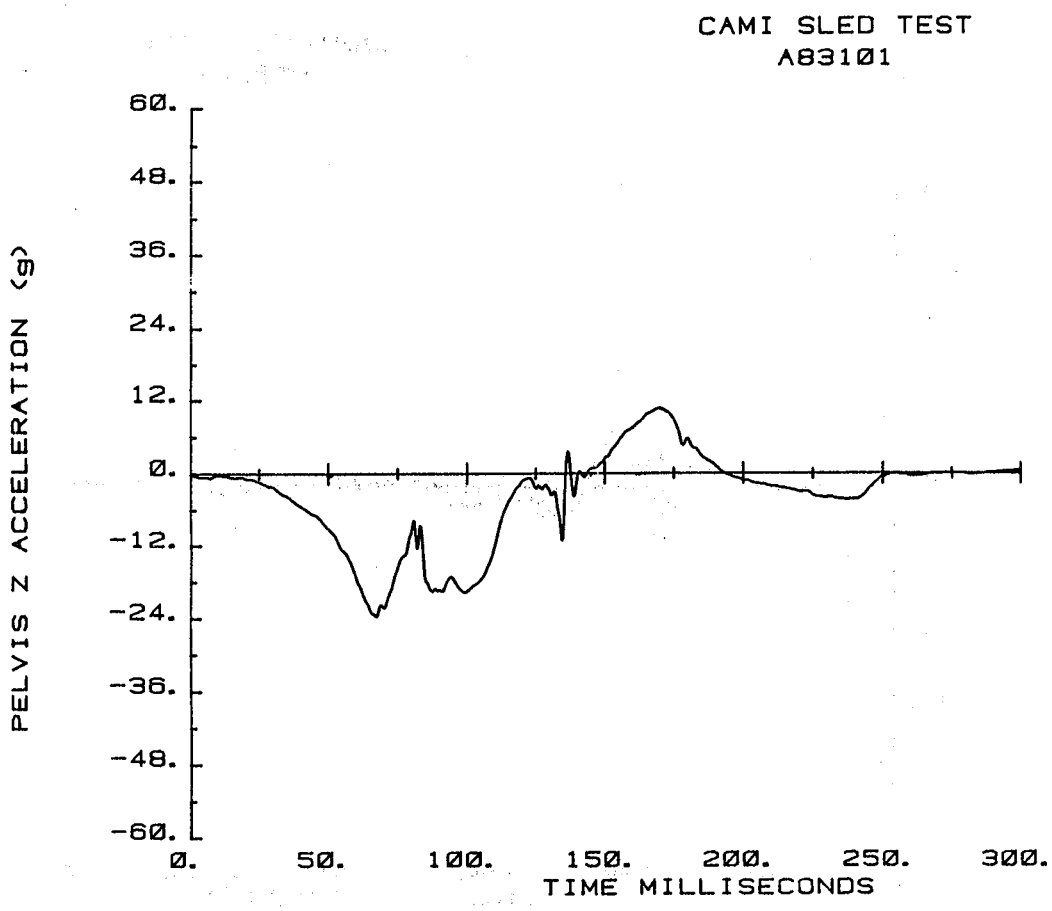
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PELVIS Z ACCELERATION (g)
60.
48.
36.
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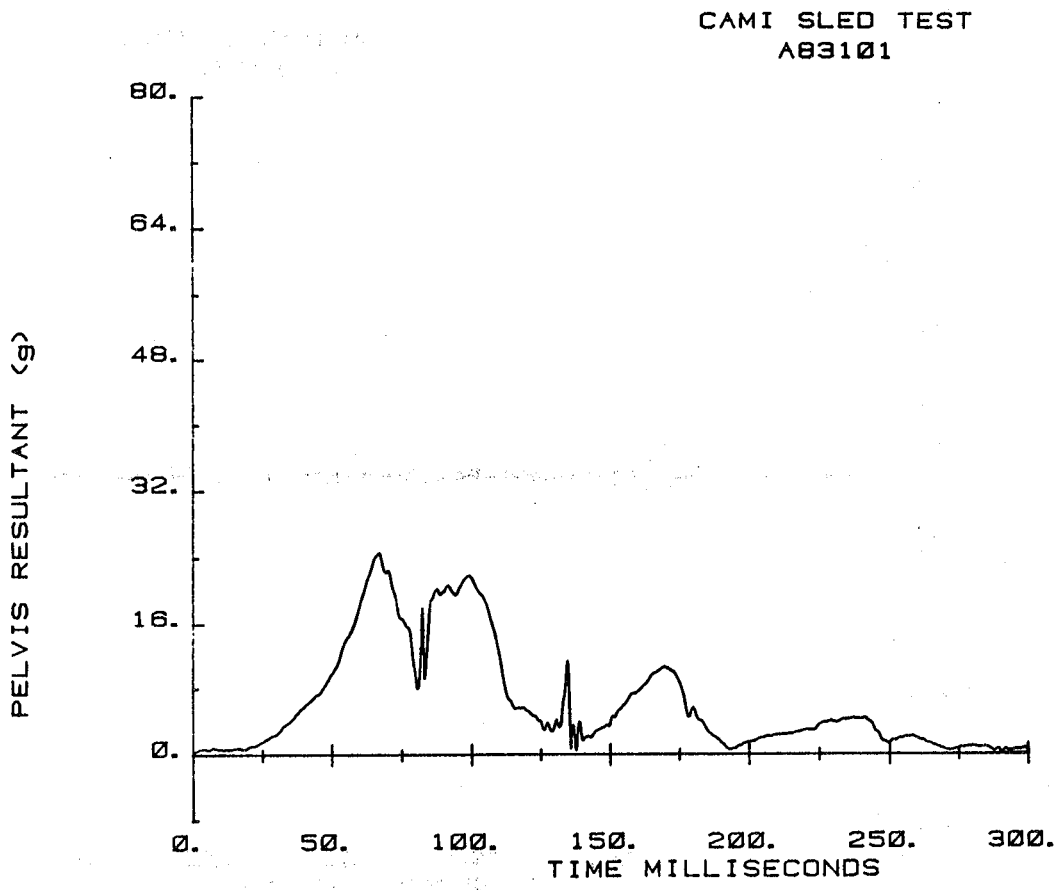
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PELVIS RESULTANT (g)
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32.
16.
0.
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200.
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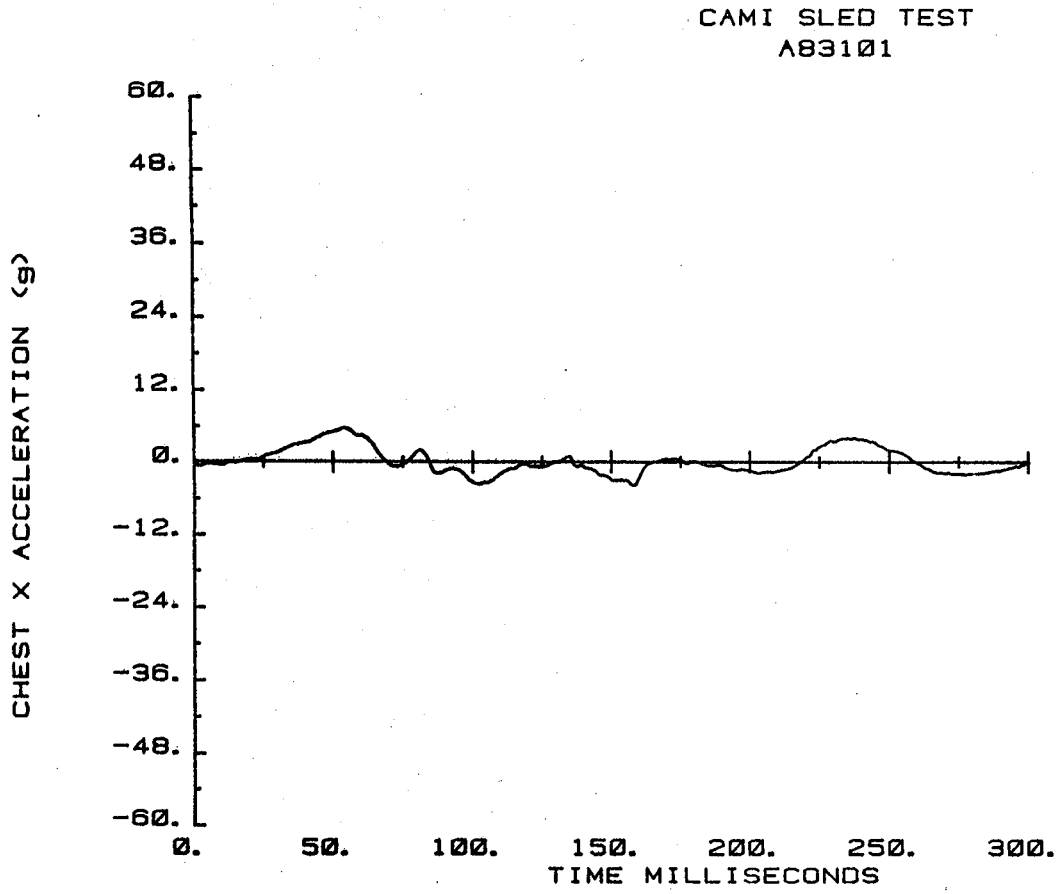
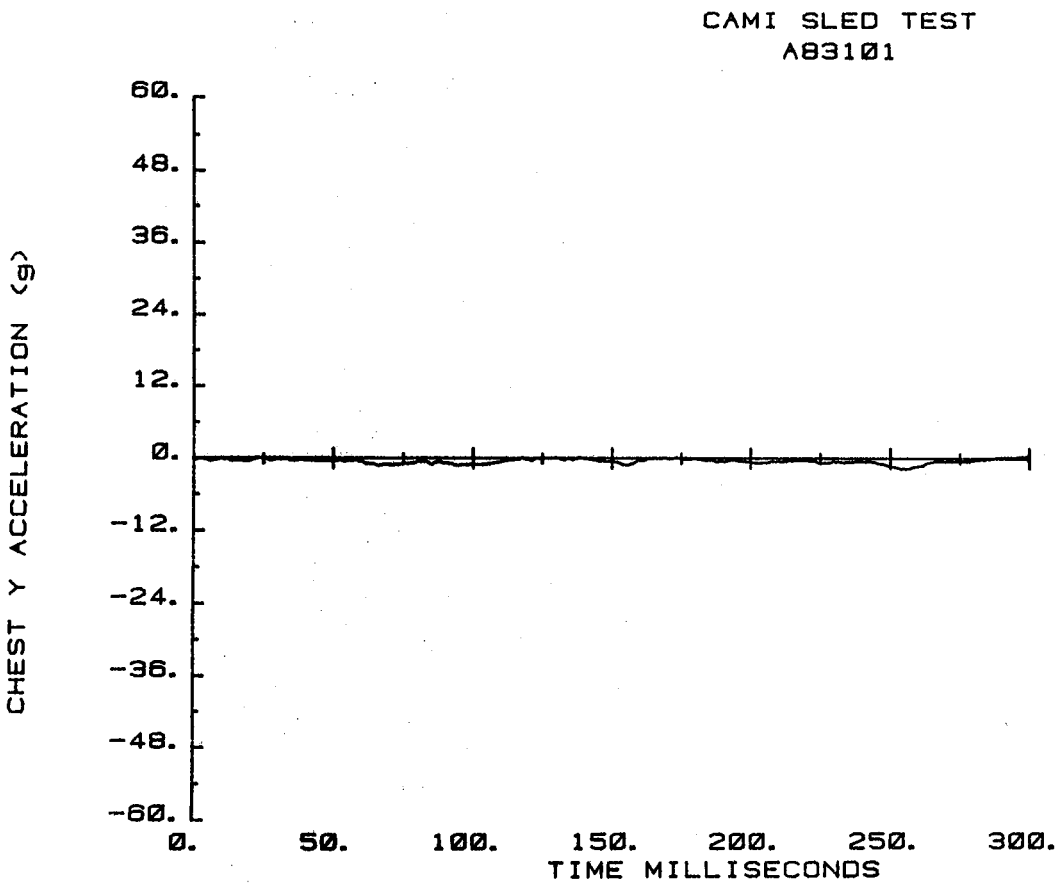
300.
TIME MILLISECONDS


CAMI SLED TEST
A83101
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
CHEST X ACCELERATION (g)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS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60.
48.
36.
24.
12.
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-36.
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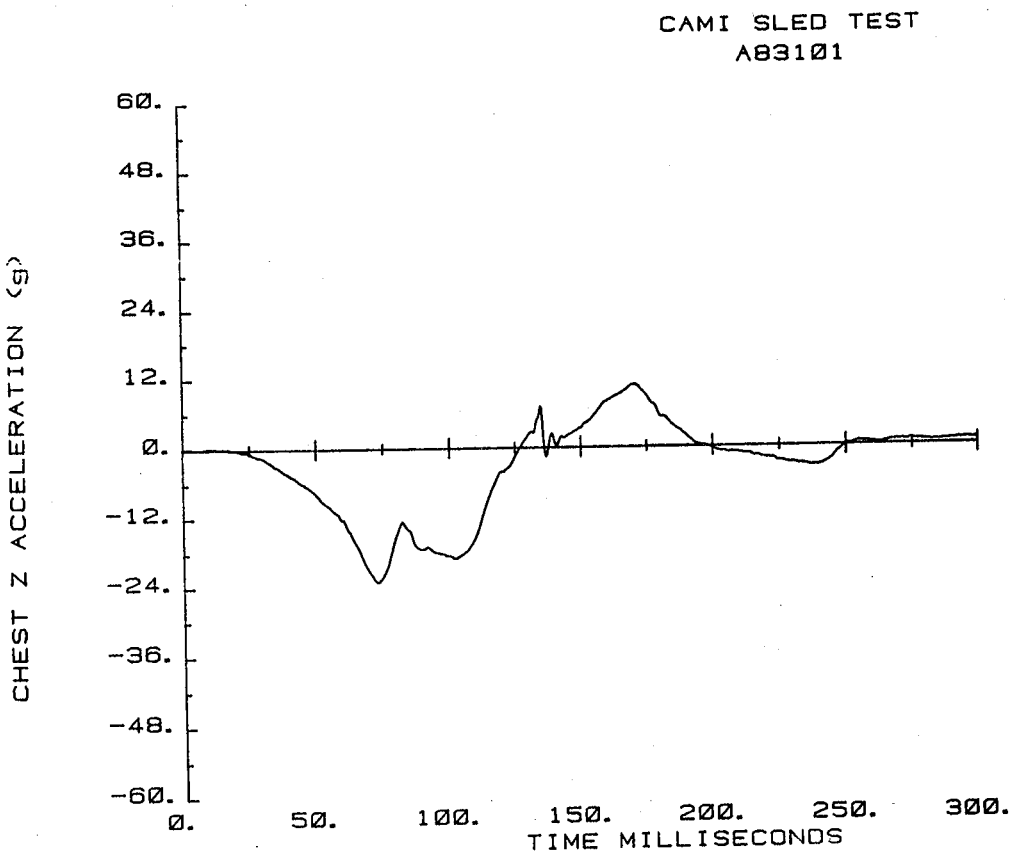
-60.
CHEST Y ACCELERATION (g)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS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A83101
60.
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CHEST Z ACCELERATION (g)
0.
50.
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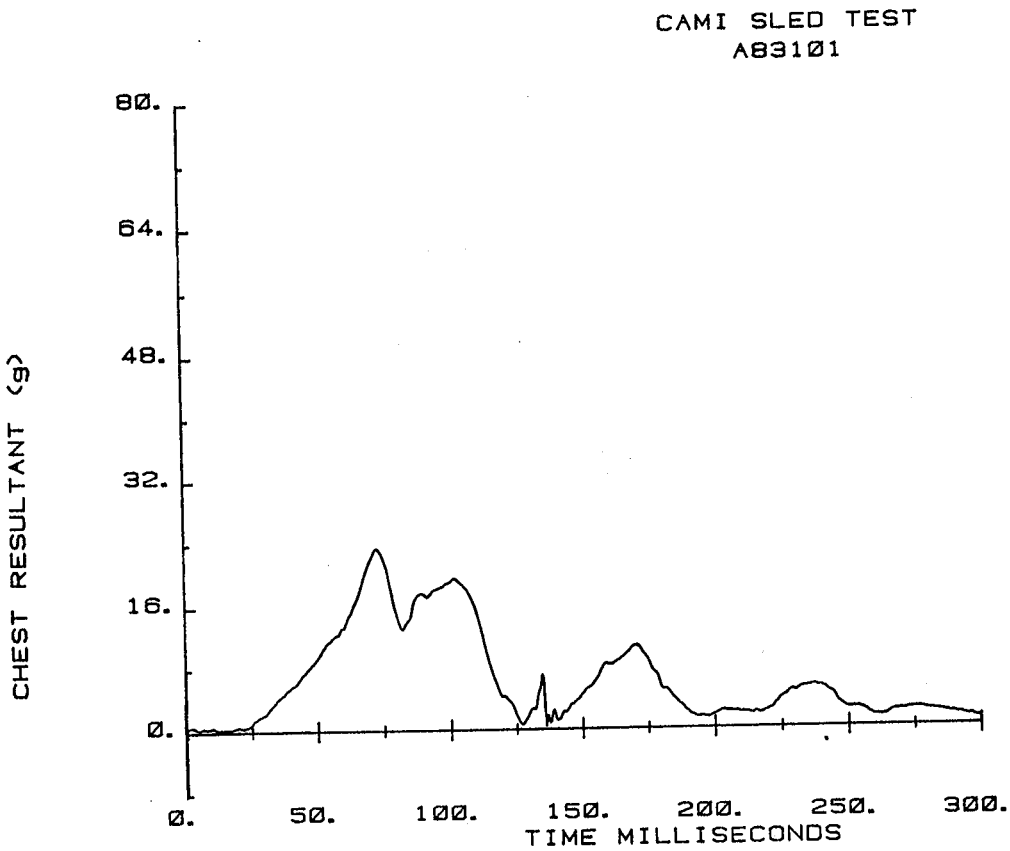
150.
200.
250.
300.
TIME MILLISECONDS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A83101
80.
64.
48.
32.
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CHEST RESULTANT (g)
0.
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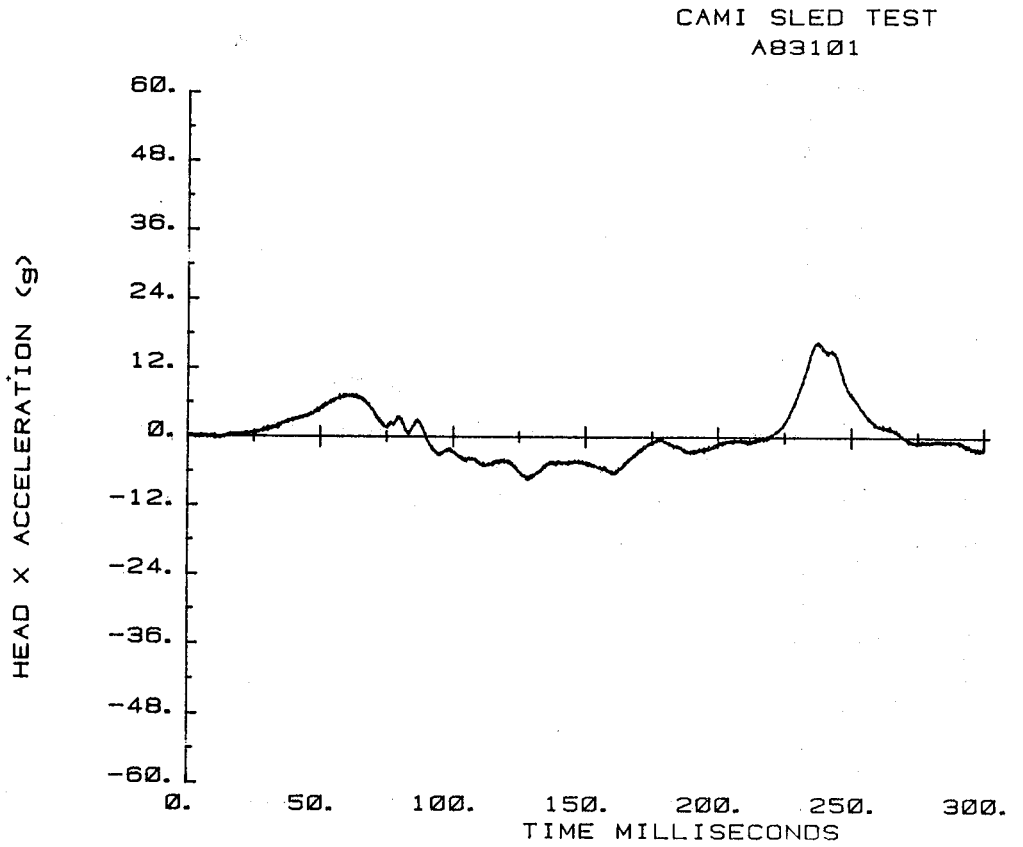
100.
150.
200.
250.
300.
TIME MILLISECONDS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A83101
HEAD X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
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-48.
-60.
0.
50.
100.
150.
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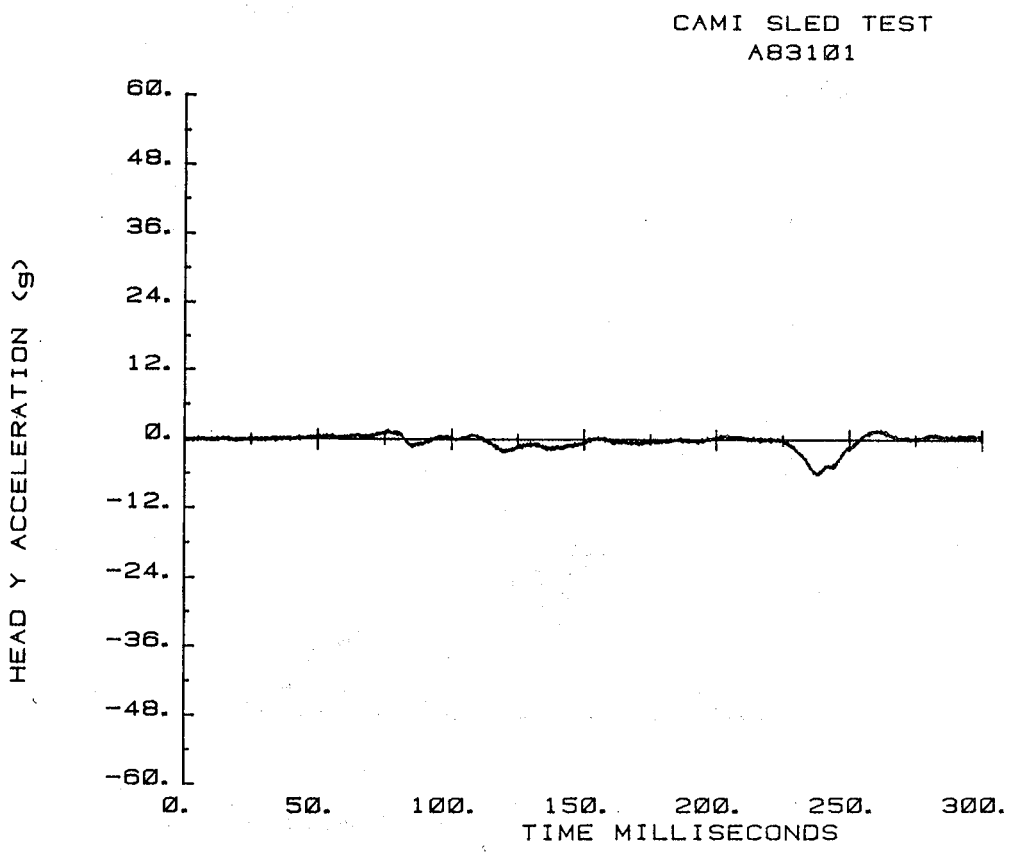
TIME MILLISECONDS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A83101
HEAD Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
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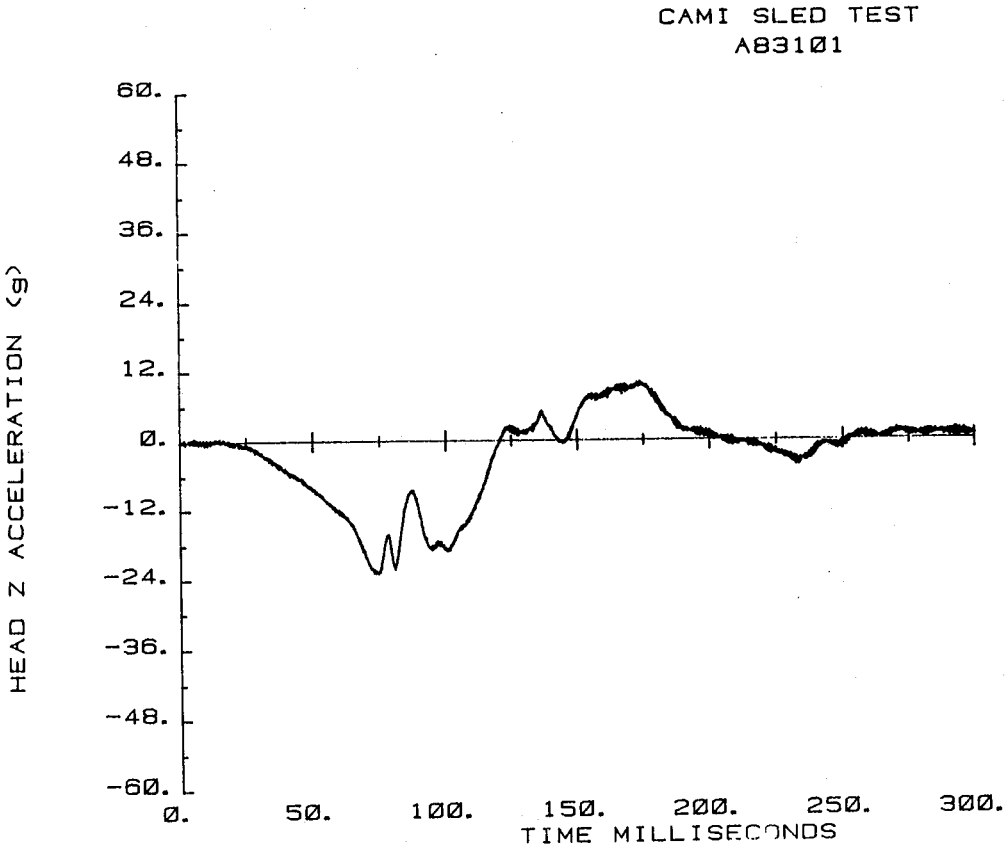
TIME MILLISECONDS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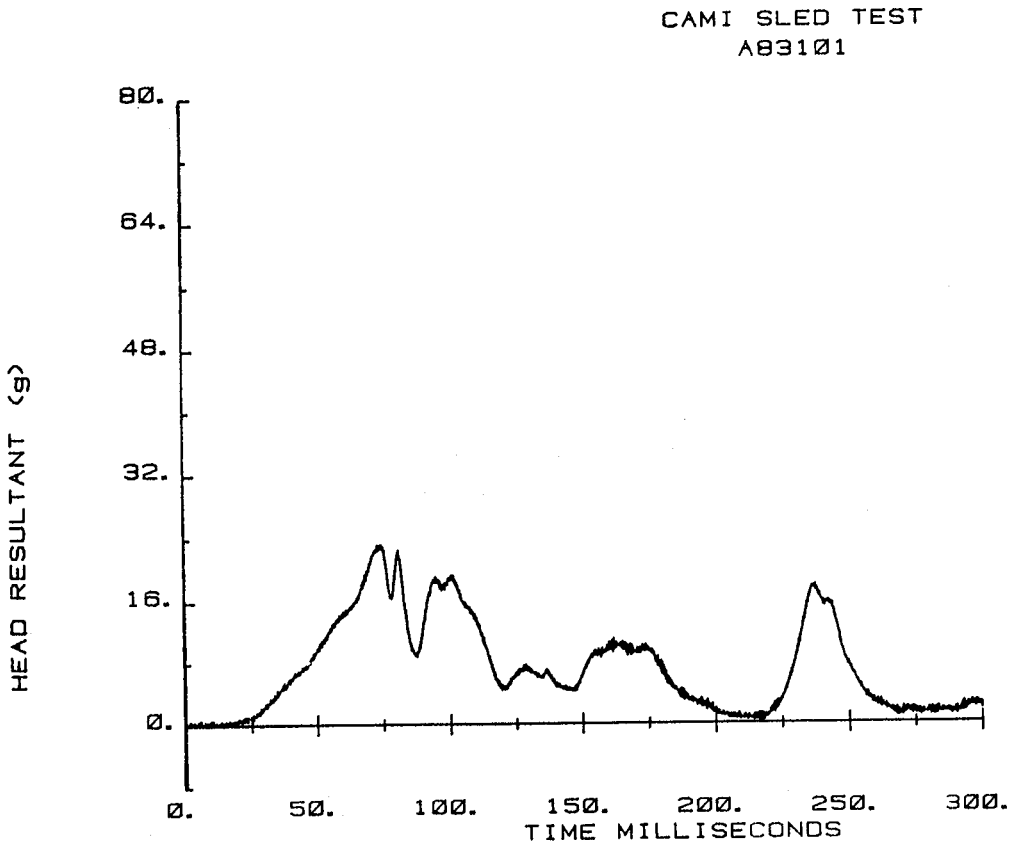
HEAD Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS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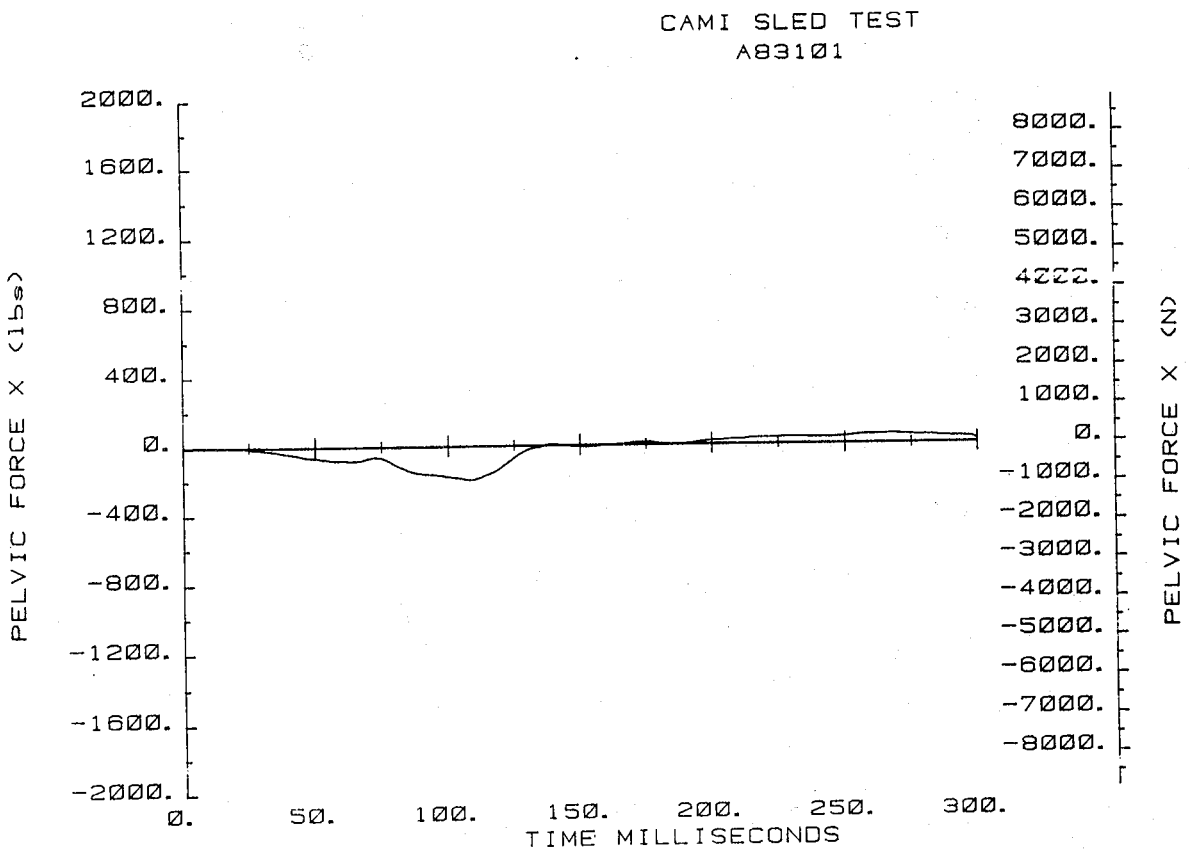
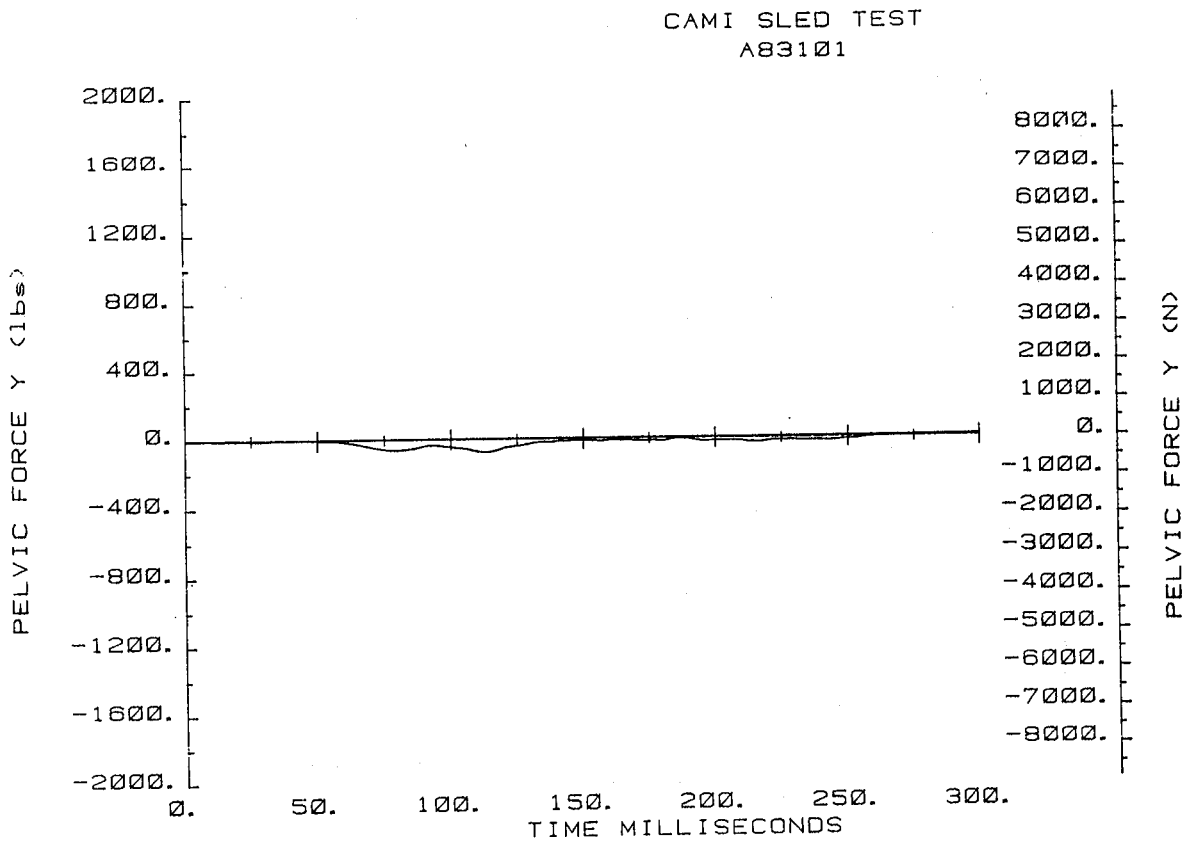
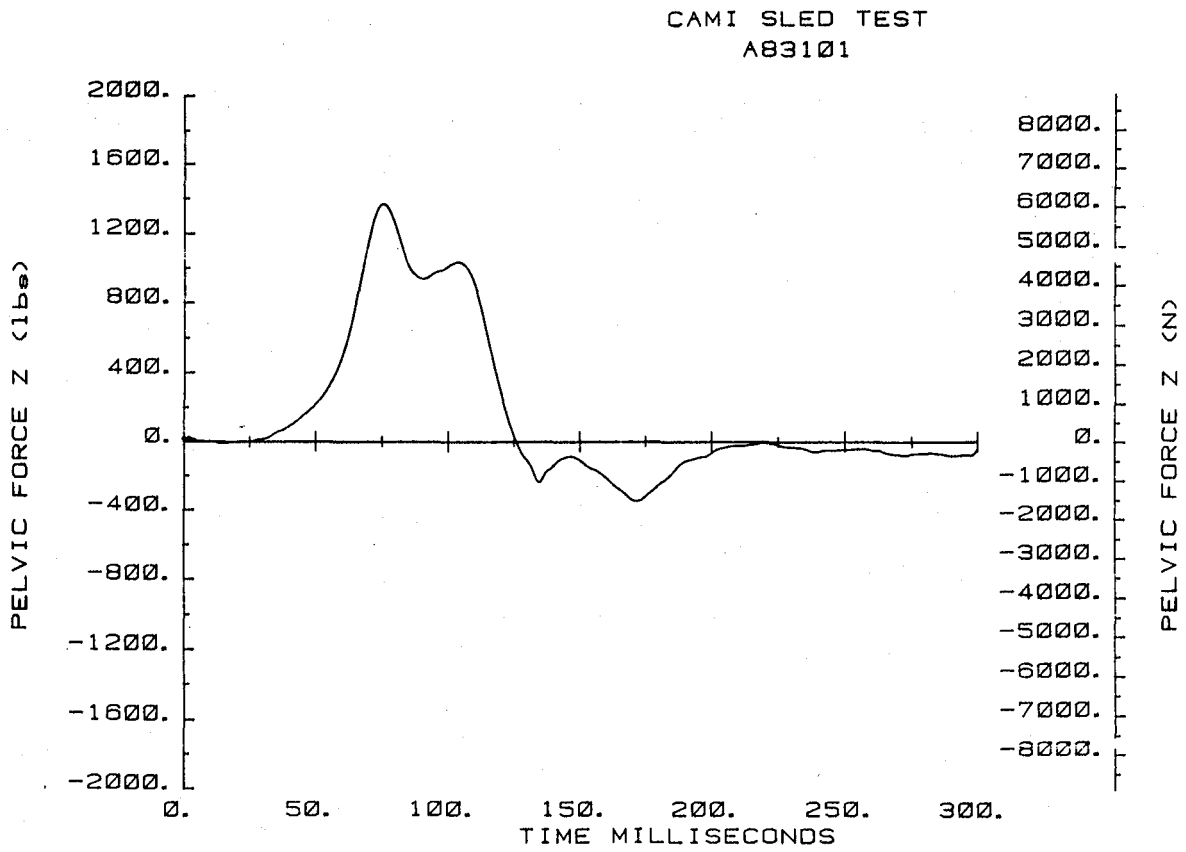
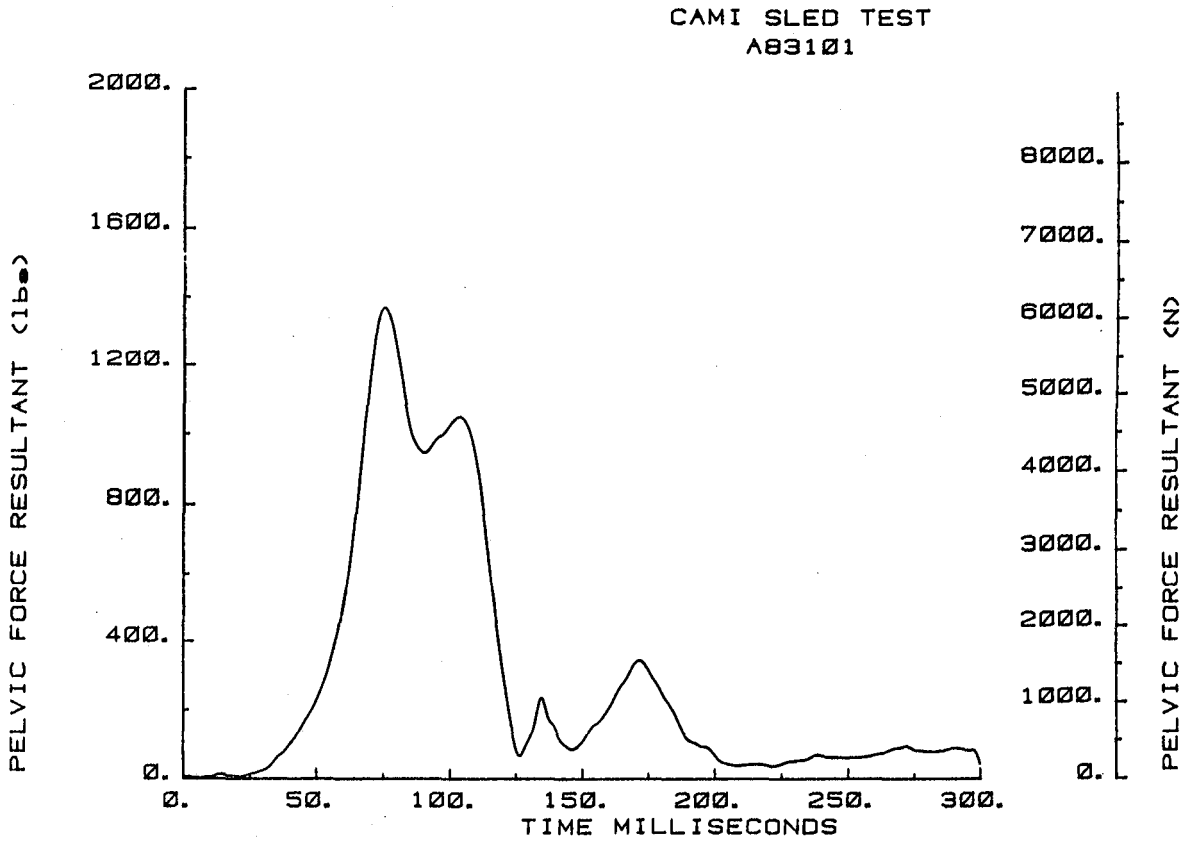
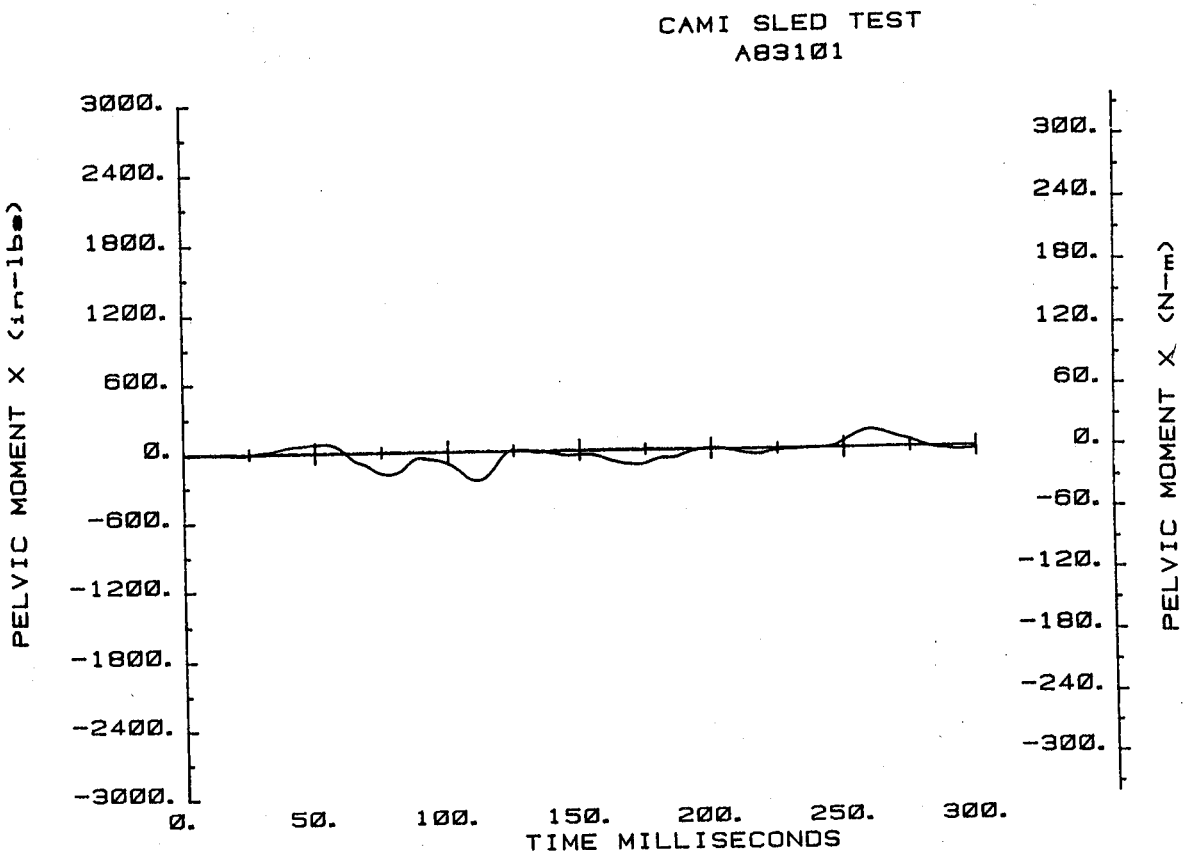
HEAD RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

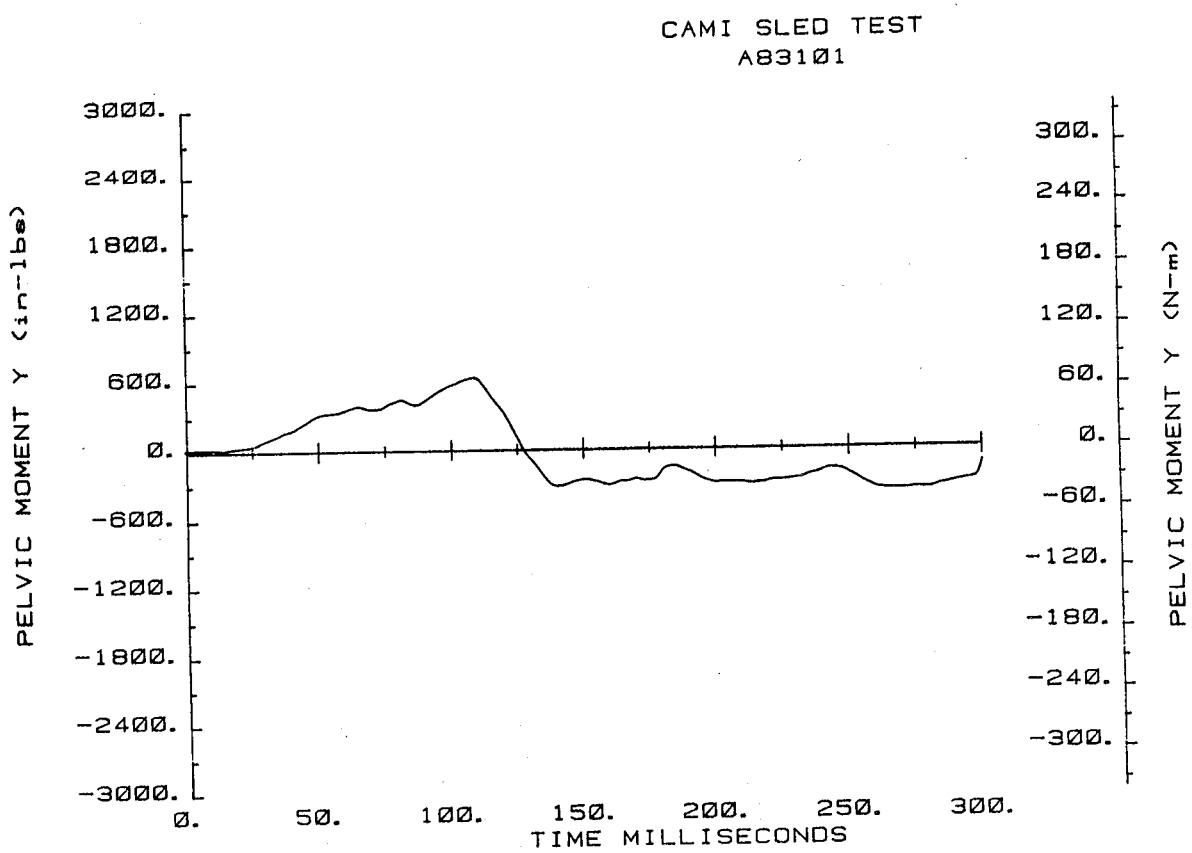

CAMI SLED TEST
A83101
PELVIC FORCE X (lbs)
PELVIC FORCE X (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

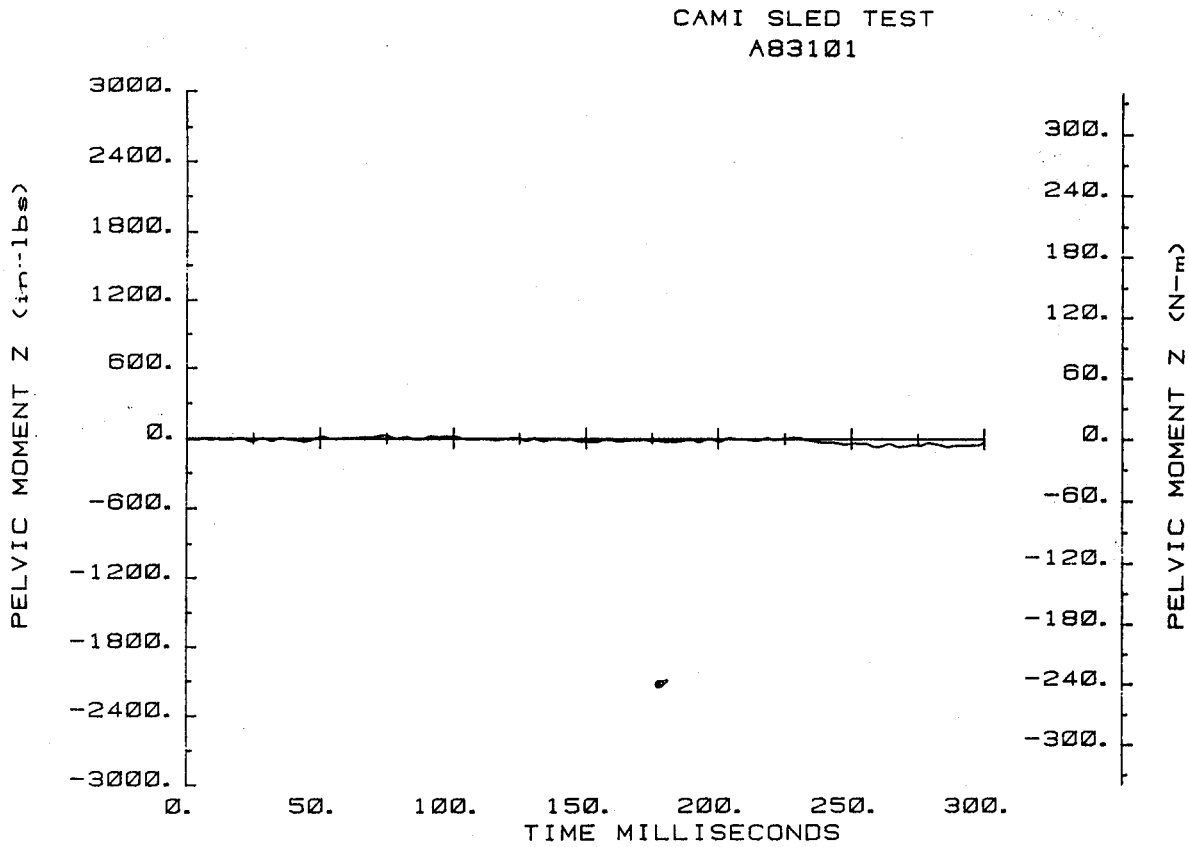

CAMI SLED TEST
A83101
PELVIC FORCE Y (lbs)
PELVIC FORCE Y (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

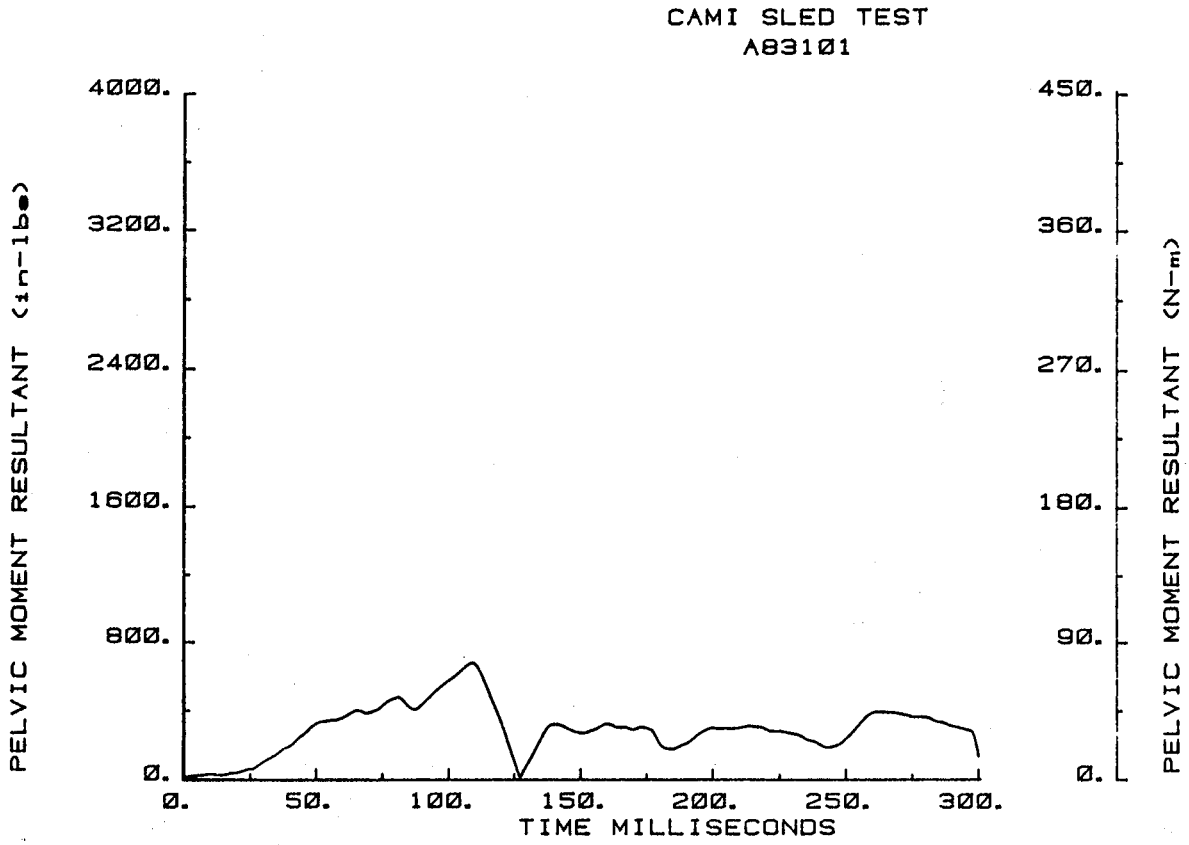

CAMI SLED TEST
A83101
PELVIC FORCE Z (lbs)
PELVIC FORCE Z (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

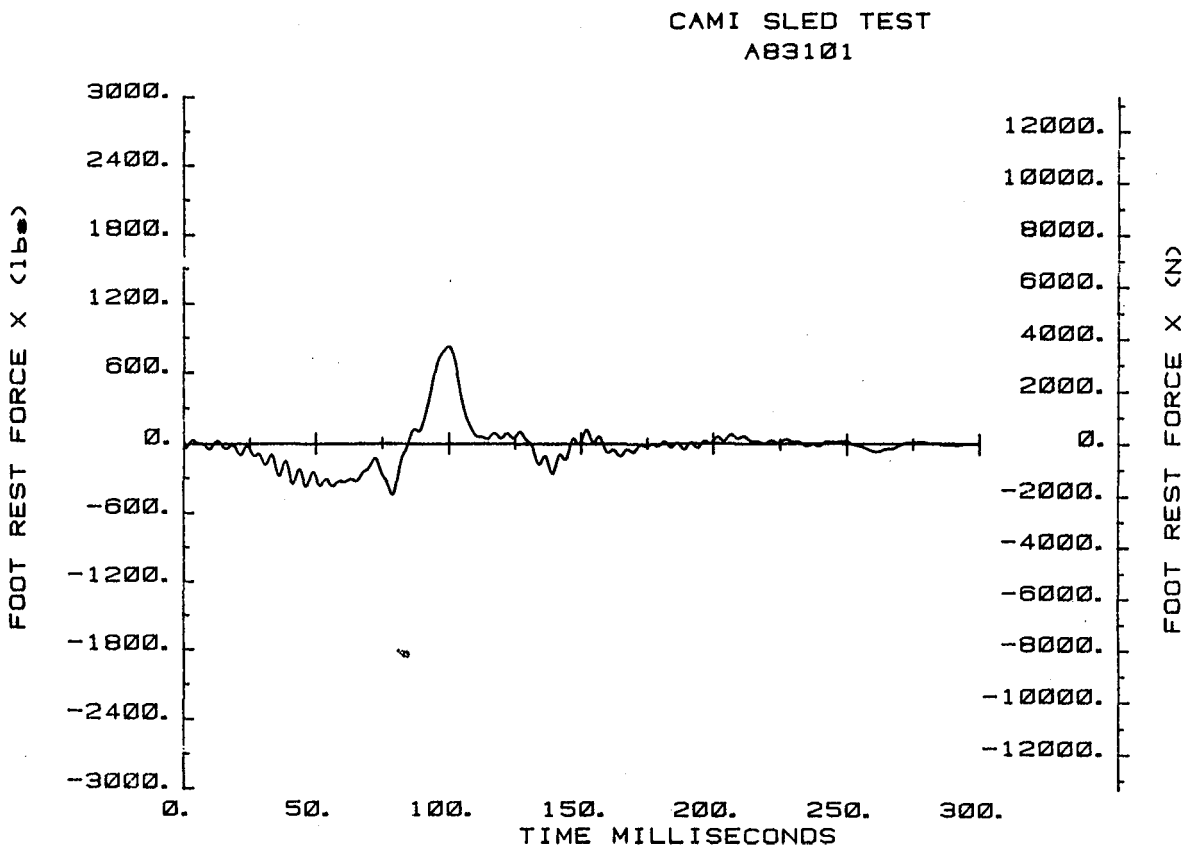

CAMI SLED TEST
A83101
PELVIC FORCE RESULTANT (lbs)
PELVIC FORCE RESULTANT (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

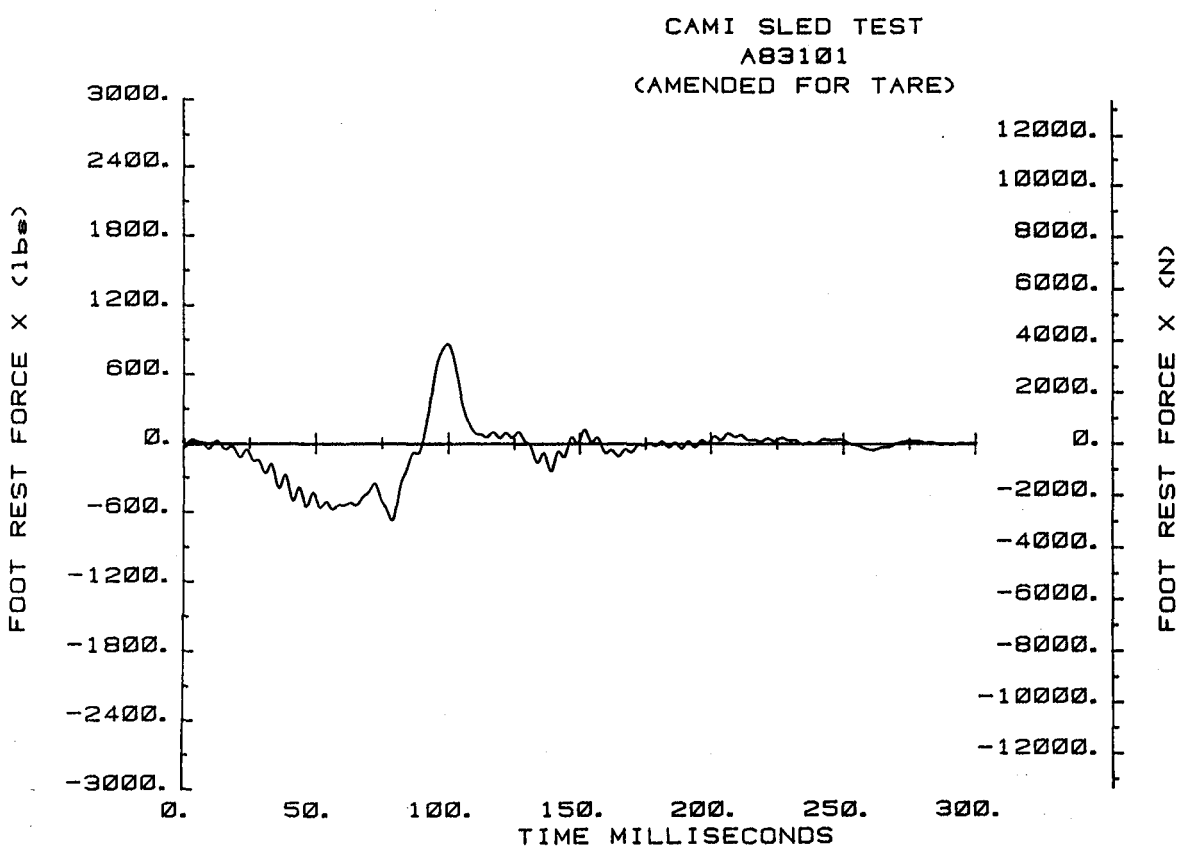

CAMI SLED TEST
A83101
PELVIC MOMENT X (in-lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT X (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

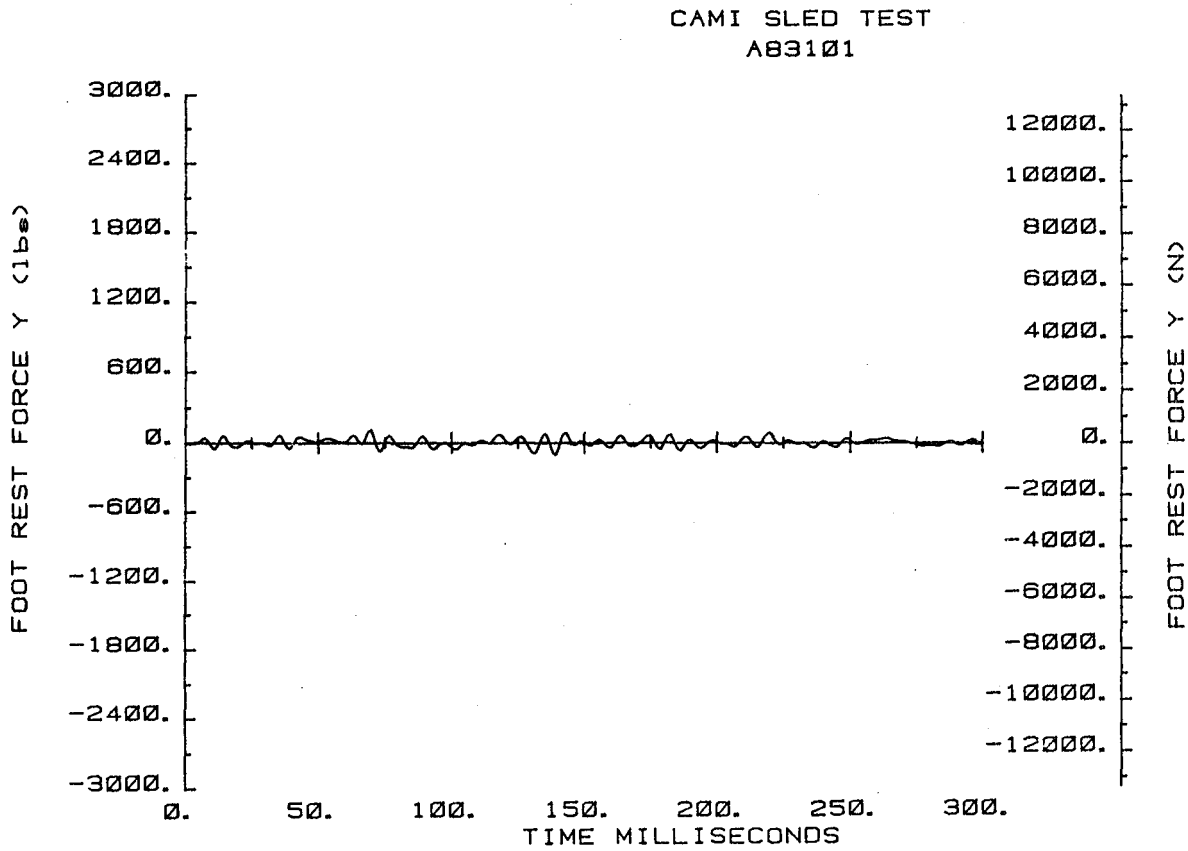

CAMI SLED TEST
A83101
PELVIC MOMENT Y (in-lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT Y (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

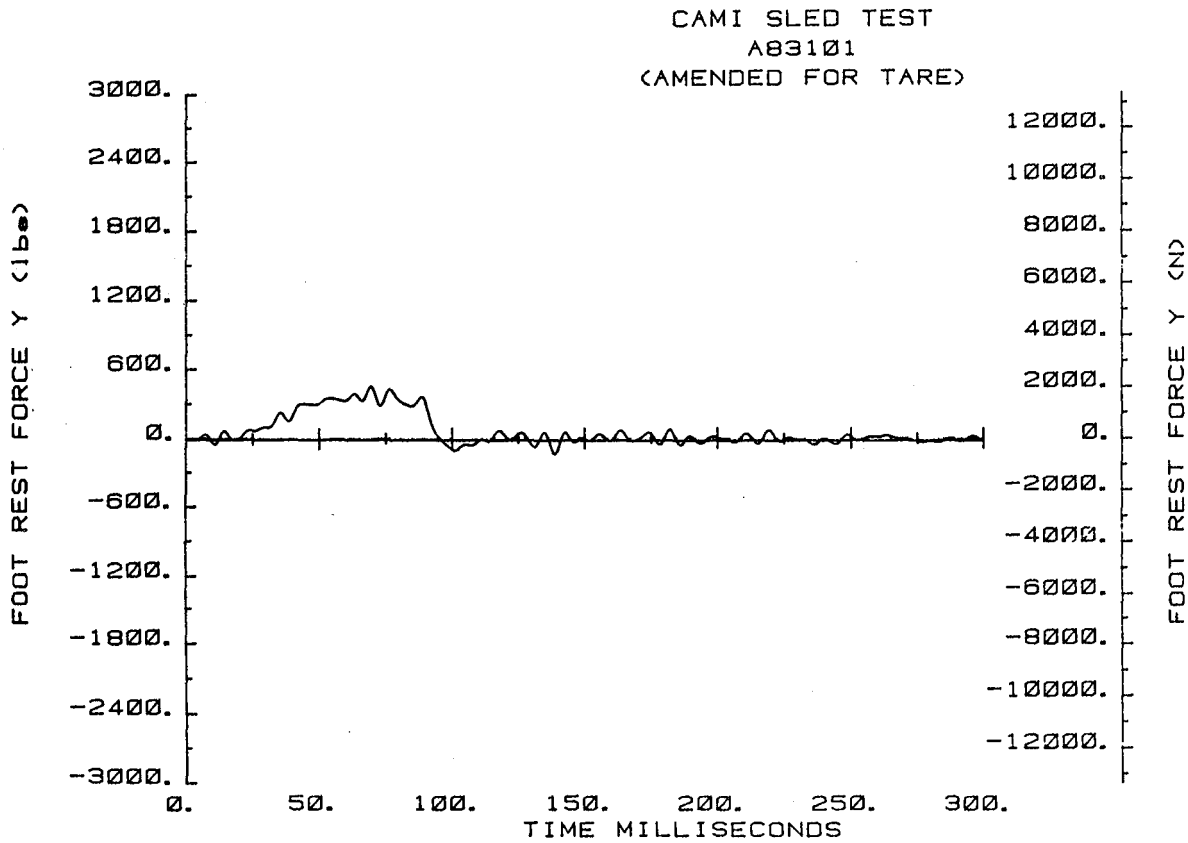

CAMI SLED TEST
A83101
PELVIC MOMENT Z (in-lbs)
PELVIC MOMENT Z (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

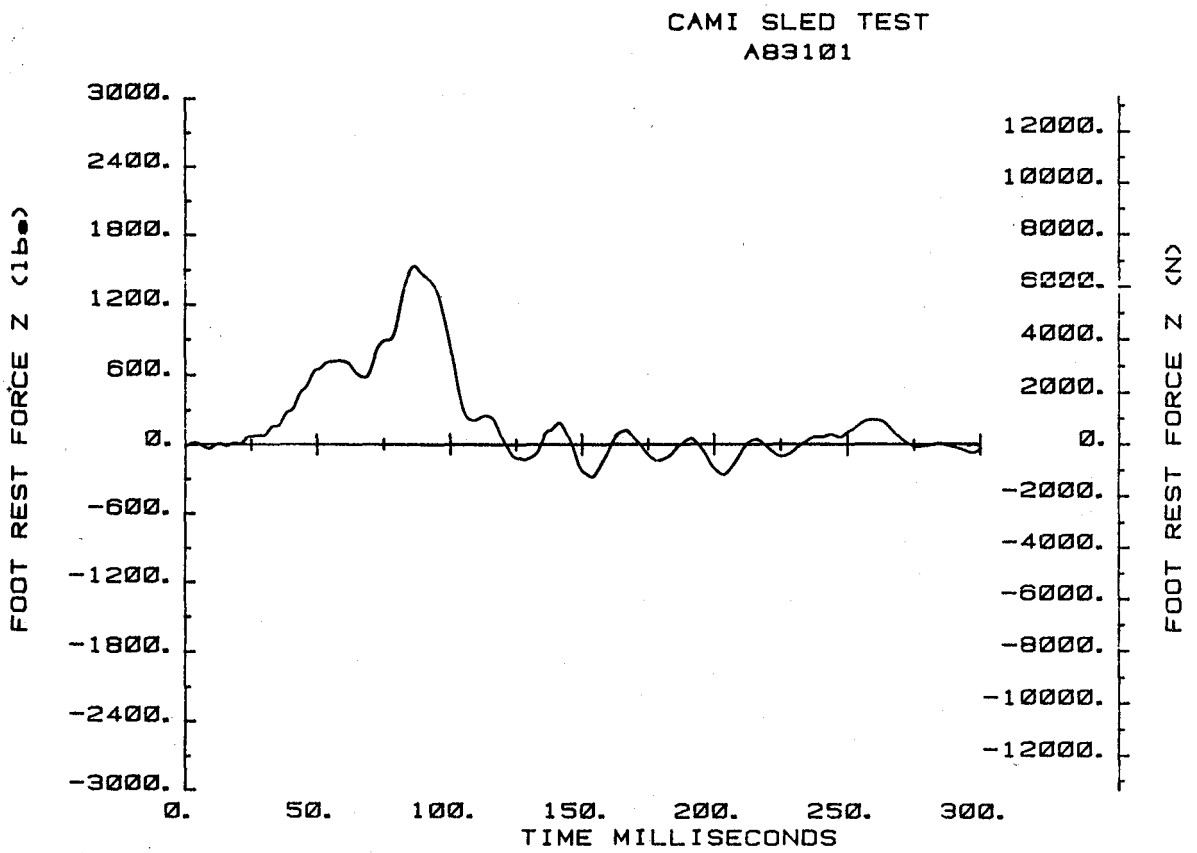

CAMI SLED TEST
A83101
PELVIC MOMENT RESULTANT (in-lbs)
PELVIC MOMENT RESULTANT (N-m)
4000.
3200.
2400.
1600.
800.
0.
450.
360.
270.
180.
90.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

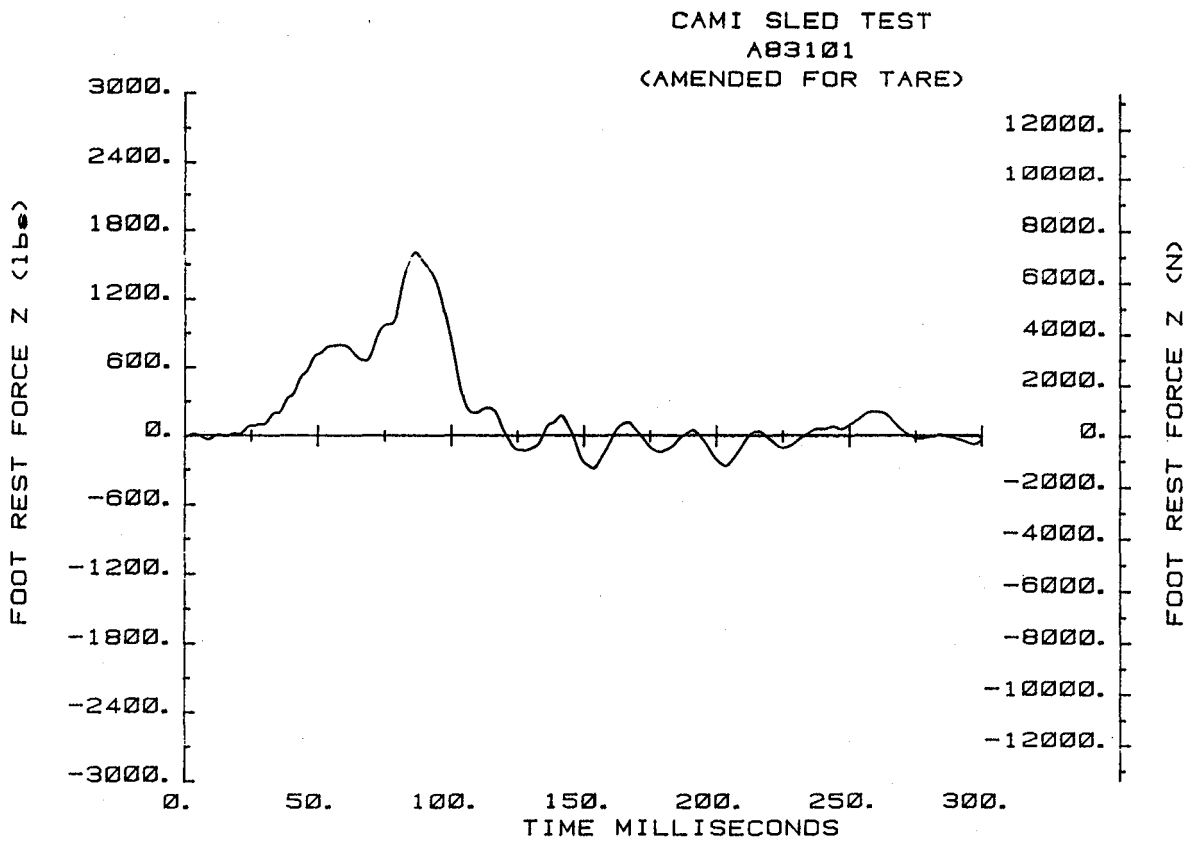

CAMI SLED TEST
A83101
FOOT REST FORCE X (lbs)
FOOT REST FORCE X (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

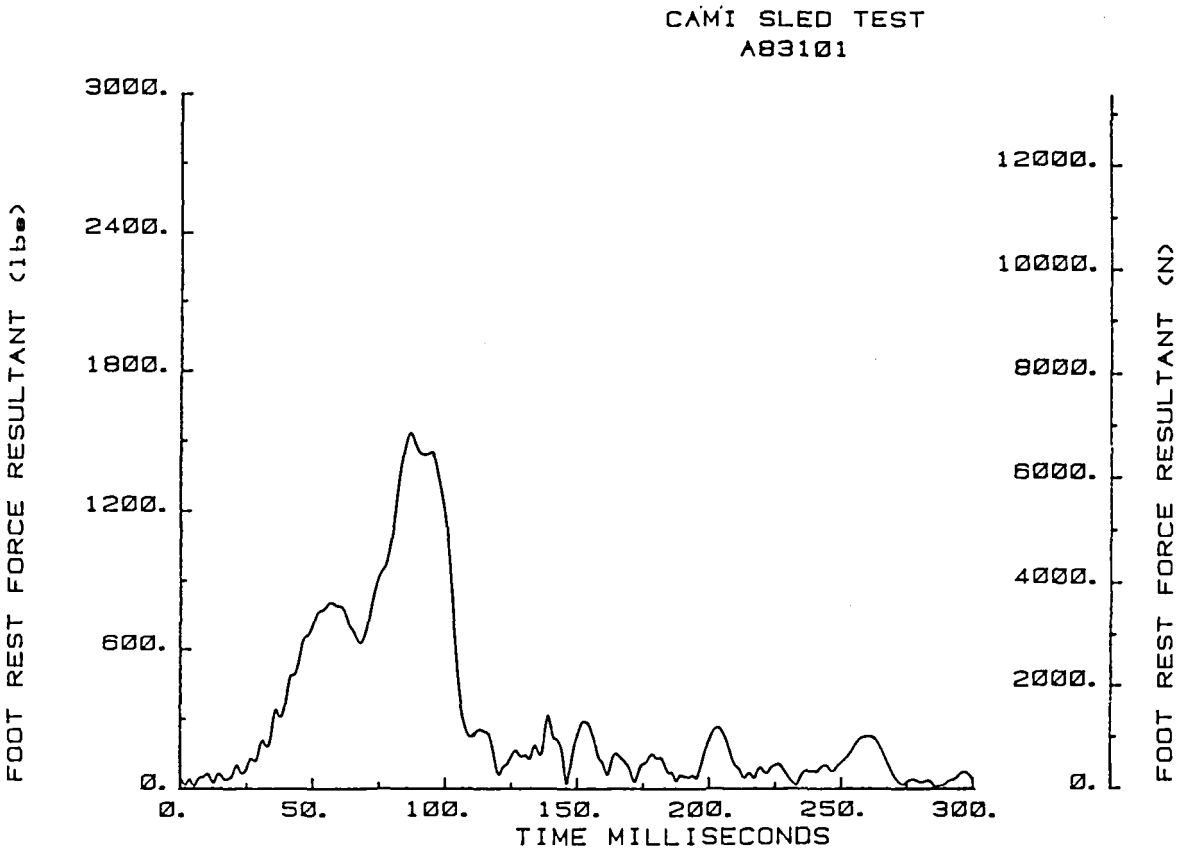

CAMI SLED TEST
A83101
(AMENDED FOR TARE)
FOOT REST FORCE X (lbs)
FOOT REST FORCE X (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

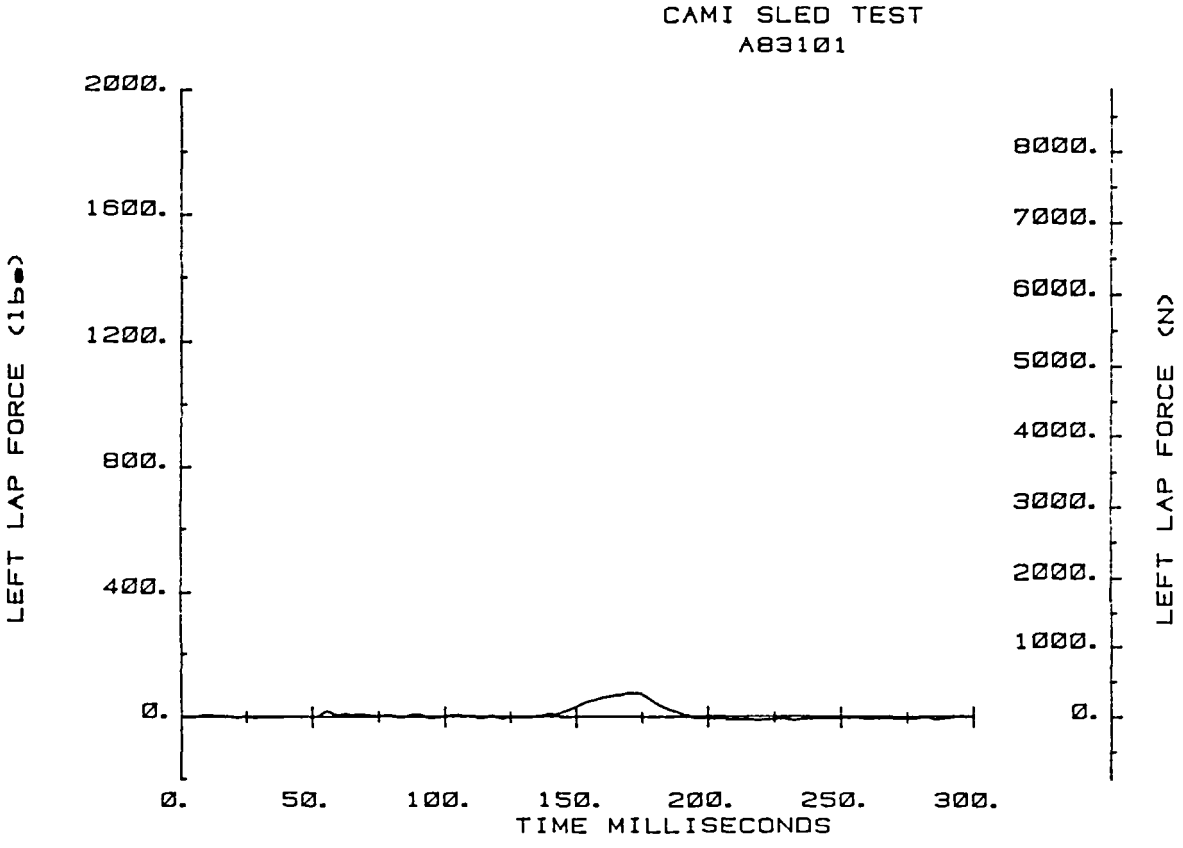

CAMI SLED TEST
A83101
FOOT REST FORCE Y (lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
FOOT REST FORCE Y (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

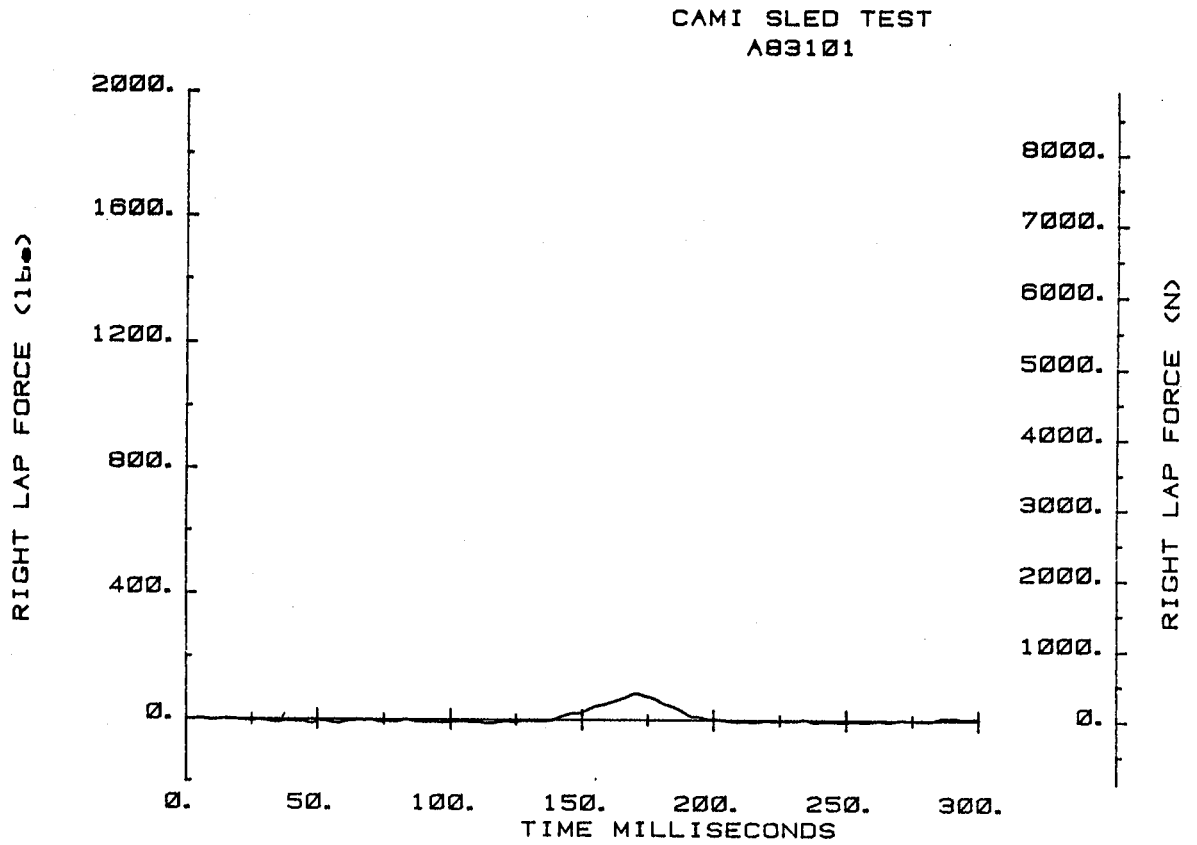

CAMI SLED TEST
A83101
(AMENDED FOR TARE)
FOOT REST FORCE Y (lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
FOOT REST FORCE Y (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

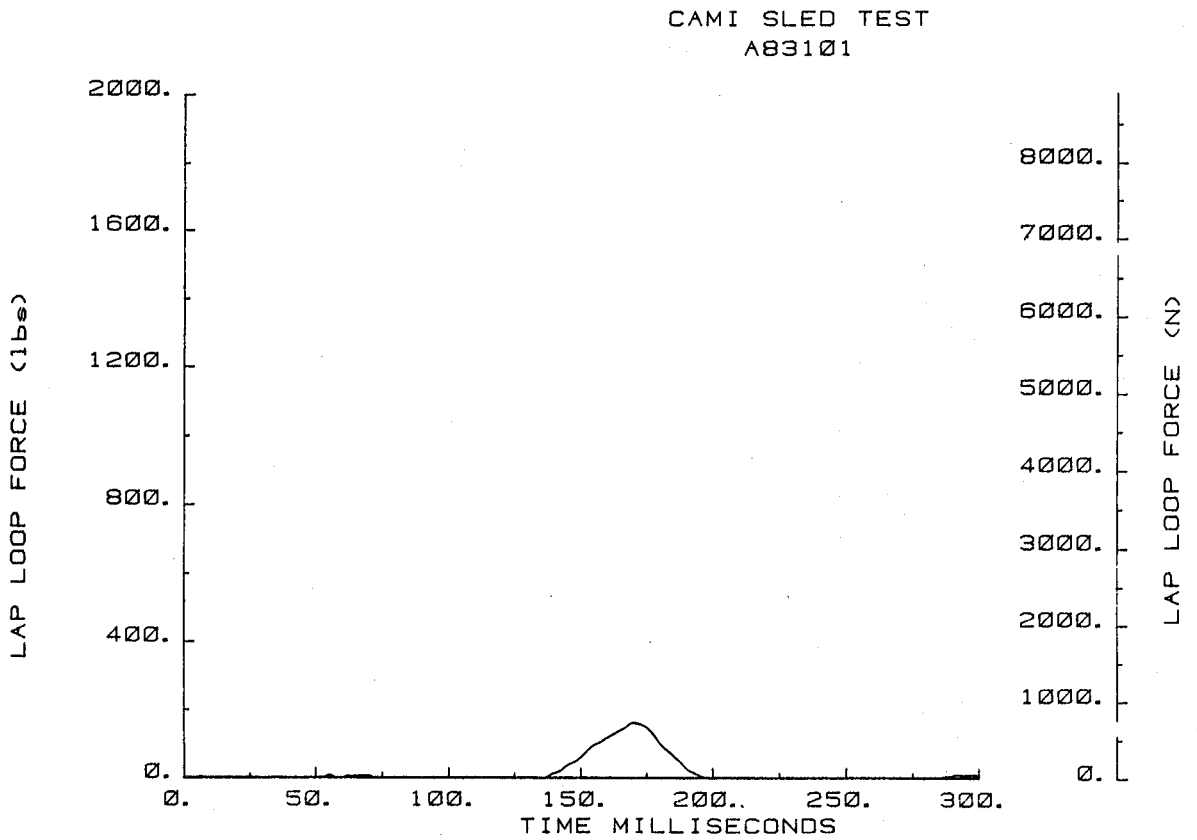

CAMI SLED TEST
A83101
FOOT REST FORCE Z (lbs)
FOOT REST FORCE Z (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

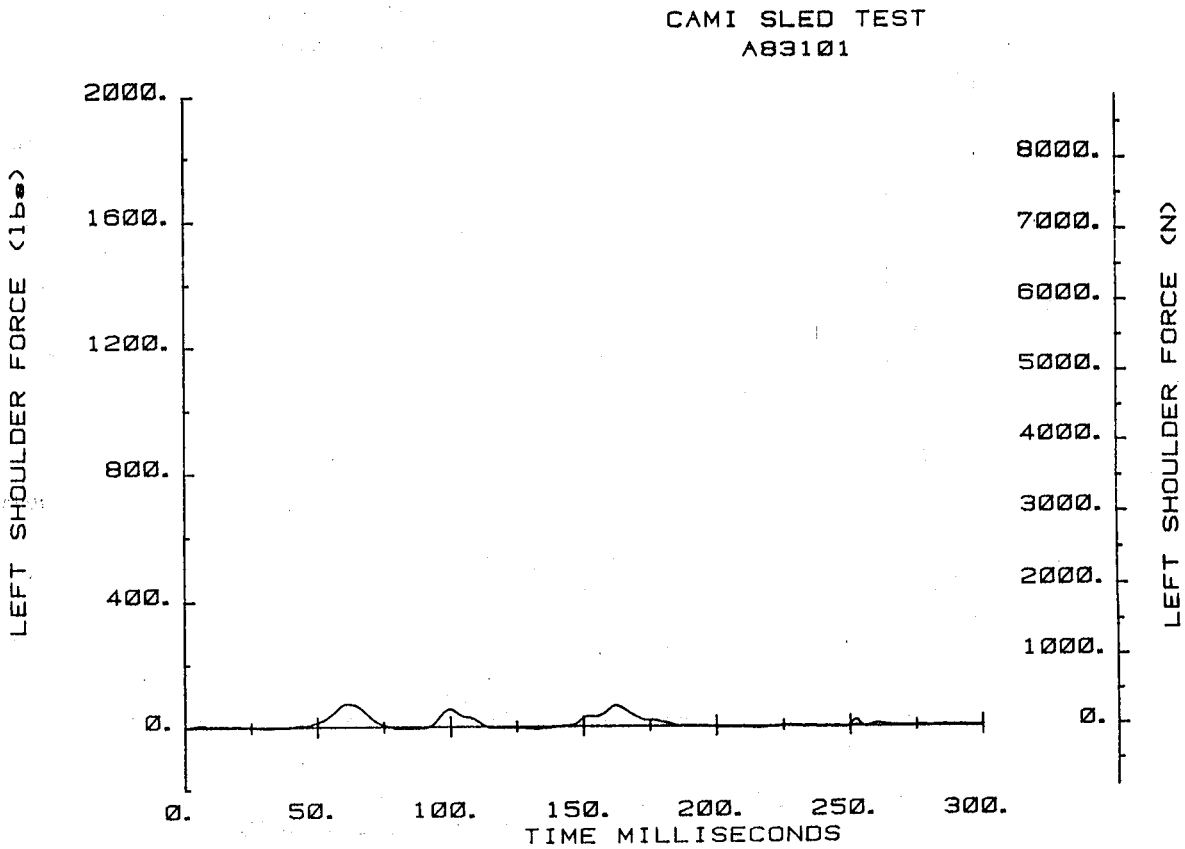

CAMI SLED TEST
A83101
(AMENDED FOR TARE)
FOOT REST FORCE Z (lbs)
FOOT REST FORCE Z (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

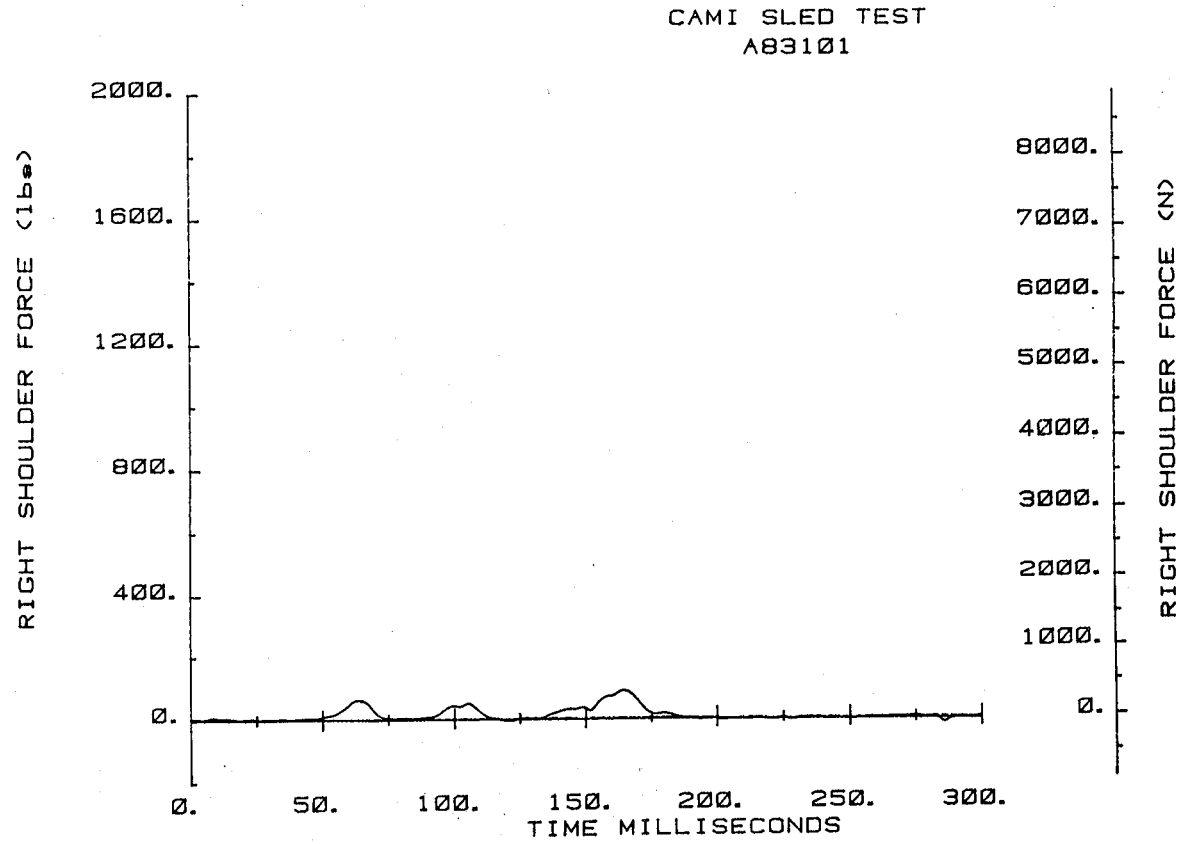

CAMI SLED TEST
A83101
FOOT REST FORCE RESULTANT (lbs)
FOOT REST FORCE RESULTANT (N)
3000.
2400.
1800.
1200.
600.
0.
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

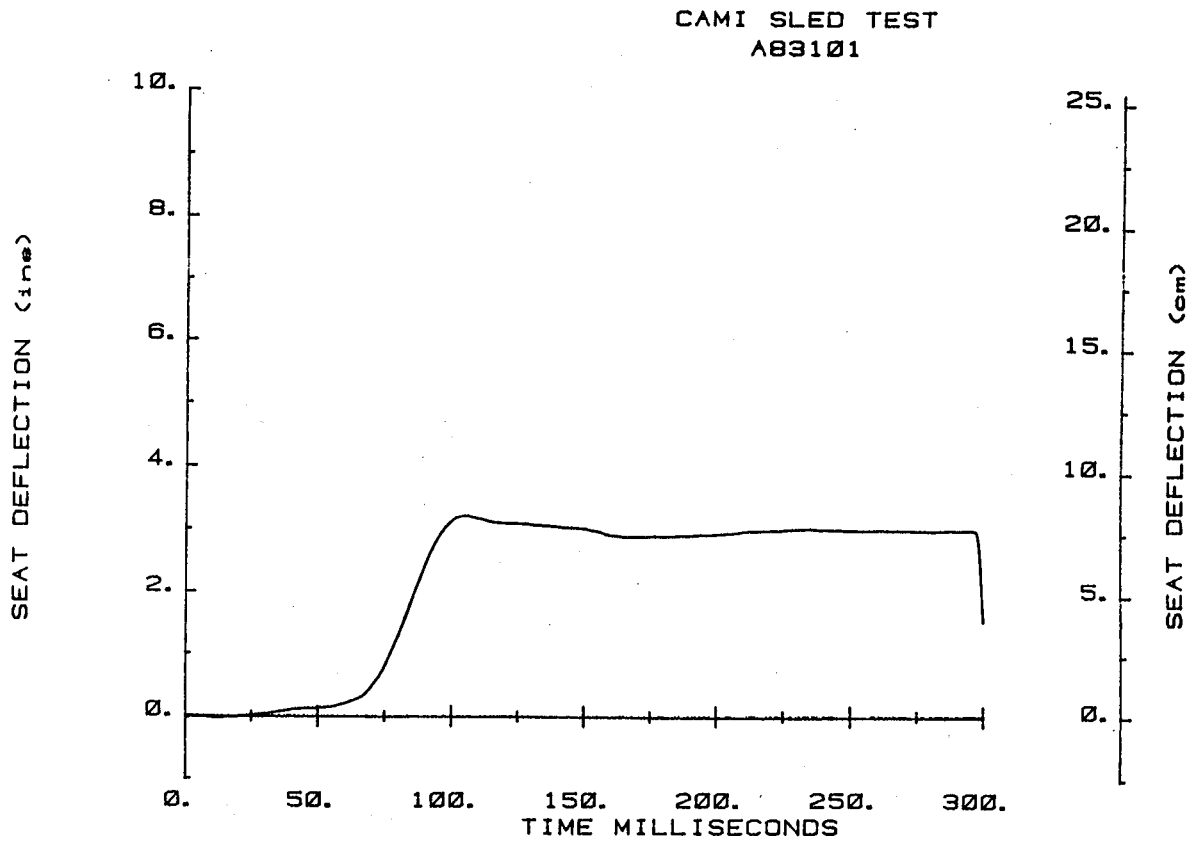

CAMI SLED TEST
A83101
LEFT LAP FORCE (lbs)
LEFT LAP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

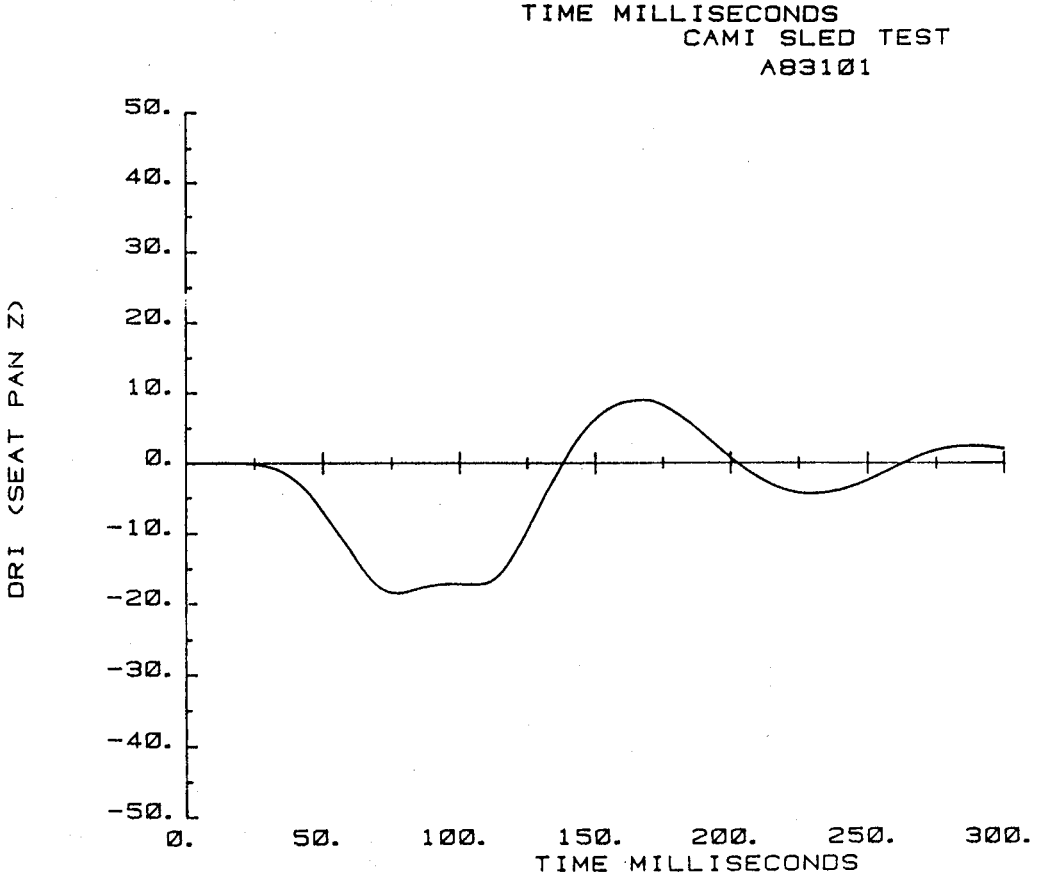

CAMI SLED TEST
A83101
RIGHT LAP FORCE (lbs)
RIGHT LAP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83101
LAP LOOP FORCE (lbs)
LAP LOOP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

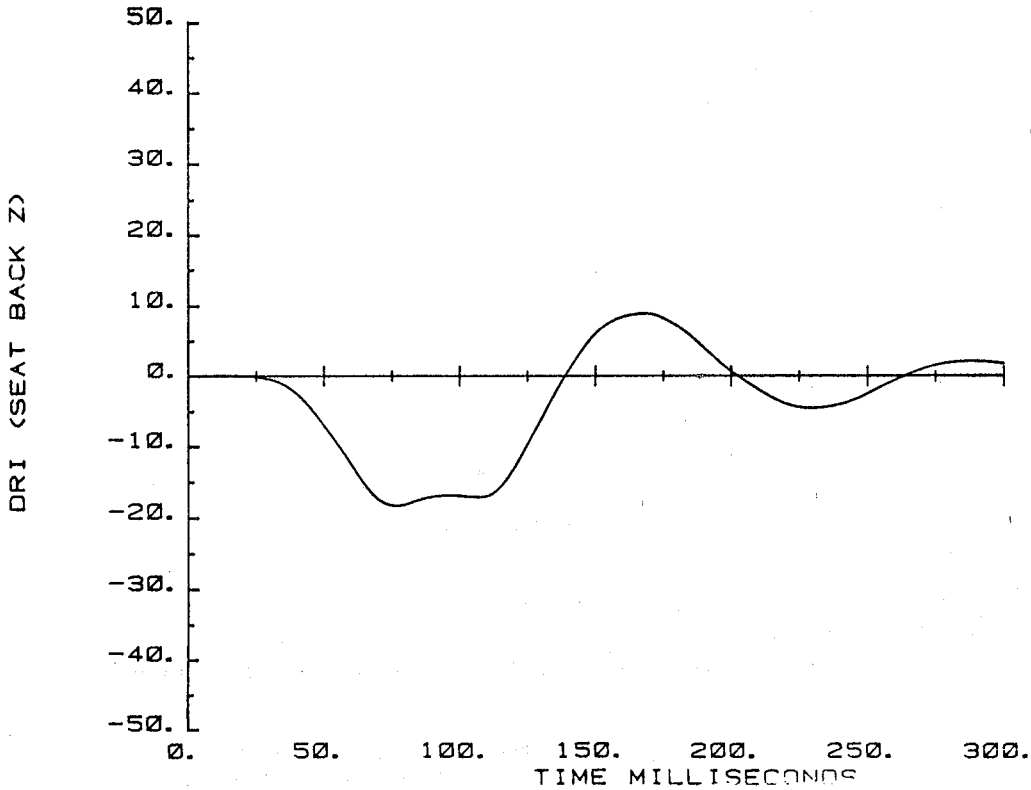

CAMI SLED TEST
A83101
LEFT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83101
RIGHT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

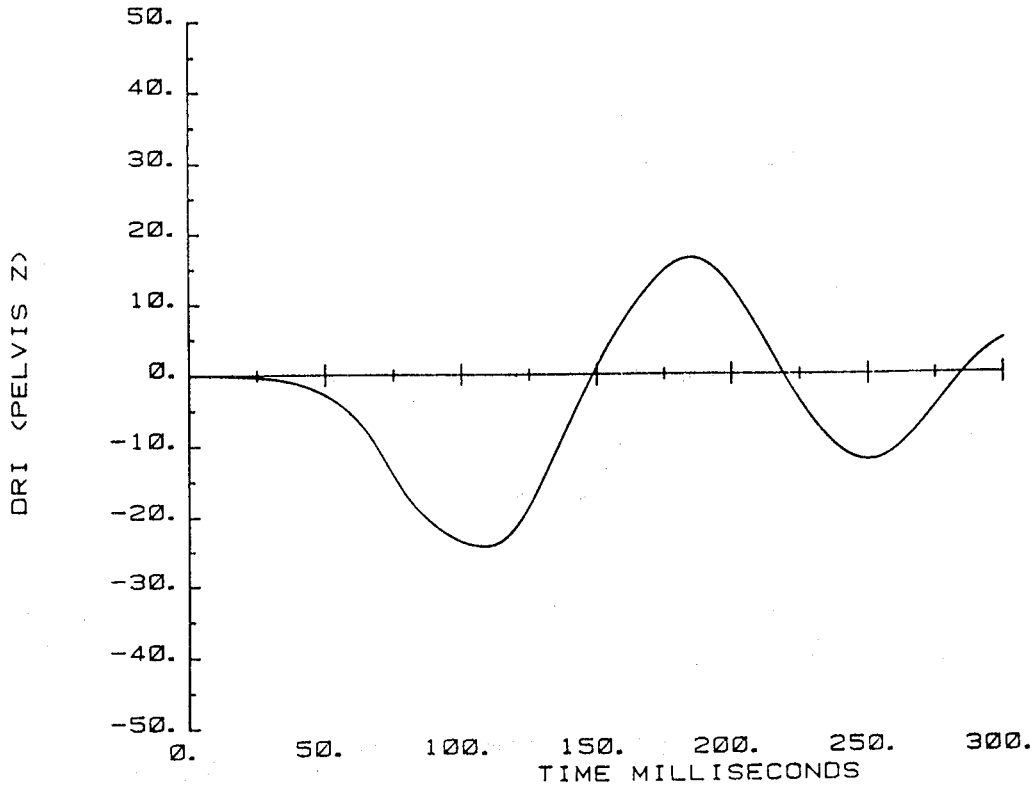

CAMI SLED TEST
A83101
SEAT DEFLECTION (in)
SEAT DEFLECTION (cm)
10.
8.
6.
4.
2.
0.
25.
20.
15.
10.
5.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83101
DRI (SEAT PAN Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

CAMI SLED TEST
A83101



CAMI SLED TEST
A83101



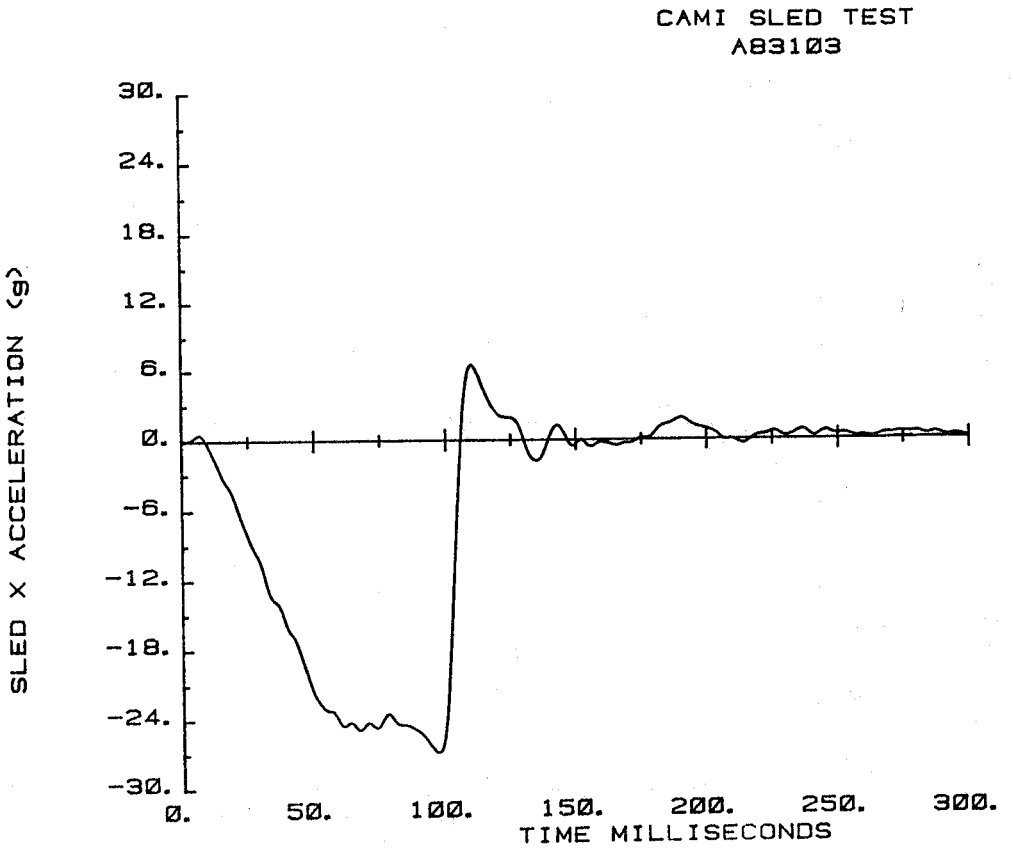
3.0 CAMI TEST NO. A83-103

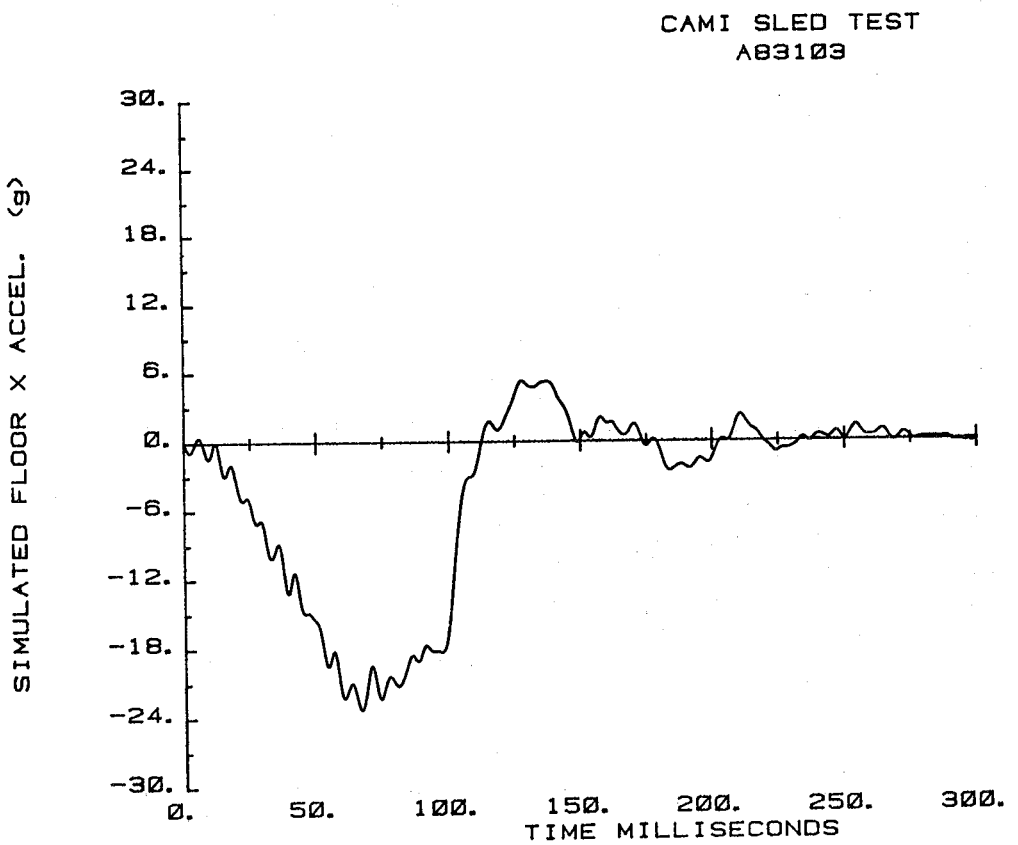
SEAT: Energy Absorbing

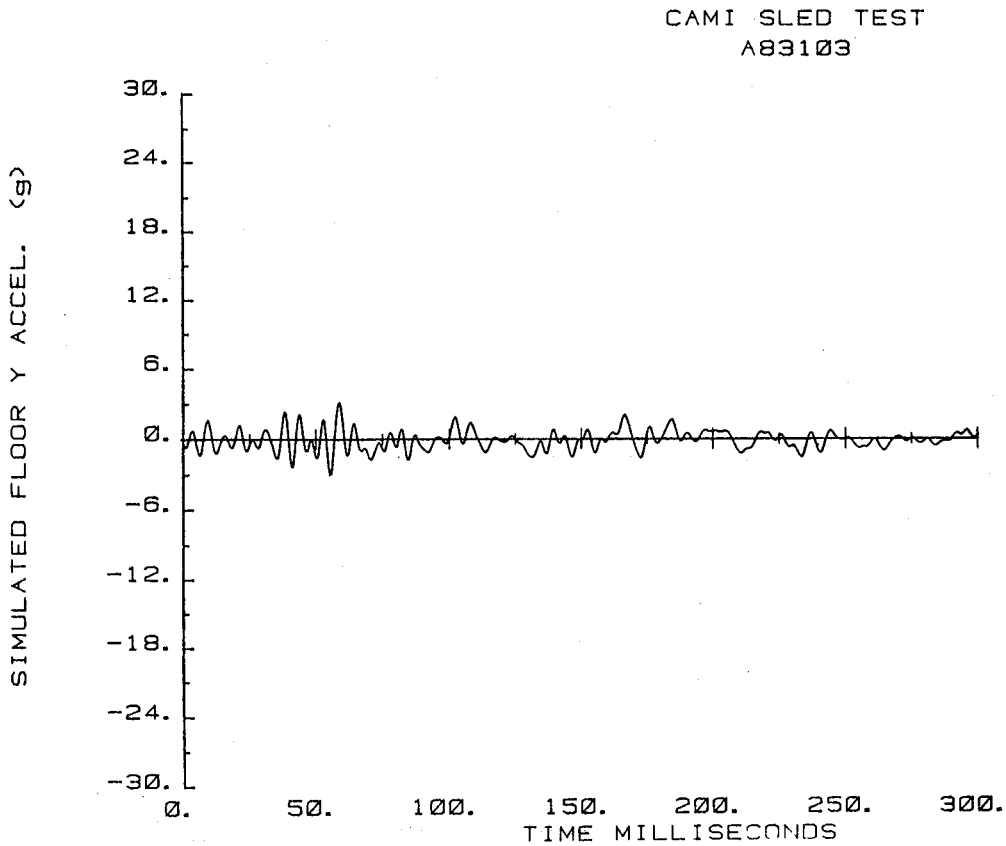
PULSE NUMBER: 2

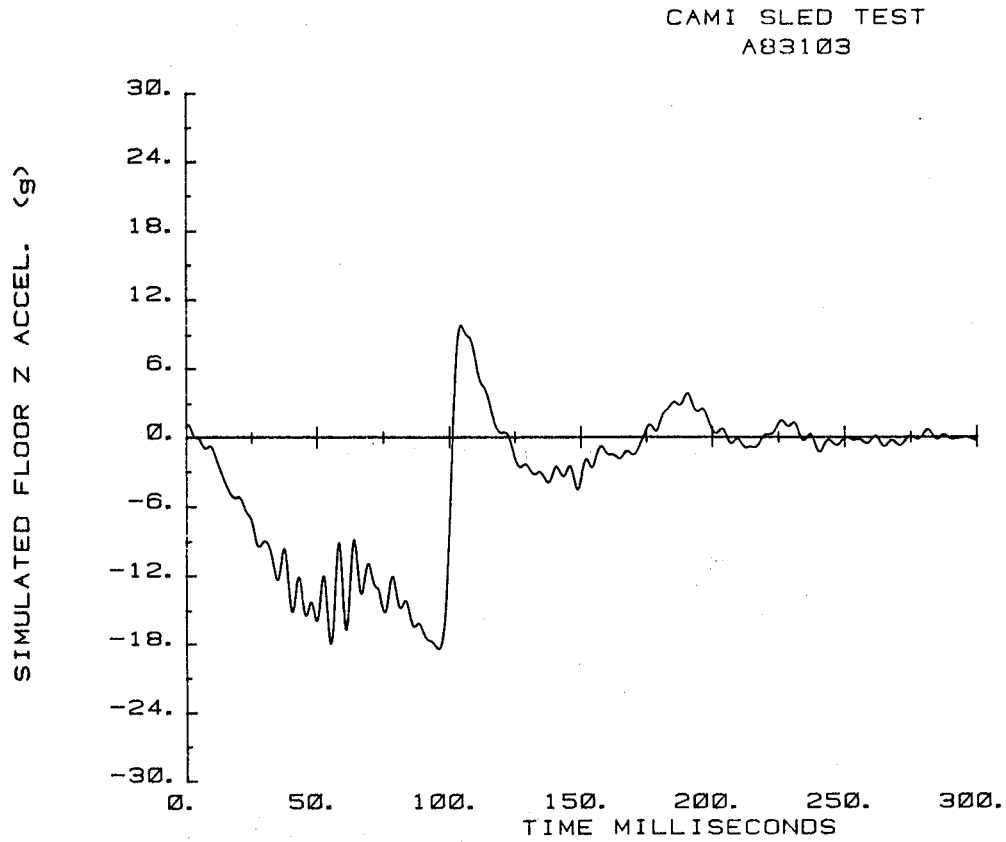
SEAT ORIENTATION: Pitch - 40°
Roll - 0°
Yaw - 0°

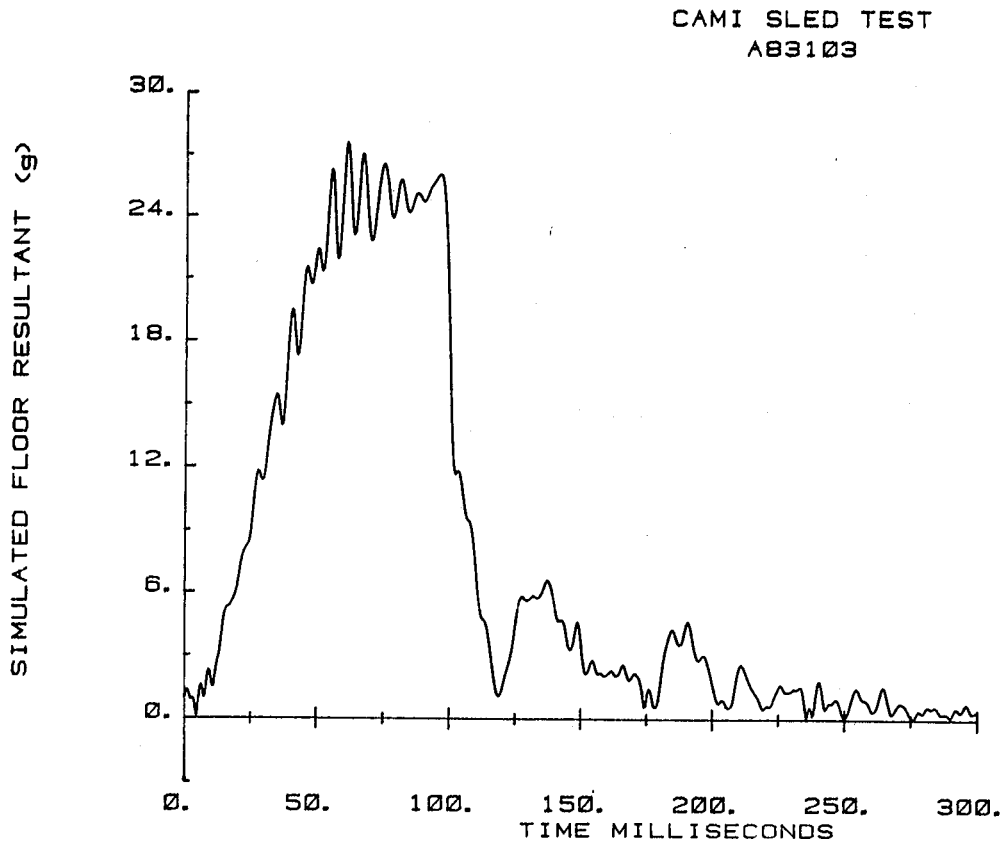
RUN#	V A R I A B L E		PEAK1	T	PEAK2	T	RANGE	FILE
A83103	SLED X ACCELERATION	(g)	-26.9	96	6.5	110	(0, 300)	* F10301
A83103	HEAD X ACCELERATION	(g)	-31.2	156	8.2	258	(0, 300)	* F10303
A83103	HEAD Y ACCELERATION	(g)	4.5	97	-2.4	160	(0, 300)	* F10304
A83103	HEAD Z ACCELERATION	(g)	-23.8	59	39.7	107	(0, 300)	* F10305
A83103	CHEST X ACCELERATION	(g)	-38.1	85			(0, 300)	* F10306
A83103	CHEST Y ACCELERATION	(g)	8.6	90	-3.9	153	(0, 300)	* F10307
A83103	CHEST Z ACCELERATION	(g)	-24.4	58	6.3	217	(0, 300)	* F10308
A83103	PELVIS X ACCELERATION	(g)	-26.6	77	34.9	149	(0, 300)	* F10309
A83103	PELVIS Y ACCELERATION	(g)	-15.4	149	8.8	169	(0, 300)	* F10310
A83103	PELVIS Z ACCELERATION	(g)	-24.4	54	25.9	148	(0, 300)	* F10311
A83103	SIMULATED FLOOR X ACCEL.	(g)	-23.3	66	5.2	127	(0, 300)	* F10312
A83103	SIMULATED FLOOR Y ACCEL.	(g)	-3.0	55	3.1	58	(0, 300)	* F10313
A83103	SIMULATED FLOOR Z ACCEL.	(g)	-18.4	95	9.8	104	(0, 300)	* F10314
A83103	FOOT REST FORCE X	(lbs)	740.9	61	-260.6	153	(0, 300)	* F10315
A83103	FOOT REST FORCE Y	(lbs)	-248.3	92	199.8	146	(0, 300)	* F10316
A83103	FOOT REST FORCE Z	(lbs)	2661.1	74			(0, 300)	* F10317
A83103	LEFT SHOULDER FORCE	(lbs)	785.6	92			(0, 300)	* F10318
A83103	RIGHT SHOULDER FORCE	(lbs)	452.8	89			(0, 300)	* F10319
A83103	SEAT BACK Z ACCELERATION	(g)	-27.1	81	7.8	136	(0, 300)	* F10320
A83103	SEAT PAN X ACCELERATION	(g)	-27.7	68	12.7	154	(0, 300)	* F10321
A83103	SEAT PAN Y ACCELERATION	(g)	-9.2	33	5.4	171	(0, 300)	* F10322
A83103	SEAT PAN Z ACCELERATION	(g)	-24.6	81	7.6	136	(0, 300)	* F10323
A83103	SEAT DEFLECTION	(inches)	4.7	113			(0, 300)	* F10324
A83103	PELVIC FORCE X	(lbs)	-736.8	148			(0, 300)	* F10325
A83103	PELVIC FORCE Y	(lbs)	52.1	150	-86.0	180	(0, 300)	* F10326
A83103	PELVIC FORCE Z	(lbs)	1476.1	61	-327.0	151	(0, 300)	* F10327
A83103	PELVIC MOMENT X	(in-lbs)	-856.5	111			(0, 300)	* F10328
A83103	PELVIC MOMENT Y	(in-lbs)	-862.4	87	1794.9	149	(0, 300)	* F10329
A83103	PELVIC MOMENT Z	(in-lbs)	206.7	154			(0, 300)	* F10330
A83103	LEFT LAP FORCE	(lbs)	291.6	90			(0, 300)	* F10331
A83103	RIGHT LAP FORCE	(lbs)	193.3	85			(0, 300)	* F10332
A83103	HEAD RESULTANT	(g)	44.2	107			(0, 300)	* V10301
A83103	CHEST RESULTANT	(g)	38.5	85			(0, 300)	* V10302
A83103	PELVIS RESULTANT	(g)	45.5	149			(0, 300)	* V10303
A83103	SIMULATED FLOOR RESULTANT	(g)	27.6	60			(0, 300)	* V10304
A83103	FOOT REST FORCE RESULTANT	(lbs)	2725.4	74			(0, 300)	* V10305
A83103	SEAT PAN RESULTANT	(g)	32.7	79			(0, 300)	* V10306
A83103	PELVIC FORCE RESULTANT	(lbs)	1476.9	61			(0, 300)	* V10307
A83103	PELVIC MOMENT RESULTANT	(in-lbs)	1803.4	149			(0, 300)	* V10308
A83103	LAP LOOP FORCE	(lbs)	476.2	89			(0, 300)	* A10302
PELVIS DRI			24.9	98				
SEAT BACK DRI			21.6	110				
SEAT PAN DRI			17.6	115				

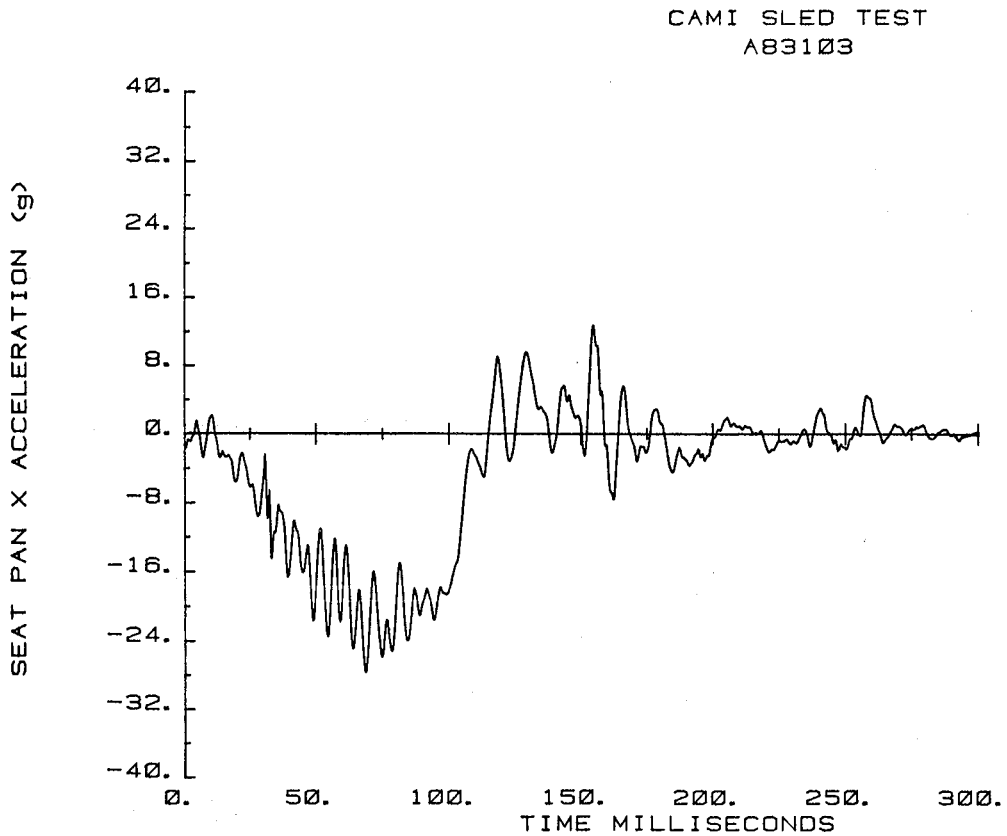

CAMI SLED TEST
A83103
SLED X ACCELERATION (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

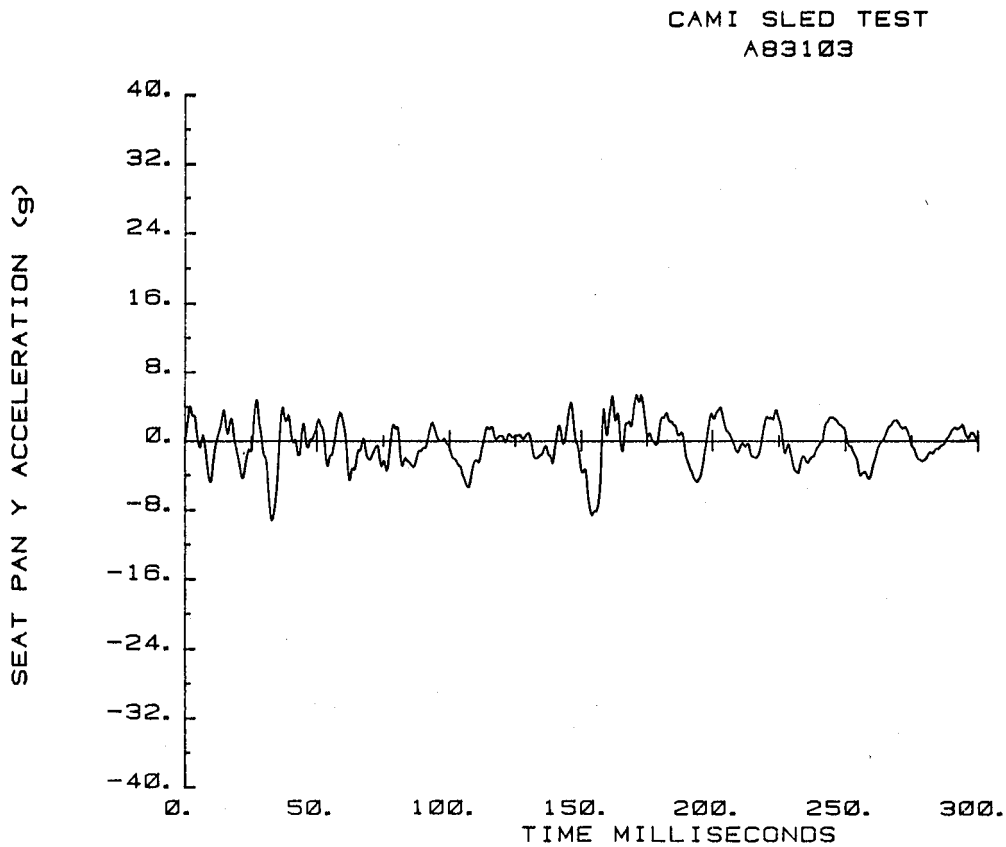

CAMI SLED TEST
A83103
SIMULATED FLOOR X ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

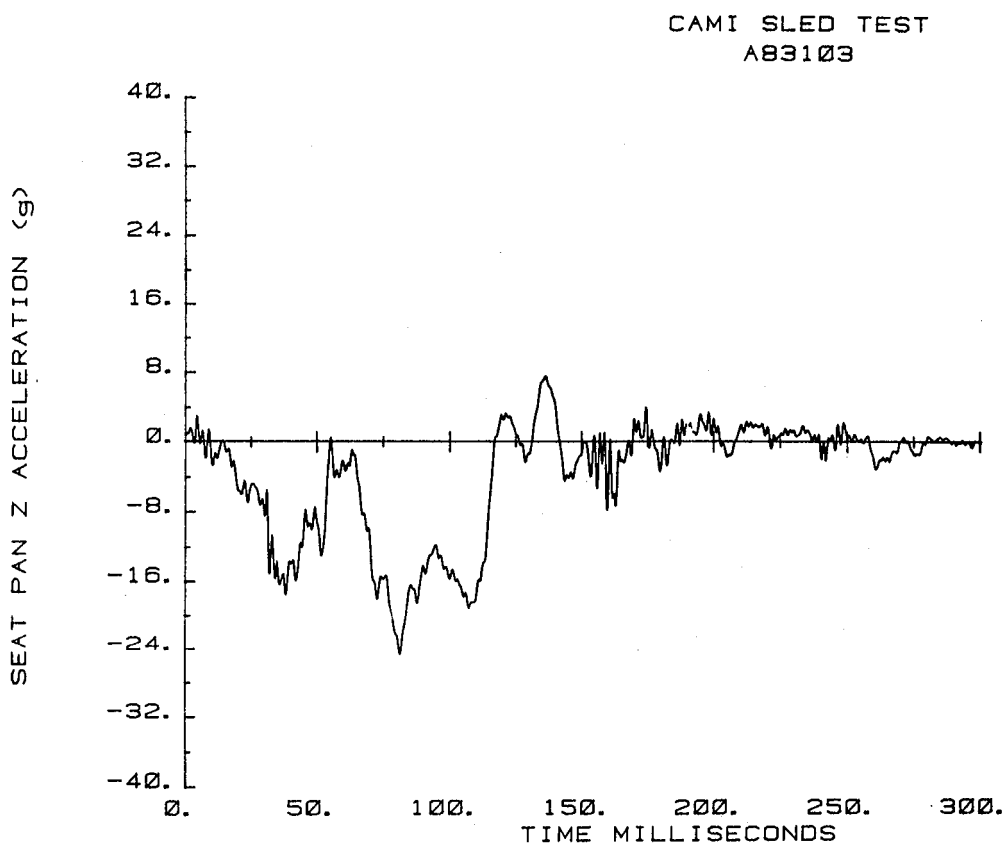

CAMI SLED TEST
A83103
SIMULATED FLOOR Y ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

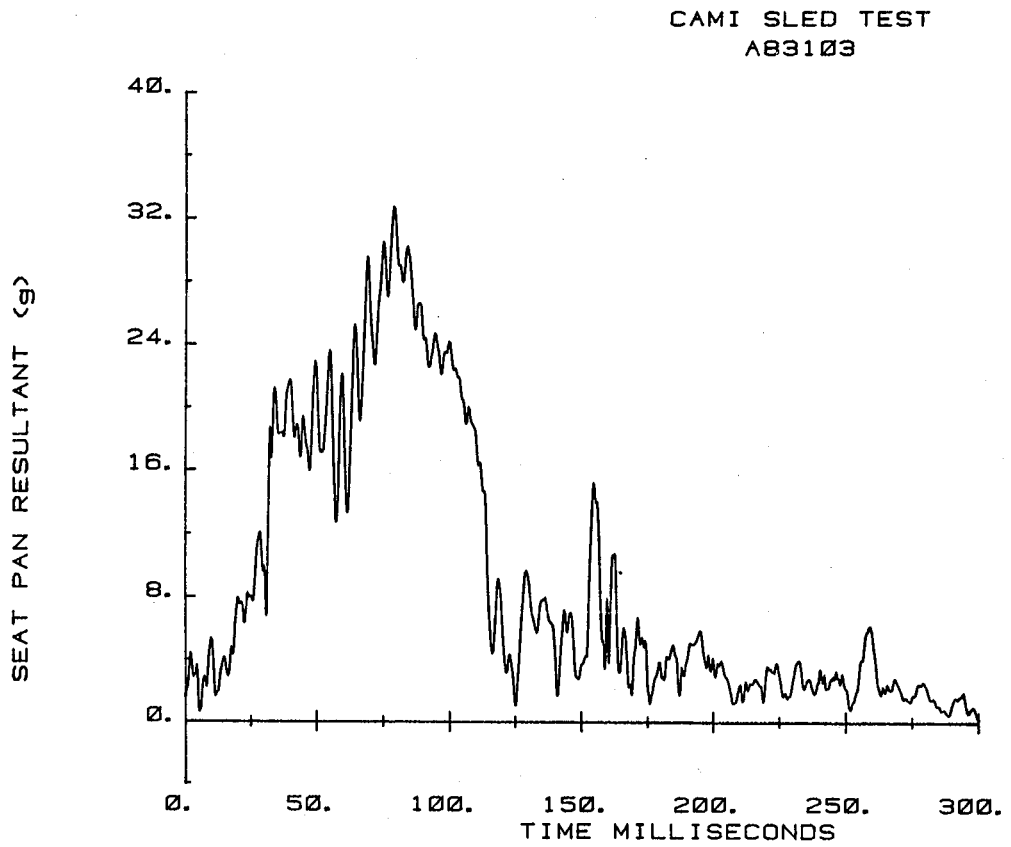

CAMI SLED TEST
A83103
SIMULATED FLOOR Z ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

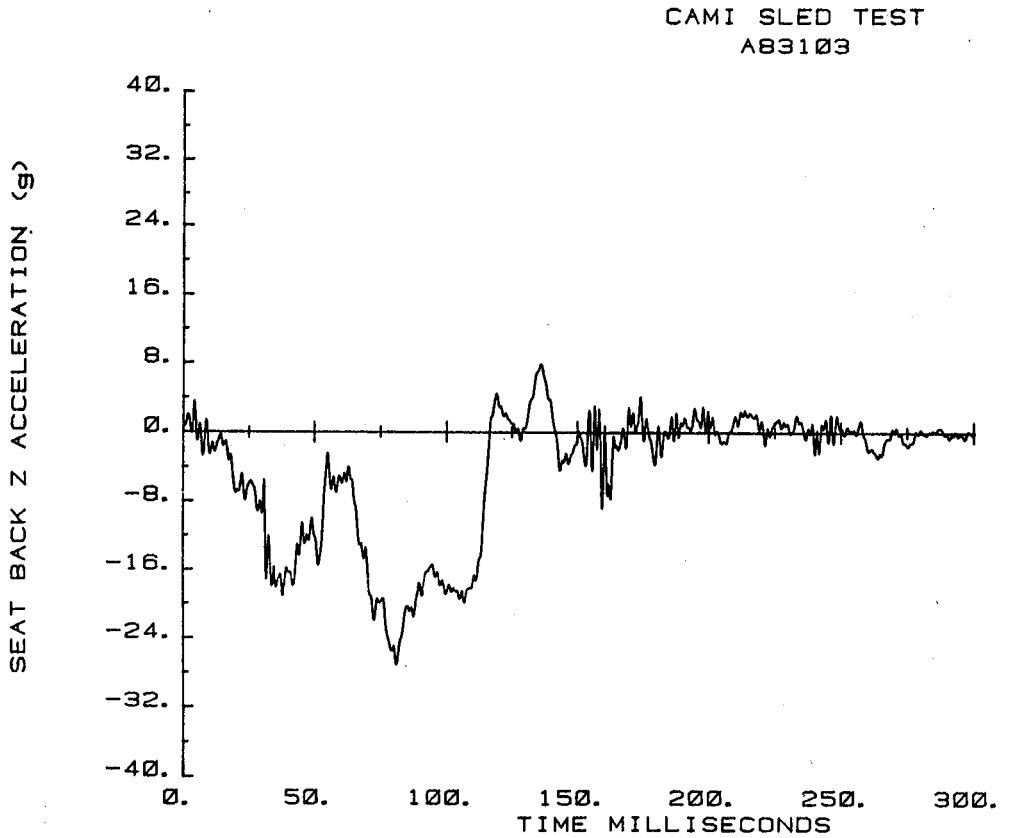

CAMI SLED TEST
A83103
SIMULATED FLOOR RESULTANT (g)
30.
24.
18.
12.
6.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

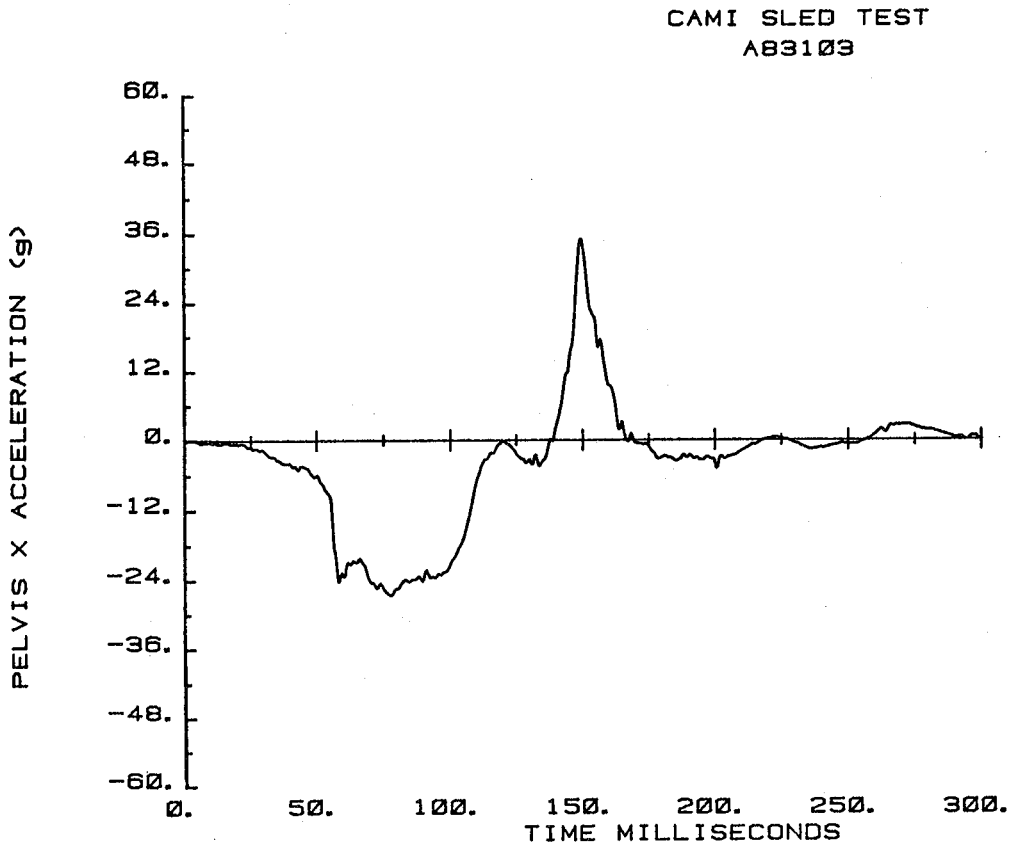

CAMI SLED TEST
A83103
SEAT PAN X ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

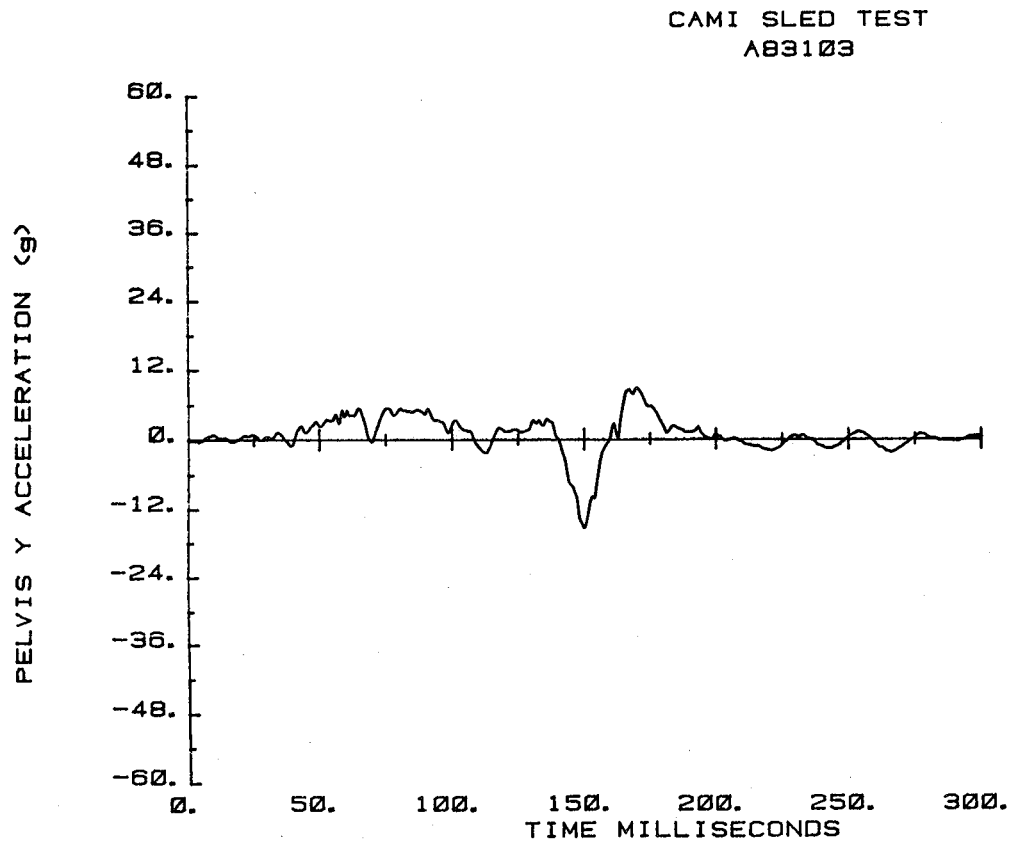

CAMI SLED TEST
A83103
SEAT PAN Y ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

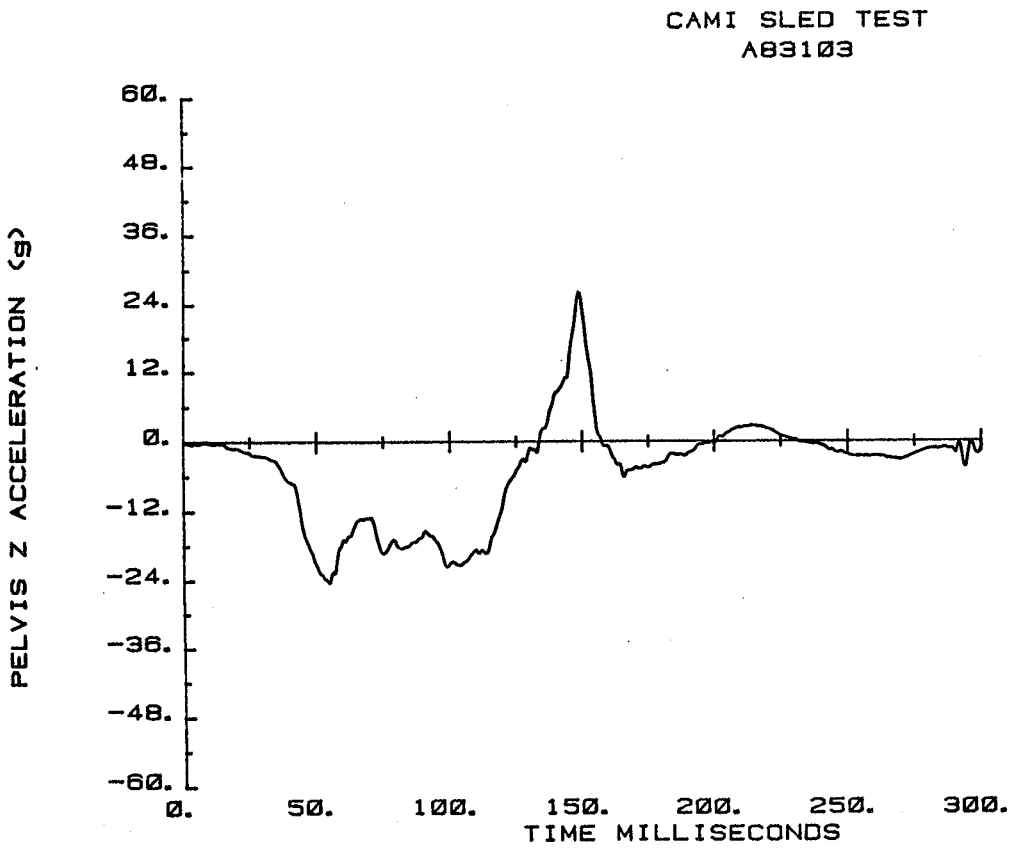

CAMI SLED TEST
A83103
SEAT PAN Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

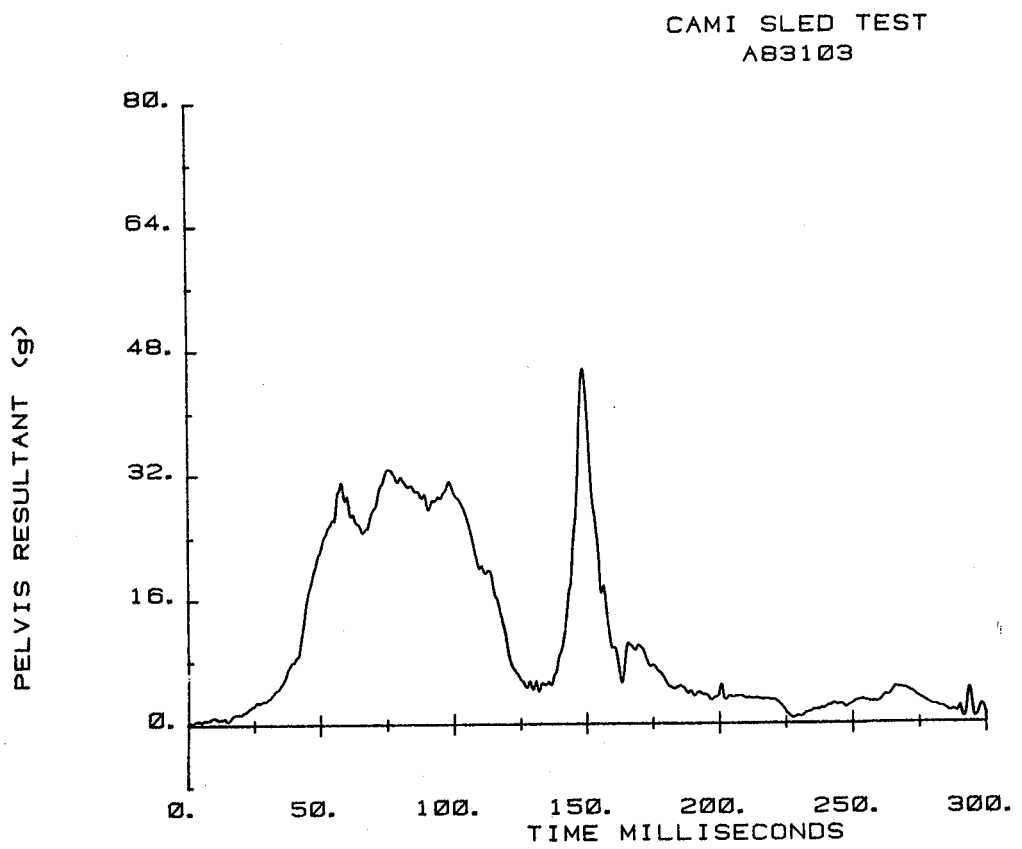

CAMI SLED TEST
A83103
SEAT PAN RESULTANT (g)
40.
32.
24.
16.
8.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

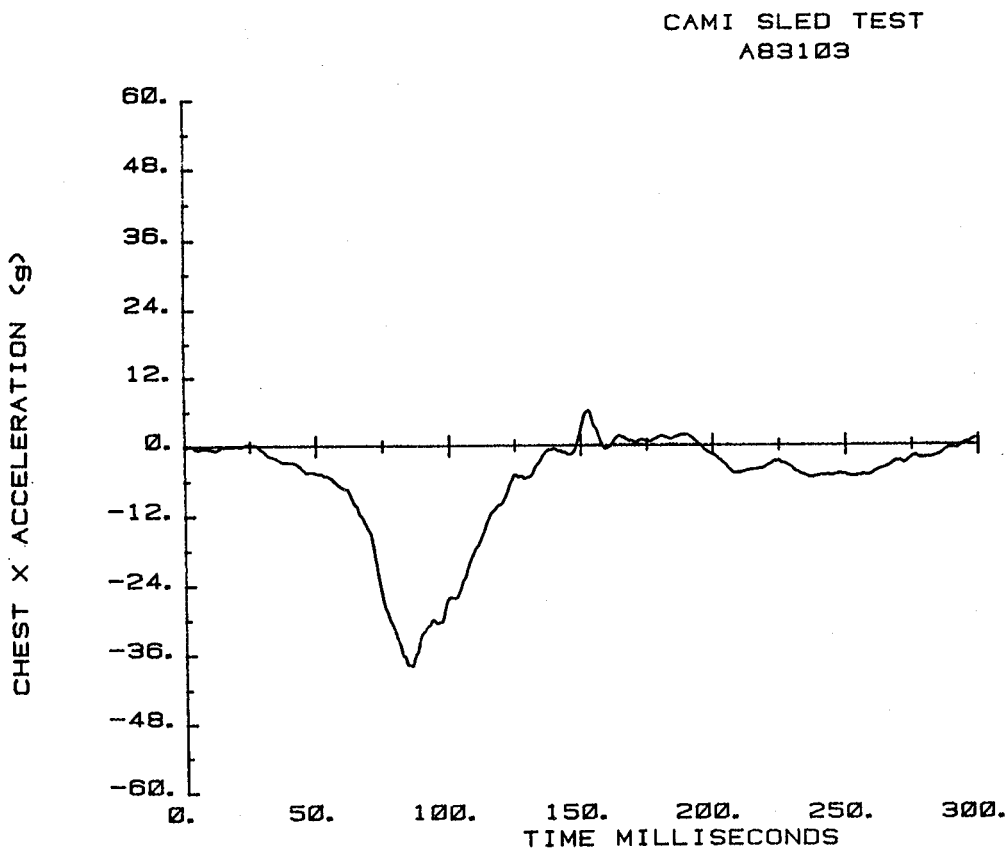

CAMI SLED TEST
A83103
SEAT BACK Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

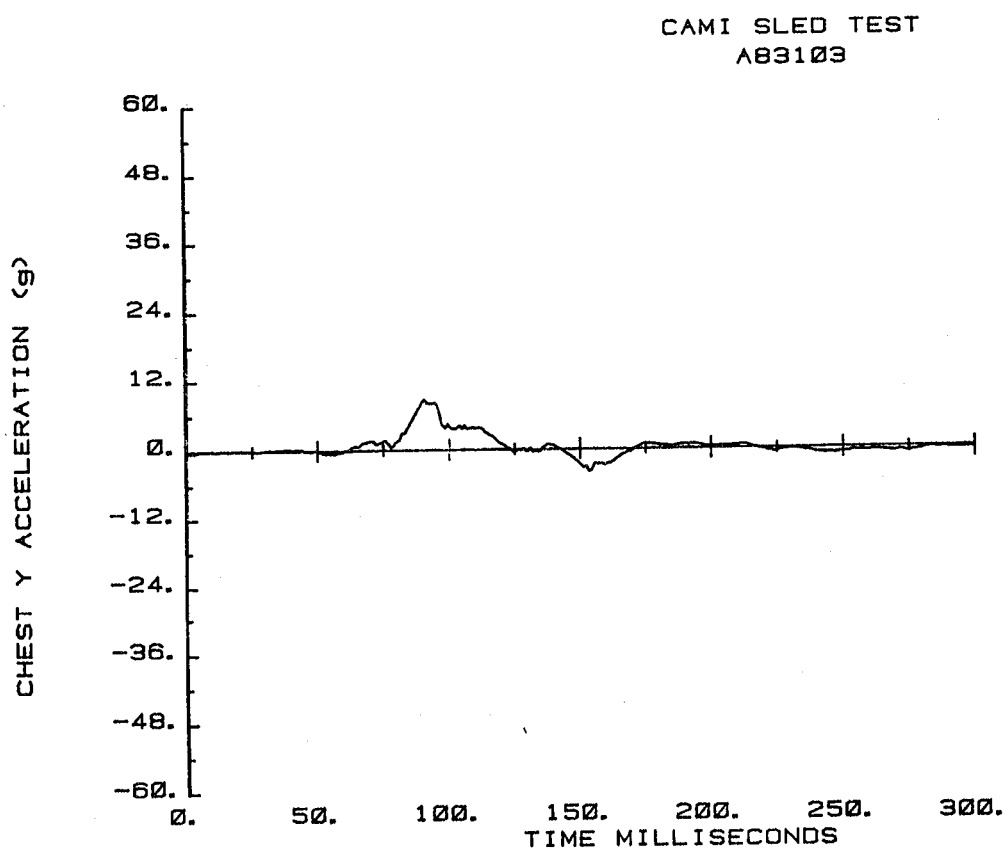

CAMI SLED TEST
A83103
PELVIS X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

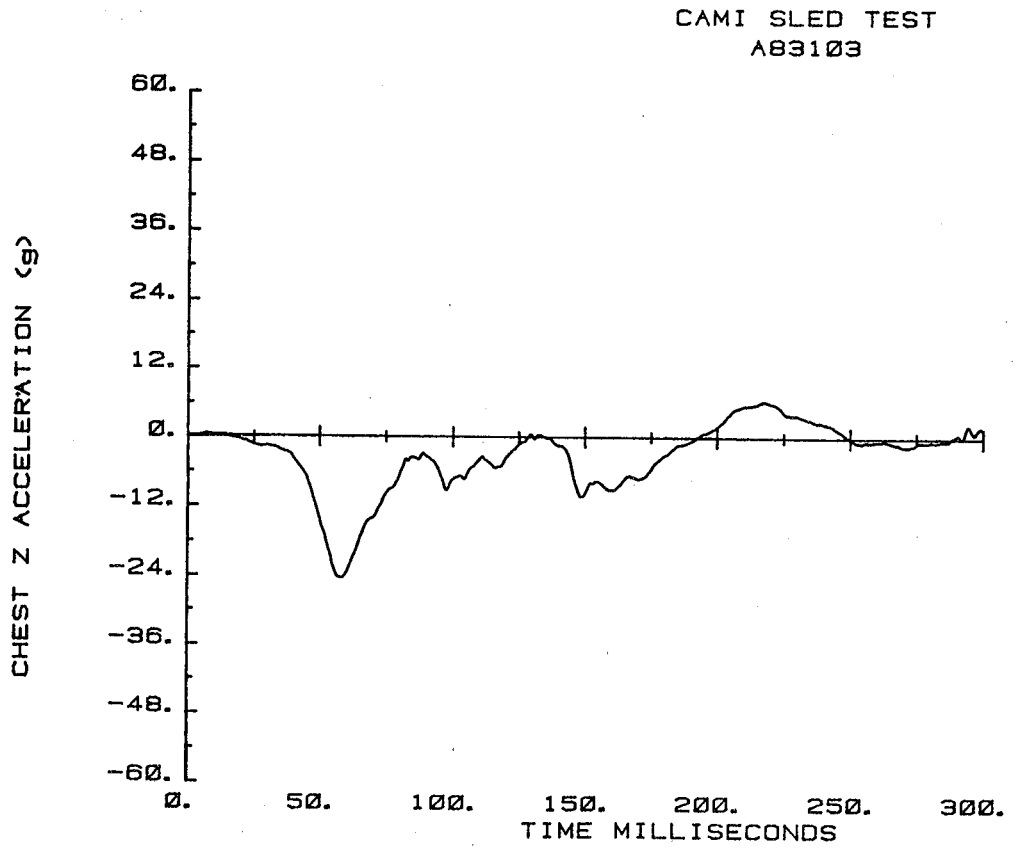

CAMI SLED TEST
A83103
PELVIS Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

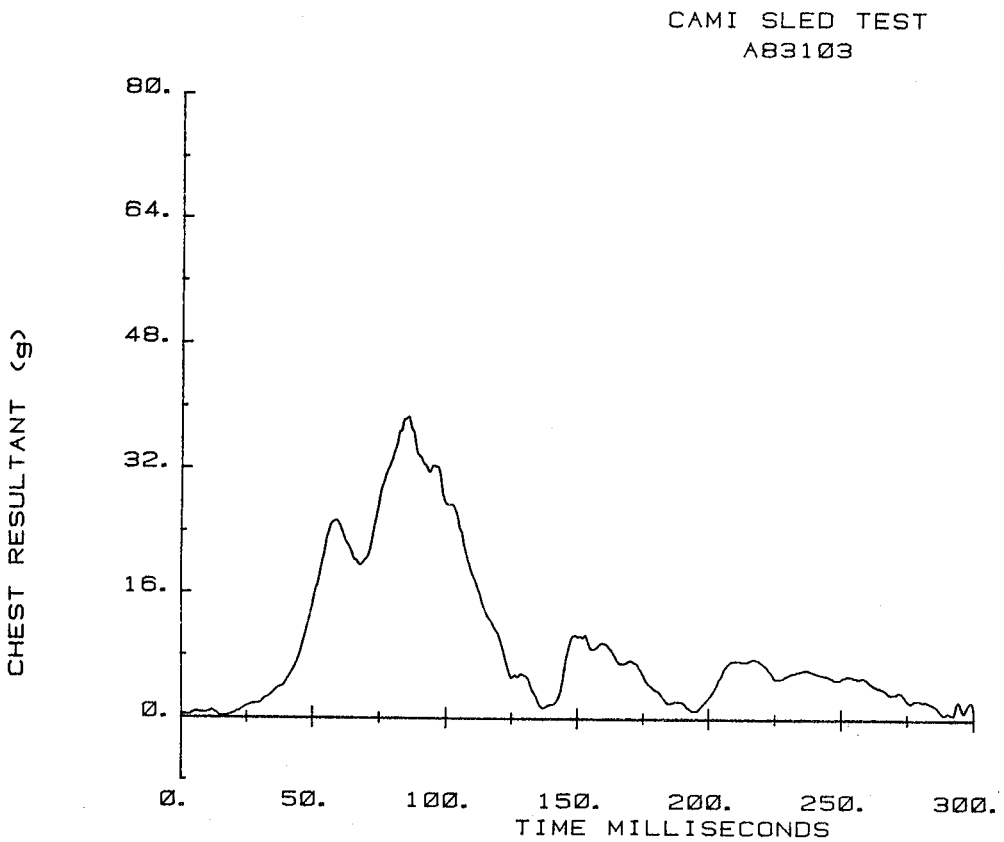

CAMI SLED TEST
A83103
PELVIS Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

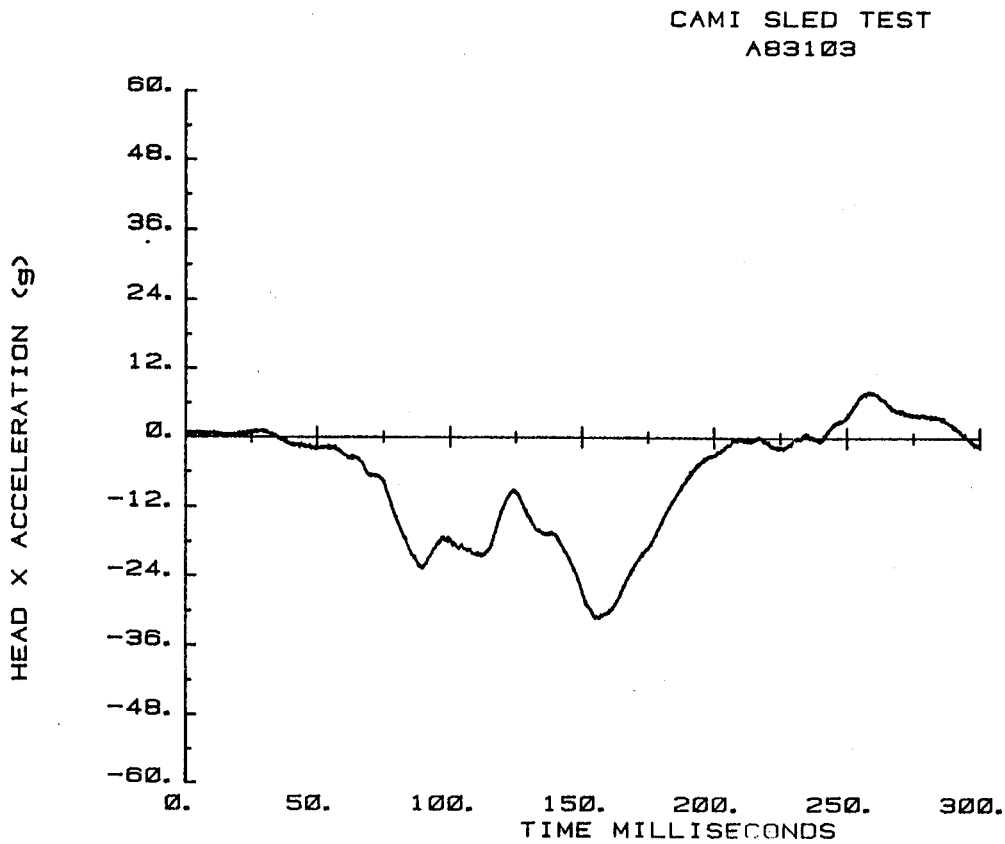

CAMI SLED TEST
A83103
PELVIS RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

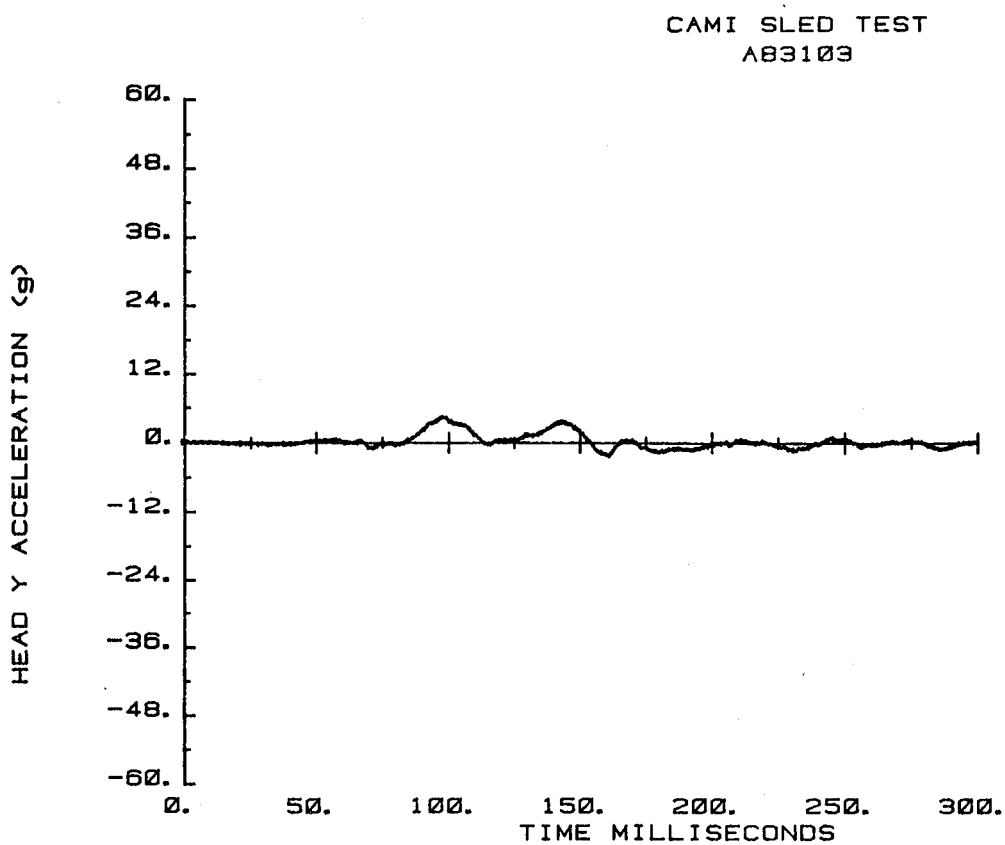

CAMI SLED TEST
A83103
CHEST X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

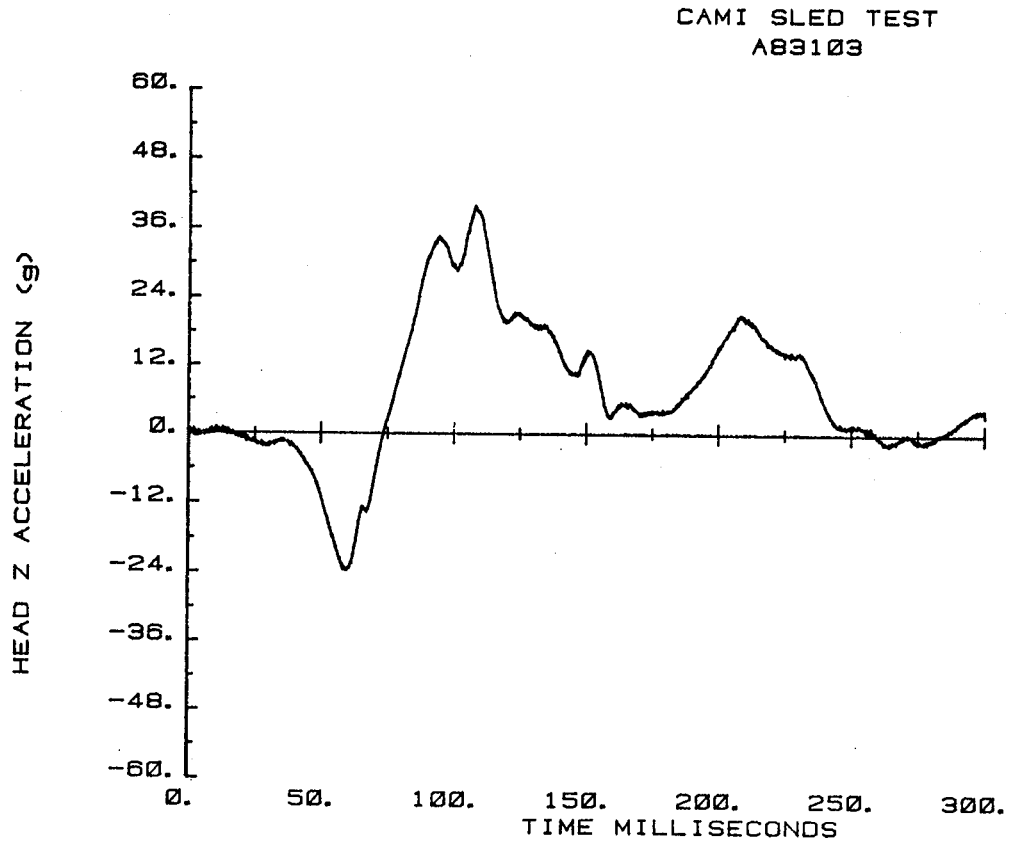

CAMI SLED TEST
A83103
CHEST Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

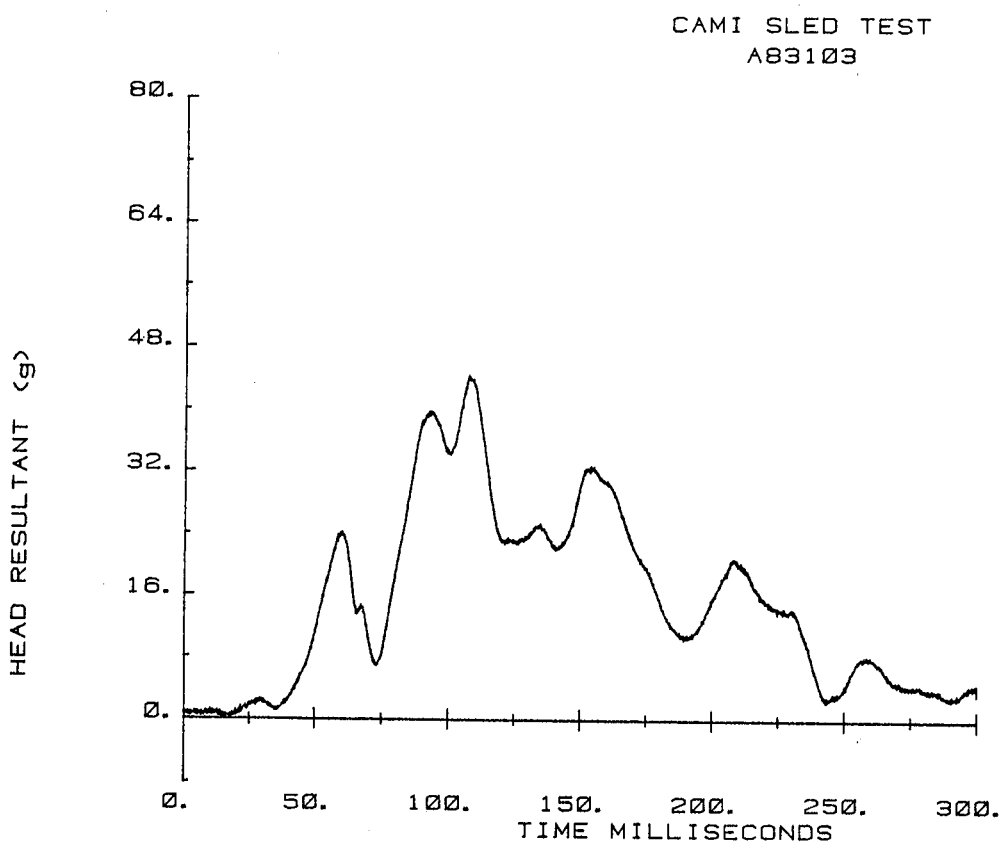

CAMI SLED TEST
A83103
CHEST Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

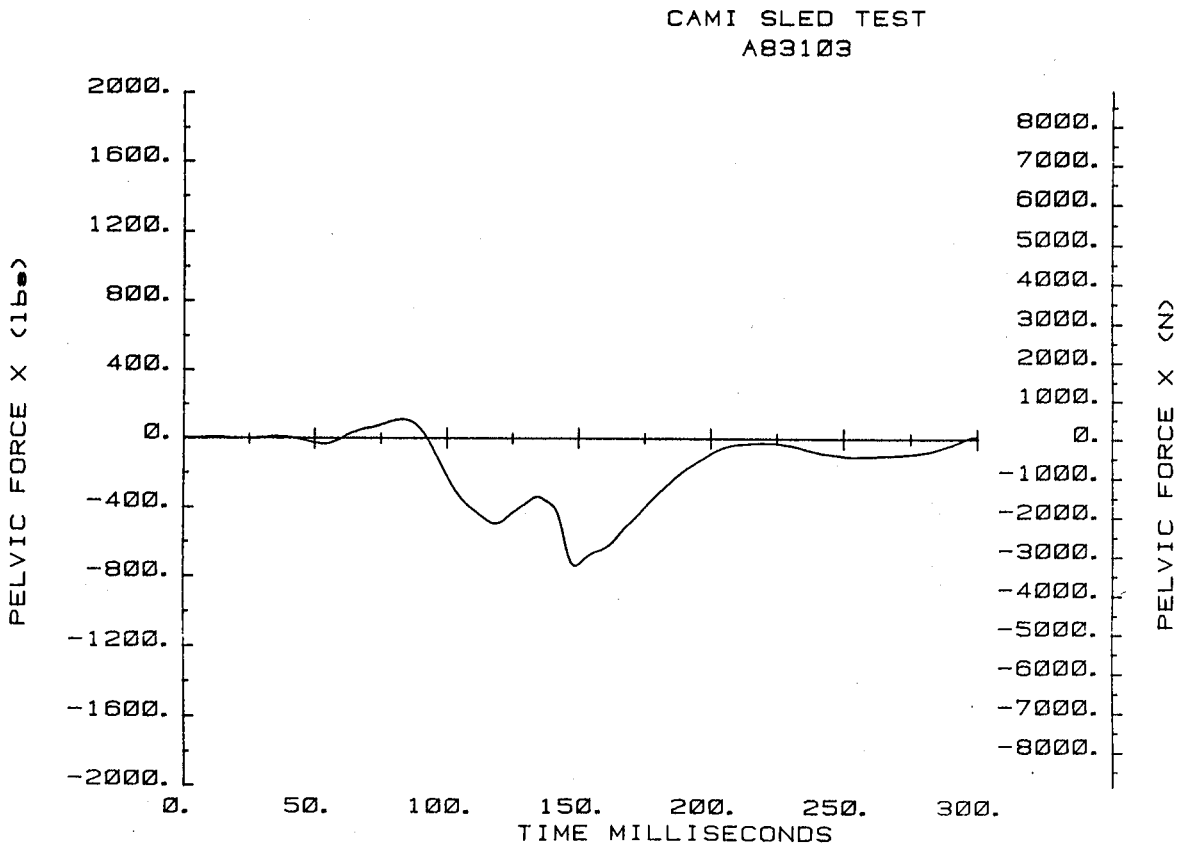

CAMI SLED TEST
A83103
CHEST RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

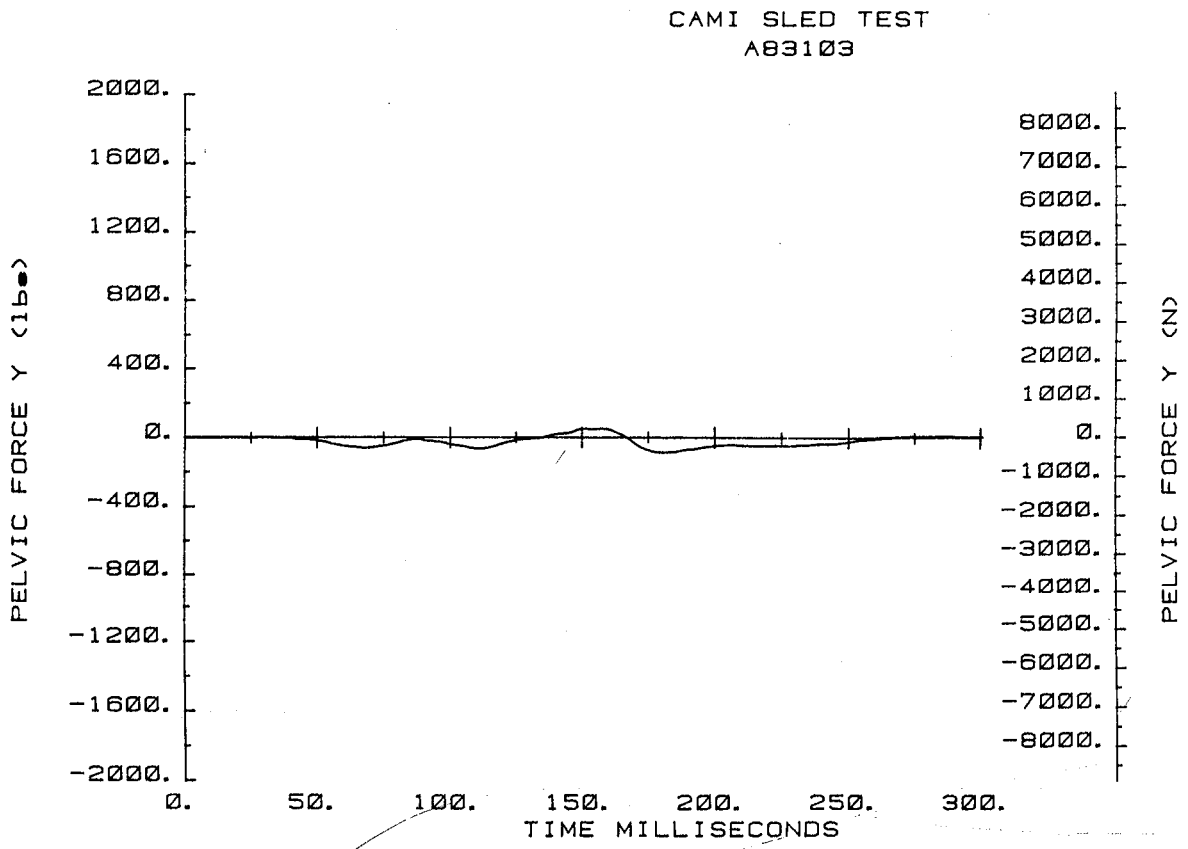

CAMI SLED TEST
A83103
HEAD X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

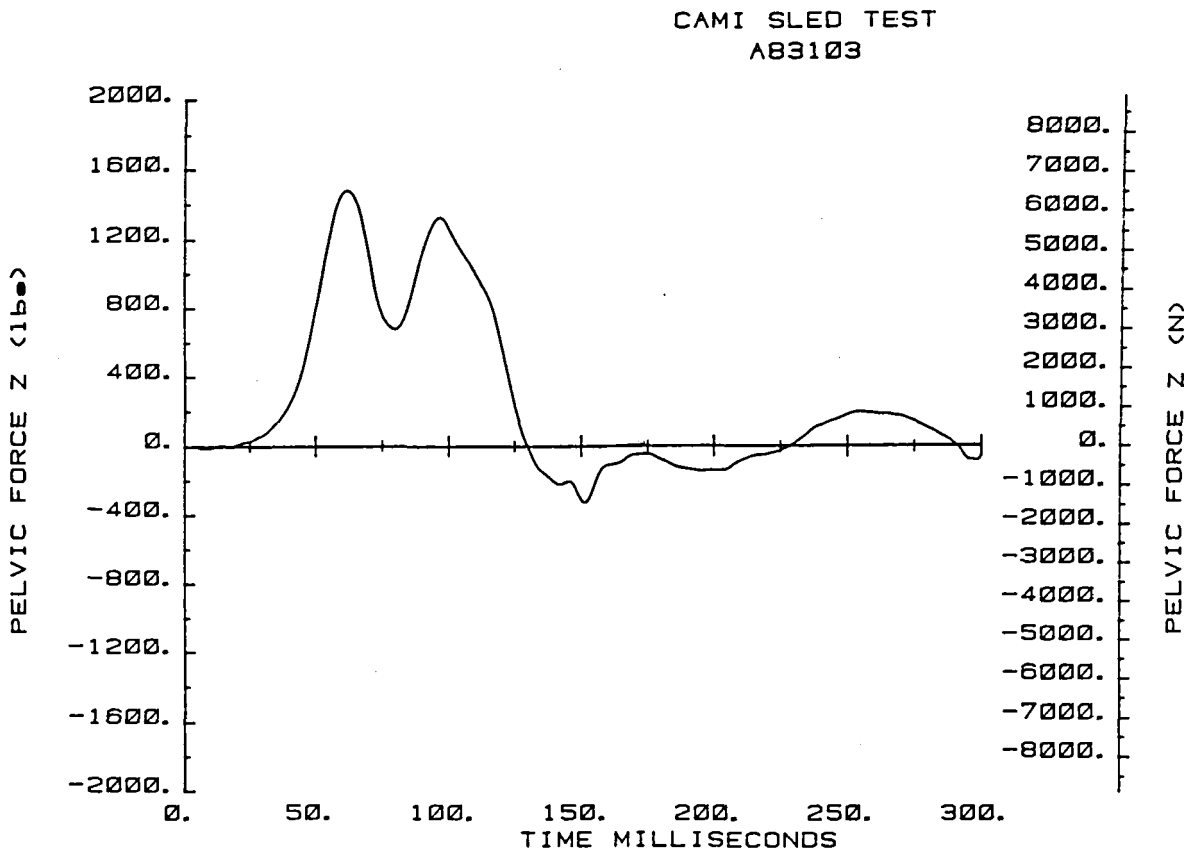

CAMI SLED TEST
A83103
HEAD Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

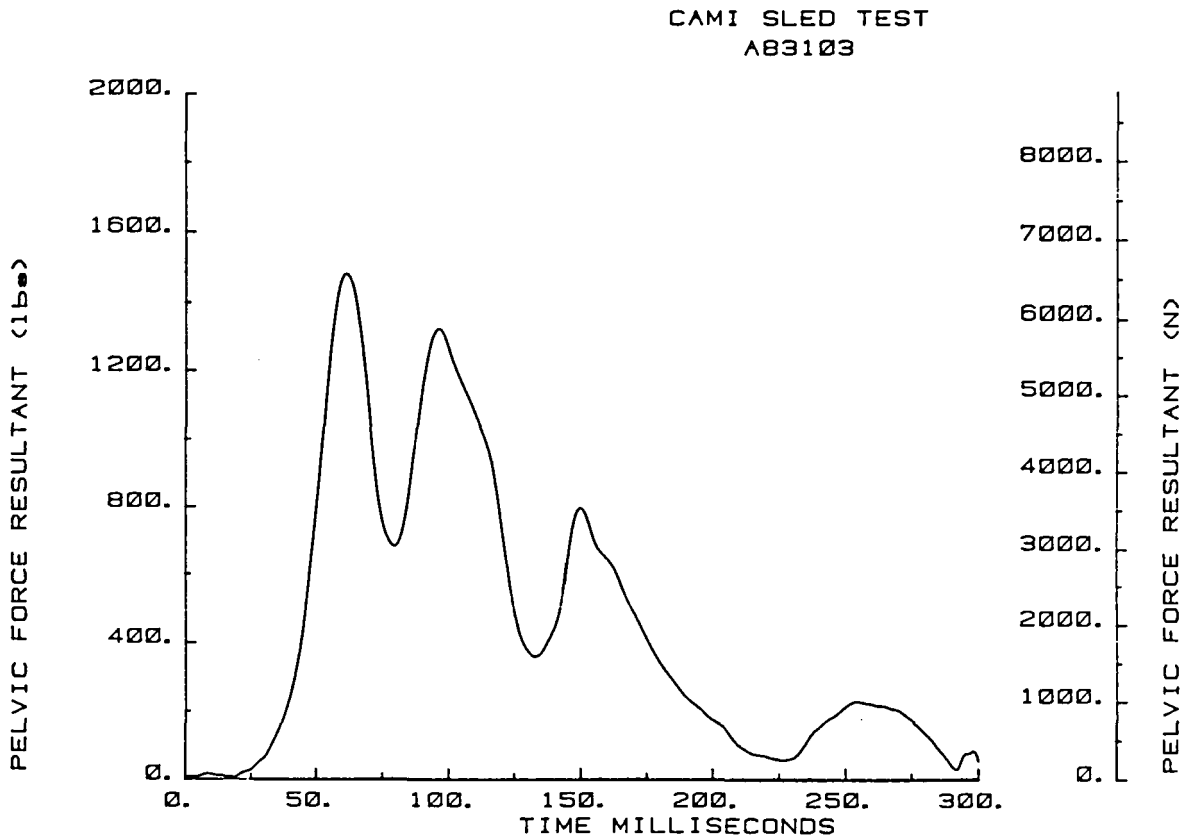

CAMI SLED TEST
A83103
HEAD Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

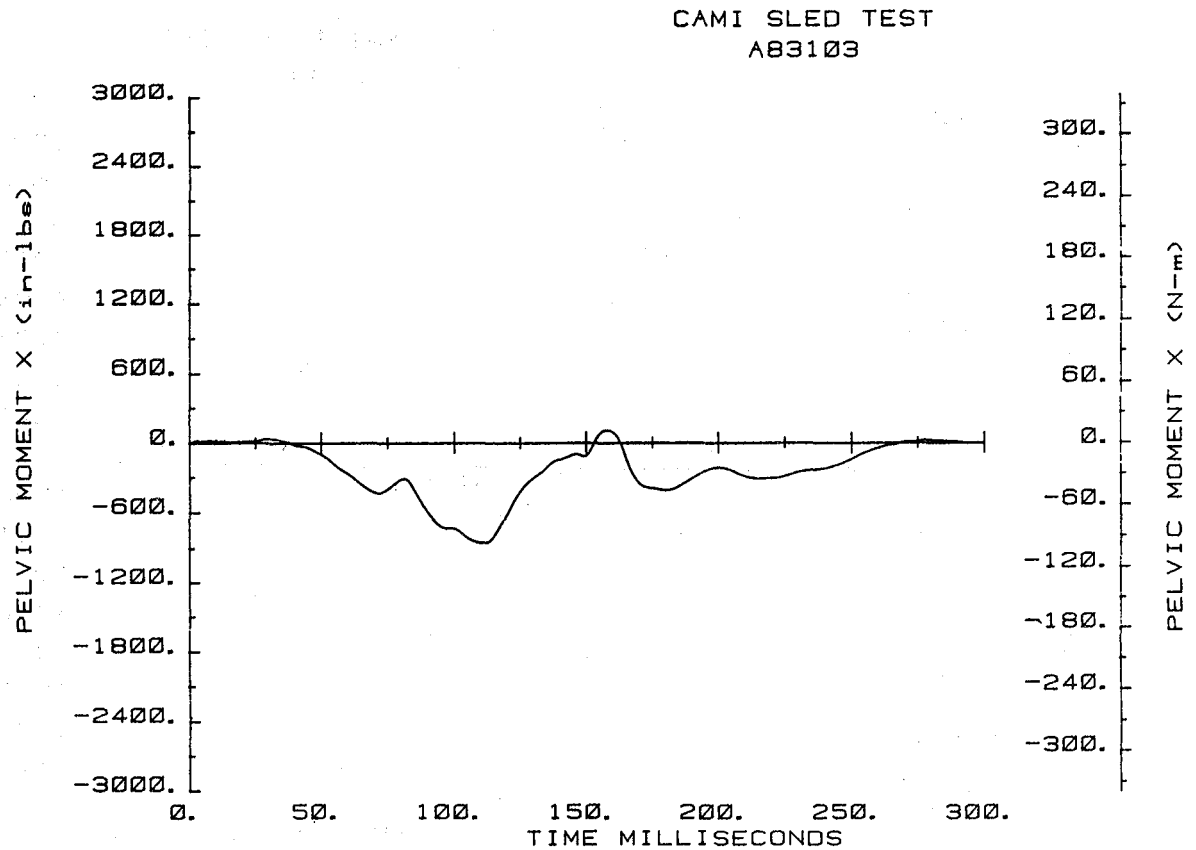

CAMI SLED TEST
A83103
HEAD RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

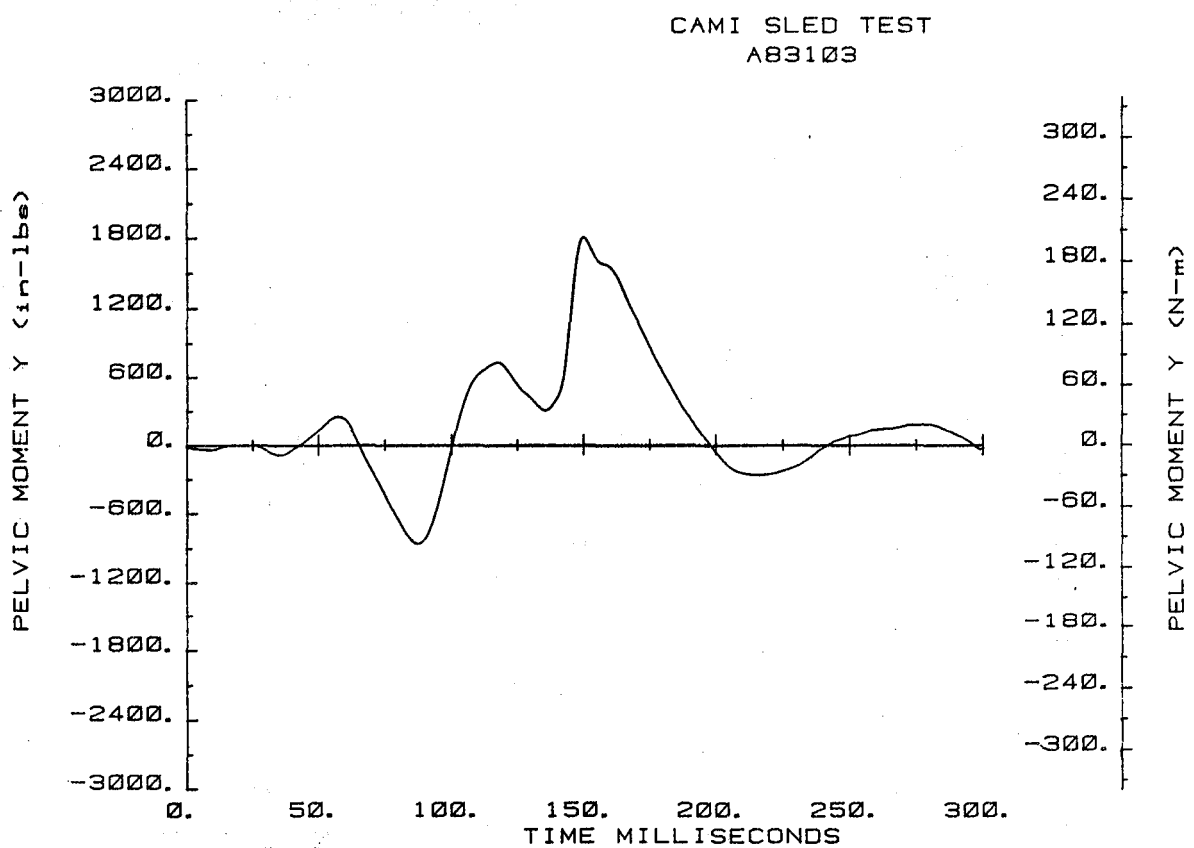

CAMI SLED TEST
A83103
PELVIC FORCE X (lbs)
PELVIC FORCE X (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

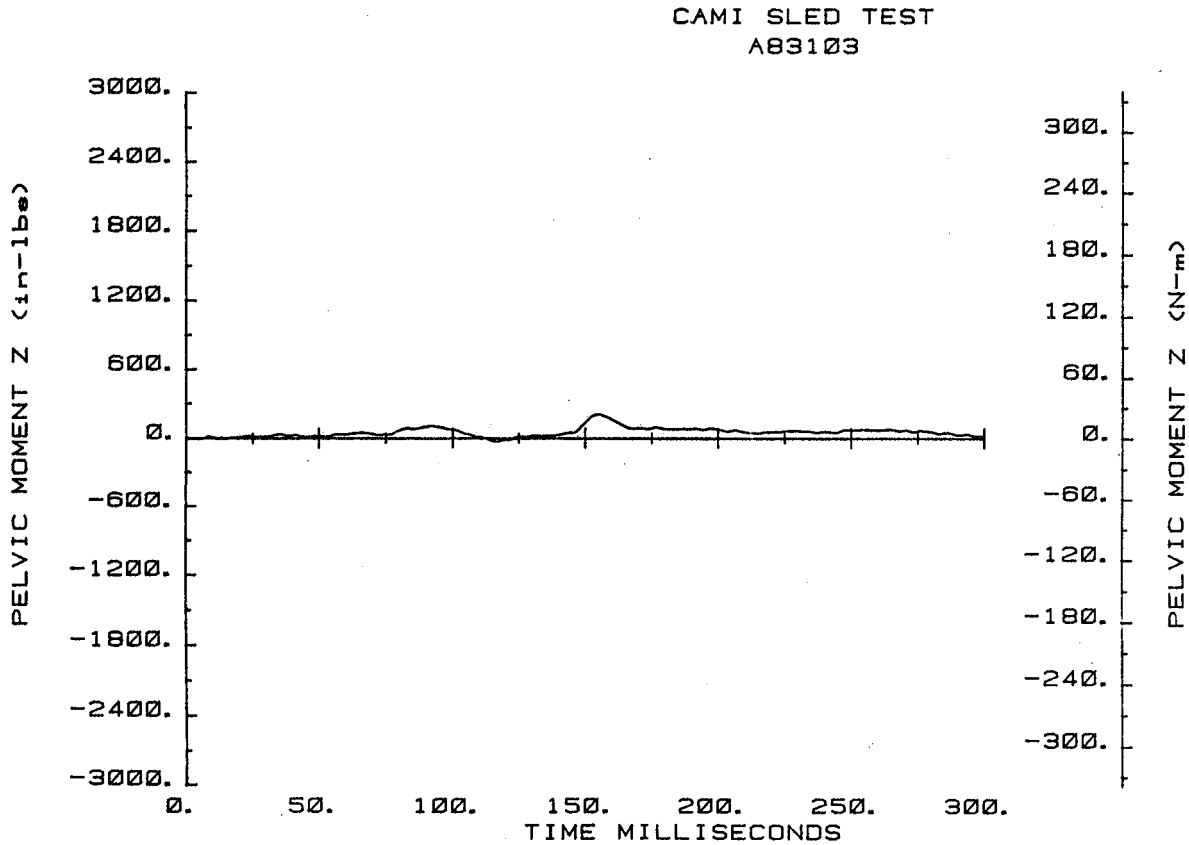

CAMI SLED TEST
A83103
PELVIC FORCE Y (lbs)
PELVIC FORCE Y (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

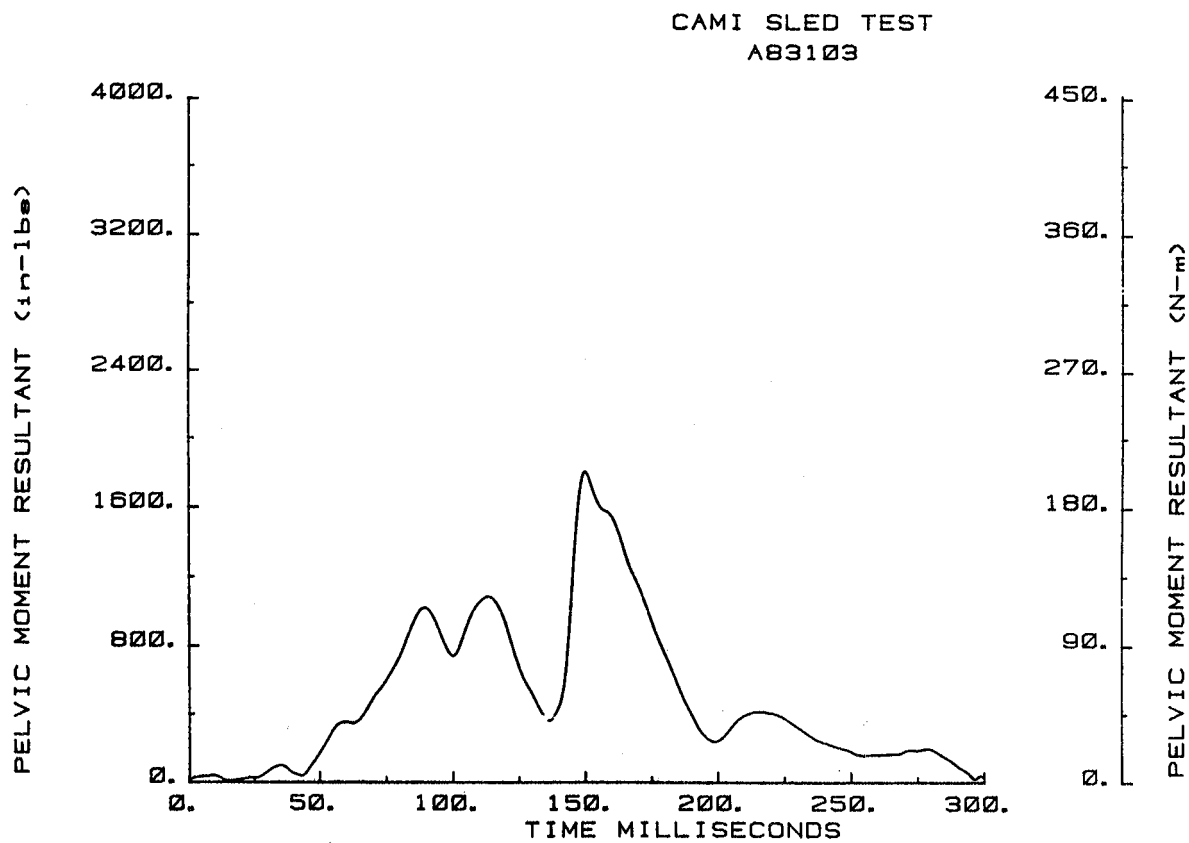

CAMI SLED TEST
A83103
PELVIC FORCE Z (lbs)
PELVIC FORCE Z (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

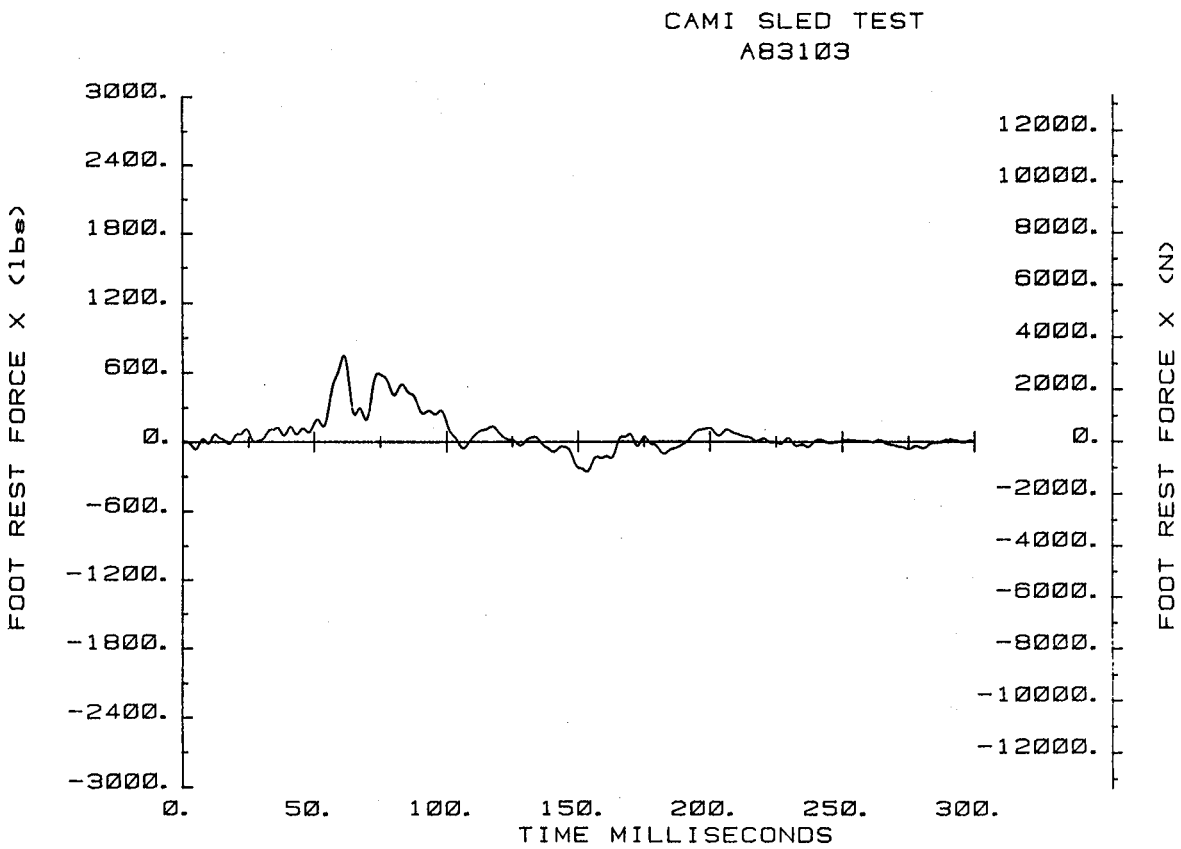

CAMI SLED TEST
A83103
PELVIC FORCE RESULTANT (lbs)
PELVIC FORCE RESULTANT (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

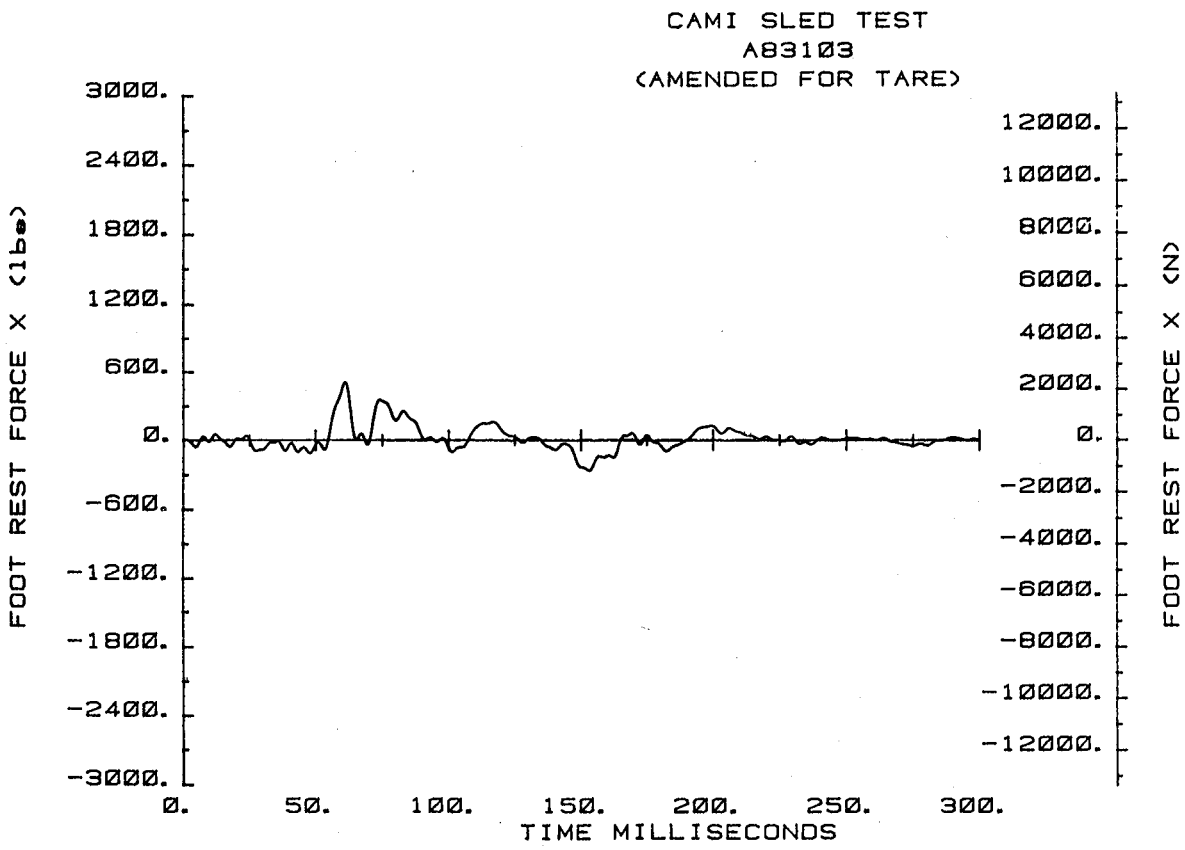

CAMI SLED TEST
A83103
PELVIC MOMENT X (in-lbs)
PELVIC MOMENT X (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

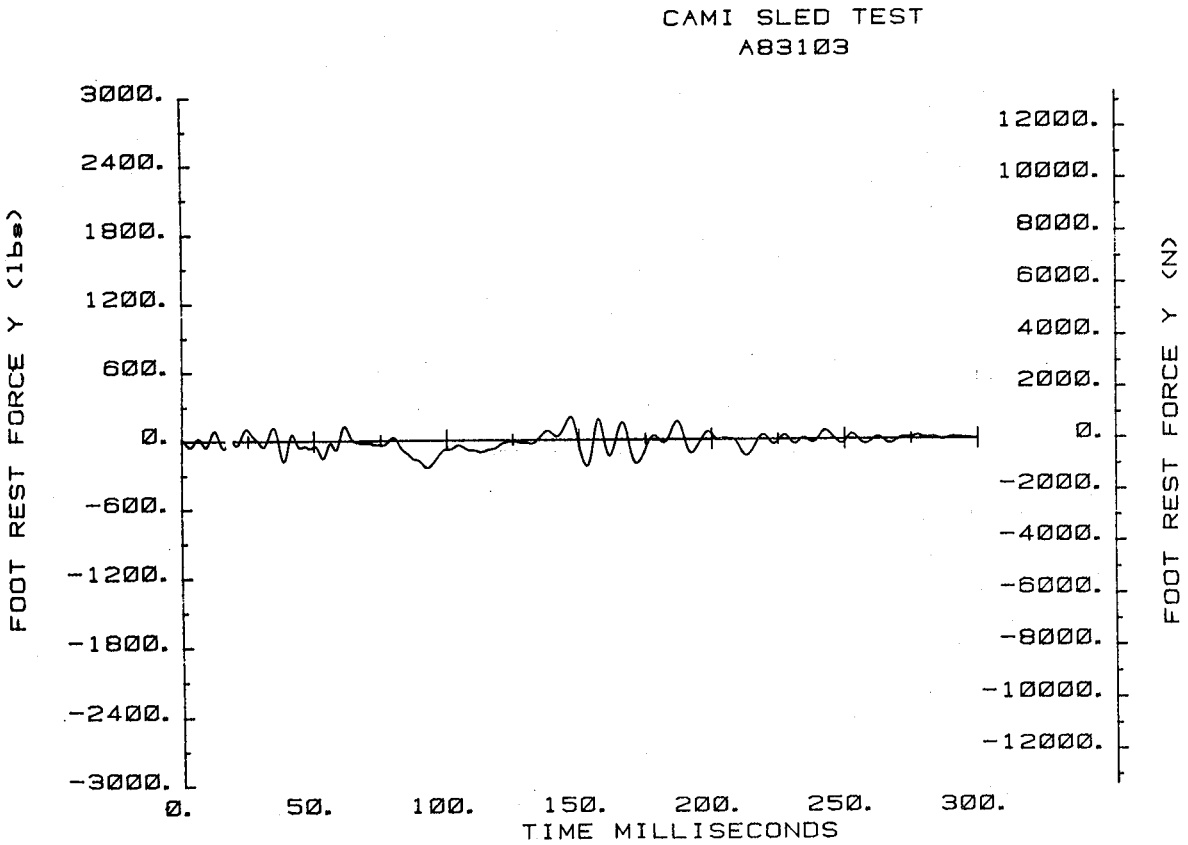

CAMI SLED TEST
A83103
PELVIC MOMENT Y (in-lbs)
PELVIC MOMENT Y (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

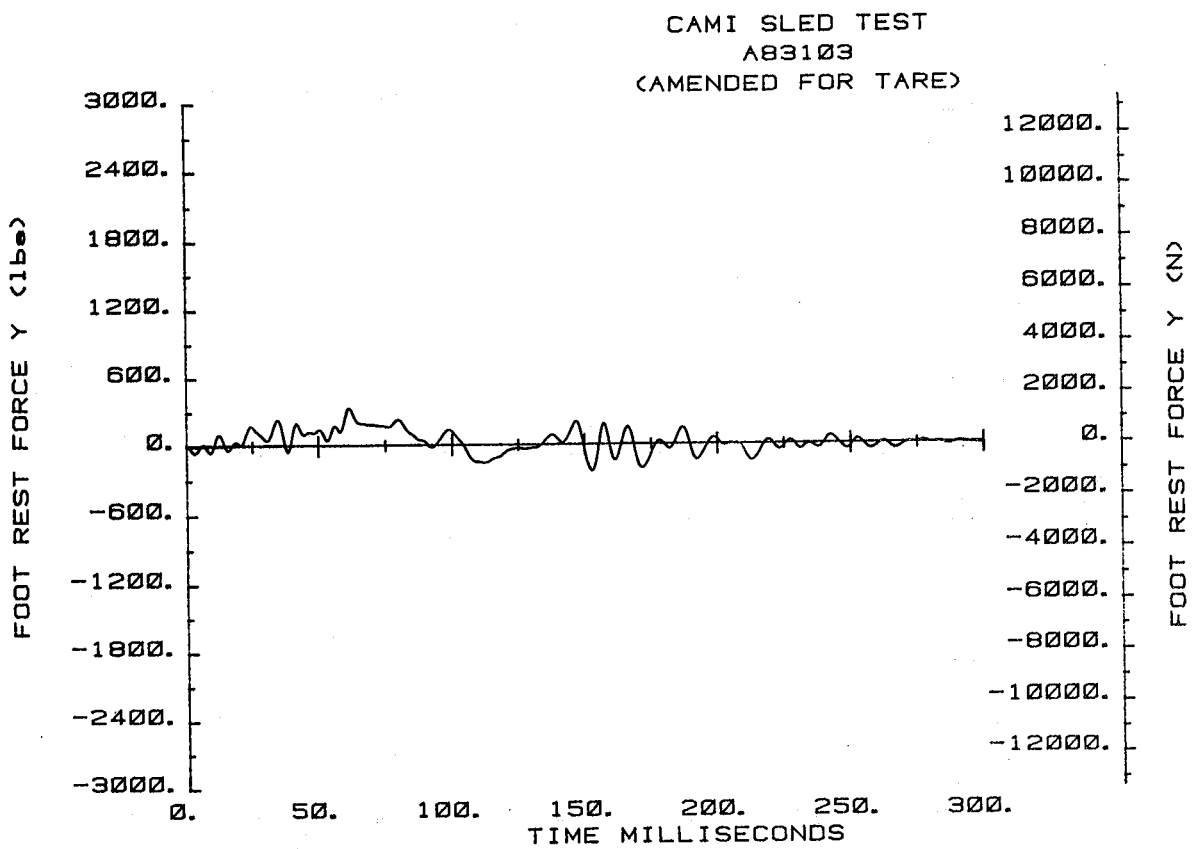

CAMI SLED TEST
A83103
PELVIC MOMENT Z (in-lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT Z (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

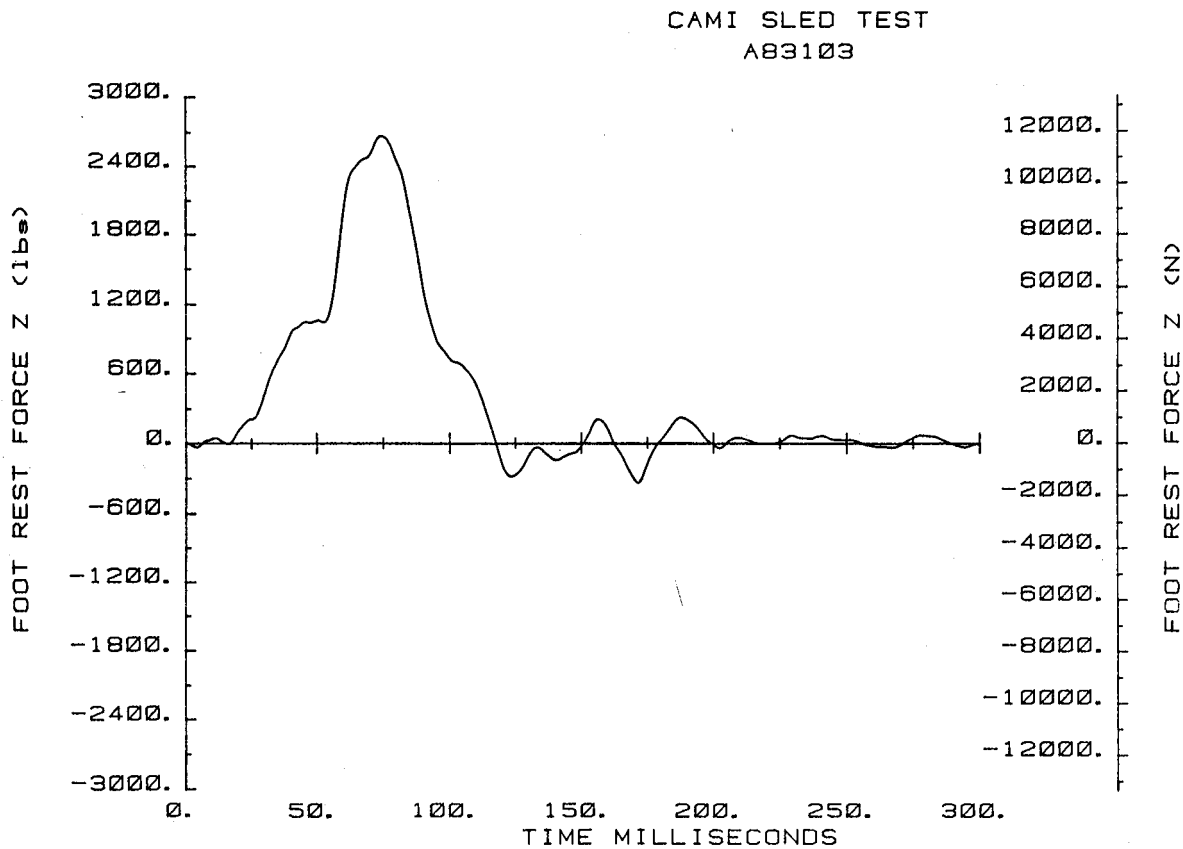

CAMI SLED TEST
A83103
PELVIC MOMENT RESULTANT (in-lbs)
4000.
3200.
2400.
1600.
800.
0.
PELVIC MOMENT RESULTANT (N-m)
450.
360.
270.
180.
90.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

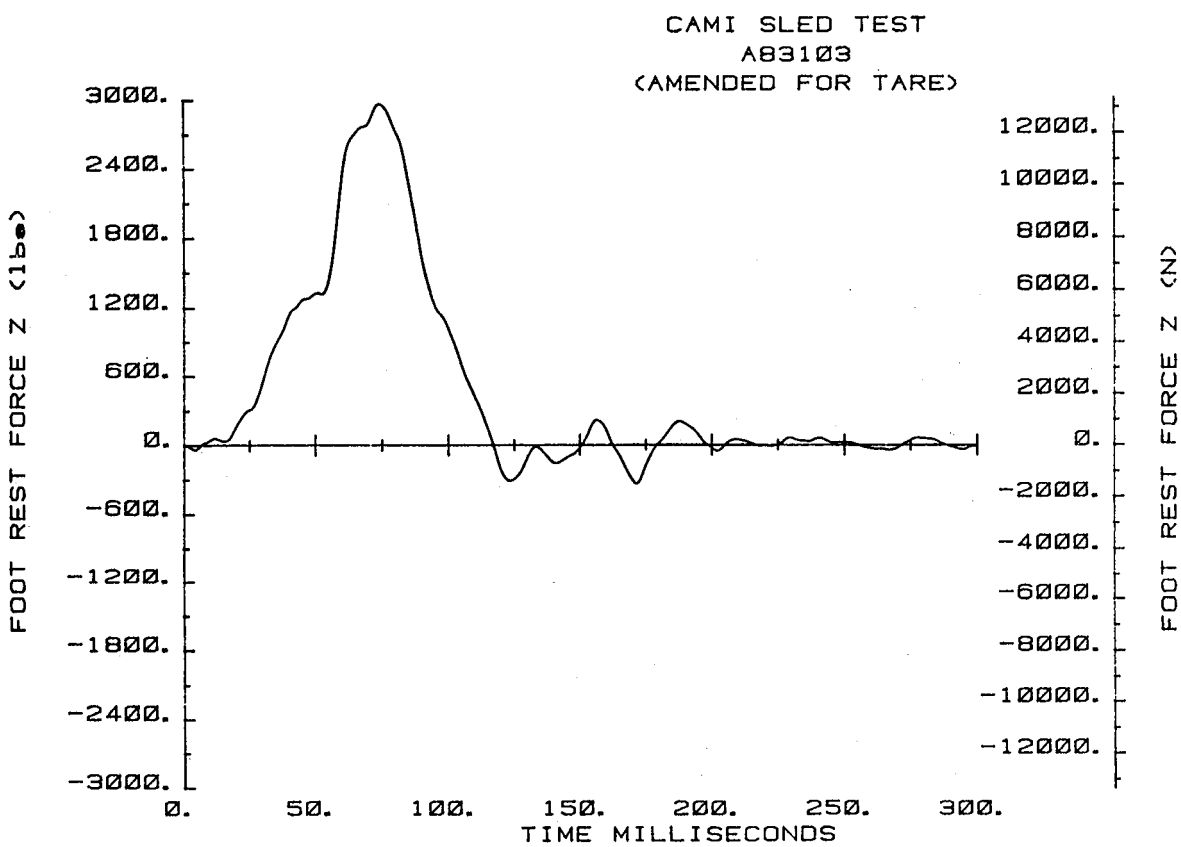

CAMI SLED TEST
A83103
FOOT REST FORCE X (lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
FOOT REST FORCE X (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

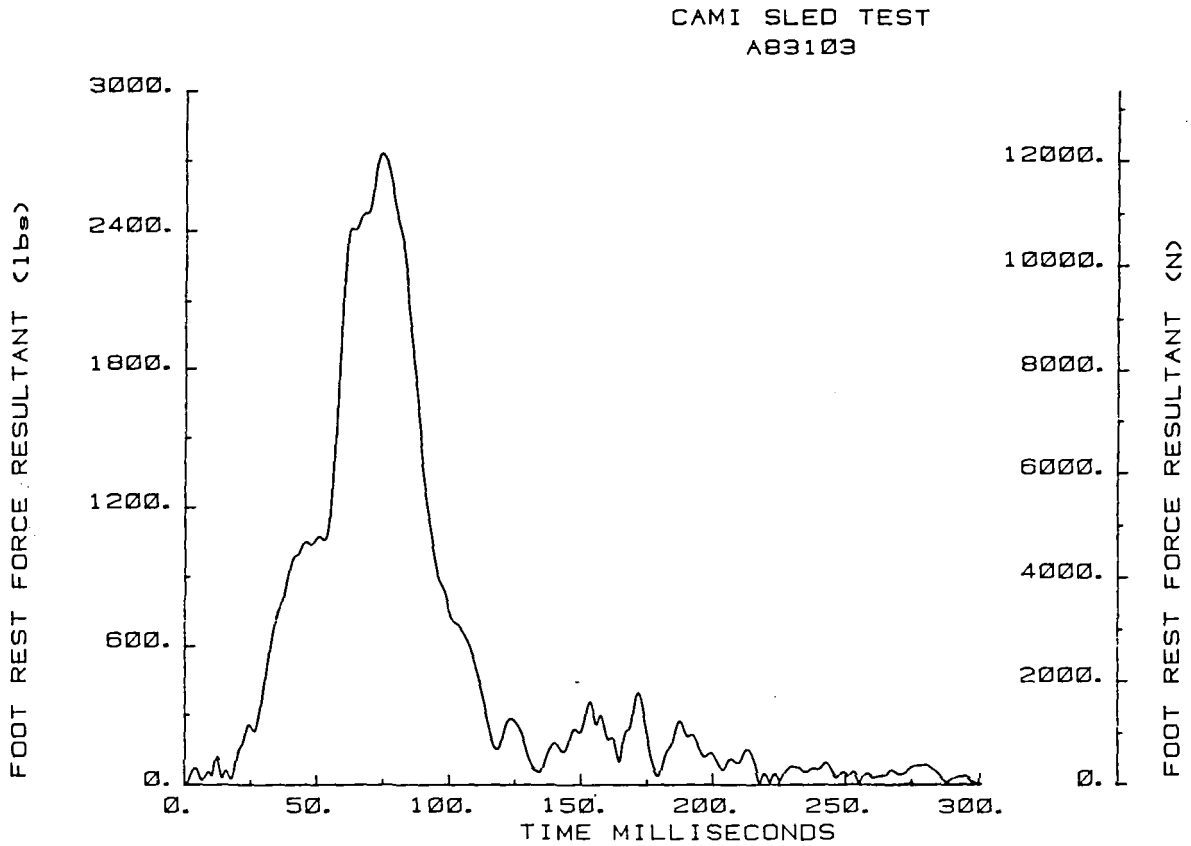

CAMI SLED TEST
A83103
(AMENDED FOR TARE)
FOOT REST FORCE X (lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
FOOT REST FORCE X (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

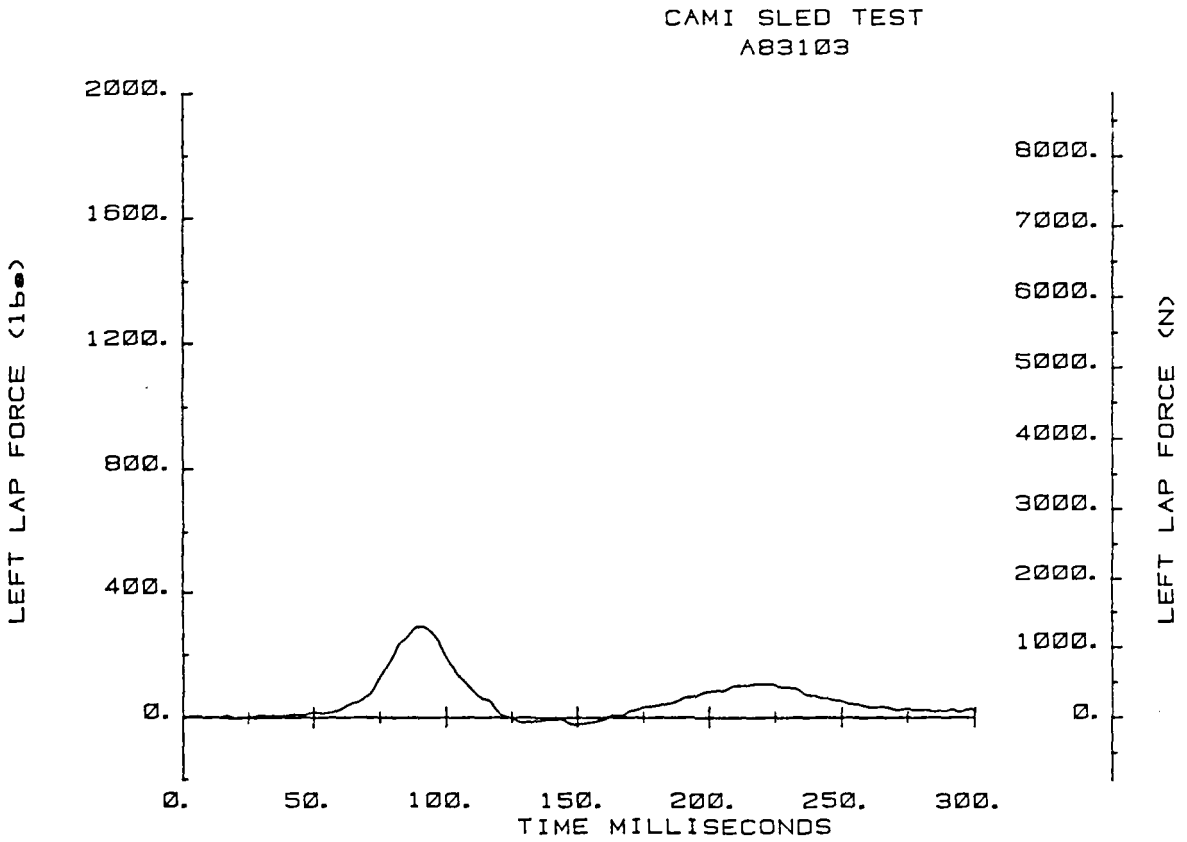

CAMI SLED TEST
A83103
FOOT REST FORCE Y (lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
FOOT REST FORCE Y (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

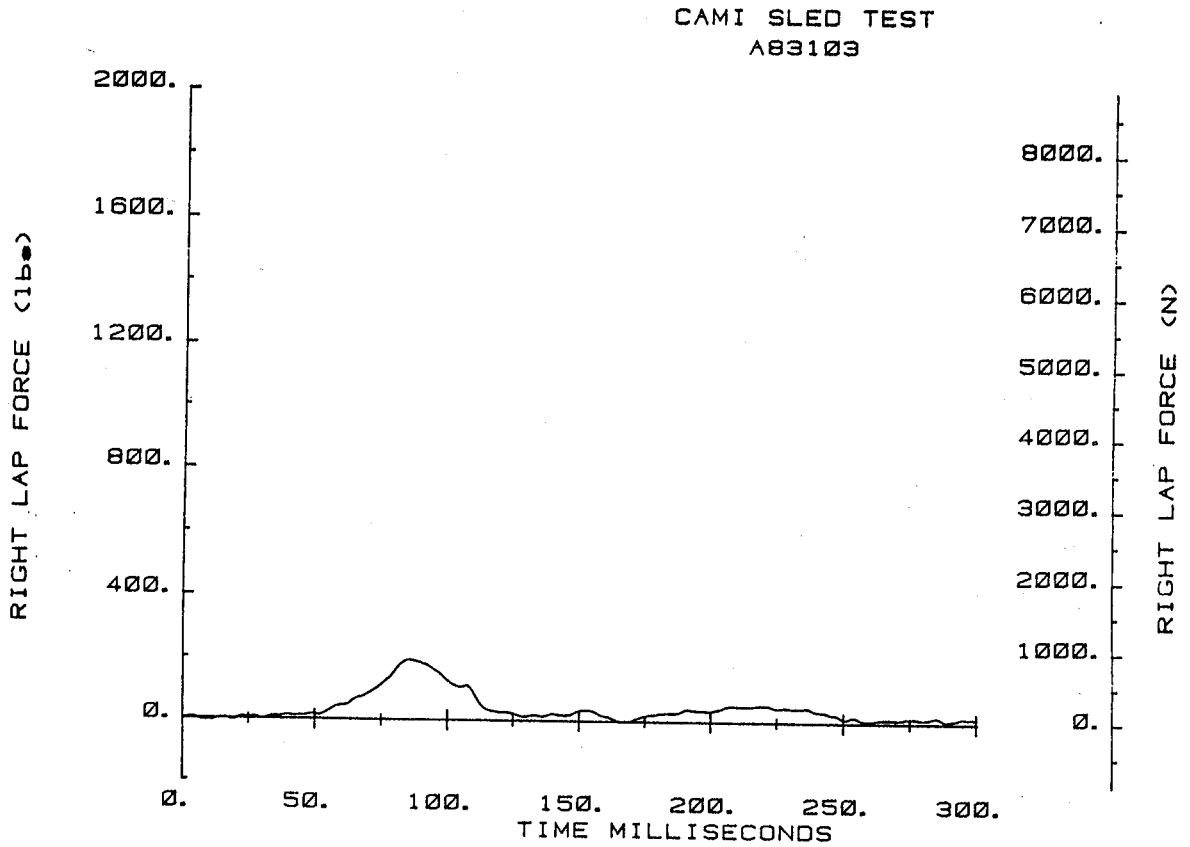

CAMI SLED TEST
A83103
(AMENDED FOR TARE)
FOOT REST FORCE Y (lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
FOOT REST FORCE Y (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

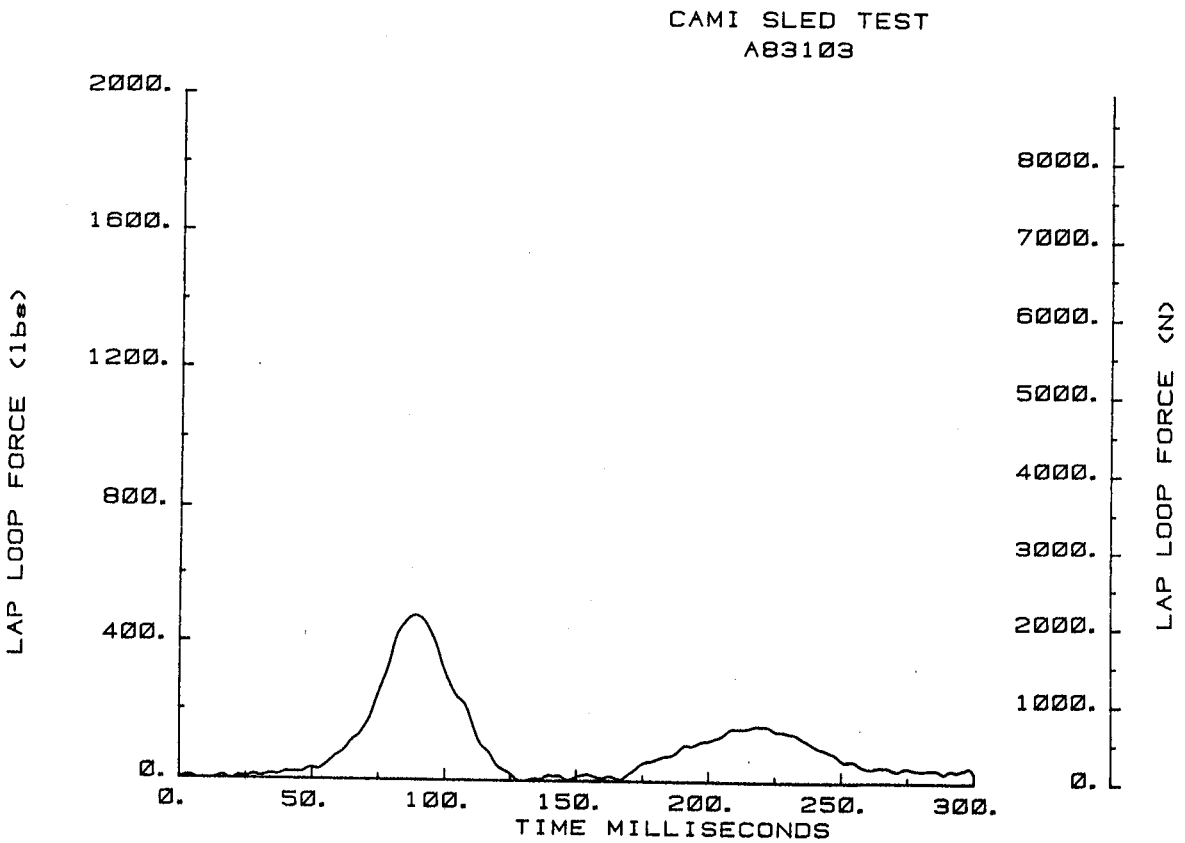

CAMI SLED TEST
A83103
FOOT REST FORCE Z (lbs)
FOOT REST FORCE Z (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

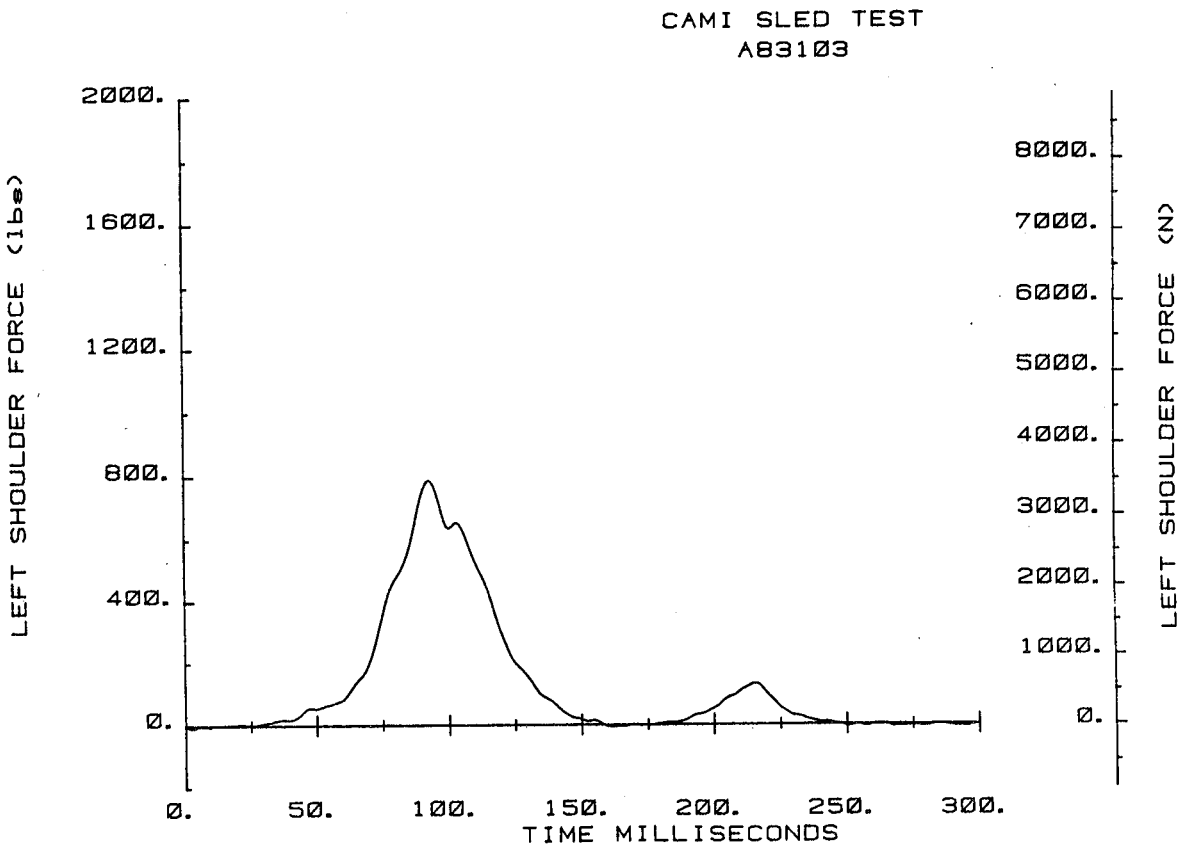

CAMI SLED TEST
A83103
(AMENDED FOR TARE)
FOOT REST FORCE Z (lbs)
FOOT REST FORCE Z (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

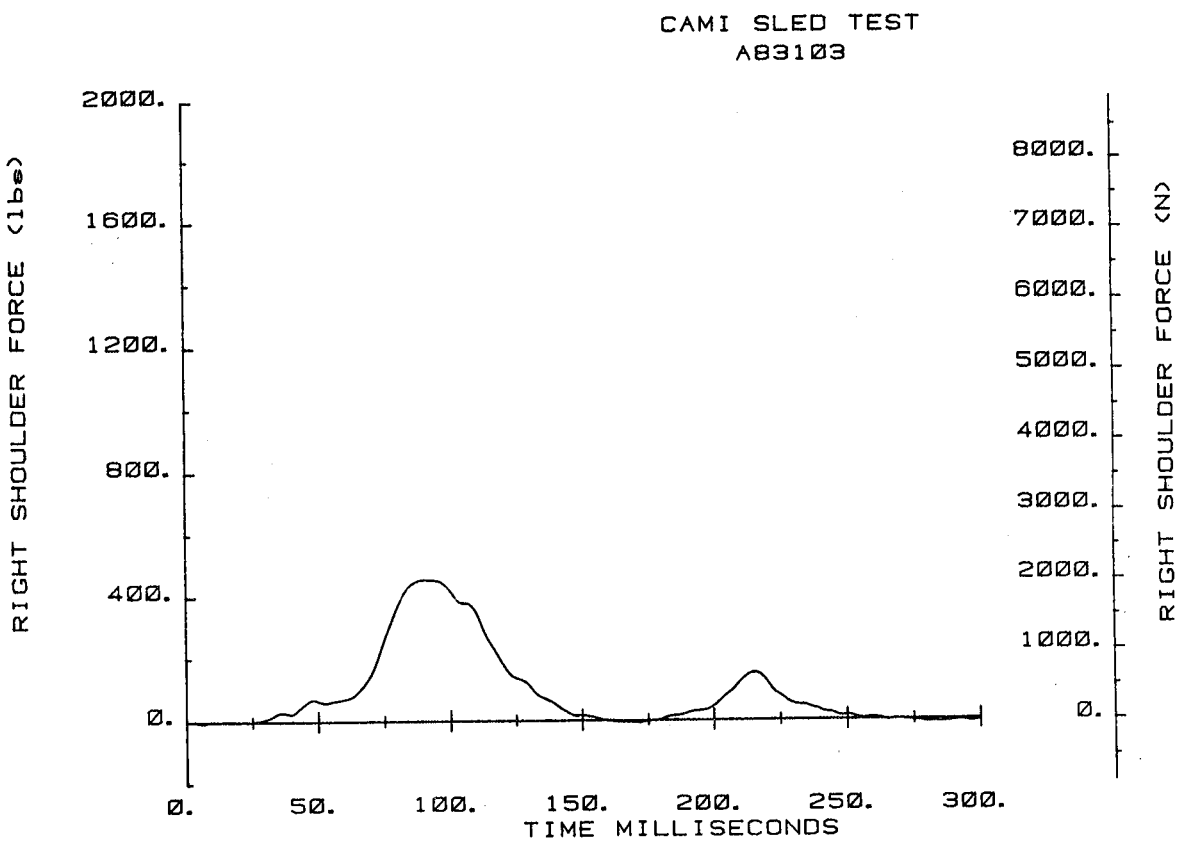

CAMI SLED TEST
A83103
FOOT REST FORCE RESULTANT (lbs)
FOOT REST FORCE RESULTANT (N)
3000.
2400.
1800.
1200.
600.
0.
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

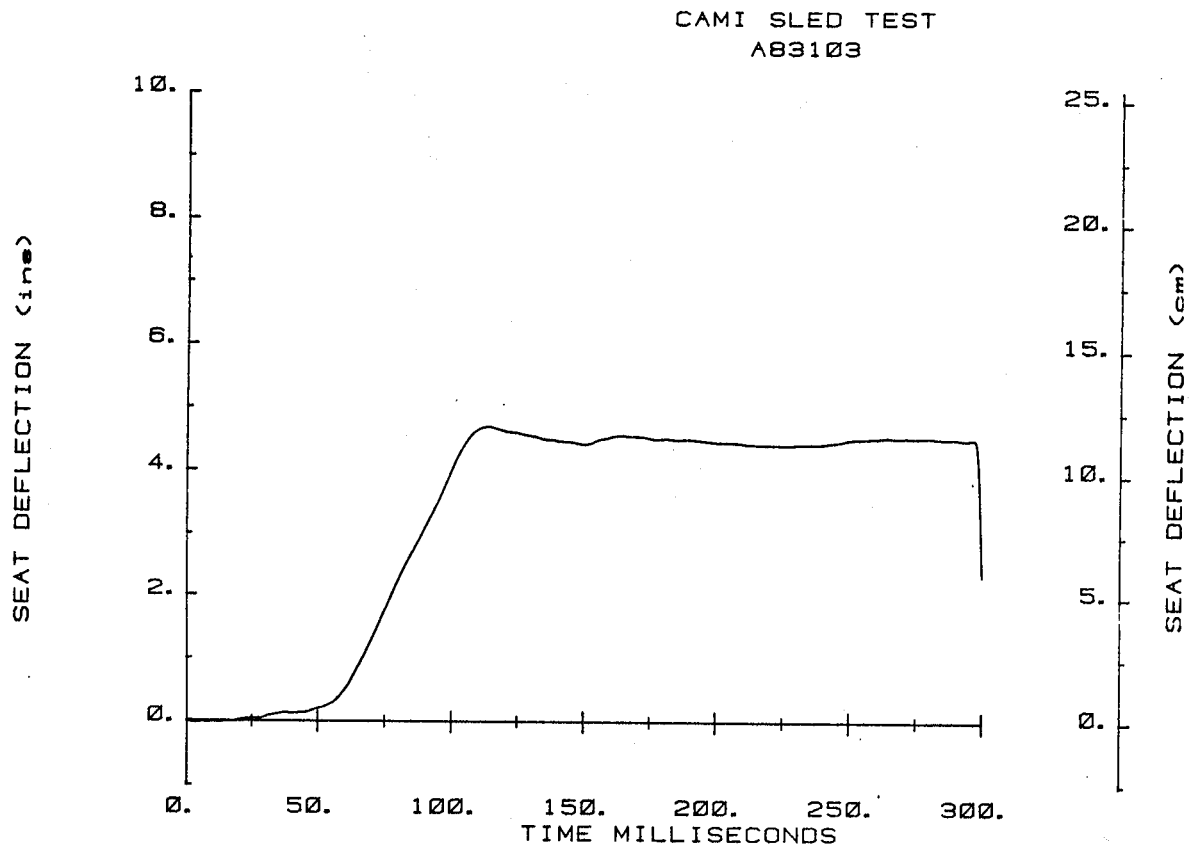

CAMI SLED TEST
A83103
LEFT LAP FORCE (lbs)
LEFT LAP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

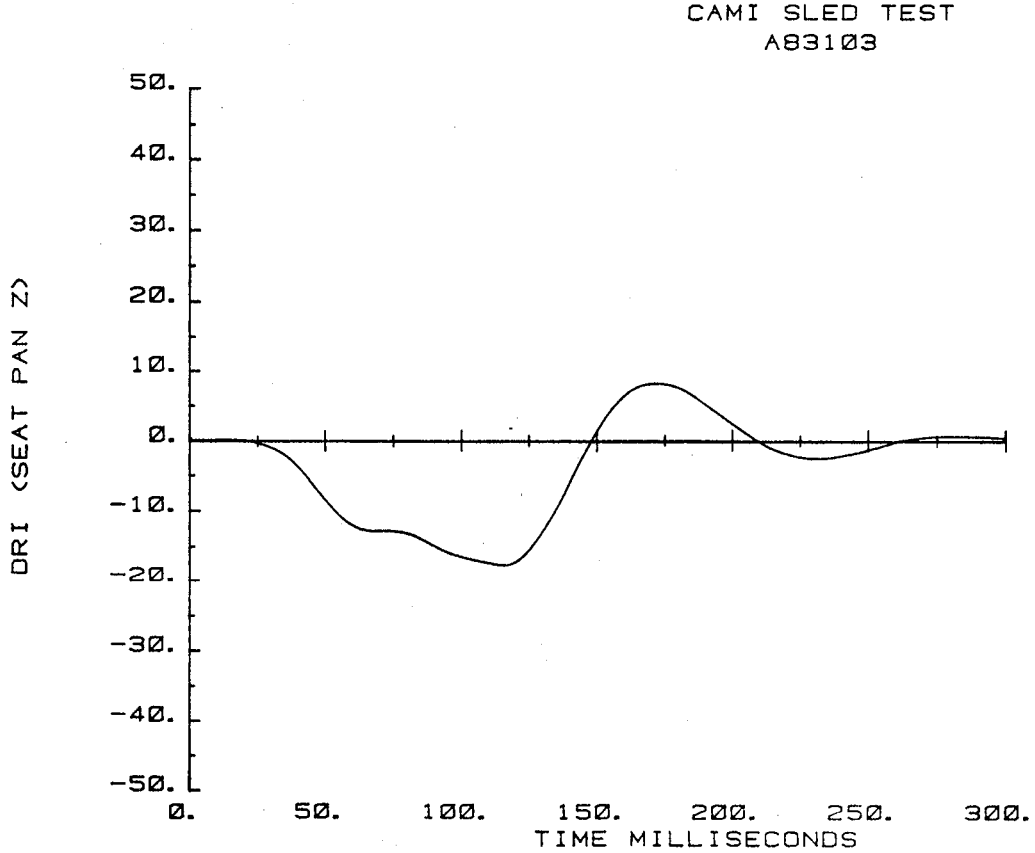

CAMI SLED TEST
A83103
RIGHT LAP FORCE (lbs)
RIGHT LAP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83103
LAP LOOP FORCE (lbs)
LAP LOOP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

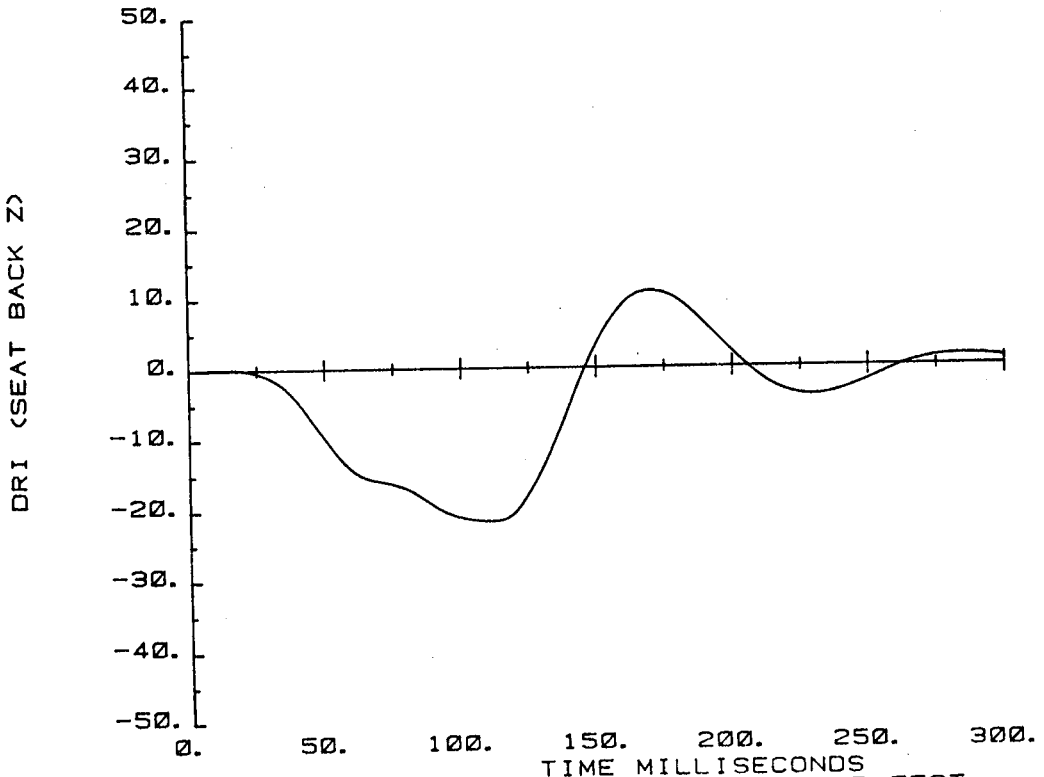

CAMI SLED TEST
A83103
LEFT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83103
RIGHT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

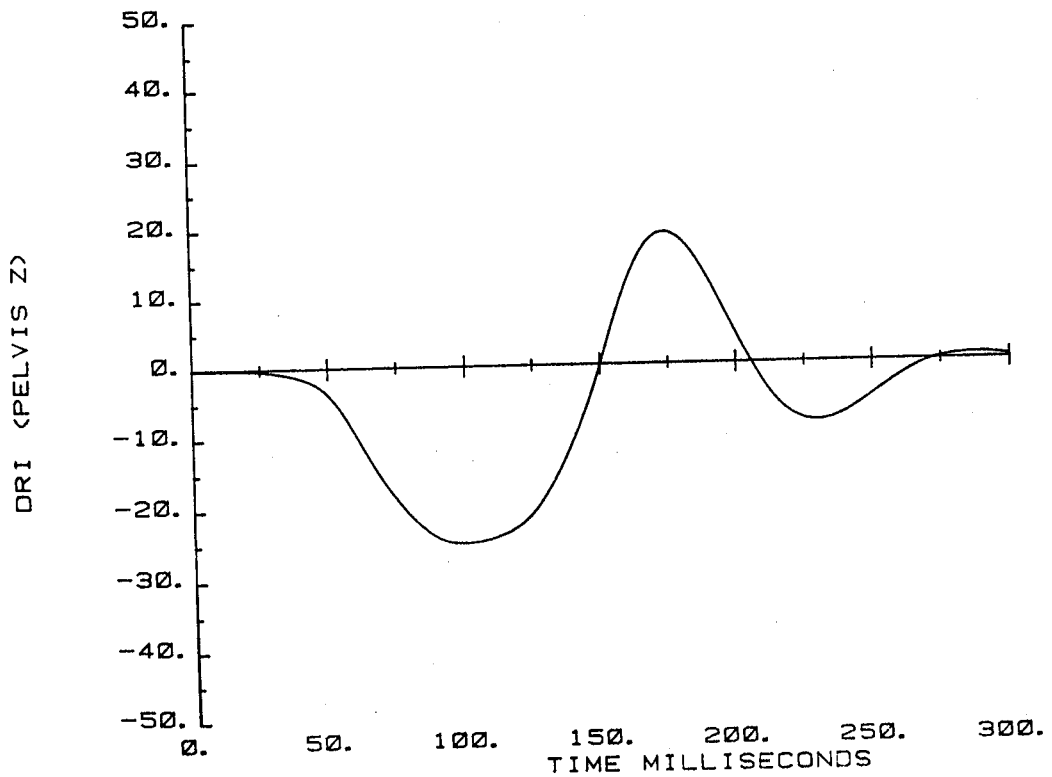

CAMI SLED TEST
A83103
SEAT DEFLECTION (in)
SEAT DEFLECTION (cm)
10.
8.
6.
4.
2.
0.
25.
20.
15.
10.
5.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83103
DRI (SEAT PAN Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

CAMI SLED TEST
A83103



CAMI SLED TEST
A83103



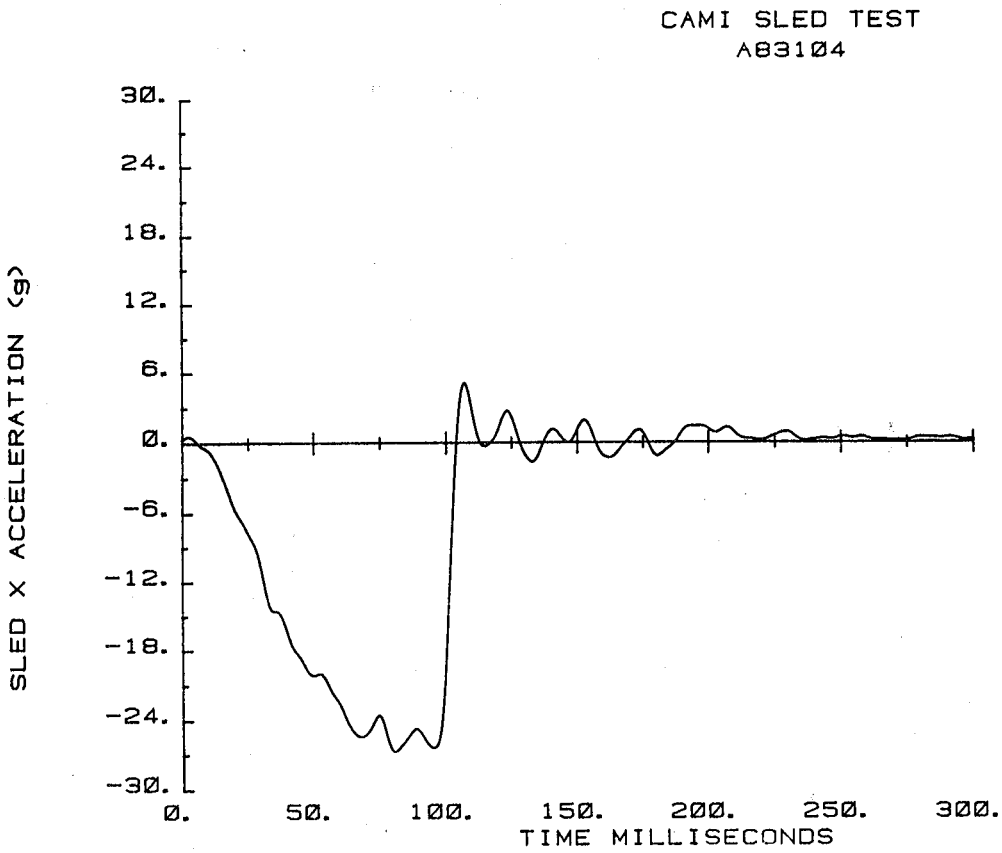
4.0 CAMI TEST NO. A83-104

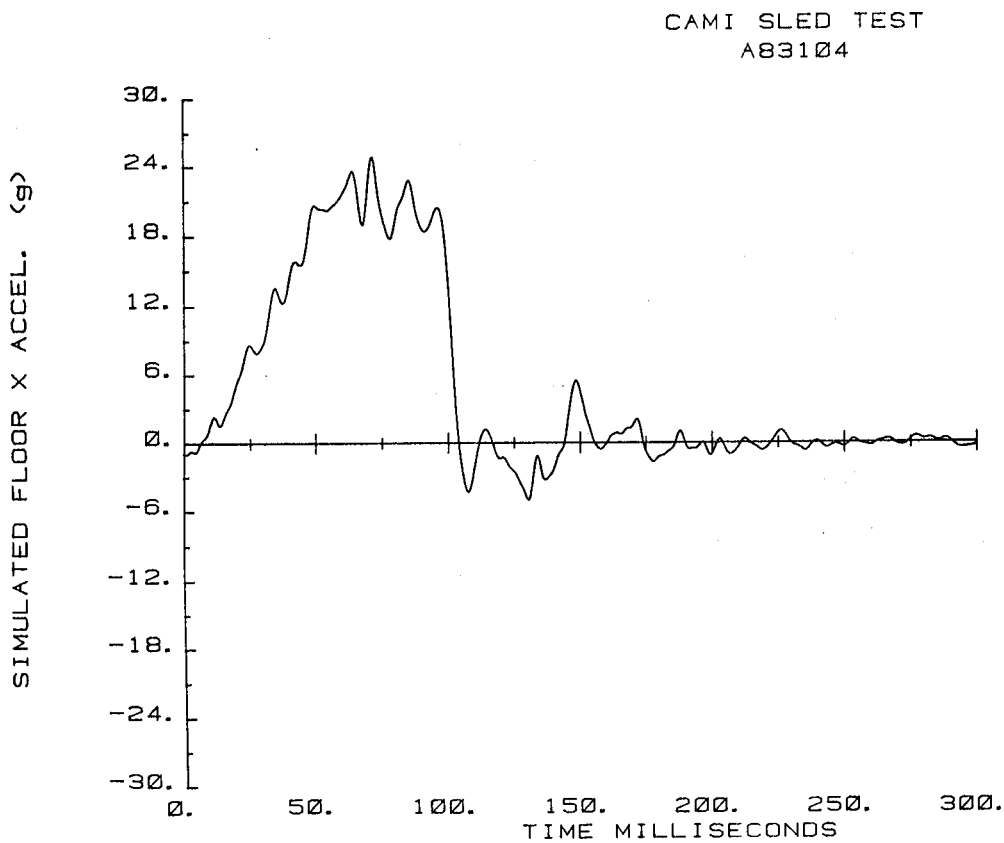
SEAT: Energy Absorbing

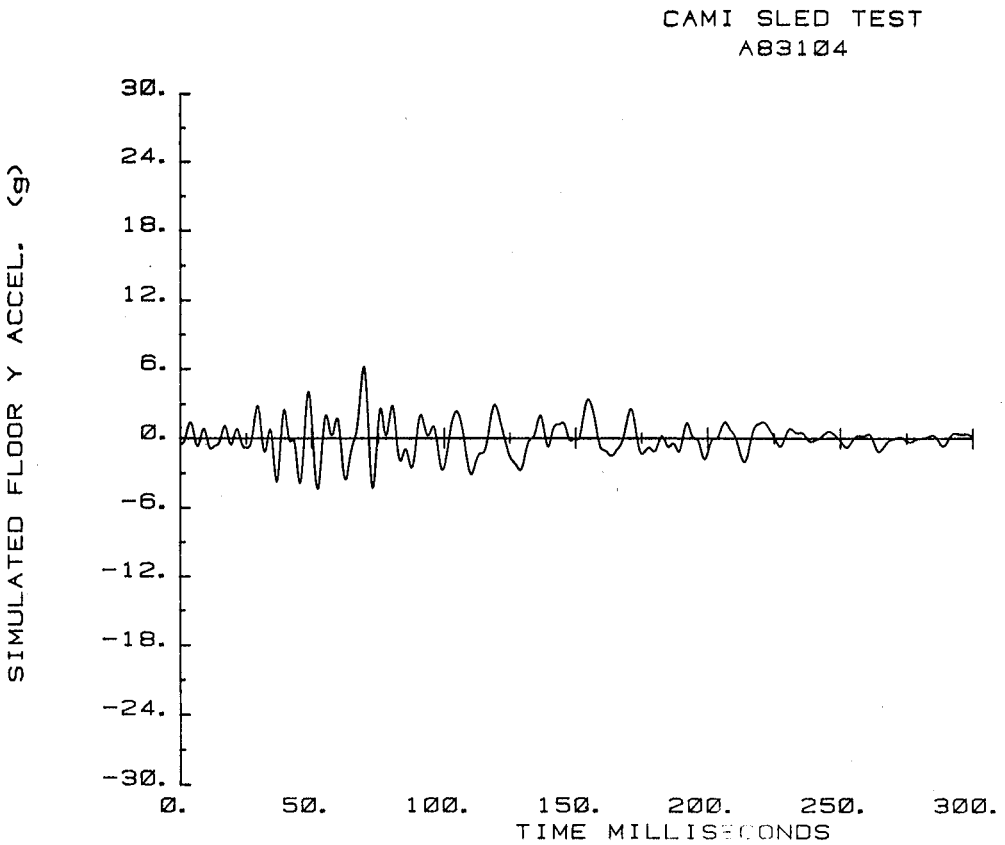
PULSE NUMBER: 2

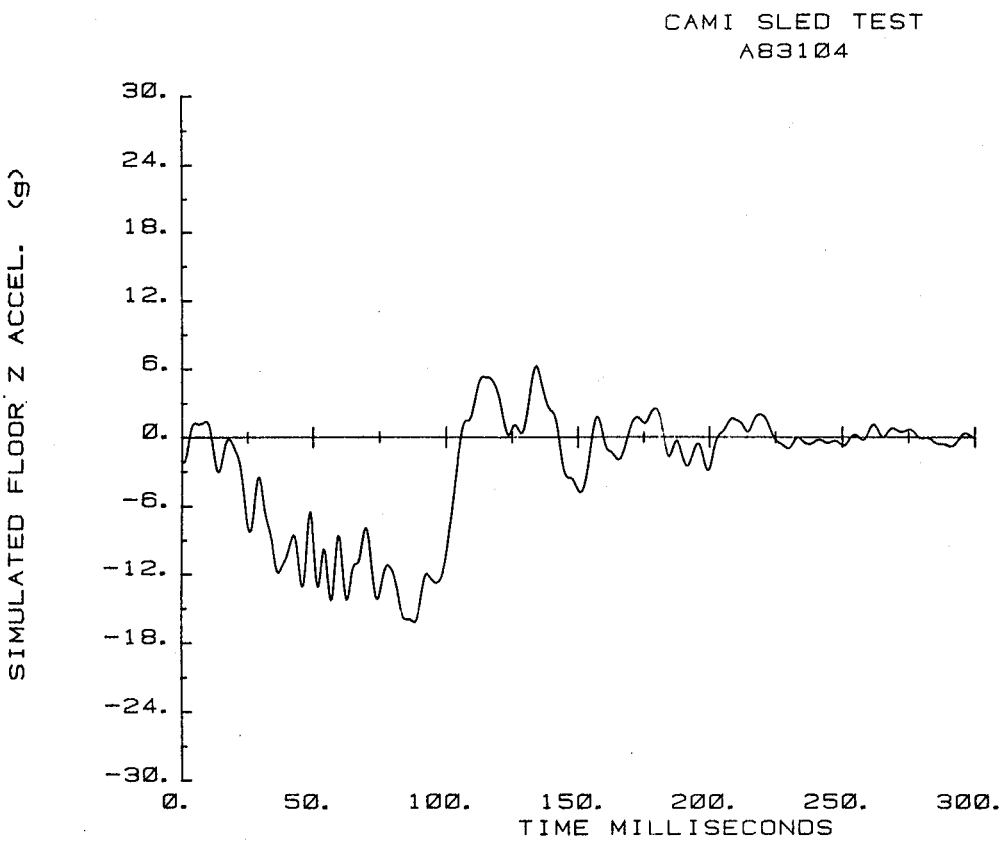
SEAT ORIENTATION: Pitch - -30°
Roll - 0°
Yaw - 180°

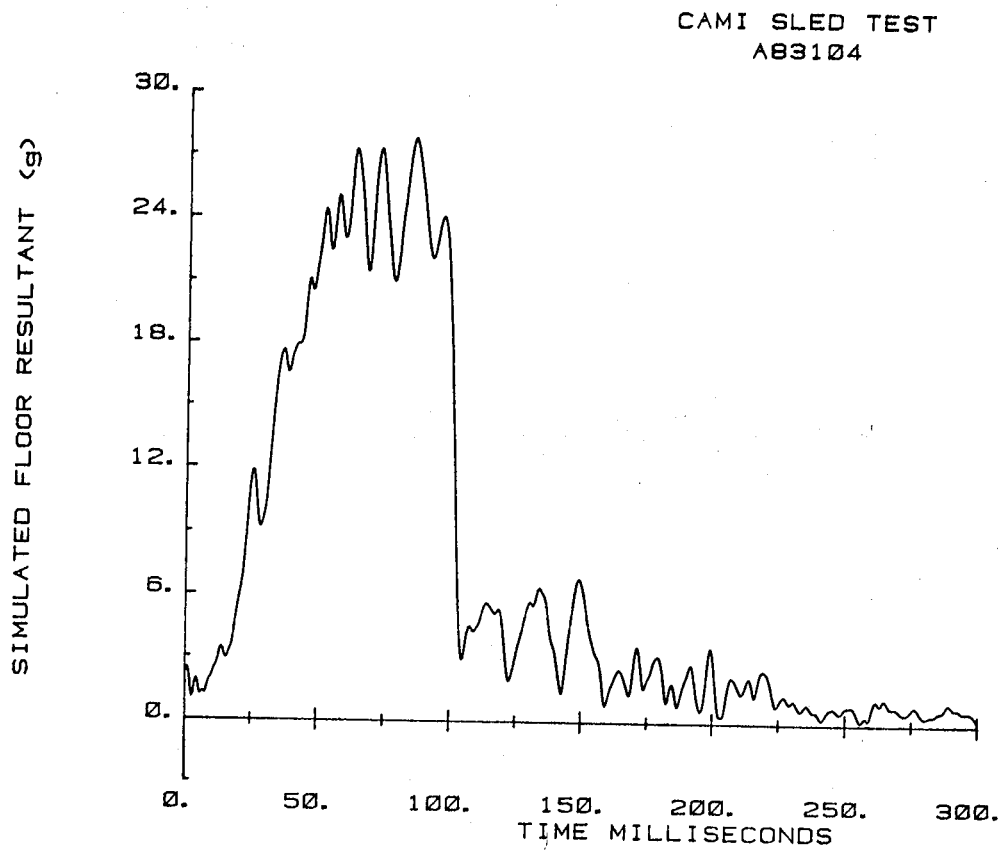
RUN#	VARIABLE		PEAK1	T	PEAK2	T	RANGE	FILE
A83104	SLED X ACCELERATION	(g)	-26.7	80			(0, 300)	* F10401
A83104	HEAD X ACCELERATION	(g)	57.7	57			(0, 300)	* F10403
A83104	HEAD Y ACCELERATION	(g)	15.5	56	-11.1	77	(0, 300)	* F10404
A83104	HEAD Z ACCELERATION	(g)	-22.1	50	14.9	151	(0, 300)	* F10405
A83104	CHEST X ACCELERATION	(g)	38.6	46	-12.1	148	(0, 300)	* F10406
A83104	CHEST Y ACCELERATION	(g)	4.3	45	-2.1	99	(0, 300)	* F10407
A83104	CHEST Z ACCELERATION	(g)	-16.3	100	8.9	149	(0, 300)	* F10408
A83104	PELVIS X ACCELERATION	(g)	42.7	54			(0, 300)	* F10409
A83104	PELVIS Y ACCELERATION	(g)	-8.2	67	8.7	70	(0, 300)	* F10410
A83104	PELVIS Z ACCELERATION	(g)	-18.1	88	7.7	149	(0, 300)	* F10411
A83104	SIMULATED FLOOR X ACCEL.	(g)	24.8	71	-5.0	130	(0, 300)	* F10412
A83104	SIMULATED FLOOR Y ACCEL.	(g)	-4.4	52	6.2	69	(0, 300)	* F10413
A83104	SIMULATED FLOOR Z ACCEL.	(g)	-16.1	88	6.2	134	(0, 300)	* F10414
A83104	FOOT REST FORCE X	(lbs)	-698.4	71	284.3	116	(0, 300)	* F10415
A83104	FOOT REST FORCE Y	(lbs)	176.2	70	-147.3	137	(0, 300)	* F10416
A83104	FOOT REST FORCE Z	(lbs)	-454.8	110	391.7	121	(0, 300)	* F10417
A83104	LEFT SHOULDER FORCE	(lbs)	252.0	147			(0, 300)	* F10418
A83104	RIGHT SHOULDER FORCE	(lbs)	237.3	145			(0, 300)	* F10419
A83104	SEAT BACK Z ACCELERATION	(g)	-16.8	85	8.6	110	(0, 300)	* F10420
A83104	SEAT PAN X ACCELERATION	(g)	34.8	72	-12.4	144	(0, 300)	* F10421
A83104	SEAT PAN Y ACCELERATION	(g)	-13.0	137	12.9	145	(0, 300)	* F10422
A83104	SEAT PAN Z ACCELERATION	(g)	-21.1	85	8.3	110	(0, 300)	* F10423
A83104	SEAT DEFLECTION	(inches)	.1	100	-.1	156	(0, 300)	* F10424
A83104	PELVIC FORCE X	(lbs)	-192.8	90	71.0	151	(0, 300)	* F10425
A83104	PELVIC FORCE Y	(lbs)	17.4	158	-28.9	211	(0, 300)	* F10426
A83104	PELVIC FORCE Z	(lbs)	532.2	100	-214.1	152	(0, 300)	* F10427
A83104	PELVIC MOMENT X	(in-lbs)	-124.3	210	127.3	291	(0, 300)	* F10428
A83104	PELVIC MOMENT Y	(in-lbs)	615.3	91	-229.9	291	(0, 300)	* F10429
A83104	PELVIC MOMENT Z	(in-lbs)	80.8	75	-39.3	281	(0, 300)	* F10430
A83104	LEFT LAP FORCE	(lbs)	382.4	102			(0, 300)	* F10431
A83104	RIGHT LAP FORCE	(lbs)	222.7	95			(0, 300)	* F10432
A83104	HEAD RESULTANT	(g)	61.1	57			(0, 300)	* V10401
A83104	CHEST RESULTANT	(g)	41.1	46			(0, 300)	* V10402
A83104	PELVIS RESULTANT	(g)	43.7	53			(0, 300)	* V10403
A83104	SIMULATED FLOOR RESULTANT	(g)	27.7	85			(0, 300)	* V10404
A83104	FOOT REST FORCE RESULTANT	(lbs)	719.4	71			(0, 300)	* V10405
A83104	SEAT PAN RESULTANT	(g)	37.6	72			(0, 300)	* V10406
A83104	PELVIC FORCE RESULTANT	(lbs)	552.7	100			(0, 300)	* V10407
A83104	PELVIC MOMENT RESULTANT	(in-lbs)	616.4	91			(0, 300)	* V10408
A83104	LAP LOOP FORCE	(lbs)	522.4	102			(0, 300)	* A10402
PELVIS DRI			13.4	232				
SEAT BACK DRI			10.6	103				
SEAT PAN DRI			16.0	101				

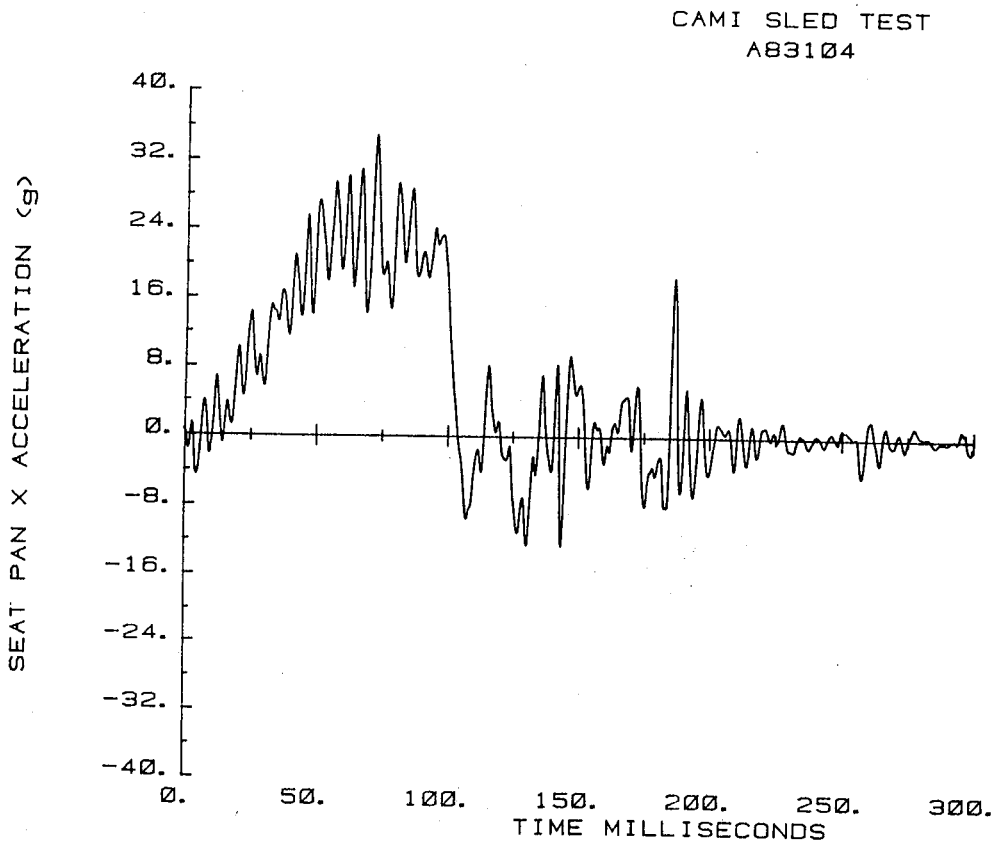

CAMI SLED TEST
A83104
SLED X ACCELERATION (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

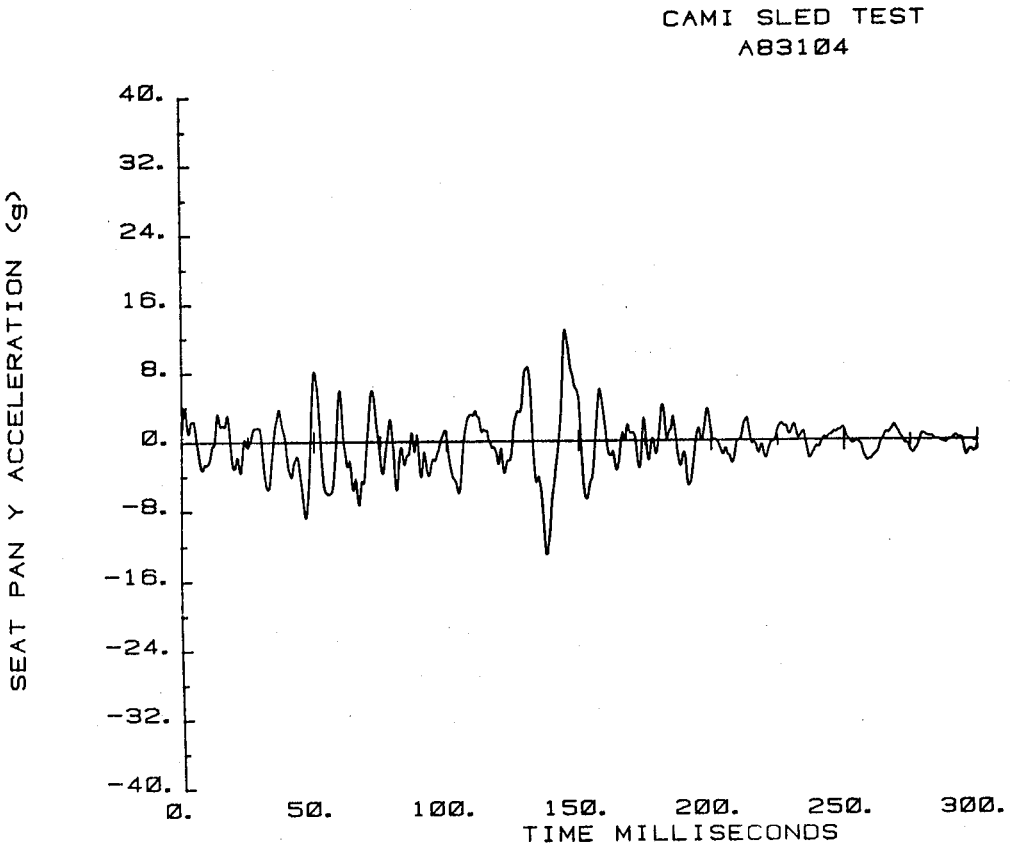

CAMI SLED TEST
A83104
SIMULATED FLOOR X ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

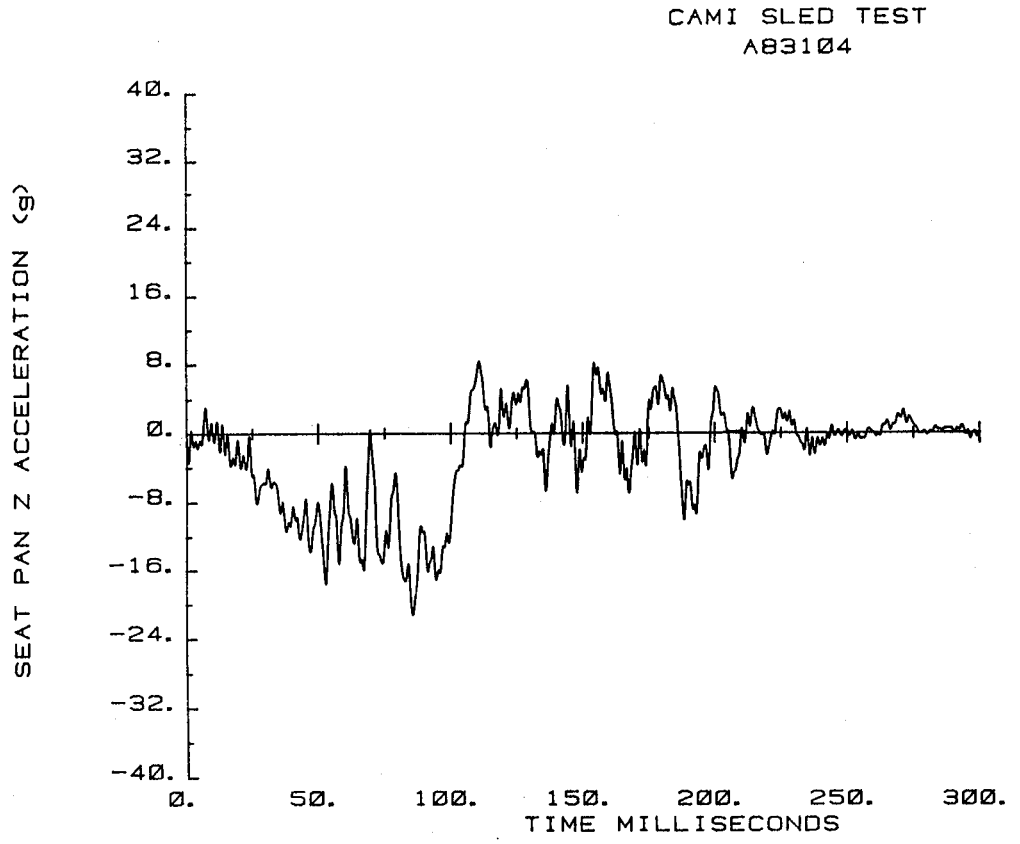

CAMI SLED TEST
A83104
SIMULATED FLOOR Y ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

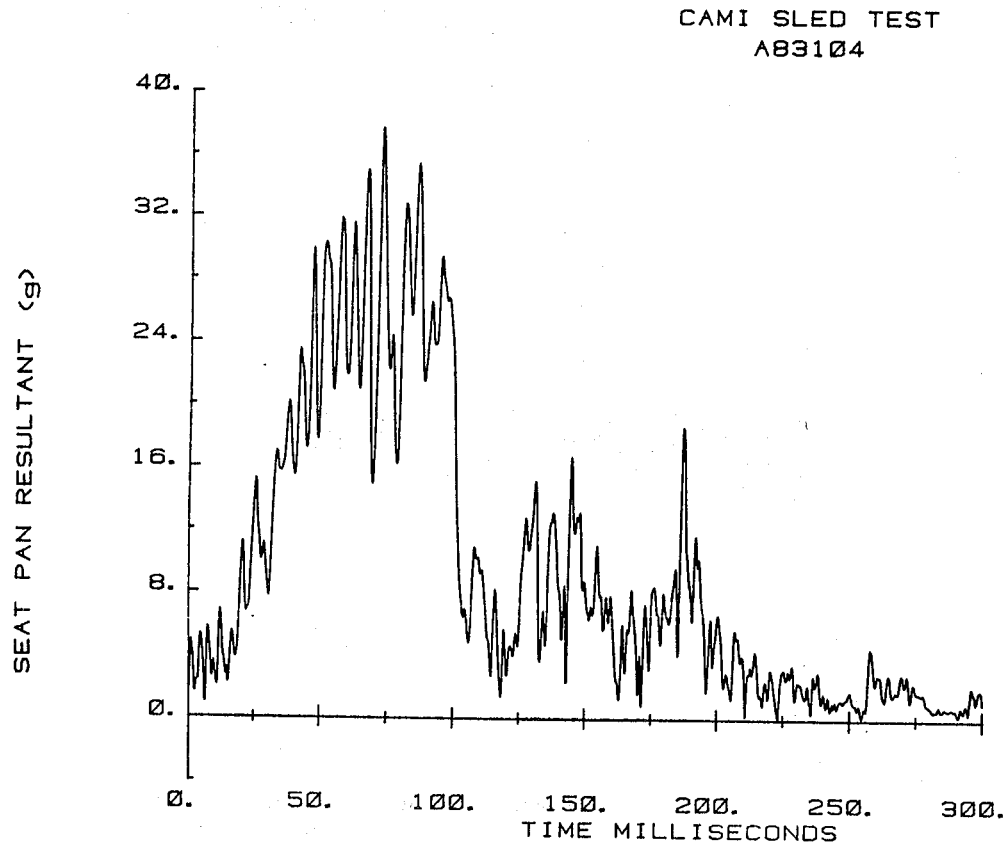

CAMI SLED TEST
A83104
SIMULATED FLOOR Z ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

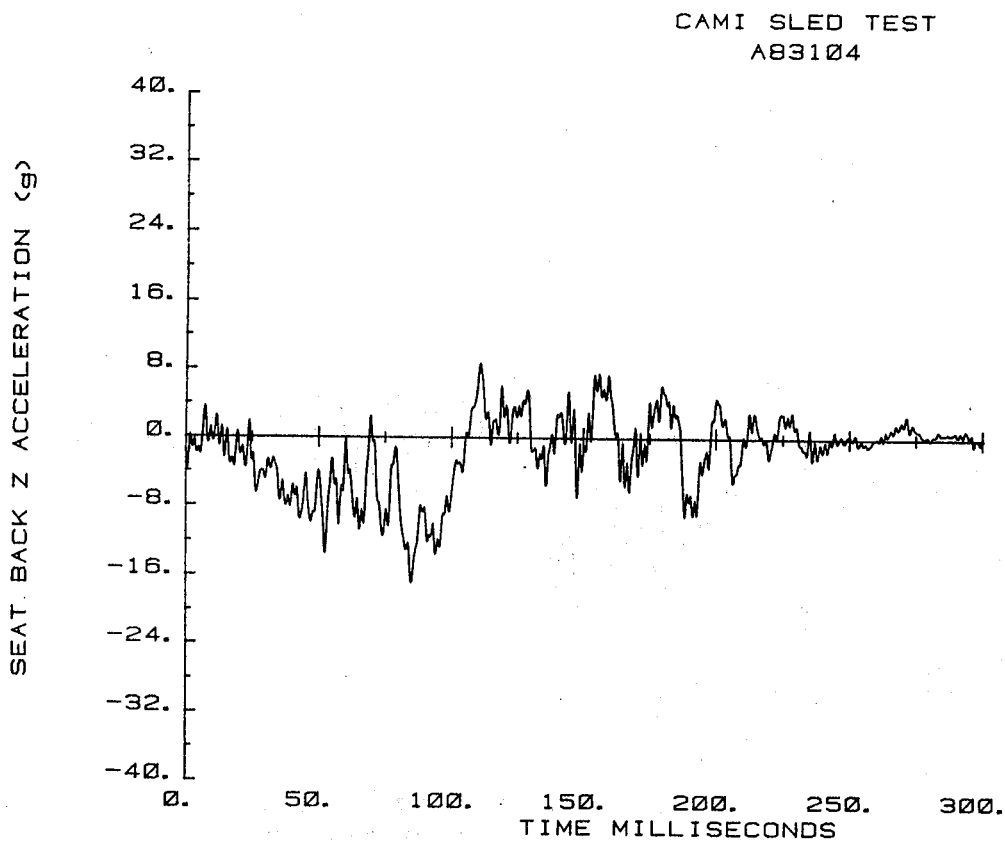

CAMI SLED TEST
A83104
SIMULATED FLOOR RESULTANT (g)
30.
24.
18.
12.
6.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

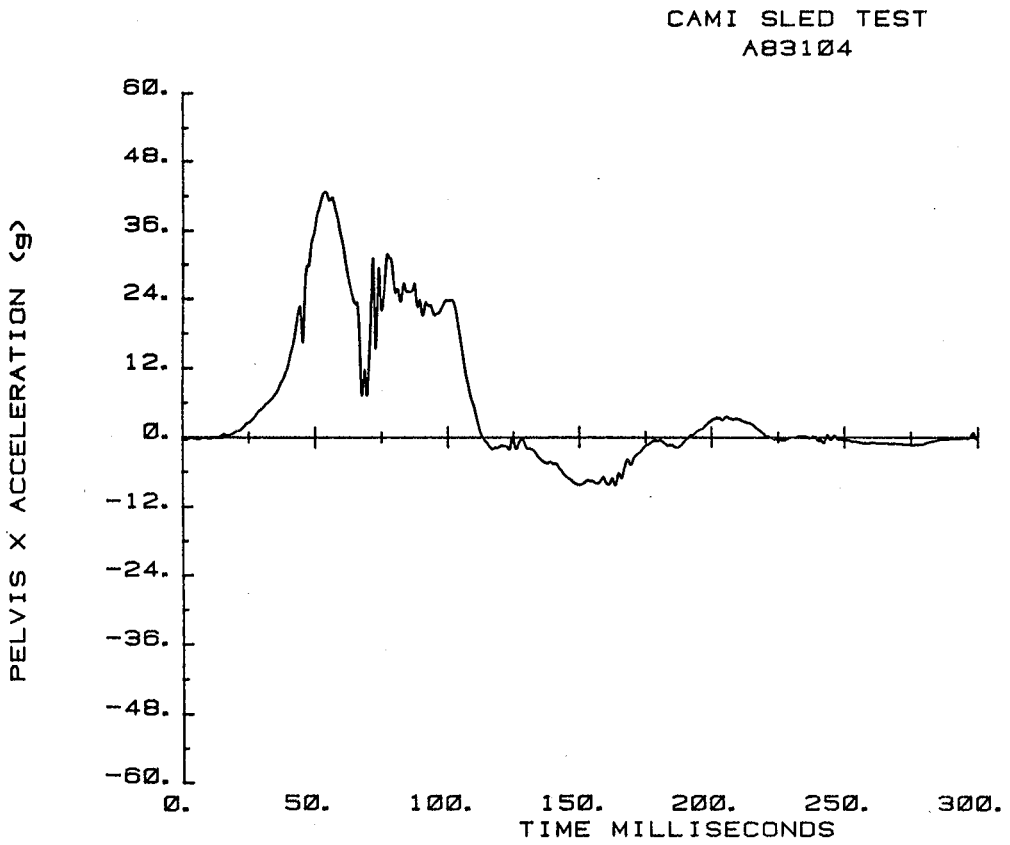

CAMI SLED TEST
A83104
SEAT PAN X ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

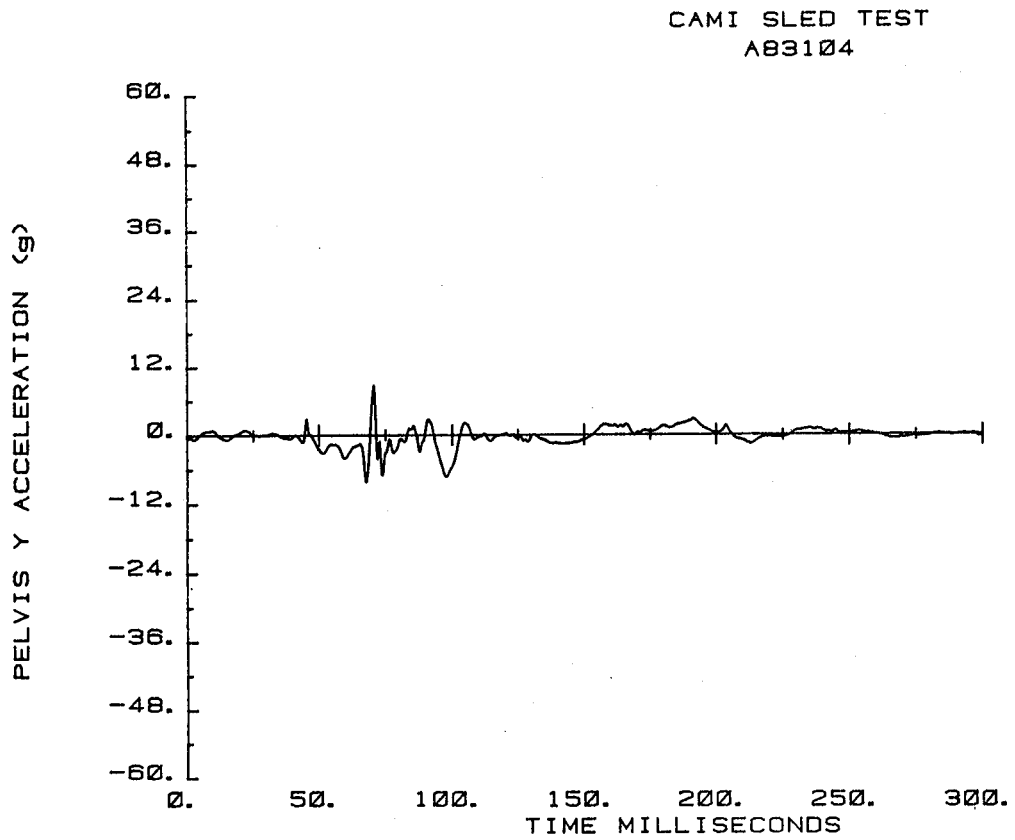

CAMI SLED TEST
A83104
SEAT PAN Y ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

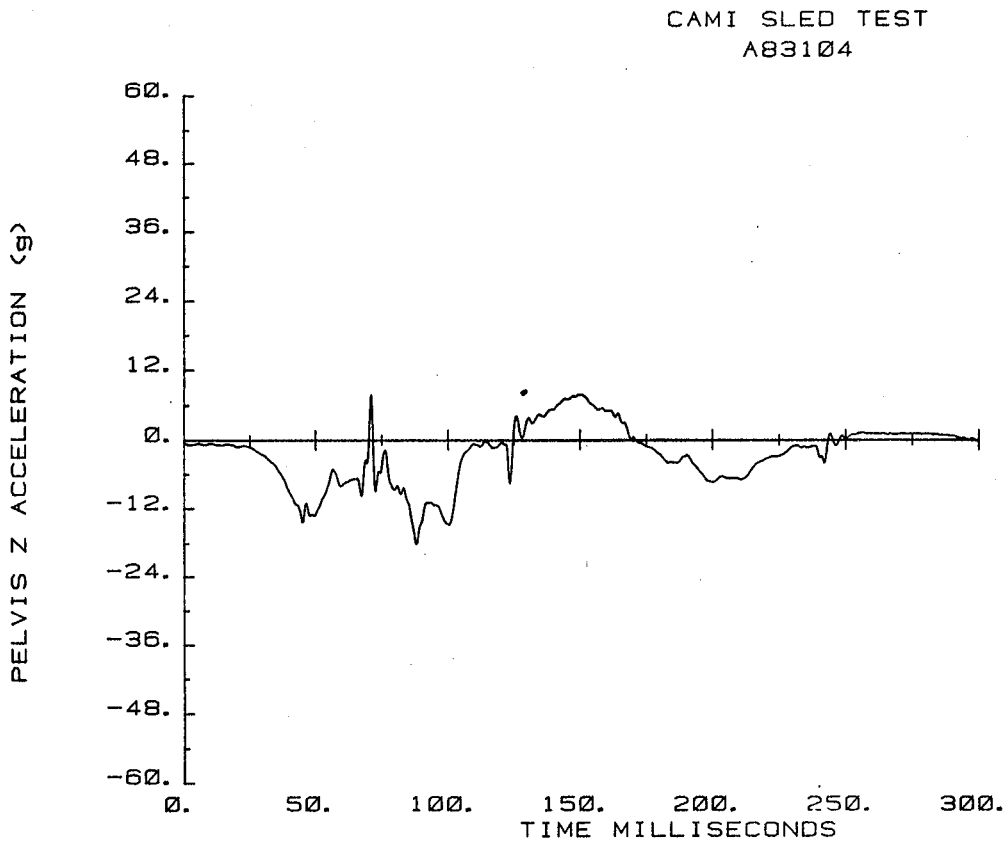

CAMI SLED TEST
A83104
SEAT PAN Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

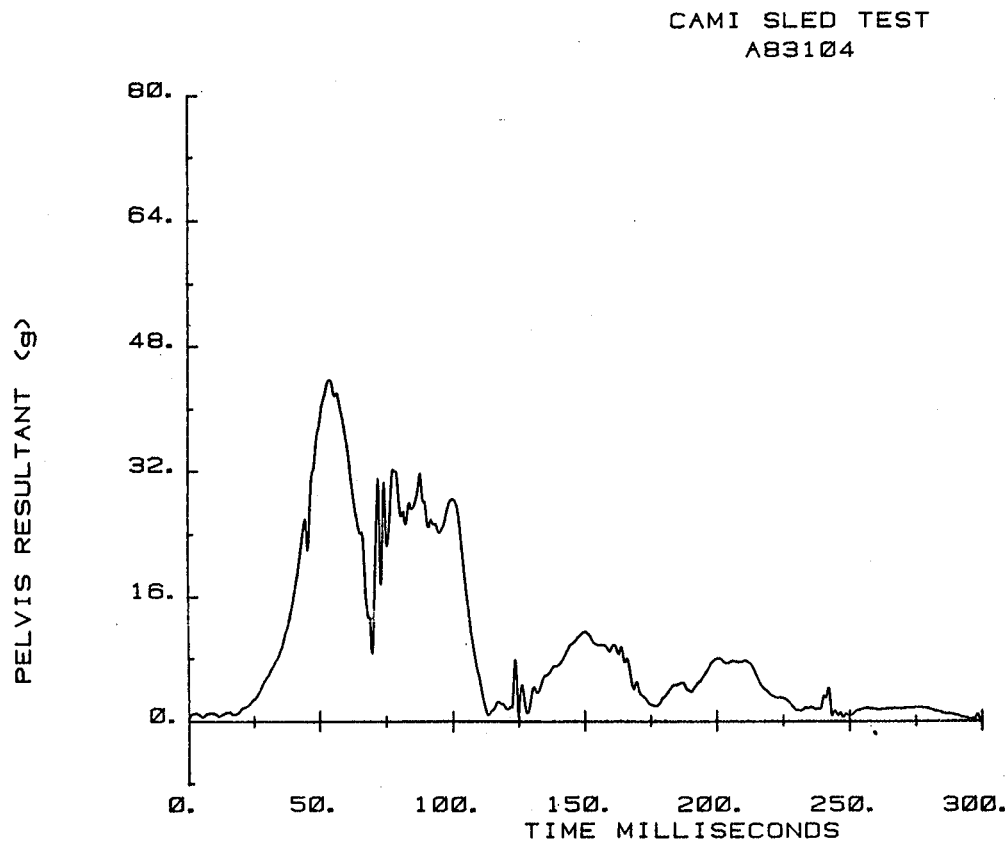

CAMI SLED TEST
A83104
SEAT PAN RESULTANT (g)
40.
32.
24.
16.
8.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

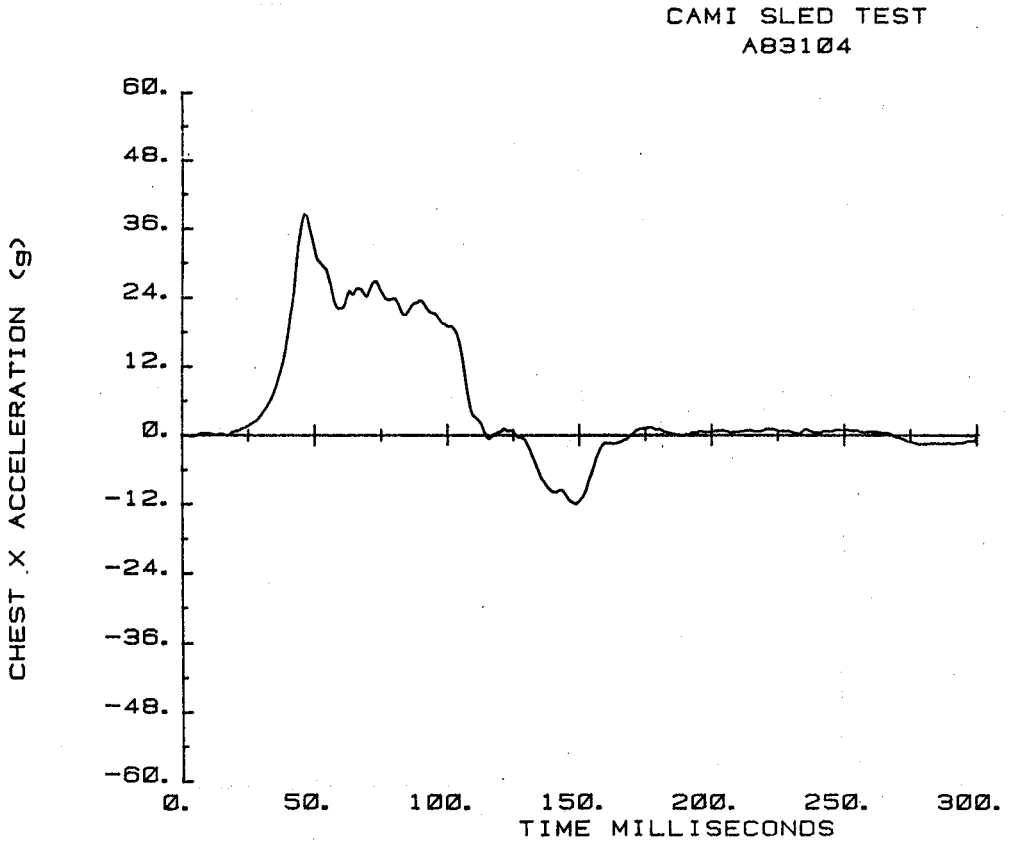

CAMI SLED TEST
A83104
SEAT BACK Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

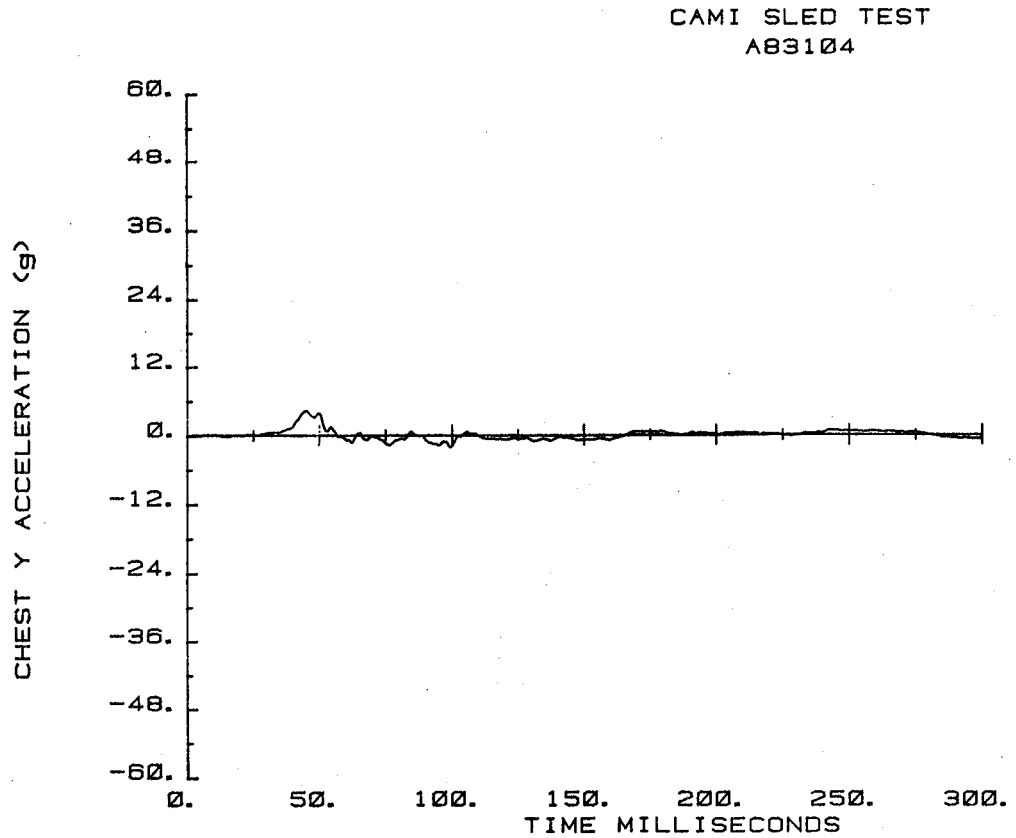

CAMI SLED TEST
A83104
PELVIS X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

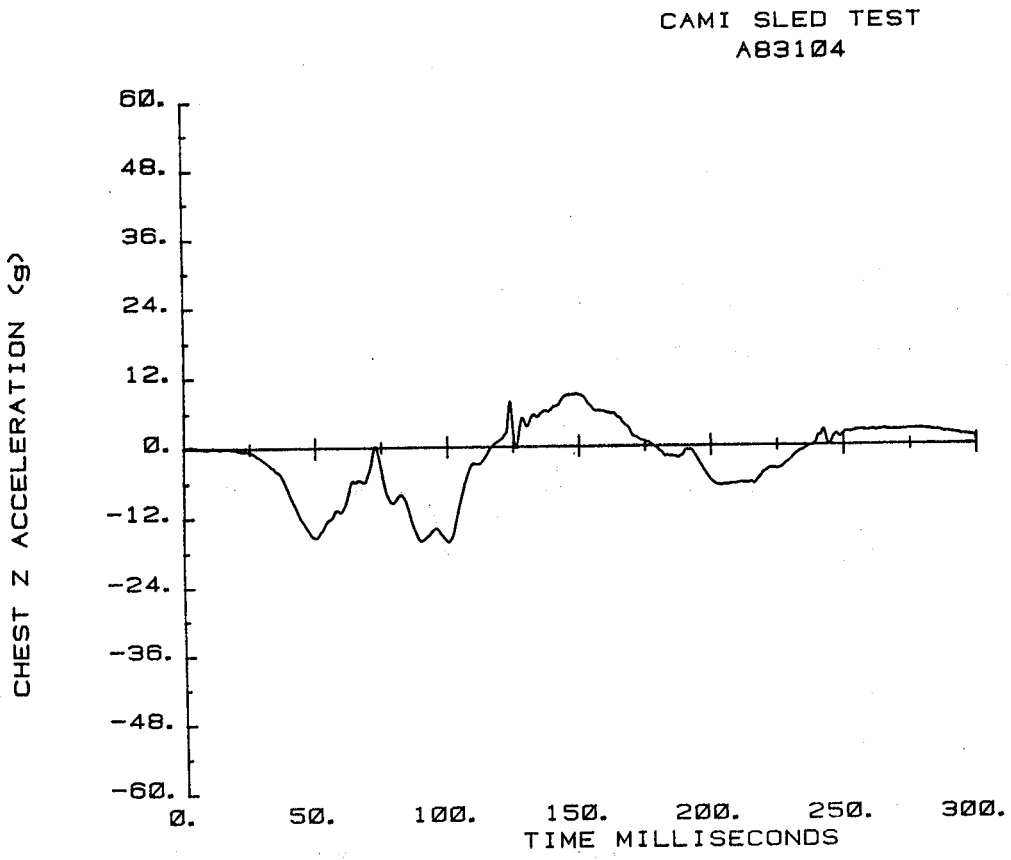

CAMI SLED TEST
A83104
PELVIS Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

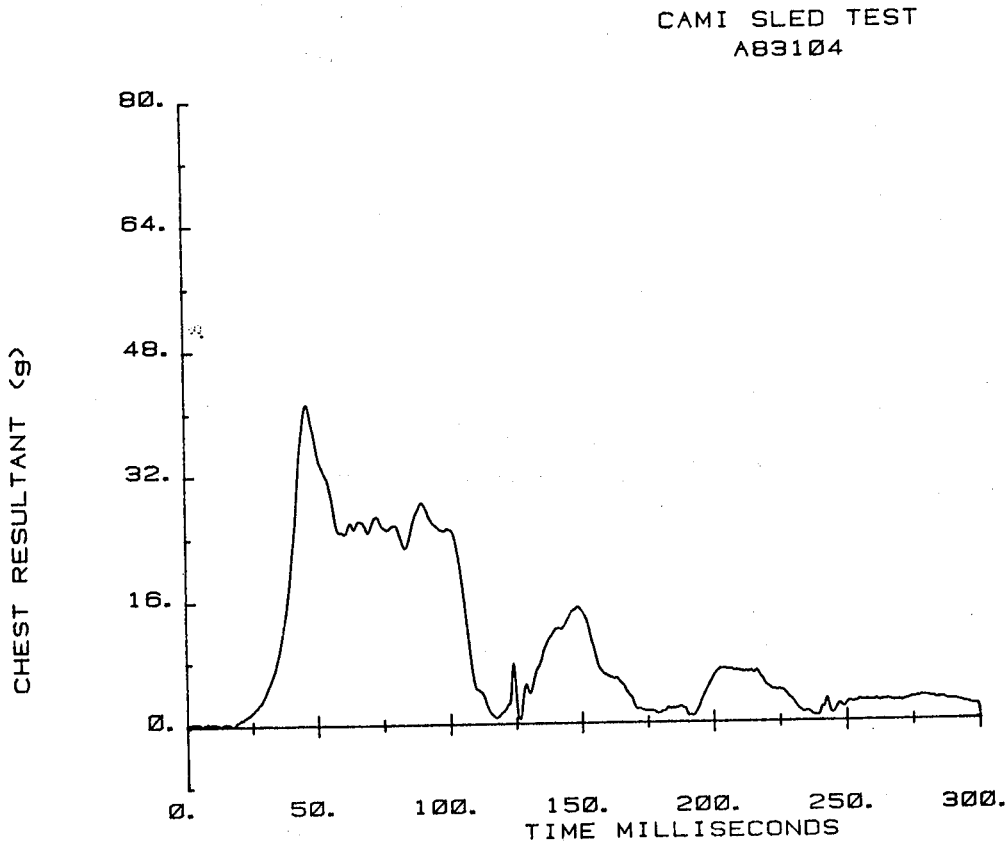

CAMI SLED TEST
A83104
PELVIS Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

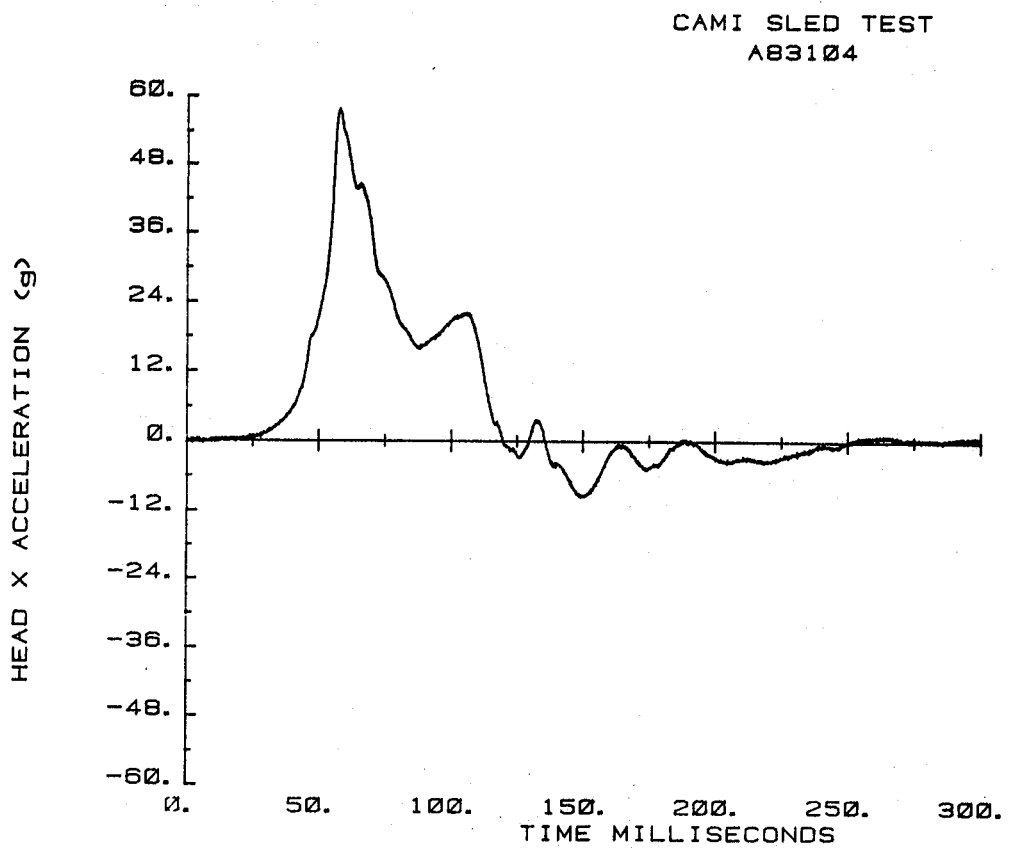

CAMI SLED TEST
A83104
PELVIS RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

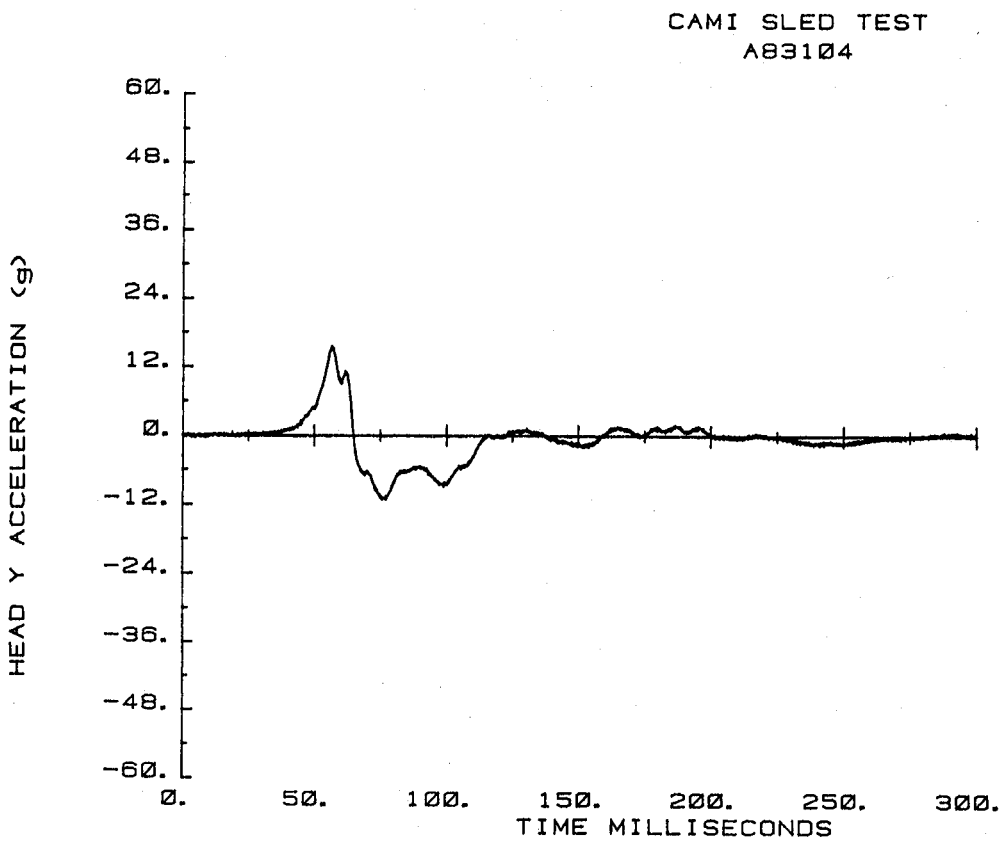

CAMI SLED TEST
A83104
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
CHEST X ACCELERATION (g)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

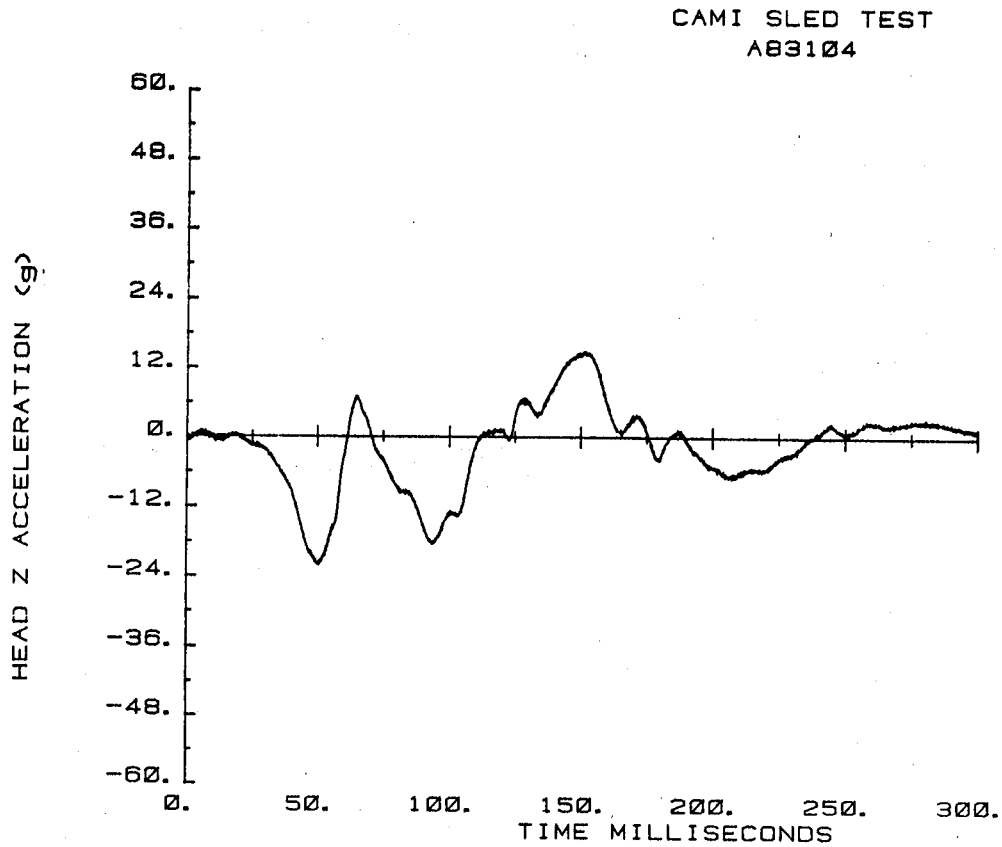

CAMI SLED TEST
A83104
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
CHEST Y ACCELERATION (g)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

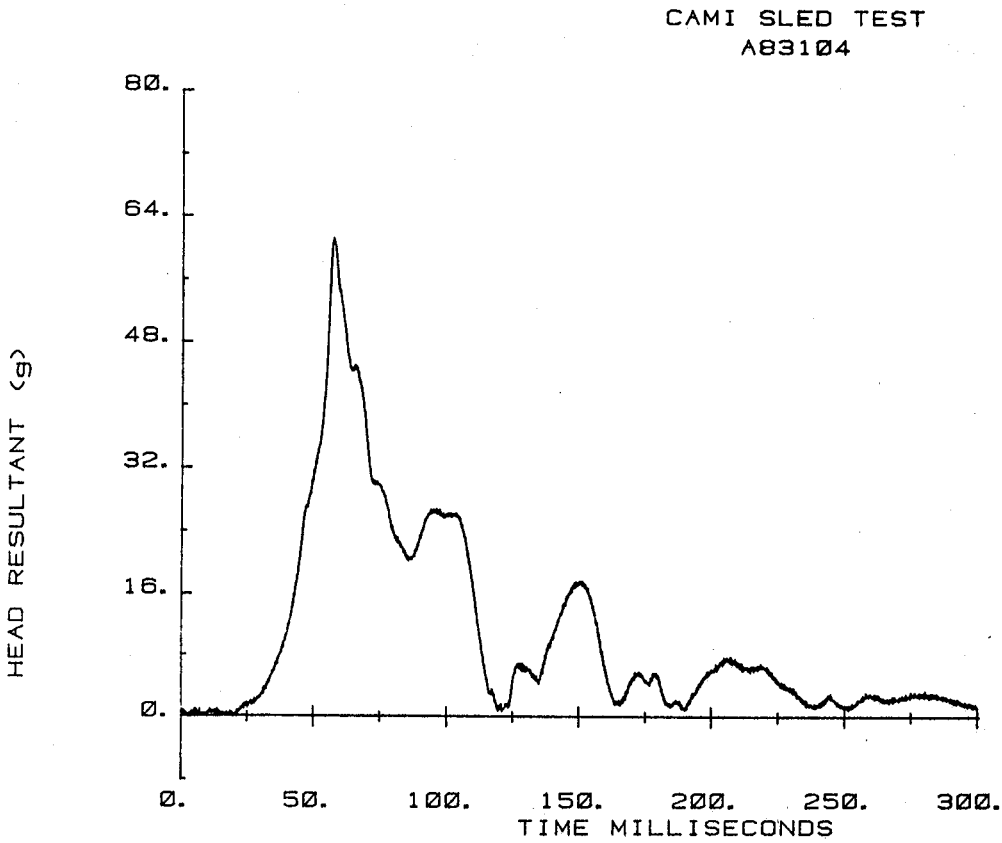

CAMI SLED TEST
A83104
CHEST Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

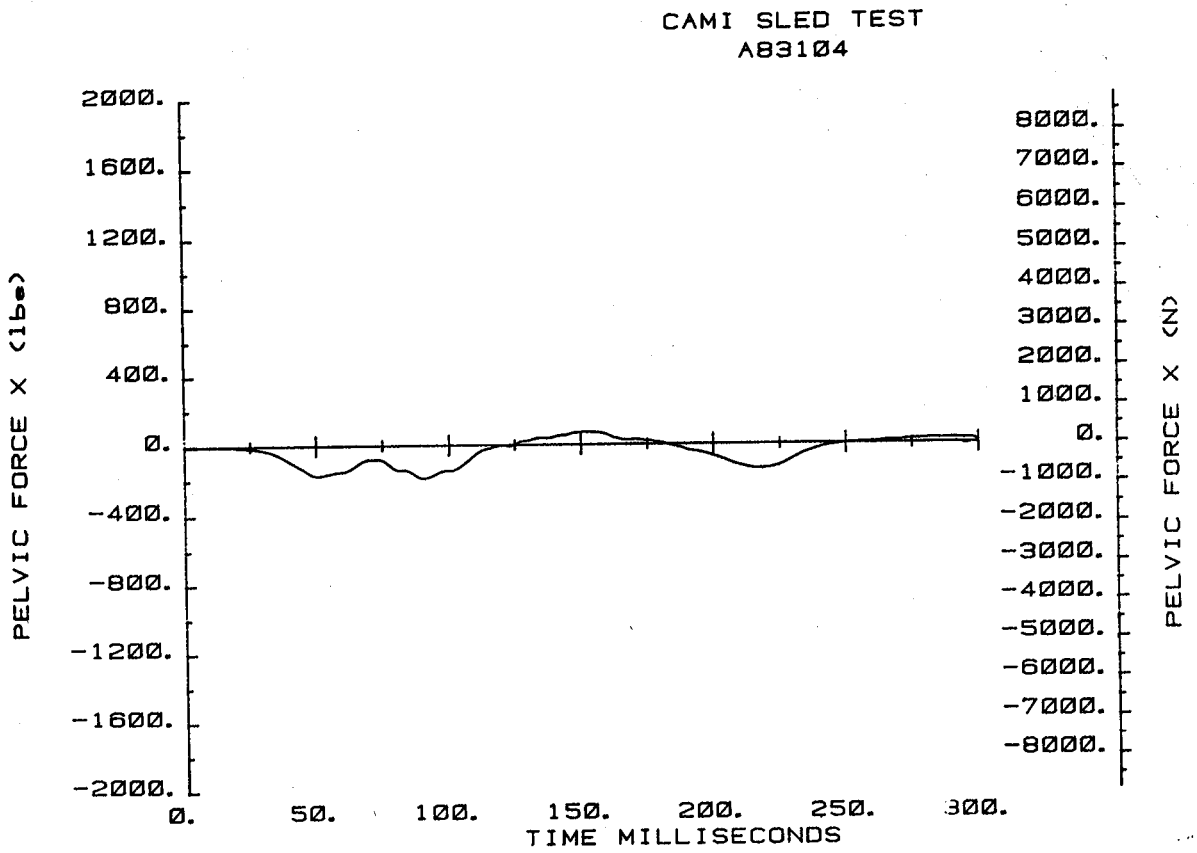

CAMI SLED TEST
A83104
CHEST RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

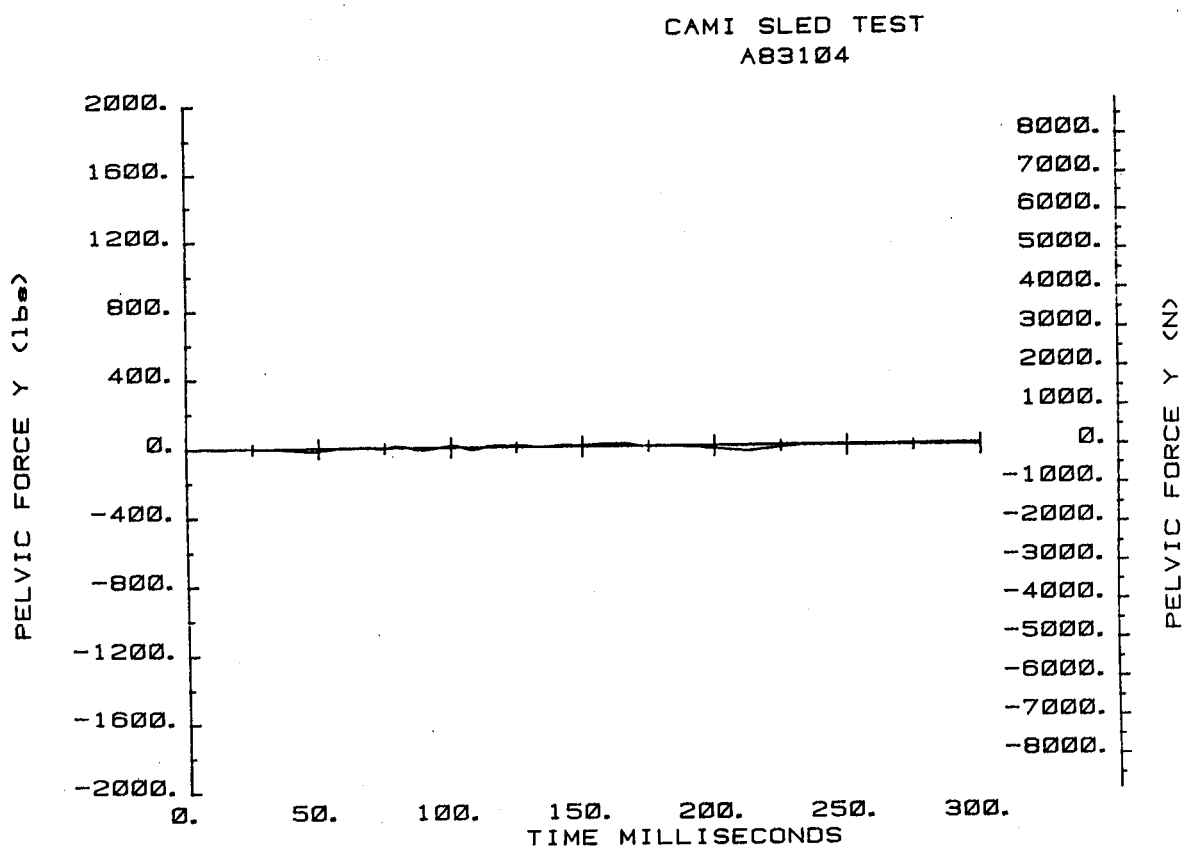

CAMI SLED TEST
A83104
HEAD X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

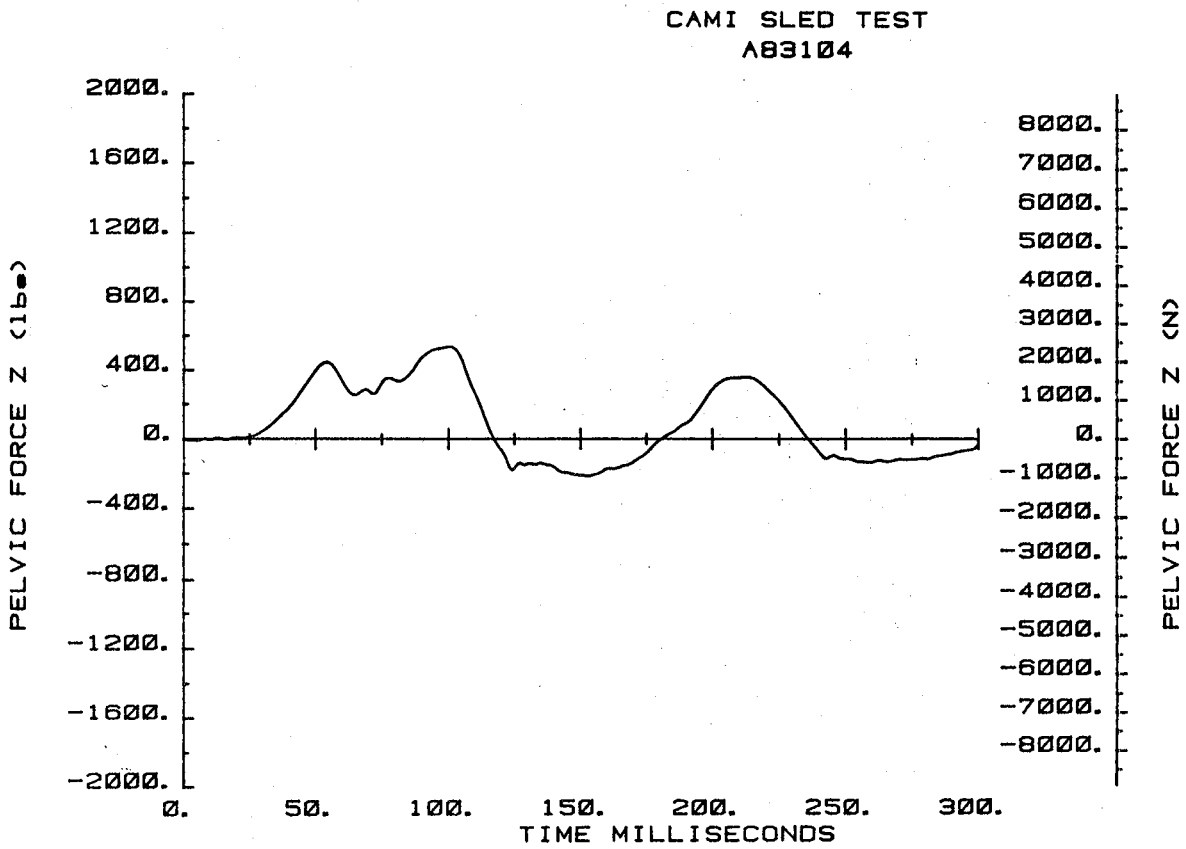

CAMI SLED TEST
A83104
HEAD Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

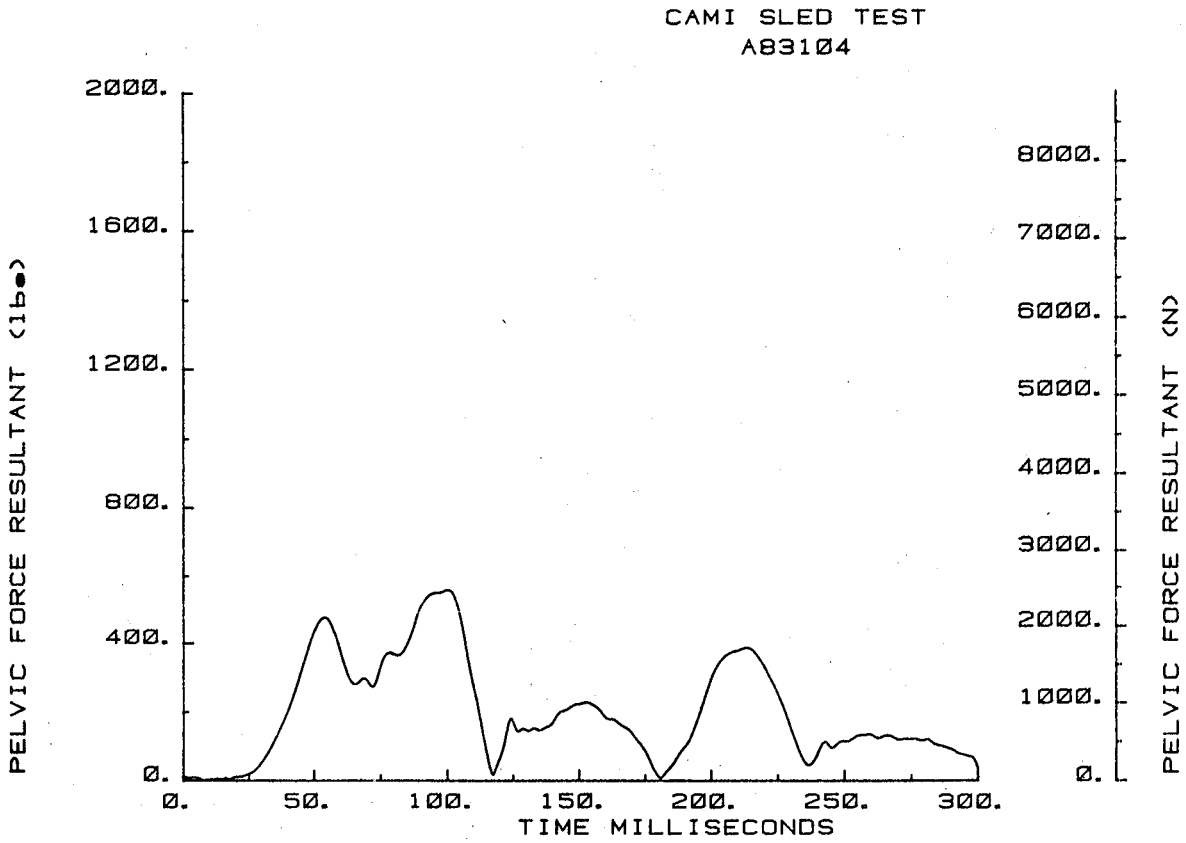

CAMI SLED TEST
A83104
HEAD Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

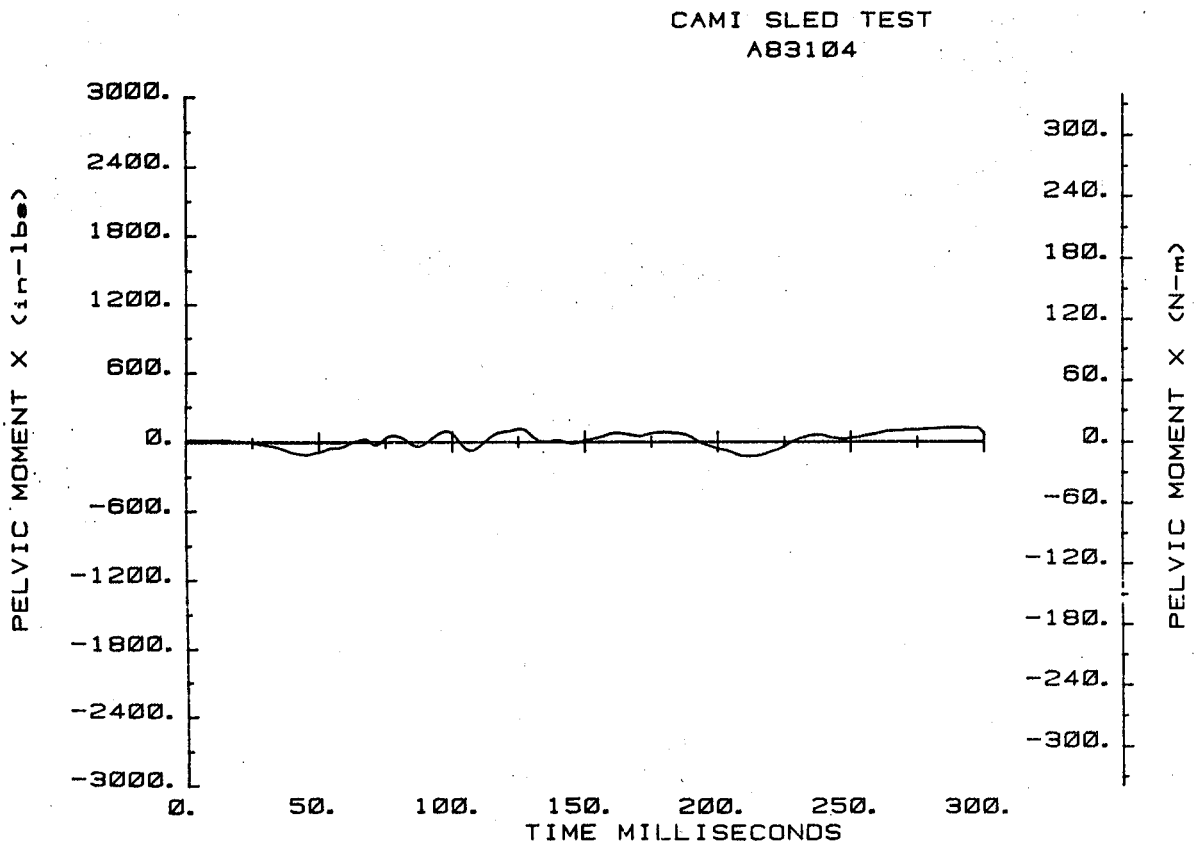

CAMI SLED TEST
A83104
HEAD RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

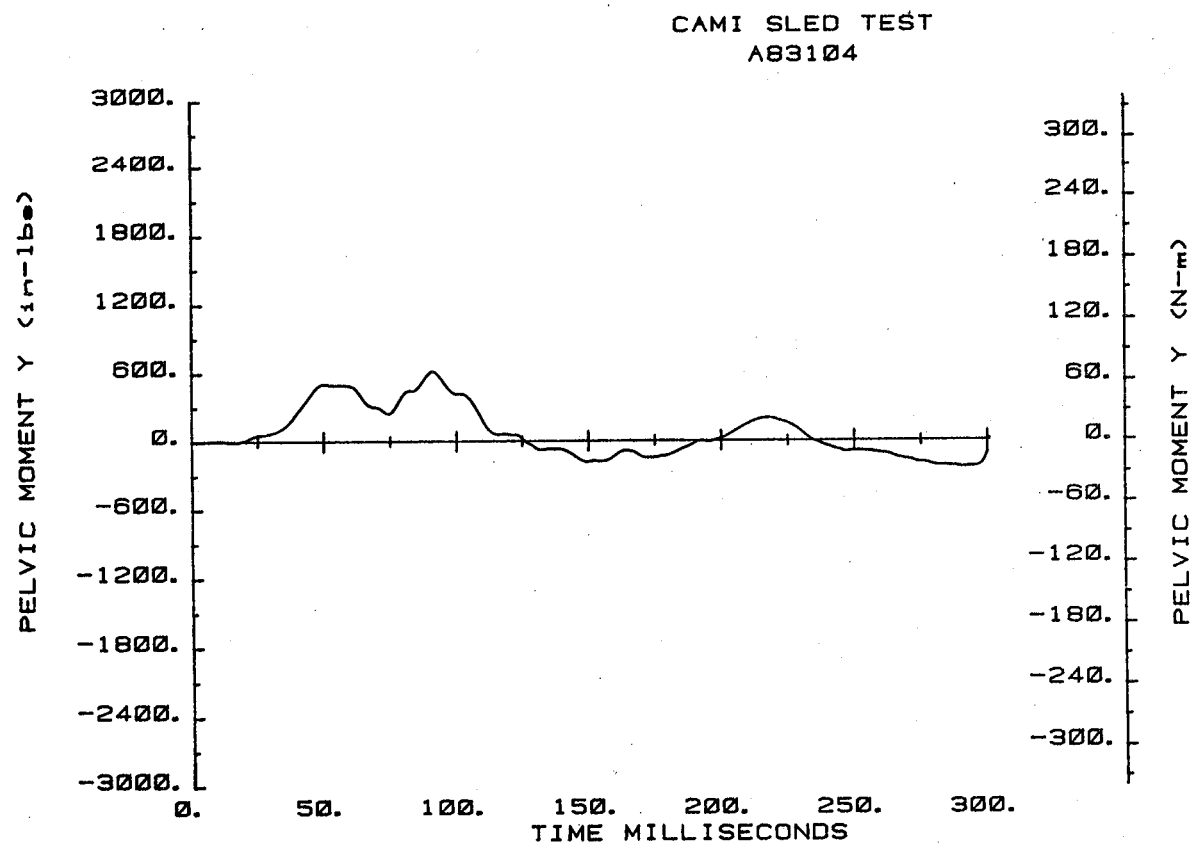

CAMI SLED TEST
A83104
PELVIC FORCE X (lbs)
PELVIC FORCE X (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

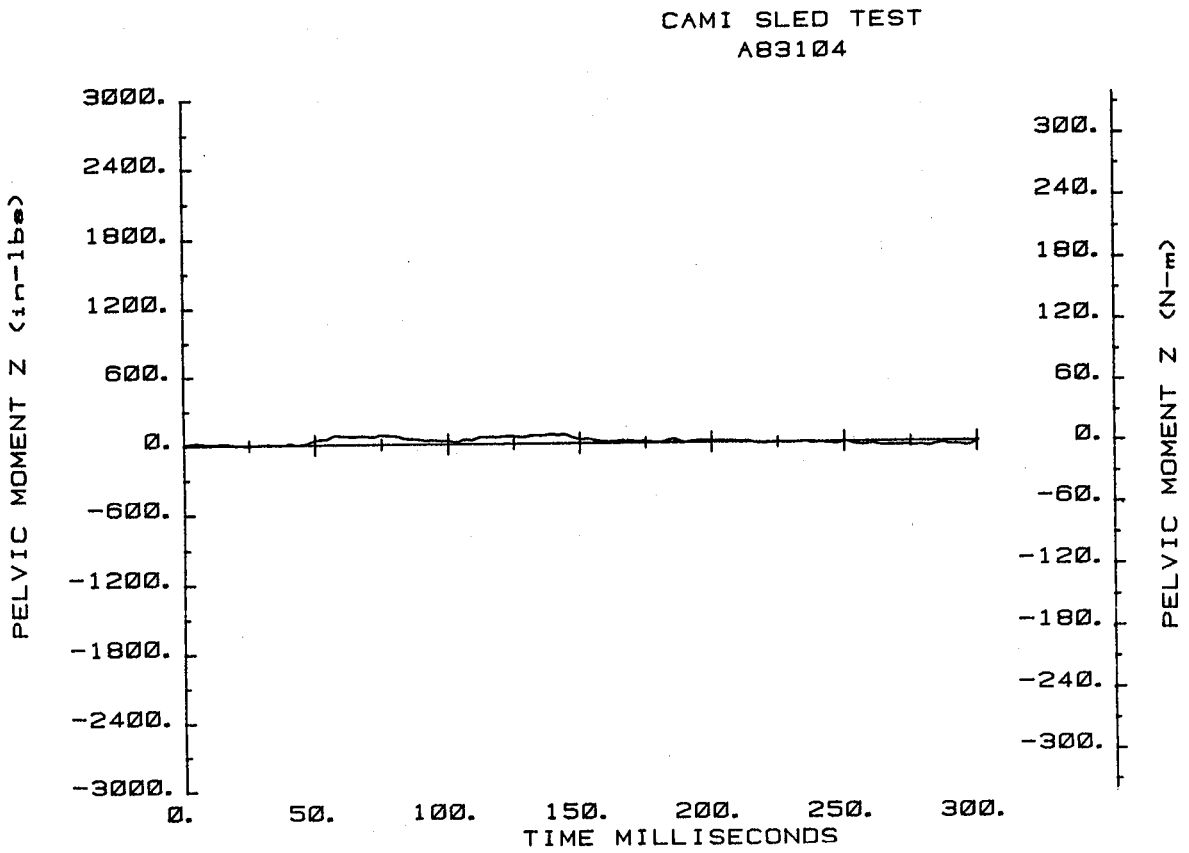

CAMI SLED TEST
A83104
PELVIC FORCE Y (lbs)
PELVIC FORCE Y (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

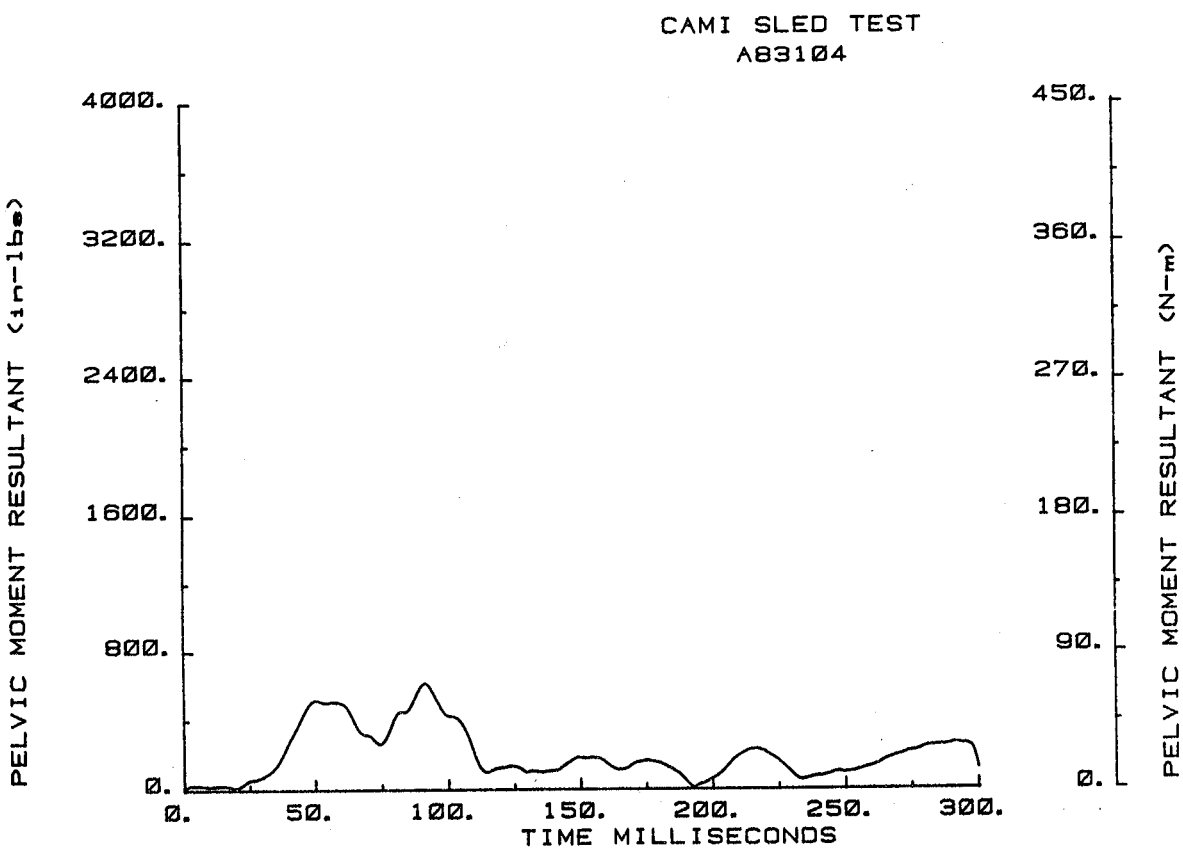

CAMI SLED TEST
A83104
PELVIC FORCE Z (lb)
PELVIC FORCE Z (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

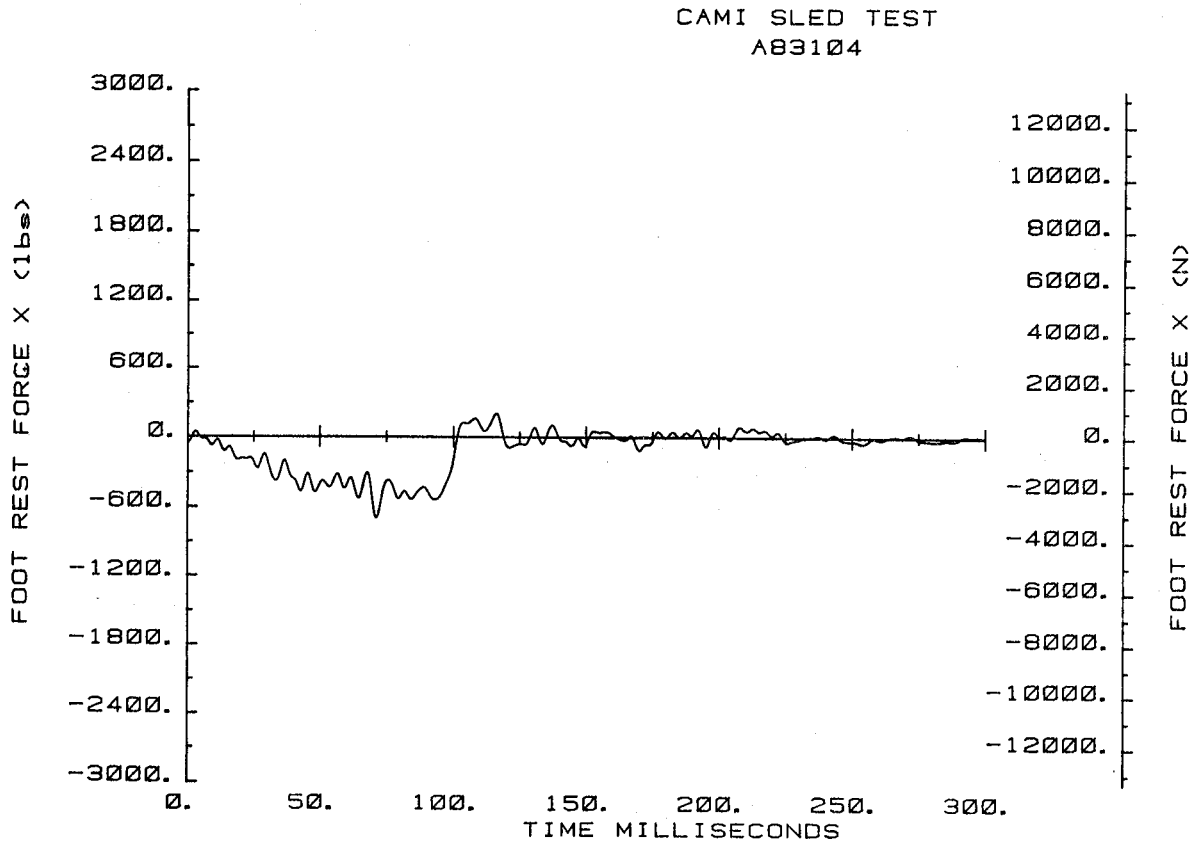

CAMI SLED TEST
A83104
PELVIC FORCE RESULTANT (lb)
PELVIC FORCE RESULTANT (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

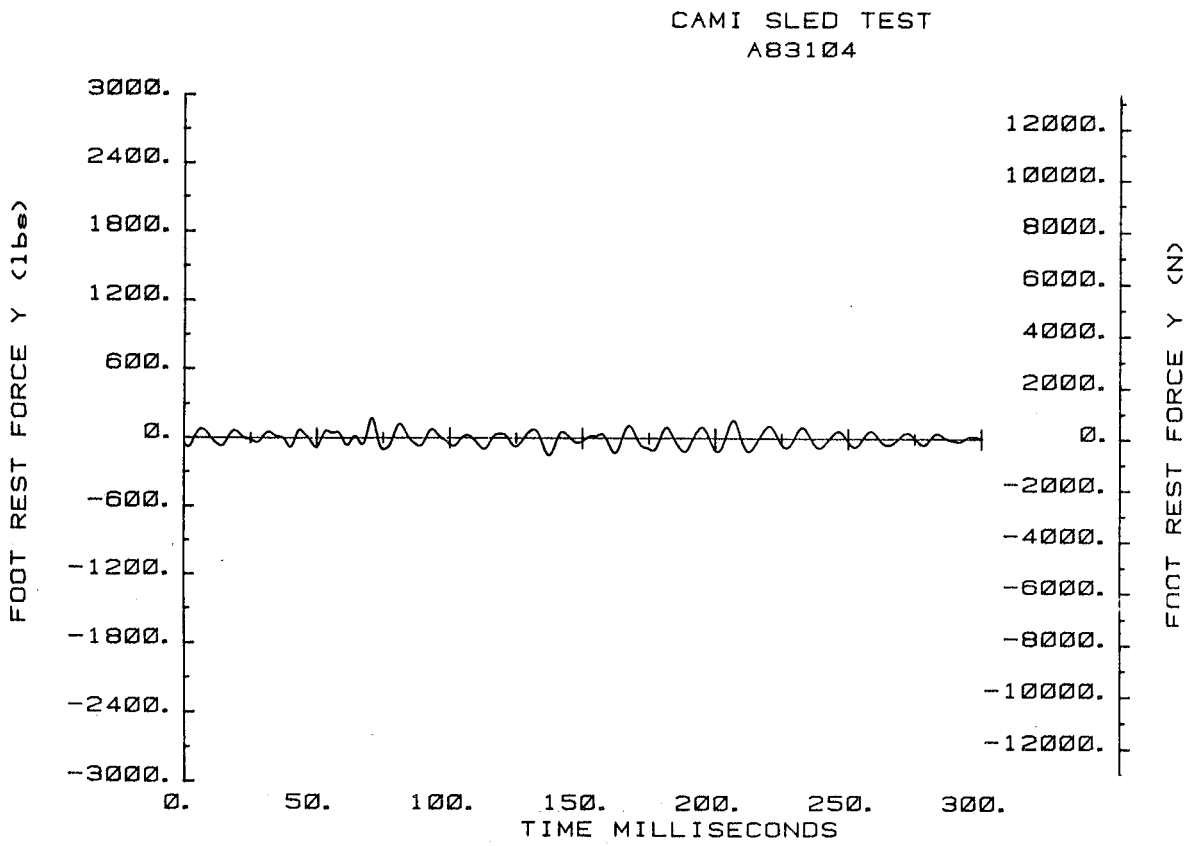

CAMI SLED TEST
A83104
PELVIC MOMENT X (in-lbs)
PELVIC MOMENT X (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

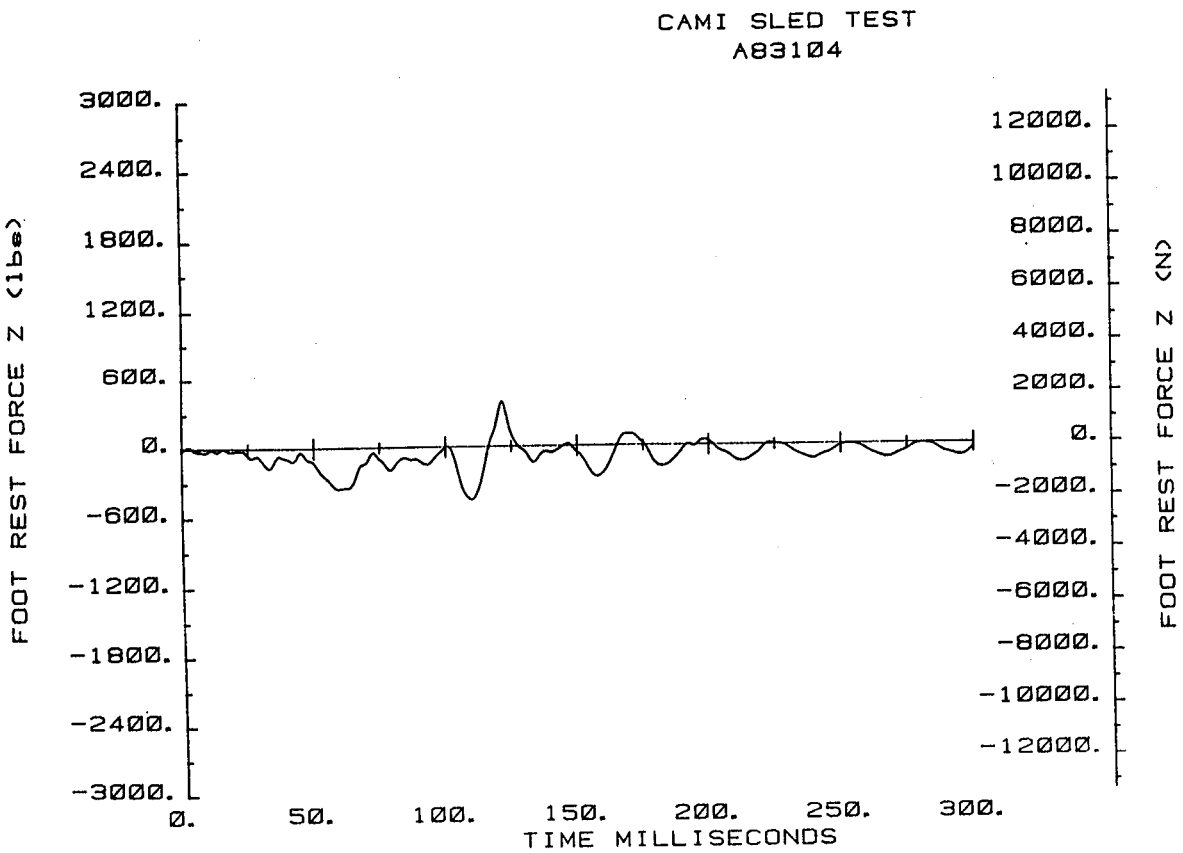

CAMI SLED TEST
A83104
PELVIC MOMENT Y (in-lbs)
PELVIC MOMENT Y (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

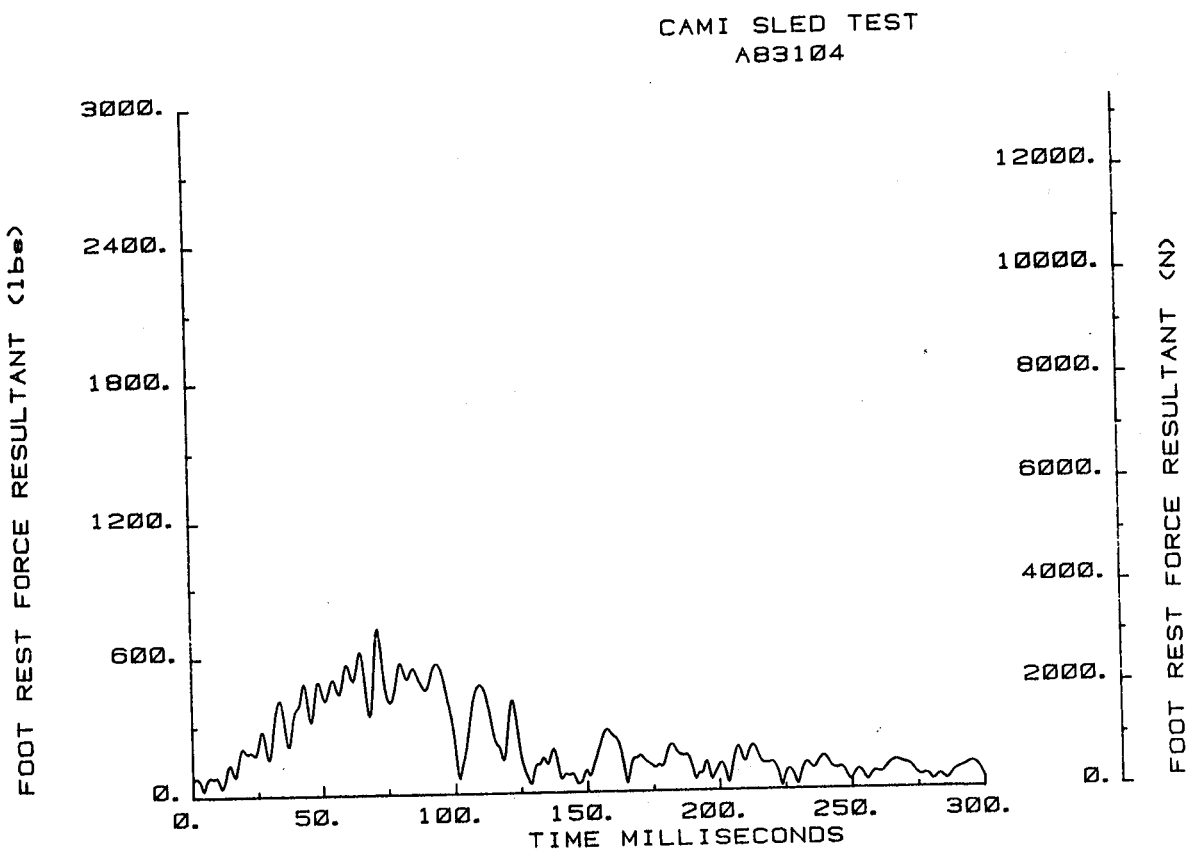

CAMI SLED TEST
A83104
PELVIC MOMENT Z (in-lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT Z (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

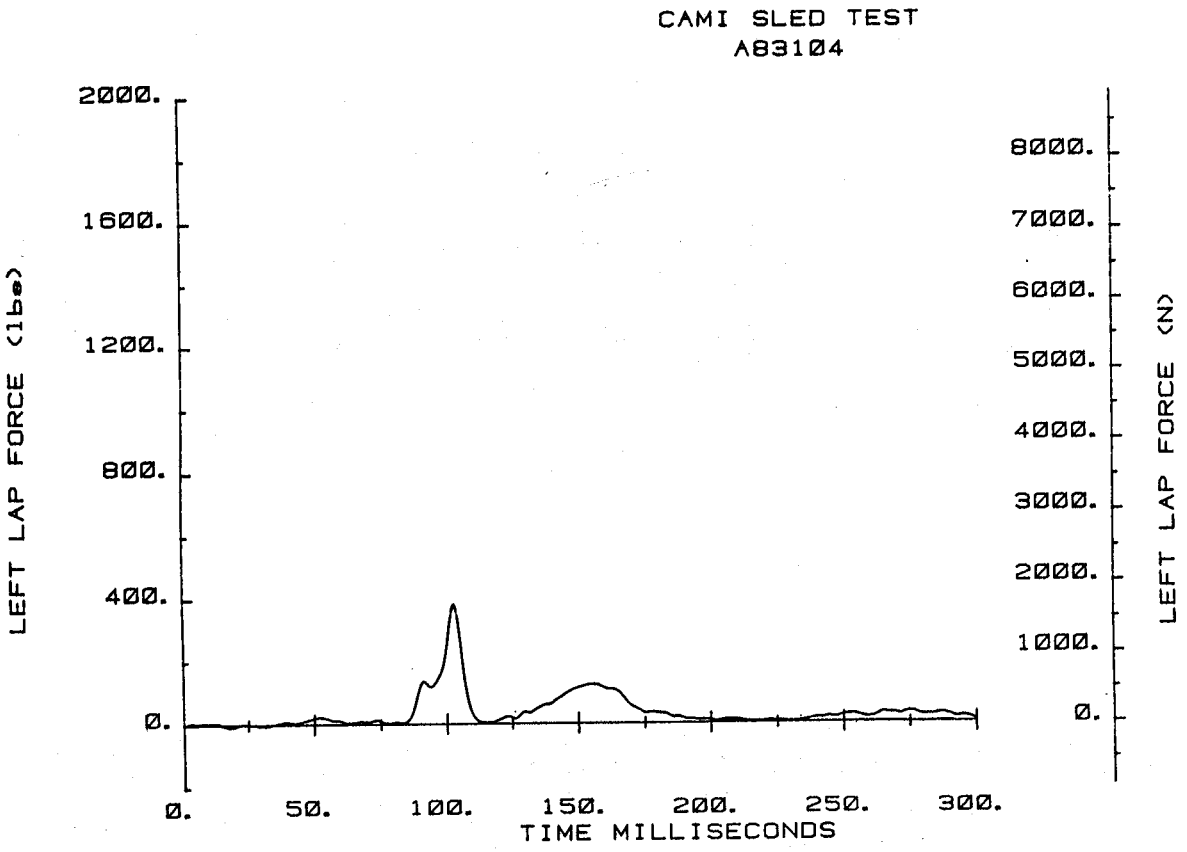

CAMI SLED TEST
A83104
PELVIC MOMENT RESULTANT (in-lbs)
4000.
3200.
2400.
1600.
800.
0.
PELVIC MOMENT RESULTANT (N-m)
450.
360.
270.
180.
90.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

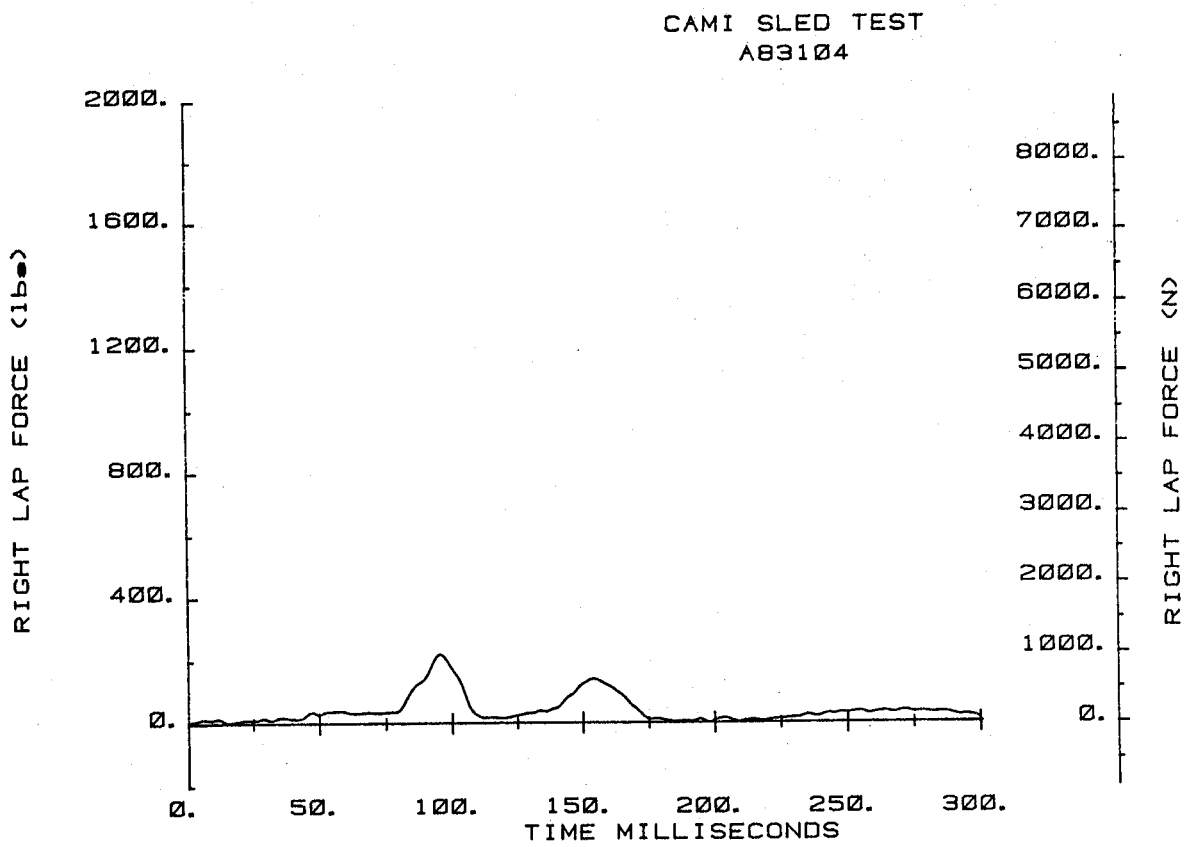

CAMI SLED TEST
A83104
FOOT REST FORCE X (lbs)
FOOT REST FORCE X (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

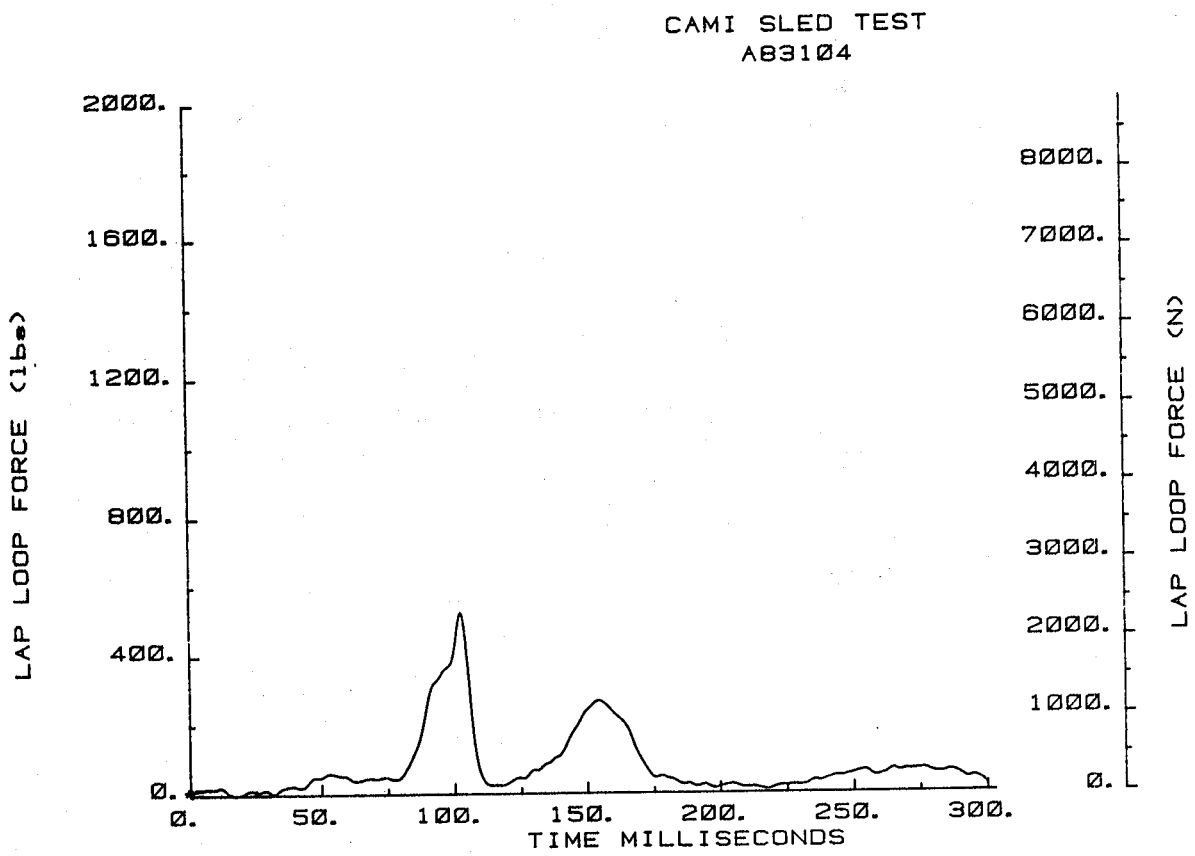

CAMI SLED TEST
A83104
FOOT REST FORCE Y (lbs)
FOOT REST FORCE Y (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

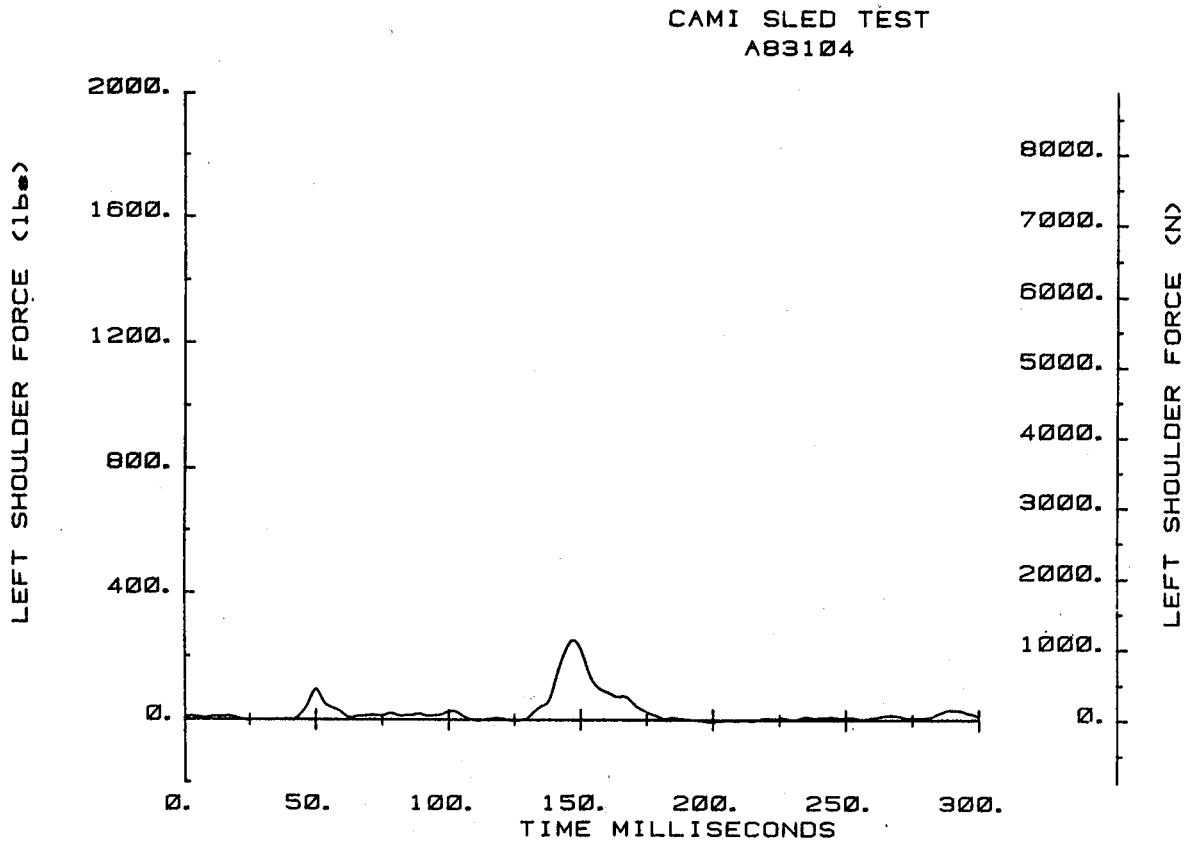

CAMI SLED TEST
A83104
FOOT REST FORCE Z (lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
FOOT REST FORCE Z (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

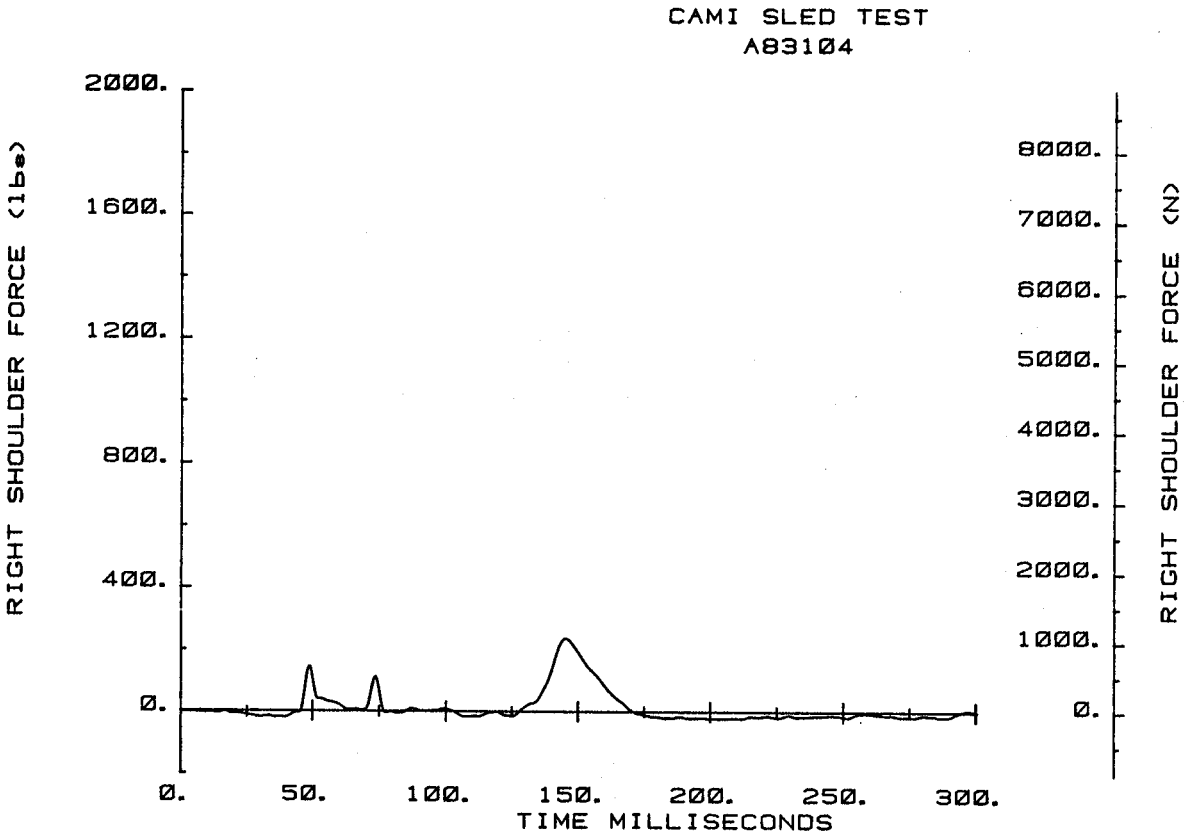

CAMI SLED TEST
A83104
FOOT REST FORCE RESULTANT (lbs)
3000.
2400.
1800.
1200.
600.
0.
FOOT REST FORCE RESULTANT (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

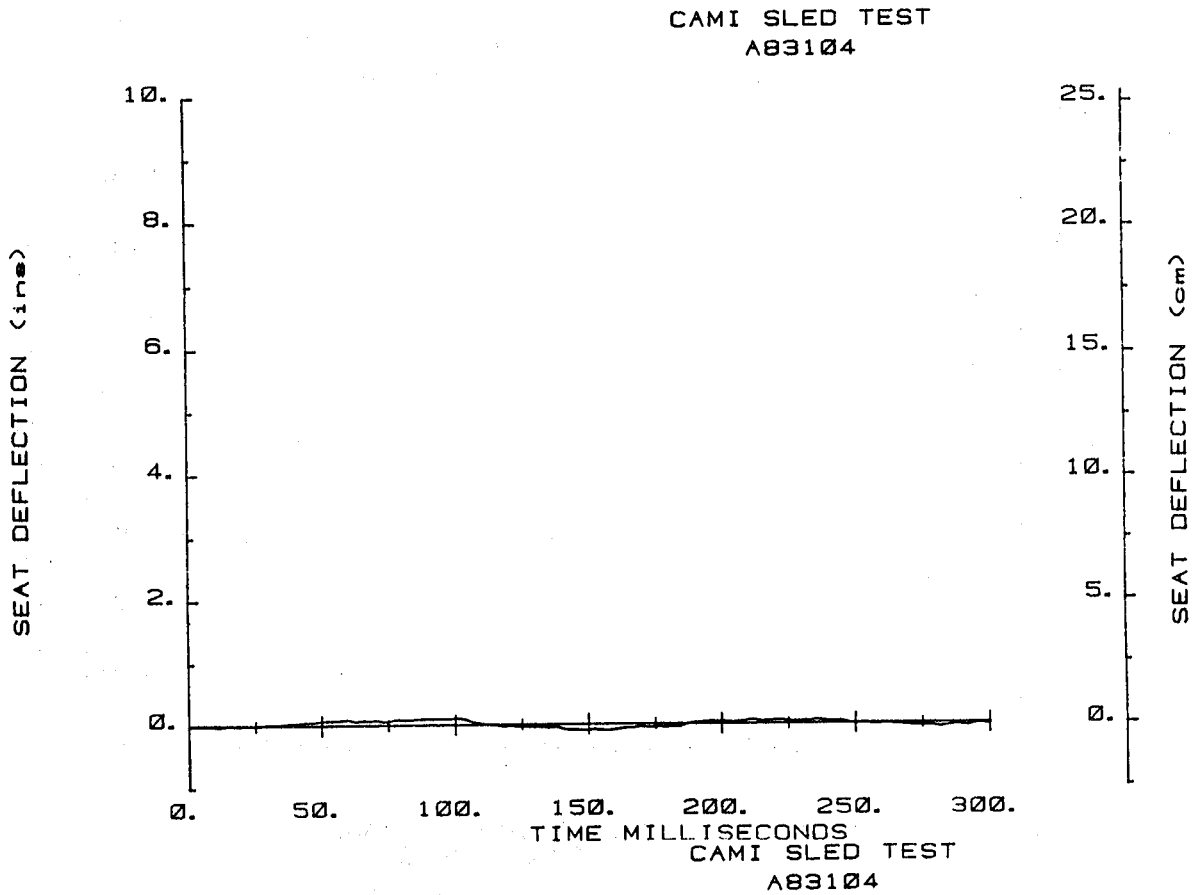

CAMI SLED TEST
A83104
LEFT LAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT LAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

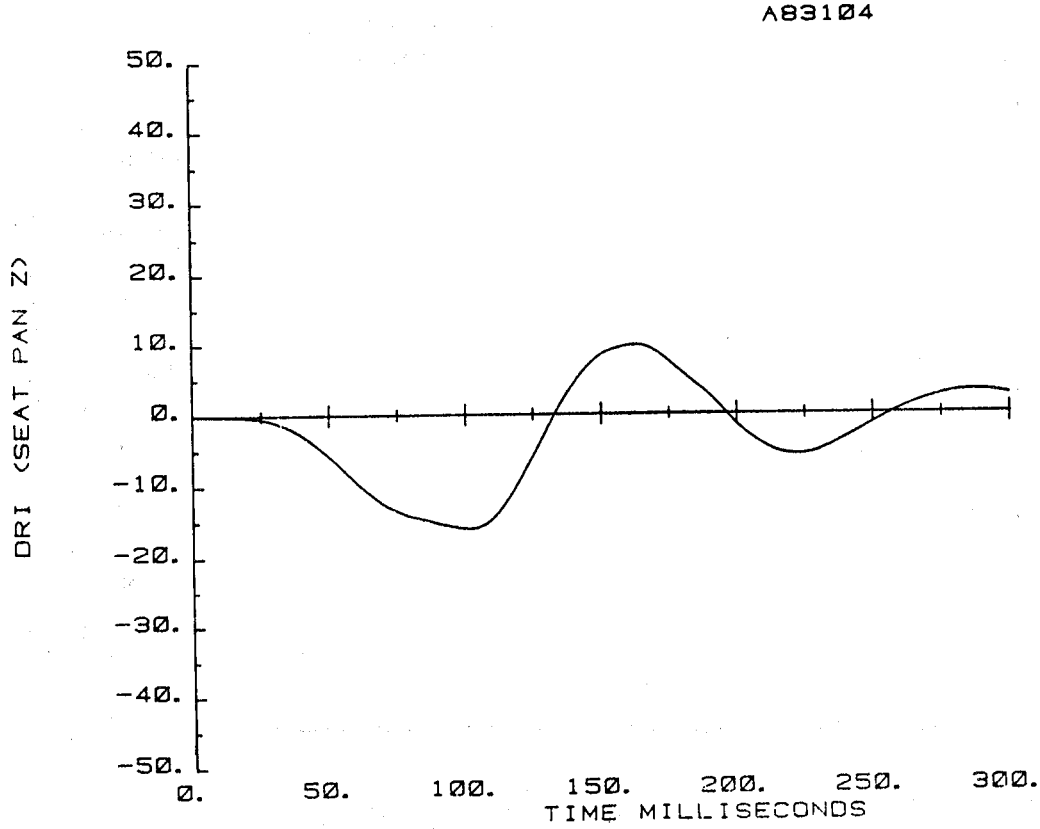

CAMI SLED TEST
A83104
RIGHT LAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT LAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

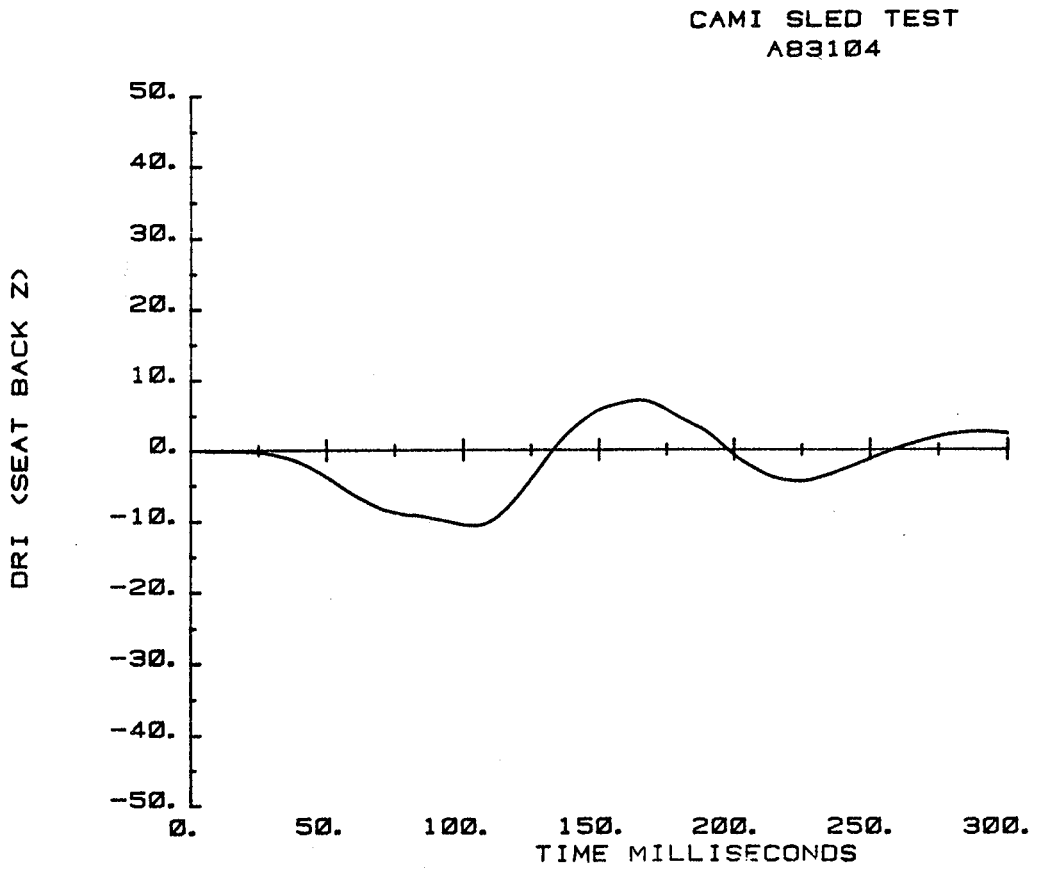

CAMI SLED TEST
A83104
LAP LOOP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LAP LOOP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

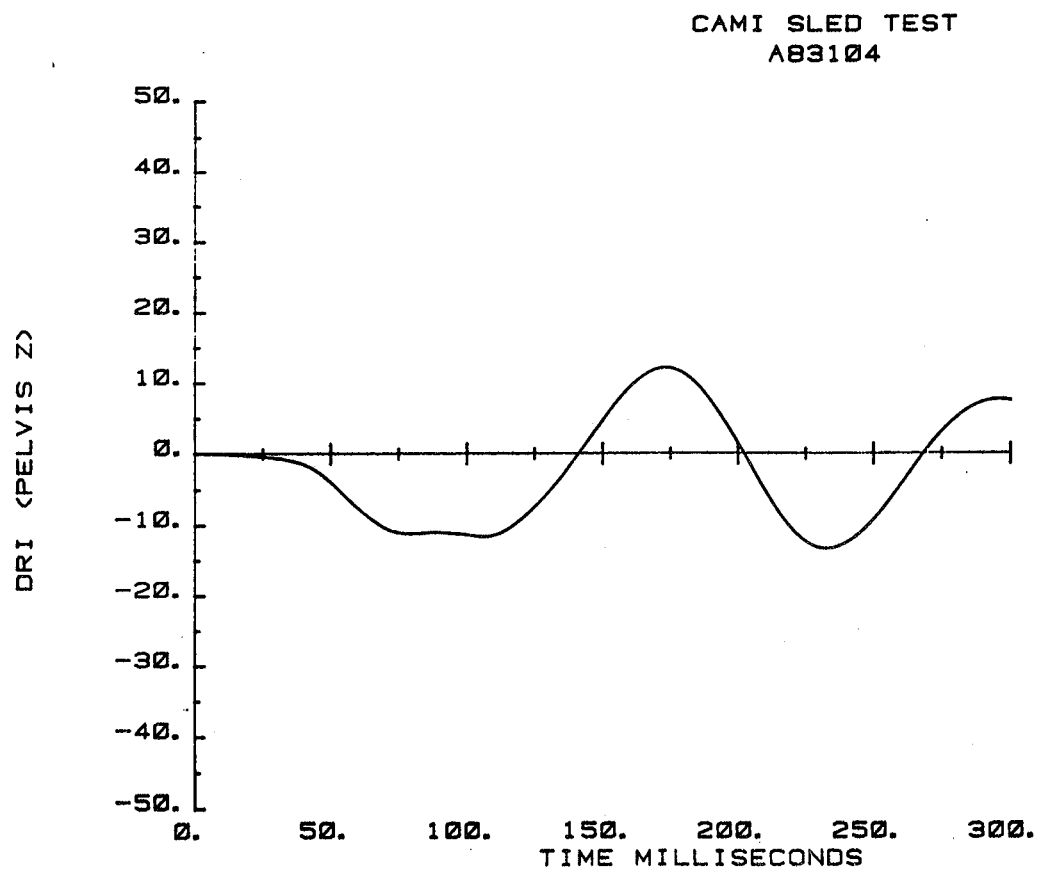

CAMI SLED TEST
A83104
LEFT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83104
RIGHT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83104
SEAT DEFLECTION (ins)
SEAT DEFLECTION (cm)
10.
8.
6.
4.
2.
0.
25.
20.
15.
10.
5.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83104
DRI (SEAT PAN Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83104
DRI (SEAT BACK Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83104
DRI (PELVIS Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

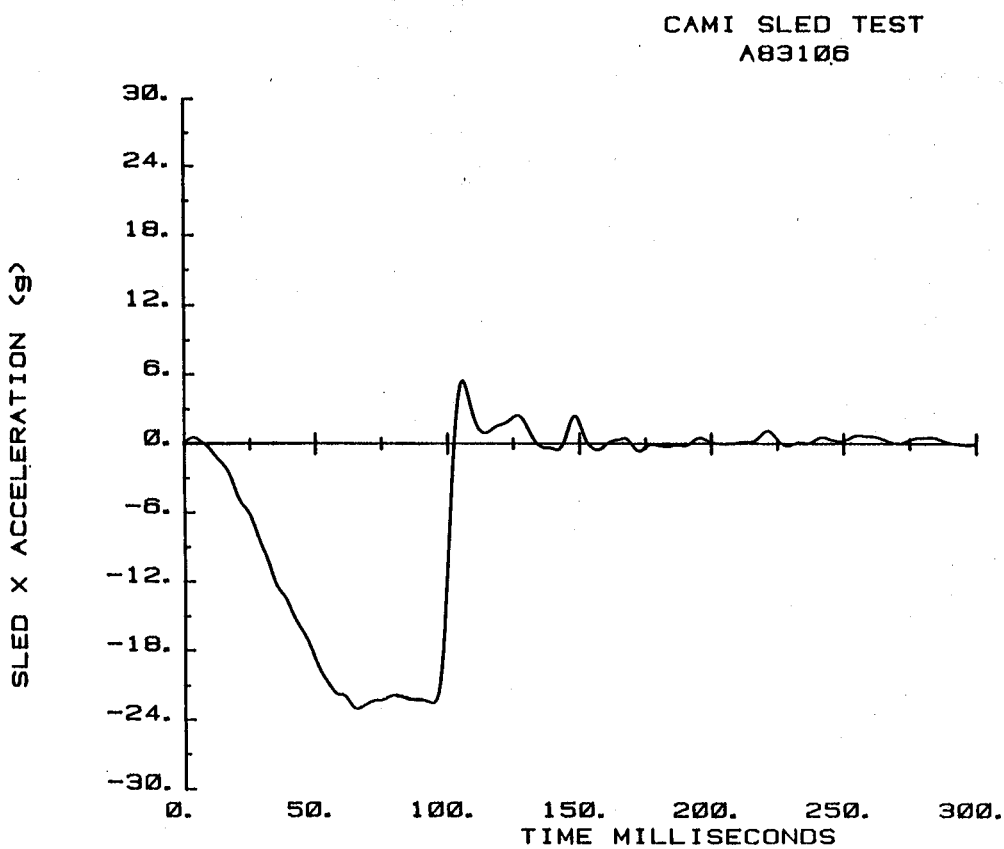
5.0 CAMI TEST NO. A83-106

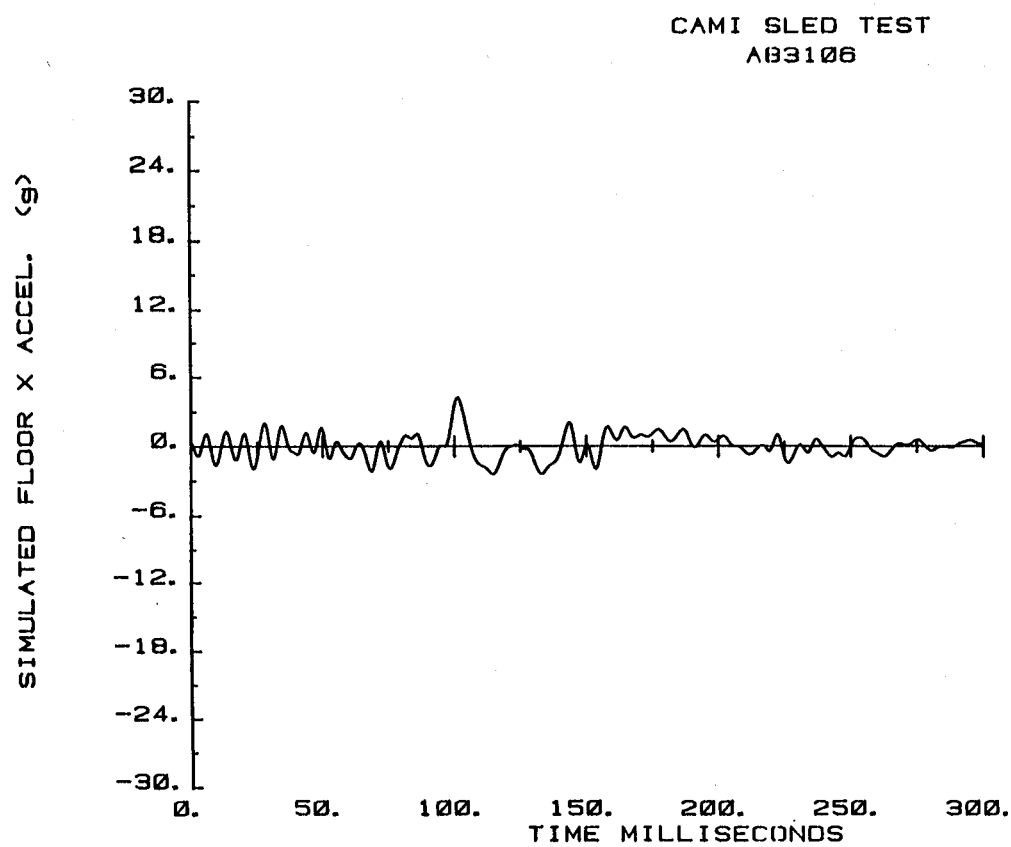
SEAT: Energy Absorbing

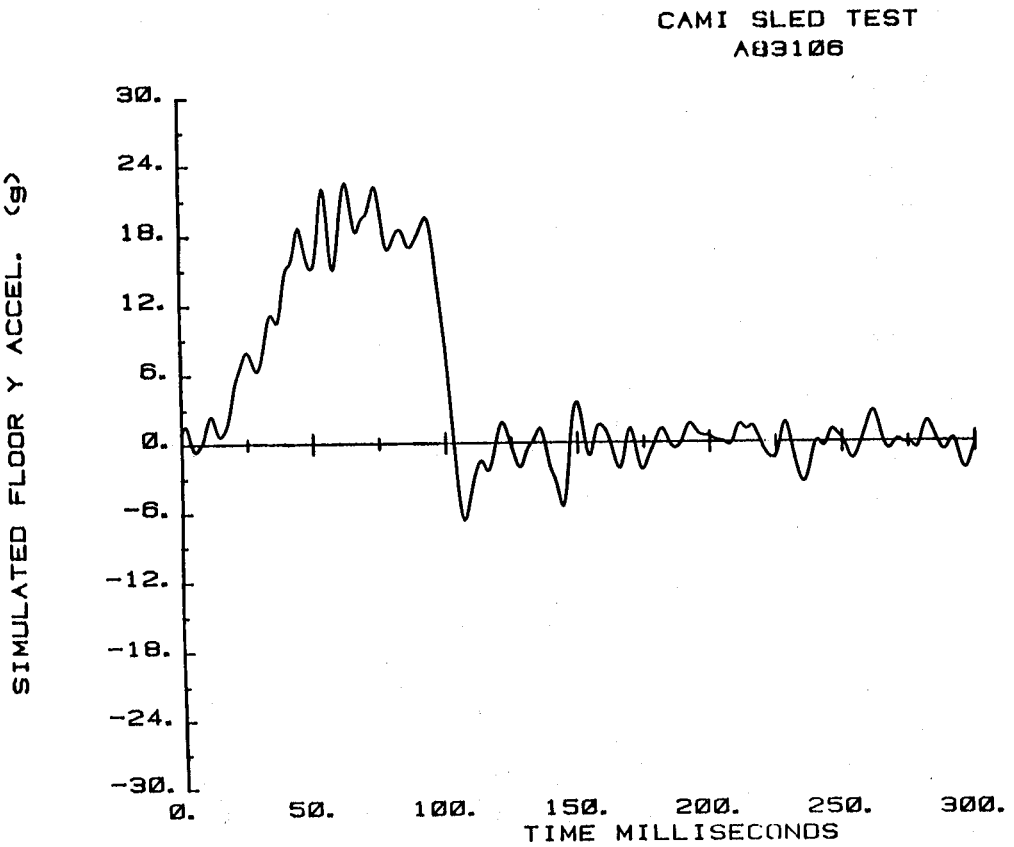
PULSE NUMBER: 4

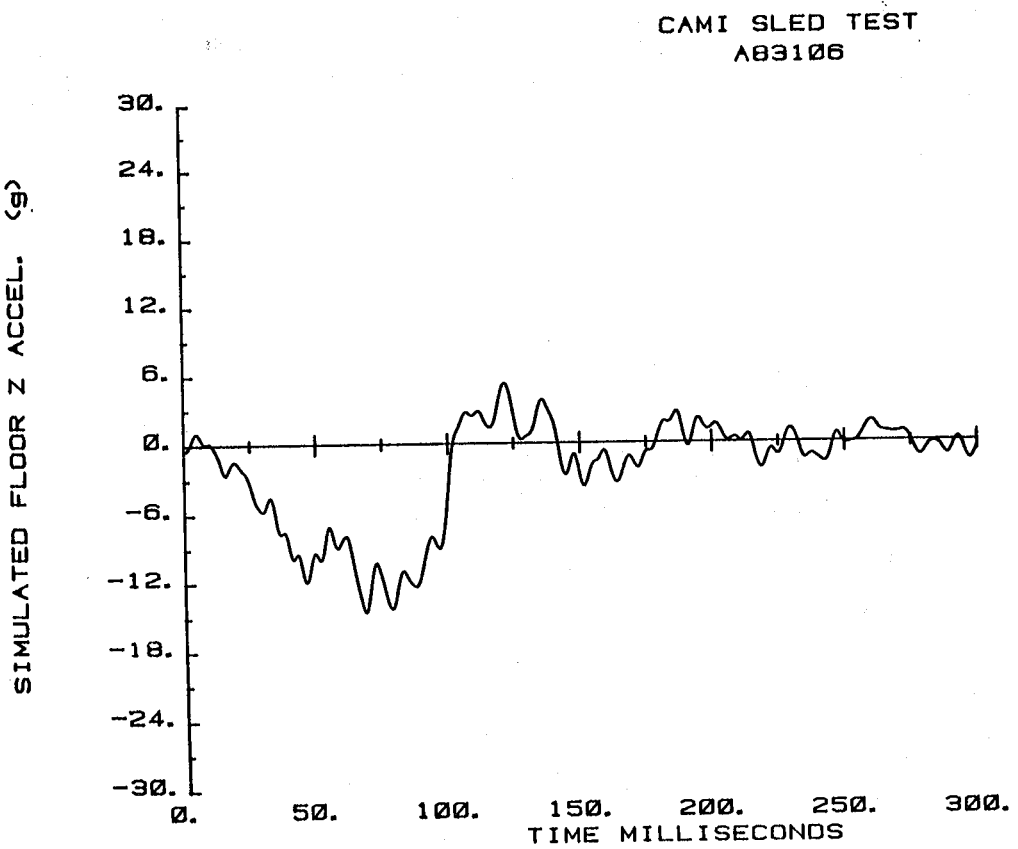
SEAT ORIENTATION: Pitch - 0°
Roll - 30°
Yaw - 90°

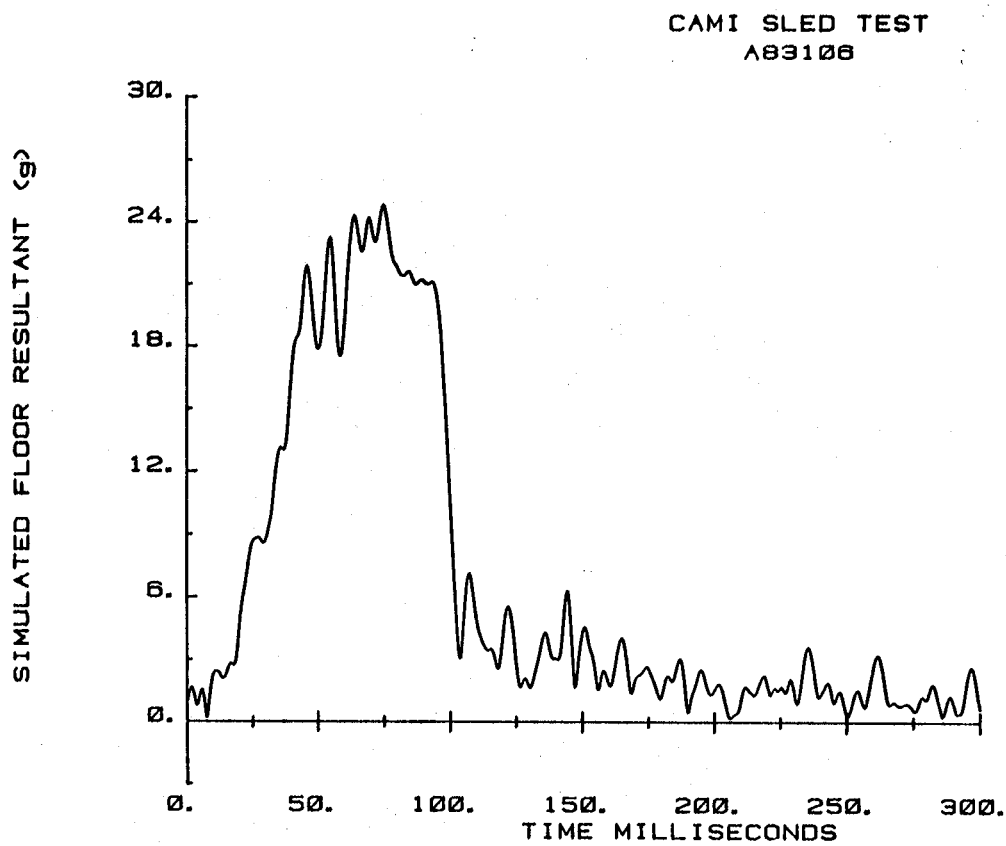
RUN#	V A R I A B L E		PEAK1	T	PEAK2	T	RANGE	FILE
A83106	SLED X ACCELERATION	(g)	-23.0	65	5.4	105	(0, 300)	* F10601
A83106	HEAD X ACCELERATION	(g)	10.3	69	-35.4	124	(0, 300)	* F10603
A83106	HEAD Y ACCELERATION	(g)	-5.9	113	27.5	128	(0, 300)	* F10604
A83106	HEAD Z ACCELERATION	(g)	-17.7	65	46.9	104	(0, 300)	* F10605
A83106	CHEST X ACCELERATION	(g)	-6.1	116	9.4	156	(0, 300)	* F10606
A83106	CHEST Y ACCELERATION	(g)	50.9	90	-16.4	125	(0, 300)	* F10607
A83106	CHEST Z ACCELERATION	(g)	-15.8	63	6.2	118	(0, 300)	* F10608
A83106	PELVIS X ACCELERATION	(g)	13.1	64	-13.0	104	(0, 300)	* F10609
A83106	PELVIS Y ACCELERATION	(g)	37.3	80			(0, 300)	* F10610
A83106	PELVIS Z ACCELERATION	(g)	-15.4	58	6.9	106	(0, 300)	* F10611
A83106	SIMULATED FLOOR X ACCEL.	(g)	4.2	101	-2.4	114	(0, 300)	* F10612
A83106	SIMULATED FLOOR Y ACCEL.	(g)	22.5	63	-6.6	107	(0, 300)	* F10613
A83106	SIMULATED FLOOR Z ACCEL.	(g)	-14.5	68	5.3	122	(0, 300)	* F10614
A83106	FOOT REST FORCE X	(lbs)	-668.0	78			(0, 300)	* F10615
A83106	FOOT REST FORCE Y	(lbs)	-1497.7	76	356.3	150	(0, 300)	* F10616
A83106	FOOT REST FORCE Z	(lbs)	618.1	81	-456.2	112	(0, 300)	* F10617
A83106	LEFT SHOULDER FORCE	(lbs)	1131.6	100			(0, 300)	* F10618
A83106	RIGHT SHOULDER FORCE	(lbs)	159.9	123			(0, 300)	* F10619
A83106	SEAT BACK Z ACCELERATION	(g)	-20.9	84	7.7	104	(0, 300)	* F10620
A83106	SEAT PAN X ACCELERATION	(g)	7.3	22	-5.9	108	(0, 300)	* F10621
A83106	SEAT PAN Y ACCELERATION	(g)	26.9	65	-12.7	108	(0, 300)	* F10622
A83106	SEAT PAN Z ACCELERATION	(g)	-21.1	84	7.3	108	(0, 300)	* F10623
A83106	SEAT DEFLECTION	(inches)	.2	66	-.1	195	(0, 300)	* F10624
A83106	PELVIC FORCE X	(lbs)	-328.8	83			(0, 300)	* F10625
A83106	PELVIC FORCE Y	(lbs)	-540.0	100	109.5	166	(0, 300)	* F10626
A83106	PELVIC FORCE Z	(lbs)	950.0	68			(0, 300)	* F10627
A83106	PELVIC MOMENT X	(in-lbs)	-2675.6	82			(0, 300)	* F10628
A83106	PELVIC MOMENT Y	(in-lbs)	1187.1	93	-284.8	175	(0, 300)	* F10629
A83106	PELVIC MOMENT Z	(in-lbs)	-516.8	114	218.5	297	(0, 300)	* F10630
A83106	LEFT LAP FORCE	(lbs)	86.5	82	-24.6	112	(0, 300)	* F10631
A83106	RIGHT LAP FORCE	(lbs)	740.7	103			(0, 300)	* F10632
A83106	LEFT REFLECTIVE STRAP FORCE	(lbs)	1883.4	95			(0, 300)	* F10633
A83106	RIGHT REFLECTIVE STRAP FORCE	(lbs)	115.7	124			(0, 300)	* F10634
A83106	HEAD RESULTANT	(g)	52.9	103			(0, 300)	* V10601
A83106	CHEST RESULTANT	(g)	52.1	90			(0, 300)	* V10602
A83106	PELVIS RESULTANT	(g)	38.1	80			(0, 300)	* V10603
A83106	SIMULATED FLOOR RESULTANT	(g)	24.8	74			(0, 300)	* V10604
A83106	FOOT REST FORCE RESULTANT	(lbs)	1683.9	76			(0, 300)	* V10605
A83106	SEAT PAN RESULTANT	(g)	32.8	84			(0, 300)	* V10606
A83106	PELVIC FORCE RESULTANT	(lbs)	1020.0	69			(0, 300)	* V10607
A83106	PELVIC MOMENT RESULTANT	(in-lbs)	2930.3	93			(0, 300)	* V10608
A83106	LAP LOOP FORCE	(lbs)	742.4	103			(0, 300)	* A10652
PELVIS DRI			**14.8**	**88**				
SEAT BACK DRI			**17.3**	**95**				
SEAT PAN DRI			**18.9**	**95**				

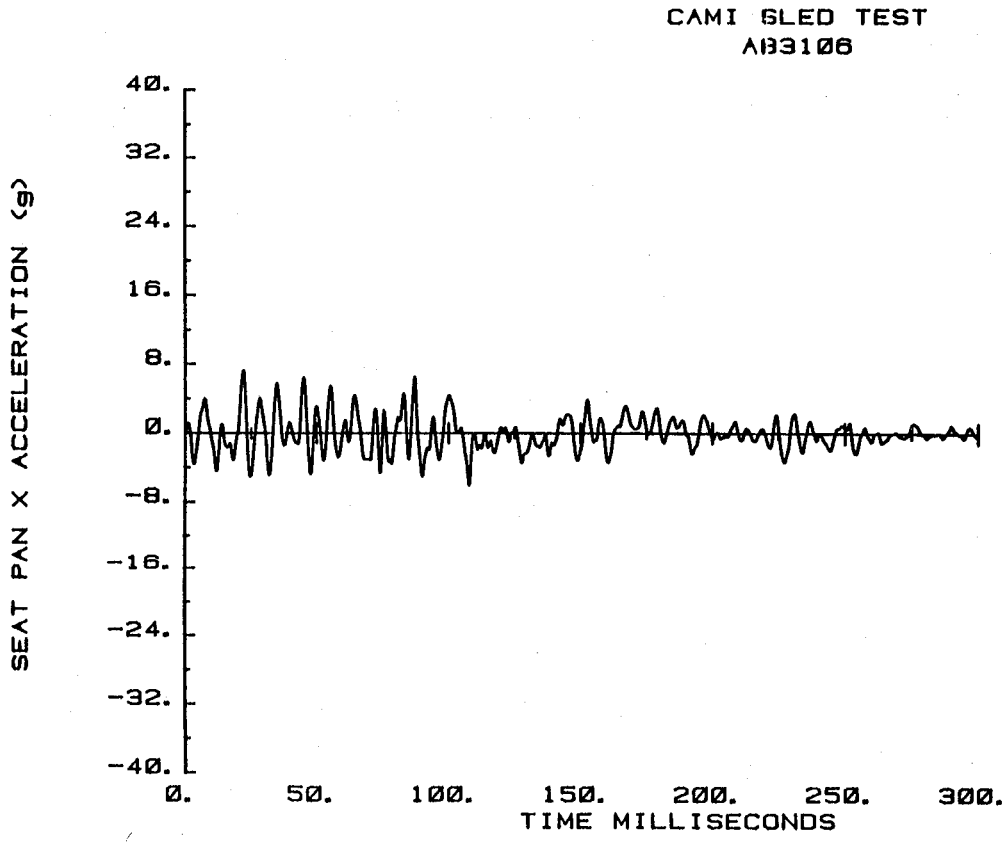

CAMI SLED TEST
A83106
SLED X ACCELERATION (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

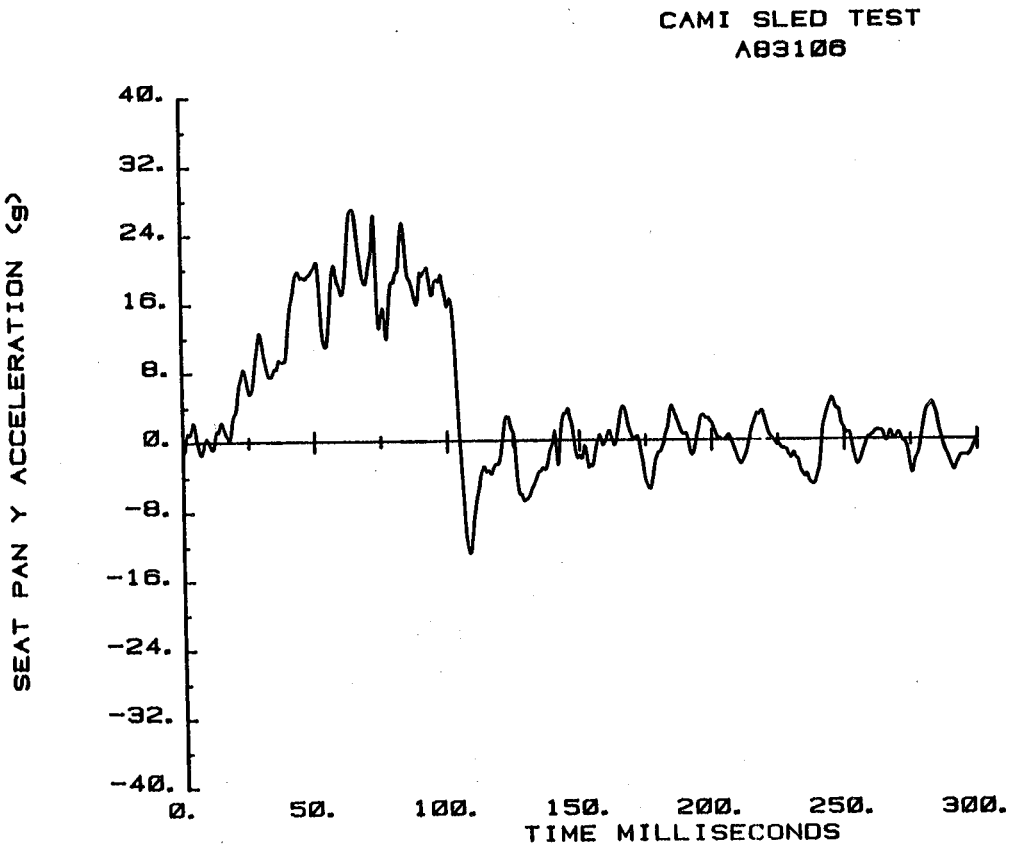

CAMI SLED TEST
A83106
SIMULATED FLOOR X ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

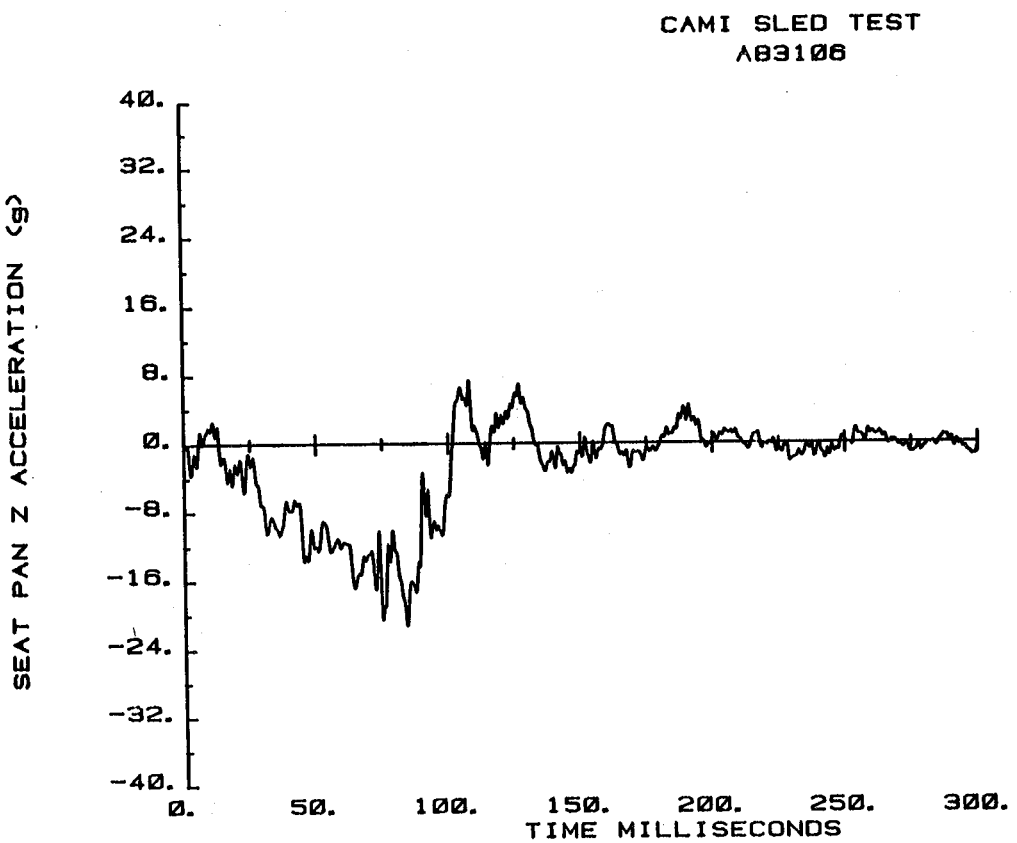

CAMI SLED TEST
A83106
SIMULATED FLOOR Y ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

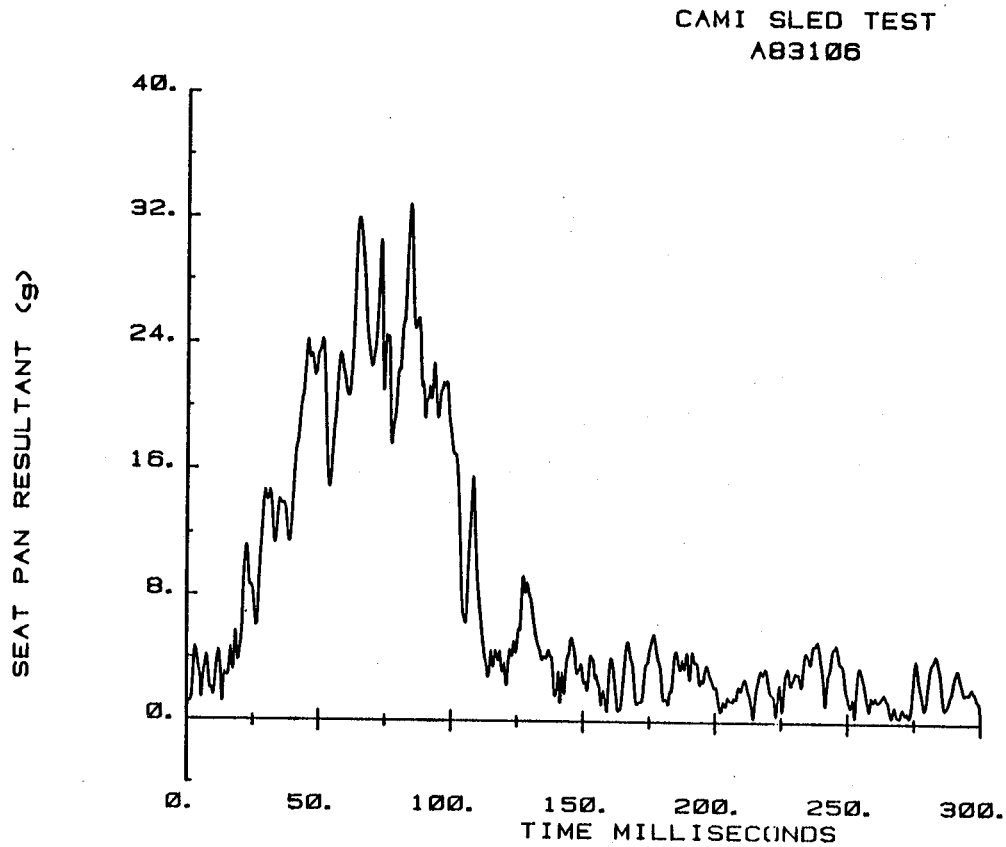

CAMI SLED TEST
A83106
SIMULATED FLOOR Z ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

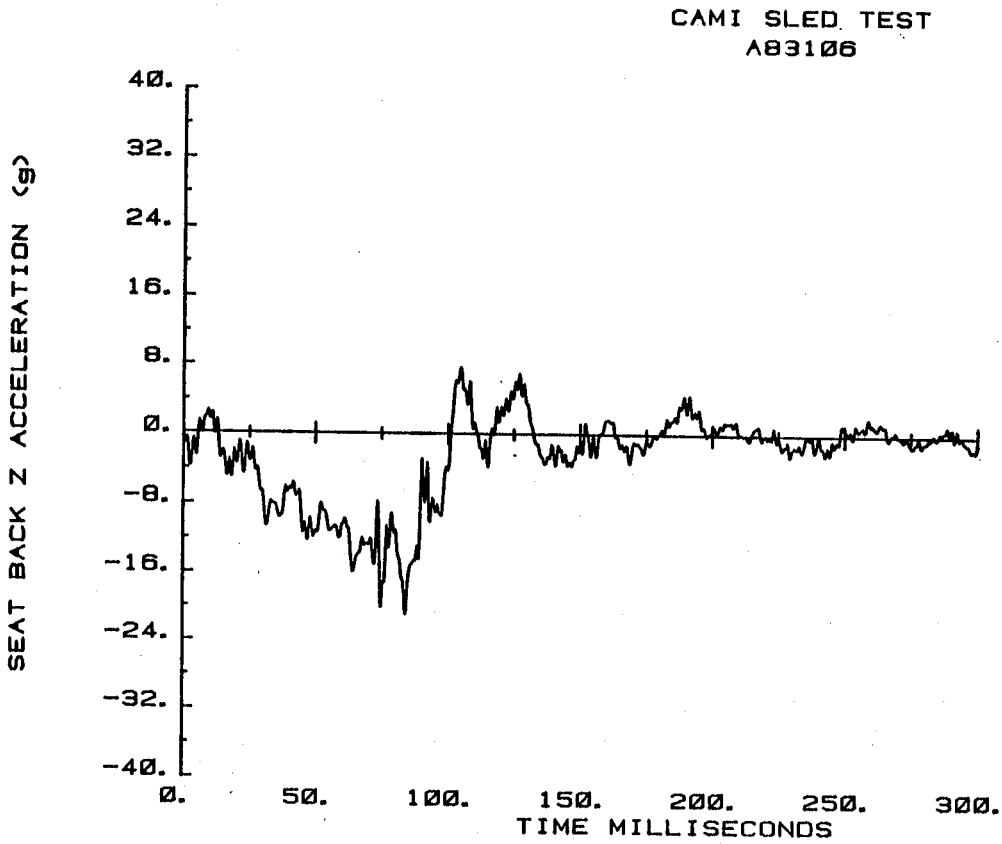

CAMI SLED TEST
A83106
SIMULATED FLOOR RESULTANT (g)
30.
24.
18.
12.
6.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

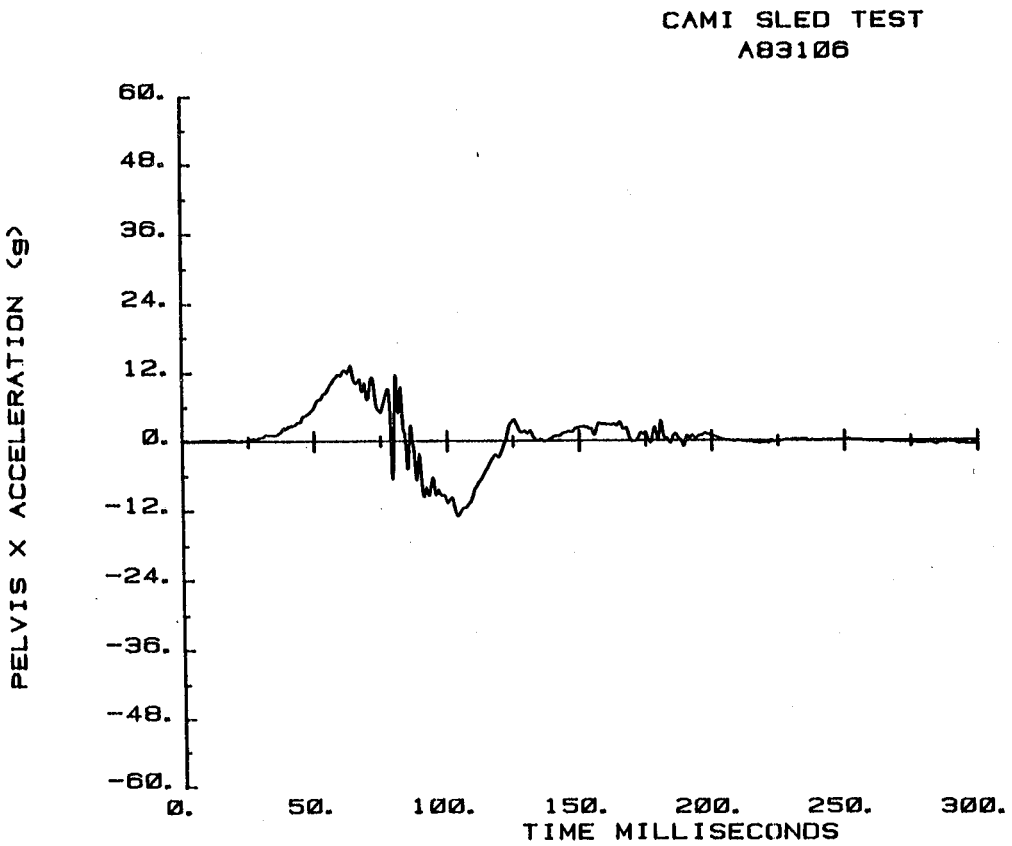

CAMI SLED TEST
A83106
SEAT PAN X ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

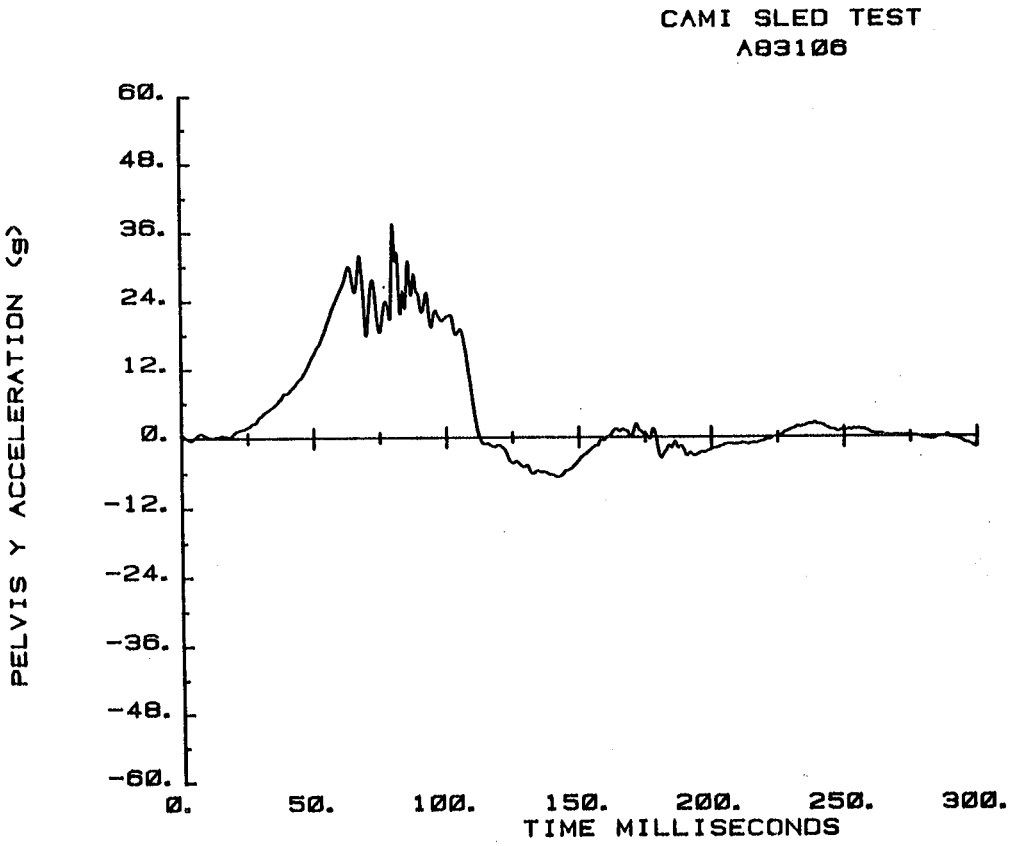

CAMI SLED TEST
A83106
SEAT PAN Y ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

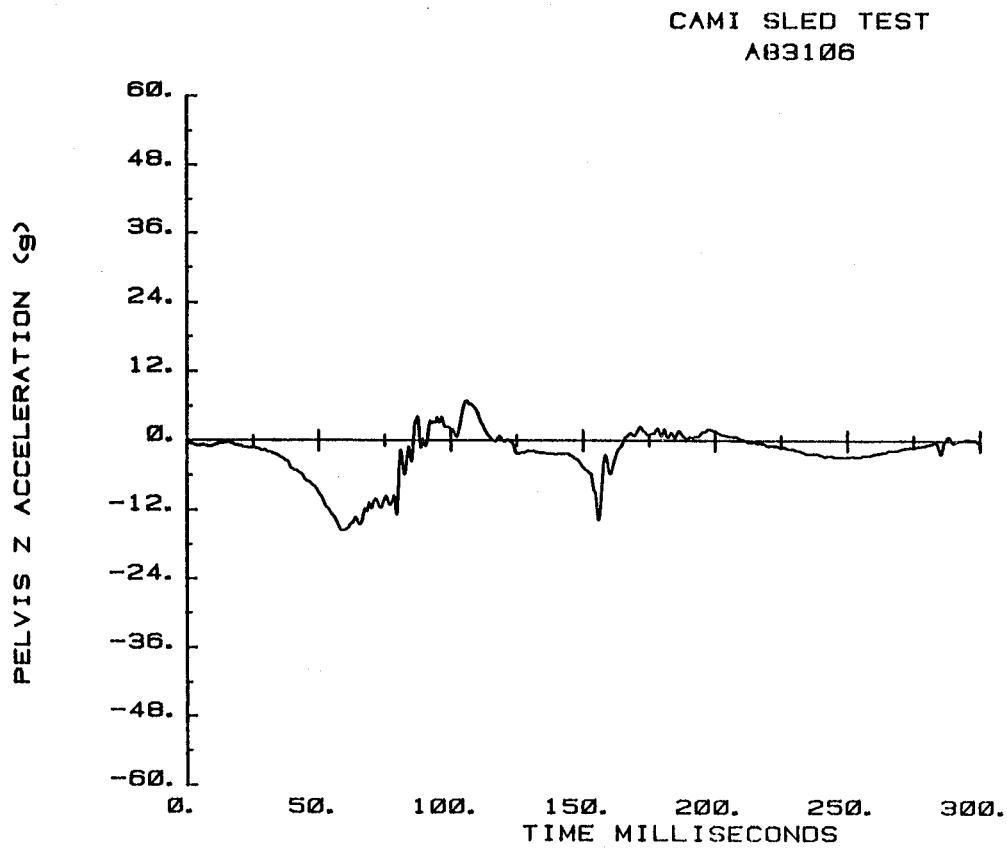

CAMI SLED TEST
A83106
SEAT PAN Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

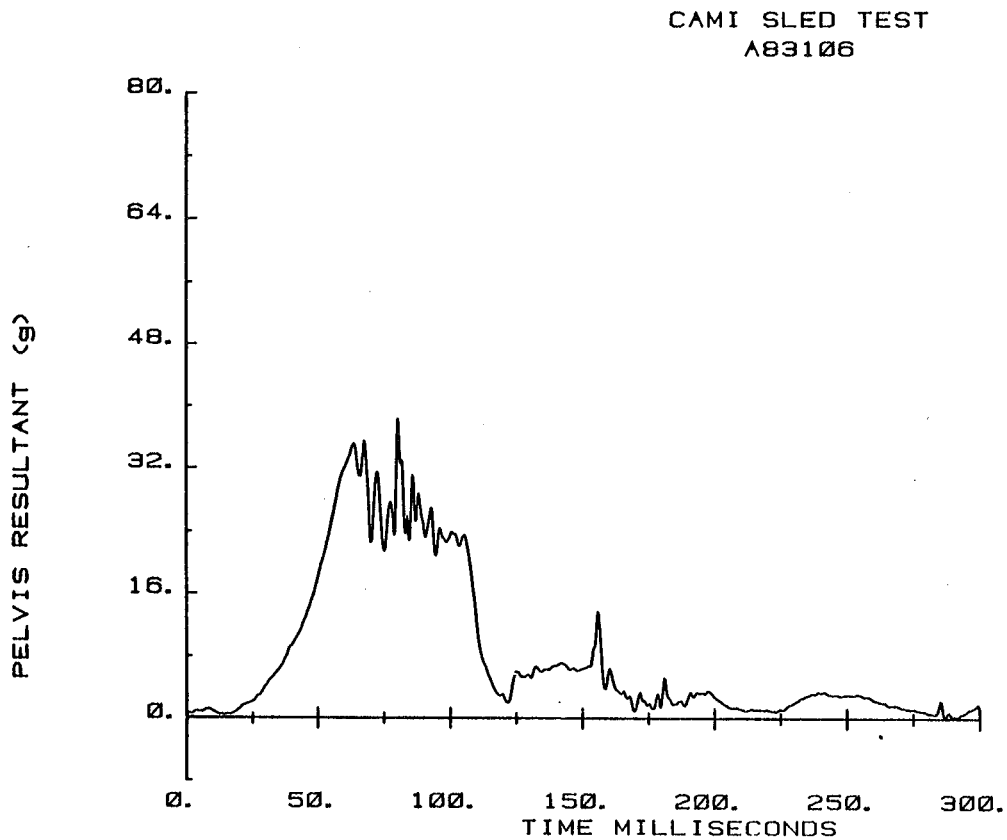

CAMI SLED TEST
A83106
SEAT PAN RESULTANT (g)
40.
32.
24.
16.
8.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

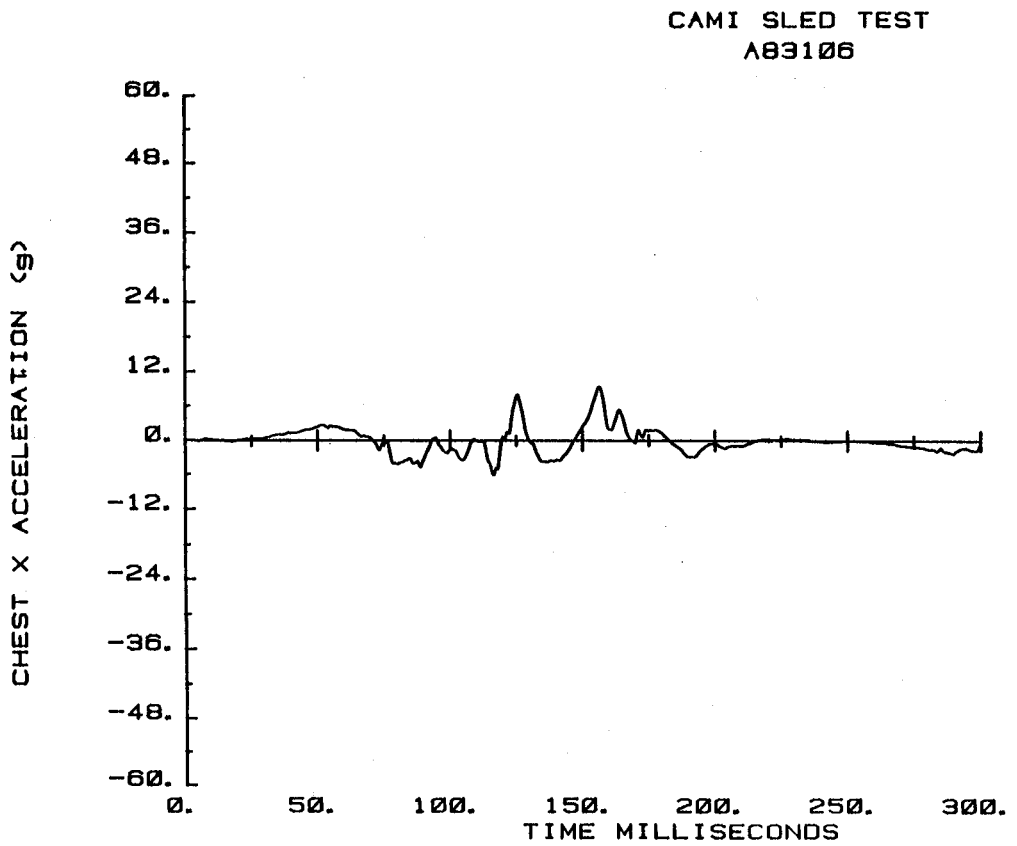

CAMI SLED TEST
A83106
SEAT BACK Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

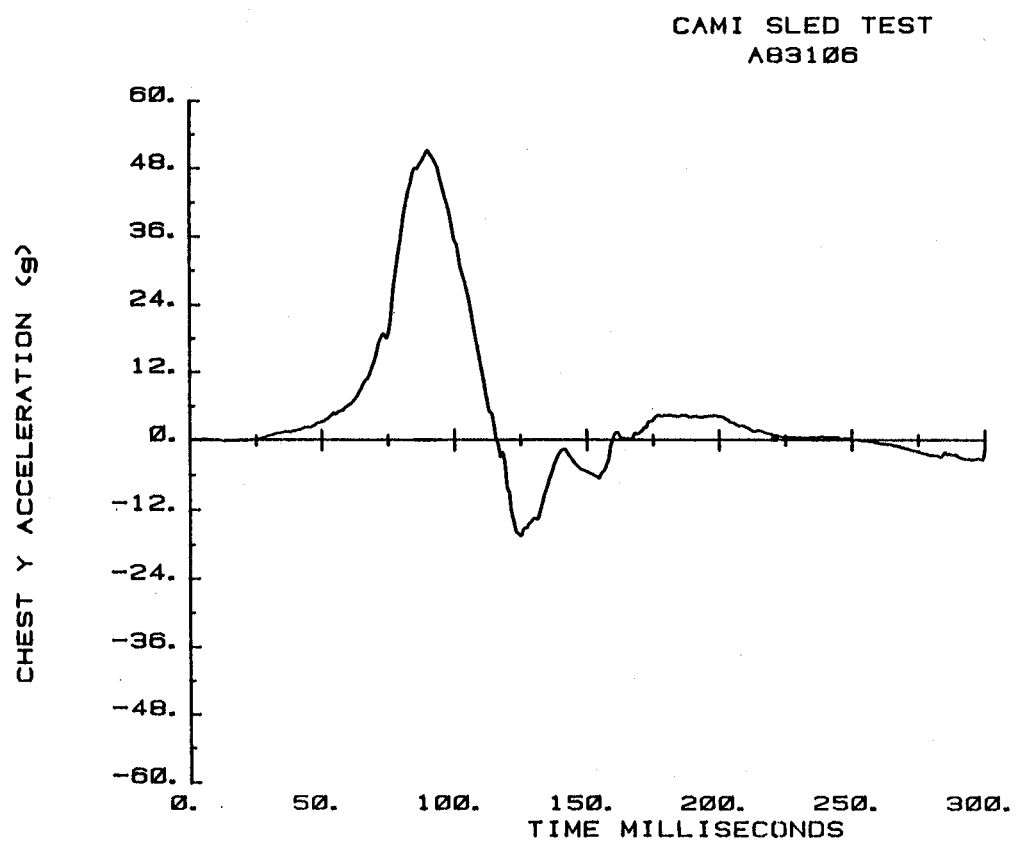

CAMI SLED TEST
A83106
PELVIS X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

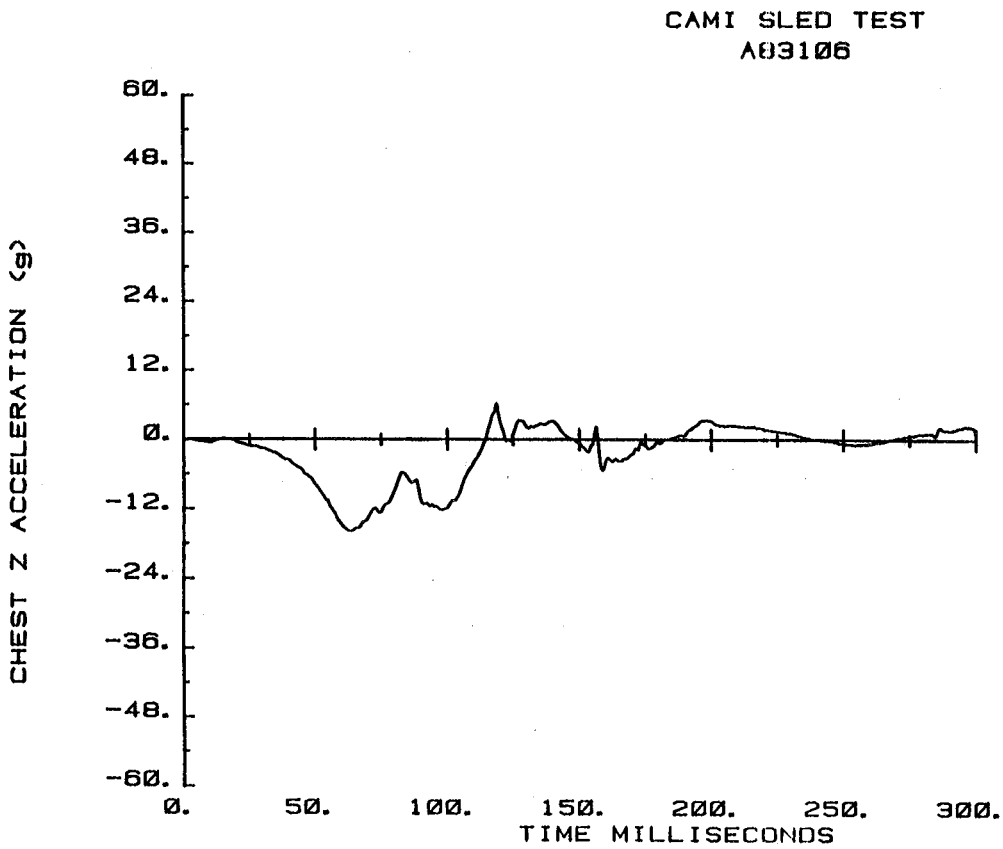

CAMI SLED TEST
A83106
PELVIS Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

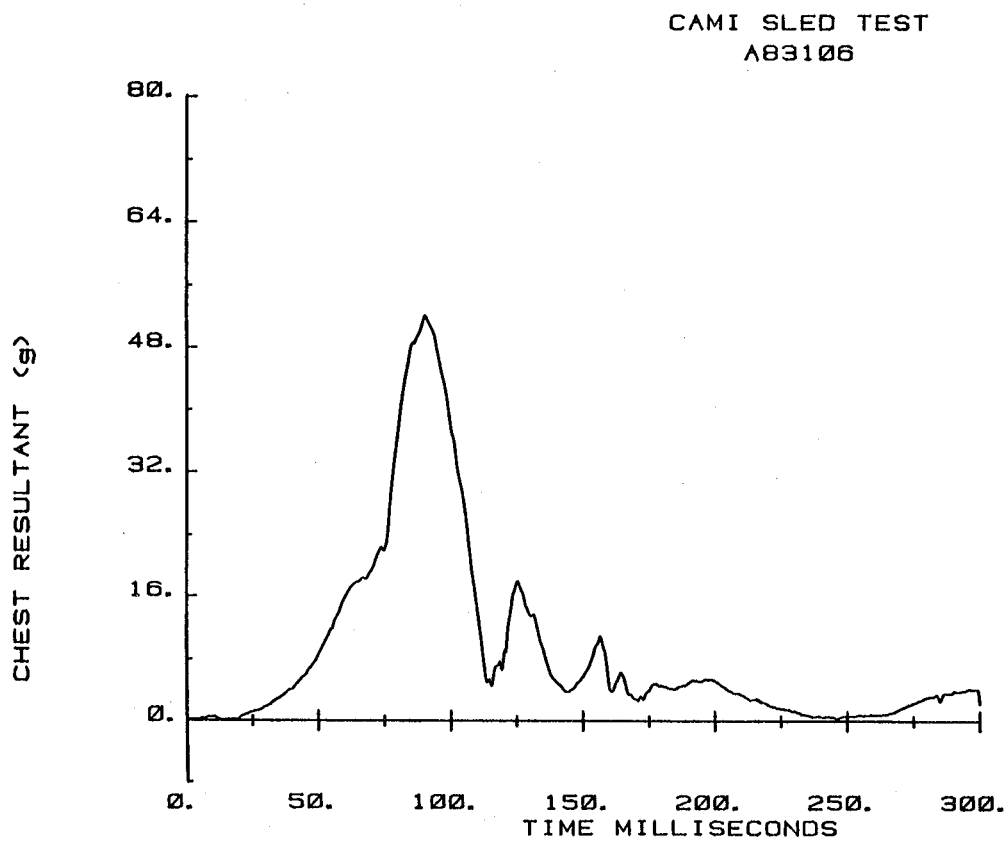

CAMI SLED TEST
A83106
PELVIS Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

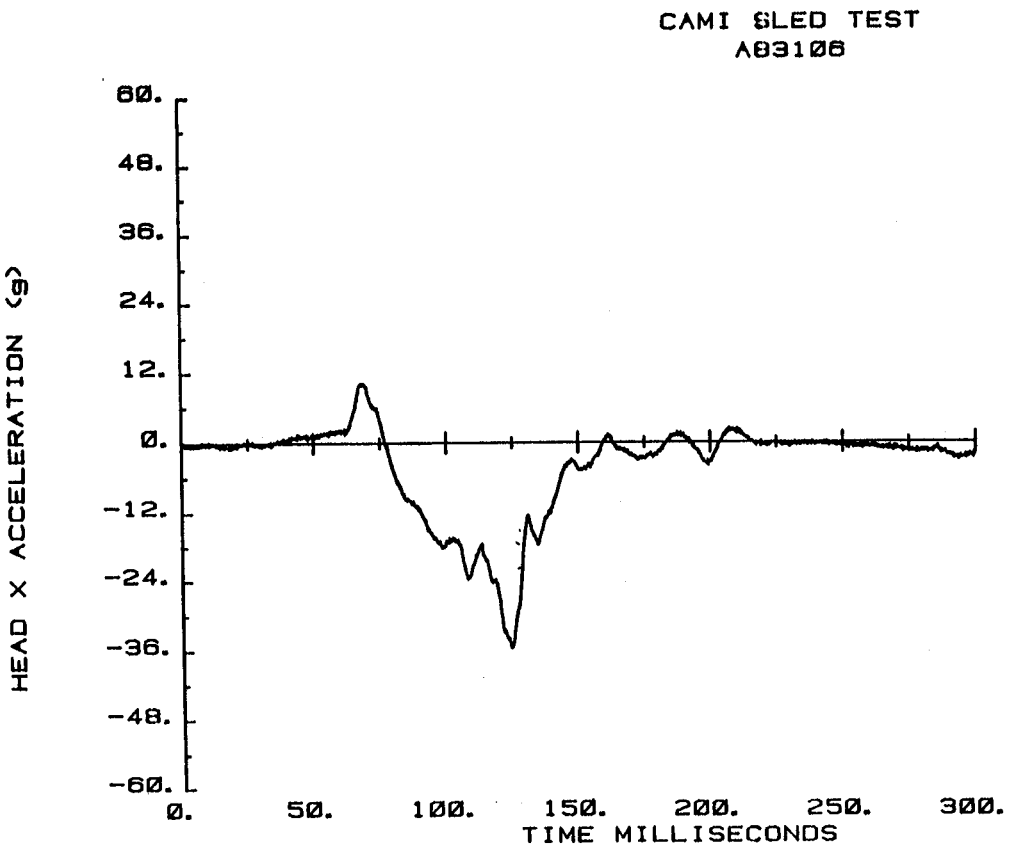

CAMI SLED TEST
A83106
PELVIS RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

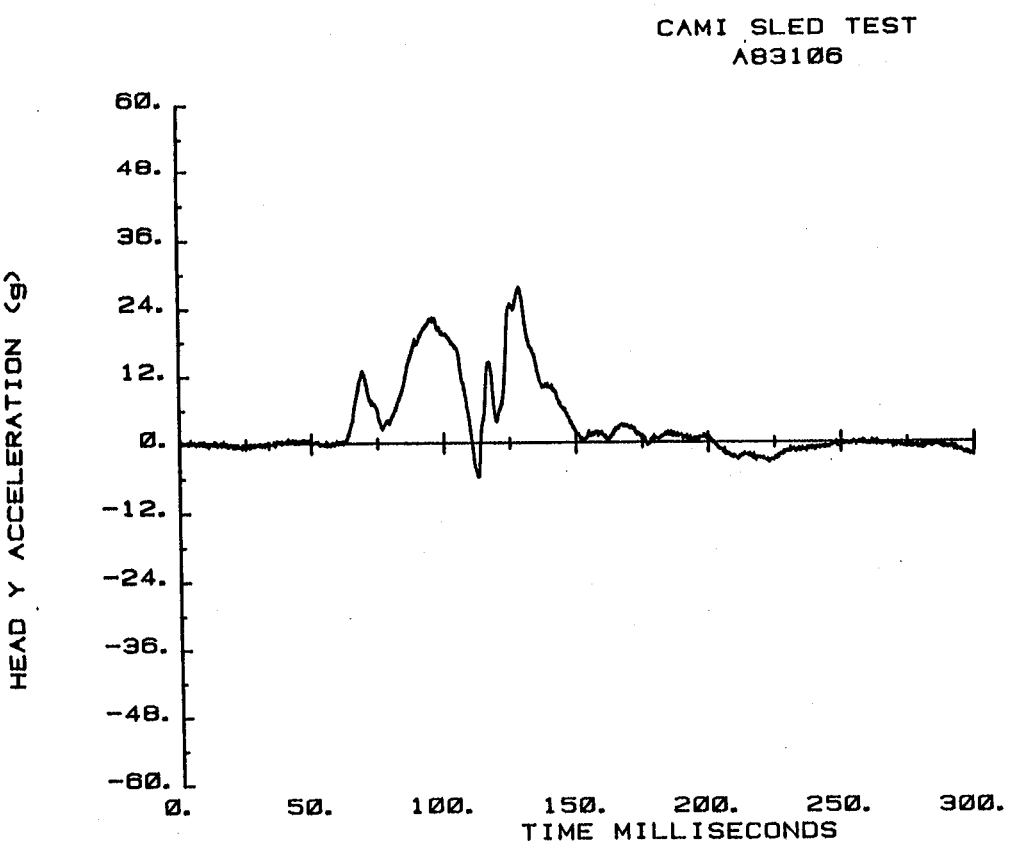

CAMI SLED TEST
A83106
CHEST X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

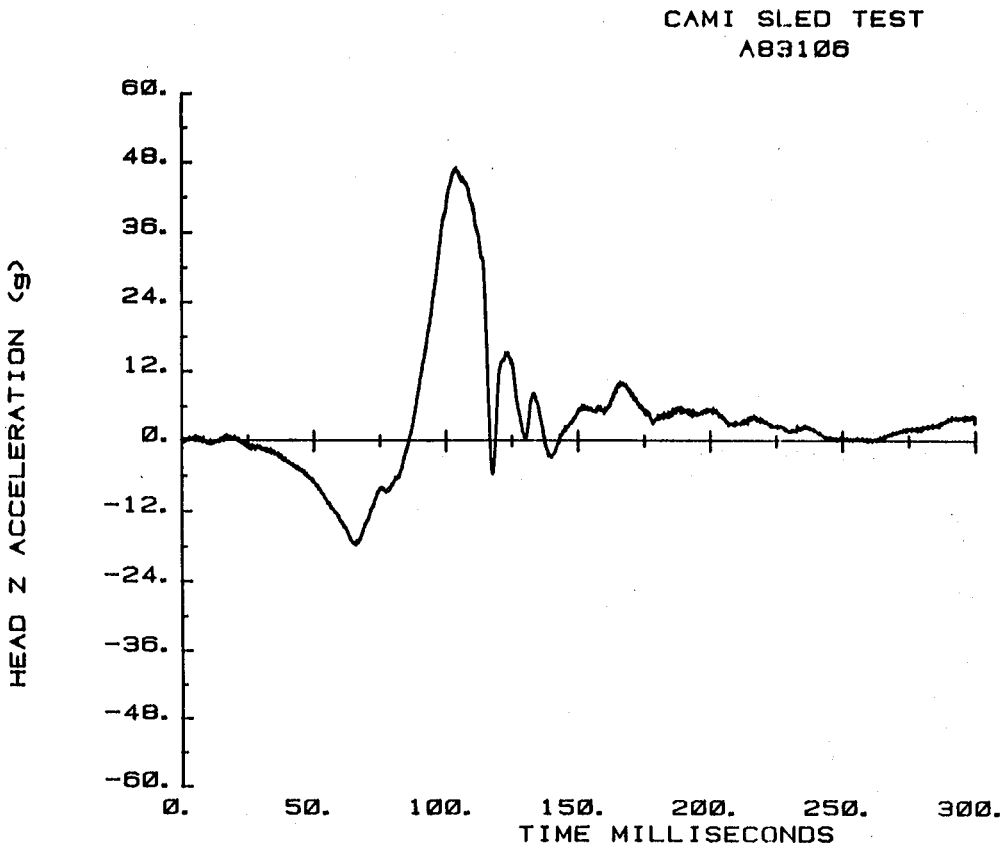

CAMI SLED TEST
A83106
CHEST Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

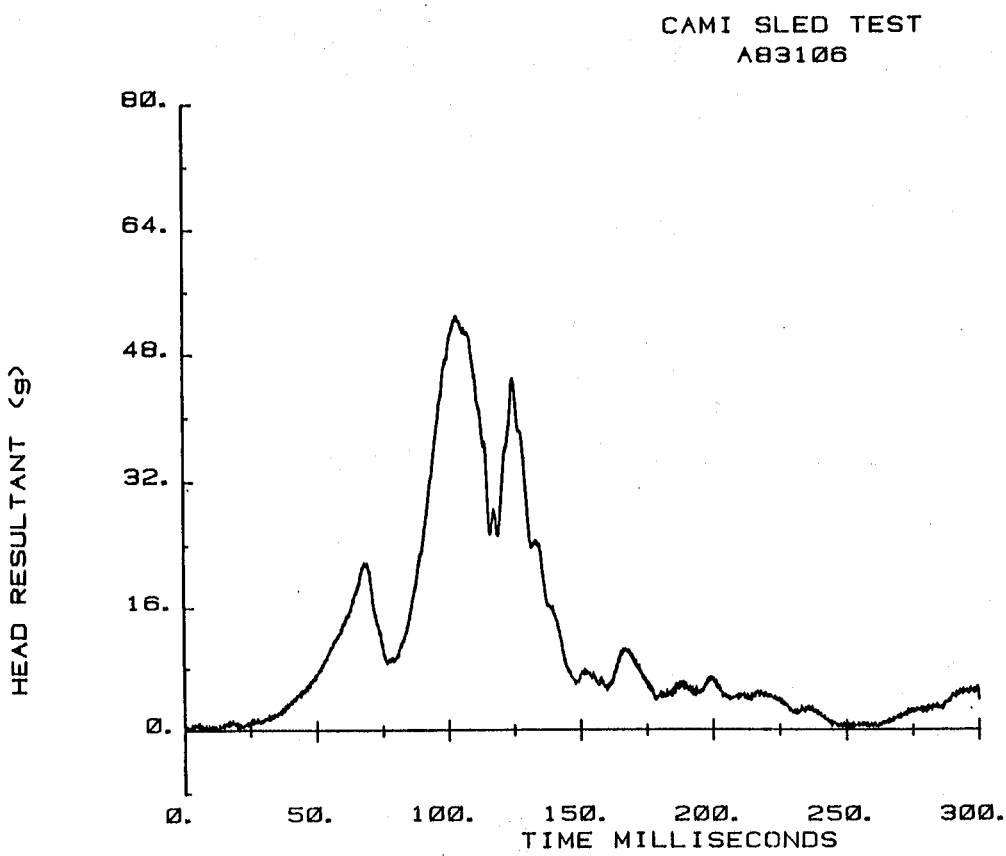

CAMI SLED TEST
A83106
CHEST Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

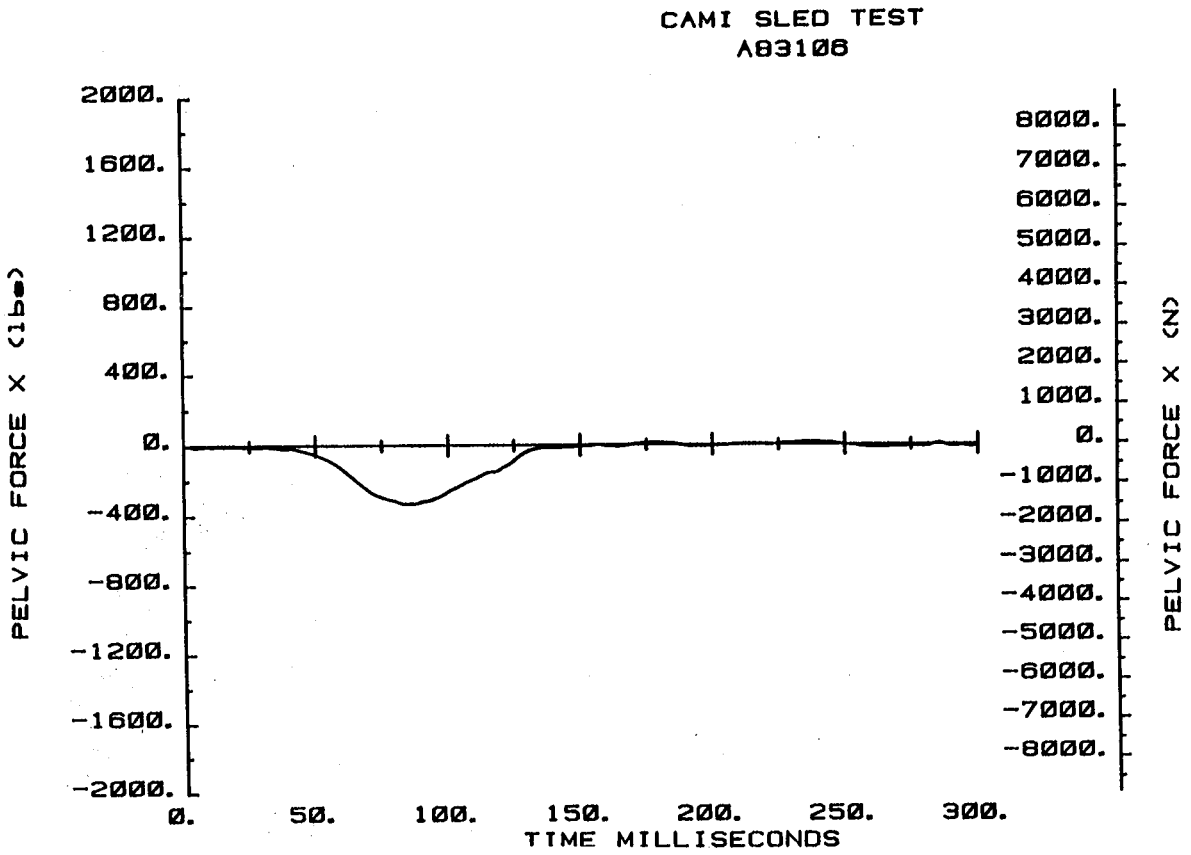

CAMI SLED TEST
A83106
CHEST RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

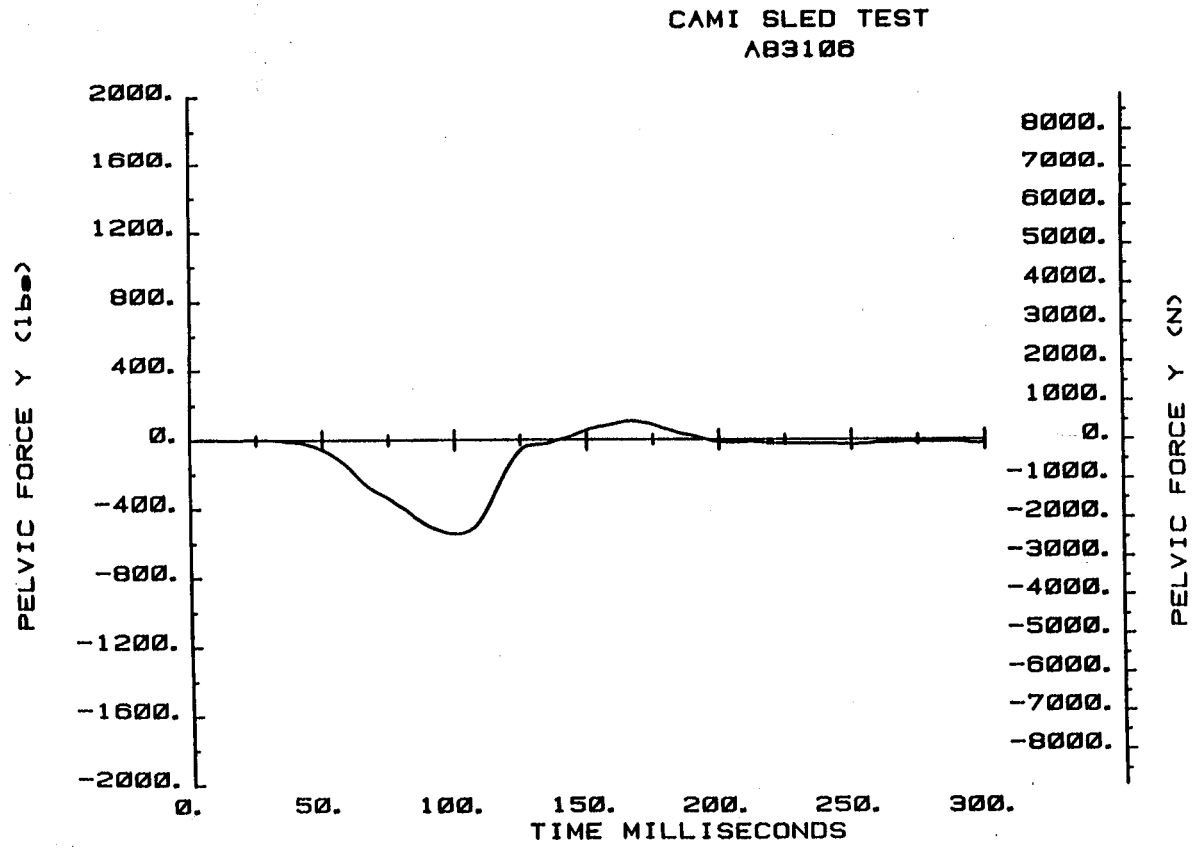

CAMI SLED TEST
A83106
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
HEAD X ACCELERATION (g)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

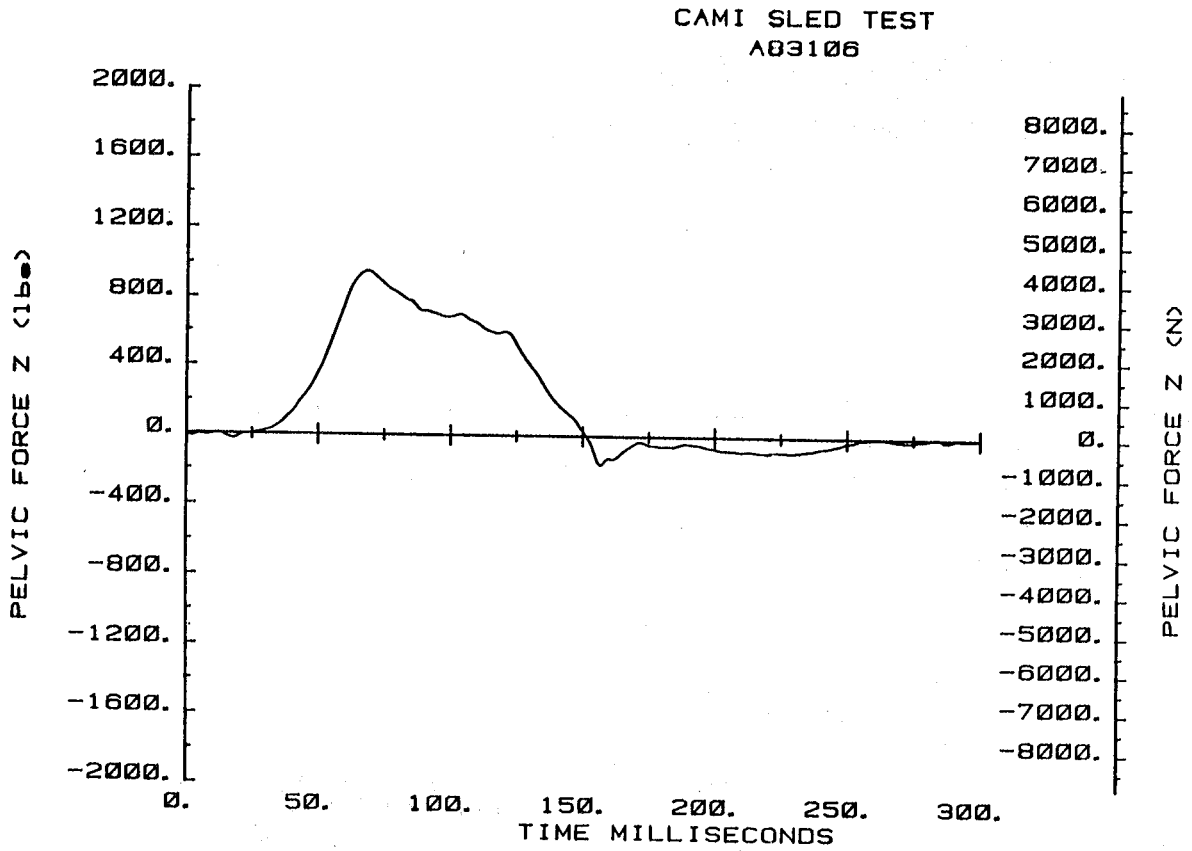

CAMI SLED TEST
A83106
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
HEAD Y ACCELERATION (g)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

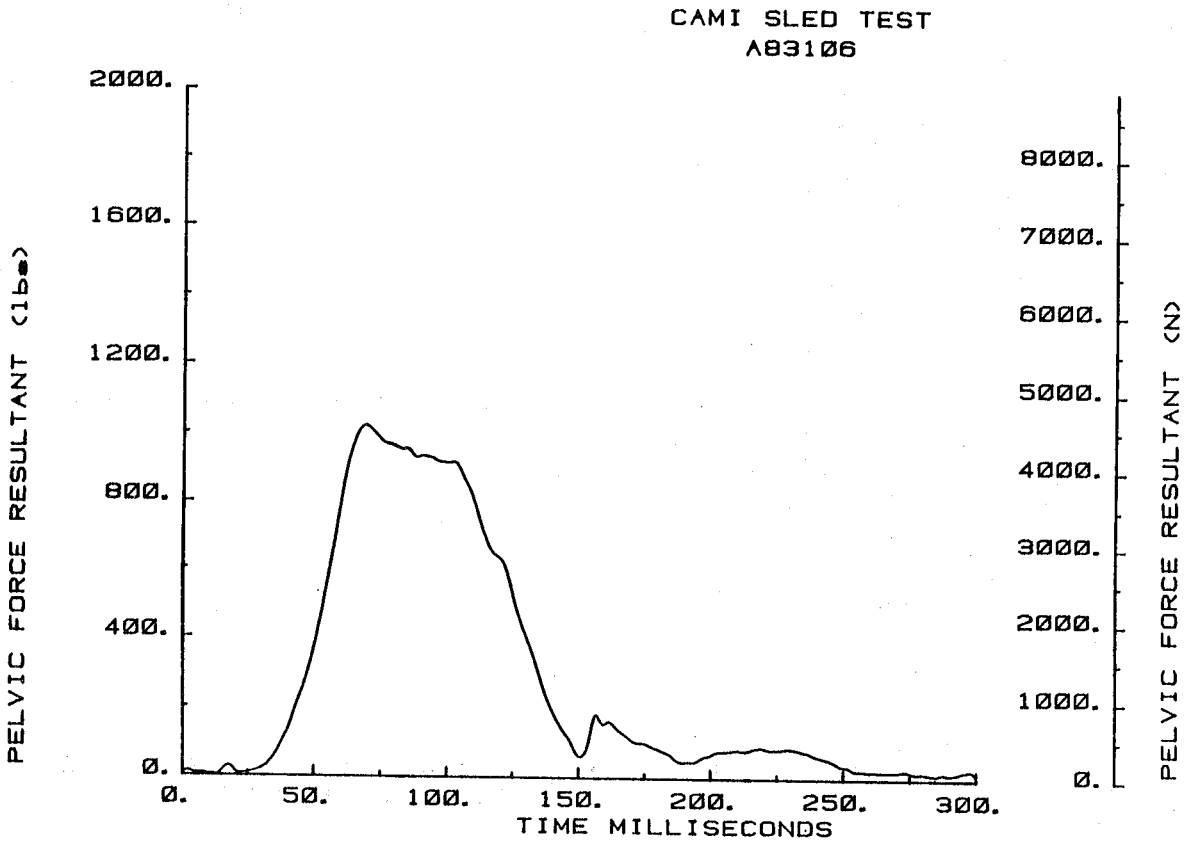

CAMI SLED TEST
A83106
HEAD Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

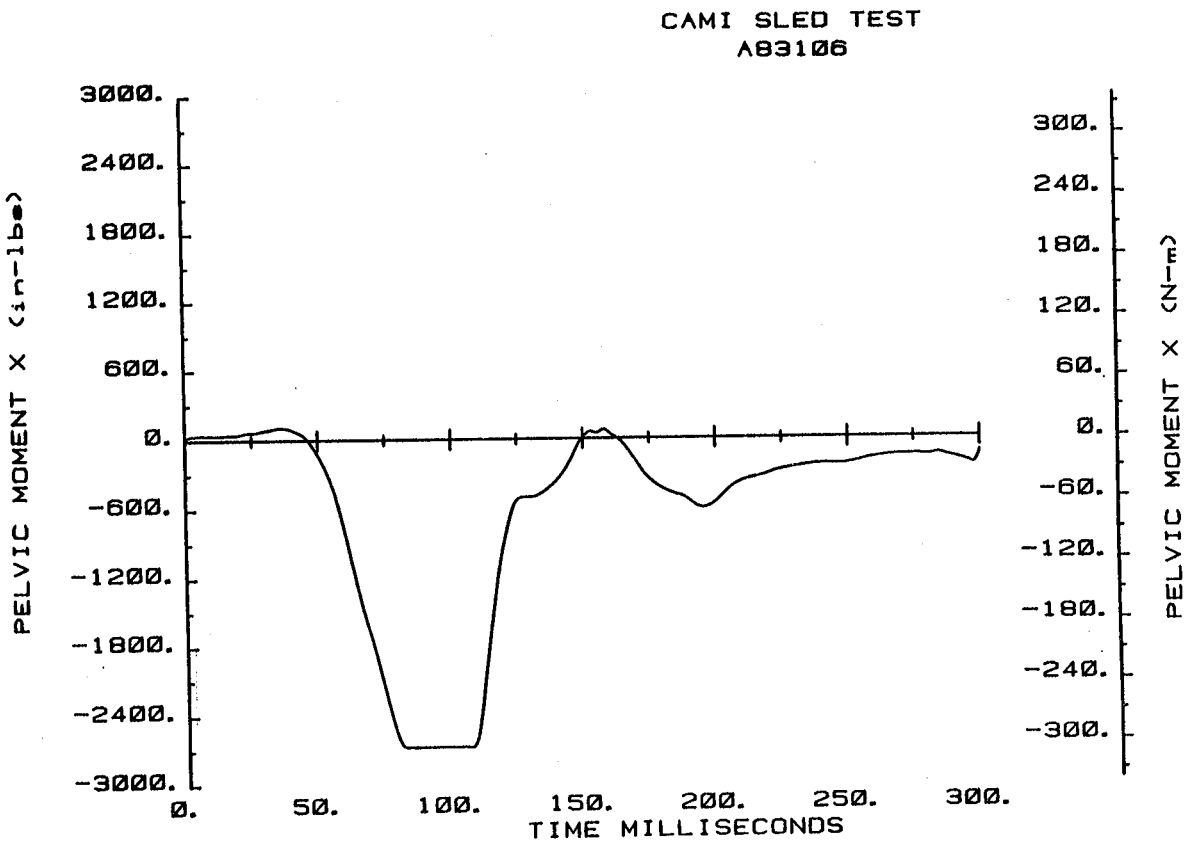

CAMI SLED TEST
A83106
HEAD RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

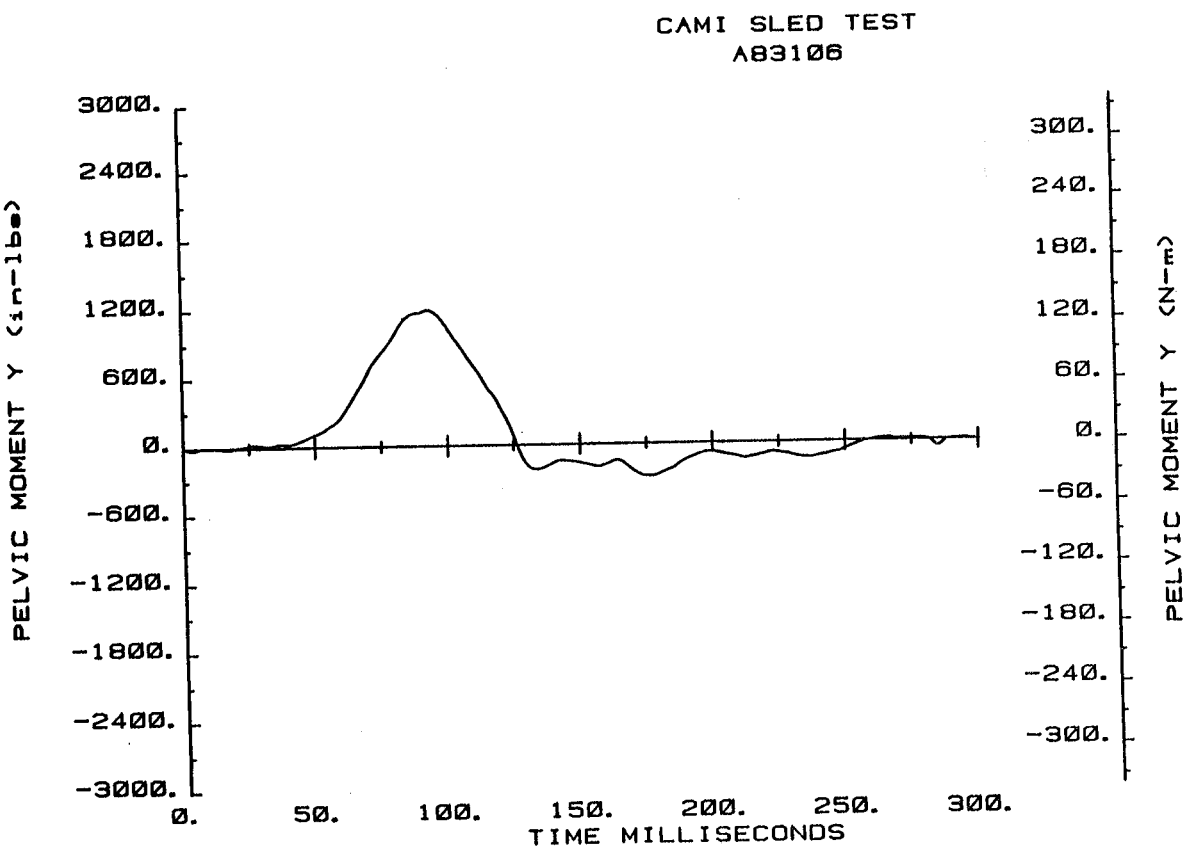

CAMI SLED TEST
A83106
PELVIC FORCE X (lbs)
PELVIC FORCE X (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

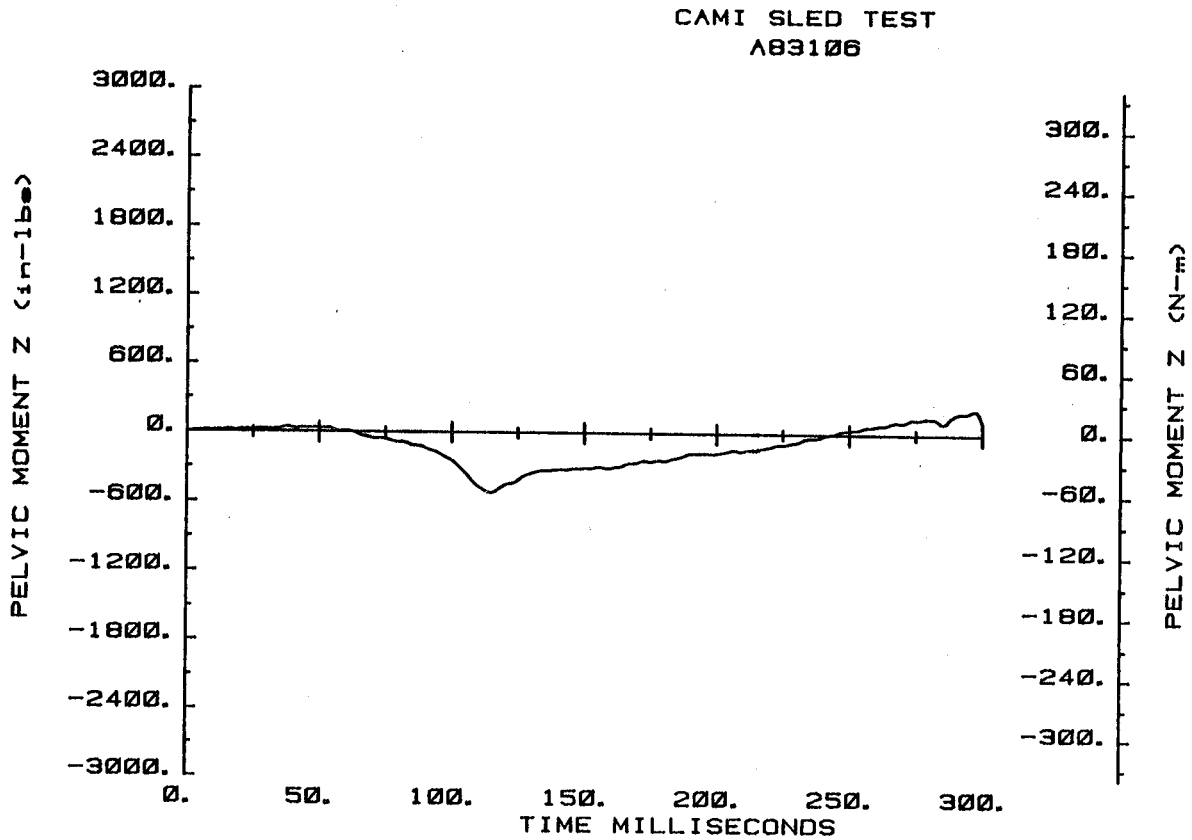

CAMI SLED TEST
A83106
PELVIC FORCE Y (lbs)
PELVIC FORCE Y (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

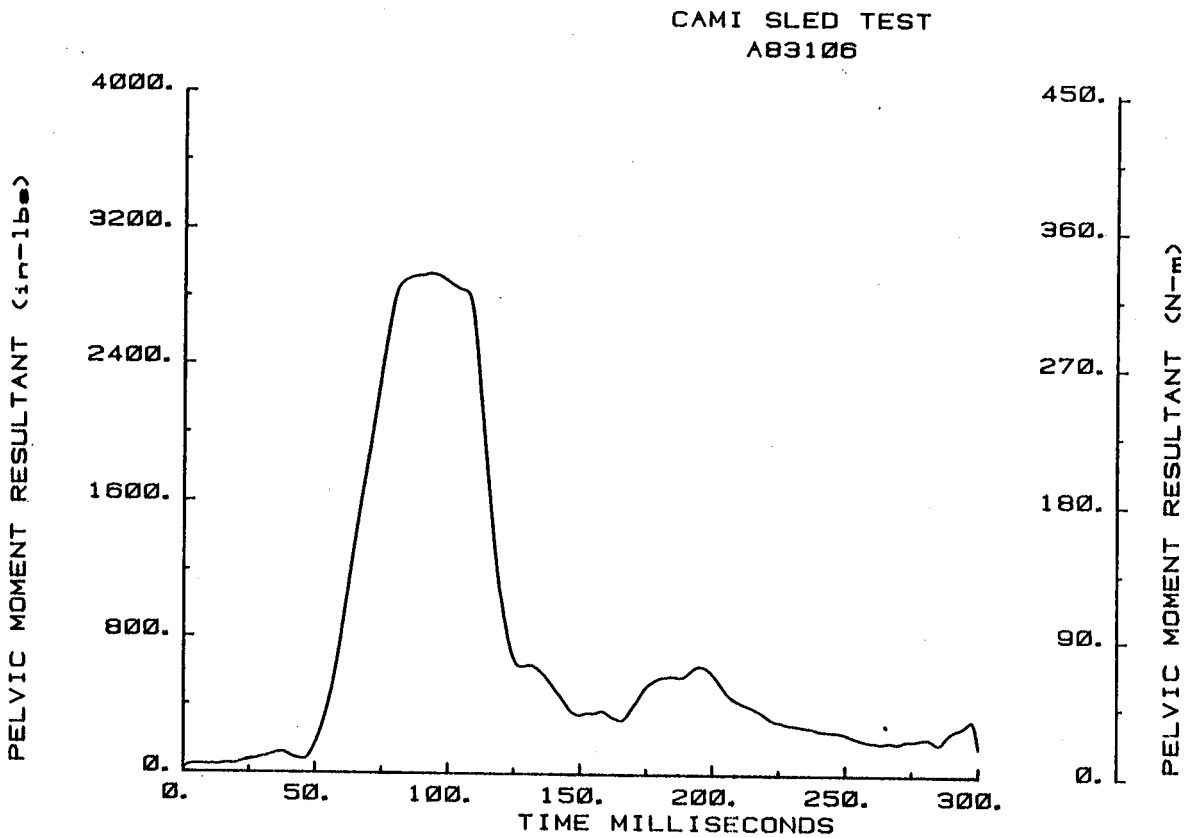

CAMI SLED TEST
A03106
PELVIC FORCE Z (lbs)
PELVIC FORCE Z (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

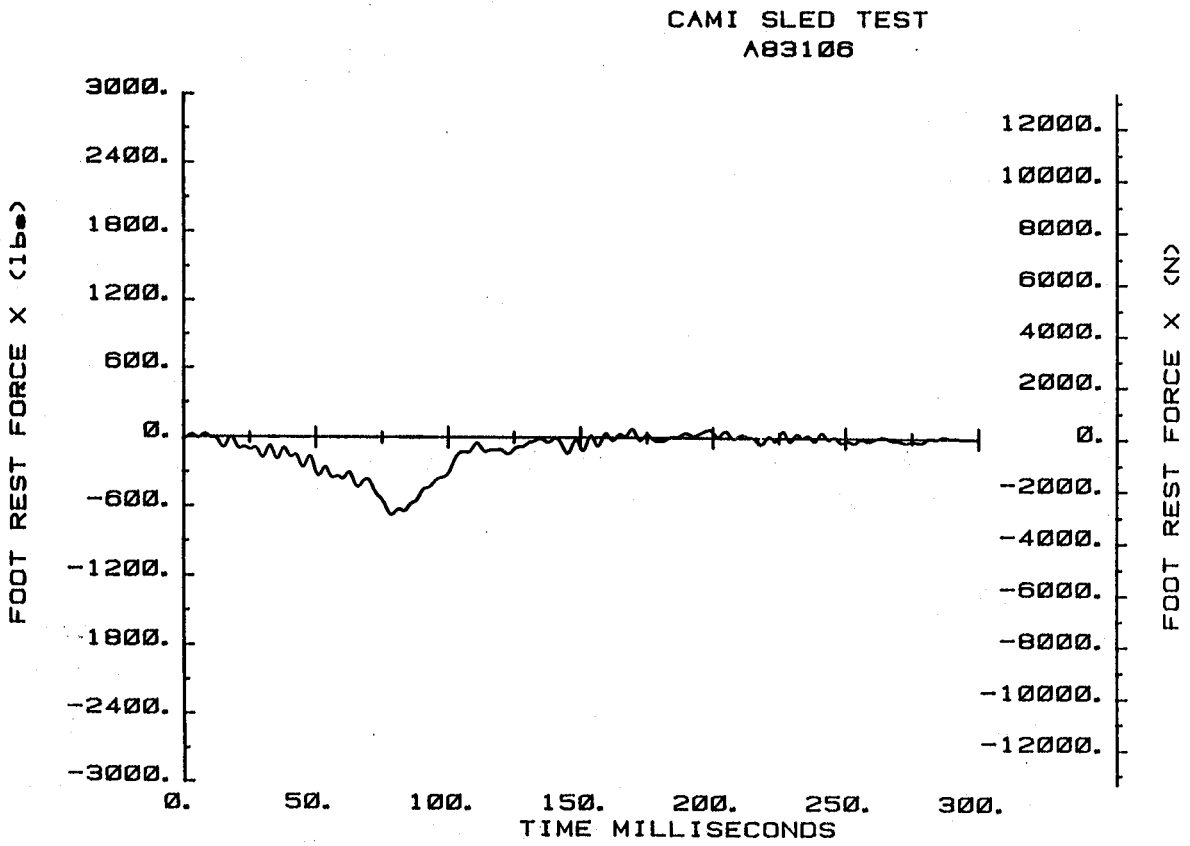

CAMI SLED TEST
A03106
PELVIC FORCE RESULTANT (lbs)
PELVIC FORCE RESULTANT (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

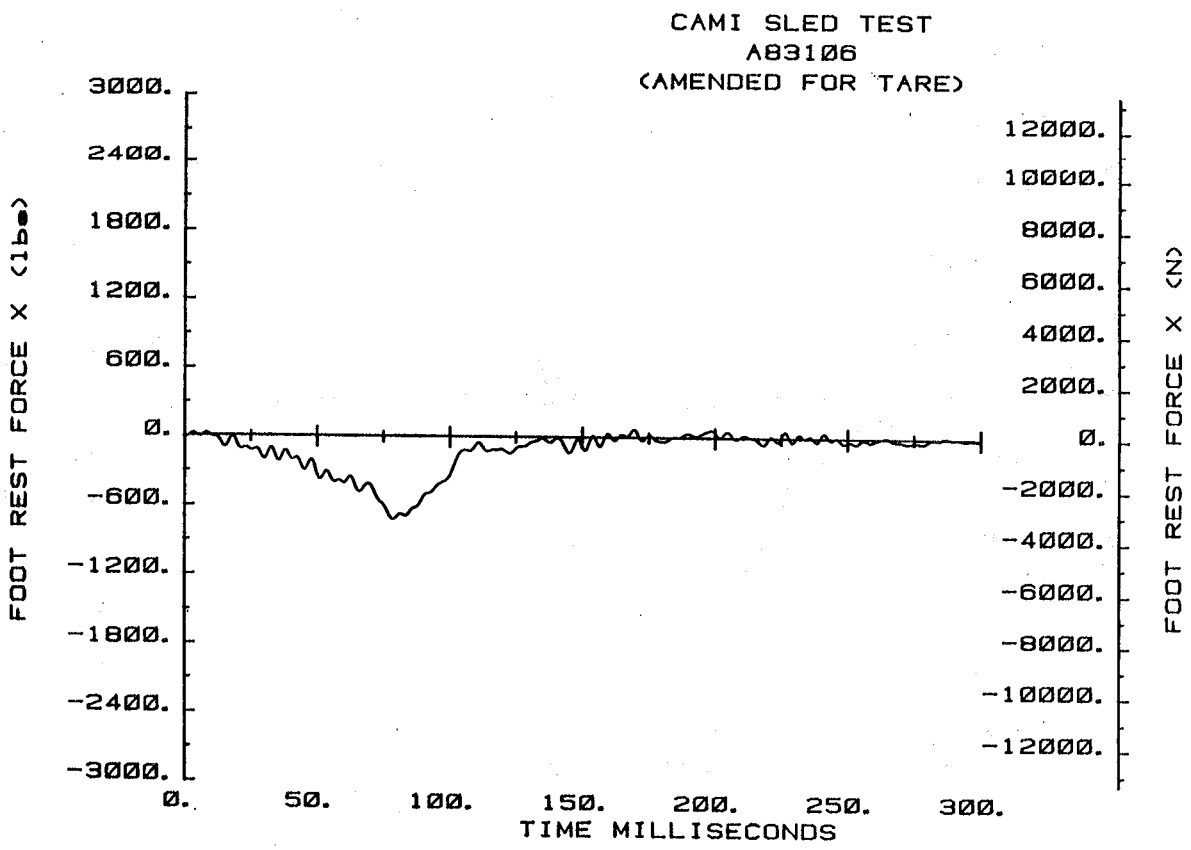

CAMI SLED TEST
A83106
PELVIC MOMENT X (in-lbs)
PELVIC MOMENT X (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

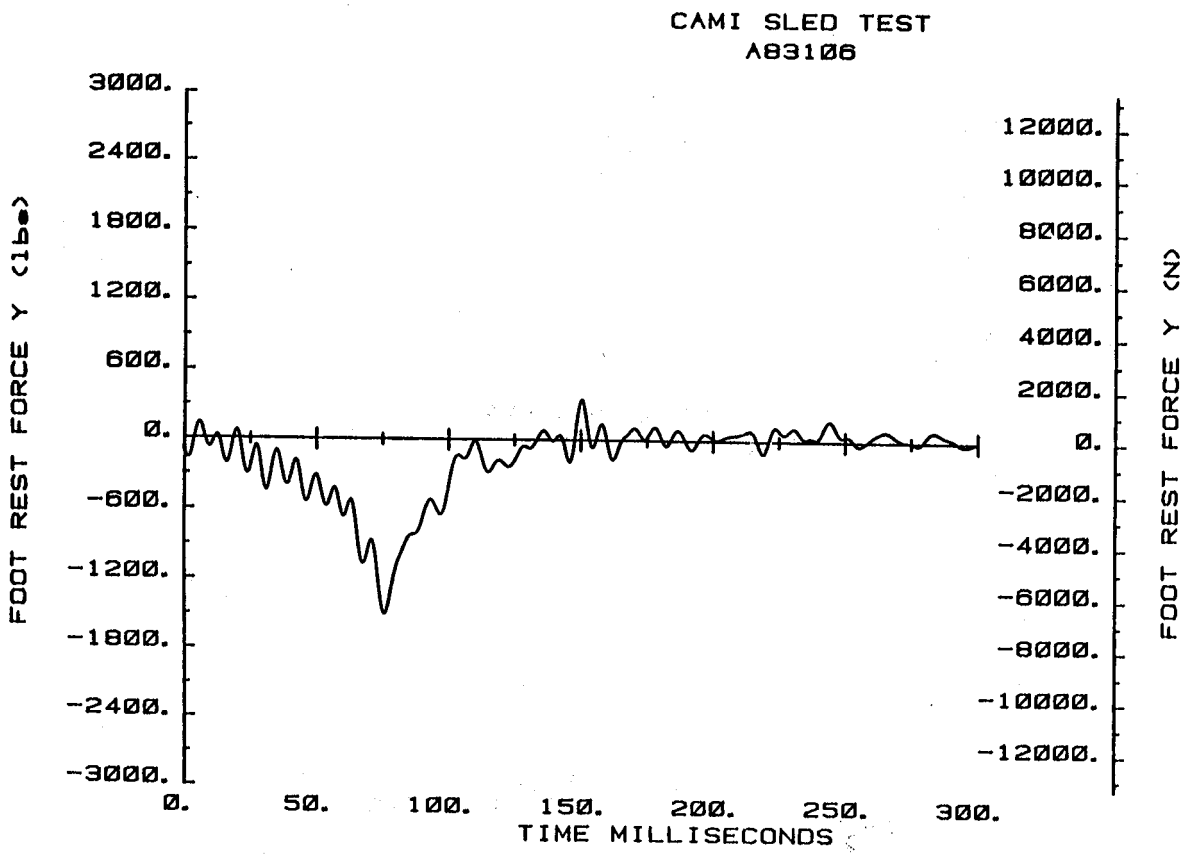

CAMI SLED TEST
A83106
PELVIC MOMENT Y (in-lbs)
PELVIC MOMENT Y (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

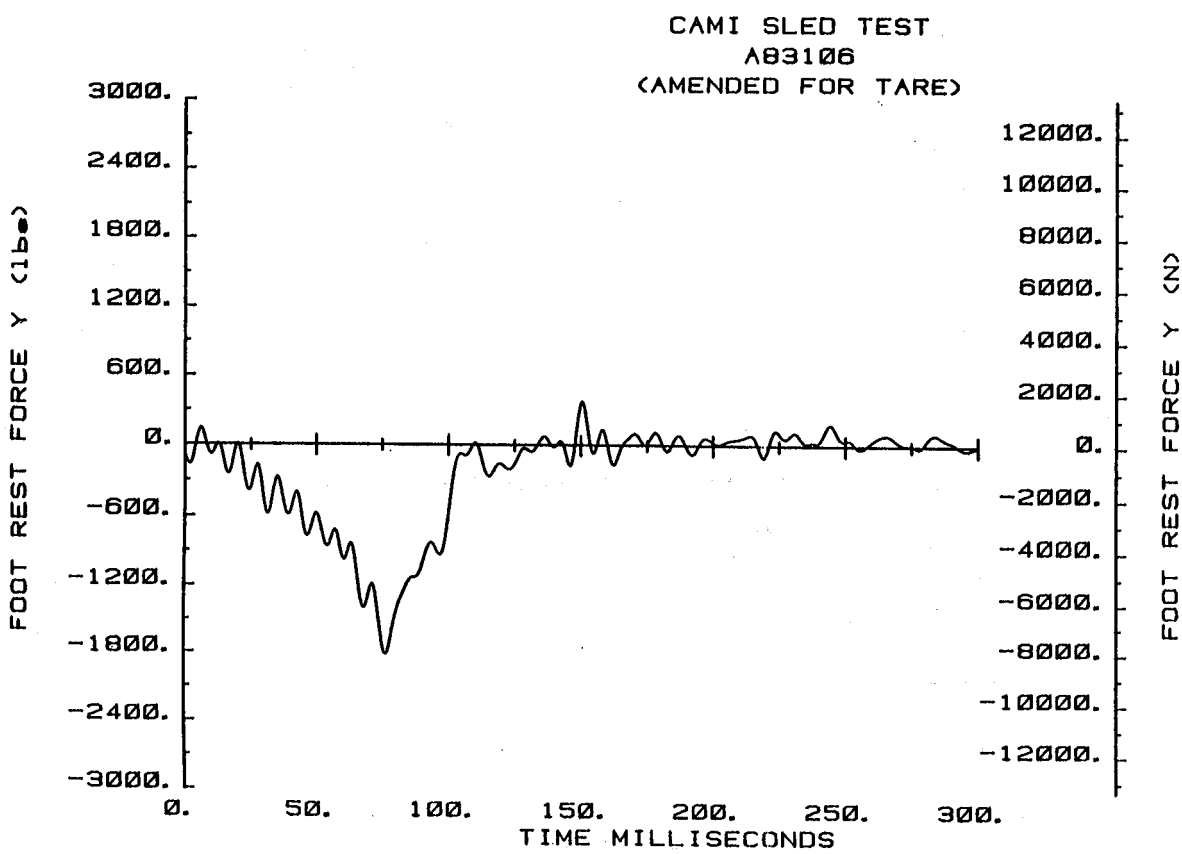

CAMI SLED TEST
A83106
PELVIC MOMENT Z (in-lb)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT Z (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

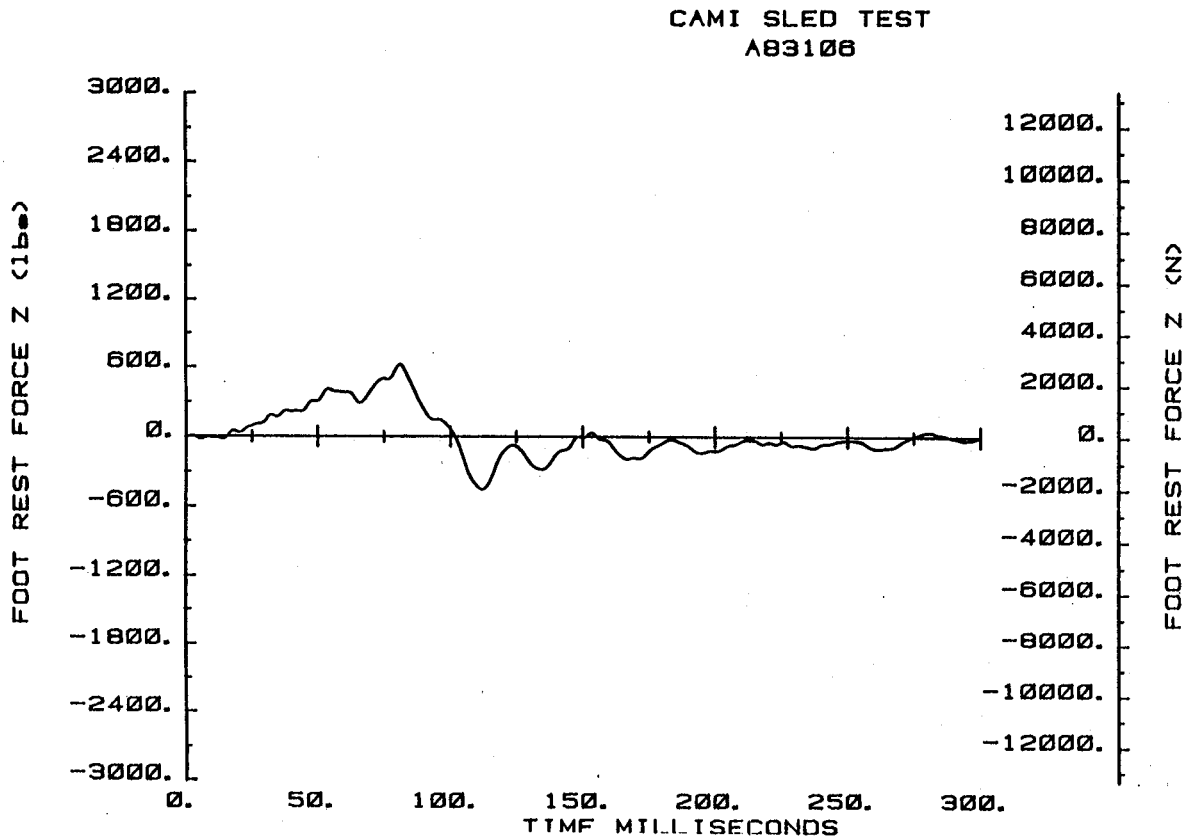

CAMI SLED TEST
A83106
PELVIC MOMENT RESULTANT (in-lb)
4000.
3200.
2400.
1600.
800.
0.
PELVIC MOMENT RESULTANT (N-m)
450.
360.
270.
180.
90.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

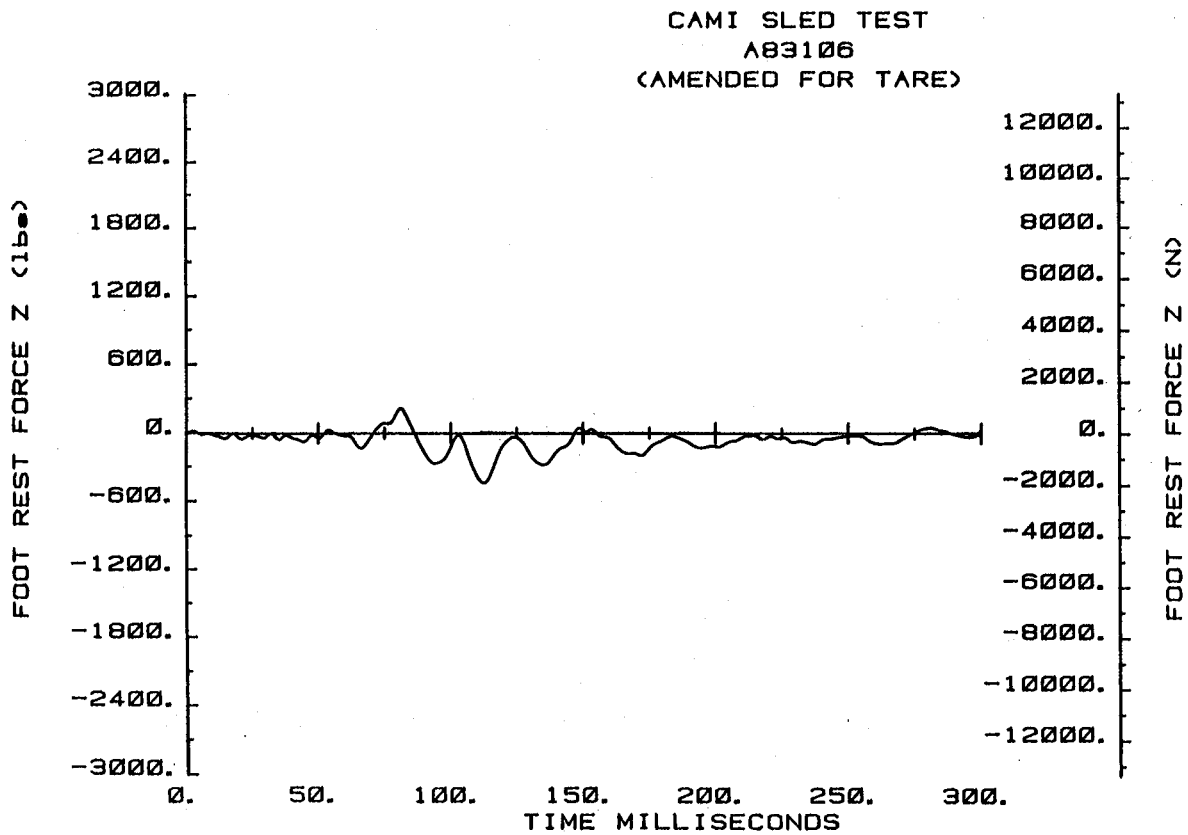

CAMI SLED TEST
A83106
FOOT REST FORCE X (lbs)
FOOT REST FORCE X (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

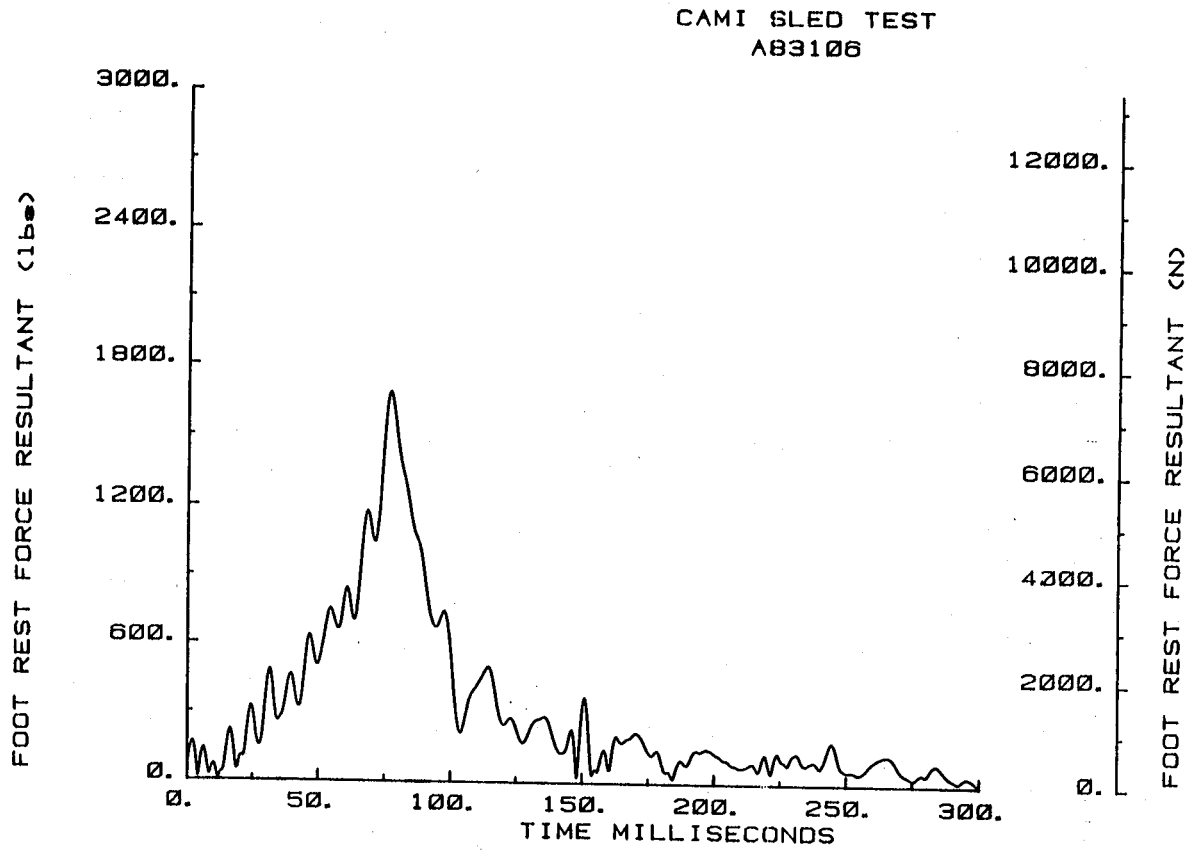

CAMI SLED TEST
A83106
(AMENDED FOR TARE)
FOOT REST FORCE X (lbs)
FOOT REST FORCE X (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

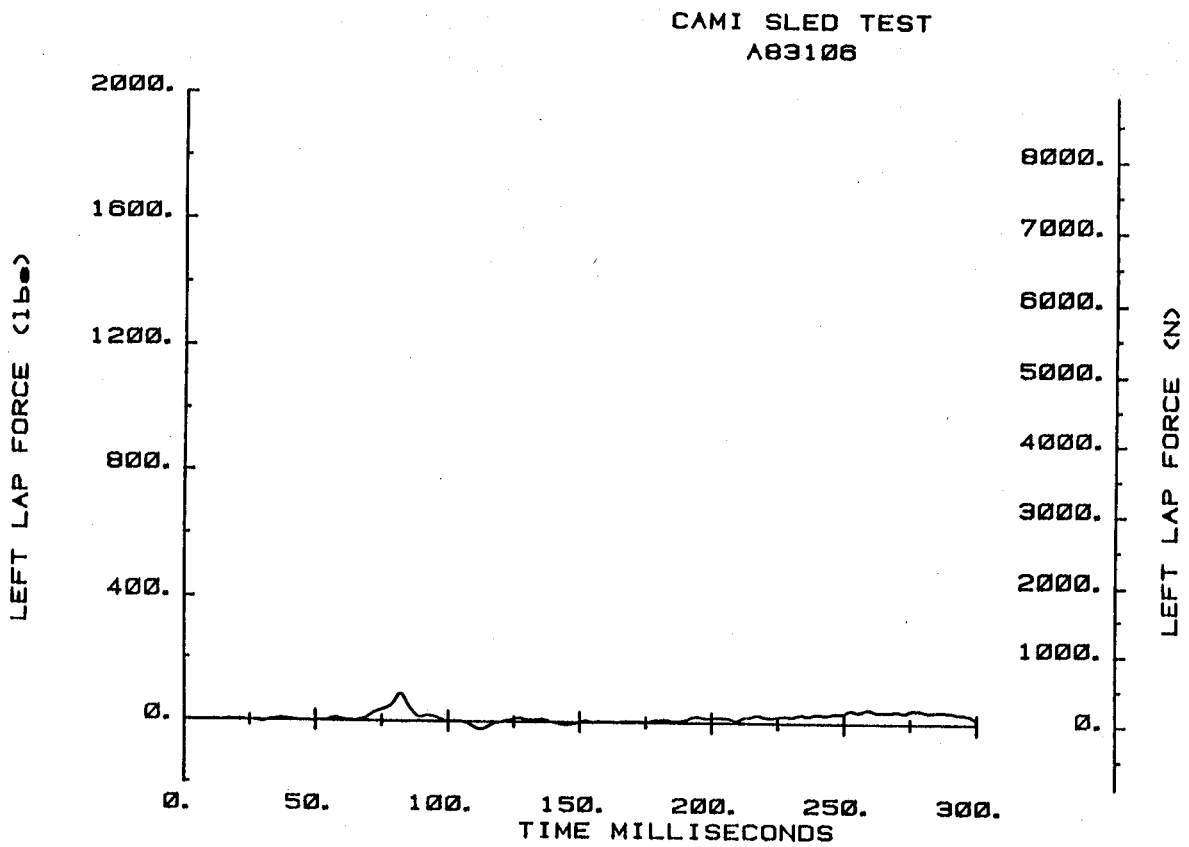

CAMI SLED TEST
A83106
FOOT REST FORCE Y (lbs)
FOOT REST FORCE Y (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

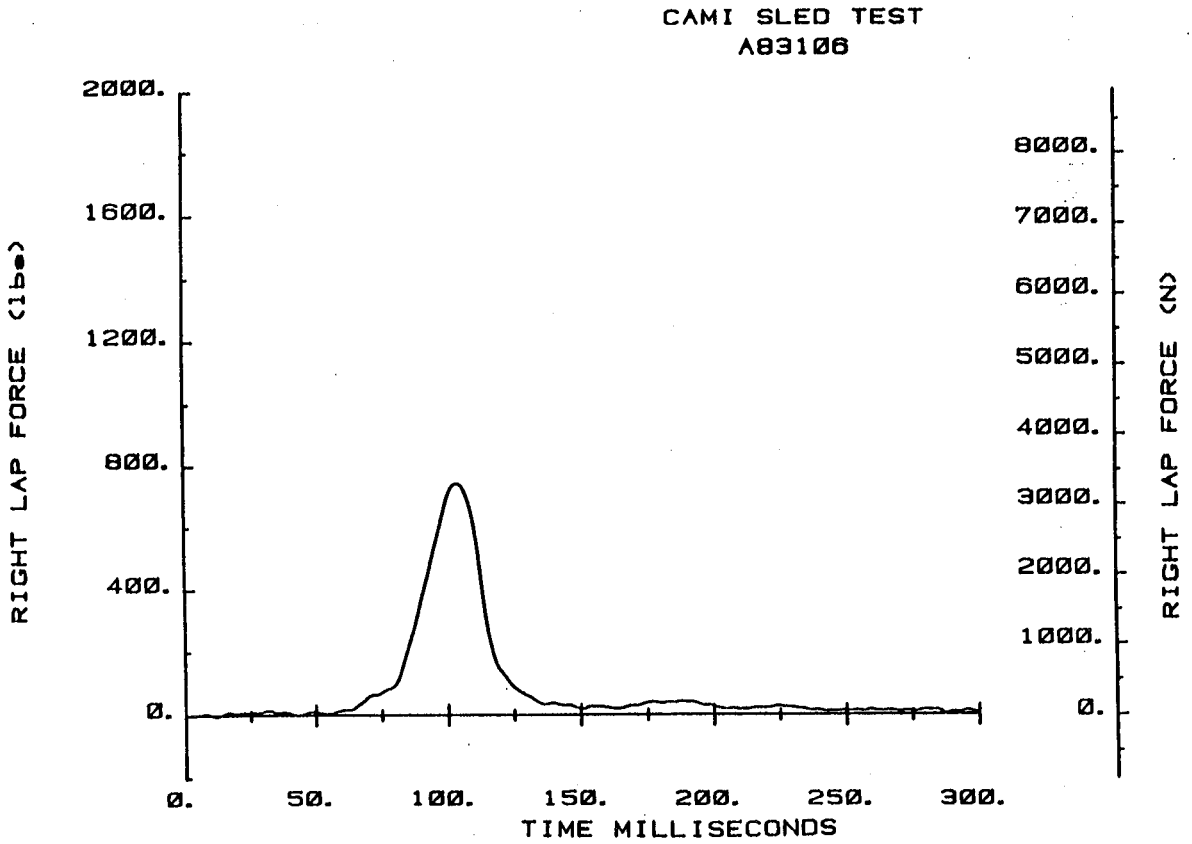

CAMI SLED TEST
A83106
(AMENDED FOR TARE)
FOOT REST FORCE Y (lbs)
FOOT REST FORCE Y (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

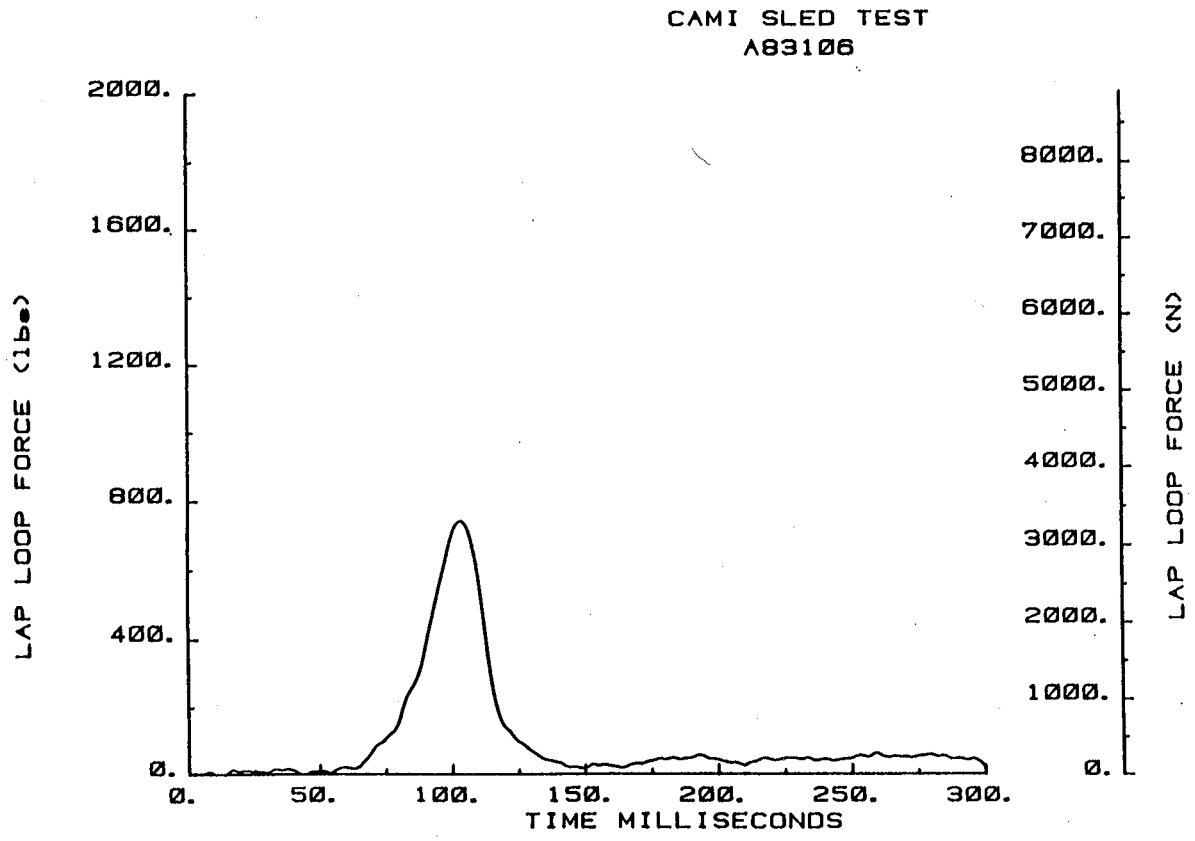

CAMI SLED TEST
A83106
FOOT REST FORCE Z (lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
FOOT REST FORCE Z (N)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

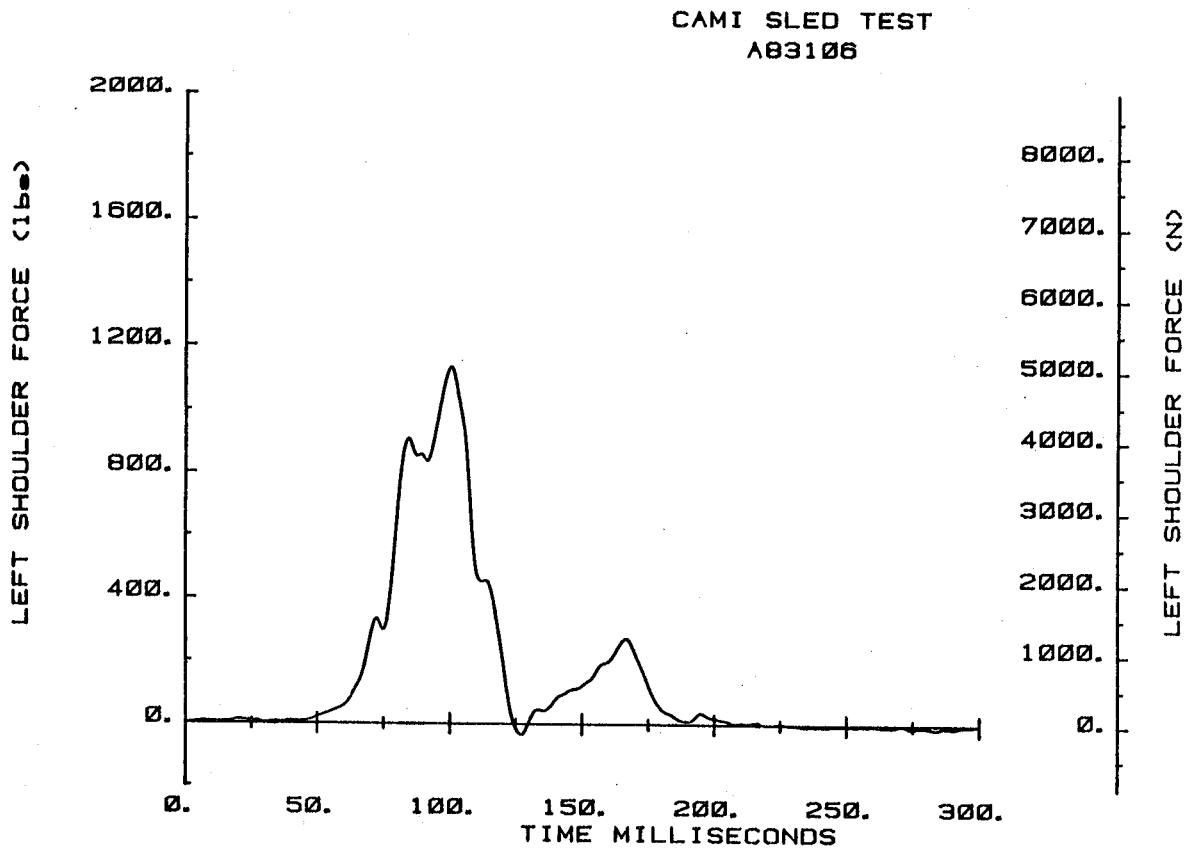

CAMI SLED TEST
A83106
(AMENDED FOR TARE)
FOOT REST FORCE Z (lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
FOOT REST FORCE Z (N)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

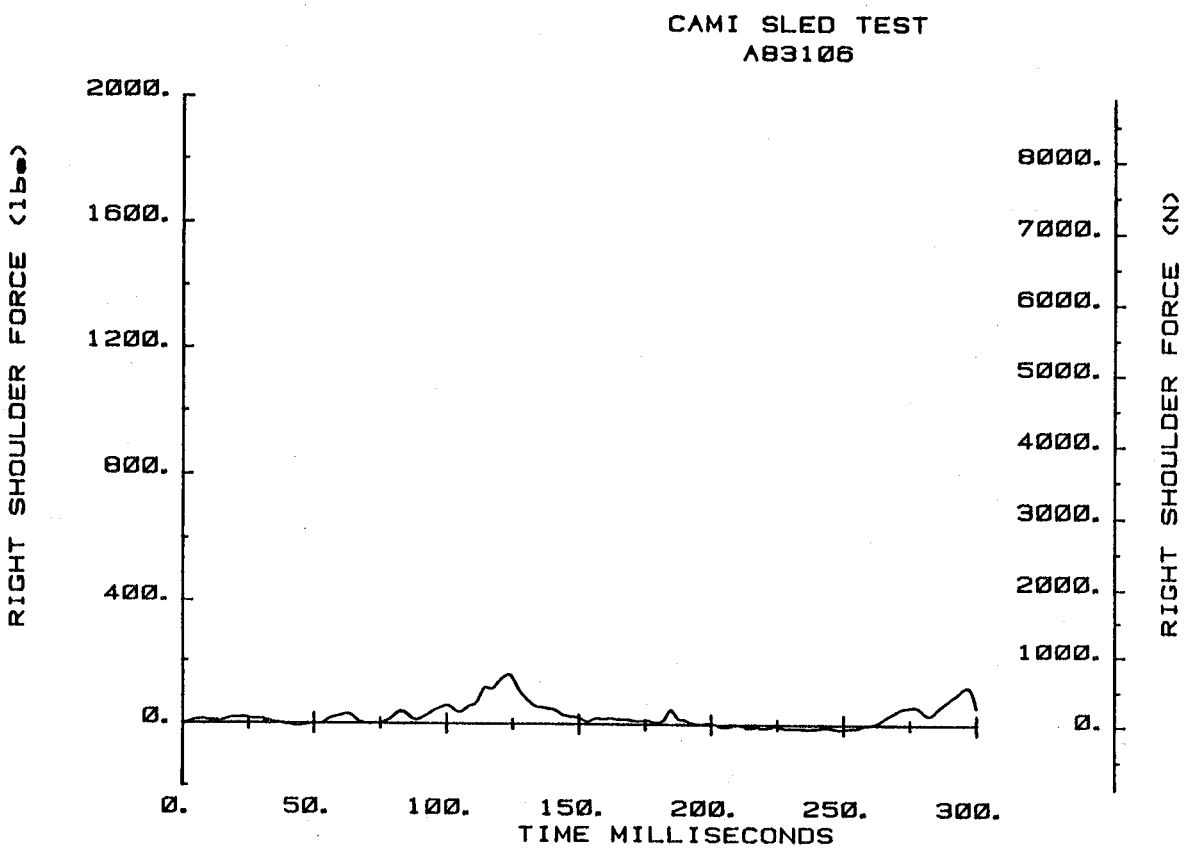

CAMI SLED TEST
A83106
FOOT REST FORCE RESULTANT (lbs)
FOOT REST FORCE RESULTANT (N)
3000.
2400.
1800.
1200.
600.
0.
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

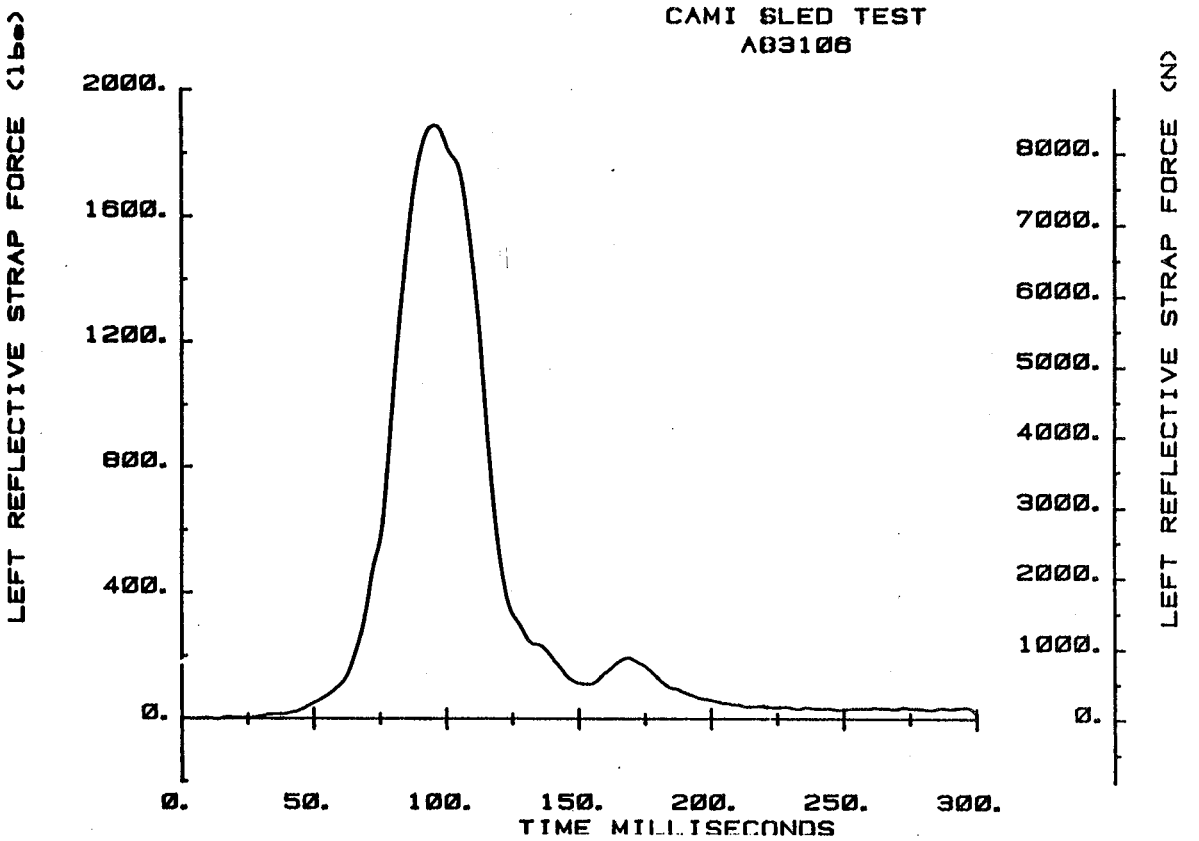

CAMI SLED TEST
A83106
LEFT LAP FORCE (lbs)
LEFT LAP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

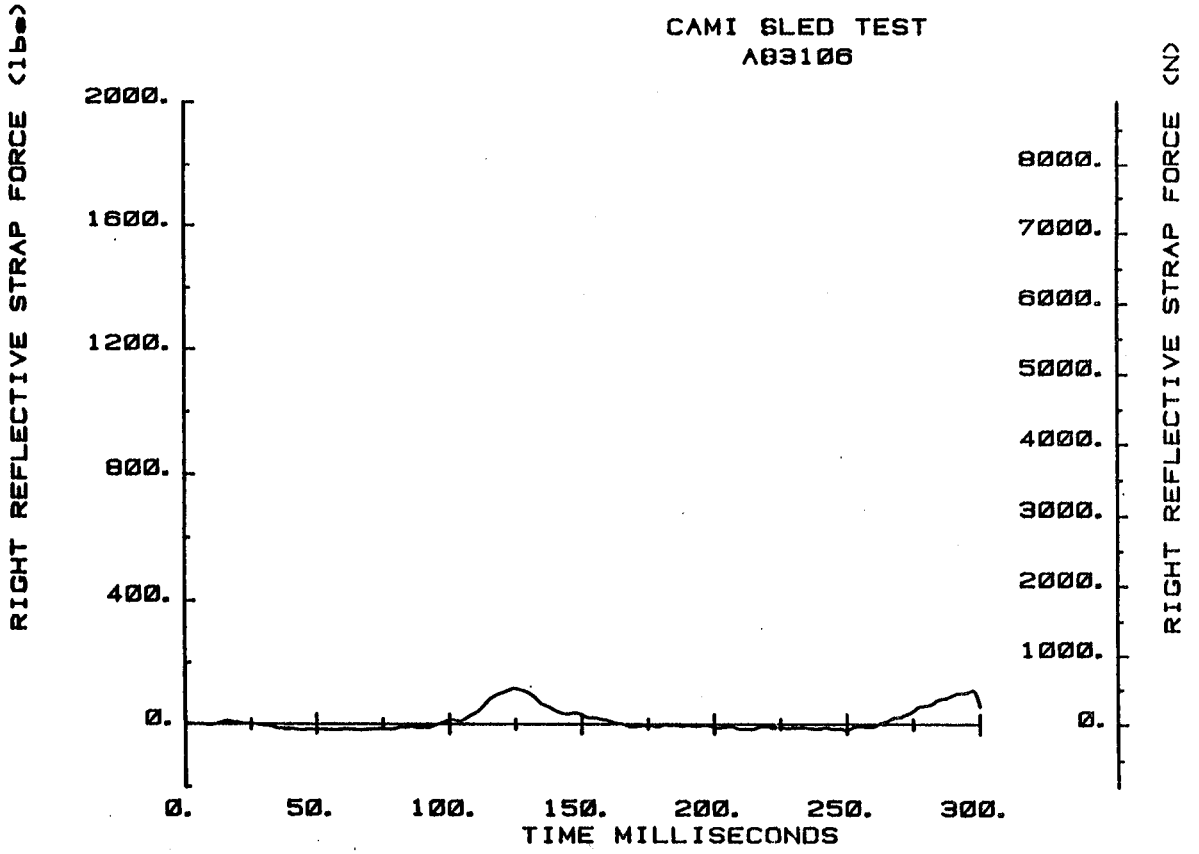

CAMI SLED TEST
A83106
RIGHT LAP FORCE (lbs)
RIGHT LAP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

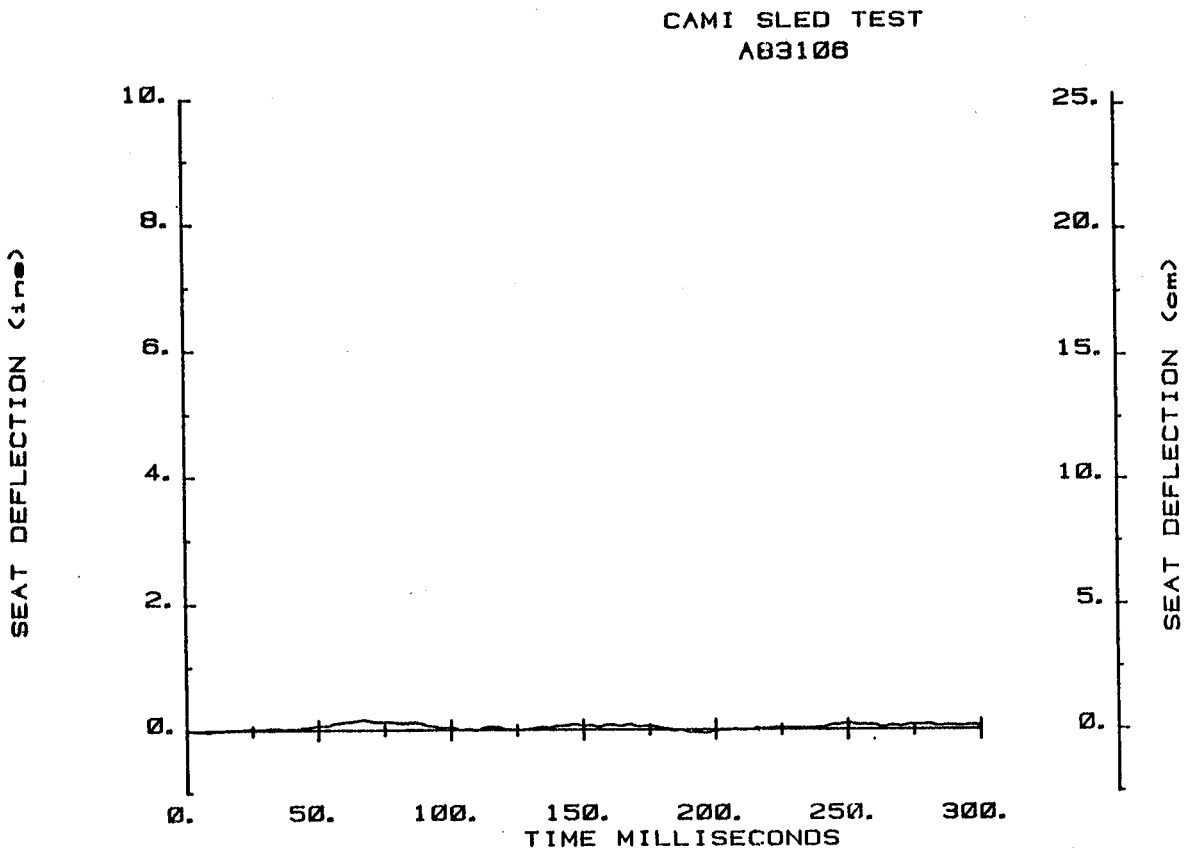

CAMI SLED TEST
A83106
LAP LOOP FORCE (lbs)
LAP LOOP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

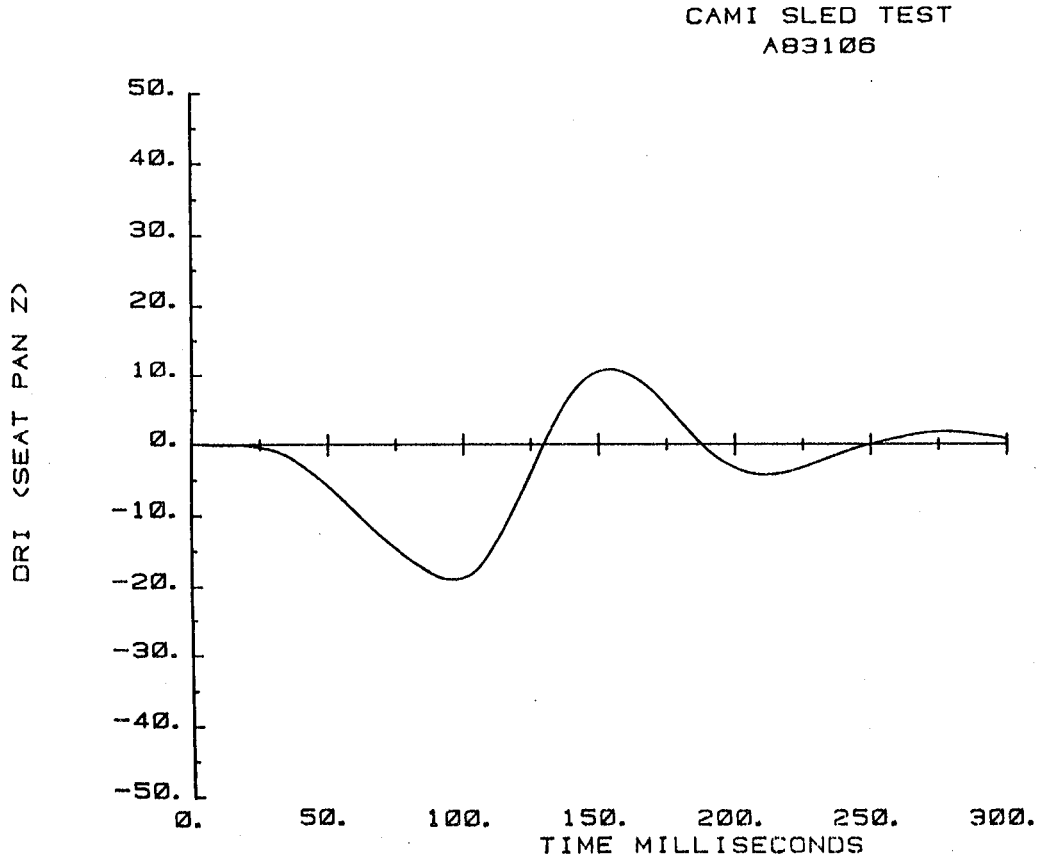

CAMI SLED TEST
A83106
LEFT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

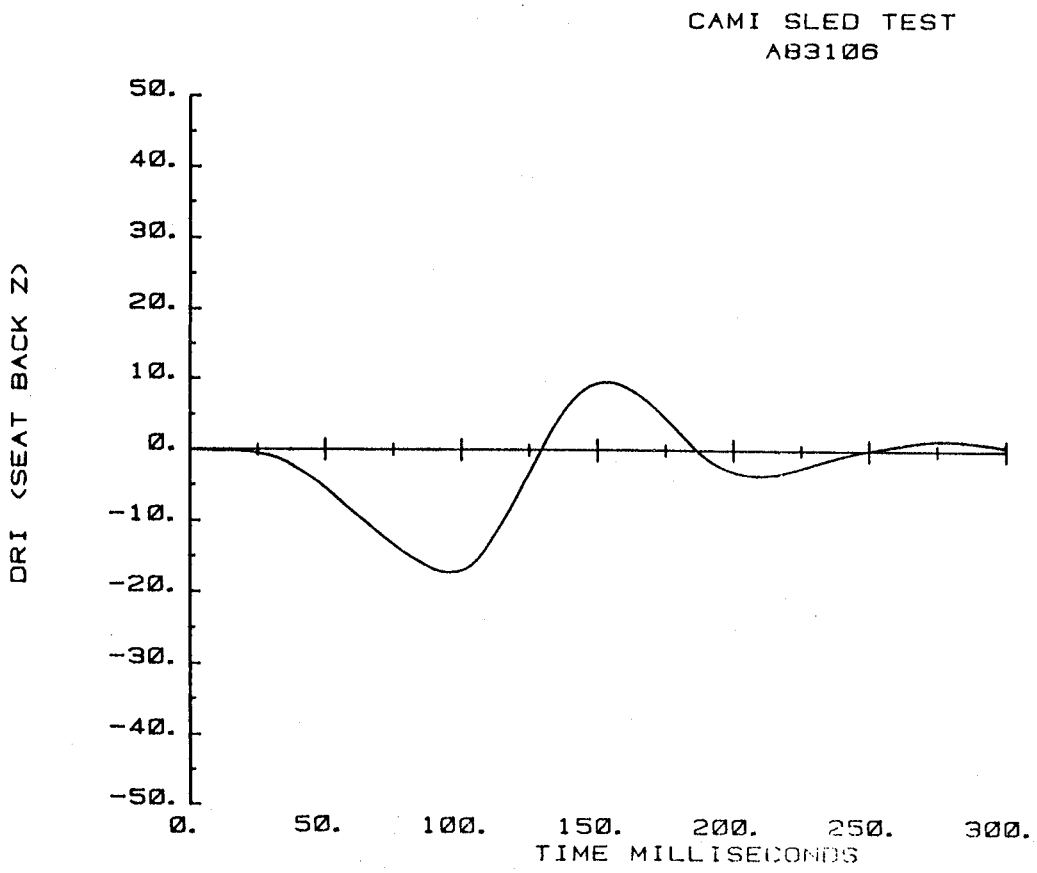

CAMI SLED TEST
A83106
RIGHT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

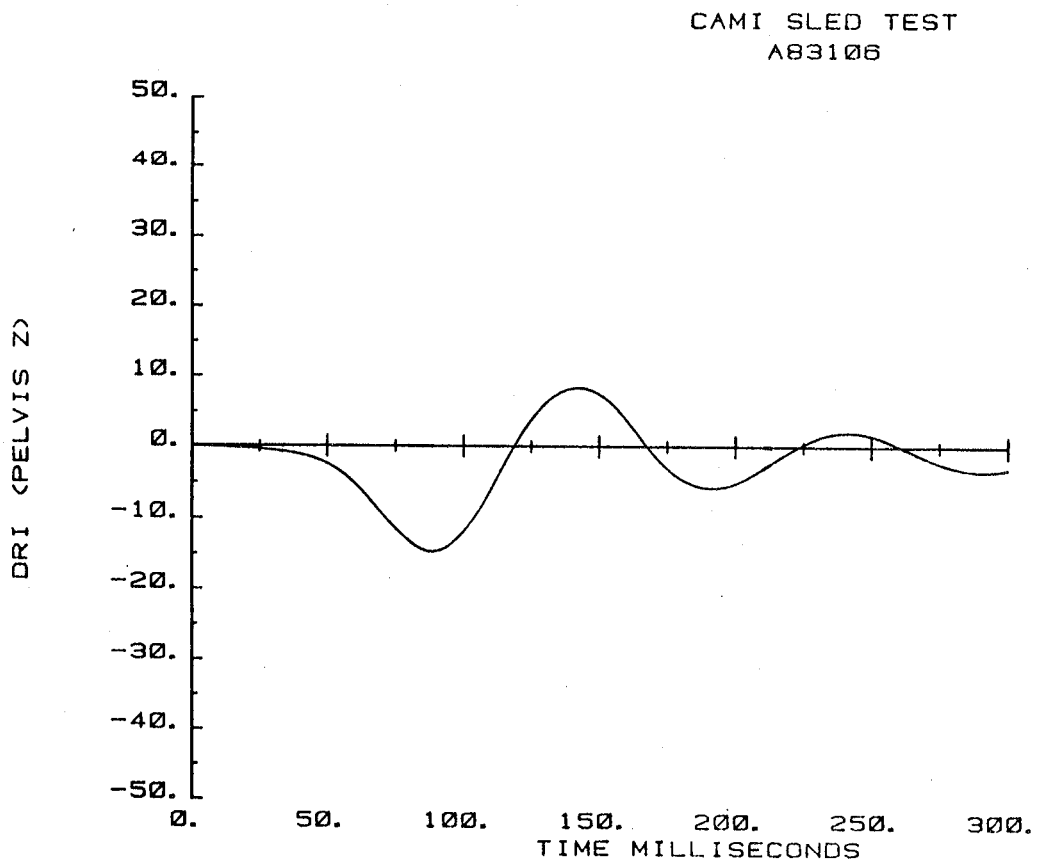

CAMI SLED TEST
A03106
LEFT REFLECTIVE STRAP FORCE (lbs)
LEFT REFLECTIVE STRAP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A03106
RIGHT REFLECTIVE STRAP FORCE (lbs)
RIGHT REFLECTIVE STRAP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83106
SEAT DEFLECTION (in)
SEAT DEFLECTION (cm)
10.
8.
6.
4.
2.
0.
25.
20.
15.
10.
5.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83106
DRI (SEAT PAN Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83106
DRI (SEAT BACK Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83106
DRI (PELVIS Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

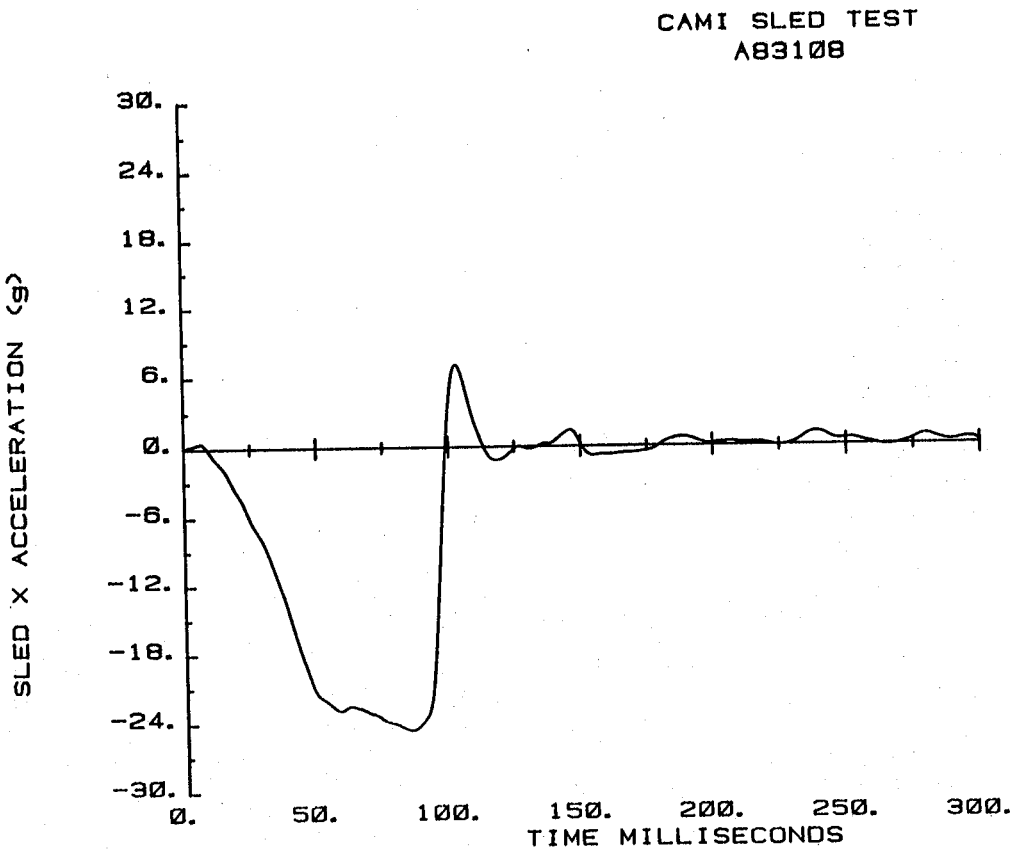
6.0 CAMI TEST NO. A83-108

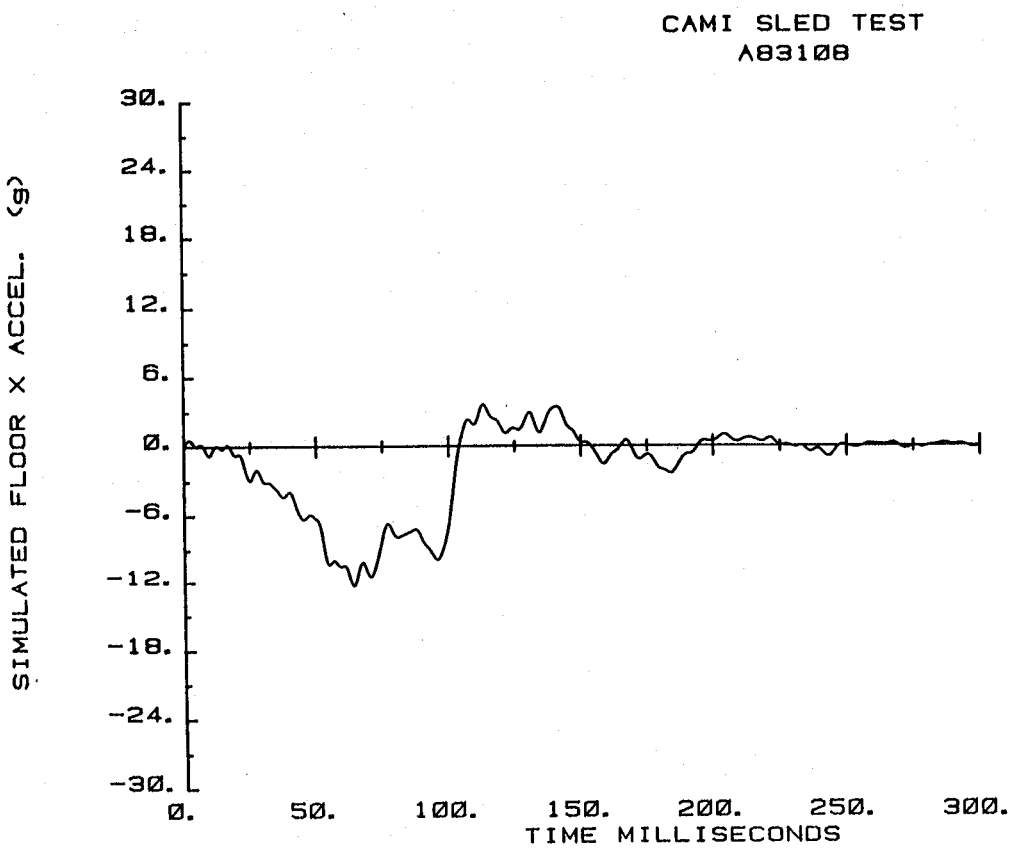
SEAT: Energy Absorbing

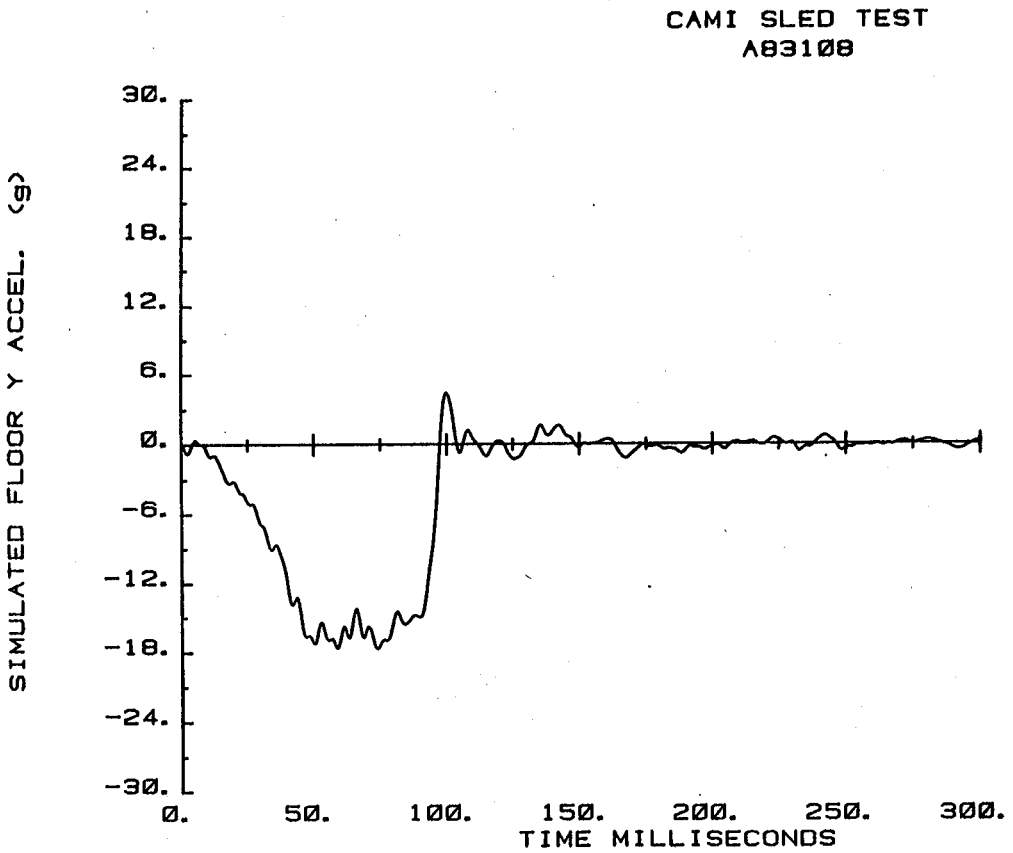
PULSE NUMBER: 3

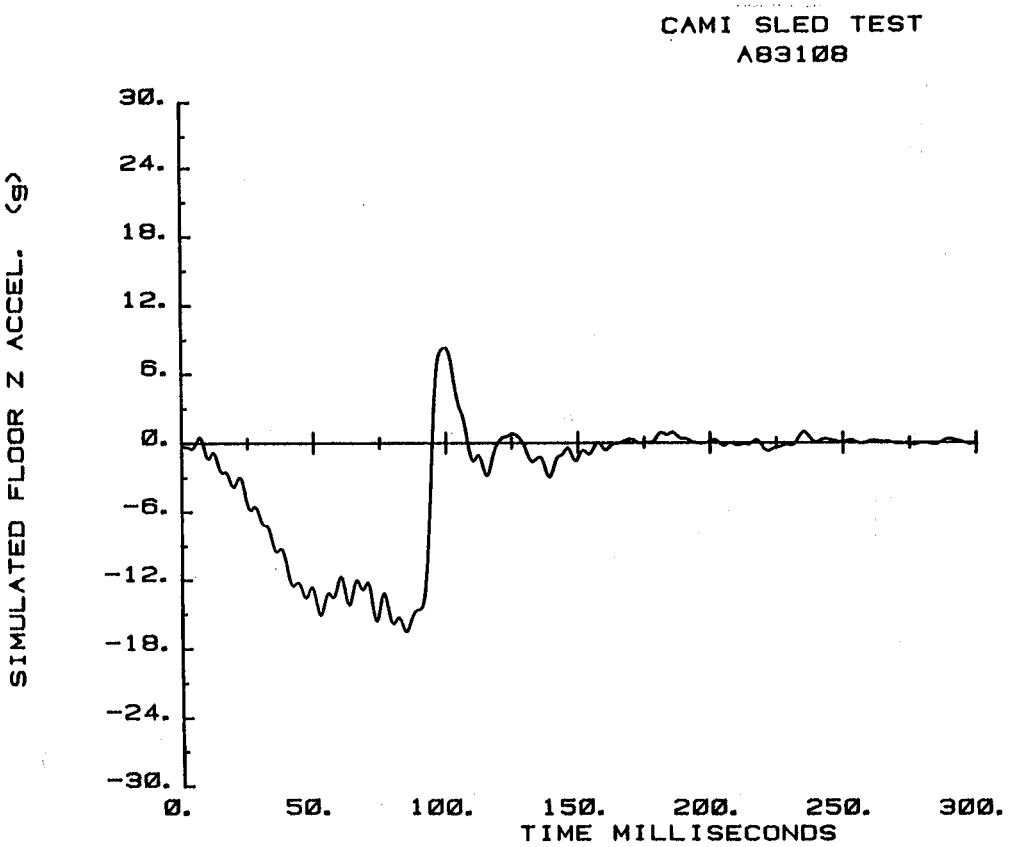
SEAT ORIENTATION: Pitch - 60°
Roll - 0°
Yaw - 45°

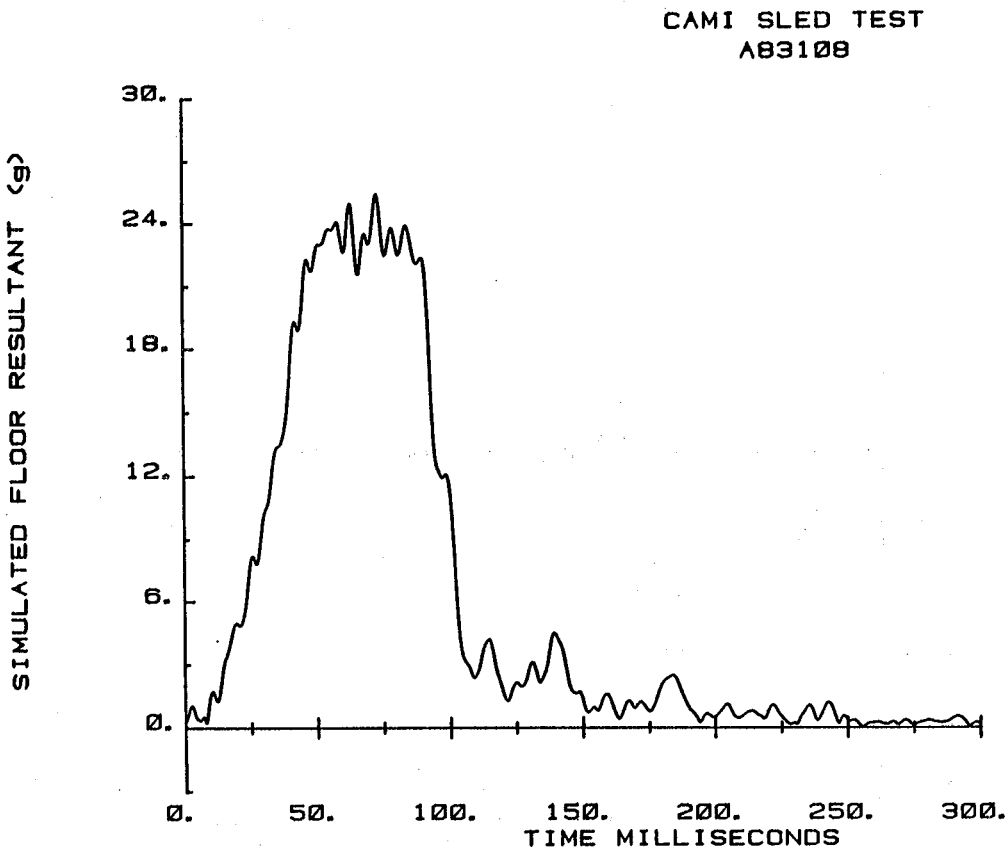
RUN#	V A R I A B L E		PEAK1	T	PEAK2	T	RANGE	FILE
A83108	SLED X ACCELERATION	(g)	-24.6	84	7.0	103	(0, 300)	* F10801
A83108	HEAD X ACCELERATION	(g)	-32.4	111	10.0	213	(0, 300)	* F10803
A83108	HEAD Y ACCELERATION	(g)	5.0	72	-22.9	96	(0, 300)	* F10804
A83108	HEAD Z ACCELERATION	(g)	-24.2	67	43.3	97	(0, 300)	* F10805
A83108	CHEST X ACCELERATION	(g)	-29.5	84	18.1	122	(0, 300)	* F10806
A83108	CHEST Y ACCELERATION	(g)	-41.9	86	8.4	122	(0, 300)	* F10807
A83108	CHEST Z ACCELERATION	(g)	-25.5	65			(0, 300)	* F10808
A83108	PELVIS X ACCELERATION	(g)	-29.0	99	12.5	162	(0, 300)	* F10809
A83108	PELVIS Z ACCELERATION	(g)	-27.1	62	7.3	162	(0, 300)	* F10811
A83108	SIMULATED FLOOR X ACCEL.	(g)	-12.3	64	3.7	113	(0, 300)	* F10812
A83108	SIMULATED FLOOR Y ACCEL.	(g)	-17.6	73	4.4	100	(0, 300)	* F10813
A83108	SIMULATED FLOOR Z ACCEL.	(g)	-16.5	84	8.3	99	(0, 300)	* F10814
A83108	FOOT REST FORCE X	(lbs)	-212.8	140	82.3	194	(0, 300)	* F10815
A83108	FOOT REST FORCE Y	(lbs)	766.8	88			(0, 300)	* F10816
A83108	FOOT REST FORCE Z	(lbs)	1365.9	72	-390.8	151	(0, 300)	* F10817
A83108	LEFT SHOULDER FORCE	(lbs)	102.0	132			(0, 300)	* F10818
A83108	RIGHT SHOULDER FORCE	(lbs)	1480.9	101			(0, 300)	* F10819
A83108	SEAT BACK Z ACCELERATION	(g)	-23.6	79			(0, 300)	* F10820
A83108	SEAT PAN X ACCELERATION	(g)	-12.8	82	6.6	146	(0, 300)	* F10821
A83108	SEAT PAN Y ACCELERATION	(g)	-26.5	54	6.9	118	(0, 300)	* F10822
A83108	SEAT PAN Z ACCELERATION	(g)	-21.8	80			(0, 300)	* F10823
A83108	SEAT DEFLECTION	(inches)	1.9	108			(0, 300)	* F10824
A83108	PELVIC FORCE X	(lbs)	-366.3	117	87.6	163	(0, 300)	* F10825
A83108	PELVIC FORCE Y	(lbs)	319.0	85	-171.4	128	(0, 300)	* F10826
A83108	PELVIC FORCE Z	(lbs)	1574.8	103			(0, 300)	* F10827
A83108	PELVIC MOMENT X	(in-lbs)	2626.3	98	-623.9	125	(0, 300)	* F10828
A83108	PELVIC MOMENT Y	(in-lbs)	1218.4	115	-754.9	161	(0, 300)	* F10829
A83108	PELVIC MOMENT Z	(in-lbs)	702.0	114			(0, 300)	* F10830
A83108	LEFT LAP FORCE	(lbs)	862.3	102			(0, 300)	* F10831
A83108	RIGHT LAP FORCE	(lbs)	75.4	167			(0, 300)	* F10832
A83108	LEFT REFLECTIVE STRAP FORCE	(lbs)	32.6	127	-34.5	201	(0, 300)	* F10833
A83108	RIGHT REFLECTIVE STRAP FORCE	(lbs)	1258.0	93			(0, 300)	* F10834
A83108	HEAD RESULTANT	(g)	54.5	97			(0, 300)	* V10801
A83108	CHEST RESULTANT	(g)	51.5	85			(0, 300)	* V10802
A83108	SIMULATED FLOOR RESULTANT	(g)	25.3	73			(0, 300)	* V1080
A83108	FOOT REST FORCE RESULTANT	(lbs)	1484.0	72			(0, 300)	* V10805
A83108	SEAT PAN RESULTANT	(g)	30.6	54			(0, 300)	* V10806
A83108	PELVIC FORCE RESULTANT	(lbs)	1590.6	103			(0, 300)	* V10807
A83108	PELVIC MOMENT RESULTANT	(in-lbs)	2719.2	105			(0, 300)	* V10808
A83108	LAP LOOP FORCE	(lbs)	882.8	102			(0, 300)	* A10802
PELVIS DRI			22.3	93				
SEAT BACK DRI			19.5	102				
SEAT PAN DRI			16.3	103				

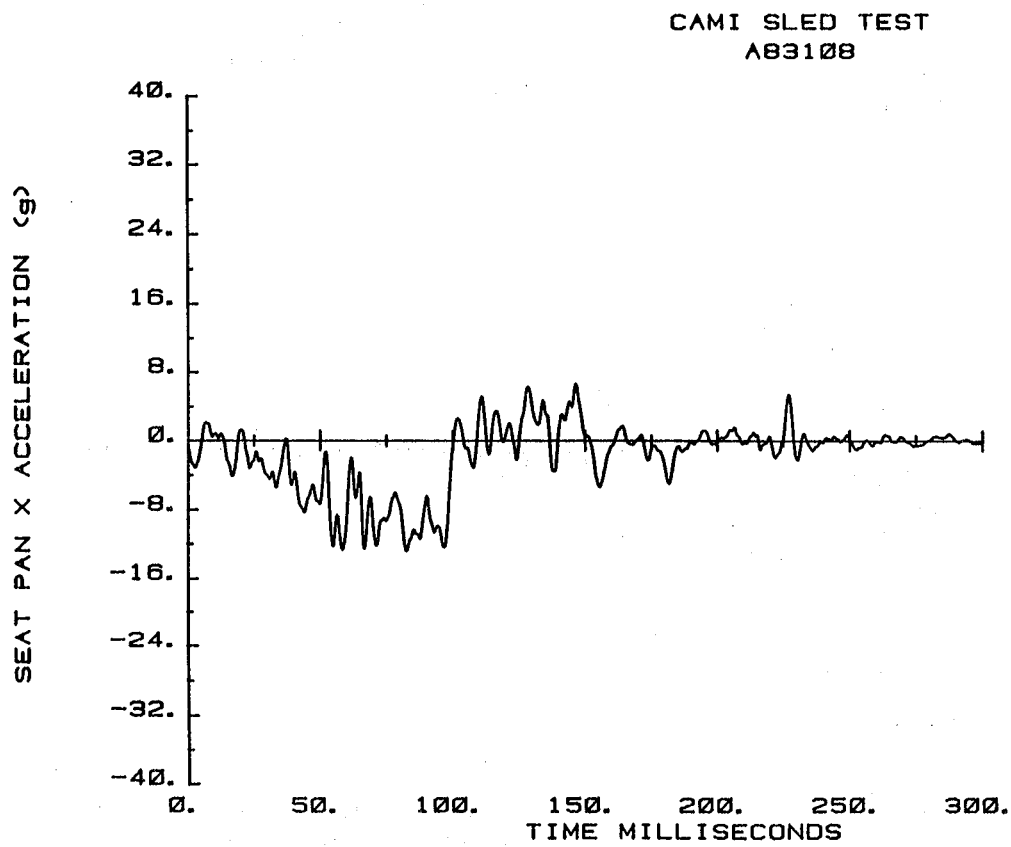

CAMI SLED TEST
A83108
SLED X ACCELERATION (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

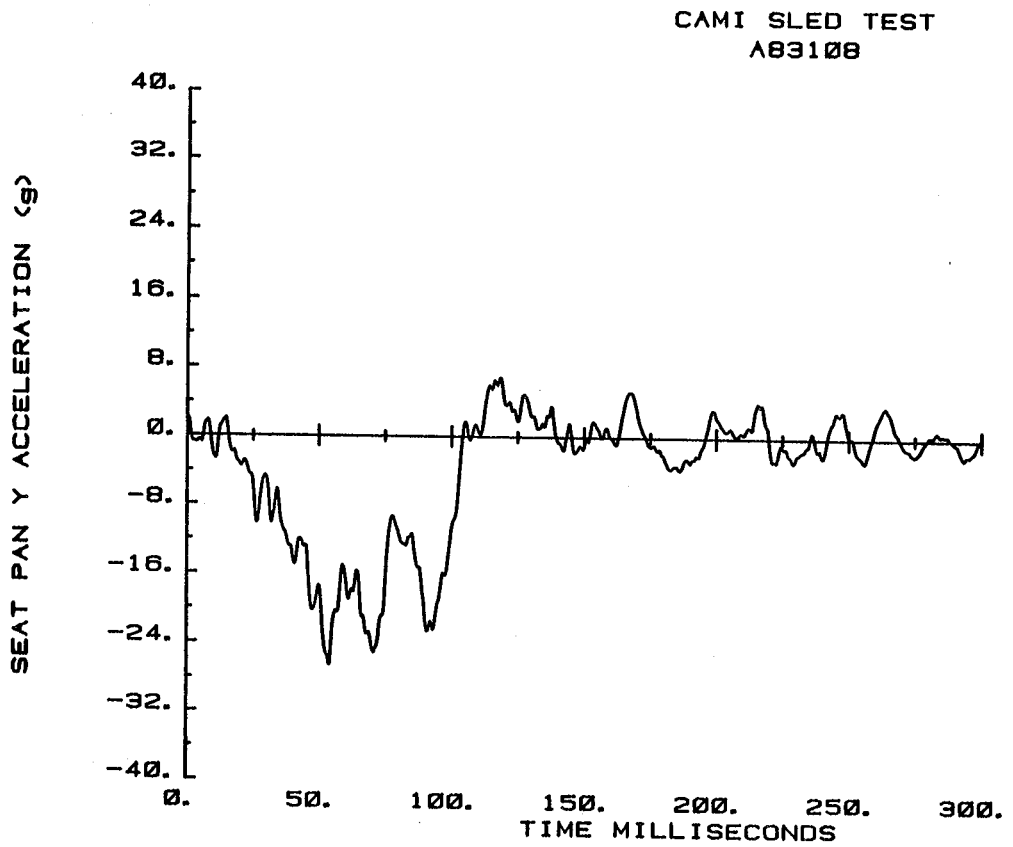

CAMI SLED TEST
A83108
SIMULATED FLOOR X ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

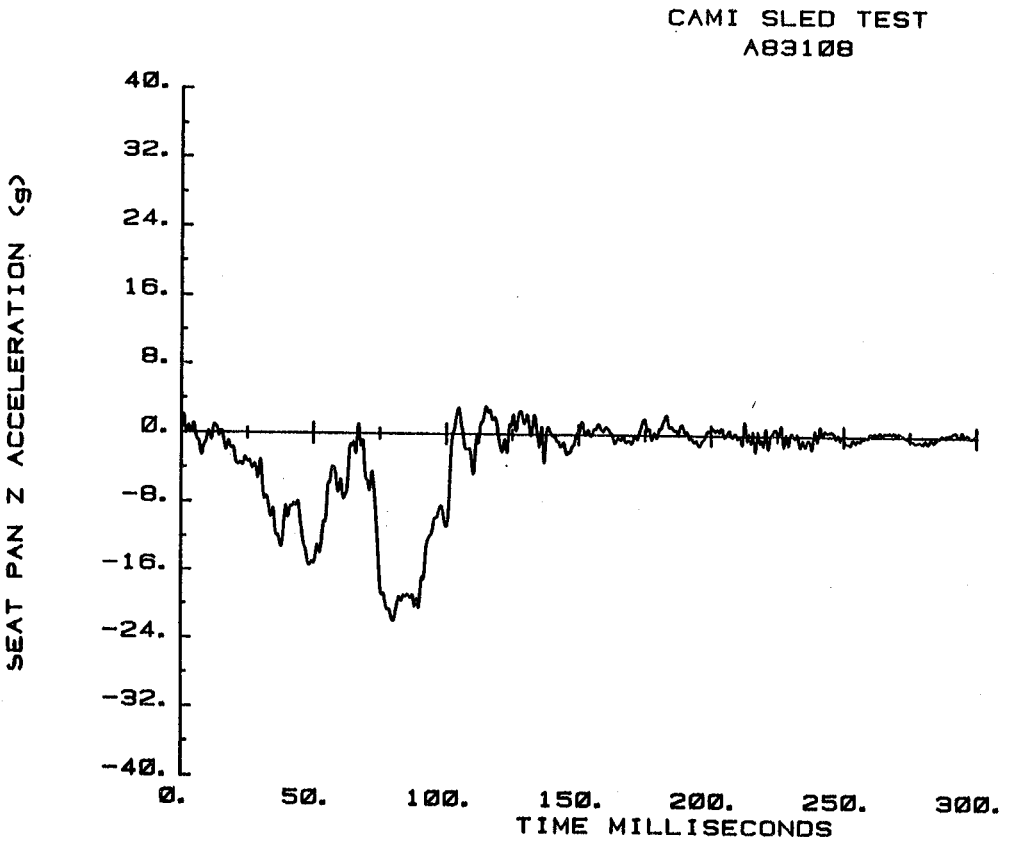

CAMI SLED TEST
A83108
SIMULATED FLOOR Y ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

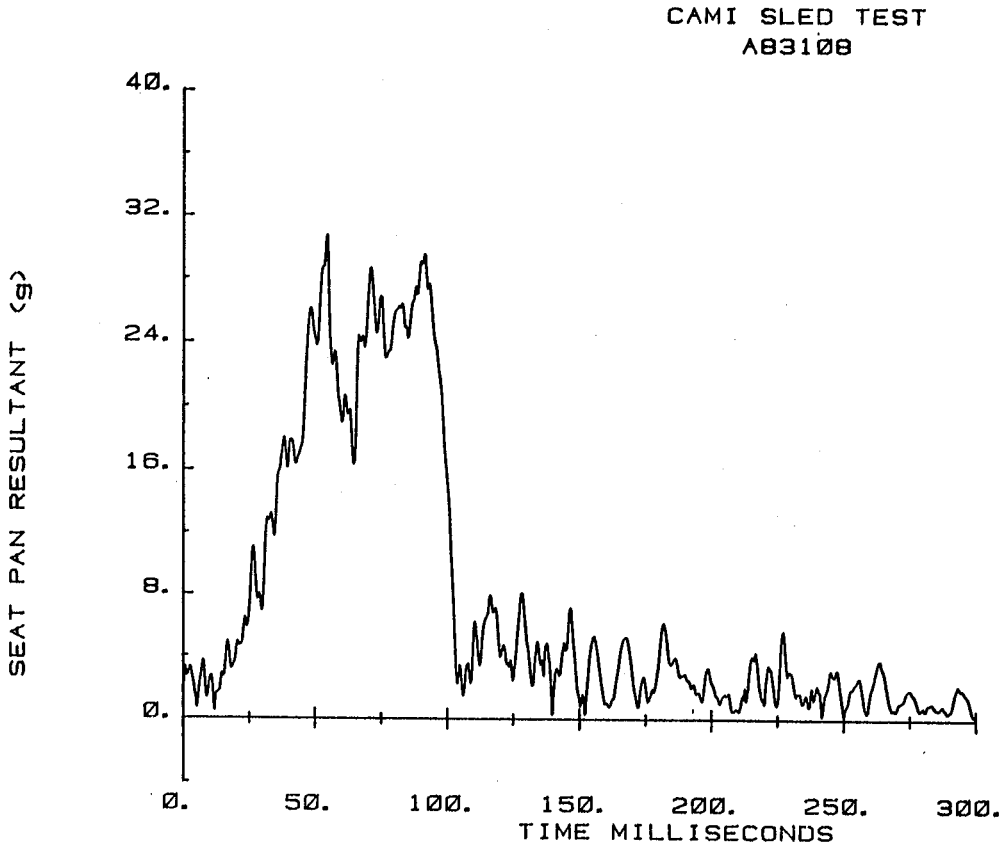

CAMI SLED TEST
A83108
SIMULATED FLOOR Z ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

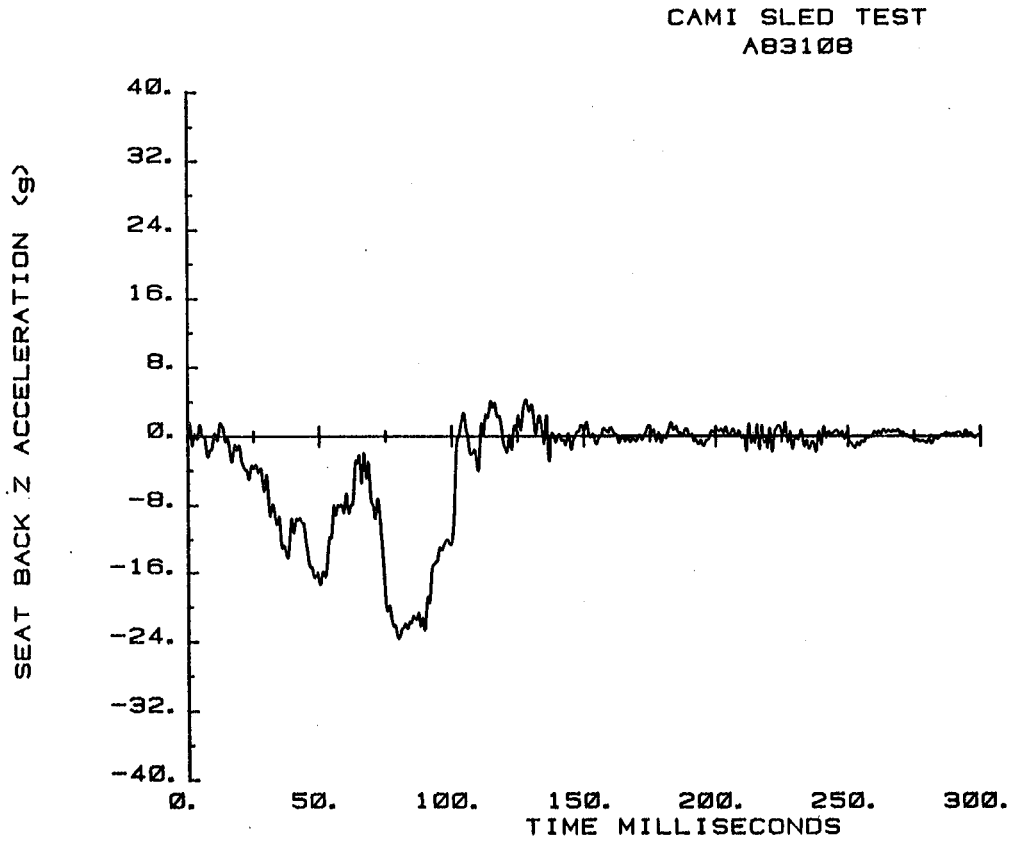

CAMI SLED TEST
A83108
SIMULATED FLOOR RESULTANT (g)
30.
24.
18.
12.
6.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

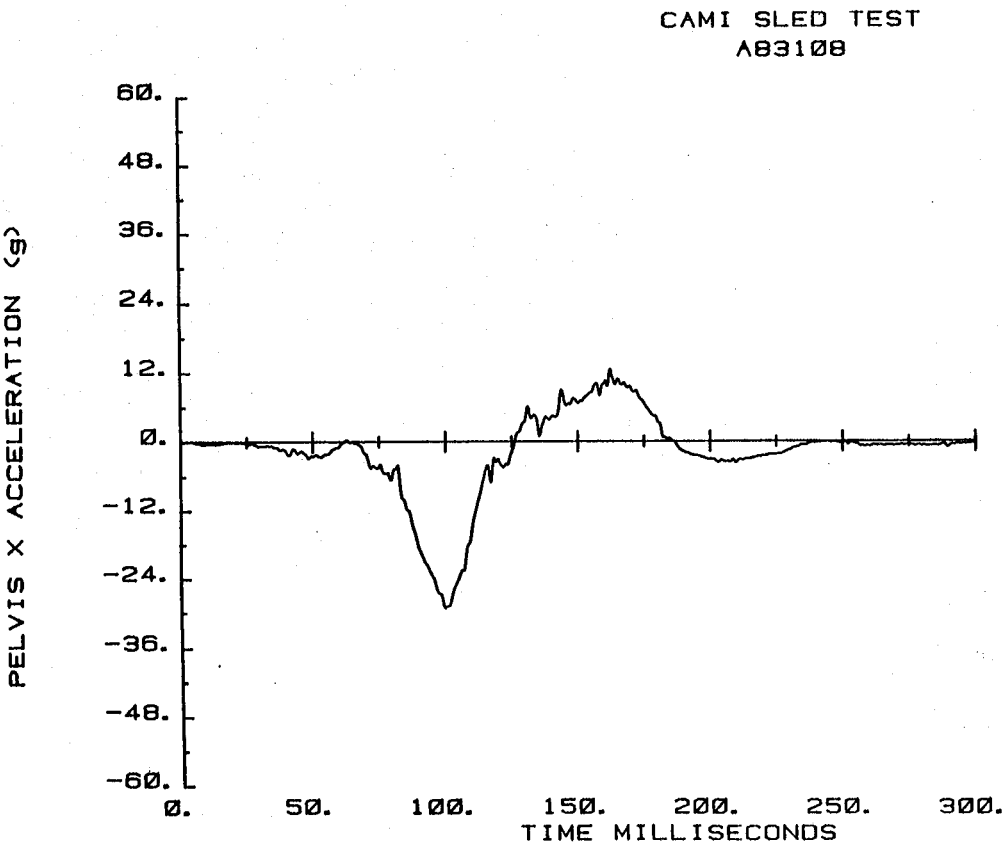

CAMI SLED TEST
A83108
SEAT PAN X ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

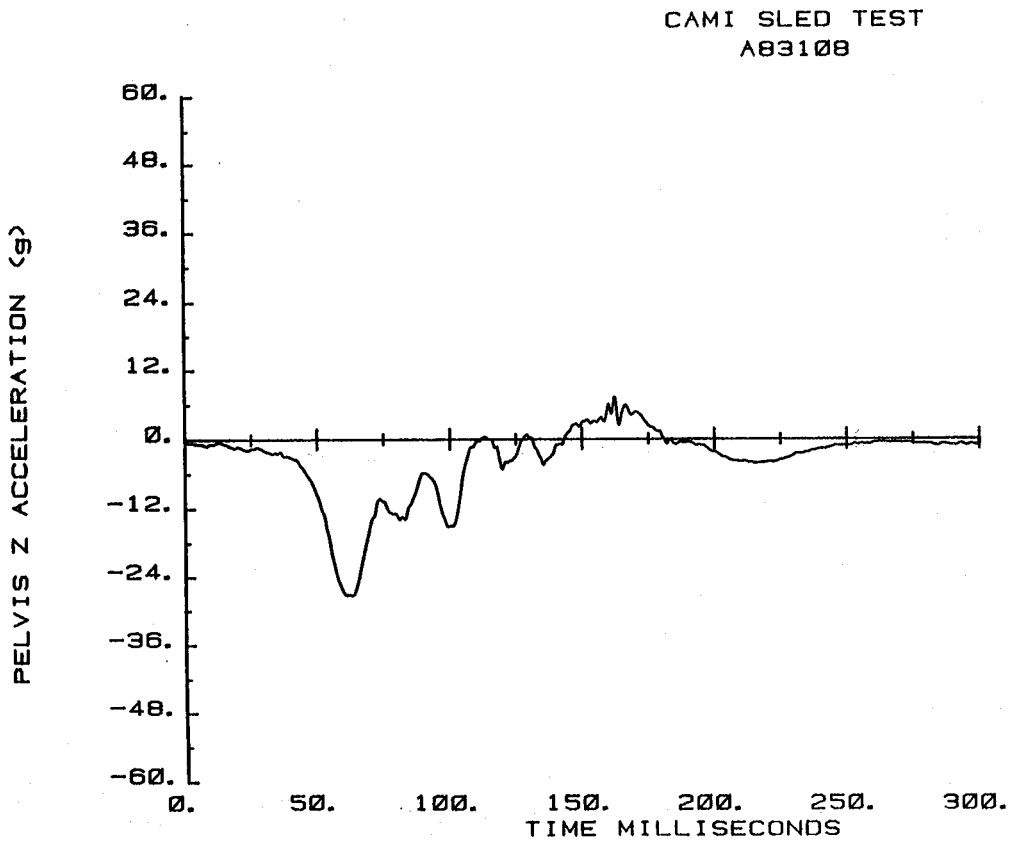

CAMI SLED TEST
A83108
SEAT PAN Y ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

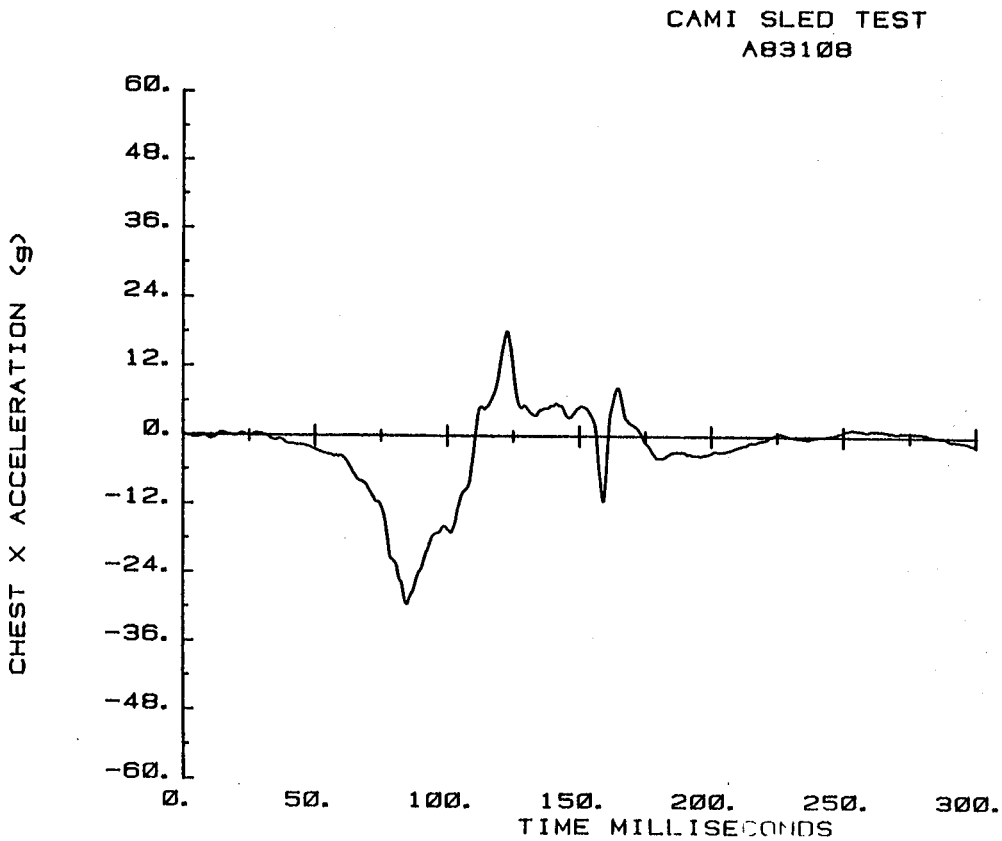

CAMI SLED TEST
A83108
SEAT PAN Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

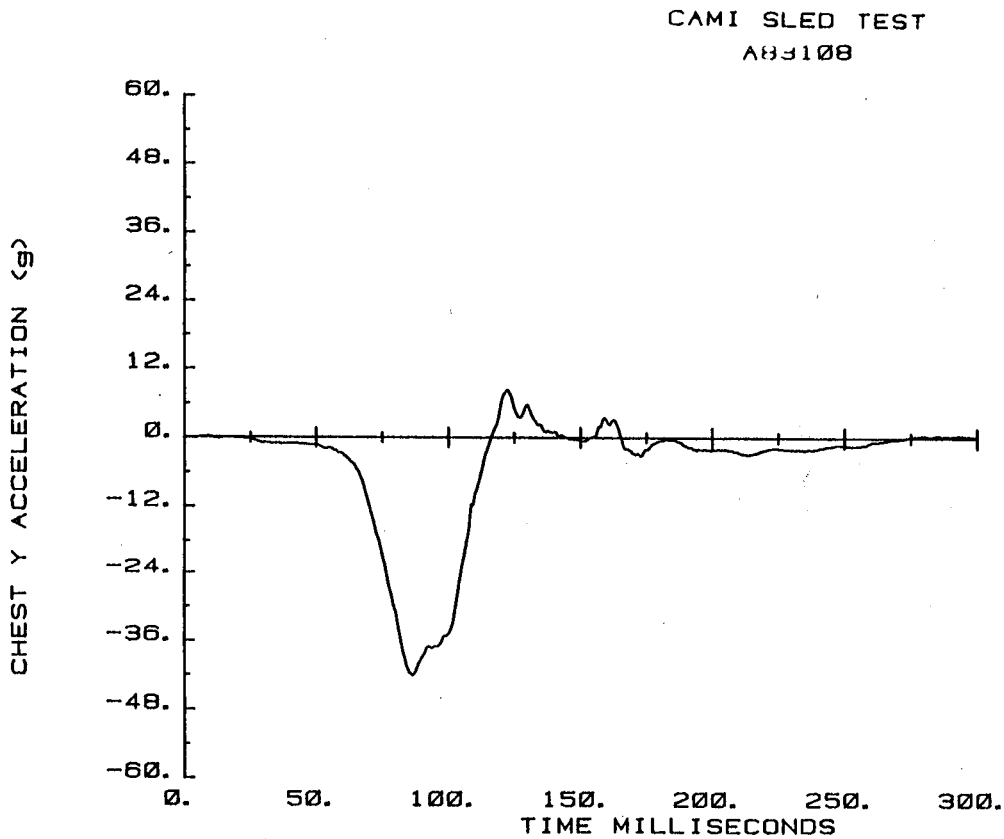

CAMI SLED TEST
A83108
SEAT PAN RESULTANT (g)
40.
32.
24.
16.
8.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

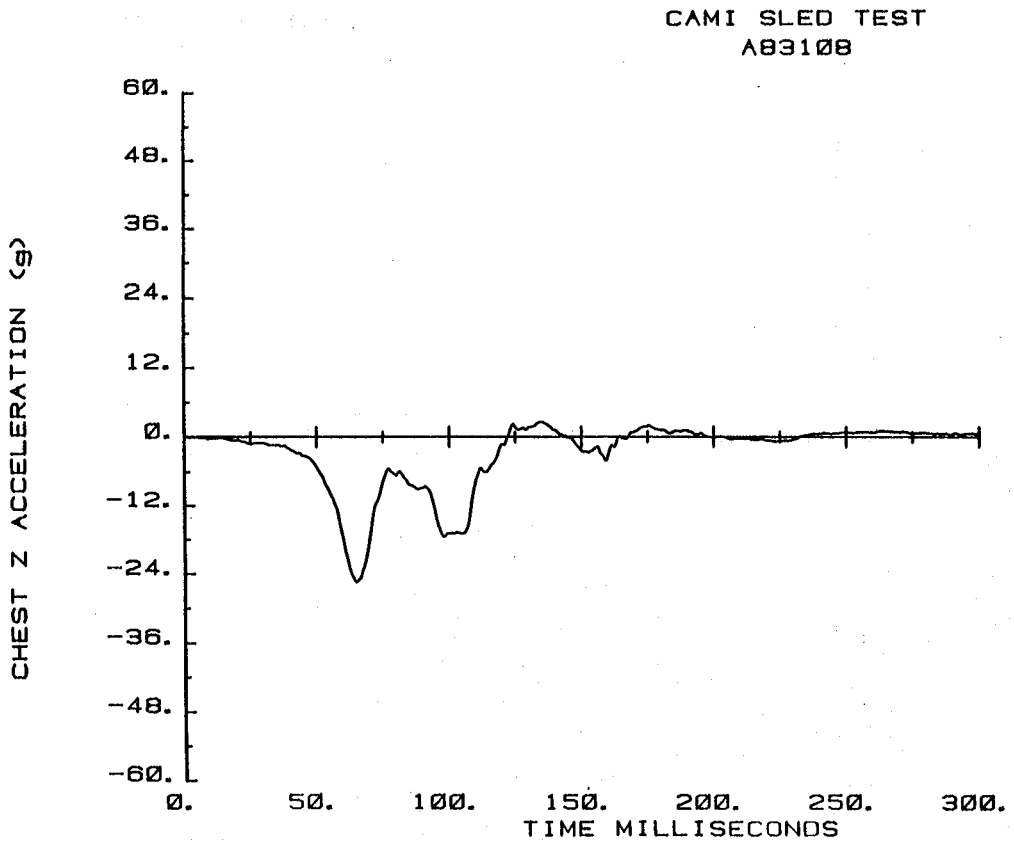

CAMI SLED TEST
A83108
SEAT BACK Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

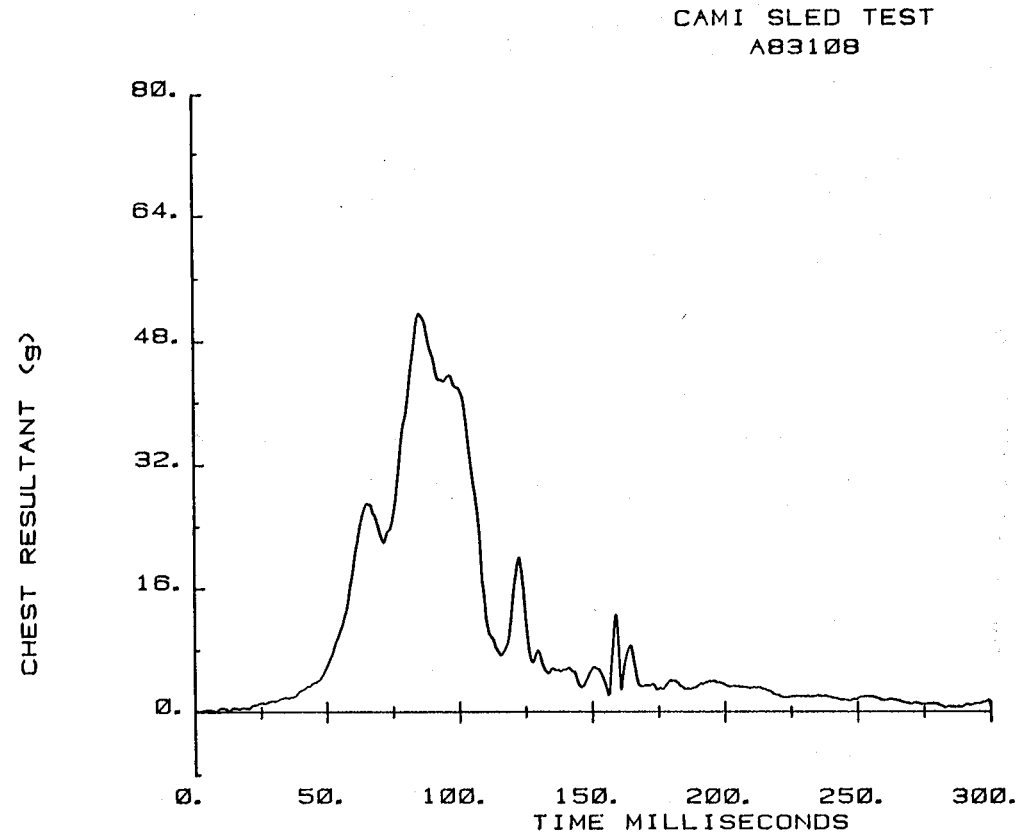

CAMI SLED TEST
A83108
PELVIS X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

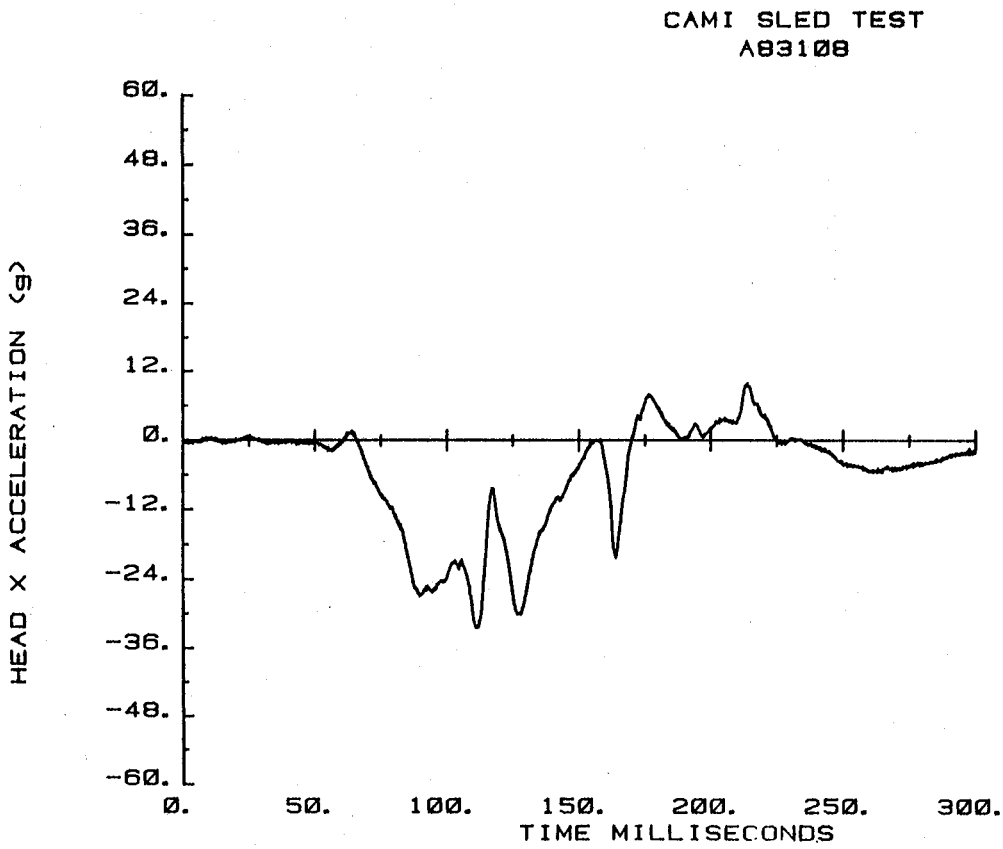

CAMI SLED TEST
A83108
PELVIS Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

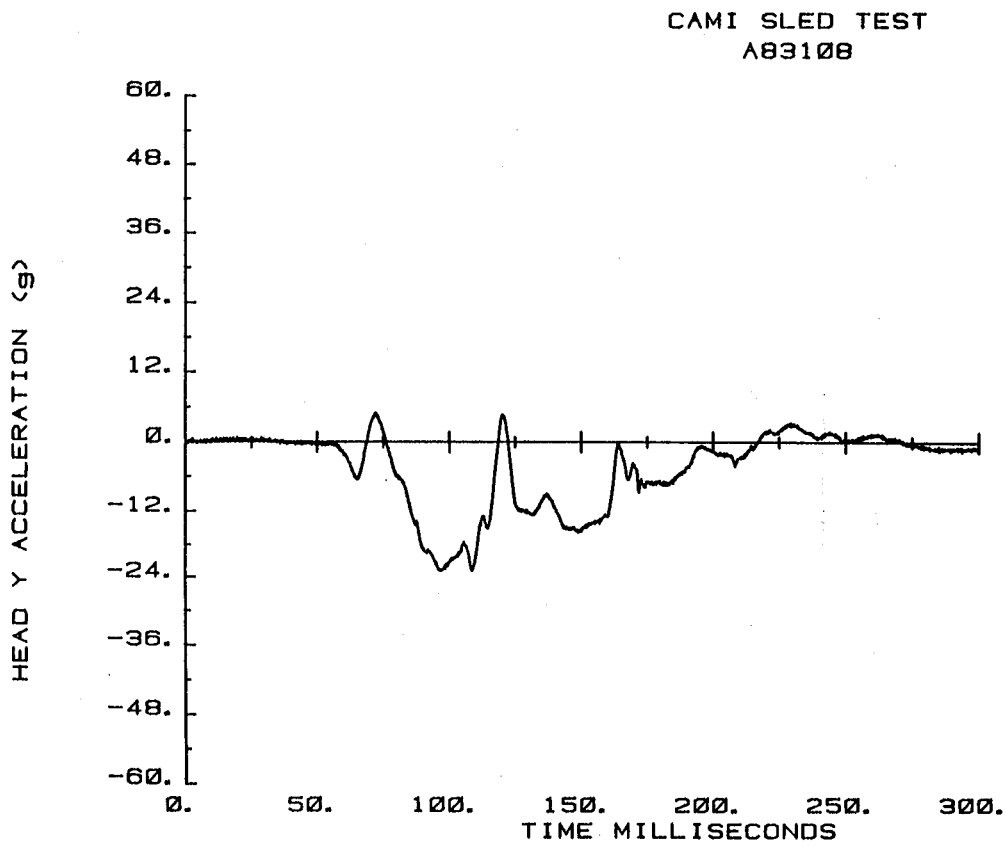

CAMI SLED TEST
A83108
CHEST X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

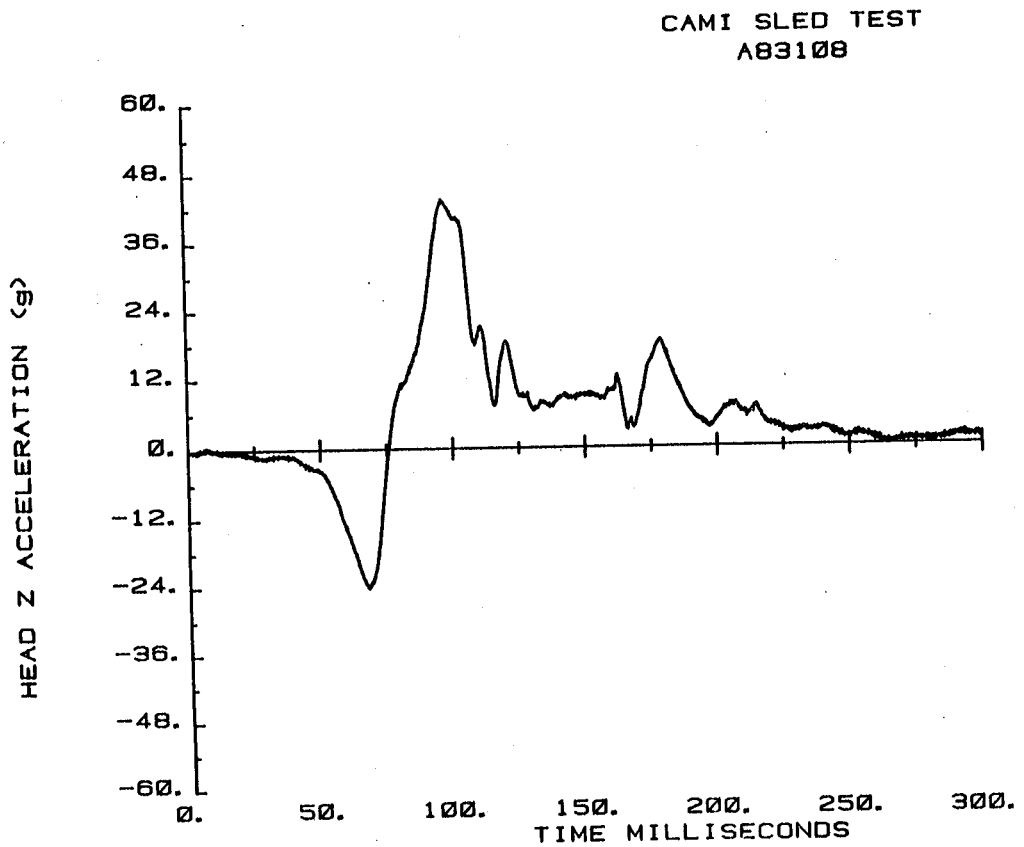

CAMI SLED TEST
A83108
CHEST Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

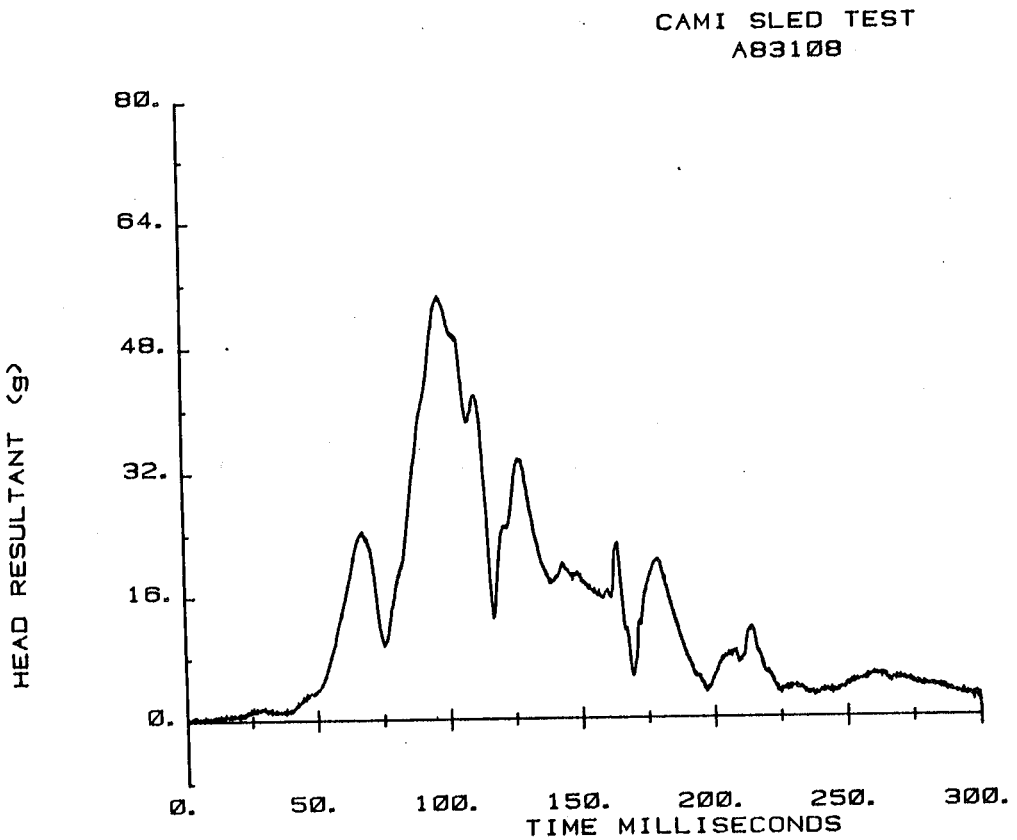

CAMI SLED TEST
A83108
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
CHEST Z ACCELERATION (g)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

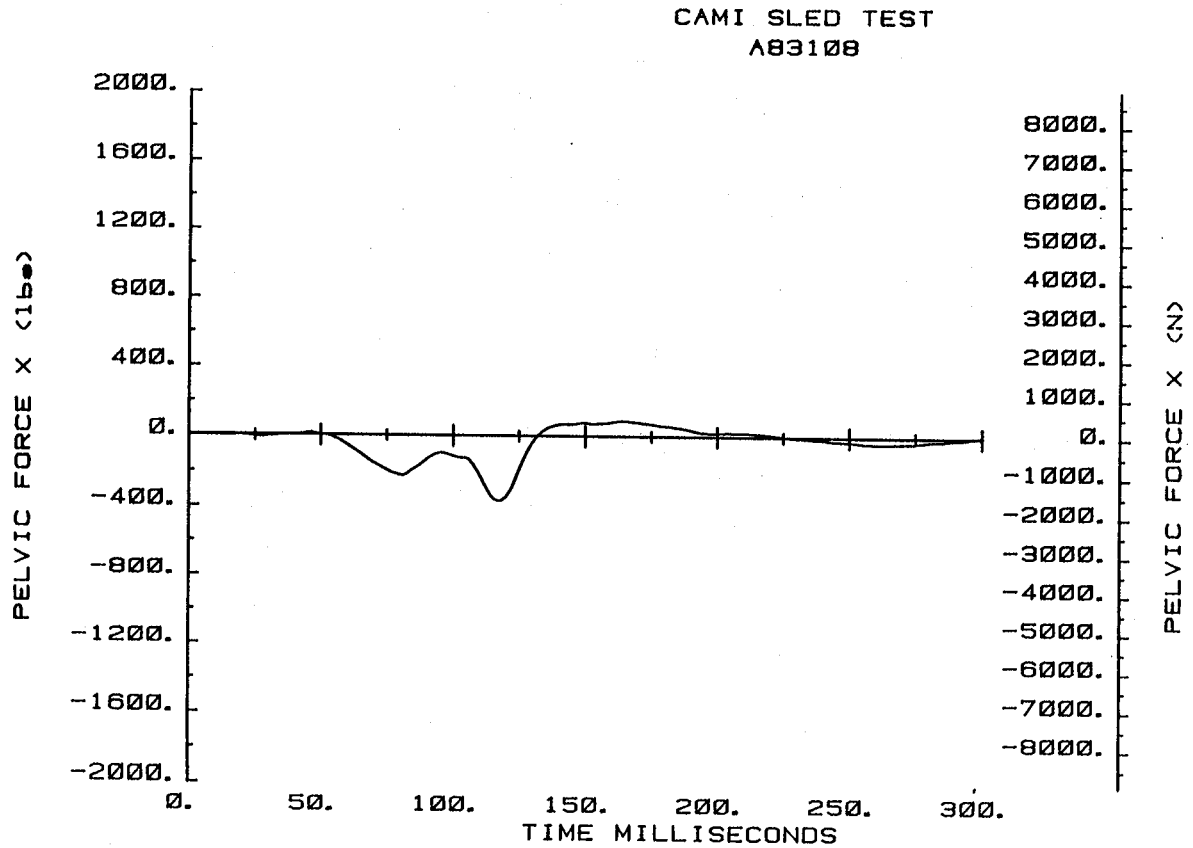

CAMI SLED TEST
A83108
80.
64.
48.
32.
16.
0.
CHEST RESULTANT (g)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

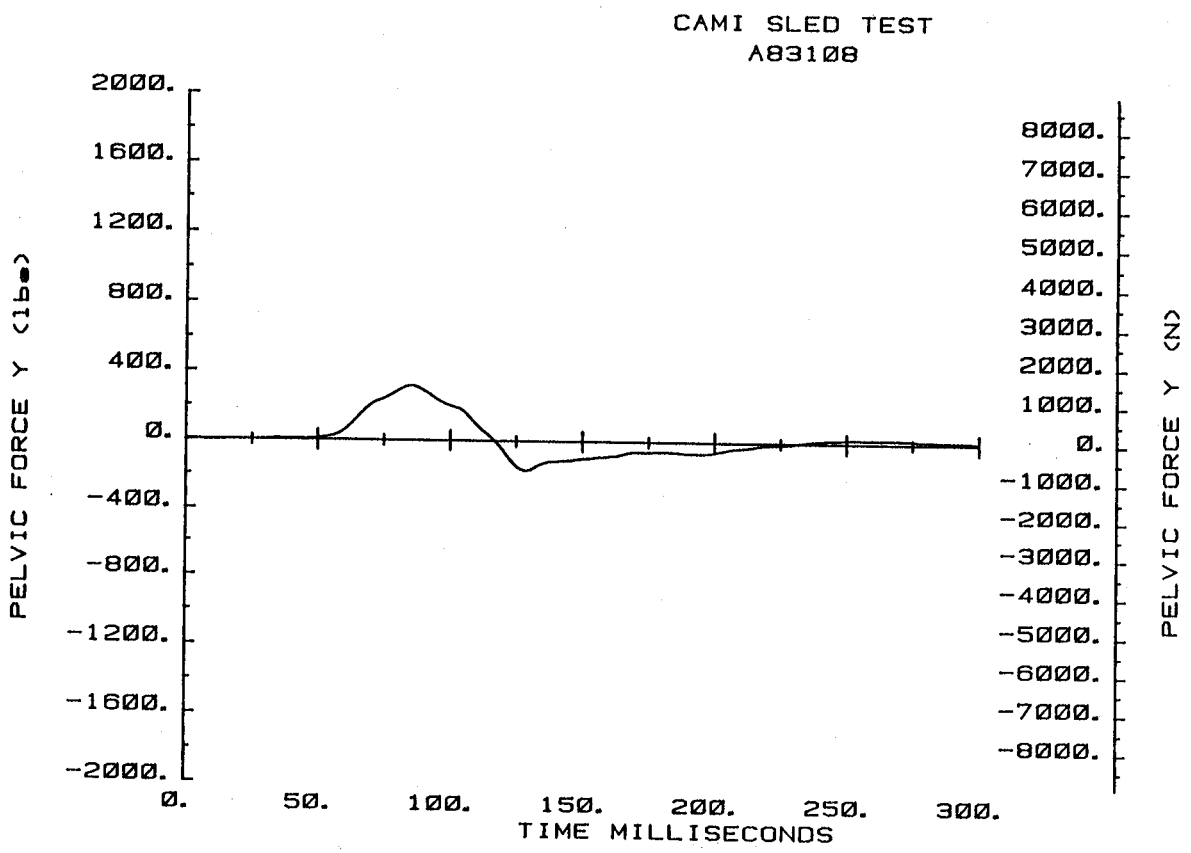

CAMI SLED TEST
A83108
HEAD X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

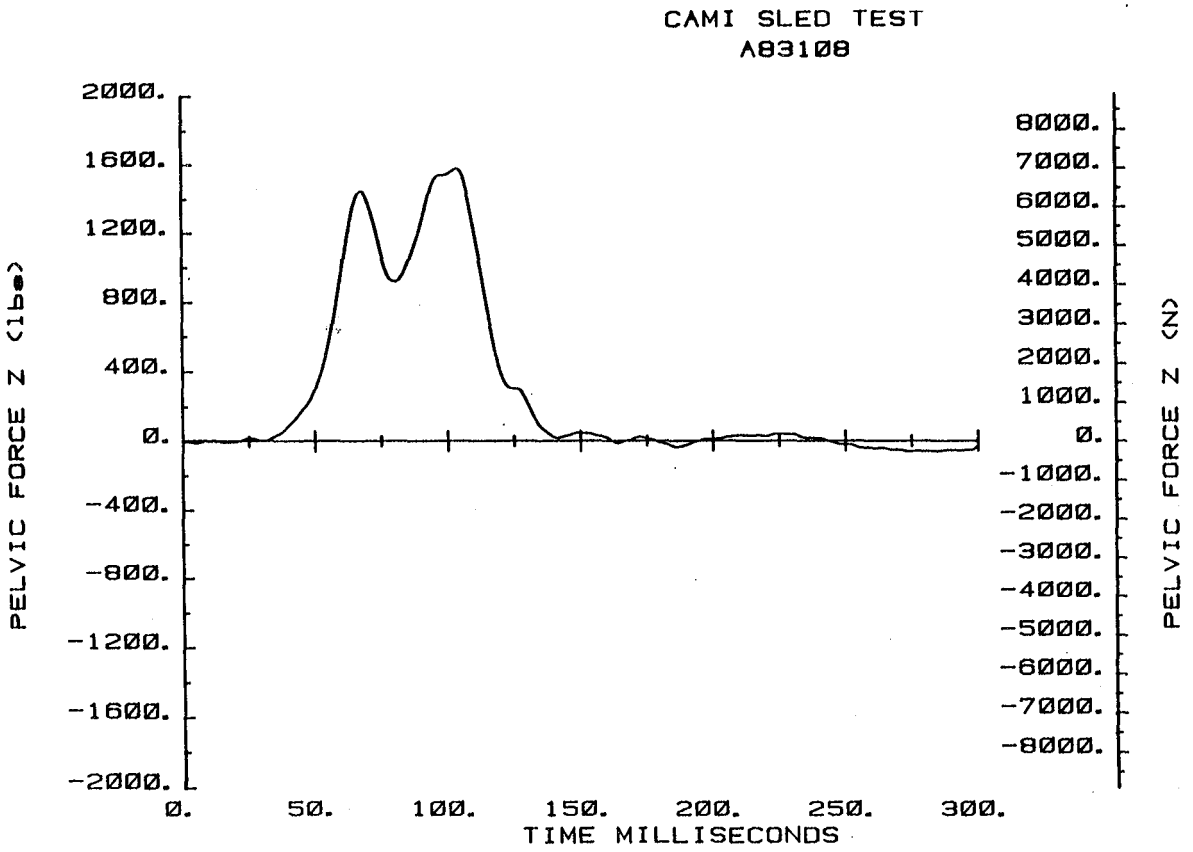

CAMI SLED TEST
A83108
HEAD Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

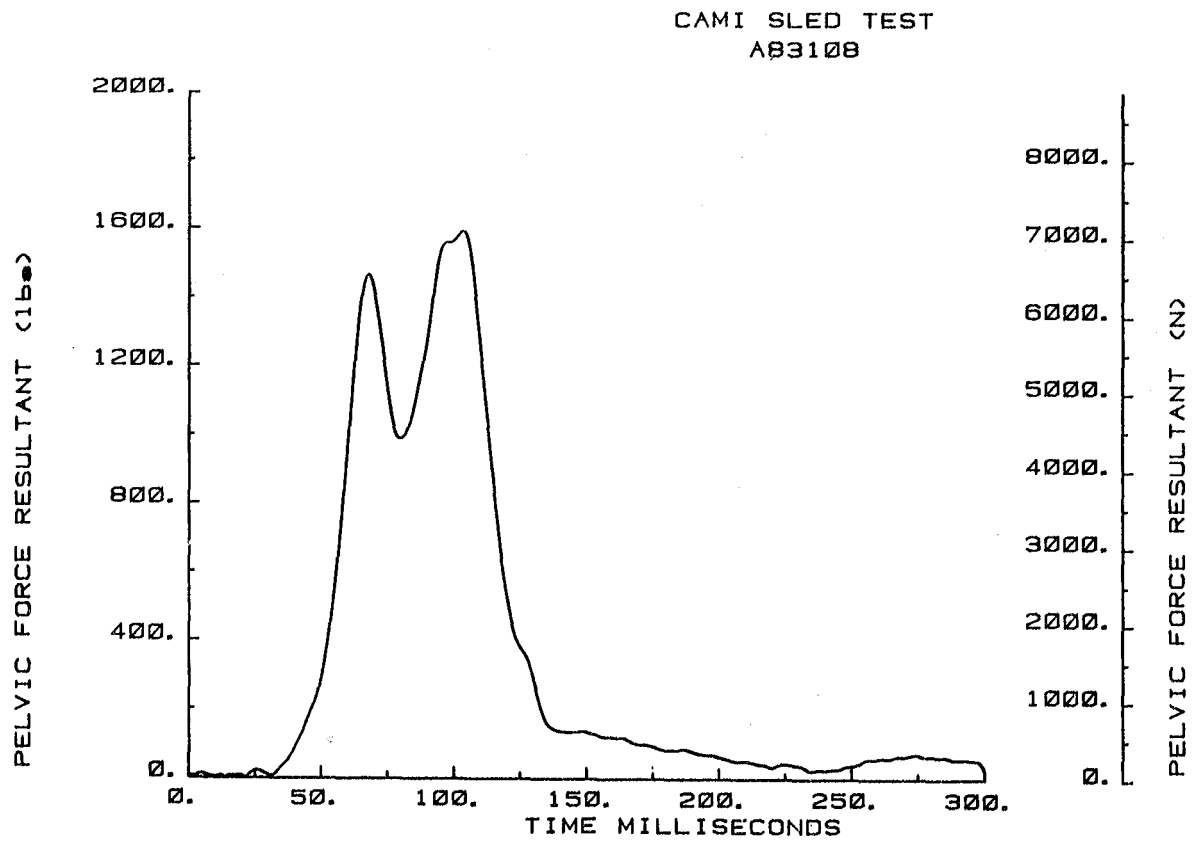

CAMI SLED TEST
A83108
HEAD Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

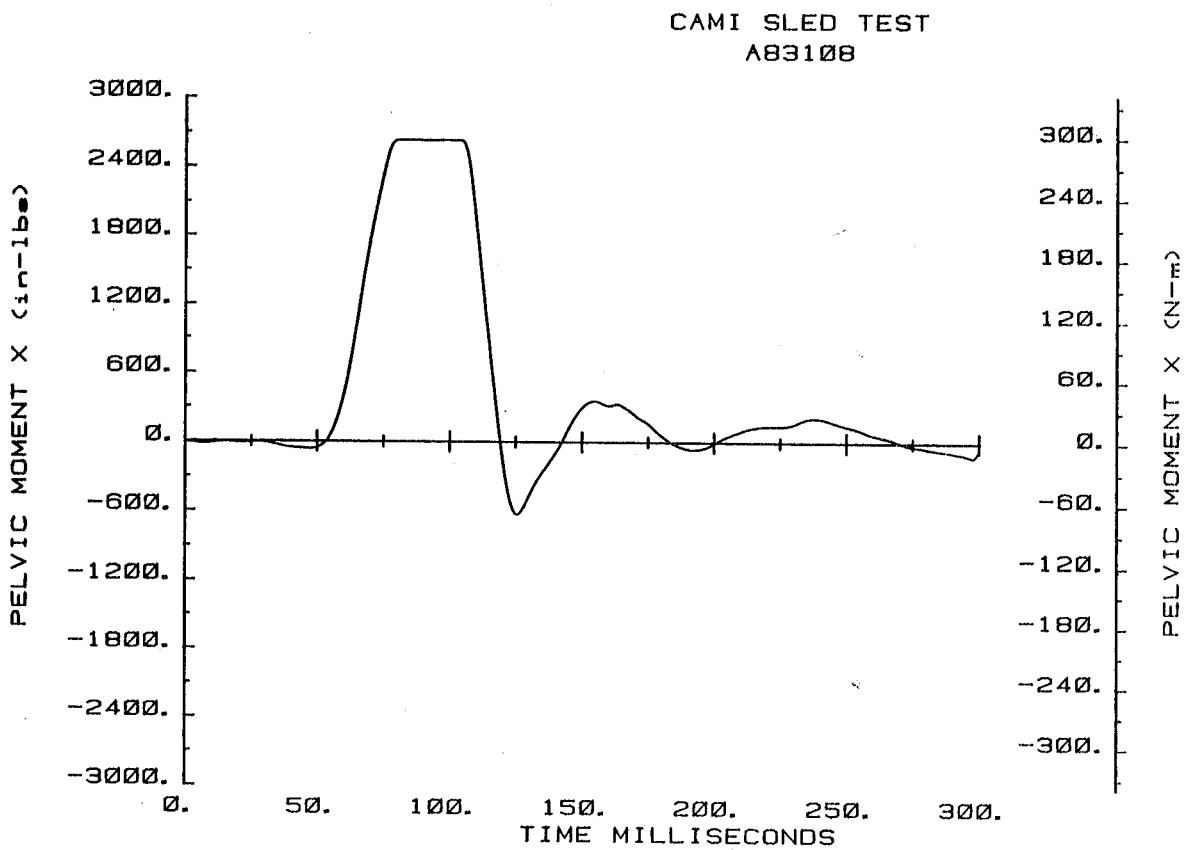

CAMI SLED TEST
A83108
HEAD RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

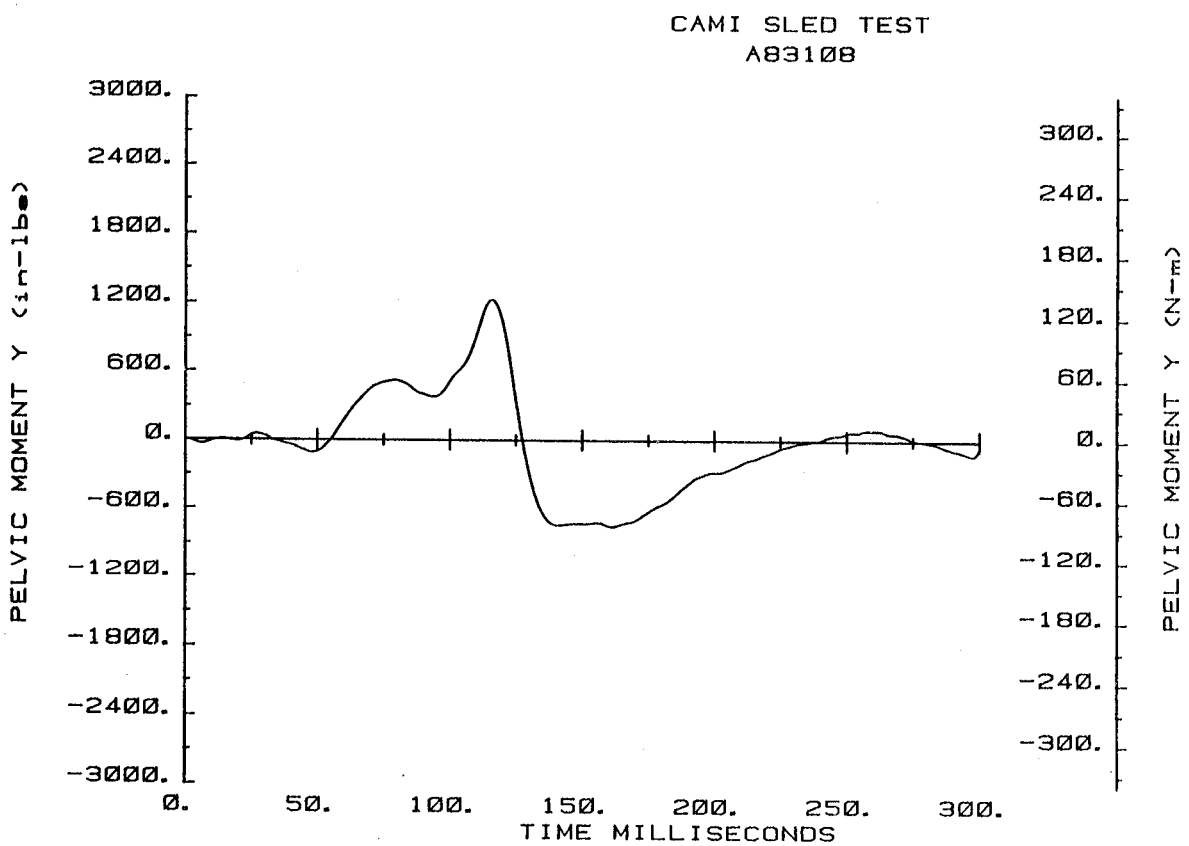

CAMI SLED TEST
A83108
PELVIC FORCE X (lb.)
PELVIC FORCE X (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

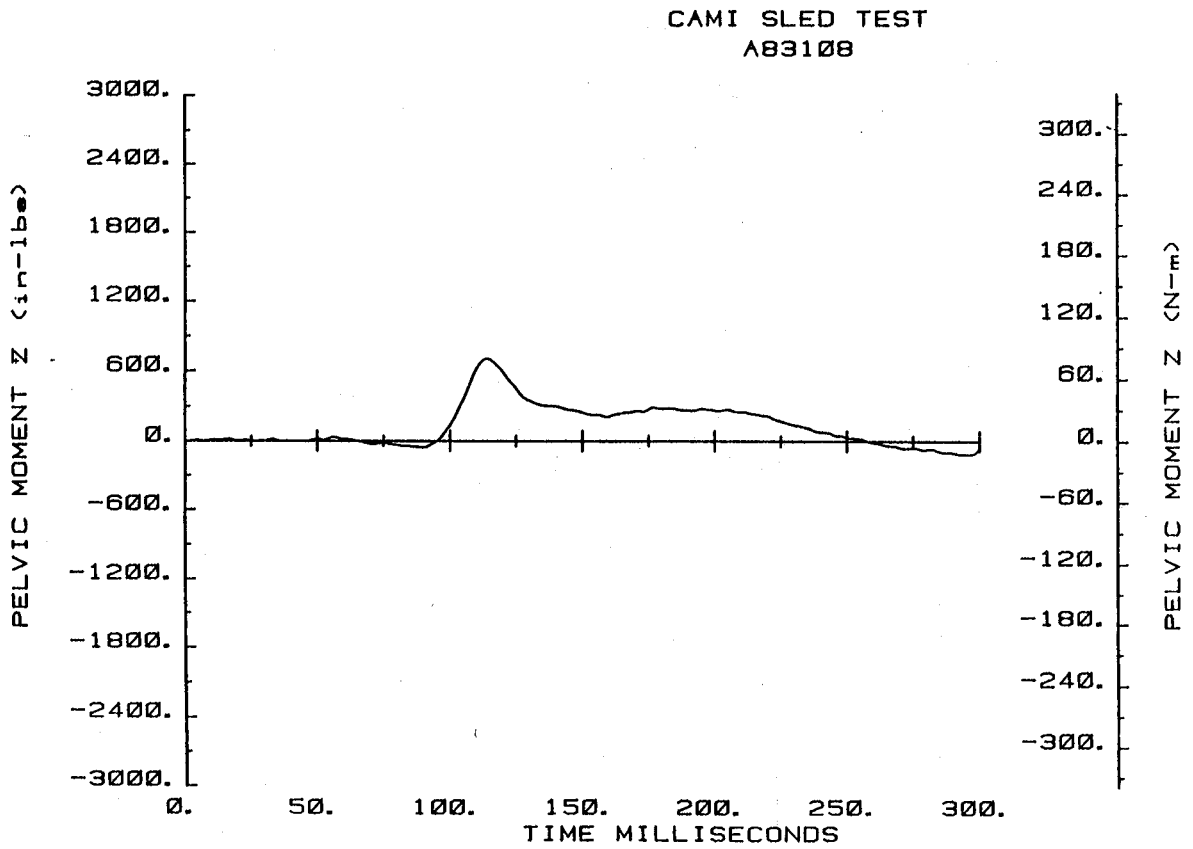

CAMI SLED TEST
A83108
PELVIC FORCE Y (lb.)
PELVIC FORCE Y (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

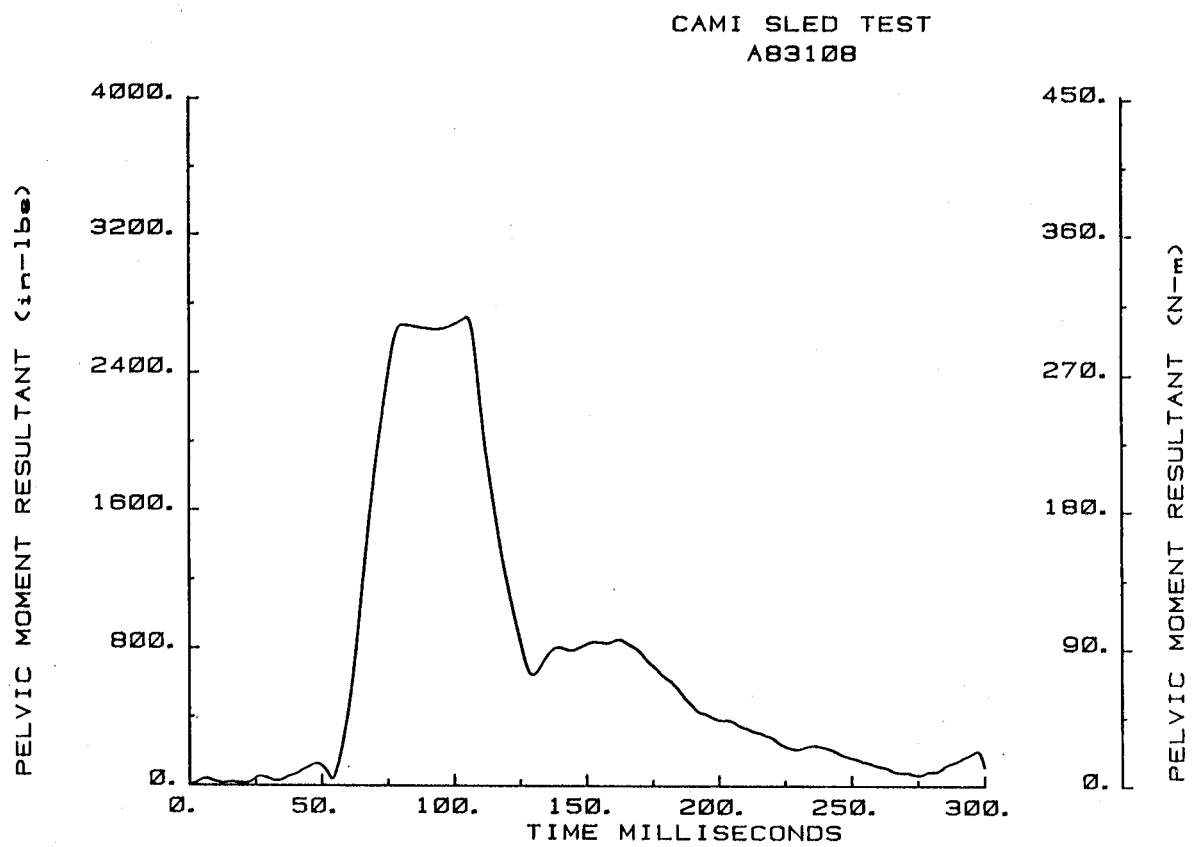

CAMI SLED TEST
A83108
PELVIC FORCE Z (lbs)
PELVIC FORCE Z (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

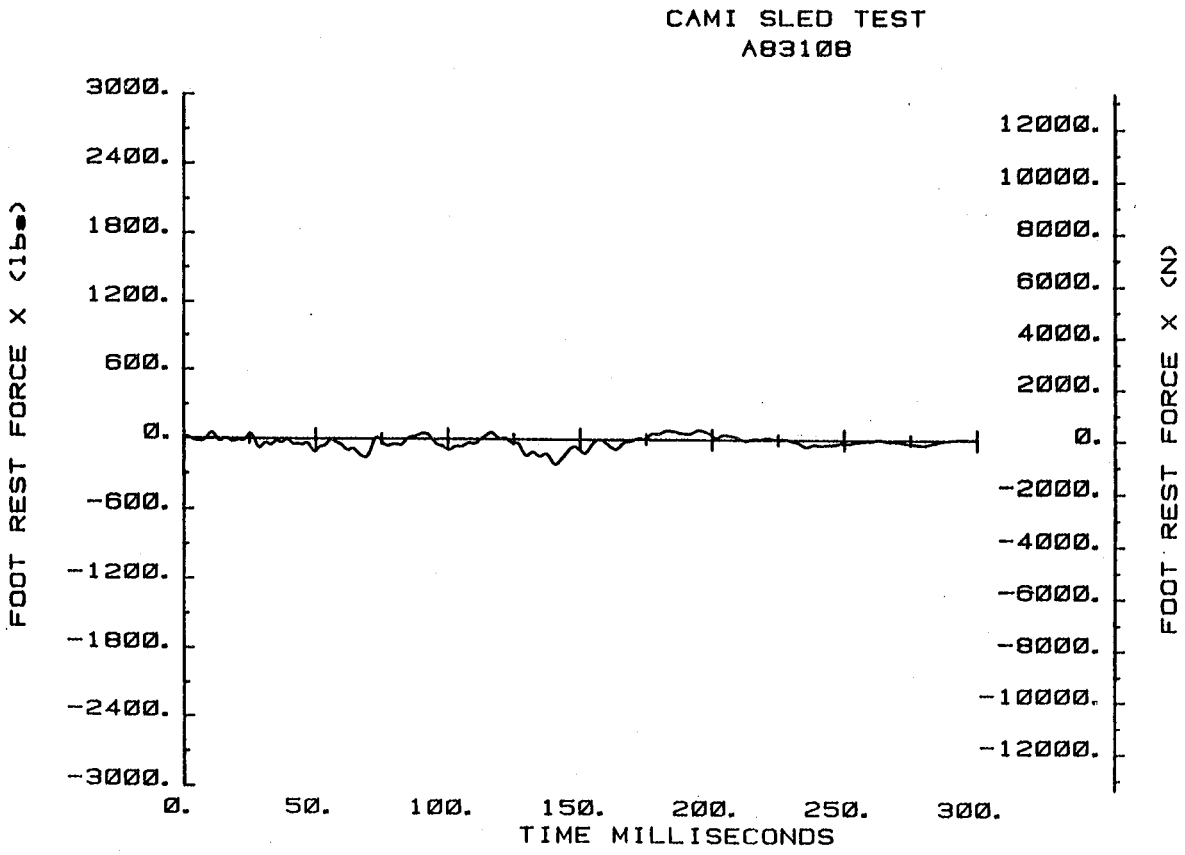

CAMI SLED TEST
A83108
PELVIC FORCE RESULTANT (lbs)
PELVIC FORCE RESULTANT (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

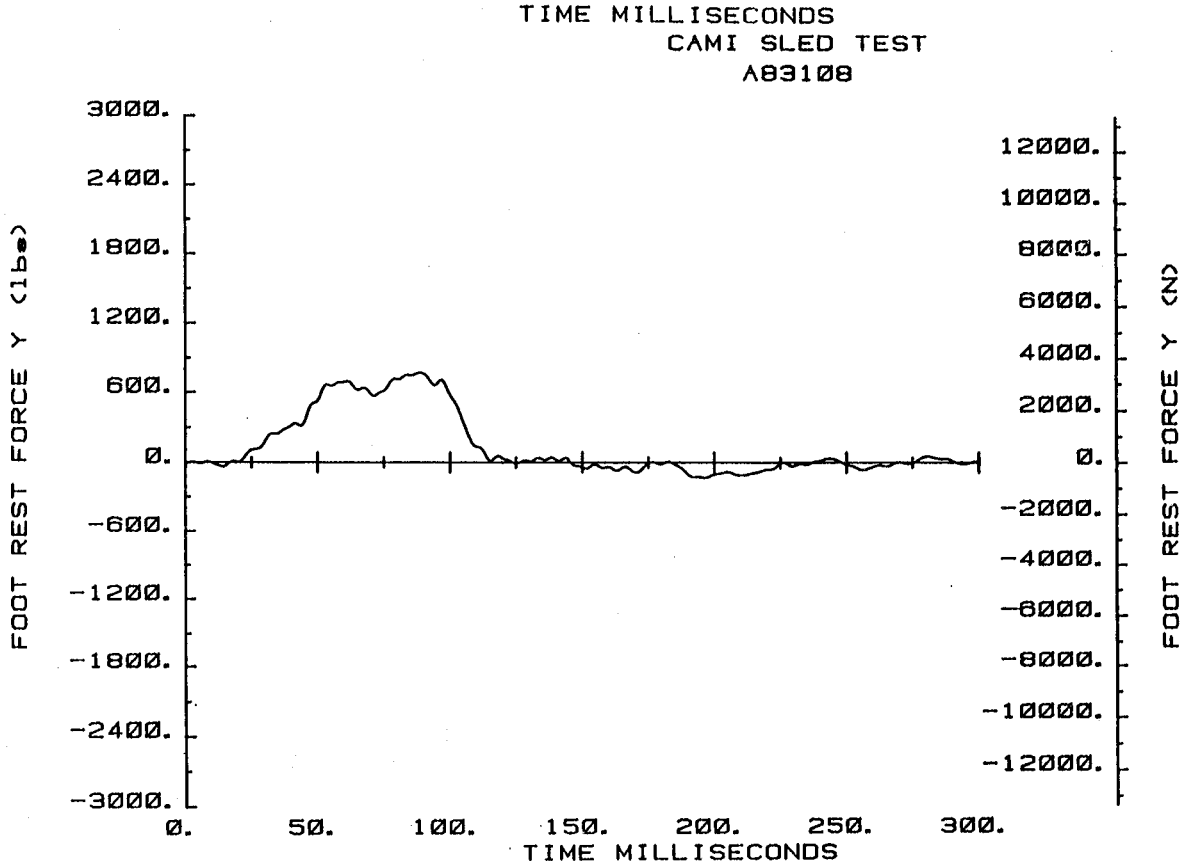

CAMI SLED TEST
A83108
PELVIC MOMENT X (in-lb)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT X (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

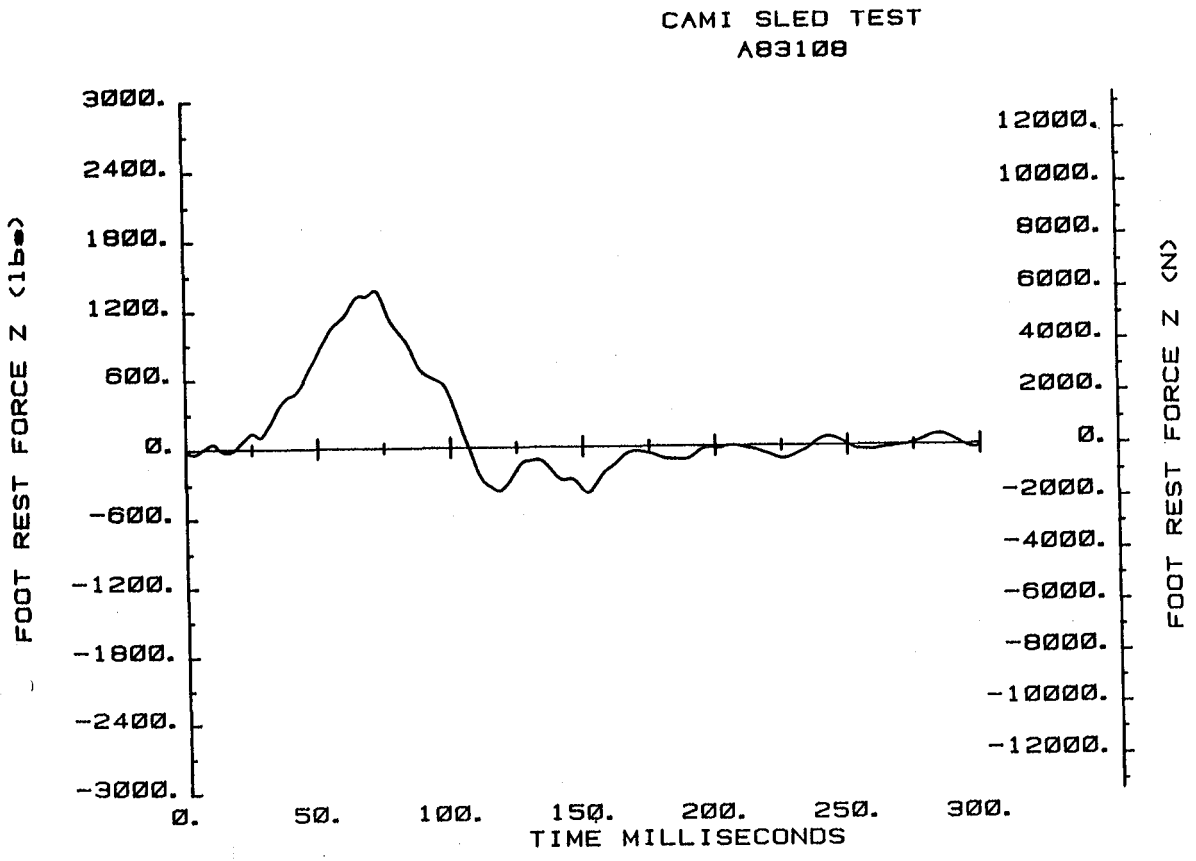

CAMI SLED TEST
A83108
PELVIC MOMENT Y (in-lb)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT Y (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

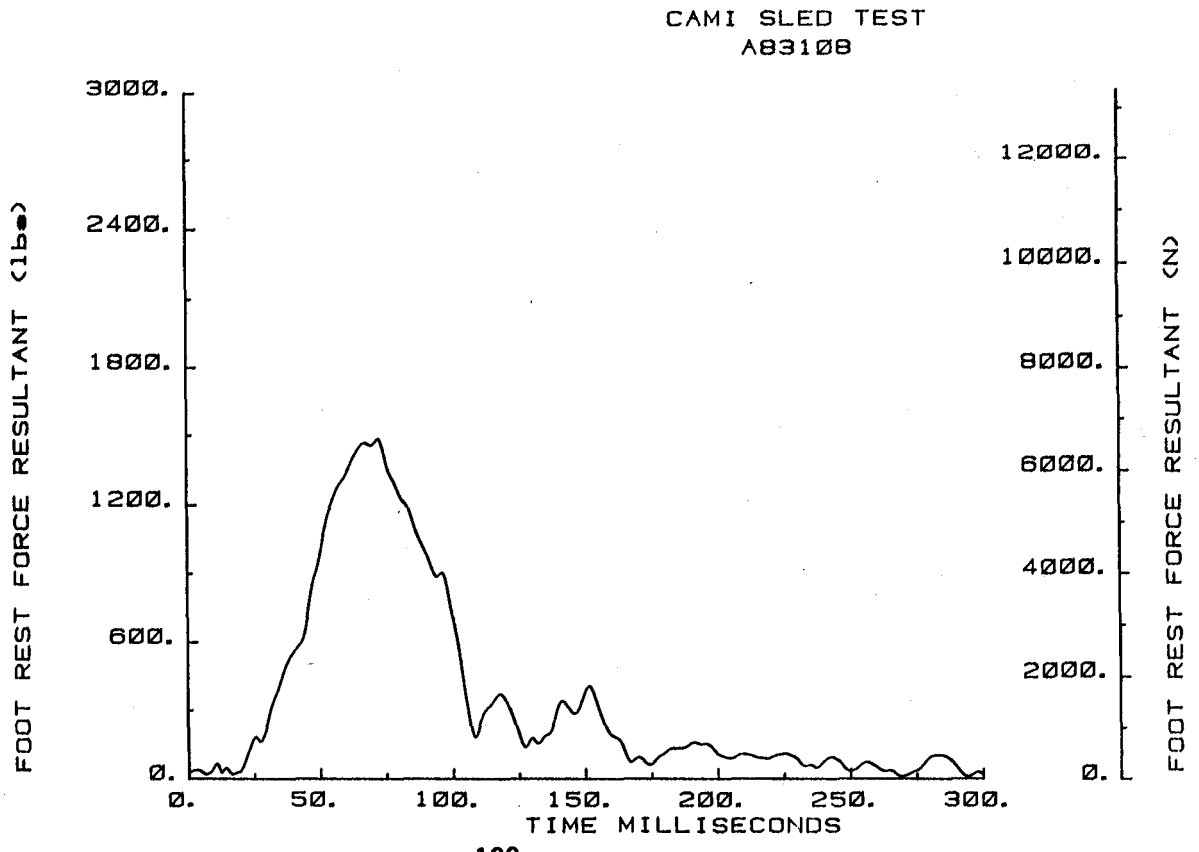

CAMI SLED TEST
A83108
PELVIC MOMENT Z (in-lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT Z (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

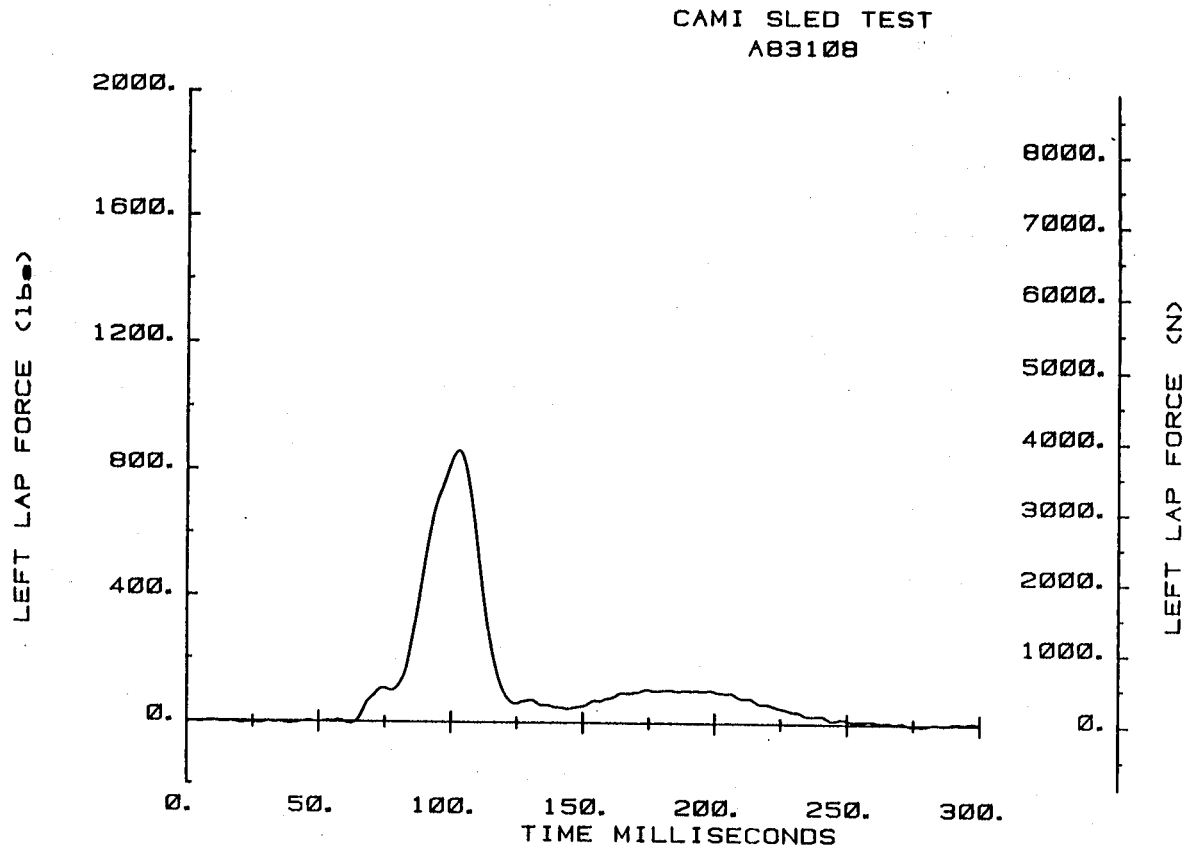

CAMI SLED TEST
A83108
PELVIC MOMENT RESULTANT (in-lbs)
4000.
3200.
2400.
1600.
800.
0.
PELVIC MOMENT RESULTANT (N-m)
450.
360.
270.
180.
90.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

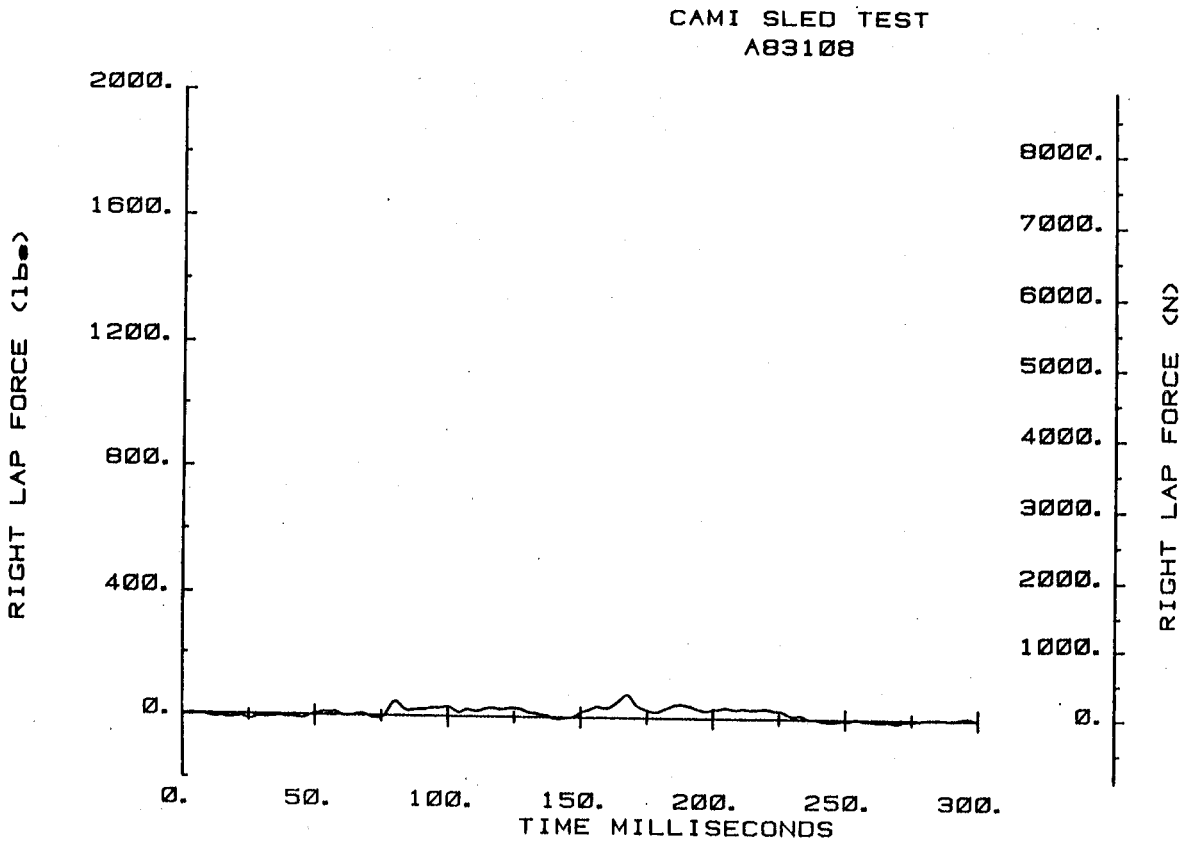

CAMI SLED TEST
A83108
FOOT REST FORCE X (lbs)
FOOT REST FORCE X (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

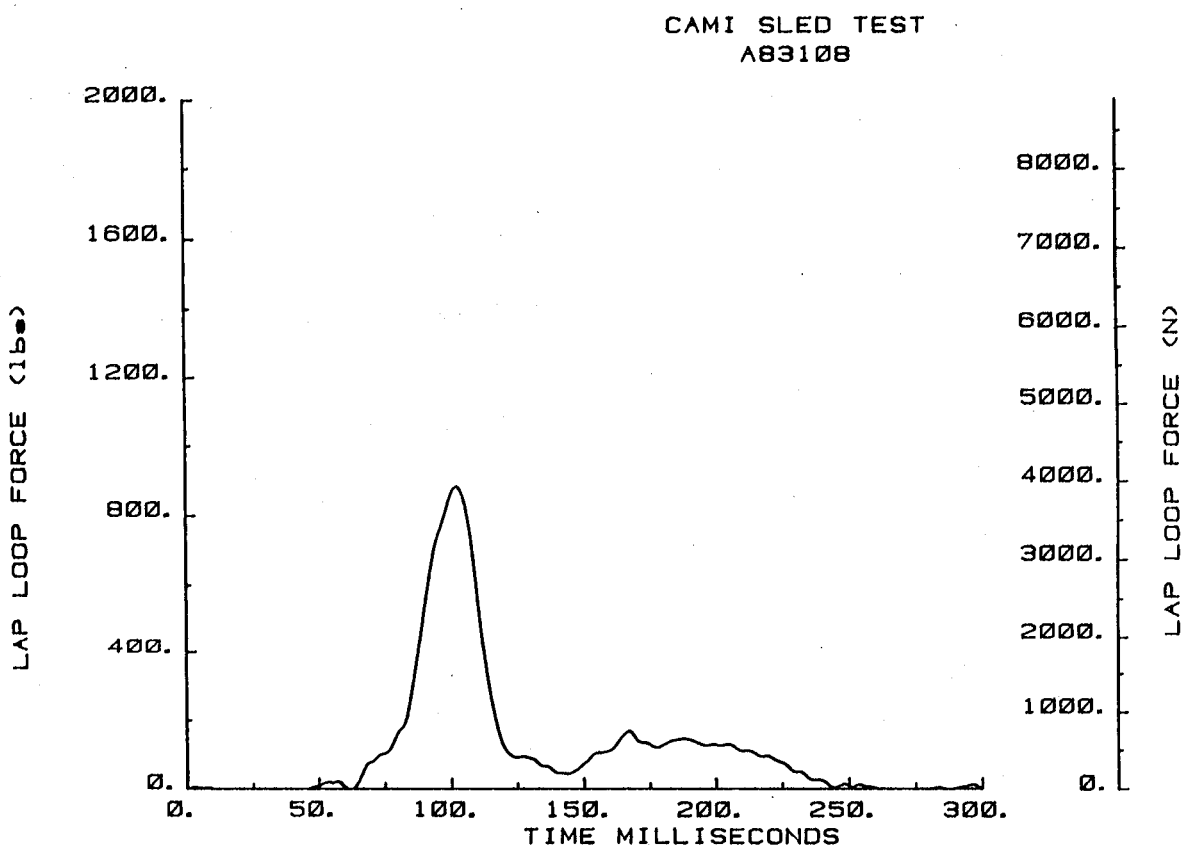

CAMI SLED TEST
A83108
FOOT REST FORCE Y (lbs)
FOOT REST FORCE Y (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

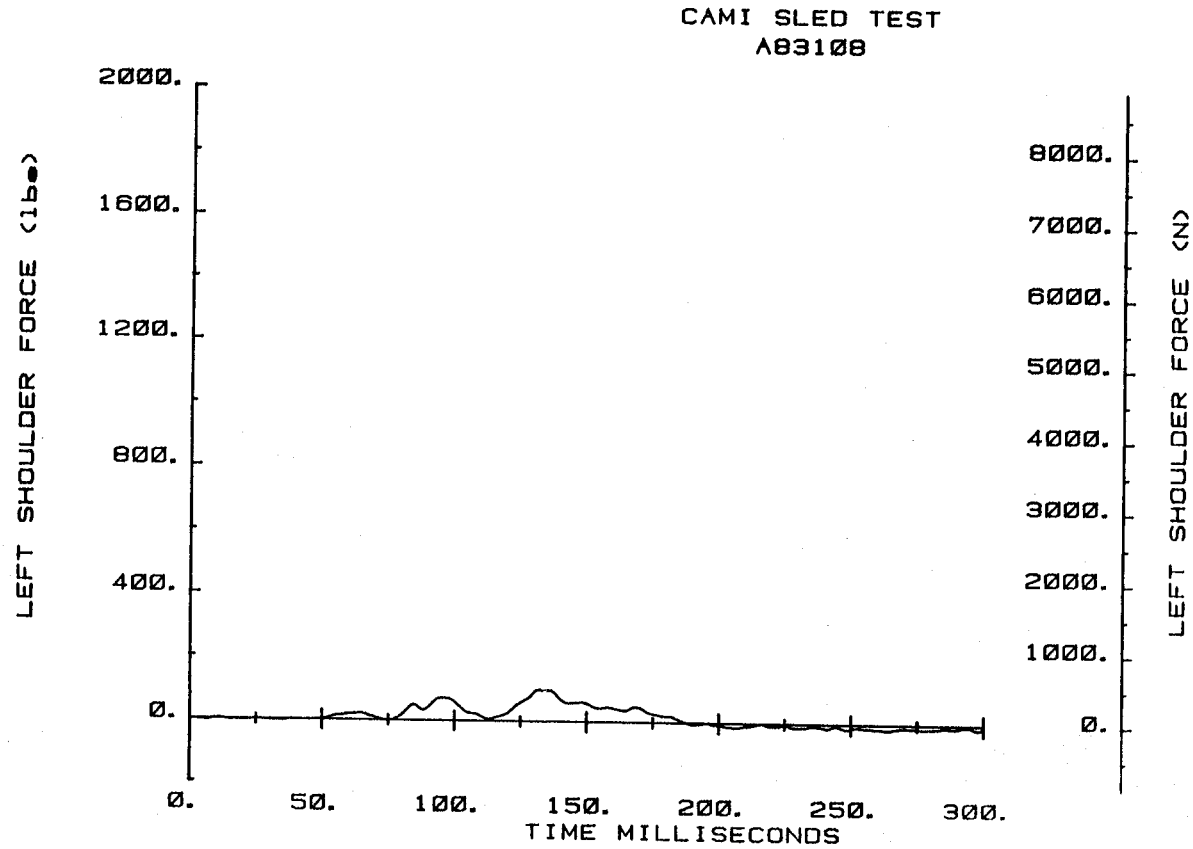

CAMI SLED TEST
A83108
FOOT REST FORCE Z (lb)
FOOT REST FORCE Z (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

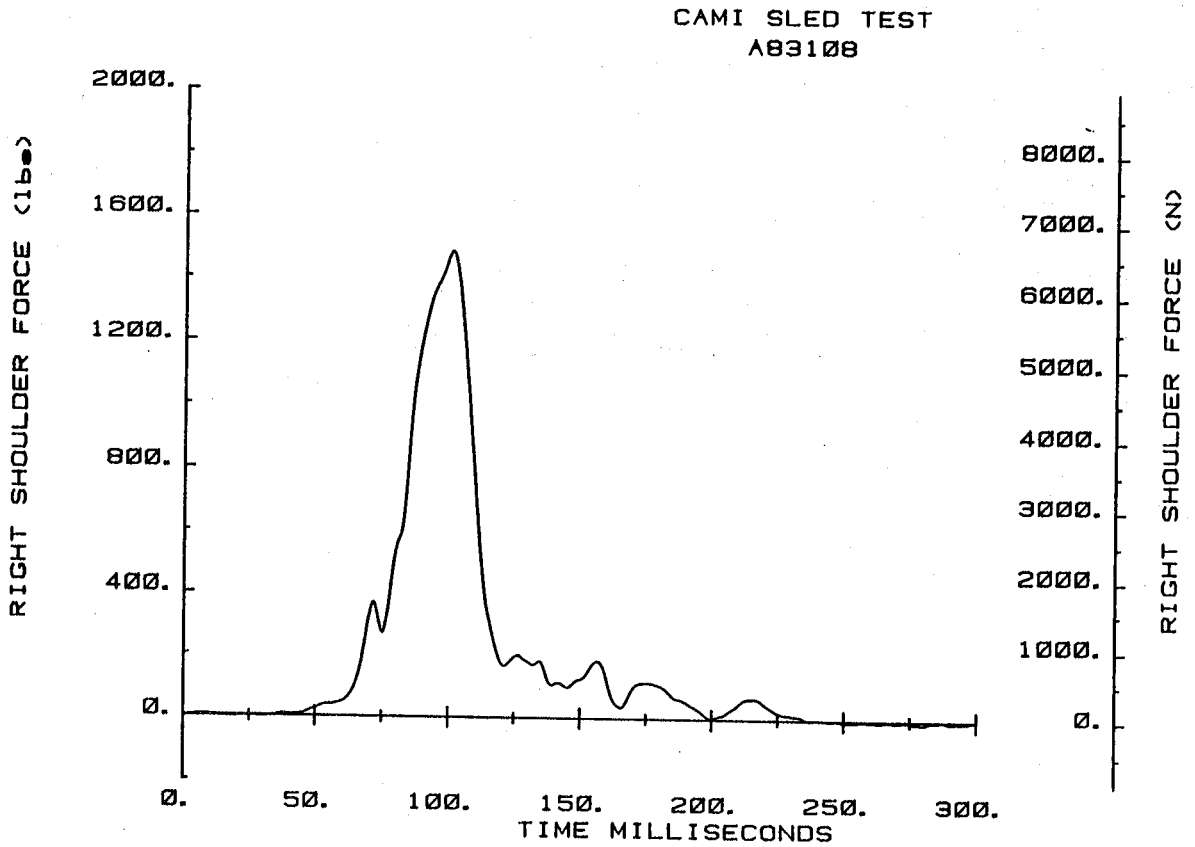

CAMI SLED TEST
A83108
FOOT REST FORCE RESULTANT (lb)
FOOT REST FORCE RESULTANT (N)
3000.
2400.
1800.
1200.
600.
0.
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

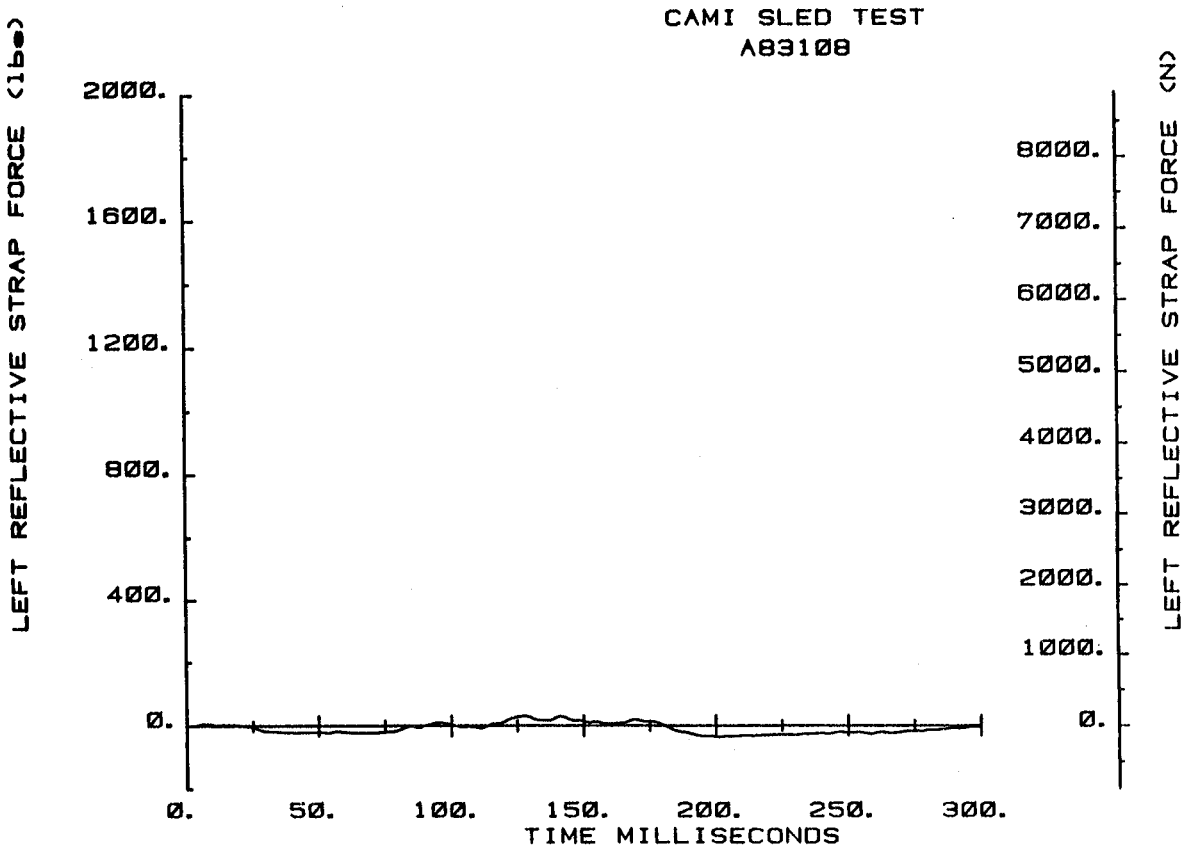

CAMI SLED TEST
A83108
LEFT LAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT LAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

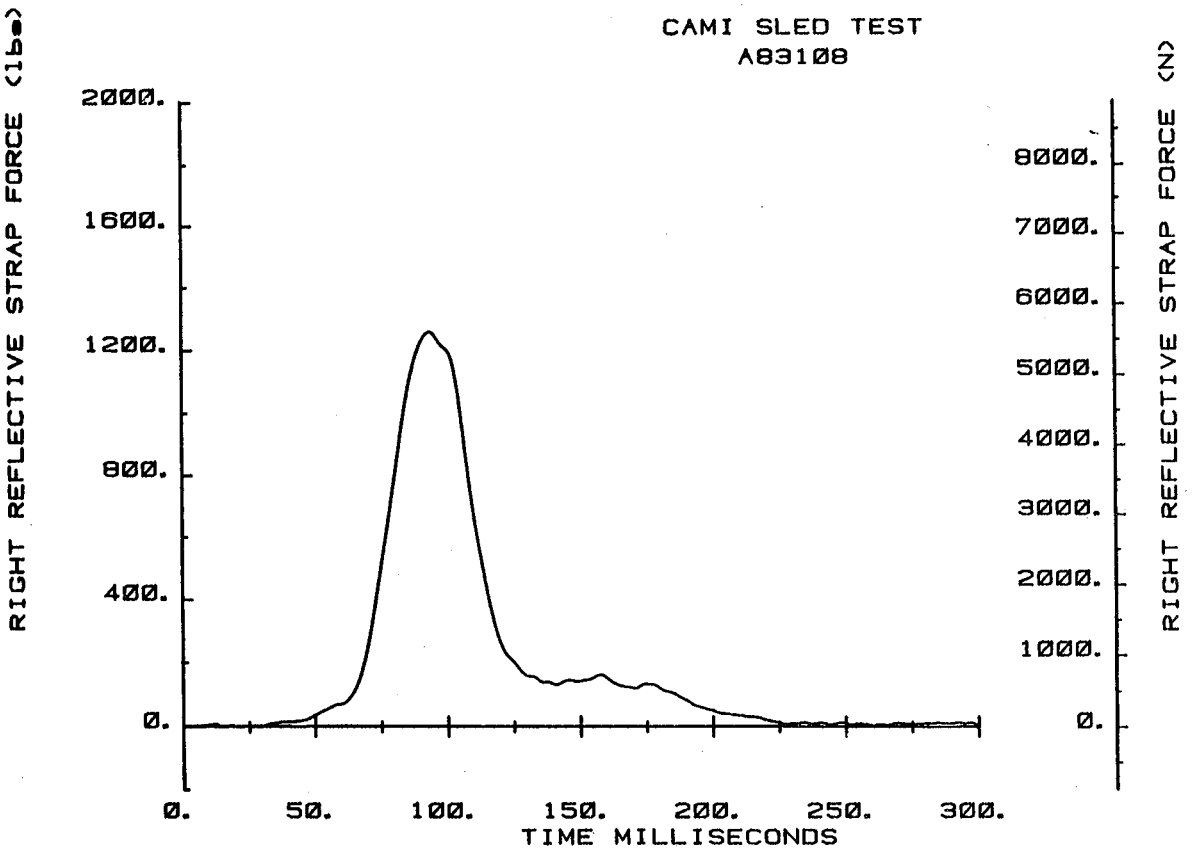

CAMI SLED TEST
A83108
RIGHT LAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT LAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

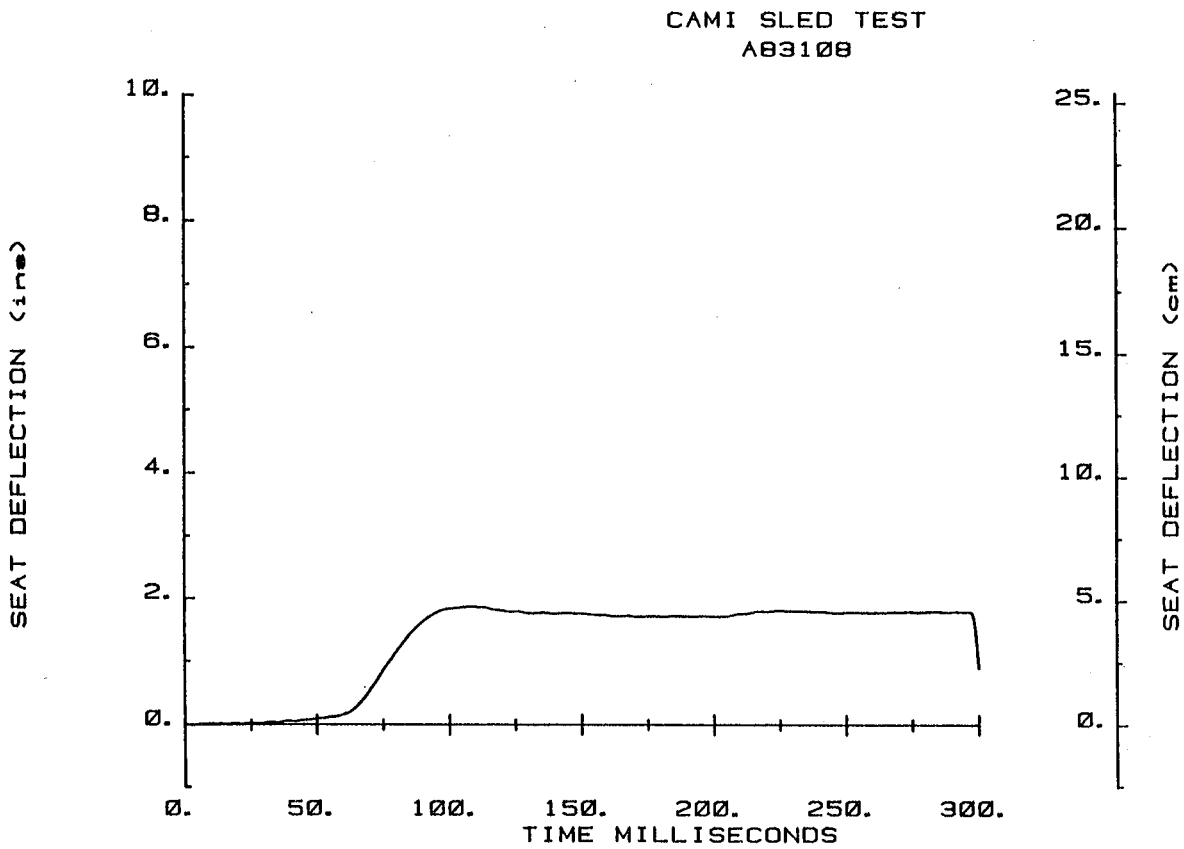

CAMI SLED TEST
A83108
LAP LOOP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LAP LOOP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

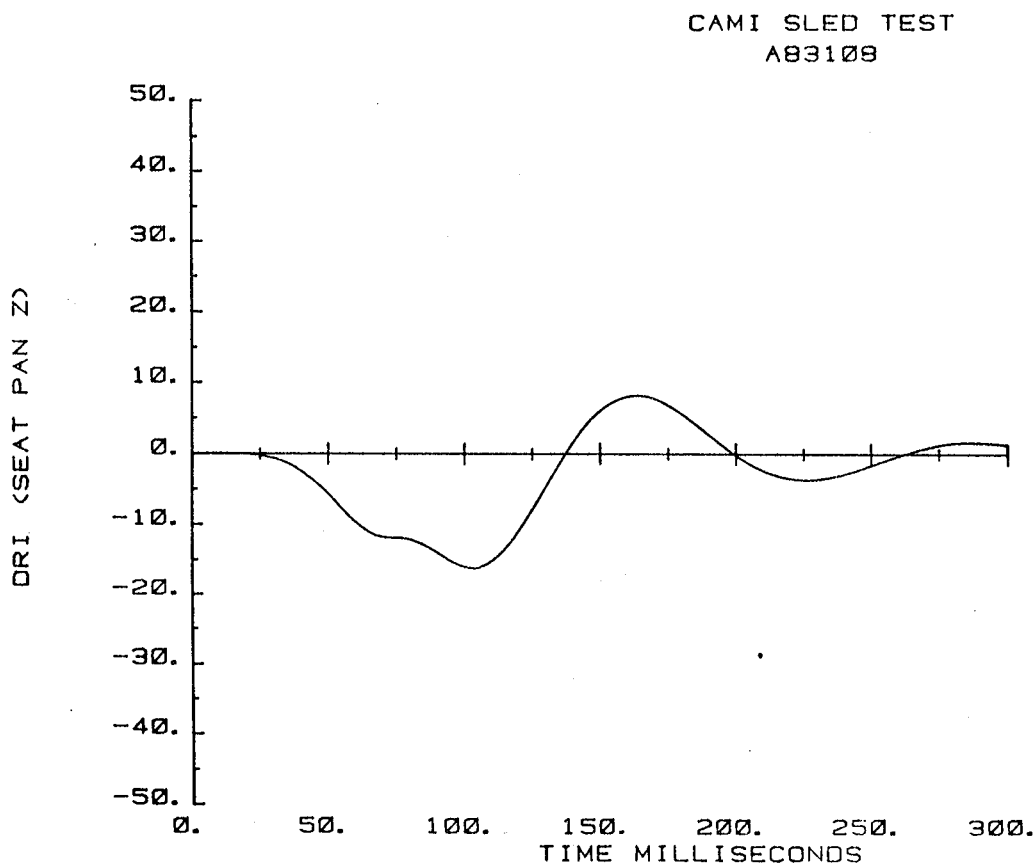

CAMI SLED TEST
A83108
LEFT SHOULDER FORCE (lb.)
2000.
1600.
1200.
800.
400.
0.
LEFT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

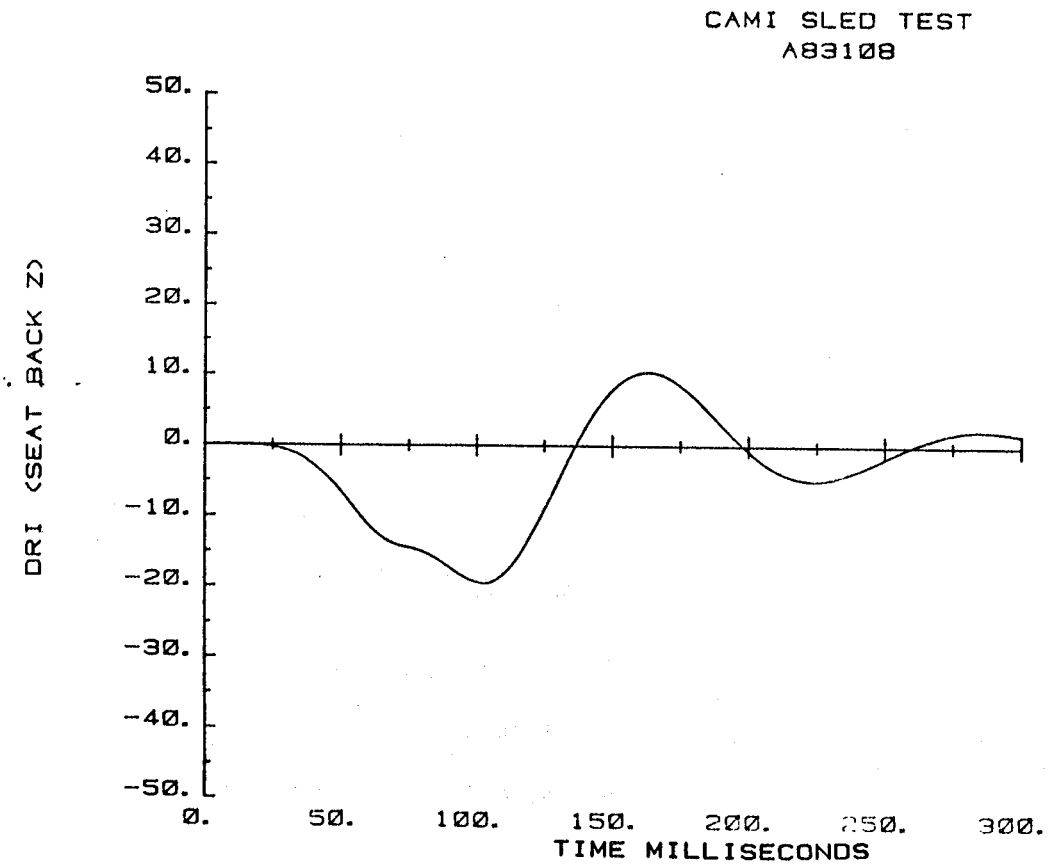

CAMI SLED TEST
A83108
RIGHT SHOULDER FORCE (lb.)
2000.
1600.
1200.
800.
400.
0.
RIGHT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

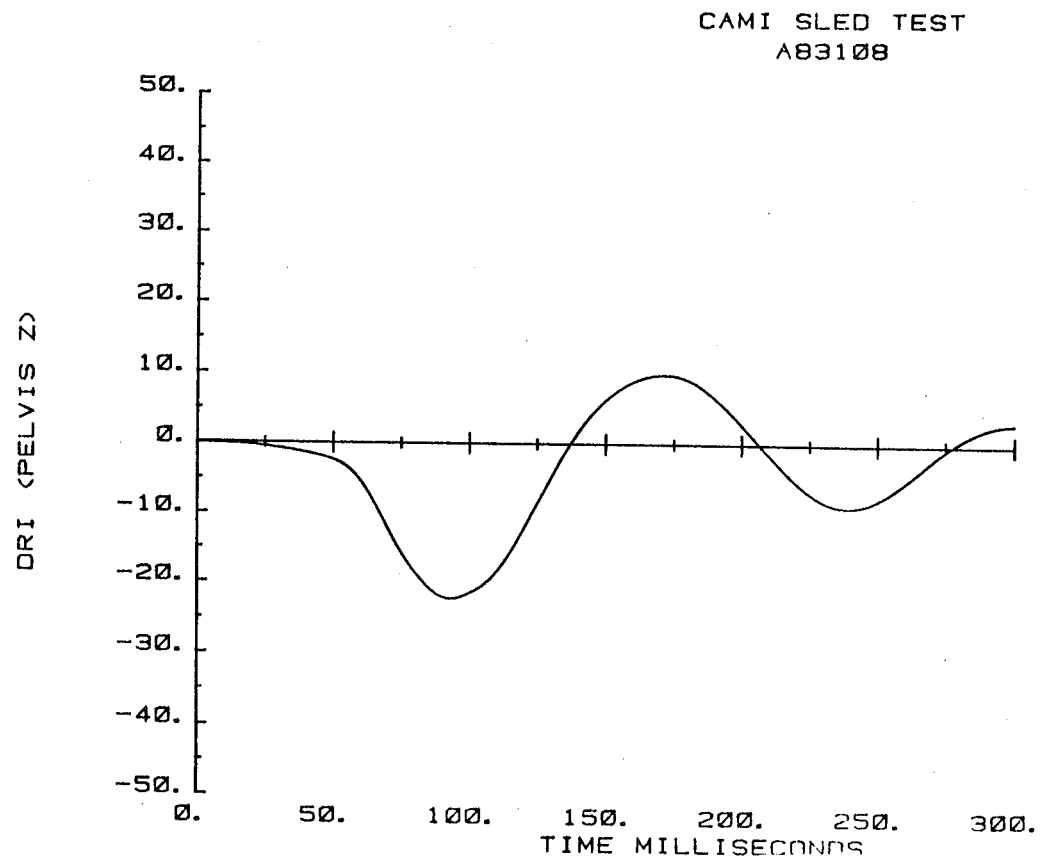

CAMI SLED TEST
A83108
LEFT REFLECTIVE STRAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT REFLECTIVE STRAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83108
RIGHT REFLECTIVE STRAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT REFLECTIVE STRAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83108
SEAT DEFLECTION (ins)
SEAT DEFLECTION (cm)
10.
8.
6.
4.
2.
0.
25.
20.
15.
10.
5.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83108
DRI (SEAT PAN Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83108
DRI (SEAT BACK Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83108
DRI (PELVIS Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

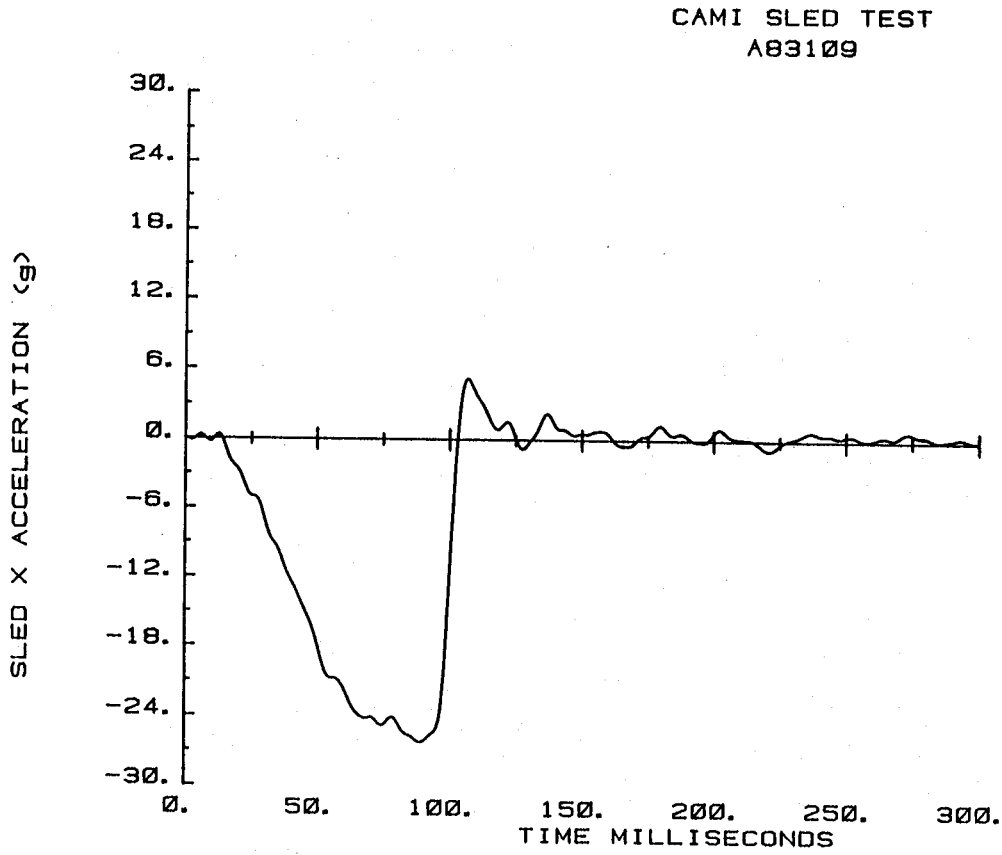
7.0 CAMI TEST NO. A83-109

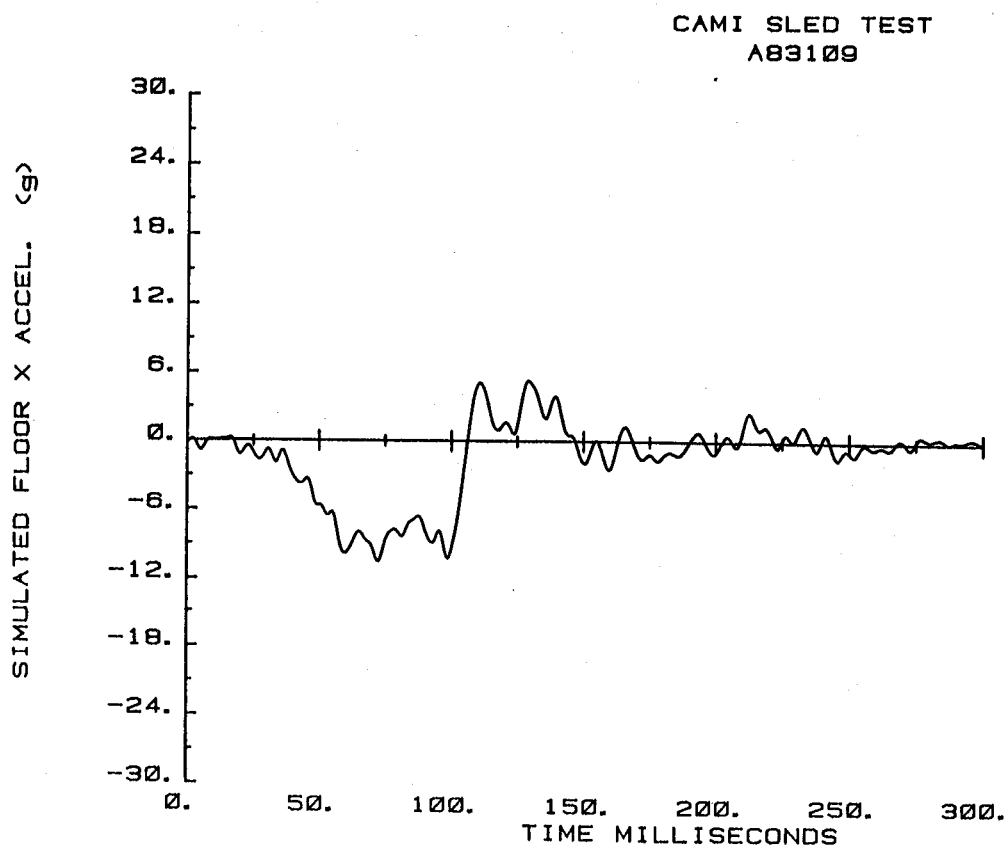
SEAT: Energy Absorbing

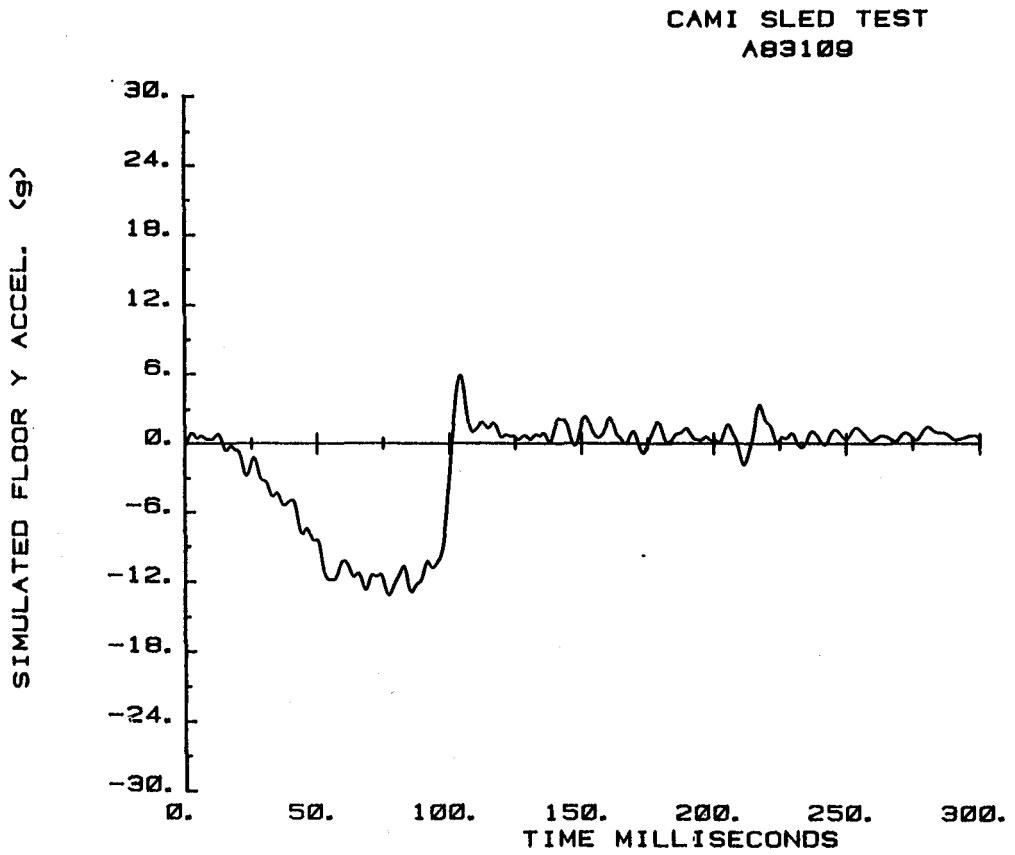
PULSE NUMBER: 4

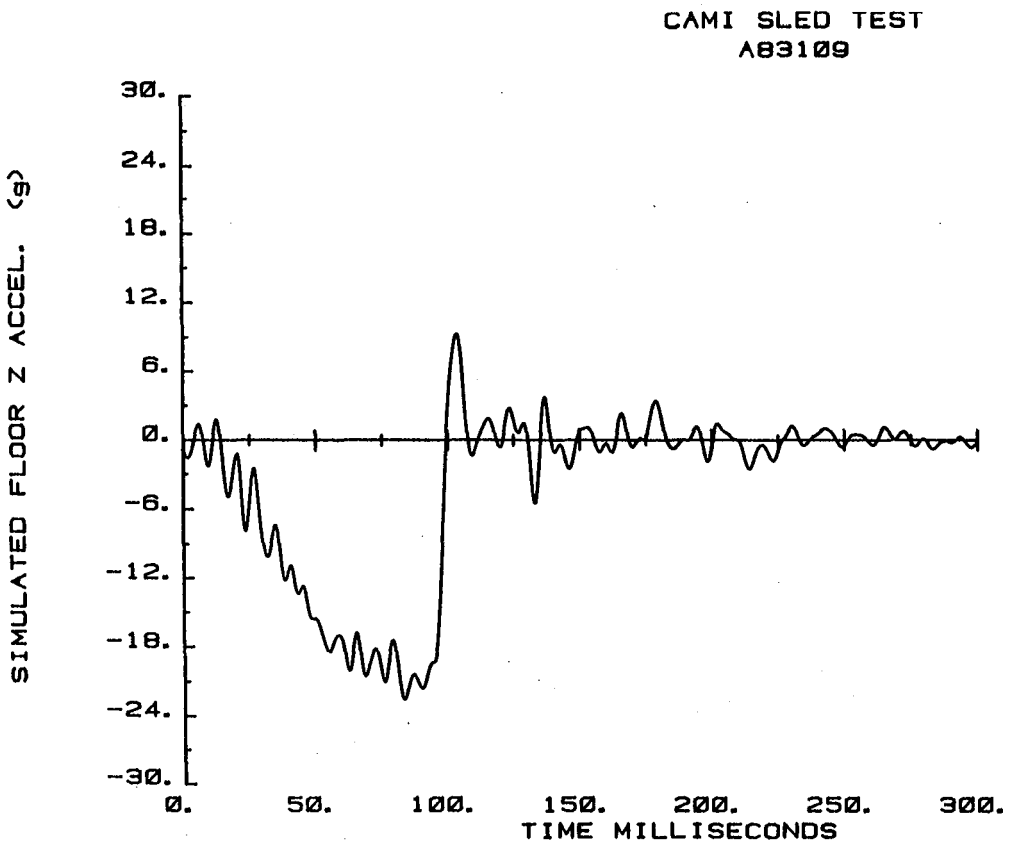
SEAT ORIENTATION: Pitch - 70°
Roll - 0°
Yaw - 30°

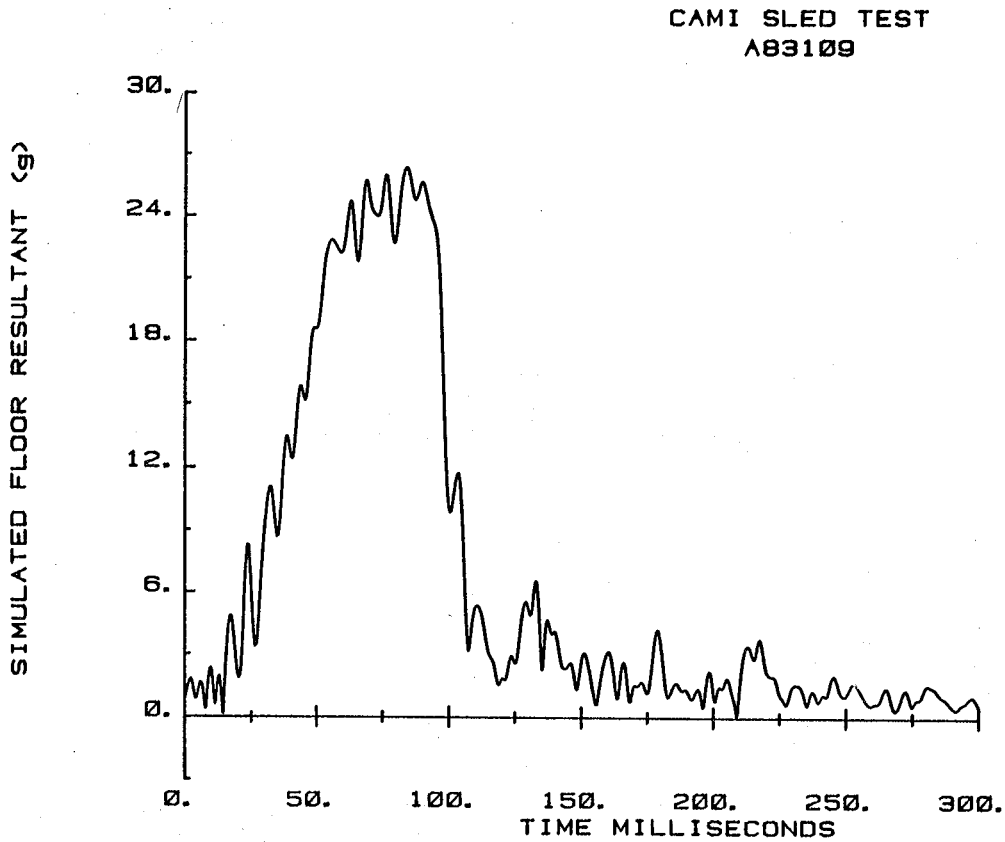
RUN#	V A R I A B L E		PEAK1	T	PEAK2	T	RANGE	FILE
A83109	SLED X ACCELERATION	(g)	-26.2	89			(0, 300)	* F10901
A83109	HEAD X ACCELERATION	(g)	-30.1	132	38.2	208	(0, 300)	* F10903
A83109	HEAD Y ACCELERATION	(g)	-16.2	152	39.6	208	(0, 300)	* F10904
A83109	HEAD Z ACCELERATION	(g)	-23.6	67	25.1	168	(0, 300)	* F10905
A83109	CHEST X ACCELERATION	(g)	-18.9	92	12.7	123	(0, 300)	* F10906
A83109	CHEST Y ACCELERATION	(g)	-28.7	93			(0, 300)	* F10907
A83109	CHEST Z ACCELERATION	(g)	-24.0	65			(0, 300)	* F10908
A83109	PELVIS X ACCELERATION	(g)	-12.8	109	6.0	153	(0, 300)	* F10909
A83109	PELVIS Y ACCELERATION	(g)	-22.5	66	6.0	183	(0, 300)	* F10910
A83109	PELVIS Z ACCELERATION	(g)	-25.8	60			(0, 300)	* F10911
A83109	SIMULATED FLOOR X ACCEL.	(g)	-10.5	72	5.3	129	(0, 300)	* F10912
A83109	SIMULATED FLOOR Y ACCEL.	(g)	-13.1	77	5.8	104	(0, 300)	* F10913
A83109	SIMULATED FLOOR Z ACCEL.	(g)	-22.5	83	9.3	103	(0, 300)	* F10914
A83109	FOOT REST FORCE X	(lbs)	-309.4	64	126.1	118	(0, 300)	* F10915
A83109	FOOT REST FORCE Y	(lbs)	568.2	68	-163.7	222	(0, 300)	* F10916
A83109	FOOT REST FORCE Z	(lbs)	1969.1	72	-528.5	118	(0, 300)	* F10917
A83109	LEFT SHOULDER FORCE	(lbs)	64.7	100			(0, 300)	* F10918
A83109	RIGHT SHOULDER FORCE	(lbs)	1340.0	106			(0, 300)	* F10919
A83109	SEAT BACK Z ACCELERATION	(g)	-24.3	90	7.8	219	(0, 300)	* F10920
A83109	SEAT PAN X ACCELERATION	(g)	-13.9	76	11.8	142	(0, 300)	* F10921
A83109	SEAT PAN Y ACCELERATION	(g)	-19.5	73	13.6	210	(0, 300)	* F10922
A83109	SEAT PAN Z ACCELERATION	(g)	-22.2	90	9.0	217	(0, 300)	* F10923
A83109	SEAT DEFLECTION	(inches)	5.2	118			(0, 300)	* F10924
A83109	PELVIC FORCE X	(lbs)	-337.8	119			(0, 300)	* F10925
A83109	PELVIC FORCE Y	(lbs)	241.3	90	-163.7	130	(0, 300)	* F10926
A83109	PELVIC FORCE Z	(lbs)	1436.4	67			(0, 300)	* F10927
A83109	PELVIC MOMENT X	(in-lbs)	1948.6	98			(0, 300)	* F10928
A83109	PELVIC MOMENT Y	(in-lbs)	1000.1	117	-518.7	160	(0, 300)	* F10929
A83109	PELVIC MOMENT Z	(in-lbs)	468.9	119	-177.7	293	(0, 300)	* F10930
A83109	LEFT LAP FORCE	(lbs)	283.6	109			(0, 300)	* F10931
A83109	RIGHT LAP FORCE	(lbs)	41.5	93			(0, 300)	* F10932
A83109	LEFT REFLECTIVE STRAP FORCE	(lbs)	25.5	142	-18.9	214	(0, 300)	* F10933
A83109	RIGHT REFLECTIVE STRAP FORCE	(lbs)	817.1	105			(0, 300)	* F10934
A83109	HEAD RESULTANT	(g)	54.3	208			(0, 300)	* V10901
A83109	CHEST RESULTANT	(g)	35.3	93			(0, 300)	* V10902
A83109	PELVIS RESULTANT	(g)	32.6	61			(0, 300)	* V10903
A83109	SIMULATED FLOOR RESULTANT	(g)	26.3	84			(0, 300)	* V10904
A83109	FOOT REST FORCE RESULTANT	(lbs)	2015.5	72			(0, 300)	* V10905
A83109	SEAT PAN RESULTANT	(g)	26.6	90			(0, 300)	* V10906
A83109	PELVIC FORCE RESULTANT	(lbs)	1447.6	67			(0, 300)	* V10907
A83109	PELVIC MOMENT RESULTANT	(in-lbs)	2050.9	100			(0, 300)	* V10908
A83109	LAP LOOP FORCE	(lbs)	314.2	110			(0, 300)	* A10902
PELVIS DRI			24.6	97				
SEAT BACK DRI			20.7	112				
SEAT PAN DRI			18.2	114				

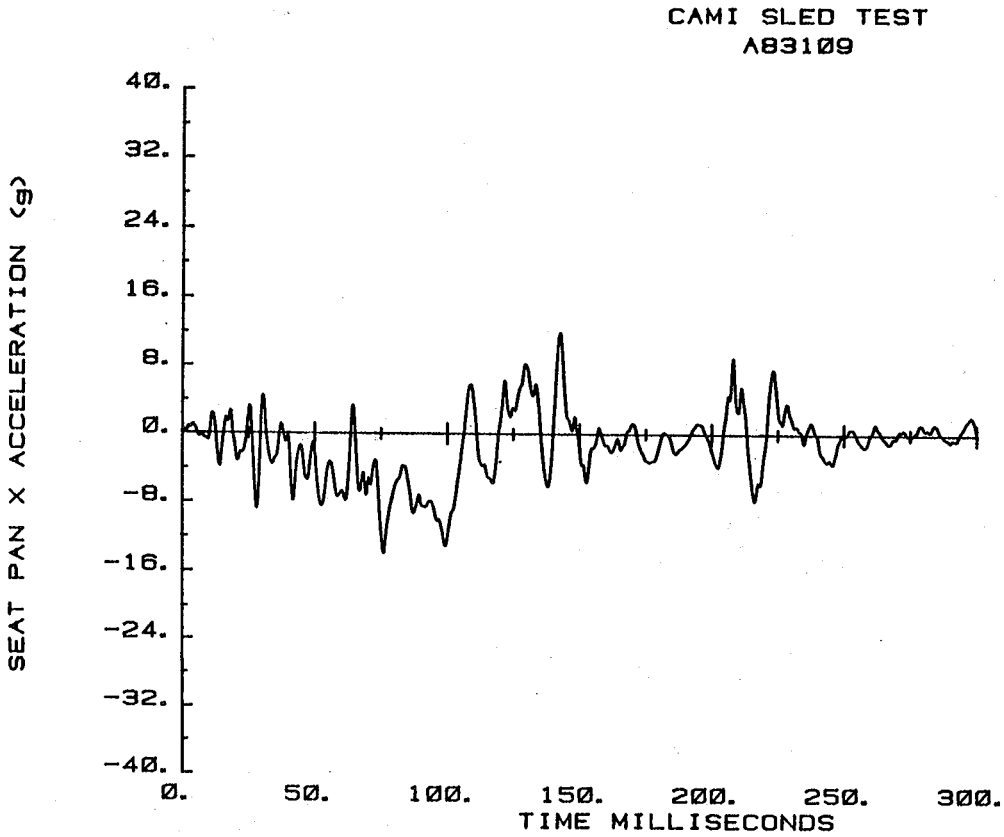

CAMI SLED TEST
A83109
SLED X ACCELERATION (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

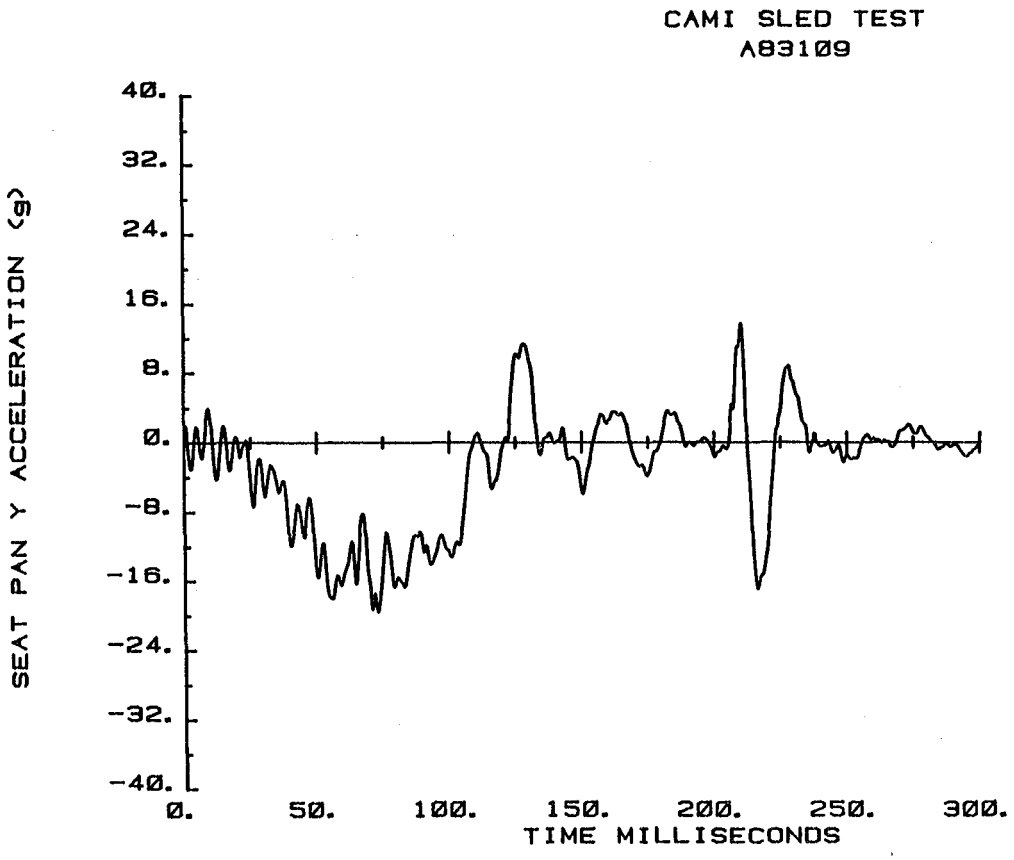

CAMI SLED TEST
A83109
SIMULATED FLOOR X ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

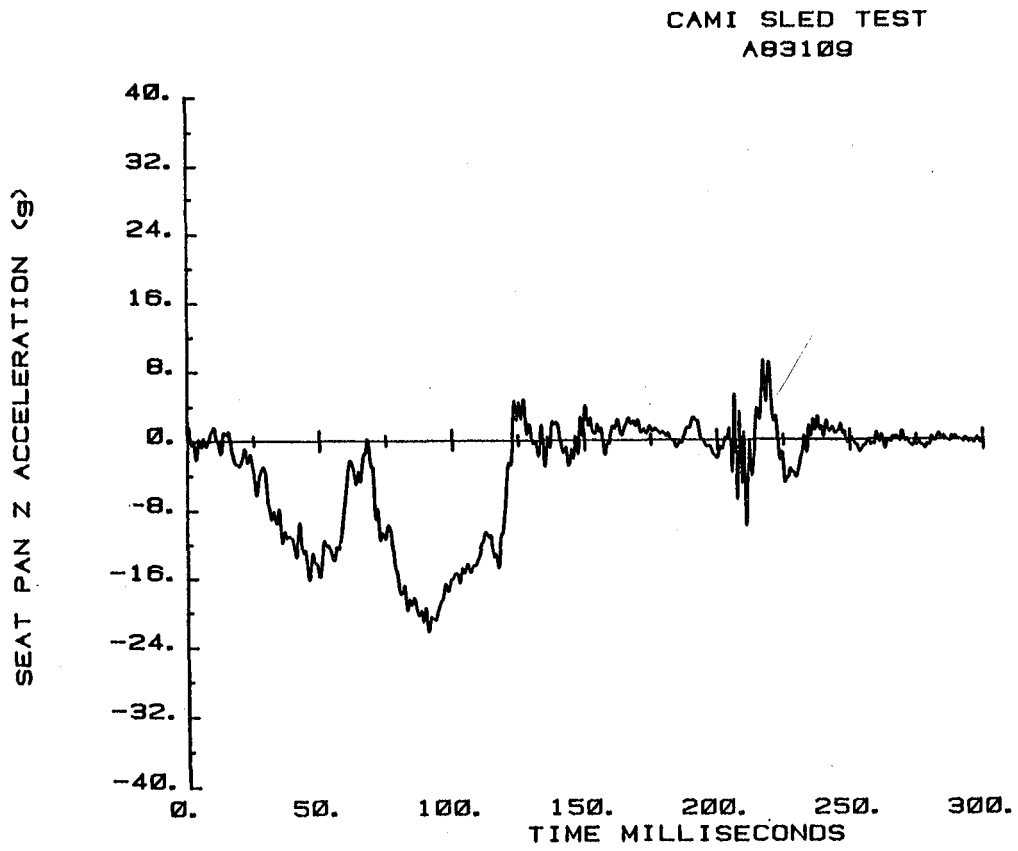

CAMI SLED TEST
A83109
SIMULATED FLOOR Y ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

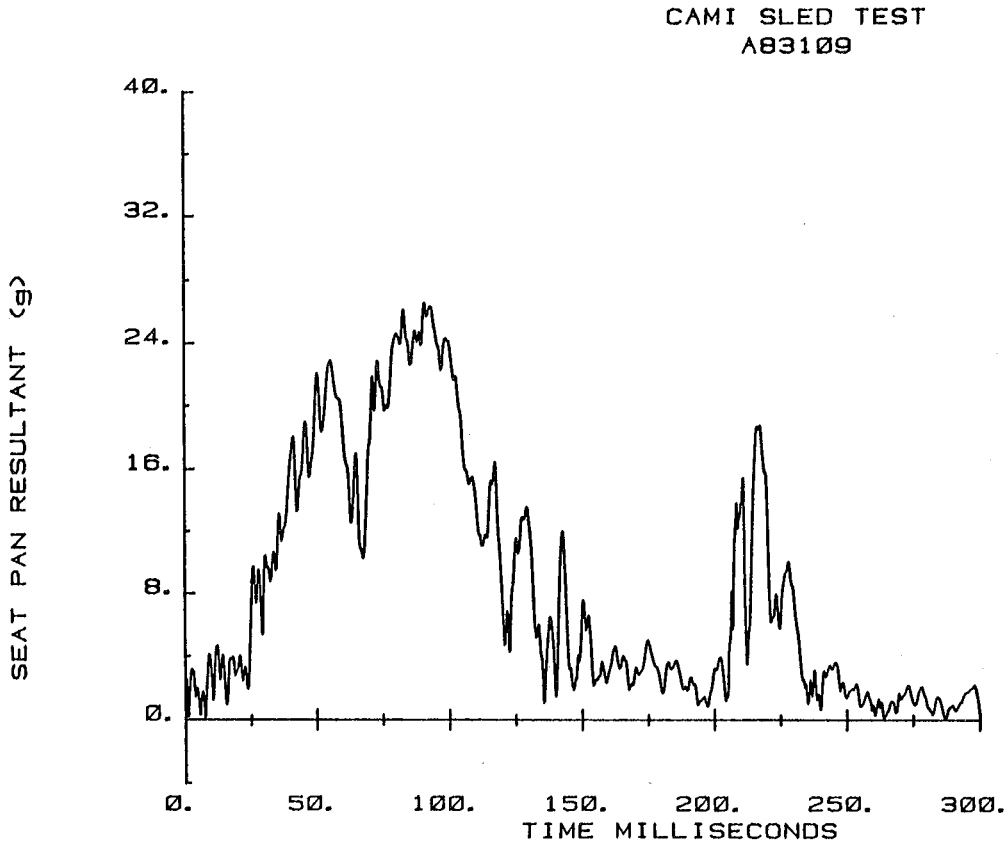

CAMI SLED TEST
A83109
SIMULATED FLOOR Z ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

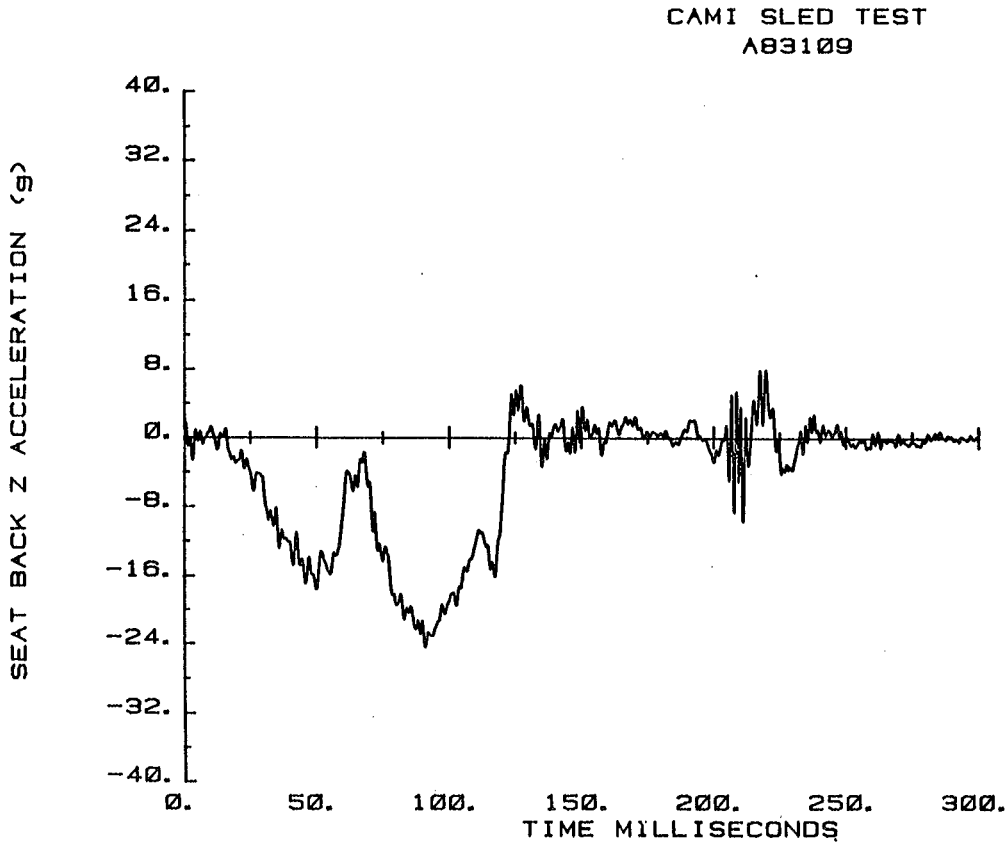

CAMI SLED TEST
A83109
SIMULATED FLOOR RESULTANT (g)
30.
24.
18.
12.
6.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

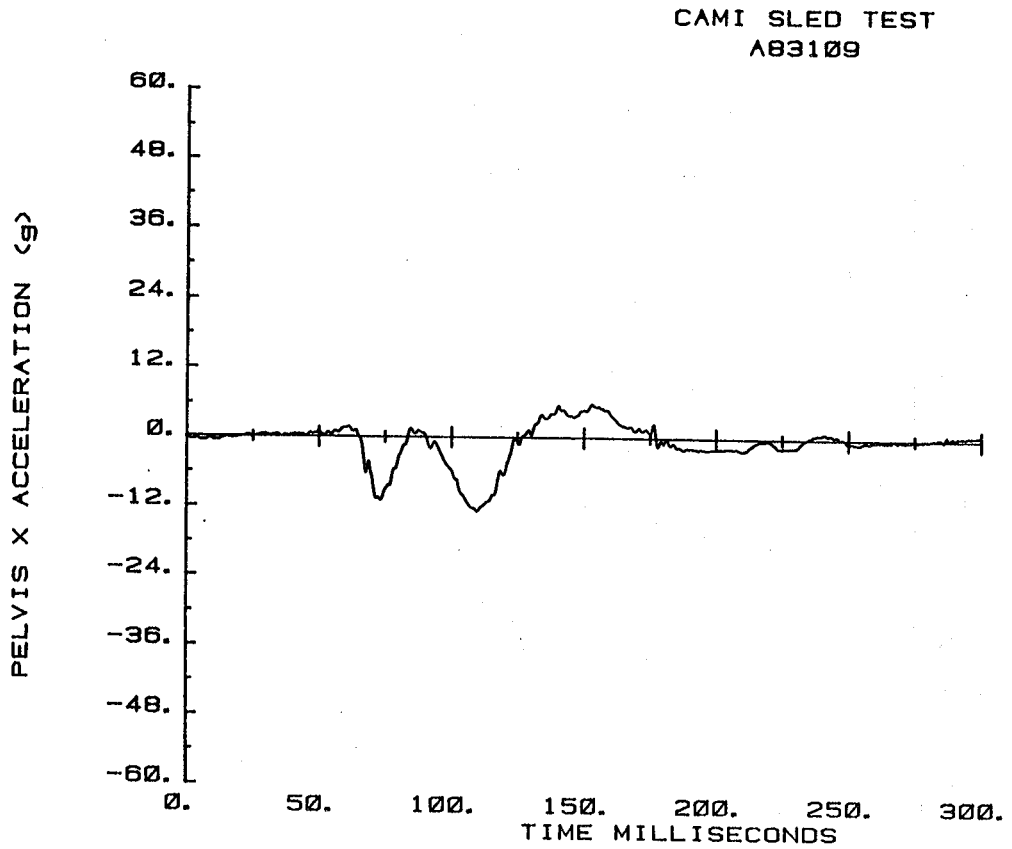

CAMI SLED TEST
A83109
SEAT PAN X ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

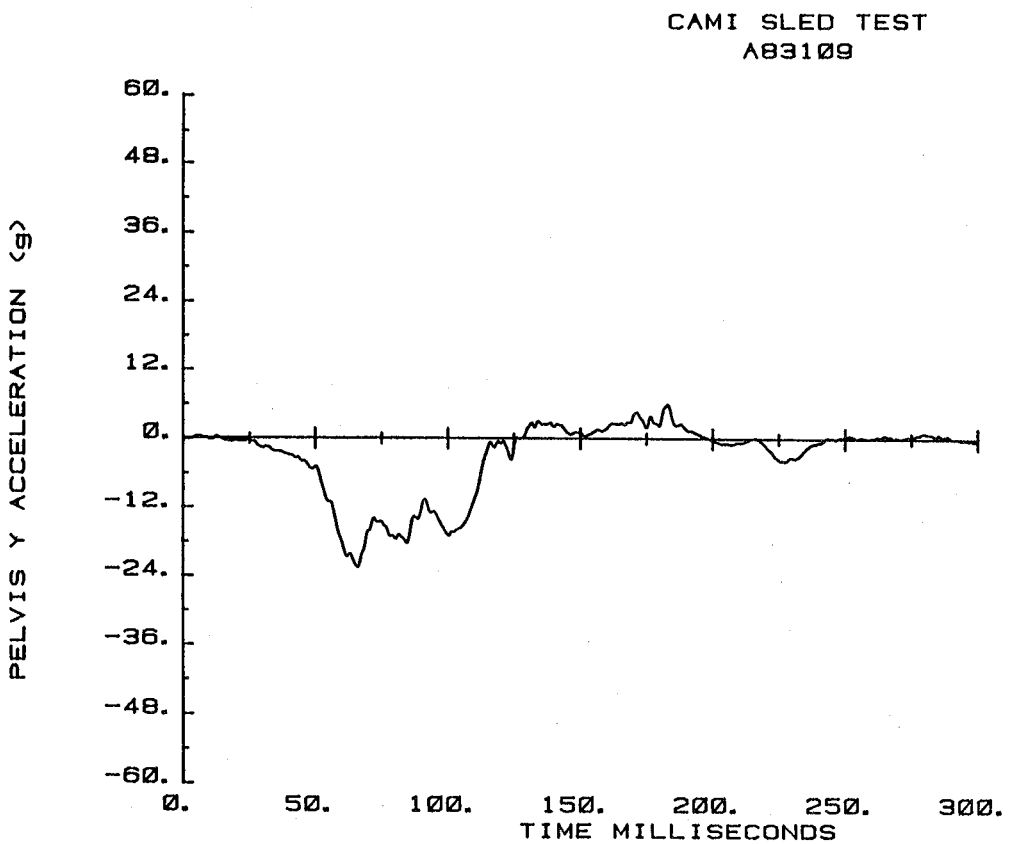

CAMI SLED TEST
A83109
SEAT PAN Y ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

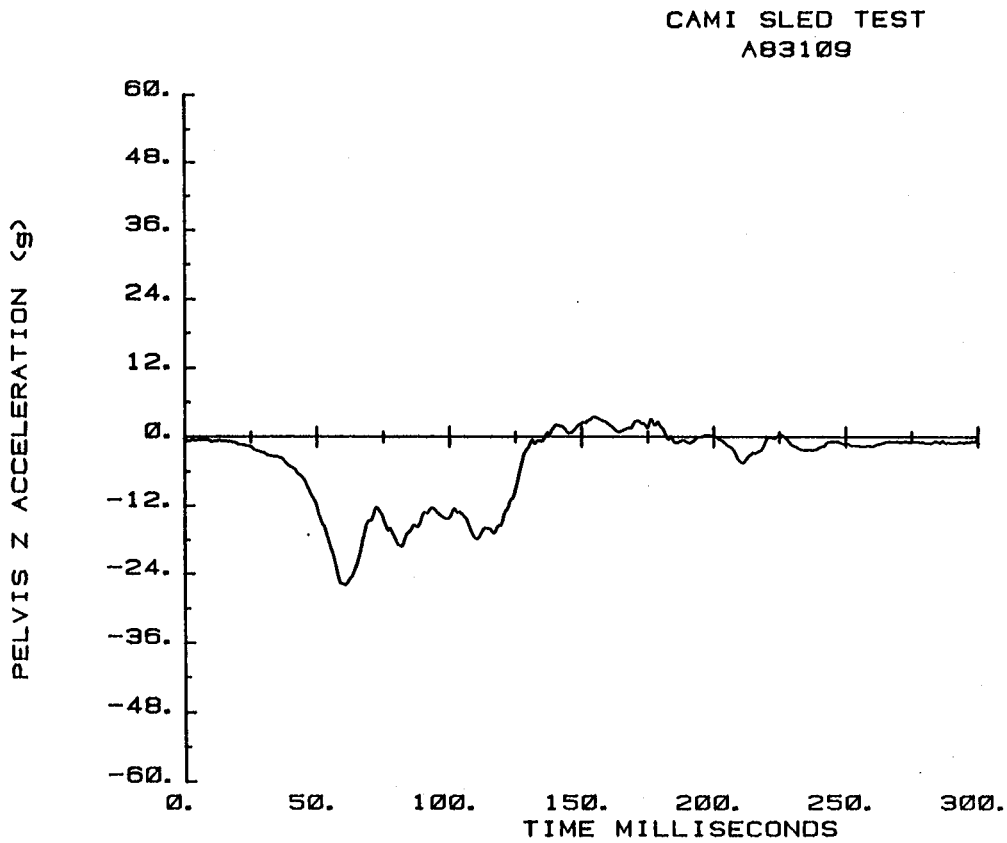

CAMI SLED TEST
A83109
SEAT PAN Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

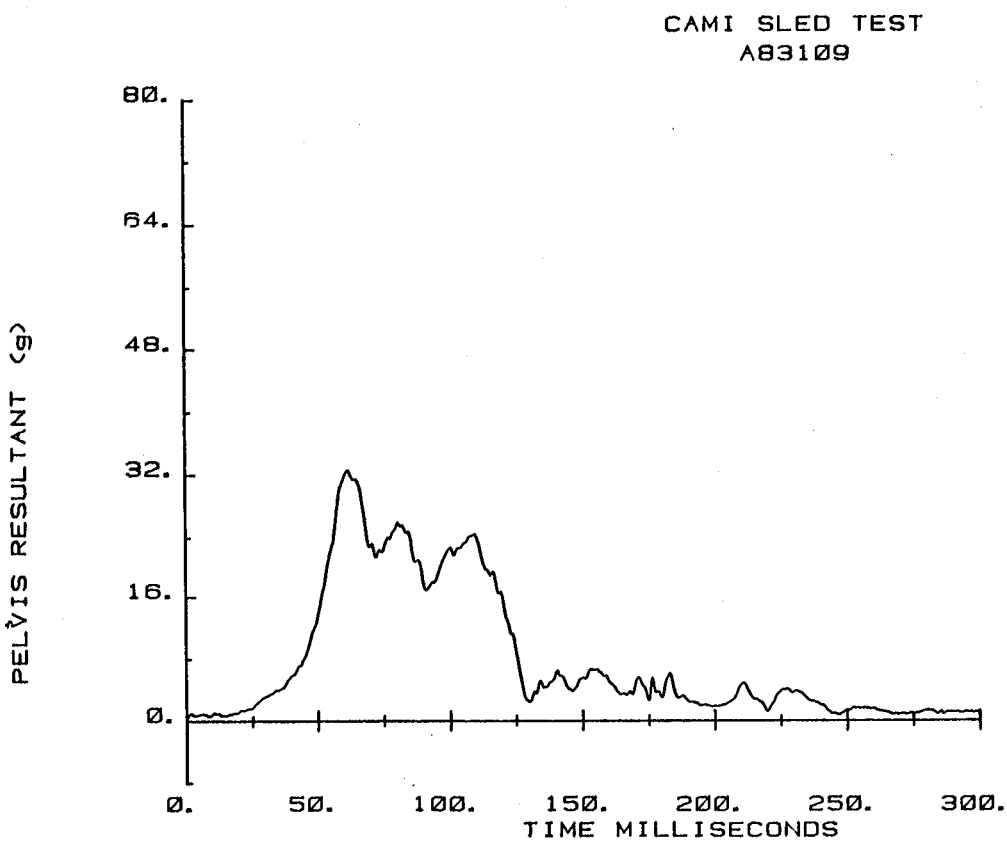

CAMI SLED TEST
A83109
SEAT PAN RESULTANT (g)
40.
32.
24.
16.
8.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

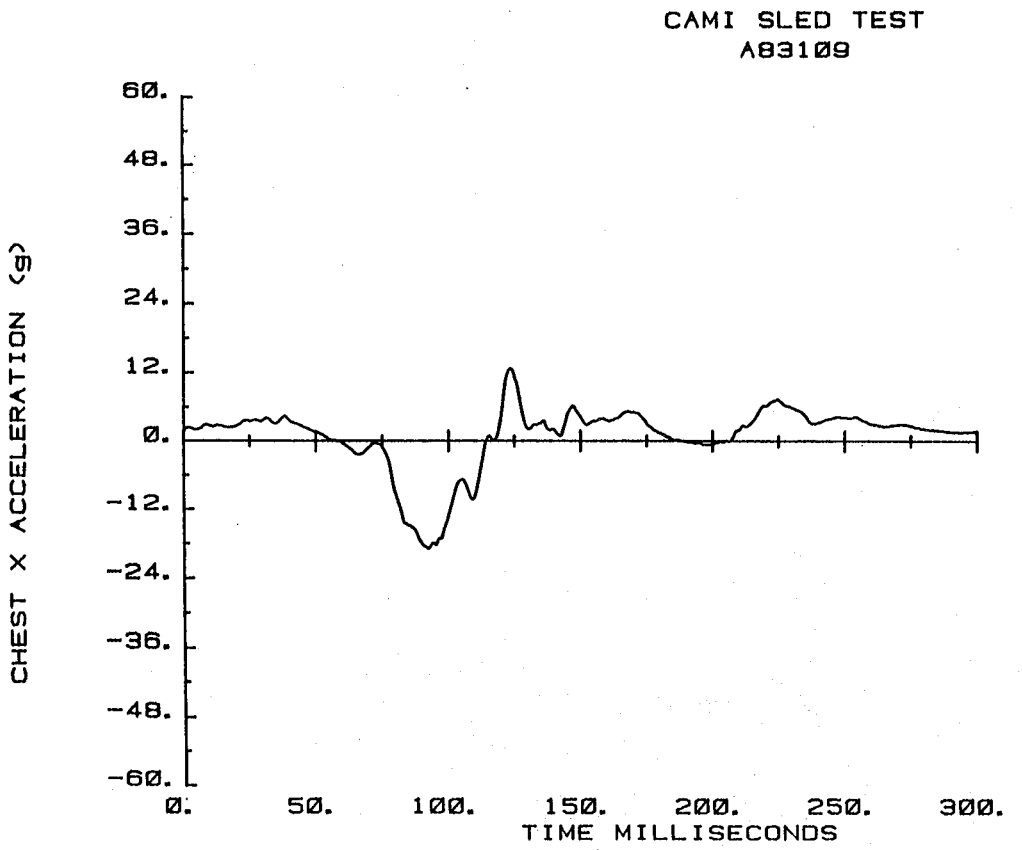

CAMI SLED TEST
A83109
SEAT BACK Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

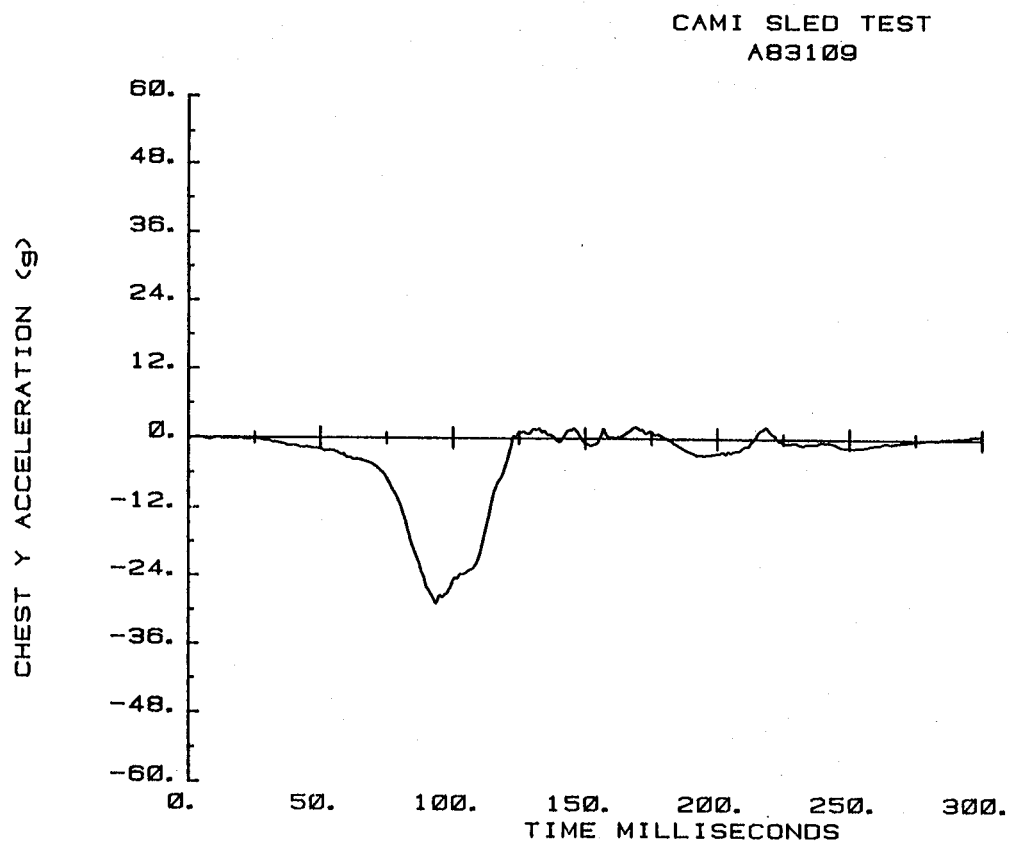

CAMI SLED TEST
A83109
PELVIS X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

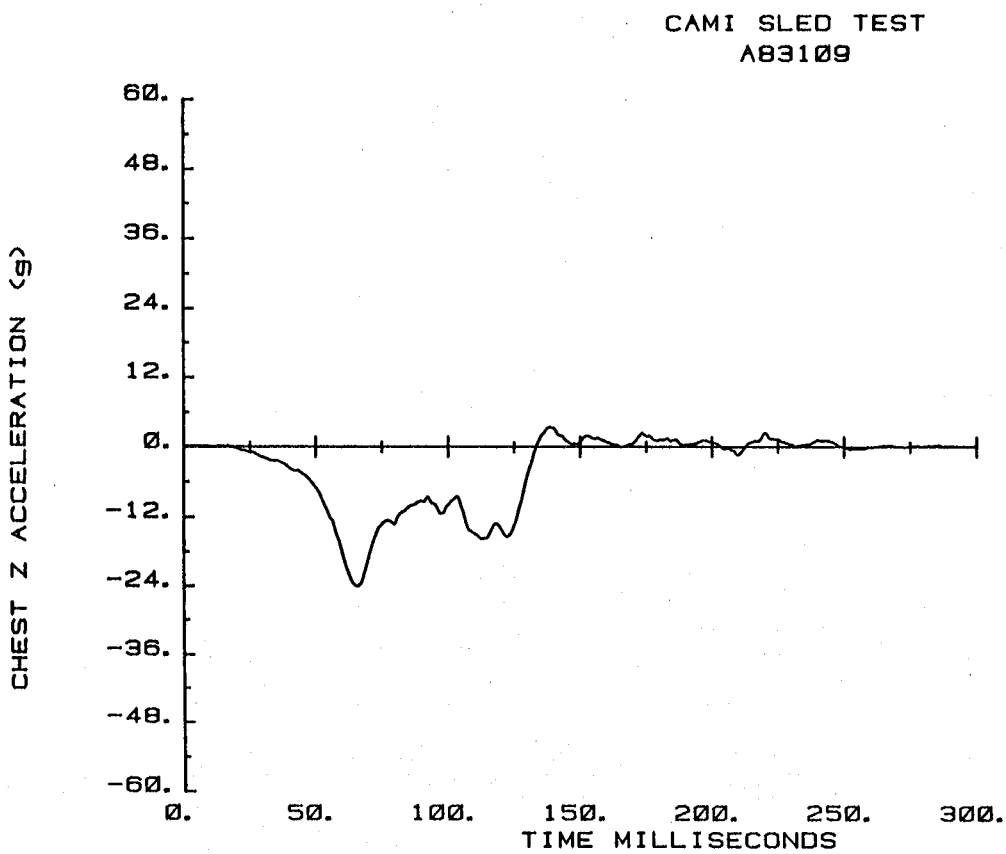

CAMI SLED TEST
A83109
PELVIS Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

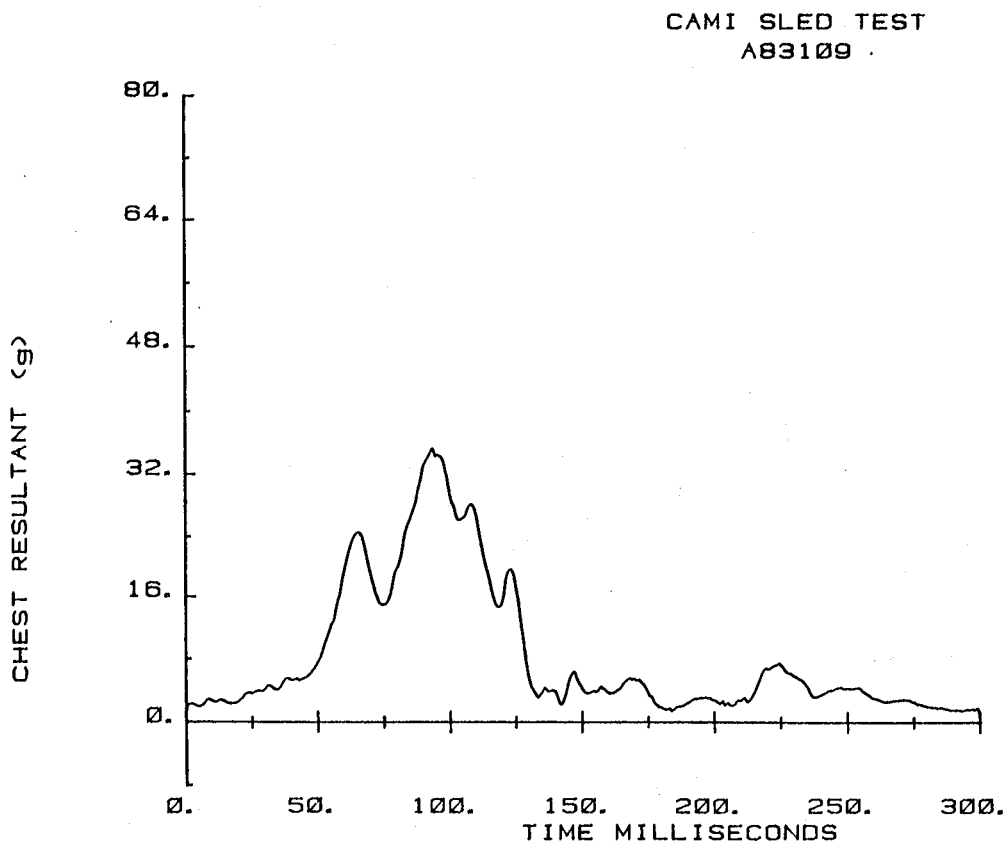

CAMI SLED TEST
A83109
PELVIS Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

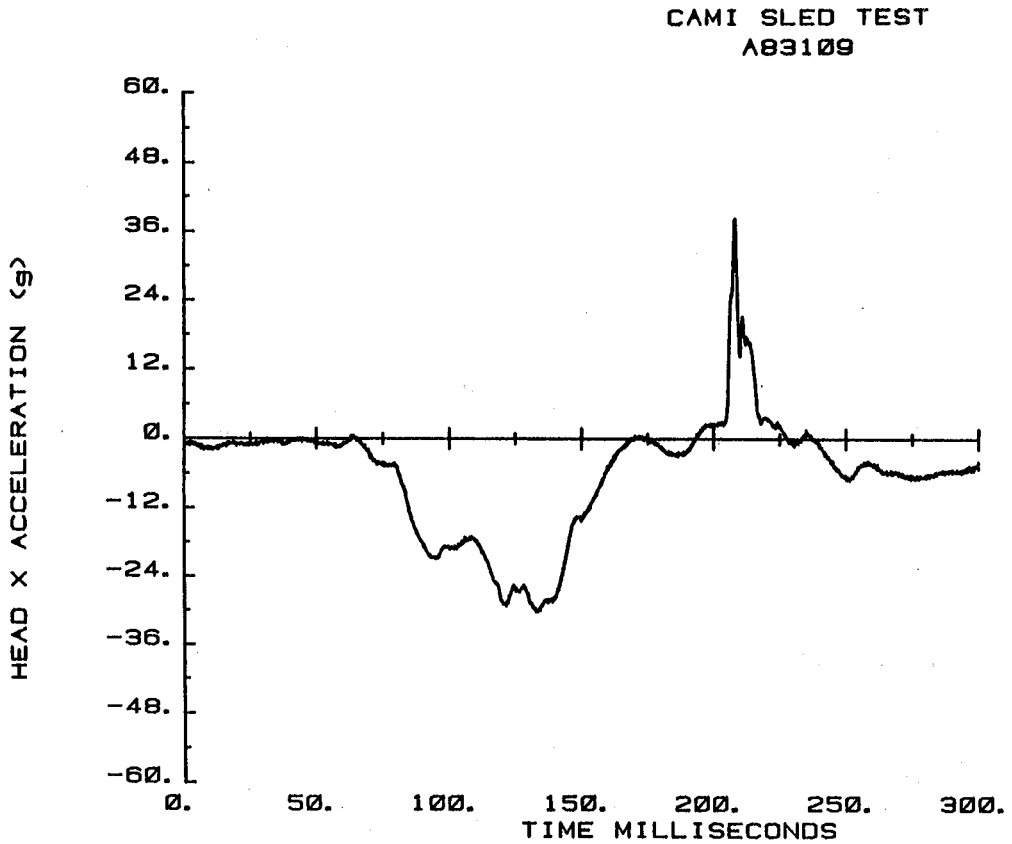

CAMI SLED TEST
A83109
PELVIS RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

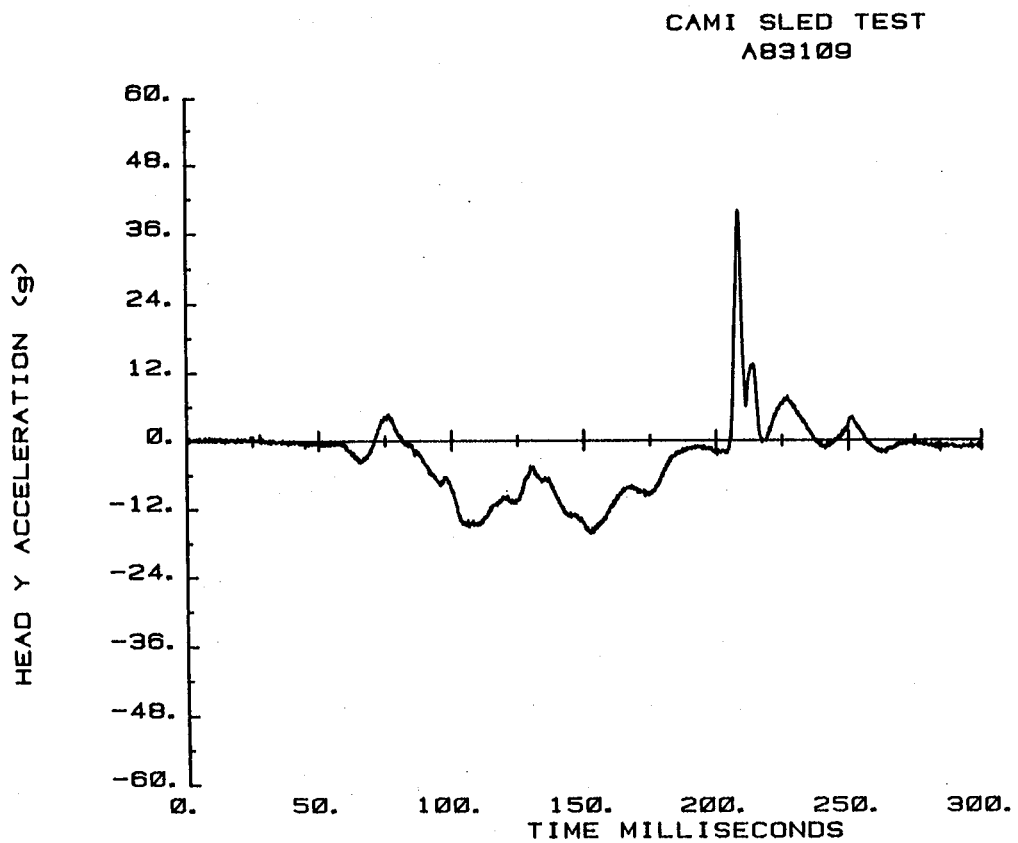

CAMI SLED TEST
A83109
CHEST X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

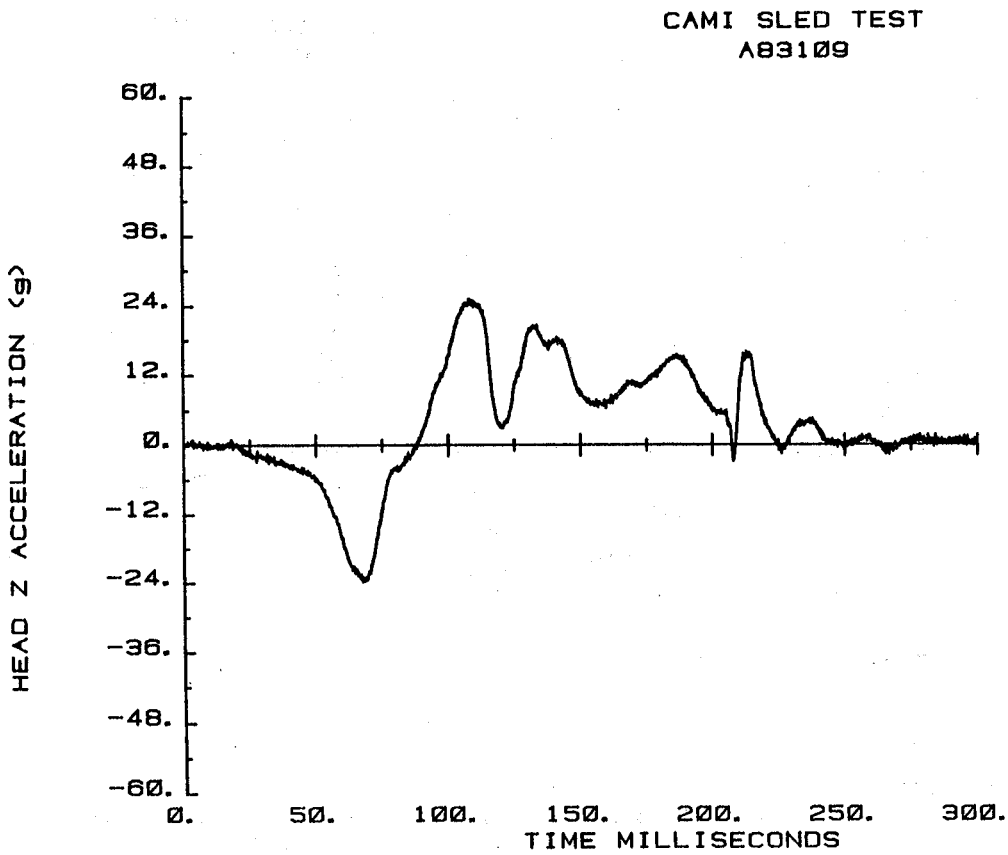

CAMI SLED TEST
A83109
CHEST Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

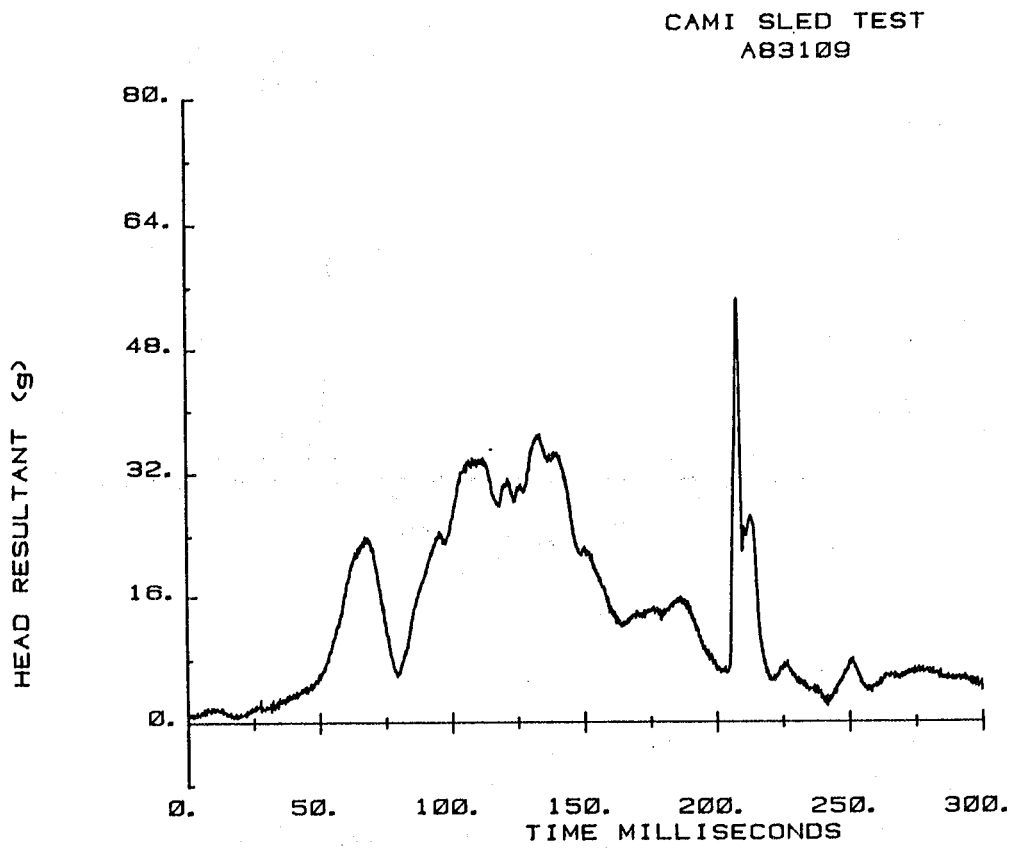

CAMI SLED TEST
A83109
CHEST Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

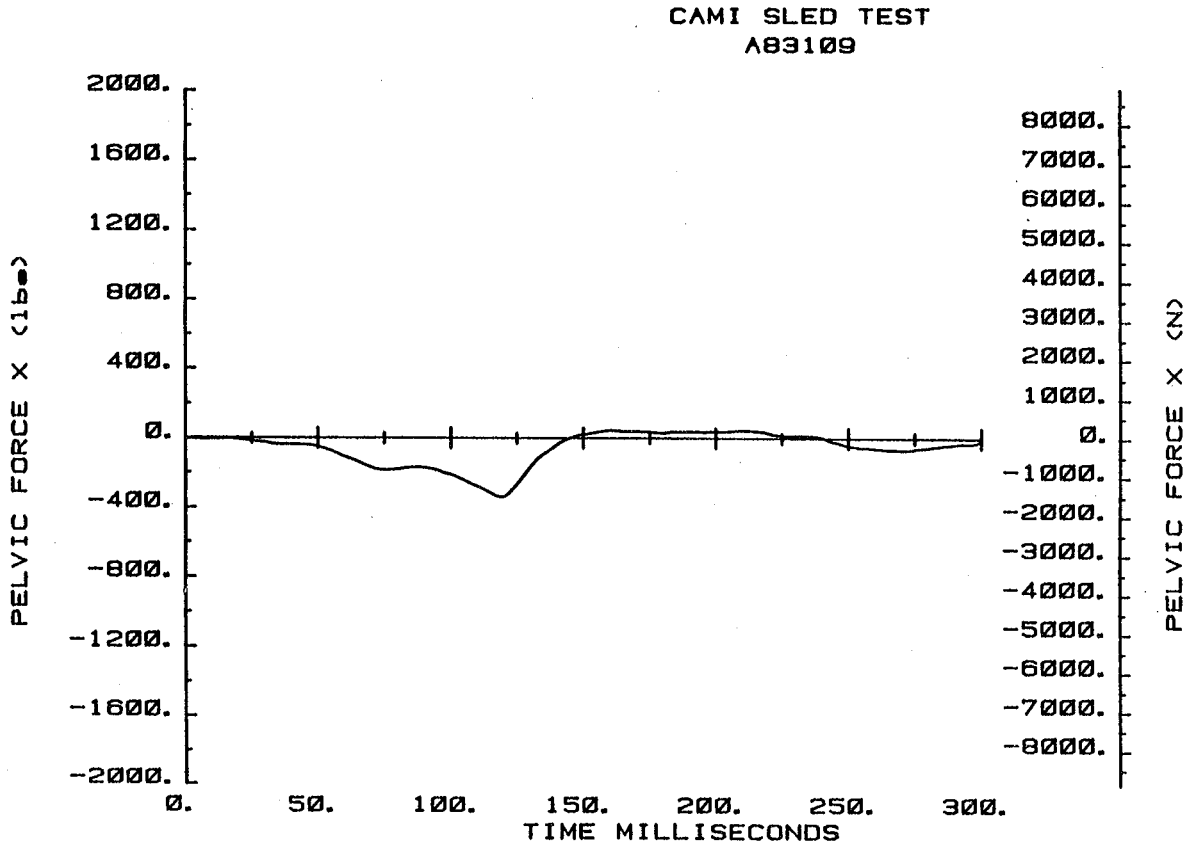

CAMI SLED TEST
A83109
CHEST RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

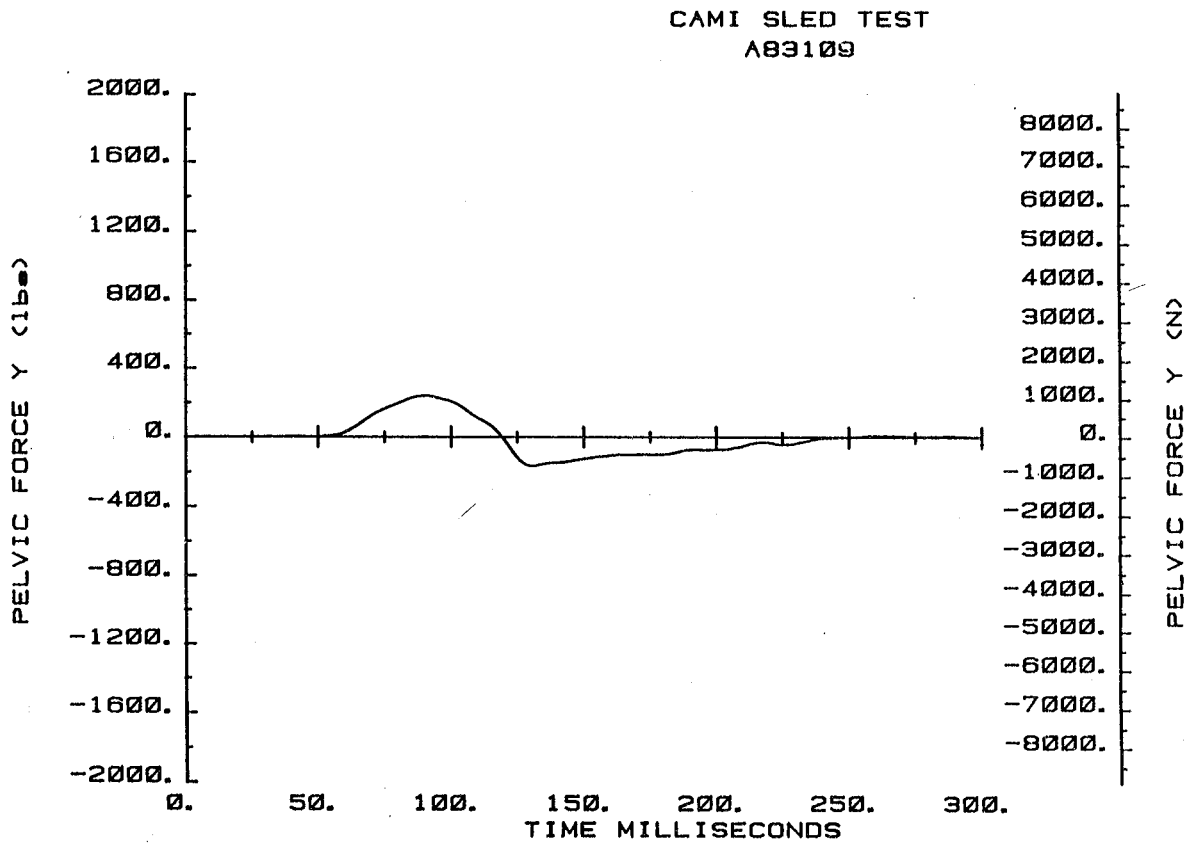

CAMI SLED TEST
A83109
HEAD X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

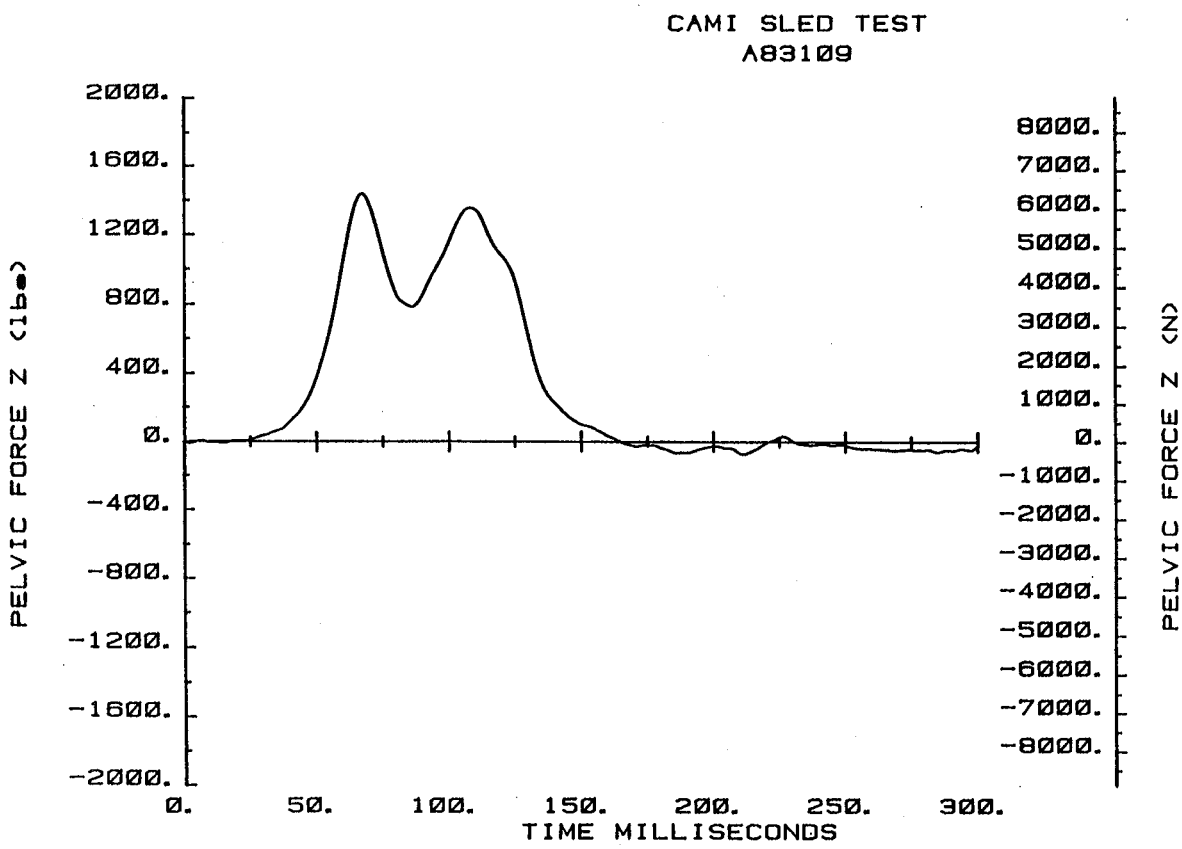

CAMI SLED TEST
A83109
HEAD Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

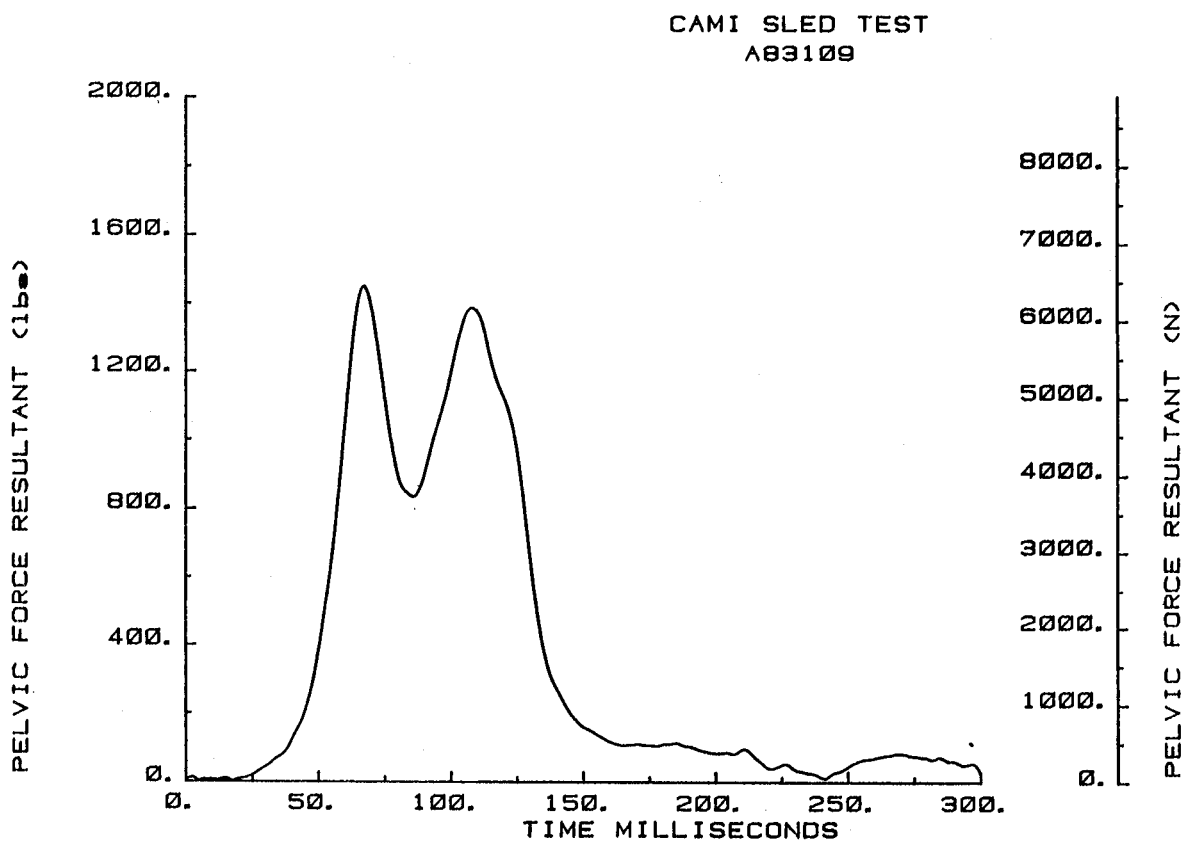

CAMI SLED TEST
A83109
HEAD Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

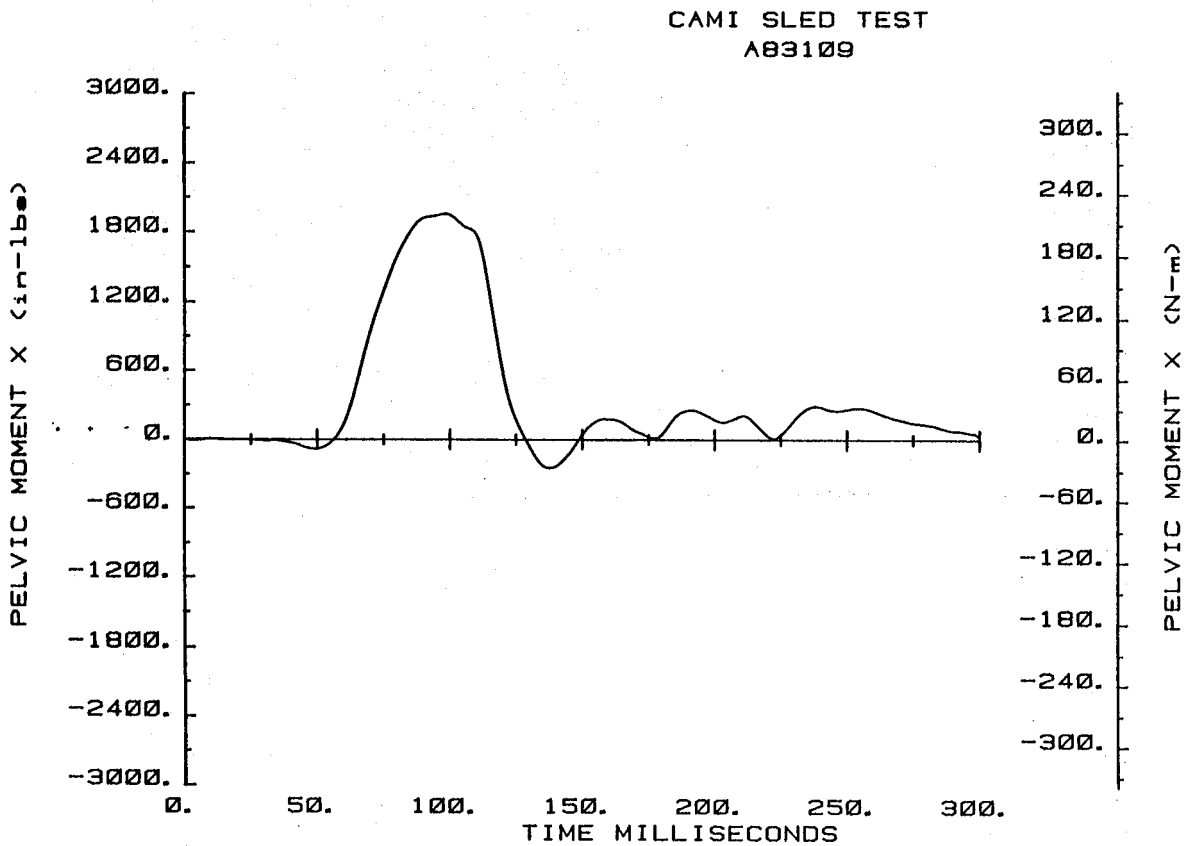

CAMI SLED TEST
A83109
HEAD RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

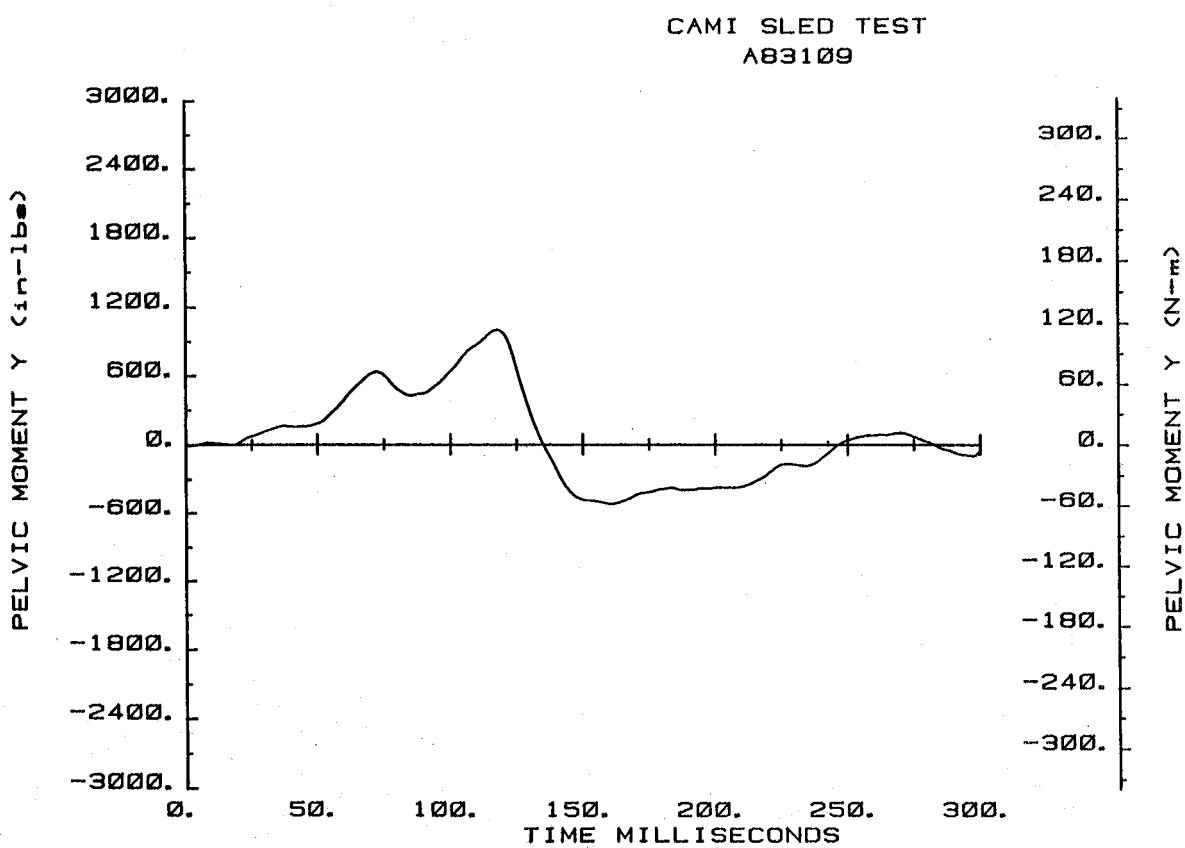

CAMI SLED TEST
A83109
PELVIC FORCE X (lb)
PELVIC FORCE X (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

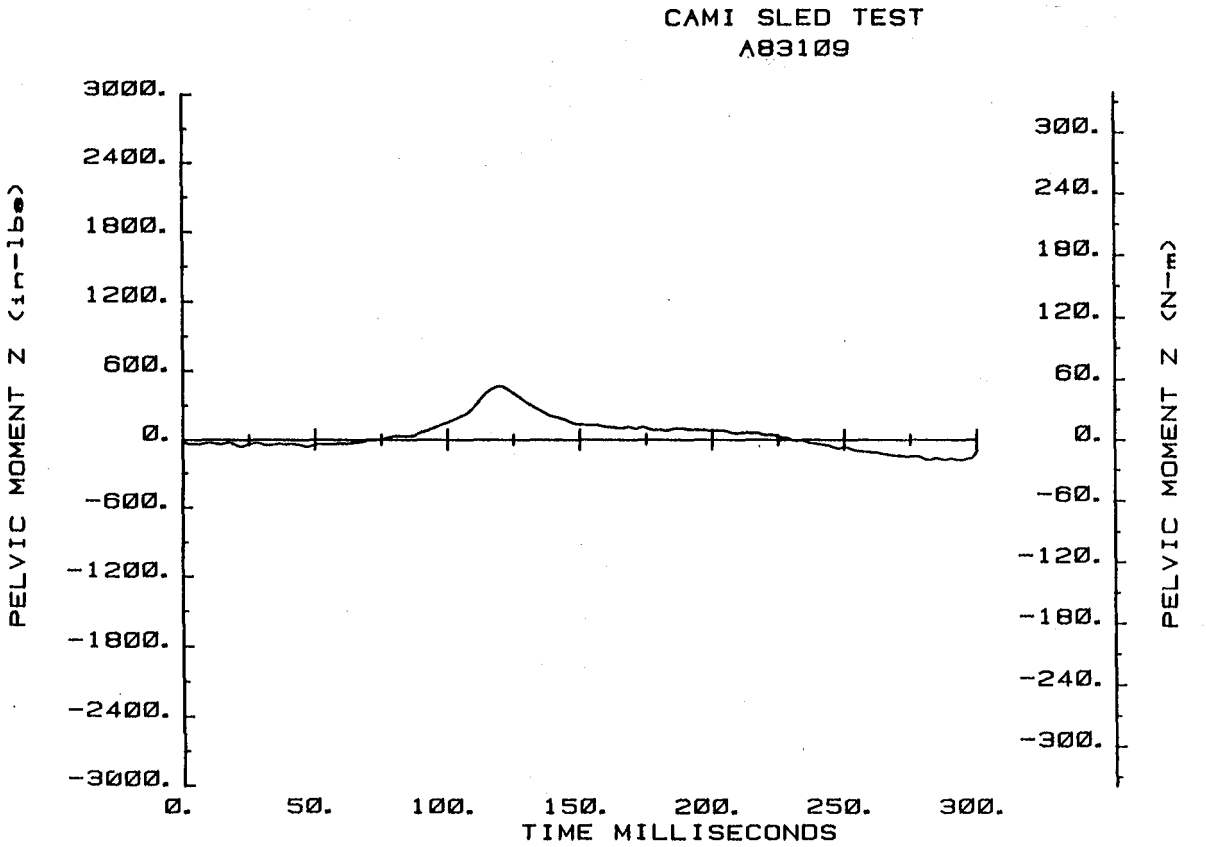

CAMI SLED TEST
A83109
PELVIC FORCE Y (lb)
PELVIC FORCE Y (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

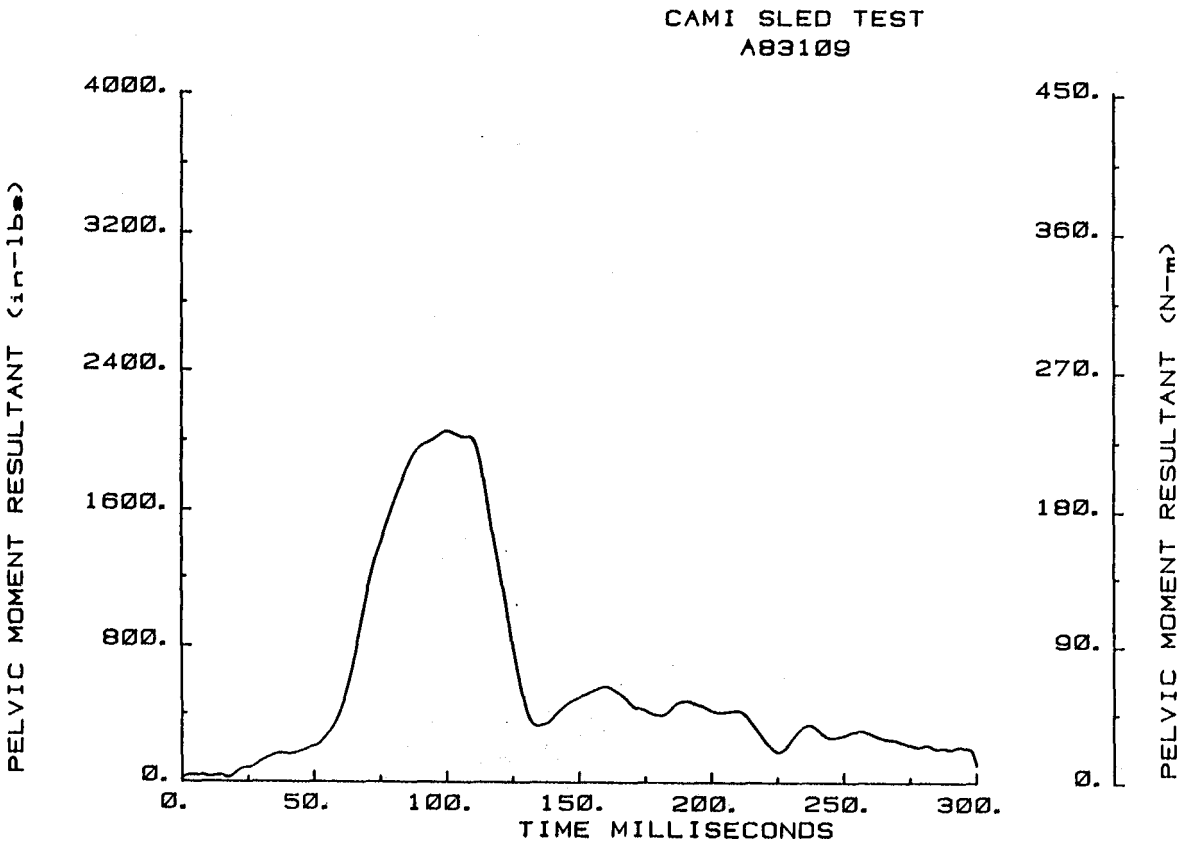

CAMI SLED TEST
A83109
PELVIC FORCE Z (lbs)
PELVIC FORCE Z (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

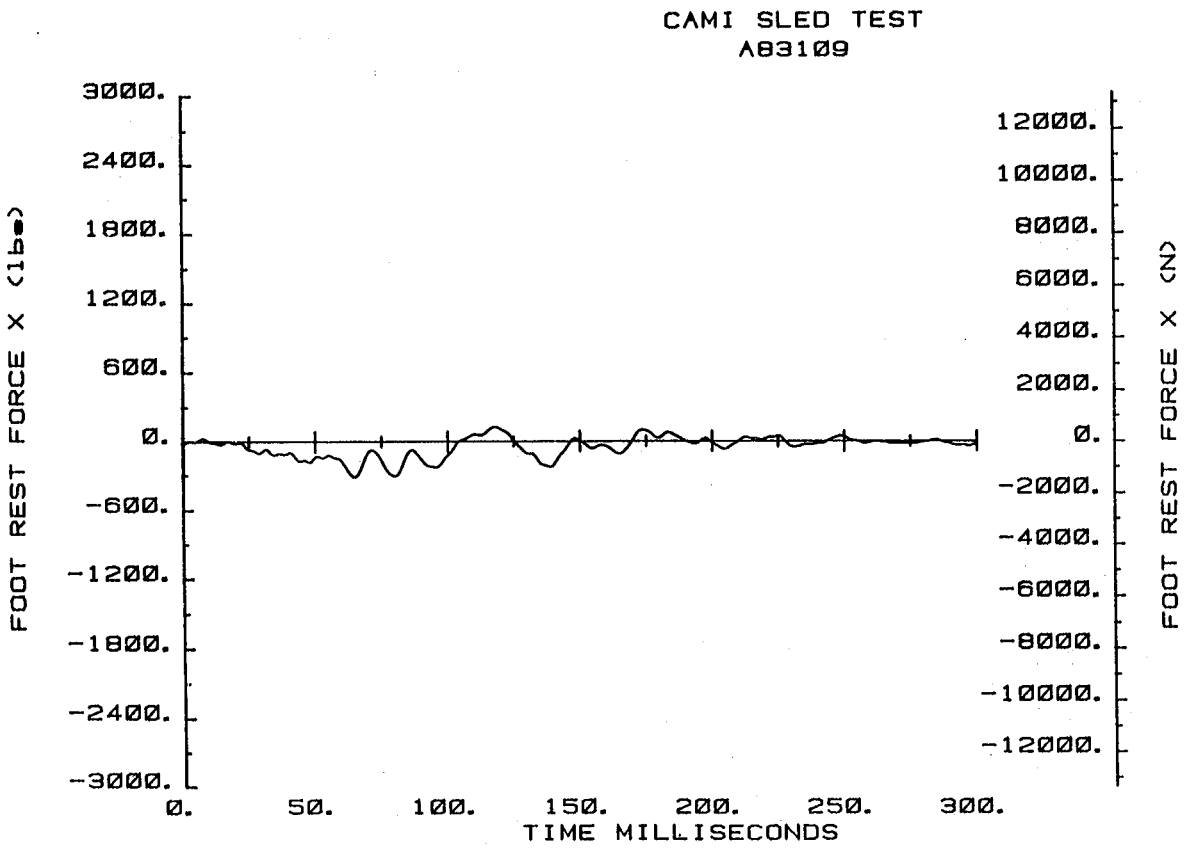

CAMI SLED TEST
A83109
PELVIC FORCE RESULTANT (lbs)
PELVIC FORCE RESULTANT (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

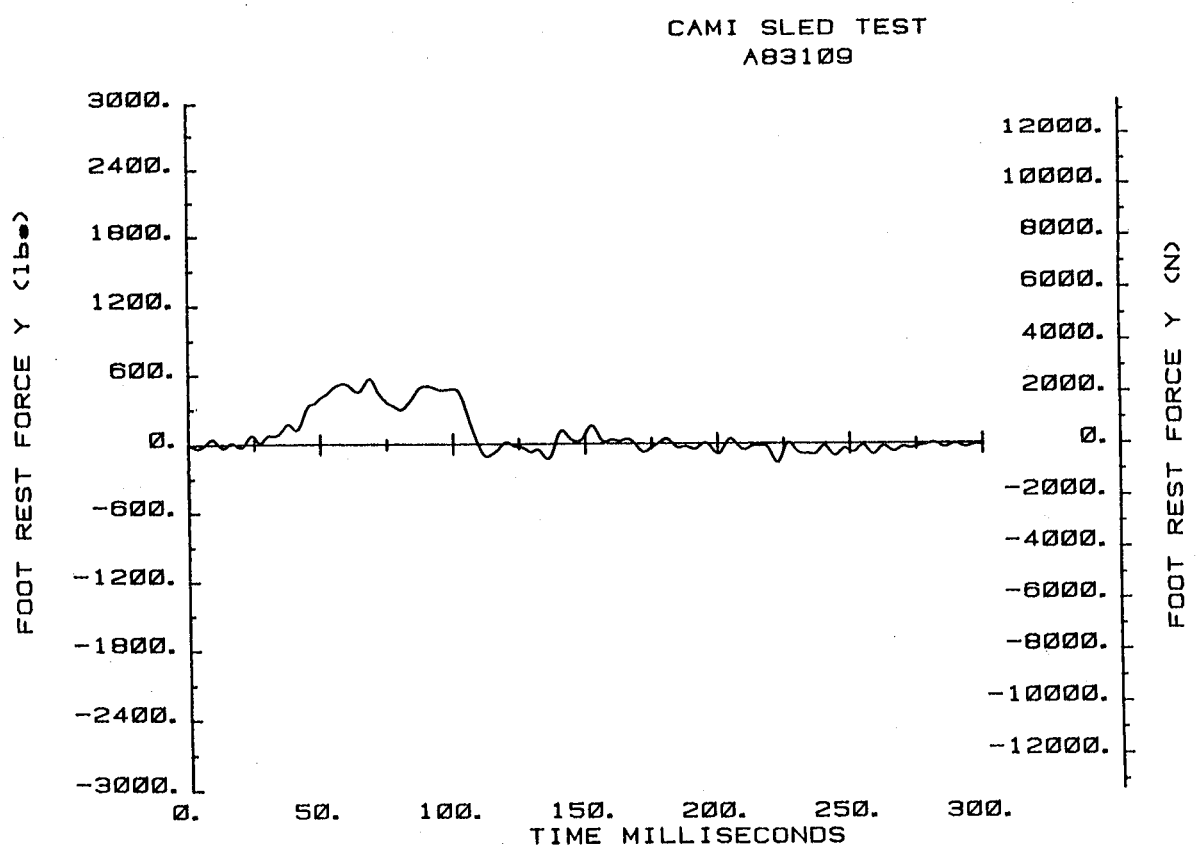

CAMI SLED TEST
A83109
PELVIC MOMENT X (in-lb)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT X (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

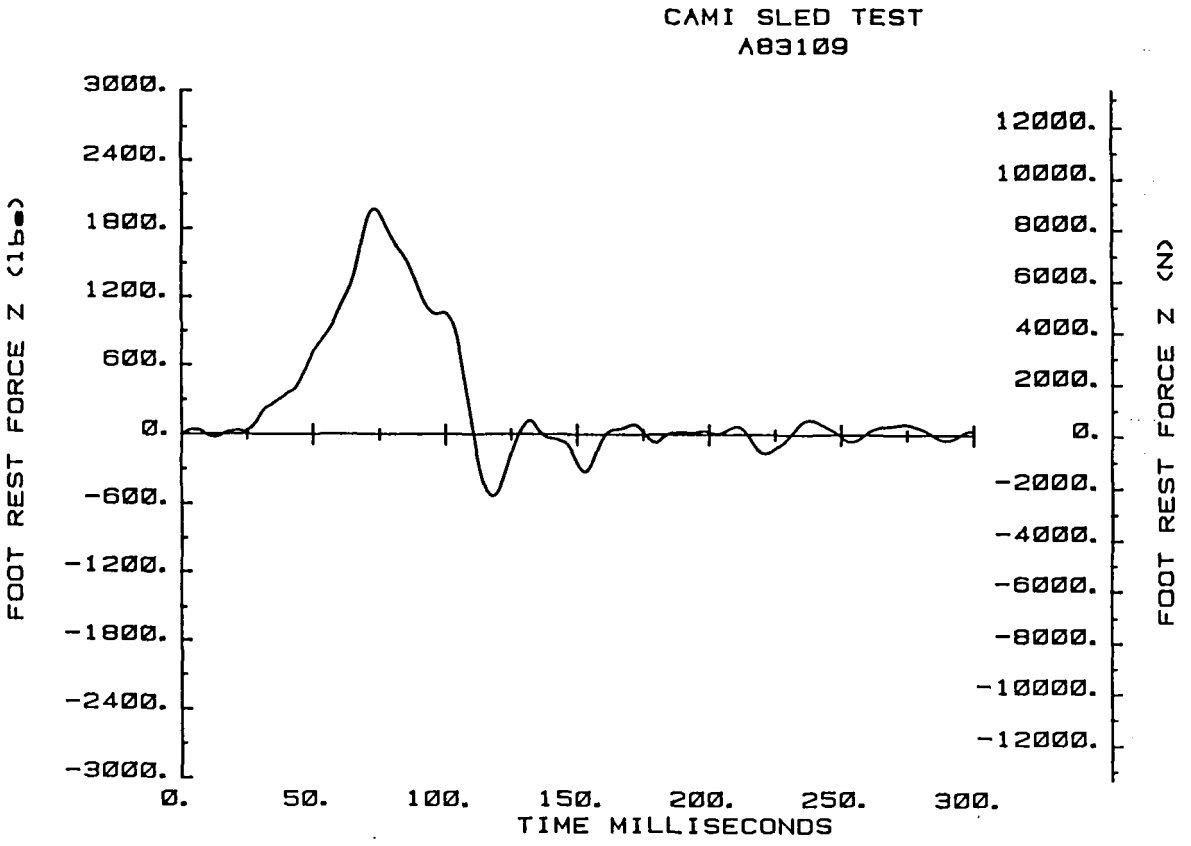

CAMI SLED TEST
A83109
PELVIC MOMENT Y (in-lb)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT Y (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

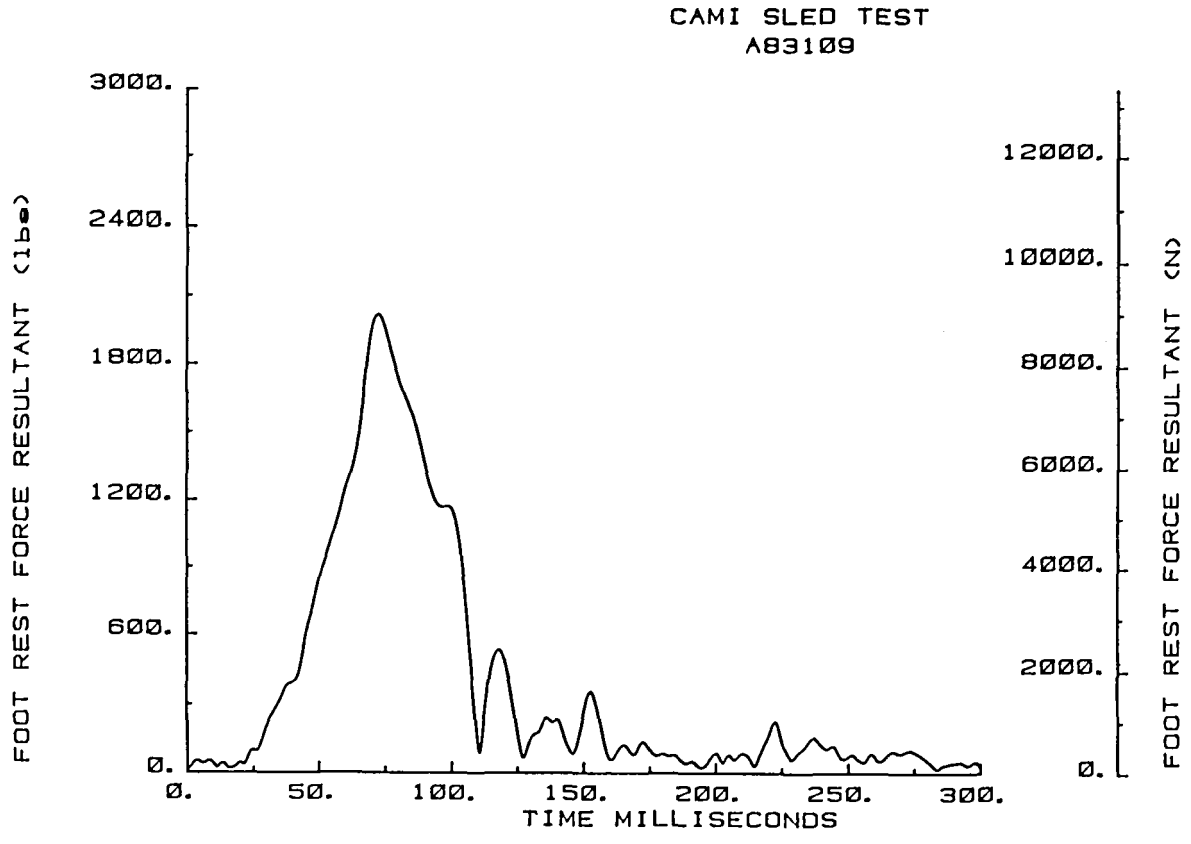

CAMI SLED TEST
A83109
PELVIC MOMENT Z (in-lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT Z (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

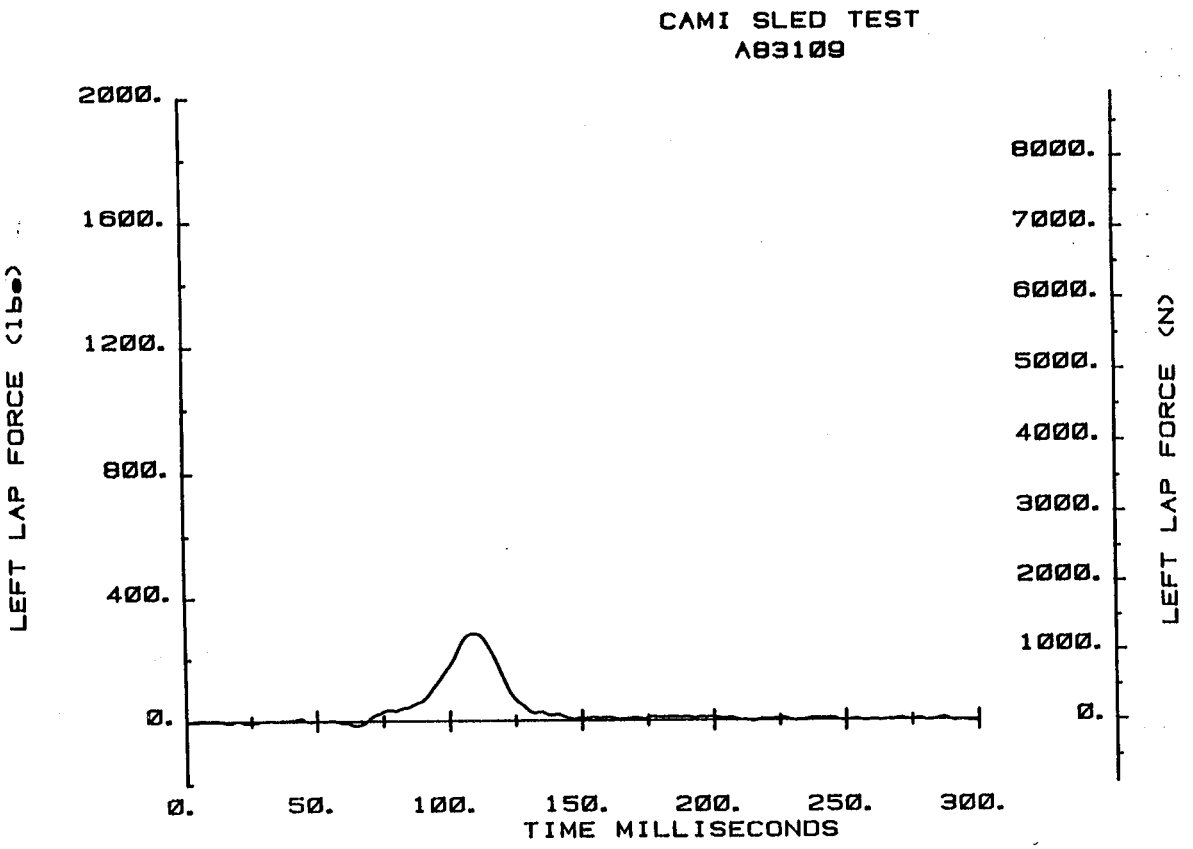

CAMI SLED TEST
A83109
PELVIC MOMENT RESULTANT (in-lbs)
4000.
3200.
2400.
1600.
800.
0.
PELVIC MOMENT RESULTANT (N-m)
450.
360.
270.
180.
90.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

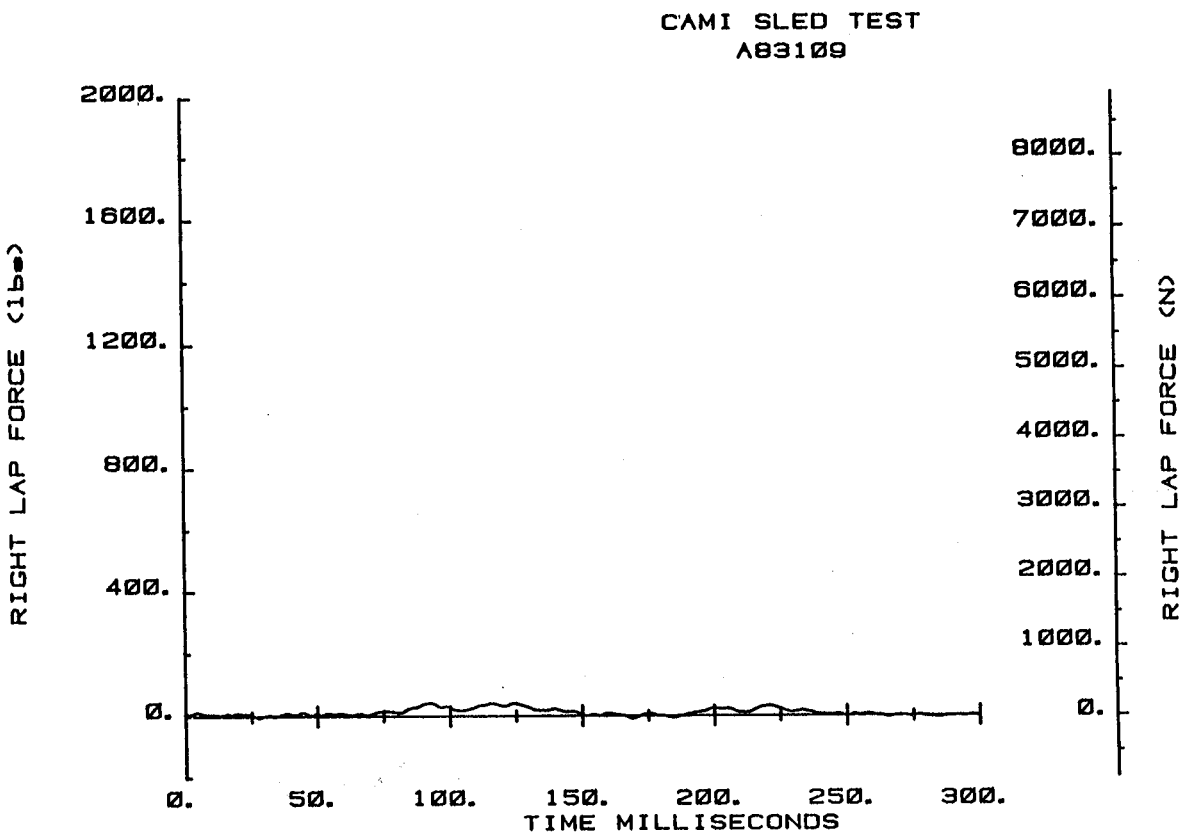

CAMI SLED TEST
A83109
FOOT REST FORCE X (lbs)
FOOT REST FORCE X (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

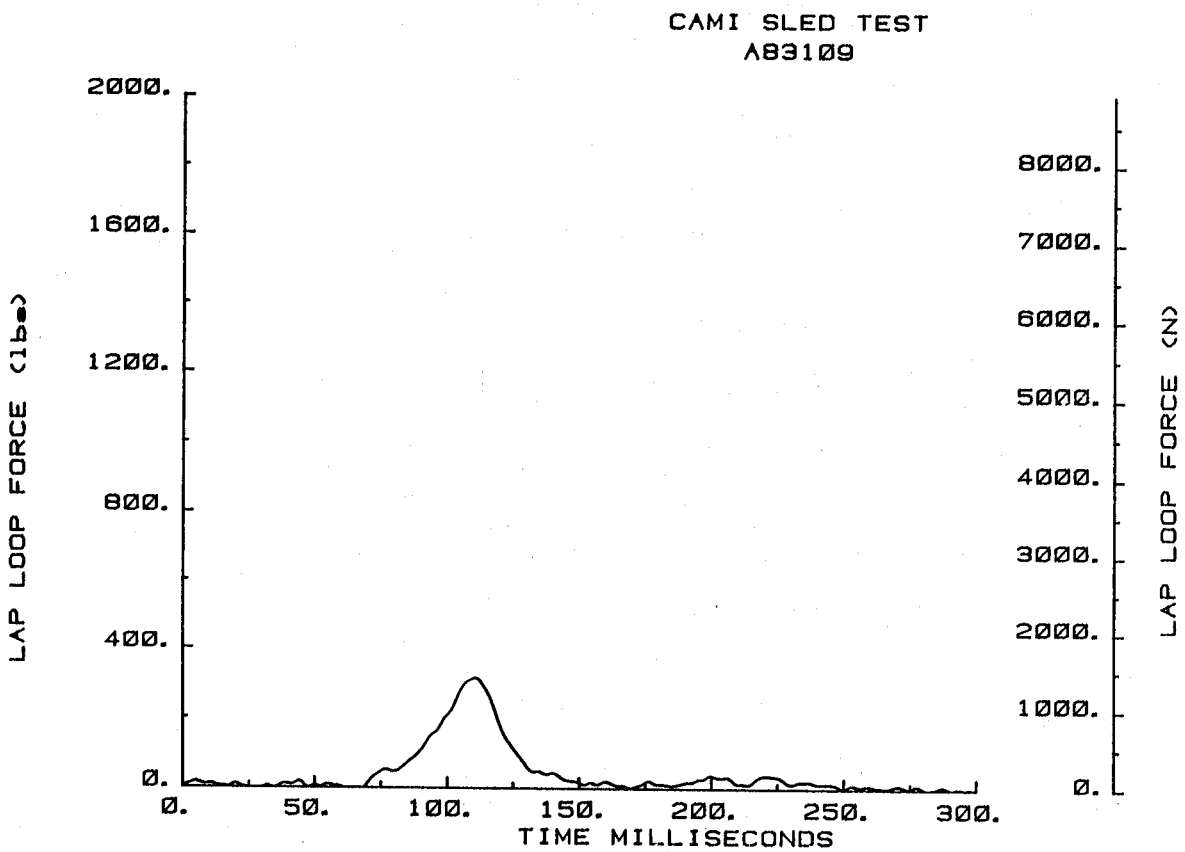

CAMI SLED TEST
A83109
FOOT REST FORCE Y (lbs)
FOOT REST FORCE Y (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

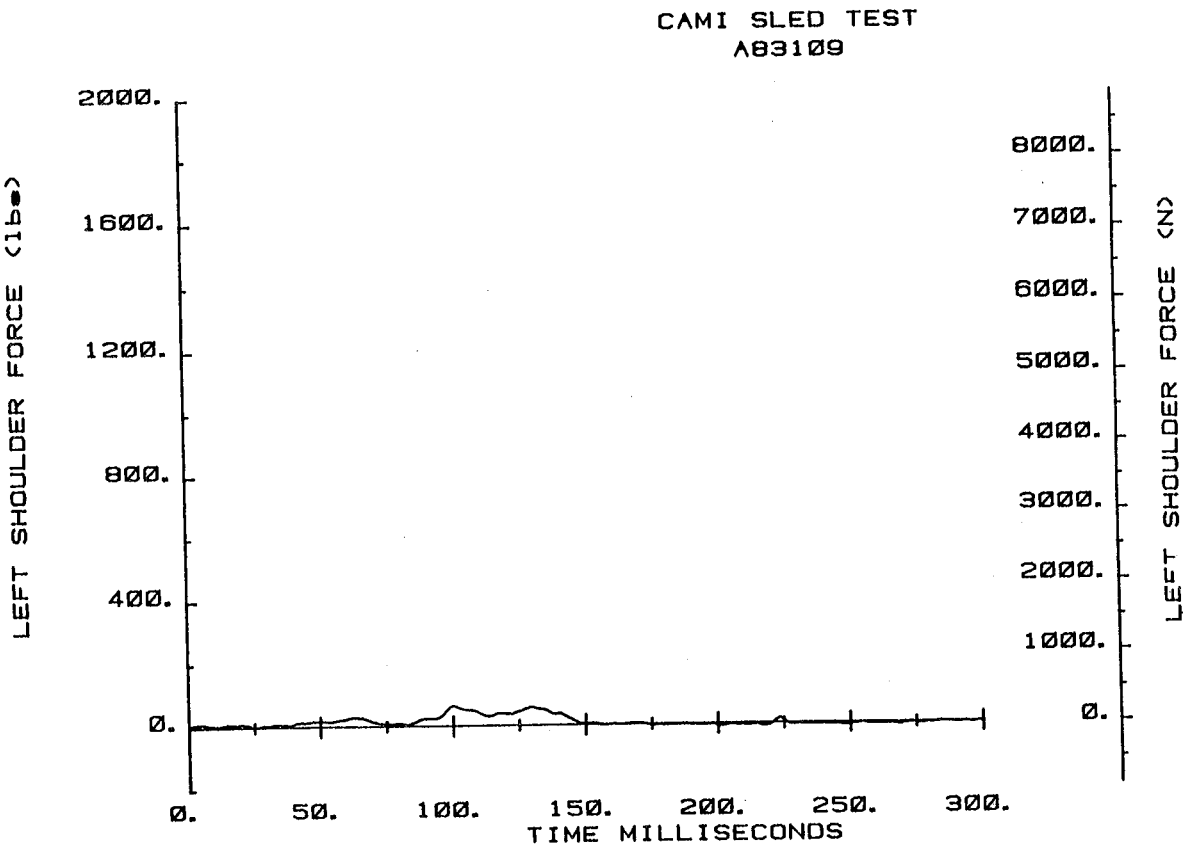

CAMI SLED TEST
A83109
FOOT REST FORCE Z (lbs)
FOOT REST FORCE Z (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

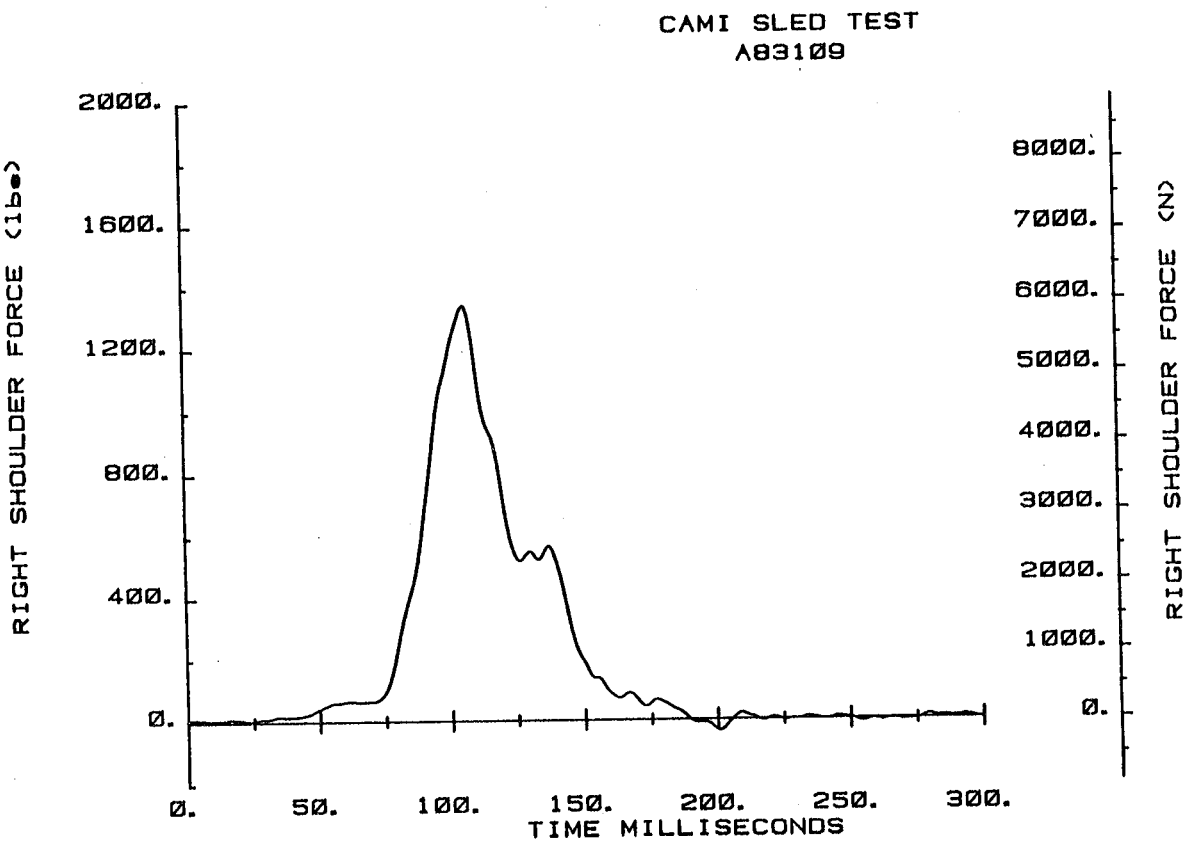

CAMI SLED TEST
A83109
FOOT REST FORCE RESULTANT (lbs)
FOOT REST FORCE RESULTANT (N)
3000.
2400.
1800.
1200.
600.
0.
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

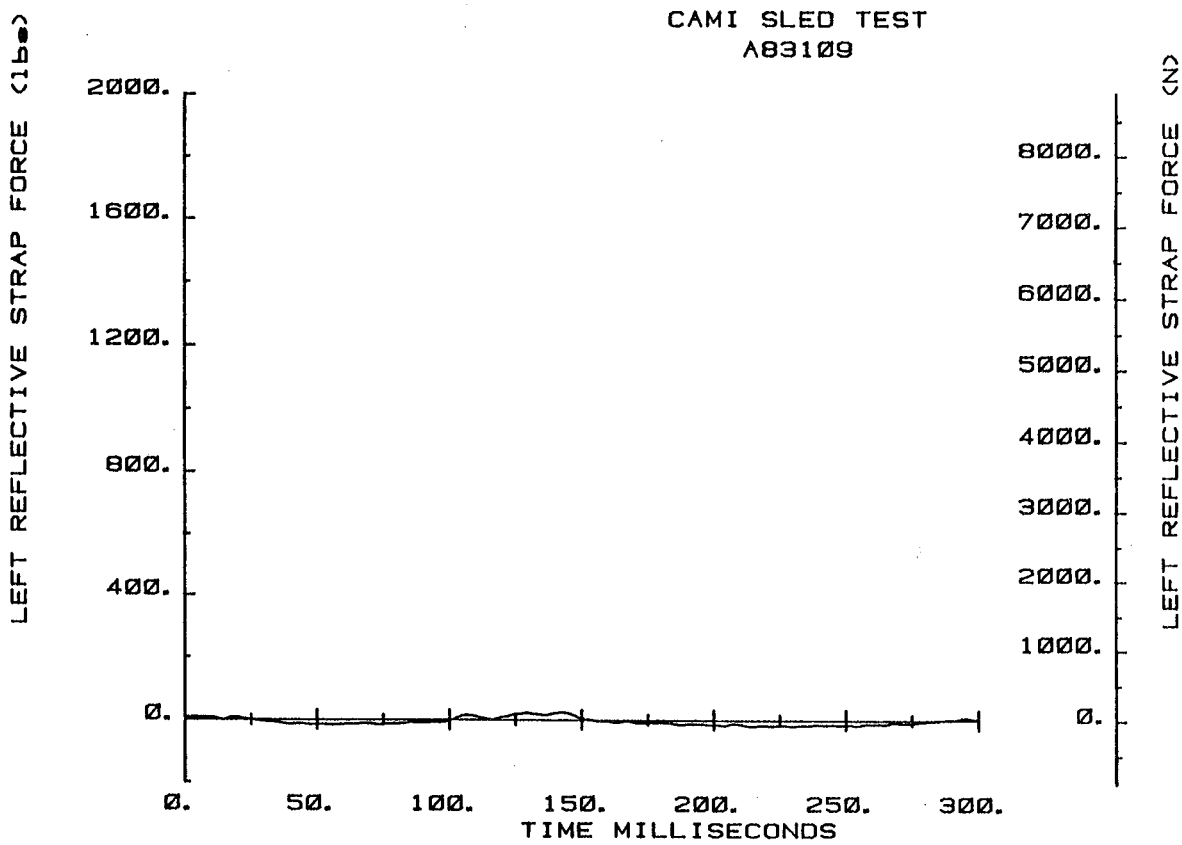

CAMI SLED TEST
A83109
LEFT LAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT LAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

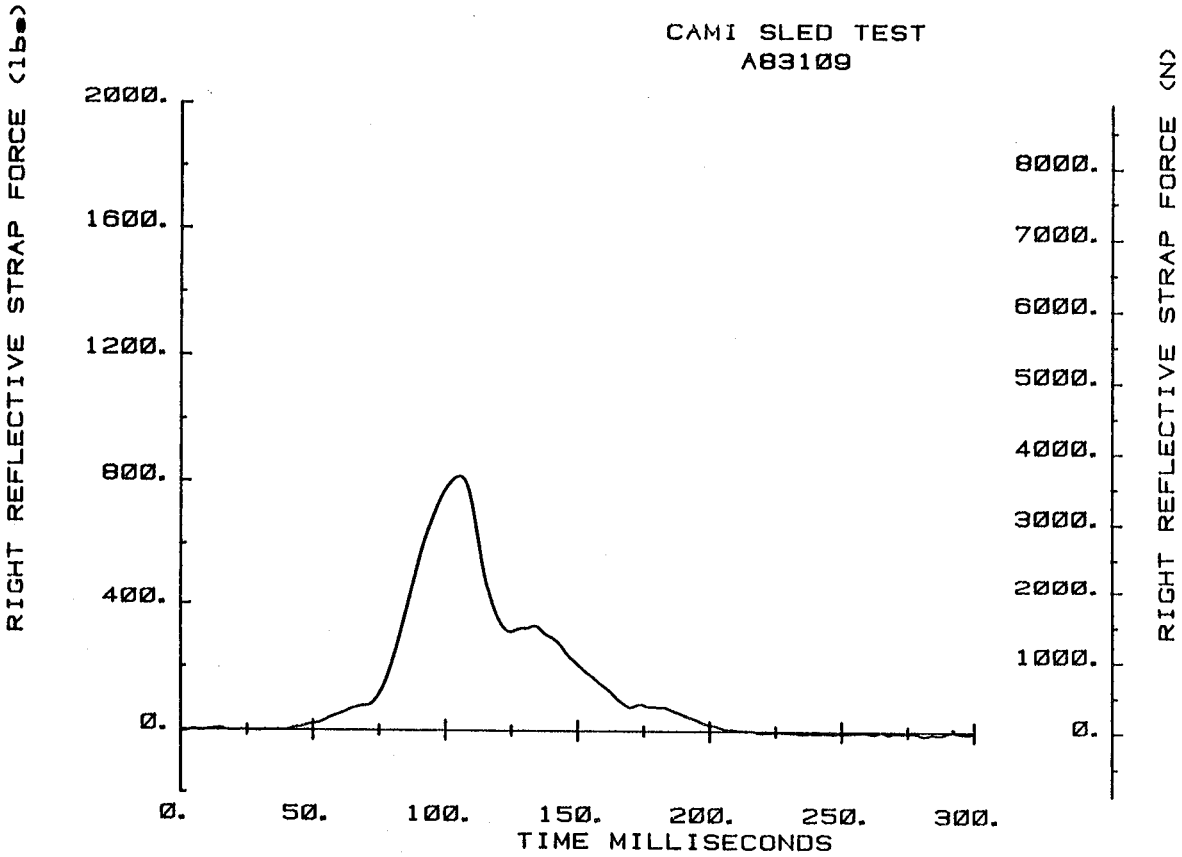

CAMI SLED TEST
A83109
RIGHT LAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT LAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

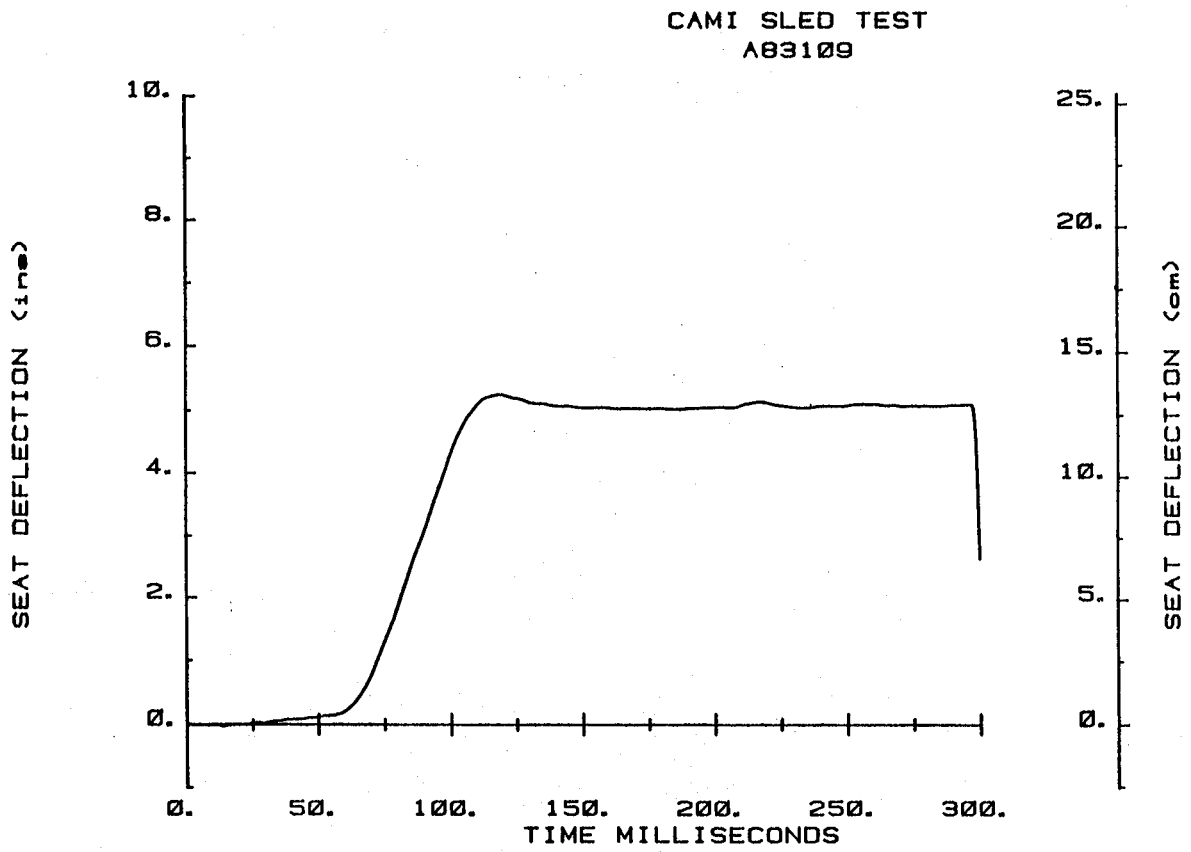

CAMI SLED TEST
A83109
LAP LOOP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LAP LOOP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

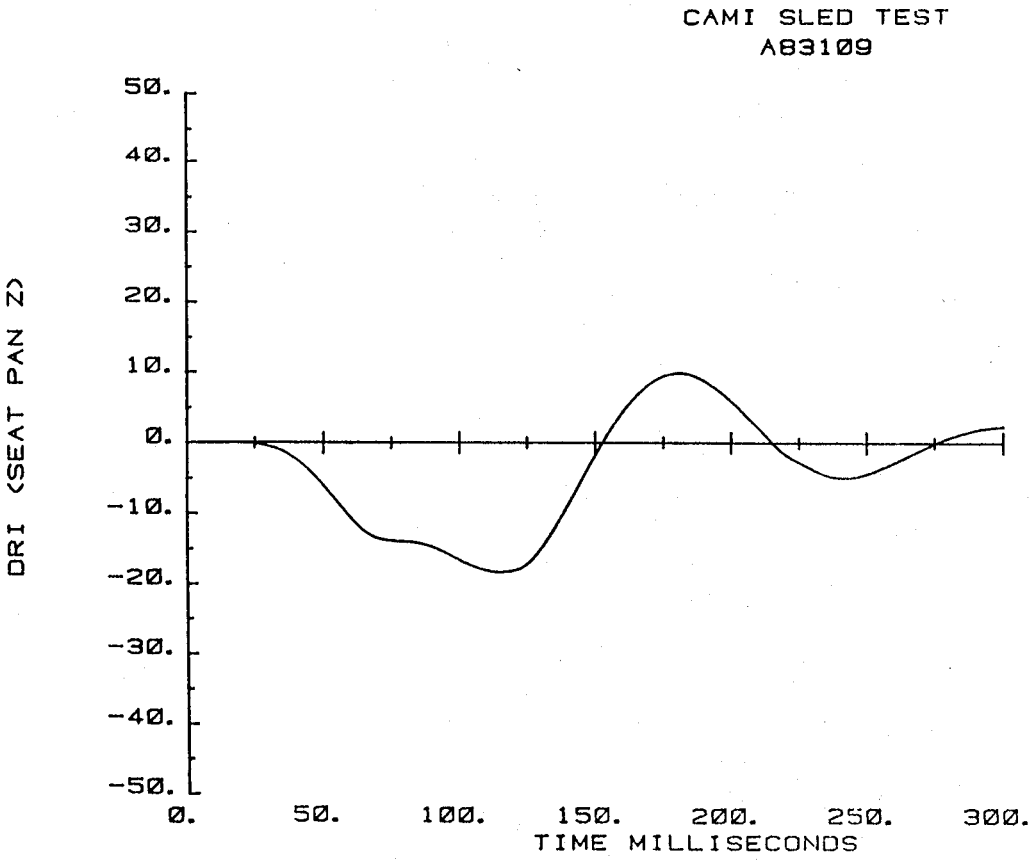

CAMI SLED TEST
A83109
LEFT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

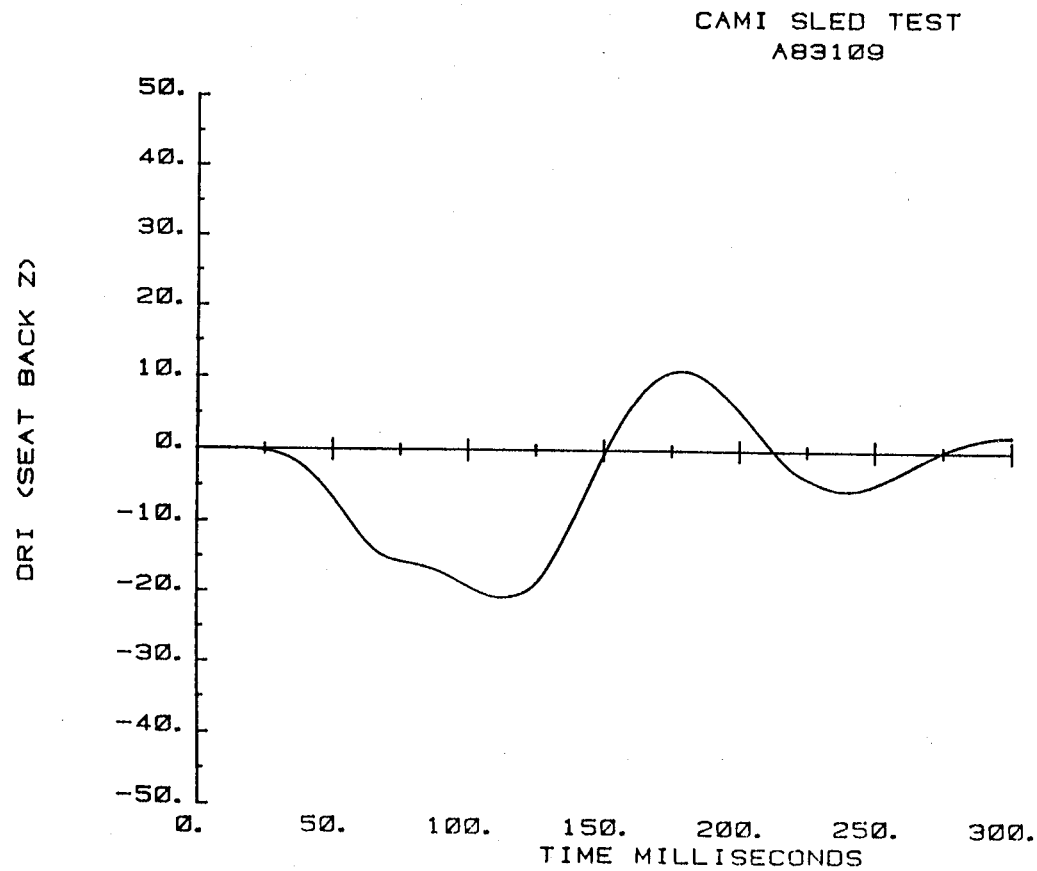

CAMI SLED TEST
A83109
RIGHT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

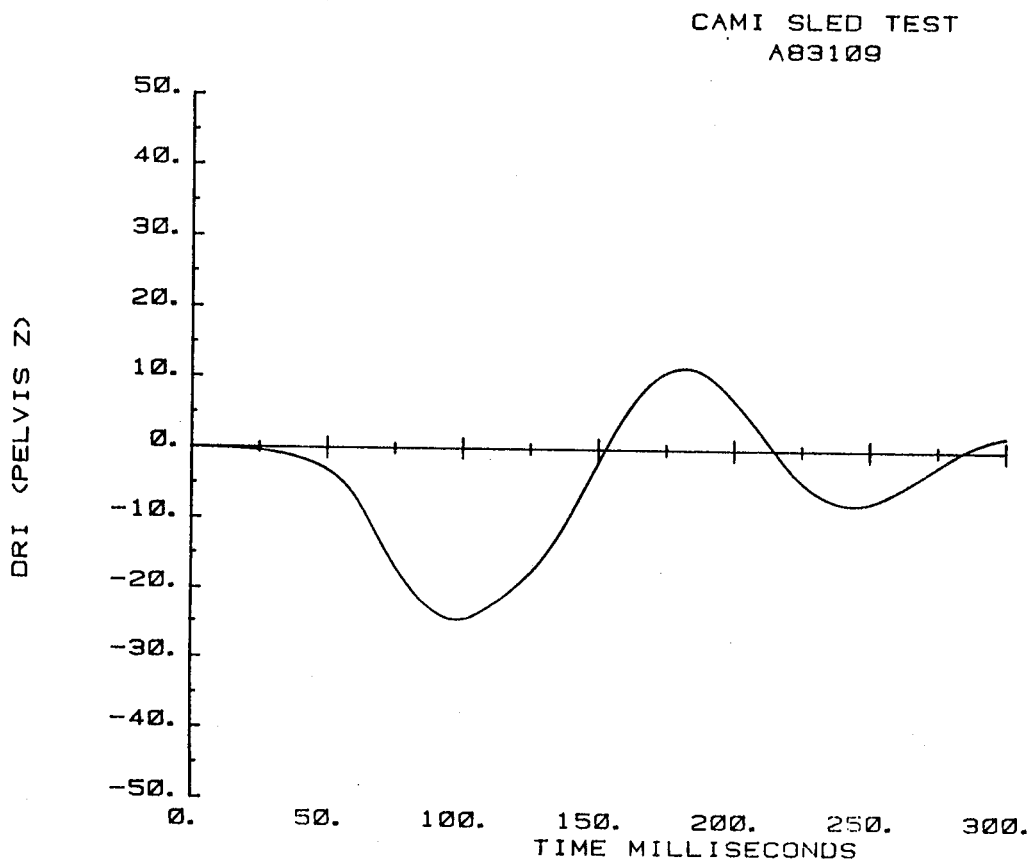

CAMI SLED TEST
A83109
LEFT REFLECTIVE STRAP FORCE (lb)
2000.
1600.
1200.
800.
400.
0.
LEFT REFLECTIVE STRAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83109
RIGHT REFLECTIVE STRAP FORCE (lb)
2000.
1600.
1200.
800.
400.
0.
RIGHT REFLECTIVE STRAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83109
SEAT DEFLECTION (in)
SEAT DEFLECTION (cm)
10.
8.
6.
4.
2.
0.
25.
20.
15.
10.
5.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83109
DRI (SEAT PAN Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83109
DRI (SEAT BACK Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83109
DRI (PELVIS Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

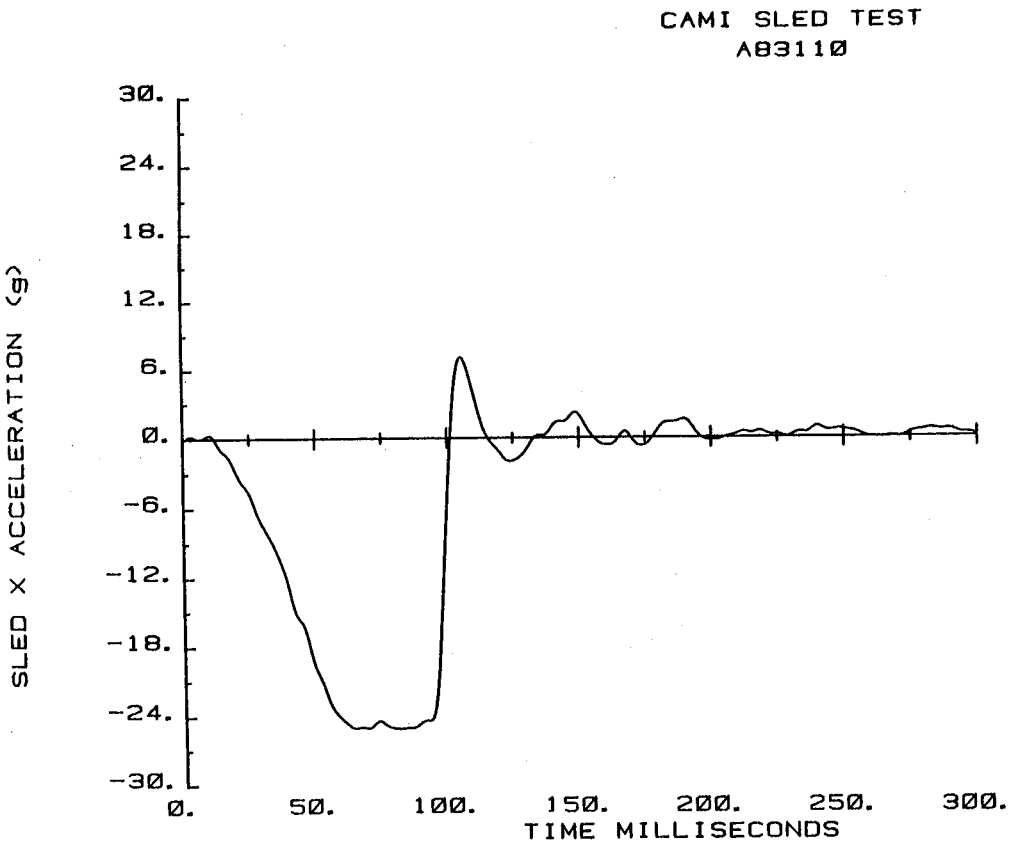
8.0 CAMI TEST NO. A83-110

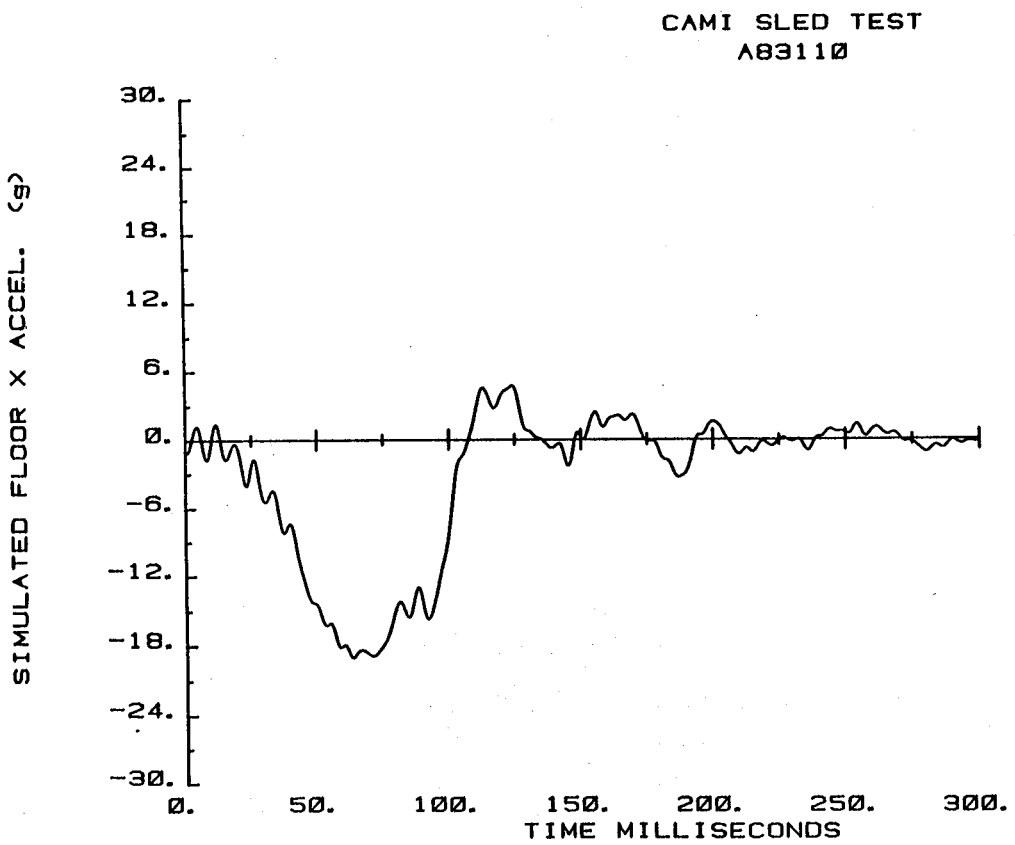
SEAT: Energy Absorbing

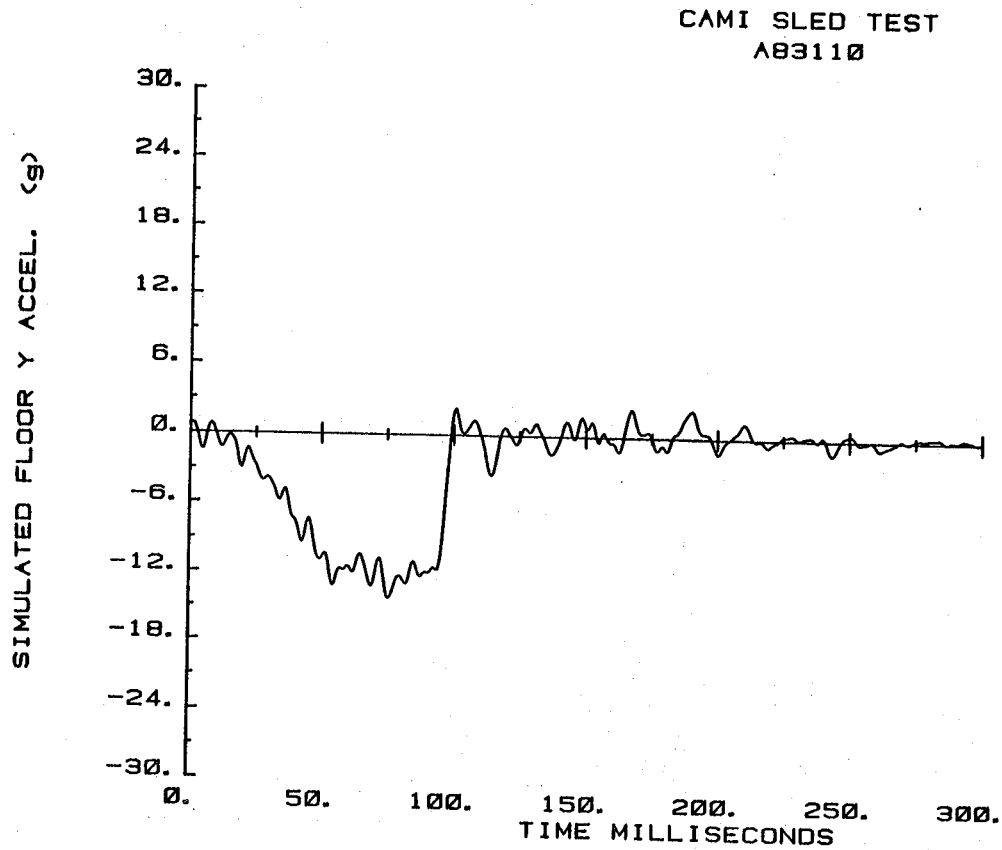
PULSE NUMBER: 3

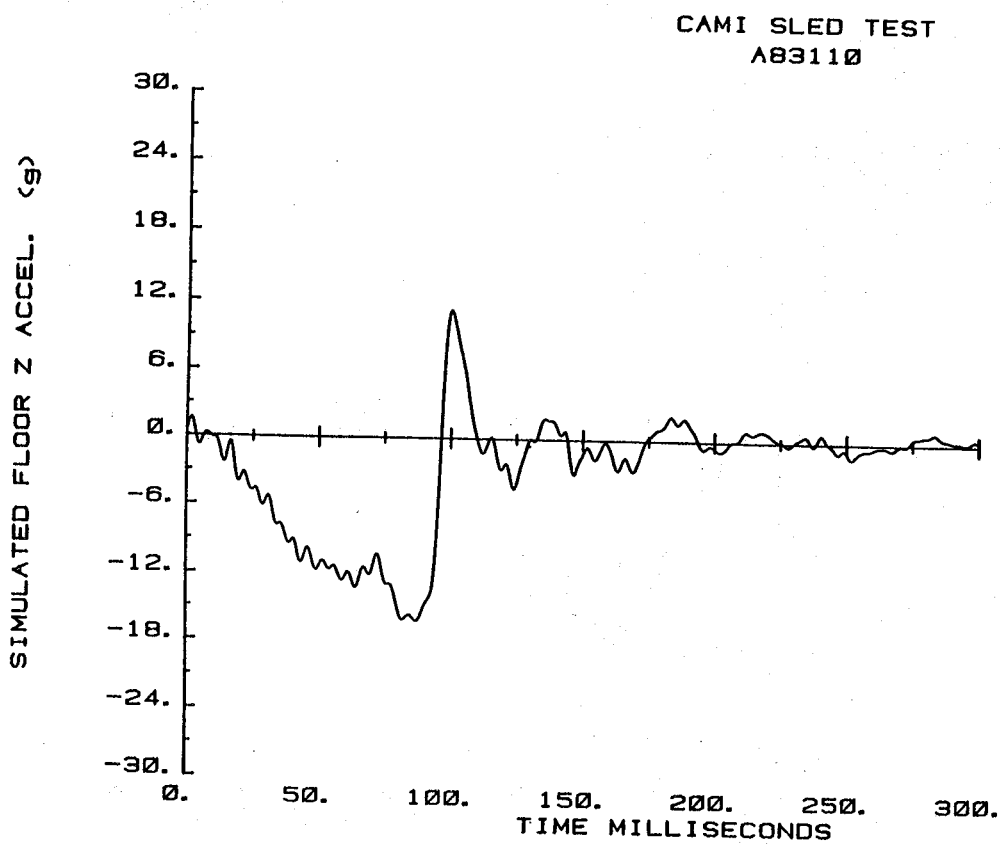
SEAT ORIENTATION: Pitch - 40°
Roll - 0°
Yaw - 30°

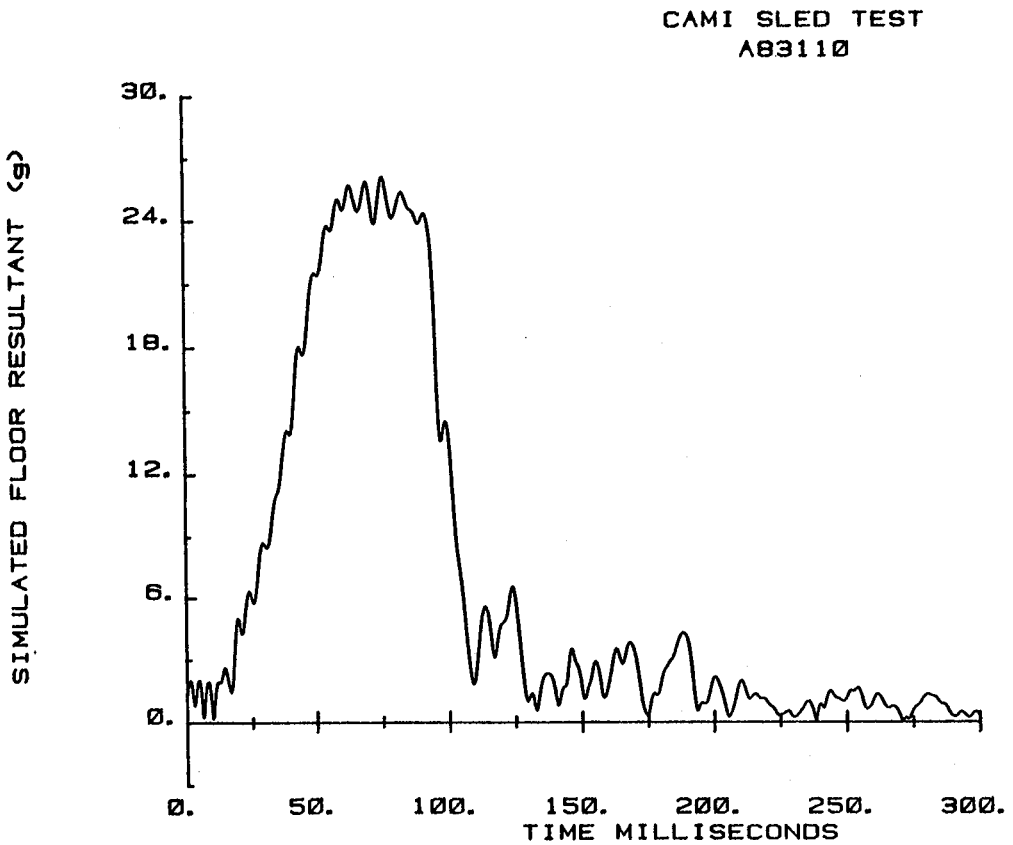
RUN#	V A R I A B L E		PEAK1	T	PEAK2	T	RANGE	FILE
A83110	SLED X ACCELERATION	(g)	-25.1	81	7.1	105	(0, 300)	* F11001
A83110	HEAD X ACCELERATION	(g)	-31.8	93	8.8	234	(0, 300)	* F11003
A83110	HEAD Y ACCELERATION	(g)	4.8	121	-17.7	144	(0, 300)	* F11004
A83110	HEAD Z ACCELERATION	(g)	-19.8	67	43.5	99	(0, 300)	* F11005
A83110	CHEST X ACCELERATION	(g)	-45.1	84	17.2	138	(0, 300)	* F11006
A83110	CHEST Y ACCELERATION	(g)	-22.1	82			(0, 300)	* F11007
A83110	CHEST Z ACCELERATION	(g)	-22.1	64	9.2	151	(0, 300)	* F11008
A83110	PELVIS X ACCELERATION	(g)	-34.5	97	14.1	147	(0, 300)	* F11009
A83110	PELVIS Y ACCELERATION	(g)	-21.2	101	9.8	168	(0, 300)	* F11010
A83110	PELVIS Z ACCELERATION	(g)	-21.7	60	8.1	147	(0, 300)	* F11011
A83110	SIMULATED FLOOR X ACCEL.	(g)	-19.0	63	4.8	124	(0, 300)	* F11012
A83110	SIMULATED FLOOR Y ACCEL.	(g)	-14.2	76			(0, 300)	* F11013
A83110	SIMULATED FLOOR Z ACCEL.	(g)	-16.2	87	11.2	99	(0, 300)	* F11014
A83110	FOOT REST FORCE X	(lbs)	378.5	84	-282.9	149	(0, 300)	* F11015
A83110	FOOT REST FORCE Y	(lbs)	474.8	100	-301.9	197	(0, 300)	* F11016
A83110	FOOT REST FORCE Z	(lbs)	1798.9	73	-476.8	162	(0, 300)	* F11017
A83110	LEFT SHOULDER FORCE	(lbs)	402.3	86			(0, 300)	* F11018
A83110	RIGHT SHOULDER FORCE	(lbs)	1034.9	89			(0, 300)	* F11019
A83110	SEAT BACK Z ACCELERATION	(g)	-23.9	82	9.5	138	(0, 300)	* F11020
A83110	SEAT PAN X ACCELERATION	(g)	-24.8	71	6.8	150	(0, 300)	* F11021
A83110	SEAT PAN Y ACCELERATION	(g)	-19.8	73	13.6	122	(0, 300)	* F11022
A83110	SEAT PAN Z ACCELERATION	(g)	-21.7	83	10.1	138	(0, 300)	* F11023
A83110	SEAT DEFLECTION	(inches)	2.2	106			(0, 300)	* F11024
A83110	PELVIC FORCE X	(lbs)	-486.8	118			(0, 300)	* F11025
A83110	PELVIC FORCE Y	(lbs)	153.4	108	-147.2	135	(0, 300)	* F11026
A83110	PELVIC FORCE Z	(lbs)	1413.2	99			(0, 300)	* F11027
A83110	PELVIC MOMENT X	(in-lbs)	1197.9	77	-772.3	130	(0, 300)	* F11028
A83110	PELVIC MOMENT Y	(in-lbs)	1289.7	118	-535.5	187	(0, 300)	* F11029
A83110	PELVIC MOMENT Z	(in-lbs)	393.2	115	-119.1	295	(0, 300)	* F11030
A83110	LEFT LAP FORCE	(lbs)	1057.5	97			(0, 300)	* F11031
A83110	RIGHT LAP FORCE	(lbs)	129.6	87	-47.7	112	(0, 300)	* F11032
A83110	LEFT REFLECTIVE STRAP FORCE	(lbs)	278.9	90			(0, 300)	* F11033
A83110	RIGHT REFLECTIVE STRAP FORCE	(lbs)	875.7	93			(0, 300)	* F11034
A83110	HEAD RESULTANT	(g)	53.6	94			(0, 300)	* V11001
A83110	CHEST RESULTANT	(g)	50.7	84			(0, 300)	* V11002
A83110	PELVIS RESULTANT	(g)	43.7	97			(0, 300)	* V11003
A83110	SIMULATED FLOOR RESULTANT	(g)	26.1	75			(0, 300)	* V11004
A83110	FOOT REST FORCE RESULTANT	(lbs)	1826.2	73			(0, 300)	* V11005
A83110	SEAT PAN RESULTANT	(g)	38.9	71			(0, 300)	* V11006
A83110	PELVIC FORCE RESULTANT	(lbs)	1437.9	100			(0, 300)	* V11007
A83110	PELVIC MOMENT RESULTANT	(in-lbs)	1424.0	111			(0, 300)	* V11008
A83110	LAP LOOP FORCE	(lbs)	1148.4	95			(0, 300)	* A11002
PELVIS DRI			23.4	103				
SEAT BACK DRI			19.7	104				
SEAT PAN DRI			14.9	106				

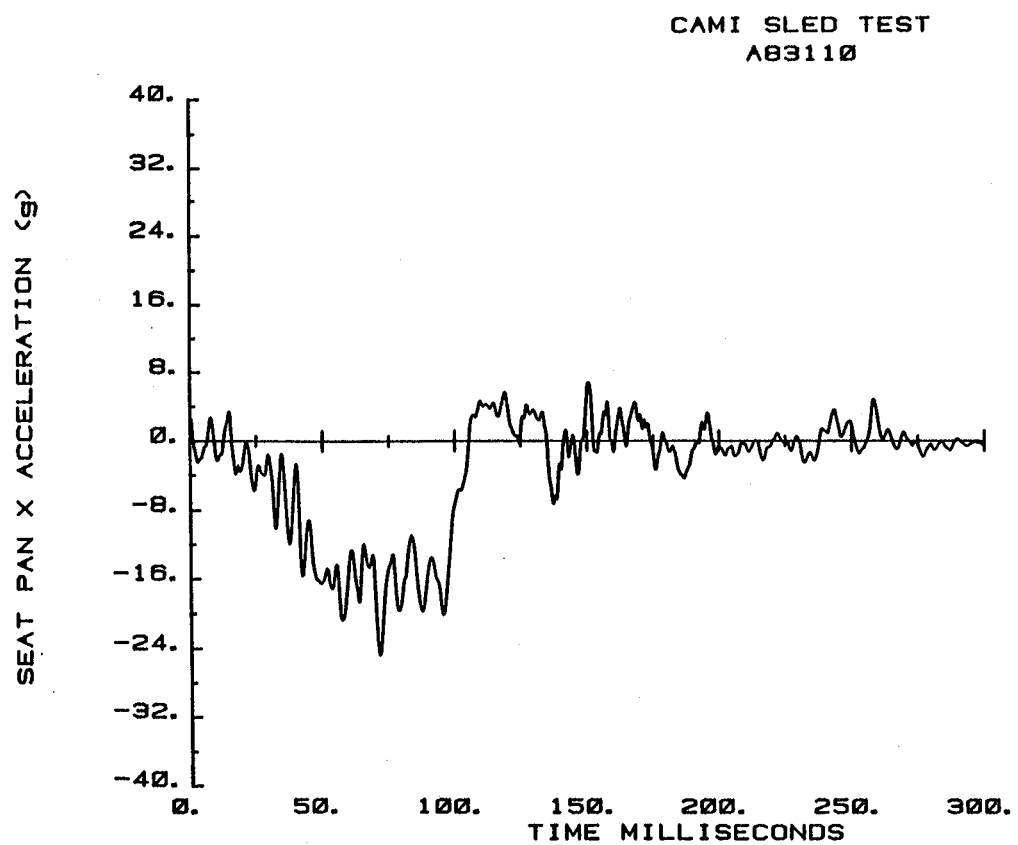

CAMI SLED TEST
A83110
SLED X ACCELERATION (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

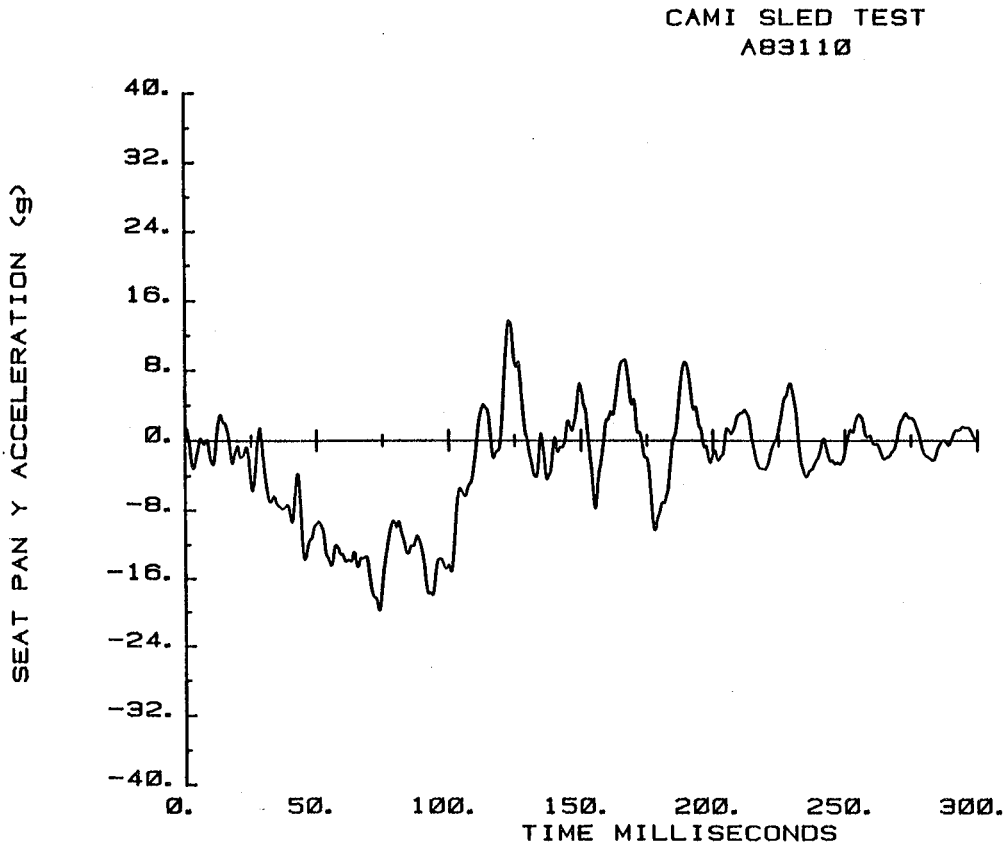

CAMI SLED TEST
A83110
SIMULATED FLOOR X ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

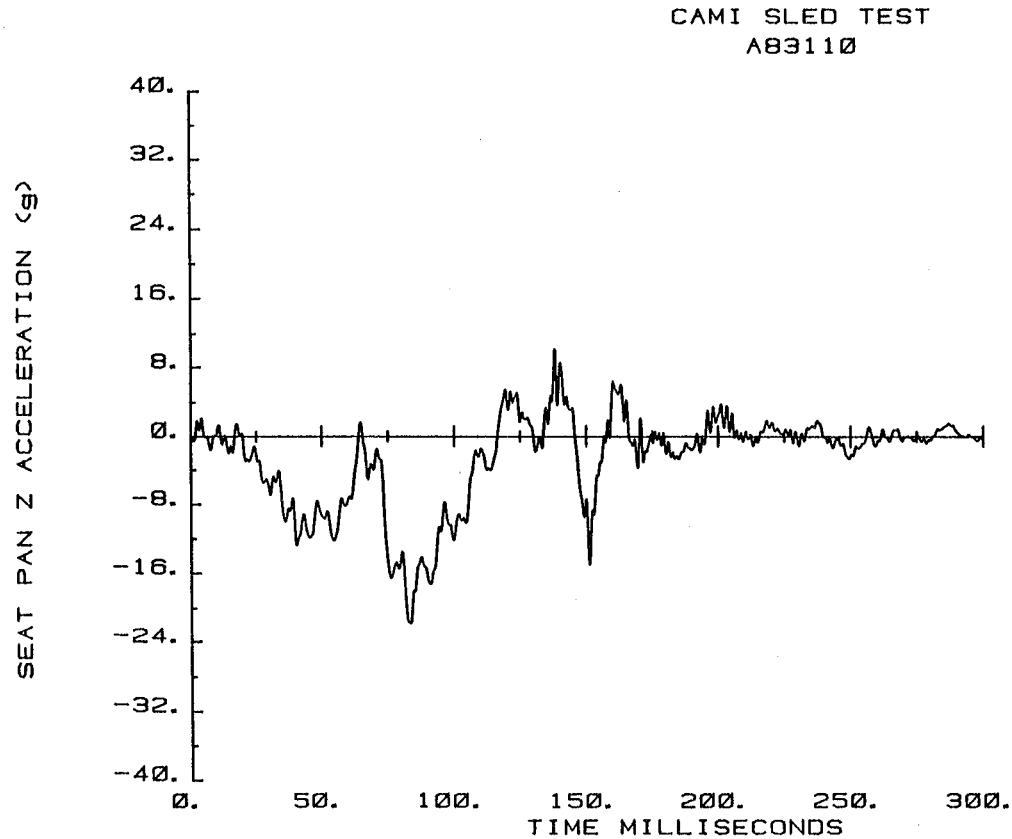

CAMI SLED TEST
A83110
SIMULATED FLOOR Y ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

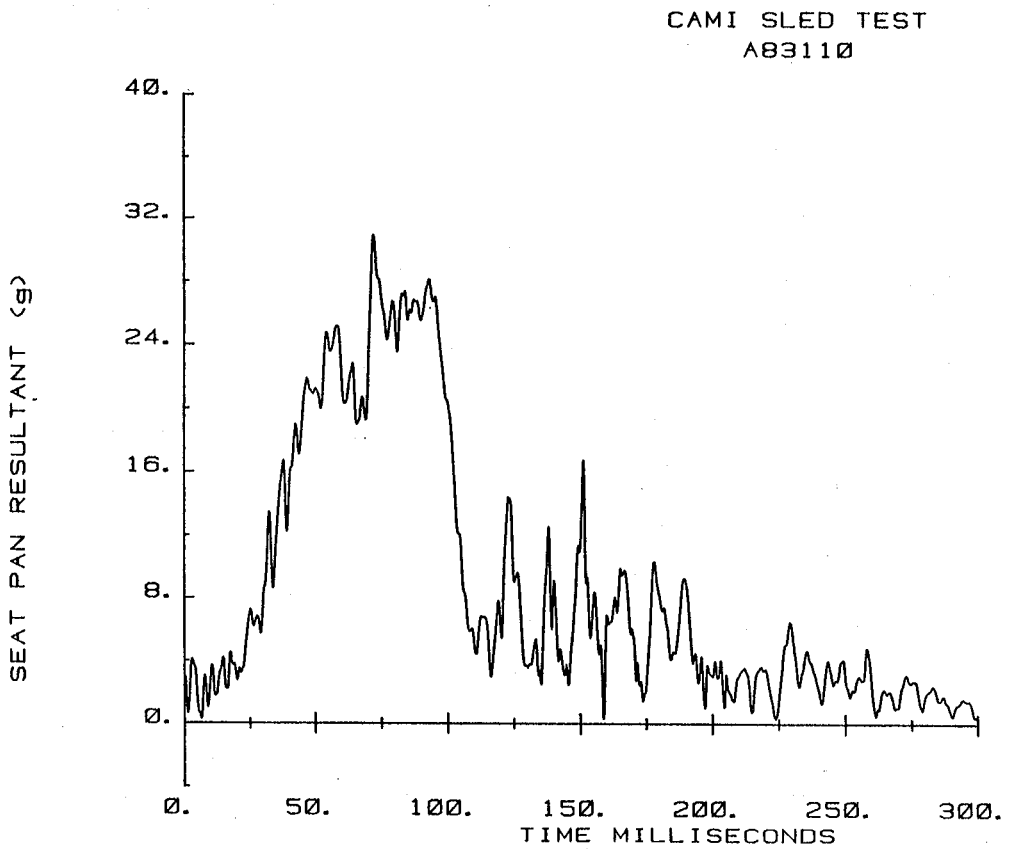

CAMI SLED TEST
A83110
SIMULATED FLOOR Z ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

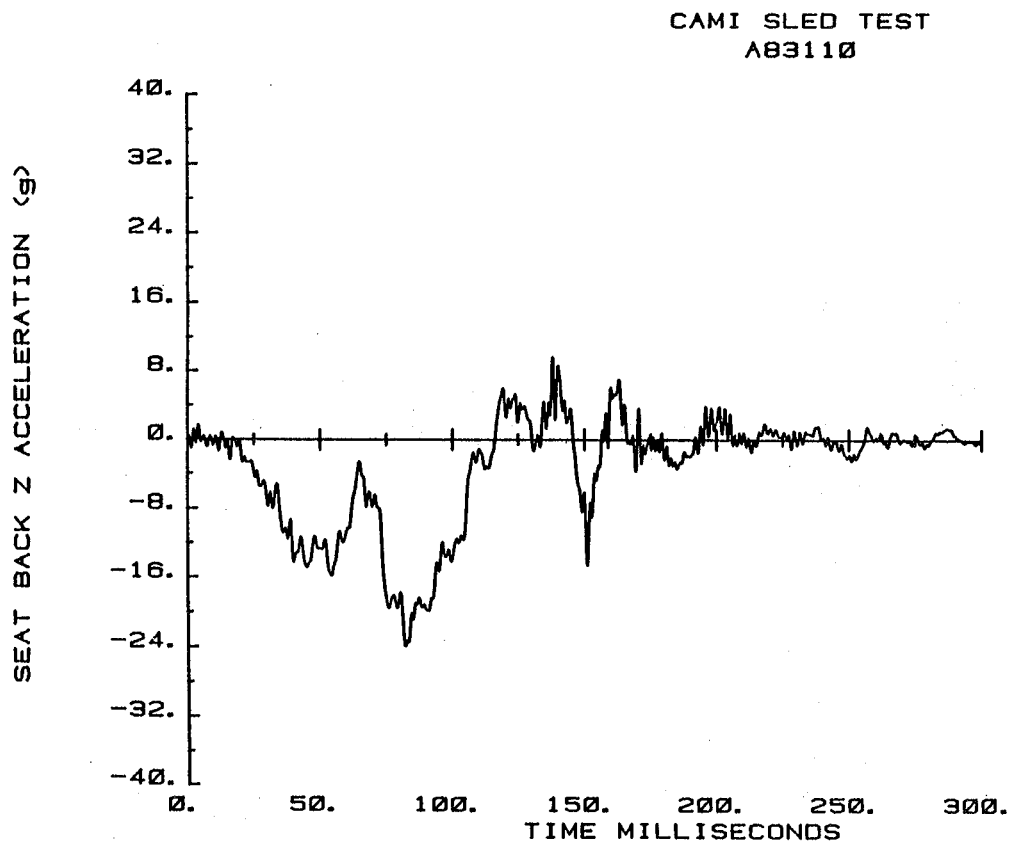

CAMI SLED TEST
A83110
SIMULATED FLOOR RESULTANT (g)
30.
24.
18.
12.
6.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

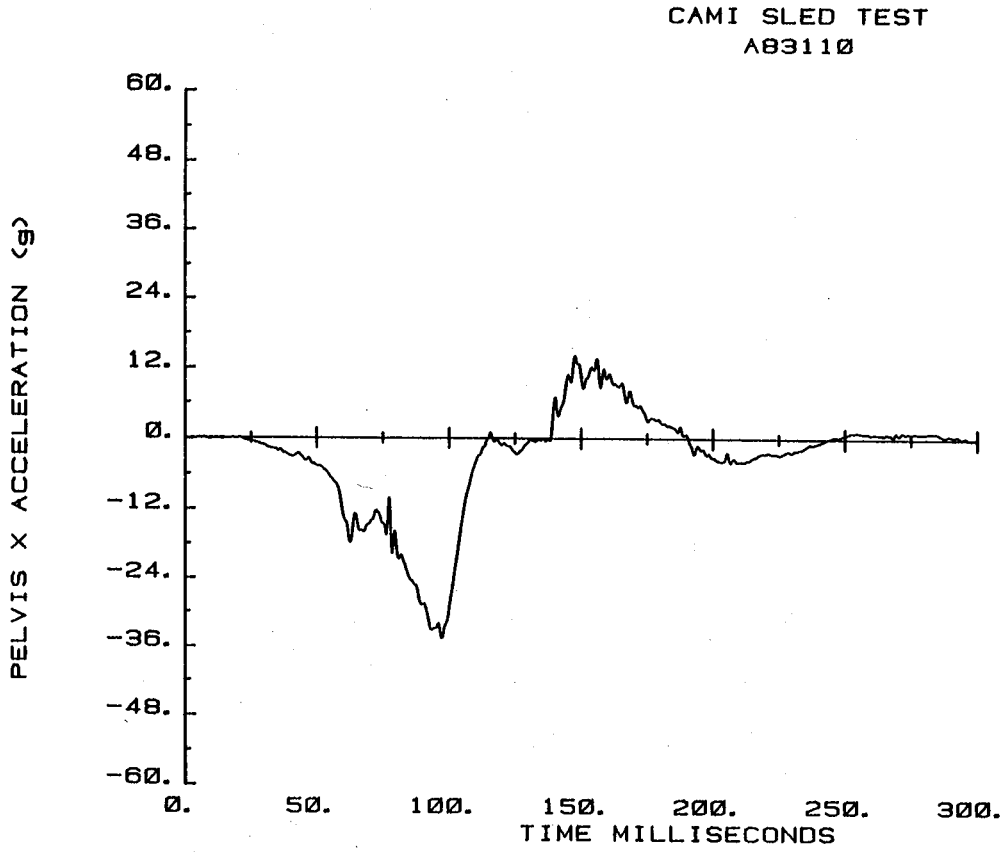

CAMI SLED TEST
A83110
SEAT PAN X ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

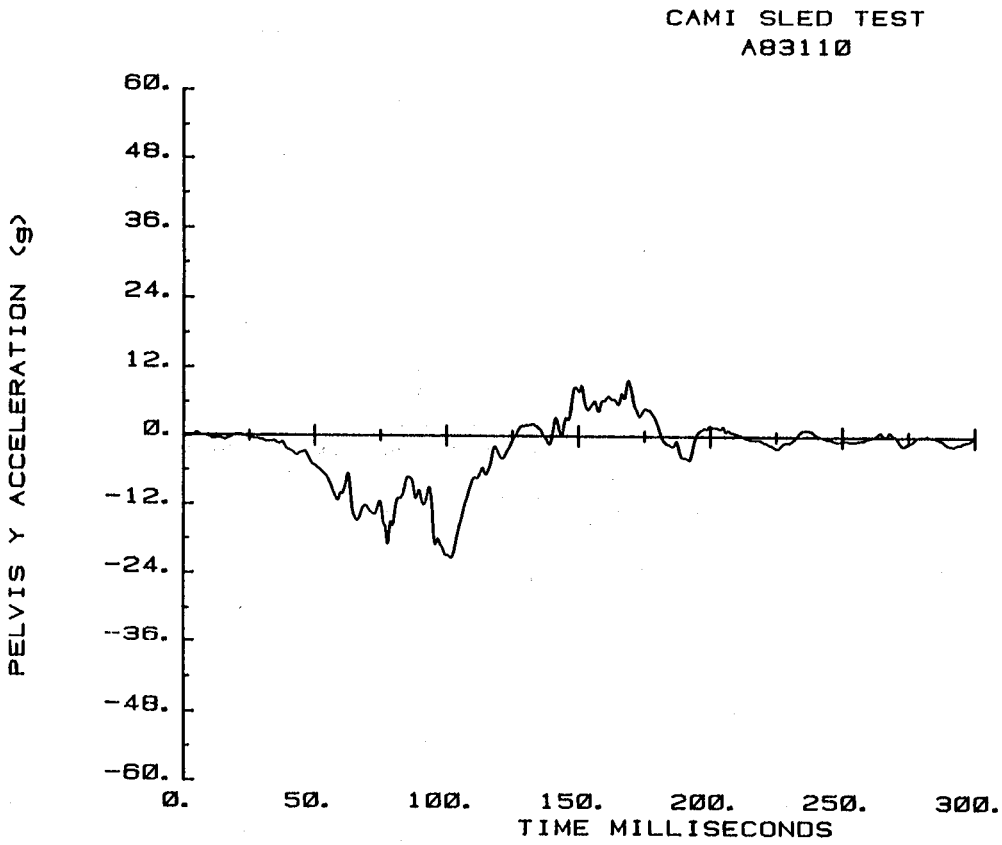

CAMI SLED TEST
A83110
SEAT PAN Y ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

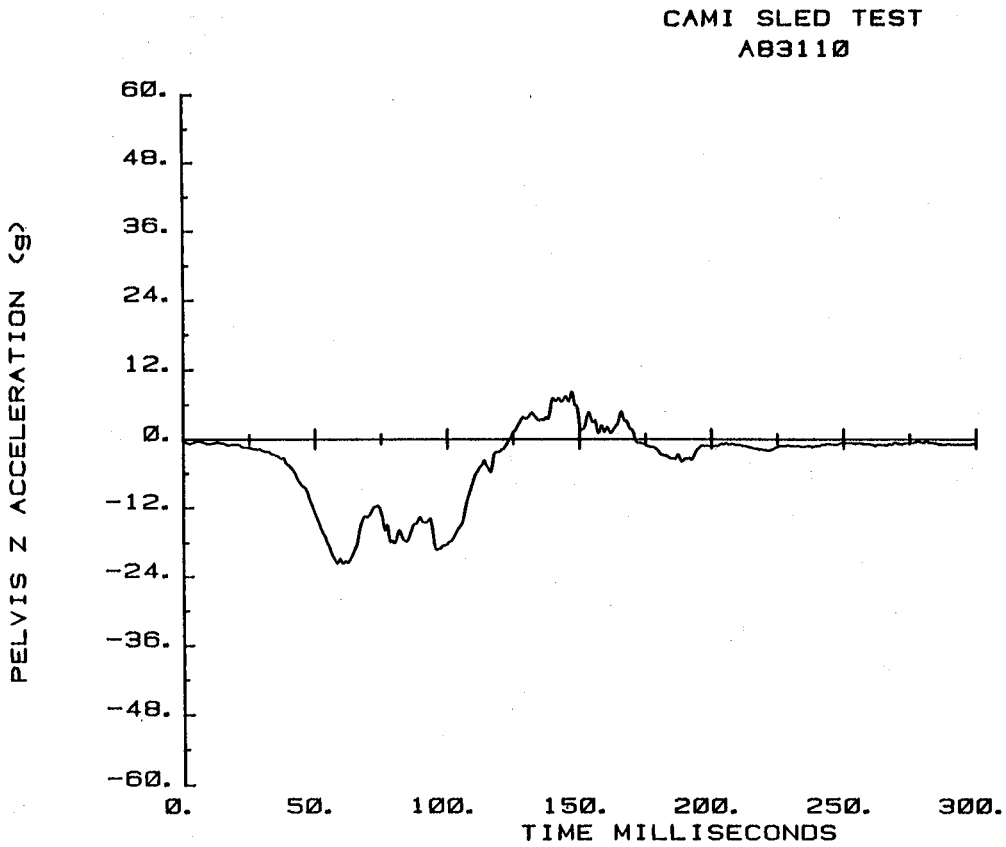

CAMI SLED TEST
A83110
SEAT PAN Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

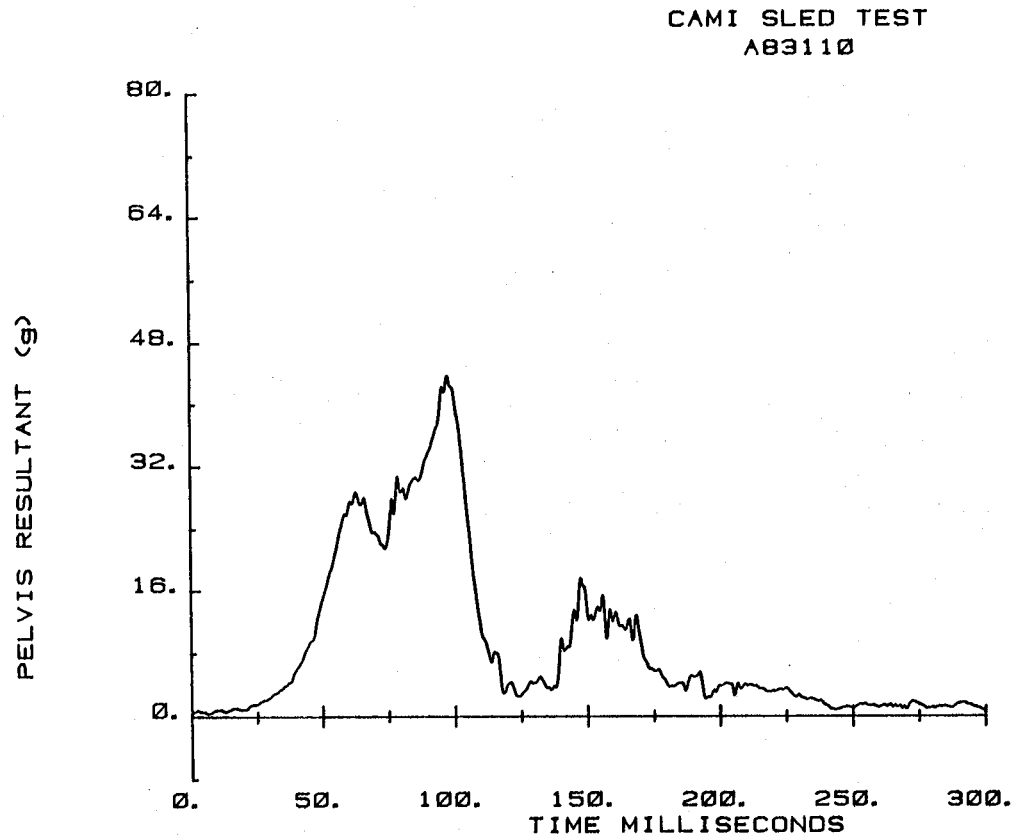

CAMI SLED TEST
A83110
SEAT PAN RESULTANT (g)
40.
32.
24.
16.
8.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

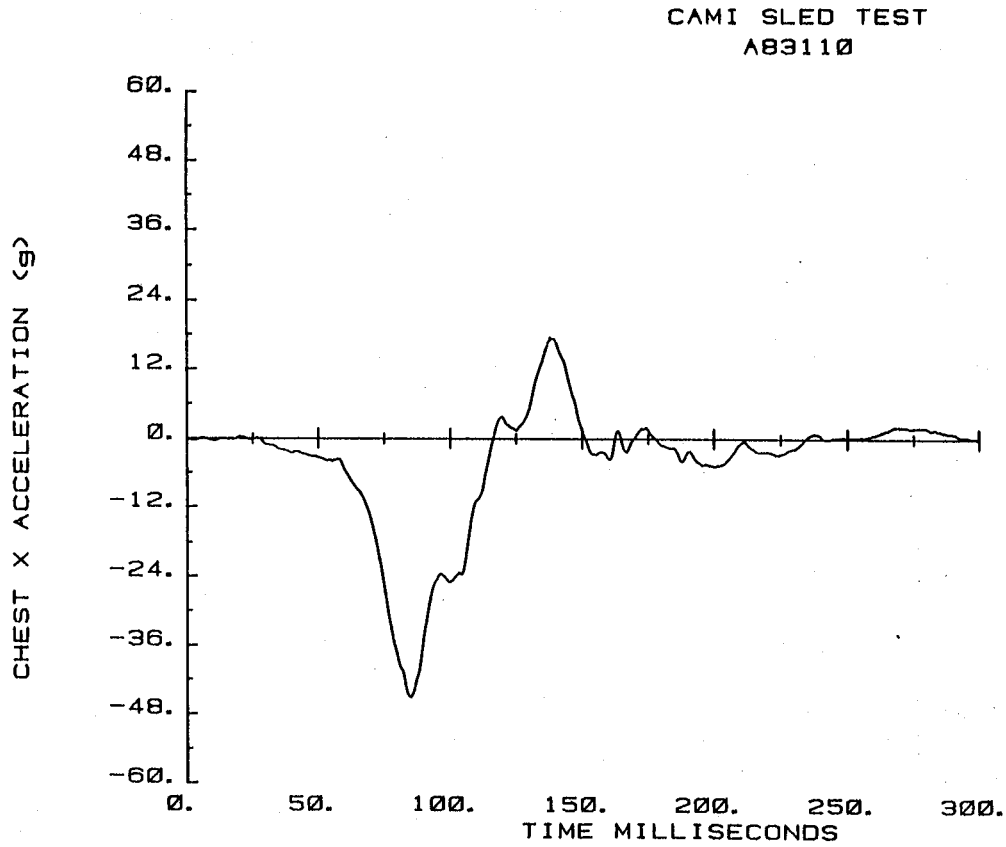

CAMI SLED TEST
A83110
SEAT BACK Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

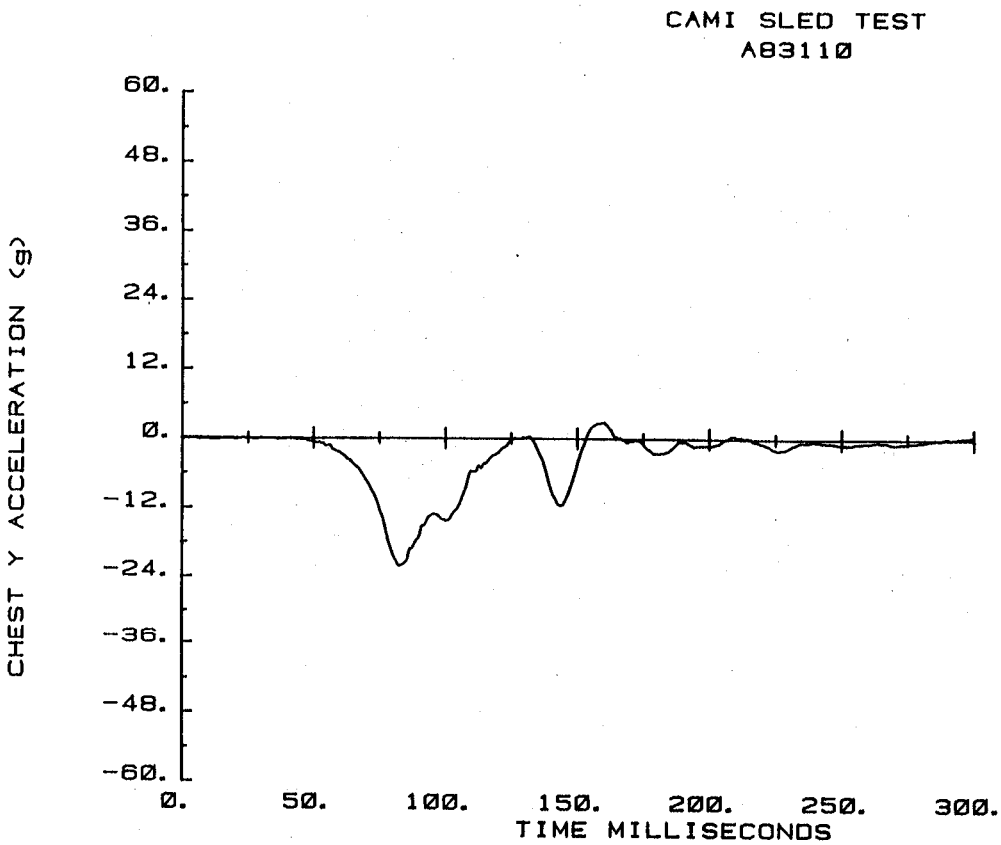

CAMI SLED TEST
A83110
PELVIS X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83110
PELVIS Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

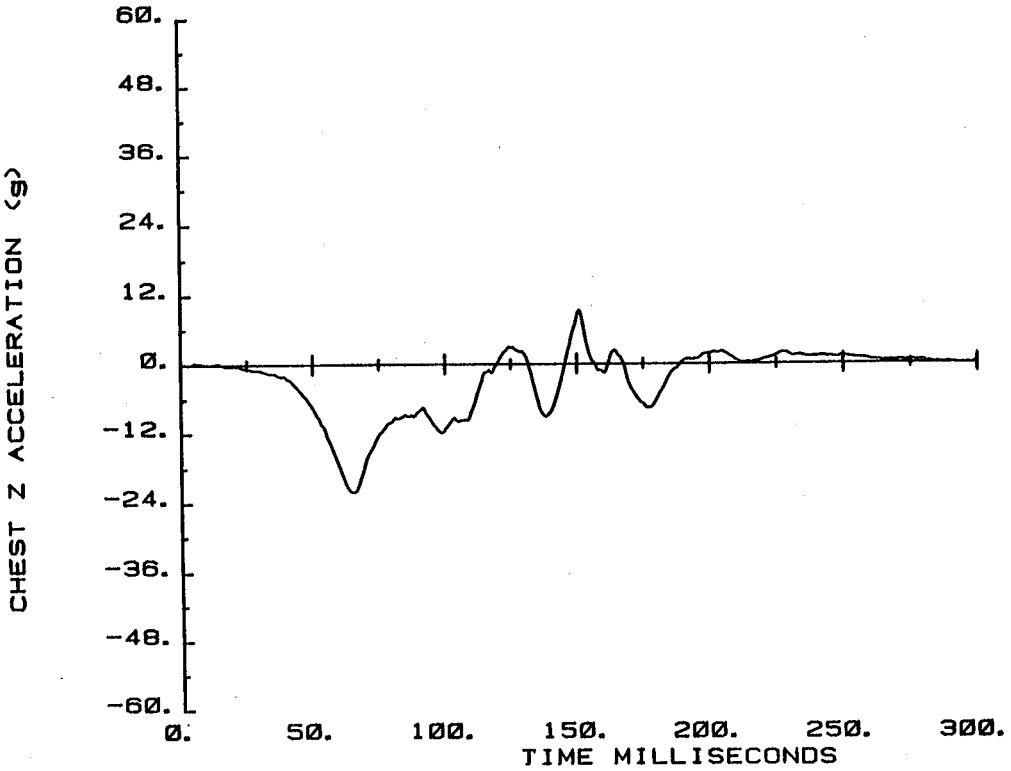

CAMI SLED TEST
A83110
PELVIS Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83110
PELVIS RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

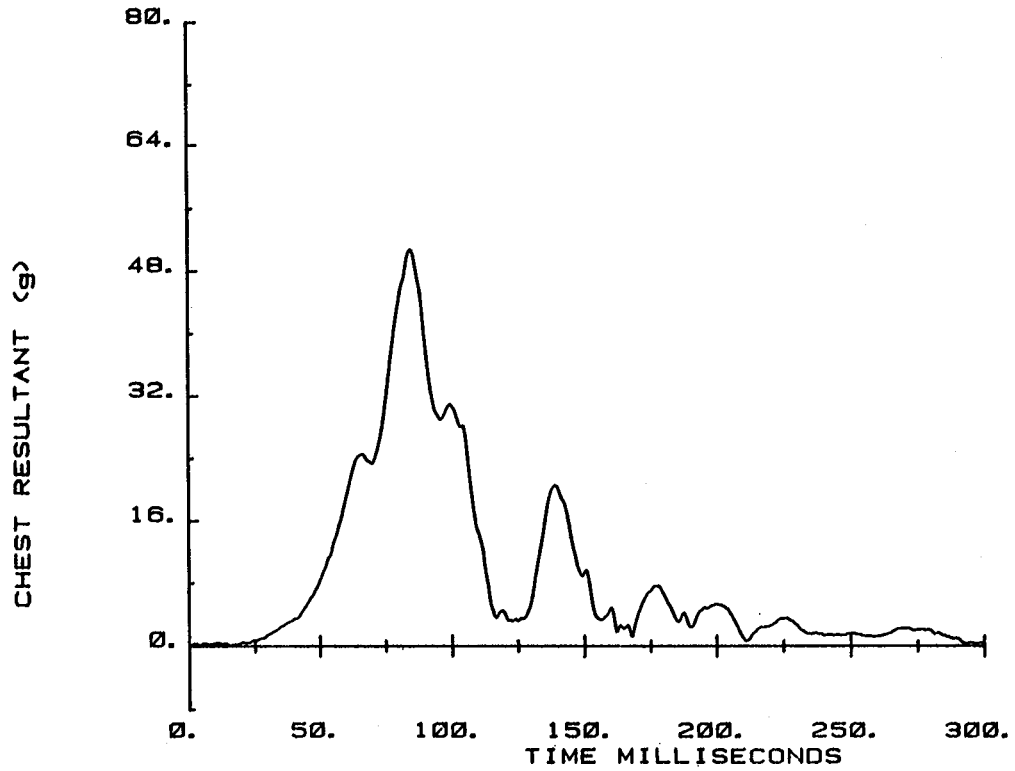

CAMI SLED TEST
A83110
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
CHEST X ACCELERATION (g)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

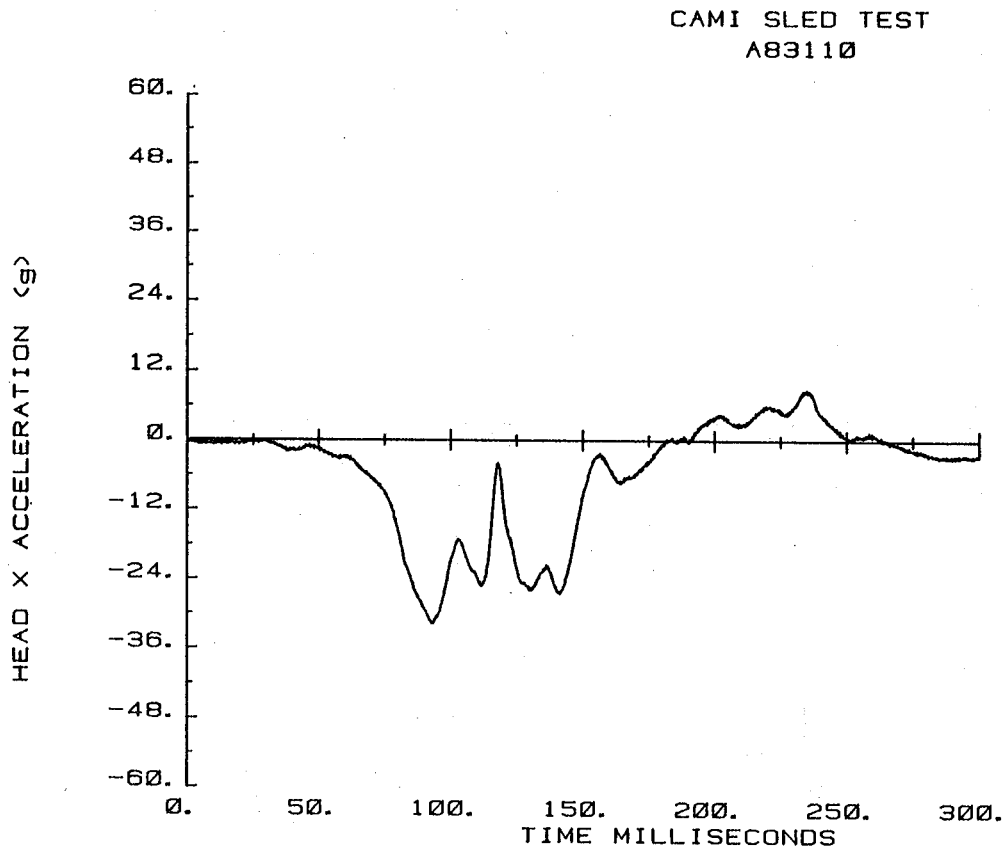

CAMI SLED TEST
A83110
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
CHEST Y ACCELERATION (g)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

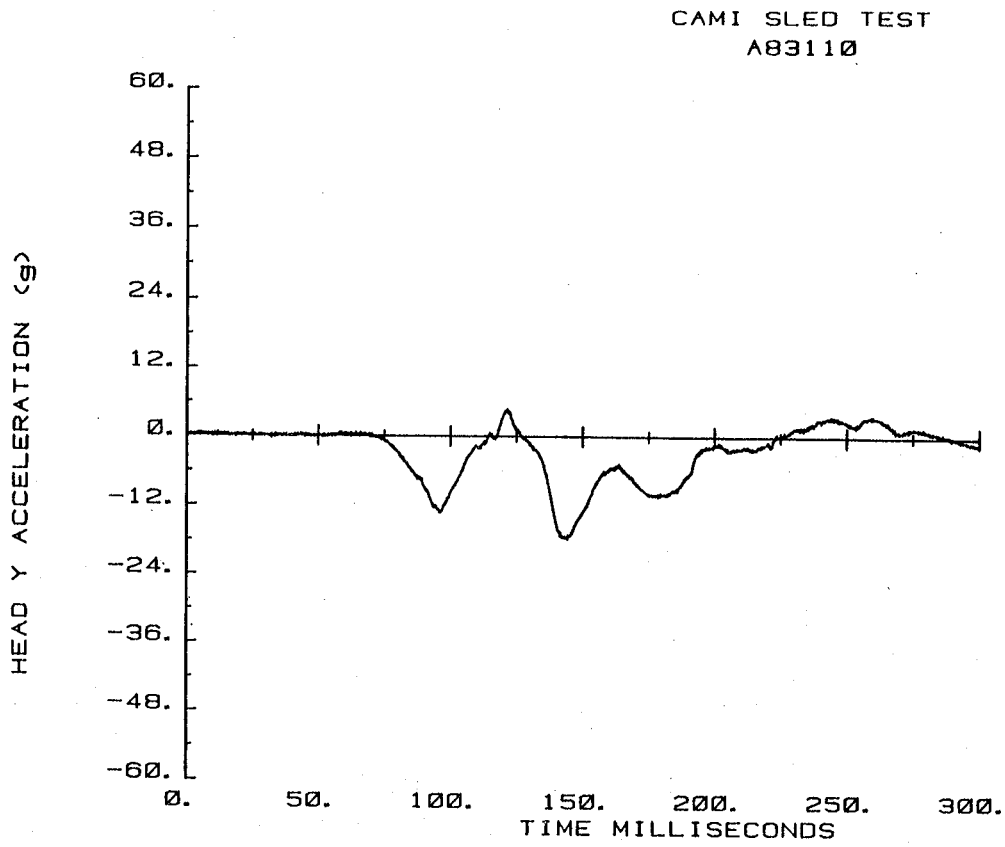
CAMI SLED TEST
A83110

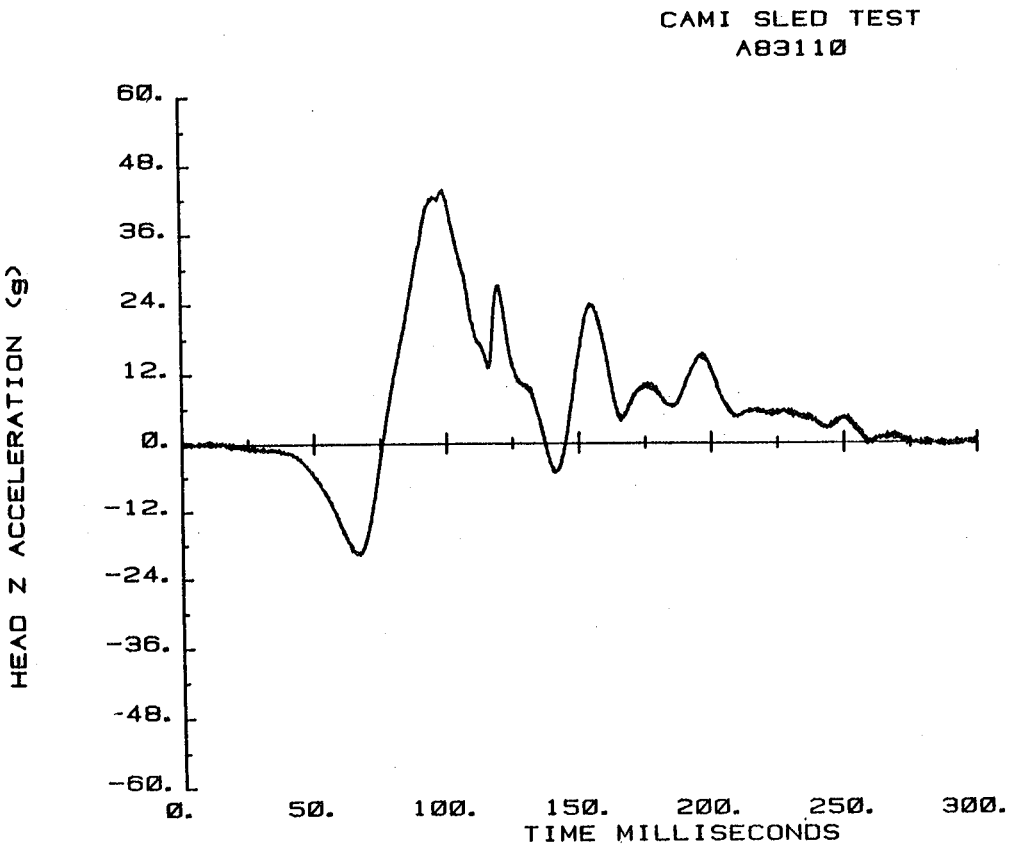


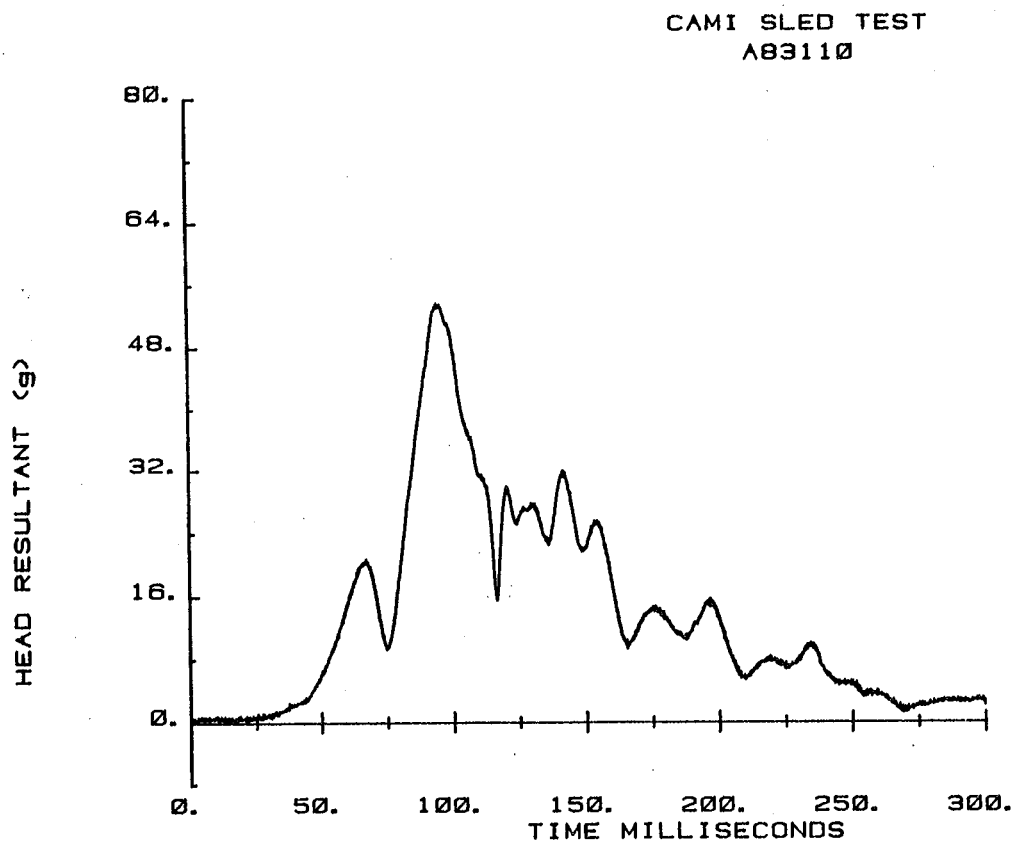
CAMI SLED TEST
A83110

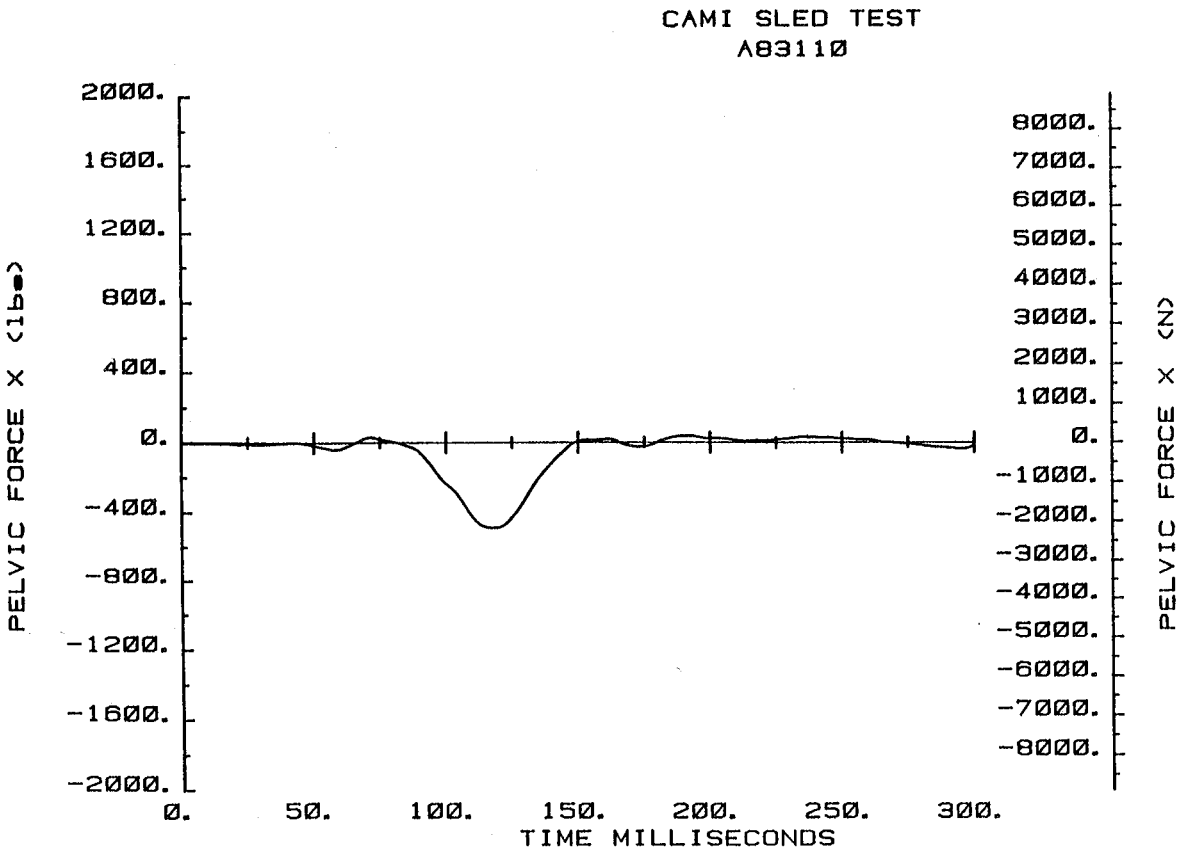


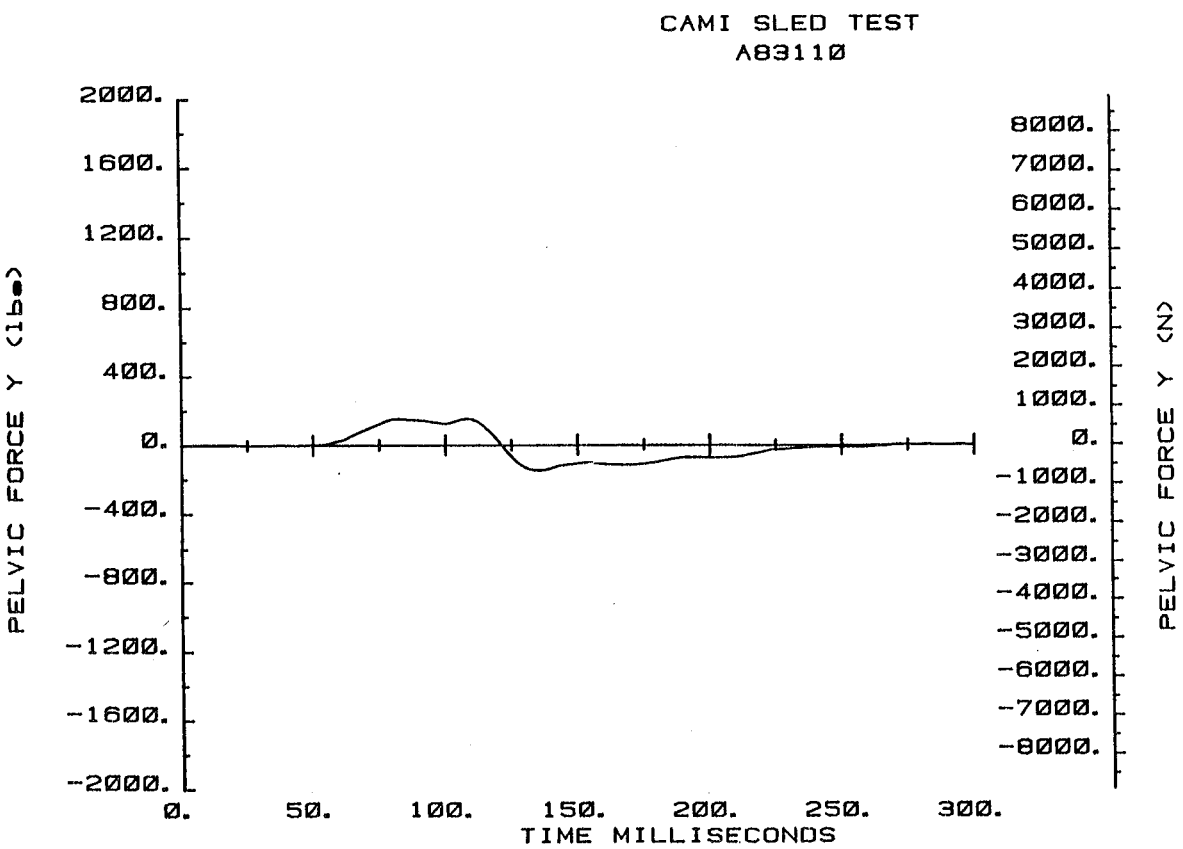

CAMI SLED TEST
A83110
HEAD X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

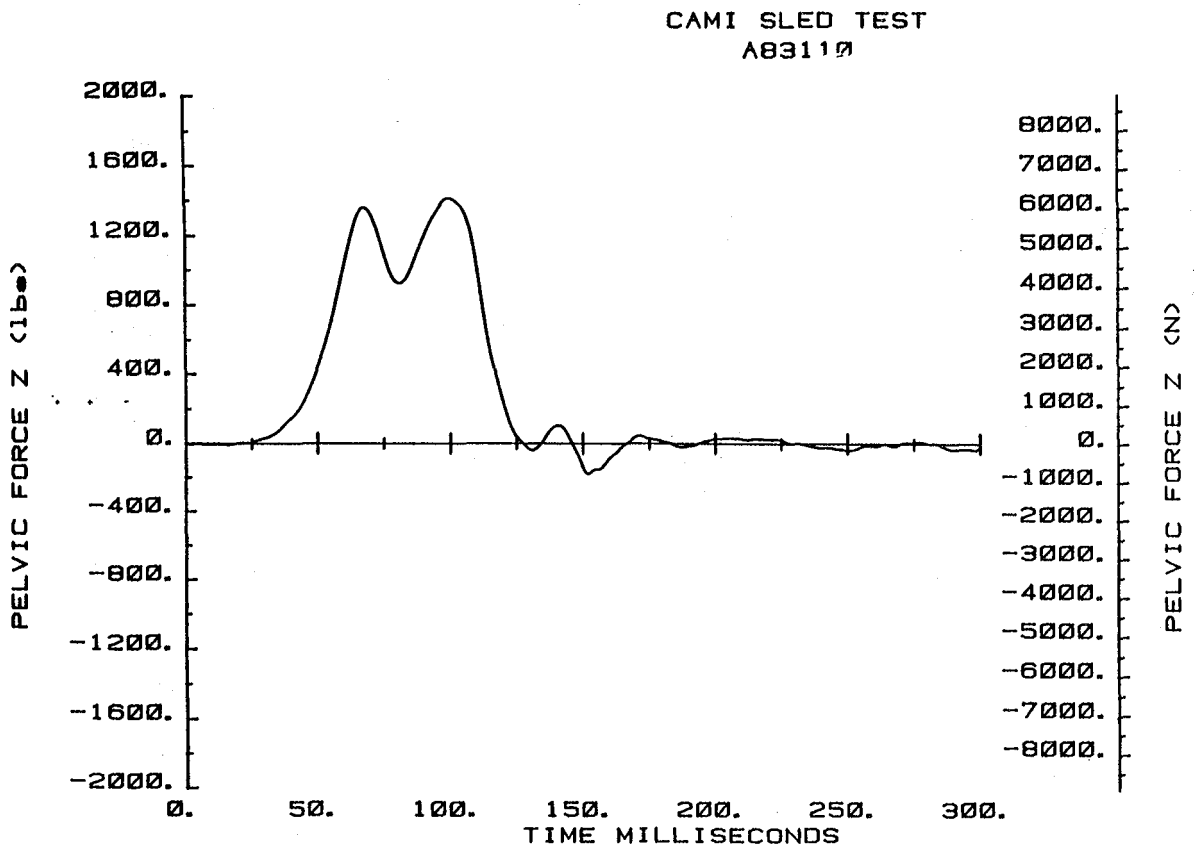

CAMI SLED TEST
A83110
HEAD Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

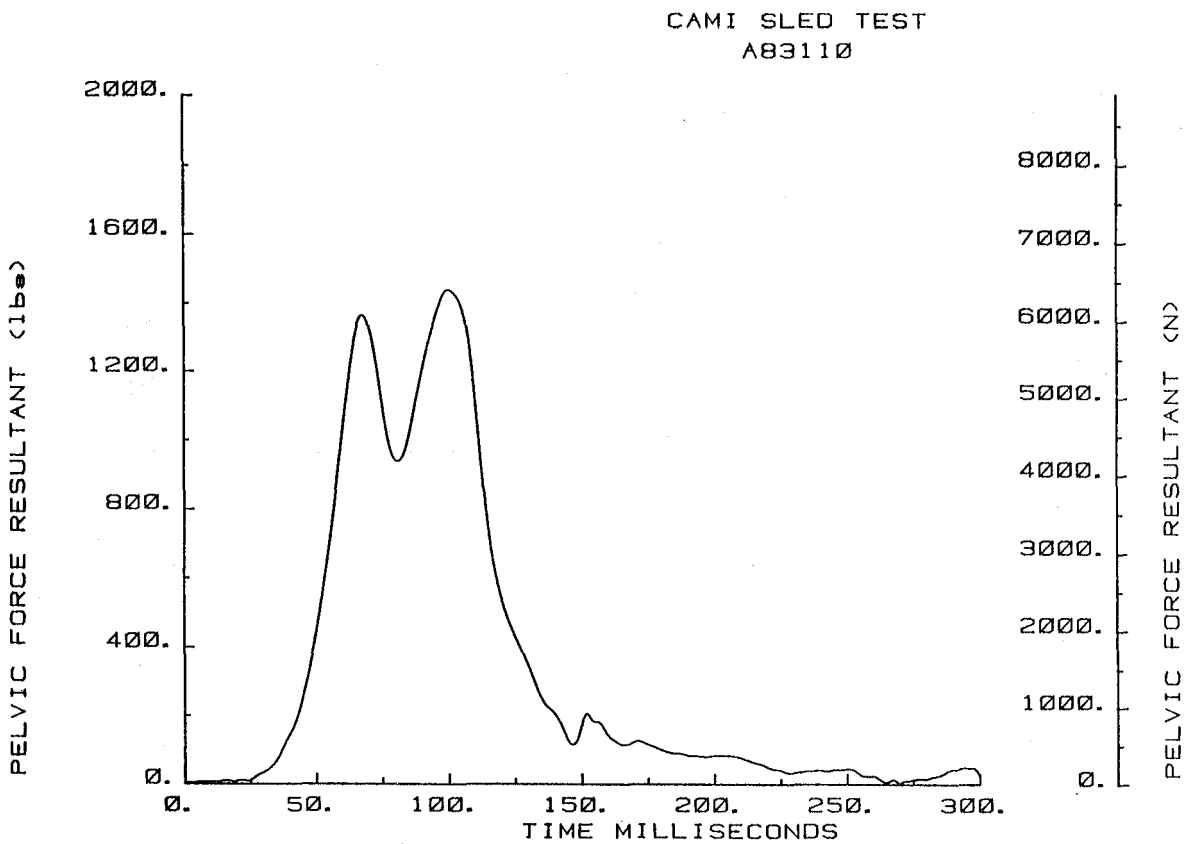

CAMI SLED TEST
A83110
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
HEAD Z ACCELERATION (g)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

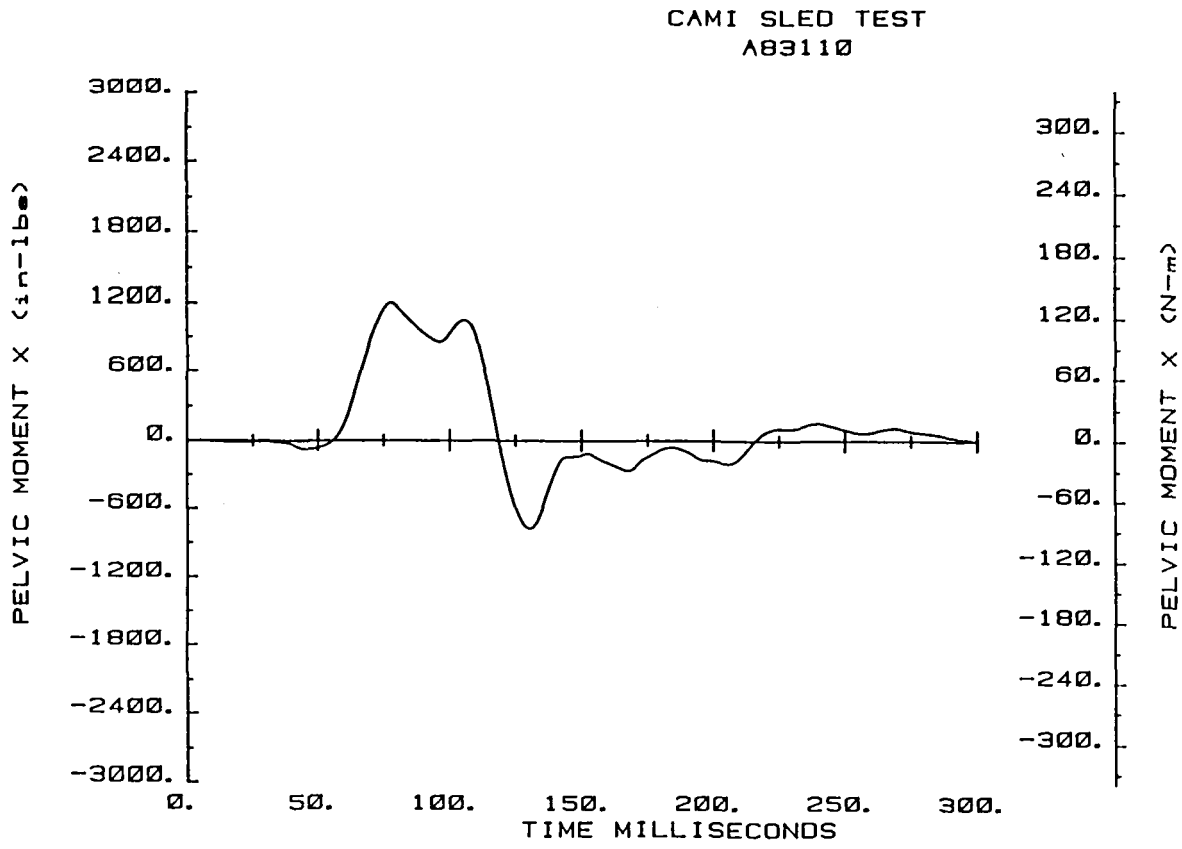

CAMI SLED TEST
A83110
80.
64.
48.
32.
16.
0.
HEAD RESULTANT (g)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

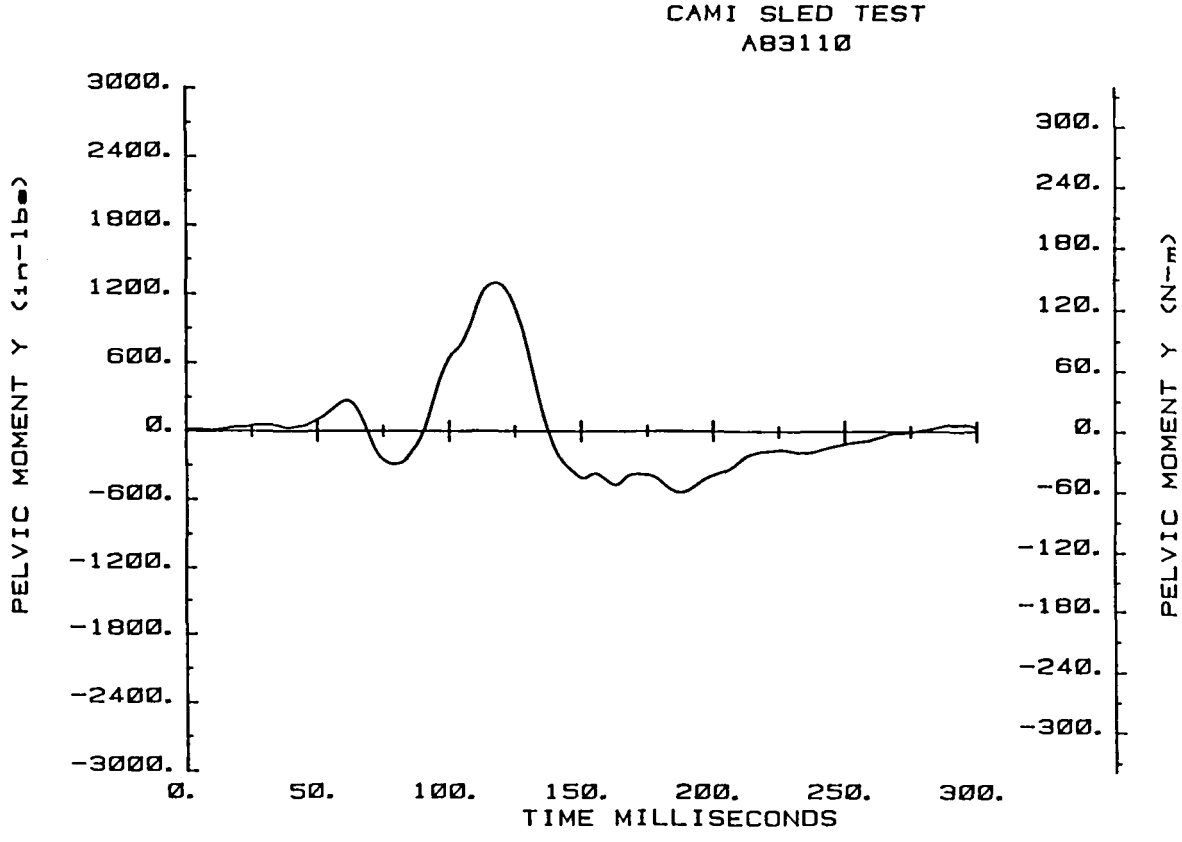

CAMI SLED TEST
A83110
PELVIC FORCE X (lb)
PELVIC FORCE X (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

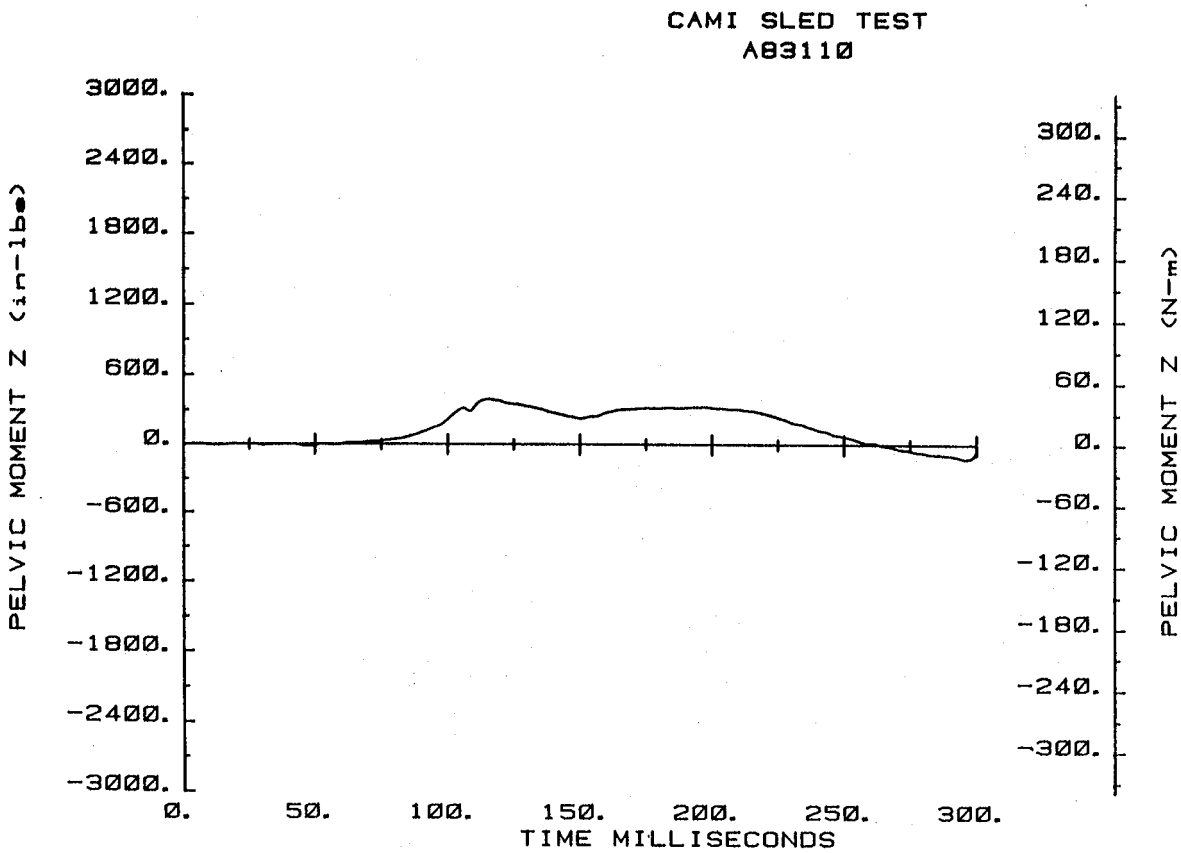

CAMI SLED TEST
A83110
PELVIC FORCE Y (lb)
PELVIC FORCE Y (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

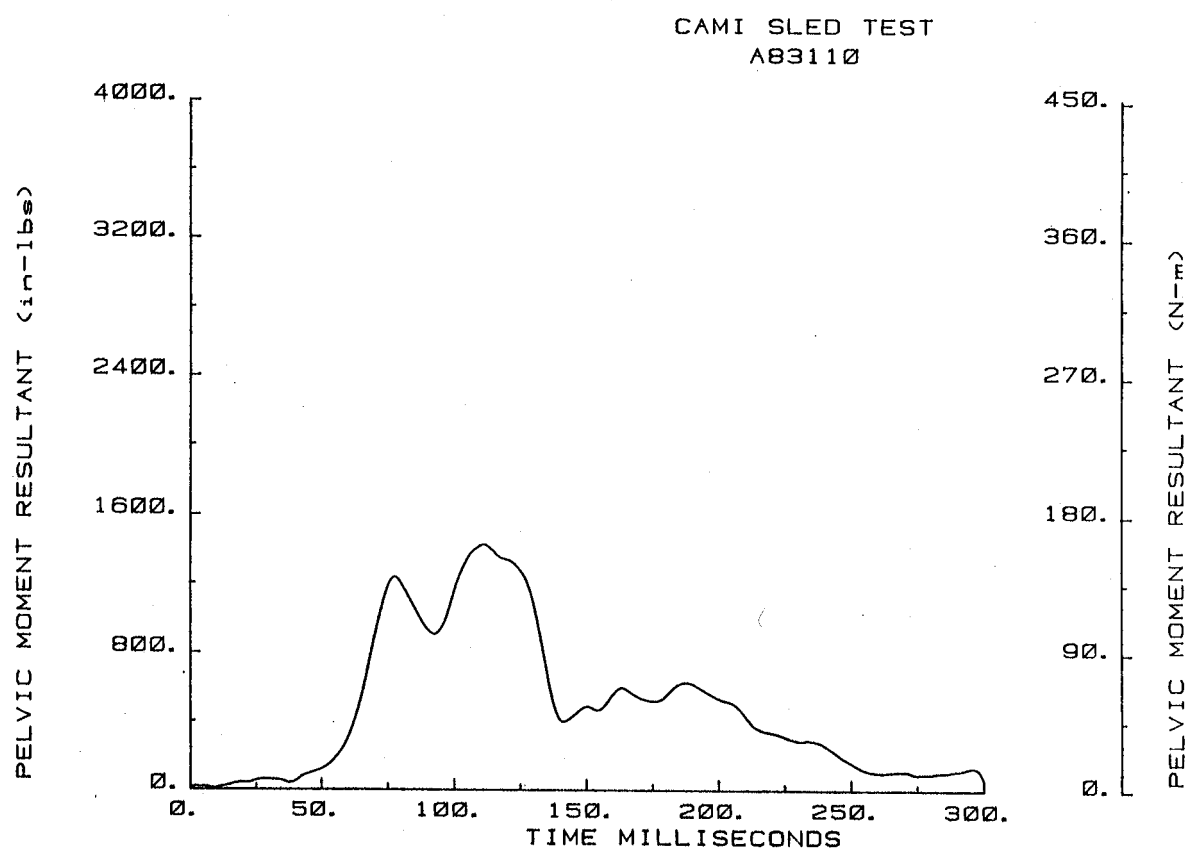

CAMI SLED TEST
A83110
PELVIC FORCE Z (lbs)
PELVIC FORCE Z (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

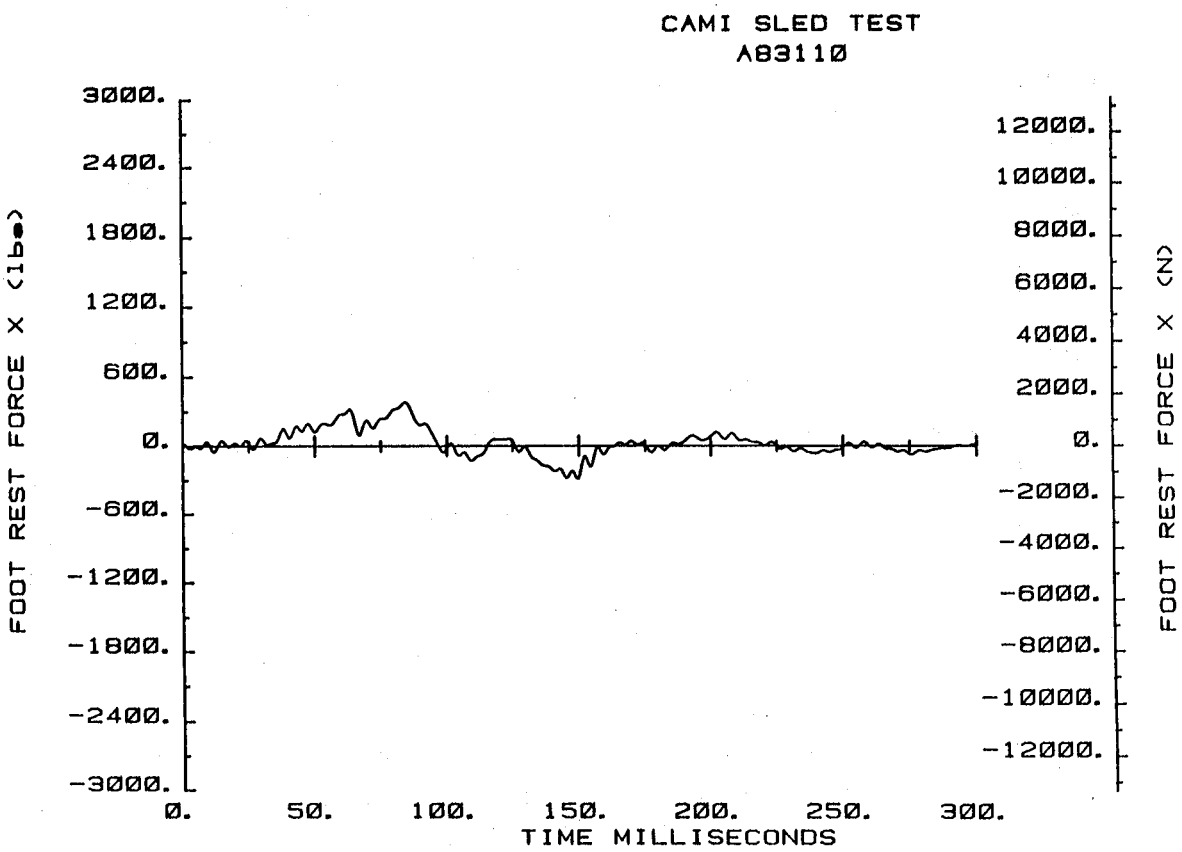

CAMI SLED TEST
A83110
PELVIC FORCE RESULTANT (lbs)
PELVIC FORCE RESULTANT (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

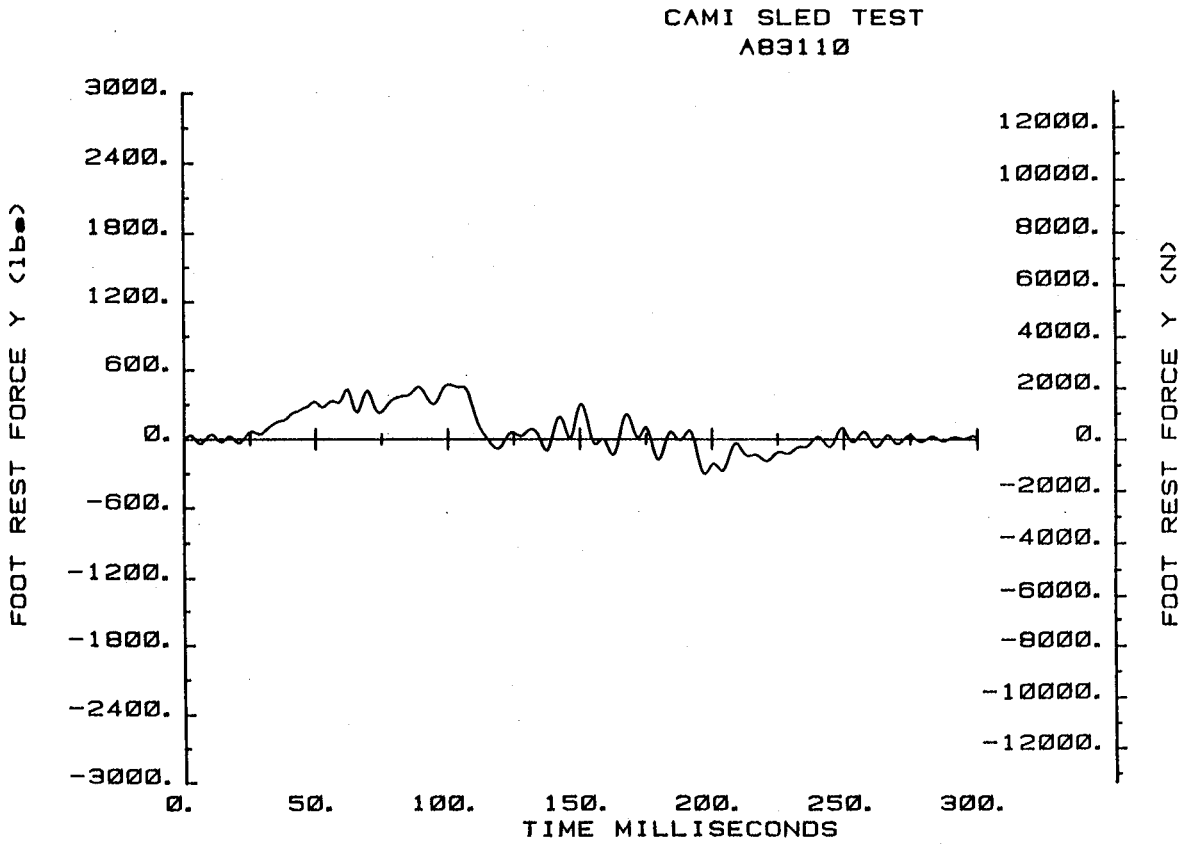

CAMI SLED TEST
A83110
PELVIC MOMENT X (in-lb)
PELVIC MOMENT X (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

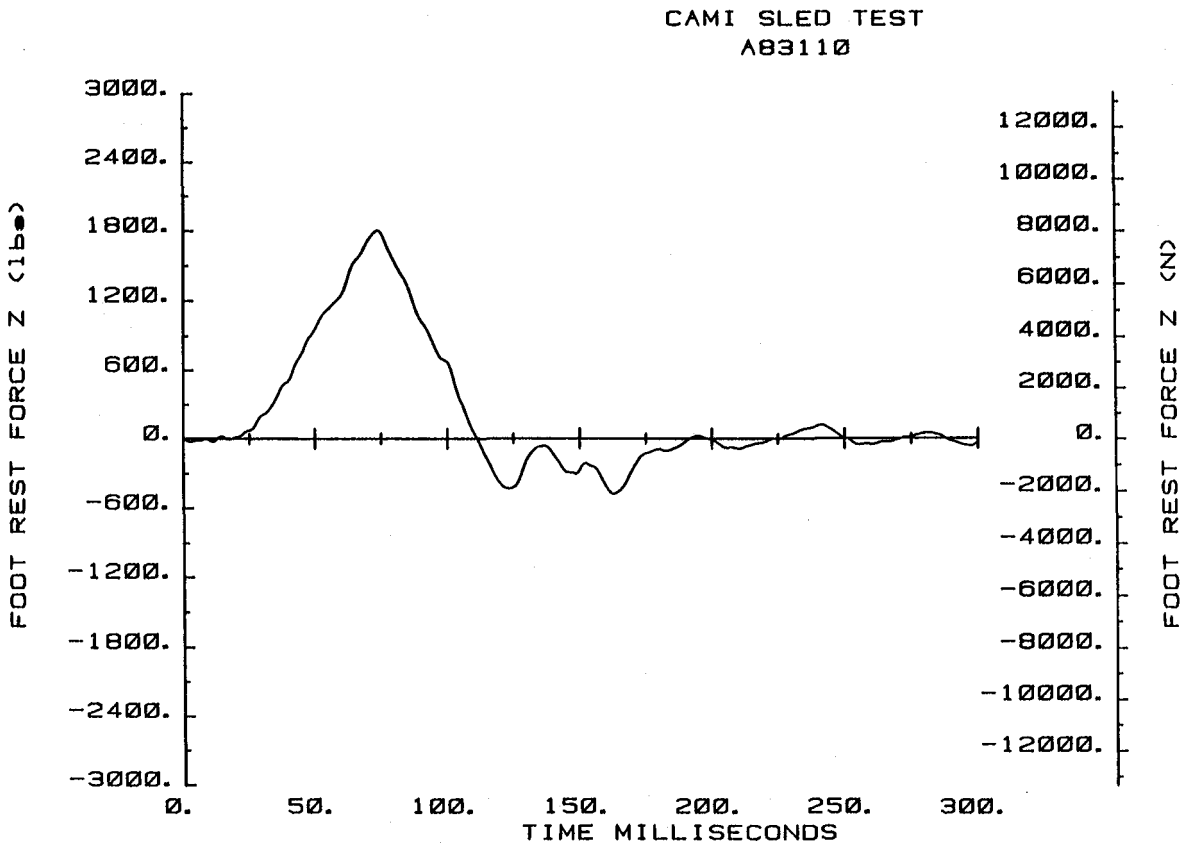

CAMI SLED TEST
A83110
PELVIC MOMENT Y (in-lb)
PELVIC MOMENT Y (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

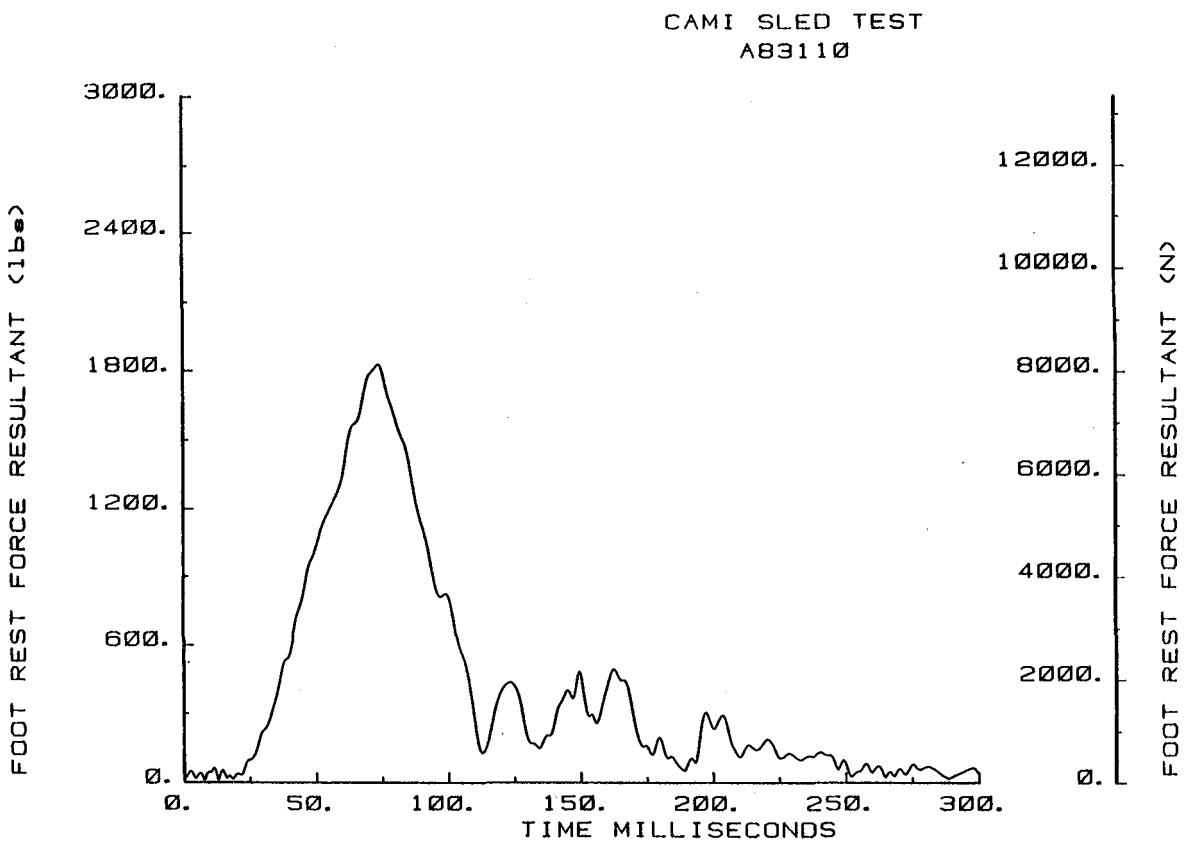

CAMI SLED TEST
A83110
PELVIC MOMENT Z (in-lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT Z (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

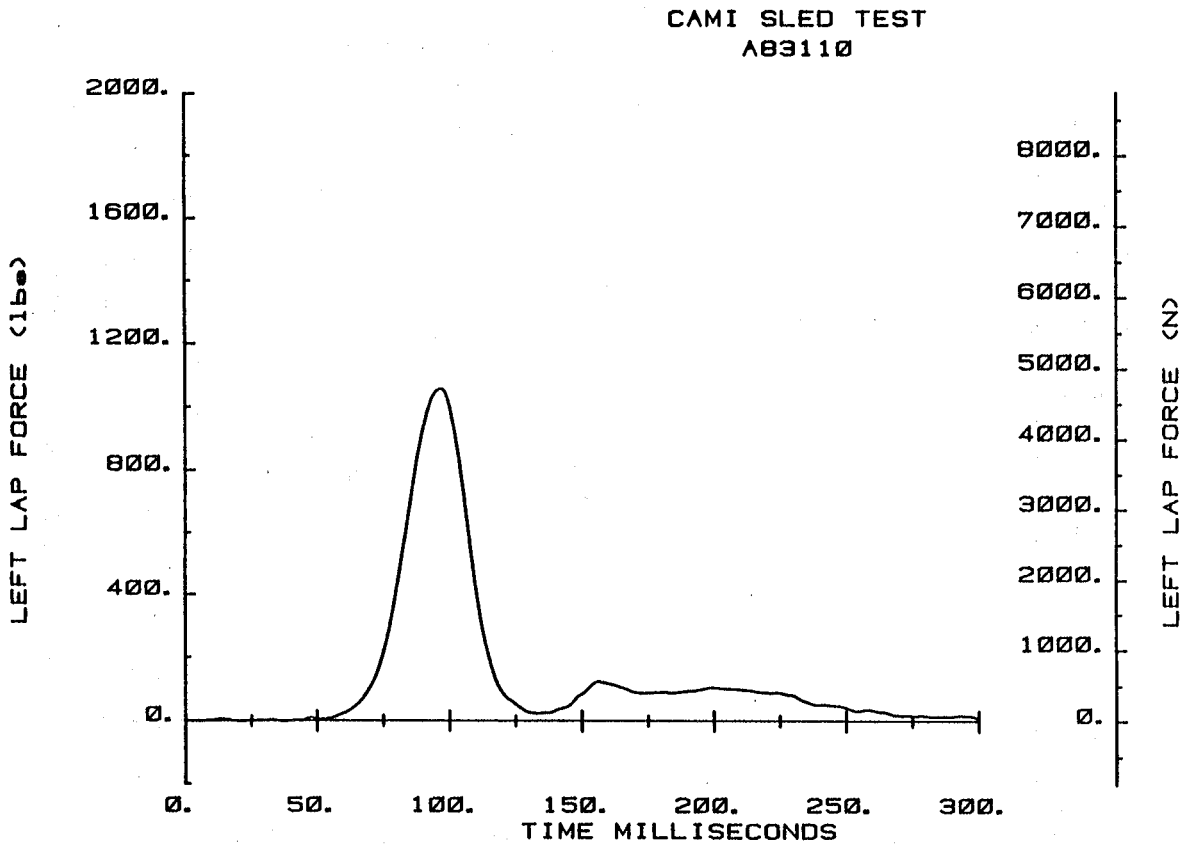

CAMI SLED TEST
A83110
PELVIC MOMENT RESULTANT (in-lbs)
4000.
3200.
2400.
1600.
800.
0.
PELVIC MOMENT RESULTANT (N-m)
450.
360.
270.
180.
90.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

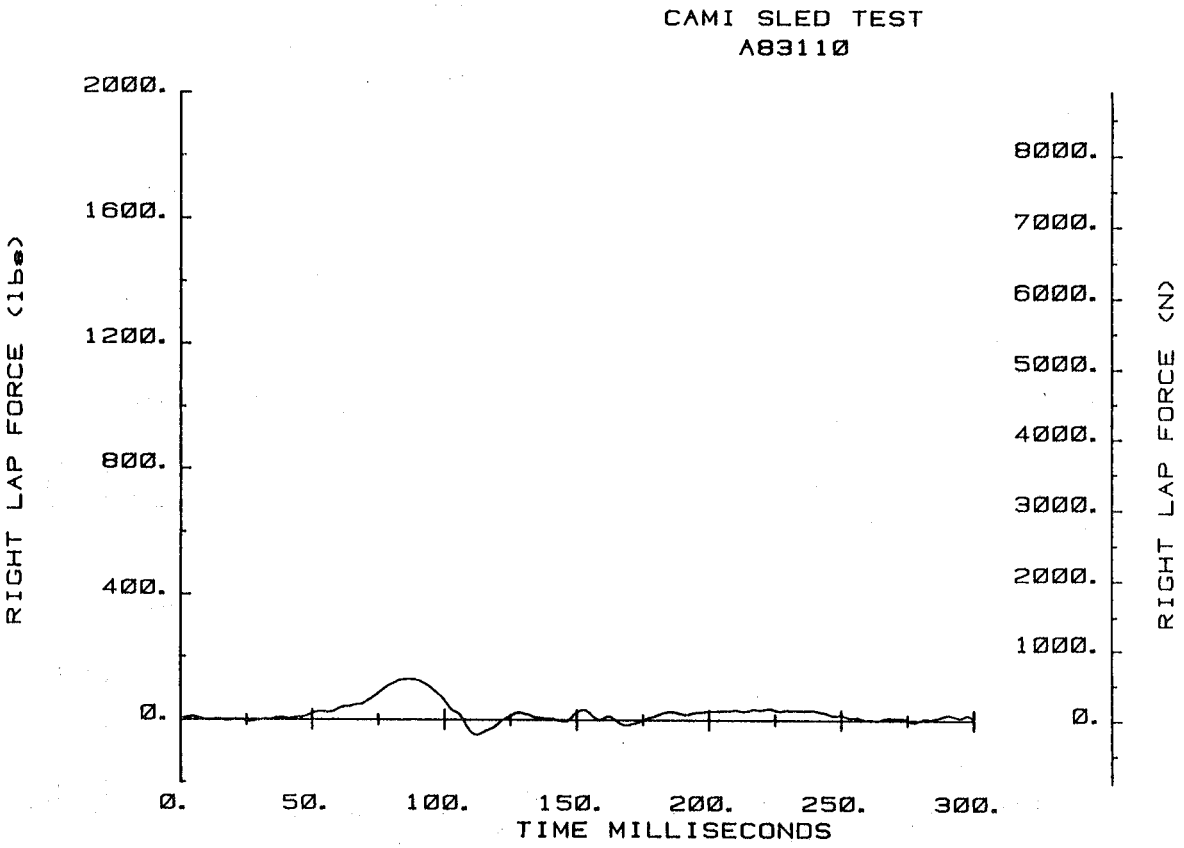

CAMI SLED TEST
A83110
FOOT REST FORCE X (lb.)
FOOT REST FORCE X (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

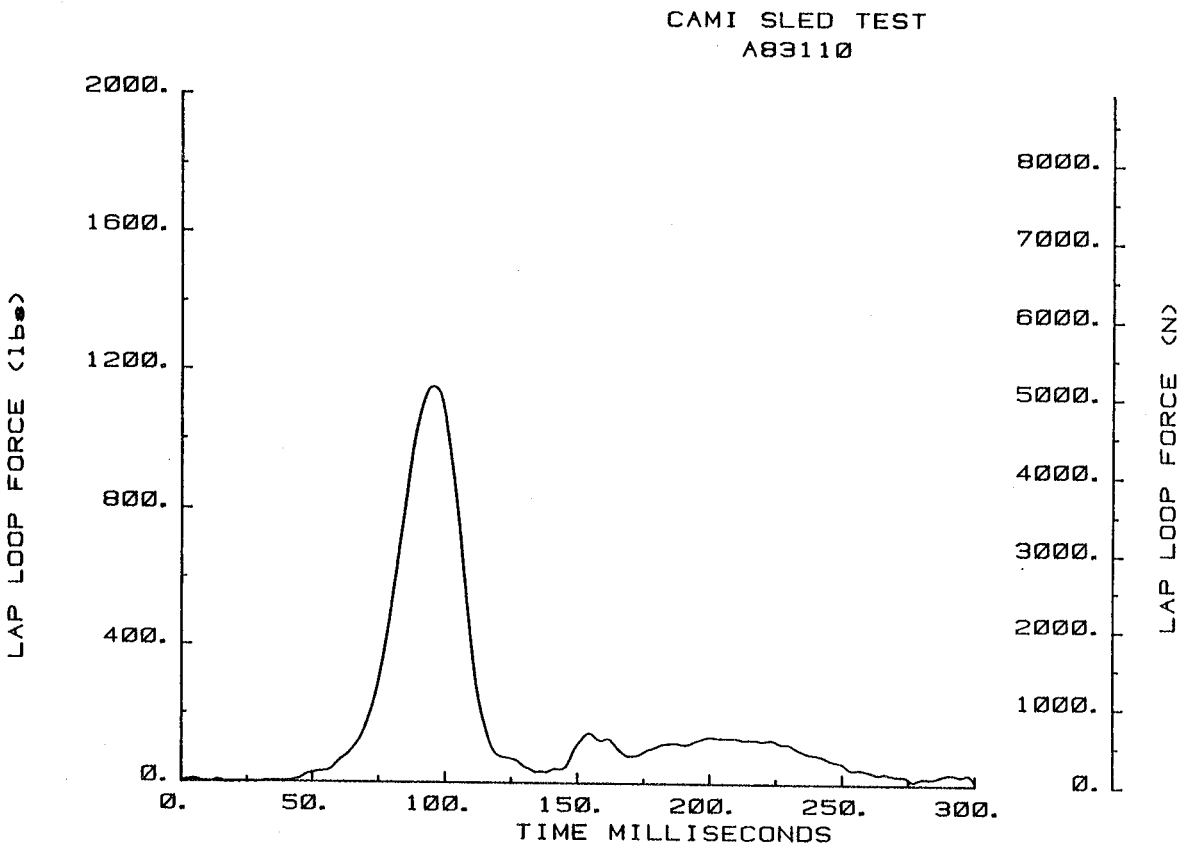

CAMI SLED TEST
A83110
FOOT REST FORCE Y (lb.)
FOOT REST FORCE Y (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

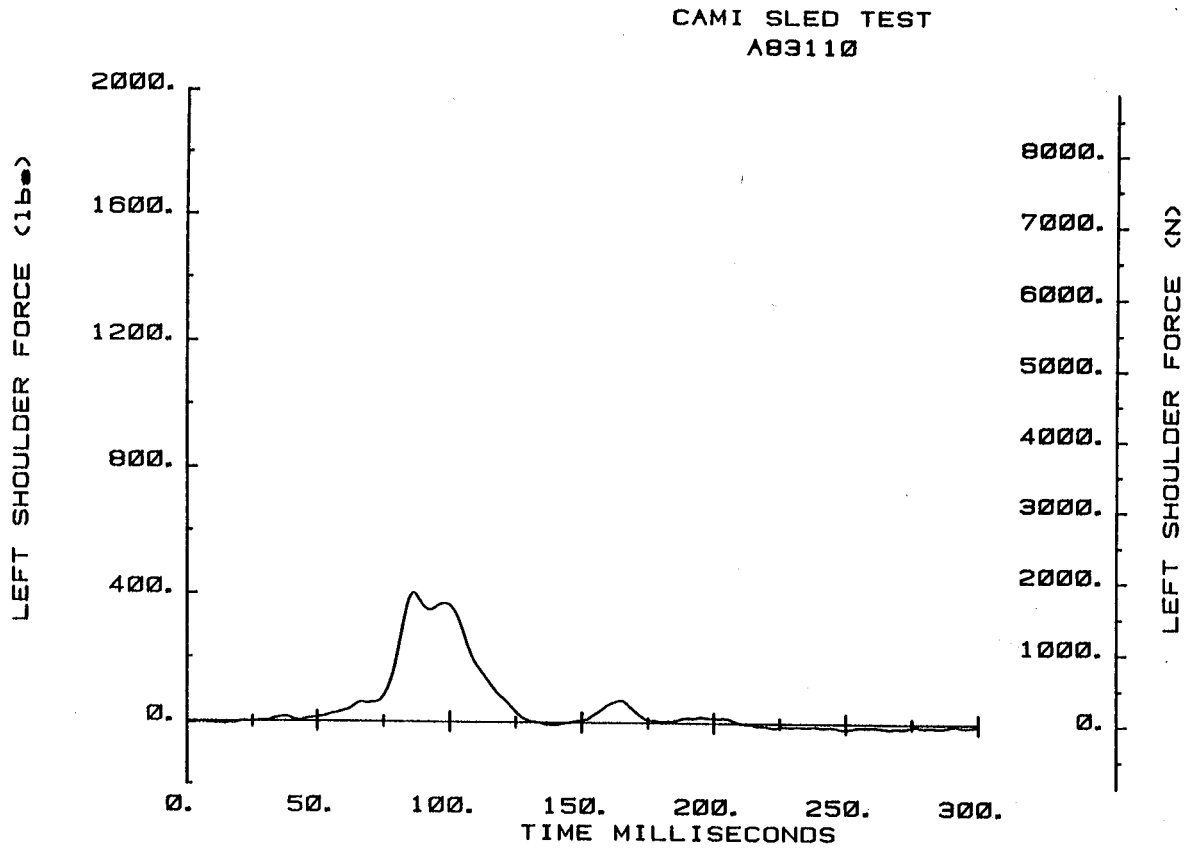

CAMI SLED TEST
A83110
FOOT REST FORCE Z (lbs)
FOOT REST FORCE Z (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

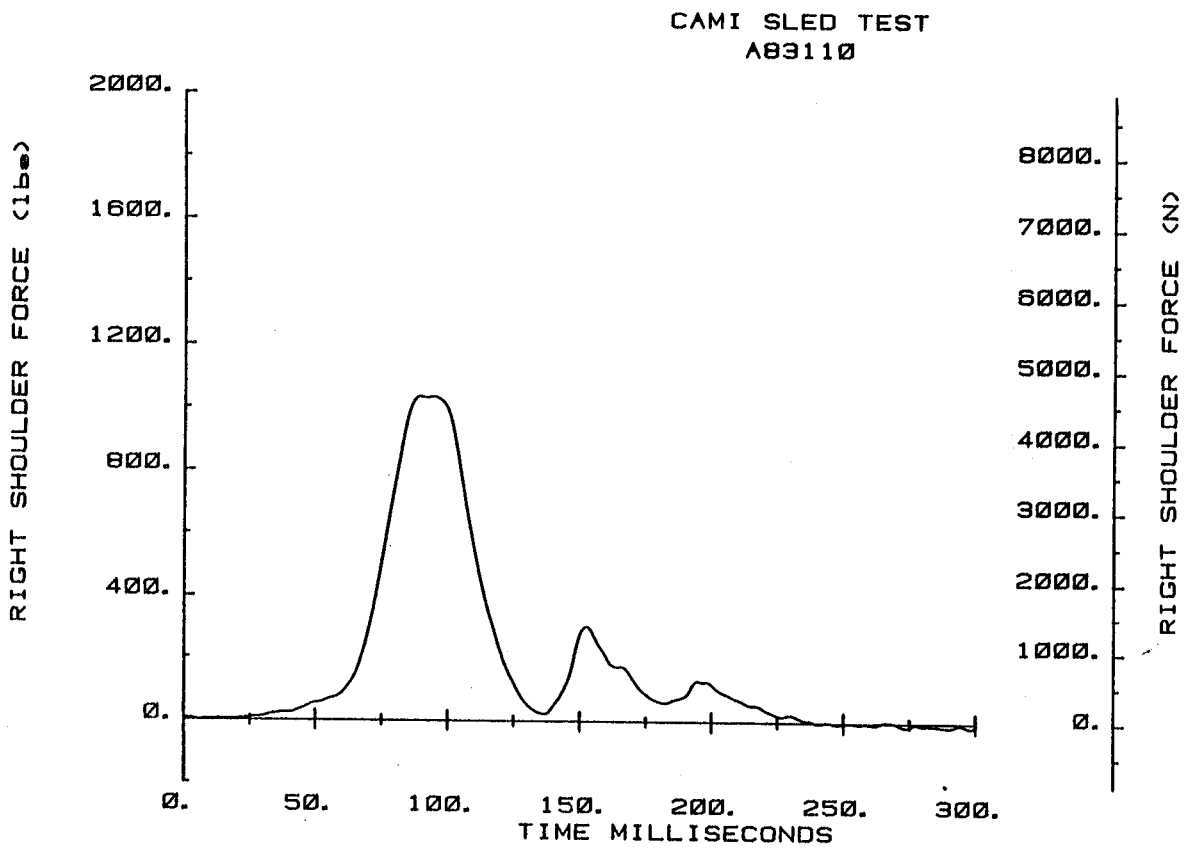

CAMI SLED TEST
A83110
FOOT REST FORCE RESULTANT (lbs)
FOOT REST FORCE RESULTANT (N)
3000.
2400.
1800.
1200.
600.
0.
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

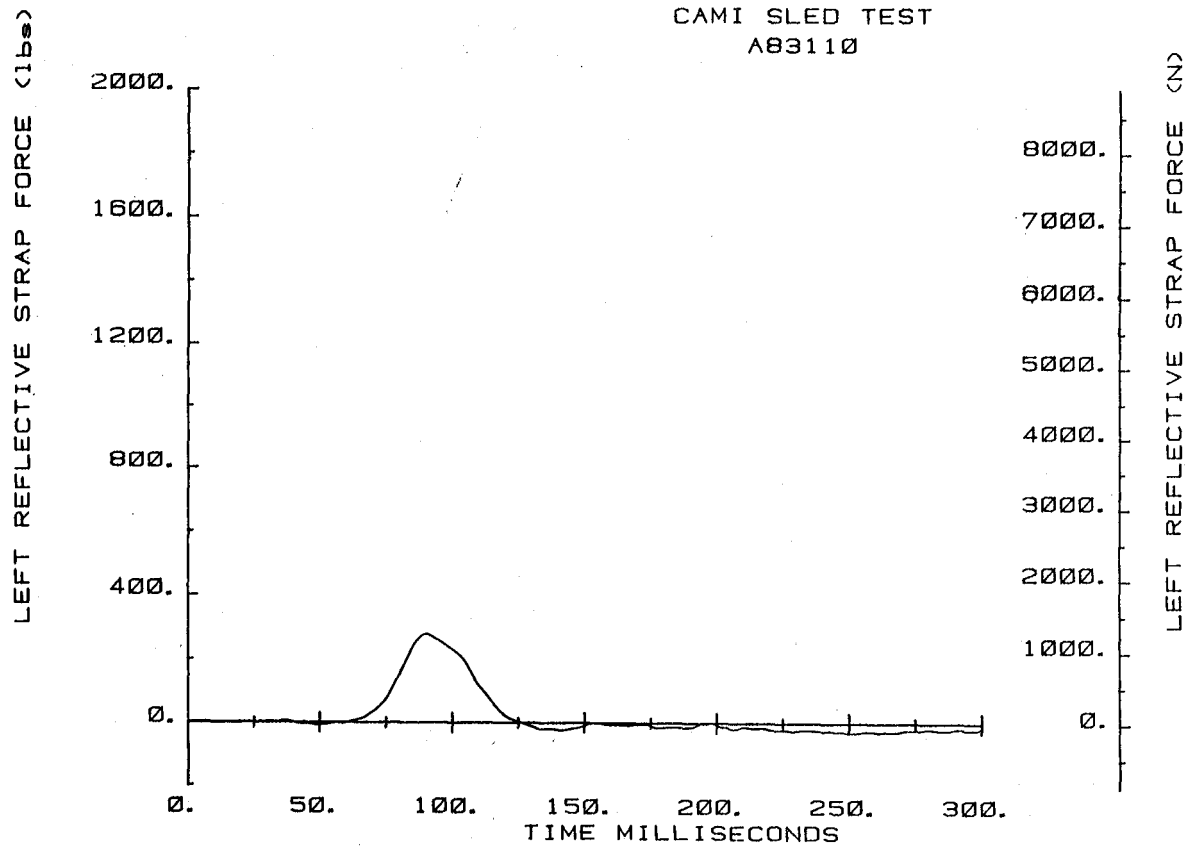

CAMI SLED TEST
A83110
LEFT LAP FORCE (lbs)
LEFT LAP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

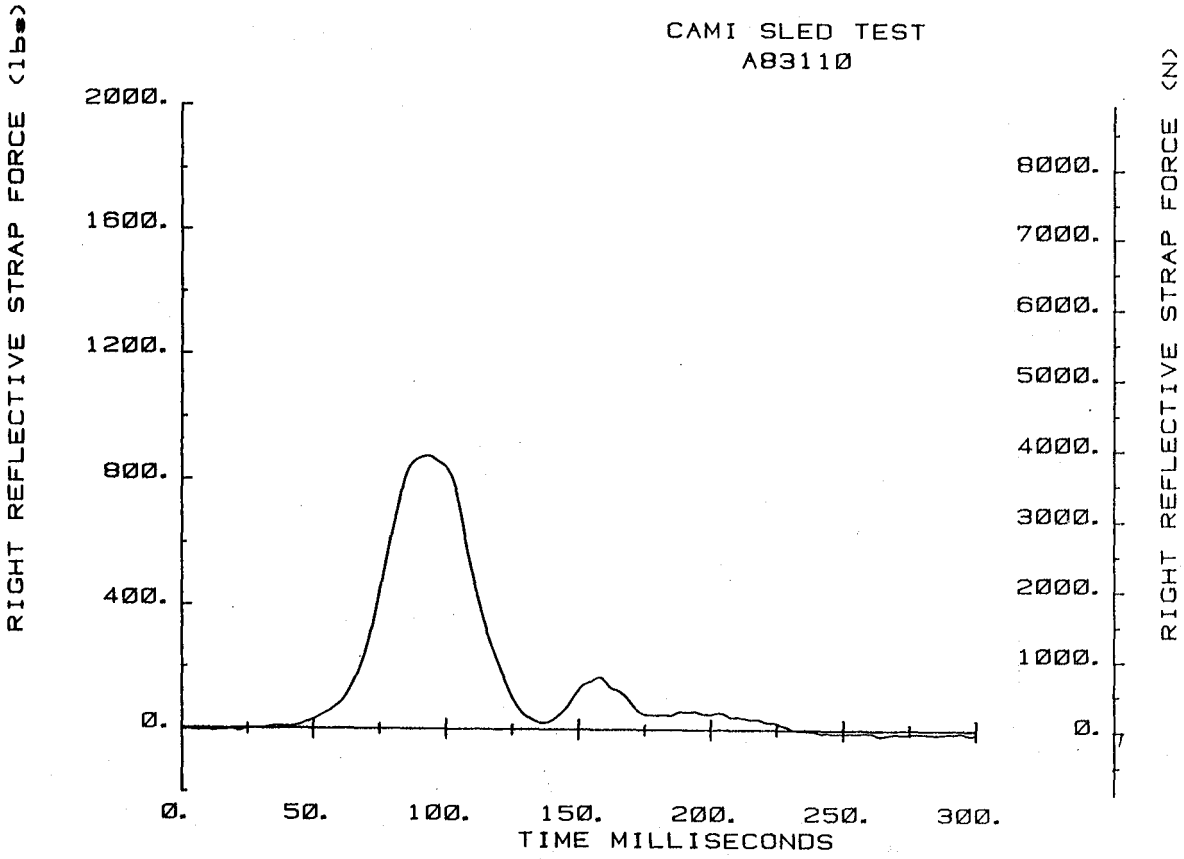

CAMI SLED TEST
A83110
RIGHT LAP FORCE (lbs)
RIGHT LAP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

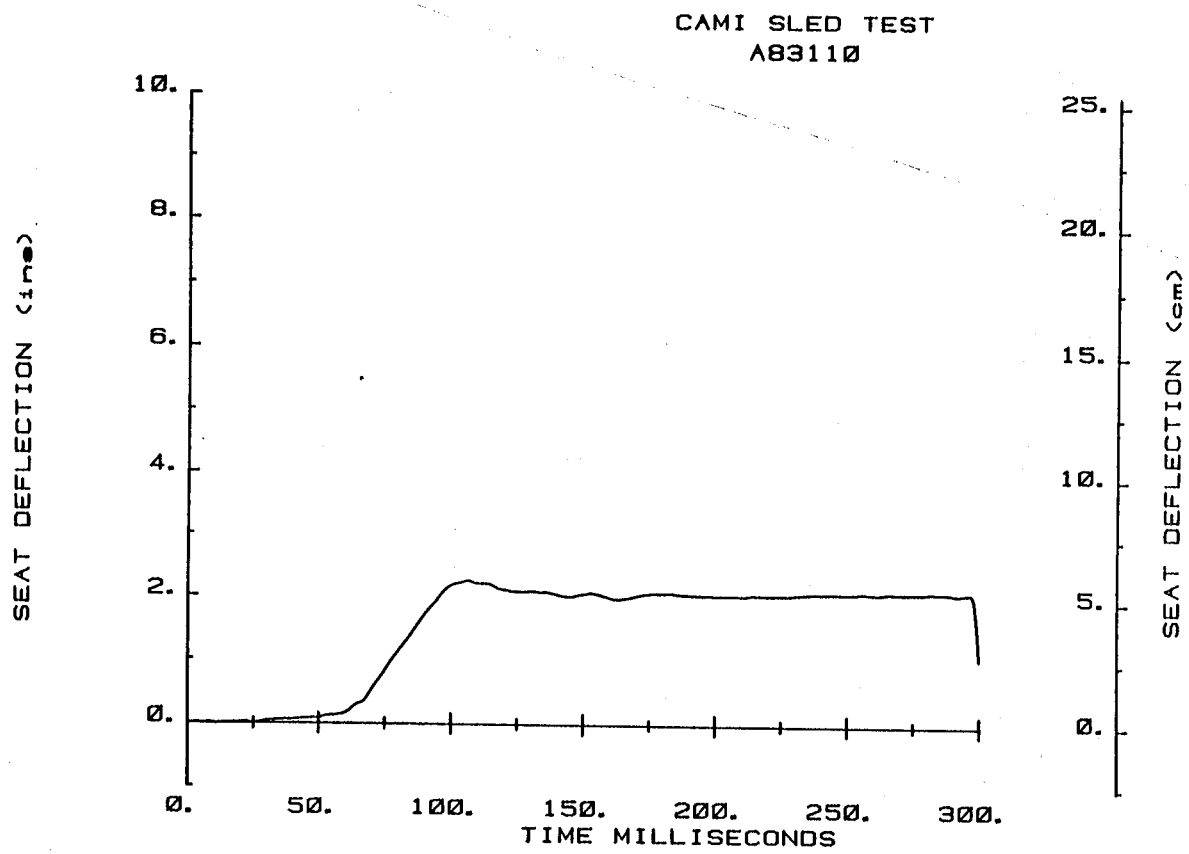

CAMI SLED TEST
A83110
LAP LOOP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LAP LOOP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

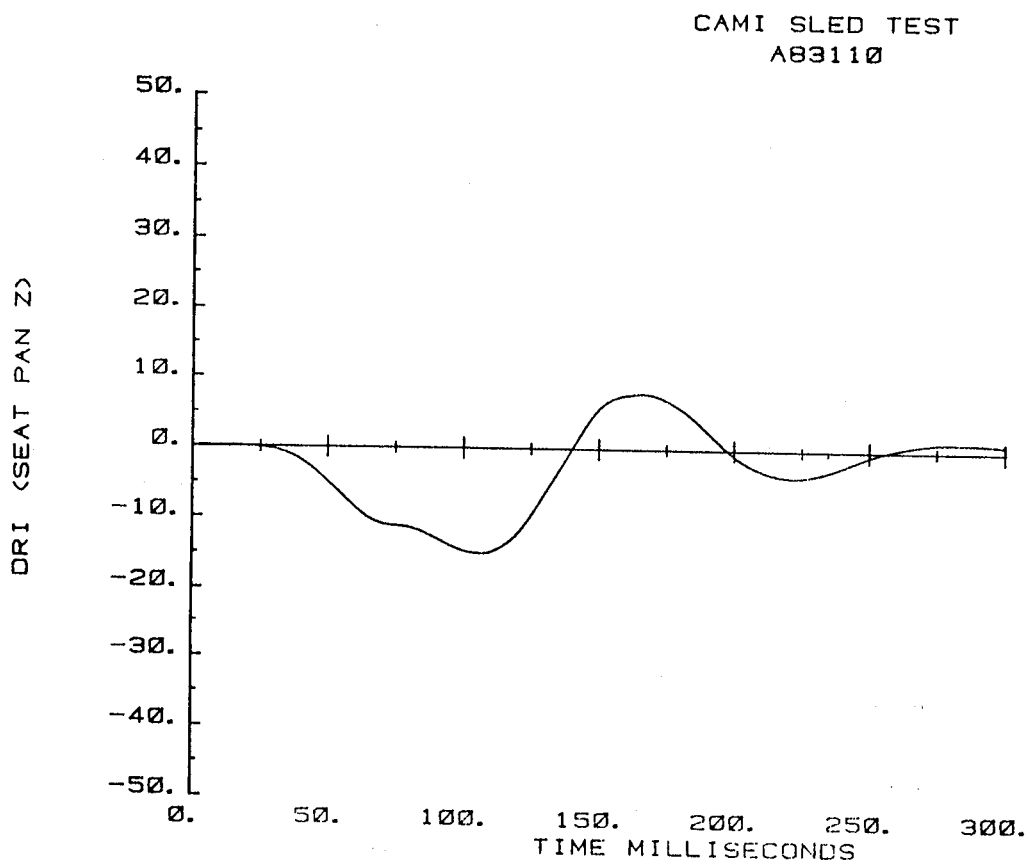

CAMI SLED TEST
A83110
LEFT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83110
RIGHT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

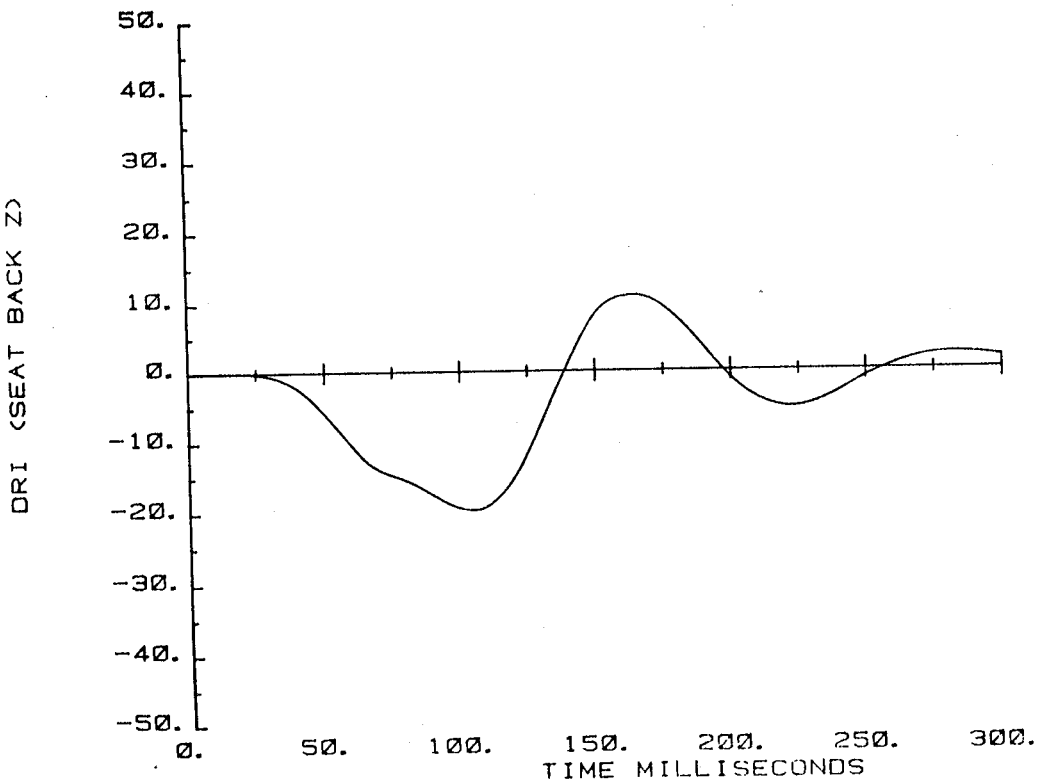

CAMI SLED TEST
A83110
LEFT REFLECTIVE STRAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT REFLECTIVE STRAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83110
RIGHT REFLECTIVE STRAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT REFLECTIVE STRAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

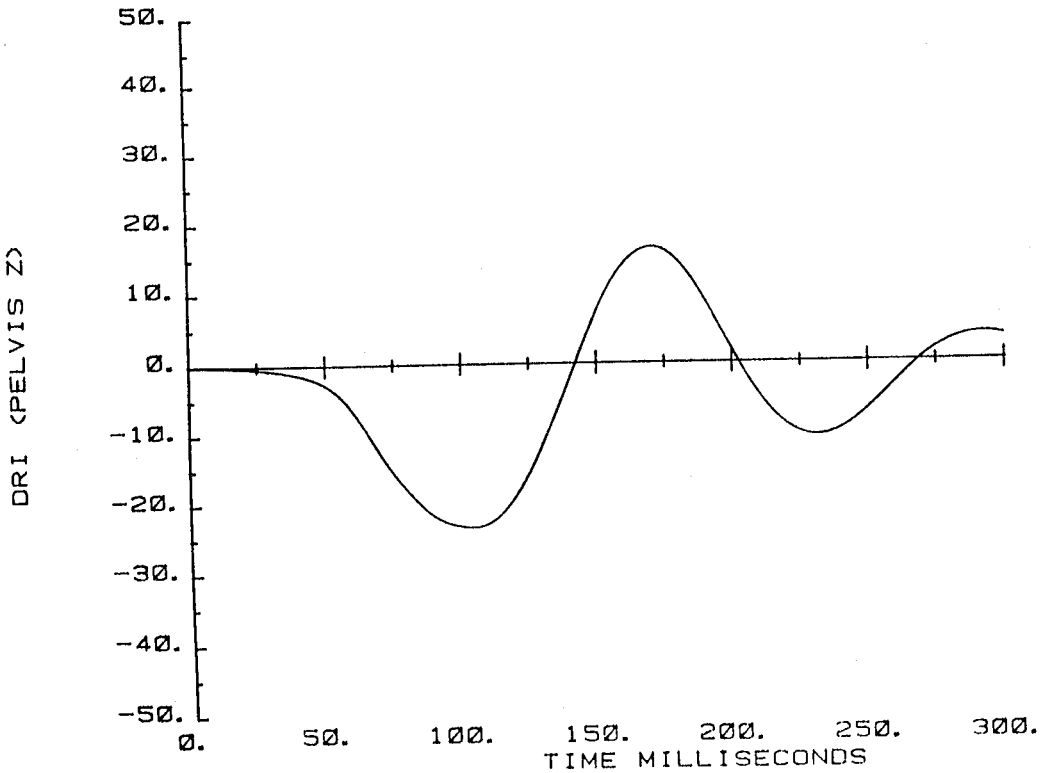

CAMI SLED TEST
A83110
SEAT DEFLECTION (in)
SEAT DEFLECTION (cm)
10.
8.
6.
4.
2.
0.
25.
20.
15.
10.
5.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83110
DRI (SEAT PAN Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

CAMI SLED TEST
A83110



CAMI SLED TEST
A83110



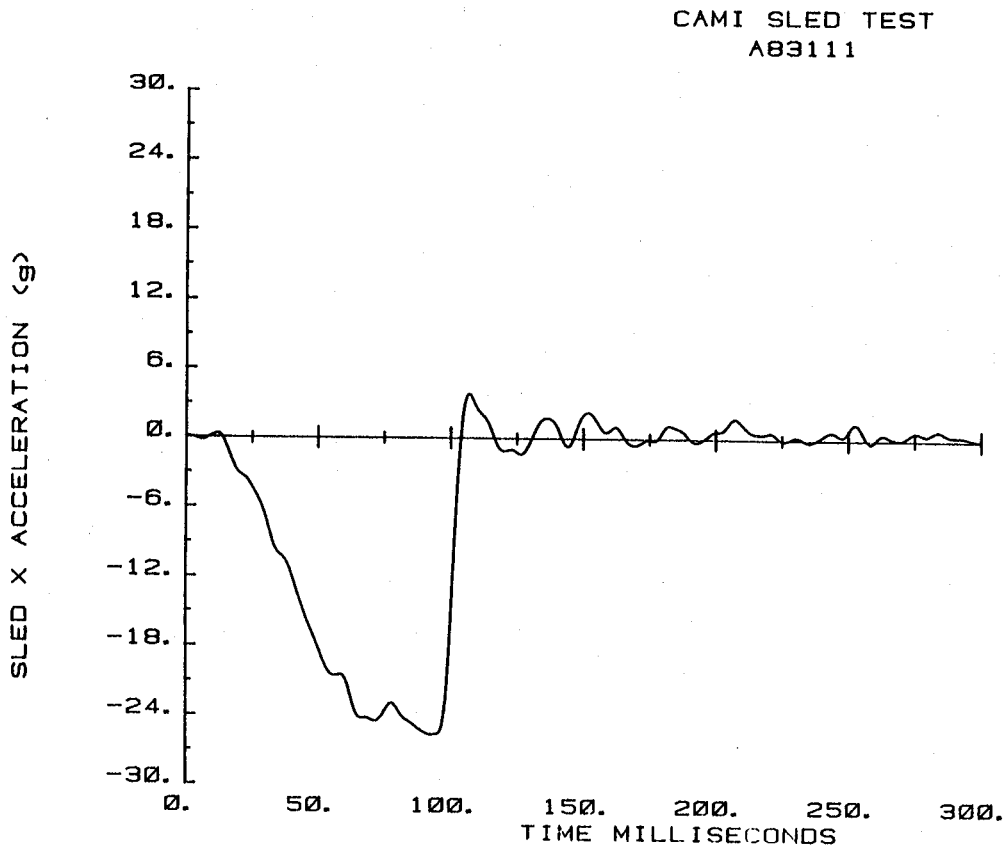
9.0 CAMI TEST NO. A83-111

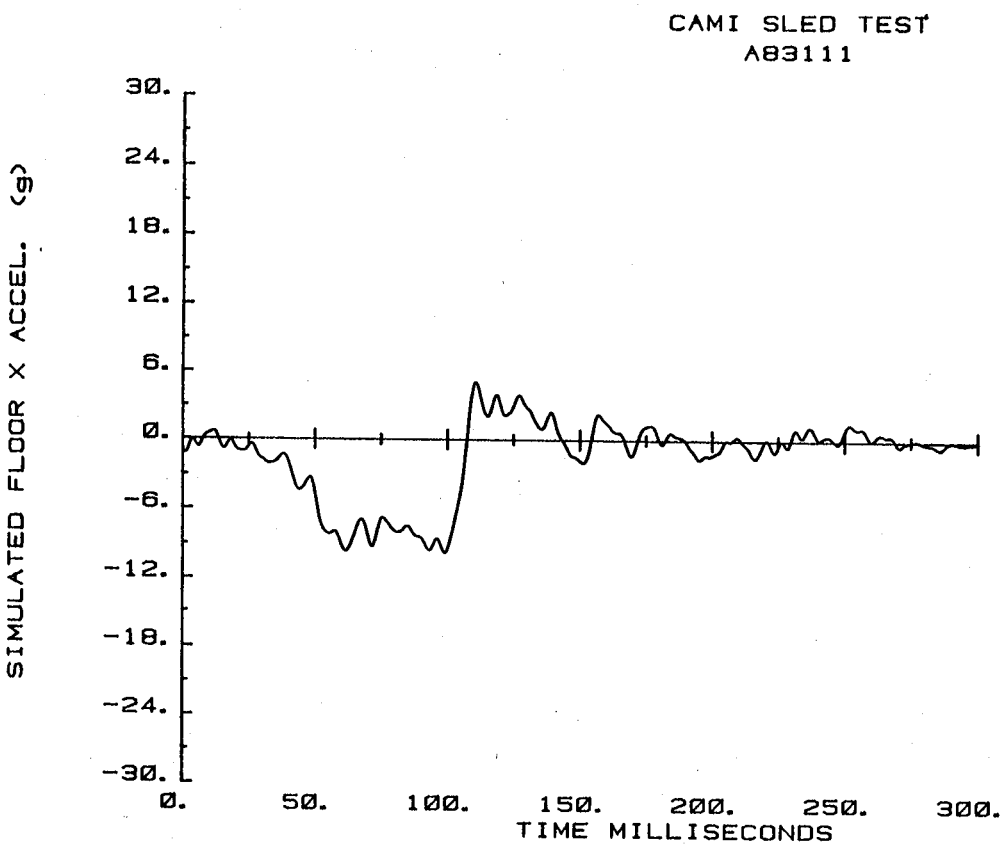
SEAT: F-111 Operational

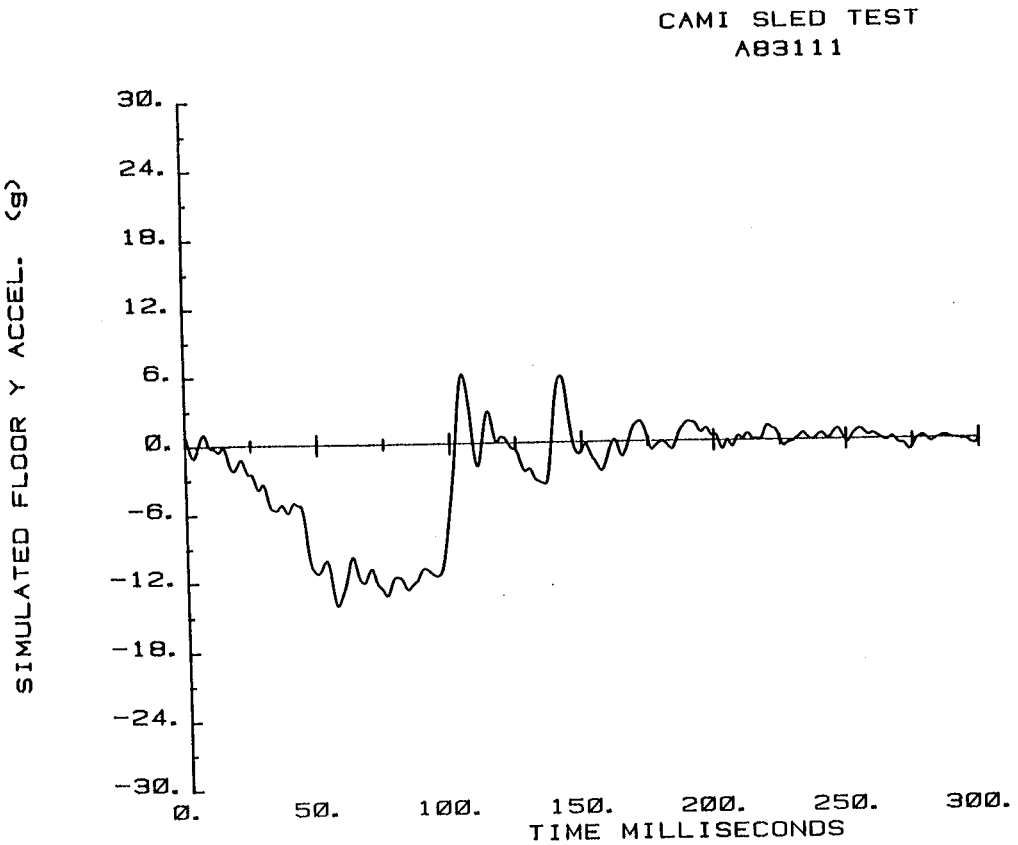
PULSE NUMBER: 4

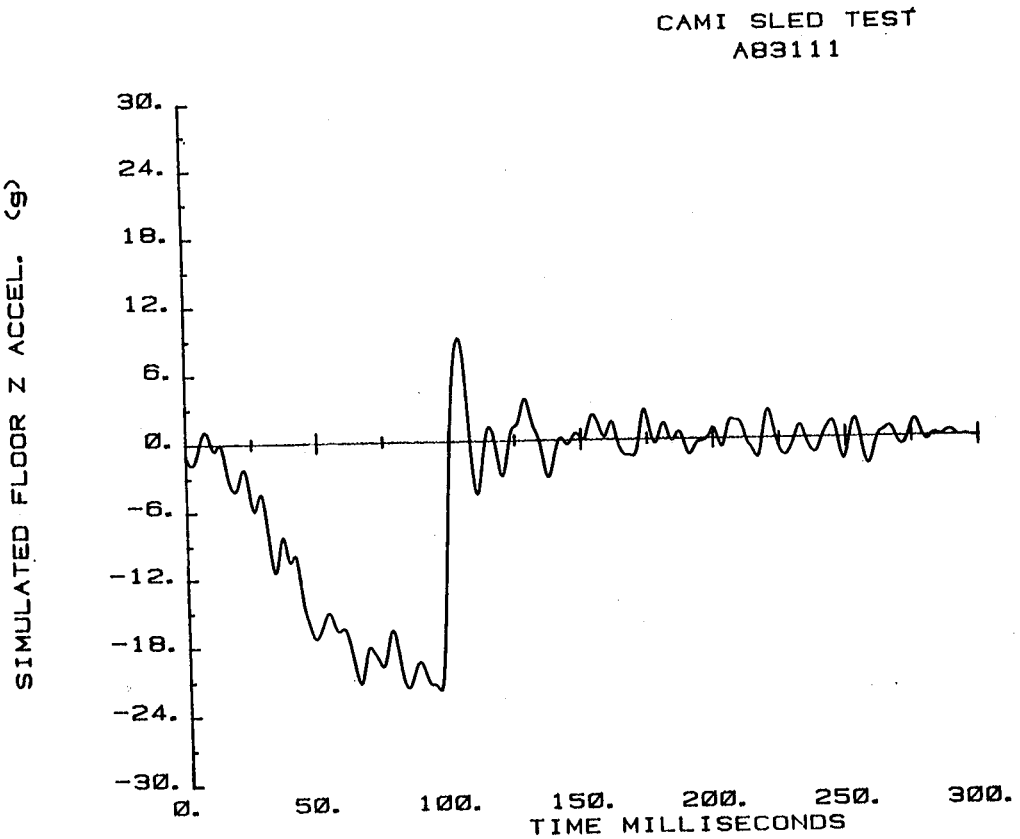
SEAT ORIENTATION: Pitch - 70°
Roll - 0°
Yaw - 30°

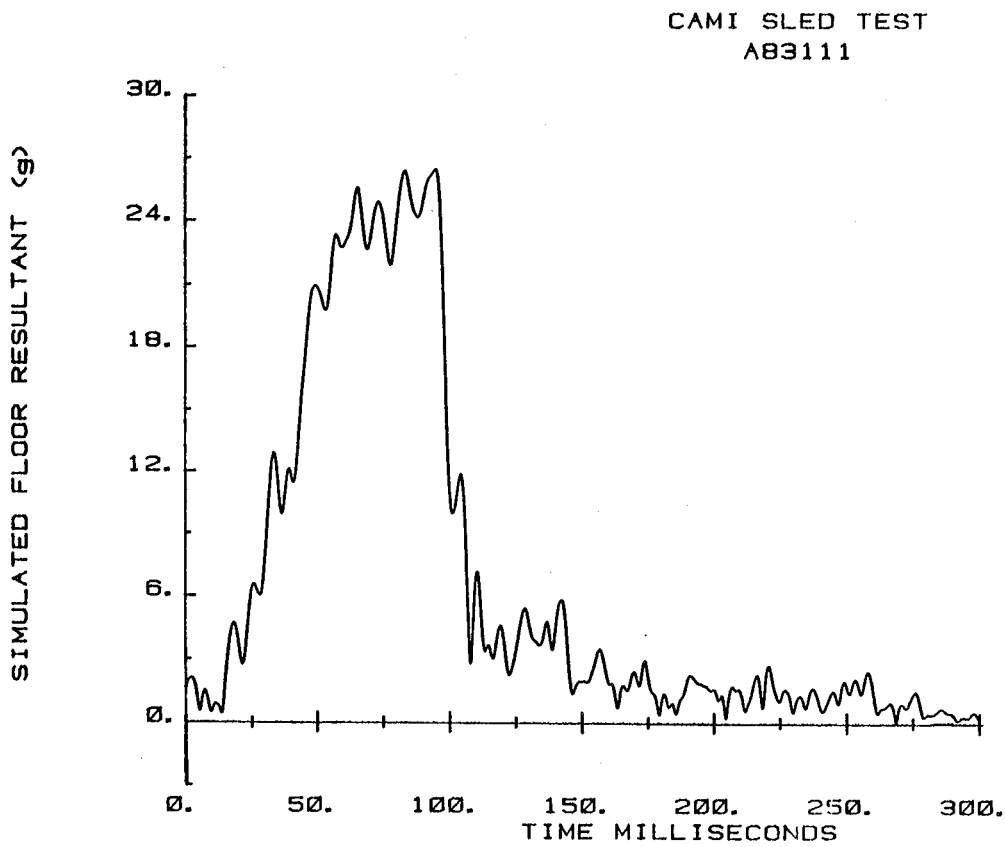
RUN#	VARIABLE		PEAK1	T	PEAK2	T	RANGE	FILE
A83111	SLED X ACCELERATION	(g)	-25.7	92			(0, 300)	* F11101
A83111	HEAD X ACCELERATION	(g)	-21.1	99			(0, 300)	* F11103
A83111	HEAD Y ACCELERATION	(g)	-25.5	115	5.4	243	(0, 300)	* F11104
A83111	HEAD Z ACCELERATION	(g)	-32.6	70	46.1	112	(0, 300)	* F11105
A83111	CHEST X ACCELERATION	(g)	-19.7	91	7.6	129	(0, 300)	* F11106
A83111	CHEST Y ACCELERATION	(g)	-29.9	105			(0, 300)	* F11107
A83111	CHEST Z ACCELERATION	(g)	-33.4	69	7.6	119	(0, 300)	* F11108
A83111	PELVIS X ACCELERATION	(g)	-12.0	111	8.8	136	(0, 300)	* F11109
A83111	PELVIS Y ACCELERATION	(g)	-24.0	87	6.7	112	(0, 300)	* F11110
A83111	PELVIS Z ACCELERATION	(g)	-34.4	65			(0, 300)	* F11111
A83111	SIMULATED FLOOR X ACCEL.	(g)	-9.8	99	5.0	110	(0, 300)	* F11112
A83111	SIMULATED FLOOR Y ACCEL.	(g)	-14.2	57	6.0	105	(0, 300)	* F11113
A83111	SIMULATED FLOOR Z ACCEL.	(g)	-21.9	95	9.0	104	(0, 300)	* F11114
A83111	FOOT REST FORCE X	(lbs)	-341.1	77	139.6	169	(0, 300)	* F11115
A83111	FOOT REST FORCE Y	(lbs)	611.7	90	-206.9	230	(0, 300)	* F11116
A83111	FOOT REST FORCE Z	(lbs)	1572.7	74	-509.4	146	(0, 300)	* F11117
A83111	LEFT SHOULDER FORCE	(lbs)	38.5	92	-24.7	241	(0, 300)	* F11118
A83111	RIGHT SHOULDER FORCE	(lbs)	1161.1	107			(0, 300)	* F11119
A83111	SEAT BACK Z ACCELERATION	(g)	-28.2	74	9.7	157	(0, 300)	* F11120
A83111	SEAT PAN X ACCELERATION	(g)	-14.2	73	15.2	117	(0, 300)	* F11121
A83111	SEAT PAN Y ACCELERATION	(g)	-22.6	98	7.7	118	(0, 300)	* F11122
A83111	SEAT PAN Z ACCELERATION	(g)	-26.9	74	9.9	158	(0, 300)	* F11123
A83111	PELVIC FORCE X	(lbs)	-417.8	87			(0, 300)	* F11125
A83111	PELVIC FORCE Y	(lbs)	220.0	91	-178.0	145	(0, 300)	* F11126
A83111	PELVIC FORCE Z	(lbs)	2161.7	76			(0, 300)	* F11127
A83111	PELVIC MOMENT X	(in-lbs)	2084.1	90	-757.8	141	(0, 300)	* F11128
A83111	PELVIC MOMENT Y	(in-lbs)	979.1	88	-248.4	202	(0, 300)	* F11129
A83111	PELVIC MOMENT Z	(in-lbs)	220.8	95	-156.7	297	(0, 300)	* F11130
A83111	LEFT LAP FORCE	(lbs)	218.8	109			(0, 300)	* F11131
A83111	RIGHT LAP FORCE	(lbs)	32.7	99	-20.6	148	(0, 300)	* F11132
A83111	LEFT REFLECTIVE STRAP FORCE	(lbs)	-28.3	106	11.3	296	(0, 300)	* F11133
A83111	RIGHT REFLECTIVE STRAP FORCE	(lbs)	1010.4	106			(0, 300)	* F11134
A83111	LEFT SEAT PAN FORCE	(lbs)	228.6	54			(0, 300)	* F11135
A83111	RIGHT SEAT PAN FORCE	(lbs)	2822.5	79			(0, 300)	* F11136
A83111	CENTER SEAT PAN FORCE	(lbs)	2319.3	69			(0, 300)	* F11137
A83111	HEAD RESULTANT	(g)	52.4	113			(0, 300)	* V11101
A83111	CHEST RESULTANT	(g)	35.2	104			(0, 300)	* V11102
A83111	PELVIS RESULTANT	(g)	39.1	65			(0, 300)	* V11103
A83111	SIMULATED FLOOR RESULTANT	(g)	26.4	94			(0, 300)	* V11104
A83111	FOOT REST FORCE RESULTANT	(lbs)	1667.1	74			(0, 300)	* V11105
A83111	SEAT PAN RESULTANT	(g)	32.1	71			(0, 300)	* V11106
A83111	PELVIC FORCE RESULTANT	(lbs)	2183.0	76			(0, 300)	* V11107
A83111	PELVIC MOMENT RESULTANT	(in-lbs)	2305.1	89			(0, 300)	* V11108
A83111	LAP LOOP FORCE	(lbs)	226.9	109			(0, 300)	* A11102
PELVIS DRI			37.3	99				
SEAT BACK DRI			30.4	100				
SEAT PAN DRI			29.1	99				

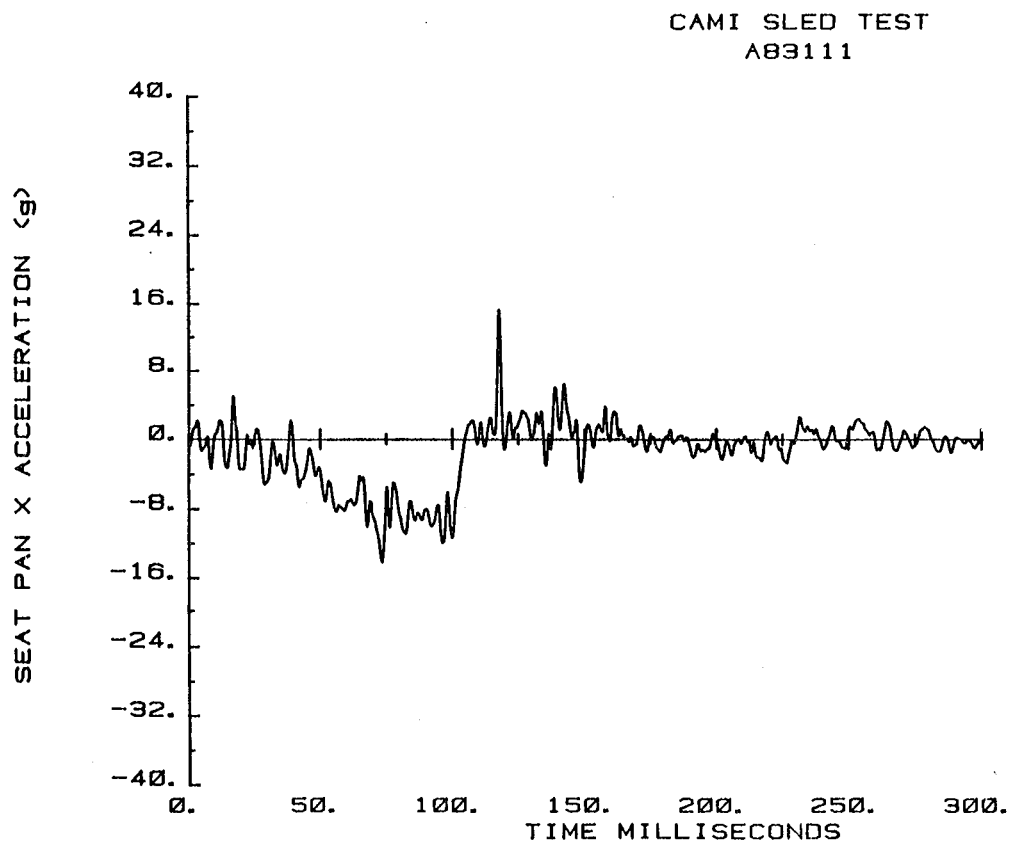

CAMI SLED TEST
A83111
SLED X ACCELERATION (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

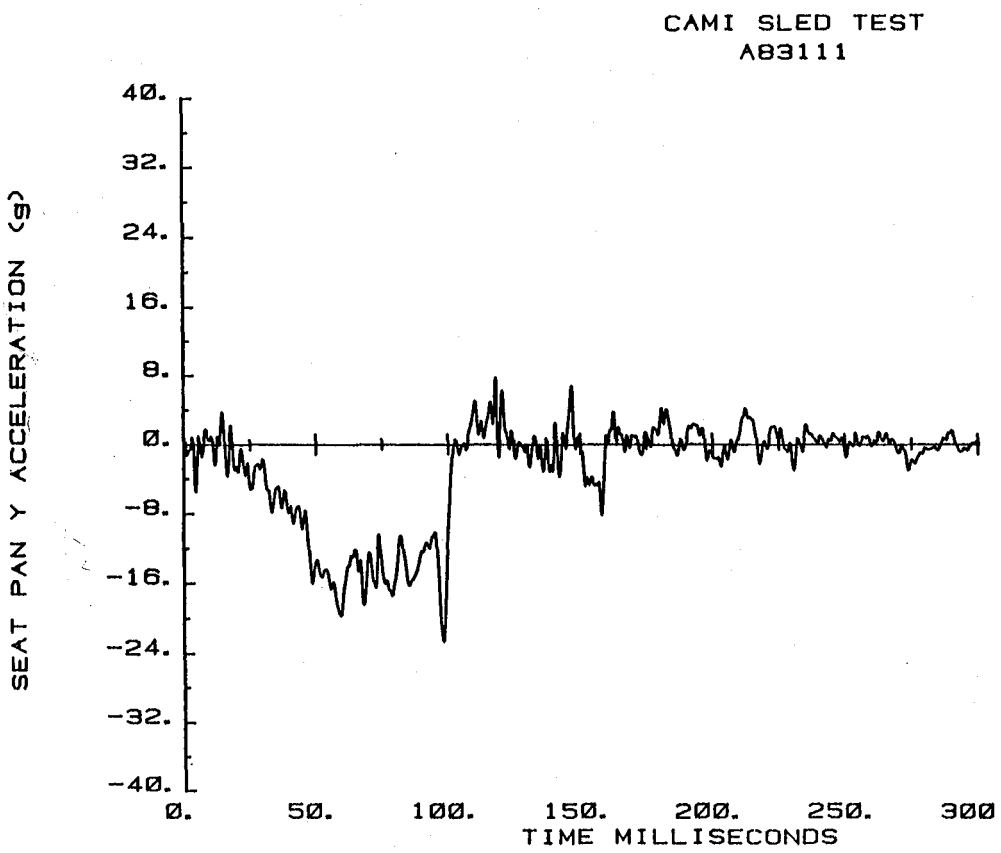

CAMI SLED TEST
A83111
SIMULATED FLOOR X ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

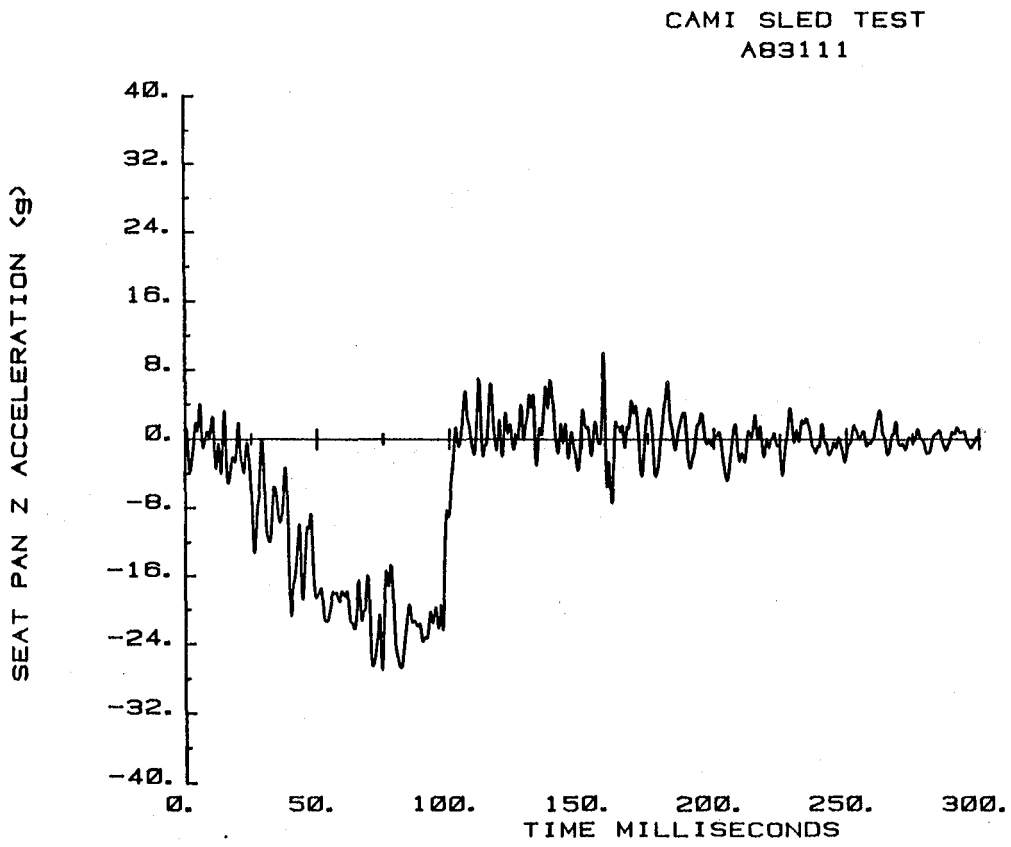

CAMI SLED TEST
A83111
SIMULATED FLOOR Y ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

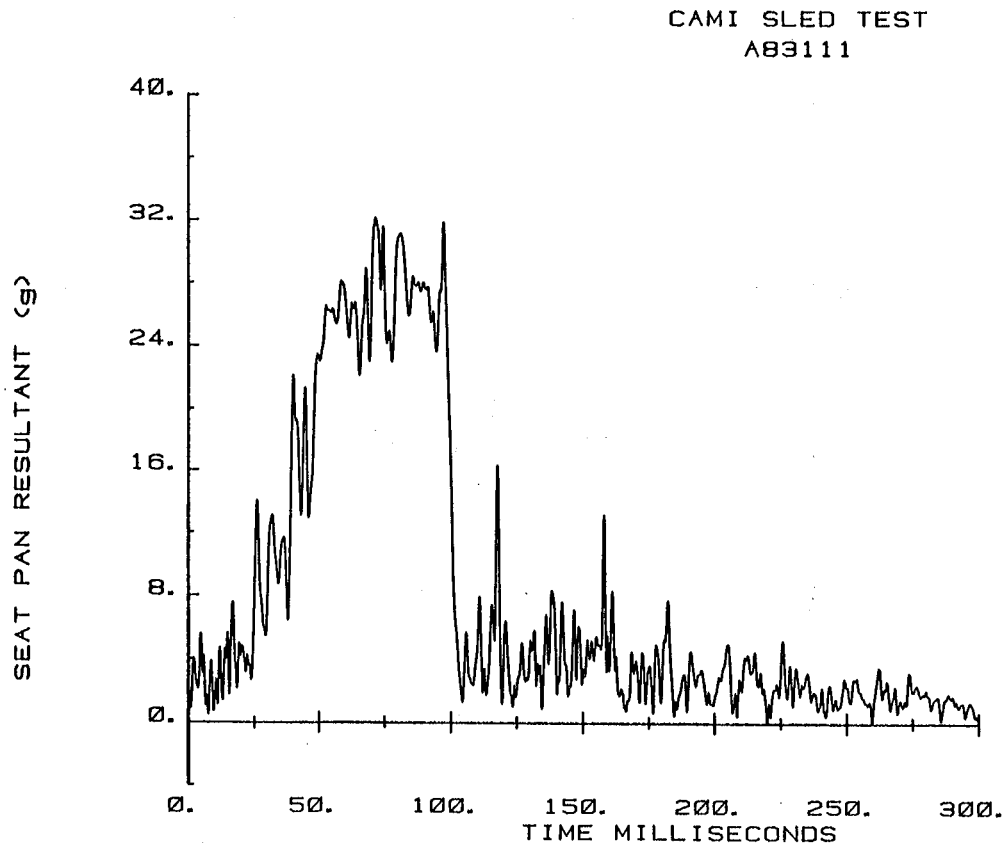

CAMI SLED TEST
A83111
SIMULATED FLOOR Z ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

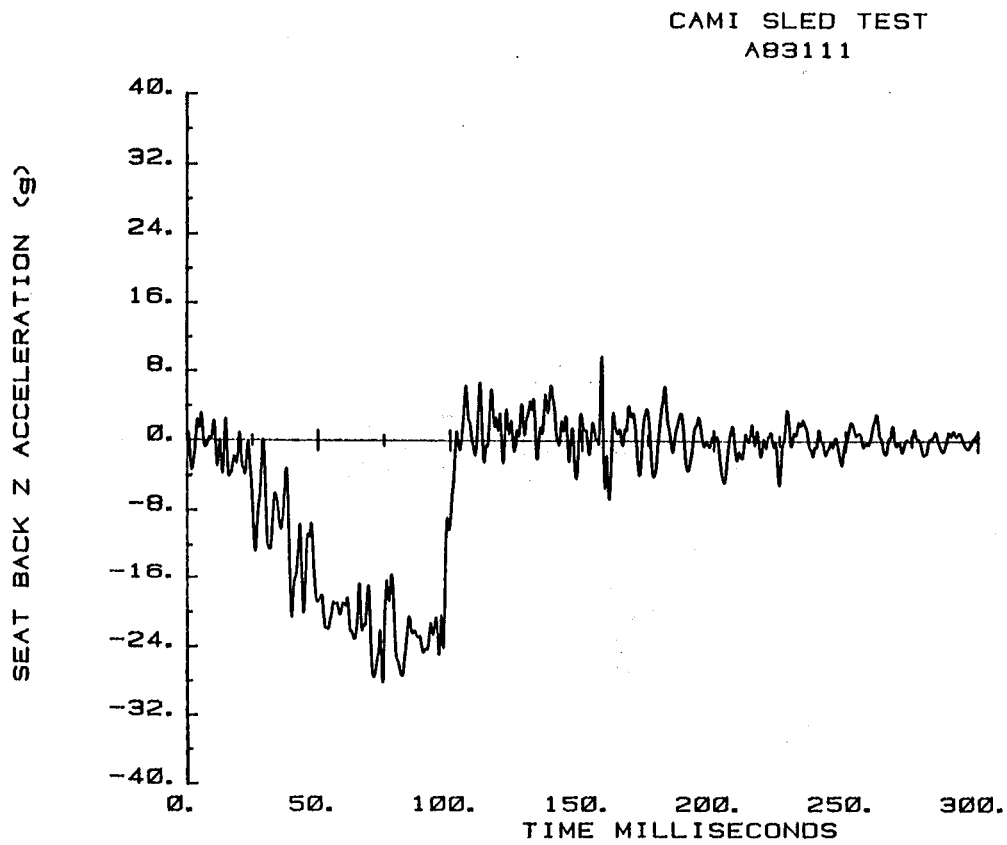

CAMI SLED TEST
A83111
SIMULATED FLOOR RESULTANT (g)
30.
24.
18.
12.
6.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83111
SEAT PAN X ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

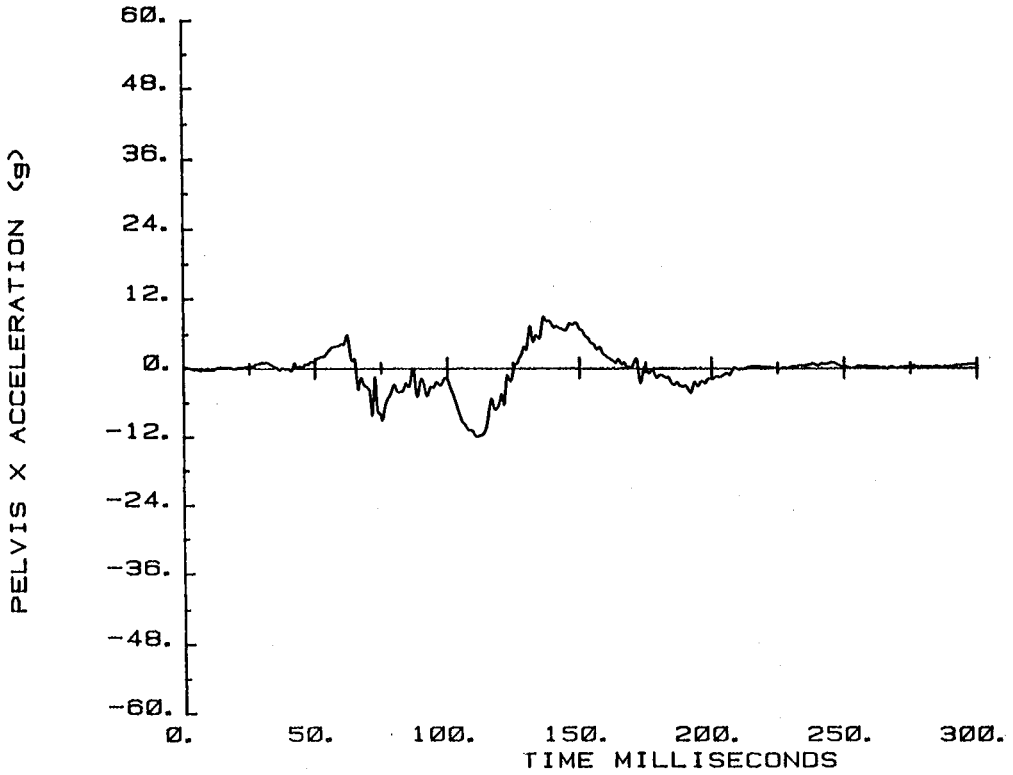

CAMI SLED TEST
A83111
SEAT PAN Y ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300
TIME MILLISECONDS


CAMI SLED TEST
A83111
SEAT PAN Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

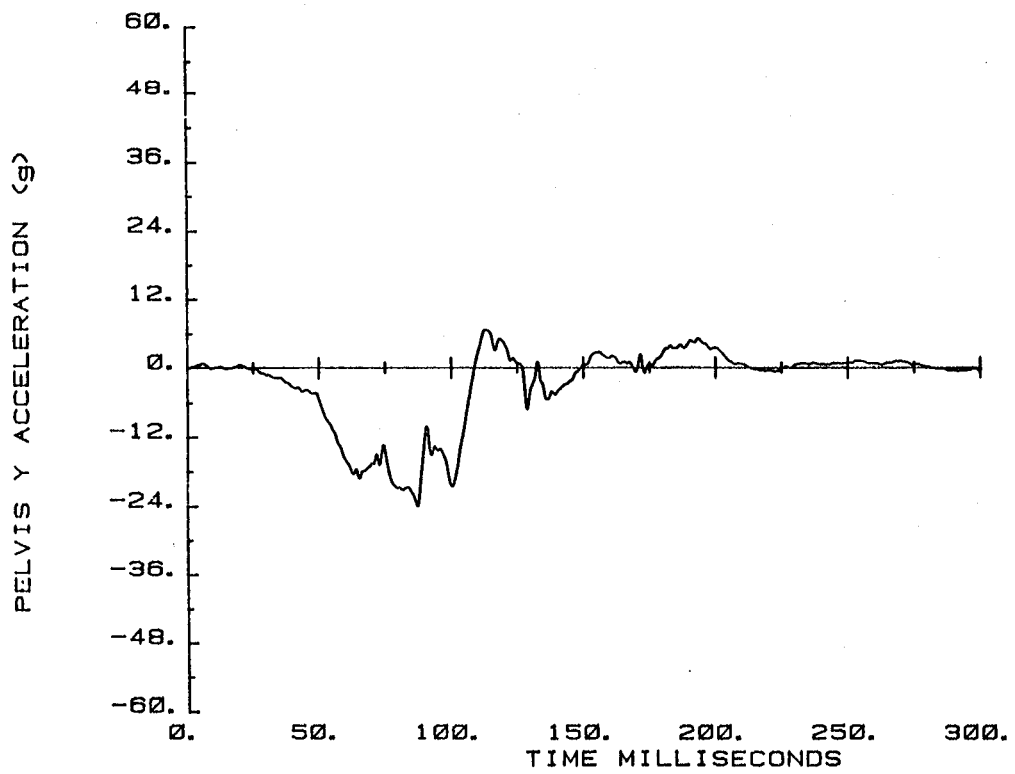

CAMI SLED TEST
A83111
SEAT PAN RESULTANT (g)
40.
32.
24.
16.
8.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

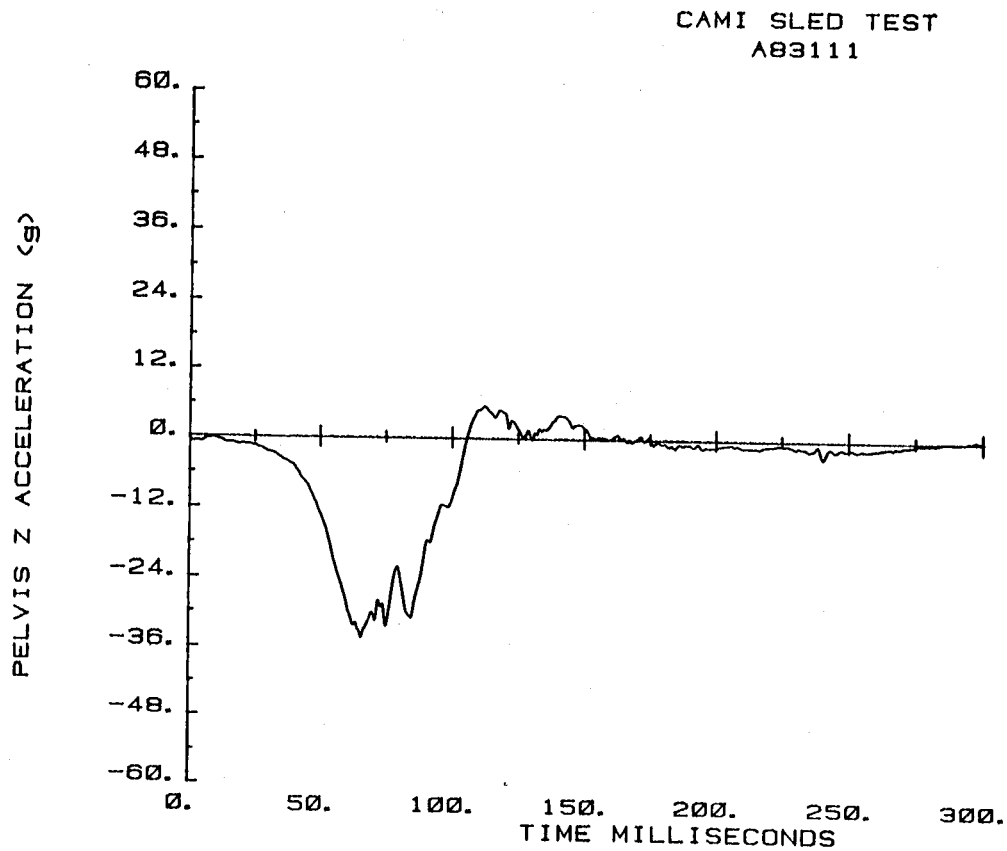

CAMI SLED TEST
A83111
SEAT BACK Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

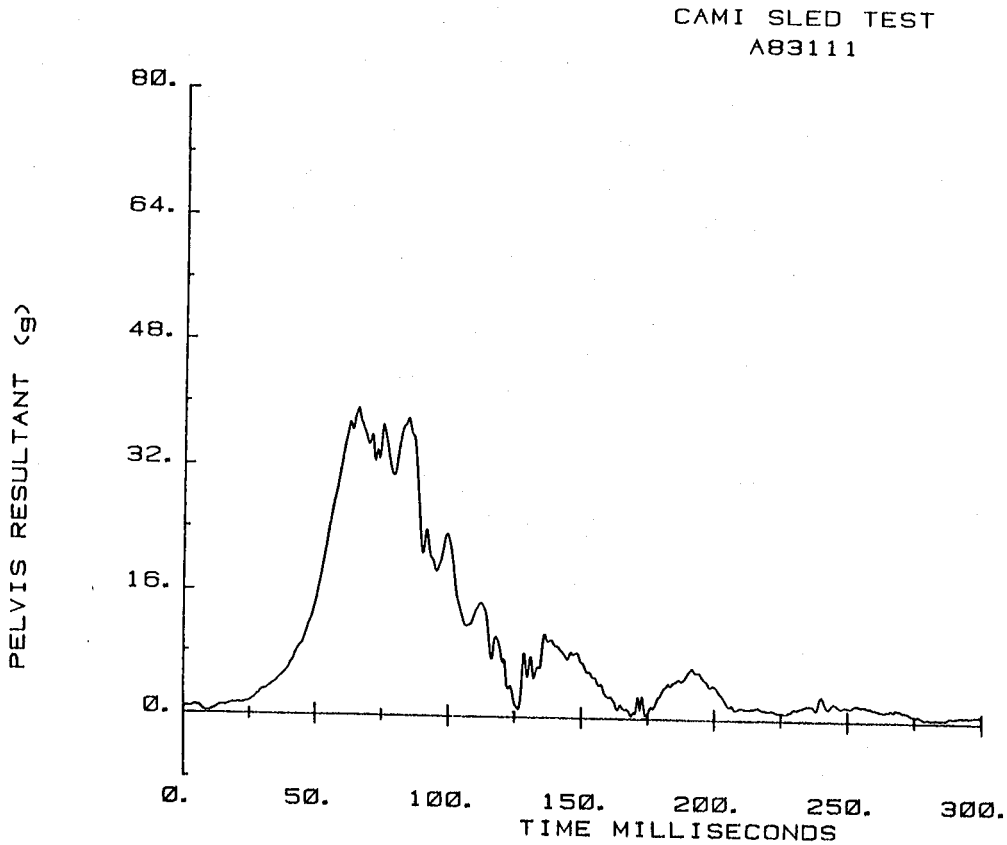
CAMI SLED TEST
A83111

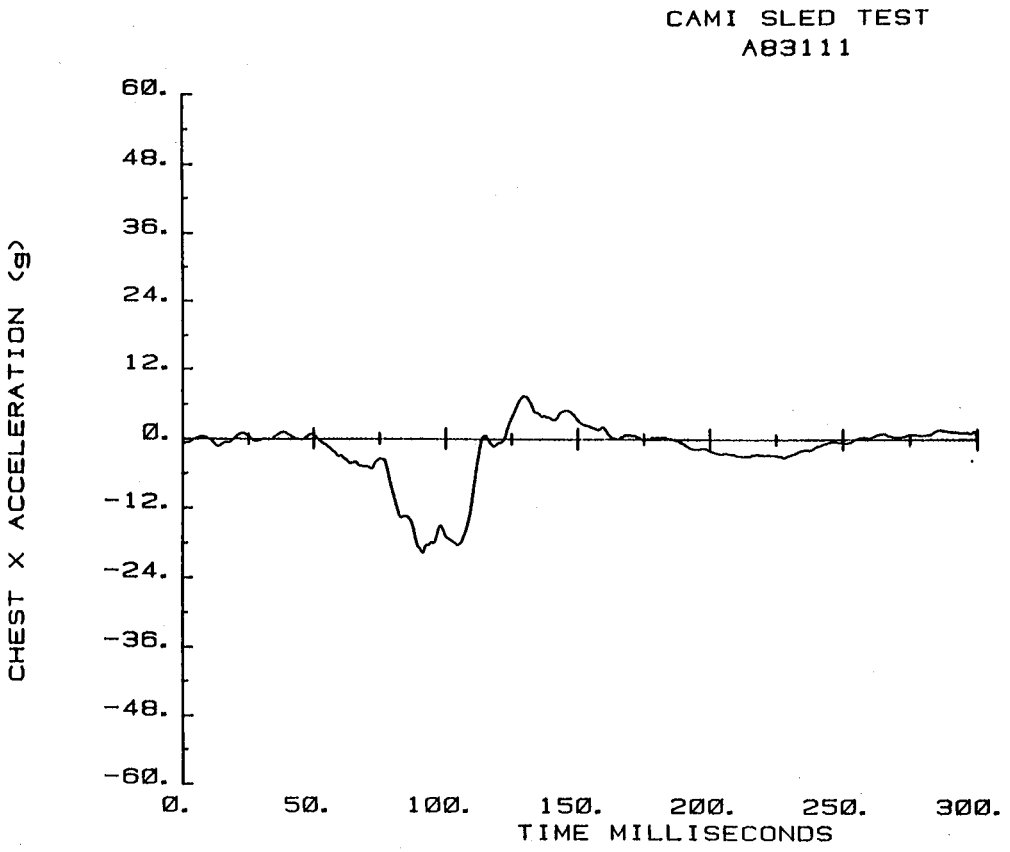


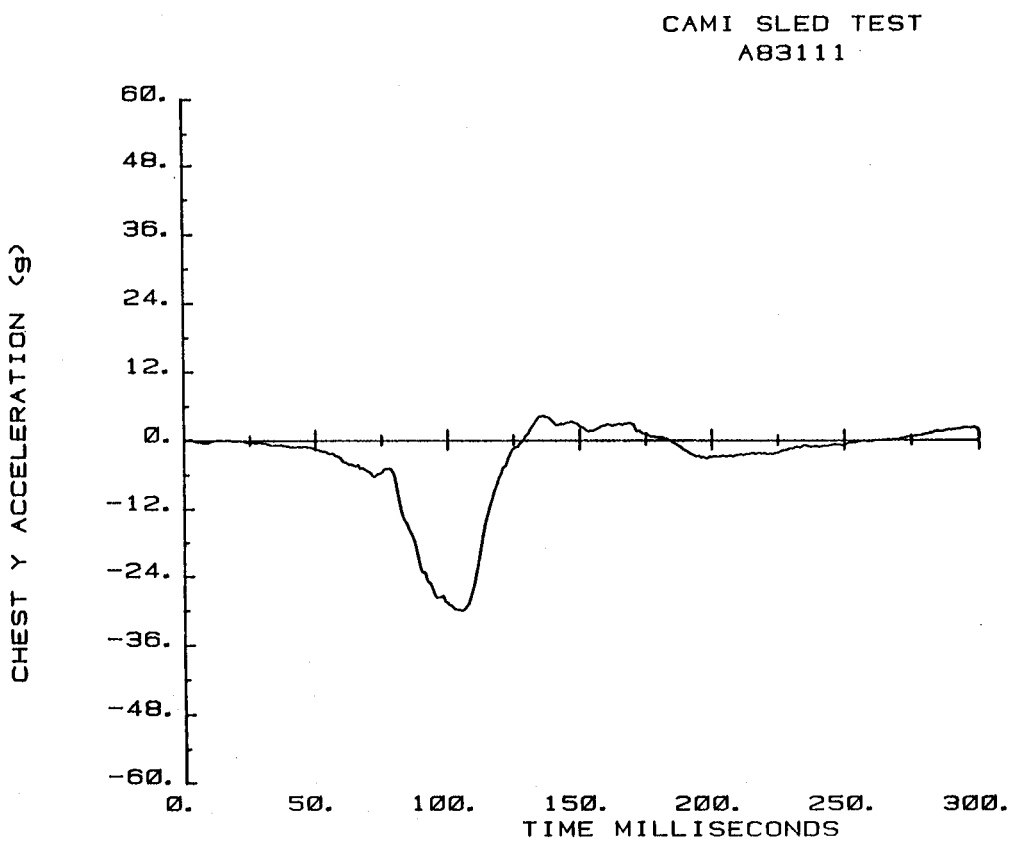
CAMI SLED TEST
A83111

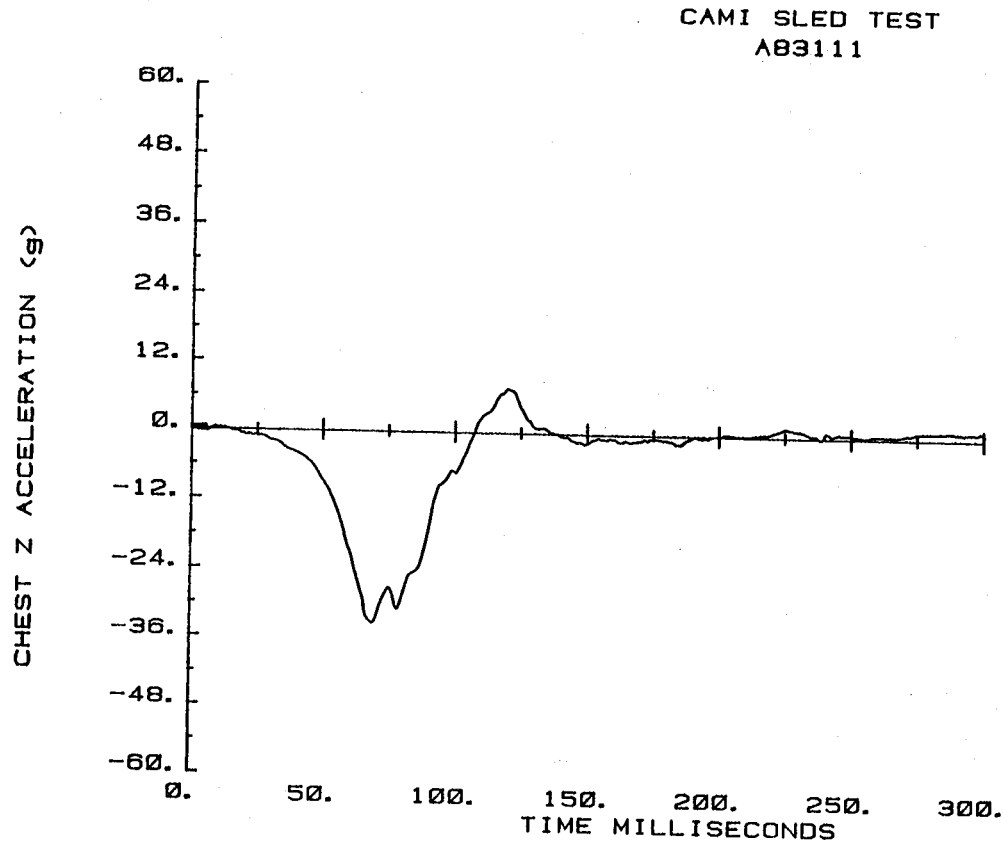


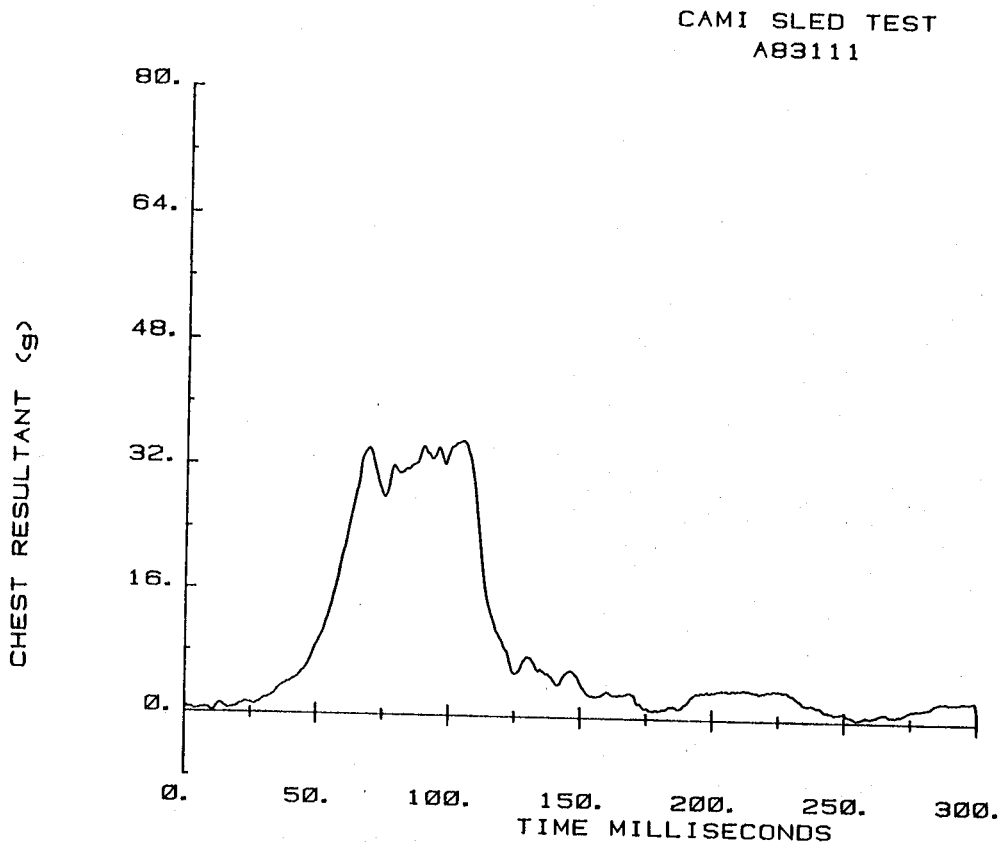

CAMI SLED TEST
A83111
PELVIS Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

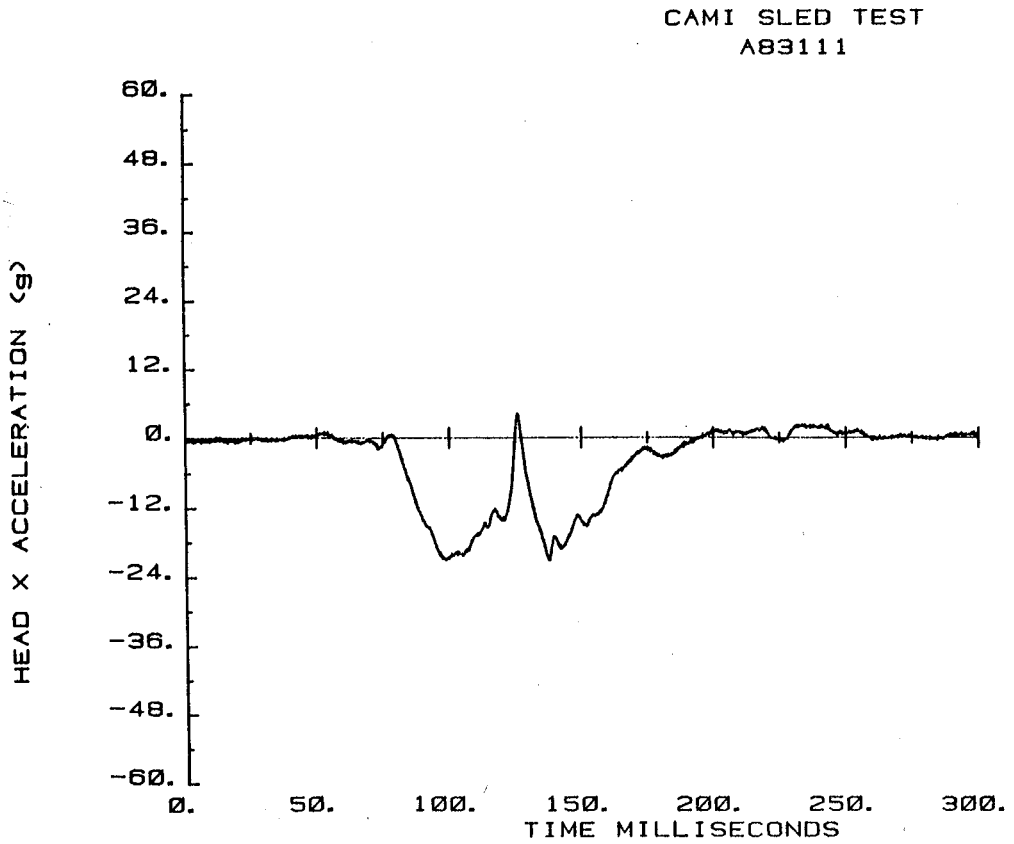

CAMI SLED TEST
A83111
PELVIS RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

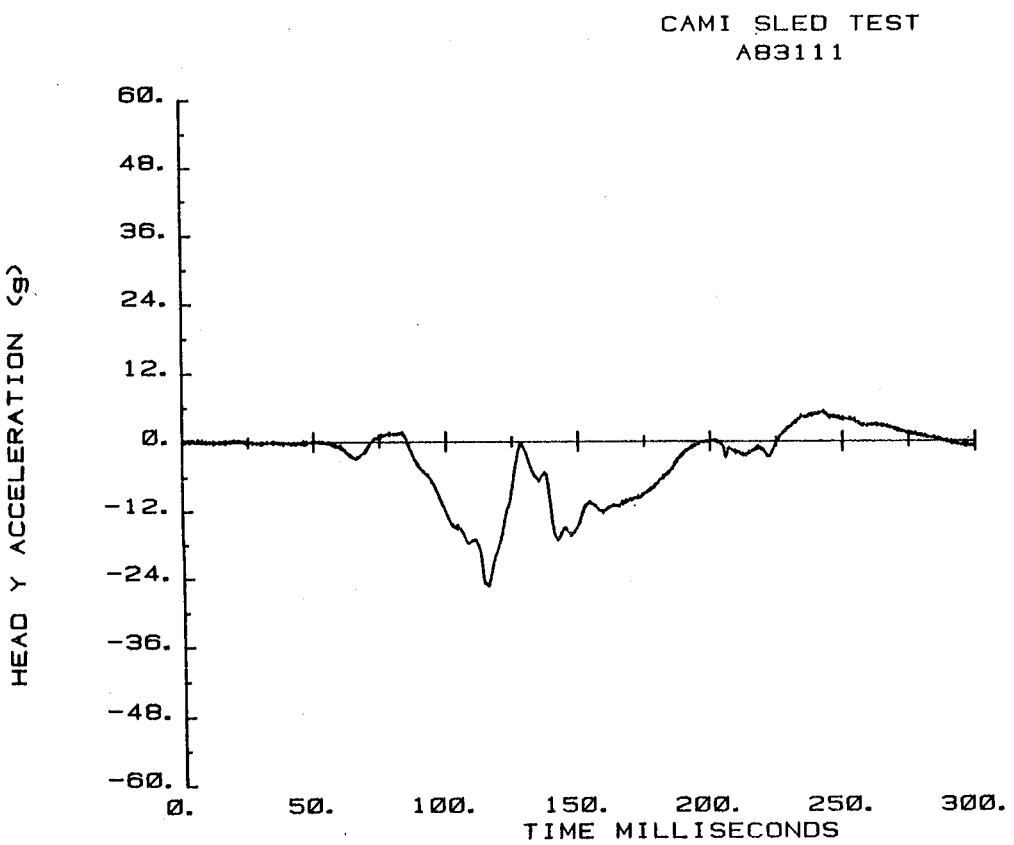

CAMI SLED TEST
A83111
CHEST X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

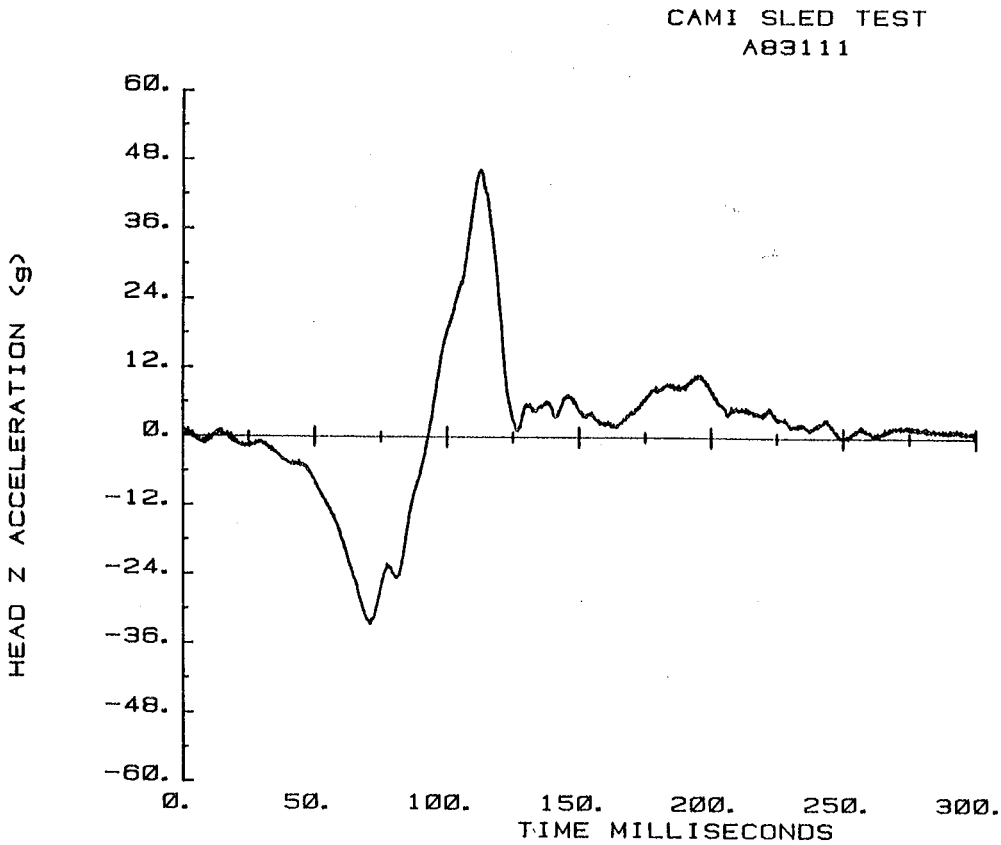

CAMI SLED TEST
A83111
CHEST Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

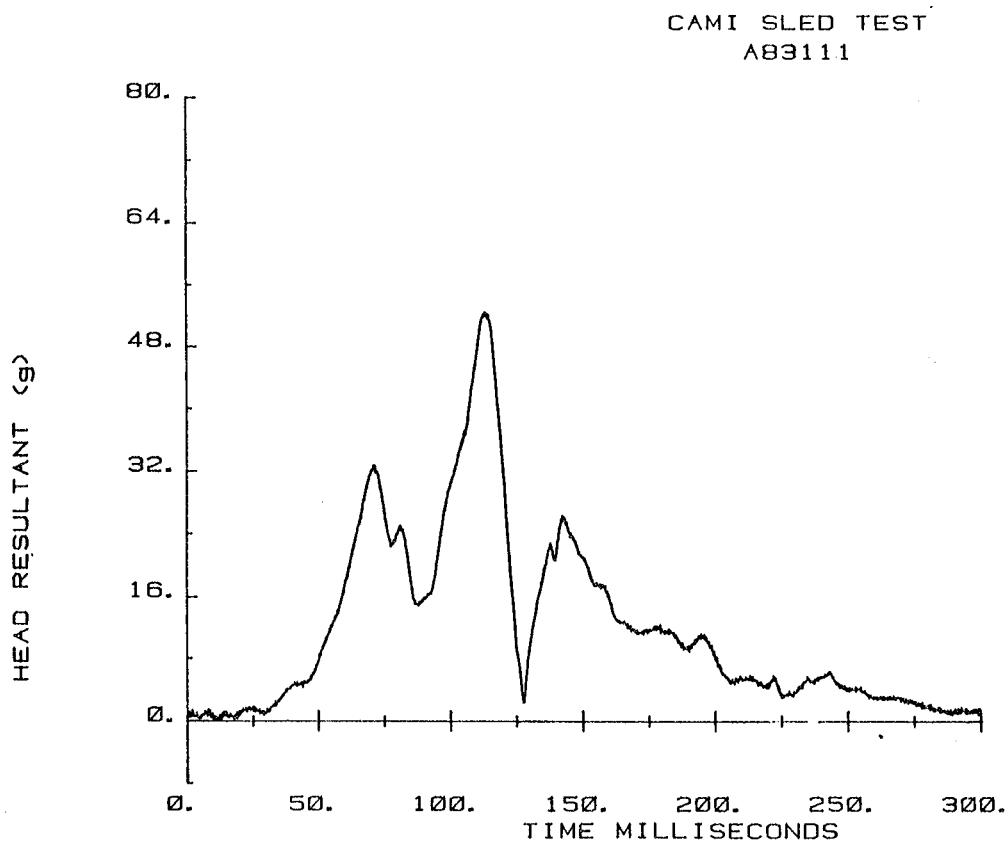

CAMI SLED TEST
A83111
CHEST Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

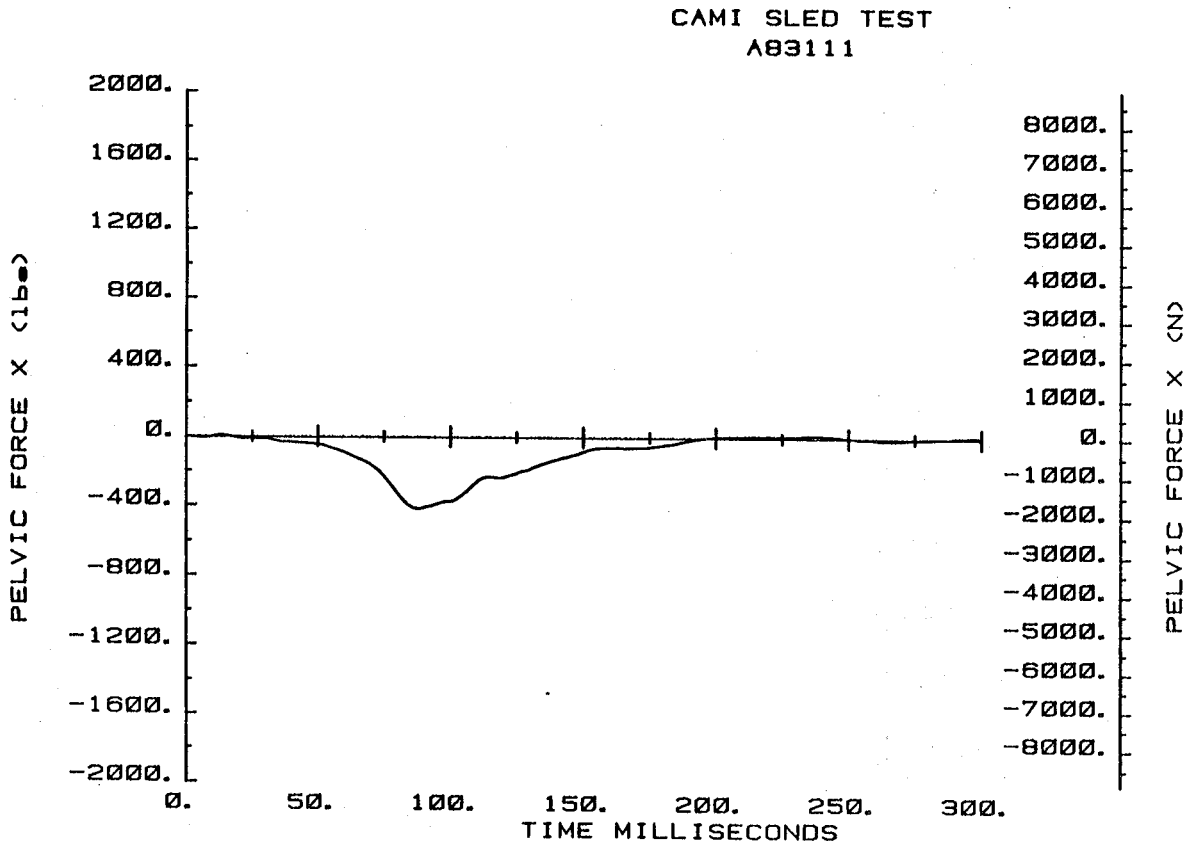

CAMI SLED TEST
A83111
CHEST RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

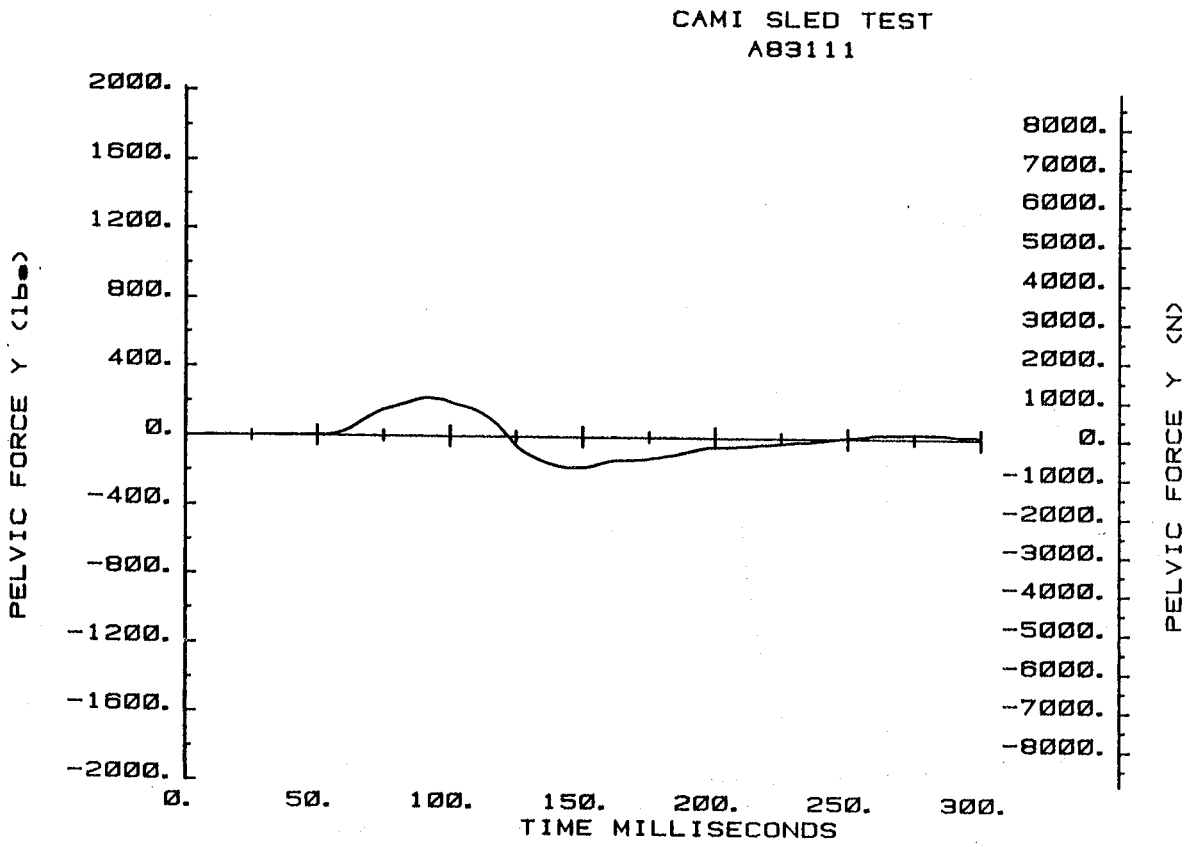

CAMI SLED TEST
A83111
HEAD X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

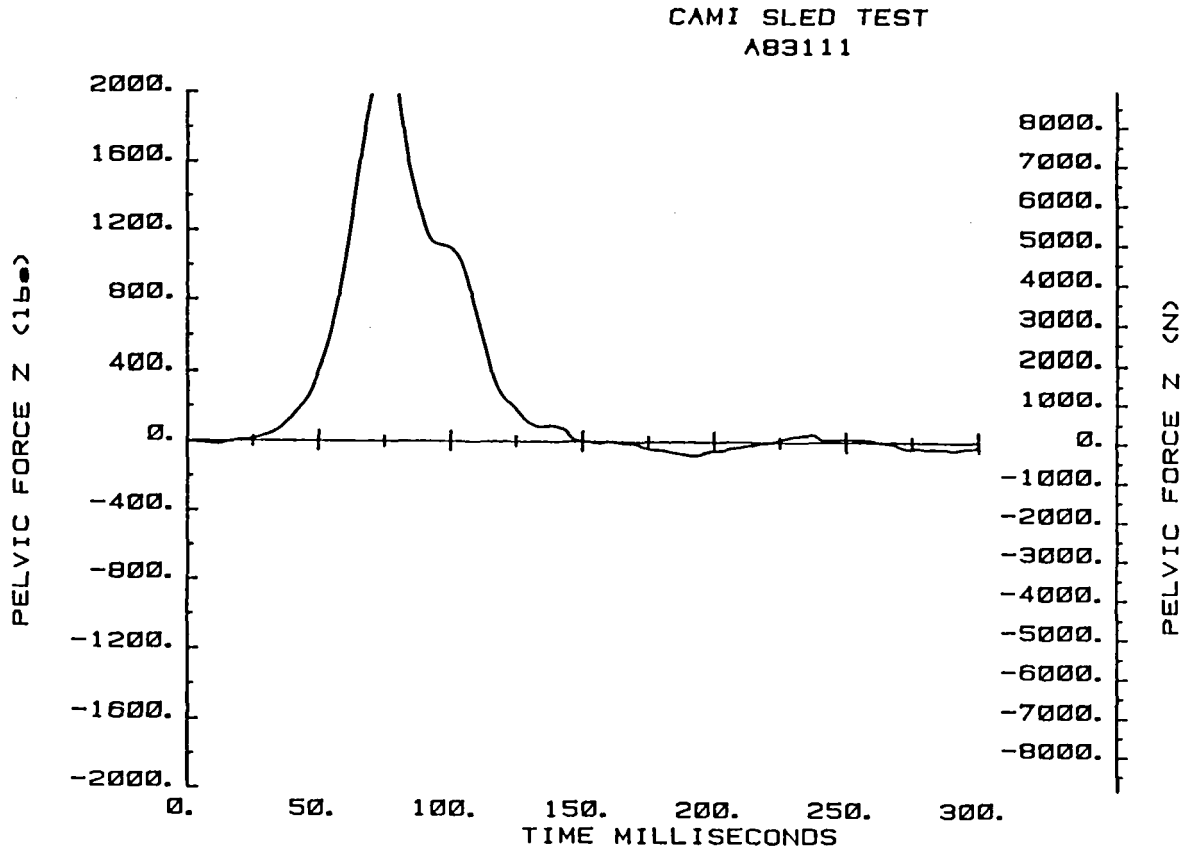

CAMI SLED TEST
A83111
HEAD Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

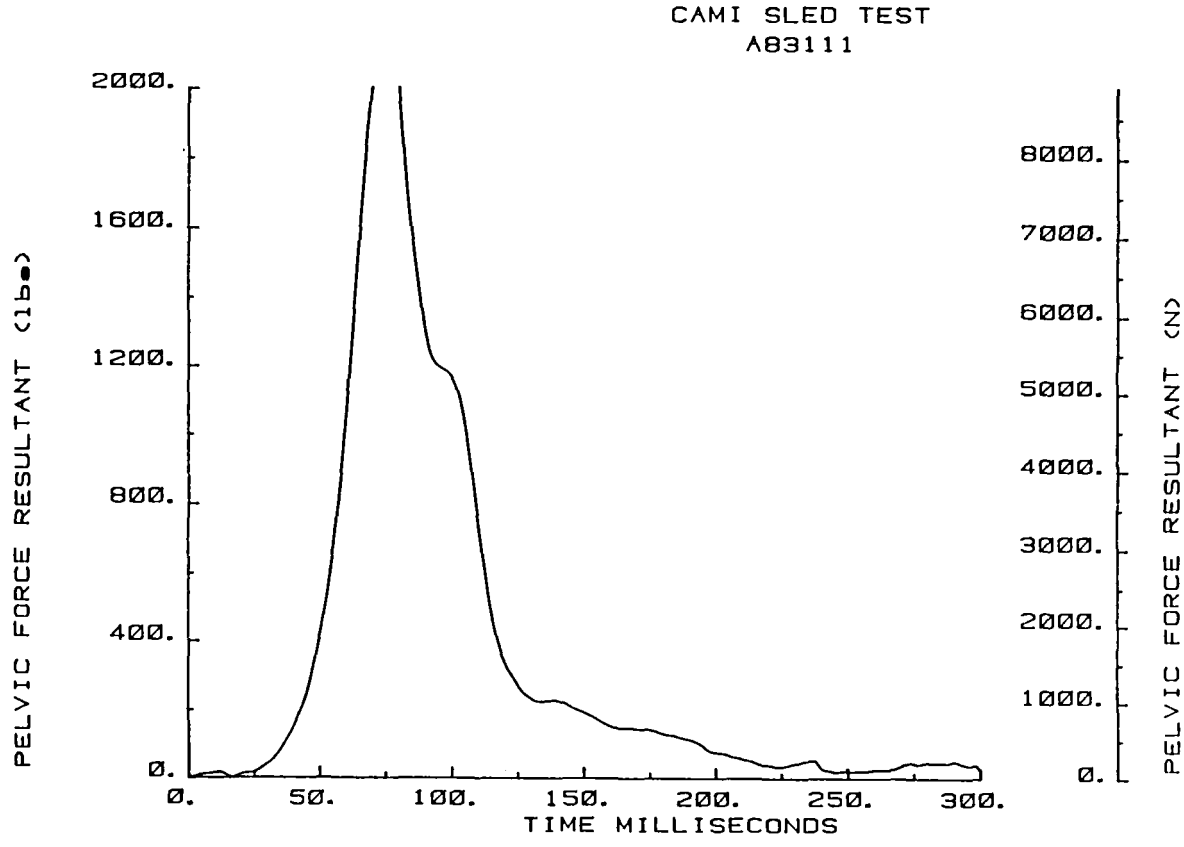

CAMI SLED TEST
A83111
HEAD Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

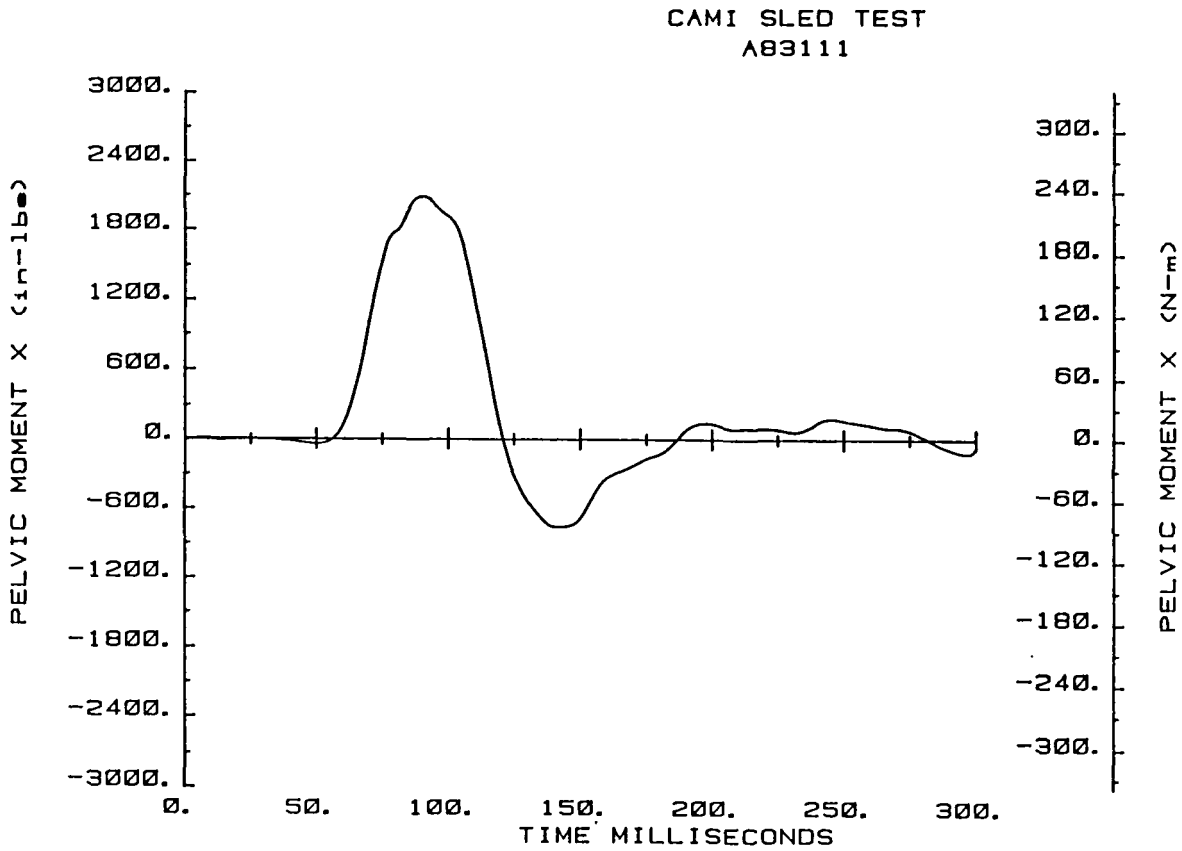

CAMI SLED TEST
A83111
HEAD RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

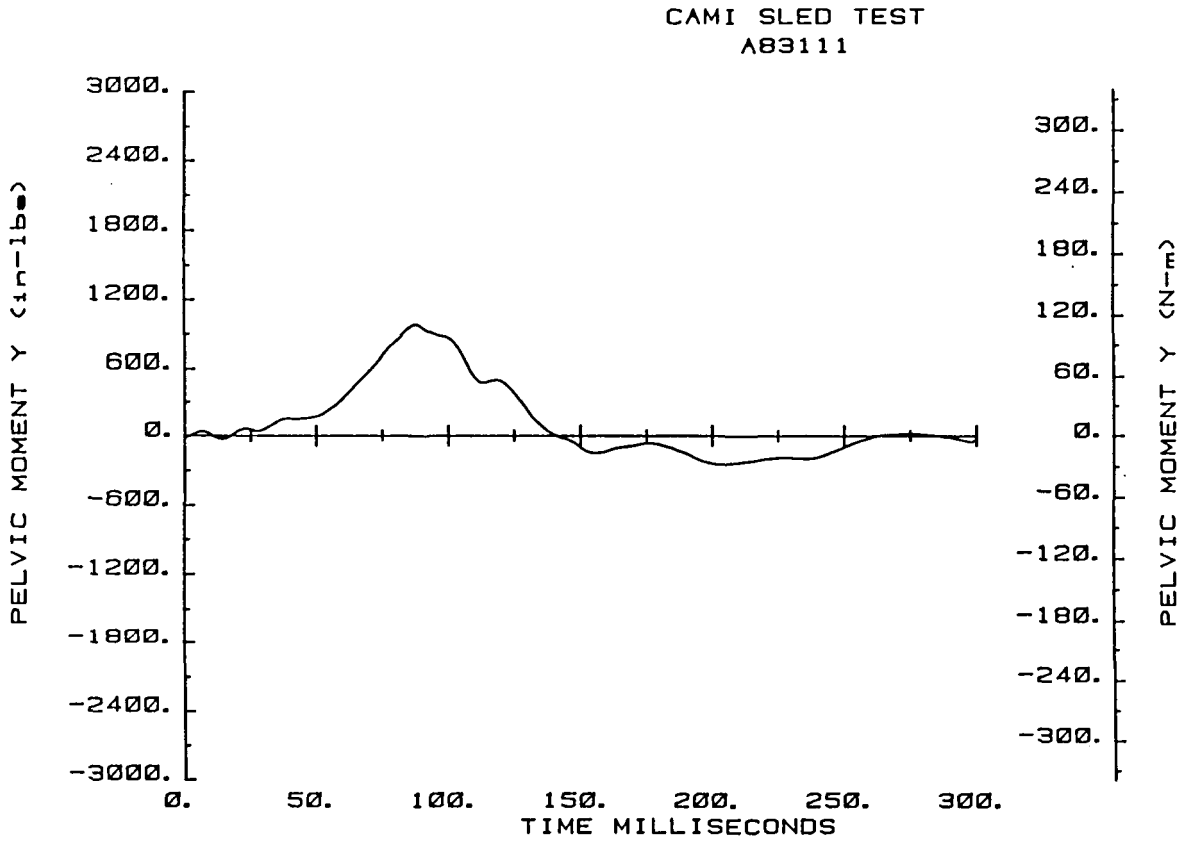

CAMI SLED TEST
A83111
PELVIC FORCE X (lb)
PELVIC FORCE X (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

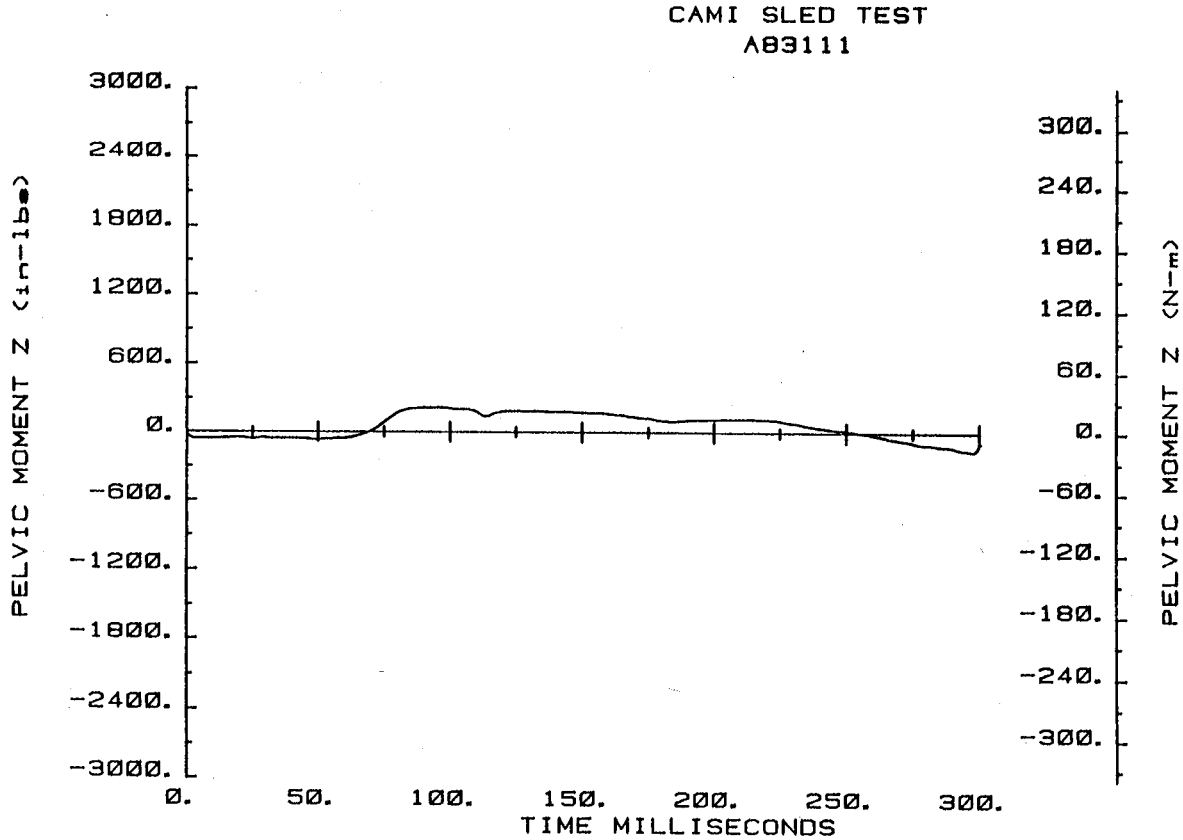

CAMI SLED TEST
A83111
PELVIC FORCE Y (lb)
PELVIC FORCE Y (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

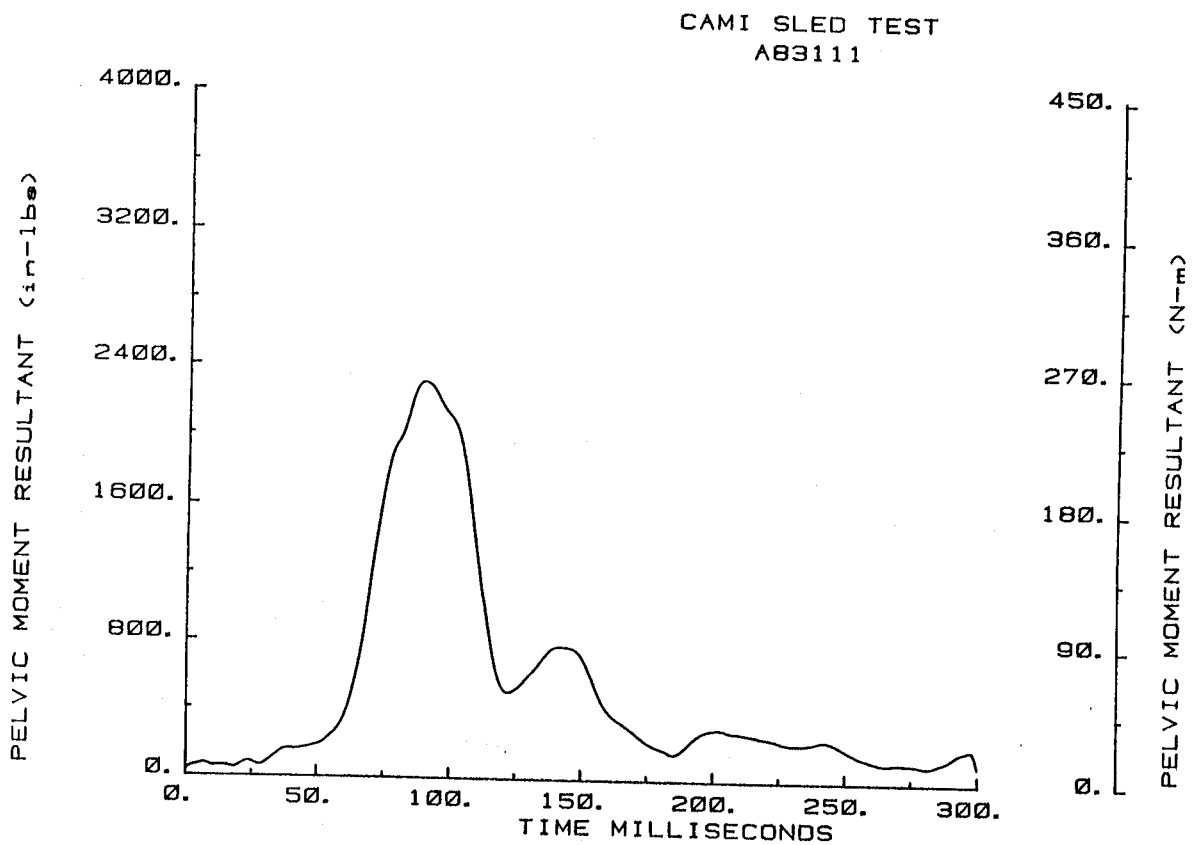

CAMI SLED TEST
A83111
PELVIC FORCE Z (lb.)
PELVIC FORCE Z (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

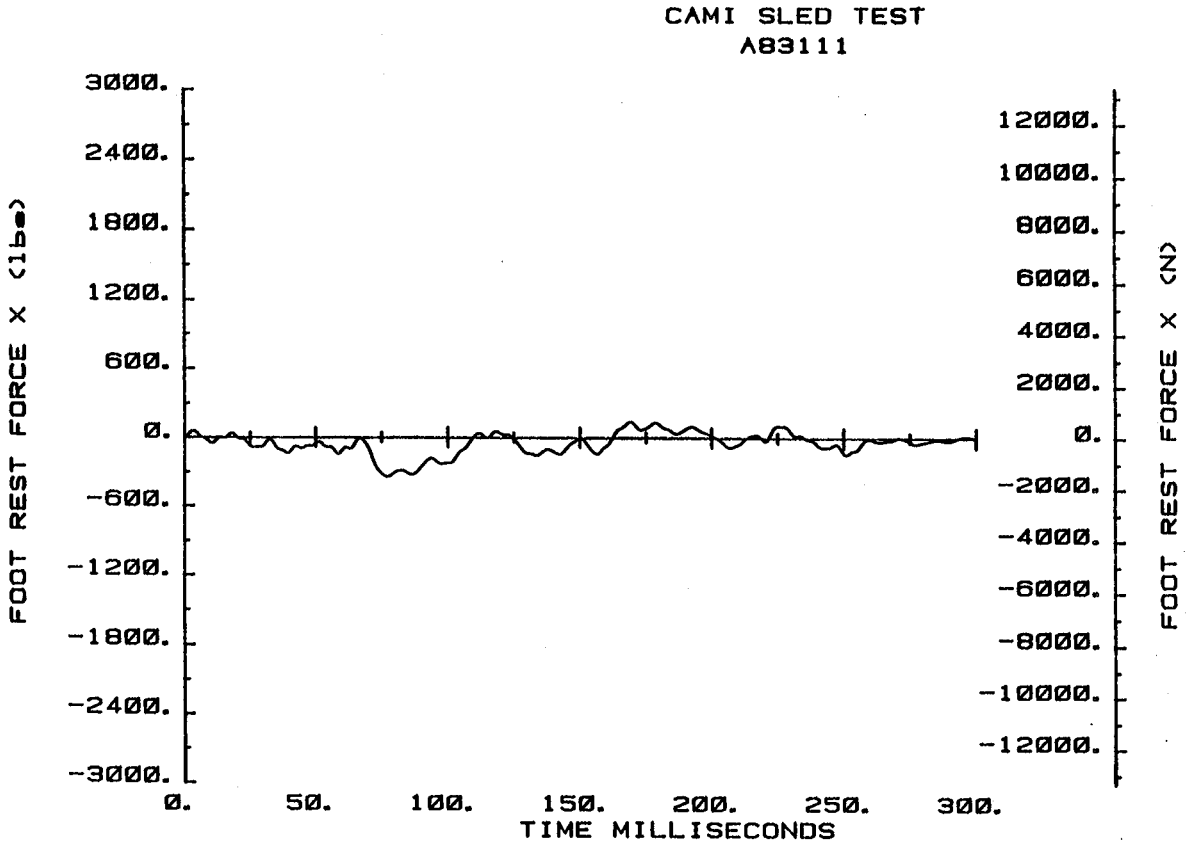

CAMI SLED TEST
A83111
PELVIC FORCE RESULTANT (lb.)
PELVIC FORCE RESULTANT (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

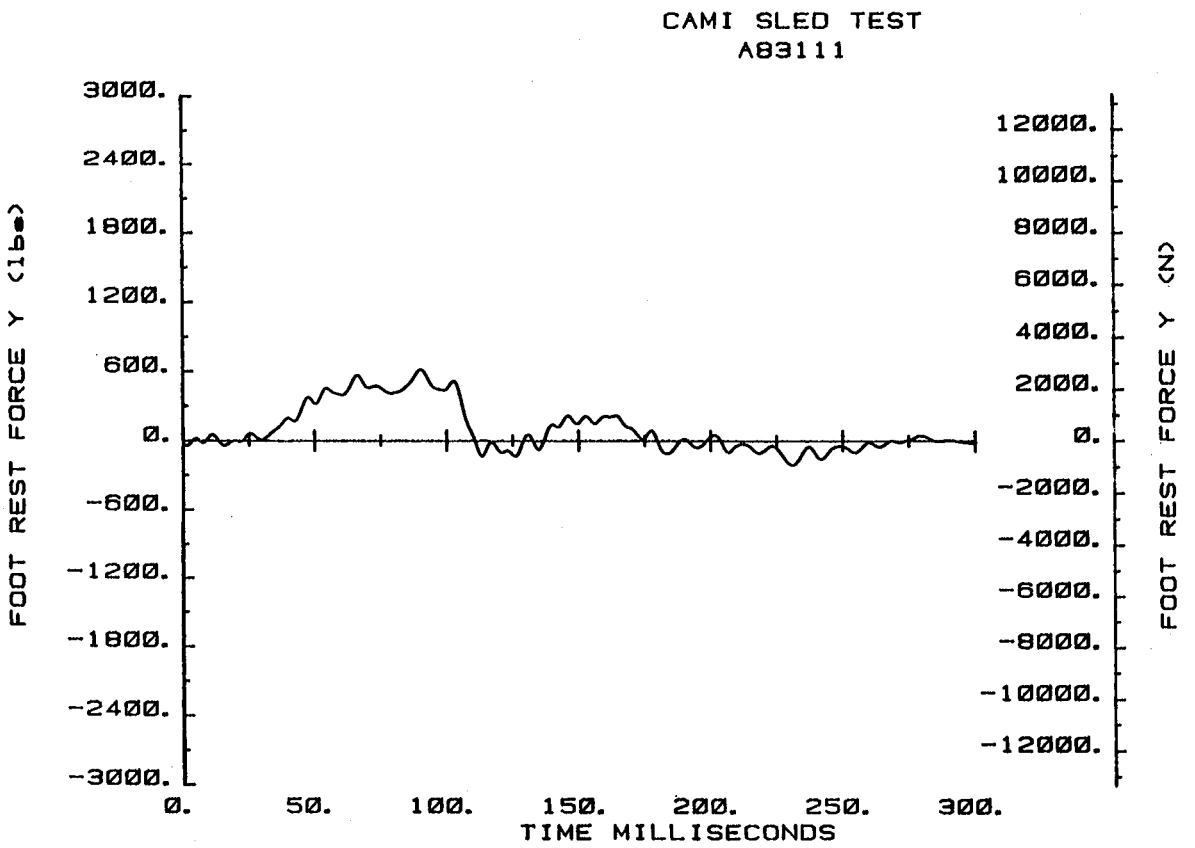

CAMI SLED TEST
A83111
PELVIC MOMENT X (in-lb)
PELVIC MOMENT X (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

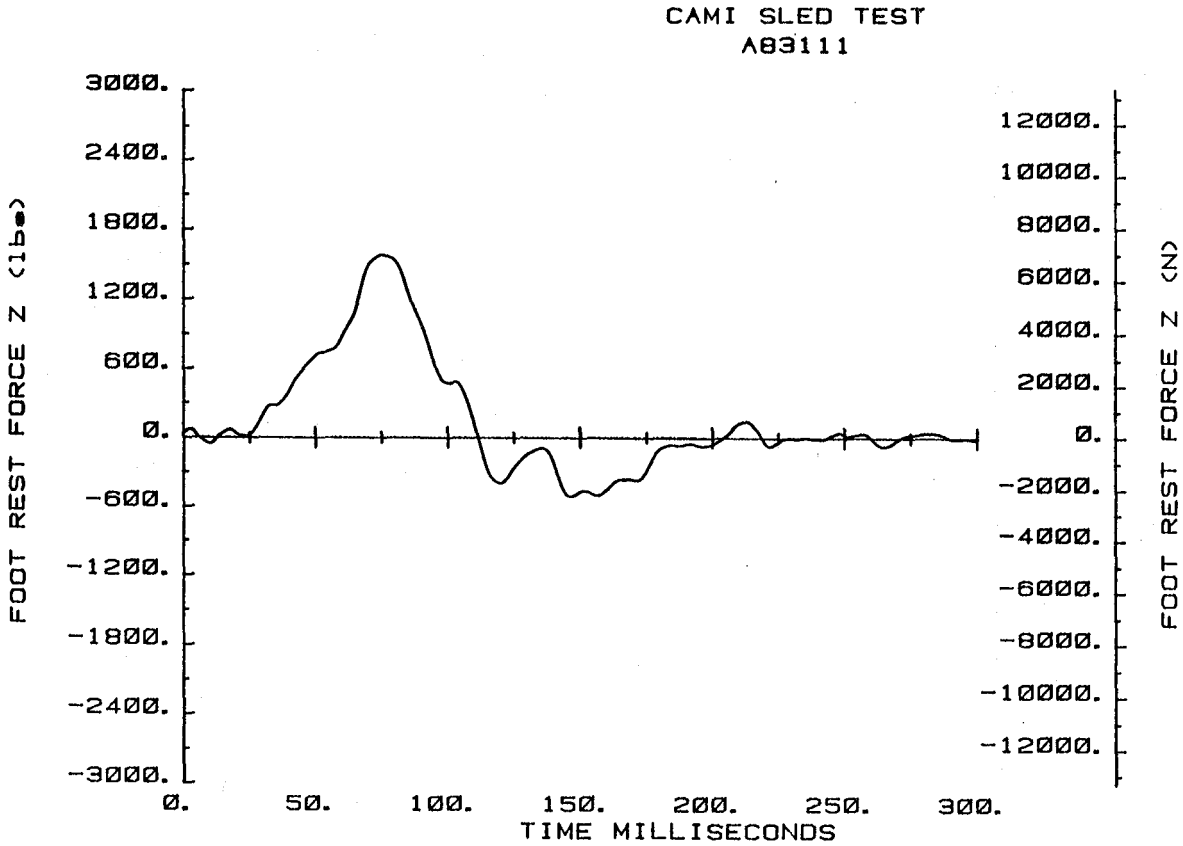

CAMI SLED TEST
A83111
PELVIC MOMENT Y (in-lb)
PELVIC MOMENT Y (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

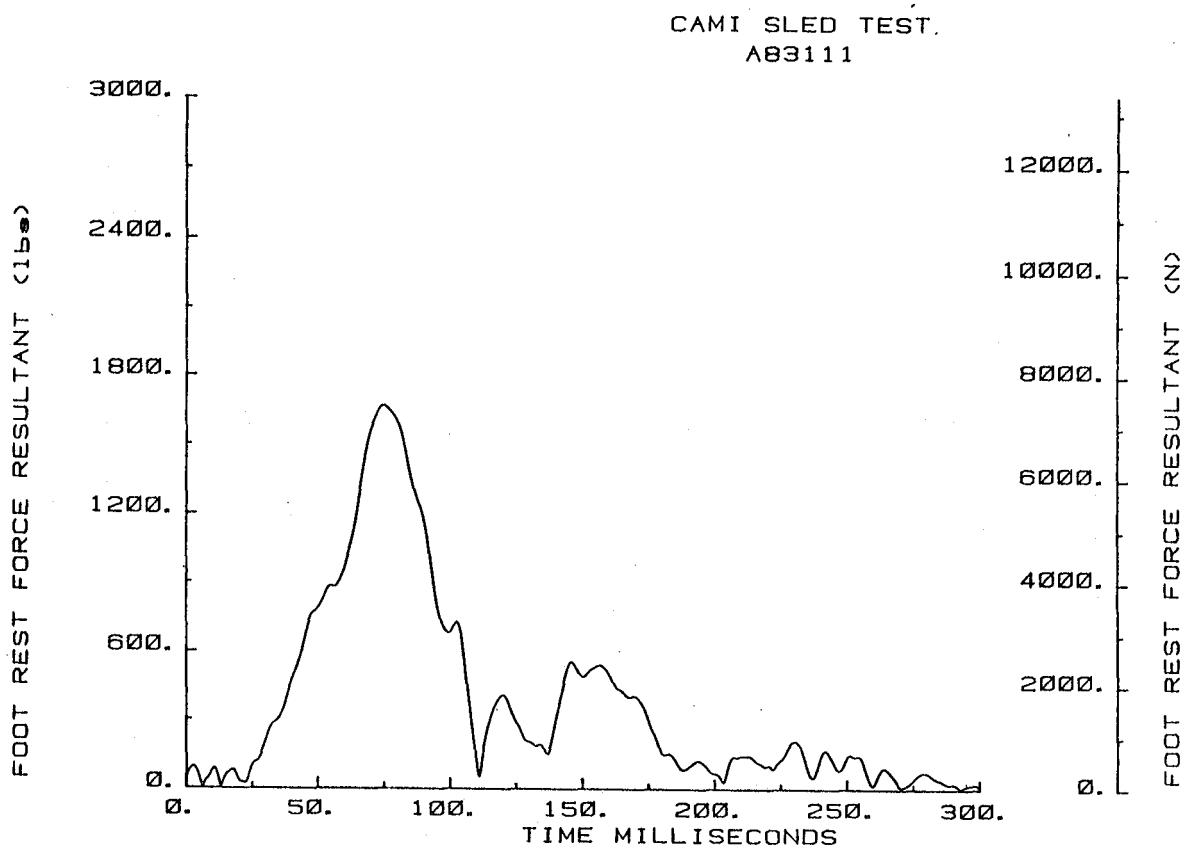

CAMI SLED TEST
A83111
PELVIC MOMENT Z (in-lbs)
PELVIC MOMENT Z (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83111
PELVIC MOMENT RESULTANT (in-lbs)
PELVIC MOMENT RESULTANT (N-m)
4000.
3200.
2400.
1600.
800.
0.
450.
360.
270.
180.
90.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

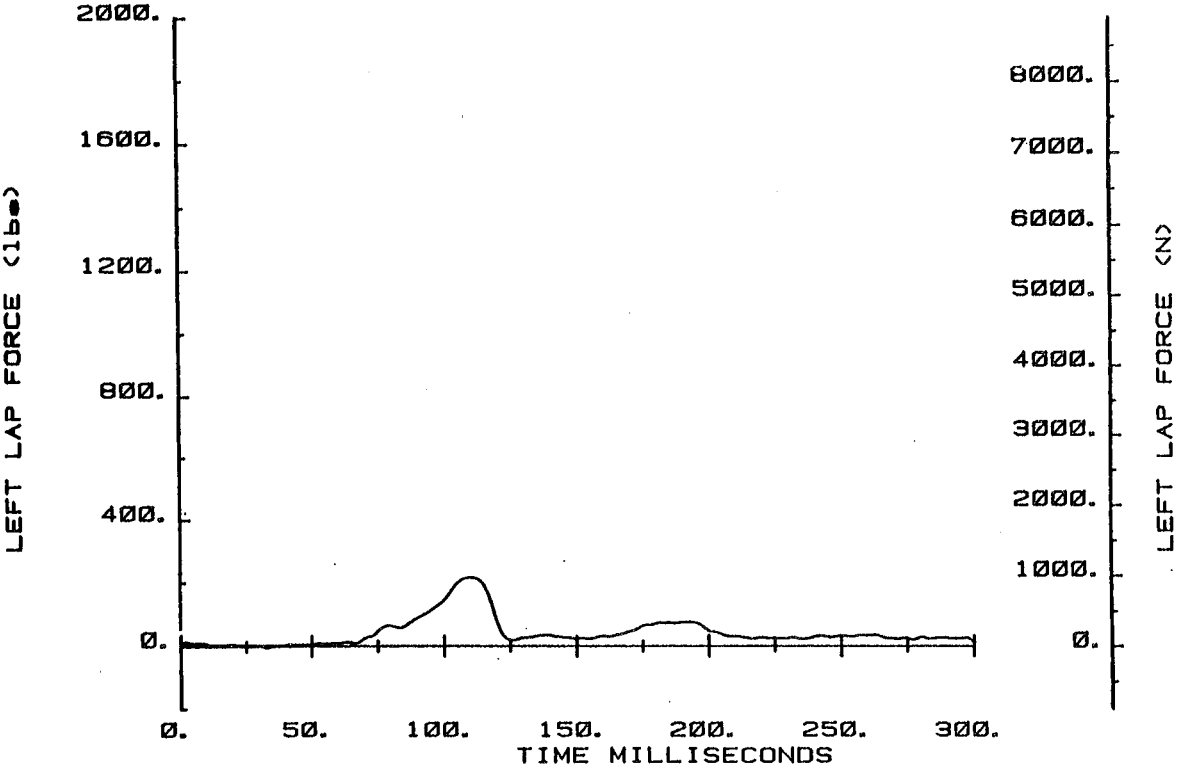

CAMI SLED TEST
A83111
FOOT REST FORCE X (lbs)
FOOT REST FORCE X (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83111
FOOT REST FORCE Y (lbs)
FOOT REST FORCE Y (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

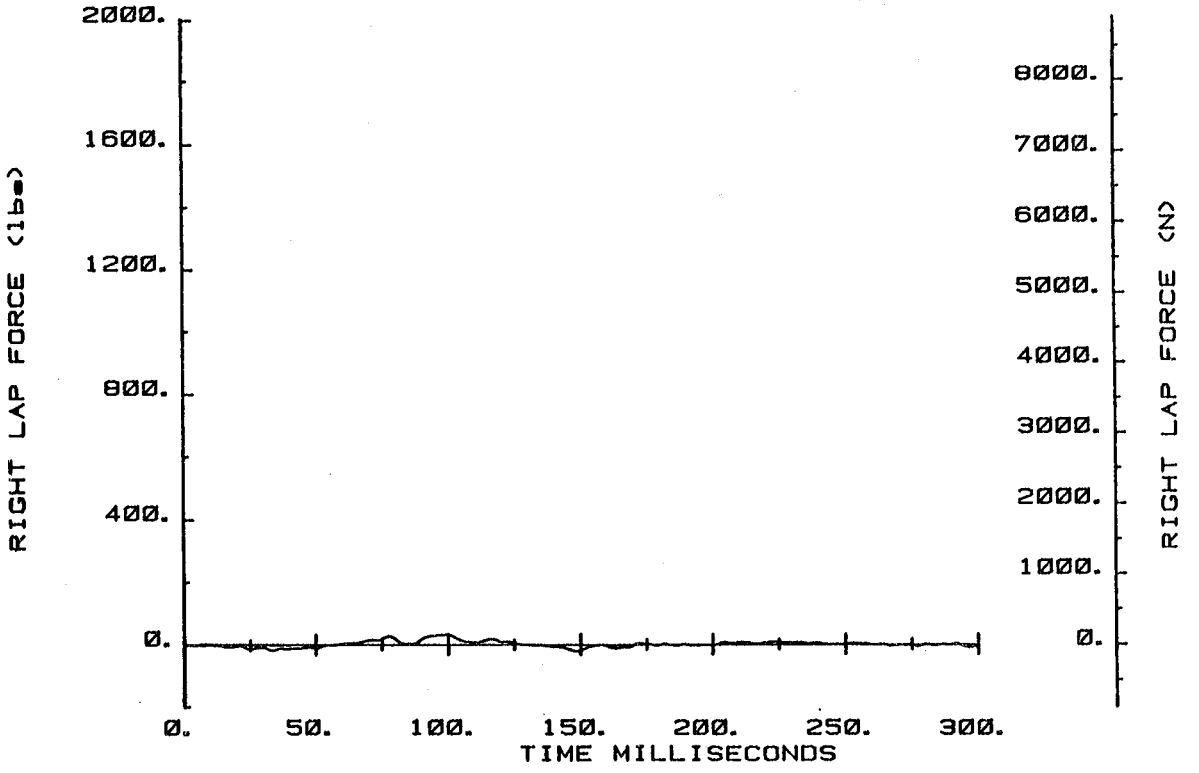

CAMI SLED TEST
A83111
FOOT REST FORCE Z (lbs)
FOOT REST FORCE Z (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

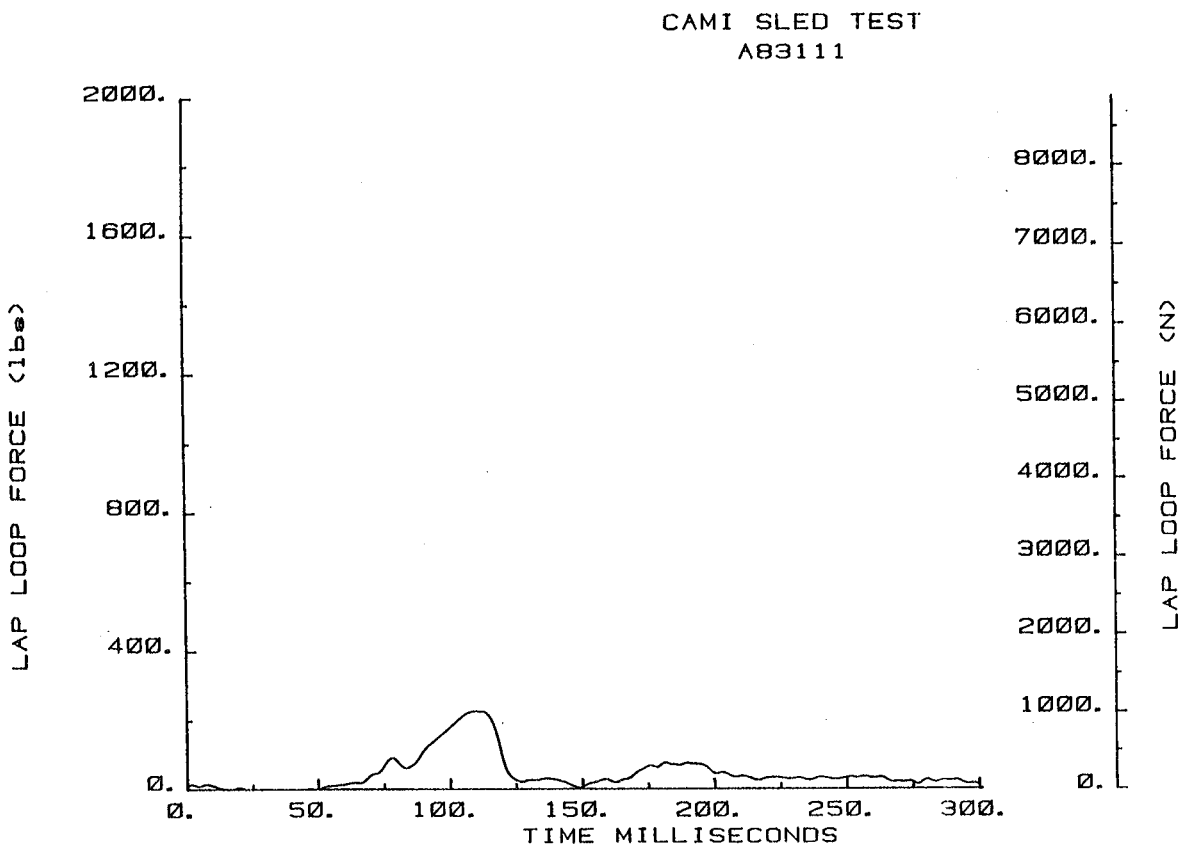

CAMI SLED TEST
A83111
FOOT REST FORCE RESULTANT (lbs)
FOOT REST FORCE RESULTANT (N)
3000.
2400.
1800.
1200.
600.
0.
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

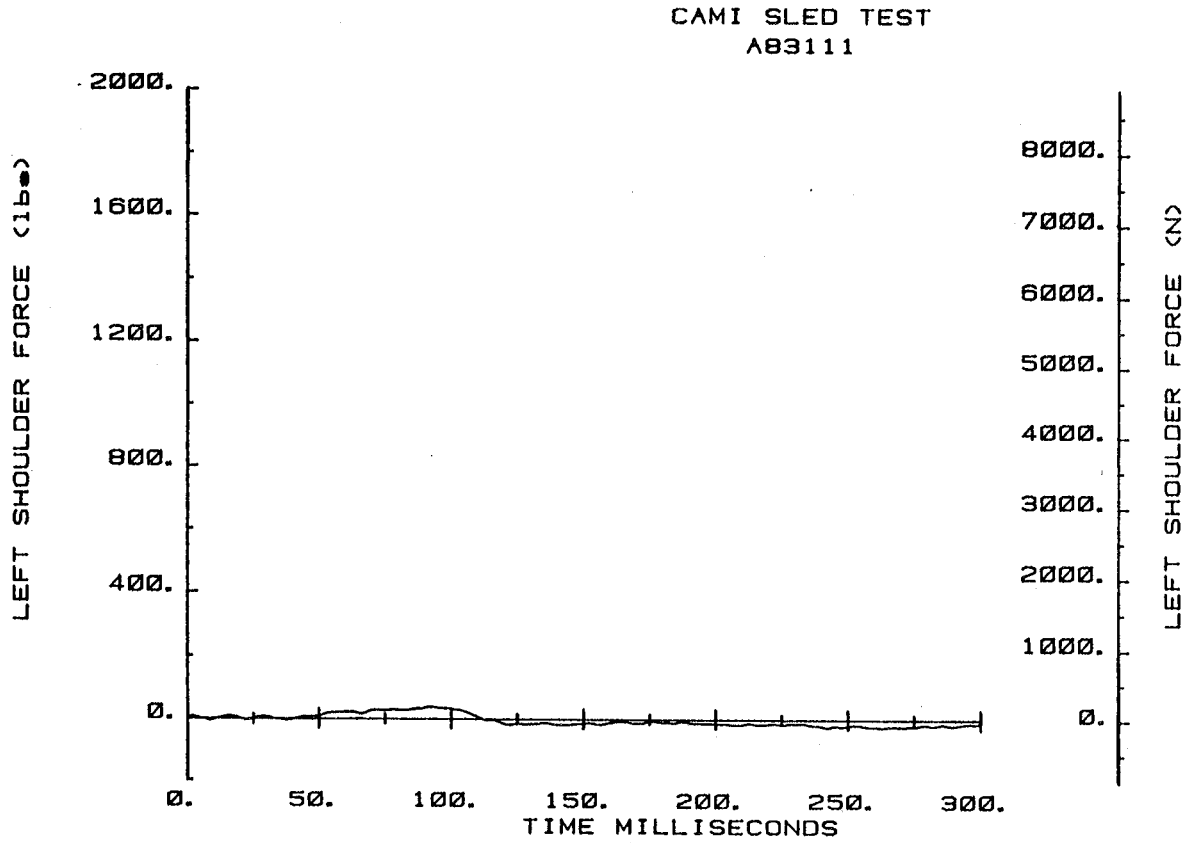
CAMI SLED TEST
A83111

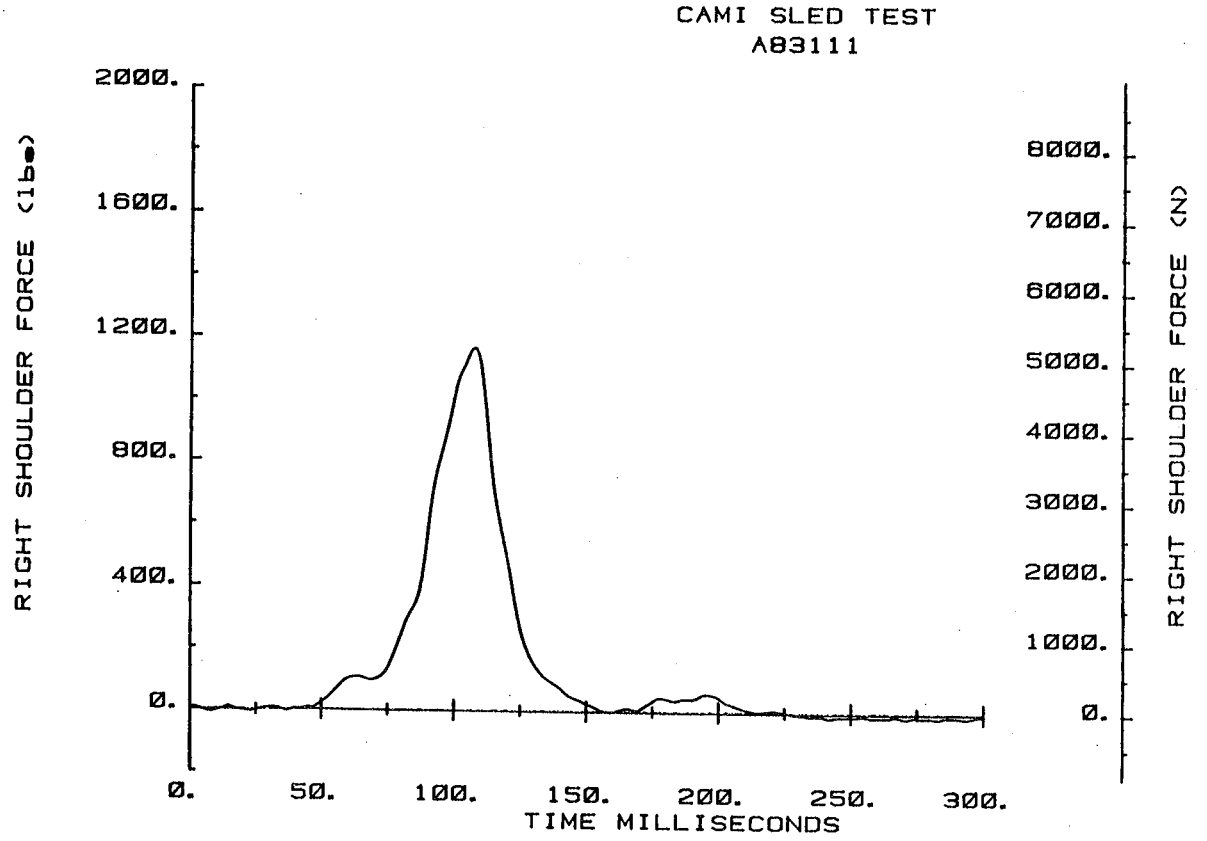


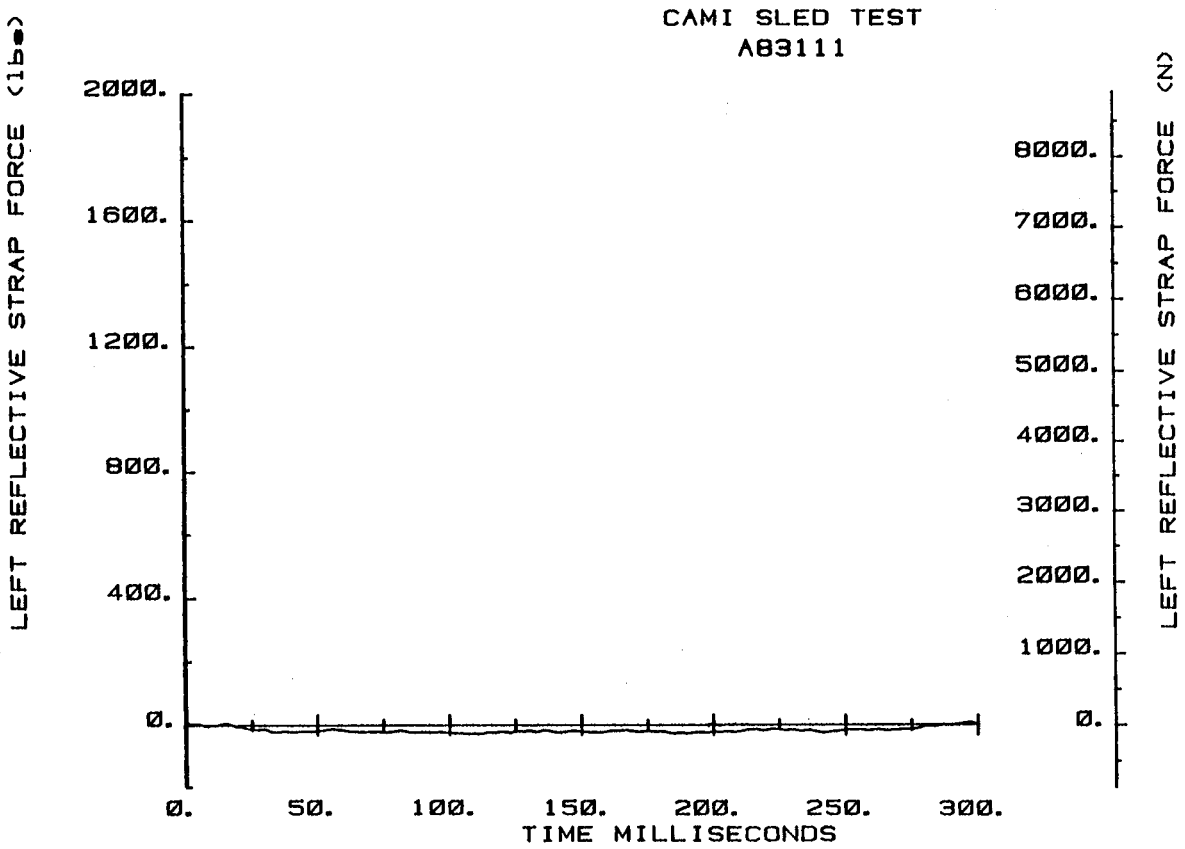
CAMI SLED TEST
A83111

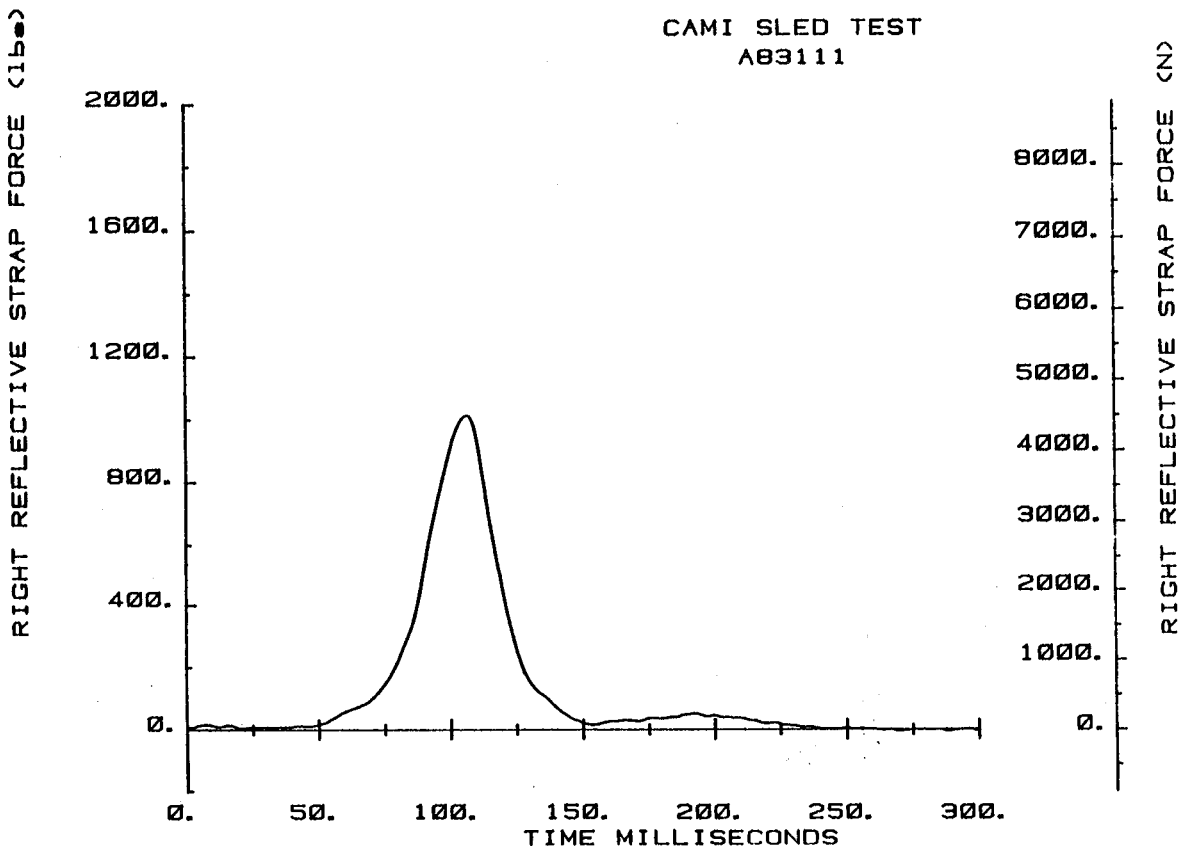


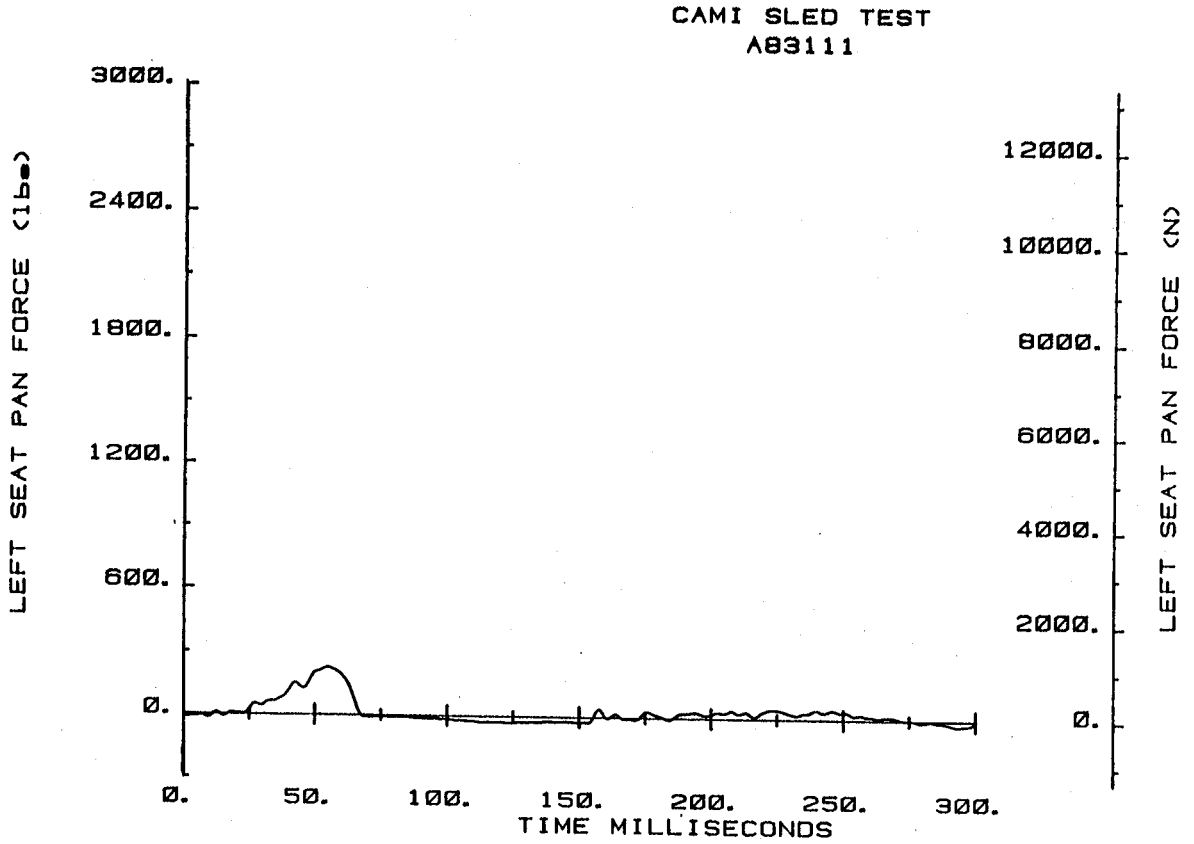

CAMI SLED TEST
A83111
LAP LOOP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LAP LOOP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

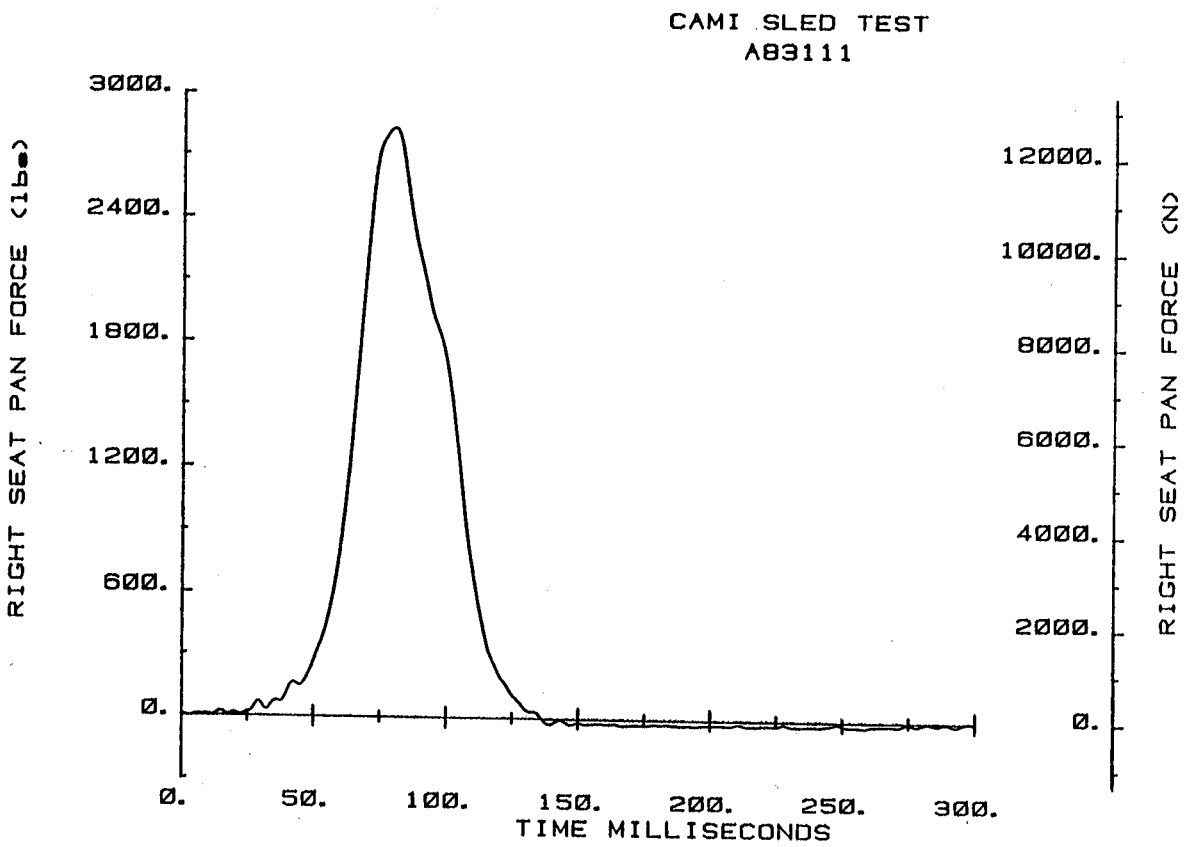

CAMI SLED TEST
A83111
LEFT SHOULDER FORCE (lb.)
2000.
1600.
1200.
800.
400.
0.
LEFT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

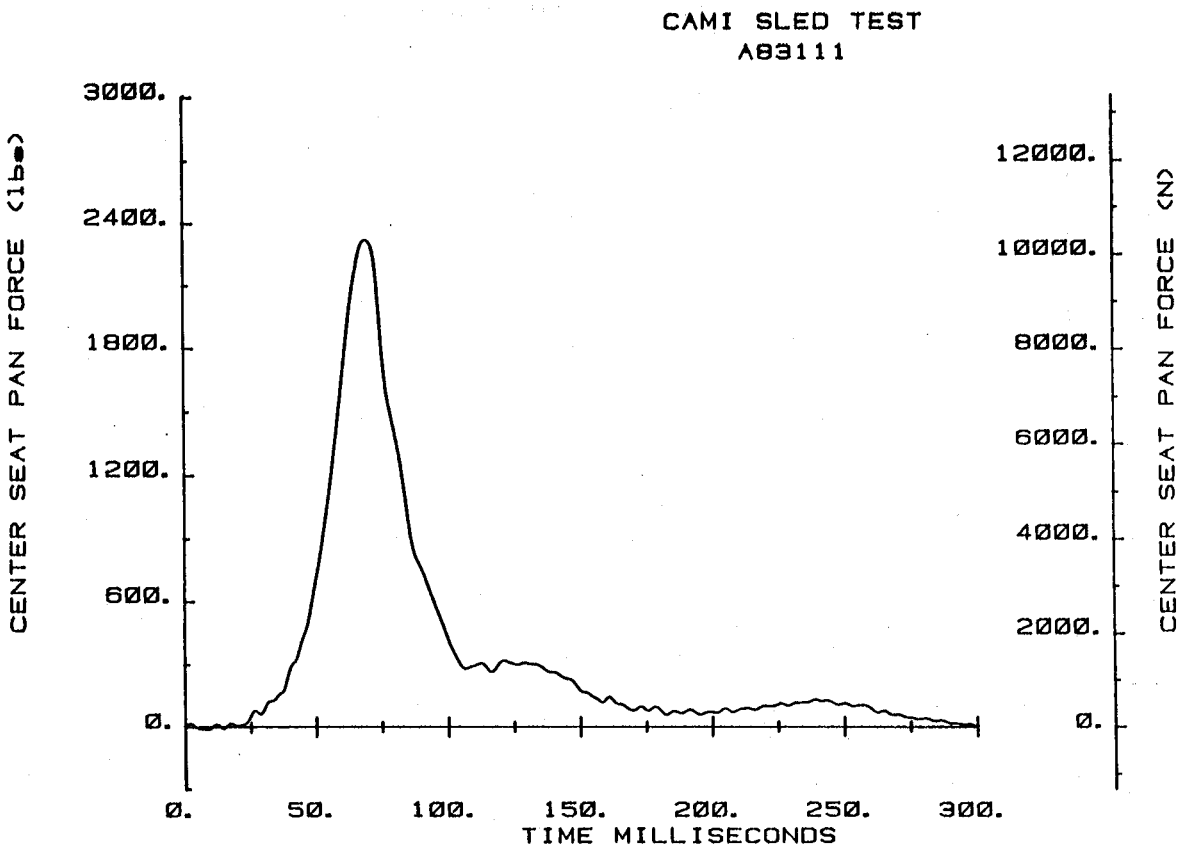

CAMI SLED TEST
A83111
RIGHT SHOULDER FORCE (lb.)
2000.
1600.
1200.
800.
400.
0.
RIGHT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

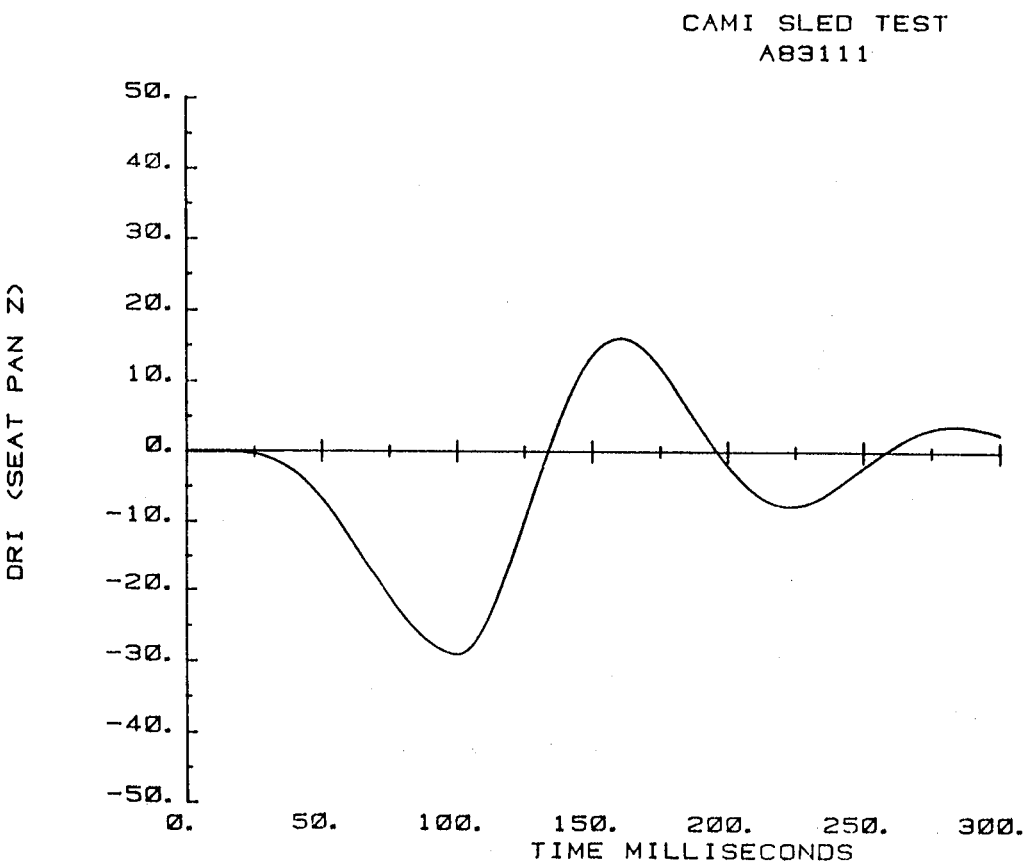

CAMI SLED TEST
A83111
LEFT REFLECTIVE STRAP FORCE (lb.)
2000.
1600.
1200.
800.
400.
0.
LEFT REFLECTIVE STRAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

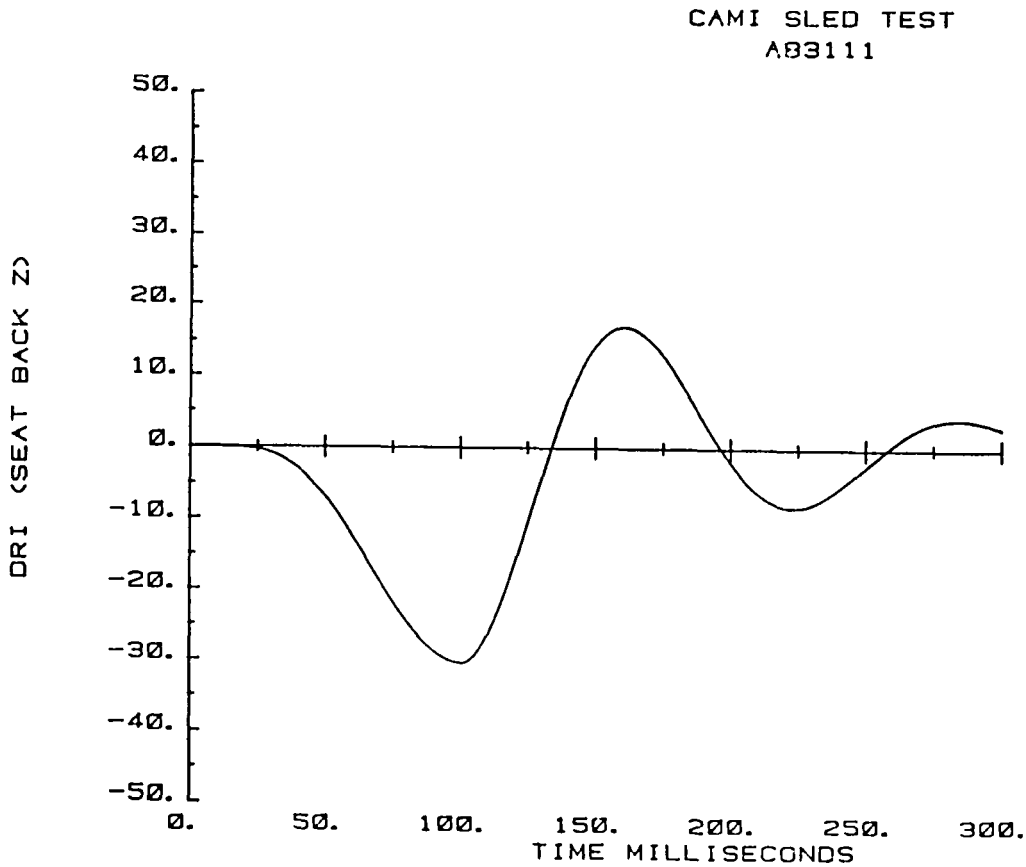

CAMI SLED TEST
A83111
RIGHT REFLECTIVE STRAP FORCE (lb.)
2000.
1600.
1200.
800.
400.
0.
RIGHT REFLECTIVE STRAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

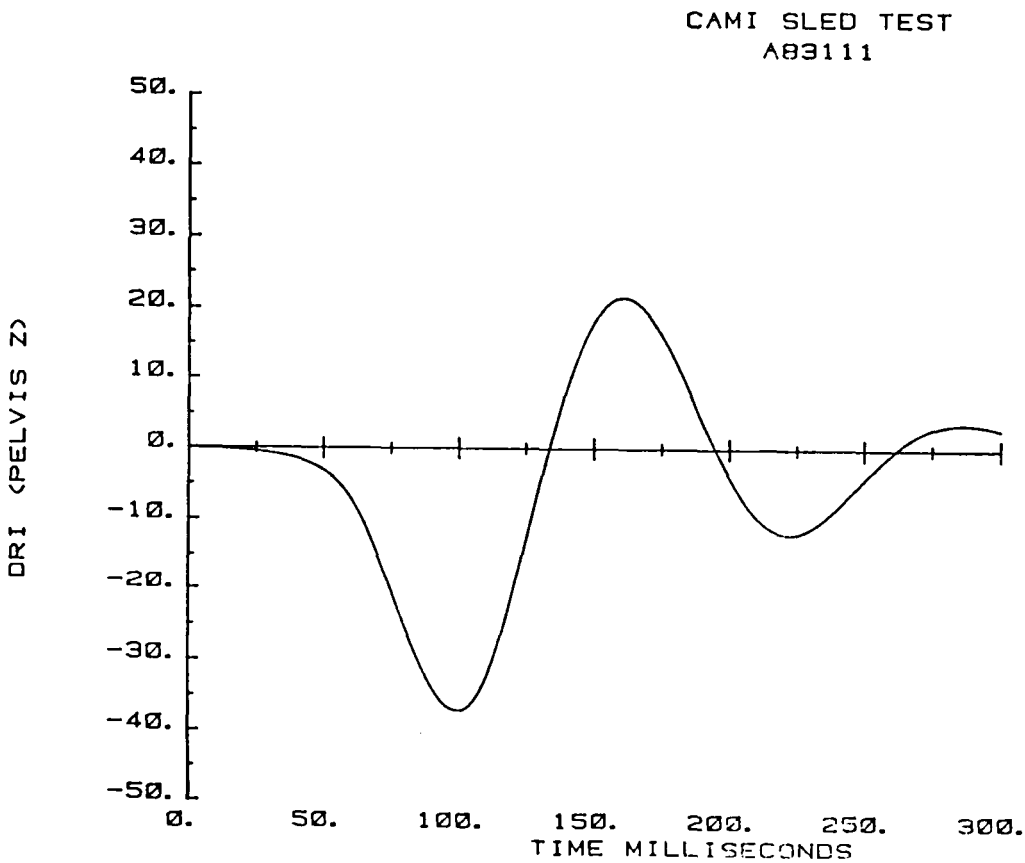

CAMI SLED TEST
A83111
LEFT SEAT PAN FORCE (lbs)
3000.
2400.
1800.
1200.
600.
0.
LEFT SEAT PAN FORCE (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83111
RIGHT SEAT PAN FORCE (lbs)
3000.
2400.
1800.
1200.
600.
0.
RIGHT SEAT PAN FORCE (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83111
CENTER SEAT PAN FORCE (lbs)
3000.
2400.
1800.
1200.
600.
0.
12000.
10000.
8000.
6000.
4000.
2000.
0.
CENTER SEAT PAN FORCE (N)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83111
DRI (SEAT PAN Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83111
DRI (SEAT BACK Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83111
DRI (PELVIS Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

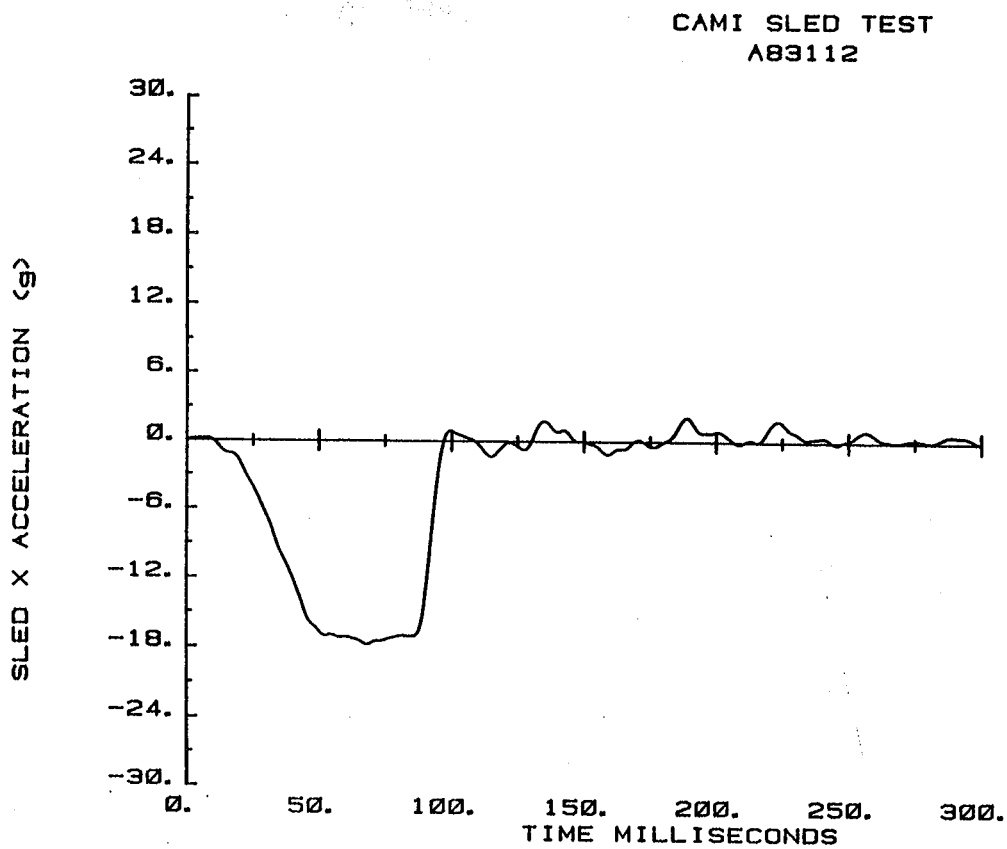
10.0 CAMI TEST NO. A83-112

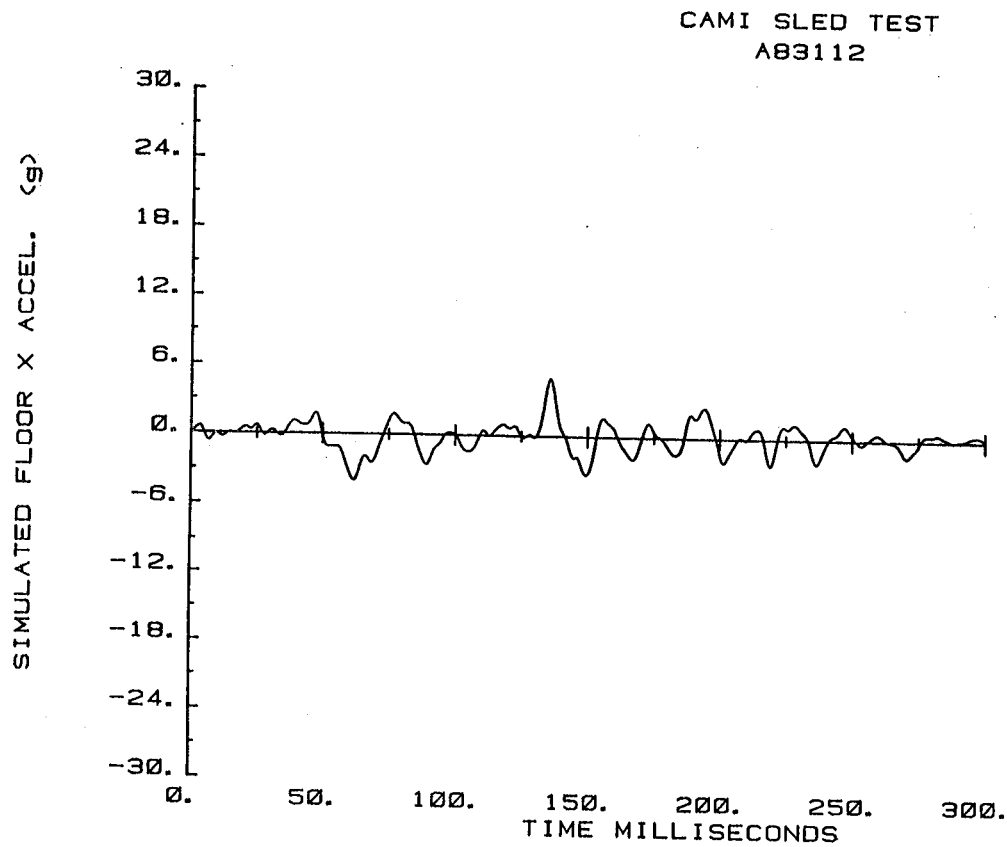
SEAT: F-111 Operational

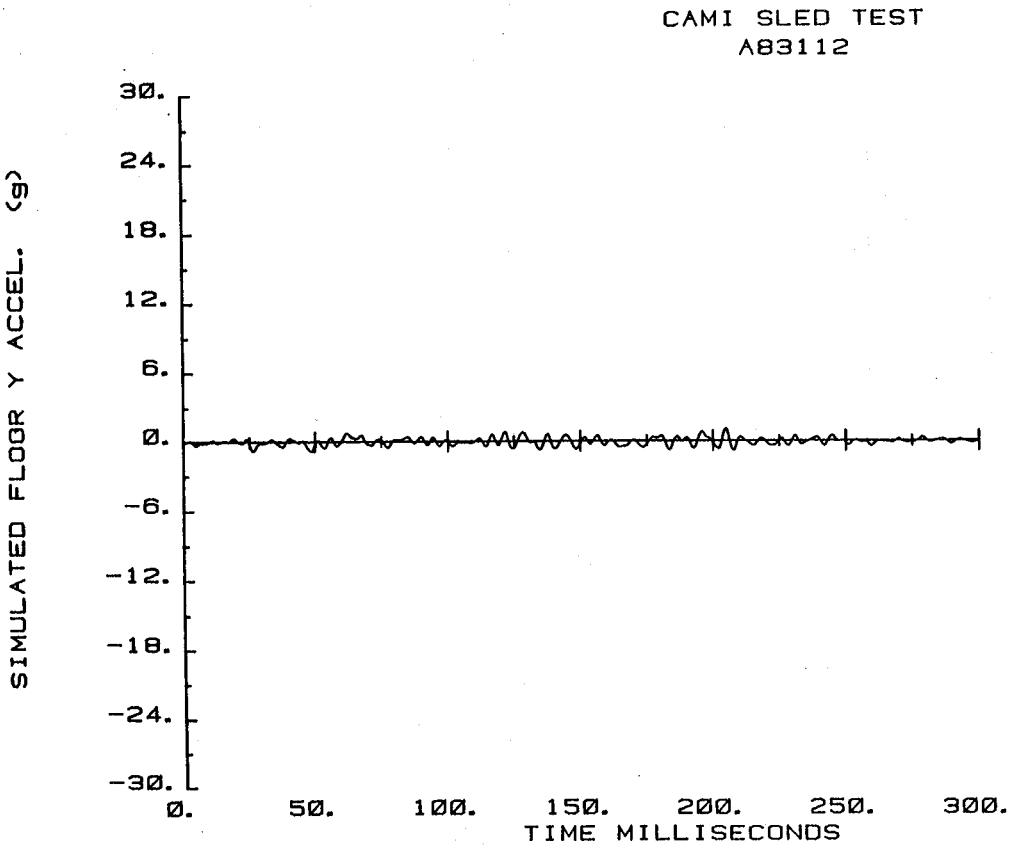
PULSE NUMBER: 1

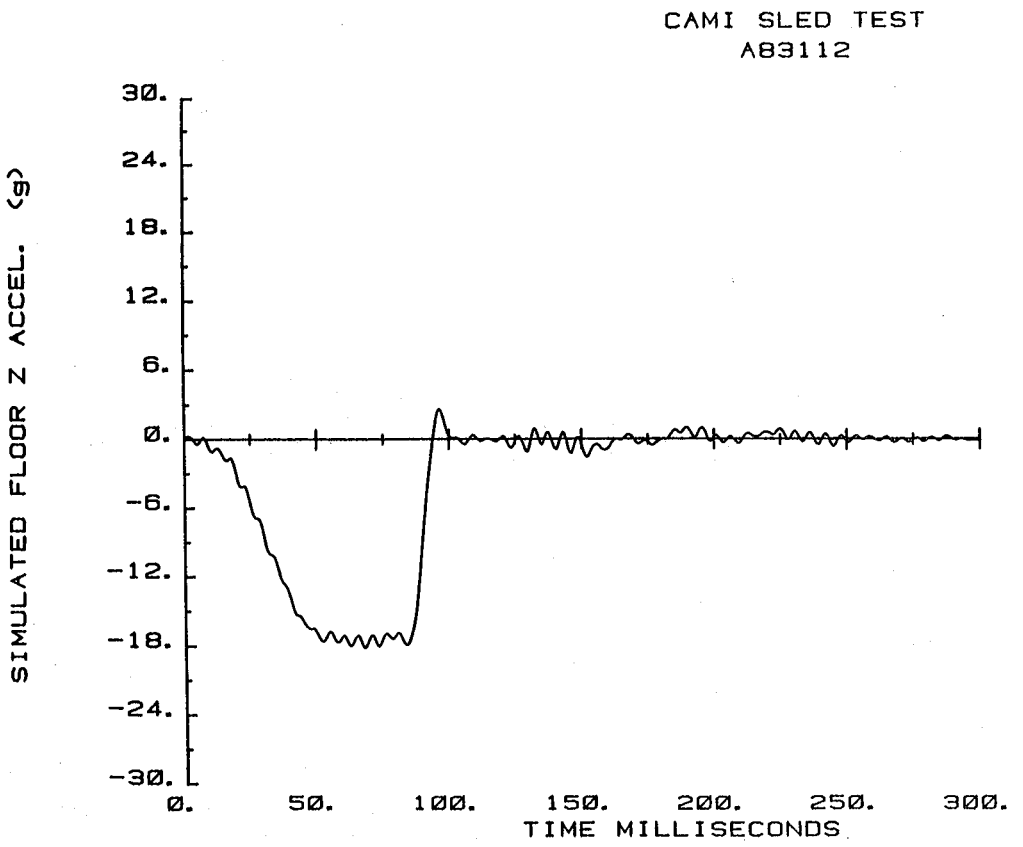
SEAT ORIENTATION: Pitch - 90°
Roll - 0°
Yaw - 0°

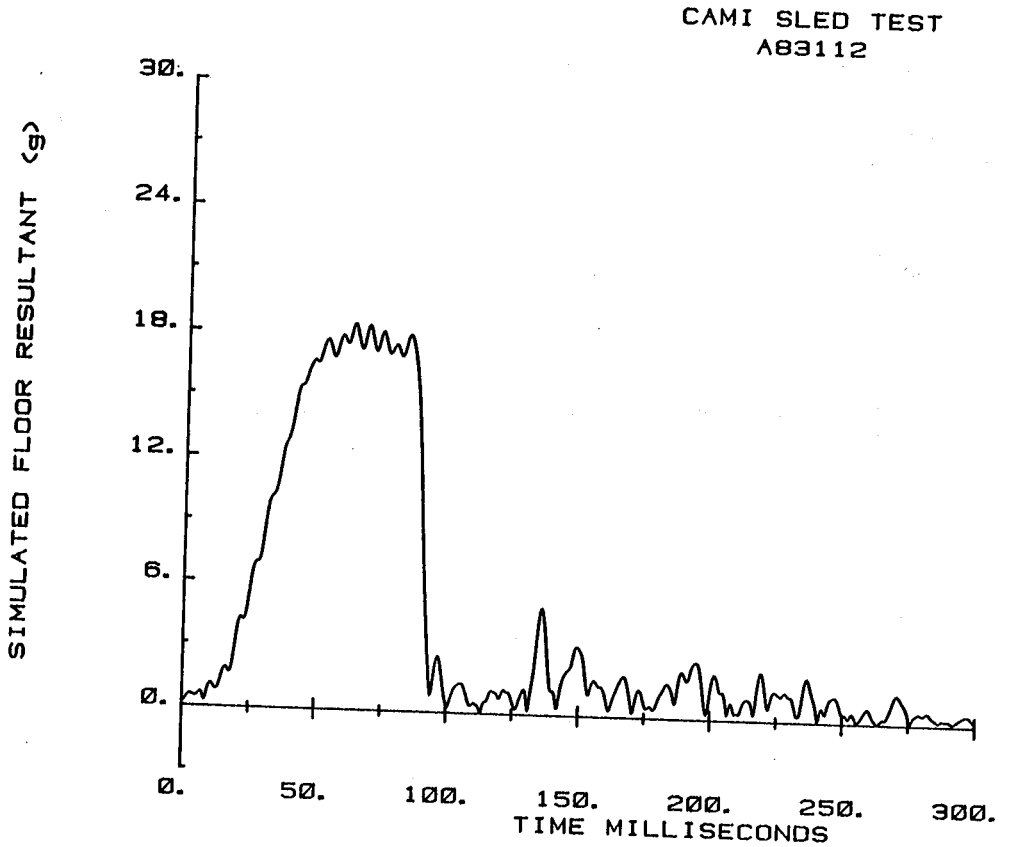
RUN#	VARIABLE		PEAK1	T	PEAK2	T	RANGE	FILE
A83112	SLED X ACCELERATION	(g)	-17.7	68			(0, 300)	* F11201
A83112	HEAD X ACCELERATION	(g)	-7.0	144	18.8	222	(0, 300)	* F11203
A83112	HEAD Y ACCELERATION	(g)	3.6	152	-4.0	222	(0, 300)	* F11204
A83112	HEAD Z ACCELERATION	(g)	-35.6	75	13.5	146	(0, 300)	* F11205
A83112	CHEST X ACCELERATION	(g)	7.0	55	-3.5	103	(0, 300)	* F11206
A83112	CHEST Y ACCELERATION	(g)	-2.9	79	.9	224	(0, 300)	* F11207
A83112	CHEST Z ACCELERATION	(g)	-30.6	71	12.8	150	(0, 300)	* F11208
A83112	PELVIS X ACCELERATION	(g)	9.0	65	-3.1	81	(0, 300)	* F11209
A83112	PELVIS Y ACCELERATION	(g)	-5.3	81	5.4	153	(0, 300)	* F11210
A83112	PELVIS Z ACCELERATION	(g)	-32.6	69	12.8	148	(0, 300)	* F11211
A83112	SIMULATED FLOOR X ACCEL.	(g)	-3.9	61	5.0	135	(0, 300)	* F11212
A83112	SIMULATED FLOOR Y ACCEL.	(g)	-.8	48	1.8	204	(0, 300)	* F11213
A83112	SIMULATED FLOOR Z ACCEL.	(g)	-18.2	68			(0, 300)	* F11214
A83112	FOOT REST FORCE X	(lbs)	-586.2	81	172.4	100	(0, 300)	* F11215
A83112	FOOT REST FORCE Y	(lbs)	167.7	128	-134.5	131	(0, 300)	* F11216
A83112	FOOT REST FORCE Z	(lbs)	1019.5	79	-283.0	105	(0, 300)	* F11217
A83112	LEFT SHOULDER FORCE	(lbs)	138.6	151			(0, 300)	* F11218
A83112	RIGHT SHOULDER FORCE	(lbs)	75.4	153			(0, 300)	* F11219
A83112	SEAT BACK Z ACCELERATION	(g)	-22.0	74	10.5	116	(0, 300)	* F11220
A83112	SEAT PAN X ACCELERATION	(g)	7.4	114	-6.7	148	(0, 300)	* F11221
A83112	SEAT PAN Y ACCELERATION	(g)	9.5	138	-6.4	141	(0, 300)	* F11222
A83112	SEAT PAN Z ACCELERATION	(g)	-23.1	74	9.8	121	(0, 300)	* F11223
A83112	PELVIC FORCE X	(lbs)	-284.9	88	62.8	235	(0, 300)	* F11225
A83112	PELVIC FORCE Y	(lbs)	-58.6	79	32.3	92	(0, 300)	* F11226
A83112	PELVIC FORCE Z	(lbs)	2048.6	77			(0, 300)	* F11227
A83112	PELVIC MOMENT X	(in-lbs)	-367.0	77	94.4	200	(0, 300)	* F11228
A83112	PELVIC MOMENT Y	(in-lbs)	951.0	87	-412.9	126	(0, 300)	* F11229
A83112	PELVIC MOMENT Z	(in-lbs)	62.1	75	-14.2	187	(0, 300)	* F11230
A83112	LEFT LAP FORCE	(lbs)	81.7	149	-21.4	249	(0, 300)	* F11231
A83112	RIGHT LAP FORCE	(lbs)	69.1	149			(0, 300)	* F11232
A83112	LEFT REFLECTIVE STRAP FORCE	(lbs)	200.0	148			(0, 300)	* F11233
A83112	RIGHT REFLECTIVE STRAP FORCE	(lbs)	82.8	151	-18.0	228	(0, 300)	* F11234
A83112	LEFT SEAT PAN FORCE	(lbs)	1164.0	77			(0, 300)	* F11235
A83112	RIGHT SEAT PAN FORCE	(lbs)	1646.8	75			(0, 300)	* F11236
A83112	CENTER SEAT PAN FORCE	(lbs)	1994.6	82			(0, 300)	* F11237
A83112	HEAD RESULTANT	(g)	35.7	75			(0, 300)	* V11201
A83112	CHEST RESULTANT	(g)	30.7	71			(0, 300)	* V11202
A83112	PELVIS RESULTANT	(g)	32.8	69			(0, 300)	* V11203
A83112	SIMULATED FLOOR RESULTANT	(g)	18.4	62			(0, 300)	* V11204
A83112	FOOT REST FORCE RESULTANT	(lbs)	1166.1	80			(0, 300)	* V11205
A83112	SEAT PAN RESULTANT	(g)	23.1	74			(0, 300)	* V11206
A83112	PELVIC FORCE RESULTANT	(lbs)	2050.9	77			(0, 300)	* V11207
A83112	PELVIC MOMENT RESULTANT	(in-lbs)	951.9	87			(0, 300)	* V11208
A83112	LAP LOOP FORCE	(lbs)	150.8	149	-30.2	268	(0, 300)	* A11202
PELVIS DRI			34.0	99				
SEAT BACK DRI			25.9	92				
SEAT PAN DRI			26.5	92				

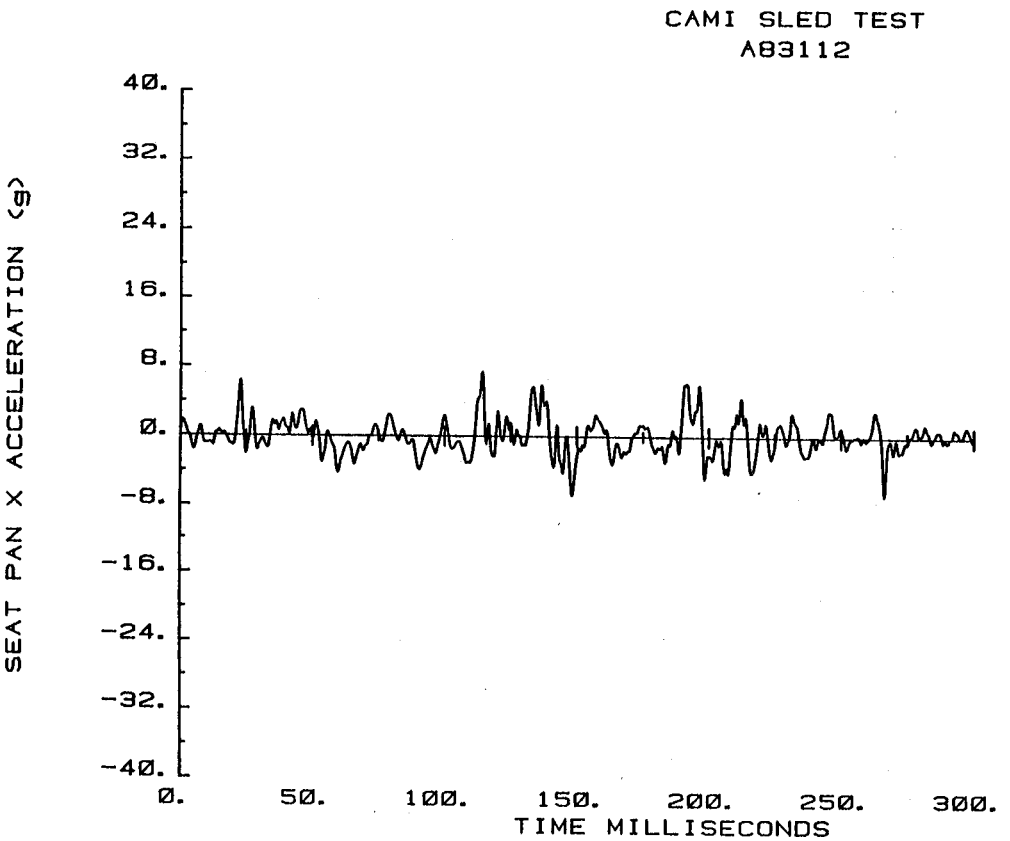

CAMI SLED TEST
A83112
SLED X ACCELERATION (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

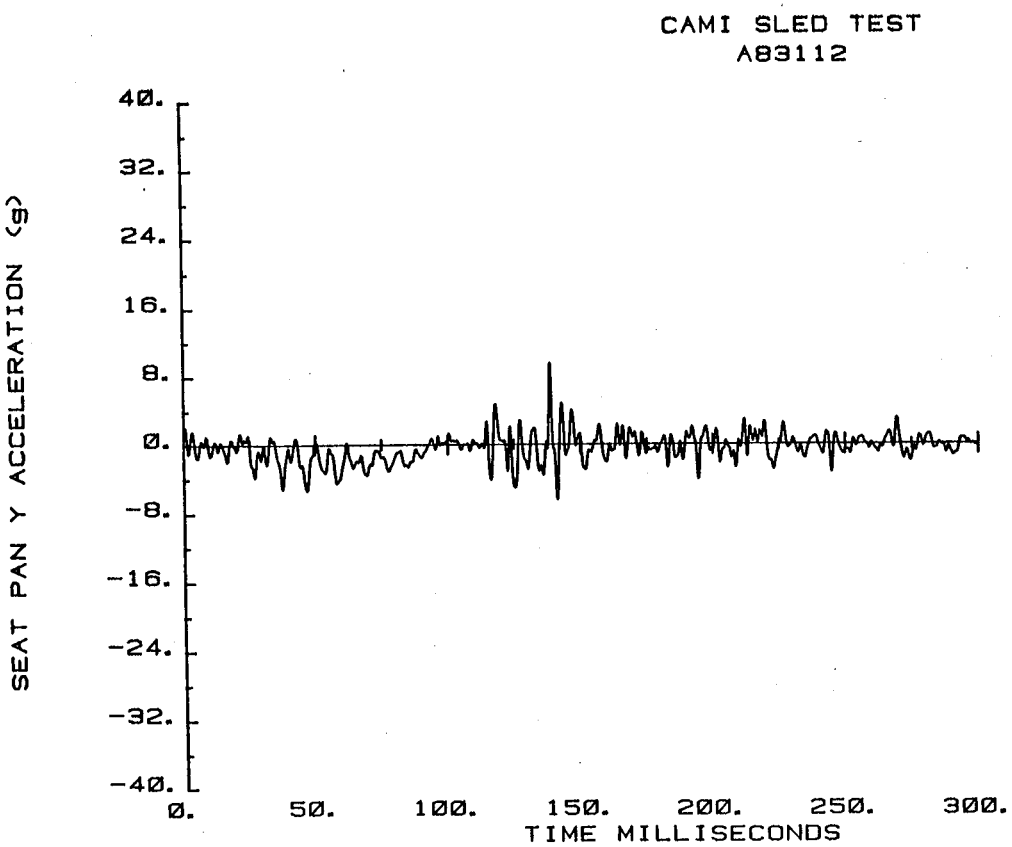

CAMI SLED TEST
A83112
SIMULATED FLOOR X ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

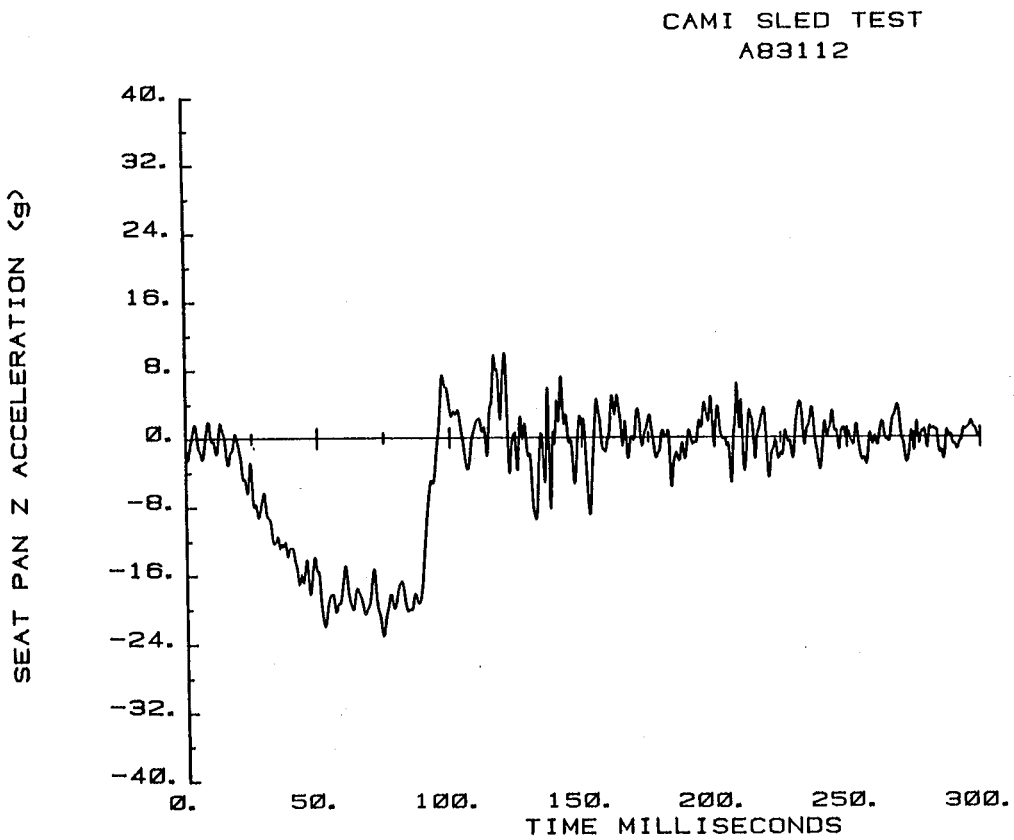

CAMI SLED TEST
A83112
SIMULATED FLOOR Y ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

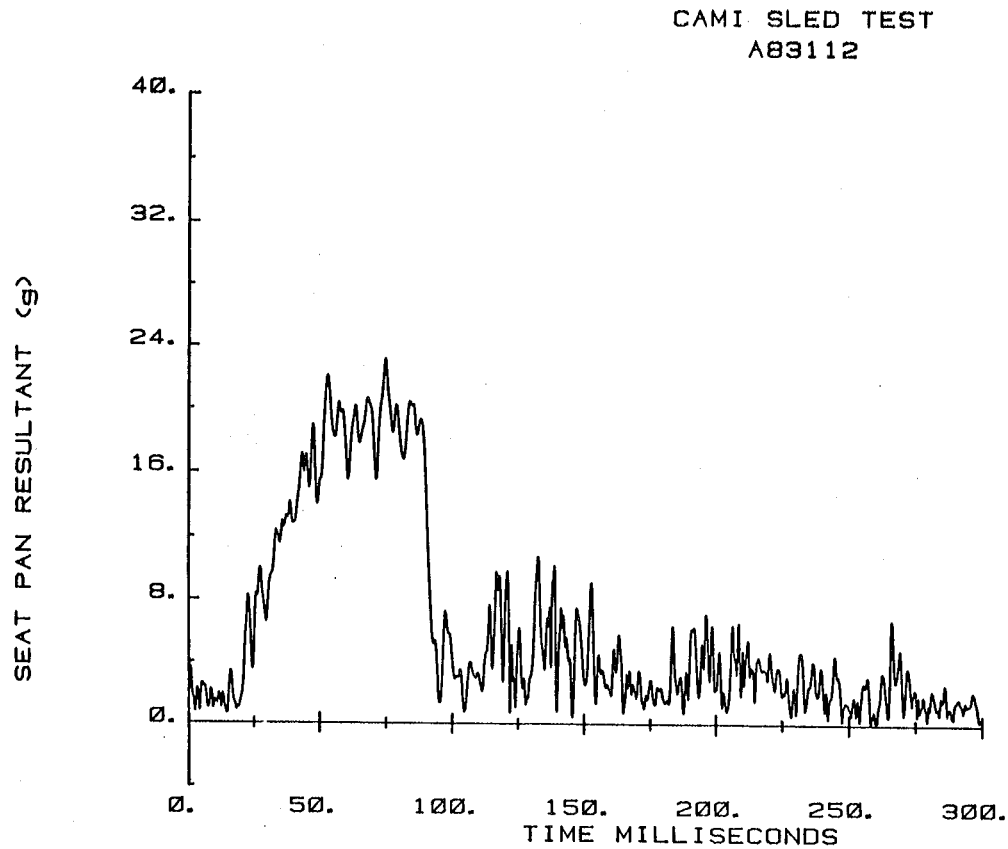

CAMI SLED TEST
A83112
SIMULATED FLOOR Z ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

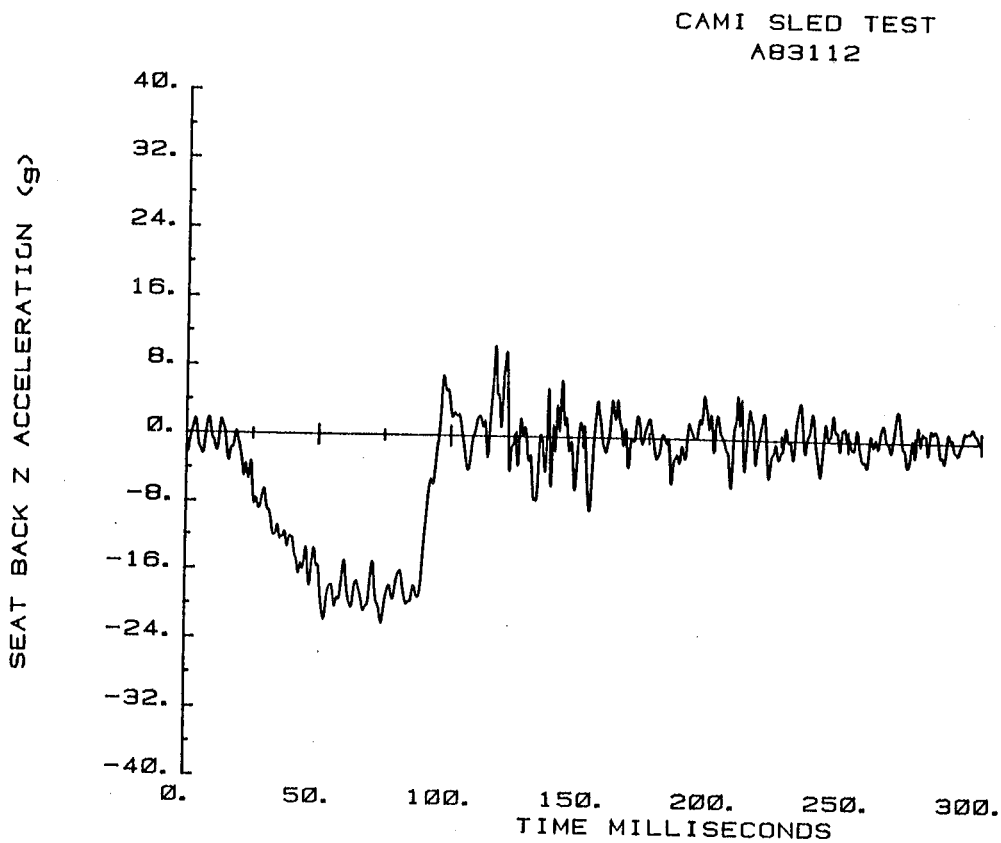

CAMI SLED TEST
A83112
SIMULATED FLOOR RESULTANT (g)
30.
24.
18.
12.
6.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

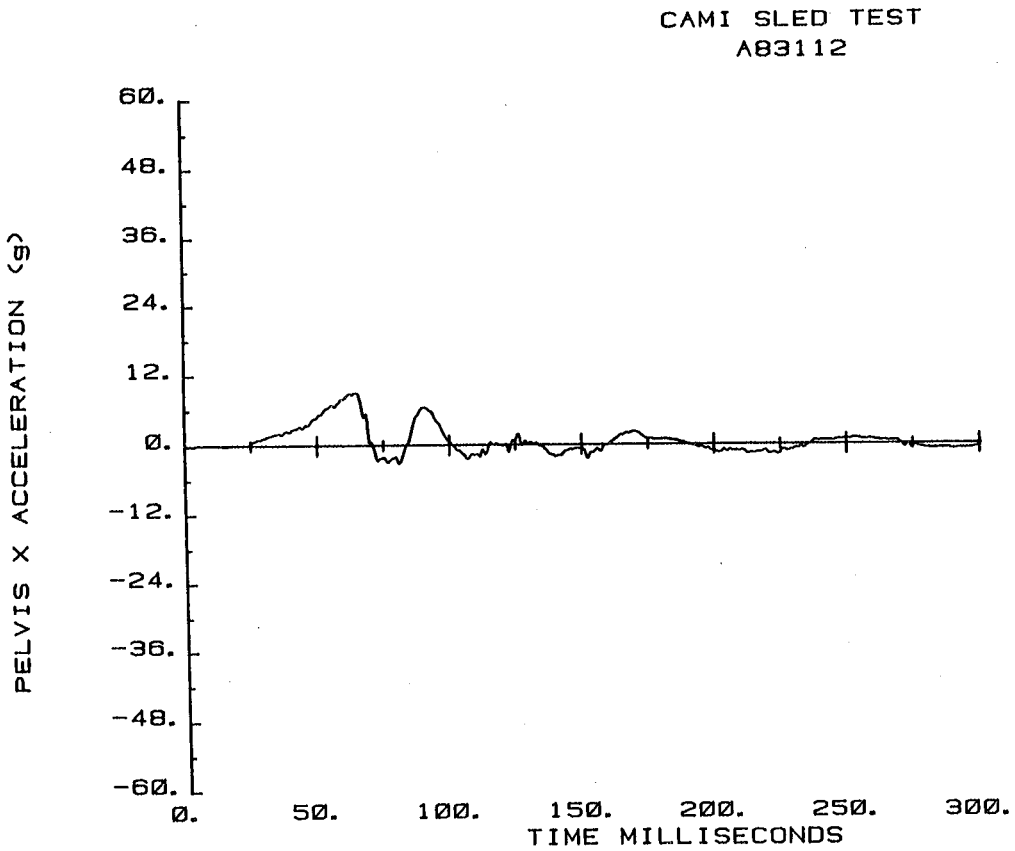

CAMI SLED TEST
A83112
SEAT PAN X ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

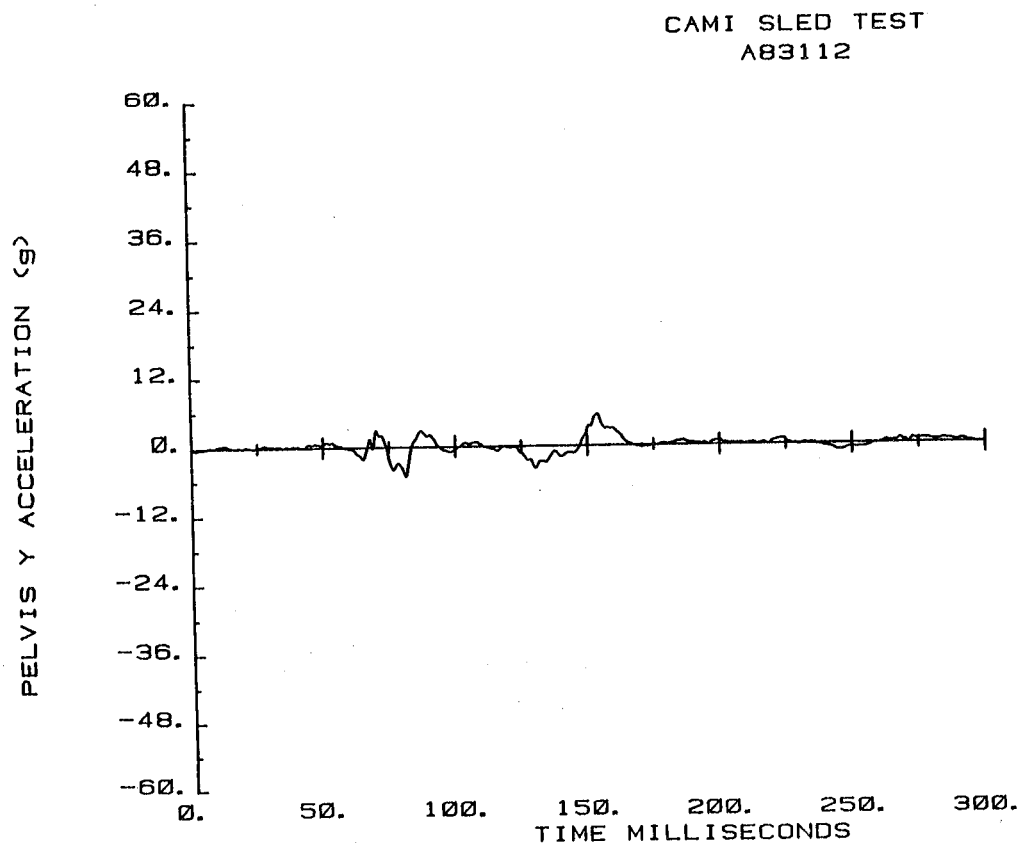

CAMI SLED TEST
A83112
SEAT PAN Y ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

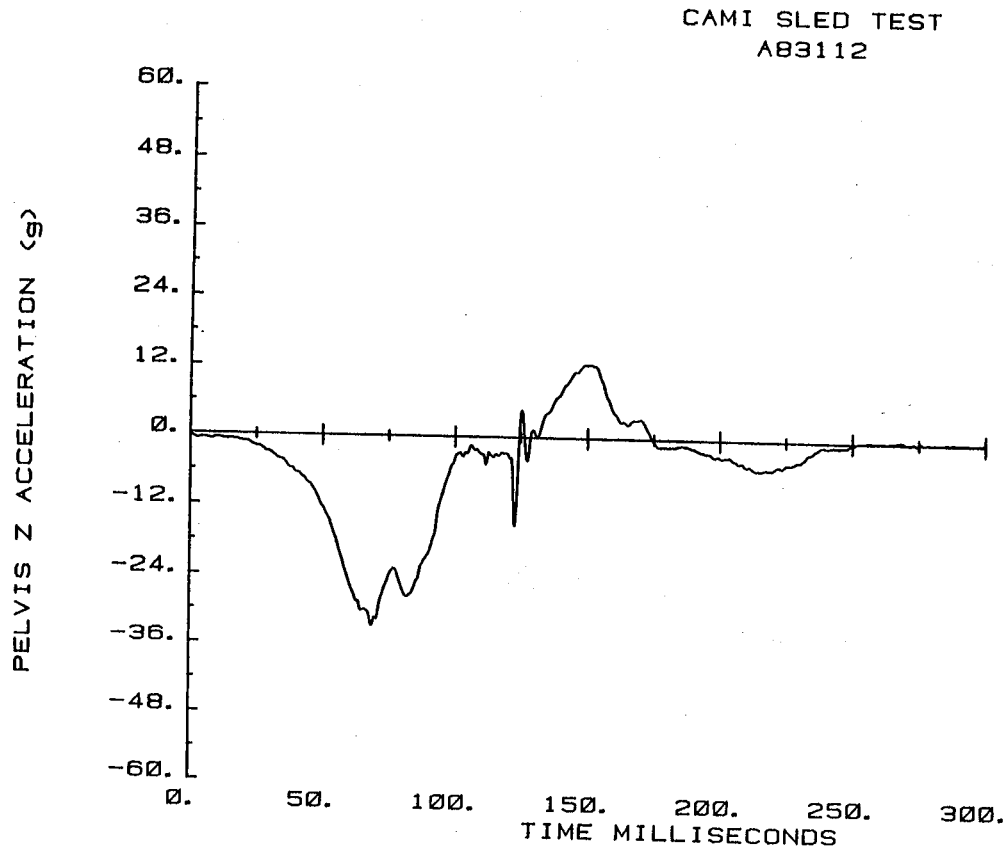

CAMI SLED TEST
A83112
SEAT PAN Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

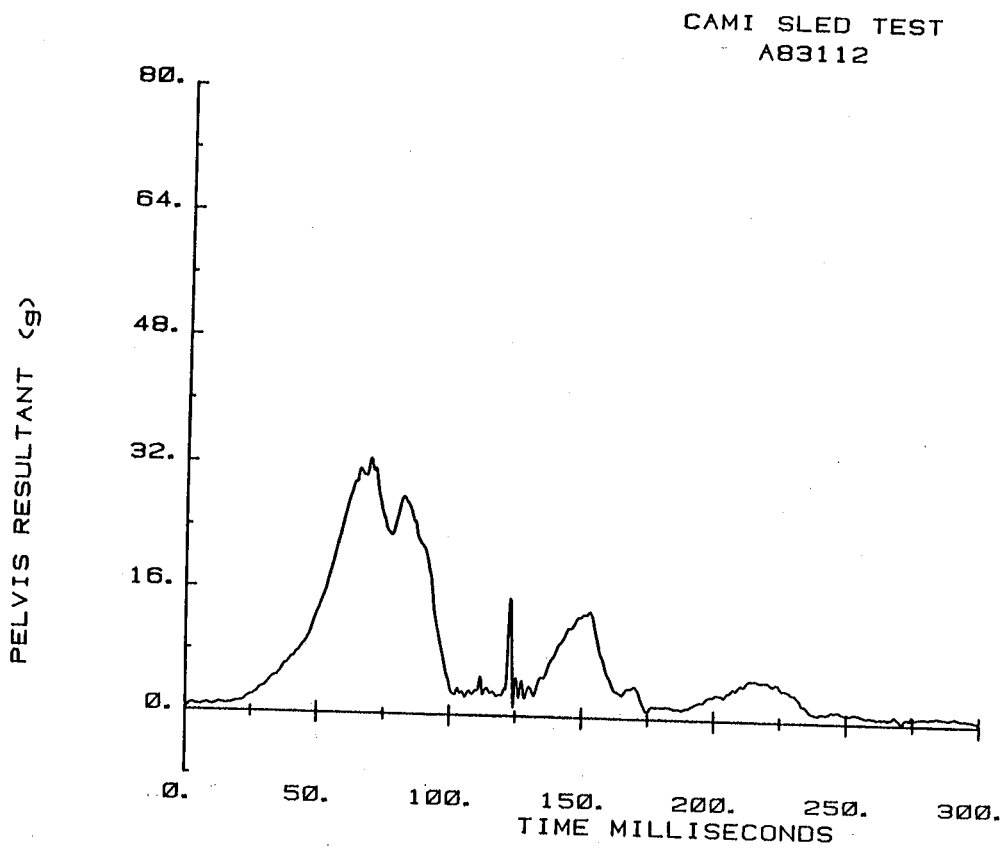

CAMI SLED TEST
A83112
SEAT PAN RESULTANT (g)
40.
32.
24.
16.
8.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83112
SEAT BACK Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

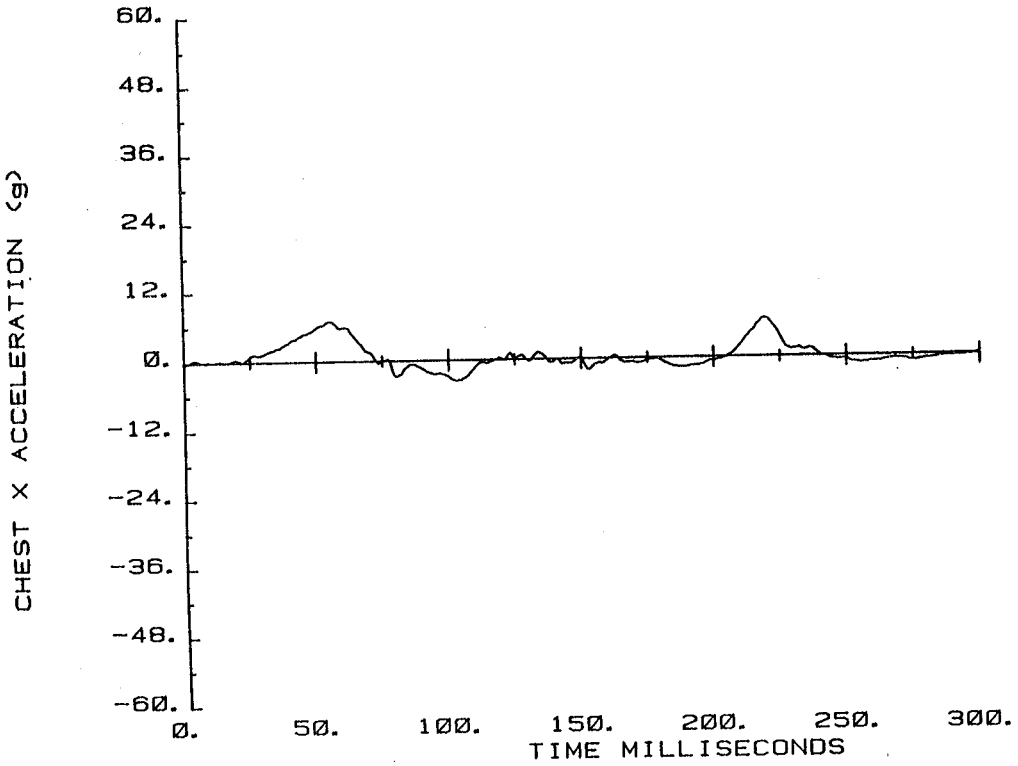

CAMI SLED TEST
A83112
PELVIS X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83112
PELVIS Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

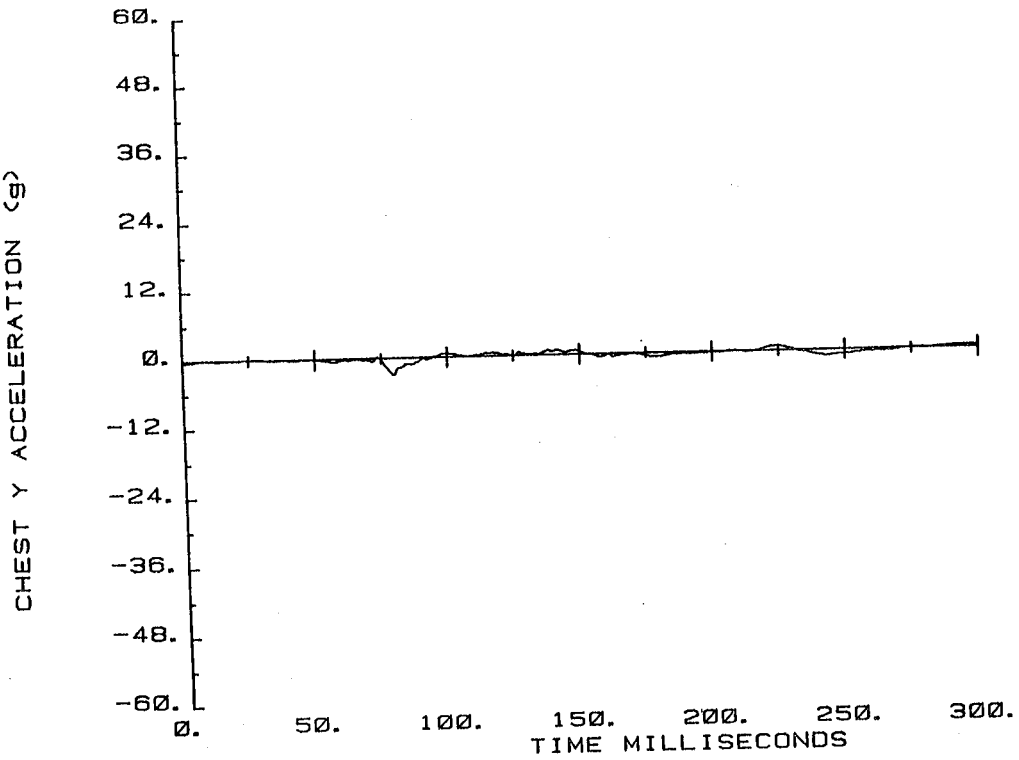

CAMI SLED TEST
A83112
PELVIS Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

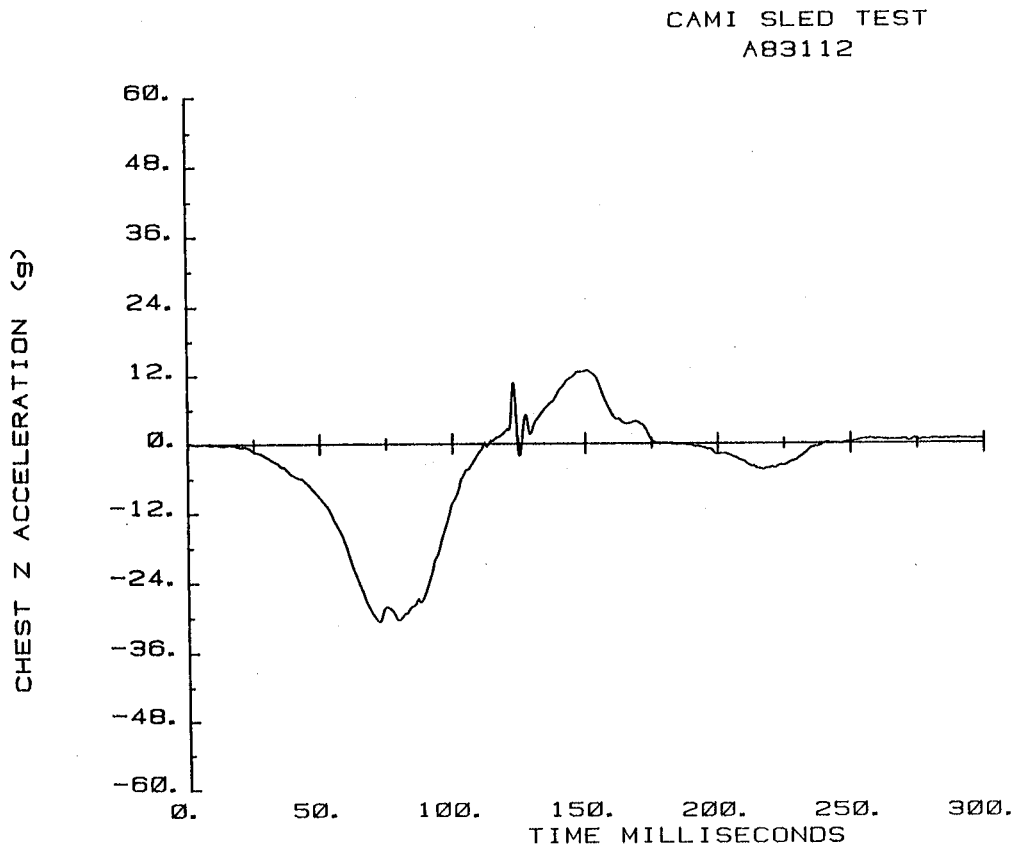

CAMI SLED TEST
A83112
PELVIS RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

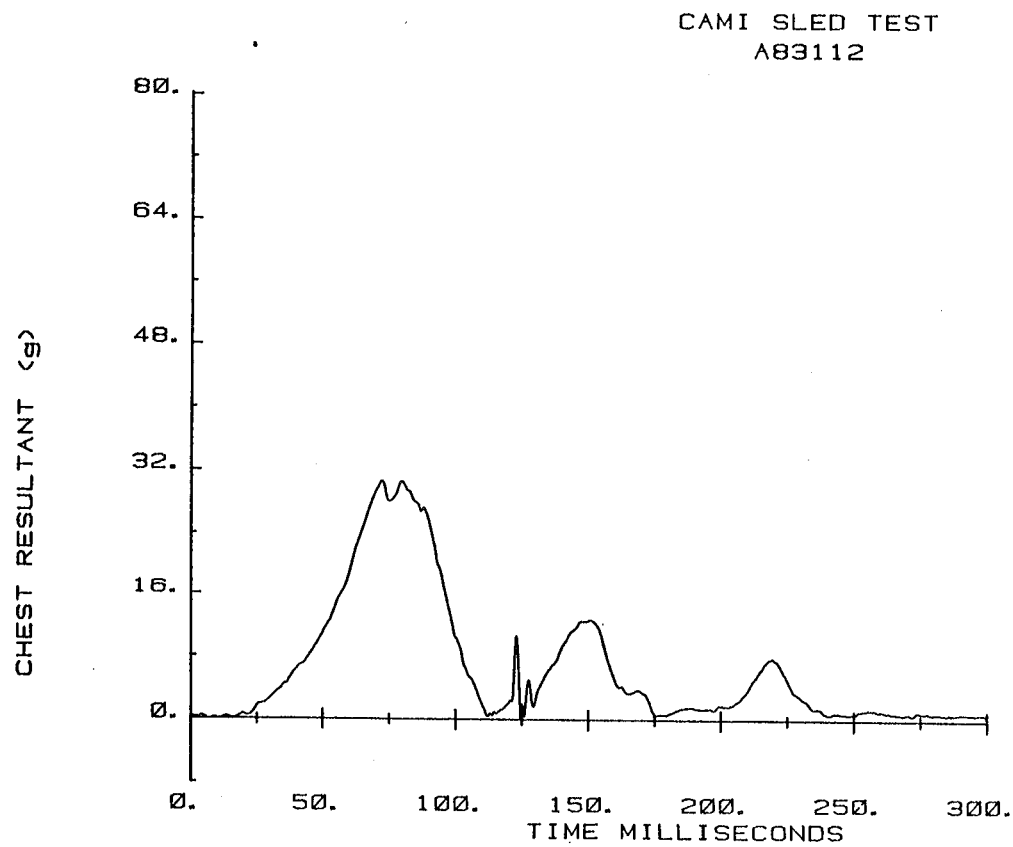
CAMI SLED TEST
A83112



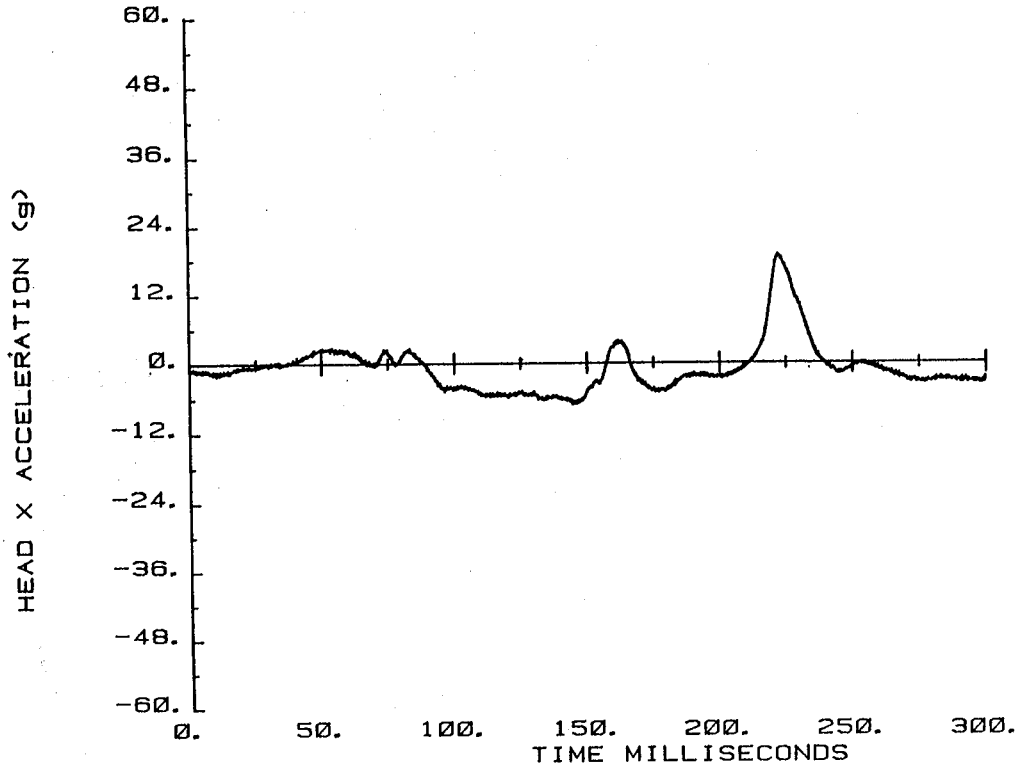
CAMI SLED TEST
A83112



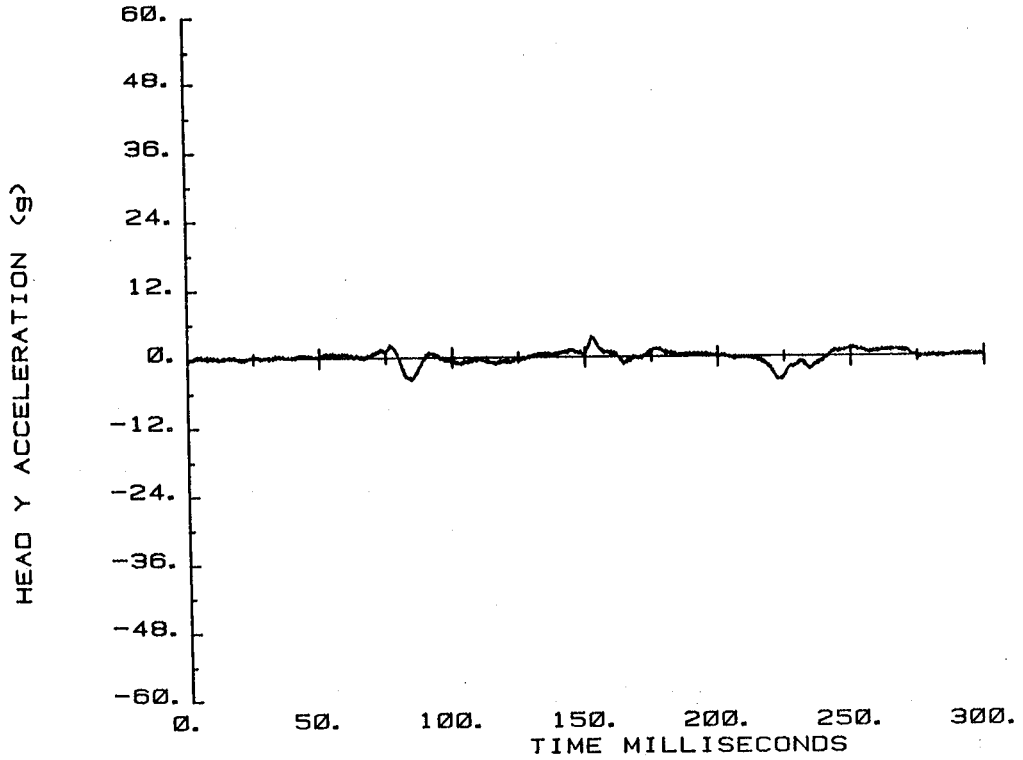

CAMI SLED TEST
A83112
CHEST Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

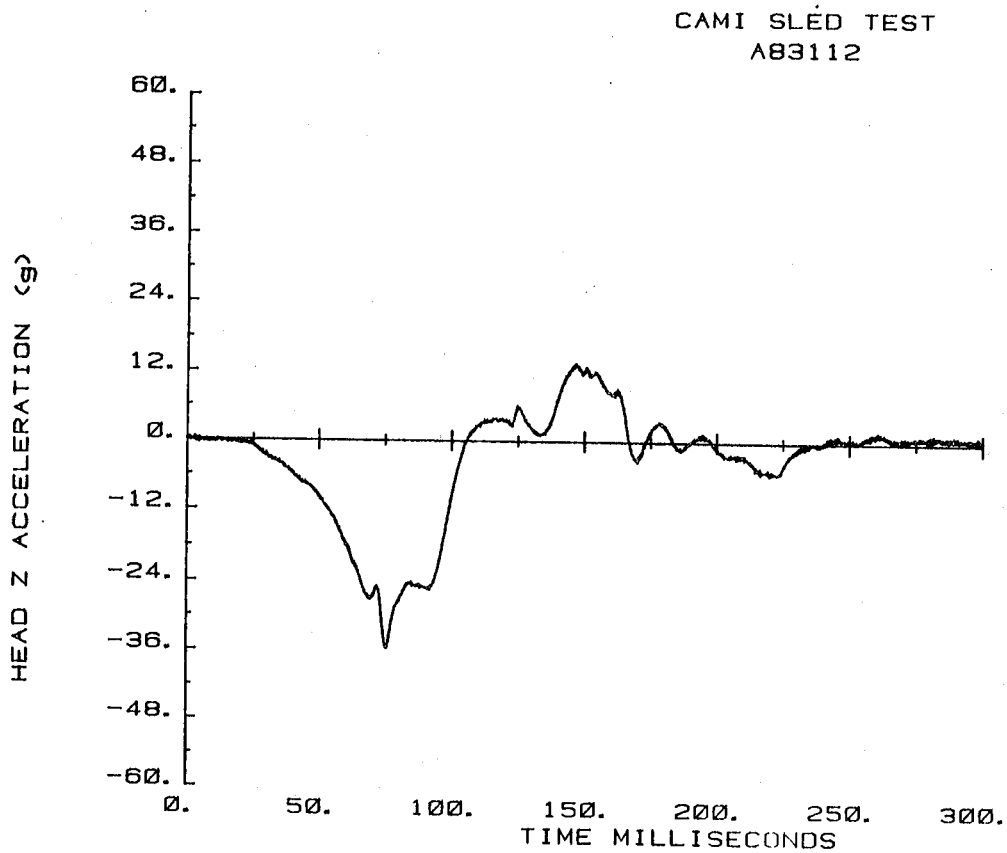

CAMI SLED TEST
A83112
CHEST RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

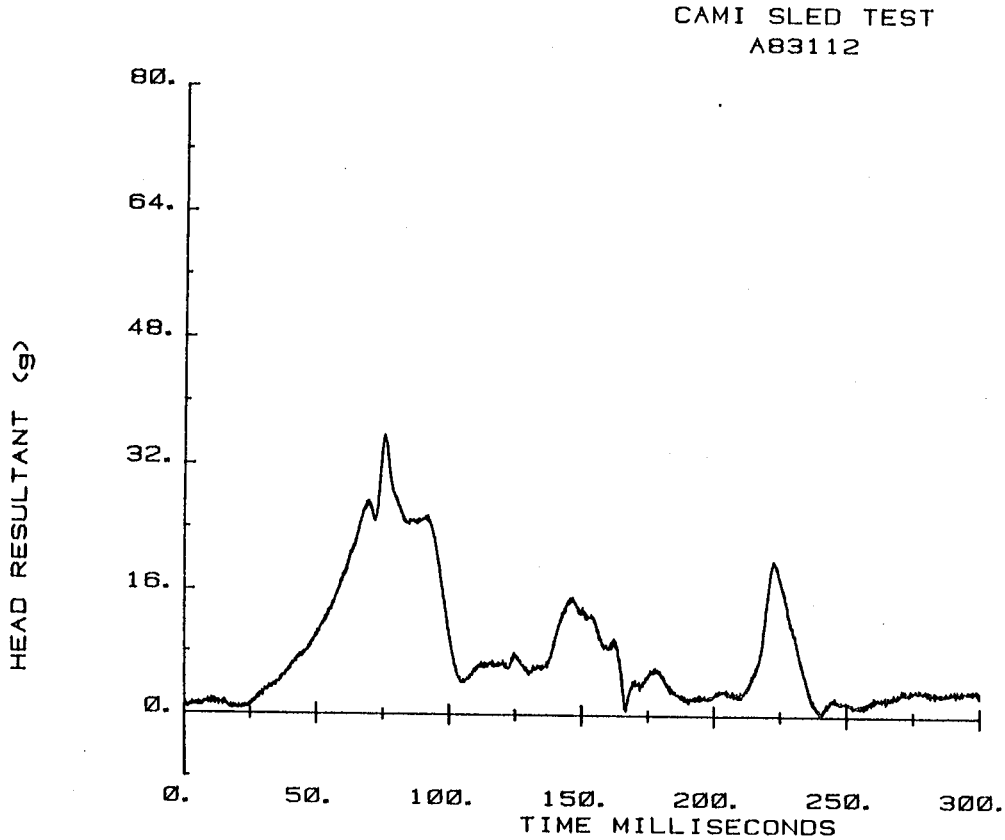
CAMI SLED TEST
A83112



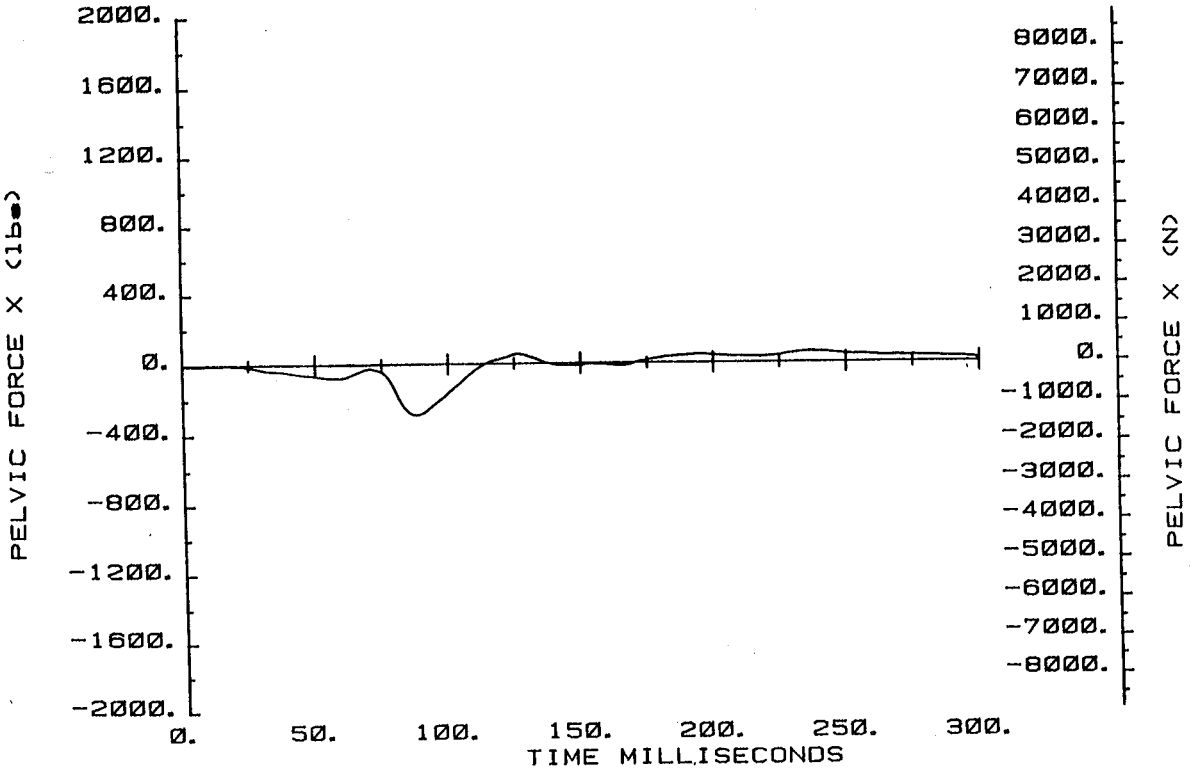
CAMI SLED TEST
A83112



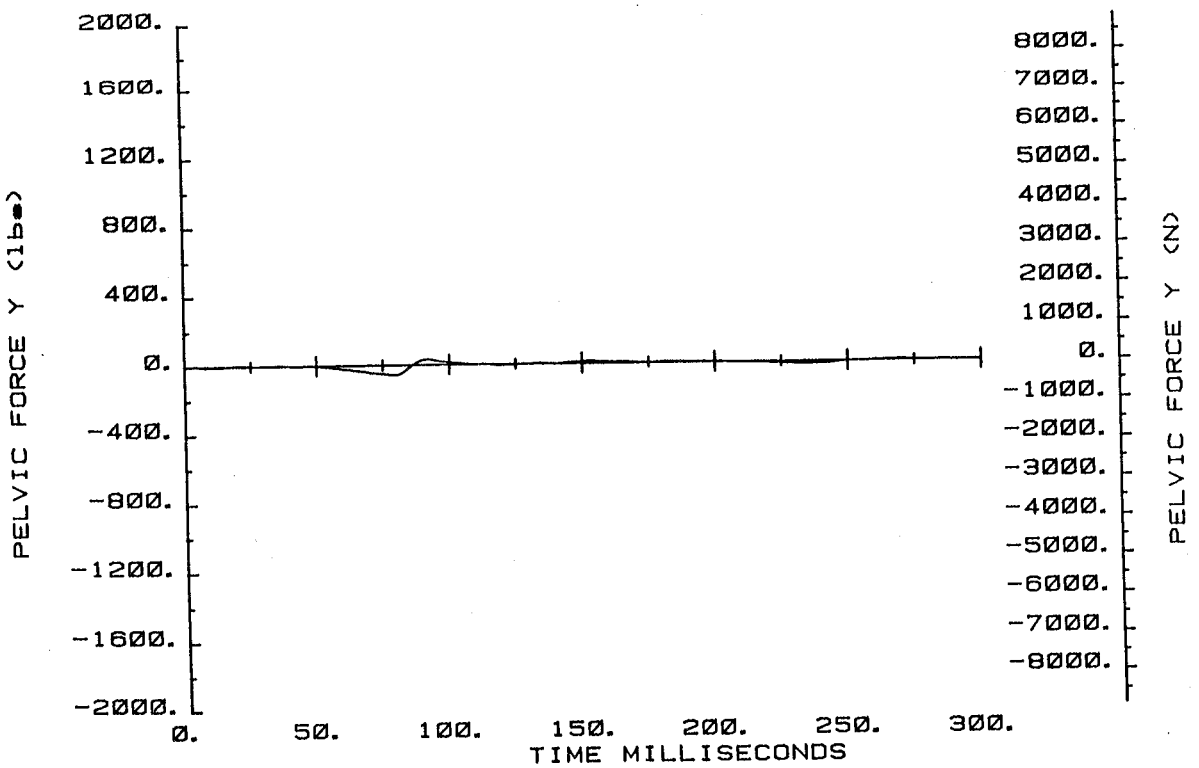

CAMI SLED TEST
A83112
HEAD Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

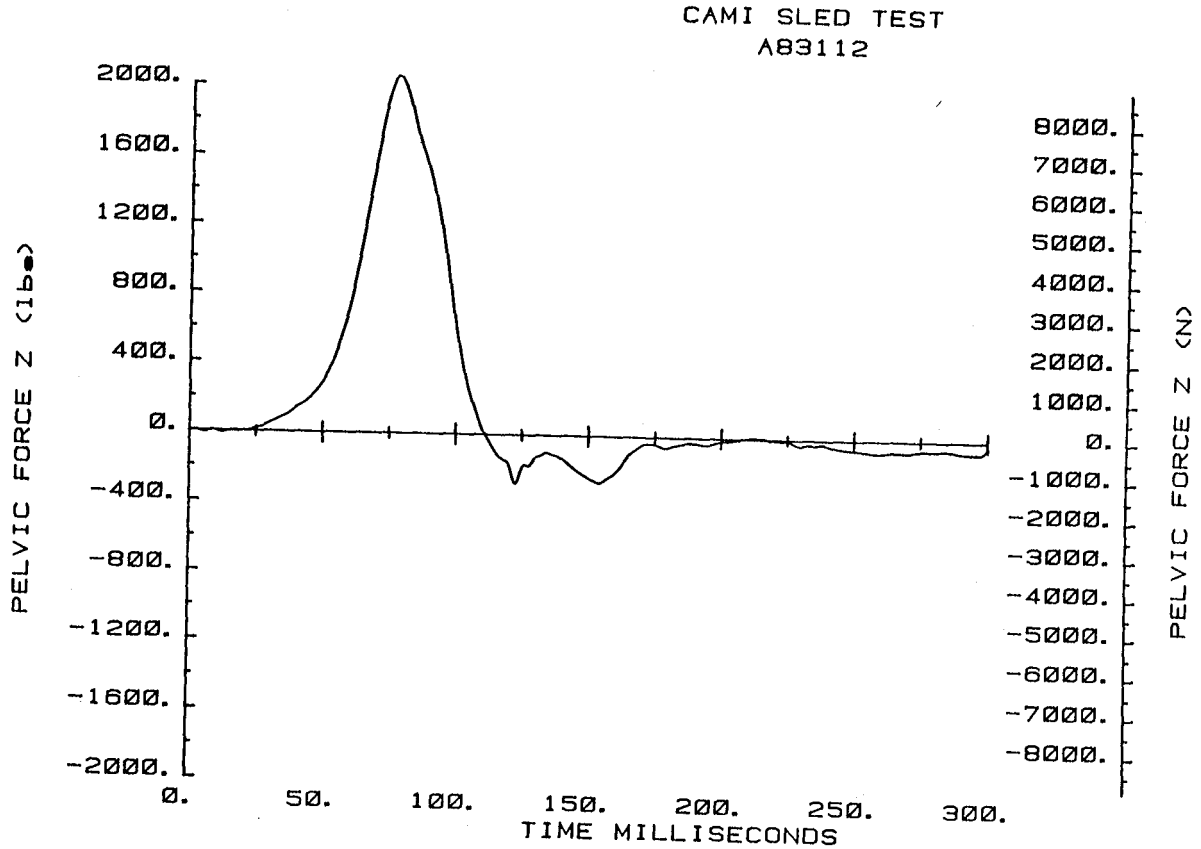

CAMI SLED TEST
A83112
HEAD RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

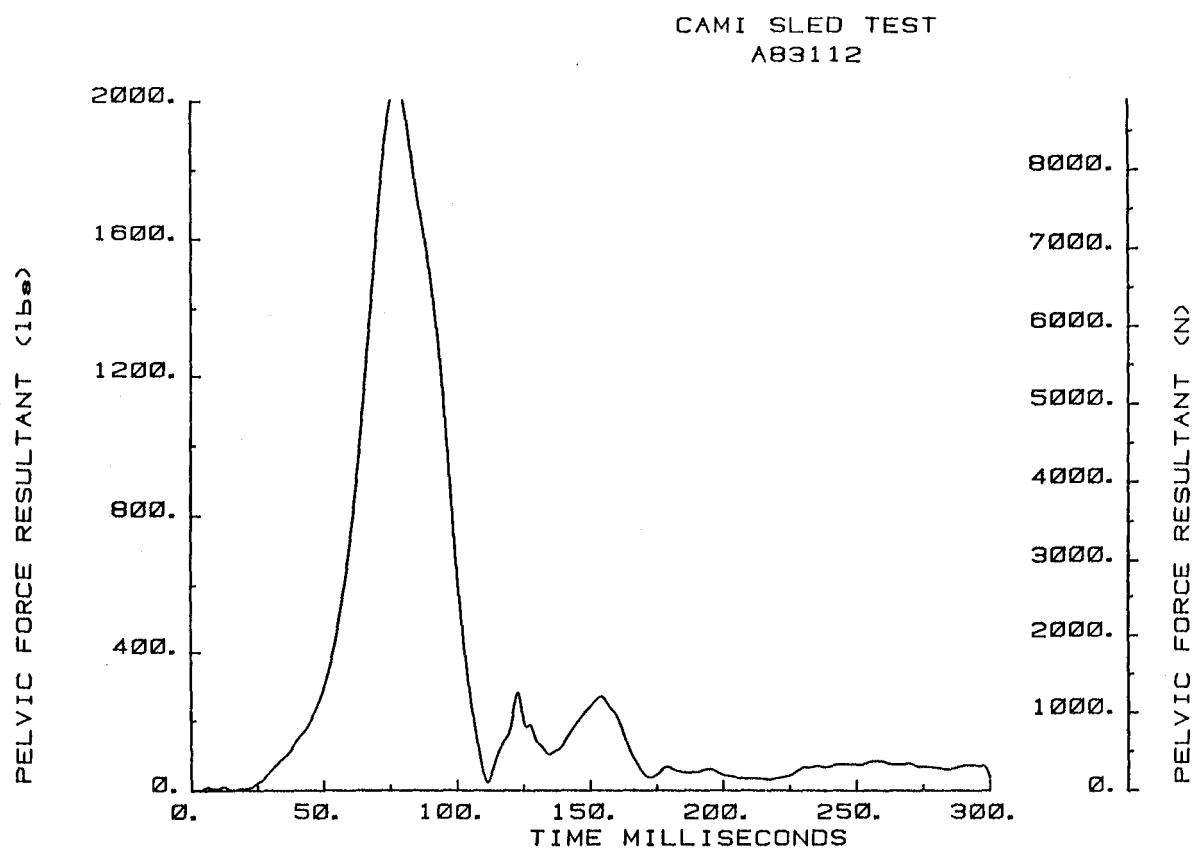
CAMI SLED TEST
A83112



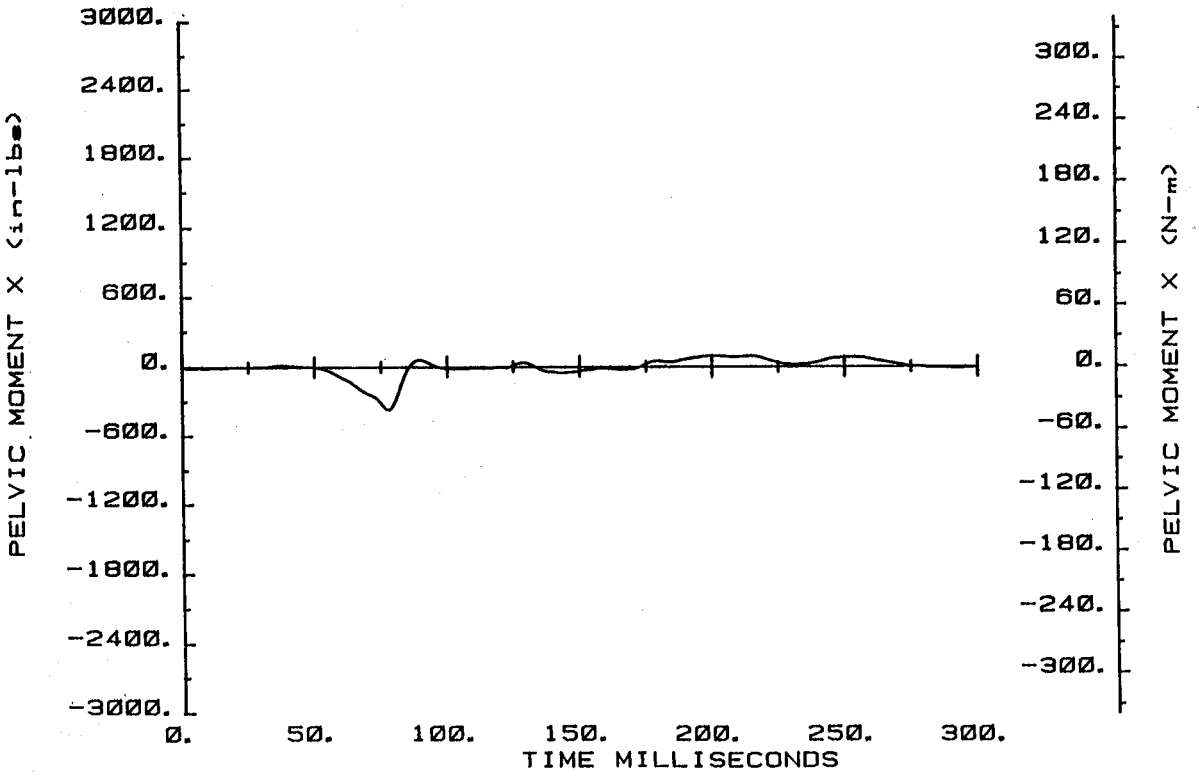
CAMI SLED TEST
A83112



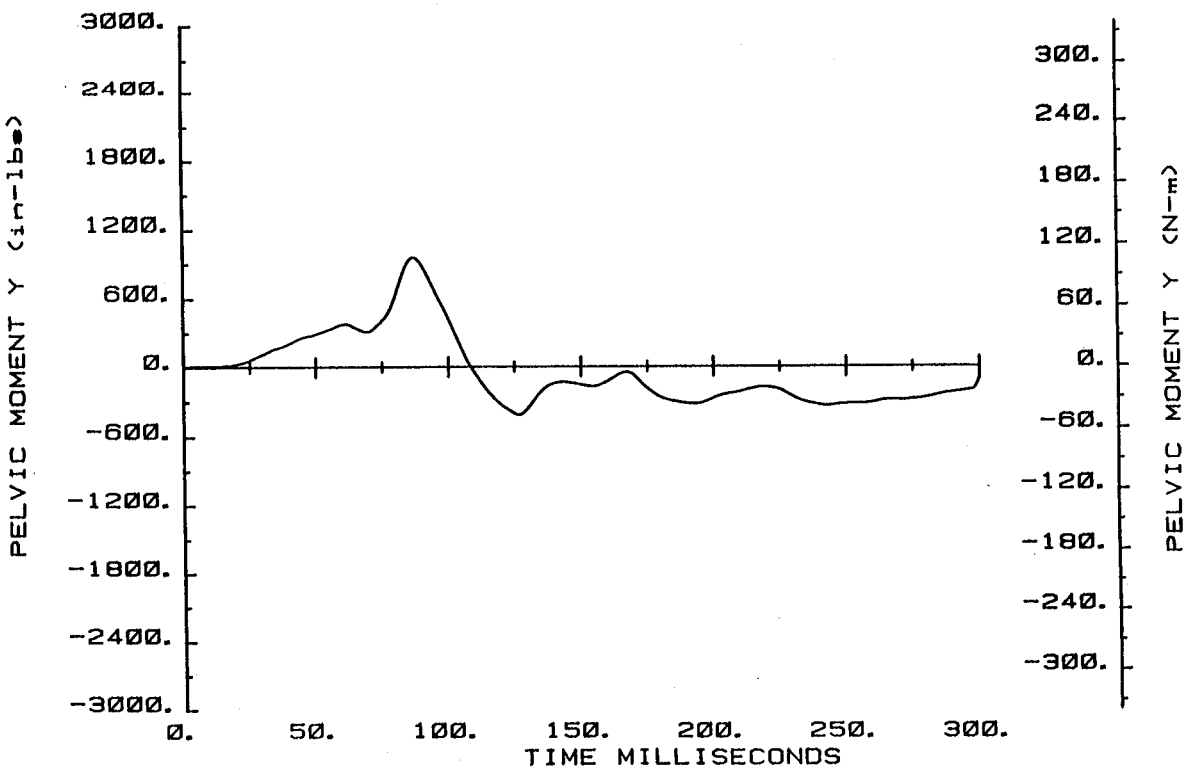

CAMI SLED TEST
A83112
PELVIC FORCE Z (lbs)
PELVIC FORCE Z (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

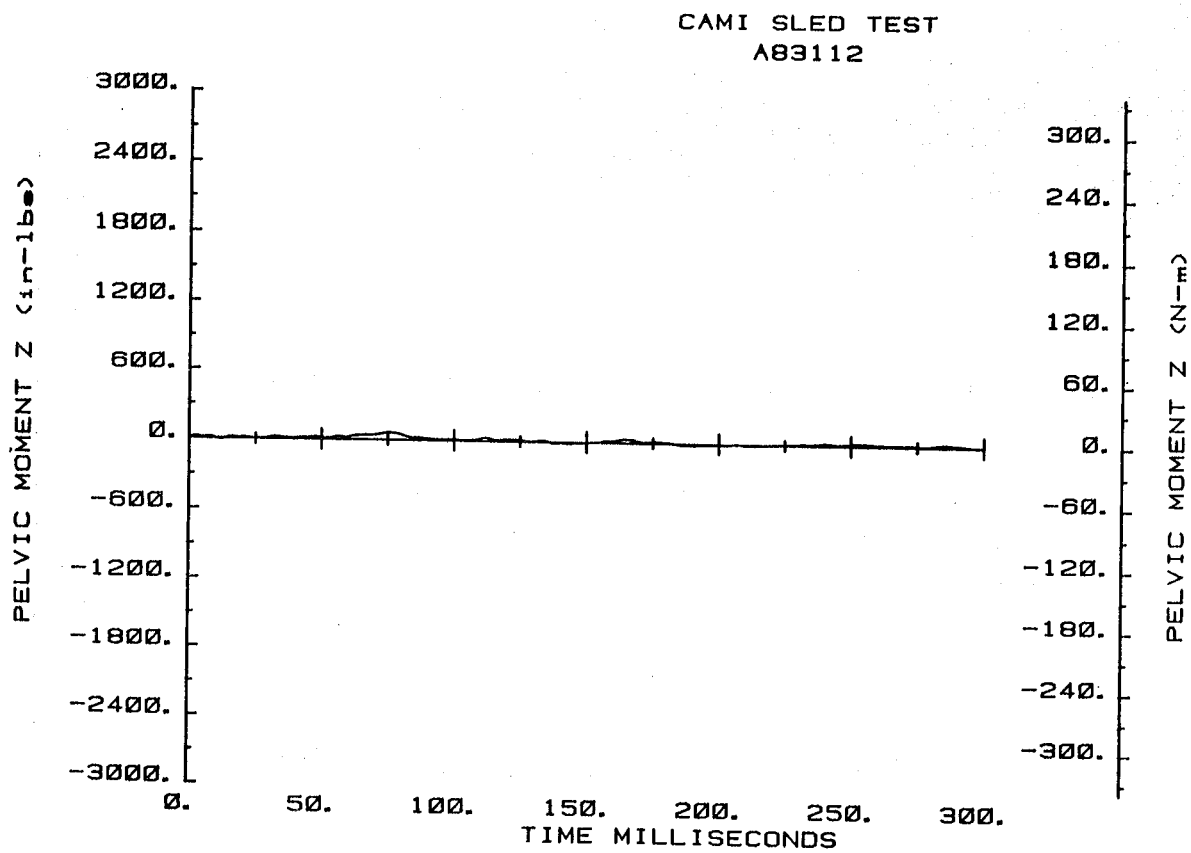

CAMI SLED TEST
A83112
PELVIC FORCE RESULTANT (lbs)
PELVIC FORCE RESULTANT (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

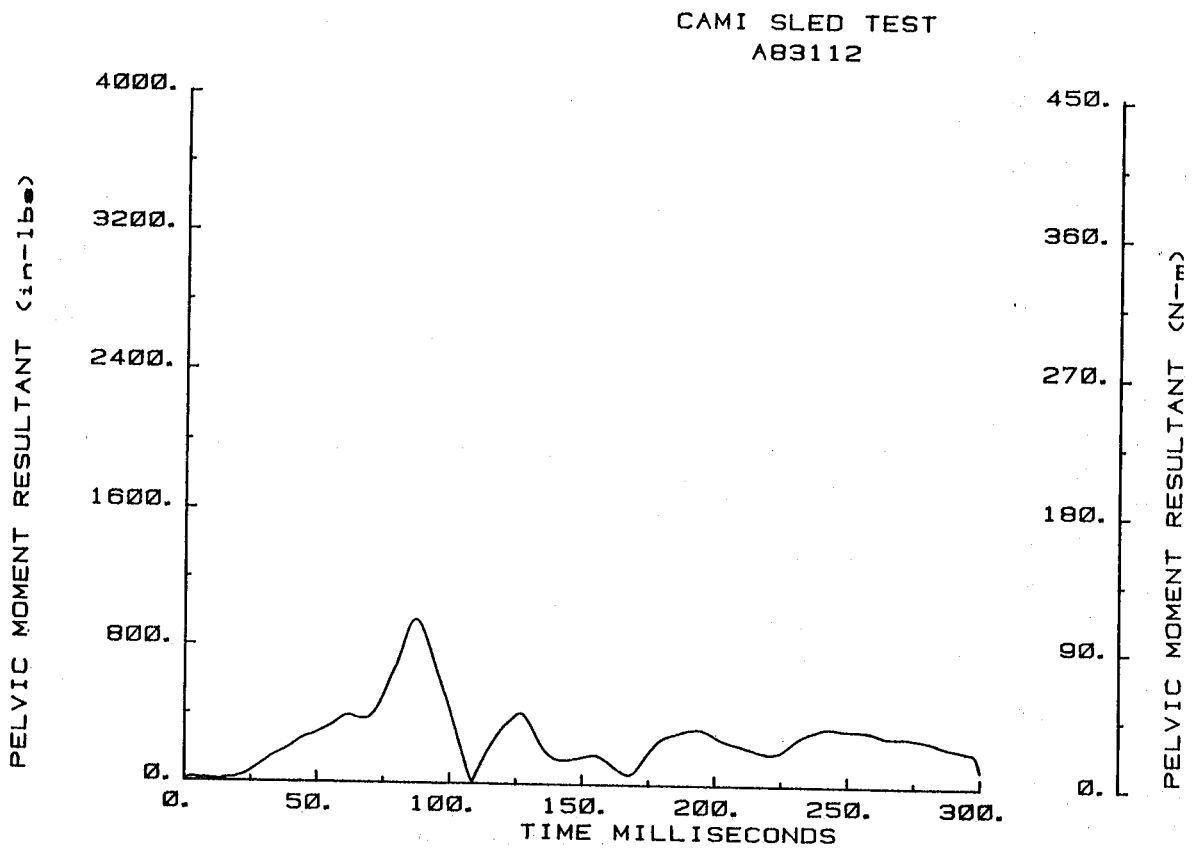
CAMI SLED TEST
A83112

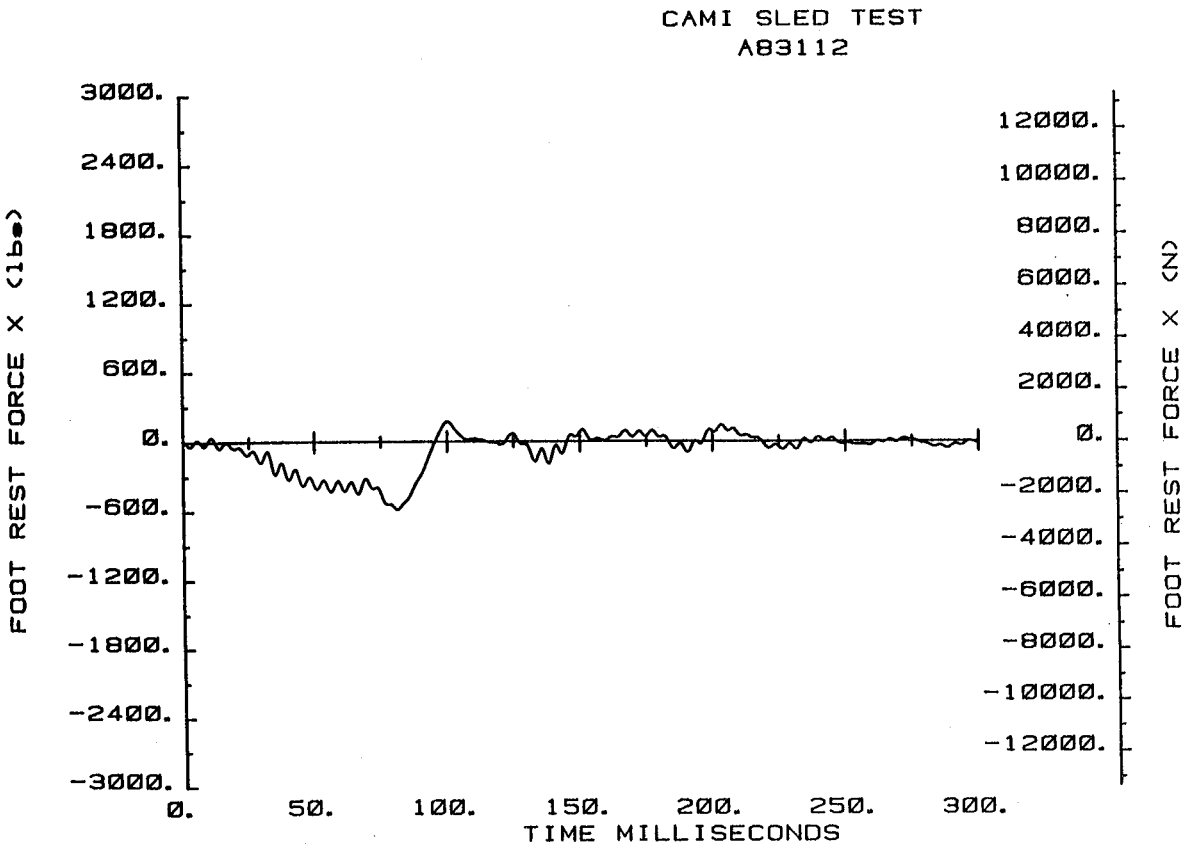


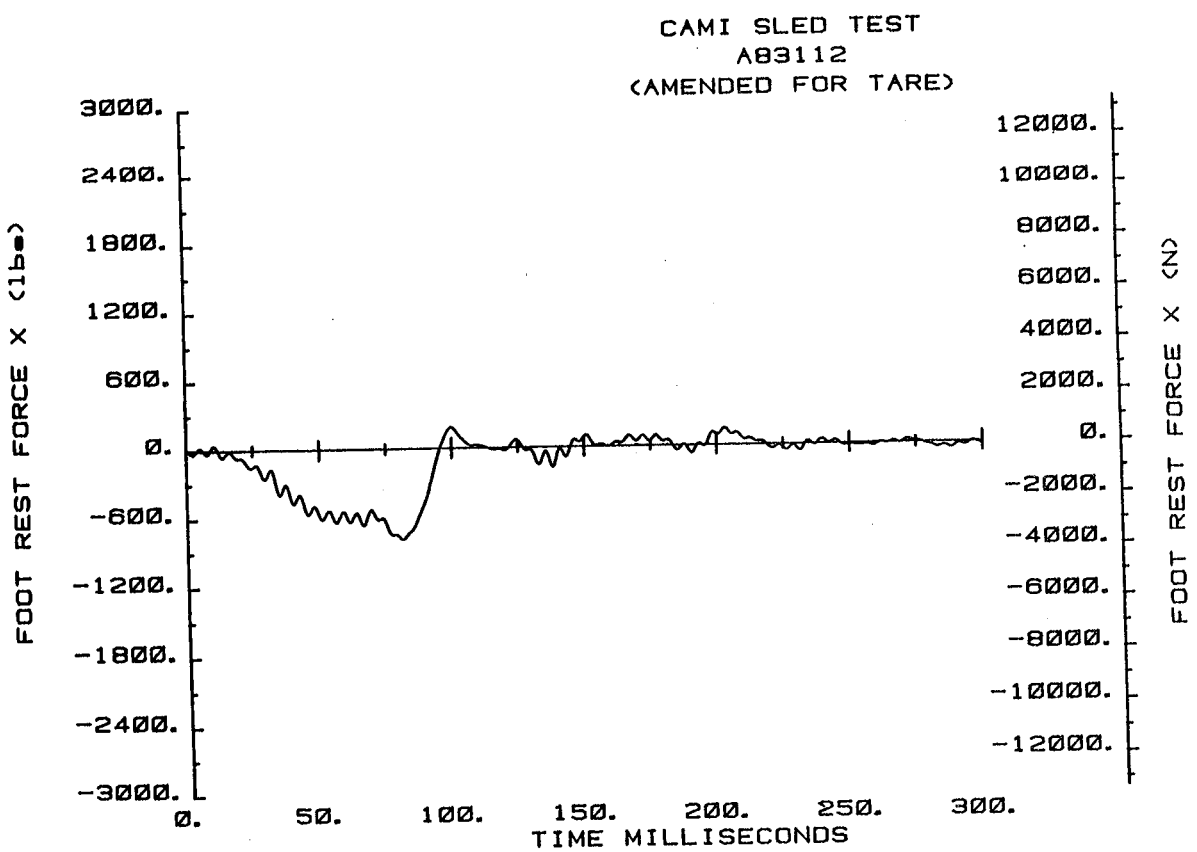
CAMI SLED TEST
A83112

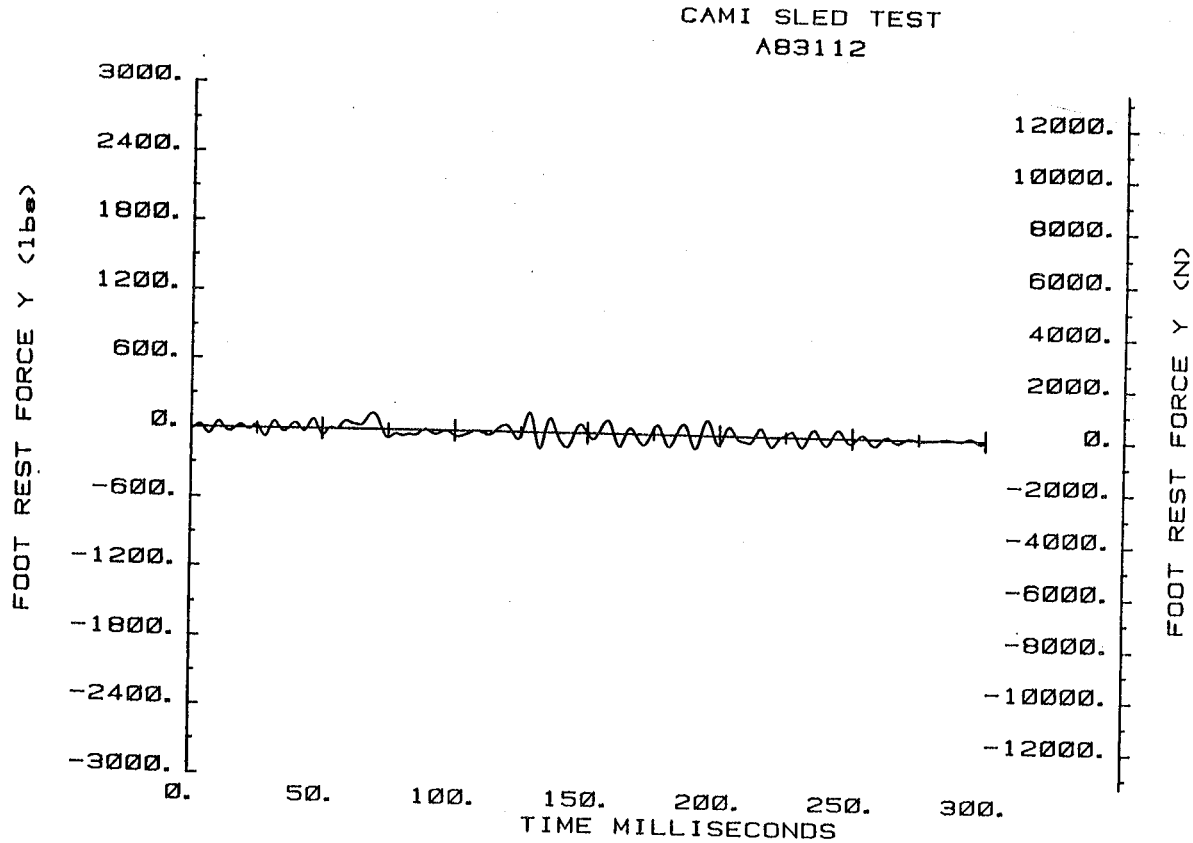


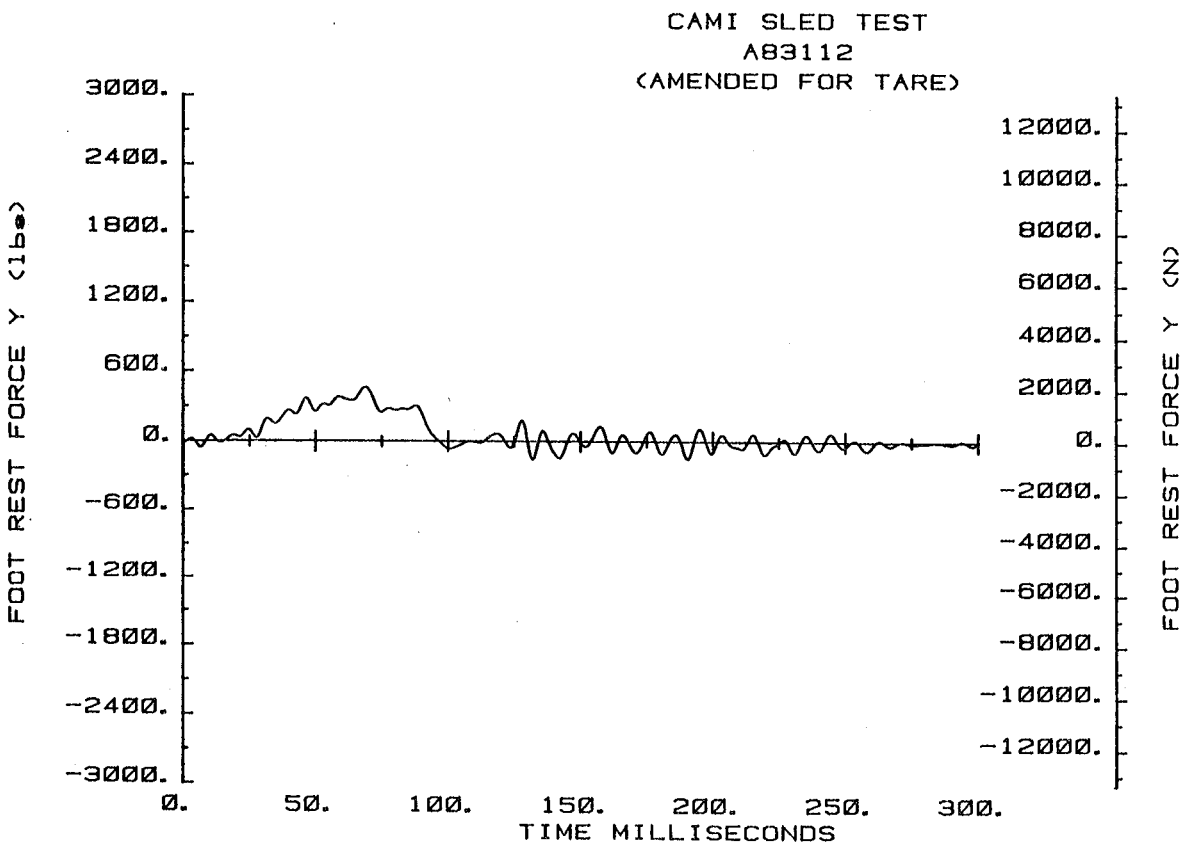

CAMI SLED TEST
A83112
PELVIC MOMENT Z (in-lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT Z (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

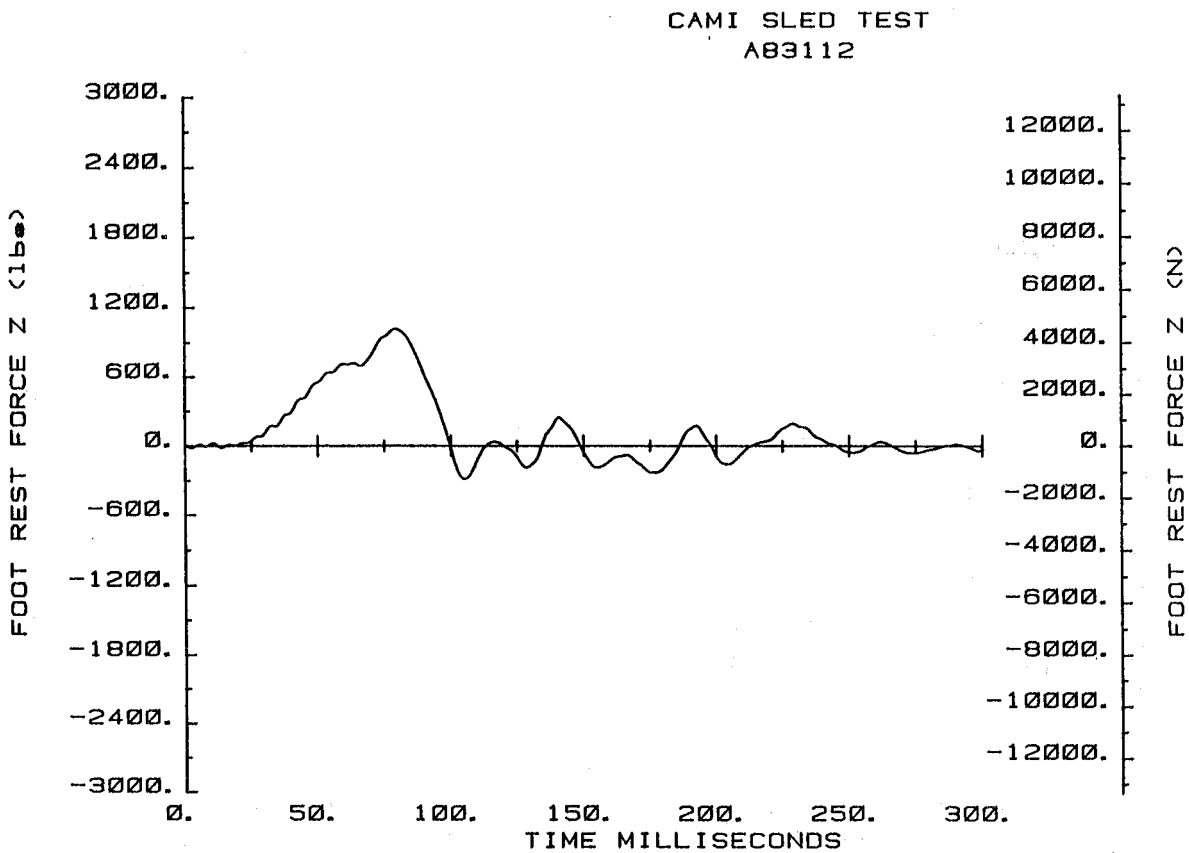

CAMI SLED TEST
A83112
PELVIC MOMENT RESULTANT (in-lbs)
4000.
3200.
2400.
1600.
800.
0.
PELVIC MOMENT RESULTANT (N-m)
450.
360.
270.
180.
90.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

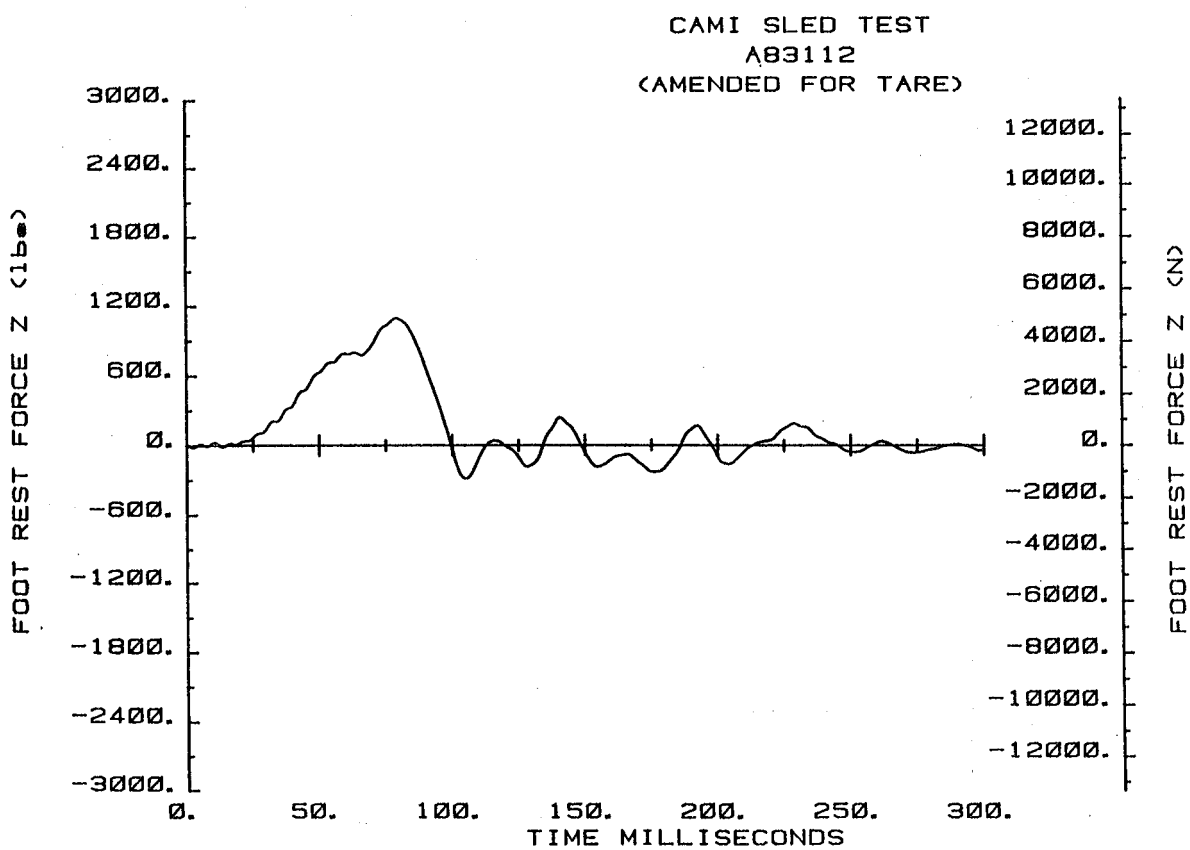

CAMI SLED TEST
A83112
FOOT REST FORCE X (lb.)
FOOT REST FORCE X (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

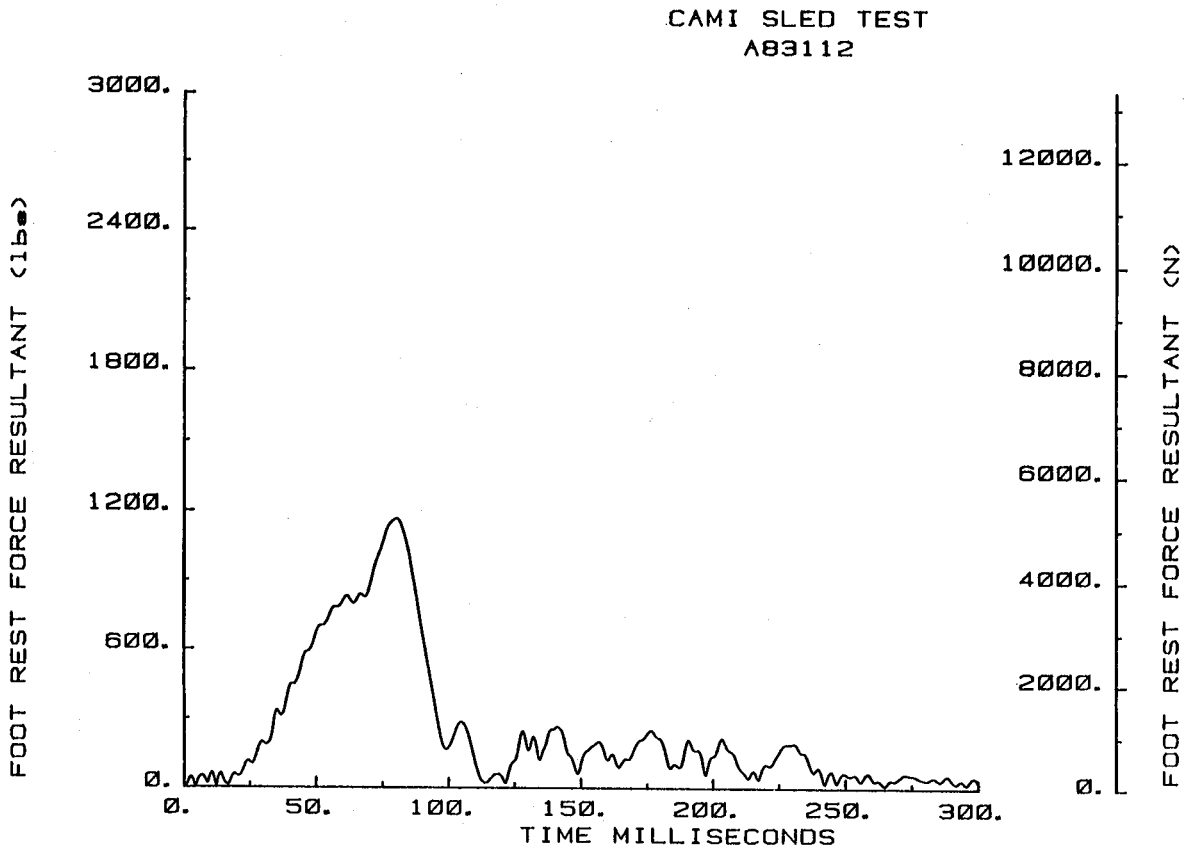

CAMI SLED TEST
A83112
(AMENDED FOR TARE)
FOOT REST FORCE X (lb.)
FOOT REST FORCE X (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

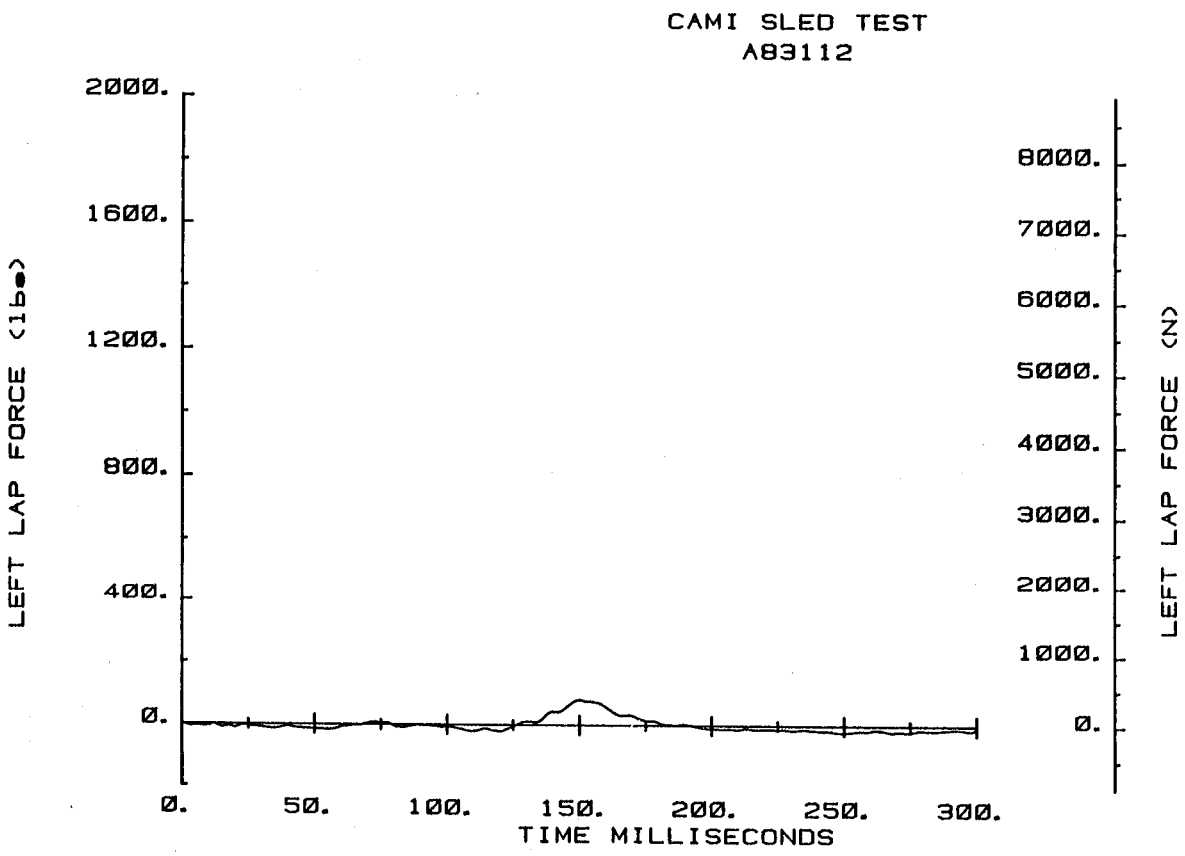

CAMI SLED TEST
A83112
FOOT REST FORCE Y (lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
FOOT REST FORCE Y (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

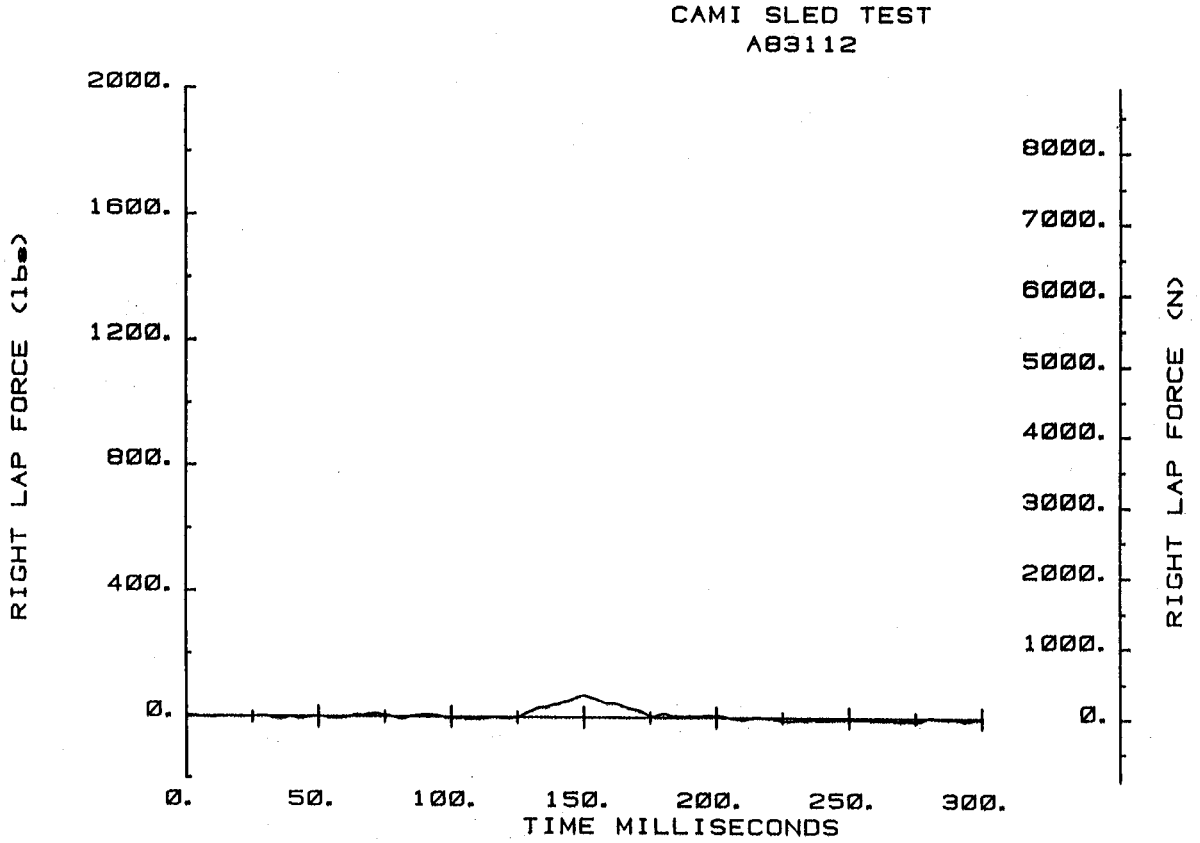

CAMI SLED TEST
A83112
(AMENDED FOR TARE)
FOOT REST FORCE Y (lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
FOOT REST FORCE Y (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

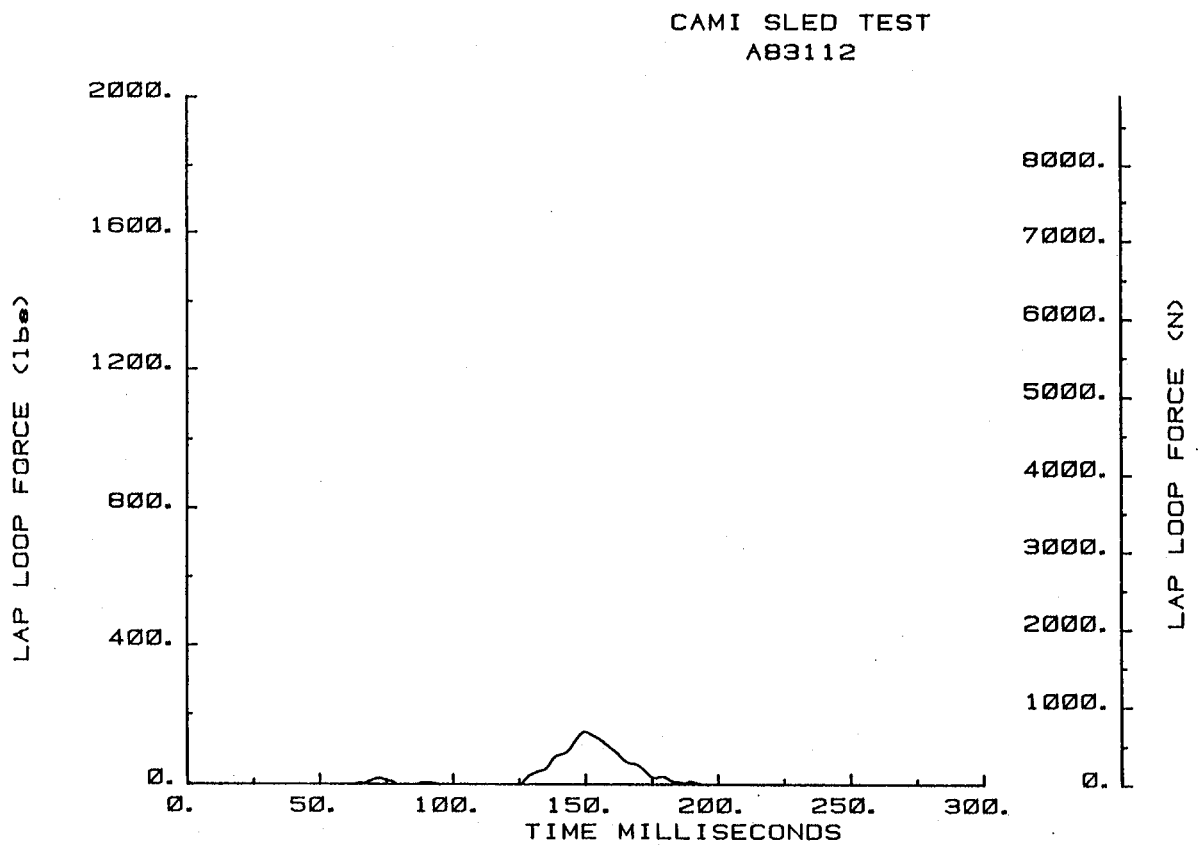

CAMI SLED TEST
A83112
FOOT REST FORCE Z (lbs)
FOOT REST FORCE Z (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

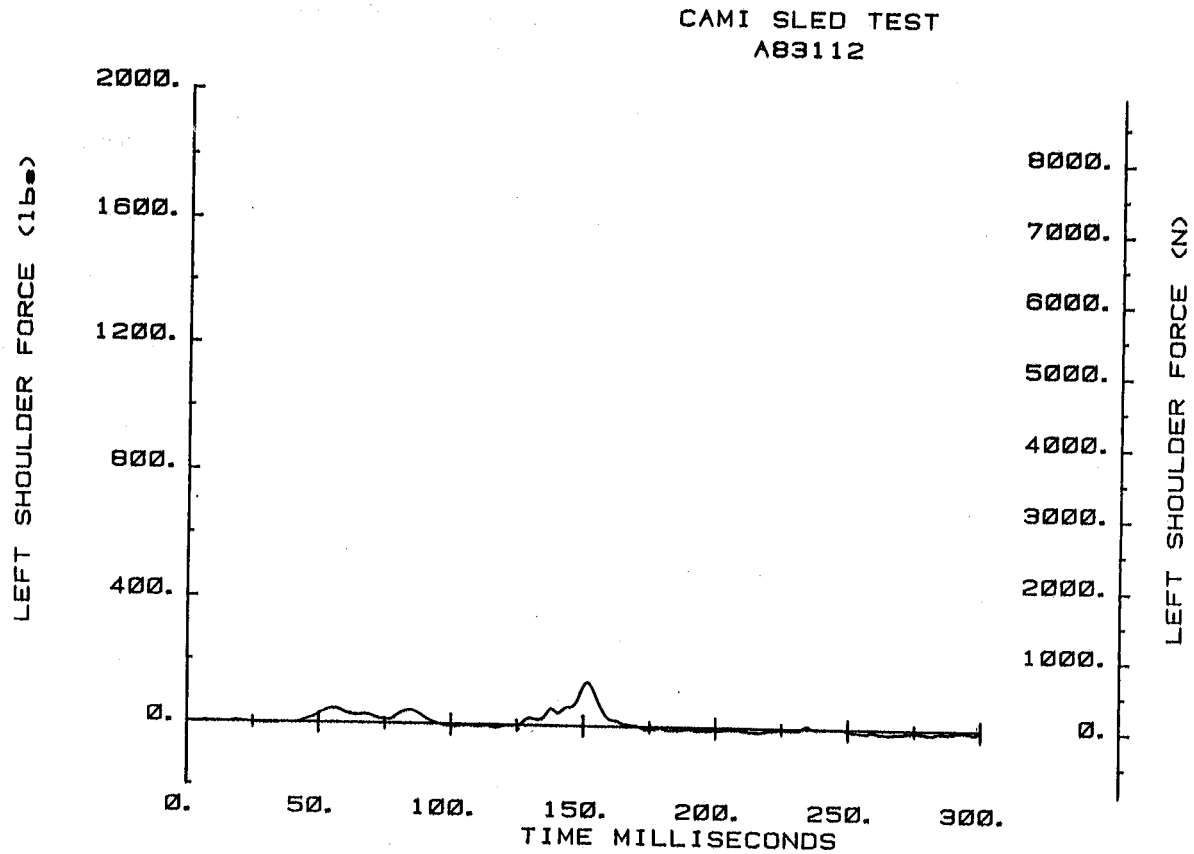

CAMI SLED TEST
A83112
(AMENDED FOR TARE)
FOOT REST FORCE Z (lbs)
FOOT REST FORCE Z (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

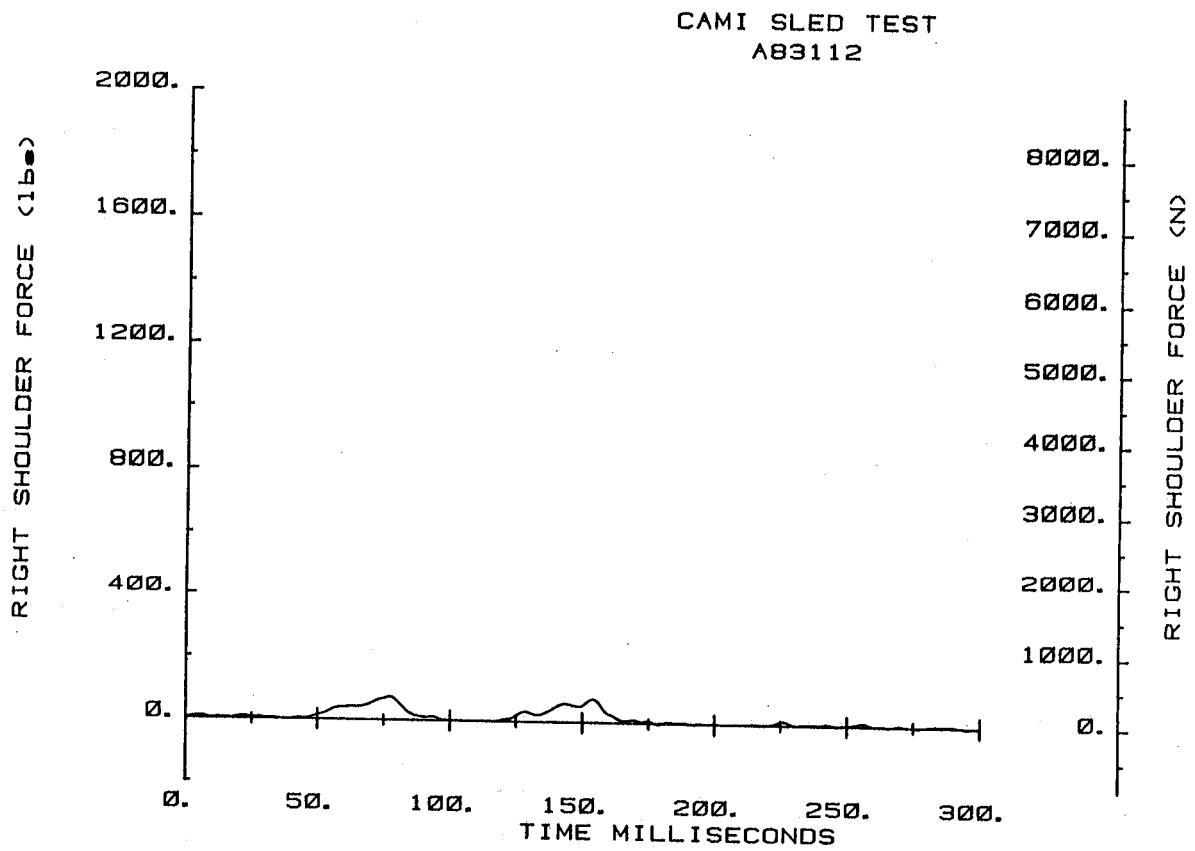

CAMI SLED TEST
A83112
FOOT REST FORCE RESULTANT (lb)
FOOT REST FORCE RESULTANT (N)
3000.
2400.
1800.
1200.
600.
0.
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

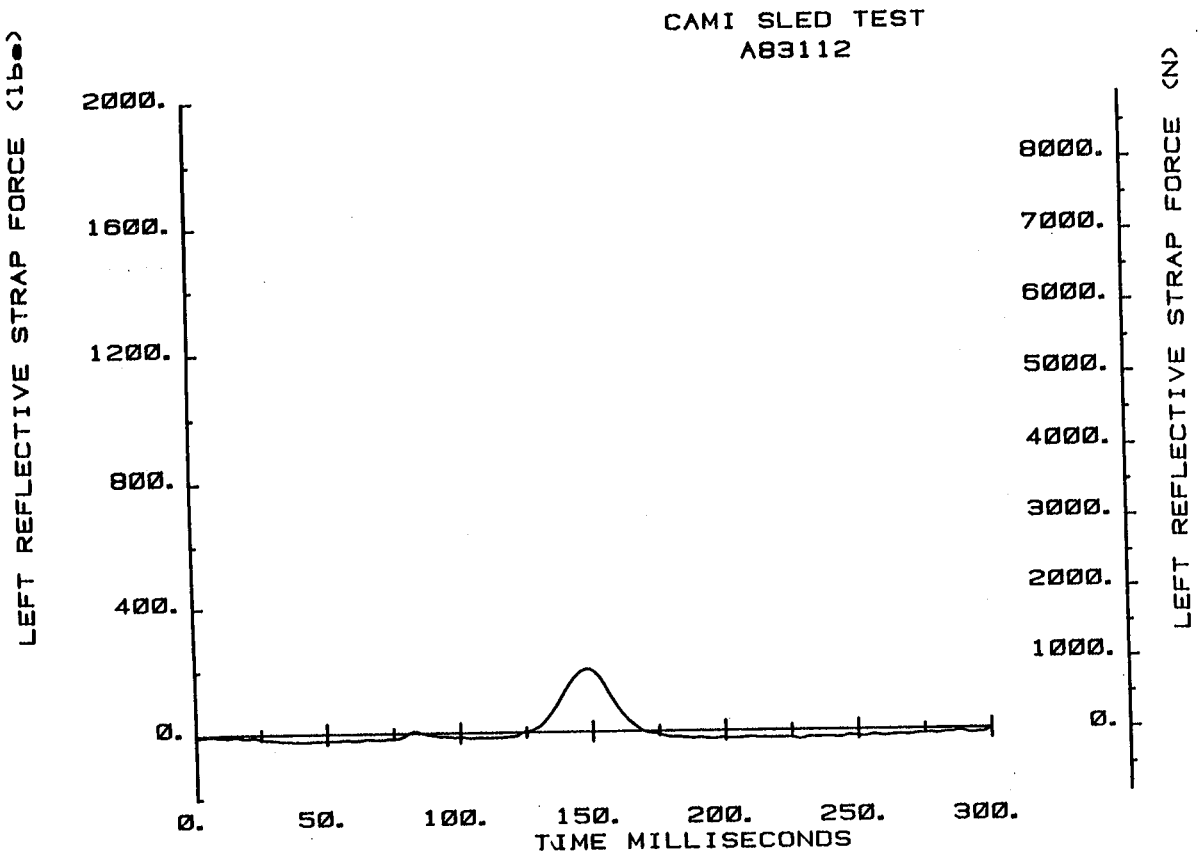

CAMI SLED TEST
A83112
LEFT LAP FORCE (lb)
LEFT LAP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

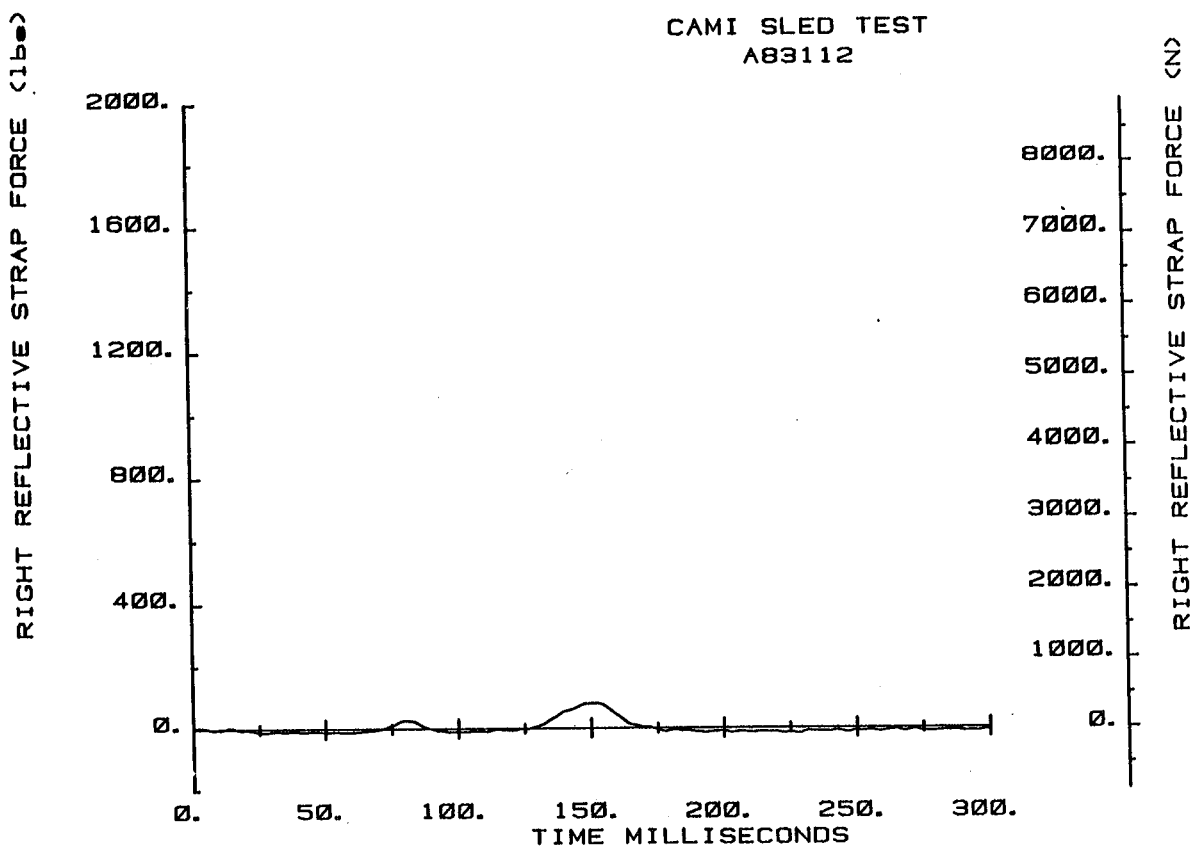

CAMI SLED TEST
A83112
RIGHT LAP FORCE (lbs)
RIGHT LAP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

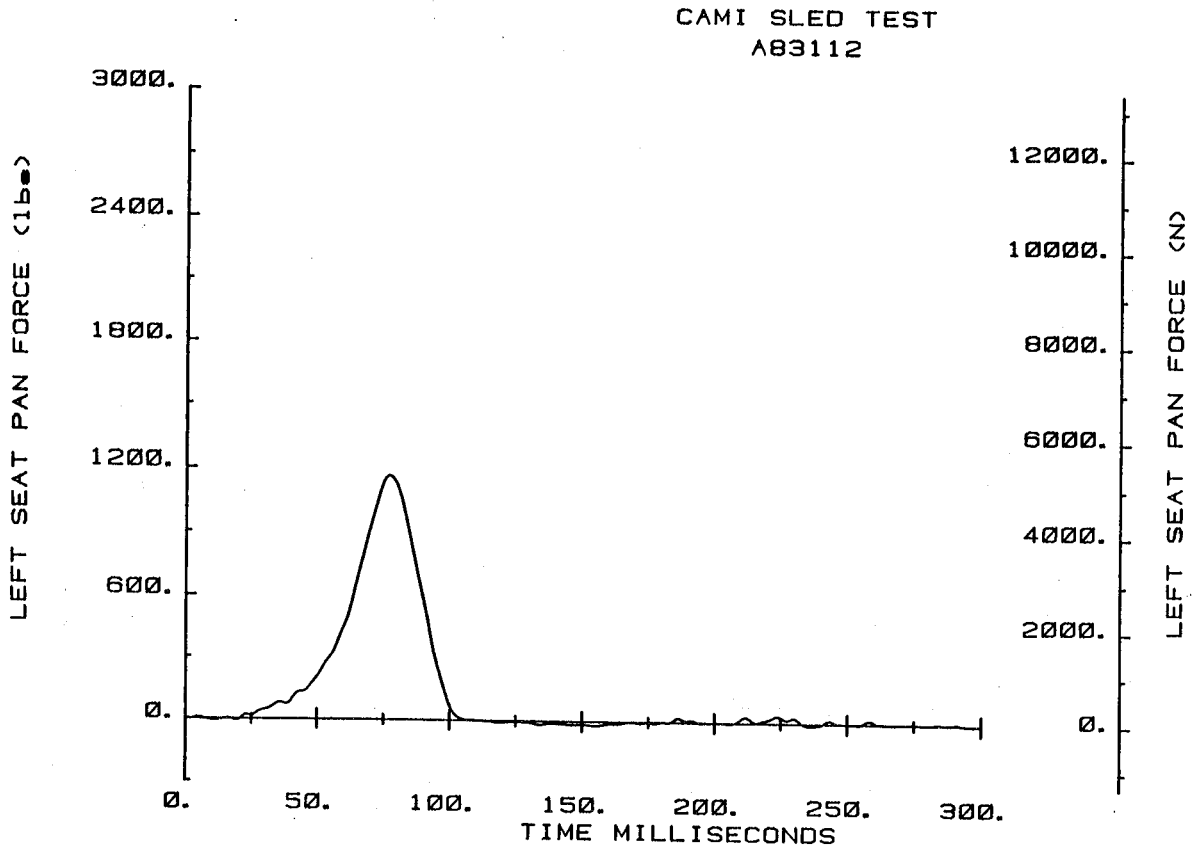

CAMI SLED TEST
A83112
LAP LOOP FORCE (lbs)
LAP LOOP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

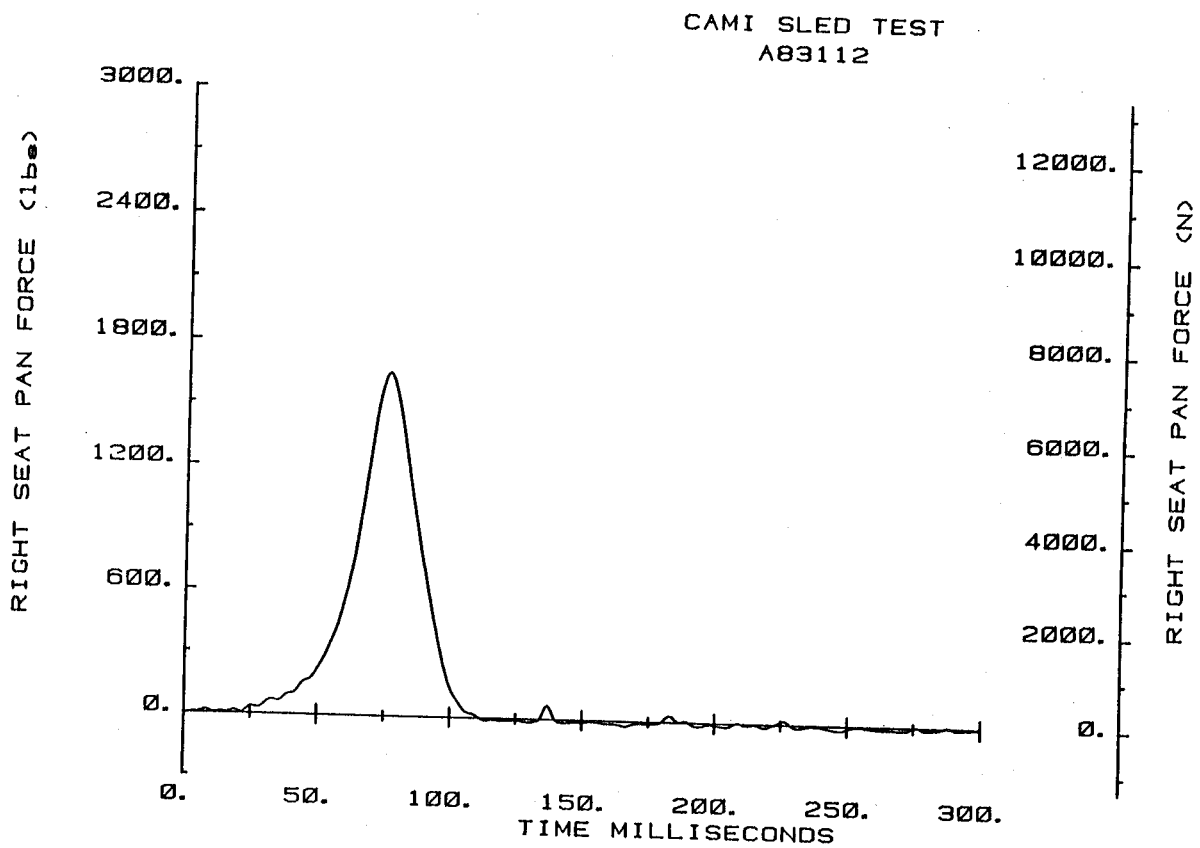

CAMI SLED TEST
A83112
LEFT SHOULDER FORCE (lb.)
2000.
1600.
1200.
800.
400.
0.
LEFT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

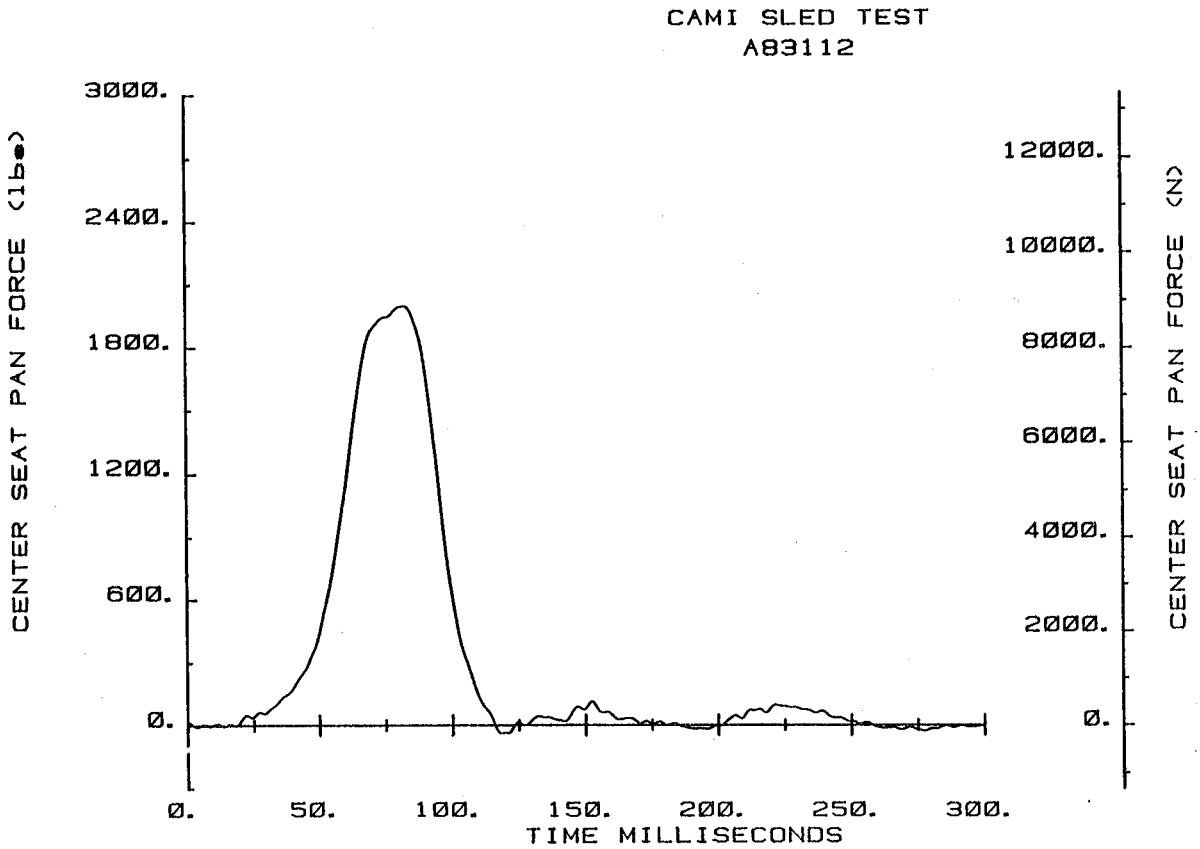

CAMI SLED TEST
A83112
RIGHT SHOULDER FORCE (lb.)
2000.
1600.
1200.
800.
400.
0.
RIGHT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

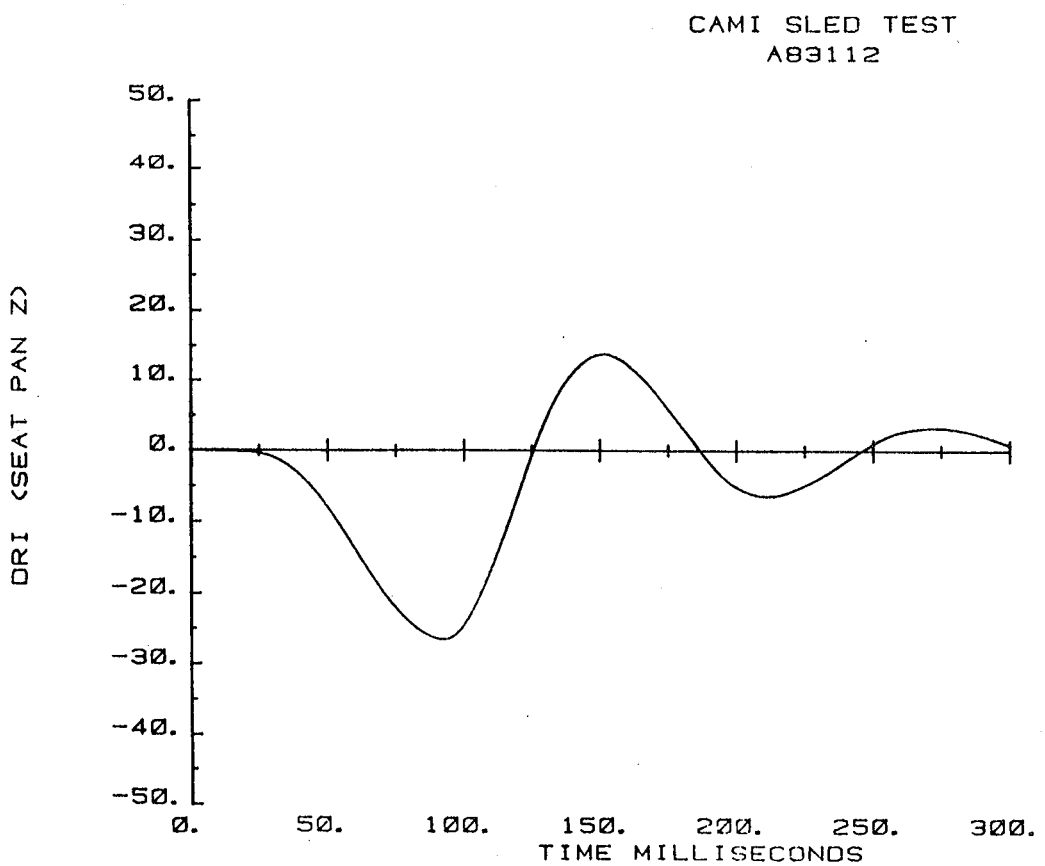

CAMI SLED TEST
A83112
LEFT REFLECTIVE STRAP FORCE (lb.)
2000.
1600.
1200.
800.
400.
0.
LEFT REFLECTIVE STRAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

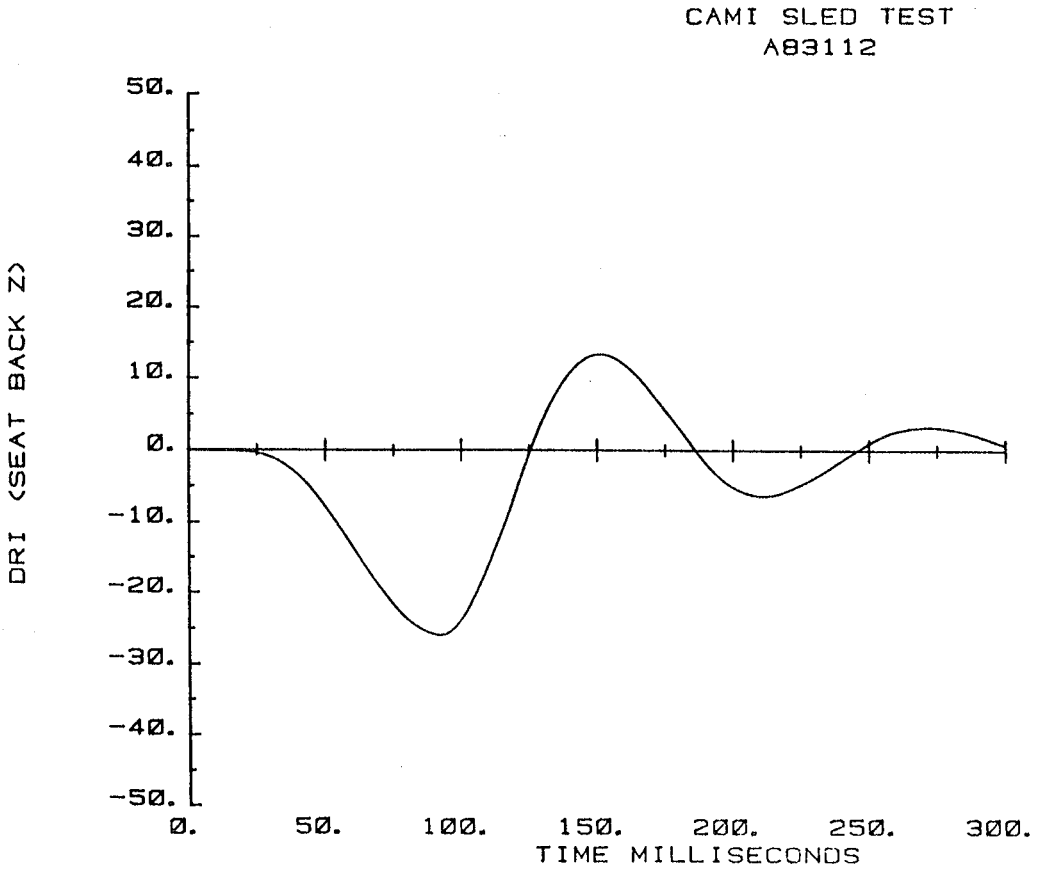

CAMI SLED TEST
A83112
RIGHT REFLECTIVE STRAP FORCE (lb.)
2000.
1600.
1200.
800.
400.
0.
RIGHT REFLECTIVE STRAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

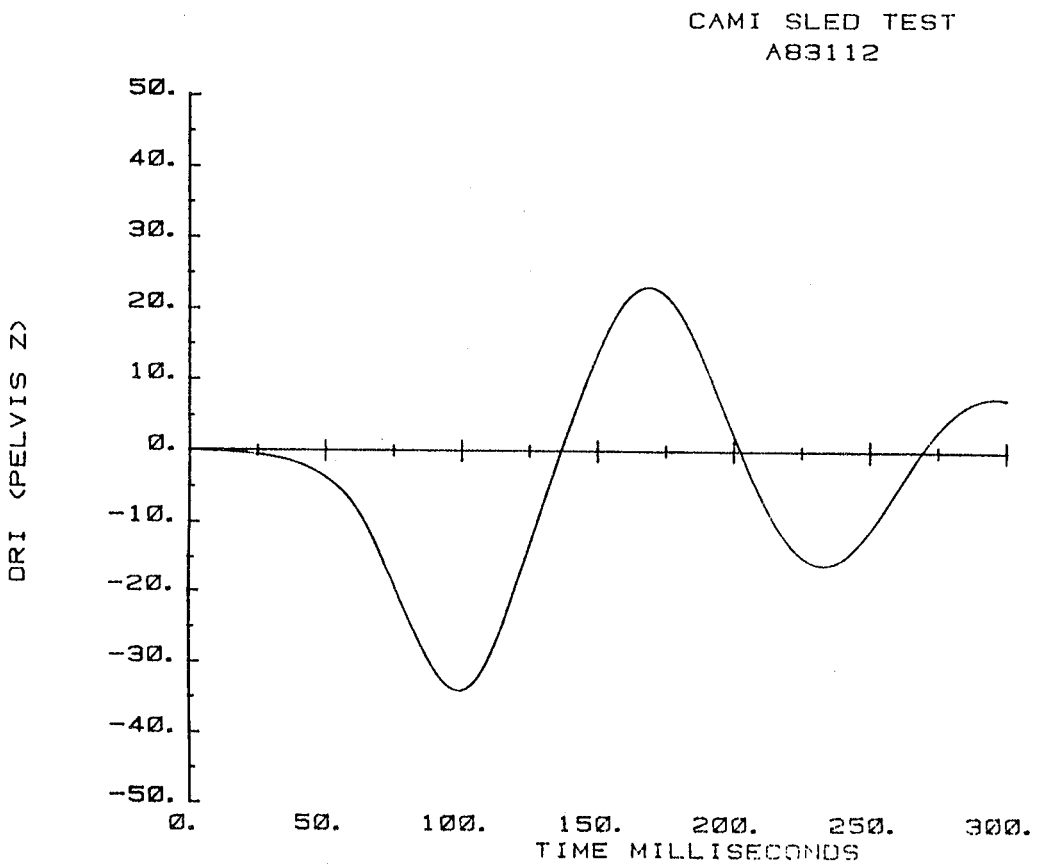

CAMI SLED TEST
A83112
LEFT SEAT PAN FORCE (lbs)
3000.
2400.
1800.
1200.
600.
0.
LEFT SEAT PAN FORCE (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83112
RIGHT SEAT PAN FORCE (lbs)
3000.
2400.
1800.
1200.
600.
0.
RIGHT SEAT PAN FORCE (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83112
CENTER SEAT PAN FORCE (lbs)
3000.
2400.
1800.
1200.
600.
0.
CENTER SEAT PAN FORCE (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83112
ORI (SEAT PAN Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83112
DRI (SEAT BACK Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83112
DRI (PELVIS Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

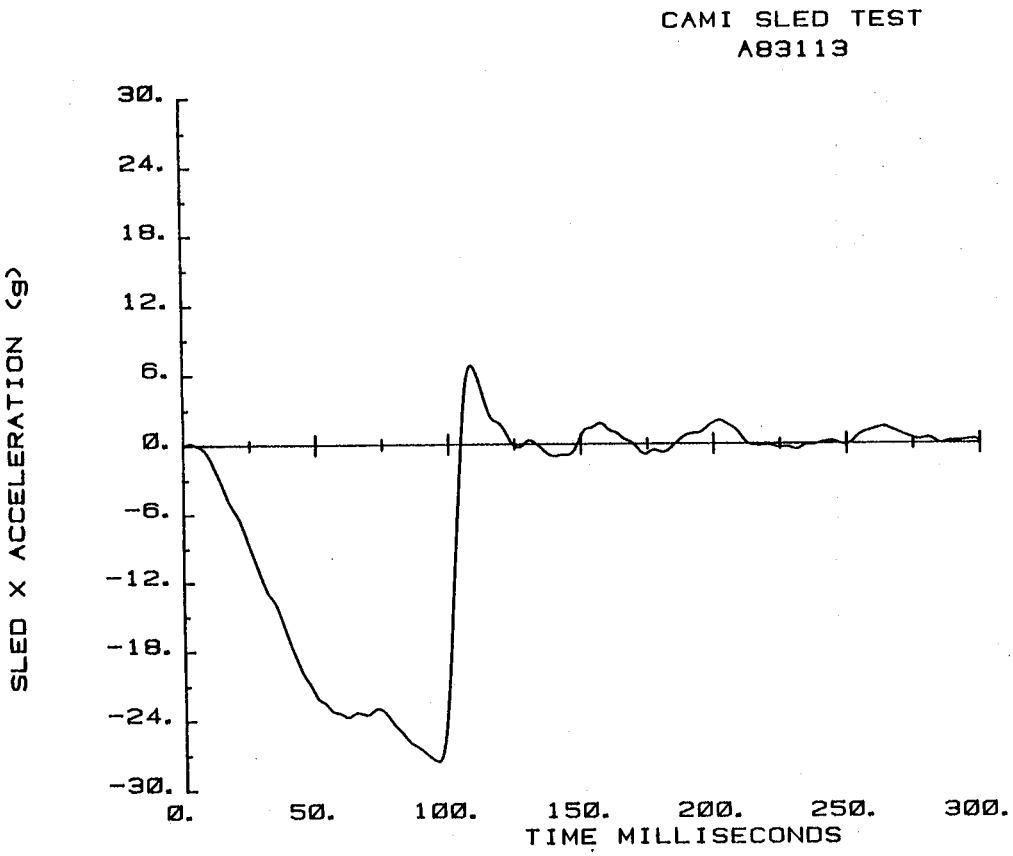
11.0 CAMI TEST NO. A83-113

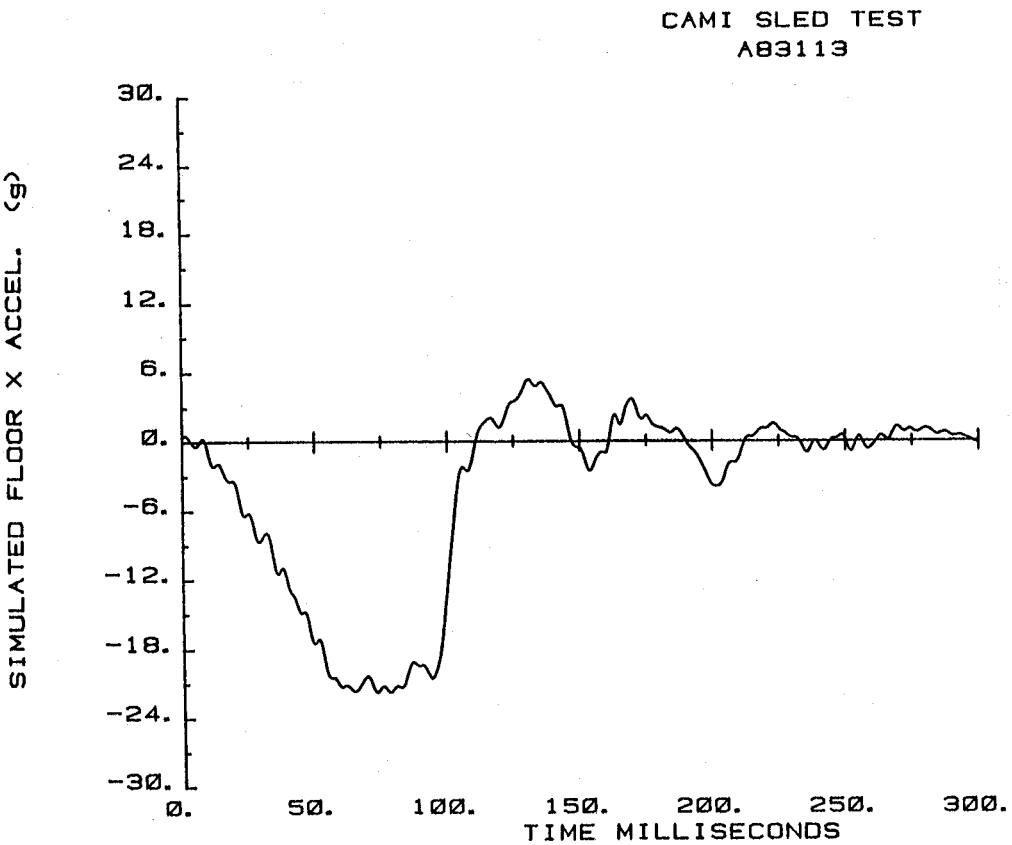
SEAT: F-111 Operational

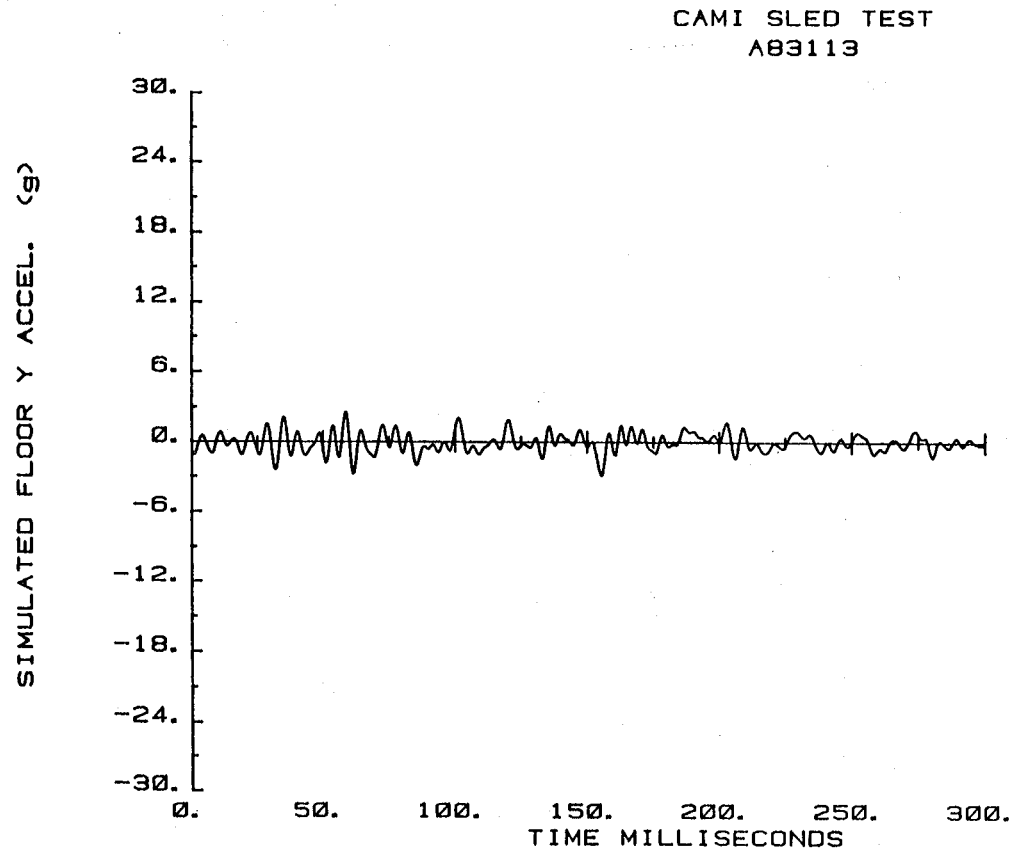
PULSE NUMBER: 2

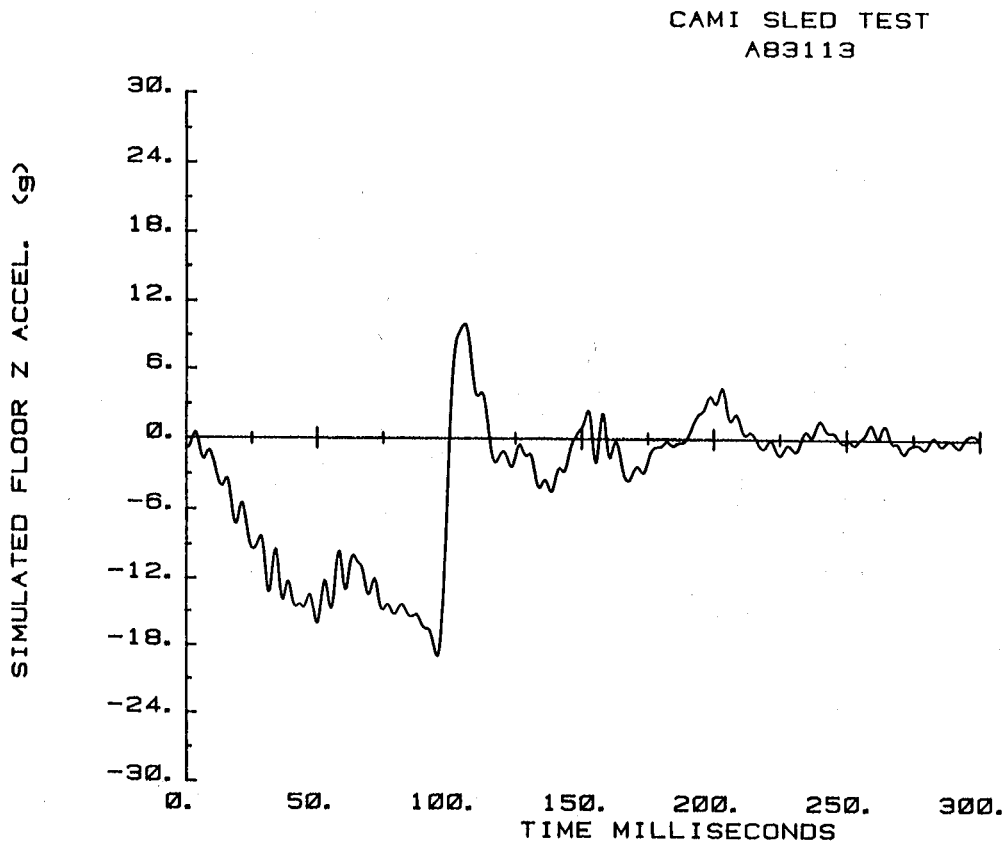
SEAT ORIENTATION: Pitch - 40°
Roll - 0°
Yaw - 0°

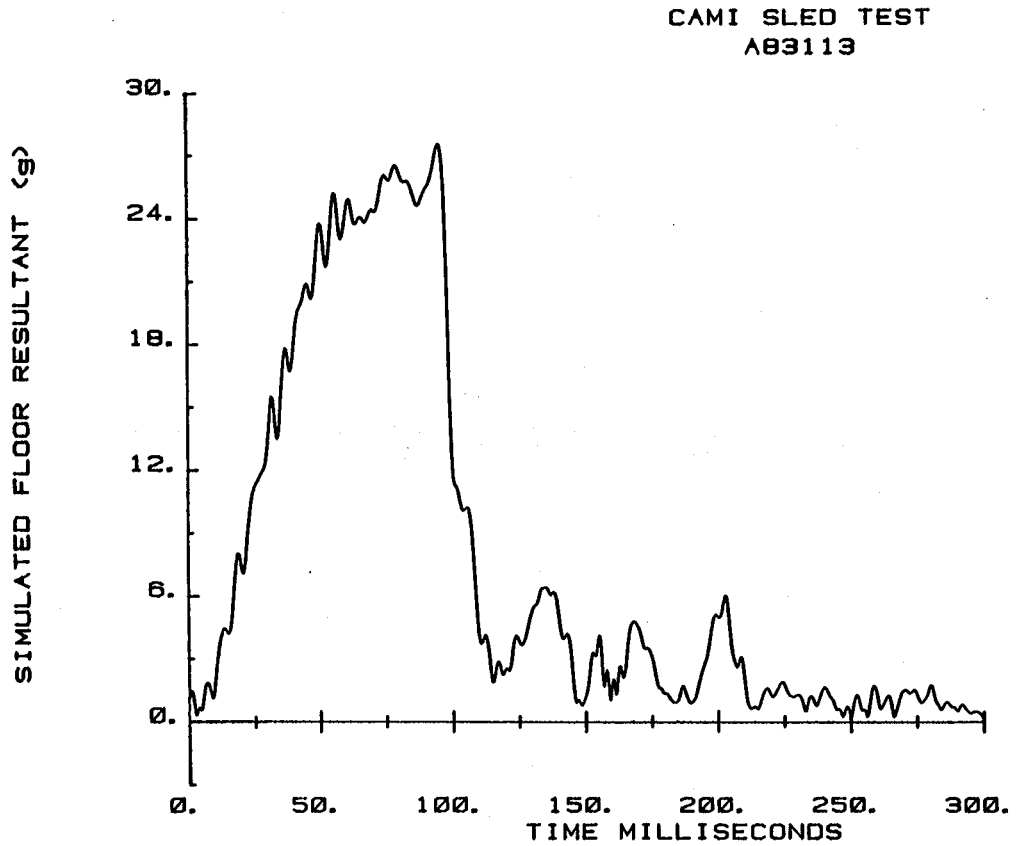
RUN#	VARIABLE		PEAK1	T	PEAK2	T	RANGE	FILE
A83113	SLED X ACCELERATION	(g)	-27.6	95	6.7	108	(0, 300)	* F11301
A83113	HEAD X ACCELERATION	(g)	-30.2	158	8.4	243	(0, 300)	* F11303
A83113	HEAD Y ACCELERATION	(g)	-4.1	123	3.2	139	(0, 300)	* F11304
A83113	HEAD Z ACCELERATION	(g)	-30.3	60	48.6	103	(0, 300)	* F11305
A83113	CHEST X ACCELERATION	(g)	-38.6	88			(0, 300)	* F11306
A83113	CHEST Y ACCELERATION	(g)	6.5	92	-4.7	107	(0, 300)	* F11307
A83113	CHEST Z ACCELERATION	(g)	-32.2	61	9.9	112	(0, 300)	* F11308
A83113	PELVIS X ACCELERATION	(g)	-29.3	63	45.9	152	(0, 300)	* F11309
A83113	PELVIS Y ACCELERATION	(g)	7.1	105	-11.7	151	(0, 300)	* F11310
A83113	PELVIS Z ACCELERATION	(g)	-30.1	55	19.0	152	(0, 300)	* F11311
A83113	SIMULATED FLOOR X ACCEL.	(g)	-21.7	73	5.4	131	(0, 300)	* F11312
A83113	SIMULATED FLOOR Y ACCEL.	(g)	2.5	58	-2.9	155	(0, 300)	* F11313
A83113	SIMULATED FLOOR Z ACCEL.	(g)	-18.9	95	9.9	105	(0, 300)	* F11314
A83113	FOOT REST FORCE X	(lbs)	708.4	67	-335.4	154	(0, 300)	* F11315
A83113	FOOT REST FORCE Y	(lbs)	-164.9	75	146.4	151	(0, 300)	* F11316
A83113	FOOT REST FORCE Z	(lbs)	2647.1	68			(0, 300)	* F11317
A83113	LEFT SHOULDER FORCE	(lbs)	847.1	102			(0, 300)	* F11318
A83113	RIGHT SHOULDER FORCE	(lbs)	691.3	87			(0, 300)	* F11319
A83113	SEAT BACK Z ACCELERATION	(g)	-30.6	96	14.2	134	(0, 300)	* F11320
A83113	SEAT PAN X ACCELERATION	(g)	-35.4	30	24.2	133	(0, 300)	* F11321
A83113	SEAT PAN Y ACCELERATION	(g)	8.9	132	-10.1	147	(0, 300)	* F11322
A83113	SEAT PAN Z ACCELERATION	(g)	-27.3	96	11.9	134	(0, 300)	* F11323
A83113	PELVIC FORCE X	(lbs)	-697.8	153			(0, 300)	* F11325
A83113	PELVIC FORCE Y	(lbs)	67.3	83	-48.5	189	(0, 300)	* F11326
A83113	PELVIC FORCE Z	(lbs)	1991.6	63			(0, 300)	* F11327
A83113	PELVIC MOMENT X	(in-lbs)	320.9	78	-257.0	182	(0, 300)	* F11328
A83113	PELVIC MOMENT Y	(in-lbs)	-571.7	87	1869.7	154	(0, 300)	* F11329
A83113	PELVIC MOMENT Z	(in-lbs)	-95.1	70	98.4	157	(0, 300)	* F11330
A83113	LEFT LAP FORCE	(lbs)	142.2	88	-32.6	117	(0, 300)	* F11331
A83113	RIGHT LAP FORCE	(lbs)	86.2	99	-18.6	148	(0, 300)	* F11332
A83113	LEFT REFLECTIVE STRAP FORCE	(lbs)	782.5	93			(0, 300)	* F11333
A83113	RIGHT REFLECTIVE STRAP FORCE	(lbs)	420.1	108			(0, 300)	* F11334
A83113	LEFT SEAT PAN FORCE	(lbs)	921.7	65			(0, 300)	* F11335
A83113	RIGHT SEAT PAN FORCE	(lbs)	1354.6	66			(0, 300)	* F11336
A83113	CENTER SEAT PAN FORCE	(lbs)	1599.9	57			(0, 300)	* F11337
A83113	HEAD RESULTANT	(g)	51.8	102			(0, 300)	* V11301
A83113	CHEST RESULTANT	(g)	39.2	88			(0, 300)	* V11302
A83113	PELVIS RESULTANT	(g)	49.7	152			(0, 300)	* V11303
A83113	SIMULATED FLOOR RESULTANT	(g)	27.5	95			(0, 300)	* V11304
A83113	FOOT REST FORCE RESULTANT	(lbs)	2738.9	68			(0, 300)	* V11305
A83113	SEAT PAN RESULTANT	(g)	36.2	30			(0, 300)	* V11306
A83113	PELVIC FORCE RESULTANT	(lbs)	1991.6	63			(0, 300)	* V11307
A83113	PELVIC MOMENT RESULTANT	(in-lbs)	1873.6	154			(0, 300)	* V11308
A83113	LAP LOOP FORCE	(lbs)	200.6	89			(0, 300)	* A11302
PELVIS DRI			35.1	90				
SEAT BACK DRI			28.1	91				
SEAT PAN DRI			23.4	90				

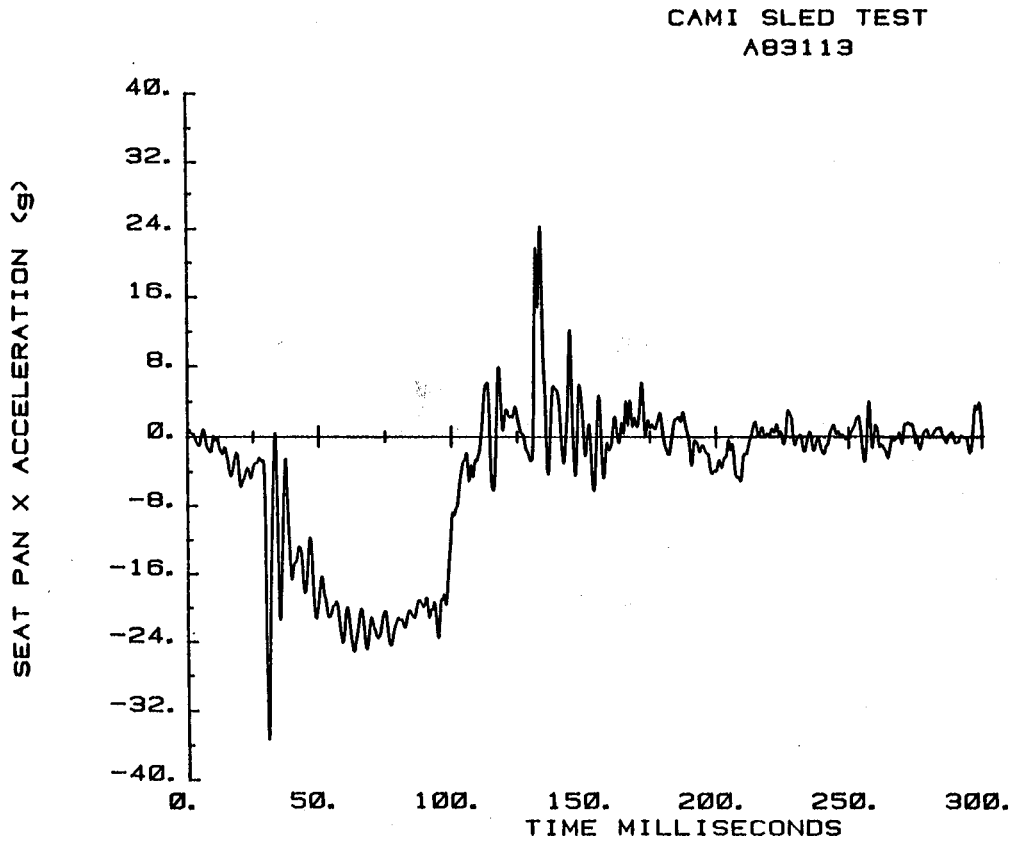

CAMI SLED TEST
A83113
SLED X ACCELERATION (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

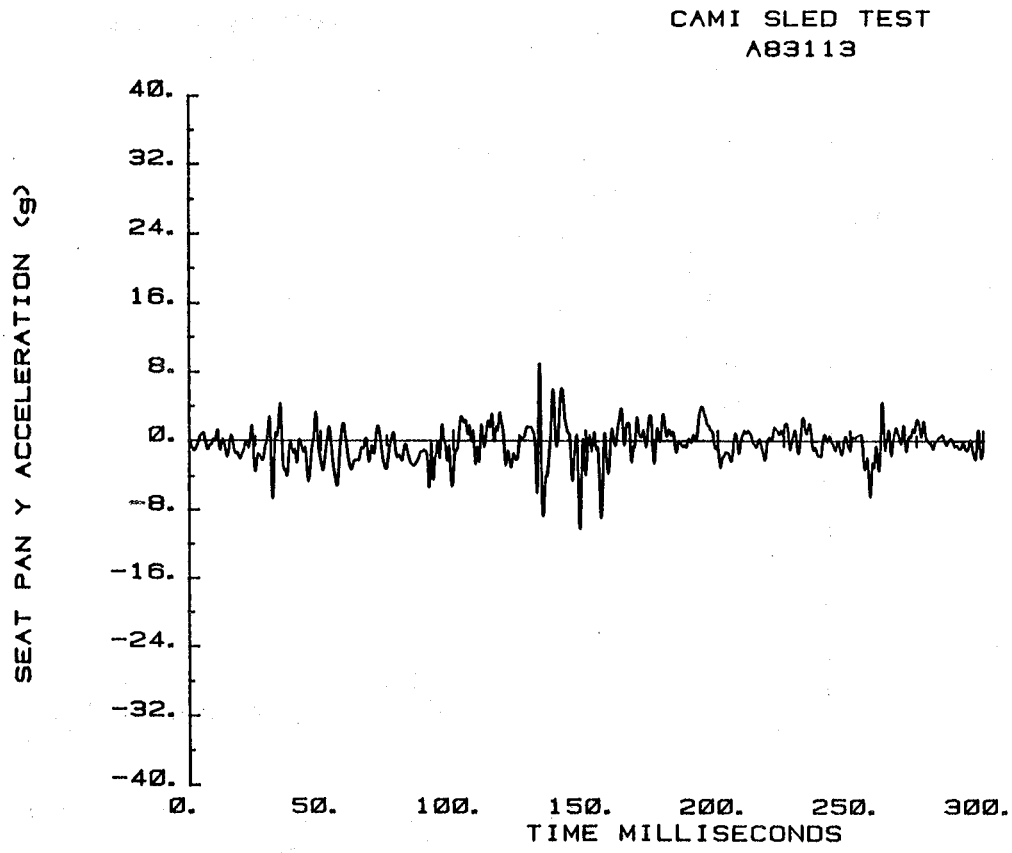

CAMI SLED TEST
A83113
SIMULATED FLOOR X ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

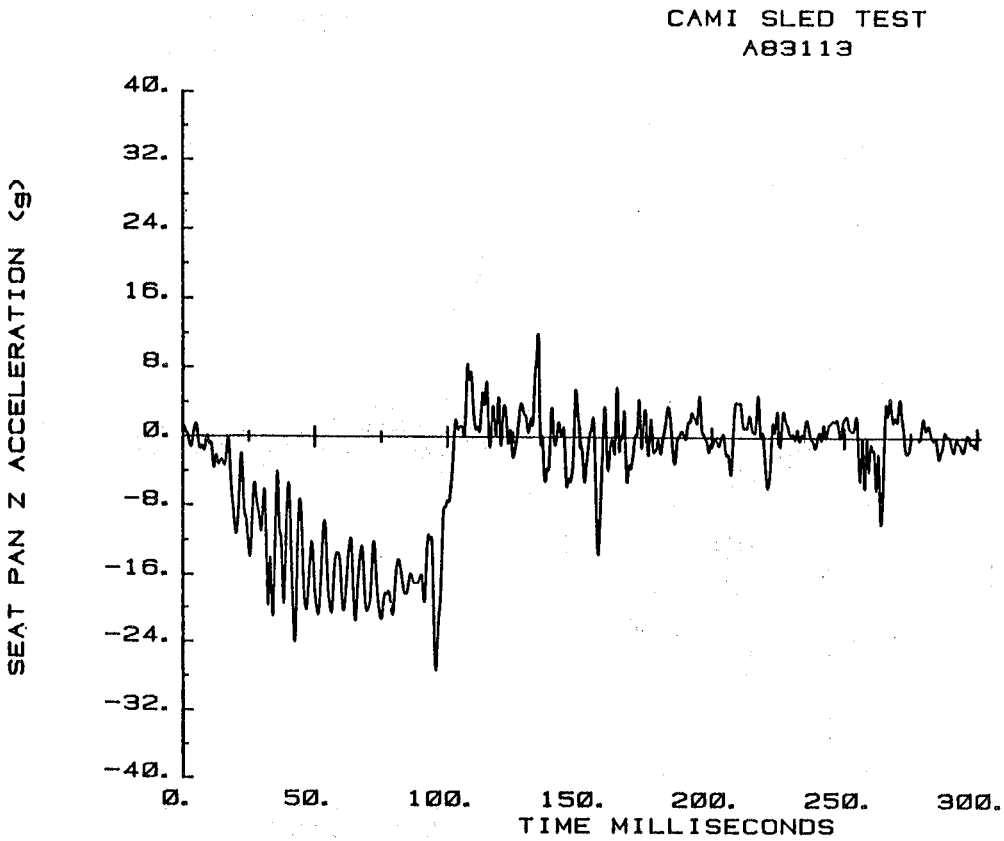

CAMI SLED TEST
A83113
SIMULATED FLOOR Y ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

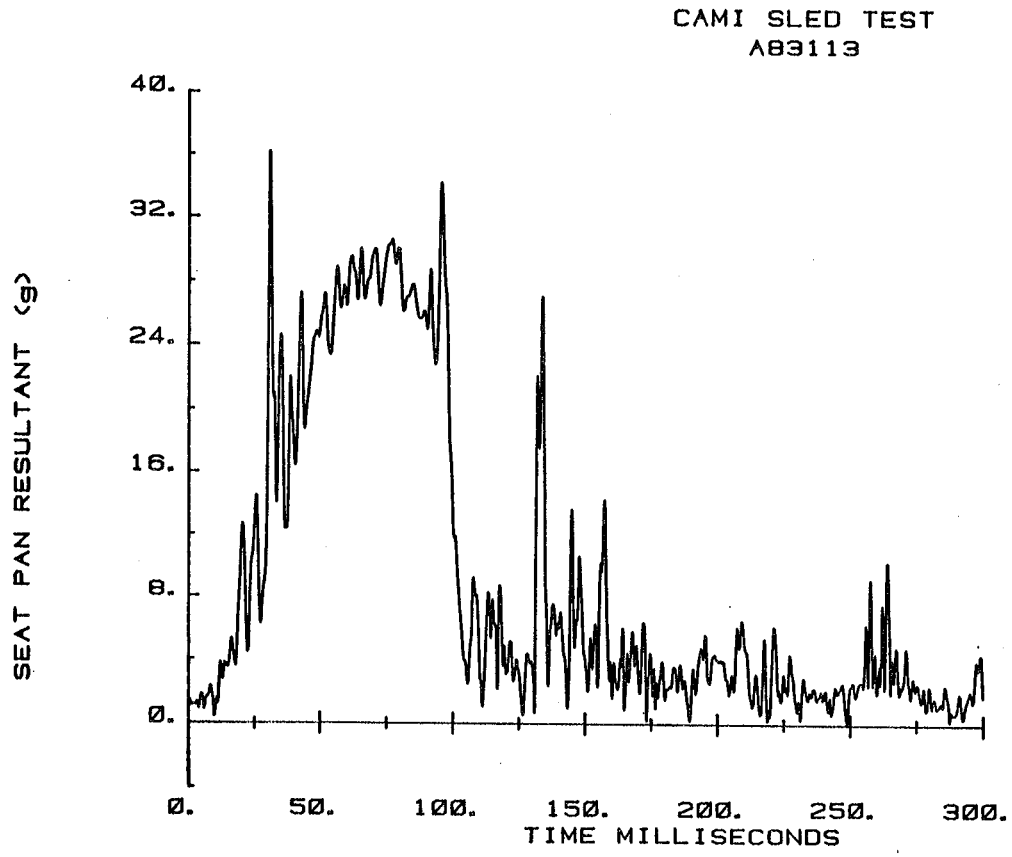

CAMI SLED TEST
A83113
SIMULATED FLOOR Z ACCEL. (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

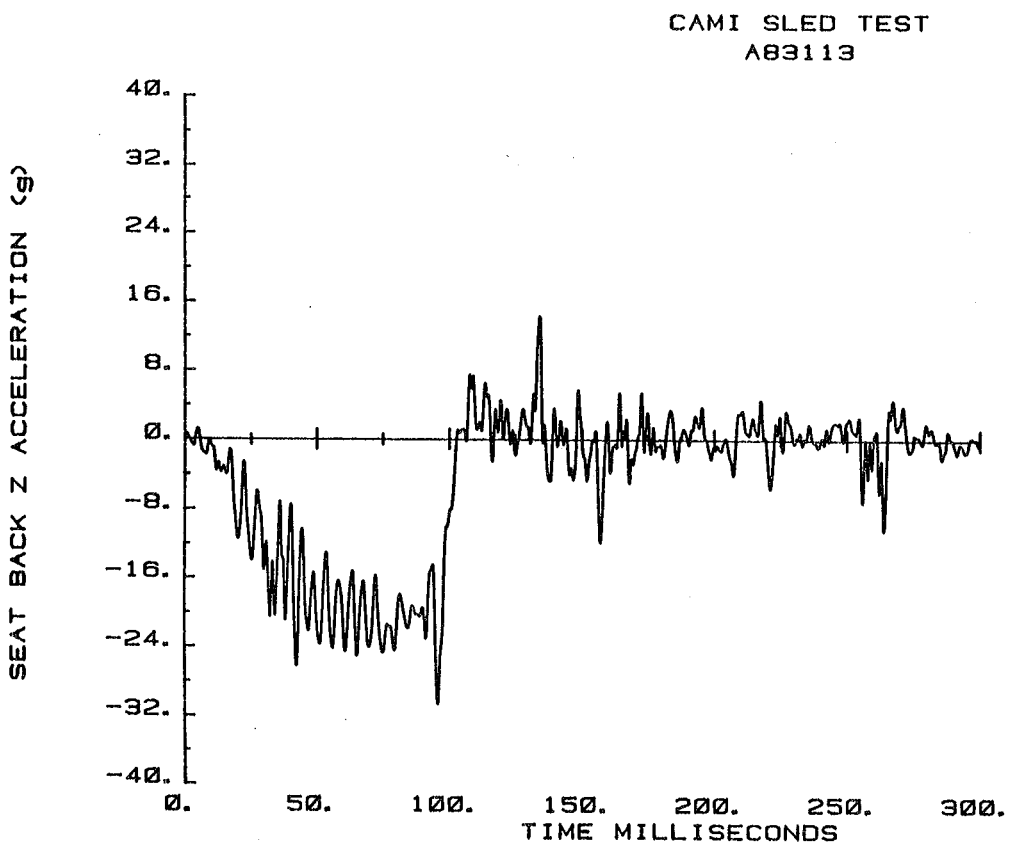

CAMI SLED TEST
A83113
SIMULATED FLOOR RESULTANT (g)
30.
24.
18.
12.
6.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

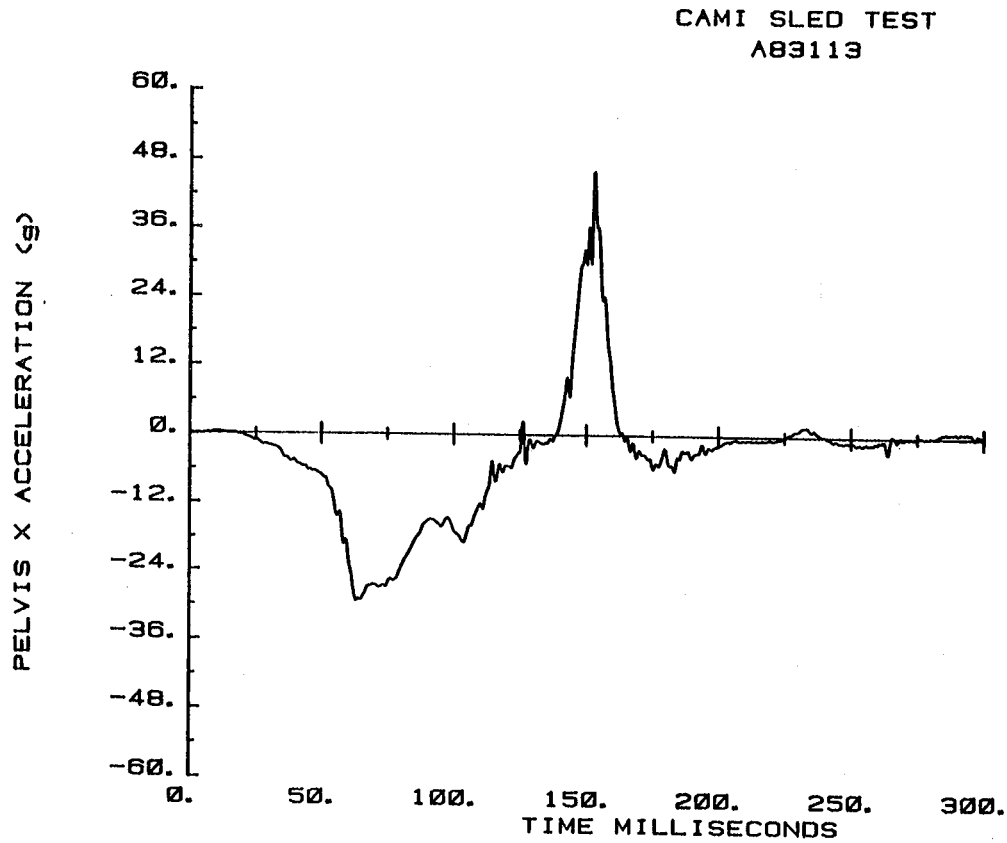

CAMI SLED TEST
A83113
SEAT PAN X ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

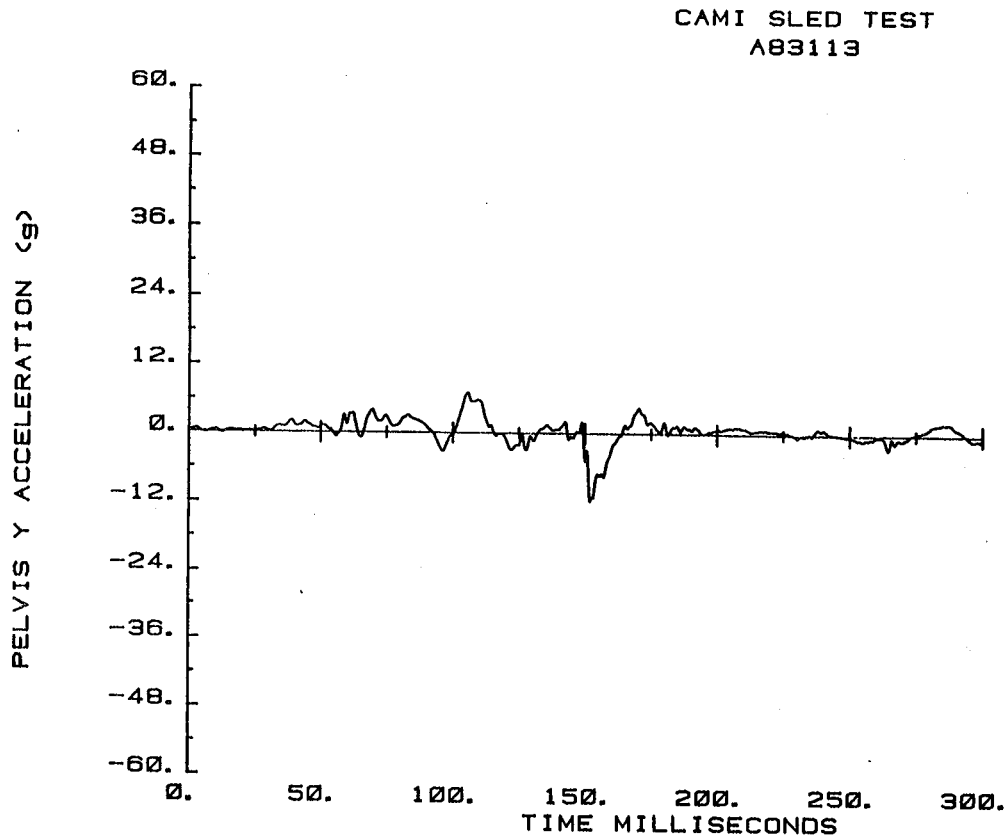

CAMI SLED TEST
A83113
SEAT PAN Y ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

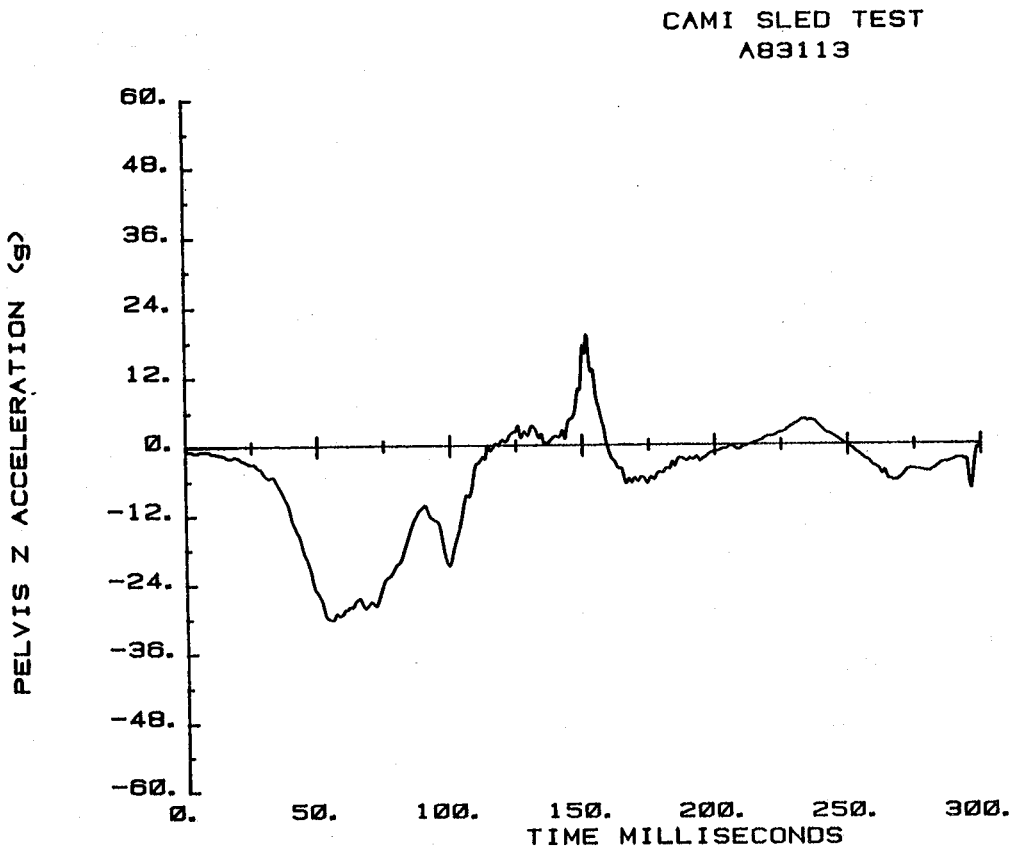

CAMI SLED TEST
A83113
SEAT PAN Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

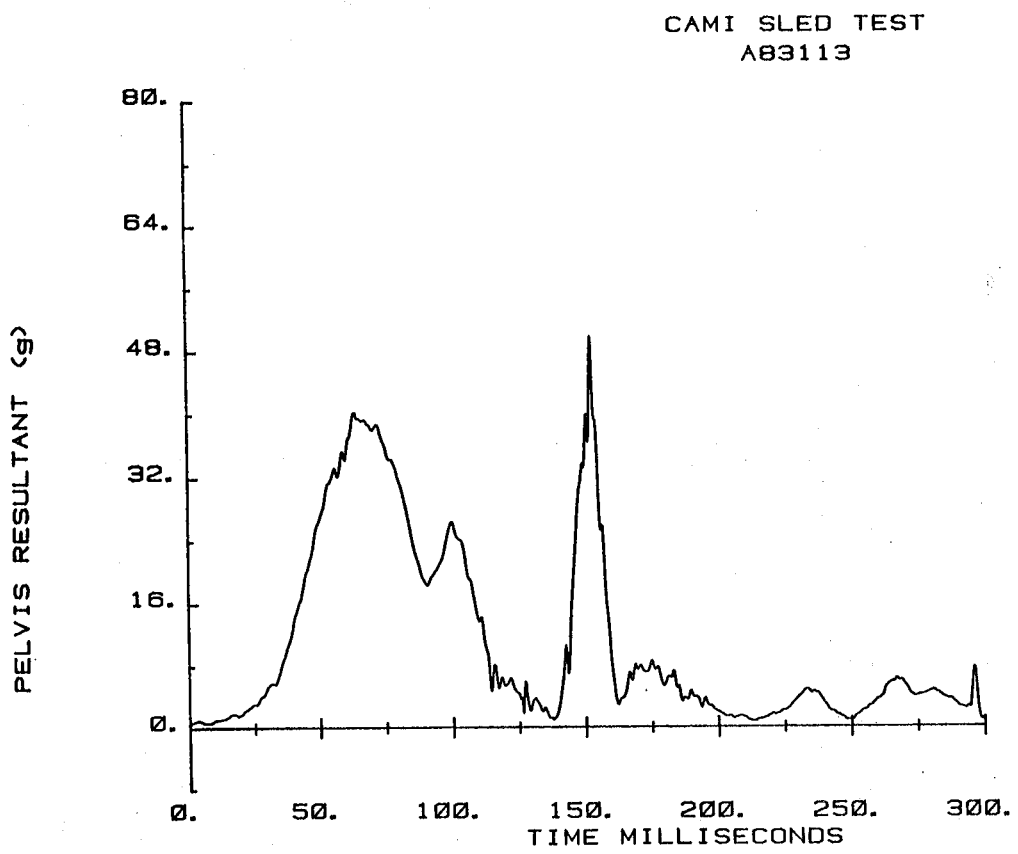

CAMI SLED TEST
A83113
SEAT PAN RESULTANT (g)
40.
32.
24.
16.
8.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

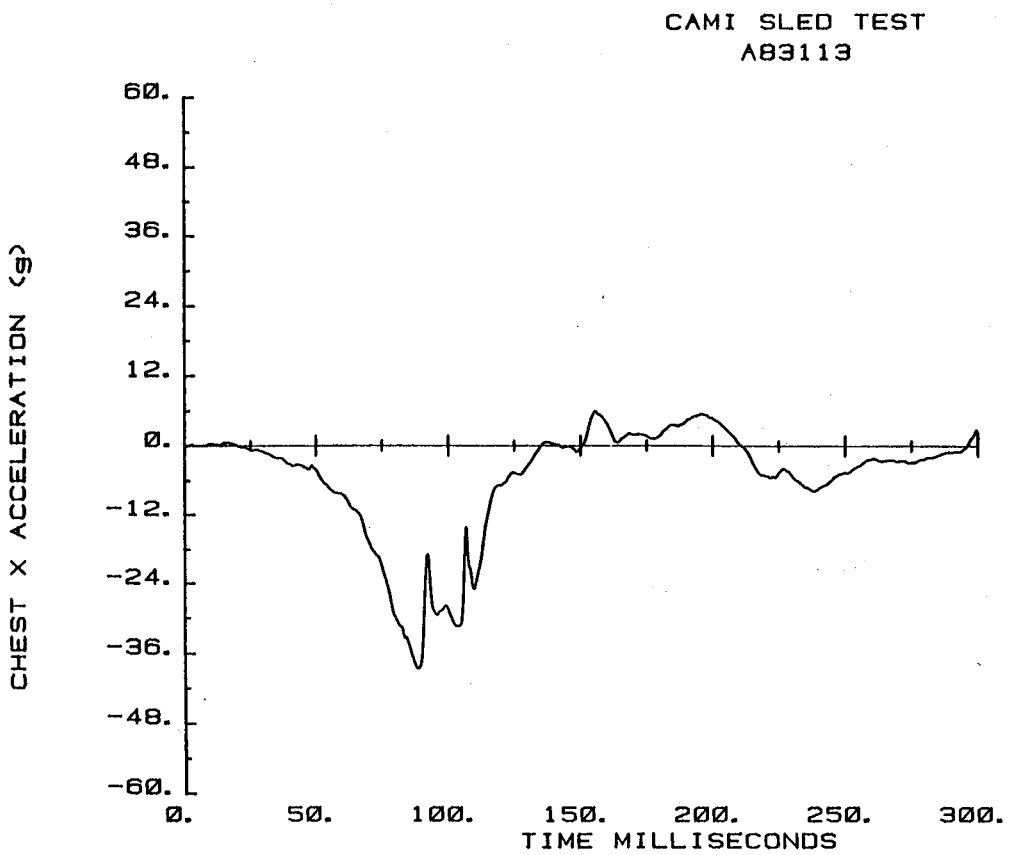

CAMI SLED TEST
A83113
SEAT BACK Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

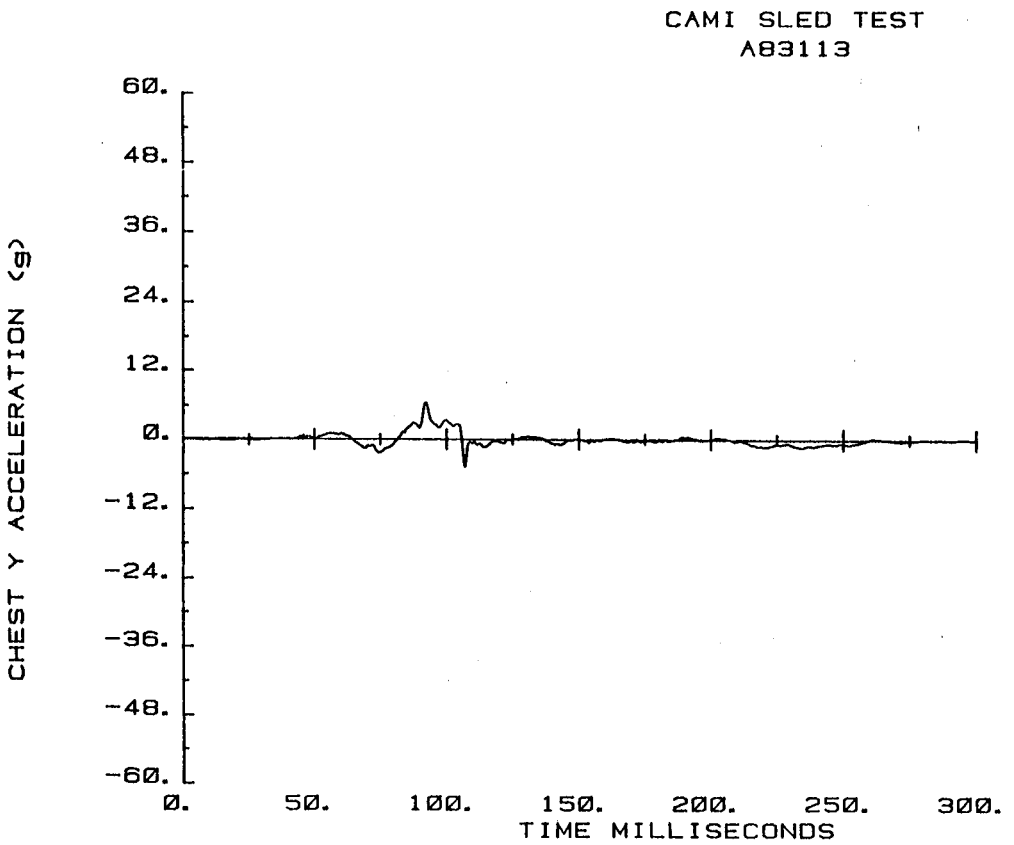

CAMI SLED TEST
A83113
PELVIS X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83113
PELVIS Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

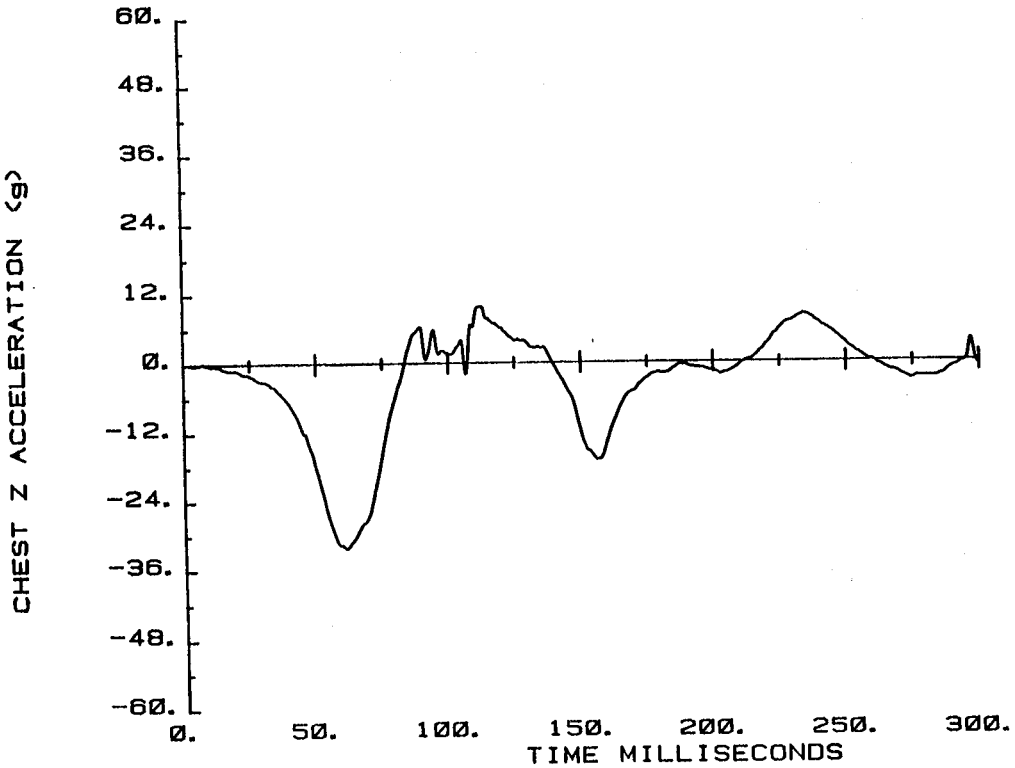

CAMI SLED TEST
A83113
PELVIS Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83113
PELVIS RESULTANT (g)
80.
64.
48.
32.
16.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83113
CHEST X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83113
CHEST Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

CAMI SLED TEST
A83113



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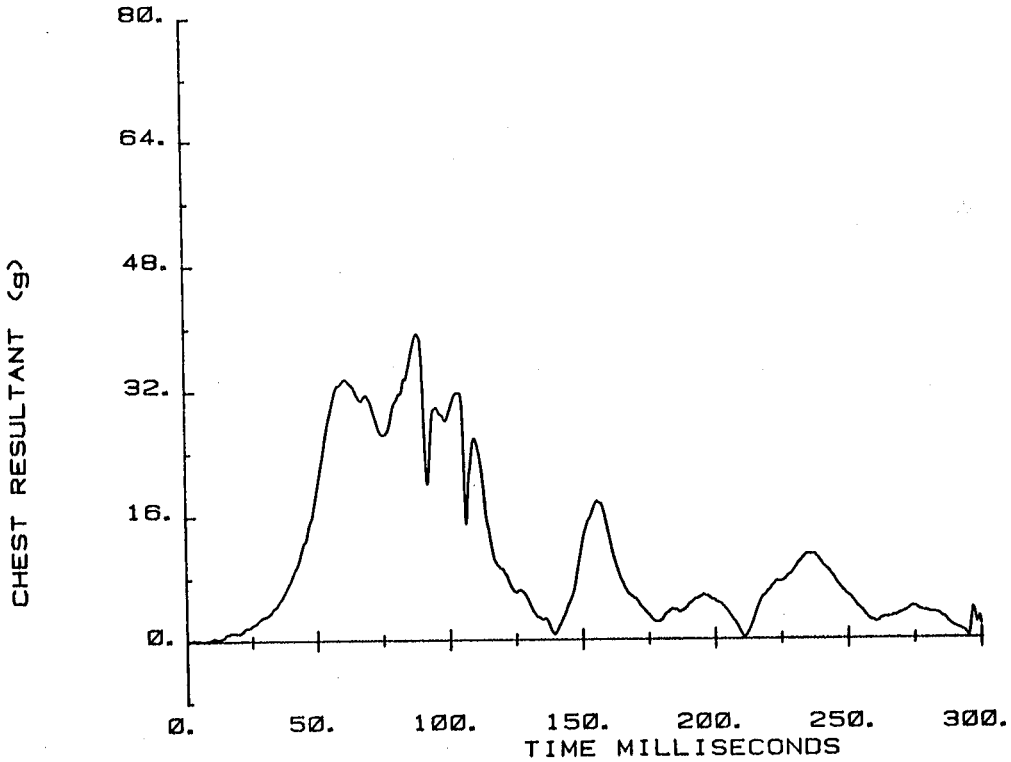
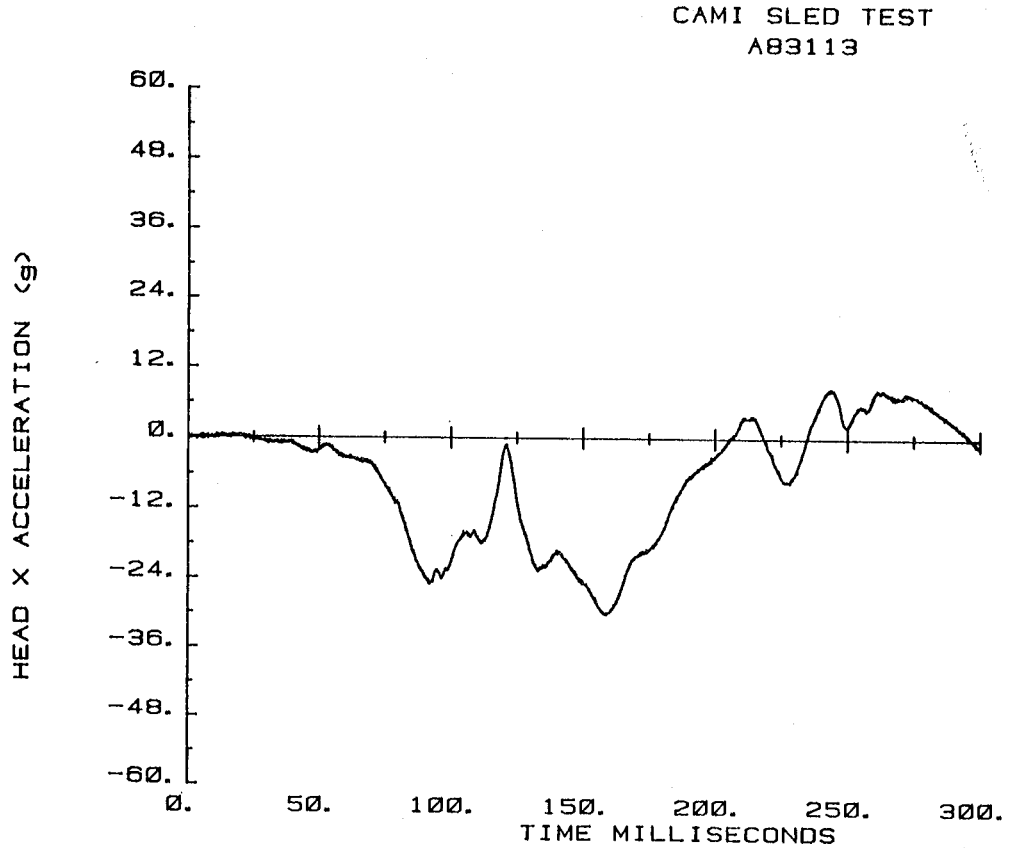
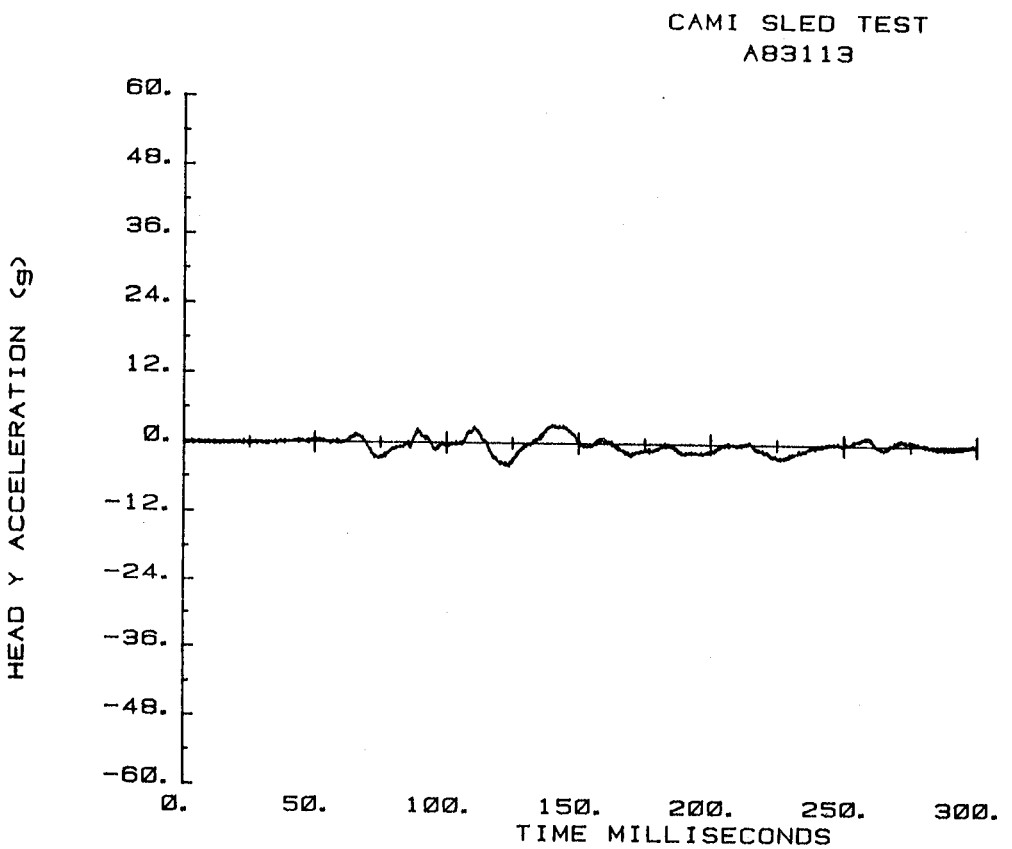
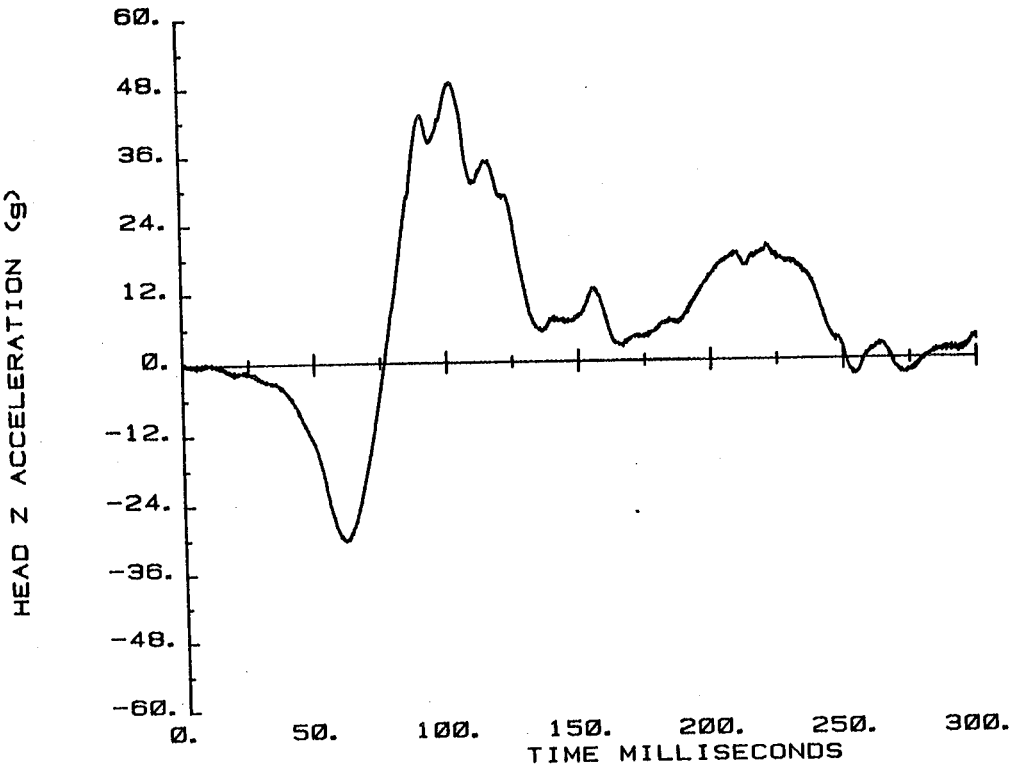


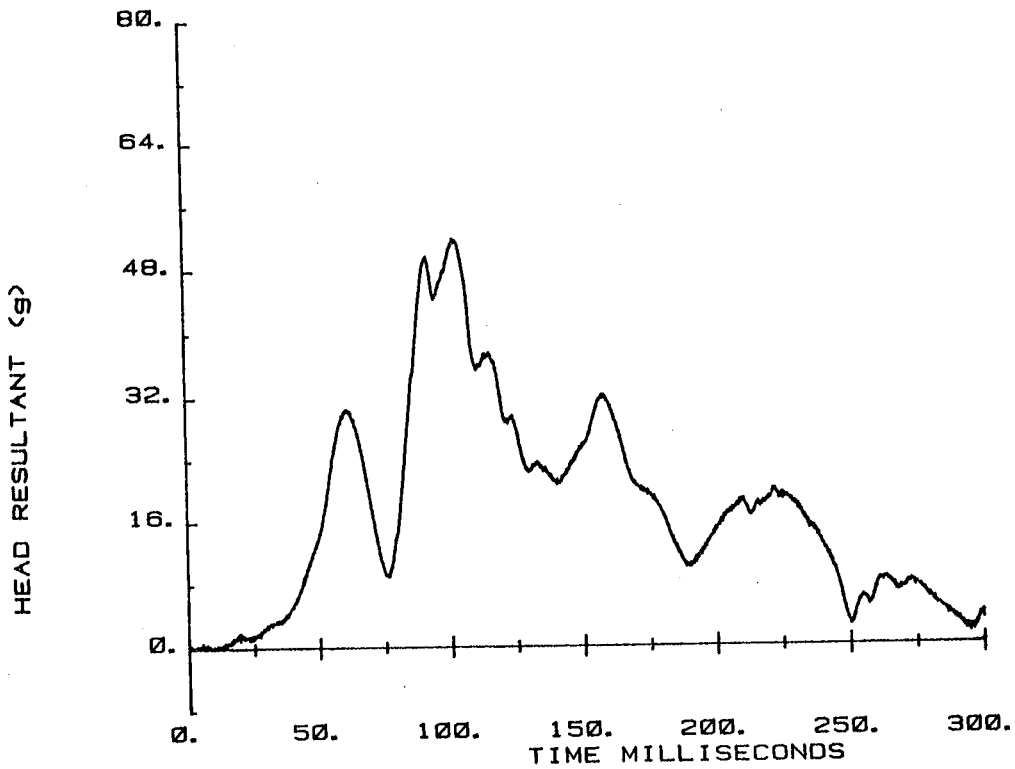

CAMI SLED TEST
A83113
HEAD X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

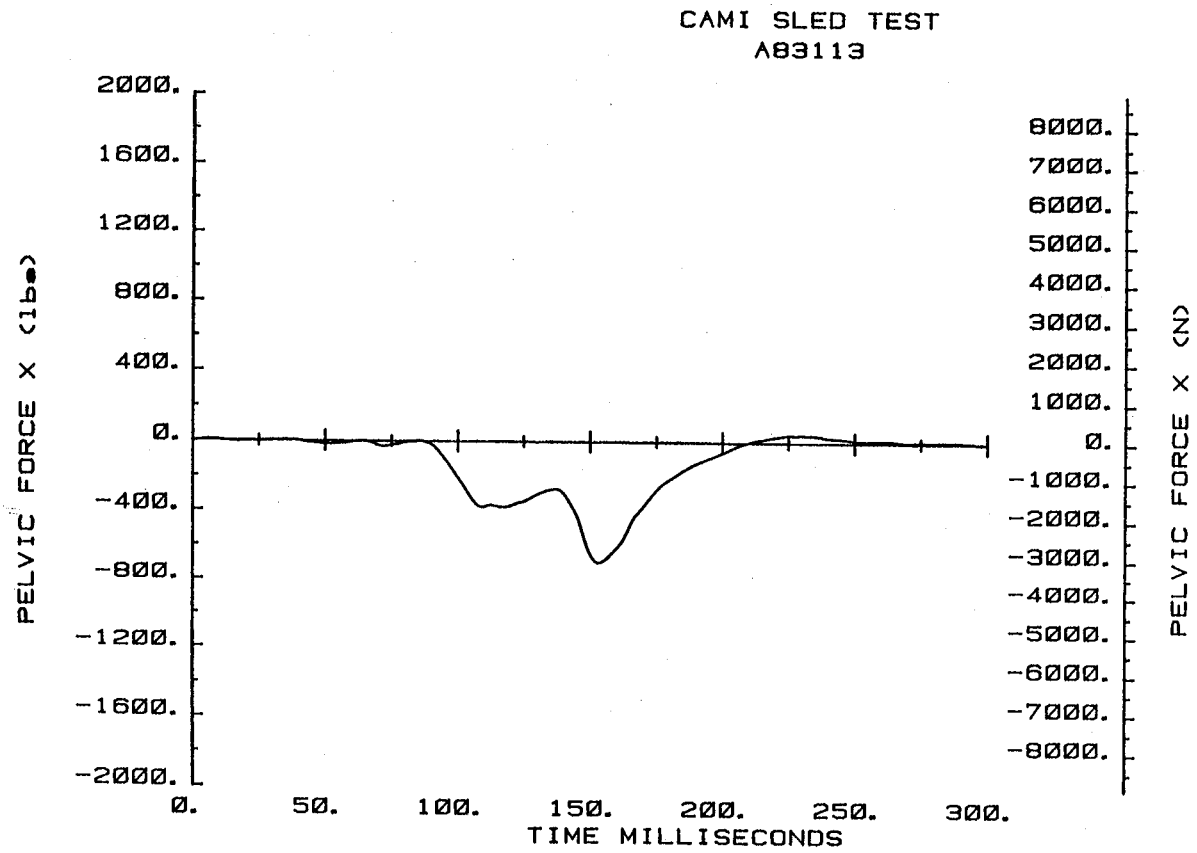

CAMI SLED TEST
A83113
HEAD Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

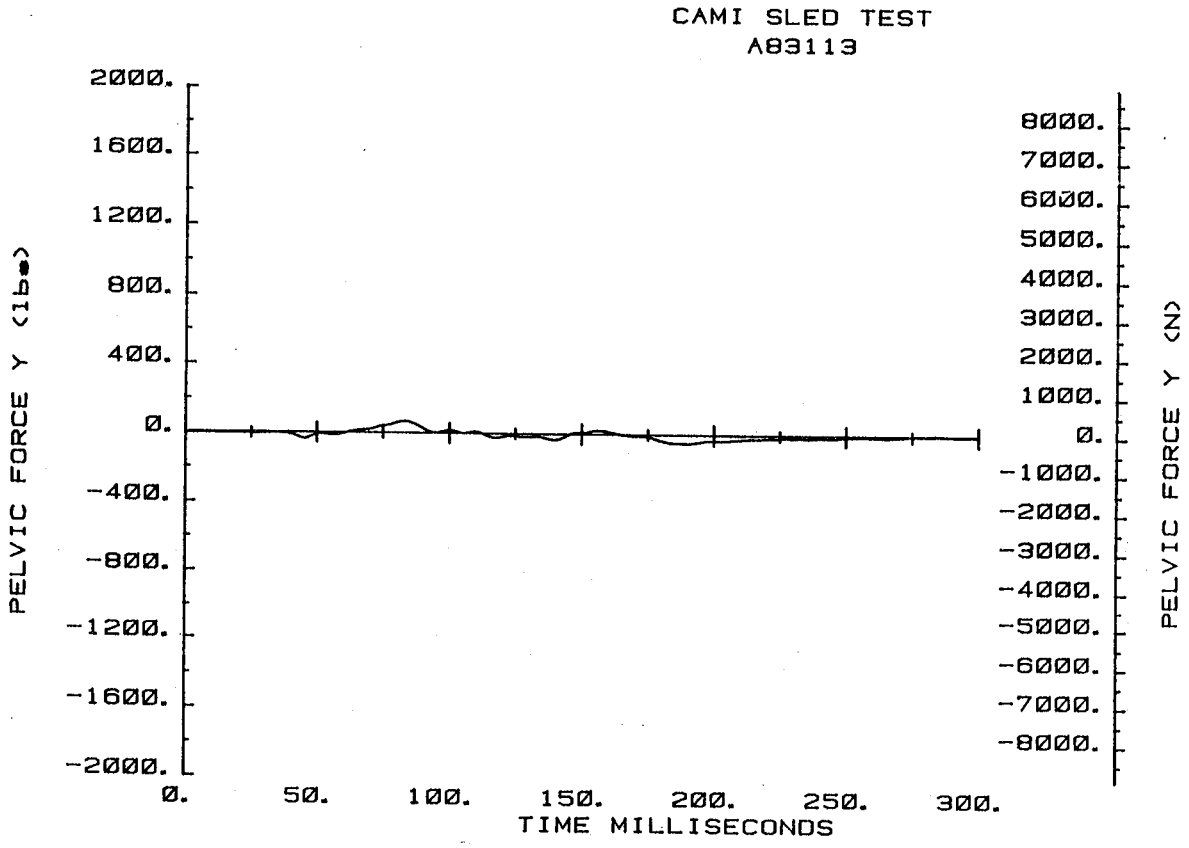
CAMI SLED TEST
A83113

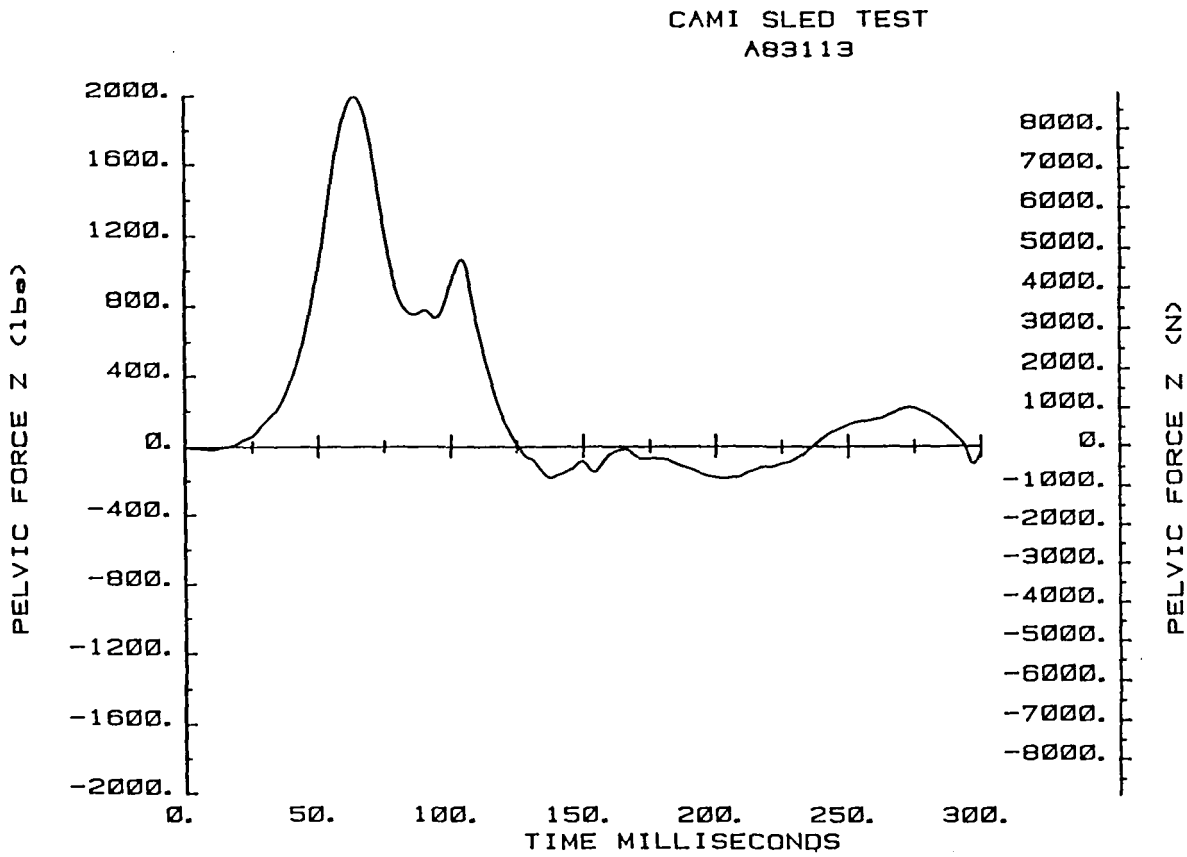


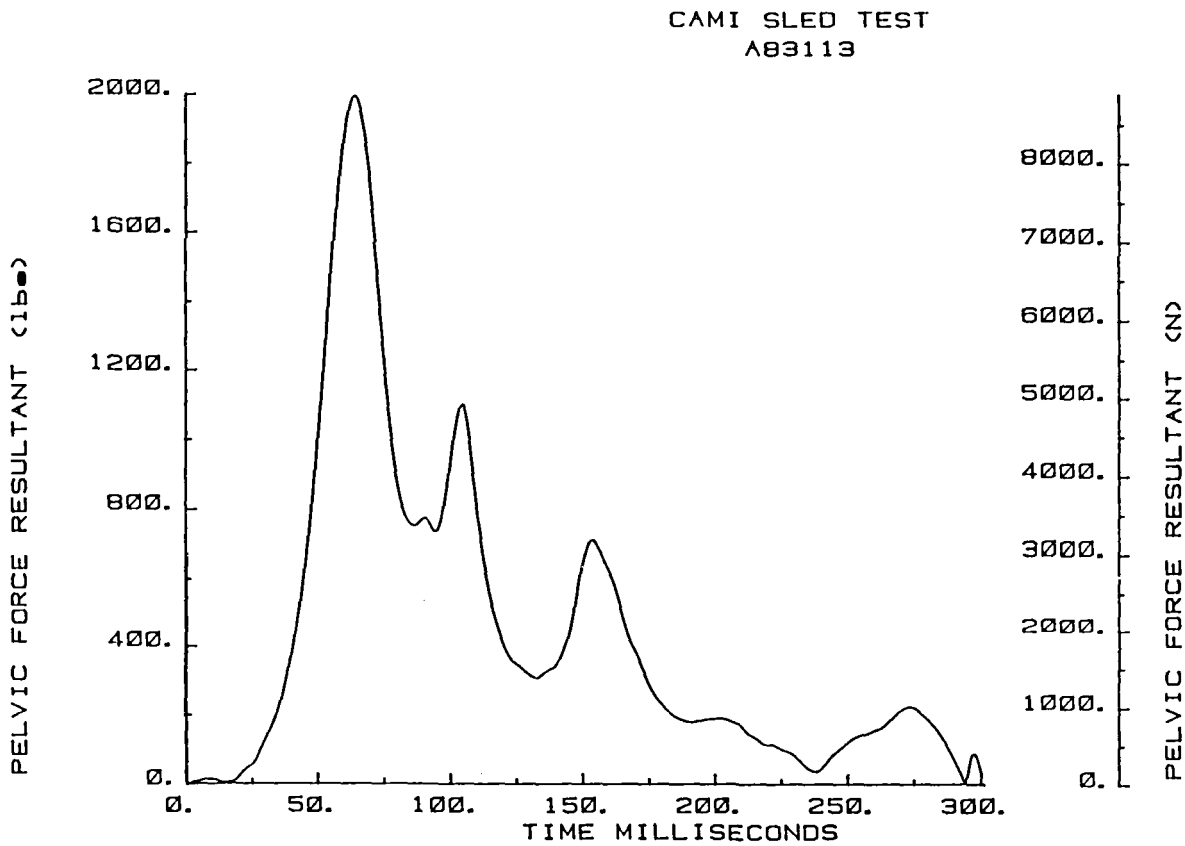
CAMI SLED TEST
A83113

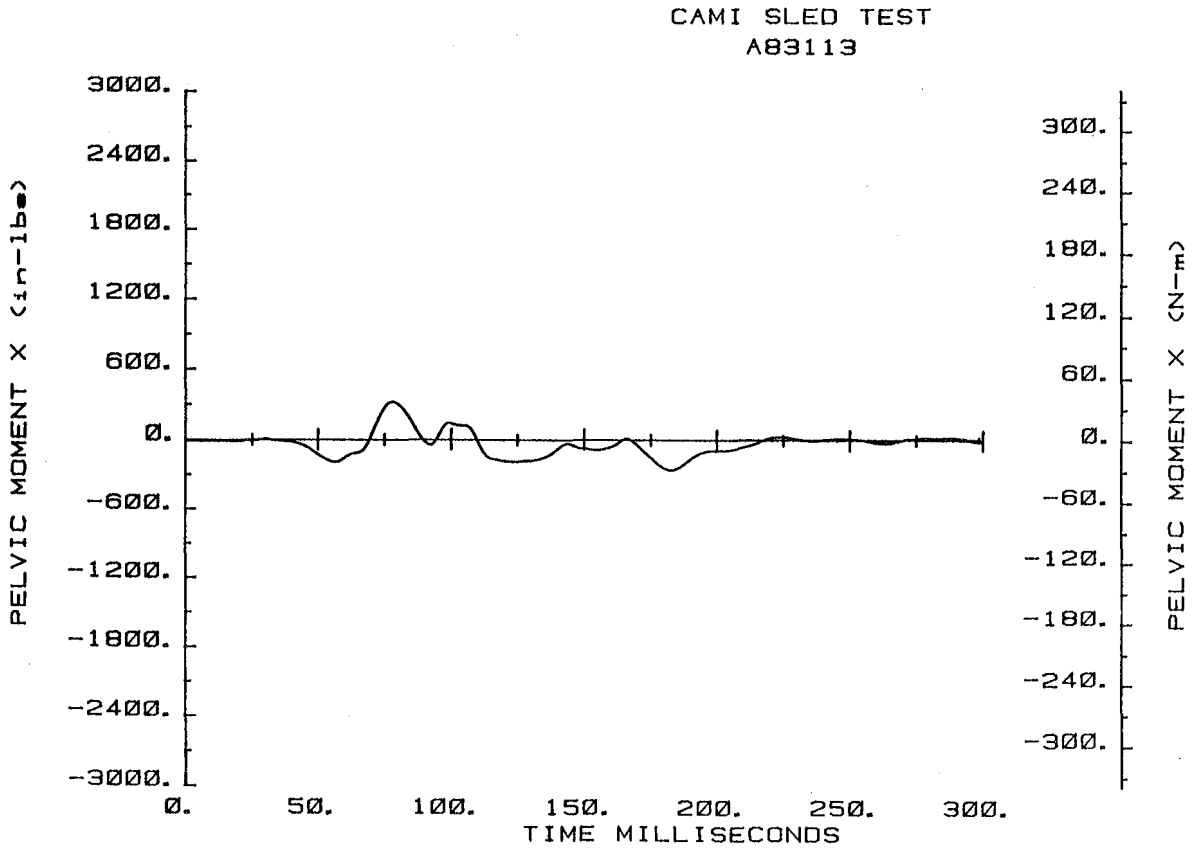


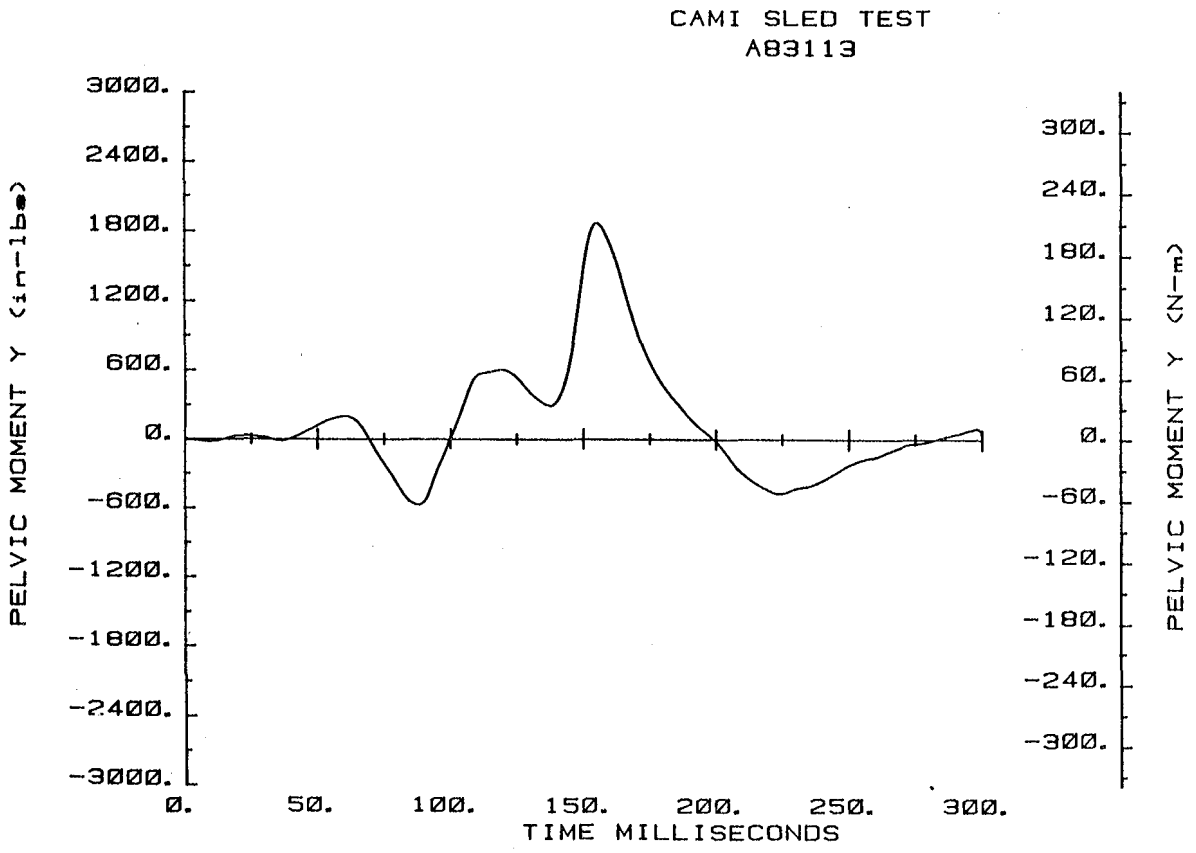

CAMI SLED TEST
A83113
PELVIC FORCE X (lb.)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
PELVIC FORCE X (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

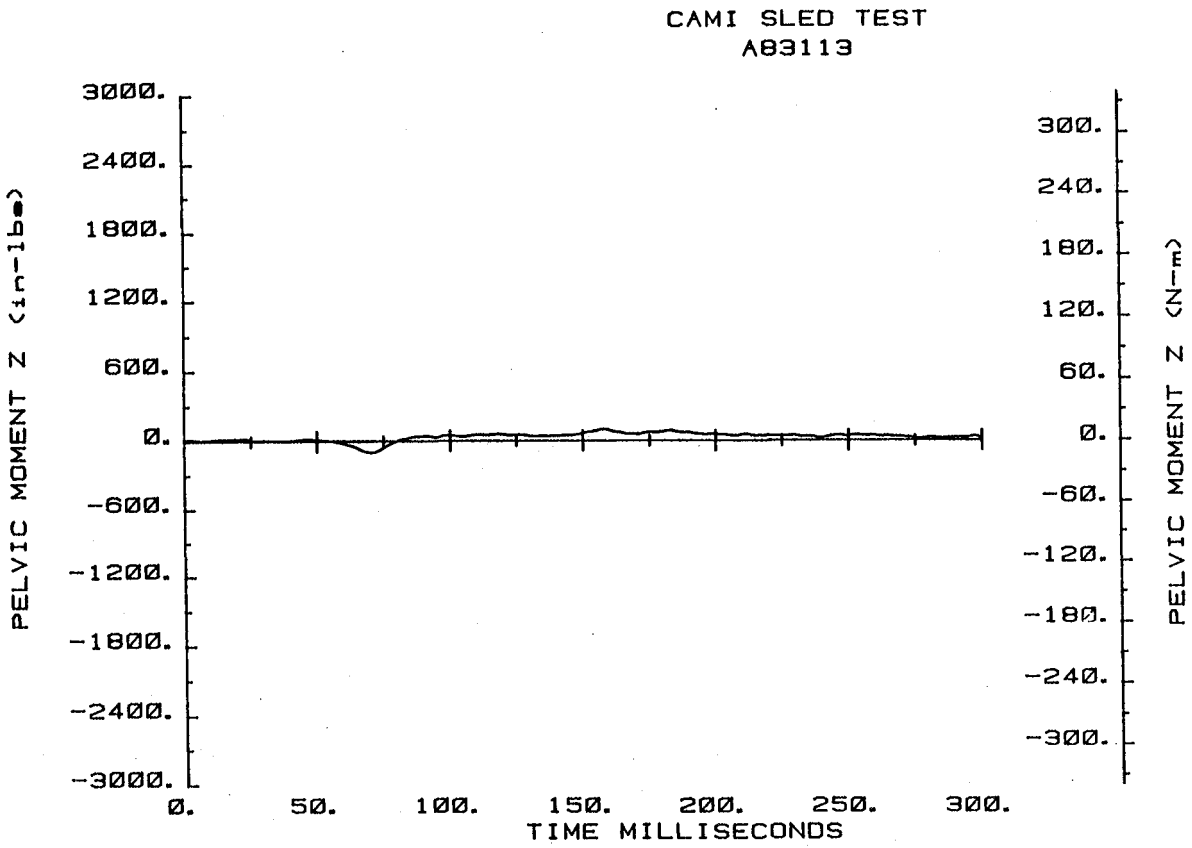

CAMI SLED TEST
A83113
PELVIC FORCE Y (lb.)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
PELVIC FORCE Y (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

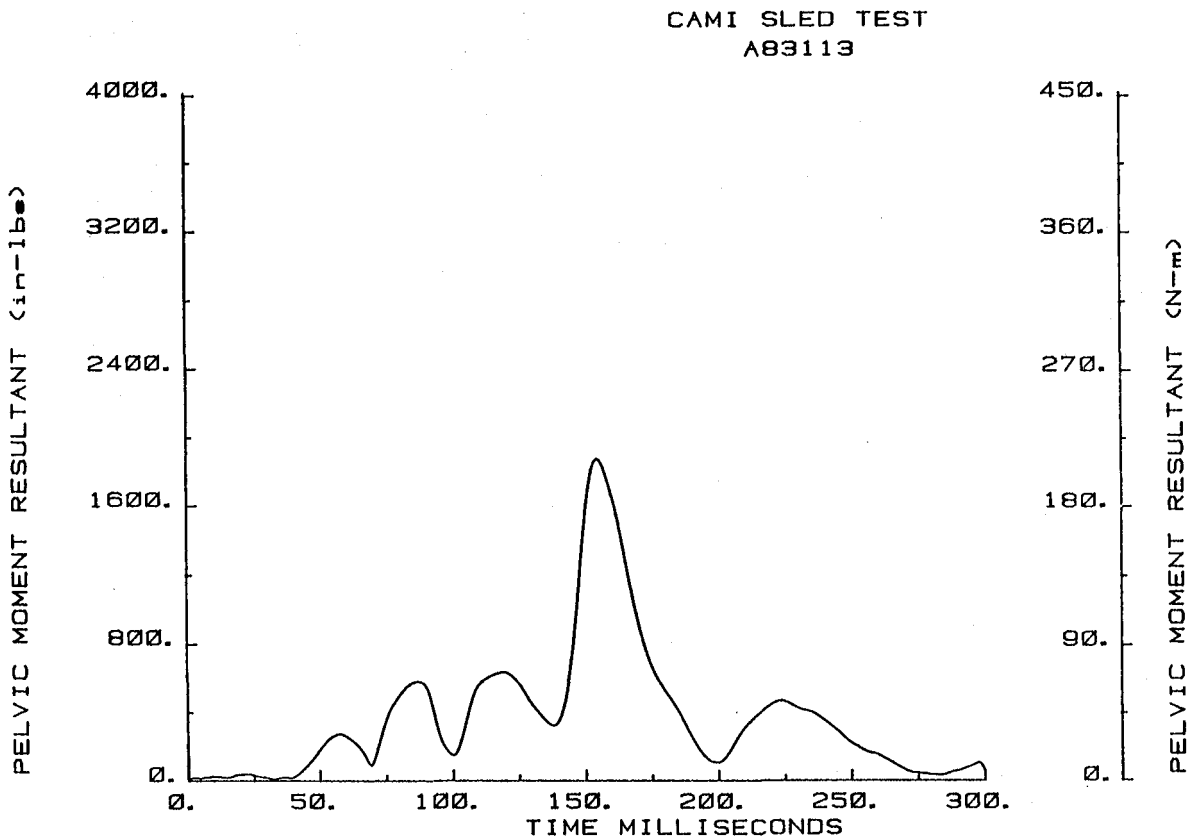

CAMI SLED TEST
A83113
PELVIC FORCE Z (lbs)
PELVIC FORCE Z (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

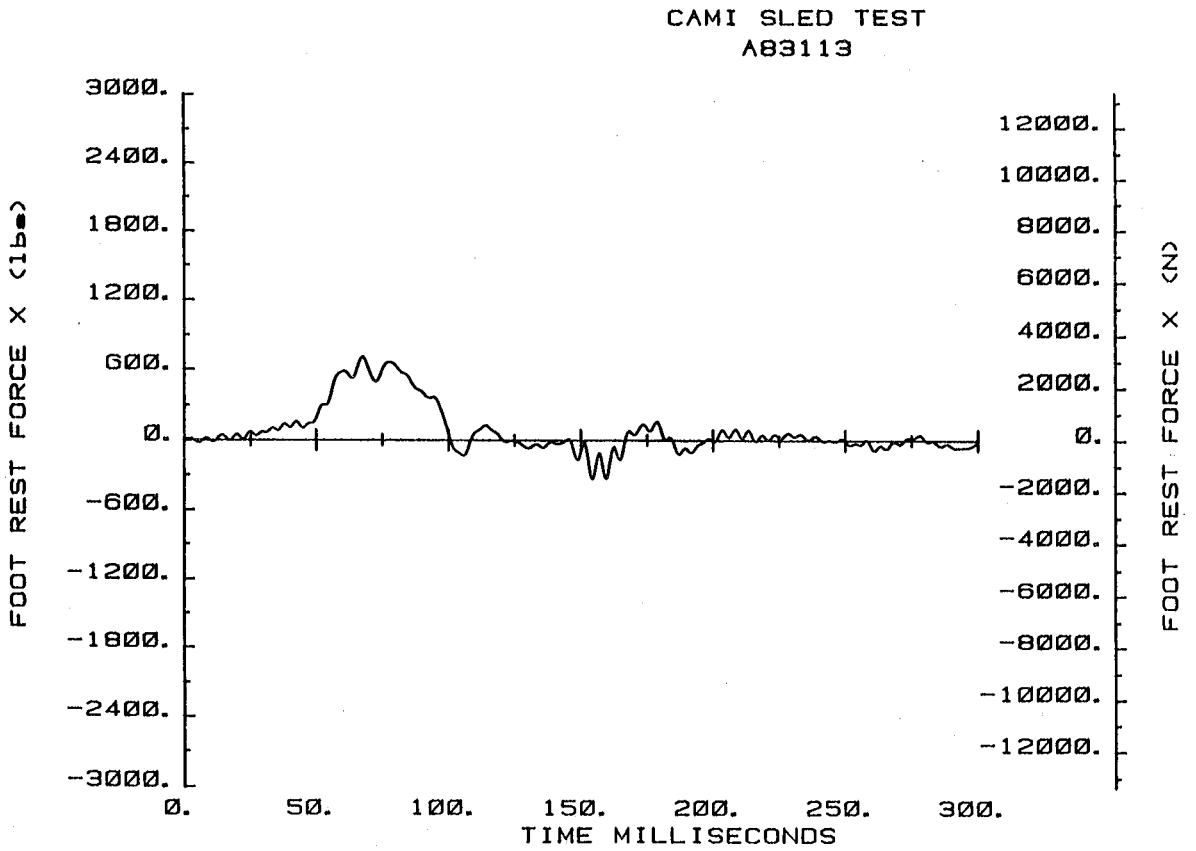

CAMI SLED TEST
A83113
PELVIC FORCE RESULTANT (lbs)
PELVIC FORCE RESULTANT (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

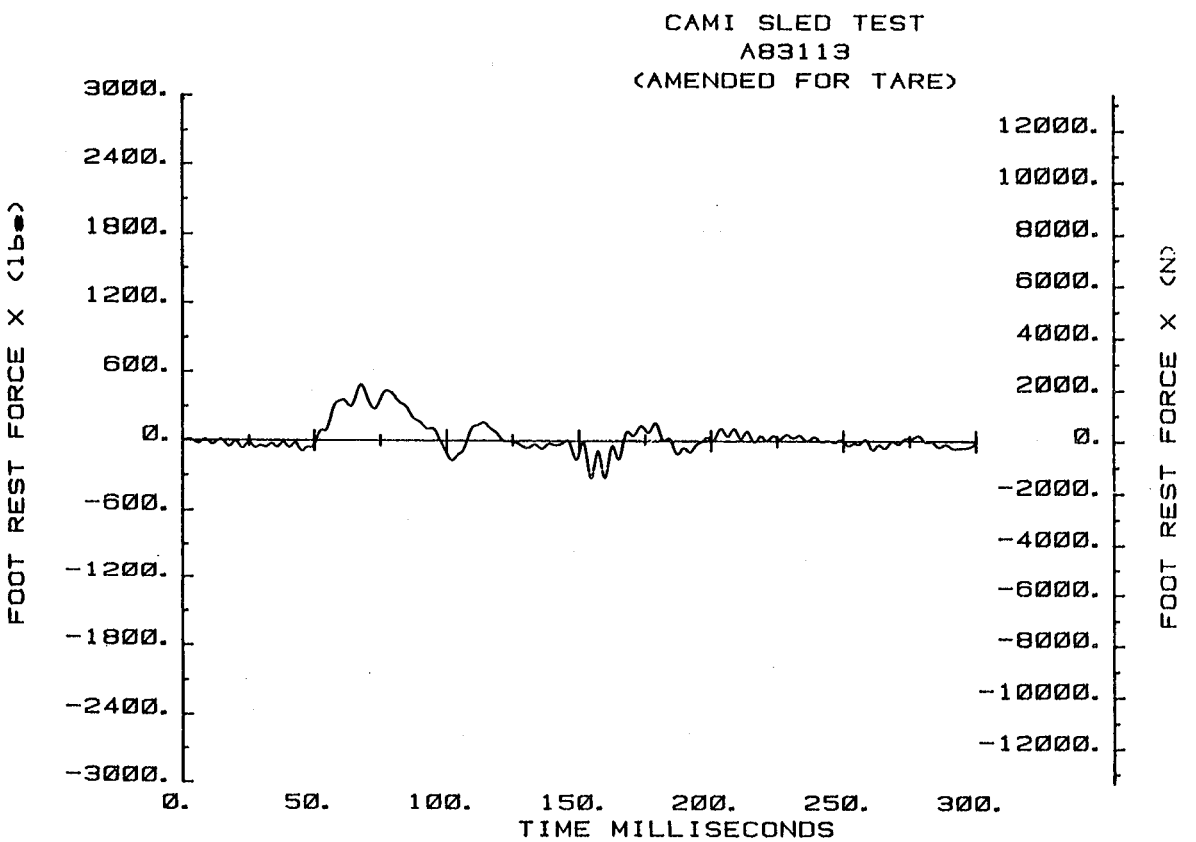

CAMI SLED TEST
A83113
PELVIC MOMENT X (in-lb)
PELVIC MOMENT X (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83113
PELVIC MOMENT Y (in-lb)
PELVIC MOMENT Y (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

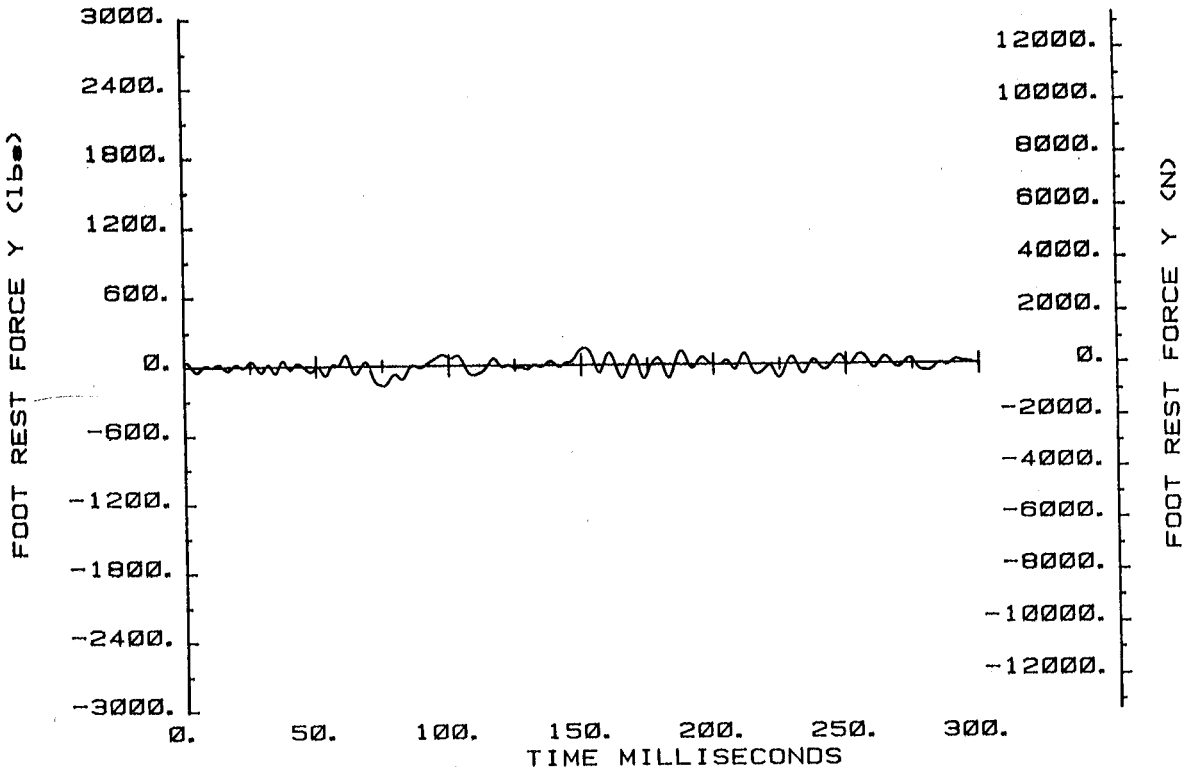

CAMI SLED TEST
A83113
PELVIC MOMENT Z (in-lb)
PELVIC MOMENT Z (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83113
PELVIC MOMENT RESULTANT (in-lb)
PELVIC MOMENT RESULTANT (N-m)
4000.
3200.
2400.
1600.
800.
0.
450.
360.
270.
180.
90.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

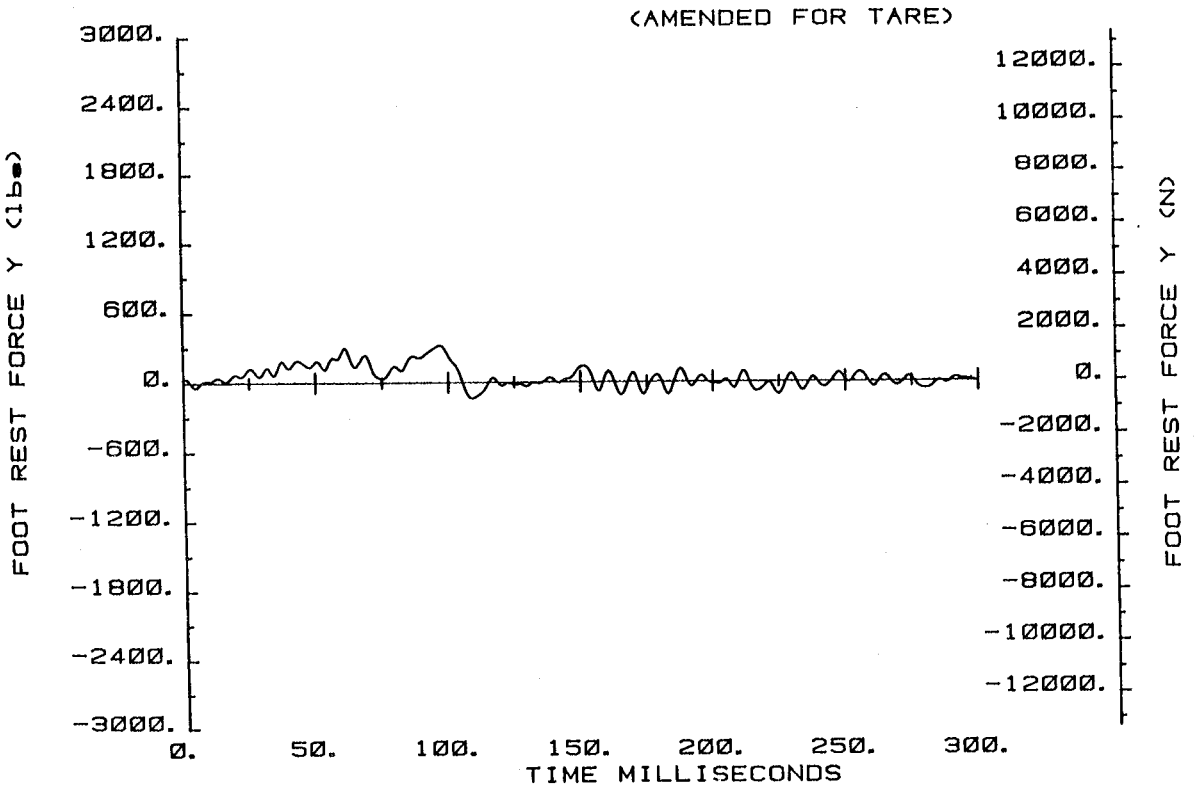

CAMI SLED TEST
A83113
FOOT REST FORCE X (lbs)
FOOT REST FORCE X (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

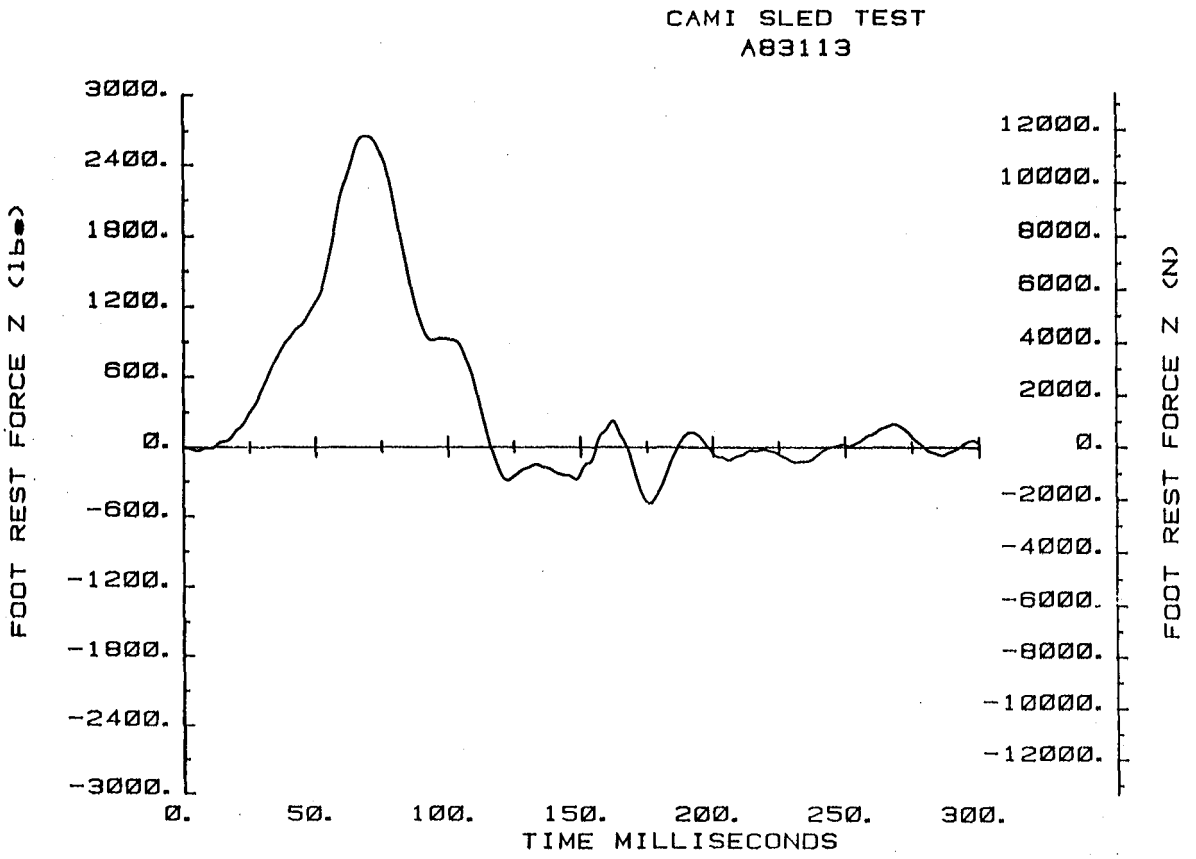

CAMI SLED TEST
A83113
(AMENDED FOR TARE)
FOOT REST FORCE X (lbs)
FOOT REST FORCE X (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

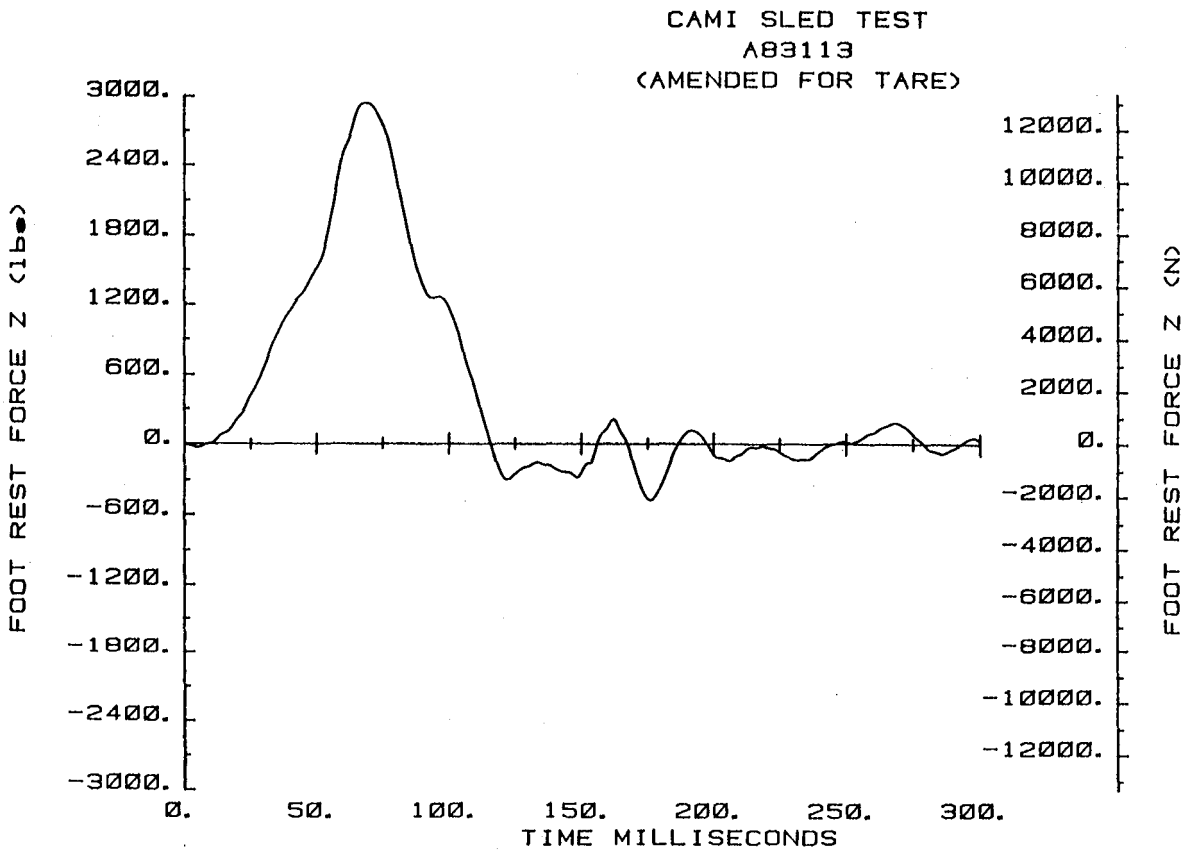
CAMI SLED TEST
A83113

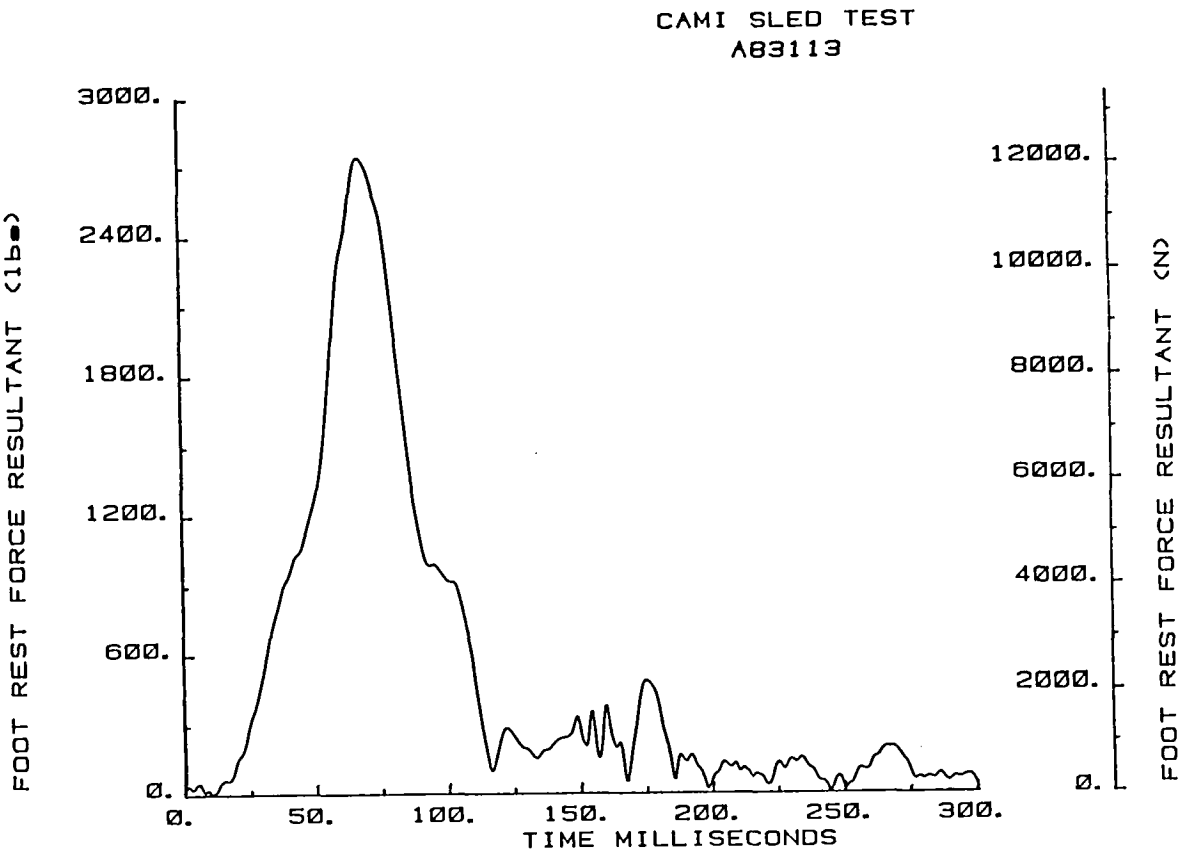


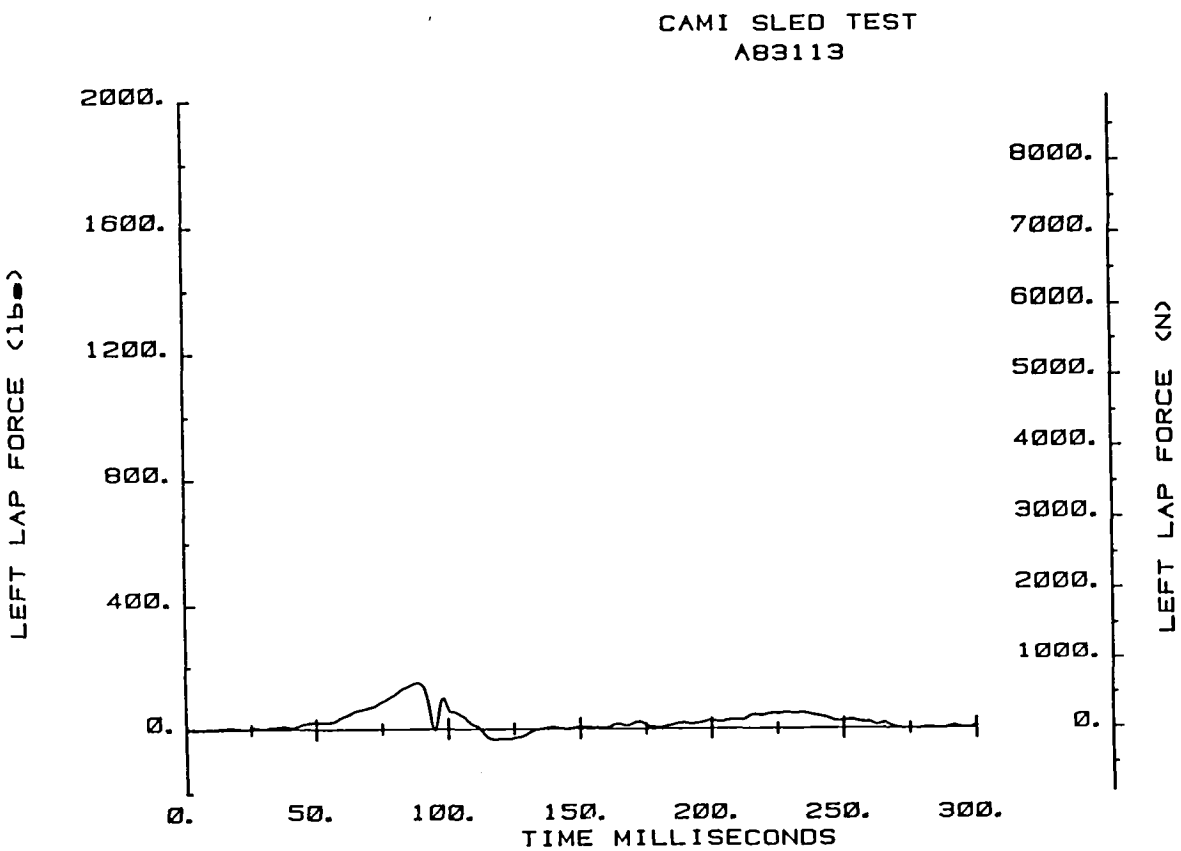
CAMI SLED TEST
A83113
(AMENDED FOR TARE)

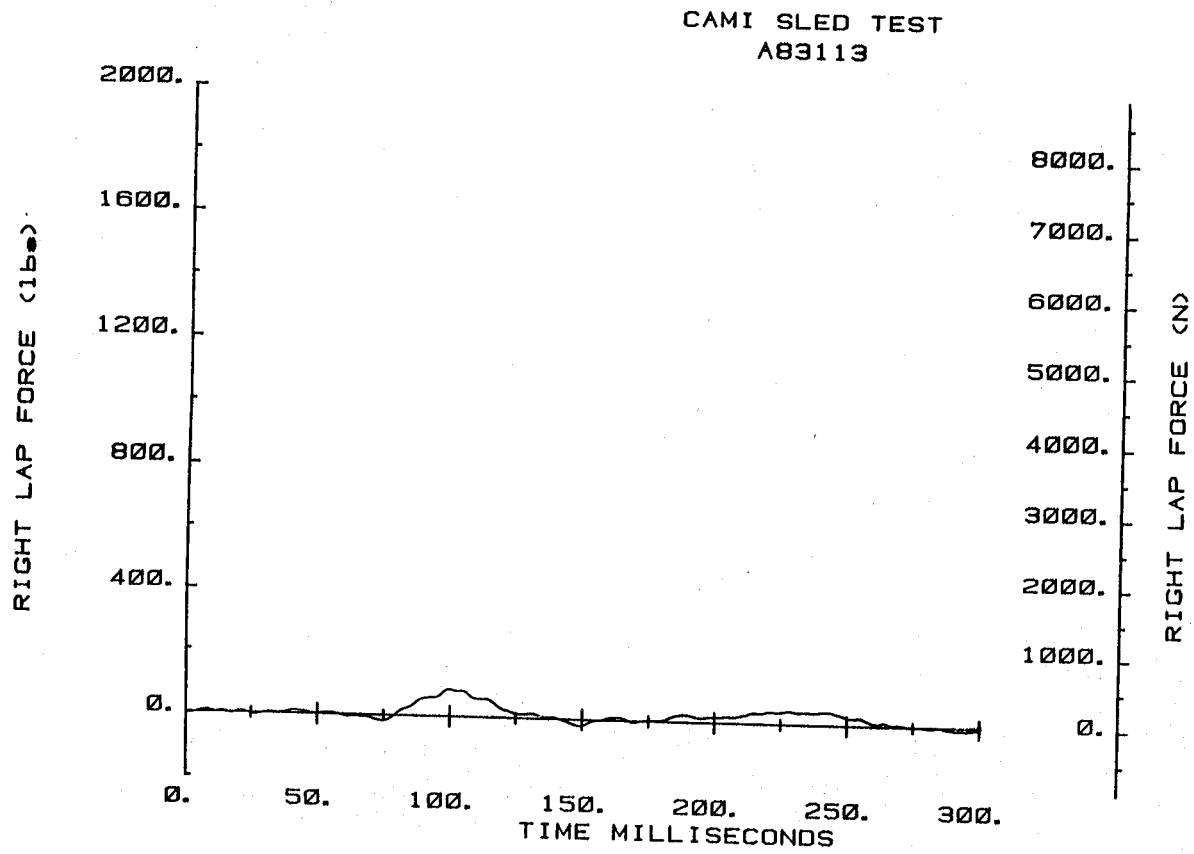


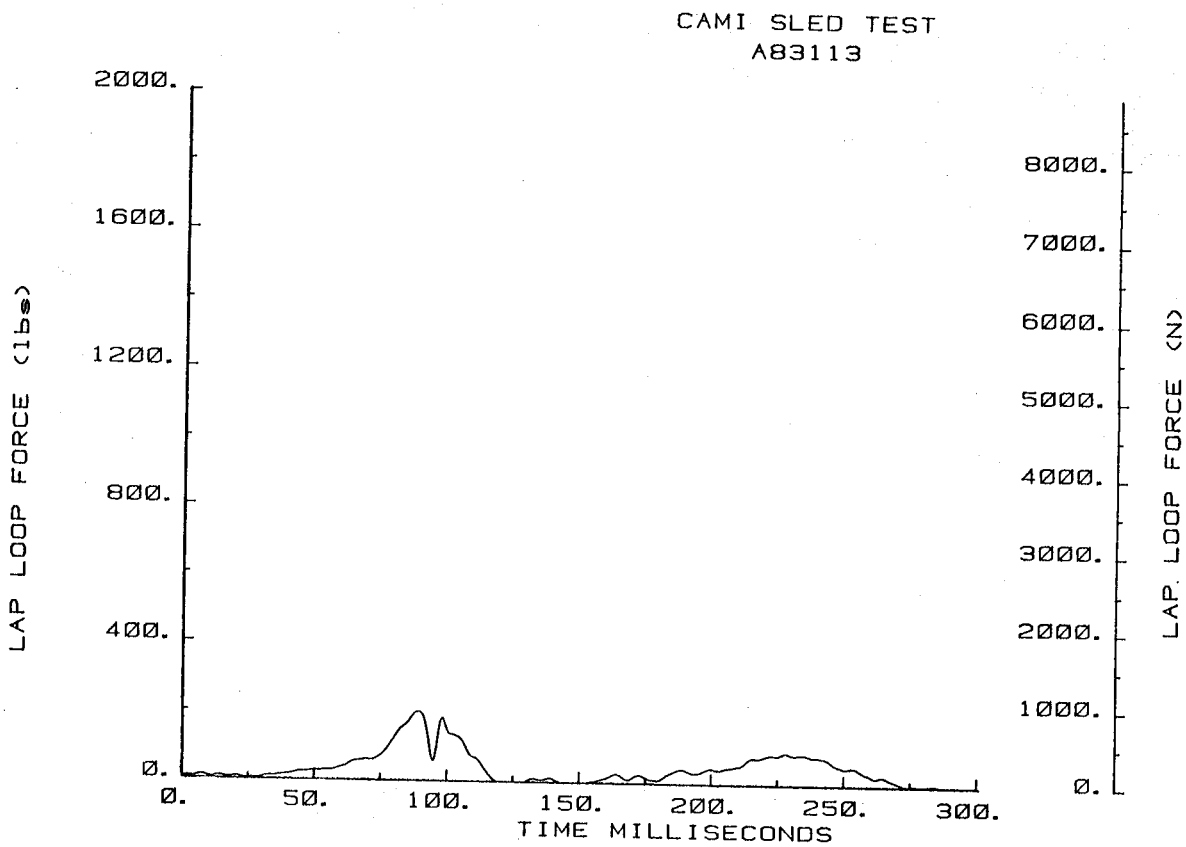

CAMI SLED TEST
A83113
FOOT REST FORCE Z (lb.)
FOOT REST FORCE Z (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

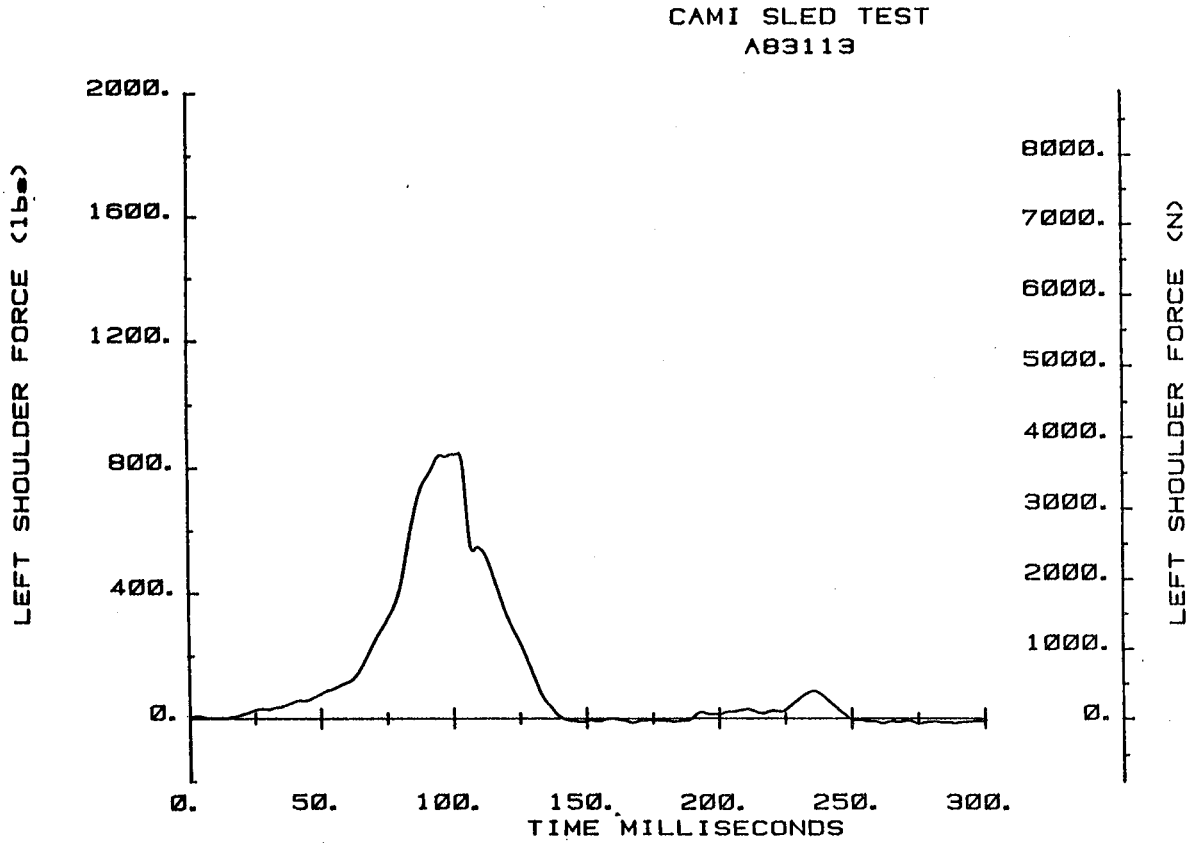

CAMI SLED TEST
A83113
(AMENDED FOR TARE)
FOOT REST FORCE Z (lb.)
FOOT REST FORCE Z (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

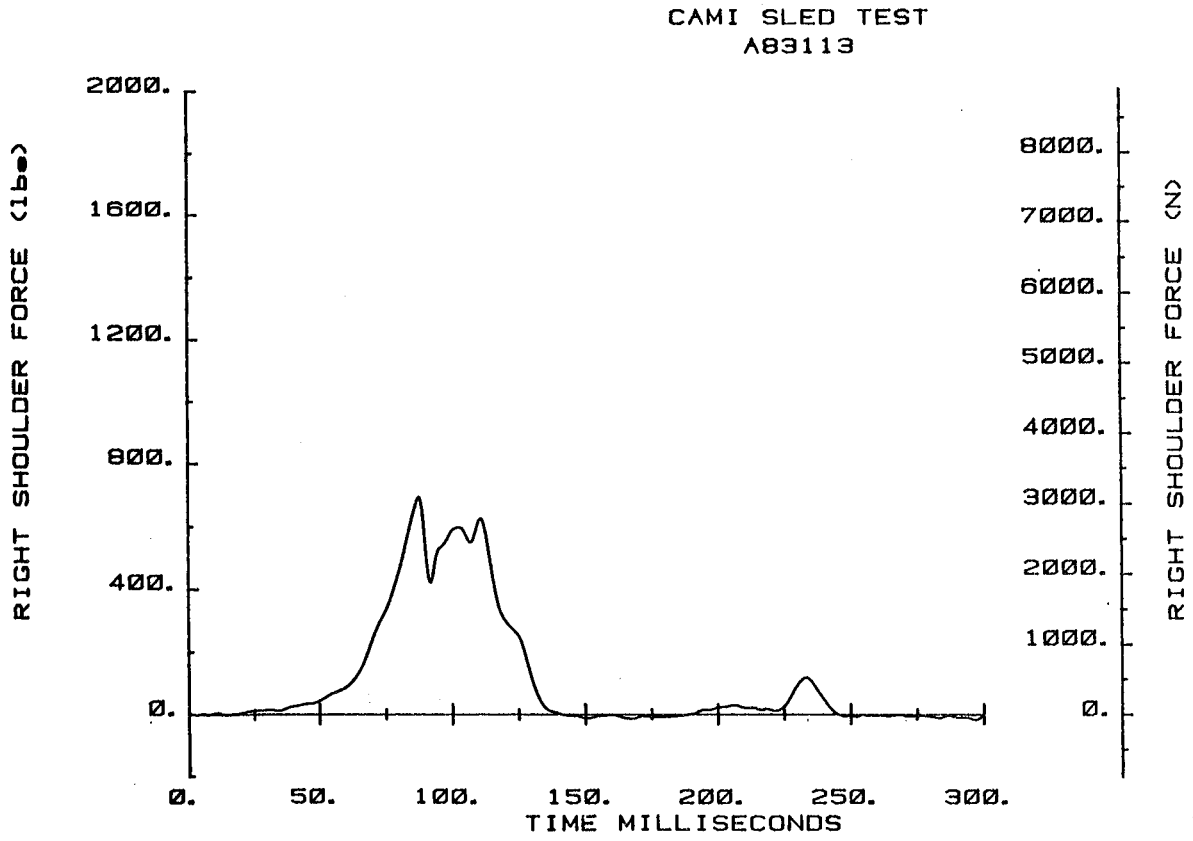

CAMI SLED TEST
A83113
FOOT REST FORCE RESULTANT (lb)
FOOT REST FORCE RESULTANT (N)
3000.
2400.
1800.
1200.
600.
0.
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

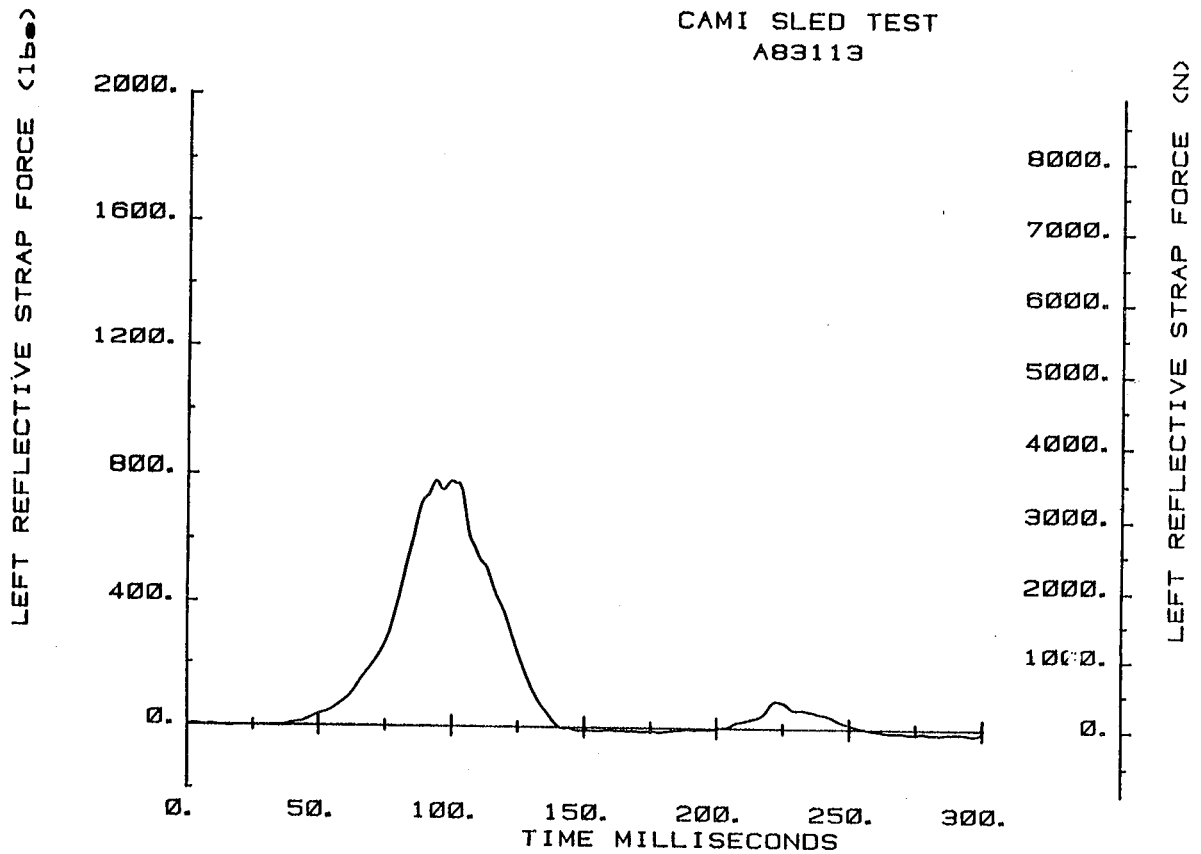

CAMI SLED TEST
A83113
LEFT LAP FORCE (lb)
LEFT LAP FORCE (N)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

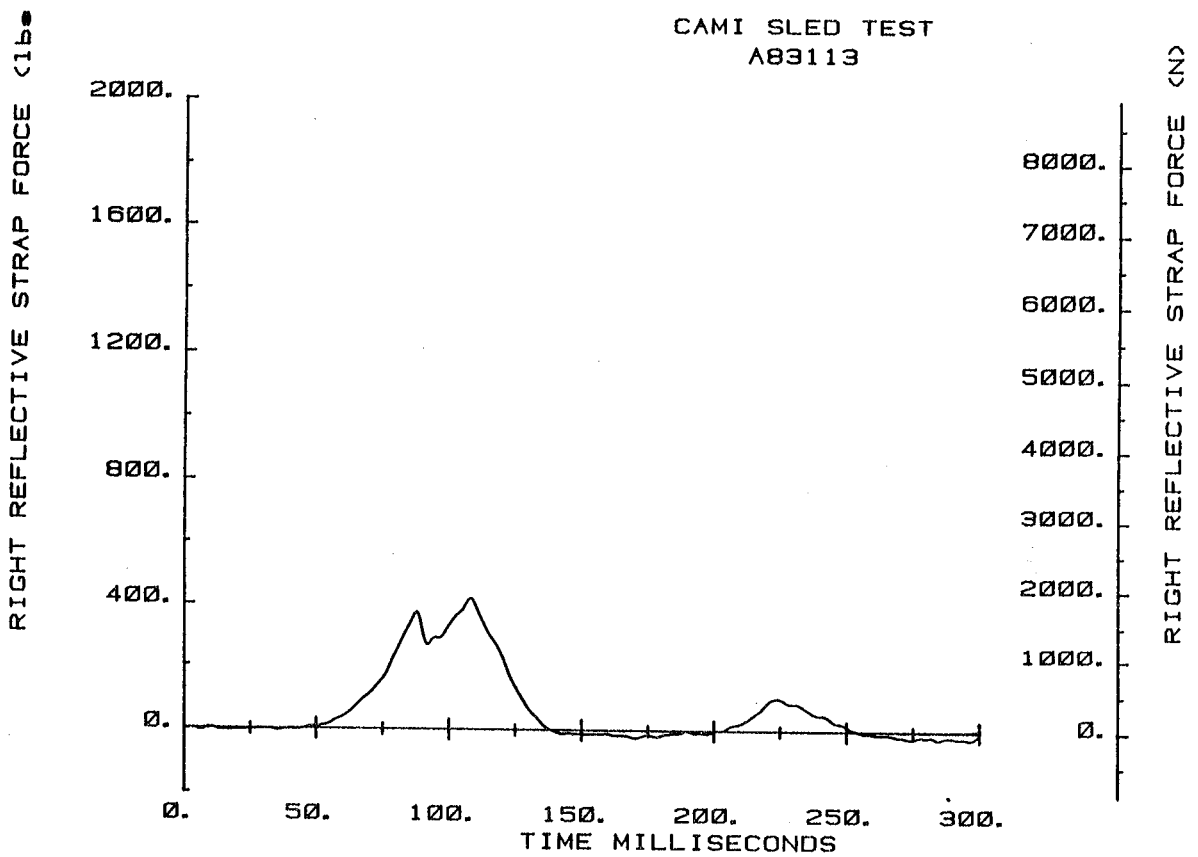

CAMI SLED TEST
A83113
RIGHT LAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT LAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83113
LAP LOOP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LAP LOOP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

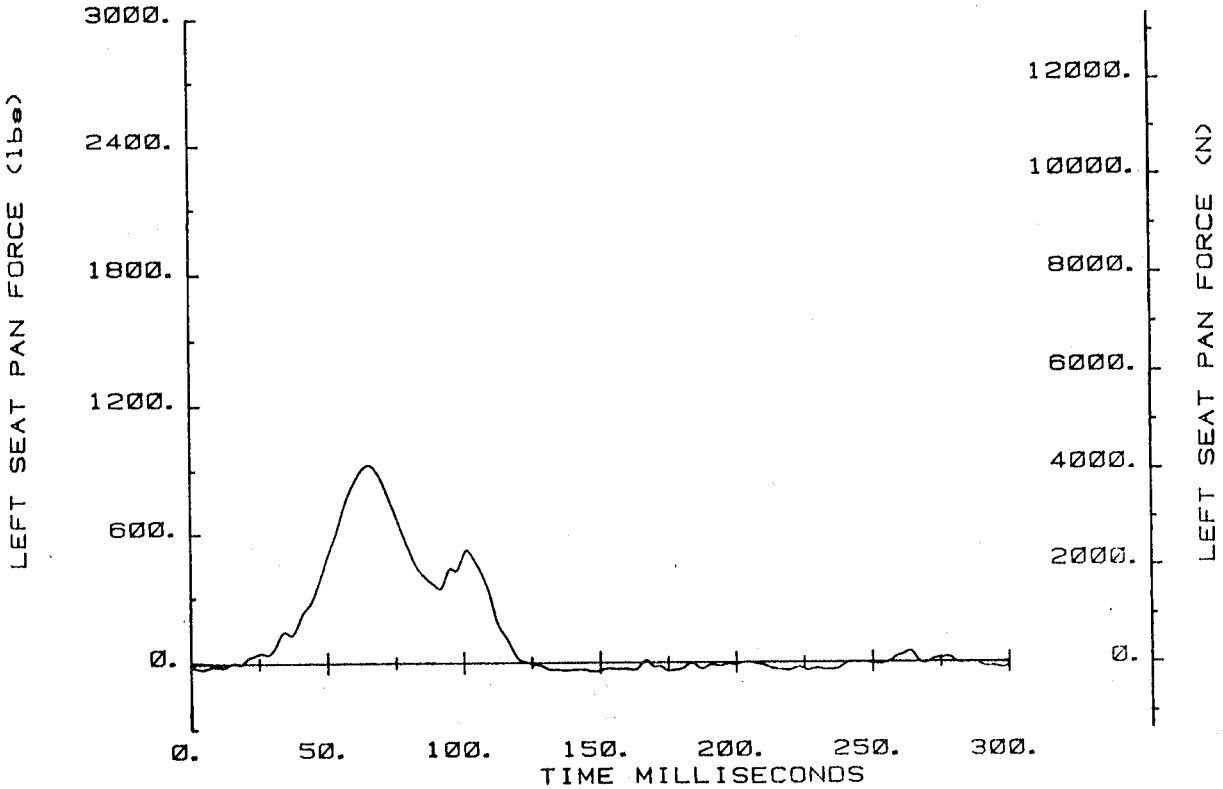

CAMI SLED TEST
A83113
LEFT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83113
RIGHT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

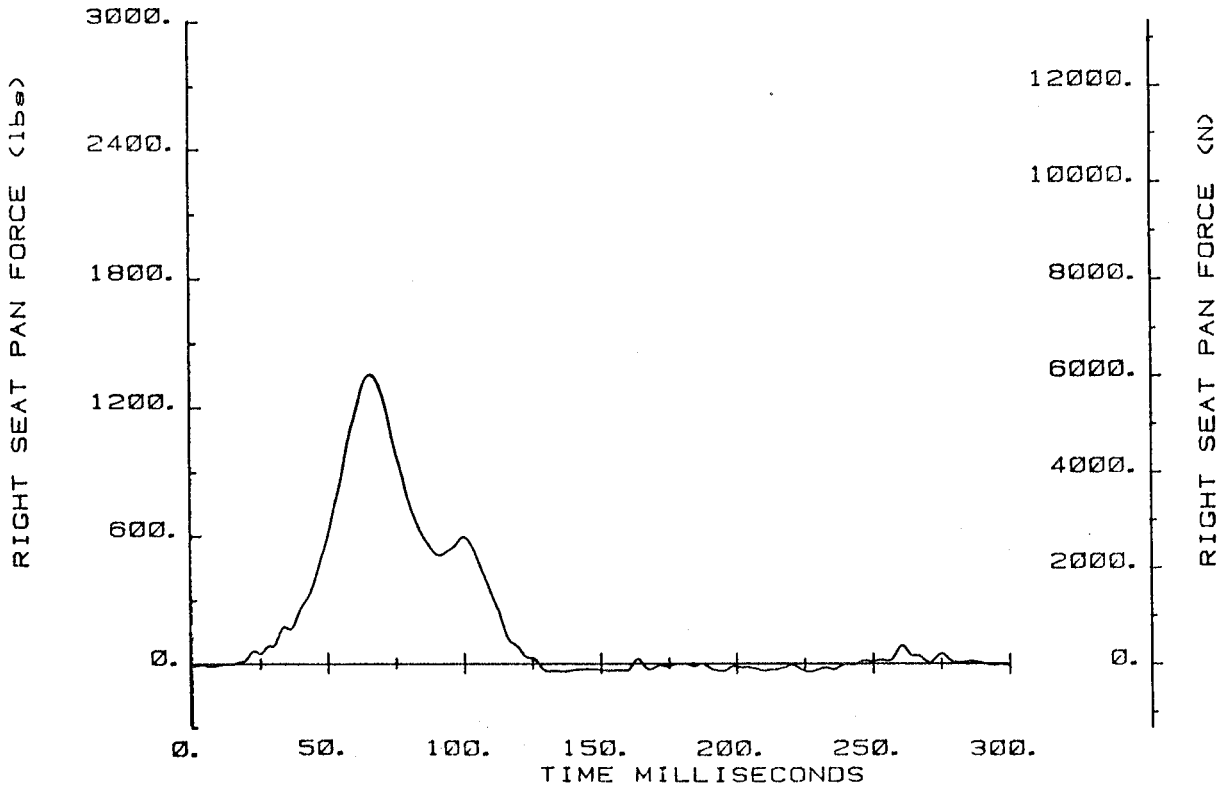

CAMI SLED TEST
A83113
LEFT REFLECTIVE STRAP FORCE (lb.)
2000.
1600.
1200.
800.
400.
0.
LEFT REFLECTIVE STRAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

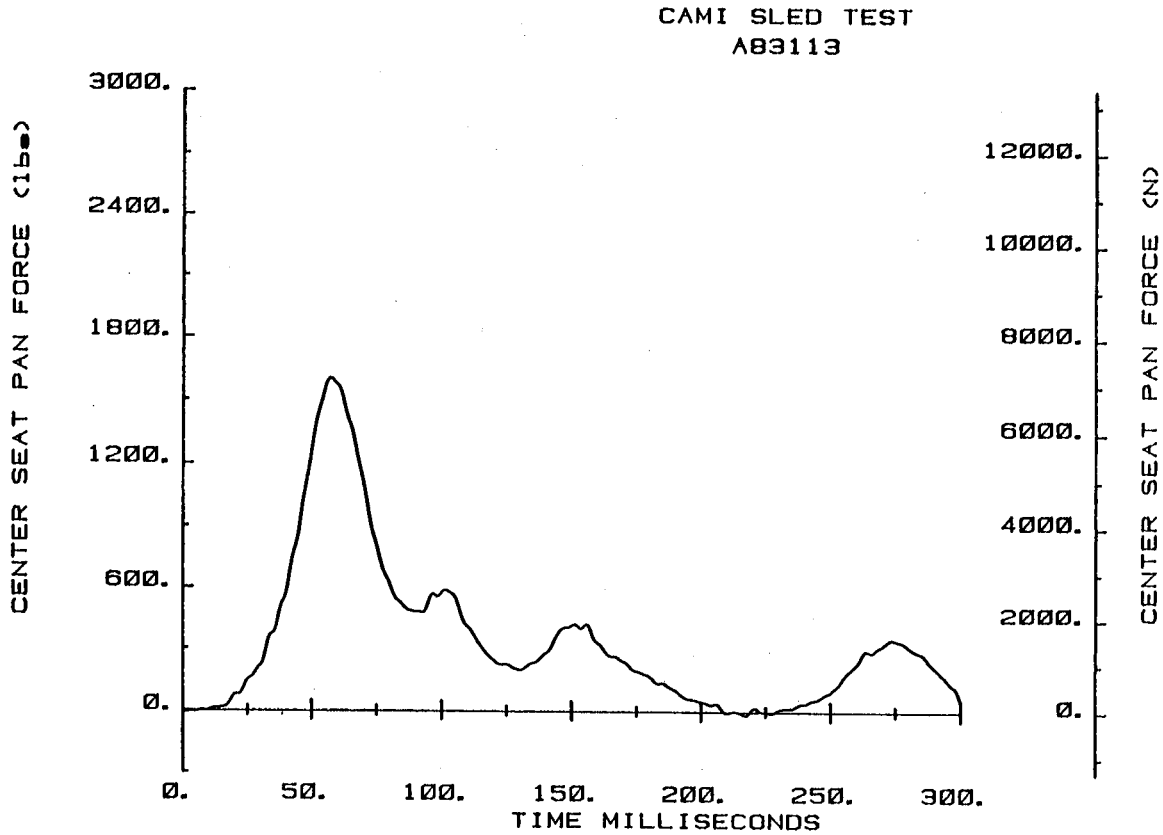

CAMI SLED TEST
A83113
RIGHT REFLECTIVE STRAP FORCE (lb.)
2000.
1600.
1200.
800.
400.
0.
RIGHT REFLECTIVE STRAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

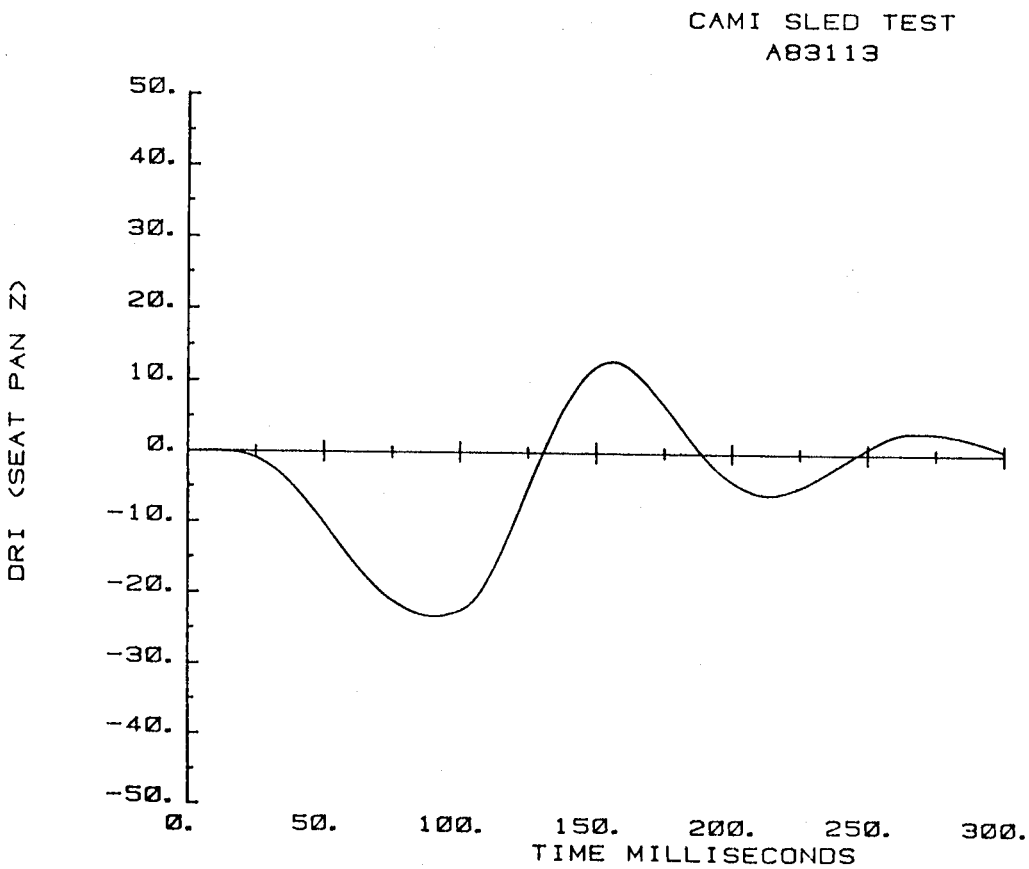
CAMI SLED TEST
A83113

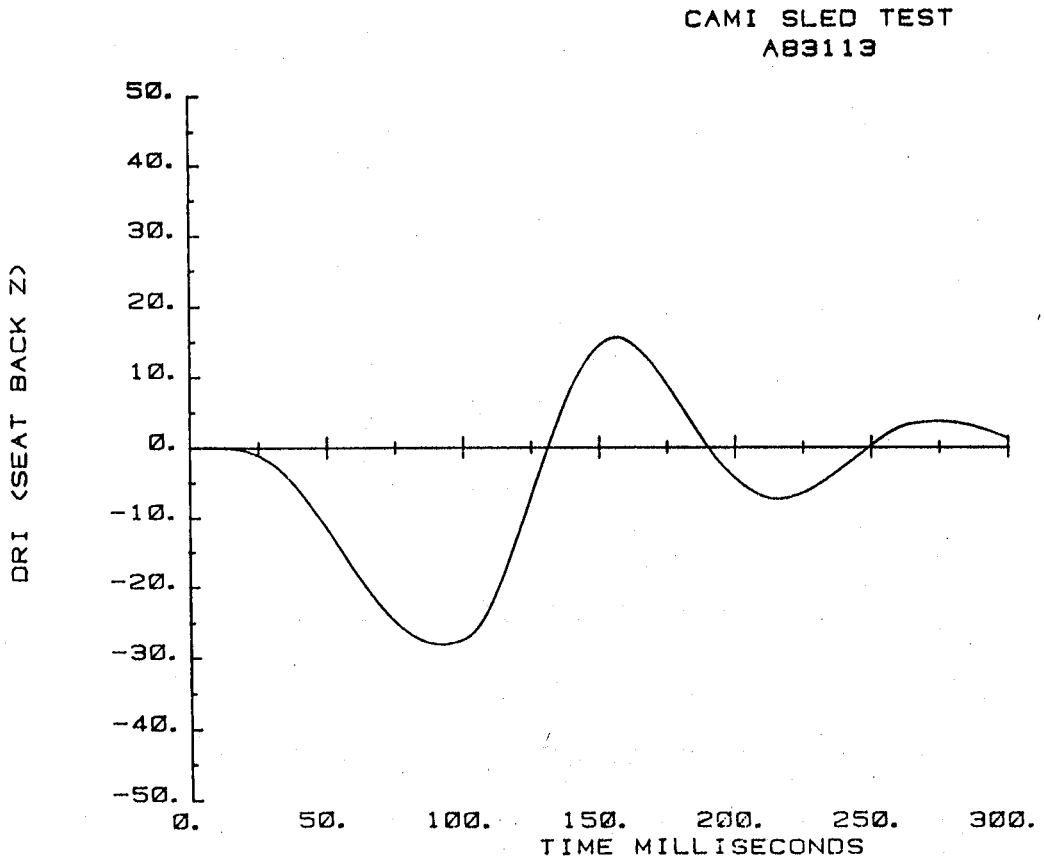


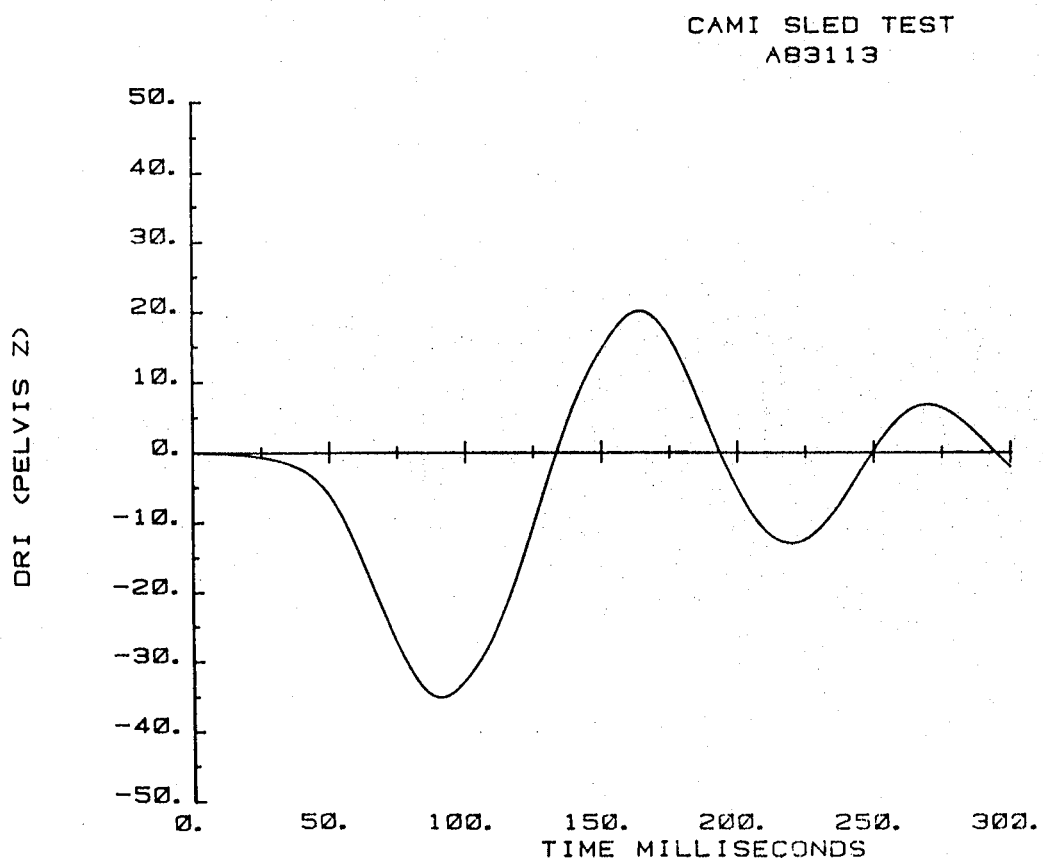
CAMI SLED TEST
A83113




CAMI SLED TEST
A83113
CENTER SEAT PAN FORCE (lbs)
3000.
2400.
1800.
1200.
600.
0.
CENTER SEAT PAN FORCE (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83113
DRI (SEAT PAN Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83113
DRI (SEAT BACK Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A83113
DRI (PELVIS Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

12.0 CAMI TEST NO. A84-81

SEAT: Energy Absorbing

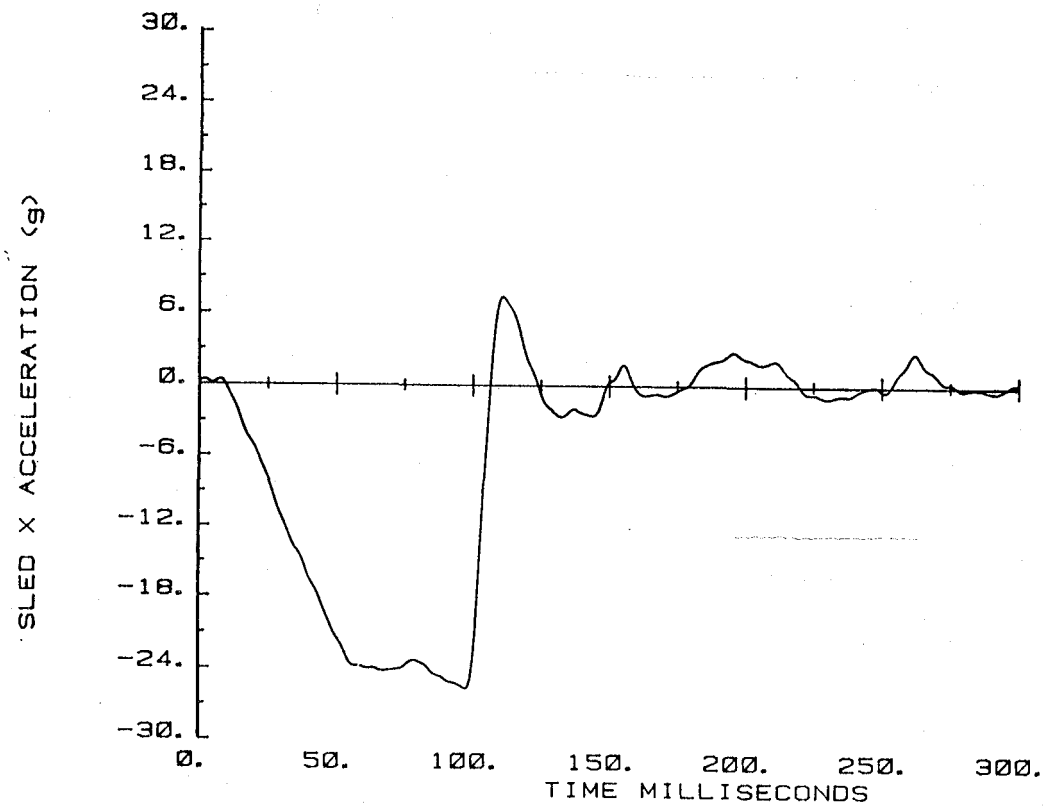
PULSE NUMBER: 2

SEAT ORIENTATION: Pitch - 40°
Roll - 0°
Yaw - 0°

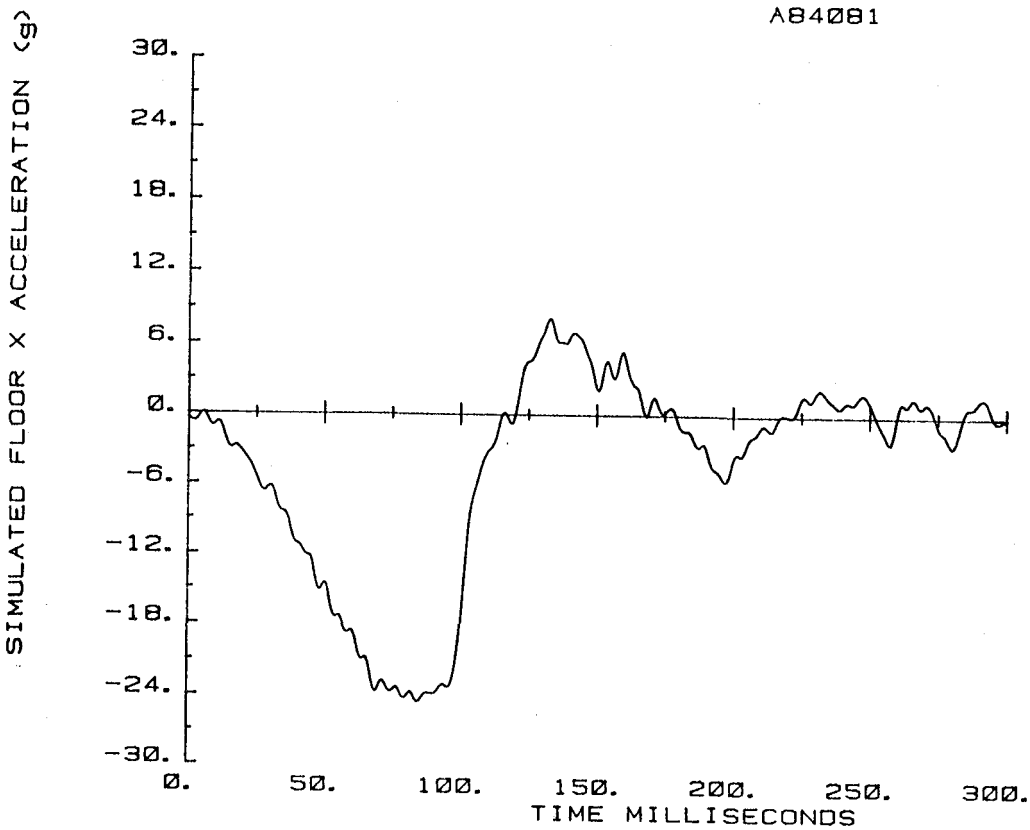
PEAK LOADS

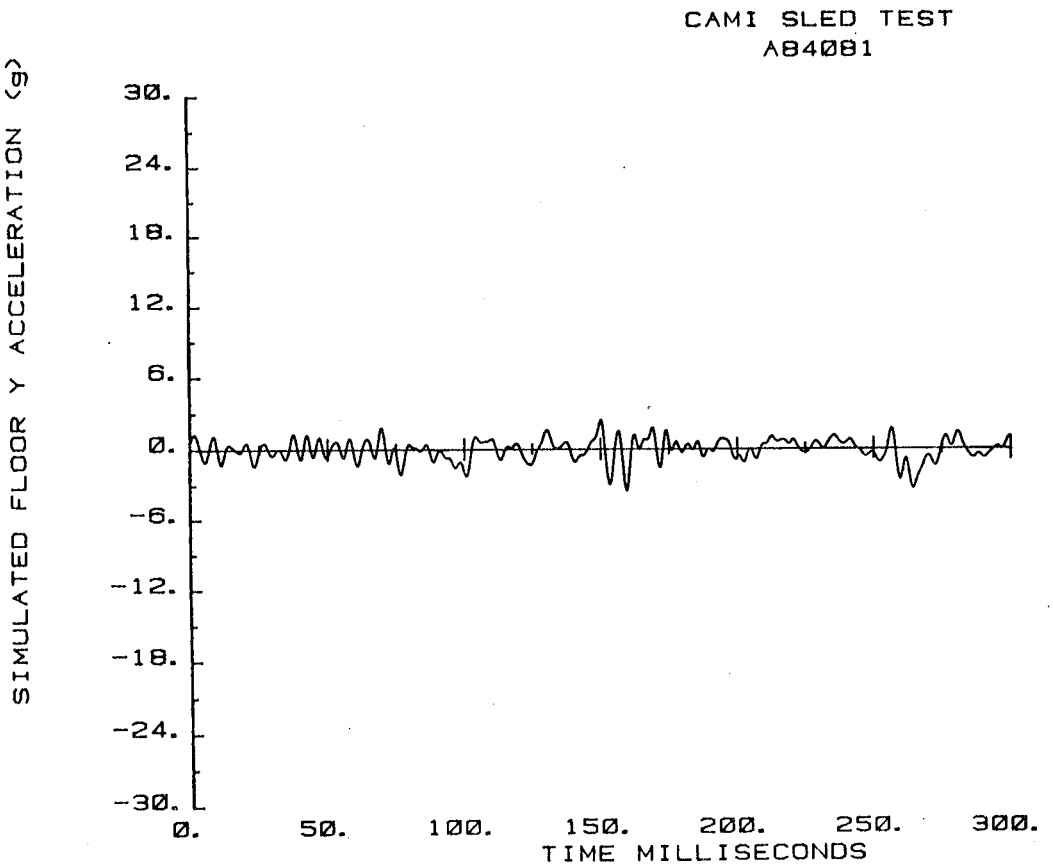
RUN#	VARIABLE		PEAK1	T	PEAK2	T	RANGE	FILE
A84081	SLED X ACCELERATION	(g)	-25.7	97	7.4	110	(0, 300)	* F08101
A84081	HEAD X ACCELERATION	(g)	-35.7	155	52.0	266	(0, 300)	* F08103
A84081	HEAD Y ACCELERATION	(g)	9.7	266	-8.1	285	(0, 300)	* F08104
A84081	HEAD Z ACCELERATION	(g)	-25.0	58	46.4	99	(0, 300)	* F08105
A84081	CHEST X ACCELERATION	(g)	-38.9	92	50.9	279	(0, 300)	* F08106
A84081	CHEST Y ACCELERATION	(g)	6.2	97	-7.3	282	(0, 300)	* F08107
A84081	CHEST Z ACCELERATION	(g)	-23.1	55	15.0	228	(0, 300)	* F08108
A84081	PELVIS X ACCELERATION	(g)	-31.1	104	56.6	149	(0, 300)	* F08109
A84081	PELVIS Y ACCELERATION	(g)	5.3	56	-13.2	149	(0, 300)	* F08110
A84081	PELVIS Z ACCELERATION	(g)	-27.1	105	35.7	149	(0, 300)	* F08111
A84081	PELVIC FORCE Y	(lbs)	-75.7	121	45.9	159	(0, 300)	* F08113
A84081	PELVIC FORCE Z	(lbs)	1365.2	59	-291.9	206	(0, 300)	* F08114
A84081	PELVIC MOMENT X	(in-lbs)	-574.2	117	144.1	160	(0, 300)	* F08115
A84081	PELVIC MOMENT Y	(in-lbs)	-1097.2	89	1915.6	154	(0, 300)	* F08116
A84081	PELVIC MOMENT Z	(in-lbs)	-84.6	73	247.2	153	(0, 300)	* F08117
A84081	LEFT LAP FORCE	(lbs)	-346.0	101			(0, 300)	* F08118
A84081	RIGHT LAP FORCE	(lbs)	-2582.0	287			(0, 300)	* F08119
A84081	SIMULATED FLOOR X ACCELERATION	(g)	-24.6	84	8.1	132	(0, 300)	* F08120
A84081	SIMULATED FLOOR Y ACCELERATION	(g)	2.4	150	-3.5	159	(0, 300)	* F08121
A84081	SIMULATED FLOOR Z ACCELERATION	(g)	-17.6	55	11.6	104	(0, 300)	* F08122
A84081	FOOT REST FORCE X	(lbs)	953.8	75	-462.6	152	(0, 300)	* F08123
A84081	FOOT REST FORCE Y	(lbs)	-196.1	59	235.5	147	(0, 300)	* F08124
A84081	FOOT REST FORCE Z	(lbs)	2687.1	73	-707.4	170	(0, 300)	* F08125
A84081	LEFT SHOULDER FORCE	(lbs)	706.6	104			(0, 300)	* F08126
A84081	RIGHT SHOULDER FORCE	(lbs)	710.7	105			(0, 300)	* F08127
A84081	SEAT BACK Z ACCELERATION	(g)	-27.3	80	15.3	170	(0, 300)	* F08128
A84081	SEAT PAN X ACCELERATION	(g)	-29.1	79	18.2	156	(0, 300)	* F08129
A84081	SEAT PAN Y ACCELERATION	(g)	5.1	82	-7.6	154	(0, 300)	* F08130
A84081	SEAT PAN Z ACCELERATION	(g)	-20.6	85	25.1	170	(0, 300)	* F08131
A84081	SEAT DEFLECTION	(inches)	4.2	111			(0, 300)	* F08132
A84081	LEFT SEAT PAN FORCE	(lbs)	675.0	105			(0, 300)	* F08133
A84081	RIGHT SEAT PAN FORCE	(lbs)	802.1	61			(0, 300)	* F08134
A84081	CENTER SEAT PAN FORCE	(lbs)	1272.0	54			(0, 300)	* F08135
A84081	HEAD RESULTANT	(g)	63.7	266			(0, 300)	* V08101
A84081	CHEST RESULTANT	(g)	52.1	279			(0, 300)	* V08102
A84081	PELVIS RESULTANT	(g)	67.2	149			(0, 300)	* V08103
A84081	PELVIC MOMENT RESULTANT	(in-lbs)	1930.4	154			(0, 300)	* V08104
A84081	SIMULATED FLOOR RESULTANT	(g)	26.8	95			(0, 300)	* V08105
A84081	FOOT REST FORCE RESULTANT	(lbs)	2847.7	74			(0, 300)	* V08106
A84081	SEAT PAN RESULTANT	(g)	34.3	79			(0, 300)	* V08107
A84081	LAP LOOP FORCE	(lbs)	628.2	101	-2582.2	287	(0, 300)	* A08101
PELVIS DRI			24.5	96				
SEAT BACK DRI			26.1	106				
SEAT PAN DRI			17.0	107				

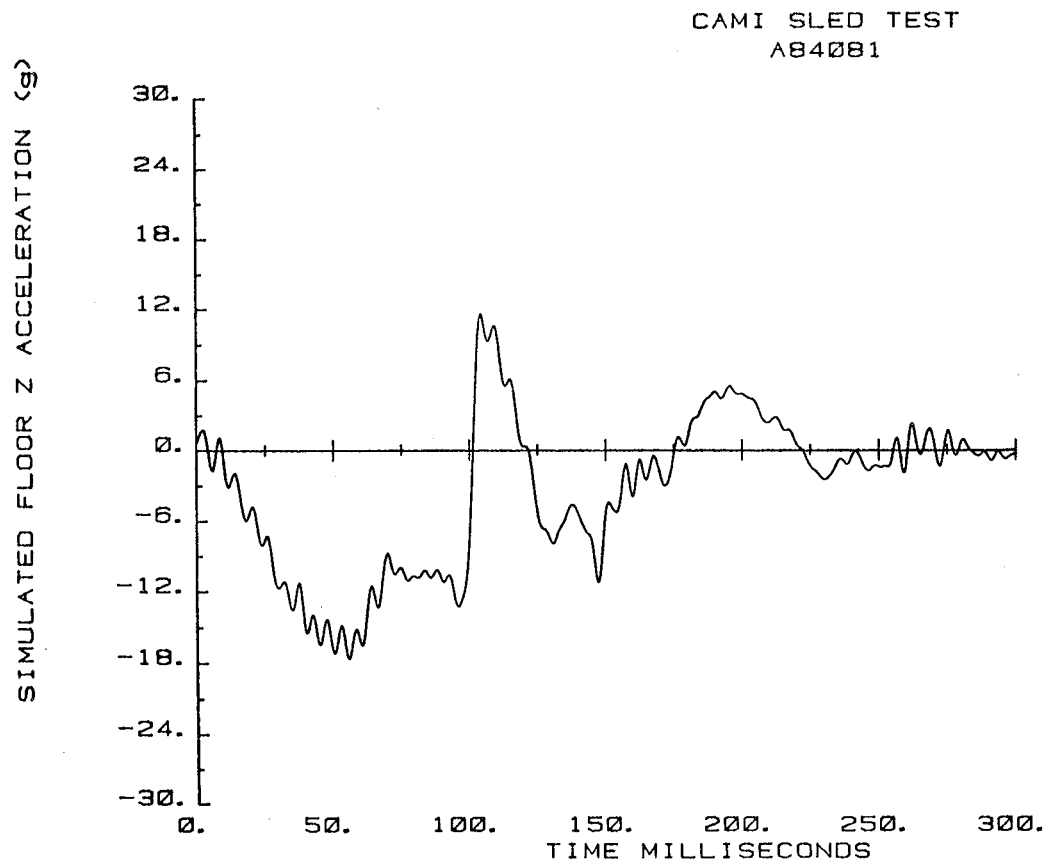
CAMI SLED TEST
A84081



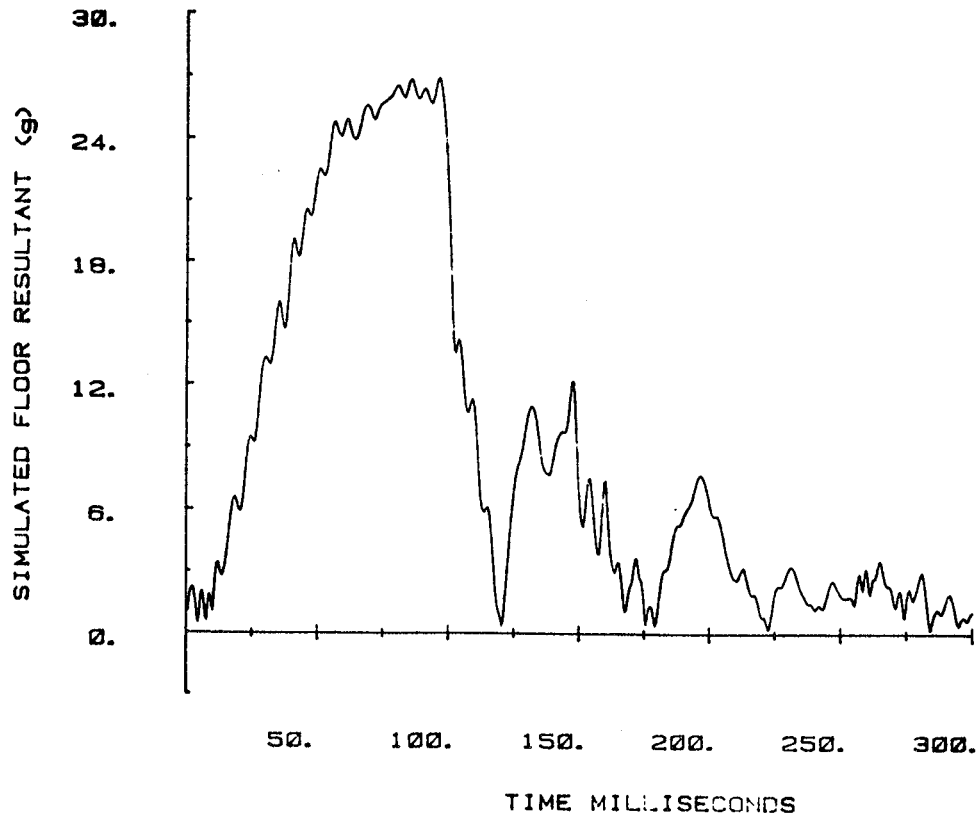
CAMI SLED TEST
A84081



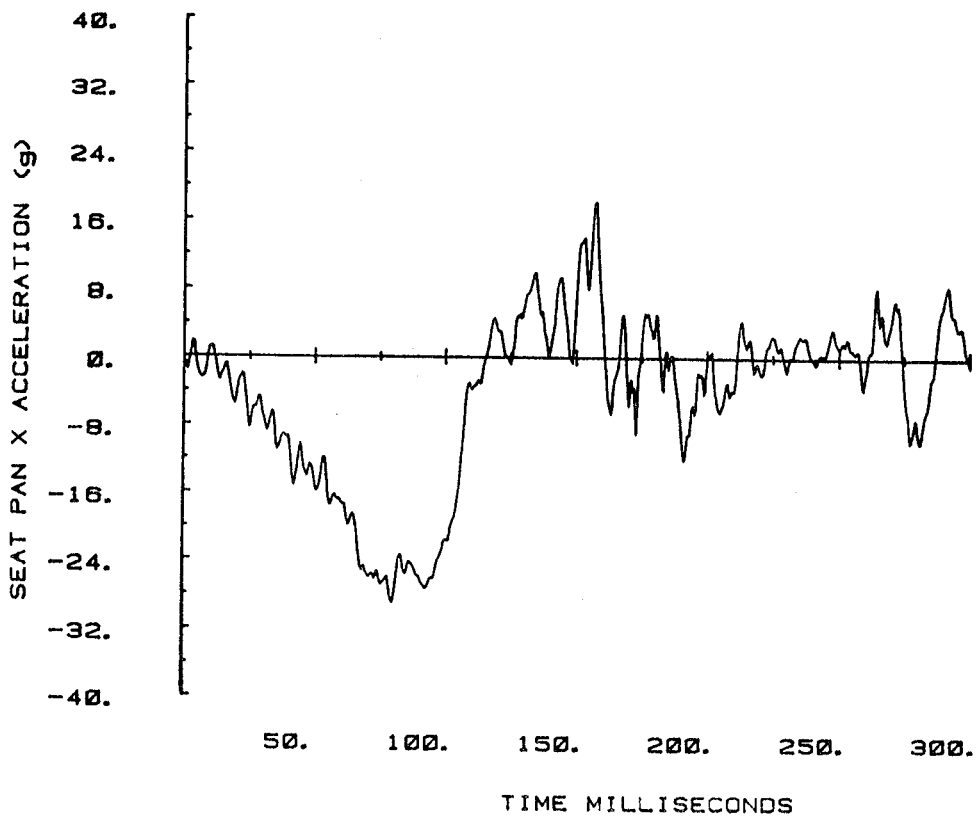

CAMI SLED TEST
A84081
SIMULATED FLOOR Y ACCELERATION (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

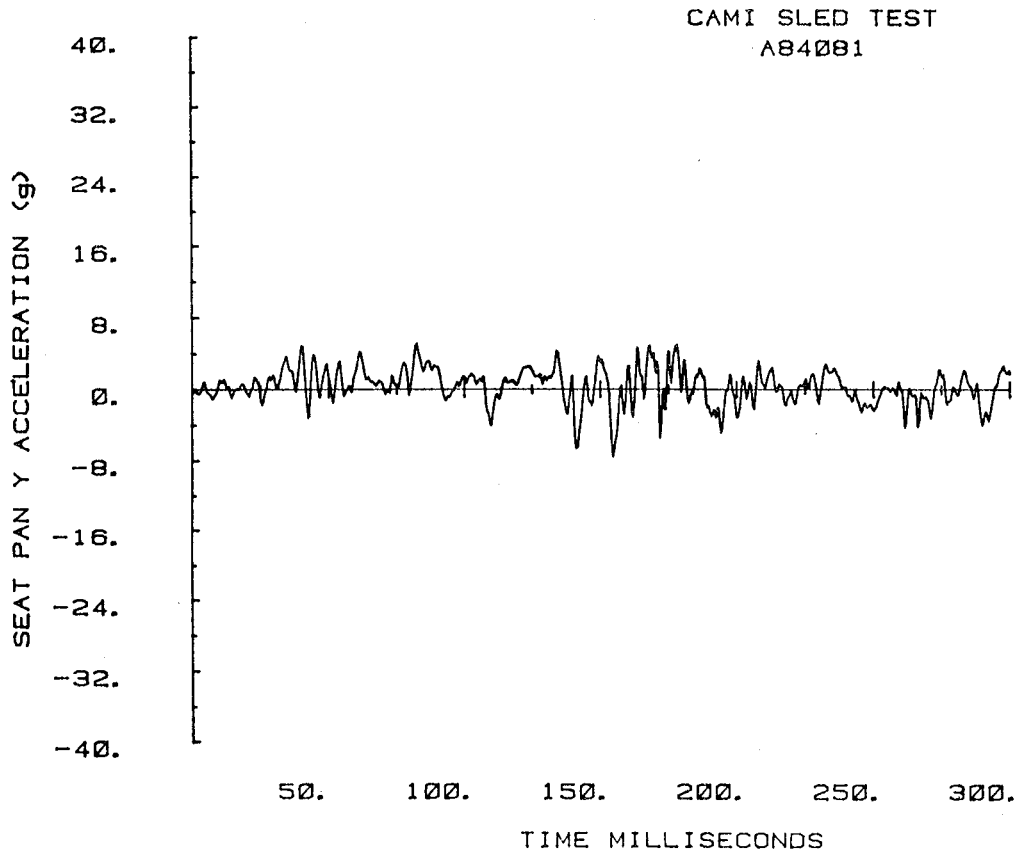

CAMI SLED TEST
A84081
SIMULATED FLOOR Z ACCELERATION (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

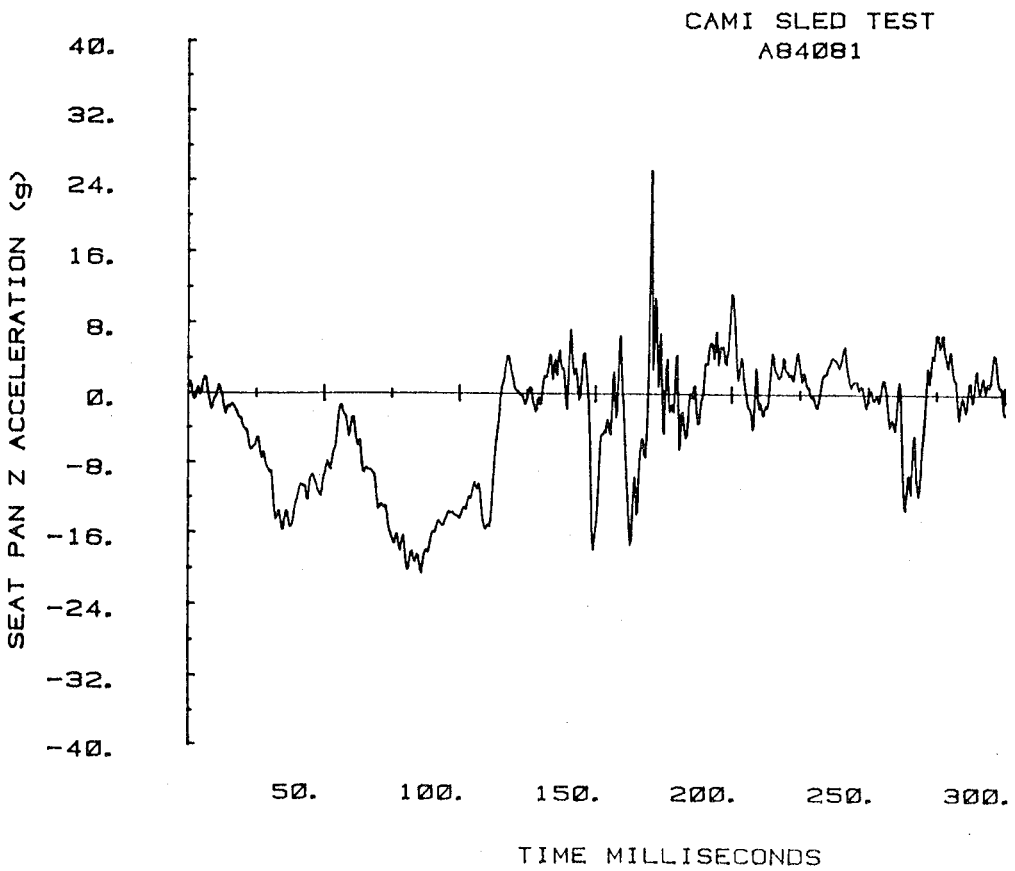
CAMI SLED TEST
A84081

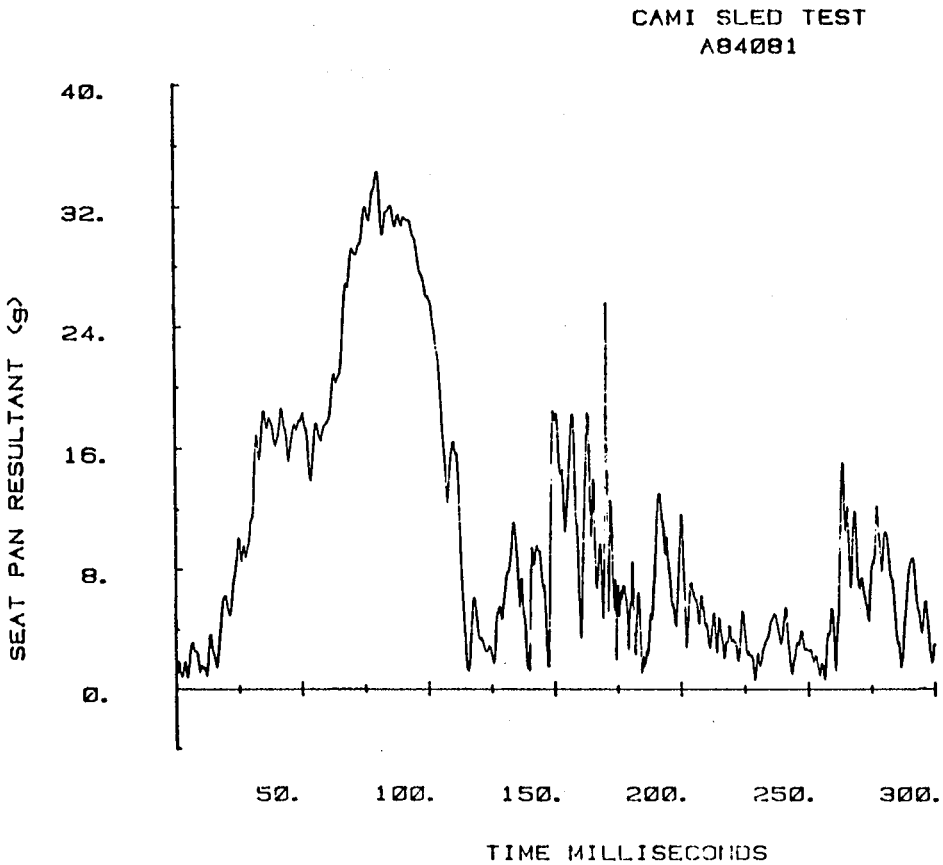


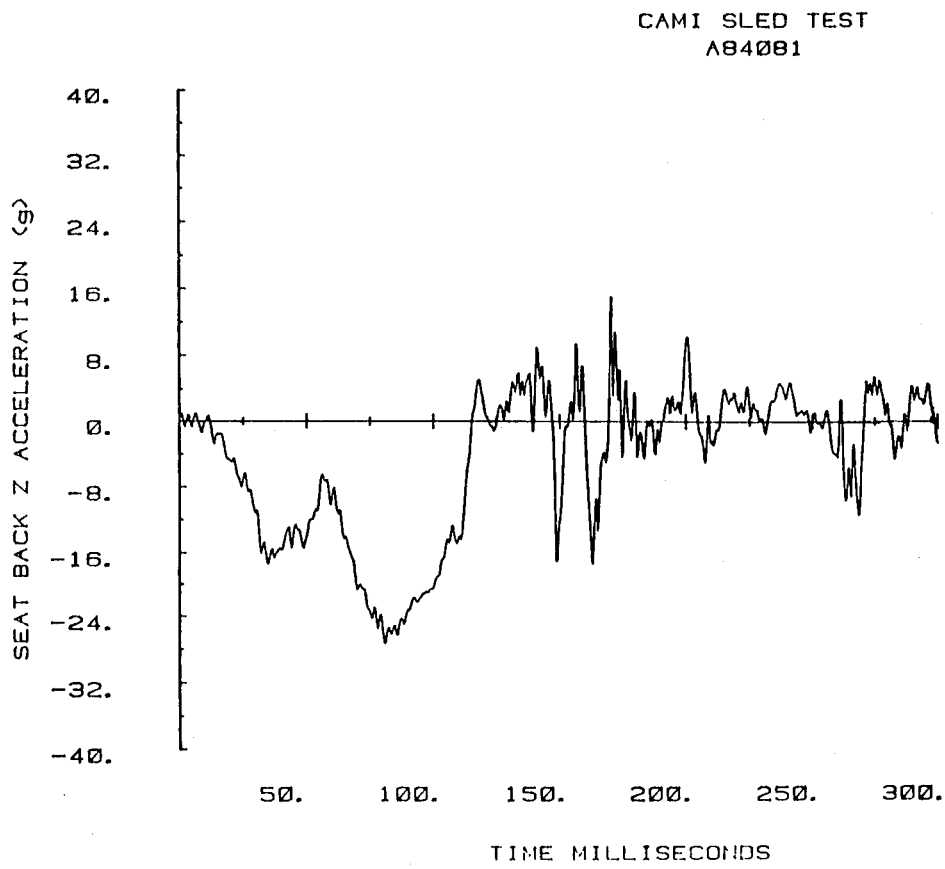
CAMI SLED TEST
A84081

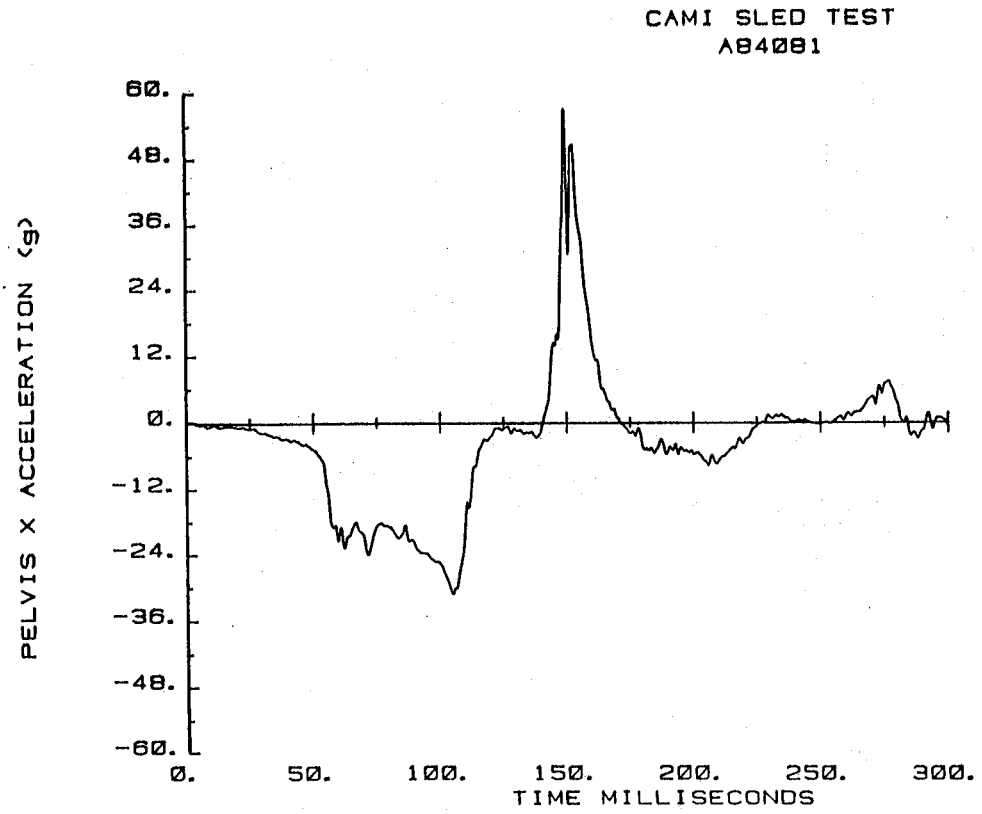


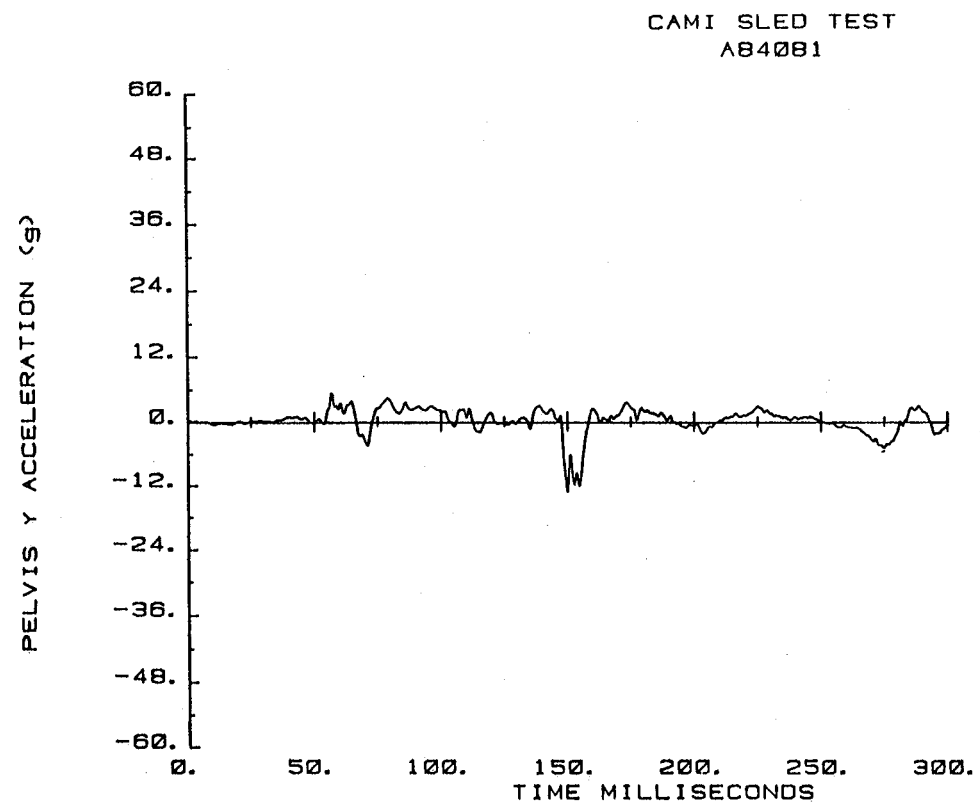

CAMI SLED TEST
A84081
SEAT PAN Y ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

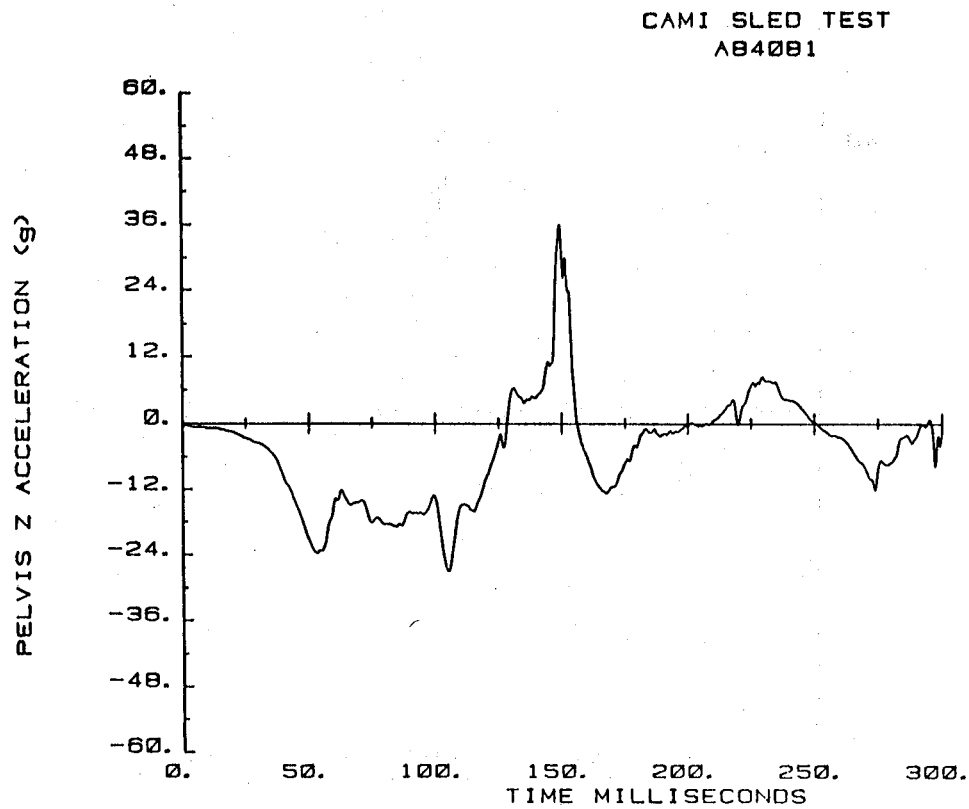

CAMI SLED TEST
A84081
SEAT PAN Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

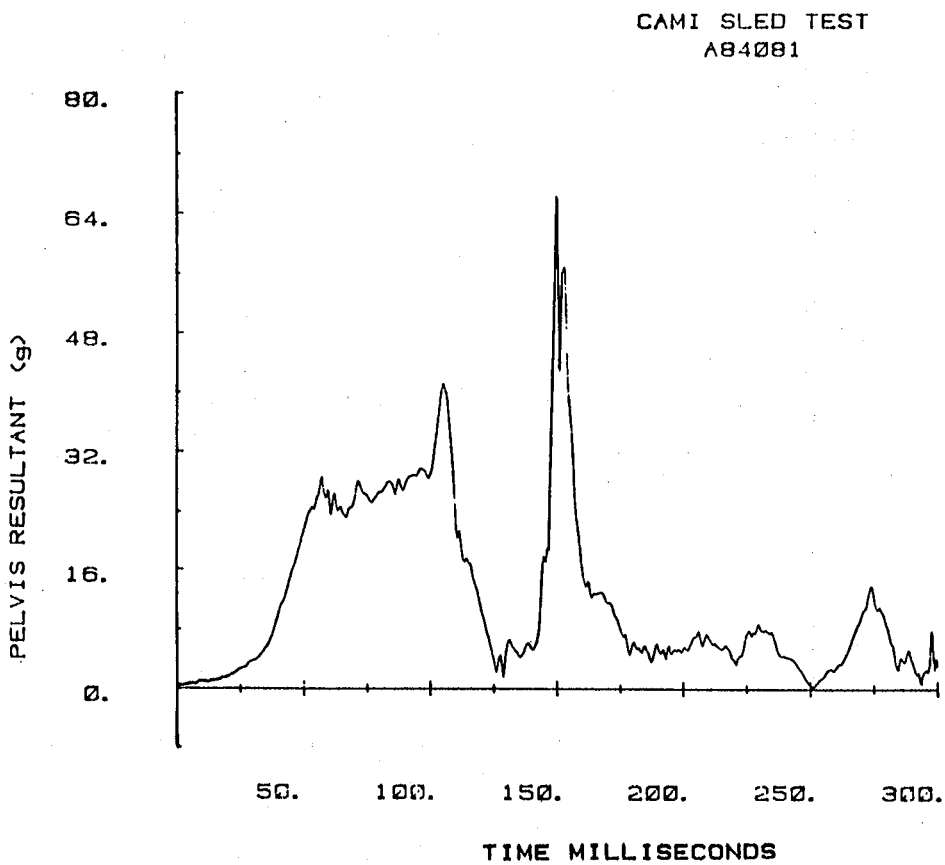

CAMI SLED TEST
A84081
40.
32.
24.
16.
8.
0.
SEAT PAN RESULTANT (g)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

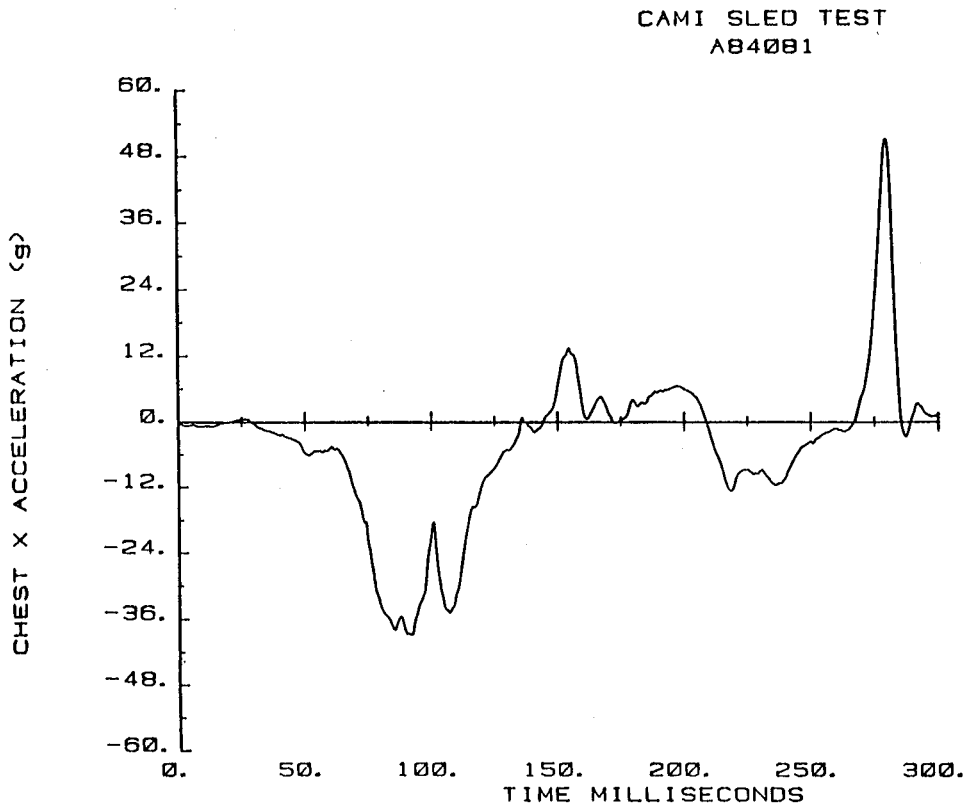

CAMI SLED TEST
A84081
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
SEAT BACK Z ACCELERATION (g)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

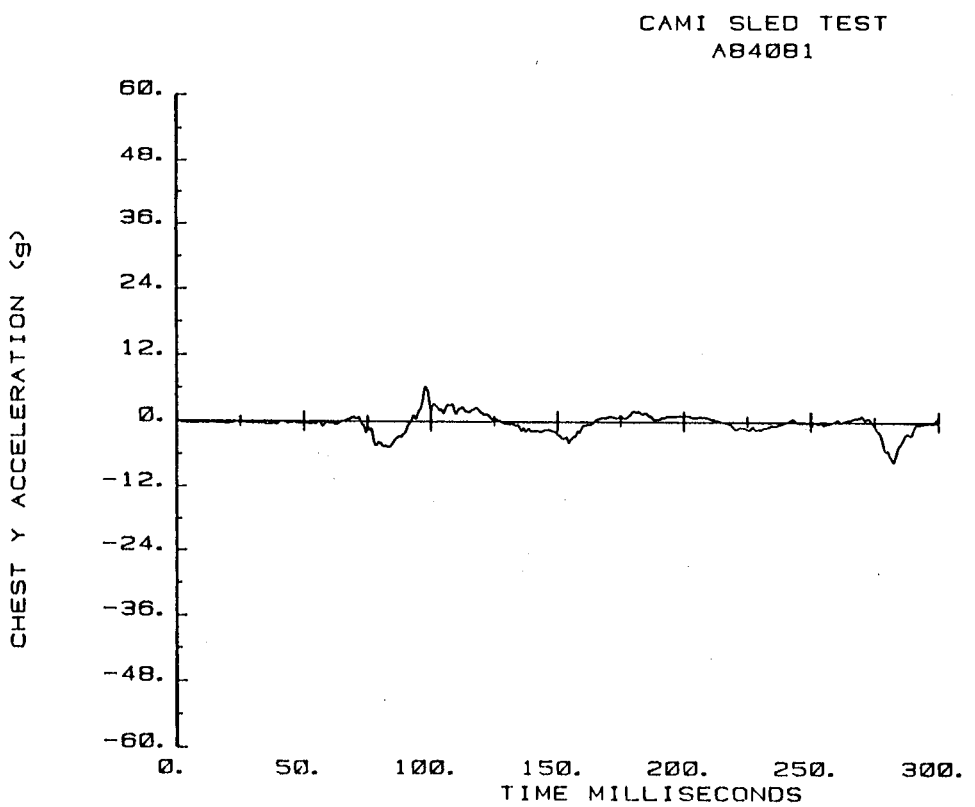

CAMI SLED TEST
A84081
PELVIS X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

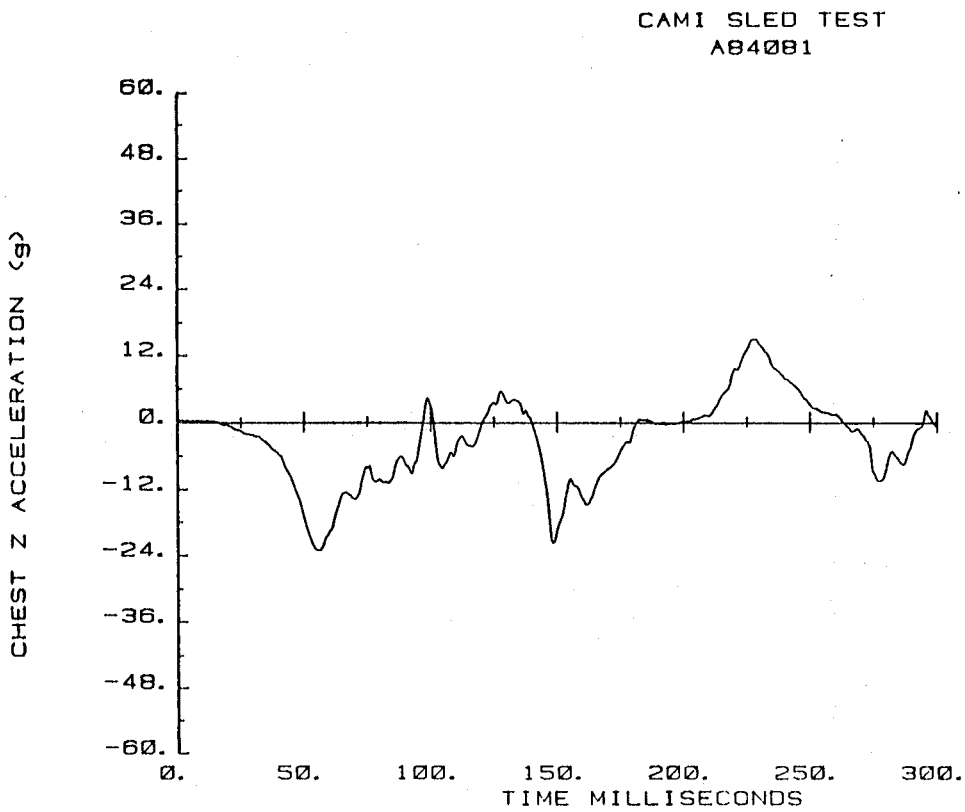

CAMI SLED TEST
A84081
PELVIS Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

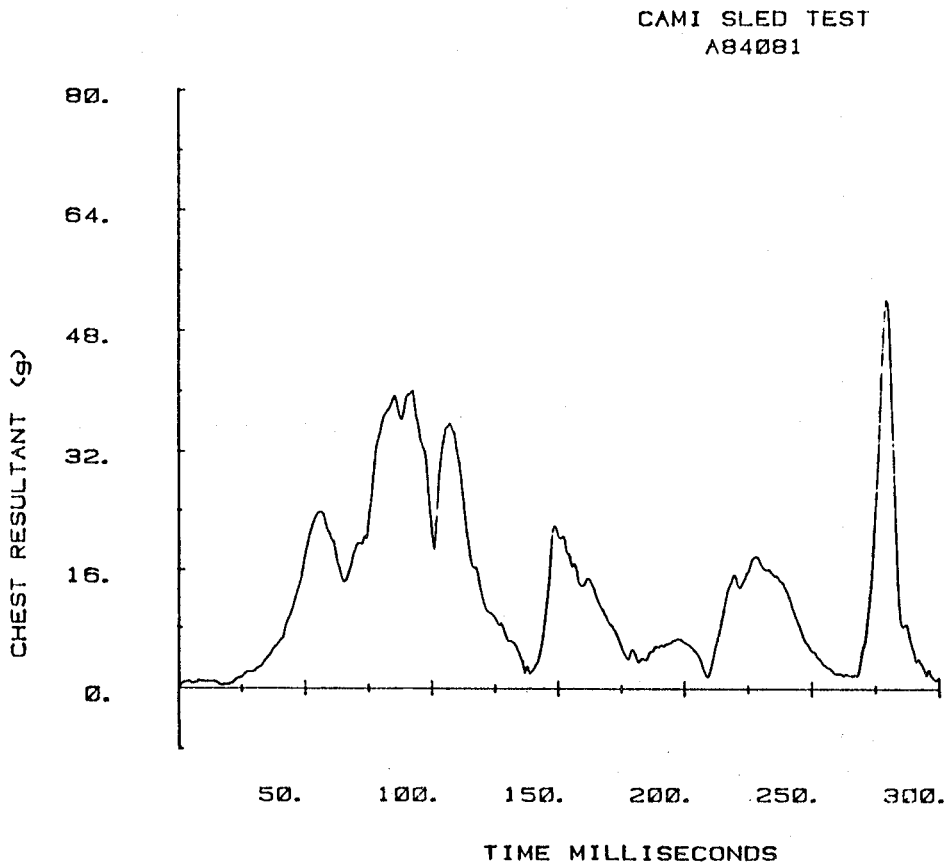

CAMI SLED TEST
A84081
PELVIS Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

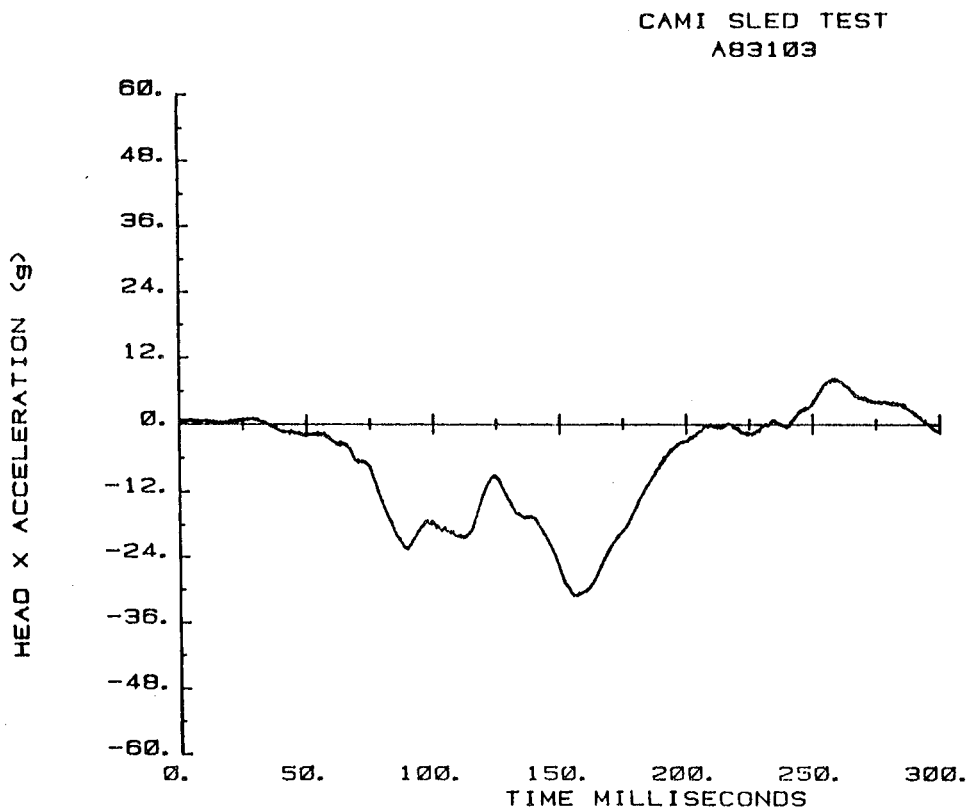

CAMI SLED TEST
A84081
PELVIS RESULTANT (g)
80.
64.
48.
32.
16.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

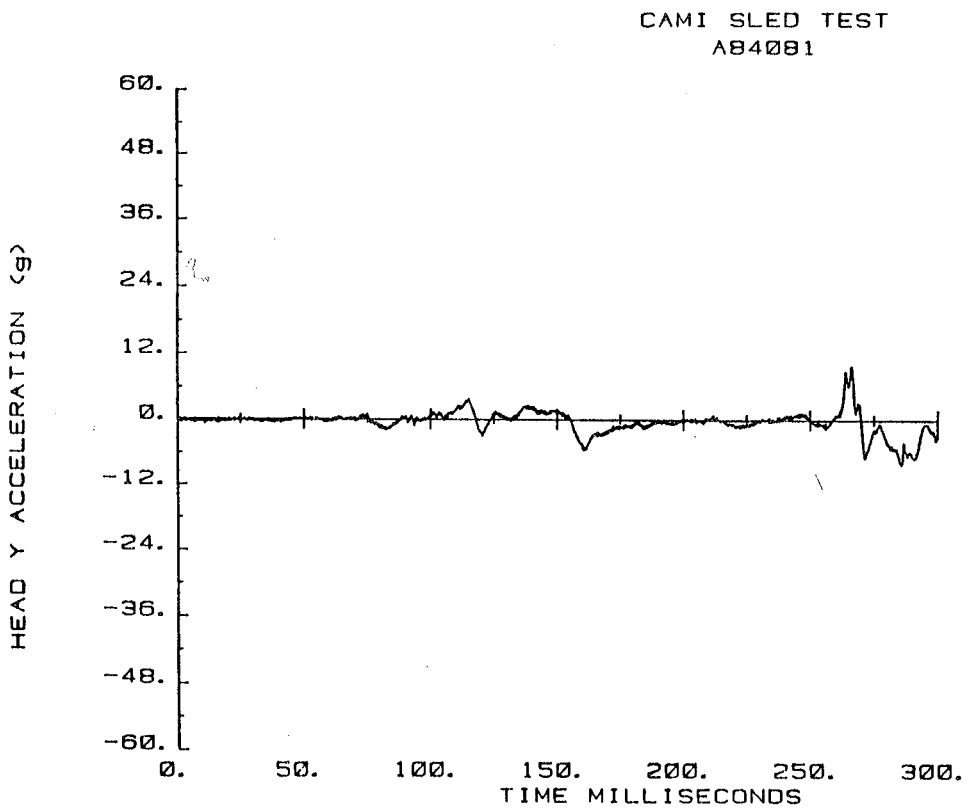

CAMI SLED TEST
A84081
CHEST X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

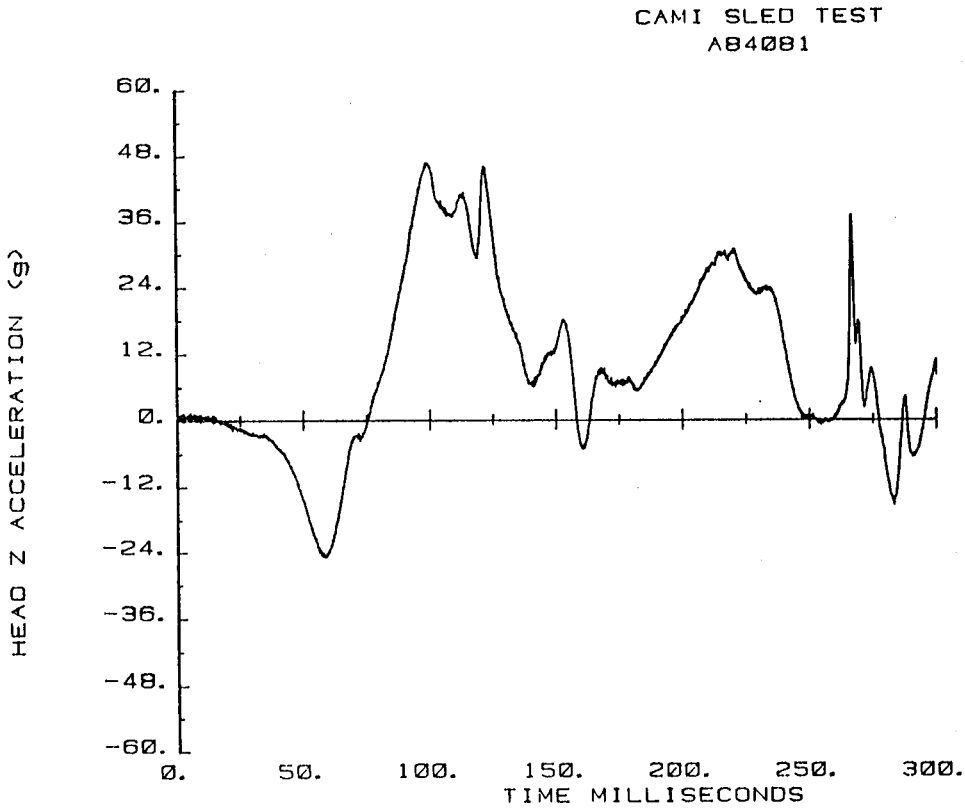

CAMI SLED TEST
A84081
CHEST Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

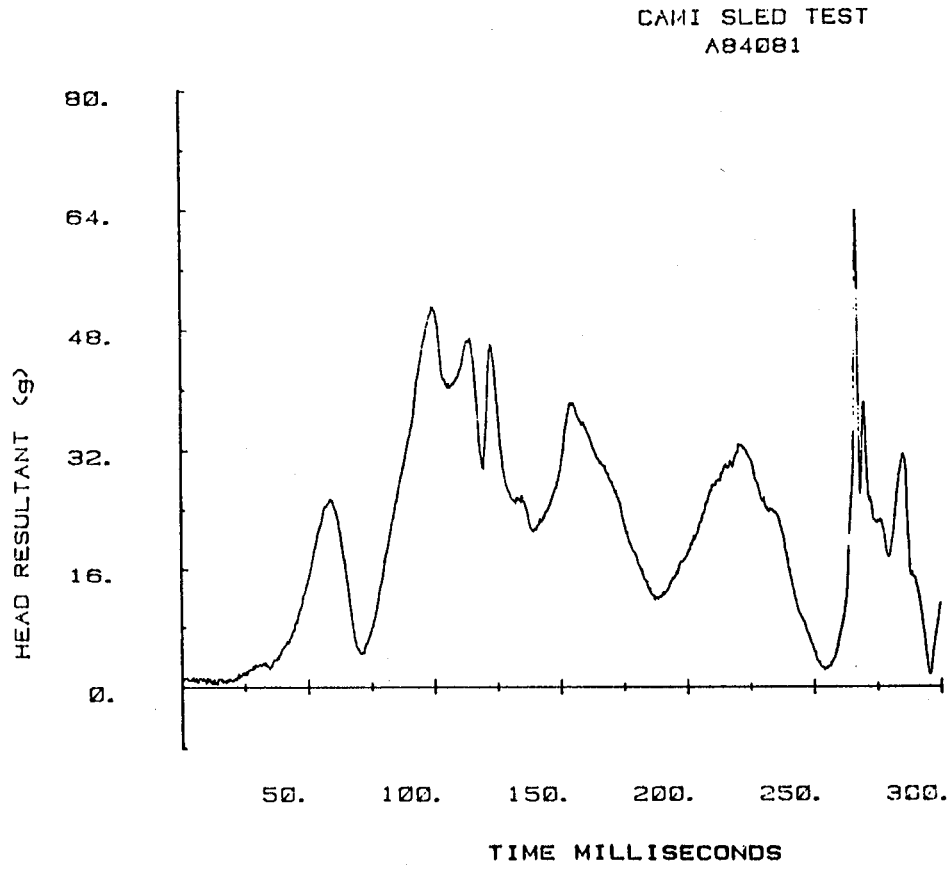

CAMI SLED TEST
A84081
CHEST Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

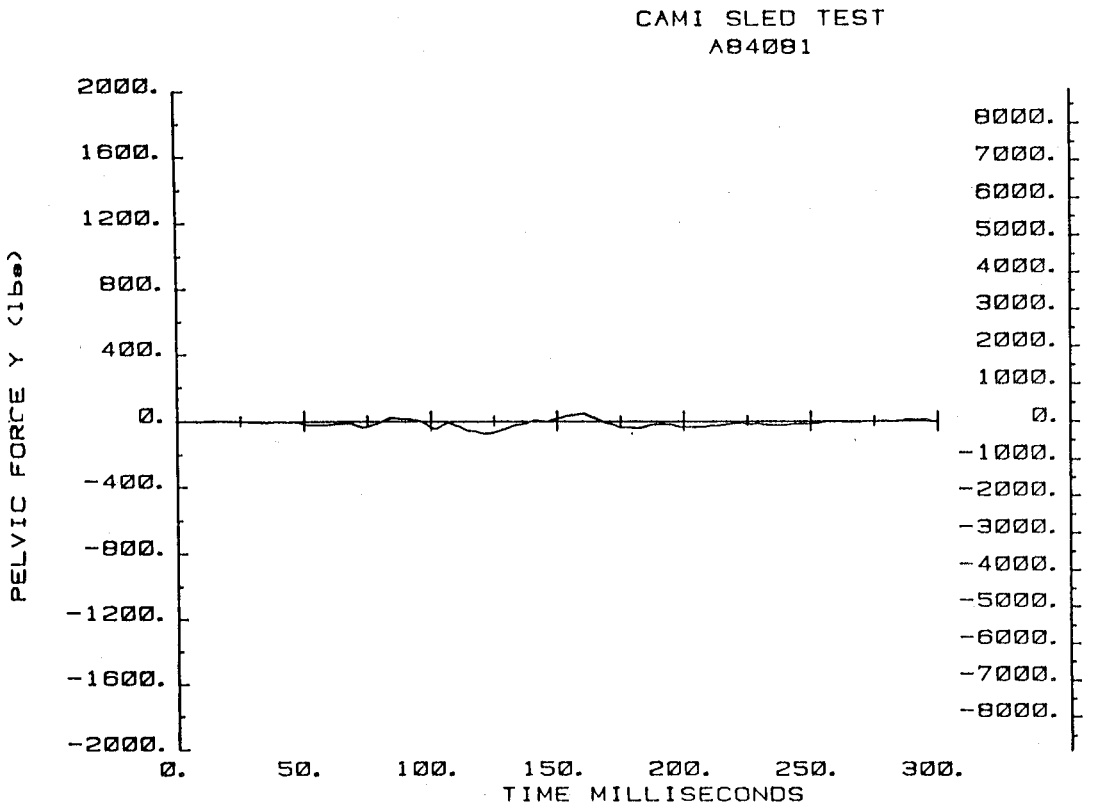

CAMI SLED TEST
A84081
CHEST RESULTANT (g)
80.
64.
48.
32.
16.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

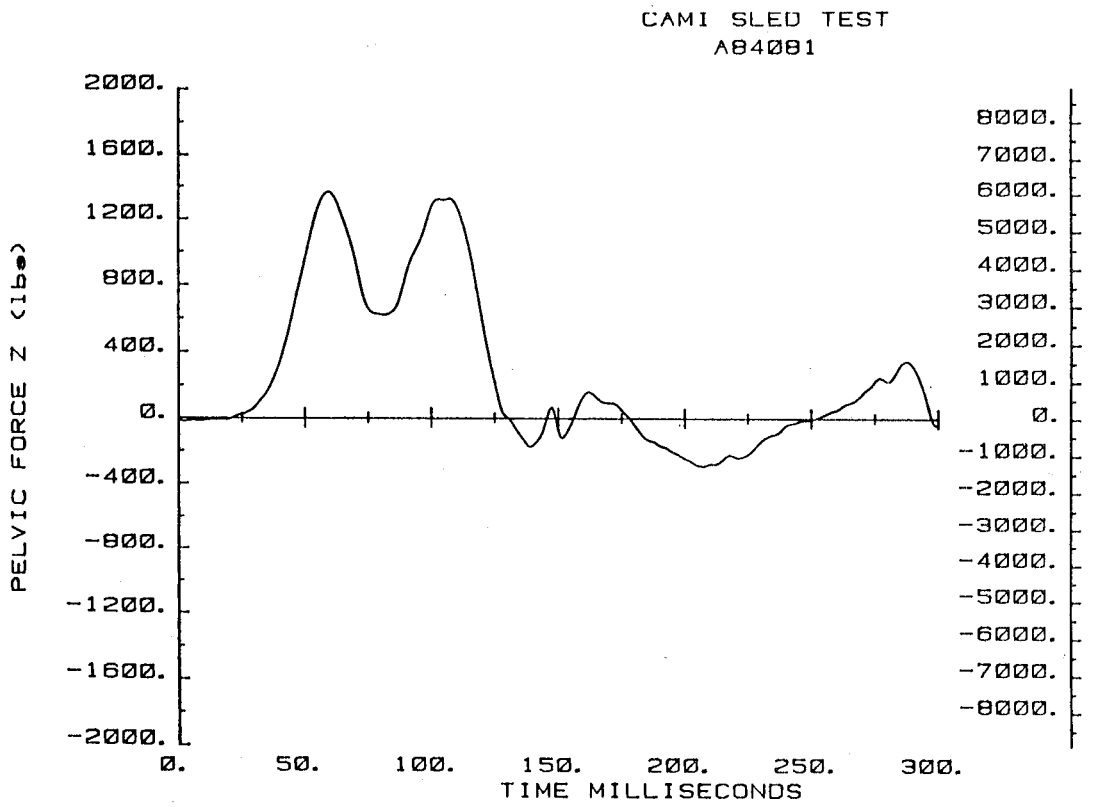

CAMI SLED TEST
A83103
HEAD X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

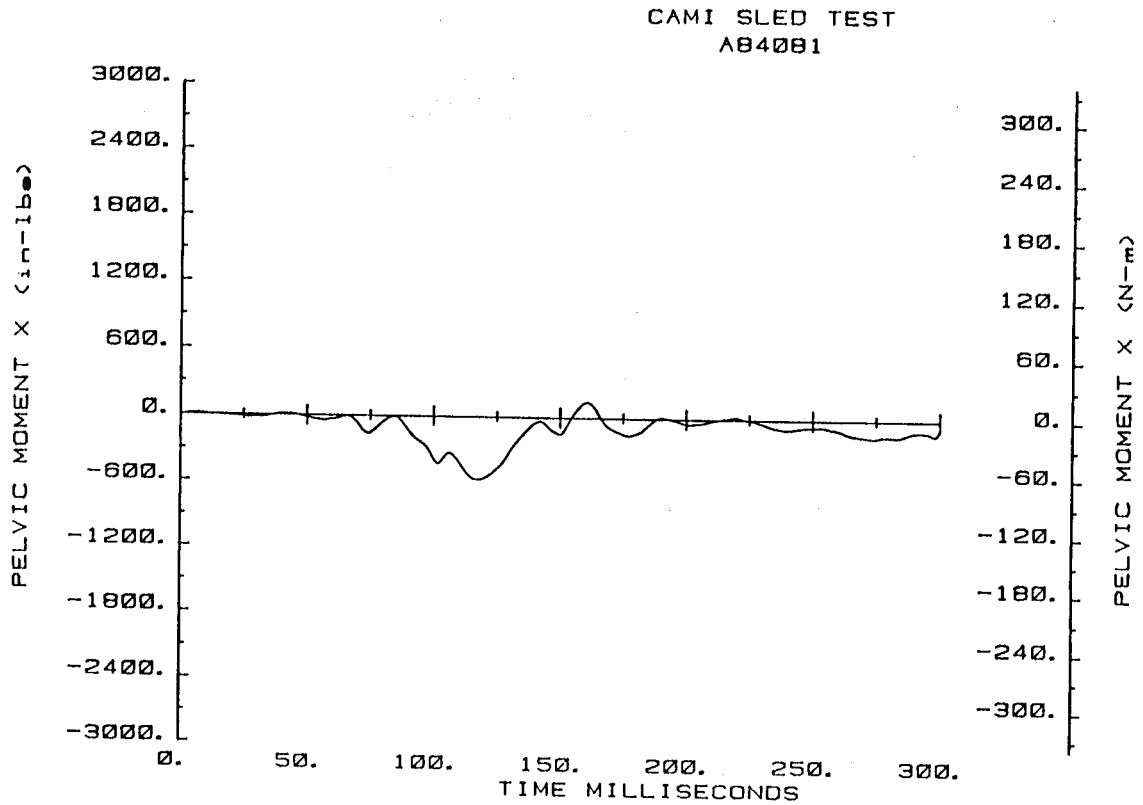

CAMI SLED TEST
A84081
HEAD Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

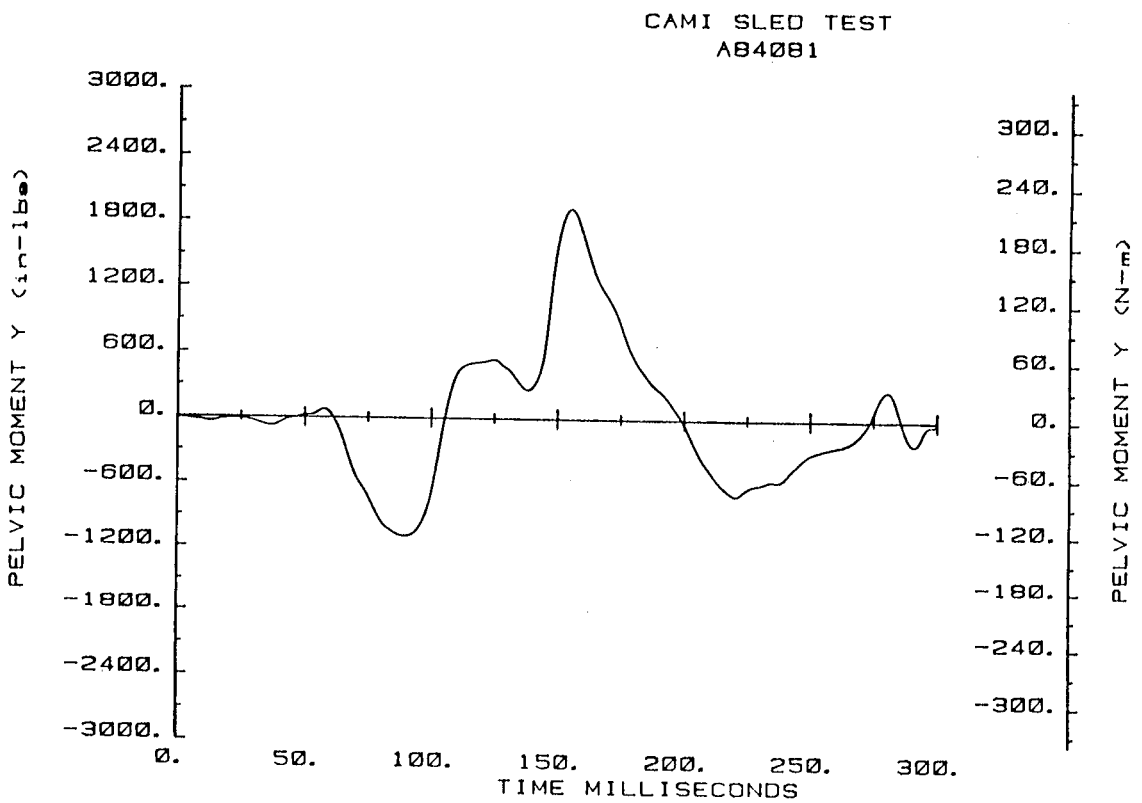

CAMI SLED TEST
A84081
HEAD Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

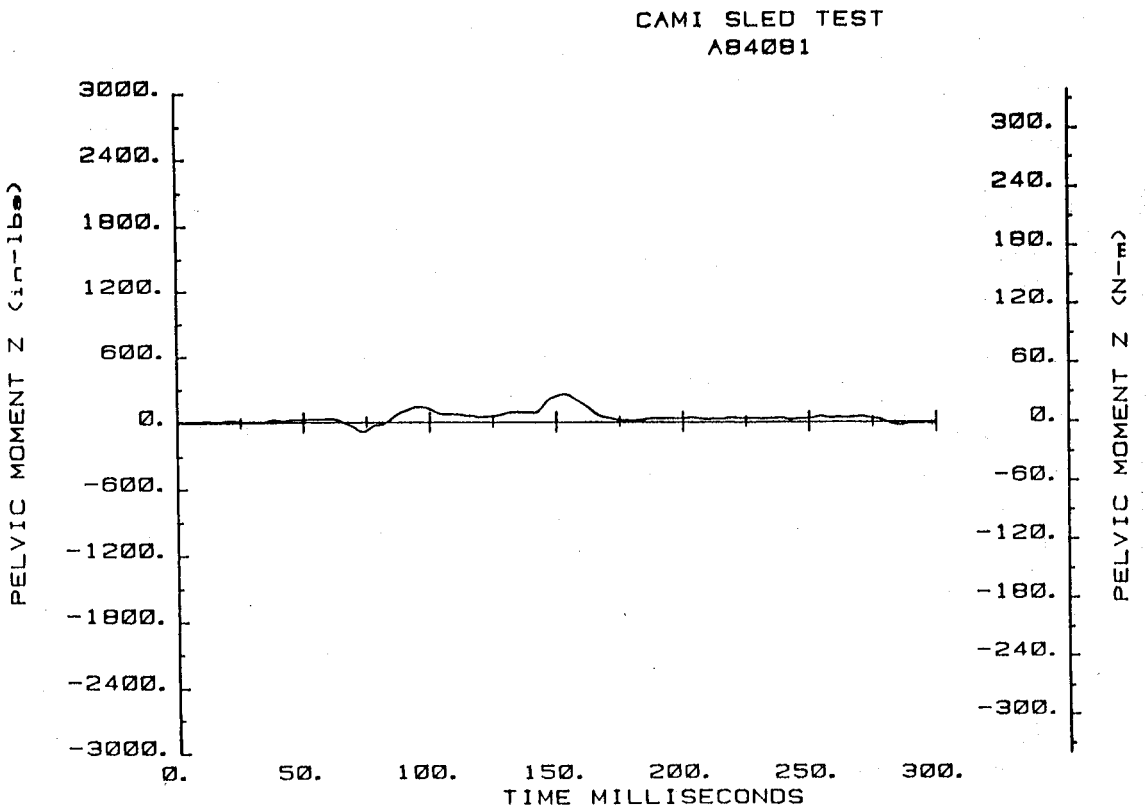

CAMI SLED TEST
A84081
HEAD RESULTANT (g)
80.
64.
48.
32.
16.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

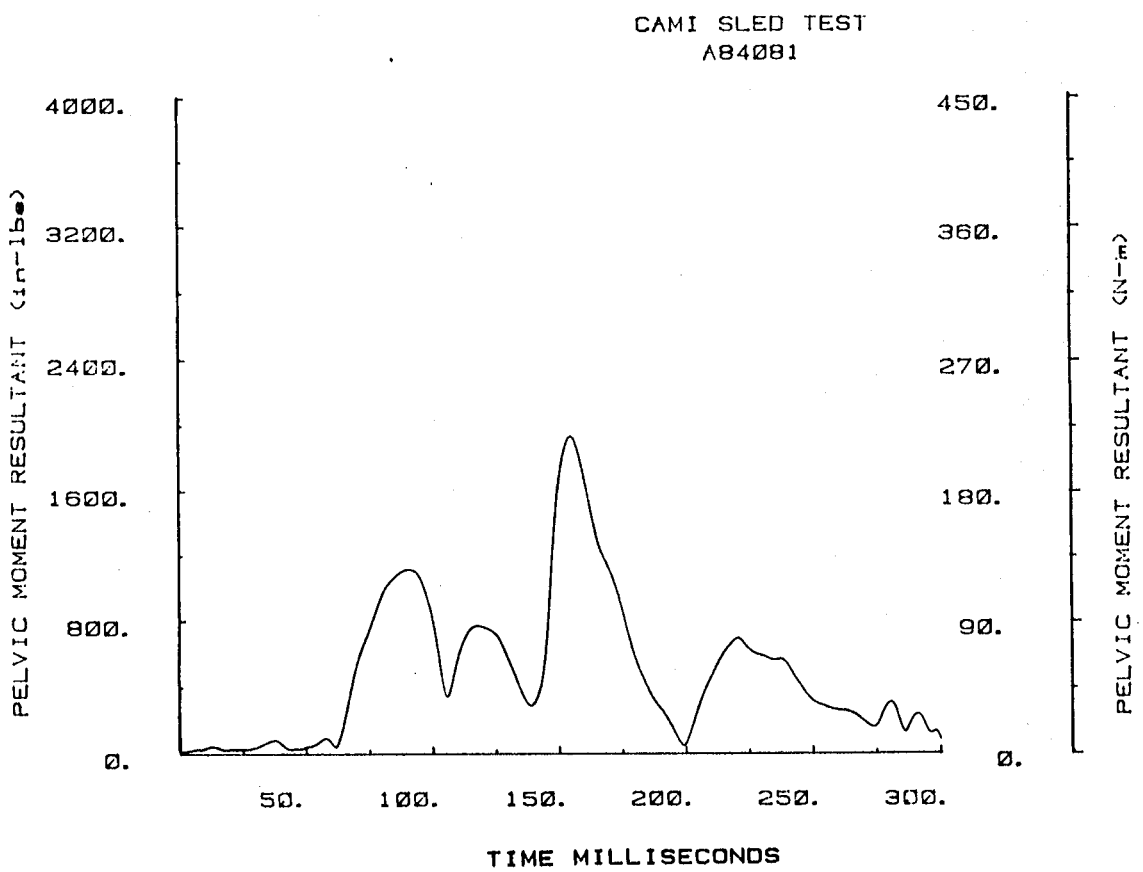

CAMI SLED TEST
A84081
PELVIC FORCE Y (lbs)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

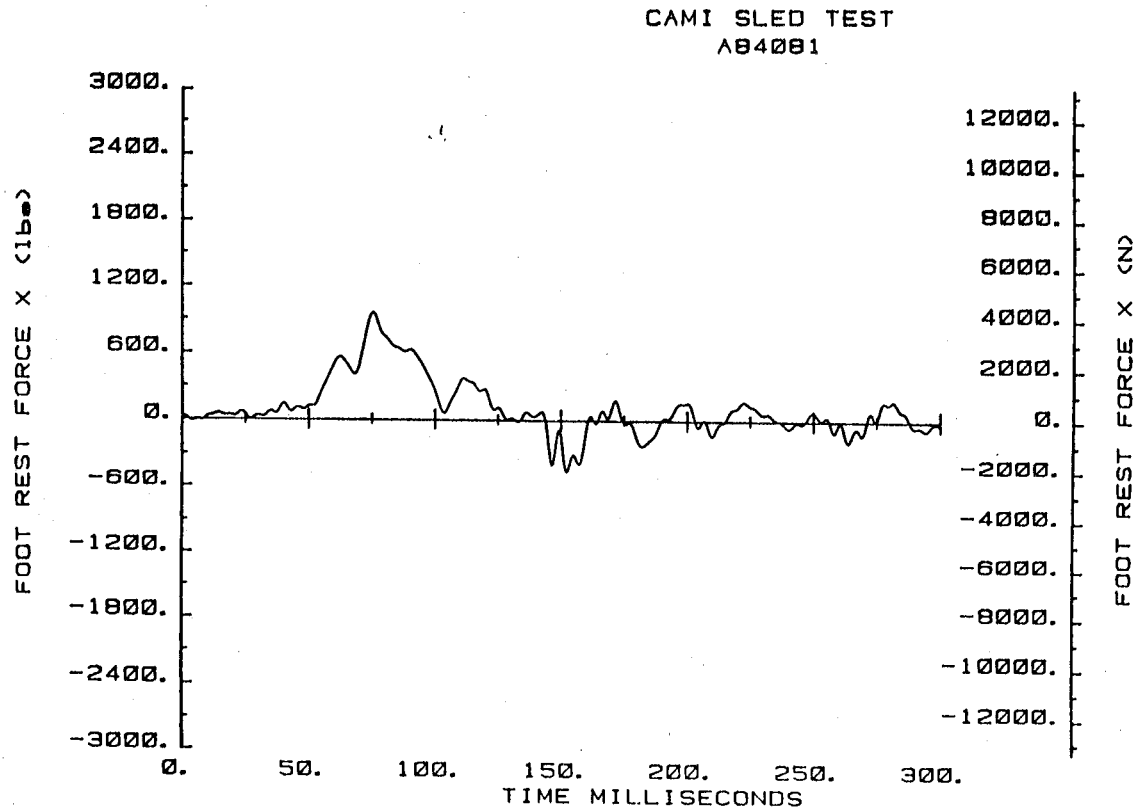

CAMI SLED TEST
A84081
PELVIC FORCE Z (lbs)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

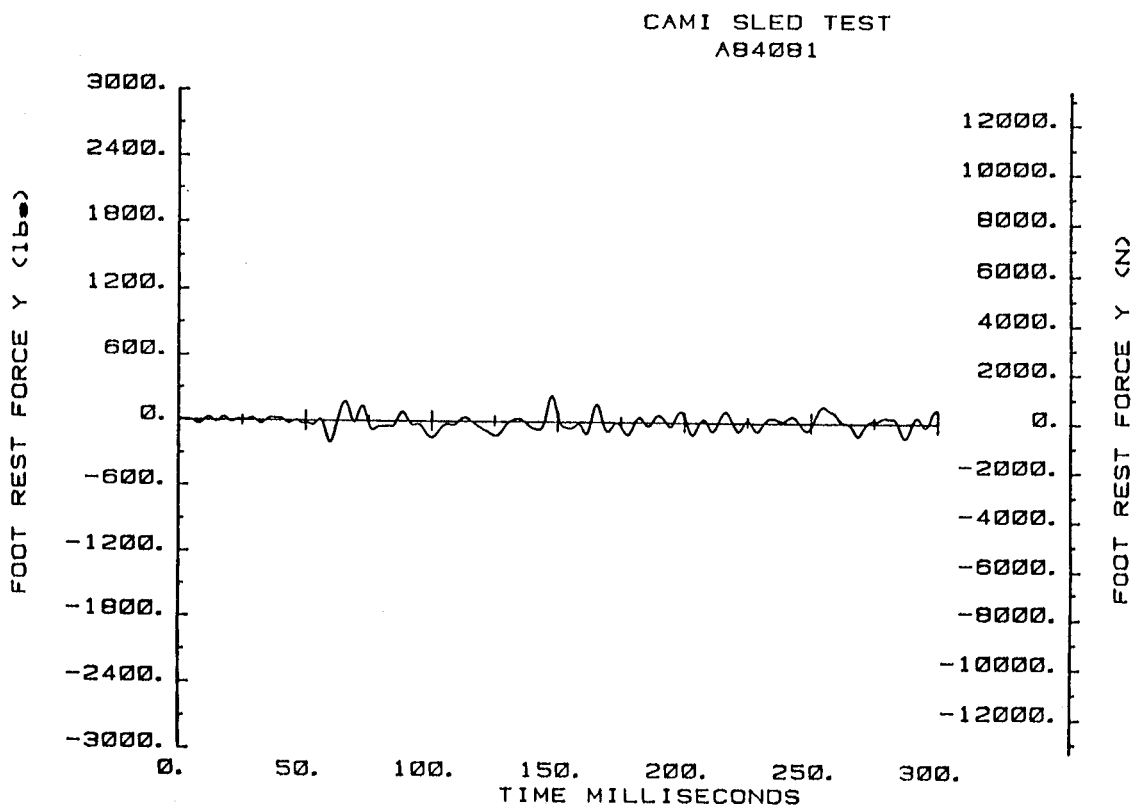

CAMI SLED TEST
A84081
PELVIC MOMENT X (in-lb)
PELVIC MOMENT X (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

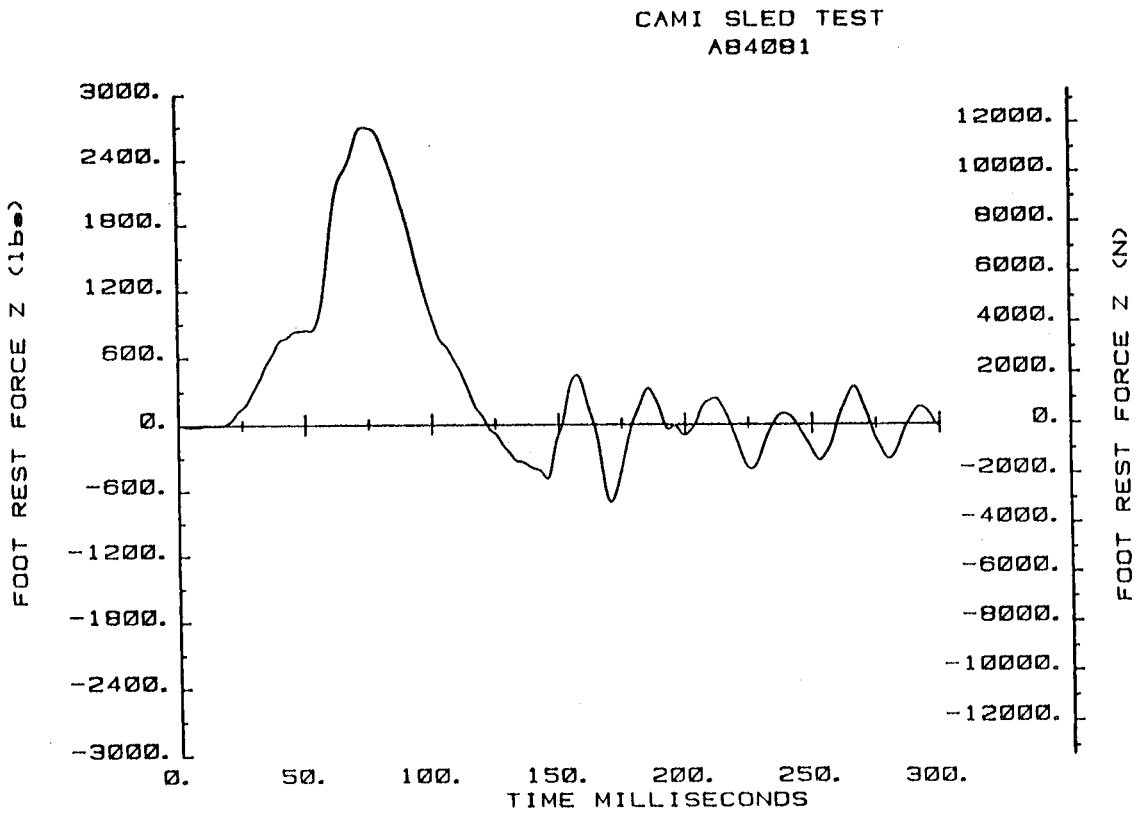

CAMI SLED TEST
A84081
PELVIC MOMENT Y (in-lb)
PELVIC MOMENT Y (N-m)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

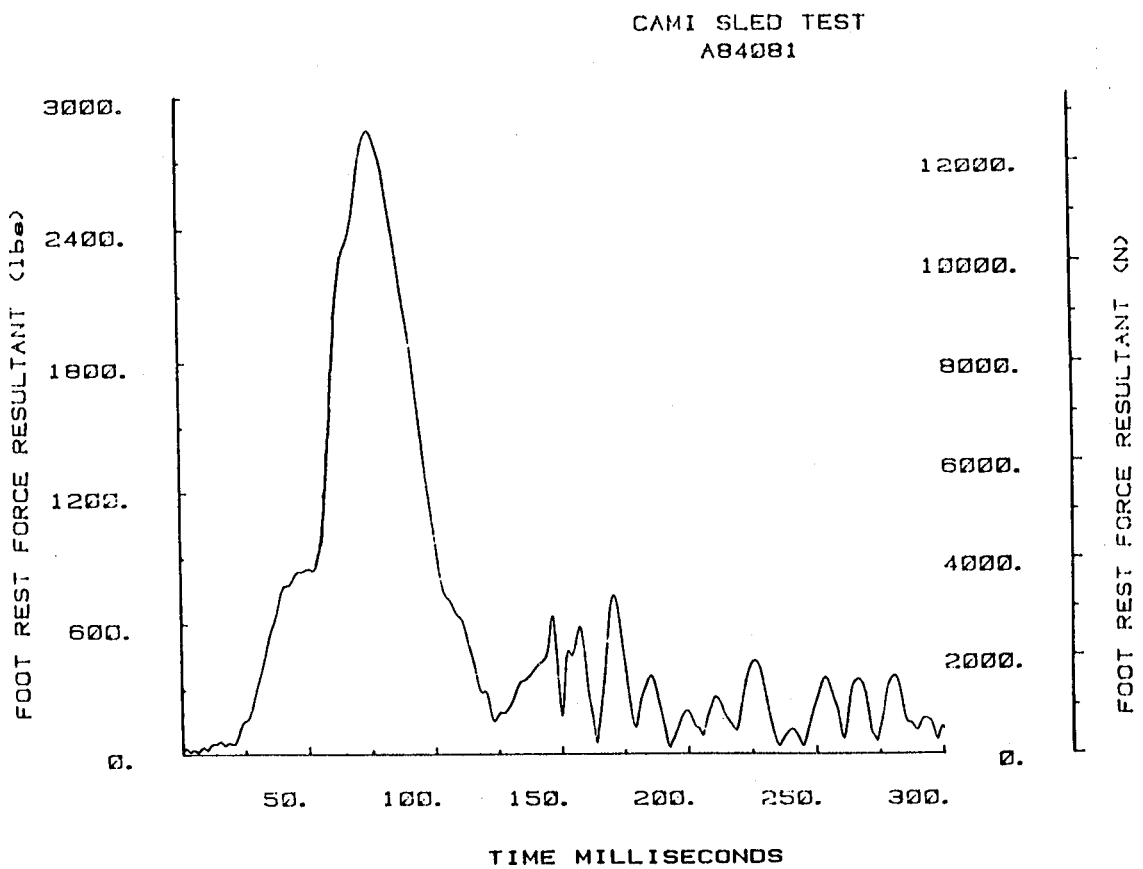

CAMI SLED TEST
A84081
PELVIC MOMENT Z (in-lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT Z (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

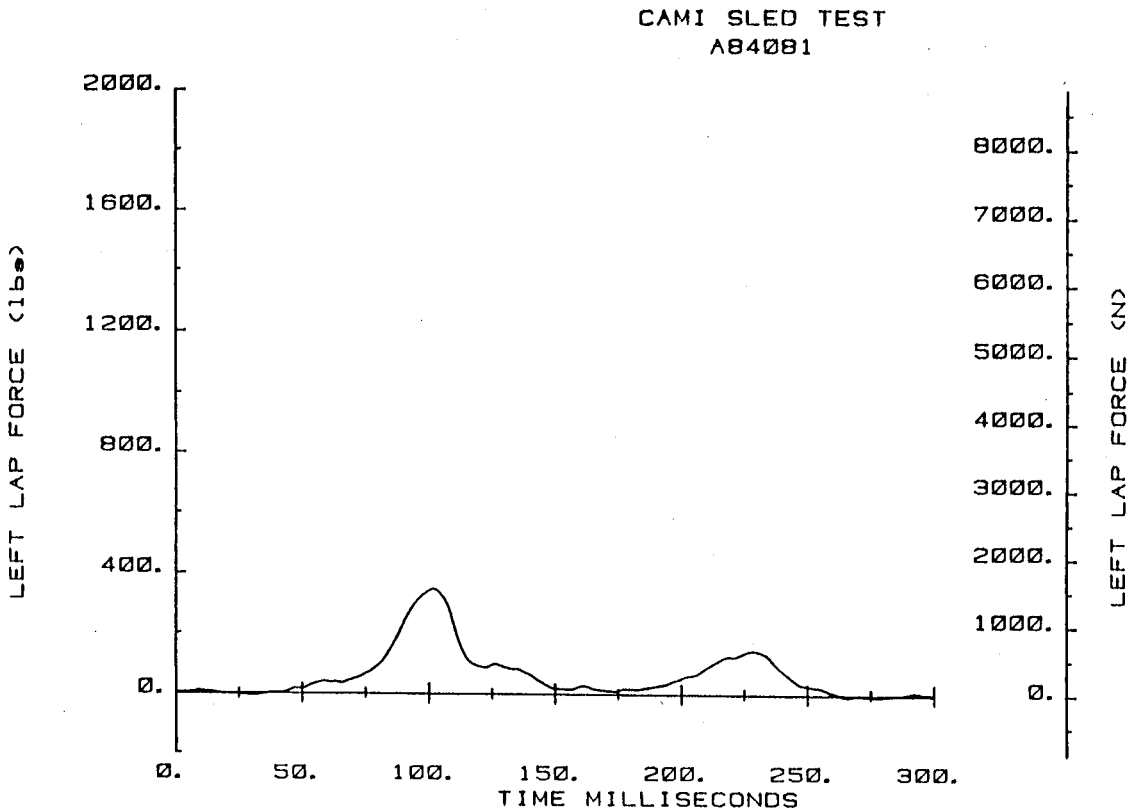

CAMI SLED TEST
A84081
PELVIC MOMENT RESULTANT (in-lbs)
4000.
3200.
2400.
1600.
800.
0.
PELVIC MOMENT RESULTANT (N-m)
450.
360.
270.
180.
90.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

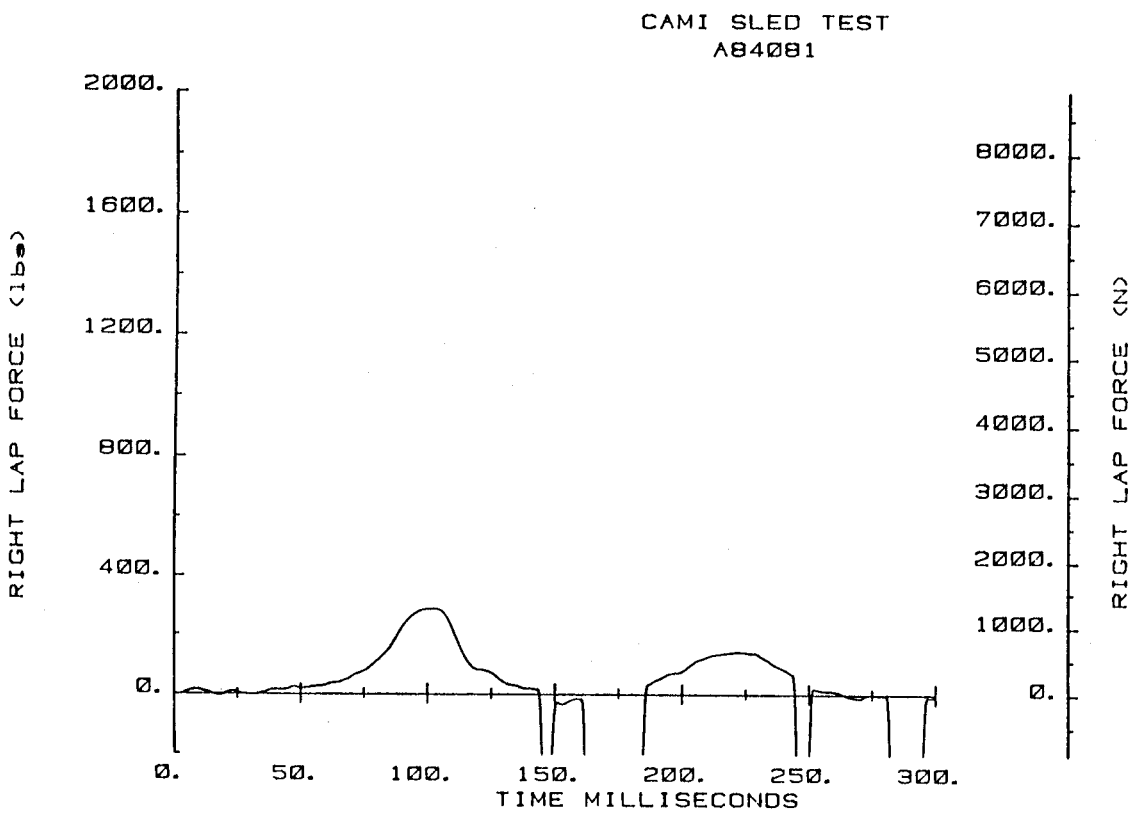

CAMI SLED TEST
A84081
FOOT REST FORCE X (lbs)
FOOT REST FORCE X (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

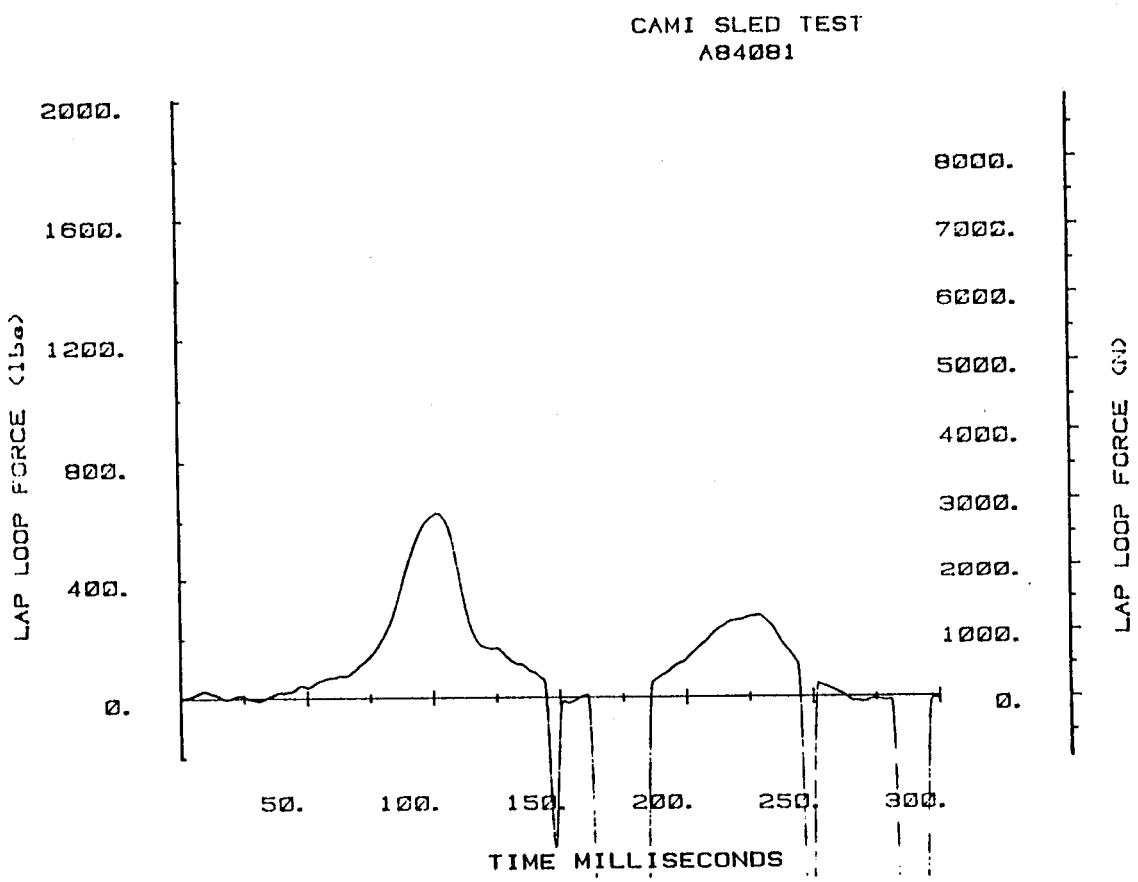

CAMI SLED TEST
A84081
FOOT REST FORCE Y (lbs)
FOOT REST FORCE Y (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

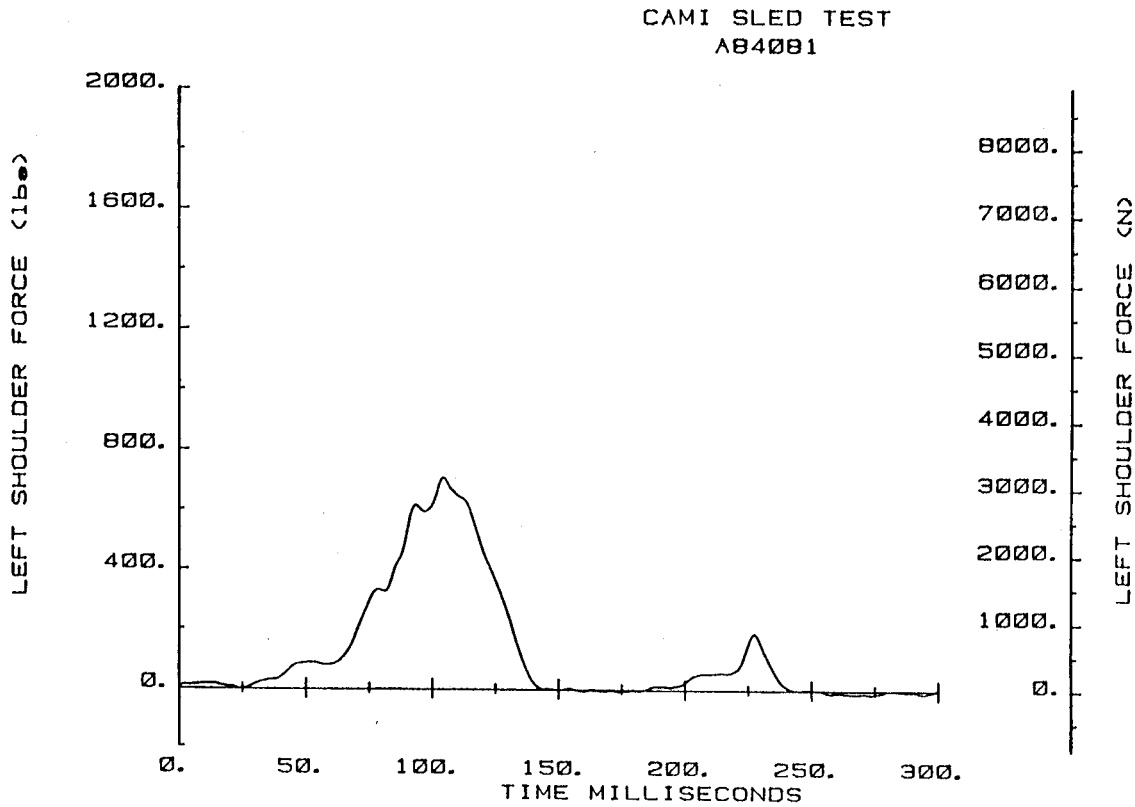

CAMI SLED TEST
A84081
FOOT REST FORCE Z (lbs)
FOOT REST FORCE Z (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

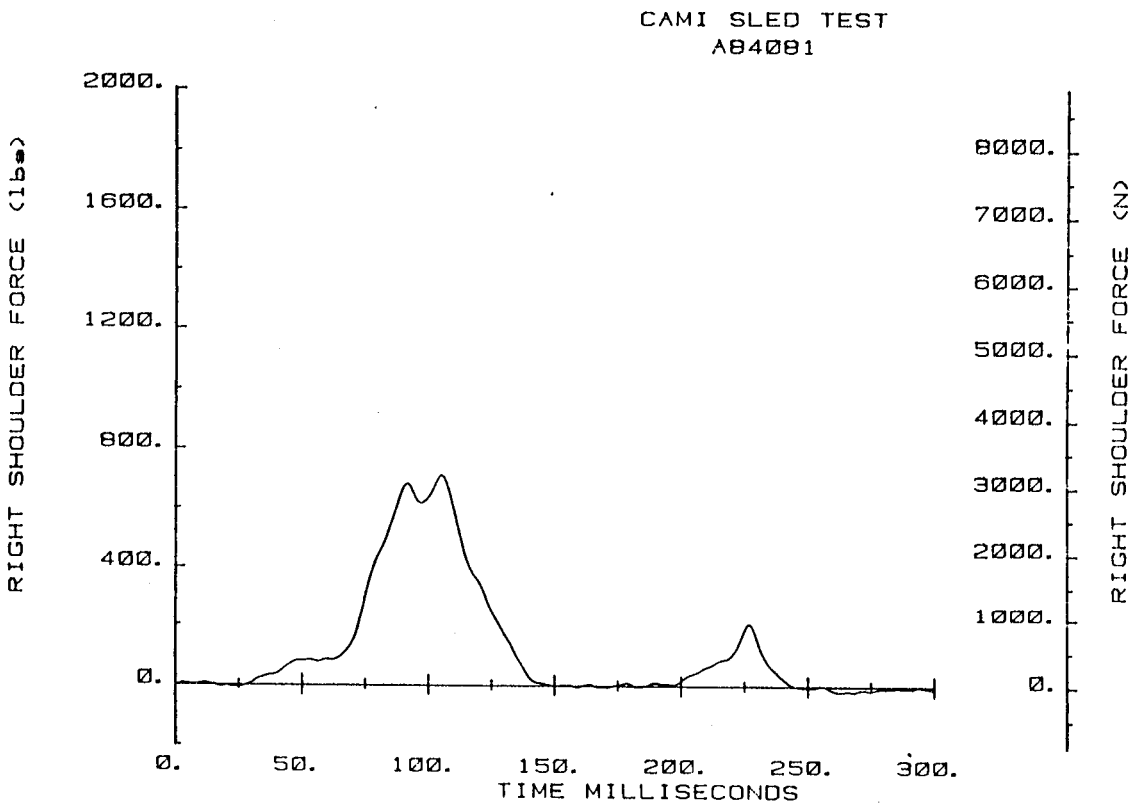

CAMI SLED TEST
A84081
FOOT REST FORCE RESULTANT (lbs)
FOOT REST FORCE RESULTANT (N)
3000.
2400.
1800.
1200.
600.
0.
12000.
10000.
8000.
6000.
4000.
2000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

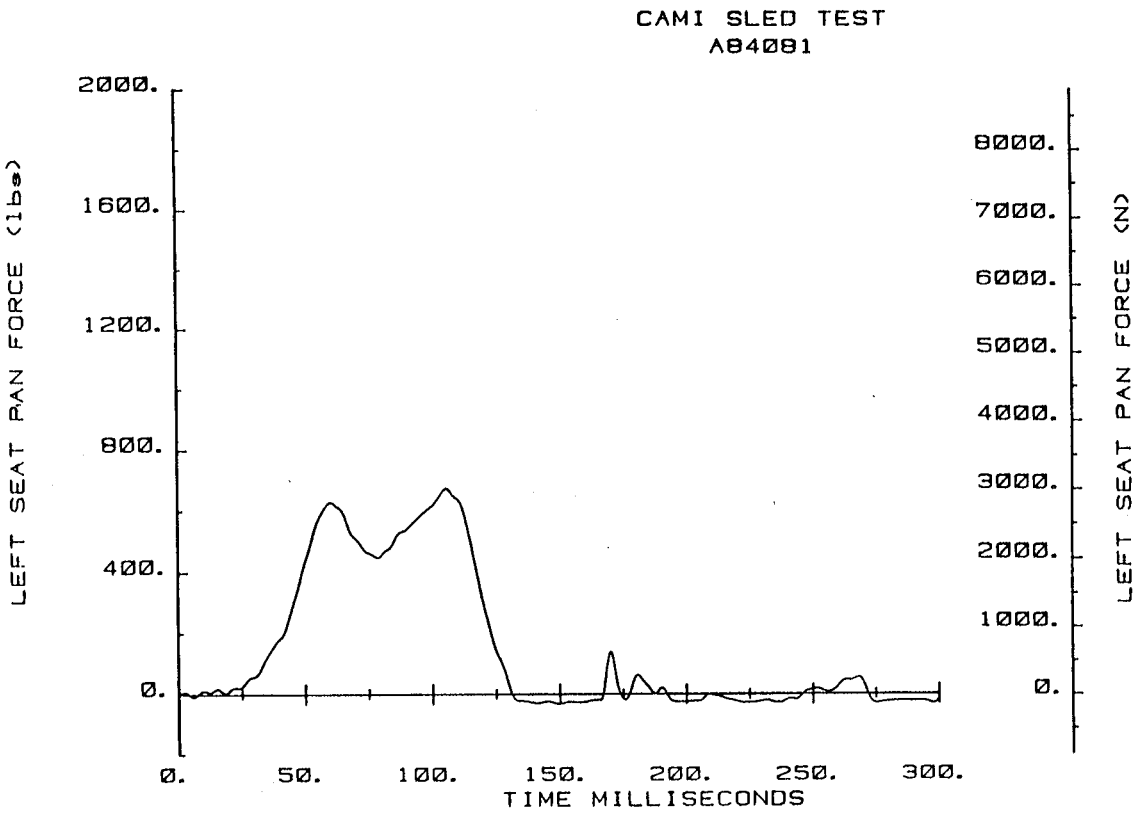

CAMI SLED TEST
A84081
LEFT LAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT LAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

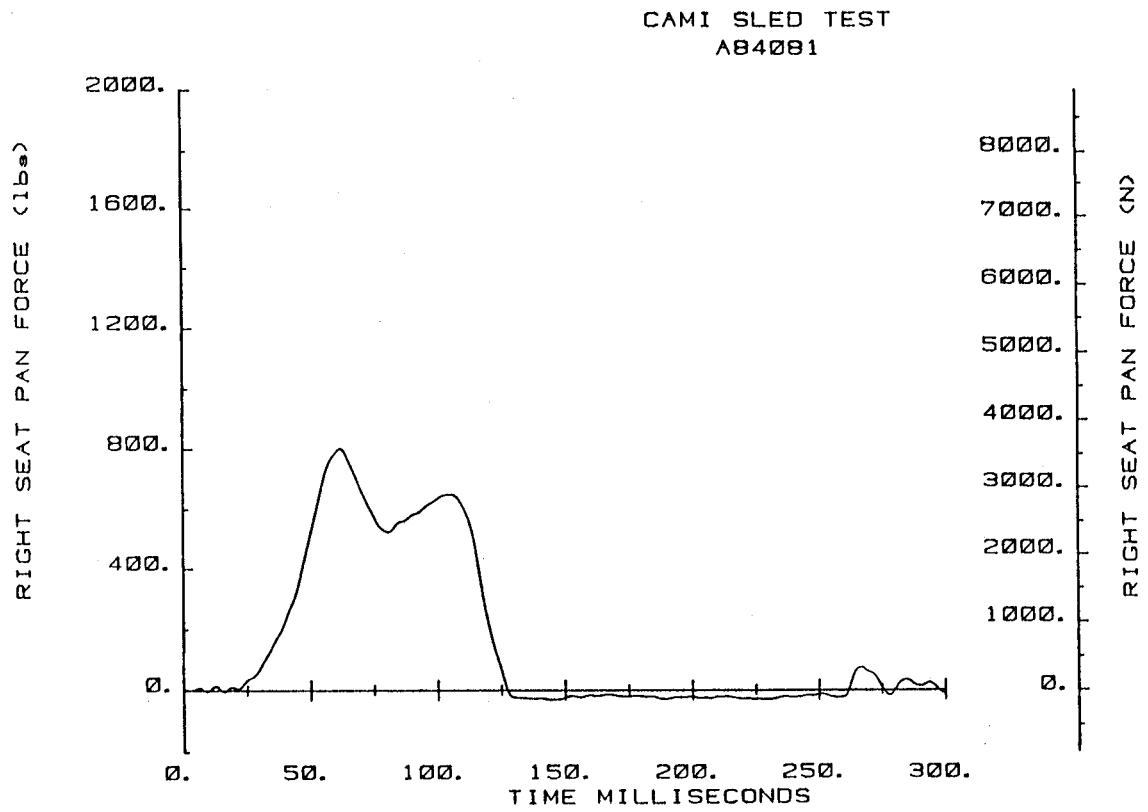

CAMI SLED TEST
A84081
RIGHT LAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT LAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

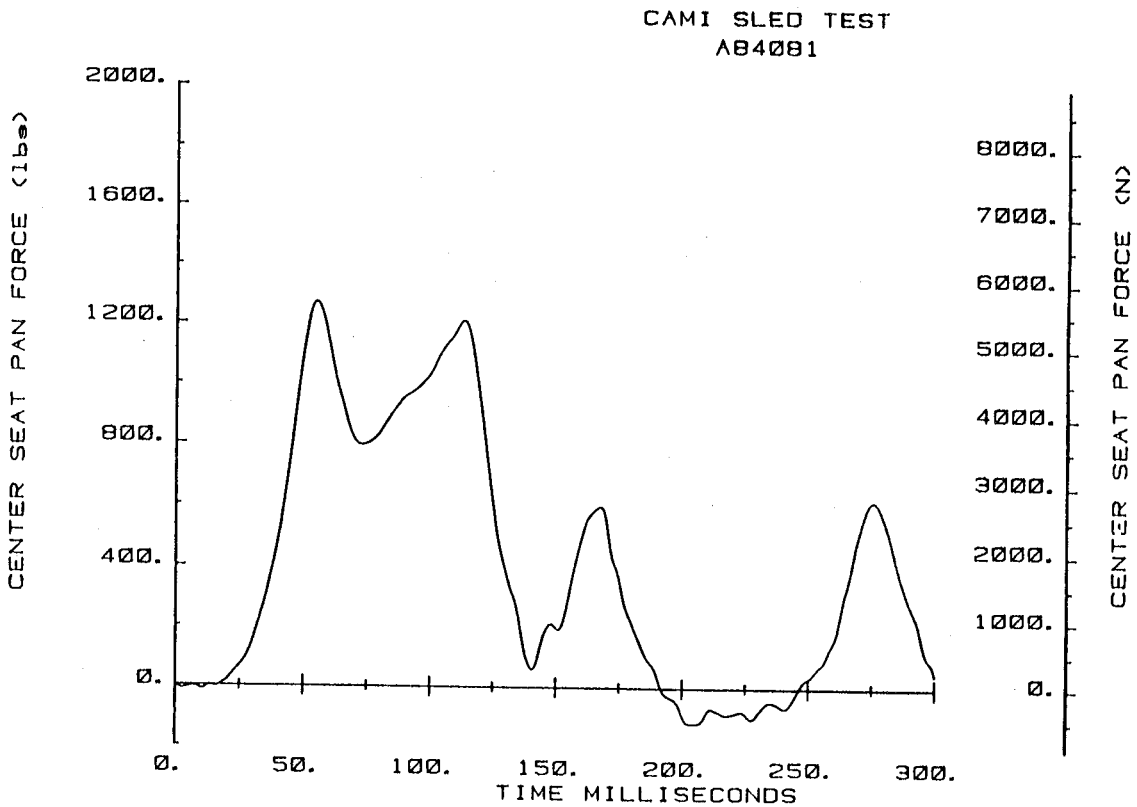

CAMI SLED TEST
A84081
2000.
1600.
1200.
800.
400.
0.
LAP LOOP FORCE (lbs)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
LAP LOOP FORCE (N)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

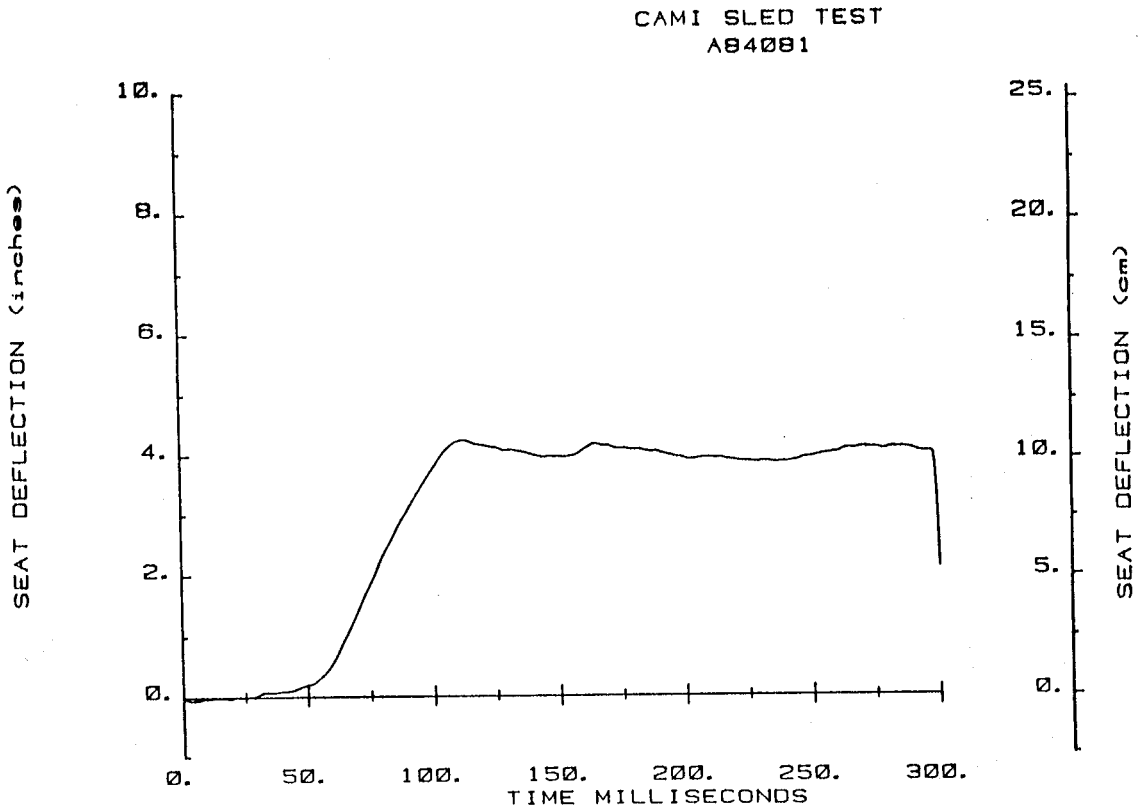

CAMI SLED TEST
A84081
LEFT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

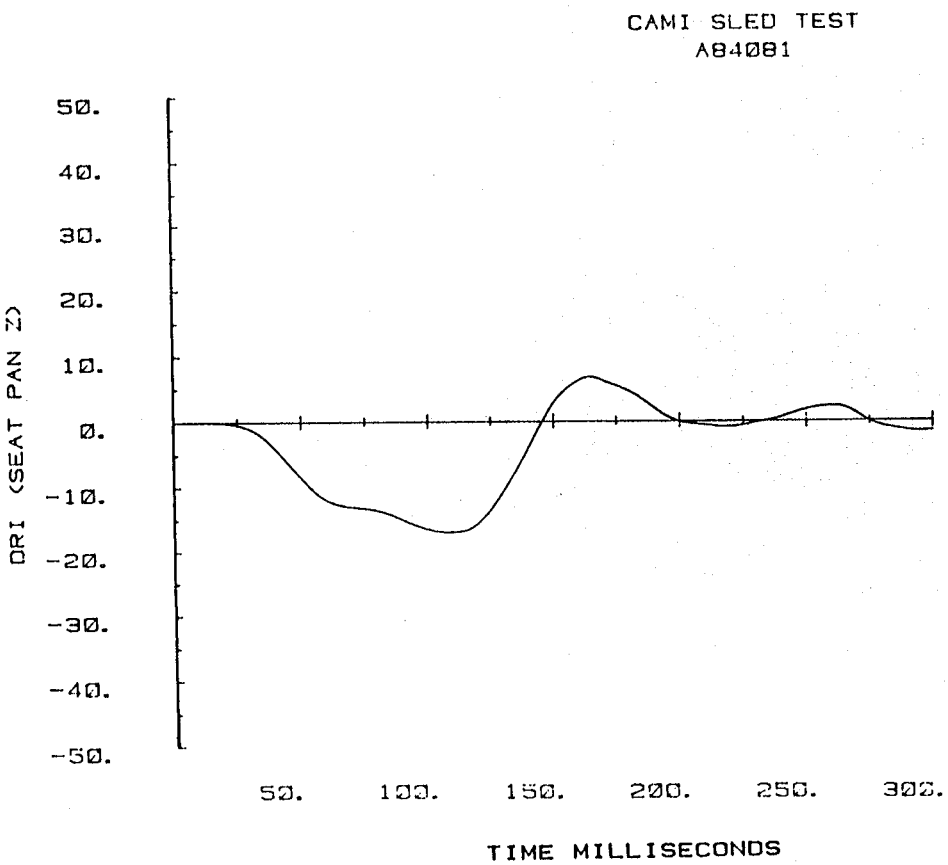

CAMI SLED TEST
A84081
RIGHT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A84081
LEFT SEAT PAN FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT SEAT PAN FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

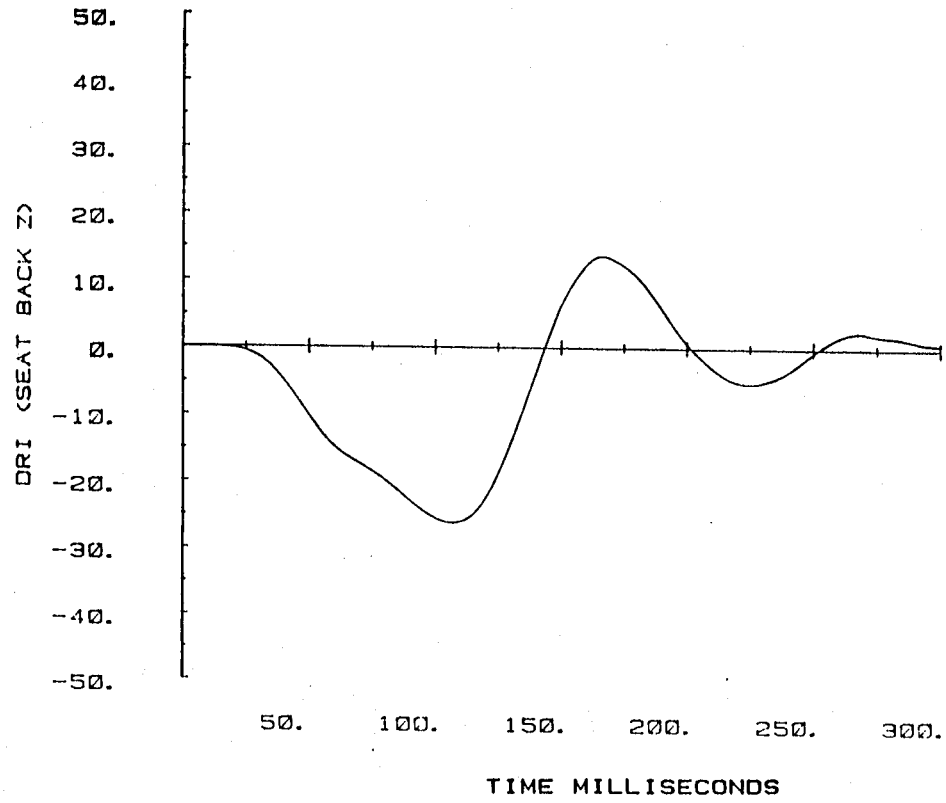

CAMI SLED TEST
A84081
RIGHT SEAT PAN FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT SEAT PAN FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A84081
CENTER SEAT PAN FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
CENTER SEAT PAN FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

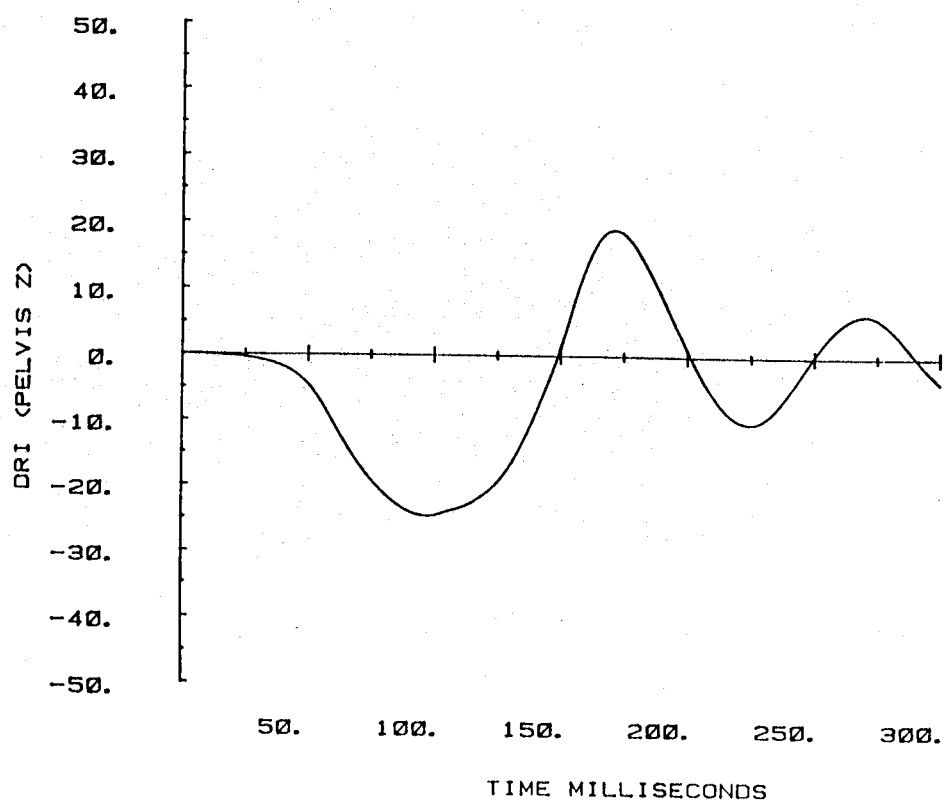

CAMI SLED TEST
A84081
SEAT DEFLECTION (inches)
SEAT DEFLECTION (cm)
10.
8.
6.
4.
2.
0.
25.
20.
15.
10.
5.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A84081
DRI (SEAT PAN Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

CAMI SLED TEST
A84081



CAMI SLED TEST
A84081



13.0 CAMI TEST NO. A84-82

SEAT: Energy Absorbing

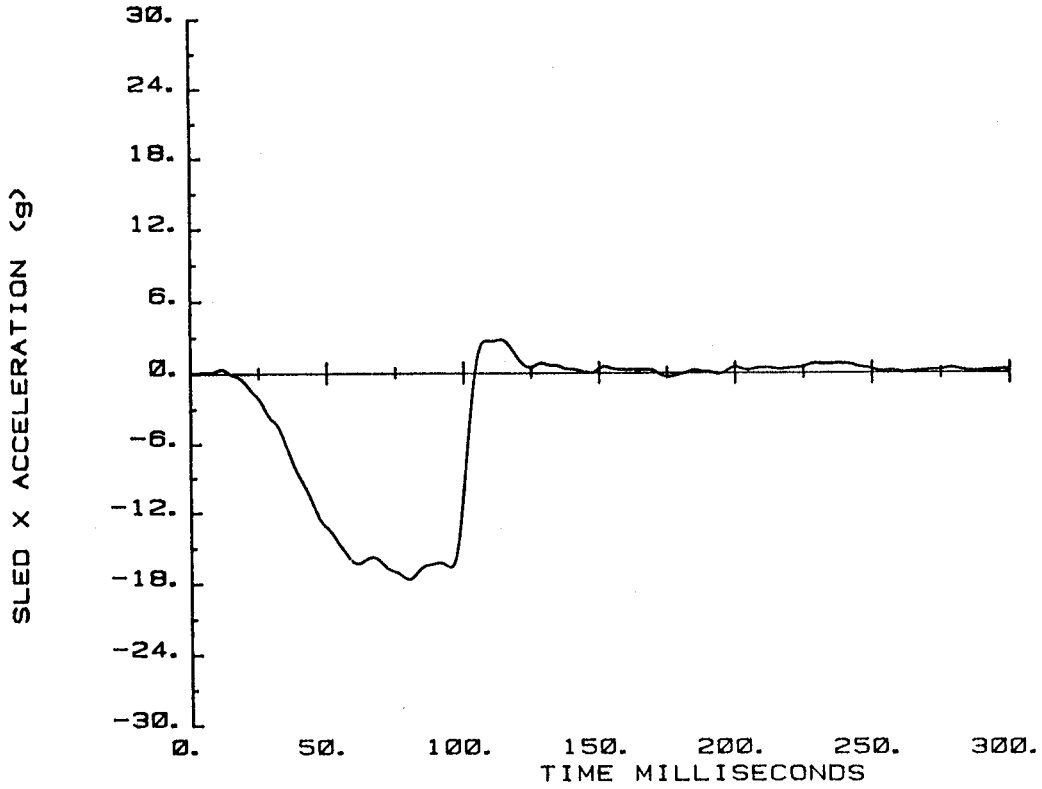
PULSE NUMBER: 1

SEAT ORIENTATION: Pitch - 90°
Roll - 0°
Yaw - 0°

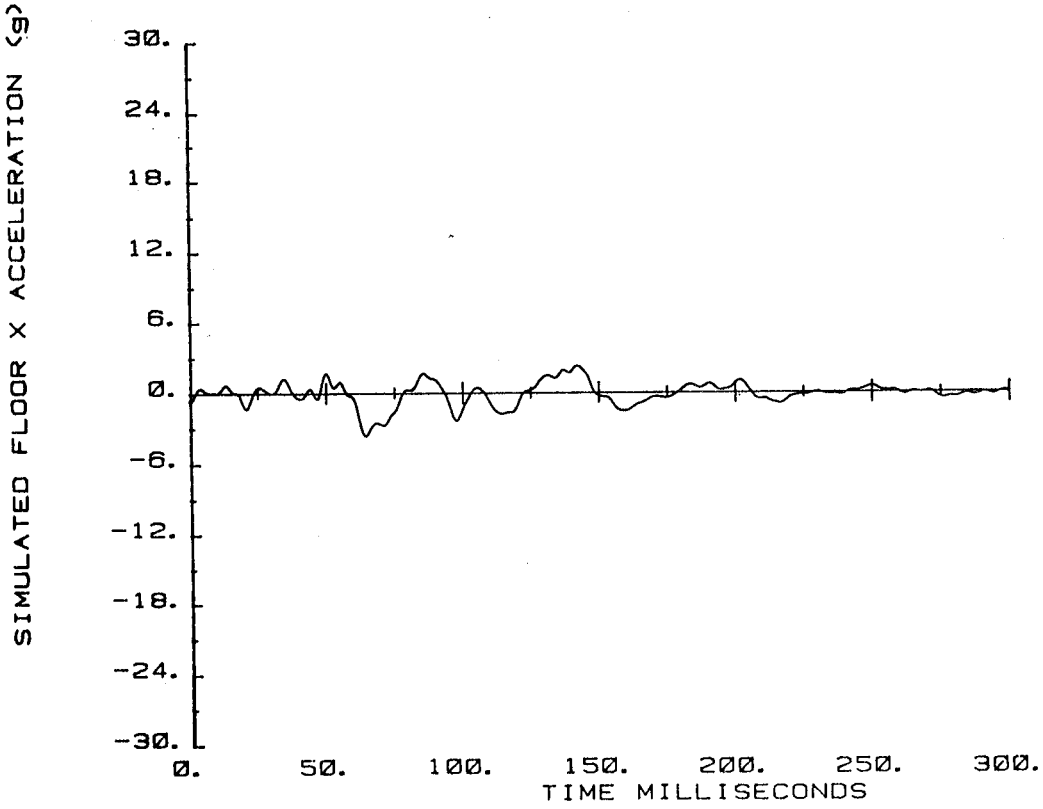
PEAK LOADS

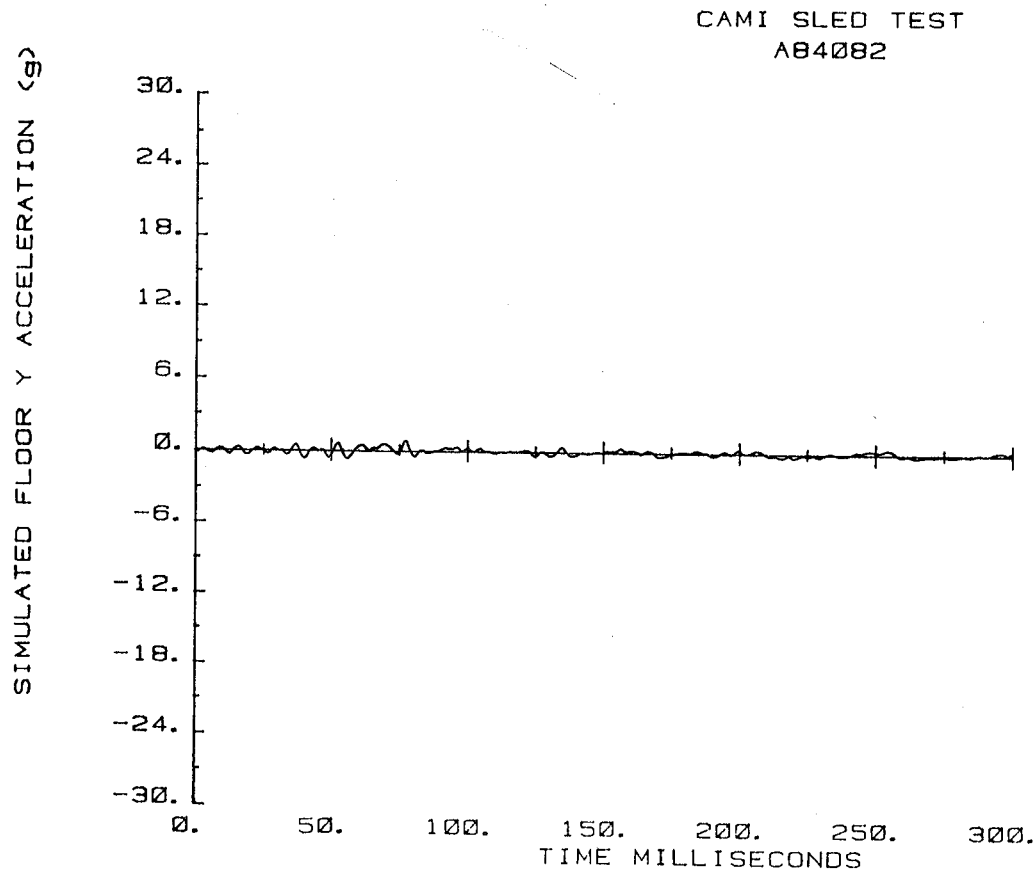
RUN#	VARIABLE		PEAK1	T	PEAK2	T	RANGE	FILE
A84082	SLED X ACCELERATION	(g)	-17.7	79			(0, 300)	* F08201
A84082	HEAD X ACCELERATION	(g)	-5.8	124	14.9	243	(0, 300)	* F08203
A84082	HEAD Y ACCELERATION	(g)	-7.2	241	2.4	262	(0, 300)	* F08204
A84082	HEAD Z ACCELERATION	(g)	-23.3	76	10.9	176	(0, 300)	* F08205
A84082	CHEST X ACCELERATION	(g)	-2.0	114	5.6	234	(0, 300)	* F08206
A84082	CHEST Y ACCELERATION	(g)	-1.5	75	1.0	85	(0, 300)	* F08207
A84082	CHEST Z ACCELERATION	(g)	-22.5	74	9.4	173	(0, 300)	* F08208
A84082	PELVIS X ACCELERATION	(g)	-9.0	79	8.1	99	(0, 300)	* F08209
A84082	PELVIS Y ACCELERATION	(g)	3.9	79	-5.3	88	(0, 300)	* F08210
A84082	PELVIS Z ACCELERATION	(g)	-26.3	71	9.1	172	(0, 300)	* F08211
A84082	PELVIC FORCE Y	(lbs)	-73.1	113	18.7	265	(0, 300)	* F08213
A84082	PELVIC FORCE Z	(lbs)	1240.3	79	-303.8	174	(0, 300)	* F08214
A84082	PELVIC MOMENT X	(in-lbs)	-94.6	106	140.9	219	(0, 300)	* F08215
A84082	PELVIC MOMENT Y	(in-lbs)	333.0	104	-399.5	147	(0, 300)	* F08216
A84082	PELVIC MOMENT Z	(in-lbs)	80.9	86	-52.3	122	(0, 300)	* F08217
A84082	LEFT LAP FORCE	(lbs)	98.7	172			(0, 300)	* F08218
A84082	RIGHT LAP FORCE	(lbs)	91.5	176			(0, 300)	* F08219
A84082	SIMULATED FLOOR X ACCELERATION	(g)	-3.7	64	2.3	142	(0, 300)	* F08220
A84082	SIMULATED FLOOR Y ACCELERATION	(g)	-.7	55	.8	77	(0, 300)	* F08221
A84082	SIMULATED FLOOR Z ACCELERATION	(g)	-17.8	78			(0, 300)	* F08222
A84082	FOOT REST FORCE X	(lbs)	-393.5	58	526.1	107	(0, 300)	* F08223
A84082	FOOT REST FORCE Y	(lbs)	148.9	67	-153.4	80	(0, 300)	* F08224
A84082	FOOT REST FORCE Z	(lbs)	852.5	88			(0, 300)	* F08225
A84082	LEFT SHOULDER FORCE	(lbs)	135.5	167			(0, 300)	* F08226
A84082	RIGHT SHOULDER FORCE	(lbs)	92.3	164	-36.8	285	(0, 300)	* F08227
A84082	SEAT BACK Z ACCELERATION	(g)	-19.9	92	5.5	126	(0, 300)	* F08228
A84082	SEAT PAN X ACCELERATION	(g)	-6.0	100	7.3	143	(0, 300)	* F08229
A84082	SEAT PAN Y ACCELERATION	(g)	4.0	47	-2.1	190	(0, 300)	* F08230
A84082	SEAT PAN Z ACCELERATION	(g)	-21.3	92	6.1	120	(0, 300)	* F08231
A84082	SEAT DEFLECTION	(inches)	3.2	110			(0, 300)	* F08232
A84082	LEFT SEAT PAN FORCE	(lbs)	965.0	76			(0, 300)	* F08233
A84082	RIGHT SEAT PAN FORCE	(lbs)	1029.4	75			(0, 300)	* F08234
A84082	CENTER SEAT PAN FORCE	(lbs)	1229.2	109			(0, 300)	* F08235
A84082	LEFT REFLECTIVE STRAP FORCE	(lbs)	37.1	168	-27.8	260	(0, 300)	* F08236
A84082	RIGHT REFLECTIVE STRAP FORCE	(lbs)	-21.5	47	58.1	167	(0, 300)	* F08237
A84082	HEAD RESULTANT	(g)	23.8	75			(0, 300)	* V08201
A84082	CHEST RESULTANT	(g)	22.5	74			(0, 300)	* V08202
A84082	PELVIS RESULTANT	(g)	26.9	71			(0, 300)	* V08203
A84082	PELVIC MOMENT RESULTANT	(in-lbs)	401.2	147			(0, 300)	* V08204
A84082	SIMULATED FLOOR RESULTANT	(g)	17.8	78			(0, 300)	* V08205
A84082	FOOT REST FORCE RESULTANT	(lbs)	883.7	87			(0, 300)	* V08206
A84082	SEAT PAN RESULTANT	(g)	21.4	92			(0, 300)	* V08207
A84082	LAP LOOP FORCE	(lbs)	185.2	175			(0, 300)	* A08201
PELVIS DRI			23.7	113				
SEAT BACK DRI			16.2	114				
SEAT PAN DRI			17.2	80				

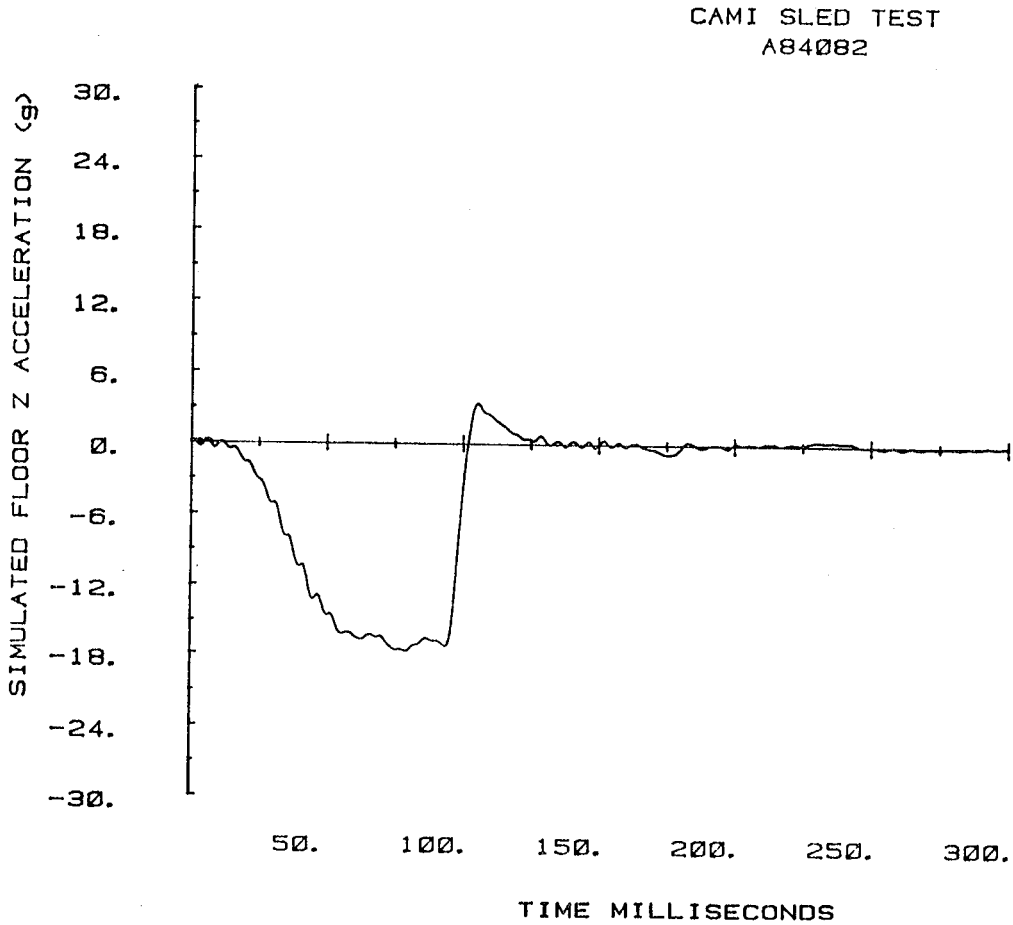
CAMI SLED TEST
A84082



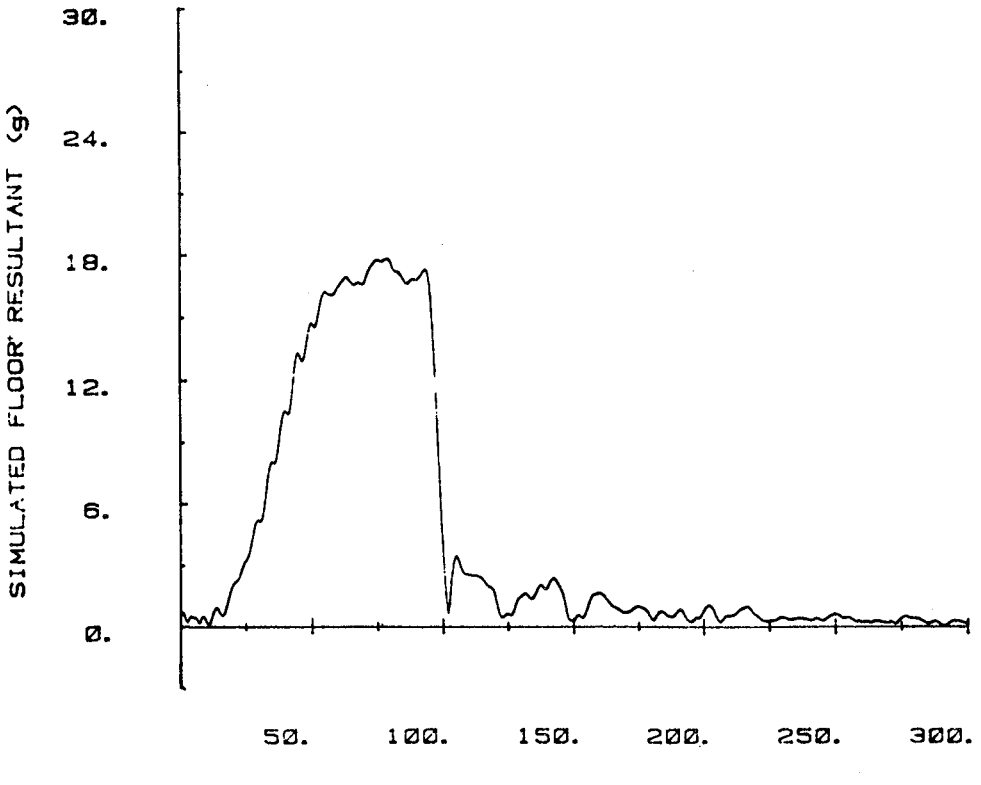
CAMI SLED TEST
A84082



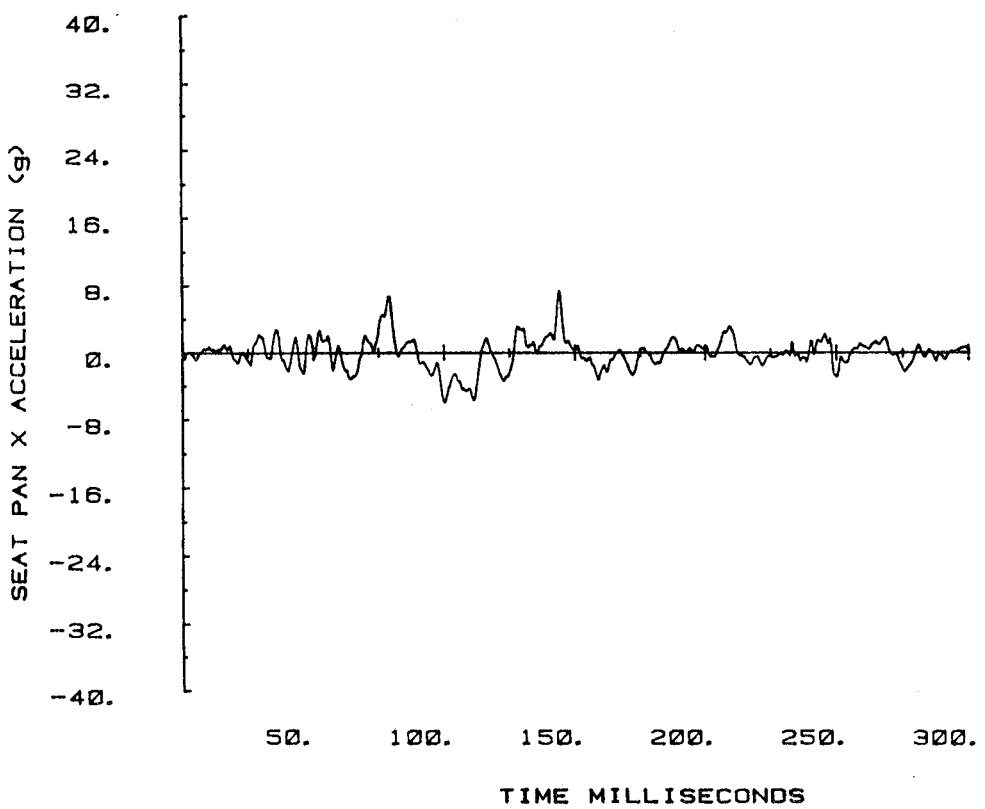

CAMI SLED TEST
A84082
SIMULATED FLOOR Y ACCELERATION (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

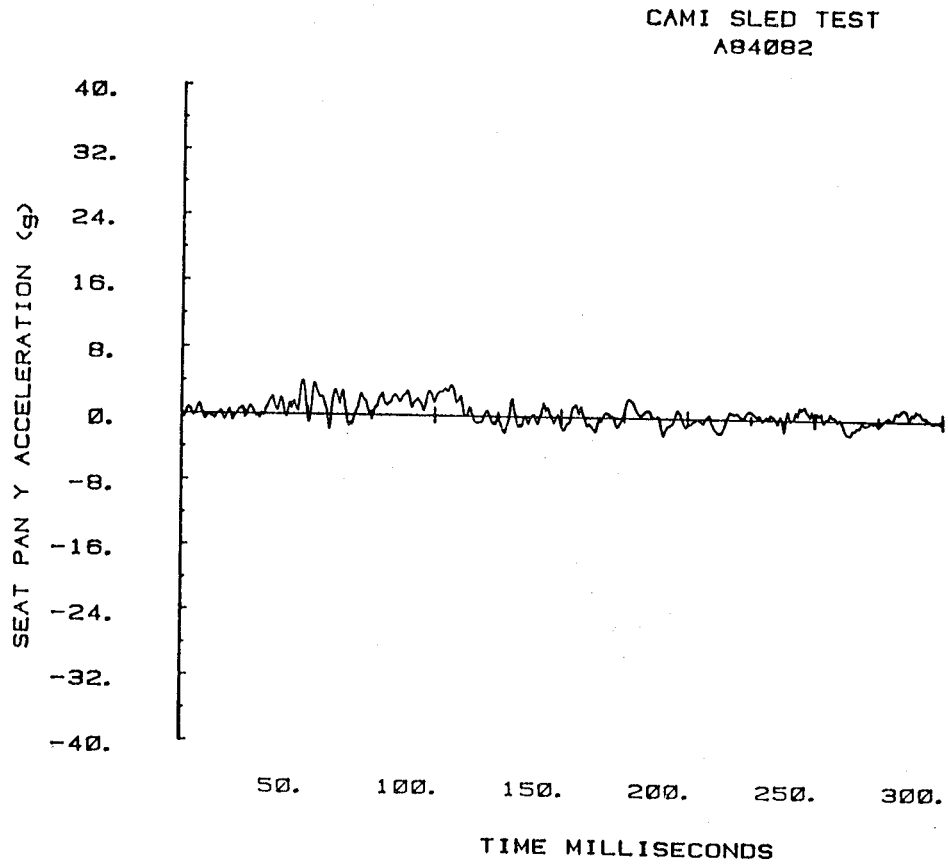

CAMI SLED TEST
A84082
SIMULATED FLOOR Z ACCELERATION (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

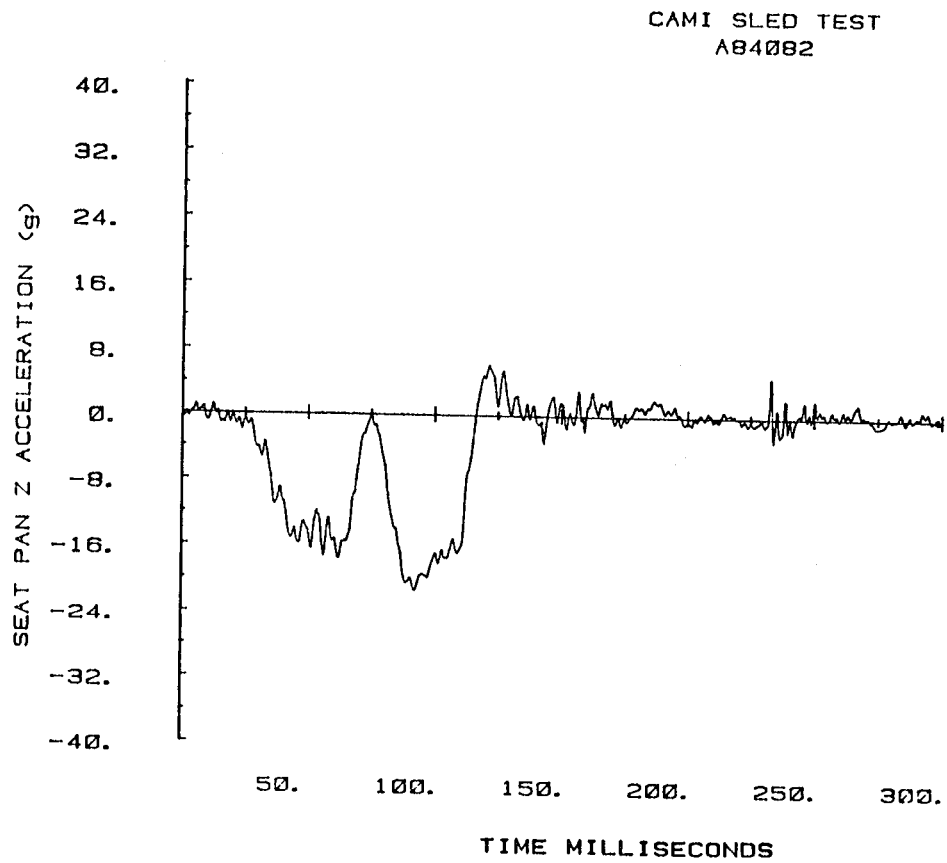
CAMI SLED TEST
A84082

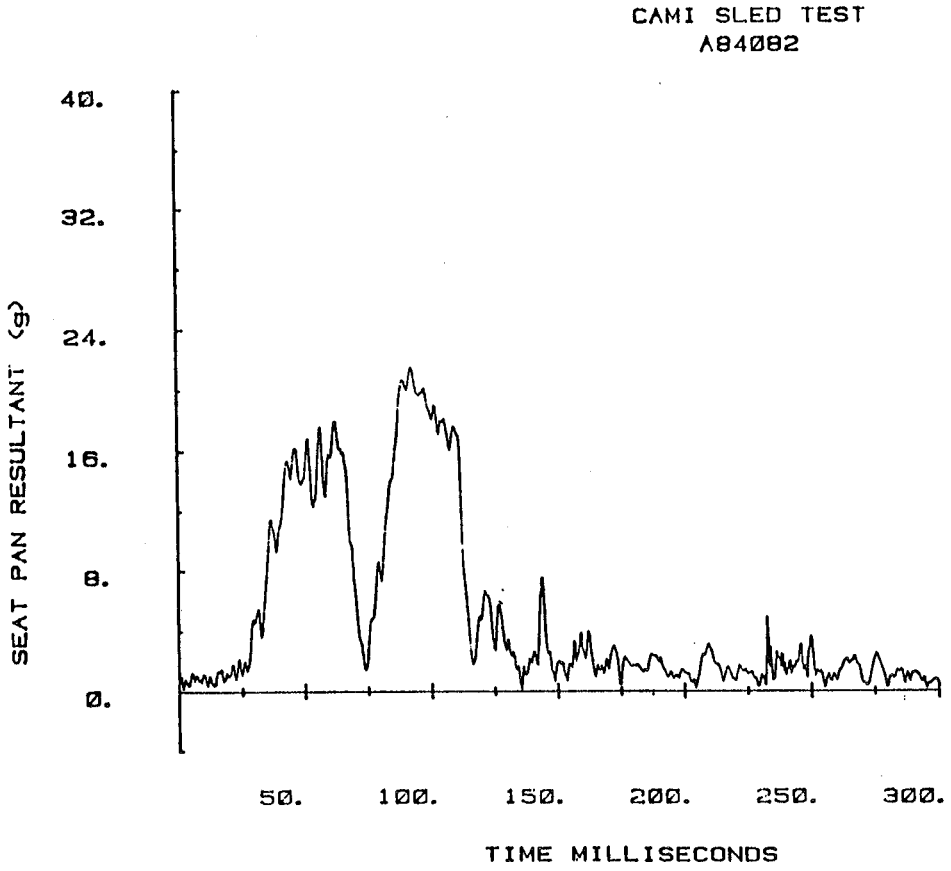


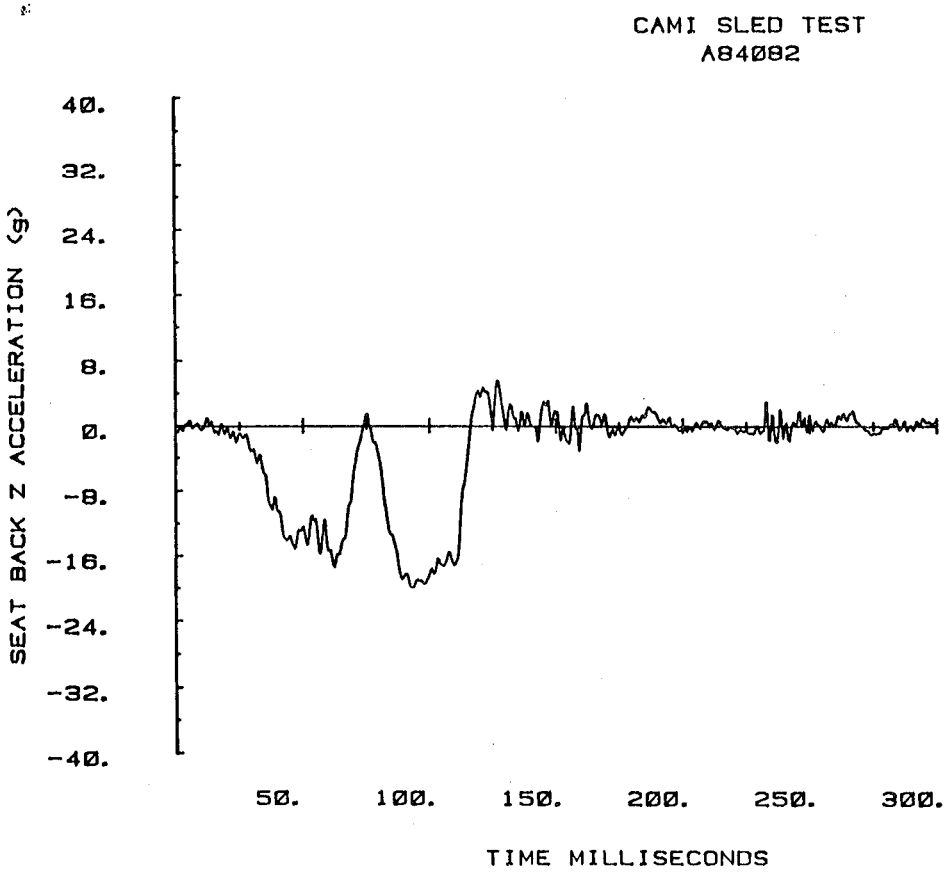
CAMI SLED TEST
A84082



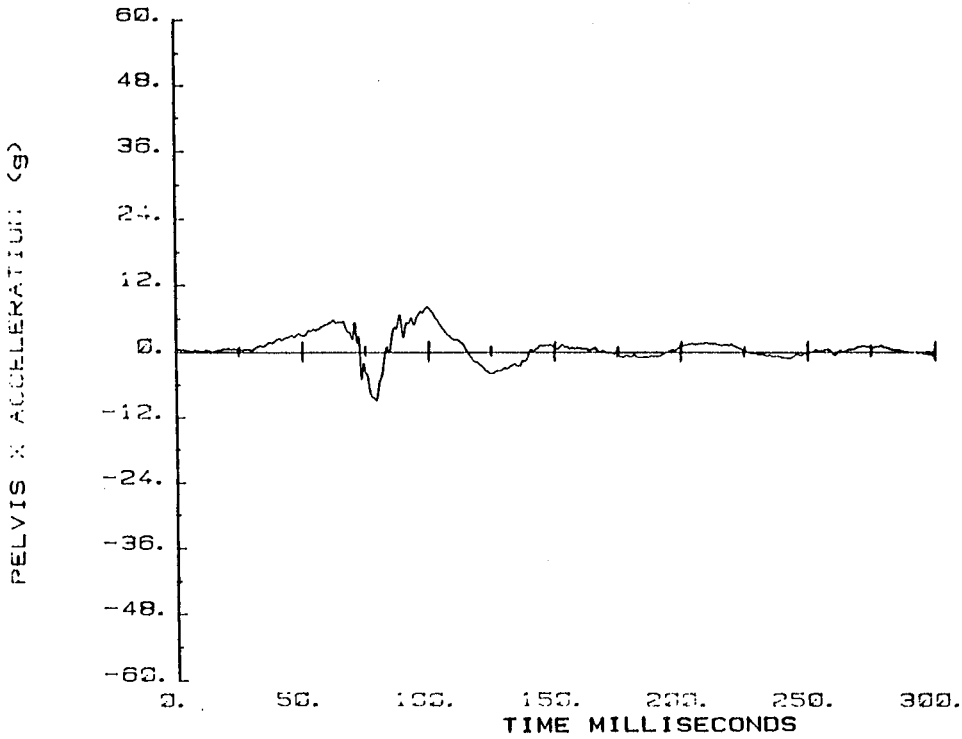

CAMI SLED TEST
A84082
SEAT PAN Y ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A84082
SEAT PAN Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

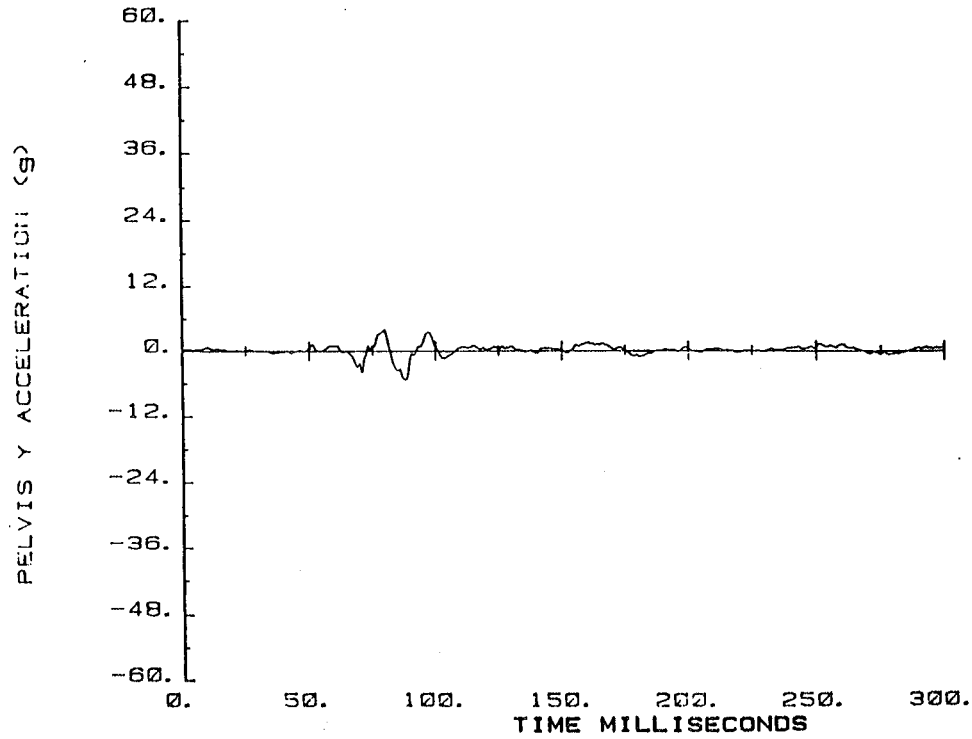

CAMI SLED TEST
A84082
40.
32.
24.
16.
8.
0.
SEAT PAN RESULTANT (g)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

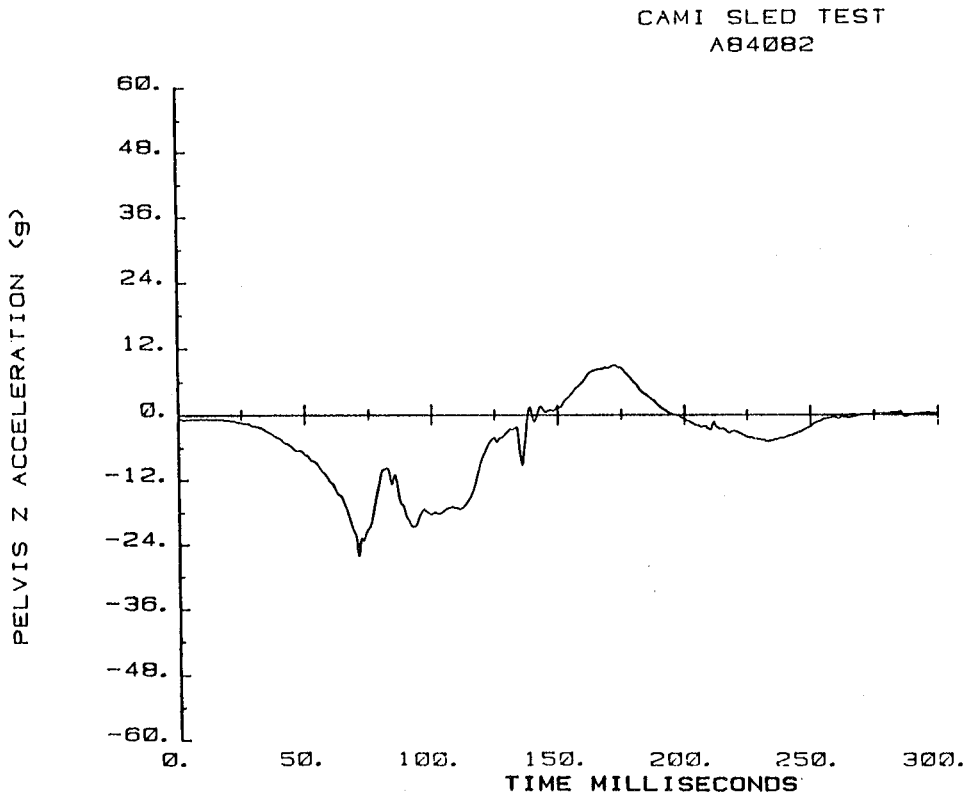

CAMI SLED TEST
A84082
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
SEAT BACK Z ACCELERATION (g)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

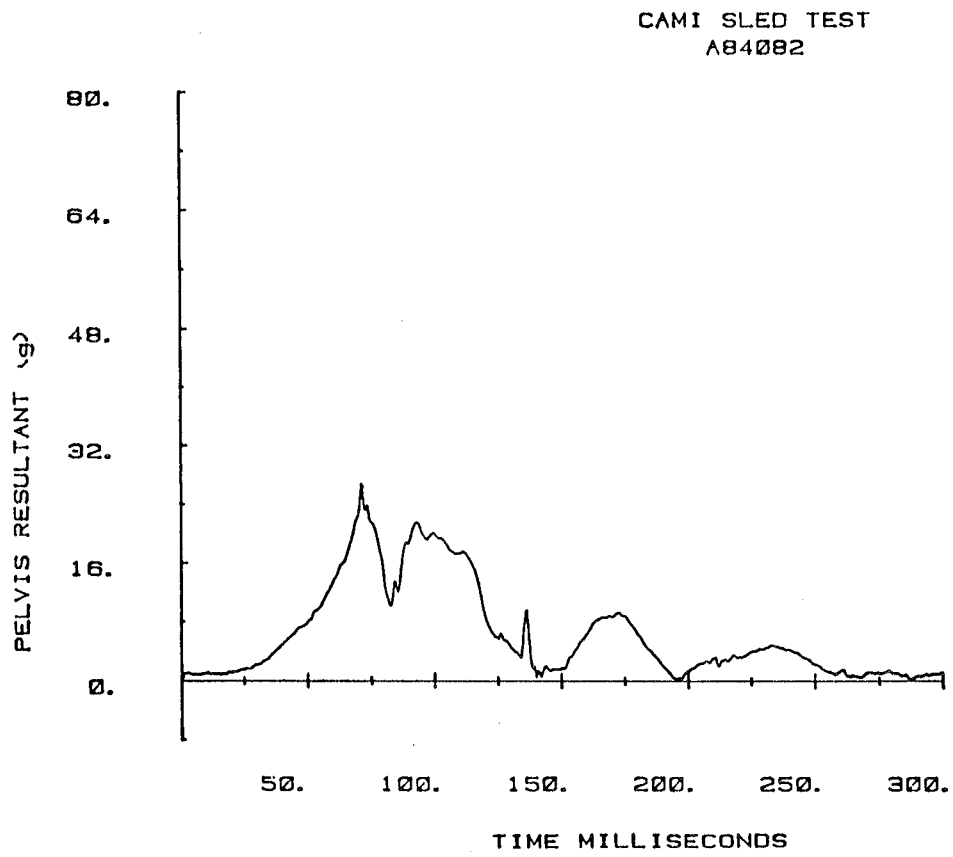
CAMI SLED TEST
A84082

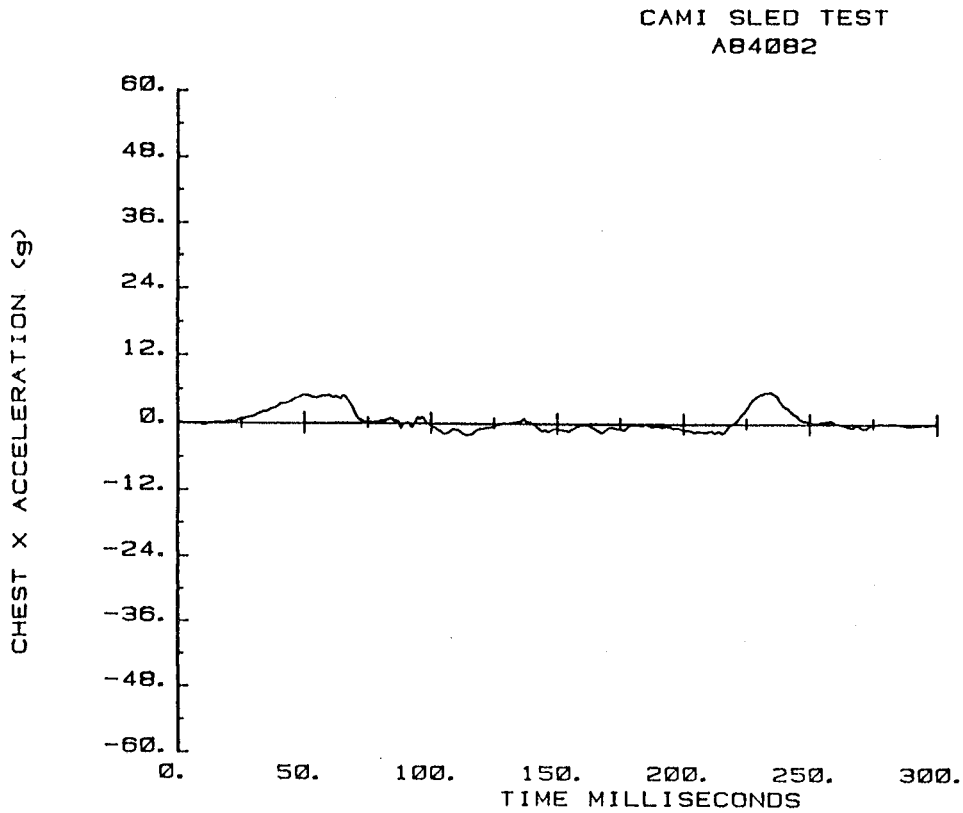


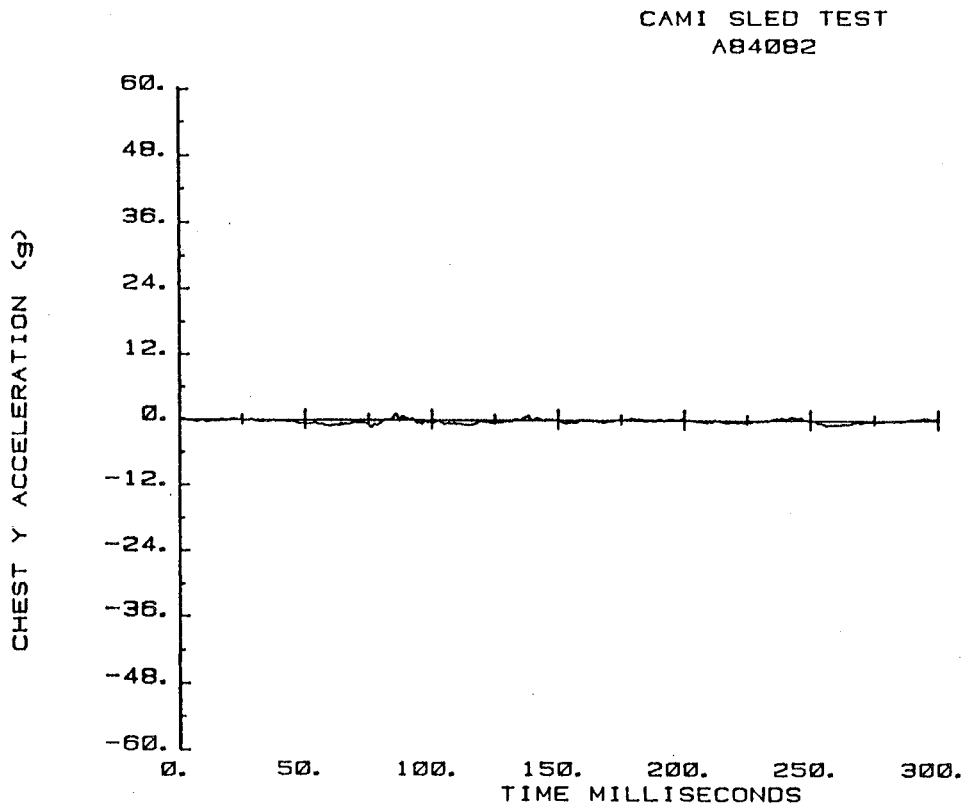
CAMI SLED TEST
A84082



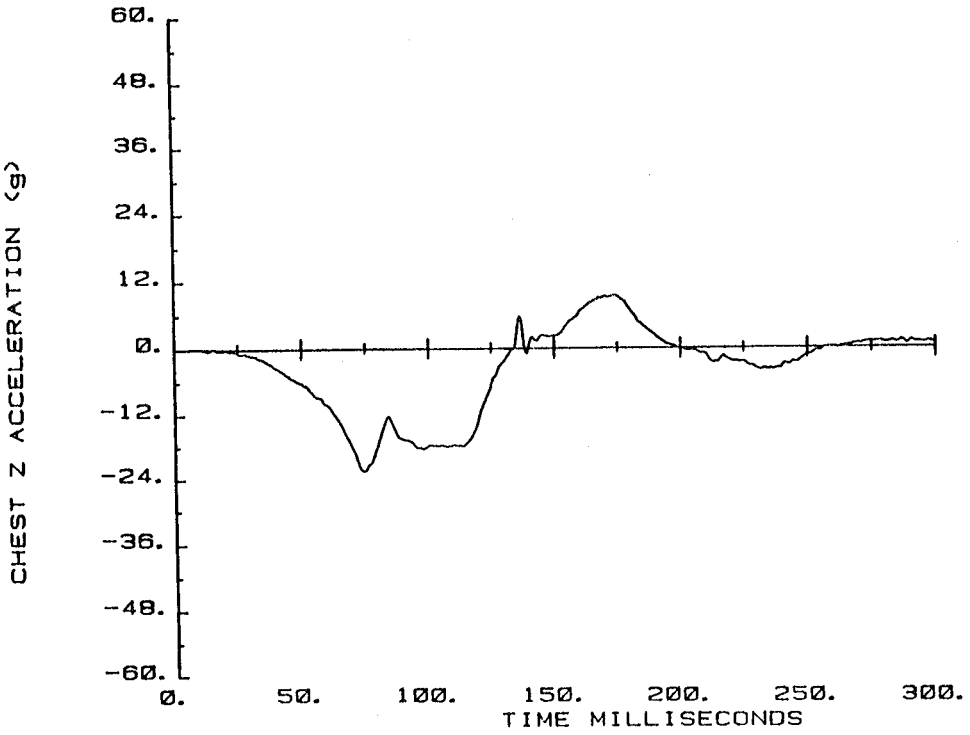

CAMI SLED TEST
A84082
PELVIS Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A84082
PELVIS RESULTANT (g)
80.
64.
48.
32.
16.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

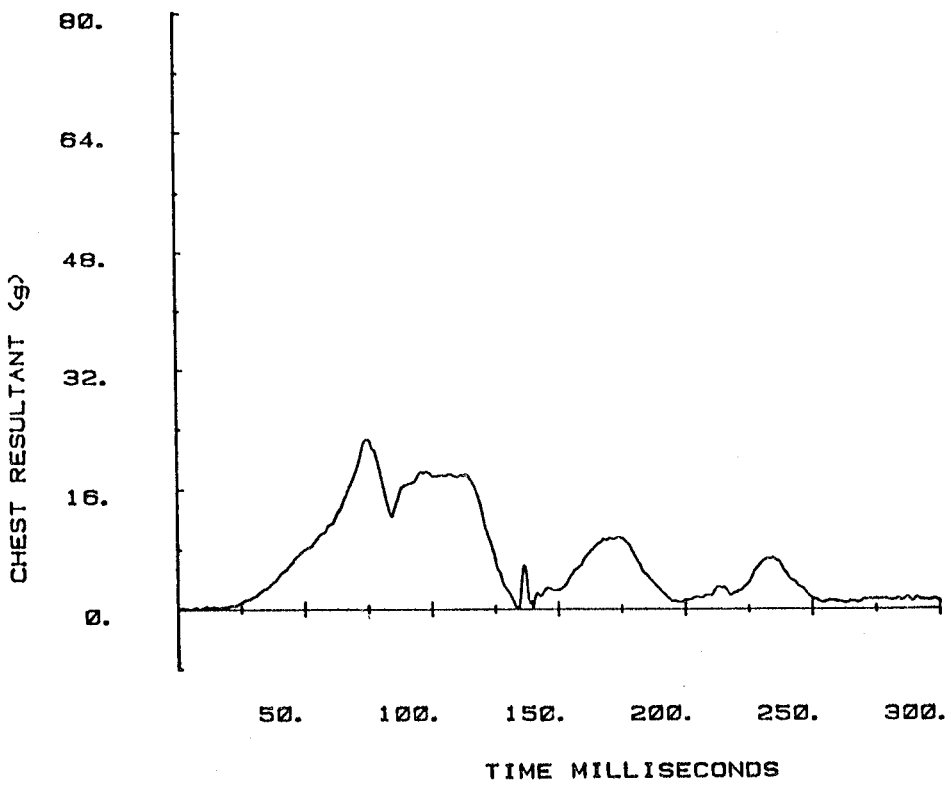

CAMI SLED TEST
A84082
CHEST X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

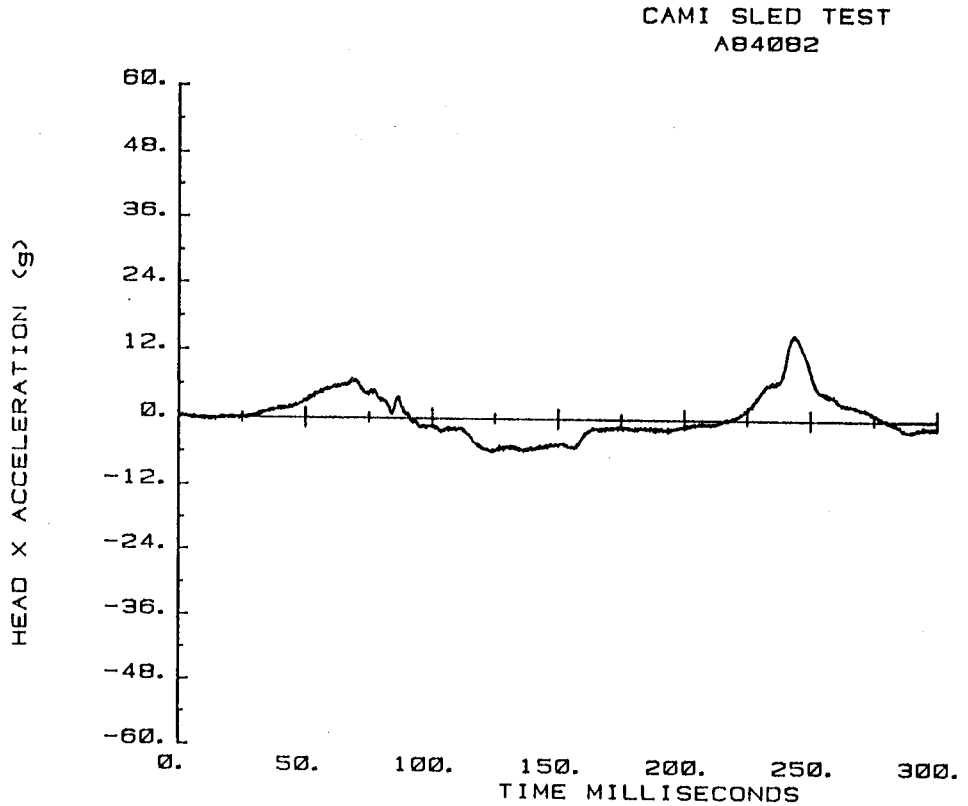

CAMI SLED TEST
A84082
CHEST Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

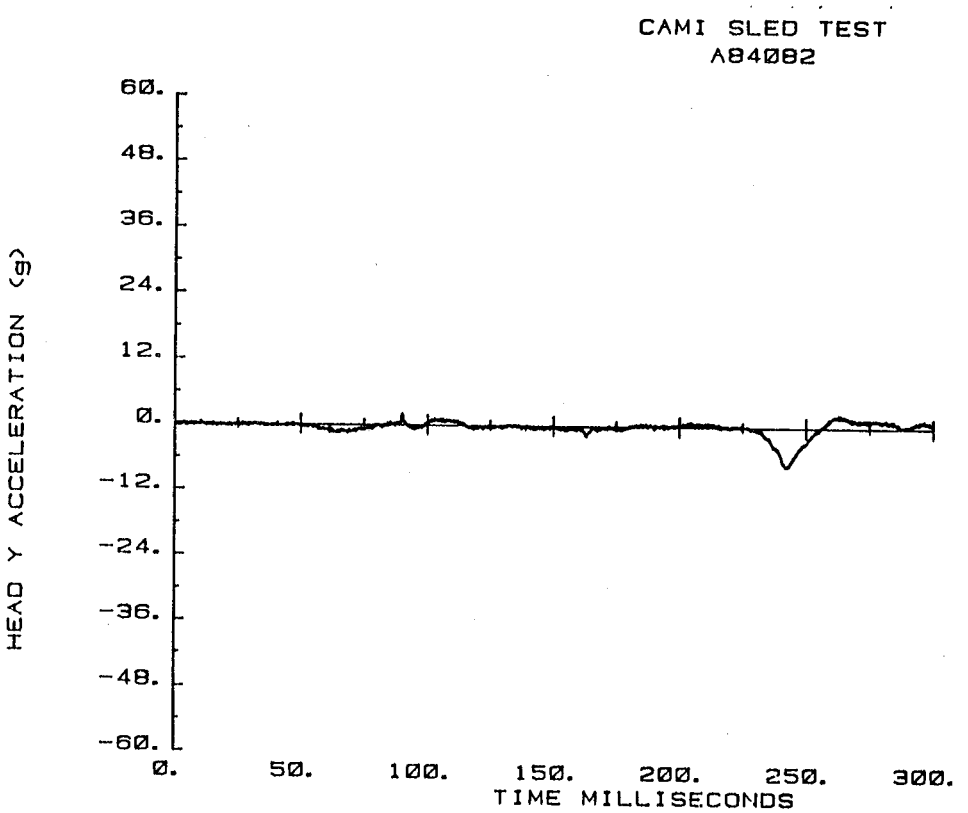
CAMI SLED TEST
A84082

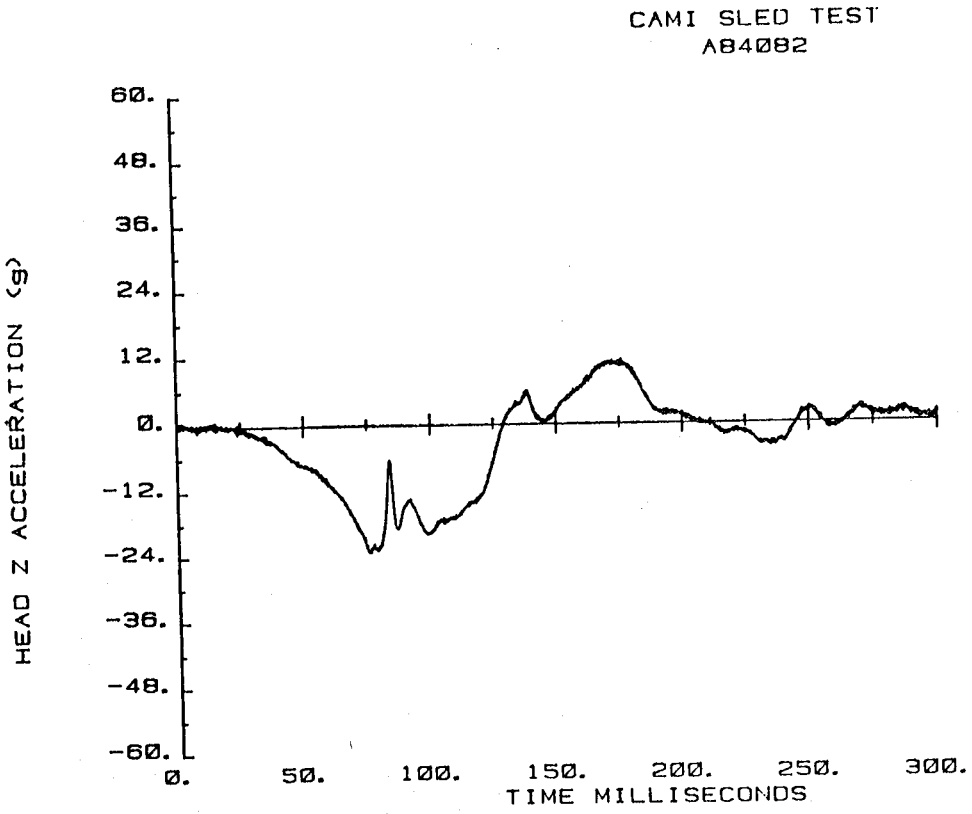


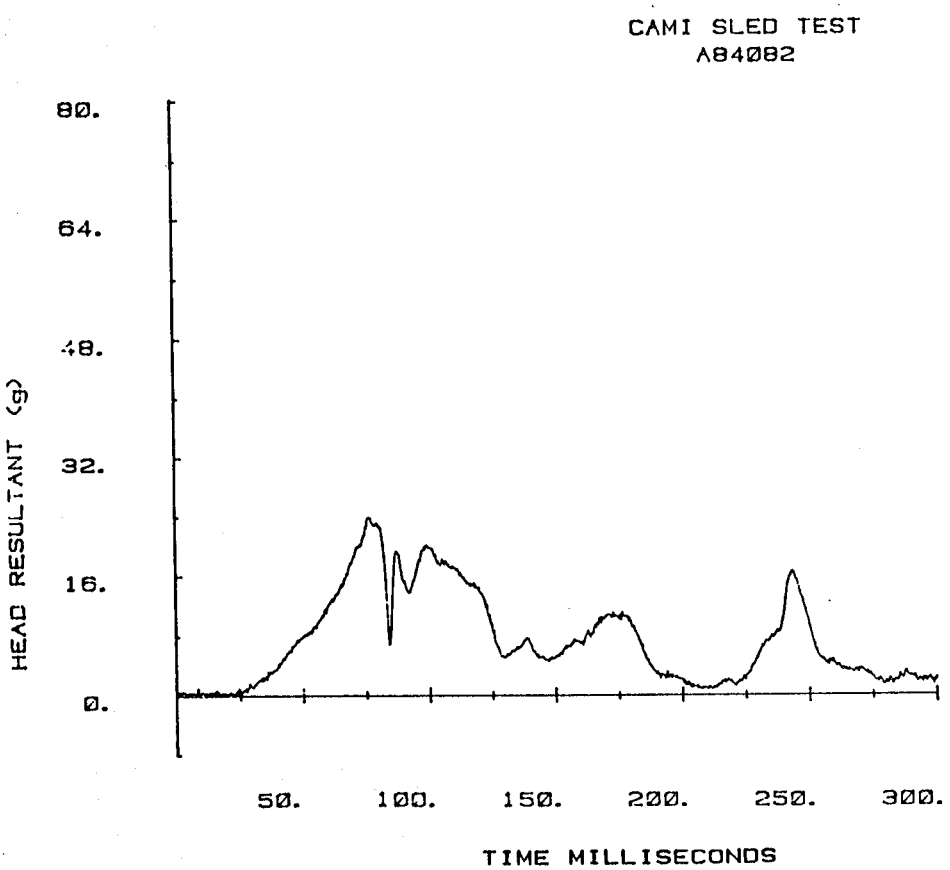
CAMI SLED TEST
A84082

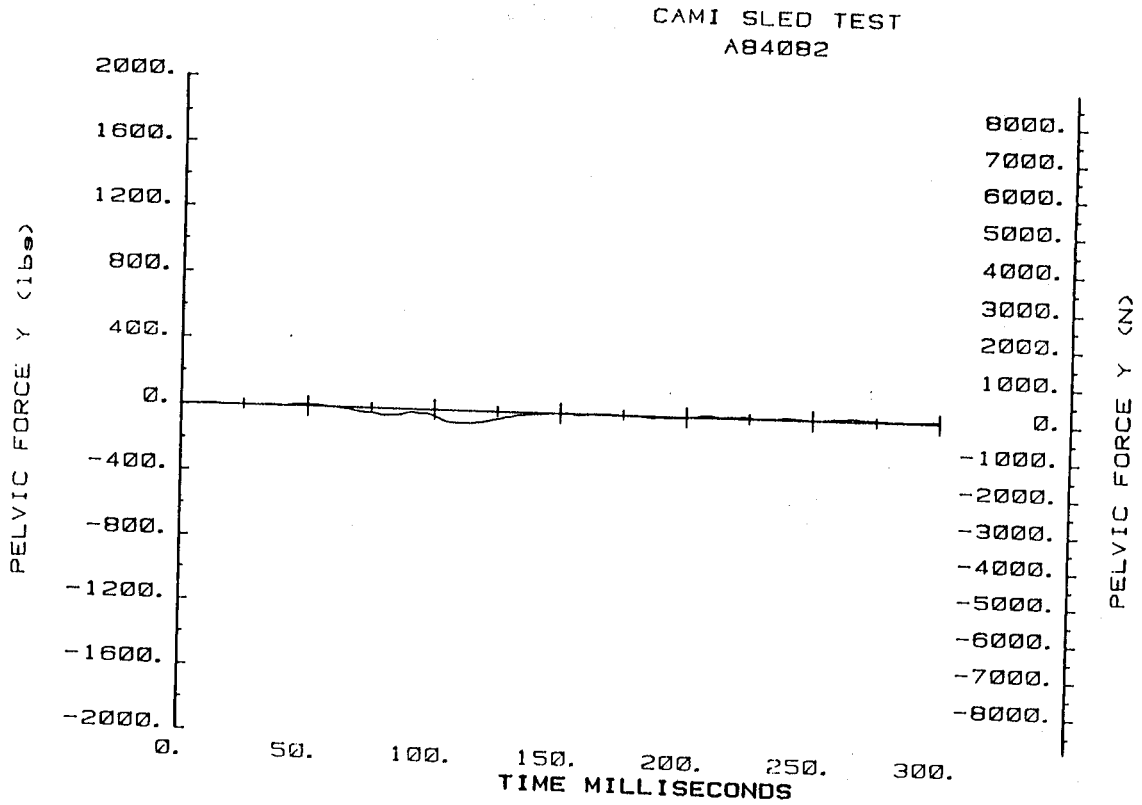


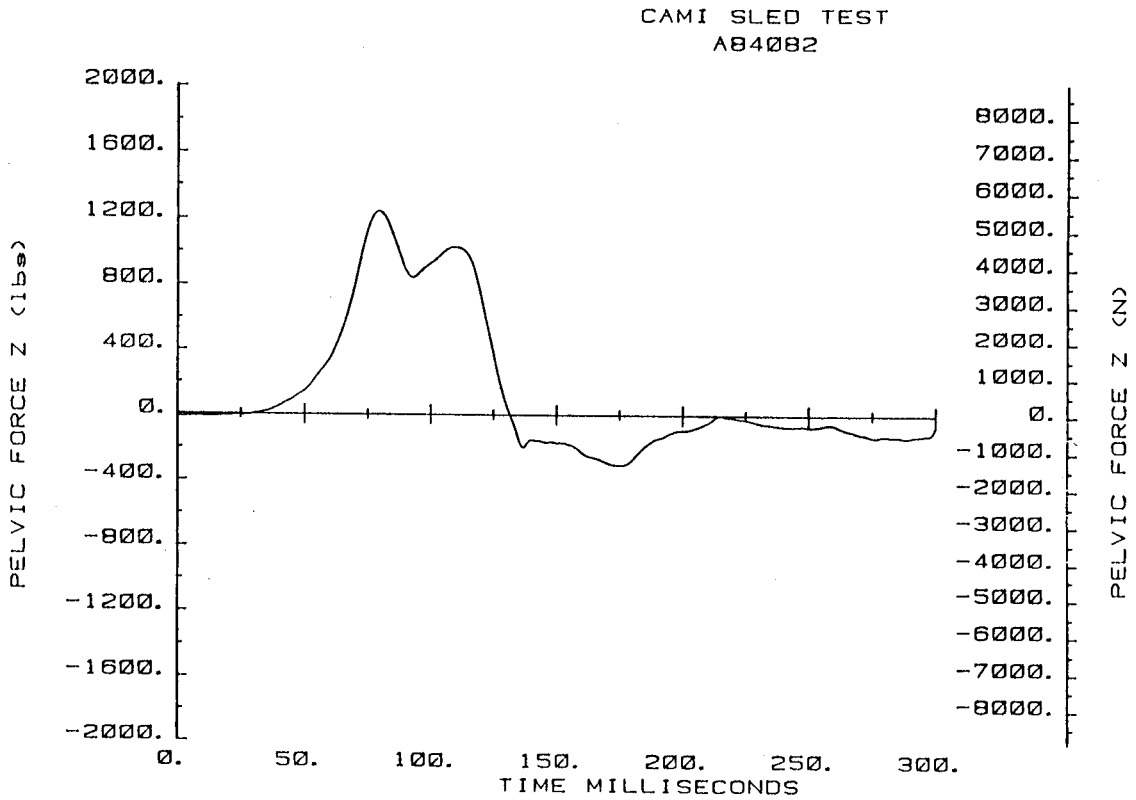

CAMI SLED TEST
A84082
HEAD X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

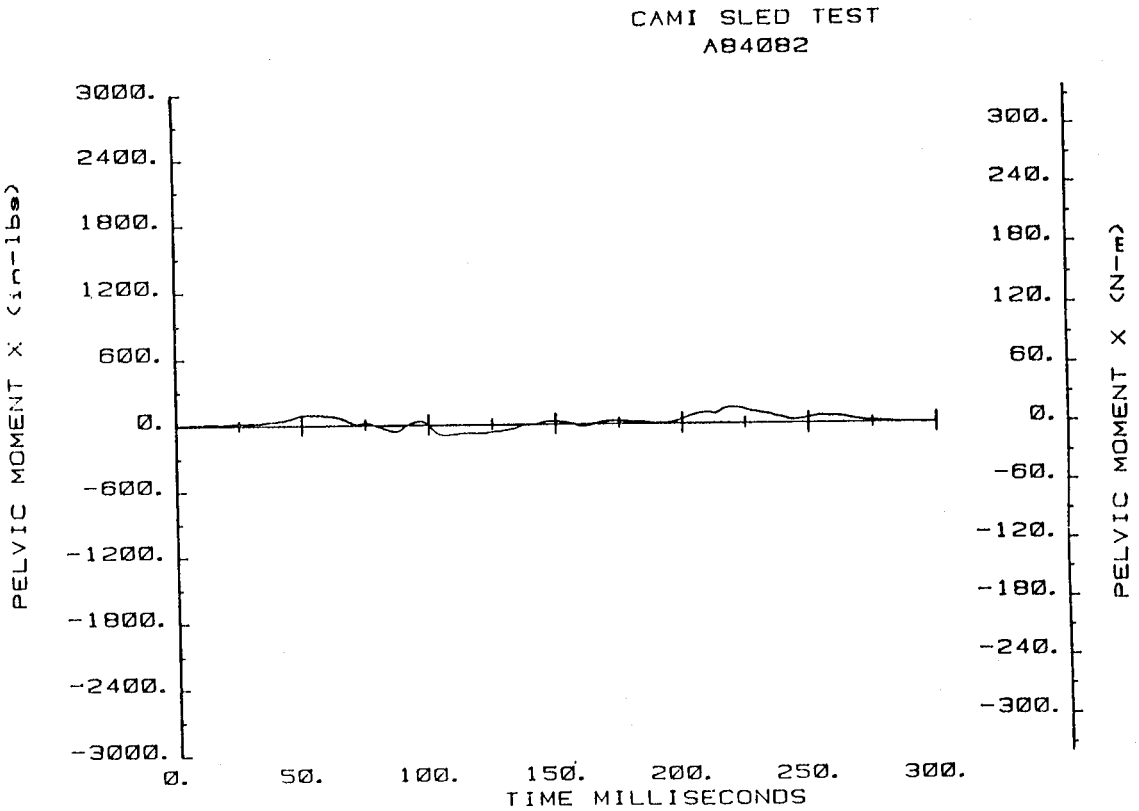

CAMI SLED TEST
A84082
HEAD Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

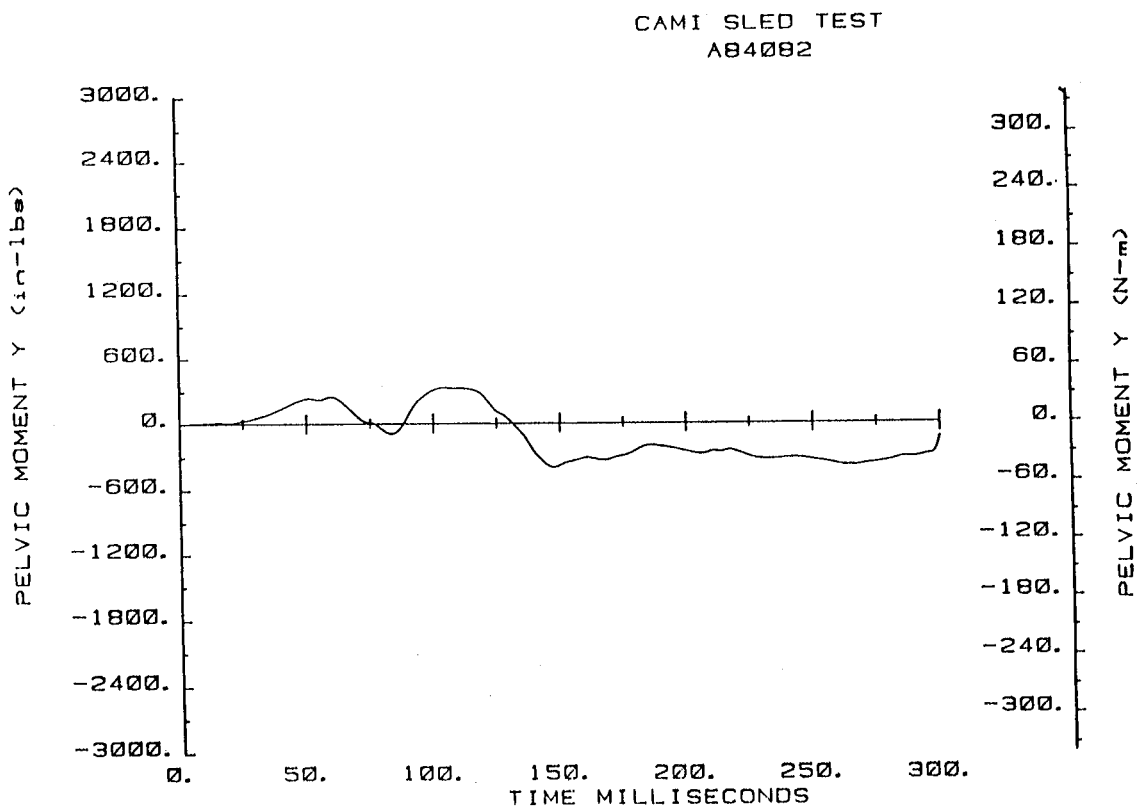

CAMI SLED TEST
A84082
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
HEAD Z ACCELERATION (g)
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

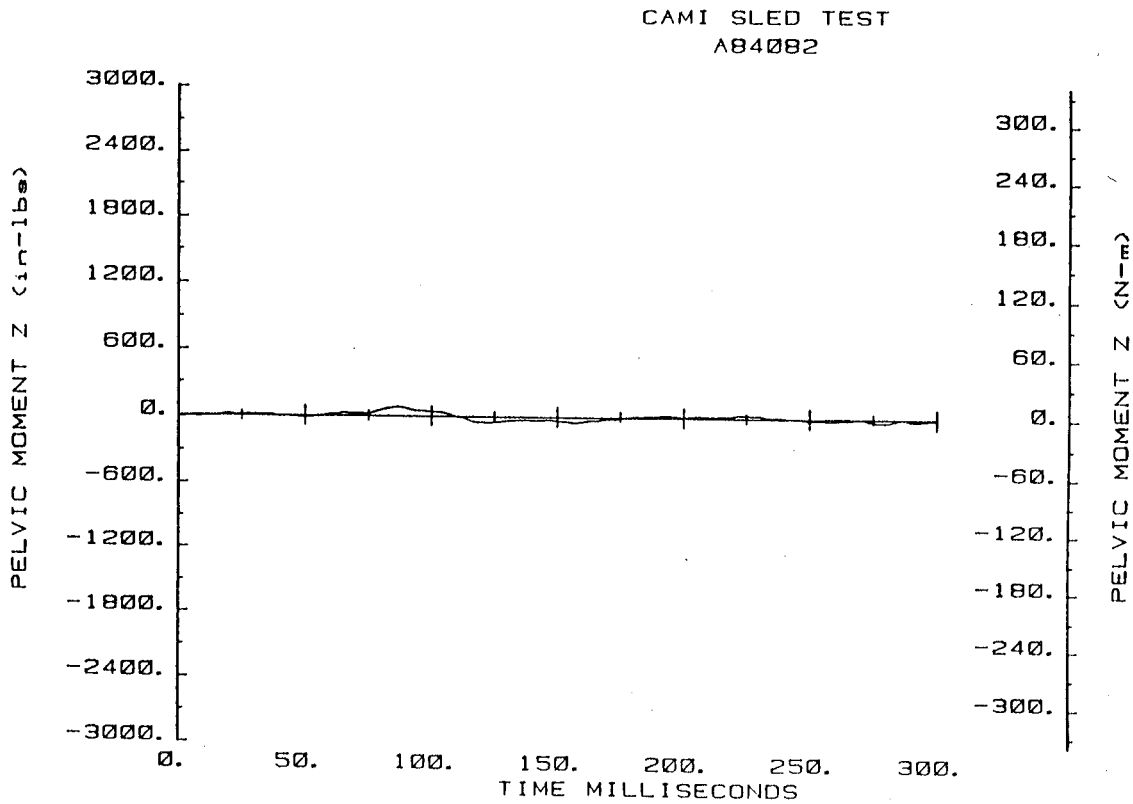

CAMI SLED TEST
A84082
80.
64.
48.
32.
16.
0.
HEAD RESULTANT (g)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

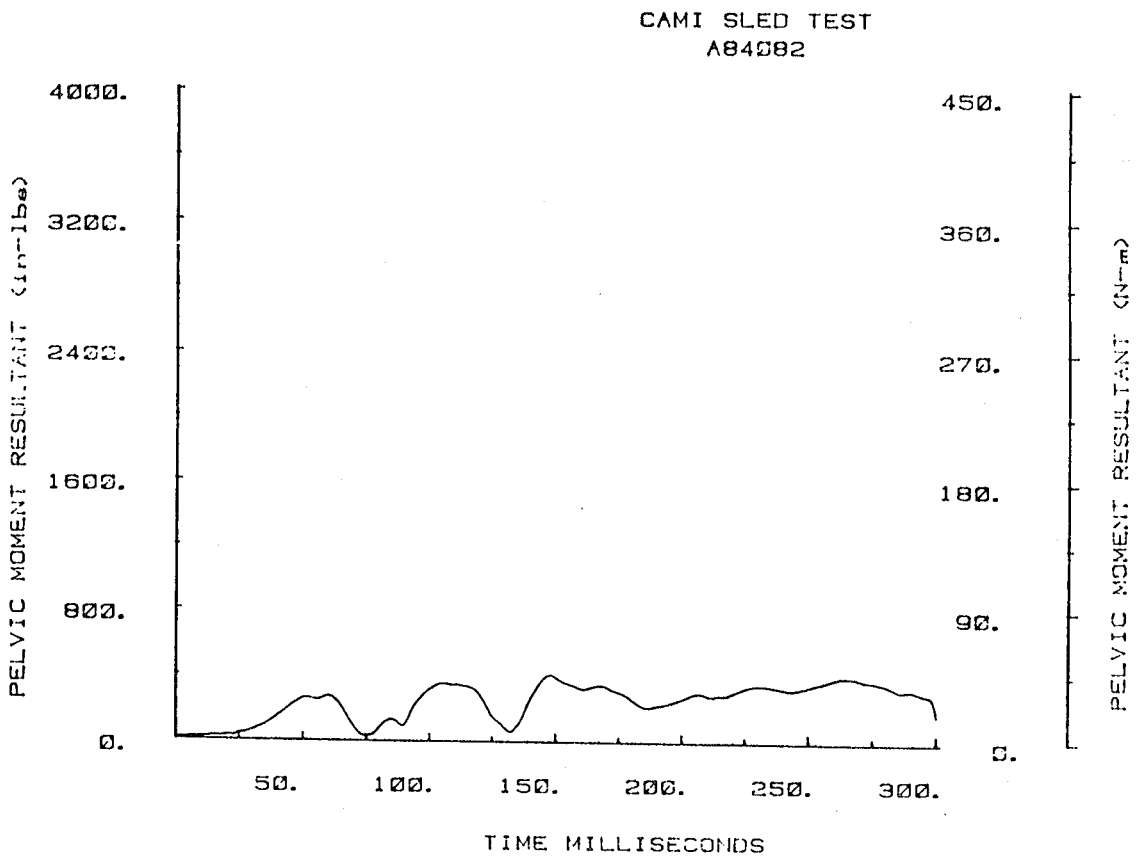

CAMI SLED TEST
A84082
PELVIC FORCE Y (lbs)
PELVIC FORCE Y (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

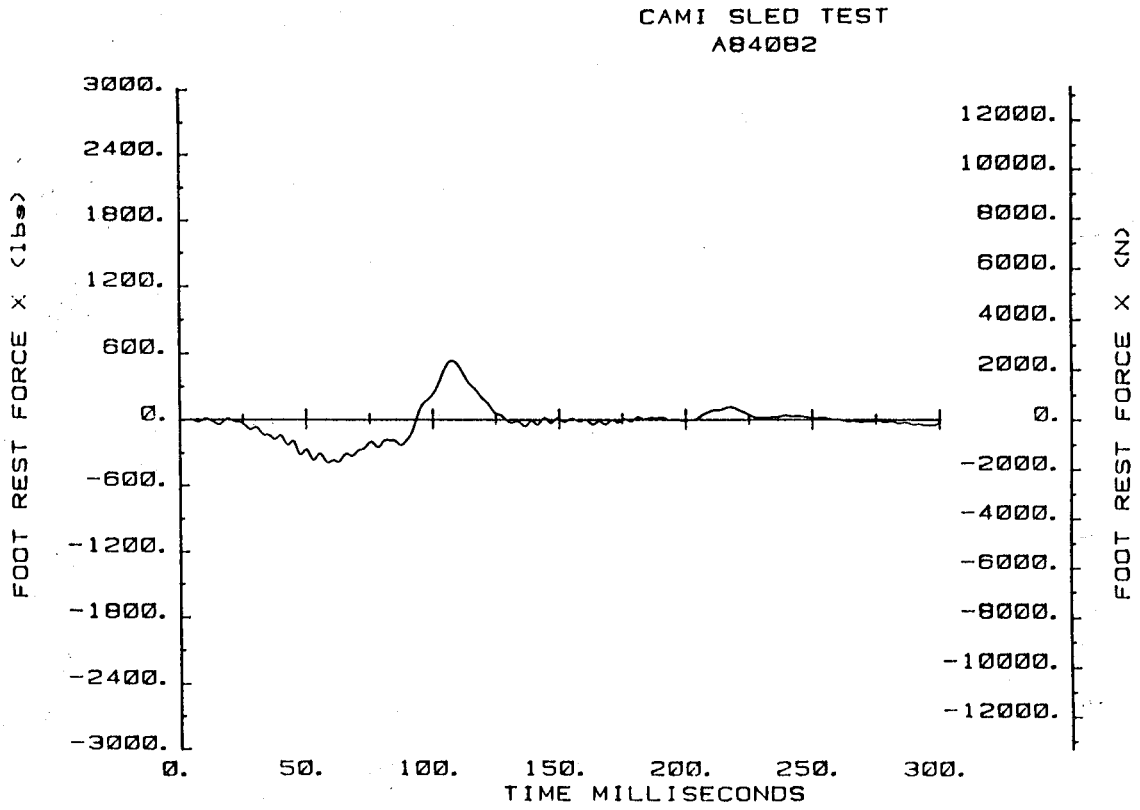

CAMI SLED TEST
A84082
PELVIC FORCE Z (lbs)
PELVIC FORCE Z (N)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

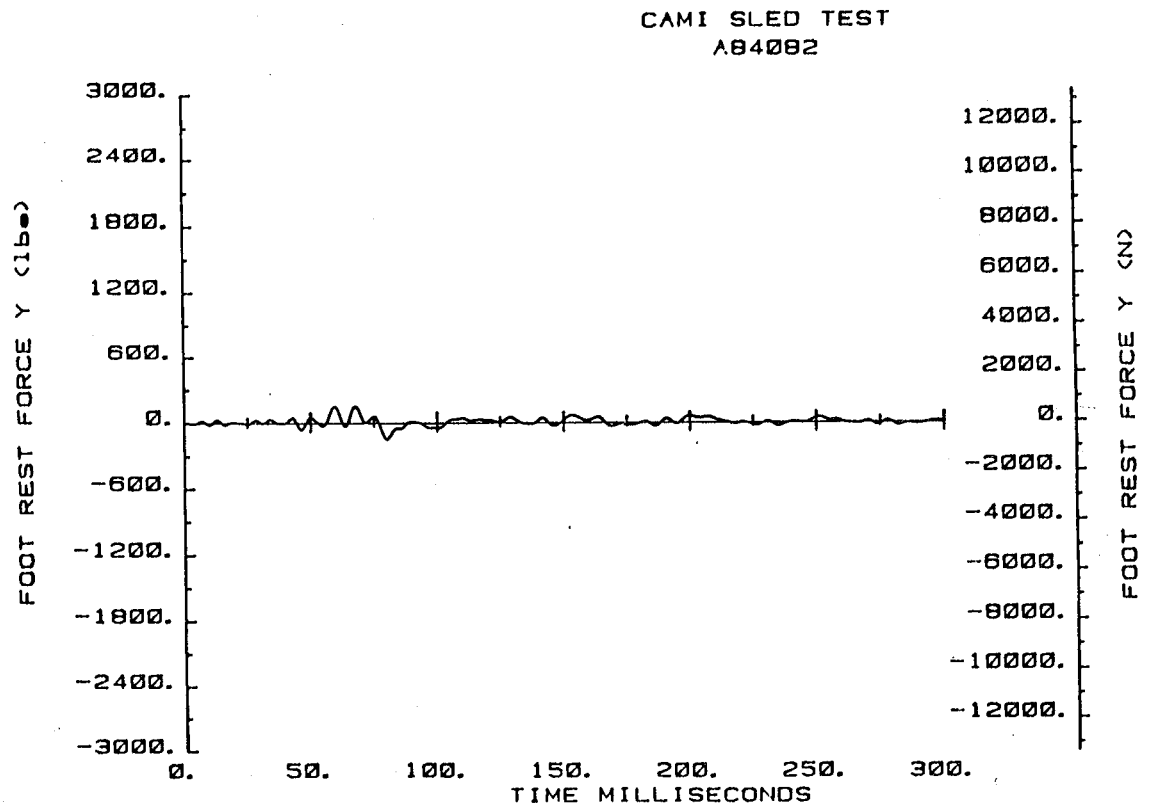

CAMI SLED TEST
A84082
PELVIC MOMENT X (in-lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT X (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

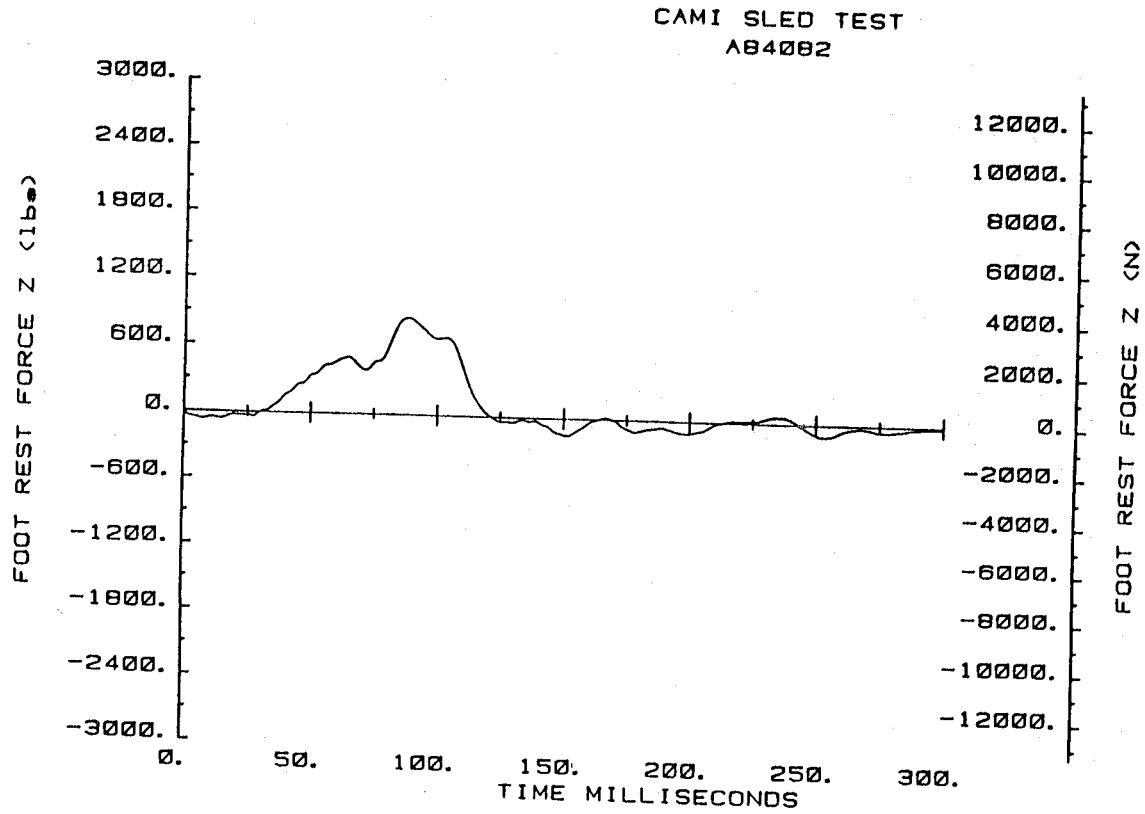

CAMI SLED TEST
A84082
PELVIC MOMENT Y (in-lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT Y (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

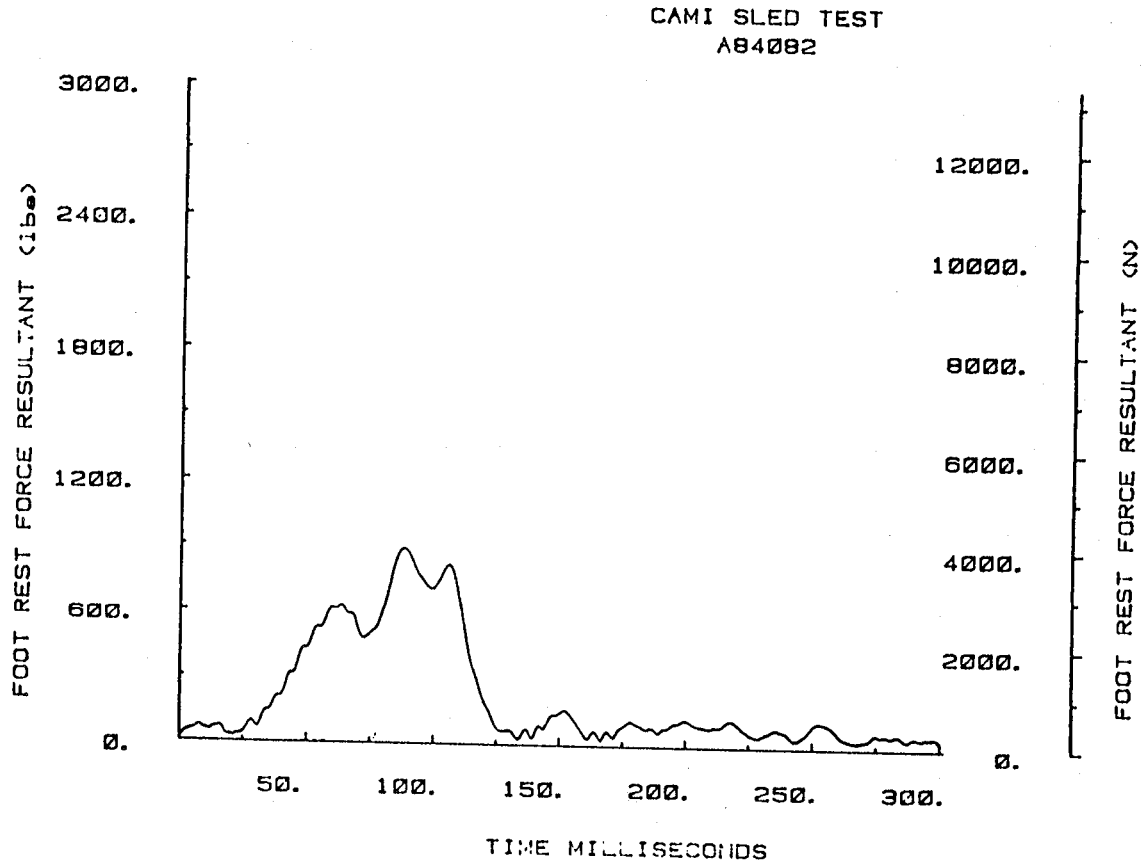

CAMI SLED TEST
A84082
PELVIC MOMENT Z (in-lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT Z (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

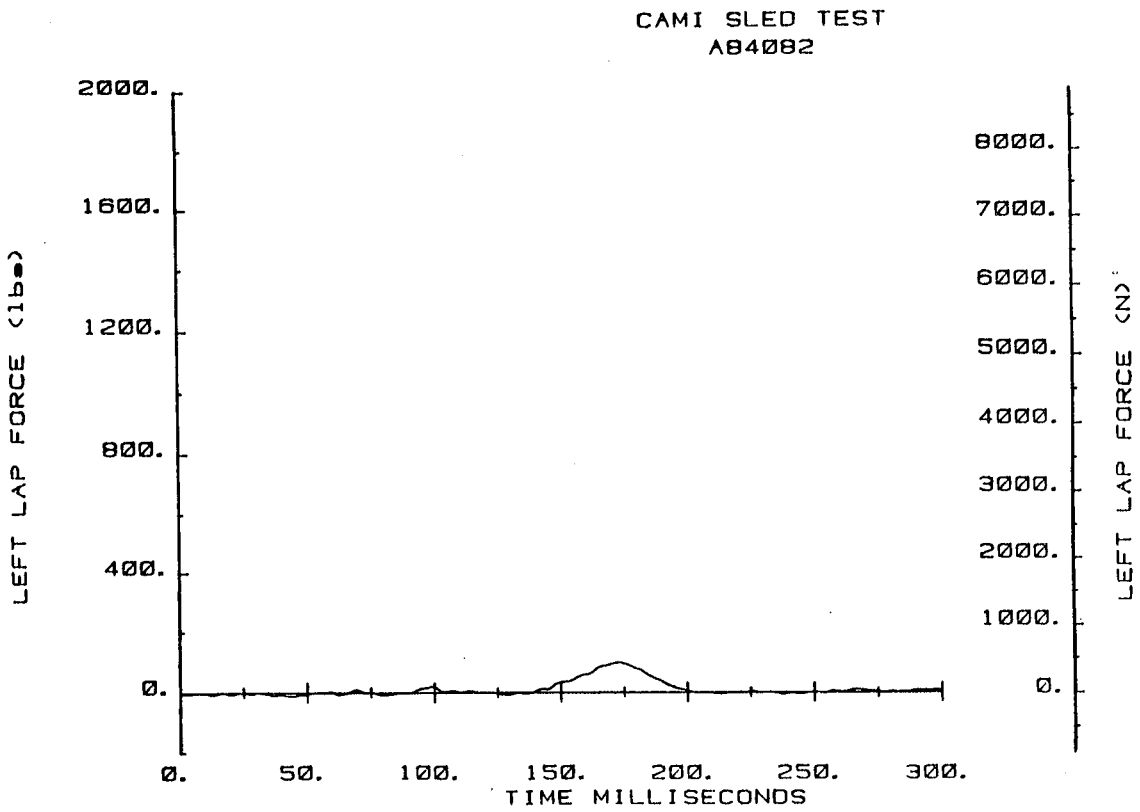

CAMI SLED TEST
A84082
PELVIC MOMENT RESULTANT (in-lbs)
4000.
3200.
2400.
1600.
800.
0.
PELVIC MOMENT RESULTANT (N-m)
450.
360.
270.
180.
90.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

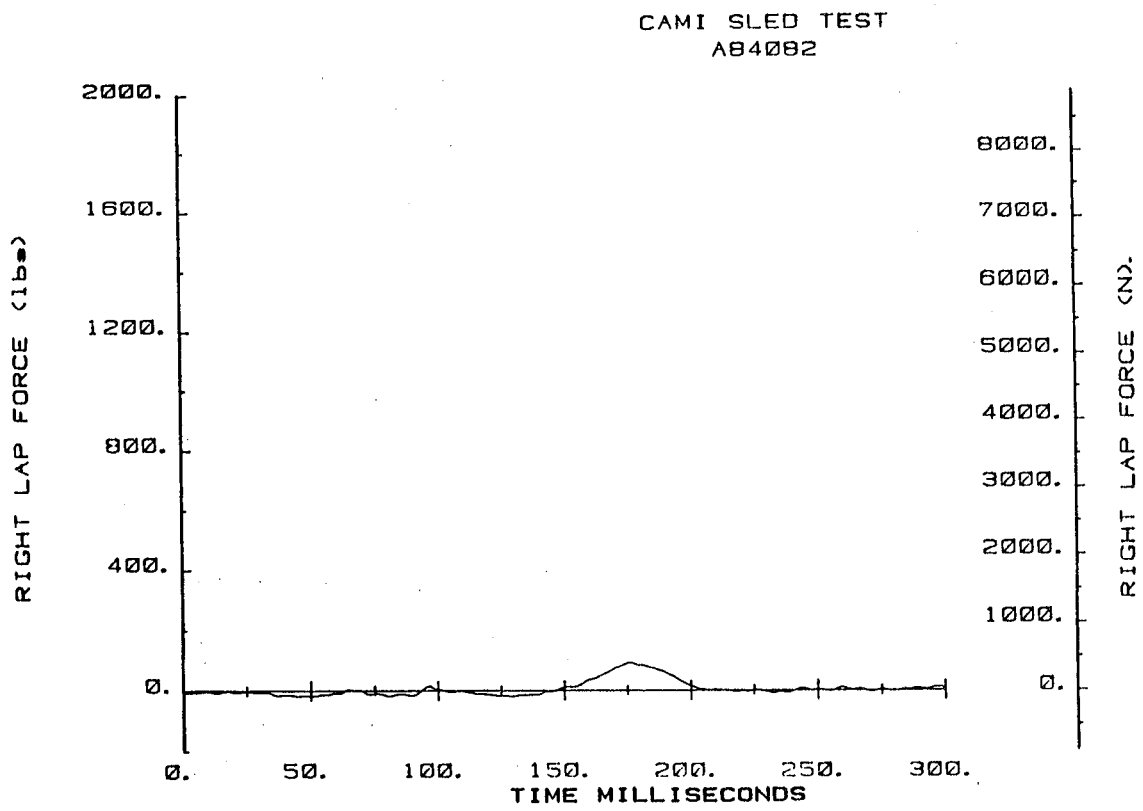

CAMI SLED TEST
A84082
FOOT REST FORCE X (lbs)
FOOT REST FORCE X (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

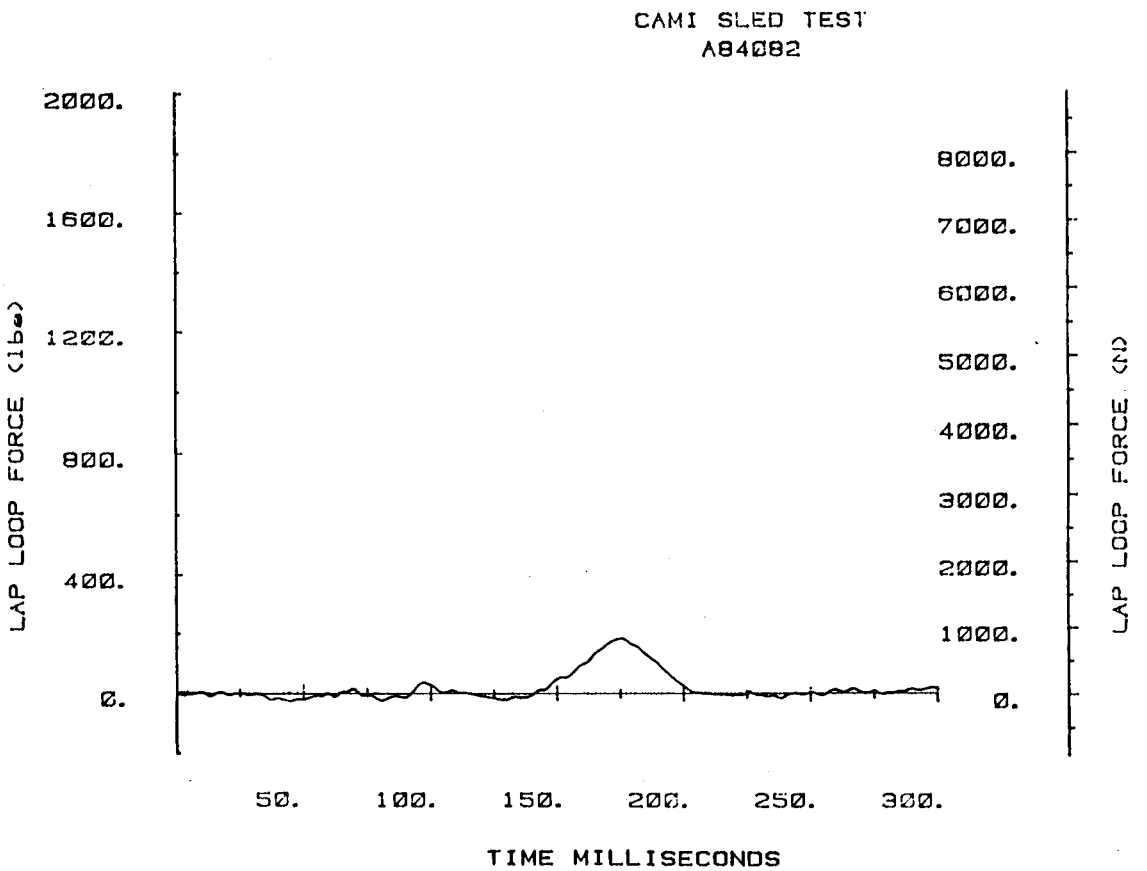

CAMI SLED TEST
A84082
FOOT REST FORCE Y (lbs)
FOOT REST FORCE Y (N)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

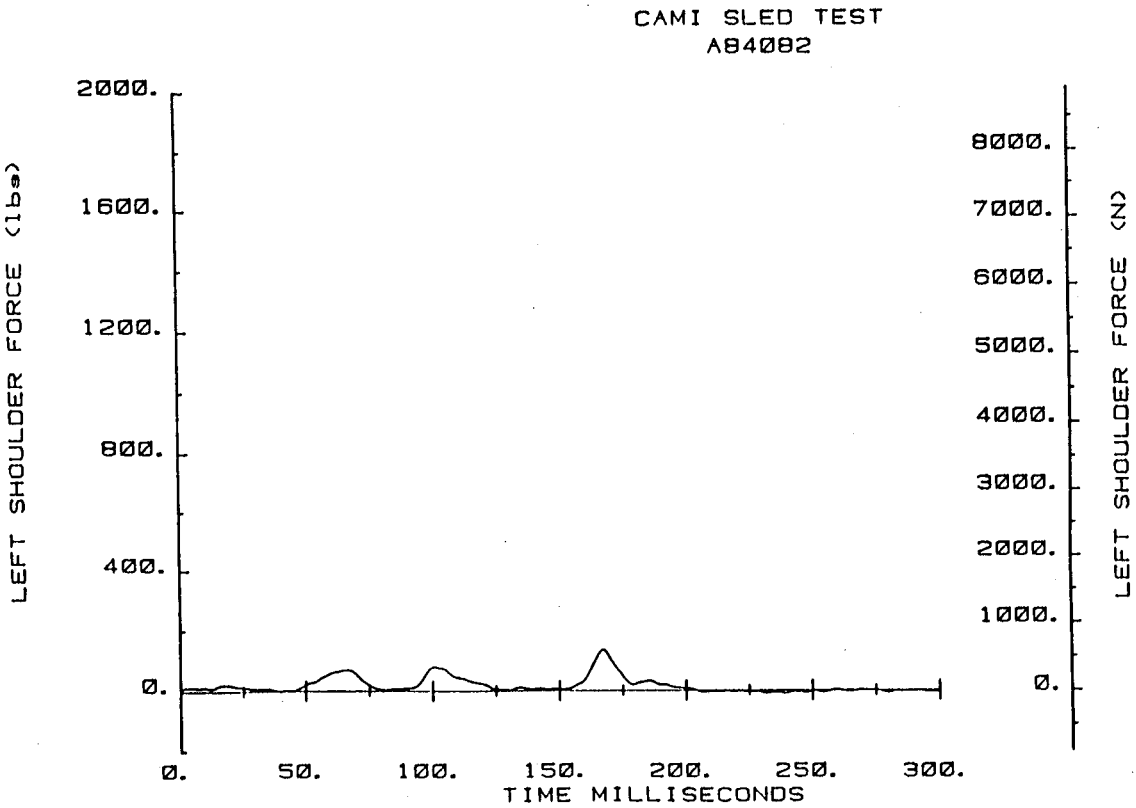

CAMI SLED TEST
A84082
FOOT REST FORCE Z (lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
FOOT REST FORCE Z (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

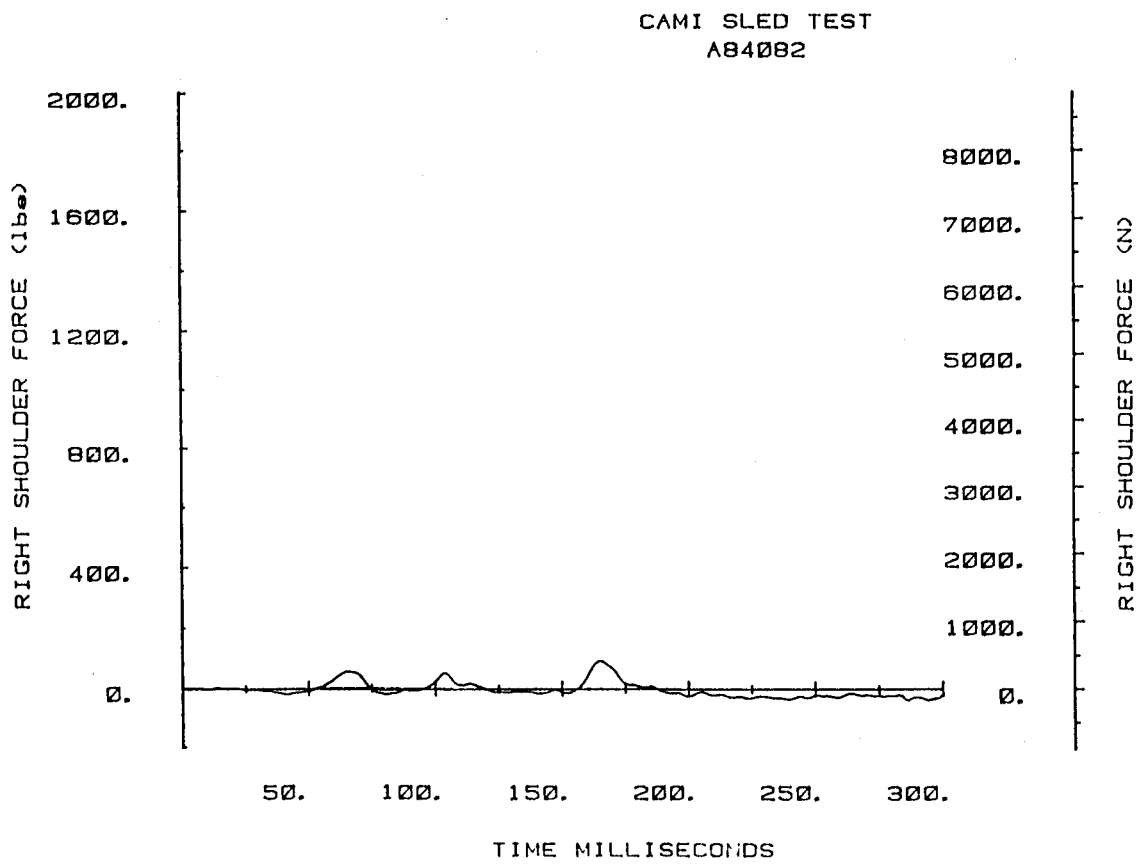

CAMI SLED TEST
A84082
FOOT REST FORCE RESULTANT (lbs)
3000.
2400.
1800.
1200.
600.
0.
FOOT REST FORCE RESULTANT (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

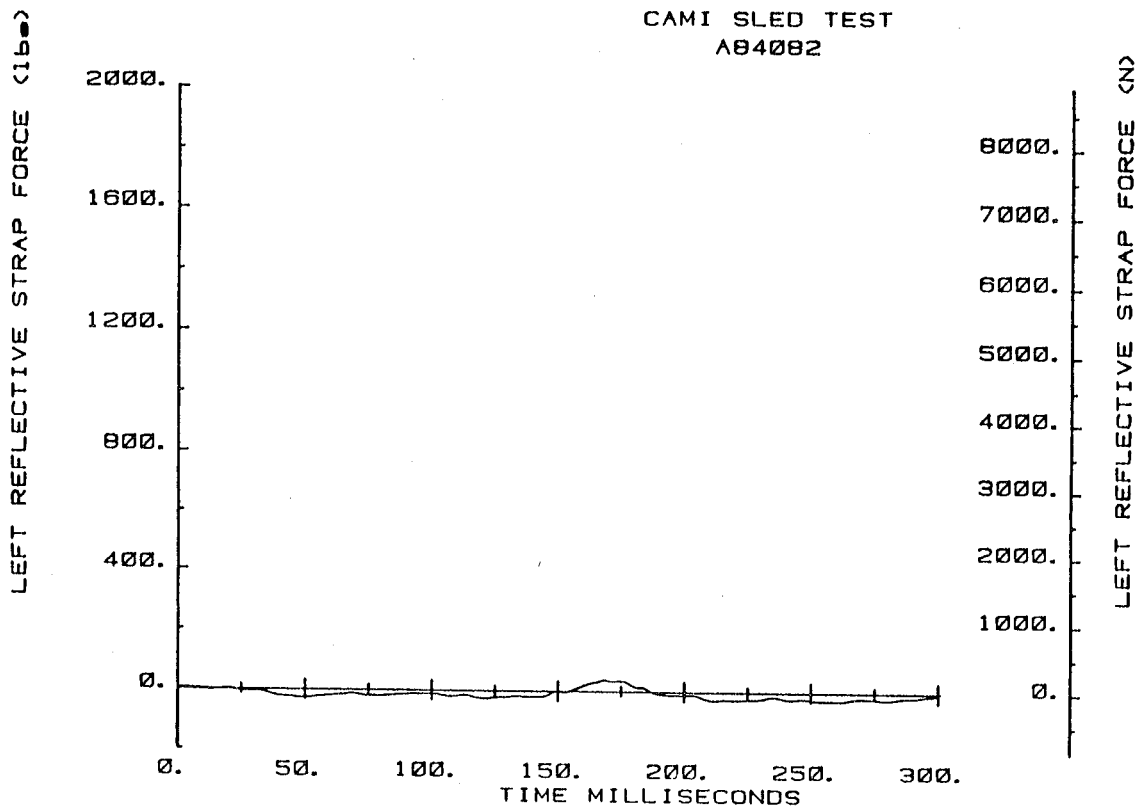

CAMI SLED TEST
A84082
LEFT LAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT LAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

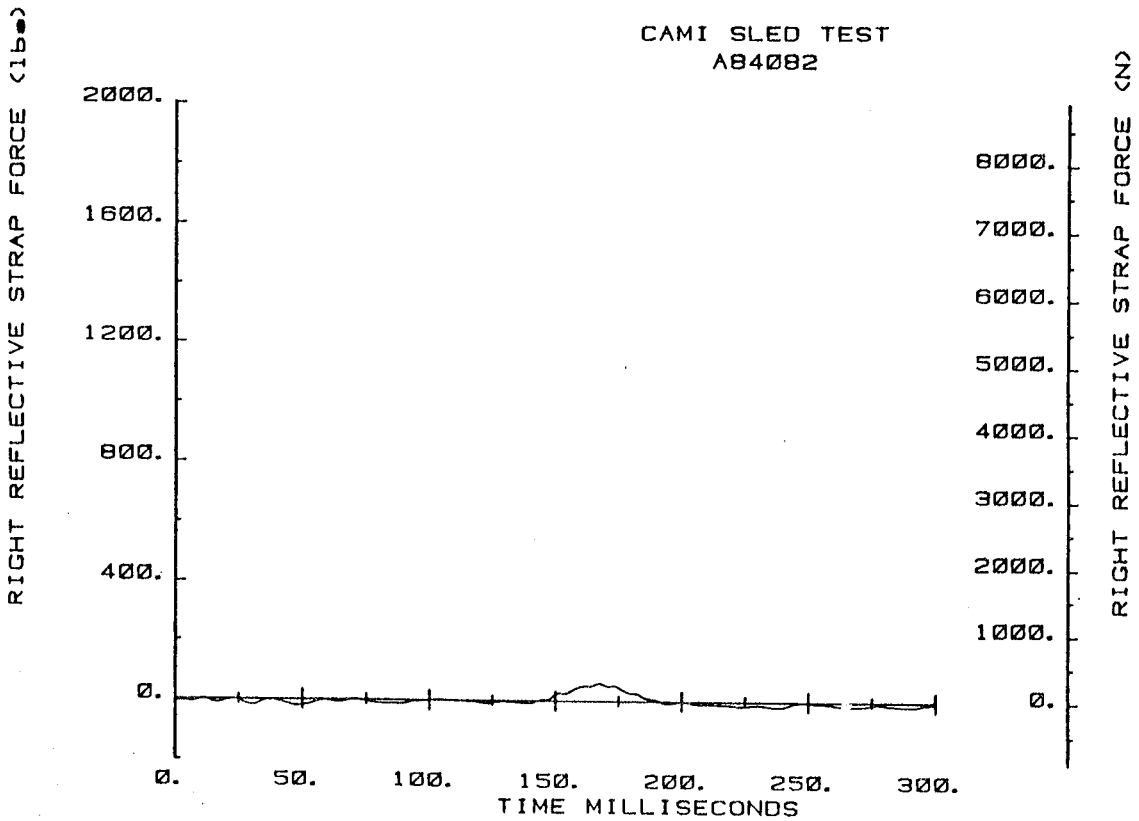

CAMI SLED TEST
A84082
RIGHT LAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT LAP FORCE (N).
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

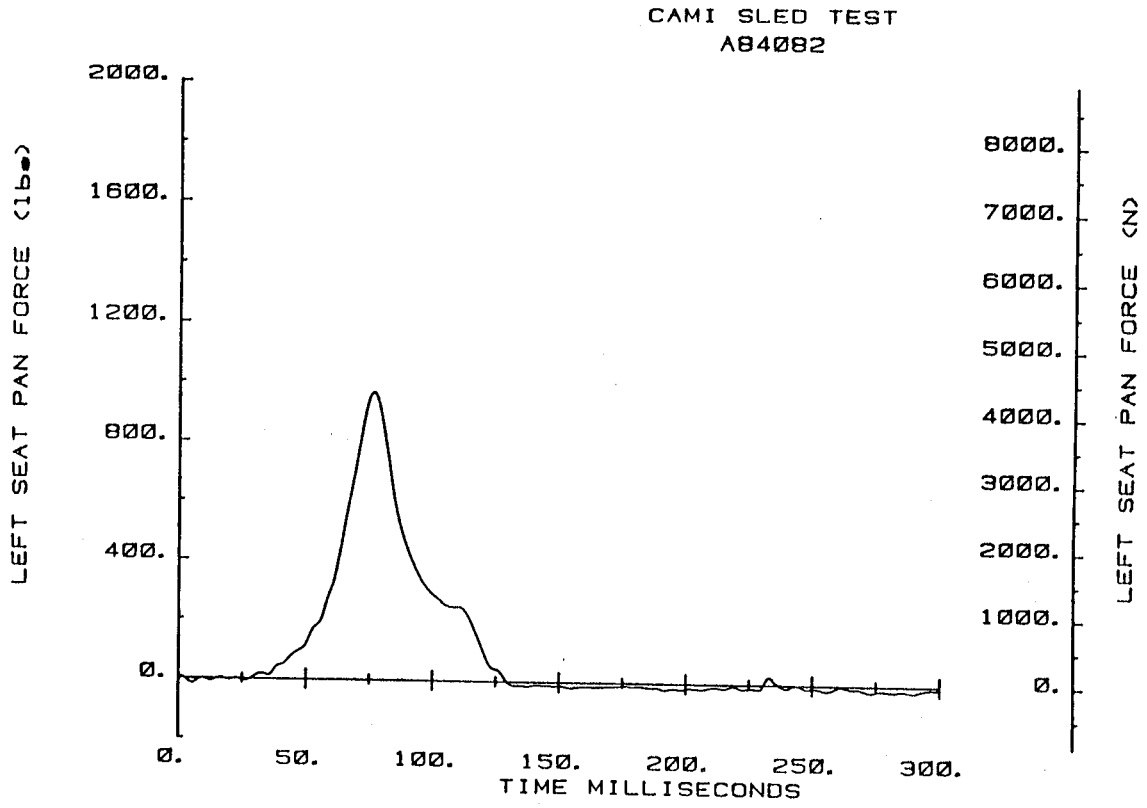

CAMI SLED TEST
A84082
2000.
1600.
1200.
800.
400.
0.
LAP LOOP FORCE (lbs)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
LAP LOOP FORCE (N)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

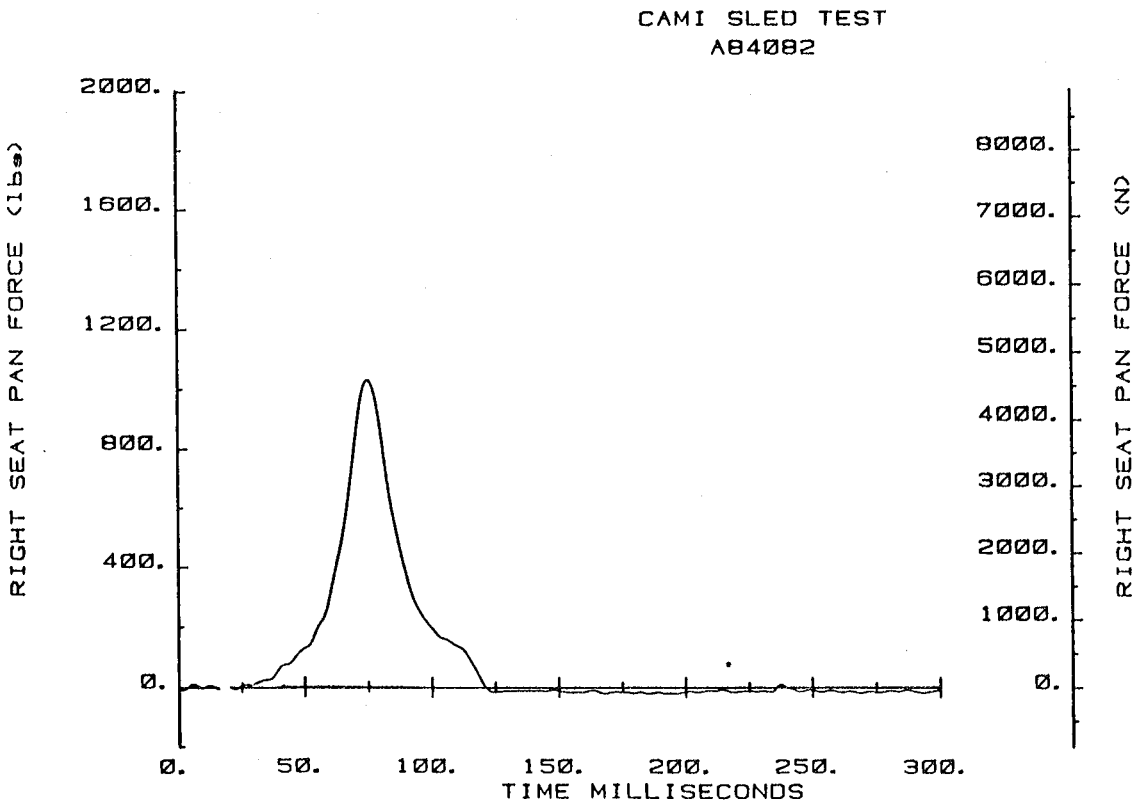

CAMI SLED TEST
A84082
LEFT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

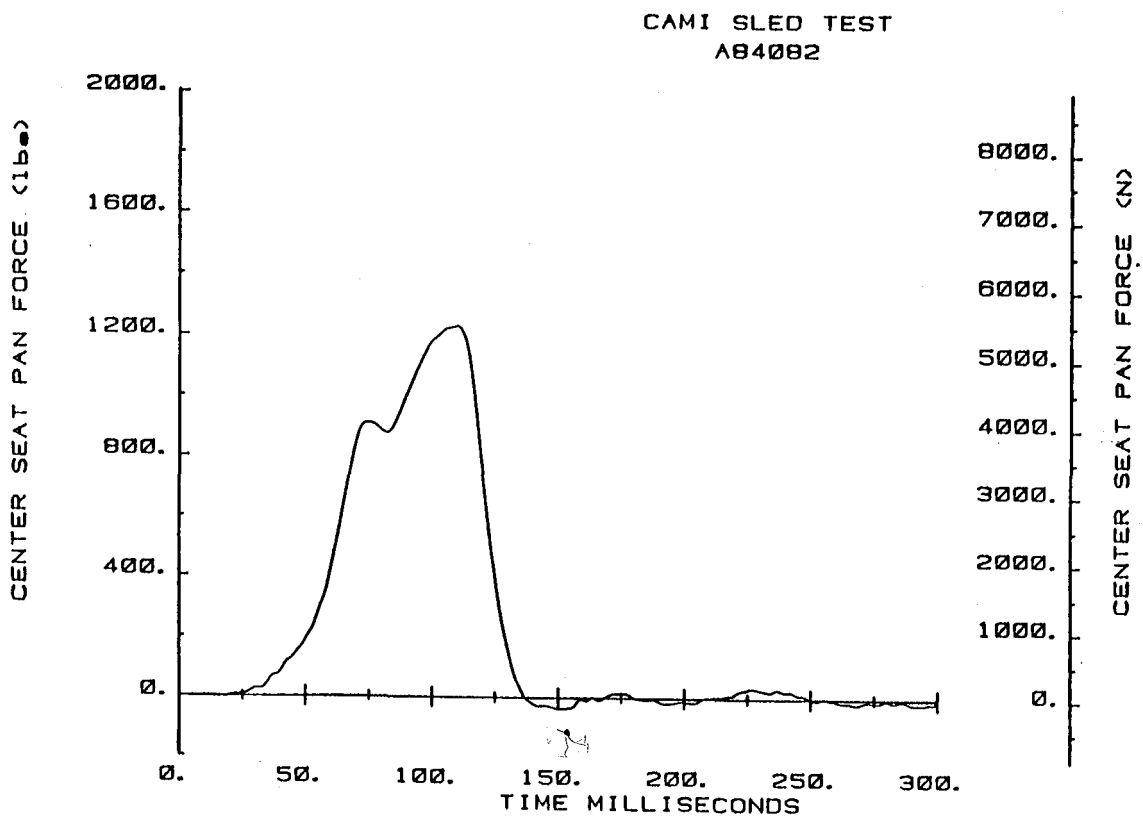

CAMI SLED TEST
A84082
RIGHT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

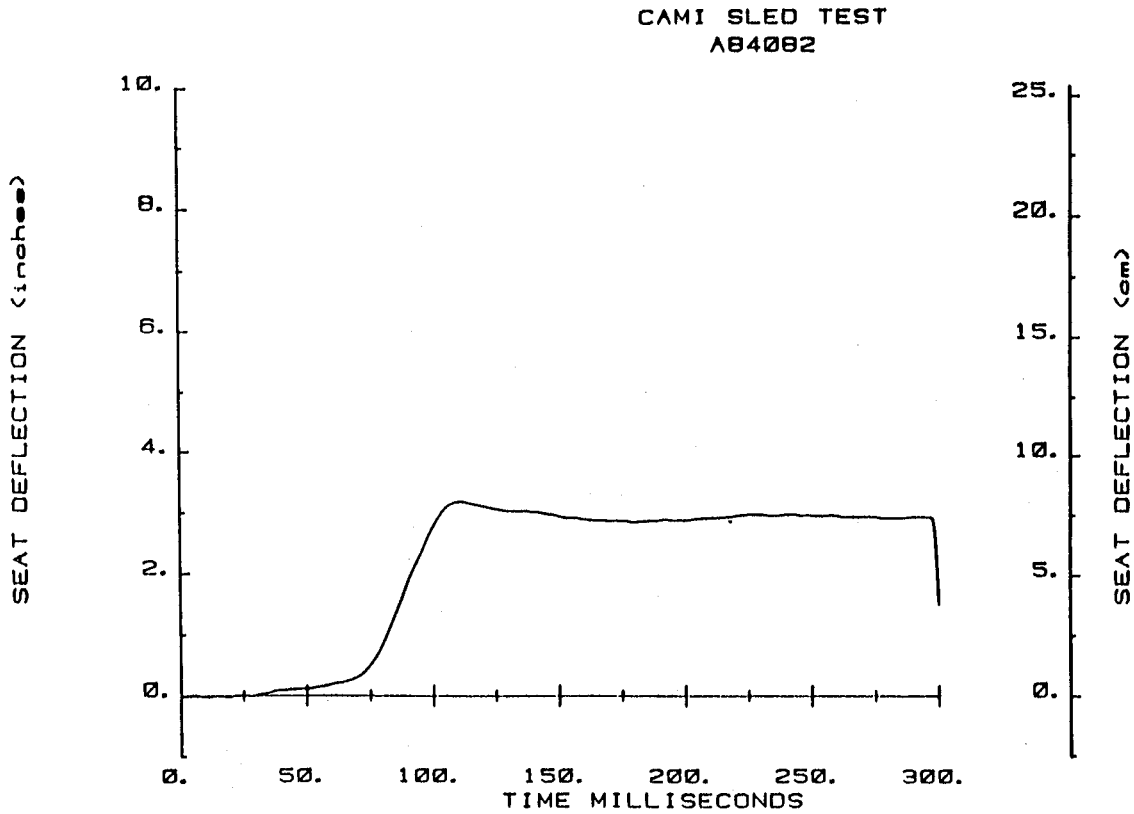

CAMI SLED TEST
A84082
LEFT REFLECTIVE STRAP FORCE (lb)
2000.
1600.
1200.
800.
400.
0.
LEFT REFLECTIVE STRAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

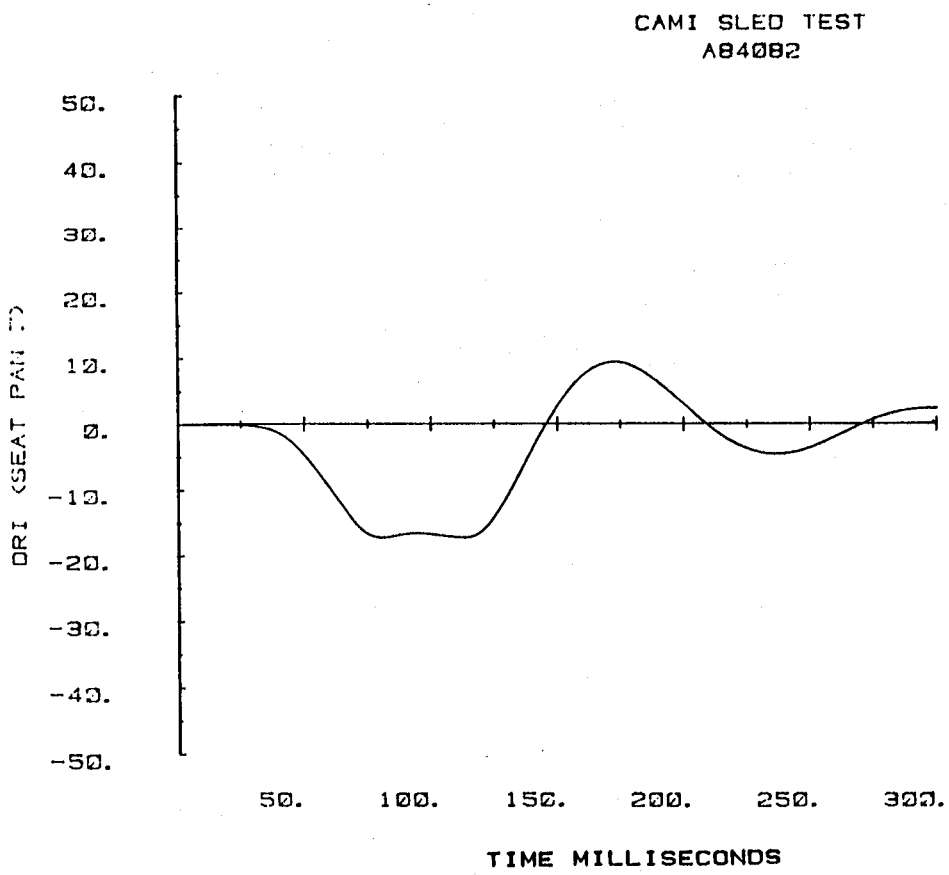

CAMI SLED TEST
A84082
RIGHT REFLECTIVE STRAP FORCE (lb)
2000.
1600.
1200.
800.
400.
0.
RIGHT REFLECTIVE STRAP FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

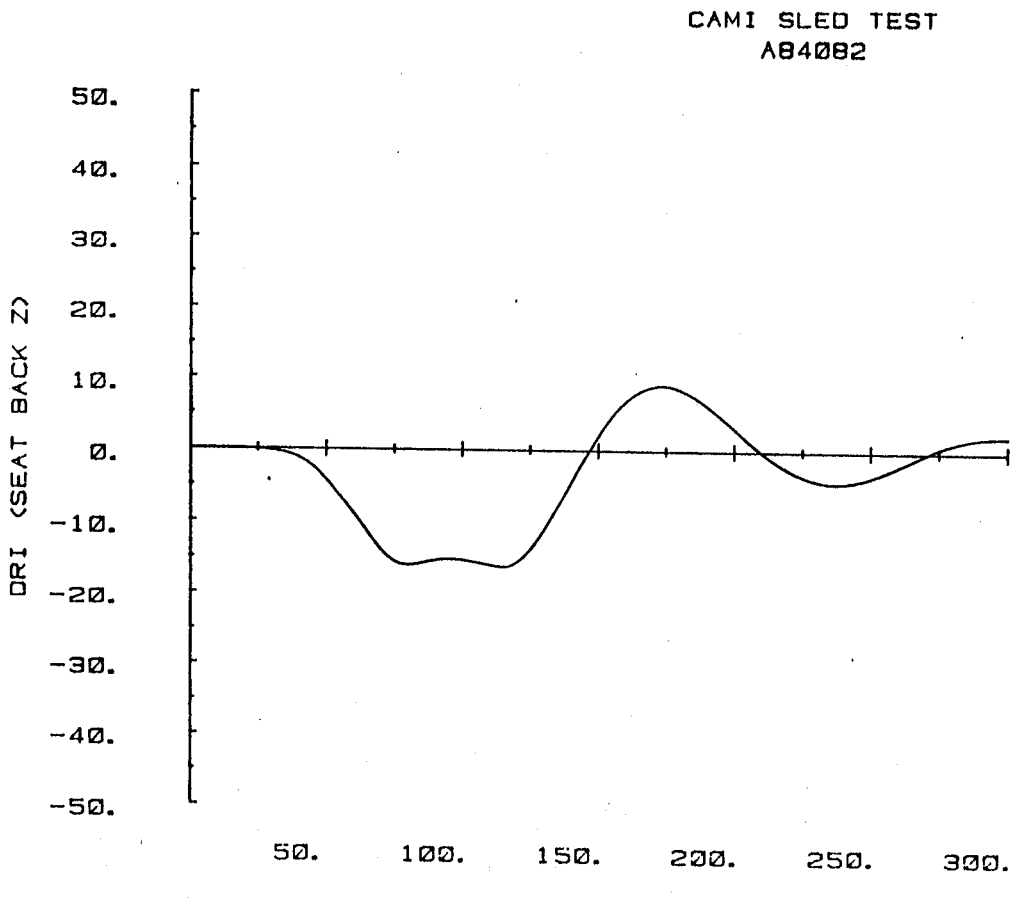

CAMI SLED TEST
A84082
LEFT SEAT PAN FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT SEAT PAN FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

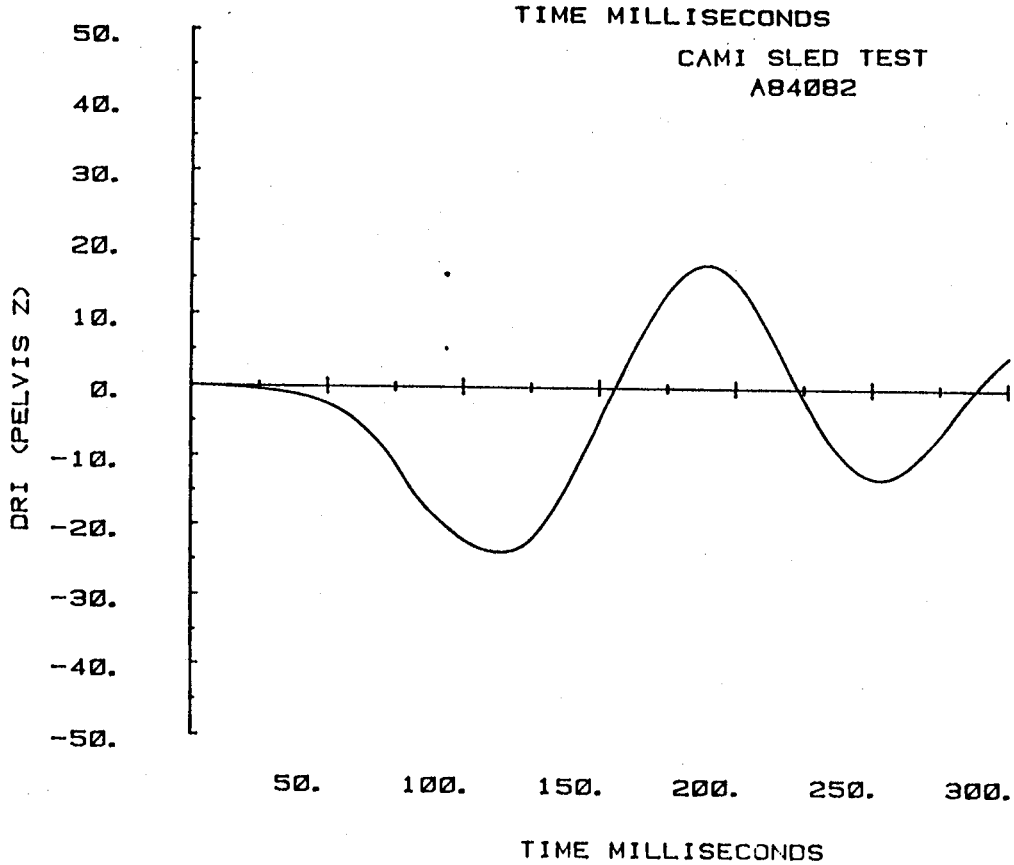

CAMI SLED TEST
A84082
RIGHT SEAT PAN FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT SEAT PAN FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A84082
CENTER SEAT PAN FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
CENTER SEAT PAN FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A84082
SEAT DEFLECTION (inches)
SEAT DEFLECTION (cm)
10.
8.
6.
4.
2.
0.
25.
20.
15.
10.
5.
0.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A84082
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A84082
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
DRI (SEAT BACK Z)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A84082
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
DRI (PELVIS Z)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

14.0 CAMI TEST NO. A84-83

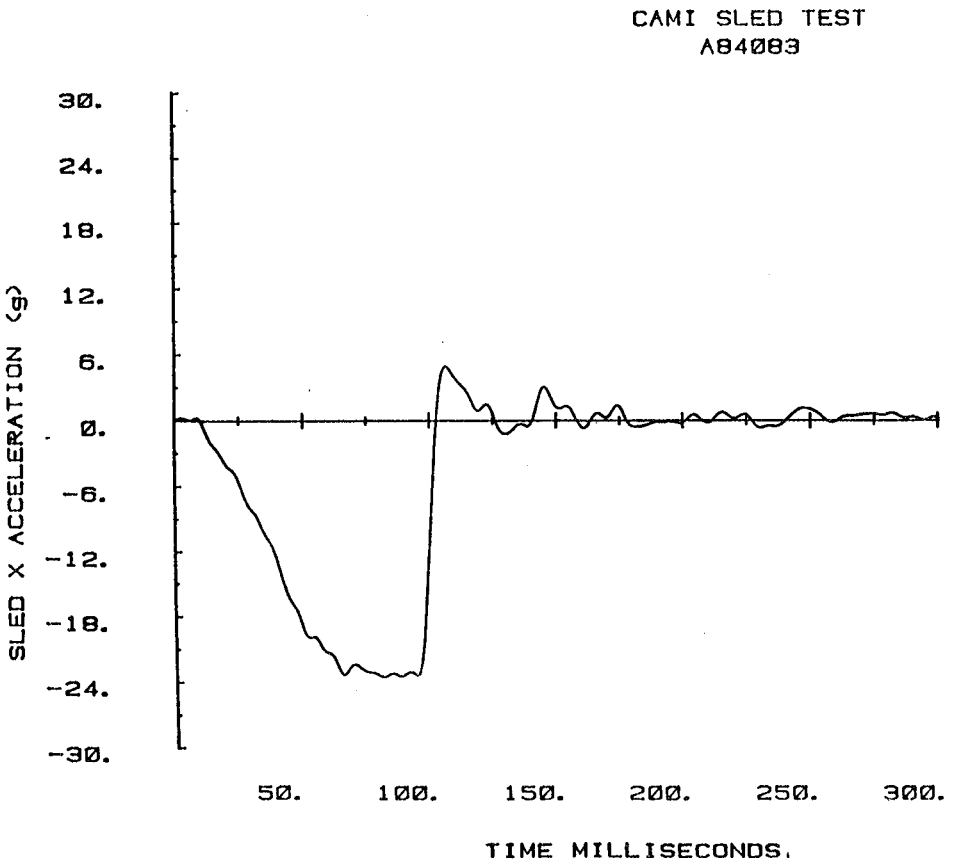
SEAT: Energy Absorbing

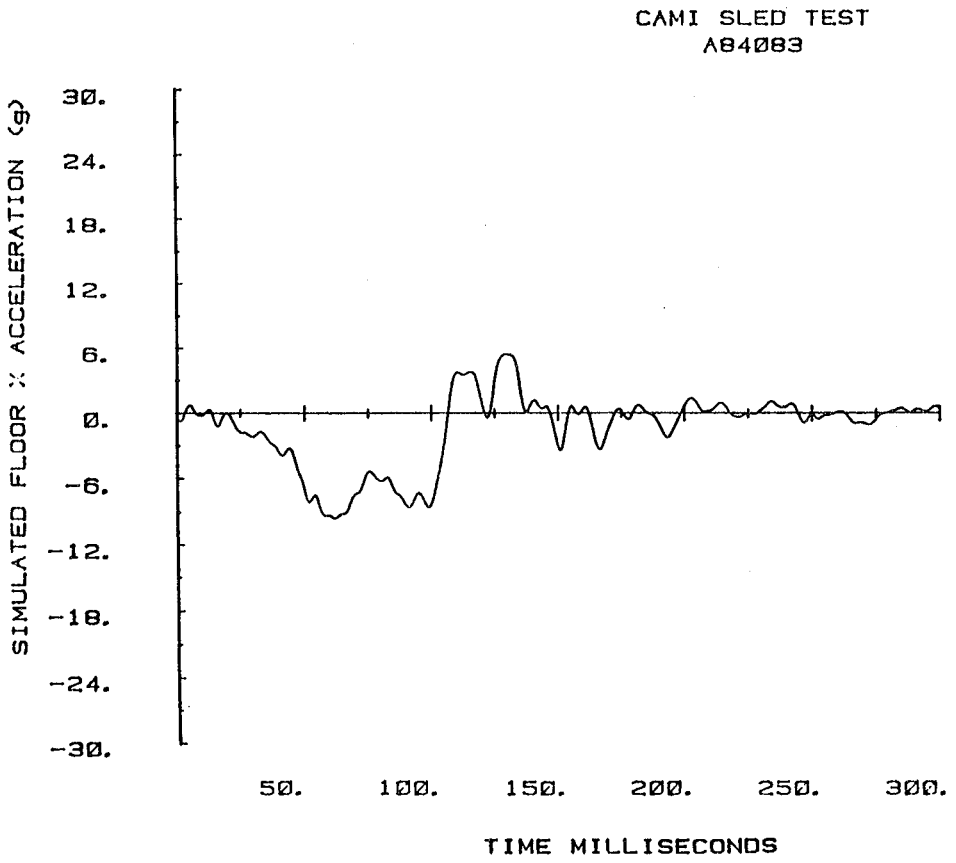
PULSE NUMBER: 4

SEAT ORIENTATION: Pitch - 70°
Roll - 0°
Yaw - 30°

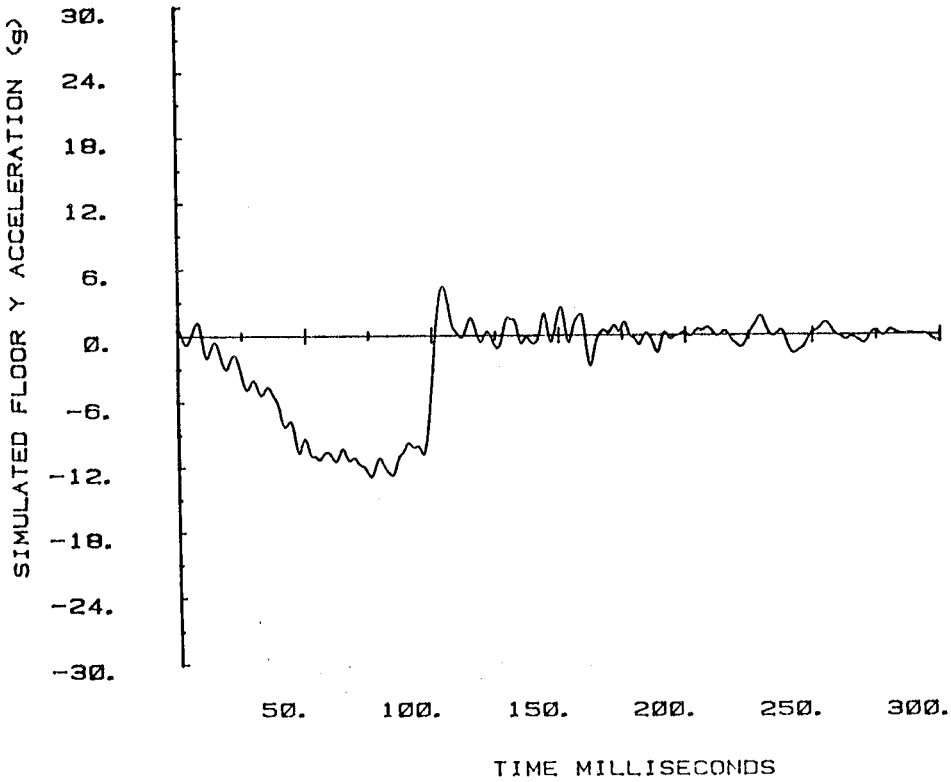
PEAK LOADS

RUN#	VARIABLE		PEAK1	T	PEAK2	T	RANGE	FILE
A84083	SLED X ACCELERATION	(g)	-23.5	81	4.9	106	(0, 300) *	F08301
A84083	HEAD X ACCELERATION	(g)	-28.9	123	24.6	218	(0, 300) *	F08303
A84083	HEAD Y ACCELERATION	(g)	-17.2	110	13.8	219	(0, 300) *	F08304
A84083	HEAD Z ACCELERATION	(g)	-28.8	65	31.7	110	(0, 300) *	F08305
A84083	CHEST X ACCELERATION	(g)	-19.5	92	6.7	118	(0, 300) *	F08306
A84083	CHEST Y ACCELERATION	(g)	-26.7	95			(0, 300) *	F08307
A84083	CHEST Z ACCELERATION	(g)	-27.1	64	6.8	150	(0, 300) *	F08308
A84083	PELVIS X ACCELERATION	(g)	-14.0	70	6.4	124	(0, 300) *	F08309
A84083	PELVIS Y ACCELERATION	(g)	-20.9	61	5.2	134	(0, 300) *	F08310
A84083	PELVIS Z ACCELERATION	(g)	-27.5	61	6.1	153	(0, 300) *	F08311
A84083	PELVIC FORCE Y	(lbs)	327.2	86	-170.2	145	(0, 300) *	F08313
A84083	PELVIC FORCE Z	(lbs)	1527.3	65			(0, 300) *	F08314
A84083	PELVIC MOMENT X	(in-lbs)	1659.3	93			(0, 300) *	F08315
A84083	PELVIC MOMENT Y	(in-lbs)	560.5	114	-594.8	198	(0, 300) *	F08316
A84083	PELVIC MOMENT Z	(in-lbs)	419.4	115	-156.8	297	(0, 300) *	F08317
A84083	LEFT LAP FORCE	(lbs)	203.3	108			(0, 300) *	F08318
A84083	RIGHT LAP FORCE	(lbs)	-31.4	155	35.6	198	(0, 300) *	F08319
A84083	SIMULATED FLOOR X ACCELERATION	(g)	-9.6	61	5.4	129	(0, 300) *	F08320
A84083	SIMULATED FLOOR Y ACCELERATION	(g)	-12.8	75	4.4	104	(0, 300) *	F08321
A84083	SIMULATED FLOOR Z ACCELERATION	(g)	-20.5	74	9.4	102	(0, 300) *	F08322
A84083	FOOT REST FORCE X	(lbs)	-208.2	45	254.1	110	(0, 300) *	F08323
A84083	FOOT REST FORCE Y	(lbs)	535.1	100	-184.9	136	(0, 300) *	F08324
A84083	FOOT REST FORCE Z	(lbs)	1221.4	77	-487.6	116	(0, 300) *	F08325
A84083	LEFT SHOULDER FORCE	(lbs)	94.8	99			(0, 300) *	F08326
A84083	RIGHT SHOULDER FORCE	(lbs)	1048.3	103	-2750.0	130	(0, 300) *	F08327
A84083	SEAT BACK Z ACCELERATION	(g)	-23.4	85	7.4	124	(0, 300) *	F08328
A84083	SEAT PAN X ACCELERATION	(g)	-12.5	99	7.9	122	(0, 300) *	F08329
A84083	SEAT PAN Y ACCELERATION	(g)	-14.7	53	10.6	128	(0, 300) *	F08330
A84083	SEAT PAN Z ACCELERATION	(g)	-22.9	85	6.5	155	(0, 300) *	F08331
A84083	SEAT DEFLECTION	(inches)	5.7	116			(0, 300) *	F08332
A84083	LEFT SEAT PAN FORCE	(lbs)	319.7	60			(0, 300) *	F08333
A84083	RIGHT SEAT PAN FORCE	(lbs)	1407.9	67			(0, 300) *	F08334
A84083	CENTER SEAT PAN FORCE	(lbs)	1120.9	60			(0, 300) *	F08335
A84083	LEFT REFLECTIVE STRAP FORCE	(lbs)	15.2	148	-23.5	227	(0, 300) *	F08336
A84083	RIGHT REFLECTIVE STRAP FORCE	(lbs)	674.3	103			(0, 300) *	F08337
A84083	HEAD RESULTANT	(g)	40.9	110			(0, 300) *	V08301
A84083	CHEST RESULTANT	(g)	33.7	92			(0, 300) *	V08302
A84083	PELVIS RESULTANT	(g)	34.6	61			(0, 300) *	V08303
A84083	PELVIC MOMENT RESULTANT	(in-lbs)	1681.2	94			(0, 300) *	V08304
A84083	SIMULATED FLOOR RESULTANT	(g)	24.7	74			(0, 300) *	V08305
A84083	FOOT REST FORCE RESULTANT	(lbs)	1261.2	80			(0, 300) *	V08306
A84083	SEAT PAN RESULTANT	(g)	26.4	86			(0, 300) *	V08307
A84083	LAP LOOP FORCE	(lbs)	213.0	110			(0, 300) *	A08301
PELVIS DRI			22.5	95				
SEAT BACK DRI			19.9	111				
SEAT PAN DRI			18.1	114				

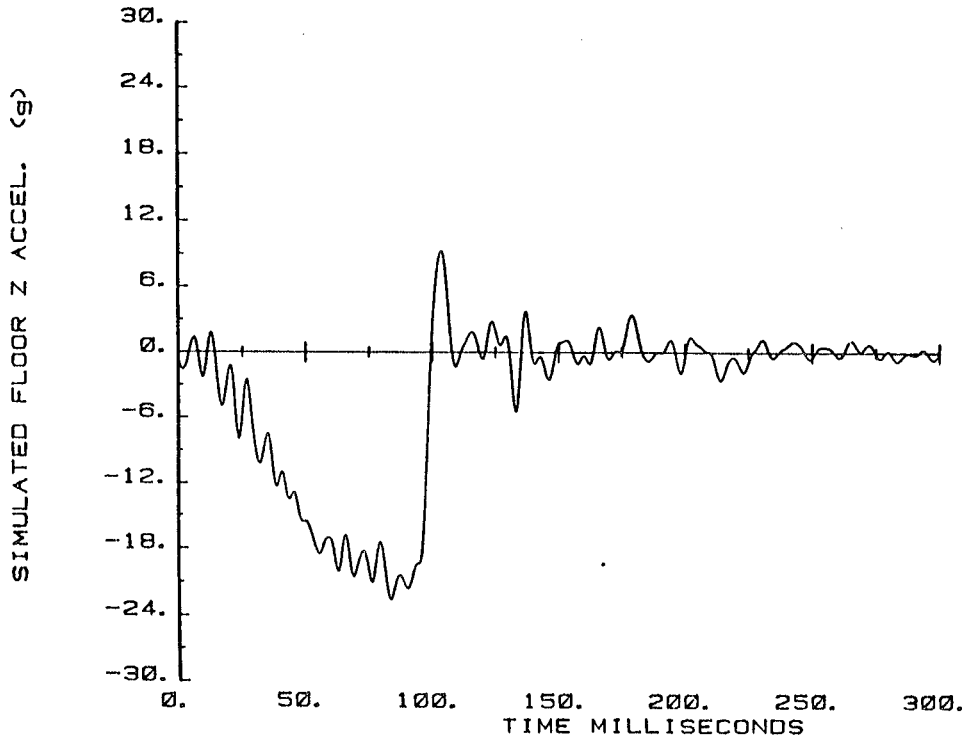

CAMI SLED TEST
A84083
SLED X ACCELERATION (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS.


CAMI SLED TEST
A84083
SIMULATED FLOOR X ACCELERATION (g)
30.
24.
18.
12.
6.
0.
-6.
-12.
-18.
-24.
-30.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

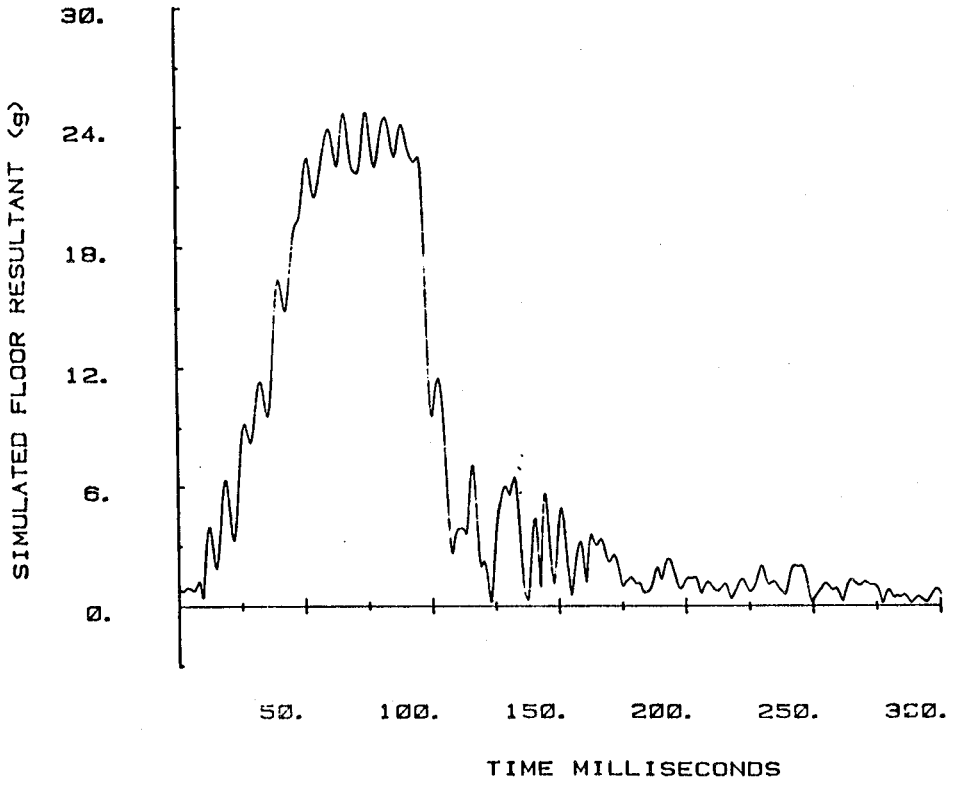
CAMI SLED TEST
A84083



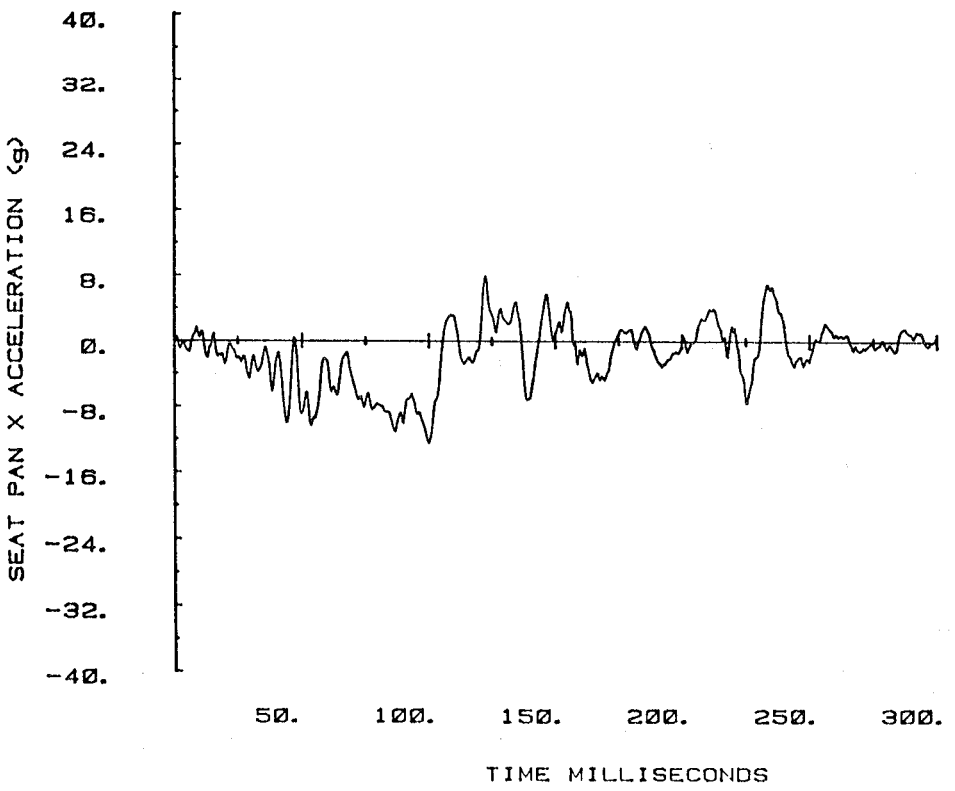
CAMI SLED TEST
A83109

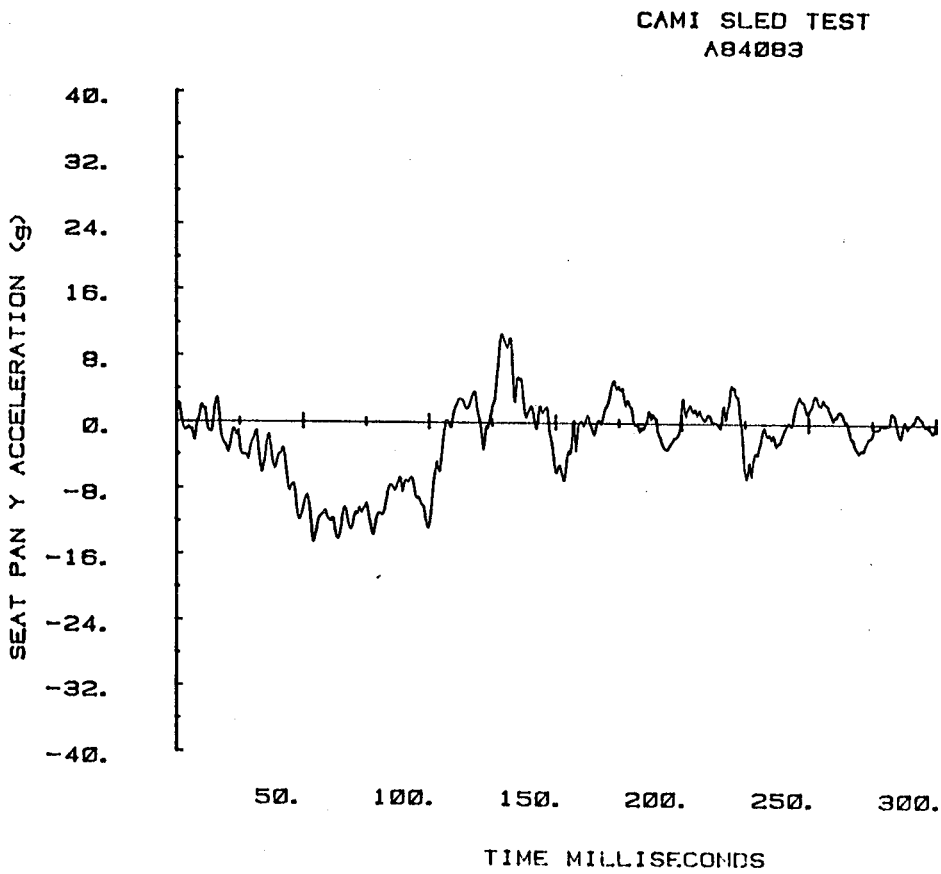


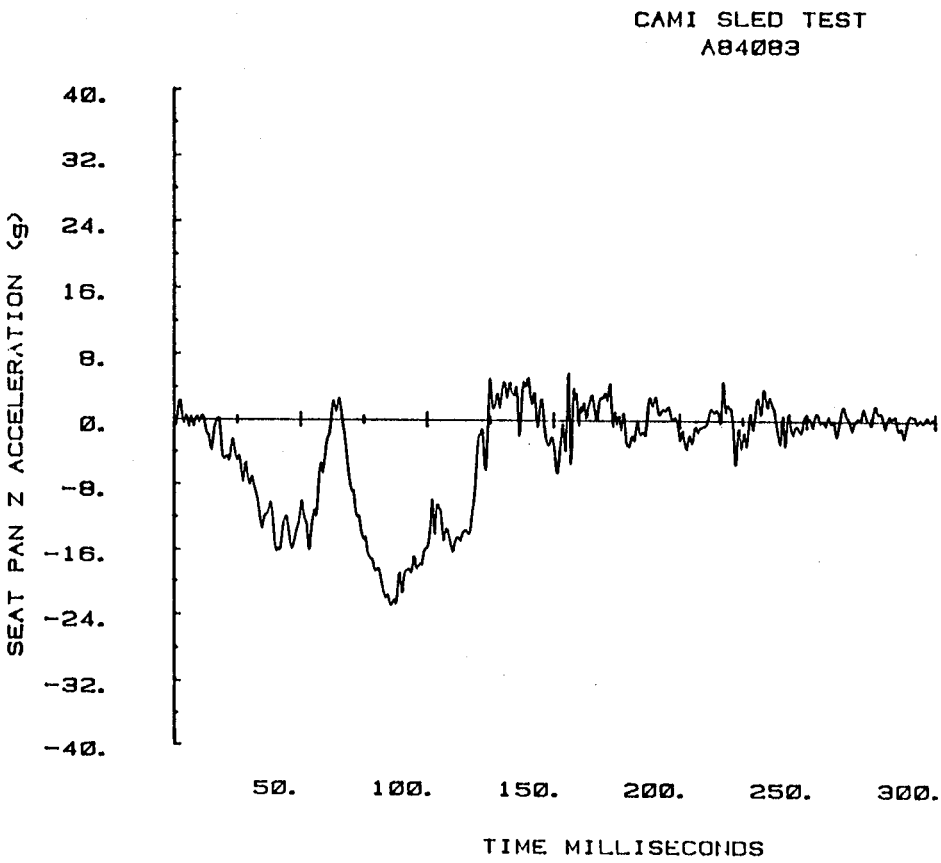
CAMI SLED TEST
A84083

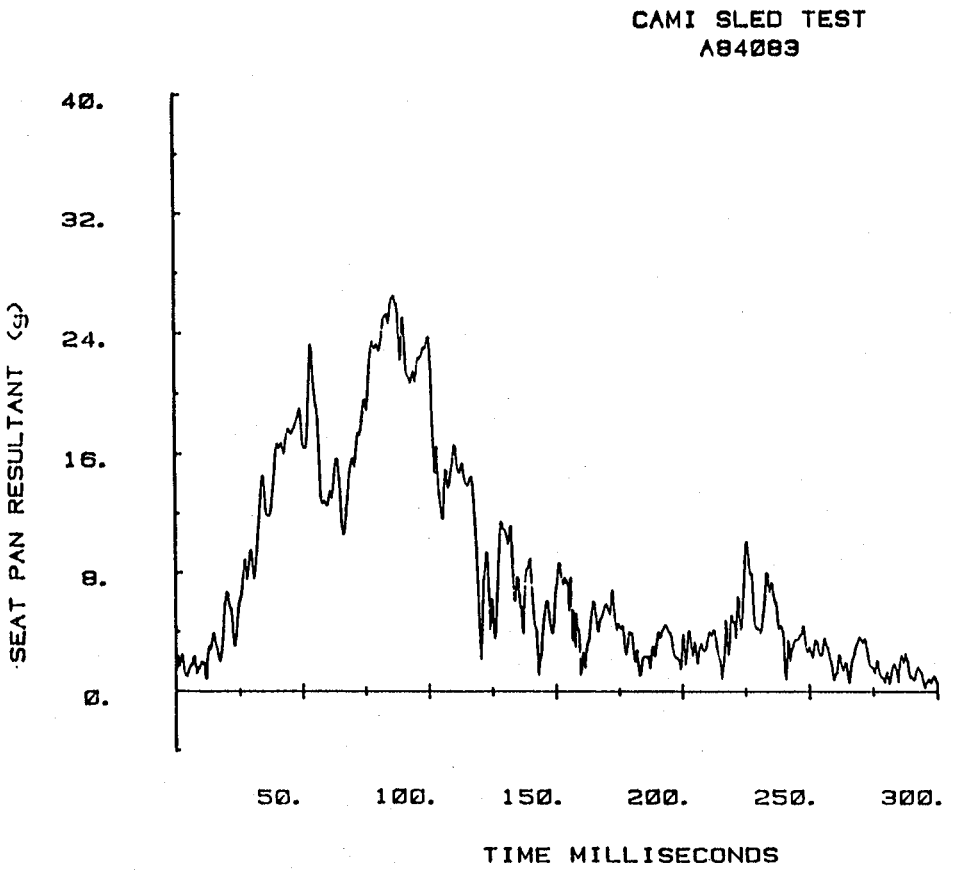


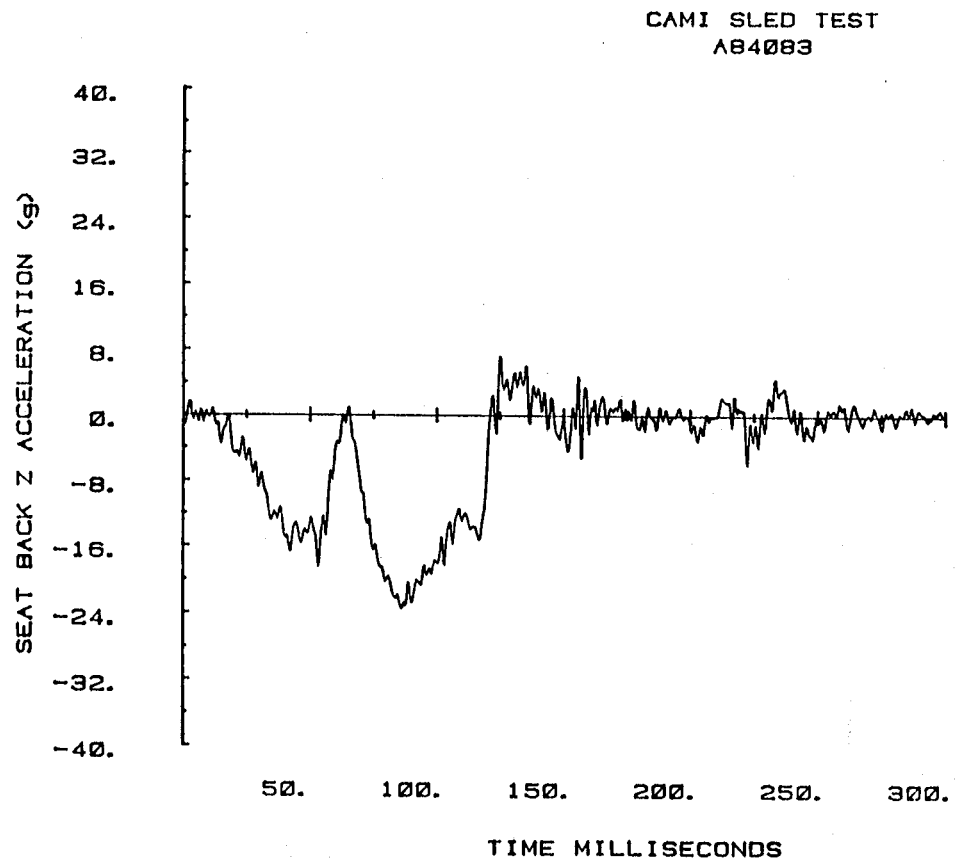
CAMI SLED TEST
A84083

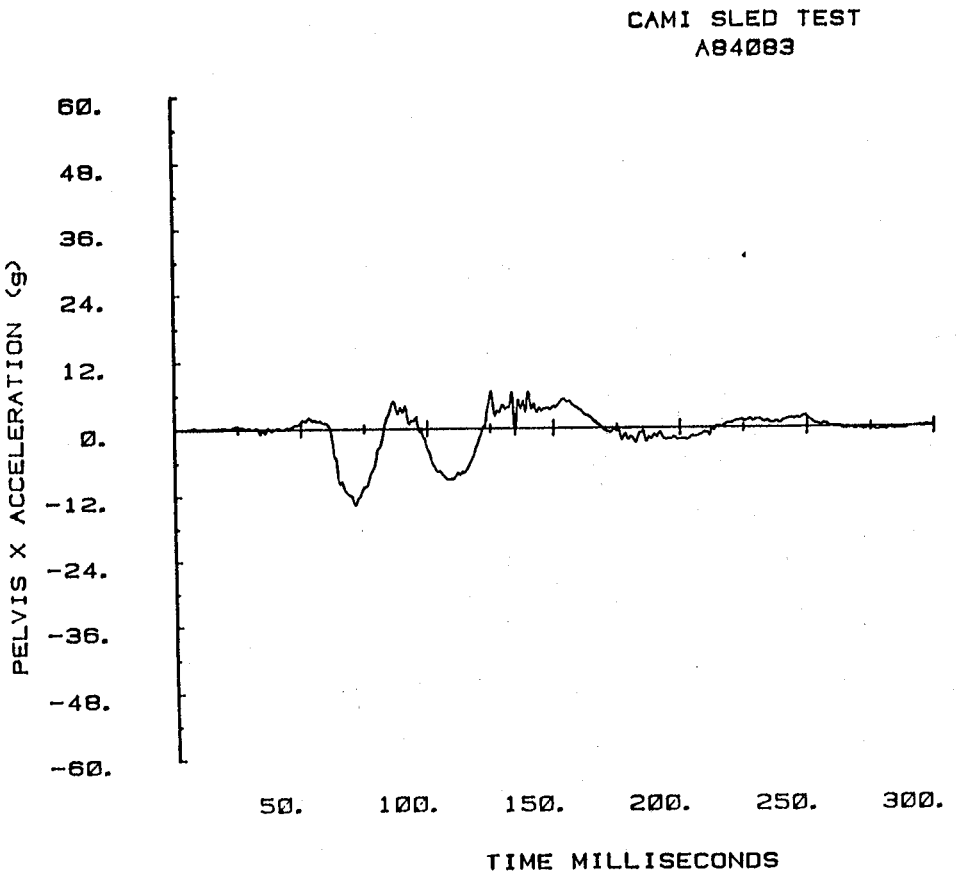


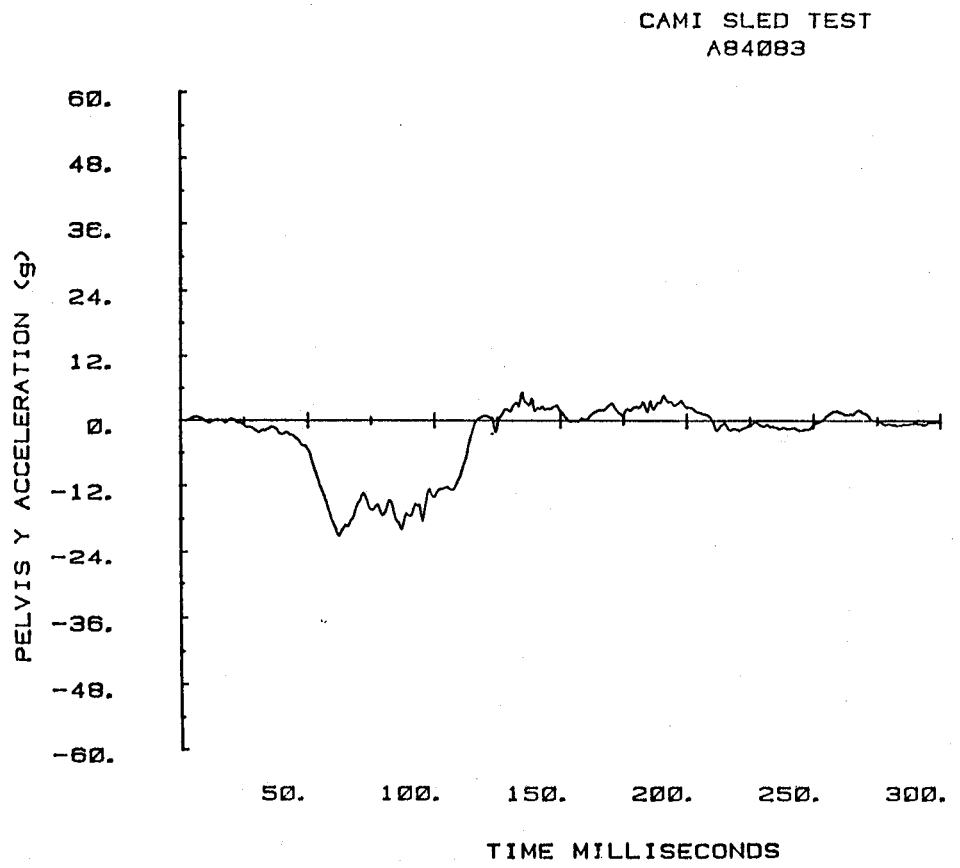

CAMI SLED TEST
A84083
SEAT PAN Y ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

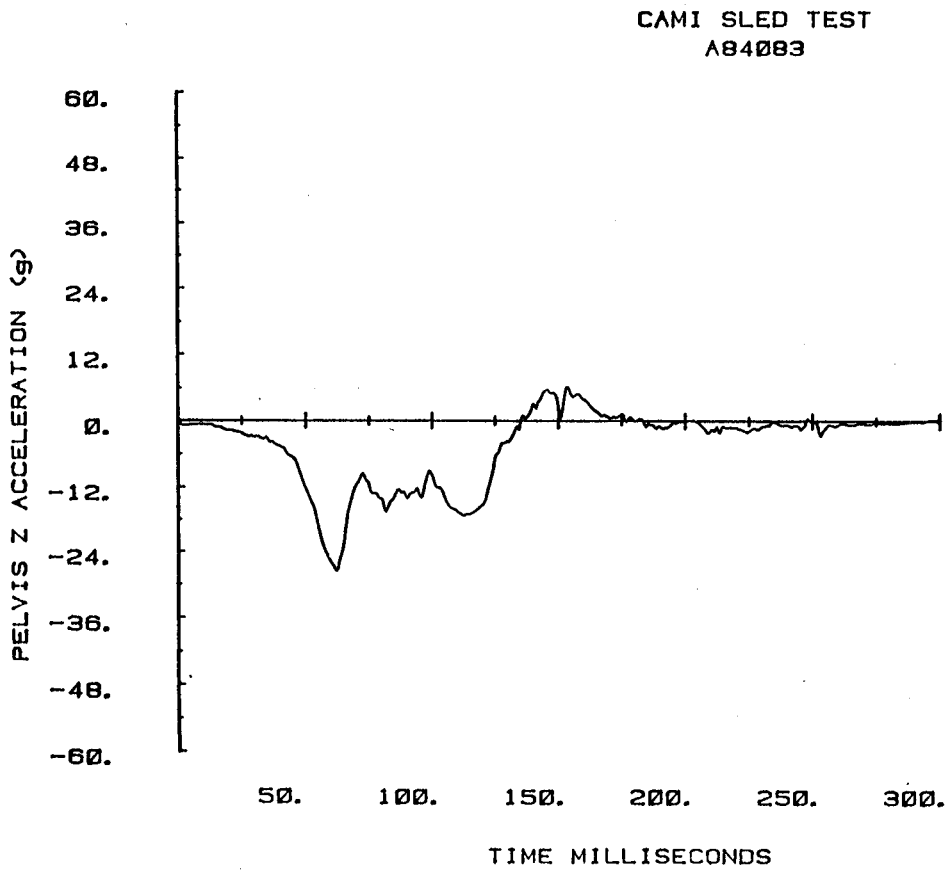

CAMI SLED TEST
A84083
SEAT PAN Z ACCELERATION (g)
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

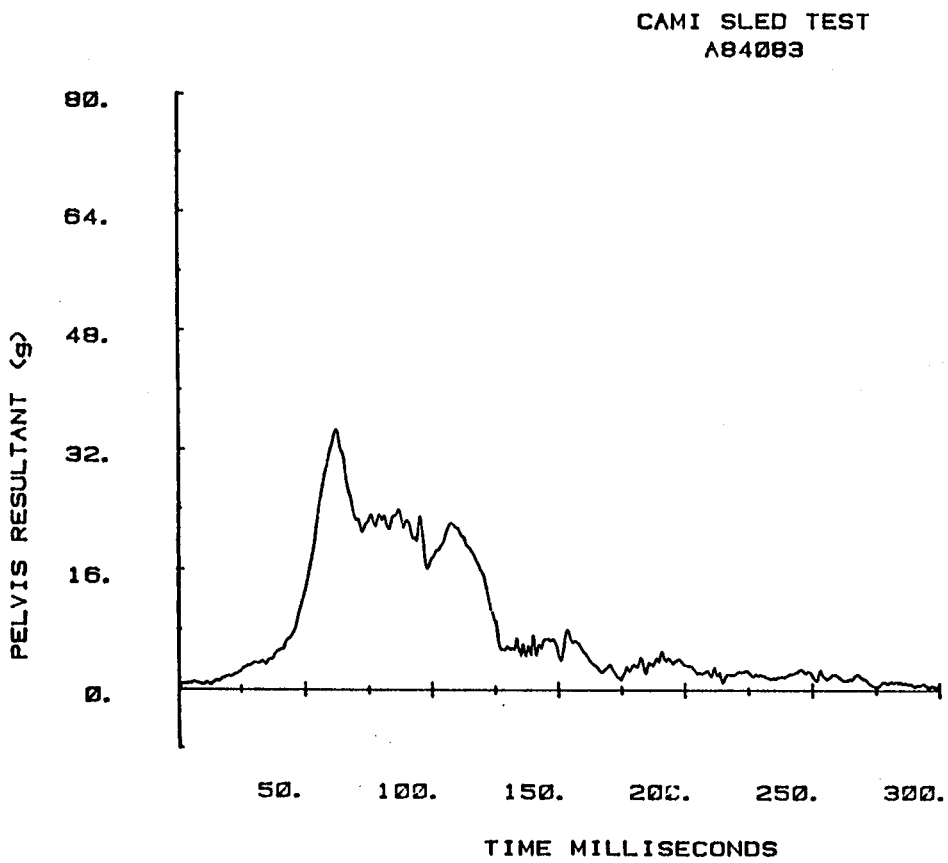

CAMI SLED TEST
A84083
40.
32.
24.
16.
8.
0.
SEAT PAN RESULTANT (g)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

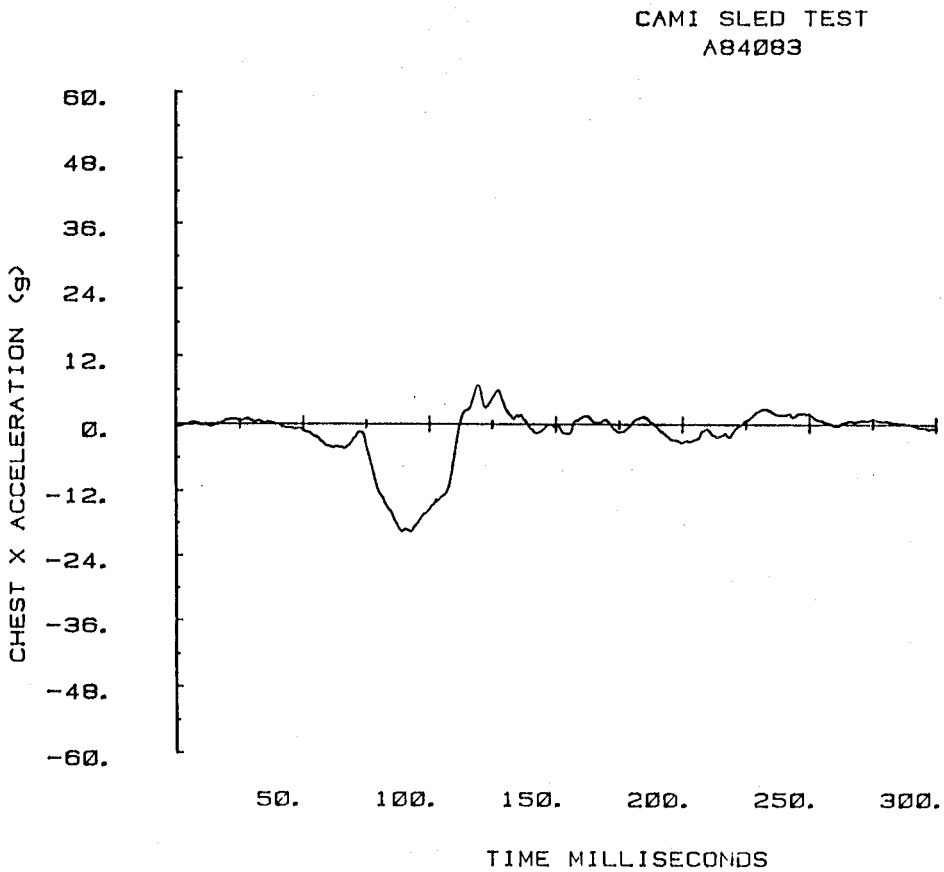

CAMI SLED TEST
A84083
40.
32.
24.
16.
8.
0.
-8.
-16.
-24.
-32.
-40.
SEAT BACK Z ACCELERATION (g)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

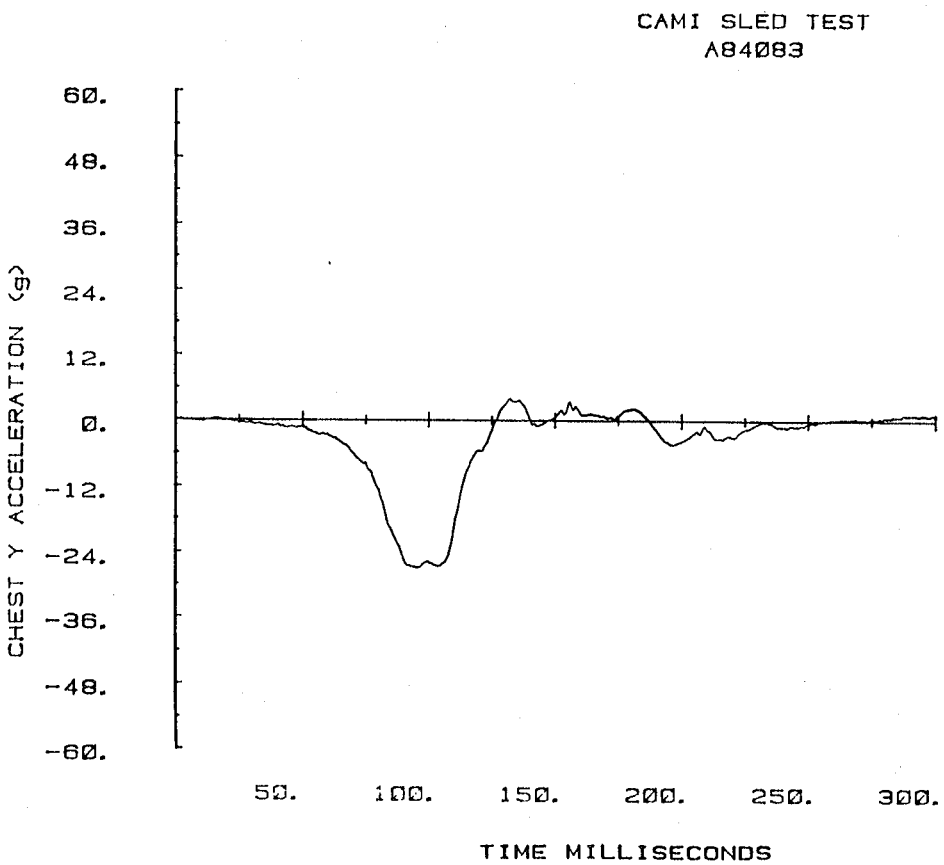

CAMI SLED TEST
A84083
PELVIS X ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A84083
PELVIS Y ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

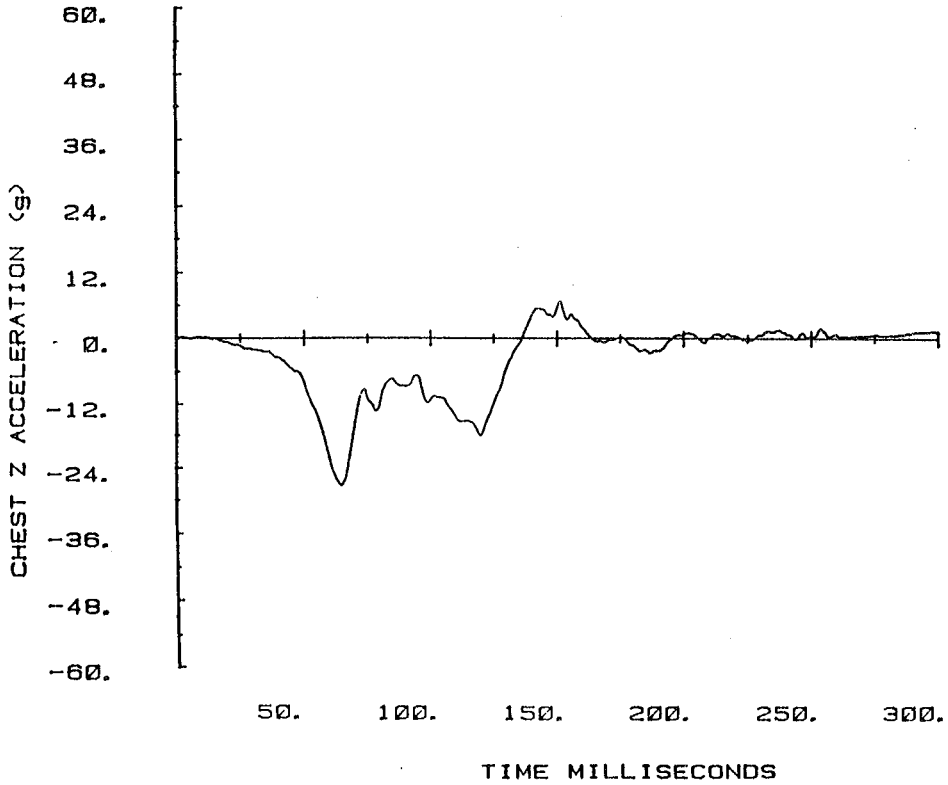

CAMI SLED TEST
A84083
PELVIS Z ACCELERATION (g)
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A84083
PELVIS RESULTANT (g)
80.
64.
48.
32.
16.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

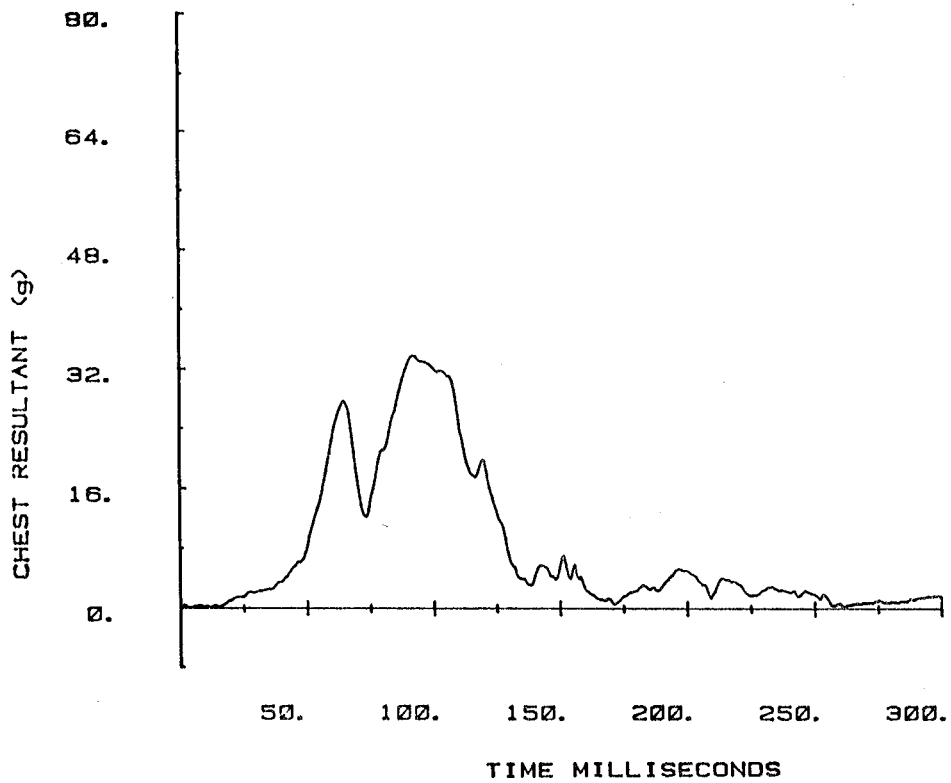

CAMI SLED TEST
A84083
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
CHEST X ACCELERATION (g)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

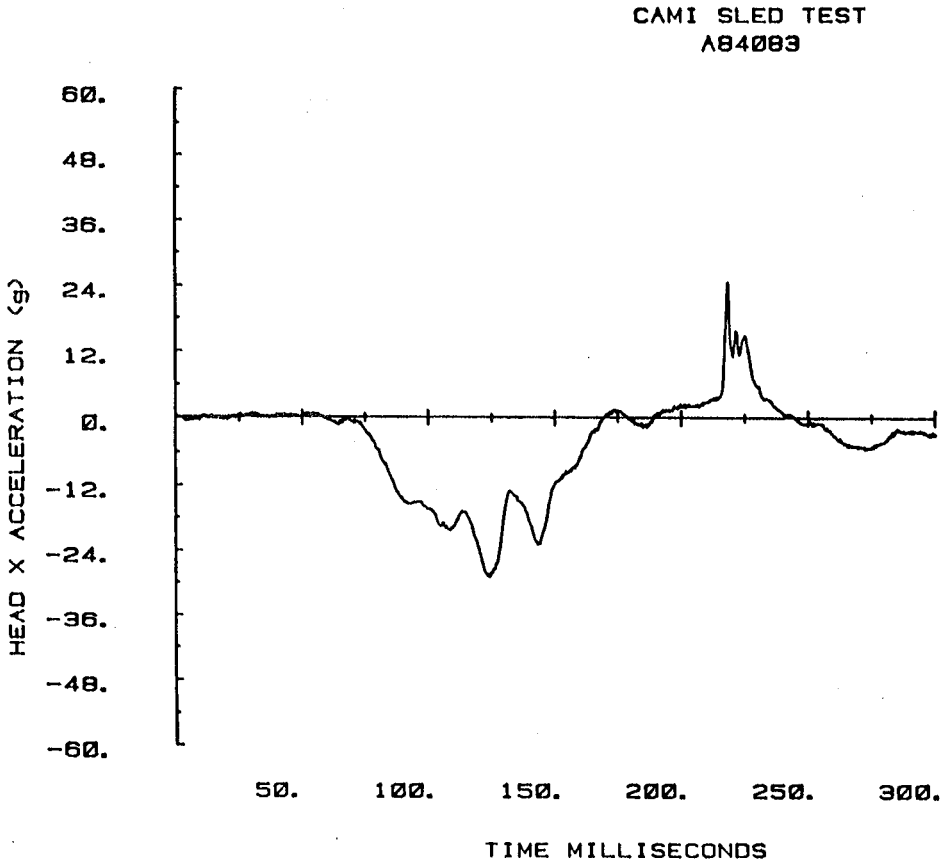

CAMI SLED TEST
A84083
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
CHEST Y ACCELERATION (g)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

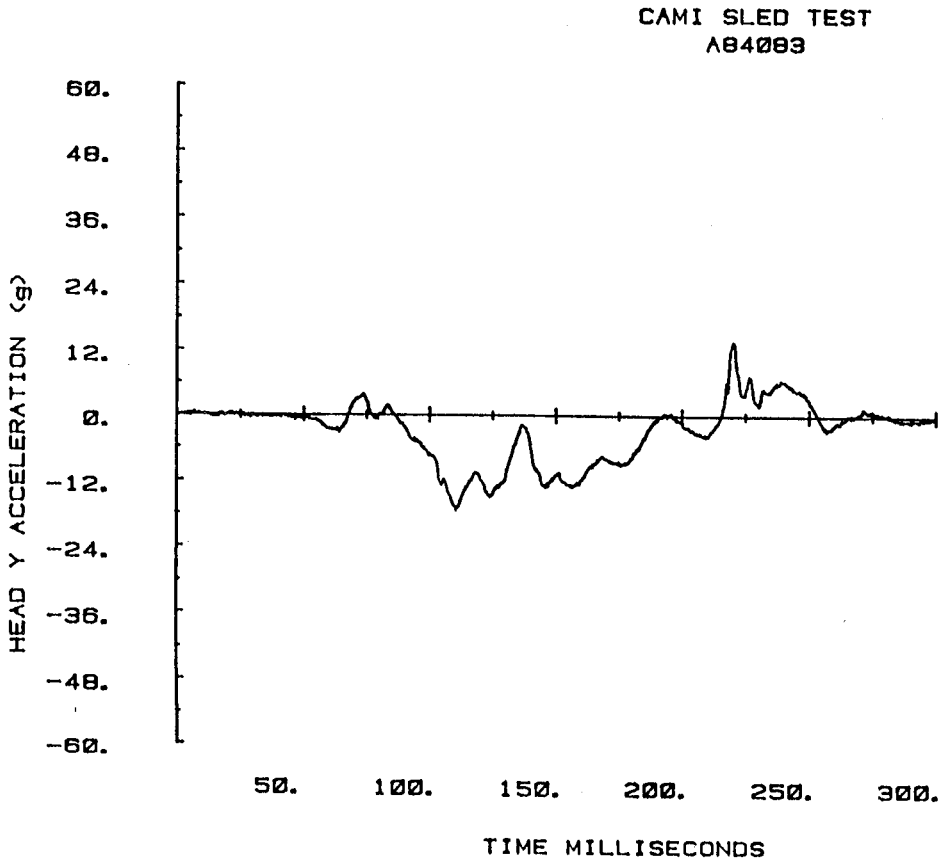
CAMI SLED TEST
A84083



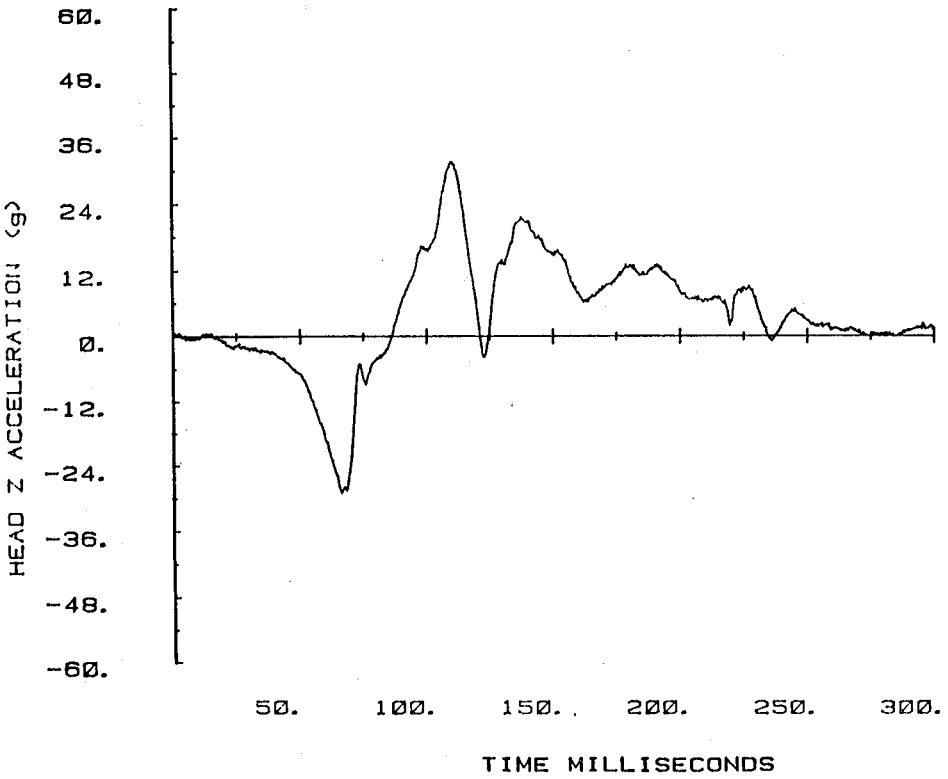
CAMI SLED TEST
A84083



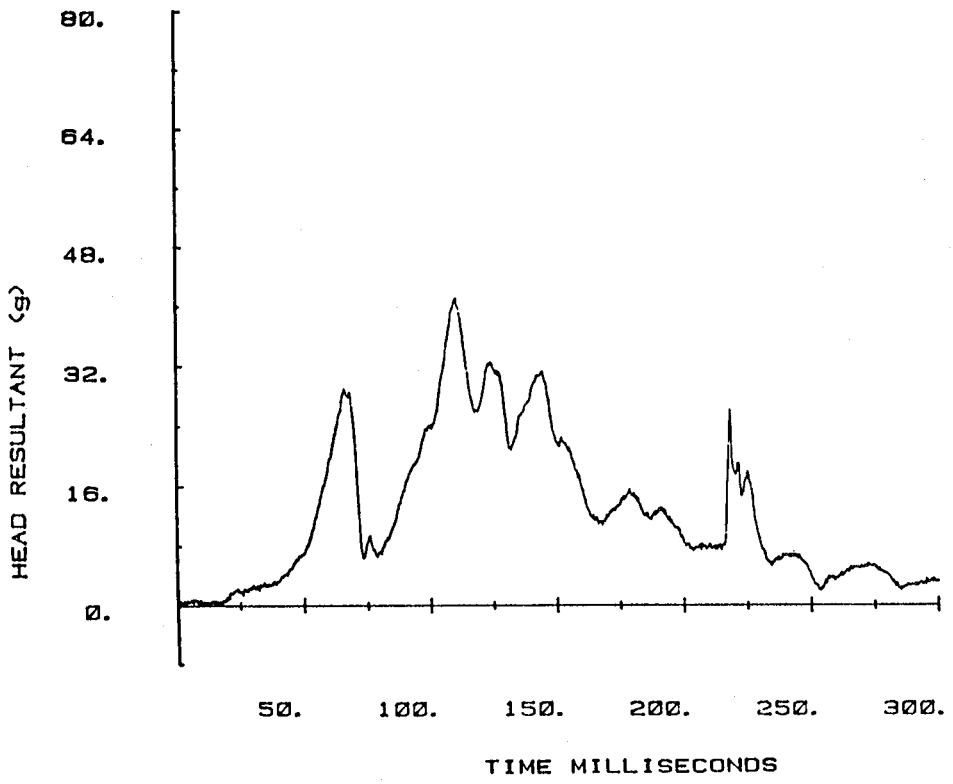

CAMI SLED TEST
A84083
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
HEAD X ACCELERATION (g)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

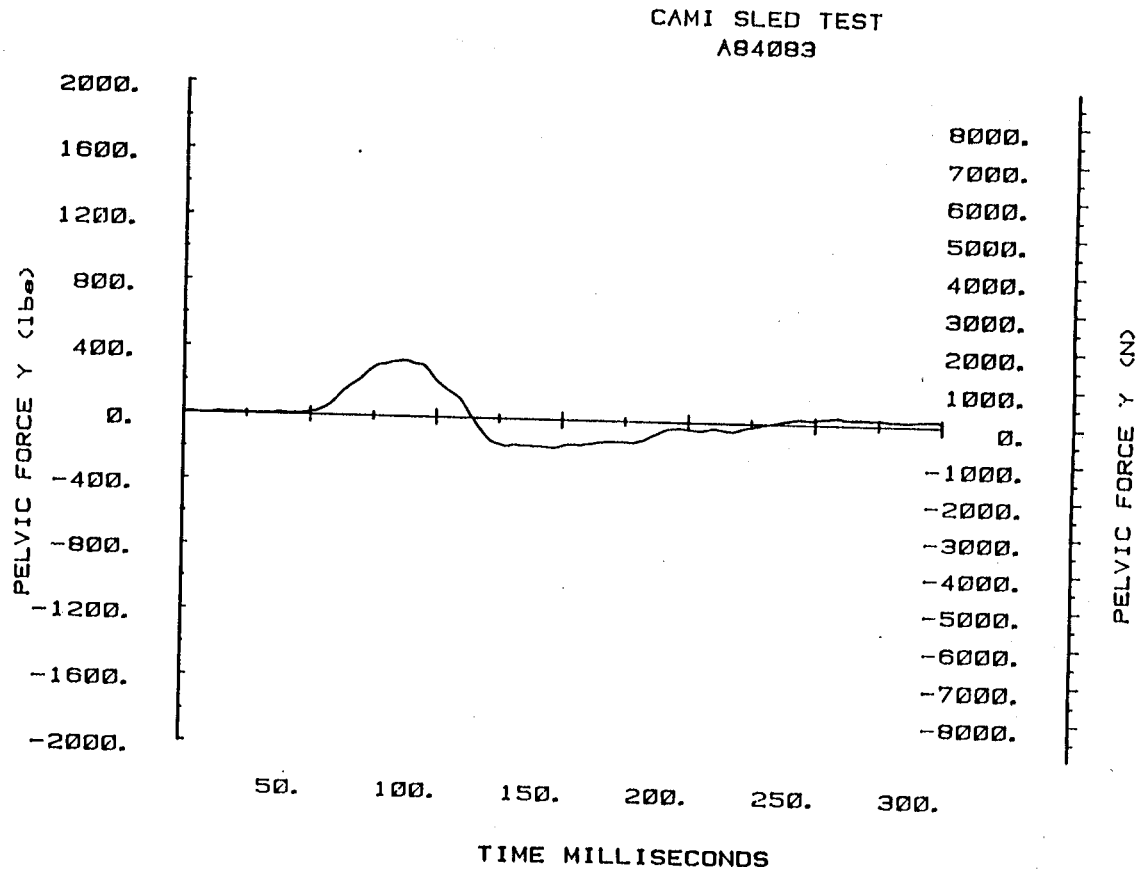

CAMI SLED TEST
A84083
60.
48.
36.
24.
12.
0.
-12.
-24.
-36.
-48.
-60.
HEAD Y ACCELERATION (g)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

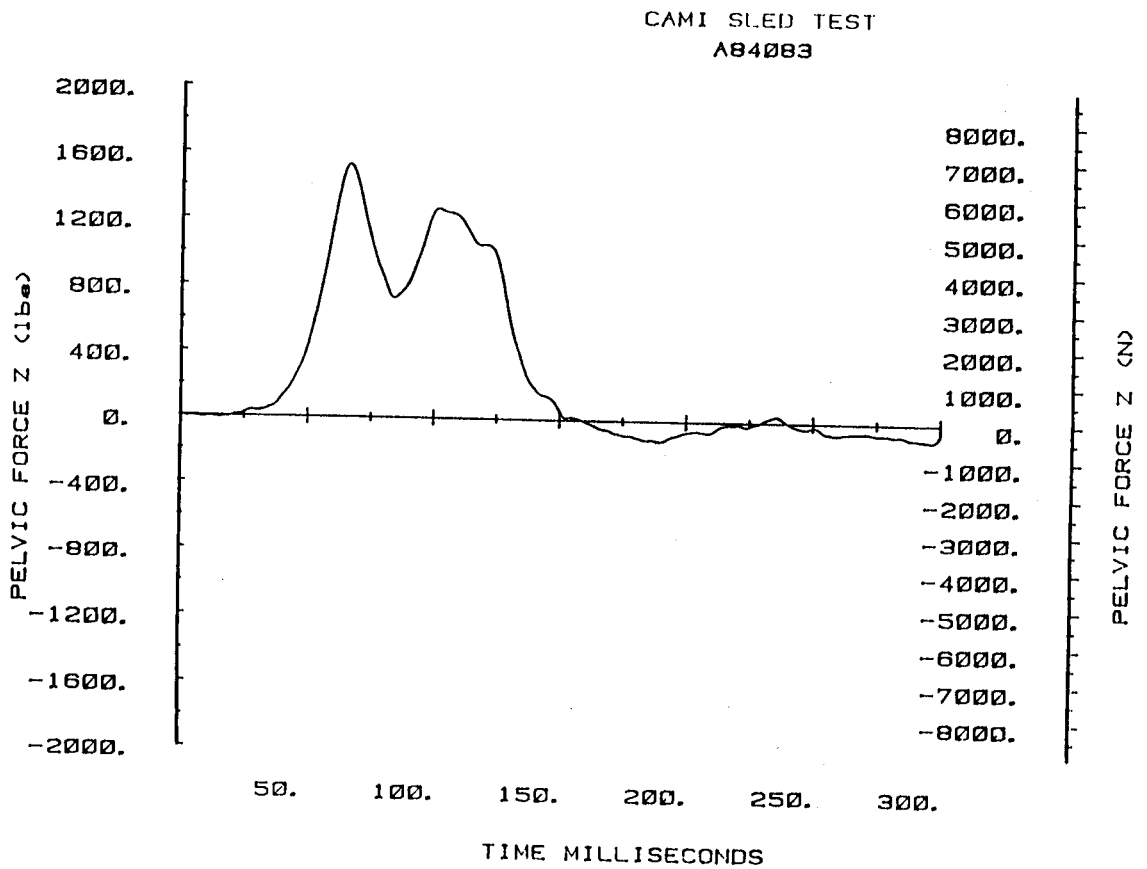
CAMI SLED TEST
A84083



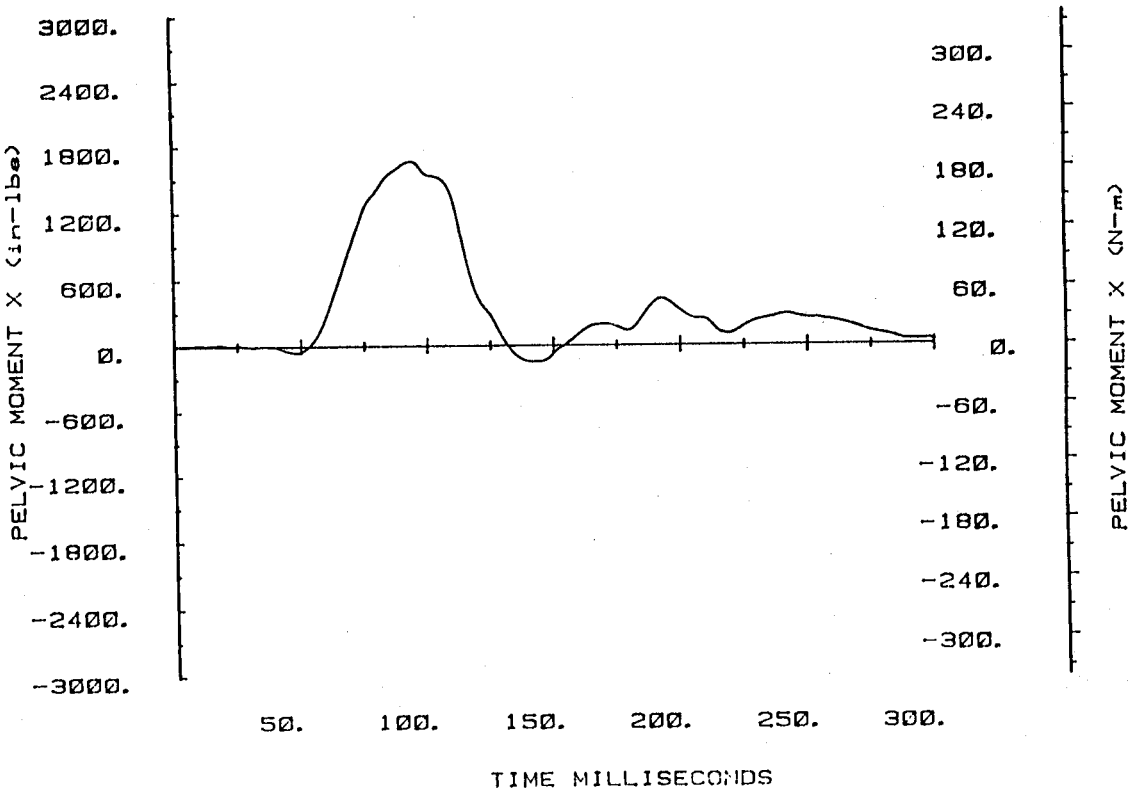
CAMI SLED TEST
A84083



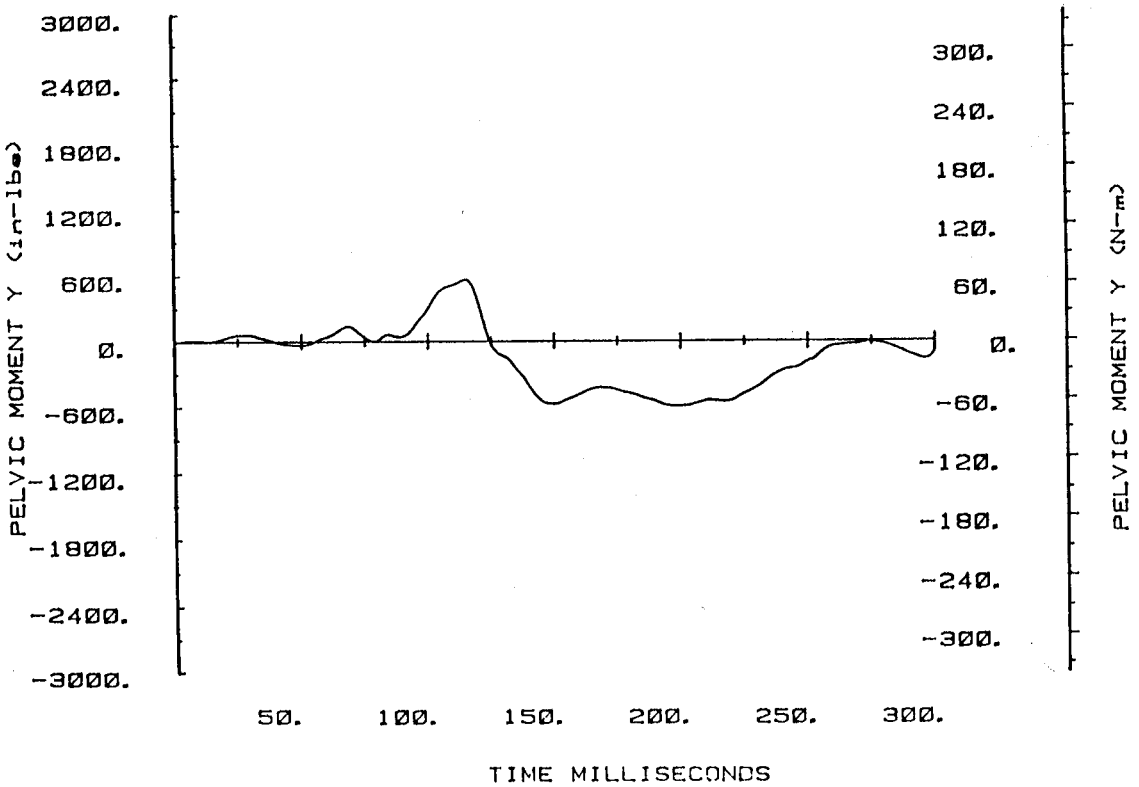

CAMI SLED TEST
A84083
PELVIC FORCE Y (lbs)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
PELVIC FORCE Y (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

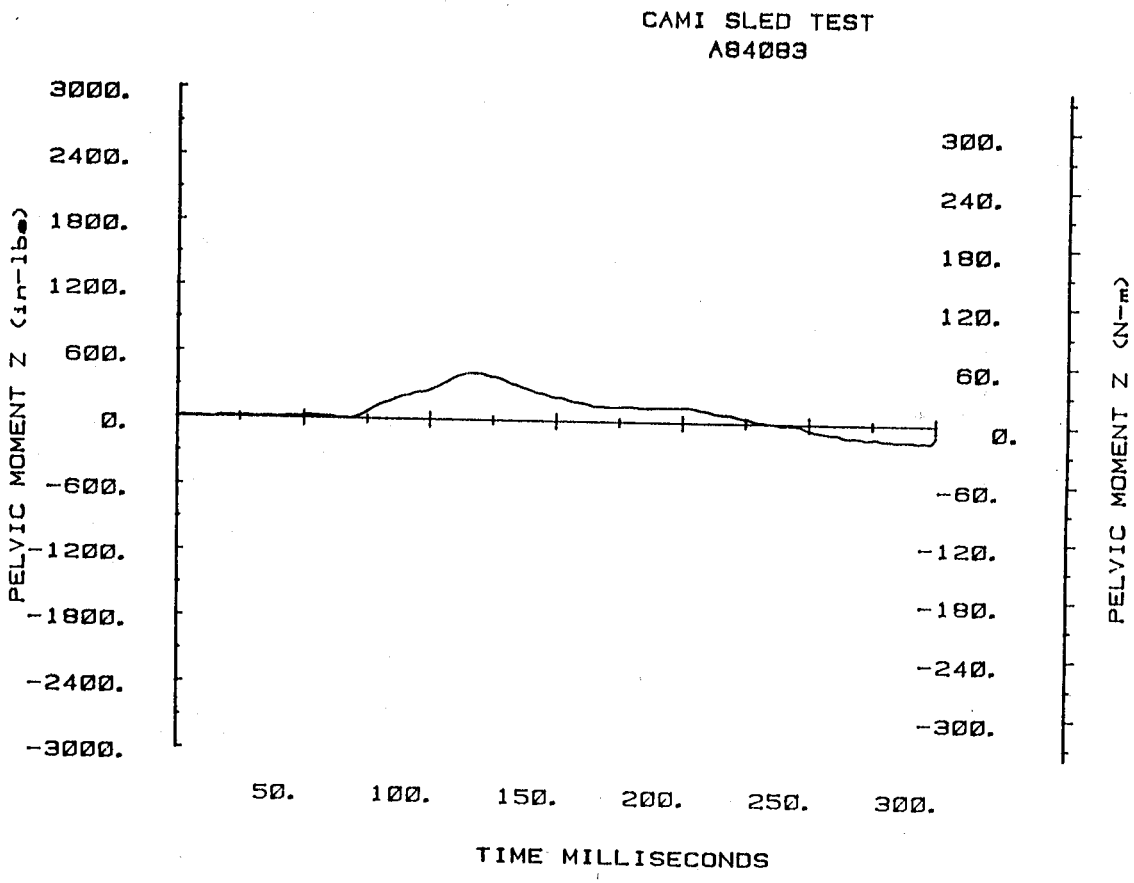

CAMI SLED TEST
A84083
PELVIC FORCE Z (lbs)
2000.
1600.
1200.
800.
400.
0.
-400.
-800.
-1200.
-1600.
-2000.
PELVIC FORCE Z (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
-1000.
-2000.
-3000.
-4000.
-5000.
-6000.
-7000.
-8000.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

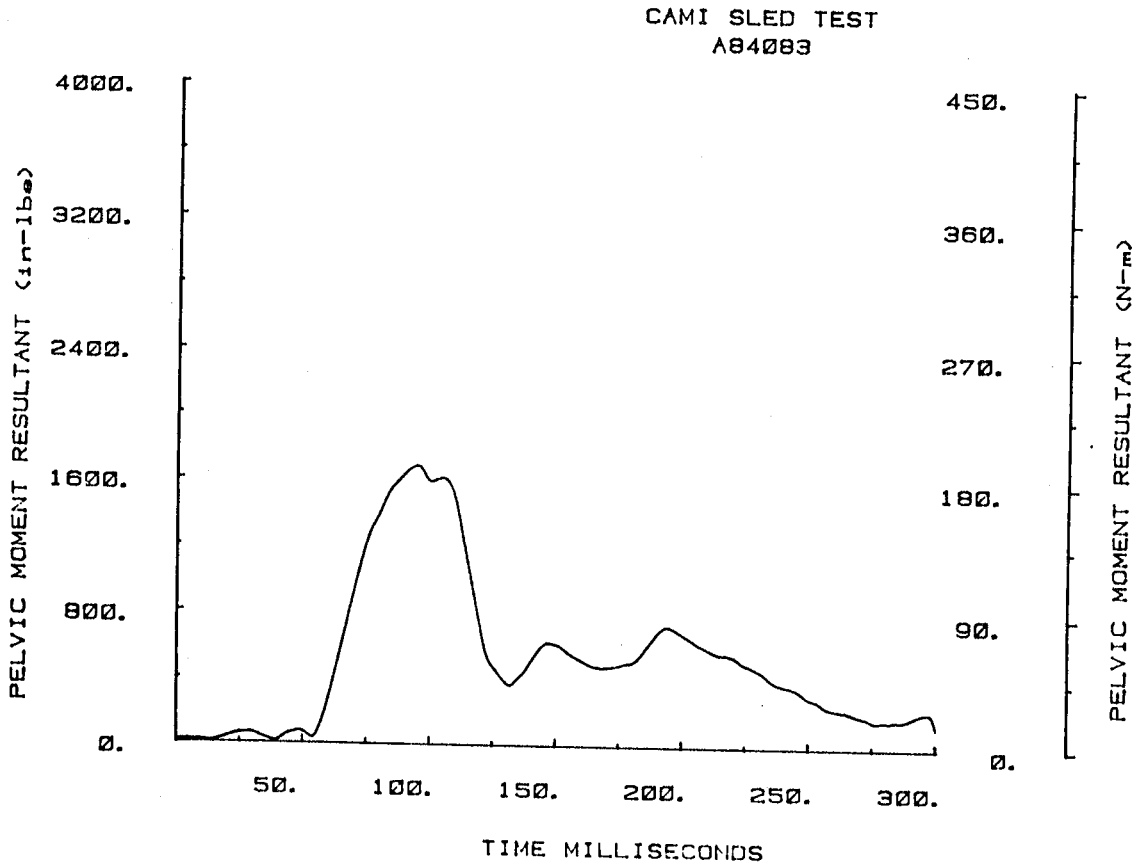
CAMI SLED TEST
A84083

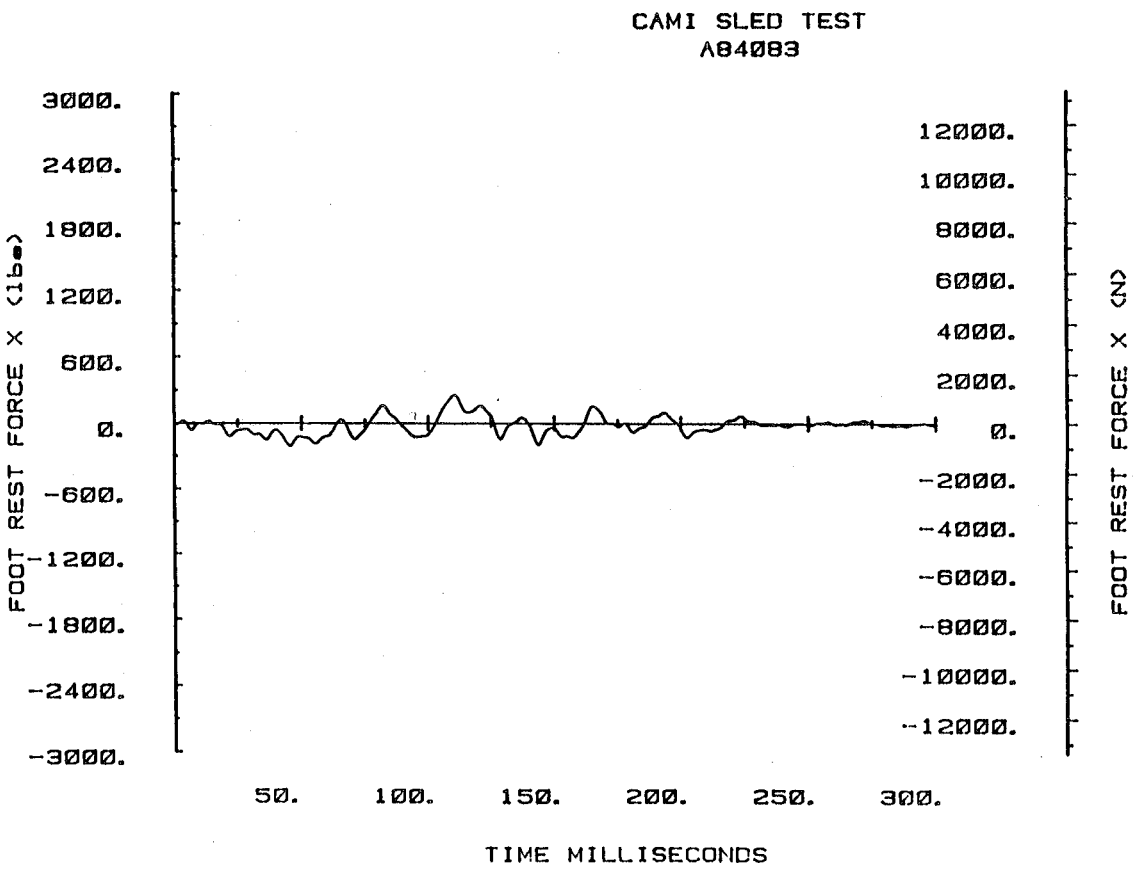


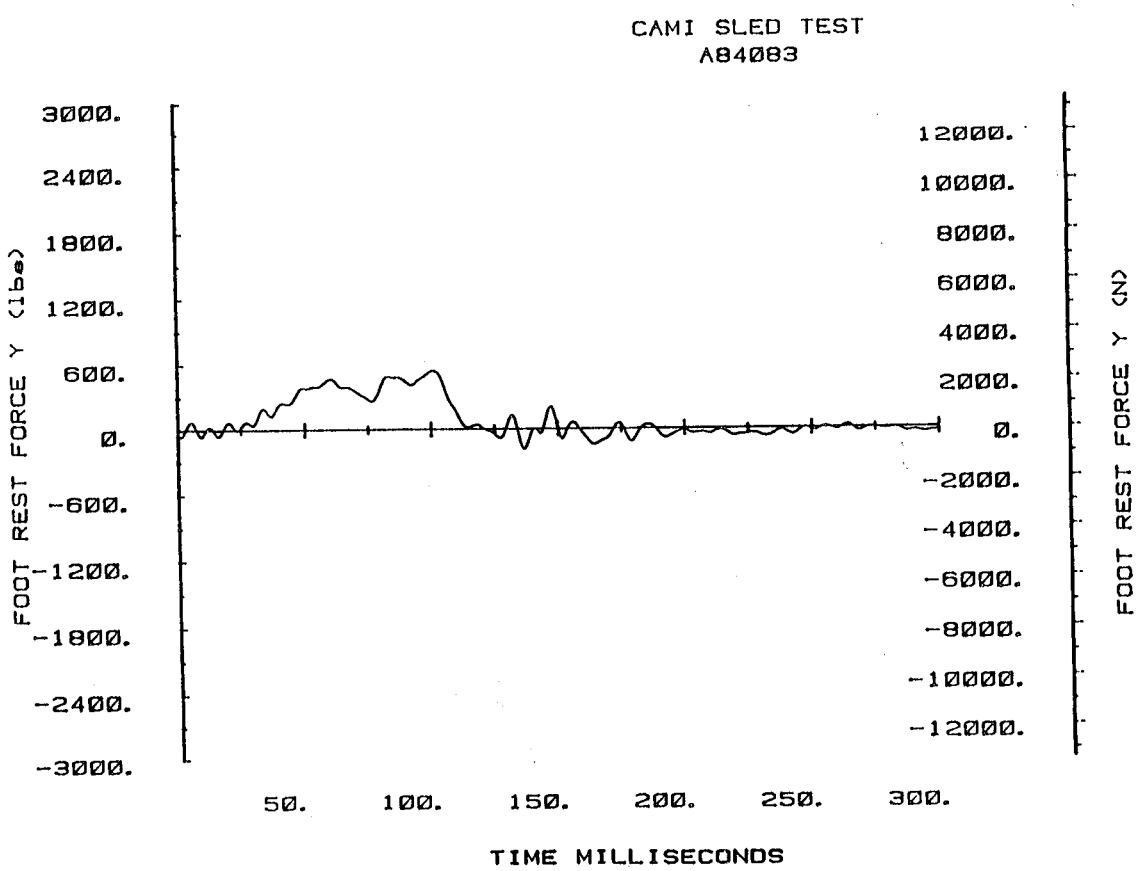
CAMI SLED TEST
A84083

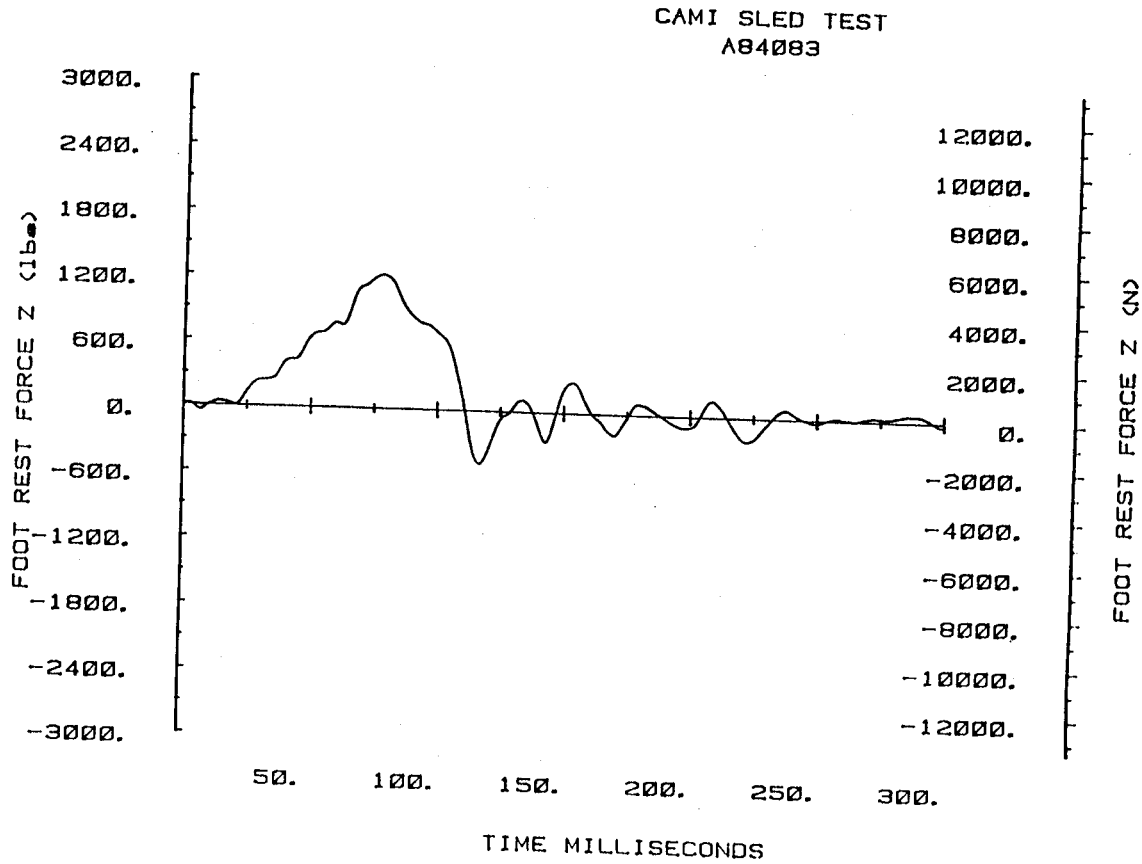


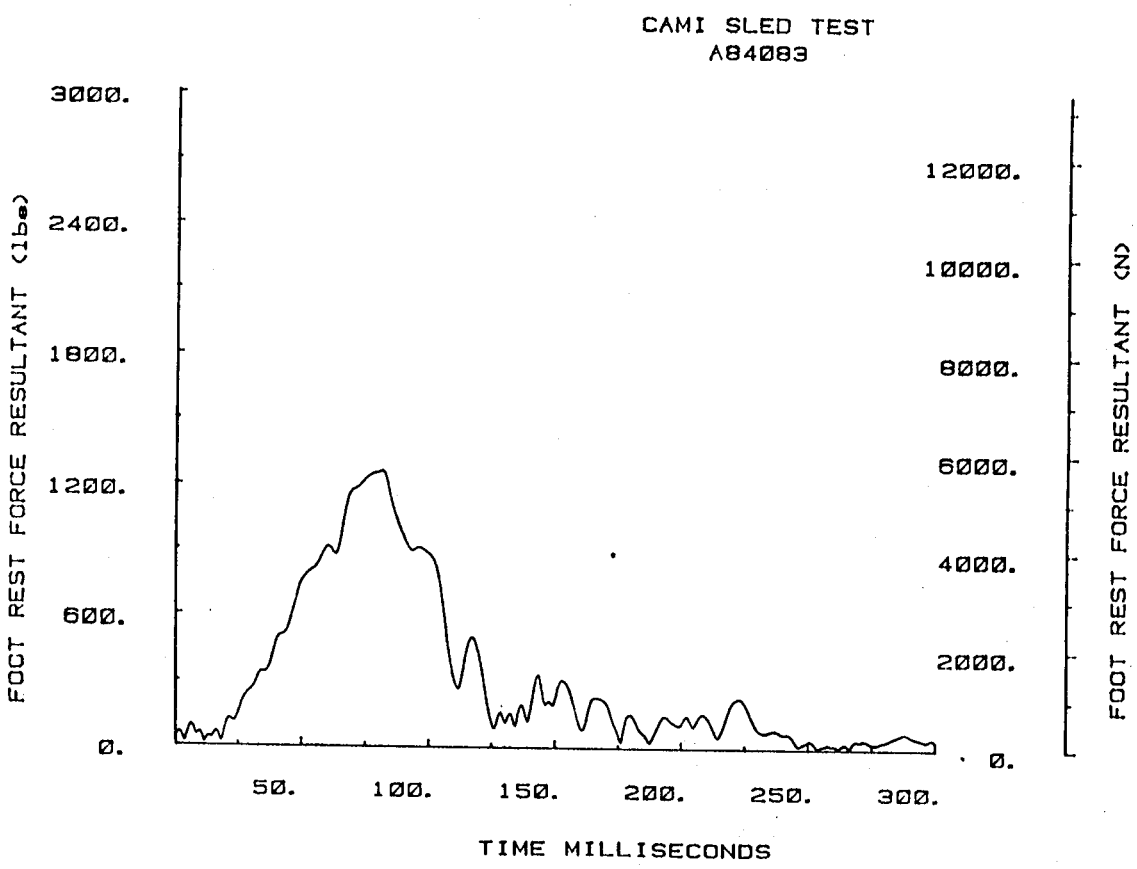

CAMI SLED TEST
A84083
PELVIC MOMENT Z (in-lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
PELVIC MOMENT Z (N-m)
300.
240.
180.
120.
60.
0.
-60.
-120.
-180.
-240.
-300.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

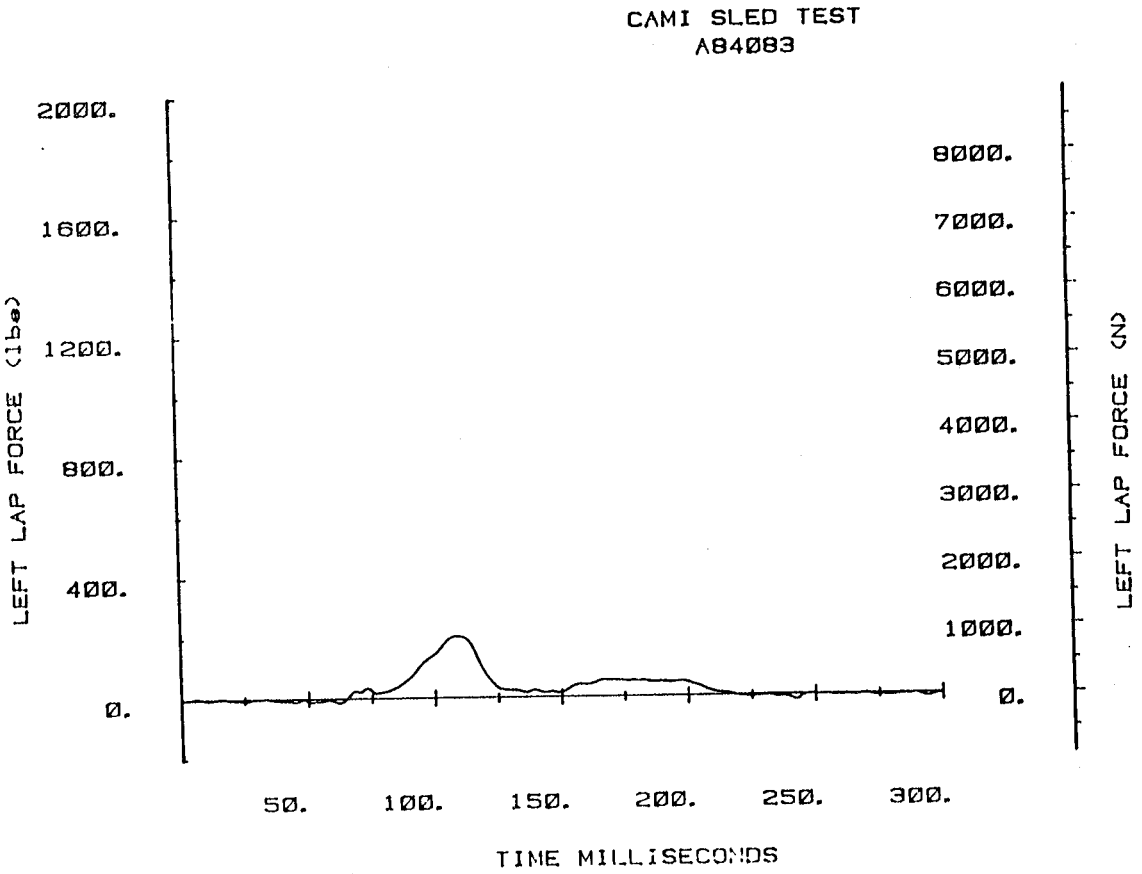

CAMI SLED TEST
A84083
PELVIC MOMENT RESULTANT (in-lbs)
4000.
3200.
2400.
1600.
800.
0.
PELVIC MOMENT RESULTANT (N-m)
450.
360.
270.
180.
90.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

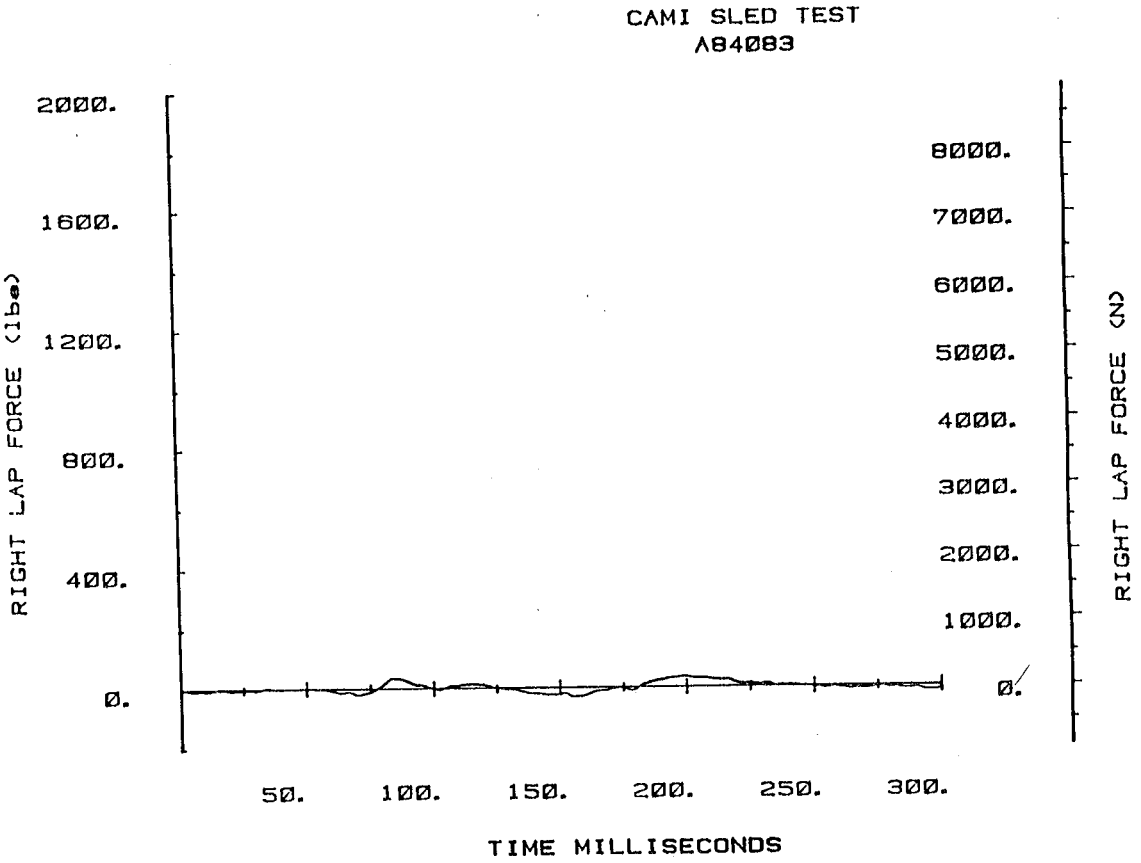

CAMI SLED TEST
A84083
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
FOOT REST FORCE X (lbs)
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
FOOT REST FORCE X (N)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

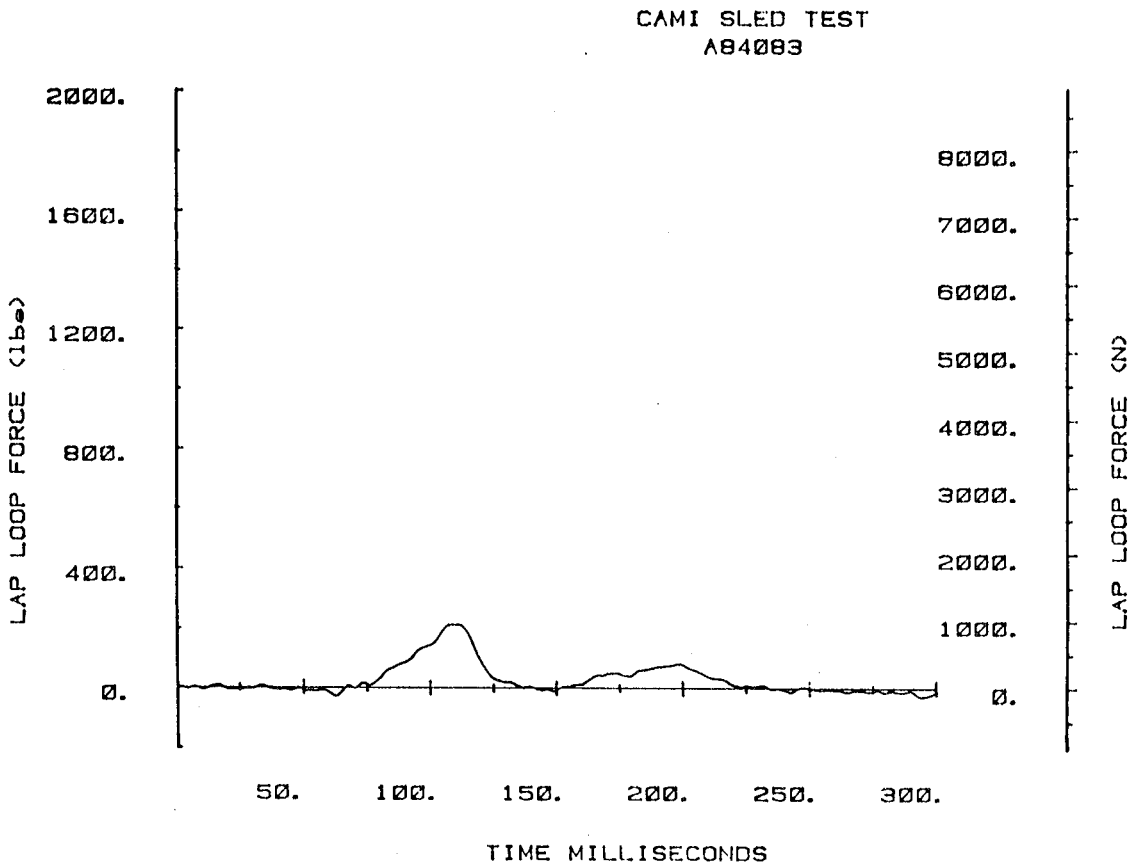

CAMI SLED TEST
A84083
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
FOOT REST FORCE Y (lbs)
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
FOOT REST FORCE Y (N)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

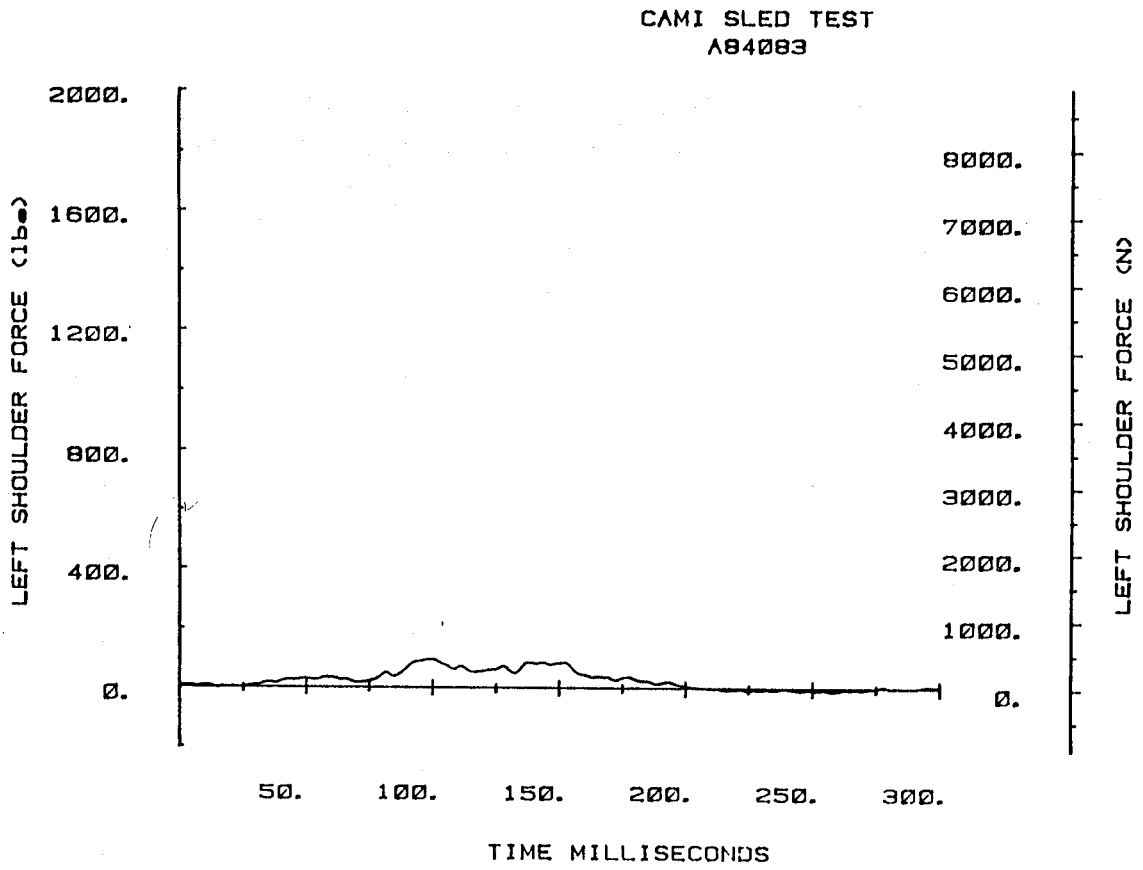

CAMI SLED TEST
A84083
FOOT REST FORCE Z (lbs)
3000.
2400.
1800.
1200.
600.
0.
-600.
-1200.
-1800.
-2400.
-3000.
FOOT REST FORCE Z (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
-2000.
-4000.
-6000.
-8000.
-10000.
-12000.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

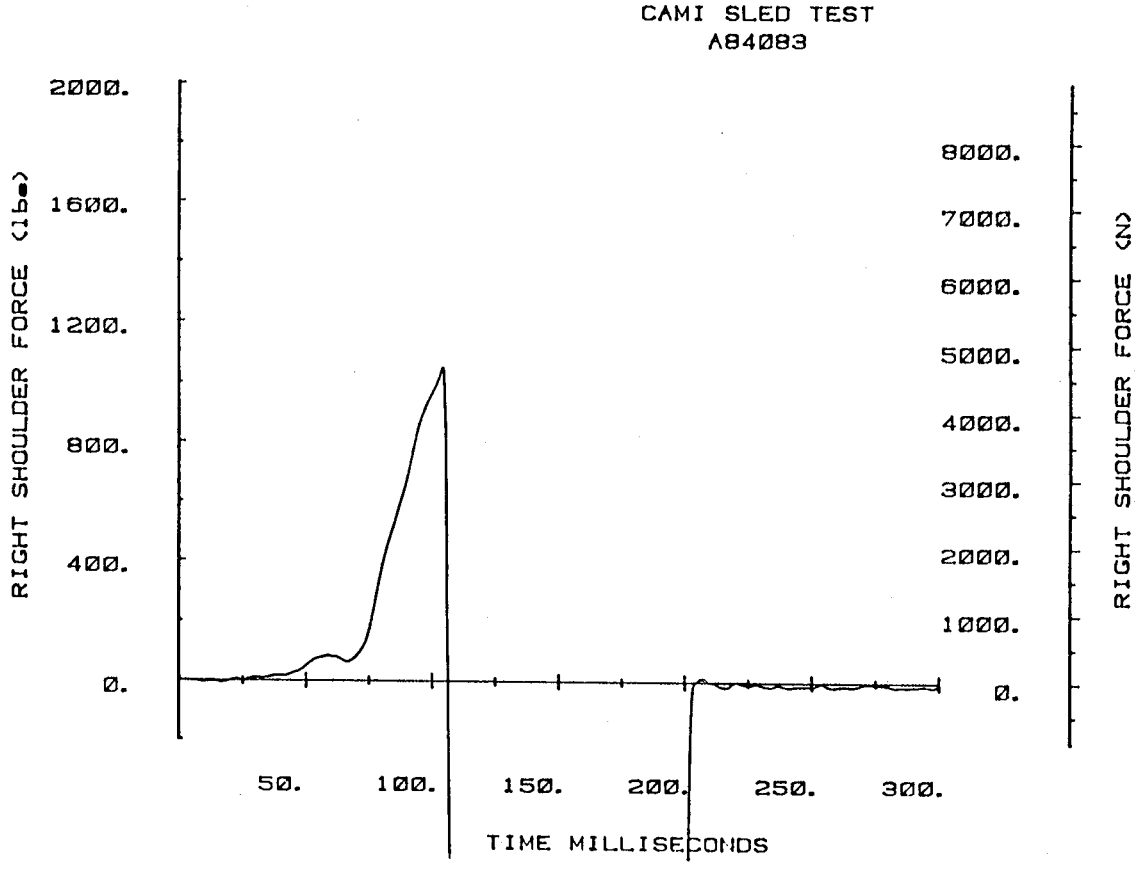

CAMI SLED TEST
A84083
FOOT REST FORCE RESULTANT (lbs)
3000.
2400.
1800.
1200.
600.
0.
FOOT REST FORCE RESULTANT (N)
12000.
10000.
8000.
6000.
4000.
2000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

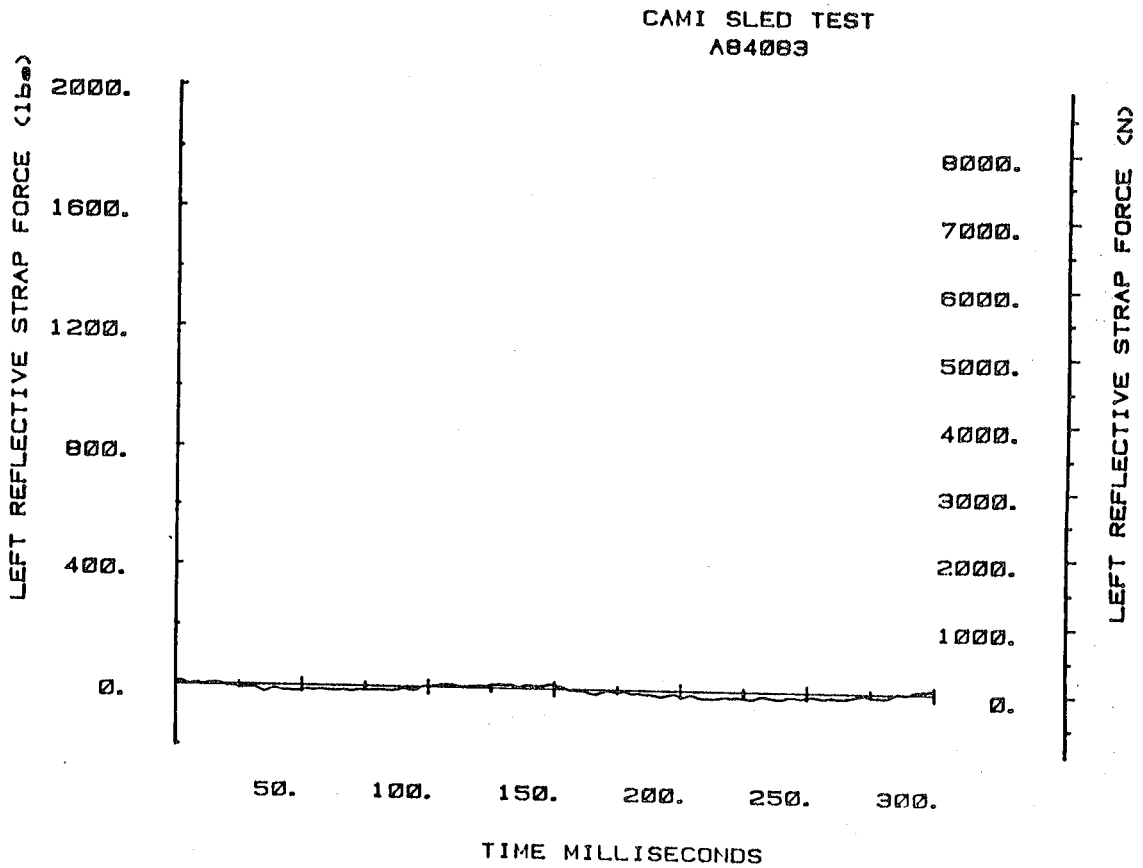

CAMI SLED TEST
A84083
2000.
1600.
1200.
800.
400.
0.
LEFT LAP FORCE (lbs)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
LEFT LAP FORCE (N)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

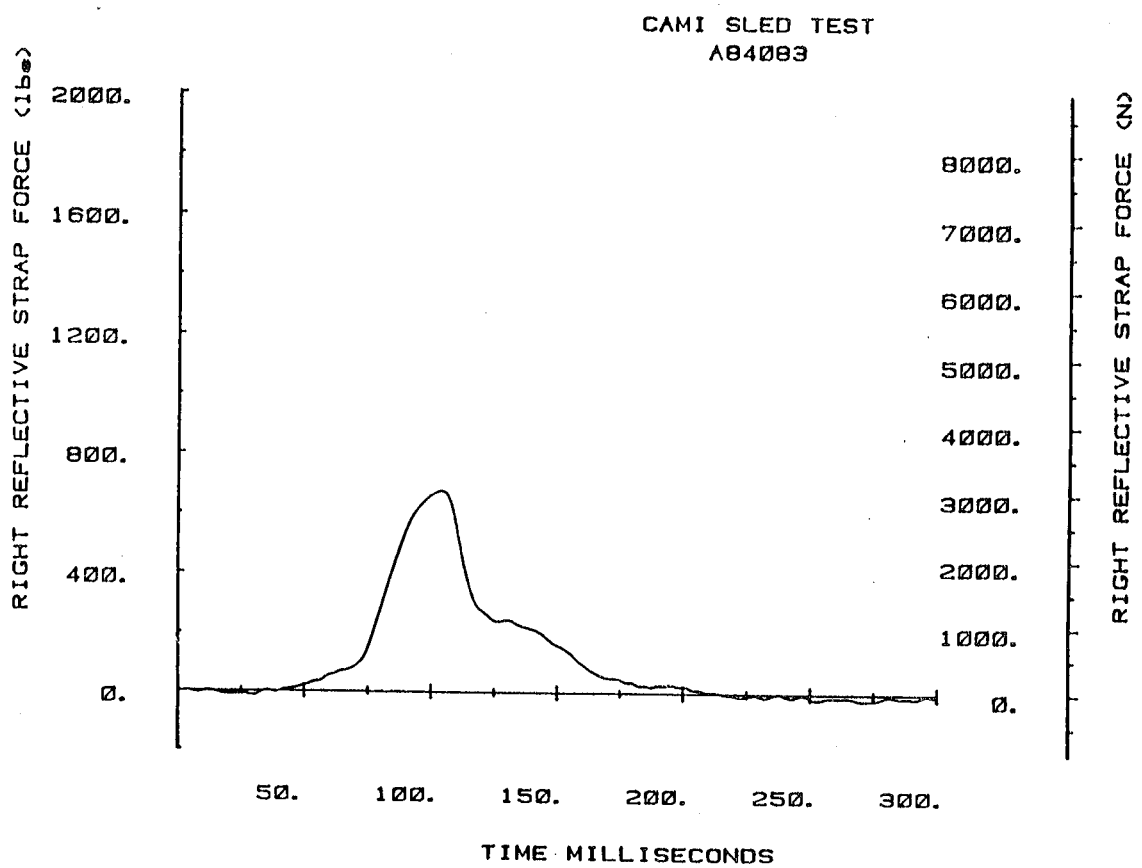

CAMI SLED TEST
A84083
2000.
1600.
1200.
800.
400.
0.
RIGHT LAP FORCE (lbs)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
RIGHT LAP FORCE (N)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

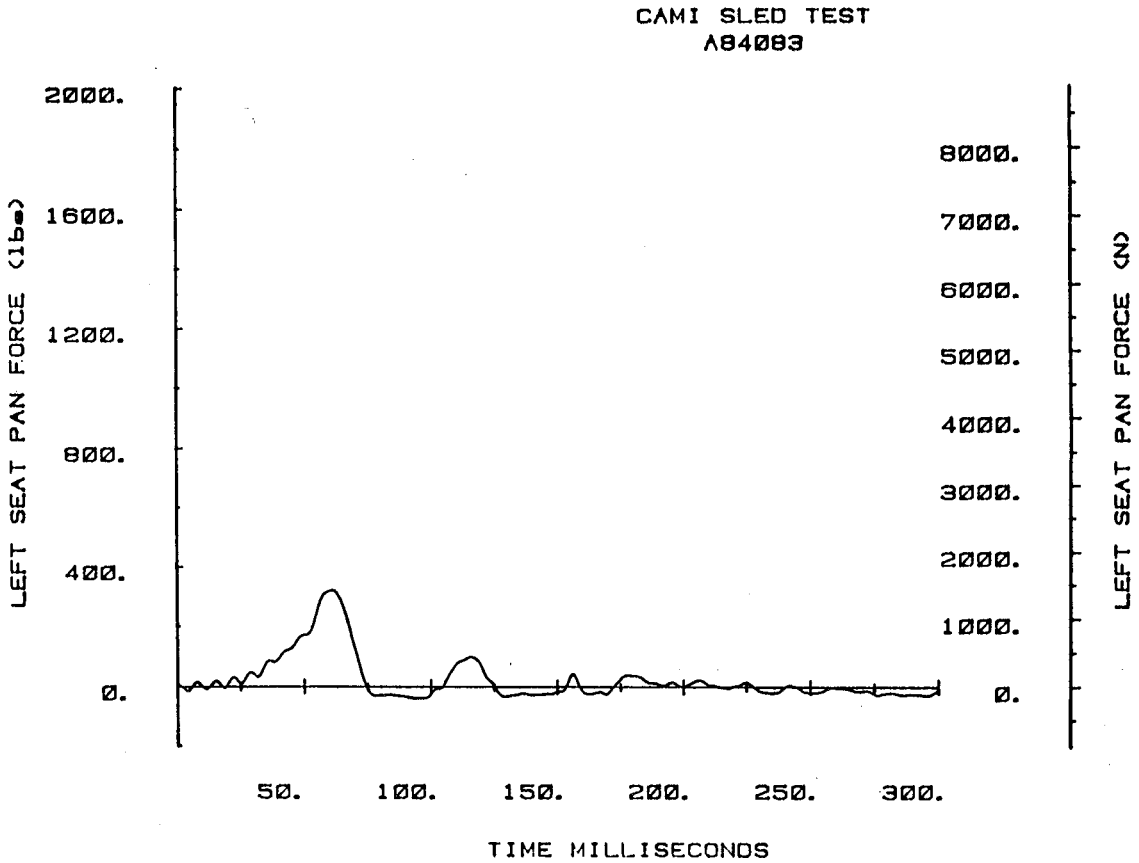

CAMI SLED TEST
A84083
2000.
1600.
1200.
800.
400.
0.
LAP LOOP FORCE (lbs)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
LAP LOOP FORCE (N)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

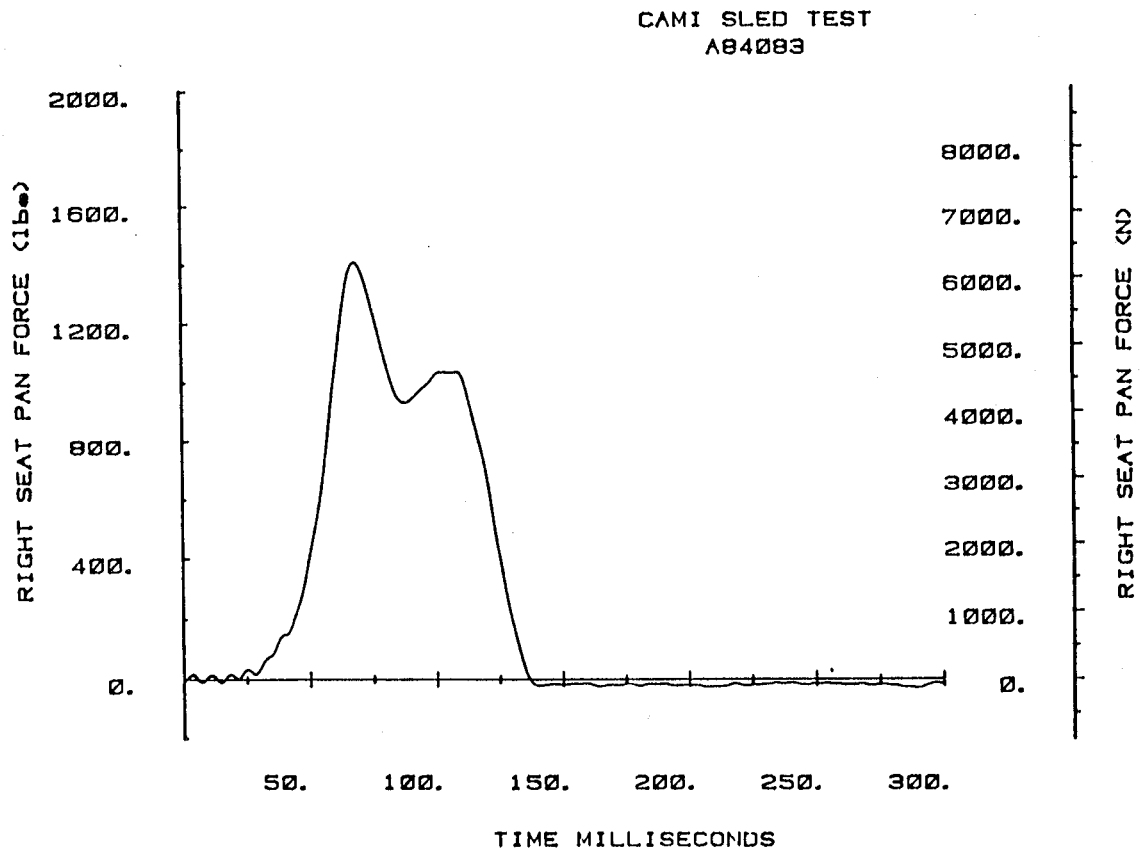

CAMI SLED TEST
A84083
LEFT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

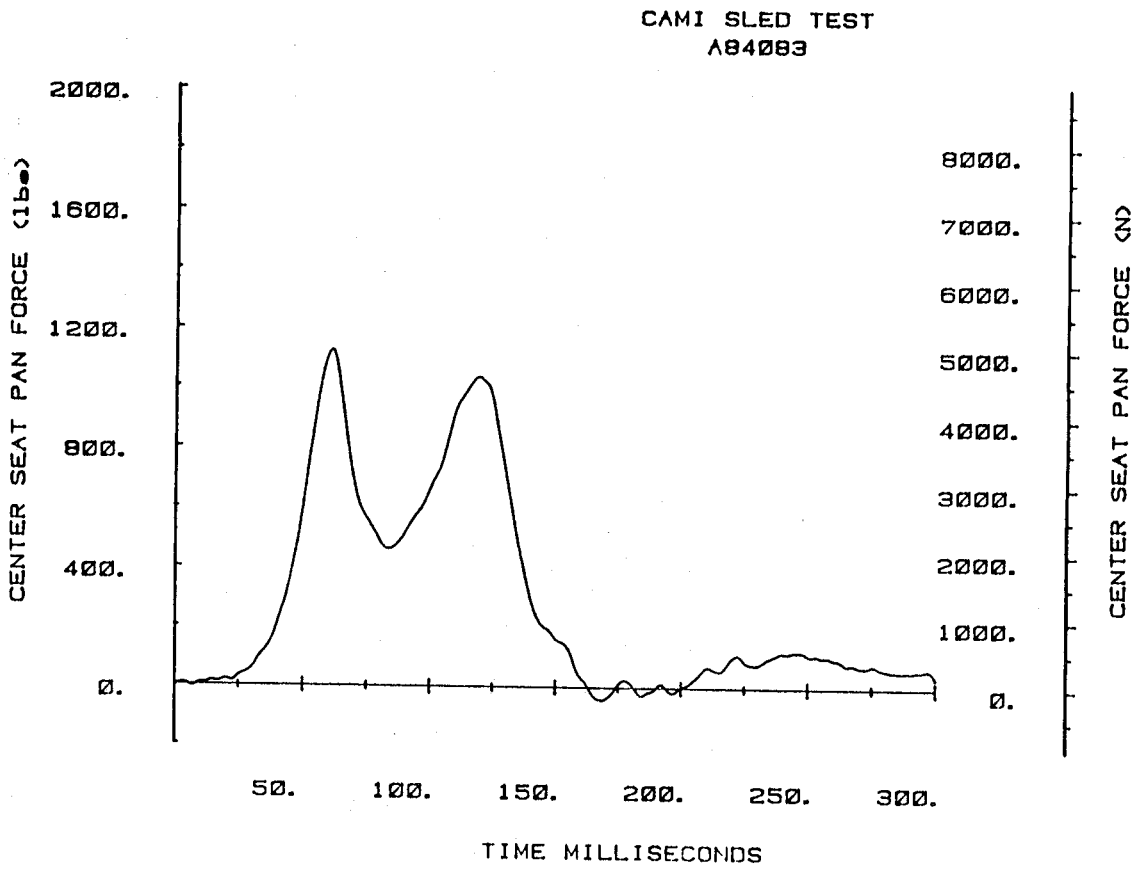

CAMI SLED TEST
A84083
RIGHT SHOULDER FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT SHOULDER FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

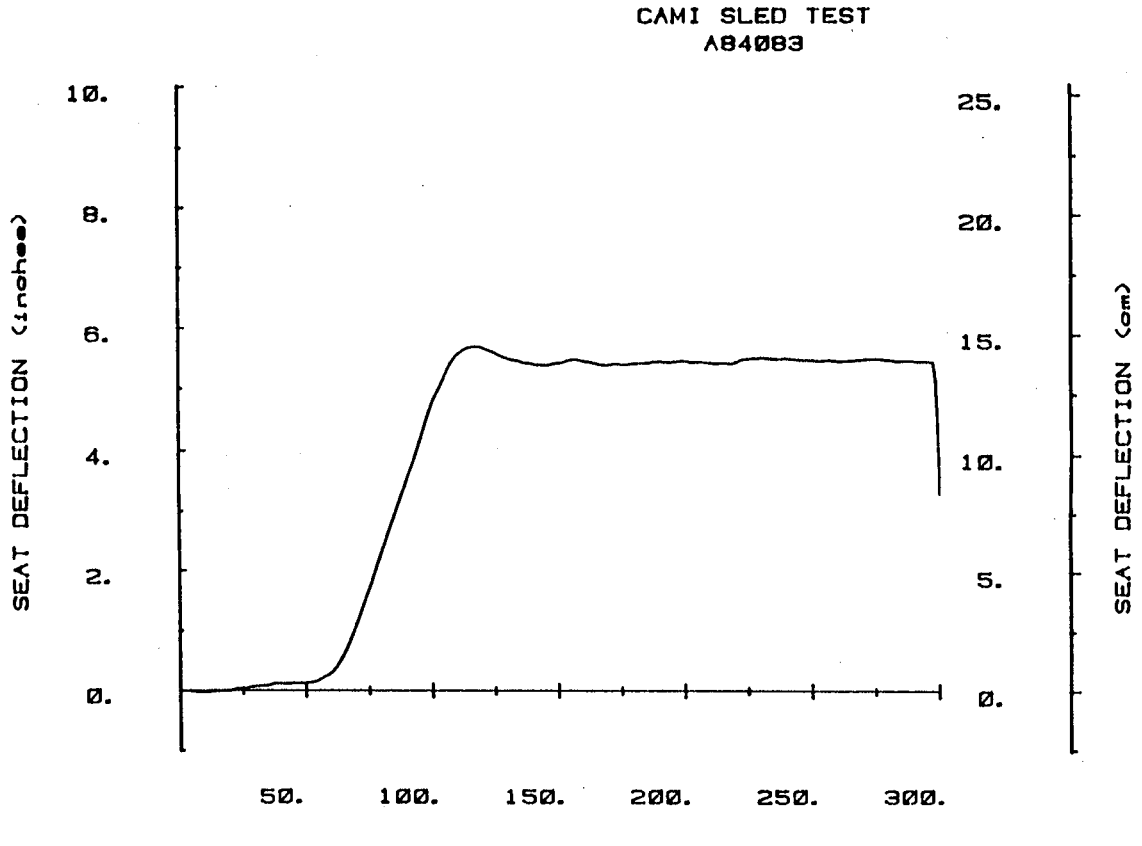

CAMI SLED TEST
A84083
LEFT REFLECTIVE STRAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
LEFT REFLECTIVE STRAP FORCE (N)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

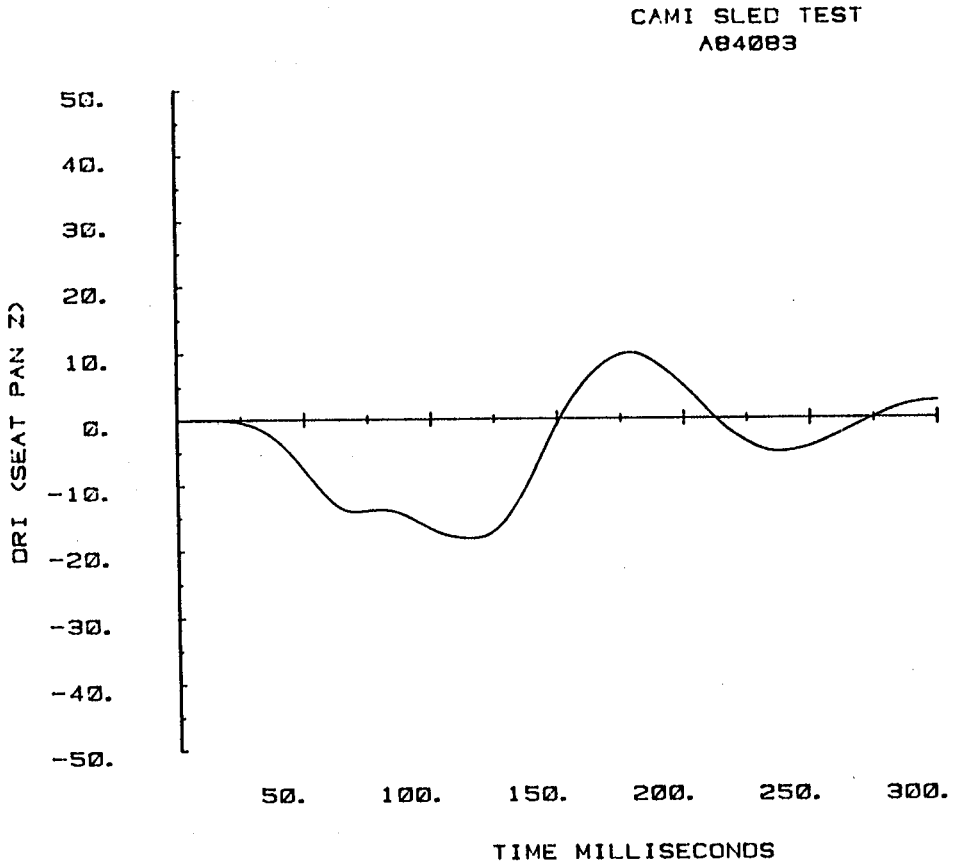

CAMI SLED TEST
A84083
RIGHT REFLECTIVE STRAP FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
RIGHT REFLECTIVE STRAP FORCE (N)
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

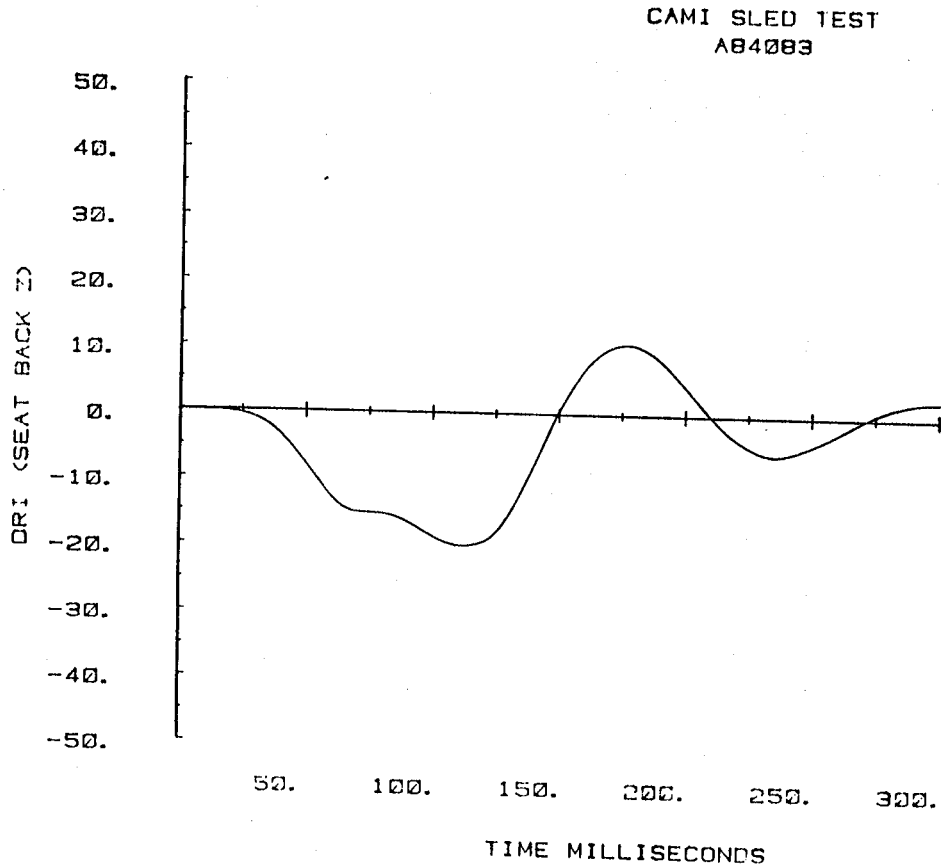

CAMI SLED TEST
A84083
LEFT SEAT PAN FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
LEFT SEAT PAN FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS

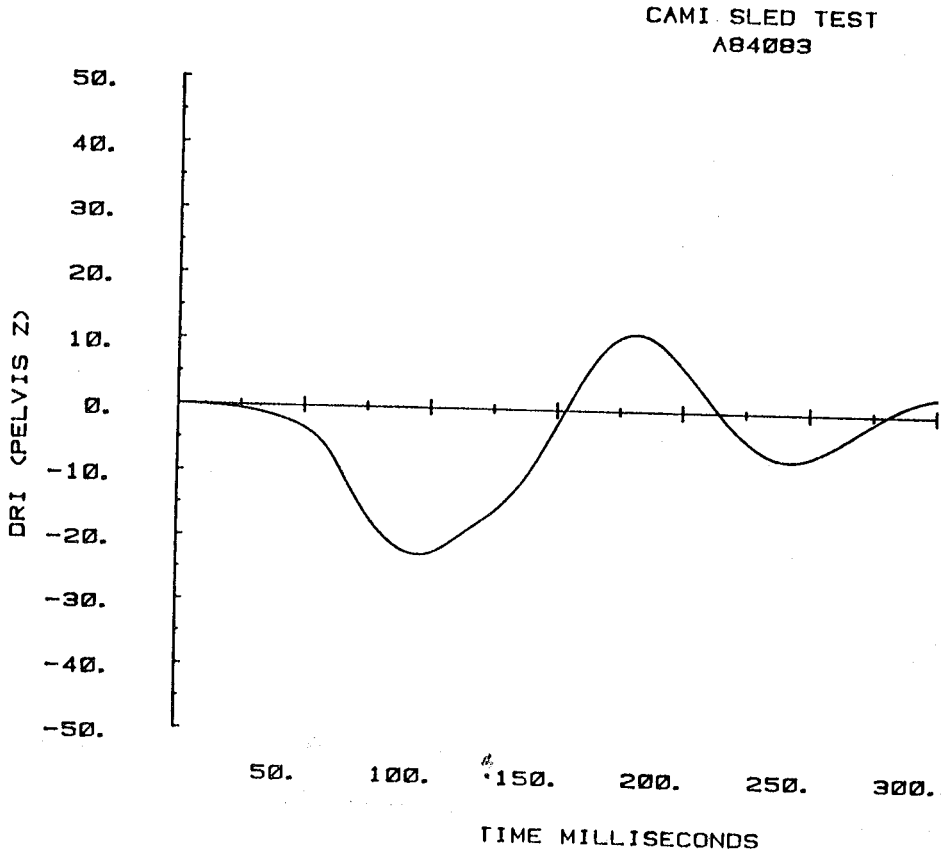

CAMI SLED TEST
A84083
RIGHT SEAT PAN FORCE (lbs)
2000.
1600.
1200.
800.
400.
0.
RIGHT SEAT PAN FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A84083
CENTER SEAT PAN FORCE (lb)
2000.
1600.
1200.
800.
400.
0.
CENTER SEAT PAN FORCE (N)
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A84083
SEAT DEFLECTION (inches)
10.
8.
6.
4.
2.
0.
SEAT DEFLECTION (cm)
25.
20.
15.
10.
5.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS


CAMI SLED TEST
A84083
DRI (SEAT PAN Z)
50.
40.
30.
20.
10.
0.
-10.
-20.
-30.
-40.
-50.
50.
100.
150.
200.
250.
300.
TIME MILLISECONDS





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16. Abstract

Over the past years, several papers and reports have documented the unacceptably high injury rate during the escape sequence (including the ejection and ground impact) of the crew module for F/FB-111 aircraft. This report documents a program to determine if the injury potential could be reduced by replacing the existing crewseats with energy-absorbing crewseats. An energy-absorbing test seat was designed using much of the existing seat hardware. An extensive dynamic seat test series, designed to duplicate various crew module ground impact conditions, was conducted at a sled test facility. Comparative tests with operational F-111 crewseats were also conducted. After successful dynamic testing of the seat, more testing was conducted with the seats mounted in an F-111 crew module. Both swing tests and vertical drop tests were conducted. The vertical drop tests were used to obtain comparative data between the energy-absorbing and operational seats. Volume I describes the energy-absorbing test seat and testing conducted, and evaluates the data from both test series. Volume II presents the data obtained during the seat test series, while Volume III presents the data from the crew module test series.

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