

NASA Contractor Report 3917

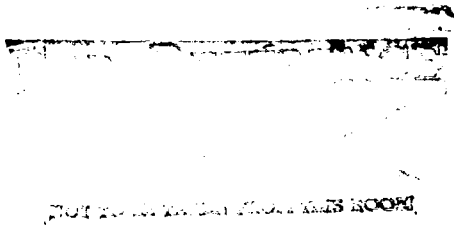
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# Design and Testing of an Energy-Absorbing Crewseat for the F/FB-111 Aircraft

*Volume II—Data From Seat Testing*

S. Joseph Shane

CONTRACT NAS1-17387  
SEPTEMBER 1985



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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

**NASA**

National Aeronautics  
and Space Administration

**Scientific and Technical  
Information Branch**

**1985**



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*(Handwritten marks)*



## 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.

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TABLE 1. RECORDED DATA FROM CAMI SEAT TESTING

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| <u>Description of Data<br/>(Number of Channels)</u> | <u>Filter Class*</u> |
|---|----------------------|
| 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)                          | -                    |

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\* Filters per SAE Recommended Practice J211b.

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2.0 CAMI TEST NO. A83-101

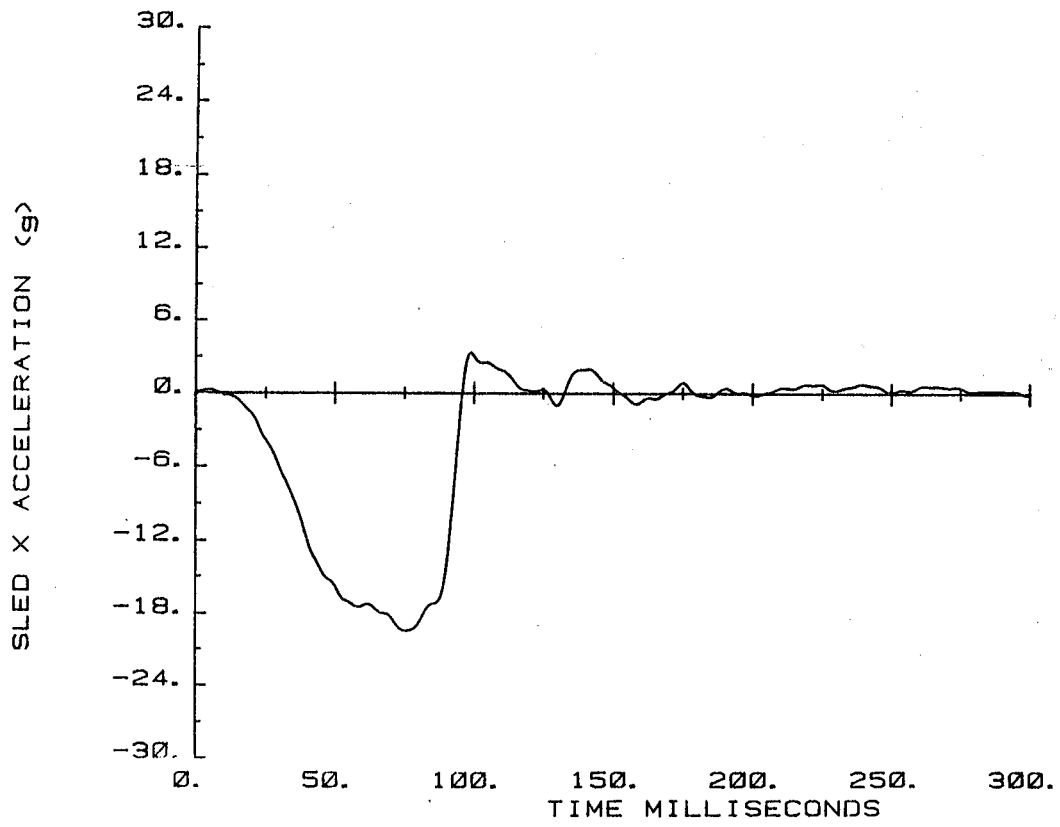
SEAT: Energy Absorbing

PULSE NUMBER: 1

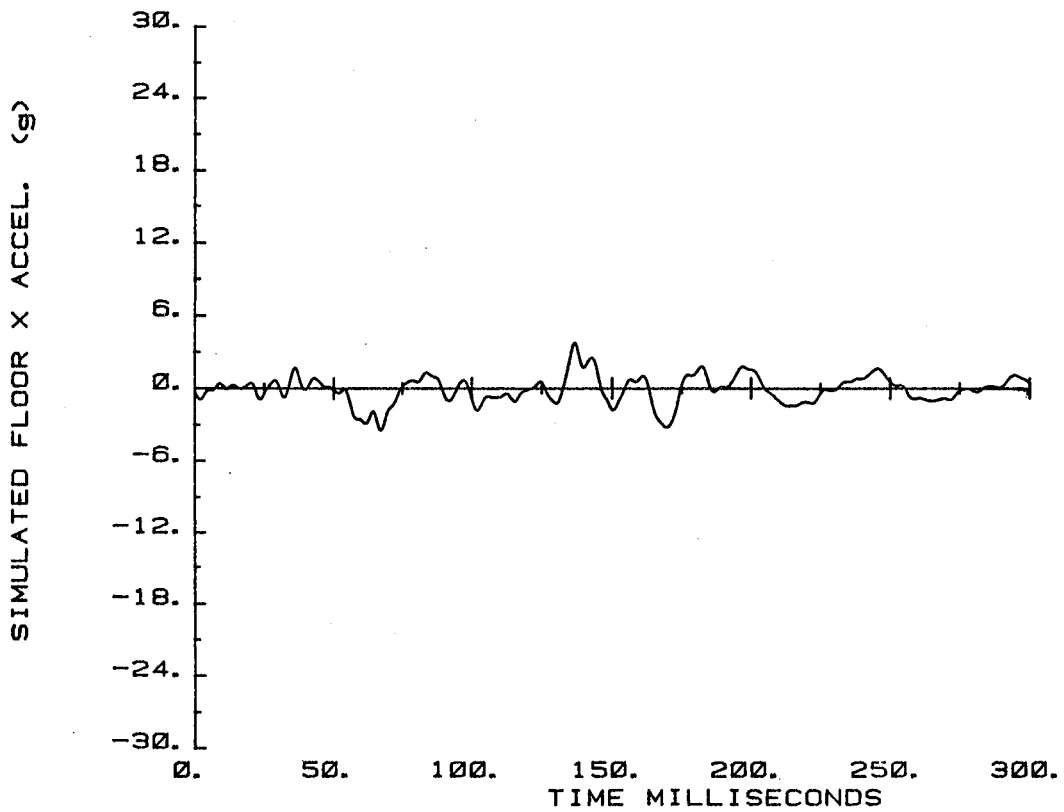
SEAT ORIENTATION: Pitch - 90°  
Roll - 0°  
Yaw - 0°

| 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    |        |                    |                    |

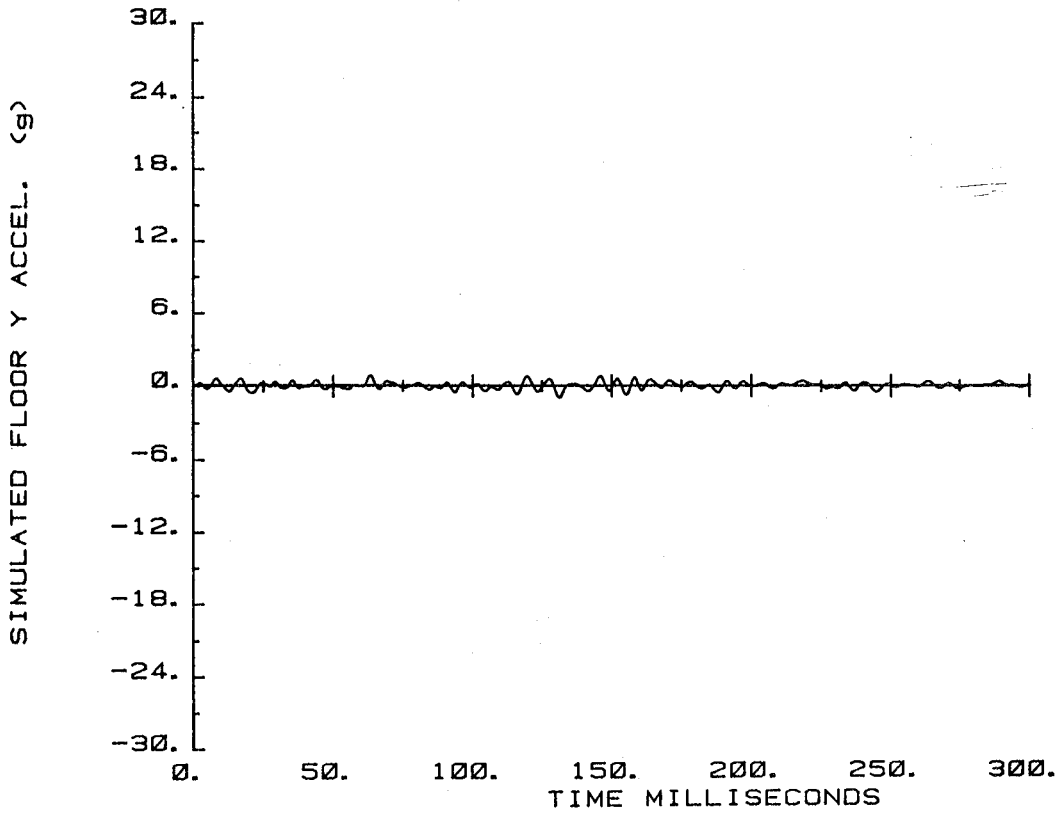
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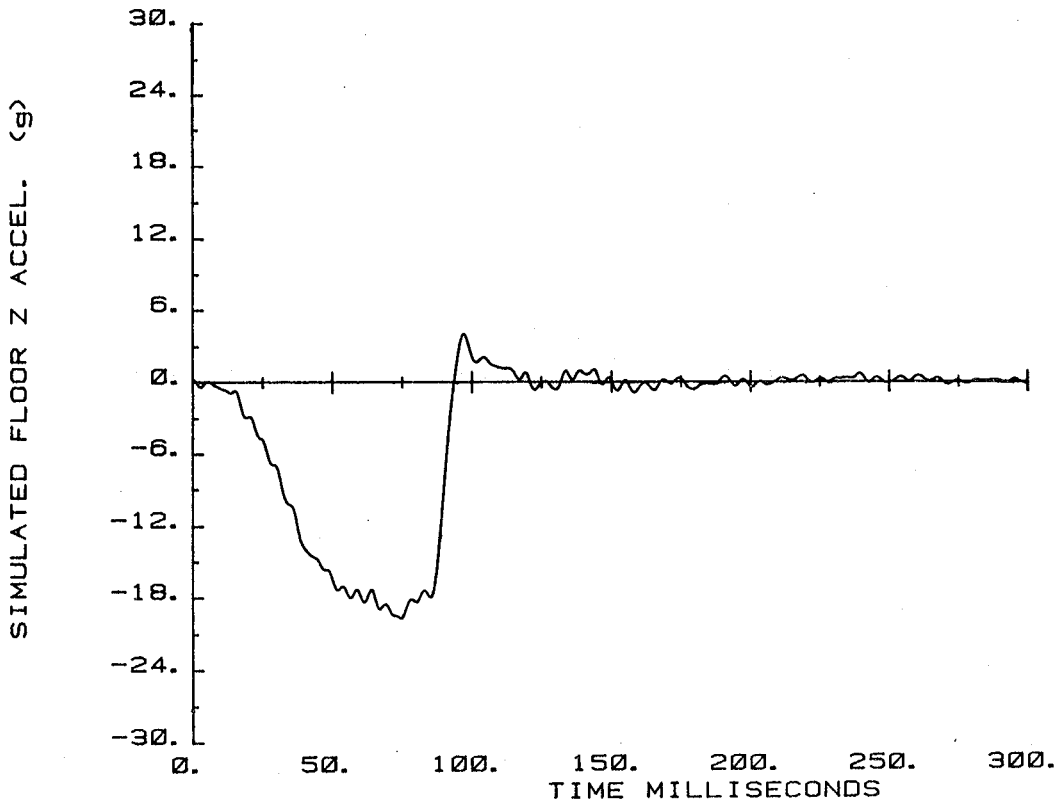
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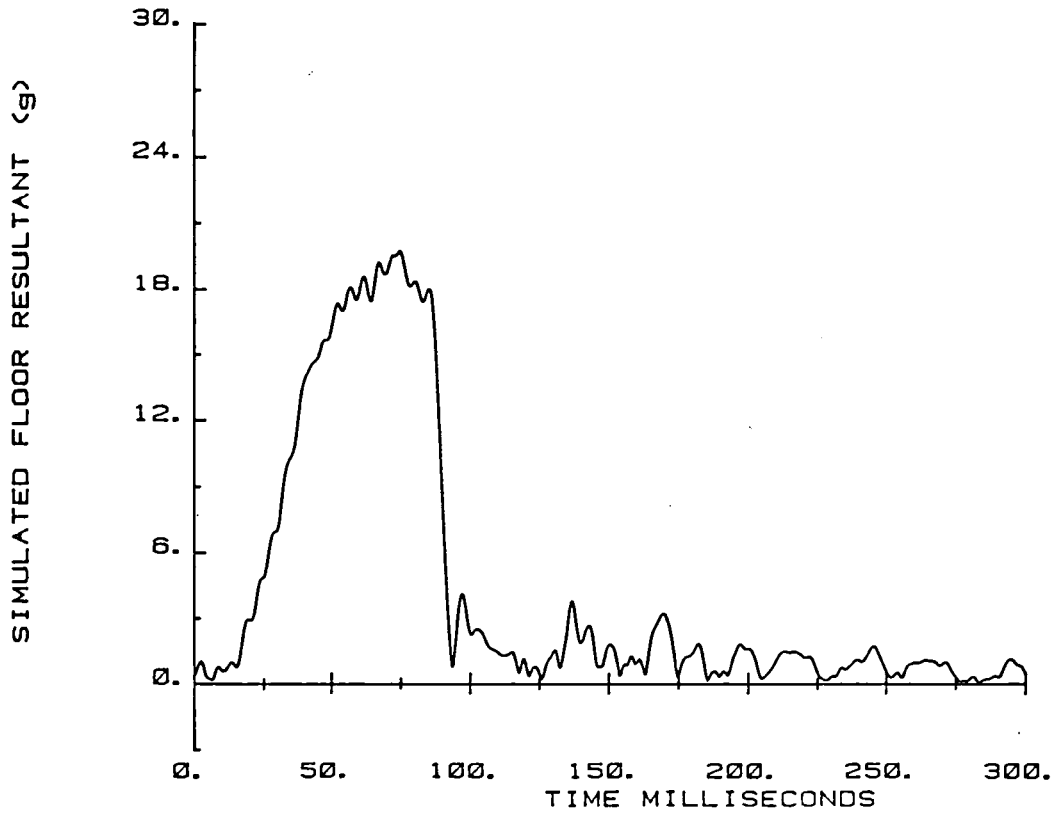
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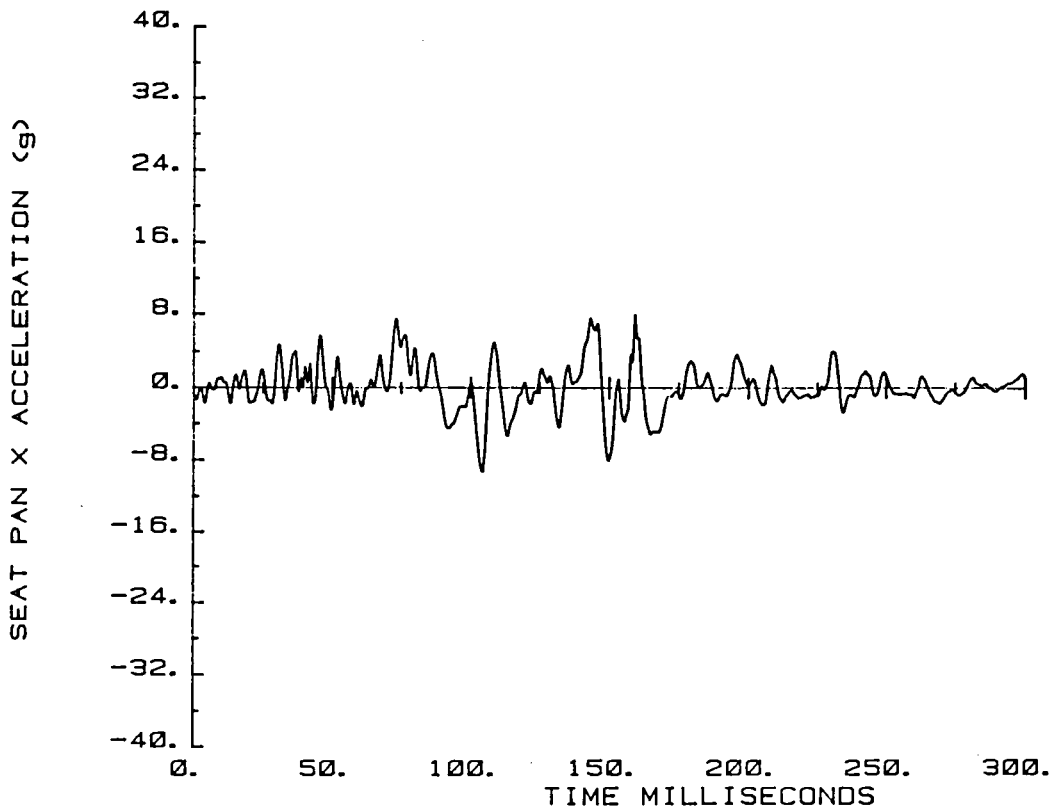
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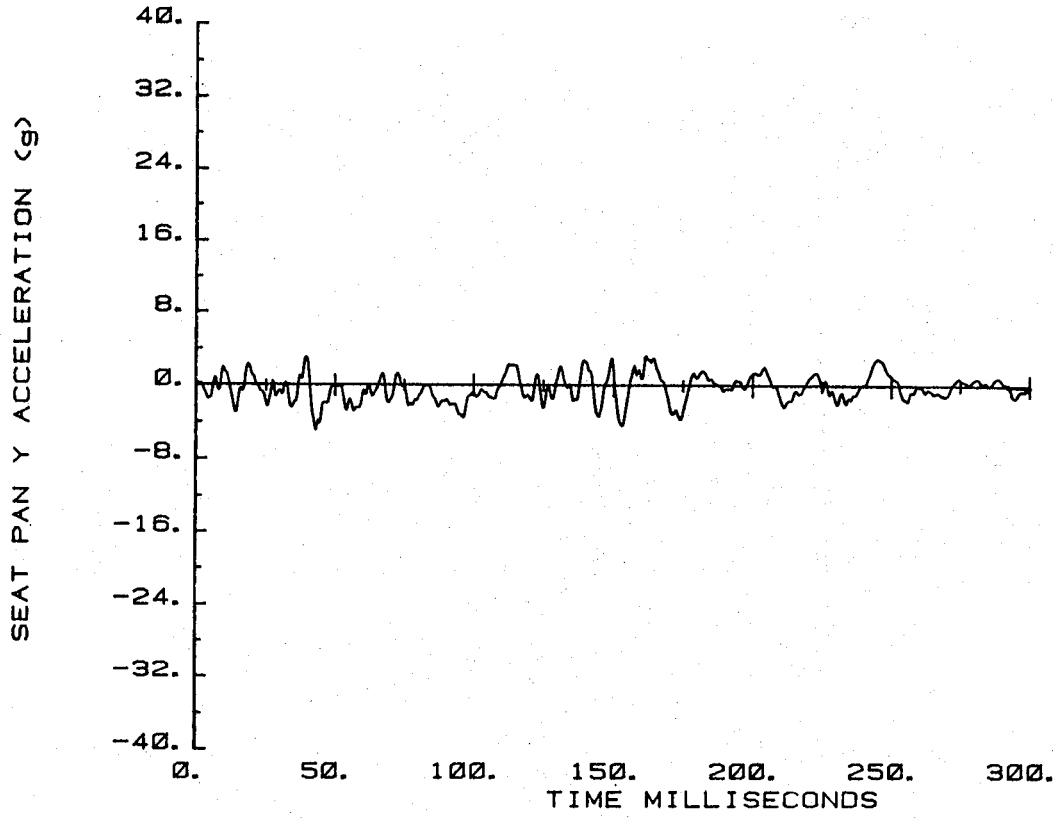
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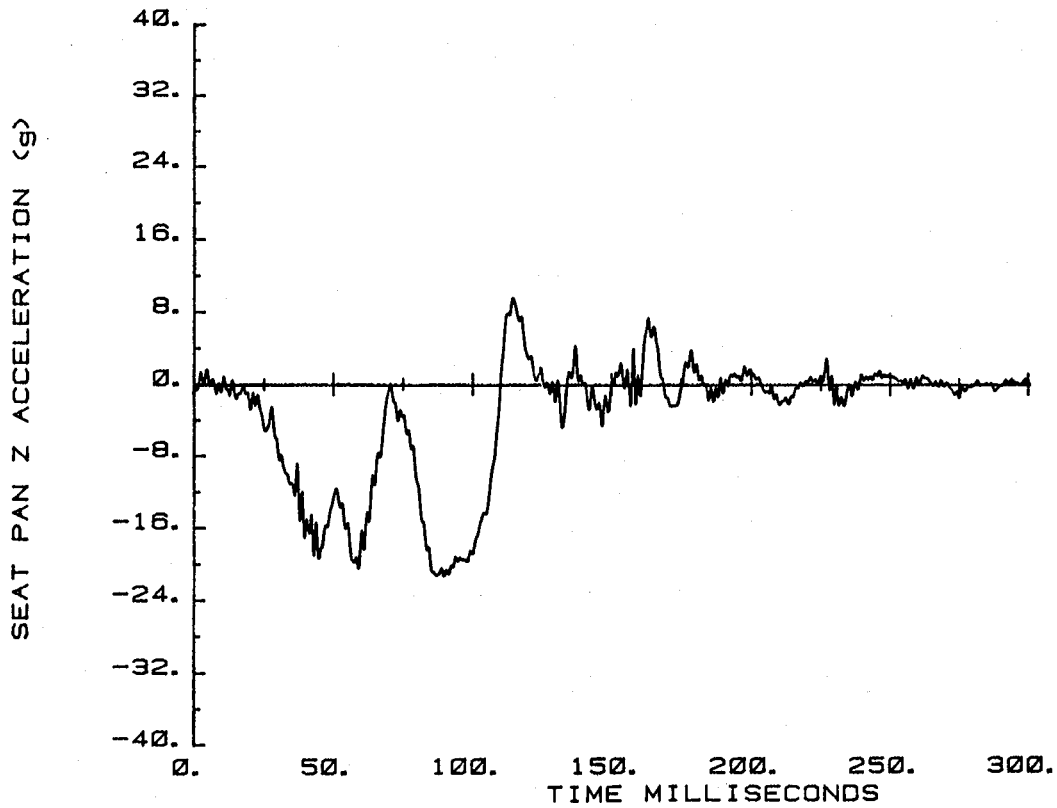
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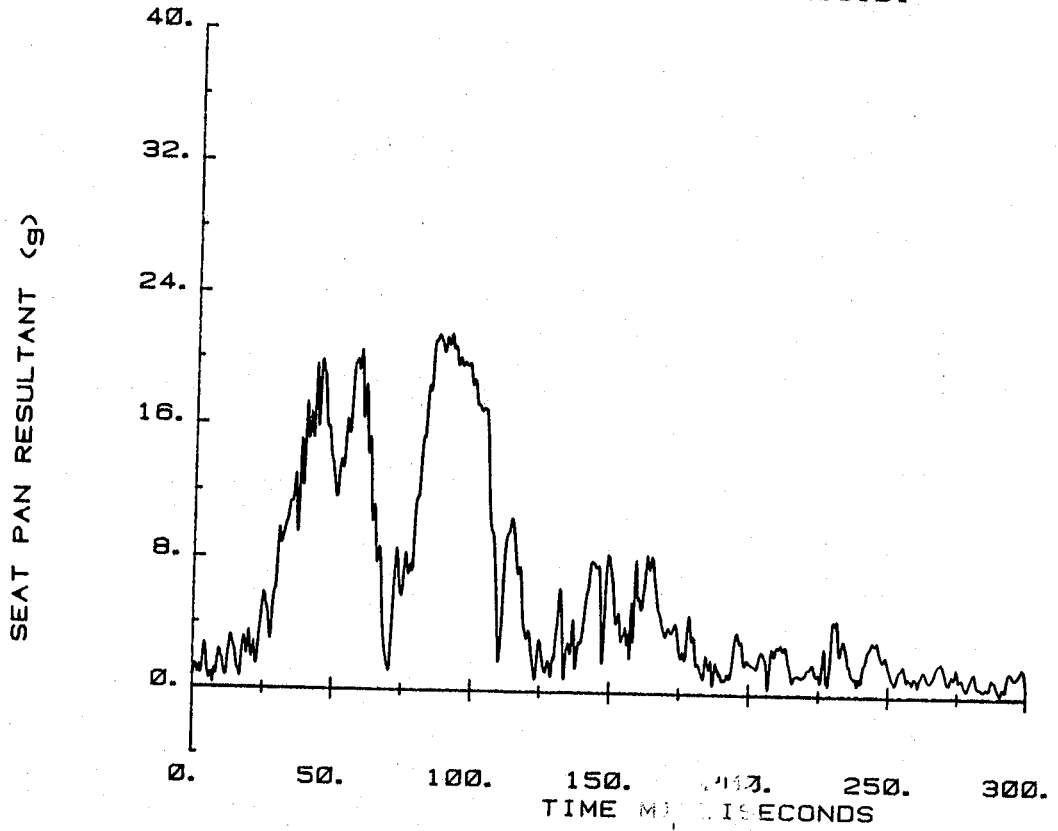
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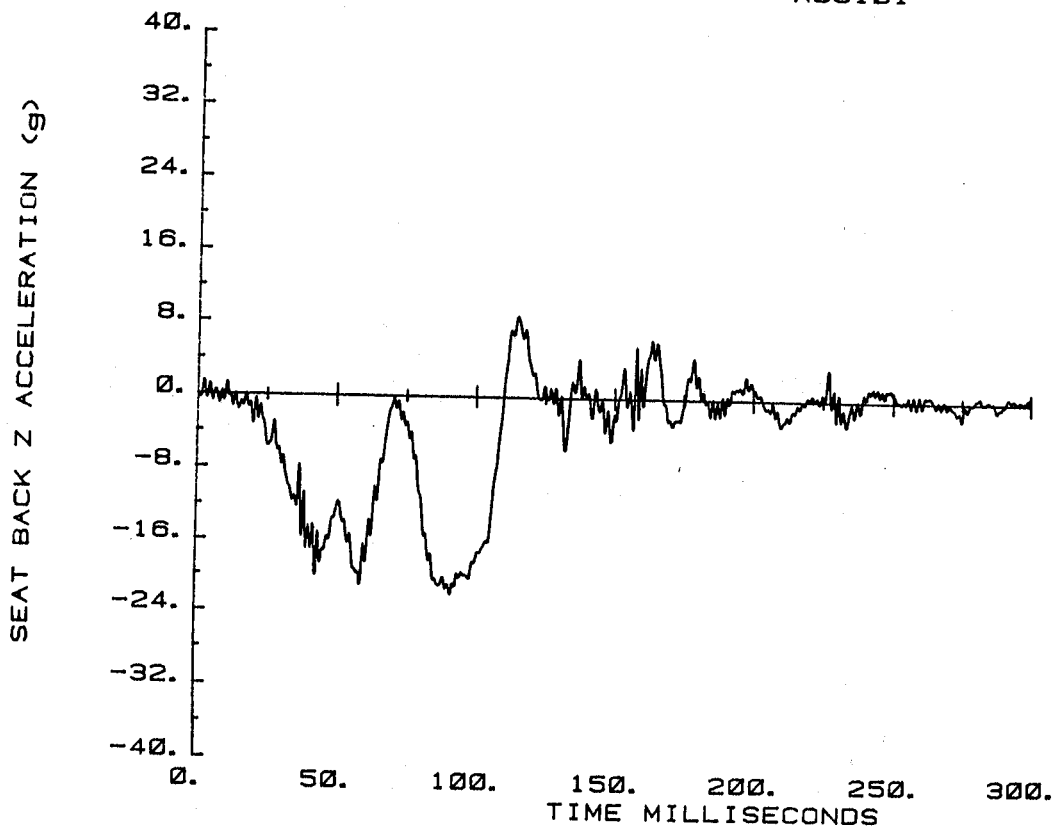
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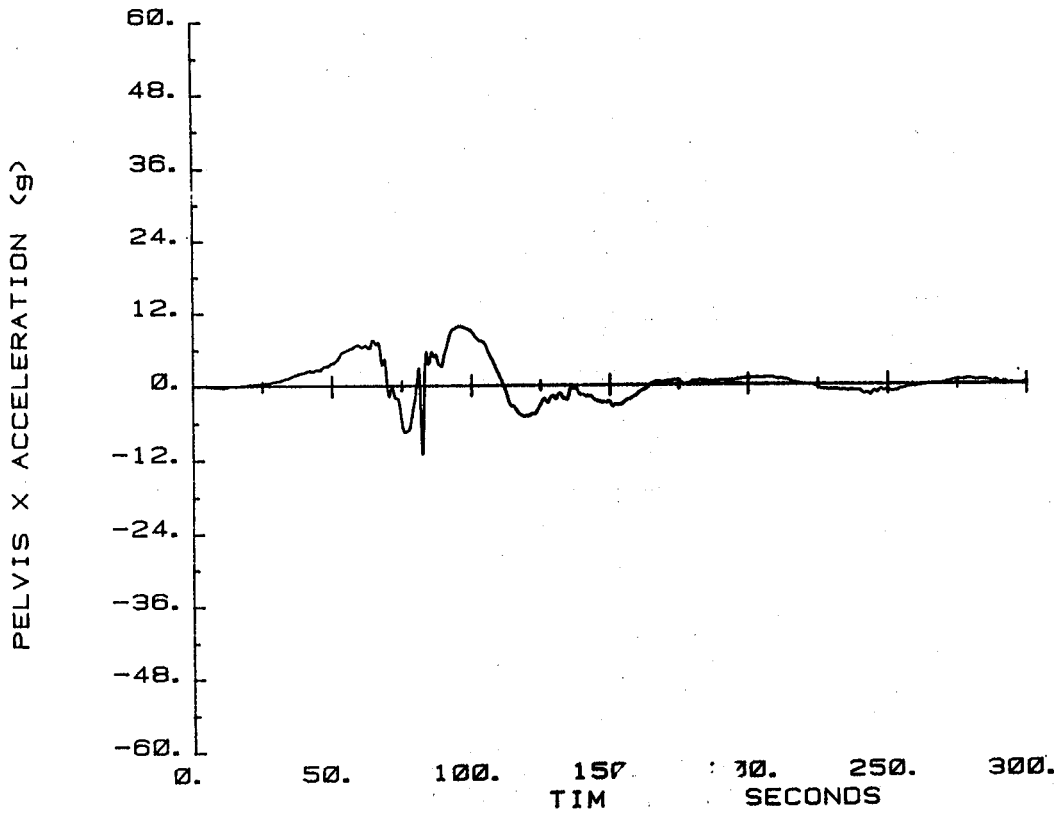
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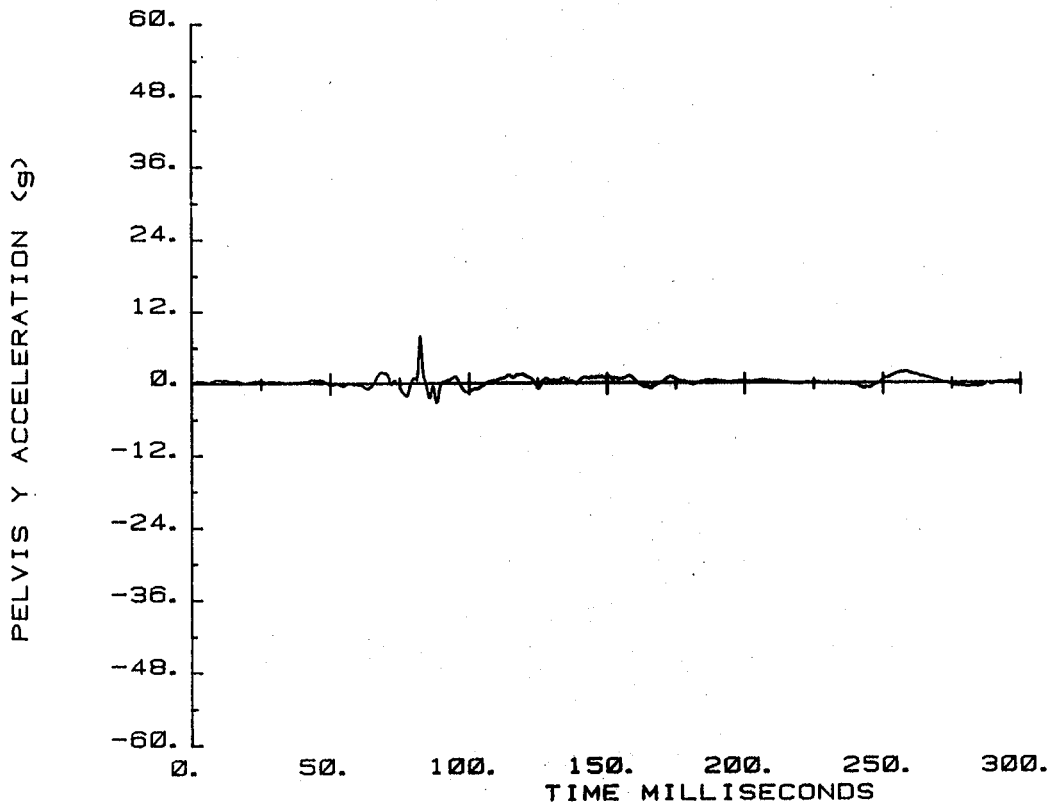
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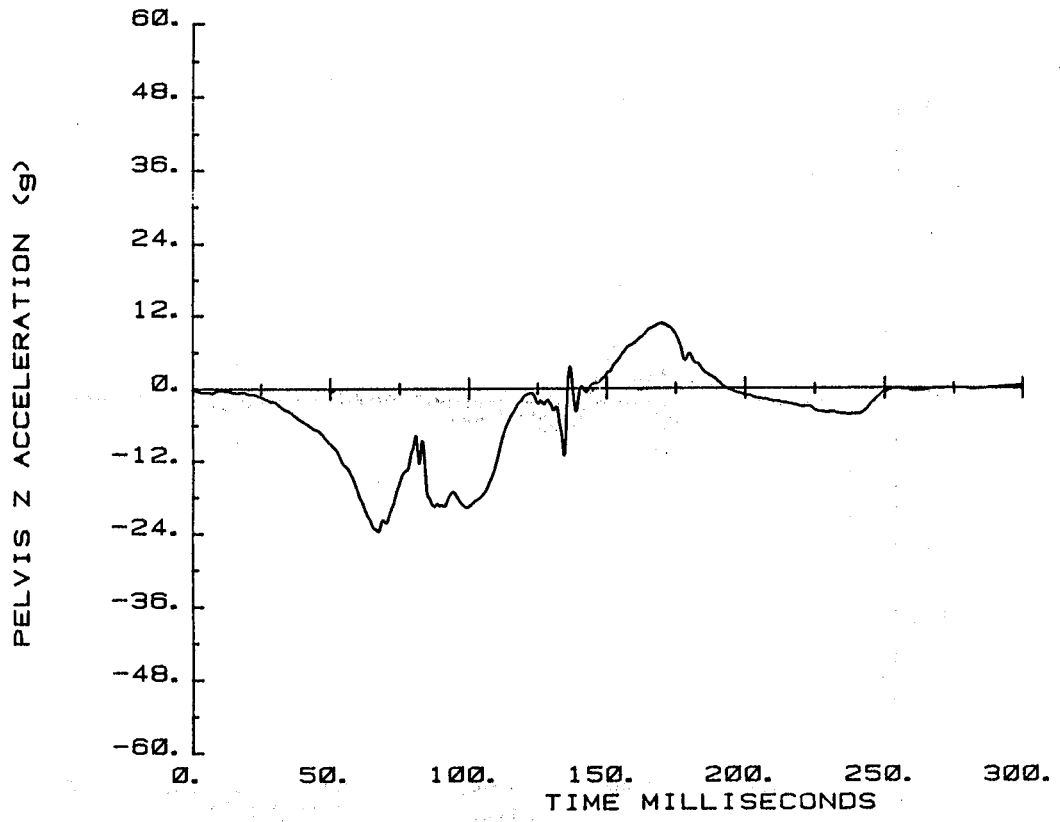


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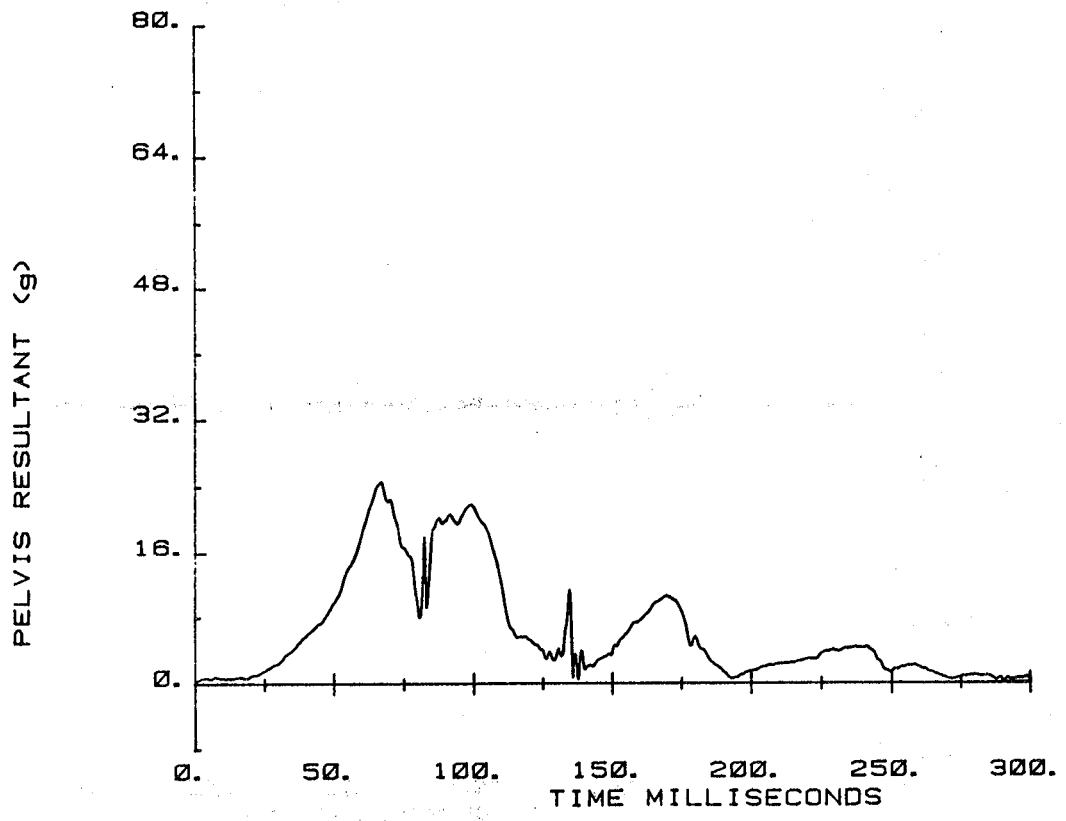




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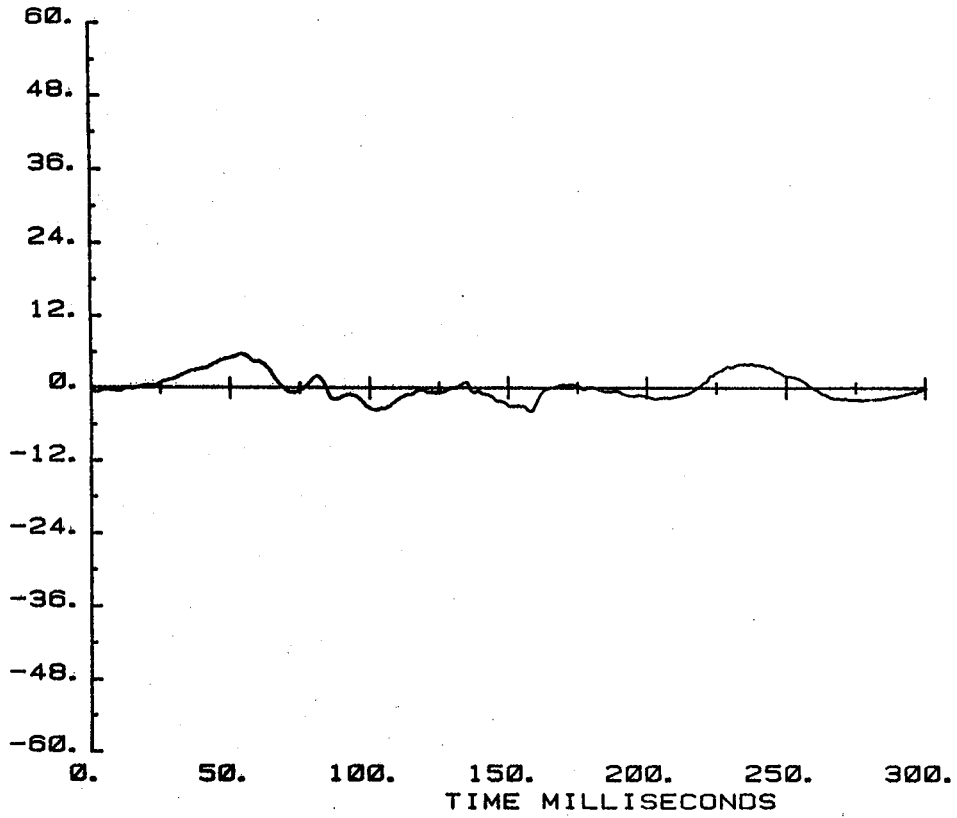


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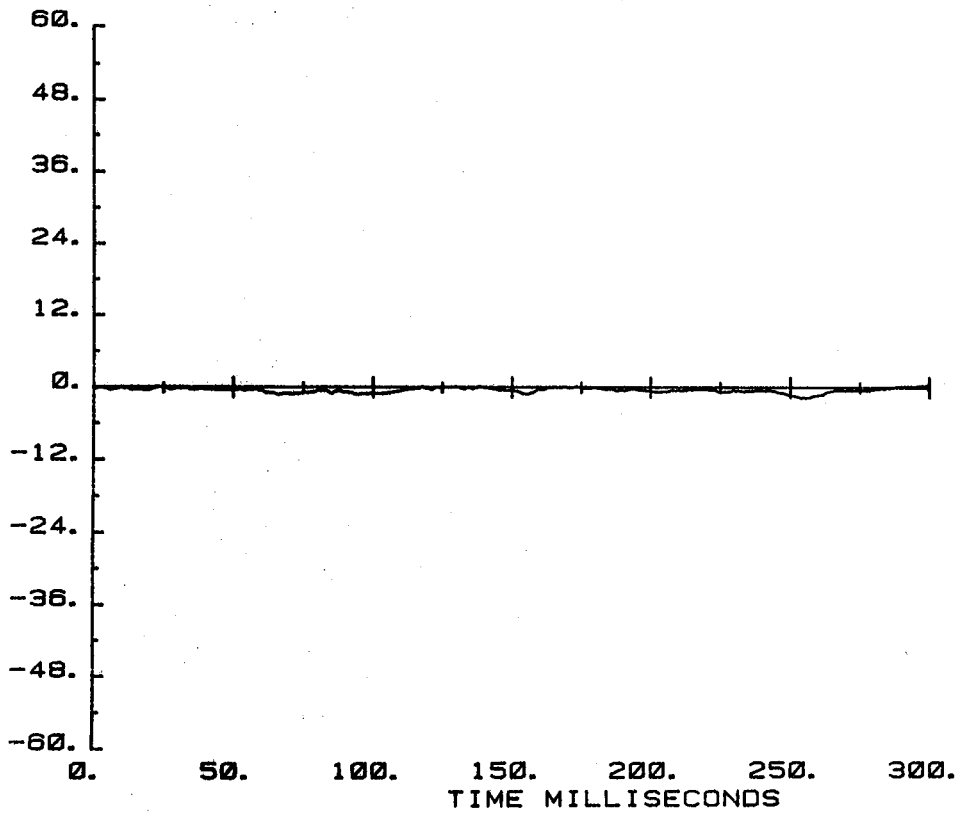
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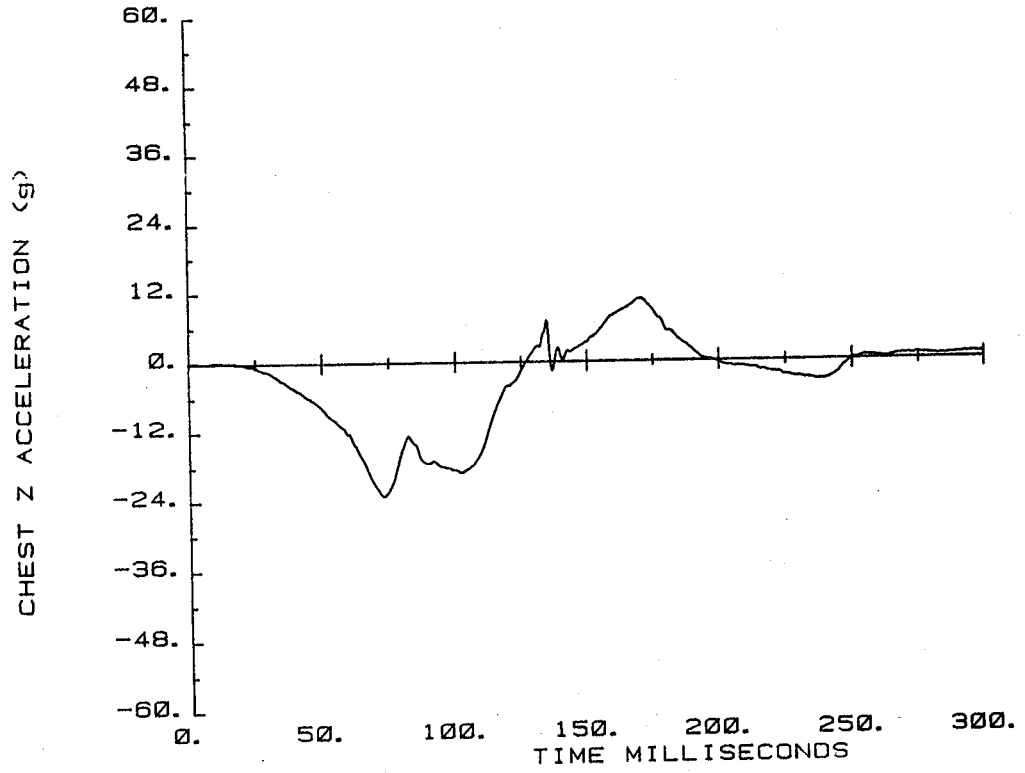


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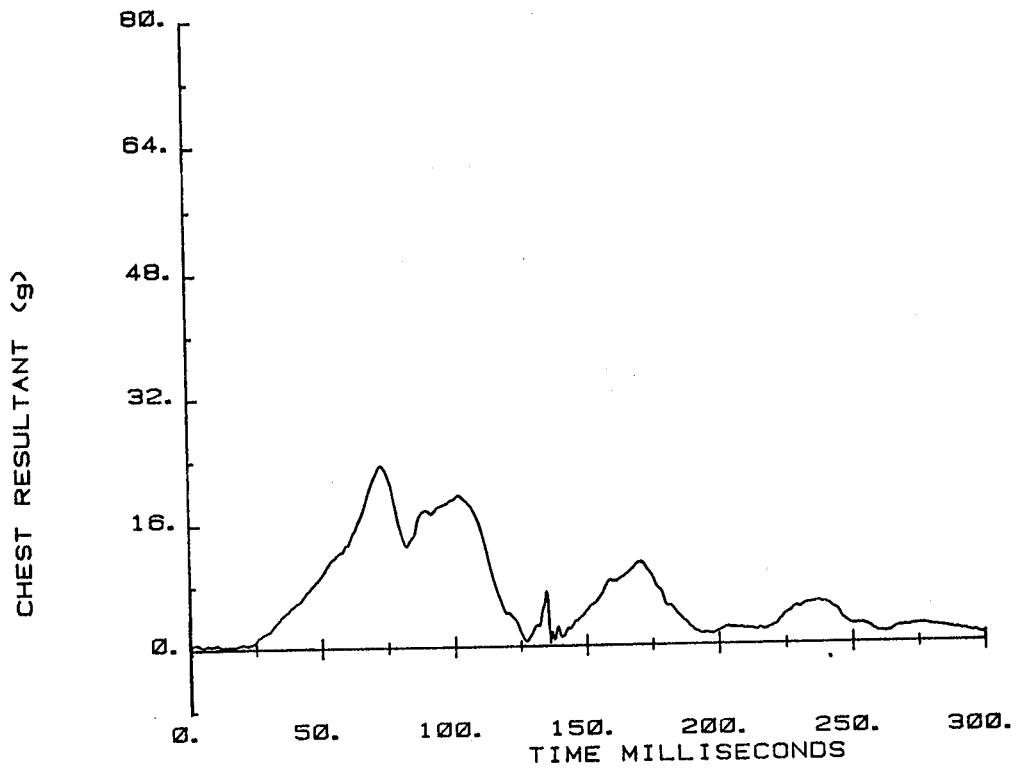
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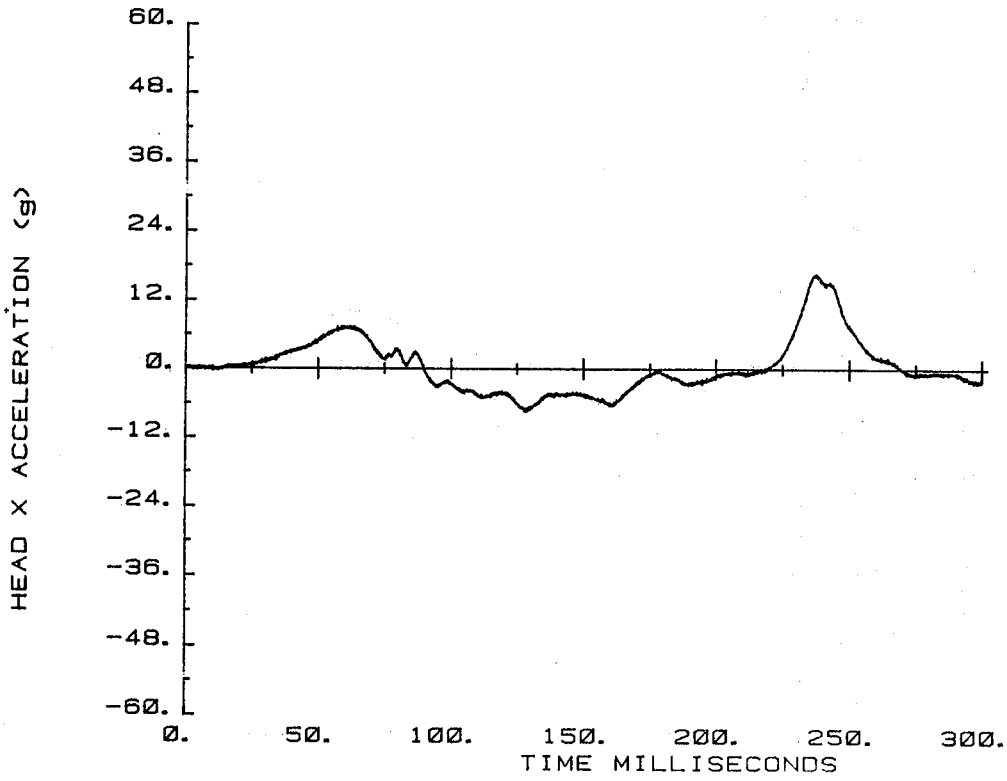
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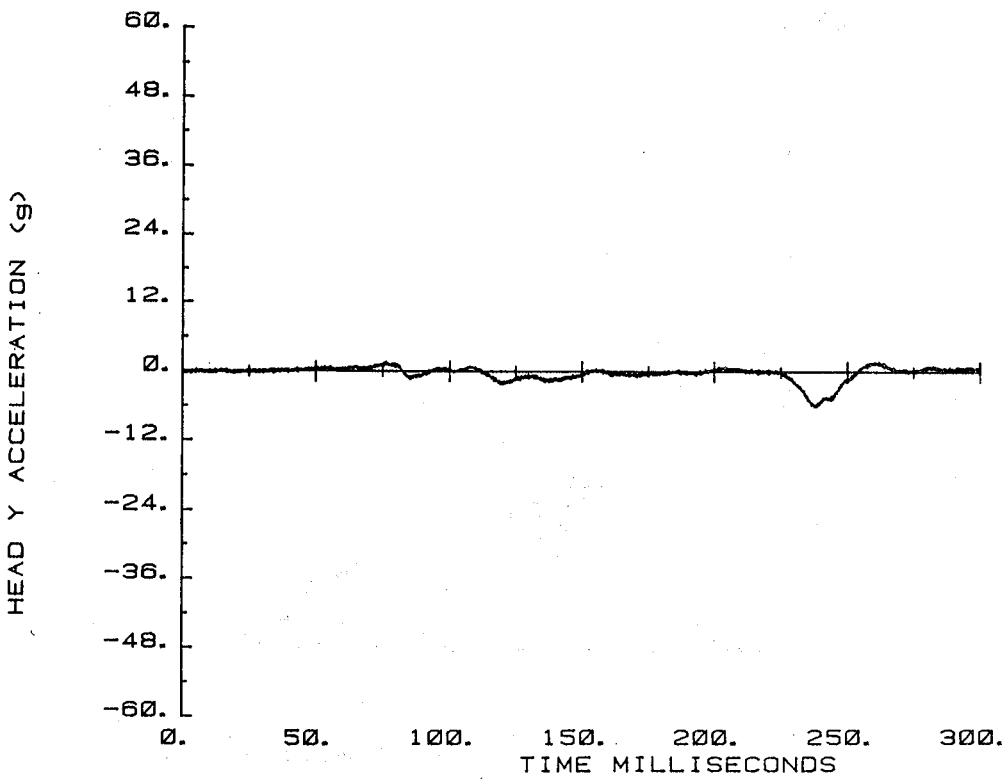
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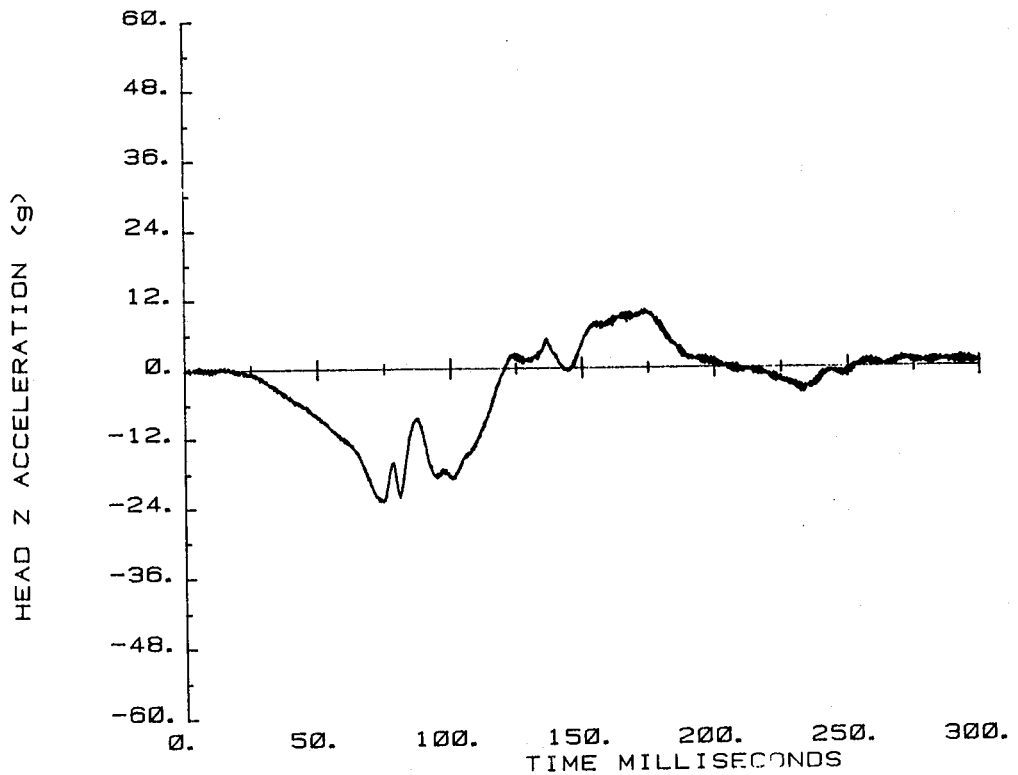
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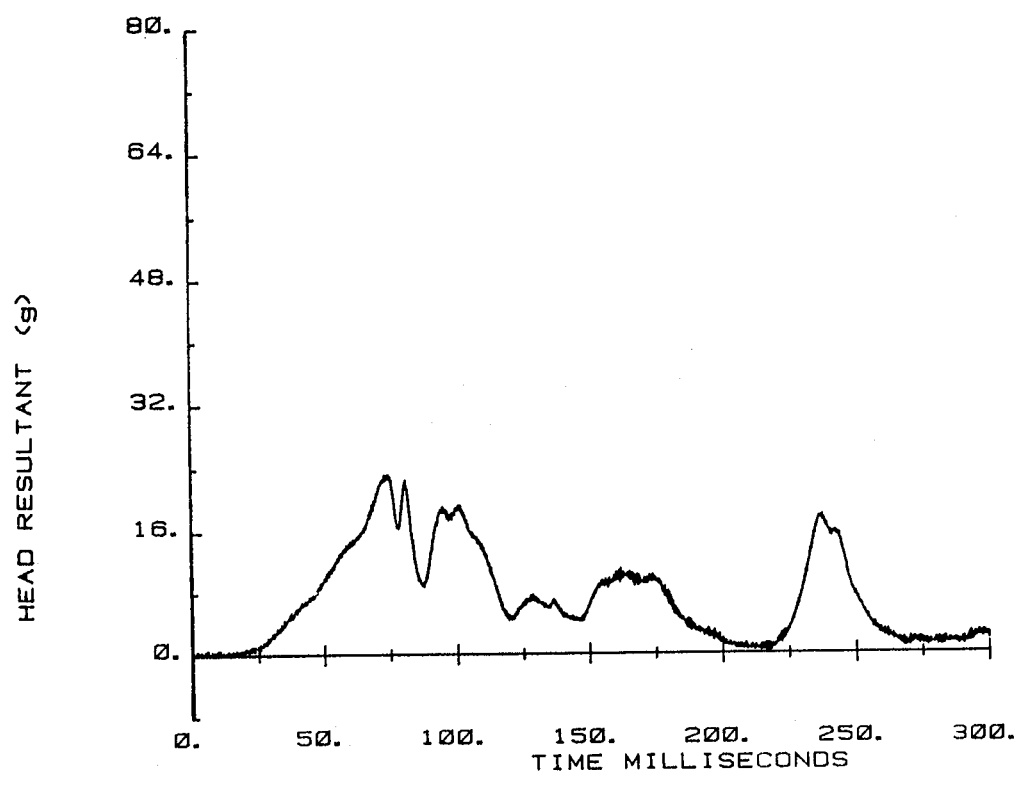
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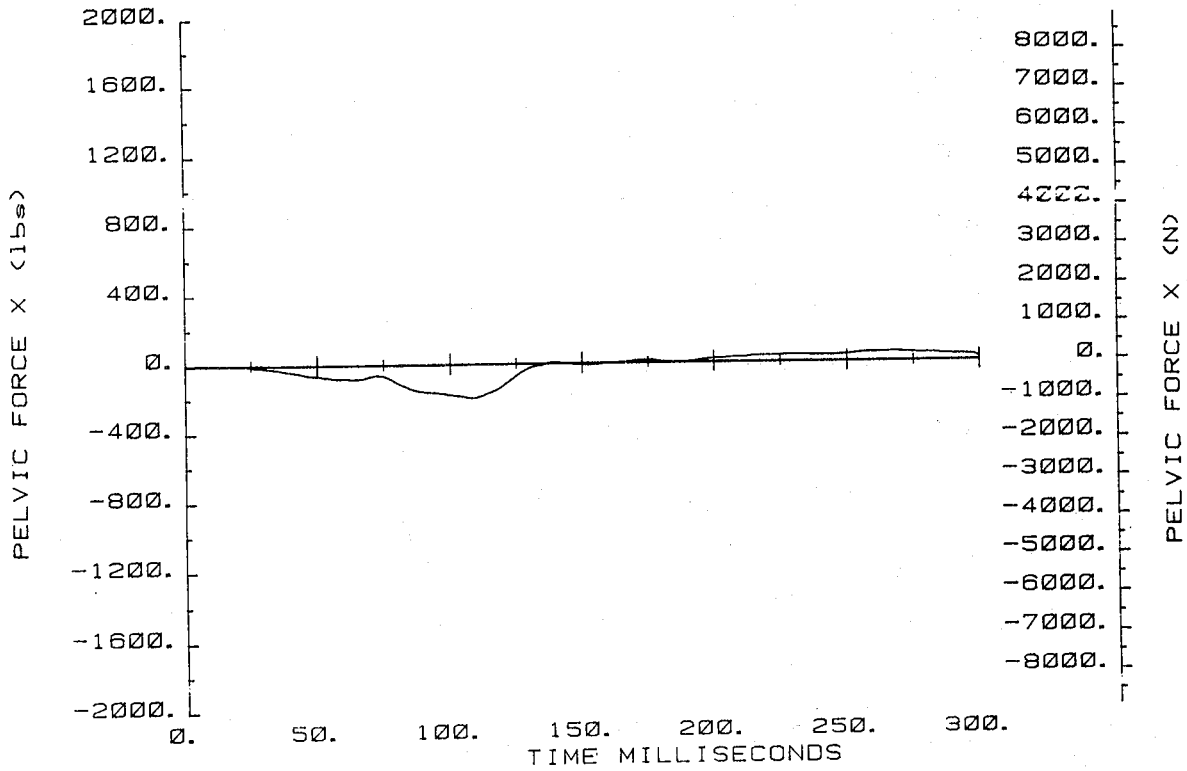
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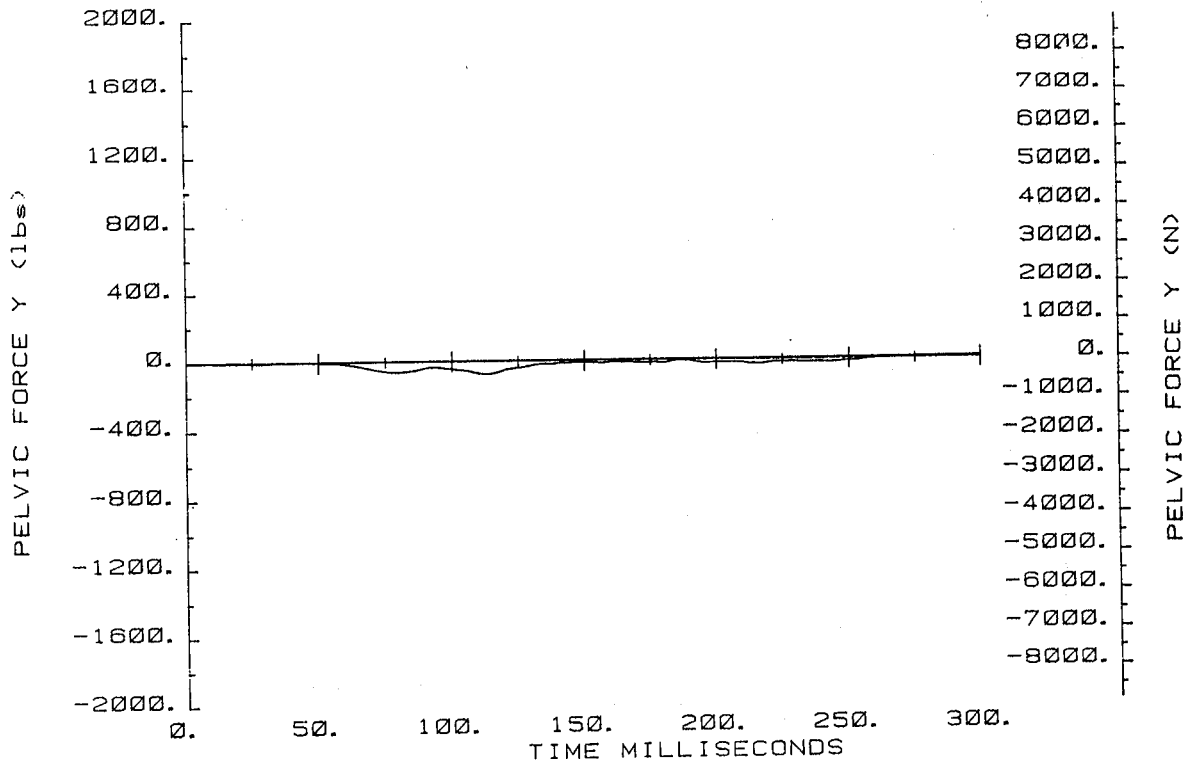
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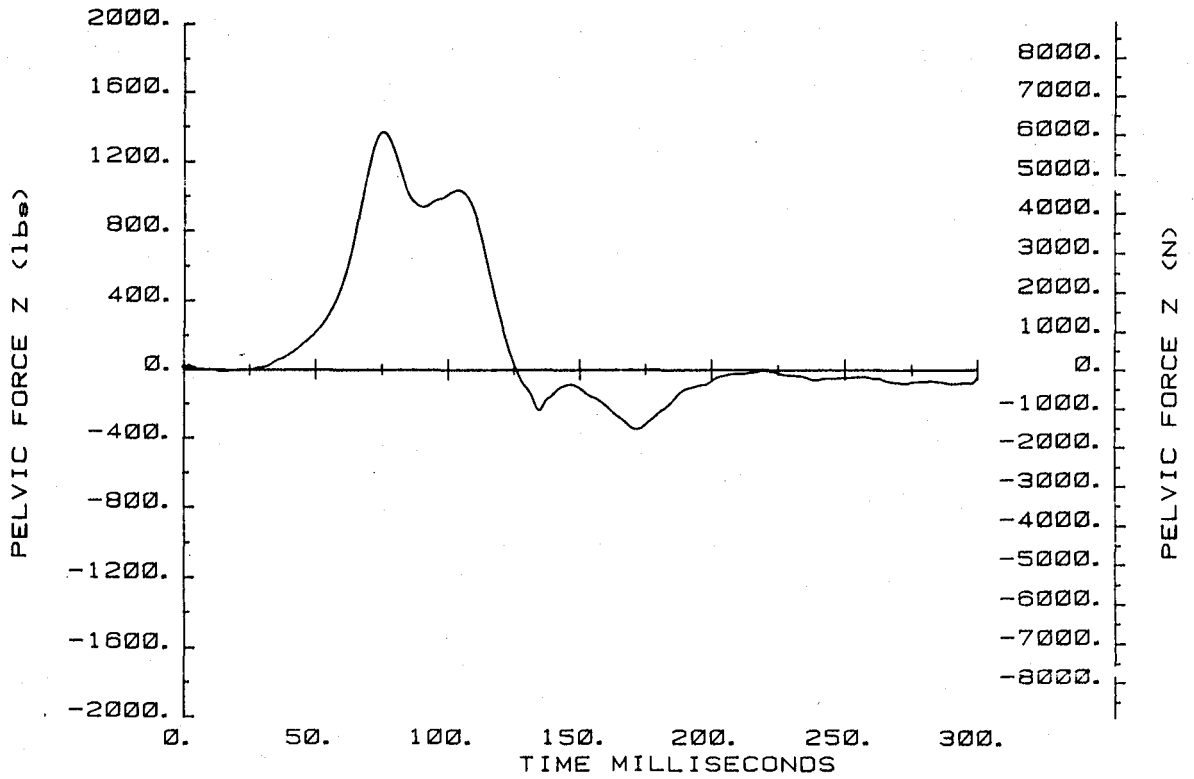
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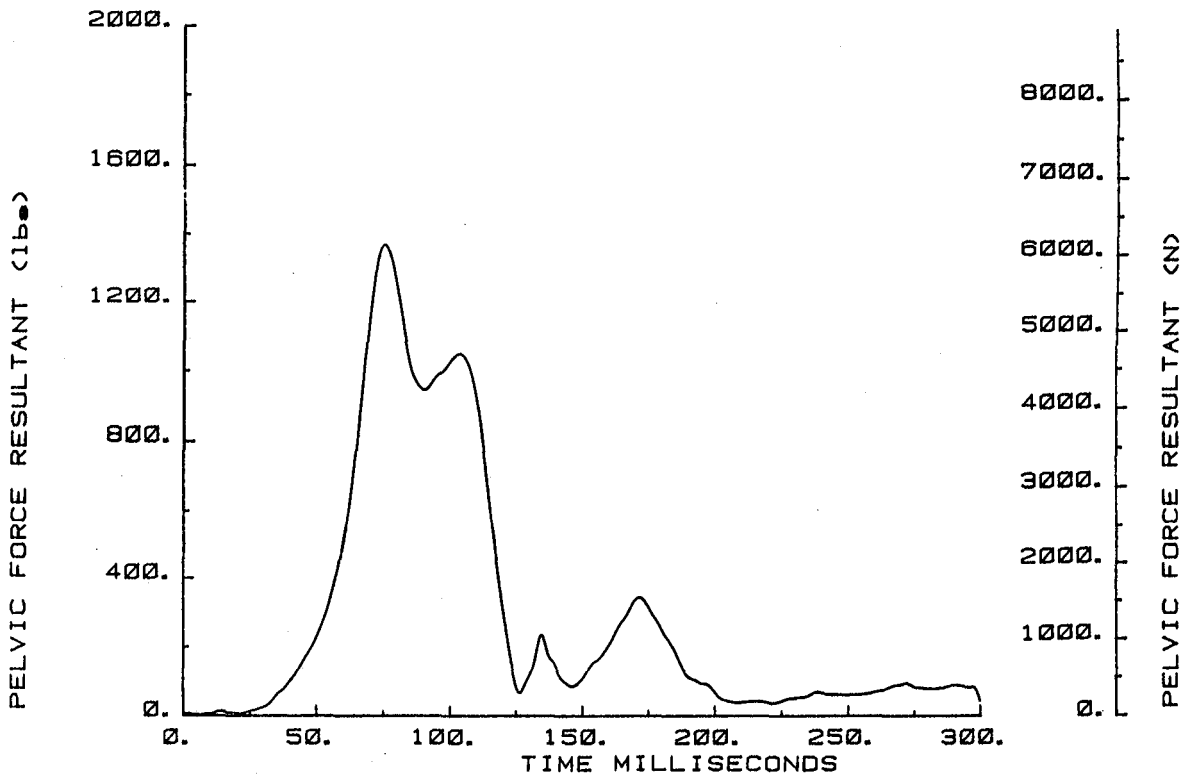
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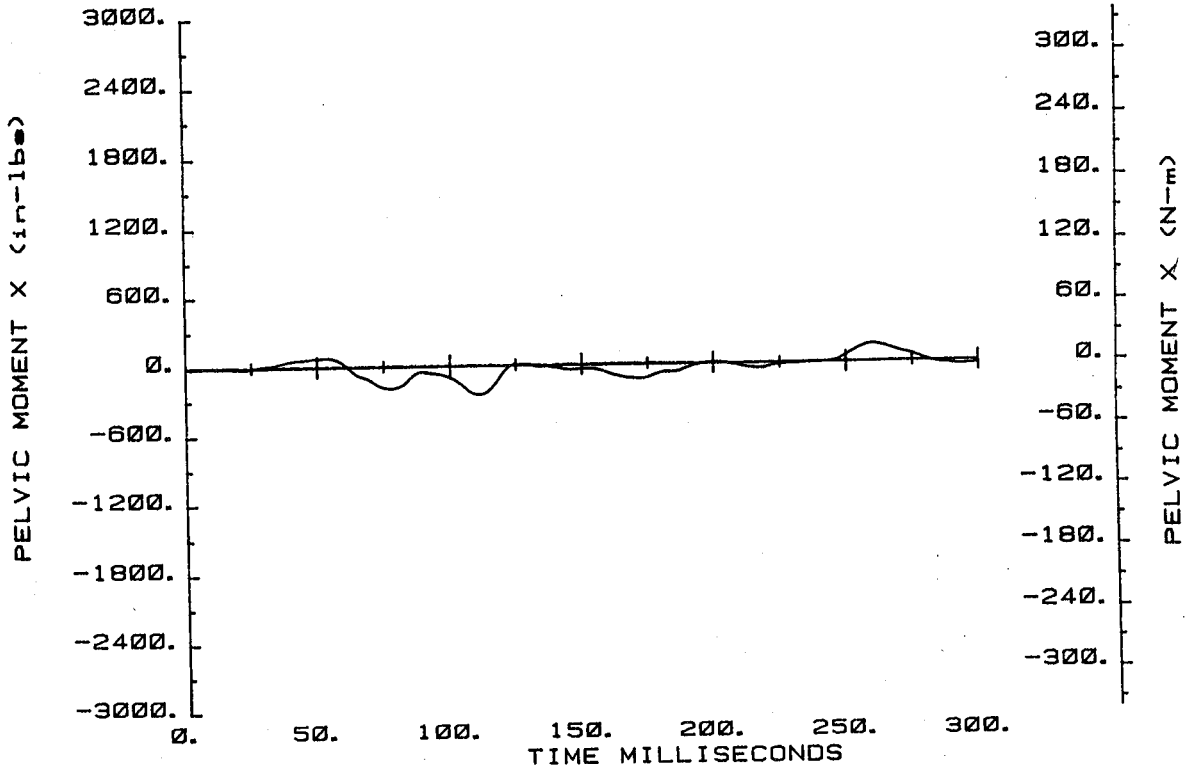
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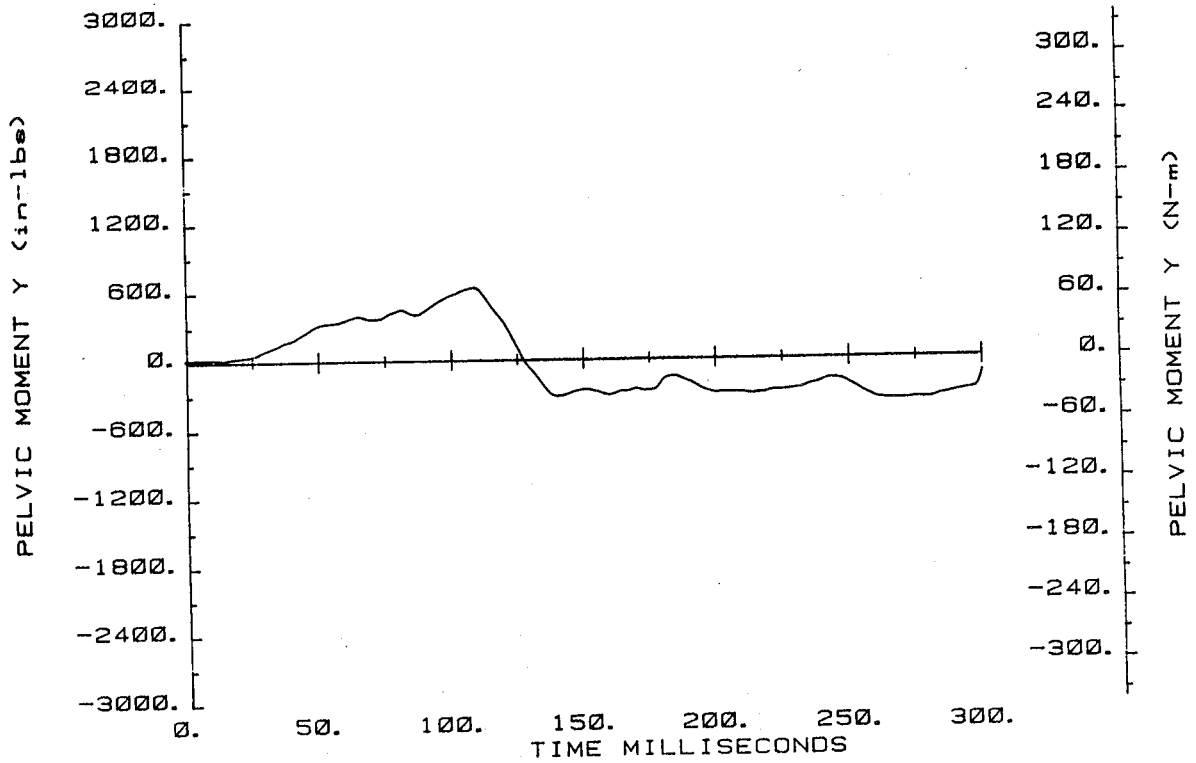
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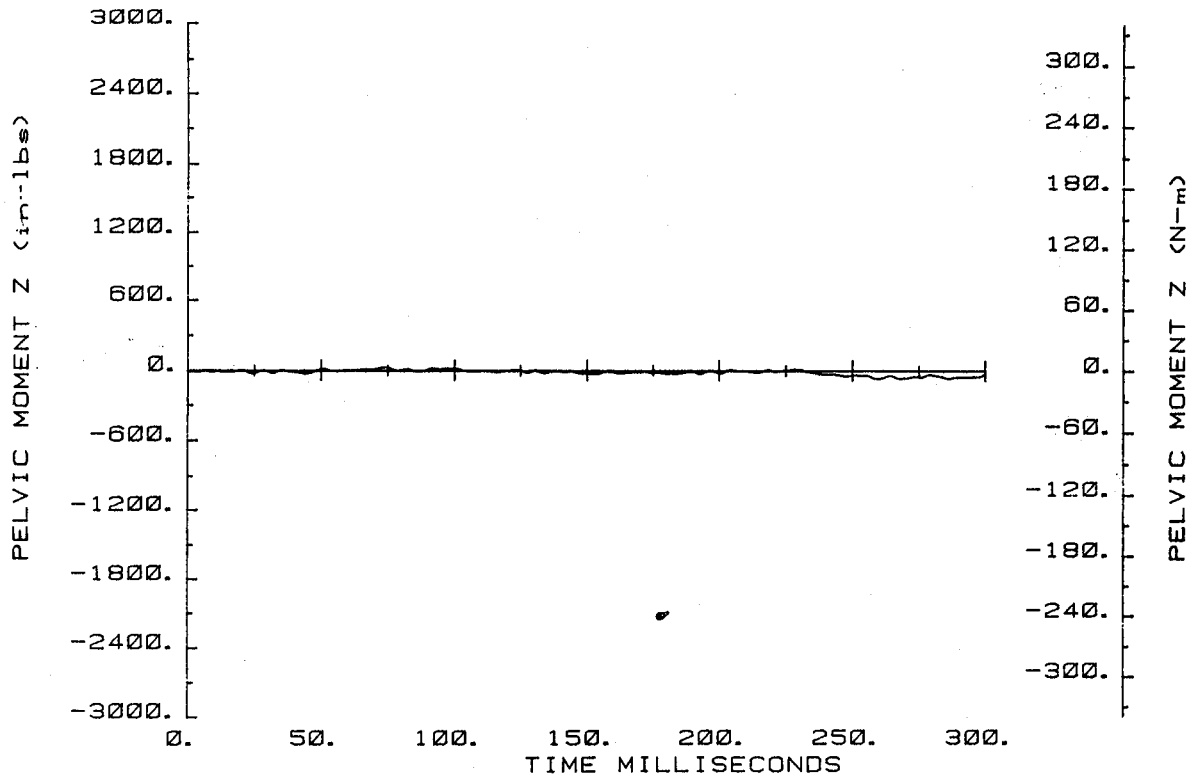


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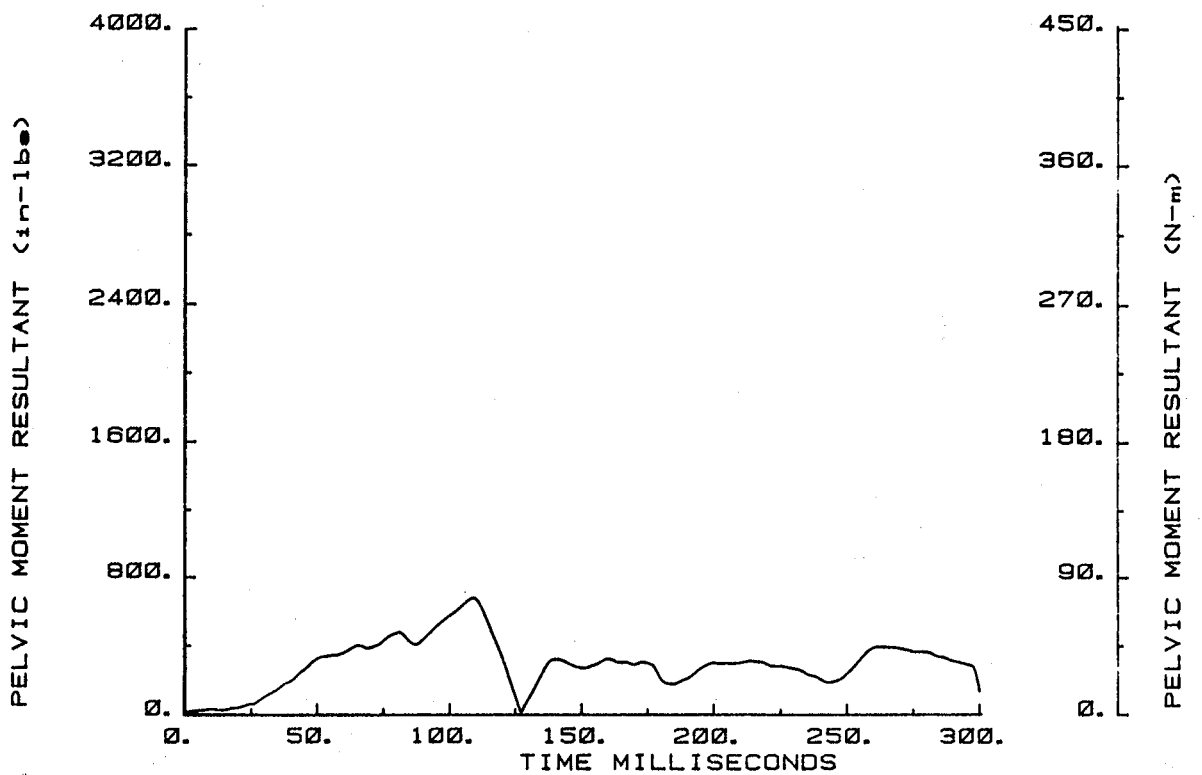




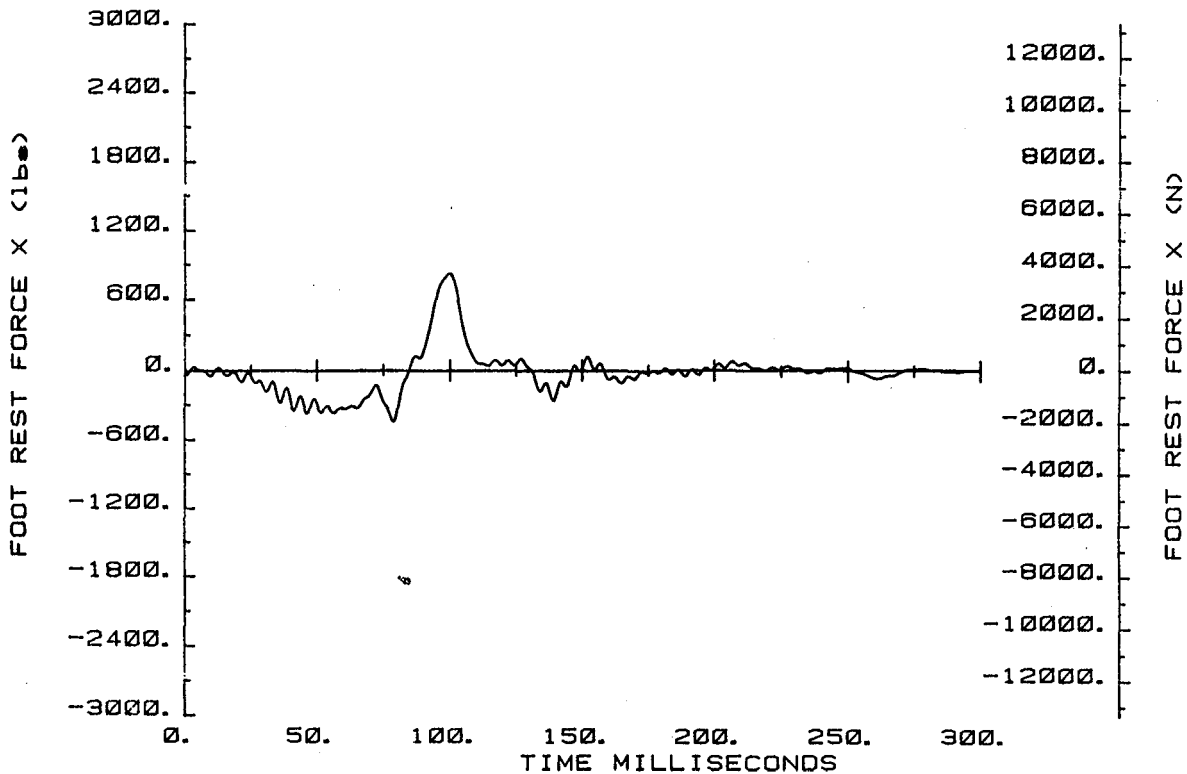
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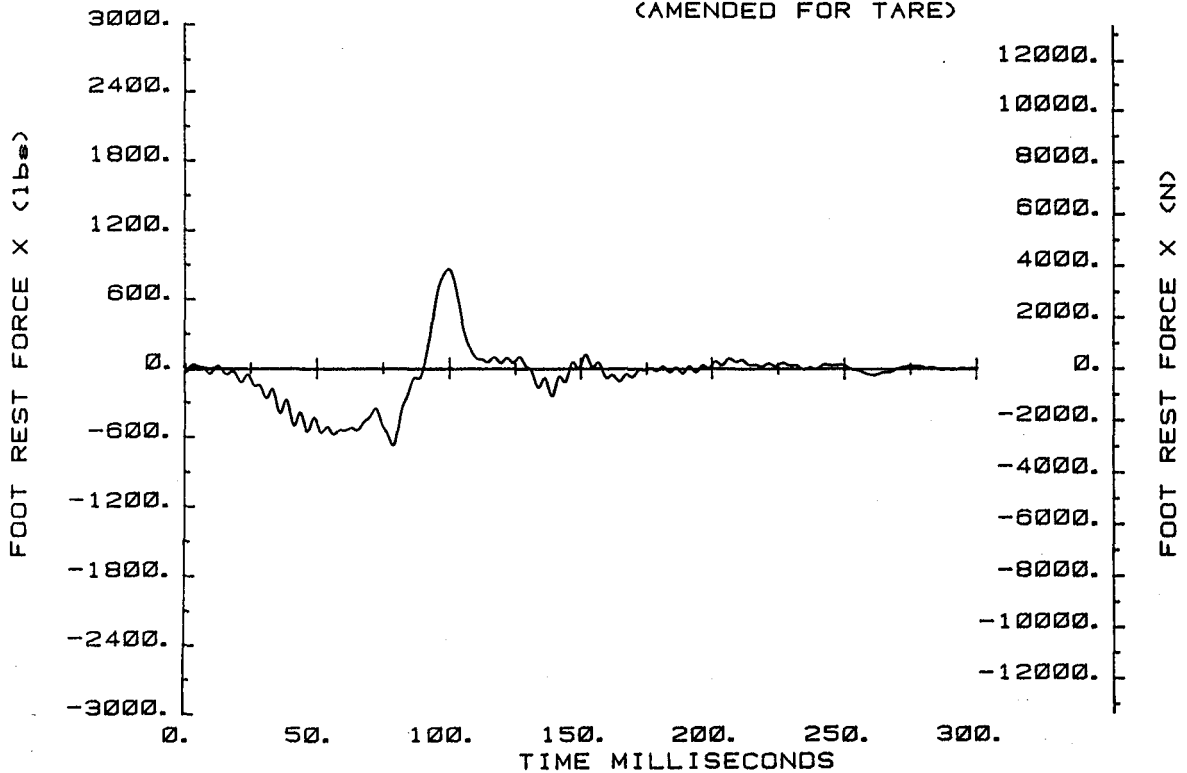
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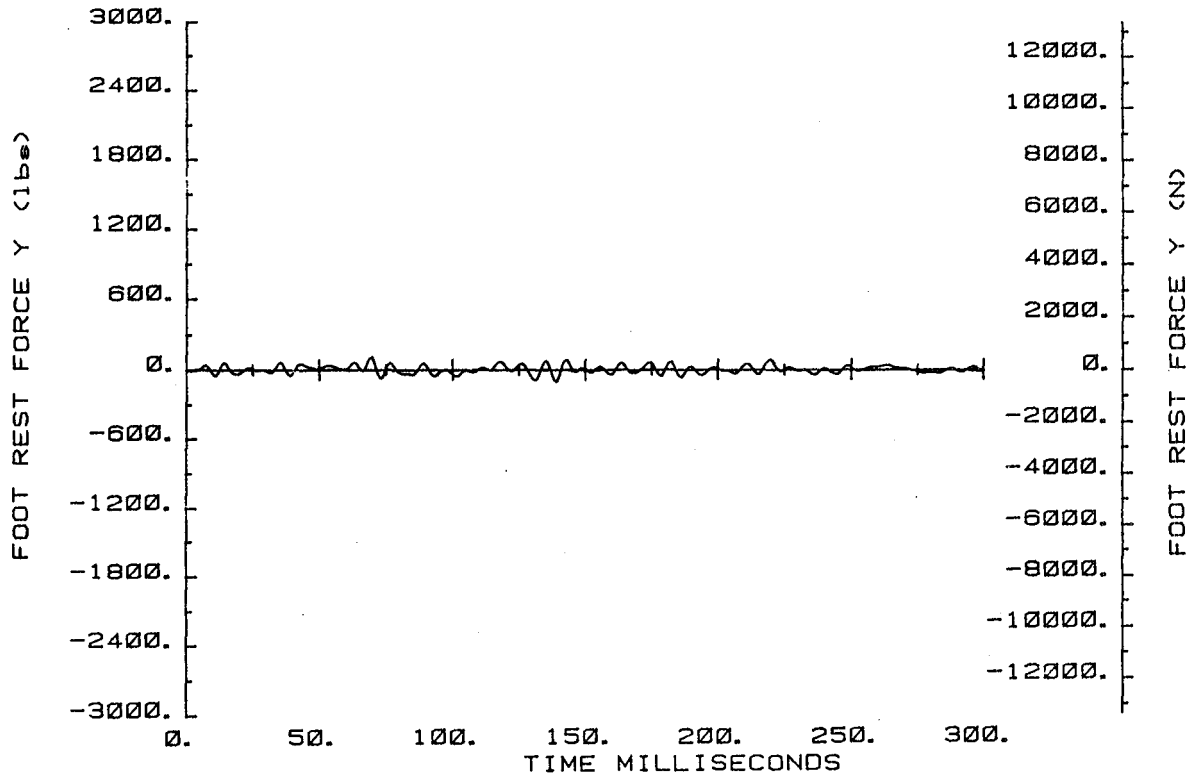
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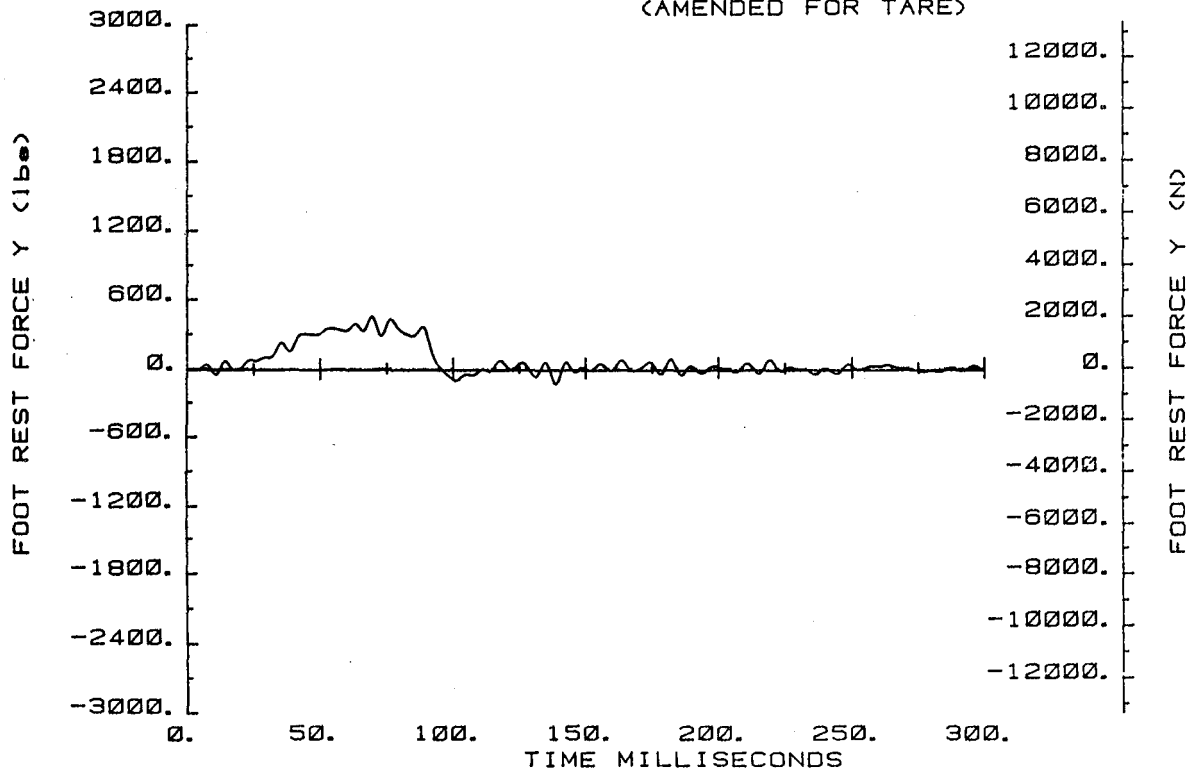
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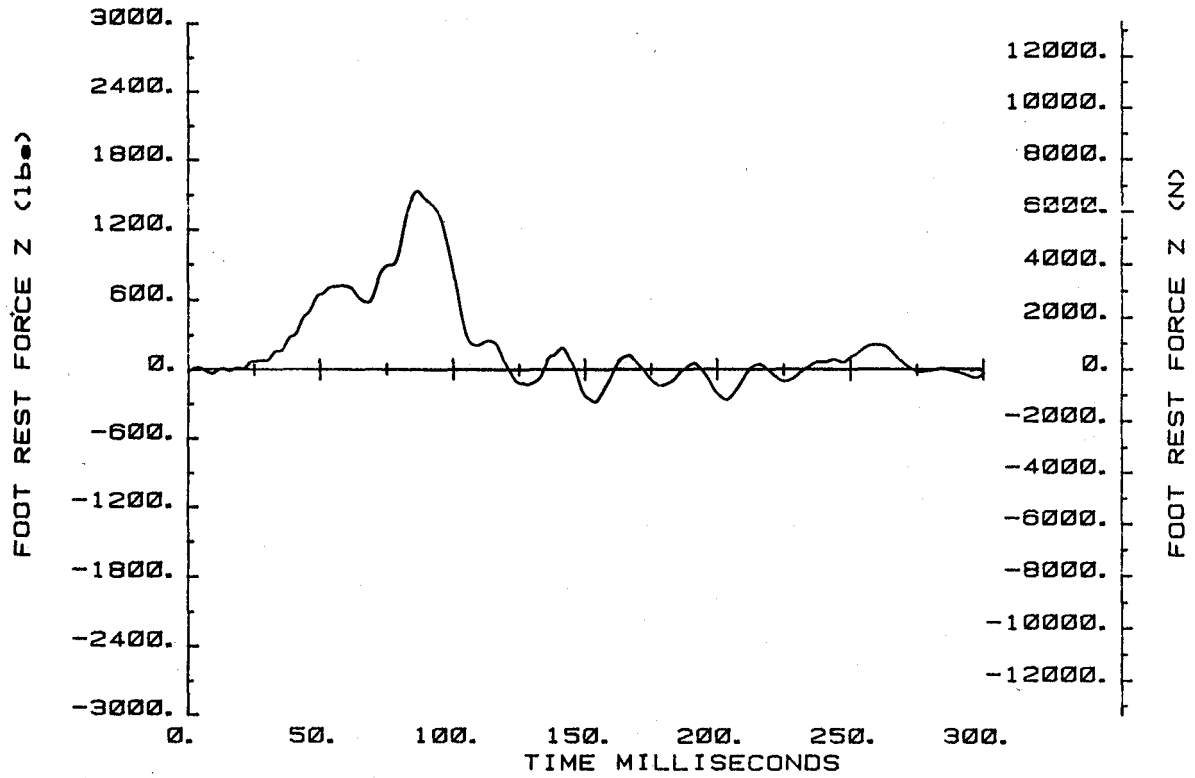
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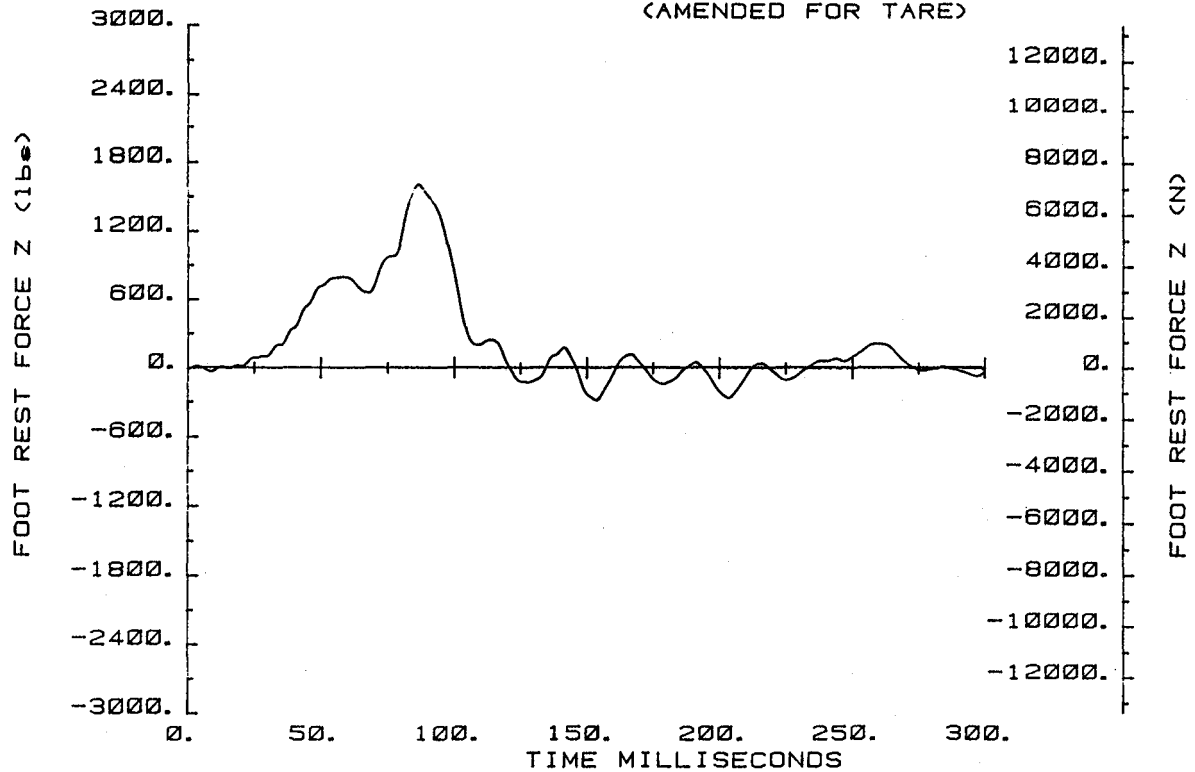
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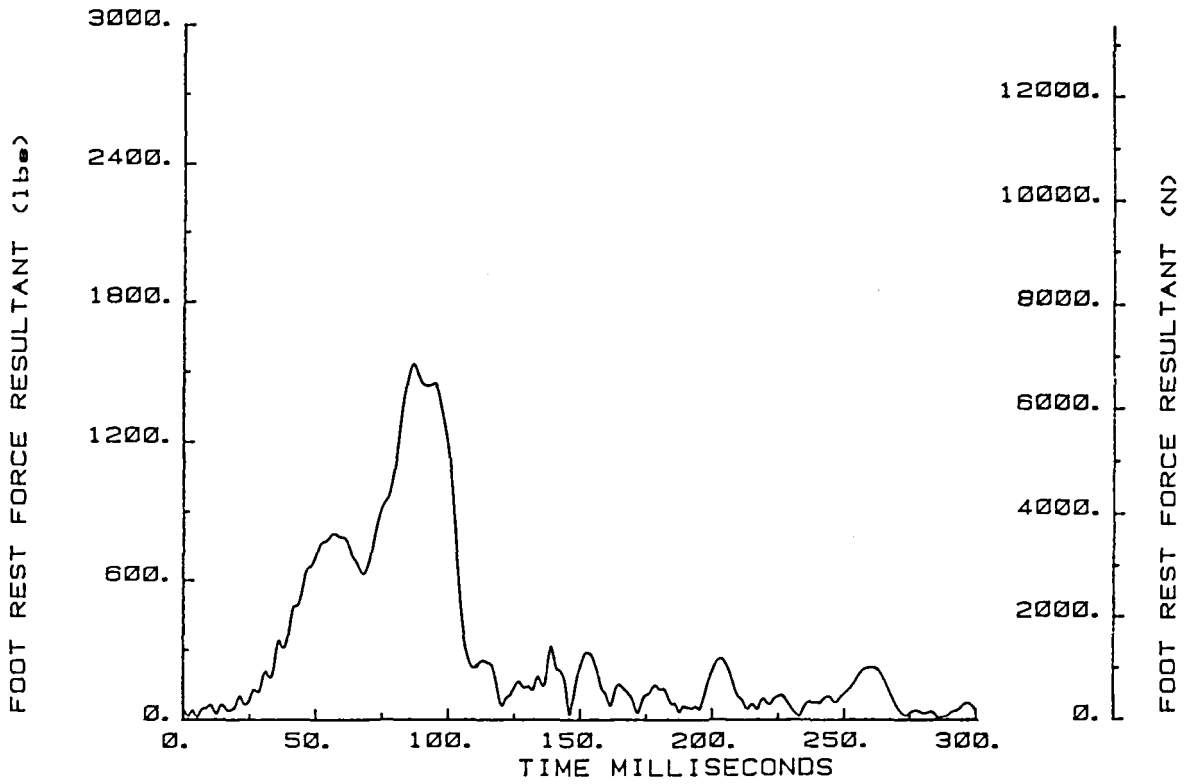
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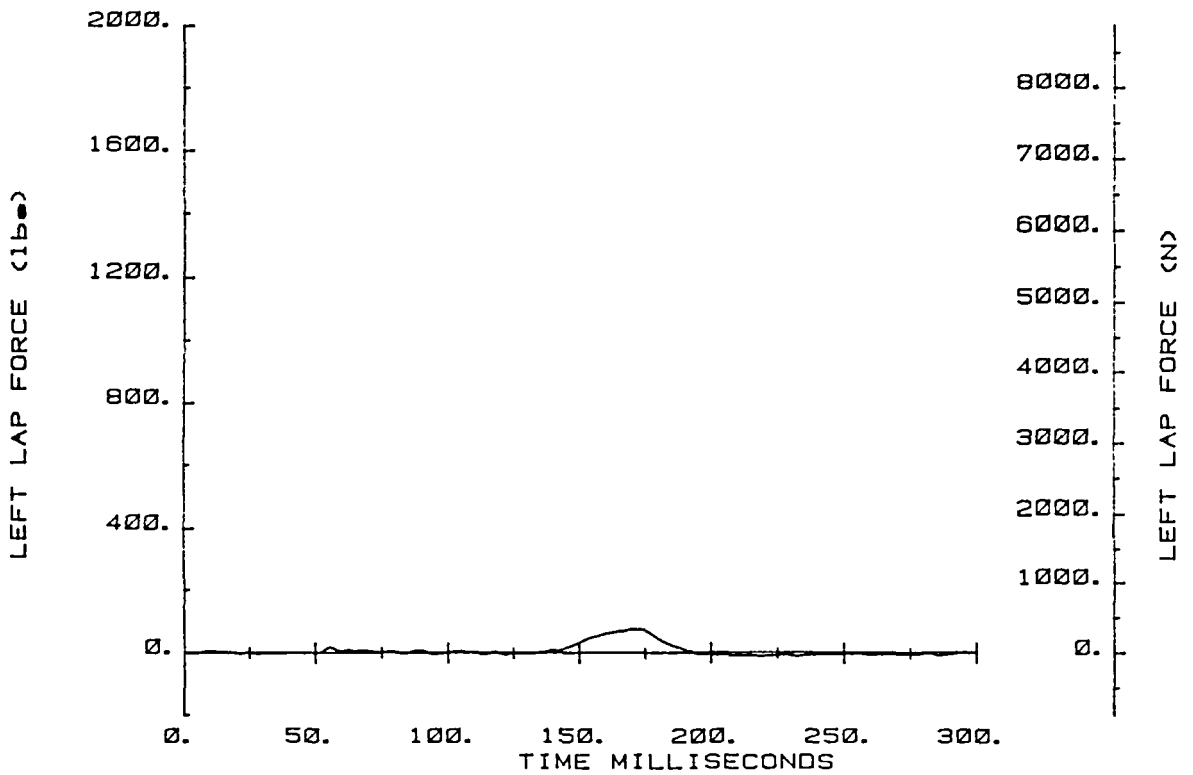
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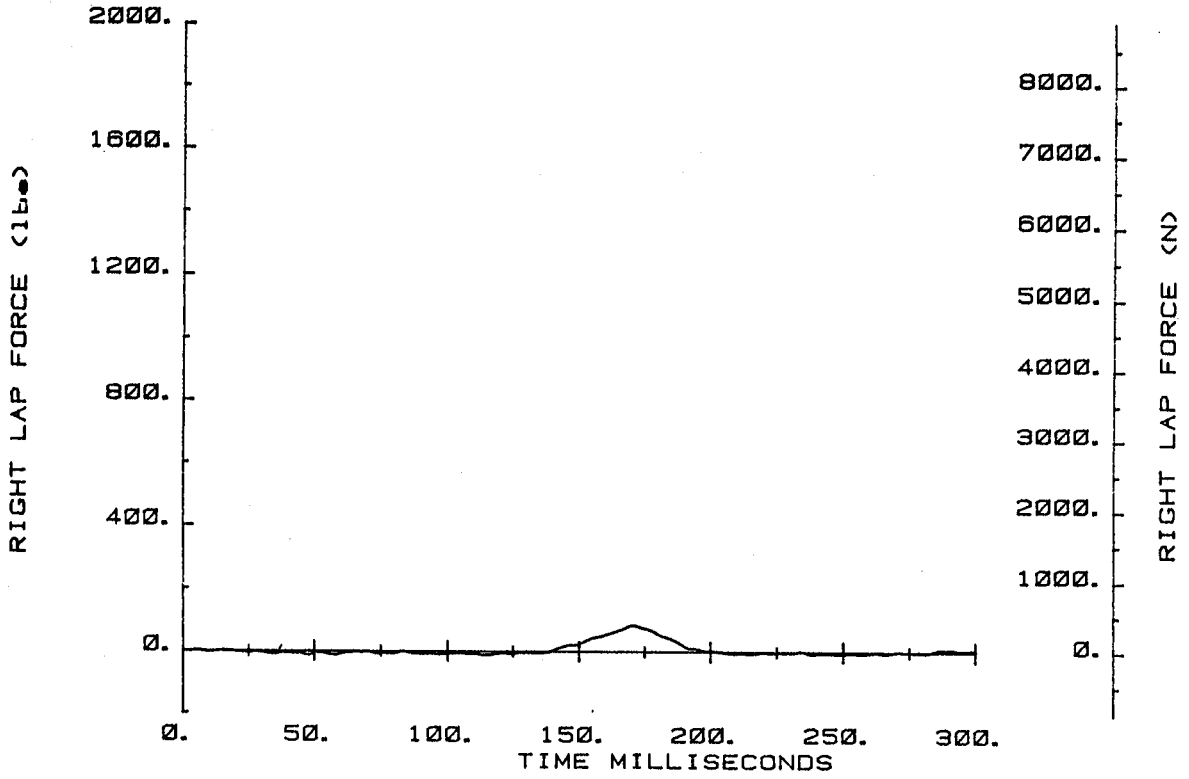
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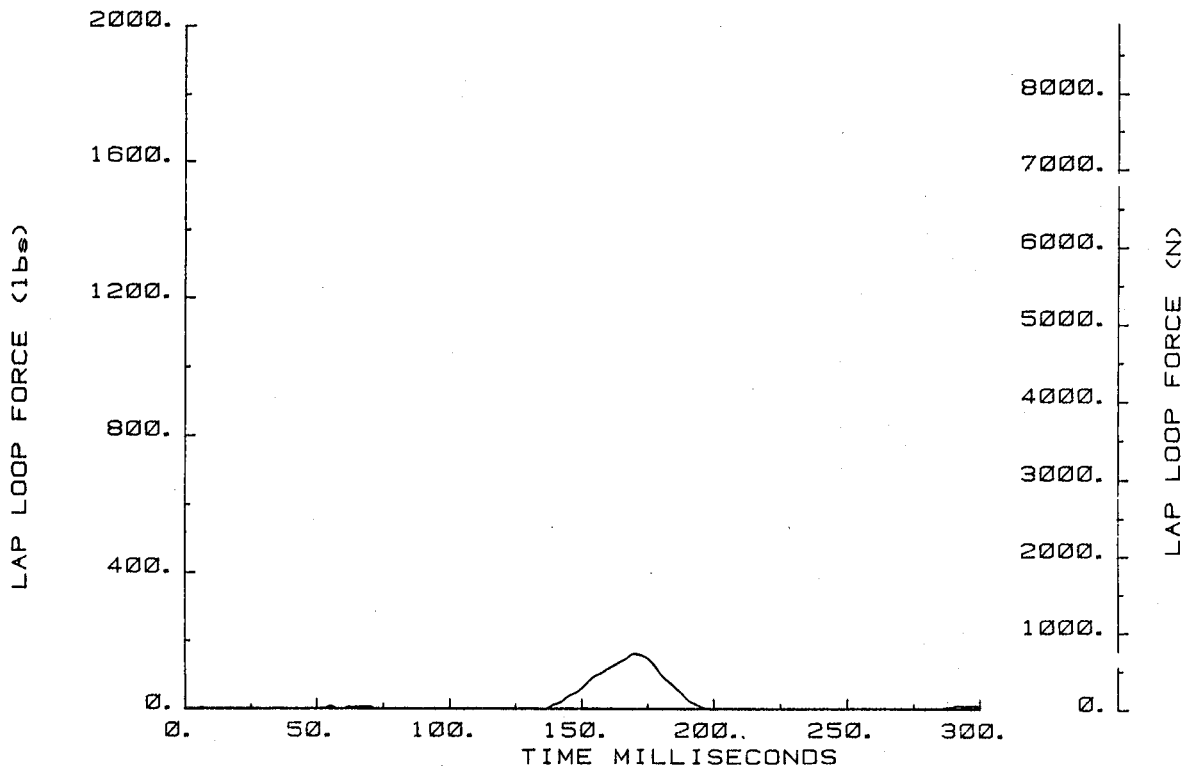
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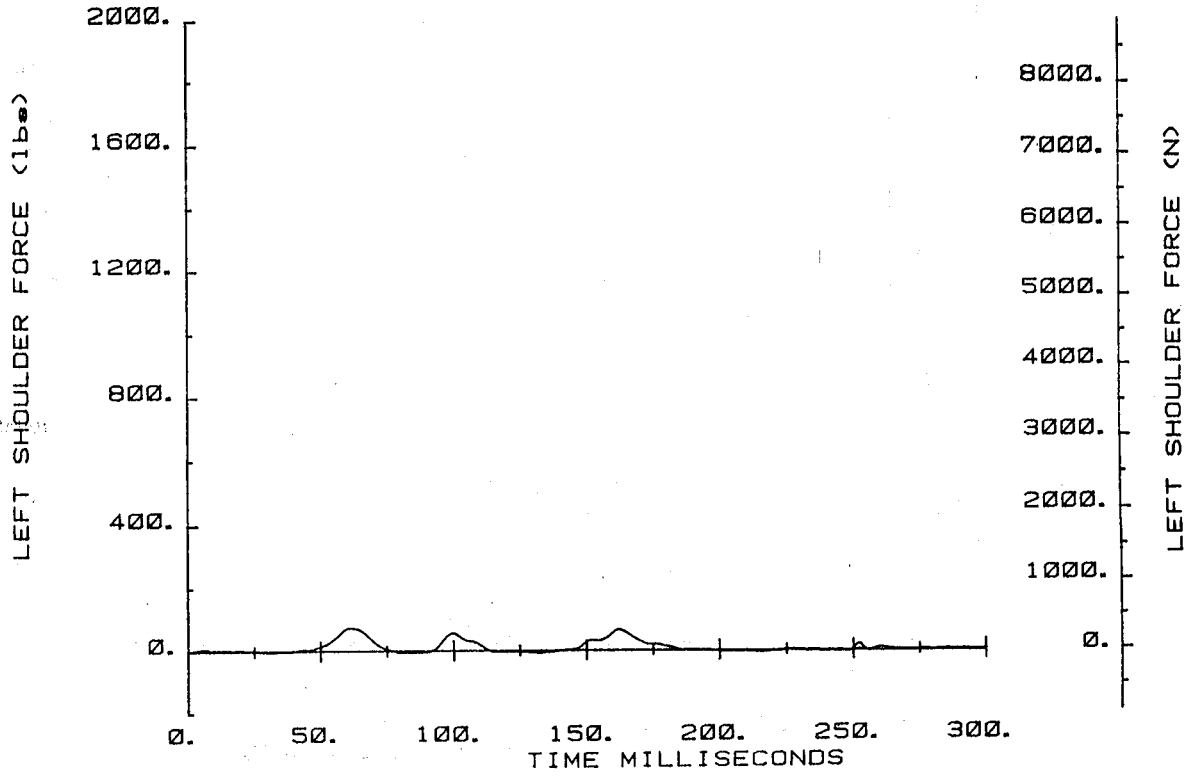
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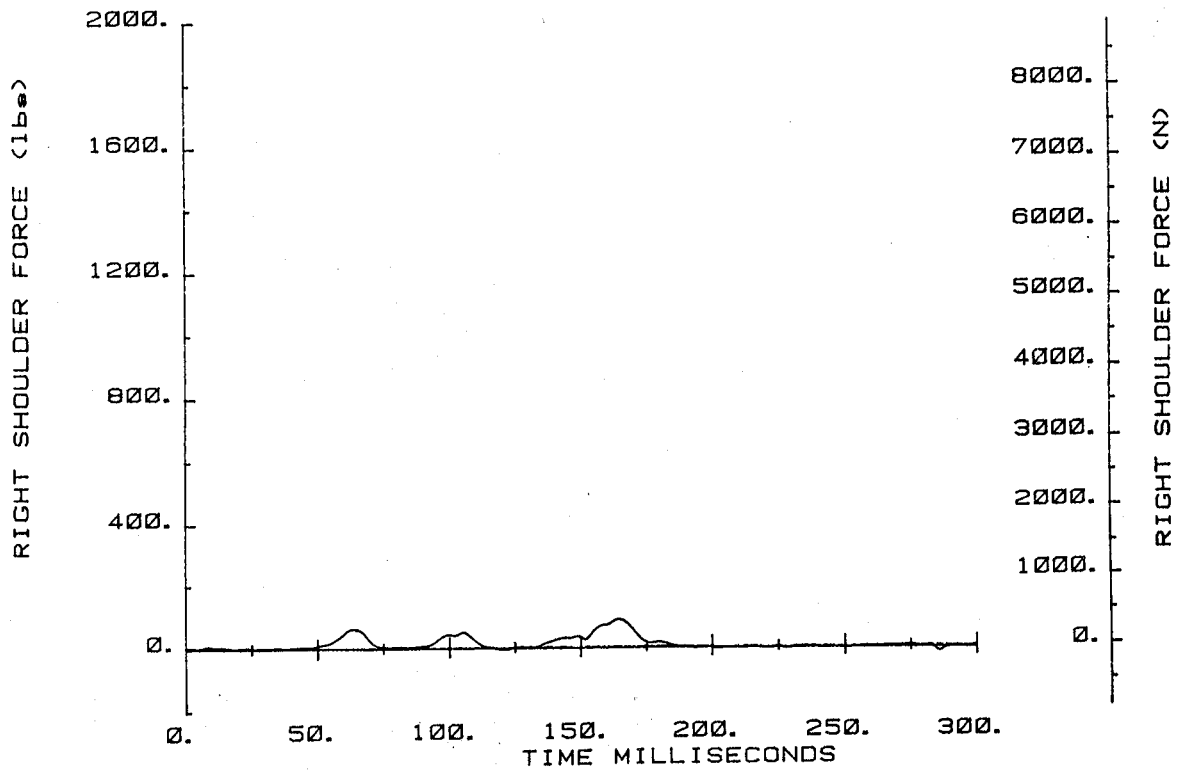
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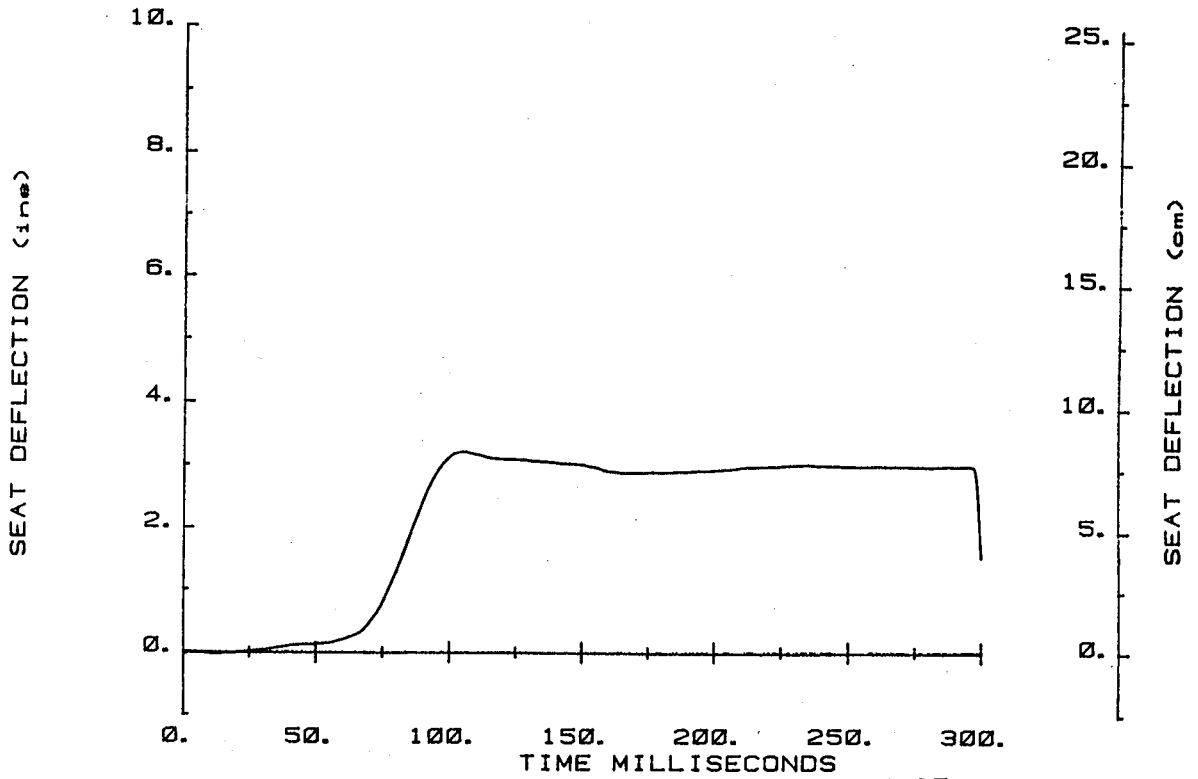
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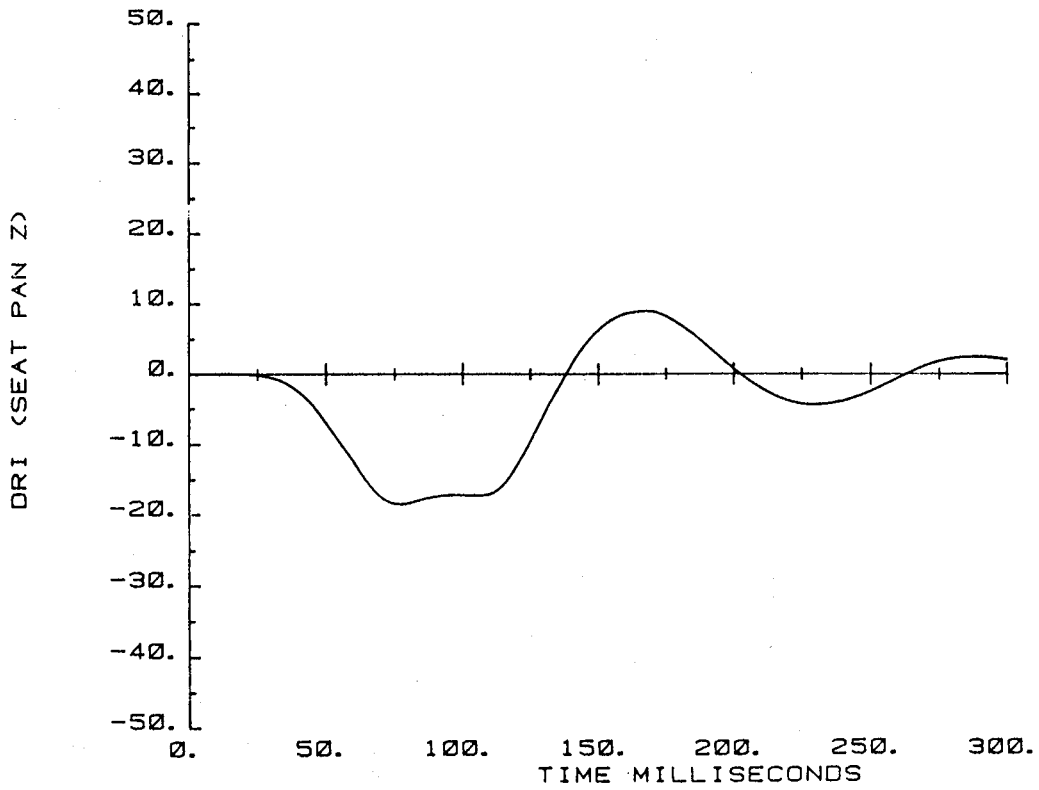
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CAMI SLED TEST  
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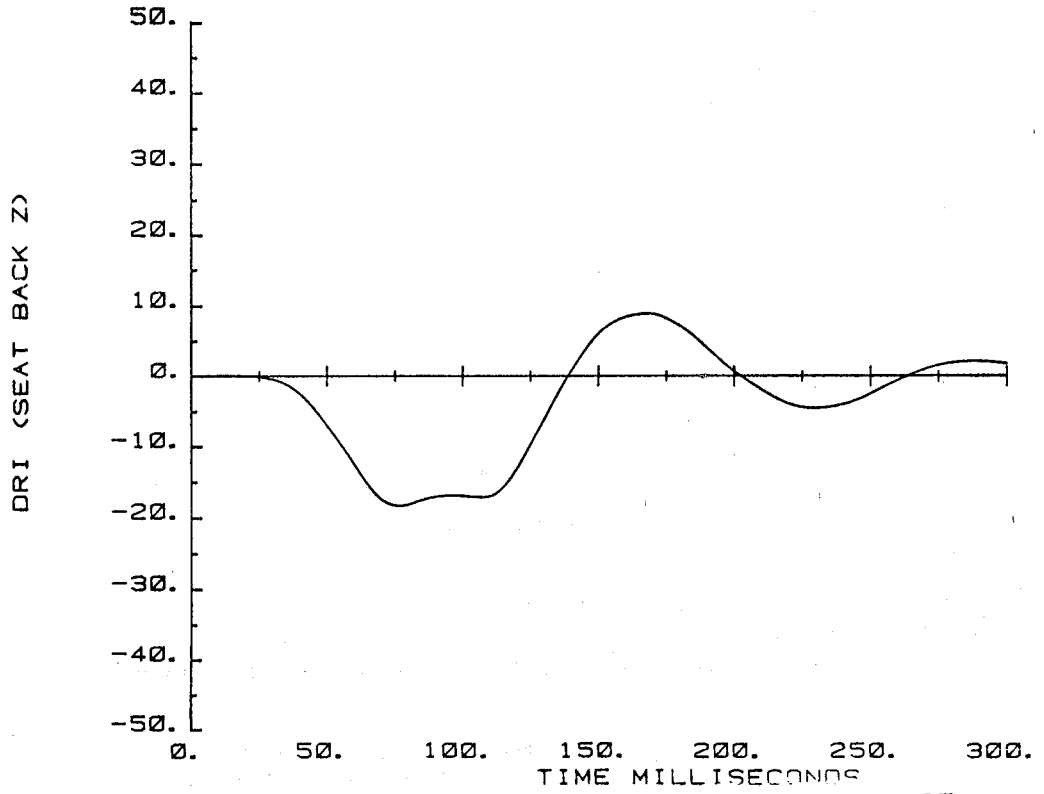


CAMI SLED TEST  
A83101

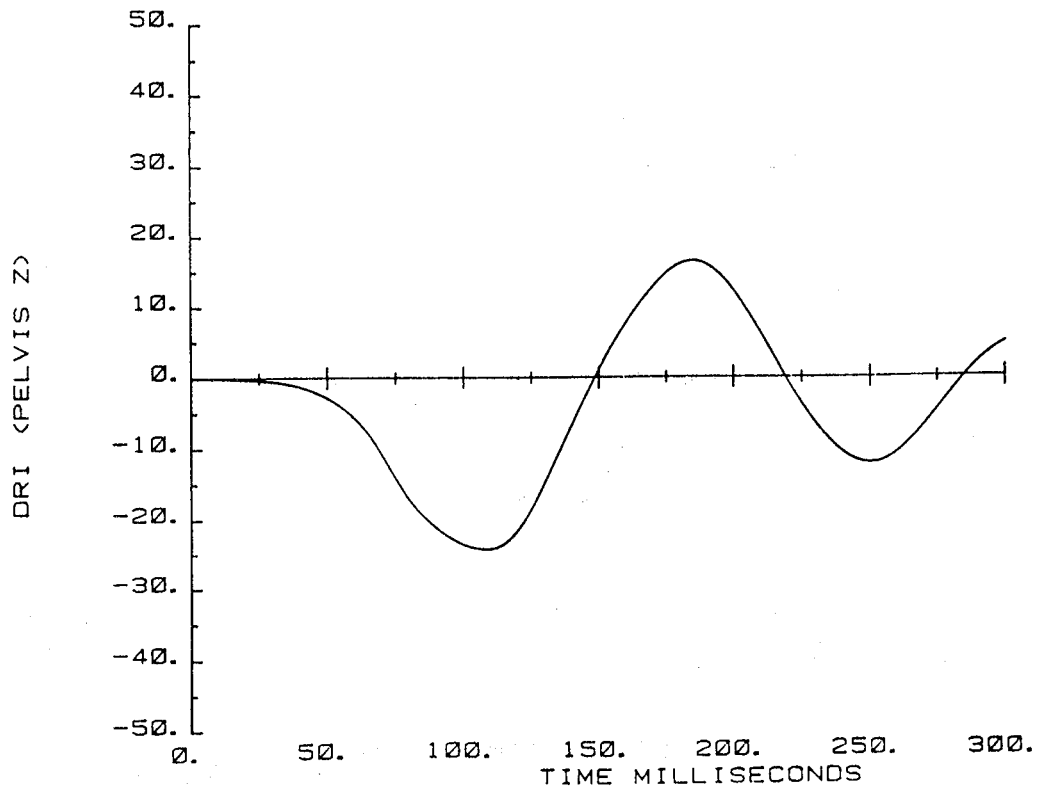




CAMI SLED TEST  
A83101



CAMI SLED TEST  
A83101



3.0 CAMI TEST NO. A83-103

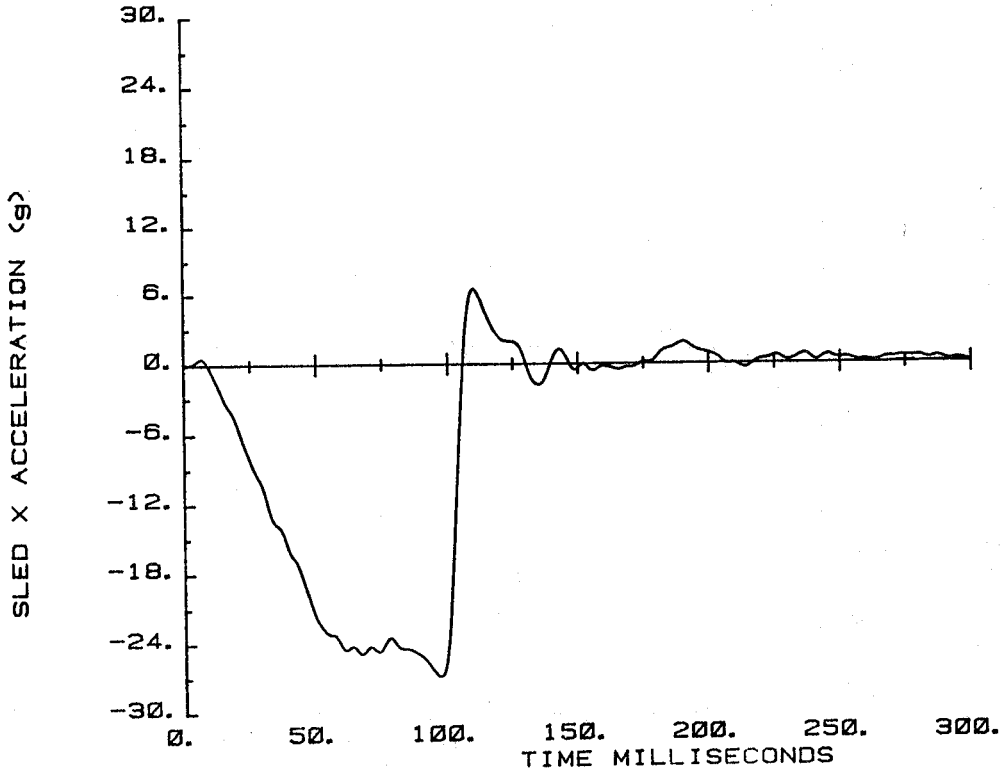
SEAT: Energy Absorbing

PULSE NUMBER: 2

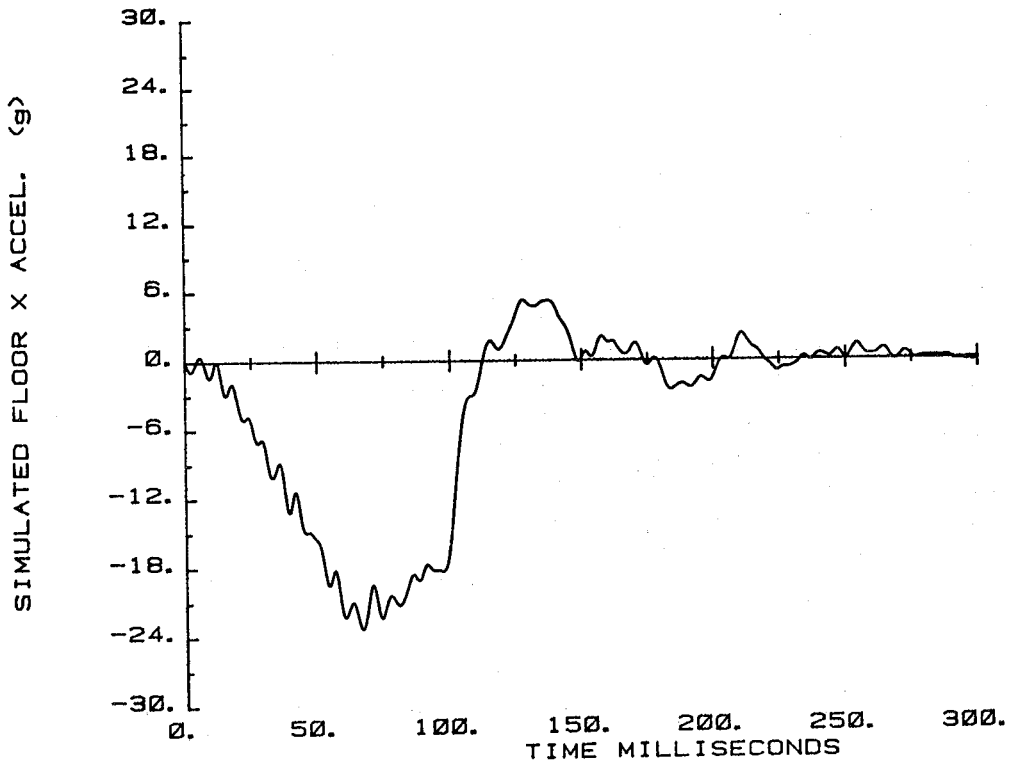
SEAT ORIENTATION: Pitch - 40°  
Roll - 0°  
Yaw - 0°

| RUN#   | VARIABLE                  | 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    | 250   | ( 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)    | -240.3 | 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   |        |       |                    |

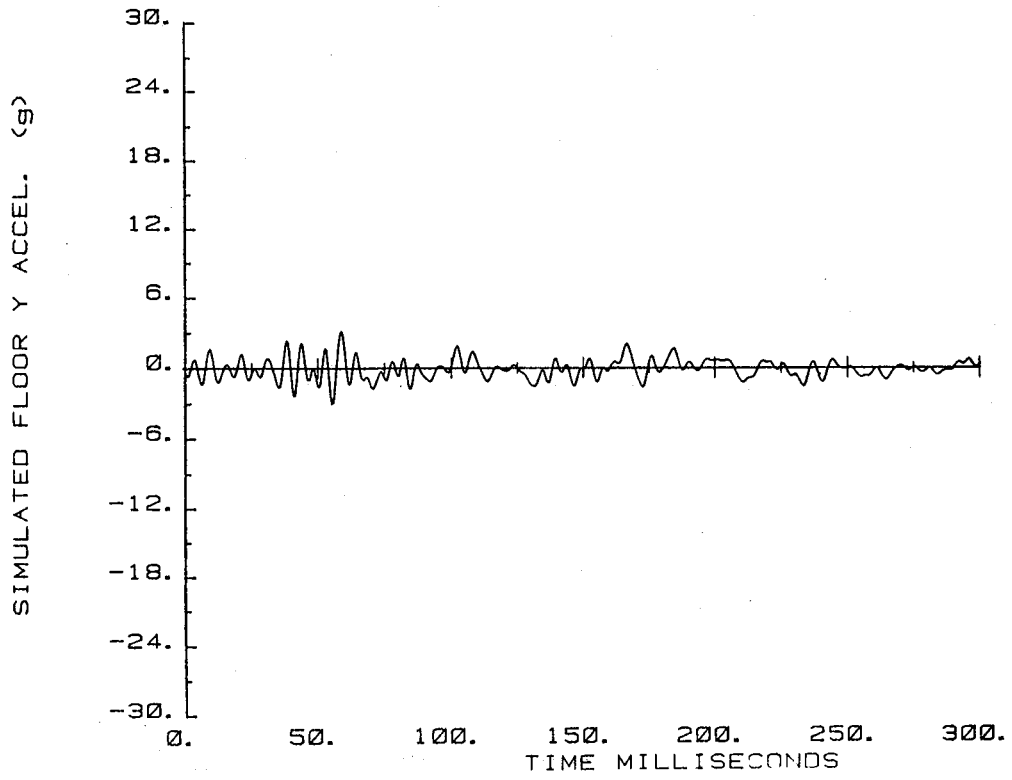
CAMI SLED TEST  
A83103



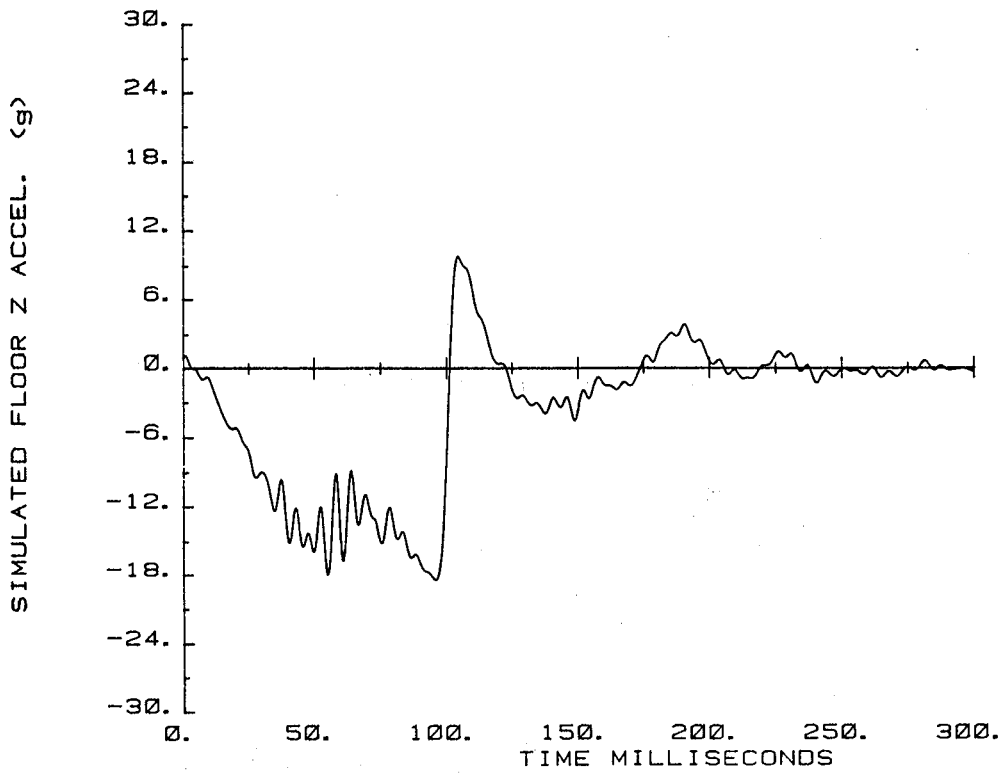
CAMI SLED TEST  
A83103



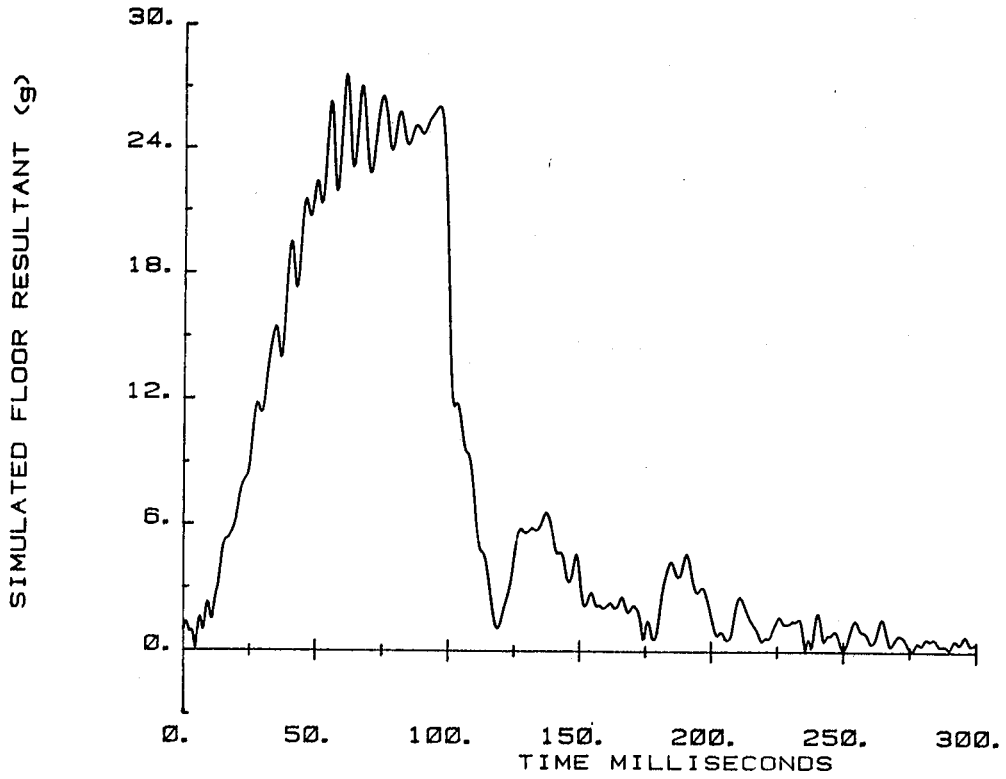
CAMI SLED TEST  
A83103



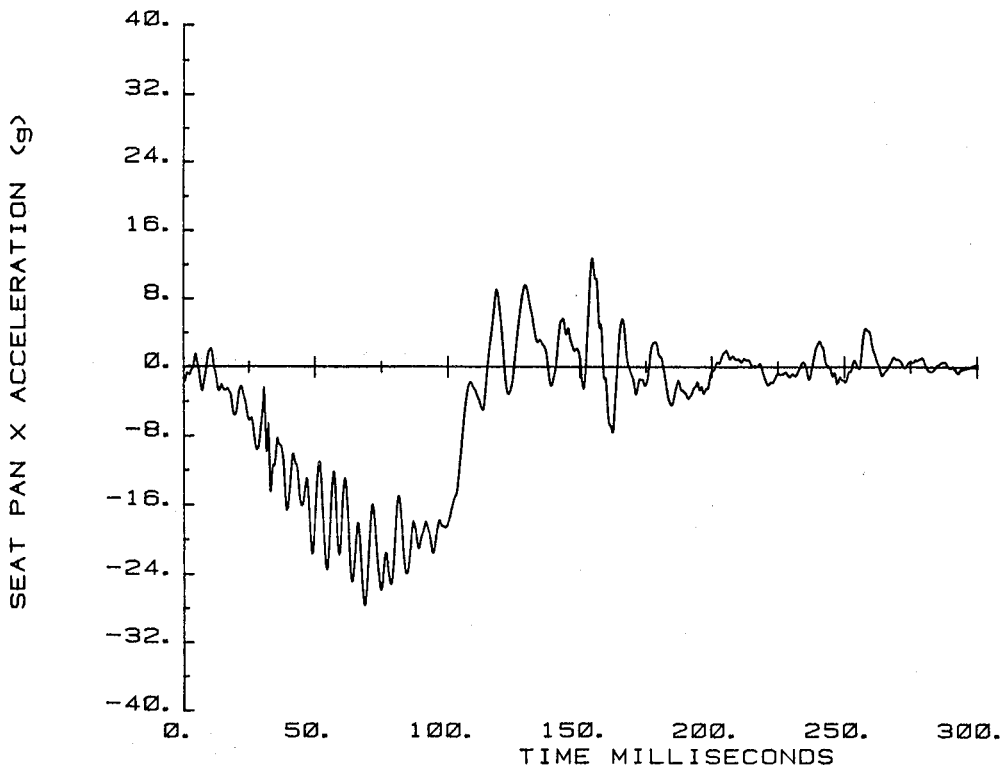
CAMI SLED TEST  
A83103



CAMI SLED TEST  
A83103

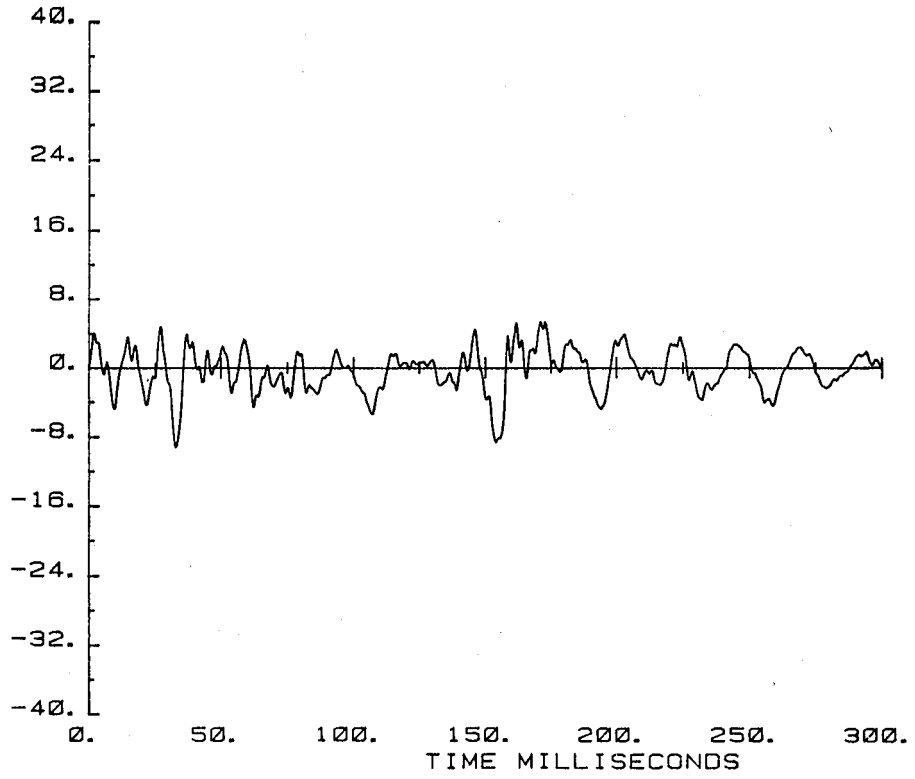


CAMI SLED TEST  
A83103



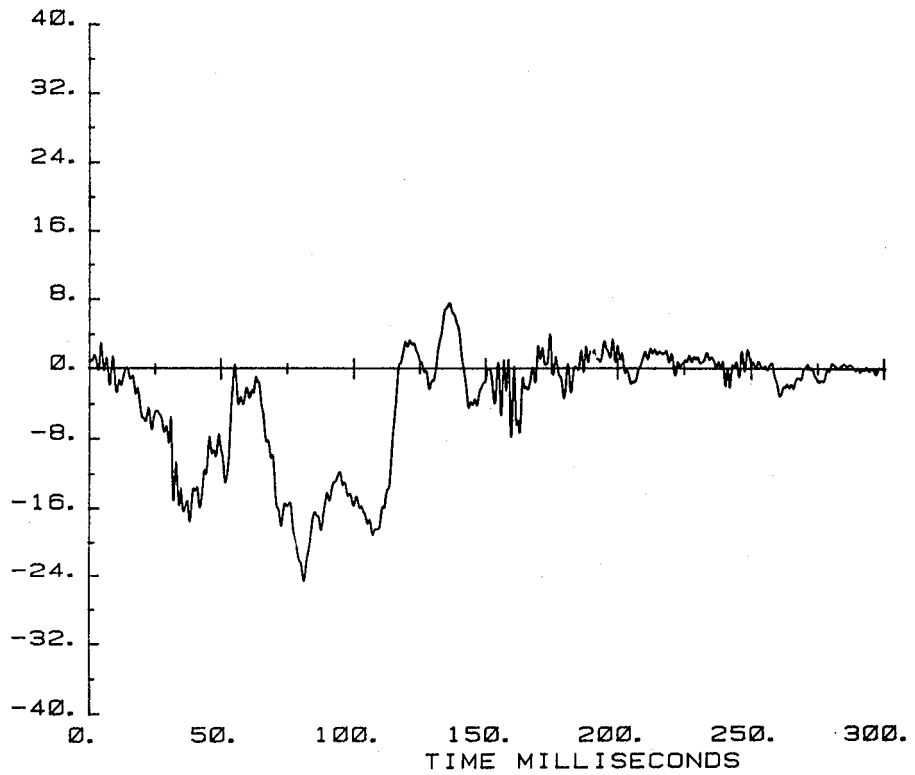
CAMI SLED TEST  
A83103

SEAT PAN Y ACCELERATION (g)

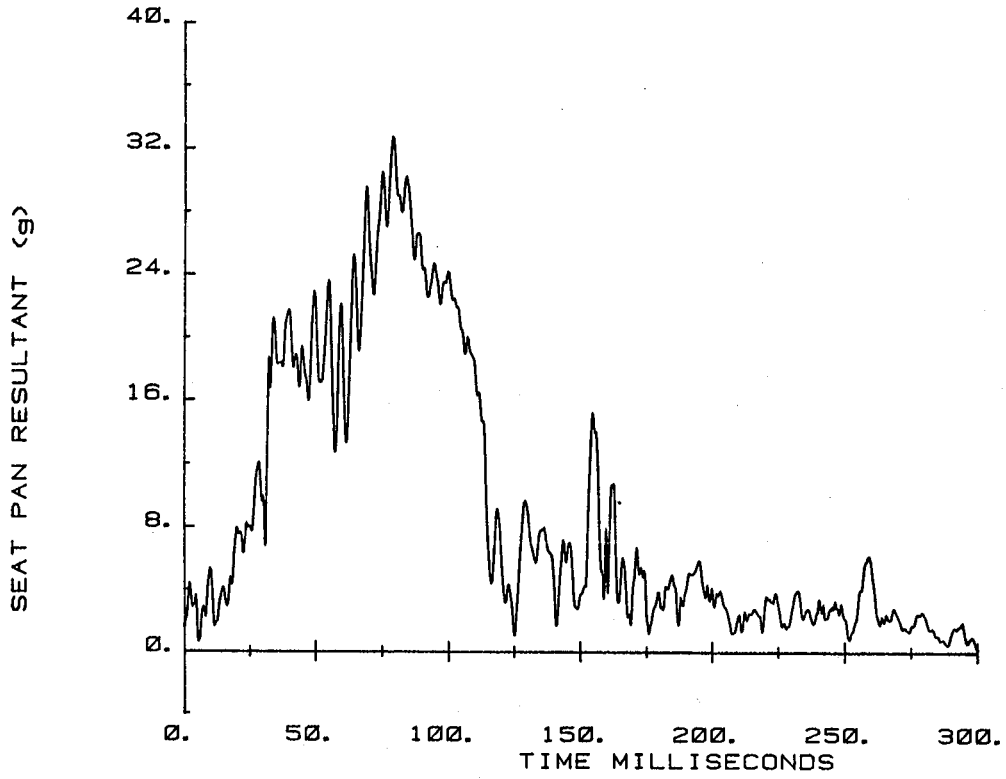


CAMI SLED TEST  
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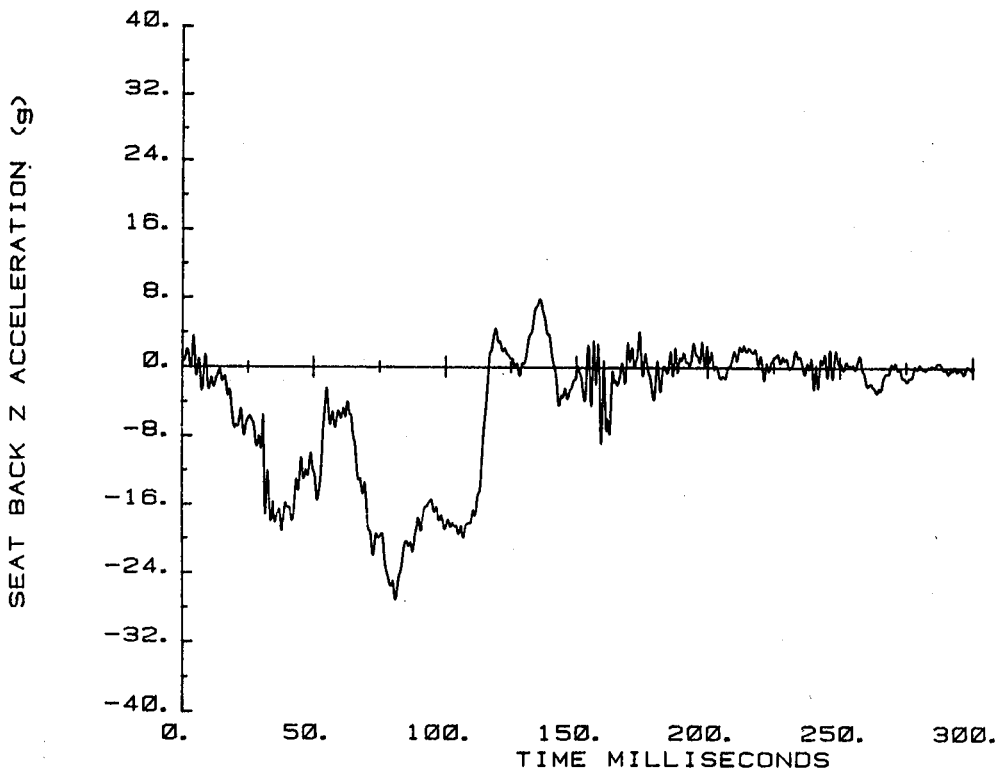
SEAT PAN Z ACCELERATION (g)



CAMI SLED TEST  
A83103

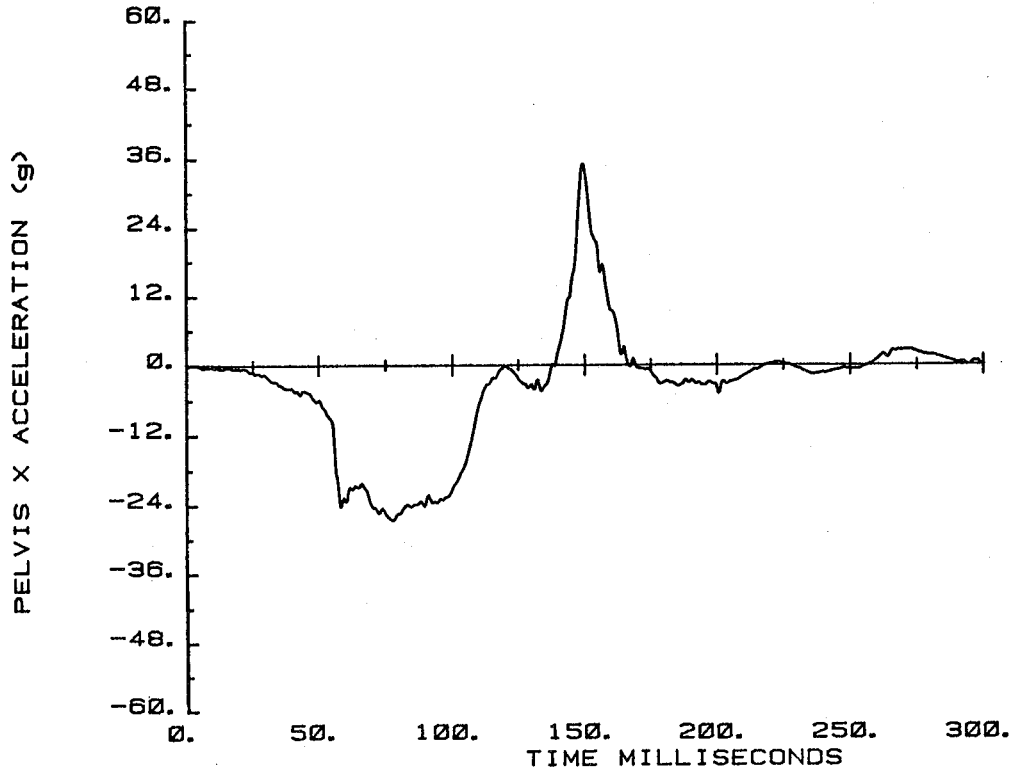


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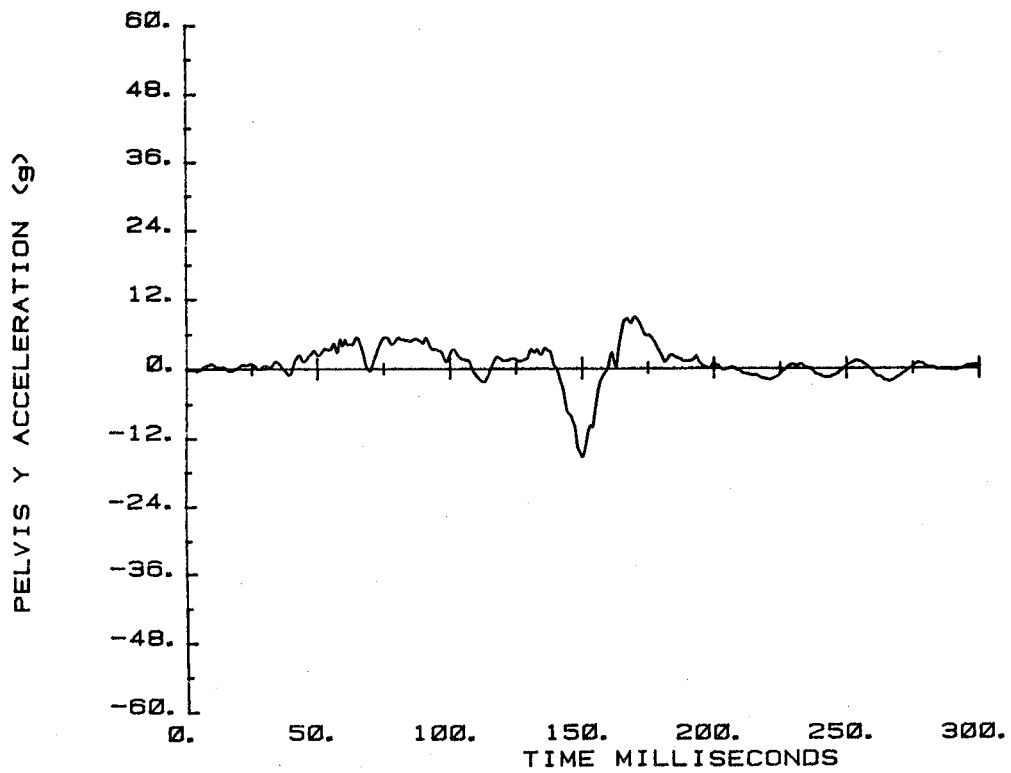




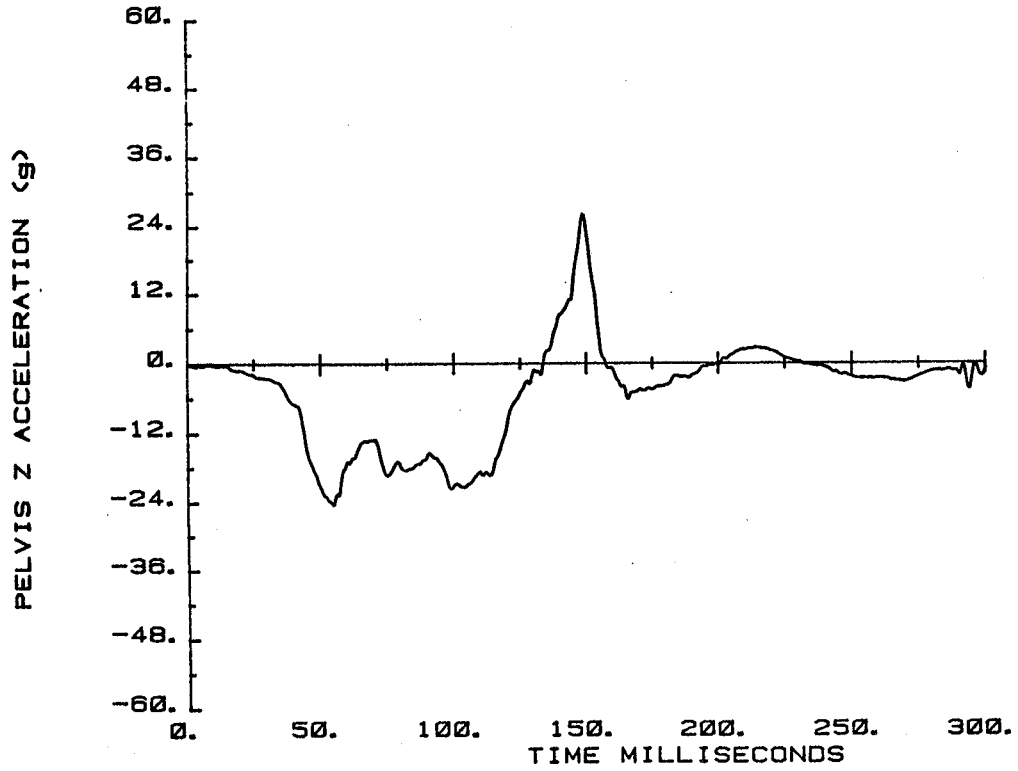
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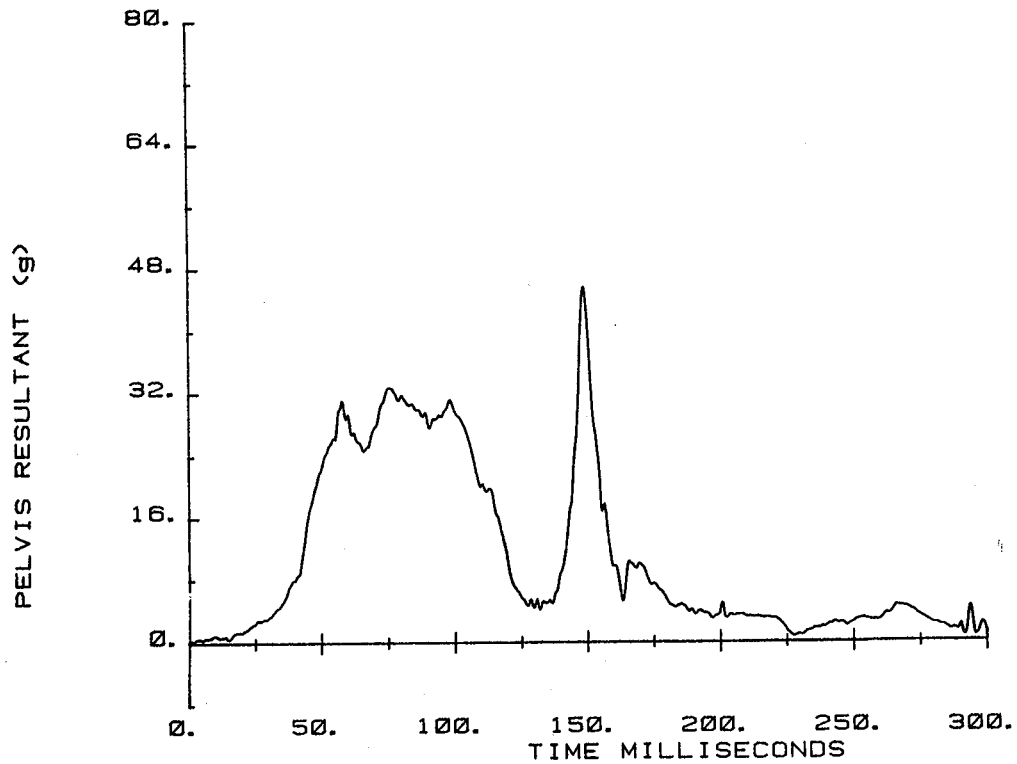
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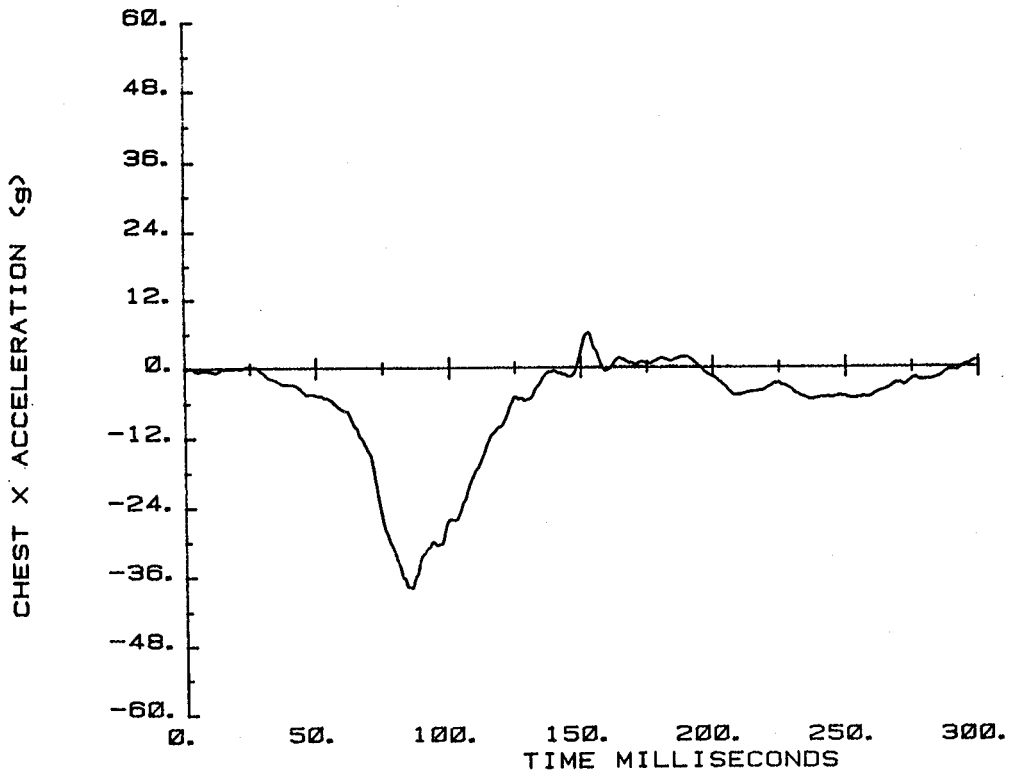
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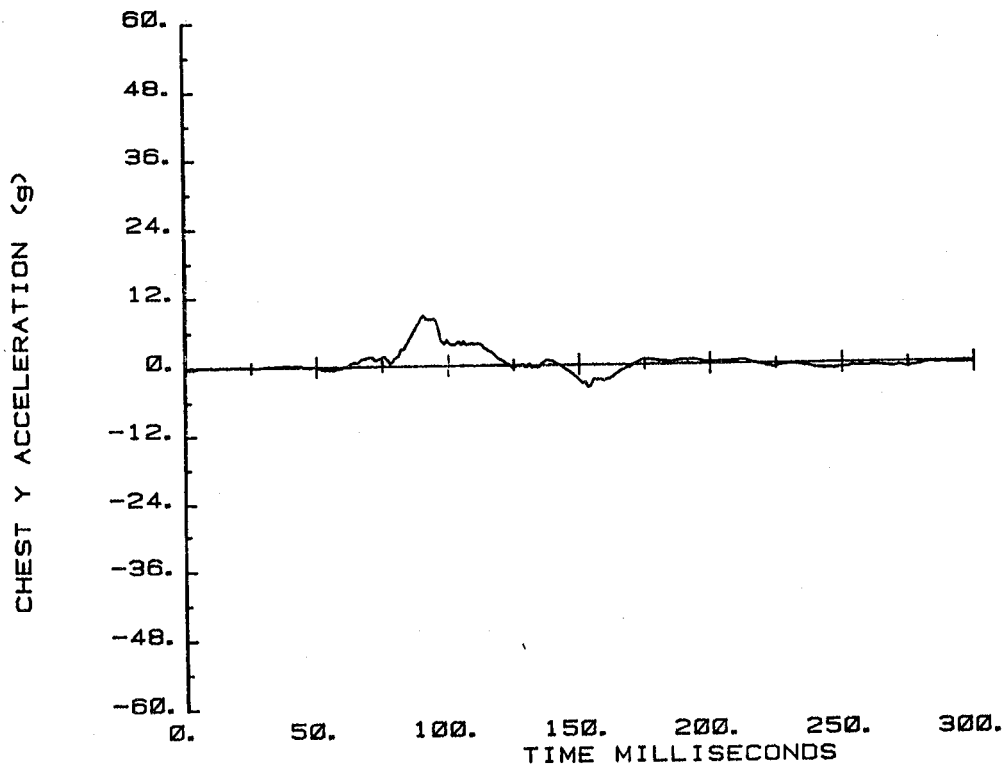
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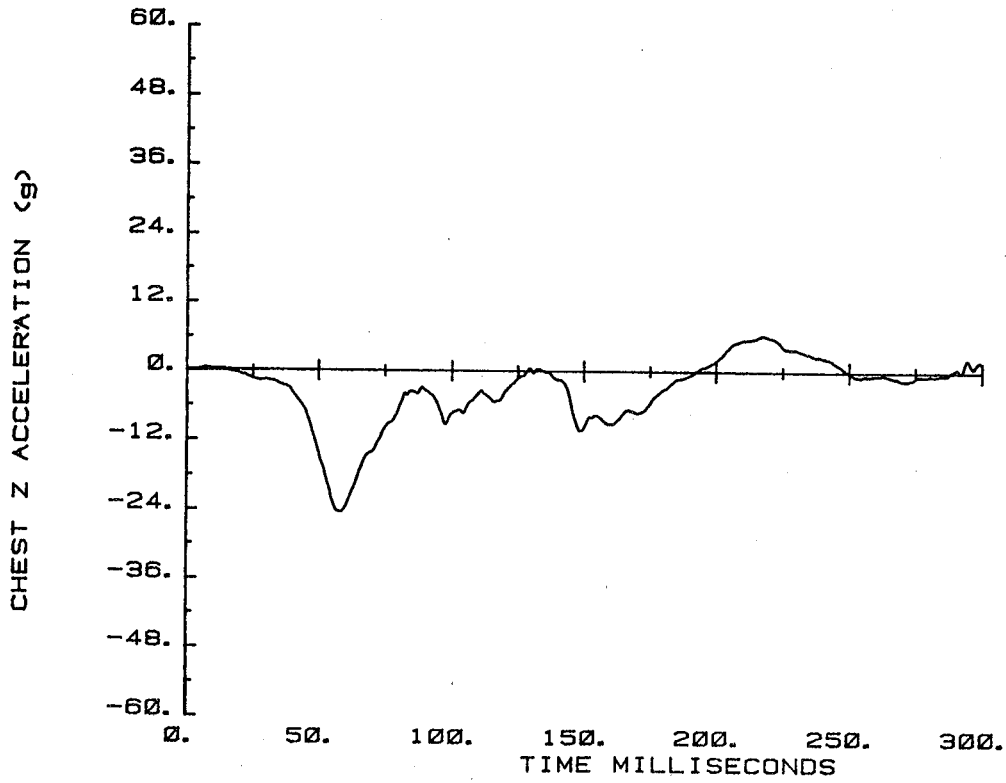
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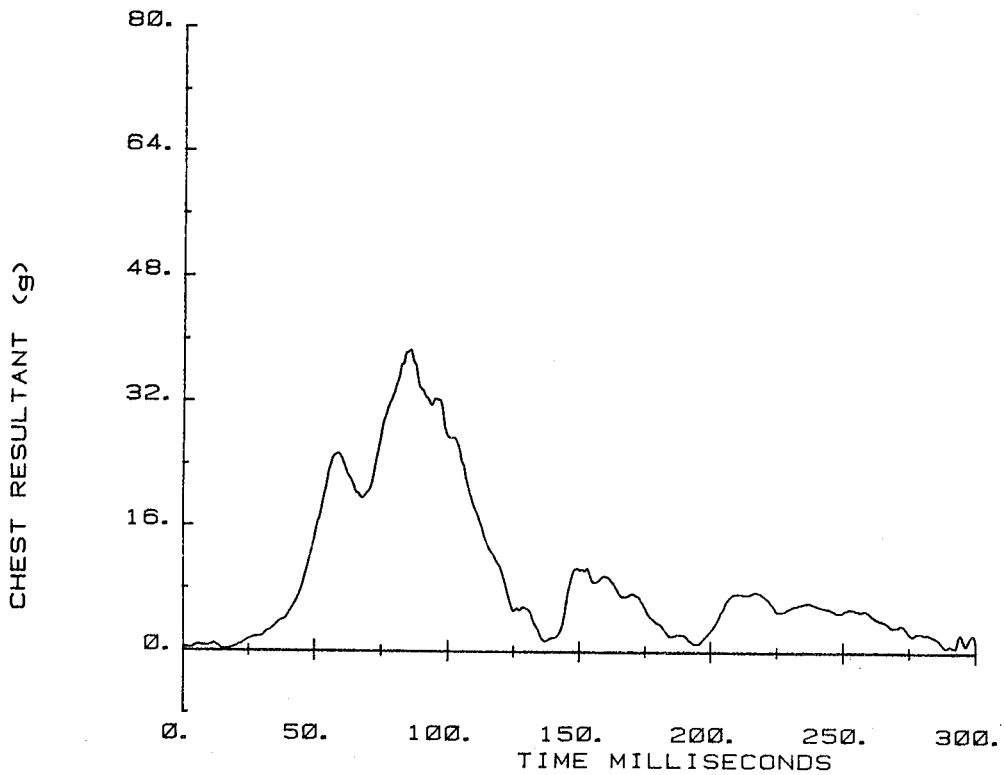
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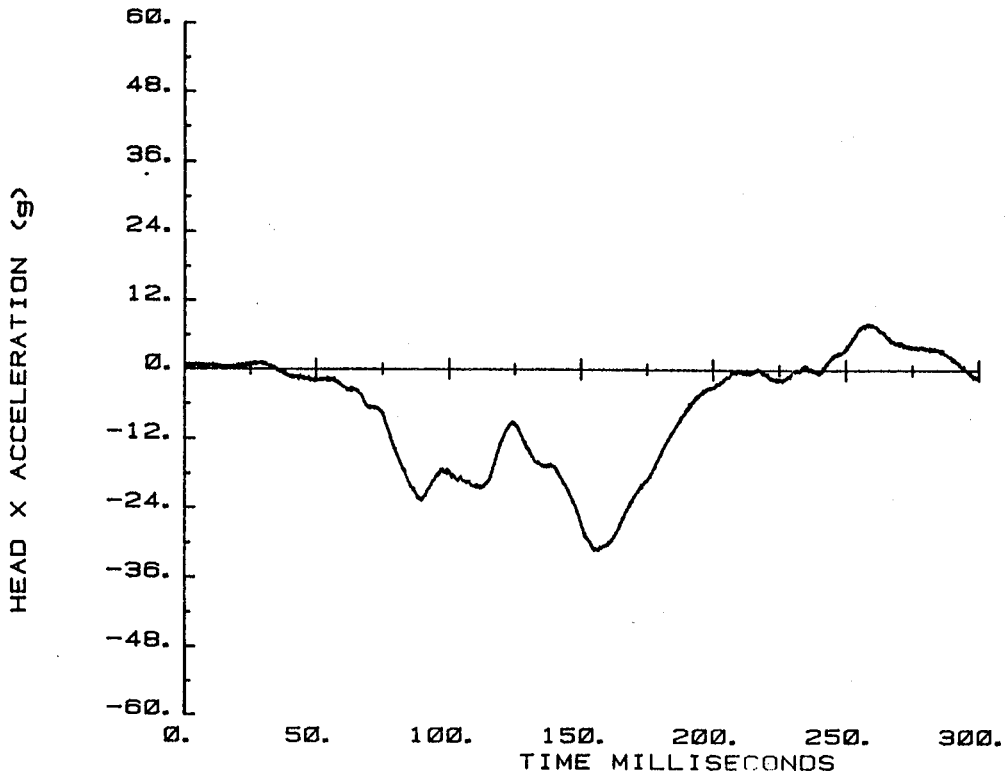
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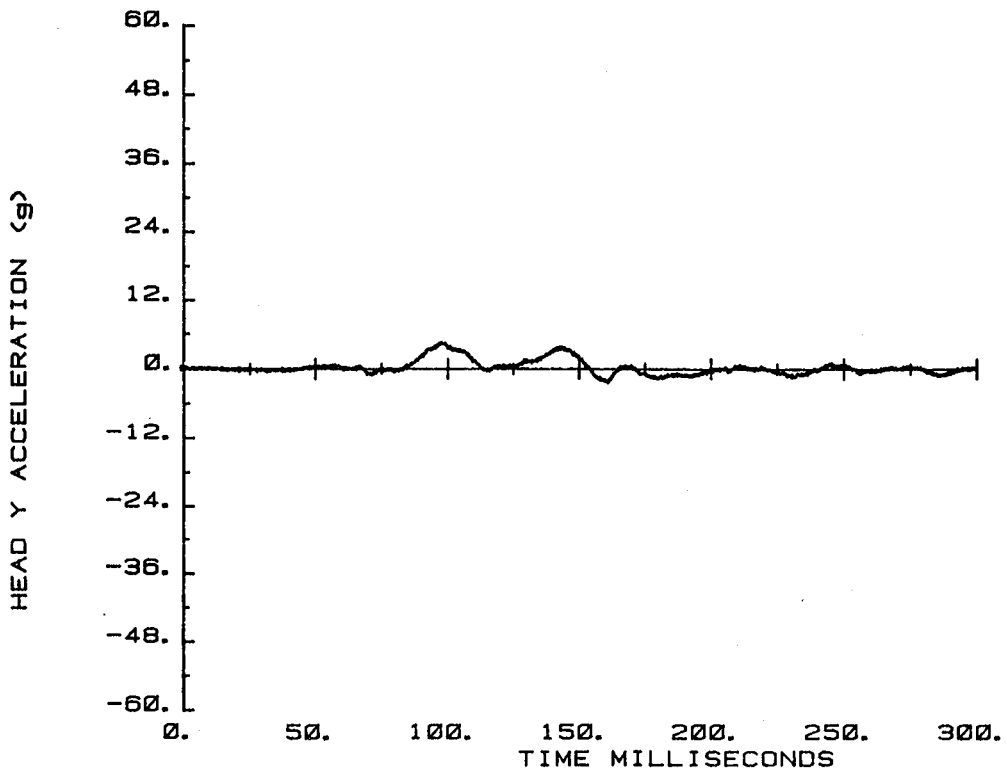
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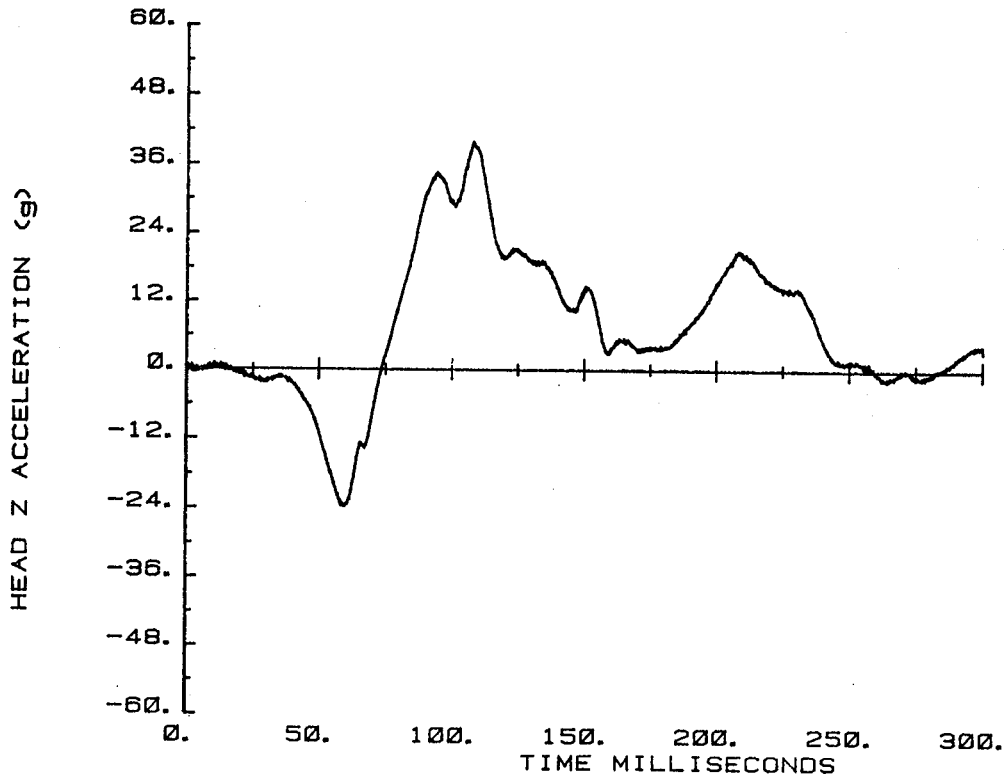
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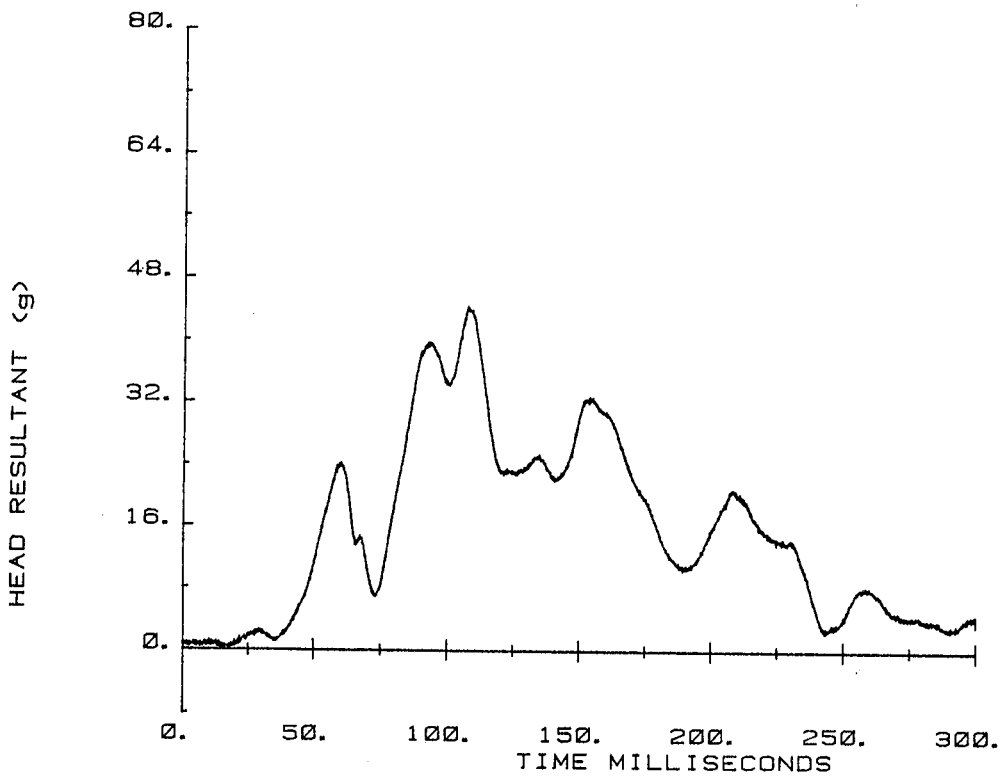
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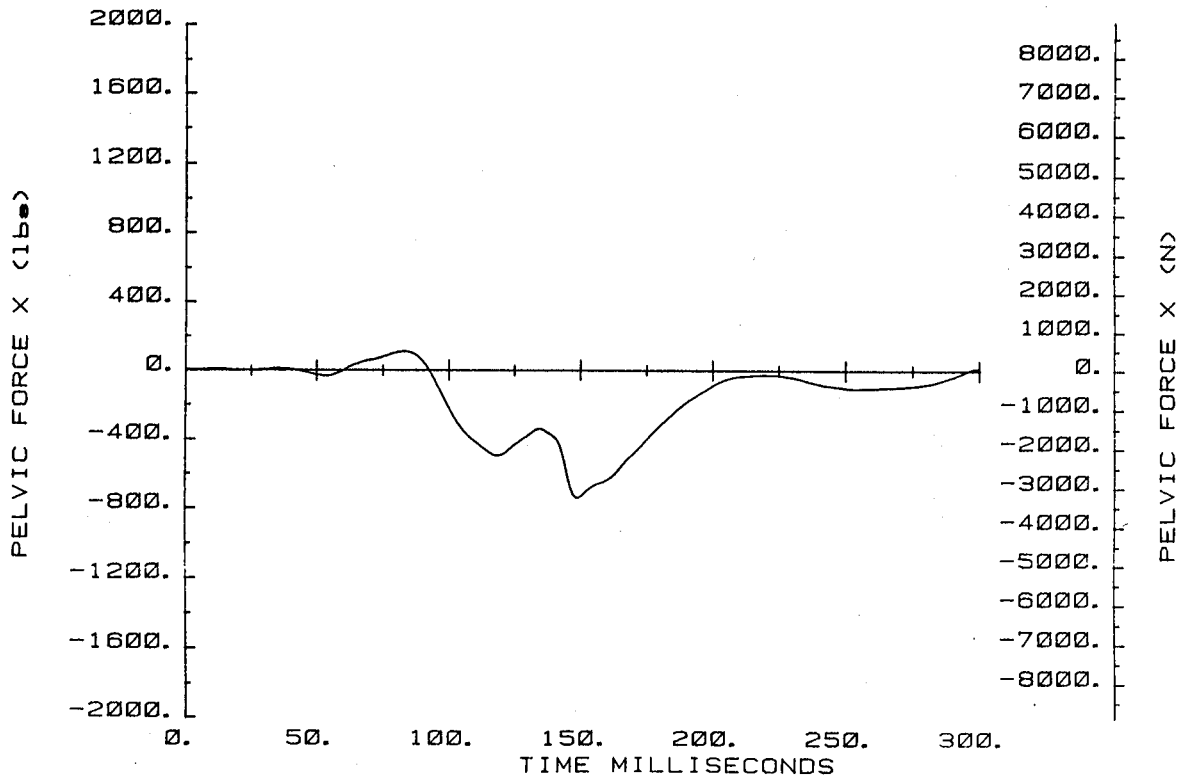
CAMI SLED TEST  
A83103



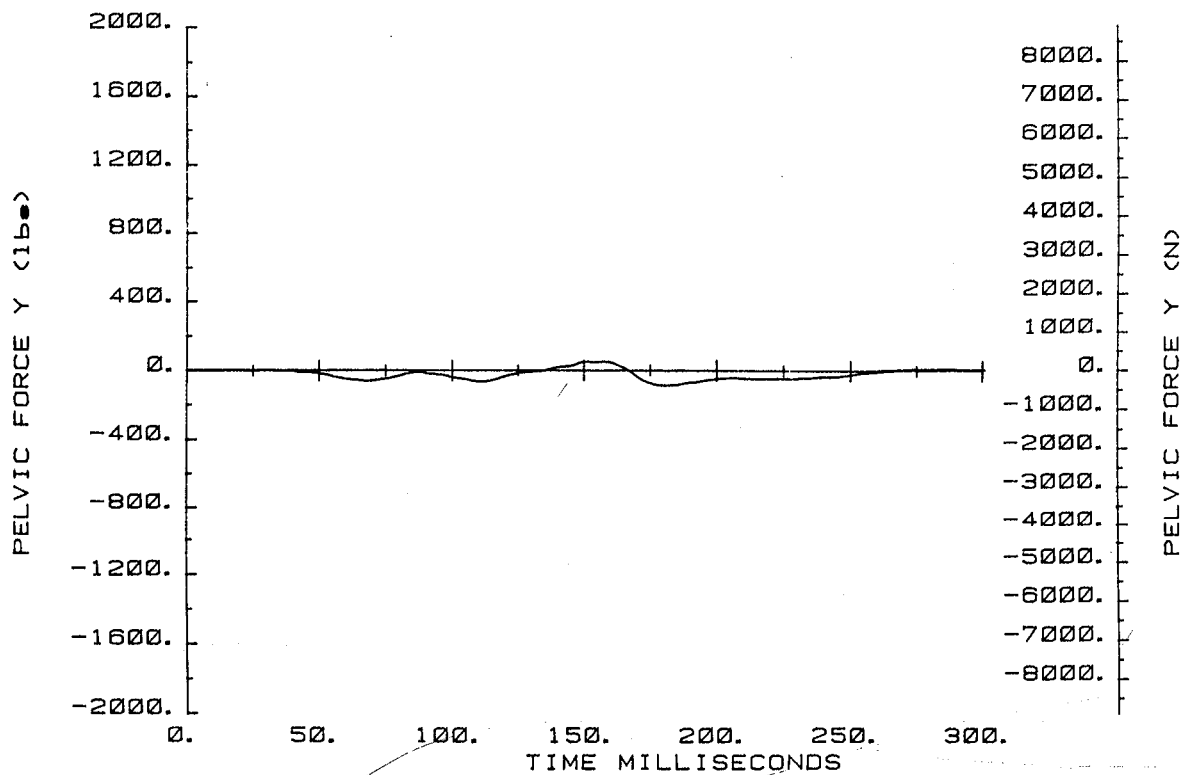
CAMI SLED TEST  
A83103



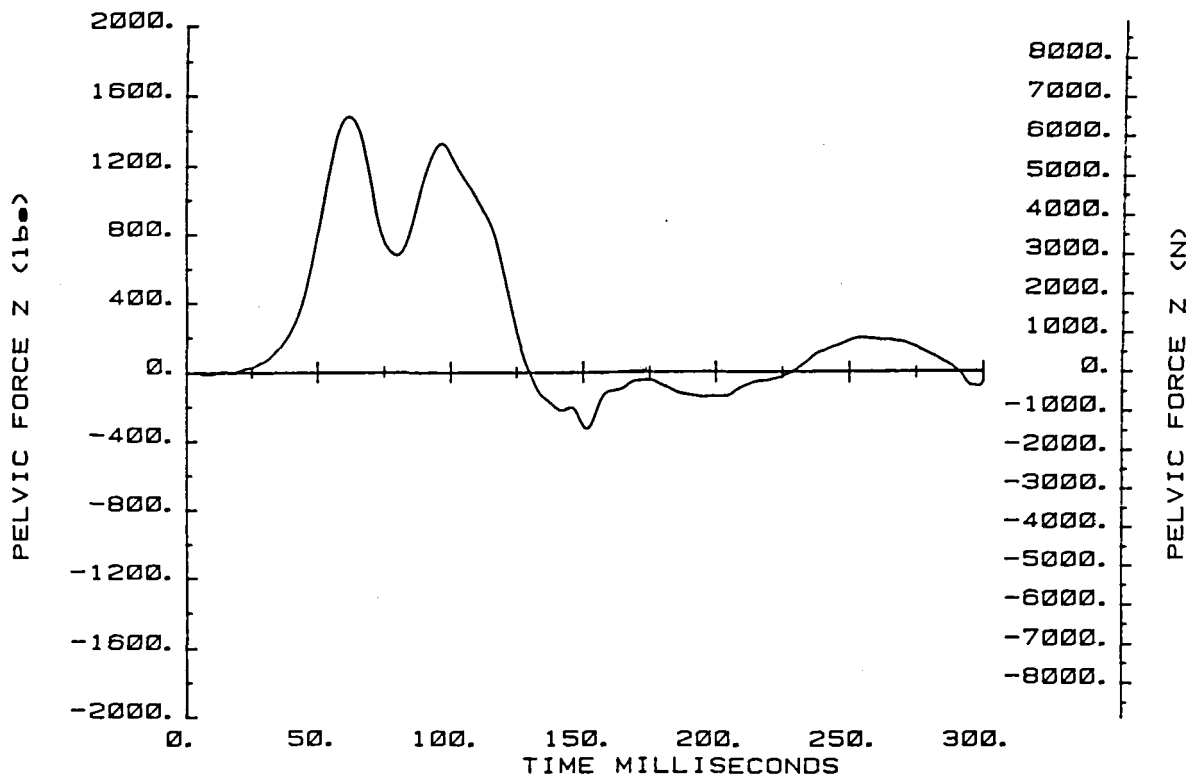
CAMI SLED TEST  
A83103



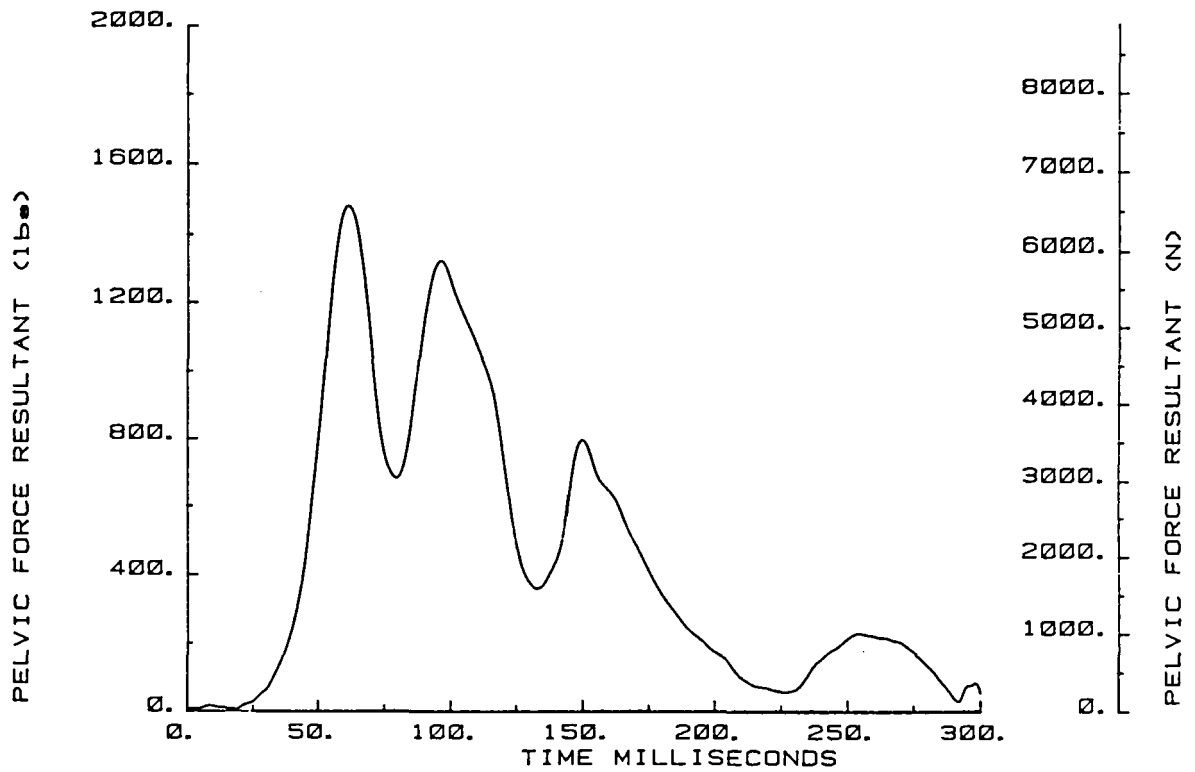
CAMI SLED TEST  
A83103



CAMI SLED TEST  
A83103

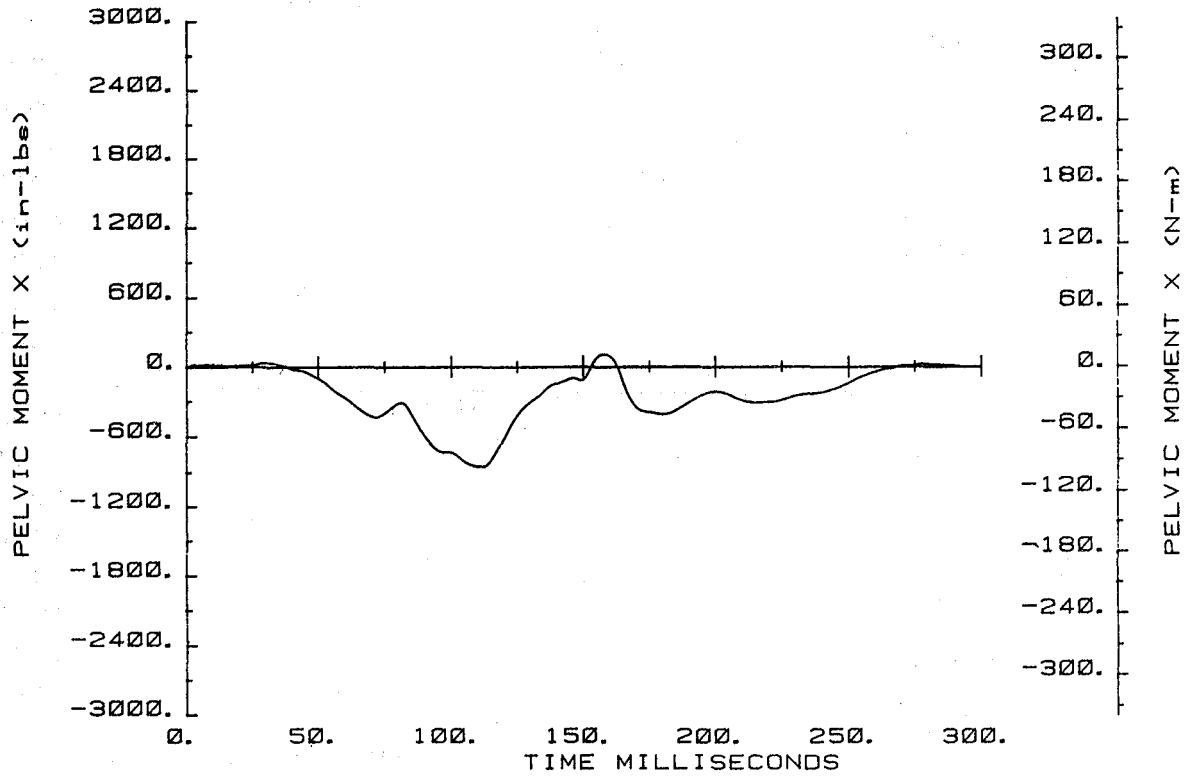


CAMI SLED TEST  
A83103

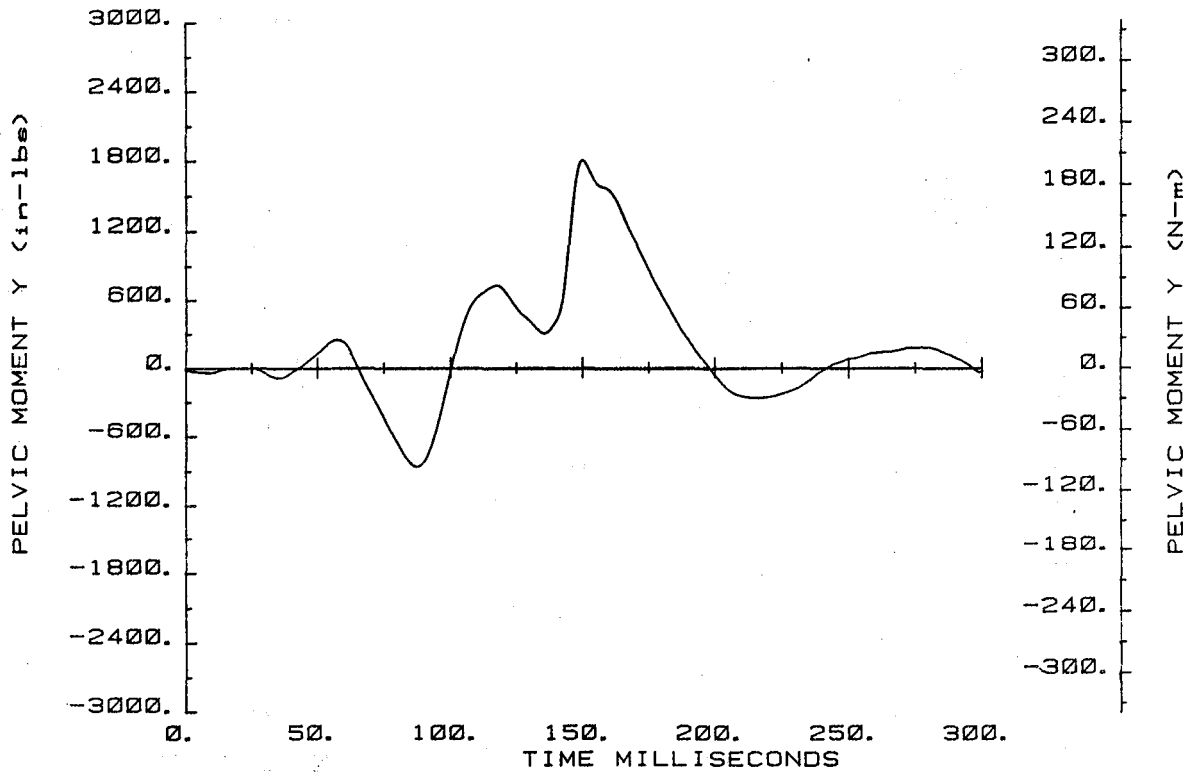




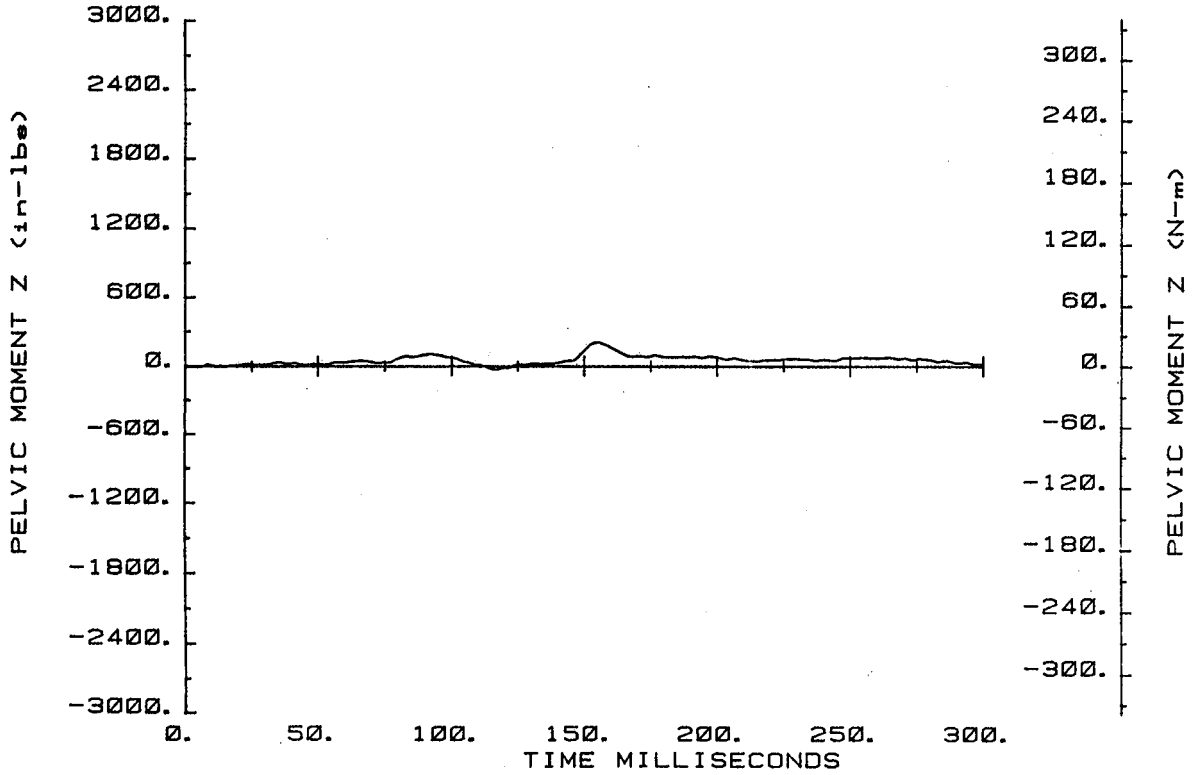
CAMI SLED TEST  
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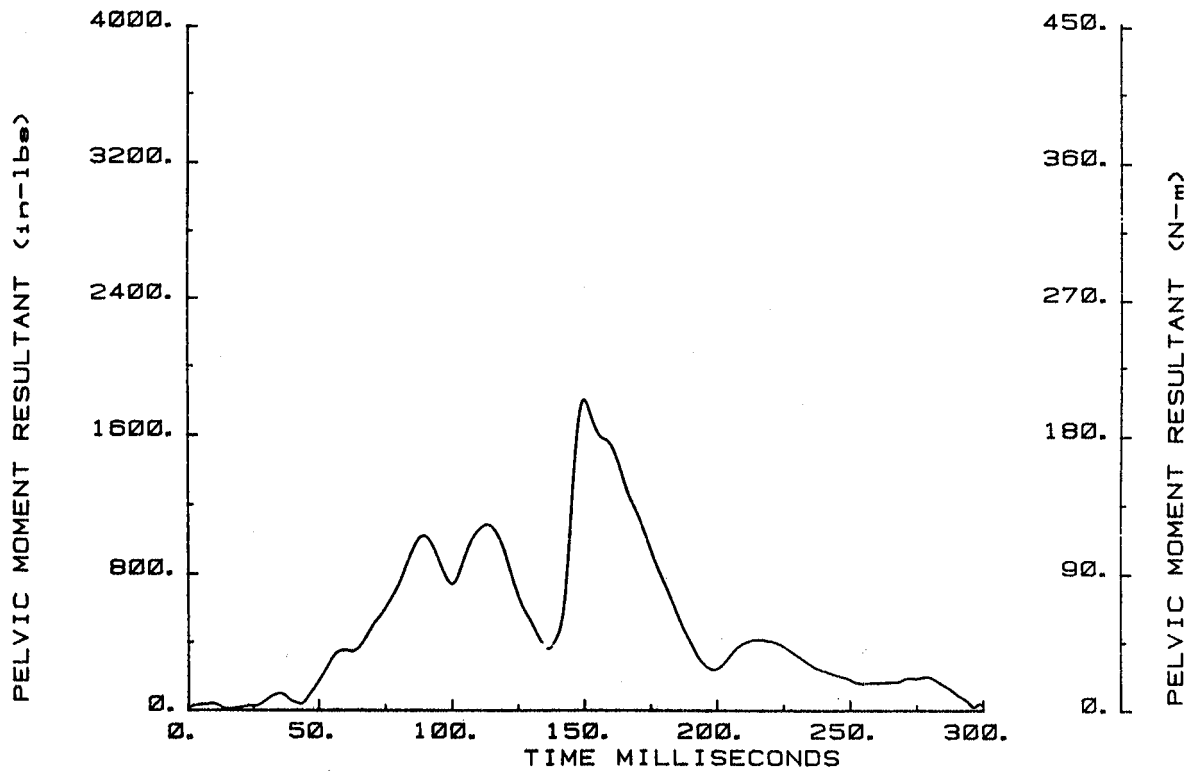
CAMI SLED TEST  
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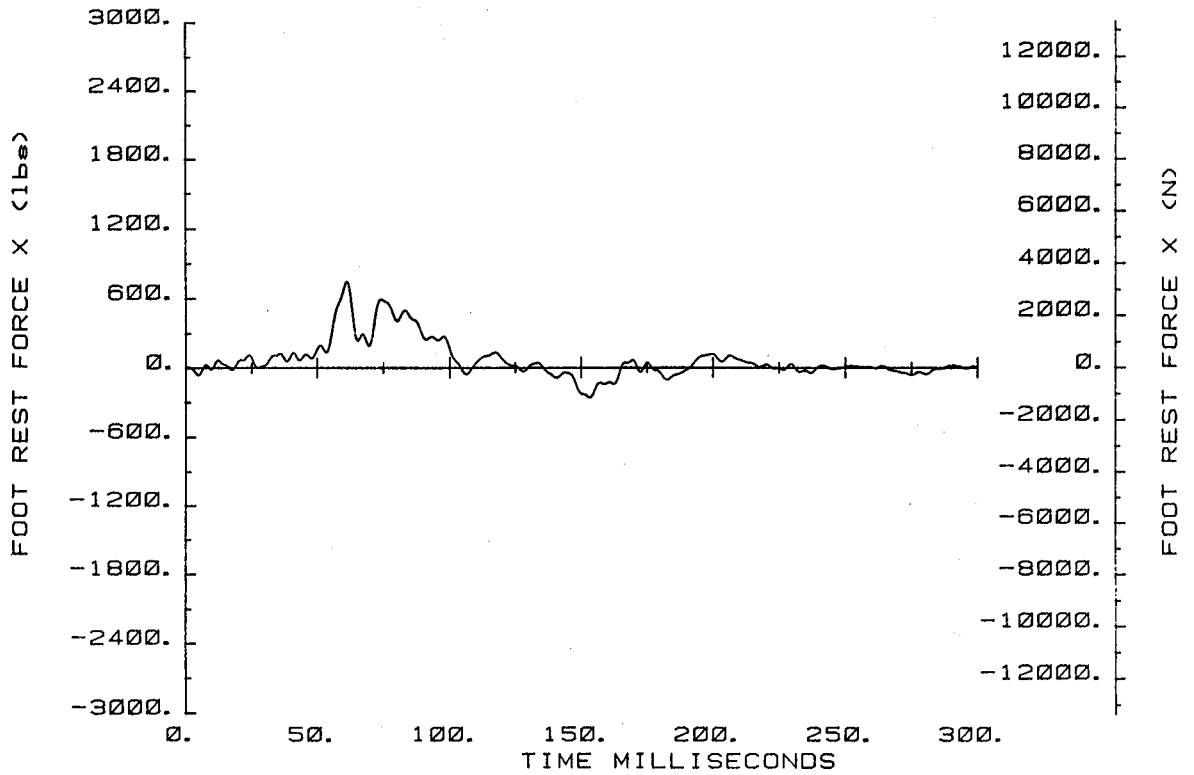
CAMI SLED TEST  
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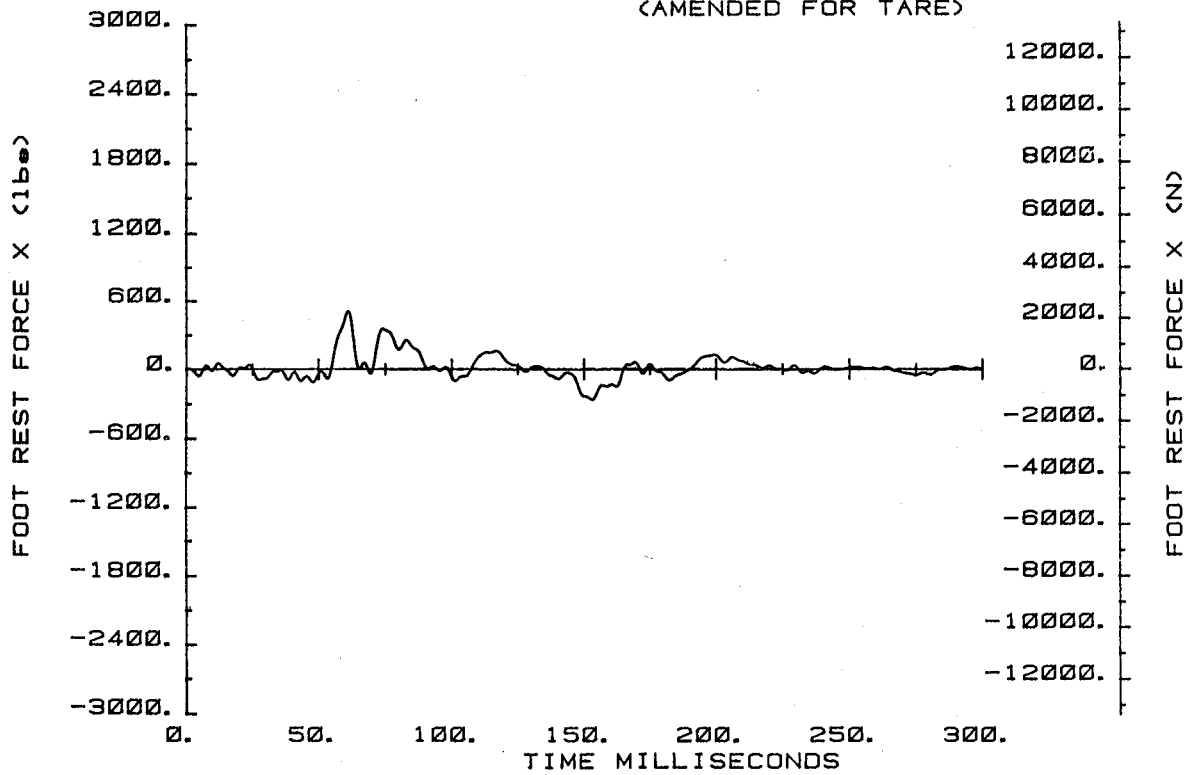
CAMI SLED TEST  
A83103



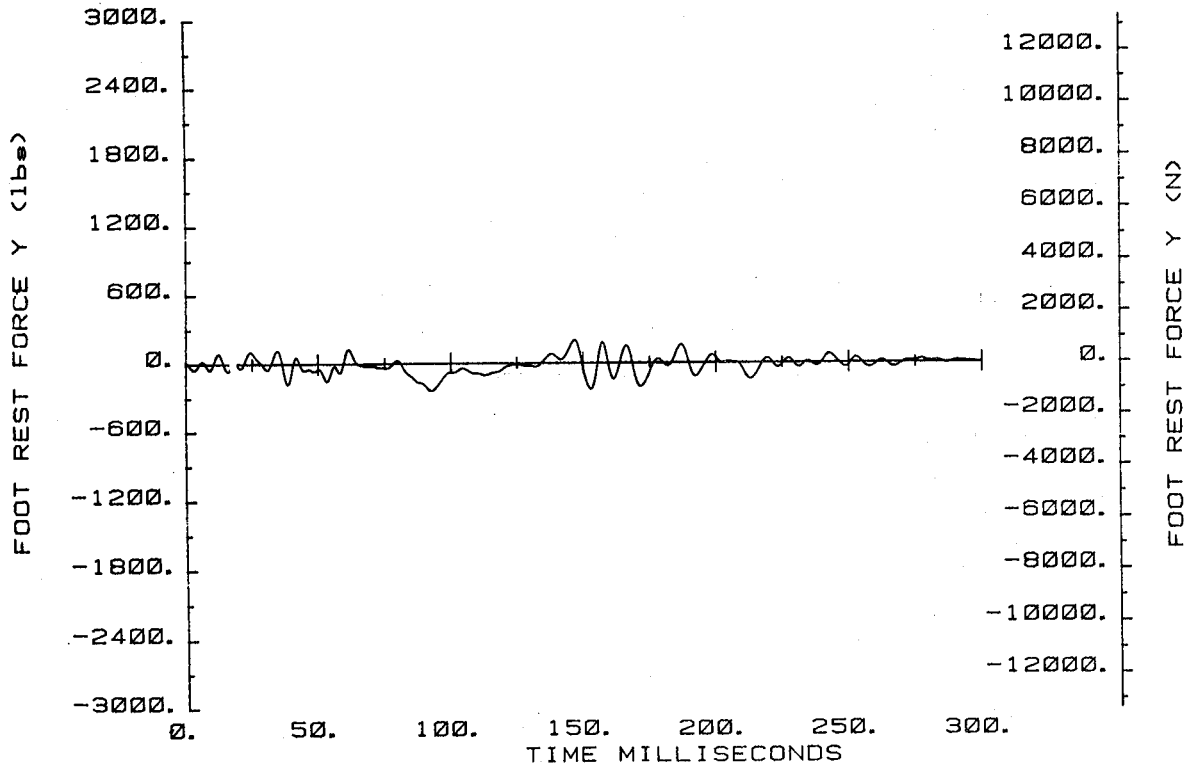
CAMI SLED TEST  
A83103



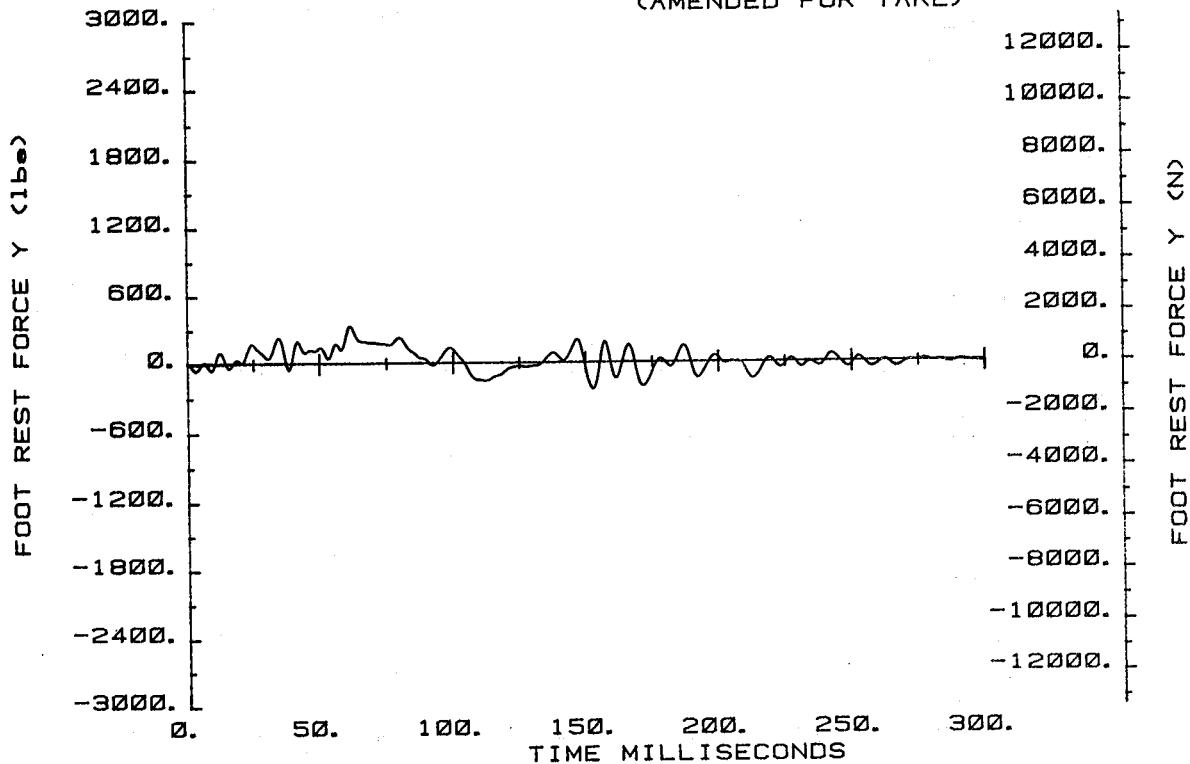
CAMI SLED TEST  
A83103  
(AMENDED FOR TARE)



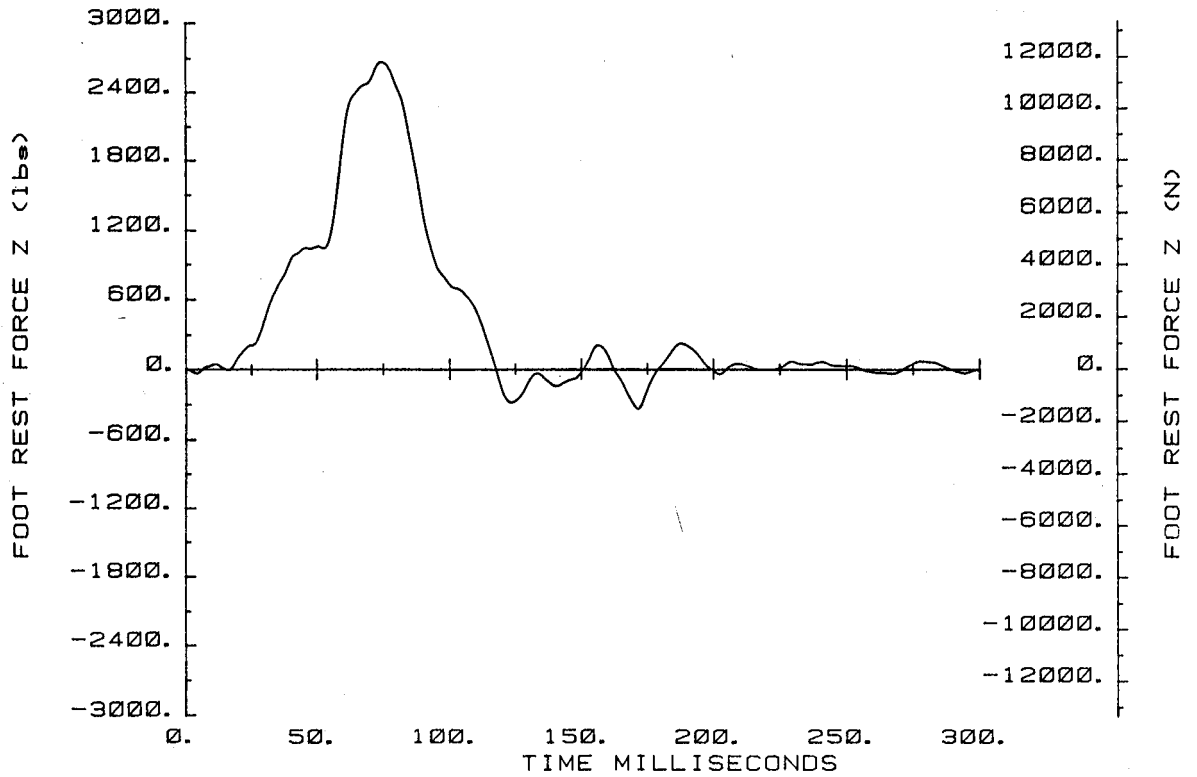
CAMI SLED TEST  
A83103



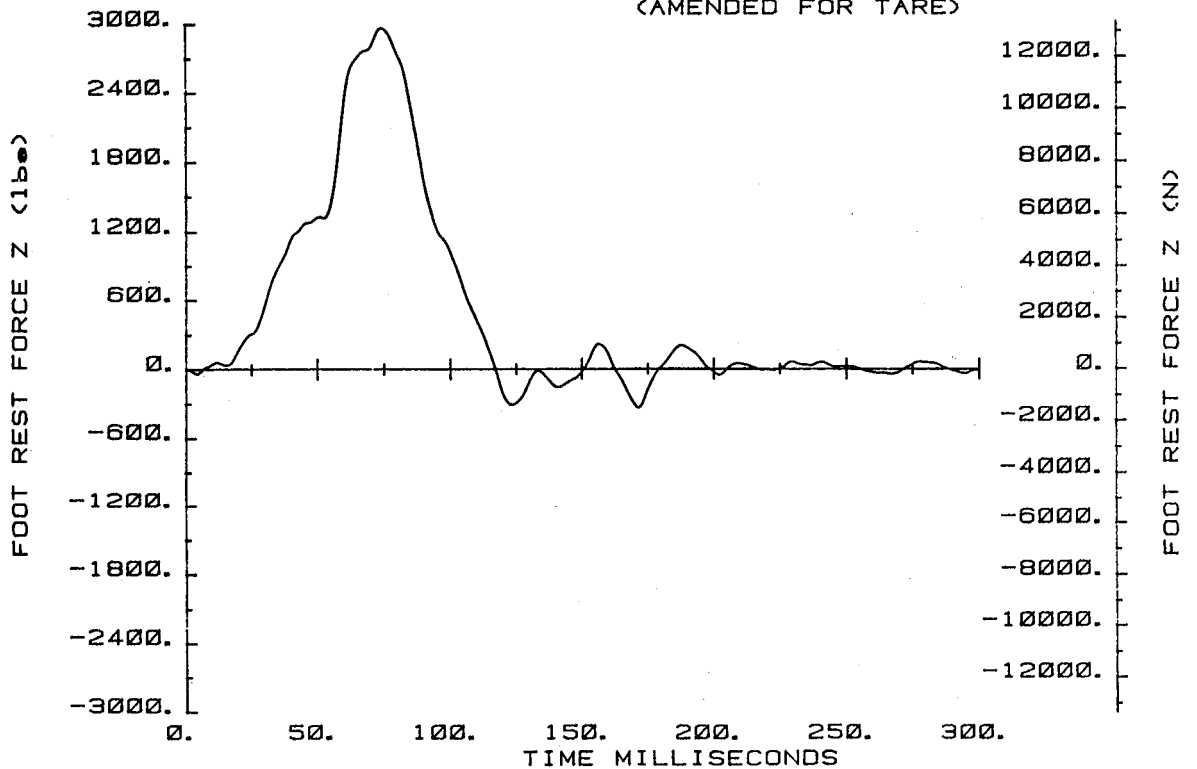
CAMI SLED TEST  
A83103  
(AMENDED FOR TARE)



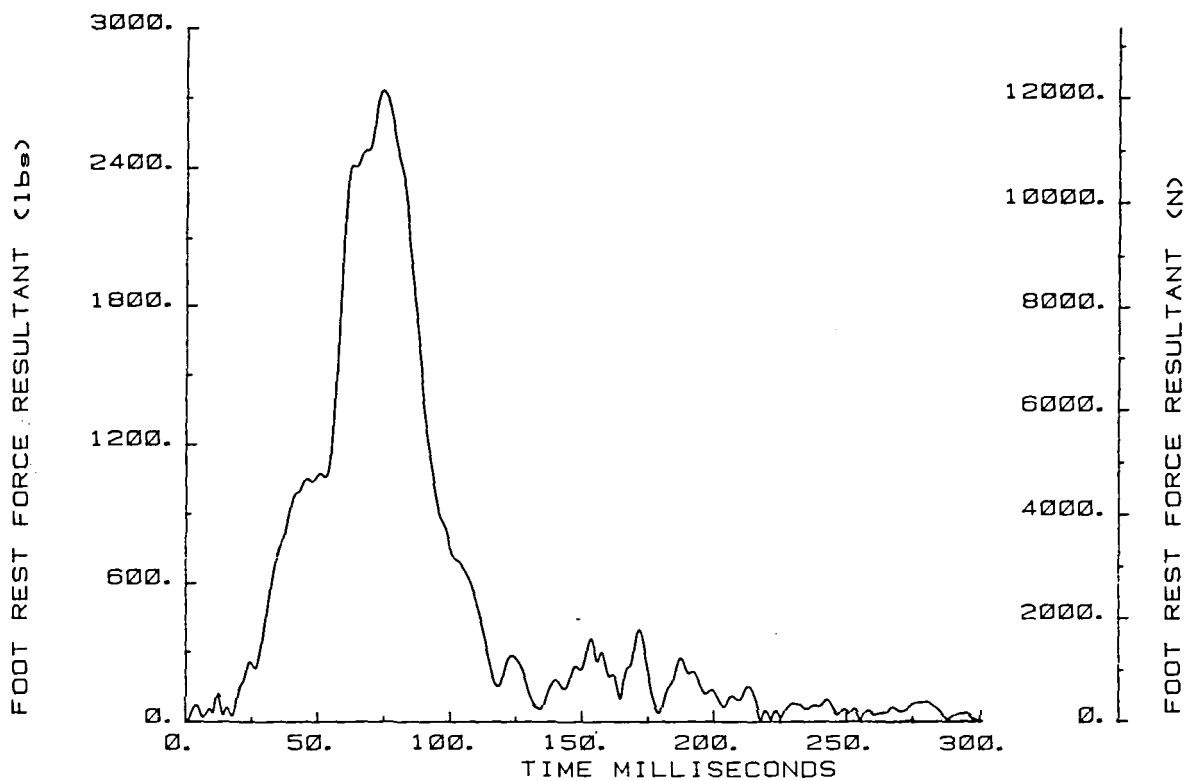
CAMI SLED TEST  
A83103



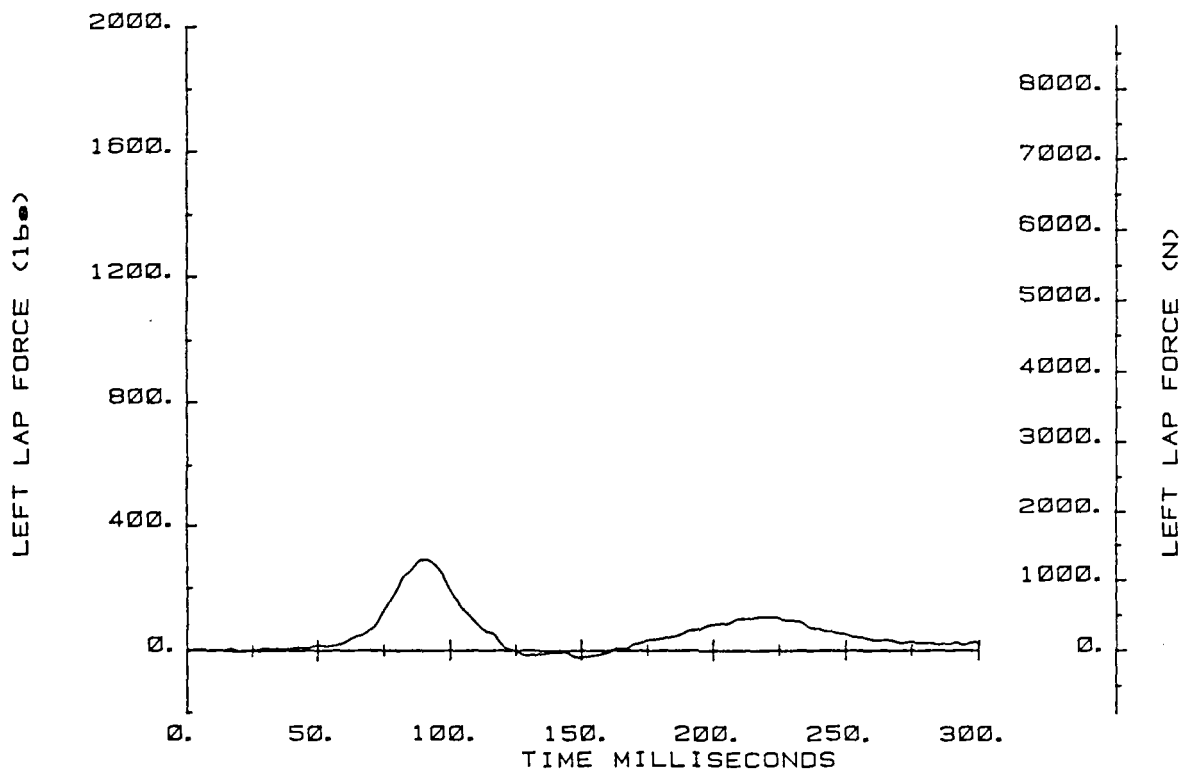
CAMI SLED TEST  
A83103  
(AMENDED FOR TARE)



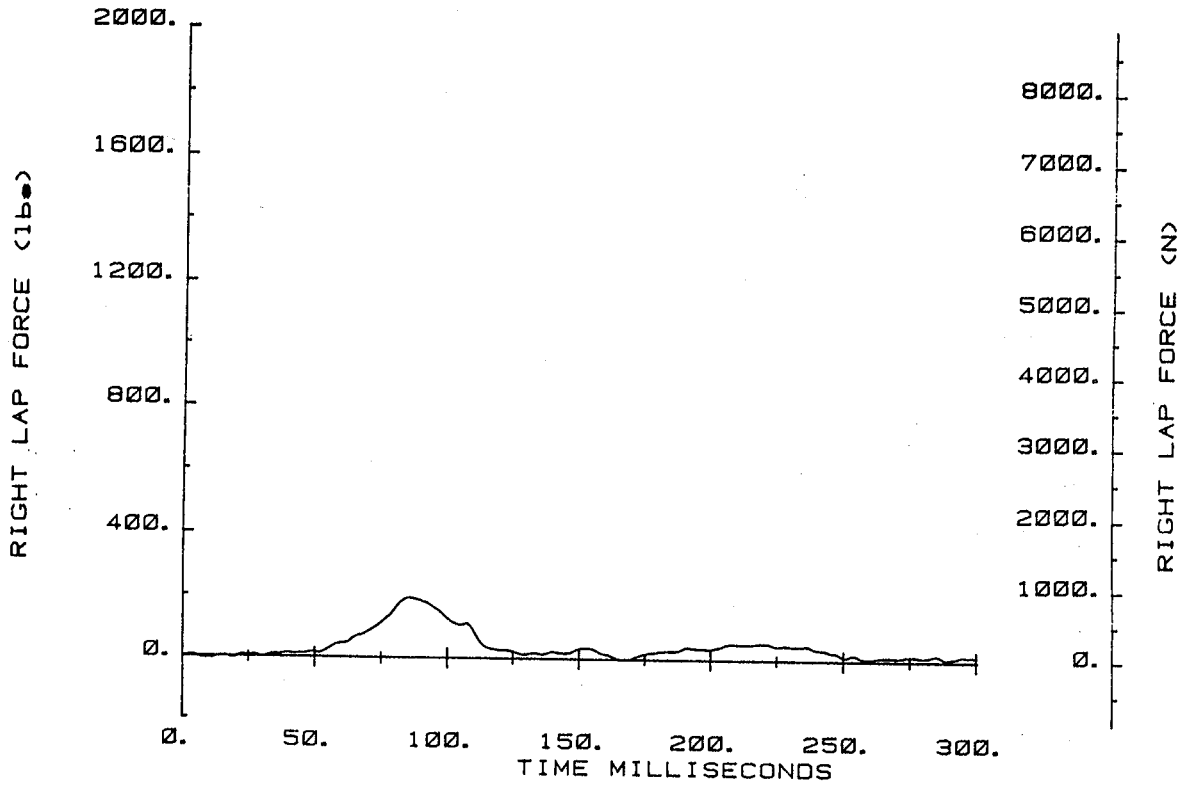
CAMI SLED TEST  
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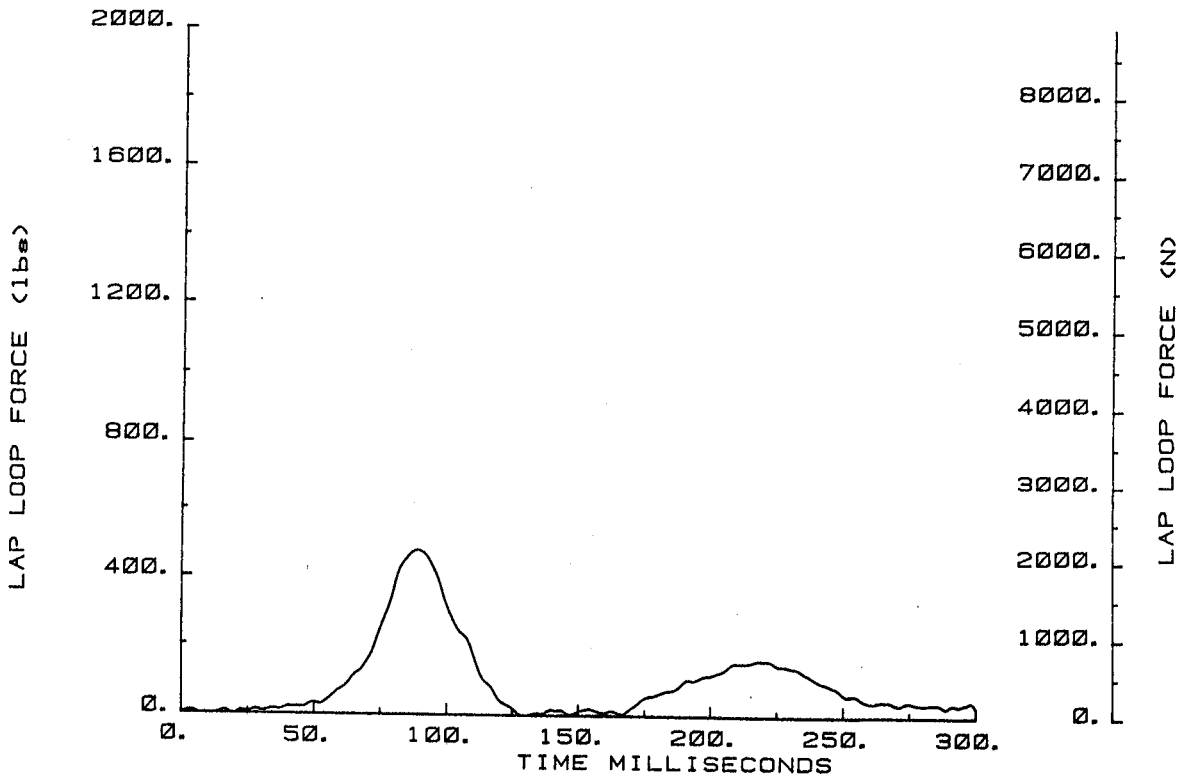
CAMI SLED TEST  
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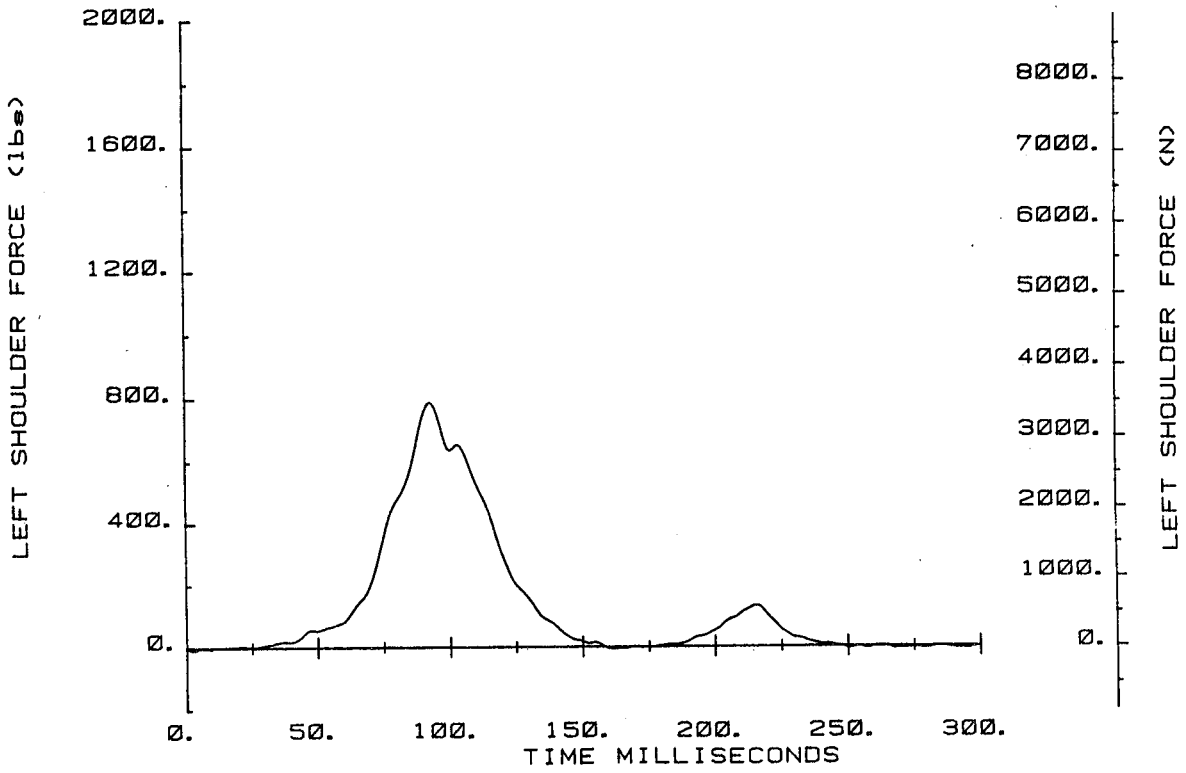
CAMI SLED TEST  
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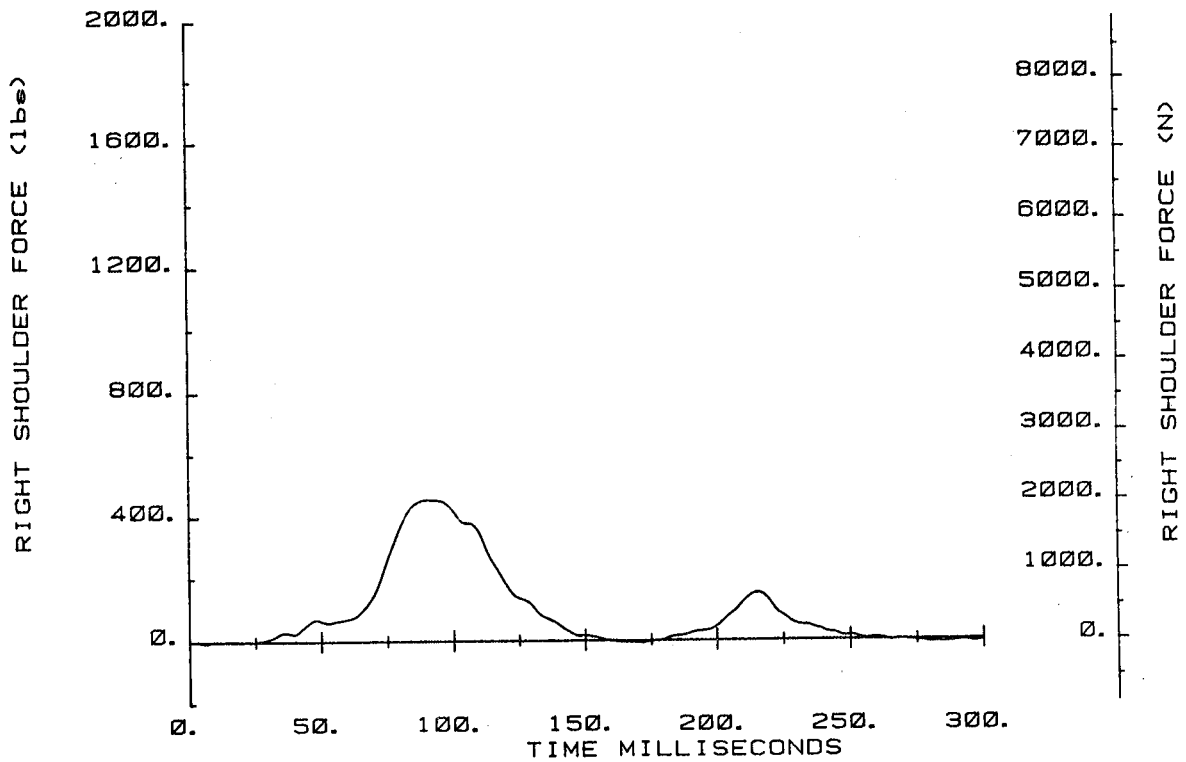
CAMI SLED TEST  
A83103



CAMI SLED TEST  
A83103

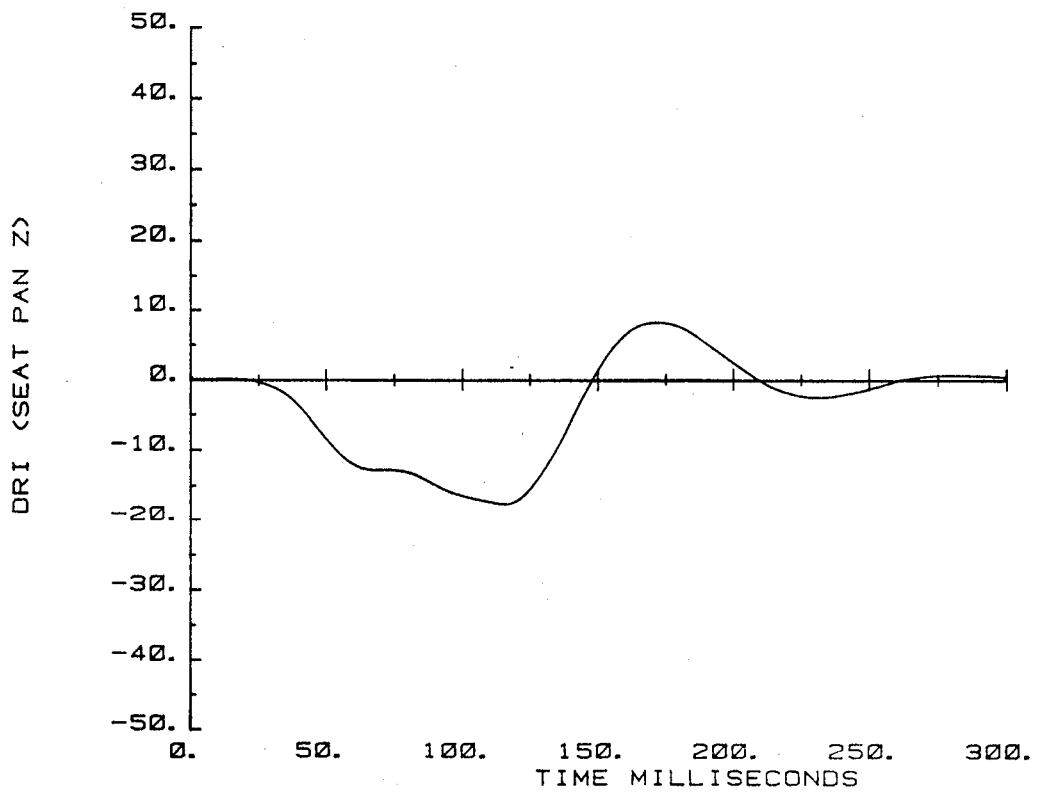
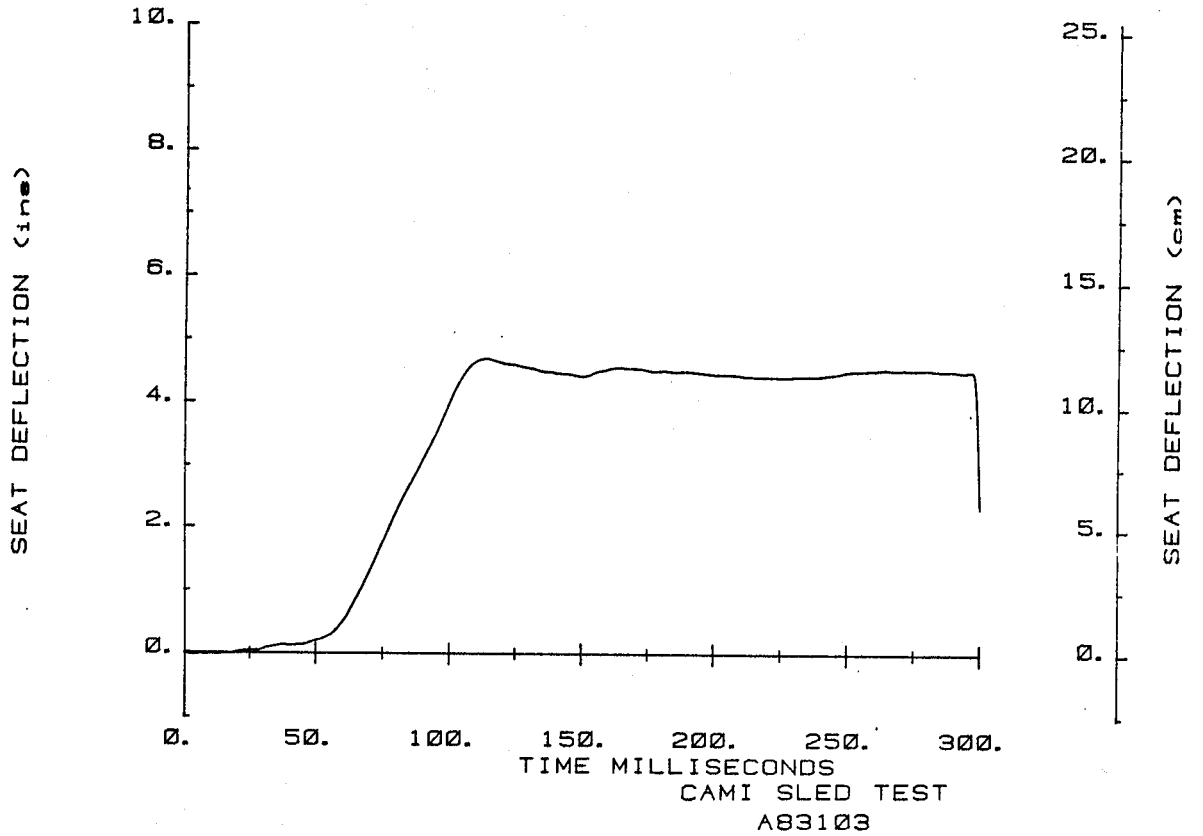


CAMI SLED TEST  
A83103

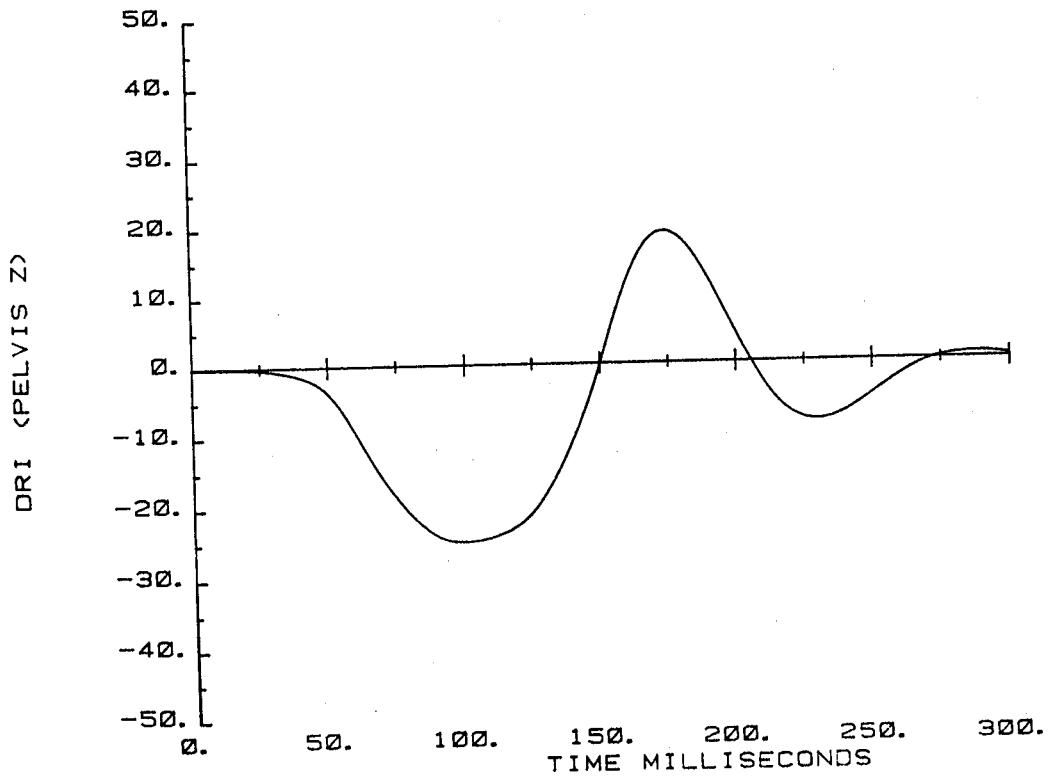
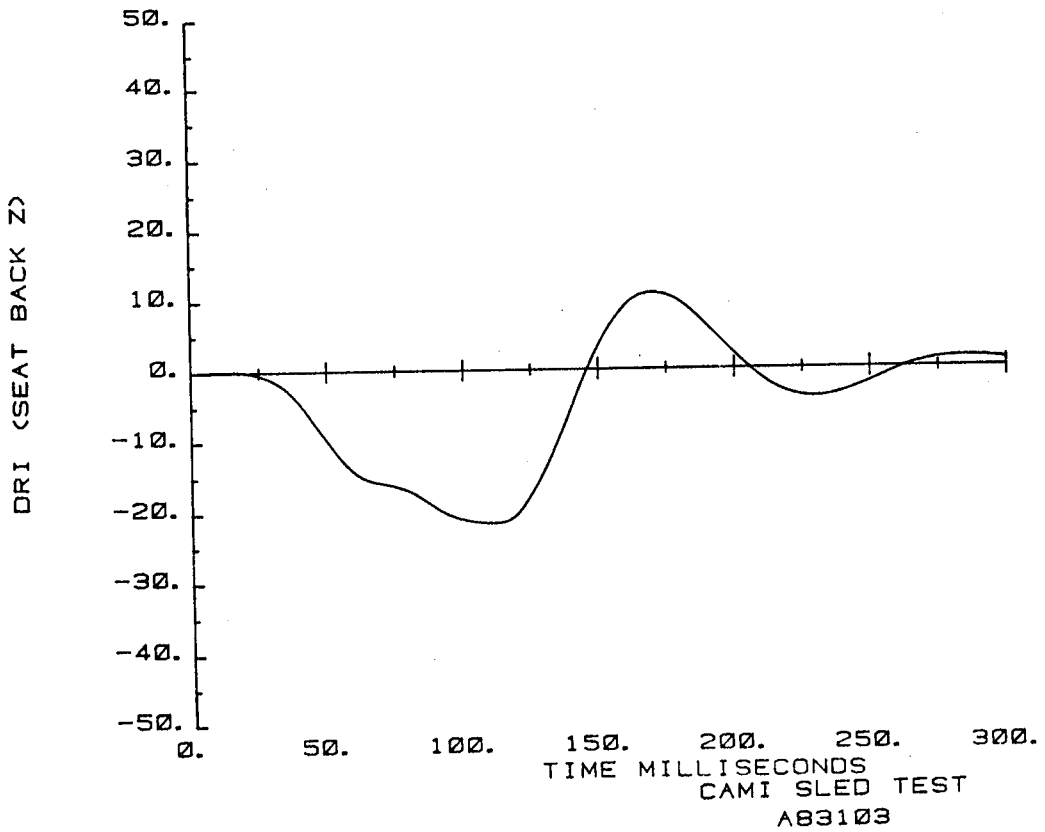




CAMI SLED TEST  
A83103



CAMI SLED TEST  
A83103



4.0 CAMI TEST NO. A83-104

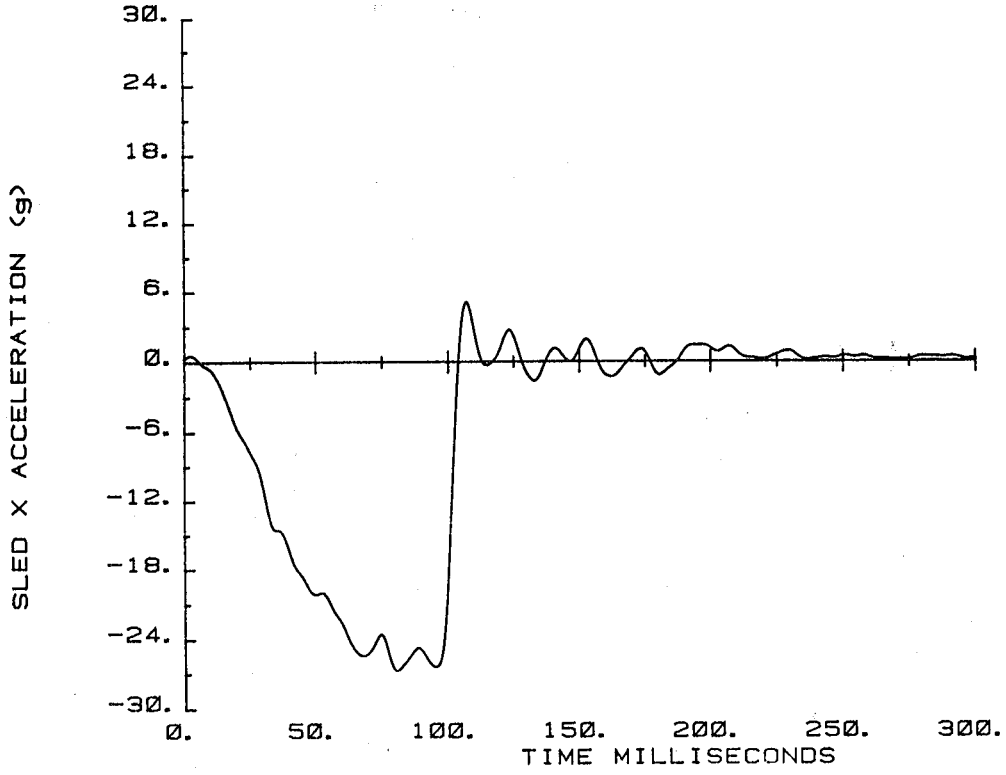
SEAT: Energy Absorbing

PULSE NUMBER: 2

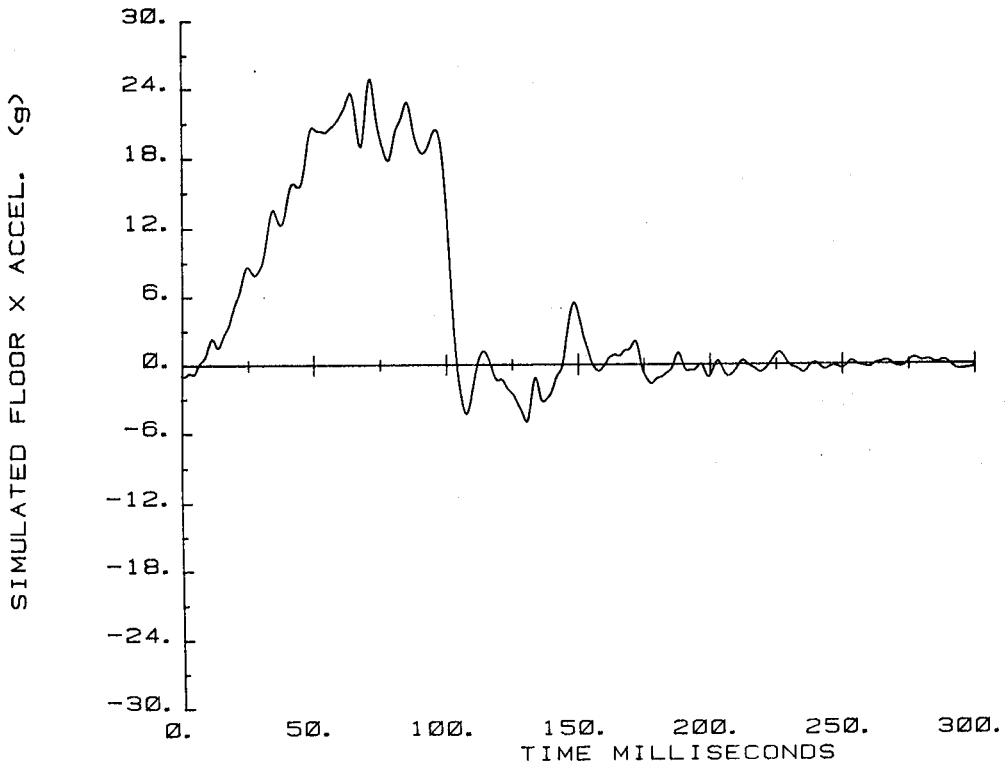
SEAT ORIENTATION: Pitch -  $-30^{\circ}$   
Roll -  $0^{\circ}$   
Yaw -  $180^{\circ}$

| 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)      | 30.6   | 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    | 204.3  | 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)    | -454.0 | 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   |        |                    |                    |

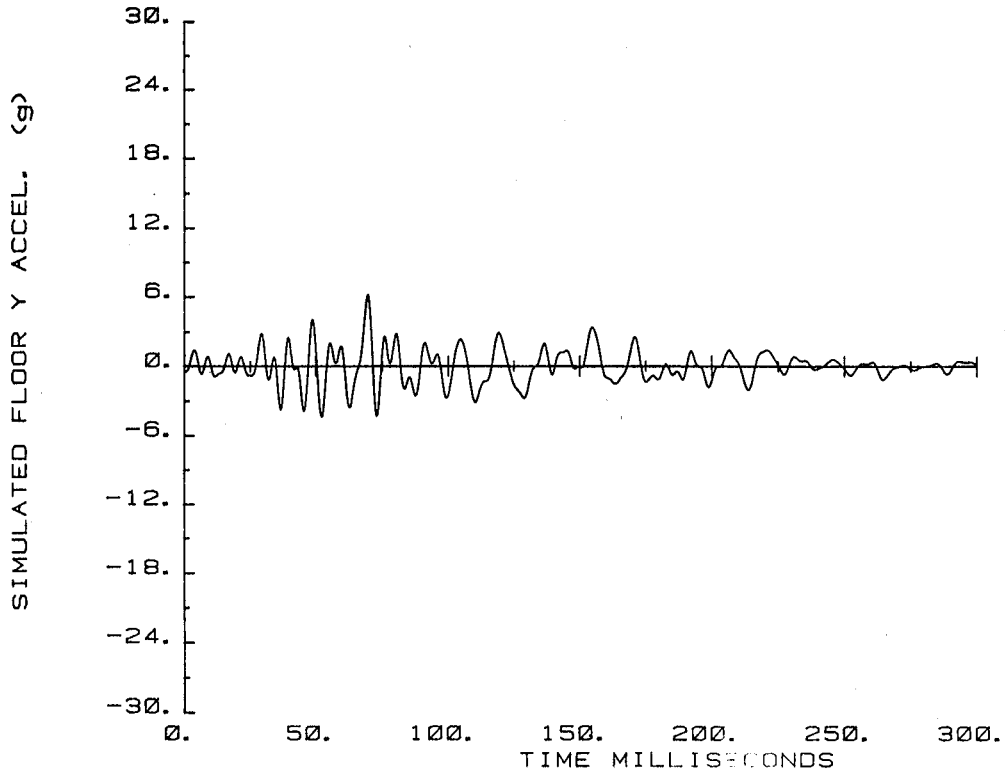
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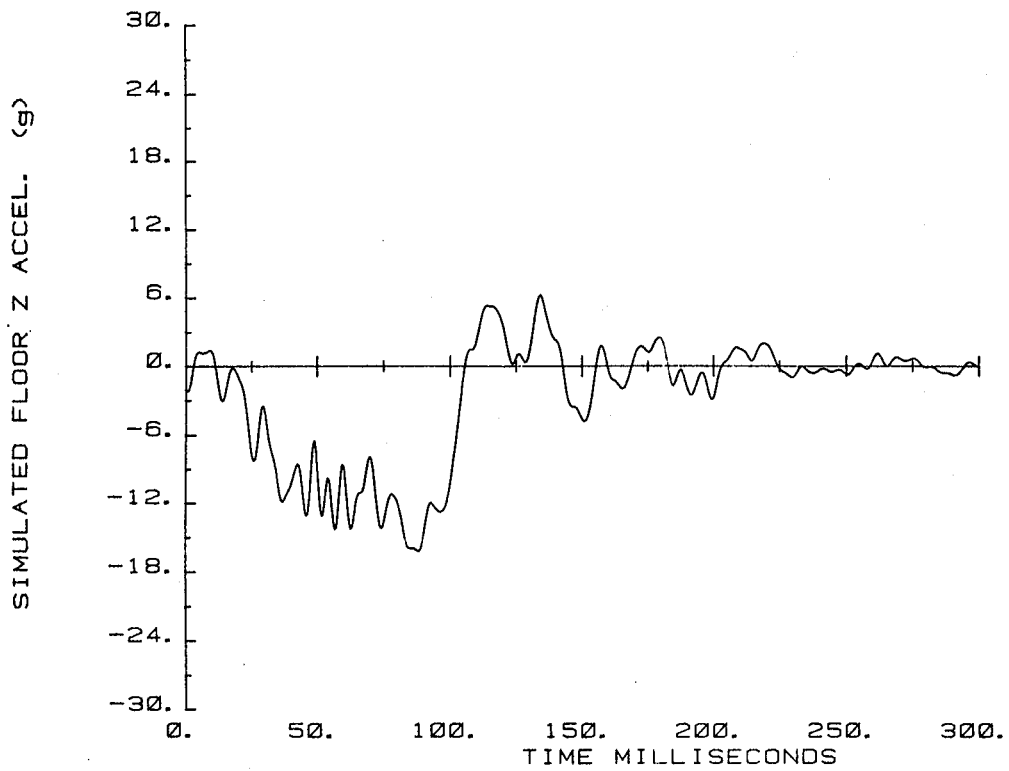
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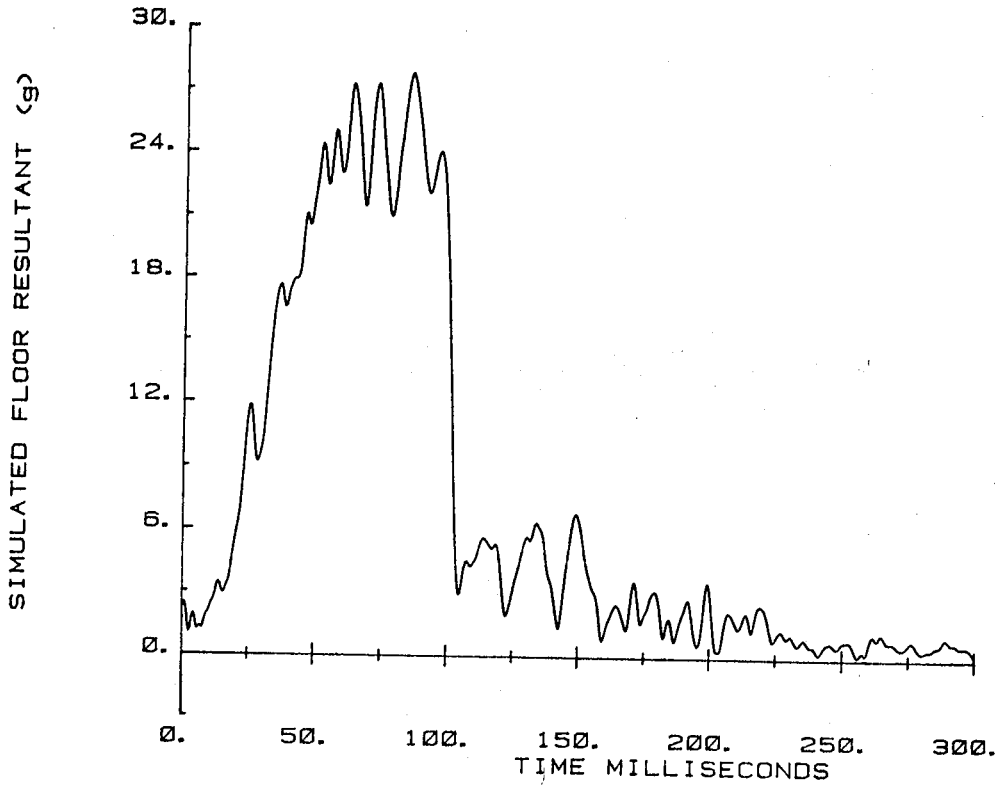
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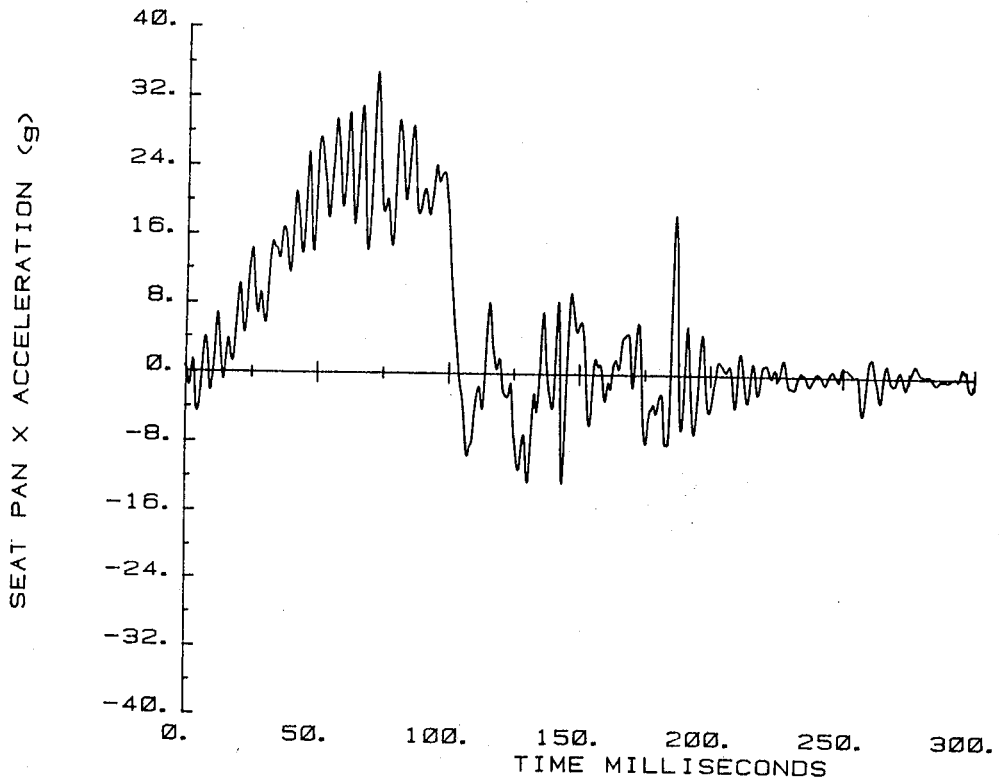
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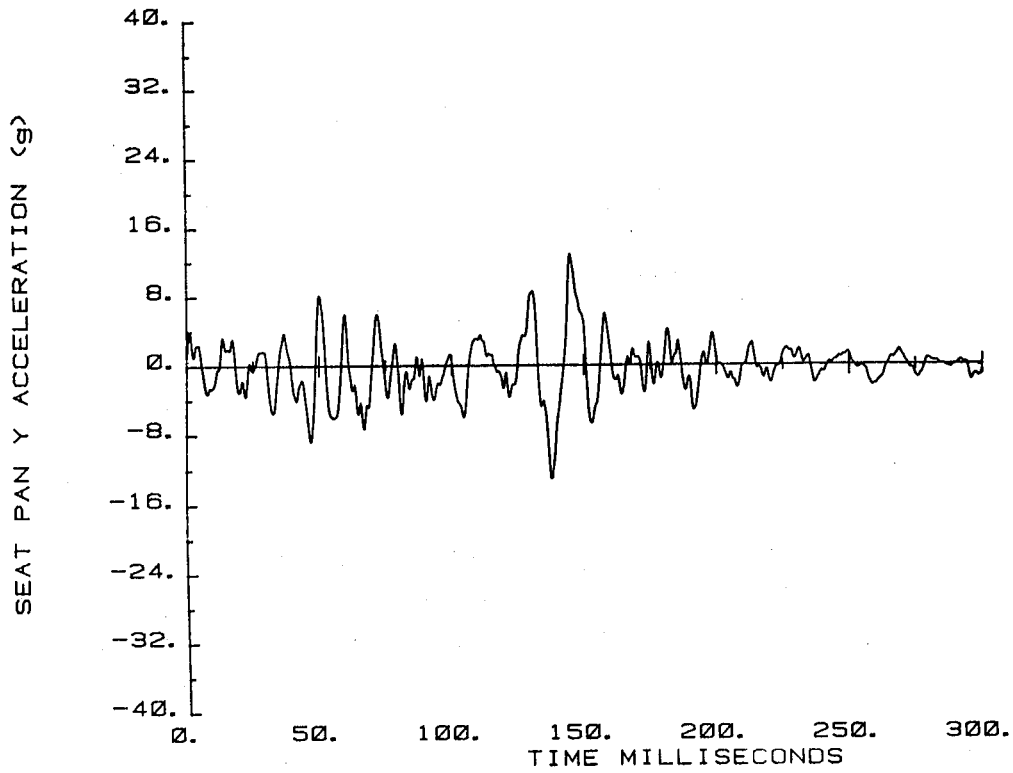
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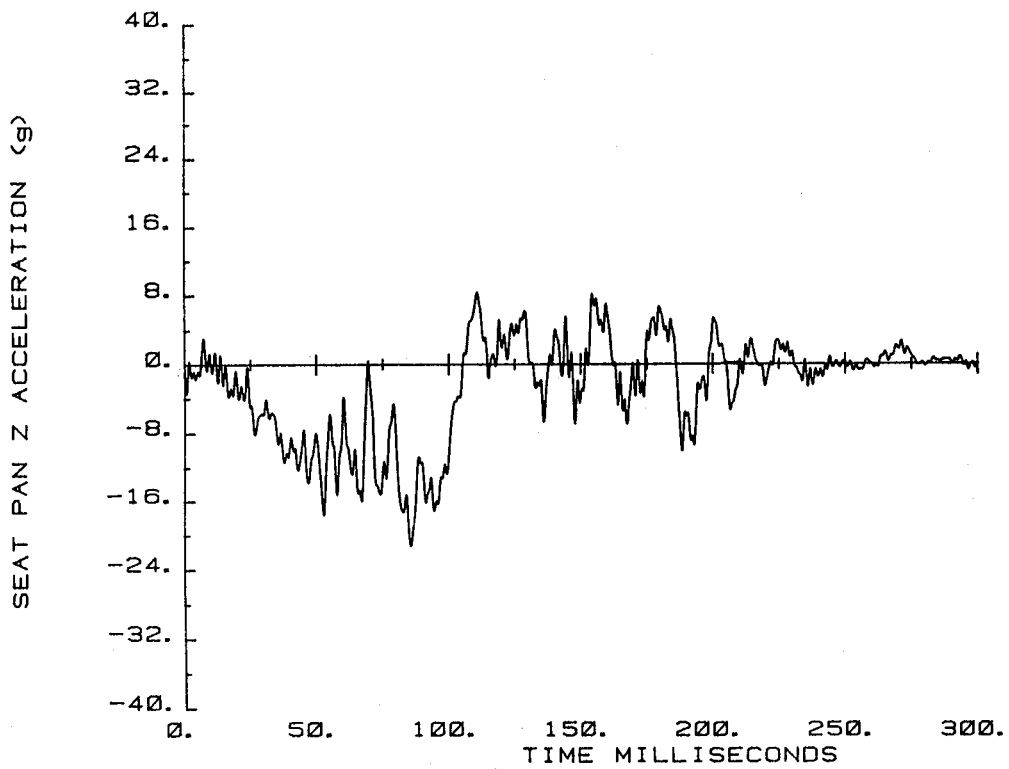
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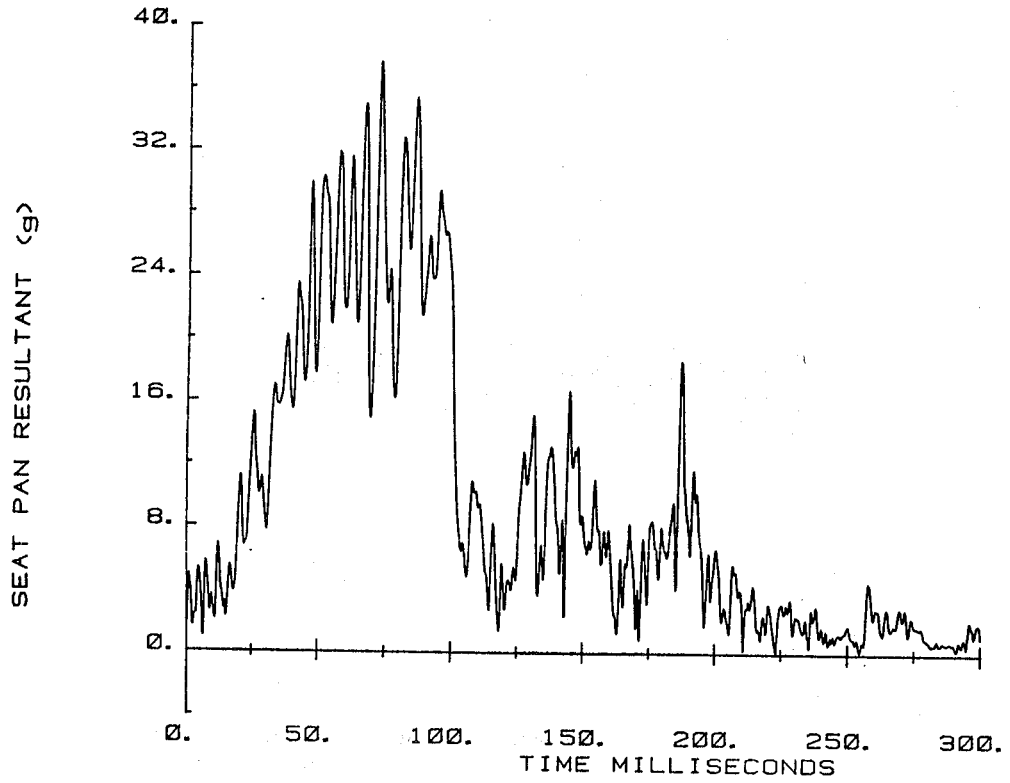


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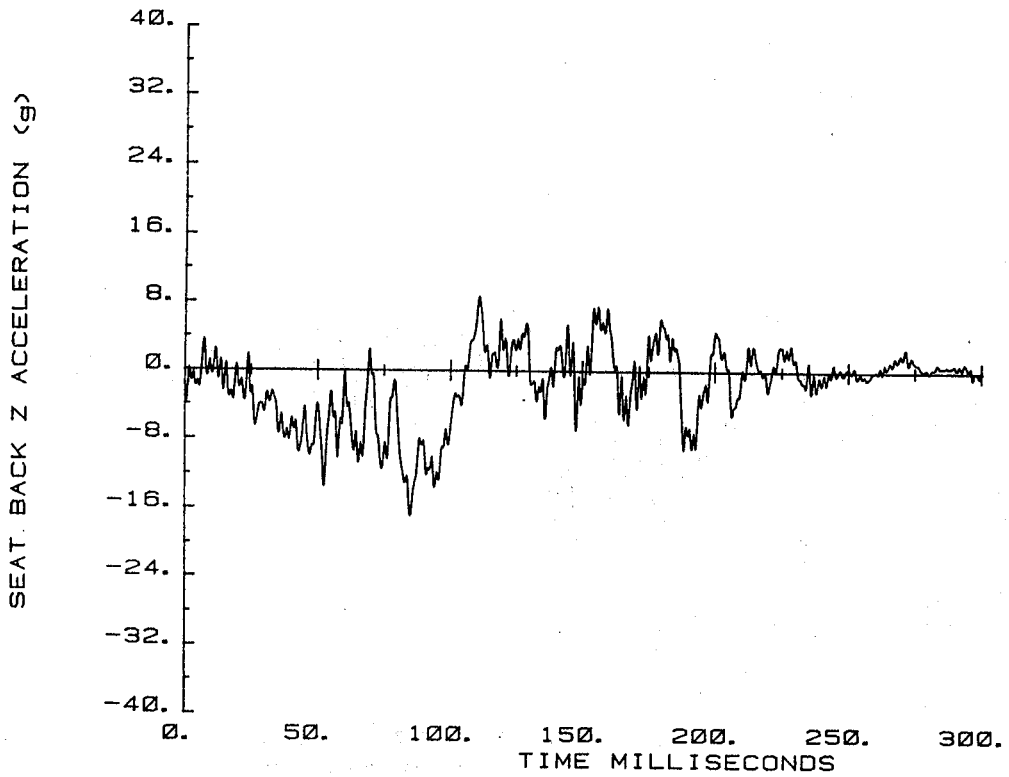




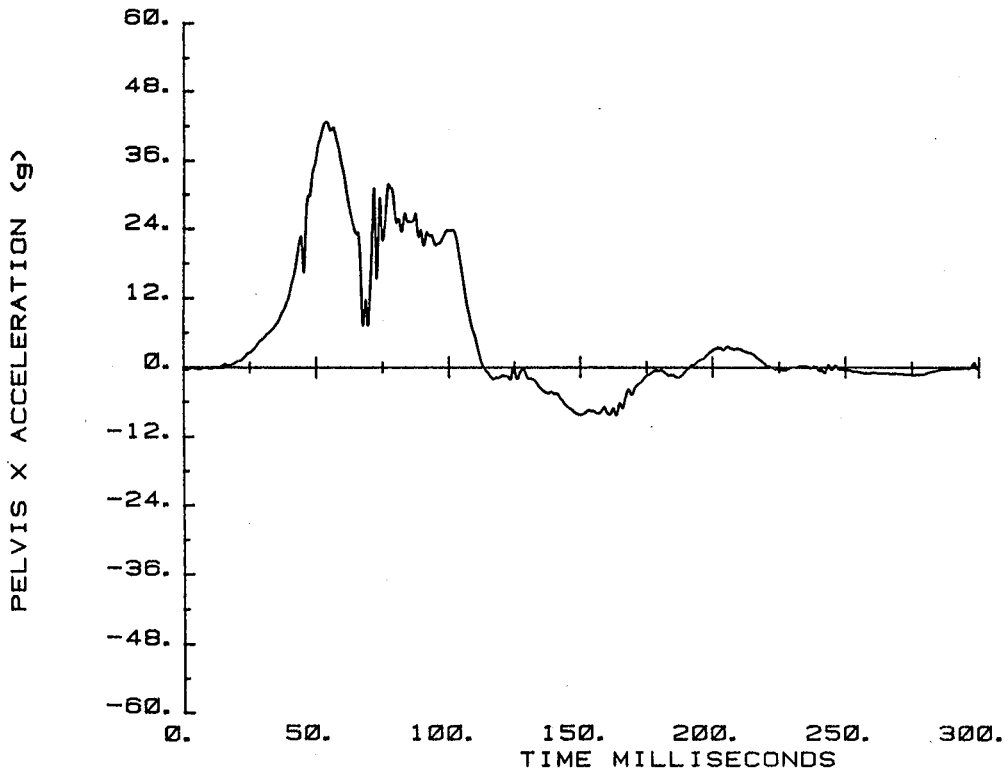
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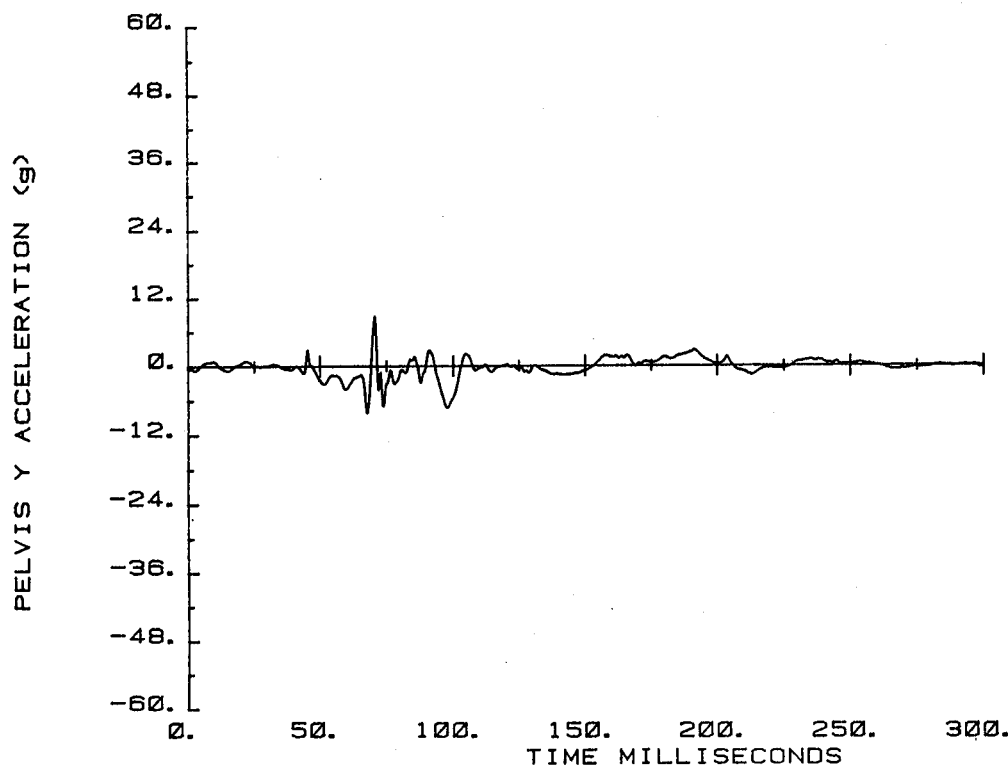
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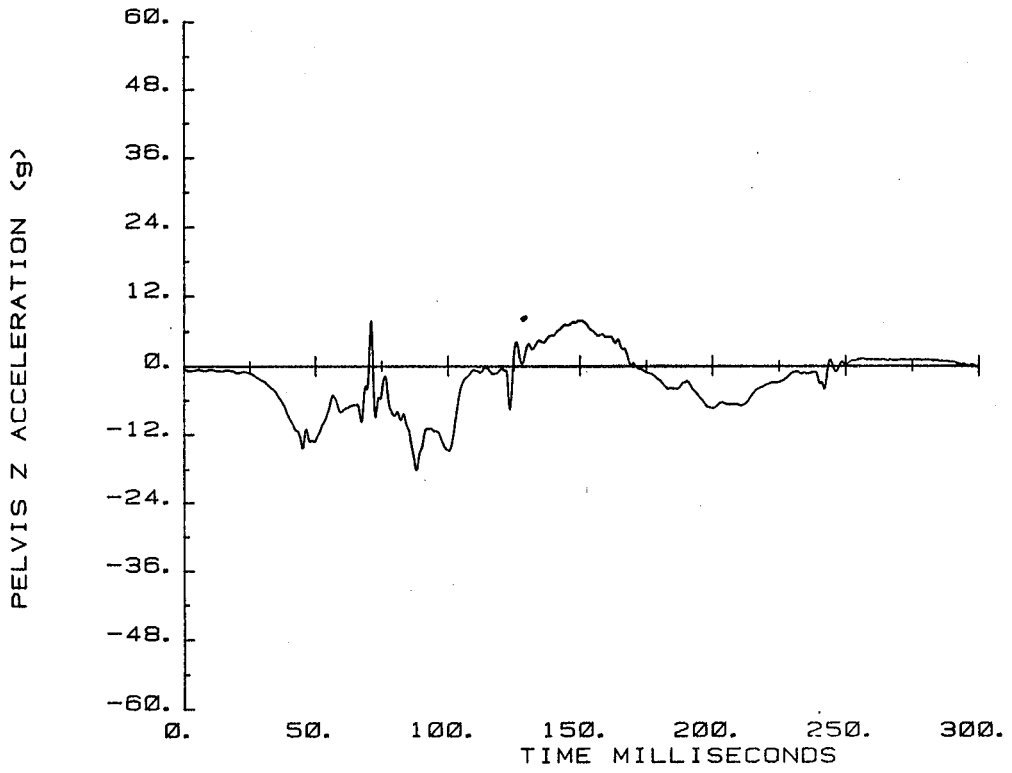
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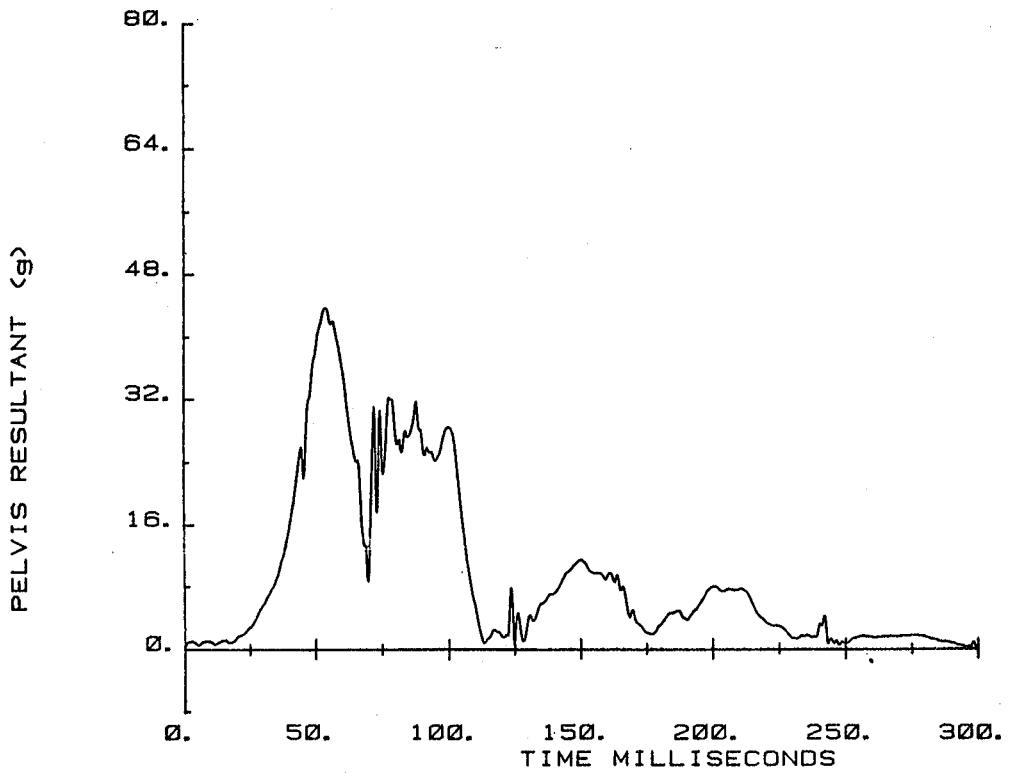
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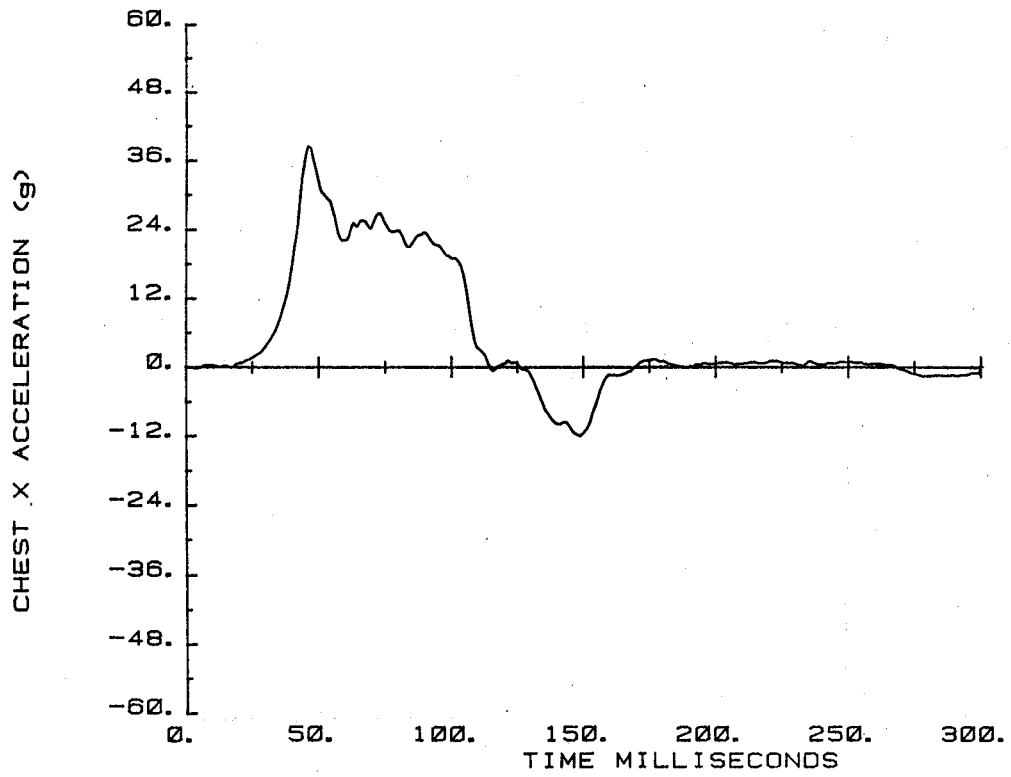
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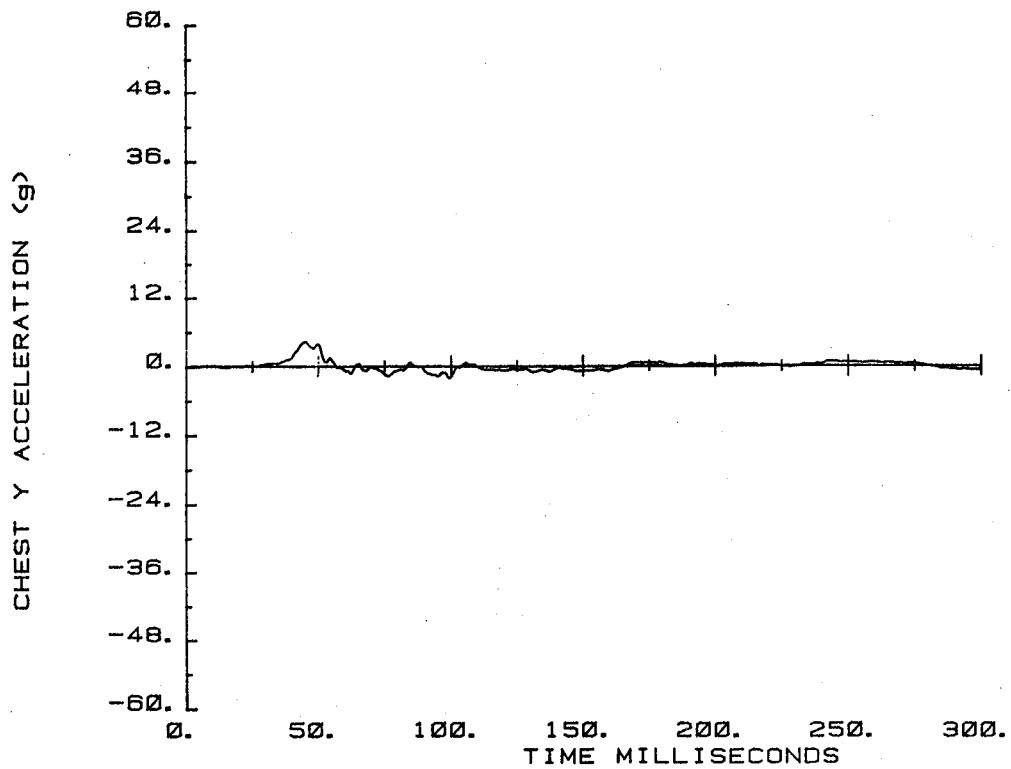
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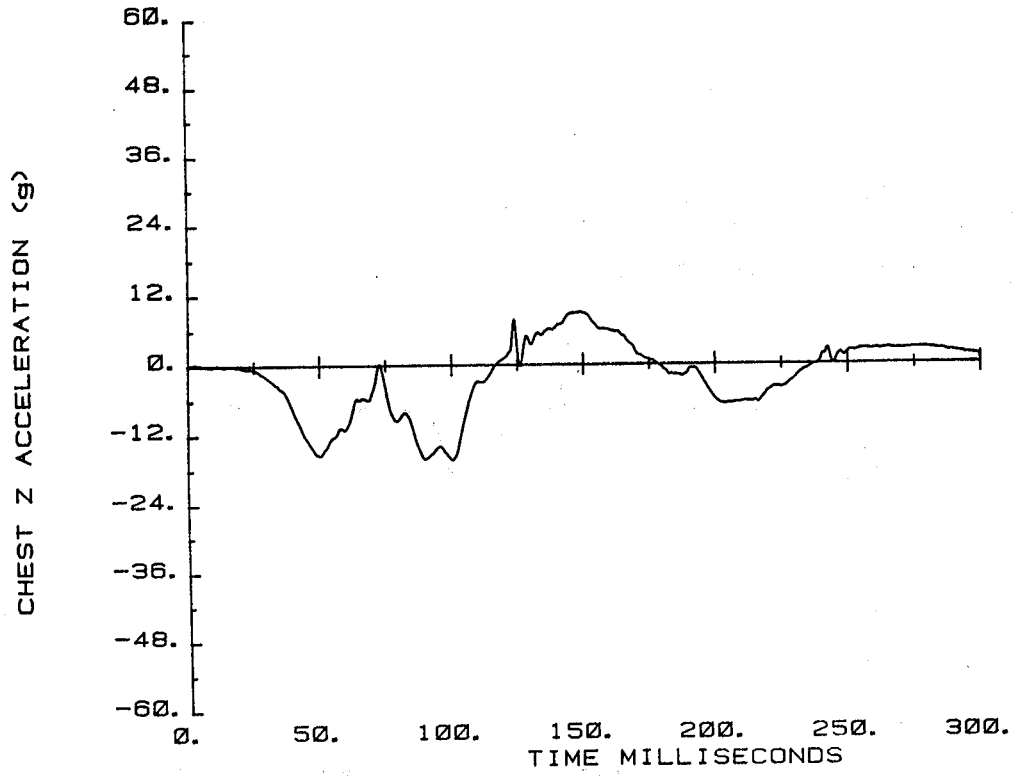
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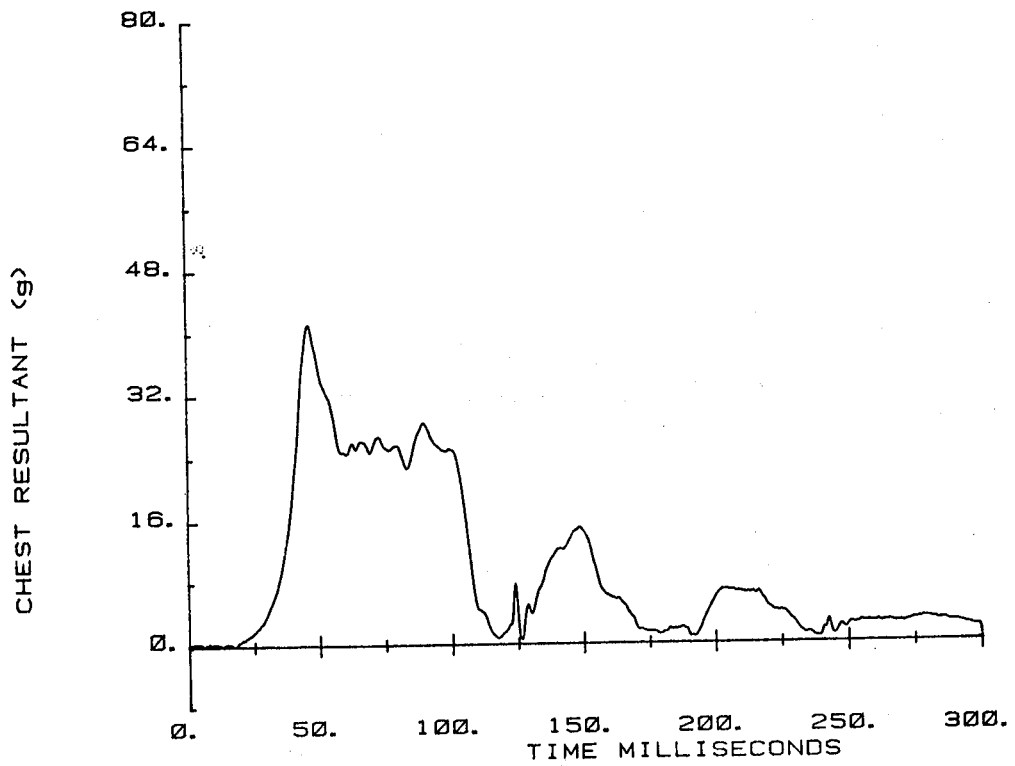
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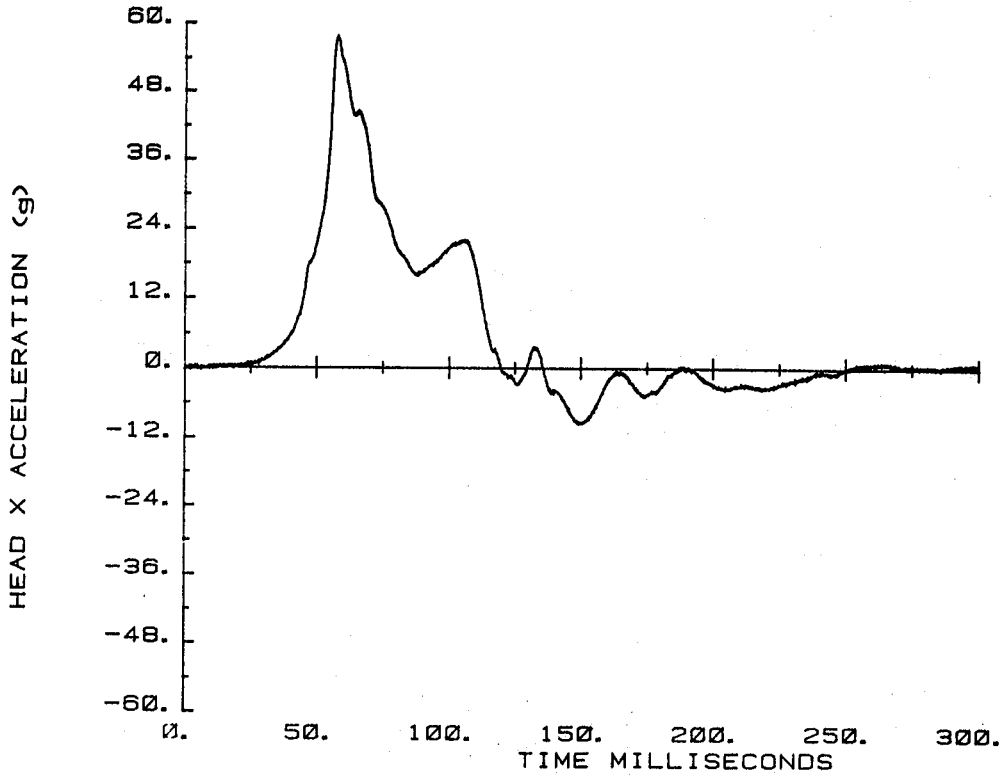
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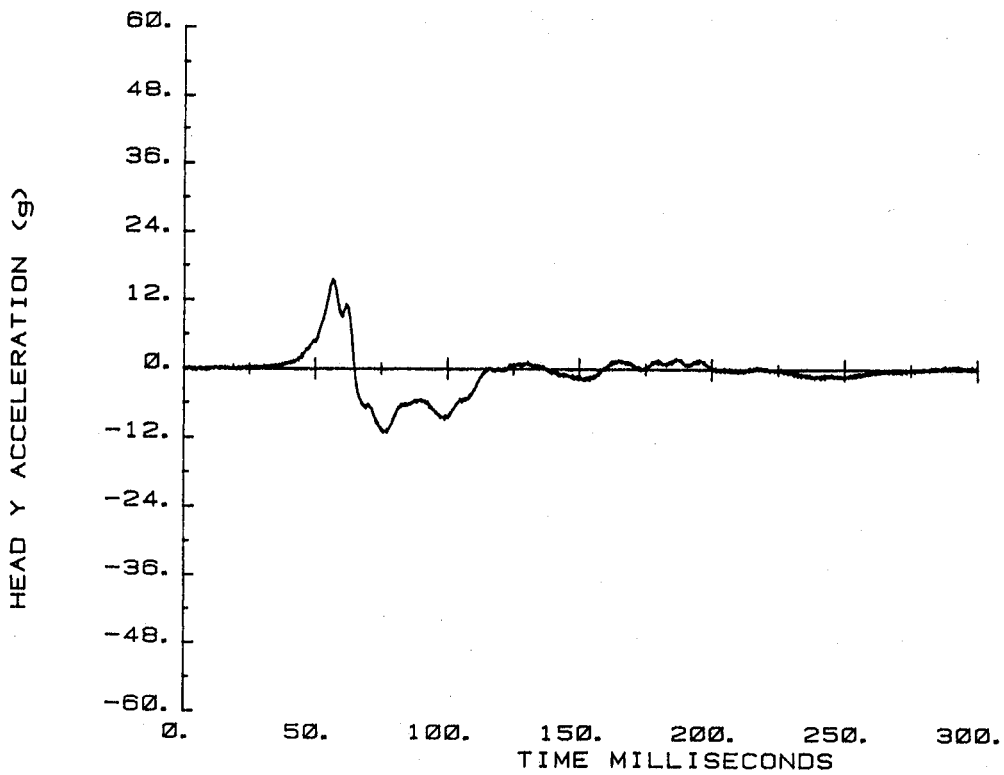
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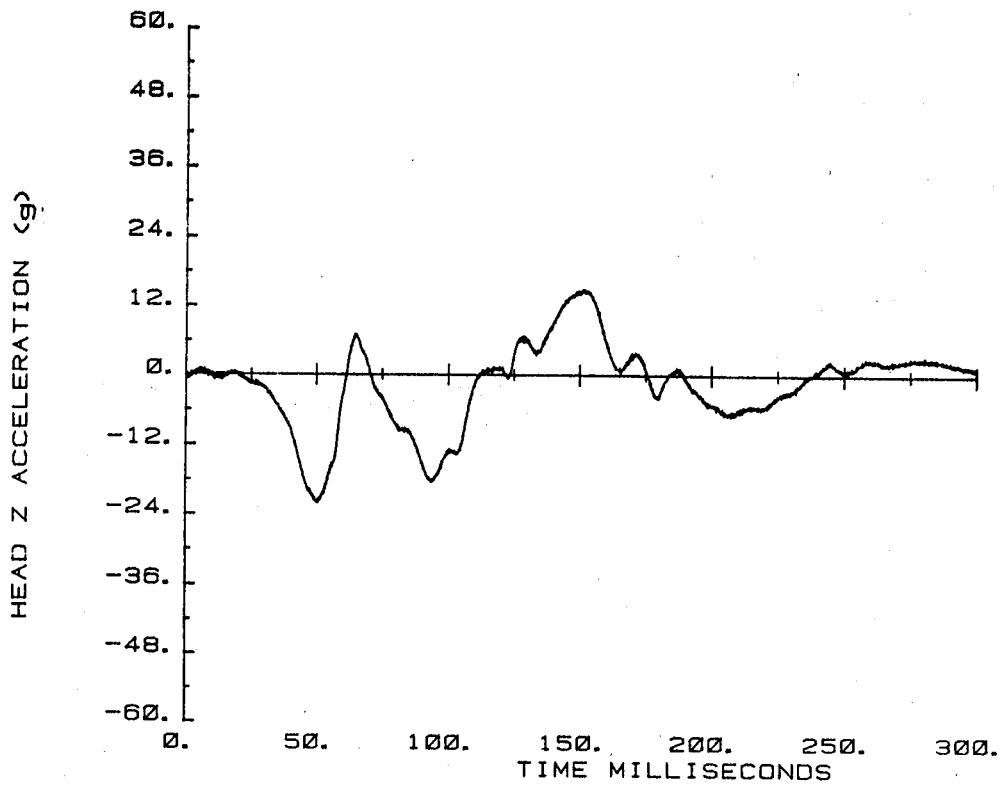
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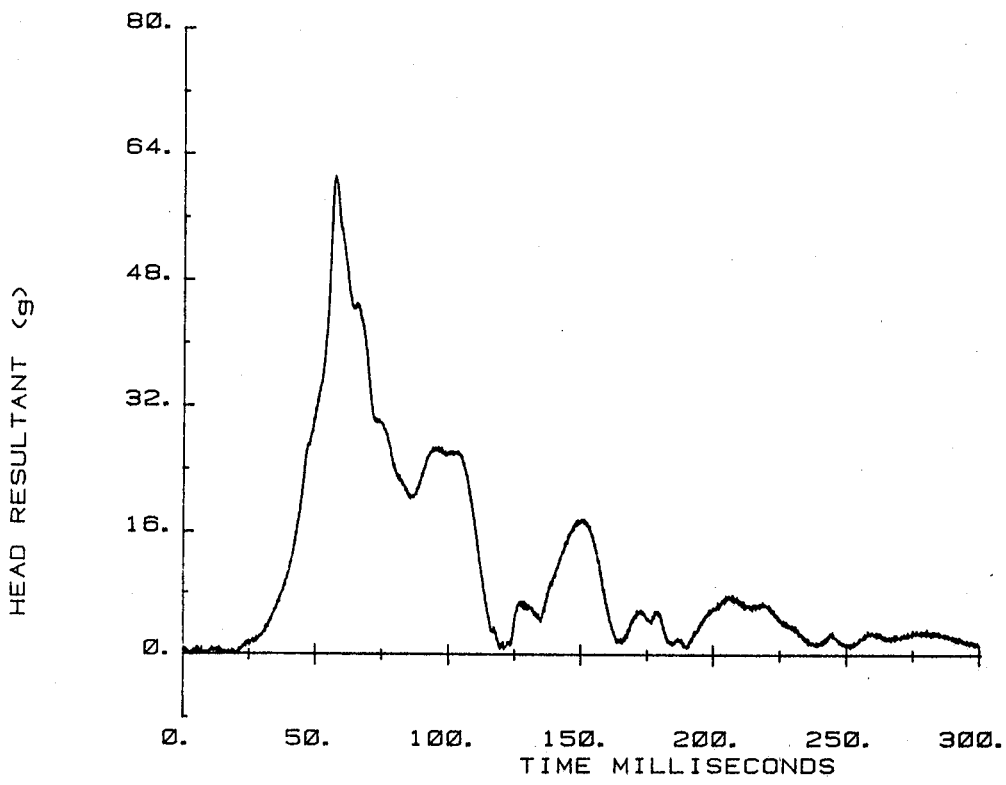
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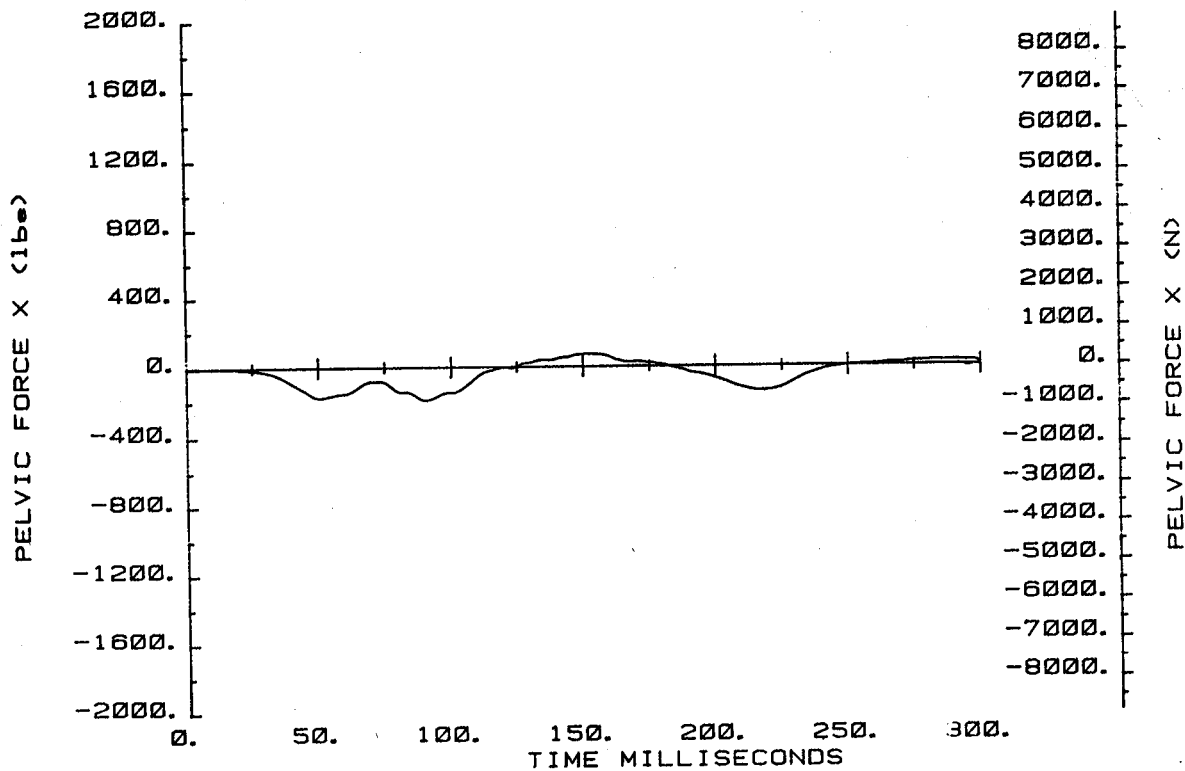
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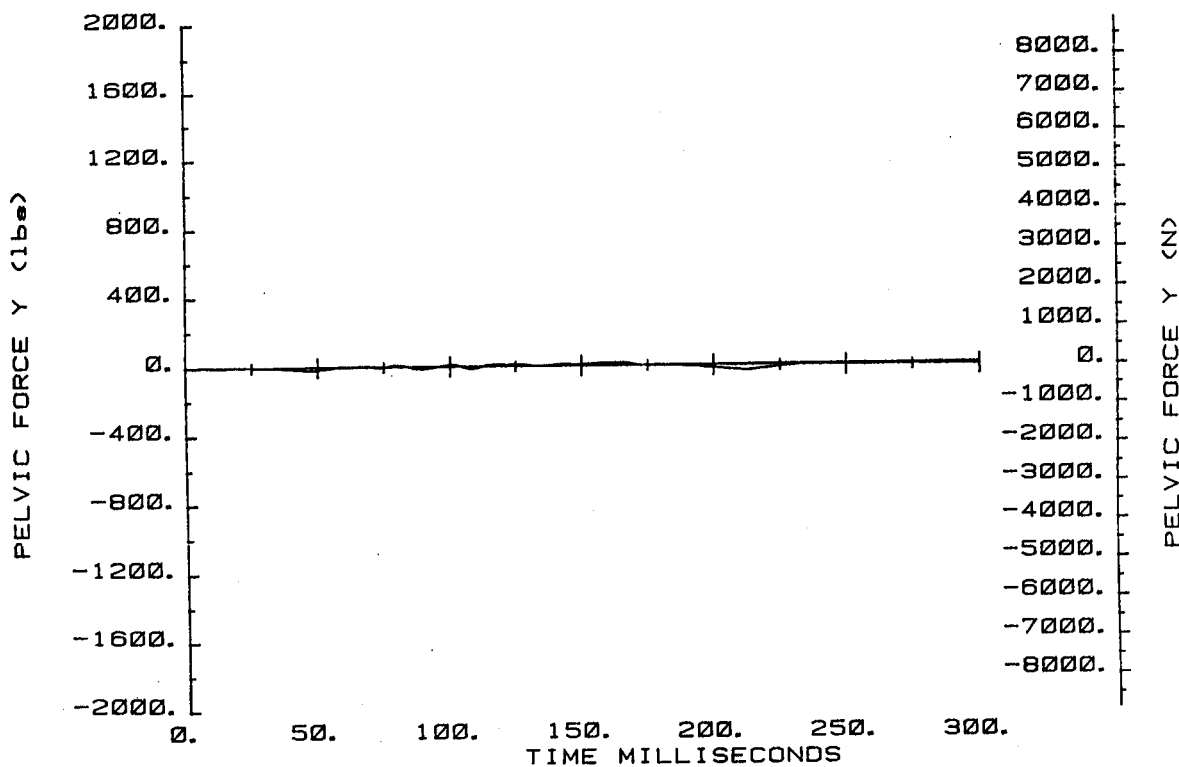
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CAMI SLED TEST  
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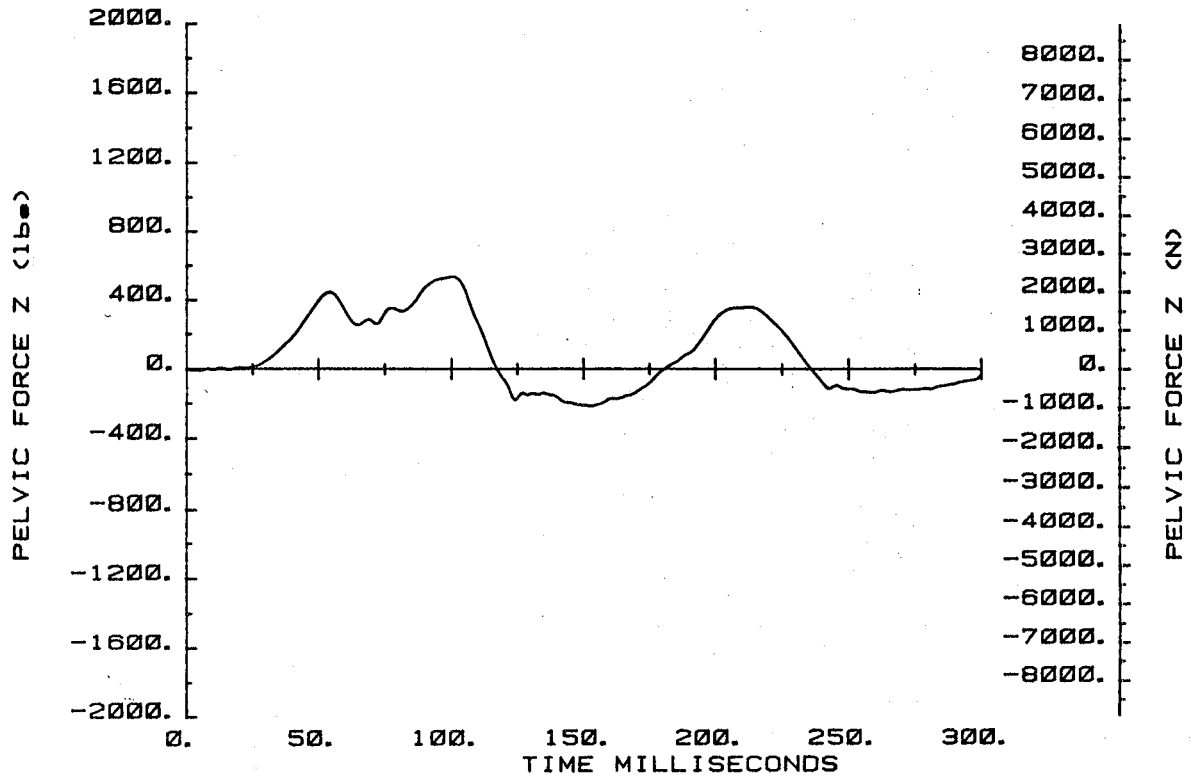


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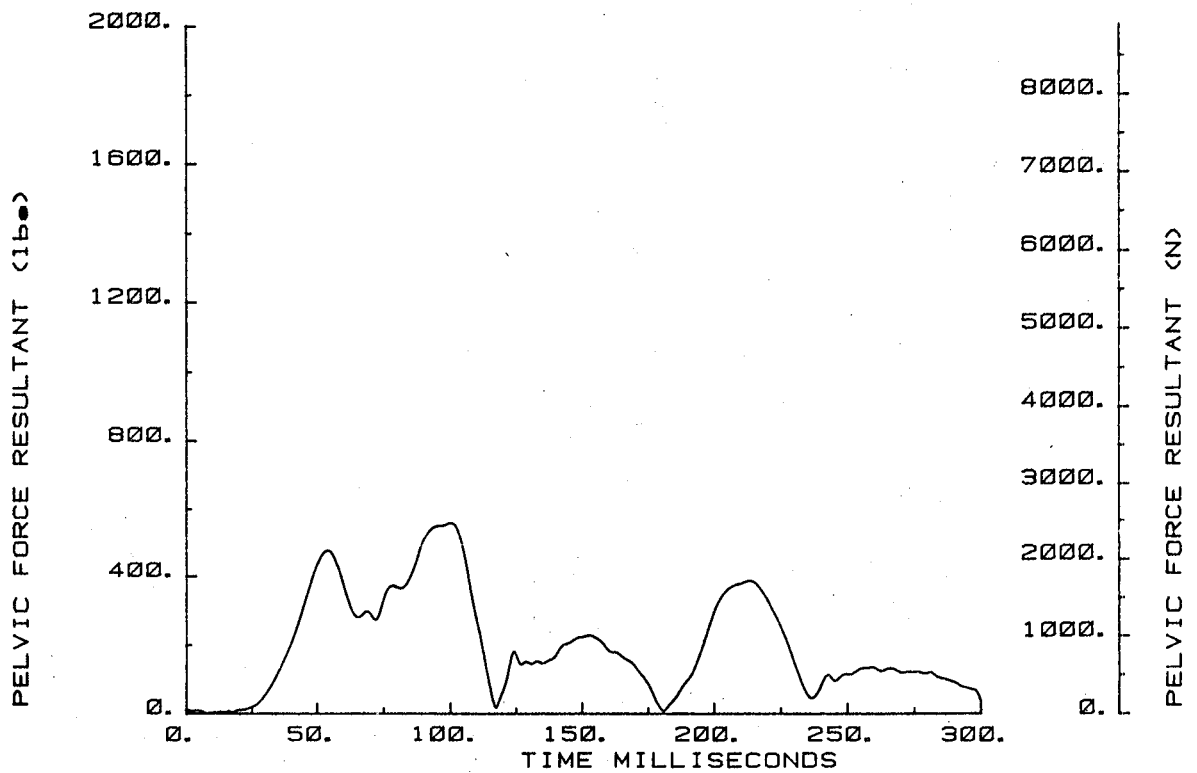




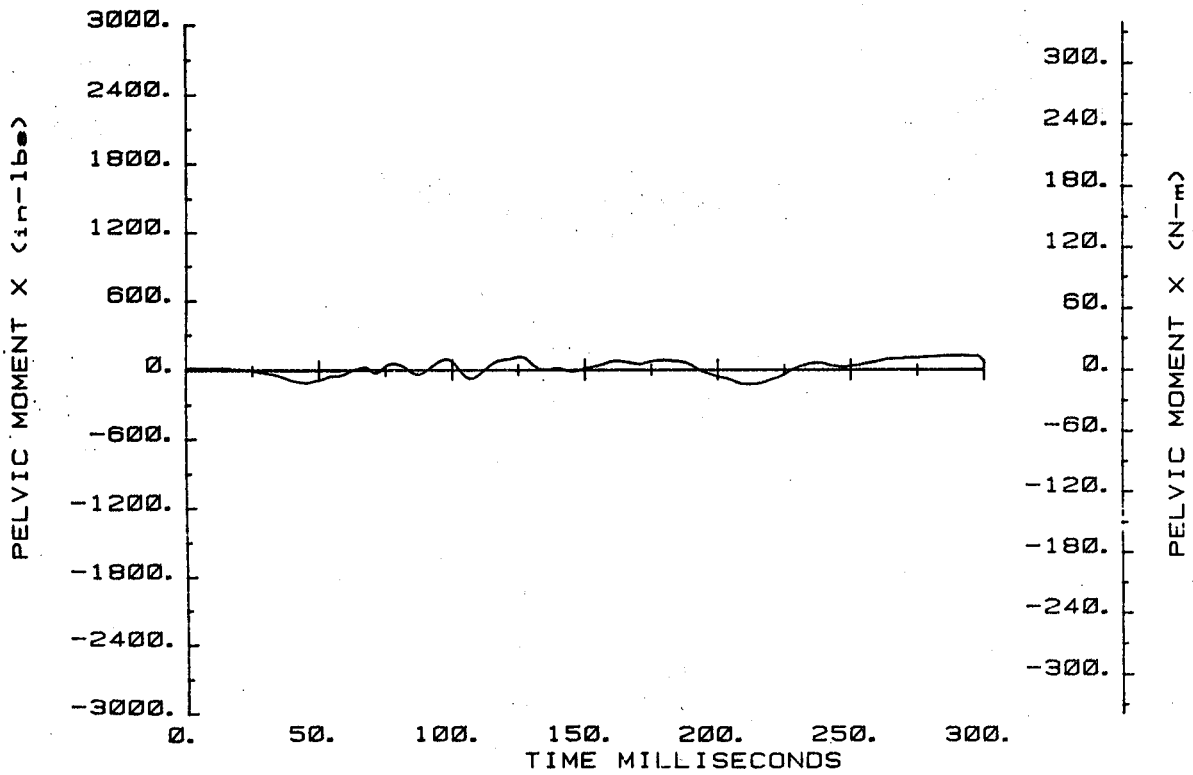
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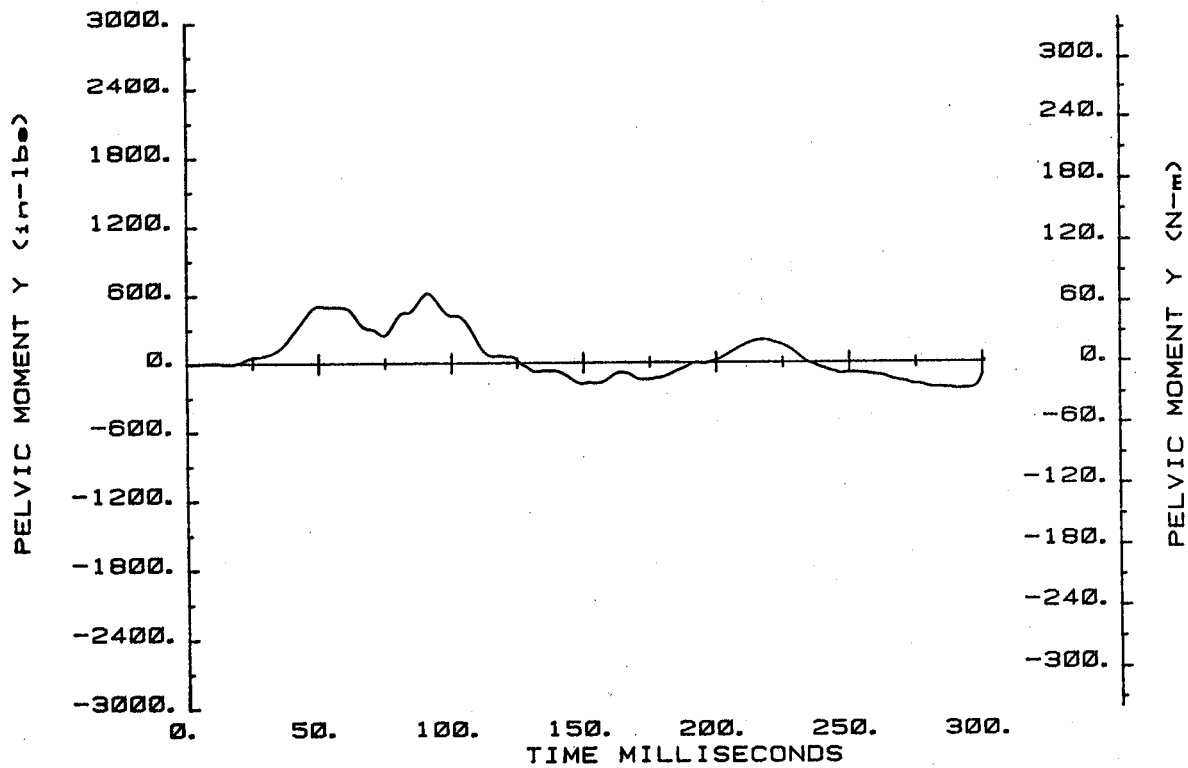
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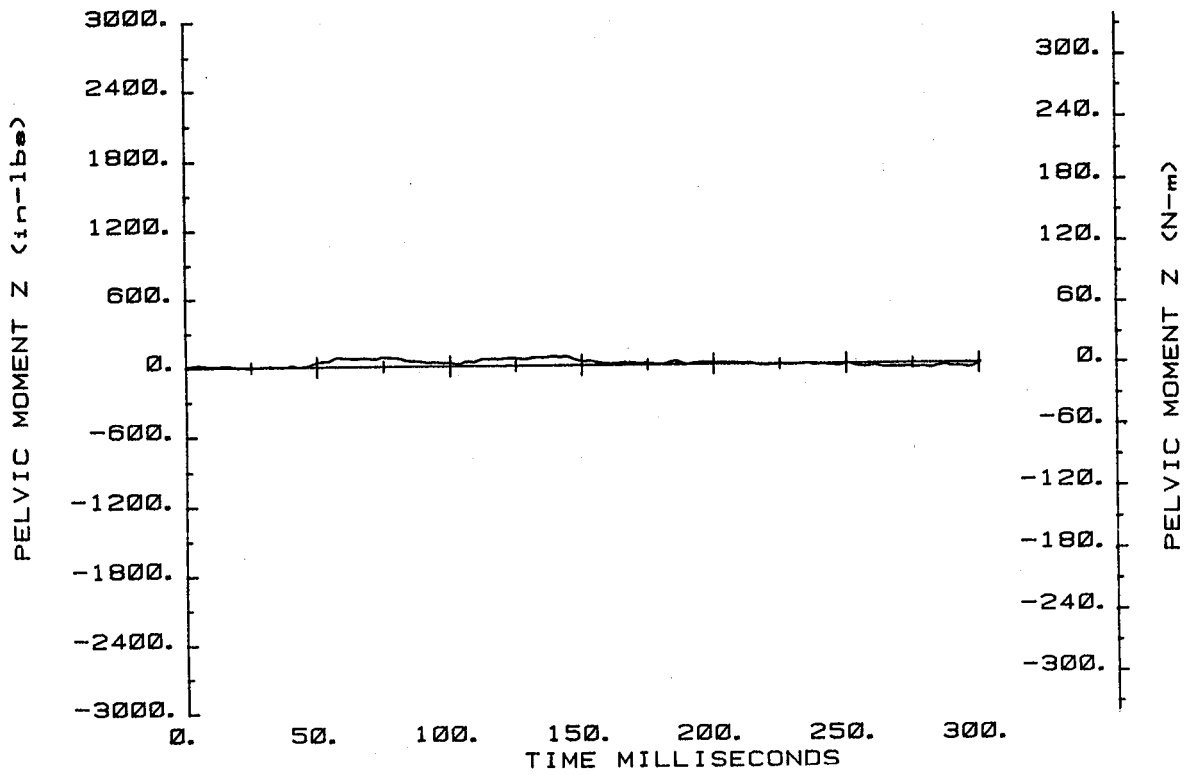
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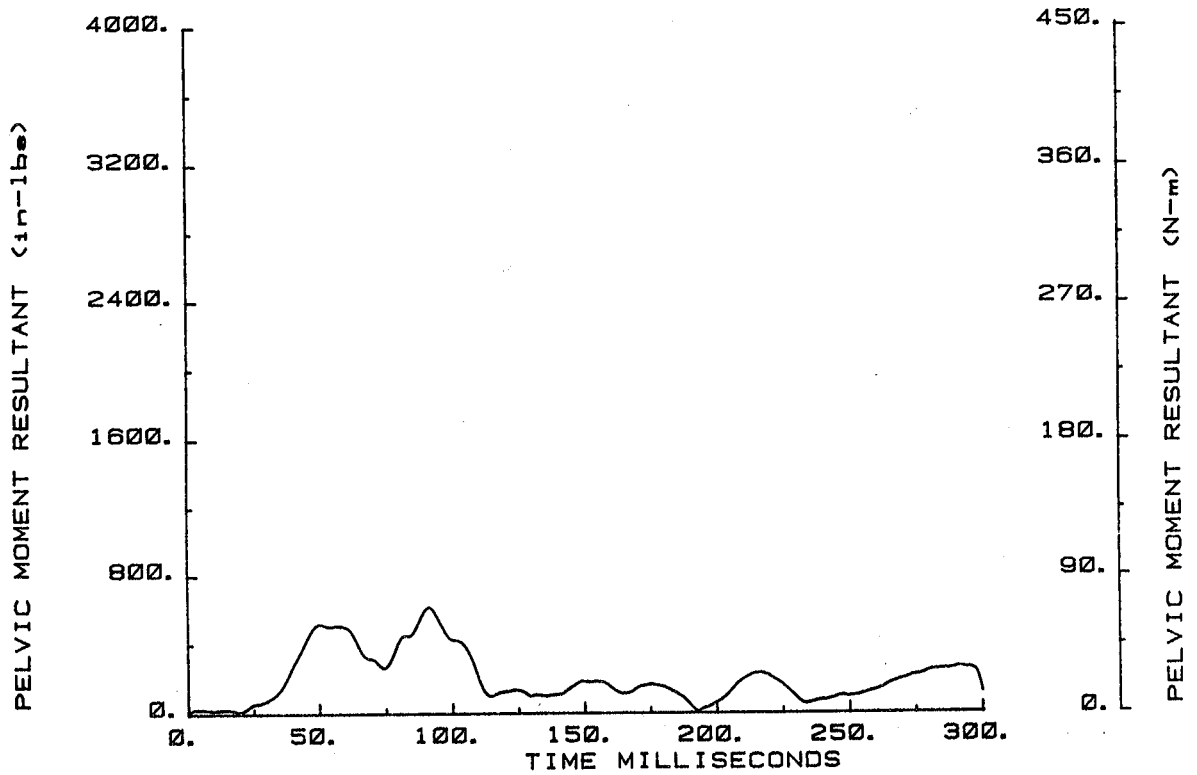
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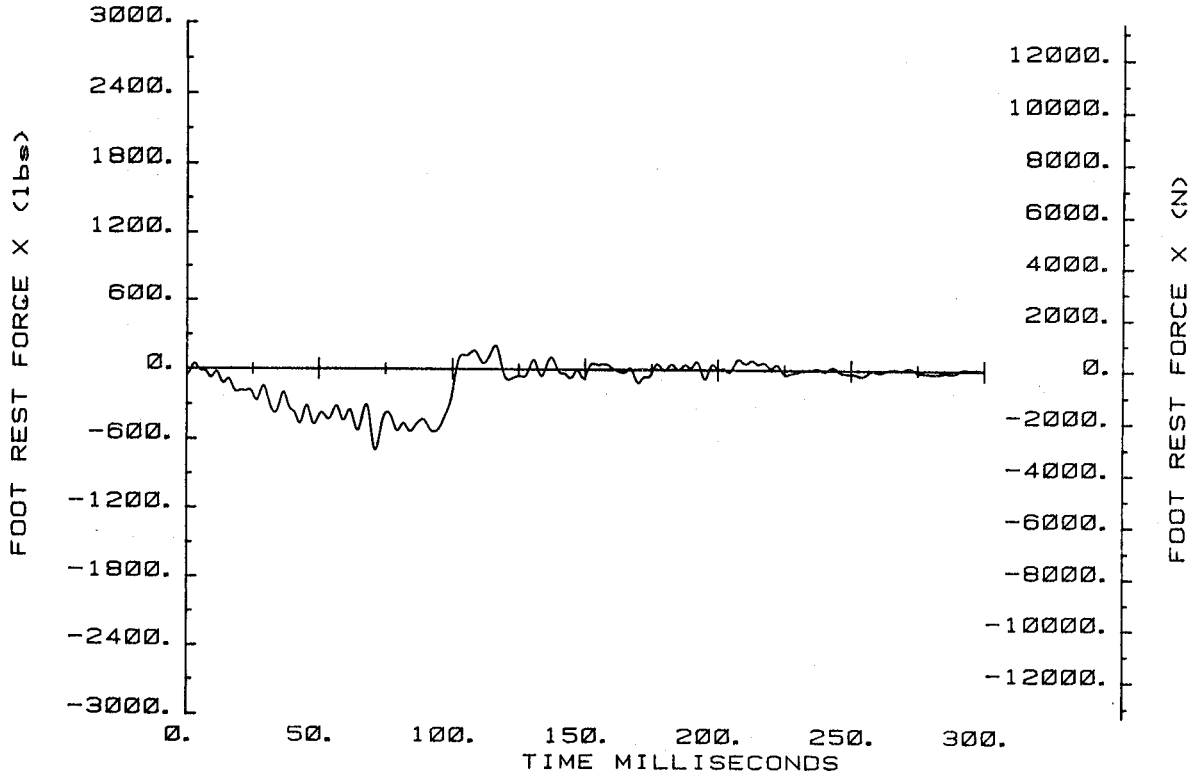
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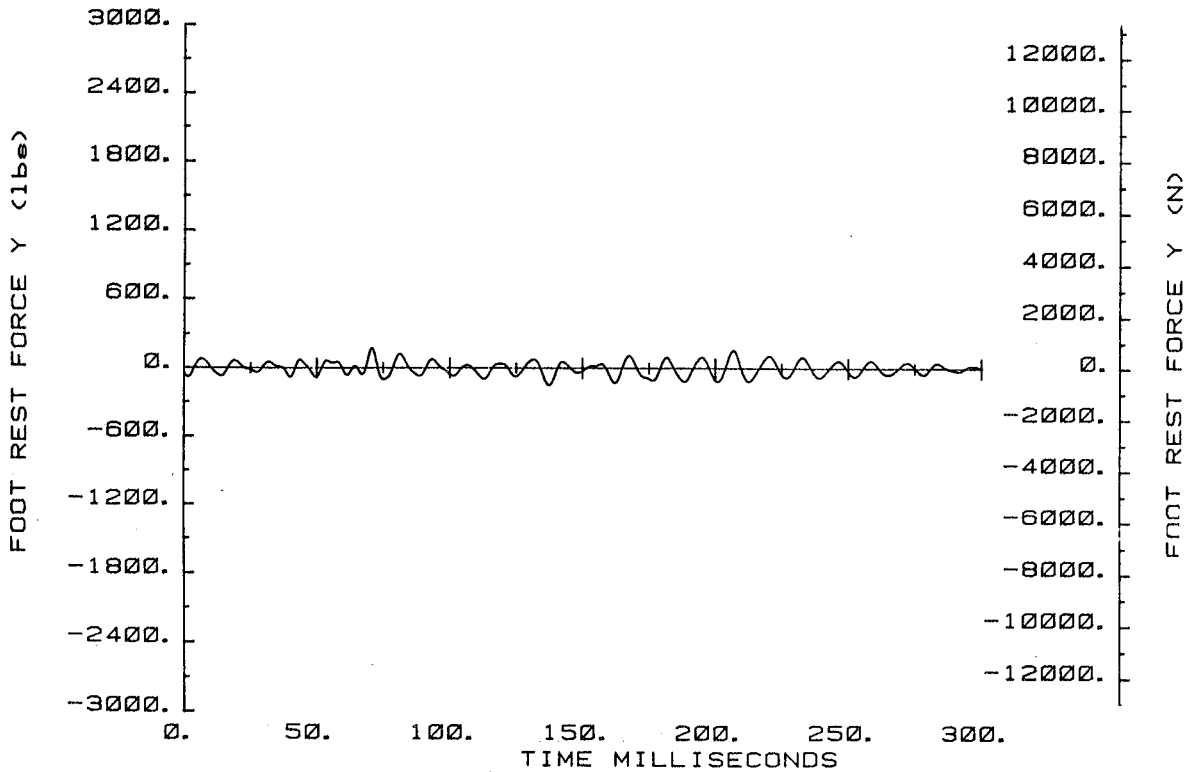
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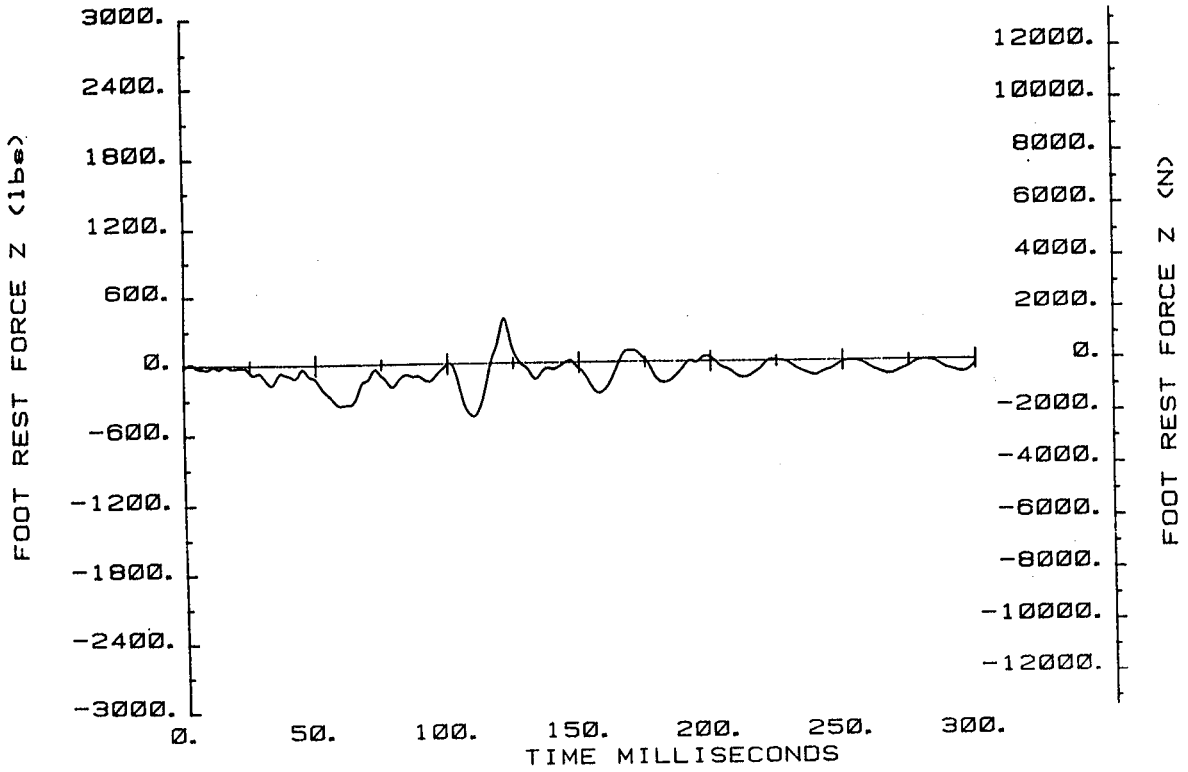
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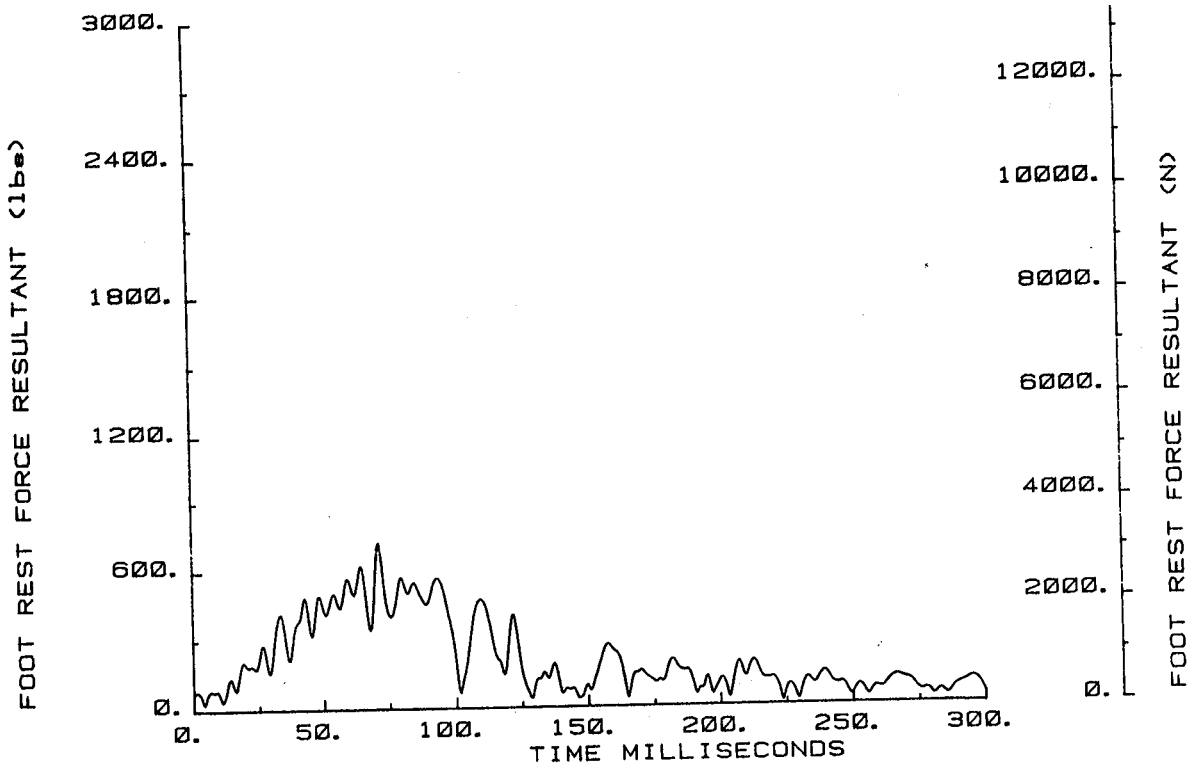
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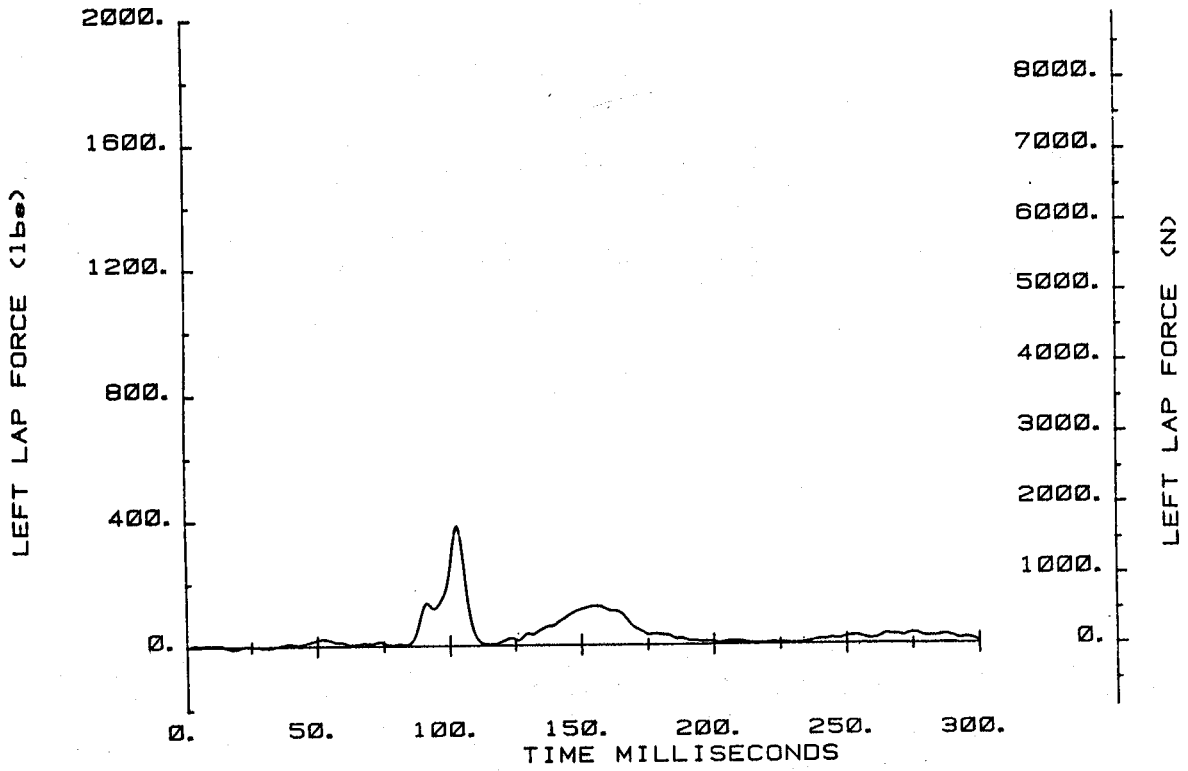
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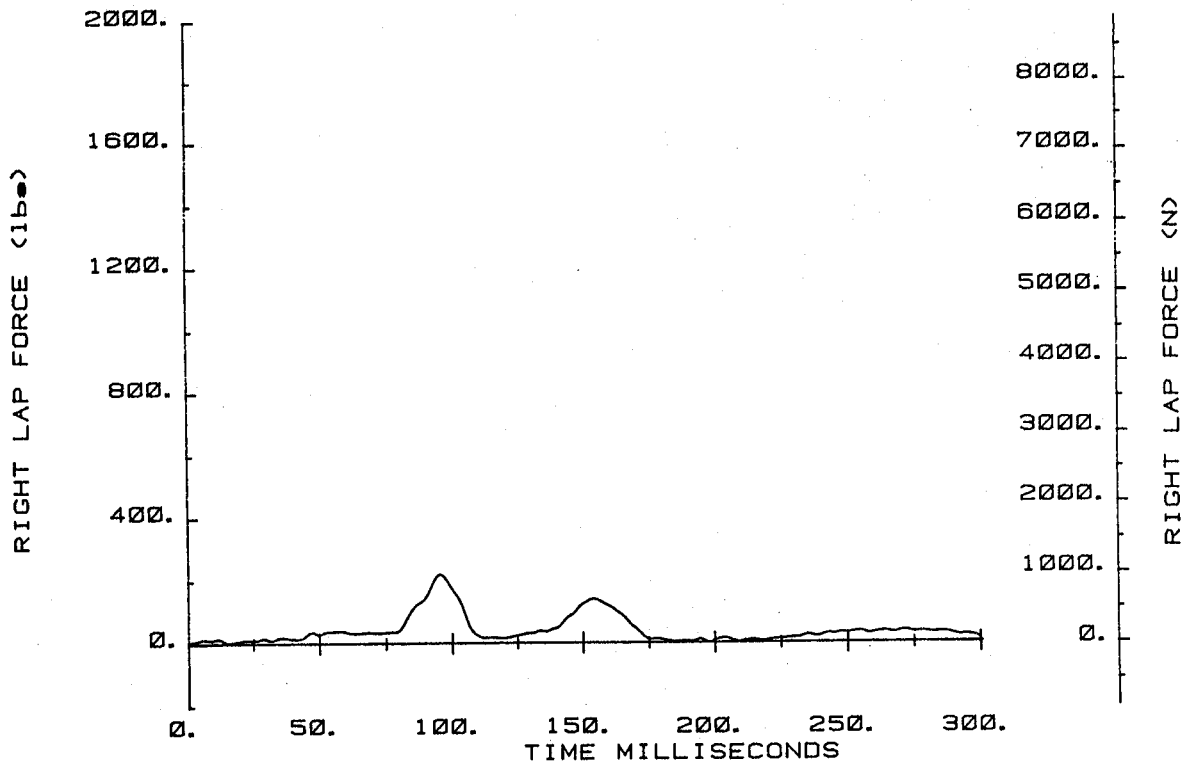
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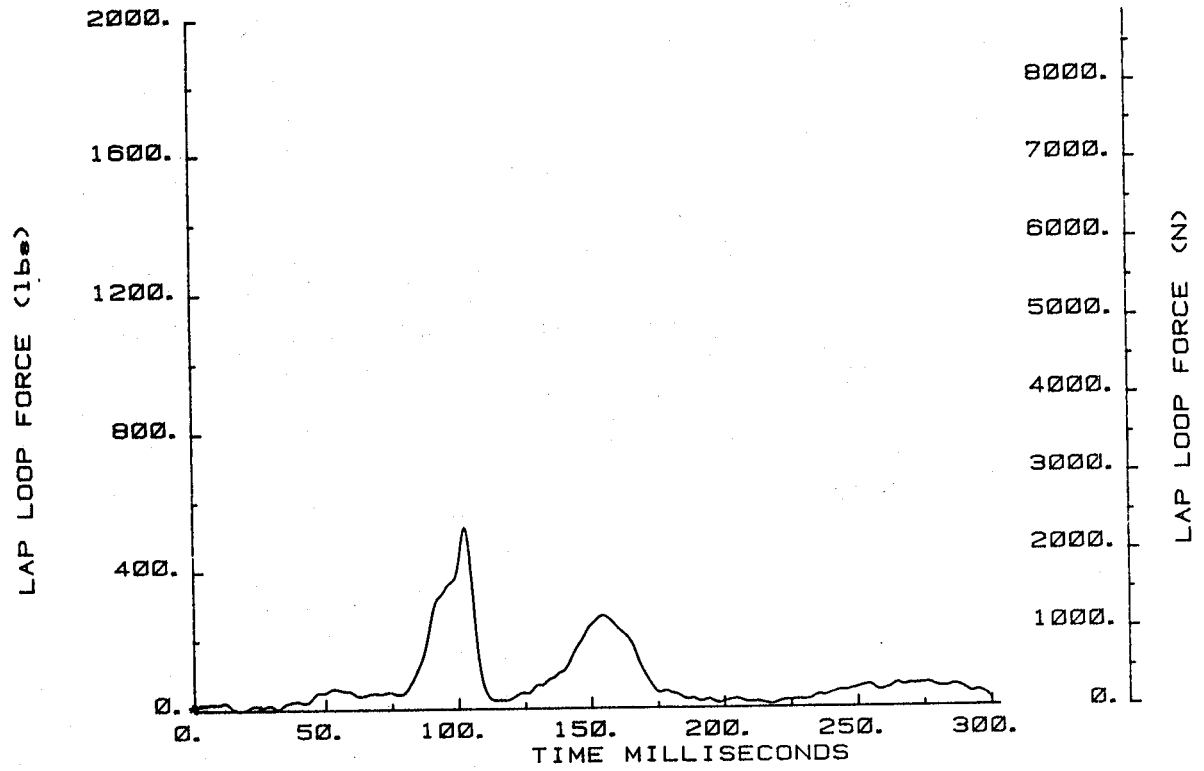
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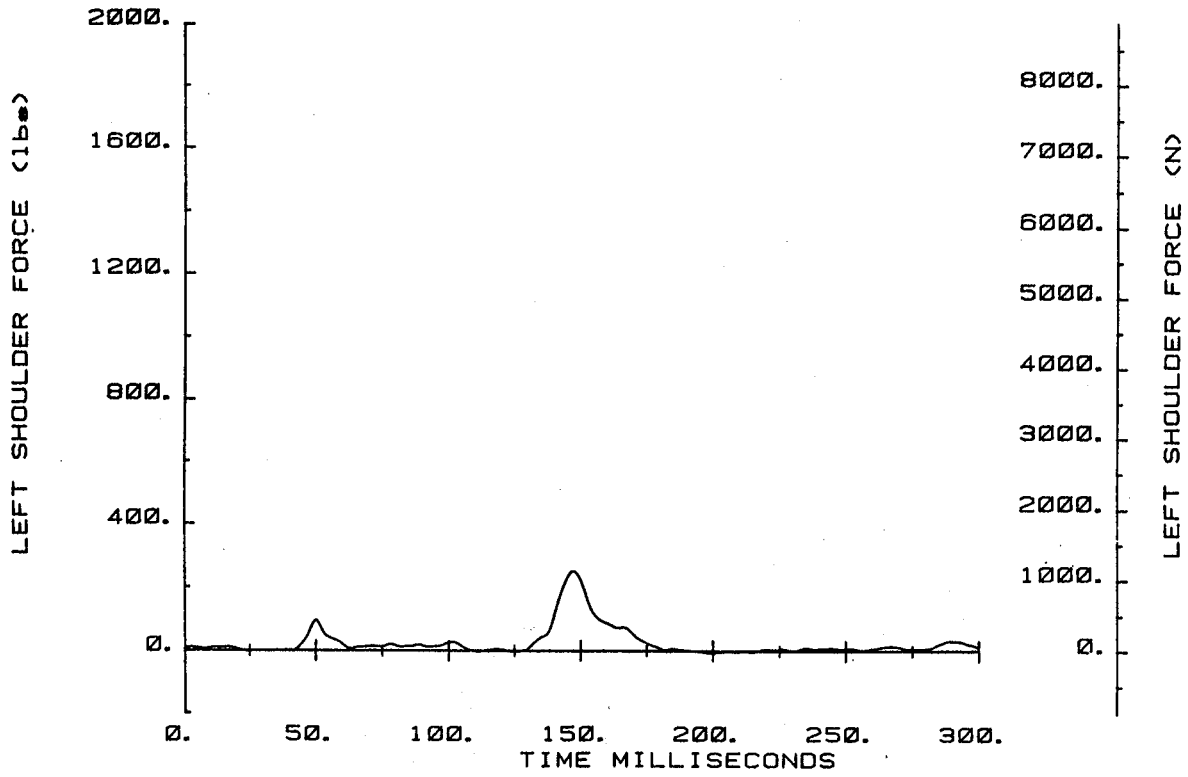
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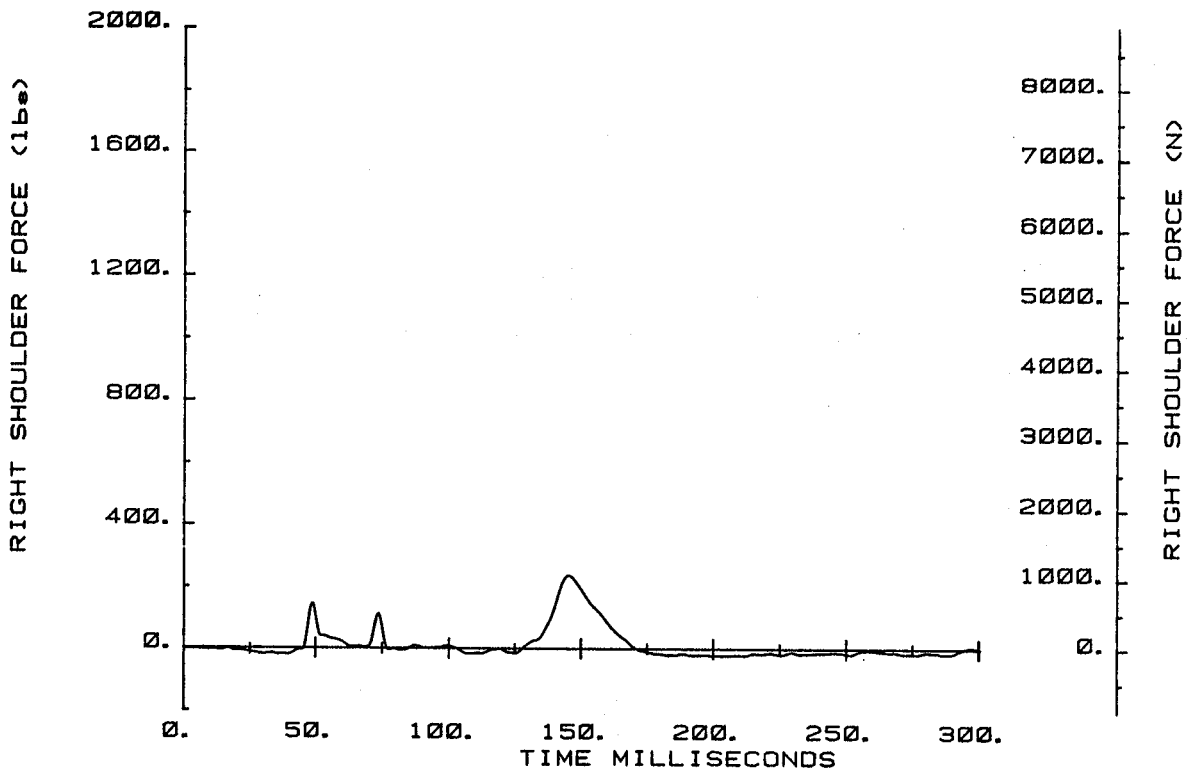
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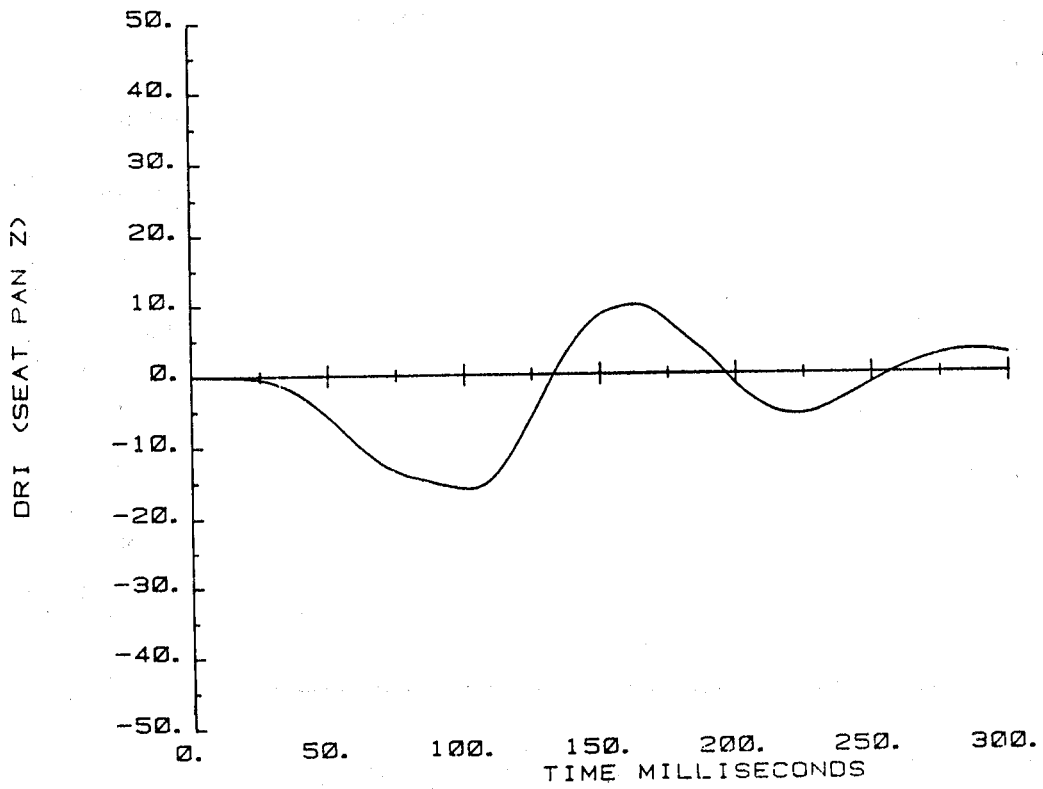
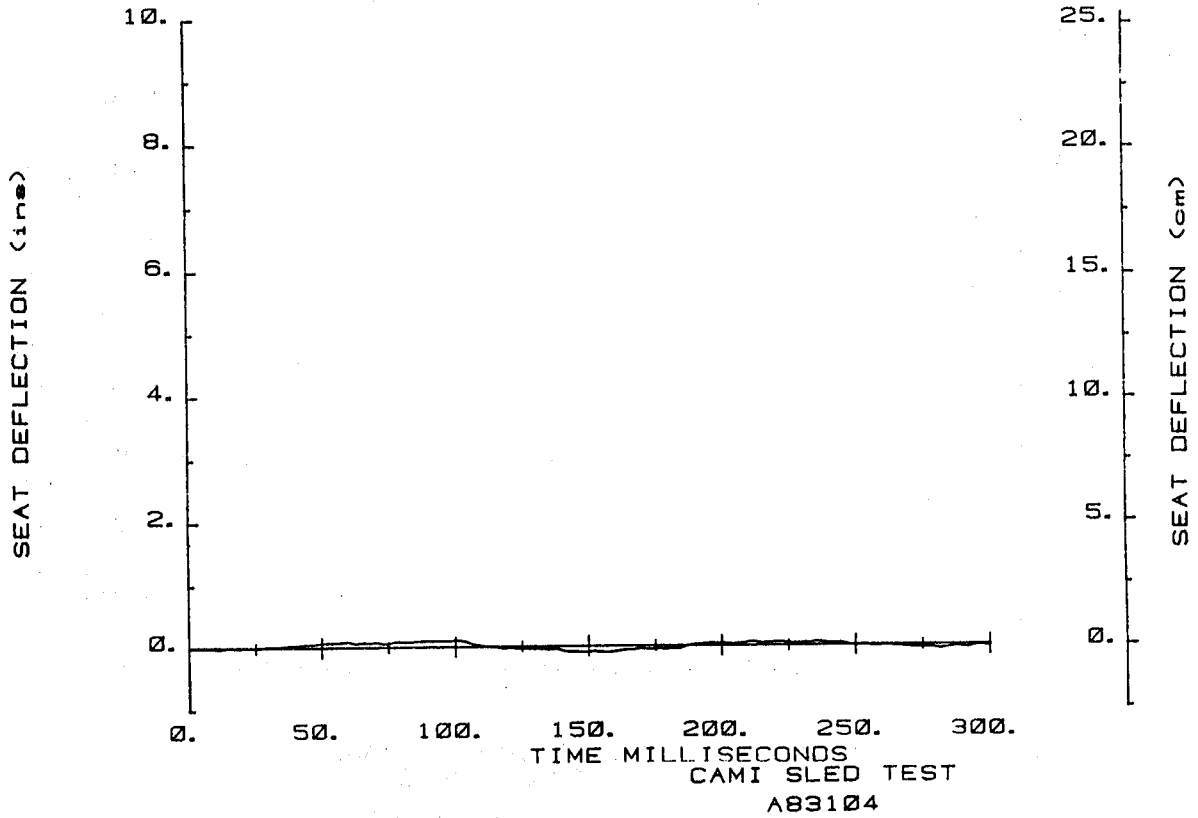


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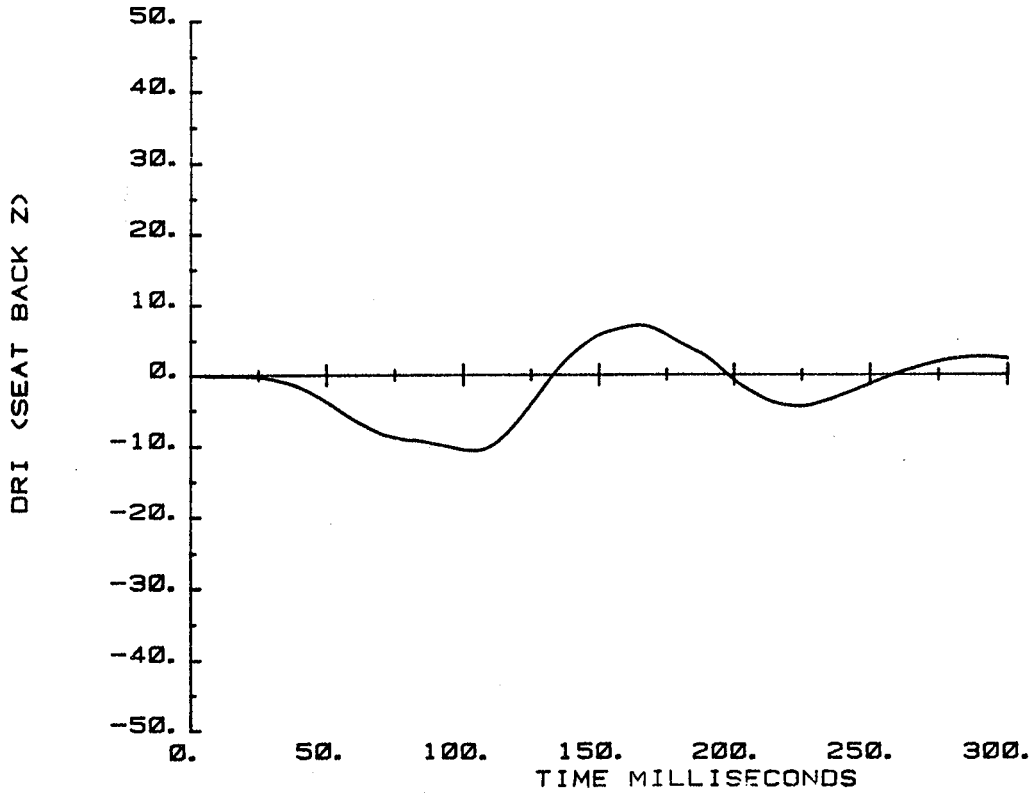




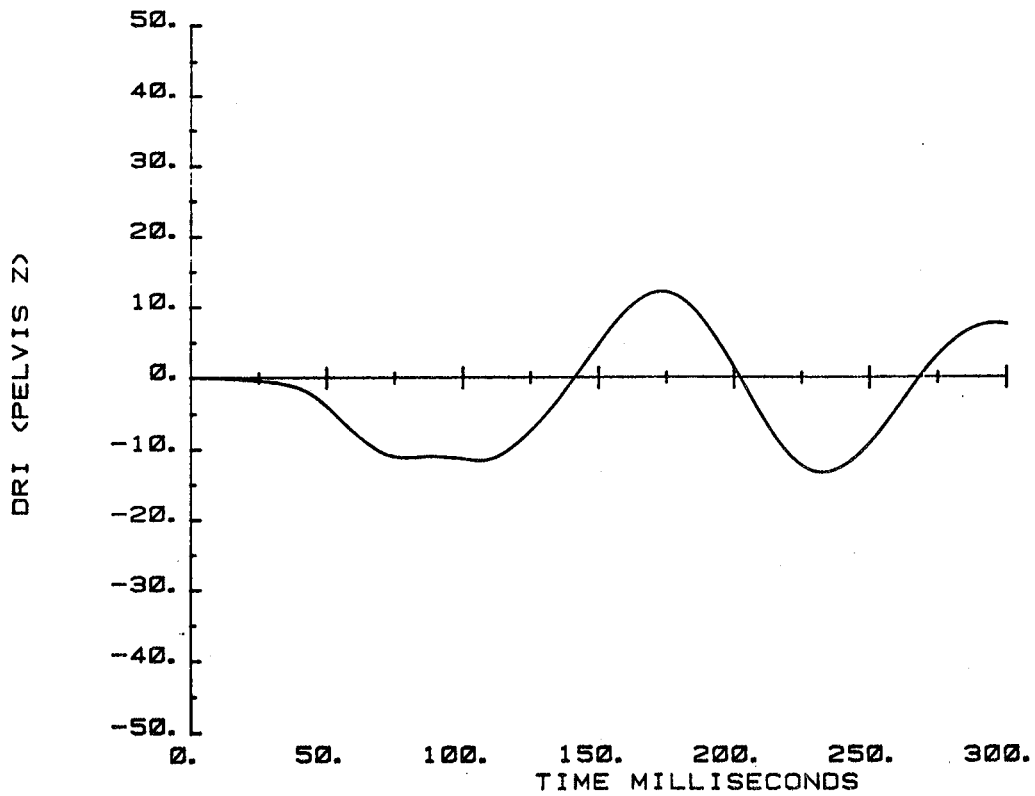
CAMI SLED TEST  
A83104



CAMI SLED TEST  
A83104



CAMI SLED TEST  
A83104



5.0 CAMI TEST NO. A83-106

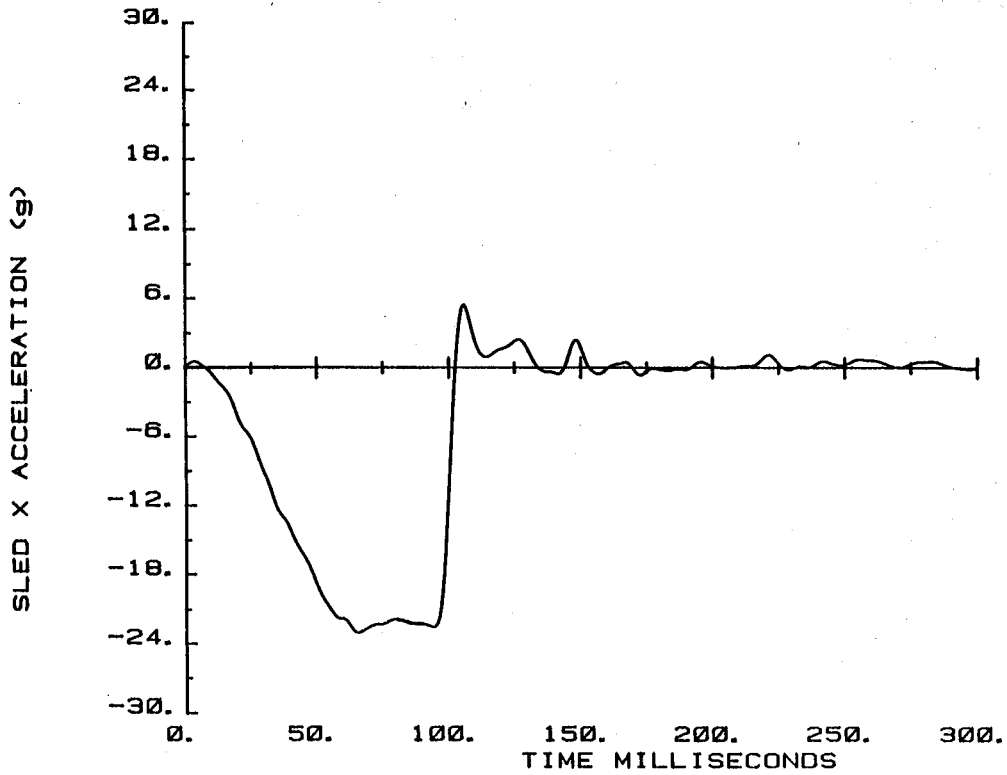
SEAT: Energy Absorbing

PULSE NUMBER: 4

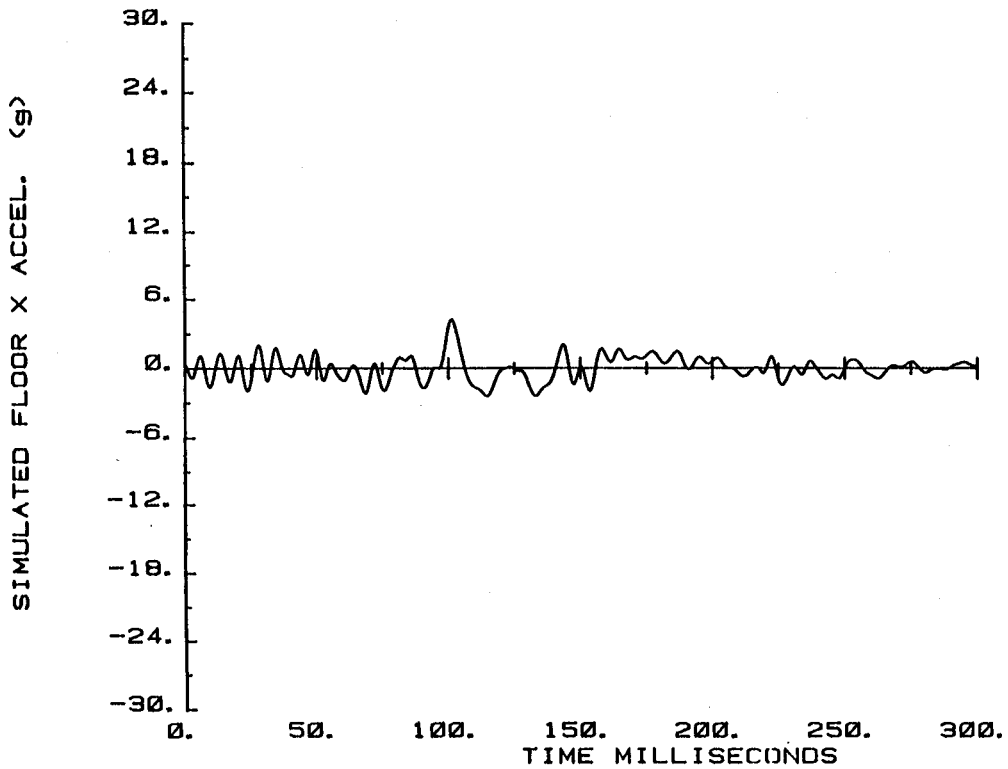
SEAT ORIENTATION: Pitch - 0°  
Roll - 30°  
Yaw - 90°

| ROW#   | VARIABLE                     | 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 LOOF FORCE               | (lbs)    | 742.4   | 103   |        |       | ( 0, 300) * A10602 |
|        | PELVIS DRI                   |          | 14.8    | 88    |        |       |                    |
|        | SEAT BACK DRI                |          | 17.3    | 95    |        |       |                    |
|        | SEAT PAN DRI                 |          | 18.9    | 95    |        |       |                    |

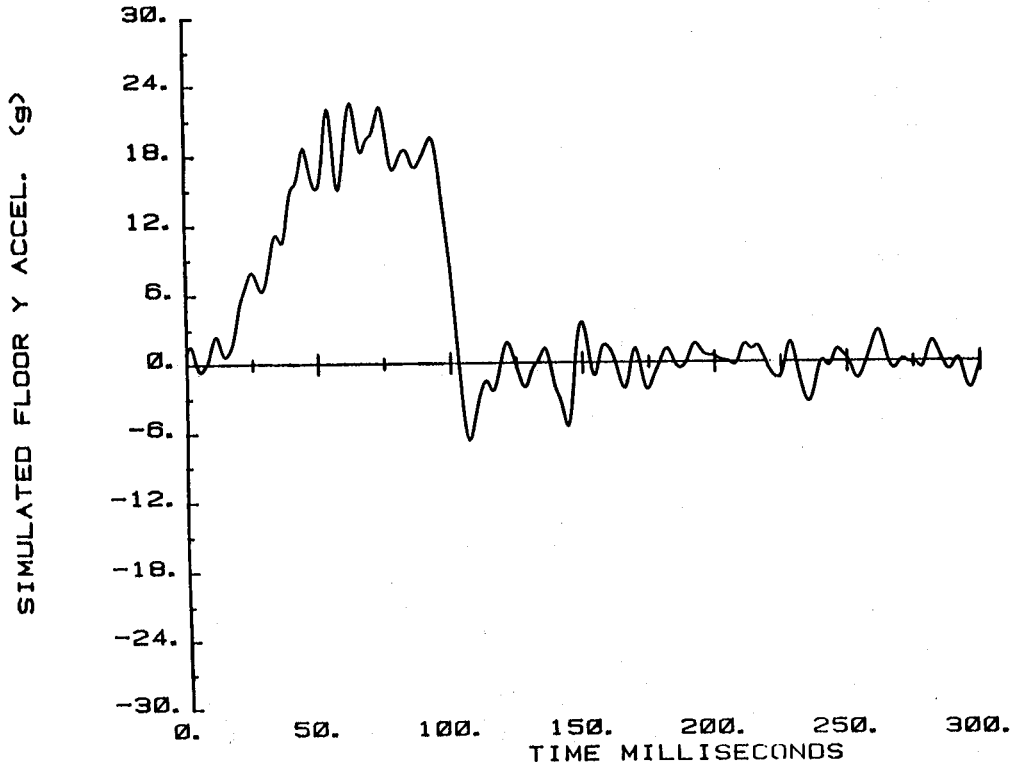
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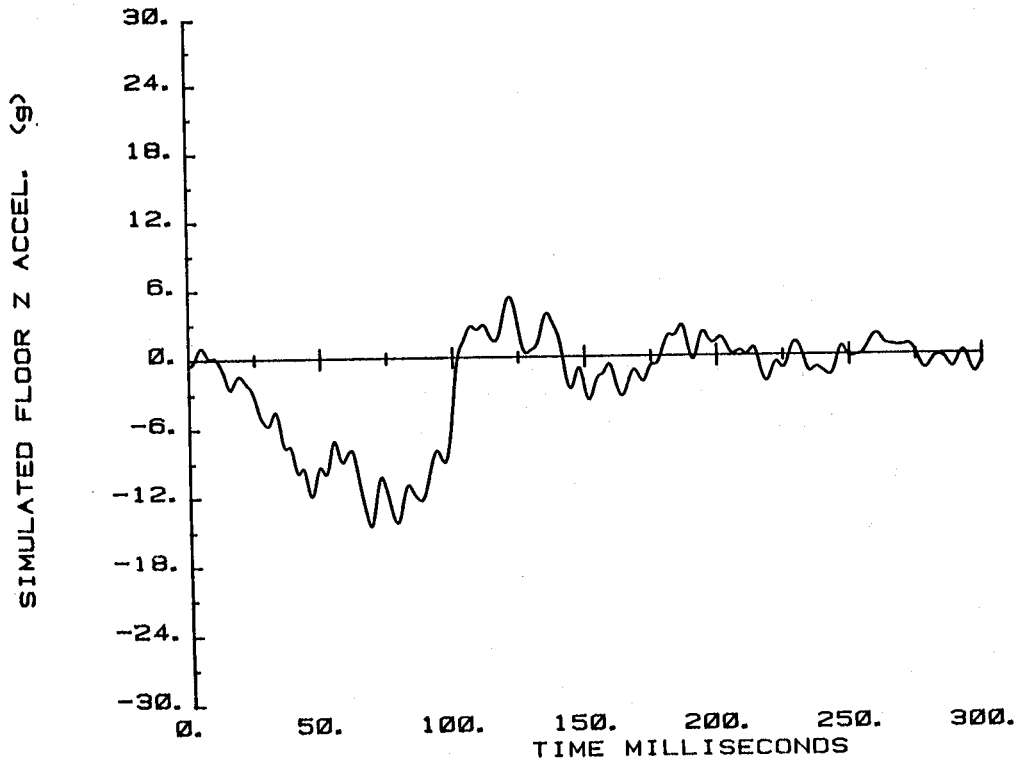
CAMI SLED TEST  
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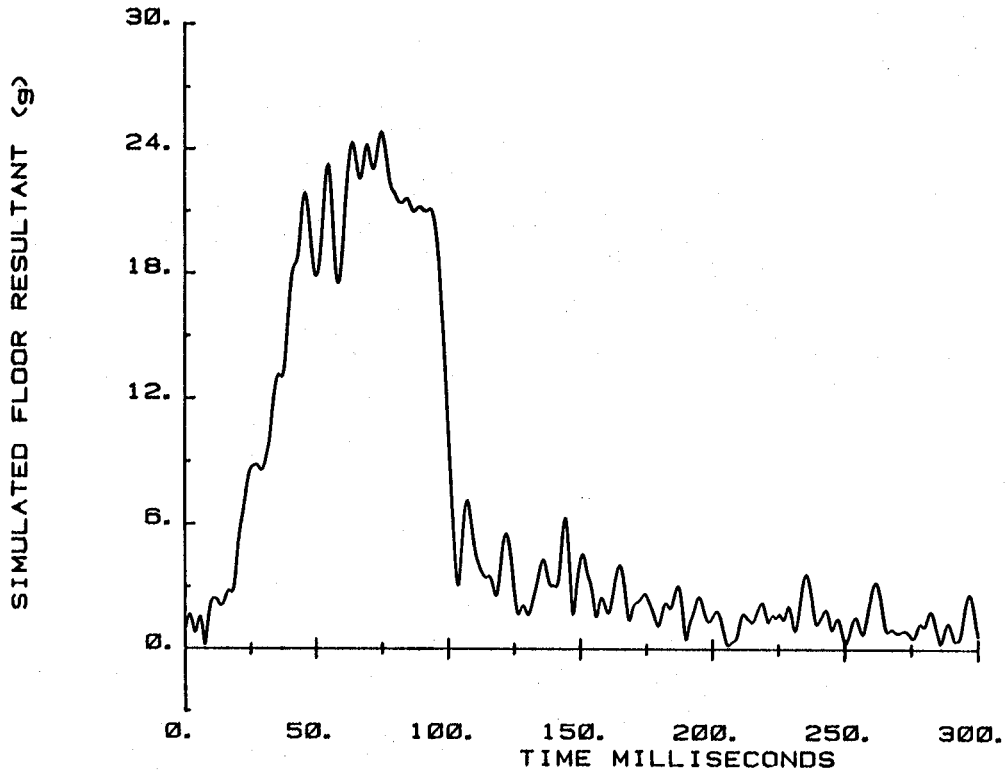
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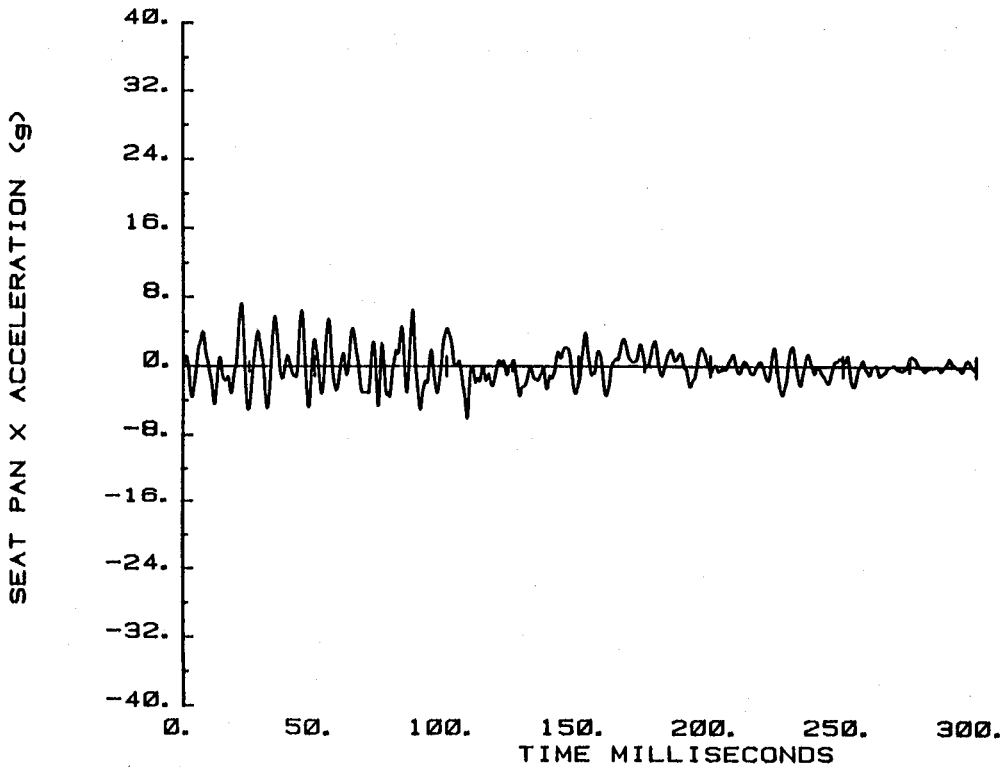
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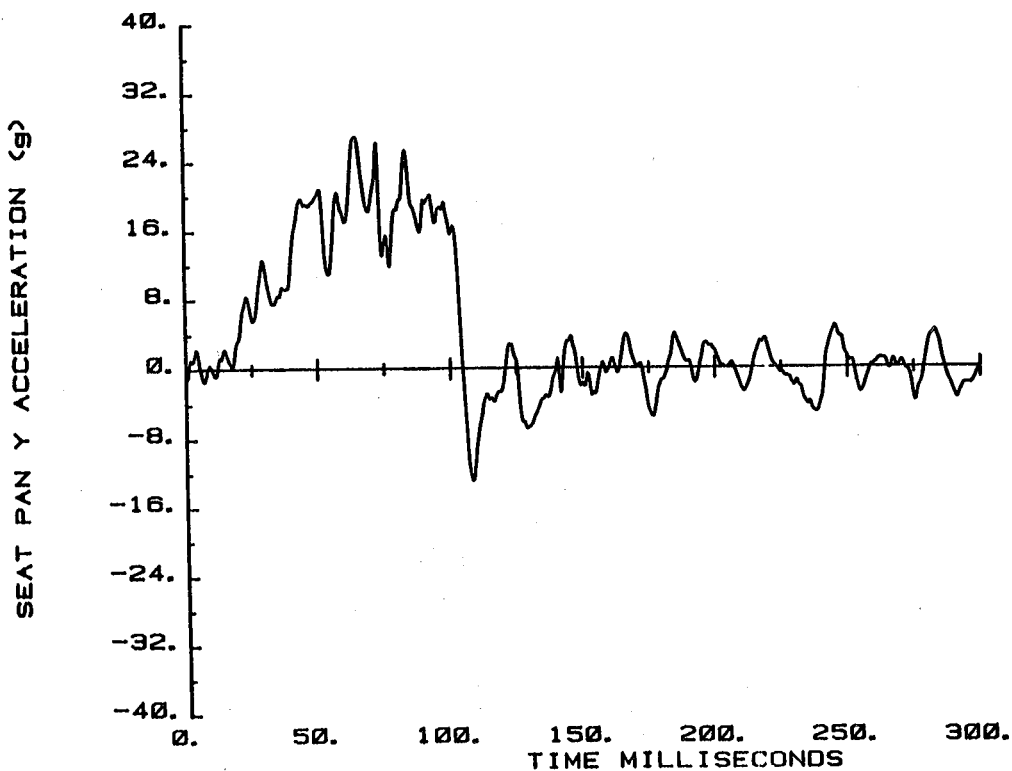
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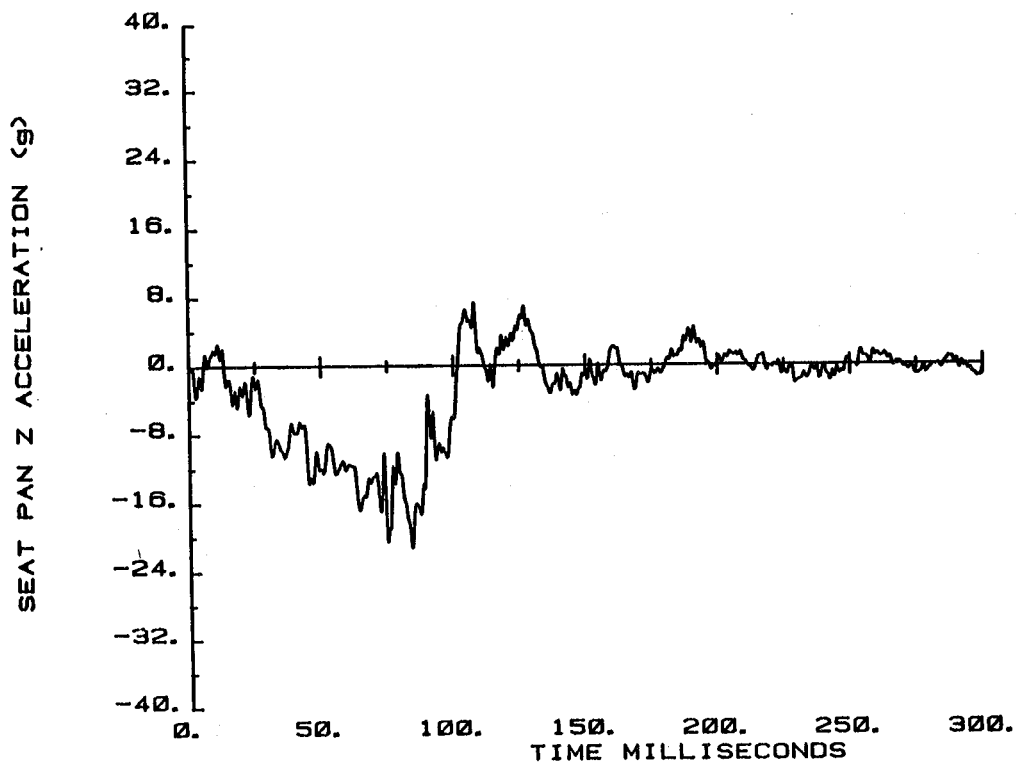
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CAMI SLED TEST  
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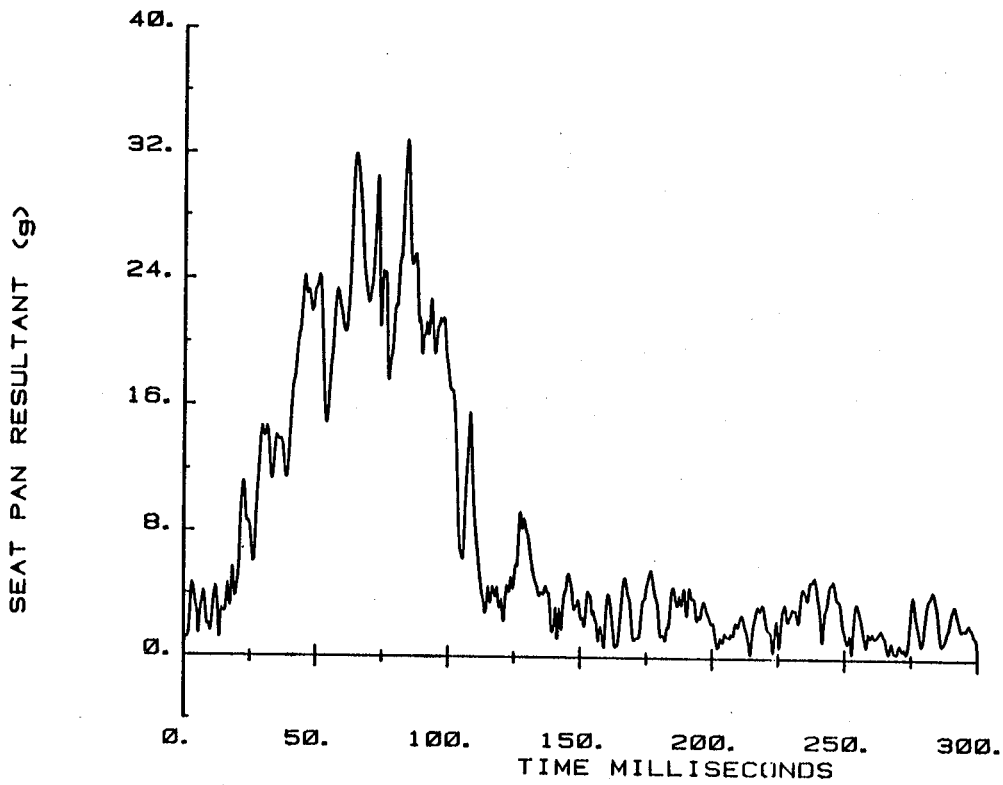


CAMI SLED TEST  
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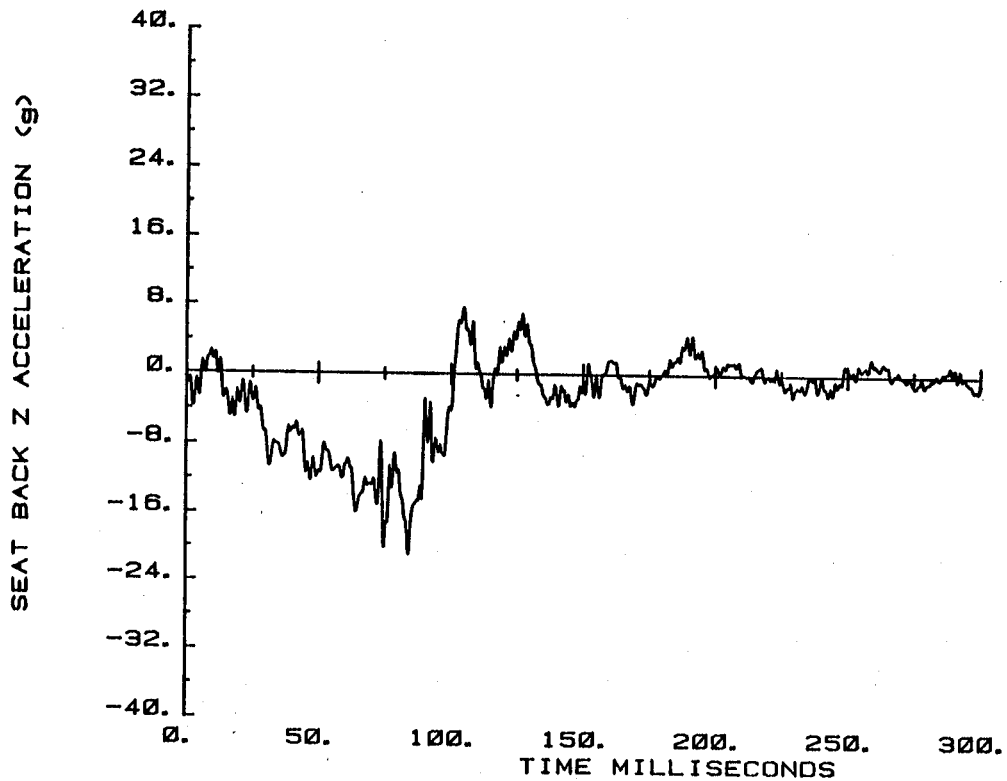




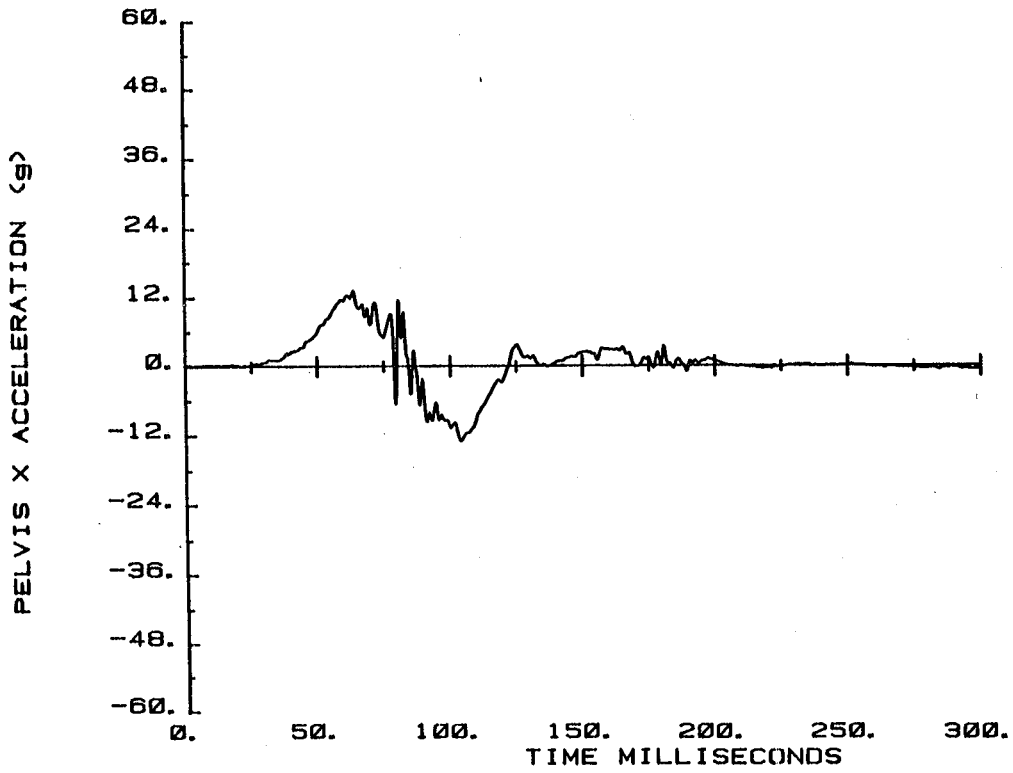
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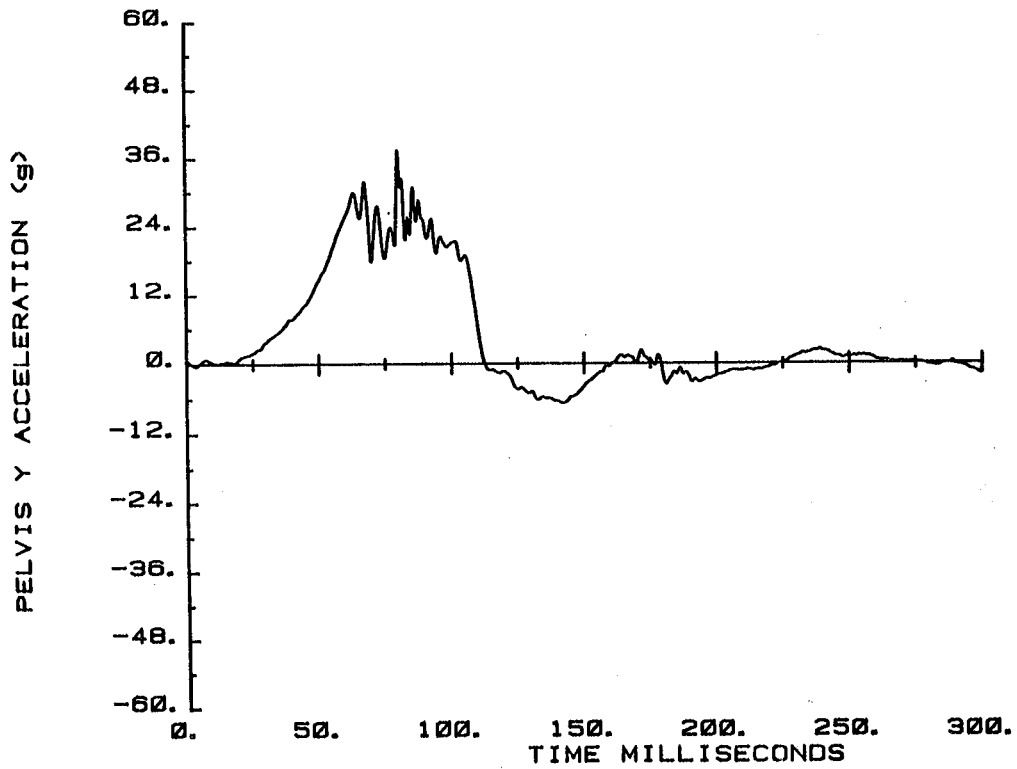
CAMI SLED TEST  
A83106



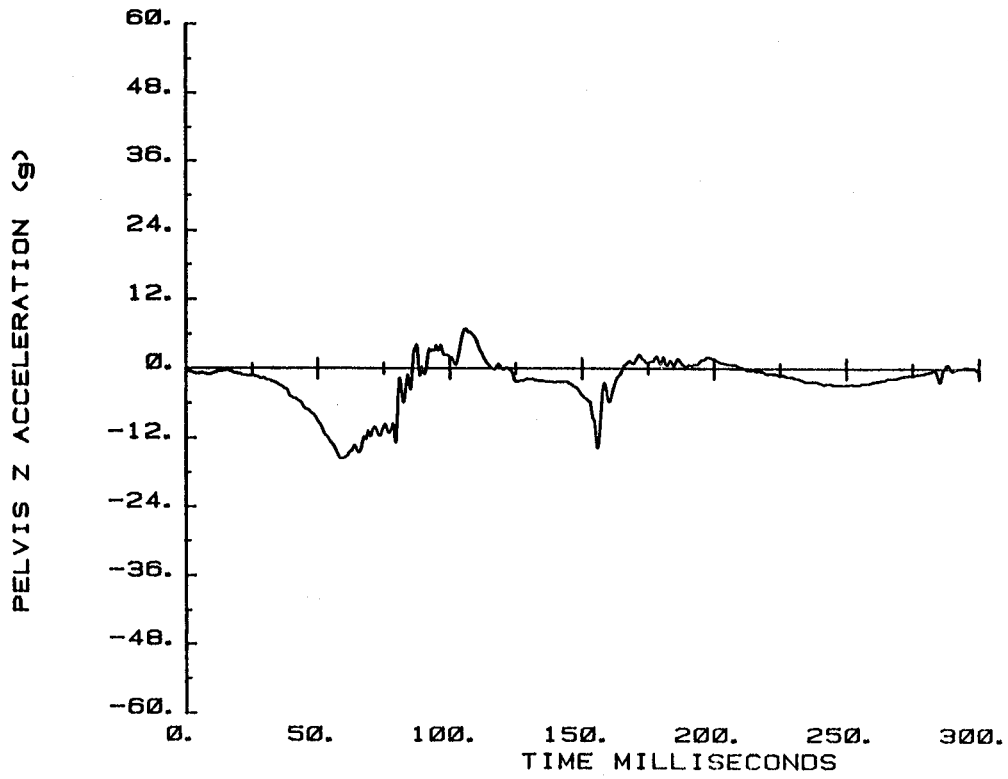
CAMI SLED TEST  
A83106



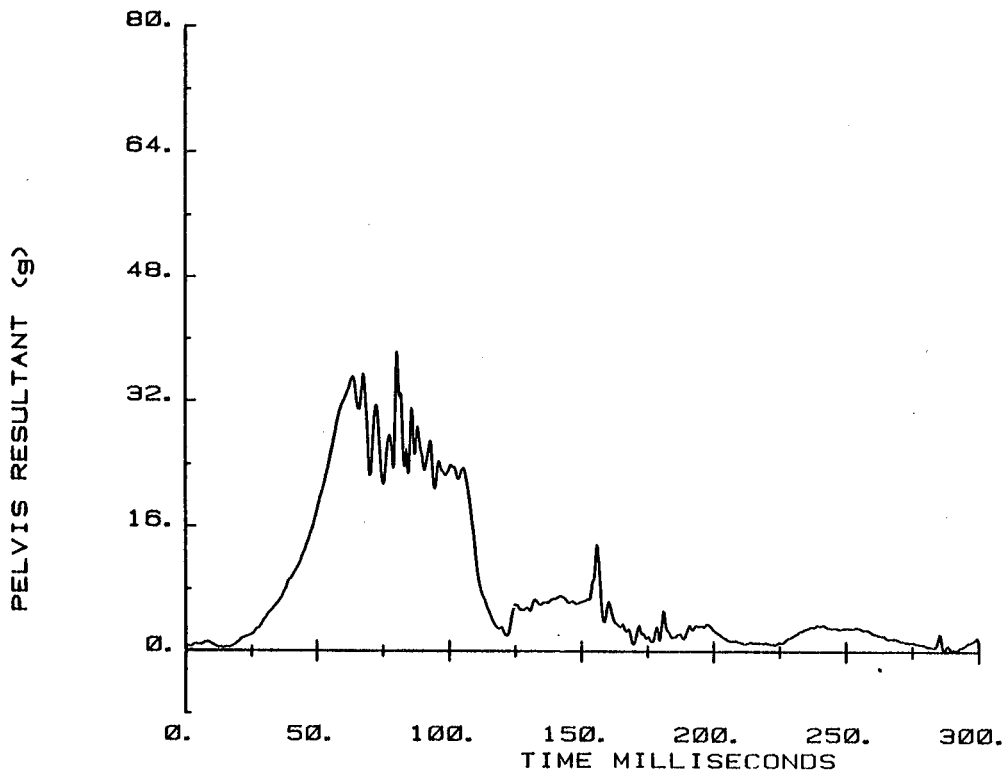
CAMI SLED TEST  
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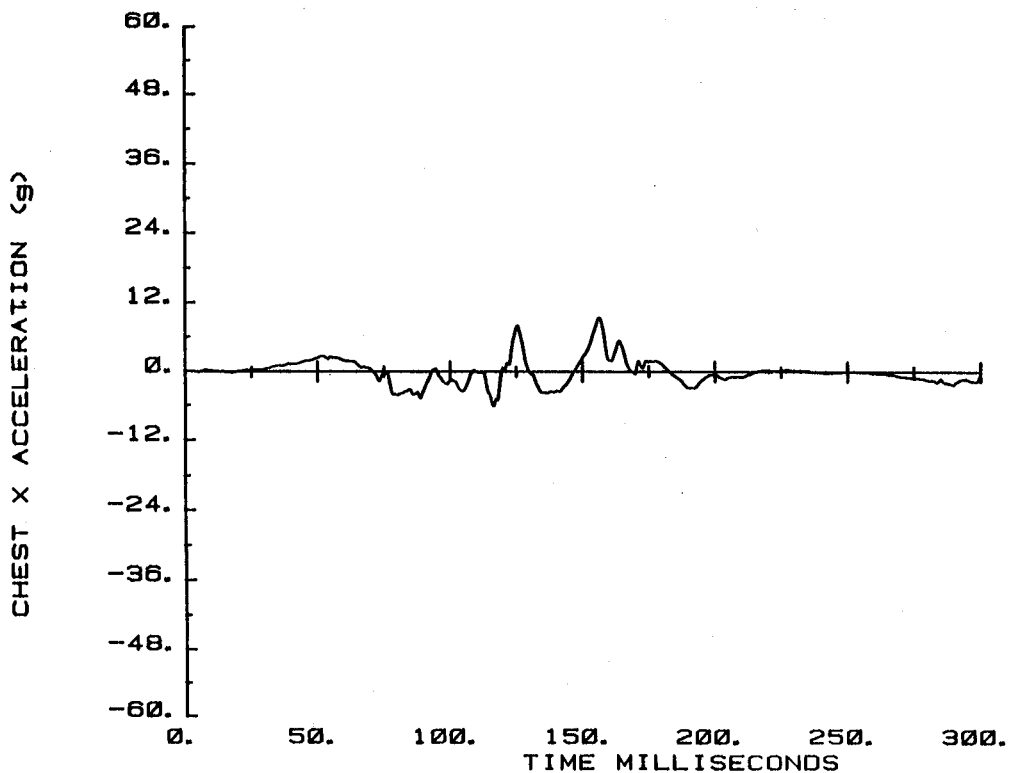
CAMI SLED TEST  
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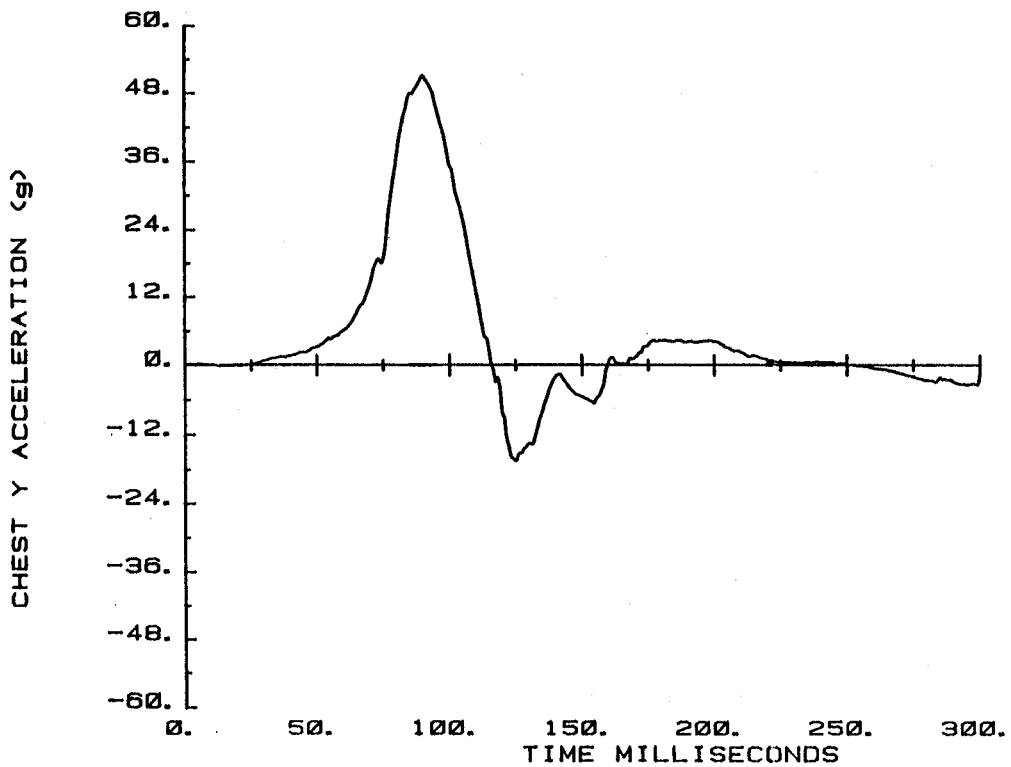
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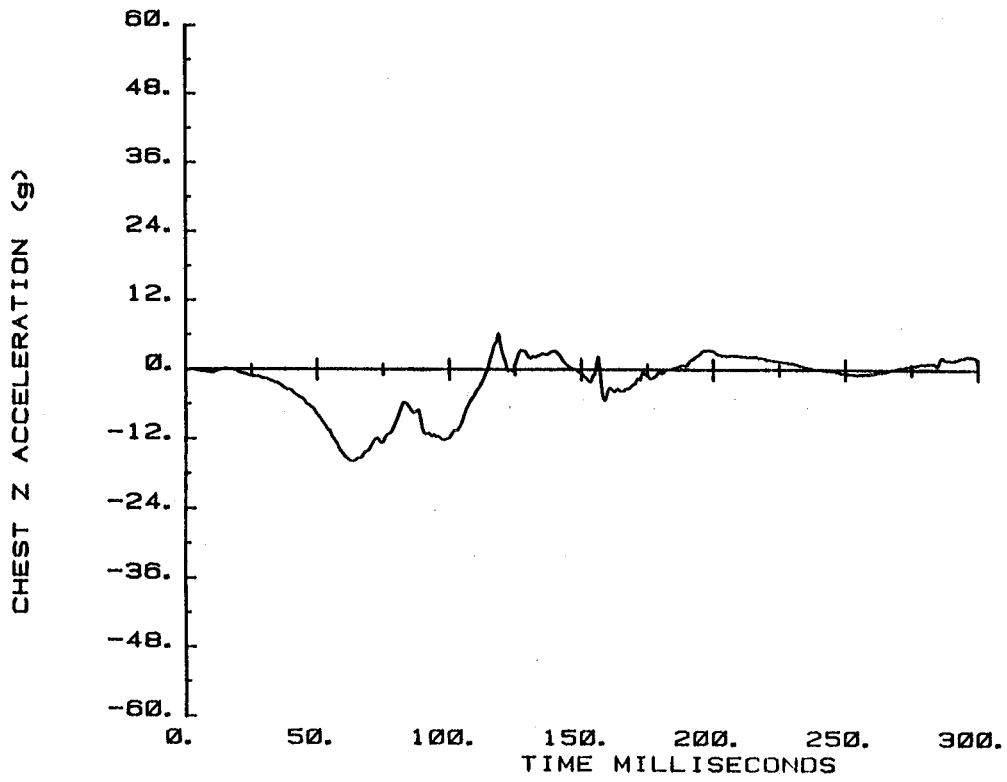
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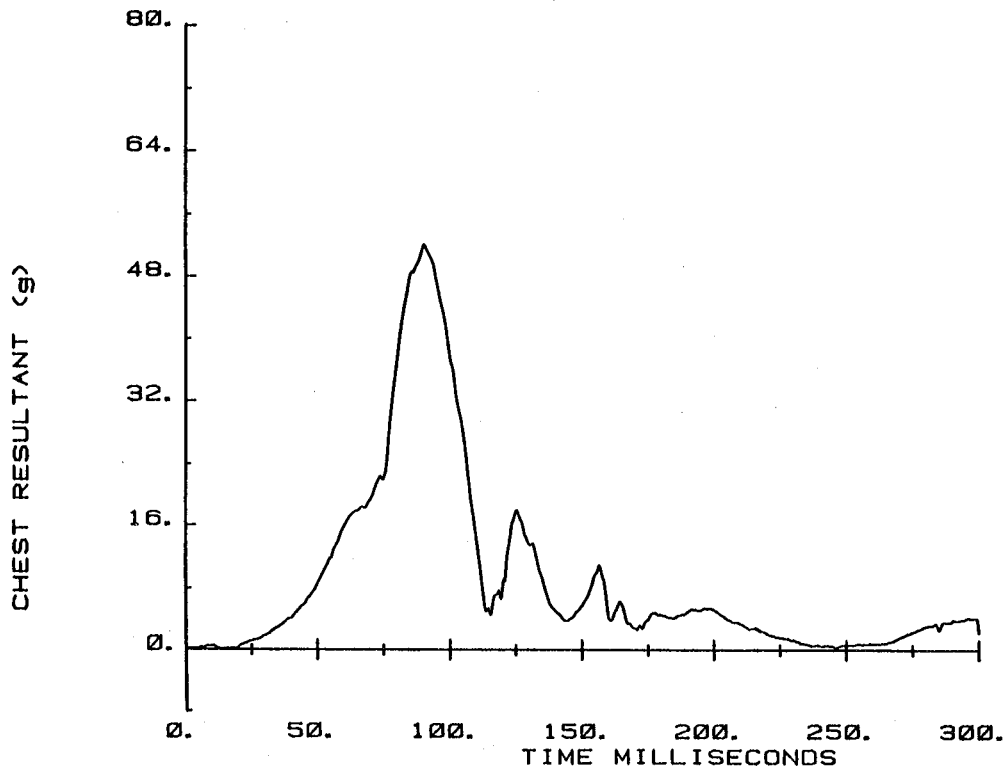
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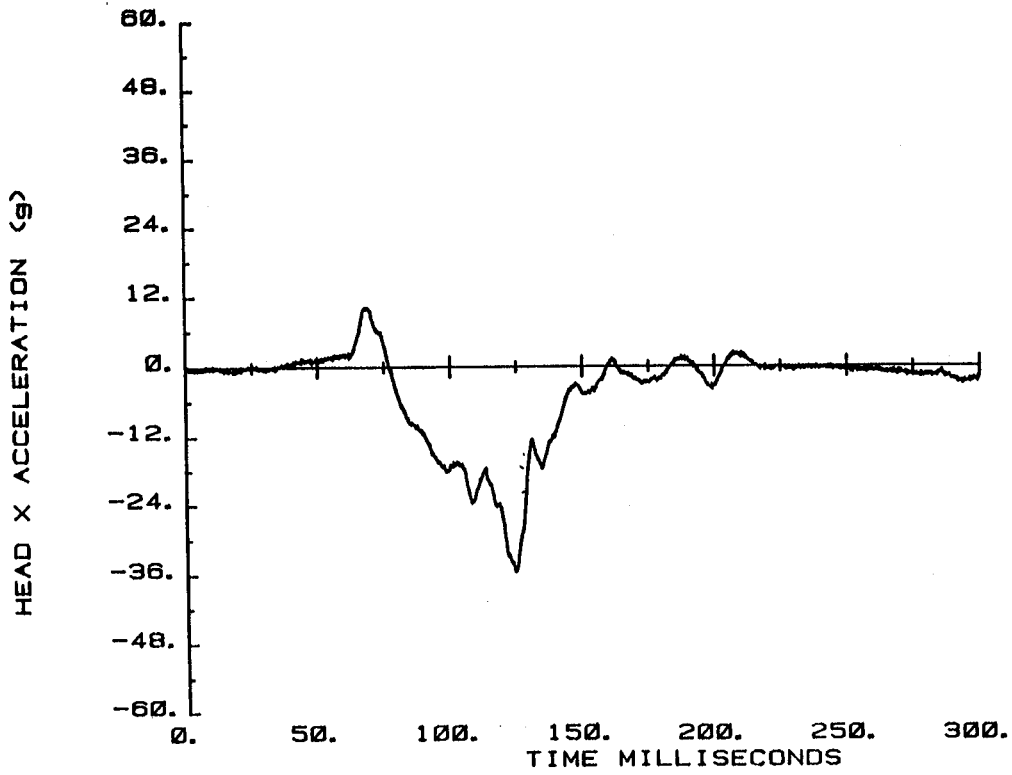
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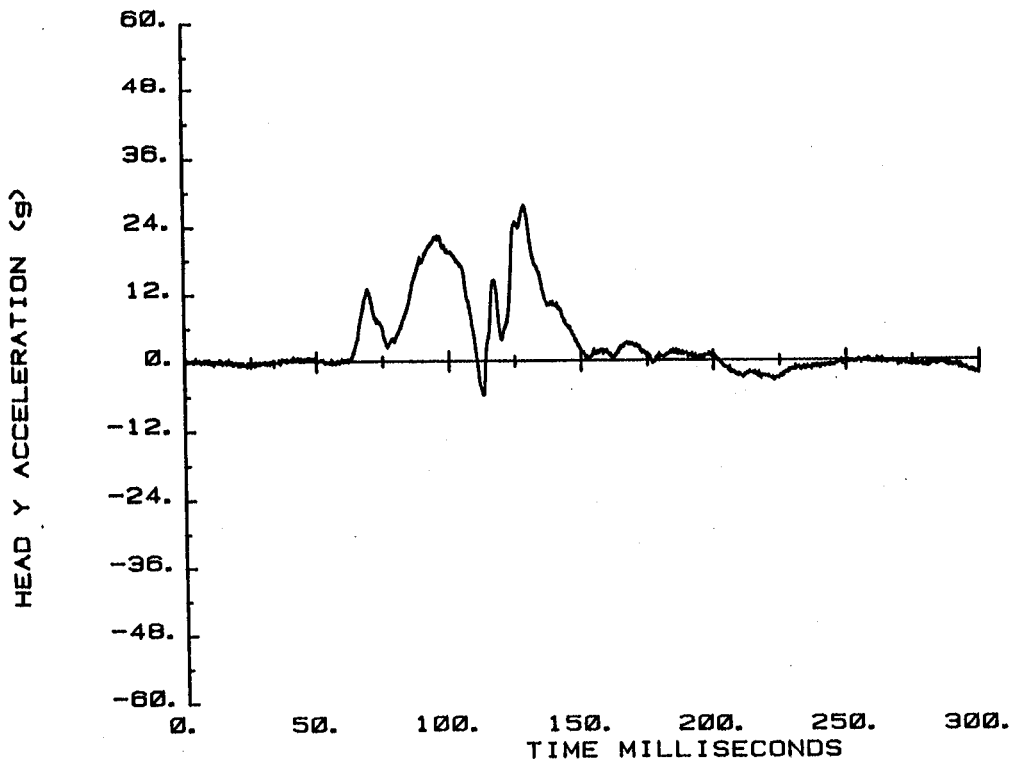
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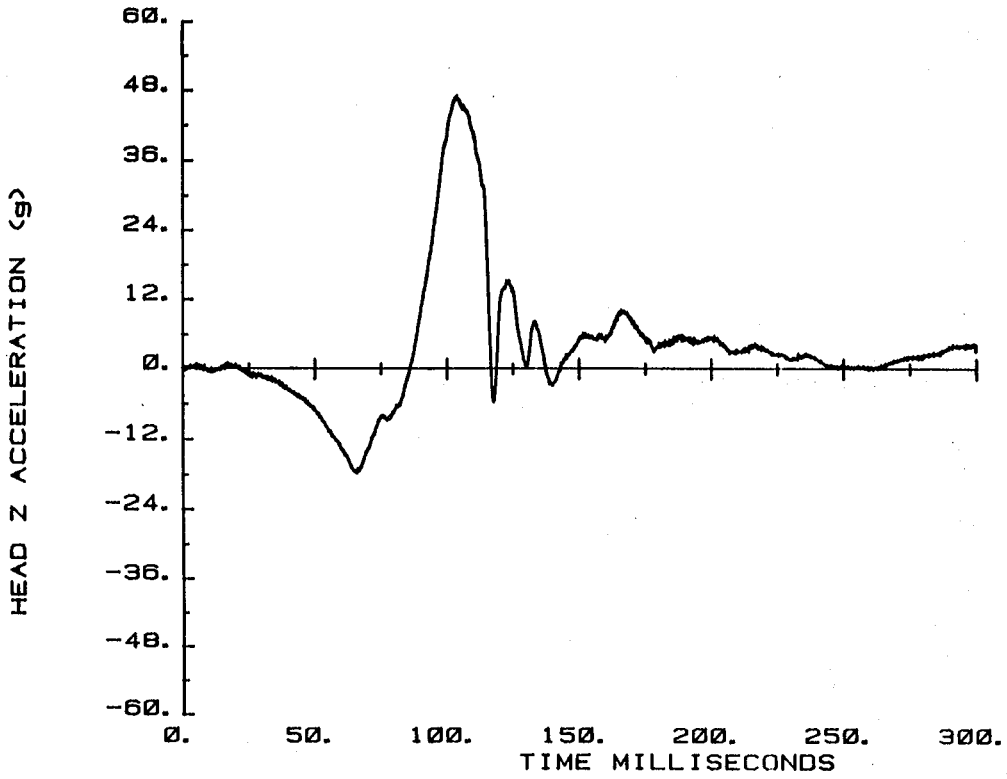
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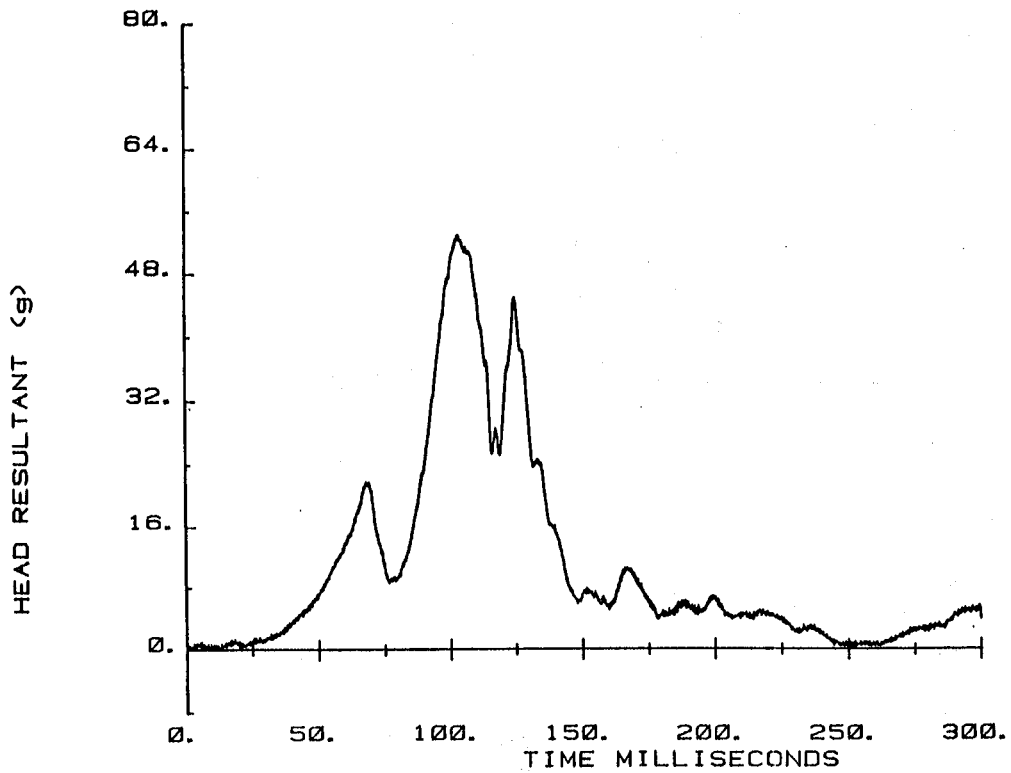
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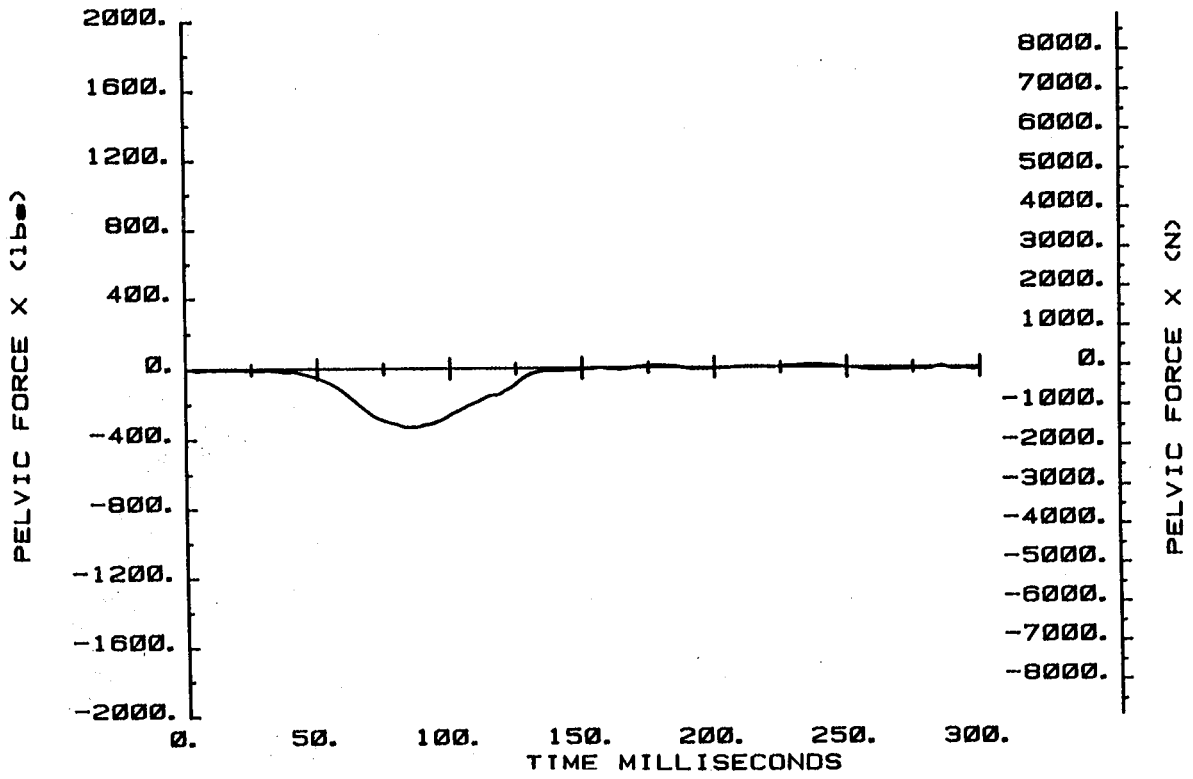
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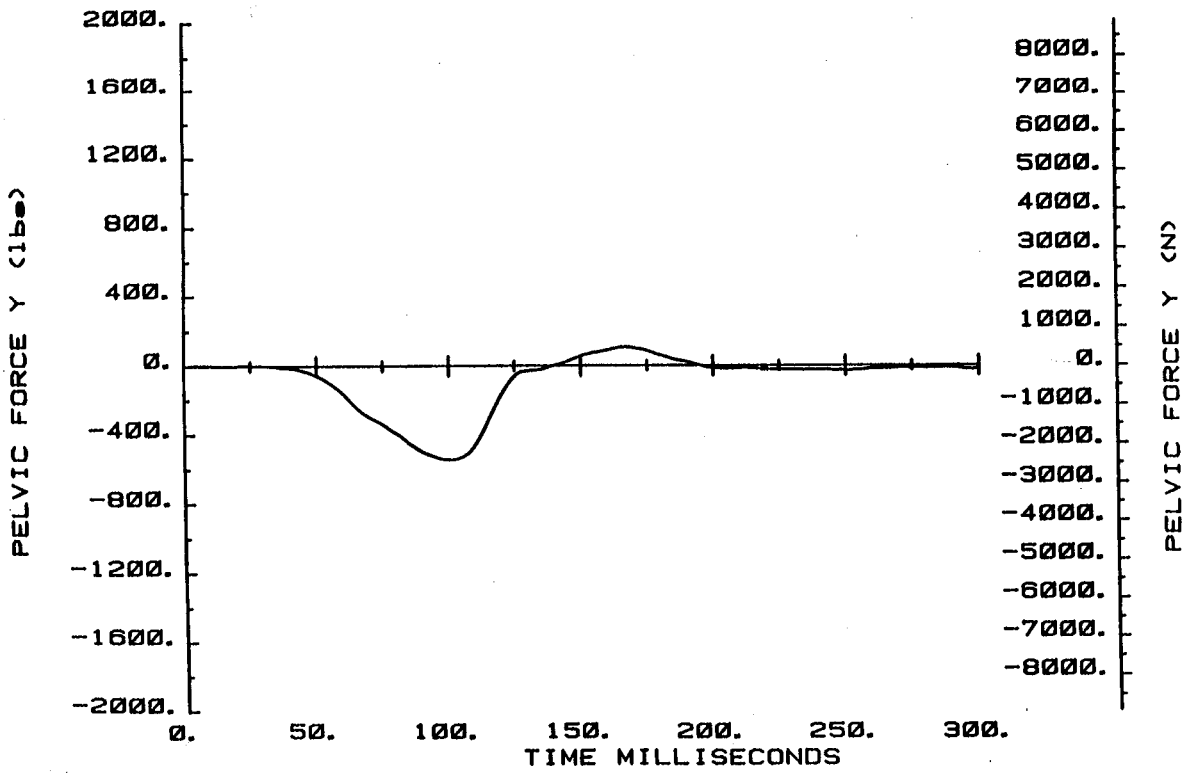
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CAMI SLED TEST  
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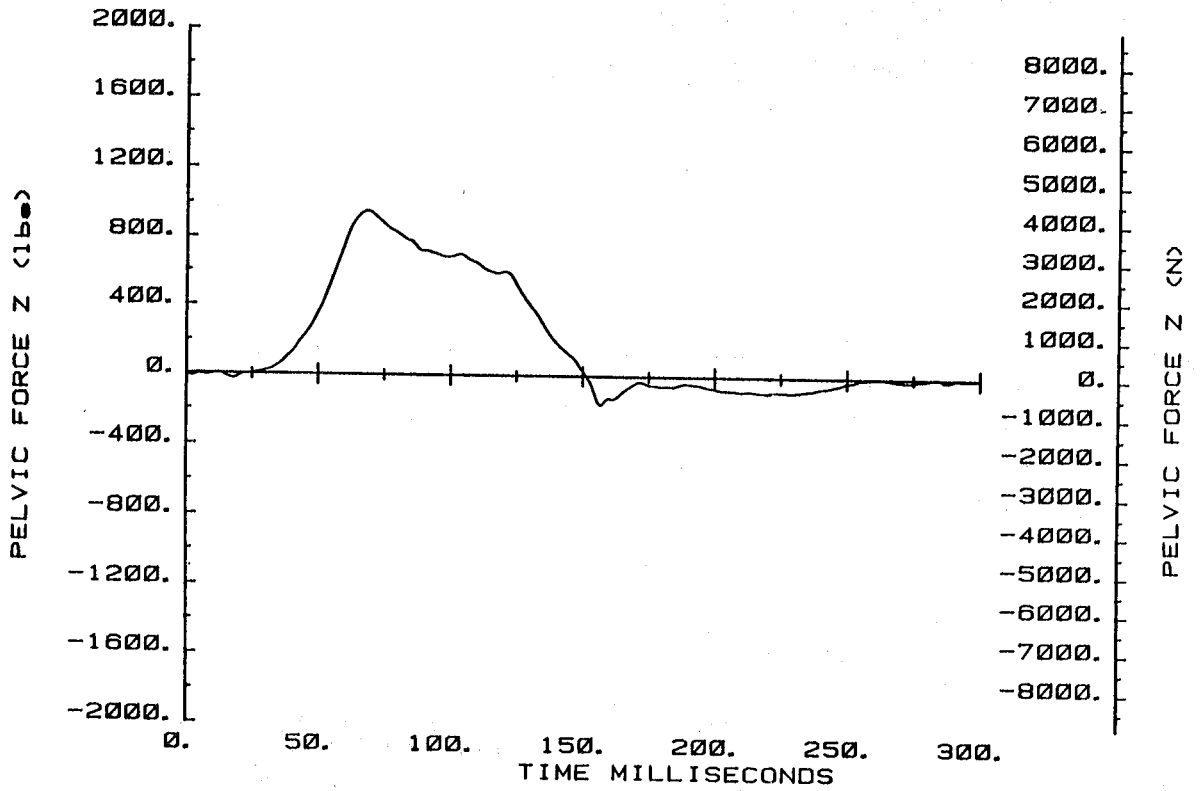


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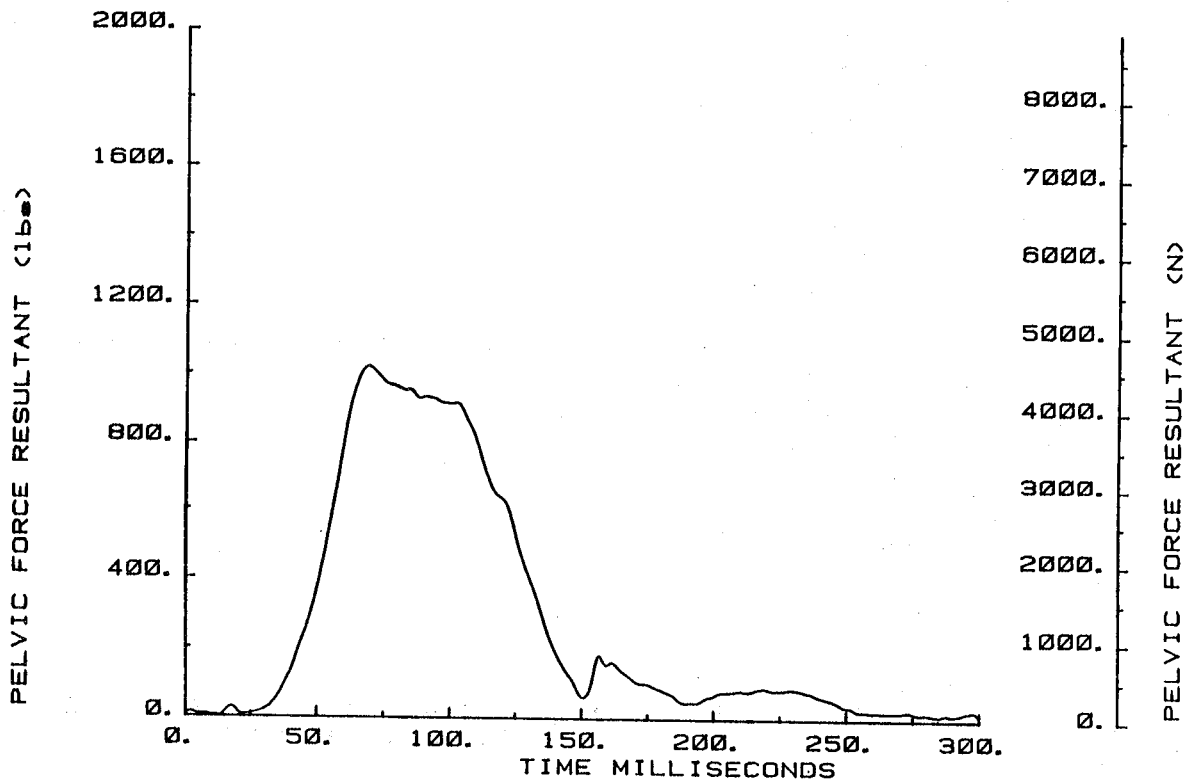




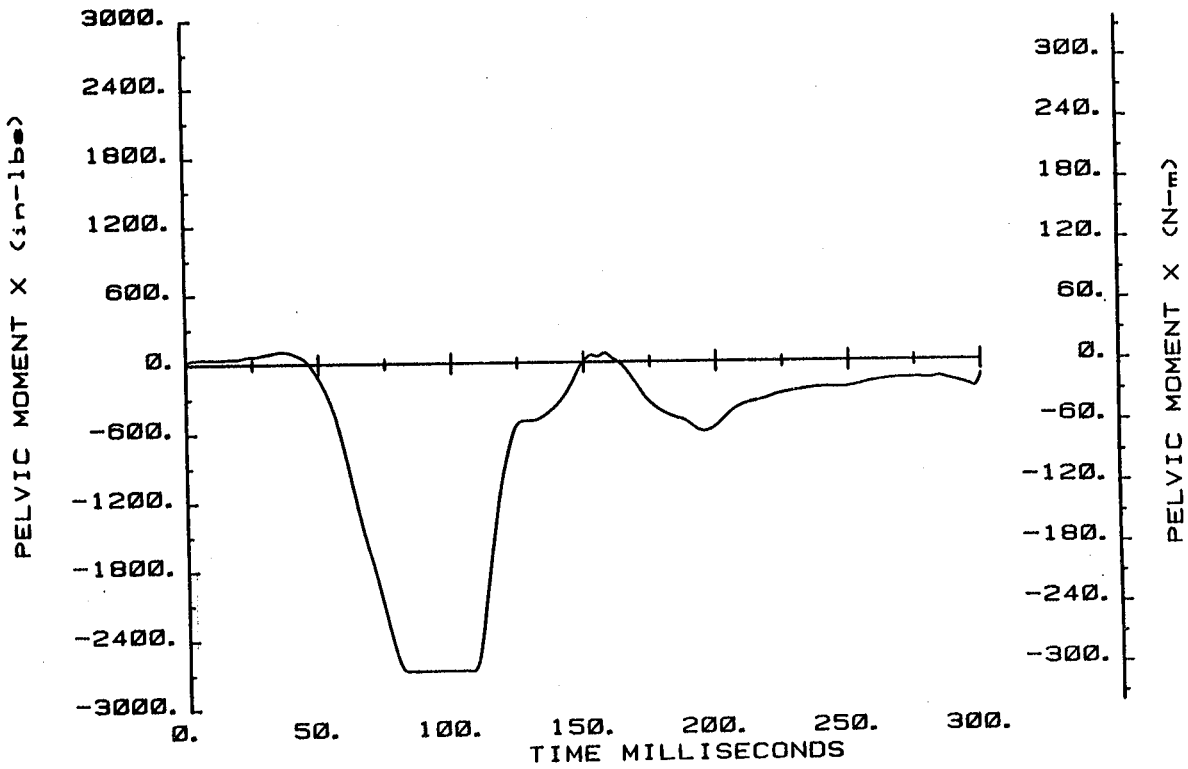
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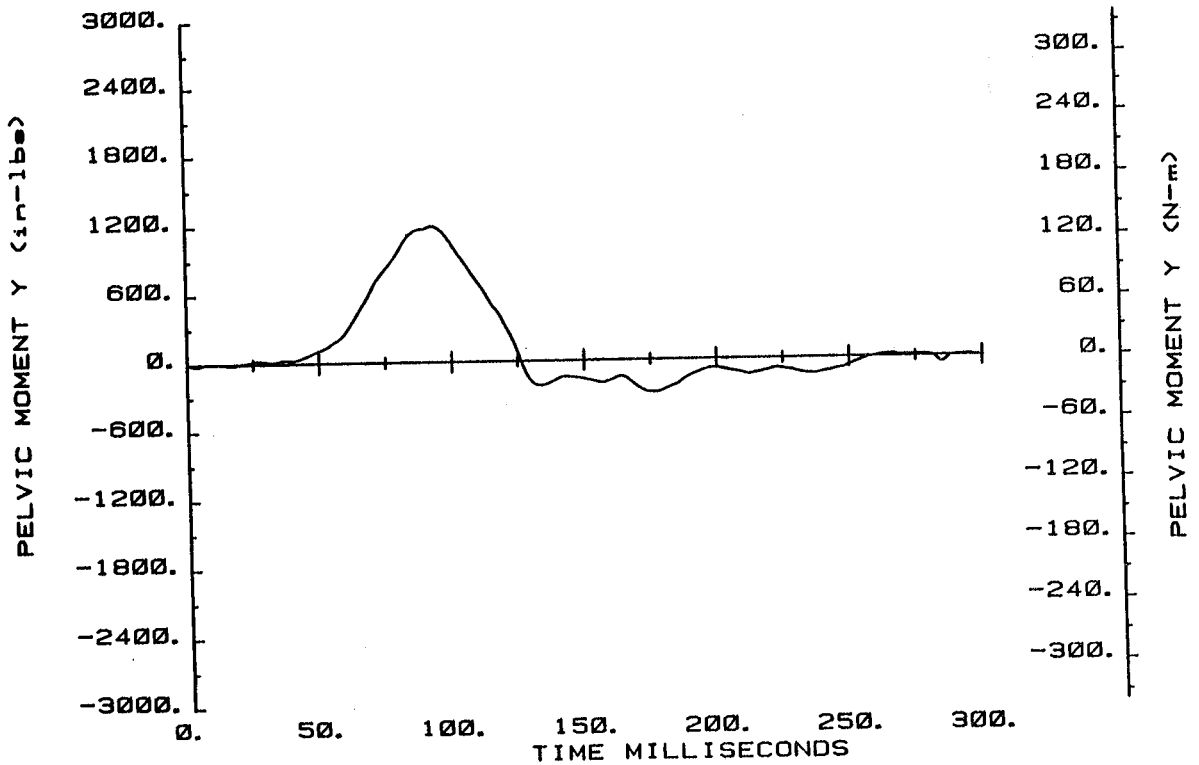
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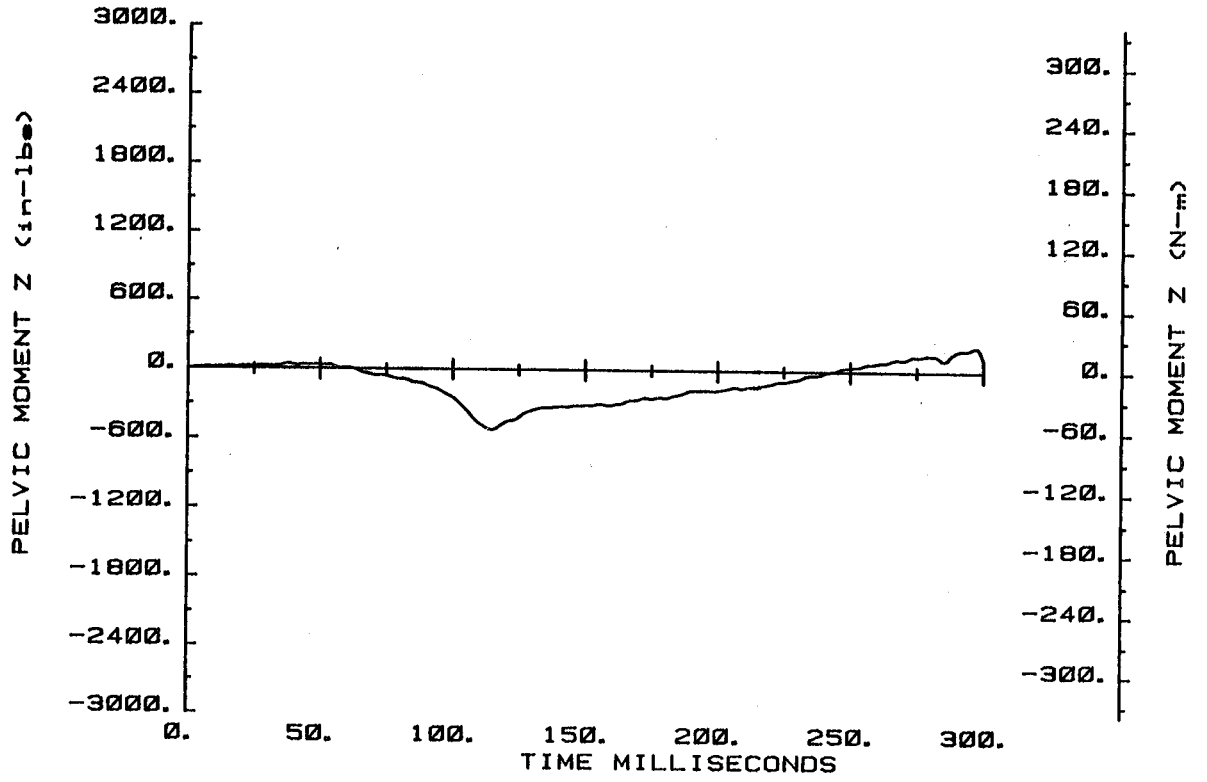
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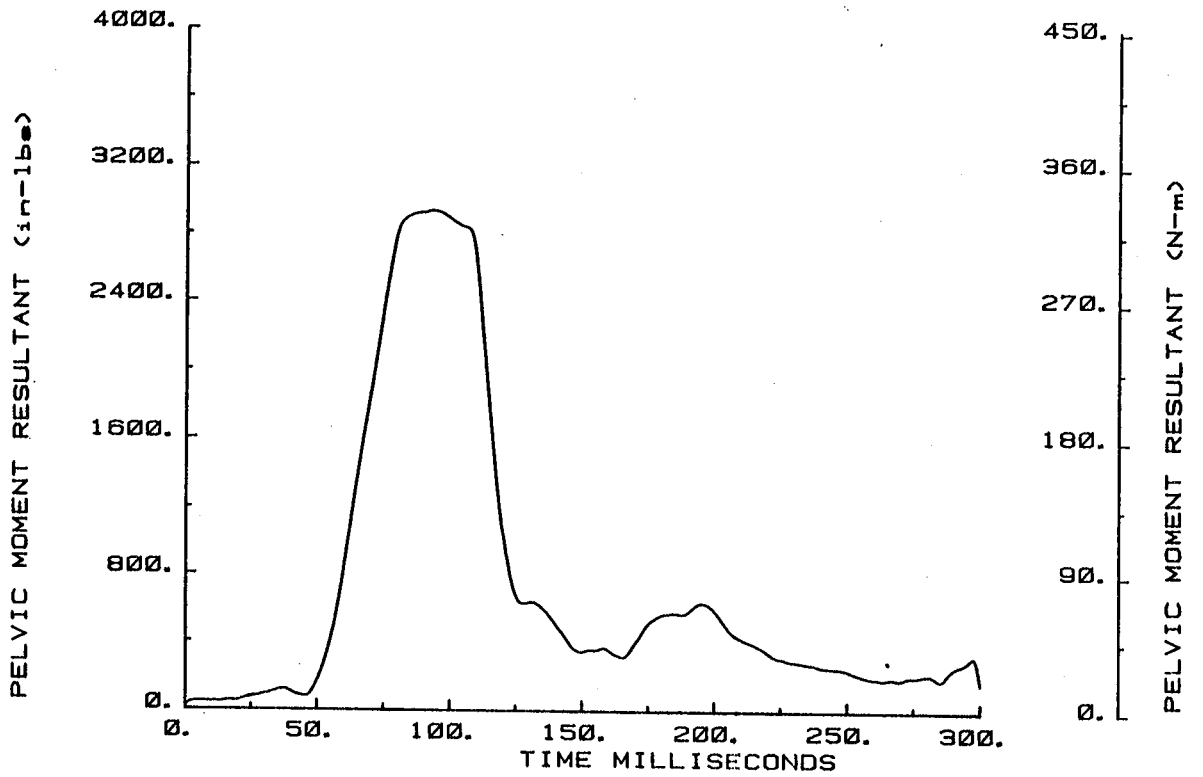
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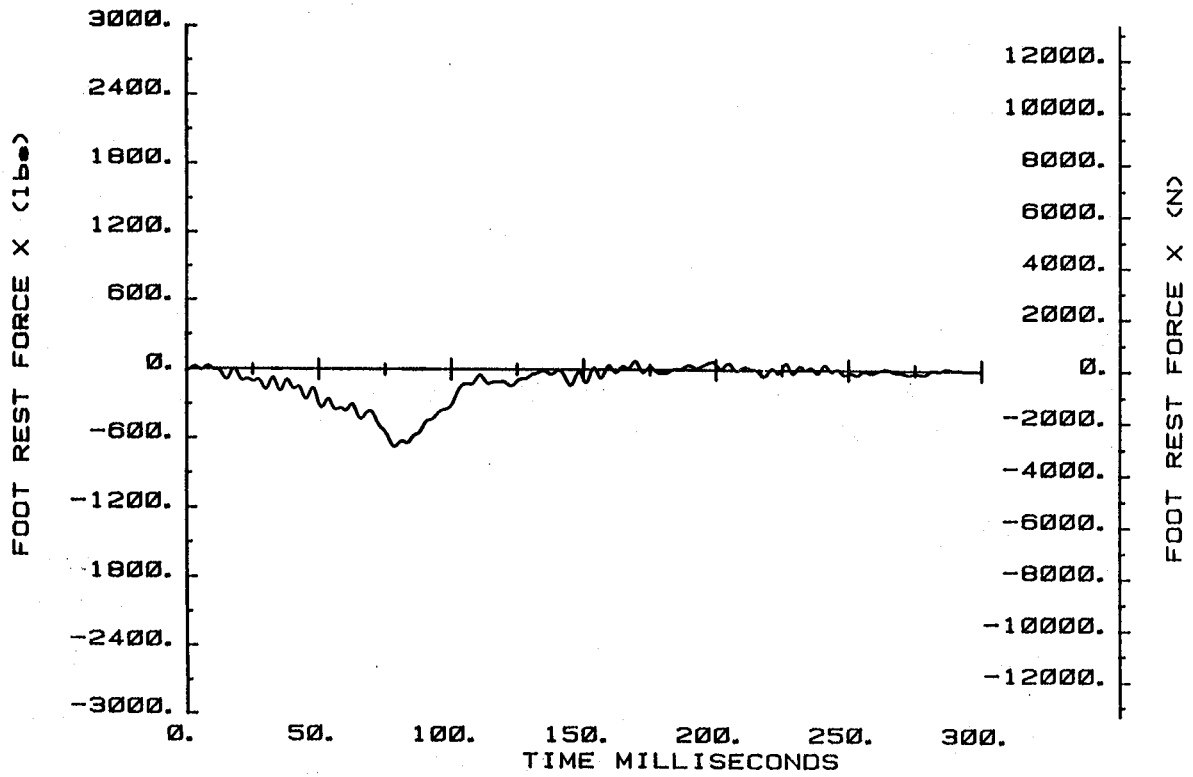
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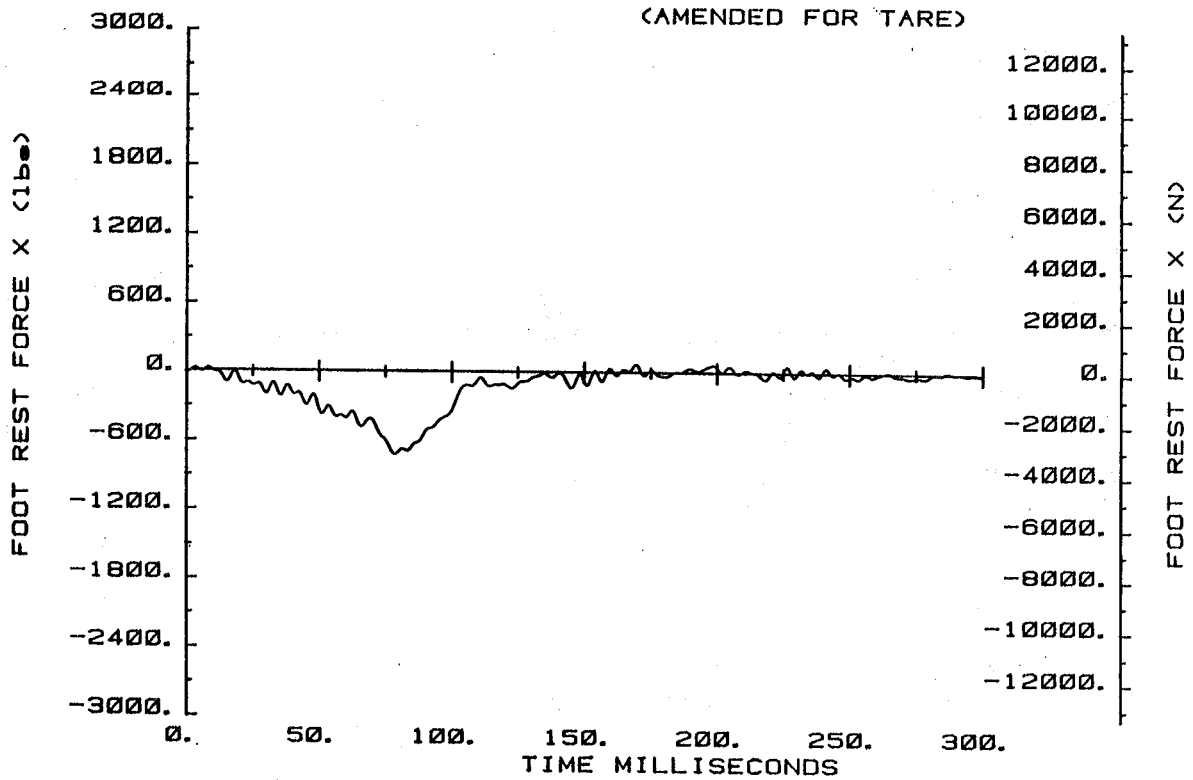
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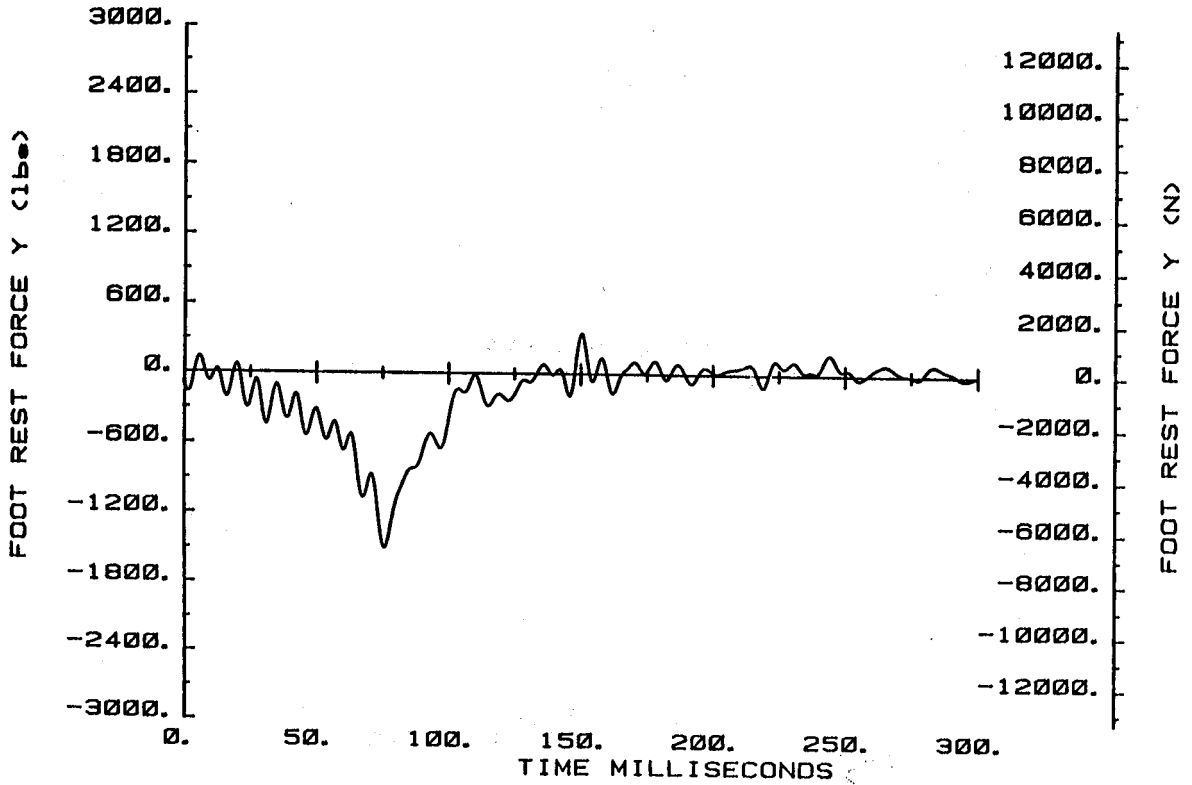
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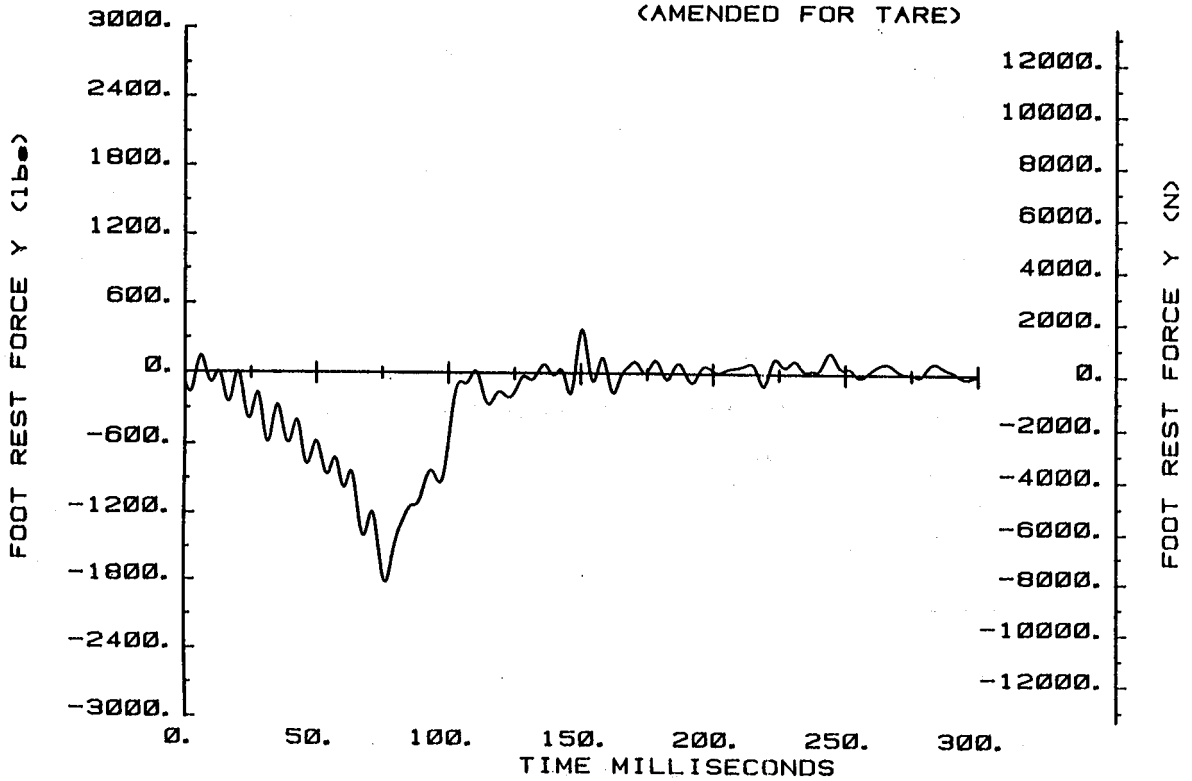
CAMI SLED TEST  
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(AMENDED FOR TARE)



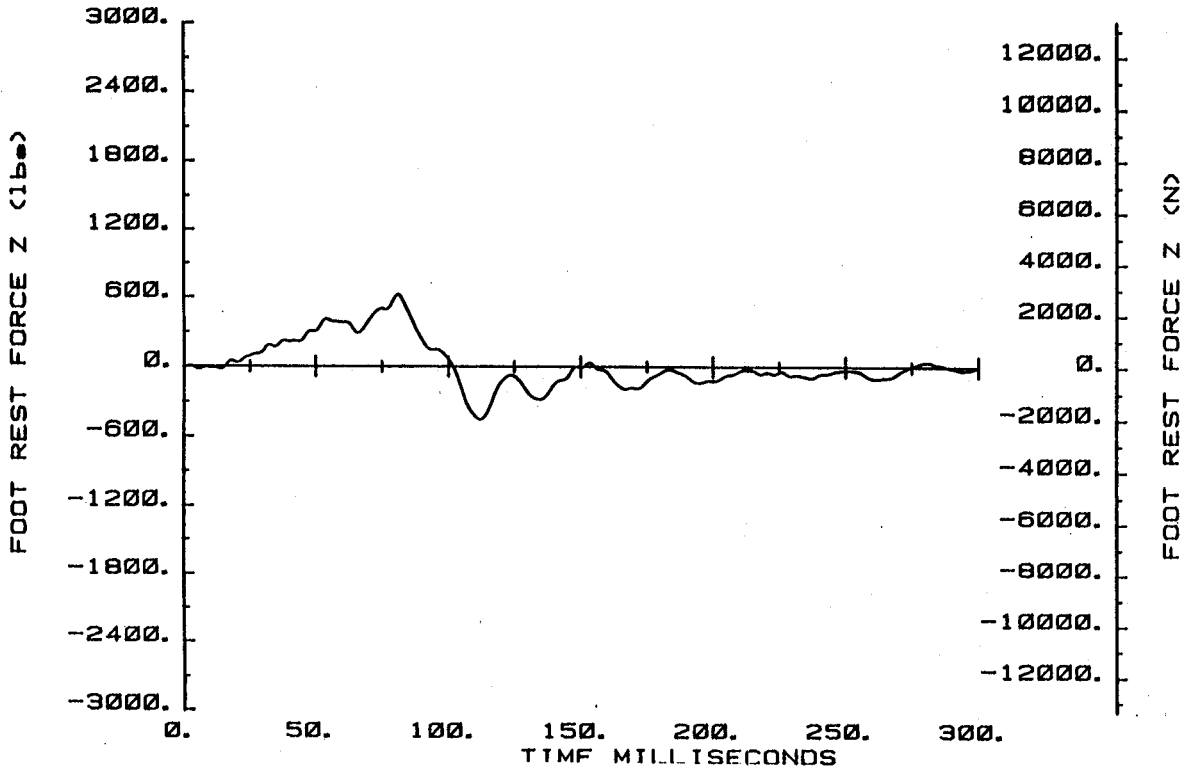
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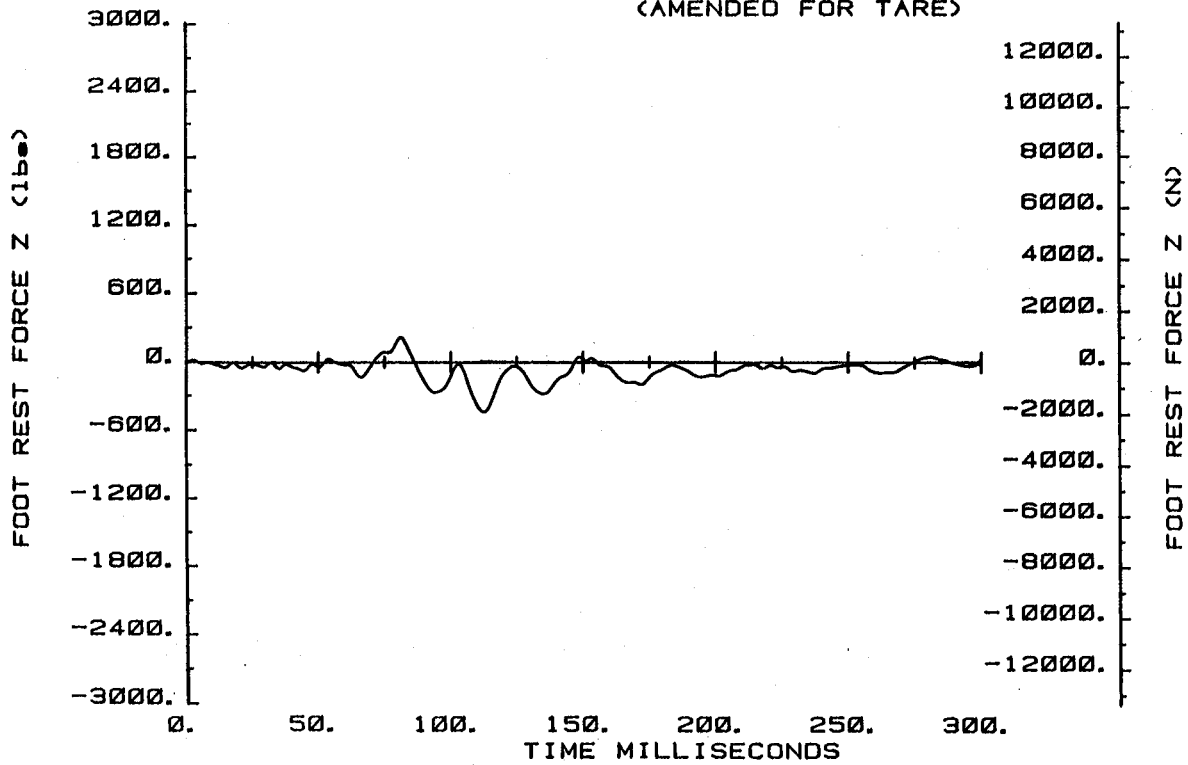
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(AMENDED FOR TARE)



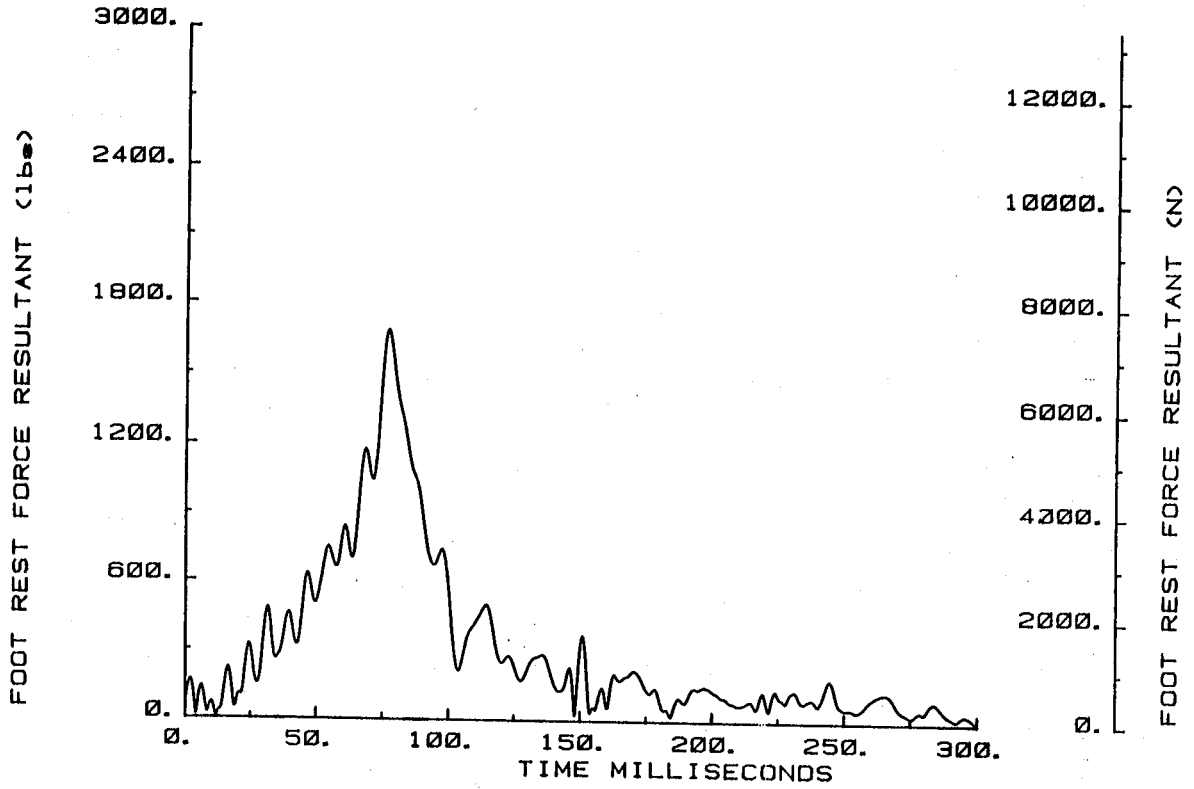
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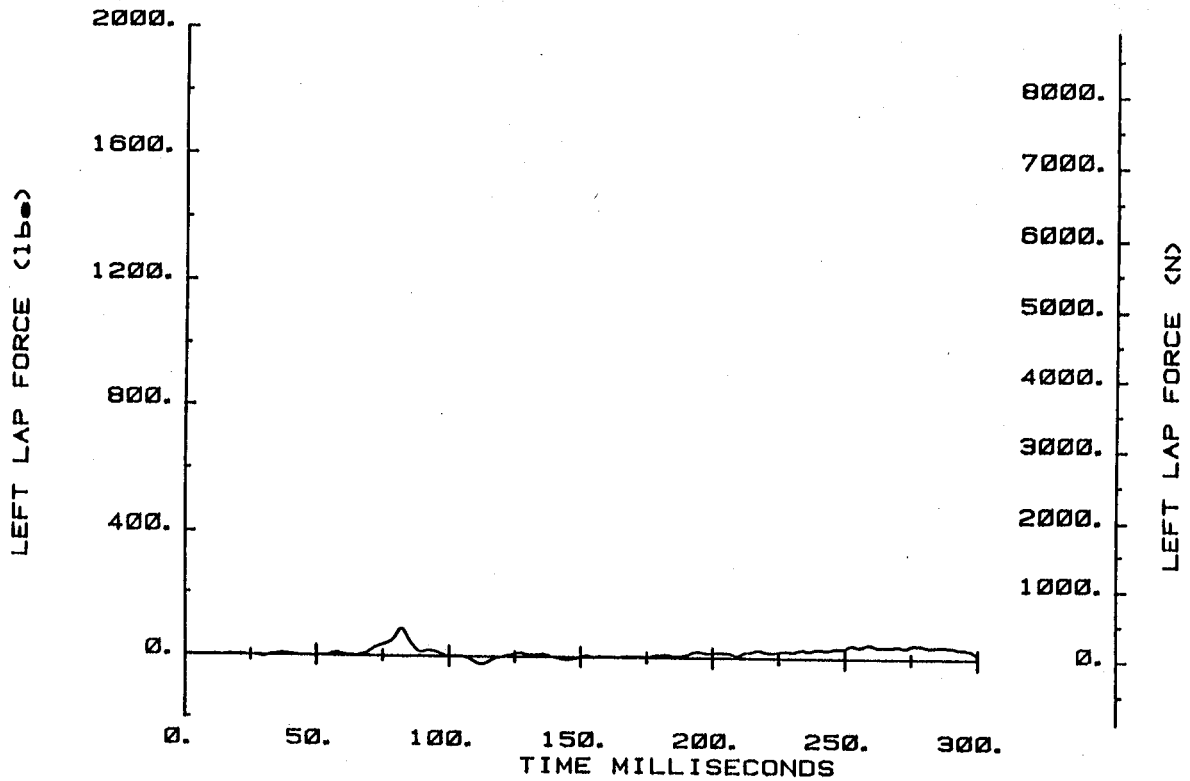
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(AMENDED FOR TARE)



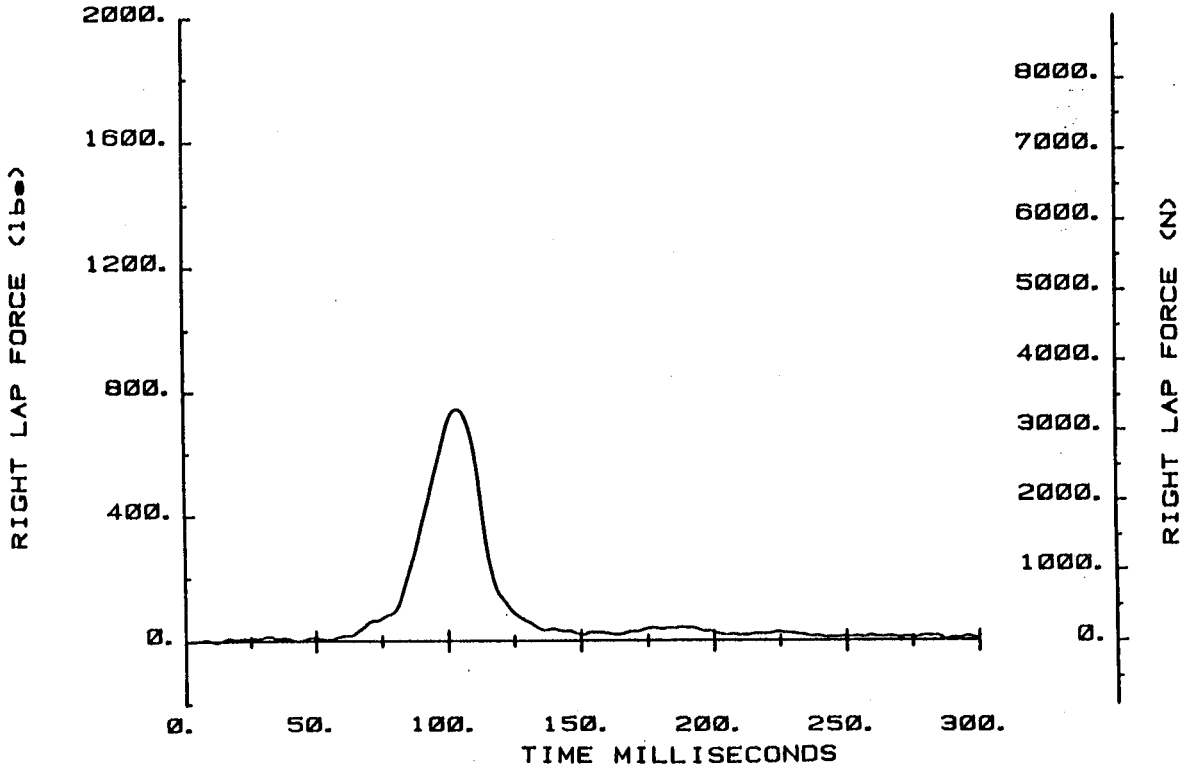
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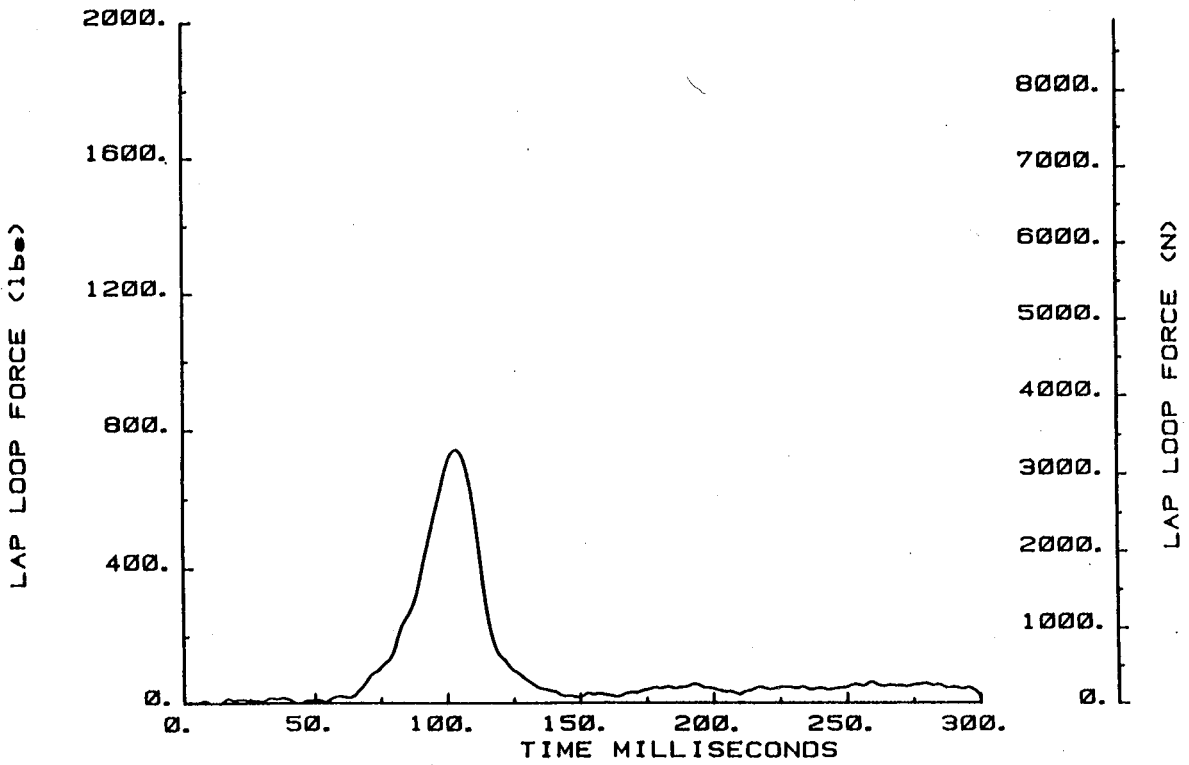
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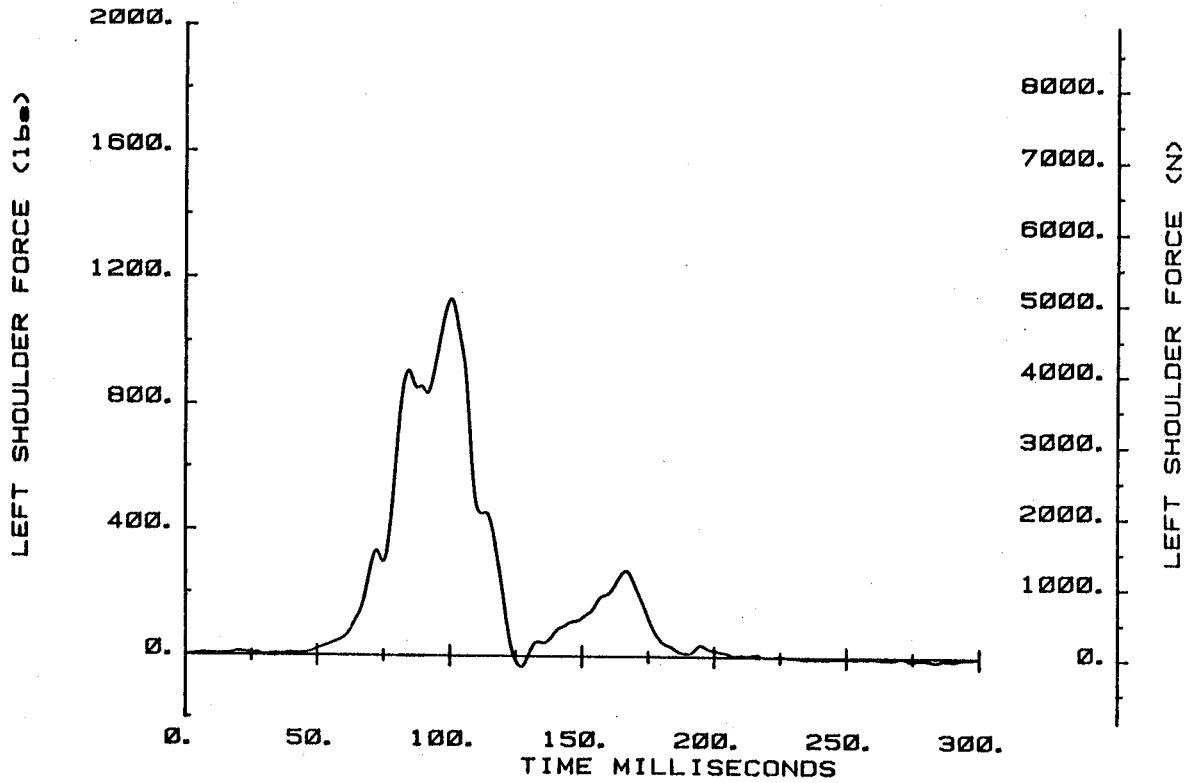


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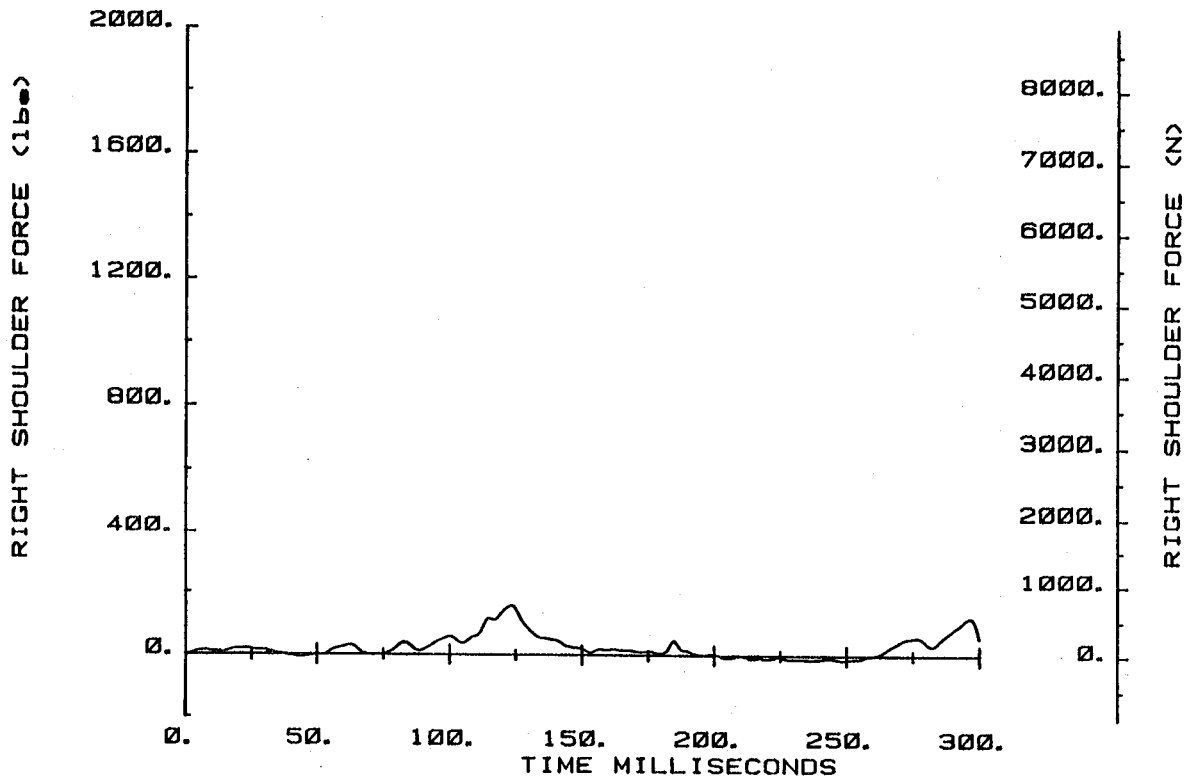




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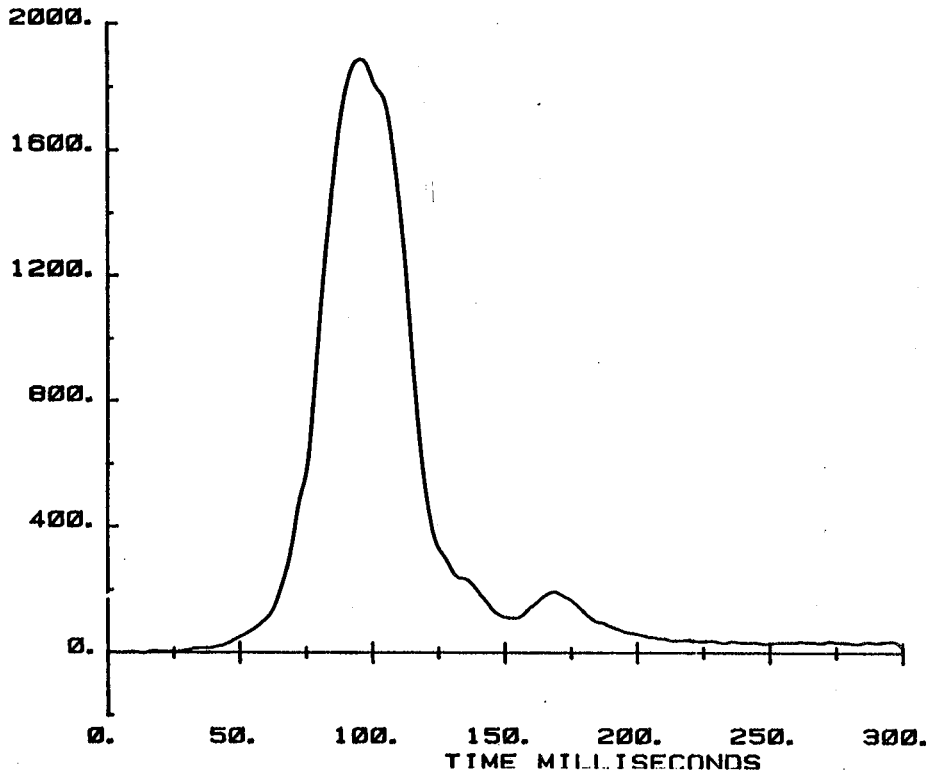


CAMI SLED TEST  
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CAMI SLED TEST  
A03106

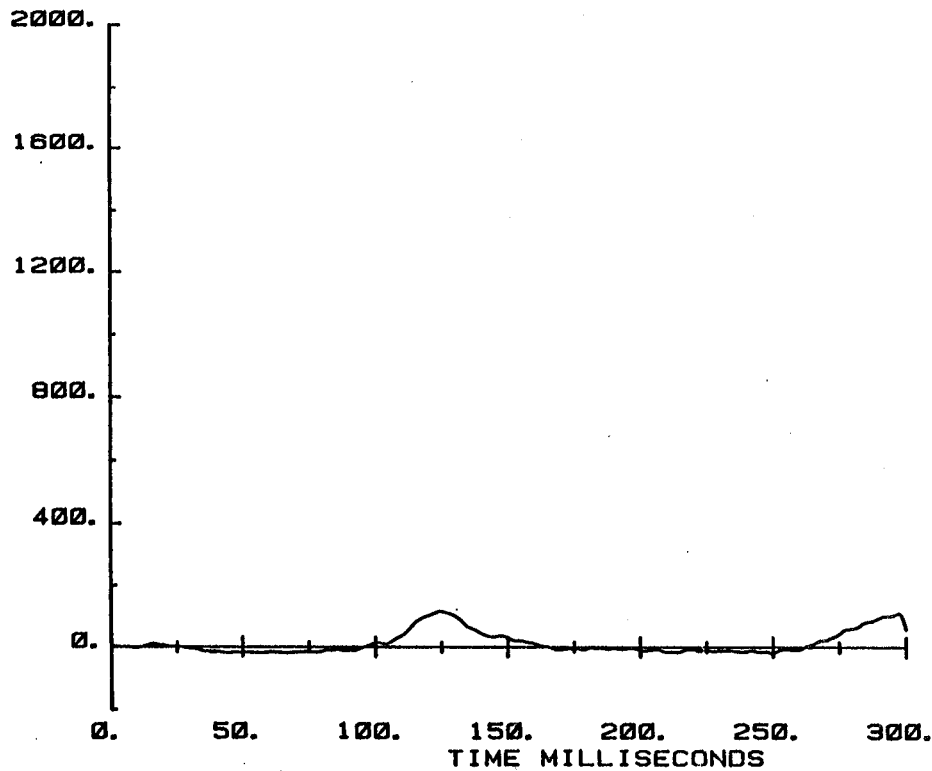
LEFT REFLECTIVE STRAP FORCE (lbf)



LEFT REFLECTIVE STRAP FORCE (N)

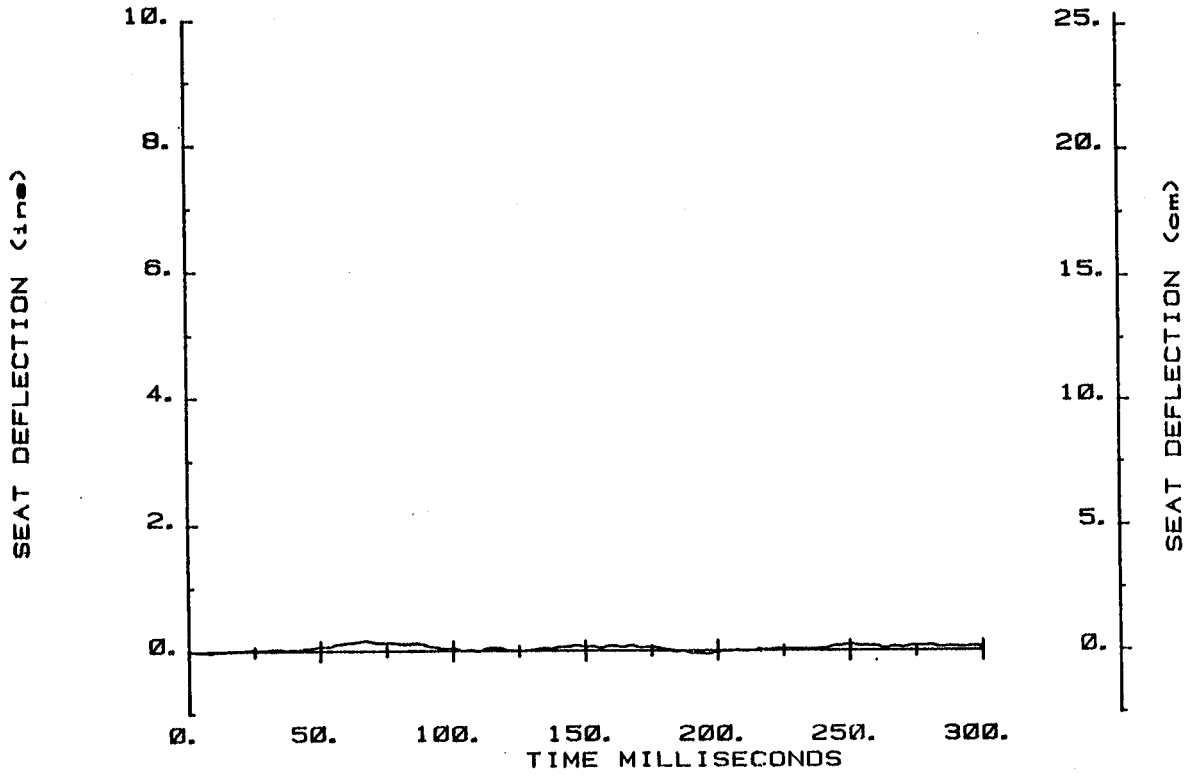
CAMI SLED TEST  
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RIGHT REFLECTIVE STRAP FORCE (lbf)

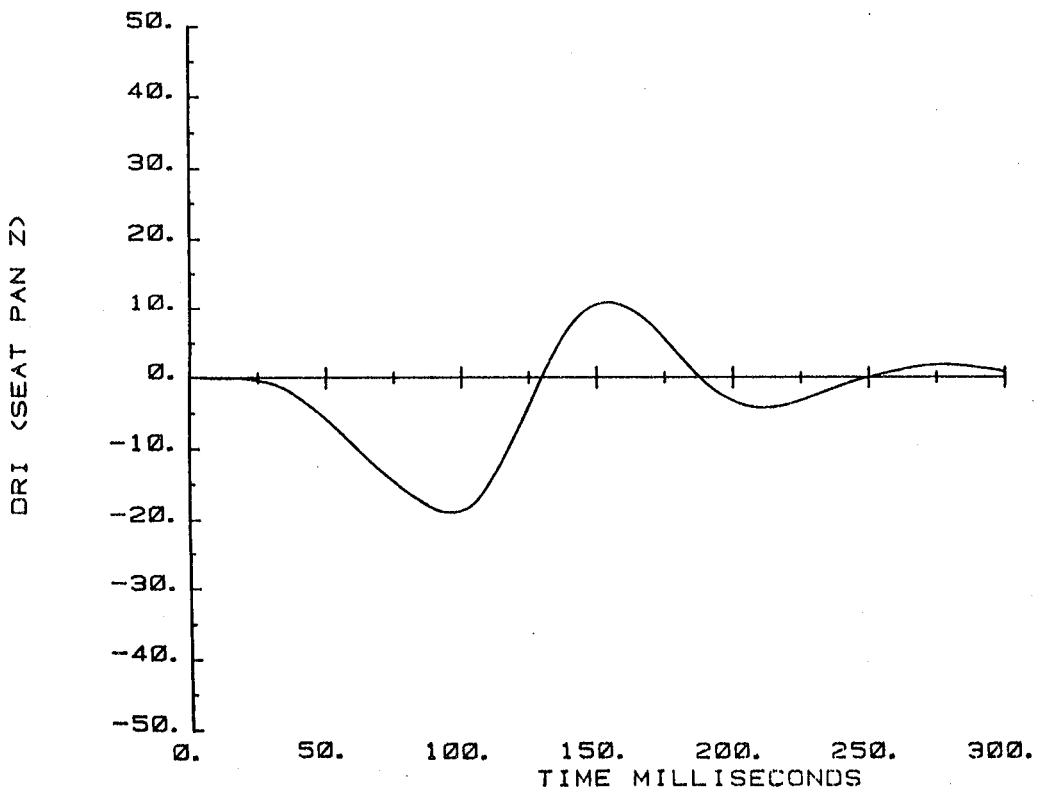


RIGHT REFLECTIVE STRAP FORCE (N)

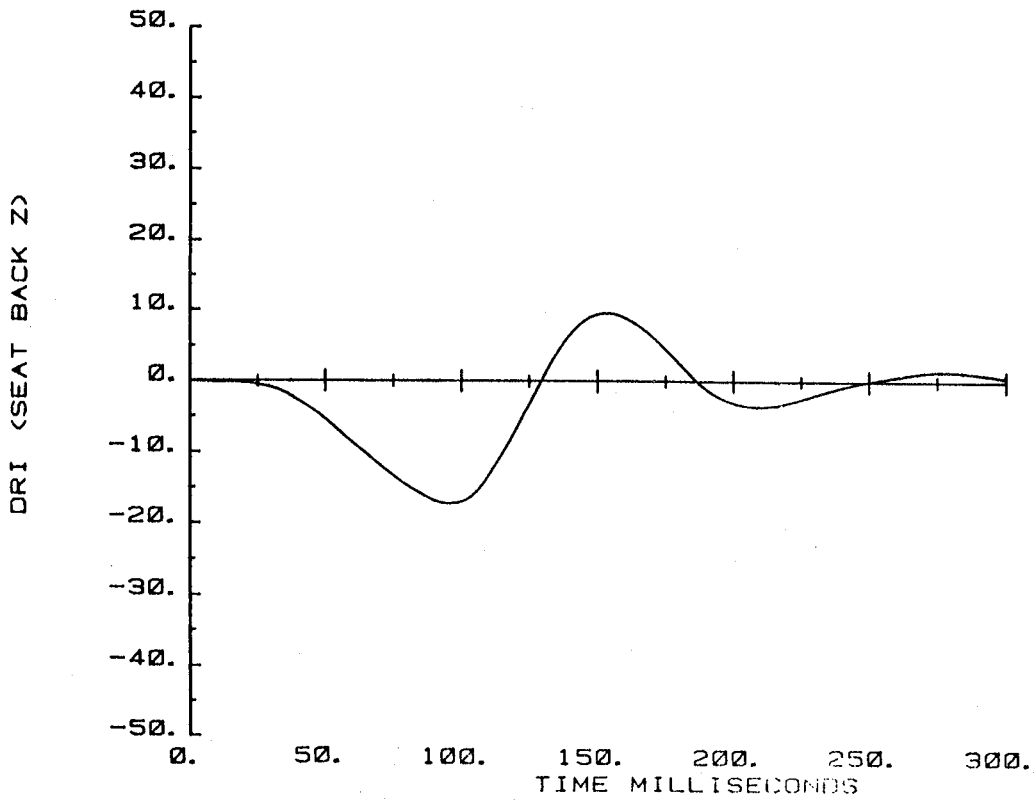
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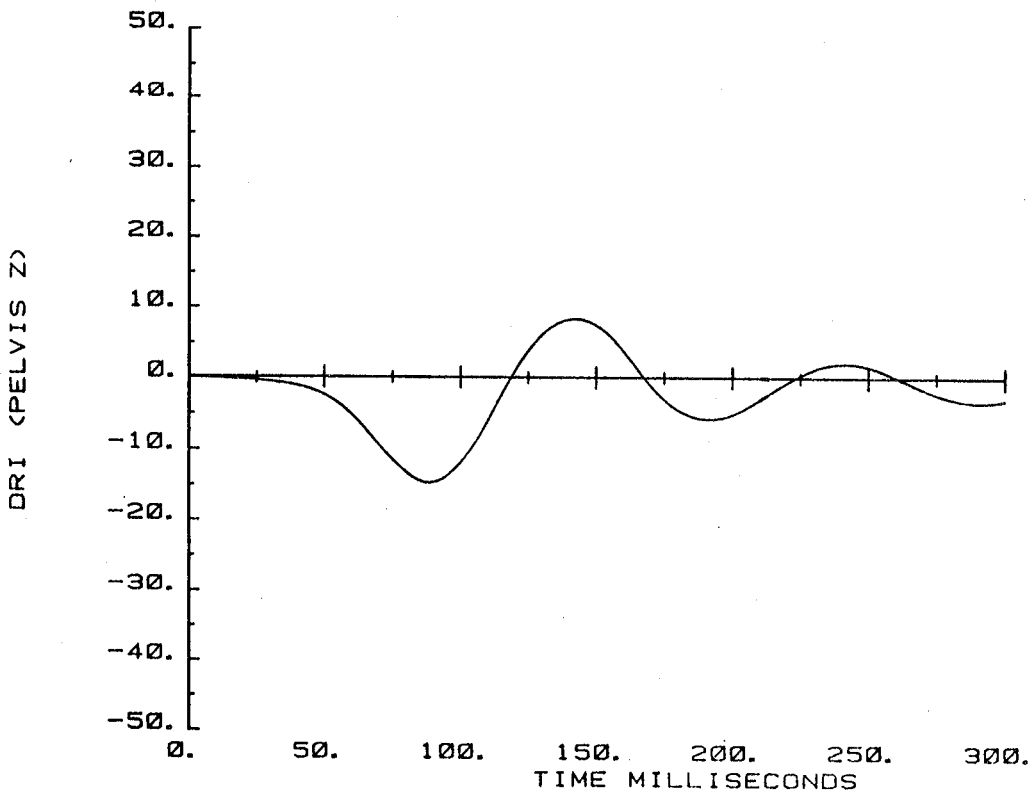
CAMI SLED TEST  
A83106



CAMI SLED TEST  
A83106



CAMI SLED TEST  
A83106



6.0 CAMI TEST NO. A83-108

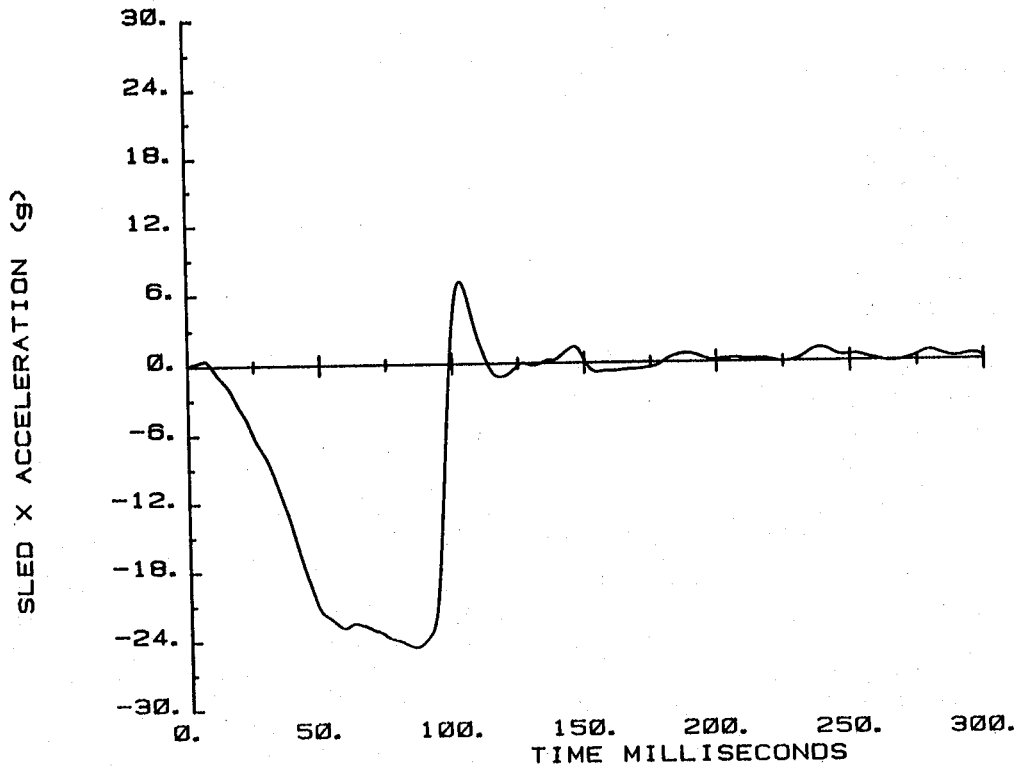
SEAT: Energy Absorbing

PULSE NUMBER: 3

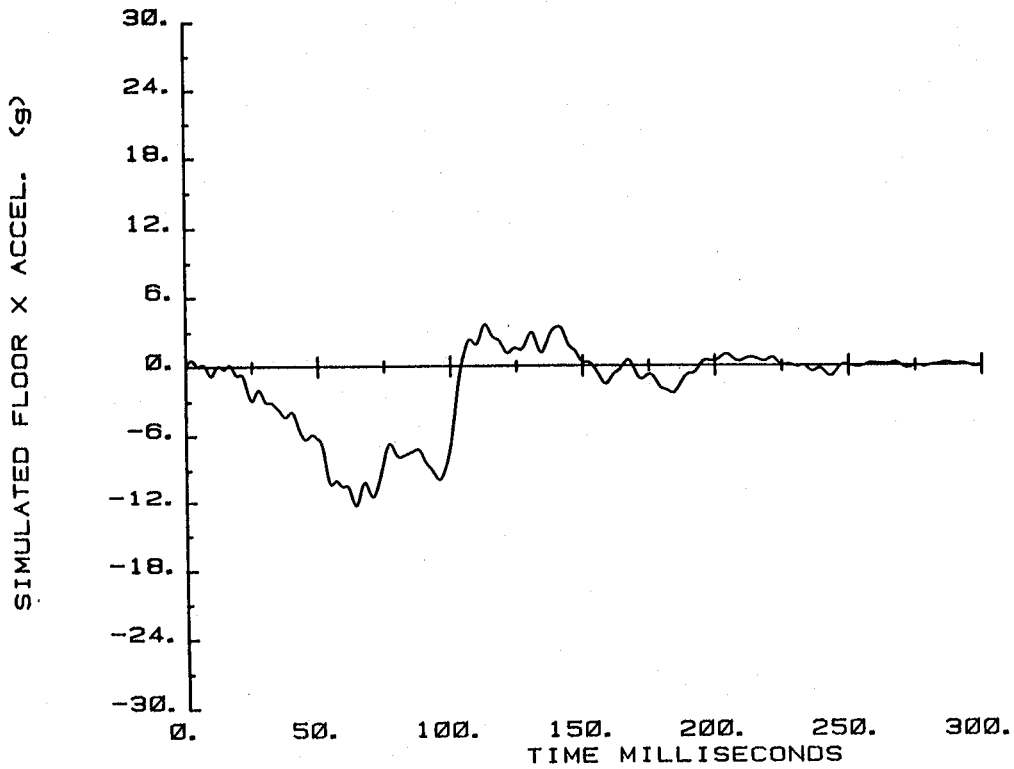
SEAT ORIENTATION: Pitch - 60°  
Roll - 0°  
Yaw - 45°

| RUN#   | VARIABLE                     | 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) * V10800 |
| 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   |        |       |                    |

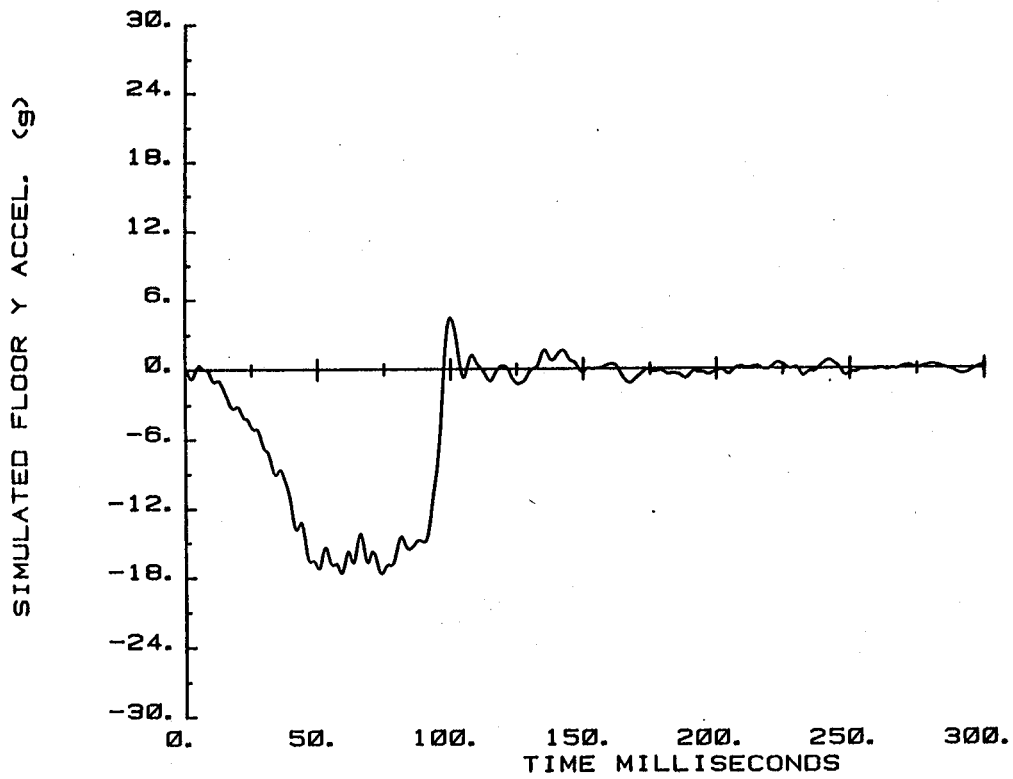
CAMI SLED TEST  
A83108



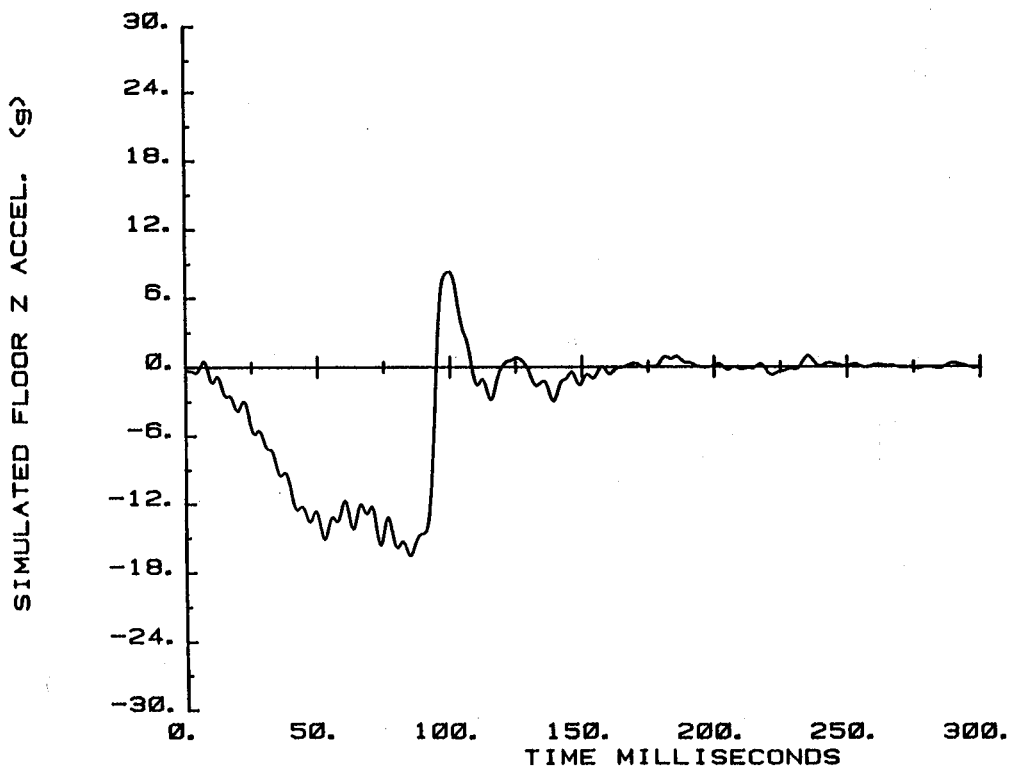
CAMI SLED TEST  
A83108



CAMI SLED TEST  
A83108

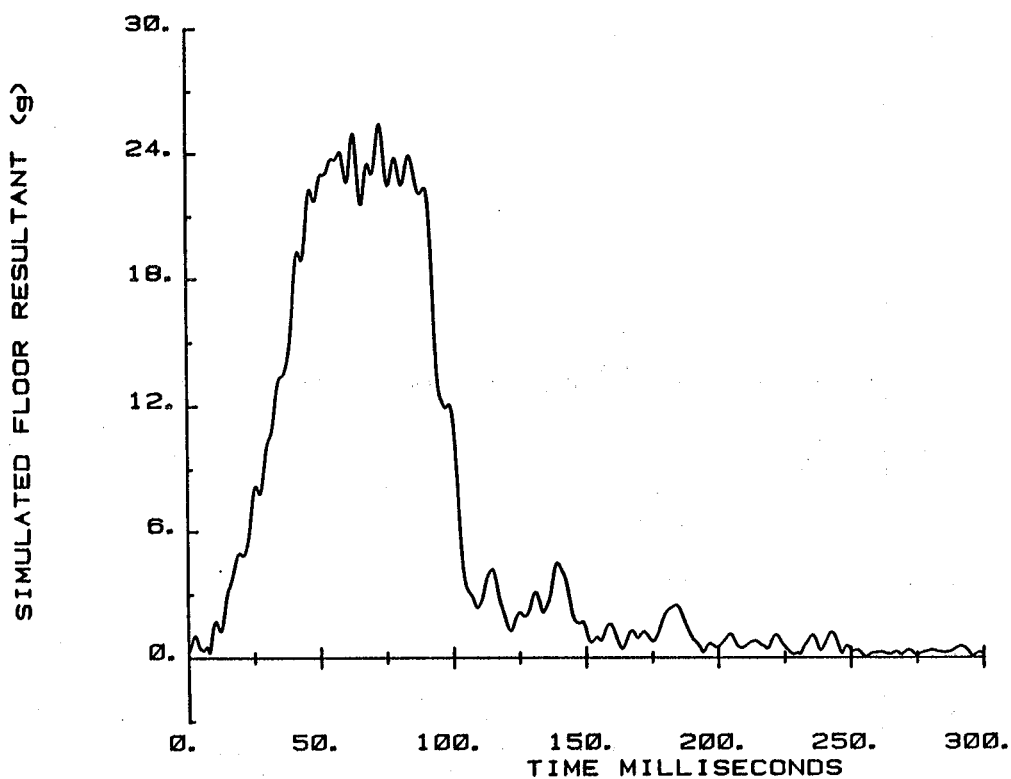


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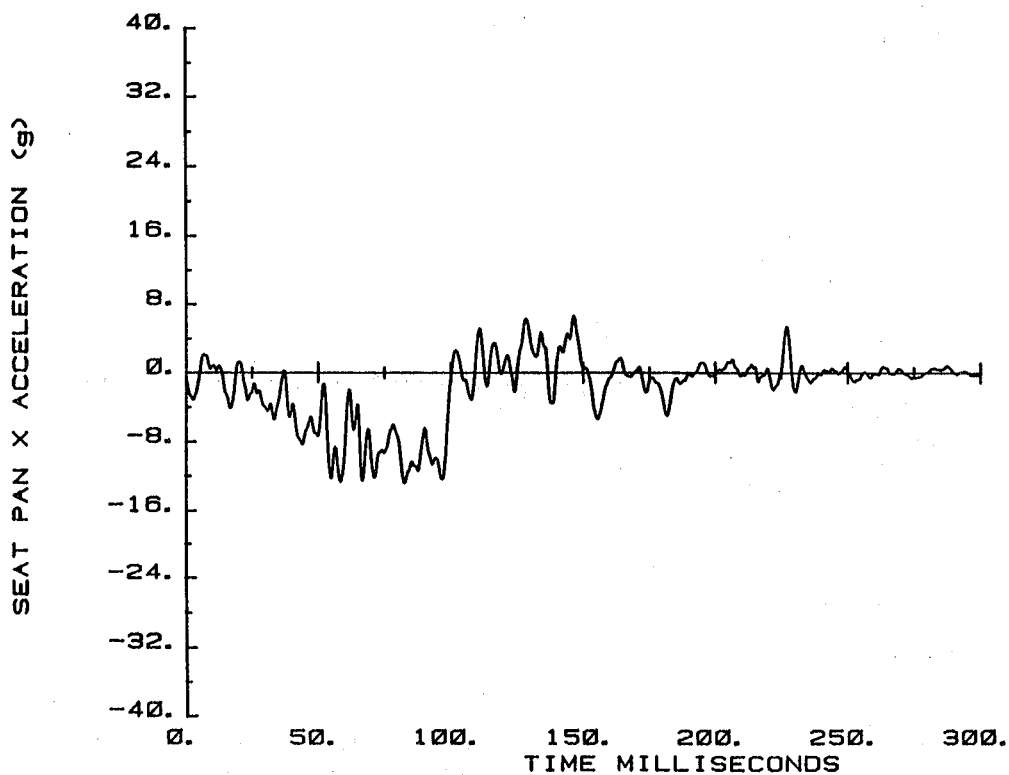




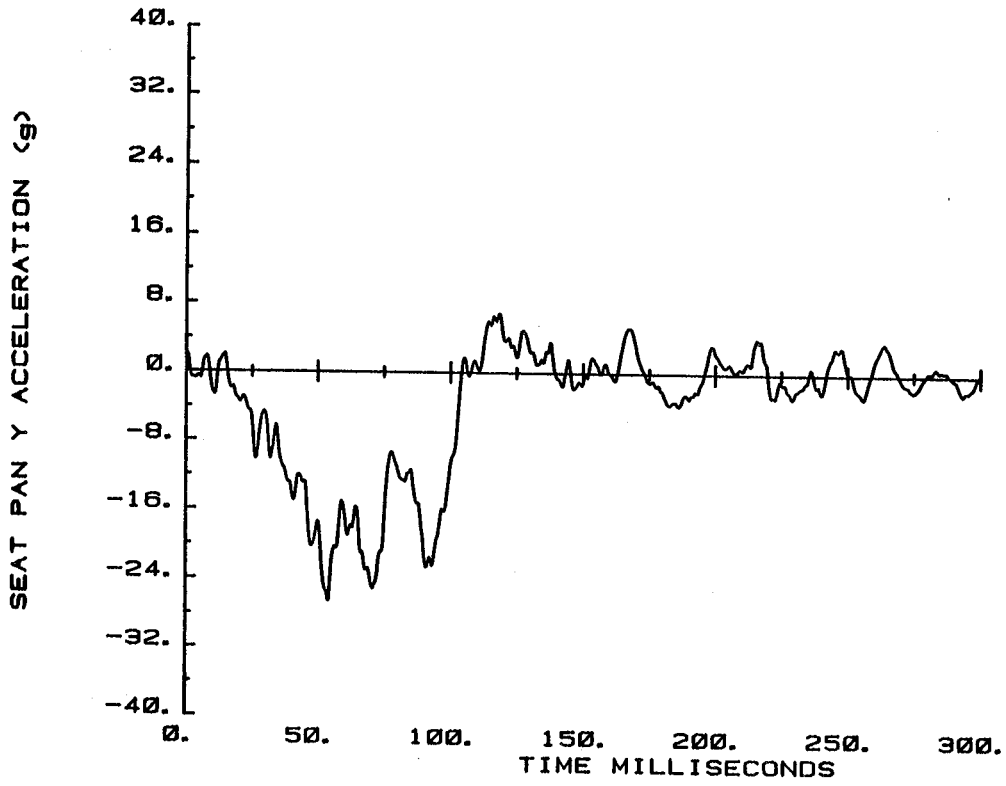
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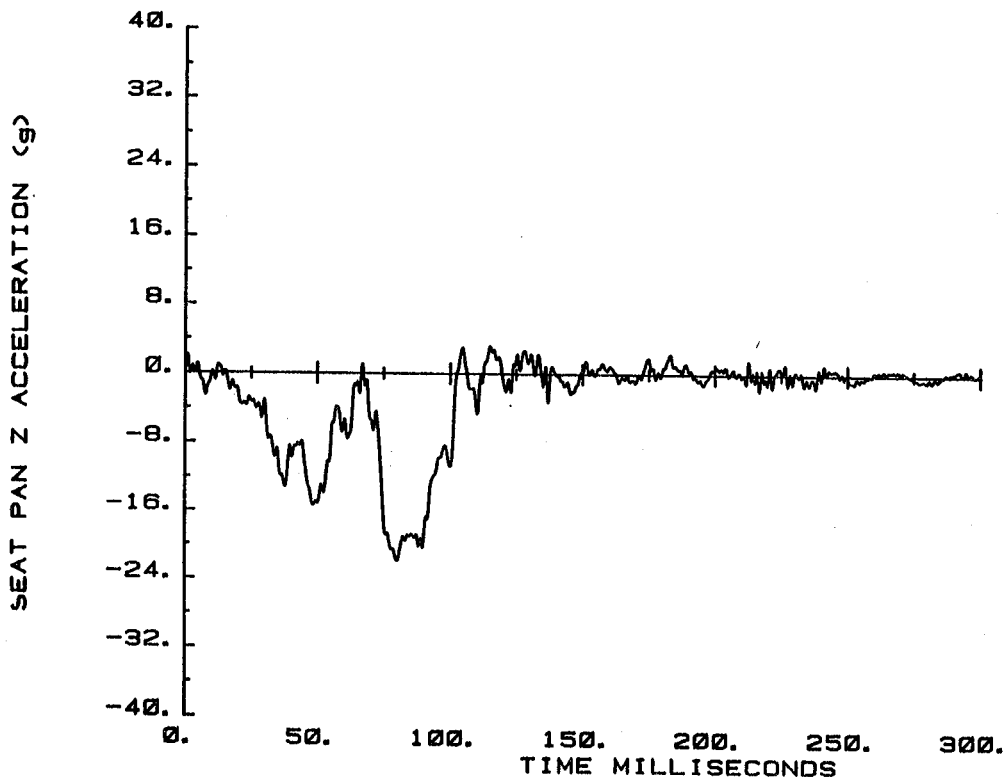
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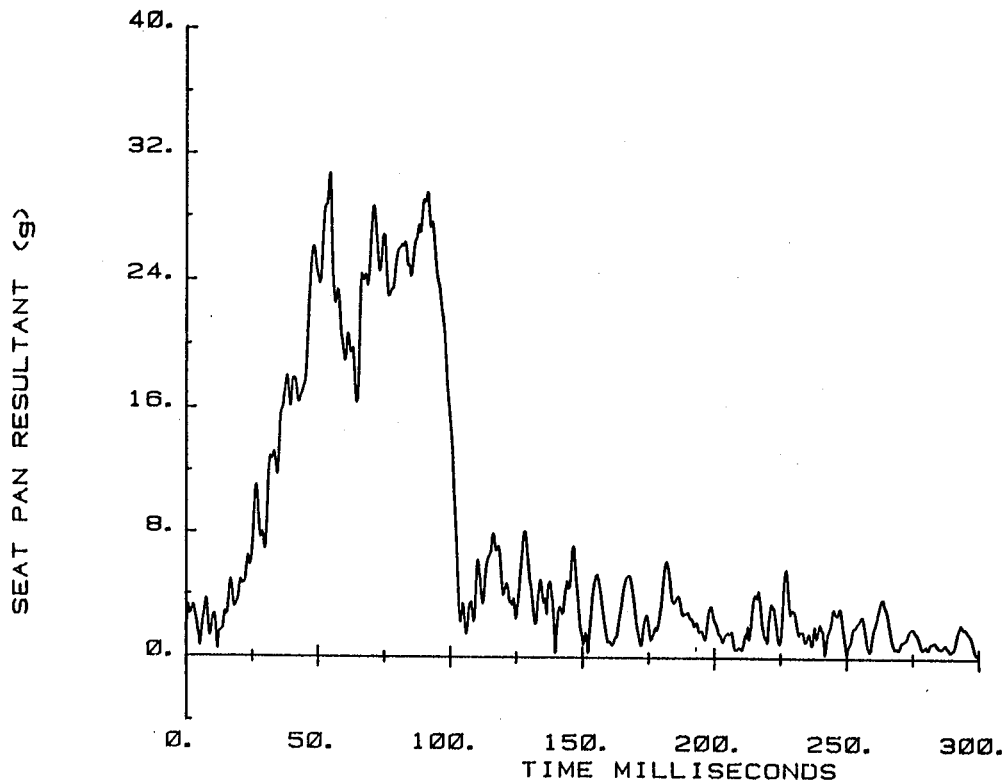
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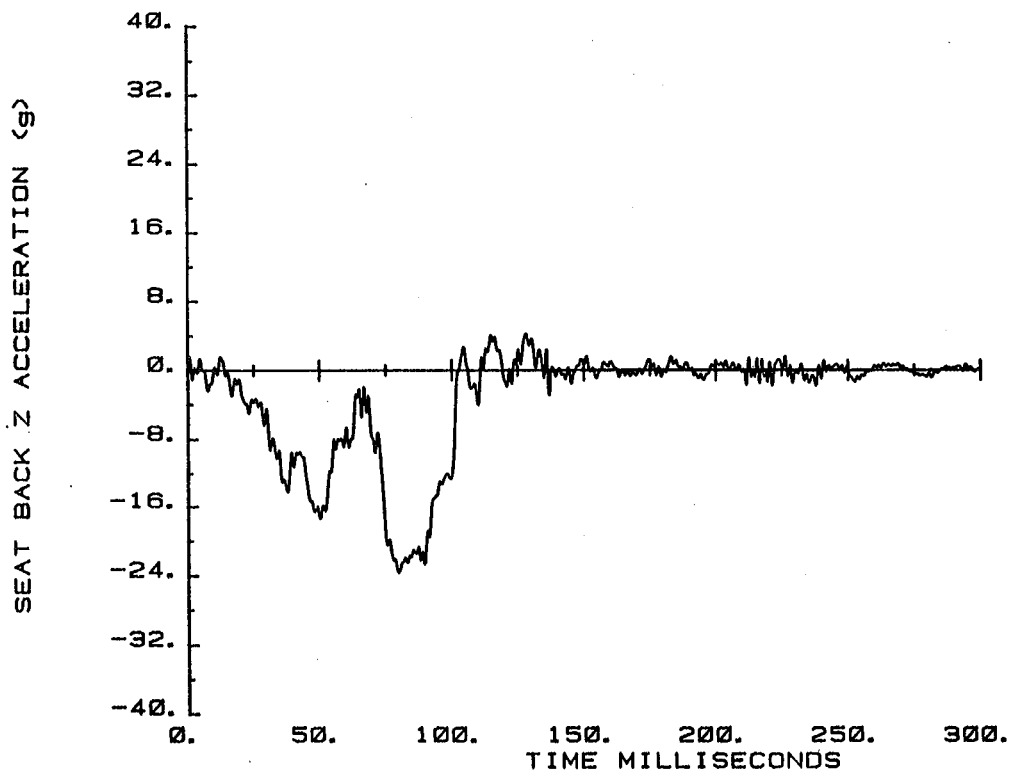
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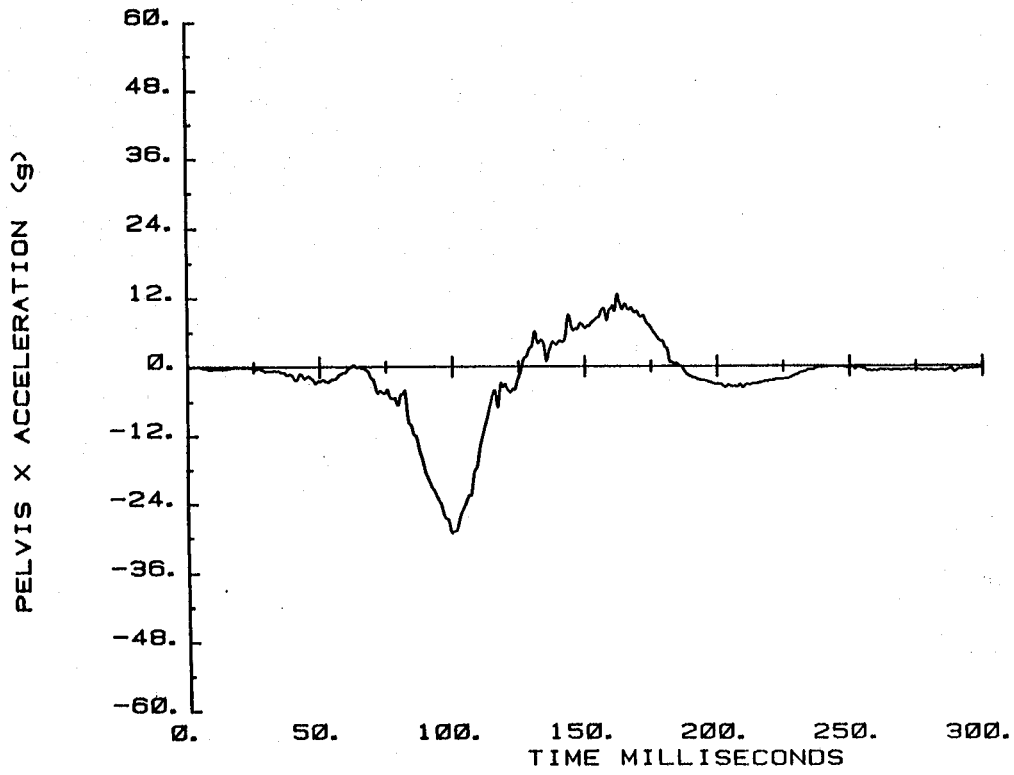
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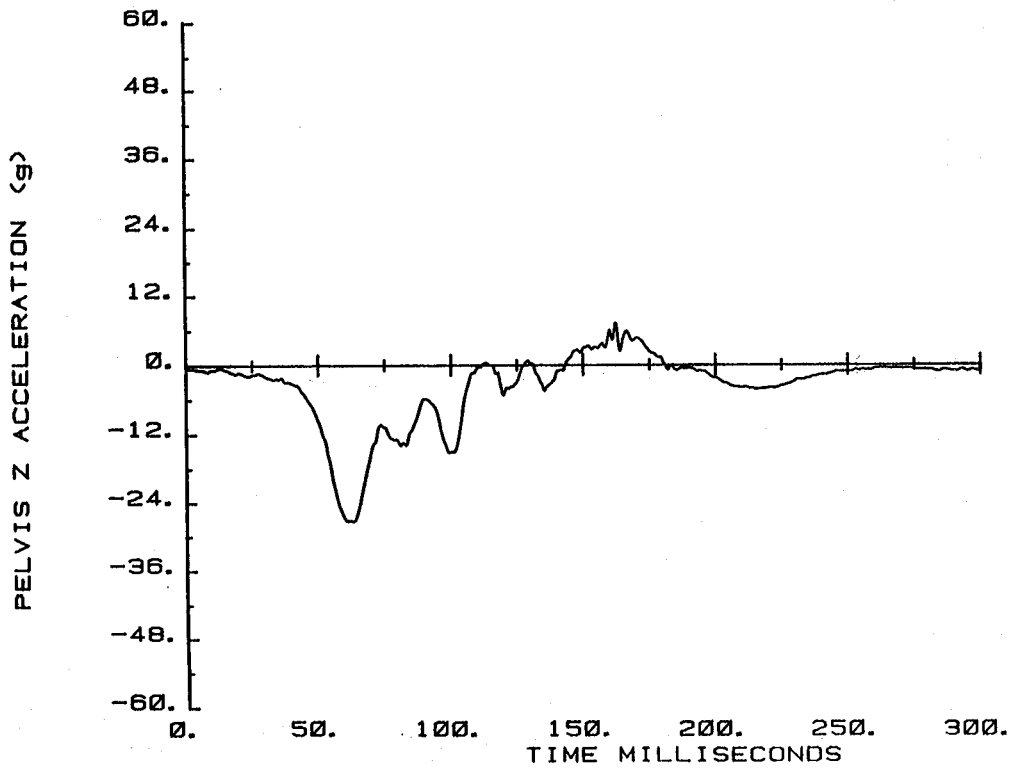
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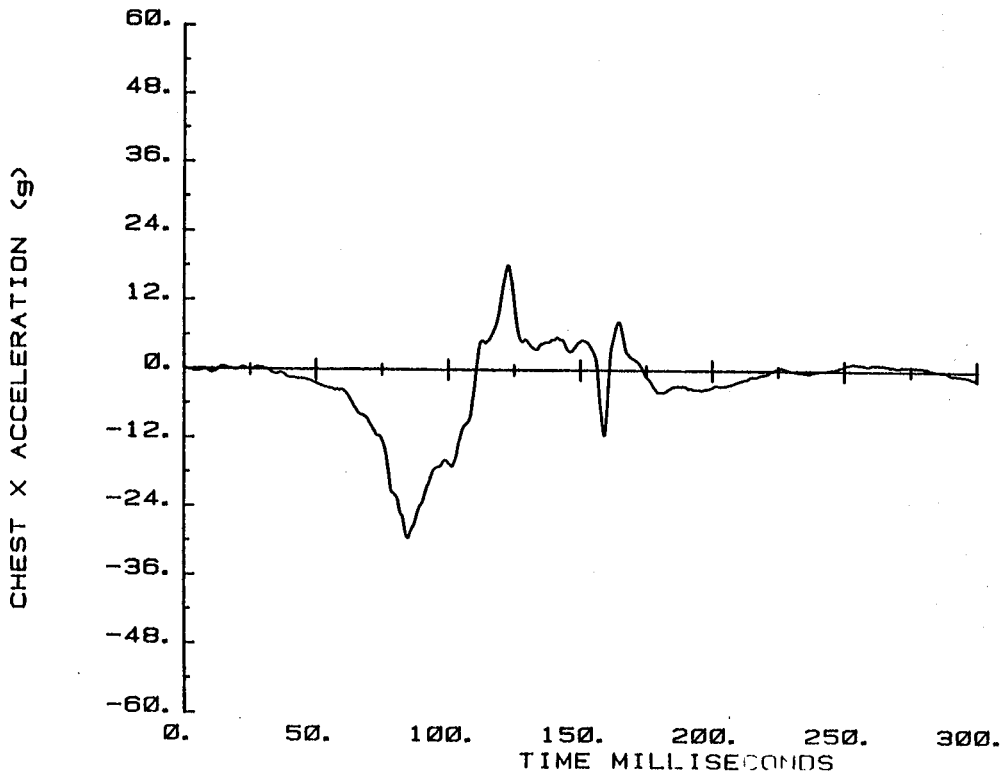
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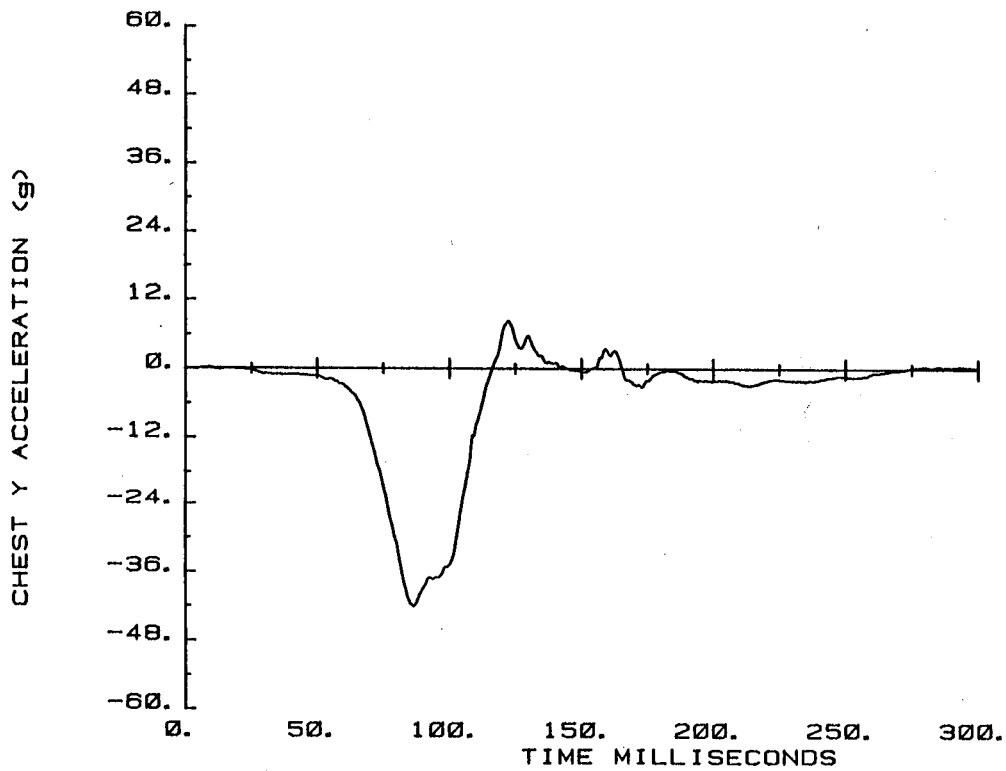
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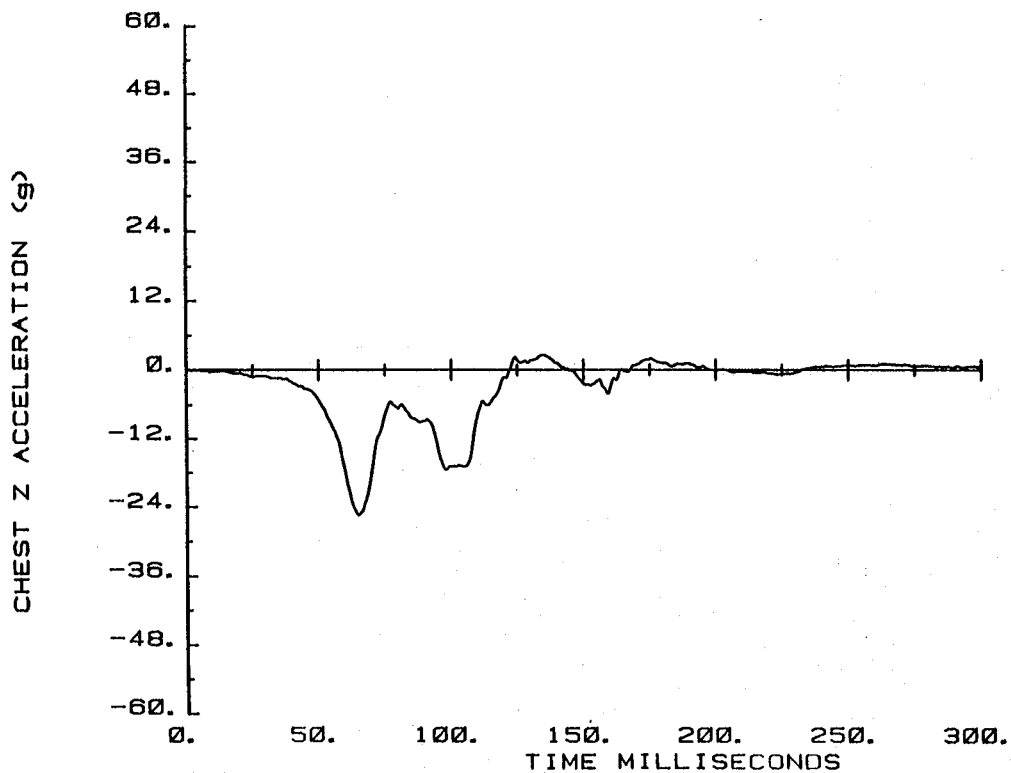
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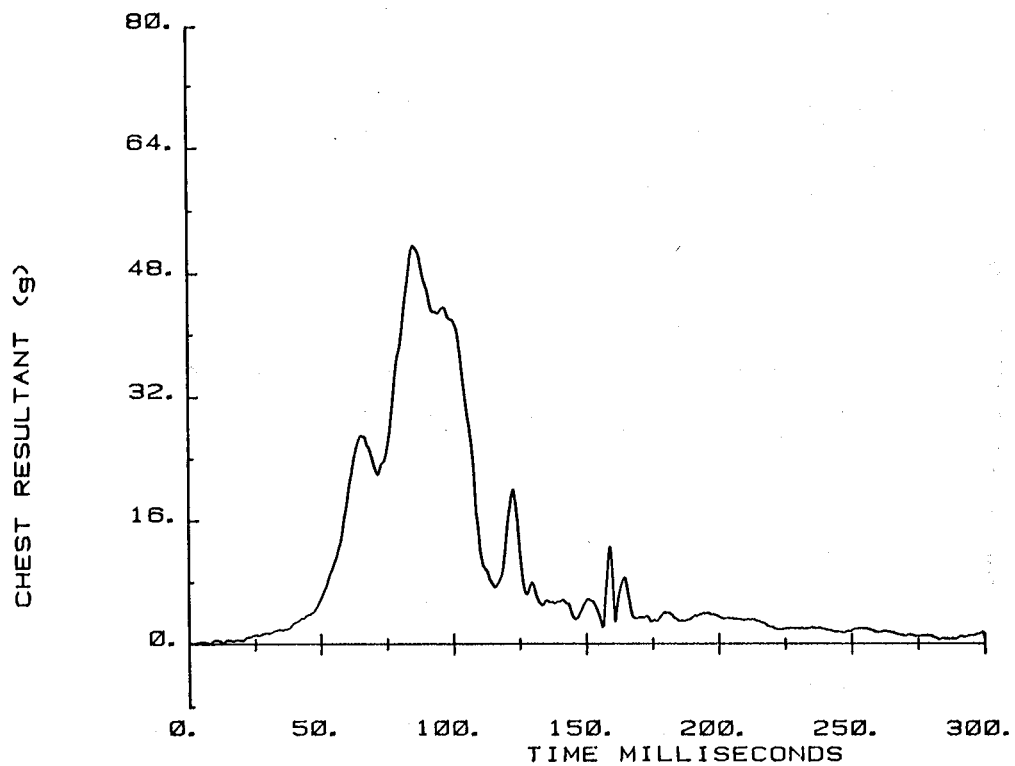
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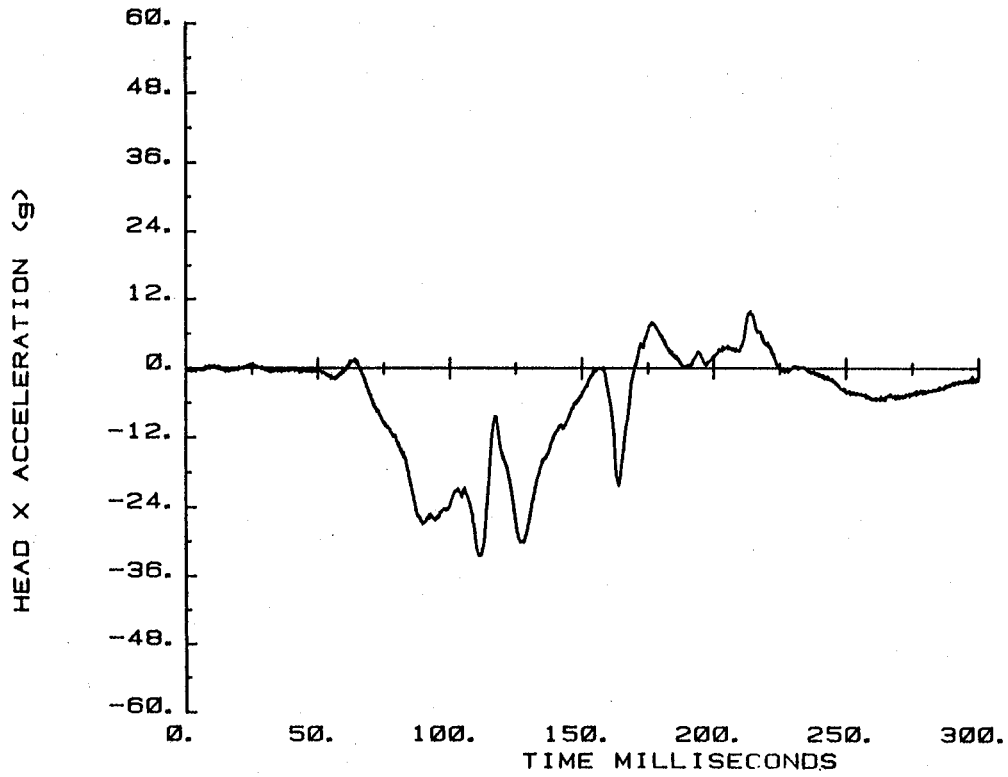
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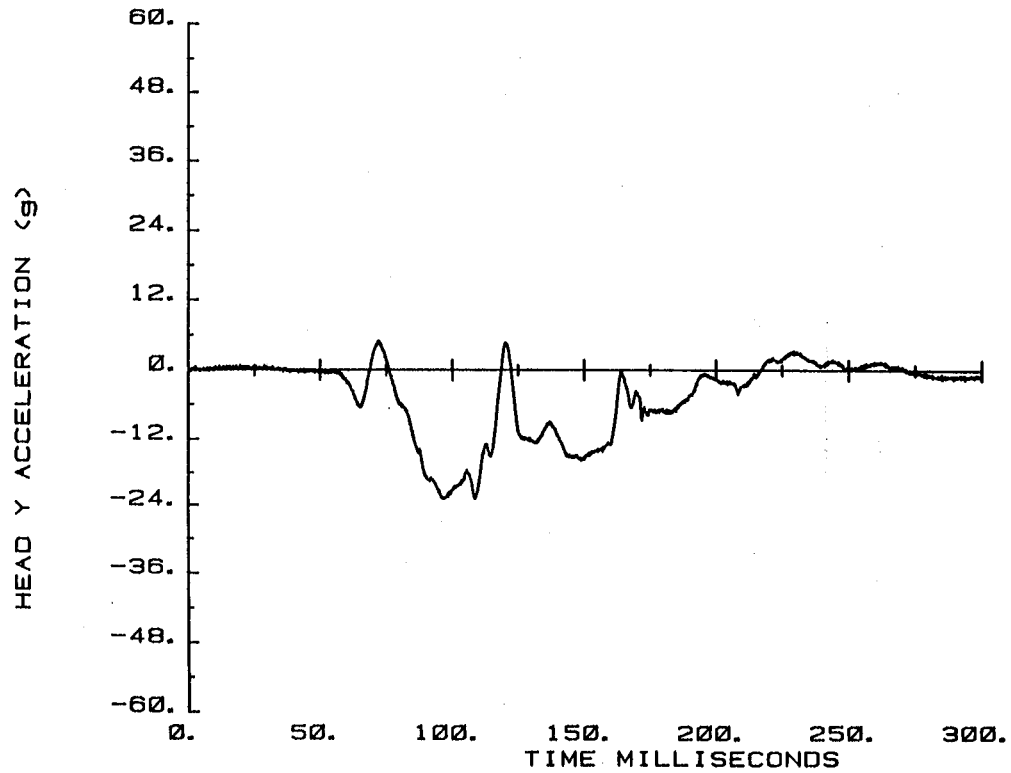
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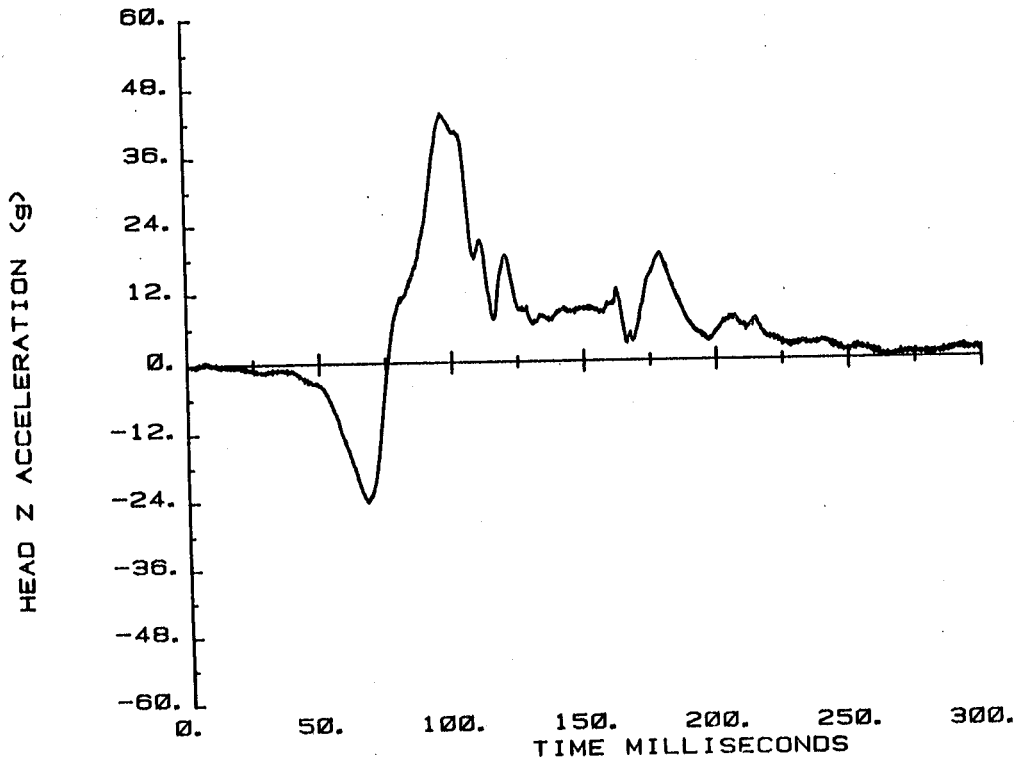
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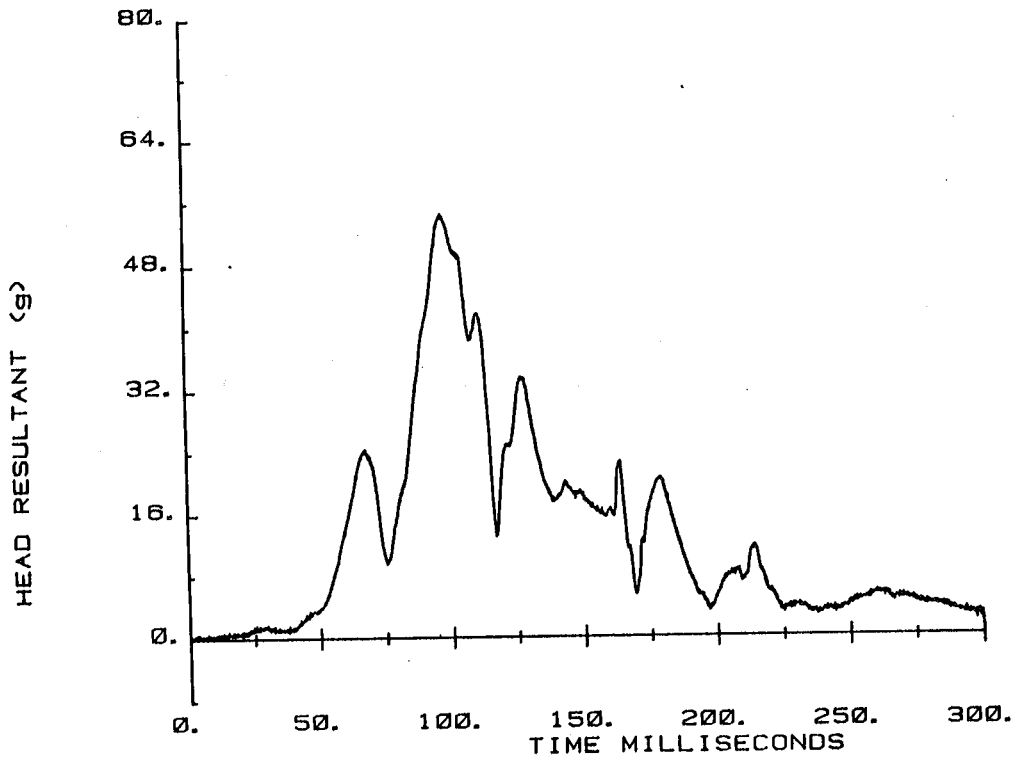
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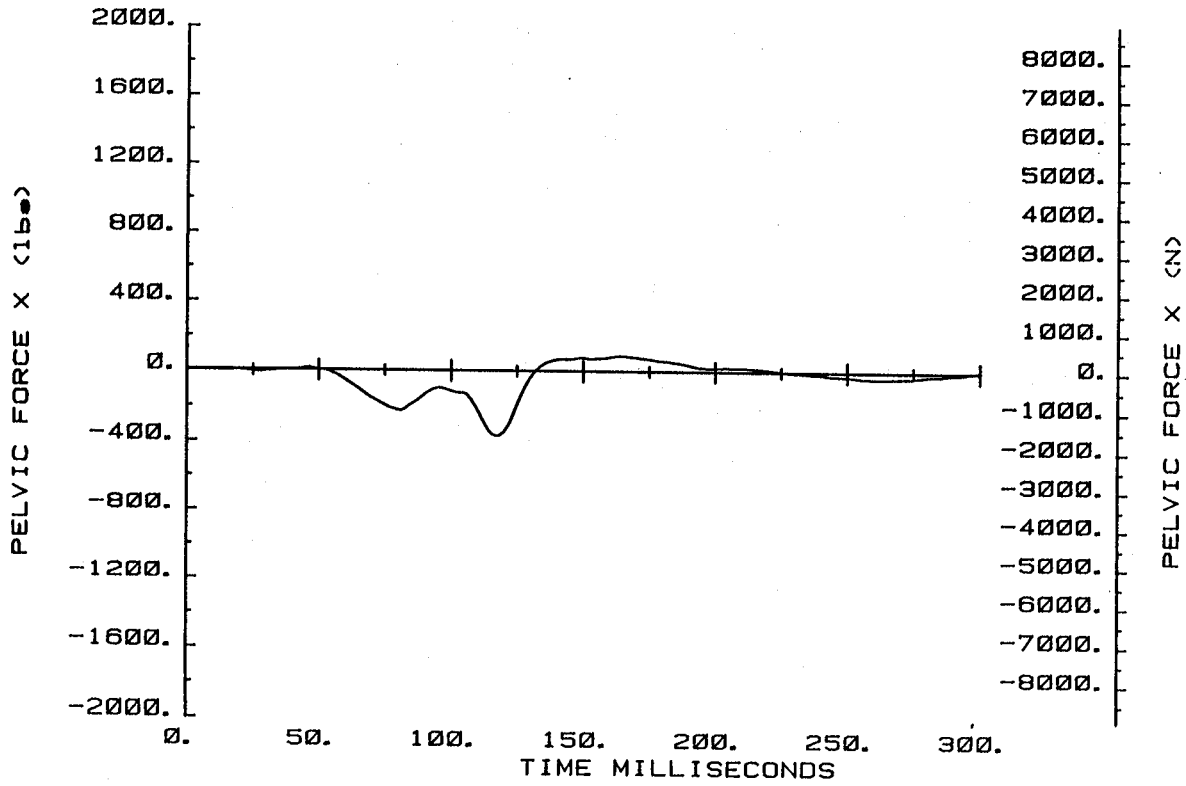


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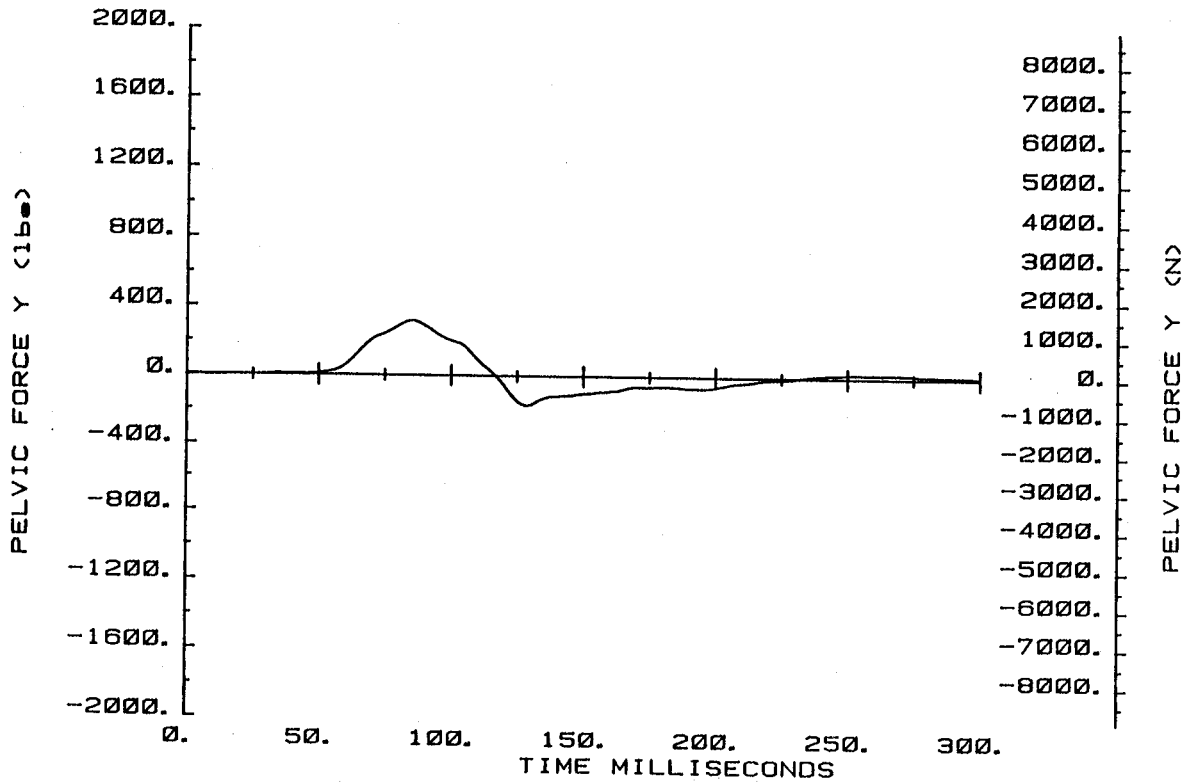




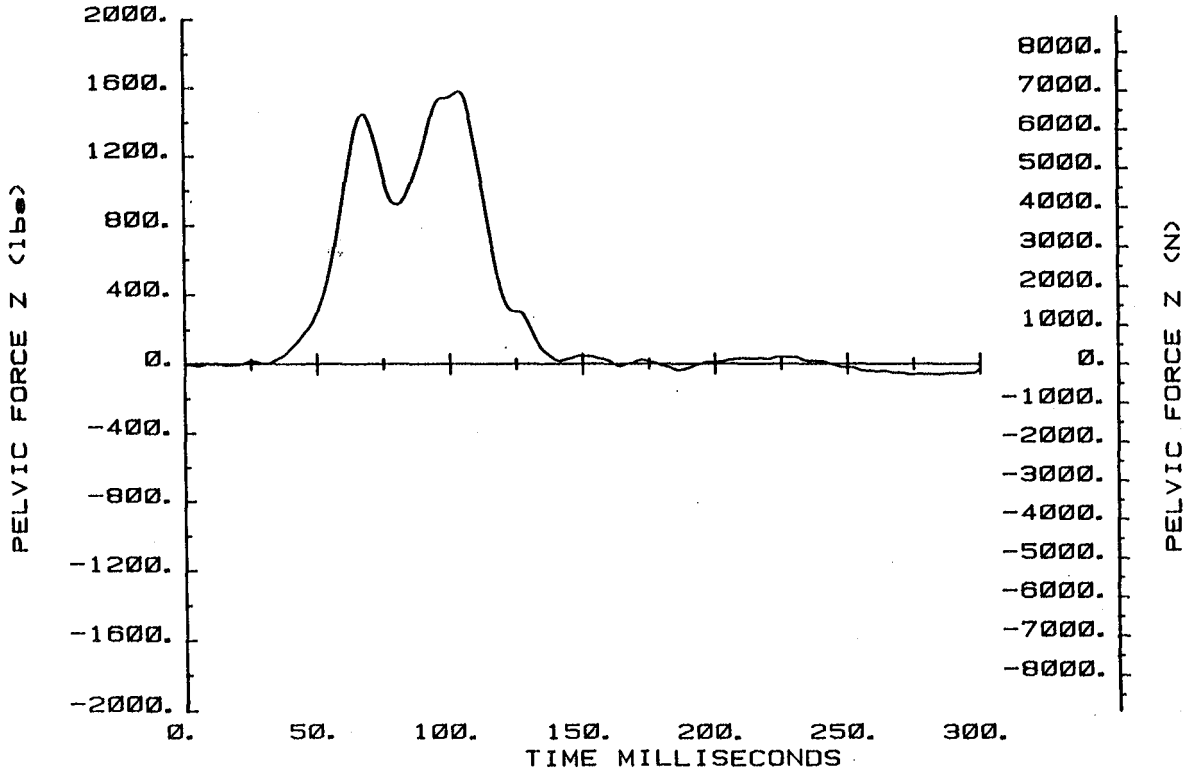
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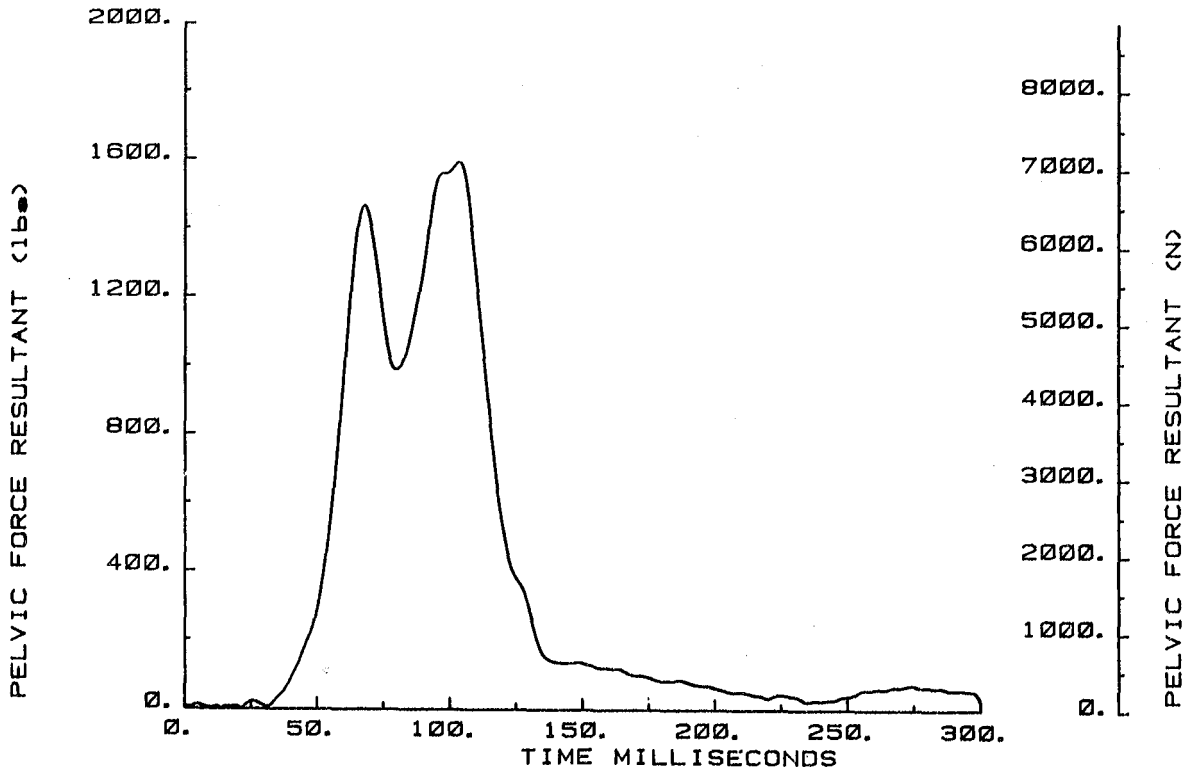
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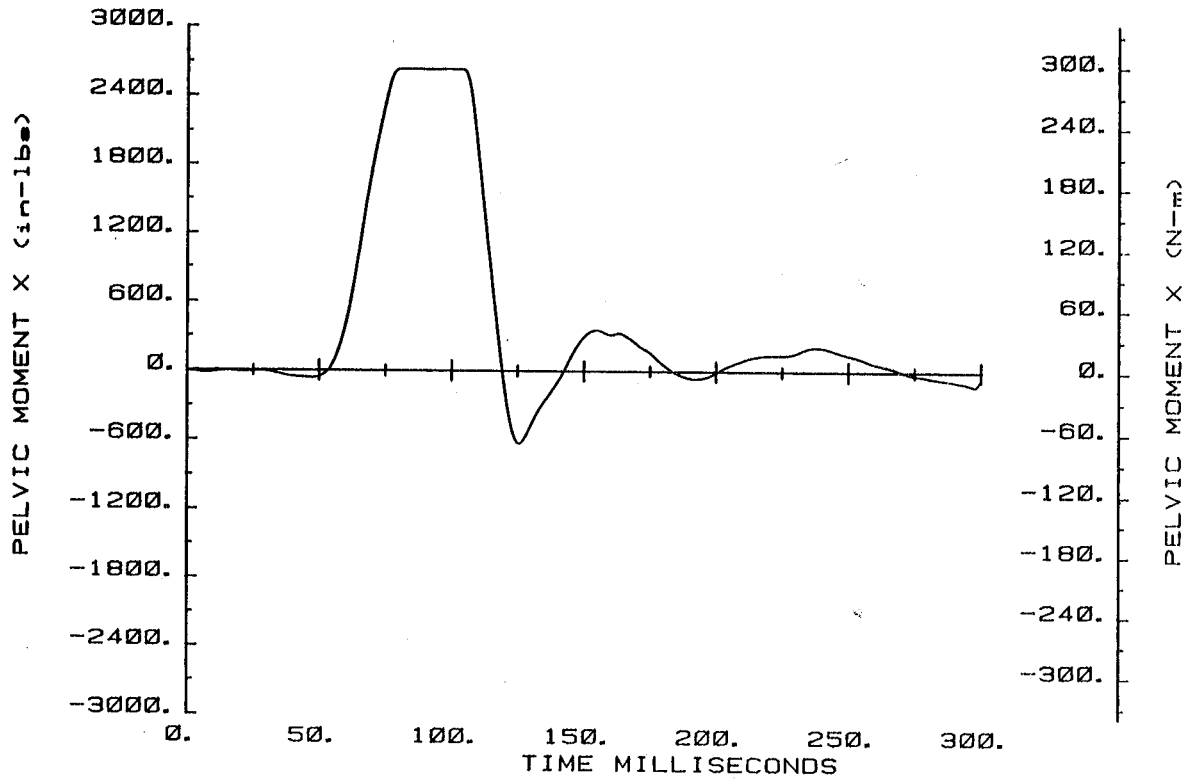
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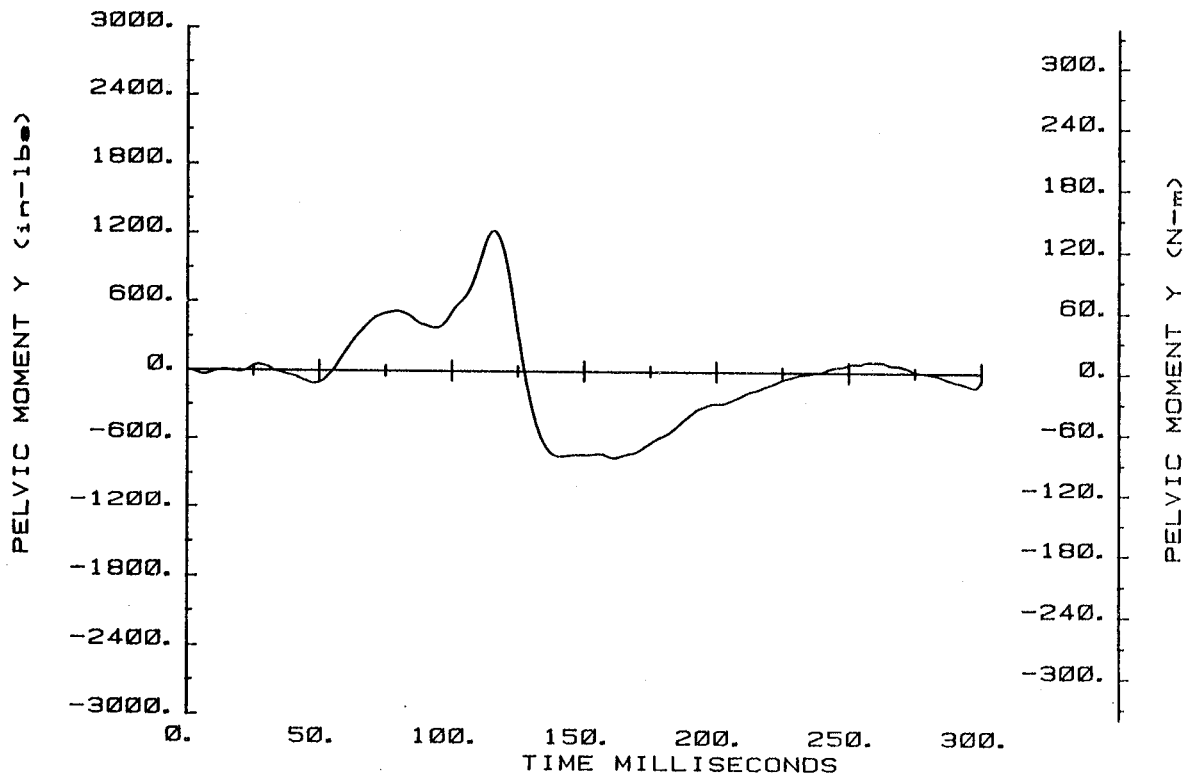
CAMI SLED TEST  
A83108



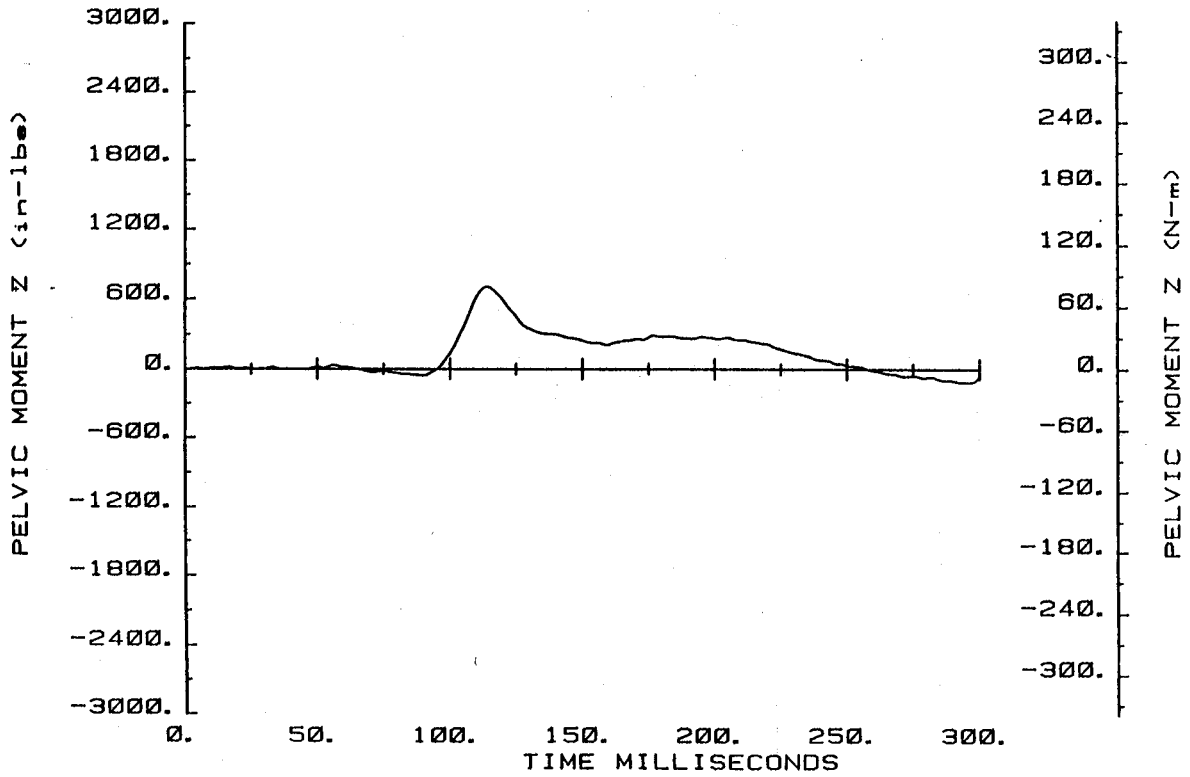
CAMI SLED TEST  
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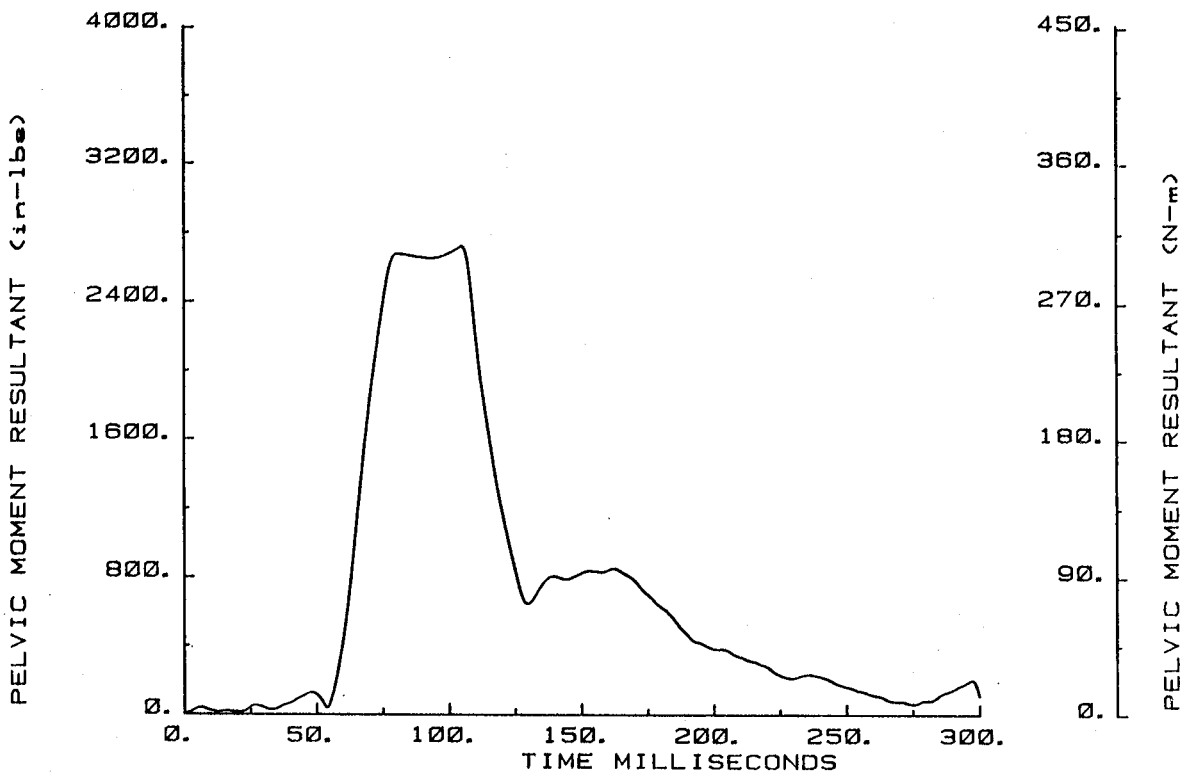
CAMI SLED TEST  
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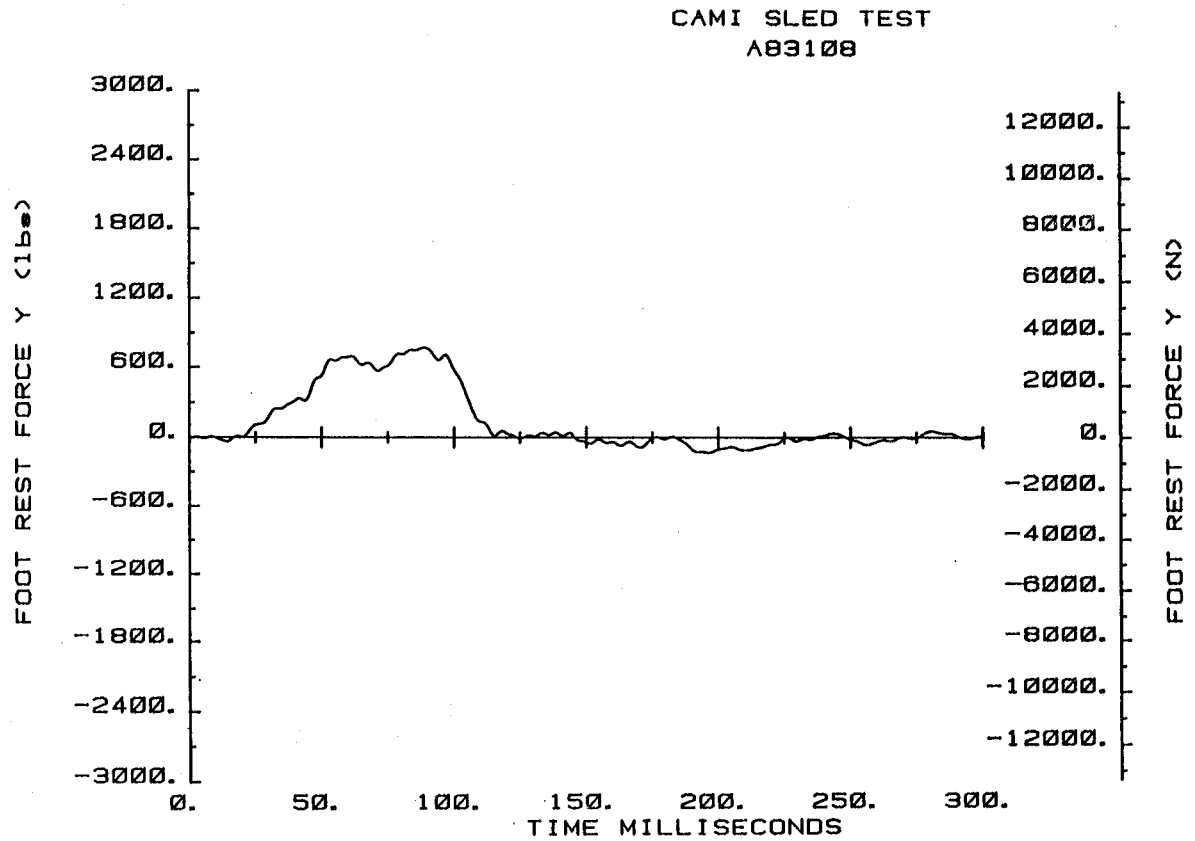
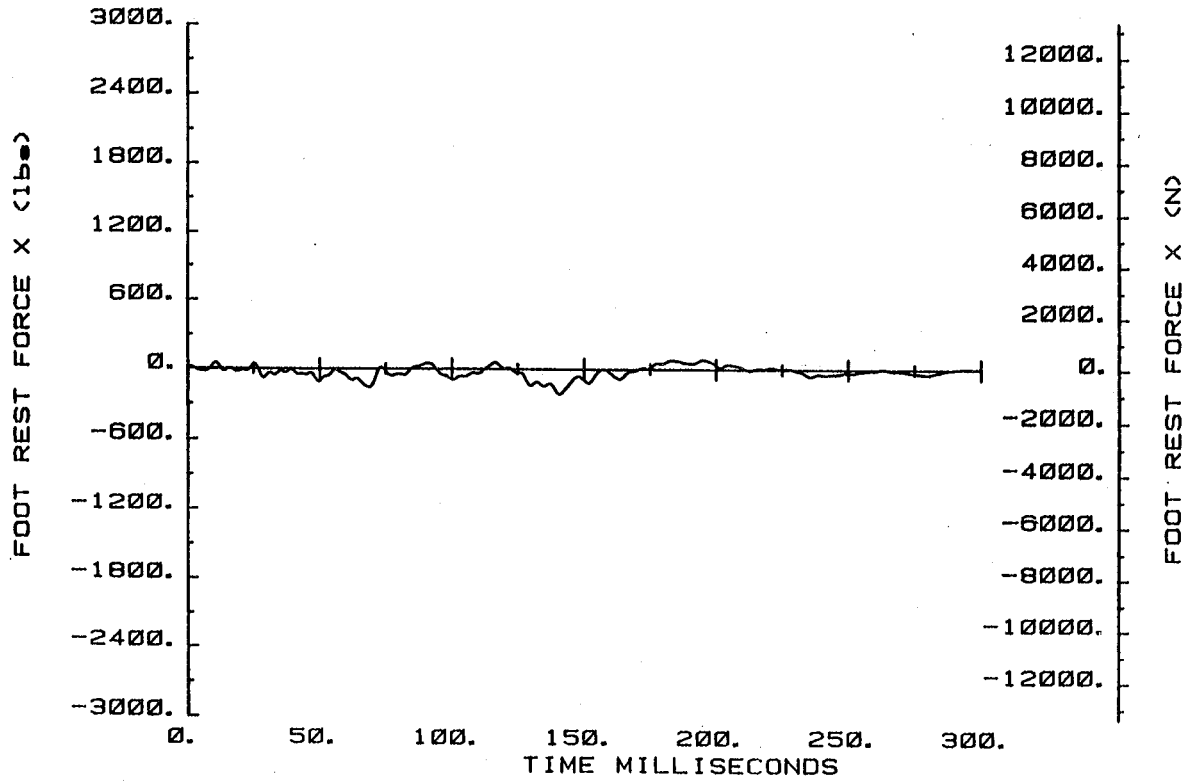
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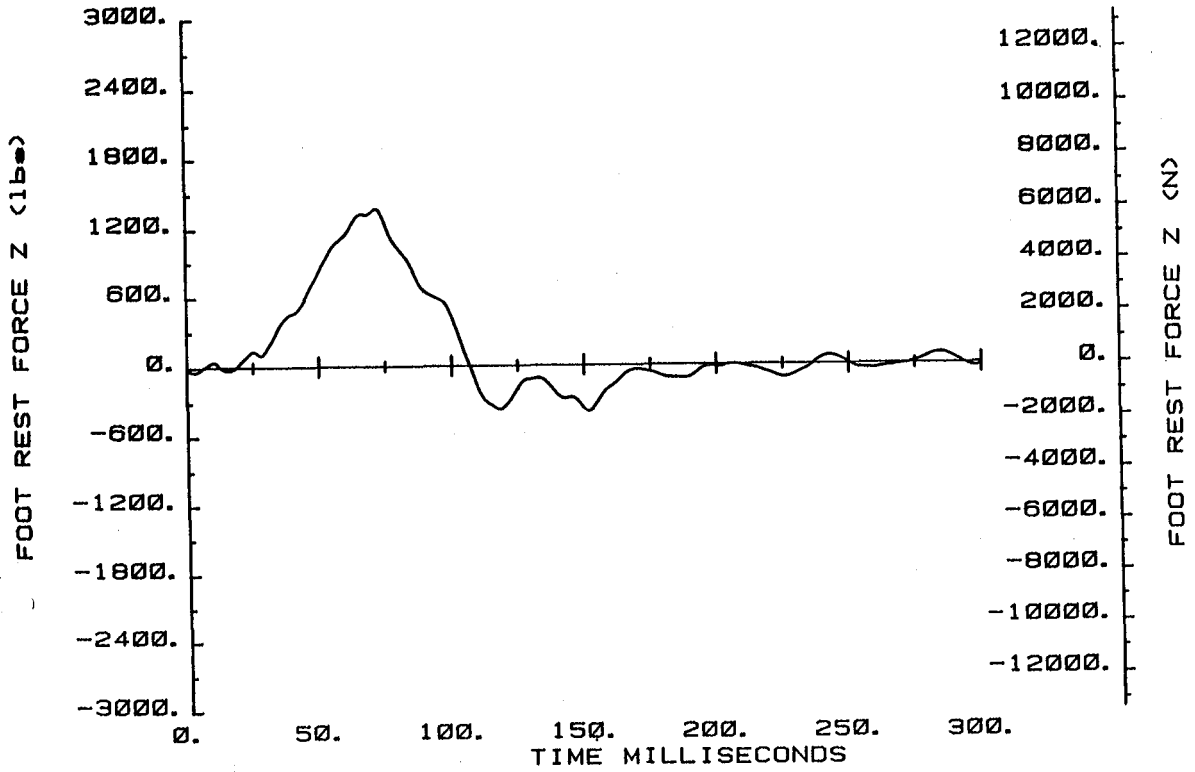
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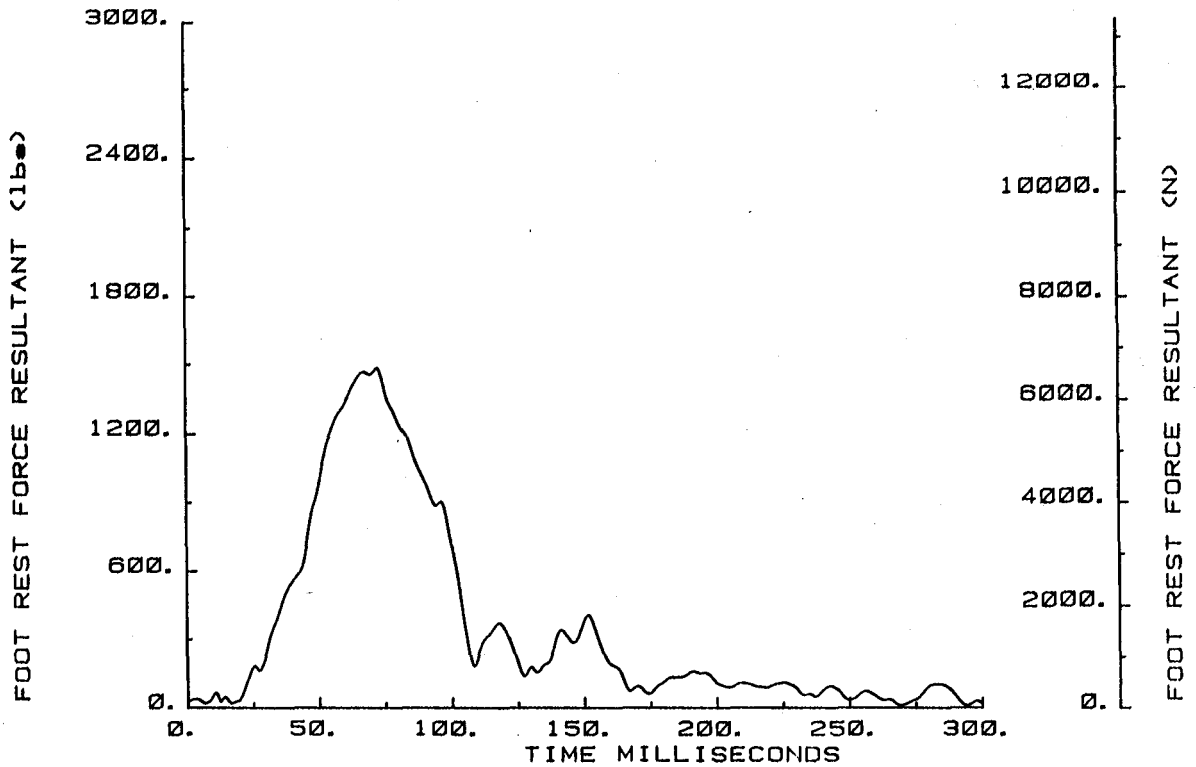
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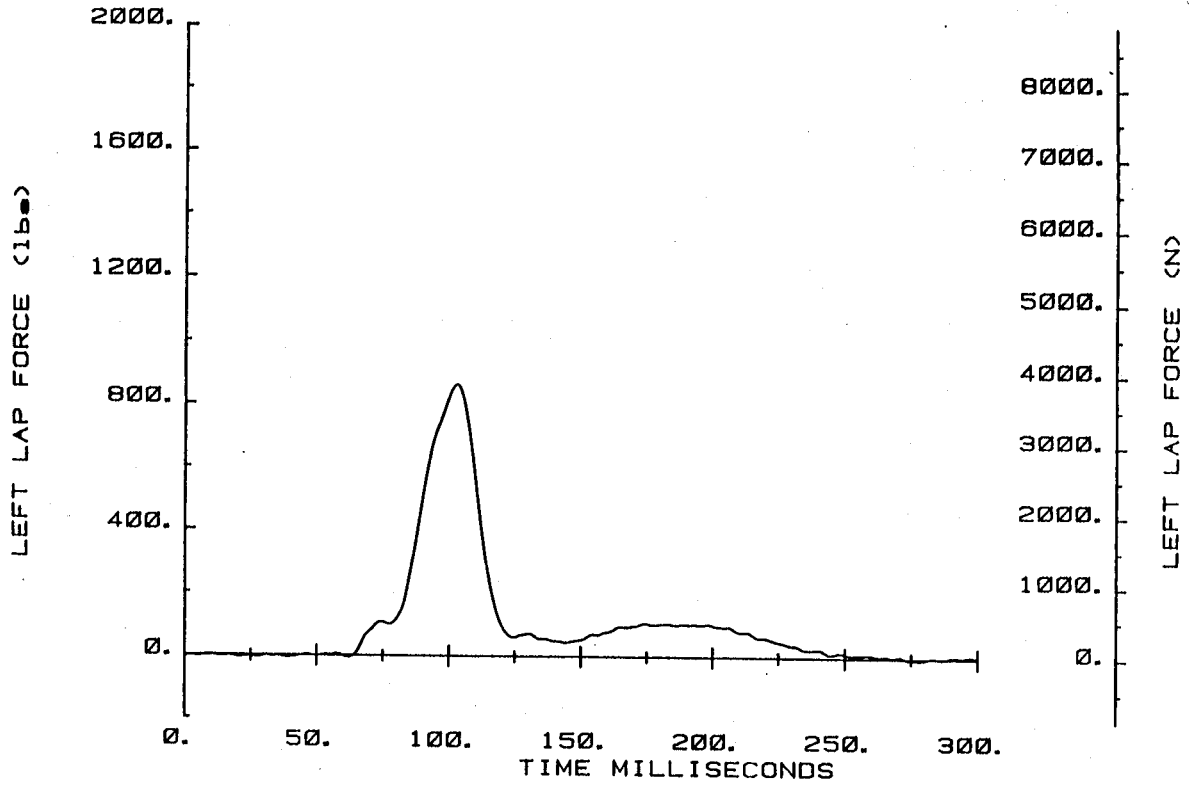
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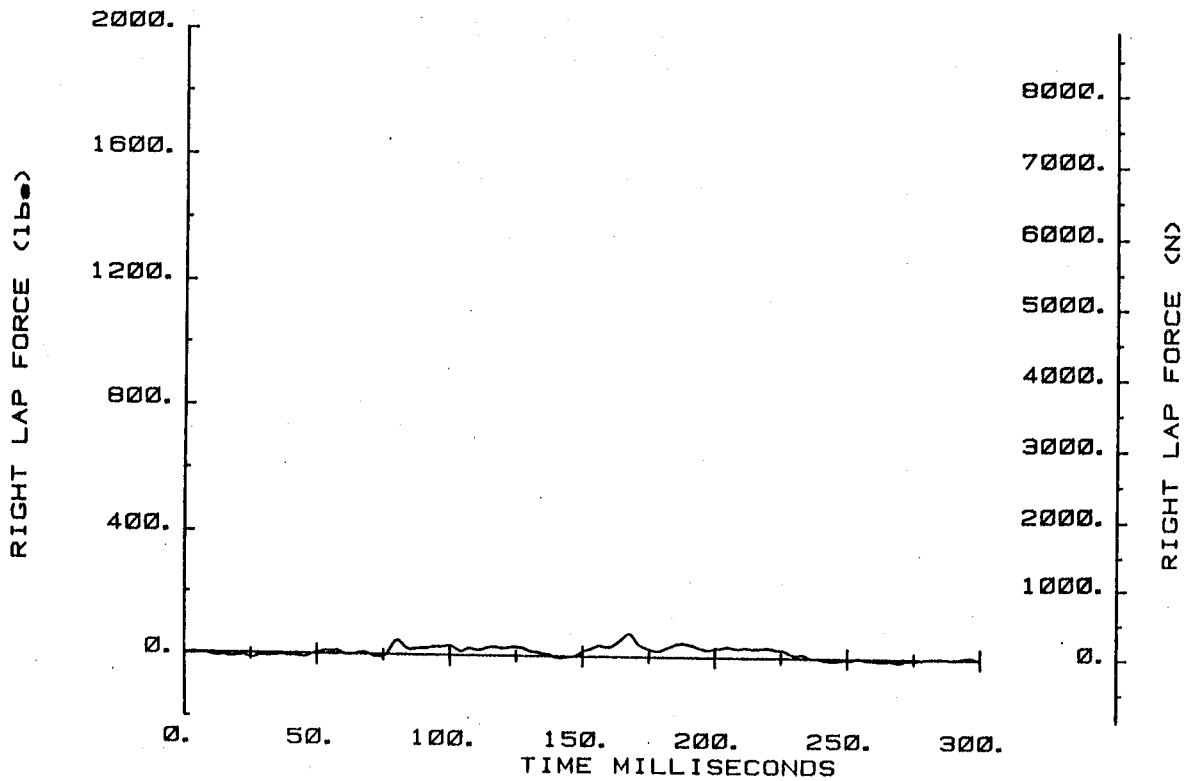
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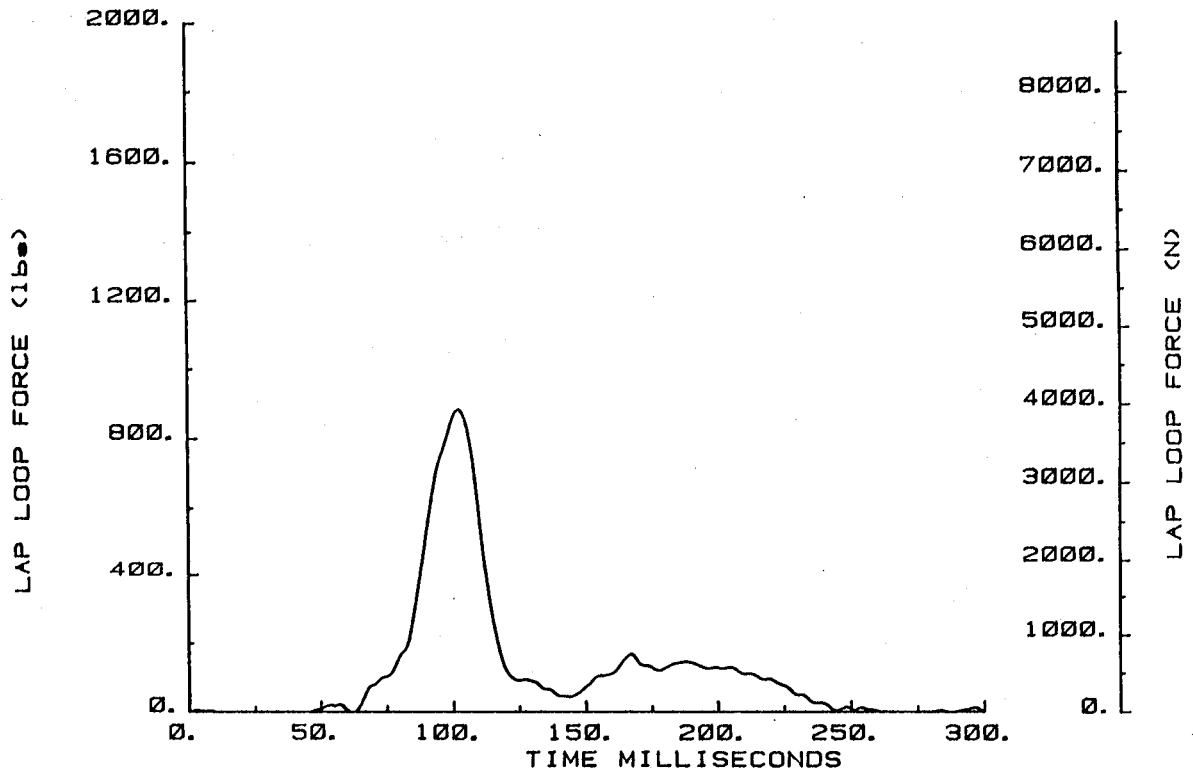
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A83108

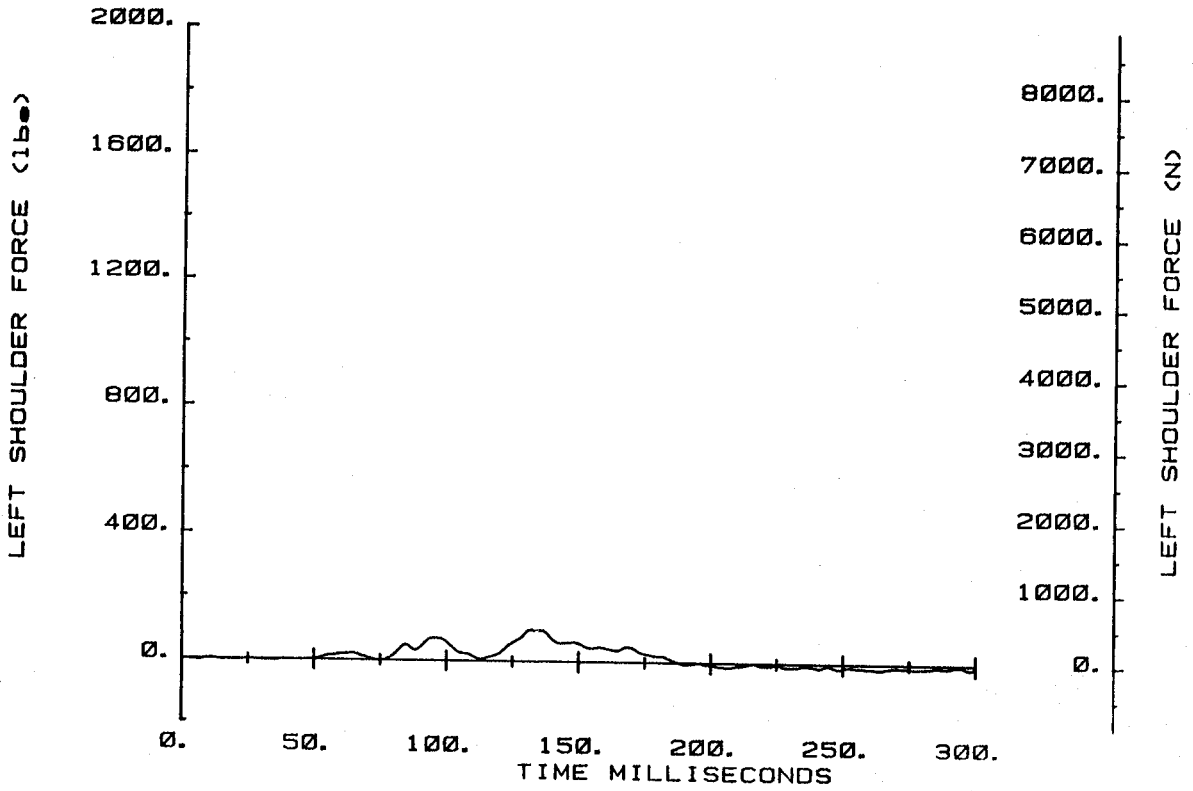


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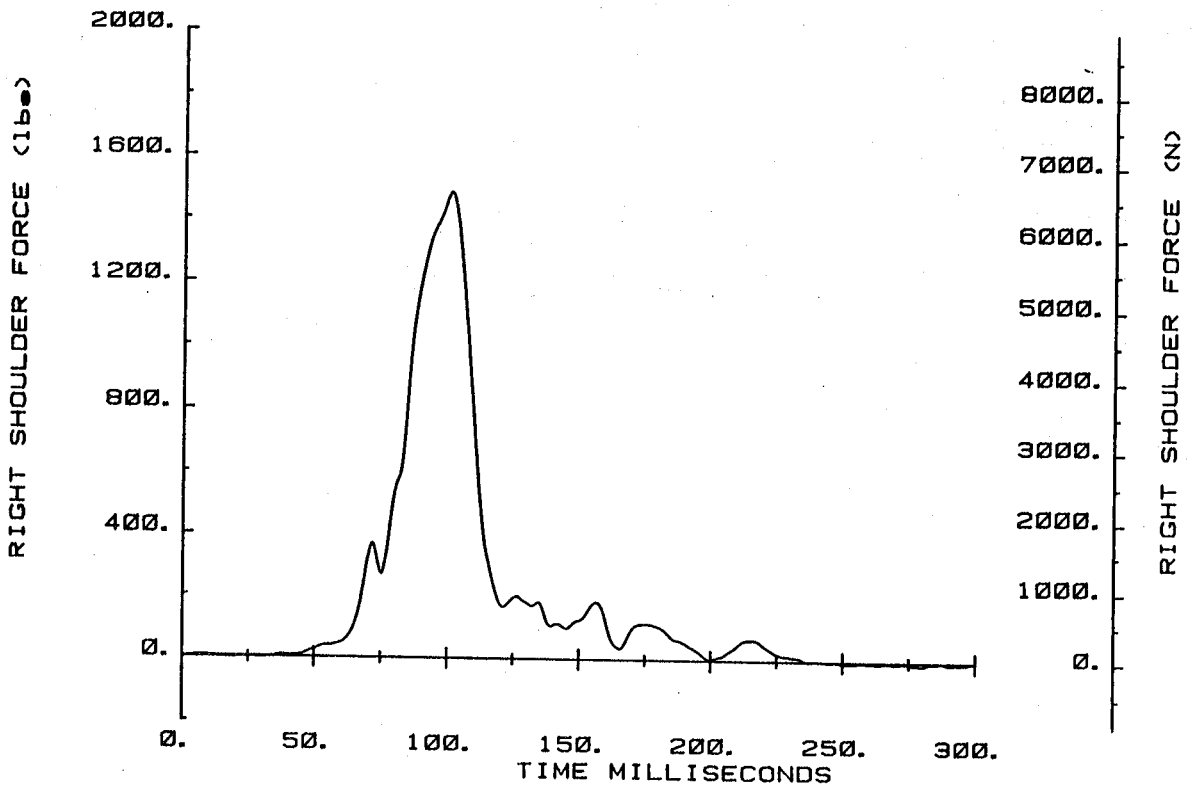




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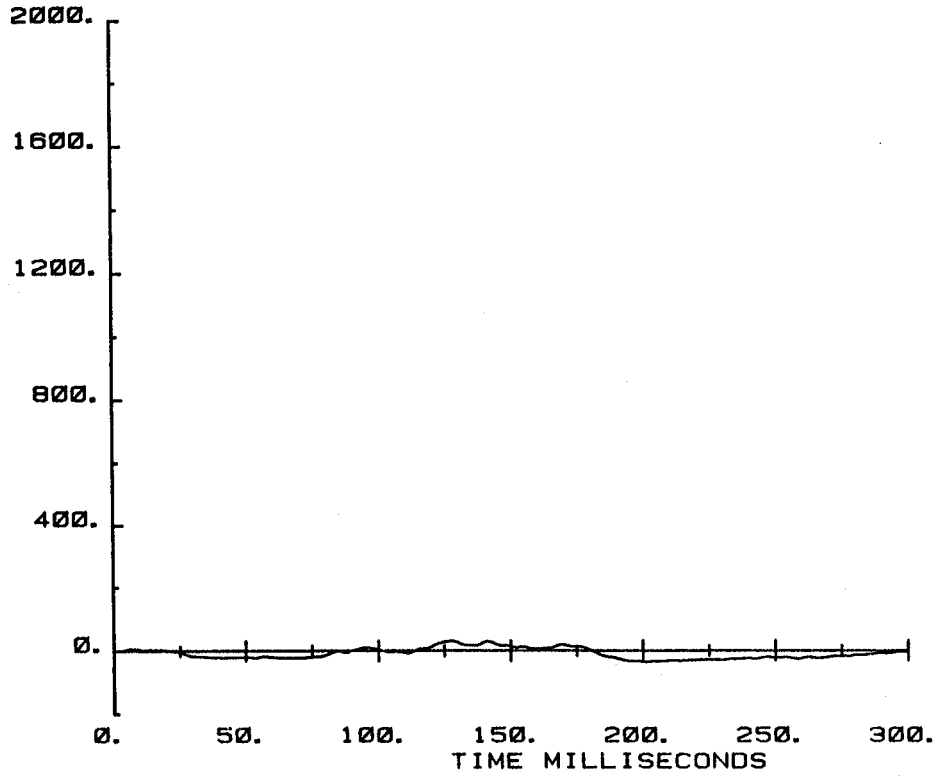


CAMI SLED TEST  
A83108



CAMI SLED TEST  
A83108

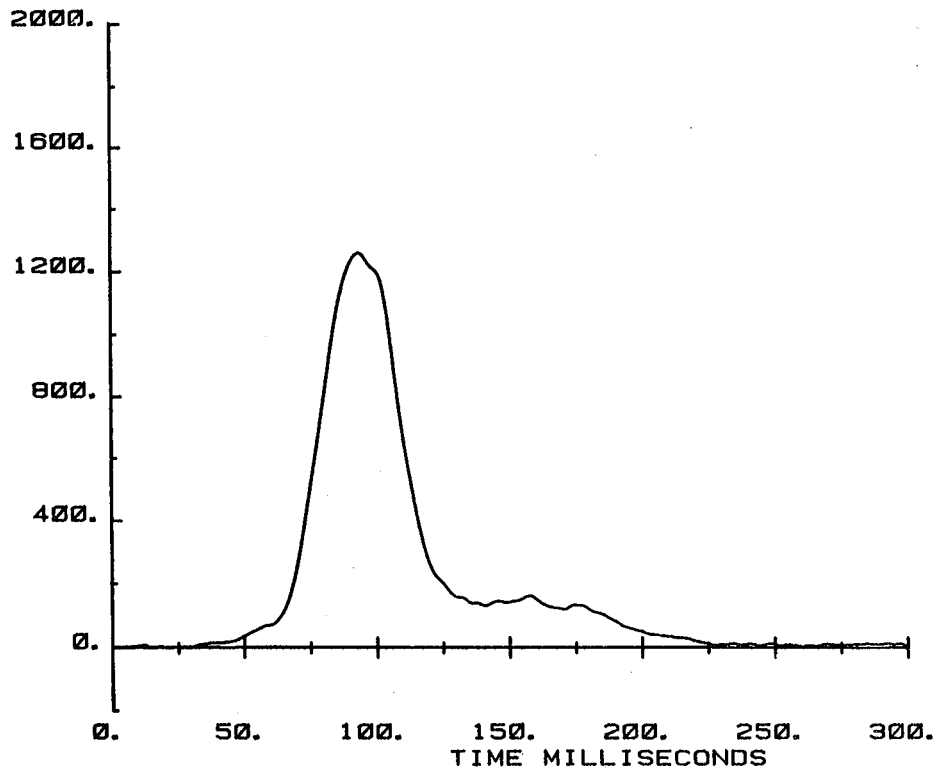
LEFT REFLECTIVE STRAP FORCE (lbf)



LEFT REFLECTIVE STRAP FORCE (N)

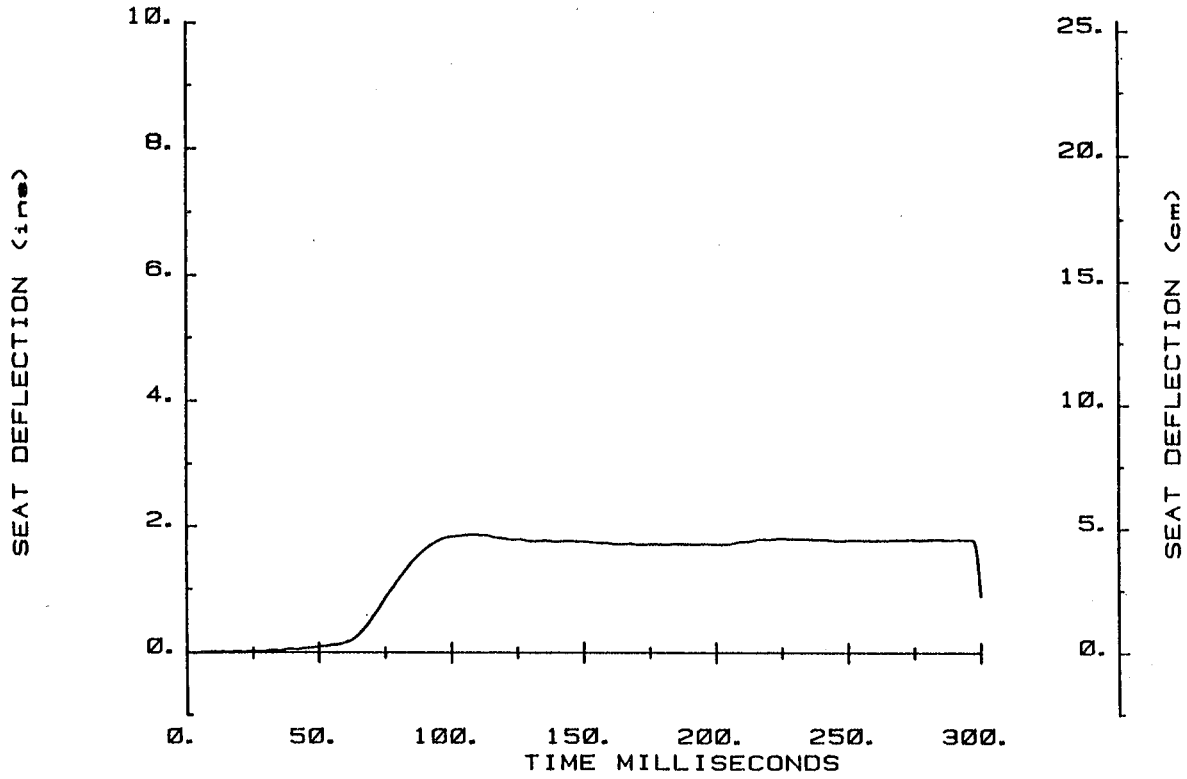
CAMI SLED TEST  
A83108

RIGHT REFLECTIVE STRAP FORCE (lbf)

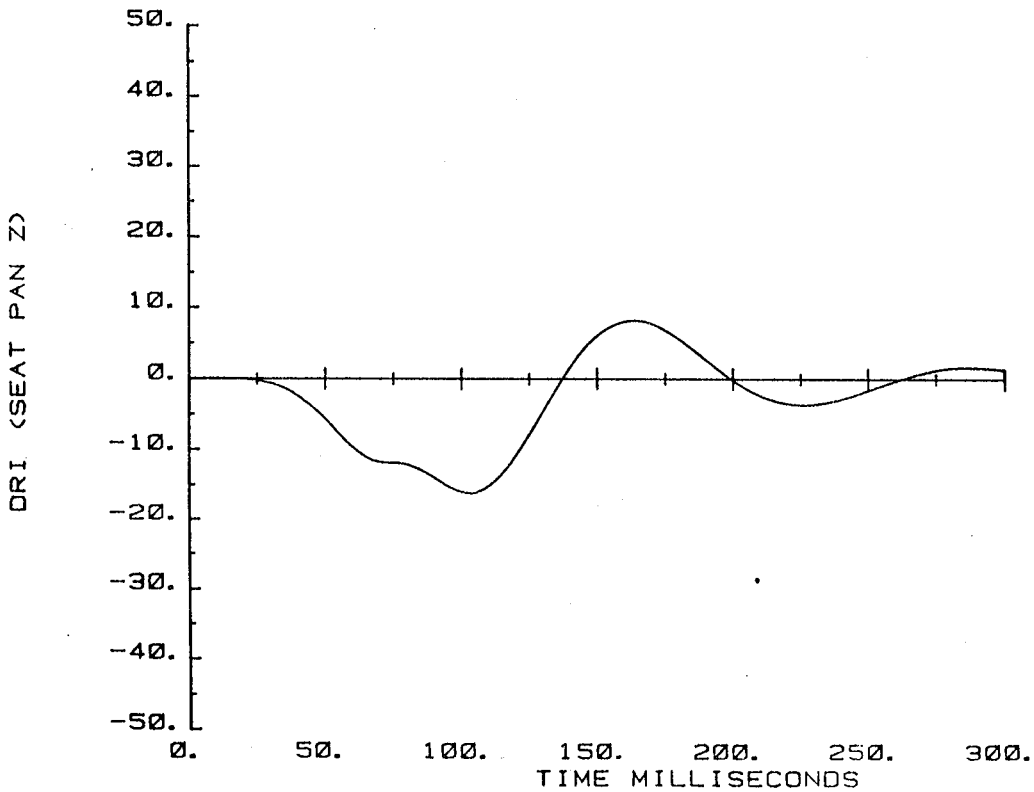


RIGHT REFLECTIVE STRAP FORCE (N)

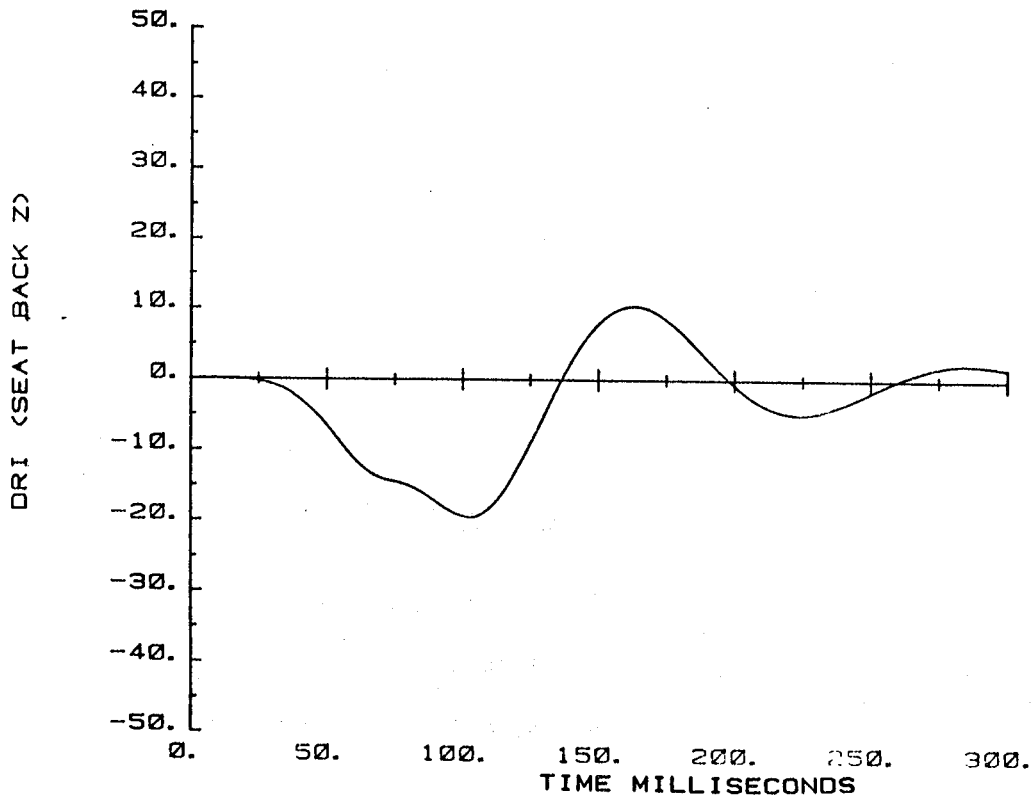
CAMI SLED TEST  
A83108



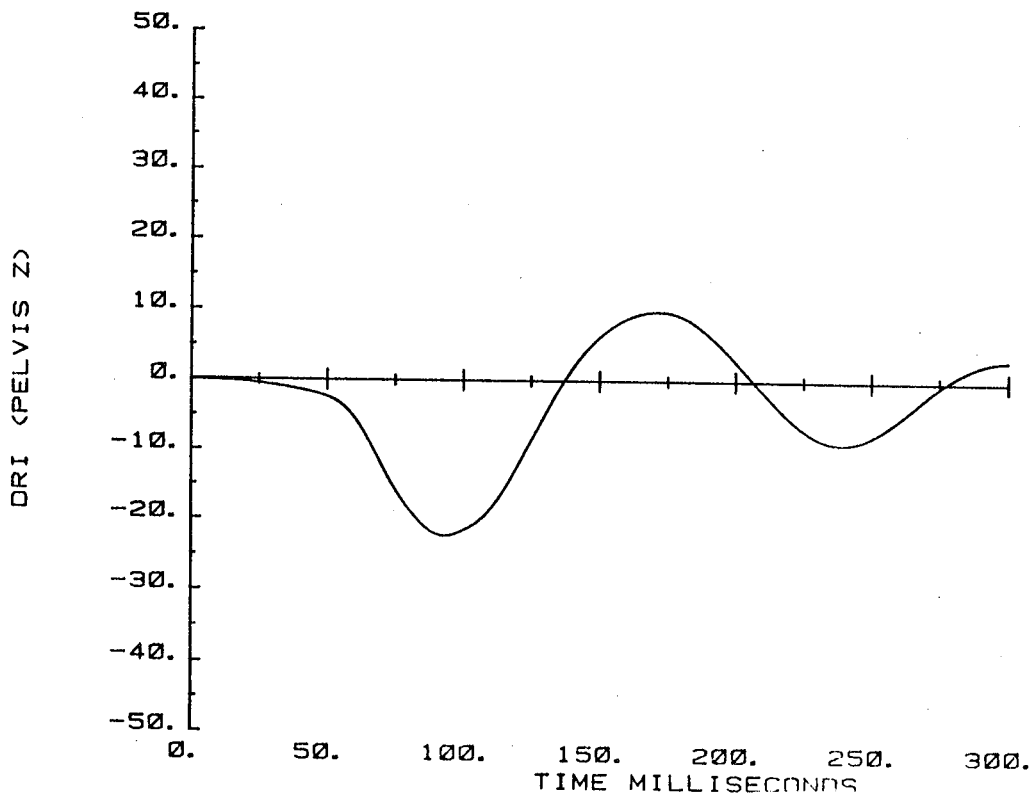
CAMI SLED TEST  
A83108



CAMI SLED TEST  
A83108



CAMI SLED TEST  
A83108



7.0 CAMI TEST NO. A83-109

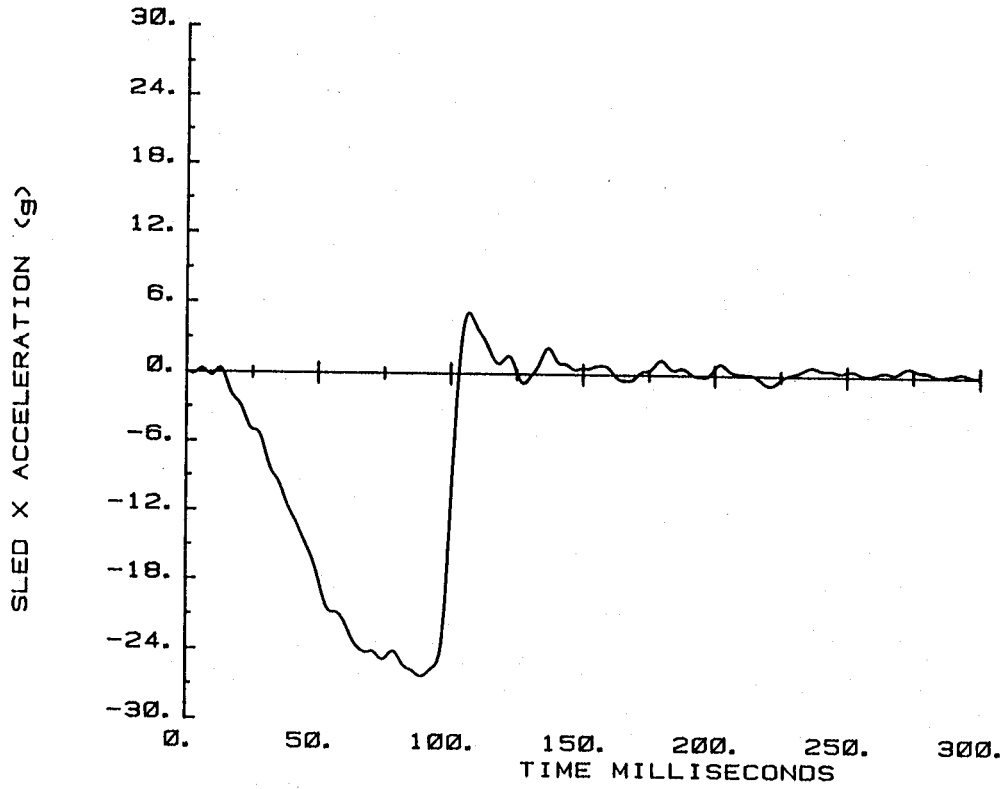
SEAT: Energy Absorbing

PULSE NUMBER: 4

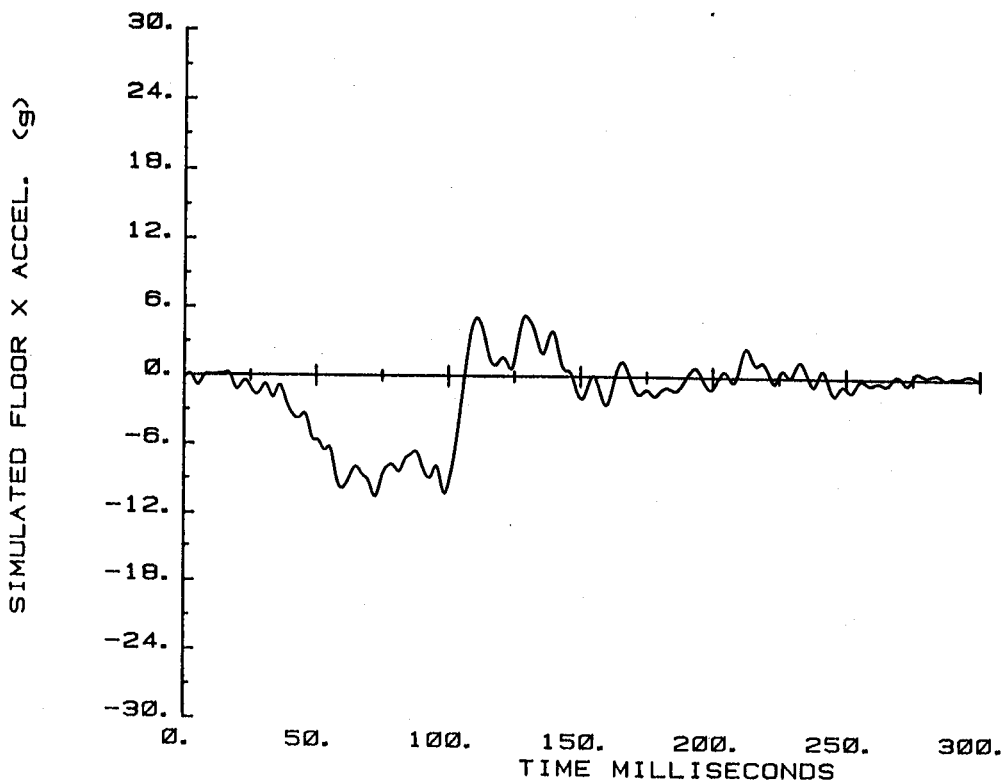
SEAT ORIENTATION: Pitch - 70°  
Roll - 0°  
Yaw - 30°

| RUN#   | VARIABLE                           | 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

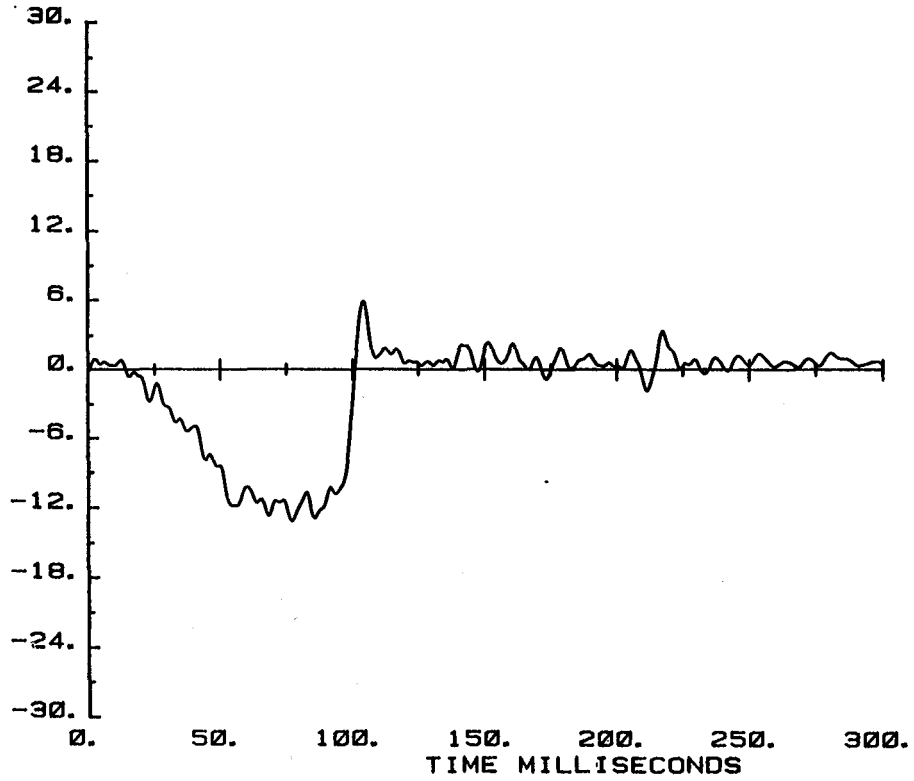


CAMI SLED TEST  
A83109



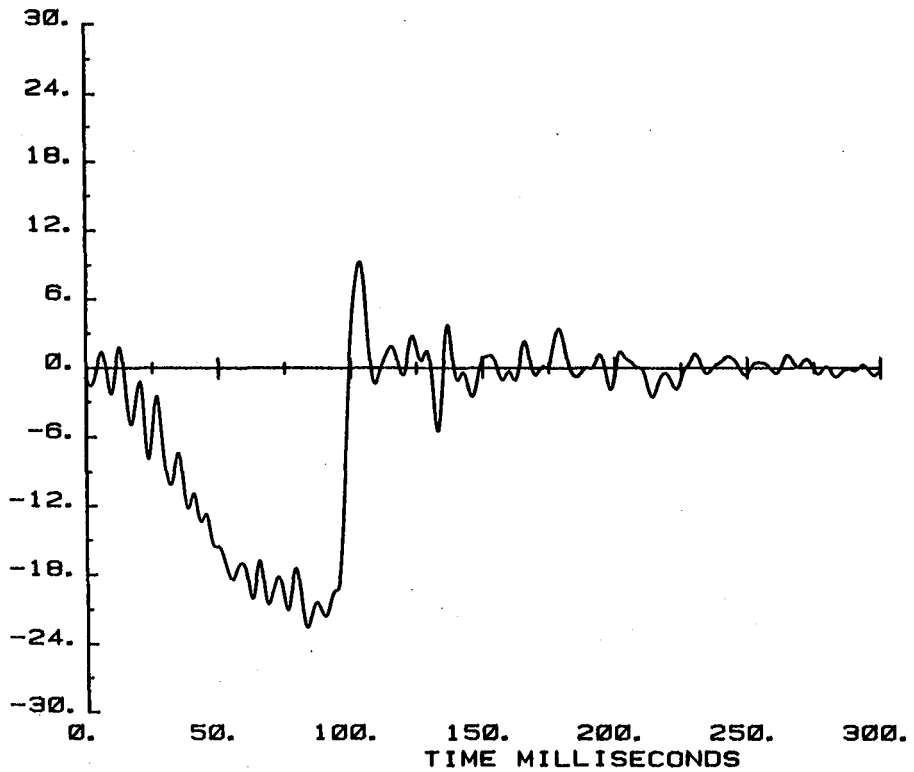
CAMI SLED TEST  
A83109

SIMULATED FLOOR Y ACCEL. (g)



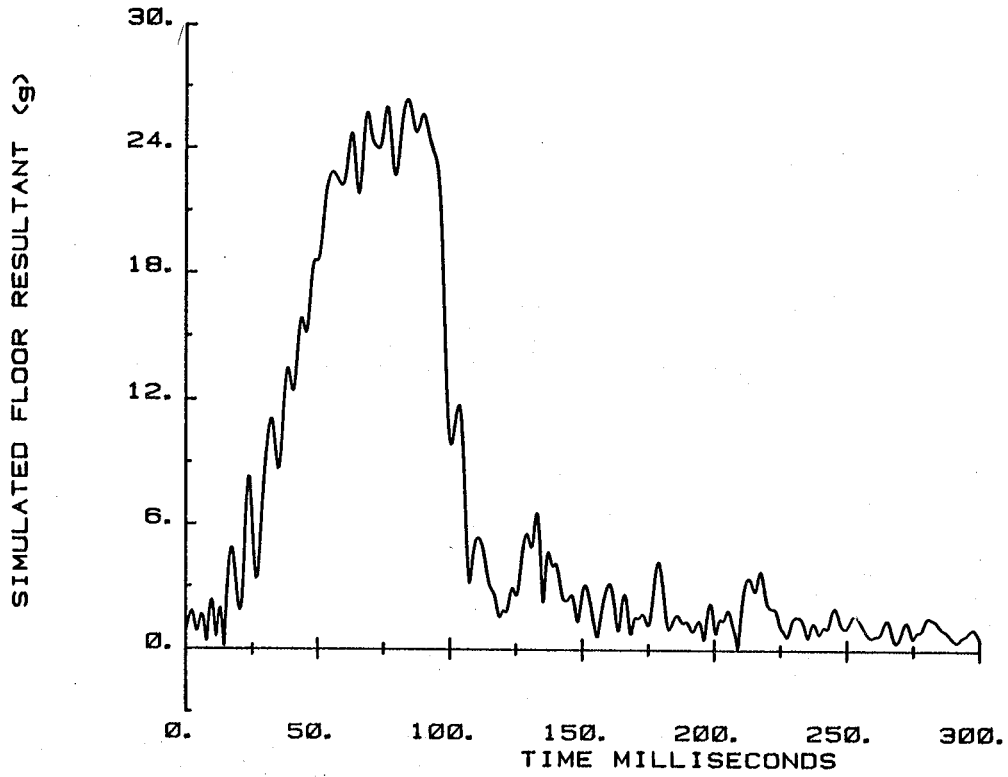
CAMI SLED TEST  
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SIMULATED FLOOR Z ACCEL. (g)

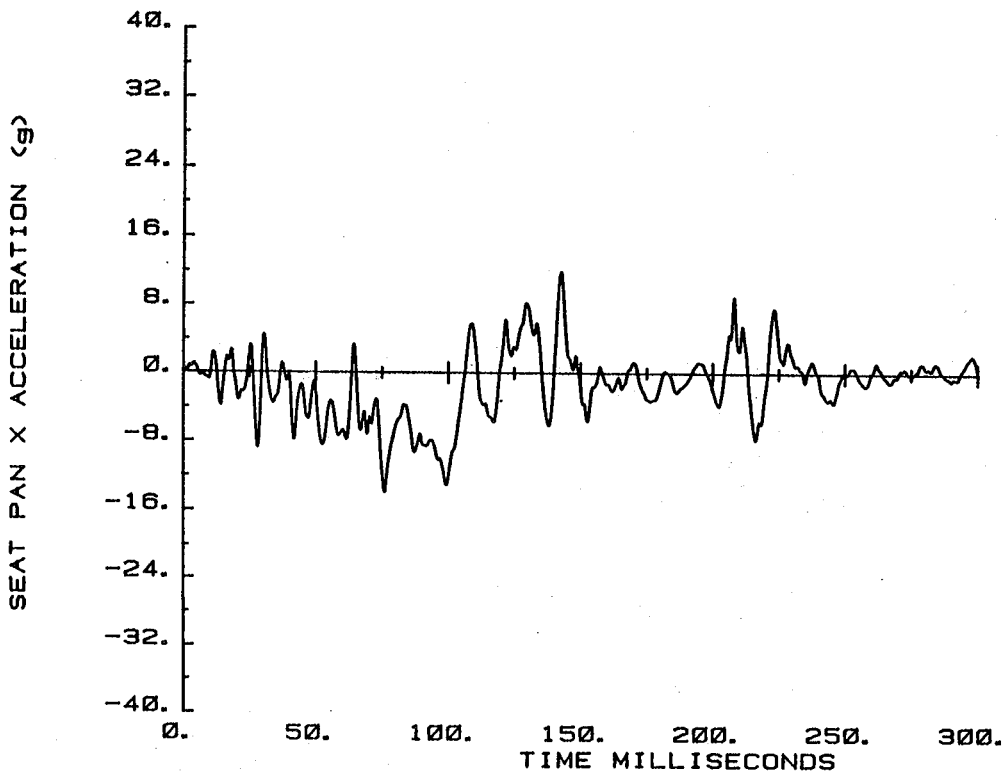




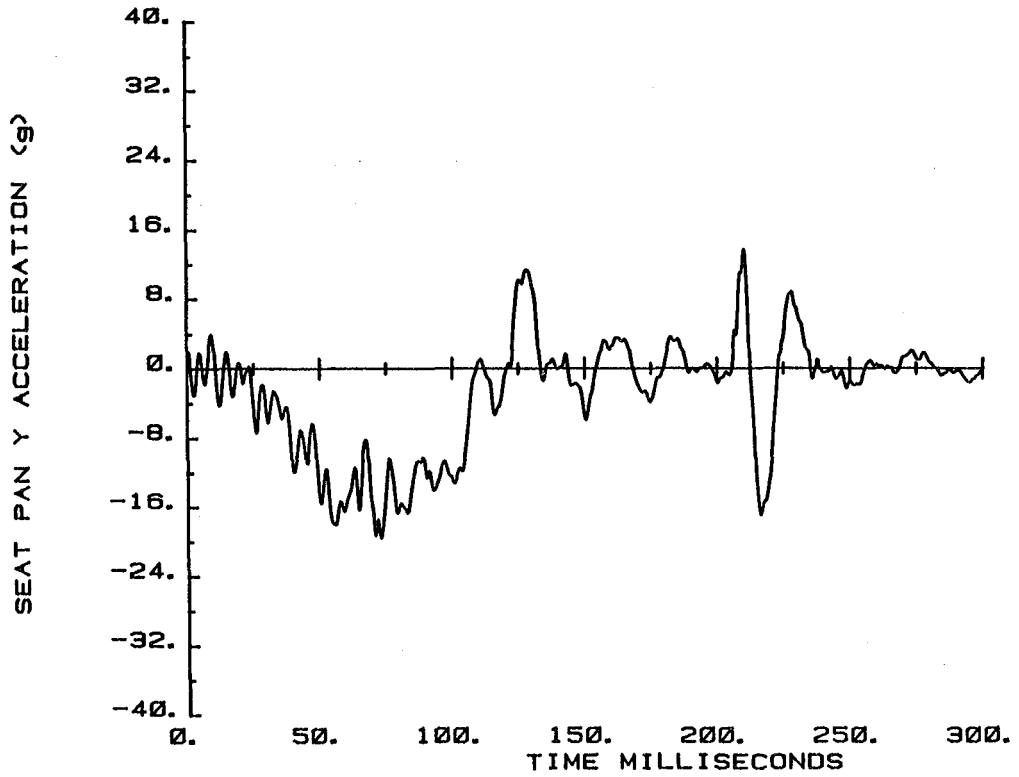
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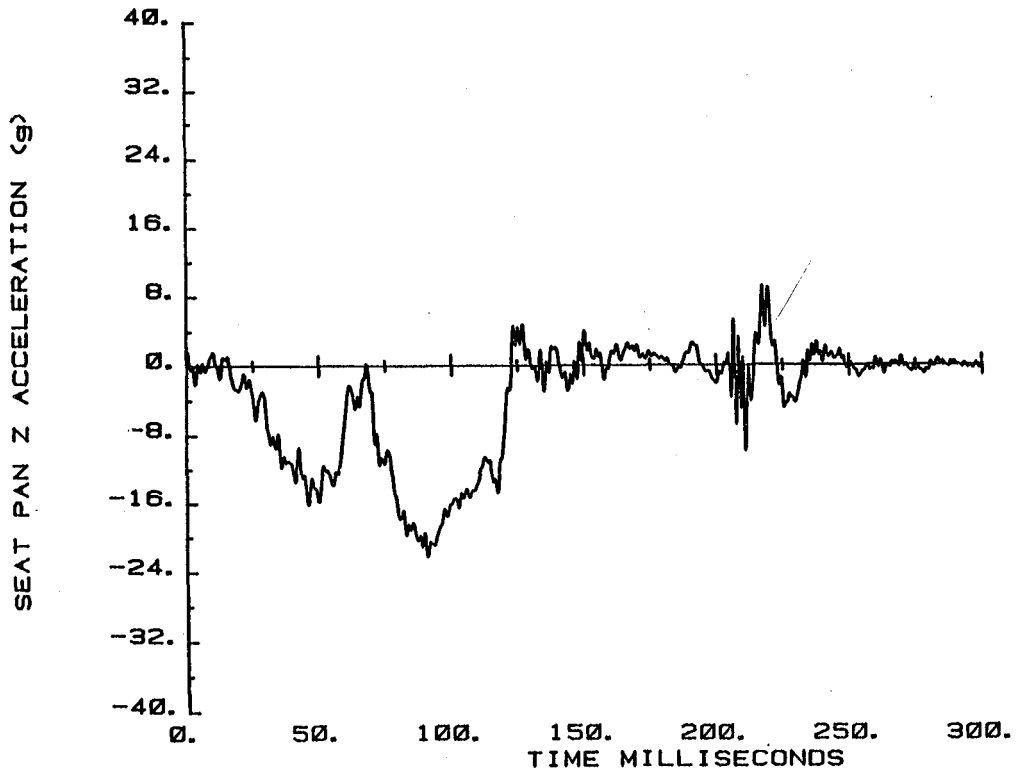
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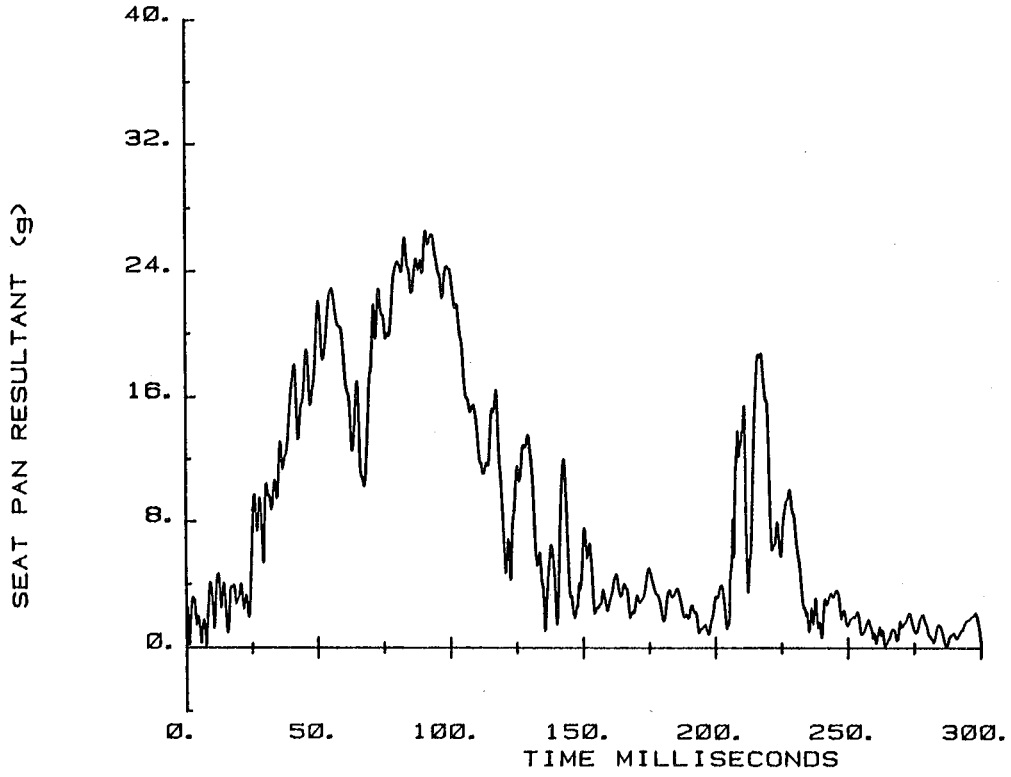
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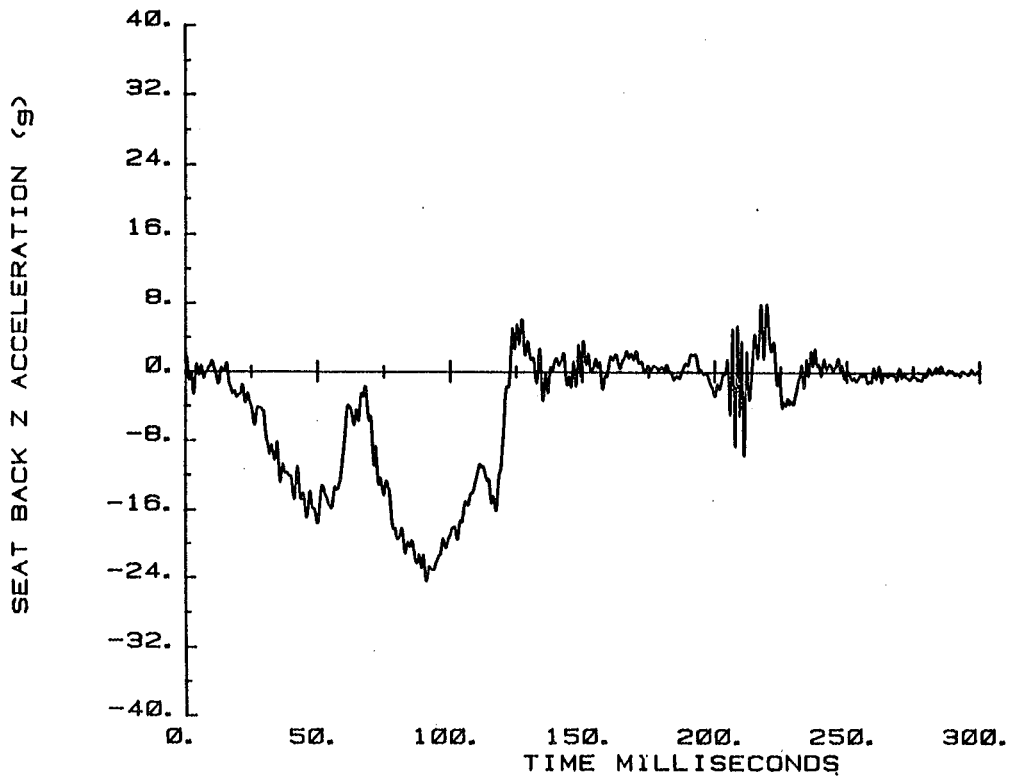
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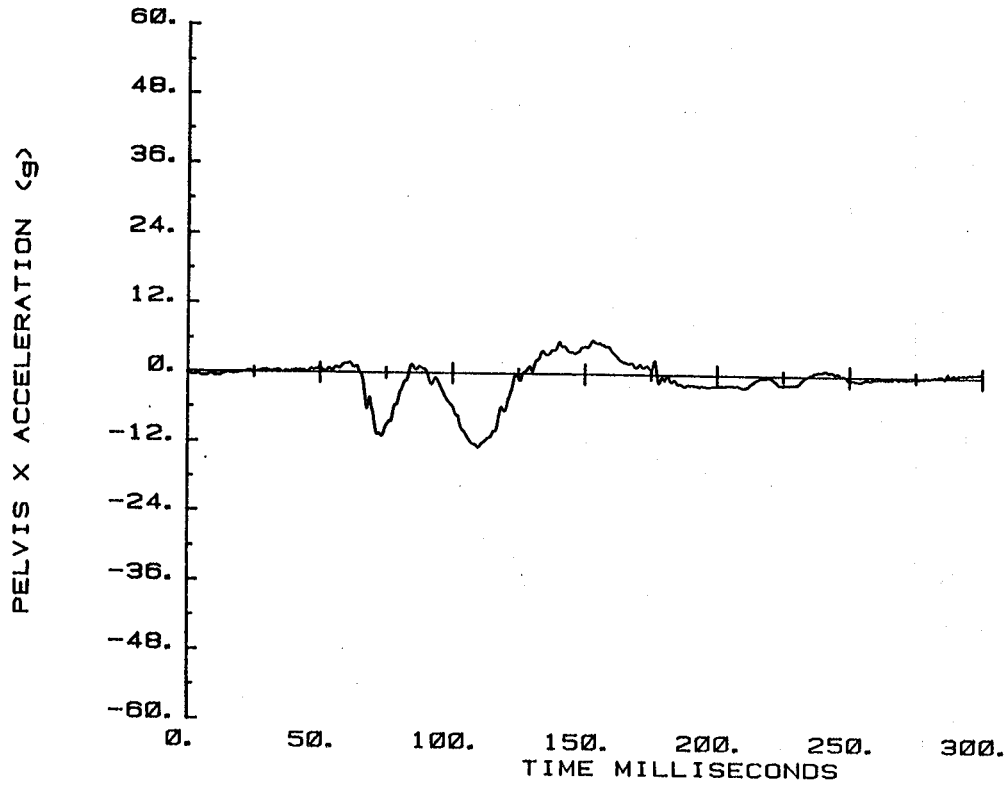
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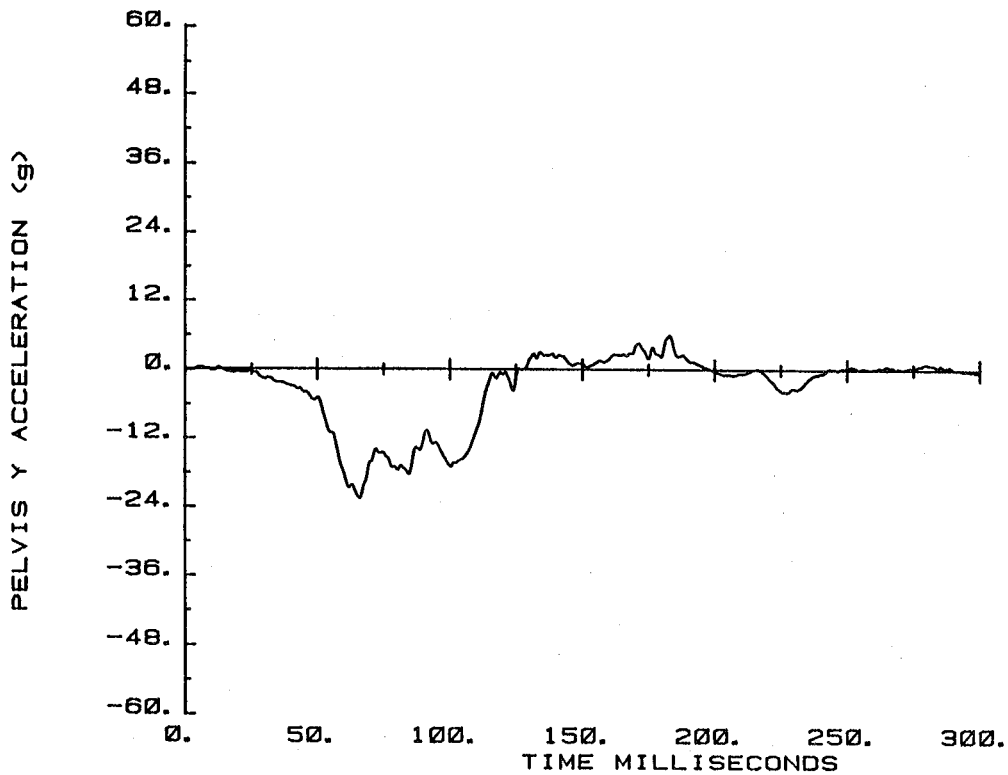
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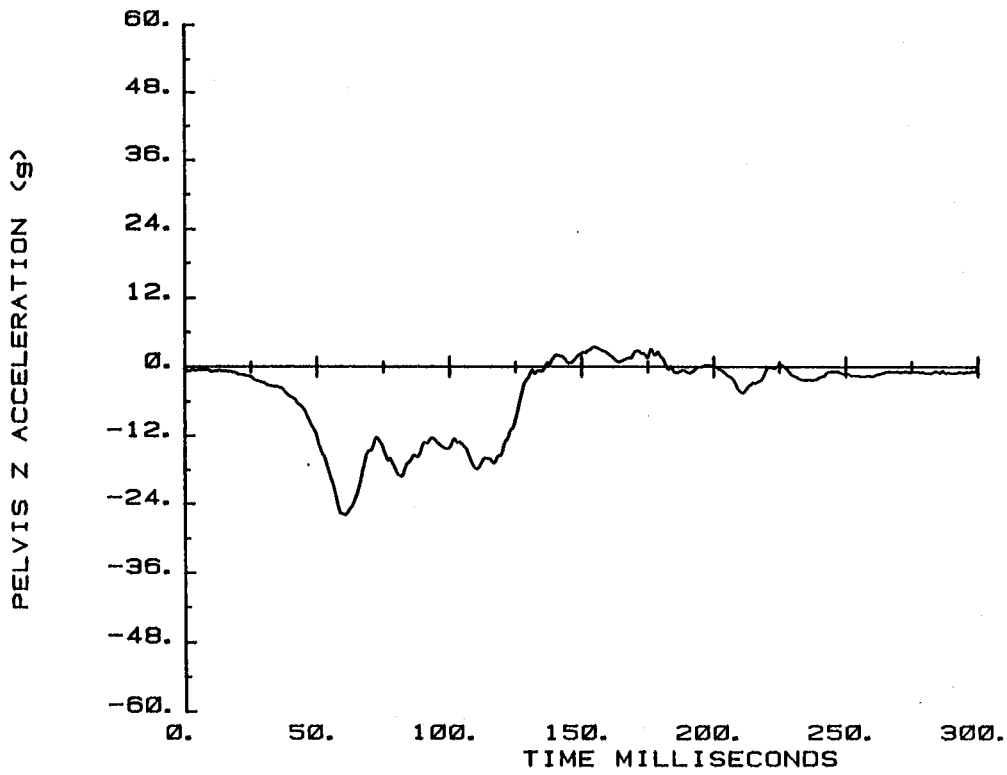
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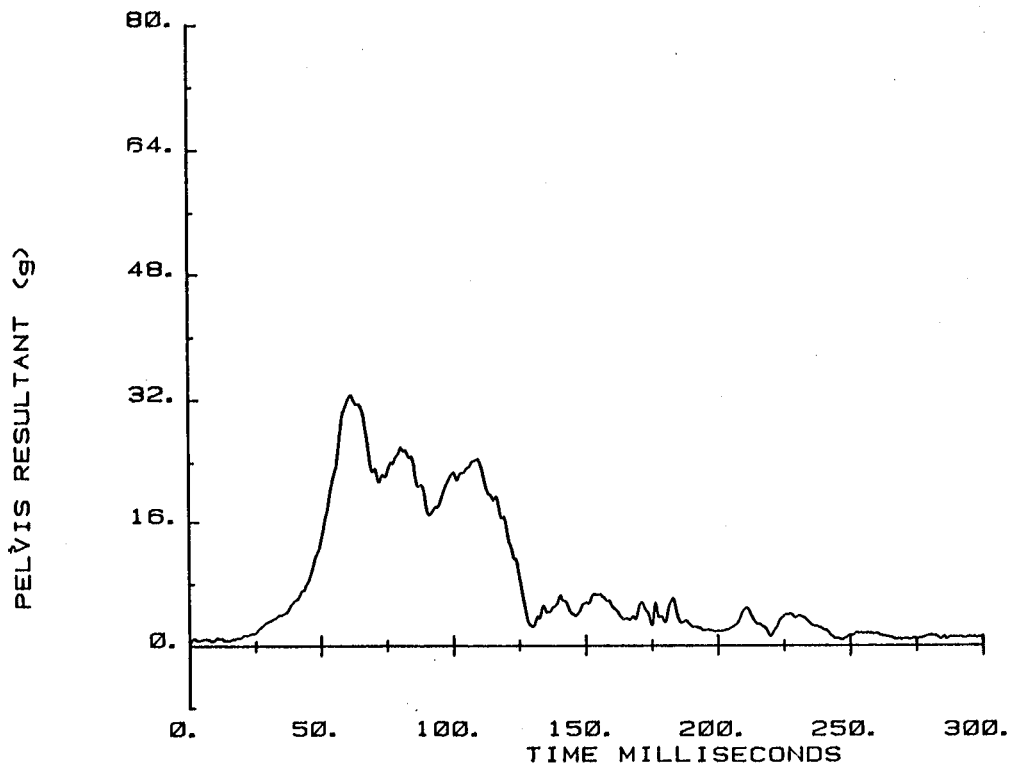
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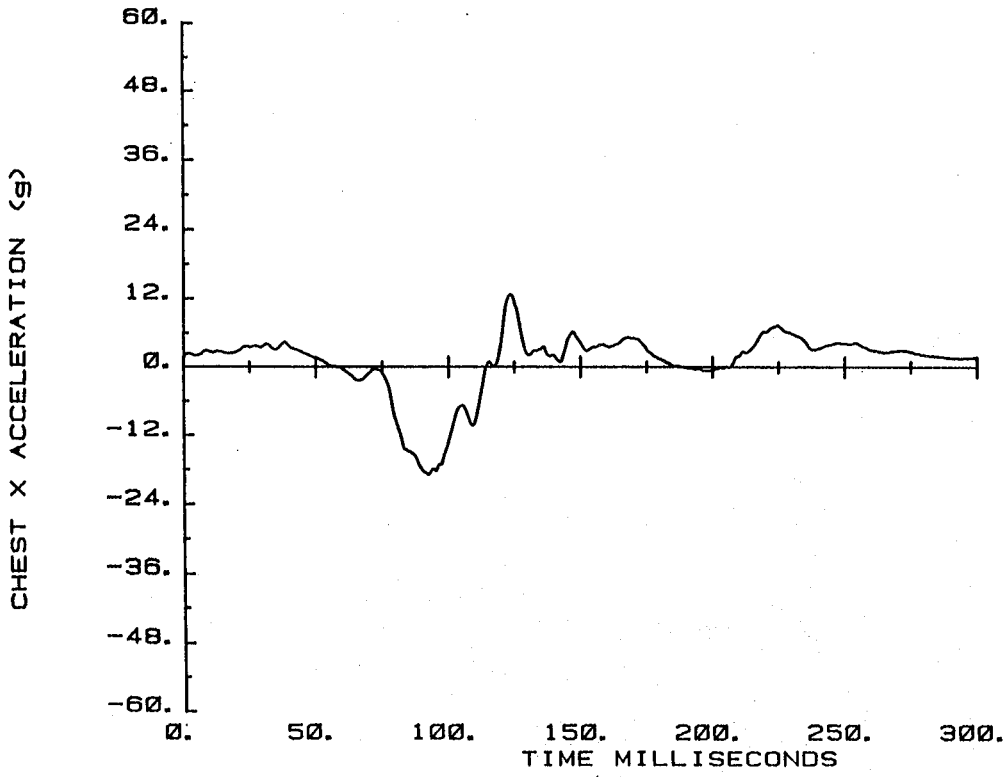
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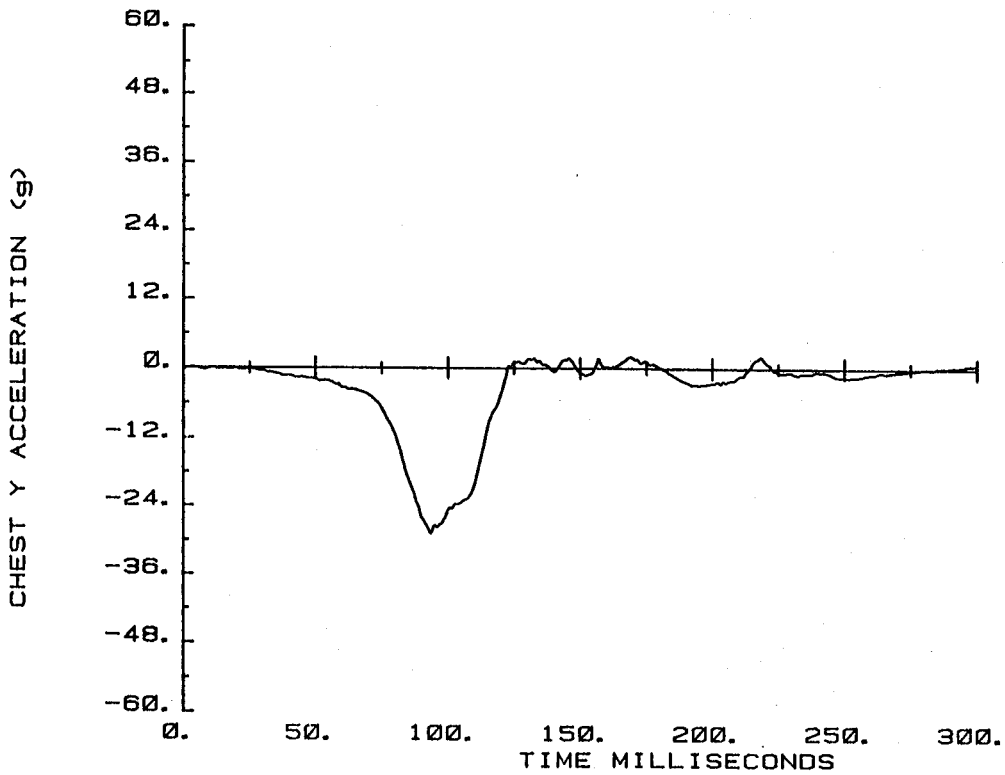
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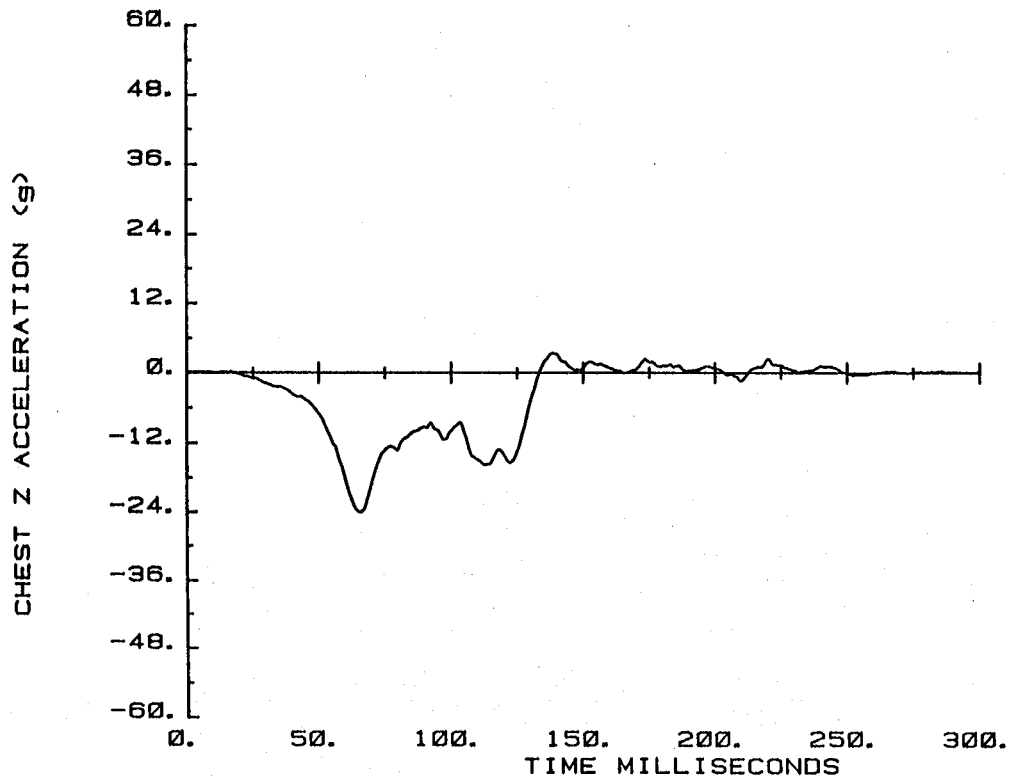
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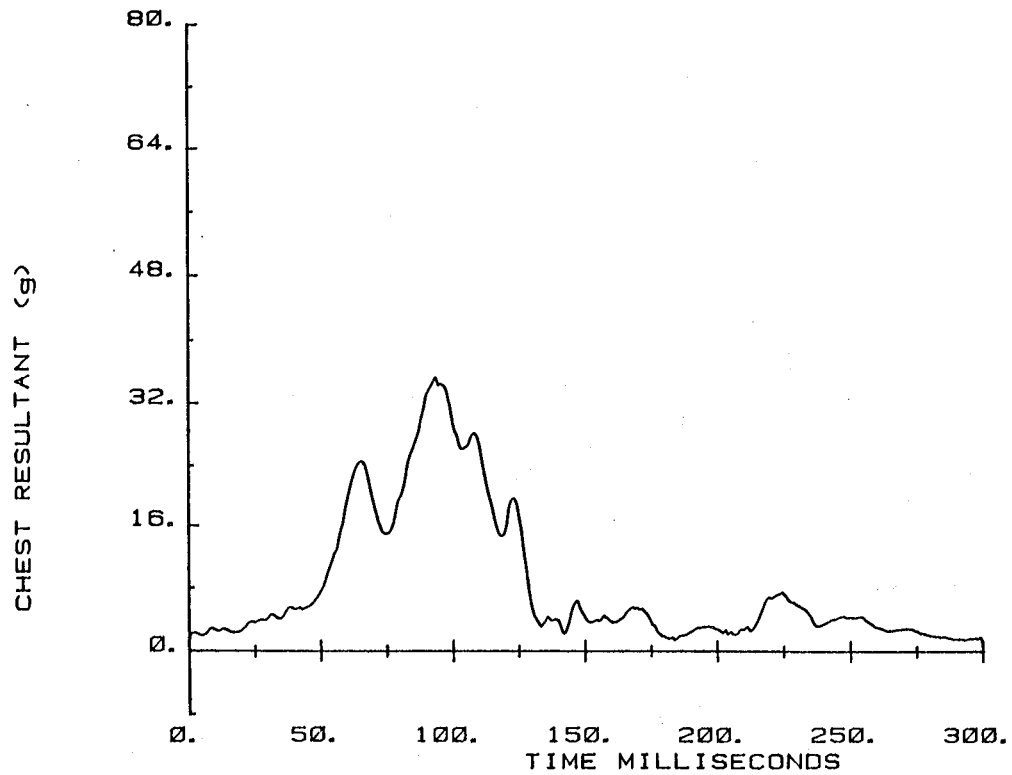
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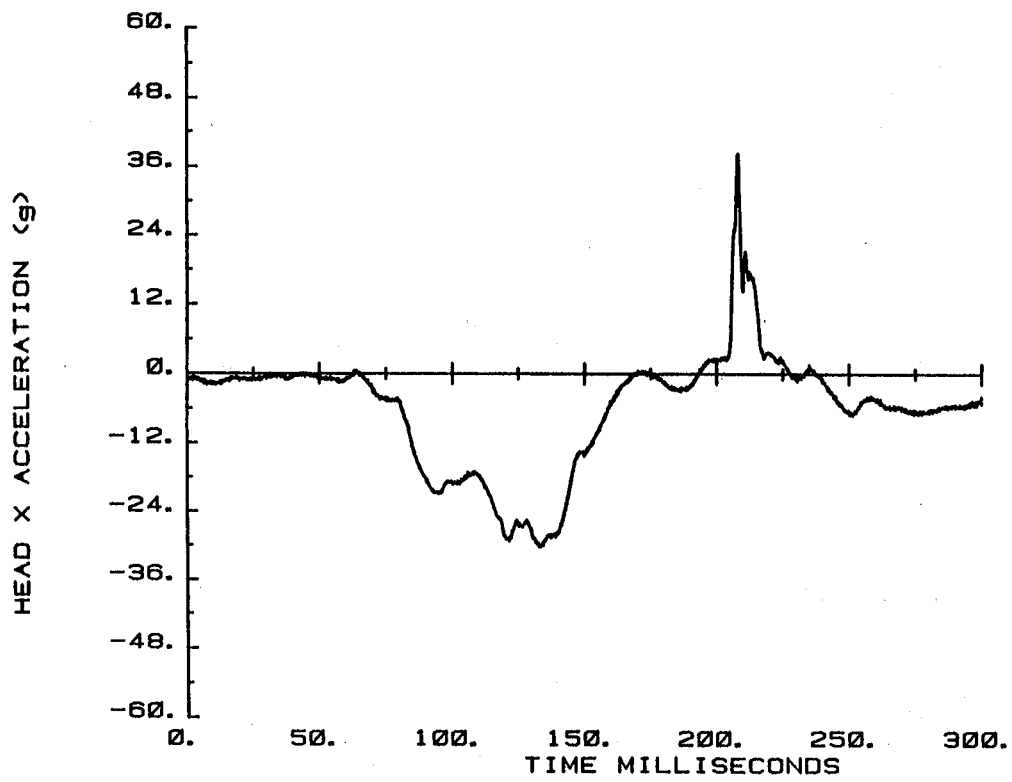
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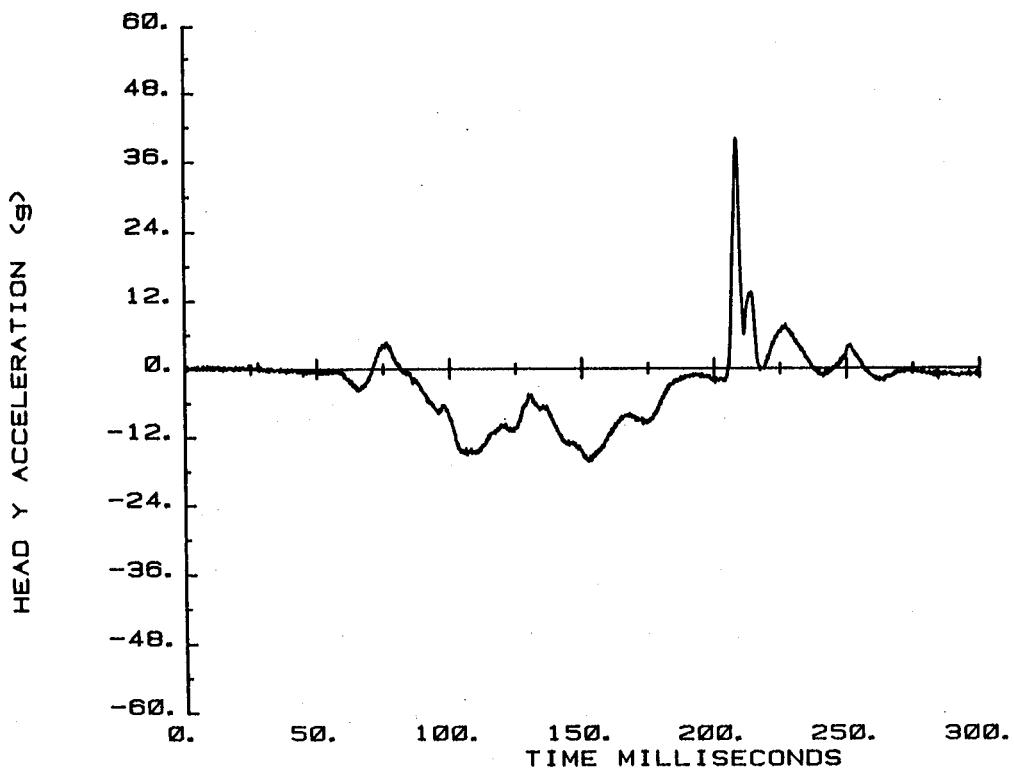
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A83109



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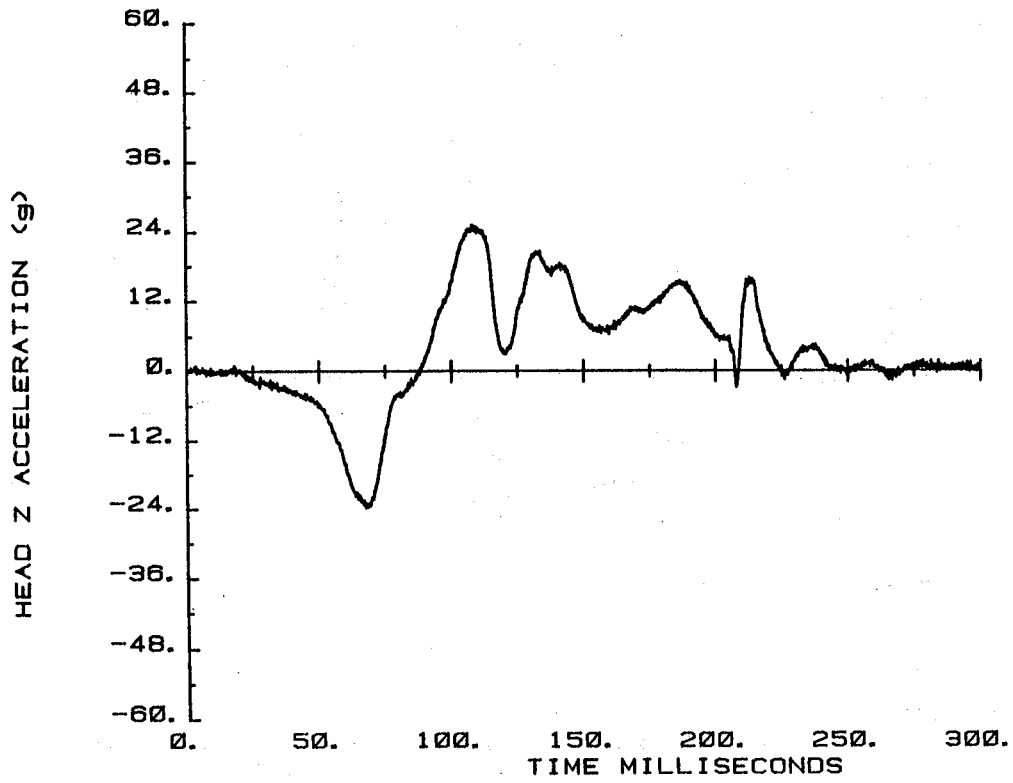


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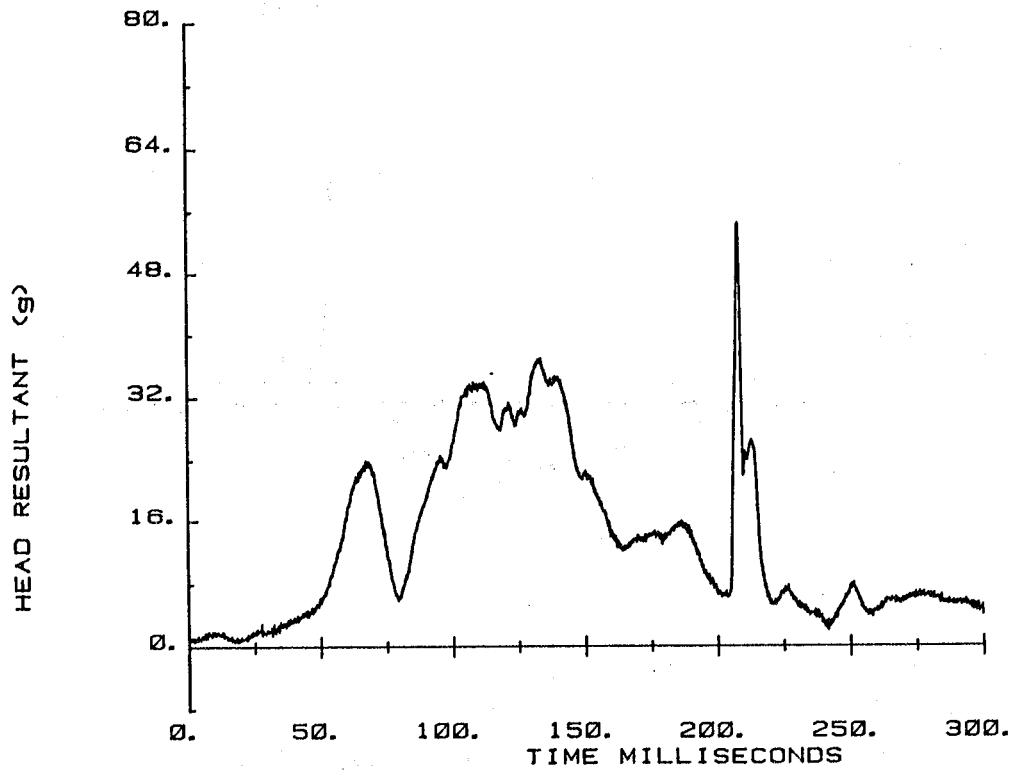




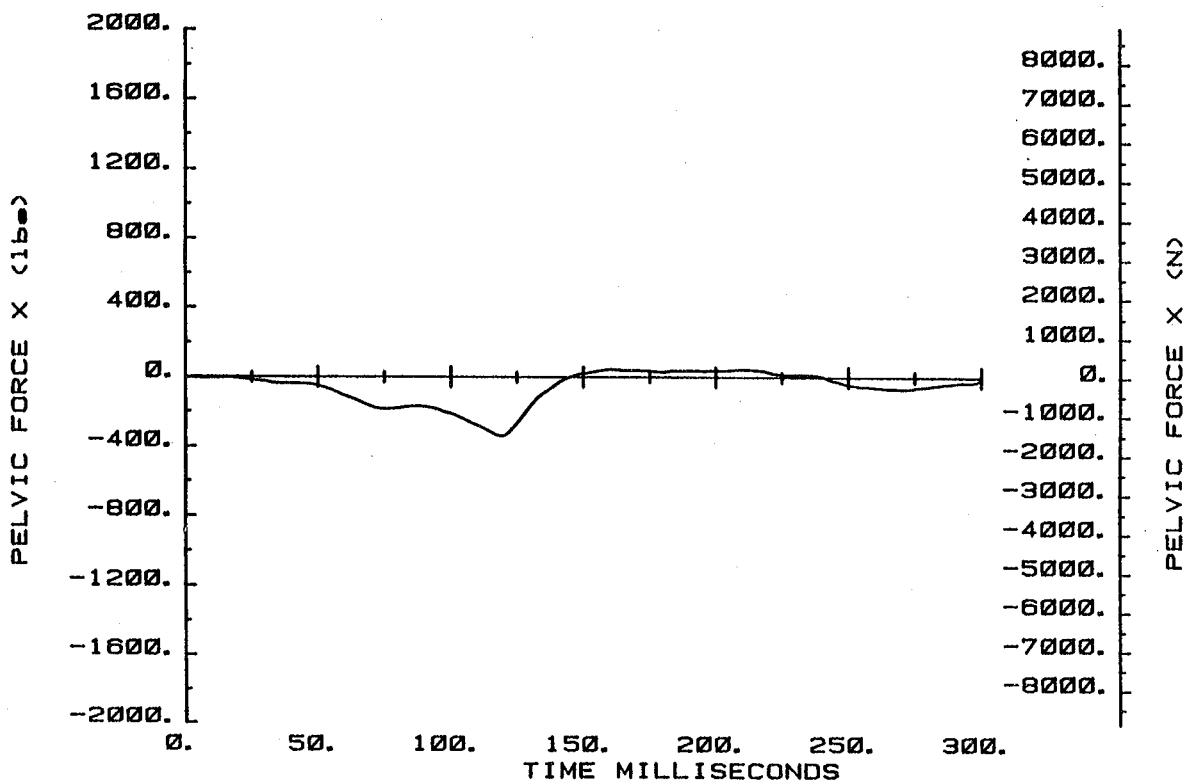
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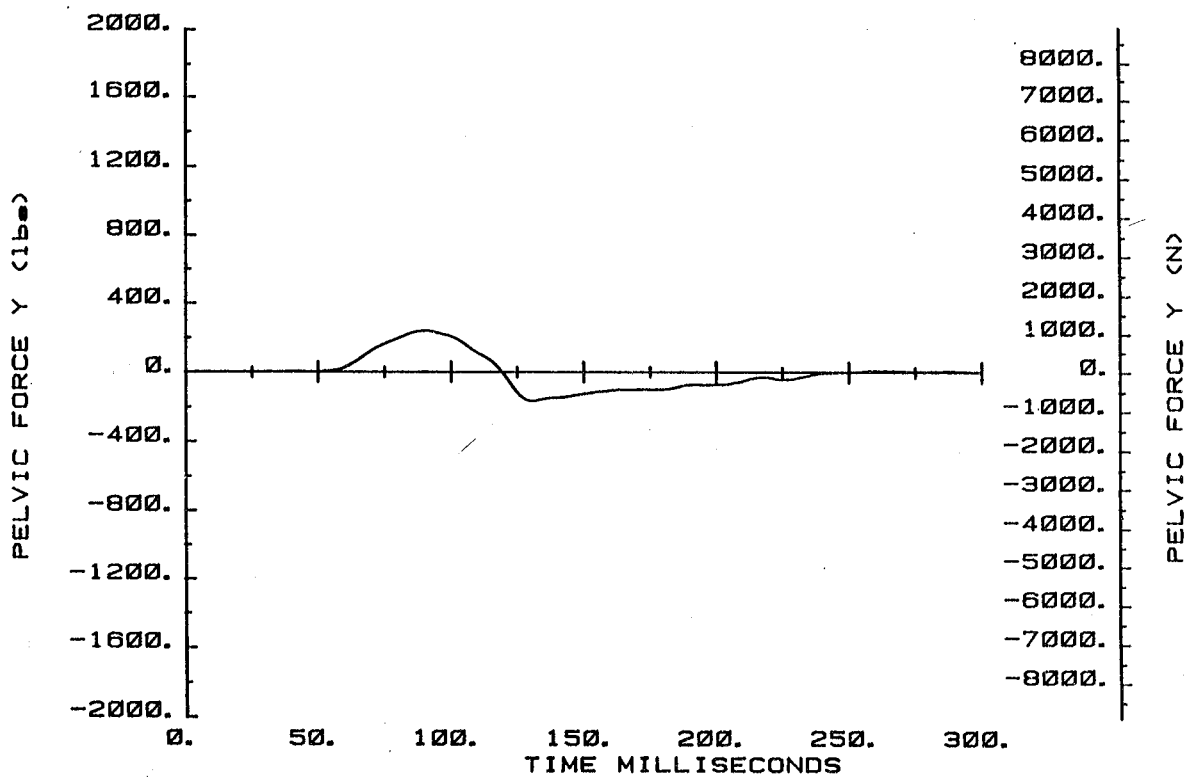
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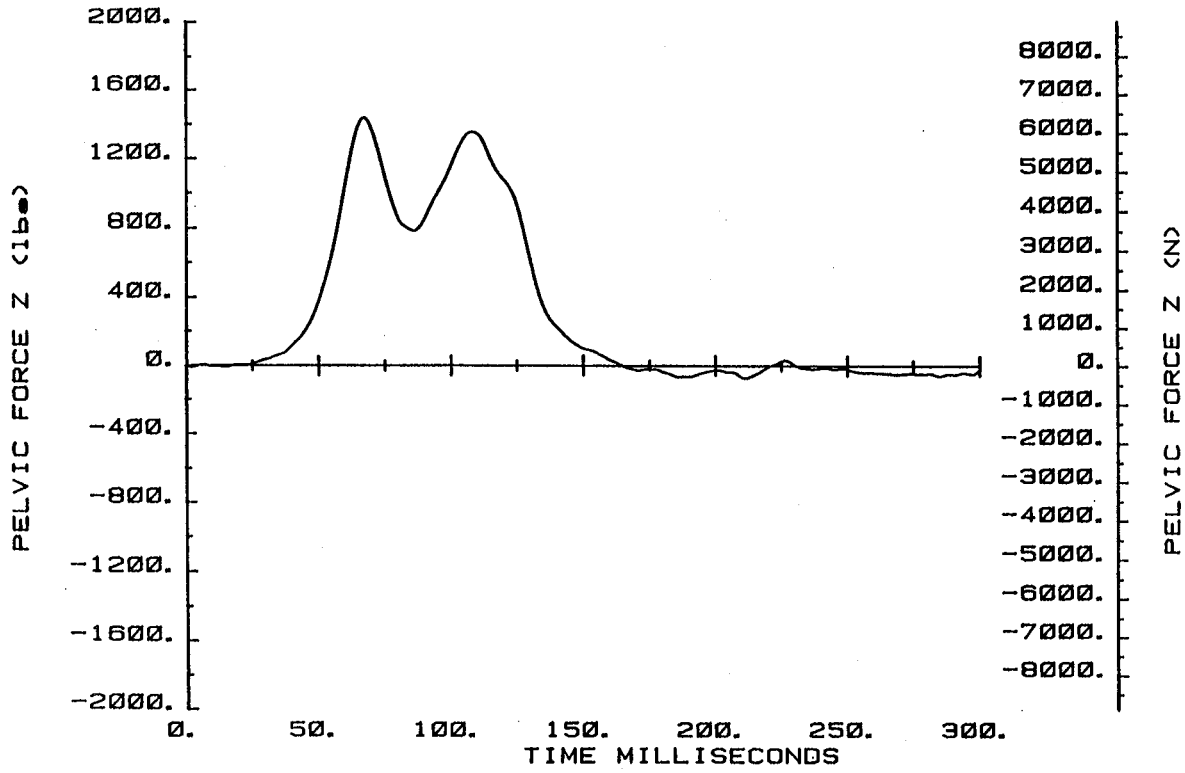
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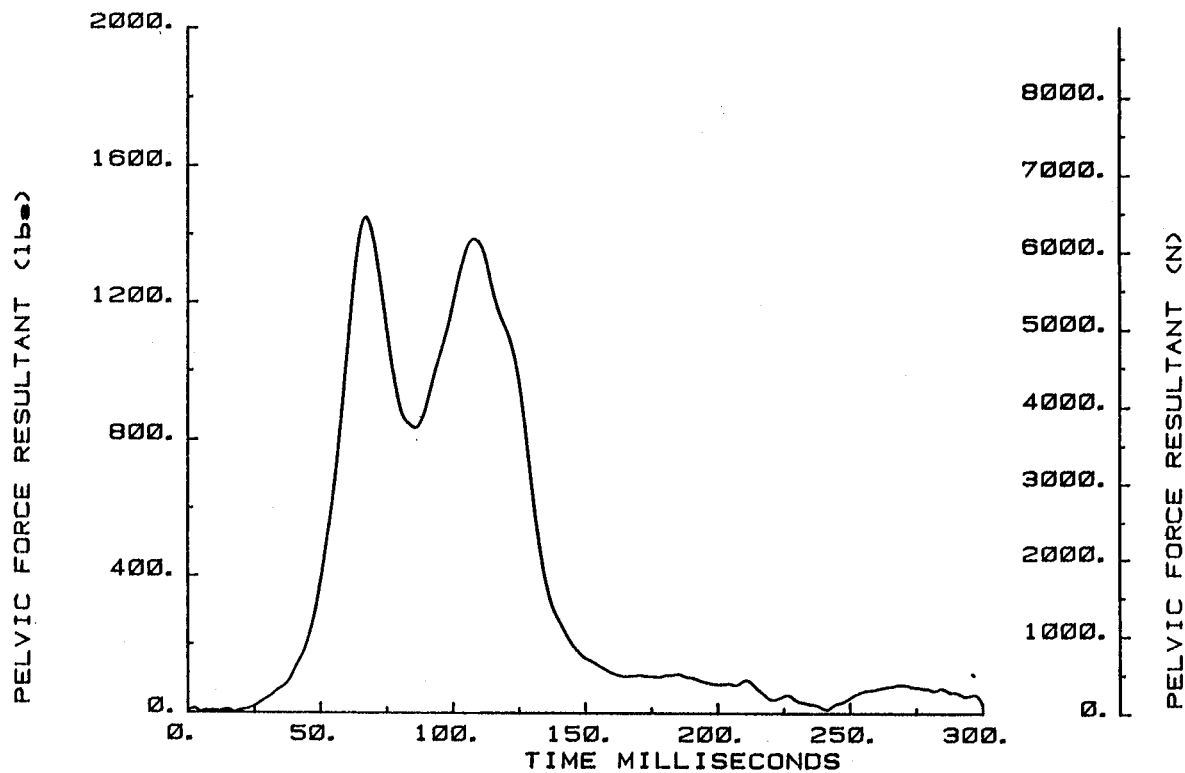
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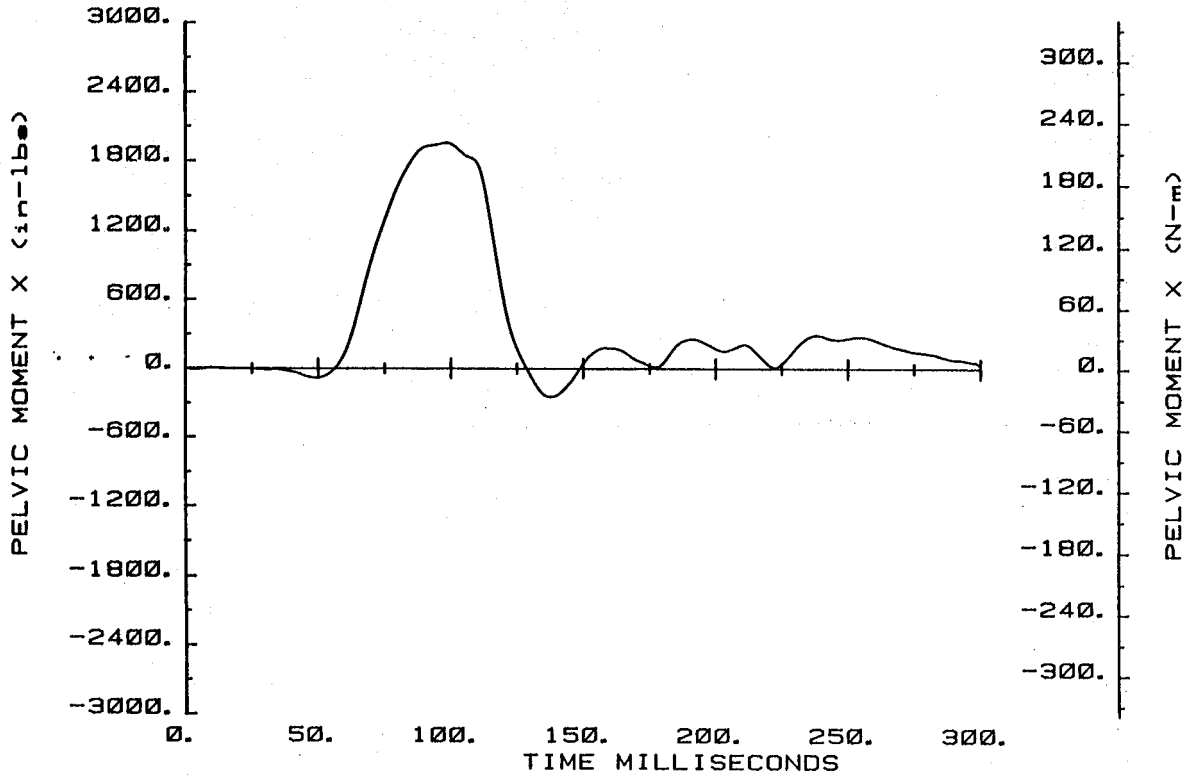
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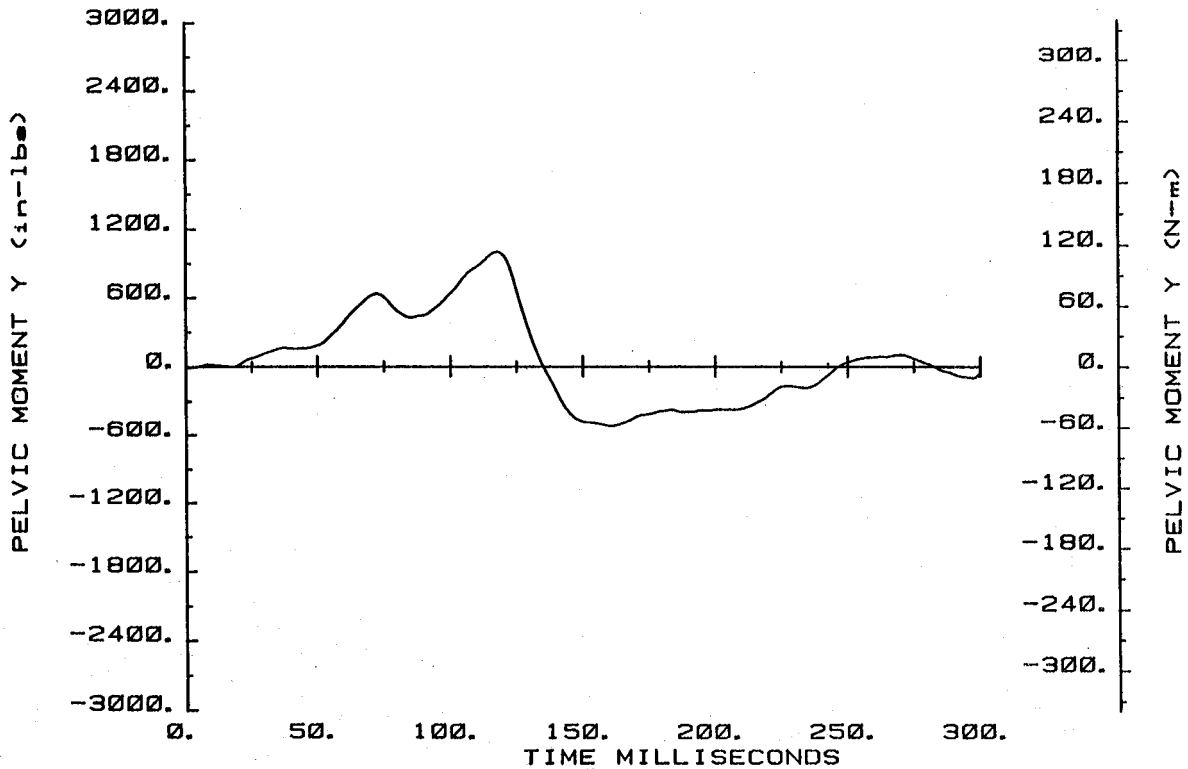
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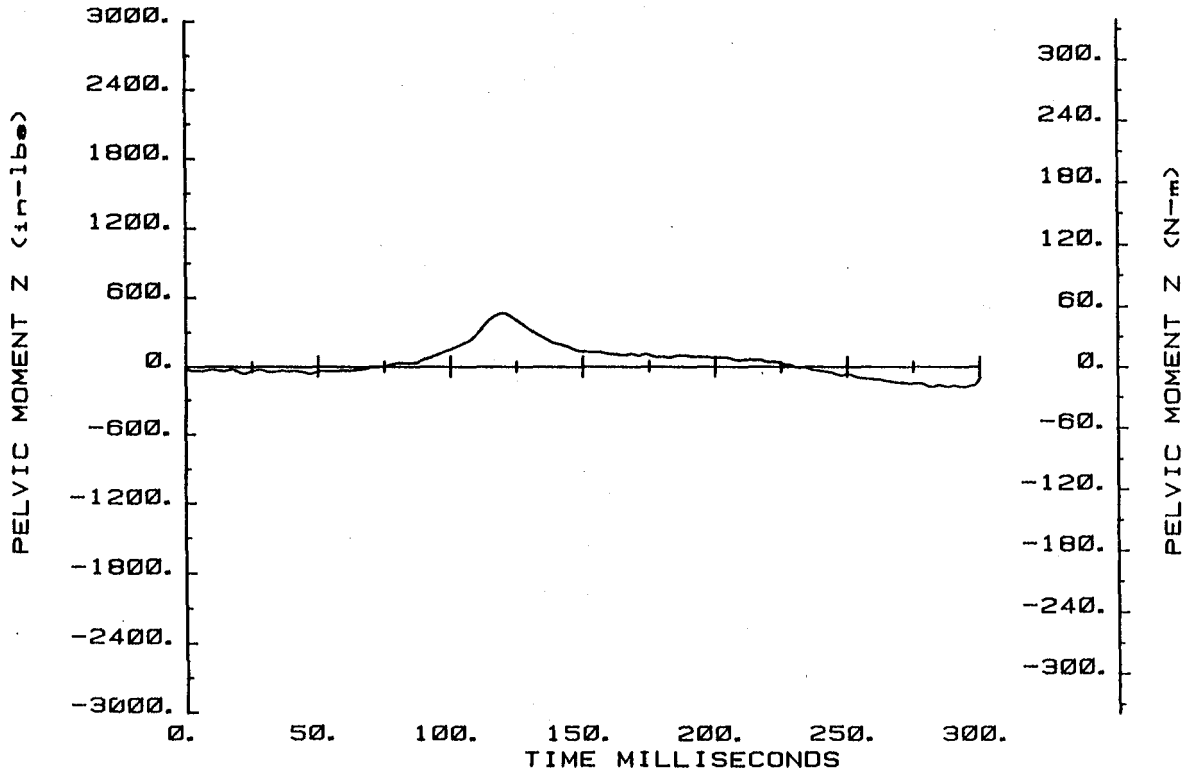
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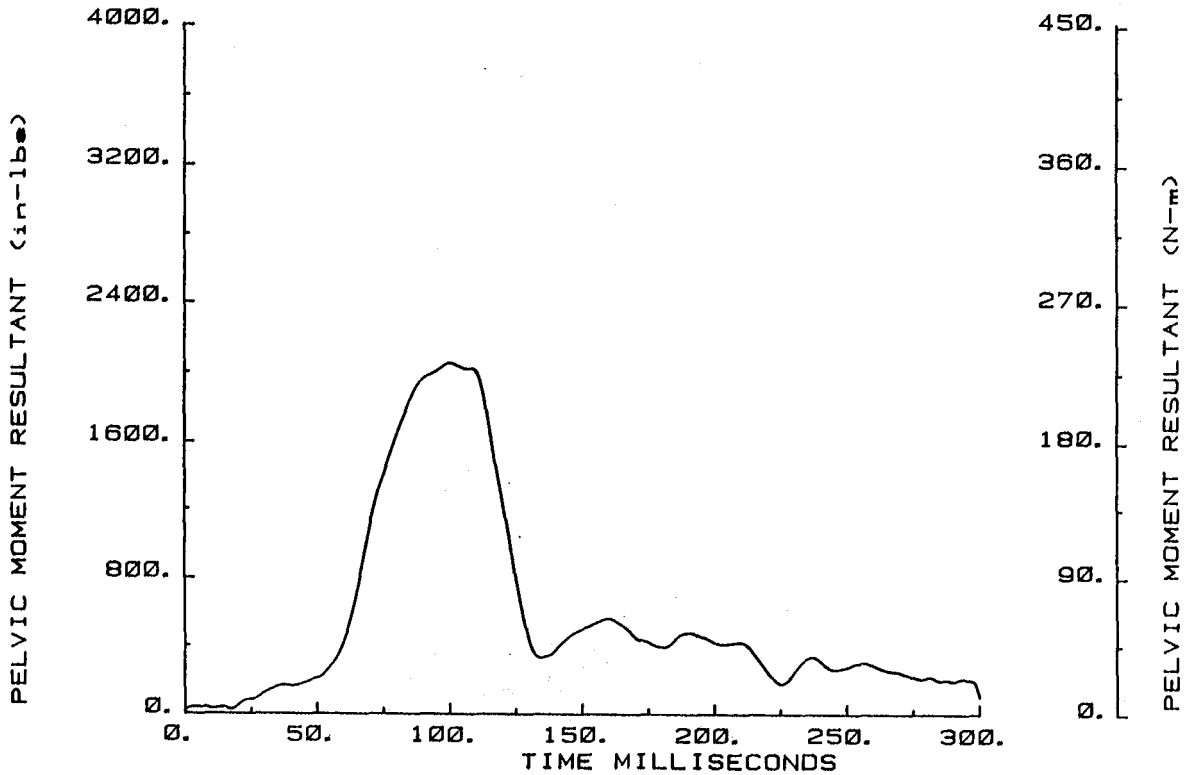
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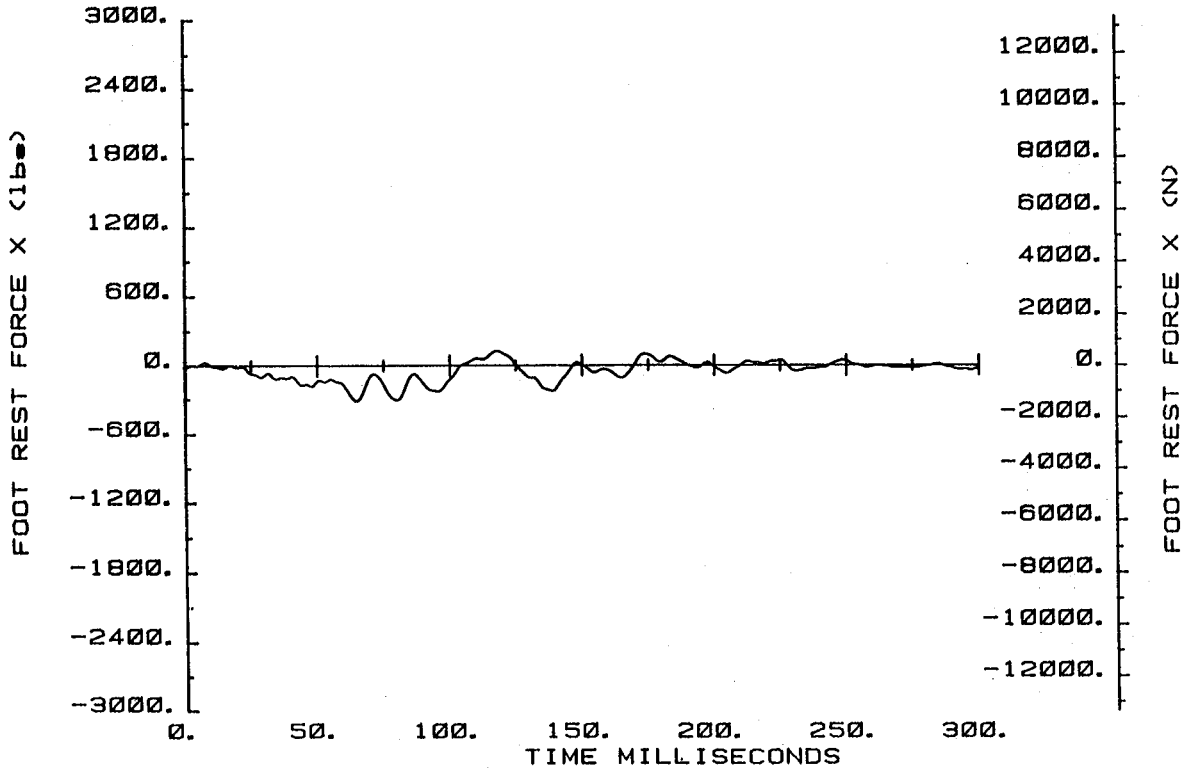
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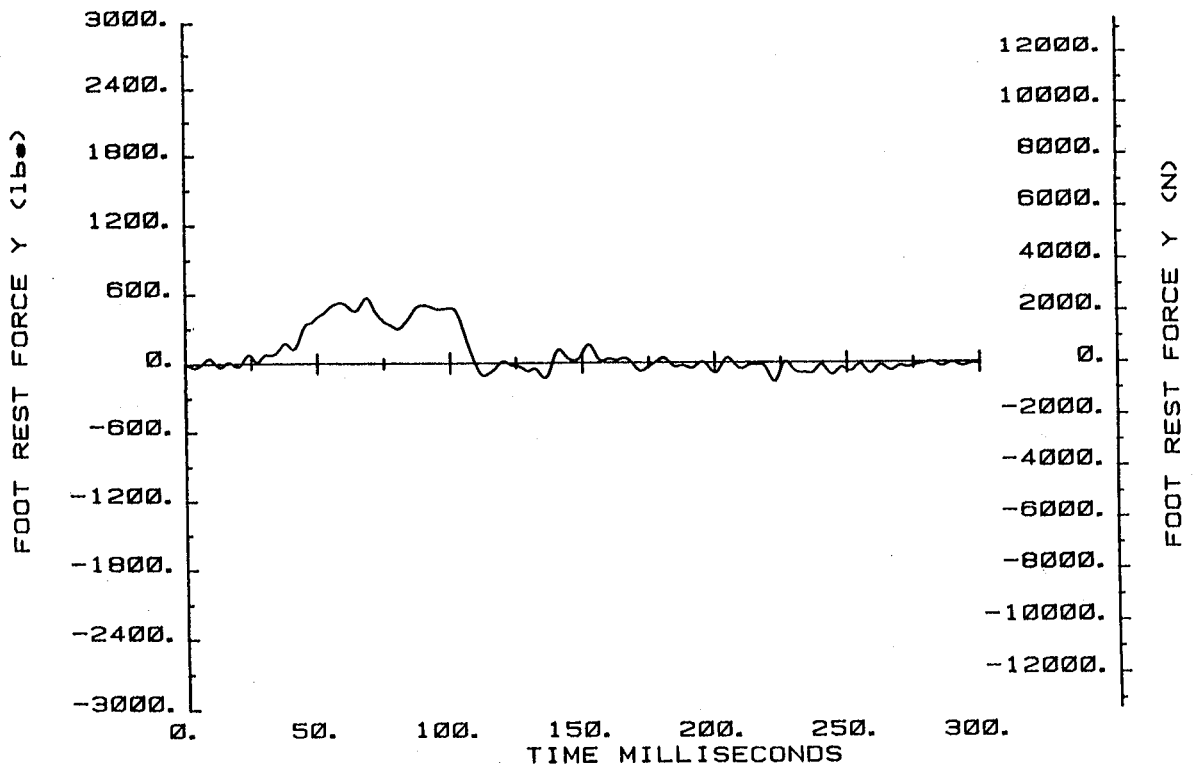
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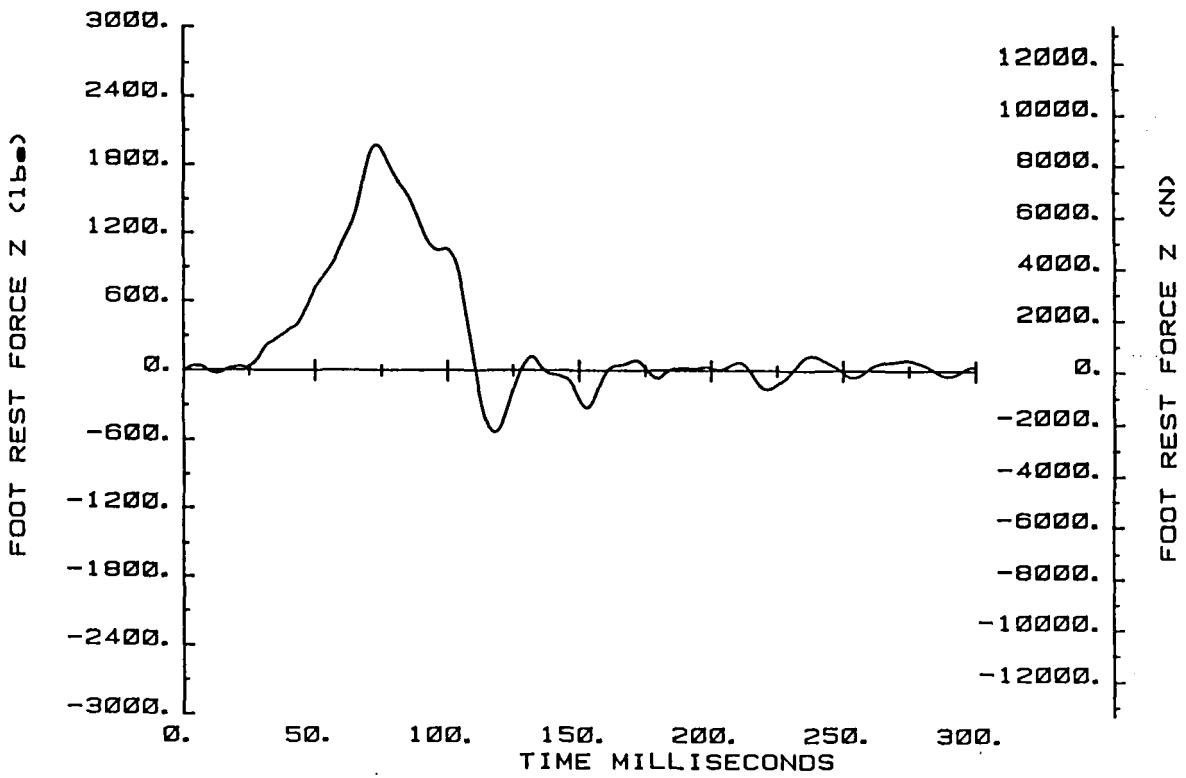
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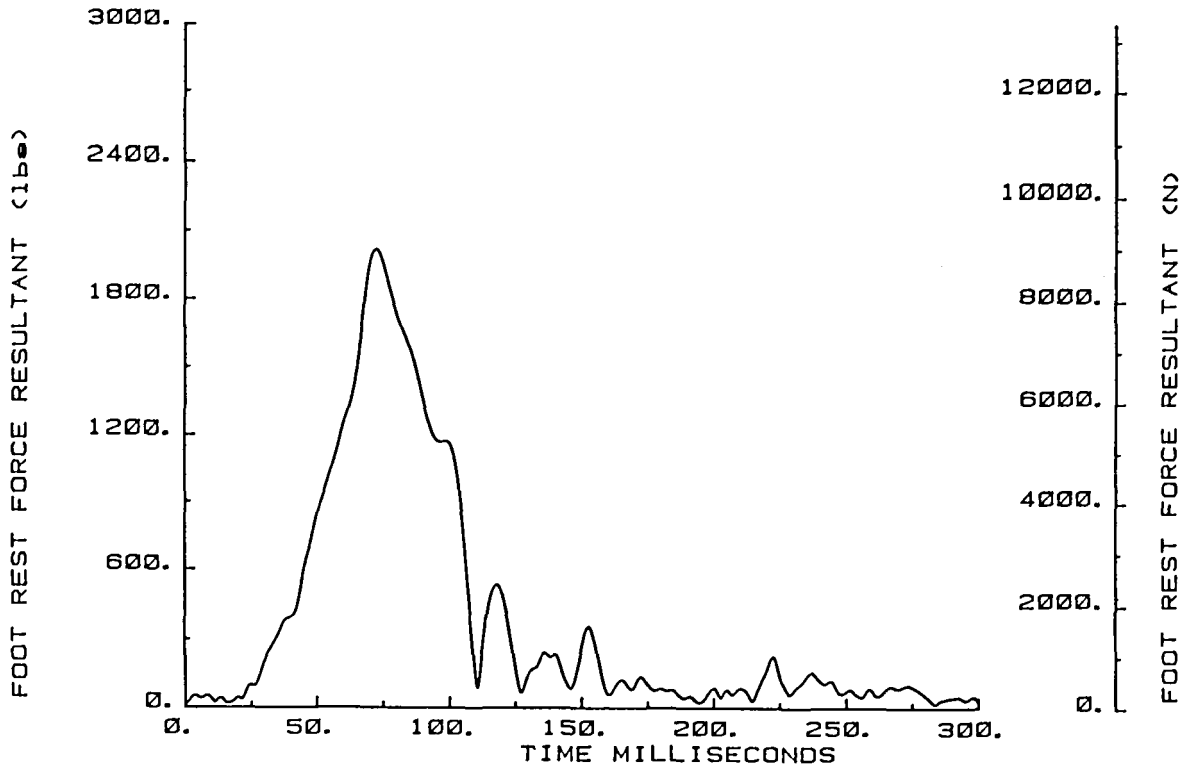
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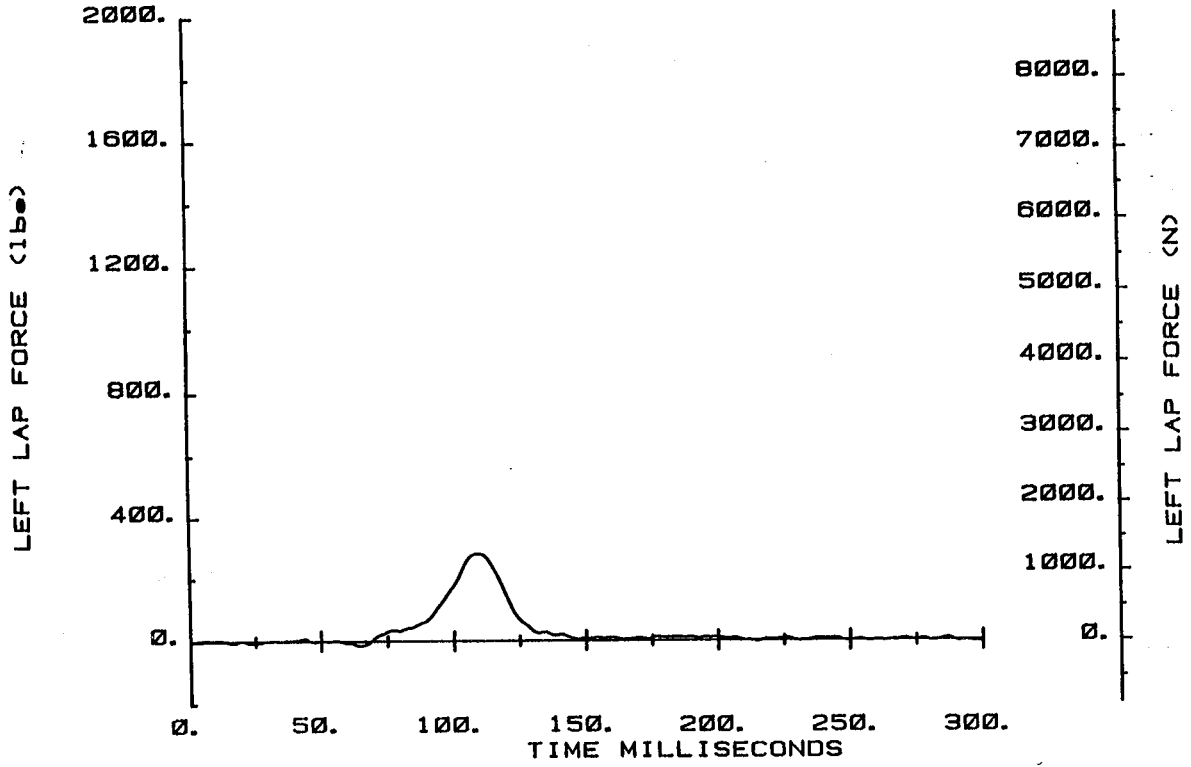
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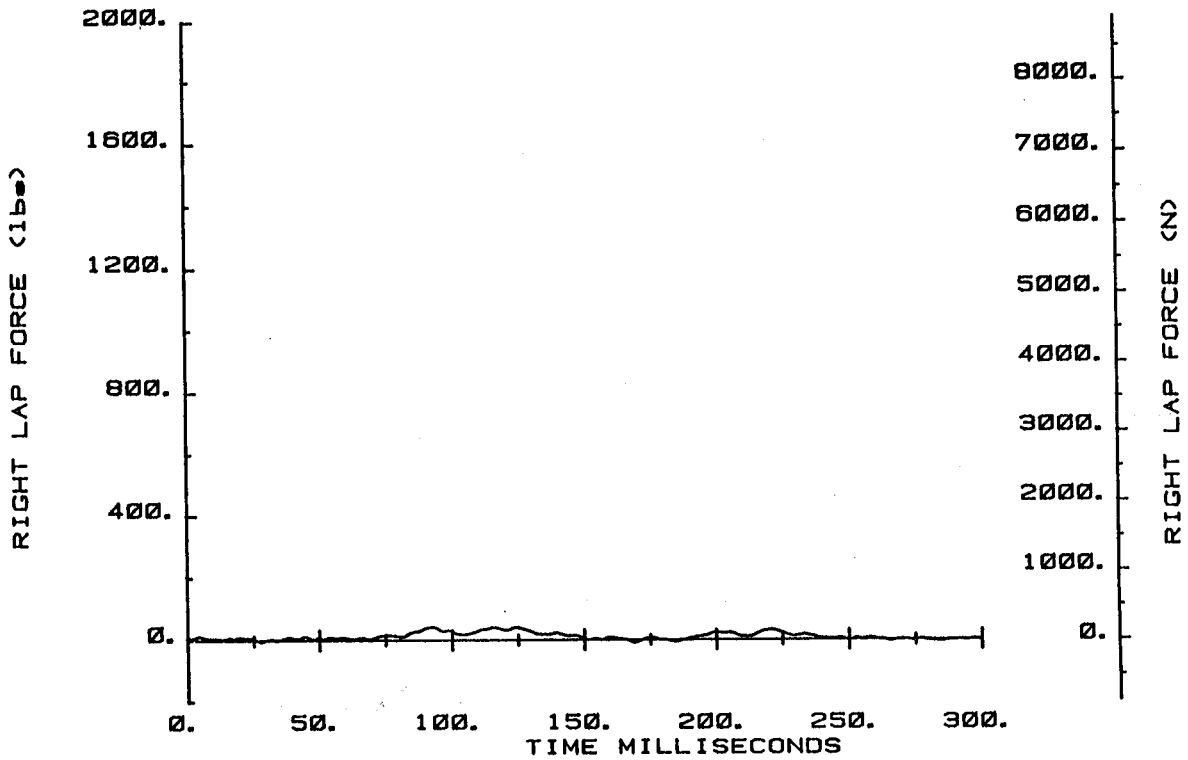
CAMI SLED TEST  
A83109



CAMI SLED TEST  
A83109

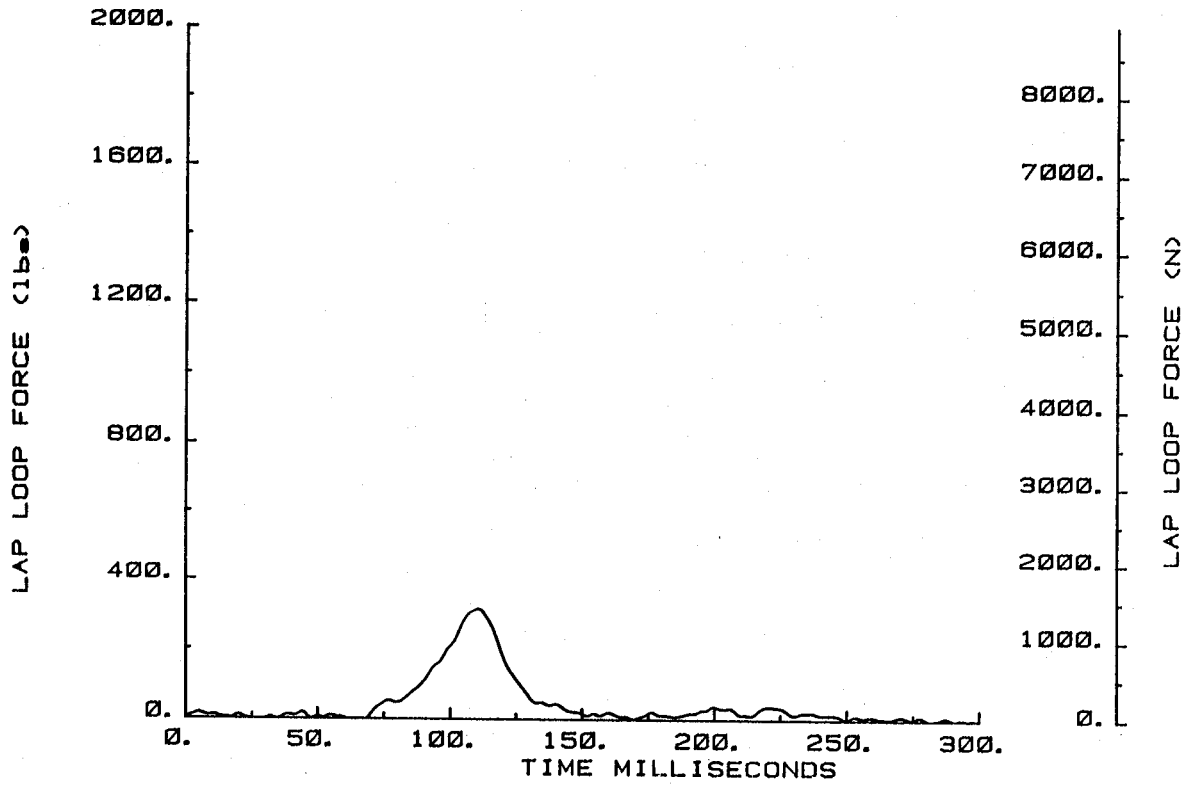


CAMI SLED TEST  
A83109

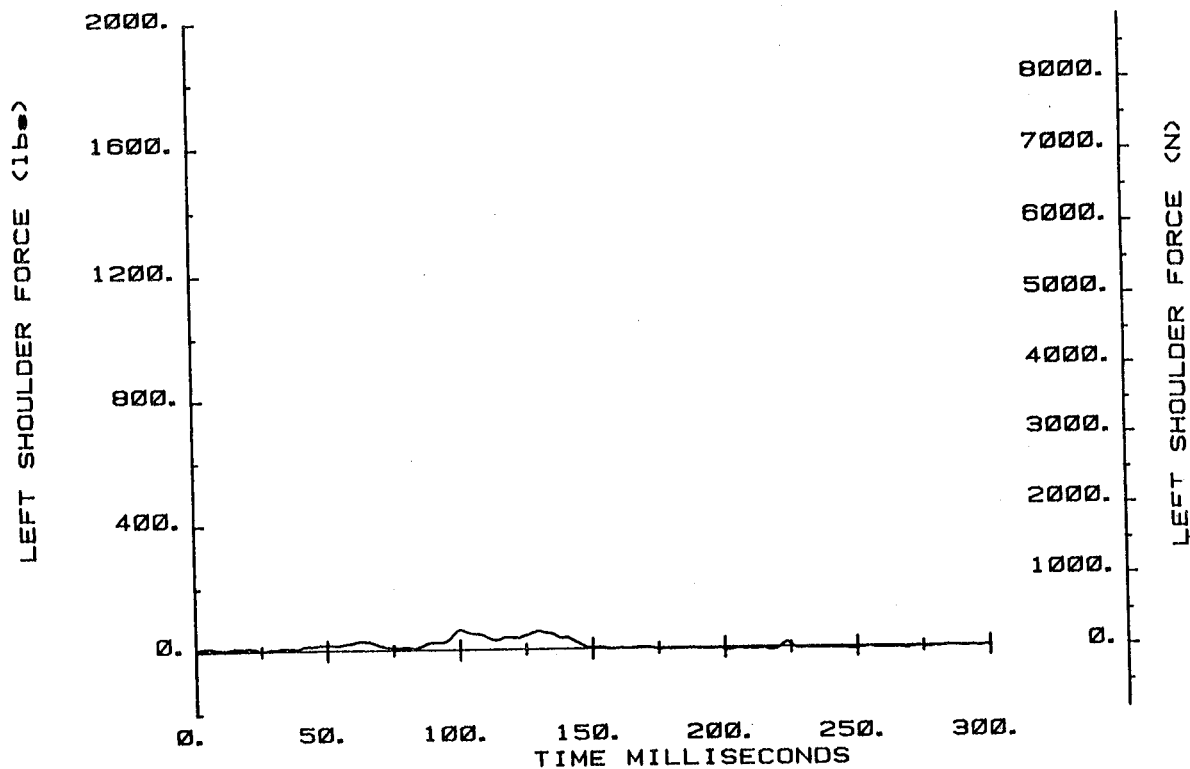




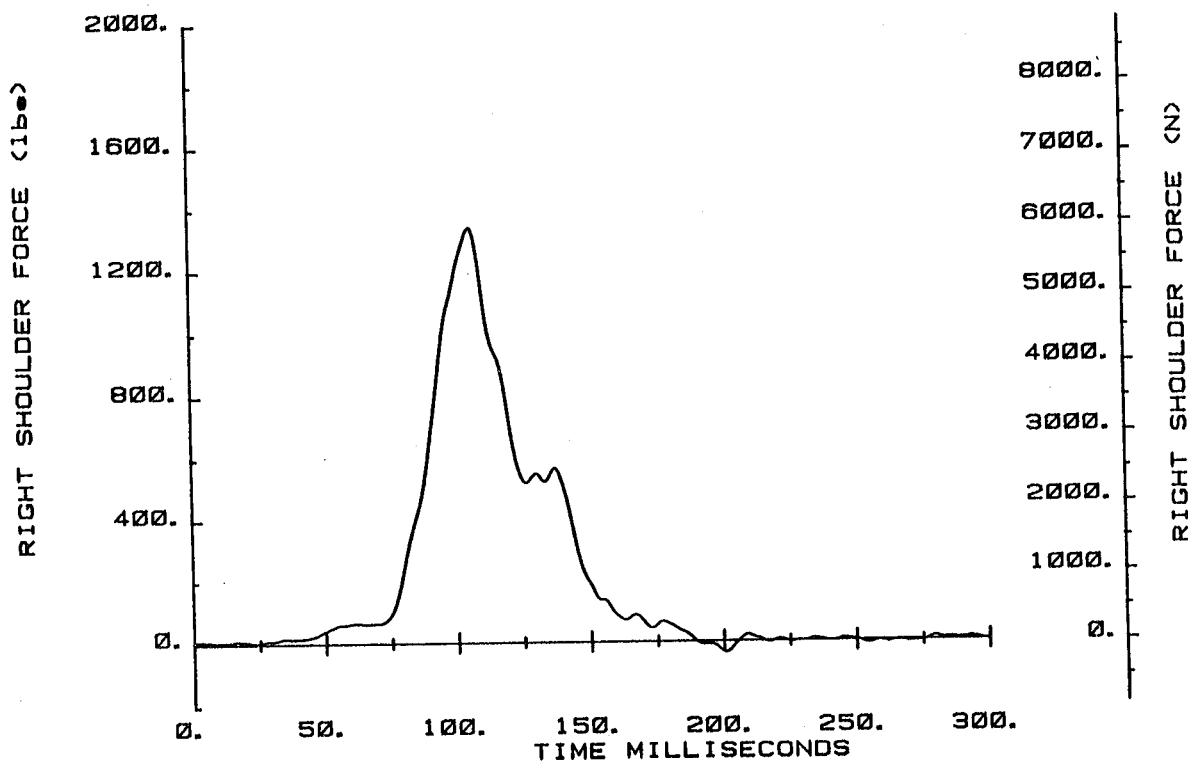
CAMI SLED TEST  
A83109



CAMI SLED TEST  
A83109

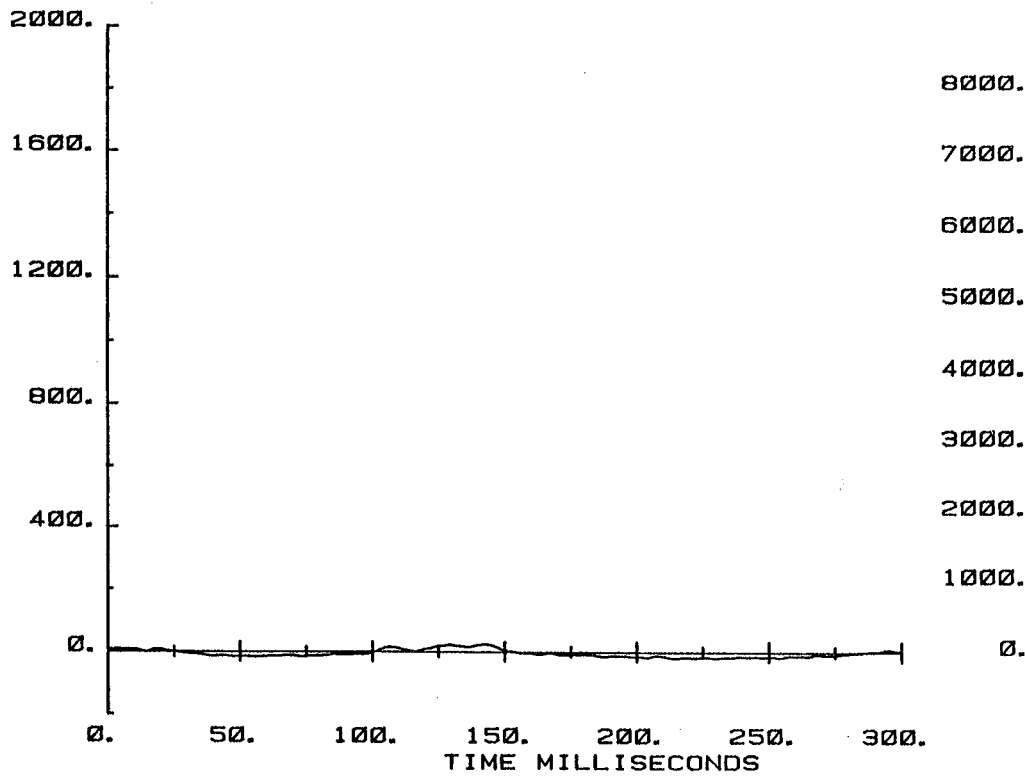


CAMI SLED TEST  
A83109



CAMI SLED TEST  
A83109

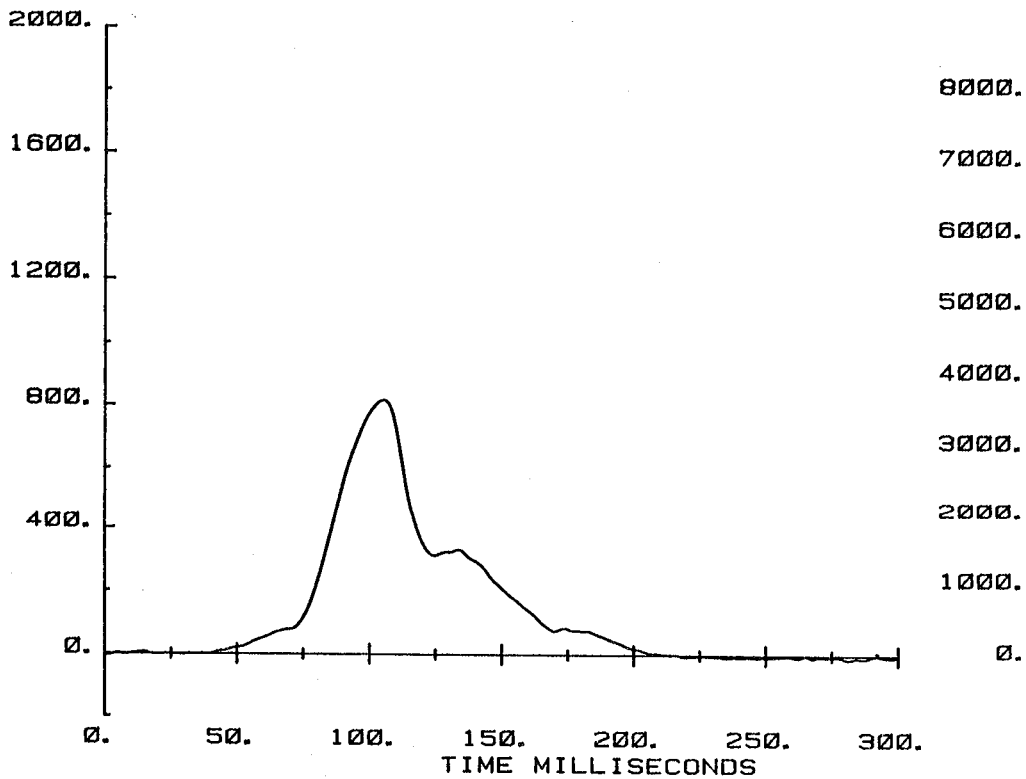
LEFT REFLECTIVE STRAP FORCE (lb)



LEFT REFLECTIVE STRAP FORCE (N)

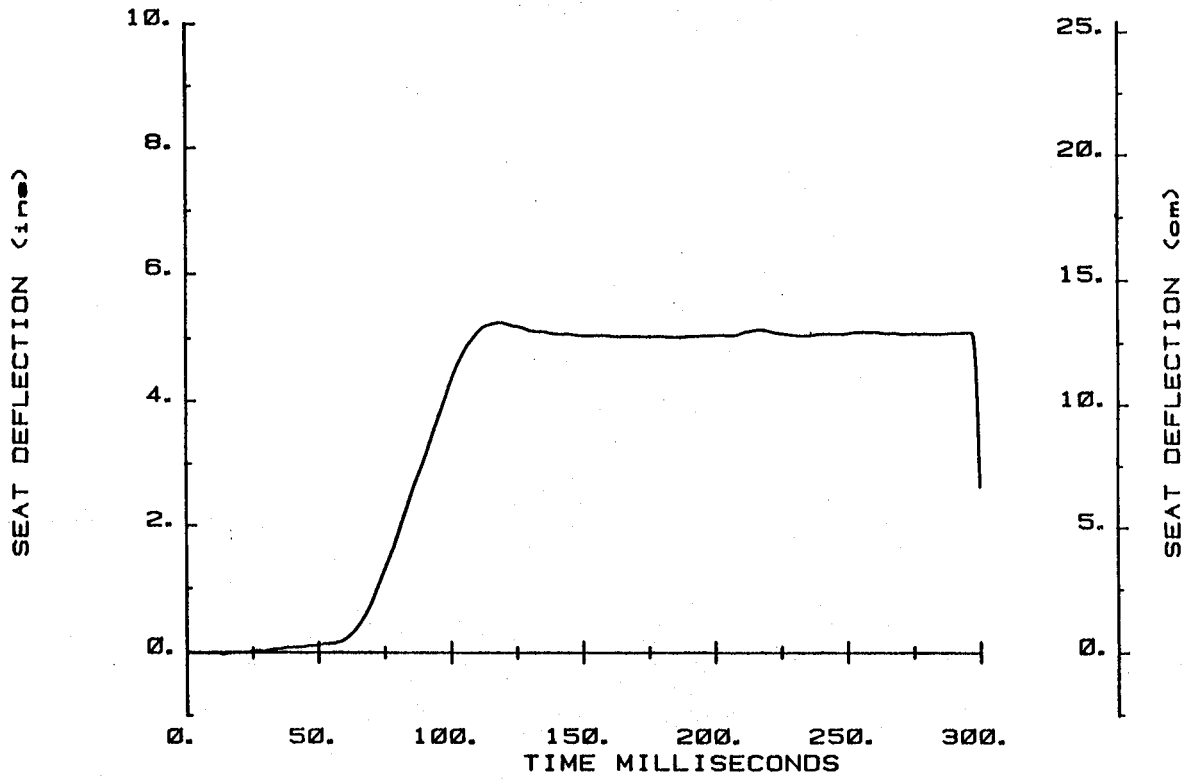
CAMI SLED TEST  
A83109

RIGHT REFLECTIVE STRAP FORCE (lb)

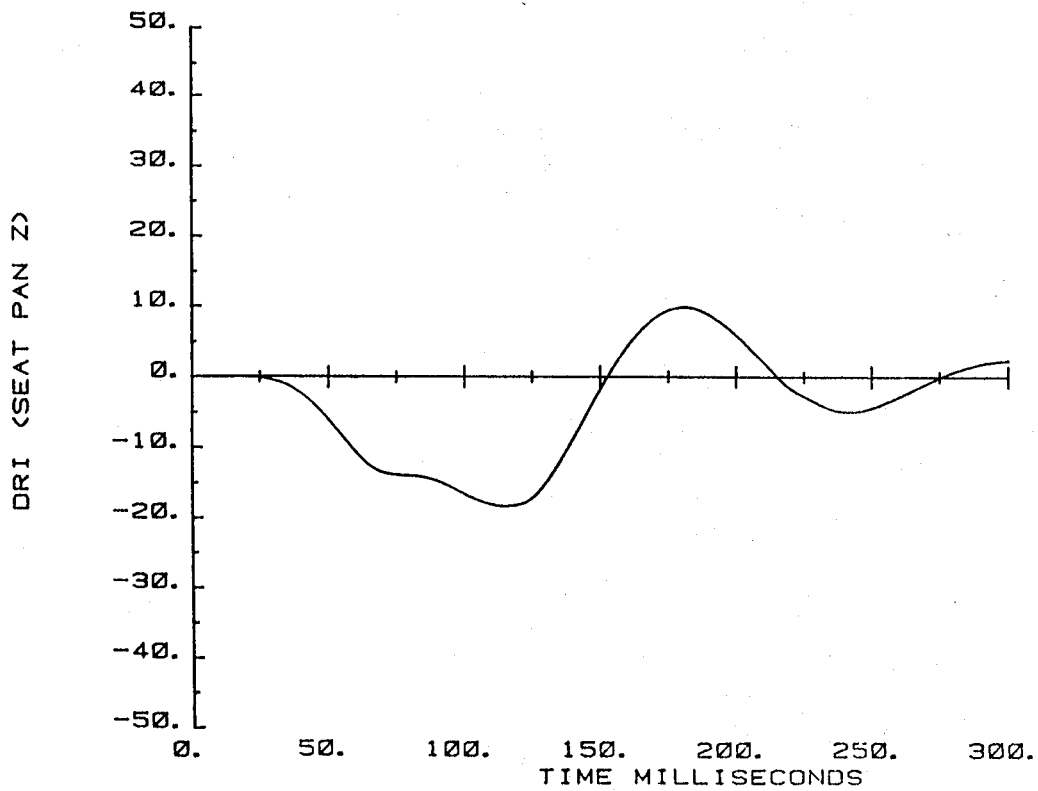


RIGHT REFLECTIVE STRAP FORCE (N)

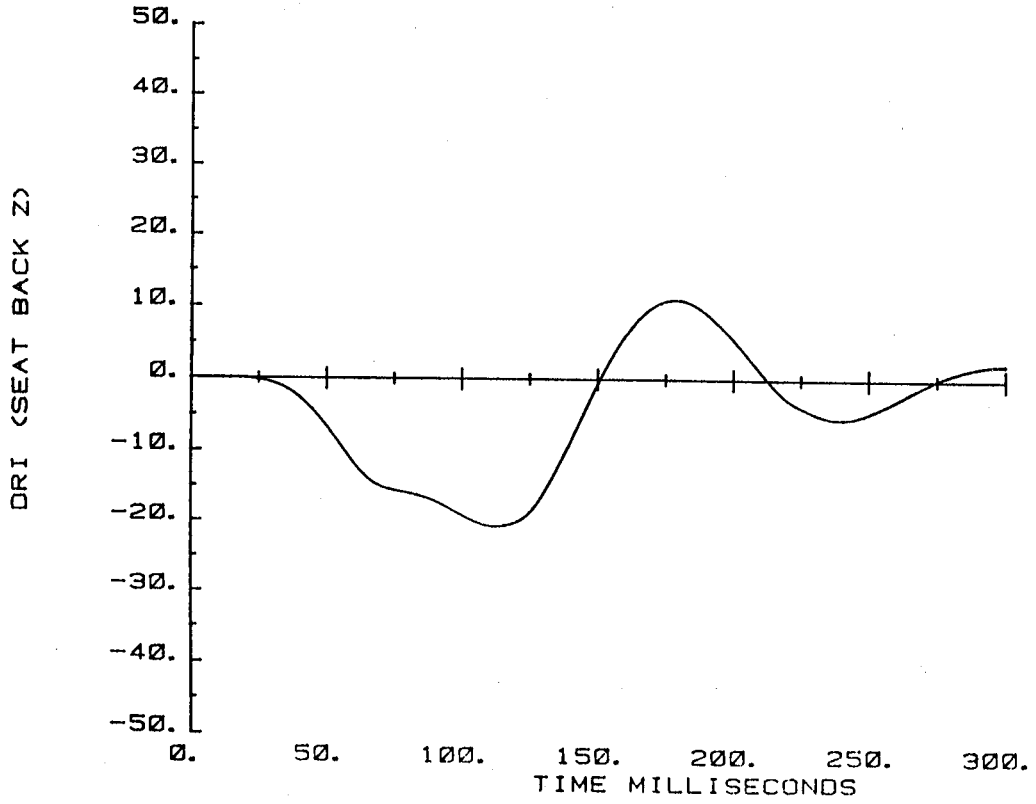
CAMI SLED TEST  
A83109



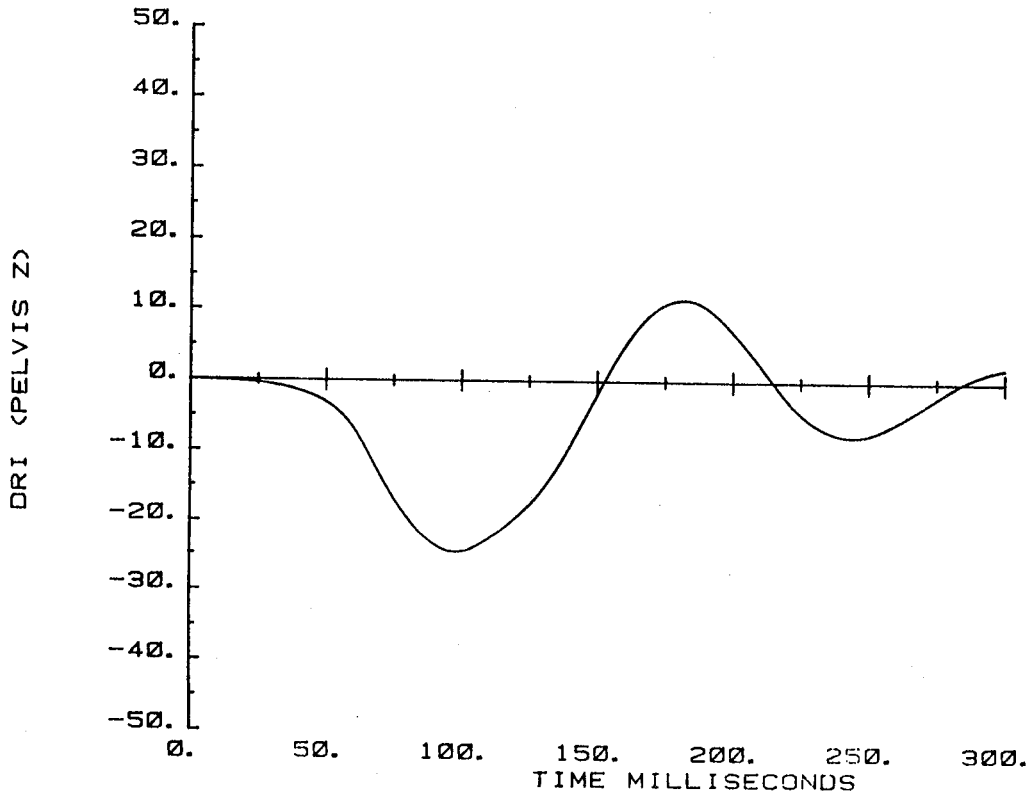
CAMI SLED TEST  
A83109



CAMI SLED TEST  
A83109



CAMI SLED TEST  
A83109



8.0 CAMI TEST NO. A83-110

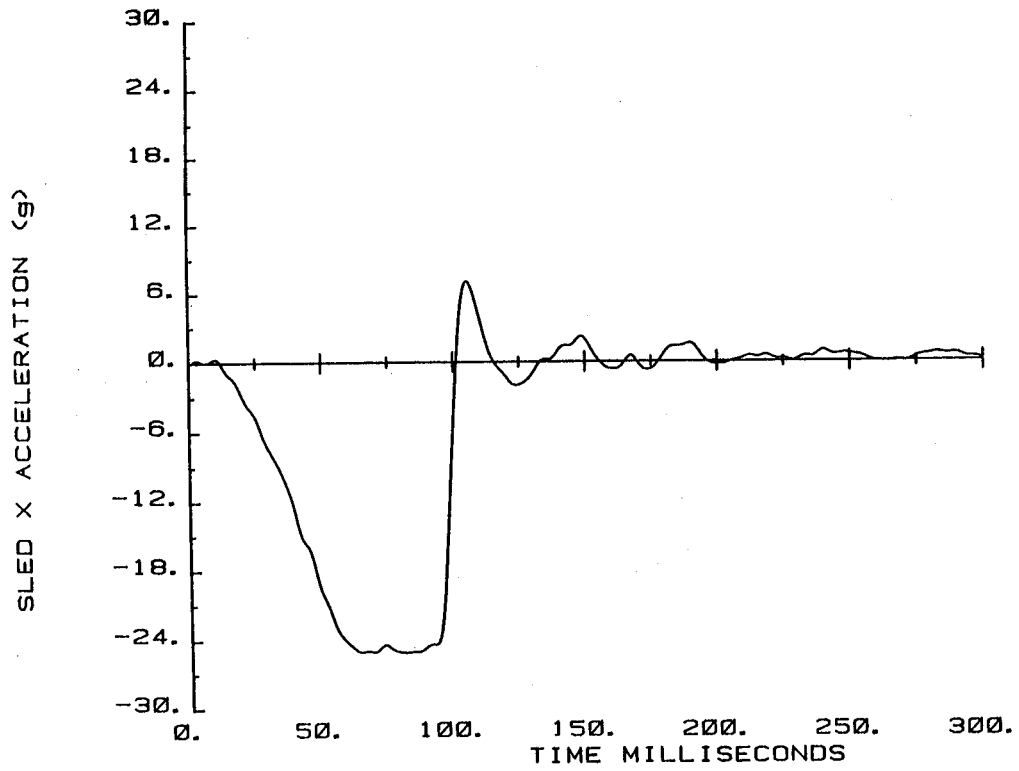
SEAT: Energy Absorbing

PULSE NUMBER: 3

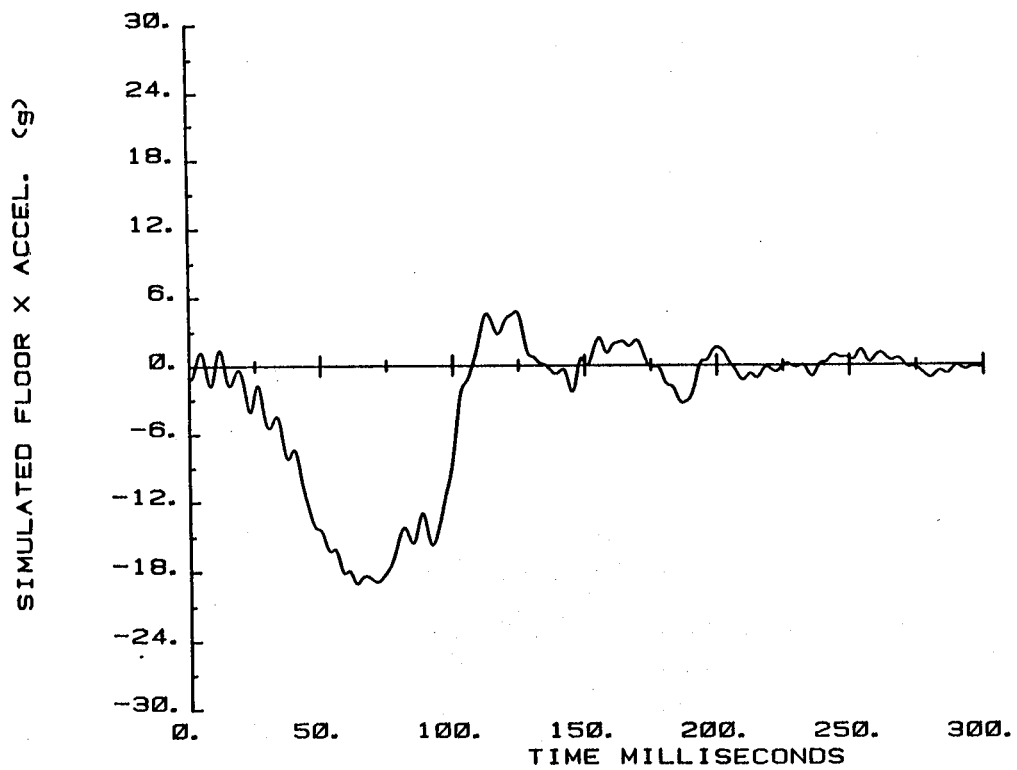
SEAT ORIENTATION: Pitch - 40°  
Roll - 0°  
Yaw - 30°

| RUN#   | VARIABLE                     | 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  | 98    |        |       | ( 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)      | 30.9   | 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

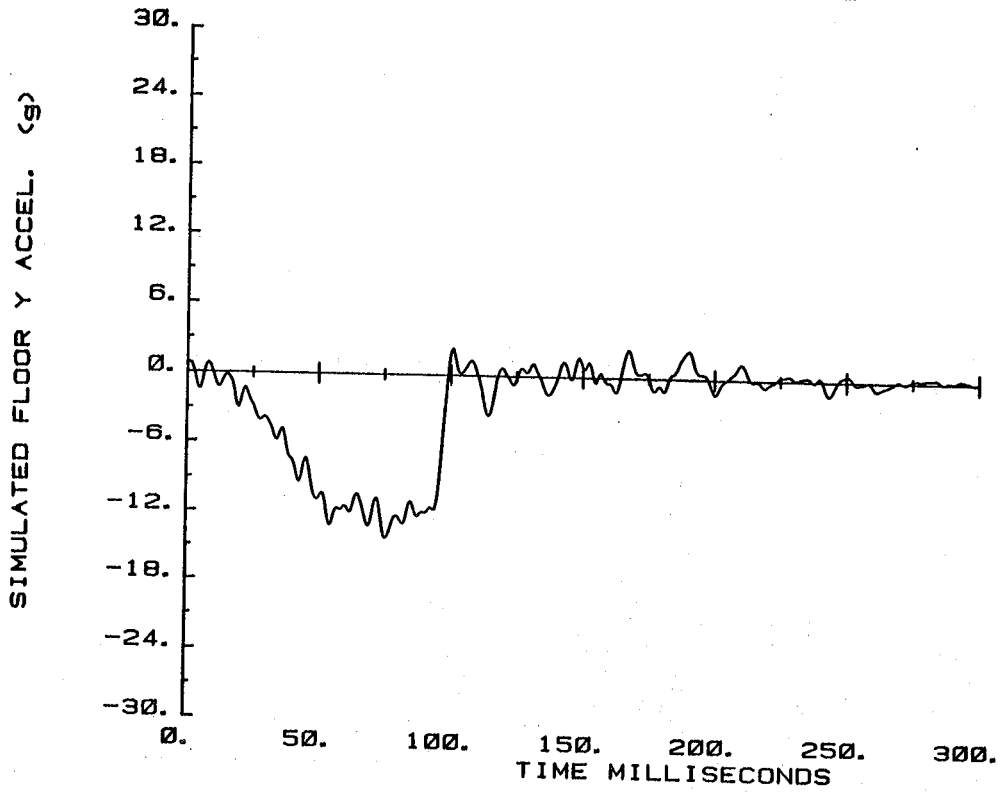


CAMI SLED TEST  
A83110

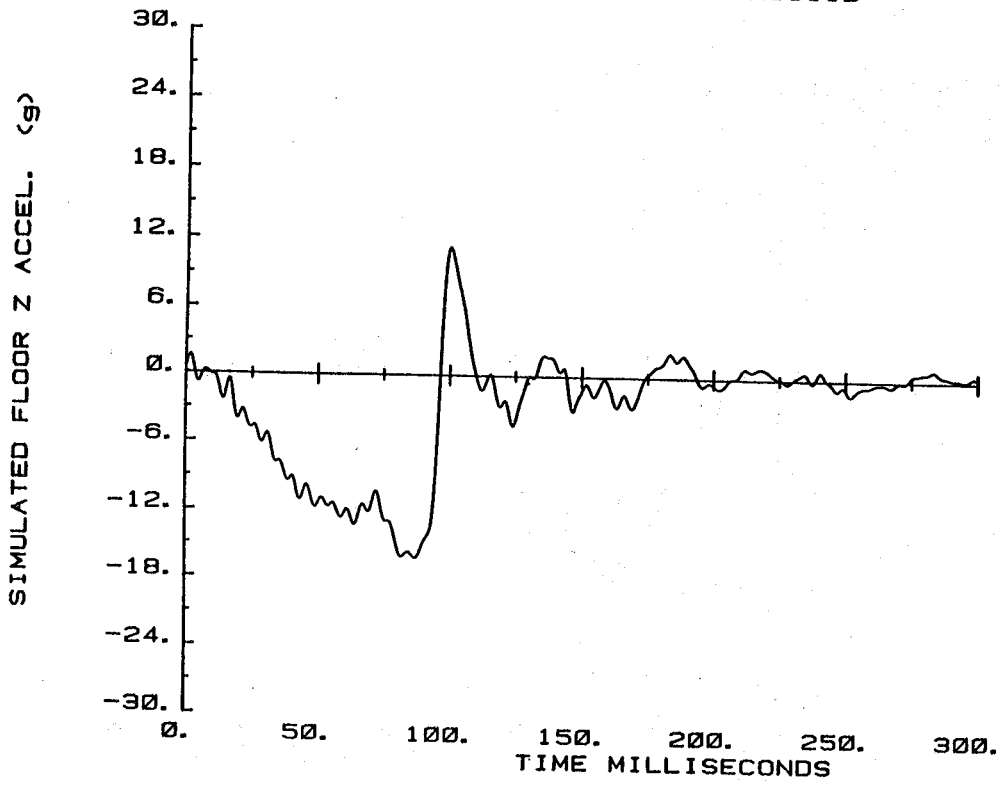




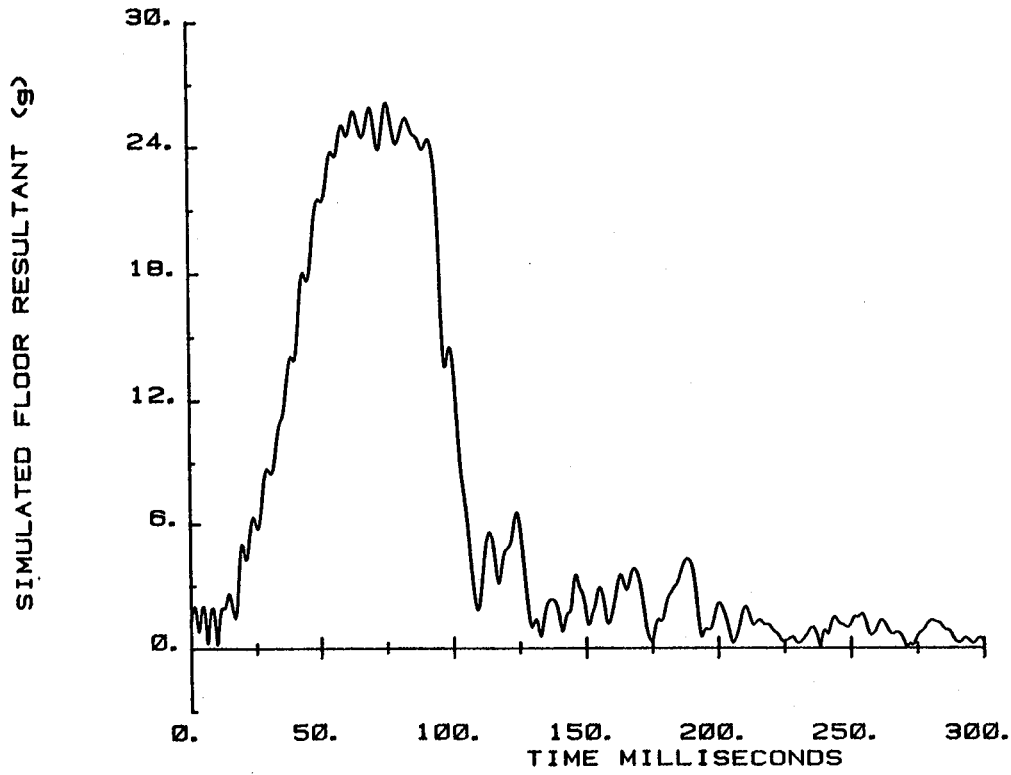
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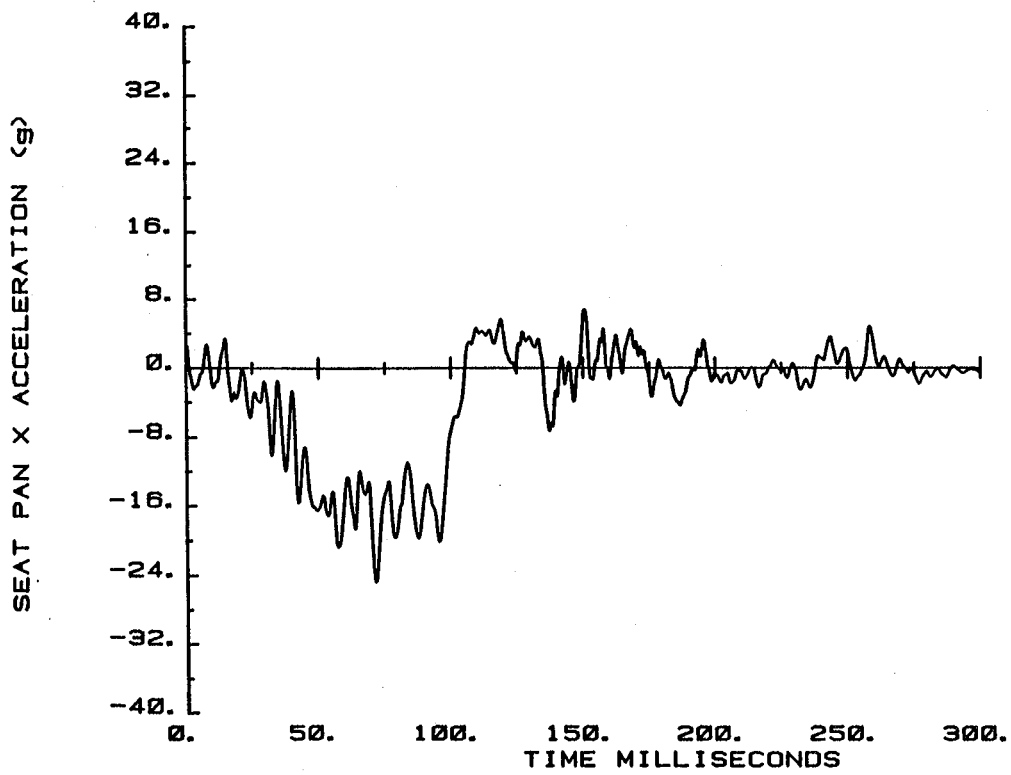
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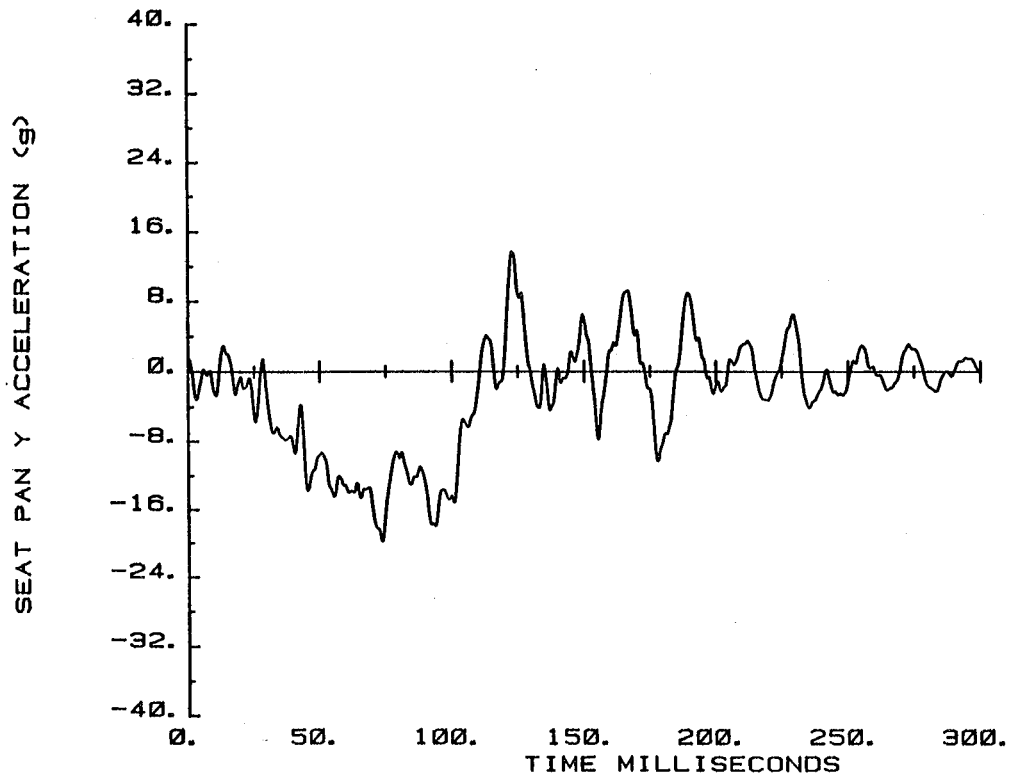
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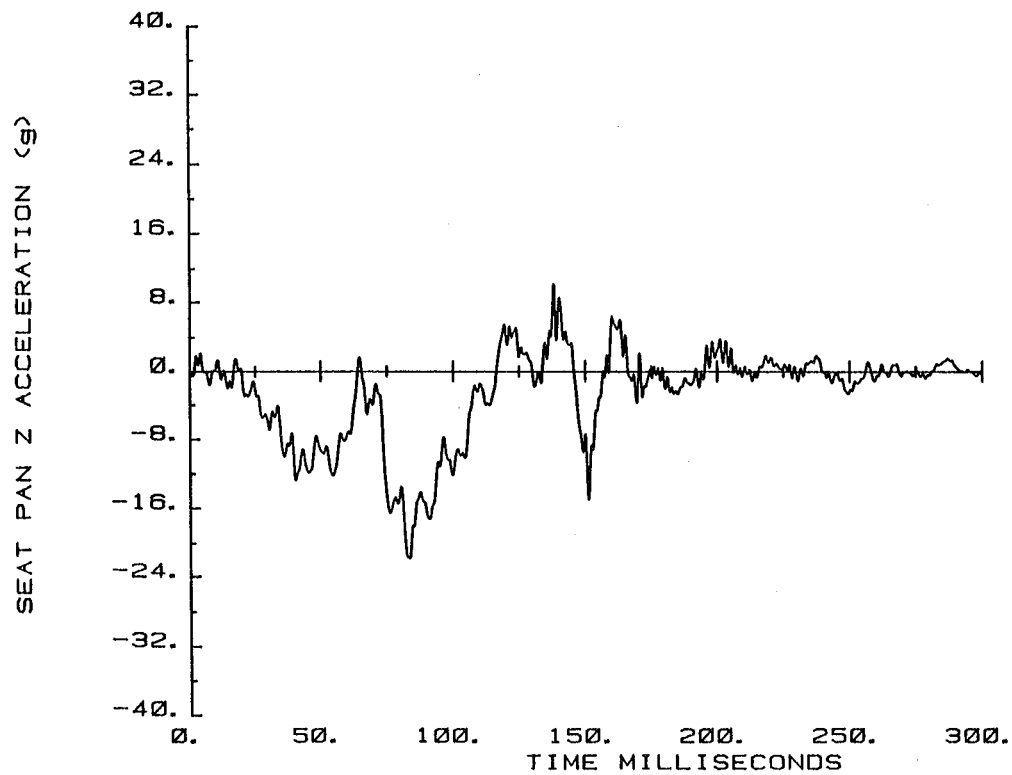
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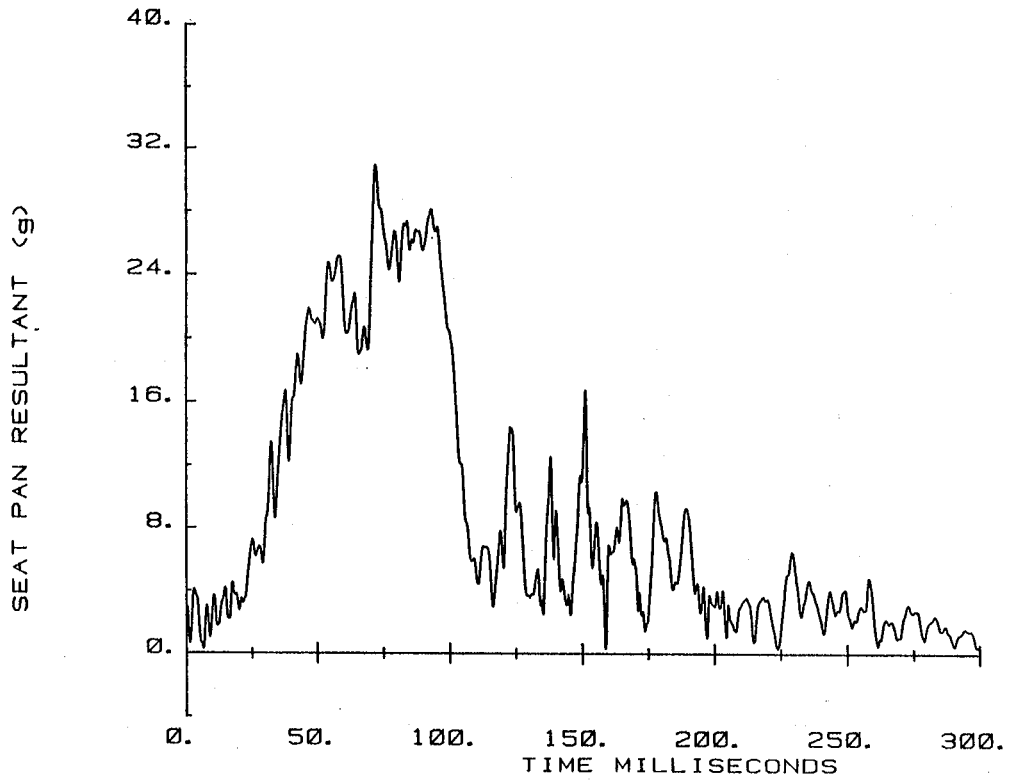
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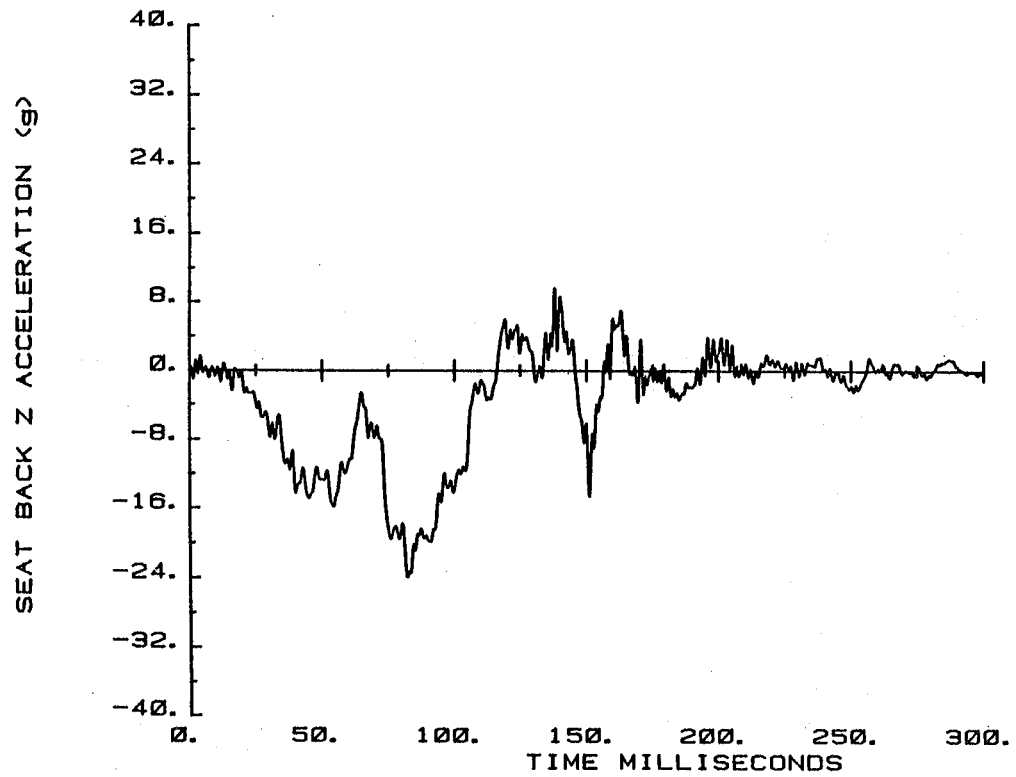
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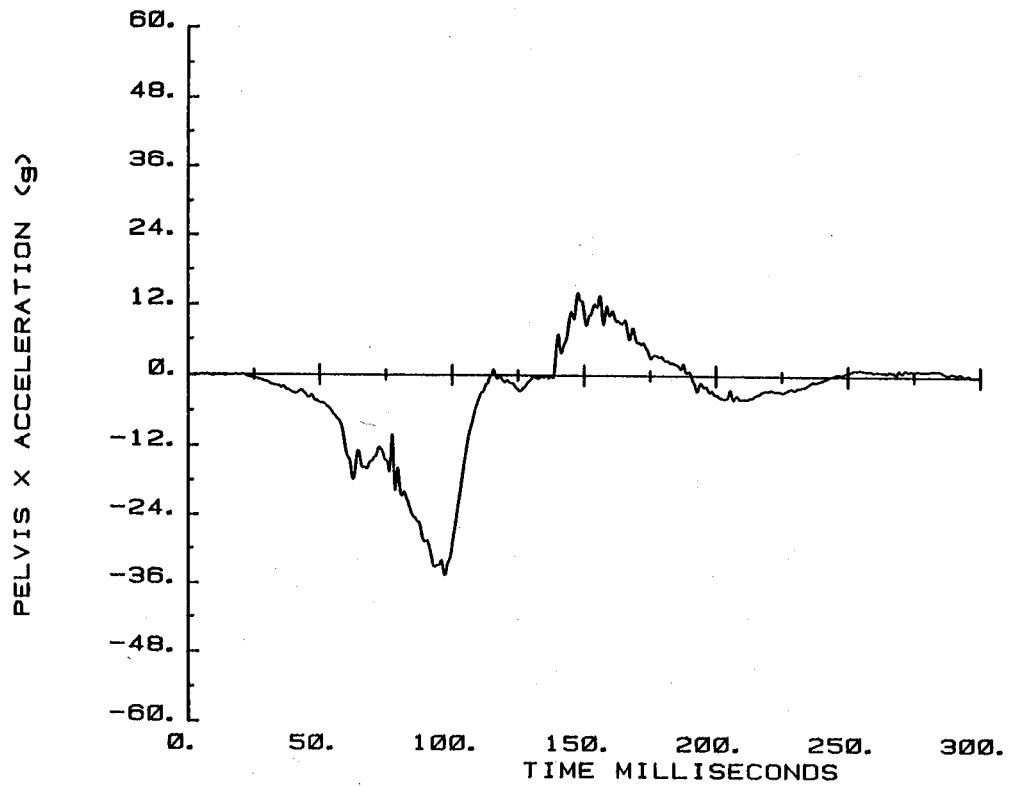
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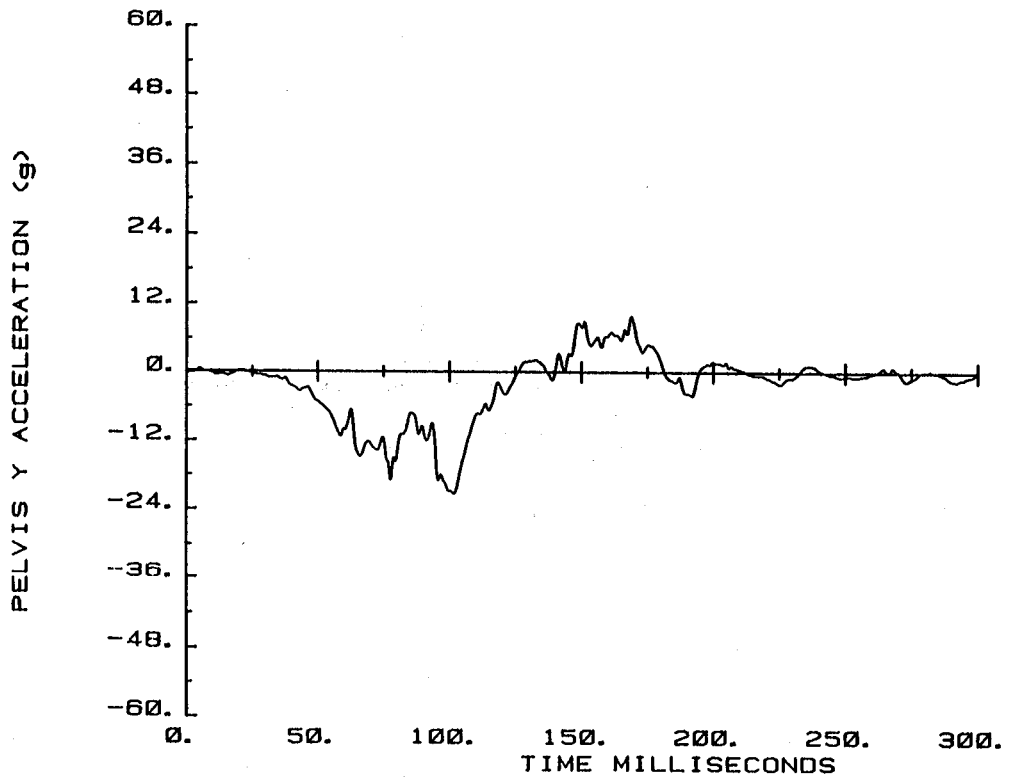
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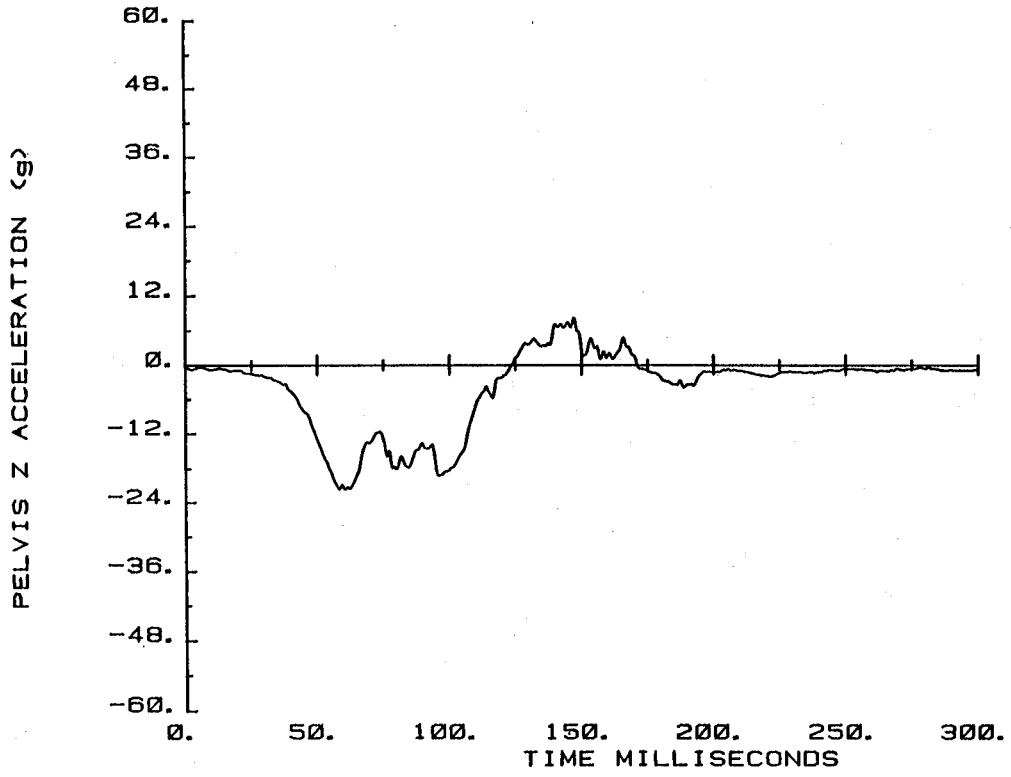
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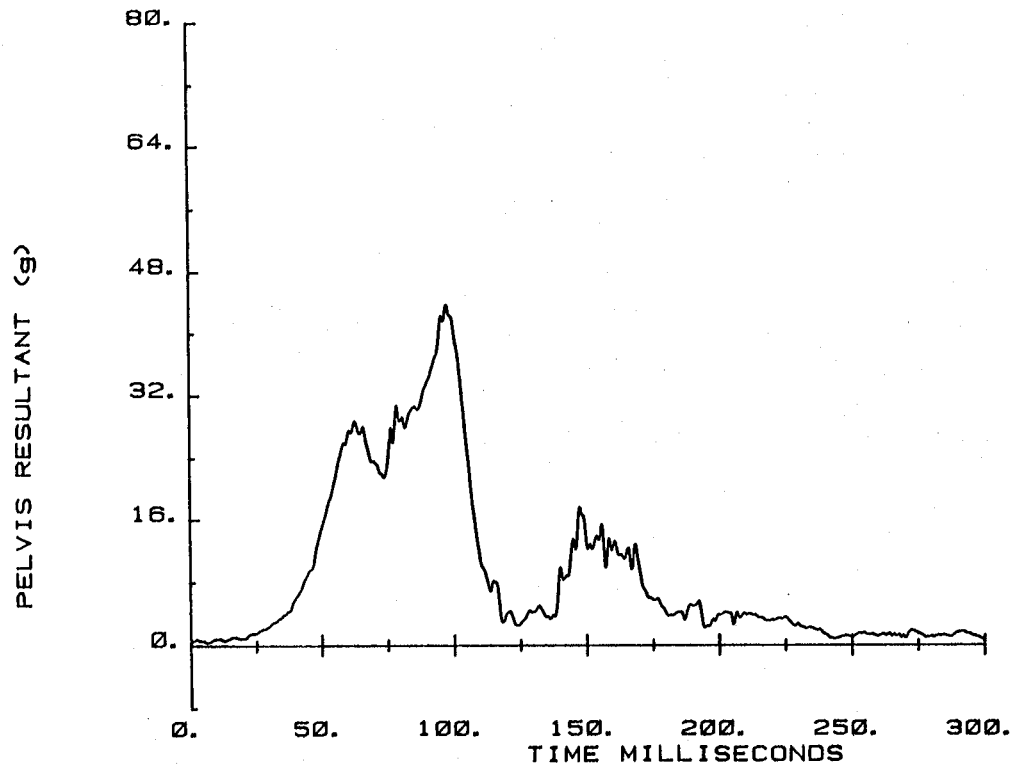
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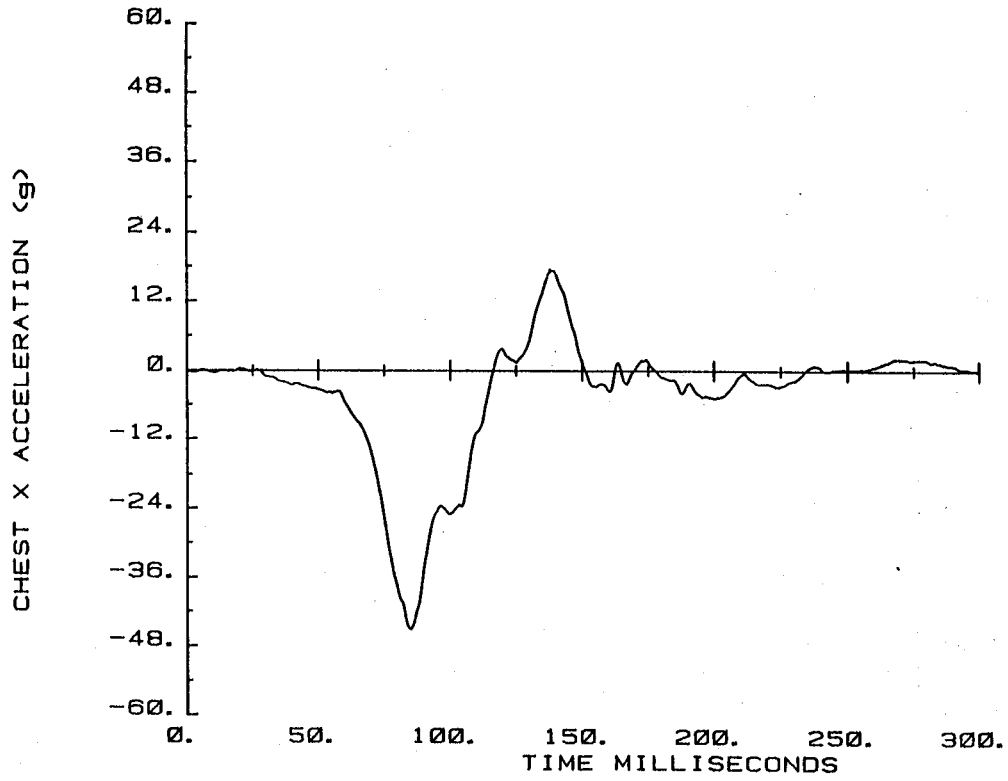
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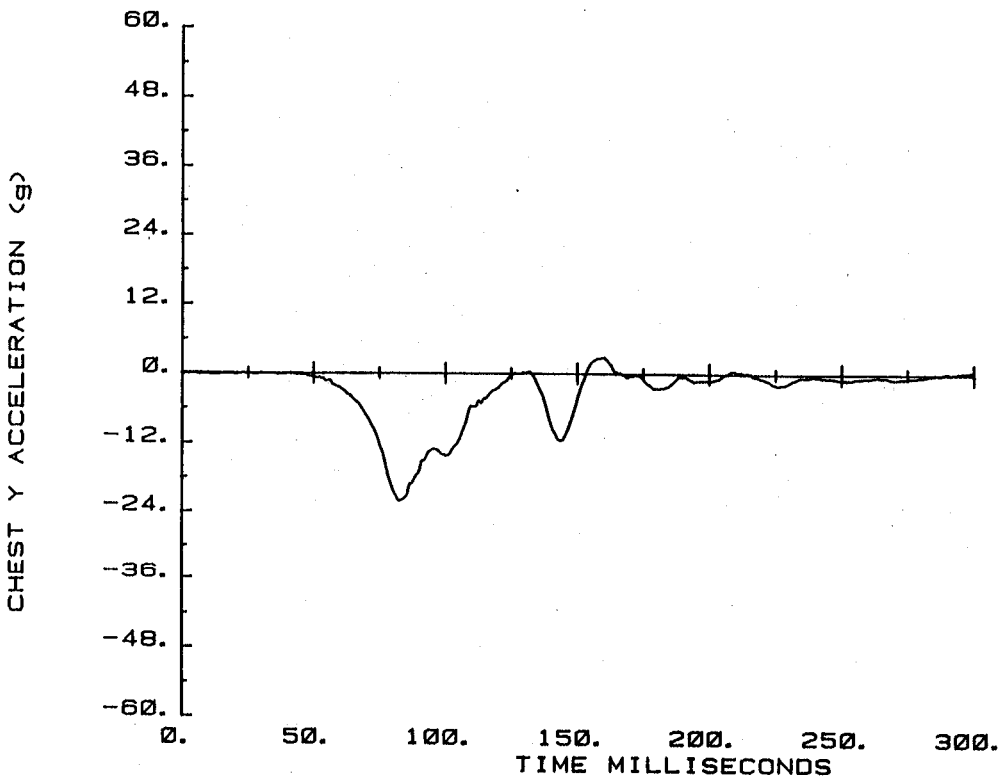
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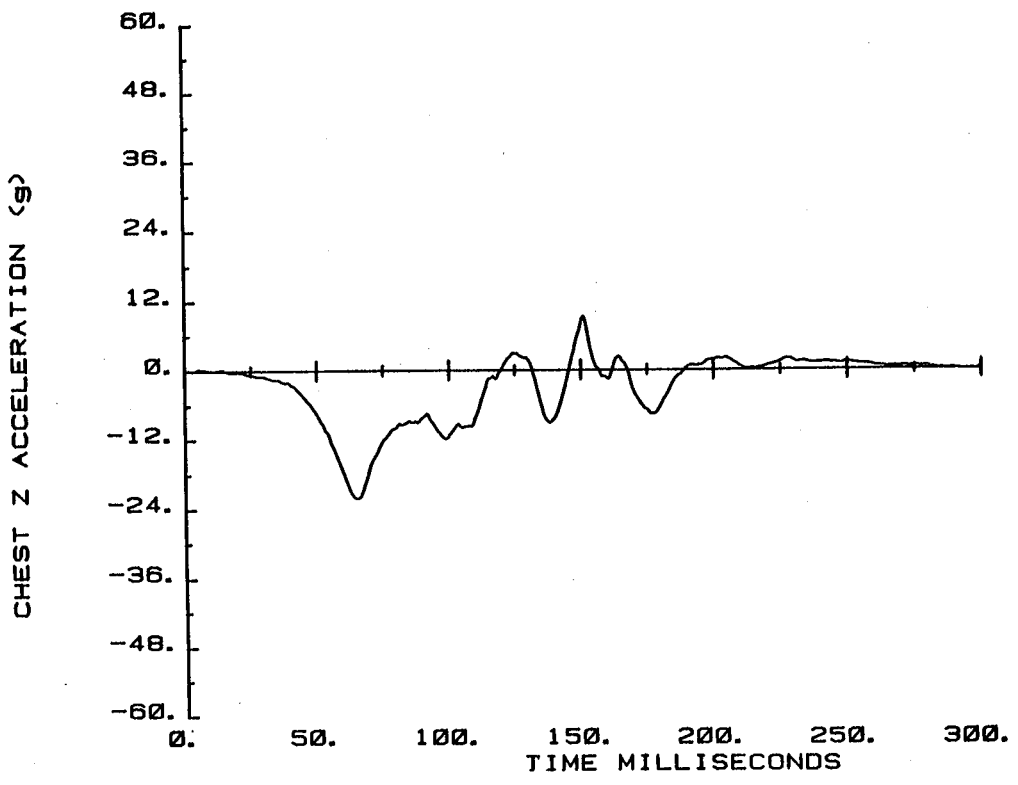
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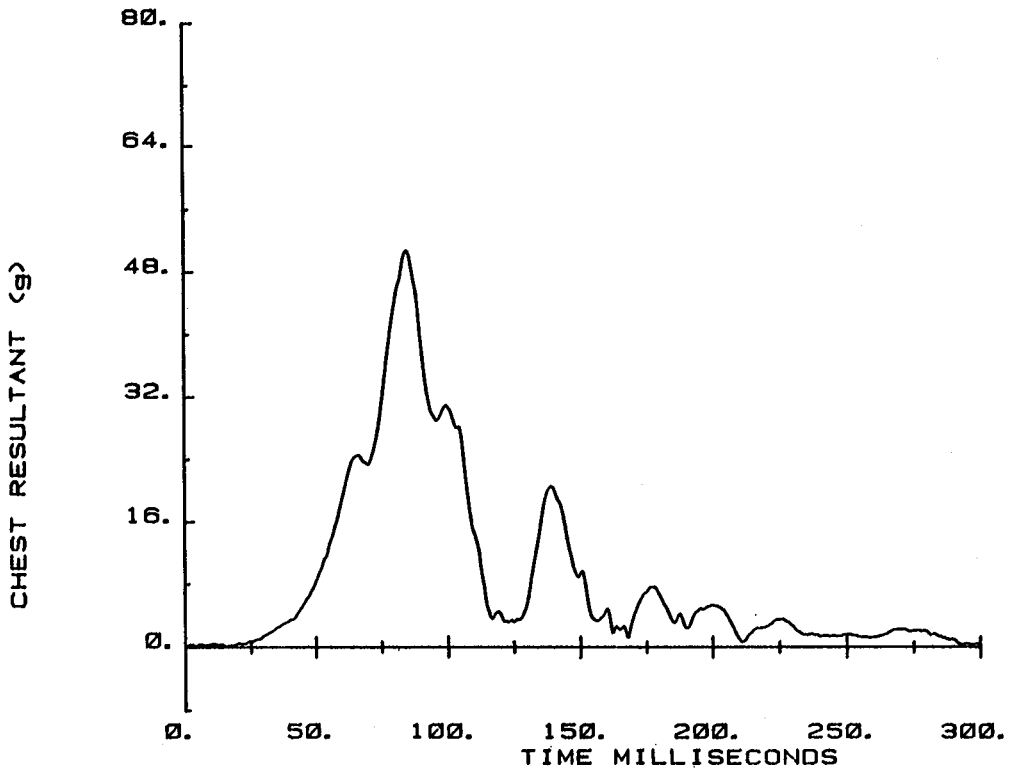
CAMI SLED TEST  
A83110



CAMI SLED TEST  
A83110

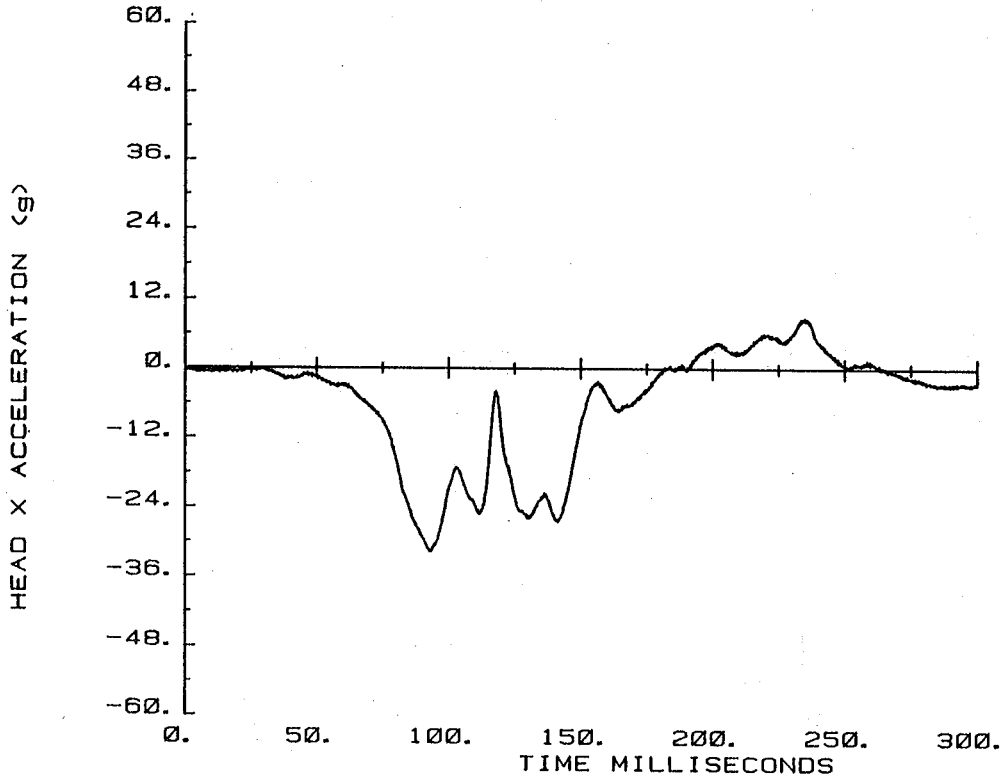


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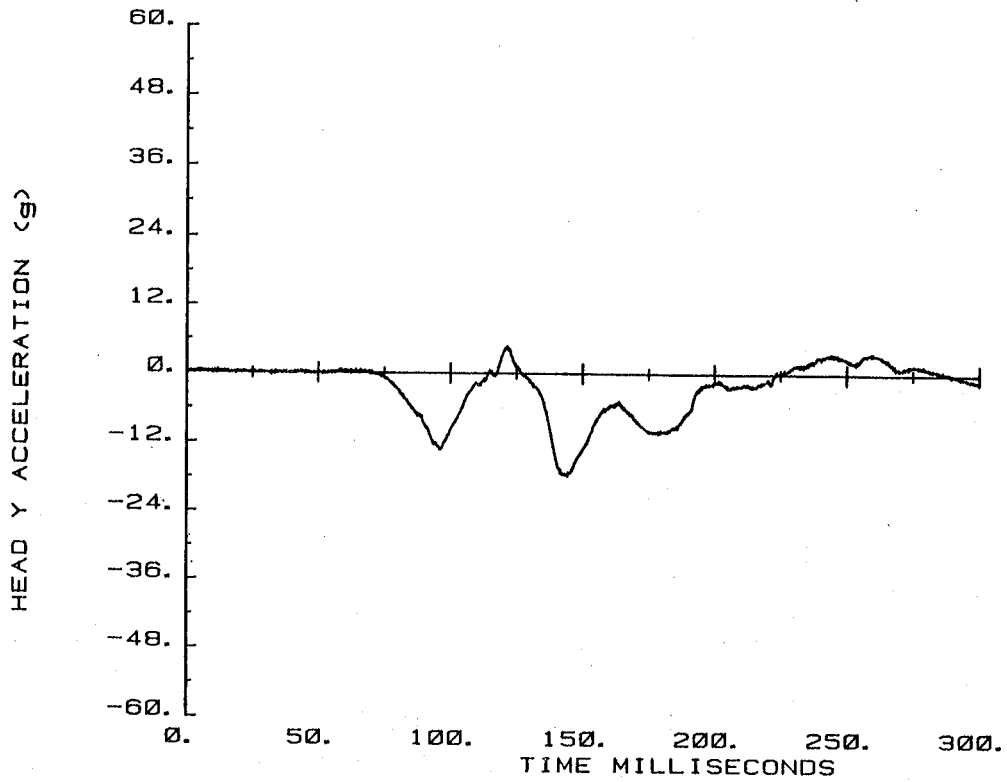




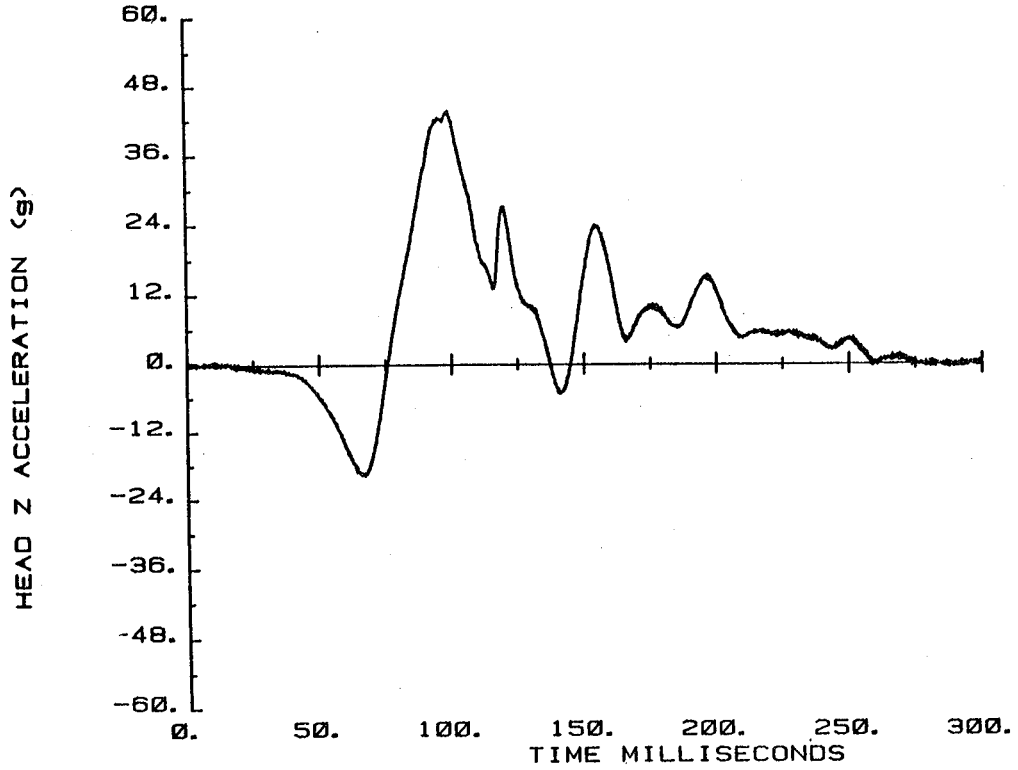
CAMI SLED TEST  
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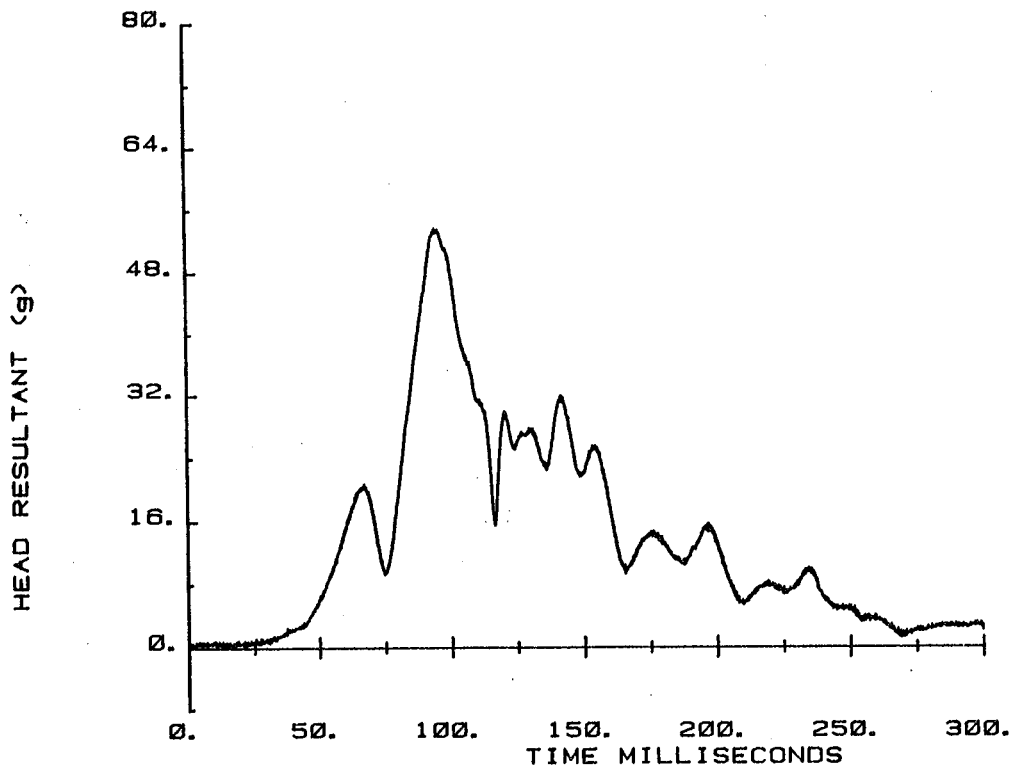
CAMI SLED TEST  
A83110



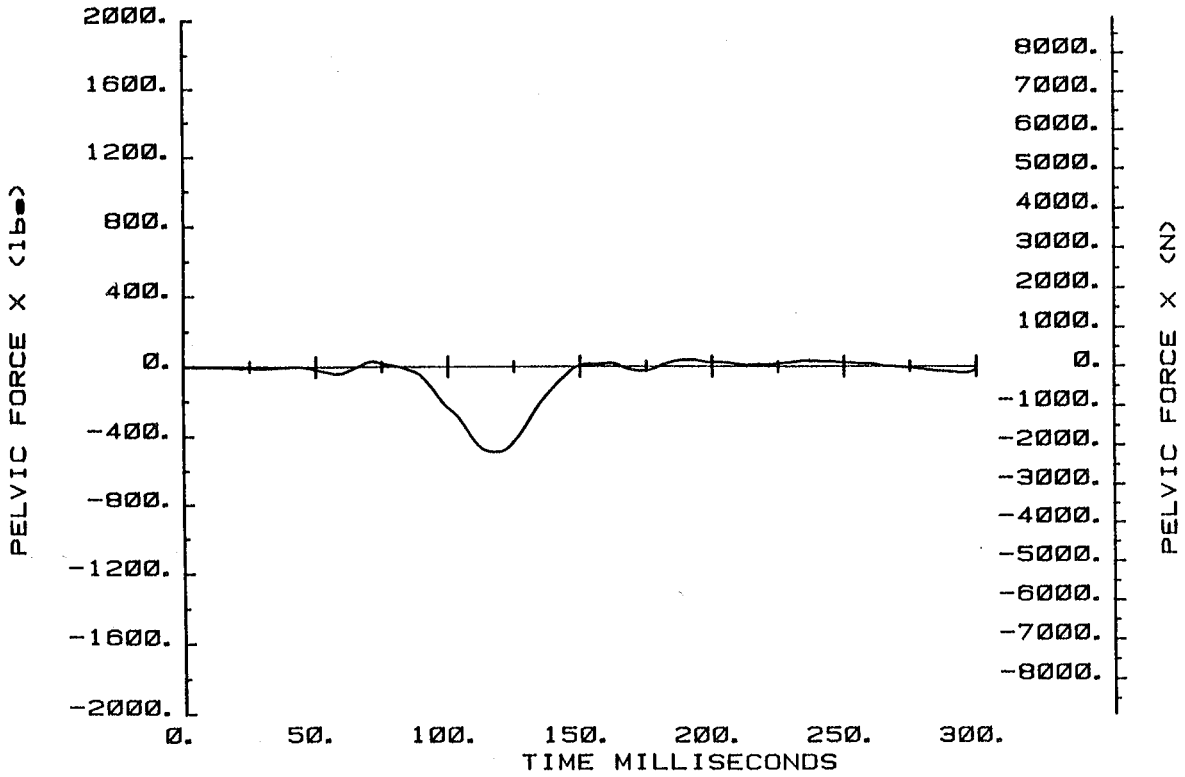
CAMI SLED TEST  
A83110



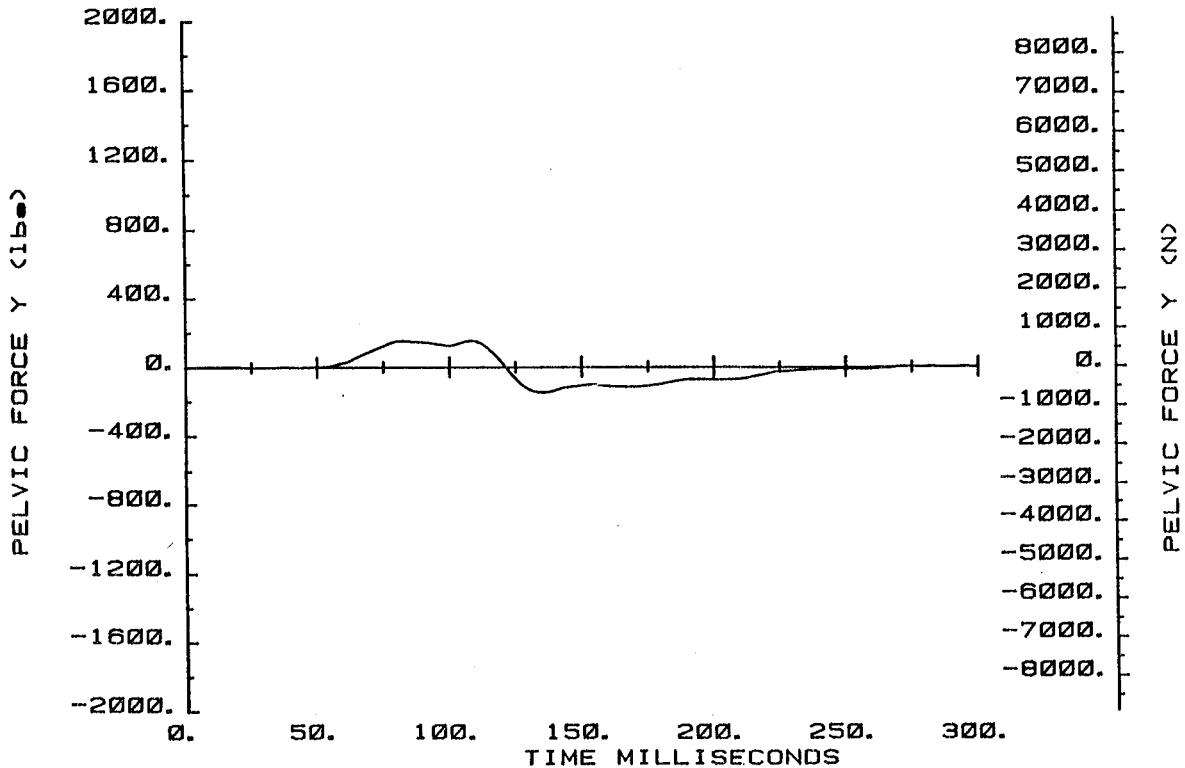
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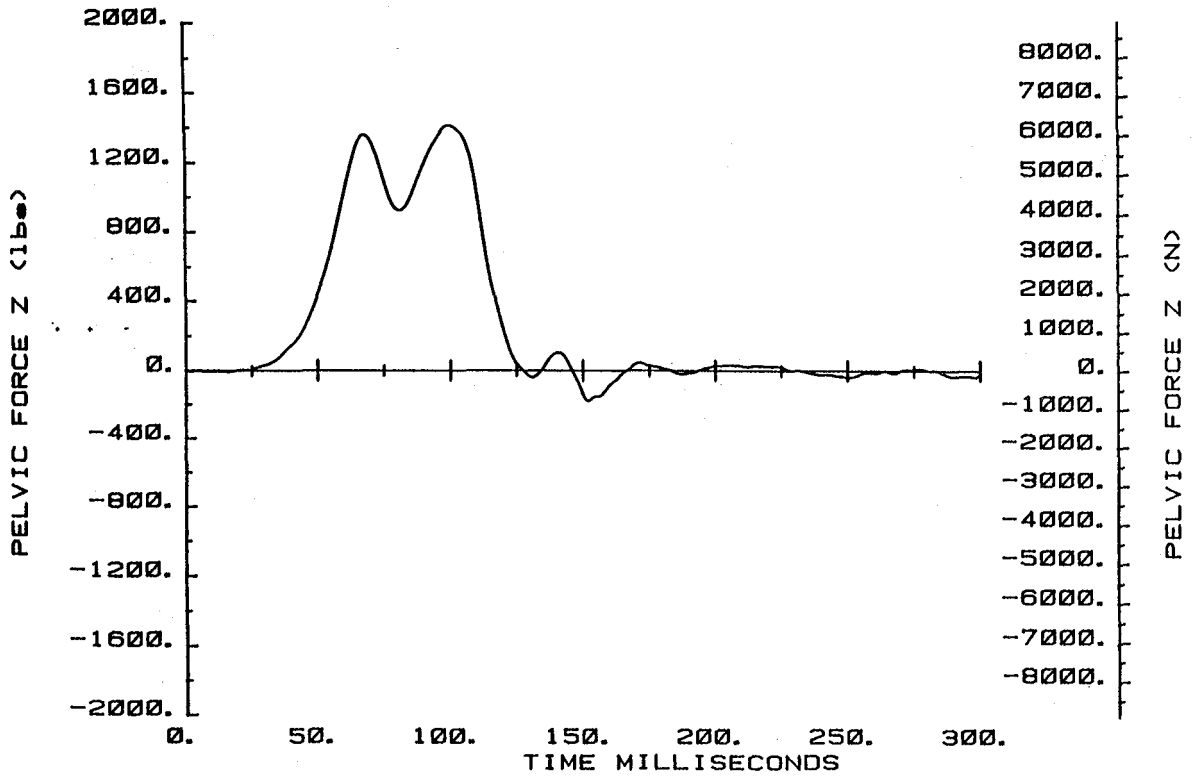
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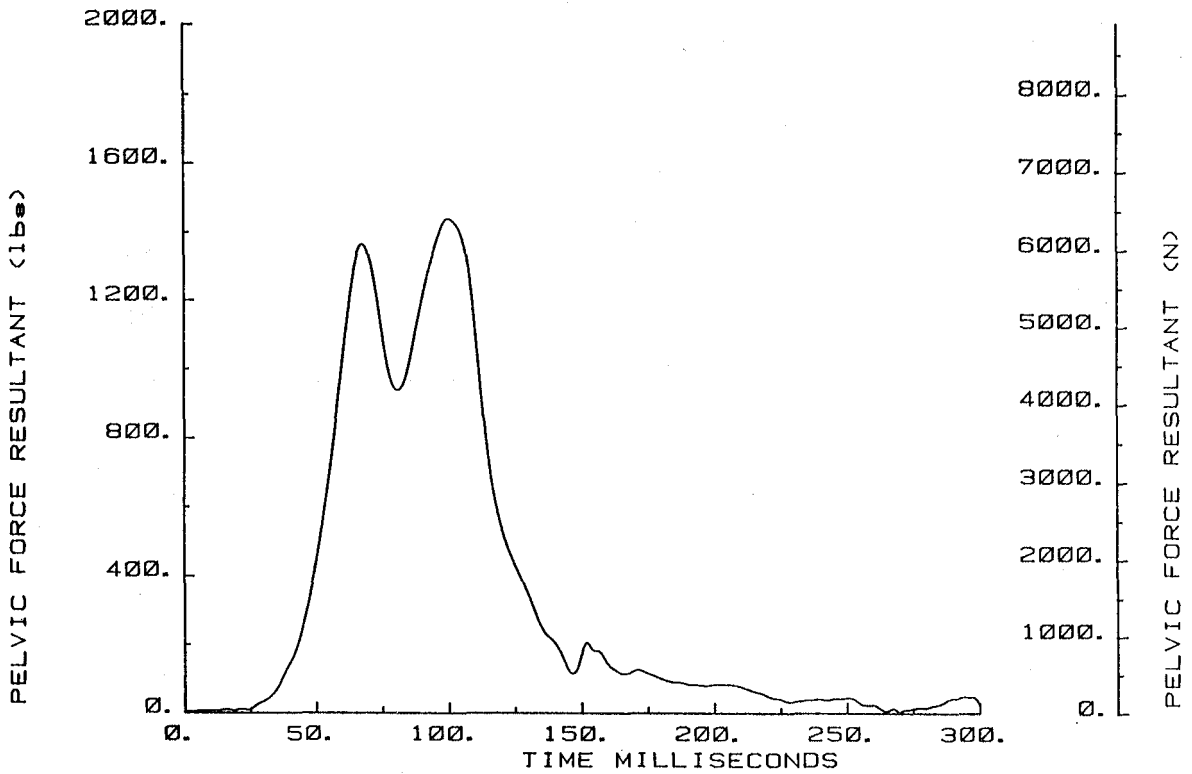
CAMI SLED TEST  
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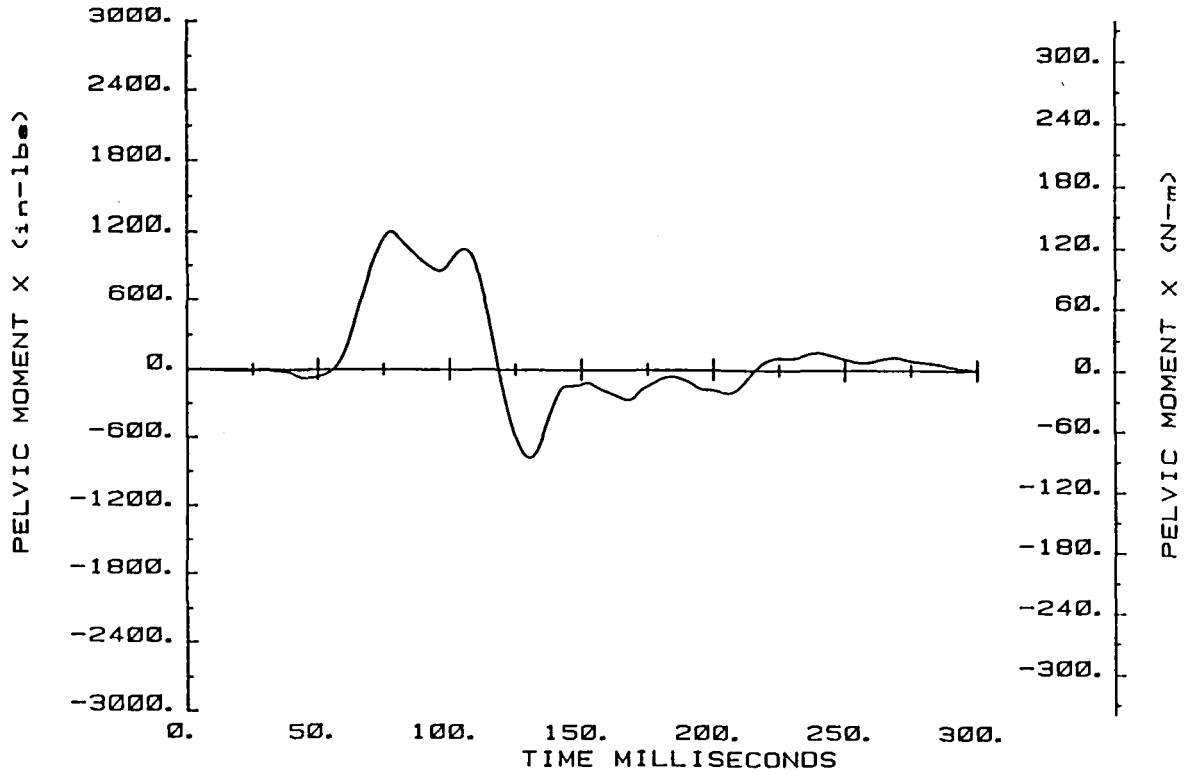
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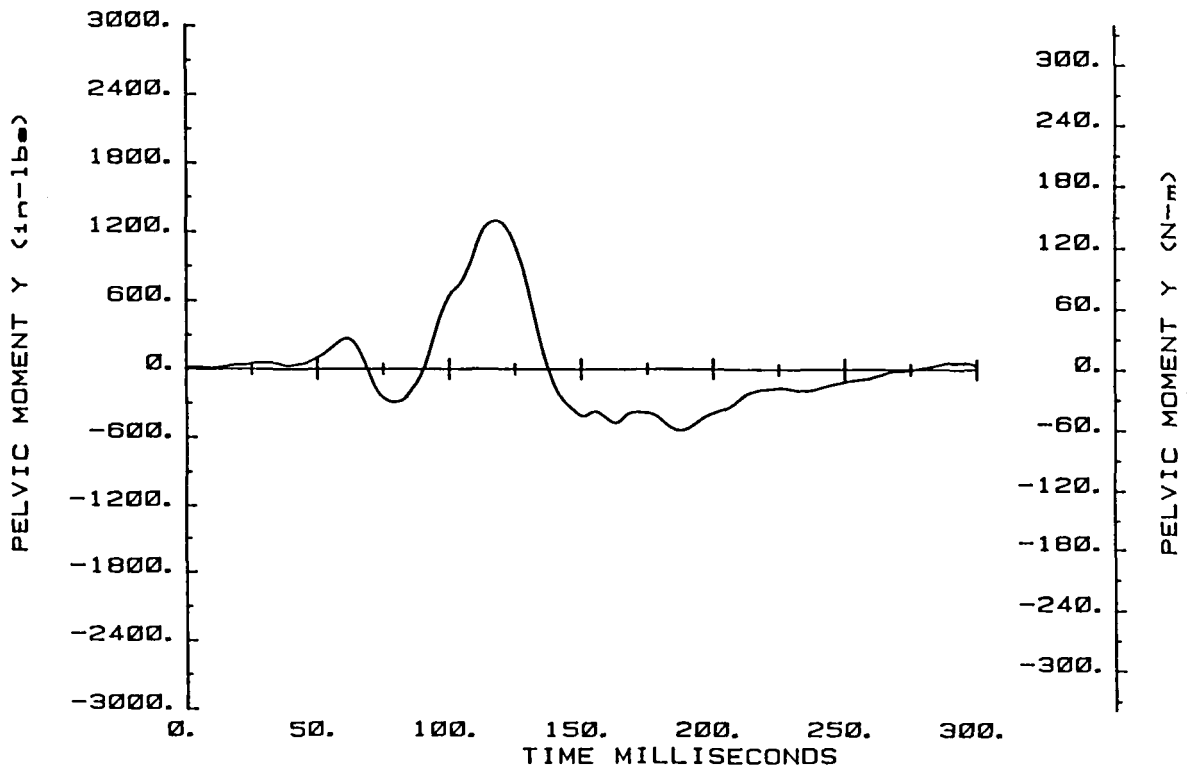
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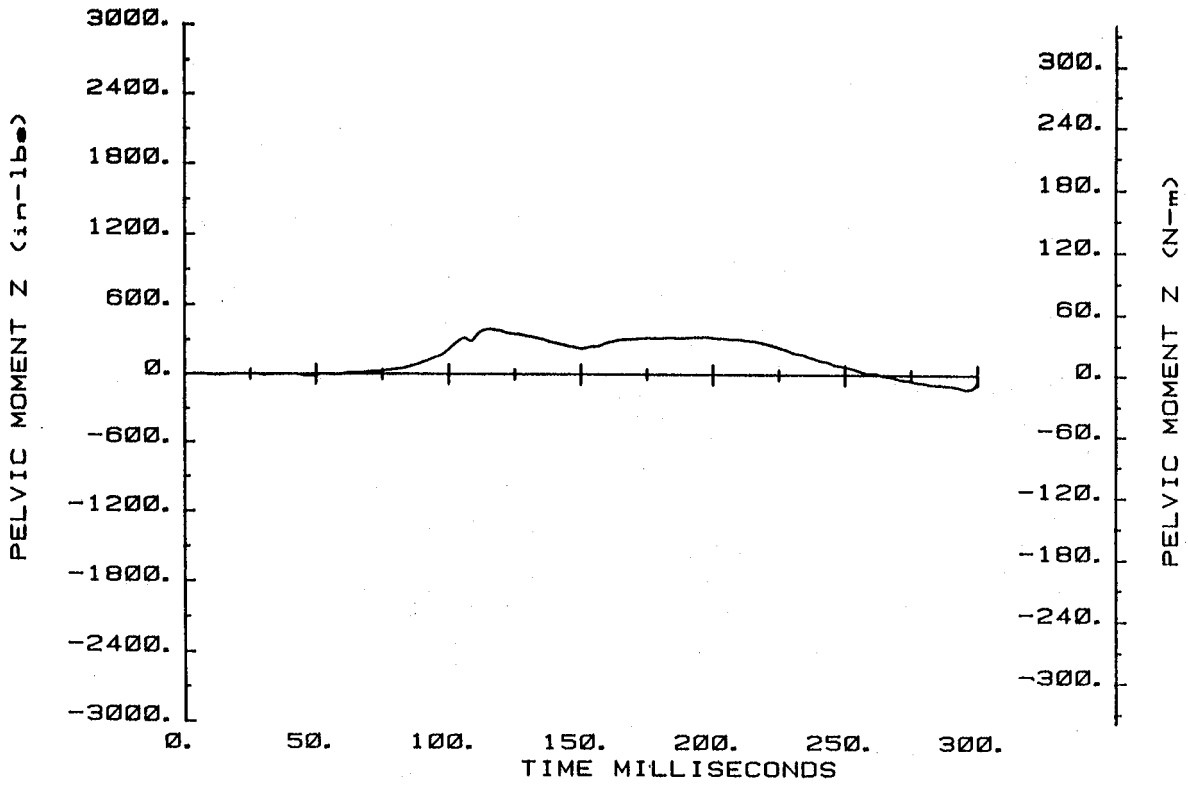
CAMI SLED TEST  
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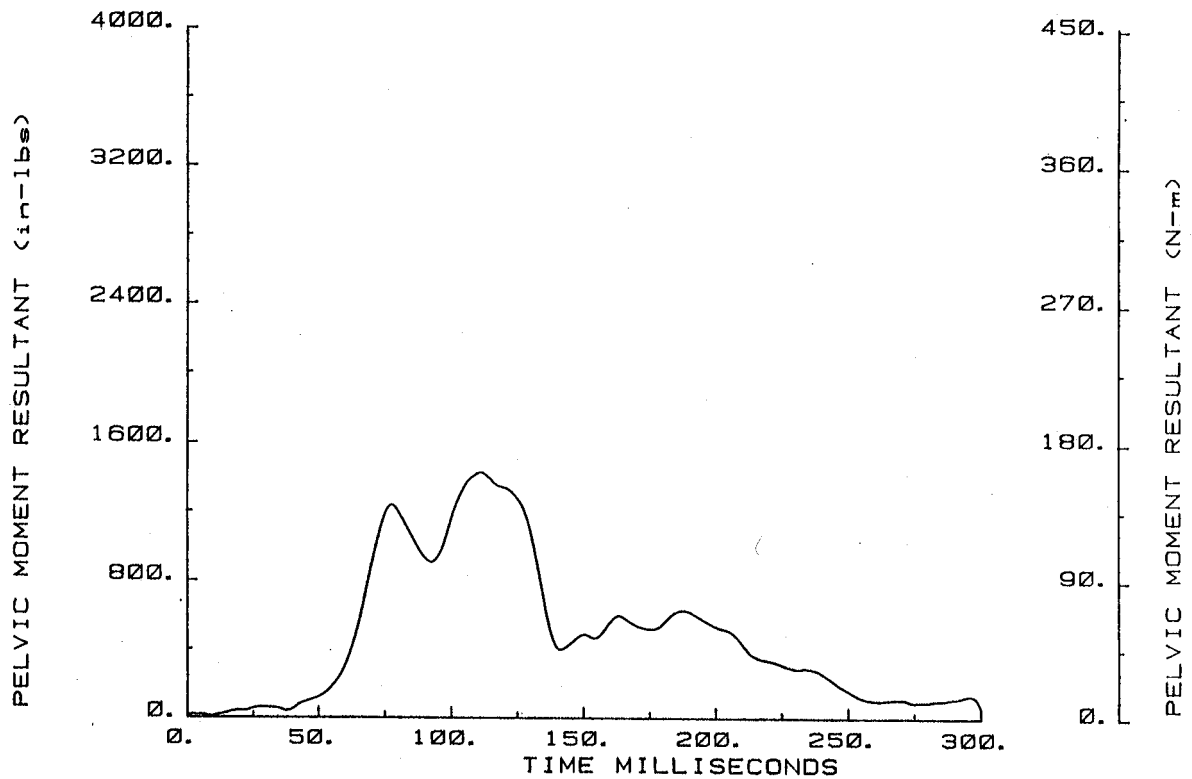
CAMI SLED TEST  
A83110



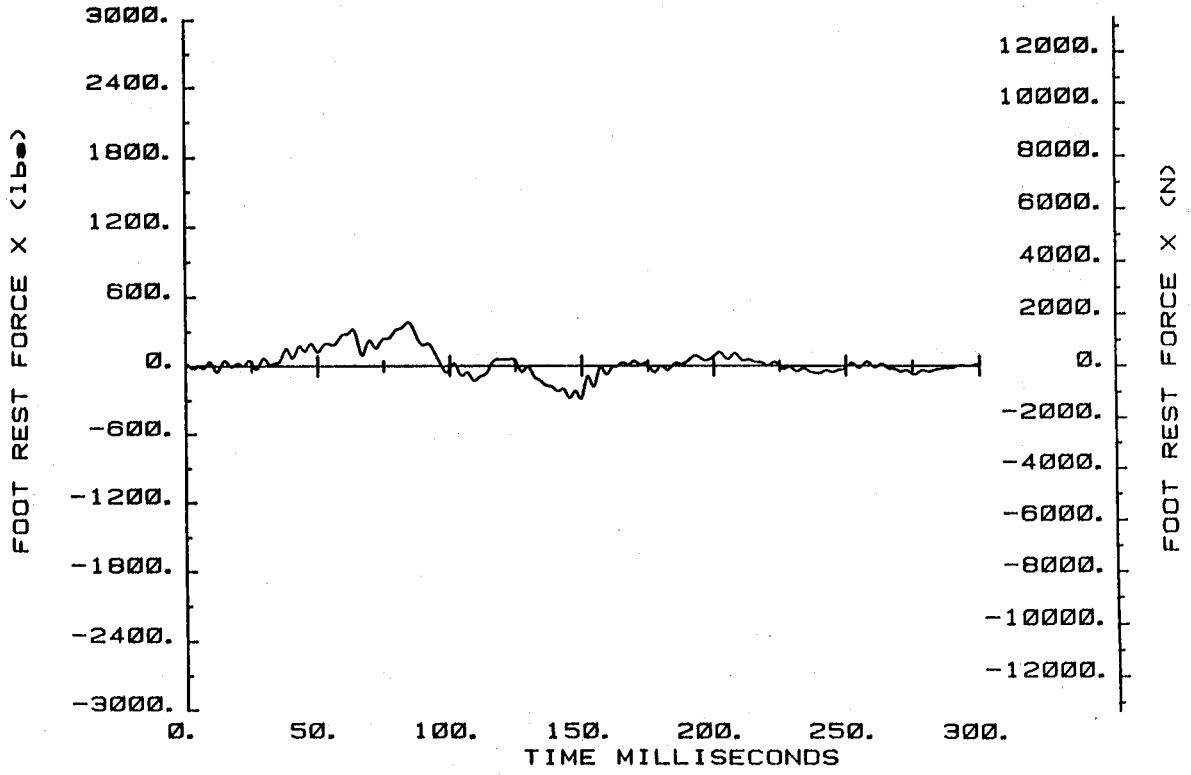
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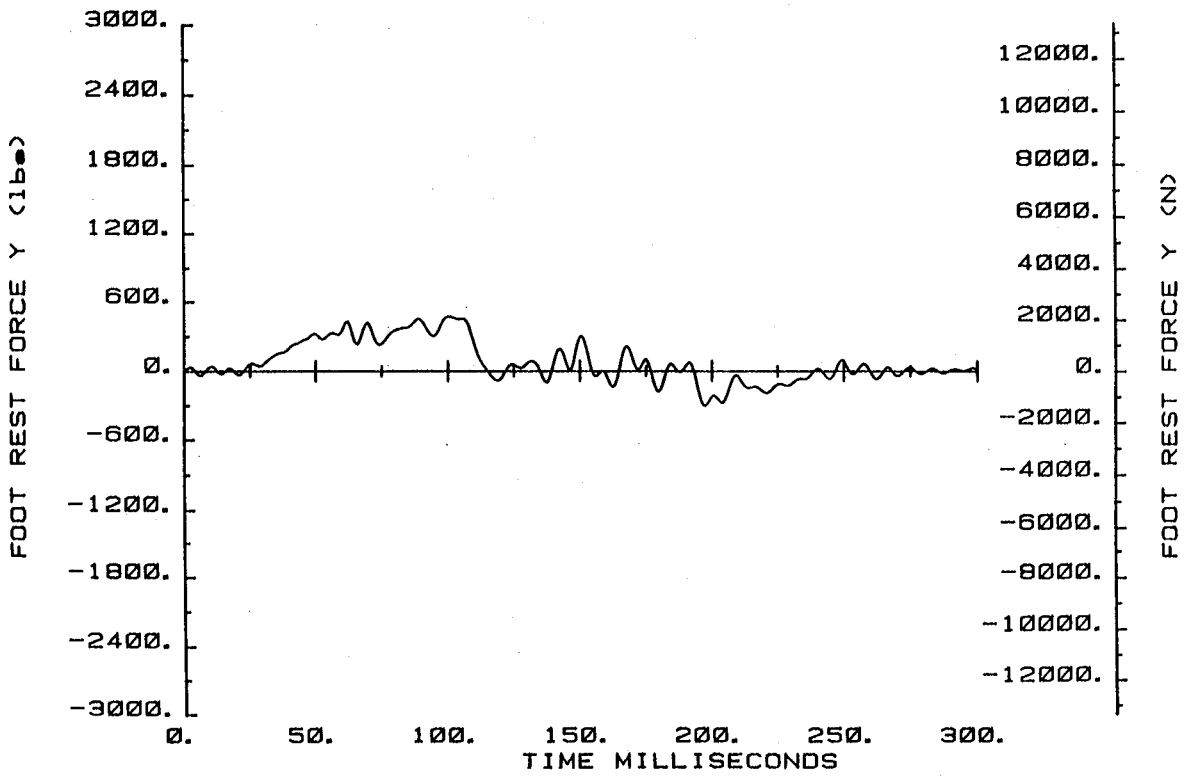
CAMI SLED TEST  
A83110



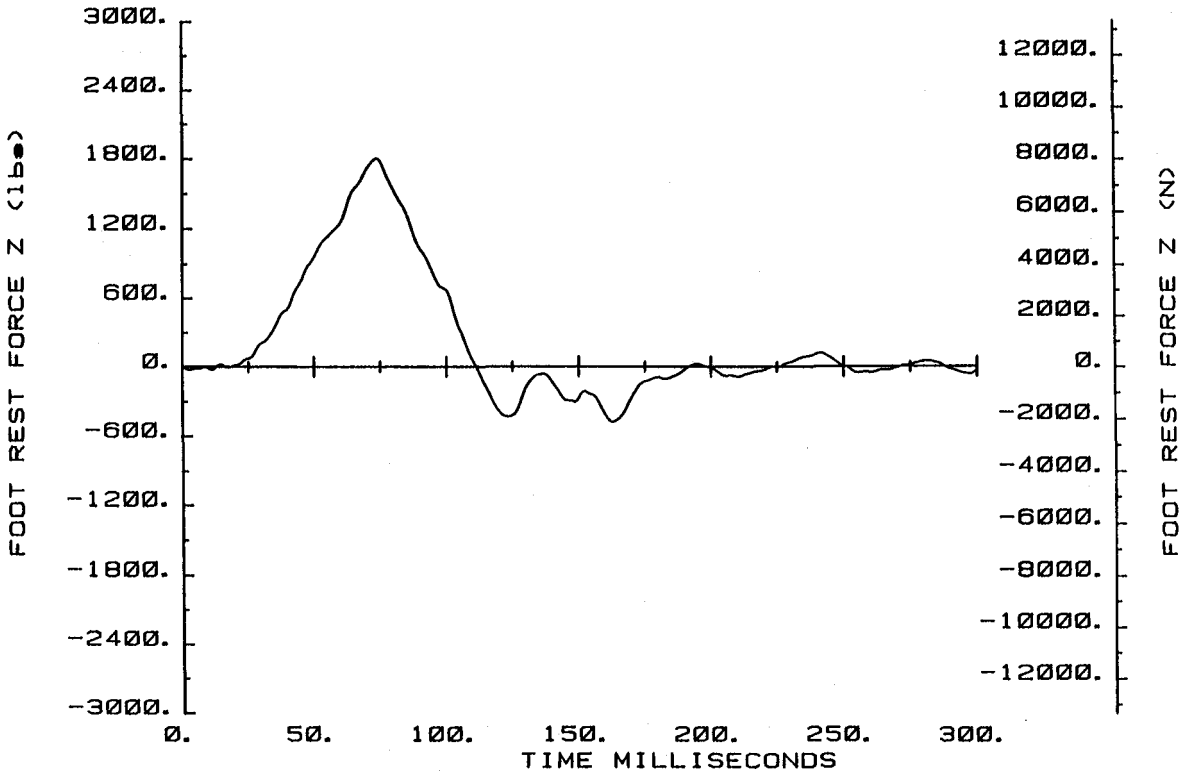
CAMI SLED TEST  
A83110



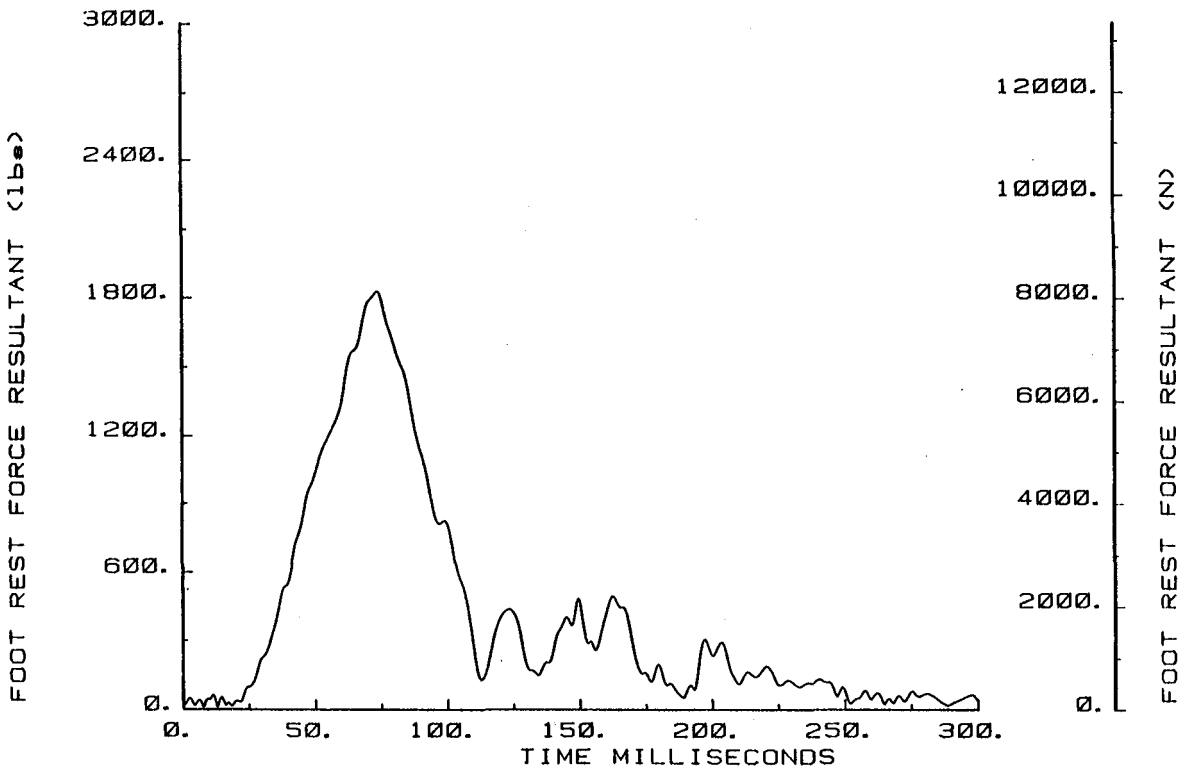
CAMI SLED TEST  
A83110



CAMI SLED TEST  
A83110

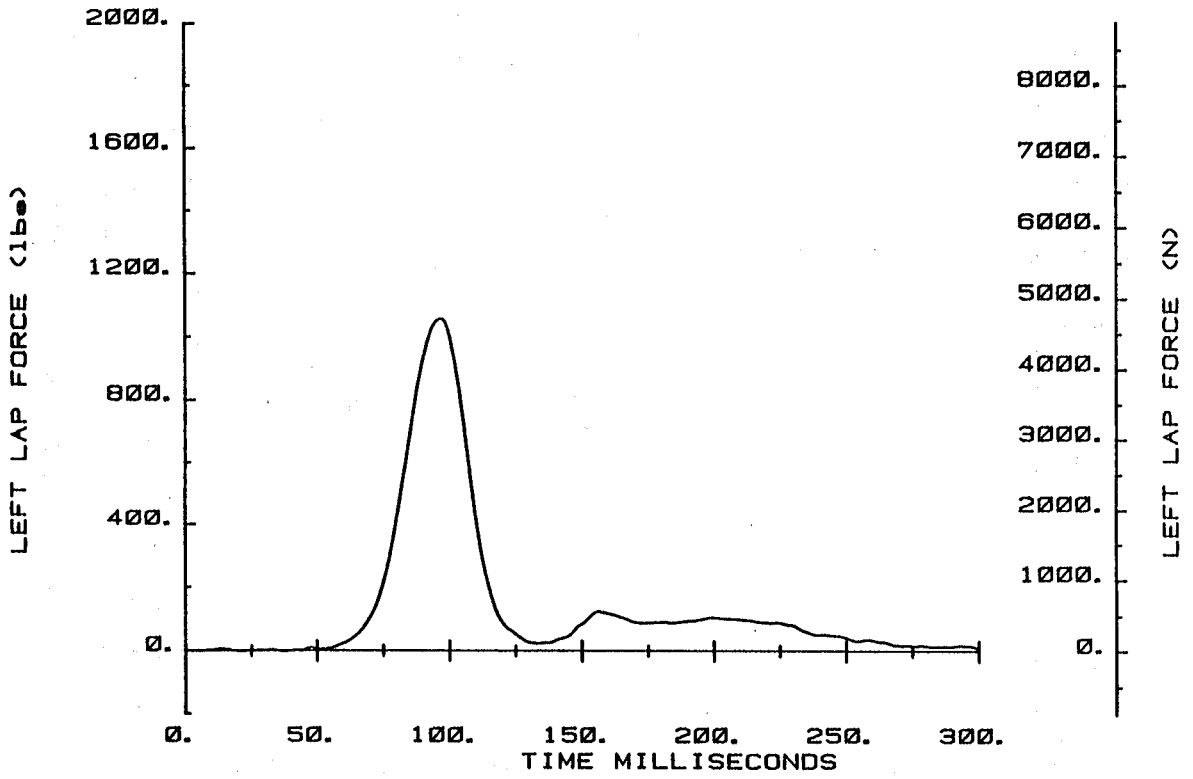


CAMI SLED TEST  
A83110

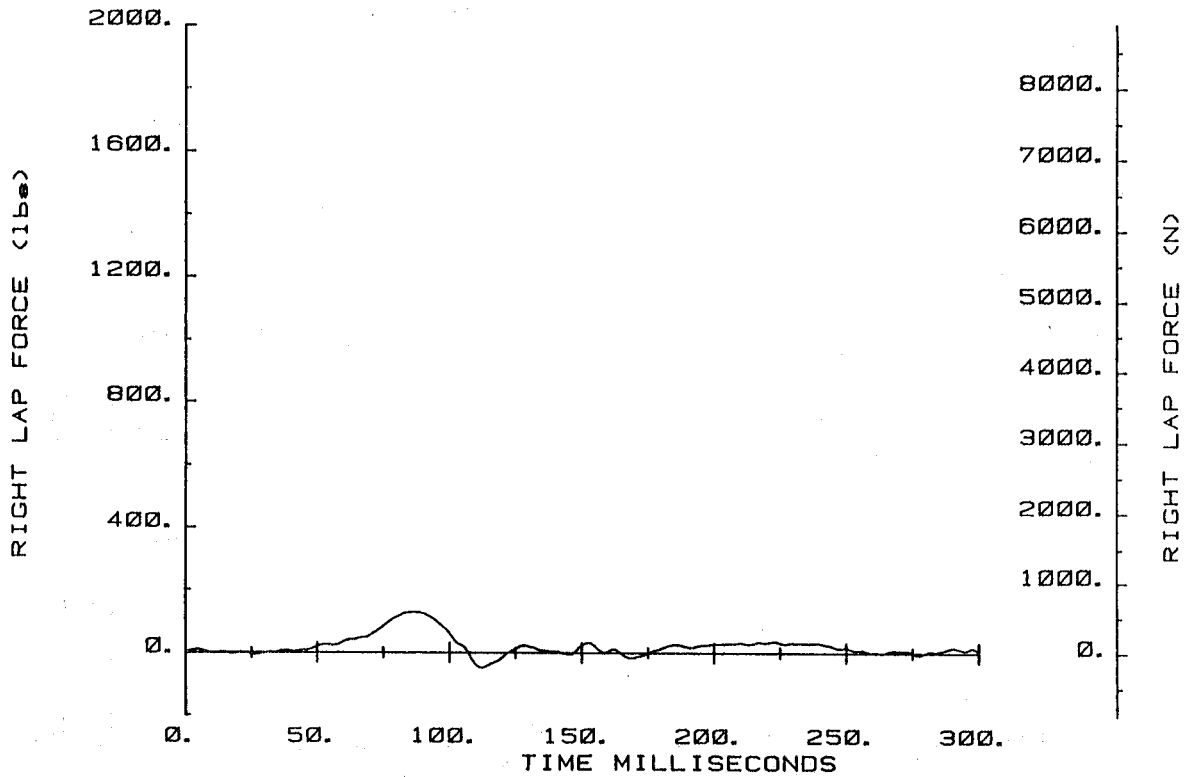




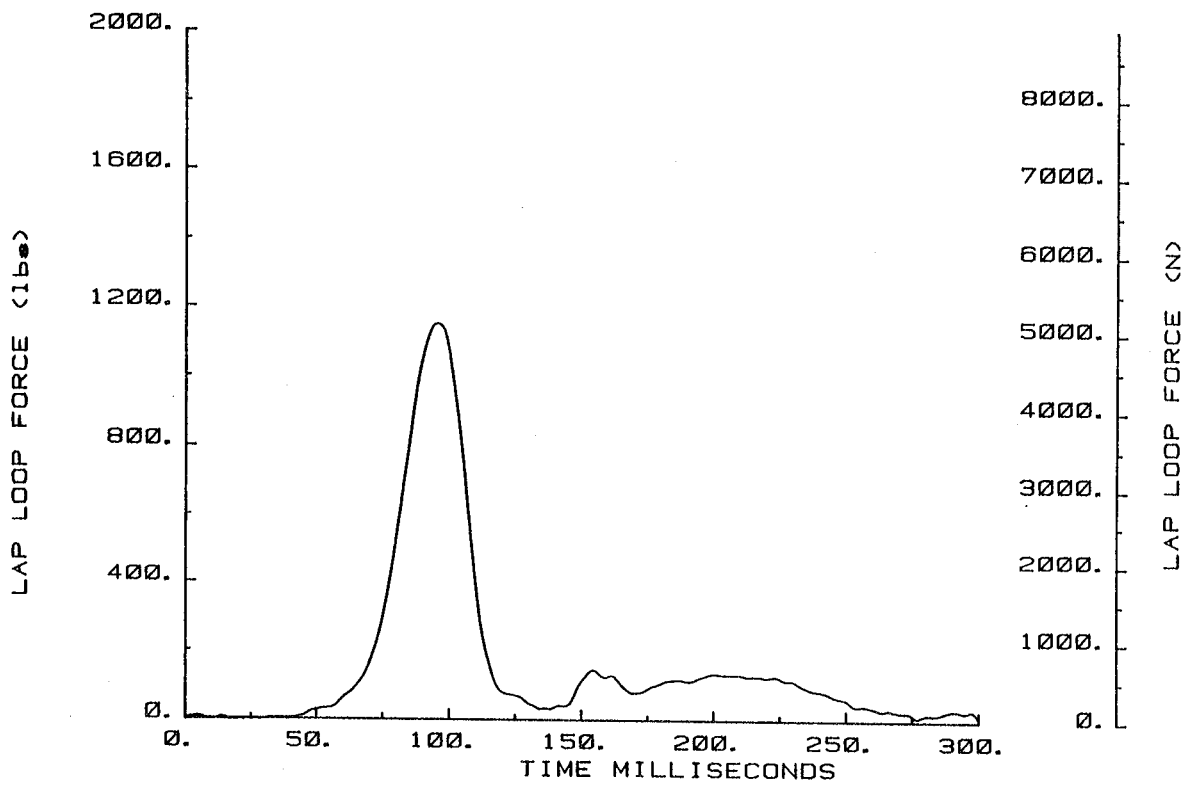
CAMI SLED TEST  
A83110



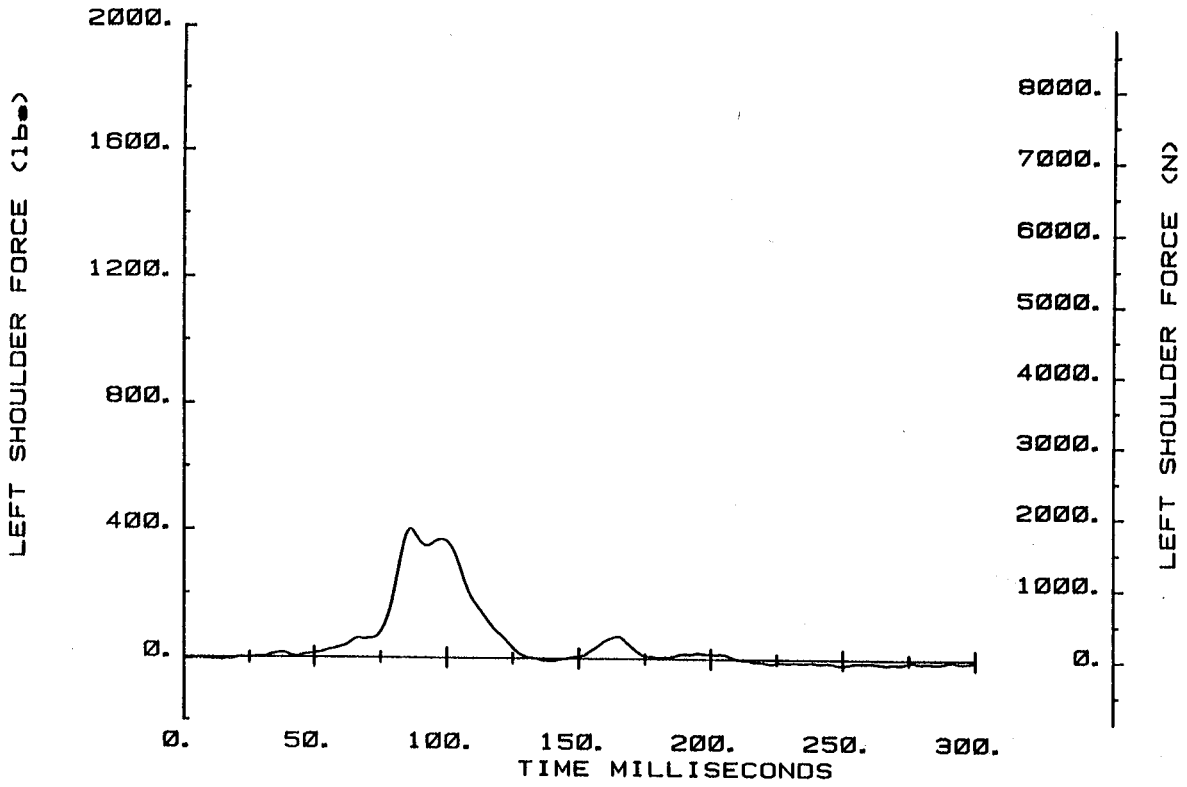
CAMI SLED TEST  
A83110



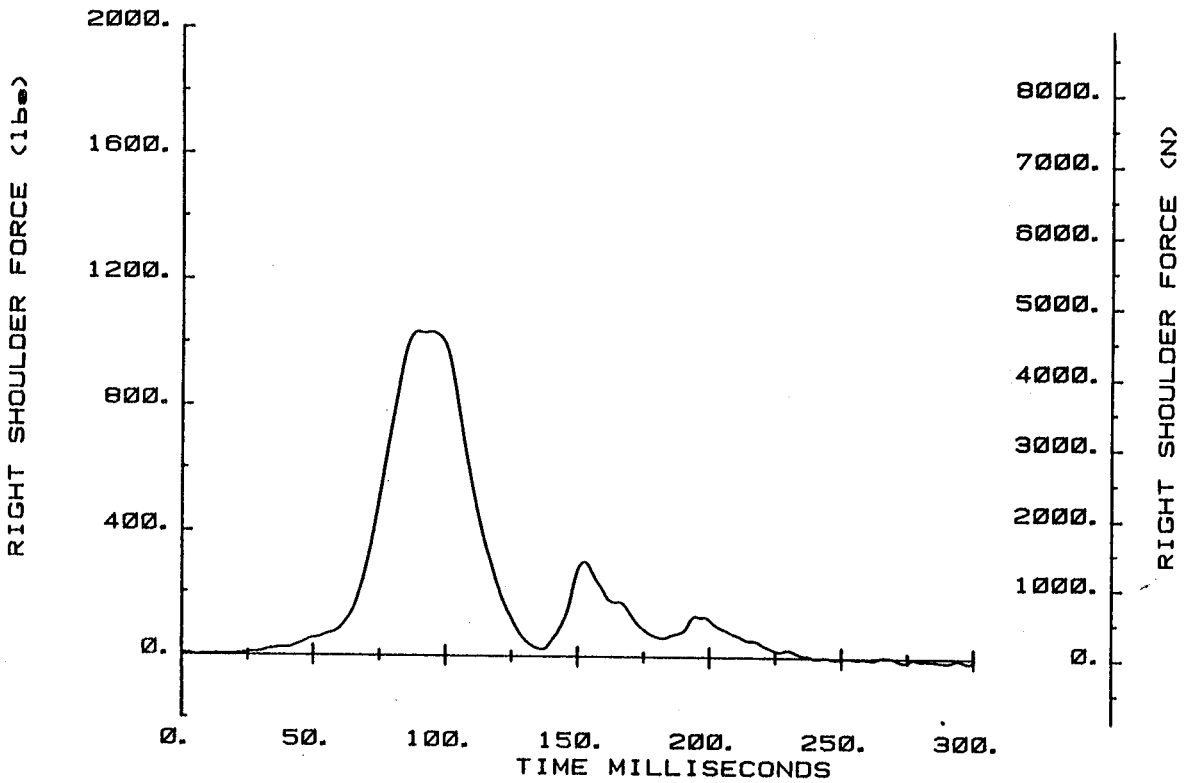
CAMI SLED TEST  
A83110



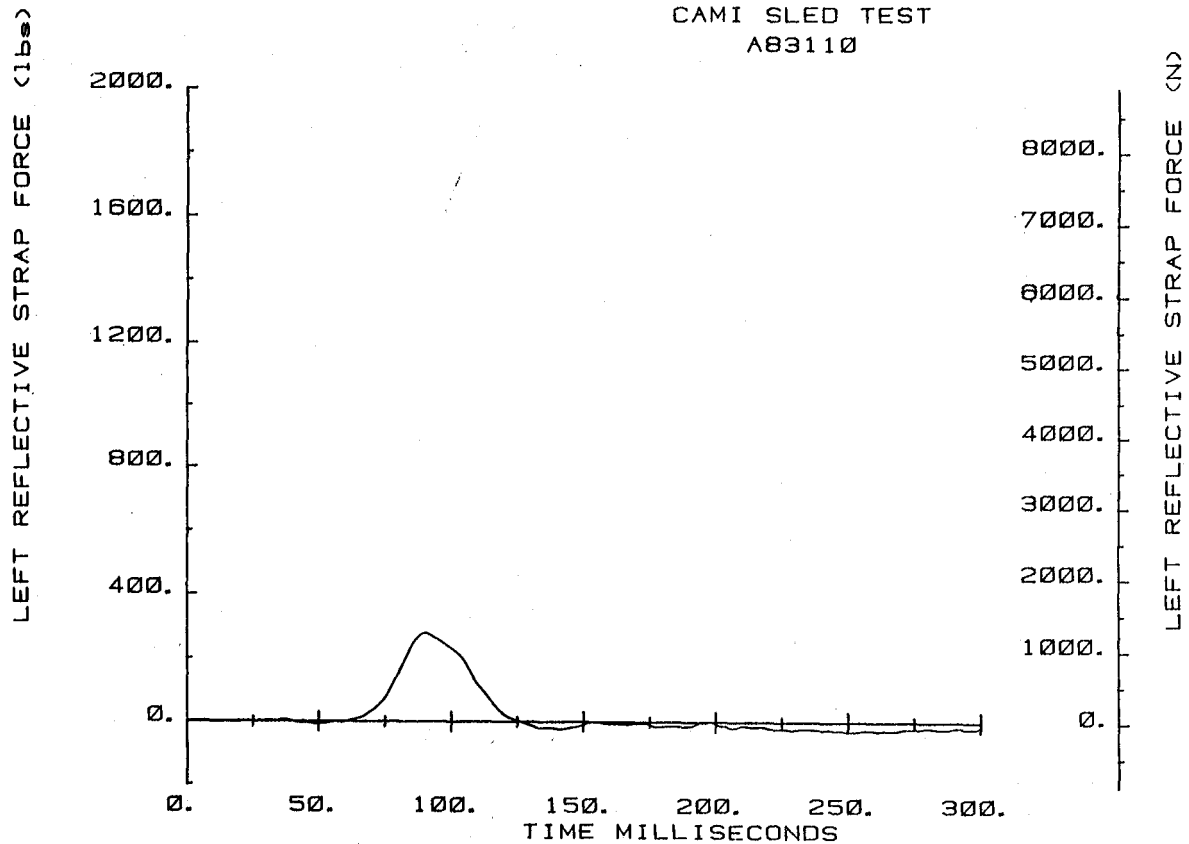
CAMI SLED TEST  
A83110



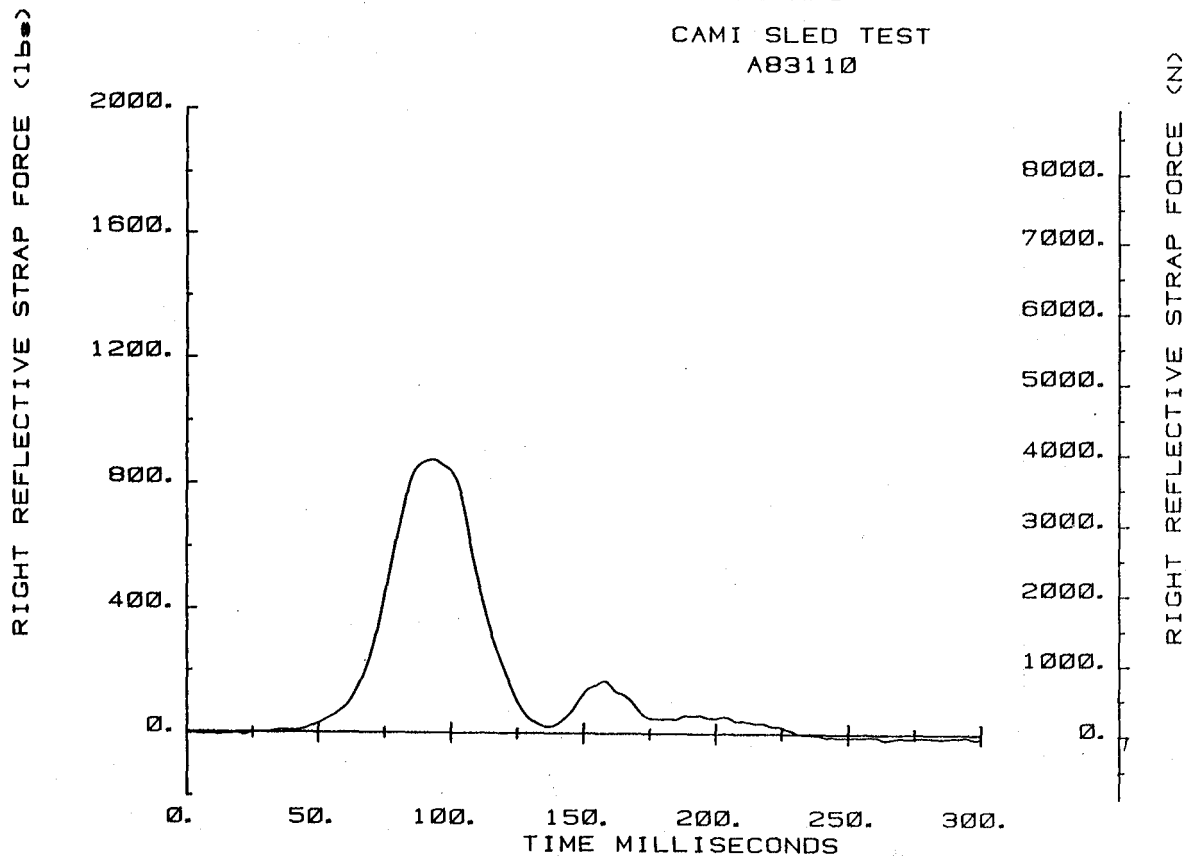
CAMI SLED TEST  
A83110



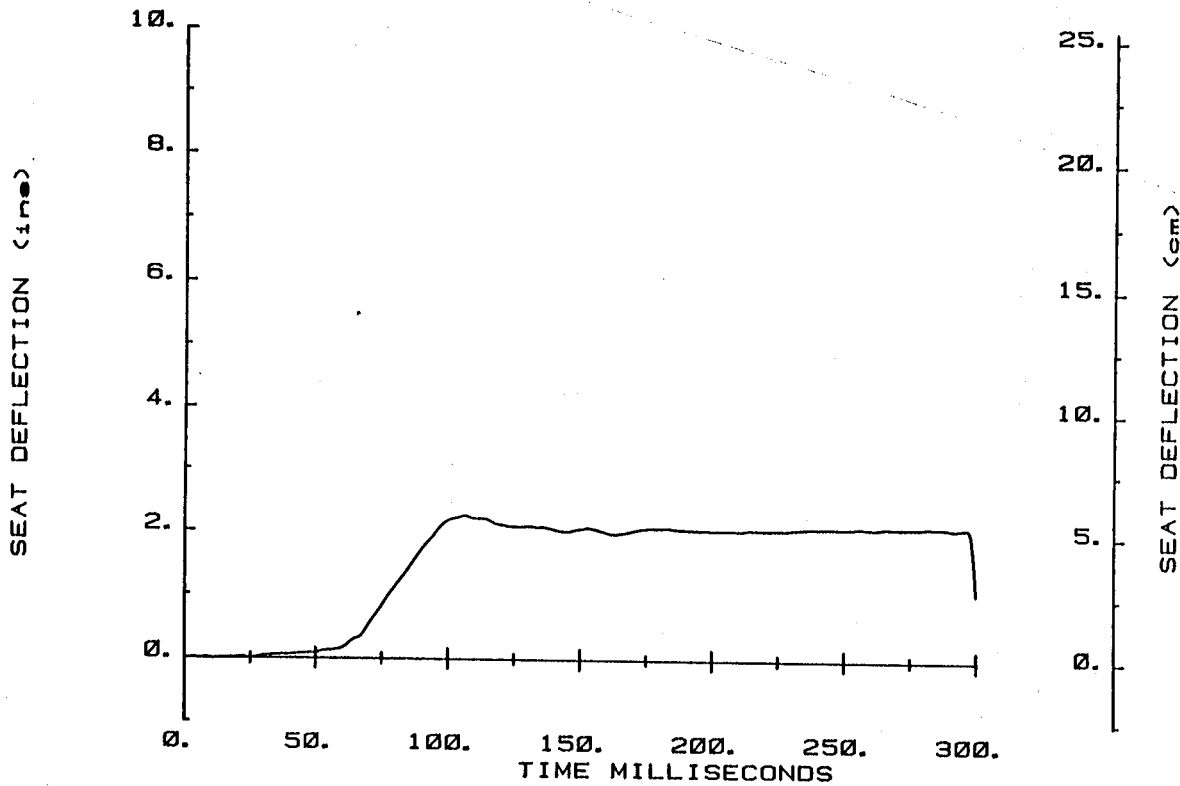
CAMI SLED TEST  
A83110



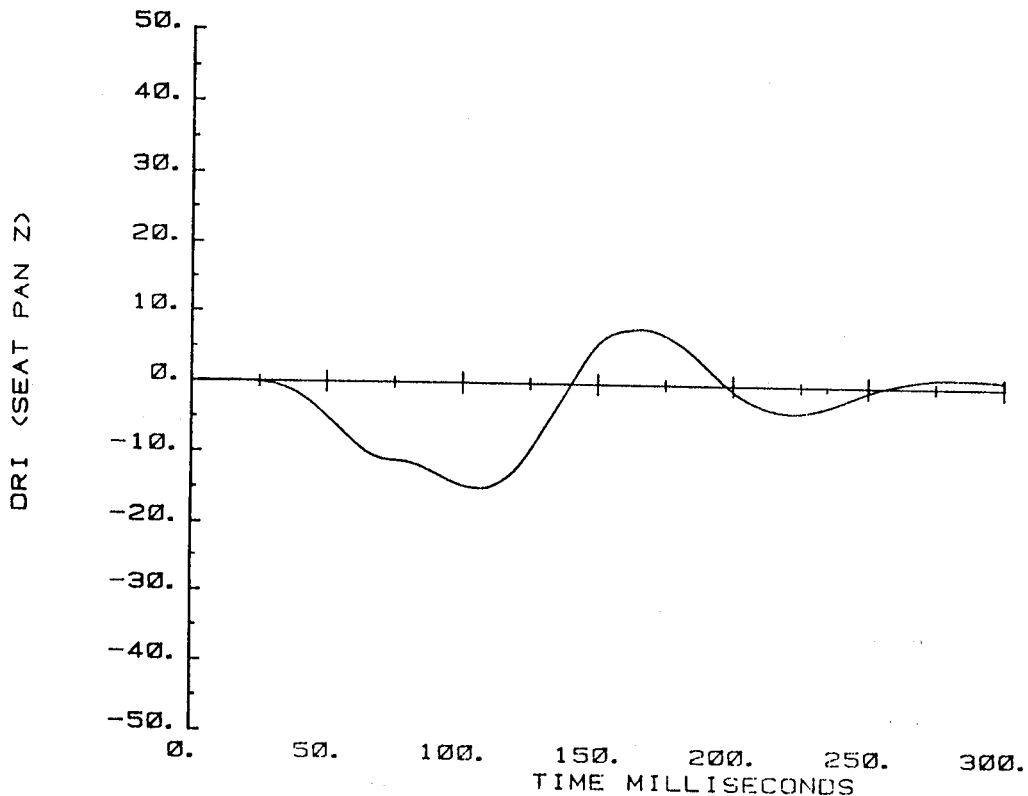
CAMI SLED TEST  
A83110



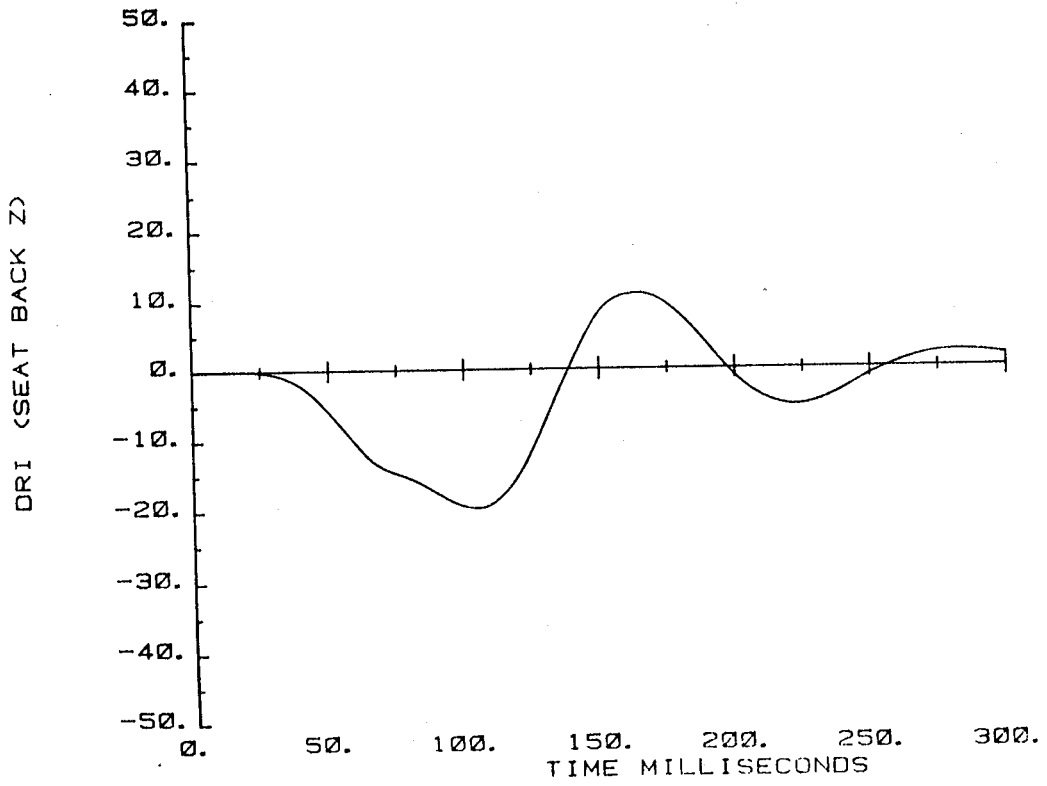
CAMI SLED TEST  
A83110



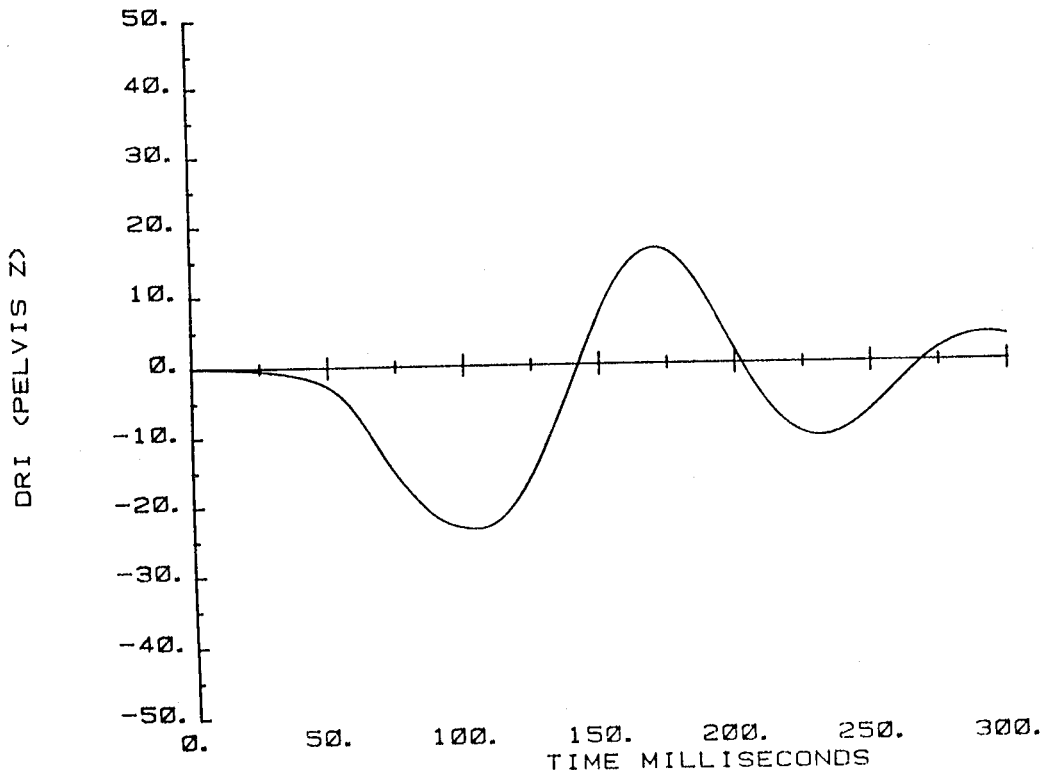
CAMI SLED TEST  
A83110



CAMI SLED TEST  
A83110



CAMI SLED TEST  
A83110



9.0 CAMI TEST NO. A83-111

SEAT: F-111 Operational

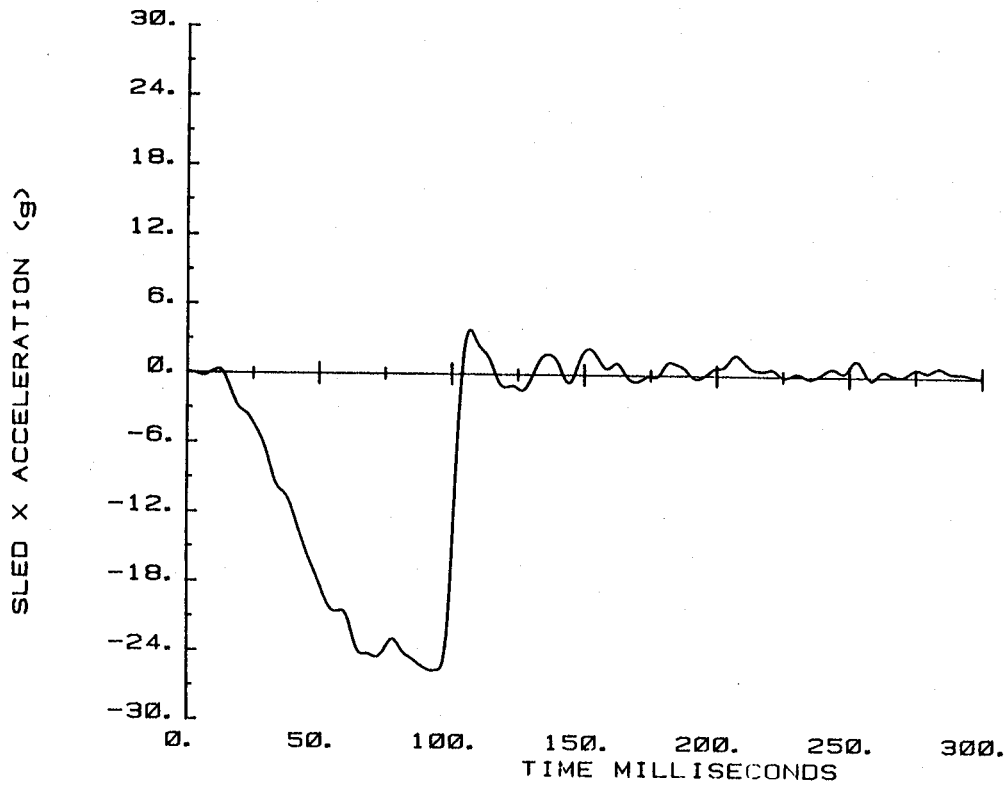
PULSE NUMBER: 4

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

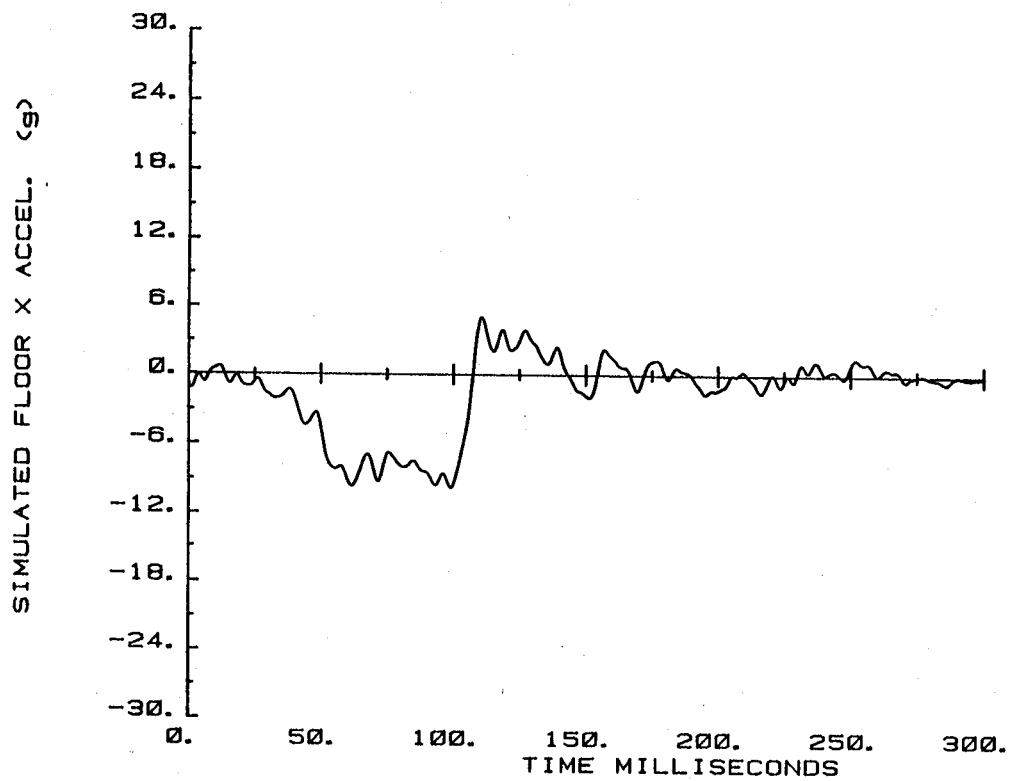
| NUM    | VARIABLE                     |          | PEAK1  | T   | PEAK2  | T   | RANGE              | FILE |
|--------|------------------------------|----------|--------|-----|--------|-----|--------------------|------|
| A83111 | SLED X ACCELERATION          | (g)      | -25.7  | 92  |        |     | ( 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) * F11111 |      |
| 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) * F11121 |      |
| 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  |        |     |                    |      |



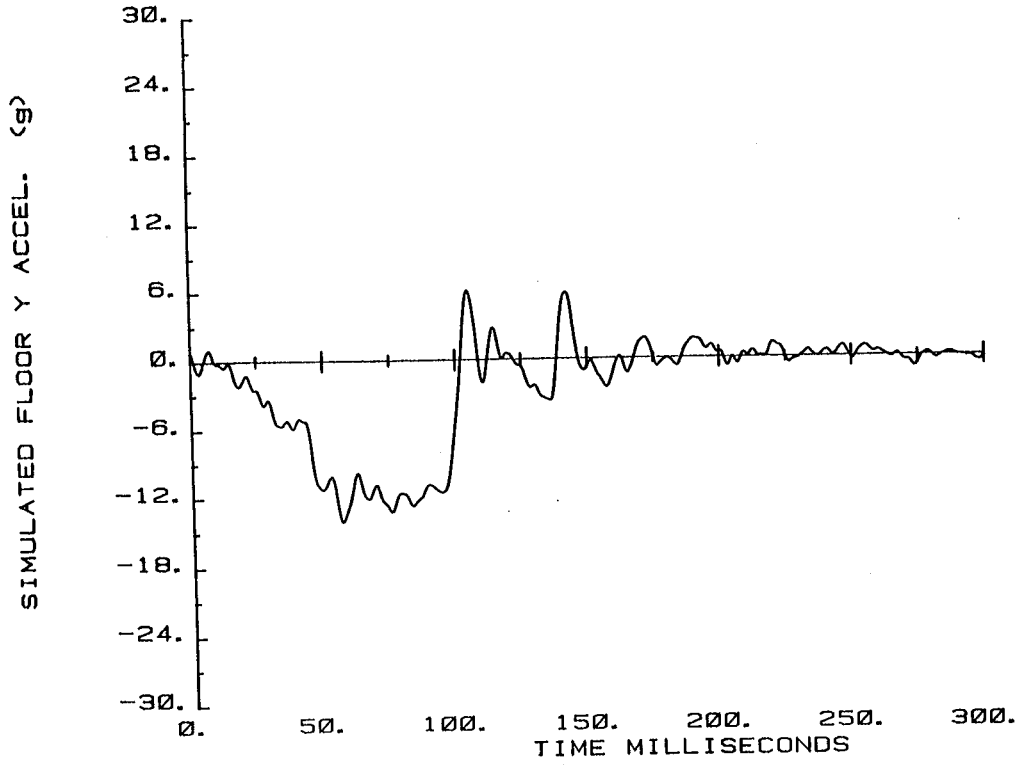
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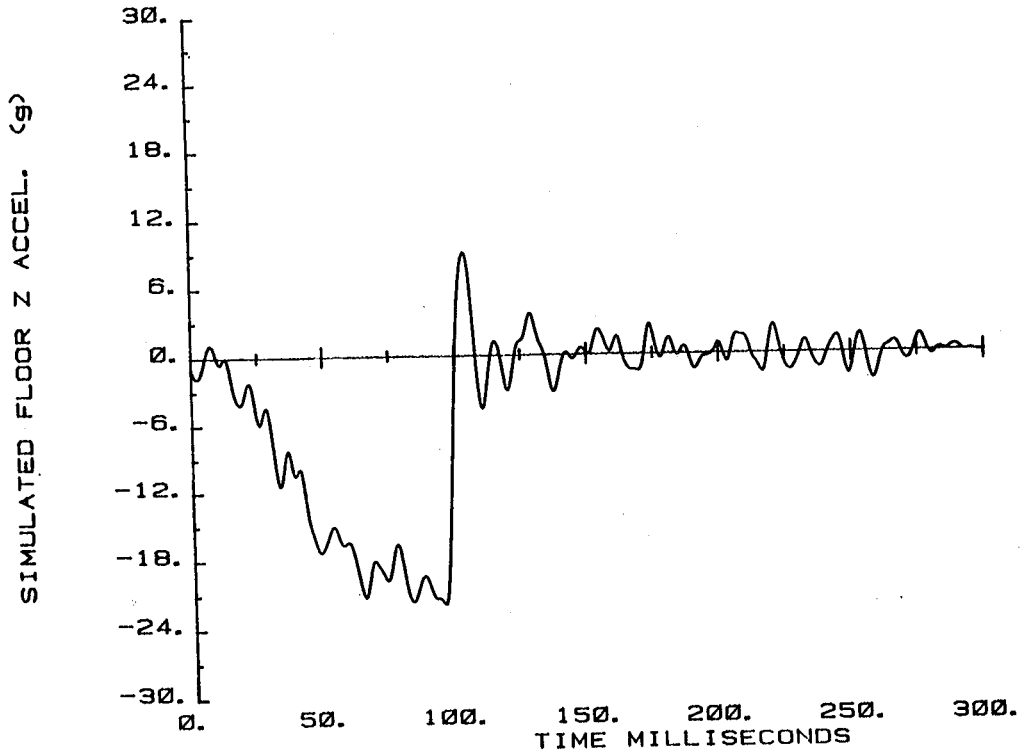
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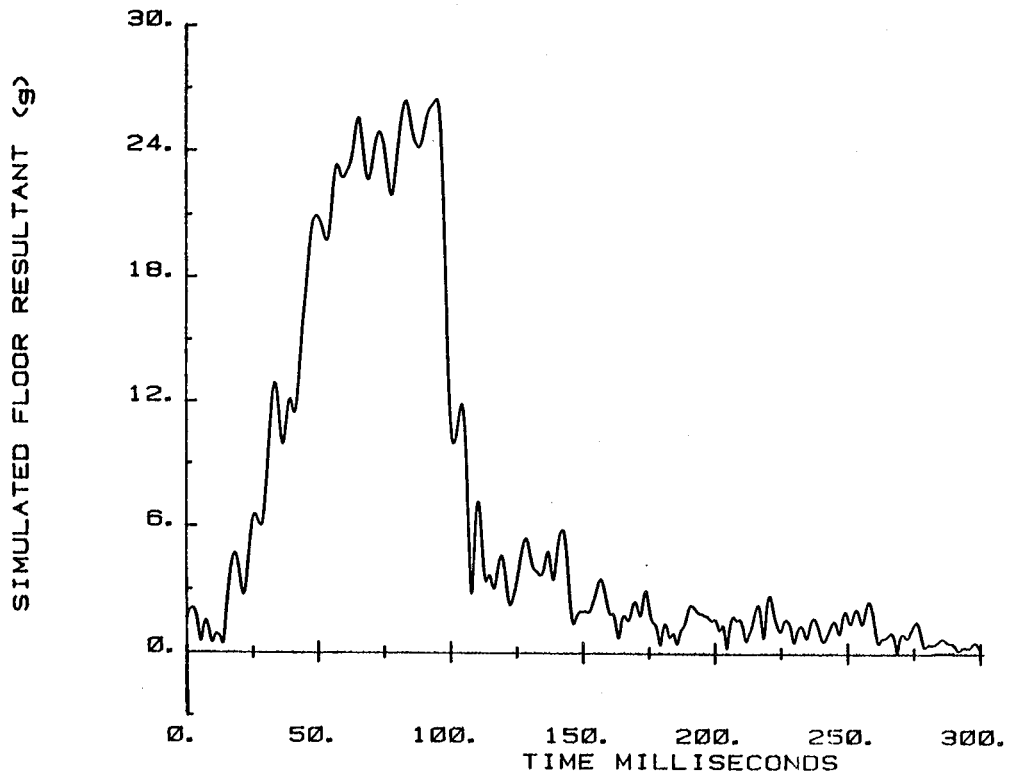
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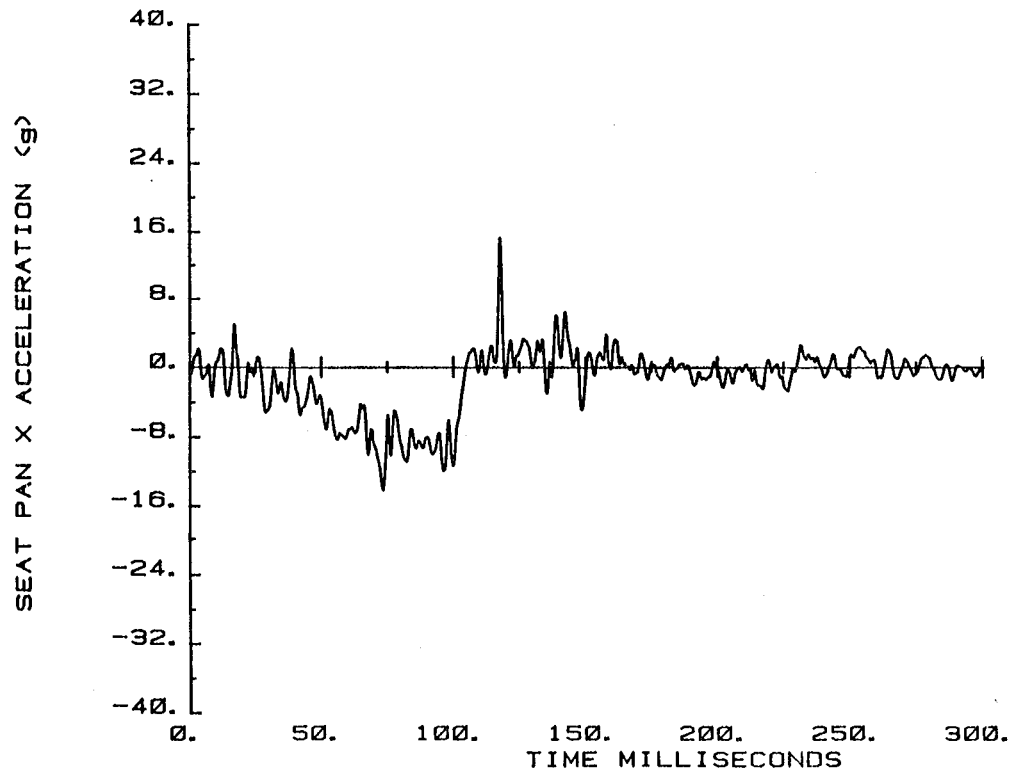
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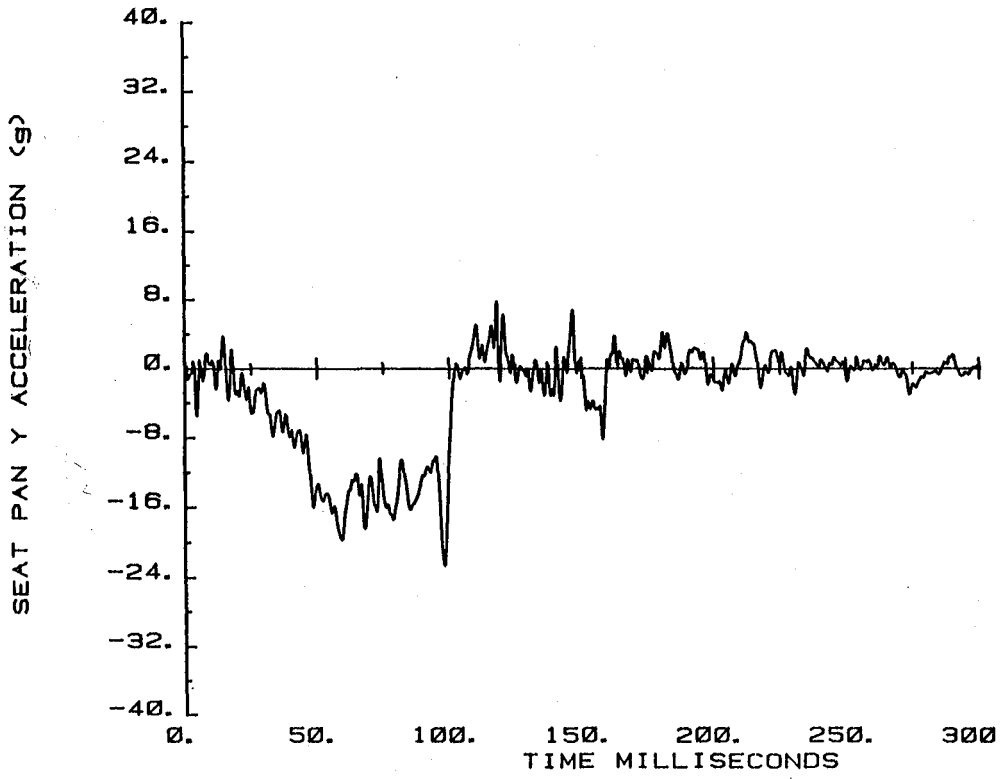
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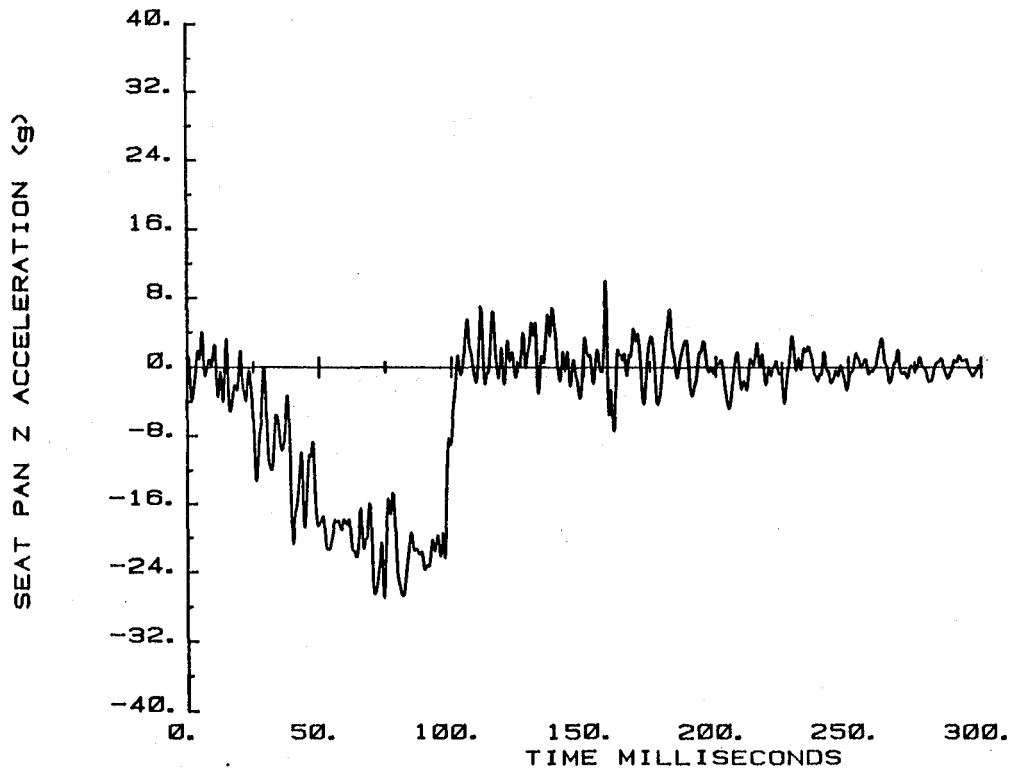
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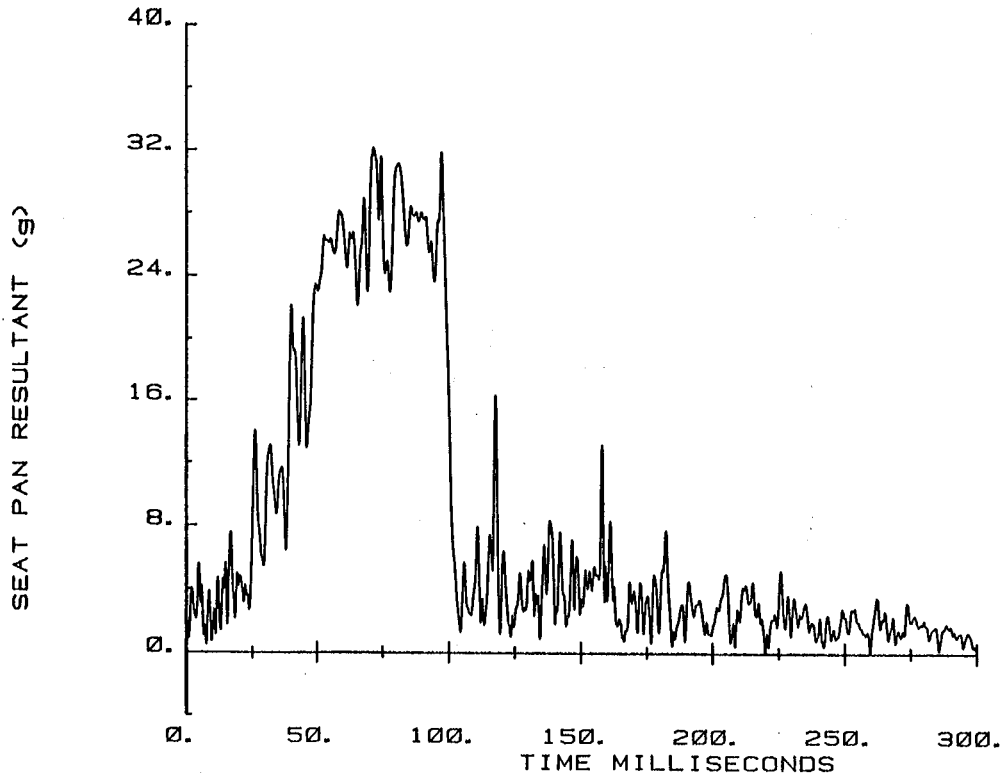
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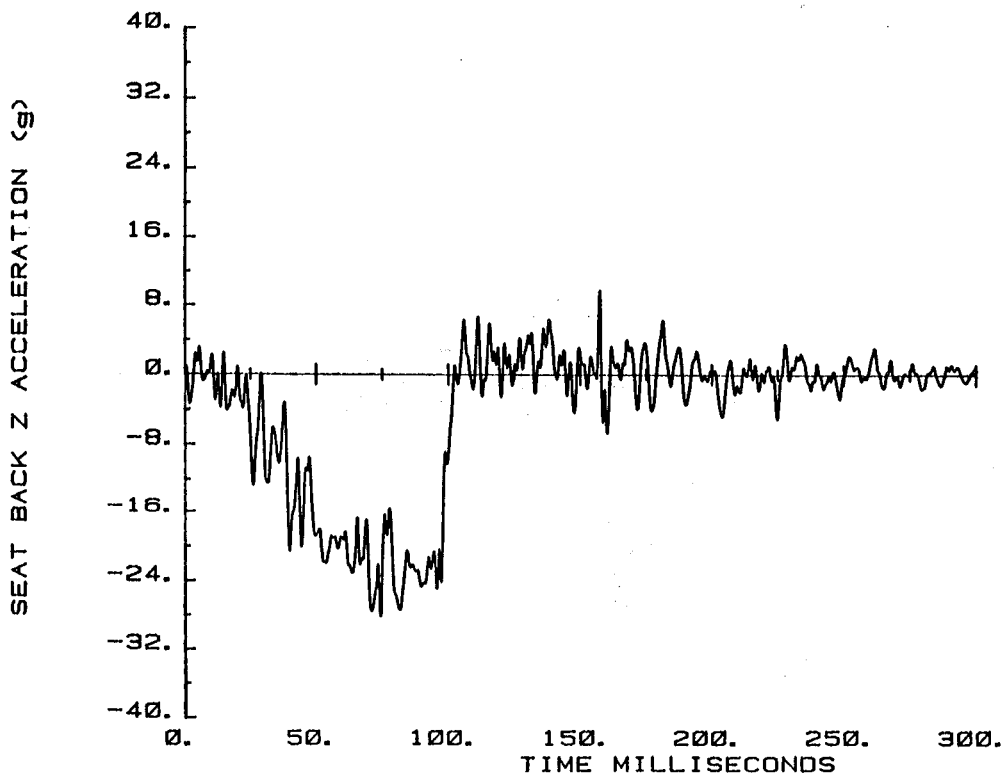
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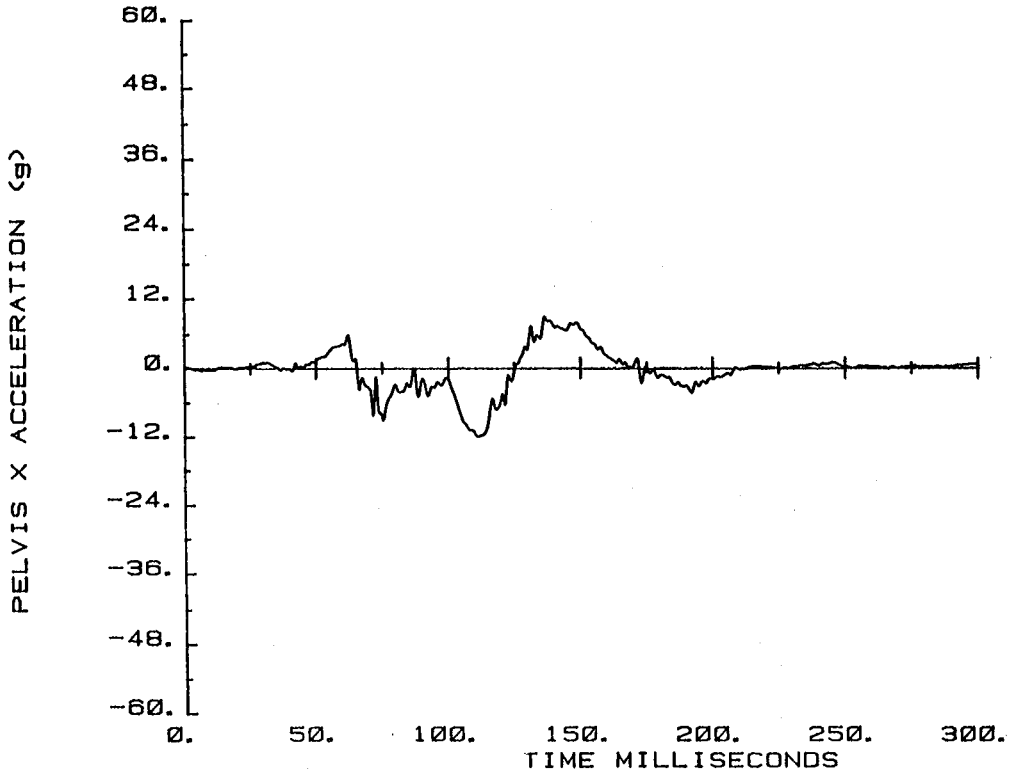
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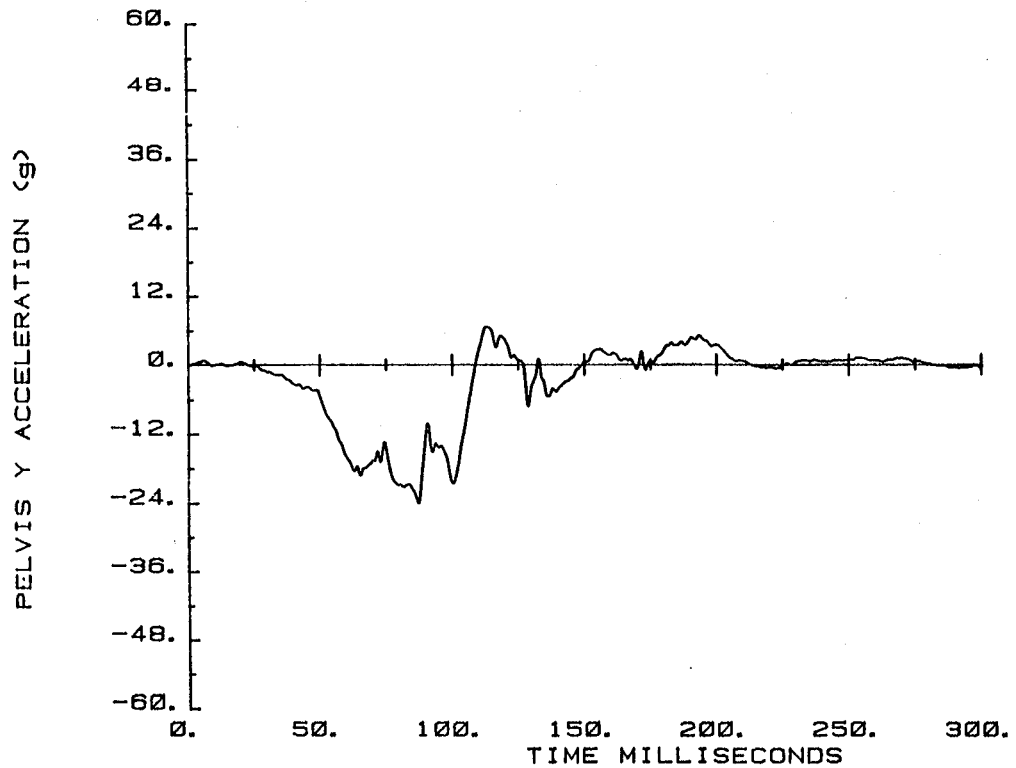
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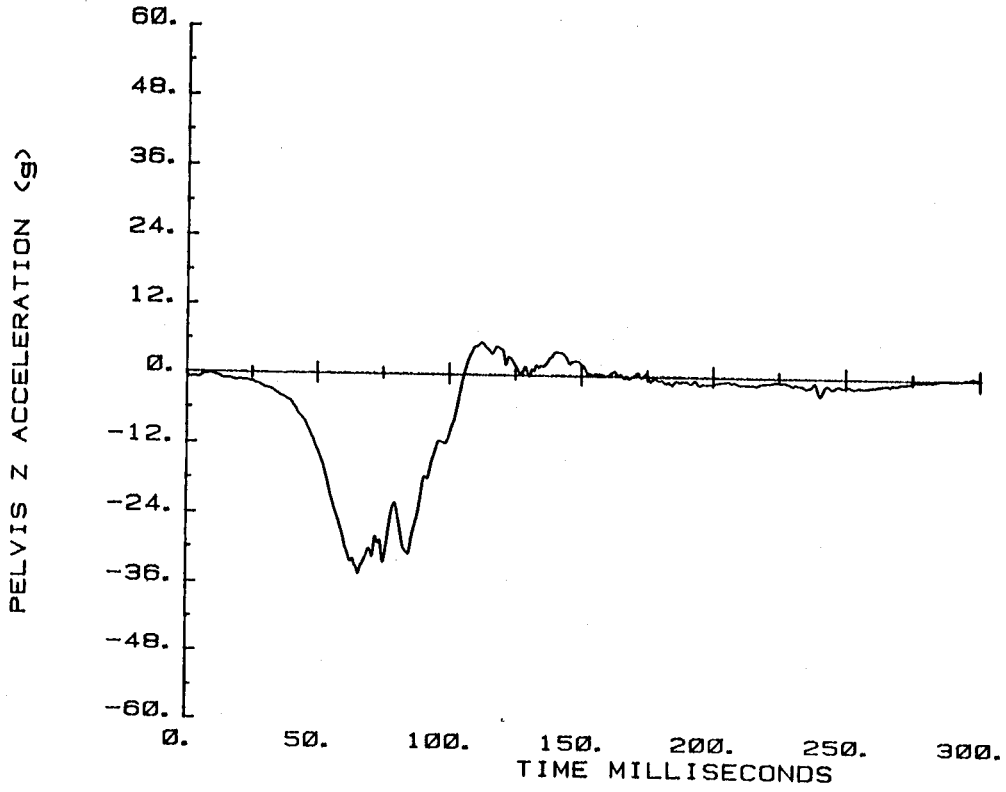
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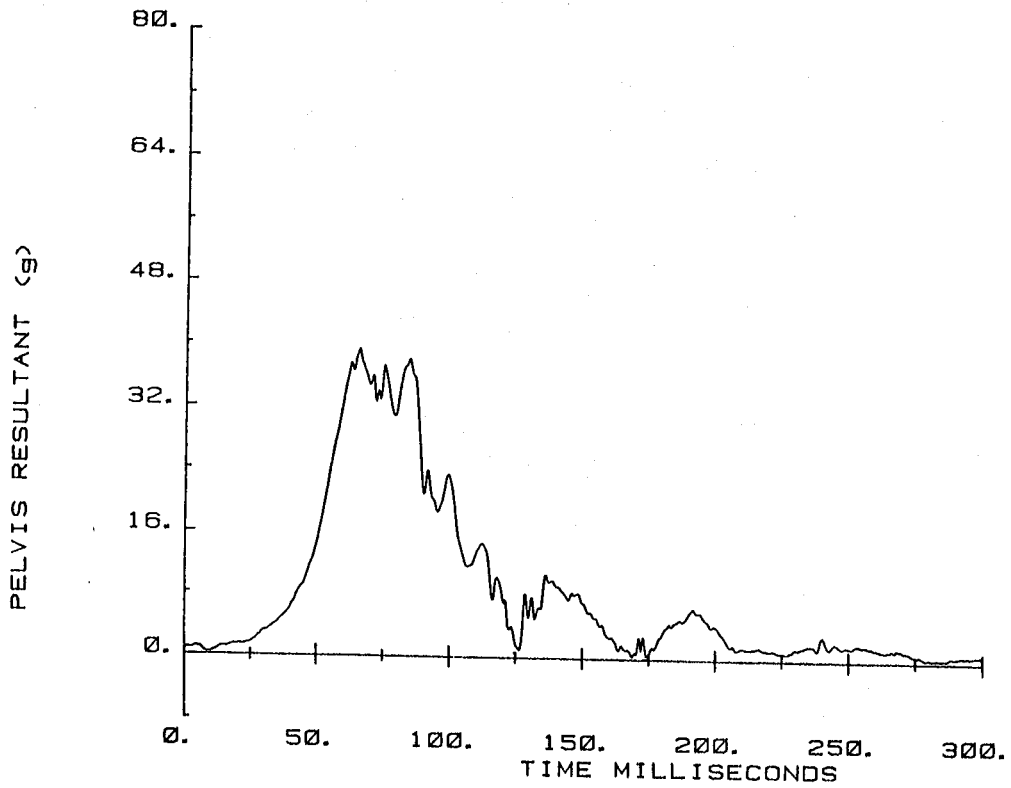
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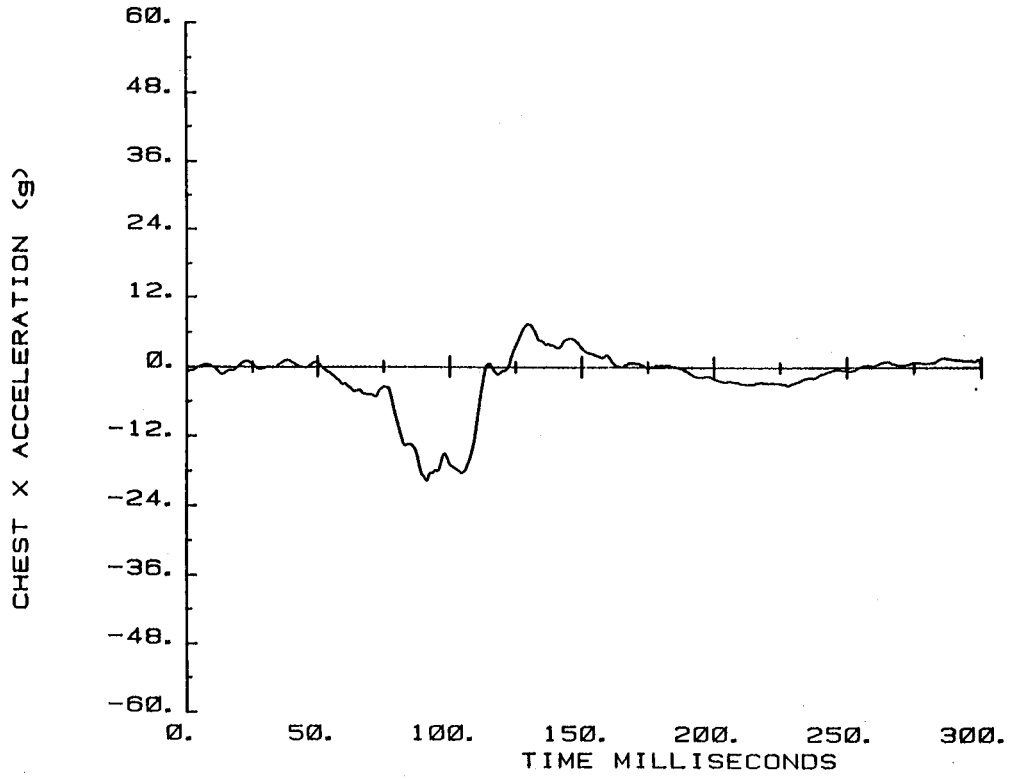
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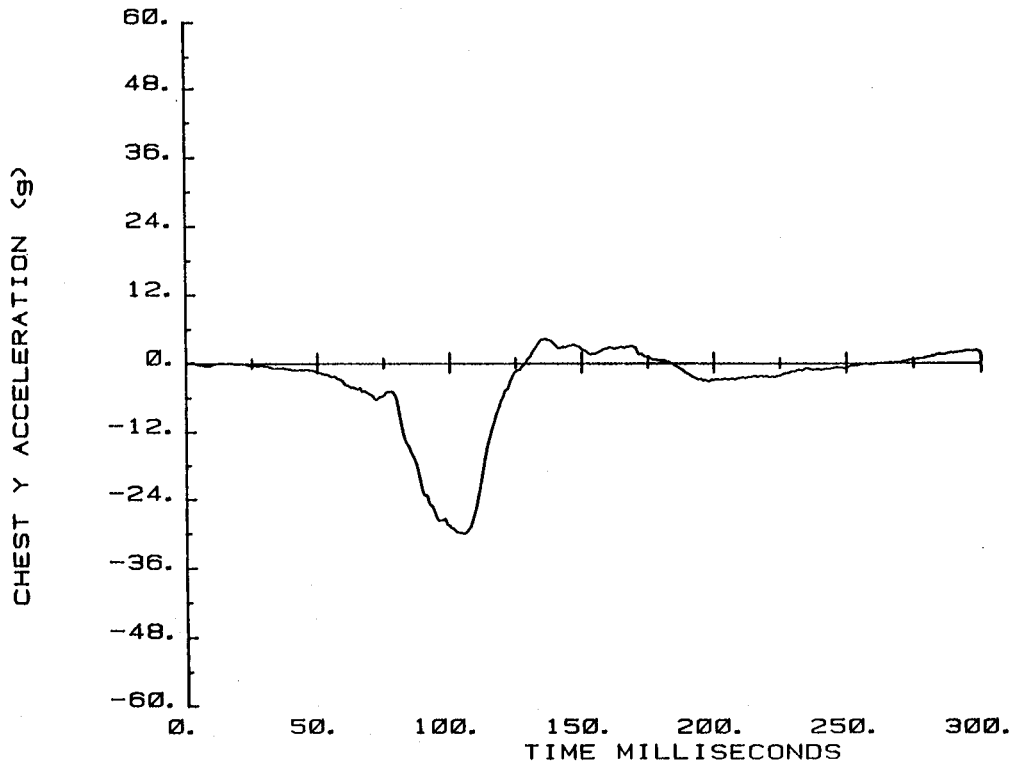
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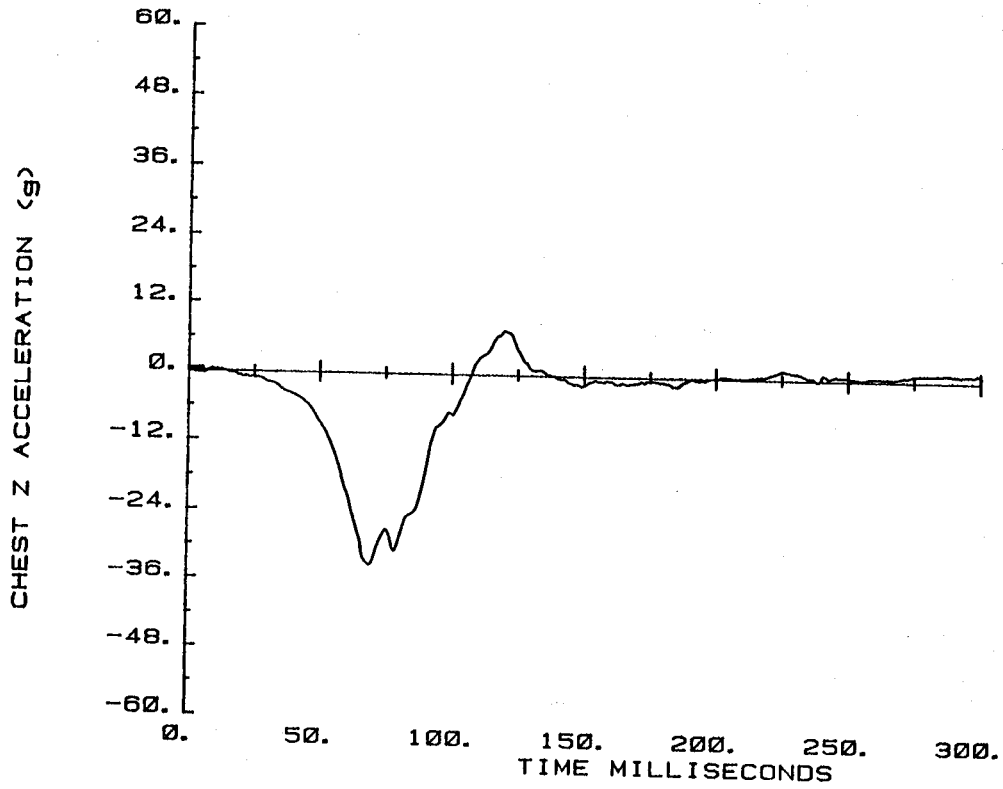


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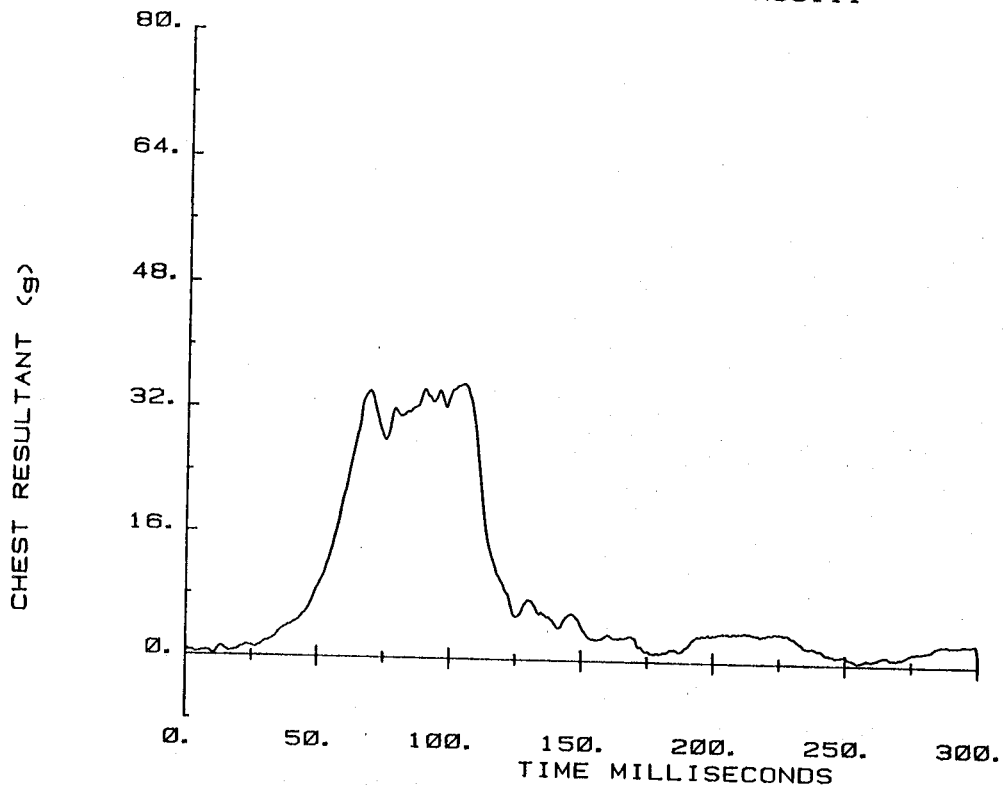




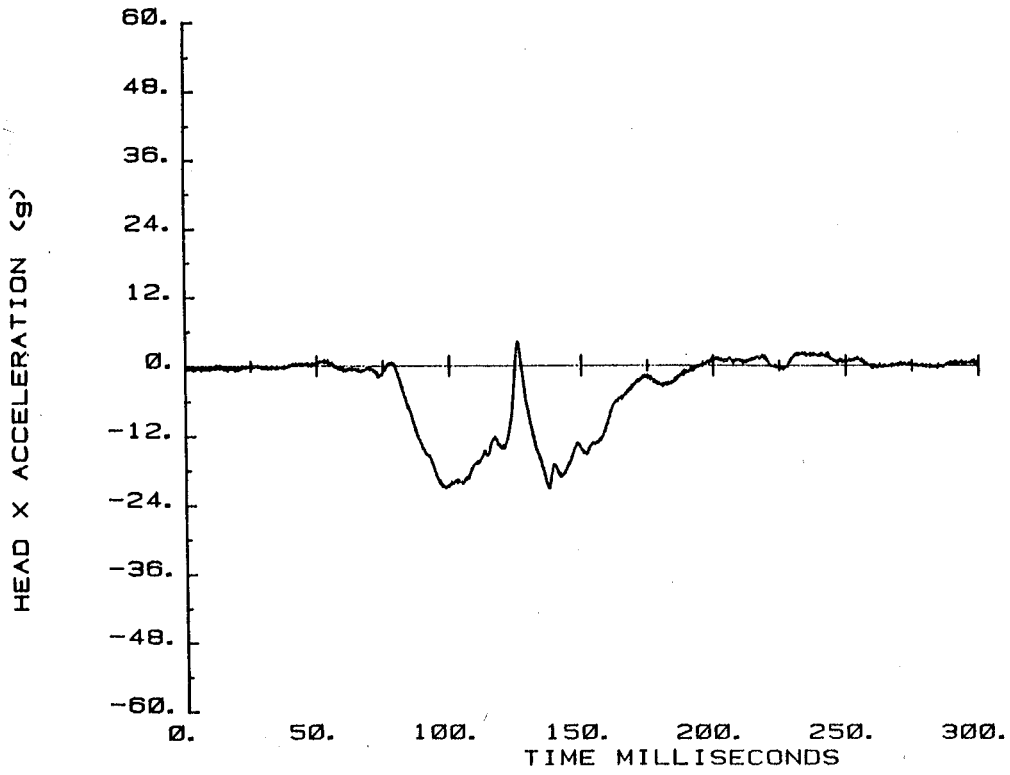
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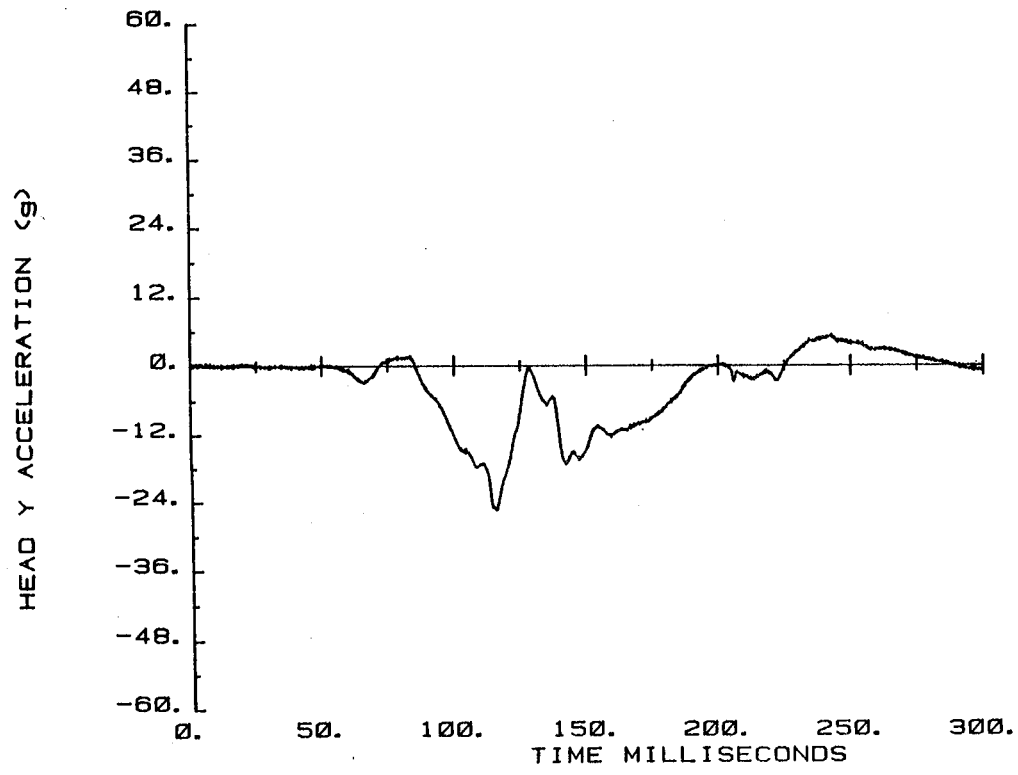
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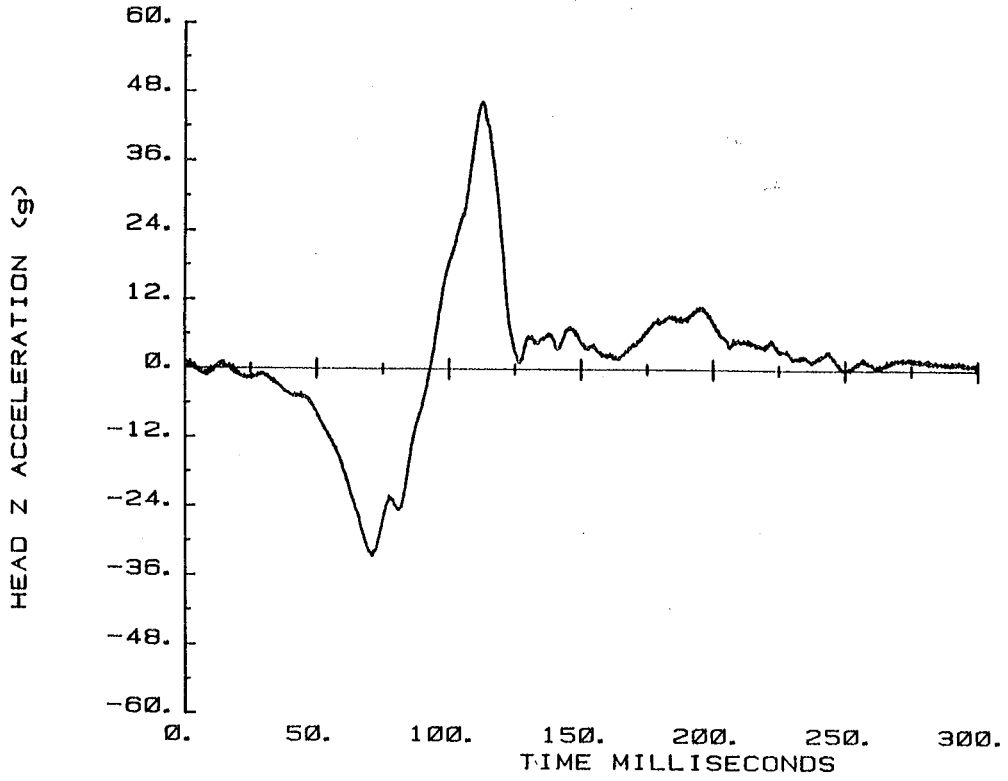
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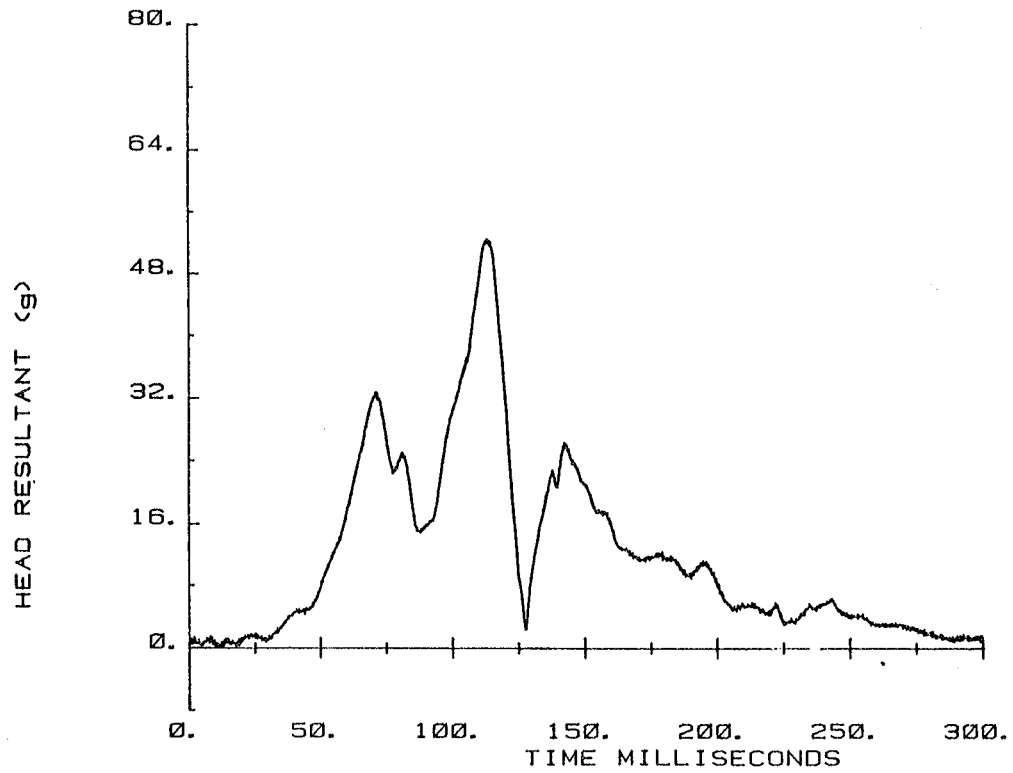
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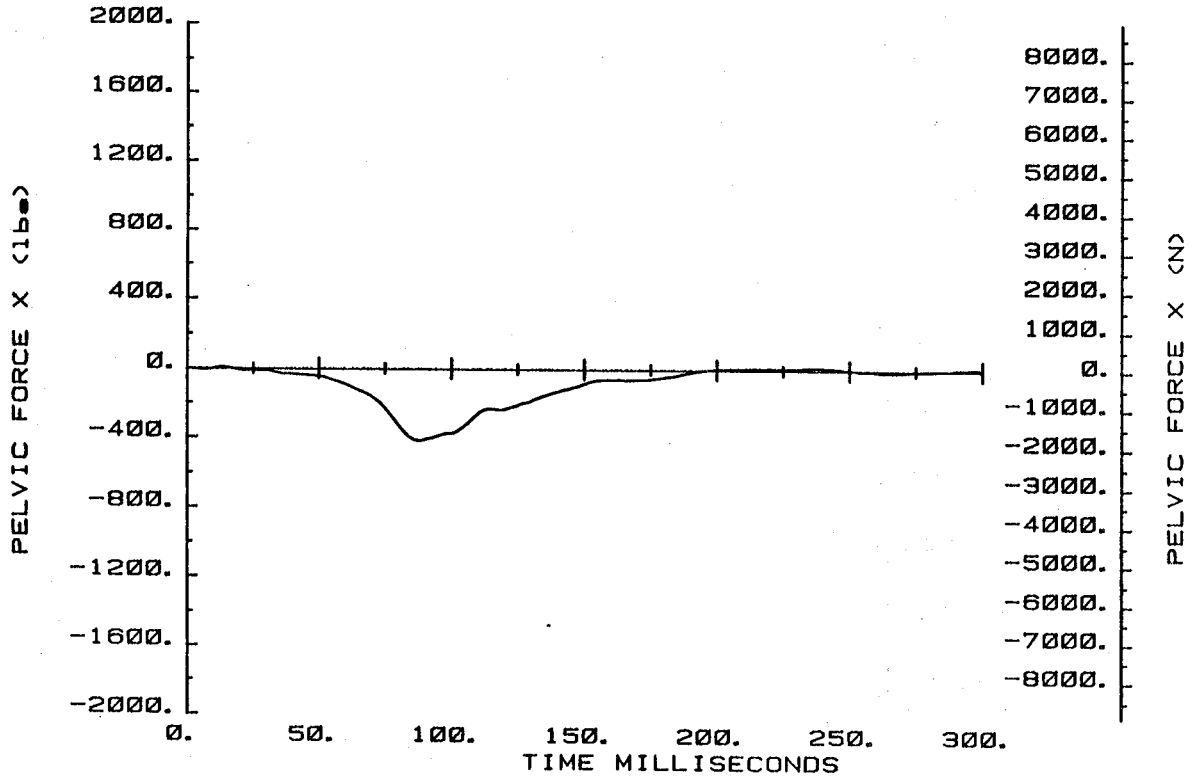
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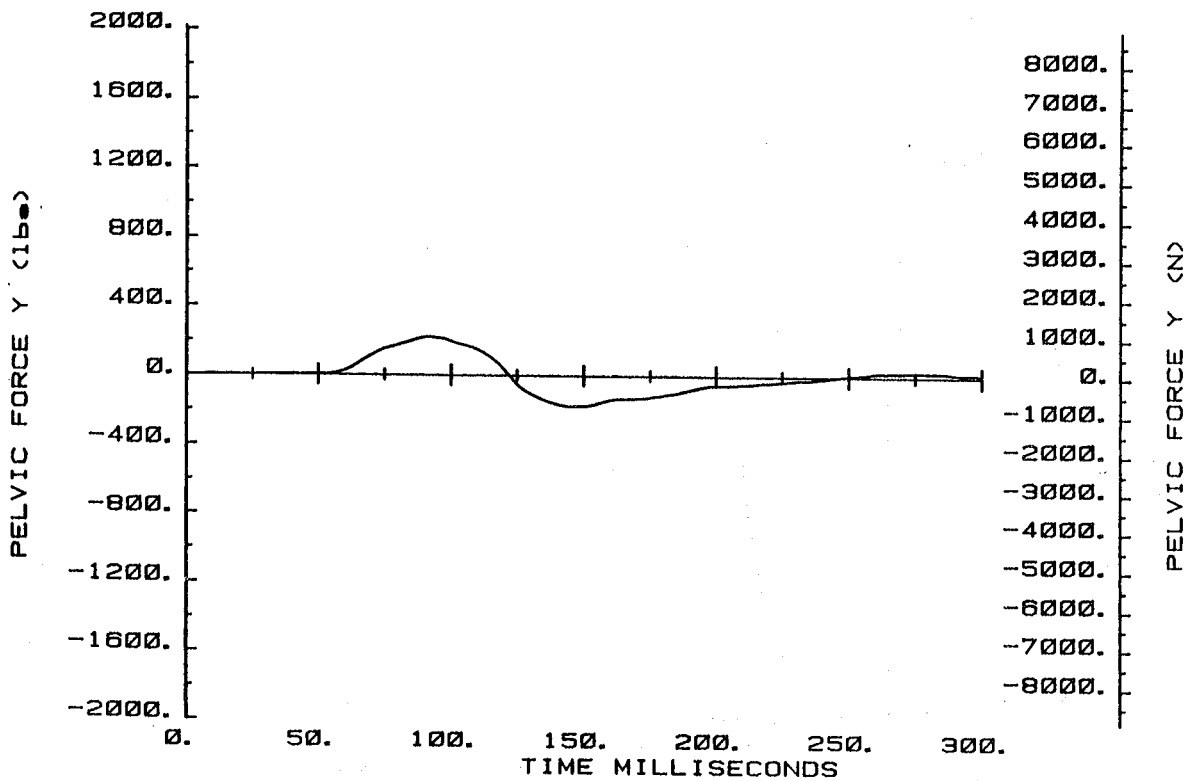
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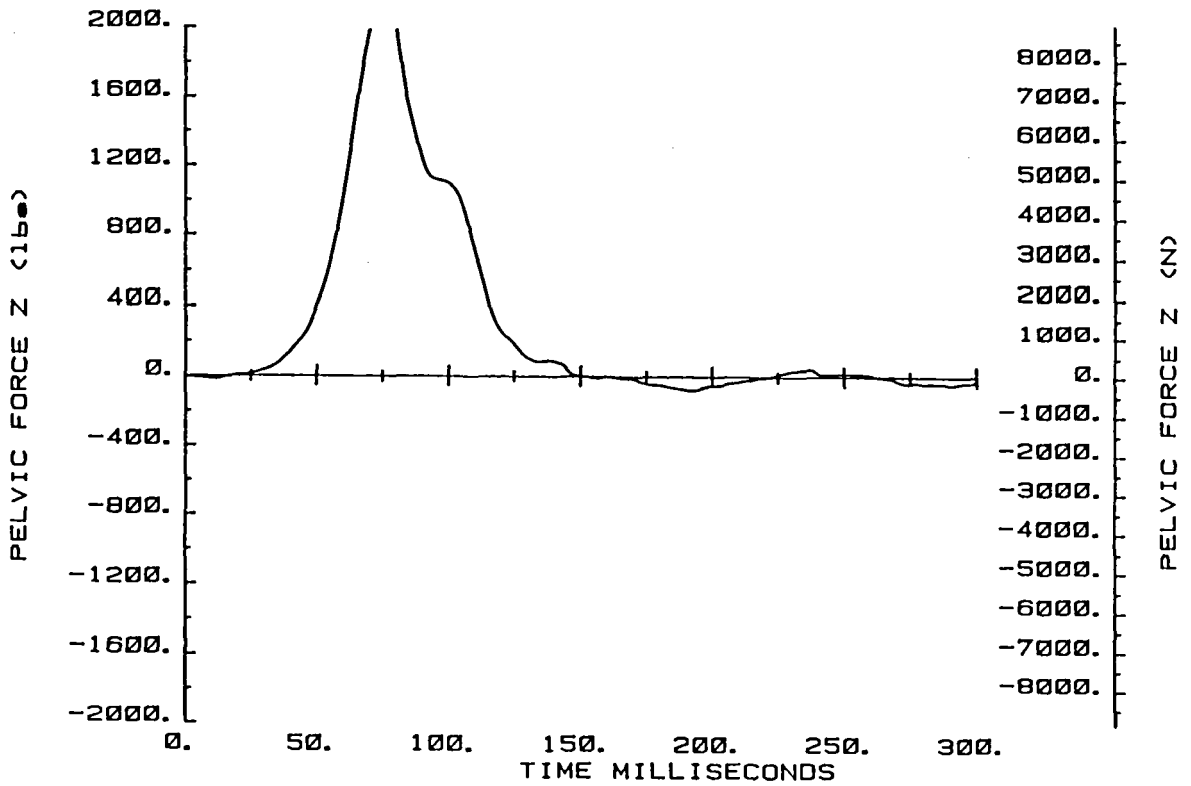
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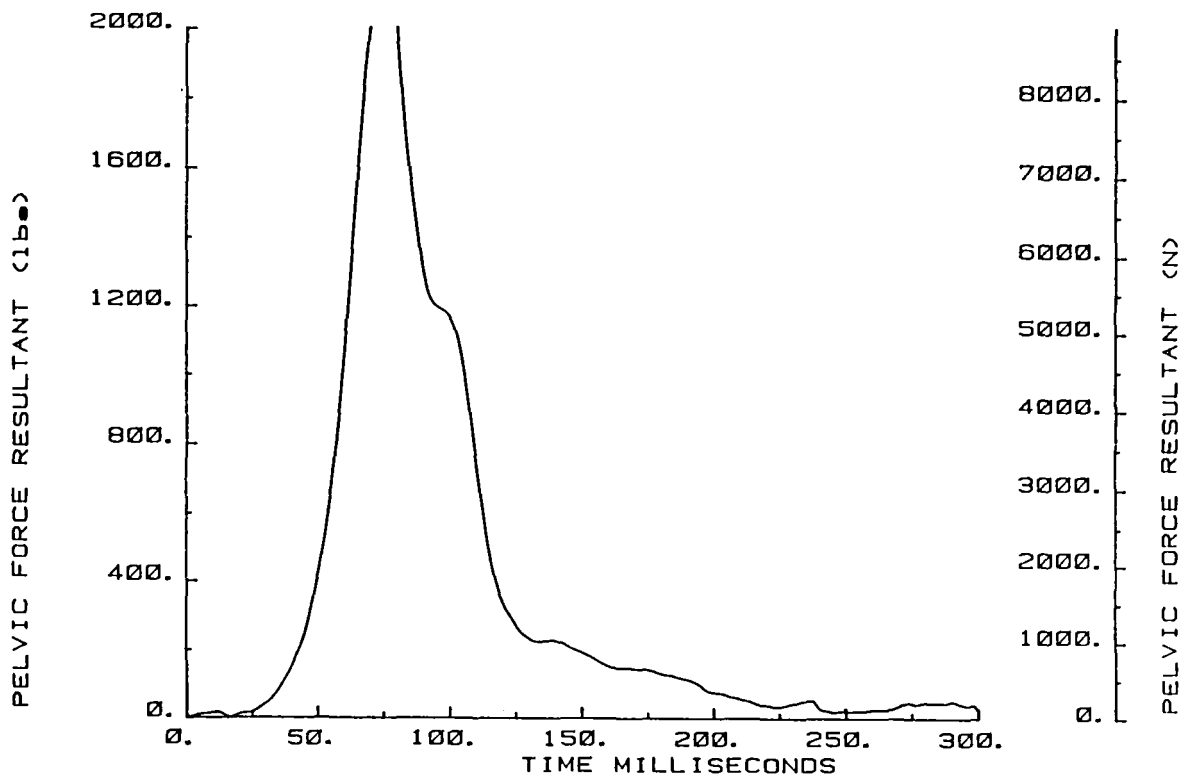
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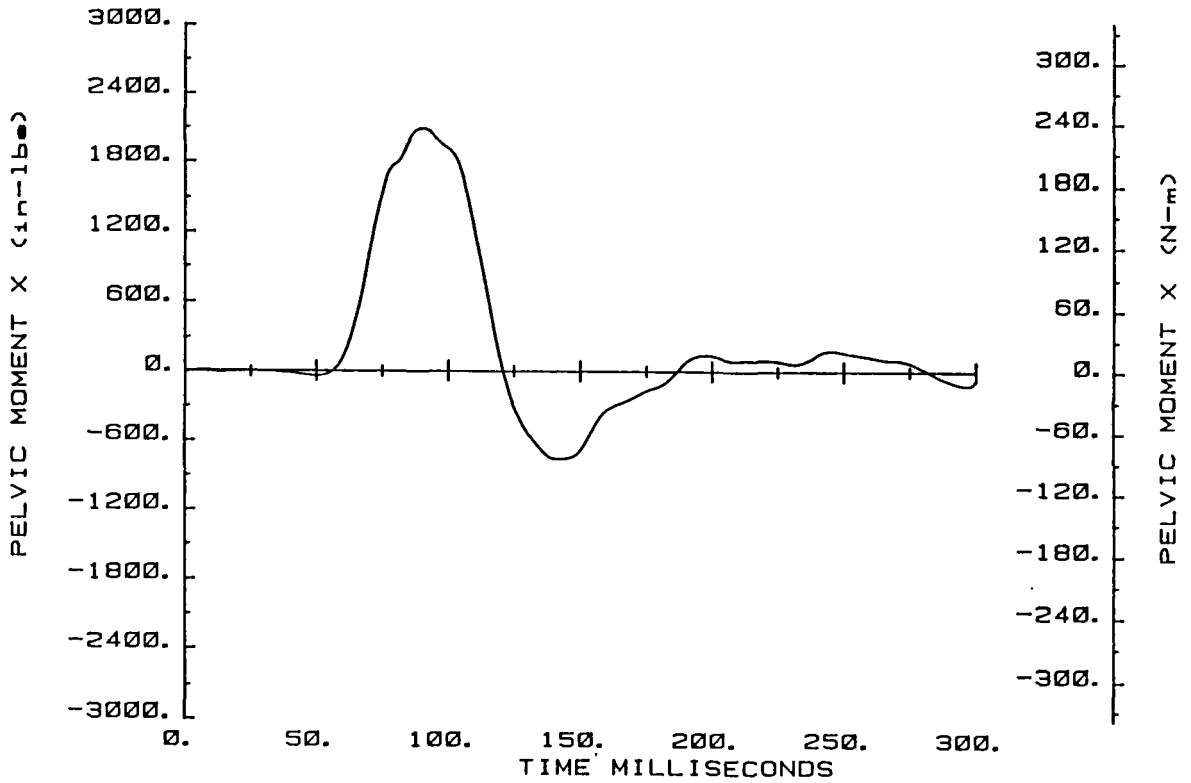
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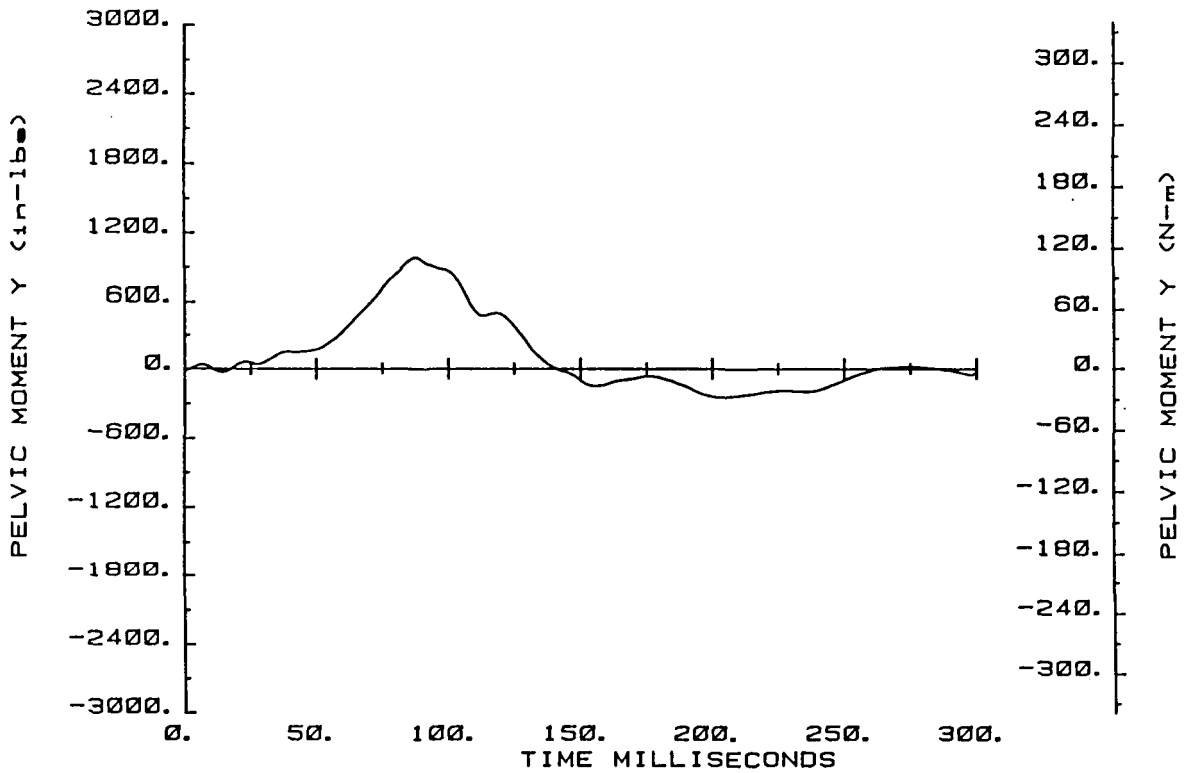
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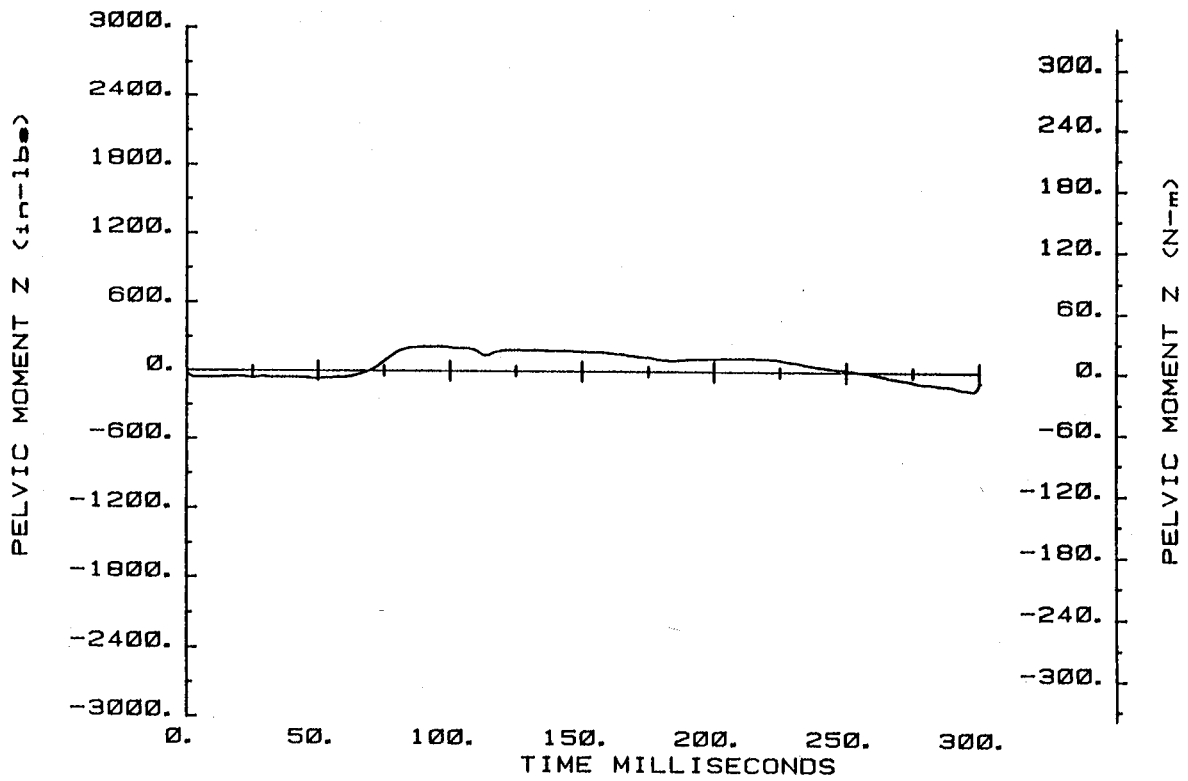
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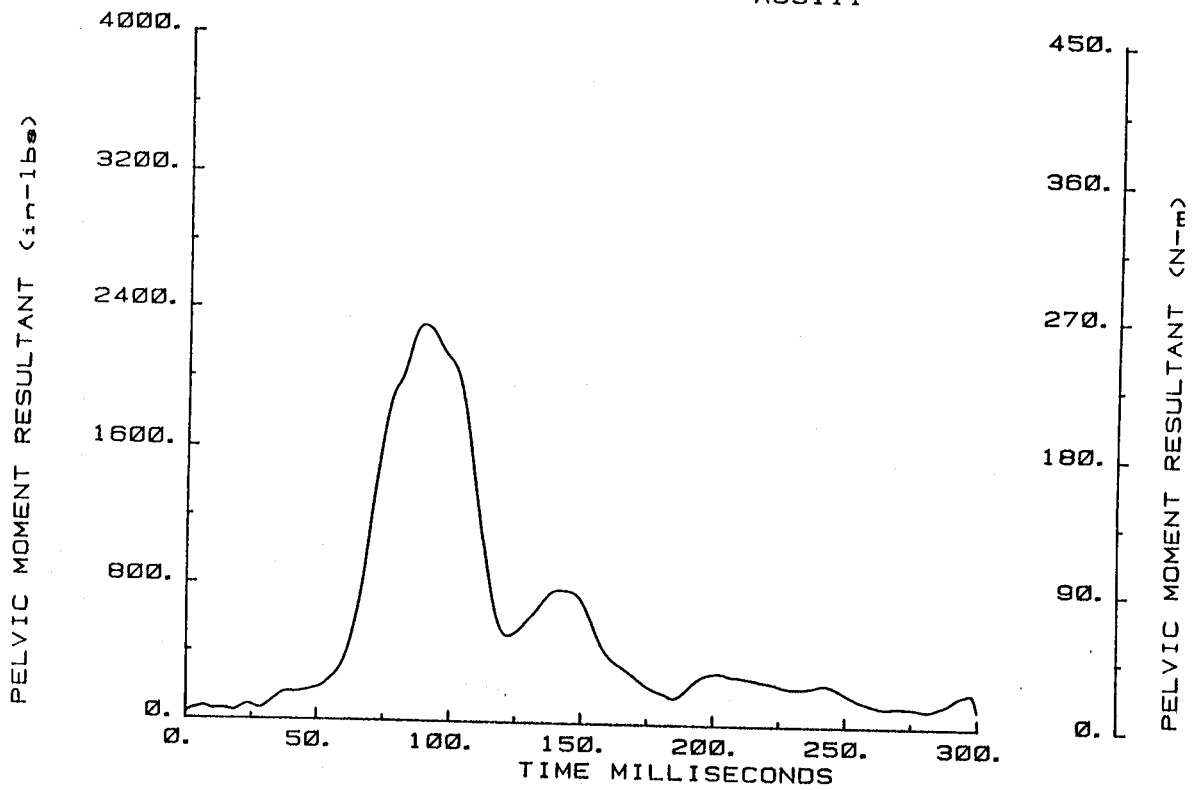
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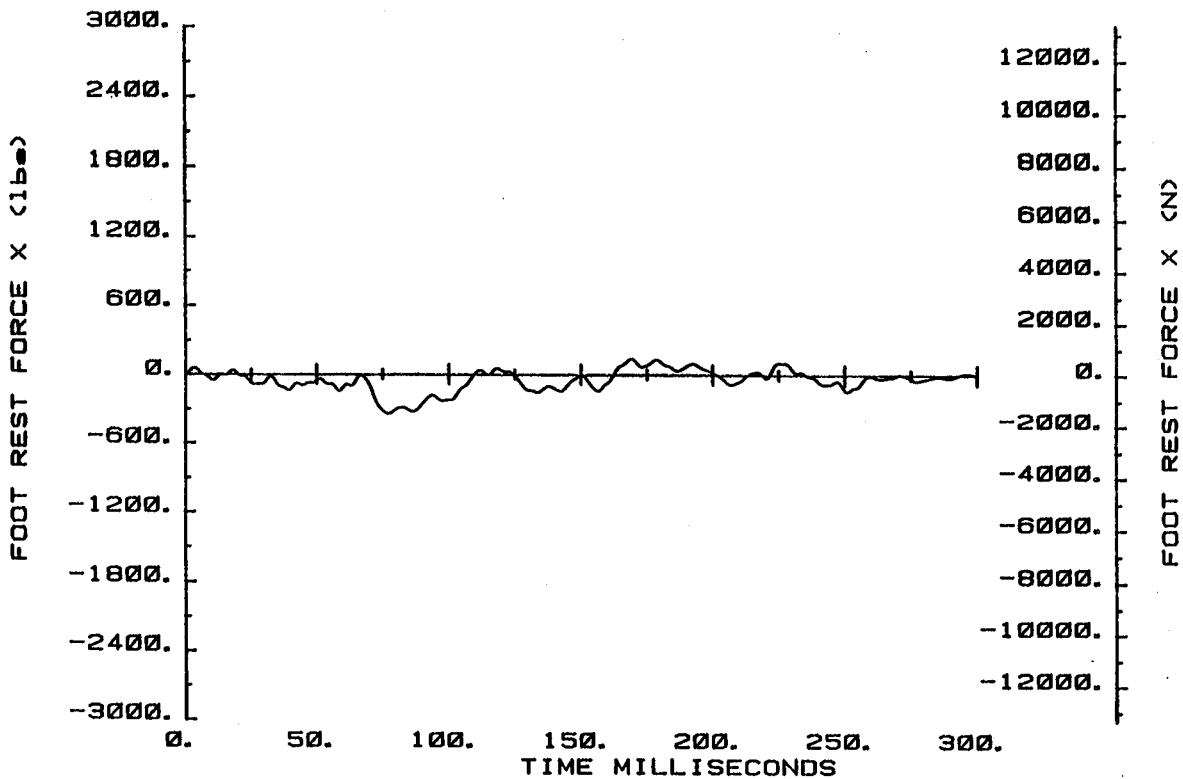
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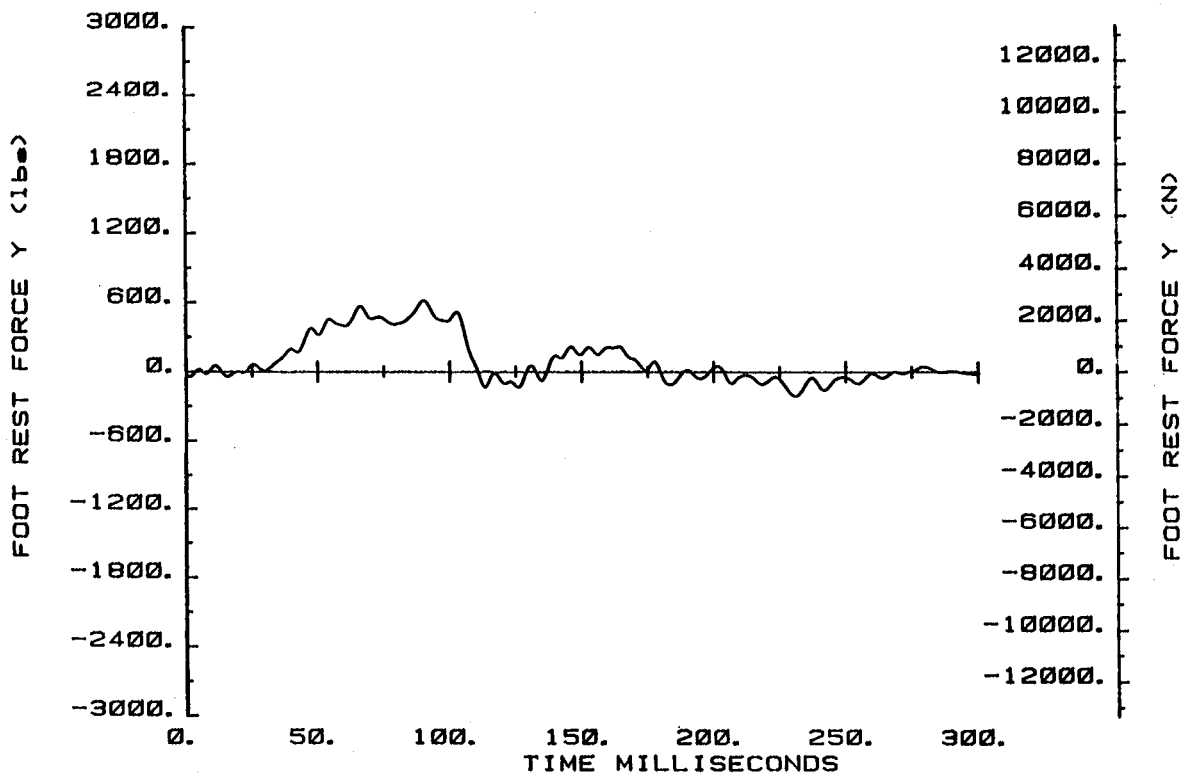
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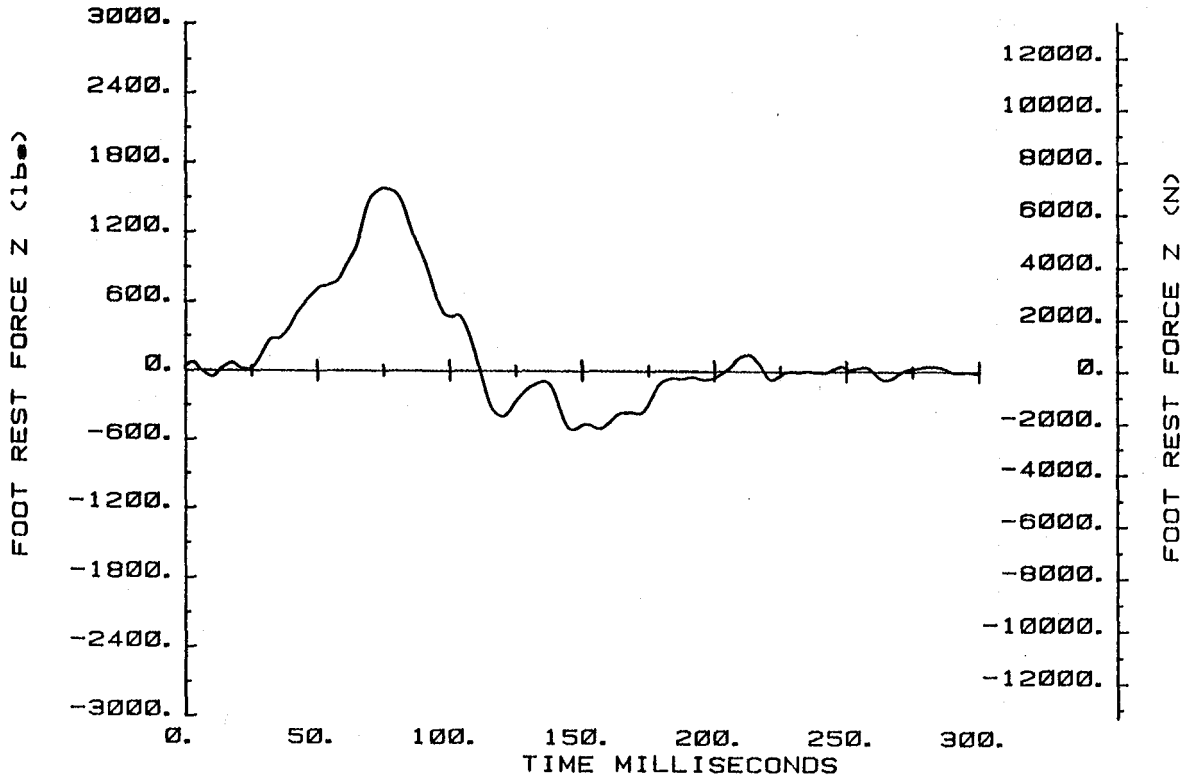


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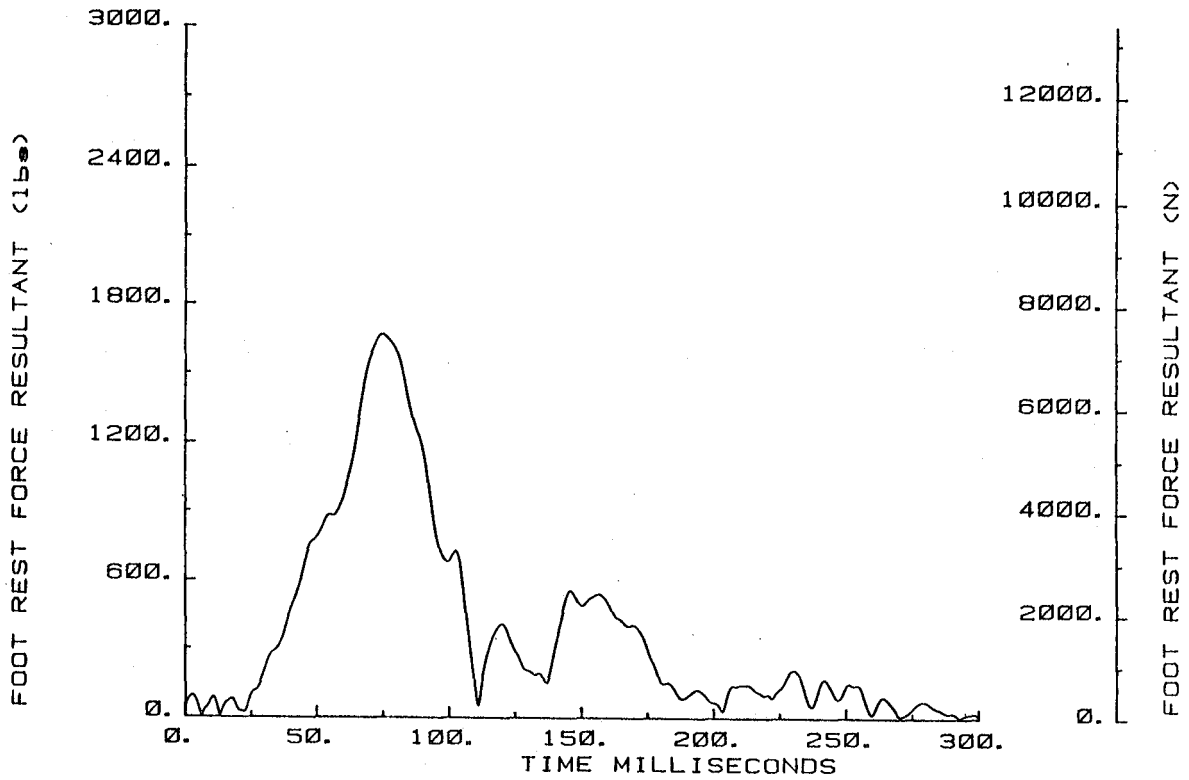




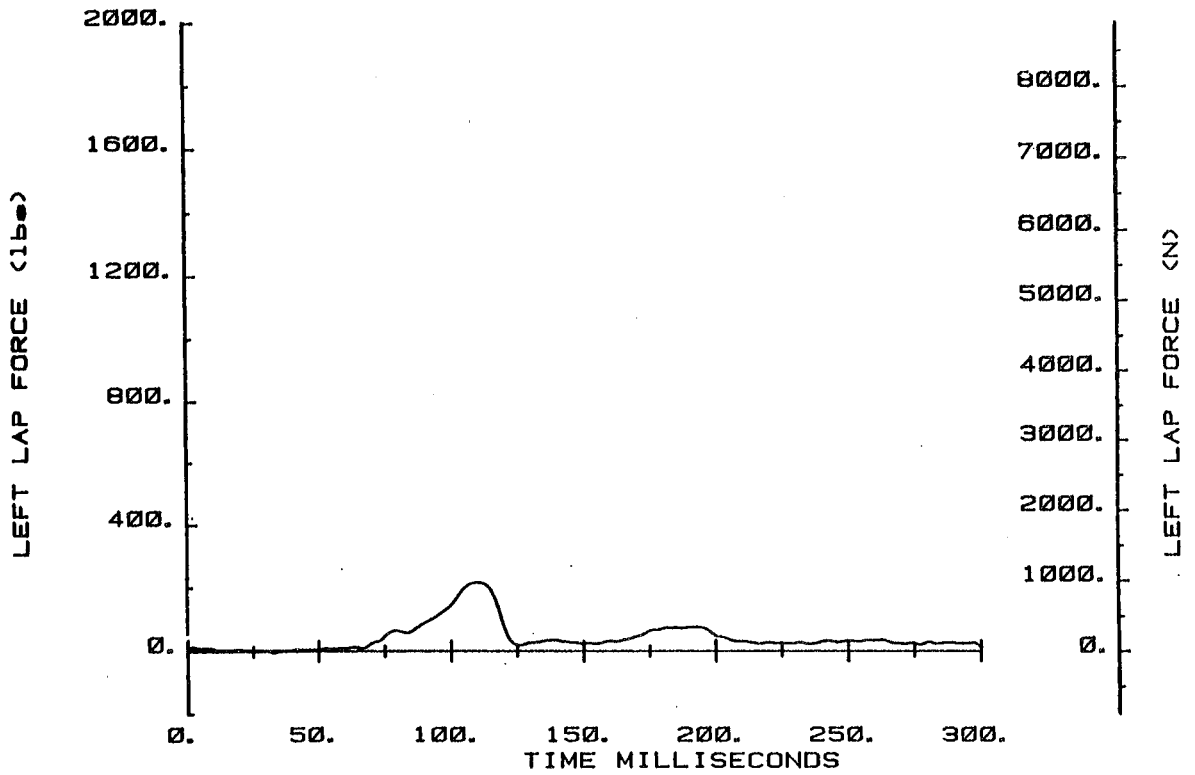
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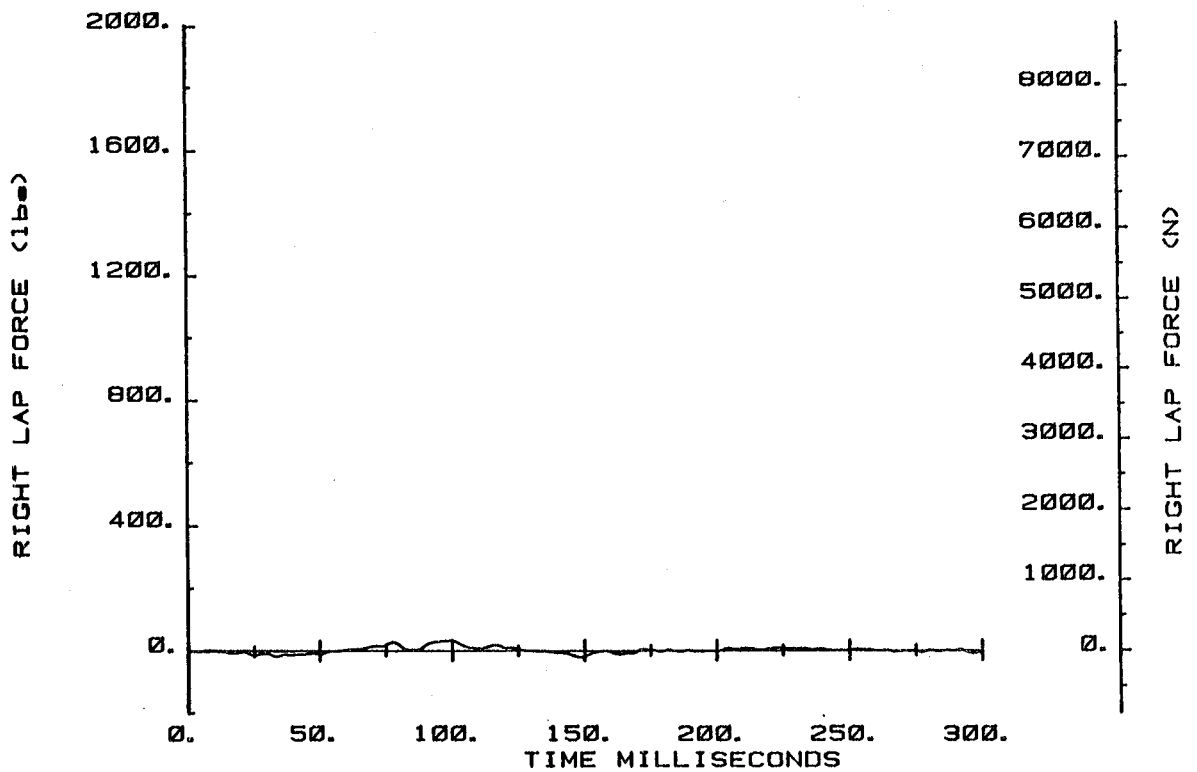
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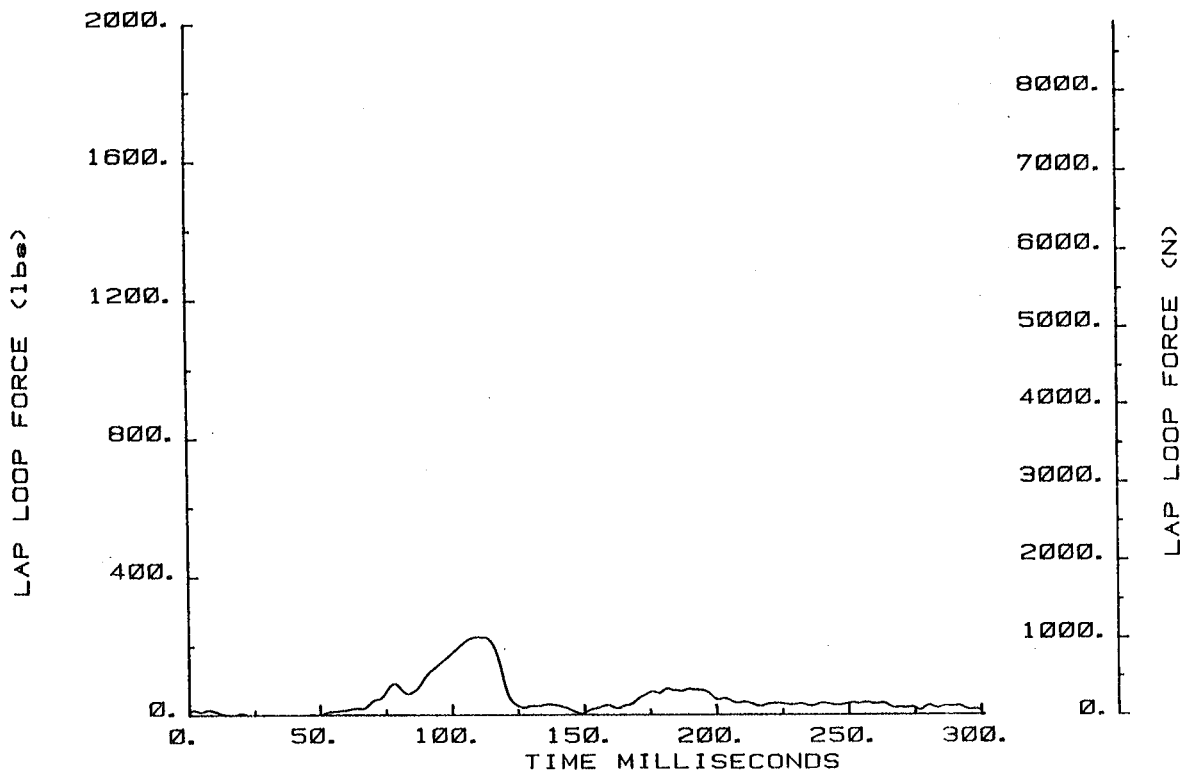
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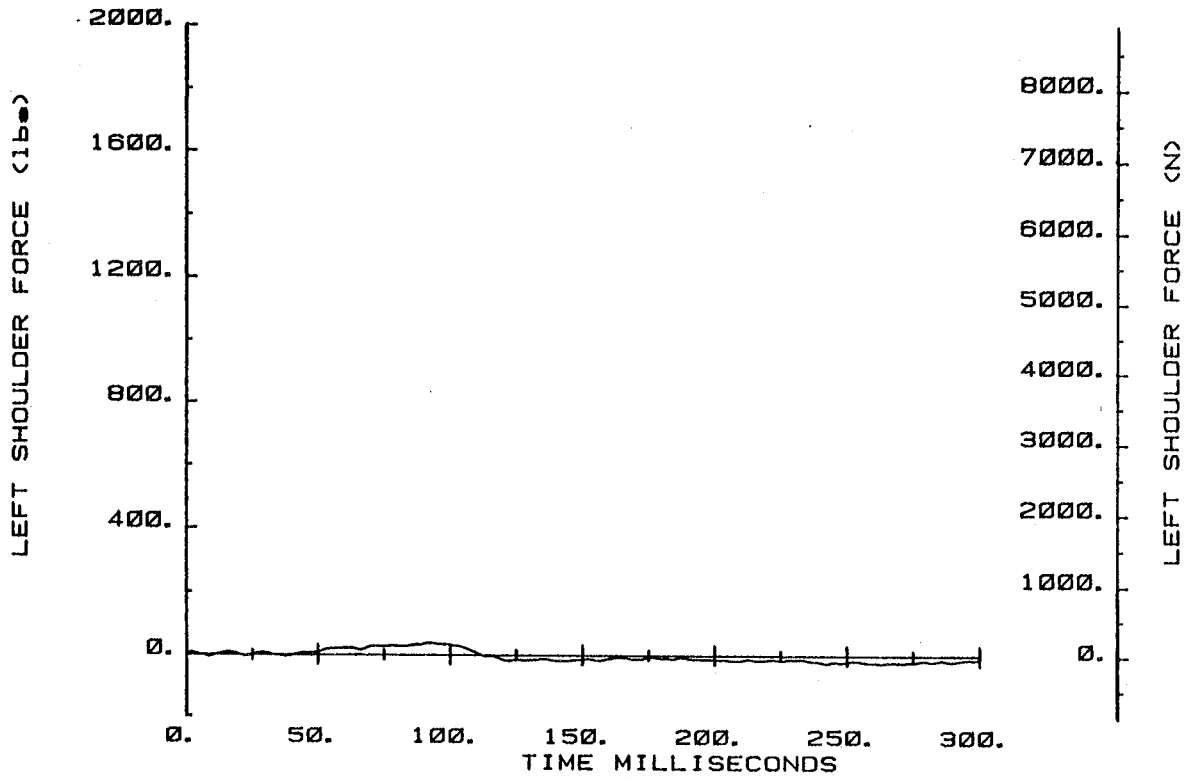
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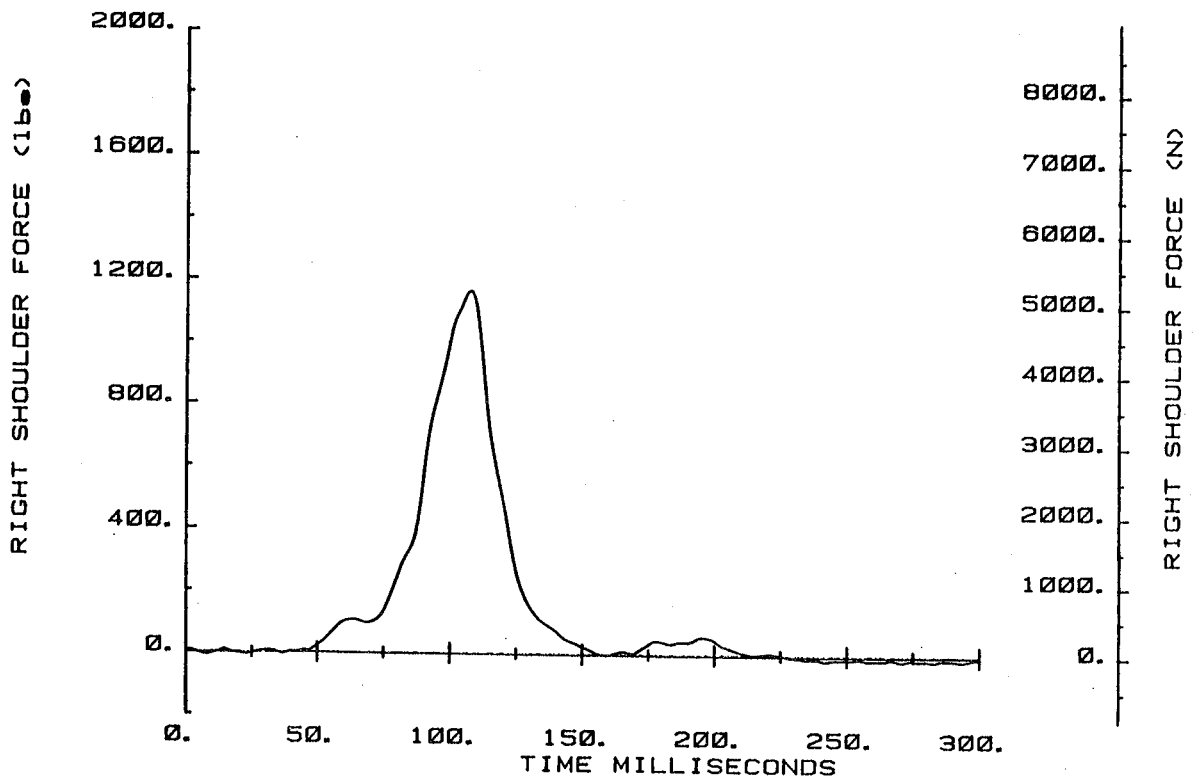
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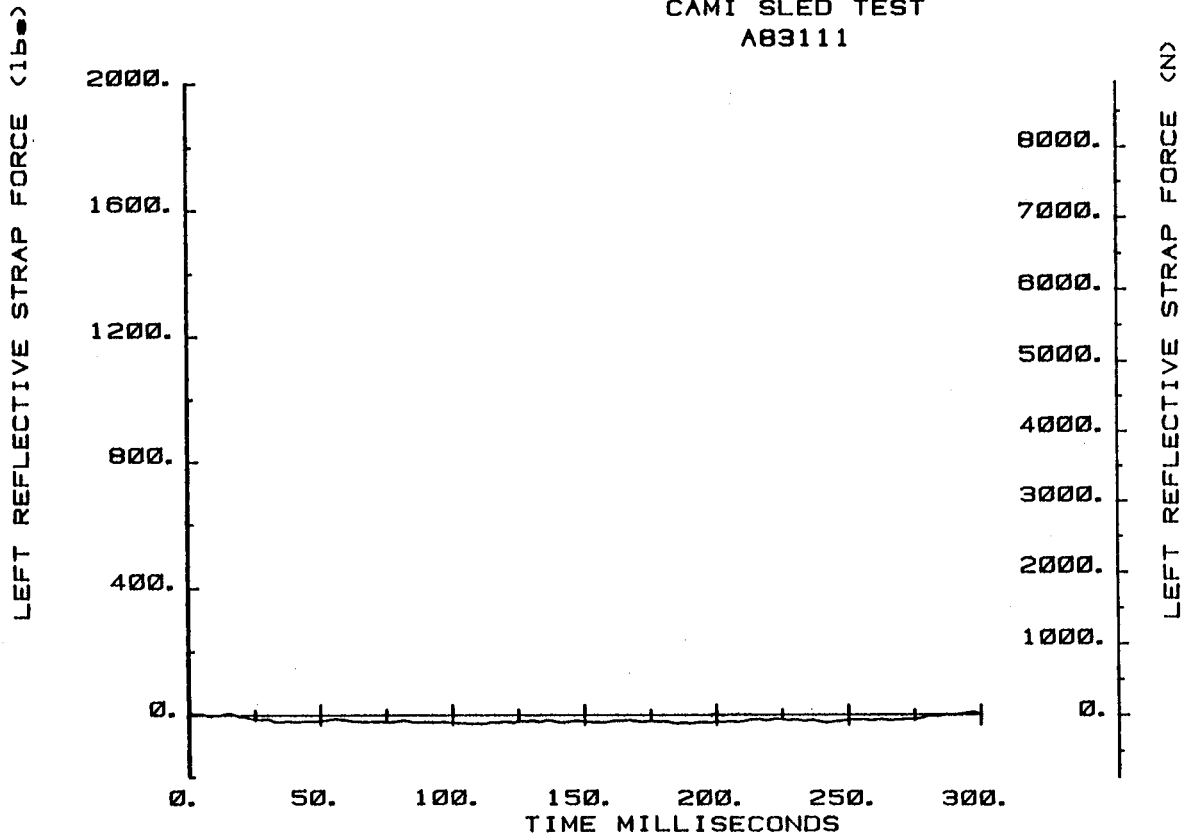
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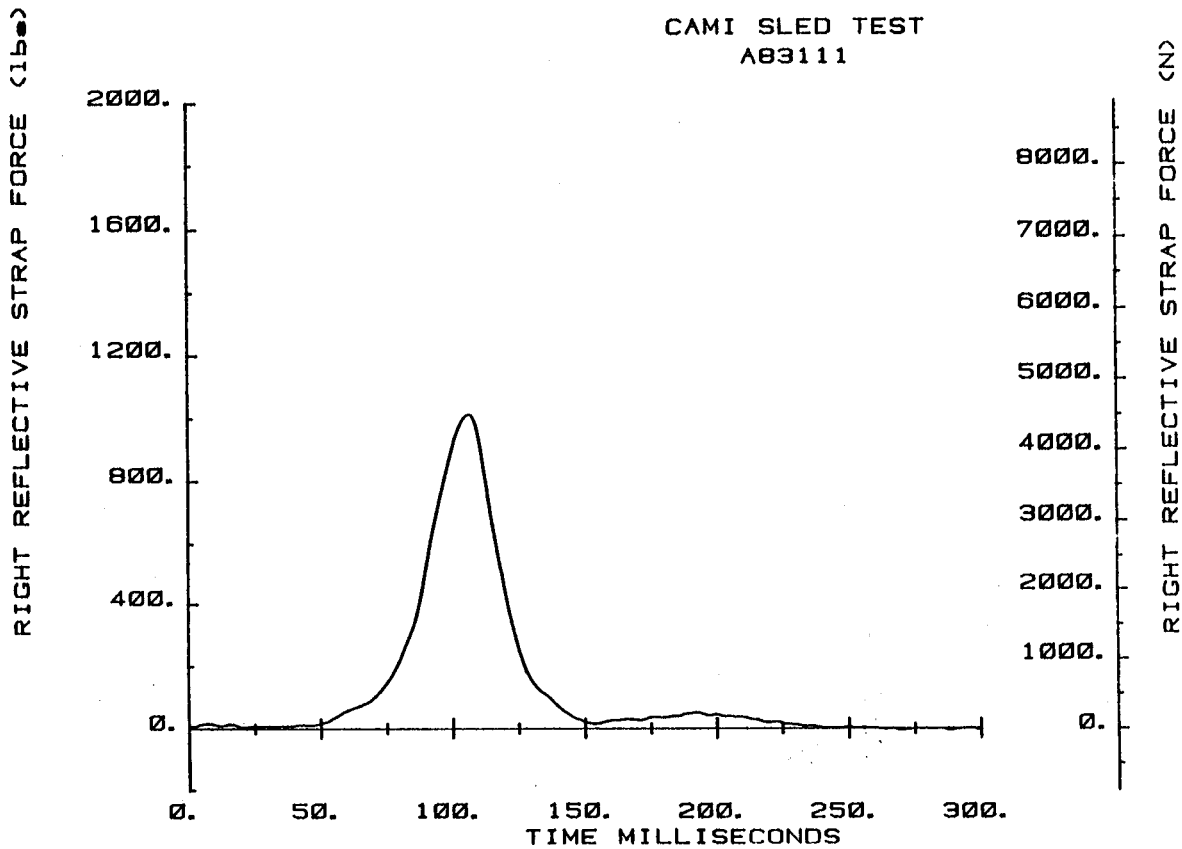
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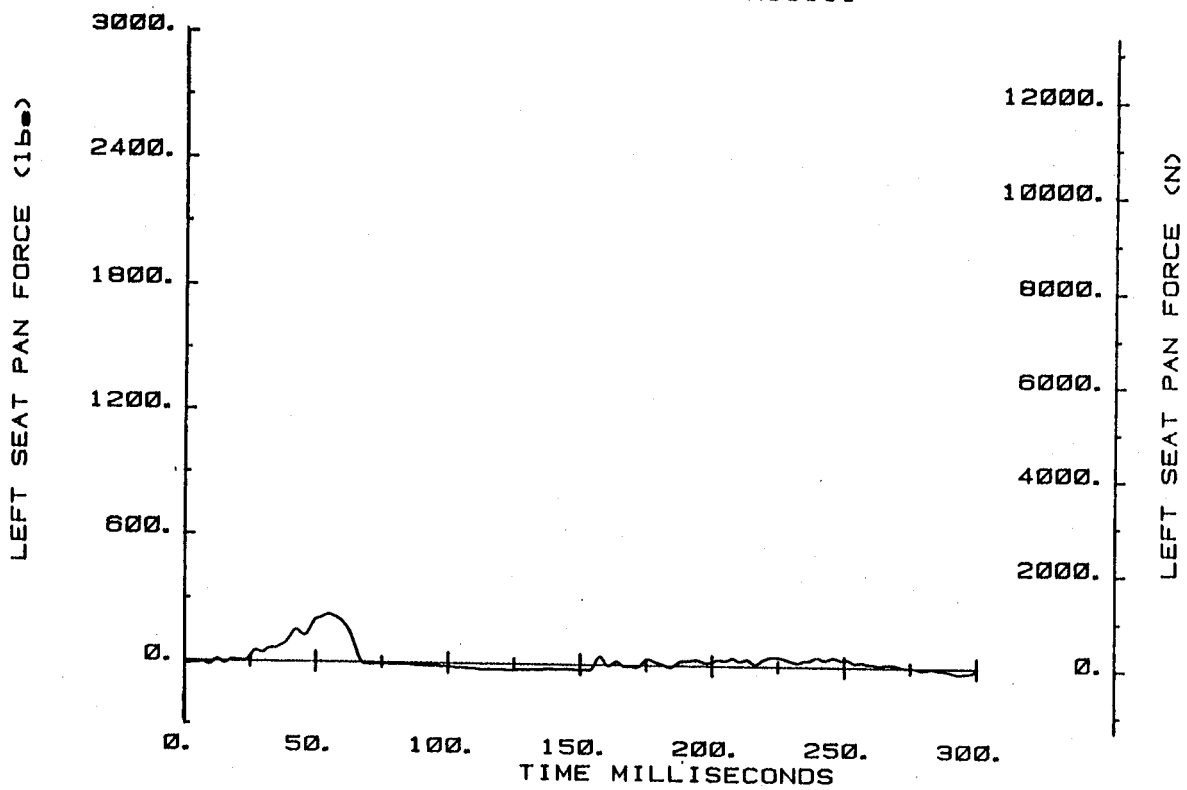
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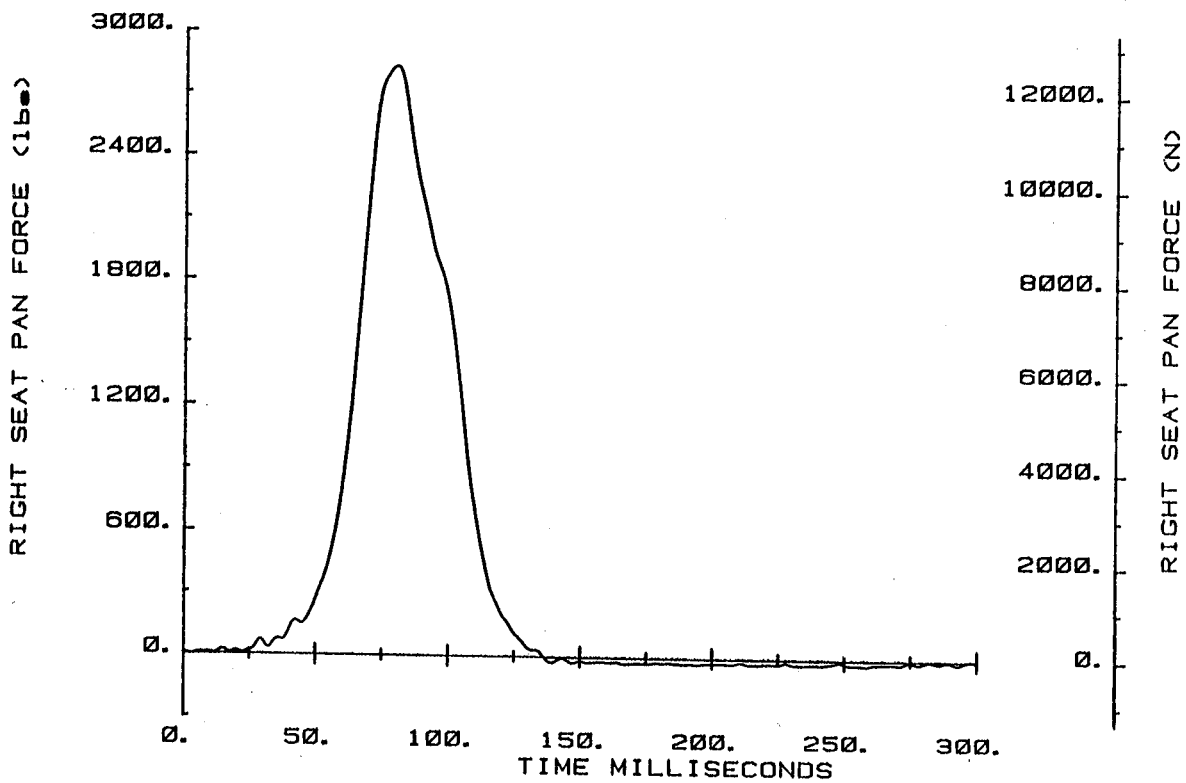
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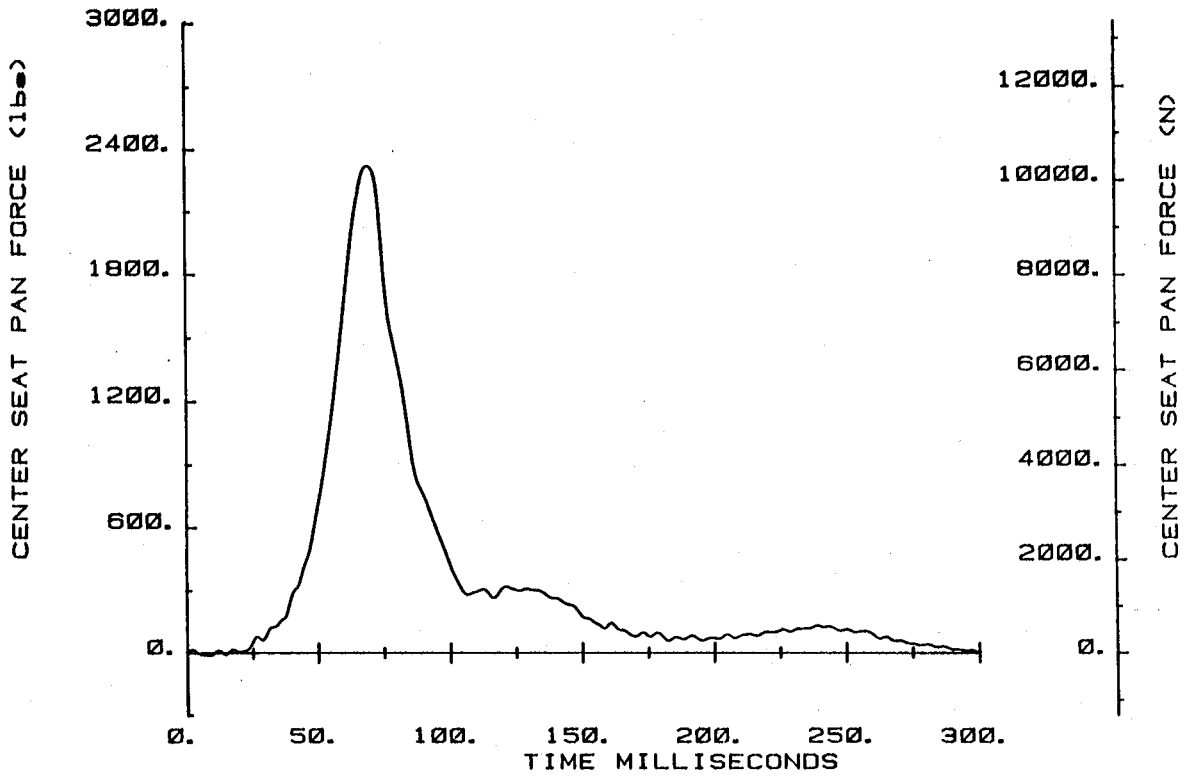
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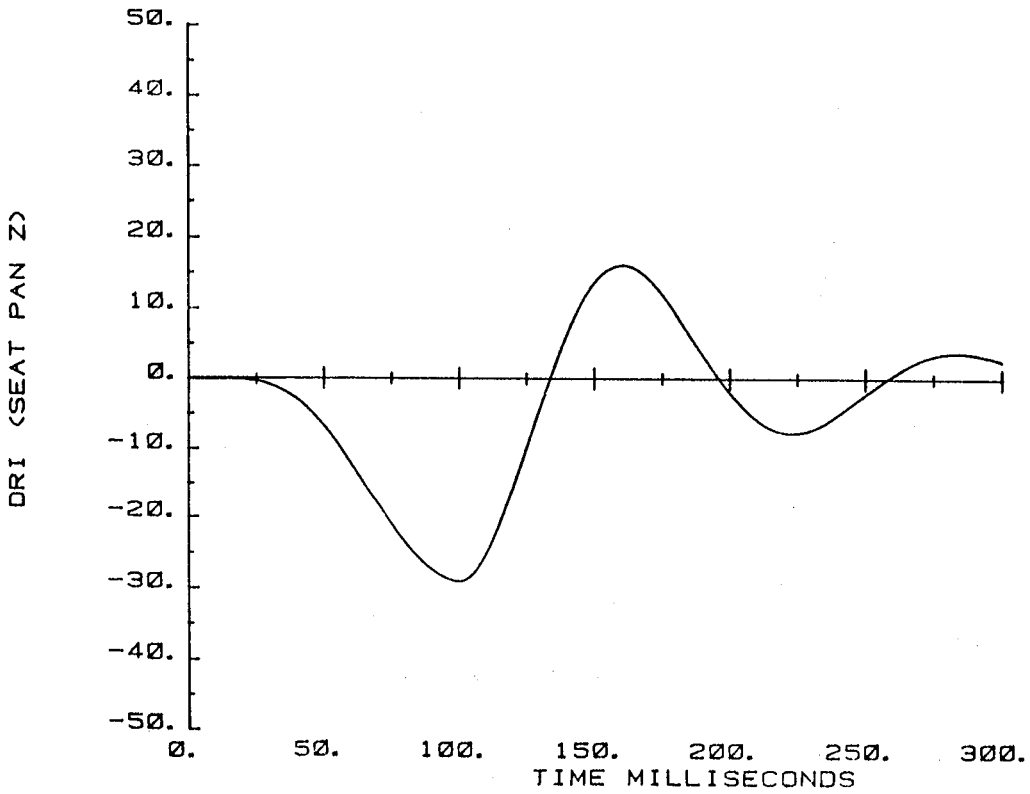
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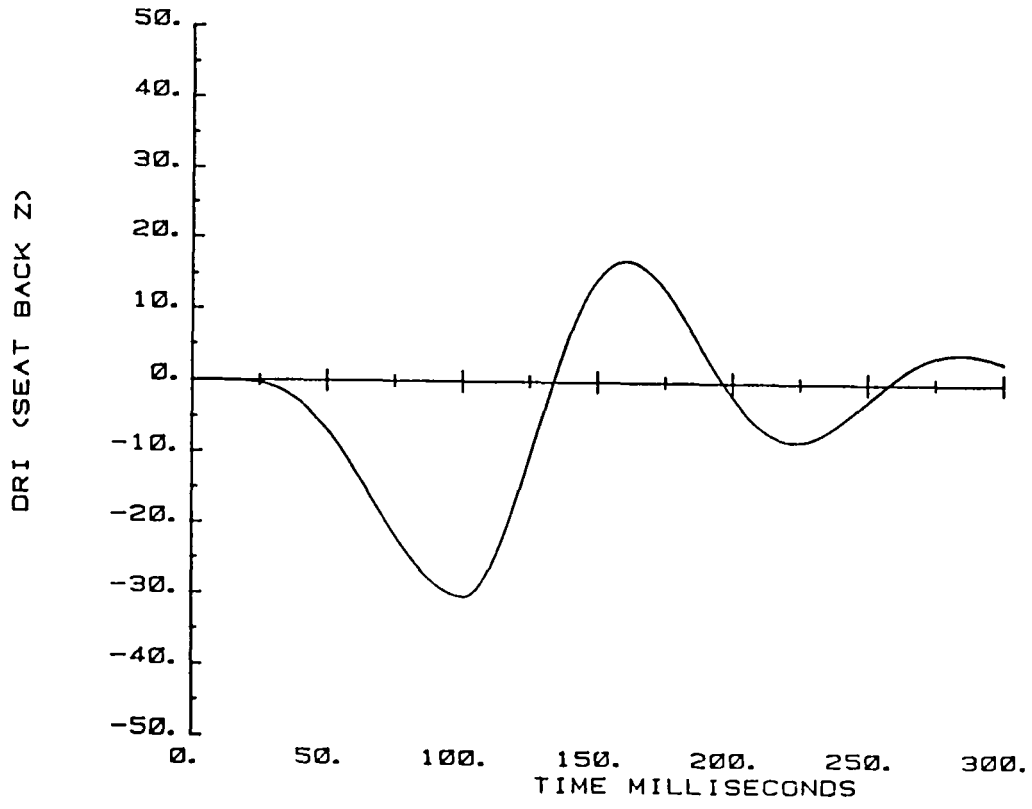
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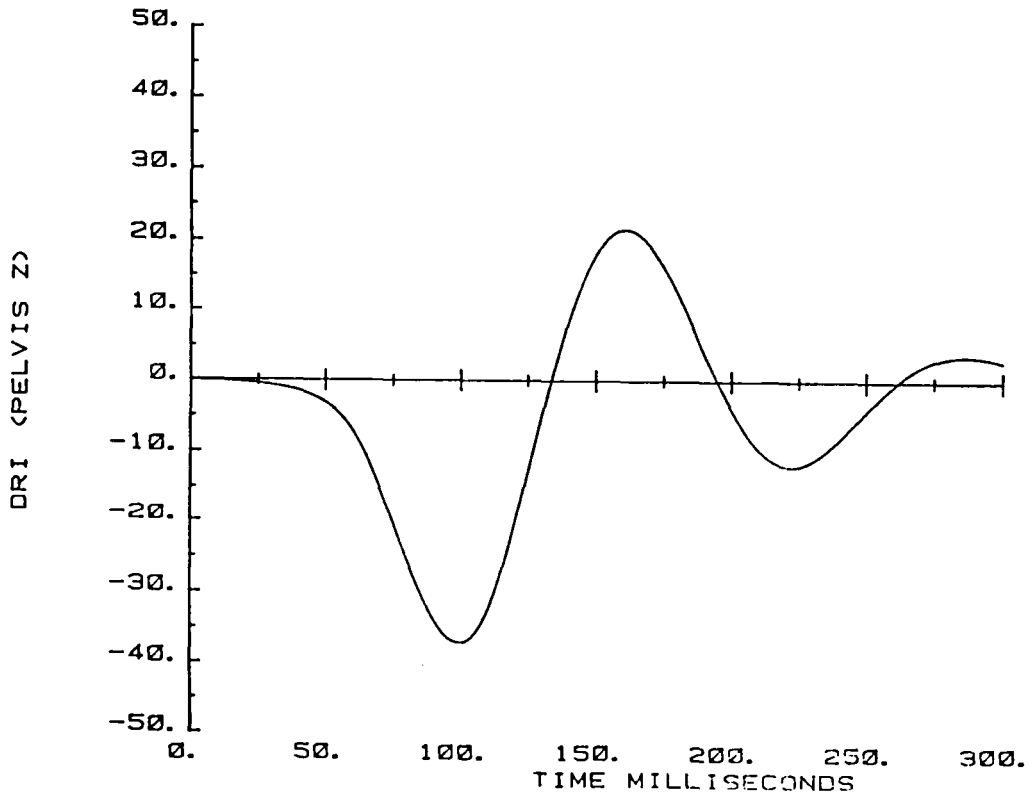
CAMI SLED TEST  
A83111



CAMI SLED TEST  
A83111



CAMI SLED TEST  
A83111





10.0 CAMI TEST NO. A83-112

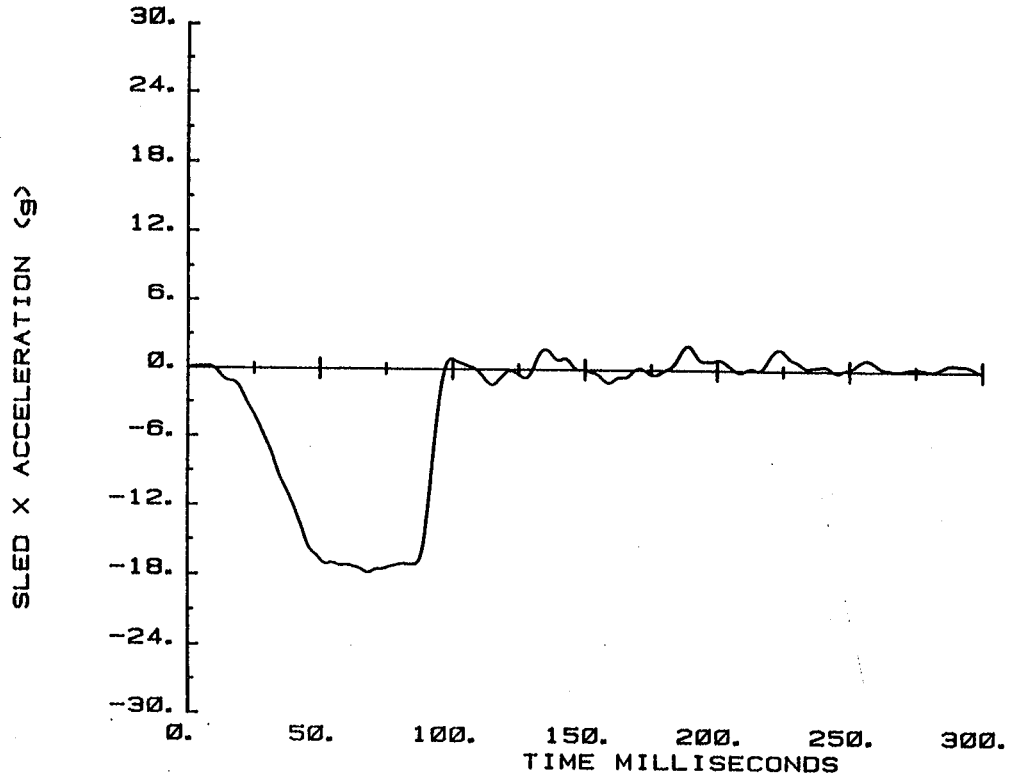
SEAT: F-111 Operational

PULSE NUMBER: 1

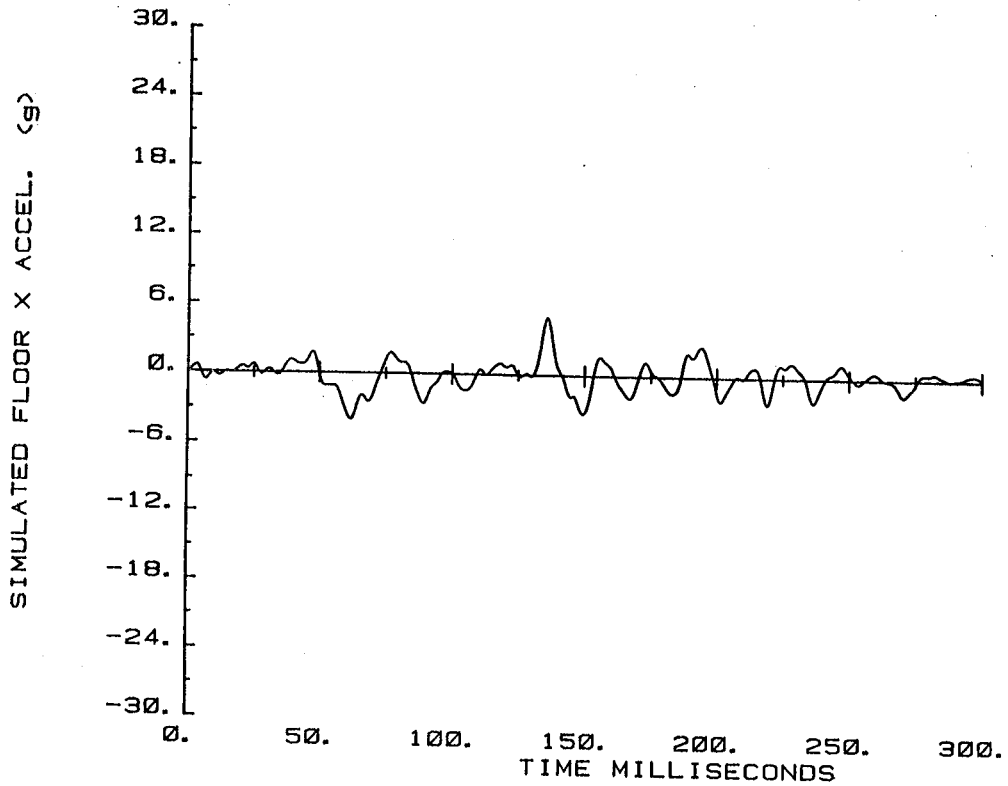
SEAT ORIENTATION: Pitch - 90°  
Roll - 0°  
Yaw - 0°

| 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  |        |     |                    |      |

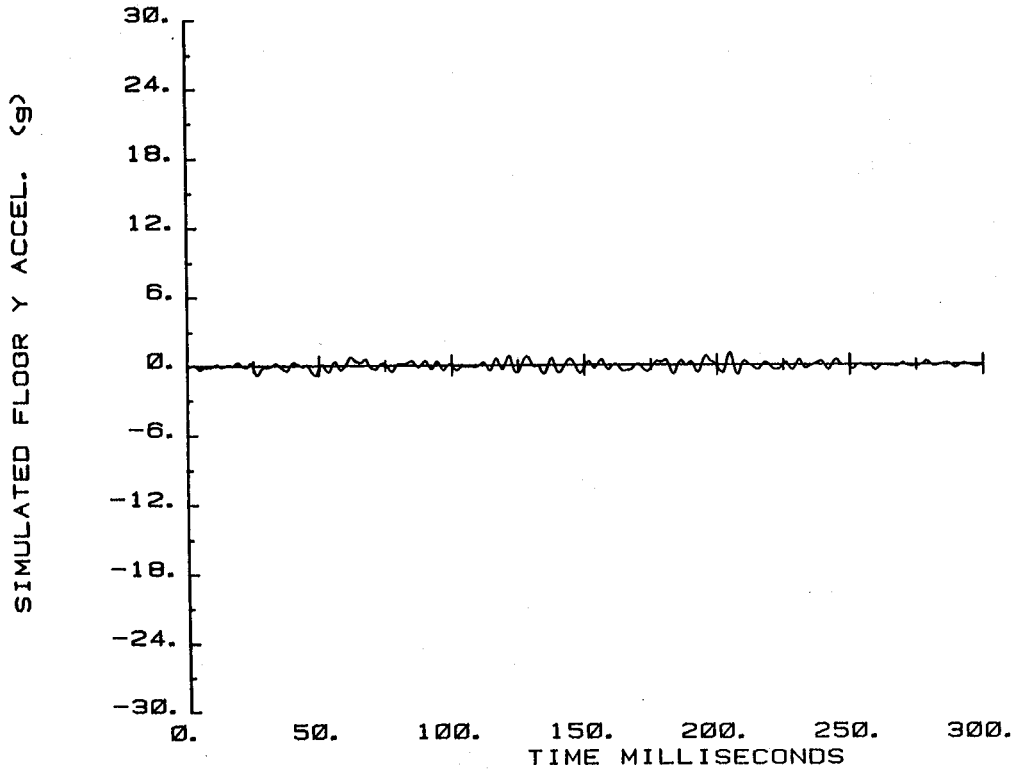
CAMI SLED TEST  
A83112



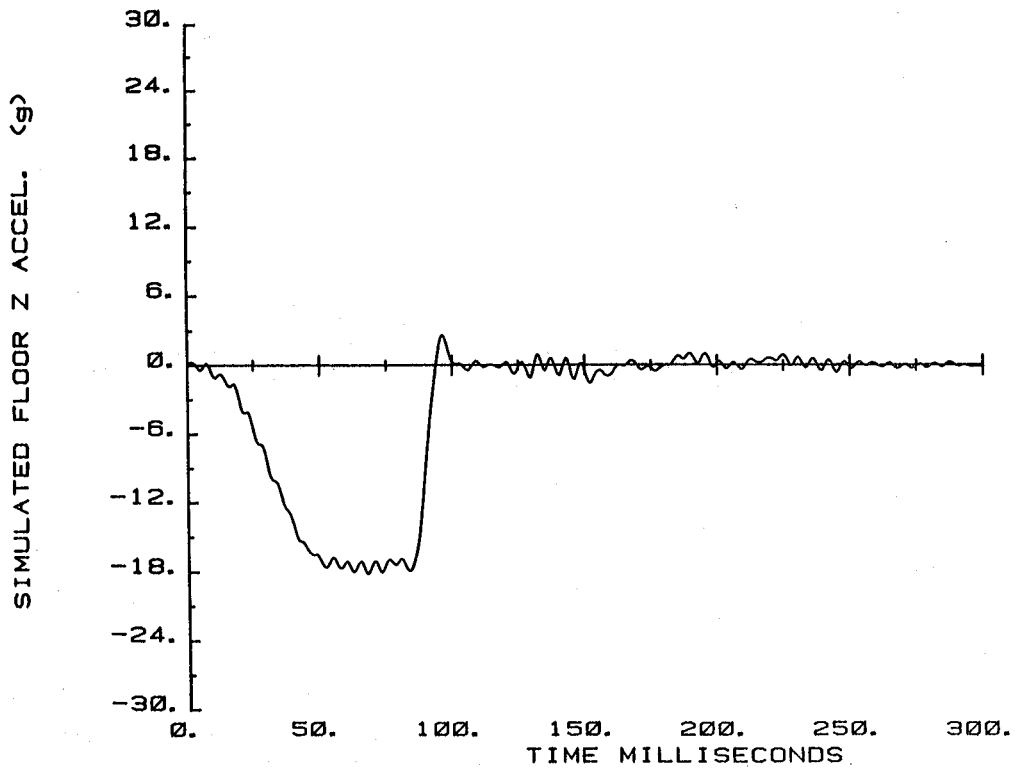
CAMI SLED TEST  
A83112



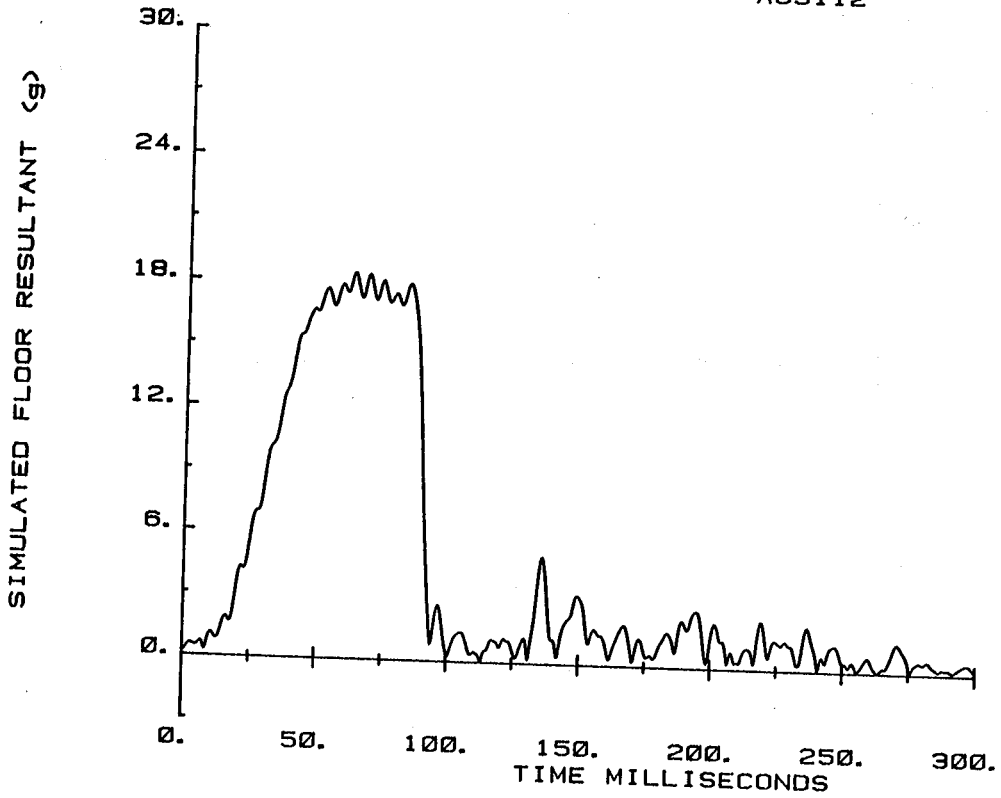
CAMI SLED TEST  
A83112



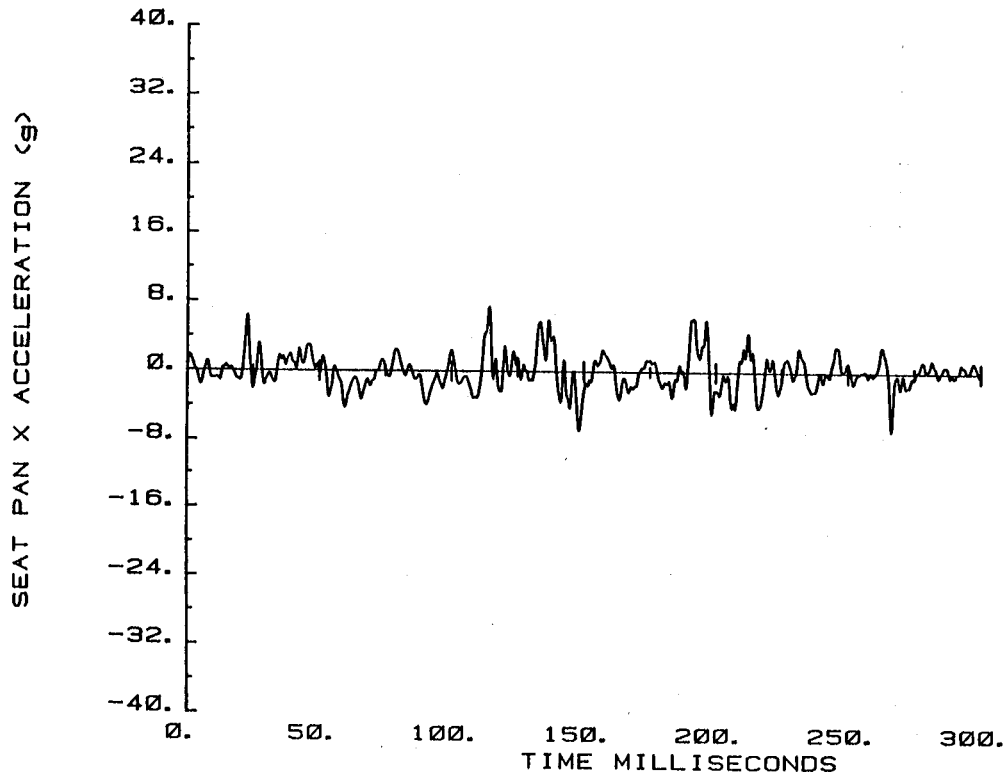
CAMI SLED TEST  
A83112



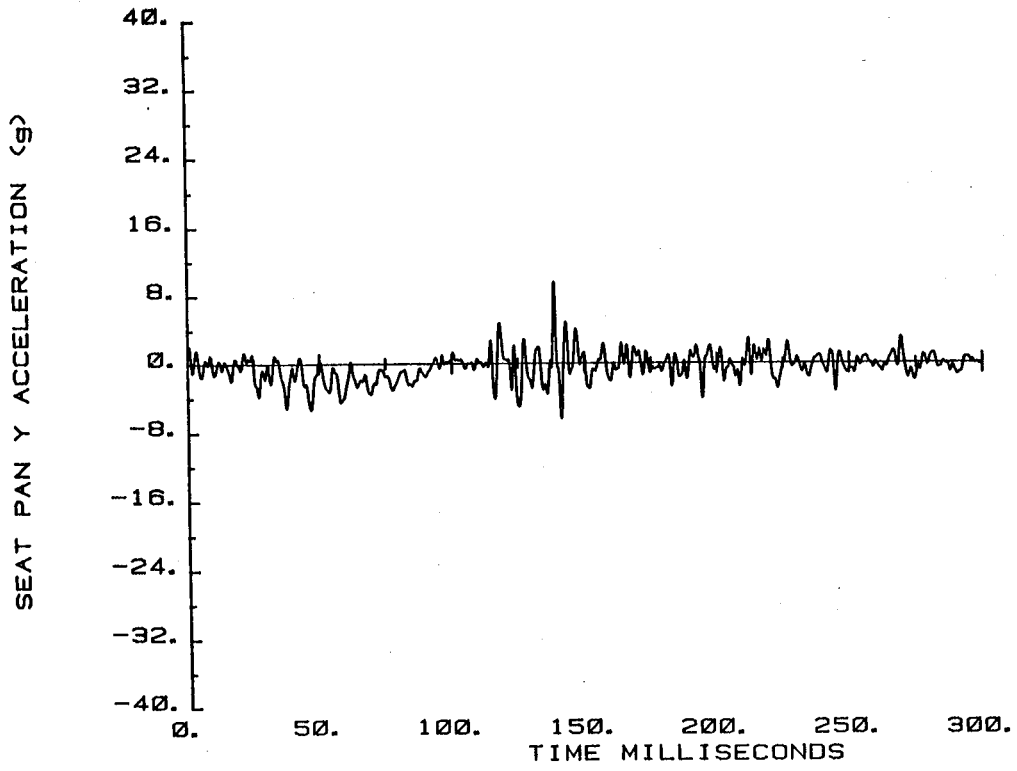
CAMI SLED TEST  
A83112



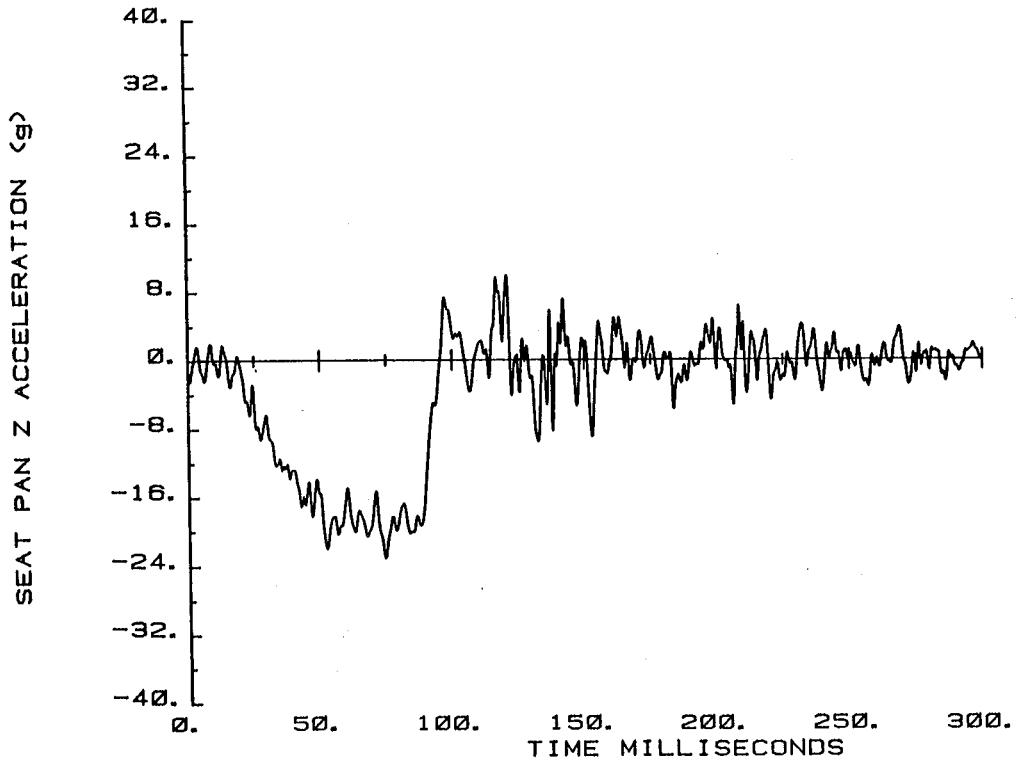
CAMI SLED TEST  
A83112



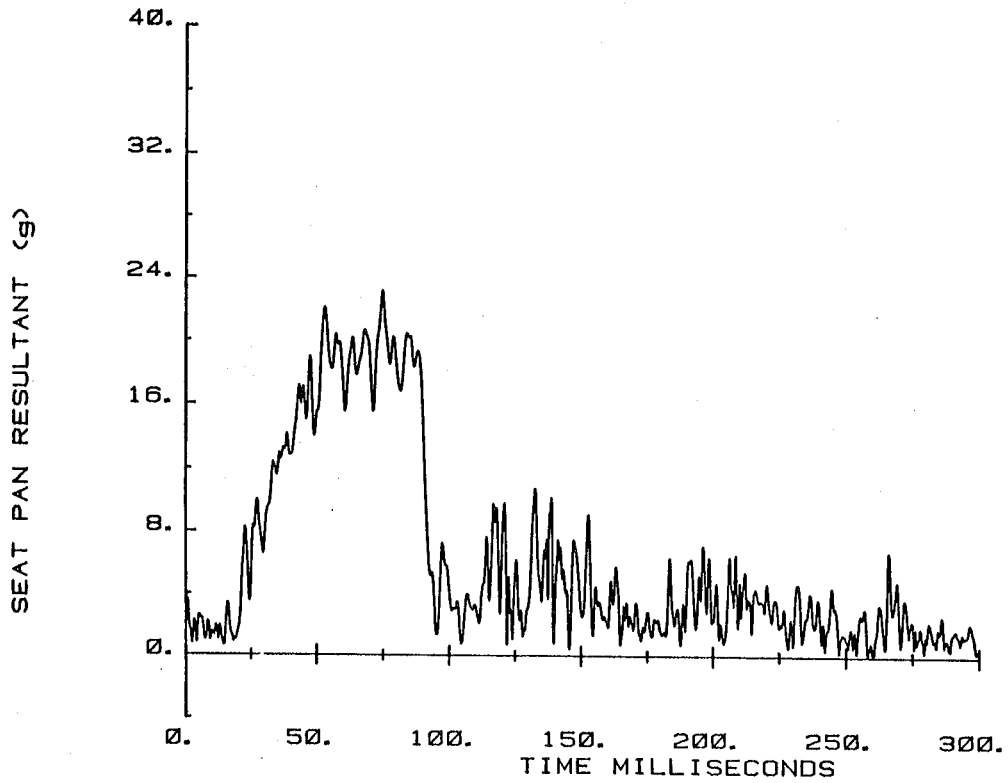
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A83112



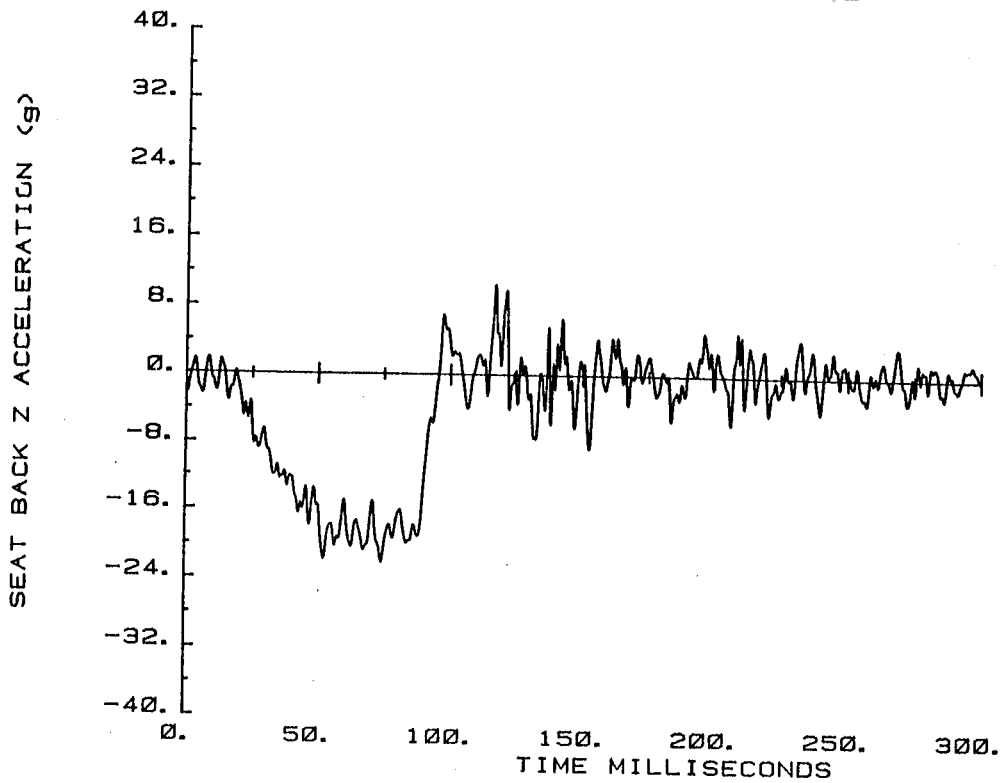
CAMI SLED TEST  
A83112



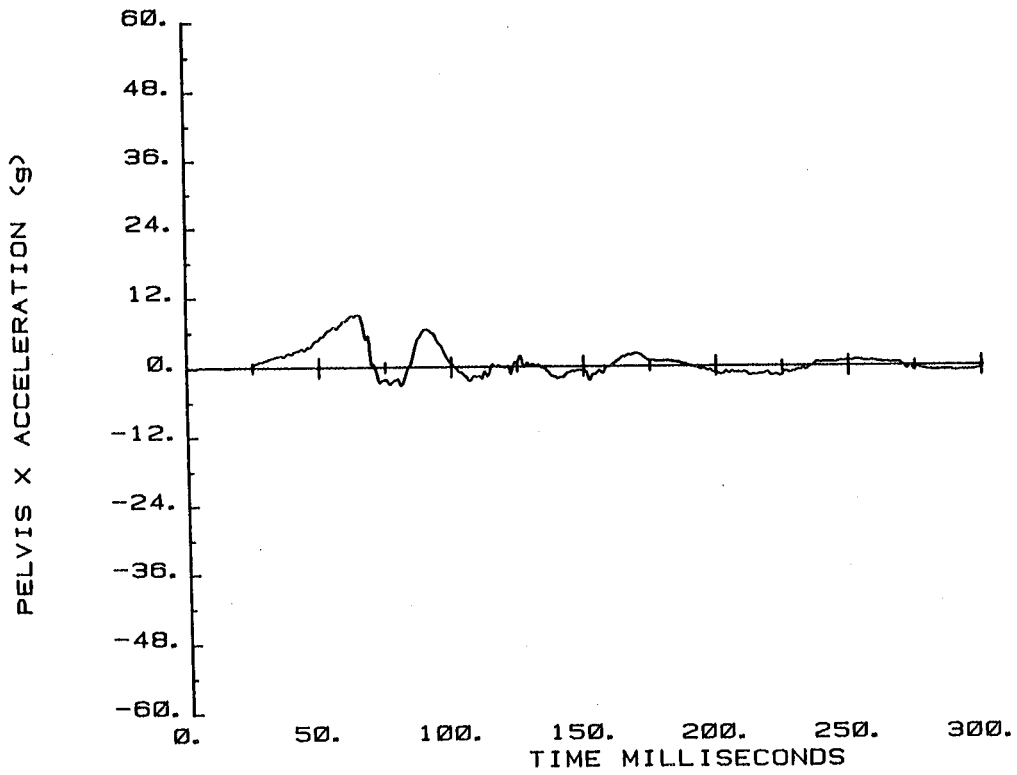
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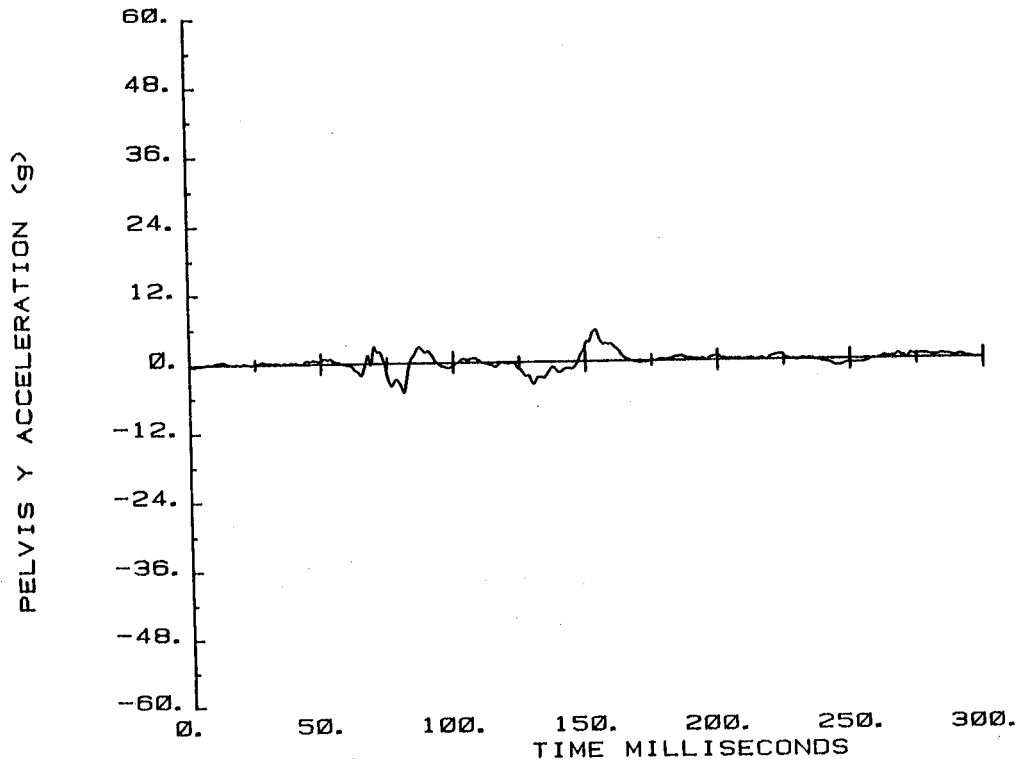
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CAMI SLED TEST  
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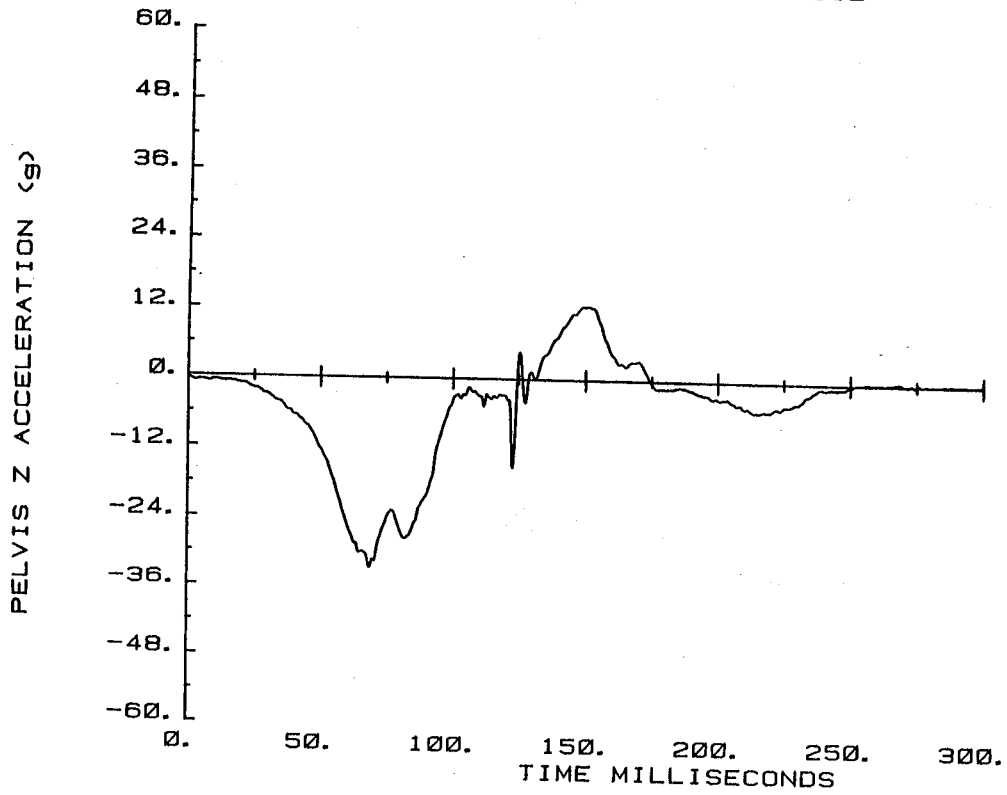


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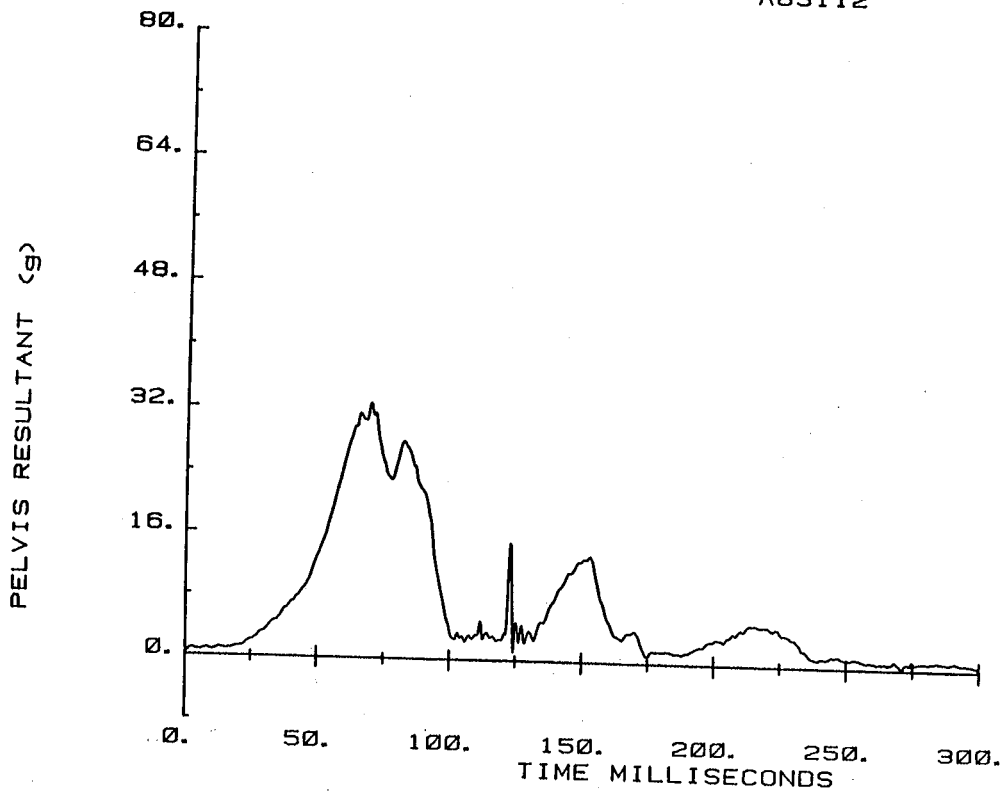




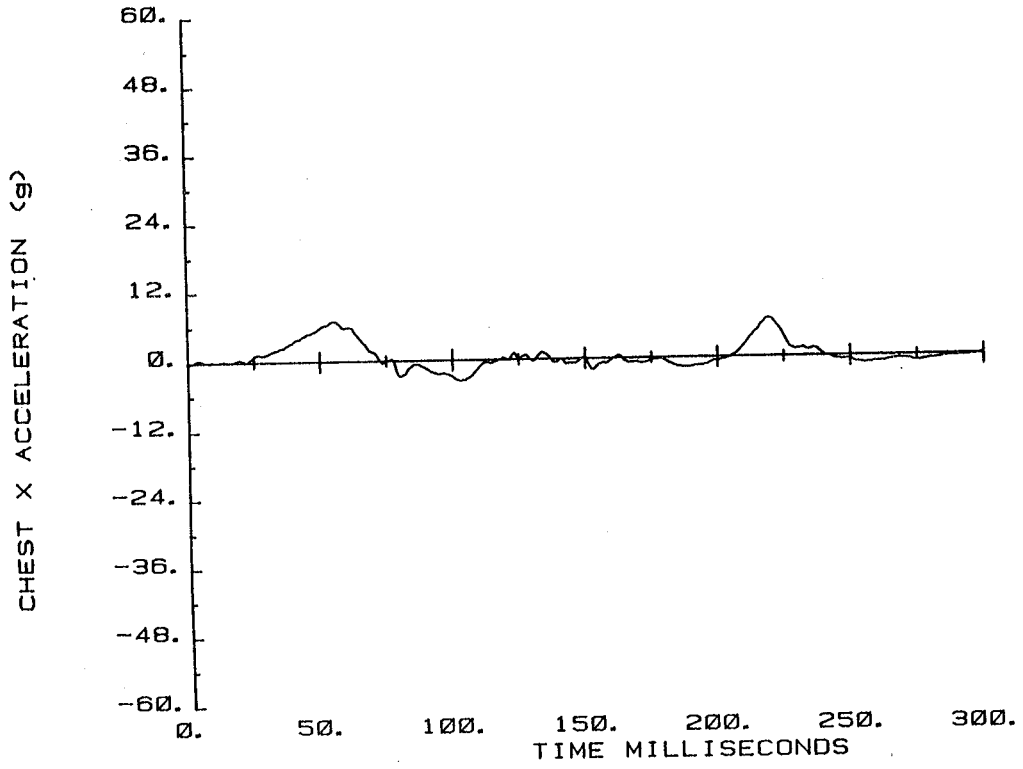
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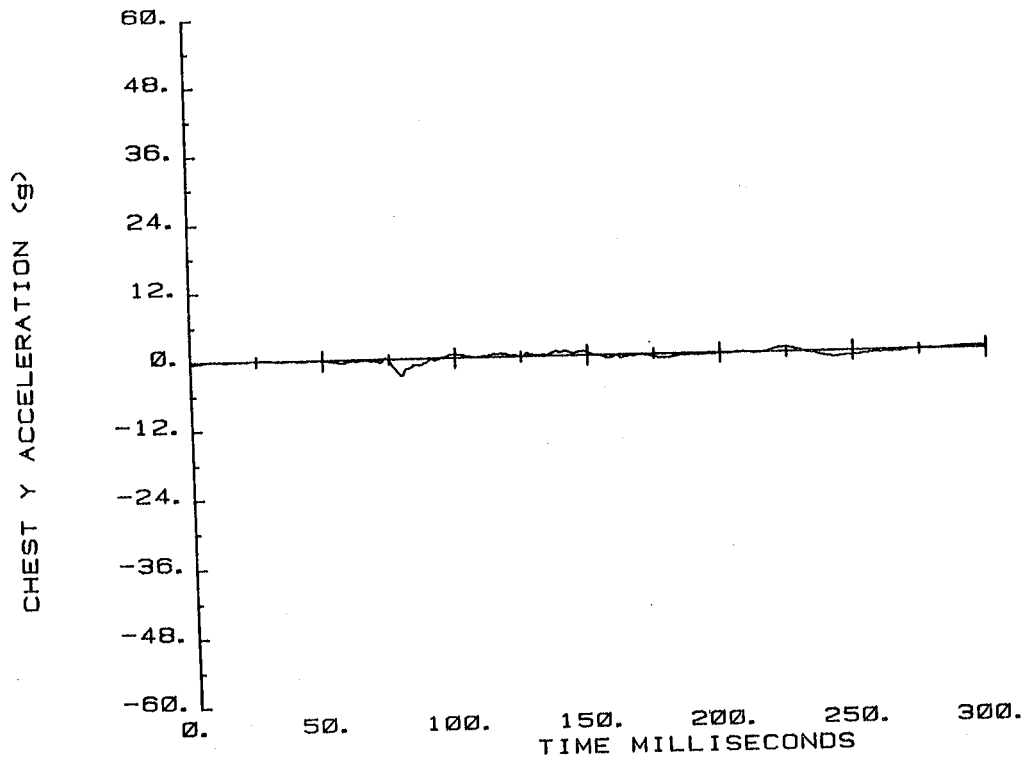
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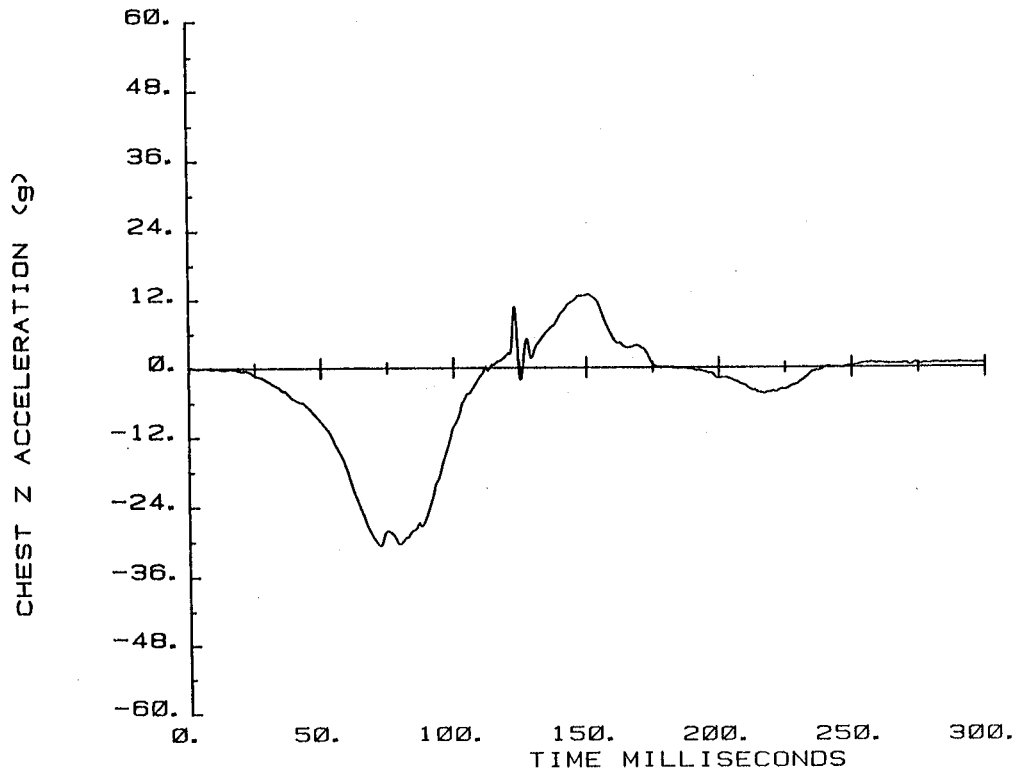
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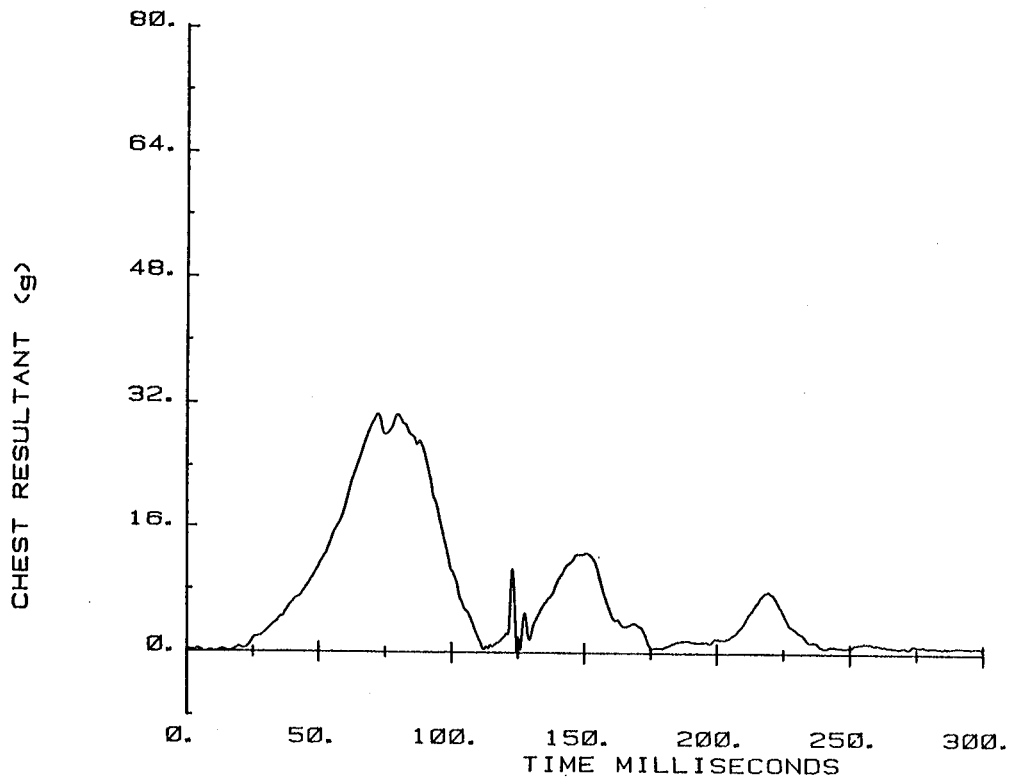
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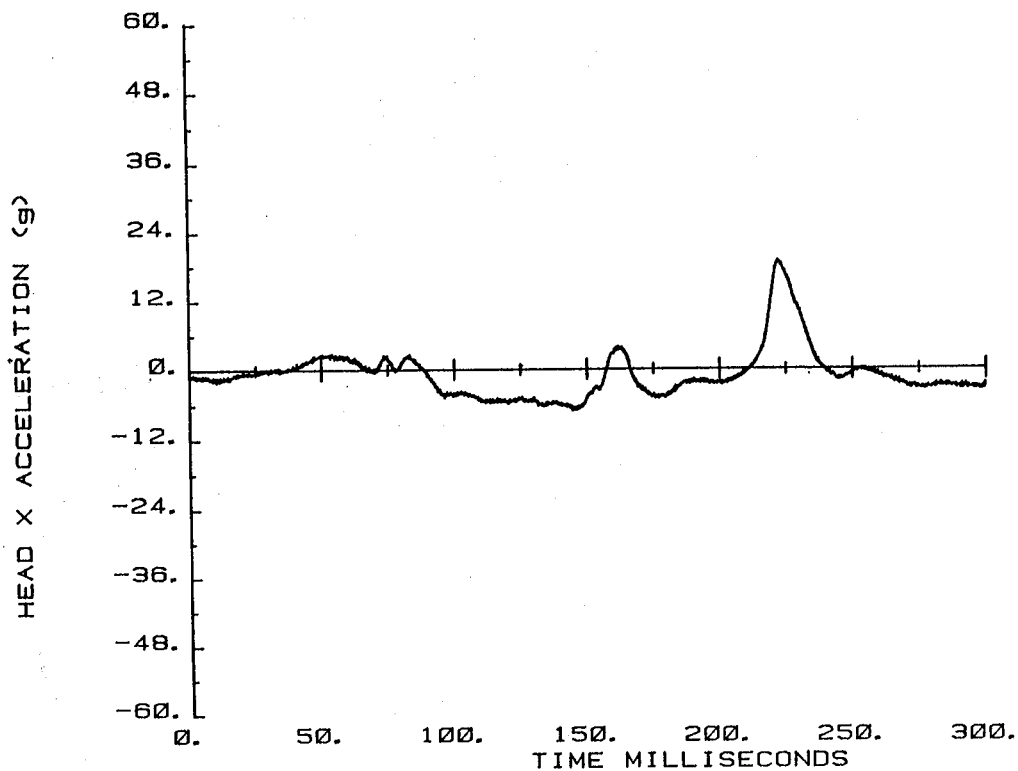
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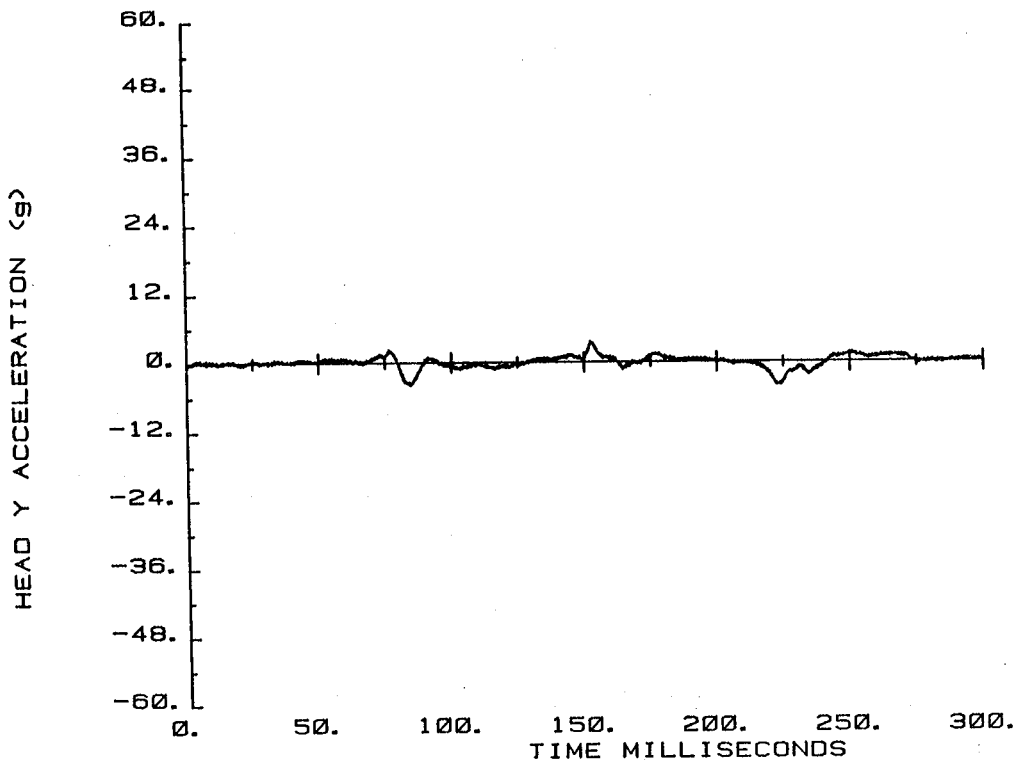
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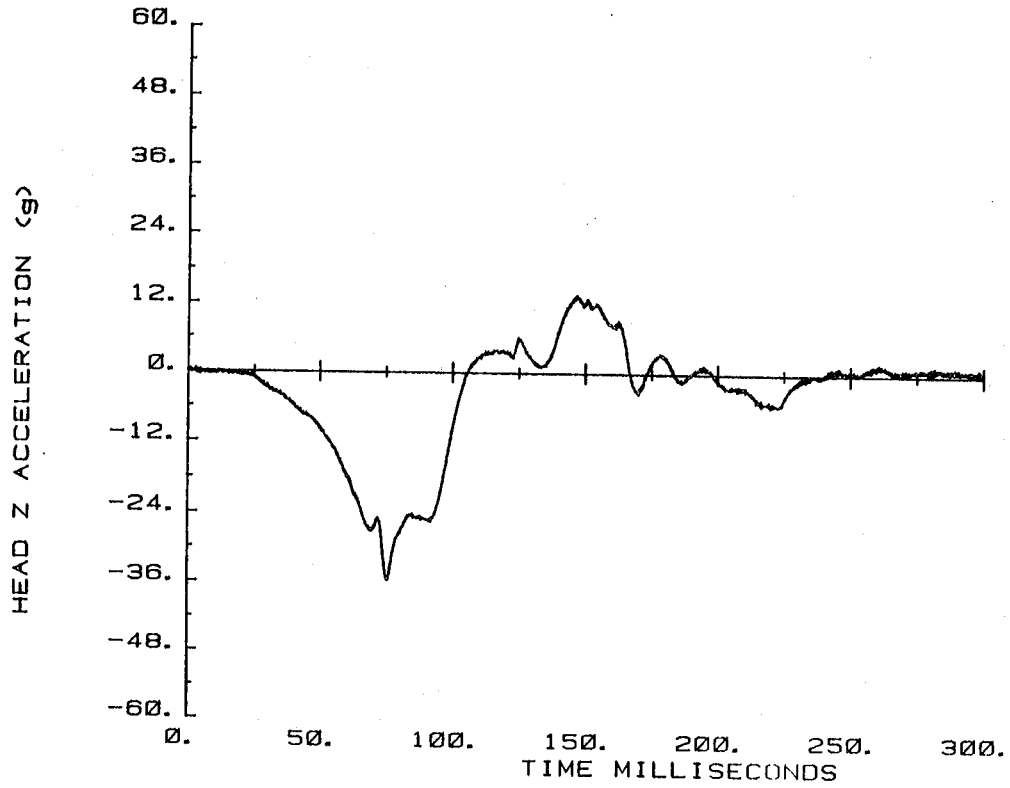
CAMI SLED TEST  
A83112



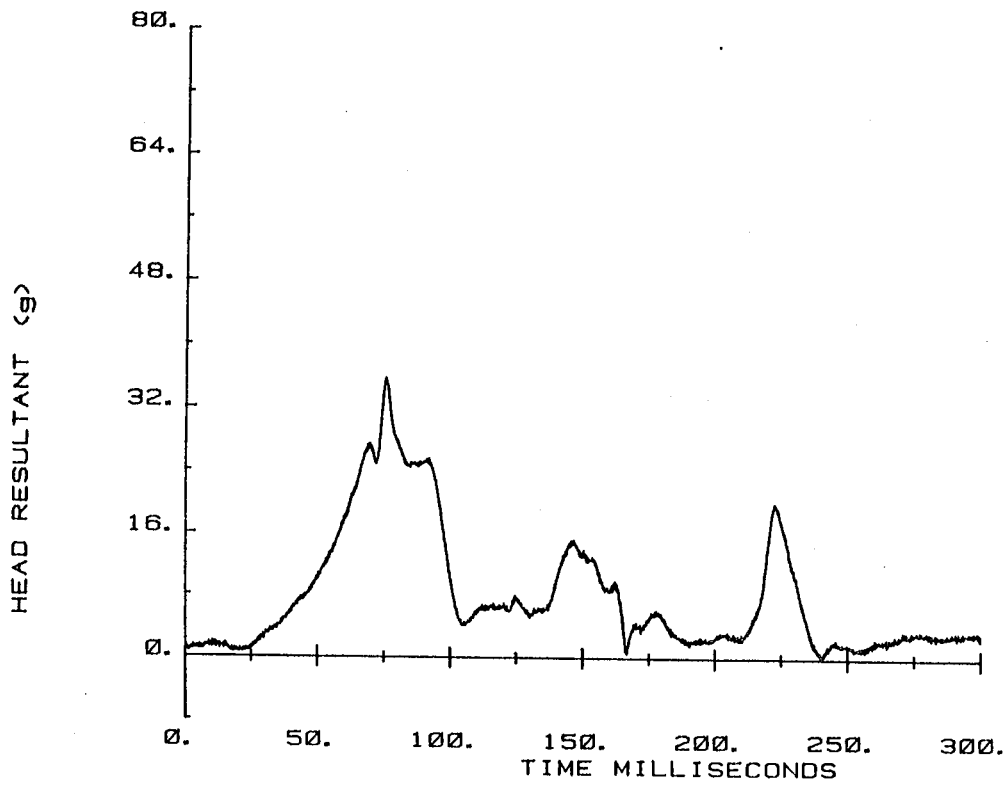
CAMI SLED TEST  
A83112



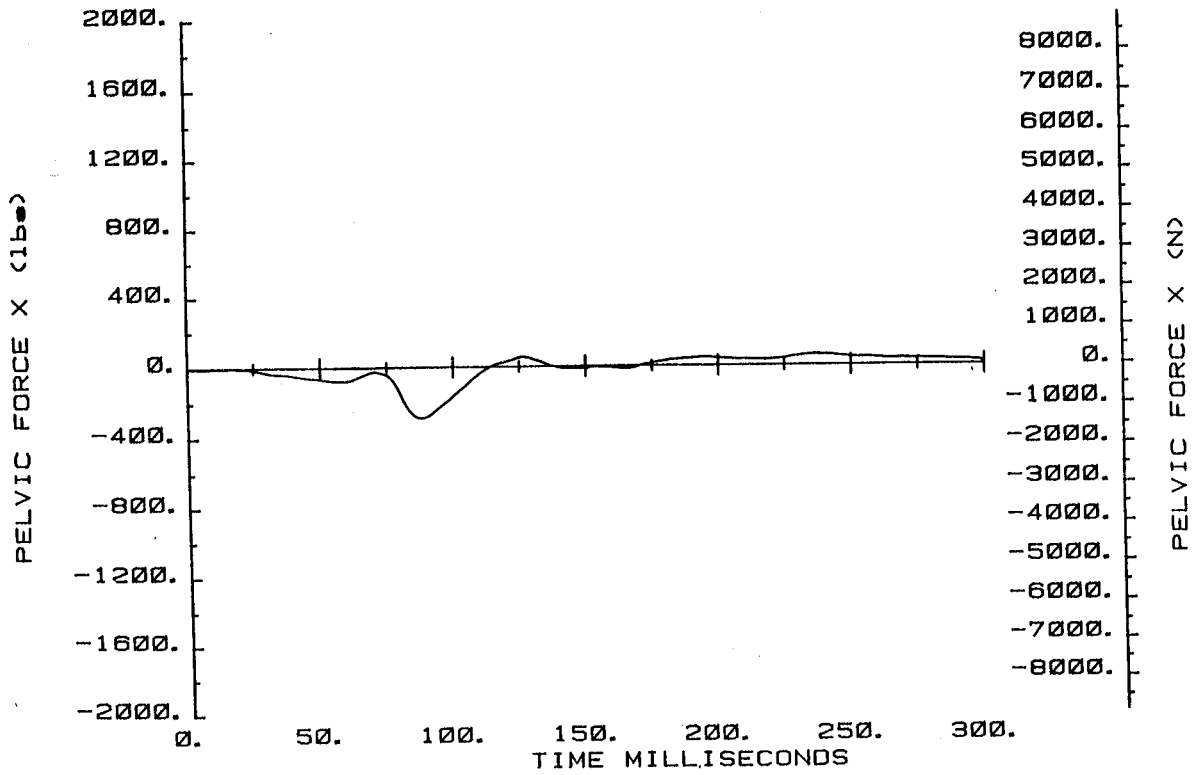
CAMI SLED TEST  
A83112



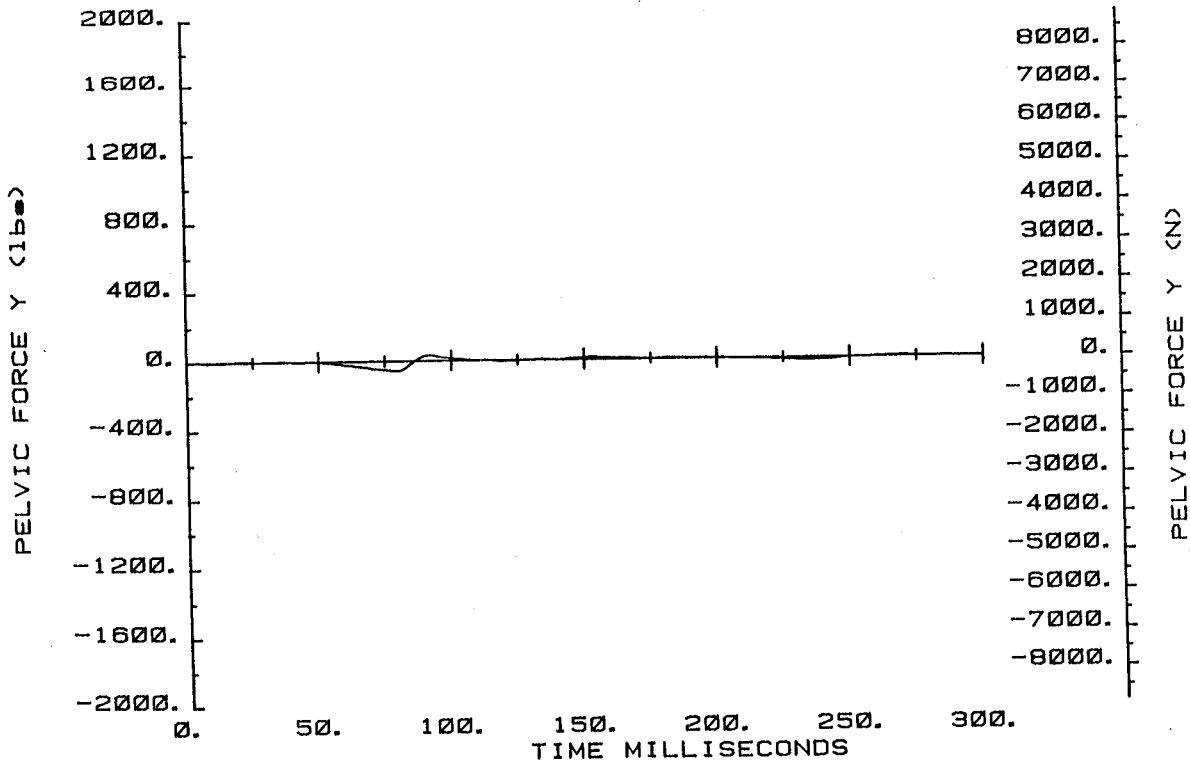
CAMI SLED TEST  
A83112



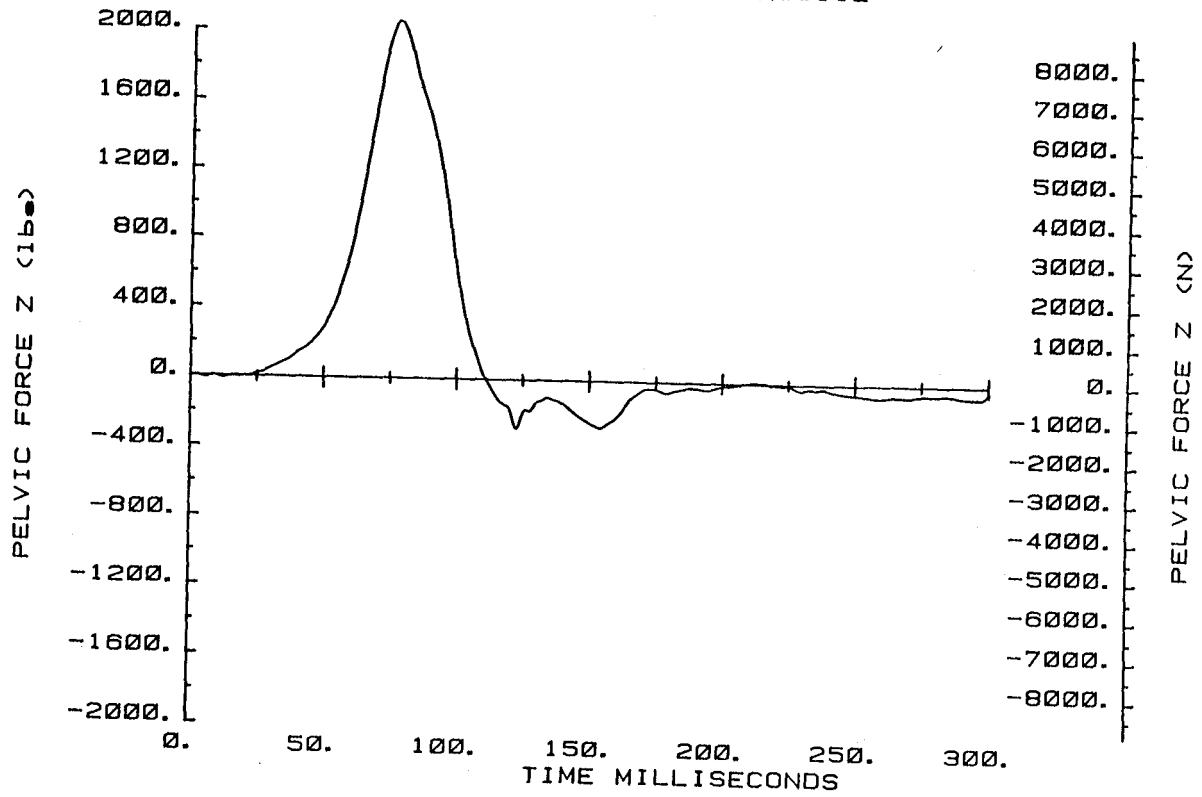
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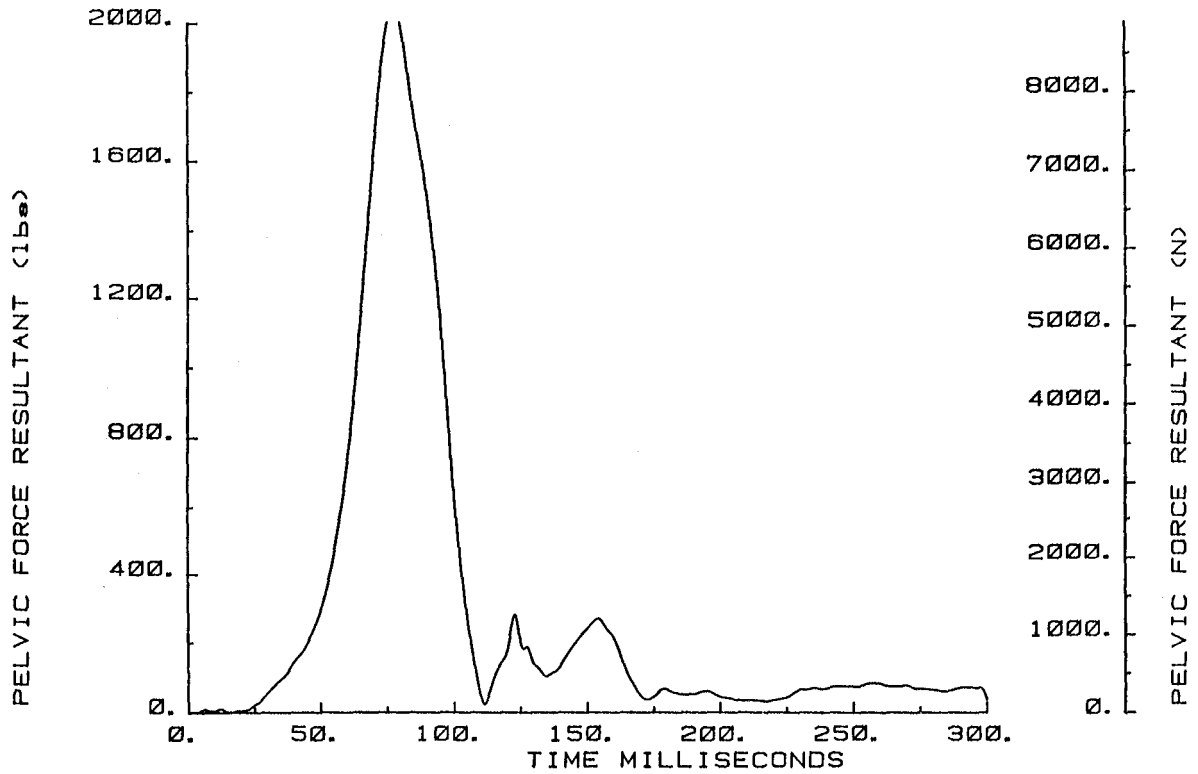
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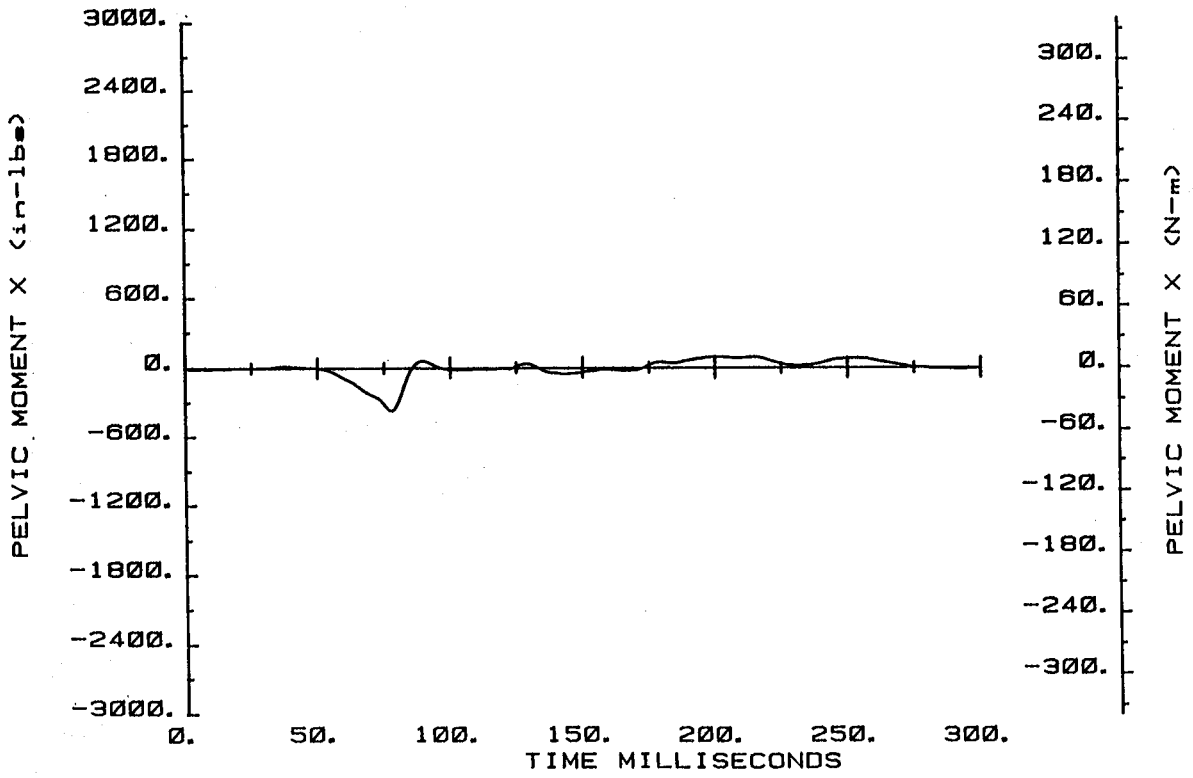
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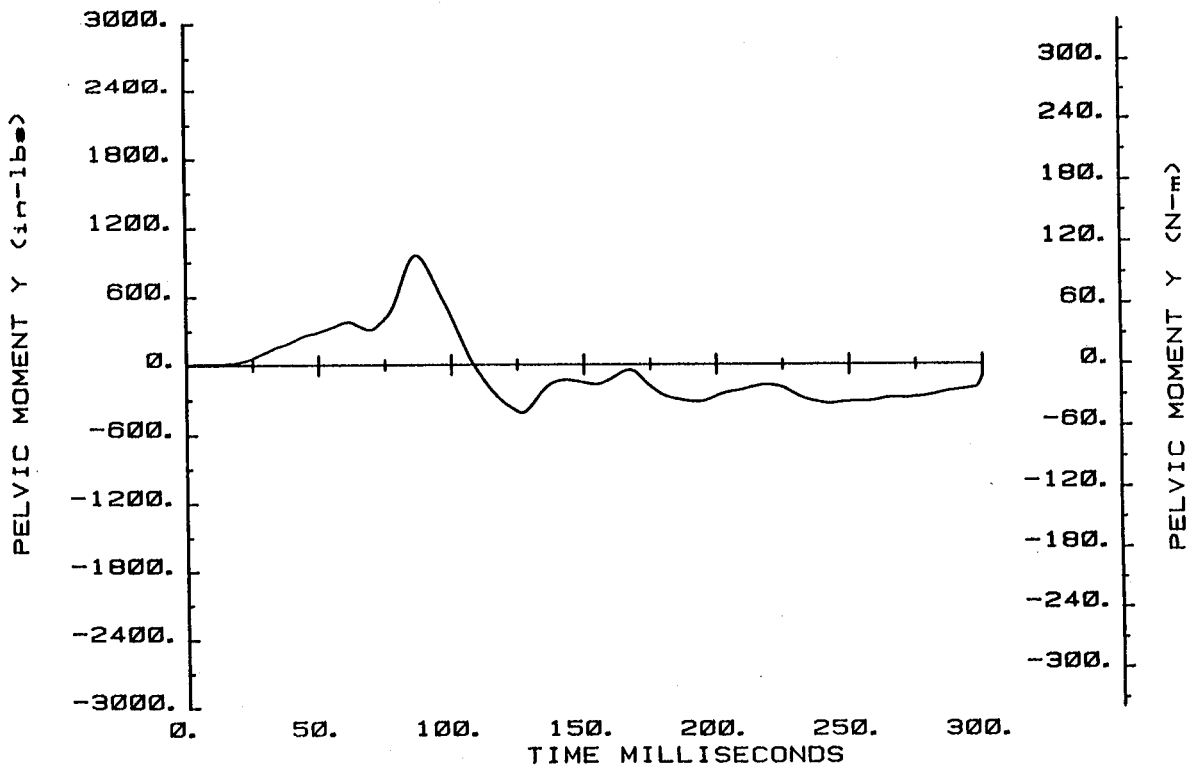
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CAMI SLED TEST  
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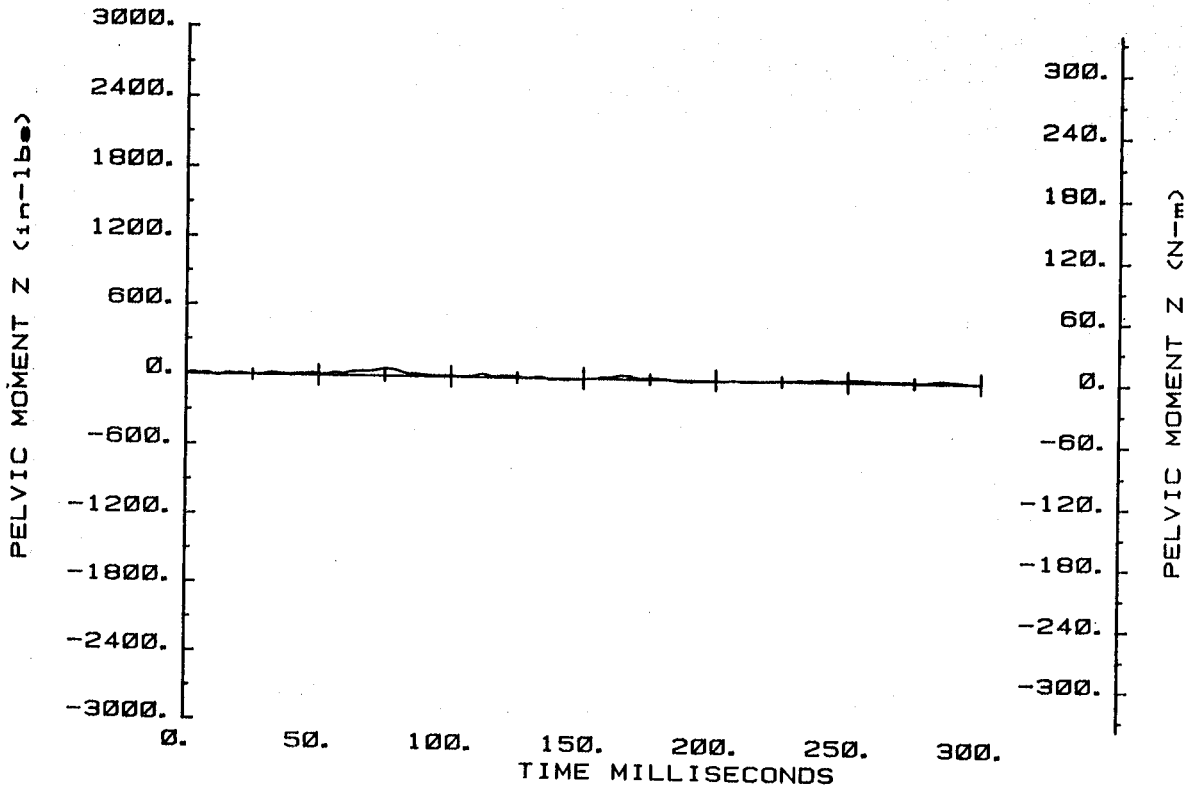


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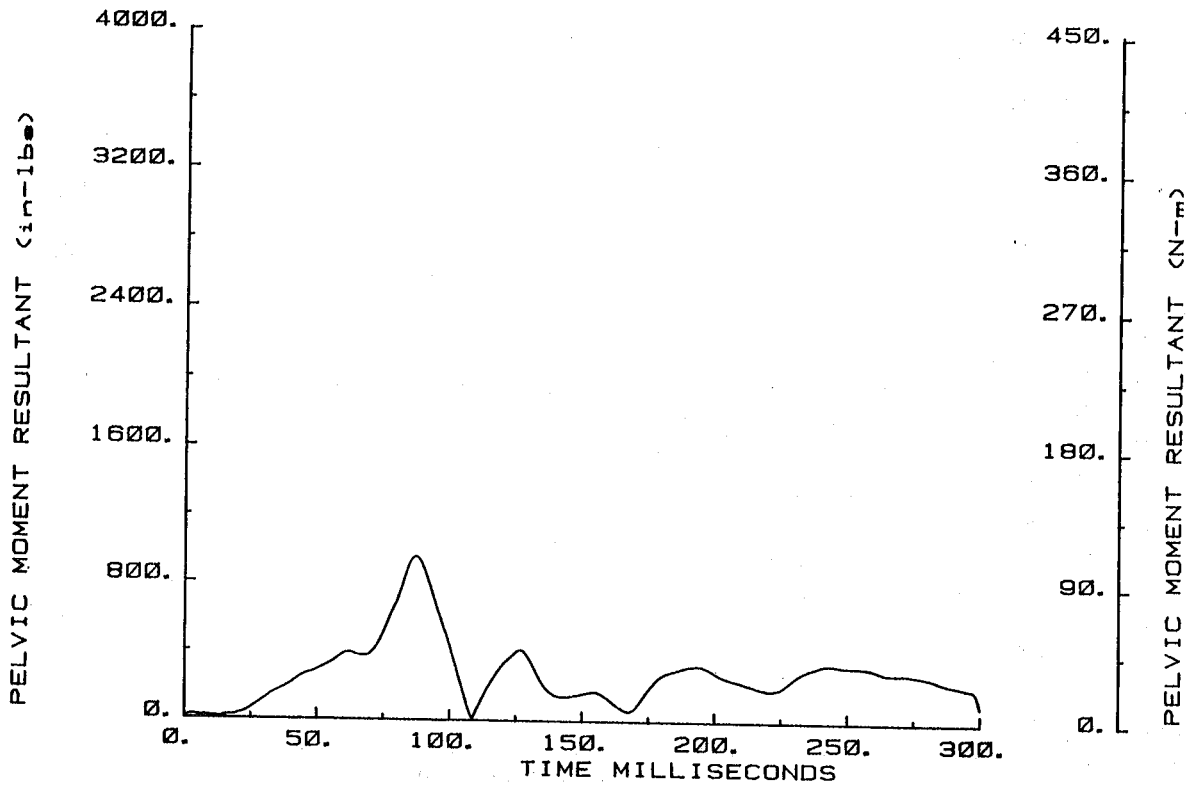




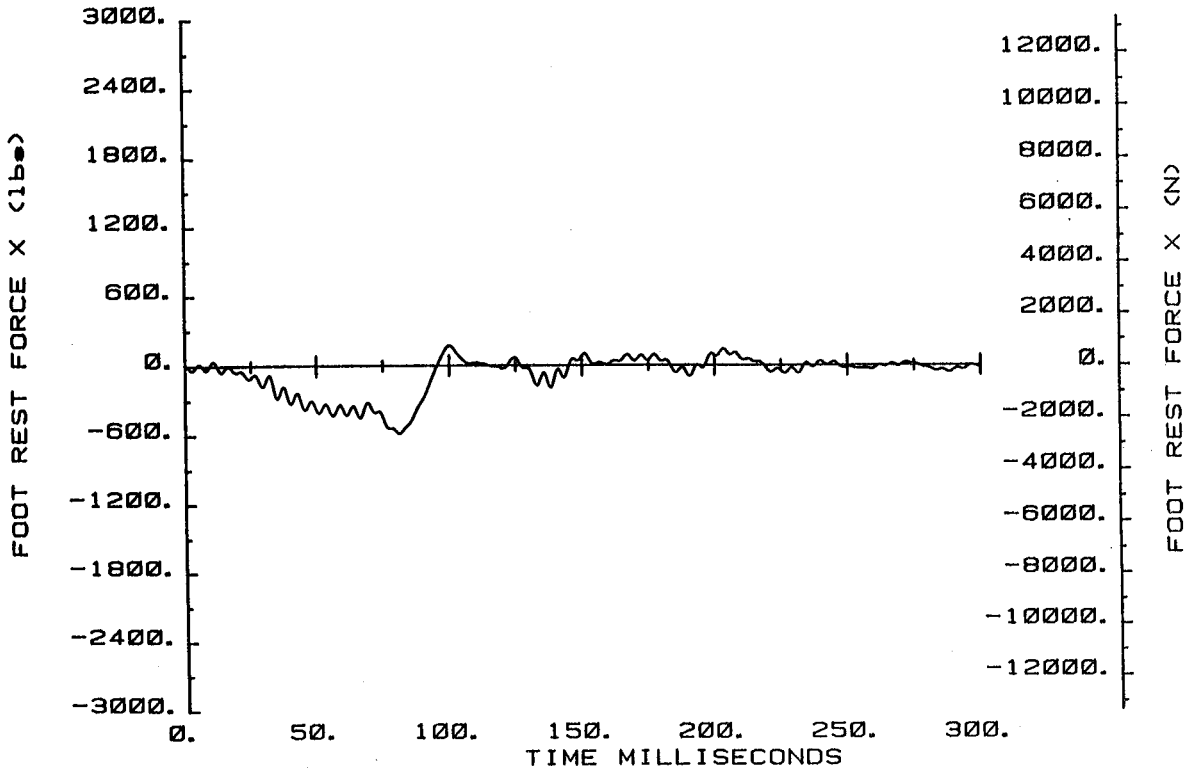
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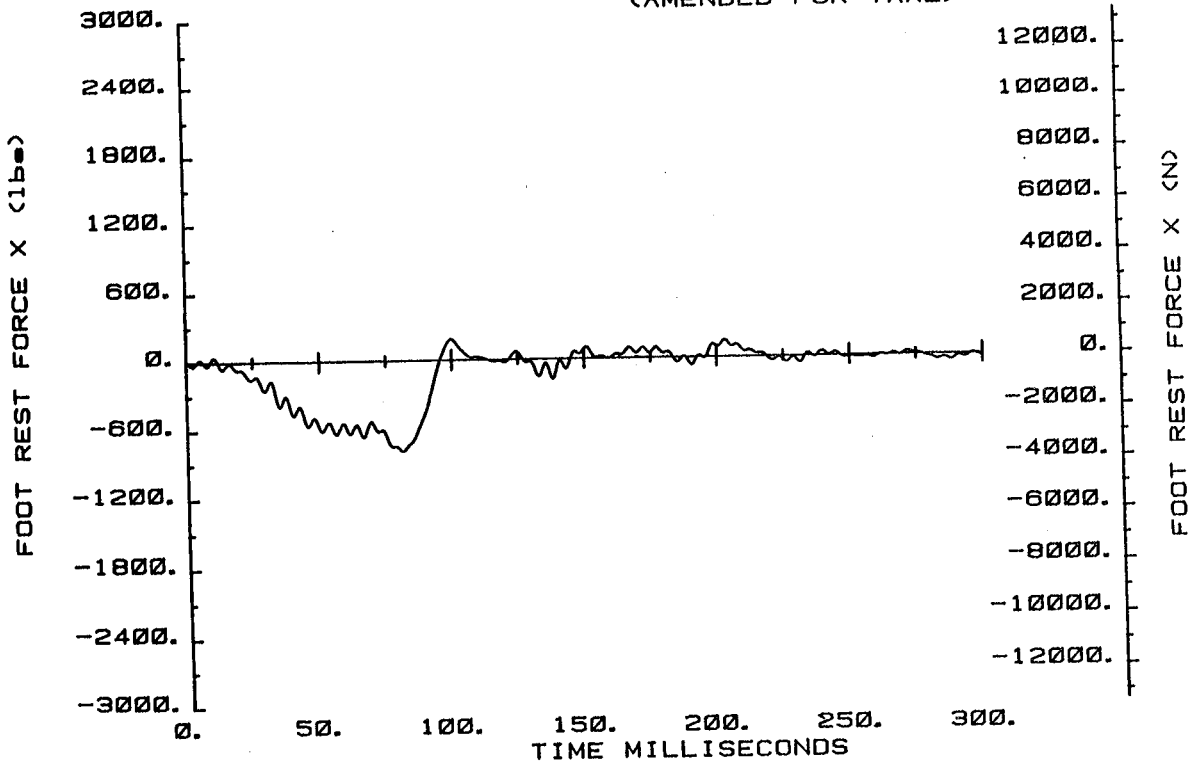
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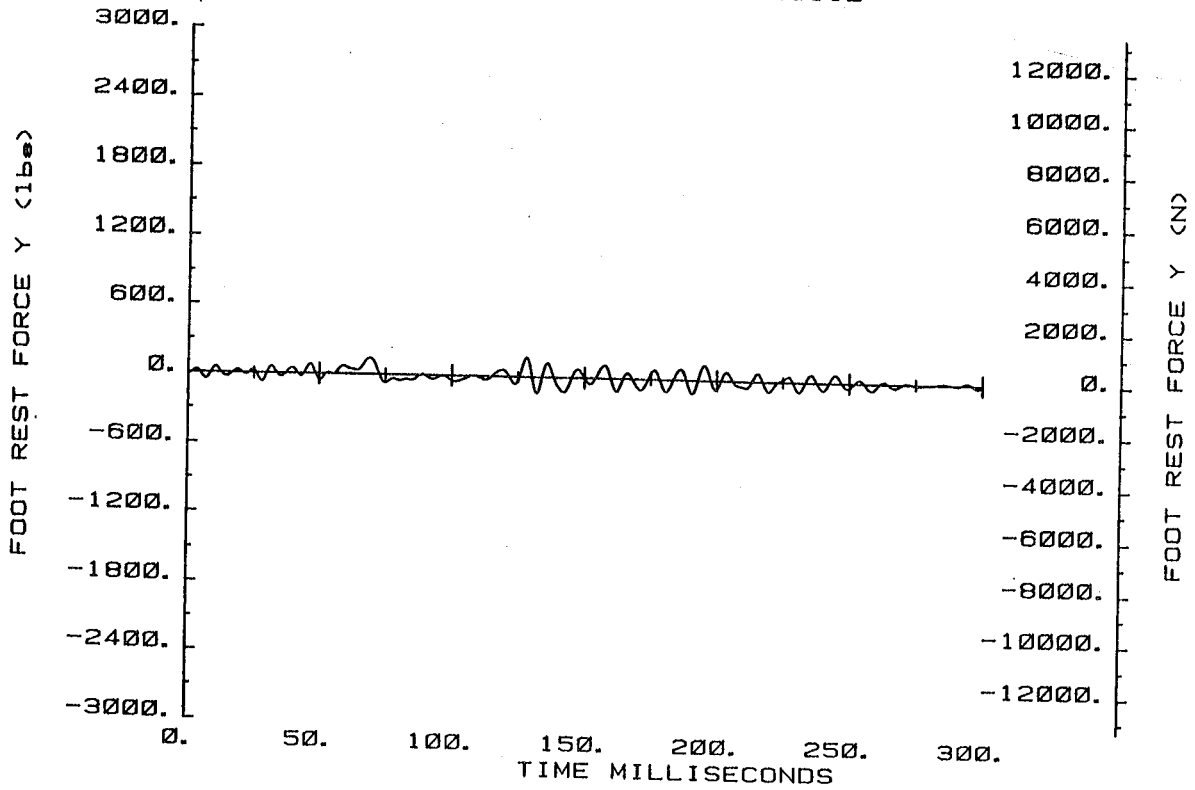
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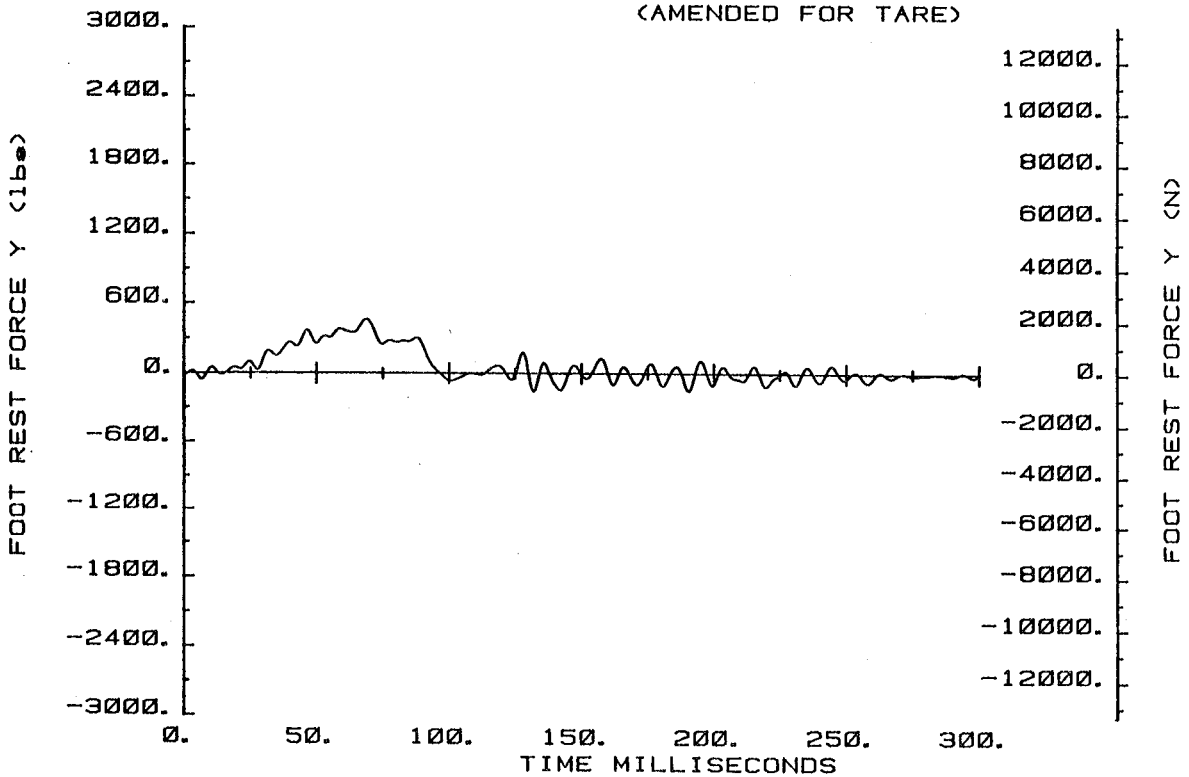
CAMI SLED TEST  
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(AMENDED FOR TARE)



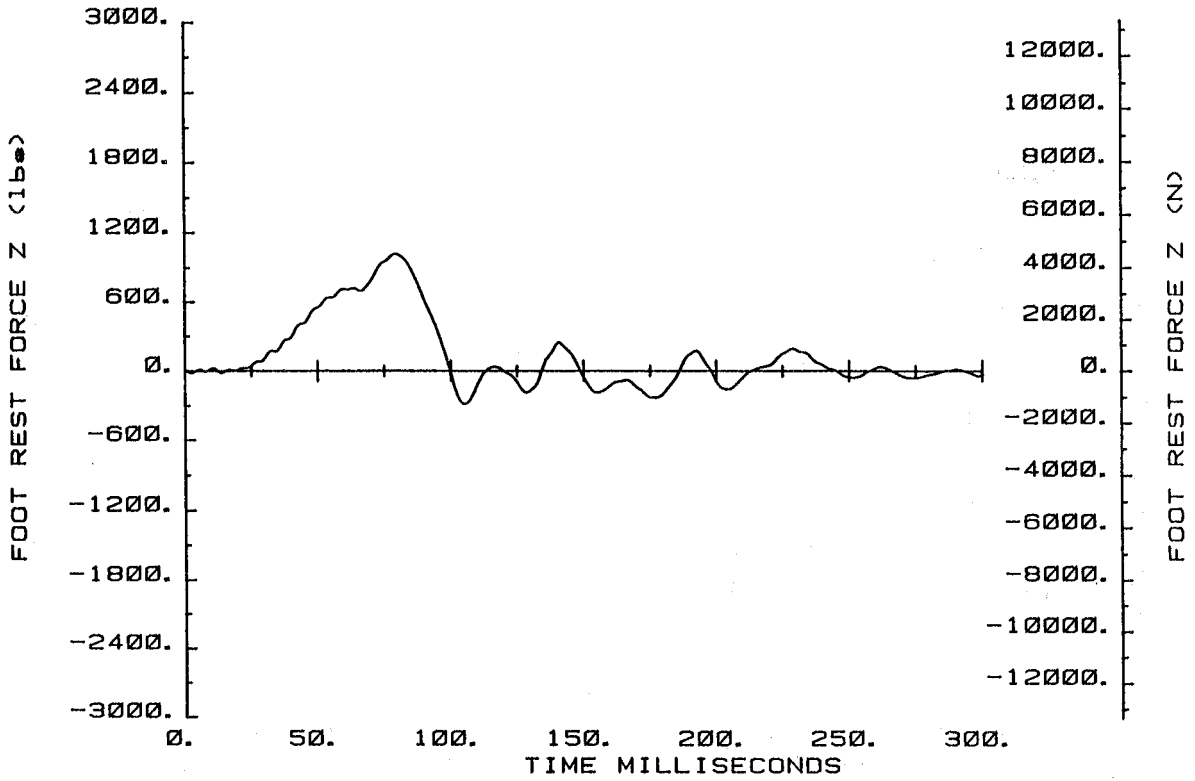
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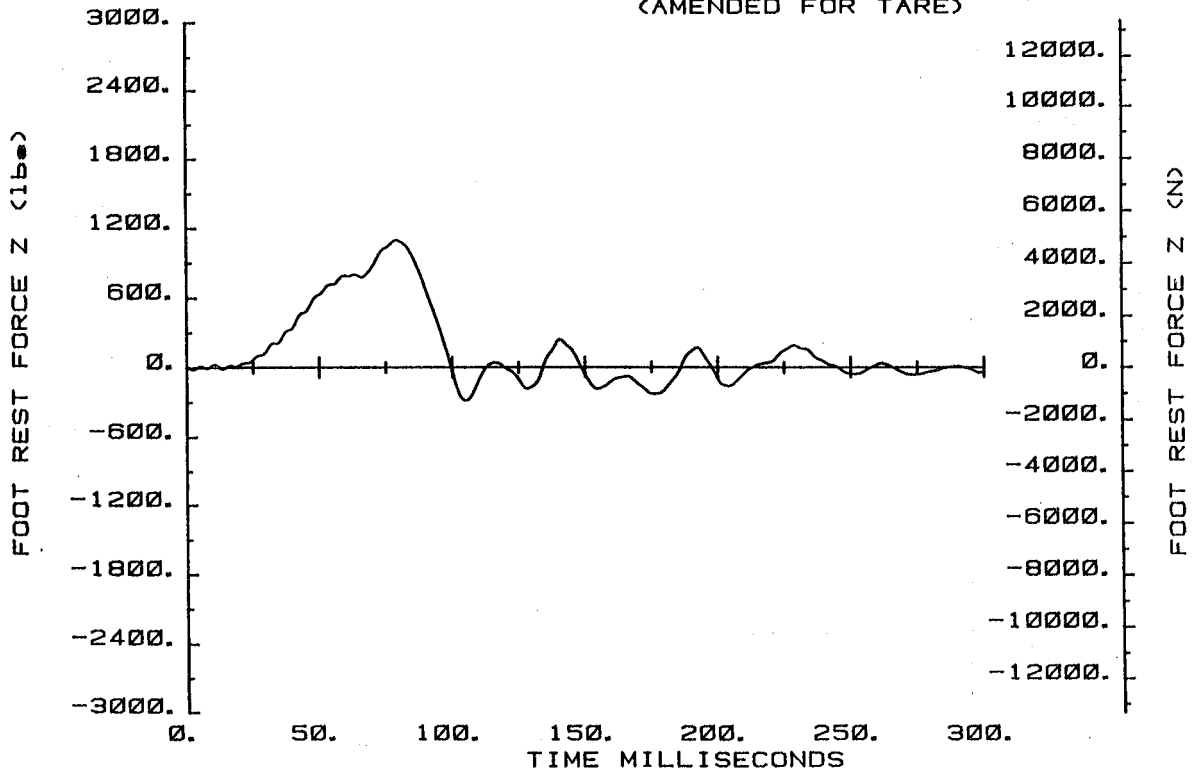
CAMI SLED TEST  
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(AMENDED FOR TARE)



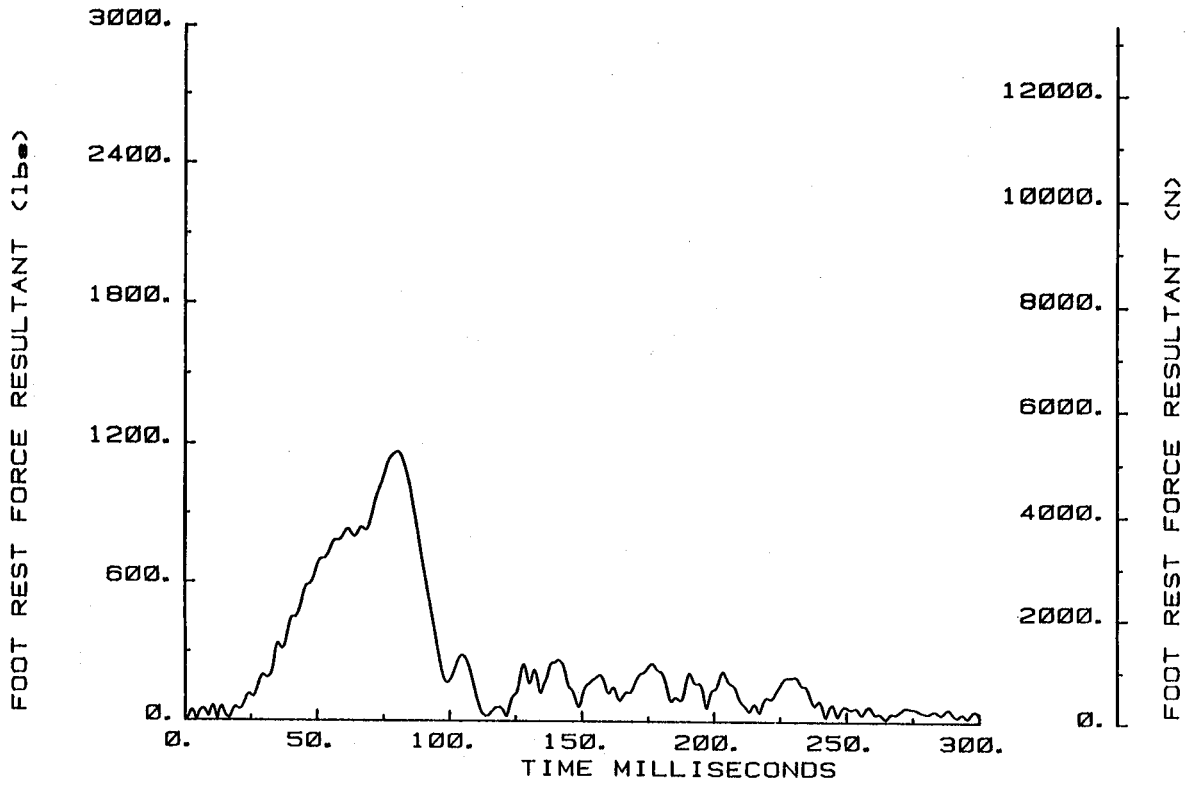
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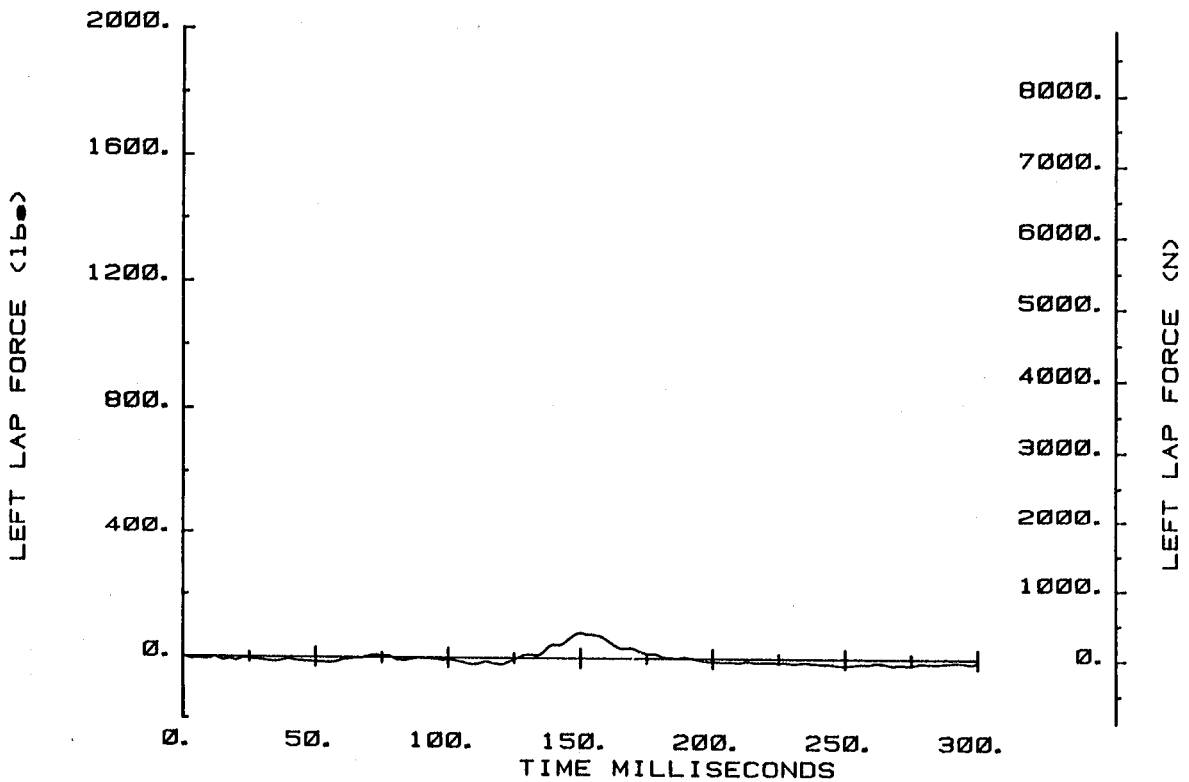
CAMI SLED TEST  
A83112  
(AMENDED FOR TARE)



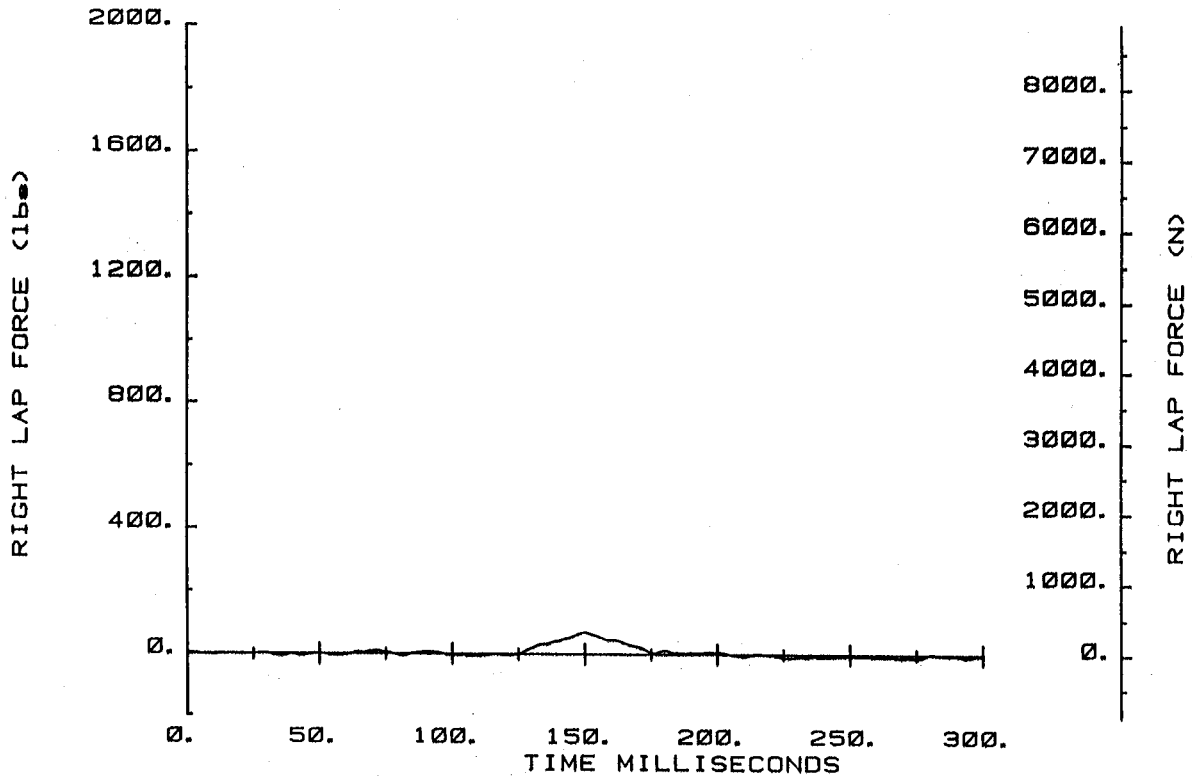
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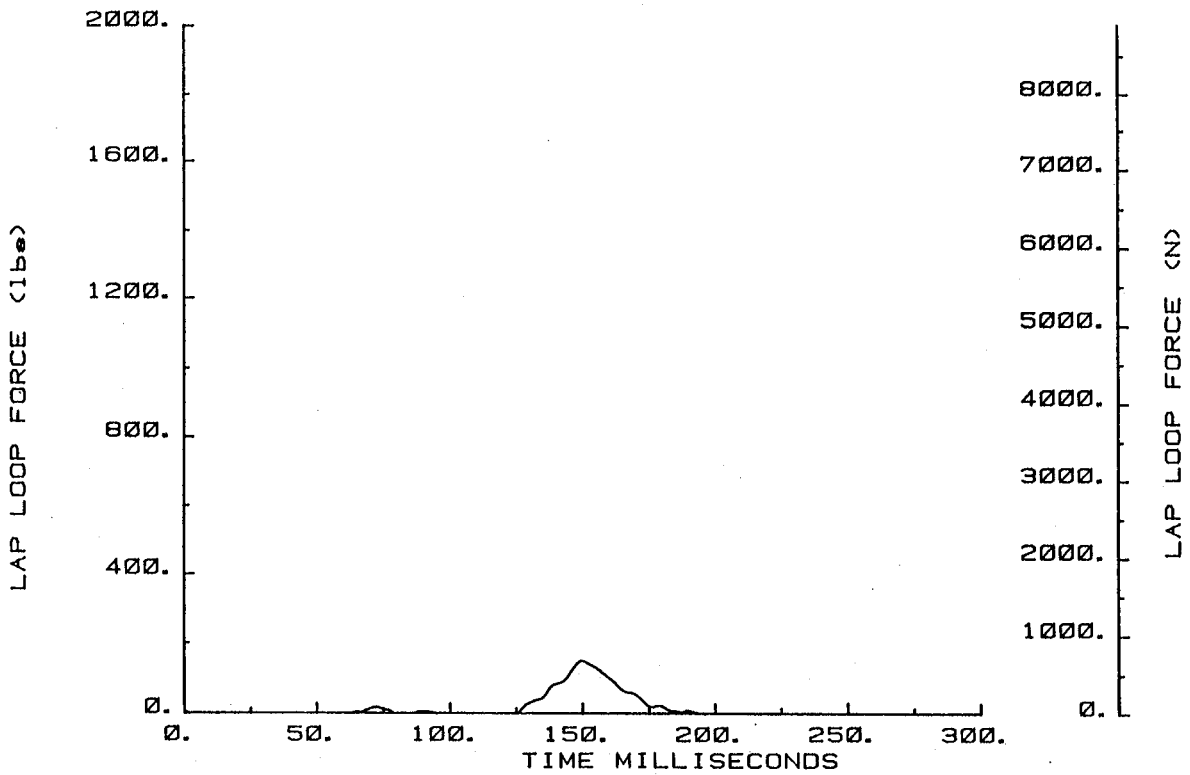
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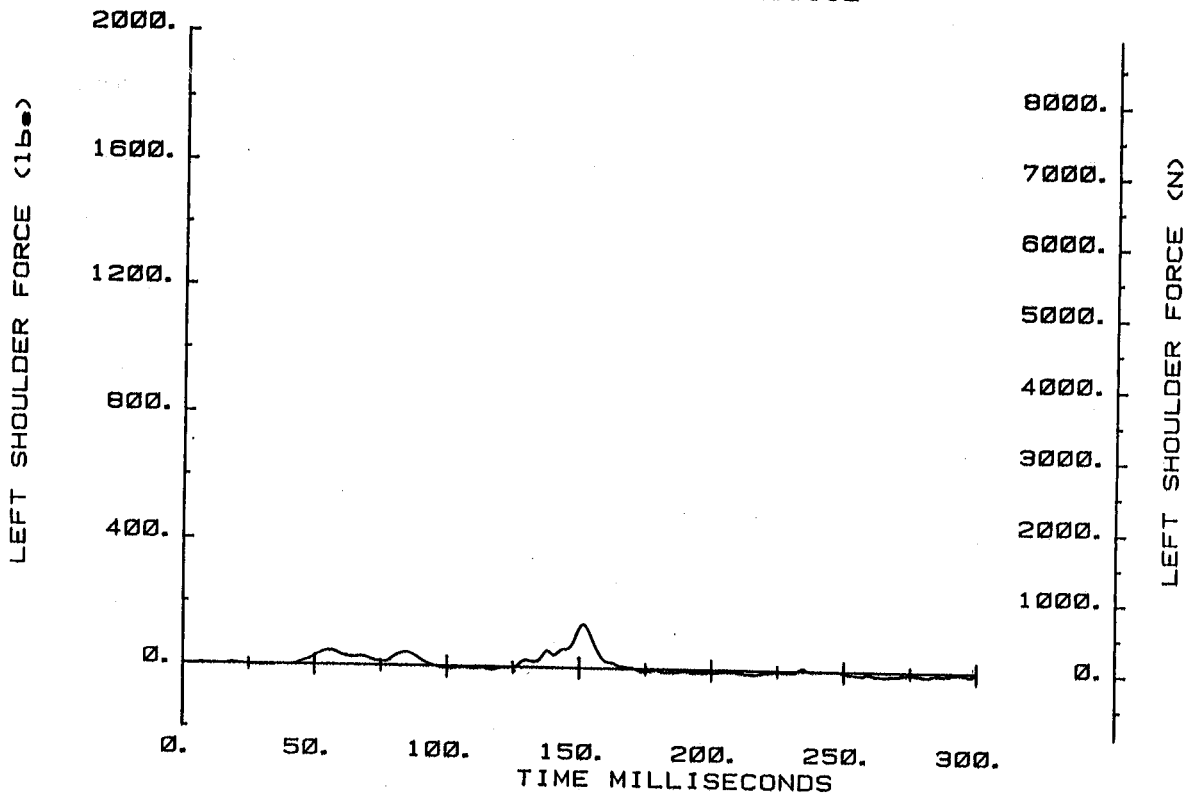
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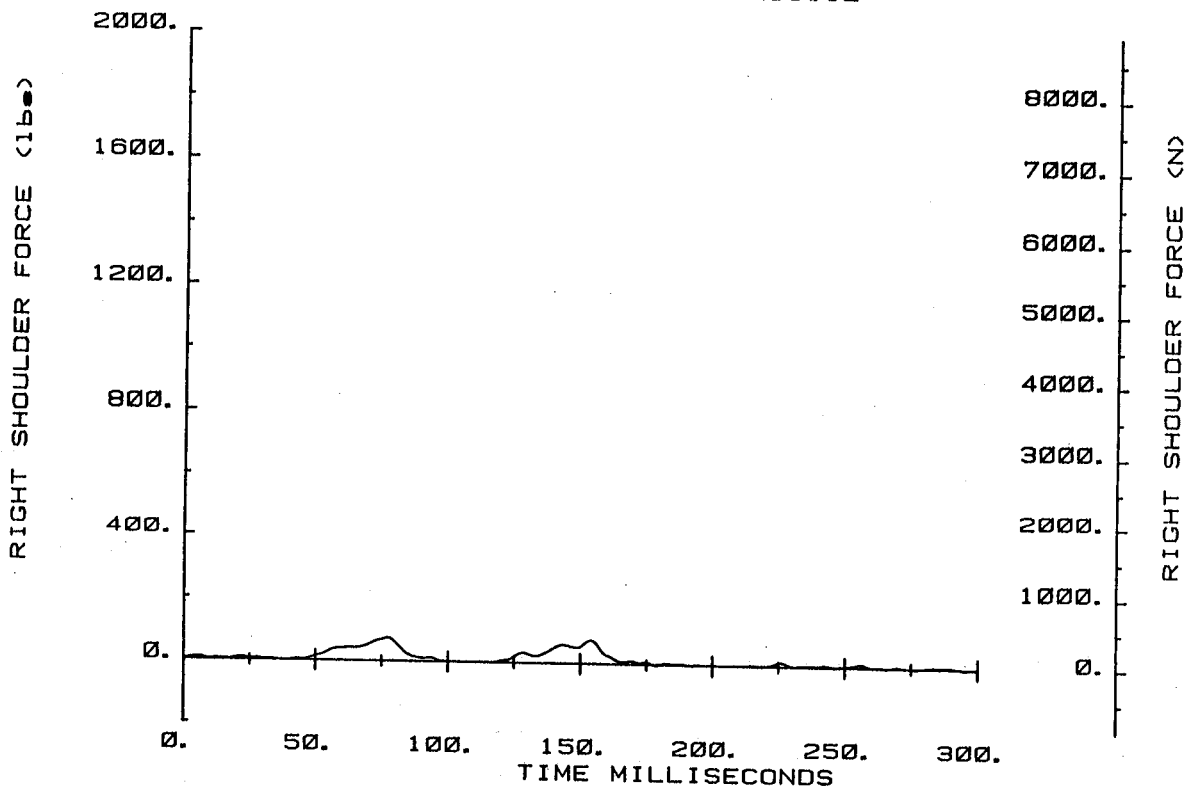
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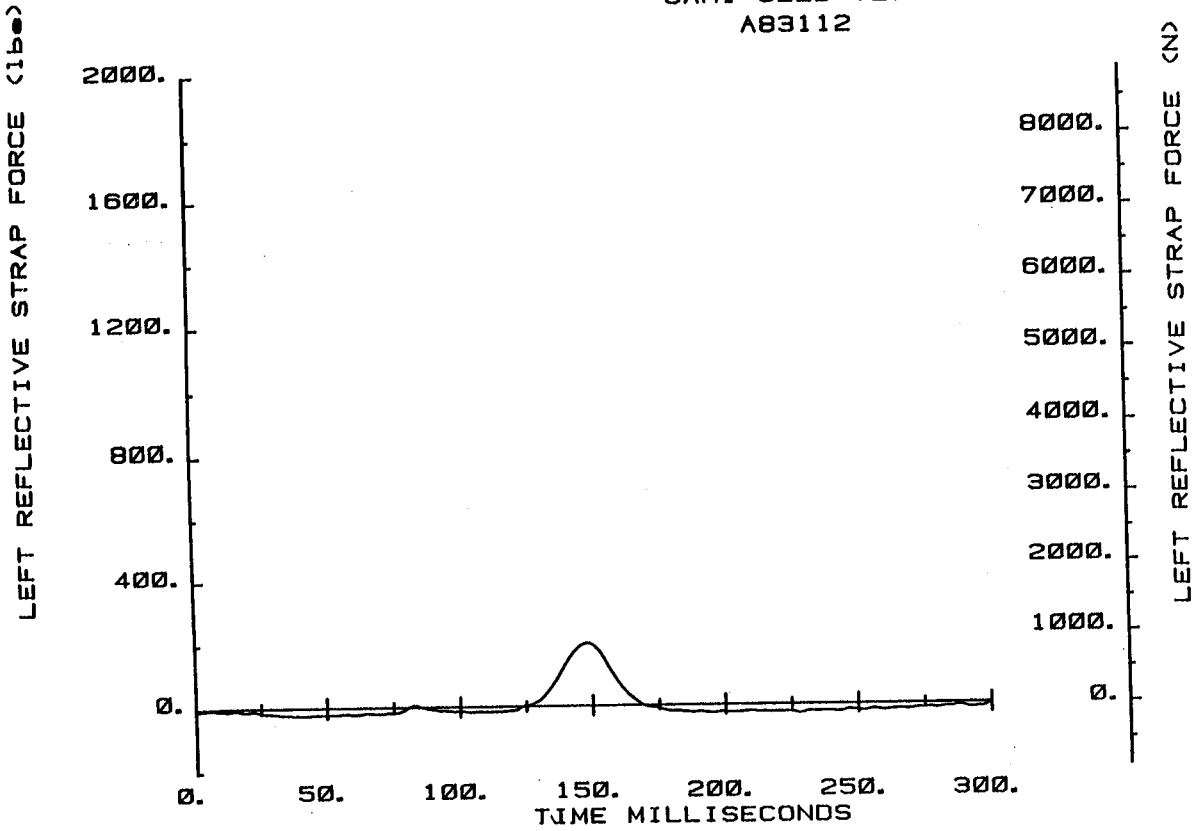
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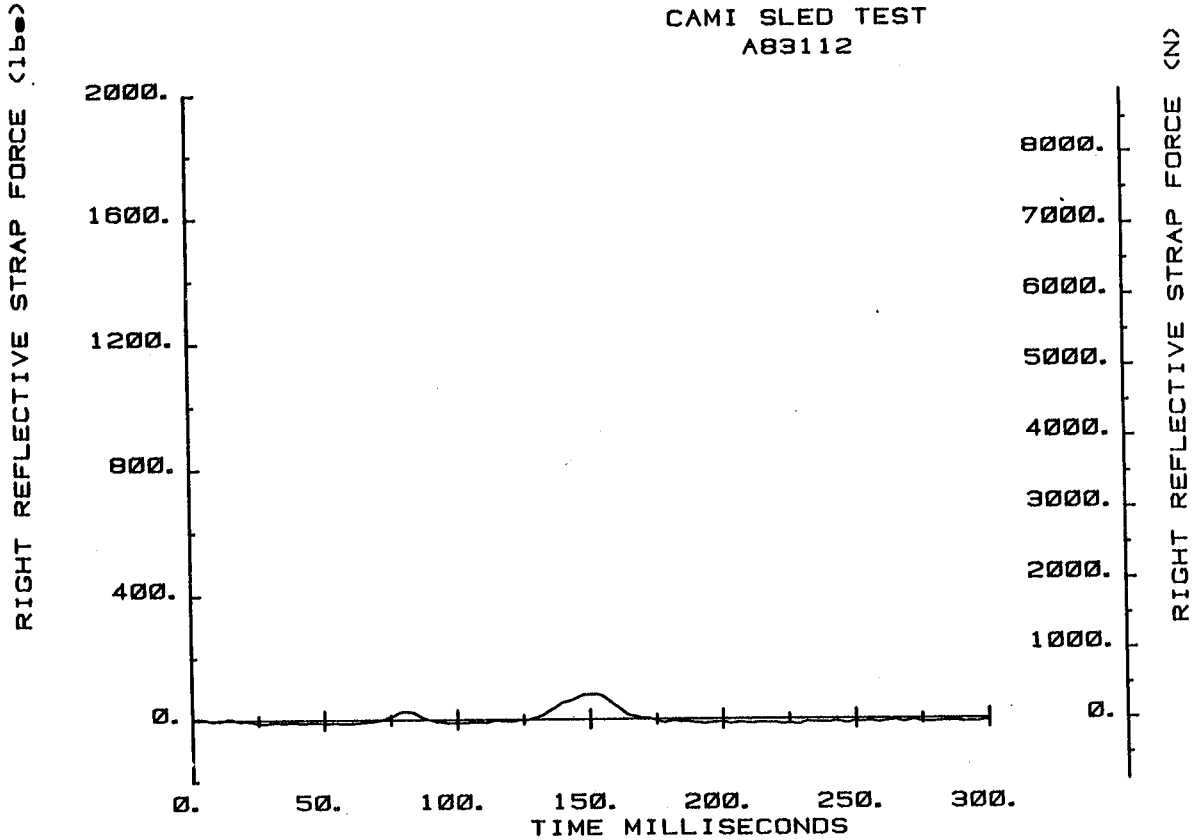
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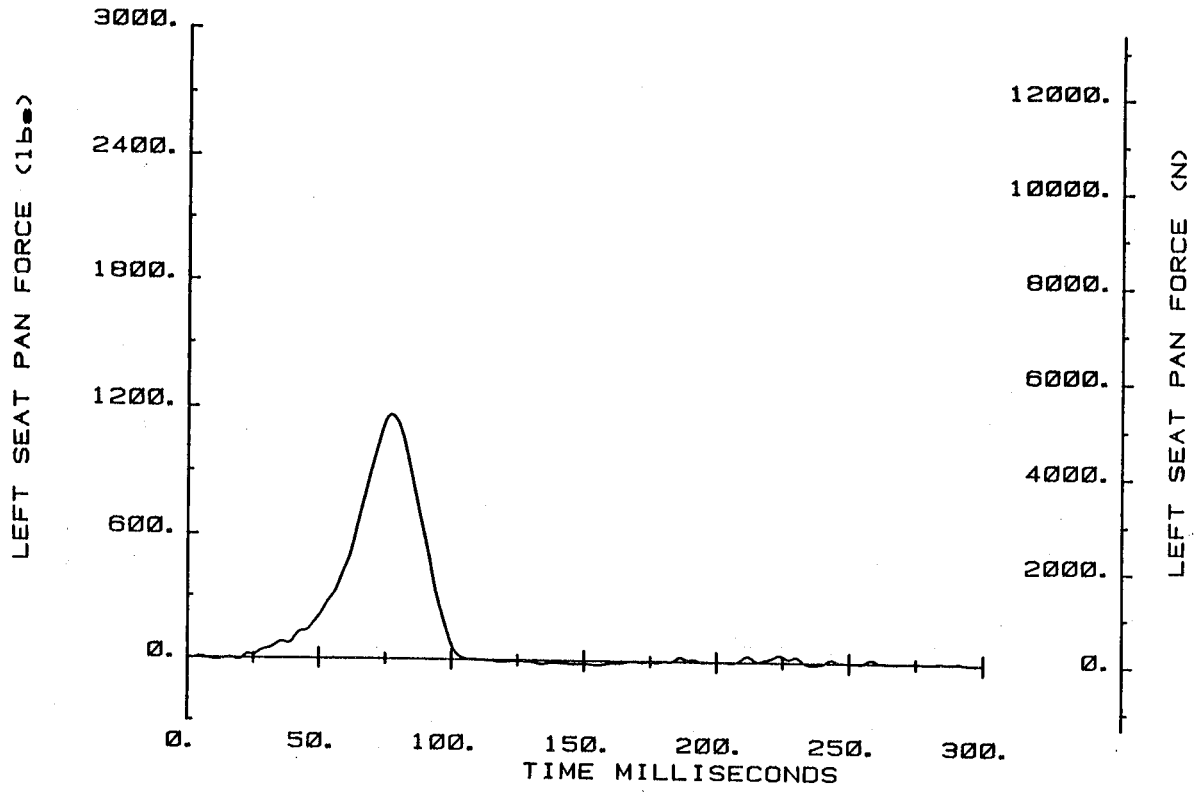


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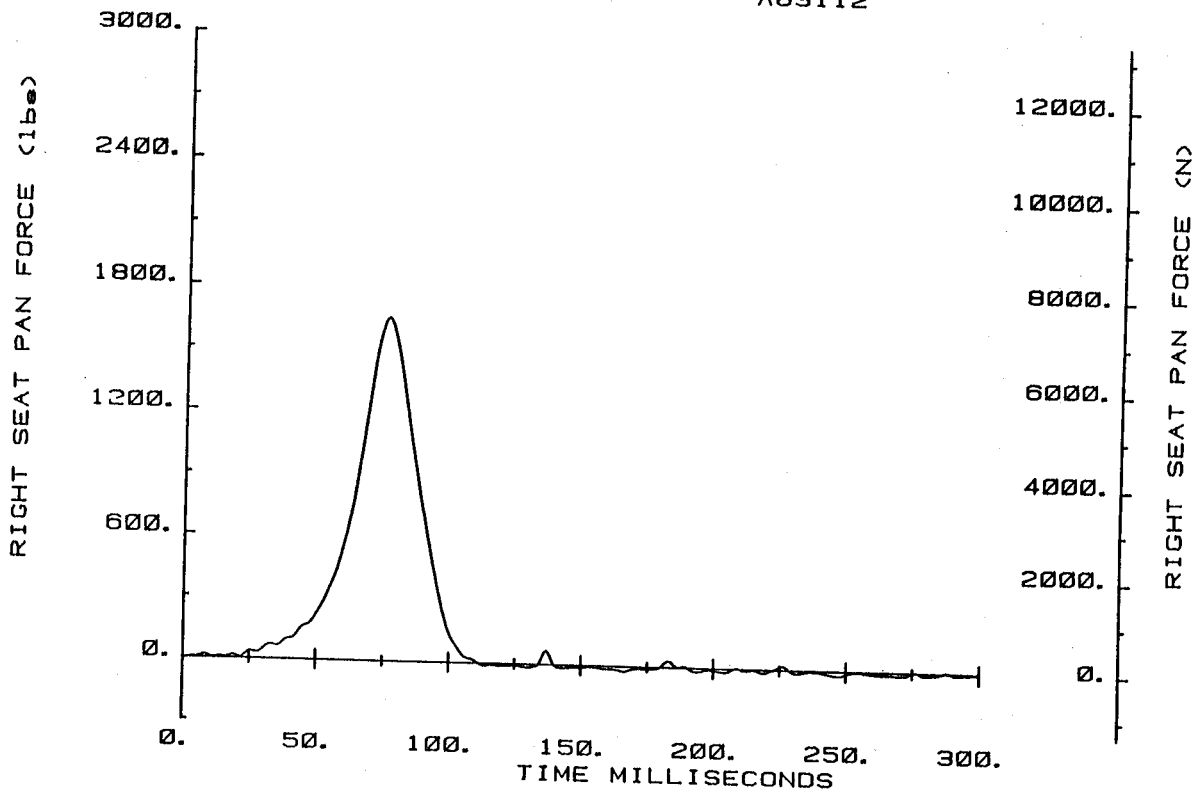




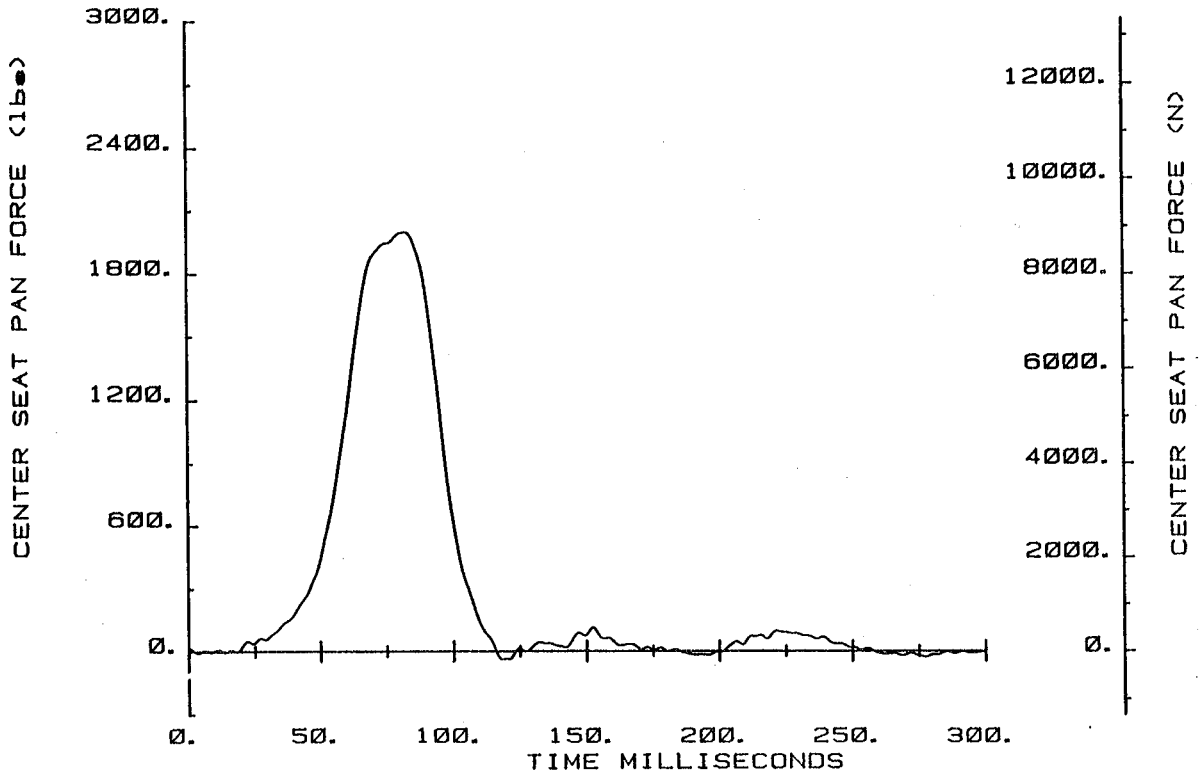
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A83112



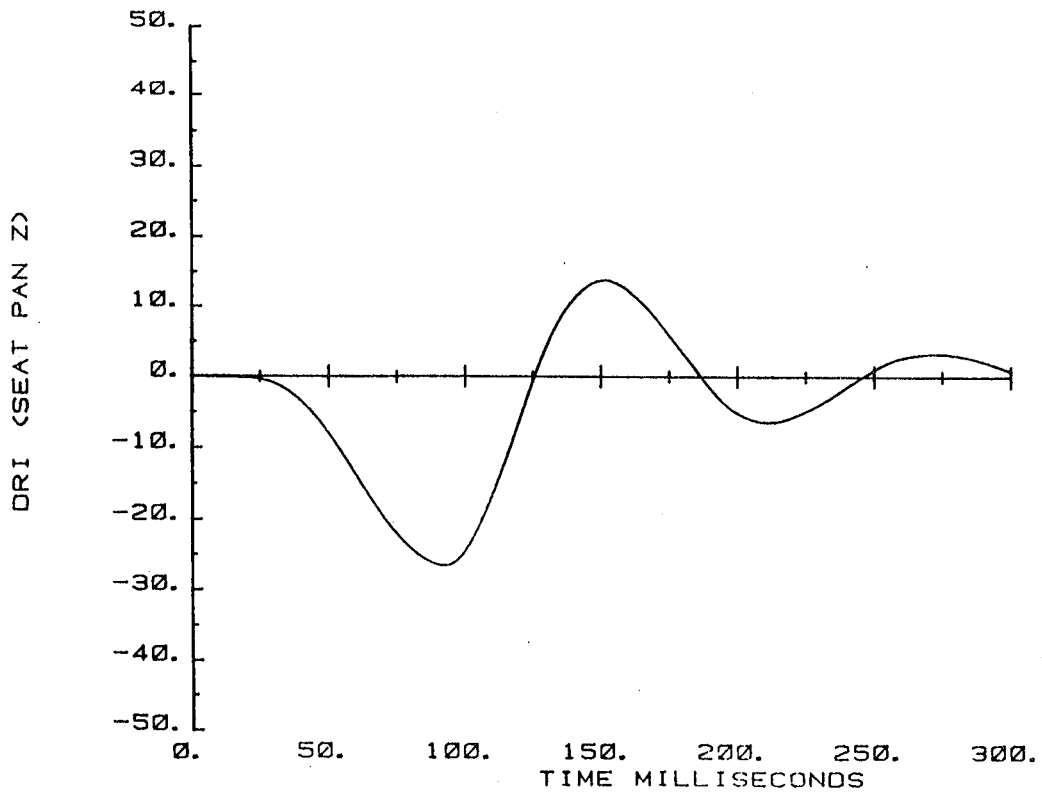
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A83112



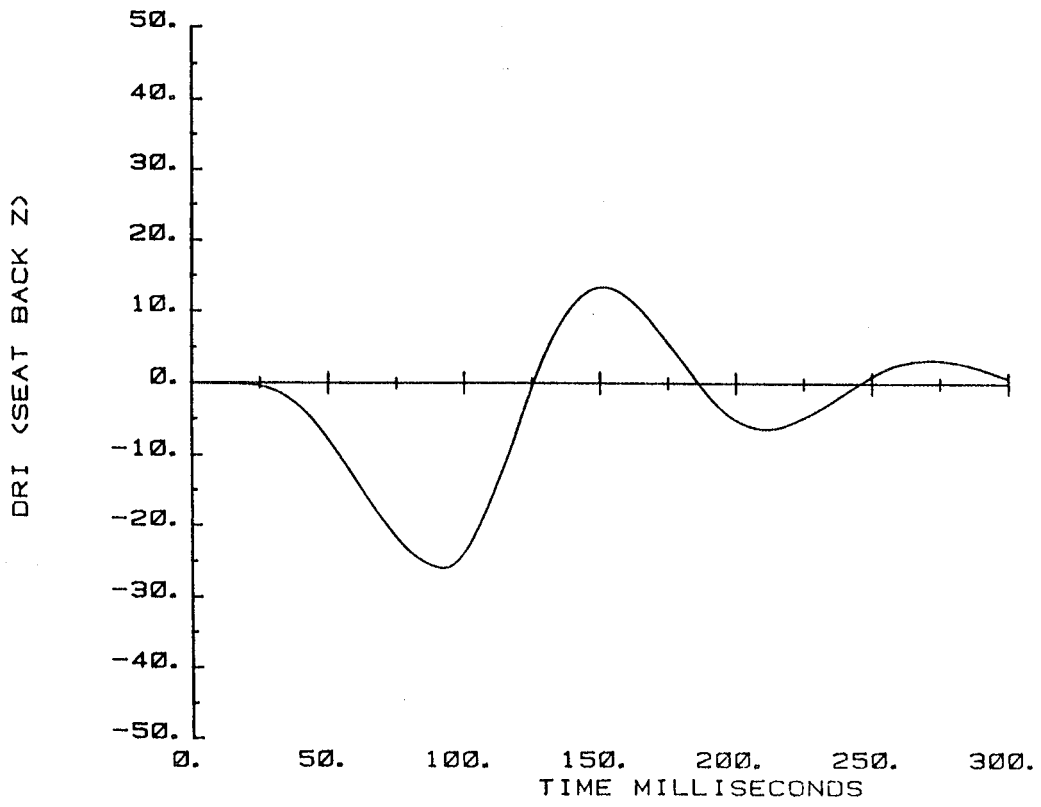
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A83112



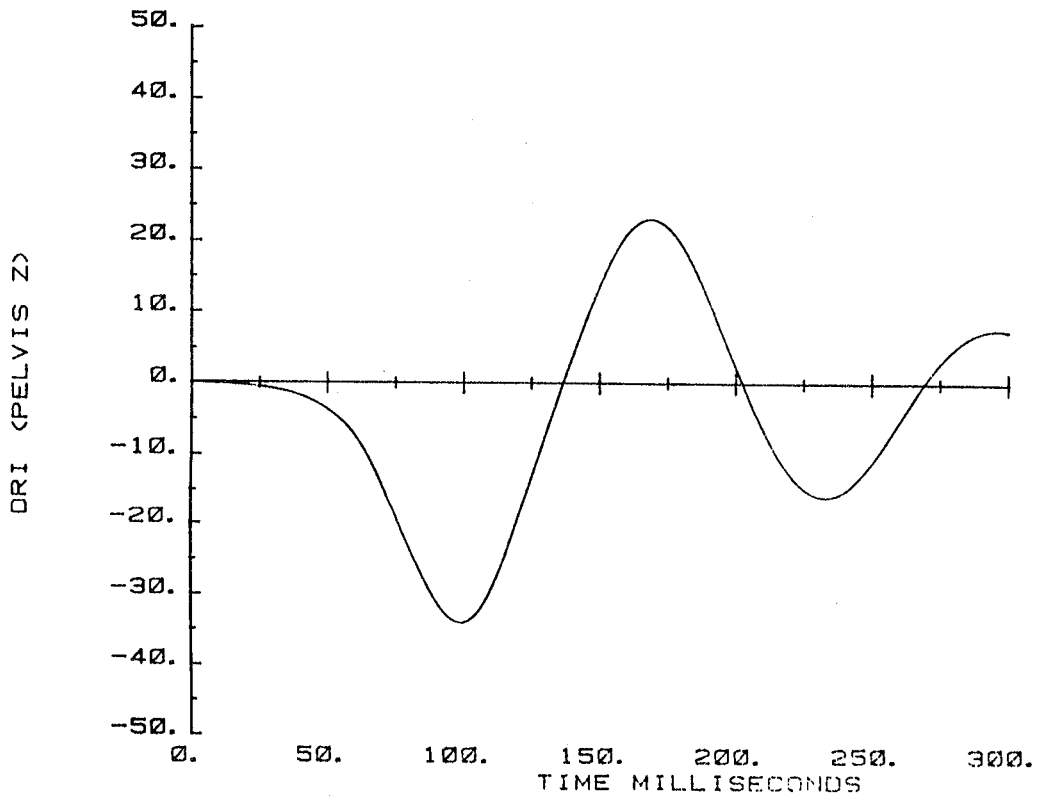
CAMI SLED TEST  
A83112



CAMI SLED TEST  
A83112



CAMI SLED TEST  
A83112



11.0 CAMI TEST NO. A83-113

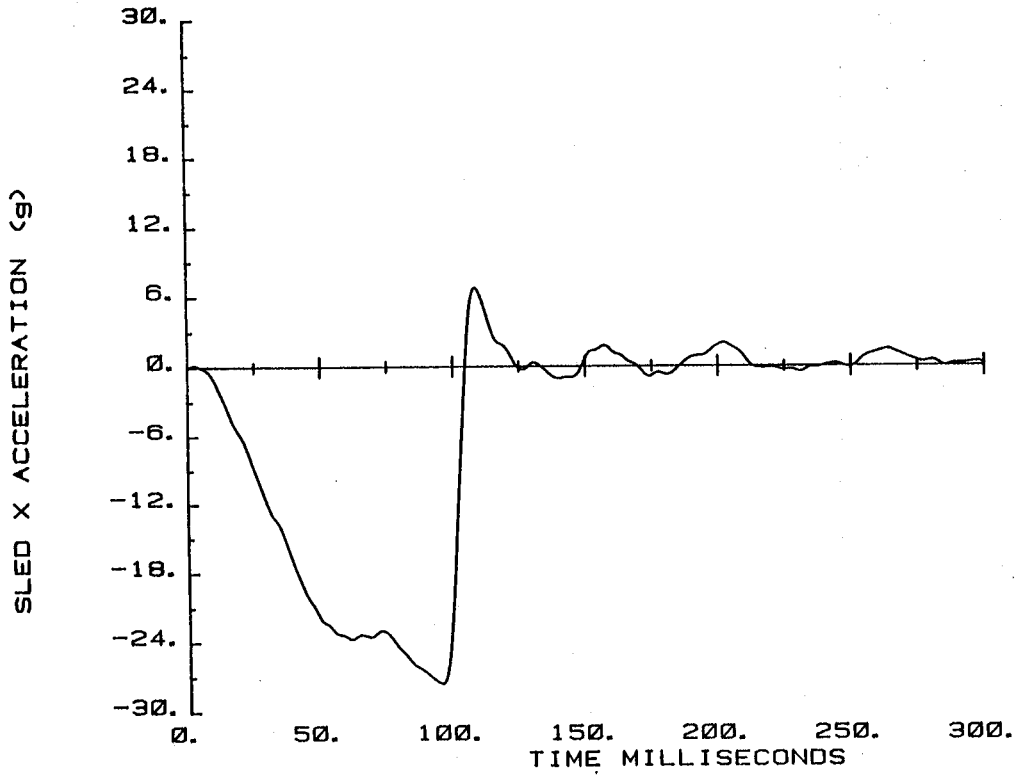
SEAT: F-111 Operational

PULSE NUMBER: 2

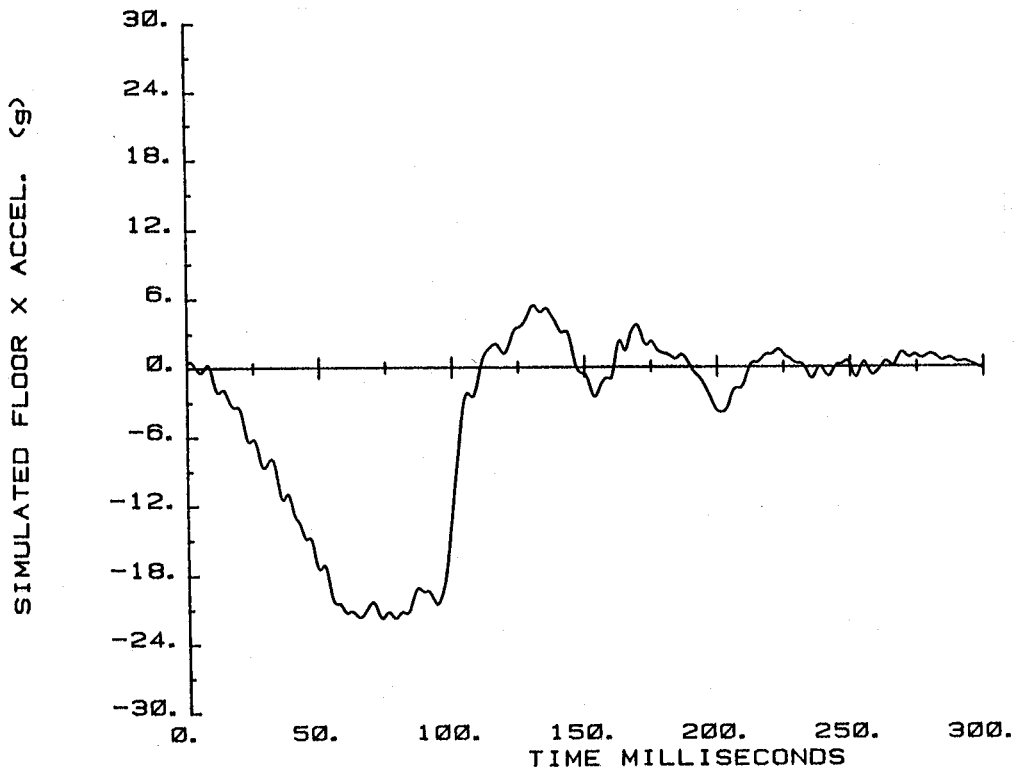
SEAT ORIENTATION: Pitch - 40°  
Roll - 0°  
Yaw - 0°

| 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)    | 147.2  | 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

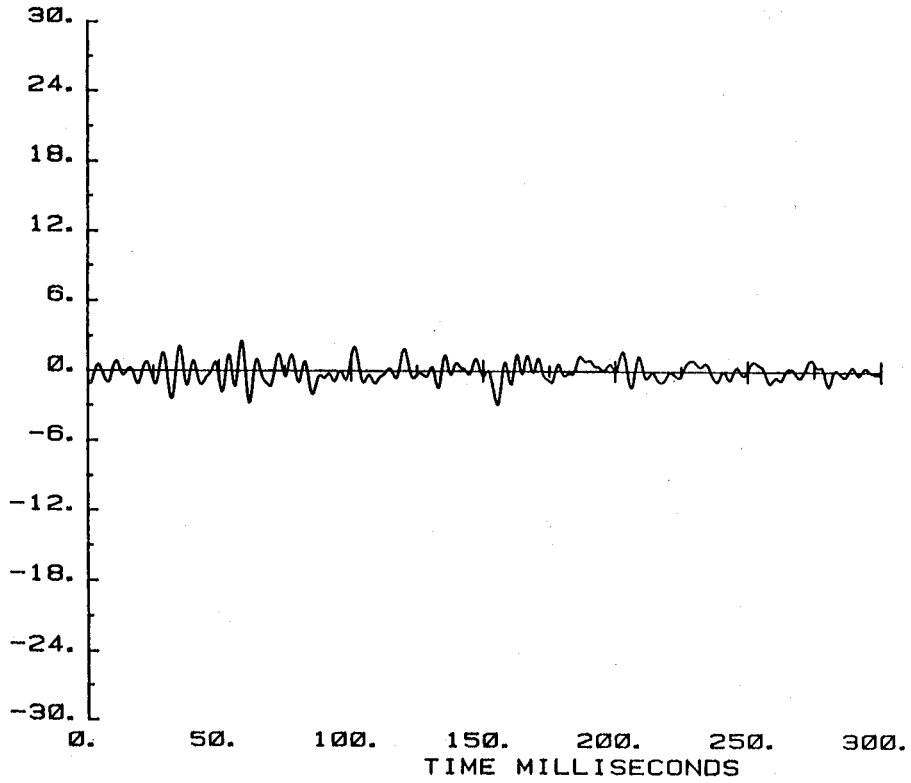


CAMI SLED TEST  
A83113



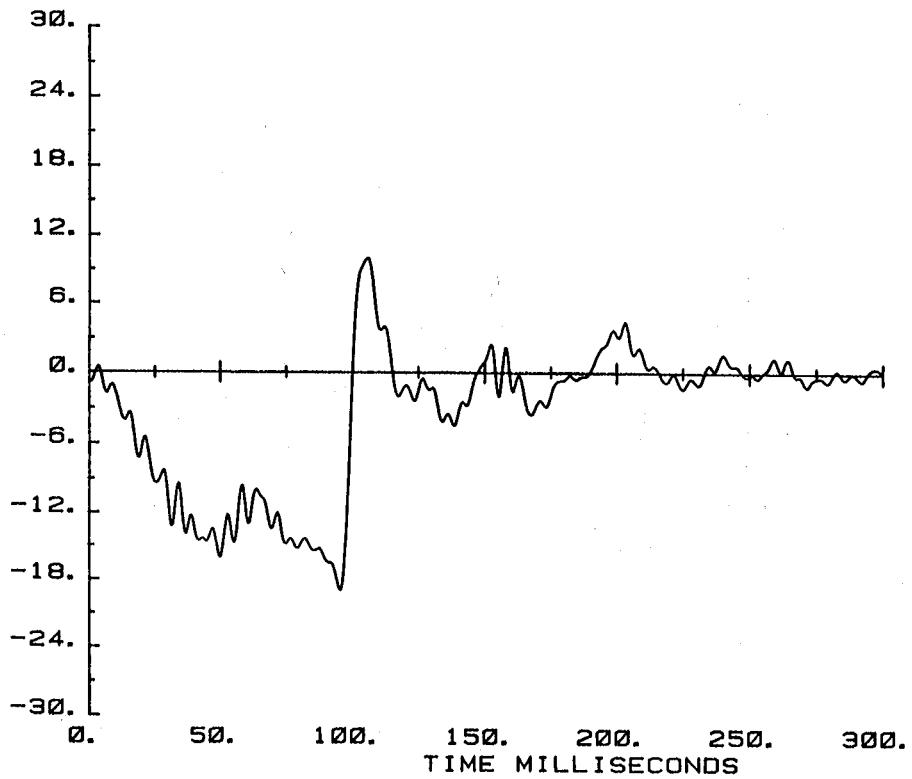
CAMI SLED TEST  
A83113

SIMULATED FLOOR Y ACCEL. (g)

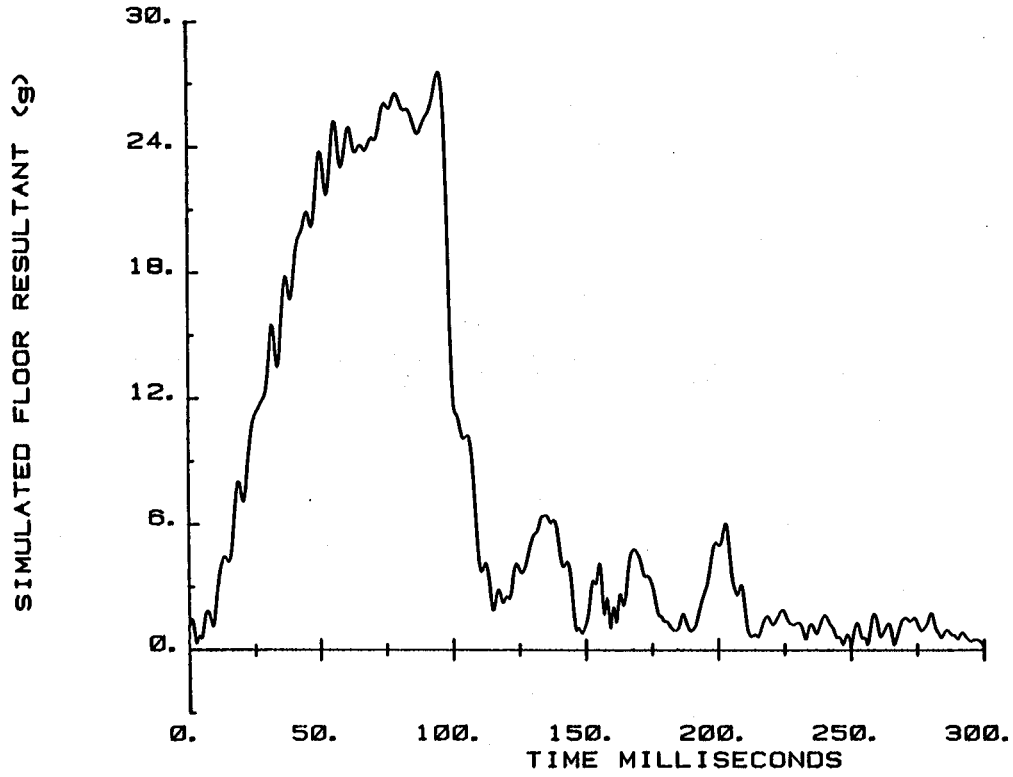


CAMI SLED TEST  
A83113

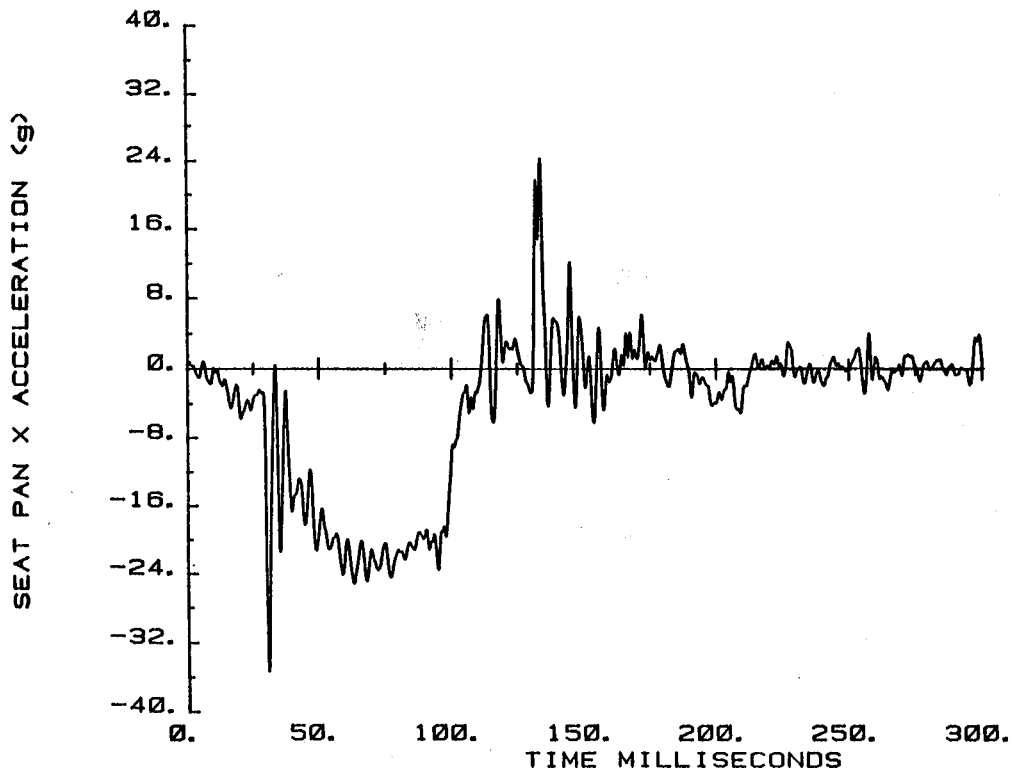
SIMULATED FLOOR Z ACCEL. (g)



CAMI SLED TEST  
A83113



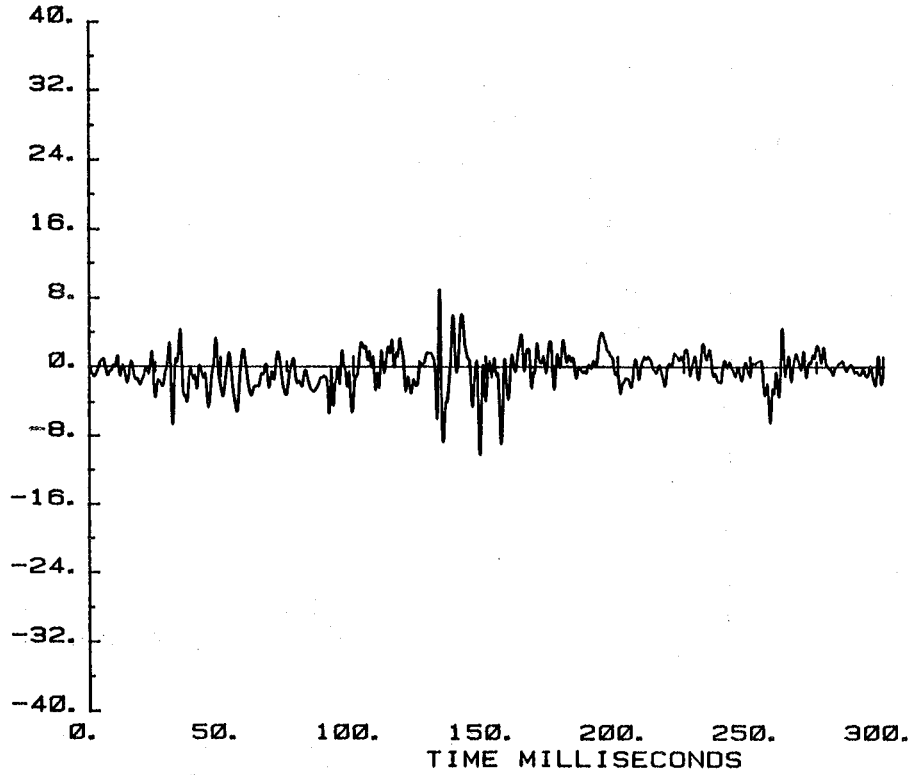
CAMI SLED TEST  
A83113





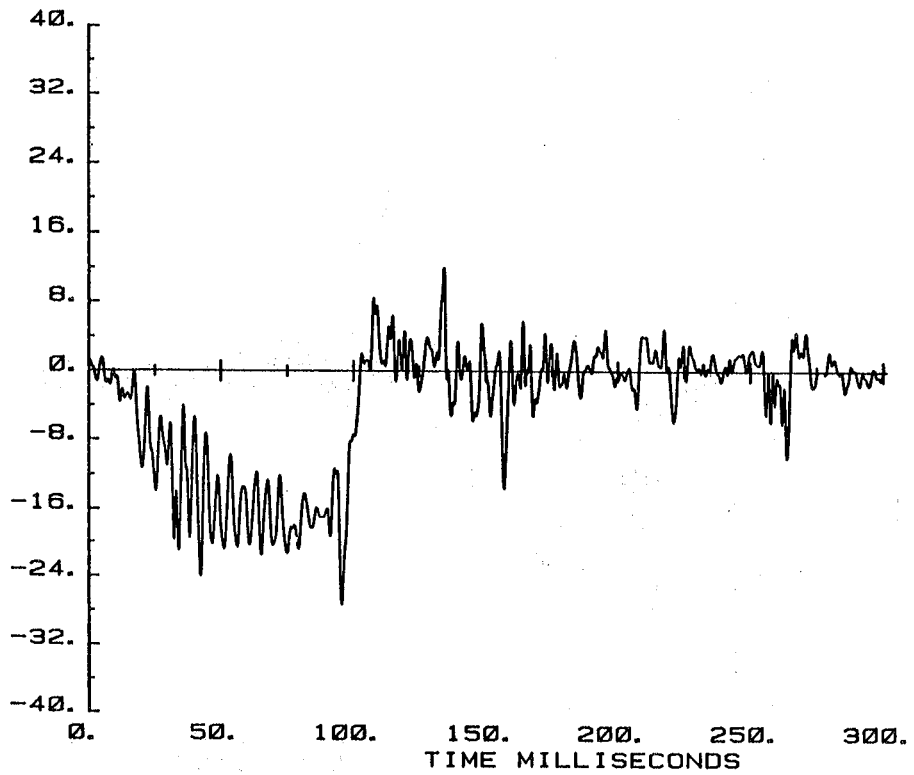
CAMI SLED TEST  
A83113

SEAT PAN Y ACCELERATION (g)

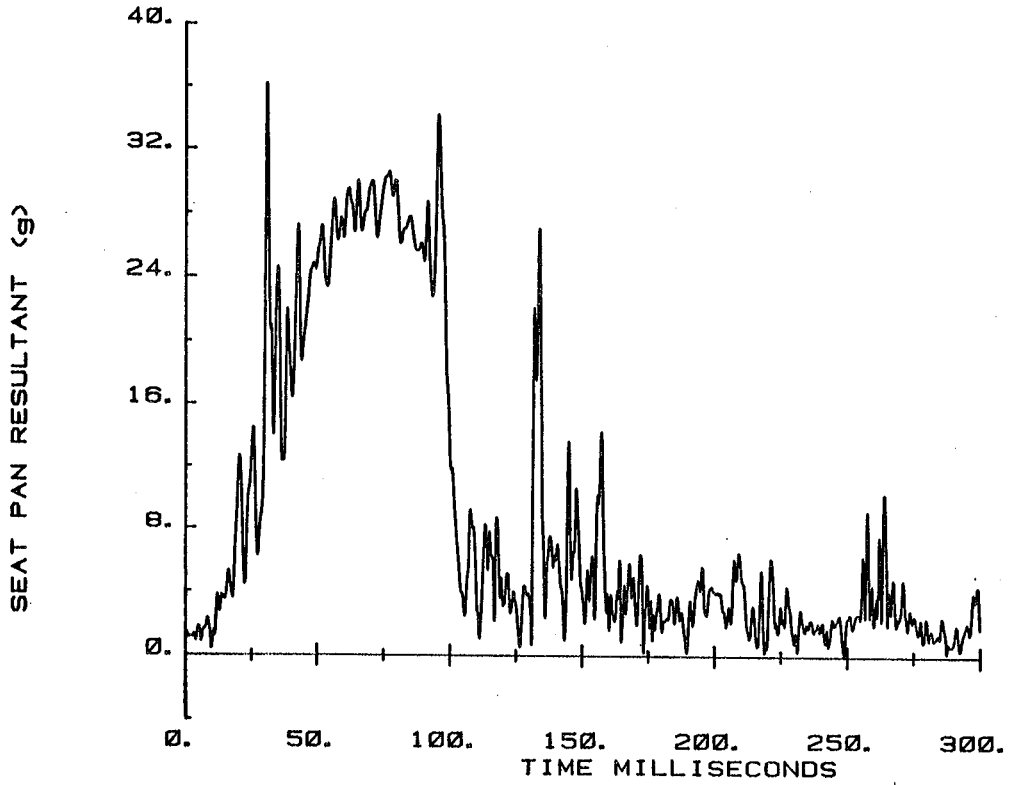


CAMI SLED TEST  
A83113

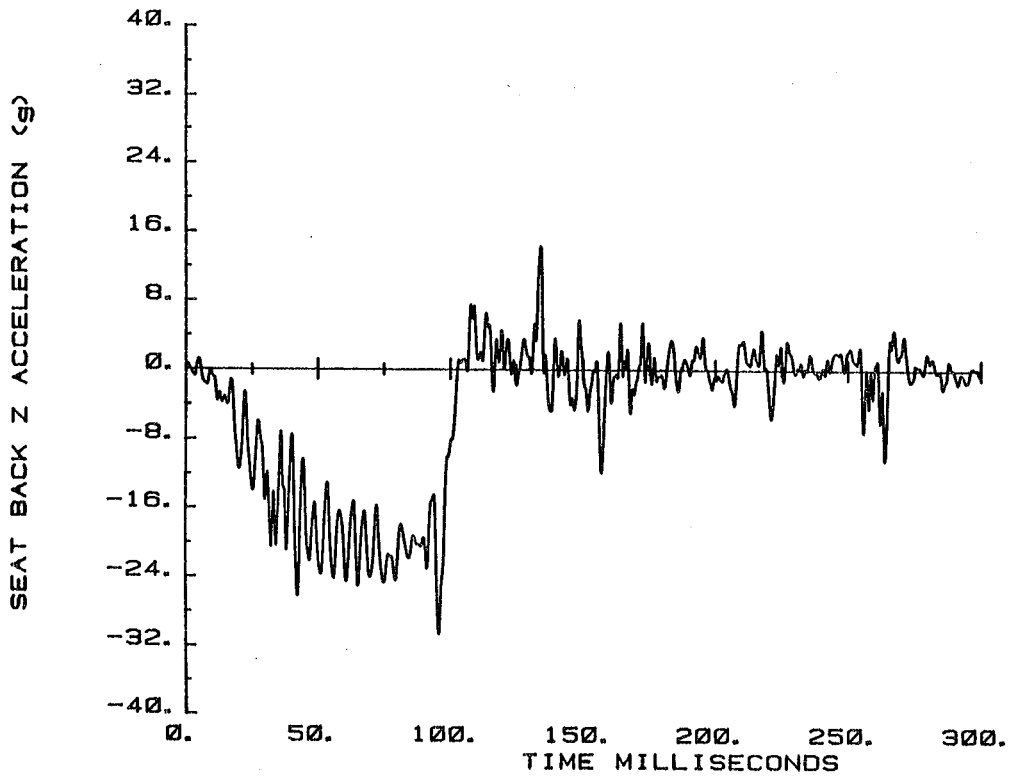
SEAT PAN Z ACCELERATION (g)



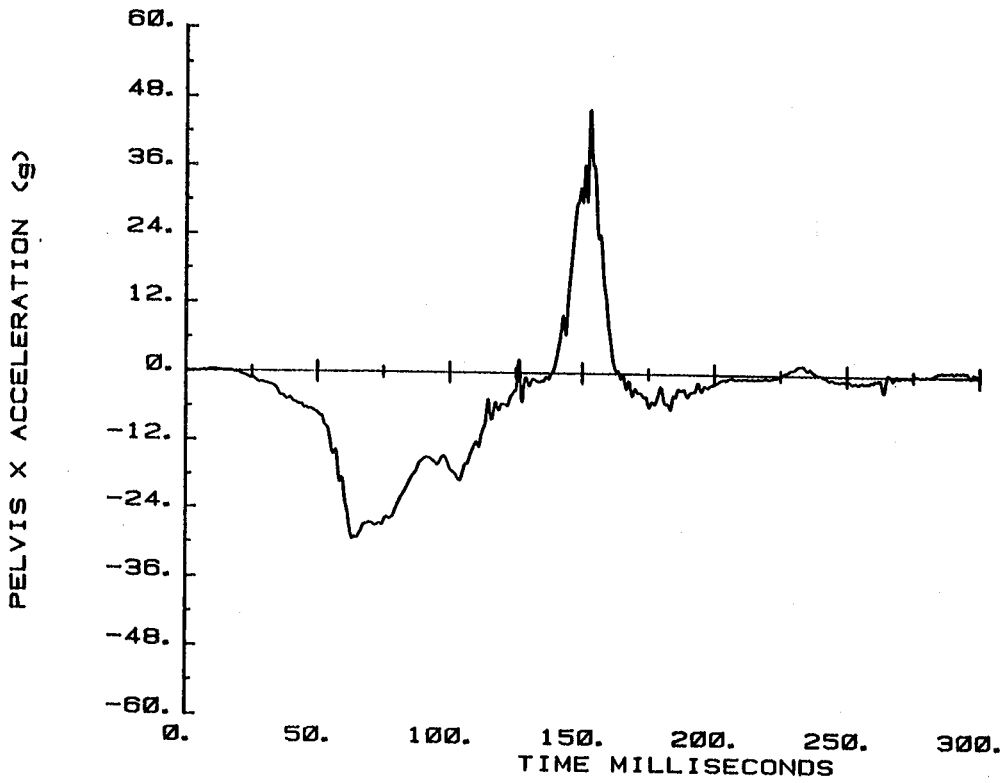
CAMI SLED TEST  
A83113



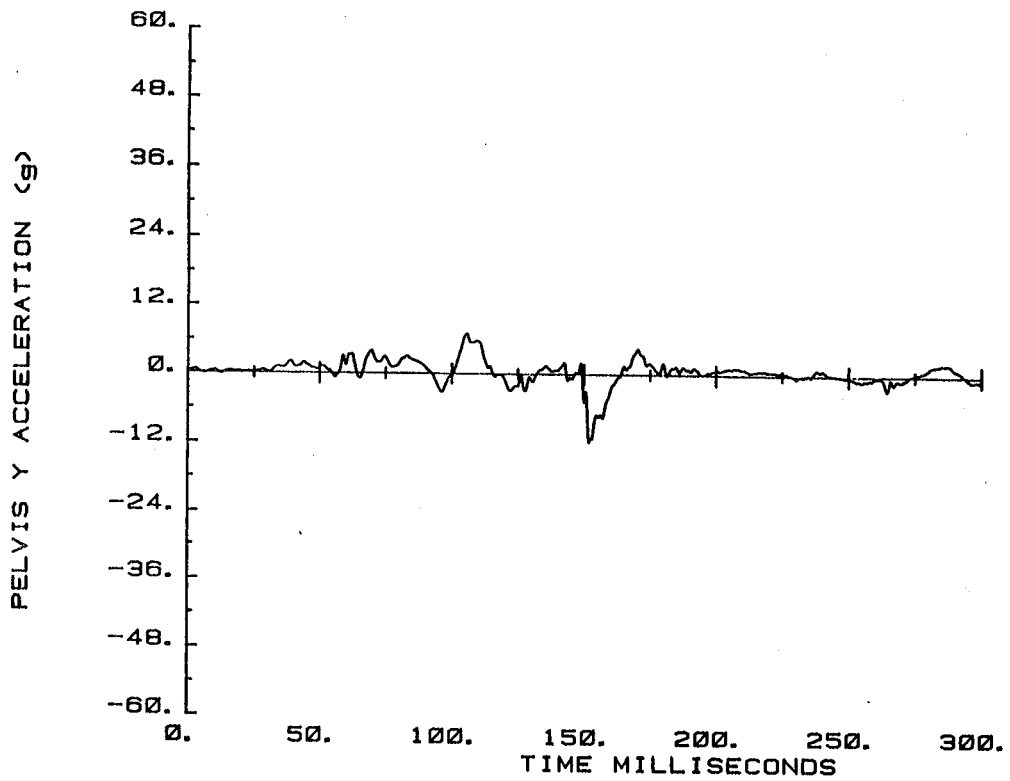
CAMI SLED TEST  
A83113



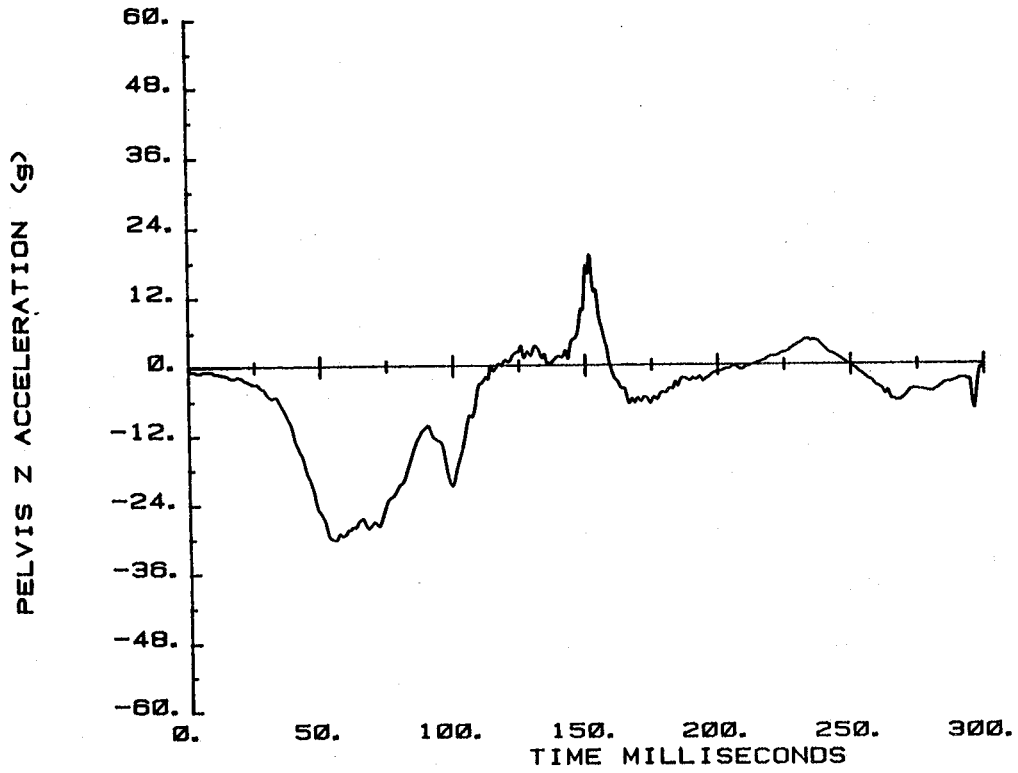
CAMI SLED TEST  
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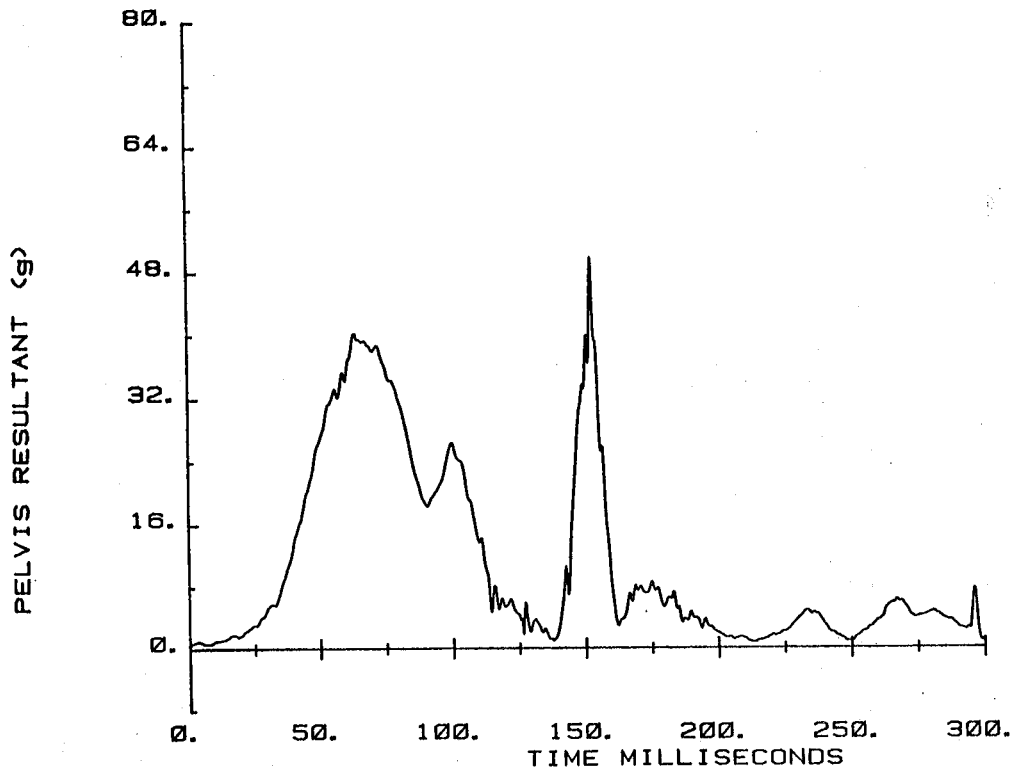
CAMI SLED TEST  
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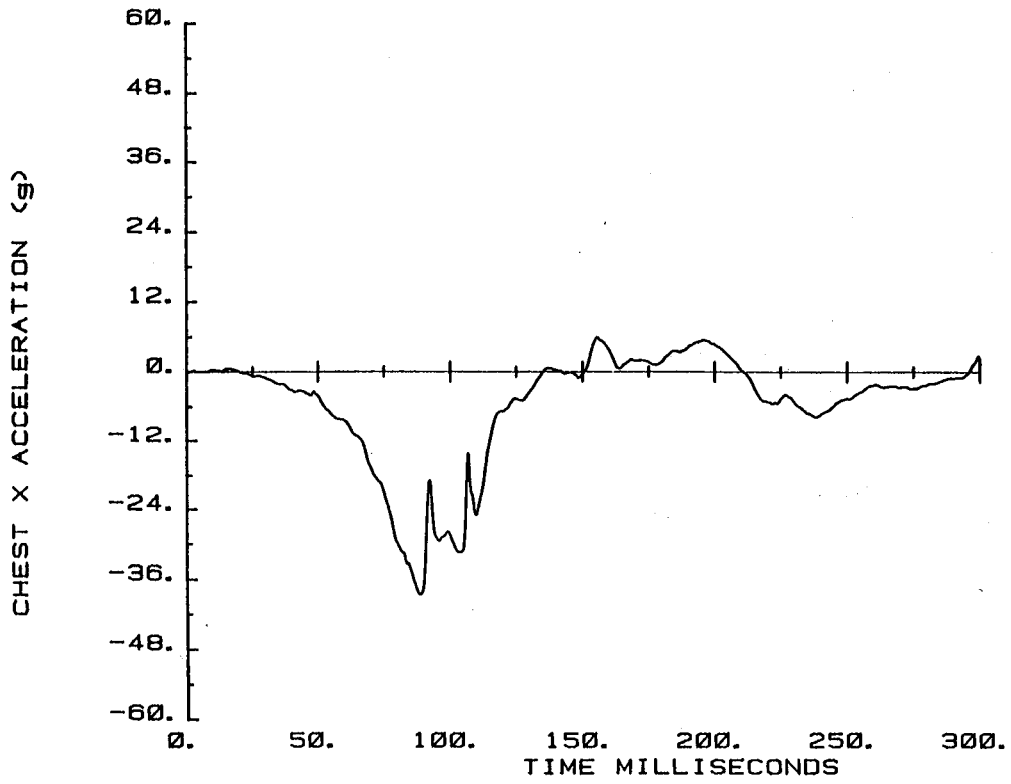
CAMI SLED TEST  
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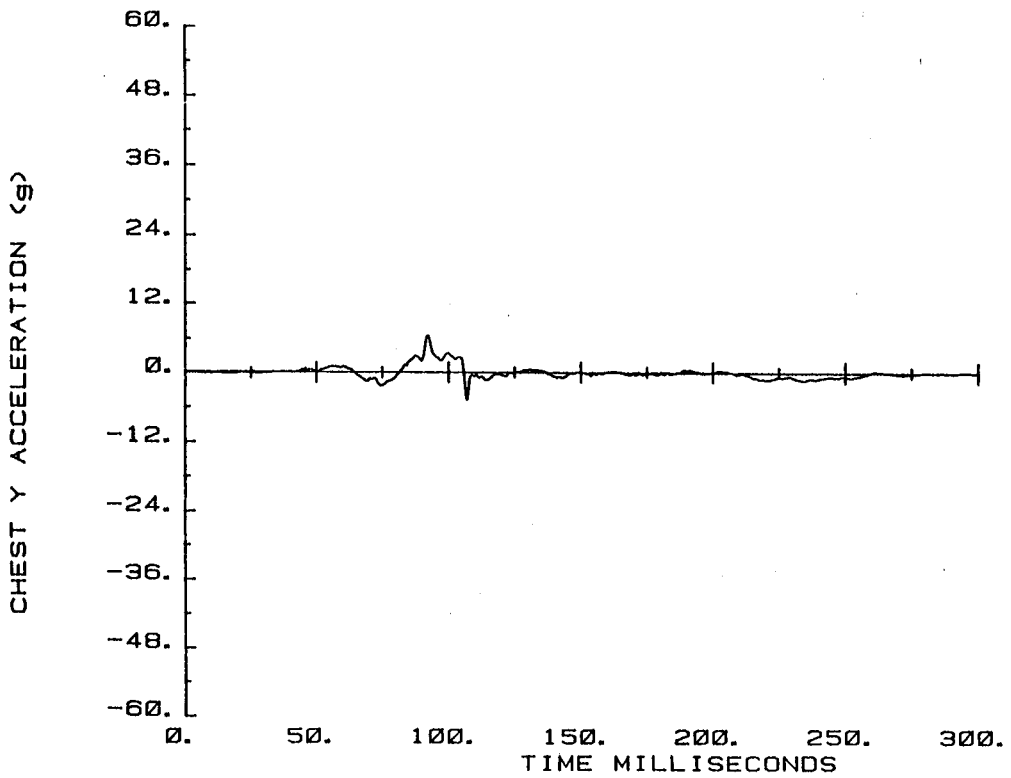
CAMI SLED TEST  
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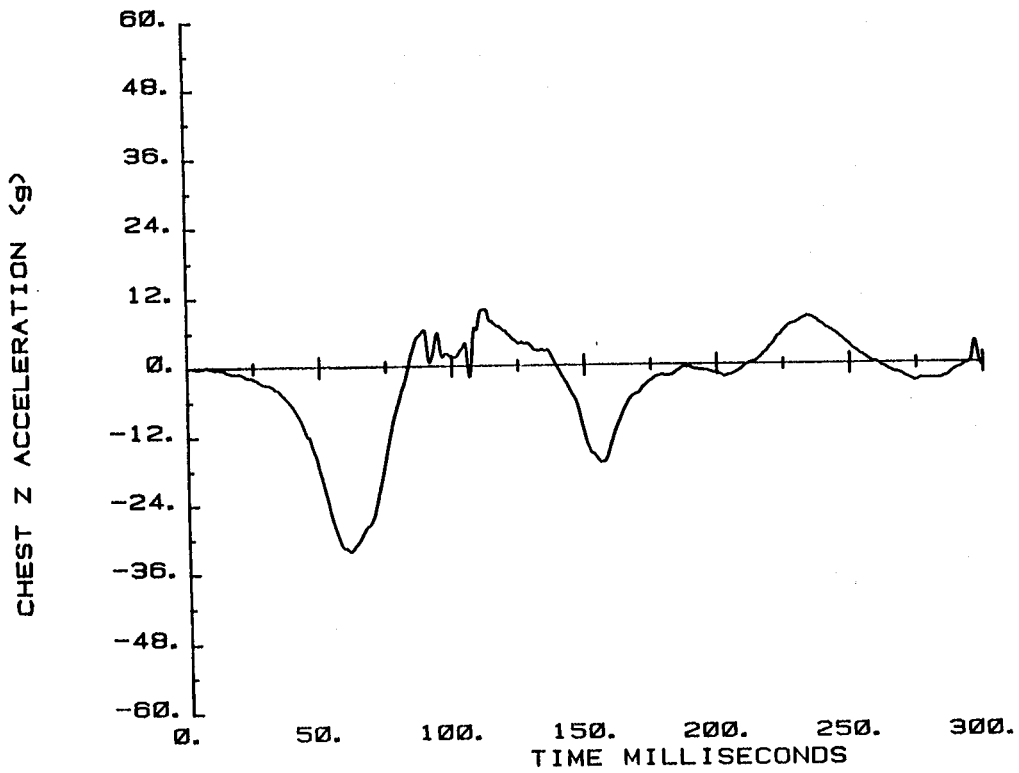
CAMI SLED TEST  
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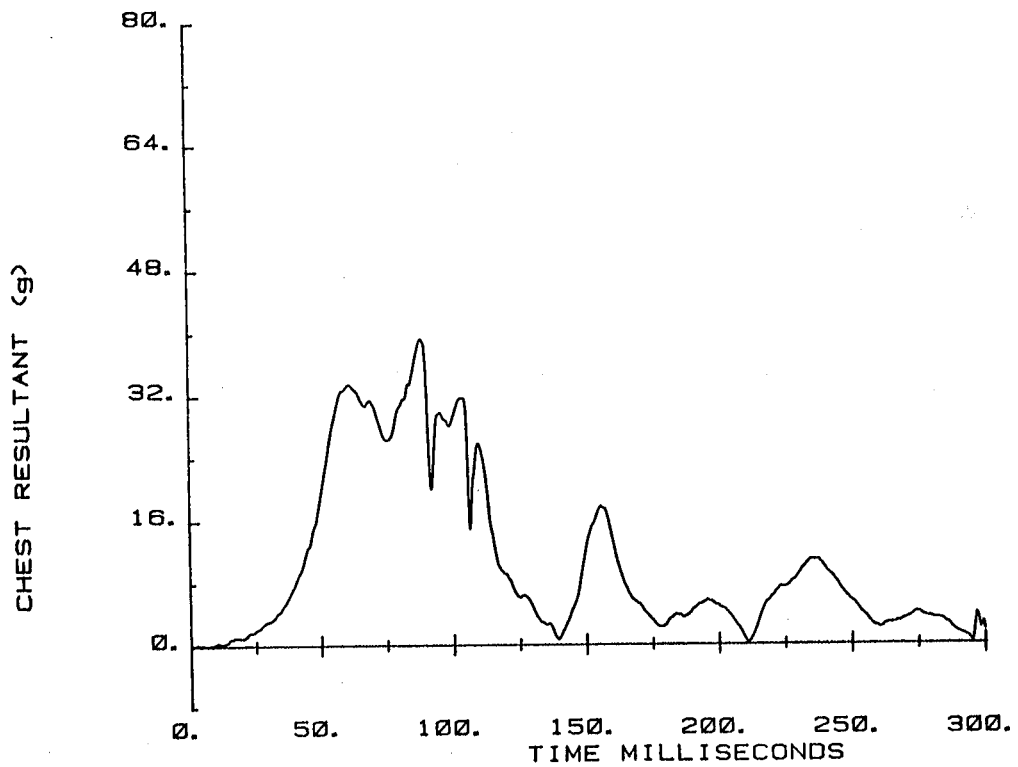
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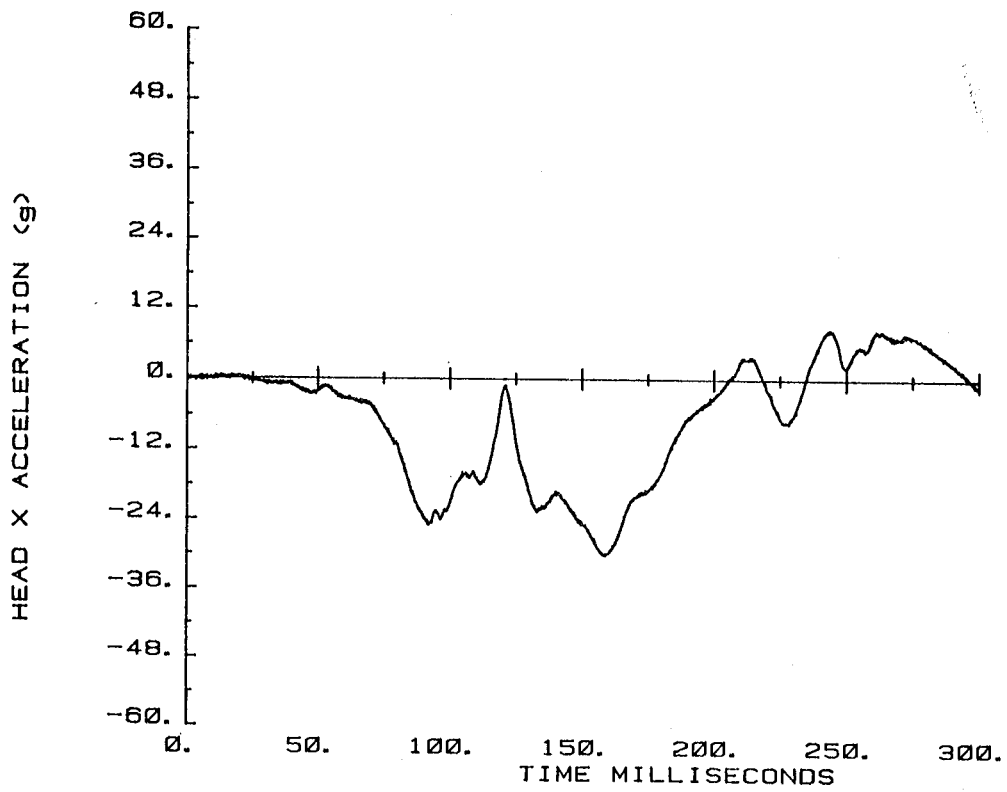
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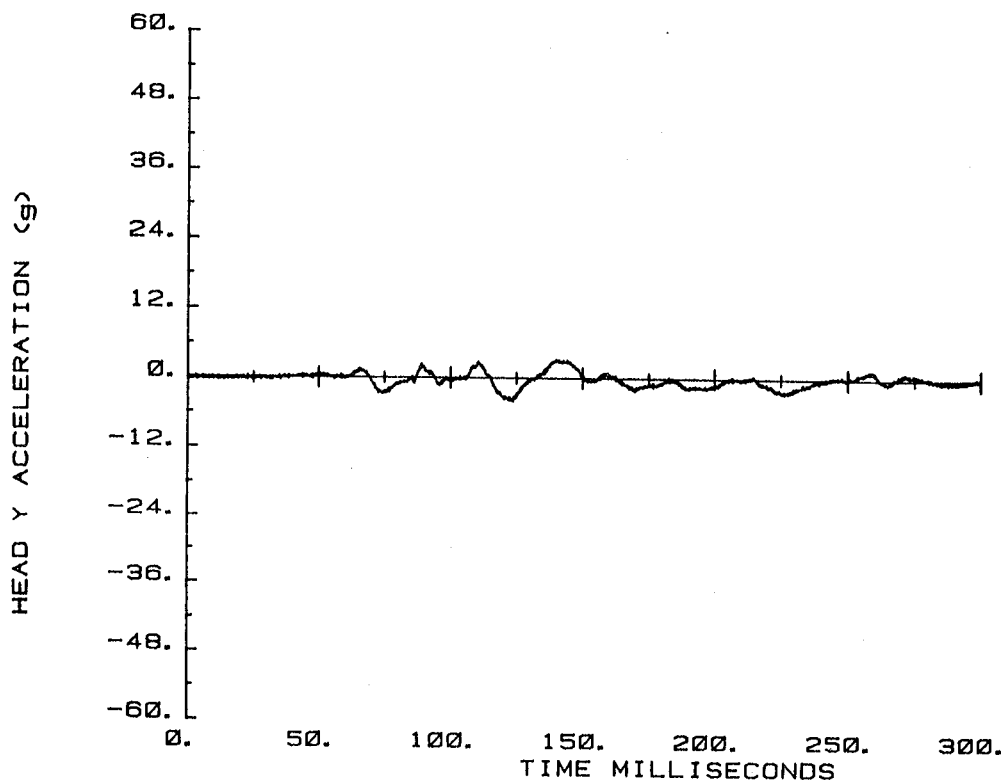
CAMI SLED TEST  
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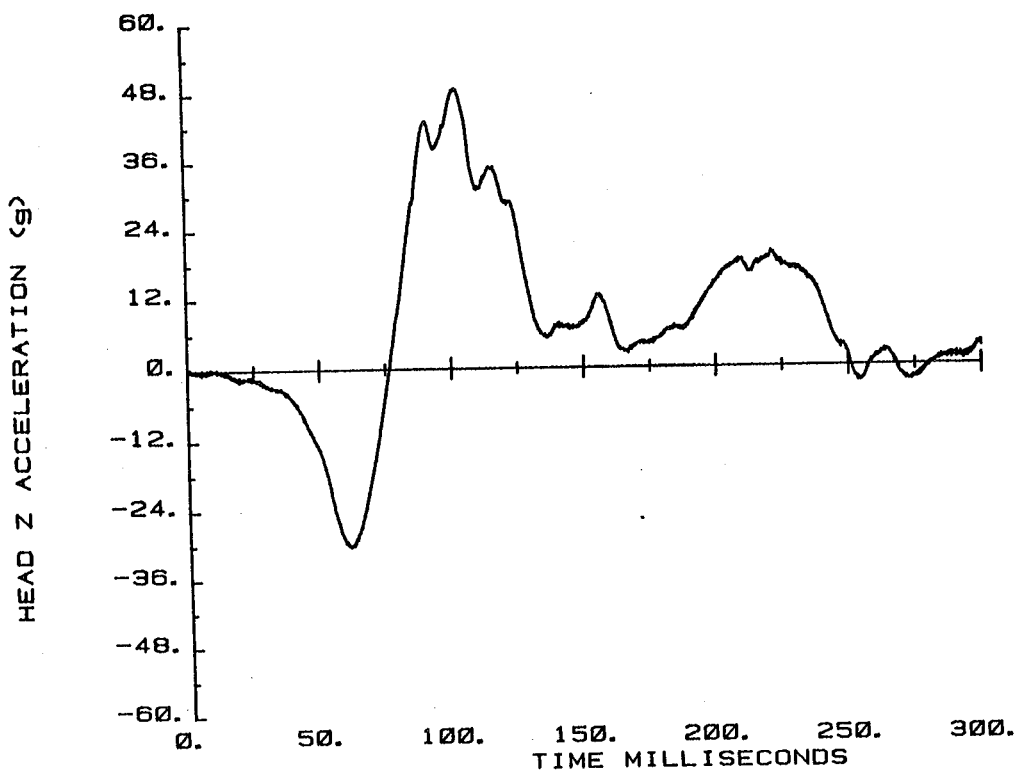
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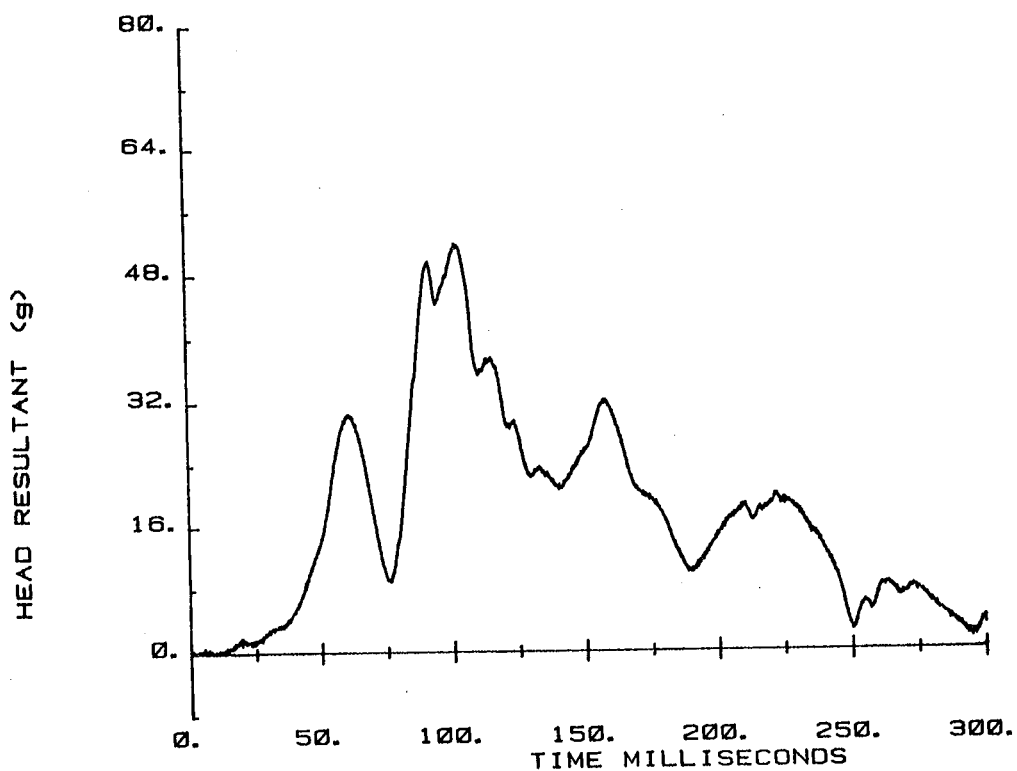
CAMI SLED TEST  
A83113



CAMI SLED TEST  
A83113

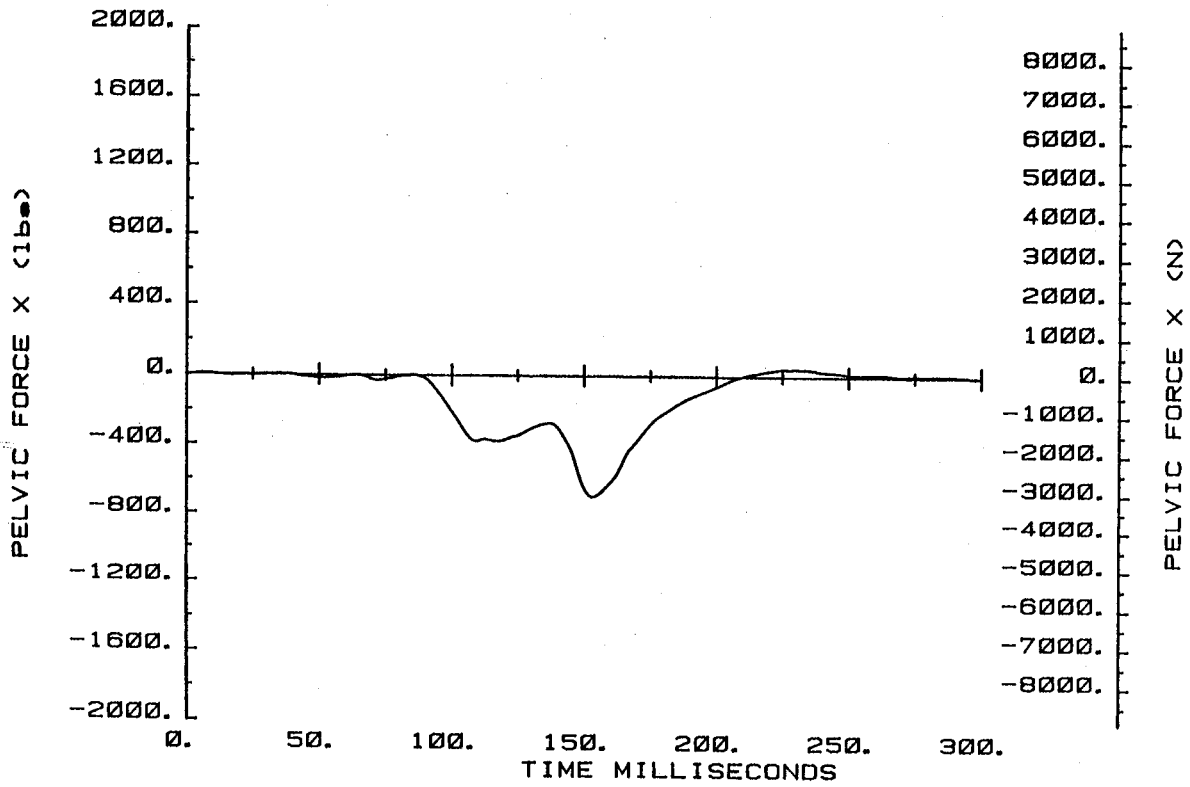


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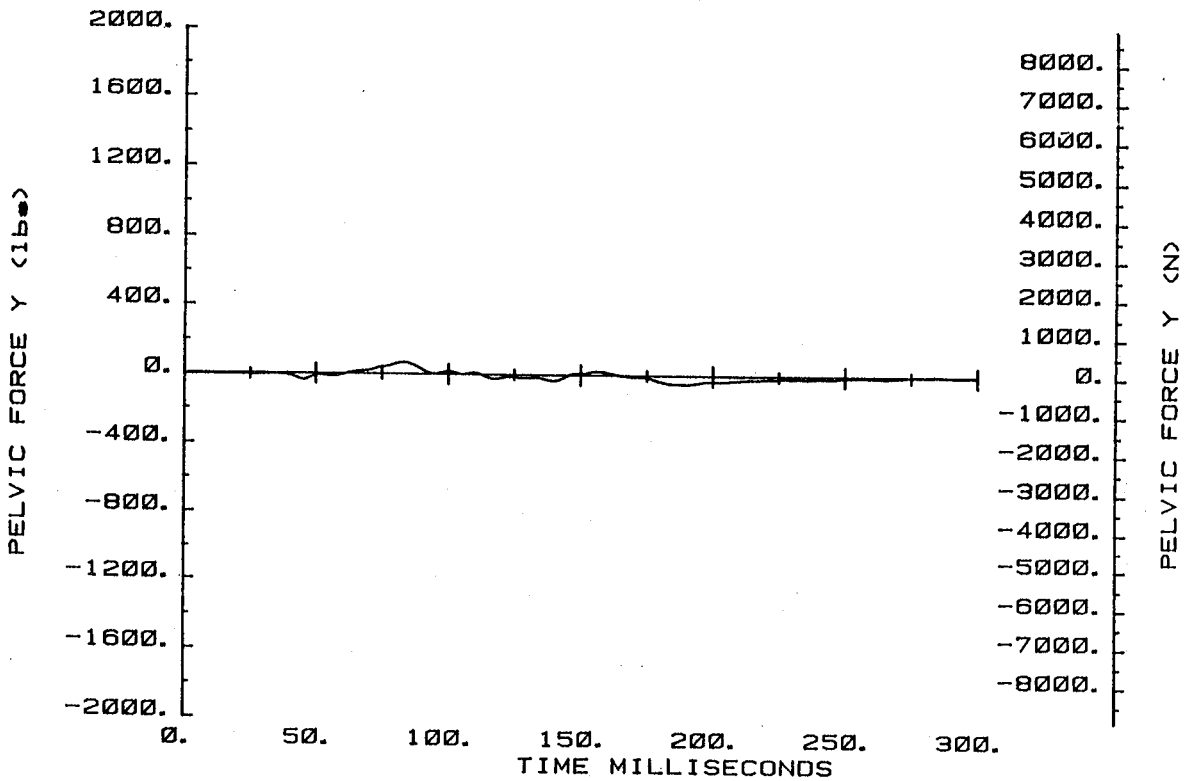




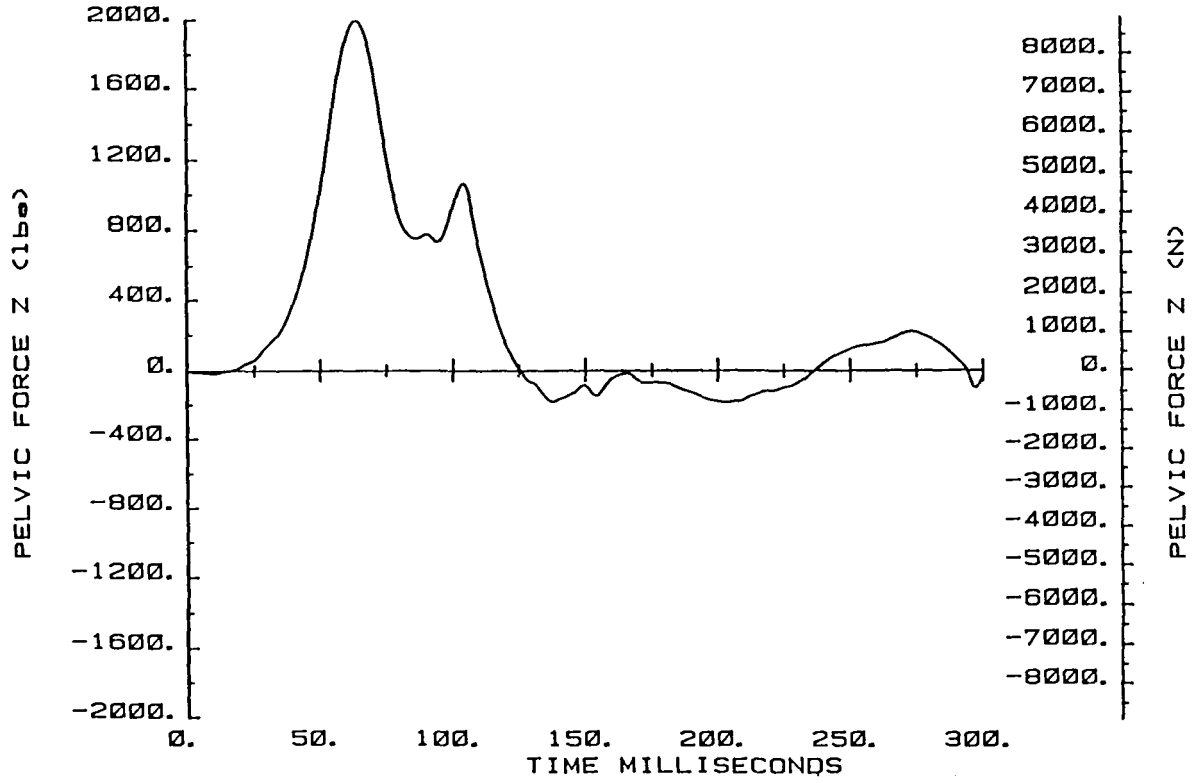
CAMI SLED TEST  
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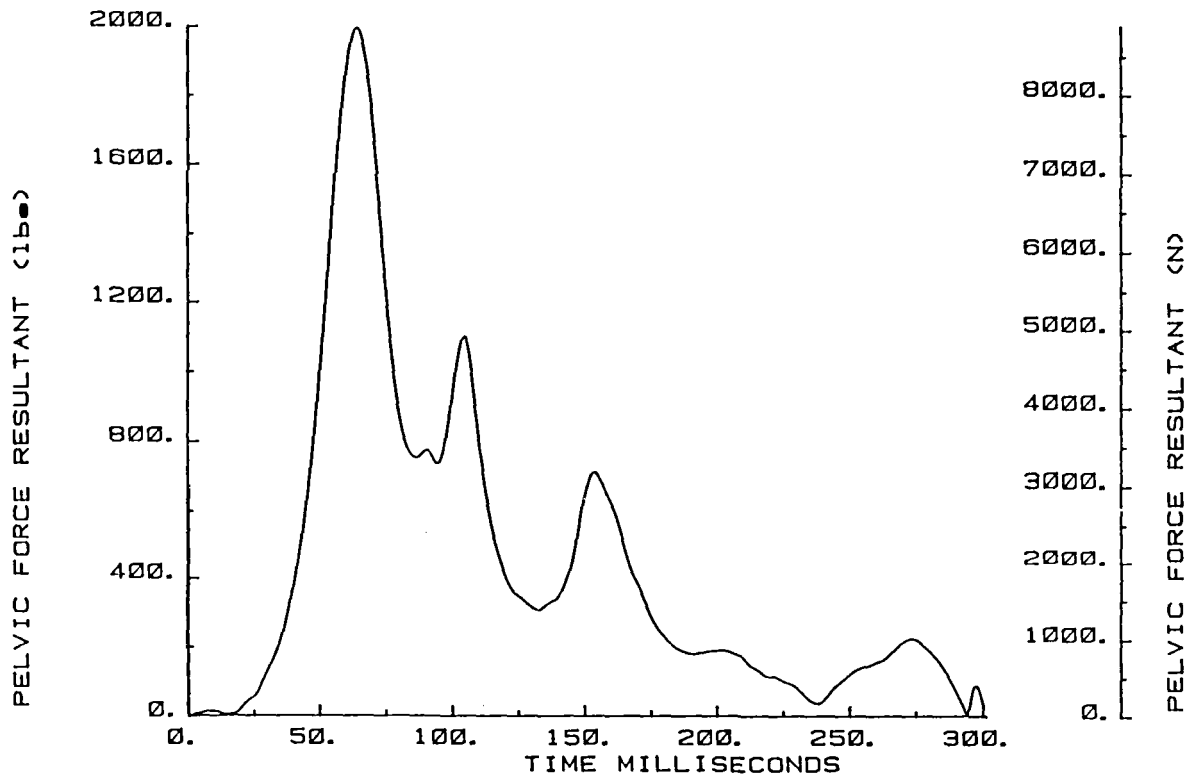
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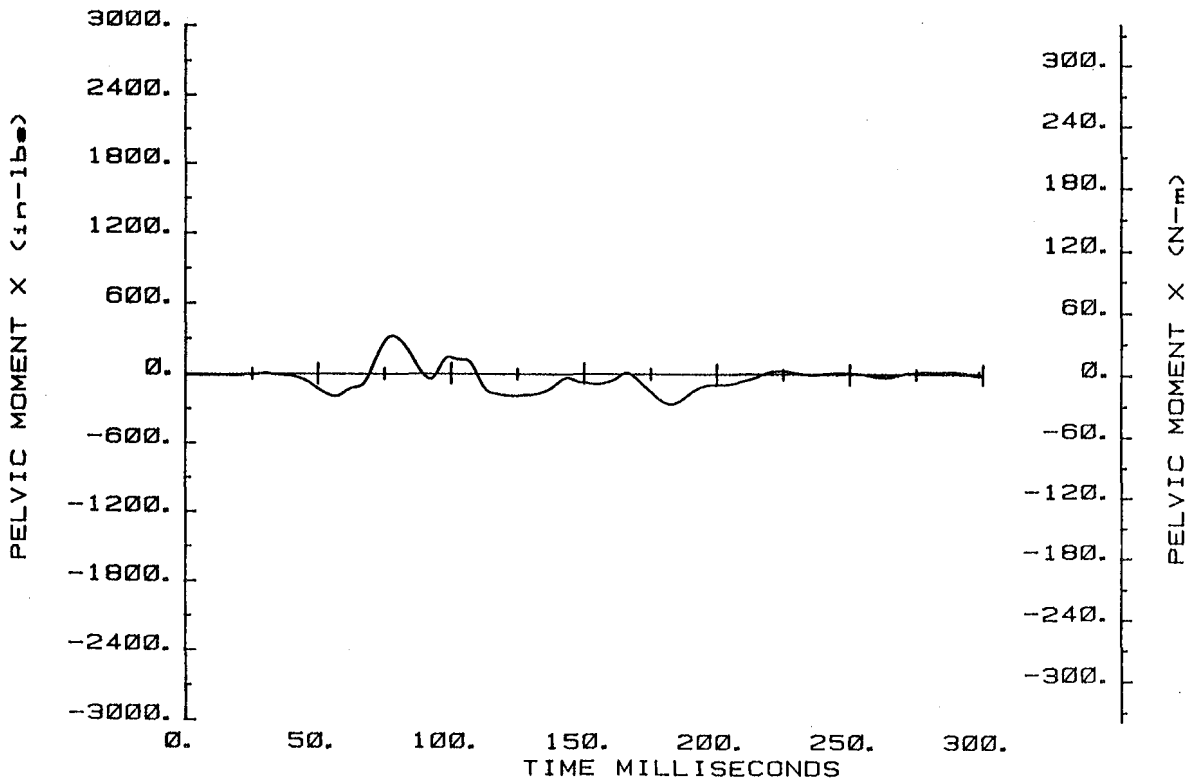
CAMI SLED TEST  
A83113



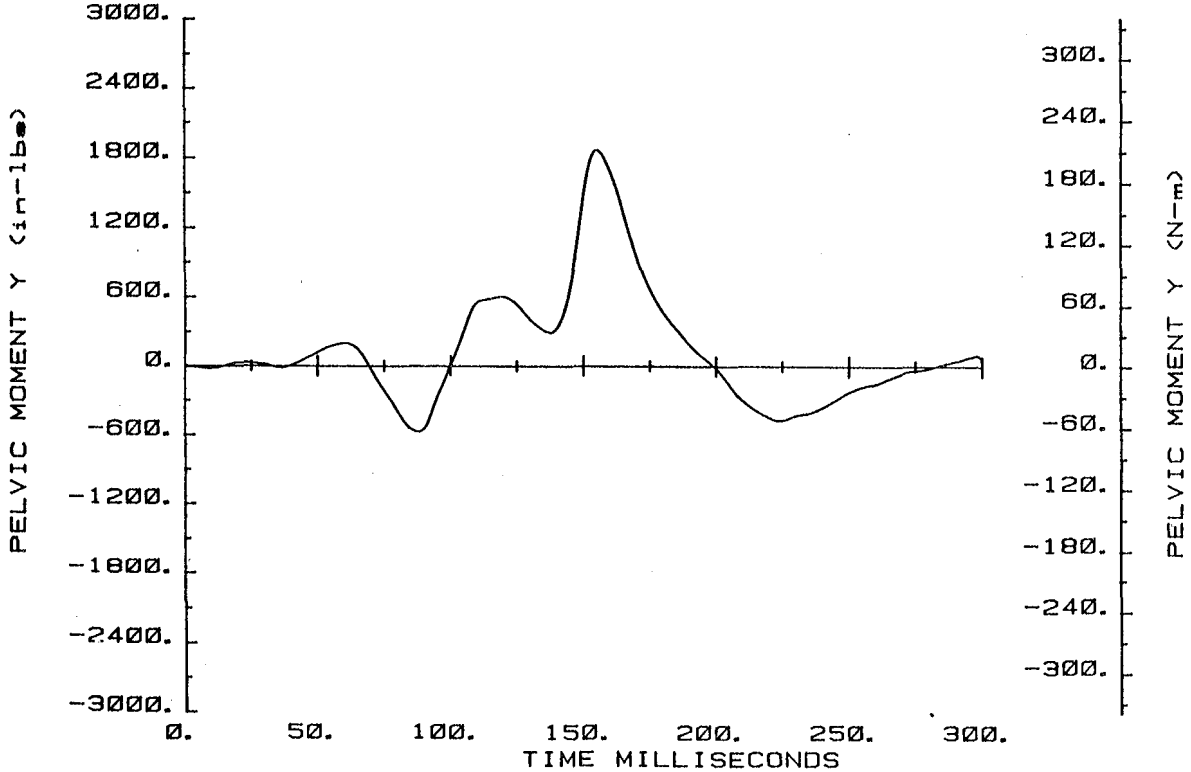
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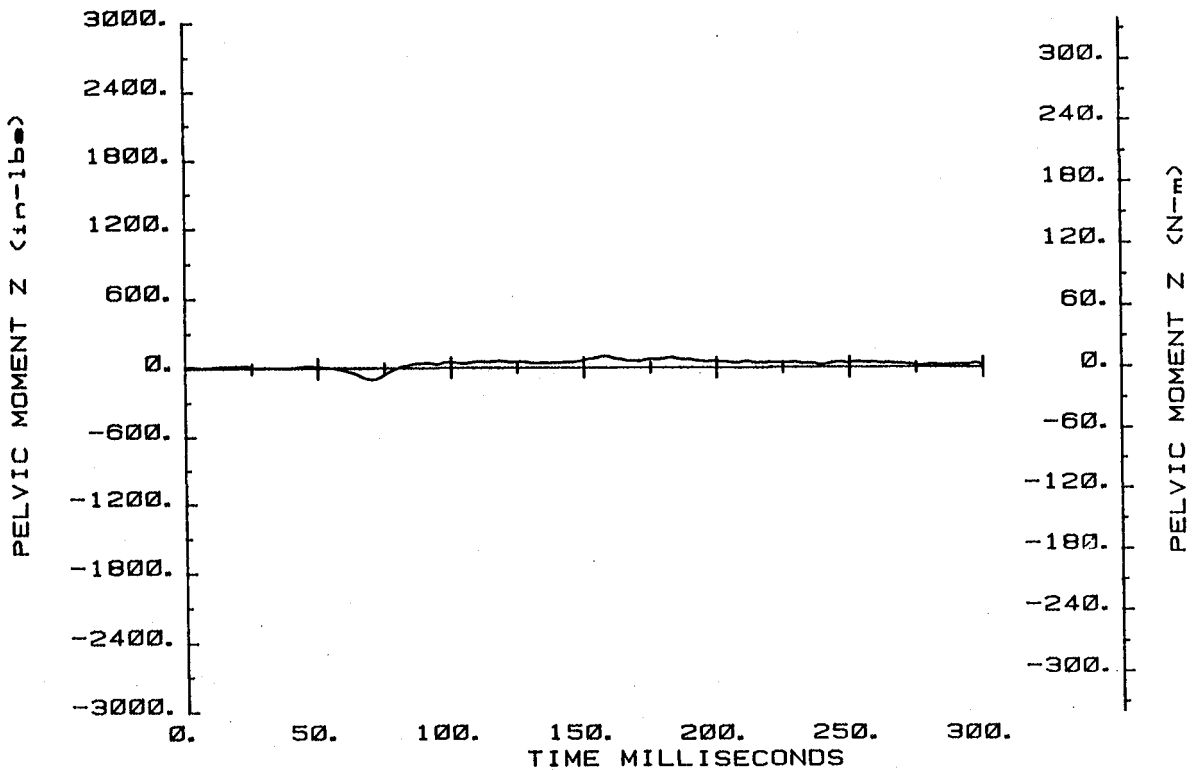
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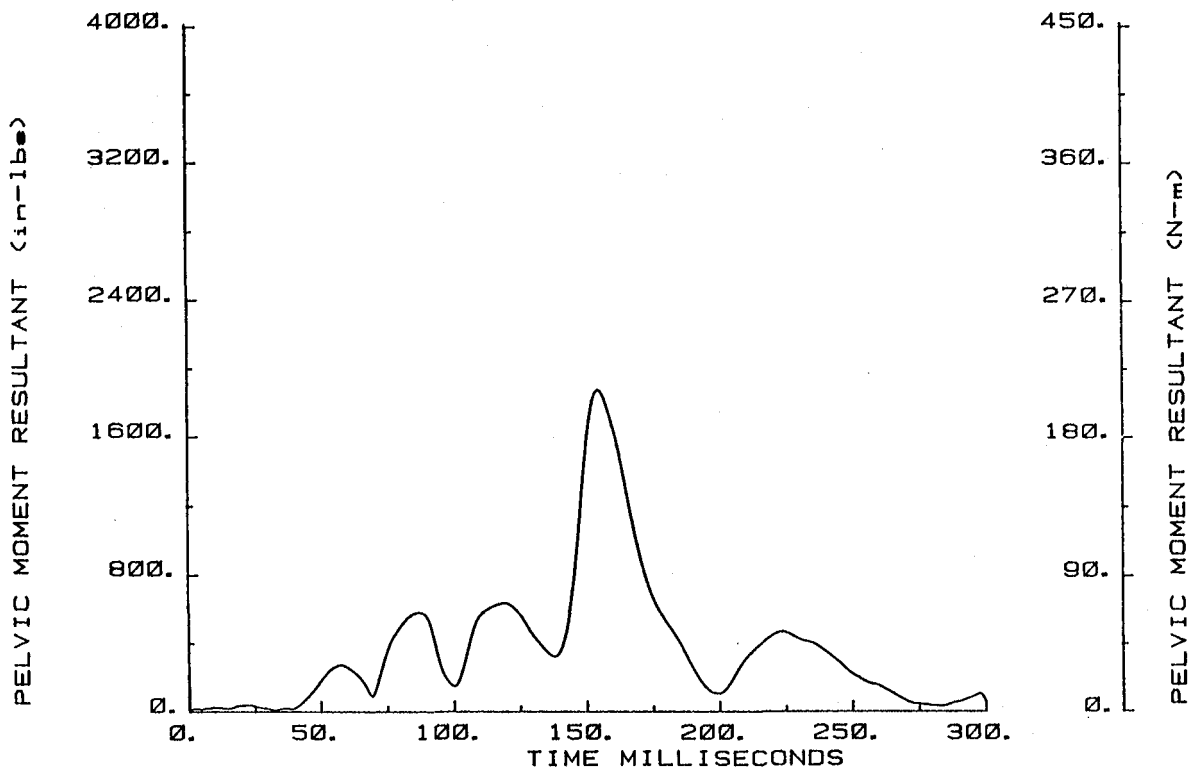
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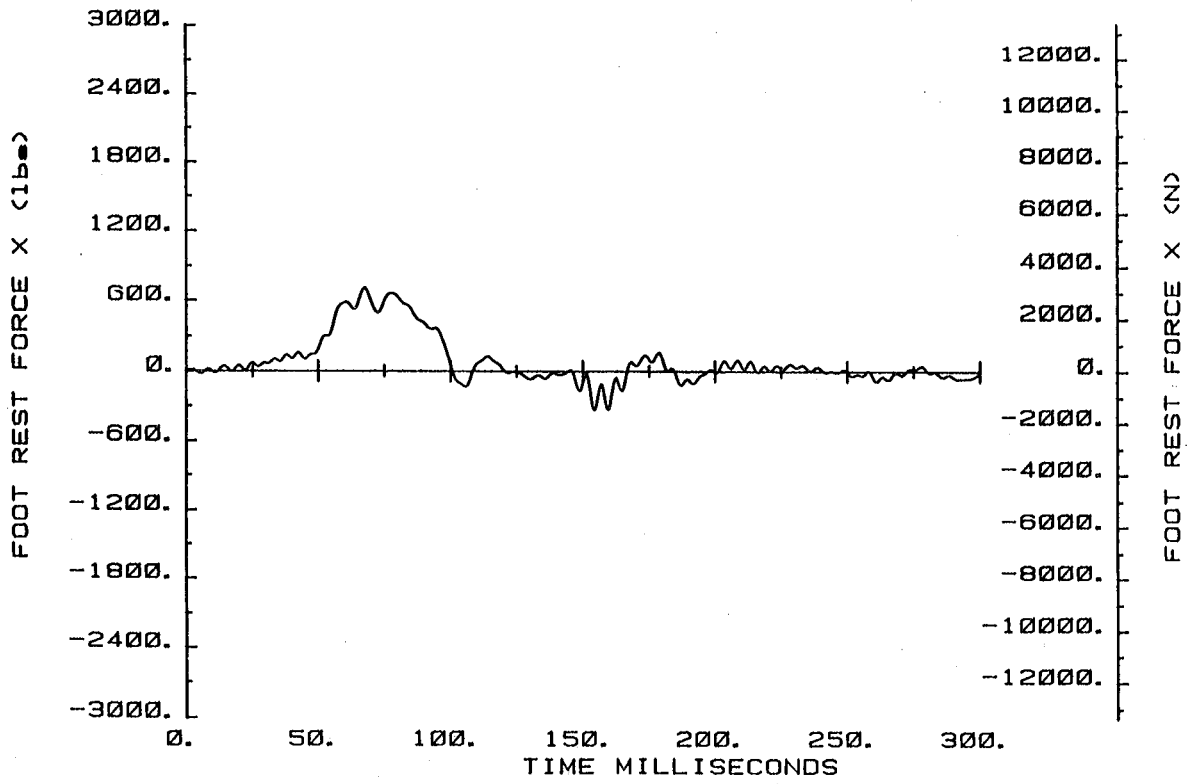
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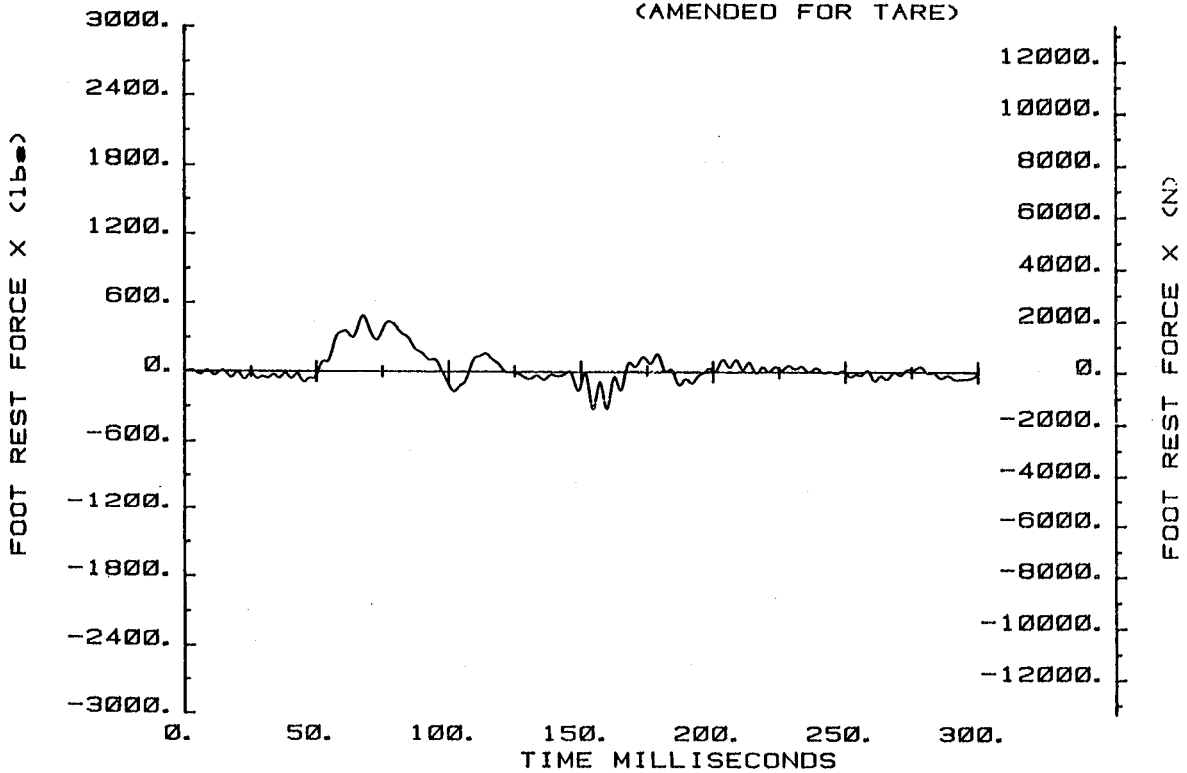
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A83113



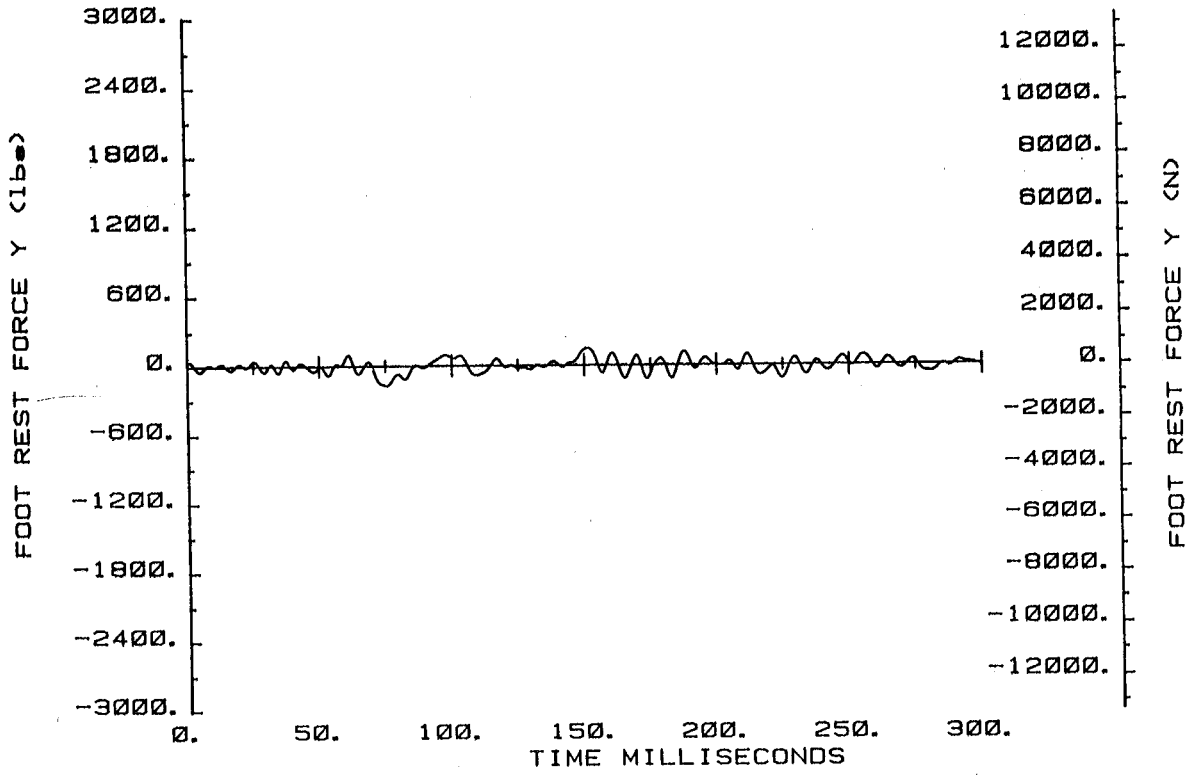
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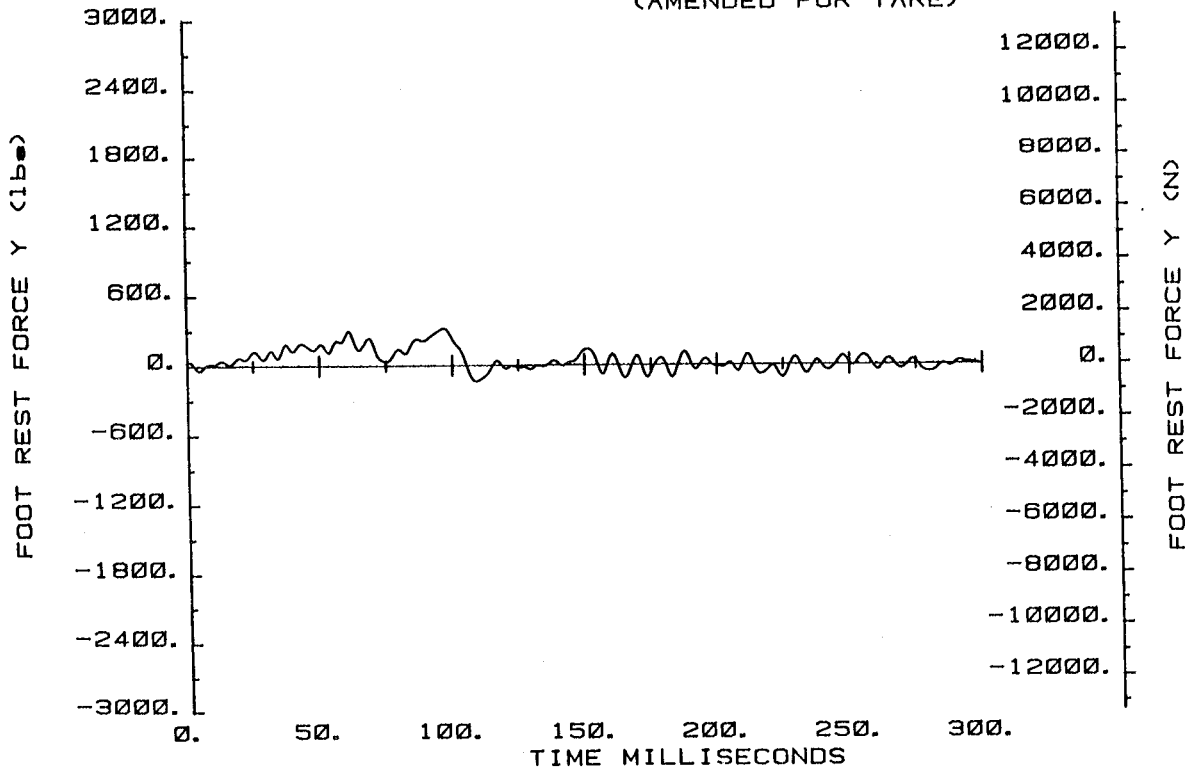
CAMI SLED TEST  
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(AMENDED FOR TARE)



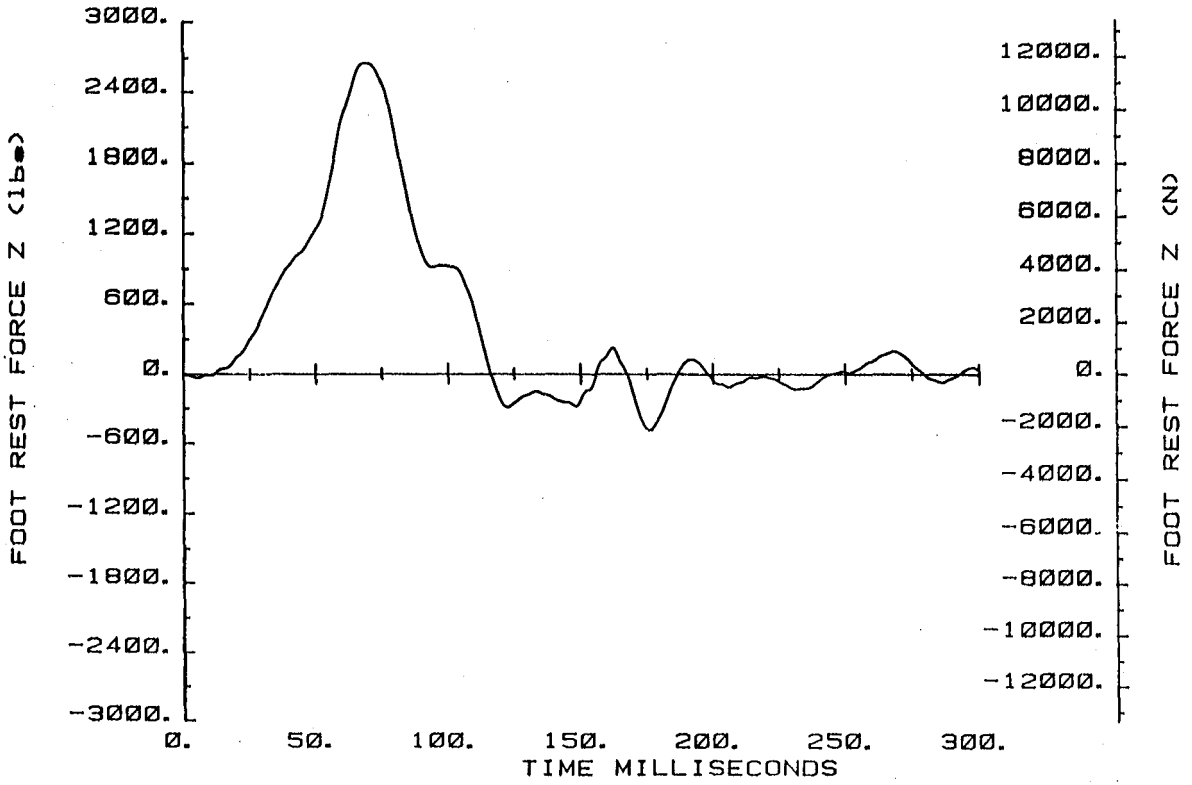
CAMI SLED TEST  
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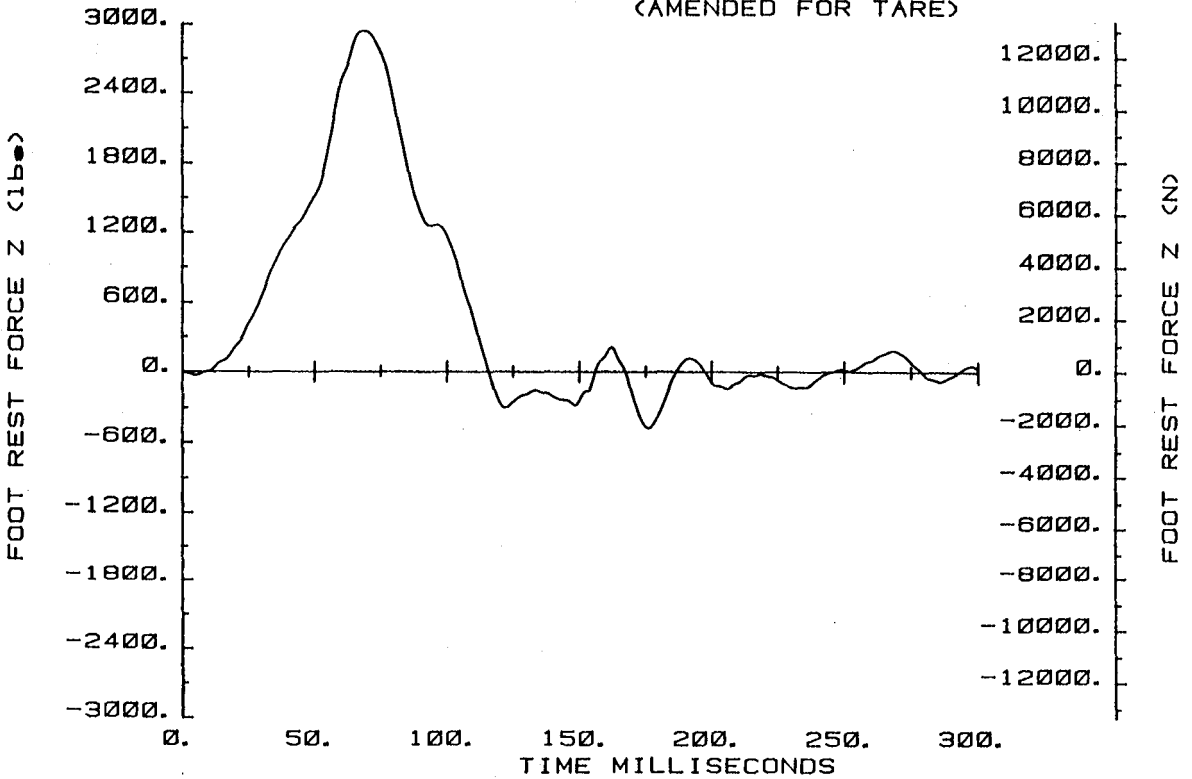
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(AMENDED FOR TARE)



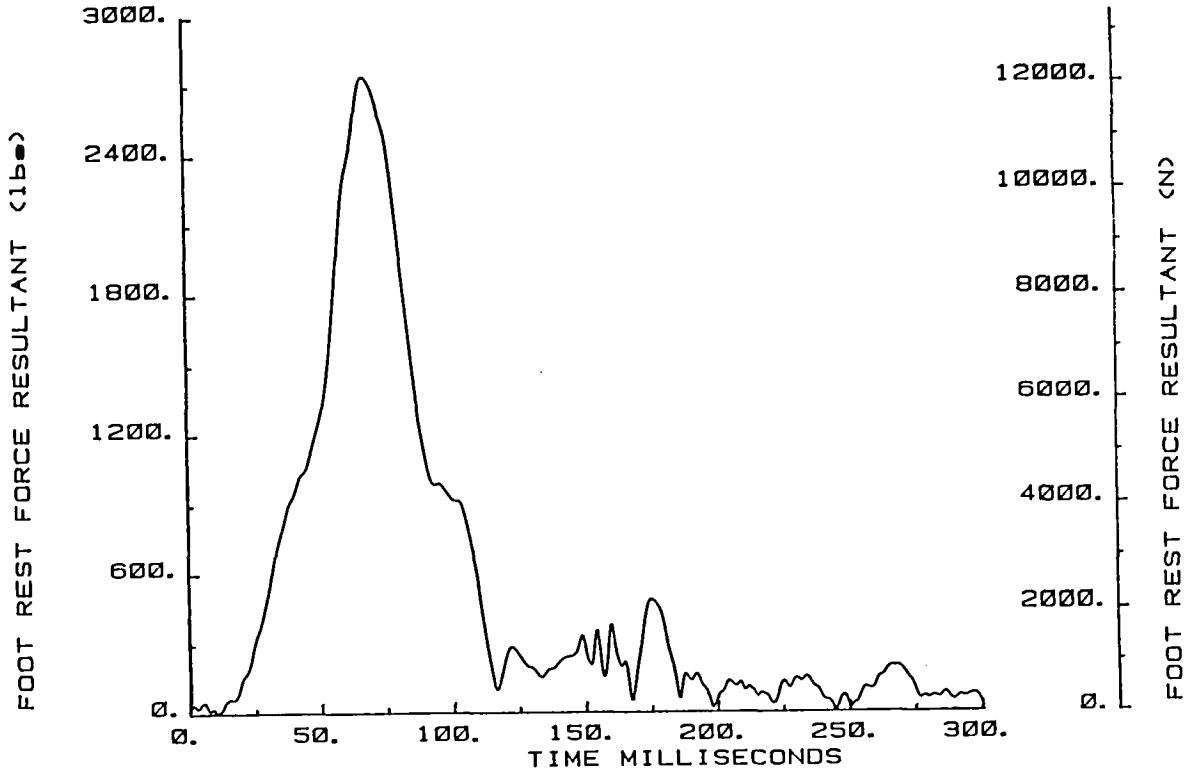
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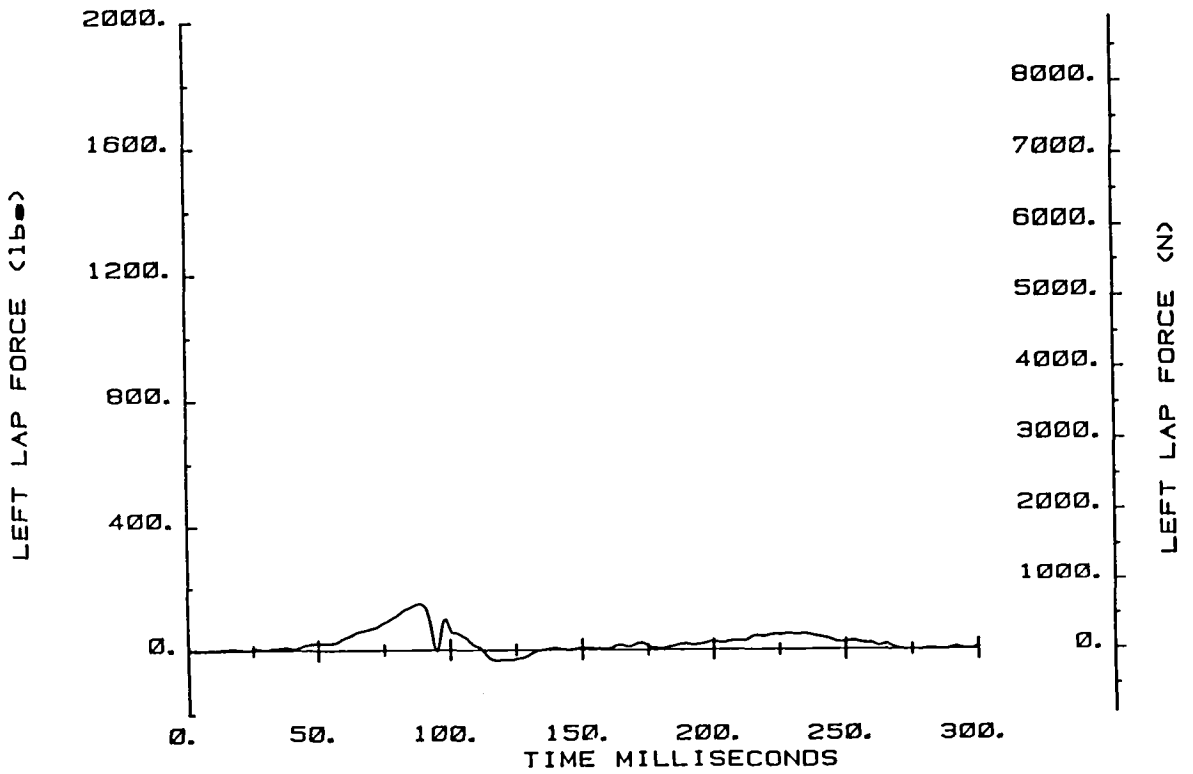
CAMI SLED TEST  
A83113  
(AMENDED FOR TARE)



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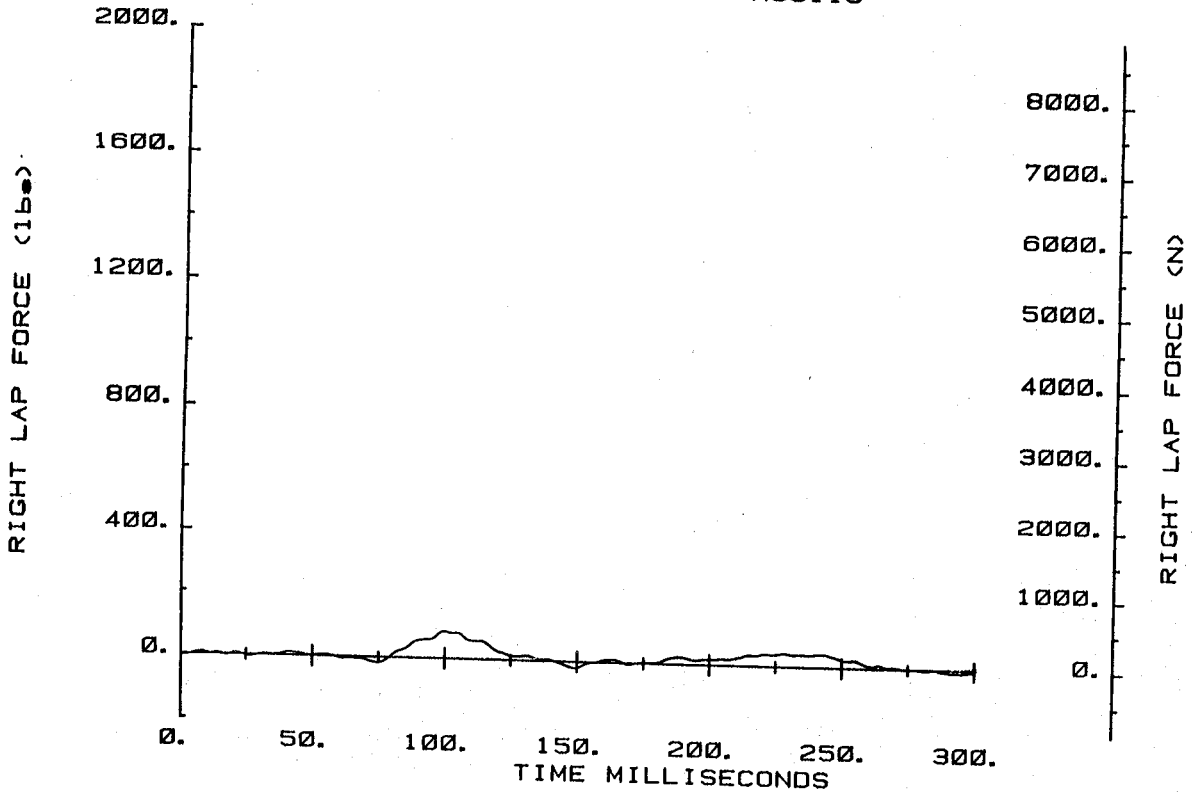


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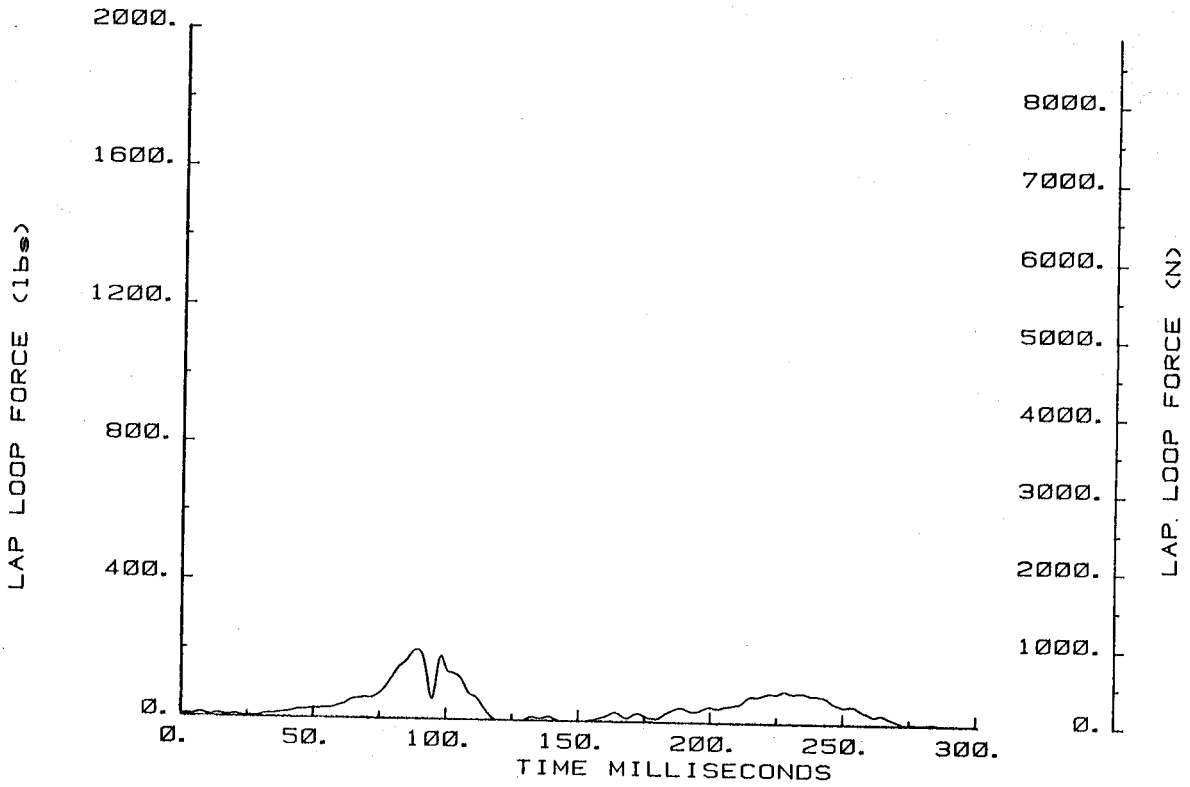




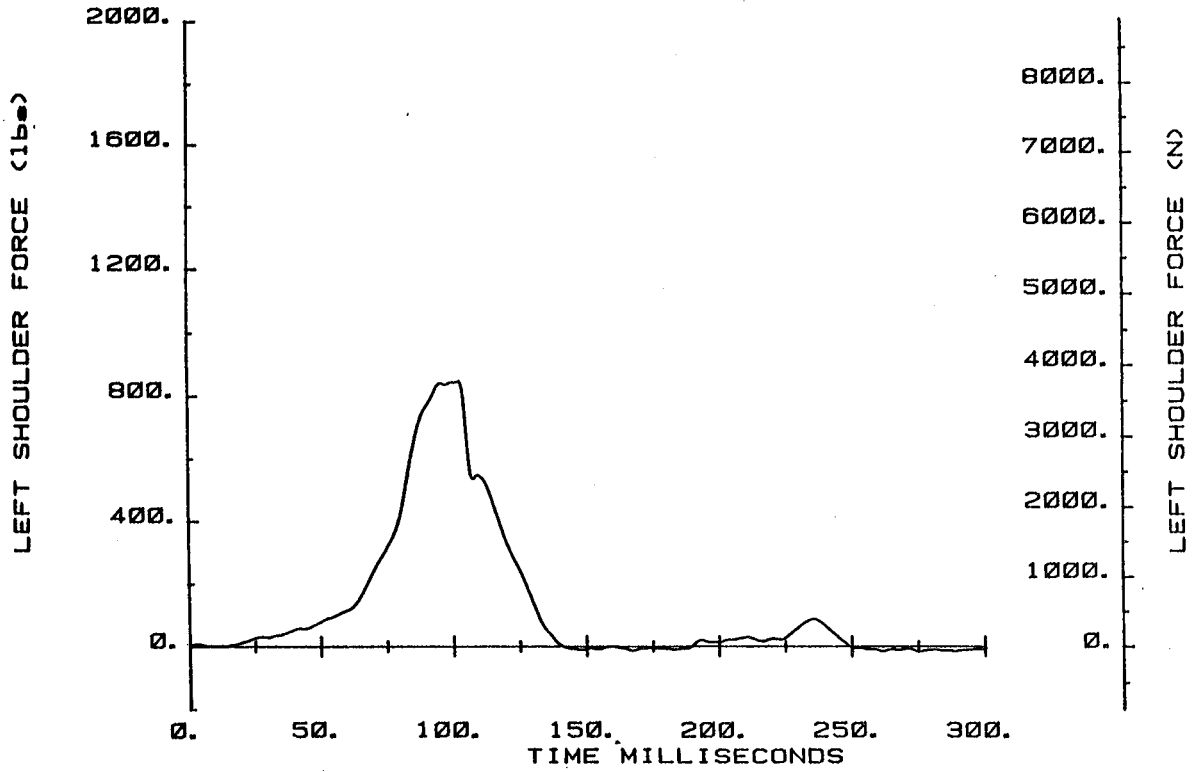
CAMI SLED TEST  
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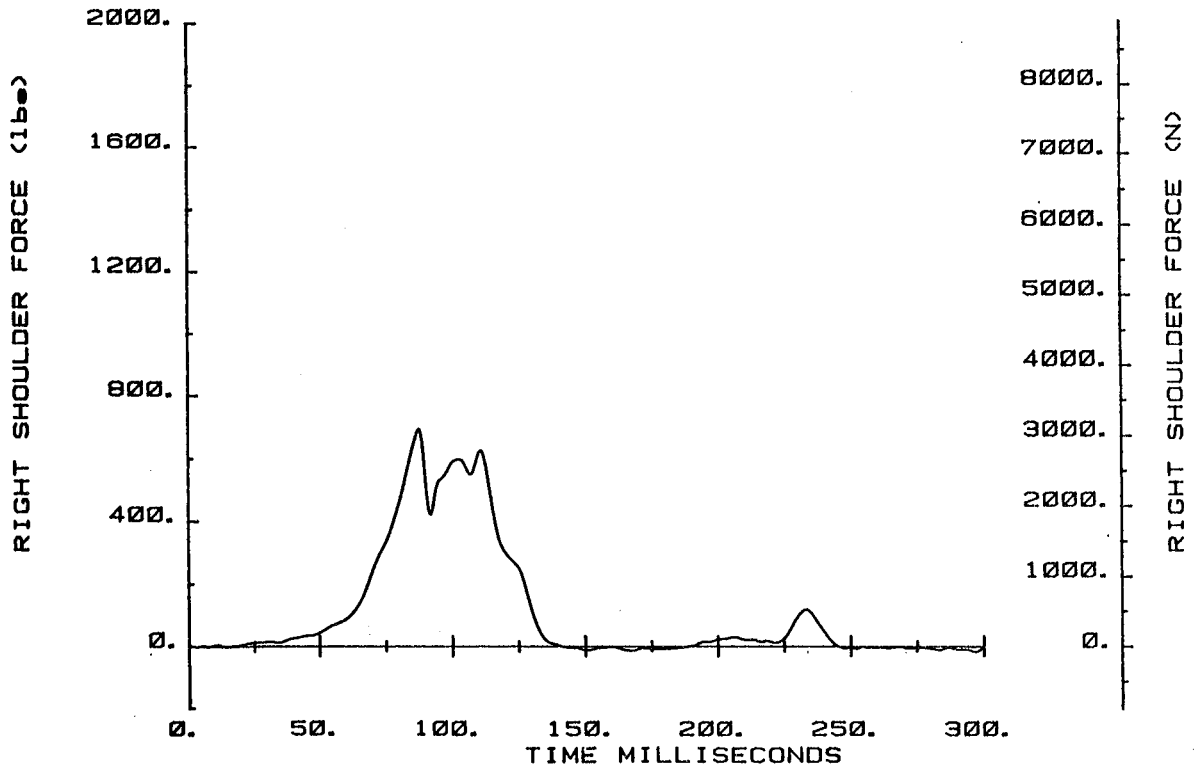
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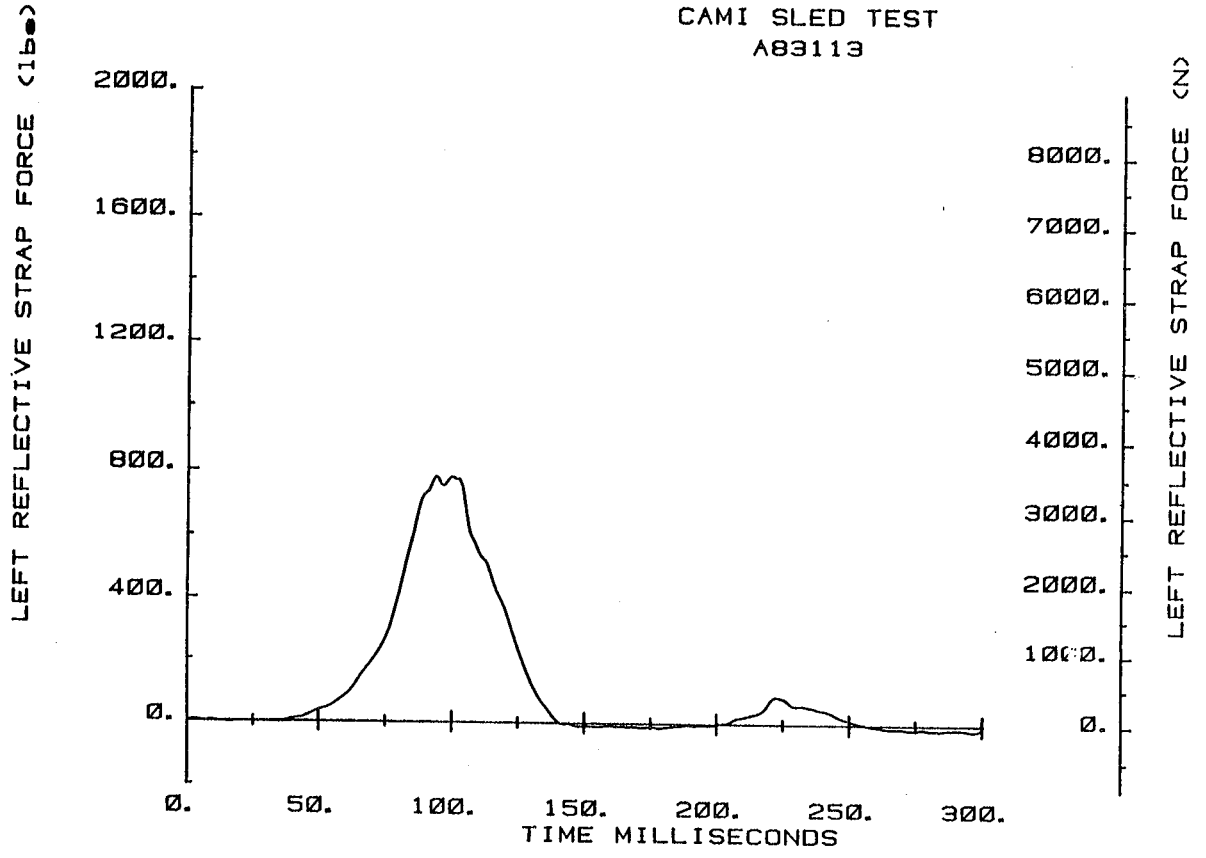
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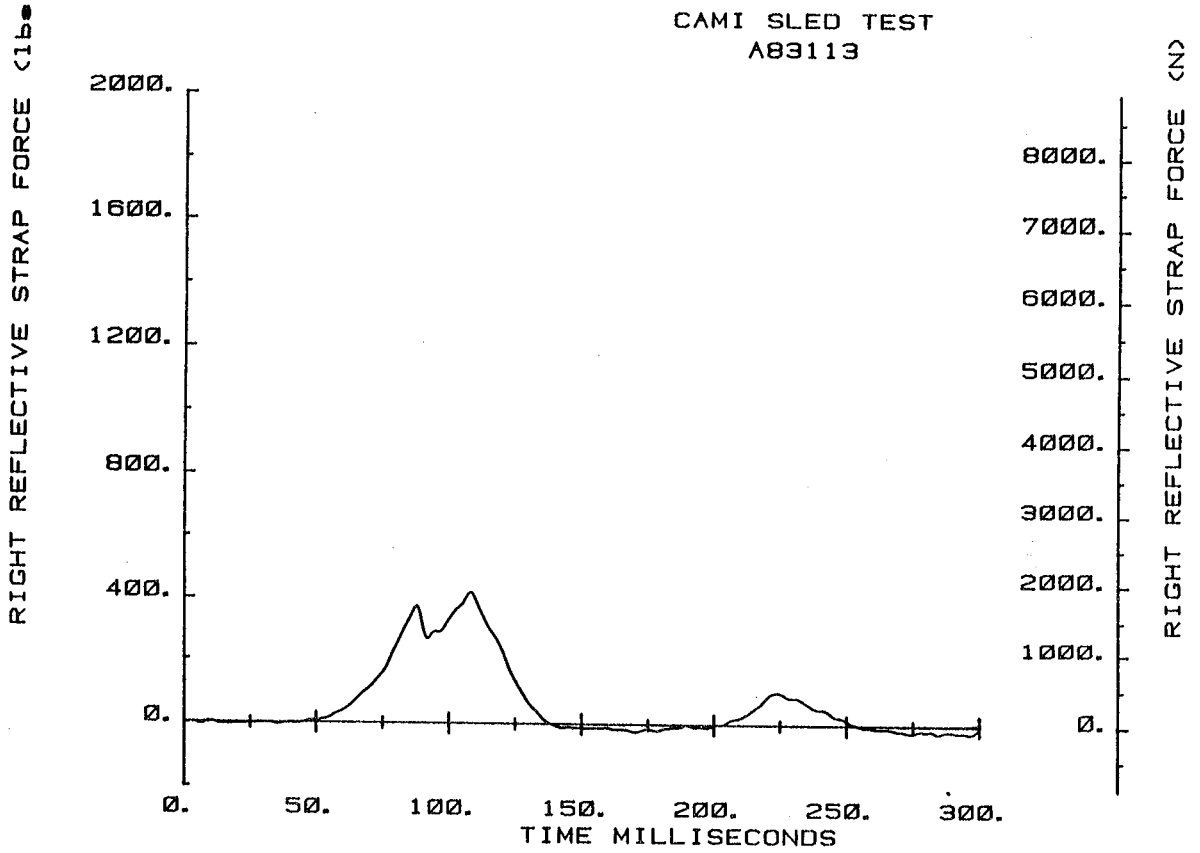
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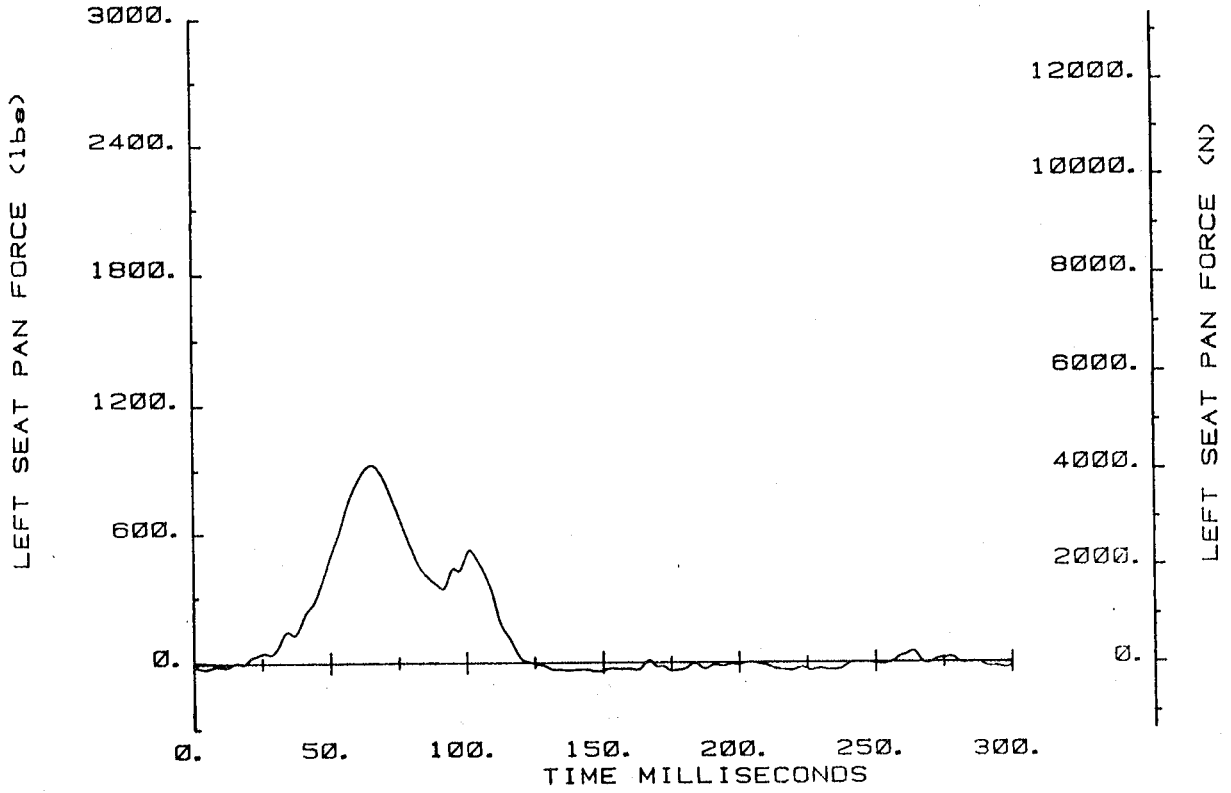
CAMI SLED TEST  
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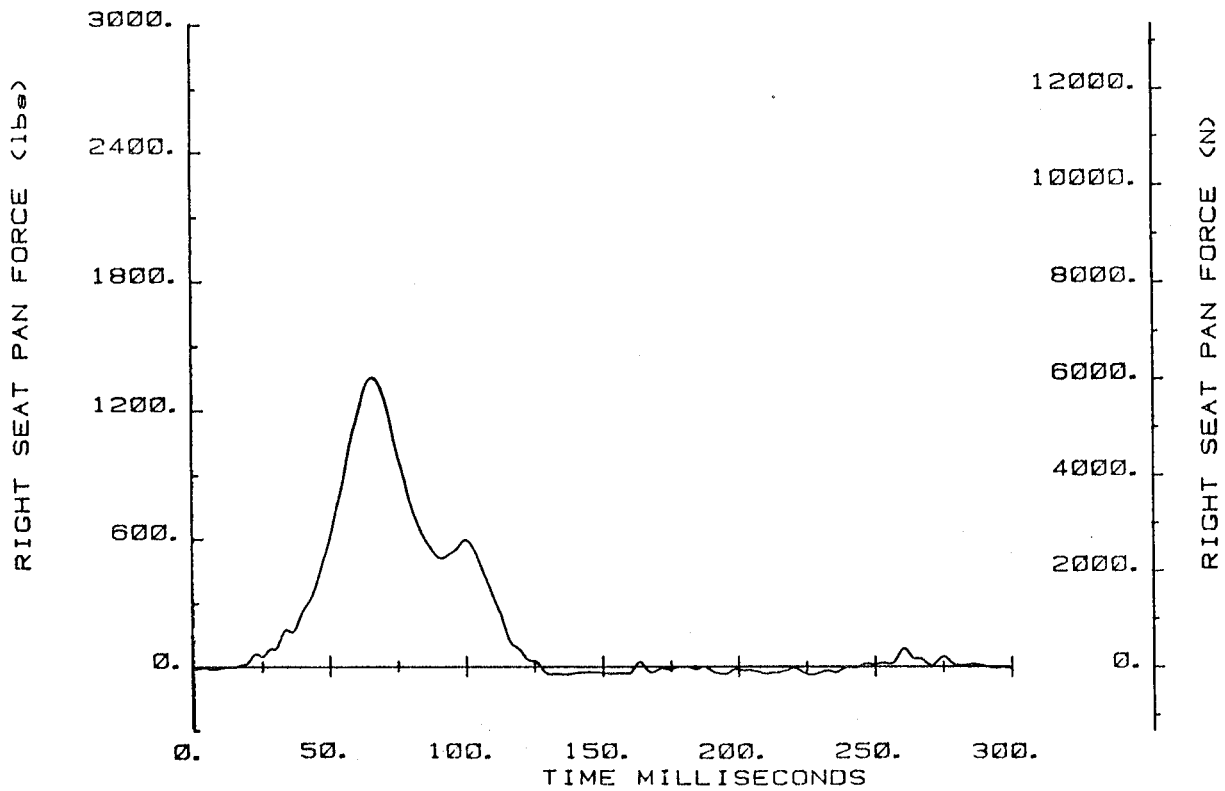
CAMI SLED TEST  
A83113



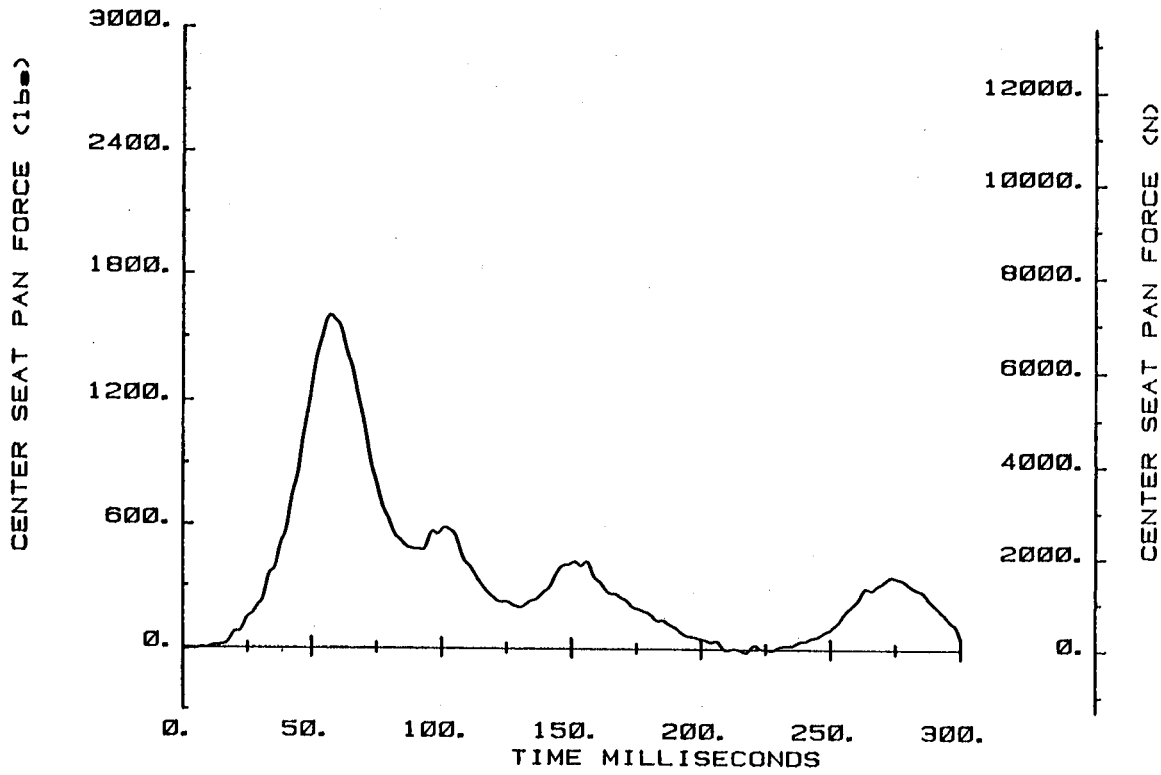
CAMI SLED TEST  
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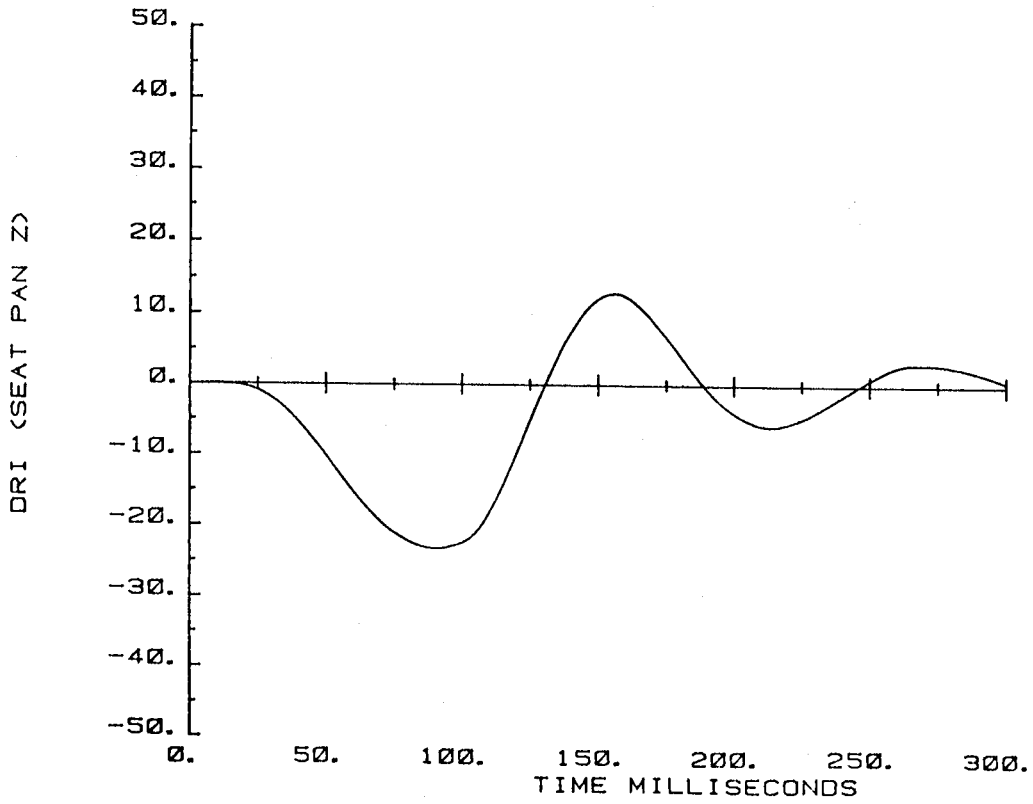
CAMI SLED TEST  
A83113



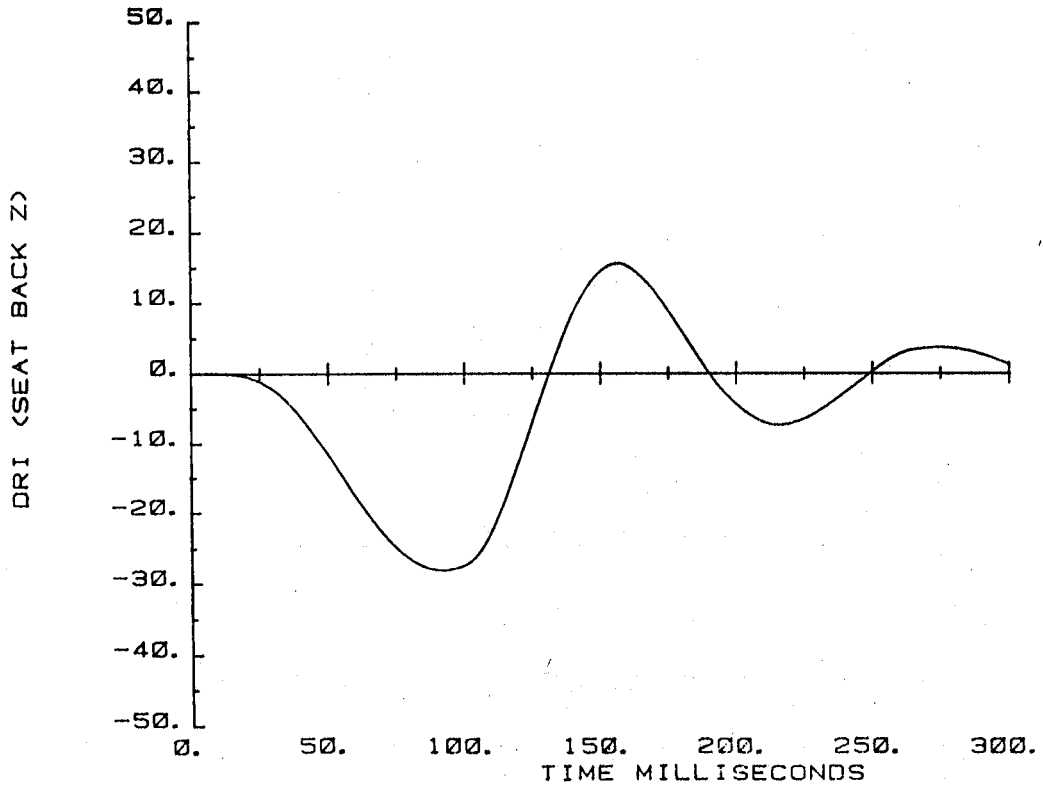
CAMI SLED TEST  
A83113



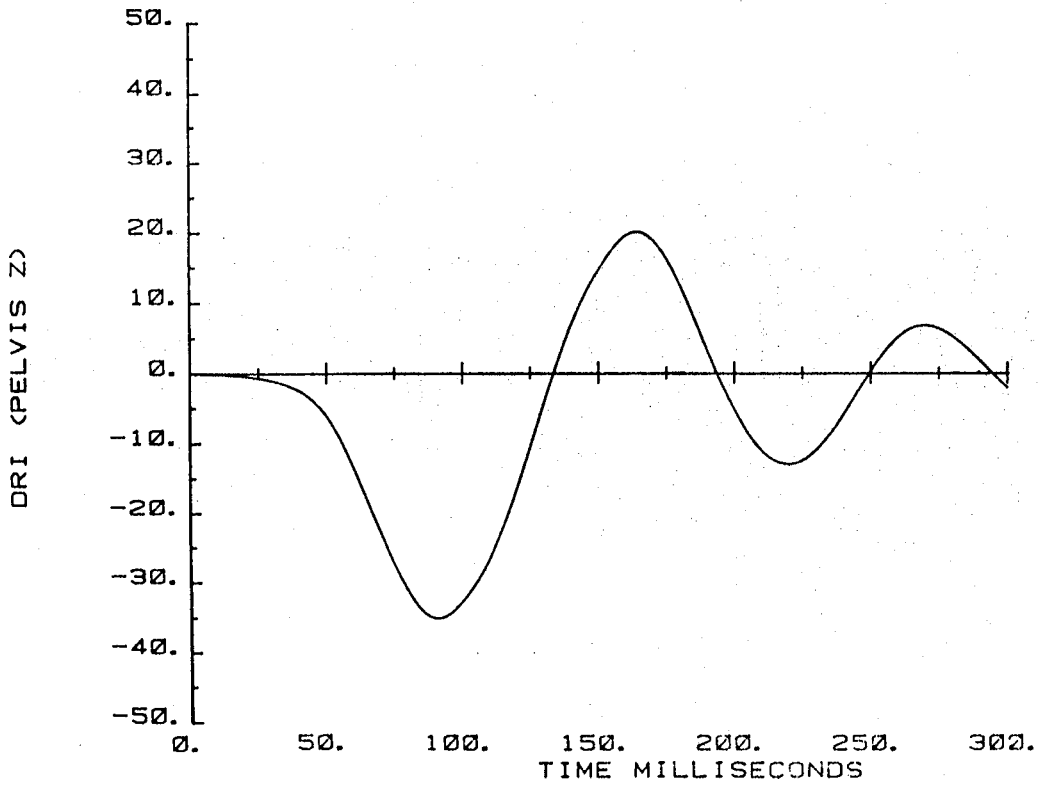
CAMI SLED TEST  
A83113



CAMI SLED TEST  
A83113



CAMI SLED TEST  
A83113



12.0 CAMI TEST NO. A84-81

SEAT: Energy Absorbing

PULSE NUMBER: 2

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

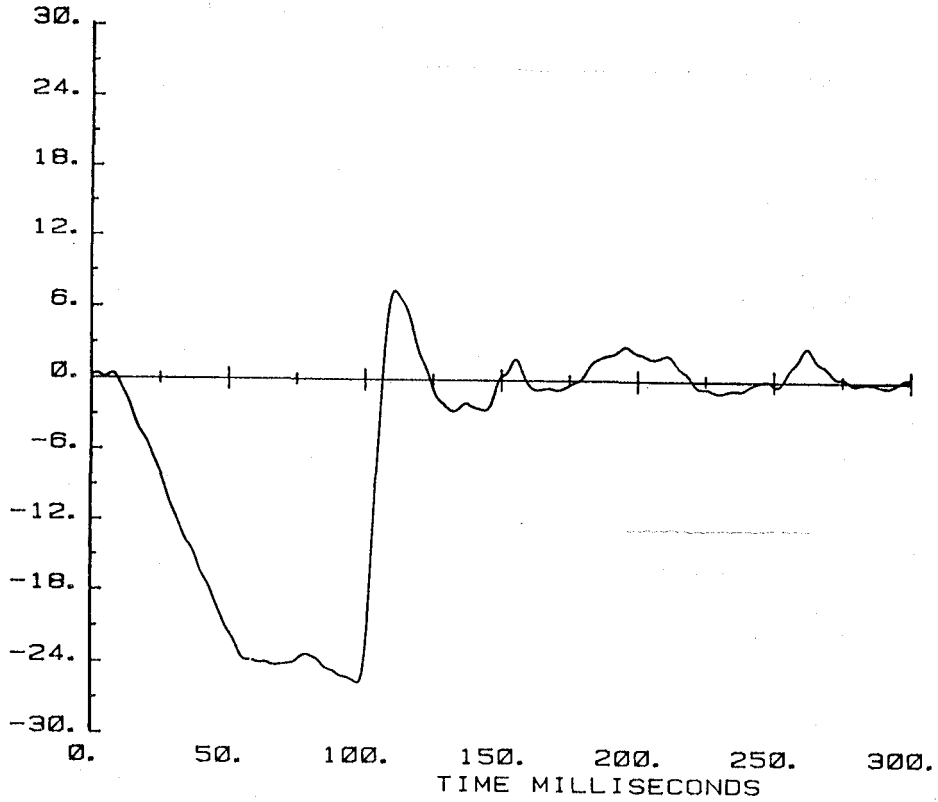
PEAK LOADS

| RUN#   | VARIABLE                       | UNIT     | 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 |         |     |             |        |



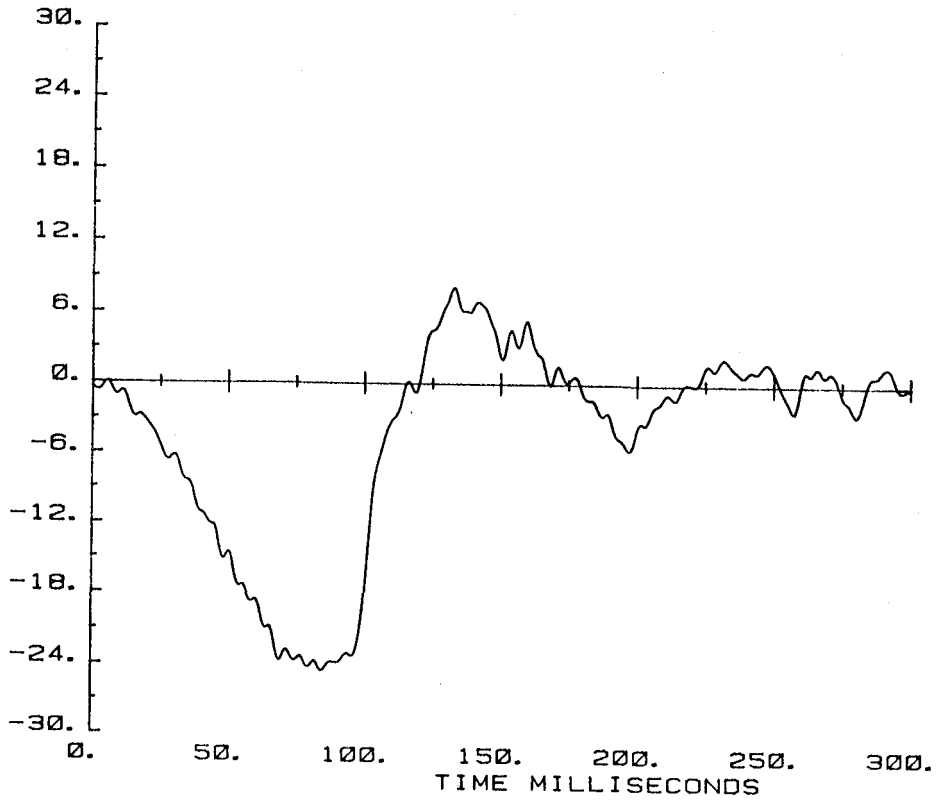
CAMI SLED TEST  
A84081

SLED X ACCELERATION (g)



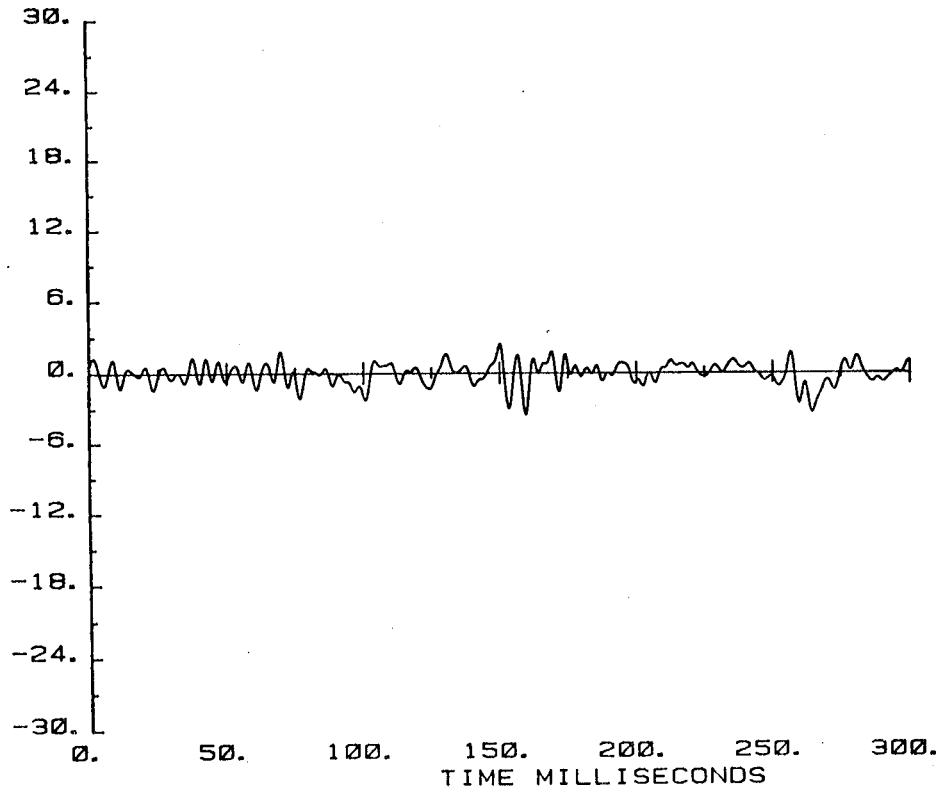
CAMI SLED TEST  
A84081

SIMULATED FLOOR X ACCELERATION (g)



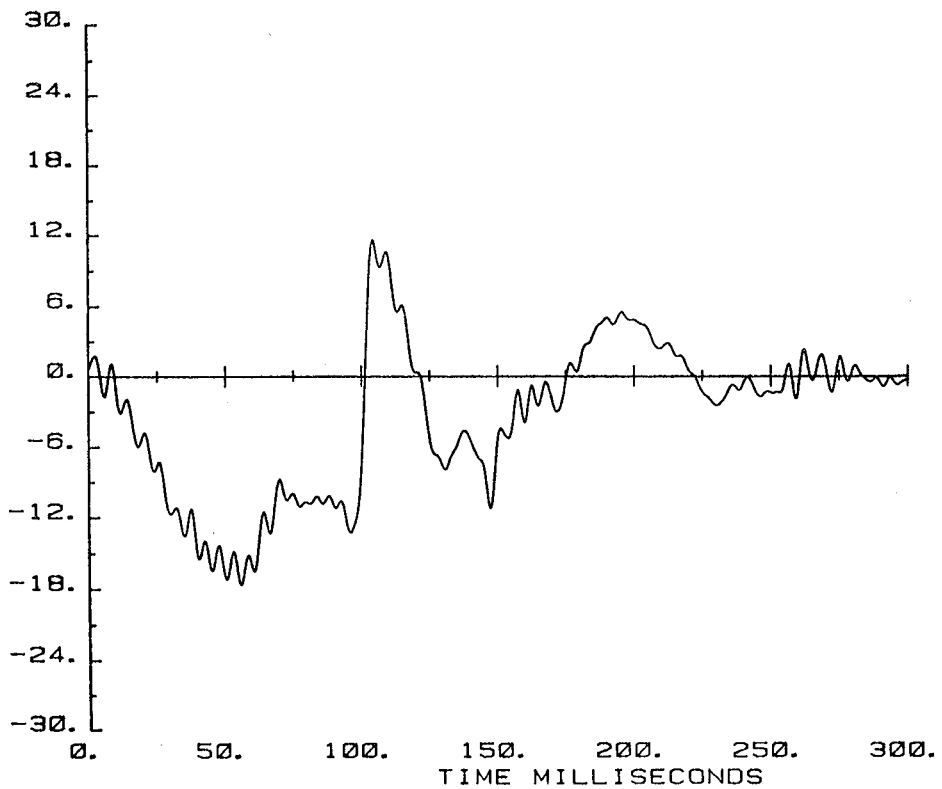
CAMI SLED TEST  
A84081

SIMULATED FLOOR Y ACCELERATION (g)

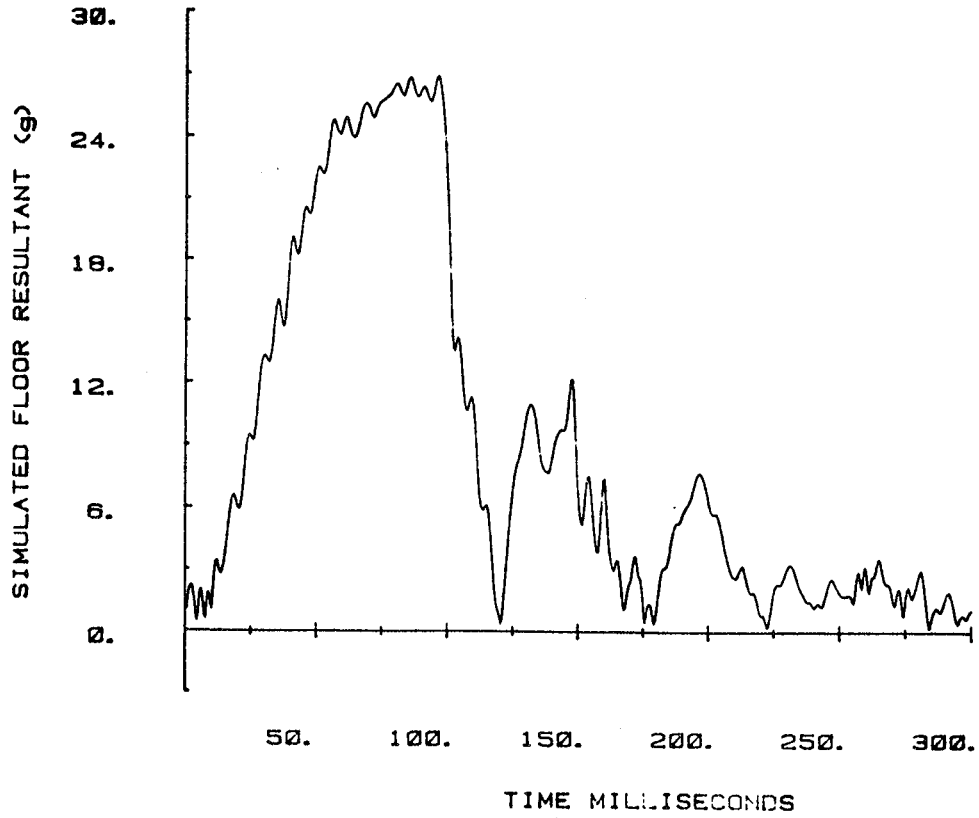


CAMI SLED TEST  
A84081

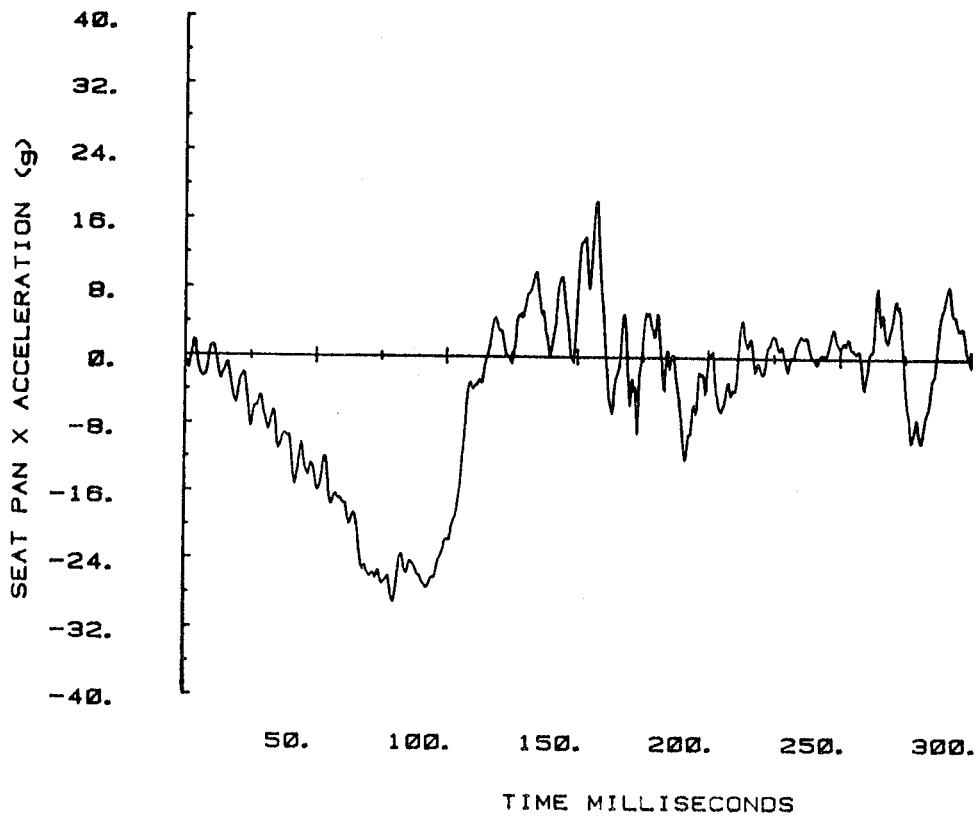
SIMULATED FLOOR Z ACCELERATION (g)



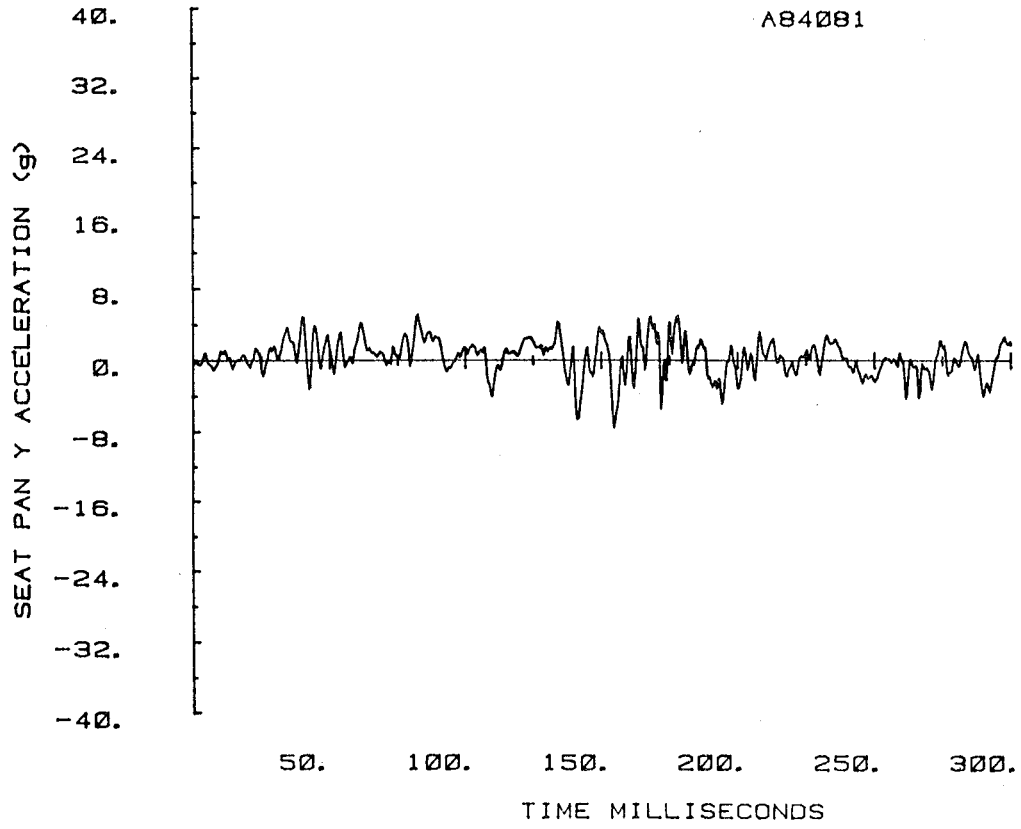
CAMI SLED TEST  
A84081



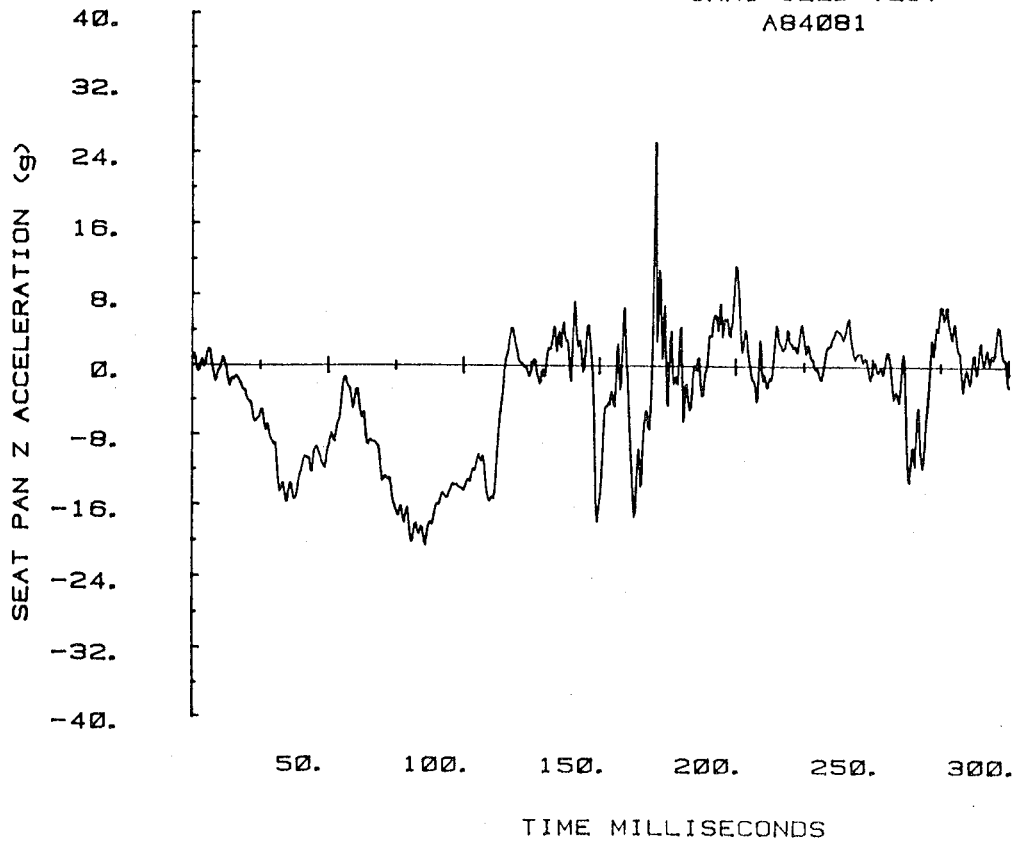
CAMI SLED TEST  
A84081



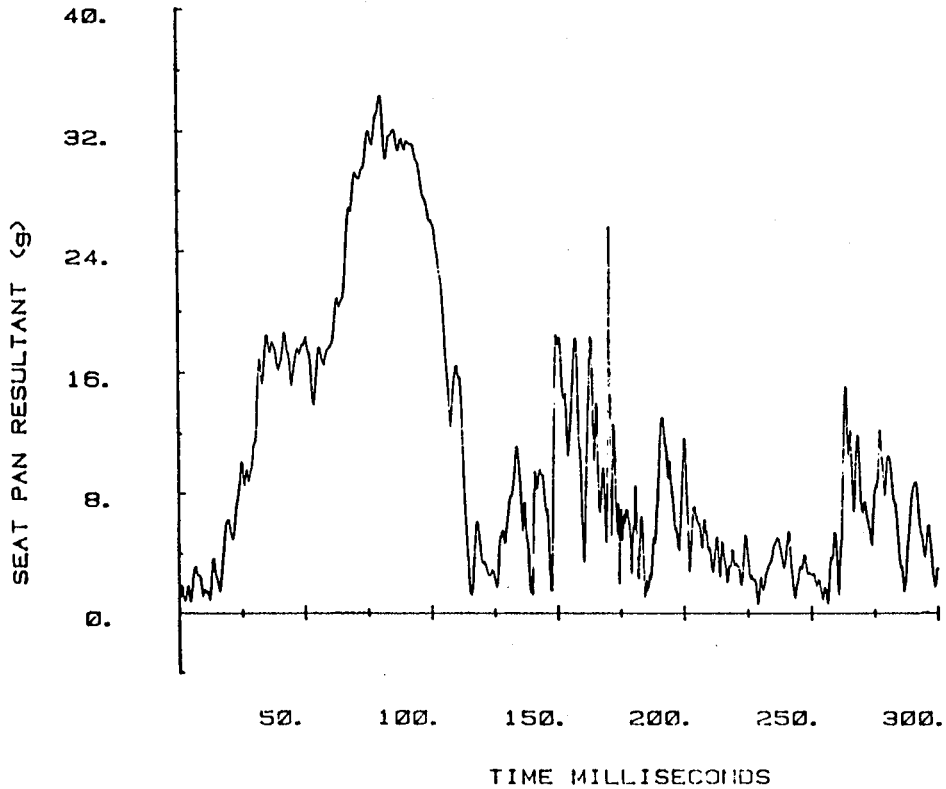
CAMI SLED TEST  
A84081



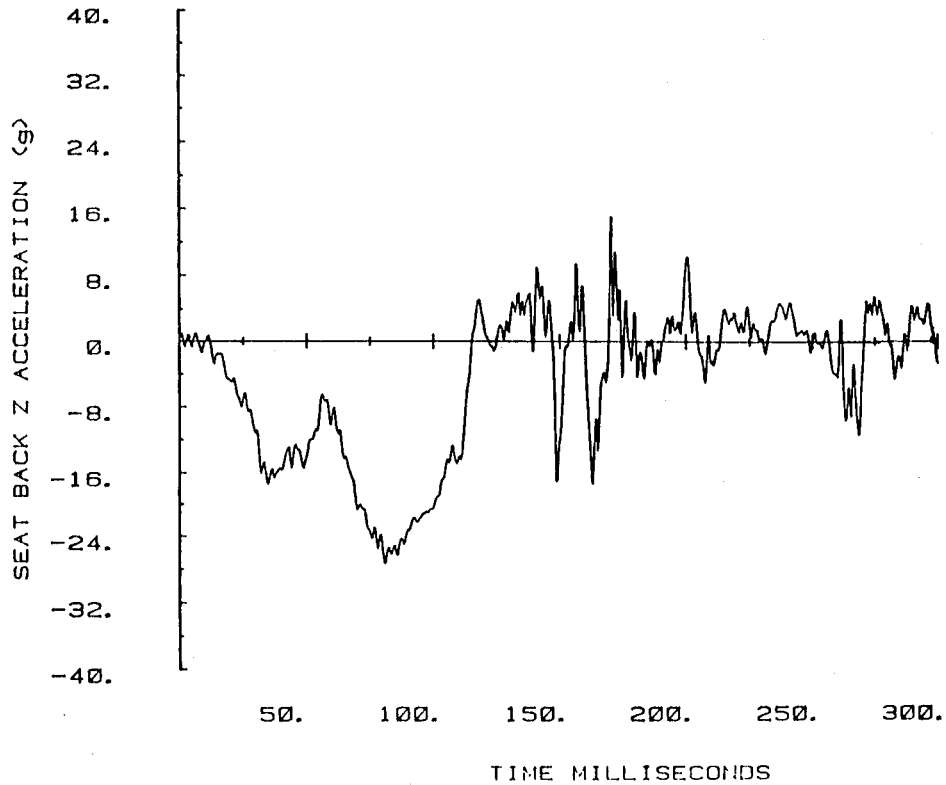
CAMI SLED TEST  
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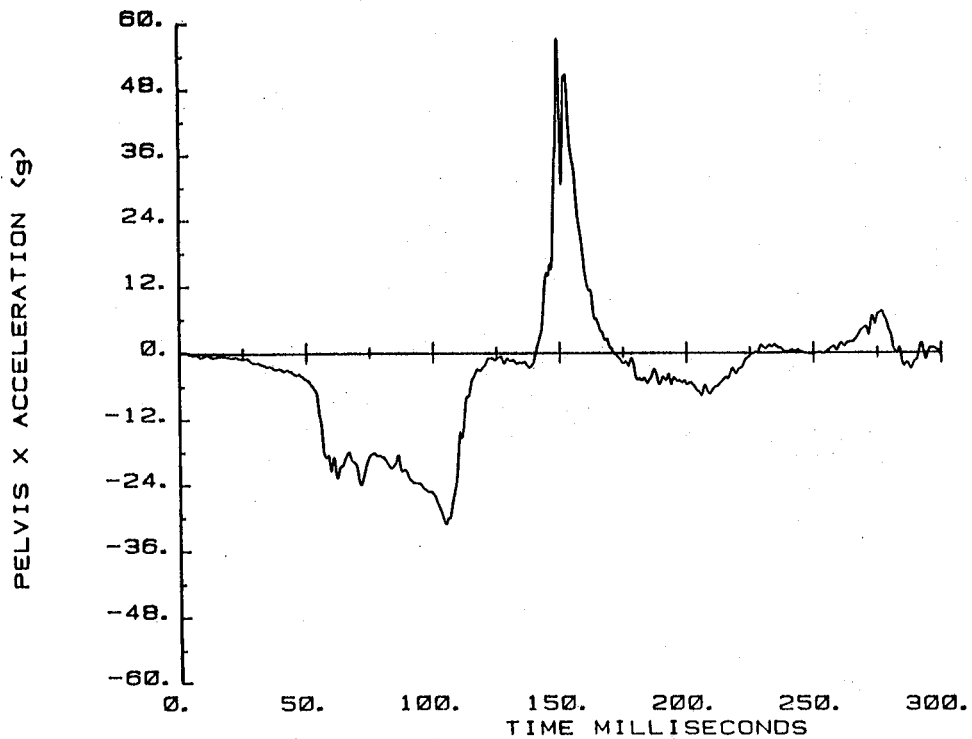
CAMI SLED TEST  
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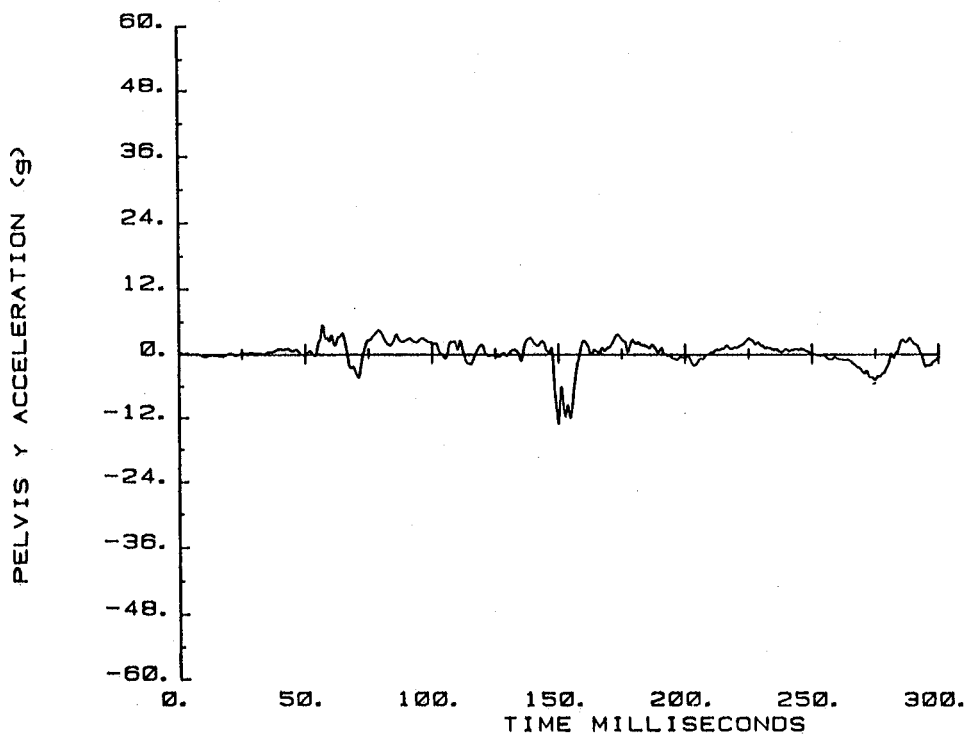
CAMI SLED TEST  
A84081



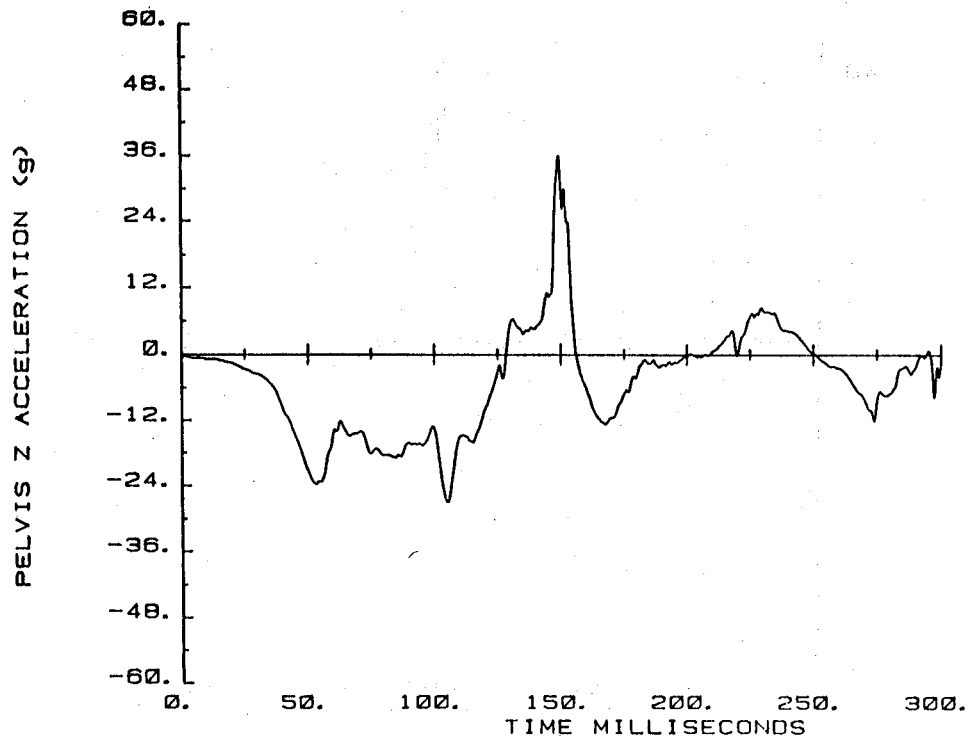
CAMI SLED TEST  
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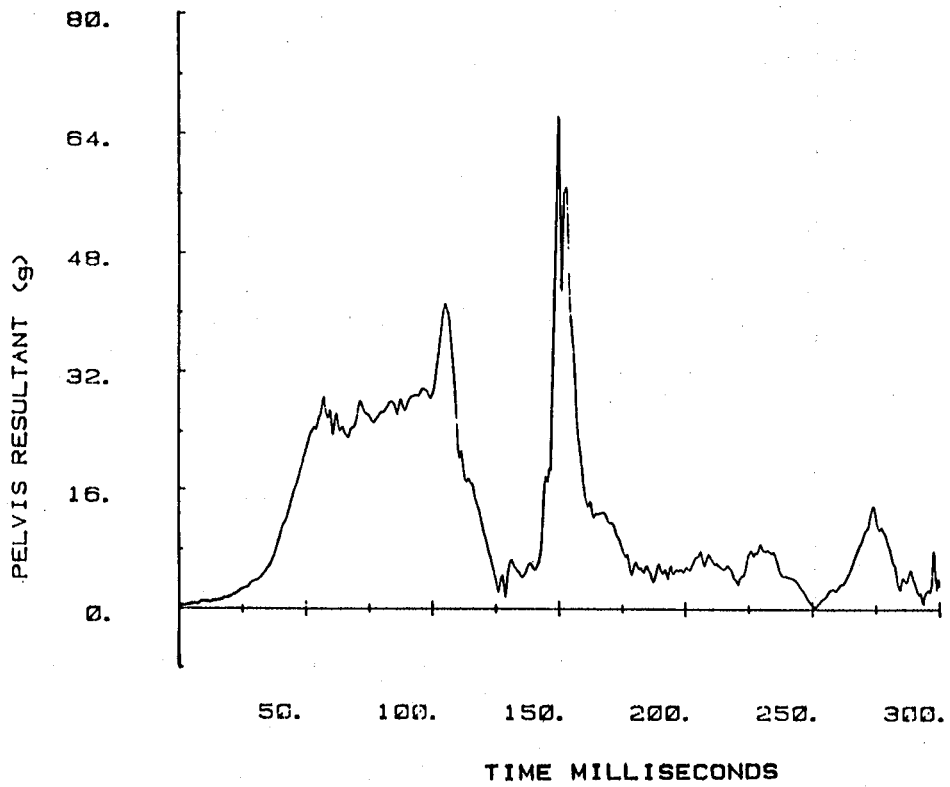
CAMI SLED TEST  
A84081



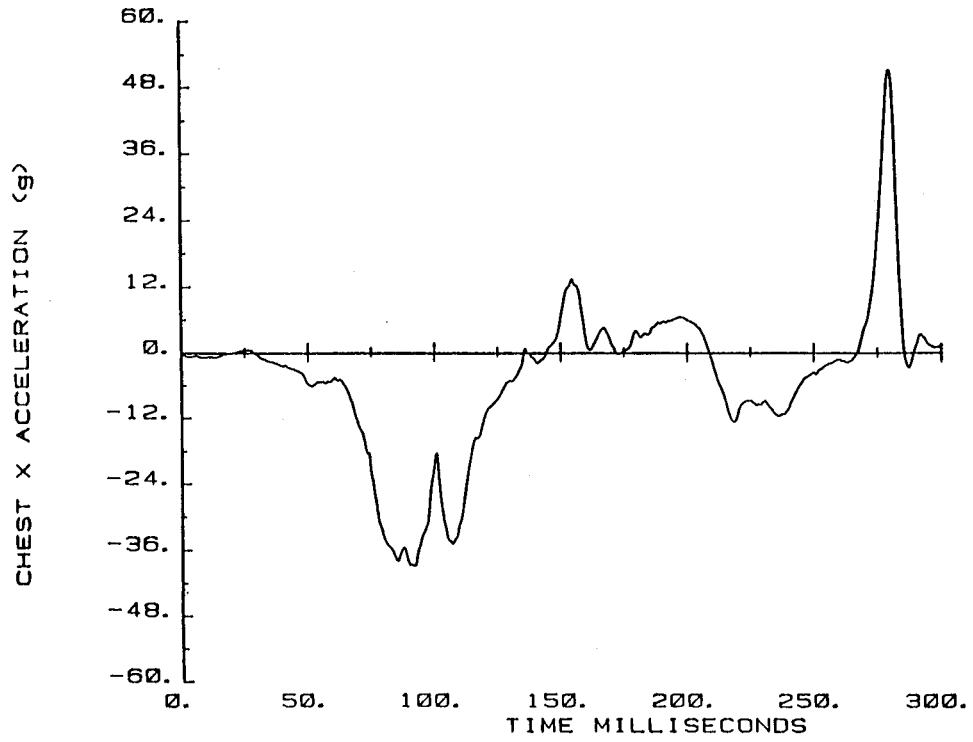
CAMI SLED TEST  
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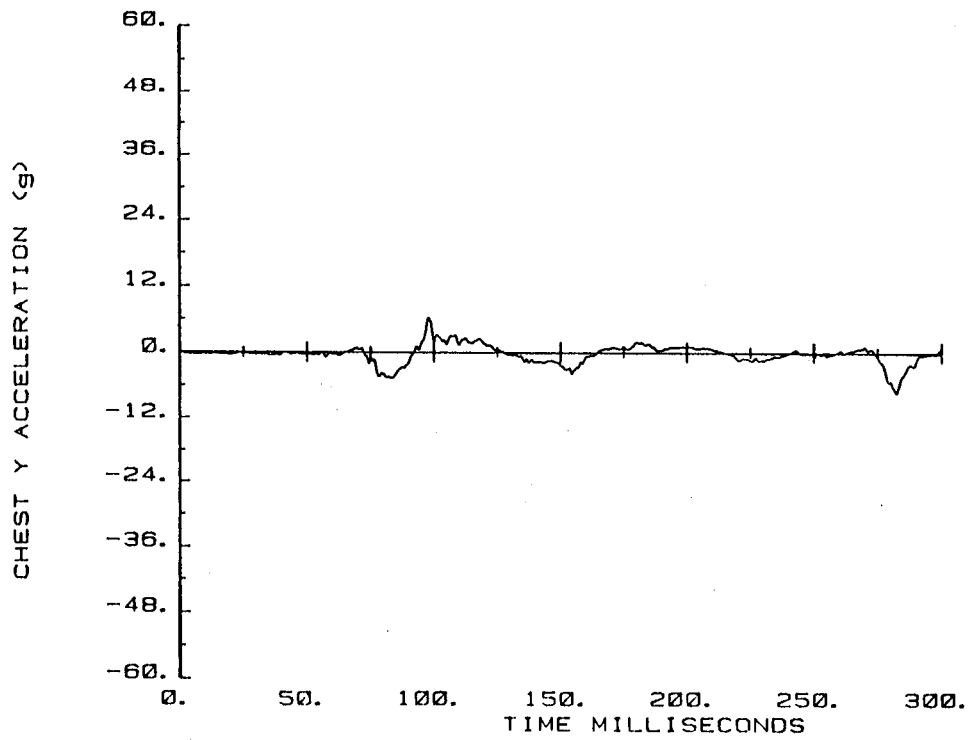
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CAMI SLED TEST  
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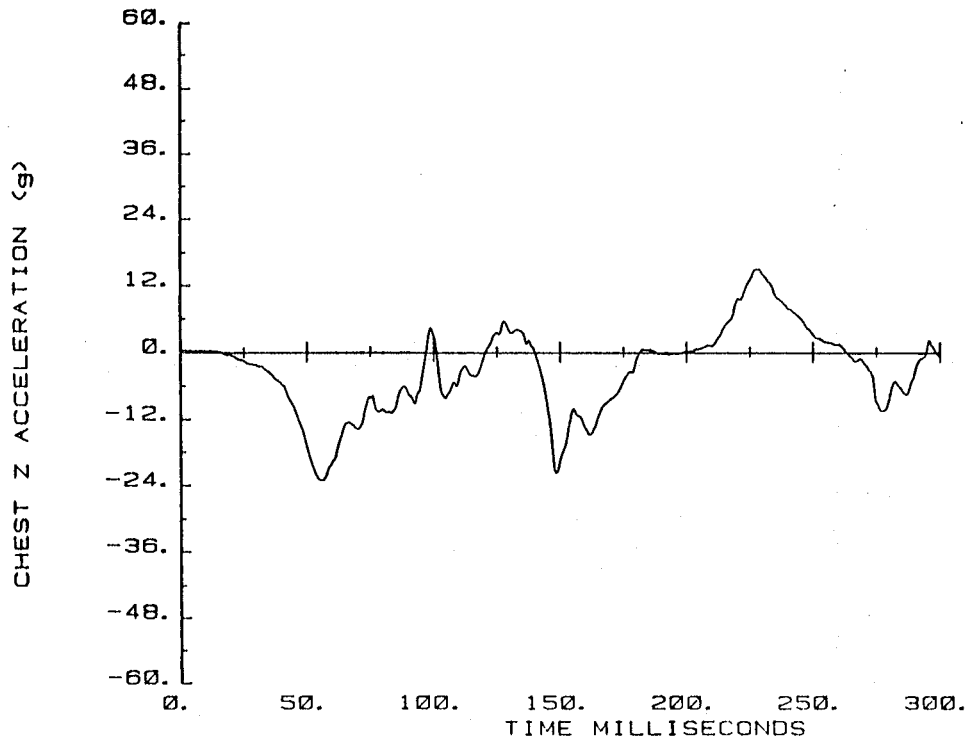


CAMI SLED TEST  
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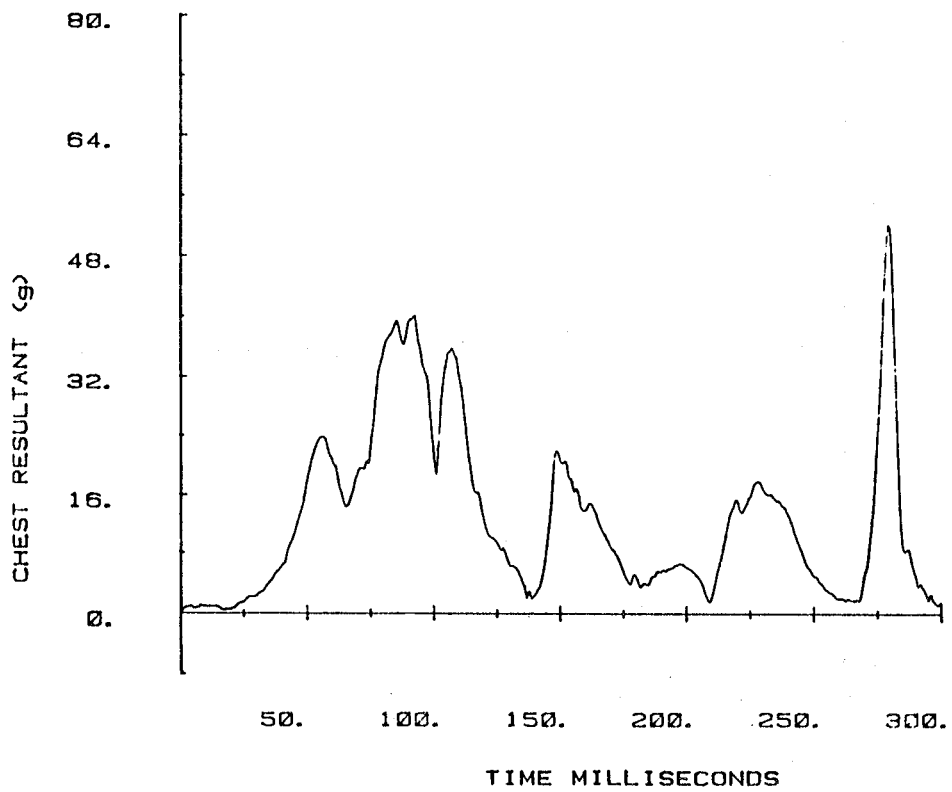




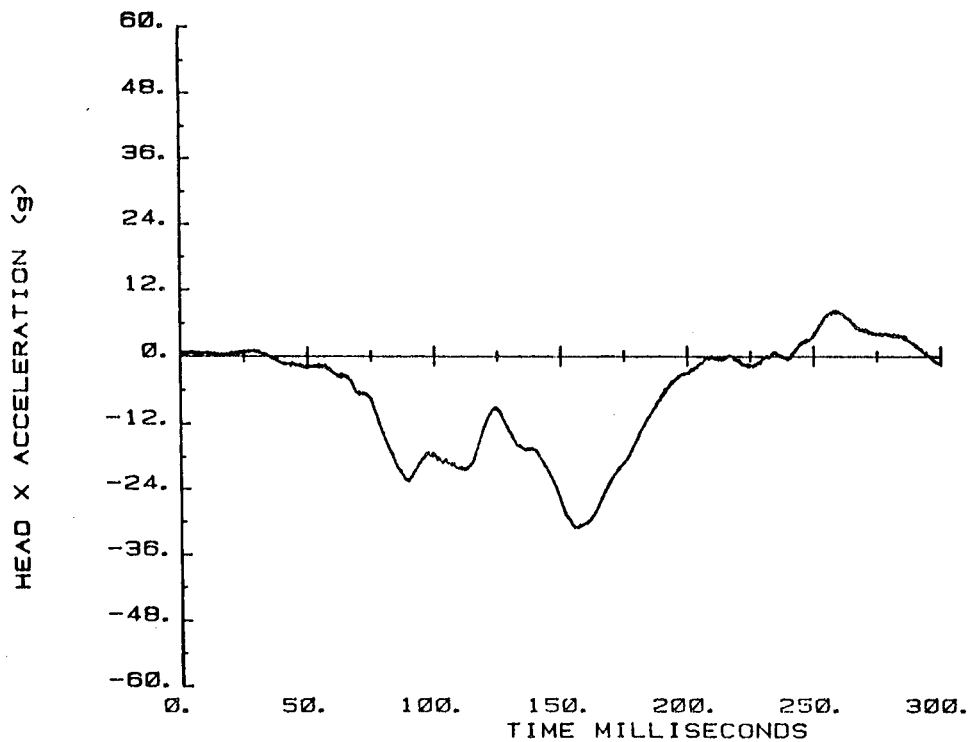
CAMI SLED TEST  
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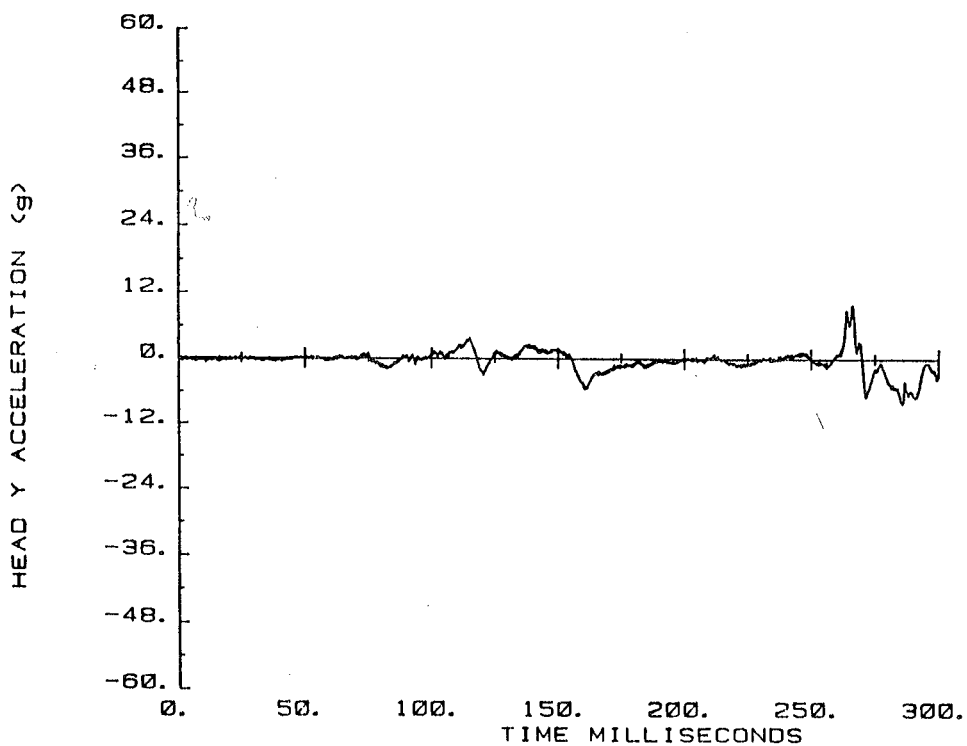
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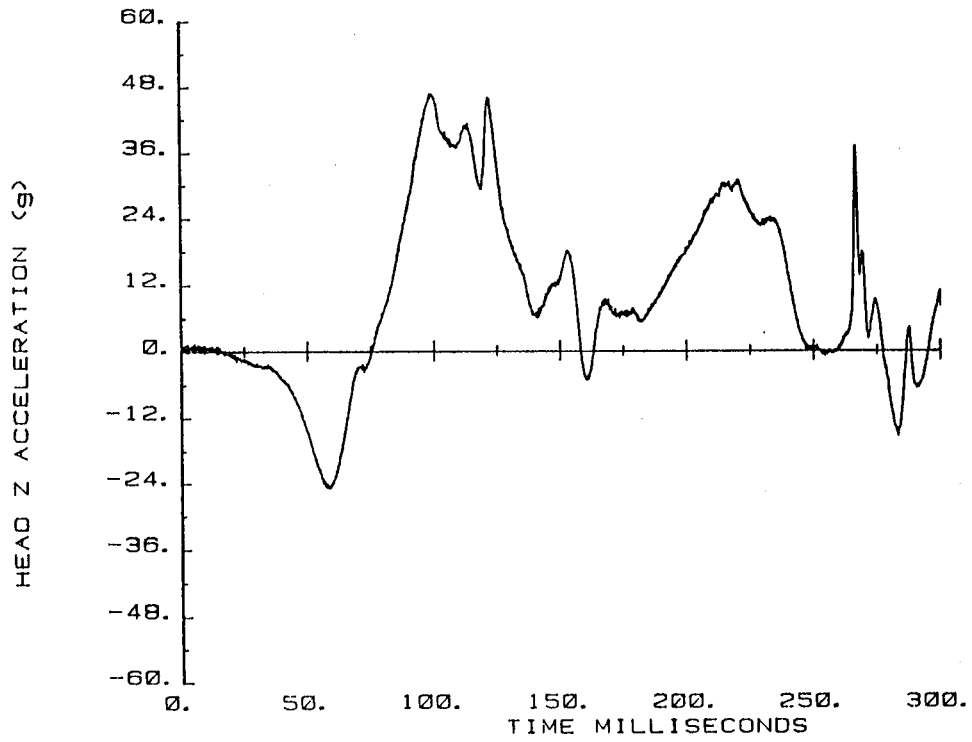
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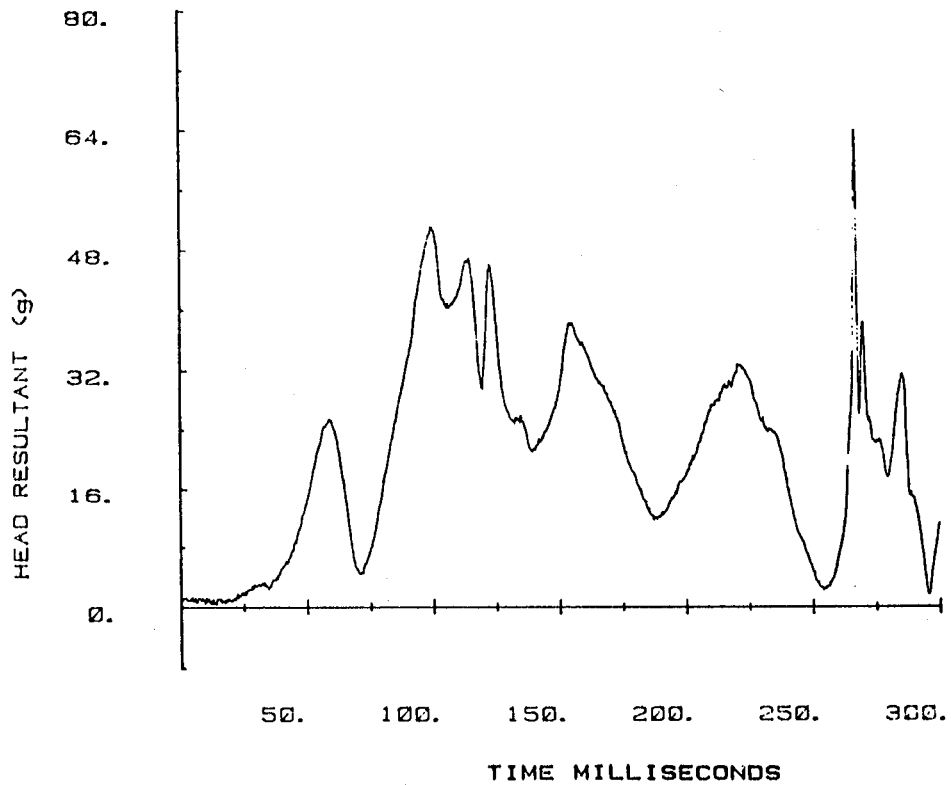
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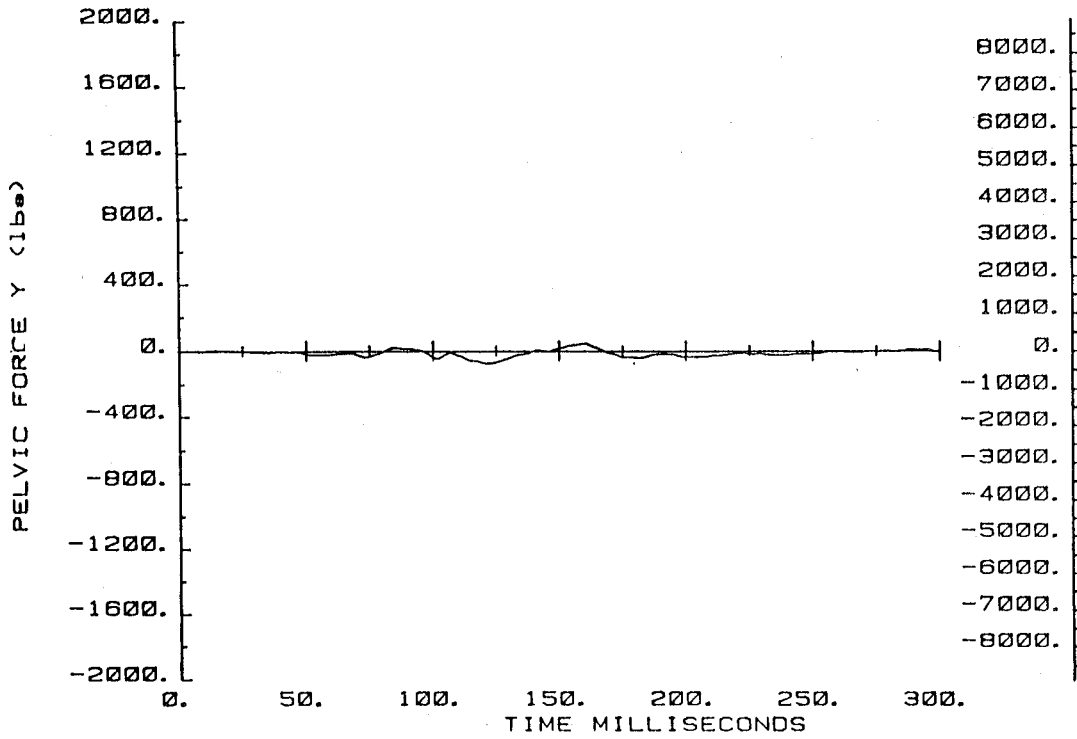
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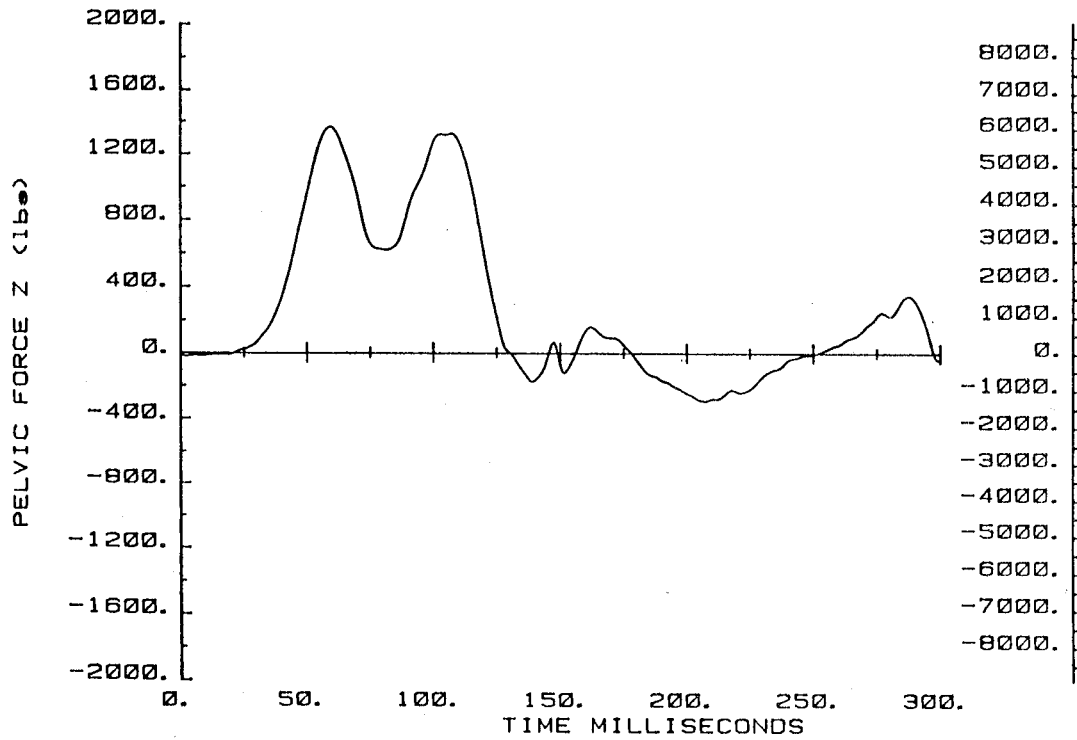
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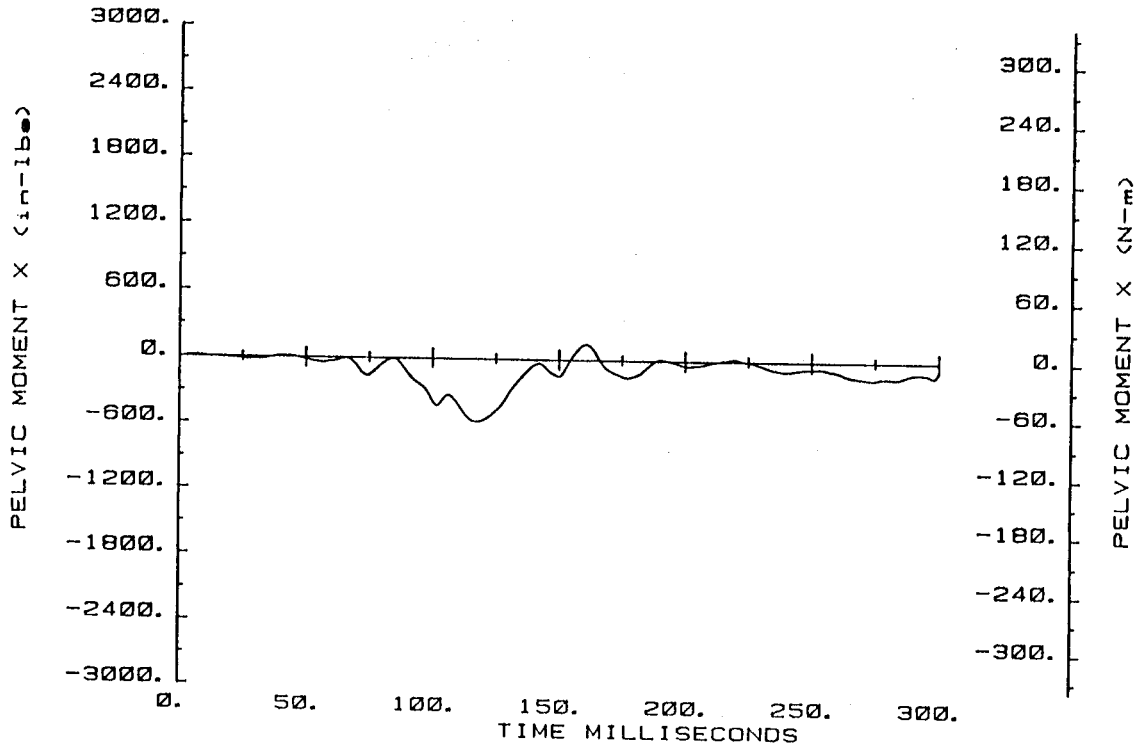
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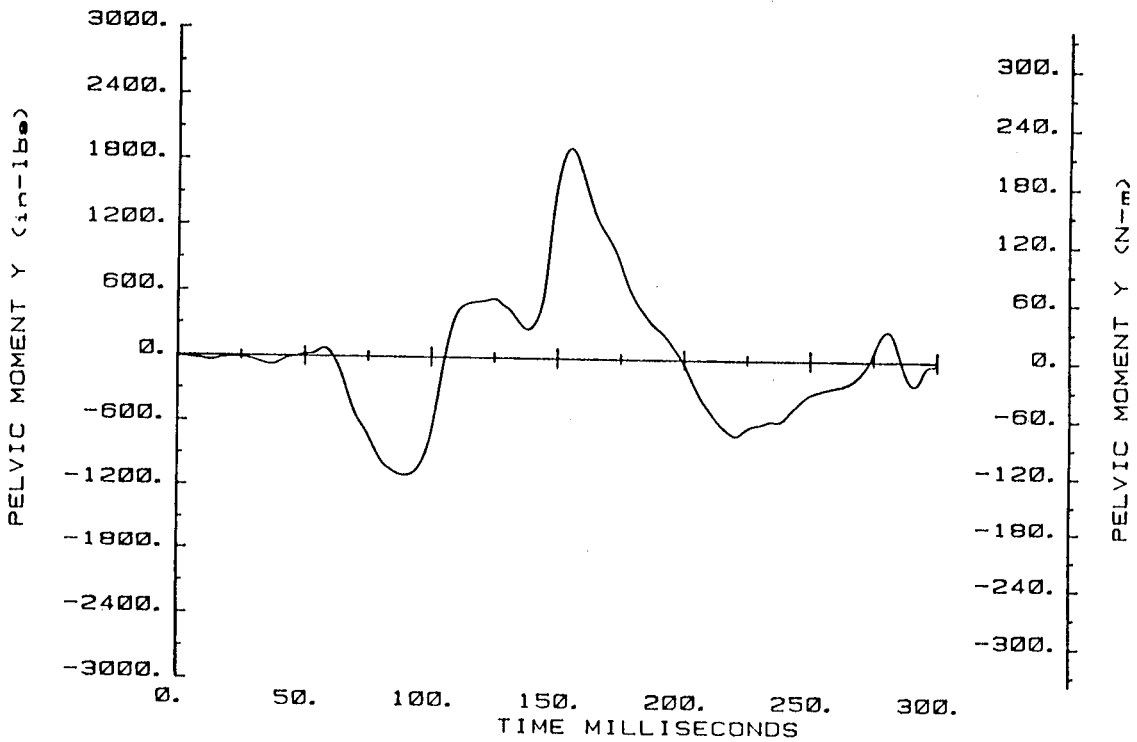
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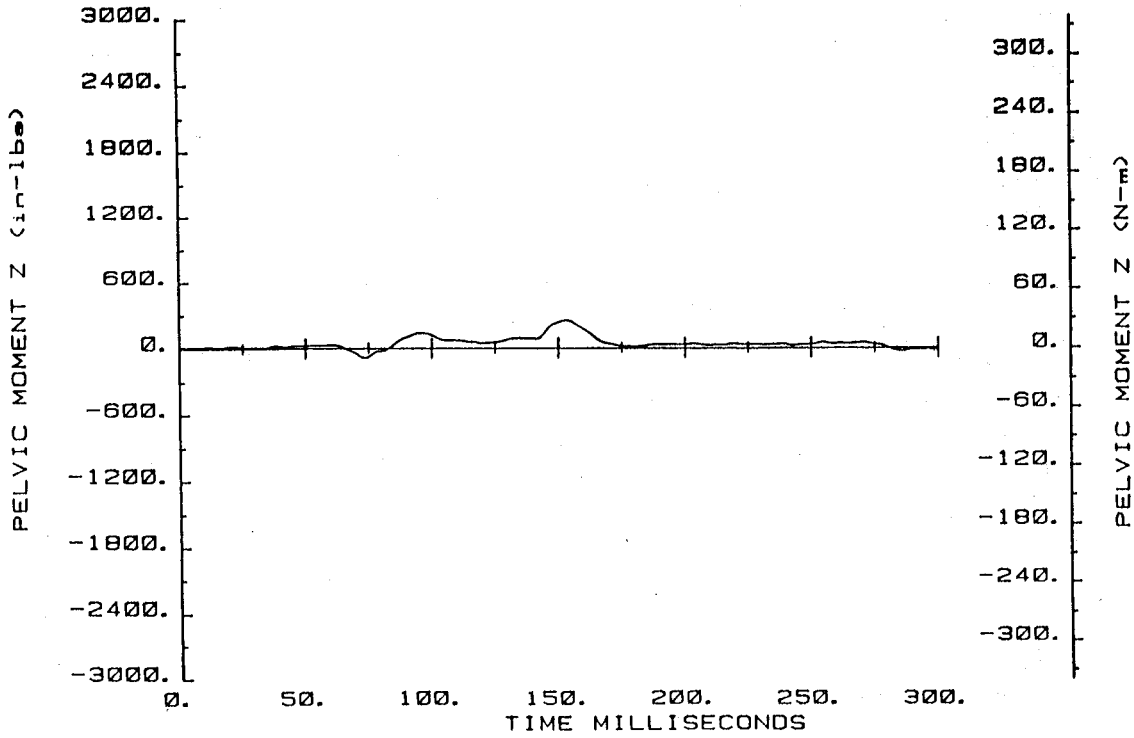
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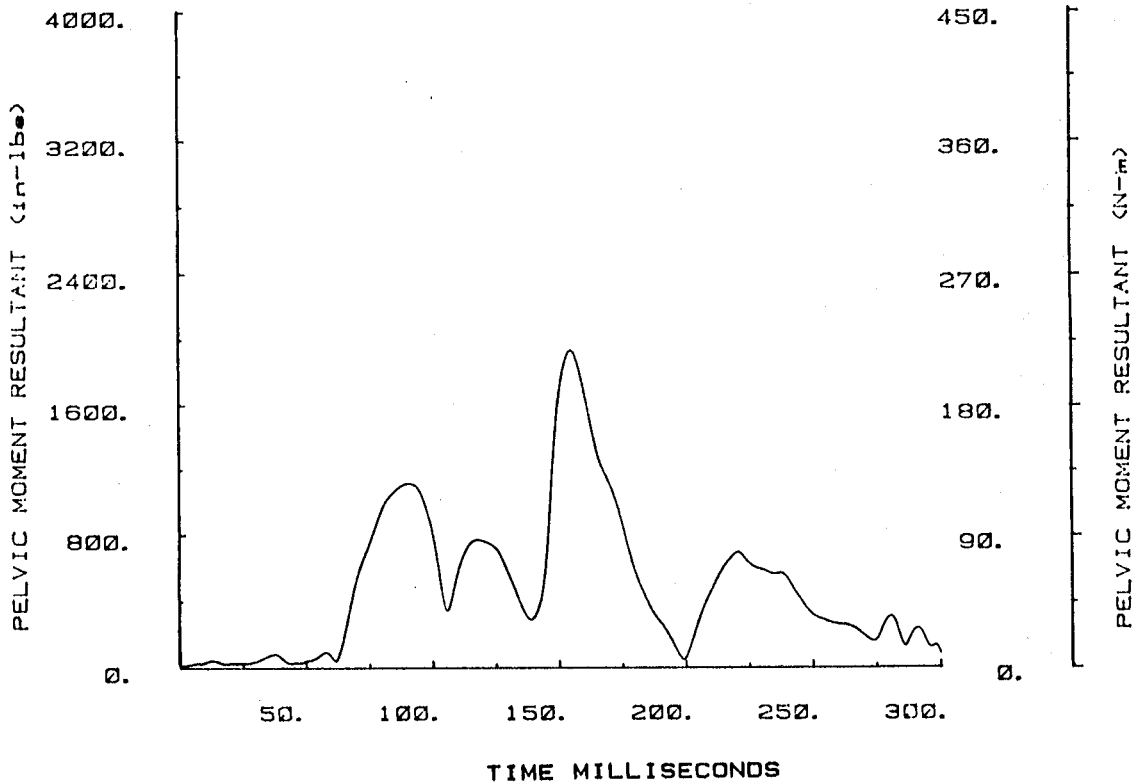
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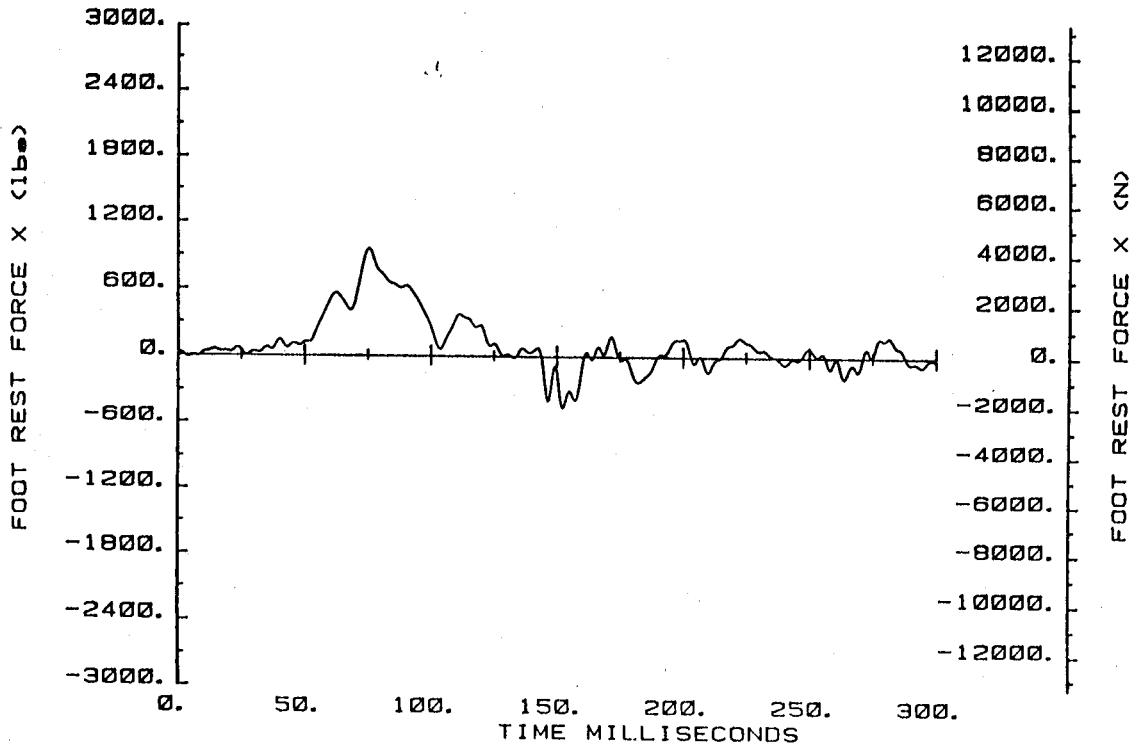
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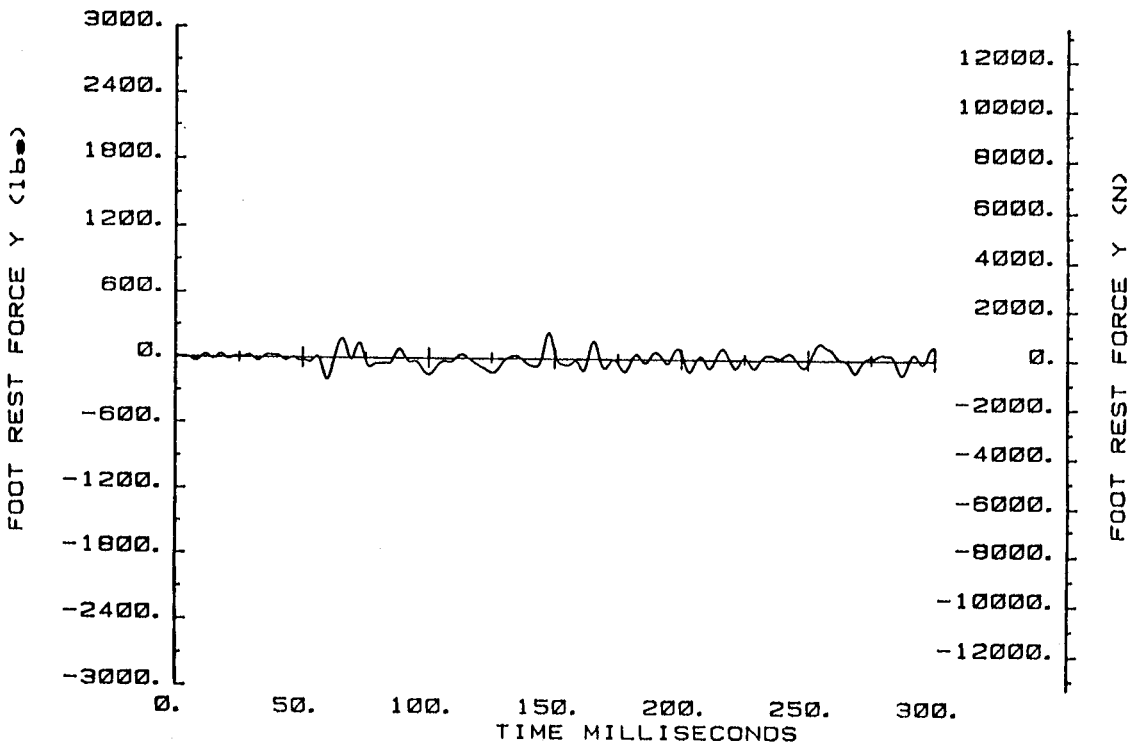
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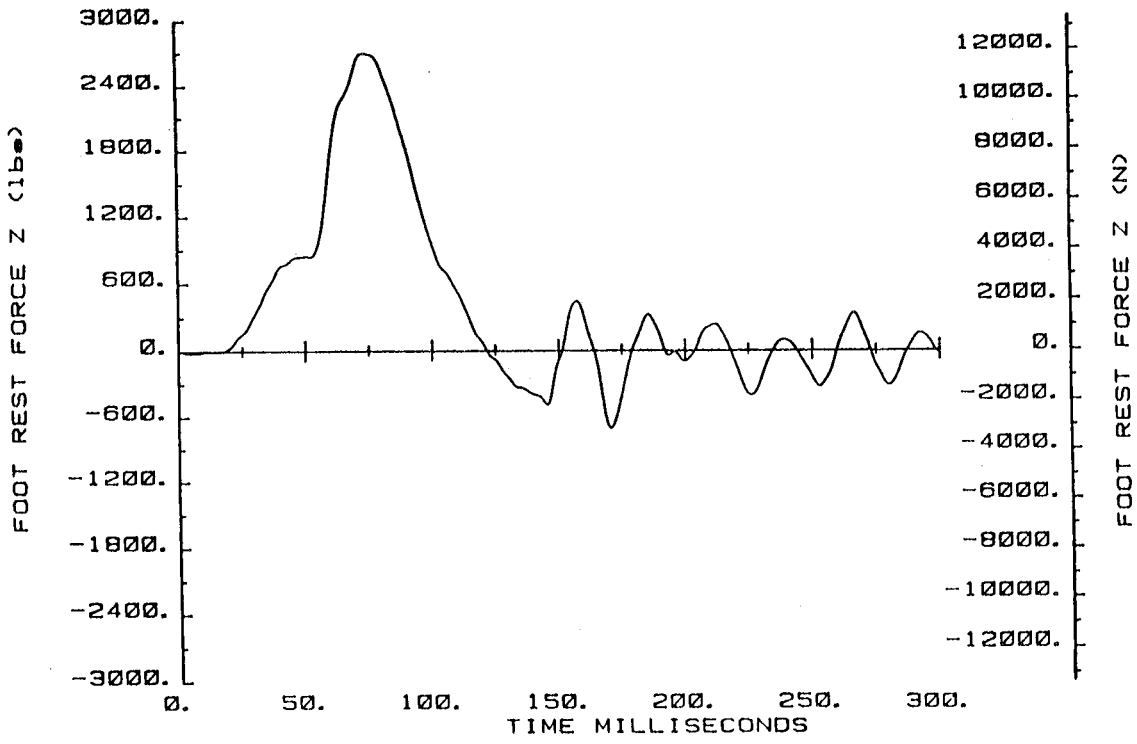
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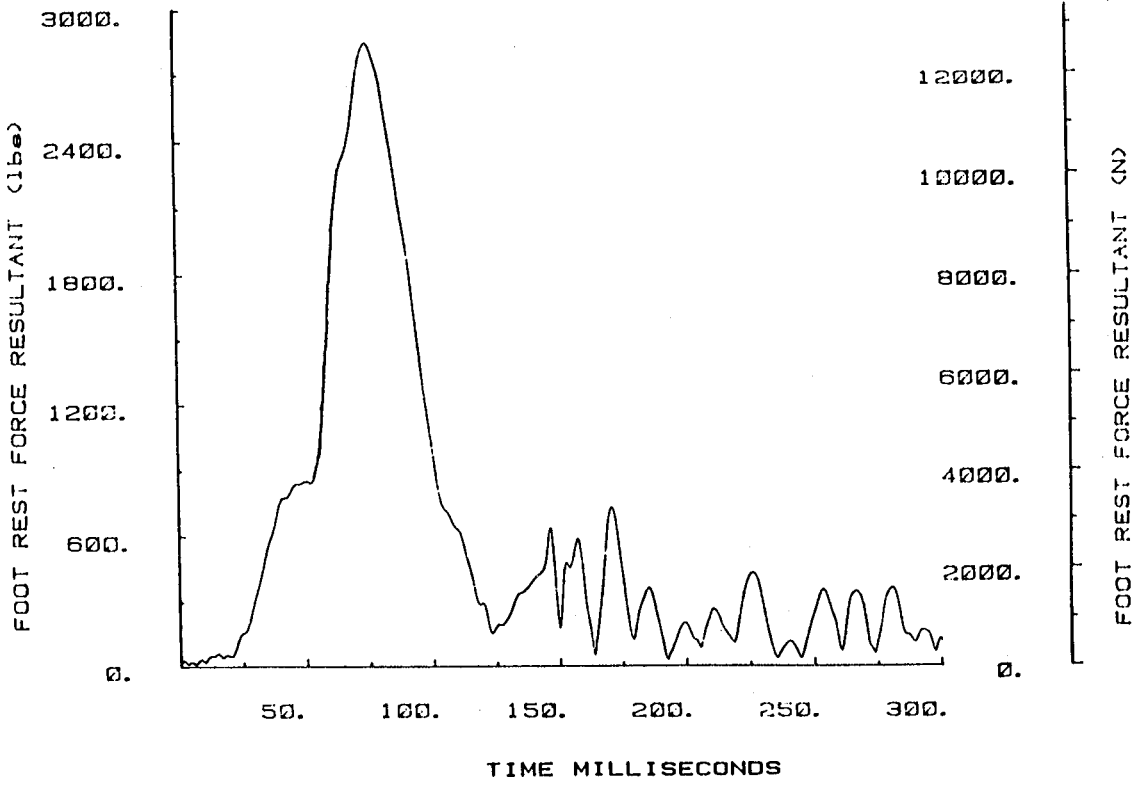
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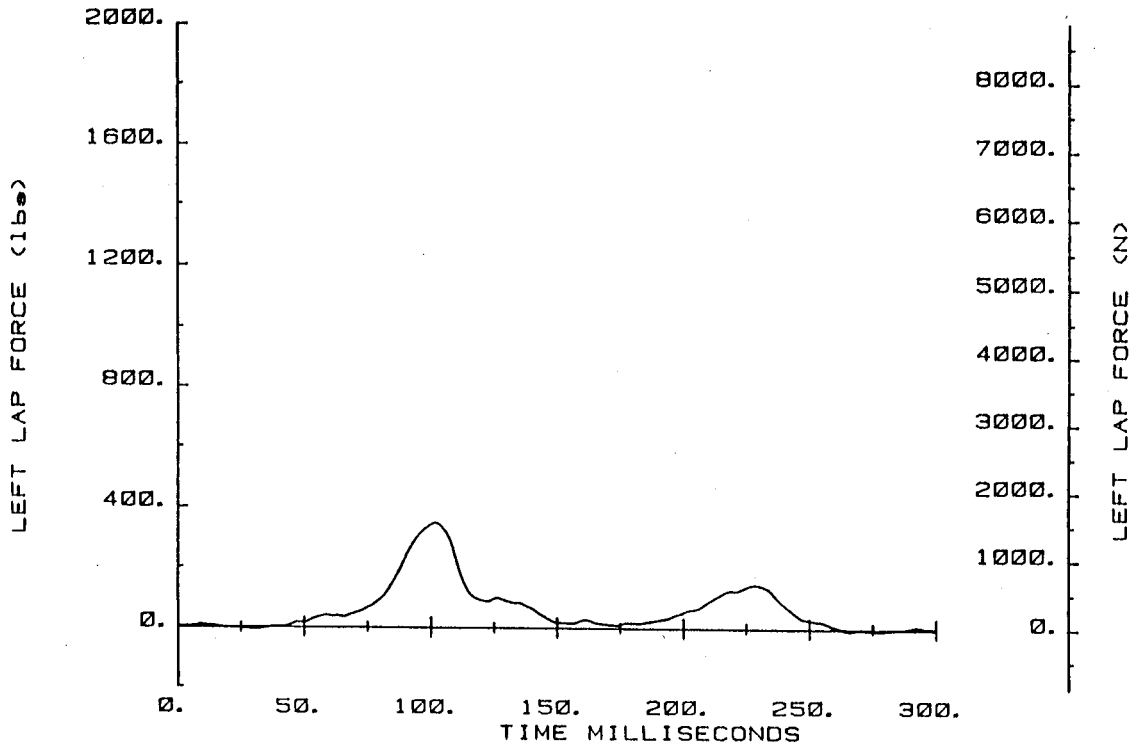


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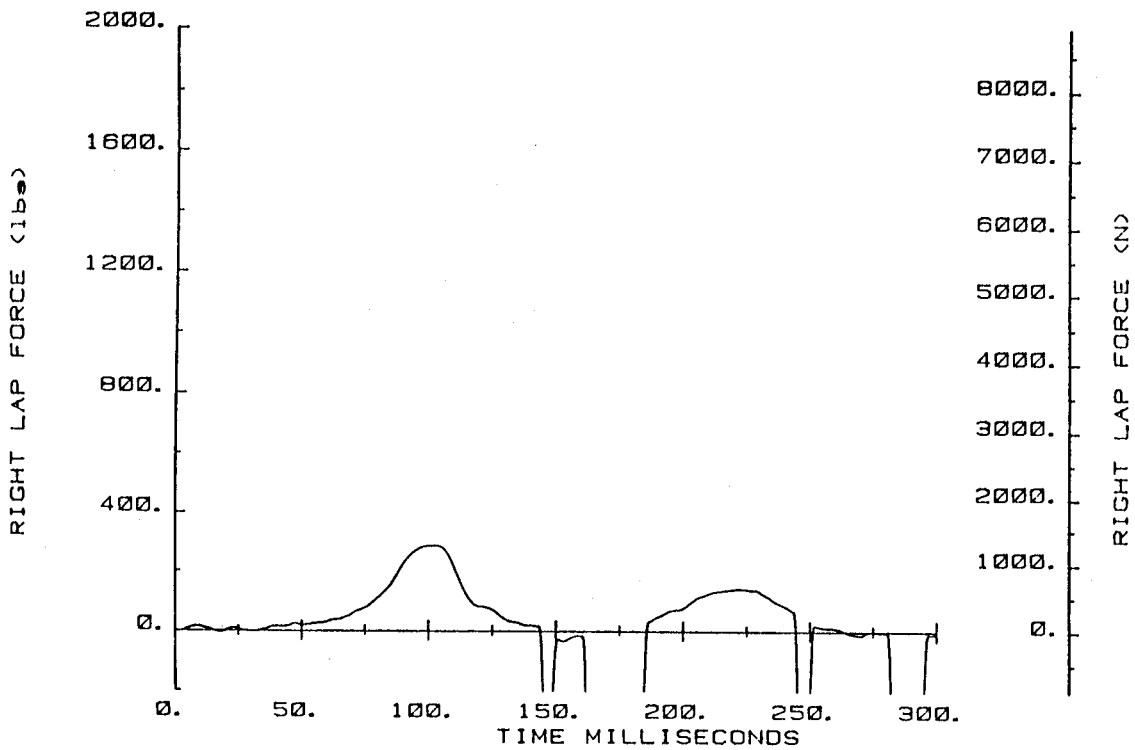




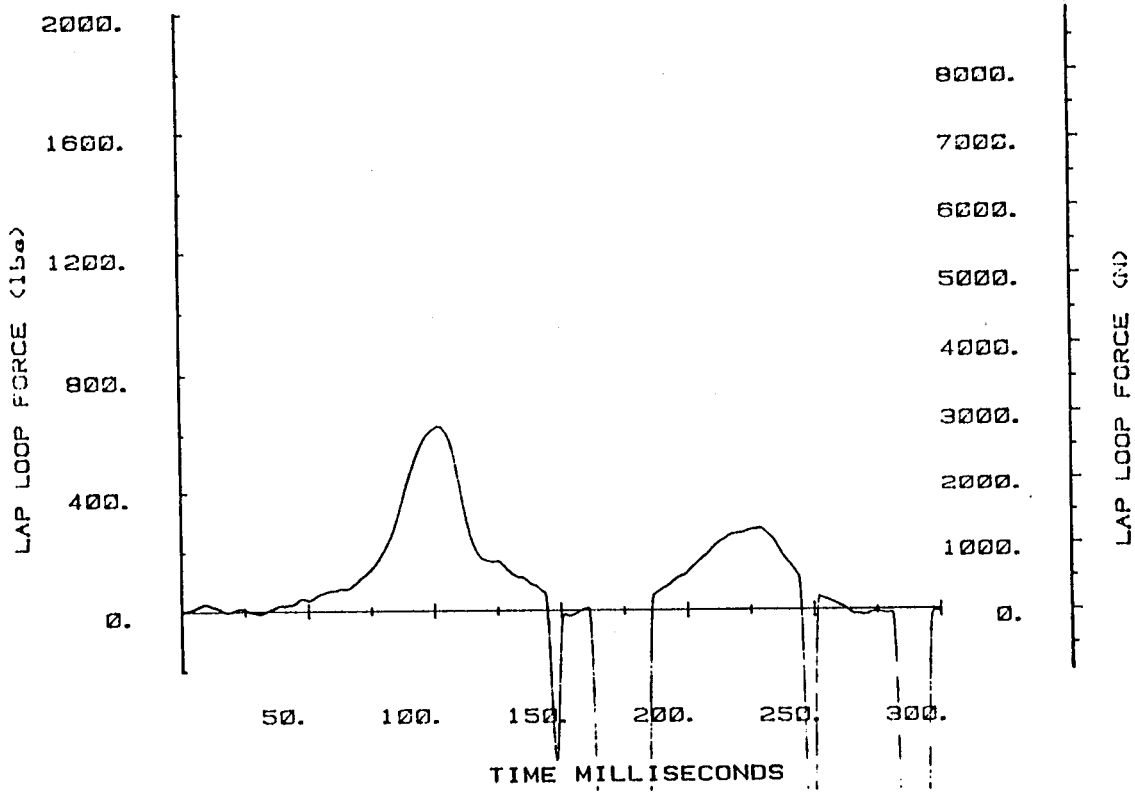
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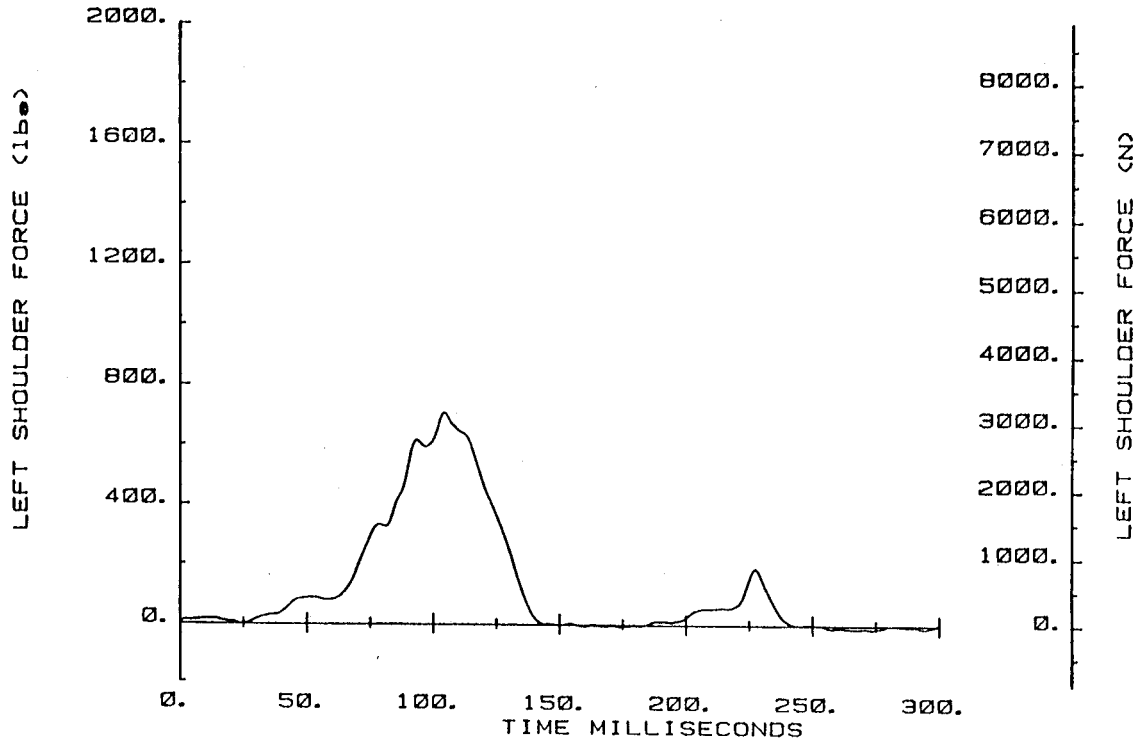
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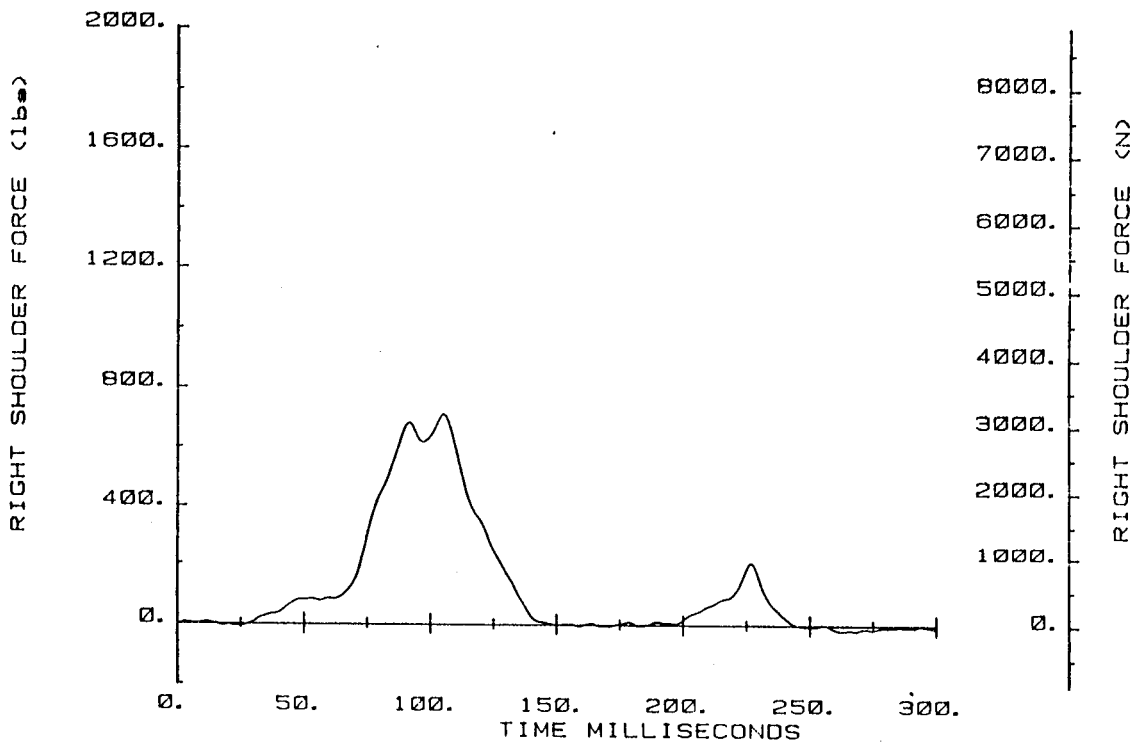
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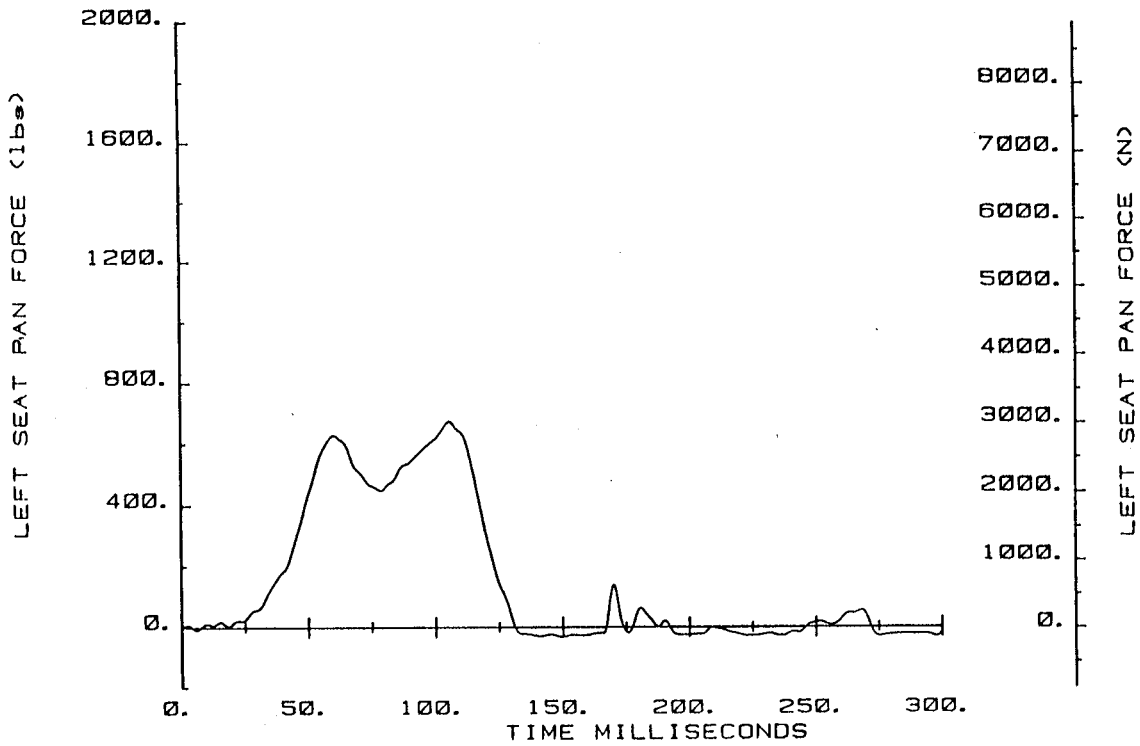
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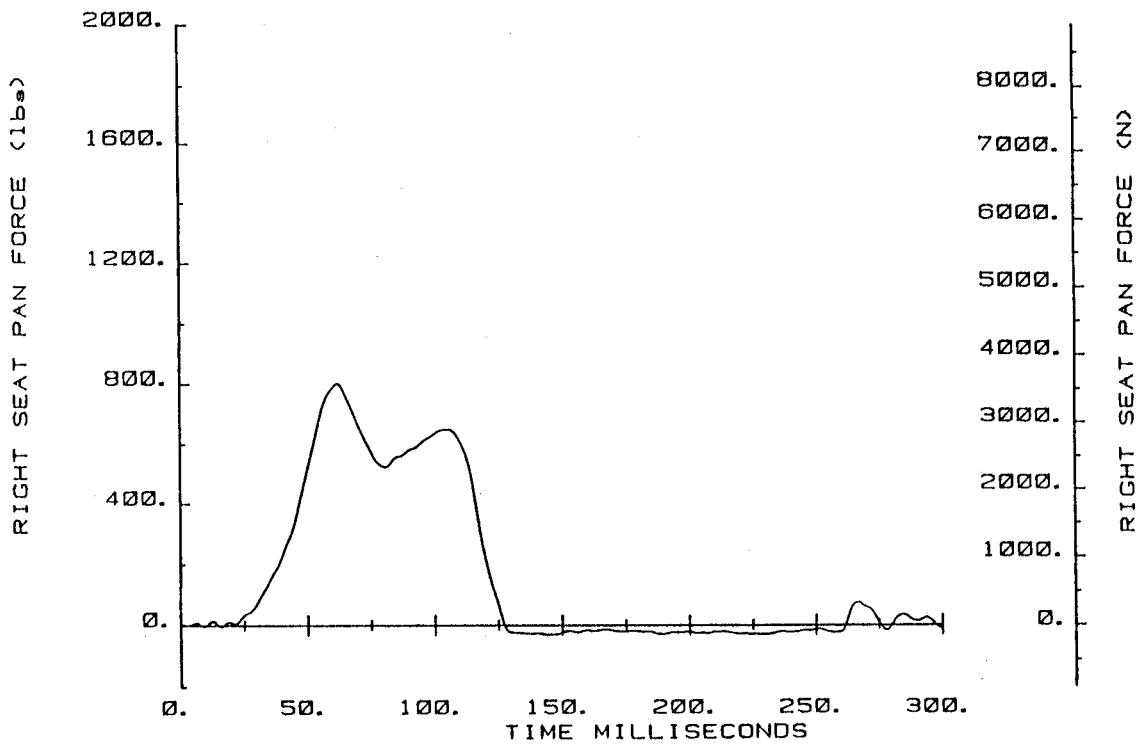
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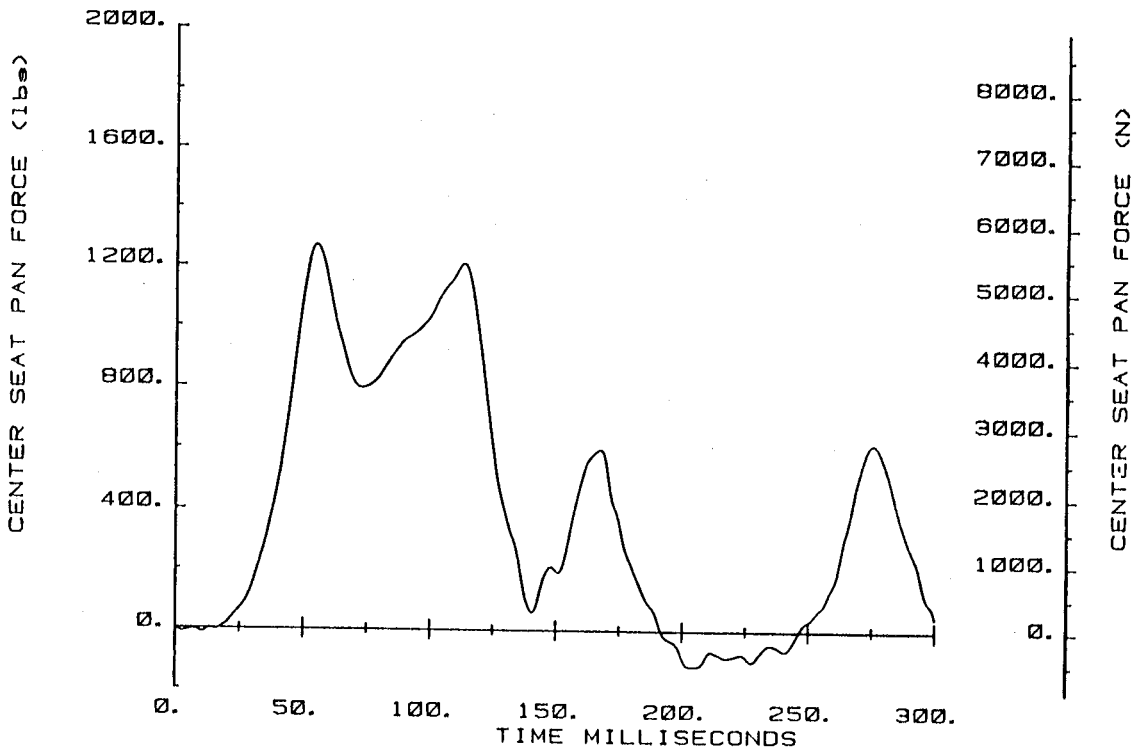
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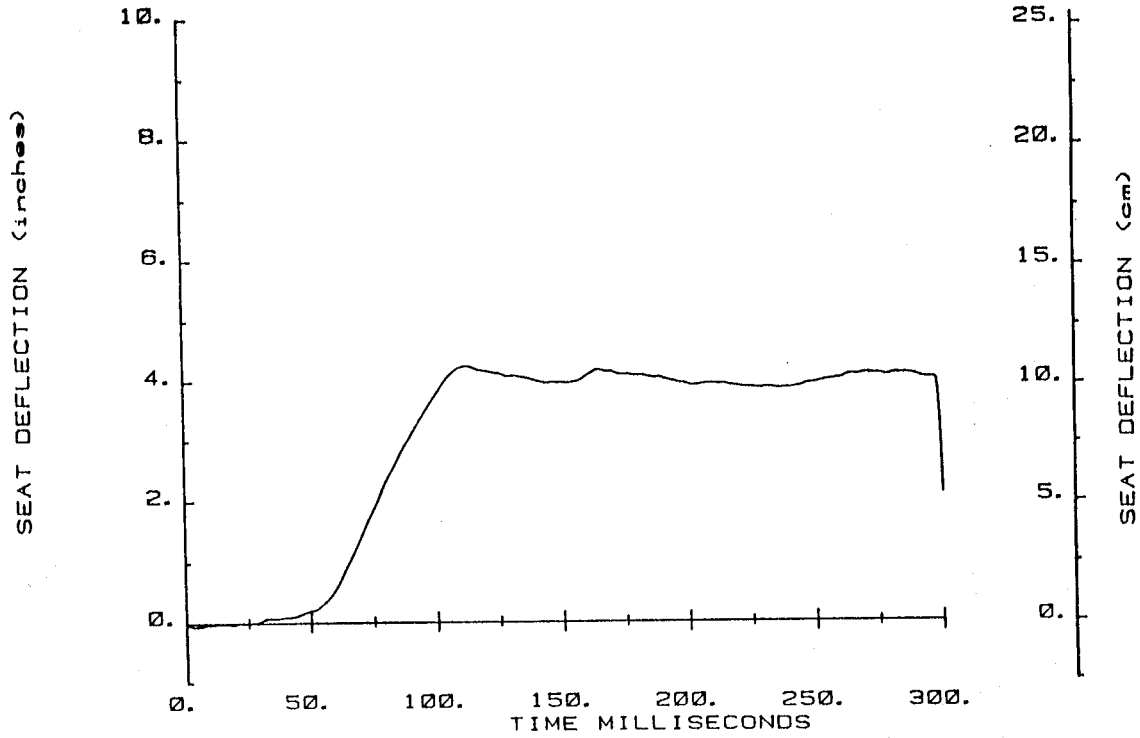
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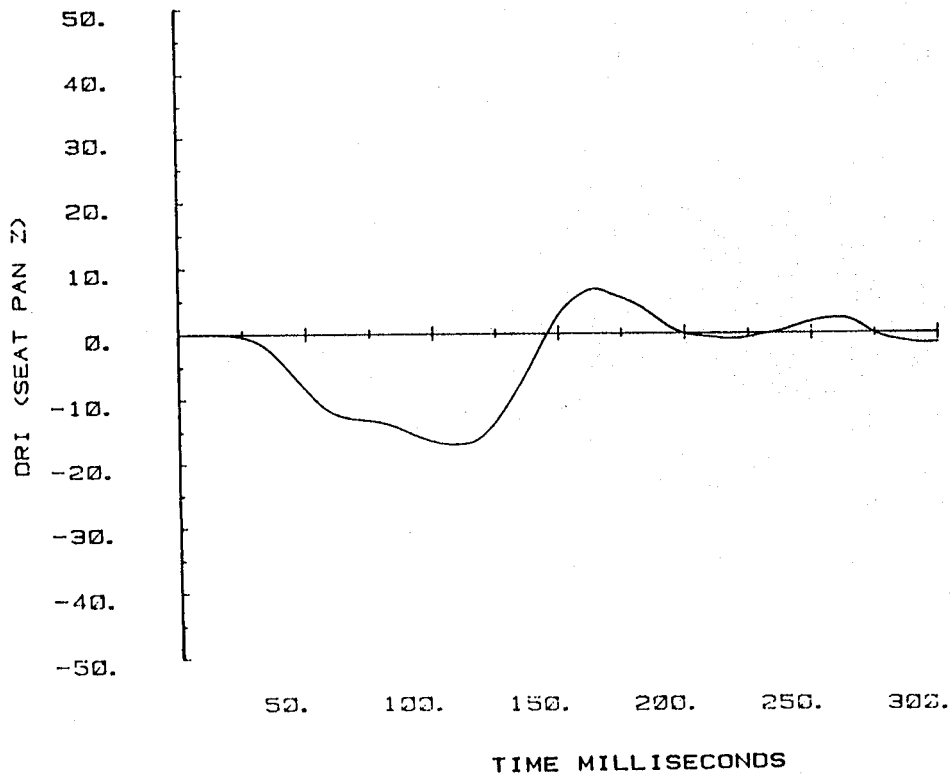
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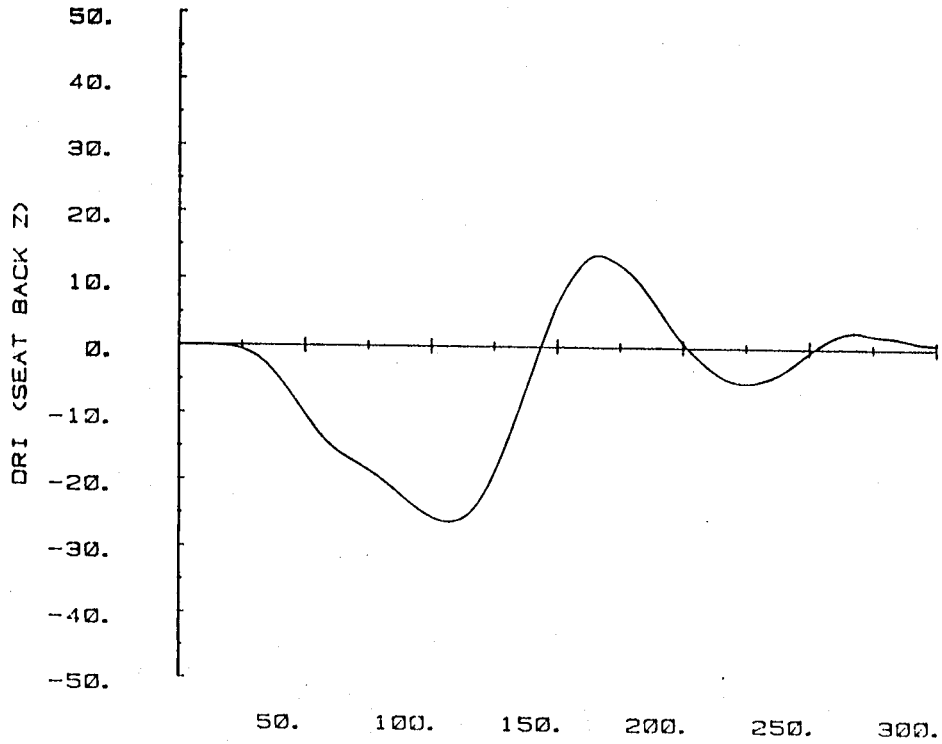
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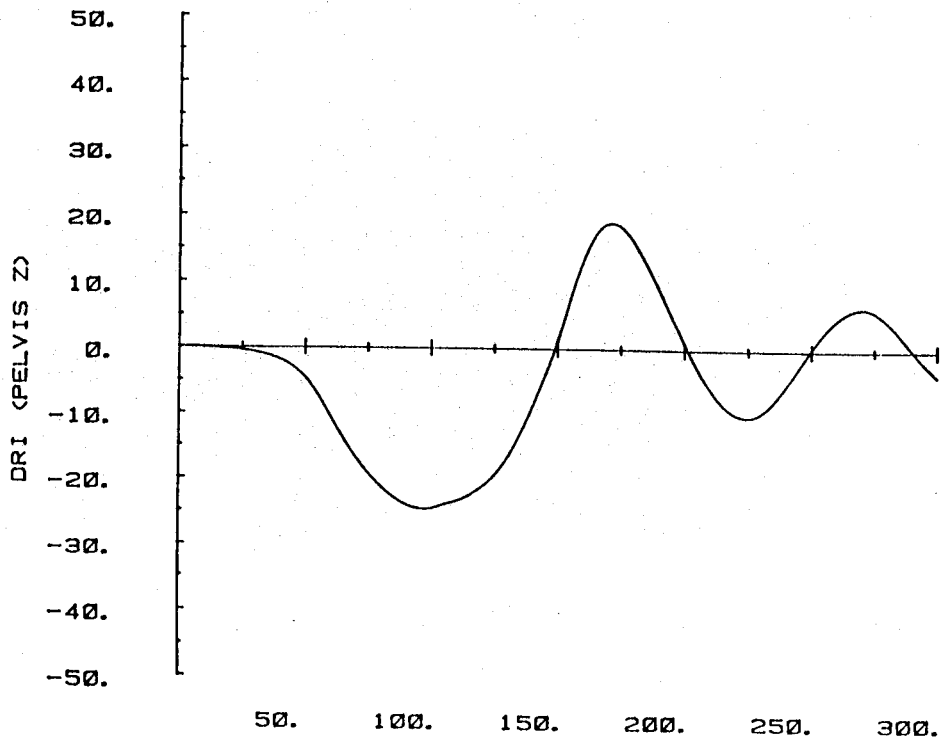


CAMI SLED TEST  
A84081



TIME MILLISECONDS

CAMI SLED TEST  
A84081



TIME MILLISECONDS

13.0 CAMI TEST NO. A84-82

SEAT: Energy Absorbing

PULSE NUMBER: 1

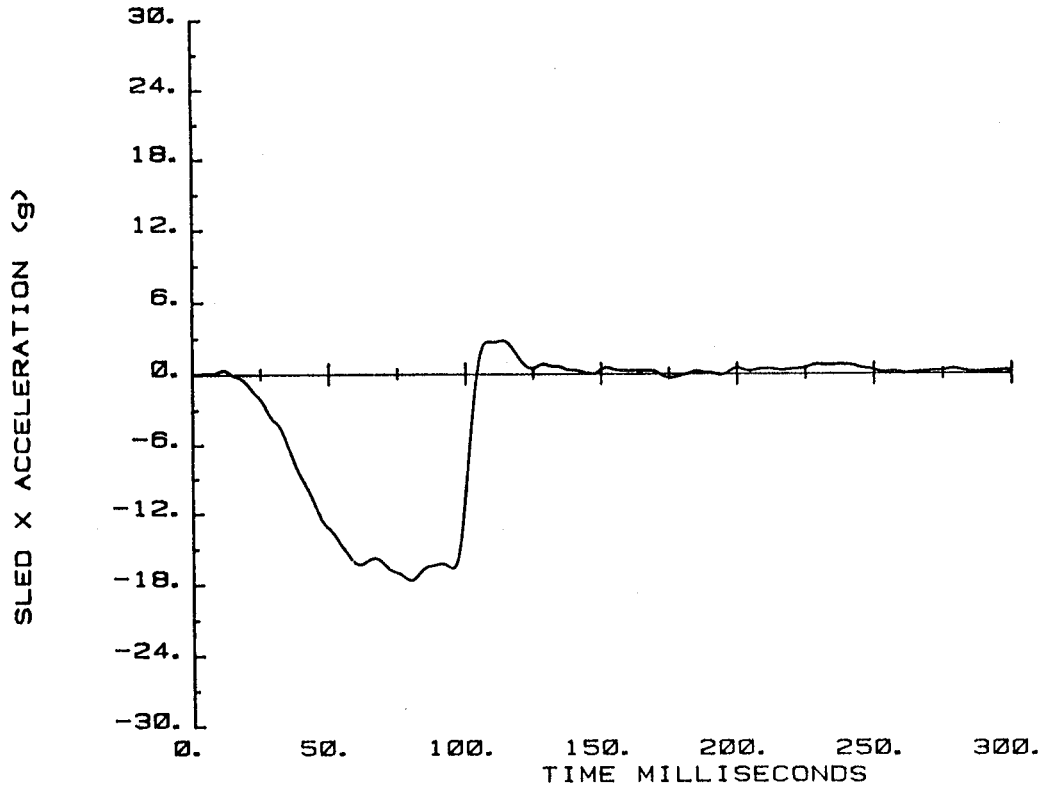
SEAT ORIENTATION: Pitch - 90°  
Roll - 0°  
Yaw - 0°



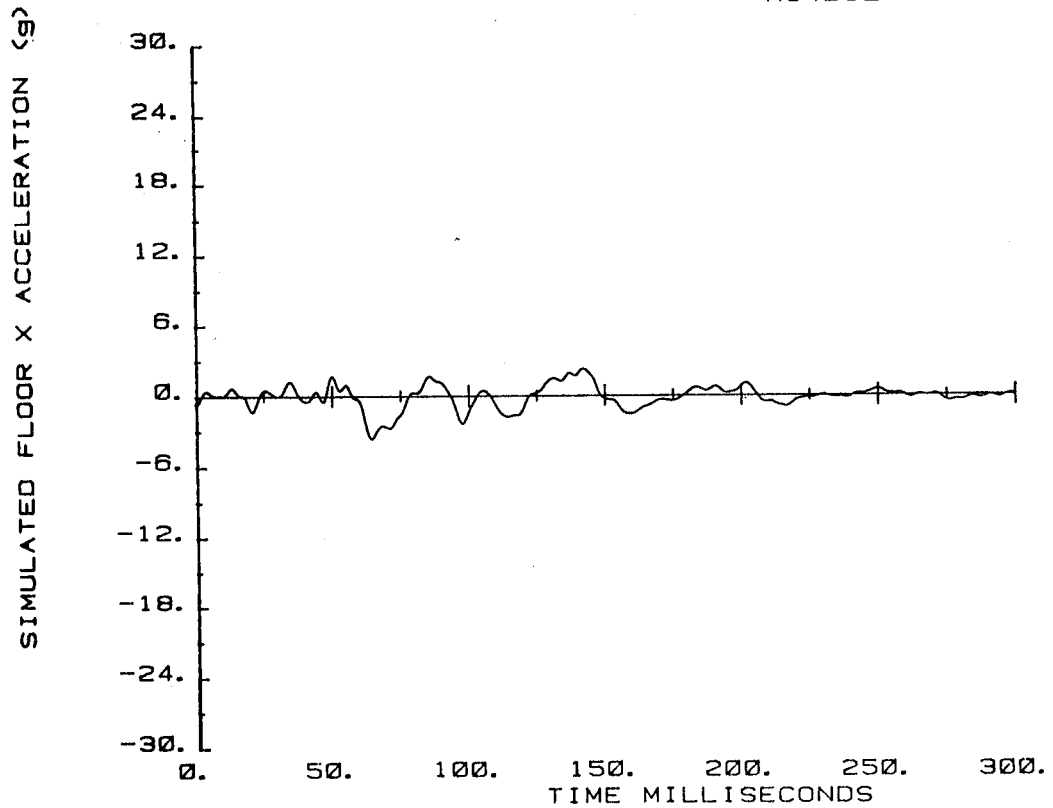
PEAK LOADS

| 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 | 10.7   | 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) | -0.7   | 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  |        |     |                    |      |

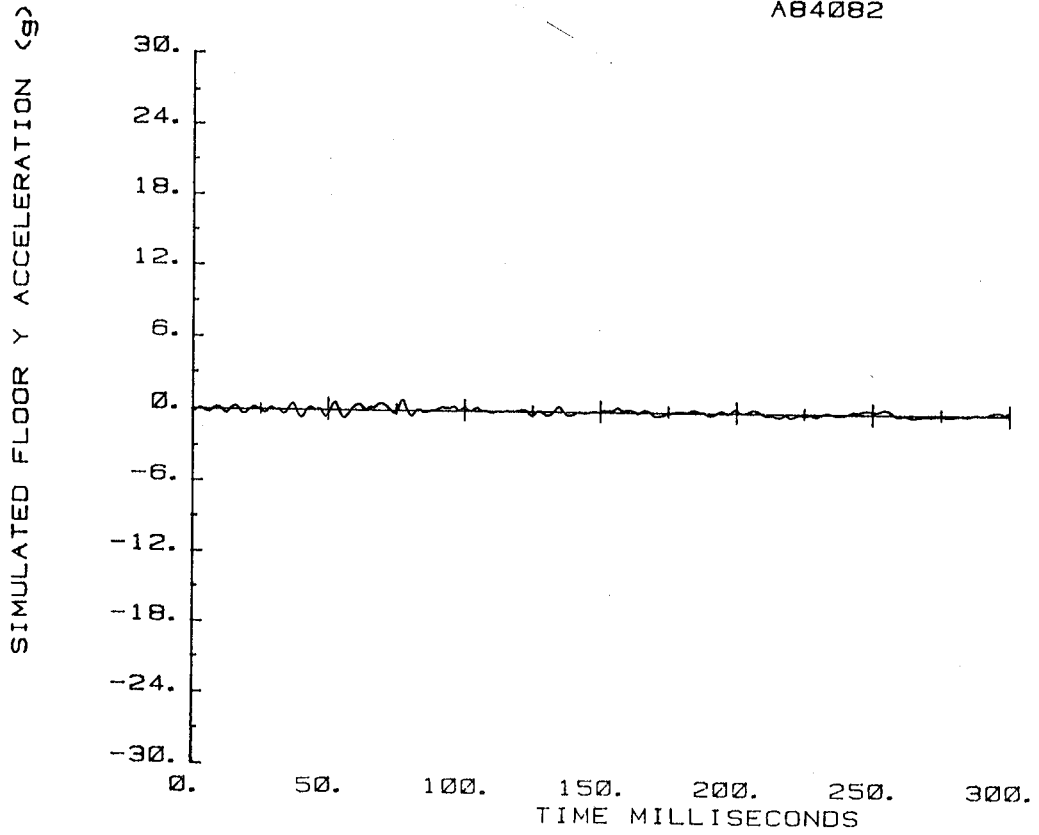
CAMI SLED TEST  
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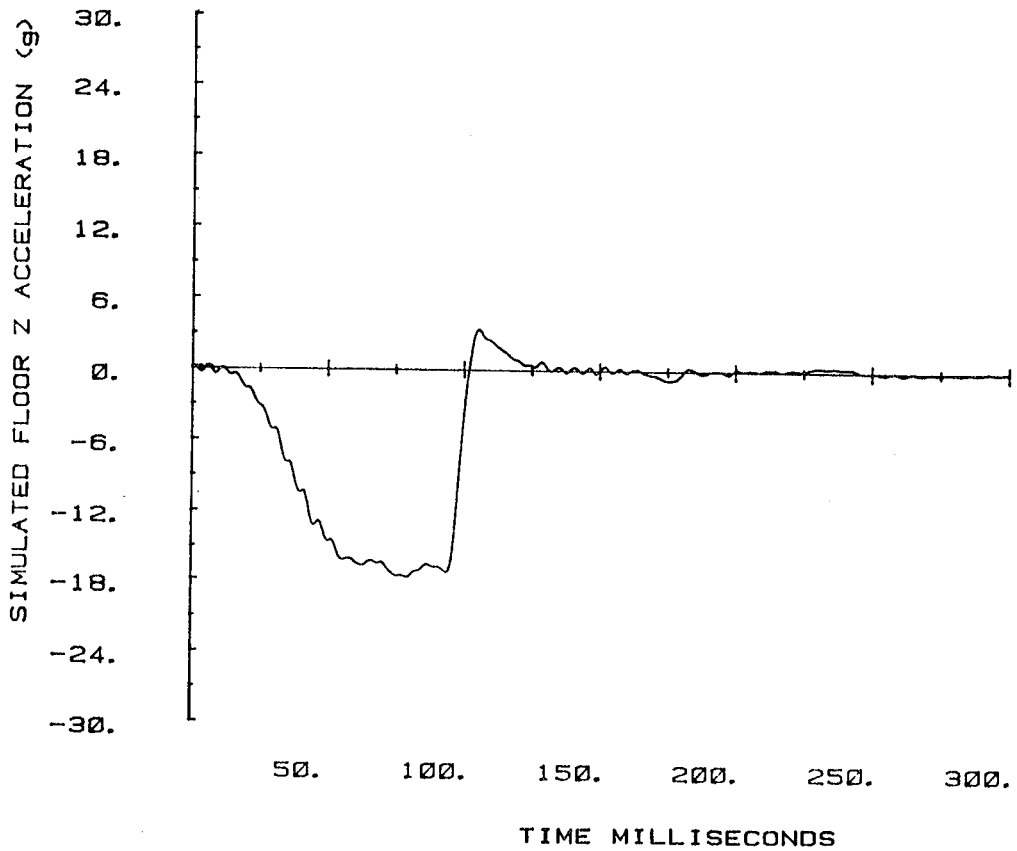
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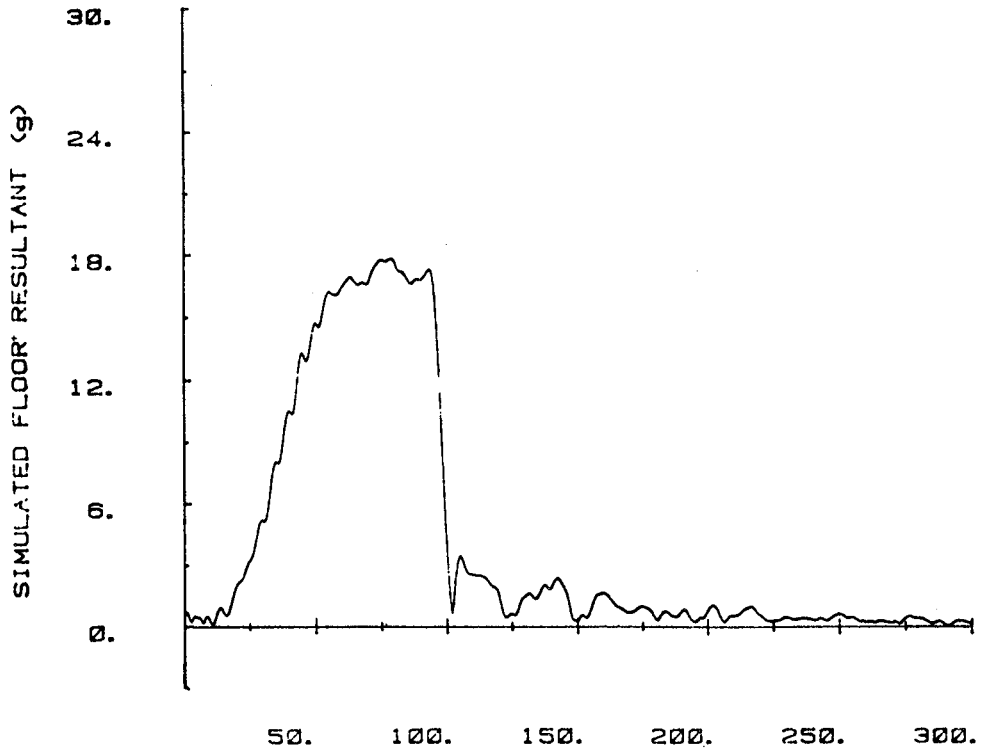
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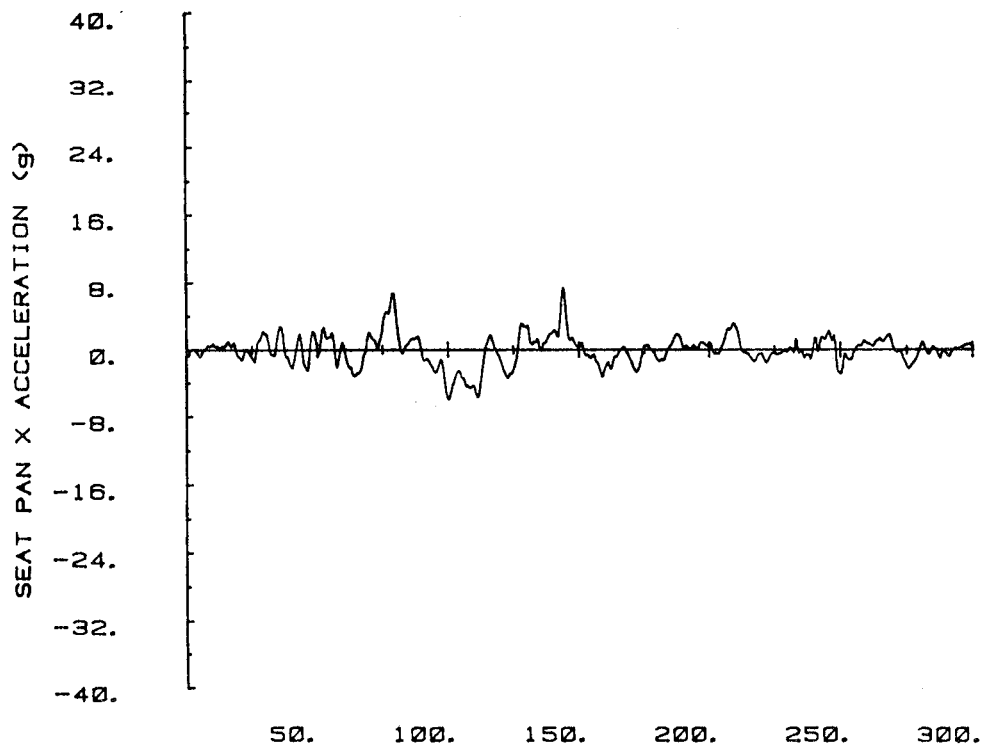
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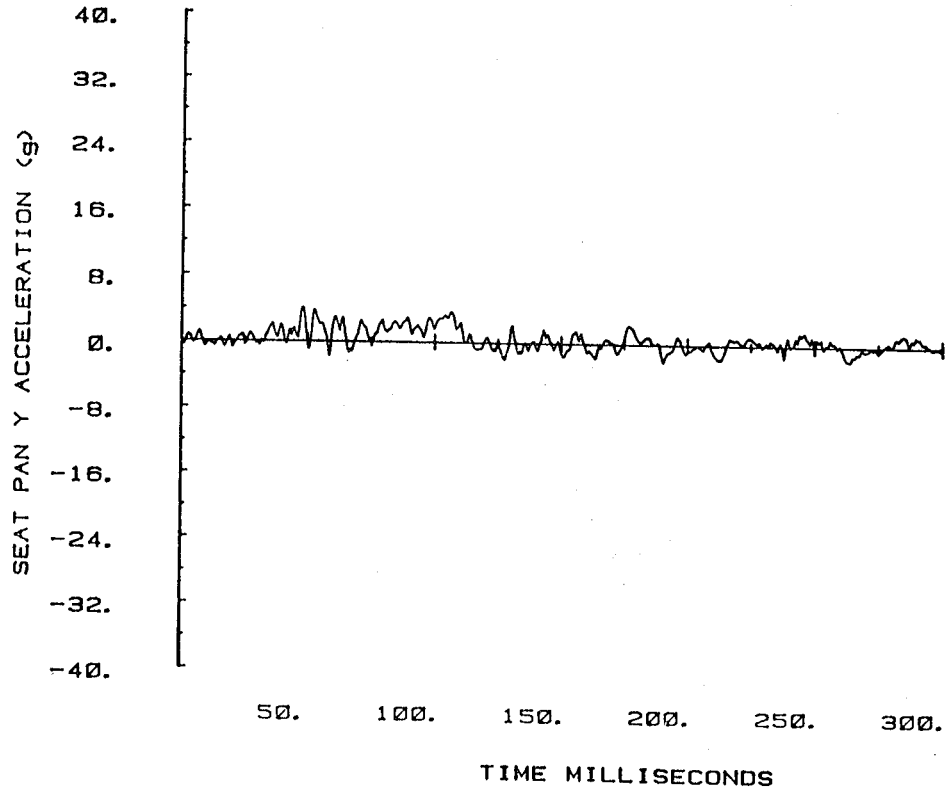


TIME MILLISECONDS  
CAMI SLED TEST  
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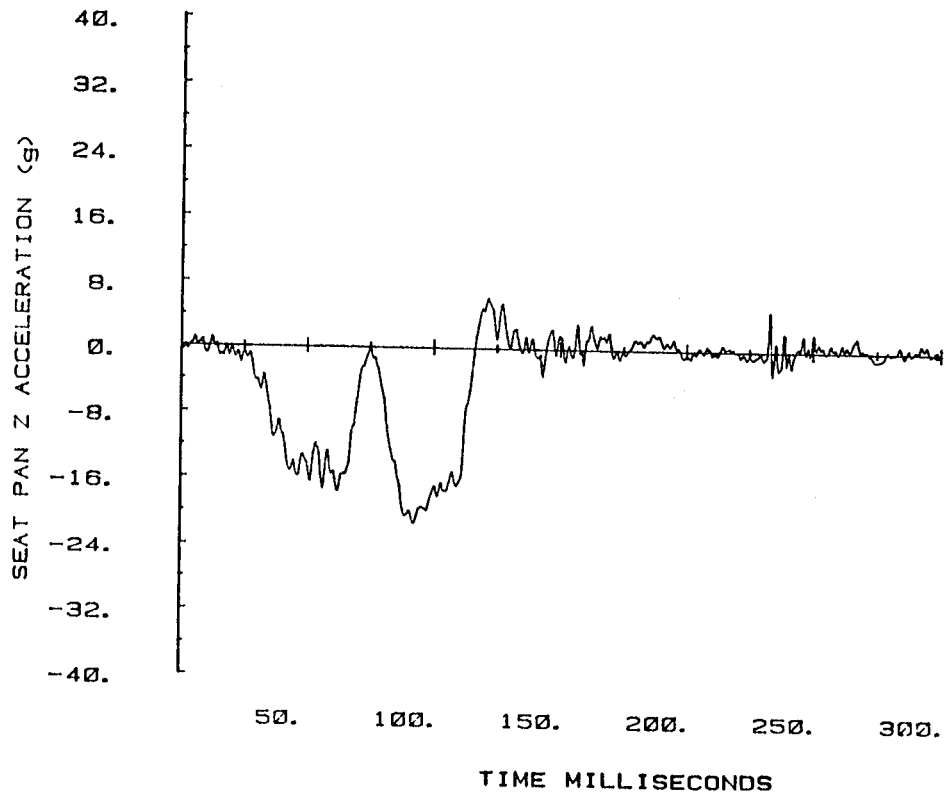


TIME MILLISECONDS

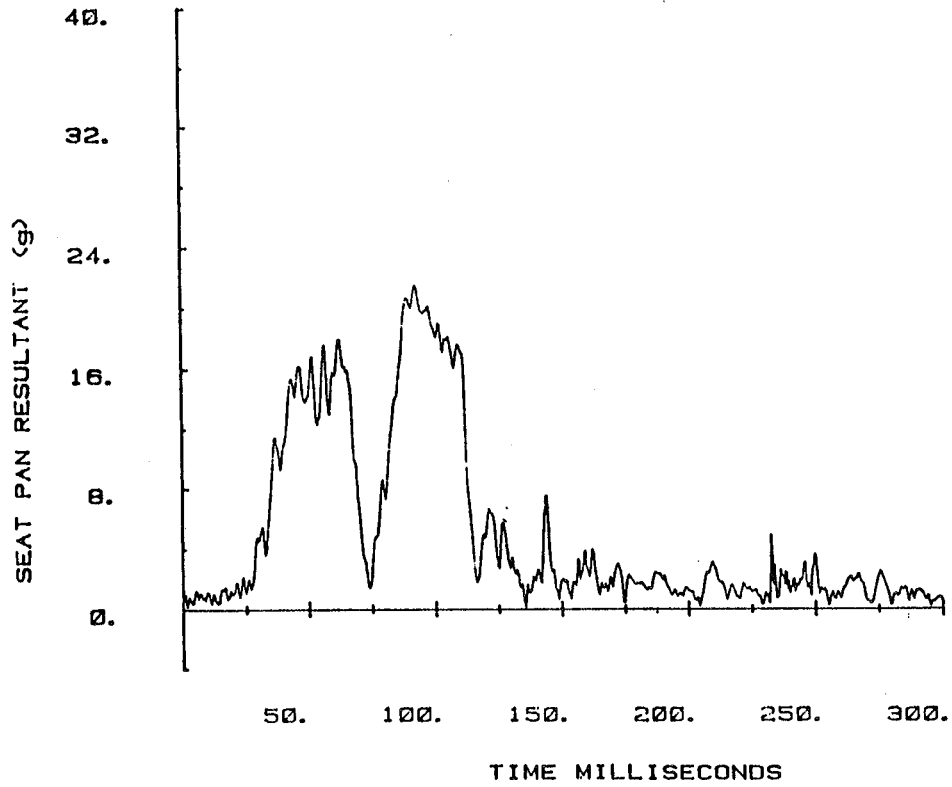
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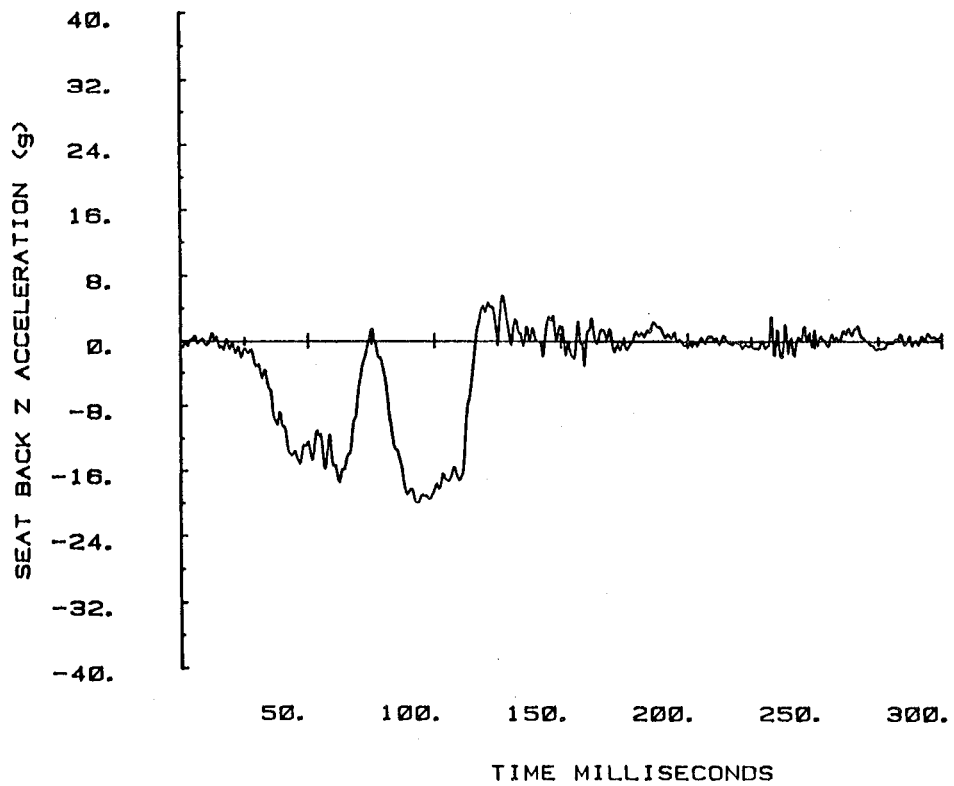
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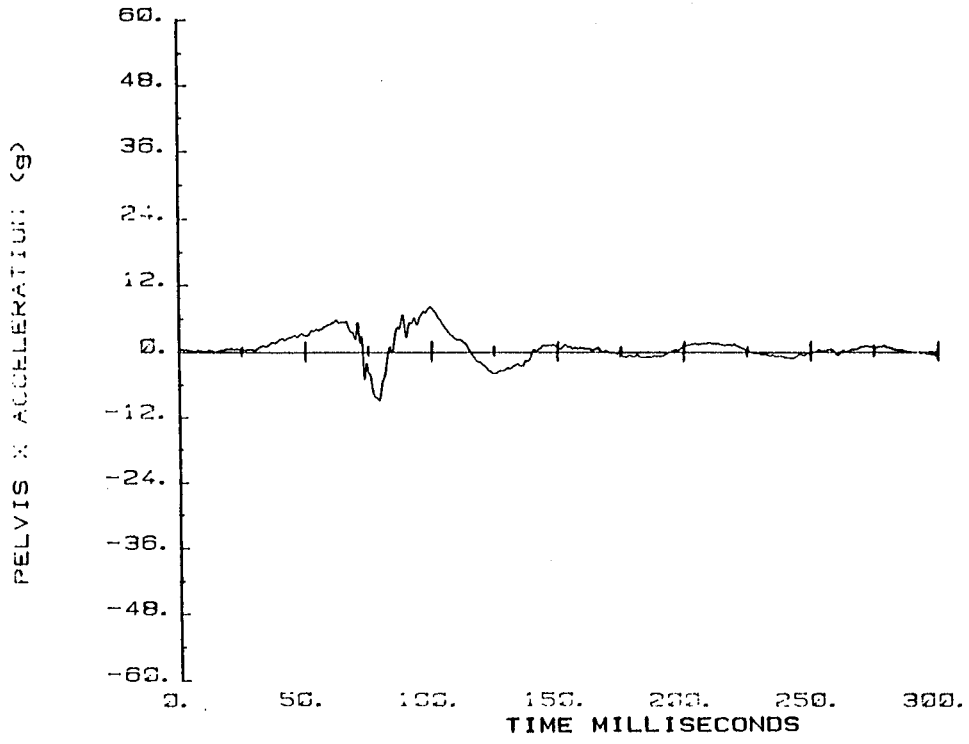
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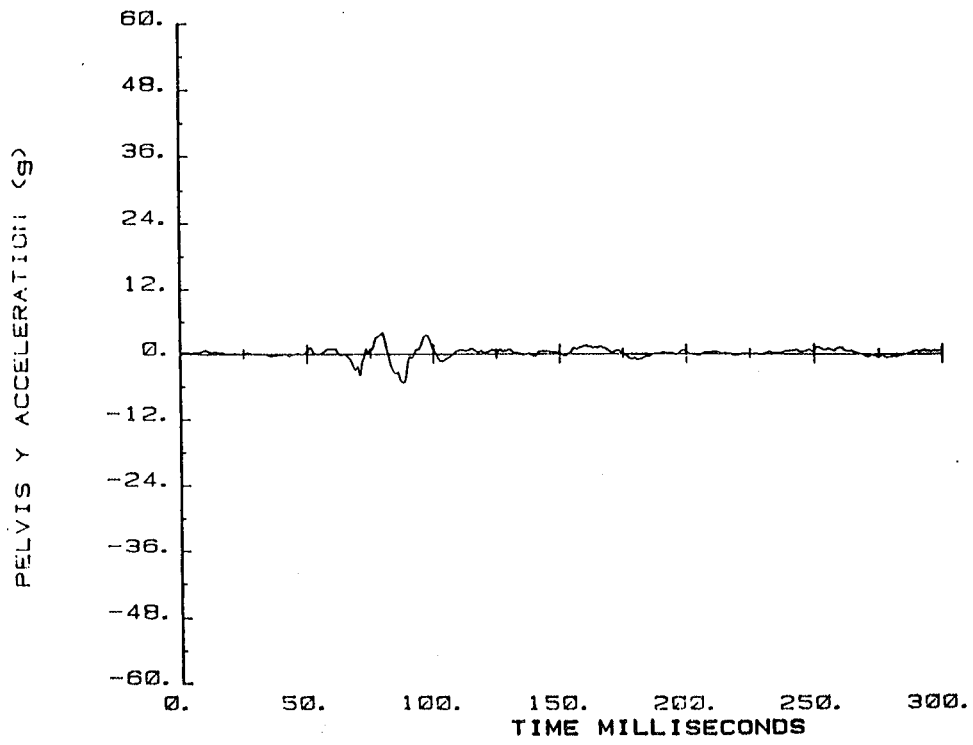
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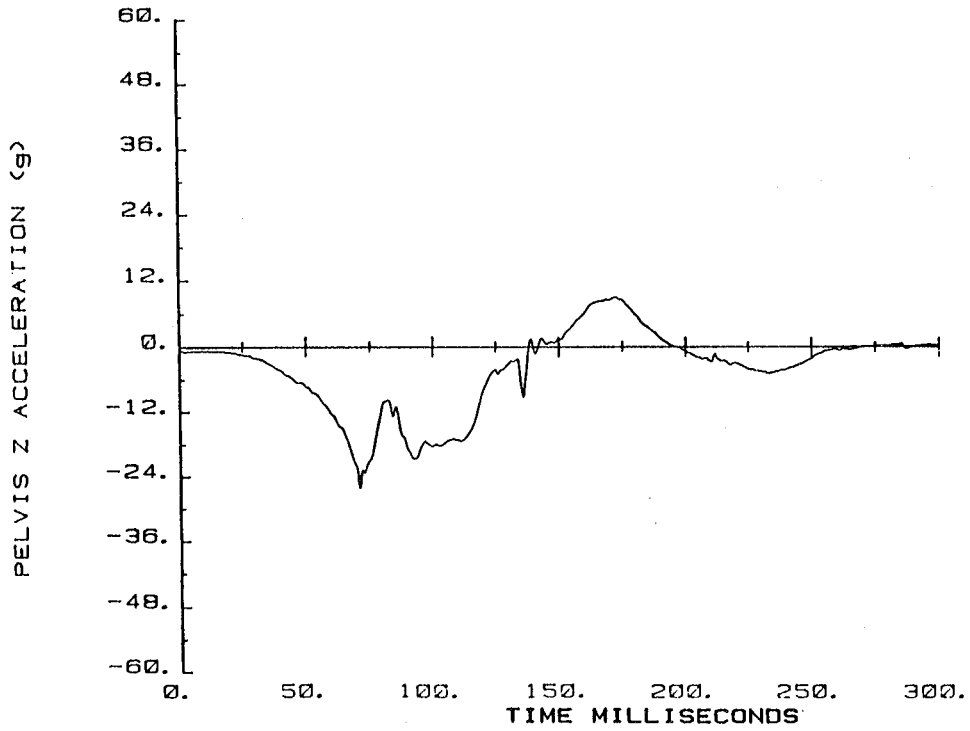
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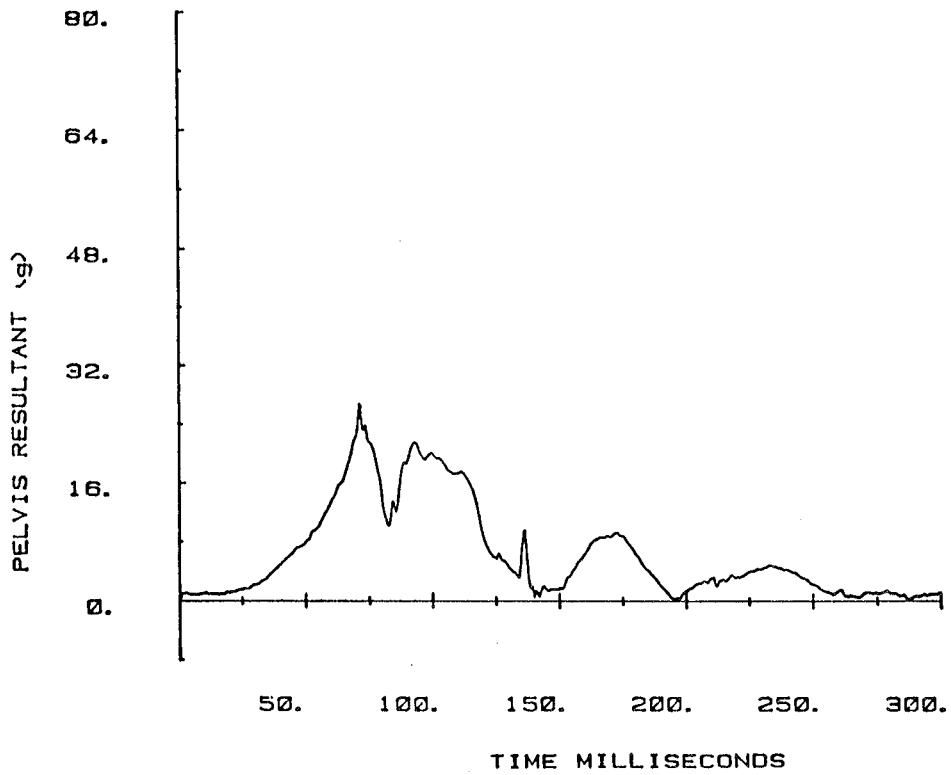
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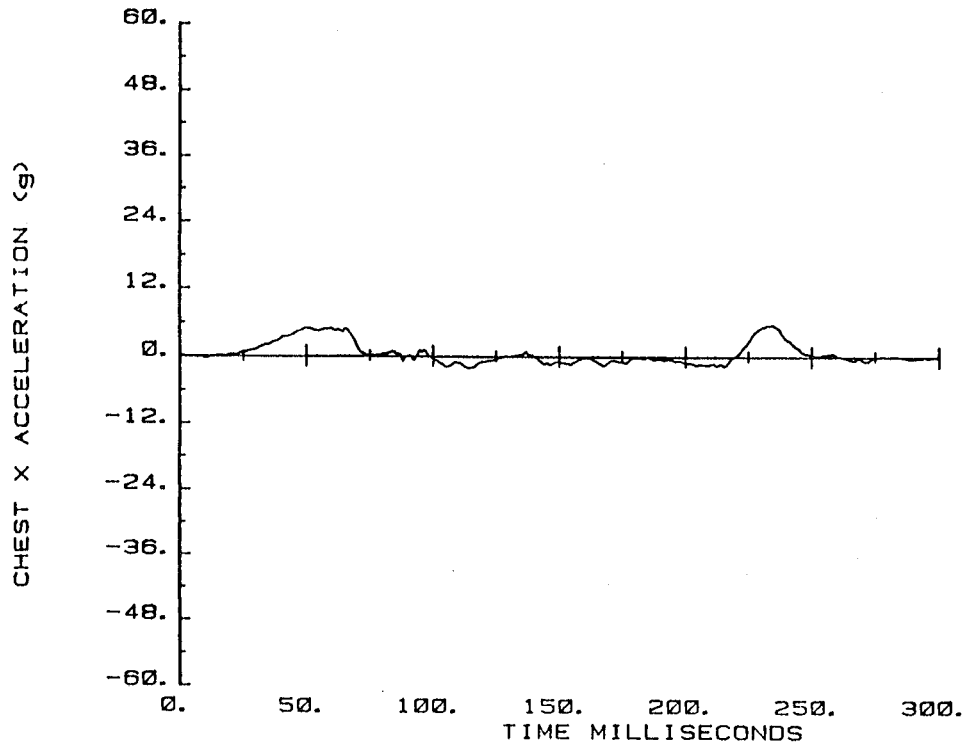


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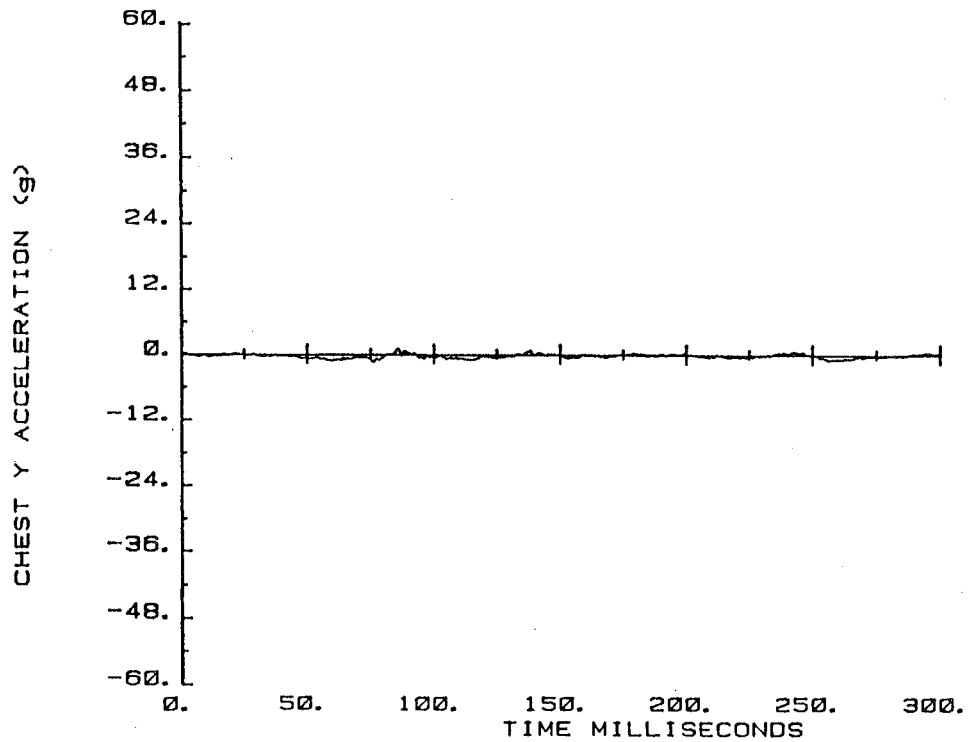




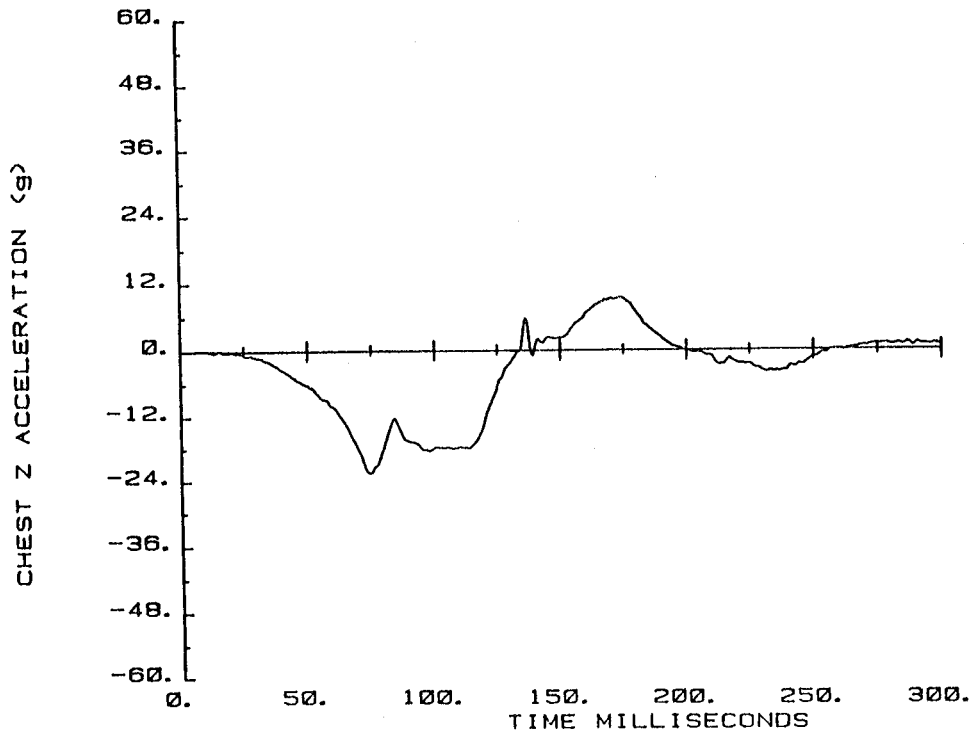
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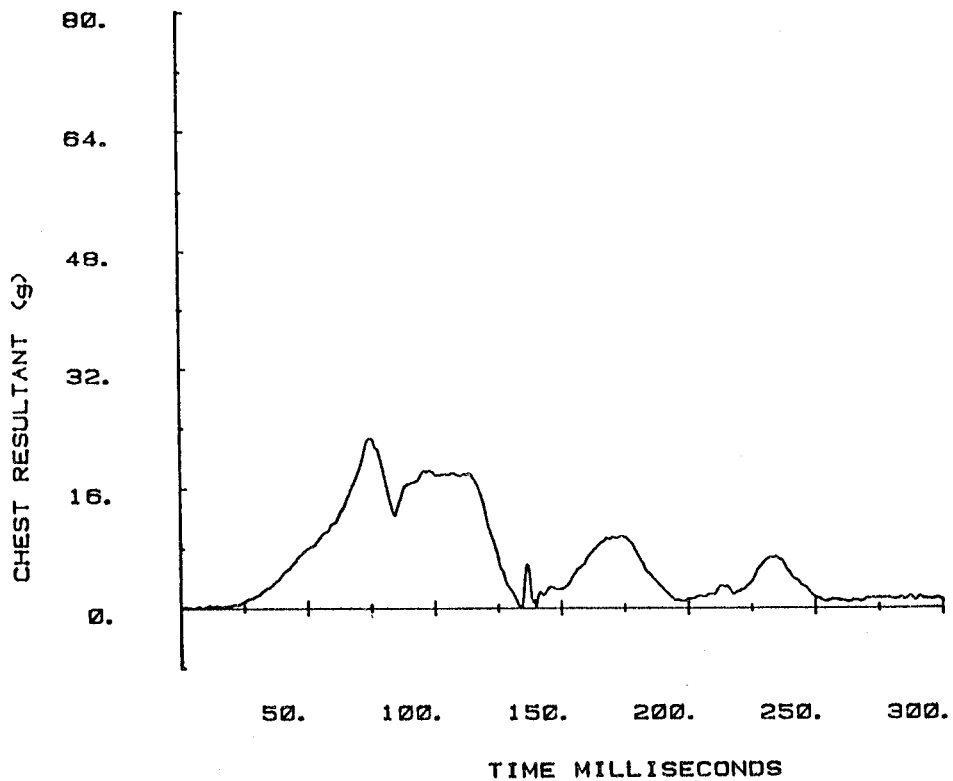
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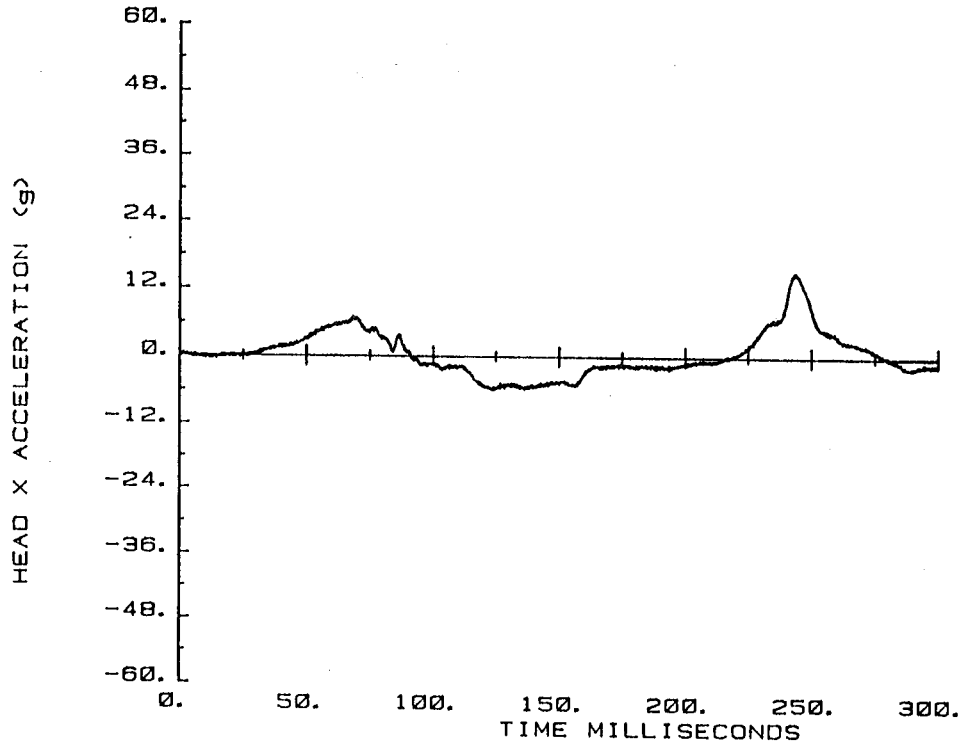
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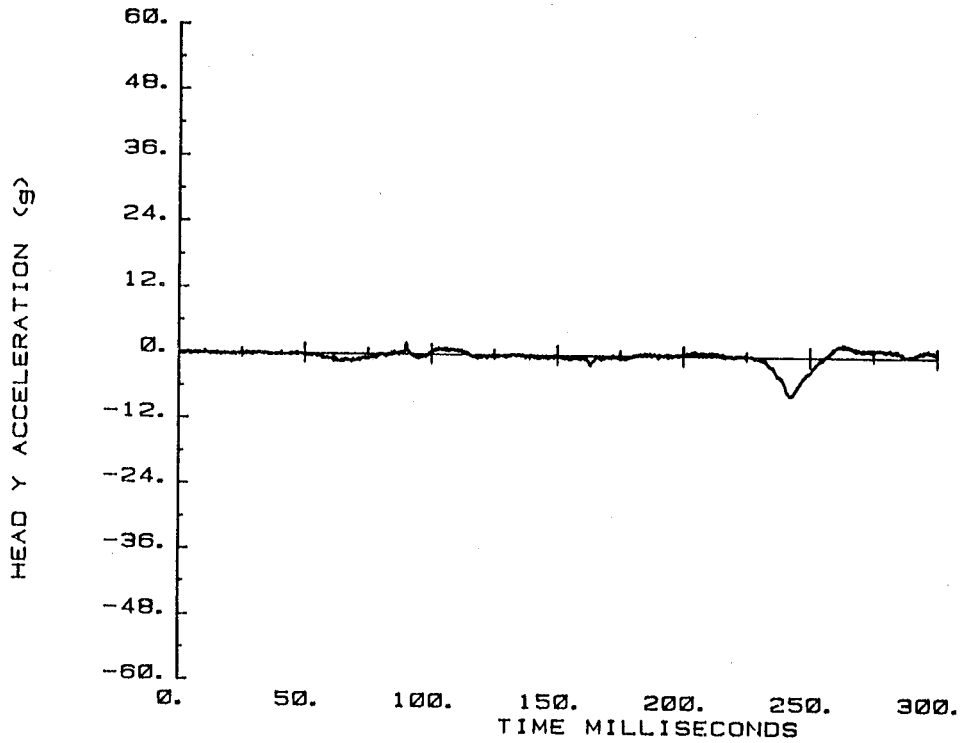
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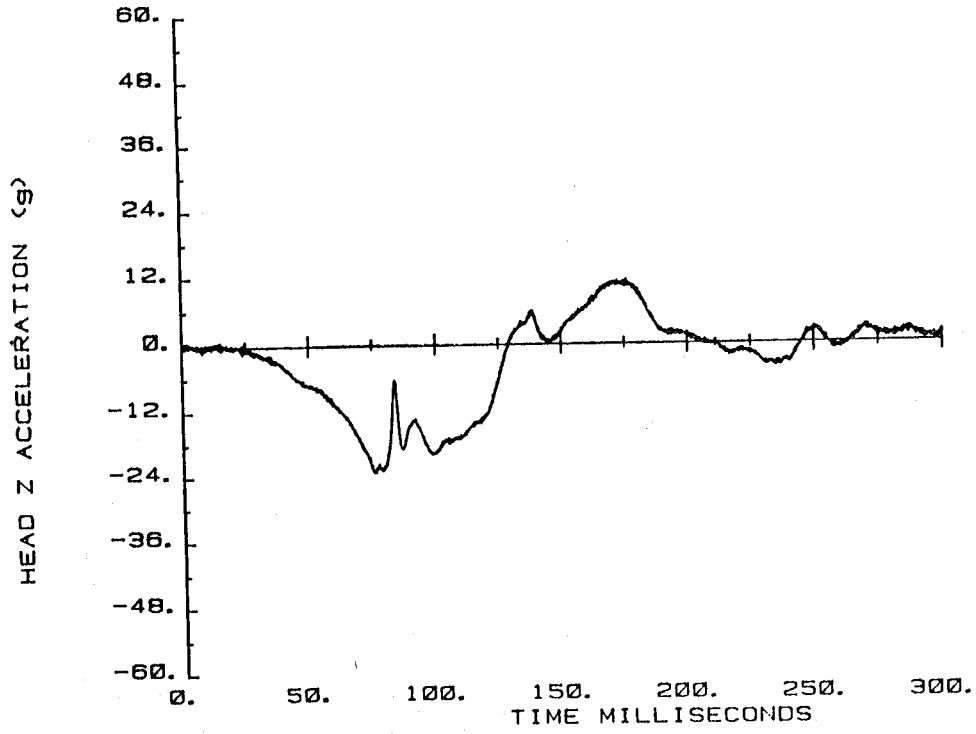
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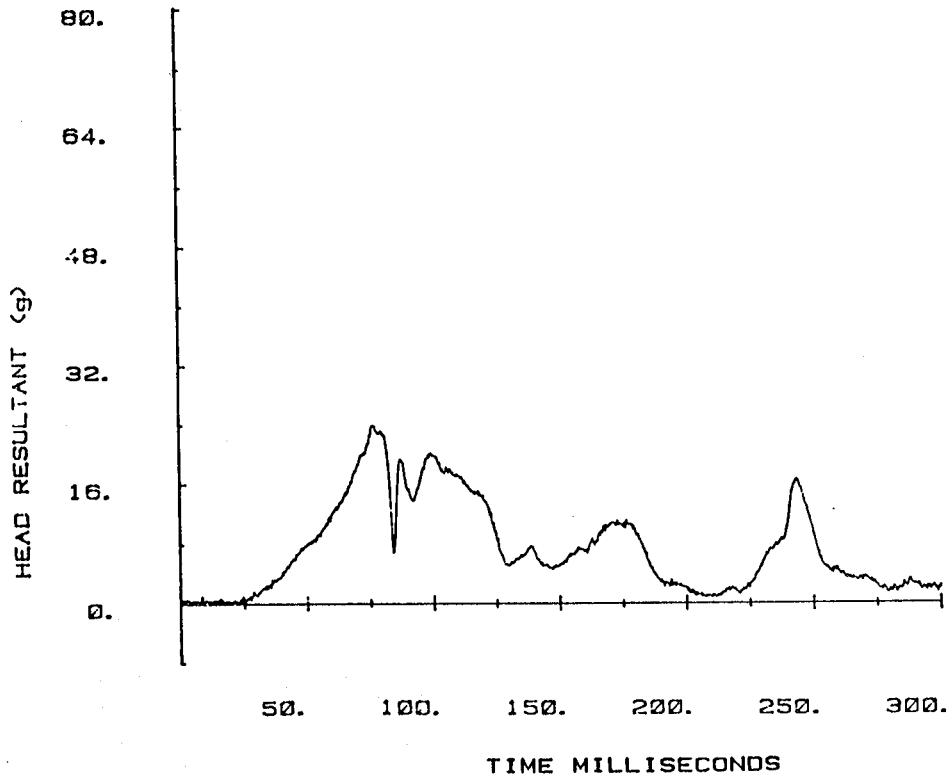
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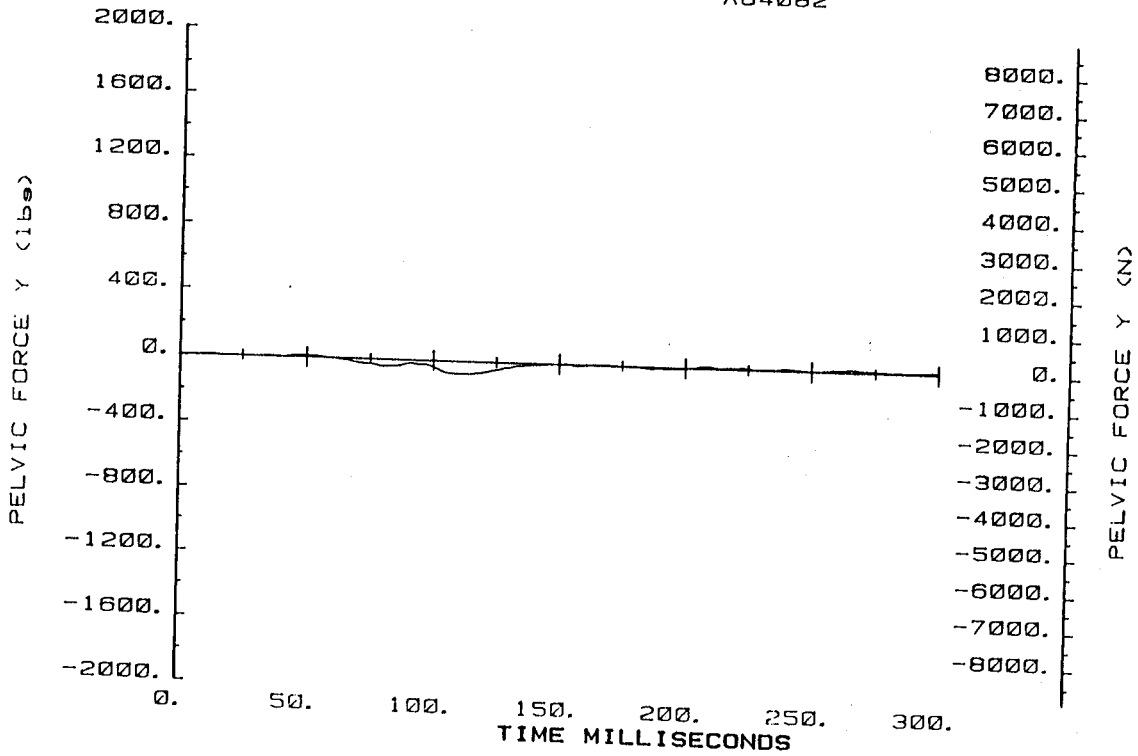
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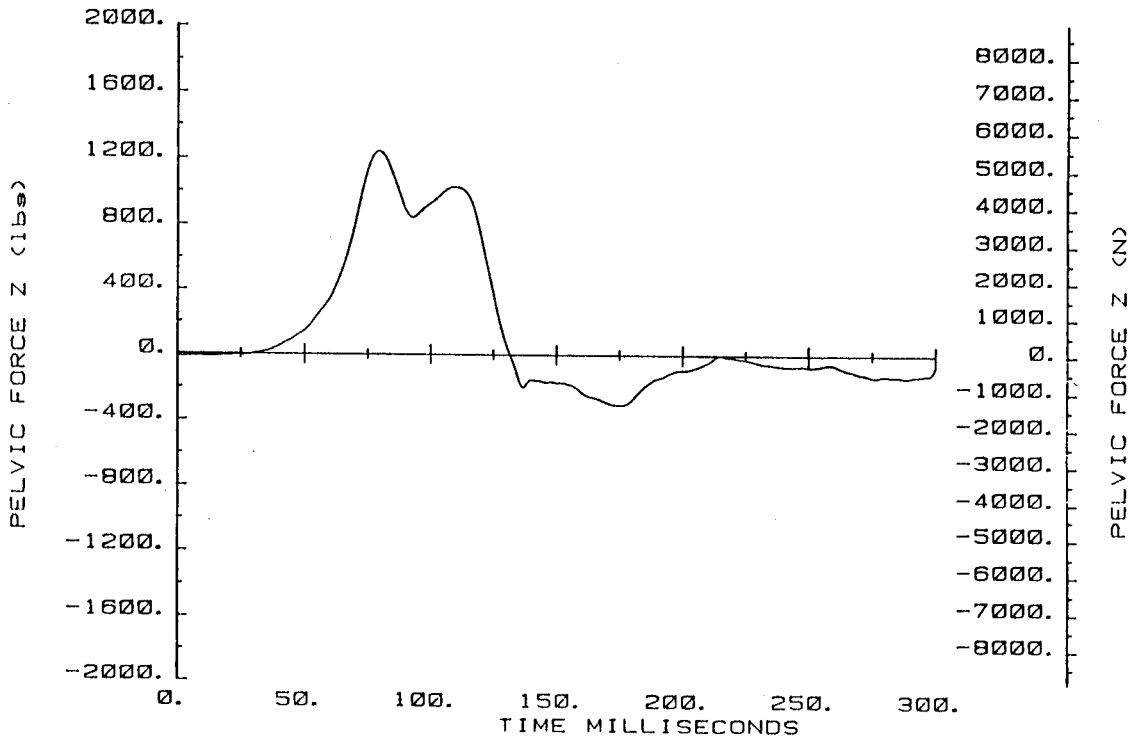
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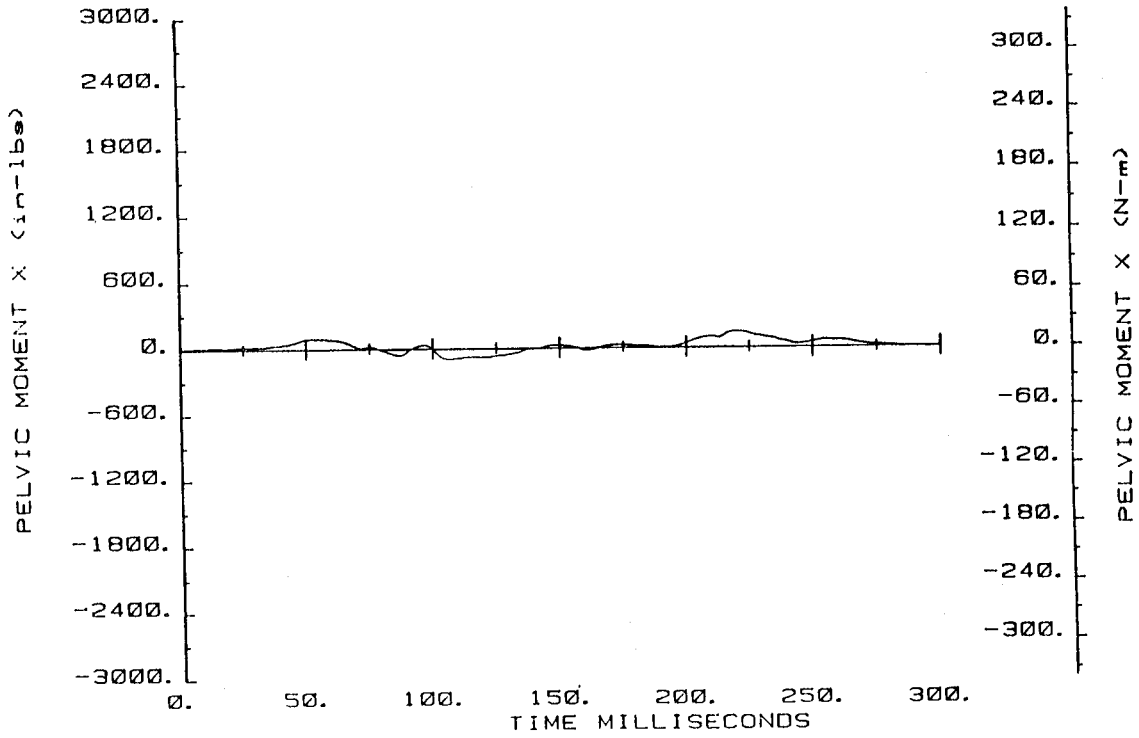
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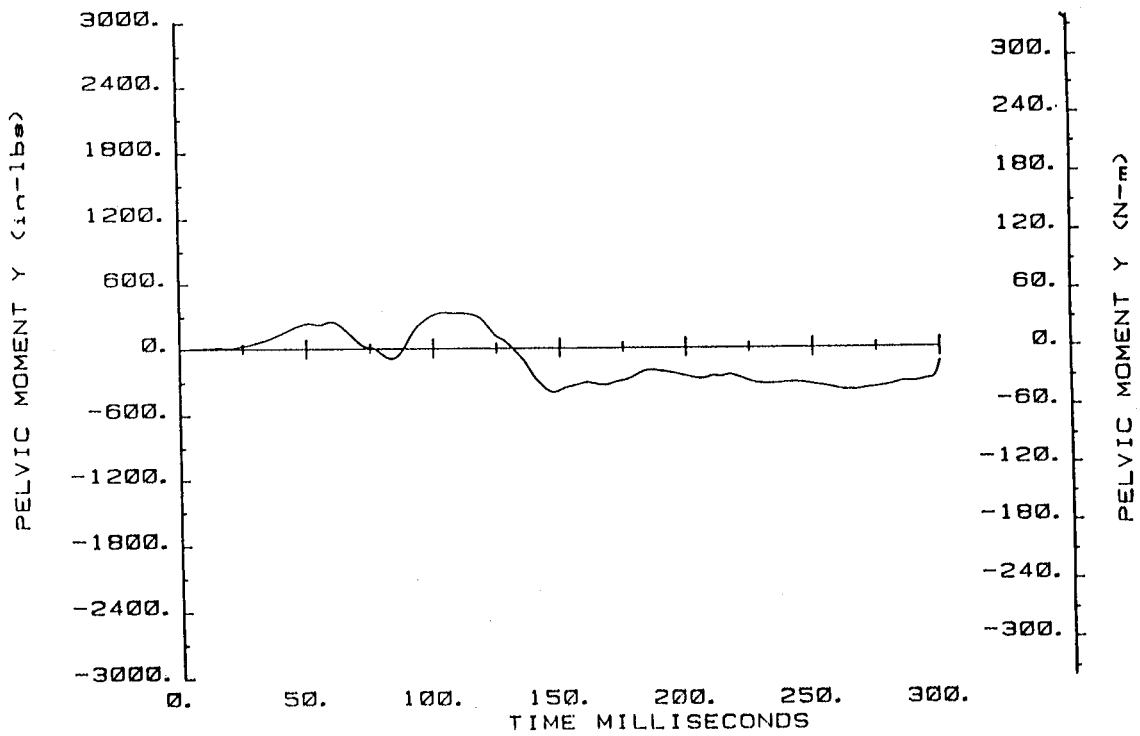
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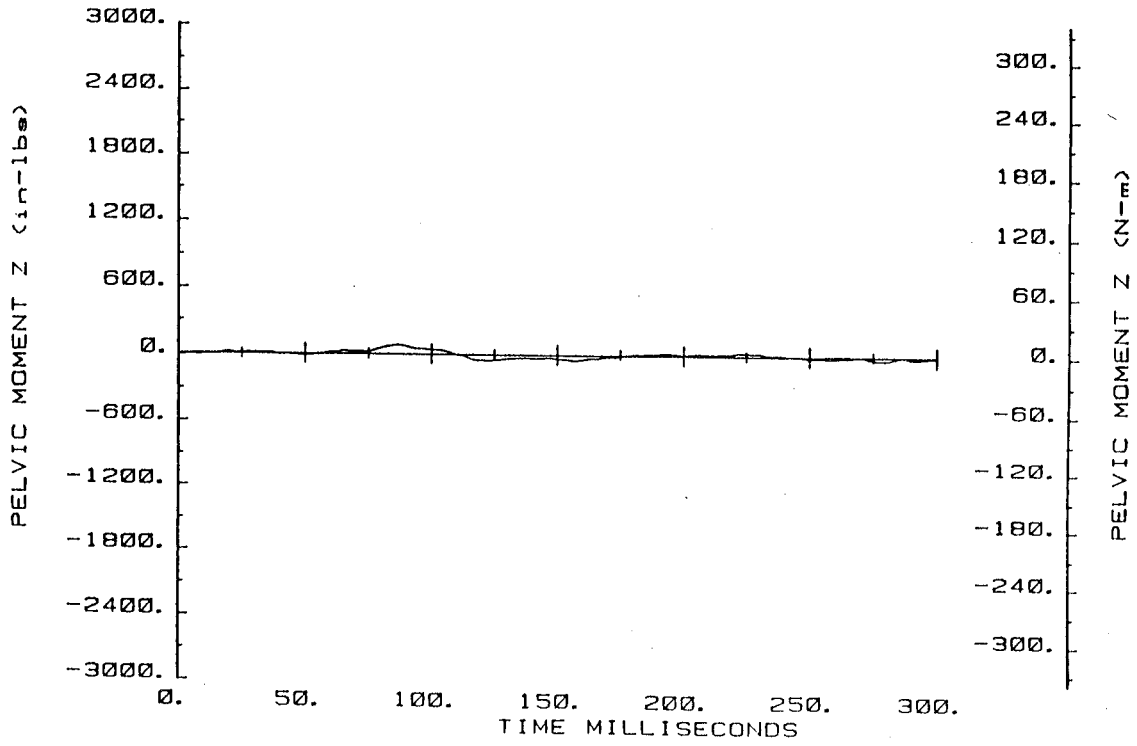
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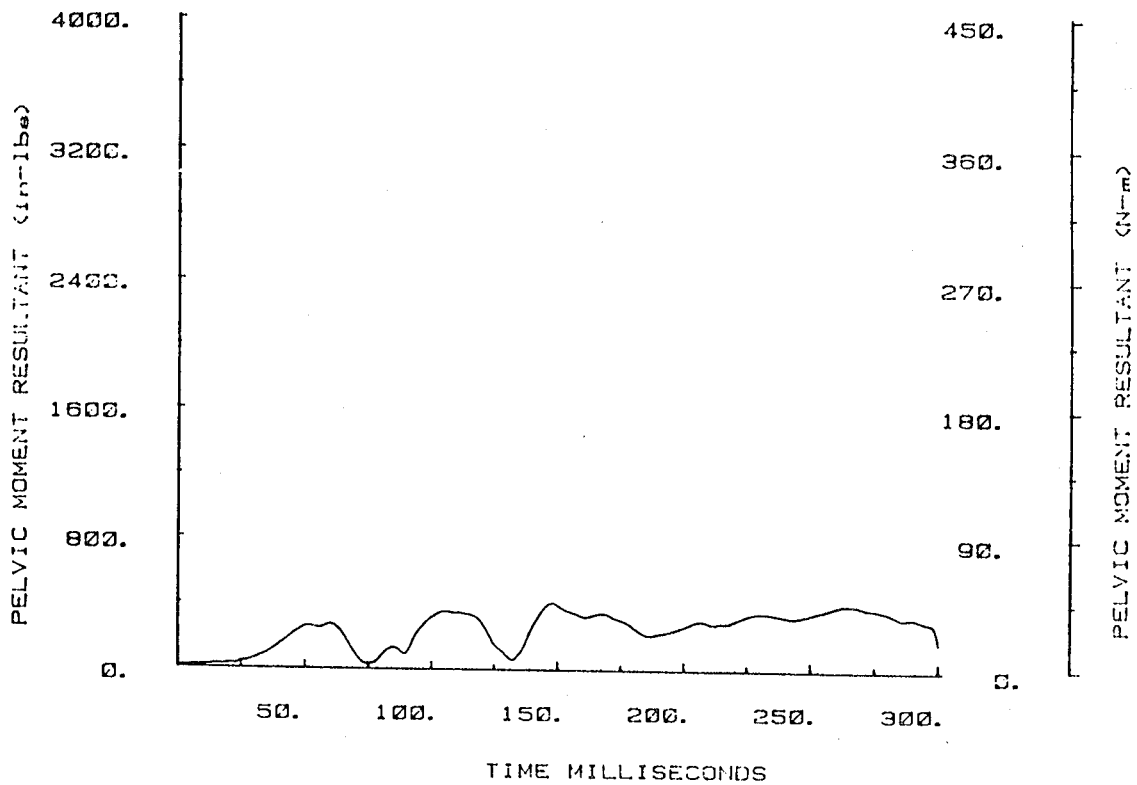
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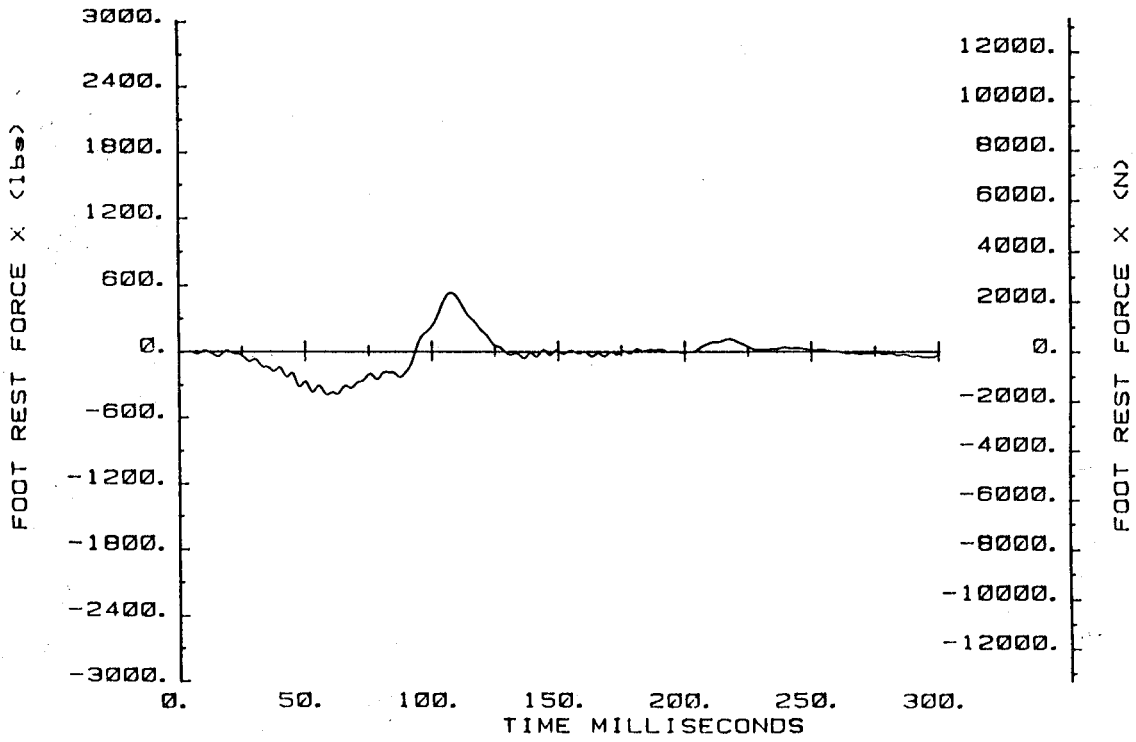
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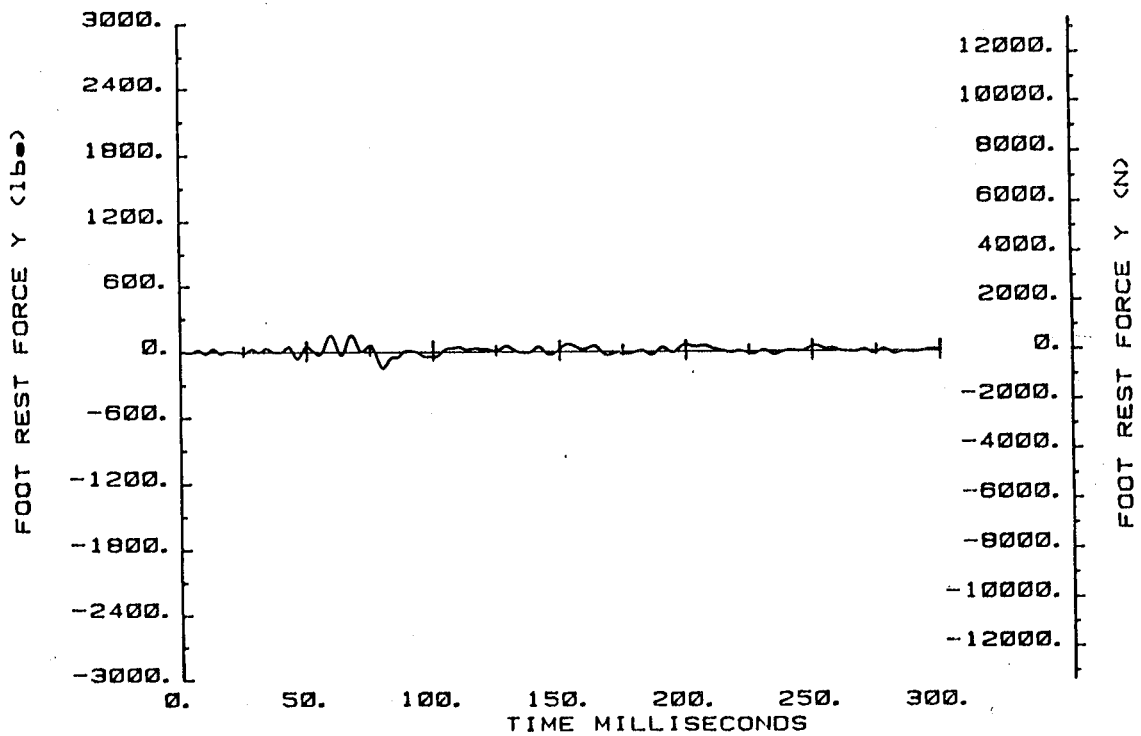
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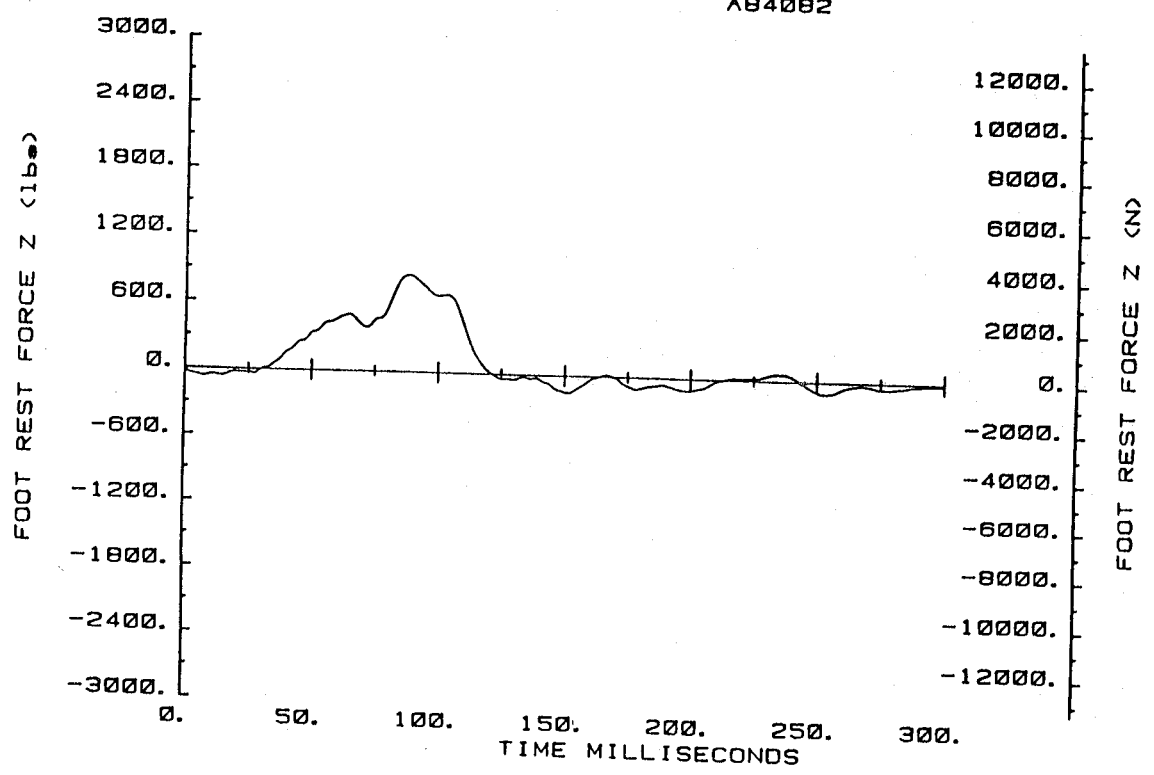


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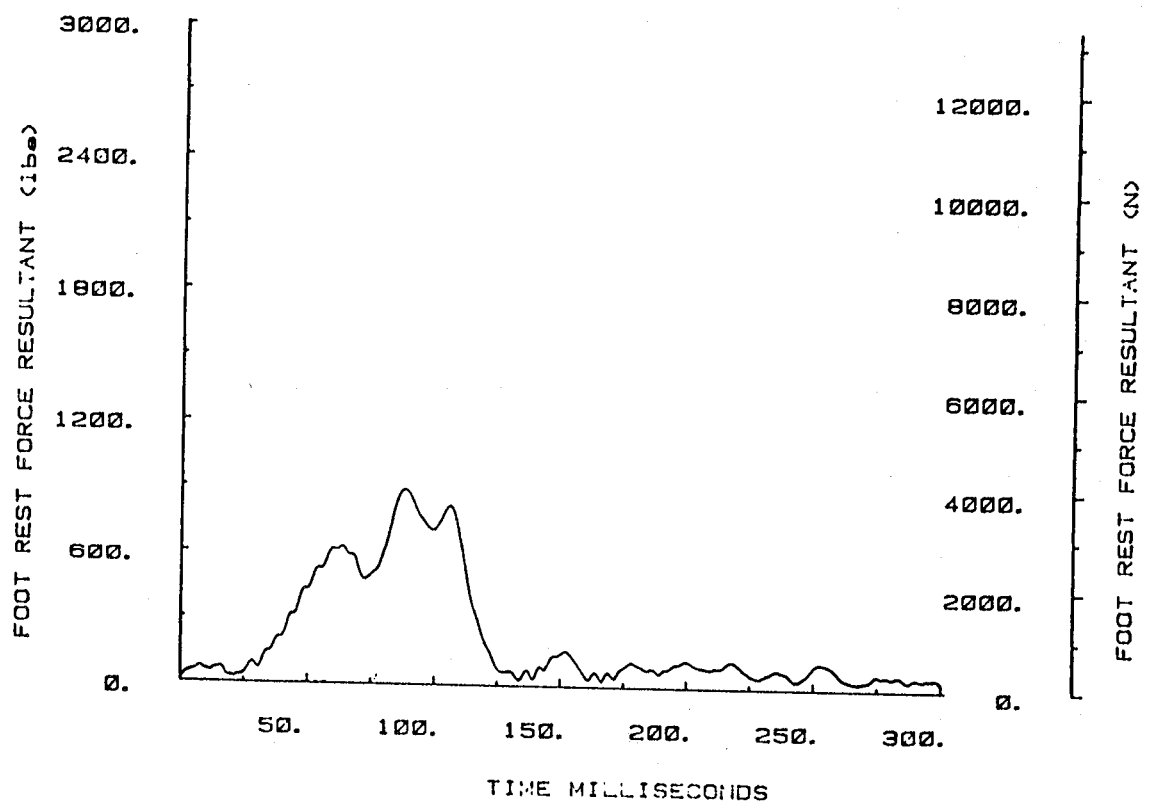




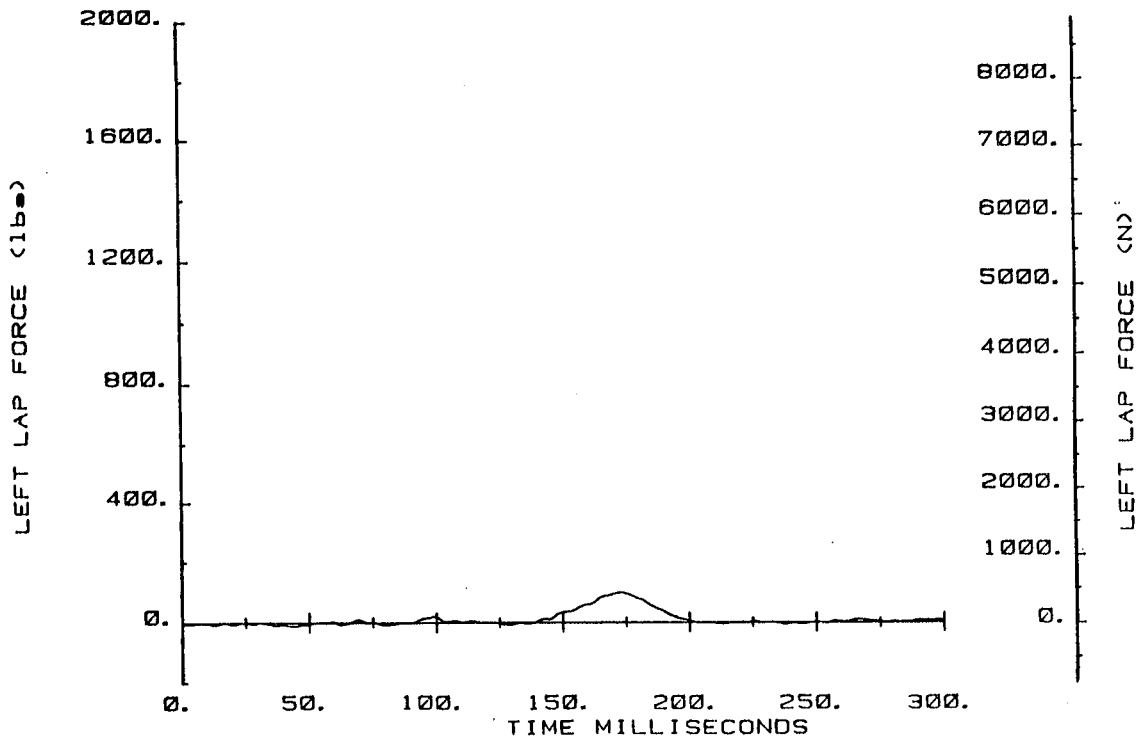
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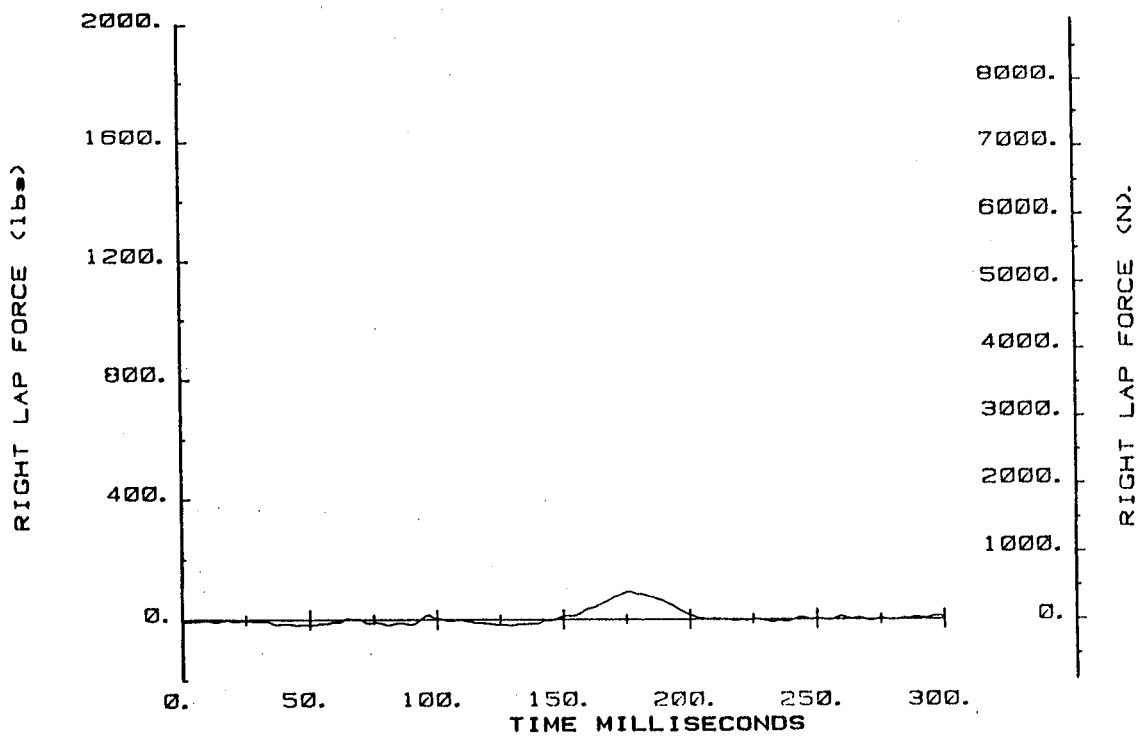
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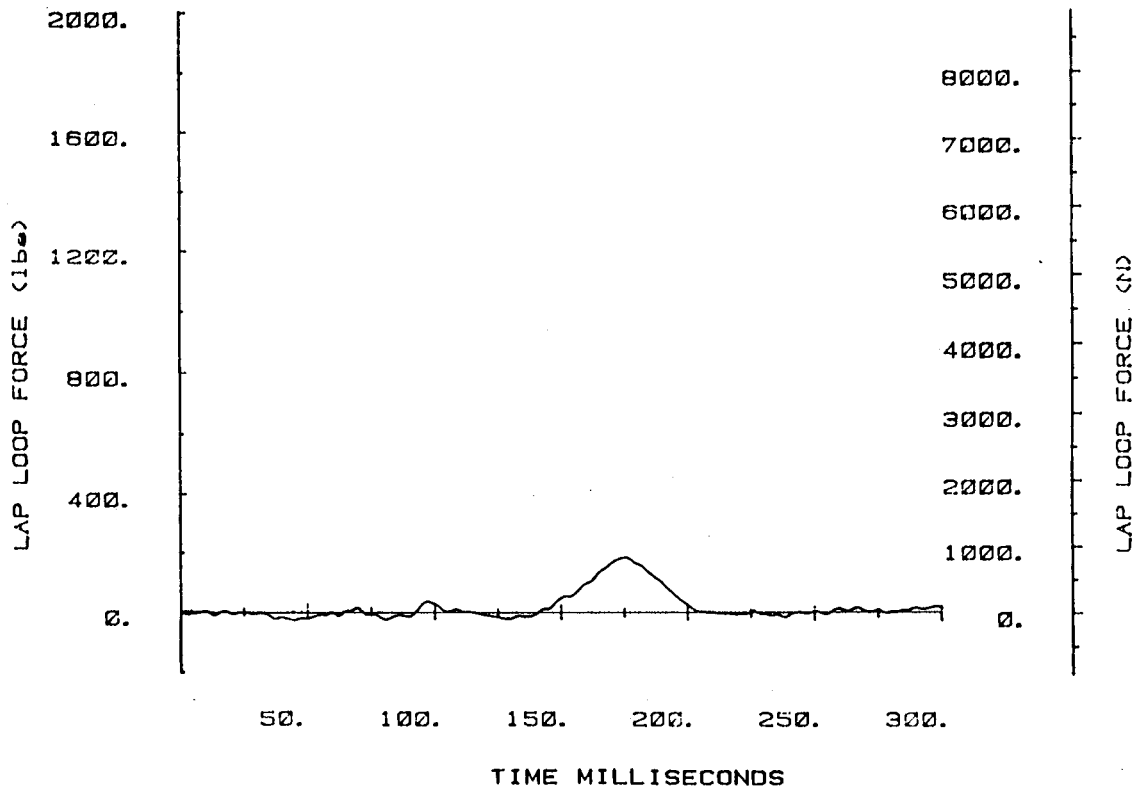
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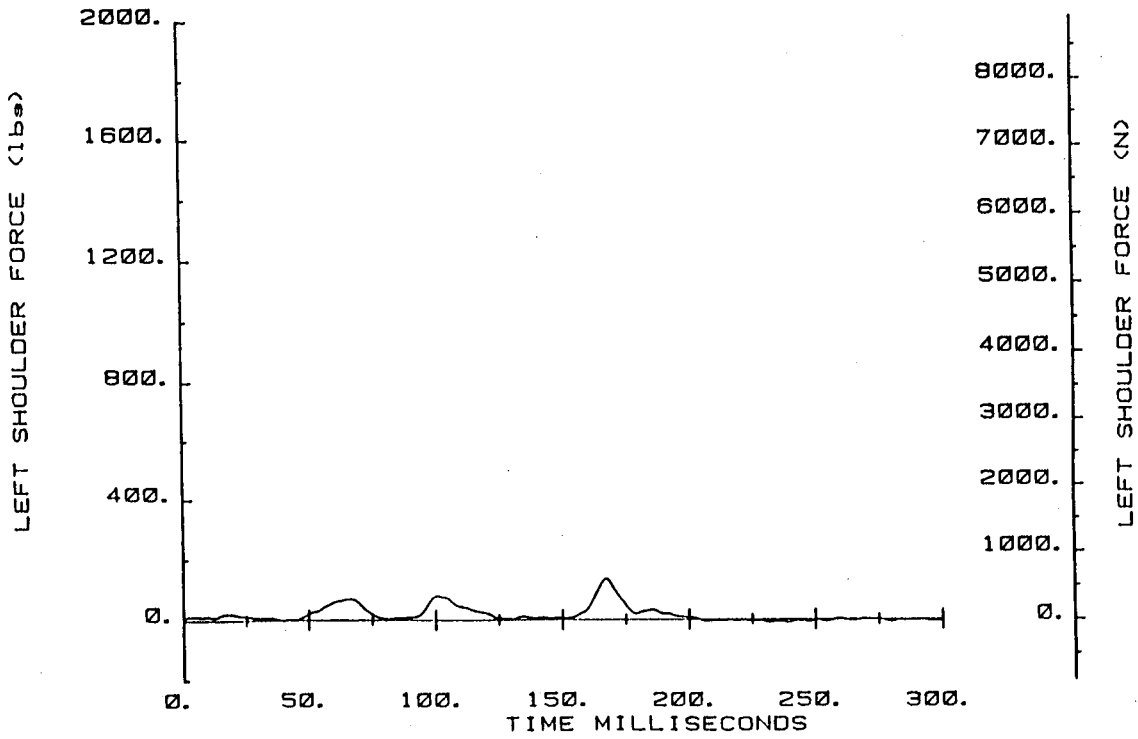
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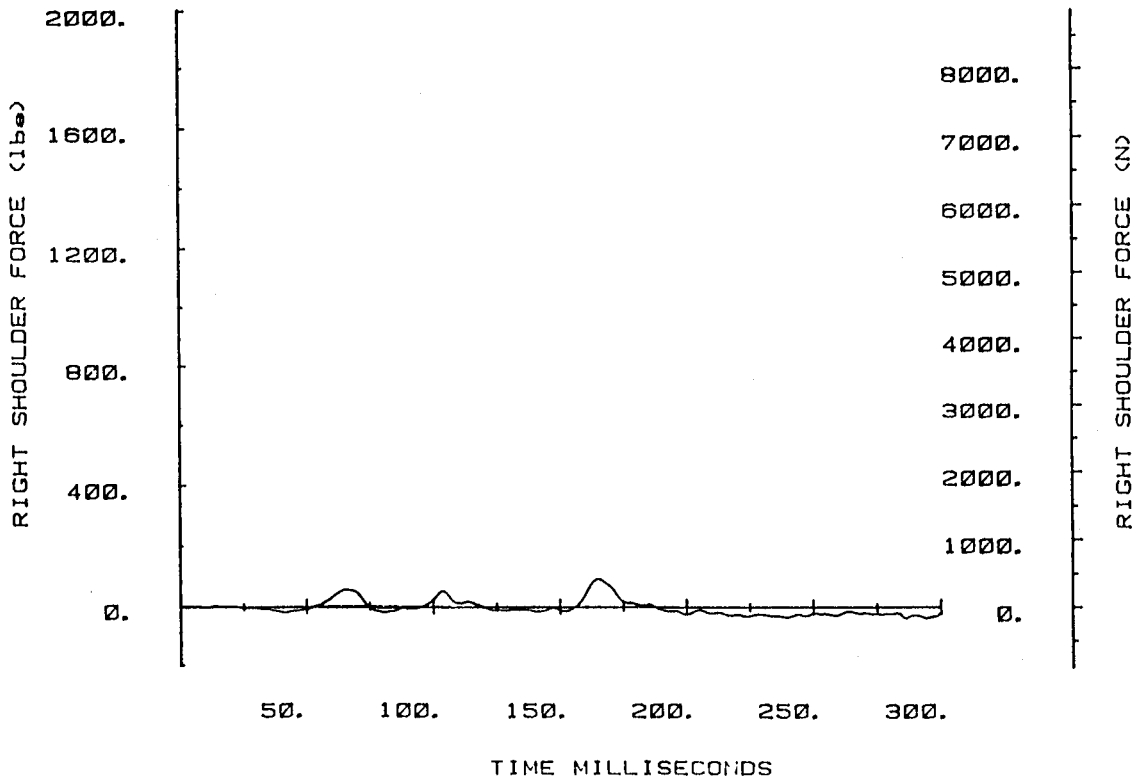
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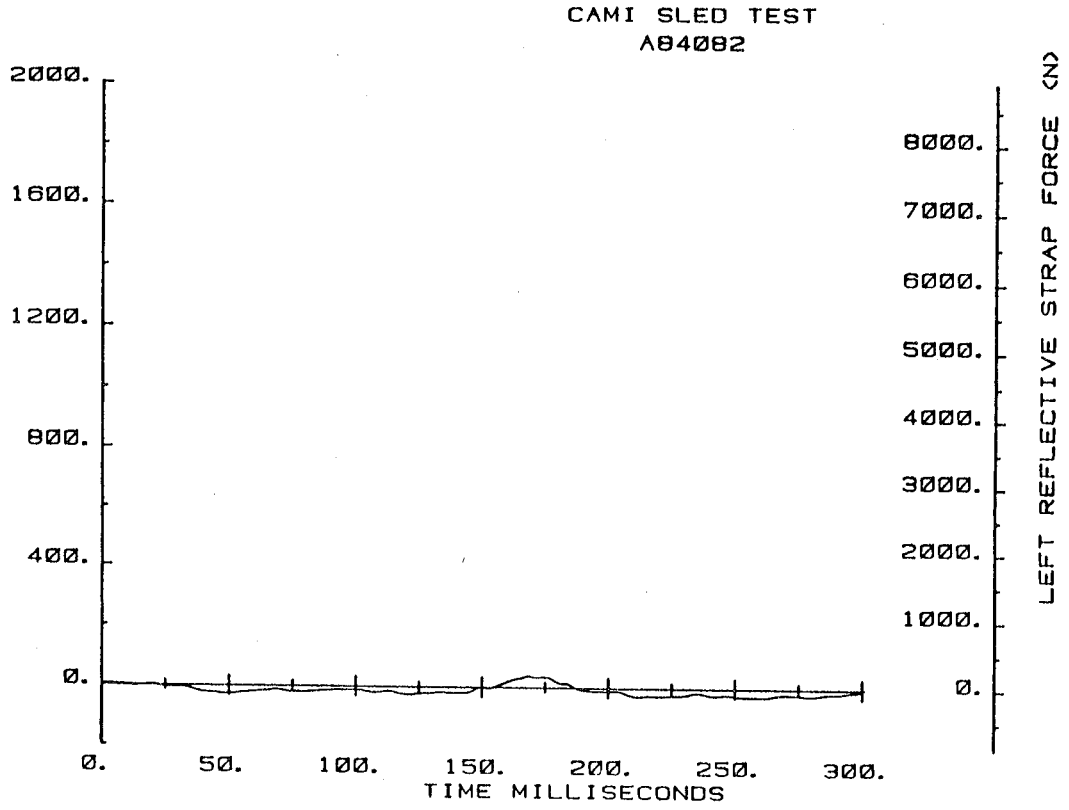
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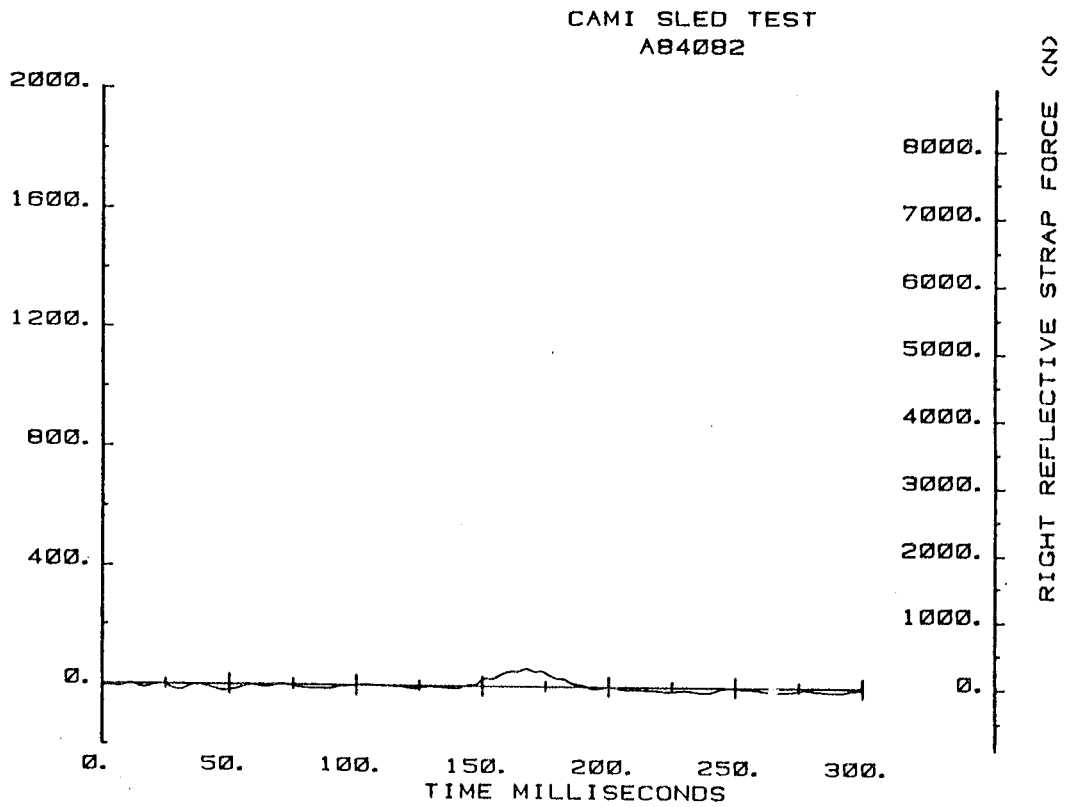
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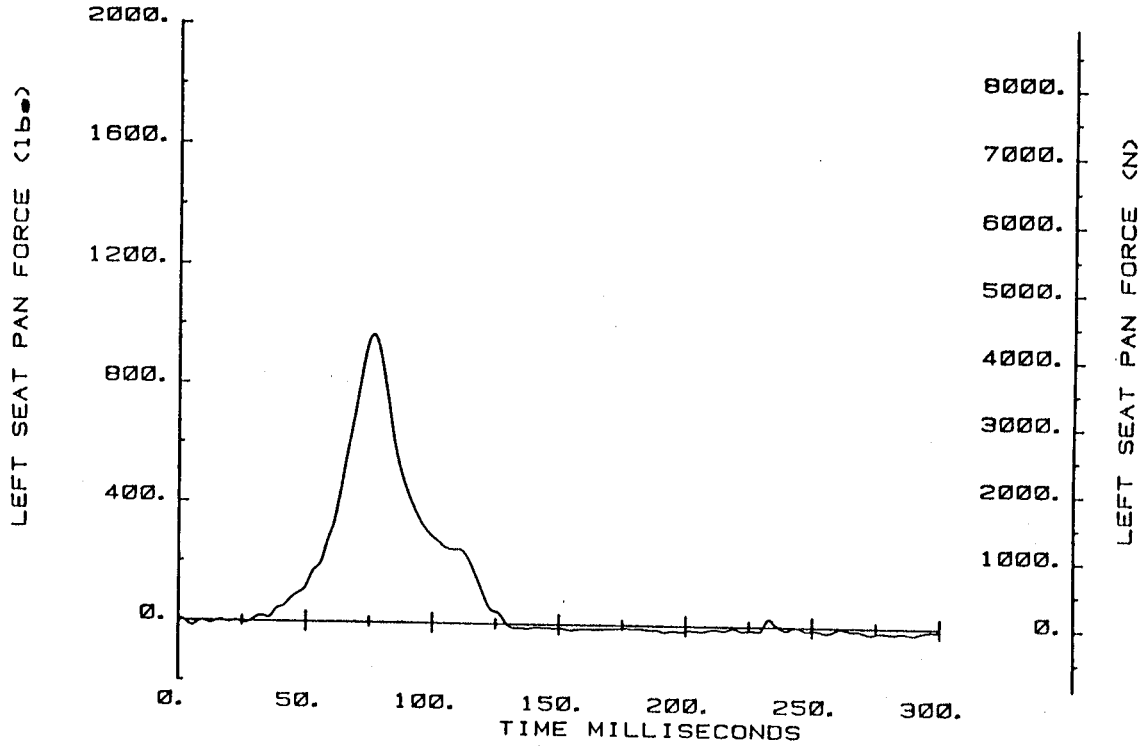
LEFT REFLECTIVE STRAP FORCE (lbf)



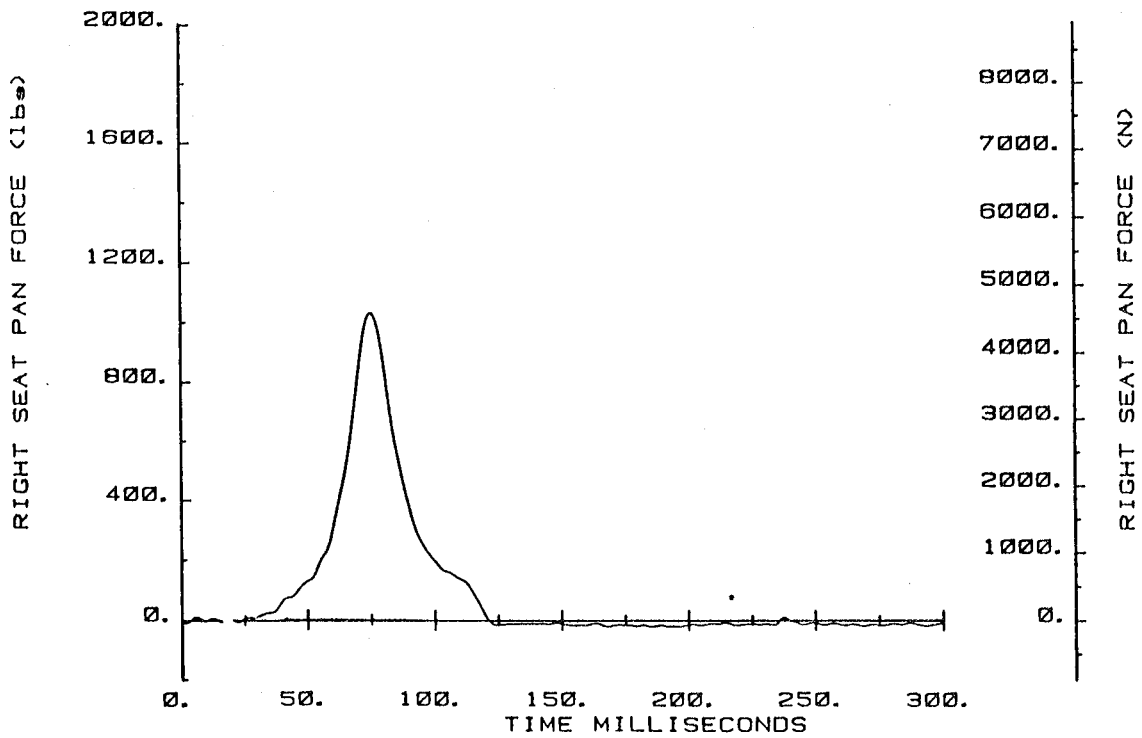
RIGHT REFLECTIVE STRAP FORCE (lbf)



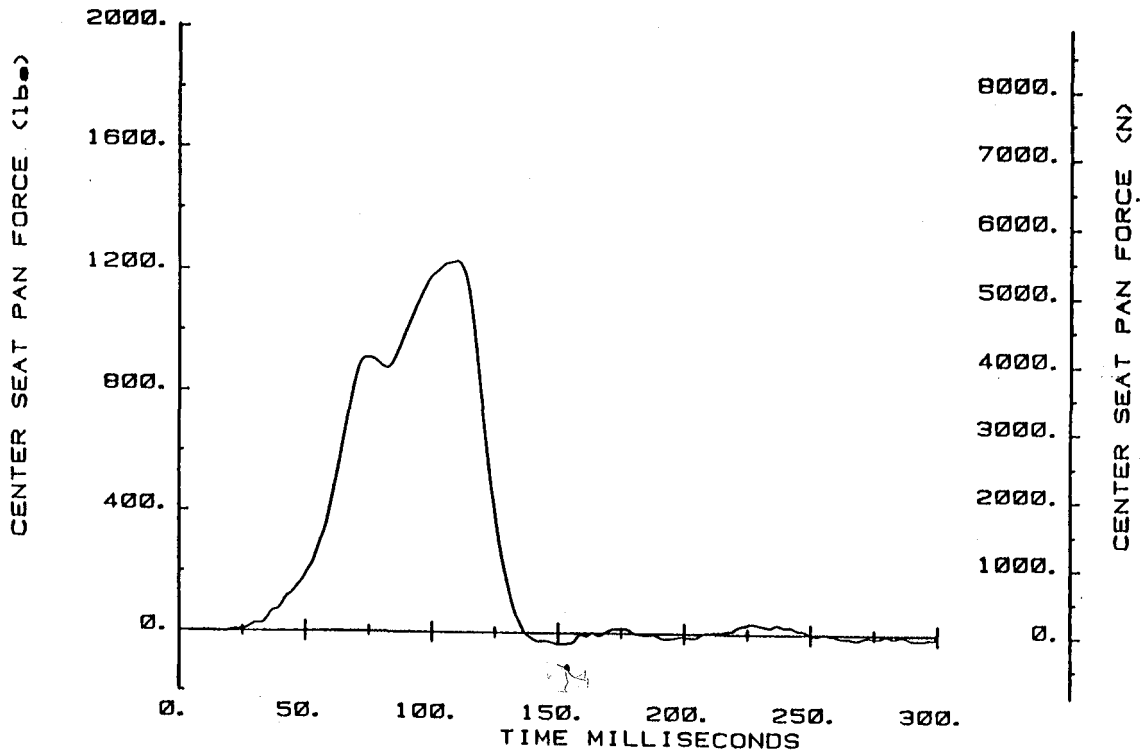
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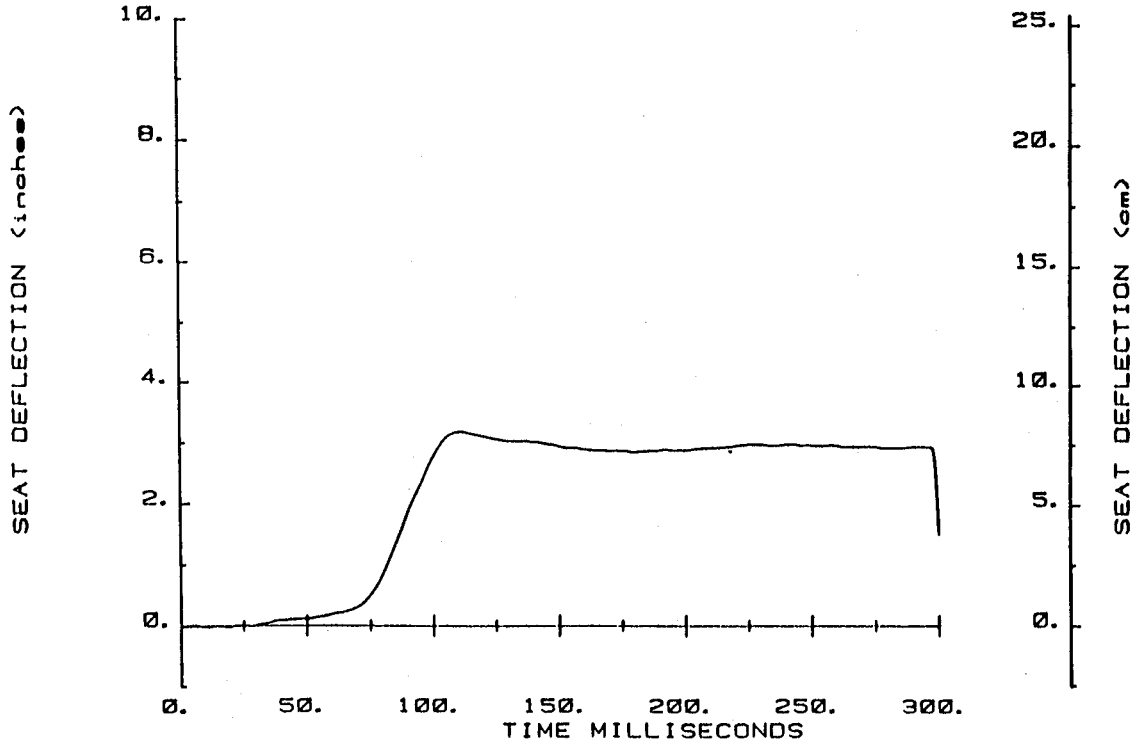
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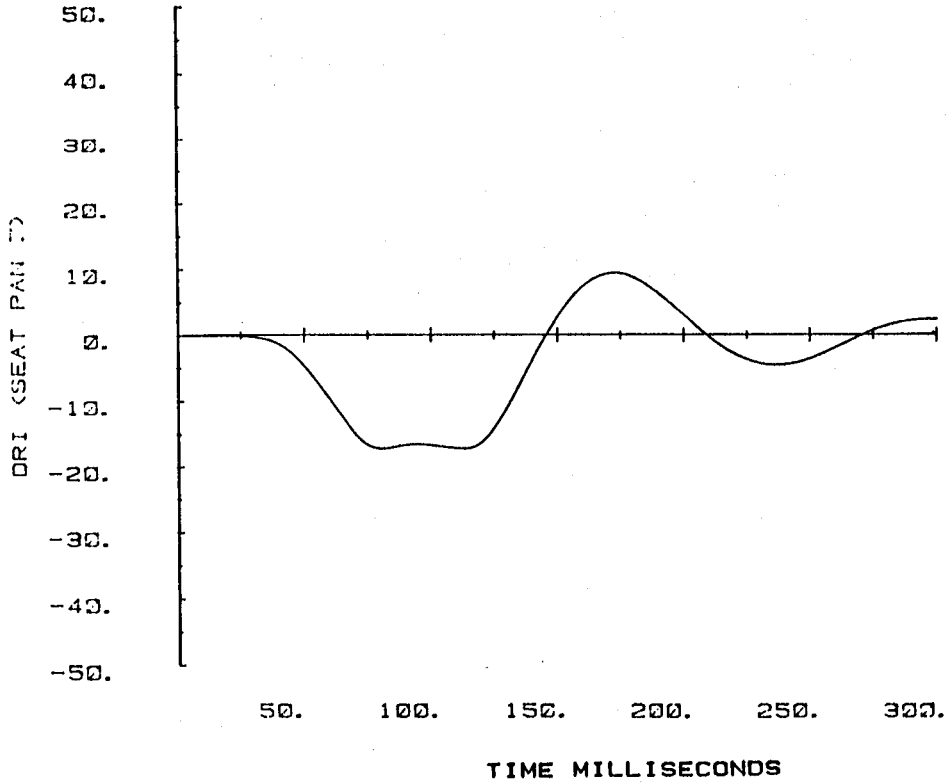
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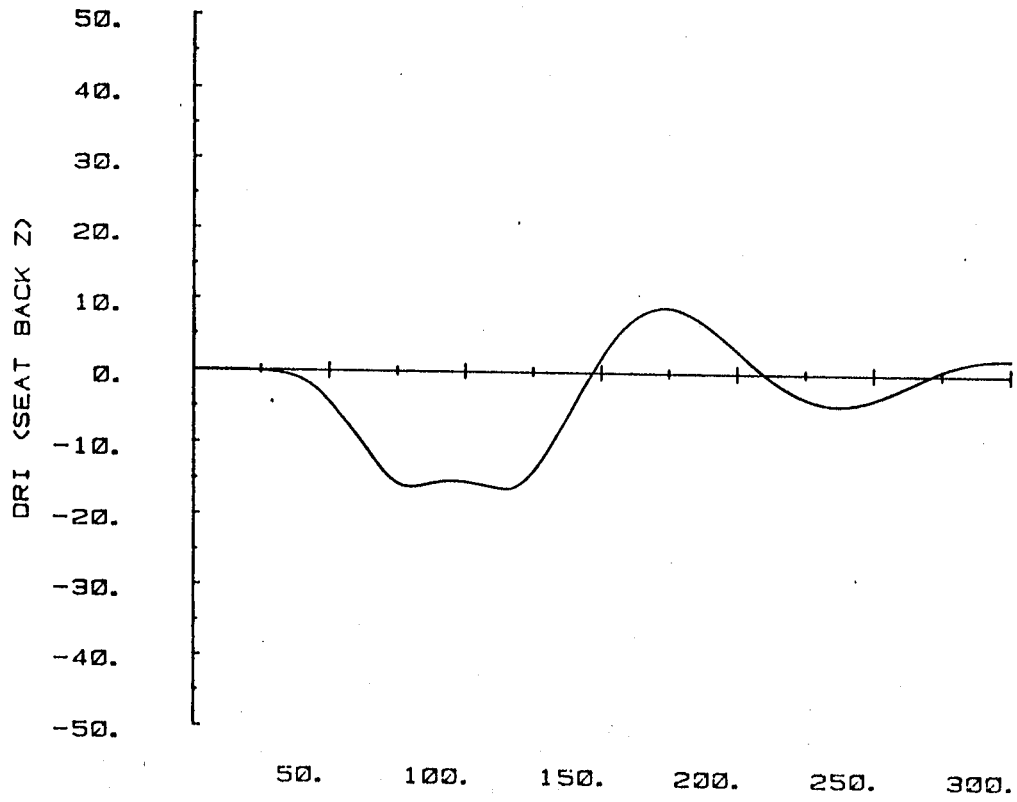


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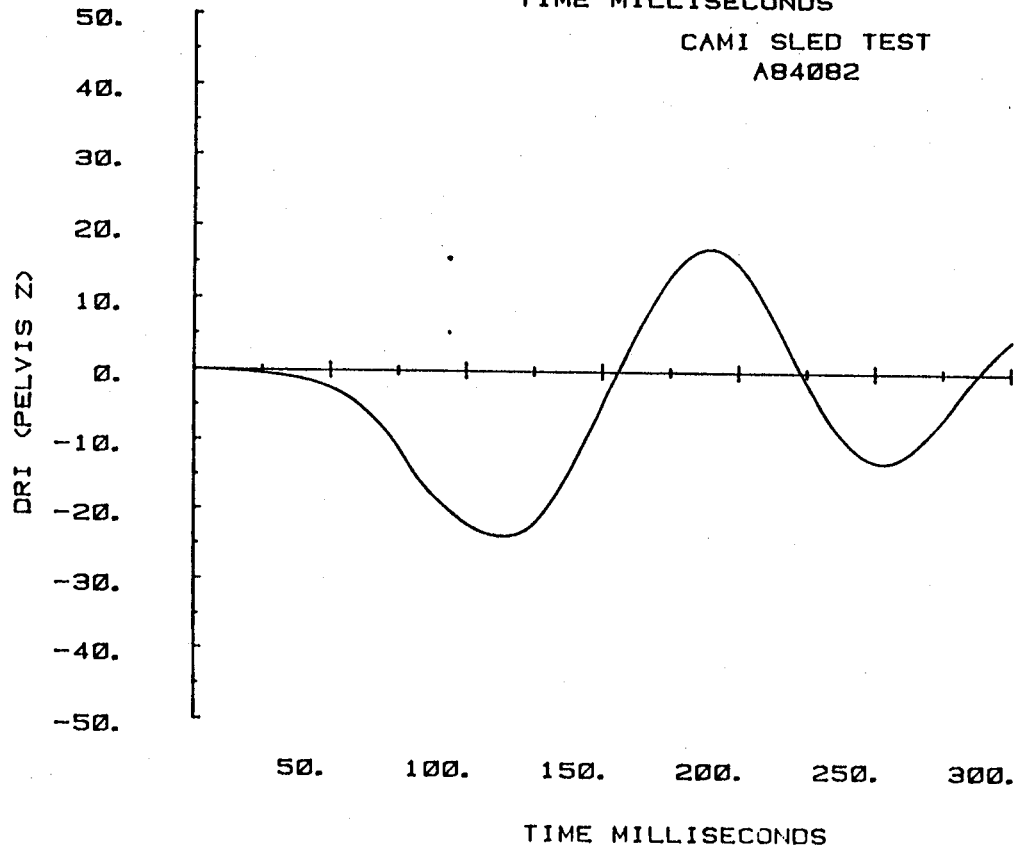


CAMI SLED TEST  
A84082



TIME MILLISECONDS

CAMI SLED TEST  
A84082



14.0 CAMI TEST NO. A84-83

SEAT: Energy Absorbing

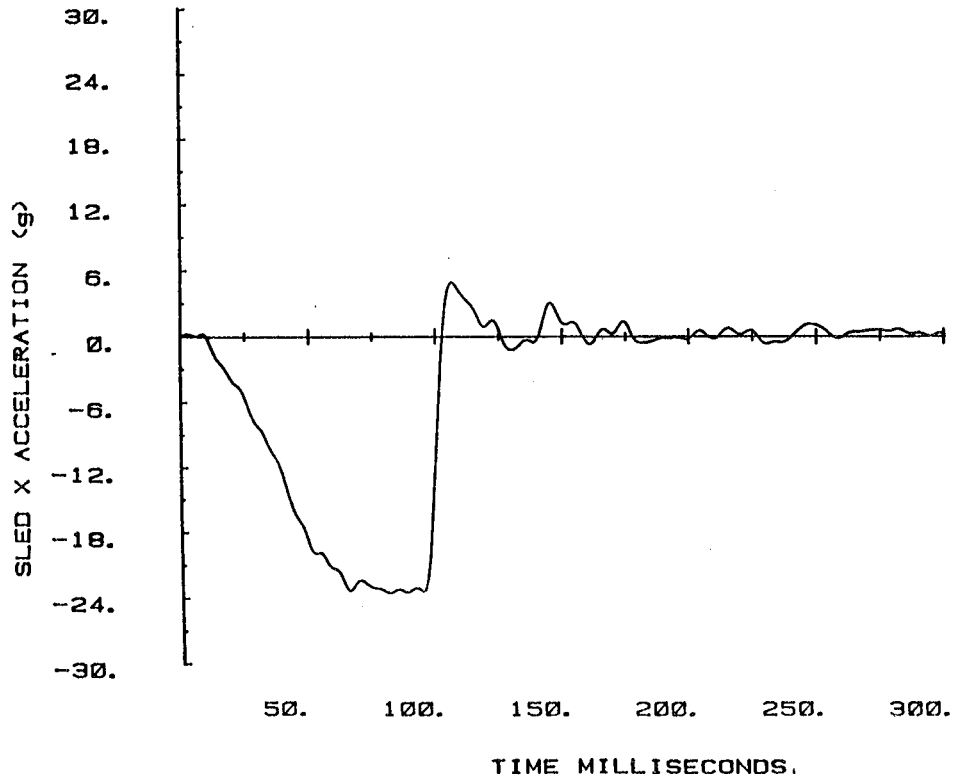
PULSE NUMBER: 4

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

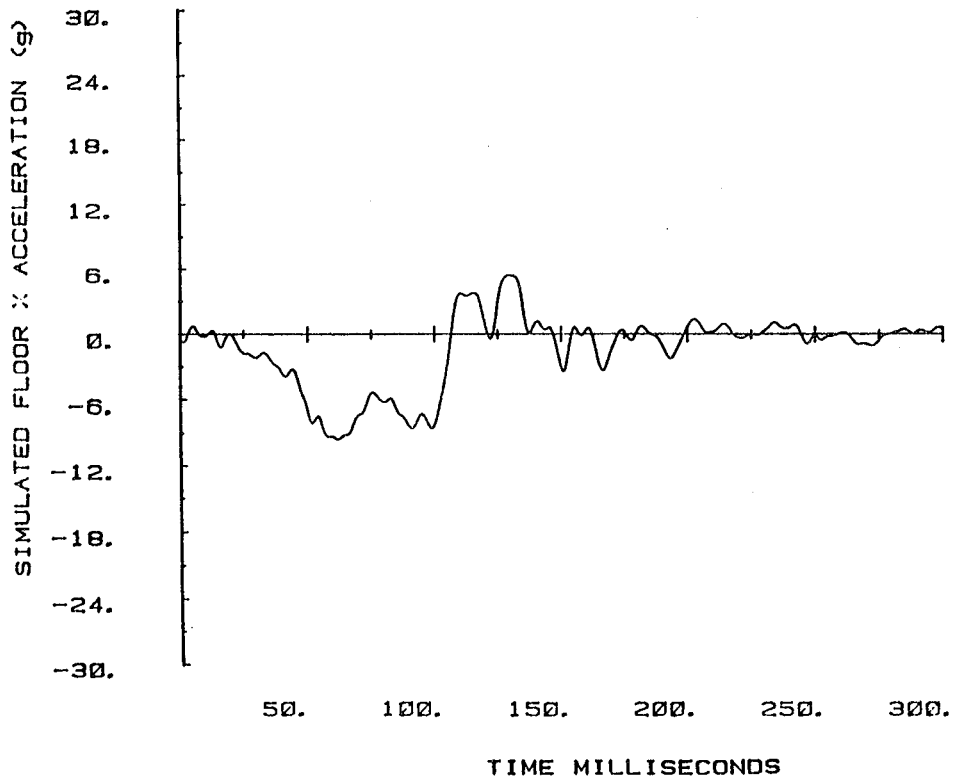
PEAK LOADS

| 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 |         |     |                    |      |

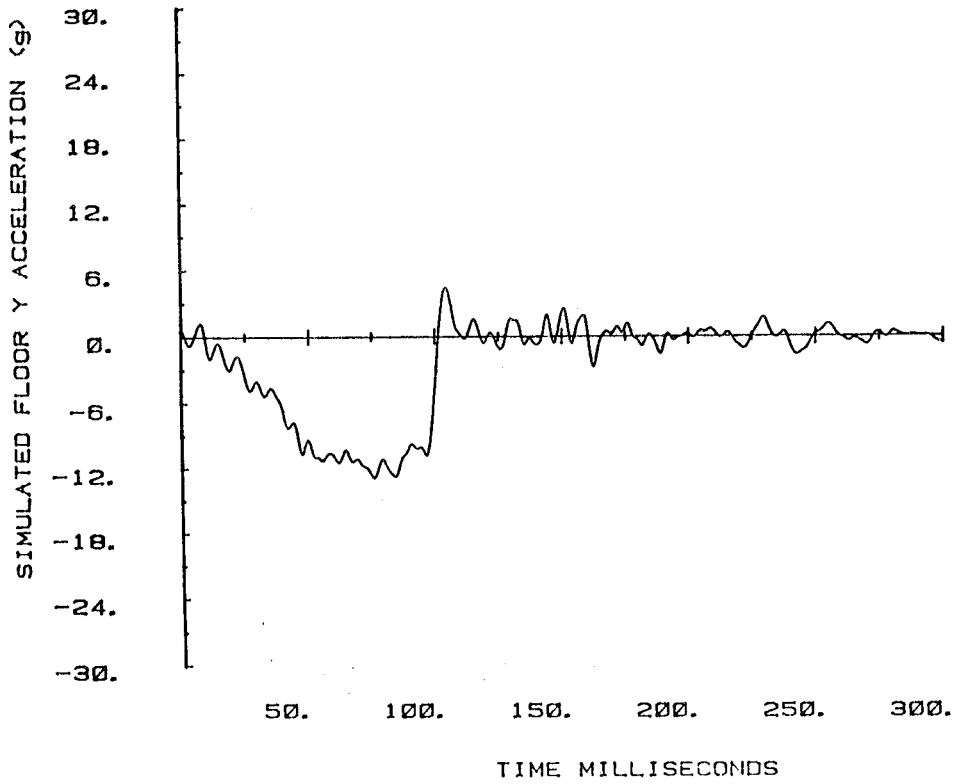
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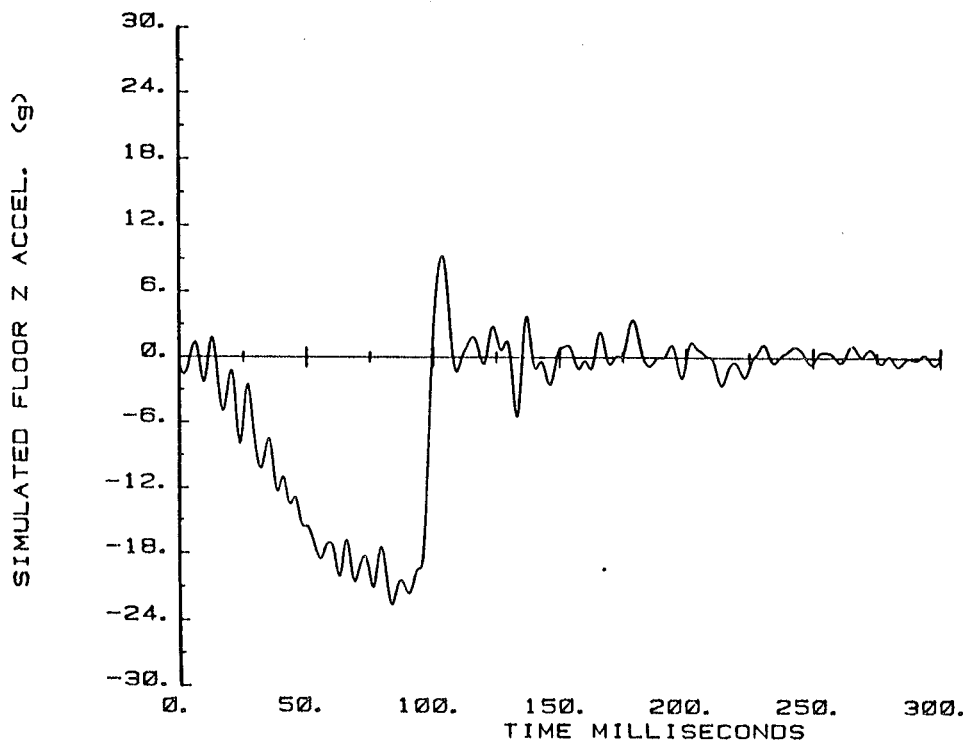
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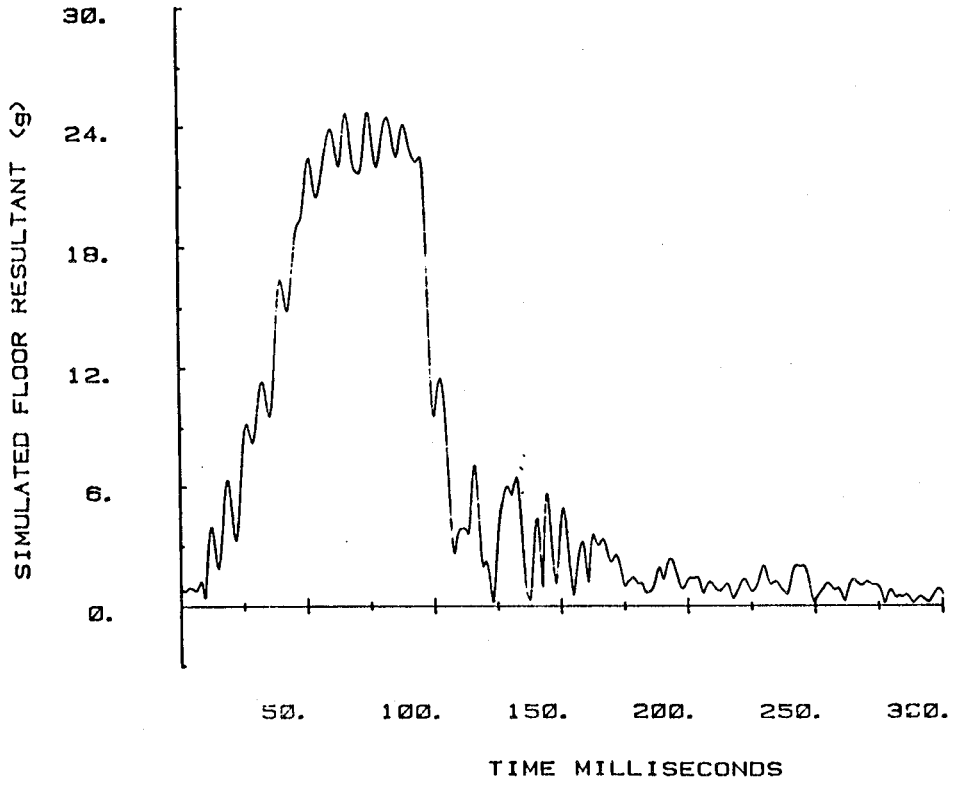
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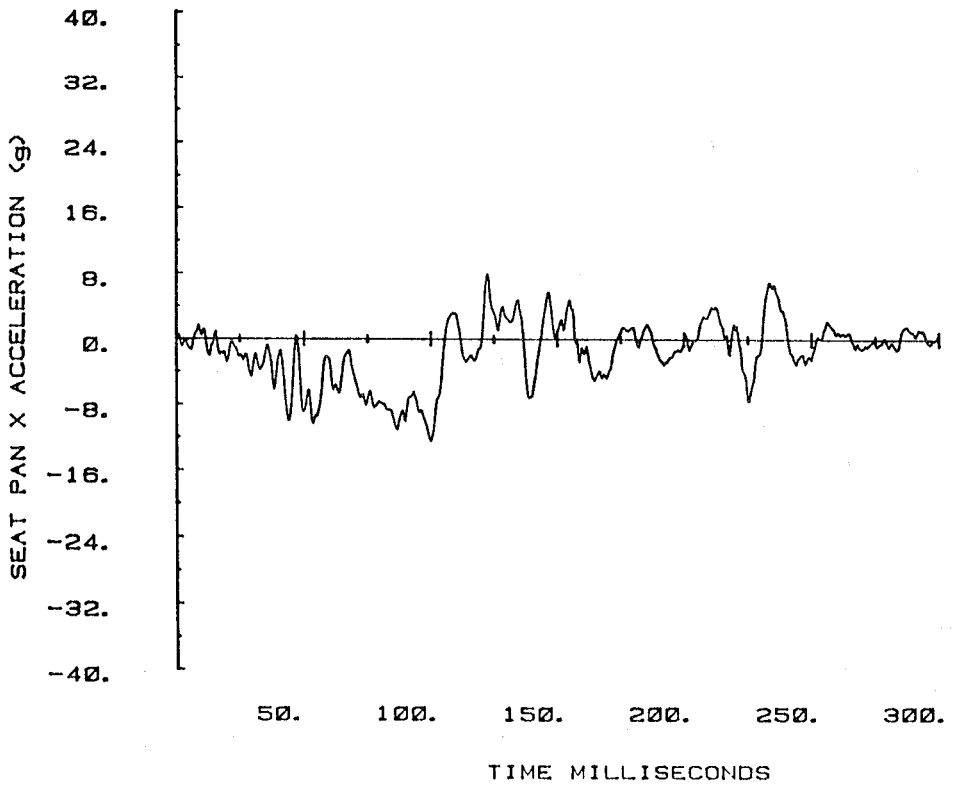
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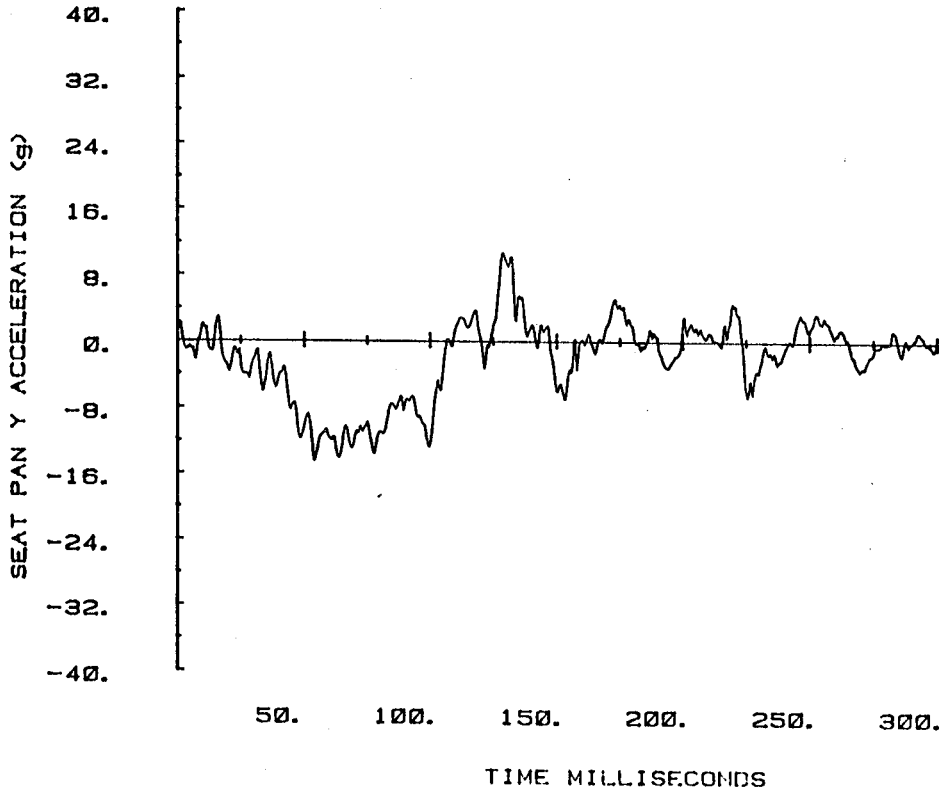
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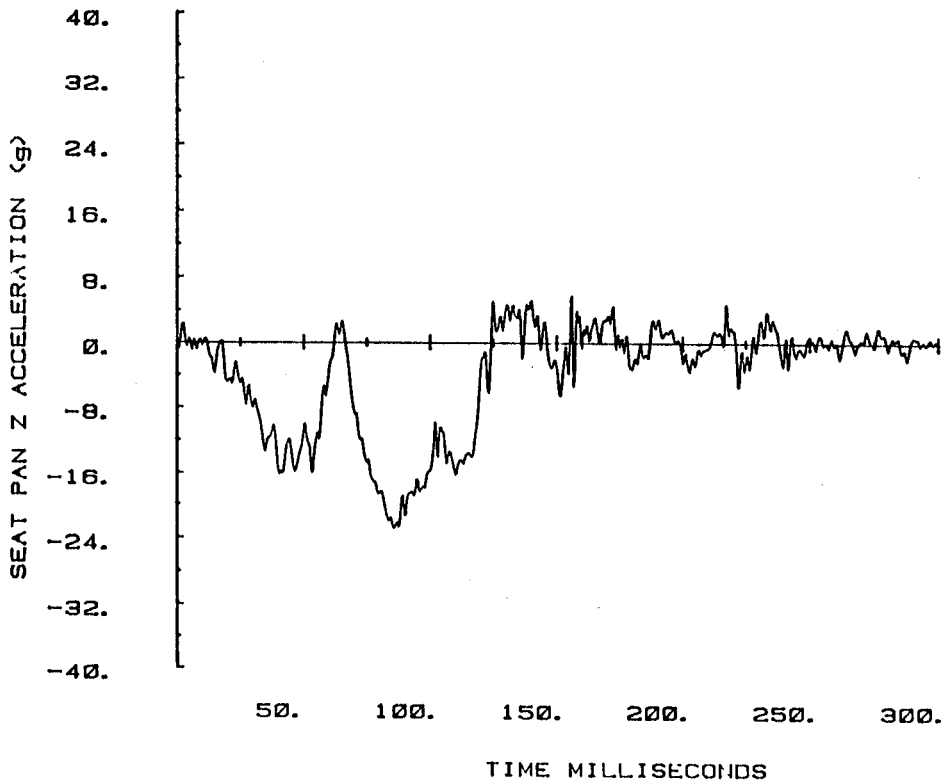
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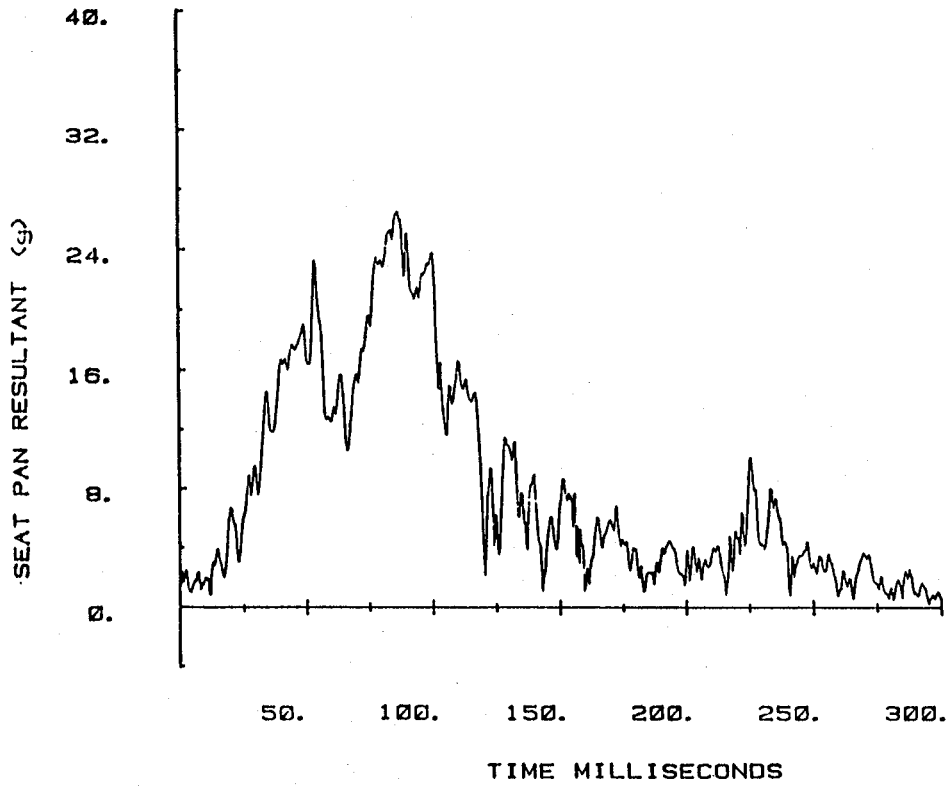
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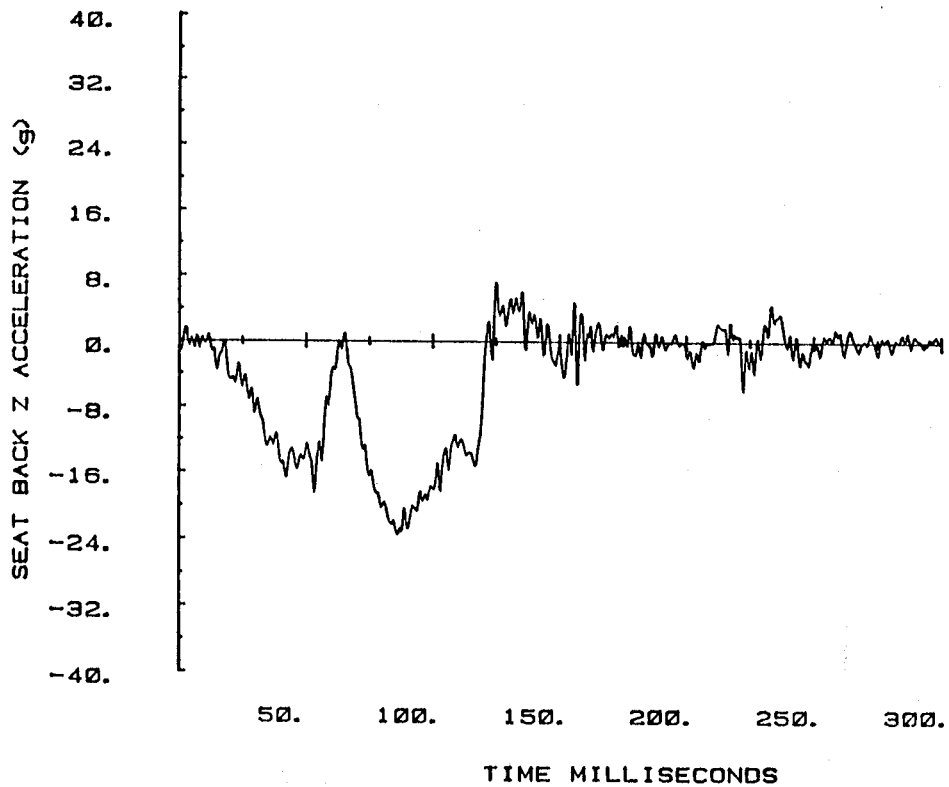
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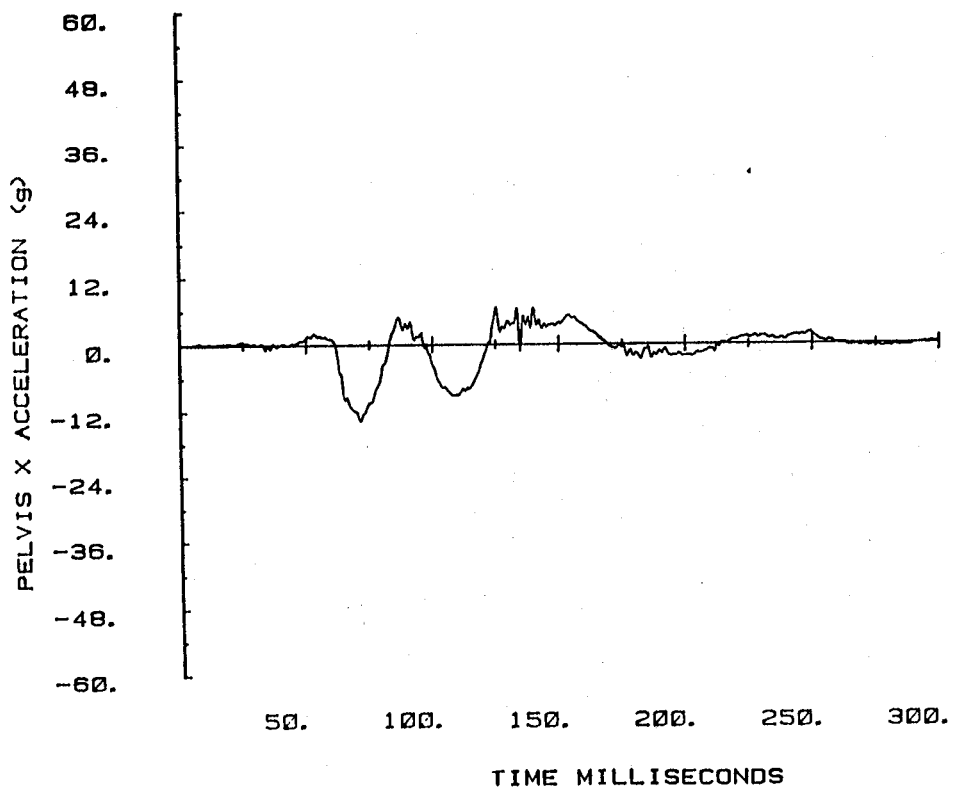


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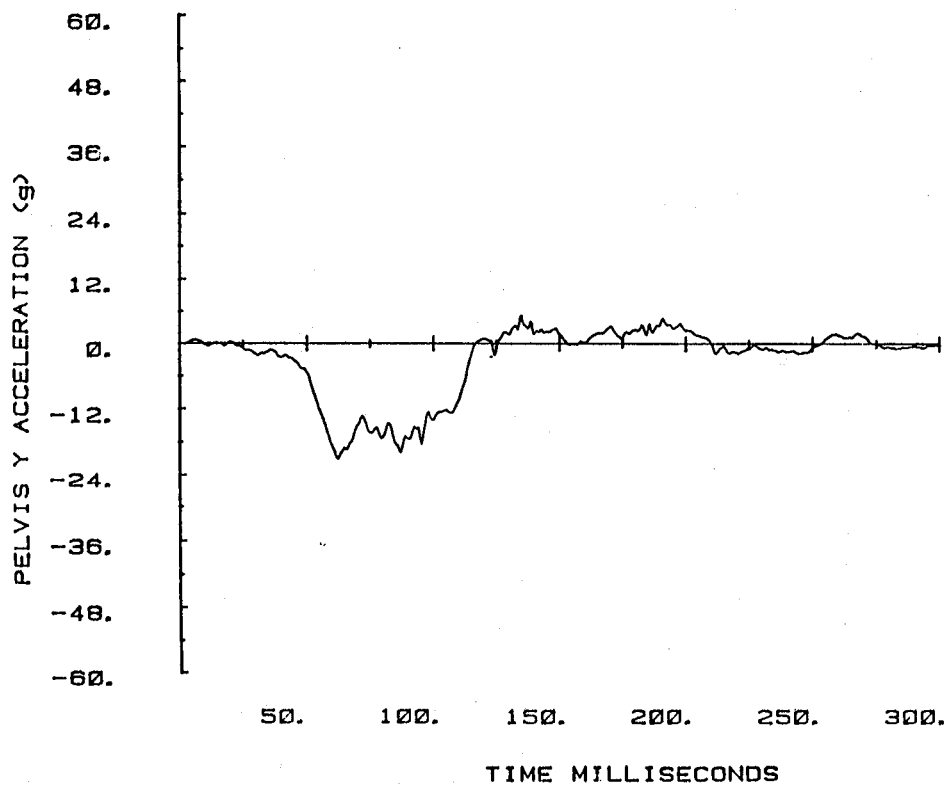




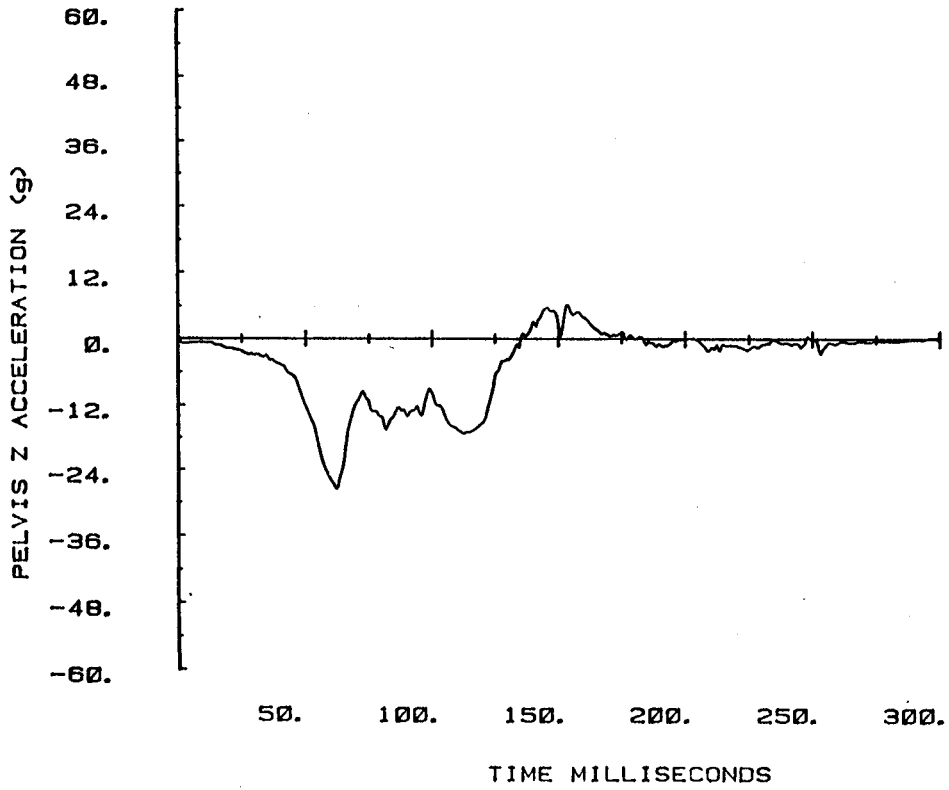
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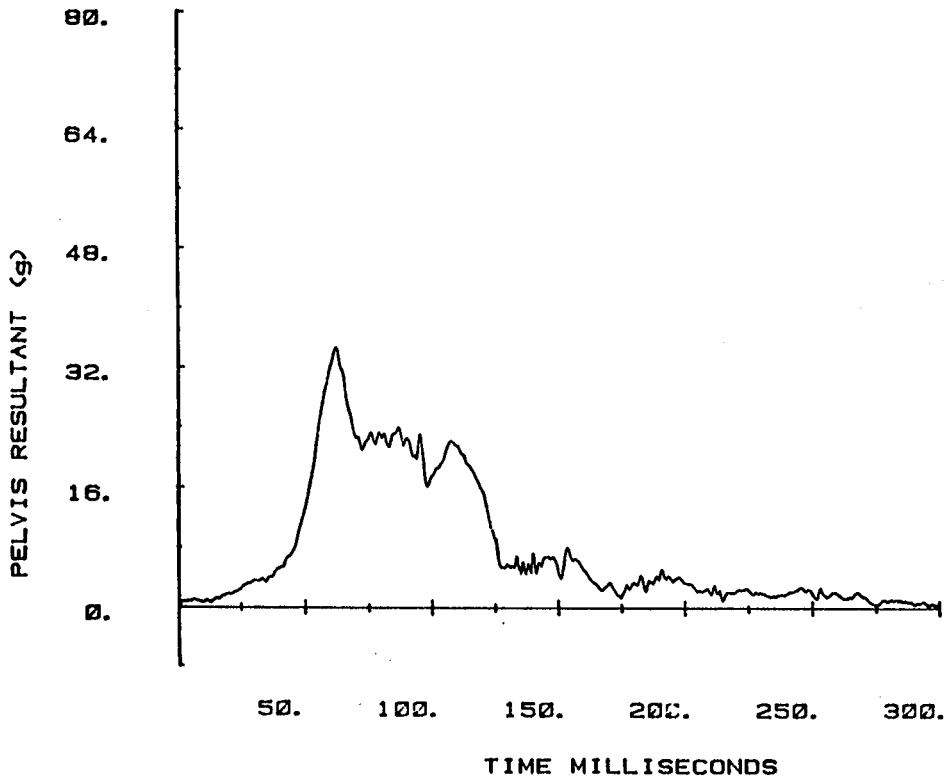
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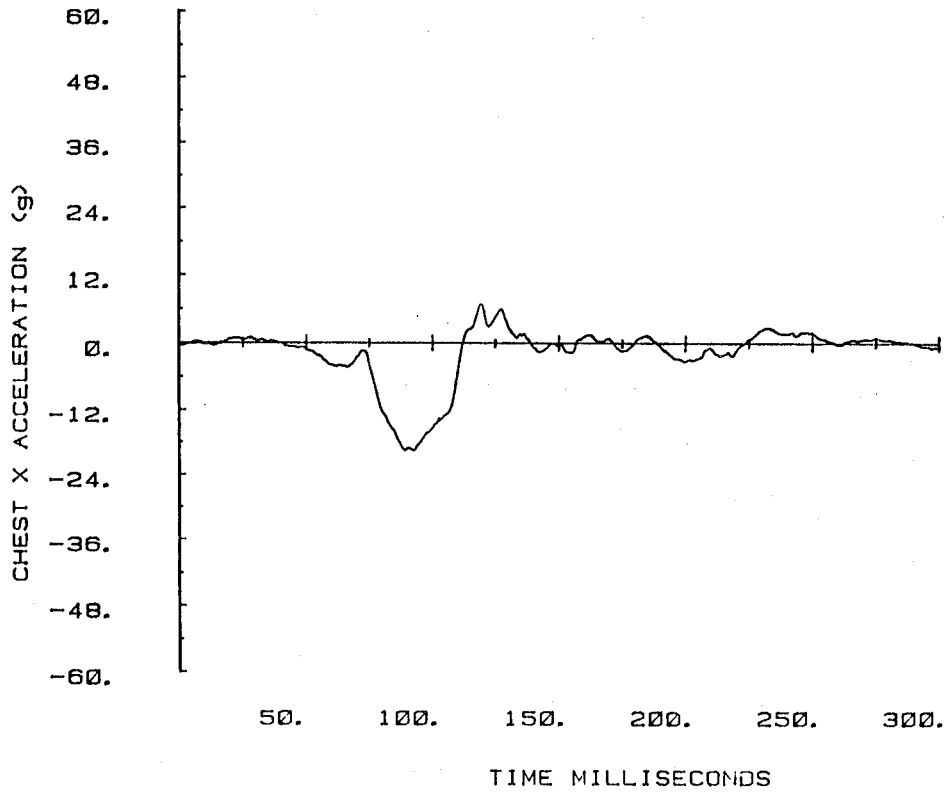
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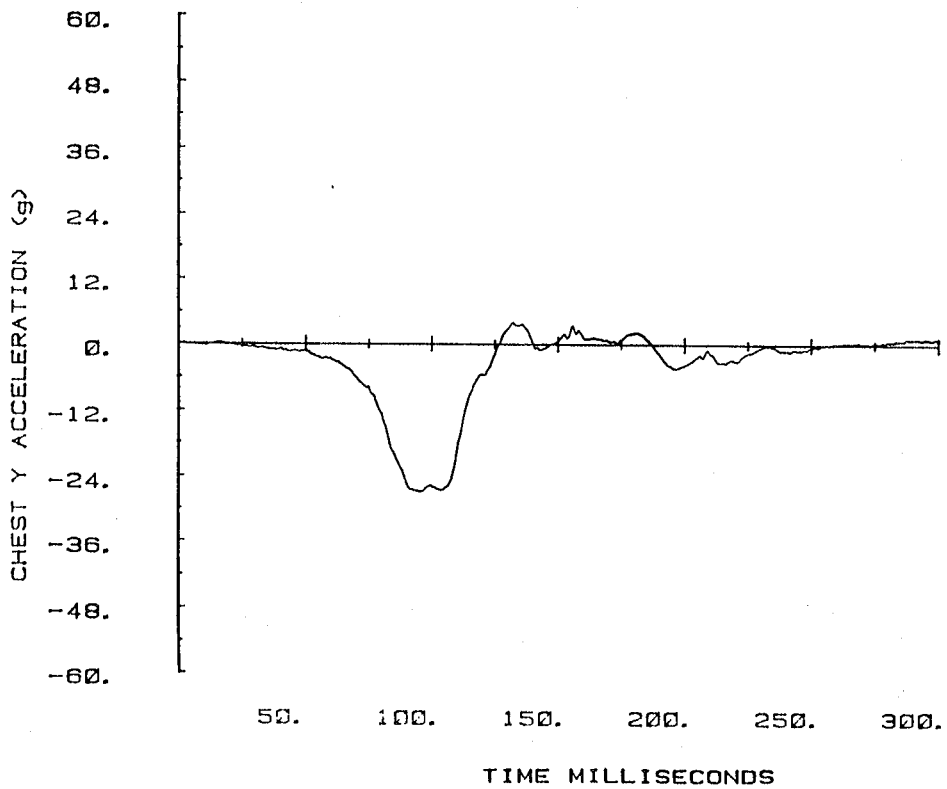
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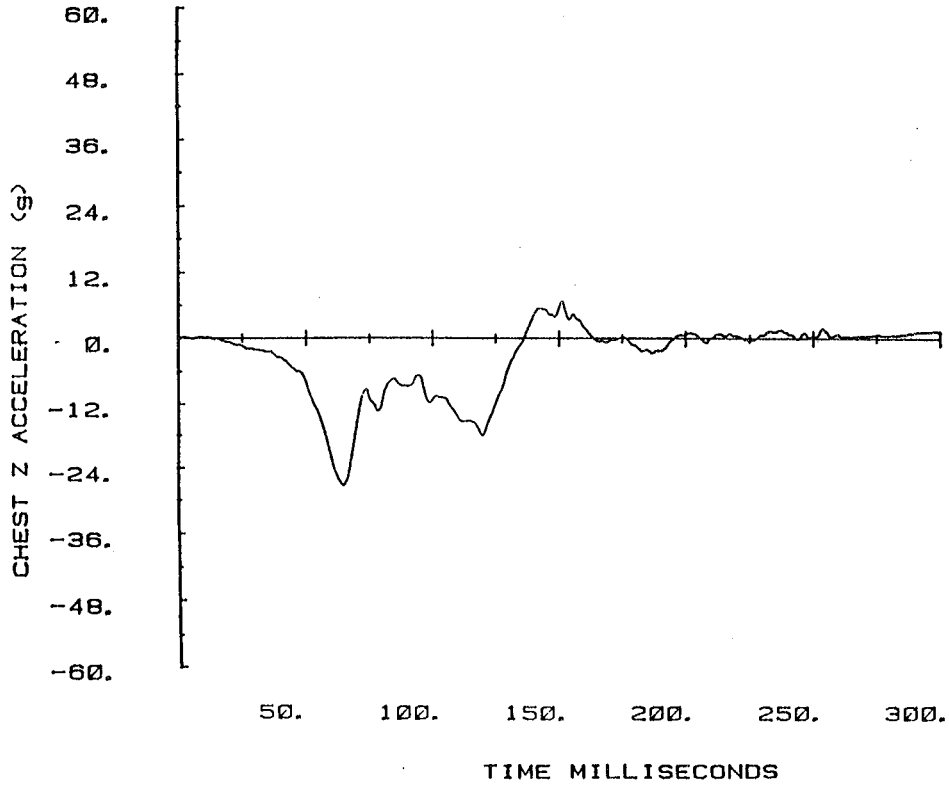
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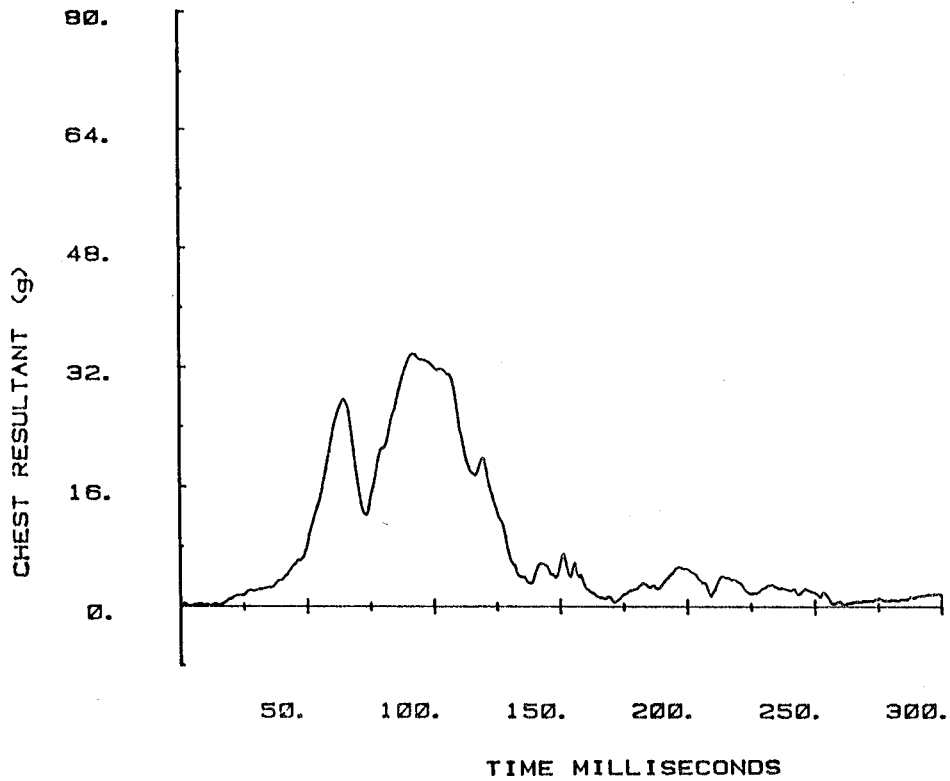
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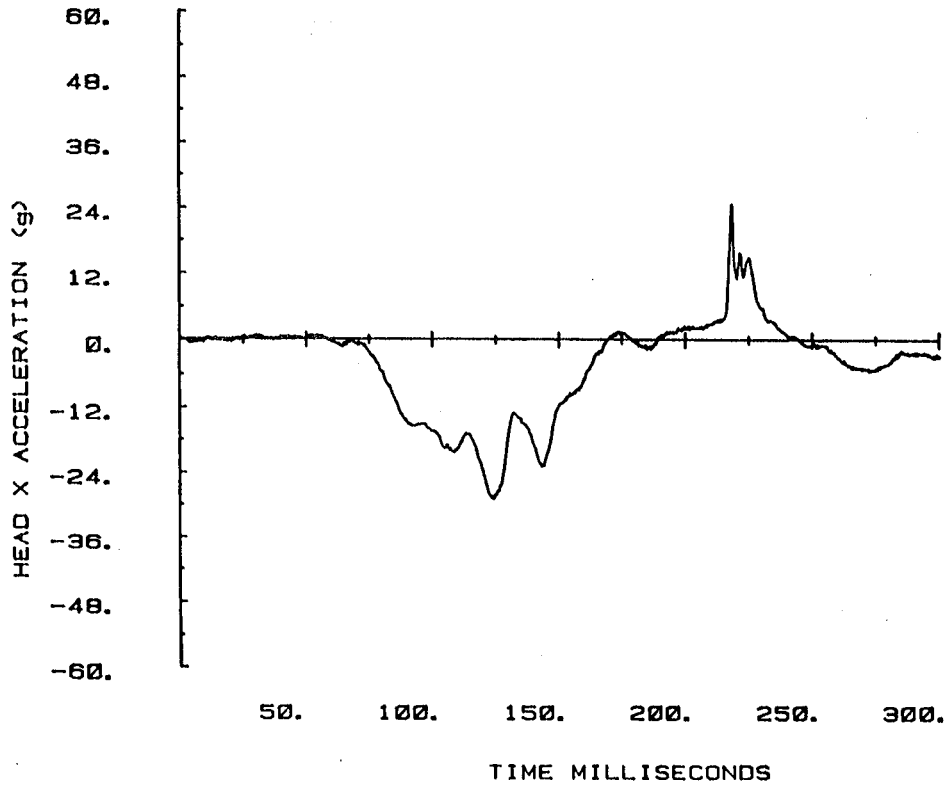
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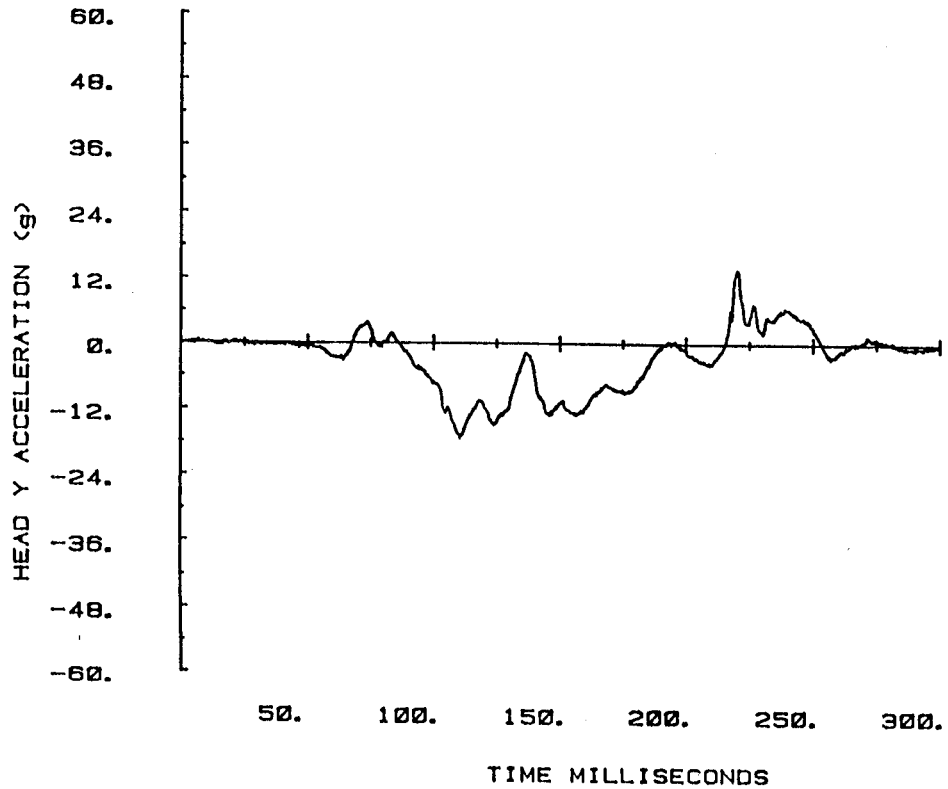
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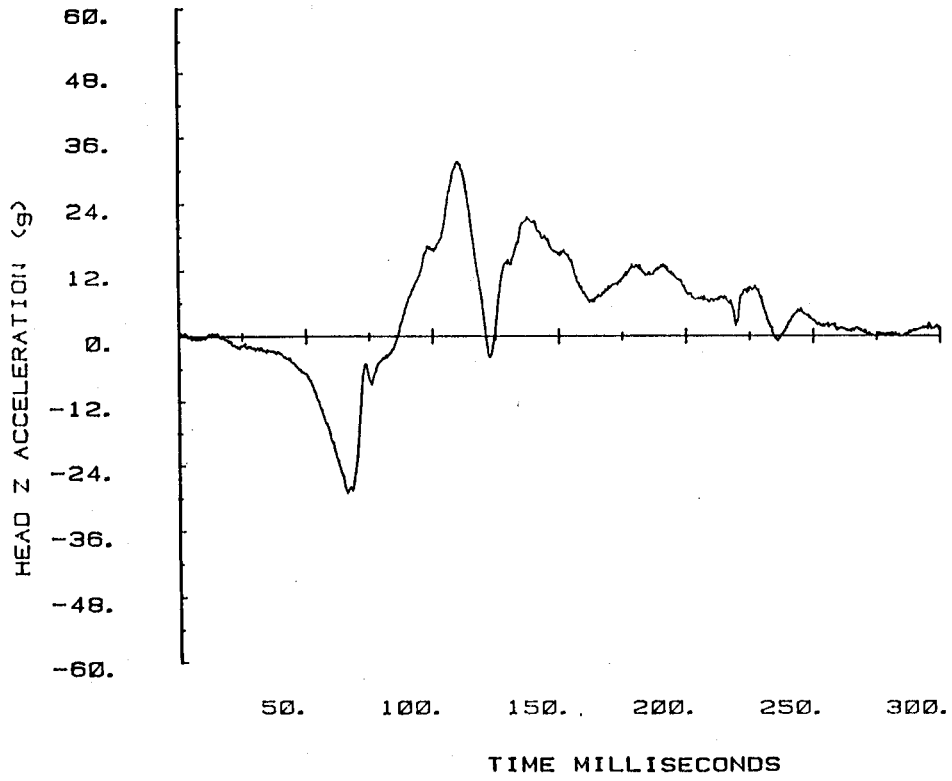
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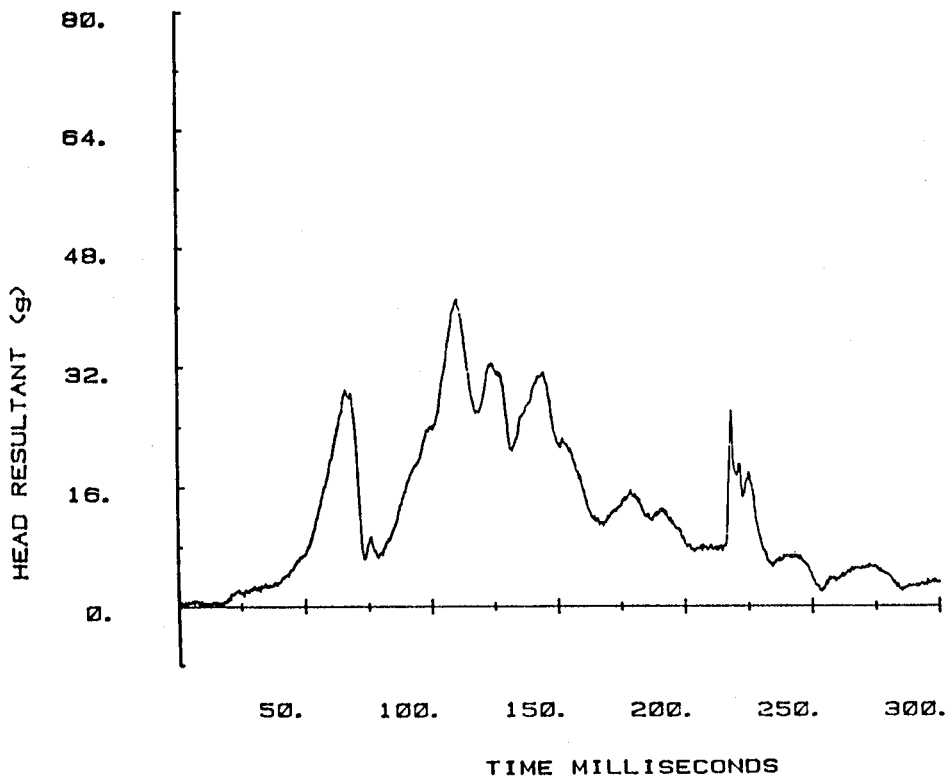
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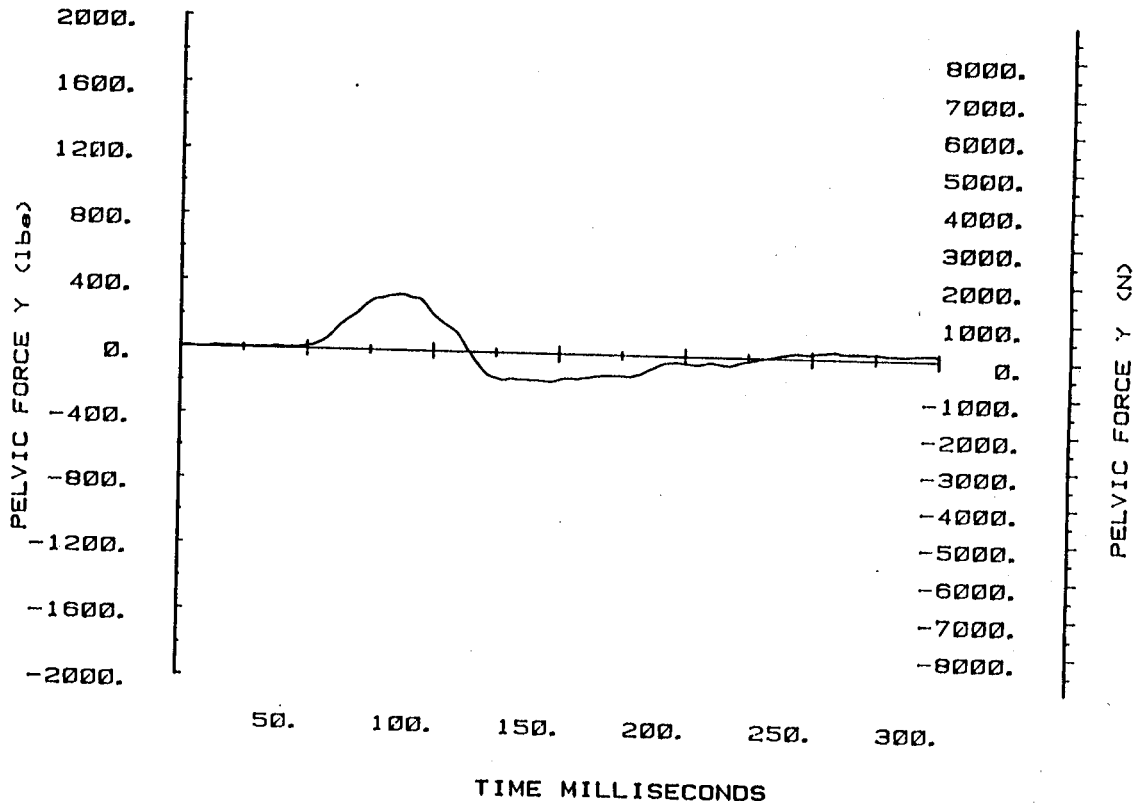
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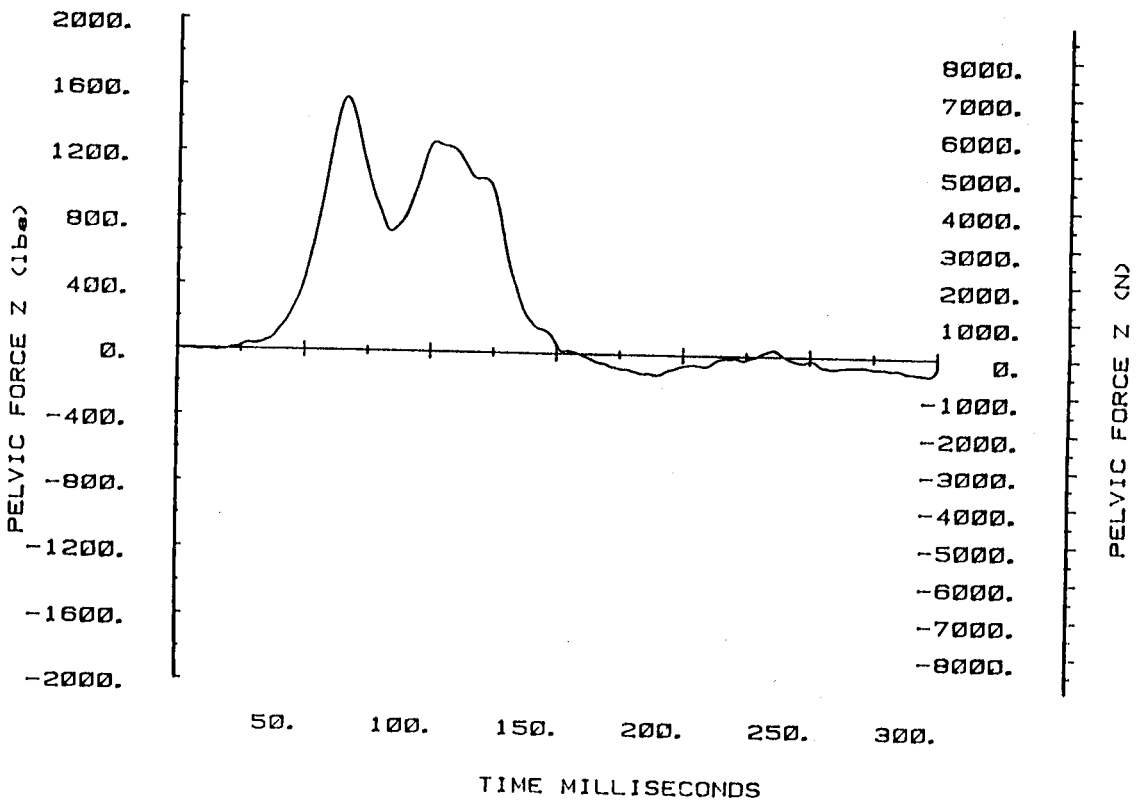
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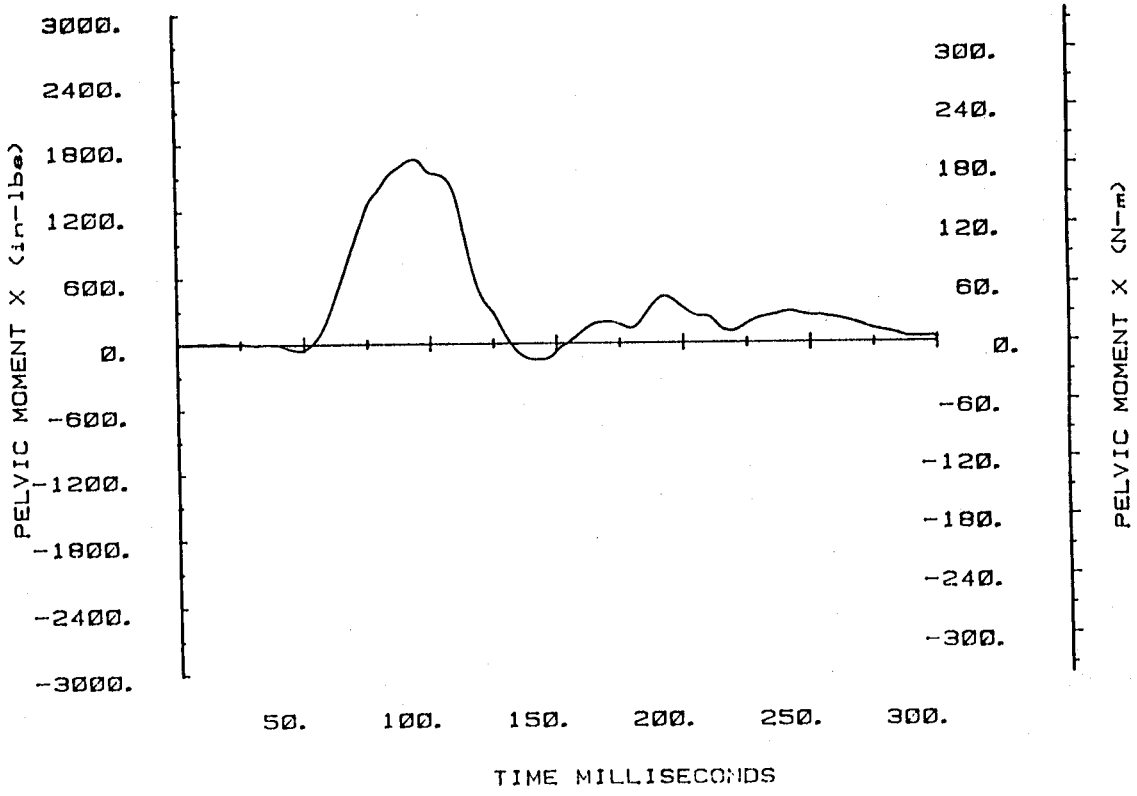
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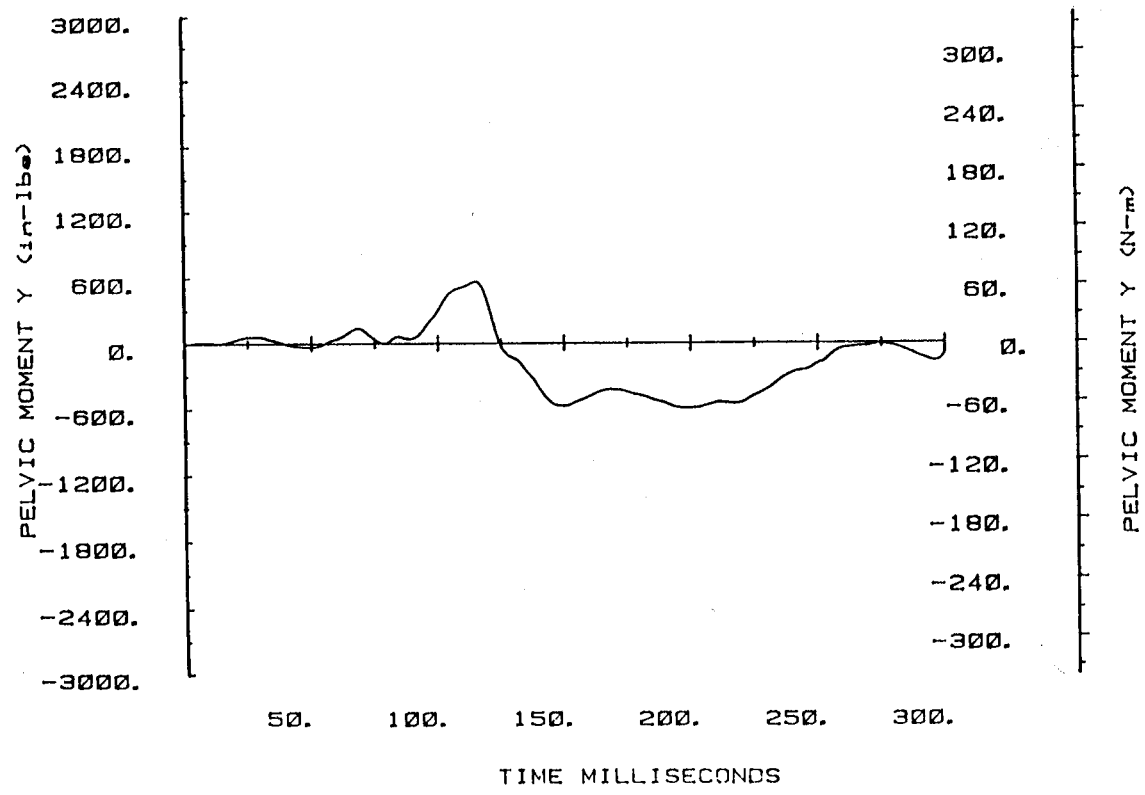
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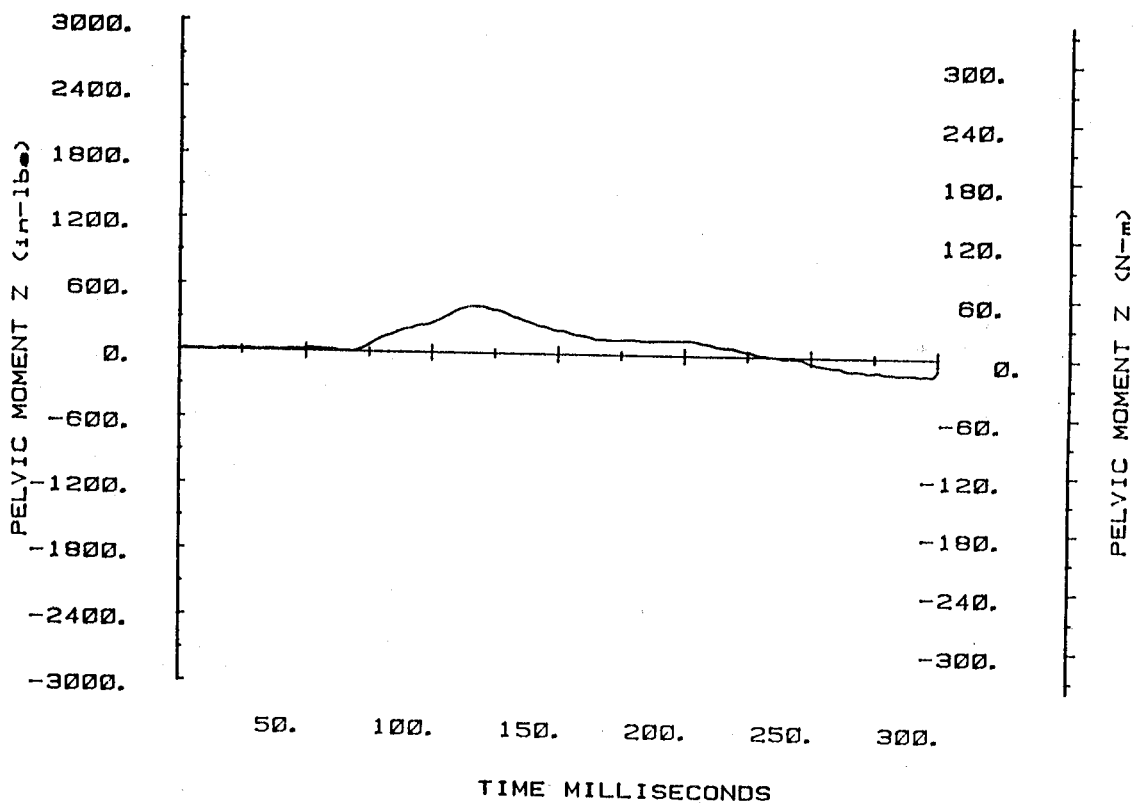


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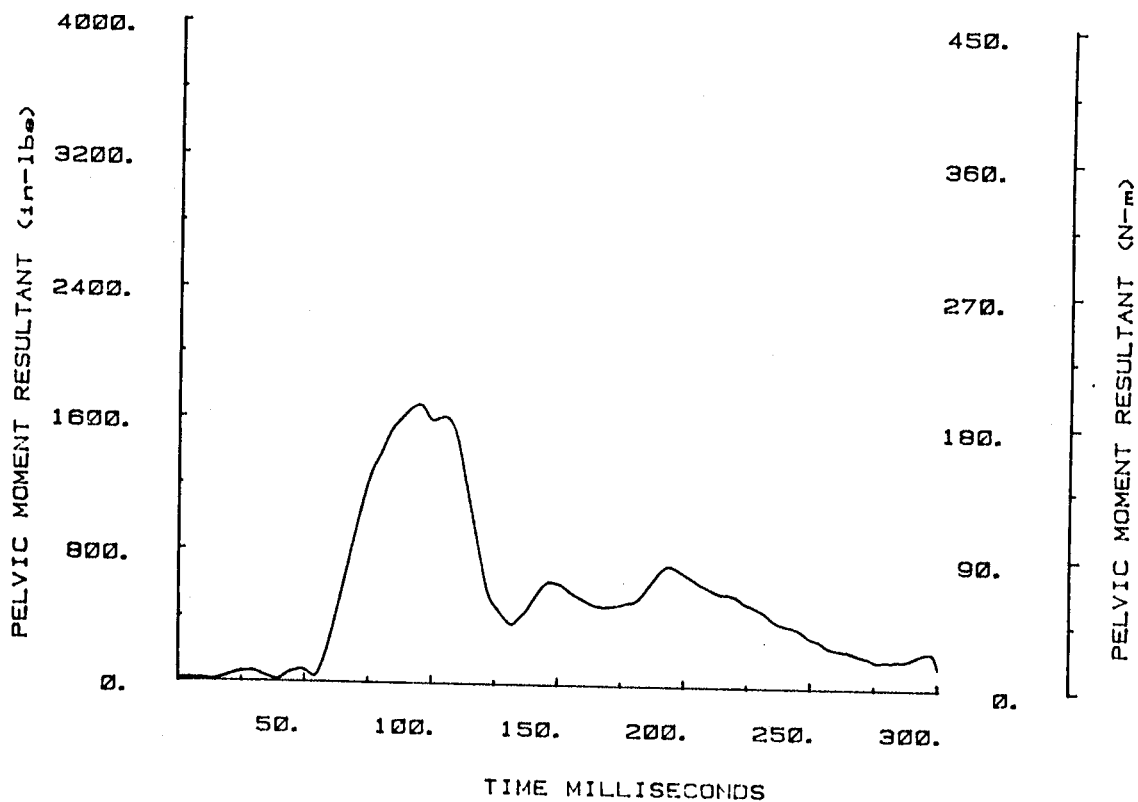




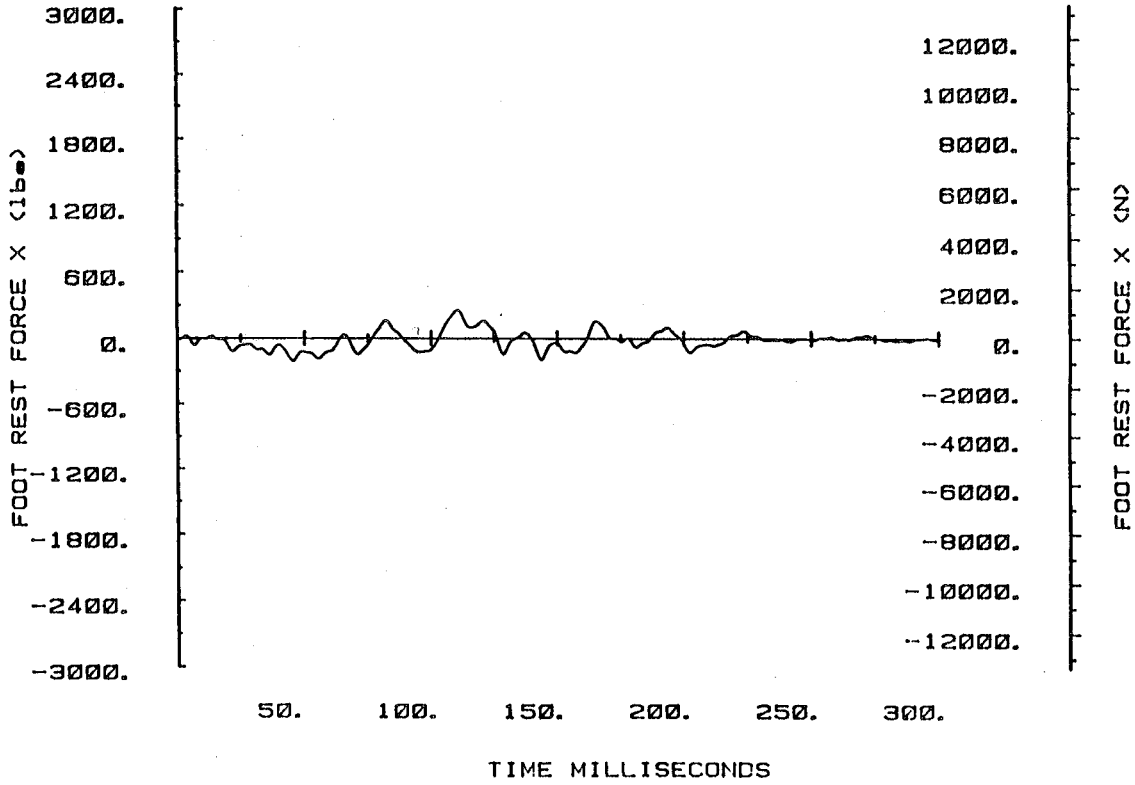
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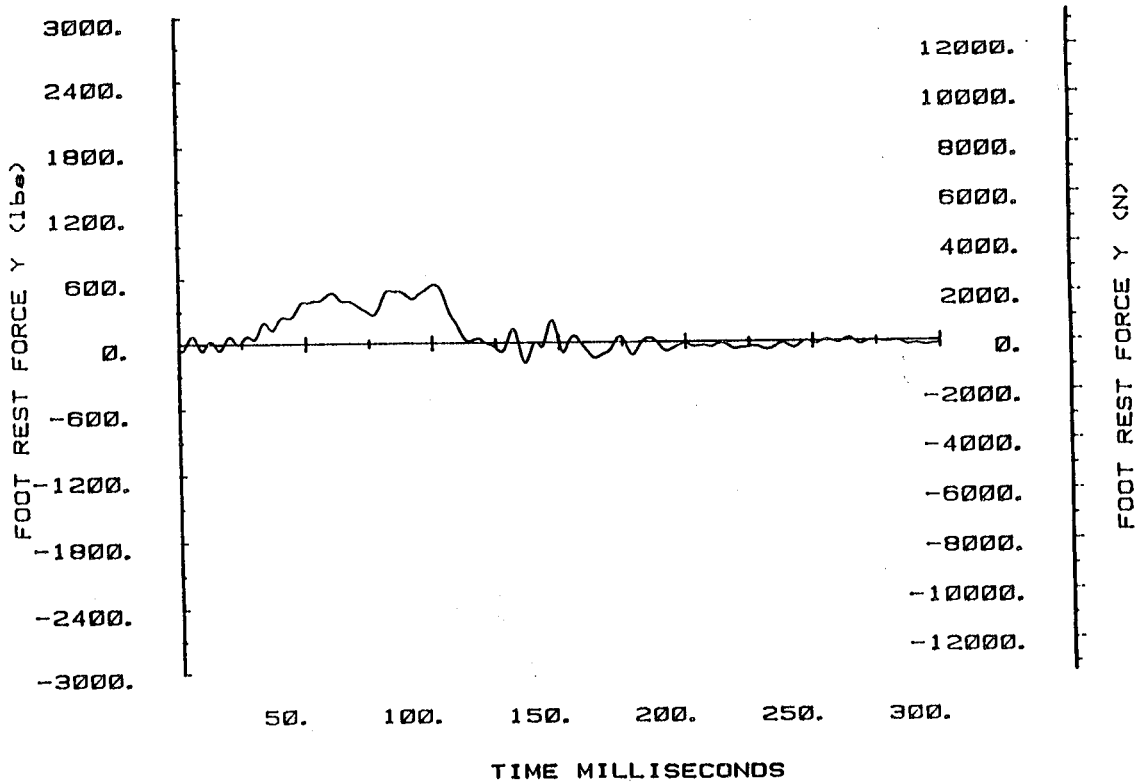
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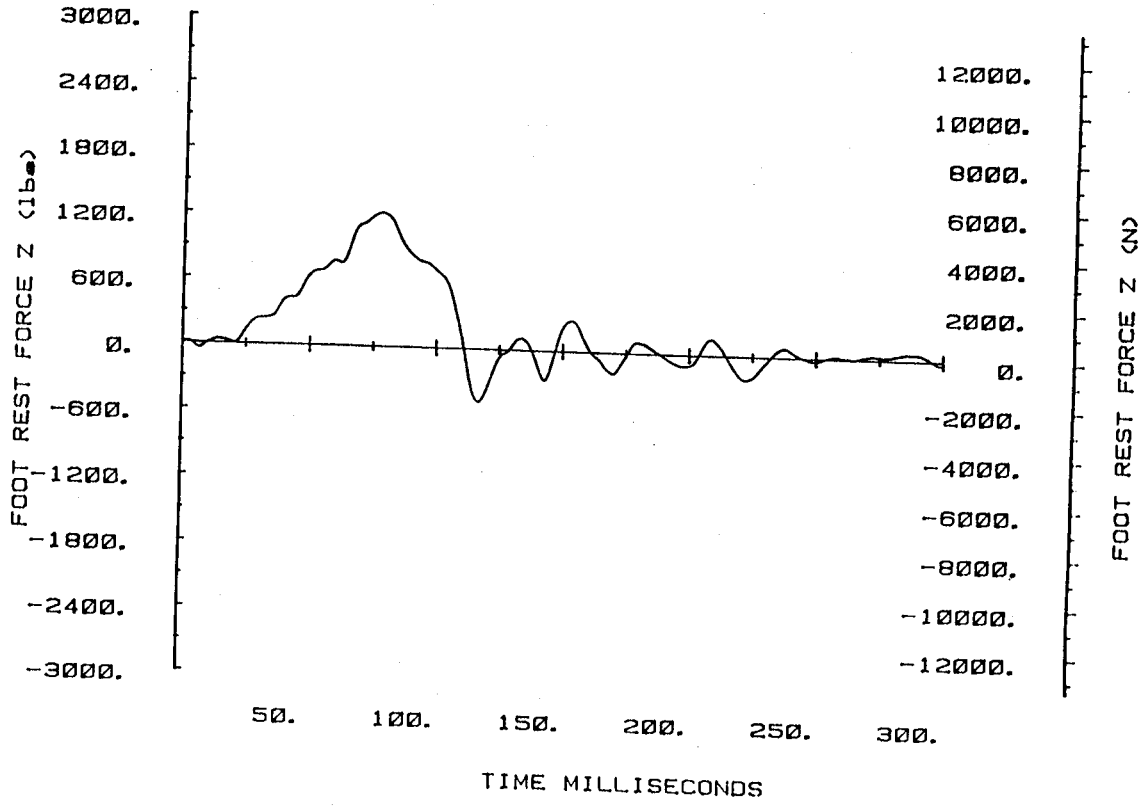
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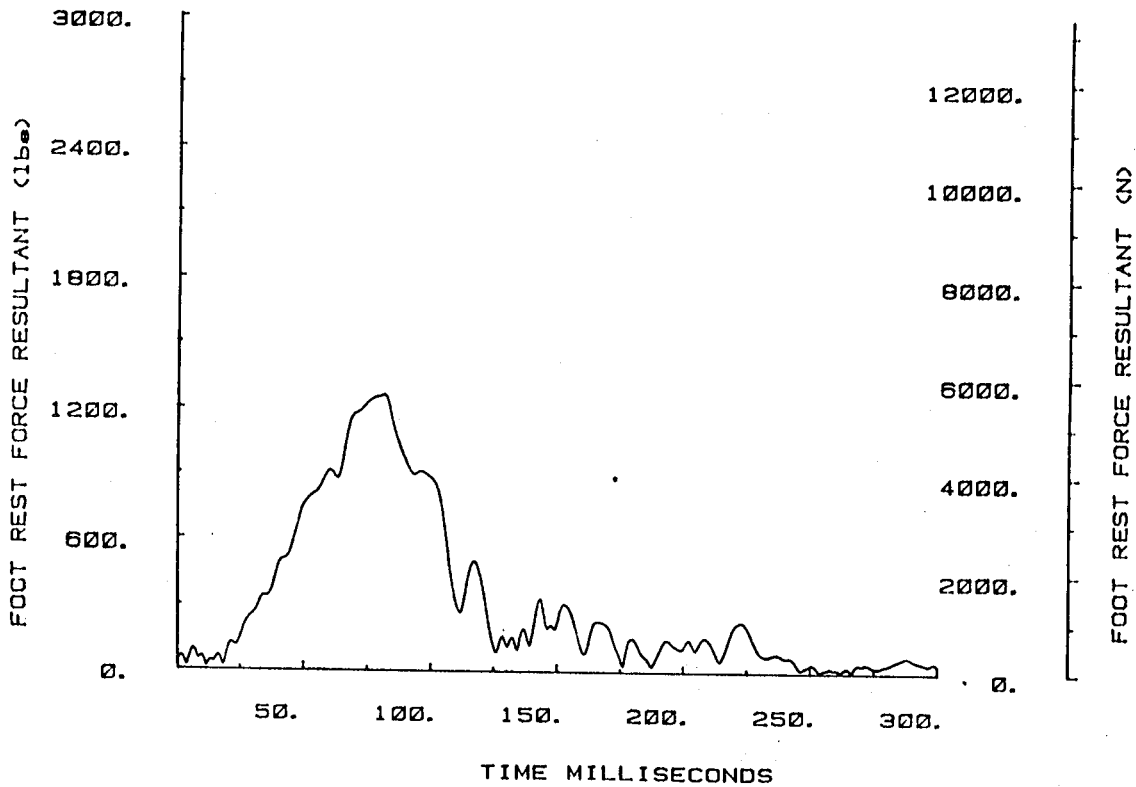
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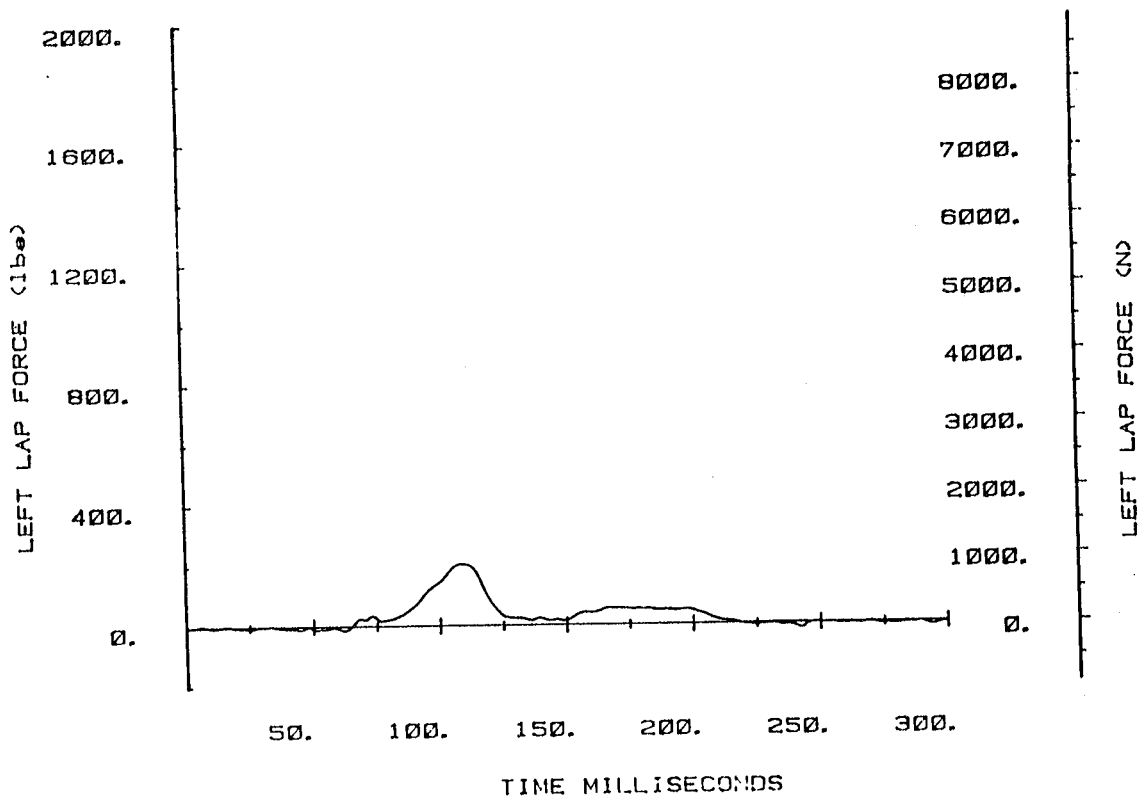
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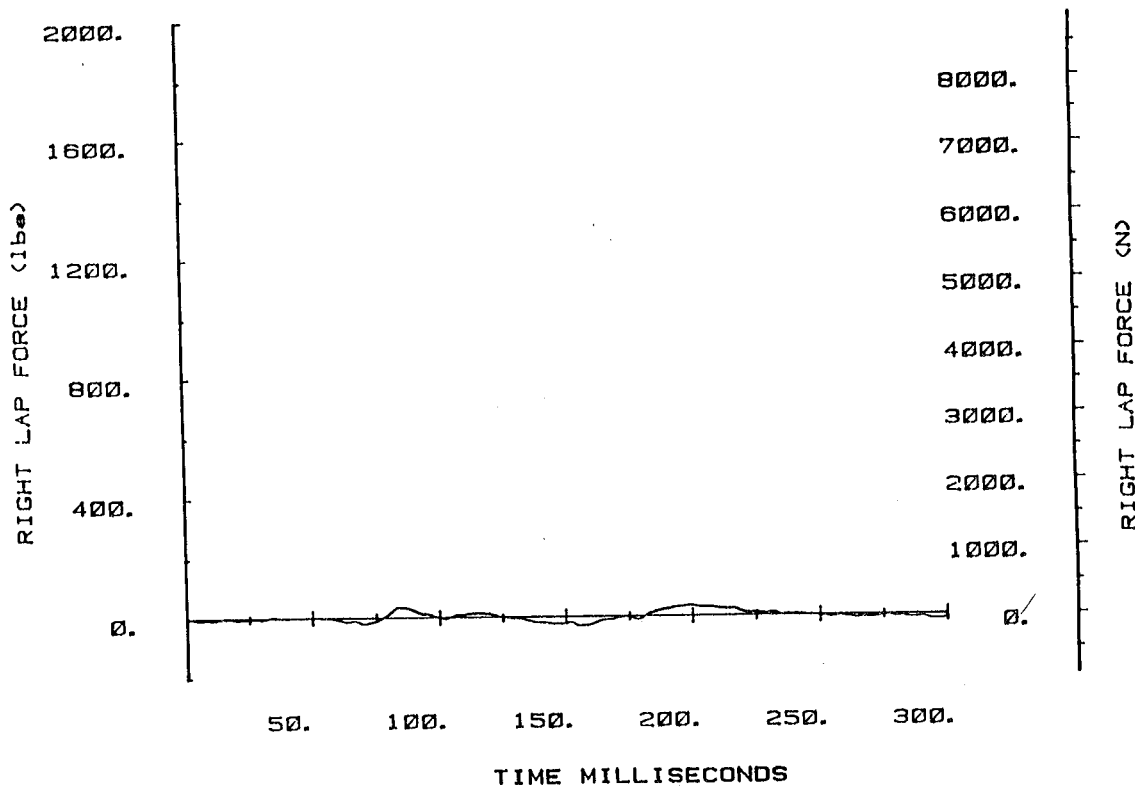
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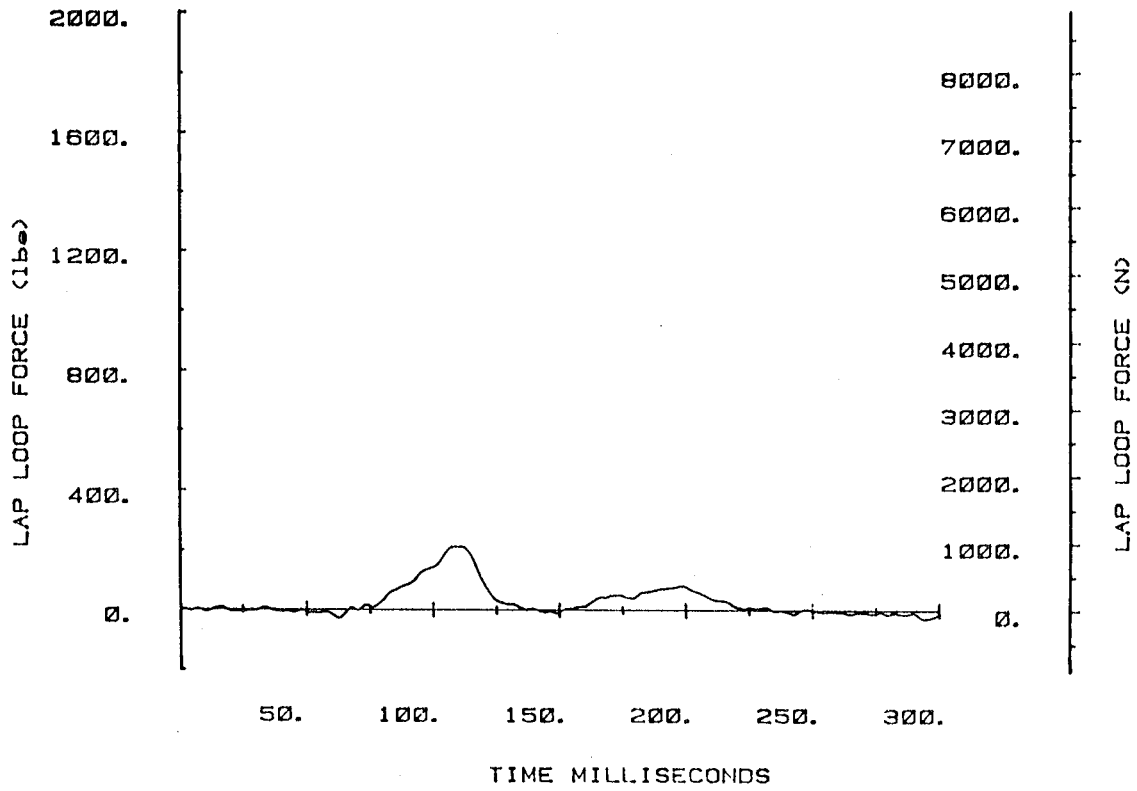
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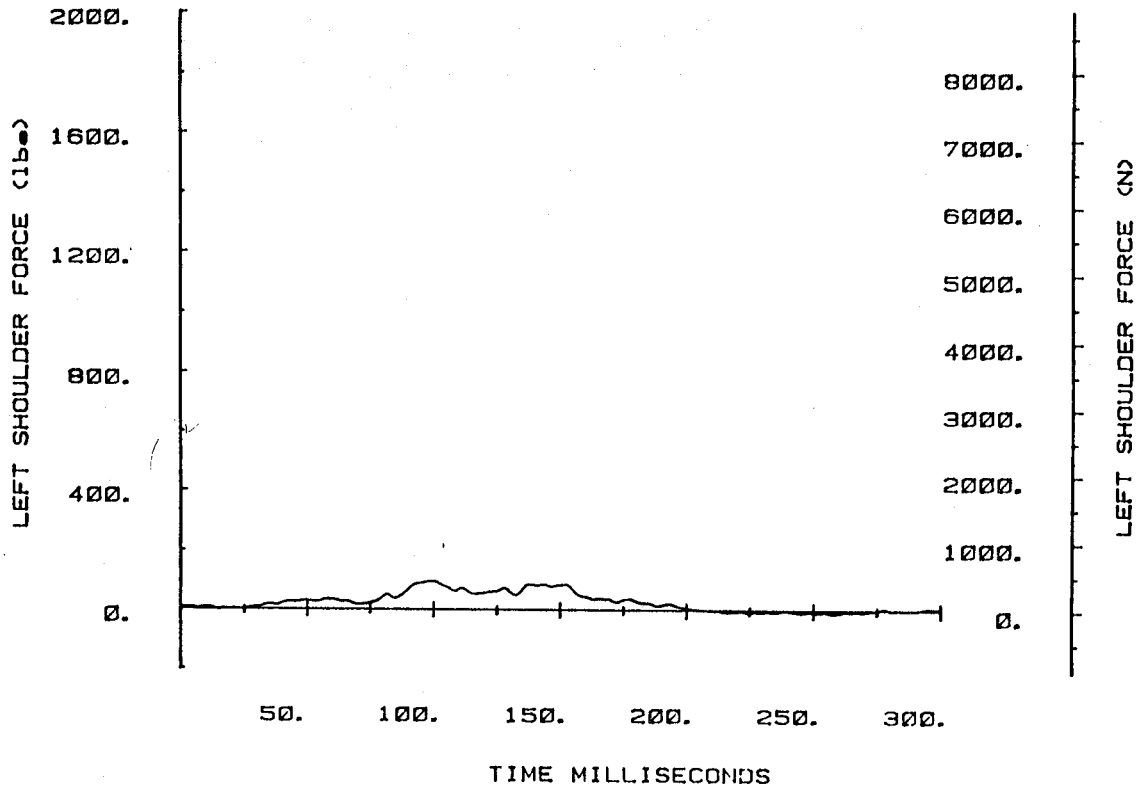
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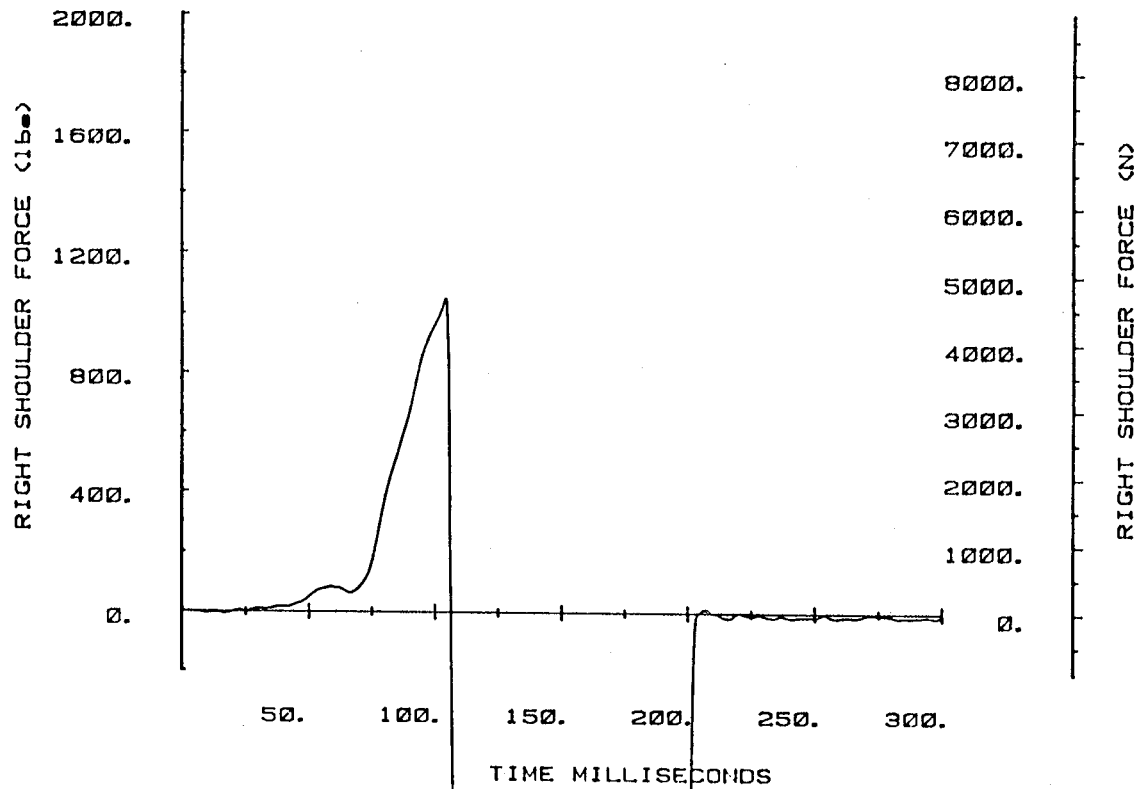
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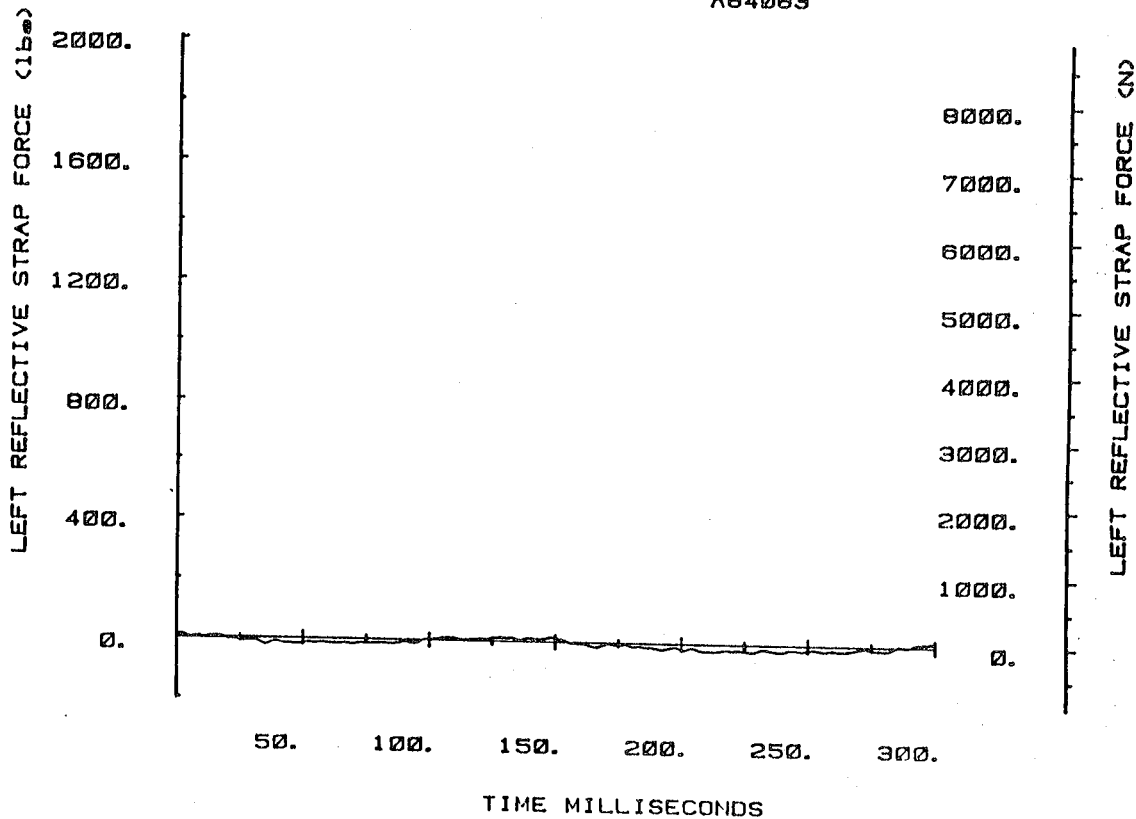
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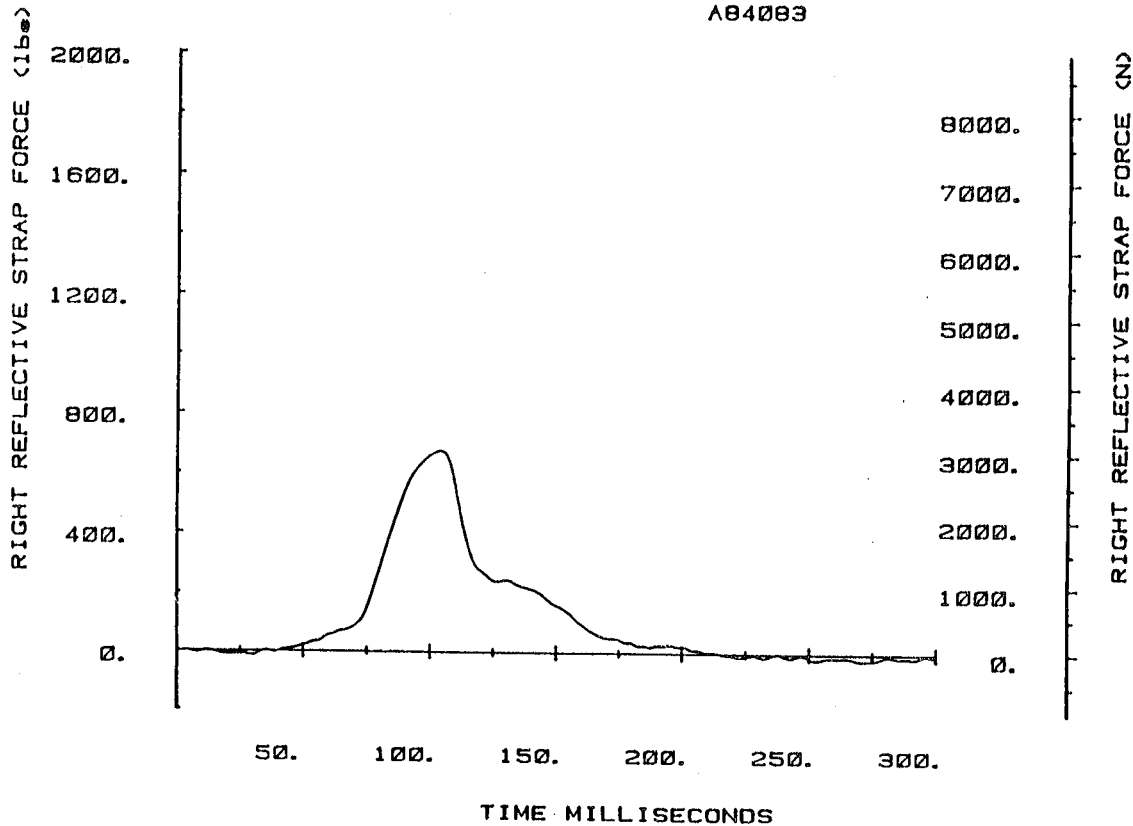
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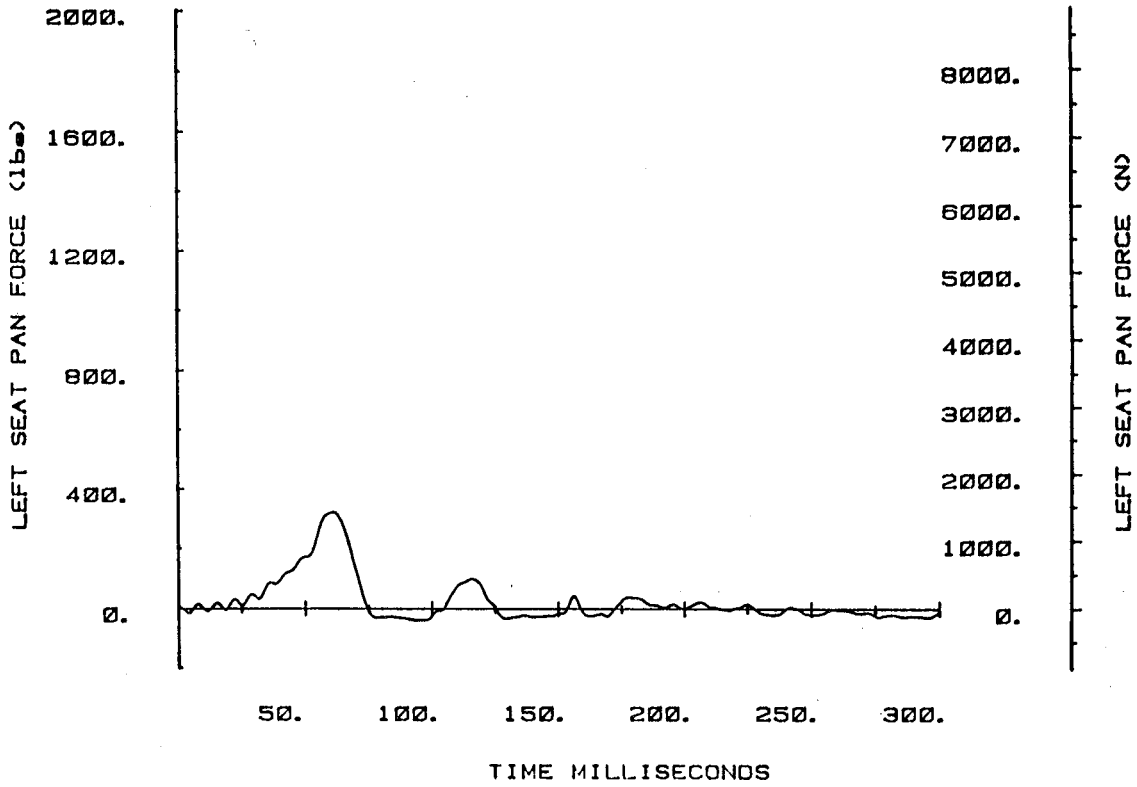
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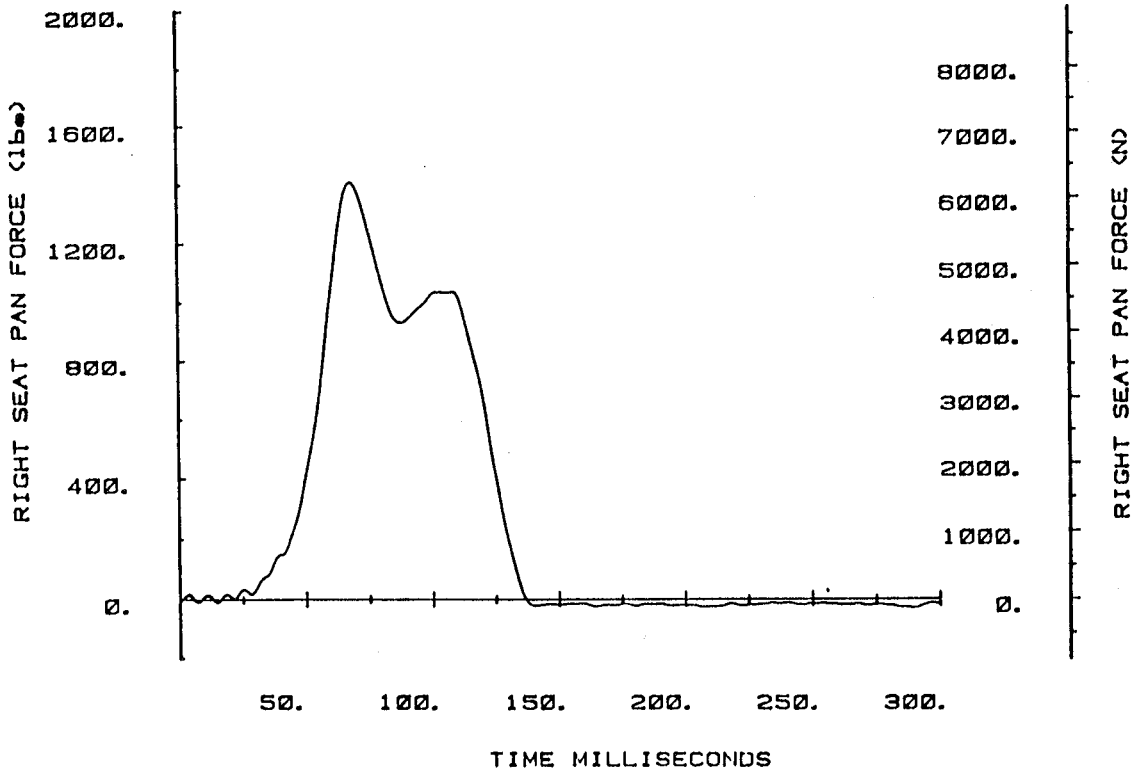
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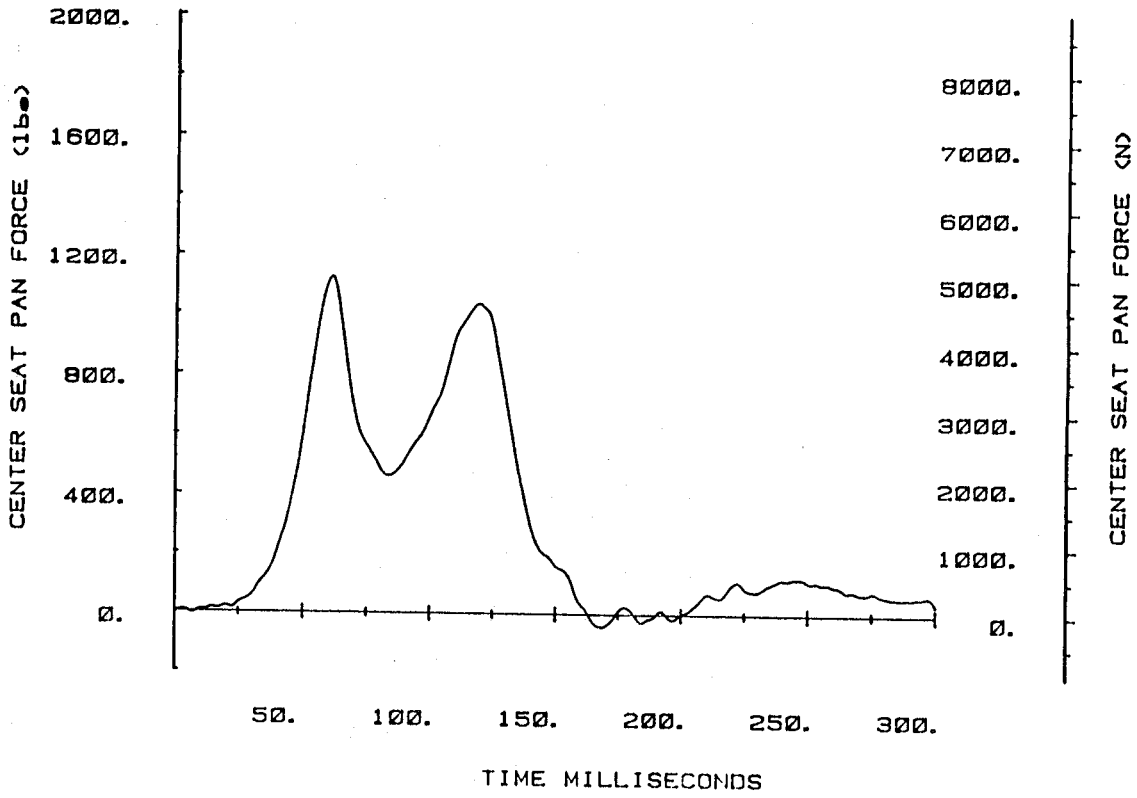


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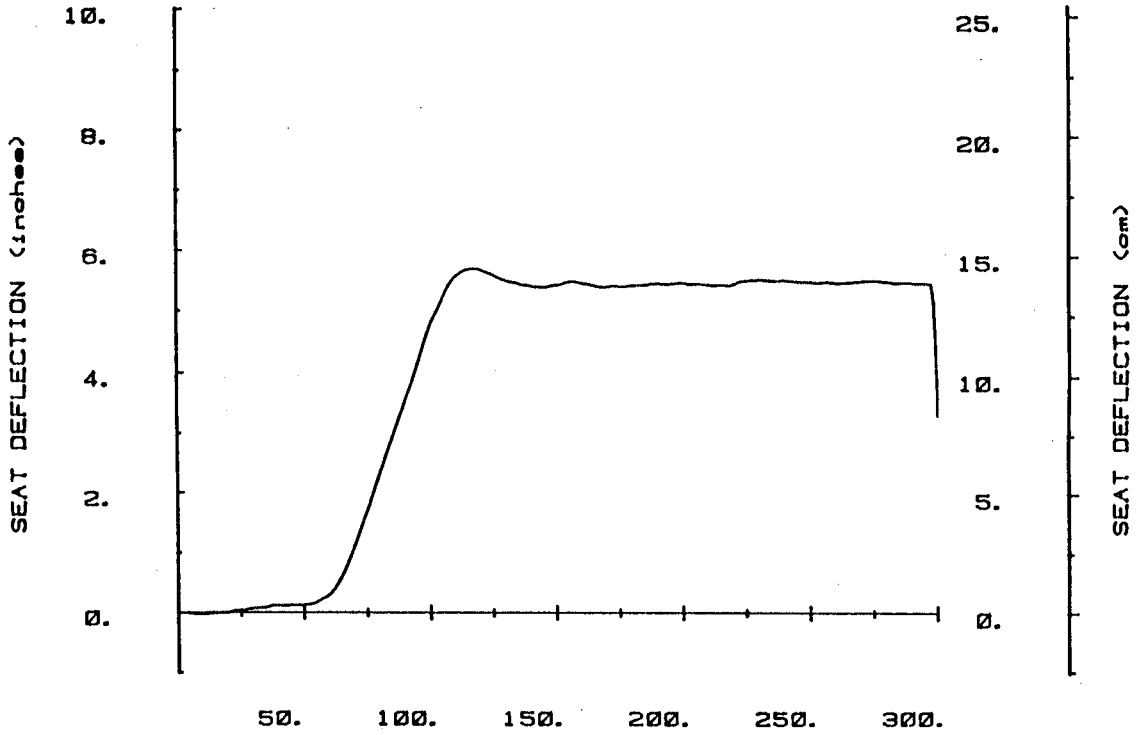




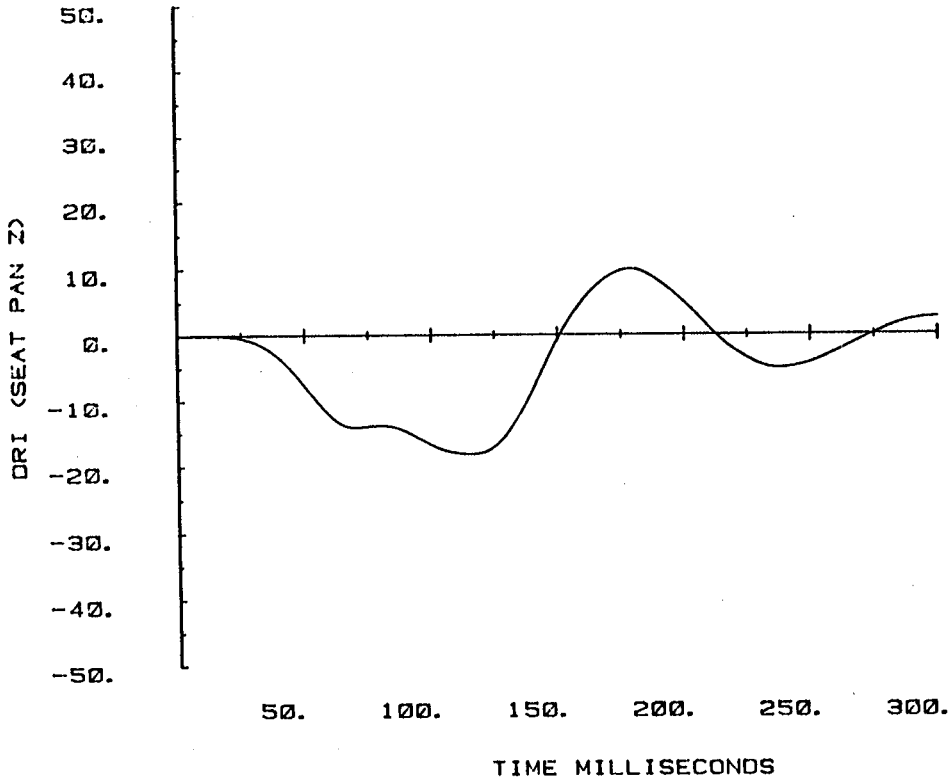
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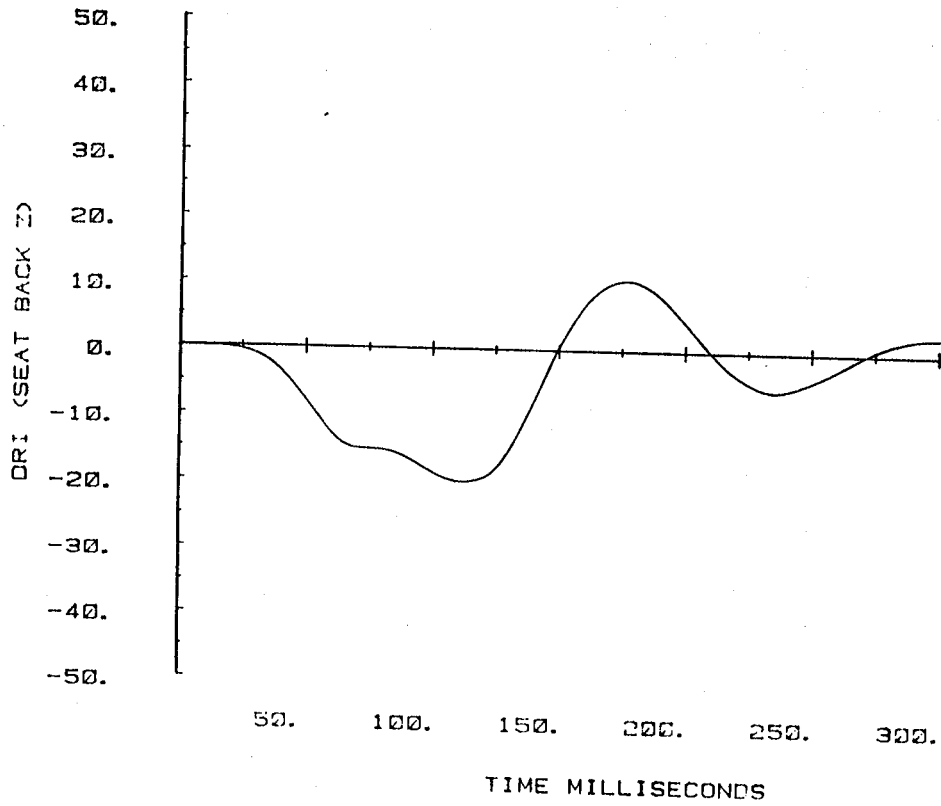
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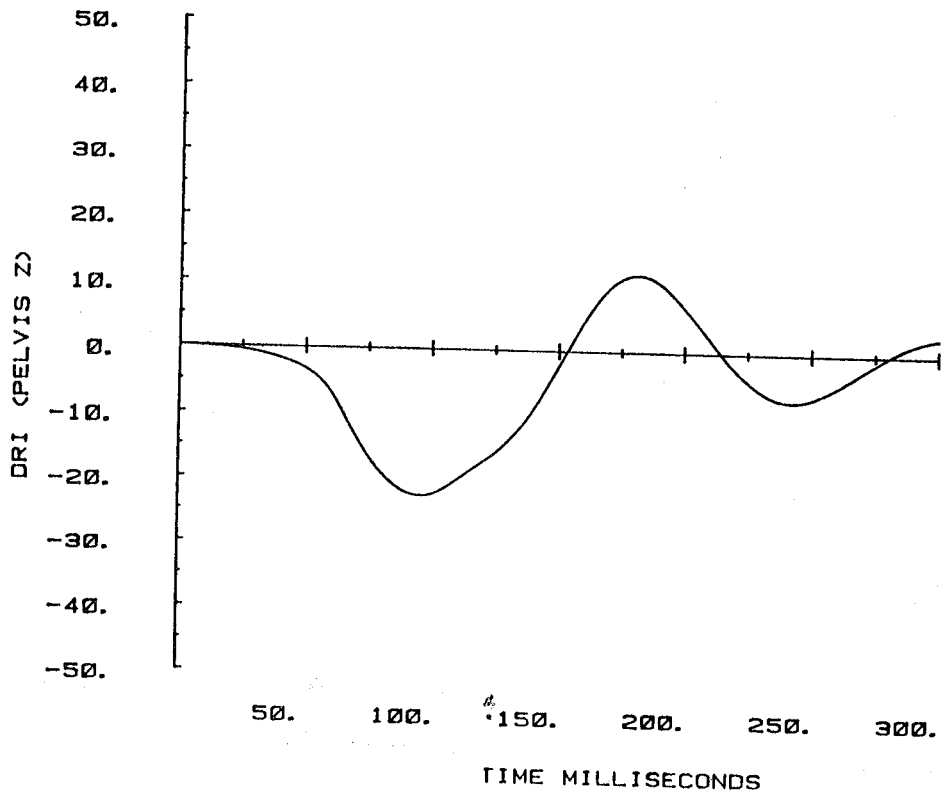
TIME MILLISECONDS  
CAMI SLED TEST  
A84083



CAMI SLED TEST  
A84083



CAMI SLED TEST  
A84083







|   |  |  |   |  |                  |
|---|--|--|---|--|------------------|
| 1. Report No.<br>NASA CR-3917   |  | 2. Government Accession No.                          |   | 3. Recipient's Catalog No.   |                  |
| 4. Title and Subtitle<br>Design and Testing of an Energy-Absorbing Crewseat for the F/FB-111 Aircraft. Volume II—Data From Seat Testing   |  |  |   | 5. Report Date<br>September 1985   |                  |
|   |  |  |   | 6. Performing Organization Code  |                  |
| 7. Author(s)<br>S. Joseph Shane   |  |  |   | 8. Performing Organization Report No.<br>TR-84428                            |                  |
| 9. Performing Organization Name and Address<br>Simula Inc.<br>10016 S. 51st Street<br>Phoenix, Arizona 85044  |  |  |   | 10. Work Unit No. (TRAIS)  |                  |
|   |  |  |   | 11. Contract or Grant No.<br>NAS1-17387                                      |                  |
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| 16. Abstract<br><p>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.</p> |  |  |   |  |                  |
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