

REPORT NUMBER: CAL-94-N05

**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

**NISSAN MOTOR COMPANY
1993 INFINITI J30
4 - DOOR SEDAN**

NHTSA NUMBER: MP5204

CALSPAN TEST NUMBER: 8120-5

NOVEMBER 23, 1993

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FINAL REPORT

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16. <i>Abstract</i> A frontal load cell barrier test of a 1993 Infiniti J30 4-Door Sedan was performed at the Calspan Advanced Technology Center Crash Test Facility in Buffalo, New York on November 23, 1993. The impact velocity was 56.3 kph and the temperature at the barrier face was 9° C. The maximum post test vehicle crush was 603 mm. The test vehicle was equipped with a 3-point continuous belt system at each of the front outboard seating positions. The belt system had automatic pre-tensioners built into the retractors. The vehicle was also equipped with supplemental airbags at each of the front outboard seating positions. With regard to FMVSS 208 "Occupant Crash Protection", injury criteria, both the driver and passenger complied with the head, chest and femur requirements.					
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TABLE OF CONTENTS

<u>Section</u>	<u>Page No.</u>
1 PURPOSE AND TEST PROCEDURE	1-1
2 SUMMARY OF TEST	2-1
3 OCCUPANT AND VEHICLE INFORMATION	3-1
4 SUMMARY OF RESULTS FOR: FMVSS 212, "Windshield Mounting" FMVSS 219 (Partial), "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"	4-1
APPENDIX A PHOTOGRAPHS	A-1
APPENDIX B VEHICLE, LOAD CELL BARRIER AND DUMMY RESPONSE DATA	B-1
APPENDIX C PART 572 B/E DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION TESTS	C-1
APPENDIX D DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION	D-1
APPENDIX E VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS	E-1

LIST OF FIGURES

<u>Figure No.</u>		<u>Page No.</u>
1	Dummy Measurements for Front Seat Passengers	3-4
2	Seat Belt Positioning Data	3-6
3	Camera Positions for Frontal Impacts	3-8
4	Vehicle Target Locations	3-10
5	Load Cell Locations on Fixed Barrier	3-11
6	Vehicle Accelerometer Locations	3-12
7	Test Vehicle Measurements	3-13
8	FMVSS No. 212 - "Windshield Mounting" Data	4-2
9	FMVSS No. 219 (Partial) - "Windshield Intrusion" Data	4-3
10	Dummy Configuration Dimensions	C-3

LIST OF TABLES

<u>Table No.</u>		<u>Page No.</u>
1	General Test and Vehicle Data	2-2
2	Dummy Injury Criteria Values	3-2
3	Hybrid III Neck and Chest Data Sheet	3-3
4	Front Seat Occupant Measurements	3-5
5	Seat Belt Performance Assessment Test Data	3-7
6	High Speed Camera Locations	3-9
7	Vehicle Measurements	3-14
8	Accident Investigation Division Data	3-15
9	FMVSS No. 301-75 "Fuel System Integrity" Post Impact Test Data	4-4
10	FMVSS No. 301 - "Static Rollover" Data	4-5

Section 1

PURPOSE AND TEST PROCEDURE

This 56.3 kph frontal barrier impact test is part of the Composite FY 92 Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-90-D-02121. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 48.3 kph requirements.

The 56.3 kph frontal barrier impact test was conducted in accordance with the Office of Market Incentives (OMI) Laboratory Indicant Test procedure.

Section 2

SUMMARY OF TEST MP5204

A load cell barrier consisting of 36 load cells was impacted by a 1993 Infiniti J30 4-Door Sedan at a velocity of 56.3 kph. The test was performed at the Calspan Corporation Advanced Technology Center on November 23, 1993. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The frontal barrier impact event was documented by 1 real-time camera and 16 high-speed cameras. Camera locations and other pertinent camera information can be found in this report.

Two Part 572, 50th percentile male anthropomorphic test devices (ATDs), were placed in the driver and right-front passenger seating positions according to dummy placement instructions specified in the Laboratory Indicant Test Procedure.

Both ATDs were fully instrumented with head and chest triaxial accelerometers and right/left femur load cells. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver ATD (Serial No. 45) and the right-front passenger ATD (Serial No. 150) were used in one previous test (MR5400). Injury criteria was not exceeded in that test. Certification details, along with instrumentation calibration data, are found in Appendix C and D.

The 83 channels of data were recorded on a P.C. based data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces. Since the vehicle was equipped with belt pre-tensioners we did not attempt to measure belt spool-out or belt elongation. The belts were left 'as is' without any sensors sewn on. Vehicle accelerometer #4 - Engine Bottom experienced a cut wire at 60 mSec.

The driver's HIC was 529.6. The maximum chest deceleration over 3 milliseconds was 54.9 g's and maximum chest deflection was 37.6 mm. Femur loads were -3212.6 newtons on the left femur and -5670.4 newtons on the right femur.

The right front passenger's HIC was 290.4. Maximum chest deceleration over 3 milliseconds was 56.3 g's and maximum chest deflection was 34.6 mm. Femur loads were -5605.4 newtons on the left and -4003.6 newtons on the right.

Table 1

GENERAL TEST AND VEHICLE DATA

Vehicle Year/Make/Model/Body Style: 1993 Nissan Infiniti J30 4 - Door Sedan

NHTSA Test No.: MP5204 VIN.: JNKAY21D9PM028312

Body Color: Silver Date of Manufacture: 2/93

Date Received: 10/1/93

Odometer Reading: 32 miles

Engine: 6 Cylinders; - C.I.D.; 3.0 Liters; - CC
X Gas; - Diesel; - Turbocharged
X Longitudinal; - Transverse

Transmission: 4 Speed; - Manual; X Automatic; X Overdrive

Final Drive: - Front Wheel; X Rear Wheel; - Four Wheel

Accessories: X A/C; X P/S; X P/B; X P/wdo
X Tilt Wheel; X P/seats; X Cruise Control - Other

Type of Occupant Restraint: 3 - Point Restraint System with Supplemental Airbags at each of the front outboard locations

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): Front 241 kPa, Rear 241 kPa

Recommended Tire Size: P215/60R1593H

Recommended Cold Tire Pressure: Front 200 kPa, Rear 200 kPa

Tires on Vehicle: P215/60R1593H Manufacturer: Toyo

Number of Occupants: 2 Front; 3 Rear; - 3rd Seat; 5 TOTAL

Type of Front Seats: X Bucket; - Bench; - Split Bench

Type of Front Seat Back: - Fixed; X Adj. with X Power Seat - Rot. Knob

Vehicle Capacity Weight (VCW) = 408 kgs. (A)

No. of Occupants x 68 kgs. = 340 kgs. (B)

Rated Cargo and Luggage Weight (RCLW) A-B = 68 kgs.

GVWR 2066 kgs. GAWR: Front 1048 kgs. Rear 1033 kgs.

Table 1

GENERAL TEST AND VEHICLE DATA (cont'd)WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (with maximum fluids) = UDW:

Right Front =	<u>458</u>	kgs.	Right Rear =	<u>354</u>	kgs.
Left Front =	<u>485</u>	kgs.	Left Rear =	<u>354</u>	kgs.
TOTAL FRONT WEIGHT =	<u>943</u>	kgs.	(	<u>57</u>	% of Total Vehicle Weight)
TOTAL REAR WEIGHT =	<u>708</u>	kgs.	(	<u>43</u>	% of Total Vehicle Weight)
TOTAL DELIVERED WEIGHT =	<u>1651</u>	kgs.			

CALCULATION FOR TARGET TEST WEIGHT:

UDW = Unloaded Delivered Weight	<u>1651</u>	kgs.
VCW = Vehicle Capacity Weight	<u>408</u>	kgs.
DSC = Designated Seating Capacity	<u>5</u>	
RCLW = VCW - 68 (DSC) =	<u>68</u>	kgs.
Target Test Weight = UDW + RCLW + (2 dummies x 74.4 kgs./ dummy)		
Target Test Weight =	<u>1871</u>	kgs.

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 61 KGS CARGO:

Right Front =	<u>504</u>	kgs.	Right Rear =	<u>435</u>	kgs.
Left Front =	<u>499</u>	kgs.	Left Rear =	<u>426</u>	kgs.
TOTAL FRONT WEIGHT =	<u>1003</u>	kgs.	(	<u>54</u>	% of Total Vehicle Weight)
TOTAL REAR WEIGHT =	<u>861</u>	kgs.	(	<u>46</u>	% of Total Vehicle Weight)
TOTAL TEST WEIGHT =	<u>1864</u>	kgs.			
Weight of ballast secured in vehicle trunk area =	<u>0</u>	kgs.			

VEHICLE ATTITUDE (all dimensions in mm):

Delivered Attitude:	RF	<u>693</u>	LF	<u>696</u>	RR	<u>691</u>	LR	<u>696</u>
Test Attitude:	RF	<u>684</u>	LF	<u>690</u>	RR	<u>663</u>	LR	<u>662</u>
Wheel Base:	<u>2760</u>	mm.;	C.G. =	<u>1270</u>	mm. rearward of front wheel C/L			
Remarks:	<u>67 liters of Stoddard solution was placed in the fuel tank.</u>							

Table 1

GENERAL TEST AND VEHICLE DATA (cont'd)POST -IMPACT DATA:

Type of Test:	<u>Frontal Barrier</u>	Impact Angle:	<u>0°</u>
Date of Test:	<u>November 23, 1993</u>	Time of Test:	<u>13:30</u>
Ambient Temperature:	<u>9</u>	° C at impact area	
Temperature in Occupant Compartment:	<u>21</u>	° C	
Windshield Molding Temperature:	<u>21</u>	° C	
Required Impact Velocity Range:	<u>55.5</u>	to	<u>57.1</u> kph
Impact Velocity:	primary = <u>56.3</u> kph,	secondary =	<u>56.3</u> kph
Distance From Front Bumper to Barrier Face When			
Entering Speed Trap:	<u>1321</u>	mm	
Exiting Speed Trap:	<u>305</u>	mm	

VEHICLE REBOUND AND CRUSH (mm):

Vehicle Length:	Pre-test = R	<u>4760</u>	C _L	<u>4865</u>	L	<u>4745</u>
	Post-test = R	<u>4260</u>	C _L	<u>4262</u>	L	<u>4236</u>
	Crush = R	<u>500</u>	C _L	<u>603</u>	L	<u>509</u>
Distance from front of test vehicle to point of impact:						
R	<u>357</u>	C _L	<u>361</u>	L	<u>341</u>	

VISIBLE DUMMY CONTACT POINTS:

	<u>Driver</u>	<u>Passenger</u>
Head	<u>Face with Airbag</u>	<u>Head/Face with Airbag, Chin with Chest</u>
Chest	<u>Airbag</u>	<u>Airbag</u>
Abdomen	<u>No Contact</u>	<u>No Contact</u>
Left Knee	<u>Lower Dashpanel</u>	<u>Glove Box Door</u>
Right Knee	<u>Lower Dashpanel</u>	<u>Glove Box Door</u>

Table 1

GENERAL TEST AND VEHICLE DATA (cont'd)

	<u>Front</u>		<u>Rear</u>	
	<u>Left</u>	<u>Right</u>	<u>Left</u>	<u>Right</u>
Door Opening	<u>operable</u>	<u>operable</u>	<u>operable</u>	<u>operable</u>
	<u>Front</u>		<u>Rear</u>	
<u>Seat Movement</u>	<u>Left</u>	<u>Right</u>	<u>Left</u>	<u>Right</u>
Seat Back Failure	<u>None</u>	<u>None</u>	<u>-</u>	<u>-</u>
Seat Shift (mm.)	<u>0.0</u>	<u>0.0</u>	<u>-</u>	<u>-</u>
<u>Glazing Damage</u>				
Backlight/Windshield:	<u>Windshield sustained stress fractures but remained intact</u>			
Other Notable Impact Effects:	<u>None</u>			

Section 3

OCCUPANT AND VEHICLE INFORMATION

I. DATA

1. Dummy Injury Criteria Data Summary
2. Dummy Positioning Data
3. Seat Belt Performance Assessment Data
4. Camera Locations
5. Vehicle Target Locations
6. Load Cell Barrier Data
7. Vehicle Accelerometer Data
8. Test Vehicle Measurements

Table 2

DUMMY INJURY CRITERIA VALUESNHTSA No.: MP5204 Vehicle: 1993 Infiniti J30 4 - Door Sedan

	MAXIMUM HEAD ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	-59.9	-5.65	28.3	63.8
Position #2 - Passenger	-44.3	-7.7	29.6	51.0

	MAXIMUM CHEST ACCELERATION (g's)			
	X	Y	Z	R*
Position #1 - Driver	-57.4	-6.52	11.6	54.9
Position #2 - Passenger	57.5	10.4	10.2	56.3

* The maximum chest resultant acceleration is defined as the maximum acceleration which exceeds 0.003 seconds in duration.

	MAXIMUM FORCE - FEMUR LOAD (nwt)	
	LEFT FEMUR	RIGHT FEMUR
Position #1 - Driver	-3212.6	-5670.4
Position #2 - Passenger	-5605.4	-4003.6

	MAXIMUM FORCE - SEAT BELT LOADS (nwt)		
	SHOULDER STRAP UPPER BELT LOAD	LAP STRAP RIGHT BELT LOAD	LAP STRAP LEFT BELT LOAD
Position #1 - Driver	7507.0	-	7446.4
Position #2 - Passenger	6323.7	5913.3	-

	HEAD INJURY CRITERIA (HIC)			
	HIC**	t ₁ (mSec)	t ₂ (mSec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	529.6	61.08	96.4	46.83
Position #2 - Passenger	290.4	61.8	97.7	36.58

** HIC is as defined in FMVSS 208. The maximum time interval from t₁ to t₂ is 36 milliseconds.

Table 3

HYBRID III NECK AND CHEST DATA SHEETVehicle Year/Make/Model/Body Style: 1933 Infiniti J30 4 -Door SedanVehicle NHTSA No.: MP5204 Test Date: November 23, 1993

MAXIMUM VALUES	DRIVER DUMMY ID # : 45	PASSENGER DUMMY ID # : 150
Neck Load X (nwt)	-479.0	-718.4
Neck Load Y (nwt)	-276.0	-267.7
Neck Load Z (nwt)	1630.3	1089.0
Neck Moment X (nwt-m)	12.9	-14.4
Neck Moment Y (nwt-m)	36.8	62.8
Neck Moment Z (nwt-m)	10.6	26.7
Chest Deflection X (mm.)	-37.6	-34.6
Time of Max. Occurrence (msec)	89.5	85.4

Note: All values listed occur during the primary impact event.

Figure 1

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS

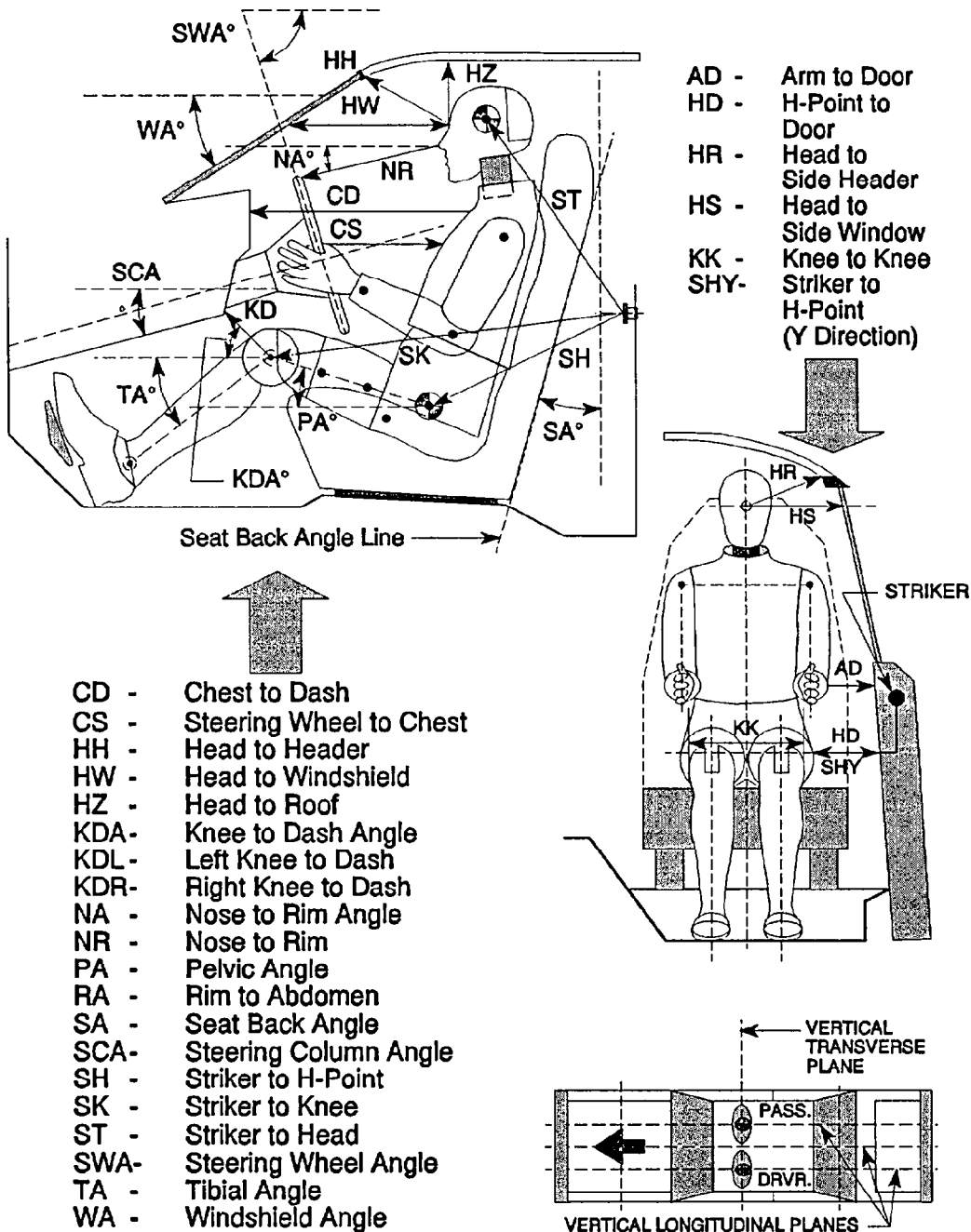
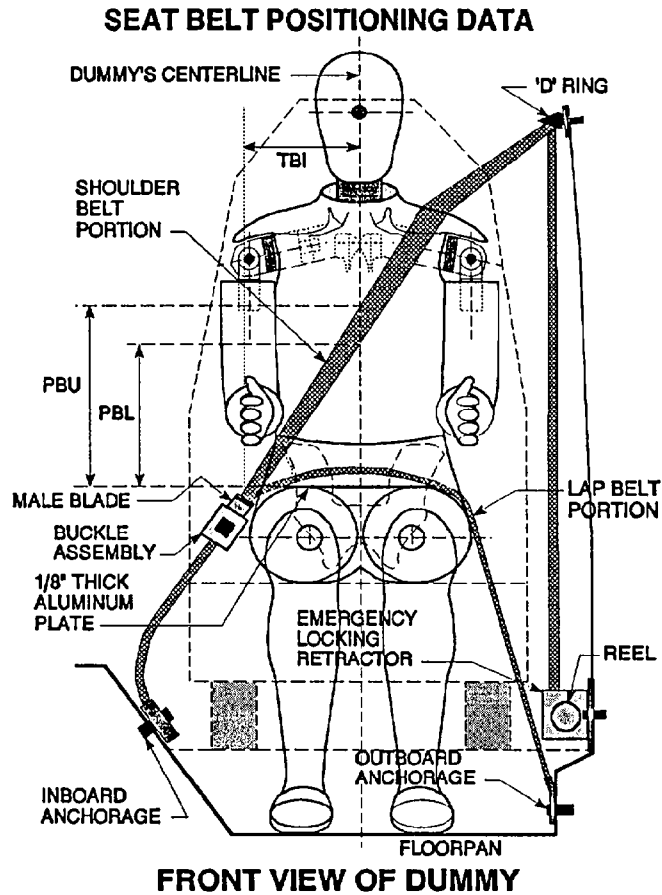


Table 4
FRONT SEAT OCCUPANT MEASUREMENTS

	DRIVER (Serial # 45)			PASS. (Serial # 150)		
WA°	25°			25°		
SWA°	-68°			N/A		
SCA°	22°			N/A		
SA°	19° as specified by the manufacturer			19° as specified by the manufacturer		
HZ	168			155		
HH	310			315		
HW	560			545		
HR	219			205		
NR	365	Angle	-15°	N/A		
CD	555			538		
CS	251			N/A		
RA	170			N/A		
KDL	175	Angle (KDA)	37°	185		
KDR	182			177	Angle (KDA)	35°
PA°	25°			25°		
TA°	-28°			-22°		
KK	275			265		
ST	478	Angle	15°	483	Angle	10°
SK	589	Angle	98°	589	Angle	100°
SH	224	Angle	135°	216	Angle	133°
SHY	235			225		
HS	275			245		
HD	173			160		
AD	100			95		

Figure 2

SEAT BELT POSITIONING DATA



	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	310	235
PBL-- Top surface of alum. plate to belt lower edge	234	315
<u>LAP BELT TENSION</u>	-	-
<u>SHOULDER BELT TENSION</u>	9 nwt	9 nwt

Table 5

SEAT BELT PERFORMANCE ASSESSMENT TEST DATABELT LENGTH DATA:Shoulder belt length as measured
on Part 572 Dummy.DriverPassenger

830

830

Lap belt length as measured
on Part 572 Dummy.

790

820

SHOULDER BELT SPOOL-OFF DATA:

As determined by film analysis.

See Note

See Note

As determined mechanically.

N/A

N/A

As determined electronically.

N/A

N/A

BELT STRETCH DATA:Measured electronically between shoulder
belt load cell and the "D" ring.

N/A

N/A

Measured mechanically.

N/A

N/A

Note: The pretension device on the driver's side retracted the belt approximately 2 inches. The belt then spooled out 1 inch.

The pretension device on the passenger's side retracted the belt approximately 1 inch. We were unable to view belt spool-out.

Figure 3
CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera Information Shown on Table 4

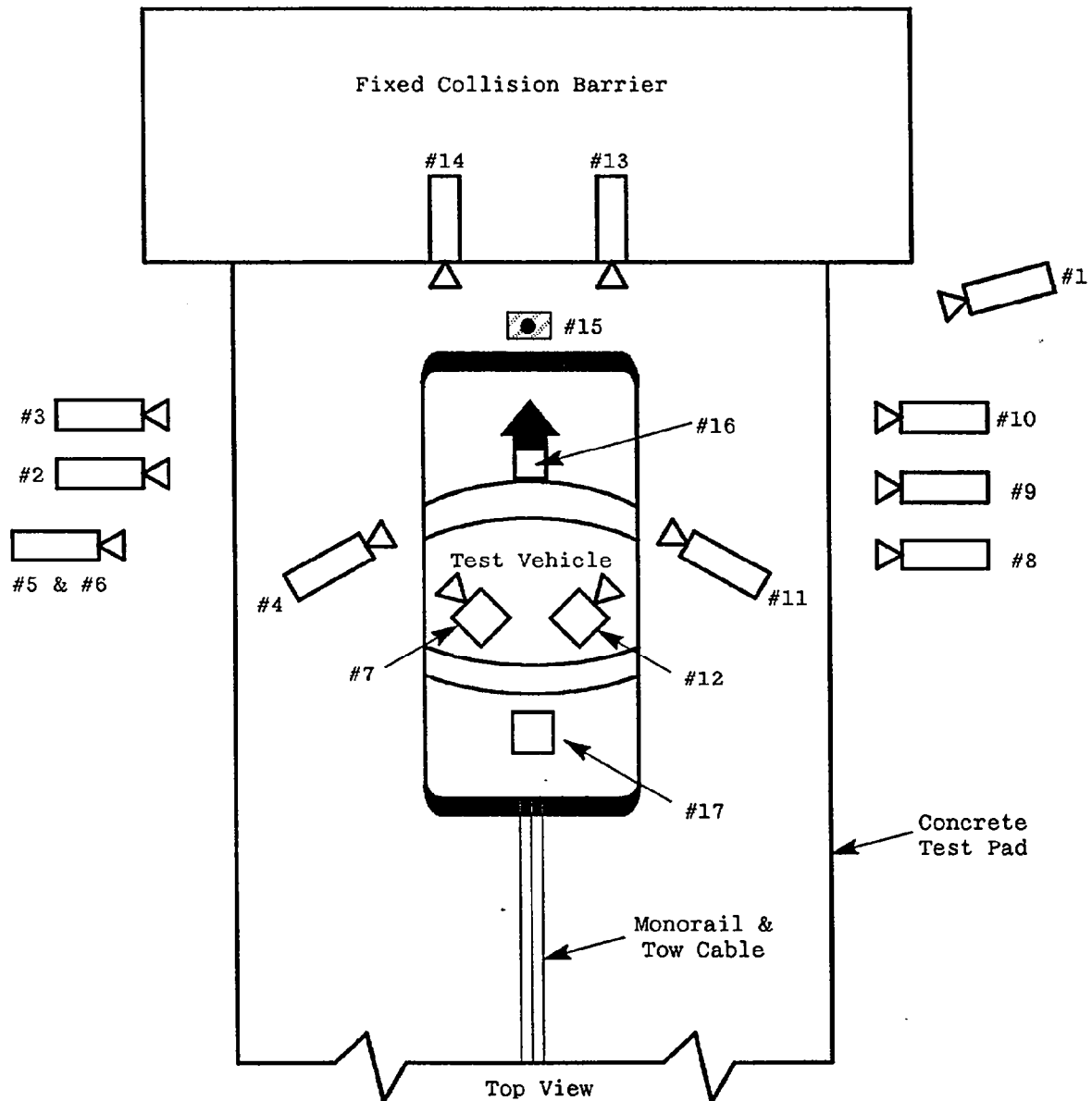


Table 6

HIGH-SPEED CAMERA LOCATIONS

Test No. MP5204		Vehicle: 1993 Infiniti J30 4 -Door Sedan						
CAMERA NO.	VIEW	CAMERA POSITIONS (MM.)*		ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)	
		X	Y	Z				
1	Real-Time Camera	----	----	----	----	----	24	
2	Overall Left Side	6096	1854	1067	-4	5626	13	
3	Left Side View	8128	1245	1041	-3	7658	25	
4	Driver and Interior View	2769	2718	1778	-22	2299	13	
5	Steering Column (Bottom)	7239	2108	1168	-5	6769	25	
6	Steering Column (Top)	7239	2108	1778	-9	6769	25	
7	Left Belt	----	----	----	----	----	8	
8	Overall Right Side	6477	2108	1041	-4	6007	13	
9	Right Side View	8001	2210	1041	-2	7531	25	
10	Right Passenger View	7823	1499	1321	-4	7353	35	
11	Passenger and Interior View	2769	2692	1880	-21	2299	13	
12	Right Belt	----	----	----	----	----	8	
13	Passenger Front View	560	127	1778	-35	----	13	
14	Driver Front View	560	127	1778	-35	----	13	
15	Windshield View	0	0	3048	-45	----	13	
16	Pit View of Engine	0	505	-3048	90	----	13	
17	Pit View of Fuel Tank	0	3432	-3048	90	----	13	

*X = film plane to monorail centerline

** = referenced to horizontal plane

Y = film plane to impact location

N.T. indicates No Timing

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840.

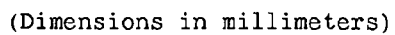
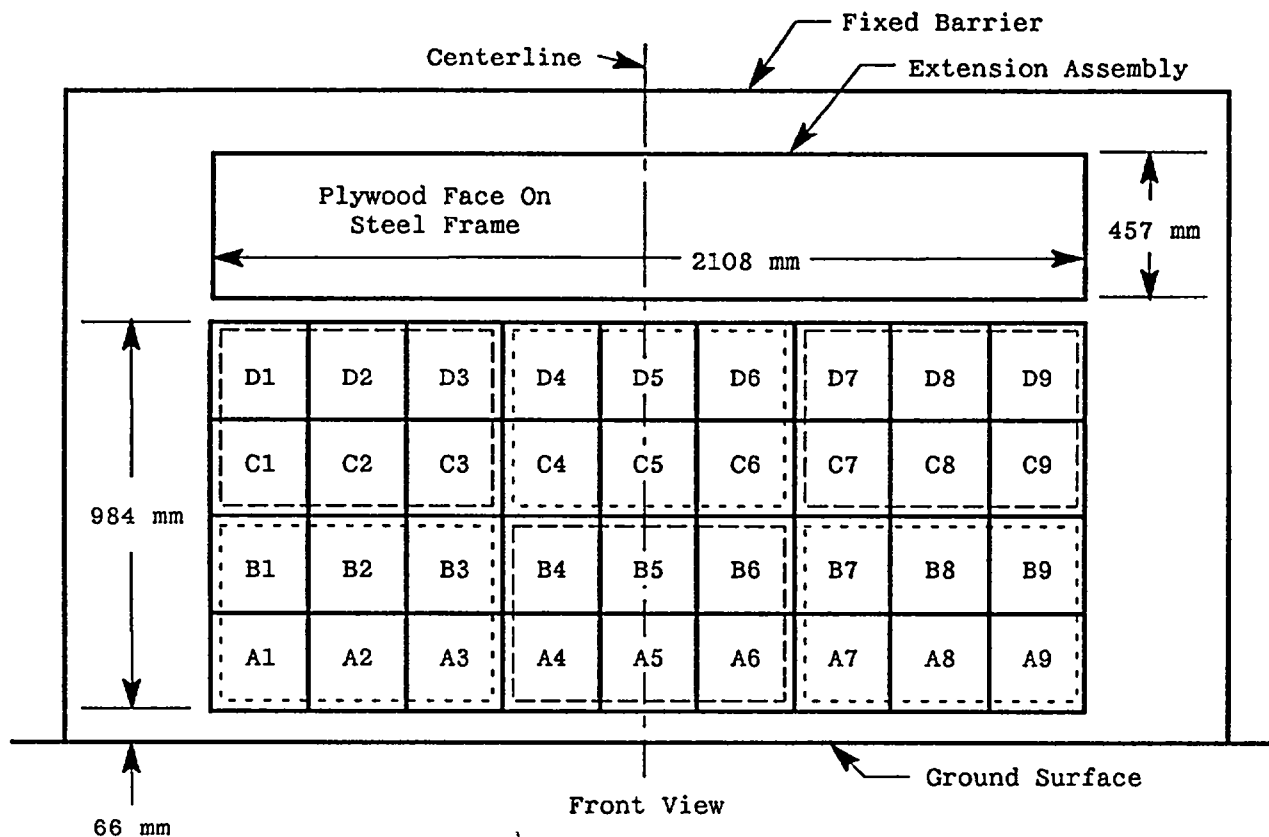


Figure 5

LOAD CELL LOCATIONS ON FIXED BARRIER

36 Load Cells
 4 Rows
 9 Columns
 6 Groupings (6 cells/group)



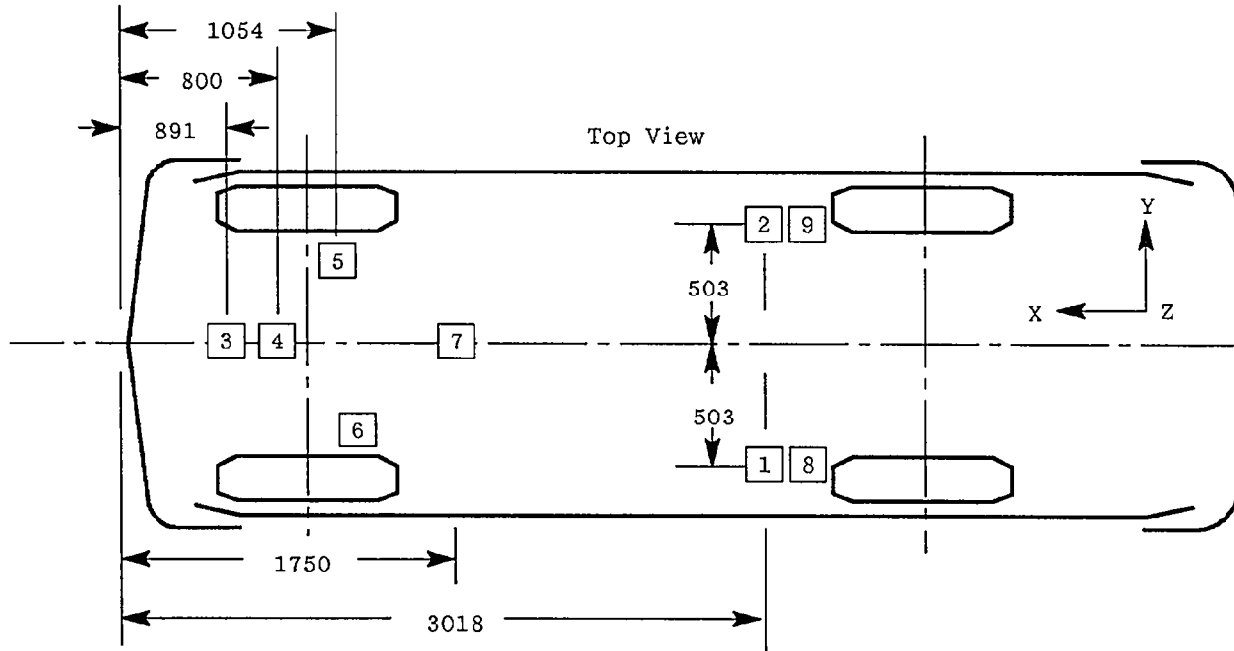
6 GROUPS OF 6 LOAD CELLS EACH

| | | |
|-----------------------|-----------------------|-----------------------|
| Group 4
C1 thru D3 | Group 5
C4 thru D6 | Group 6
C7 thru D9 |
| Group 1
A1 thru B3 | Group 2
A4 thru B6 | Group 3
A7 thru B9 |

The following data is presented in Appendix B:

- (1) Data from 36 individual load cells
- (2) Total or Sum of 36 individual load cells
- (3) Data from 6 Groupings shown above (6 cells/group)

Figure 6
VEHICLE ACCELEROMETER LOCATIONS



All dimensions are in millimeters

| ACCELEROMETER
NUMBER* | ACCELEROMETER LOCATION | DIRECTION | | |
|--------------------------|-----------------------------|-----------|---|---|
| | | X | Y | Z |
| 1 | Left Rear Seat Crossmember | ✓ | | |
| 2 | Right Rear Seat Crossmember | ✓ | | |
| 3 | Top of Engine | ✓ | | |
| 4 | Bottom of Engine | ✓ | | |
| 5 | Right Disc Brake Caliper | ✓ | | |
| 6 | Left Disc Brake Caliper | ✓ | | |
| 7 | Instrument Panel | ✓ | | |
| 8 | Left Rear Seat Crossmember | ✓ | | |
| 9 | Right Rear Seat Crossmember | ✓ | | |

*The accelerometer pack number can be correlated with the vehicle response data traces found in Appendix B.

Figure 7

TEST VEHICLE MEASUREMENTS

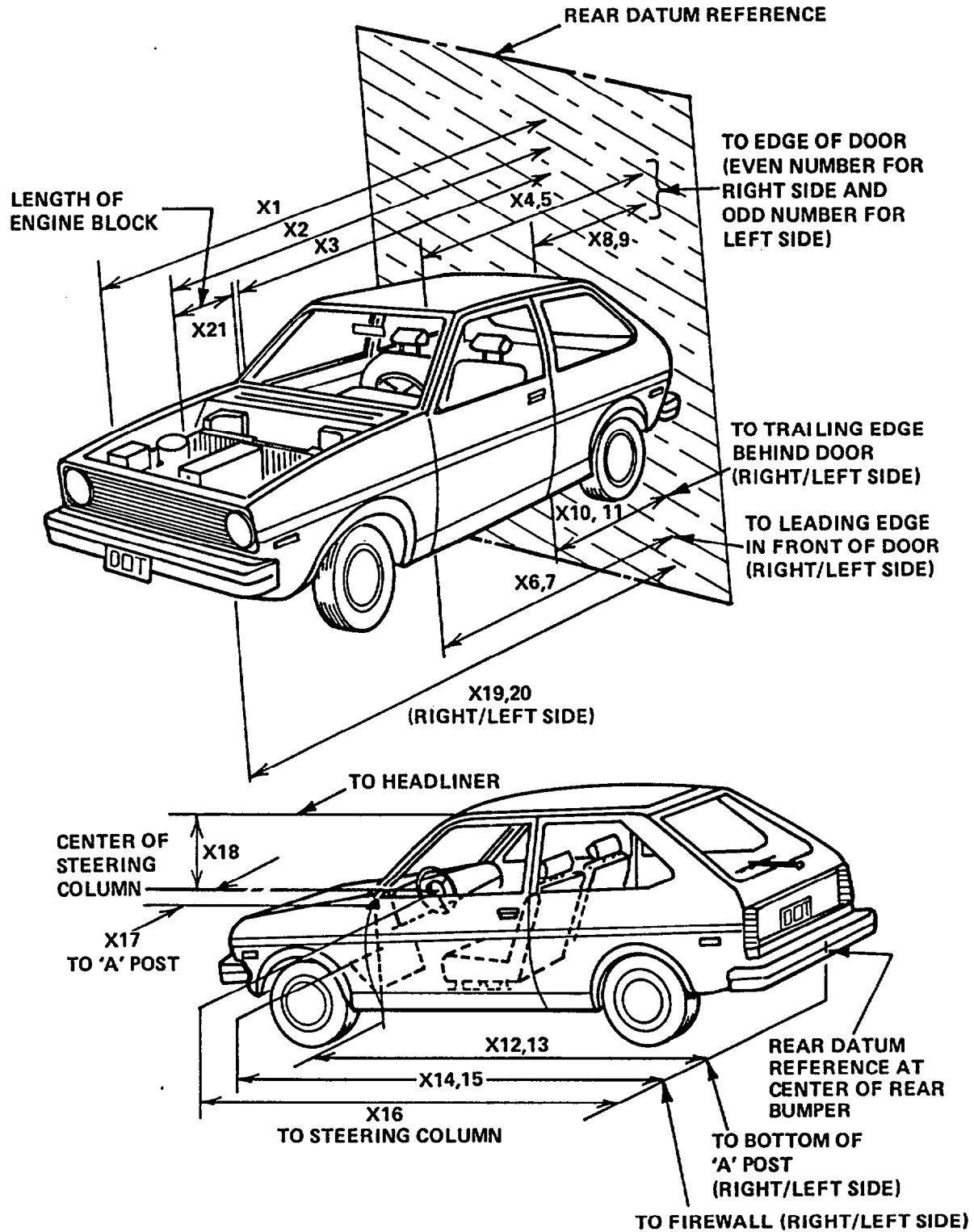


Table 7

VEHICLE MEASUREMENTS

| No. | | All Dimensions in mm | | | Differences |
|-----|--|----------------------|-----------|--|-------------|
| | | Pre-Test | Post-Test | | |
| X1 | Total Length of Vehicle at Centerline | 4865 | 4262 | | 603 |
| X2 | Rear Surface of Vehicle to Front of Engine | 4129 | 3854 | | 275 |
| X3 | Rear Surface of Vehicle to Firewall | 3600 | N/A | | N/A |
| X4 | Rear Surface of Vehicle to Upper Leading Edge of Right Door | 3305 | 3299 | | 6 |
| X5 | Rear Surface of Vehicle to Upper Leading Edge of Left Door | 3295 | 3294 | | 1 |
| X6 | Rear Surface of Vehicle to Lower Leading Edge of Right Door | 3302 | 3279 | | 23 |
| X7 | Rear Surface of Vehicle to Lower Leading Edge of Left Door | 3300 | 3274 | | 26 |
| X8 | Rear Surface of Vehicle to Upper Trailing Edge of Right Door | 2262 | 2248 | | 14 |
| X9 | Rear Surface of Vehicle to Upper Trailing Edge of Left Door | 2258 | 2252 | | 6 |
| X10 | Rear Surface of Vehicle to Lower Trailing Edge of Right Door | 2279 | 2257 | | 22 |
| X11 | Rear Surface of Vehicle to Lower Trailing Edge of Left Door | 2278 | 2253 | | 25 |
| X12 | Rear Surface of Vehicle to Bottom of "A" Post of Right Side | 3323 | 3304 | | 19 |
| X13 | Rear Surface of Vehicle to Bottom of "A" Post of Left Side | 3325 | 3300 | | 25 |
| X14 | Rear Surface of Vehicle to Firewall, Right Side | 3580 | N/A | | N/A |
| X15 | Rear Surface of Vehicle to Firewall, Left Side | 3570 | 3415 | | 155 |
| X16 | Rear Surface of Vehicle to Steering Column | 2786 | 2778 | | 8 |
| X17 | Center of Steering Column to "A" Post | 360 | 405 | | -45 |
| X18 | Center of Steering Column to Headliner | 450 | 375 | | 75 |
| X19 | Rear Surface of Vehicle to Right Side of Front Bumper | 4760 | 4260 | | 500 |
| X20 | Rear Surface of Vehicle to Left Side of Front Bumper | 4745 | 4236 | | 509 |
| X21 | Length of Engine Block | 355 | 355 | | 0 |
| RD | Rear Surface of Vehicle to Right Side of Dash Panel | 3086 | 3076 | | 10 |
| CD | Rear Surface of Vehicle to Center of Dash Panel | 3126 | 3116 | | 10 |
| LD | Rear Surface of Vehicle to Left Side of Dash Panel | 3086 | 3066 | | 20 |

Table 8

ACCIDENT INVESTIGATION DIVISION DATAFOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: 1993 Infiniti J30 4 -Door Sedan

Vehicle NHTSA No.: MP5204 VIN: JNKAY21D9PM028312

Model Year: 1993 Build Date: 2/93 Test Date: 11/23/93

Vehicle Size Category: Luxury Test Weight: 1864 Kgs

Vehicle Wheelbase: 2760 mm; Front Overhang: 1419 mm; Overall Width: 1770 mm

Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions:

C1 = 505 mm

C2 = 539 mm

C3 = 570 mm

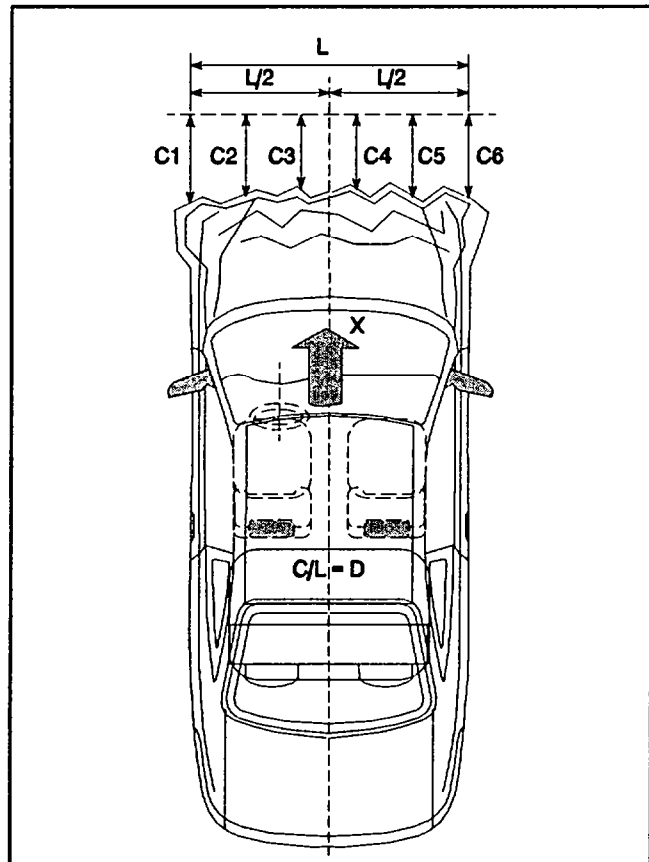
C4 = 603 mm

C5 = 530 mm

C6 = 463 mm

Midpoint of Damage: D = Vehicle Centerline
(Longitud.)

Length of Damaged Region: L = 1770 mm



Section 4

SUMMARY OF RESULTS OF FMVSS 212, 219 (Partial) AND 301

"Windshield Mounting" FMVSS No. 212 Data

"Windshield Zone Intrusion" FMVSS No. 219 Data

"Fuel System Integrity" FMVSS No. 301

Figure 8

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA

DETAILS OF WINDSHIELD MOUNTING SUCH AS RETENTION METHOD, TRIM TYPE, ETC.:

Windshield is bonded in place and covered with 18 mm. molding.

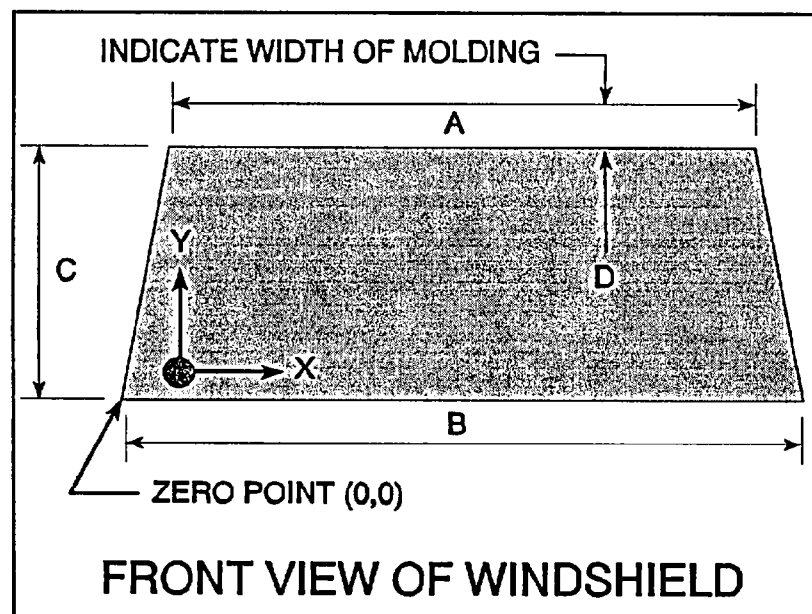
FMVSS 212 REQUIREMENTS:

The Post-Test periphery retention amount must be at least 75% of the Pre-Test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of the windshield for vehicles equipped with automatic restraint systems for front occupants,

FMVSS 212 TEST DATA

| | WINDSHIELD PERIPHERY | | % OF RETENTION |
|------------|----------------------|---------------|----------------|
| | PRE-TEST (mm) | POST-TEST(mm) | |
| RIGHT SIDE | 2087.5 | 2087.5 | 100 |
| LEFT SIDE | 2087.4 | 2087.5 | 100 |
| TOTAL | 4175.0 | 4175.0 | 100 |

AREA OF RETENTION FAILURE:

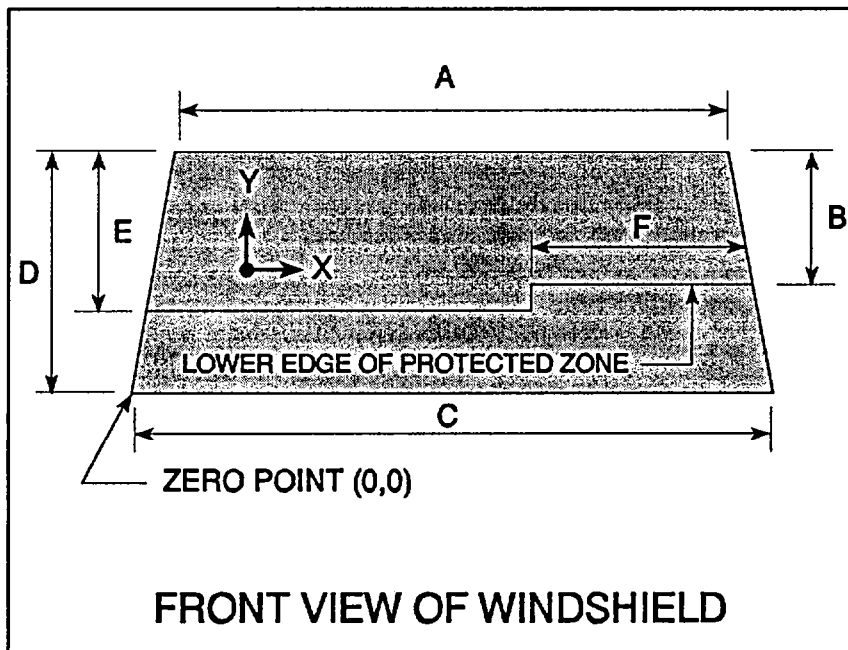


| DIMENSIONS | |
|------------|------|
| A | 1140 |
| B | 1575 |
| C | 730 |
| D | 18 |

FAILURE DETAILS: None

FMVSS NO. 219 (PARTIAL) - "WINDSHIELD ZONE INTRUSION" DATAPROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 6.5" diameter rigid sphere weighing 15 pounds in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. The locus of points is drawn on the inner surface of the windshield contacted by the sphere across the width of the instrument panel. From the outermost contactable points extend the locus line horizontally to the edges of the windshield, then draw a line on the inner surface of the windshield below and 1/2" distant from the locus line. The LOWER EDGE OF THE PROTECTED ZONE is the longitudinal projection of this line onto the outer surface of the windshield.

FMVSS 219 TEST DATA: (Dimensions in mm)

| DIMENSIONS | |
|------------|------|
| A | 1140 |
| B | 440 |
| C | 1575 |
| D | 730 |
| E | 475 |
| F | 540 |

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 1/4": None

(Show location of penetration on the above sketch)

| COORDINATES | | |
|-------------|---|---|
| | X | Y |
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |

FMVSS NO. 301-75 "FUEL SYSTEM INTEGRITY" POST IMPACT TEST DATA

TEST DATE: 11/23/93

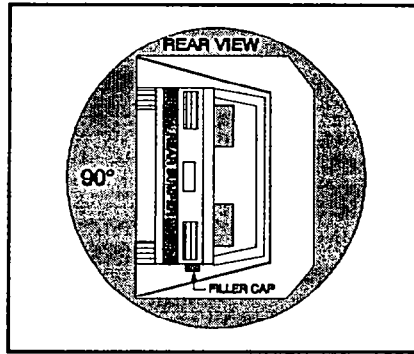
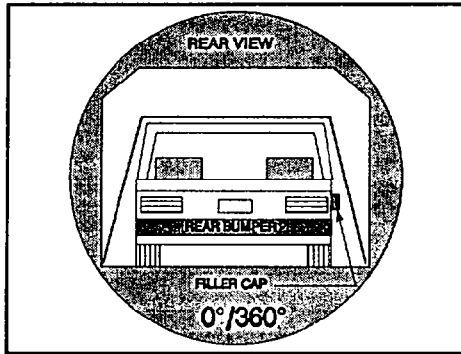
The test vehicle was filled from 92 % to 94 % of the manufacture's "usable" capacity. The electric fuel pump was operating if it will operate without engine operation. Two Part 572 anthropomorphic test devices were located at each of the front designated seating positions.

| | | |
|----------------------------------|------------------------------|---|
| <u>TEST VEHICLE IMPACT TYPE:</u> | <u> X </u> | Frontal (35 mph) |
| | | Oblique (30 mph) with _____ deg. barrier face first |
| | | contacting _____ |
| | | (driver/passenger) side |
| | <u> </u> | Rear Moving Barrier (30 mph) |
| | <u> </u> | Lateral Moving Barrier (20 mph) |

1. From impact until vehicle motion ceases
2. For 5 minute period after vehicle motion ceases
3. For next 25 minutes

| ACTUAL | MAX
ALLOWED |
|--------|----------------|
| 0 | 1 oz. |
| 0 | 5 oz. |
| 0 | 1 oz./min |

SOLVENT SPILLAGE DETAILS: None

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET**TEST PHASE:**Vehicle NHTSA ID No.
MP5204**I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:**Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)

| | | | |
|---|---------|----|---------|
| 2 | minutes | 20 | seconds |
|---|---------|----|---------|

FMVSS 301 Position Hold Time +

| | | | |
|---|---------|----|---------|
| 5 | minutes | 00 | seconds |
|---|---------|----|---------|

TOTAL

| | | | |
|---|---------|----|---------|
| 7 | minutes | 20 | seconds |
|---|---------|----|---------|

Next whole minute interval

| | | | |
|---|---------|----|---------|
| 8 | minutes | 00 | seconds |
|---|---------|----|---------|

II. FMVSS 301 REQUIREMENTS:**(1) Time Period**

| | | | |
|-------------------------------------|----------|----------|-------------------|
| First 5 min. from onset of rotation | 6th min. | 7th min. | 8th min. if reqd. |
|-------------------------------------|----------|----------|-------------------|

(2) Maximum Allowable Solvent Spillage

| | | | |
|----------|---------|---------|---------|
| 5 ounces | 1 ounce | 1 ounce | 1 ounce |
|----------|---------|---------|---------|

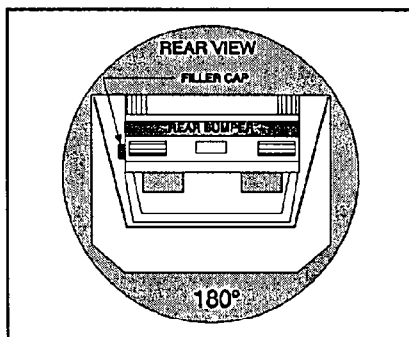
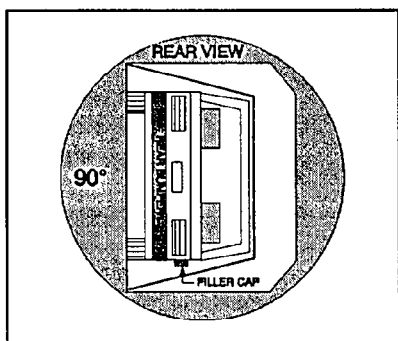
III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

| | | | |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
|---|---|---|---|

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S): None

Table 10

FMVSS NO. 301 STATIC ROLLOVER DATA SHEETTEST PHASE:Vehicle NHTSA ID No.
MP5204I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)2 minutes 30 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds**TOTAL**7 minutes 30 seconds

Next whole minute interval

8 minutes 00 secondsII. FMVSS 301 REQUIREMENTS:(1) Time Period

| | | | |
|-------------------------------------|----------|----------|-------------------|
| First 5 min. from onset of rotation | 6th min. | 7th min. | 8th min. if reqd. |
|-------------------------------------|----------|----------|-------------------|

(2) Maximum Allowable Solvent Spillage

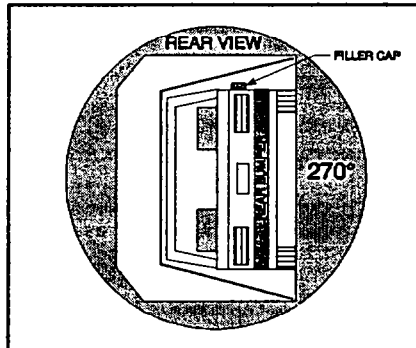
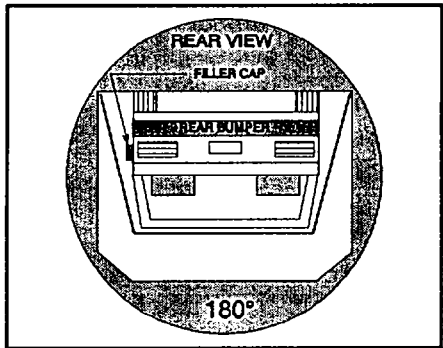
| | | | |
|----------|---------|---------|---------|
| 5 ounces | 1 ounce | 1 ounce | 1 ounce |
|----------|---------|---------|---------|

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

| | | | |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
|---|---|---|---|

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S): None

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET**TEST PHASE:**Vehicle NHTSA ID No.
MP5204**I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:**Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)2 minutes 40 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds**TOTAL**7 minutes 40 seconds

Next whole minute interval

8 minutes 00 seconds**II. FMVSS 301 REQUIREMENTS:****(1) Time Period**

| | | | |
|-------------------------------------|----------|----------|-------------------|
| First 5 min. from onset of rotation | 6th min. | 7th min. | 8th min. if reqd. |
|-------------------------------------|----------|----------|-------------------|

(2) Maximum Allowable Solvent Spillage

| | | | |
|----------|---------|---------|---------|
| 5 ounces | 1 ounce | 1 ounce | 1 ounce |
|----------|---------|---------|---------|

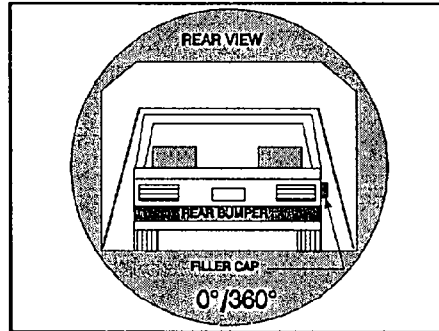
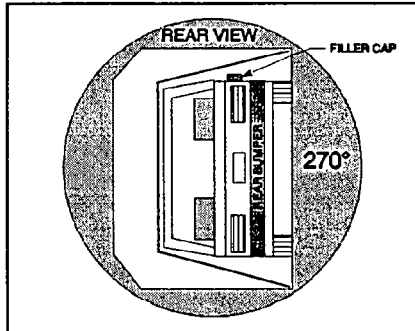
III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

| | | | |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
|---|---|---|---|

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S): None

Table 10

FMVSS NO. 301 STATIC ROLLOVER DATA SHEETTEST PHASE:Vehicle NHTSA ID No.
MP5204I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)2

minutes

40

seconds

FMVSS 301 Position Hold Time +

5

minutes

00

seconds

TOTAL7

minutes

40

seconds

Next whole minute interval

8

minutes

00

seconds

II. FMVSS 301 REQUIREMENTS:(1) Time Period

| | | | |
|-------------------------------------|----------|----------|-------------------|
| First 5 min. from onset of rotation | 6th min. | 7th min. | 8th min. if reqd. |
|-------------------------------------|----------|----------|-------------------|

(2) Maximum Allowable Solvent Spillage

| | | | |
|----------|---------|---------|---------|
| 5 ounces | 1 ounce | 1 ounce | 1 ounce |
|----------|---------|---------|---------|

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

| | | | |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
|---|---|---|---|

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S): None

Appendix A
PHOTOGRAPHS

PHOTOGRAPHS

| <u>Figure</u> | <u>Title</u> | <u>Page</u> |
|---------------|---|-------------|
| A-1 | PRE-TEST FRONT VIEW..... | A-3 |
| A-2 | POST TEST FRONT VIEW..... | A-4 |
| A-3 | PRE-TEST LEFT SIDE VIEW..... | A-5 |
| A-4 | POST TEST LEFT SIDE VIEW..... | A-6 |
| A-5 | PRE-TEST RIGHT SIDE VIEW..... | A-7 |
| A-6 | POST TEST RIGHT SIDE VIEW..... | A-8 |
| A-7 | PRE-TEST RIGHT FRONT THREE-QUARTER VIEW..... | A-9 |
| A-8 | POST TEST RIGHT FRONT THREE-QUARTER VIEW..... | A-10 |
| A-9 | PRE-TEST LEFT REAR THREE-QUARTER VIEW..... | A-11 |
| A-10 | POST TEST LEFT REAR THREE-QUARTER VIEW..... | A-12 |
| A-11 | PRE-TEST WINDSHIELD VIEW..... | A-13 |
| A-12 | POST TEST WINDSHIELD VIEW..... | A-14 |
| A-13 | PRE-TEST ENGINE COMPARTMENT VIEW..... | A-15 |
| A-14 | FUEL CAP VIEW..... | A-16 |
| A-15 | PRE-TEST FRONT UNDERBODY VIEW..... | A-17 |
| A-16 | POST TEST FRONT UNDERBODY VIEW..... | A-18 |
| A-17 | PRE-TEST FRONT SIDE UNDERBODY VIEW..... | A-19 |
| A-18 | POST TEST FRONT SIDE UNDERBODY VIEW..... | A-20 |
| A-19 | PRE-TEST REAR UNDERBODY VIEW..... | A-21 |
| A-20 | POST TEST REAR UNDERBODY VIEW..... | A-22 |
| A-21 | PRE-TEST DRIVER POSITION VIEW..... | A-23 |
| A-22 | POST TEST DRIVER POSITION VIEW..... | A-24 |
| A-23 | POST TEST PASSENGER POSITION VIEW..... | A-25 |
| A-24 | PRE-TEST DRIVER AND INTERIOR VIEW..... | A-26 |
| A-25 | POST TEST DRIVER AND INTERIOR VIEW..... | A-27 |
| A-26 | POST TEST PASSENGER AND INTERIOR VIEW..... | A-28 |
| A-27 | IMPACT VIEW..... | A-29 |

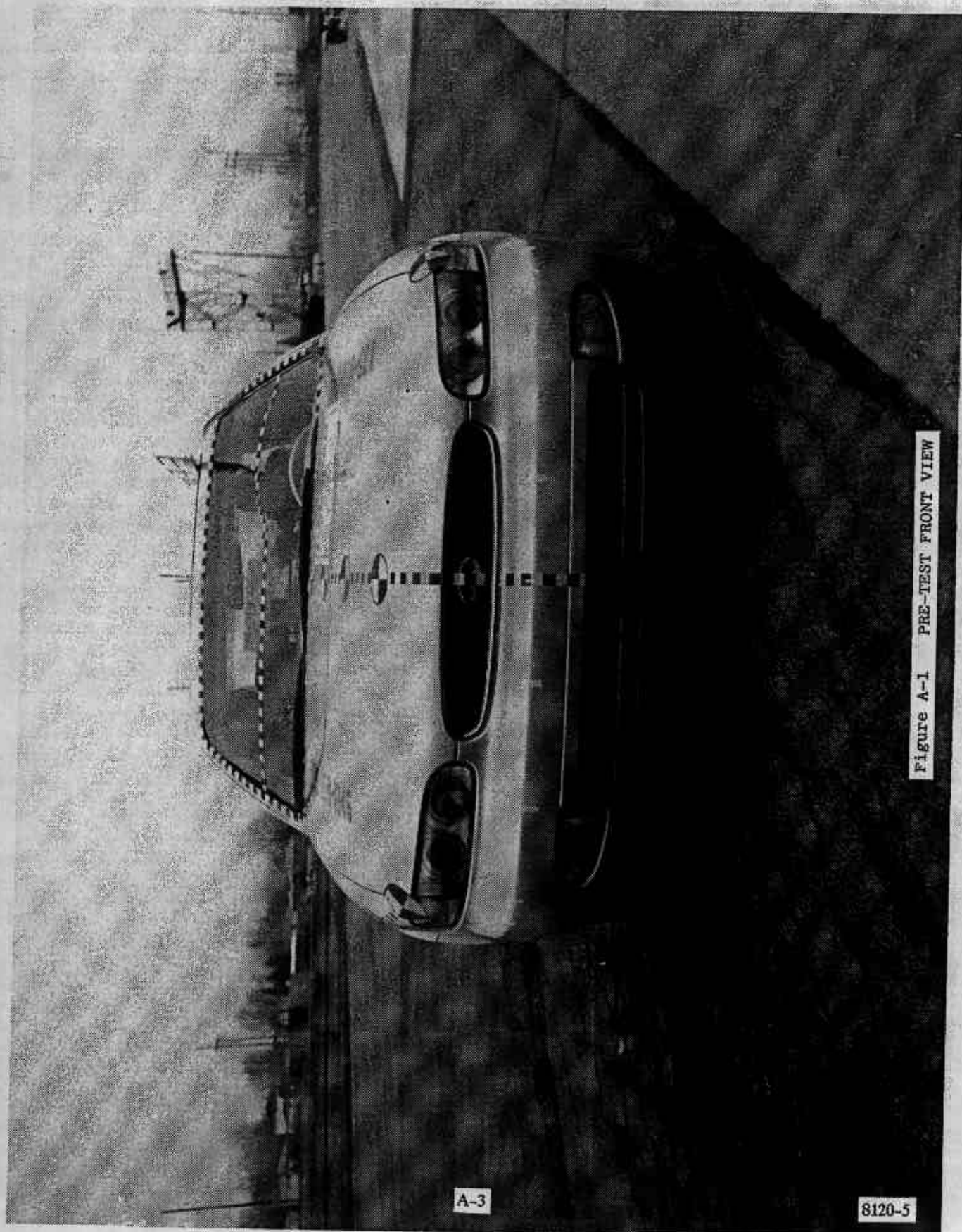


Figure A-1 PRE-TEST FRONT VIEW

A-3

8120-5

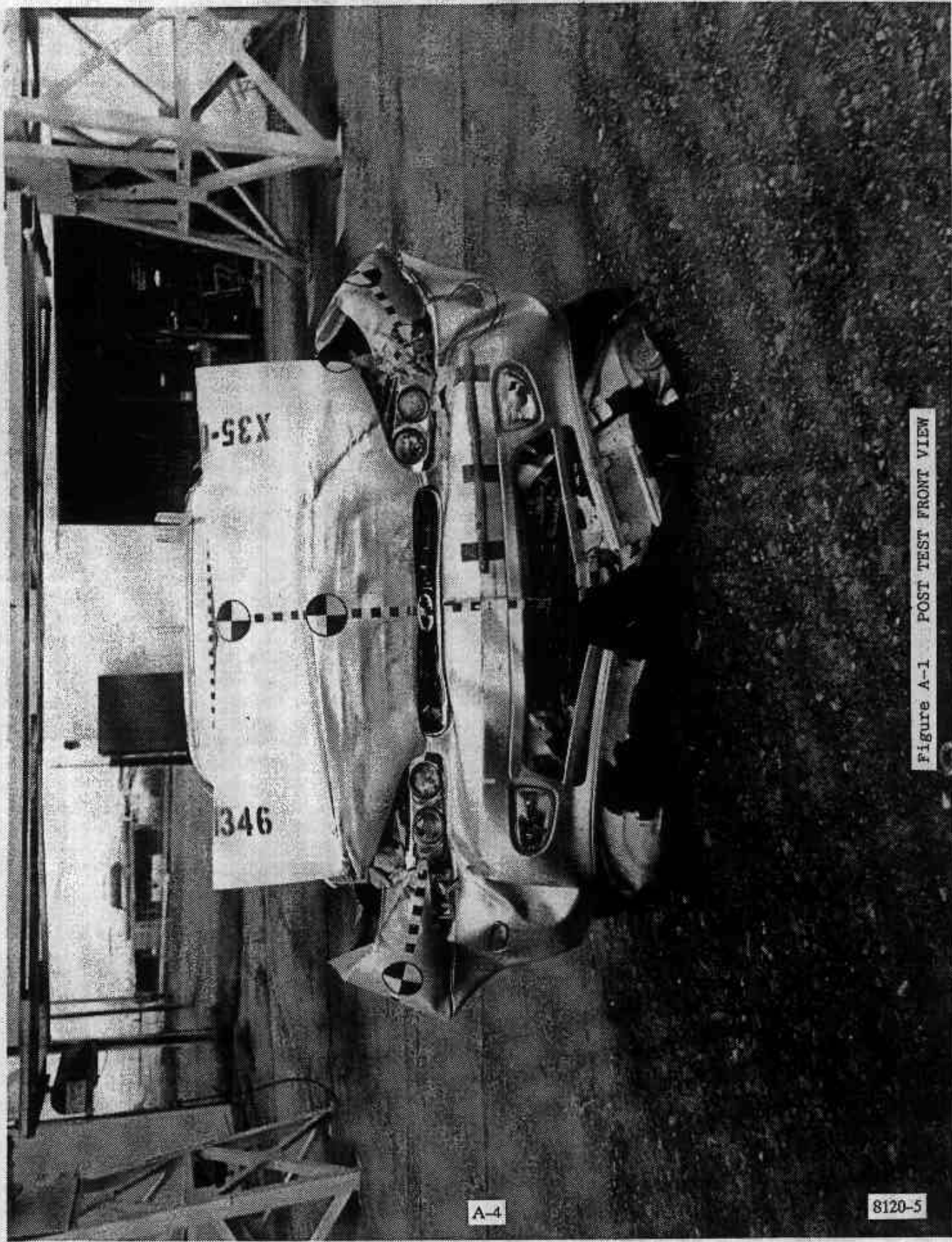


Figure A-1 POST TEST FRONT VIEW

A-4

8120-5



Figure A-3 PRE-TEST LEFT SIDE VIEW

A-5

8120-5



Figure A-4 POST TEST LEFT SIDE VIEW

A-6

8120-5

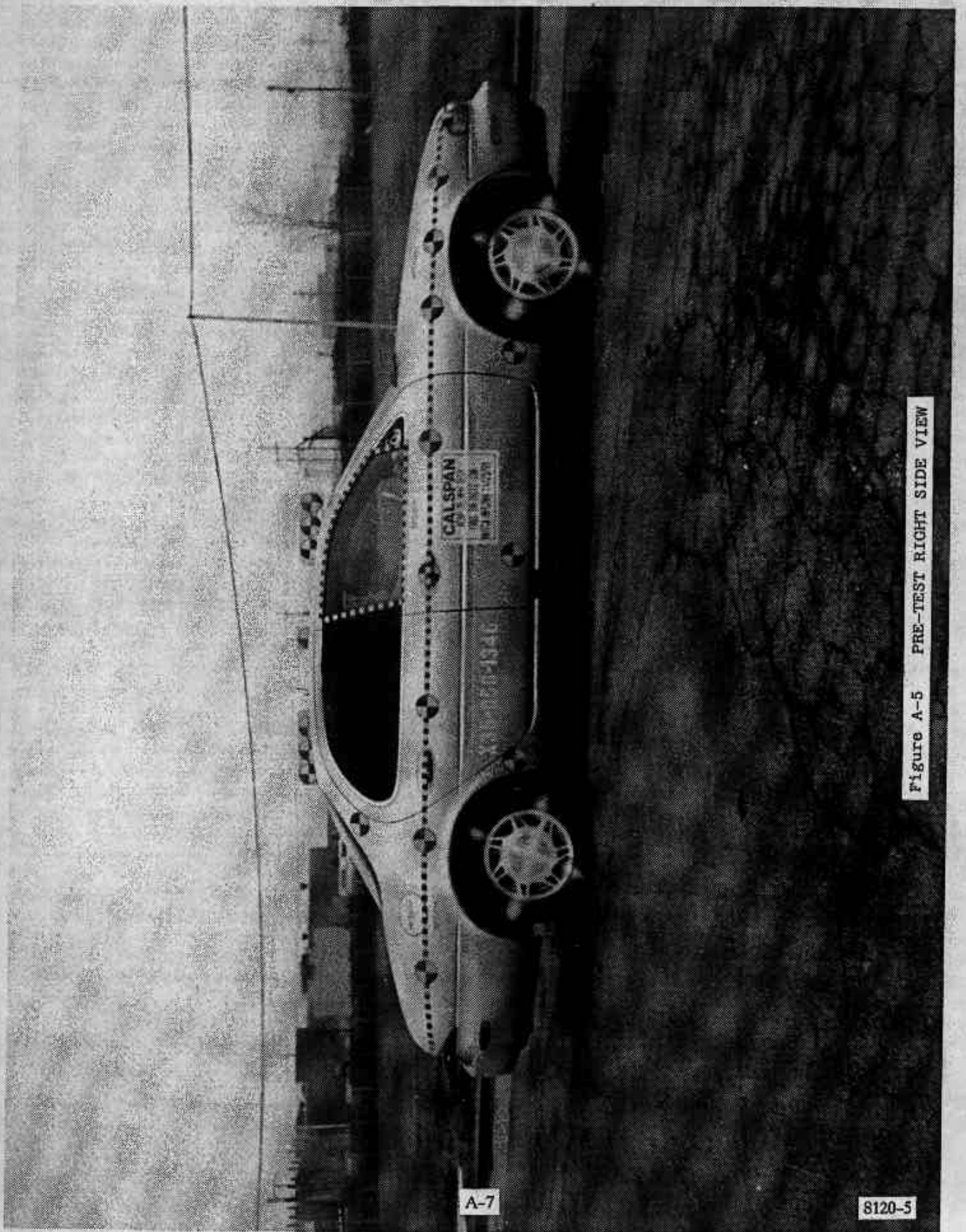


Figure A-5 PRE-TEST RIGHT SIDE VIEW

A-7

8120-5

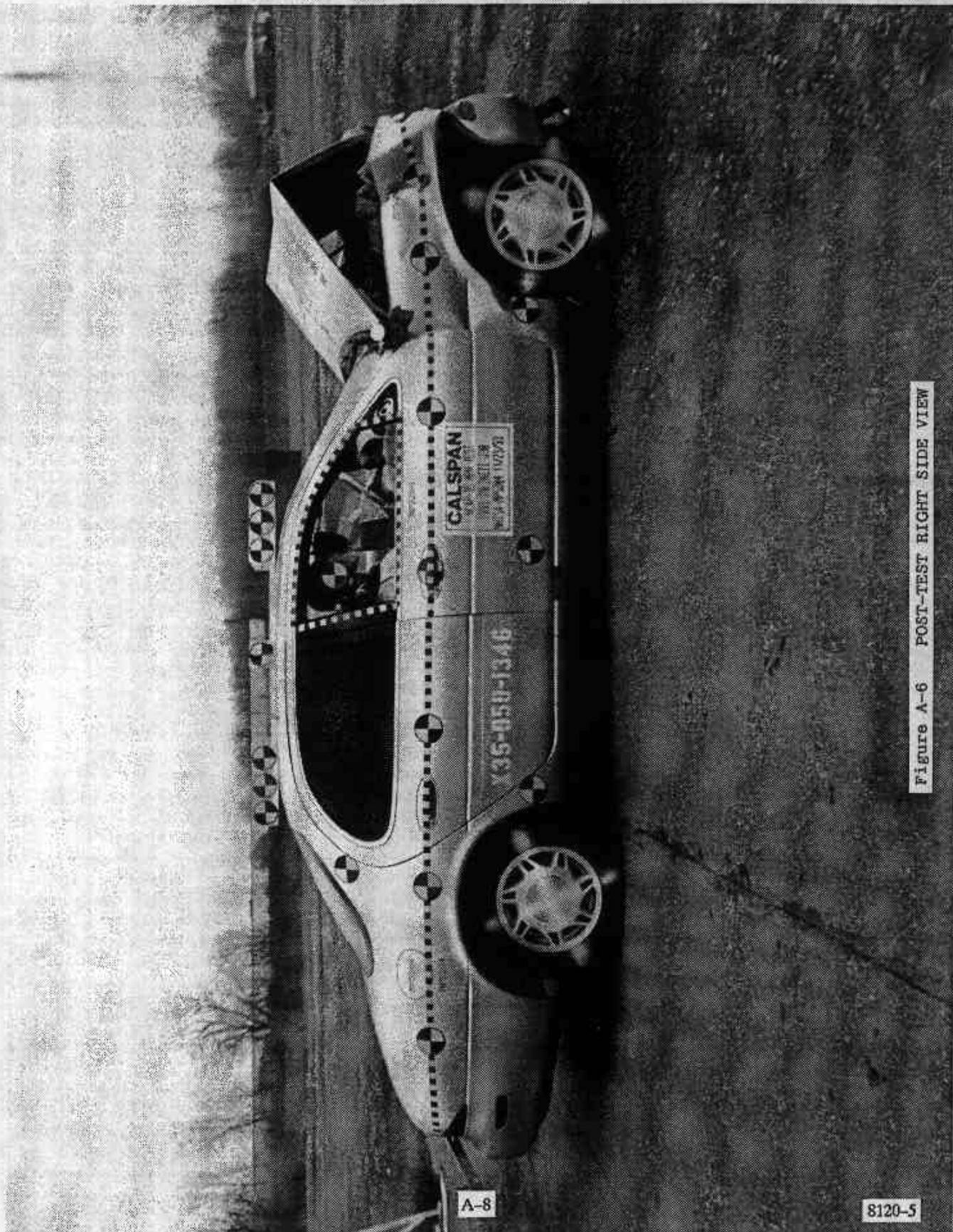


Figure A-6 POST-TEST RIGHT SIDE VIEW

A-8

8120-5

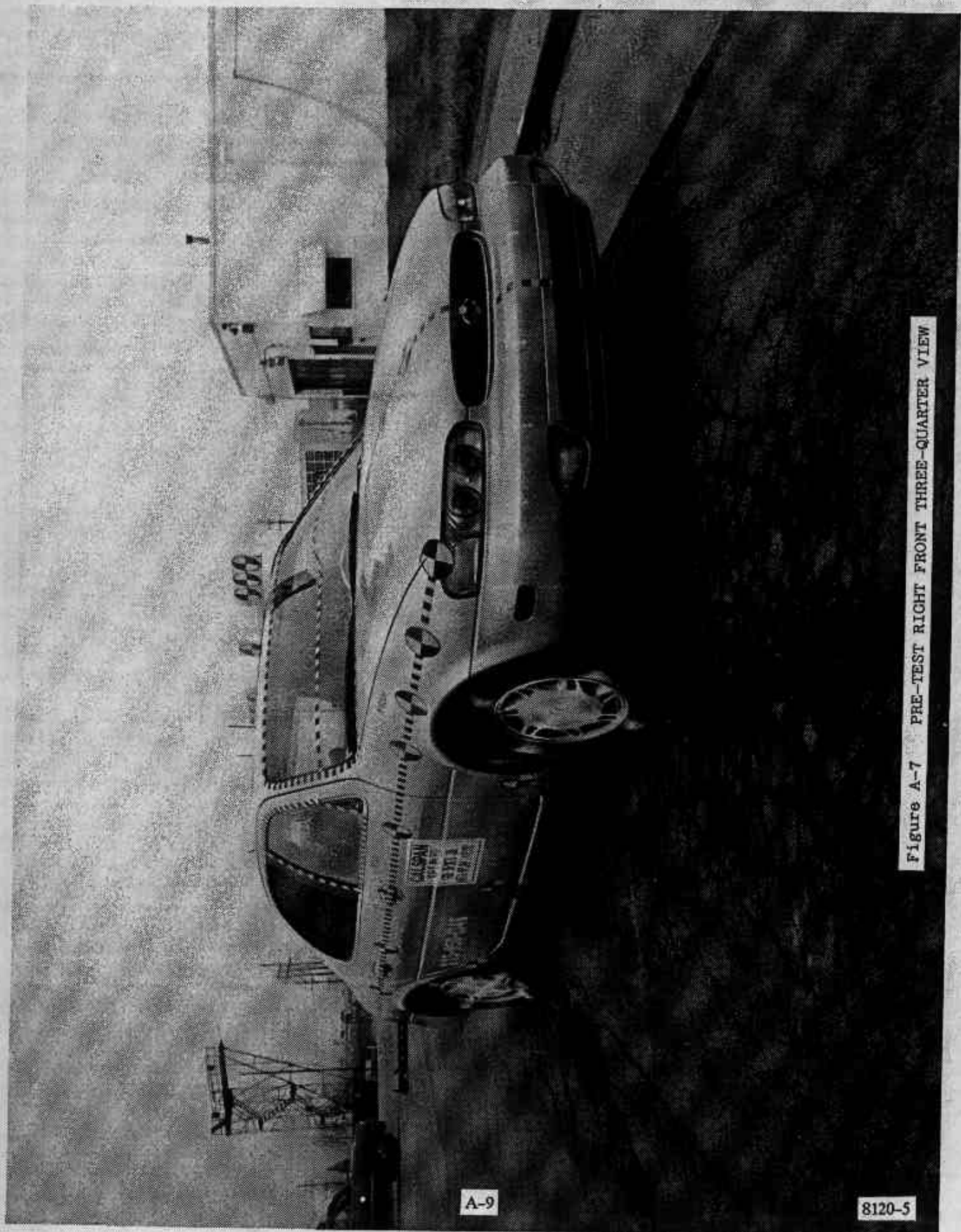
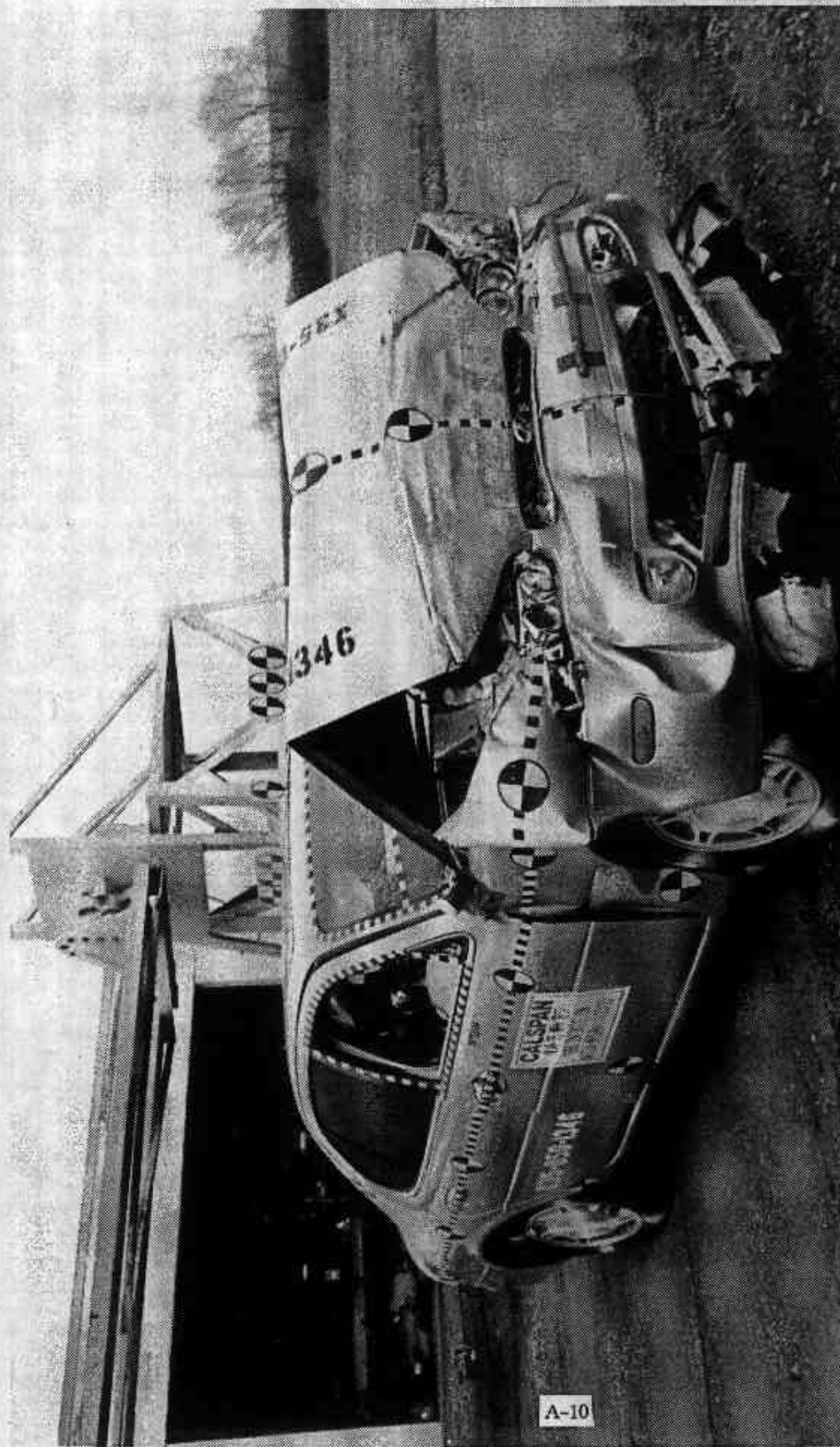


Figure A-7 PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

A-9

8120-5



A-10

8120-5

Figure A-8 POST-TEST RIGHT FRONT THREE-QUARTER VIEW

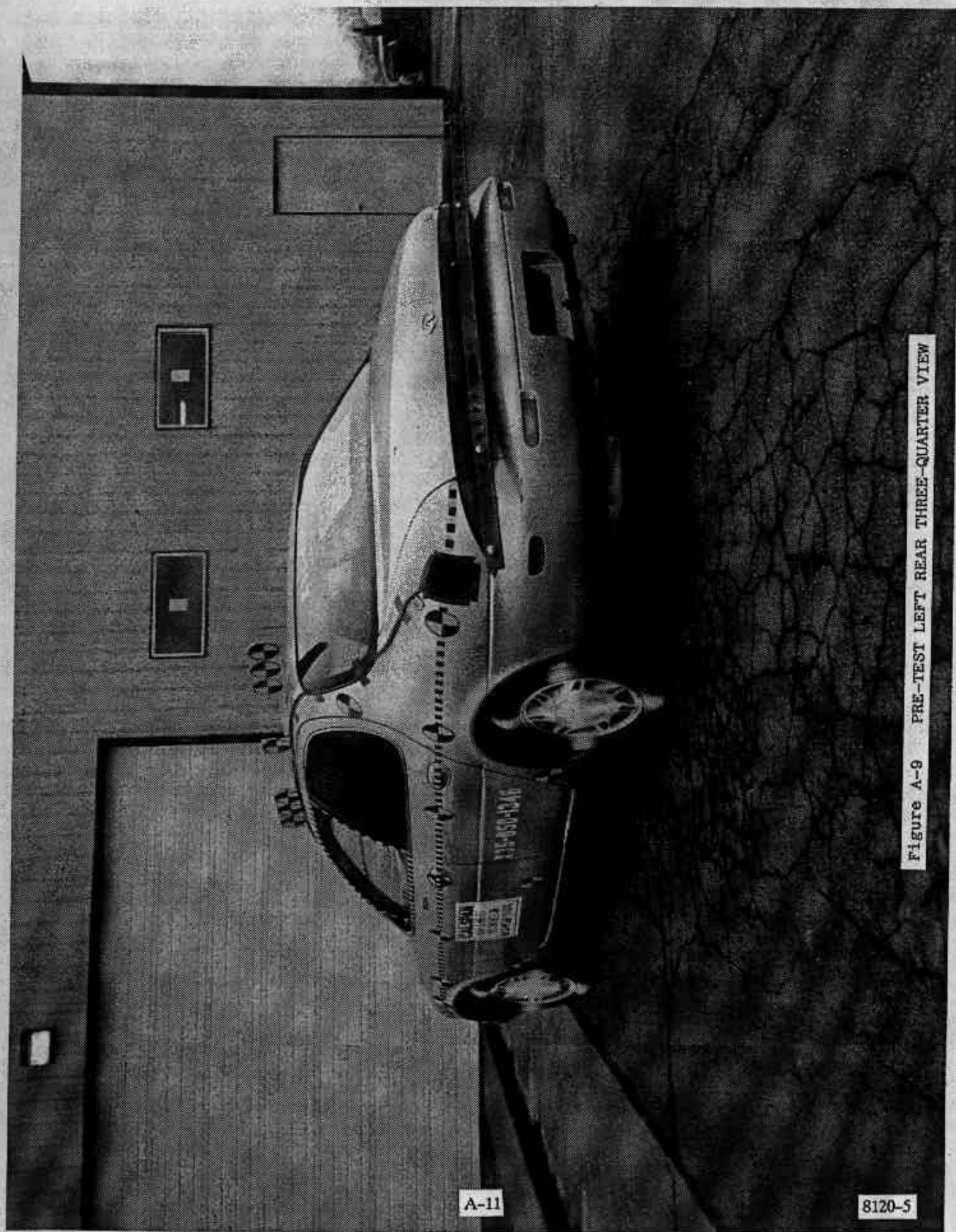


Figure A-9 PRE-TEST LEFT REAR THREE-QUARTER VIEW

A-11

8120-5

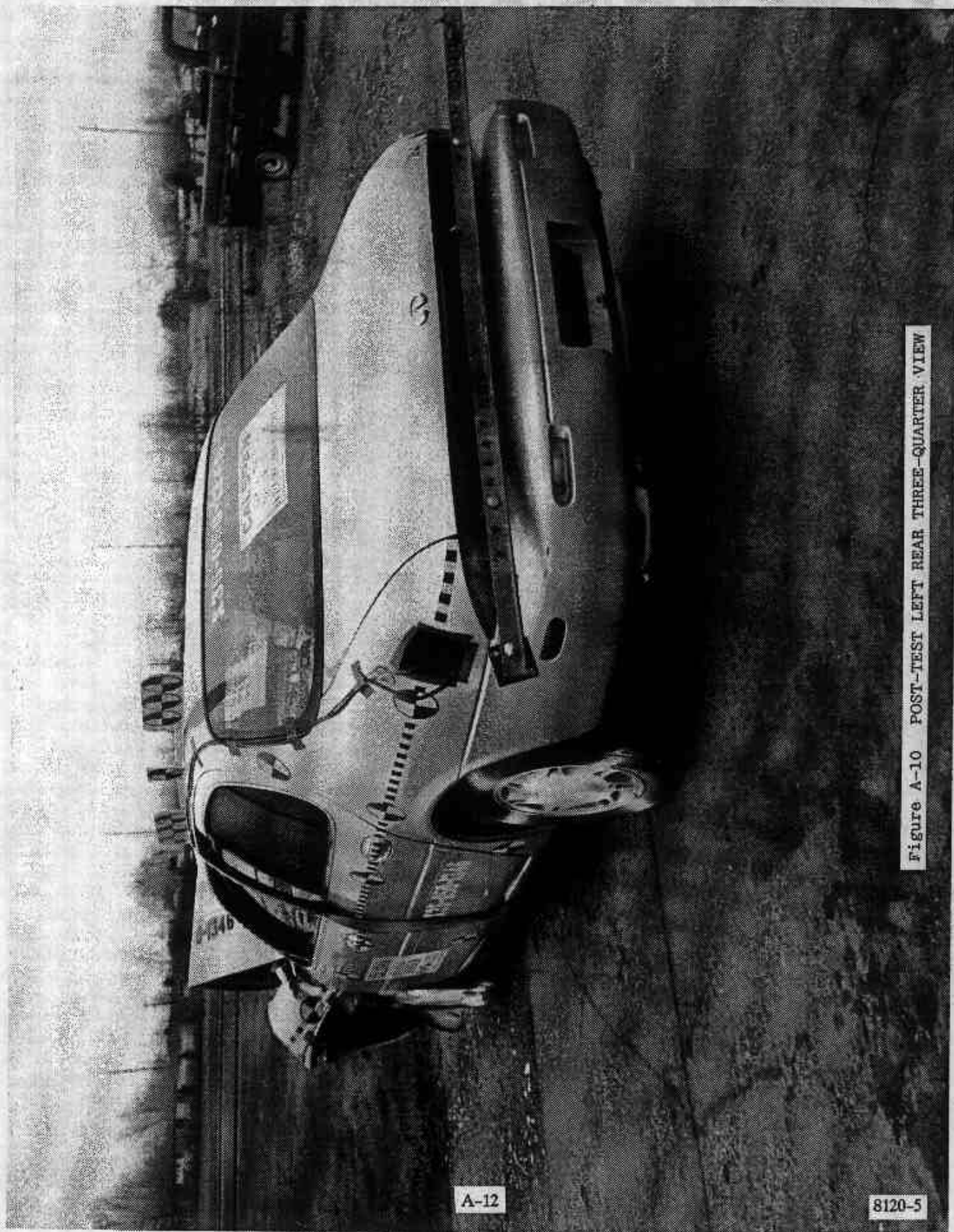


Figure A-10 POST-TEST LEFT REAR THREE-QUARTER VIEW

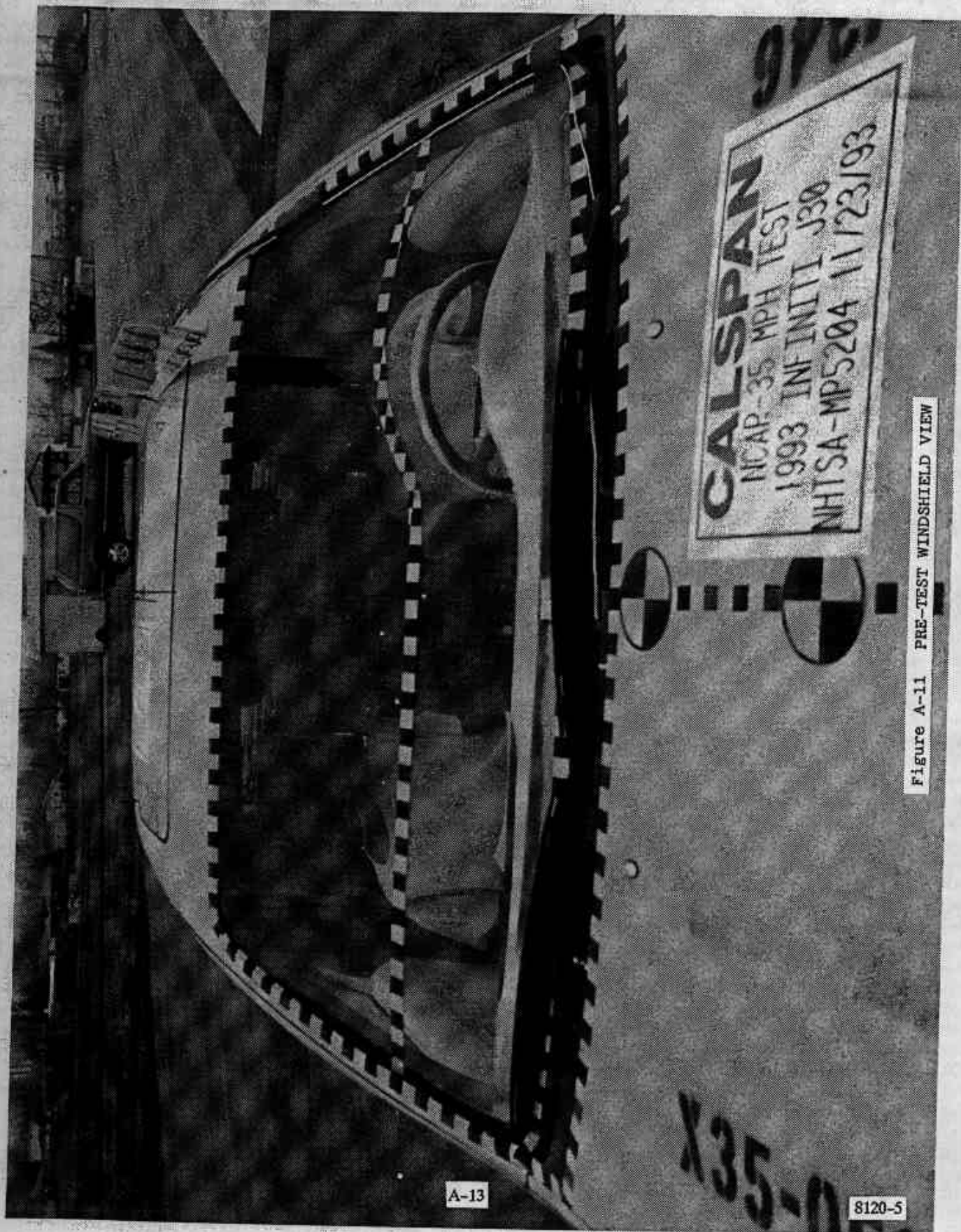
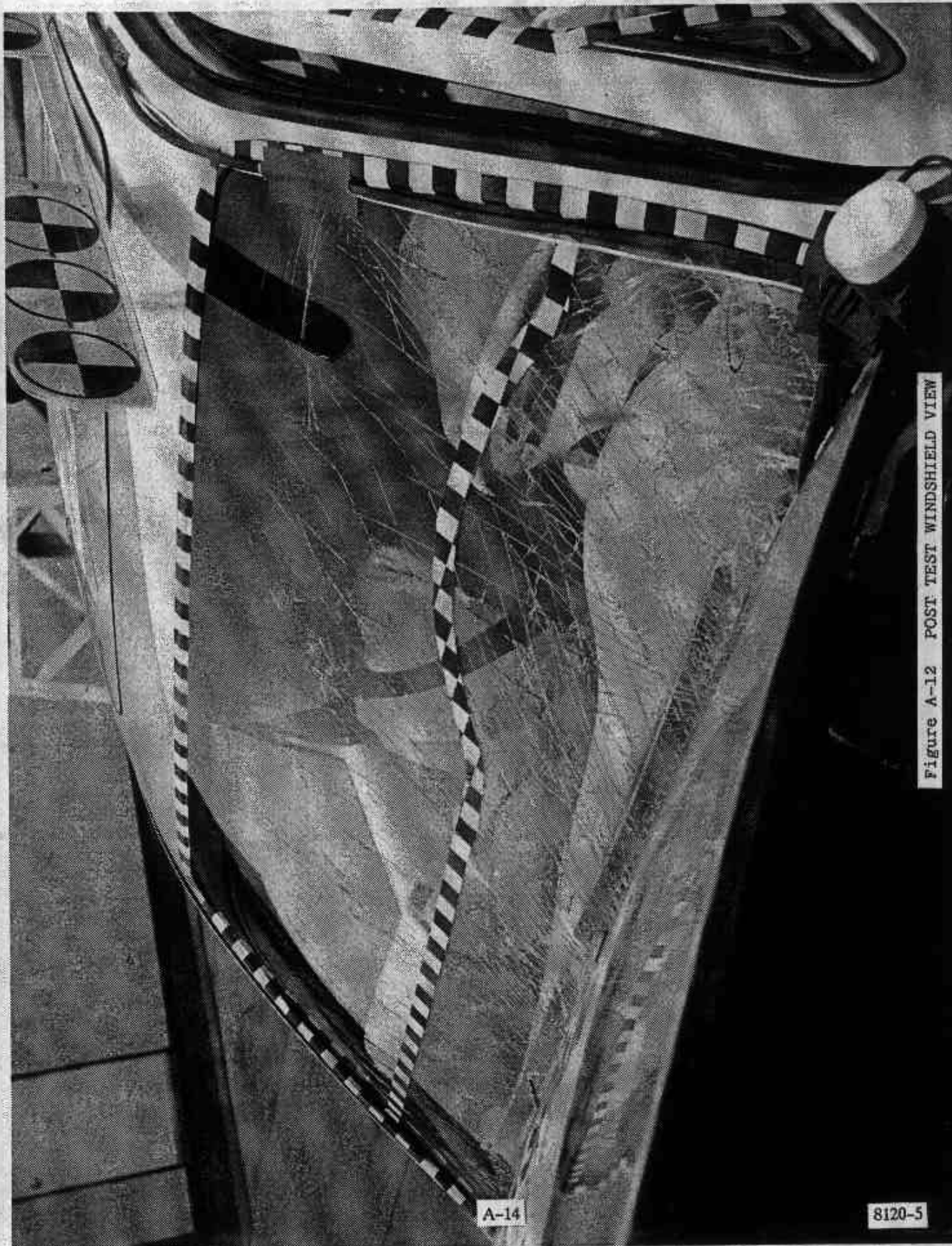


Figure A-11 PRE-TEST WINDSHIELD VIEW

Figure A-12 POST TEST WINDSHIELD VIEW



A-14

8120-5

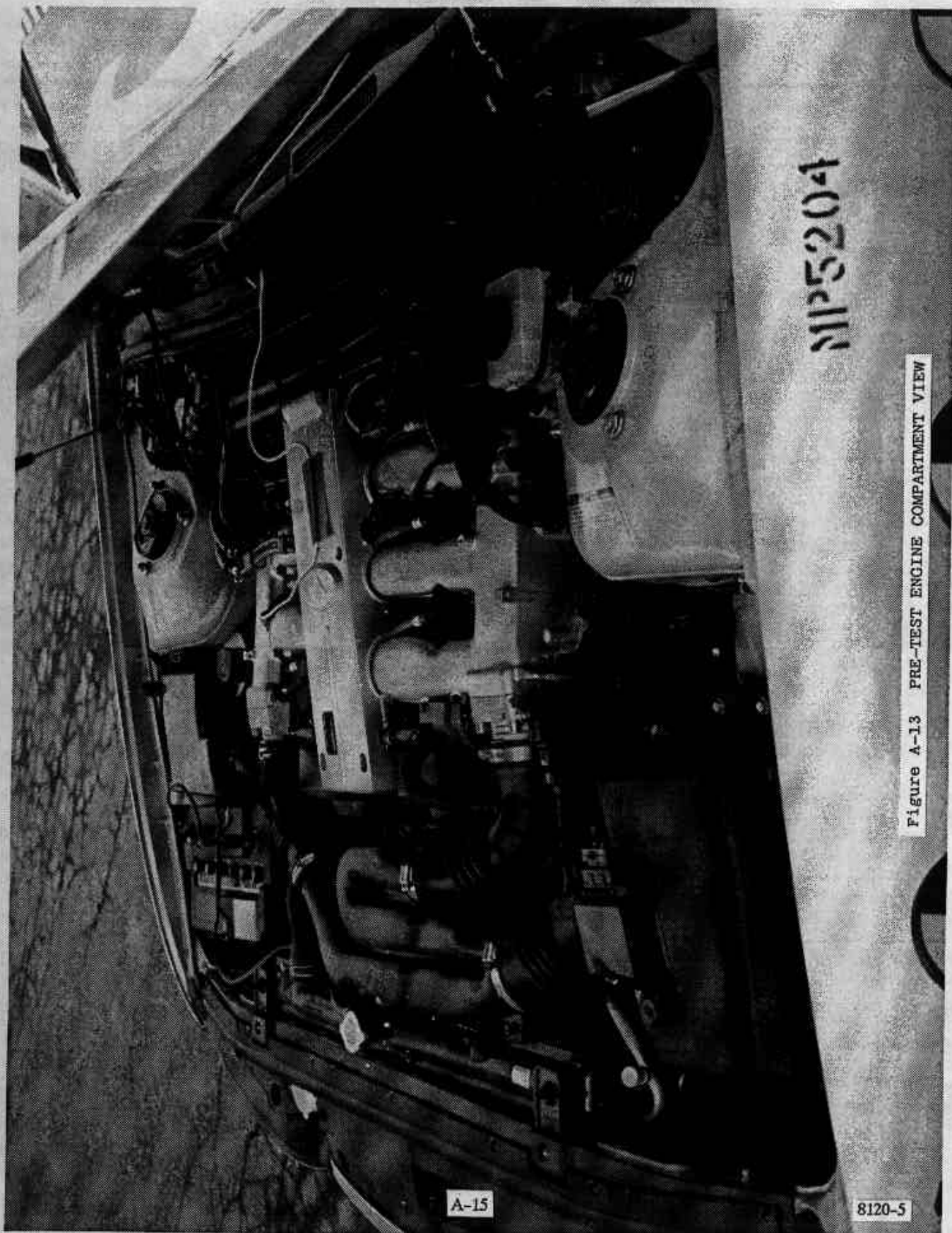
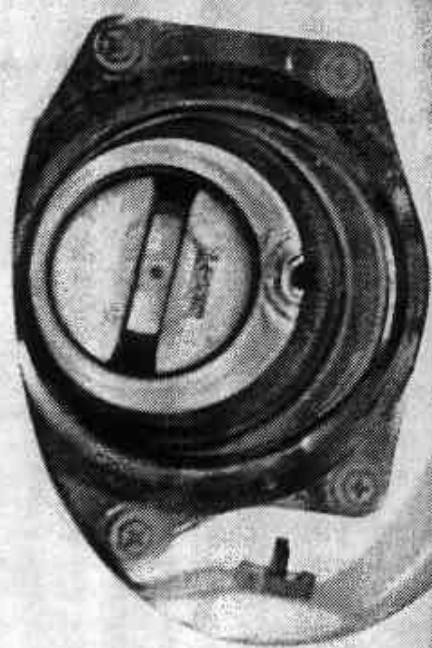


Figure A-13 PRE-TEST ENGINE COMPARTMENT VIEW

A-15

8120-5



102511

Figure A-14 FUEL CAP VIEW

A-16

8120-5

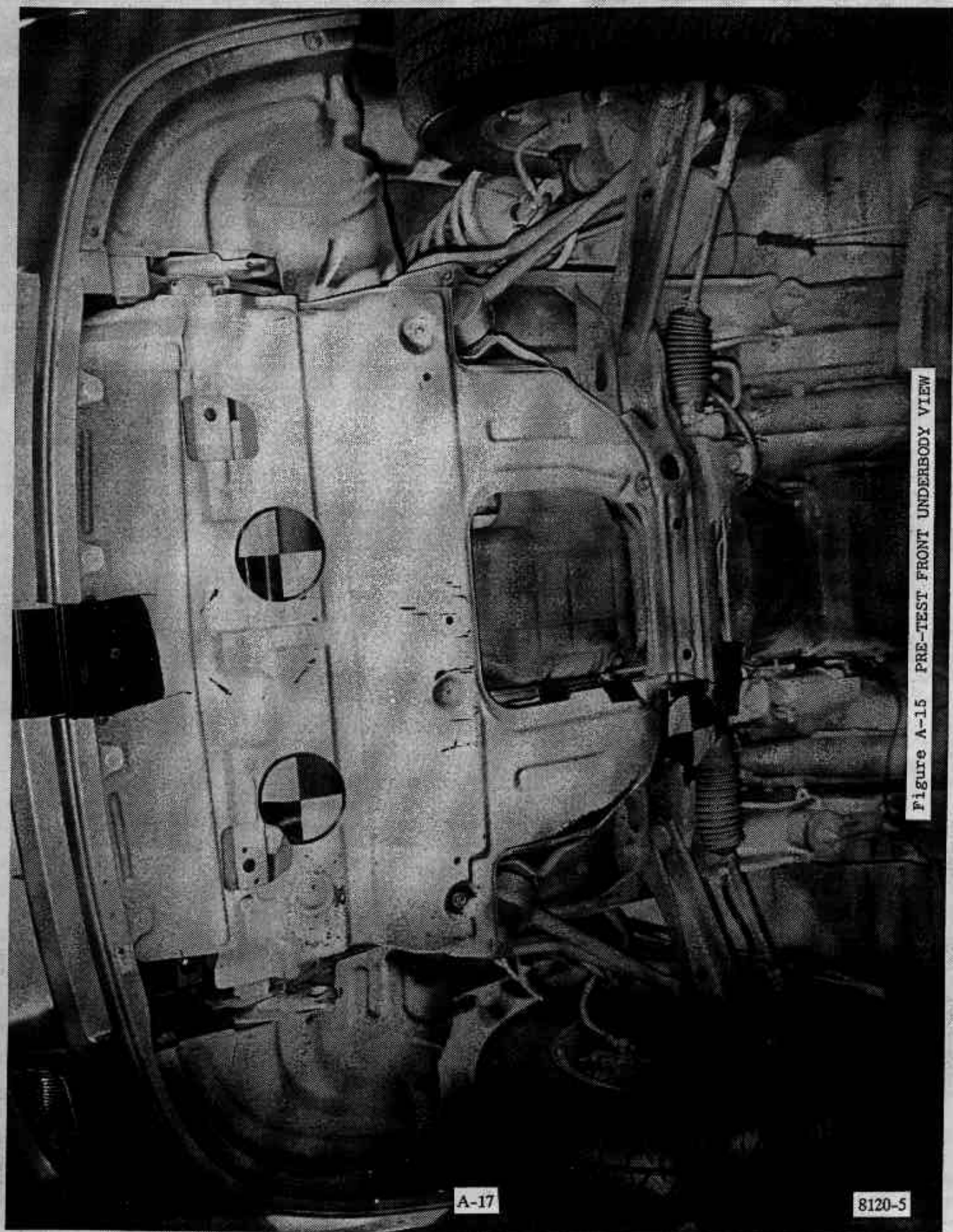
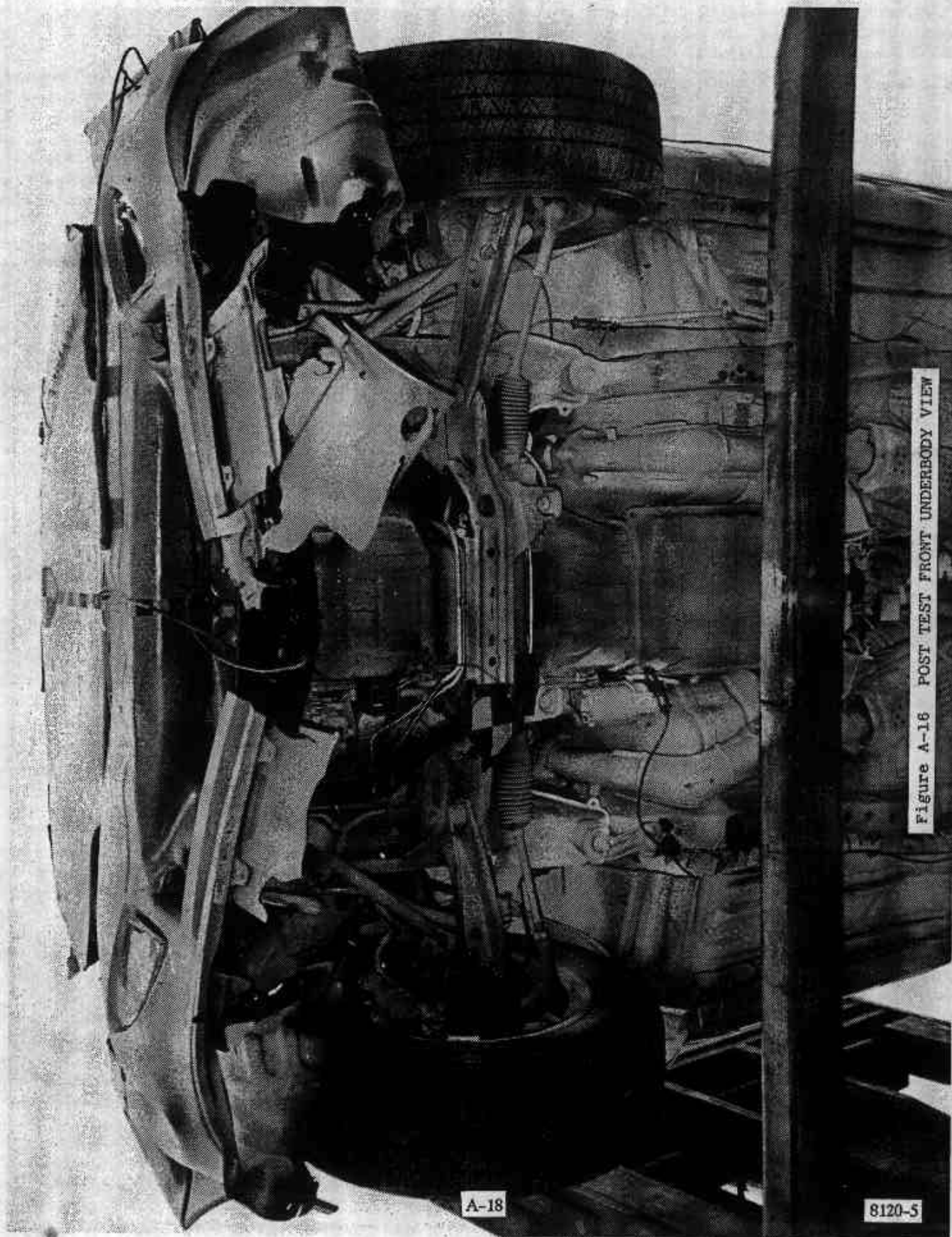


Figure A-15 PRE-TEST FRONT UNDERBODY VIEW

A-17

8120-5



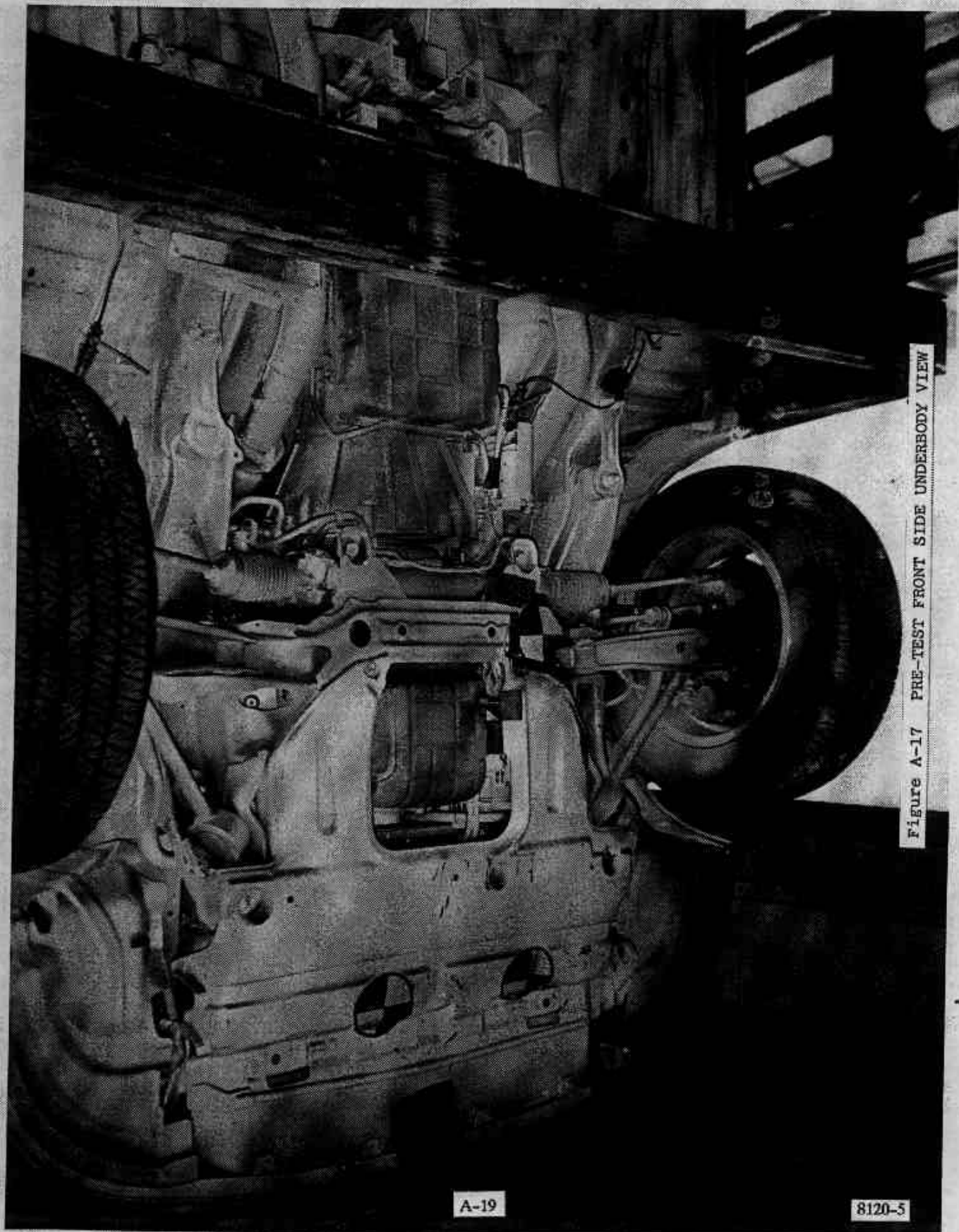


FIGURE A-17 PRE-TEST FRONT SIDE UNDERBODY VIEW

A-19

8120-5

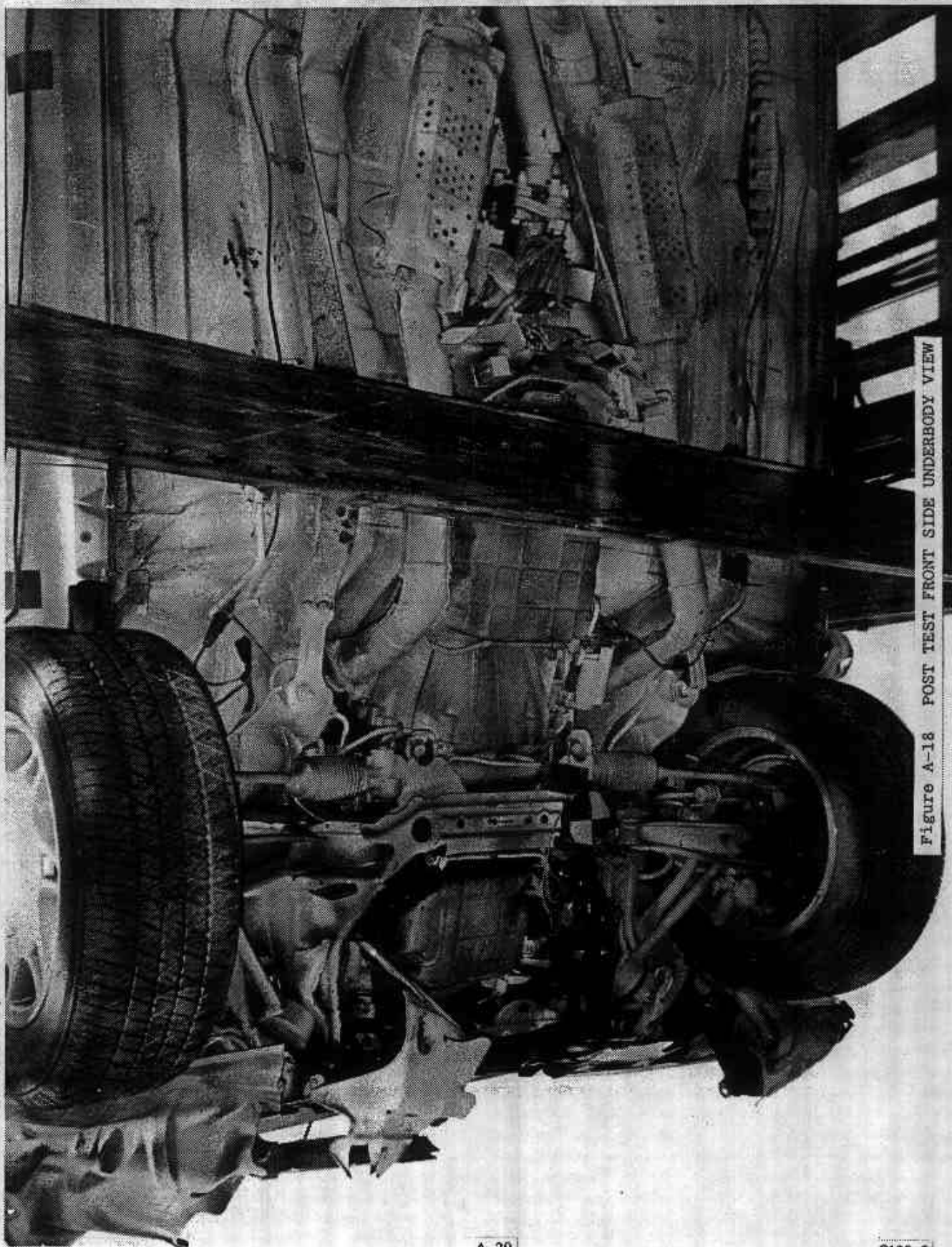


Figure A-18 POST TEST FRONT SIDE UNDERBODY VIEW

A-20

8120-5

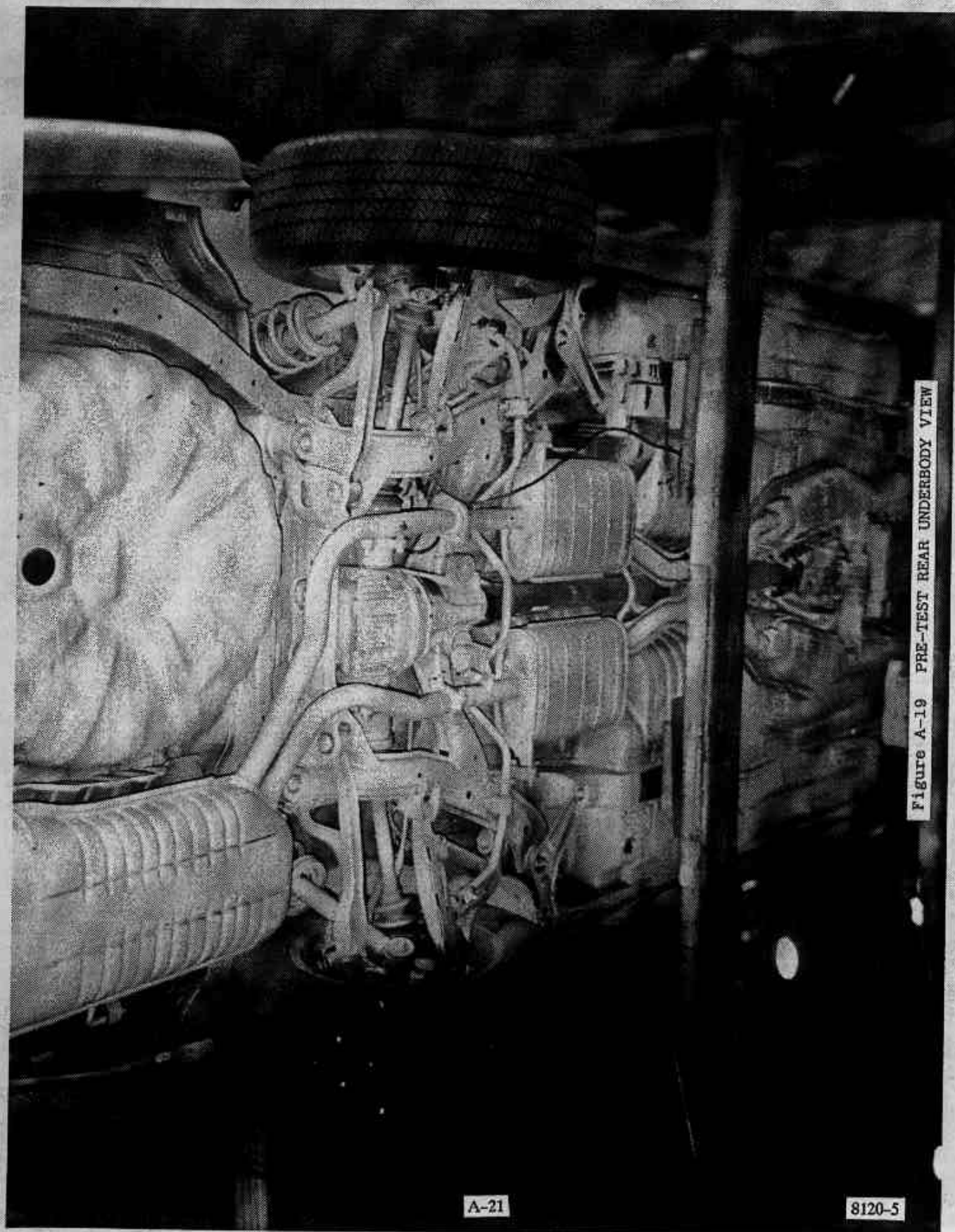
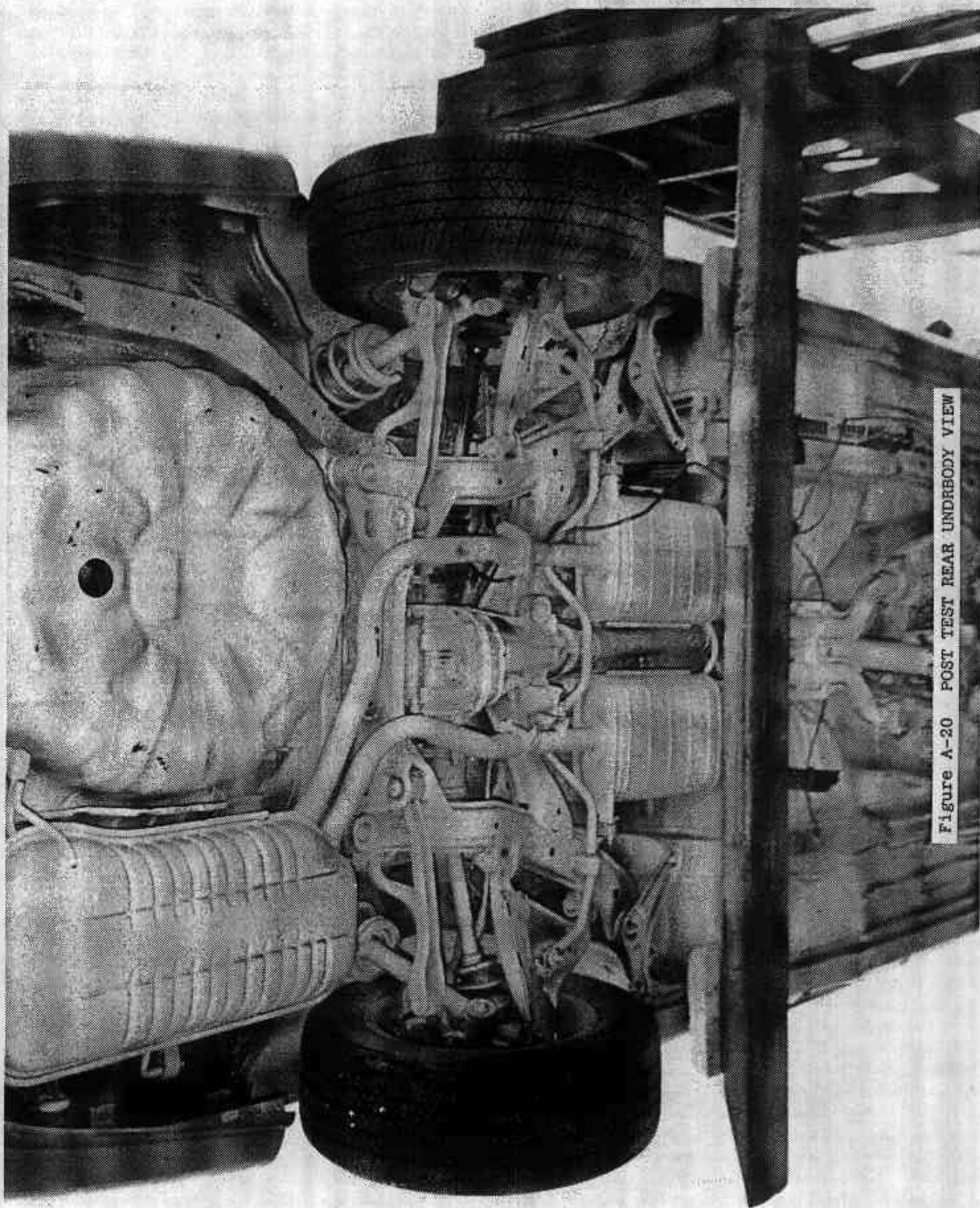


Figure A-19 PRE-TEST REAR UNDERBODY VIEW

A-21

8120-5

Figure A-20 POST TEST REAR UNDERBODY VIEW



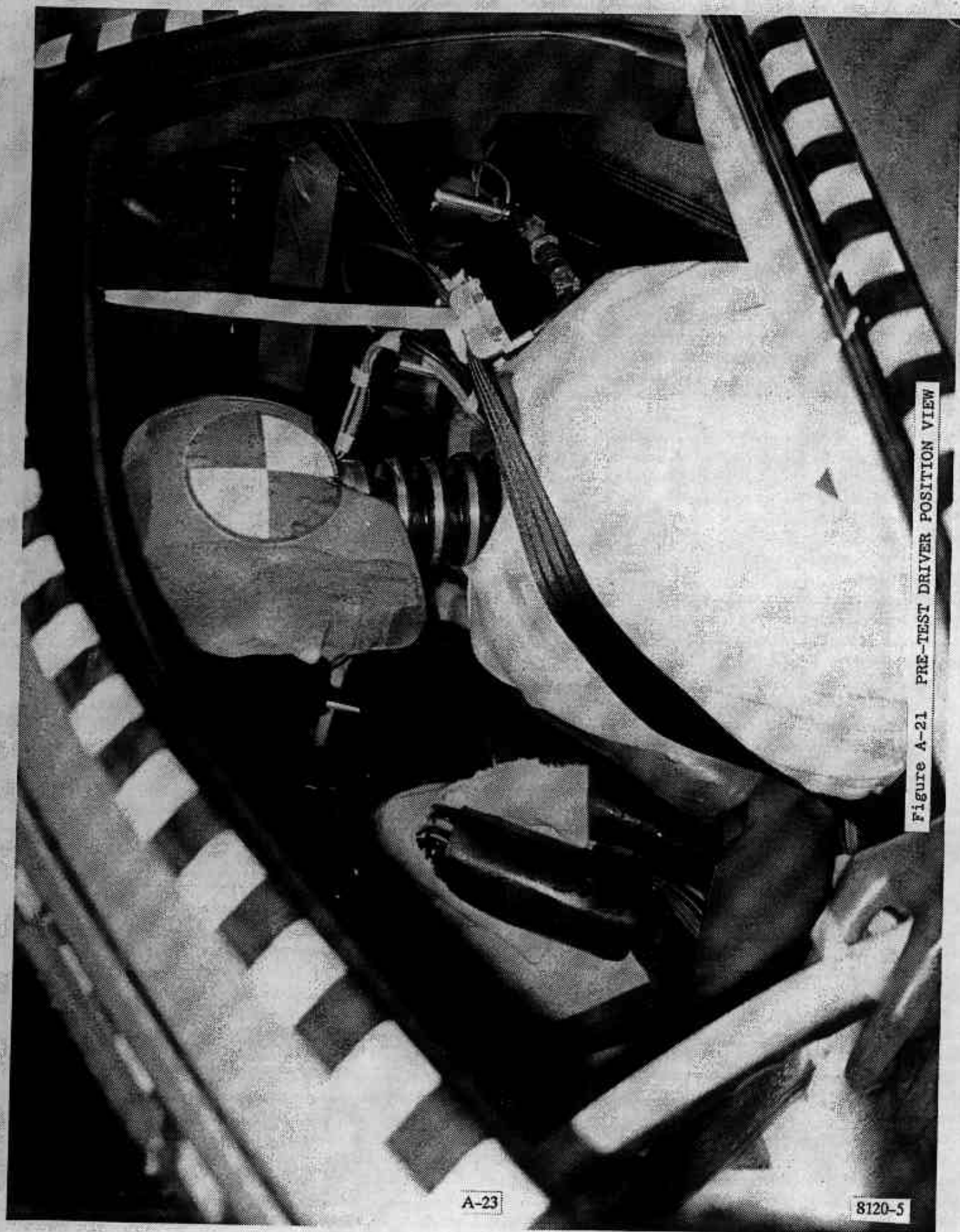


Figure A-21 PRE-TEST DRIVER POSITION VIEW

A-23

8120-5



Figure A-22 POST TEST DRIVER POSITION VIEW

A-24

8120-5



Figure A-23 POST TEST PASSENGER POSITION VIEW

A-25

8120-5



Figure A-24 PRE-TEST DRIVER AND INTERIOR VIEW

A-26

8120-5



Figure A-25 POST TEST DRIVE AND INTERIOR VIEW

A-27

8120-5



Figure A-26 POST TEST PASSENGER AND INTERIOR VIEW

A-28

8120-5

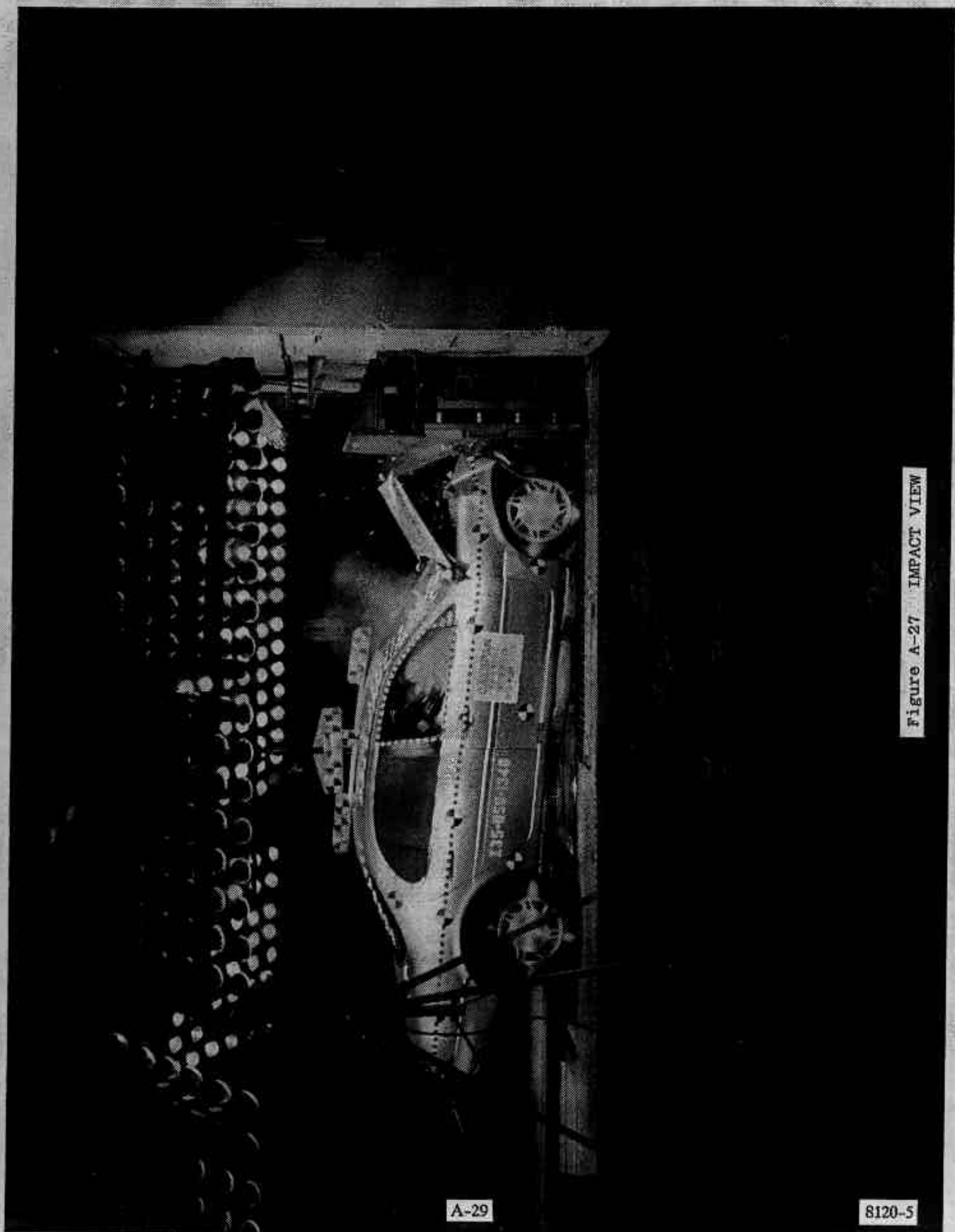


Figure A-27 IMPACT VIEW

A-29

8120-5

Appendix B

VEHICLE, LOAD CELL BARRIER AND DUMMY RESPONSE DATA

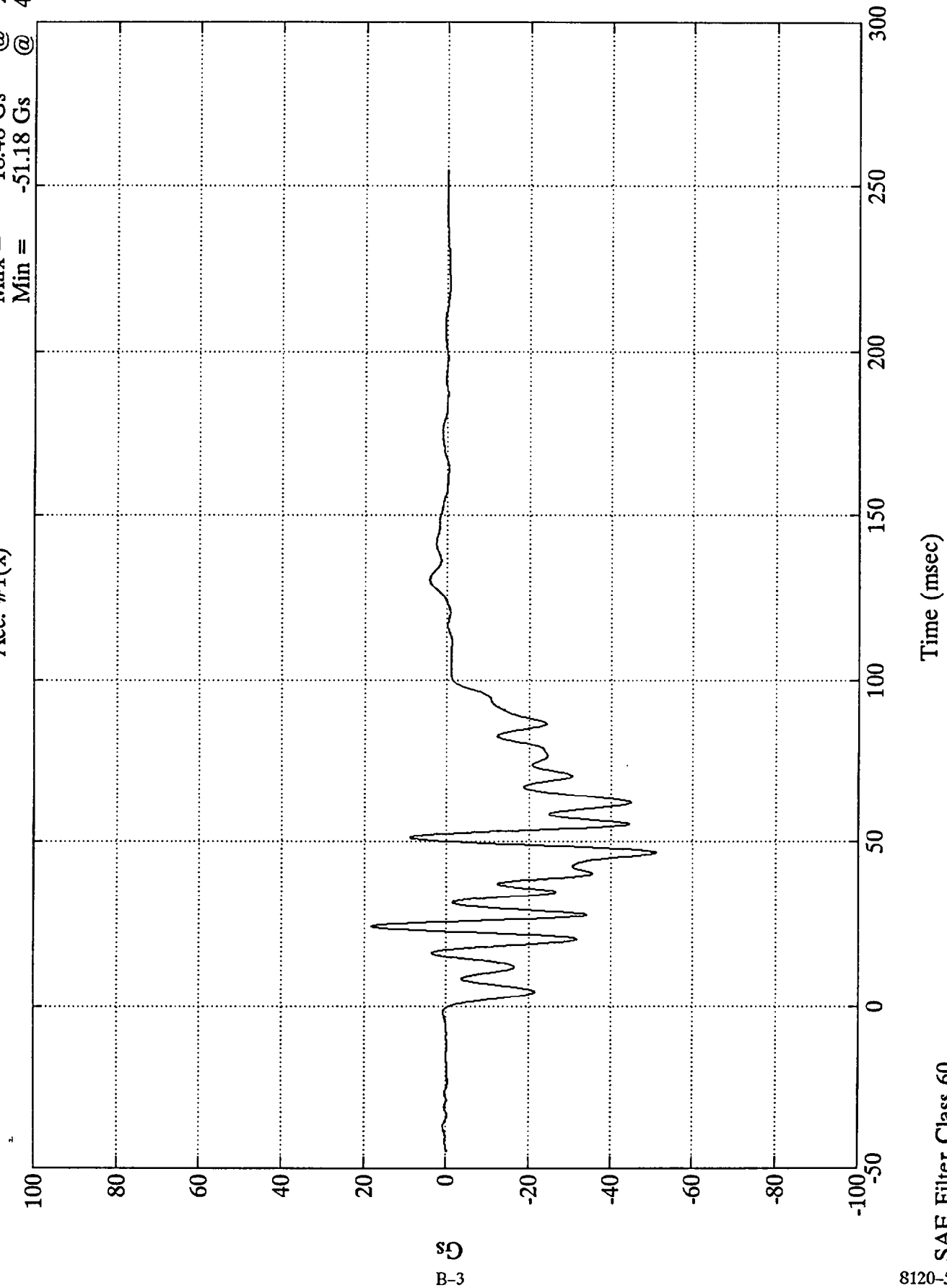
TEST NO. MP5204

VEHICLE DATA

FILTER CHANNEL CLASS

60

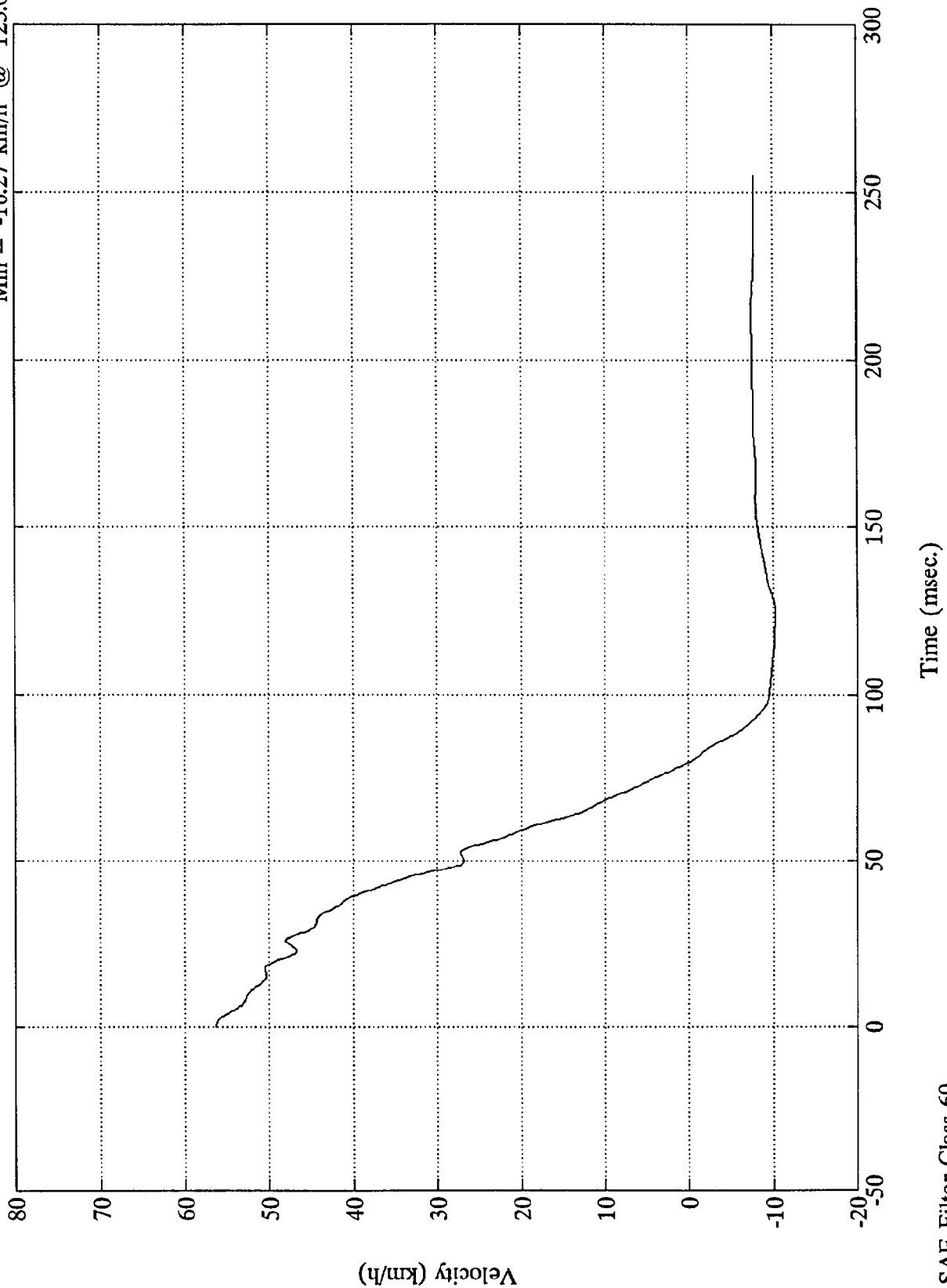
Acc. #1(x) Max = 18.48 Gs @ 24.23 msec
Min = -51.18 Gs @ 46.68 msec



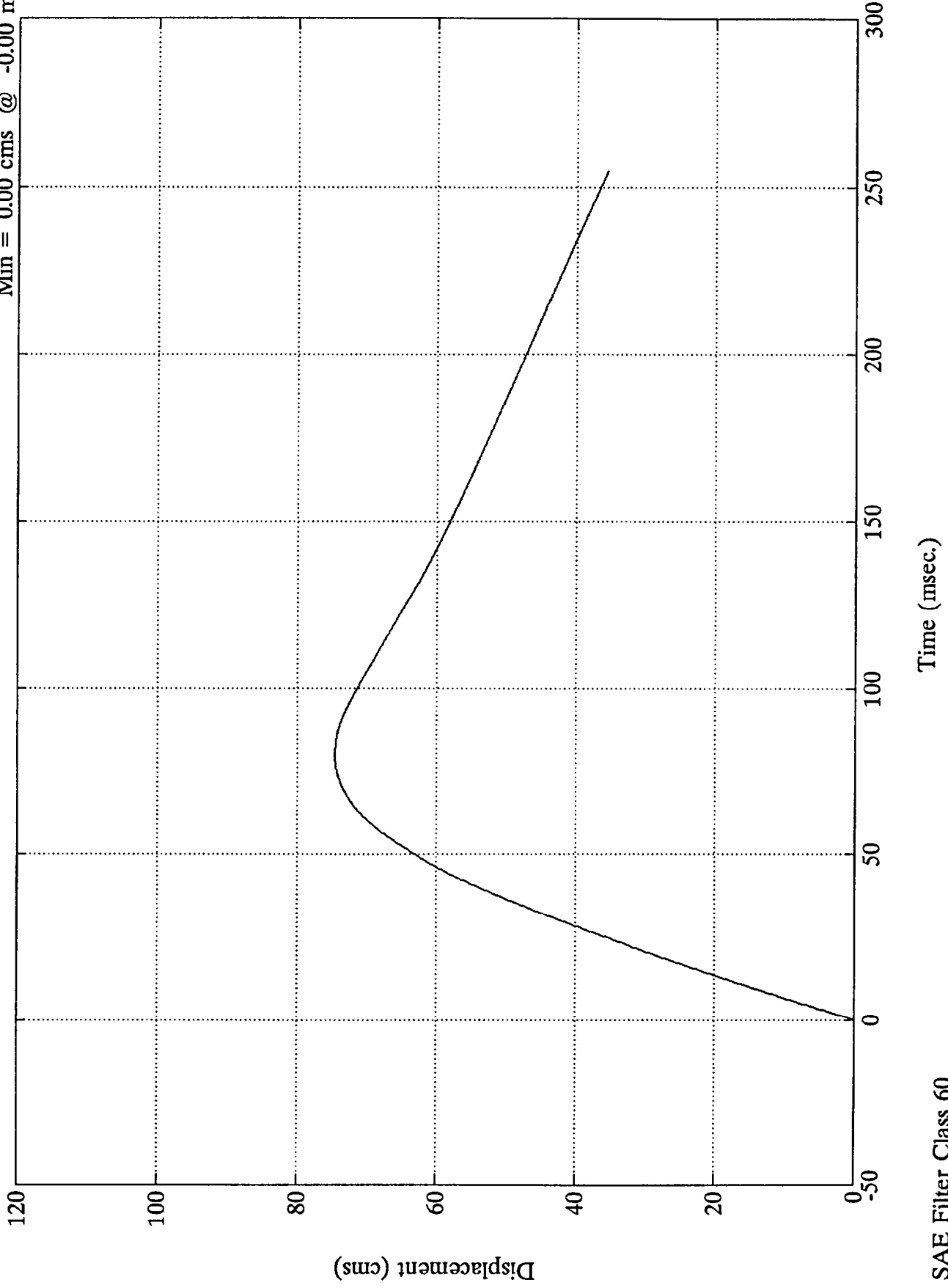
NCAP TEST #5 - INFINITI J30

Acc. #1(x)

Max = 56.32 km/h @ -0.00 msec
Min = -10.27 km/h @ 123.60 msec



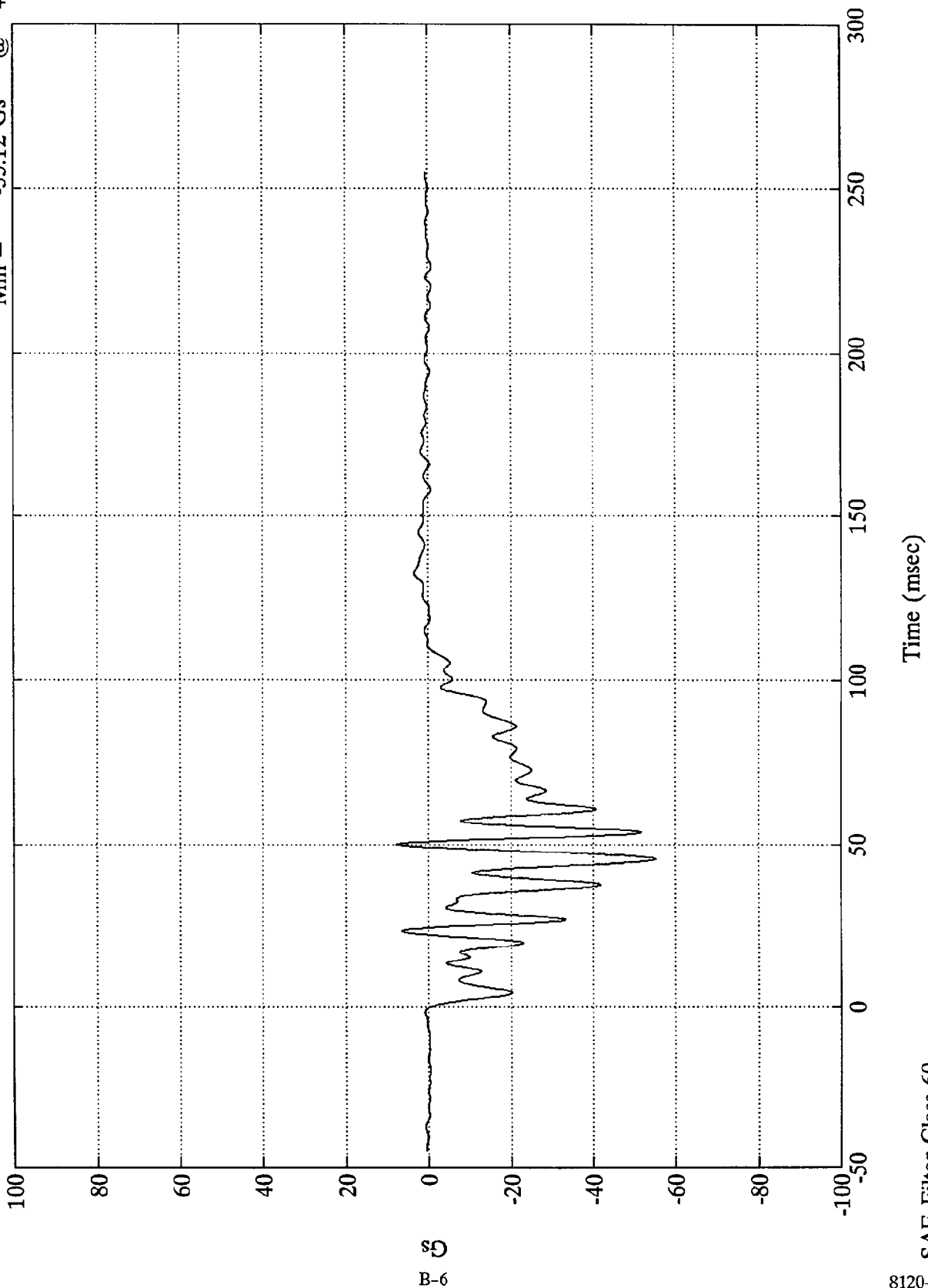
Acc. #1(x)
Max = 74.63 cms @ 81.12 msec
Min = 0.00 cms @ -0.00 msec



NCAP TEST #5 - 1993 INFINITI J30

Max = 7.77 Gs @ 50.16 msec
 Min = -55.12 Gs @ 45.60 msec

Acc. #2(x)

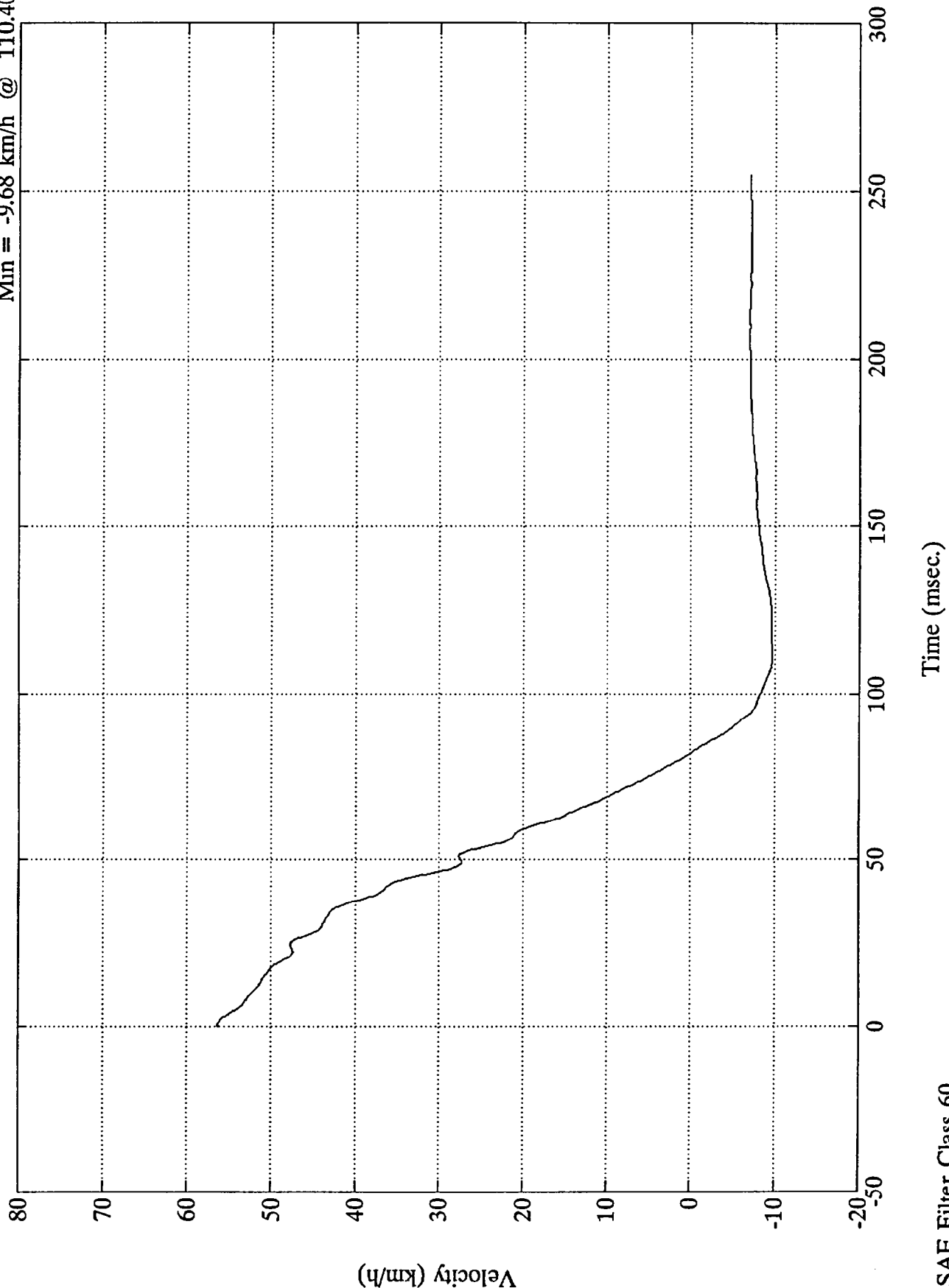


SAE Filter Class 60

8120-5

Acc. #2(x)

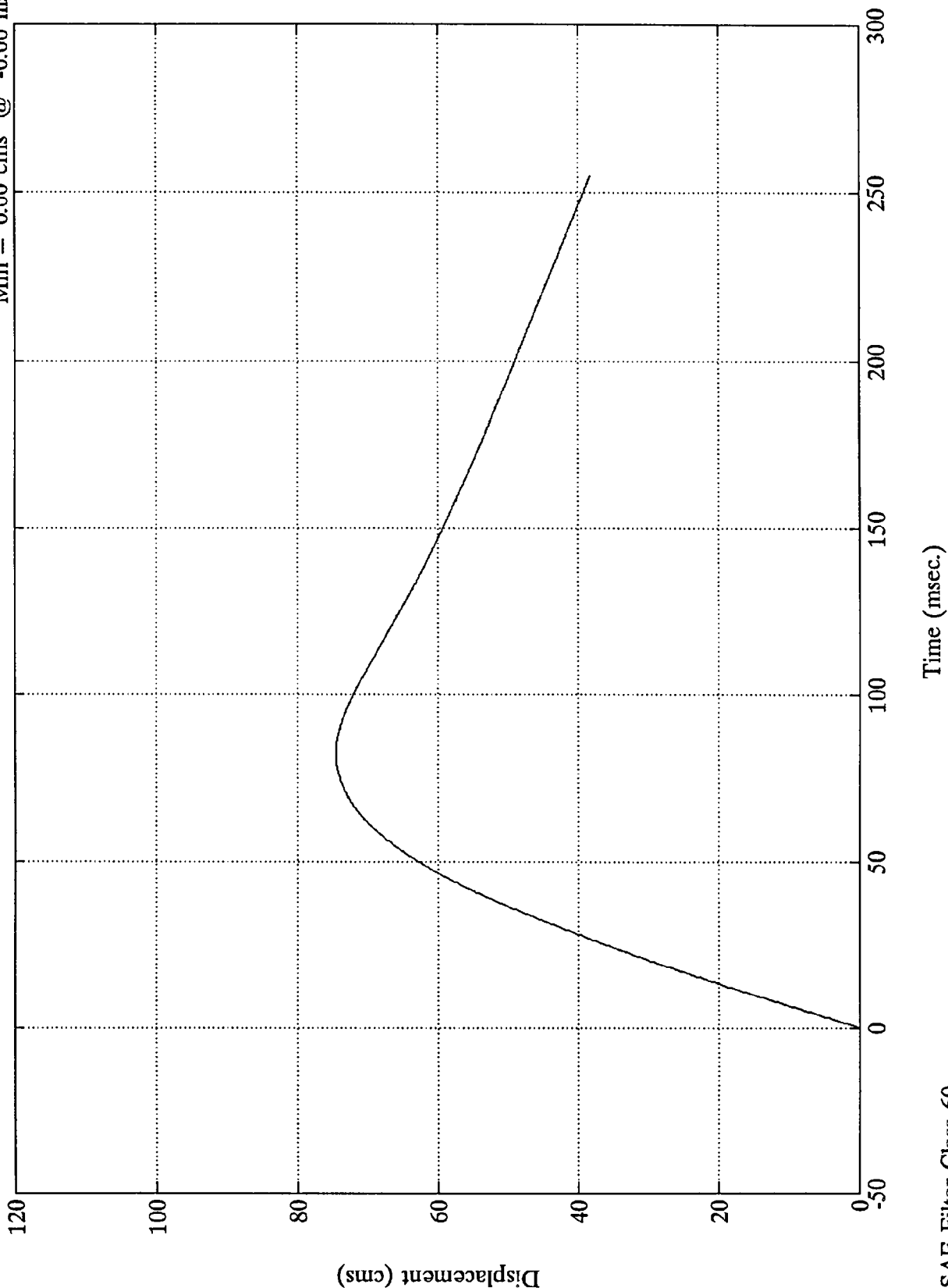
Max = 56.32 km/h @ 0.24 msec
Min = -9.68 km/h @ 110.40 msec



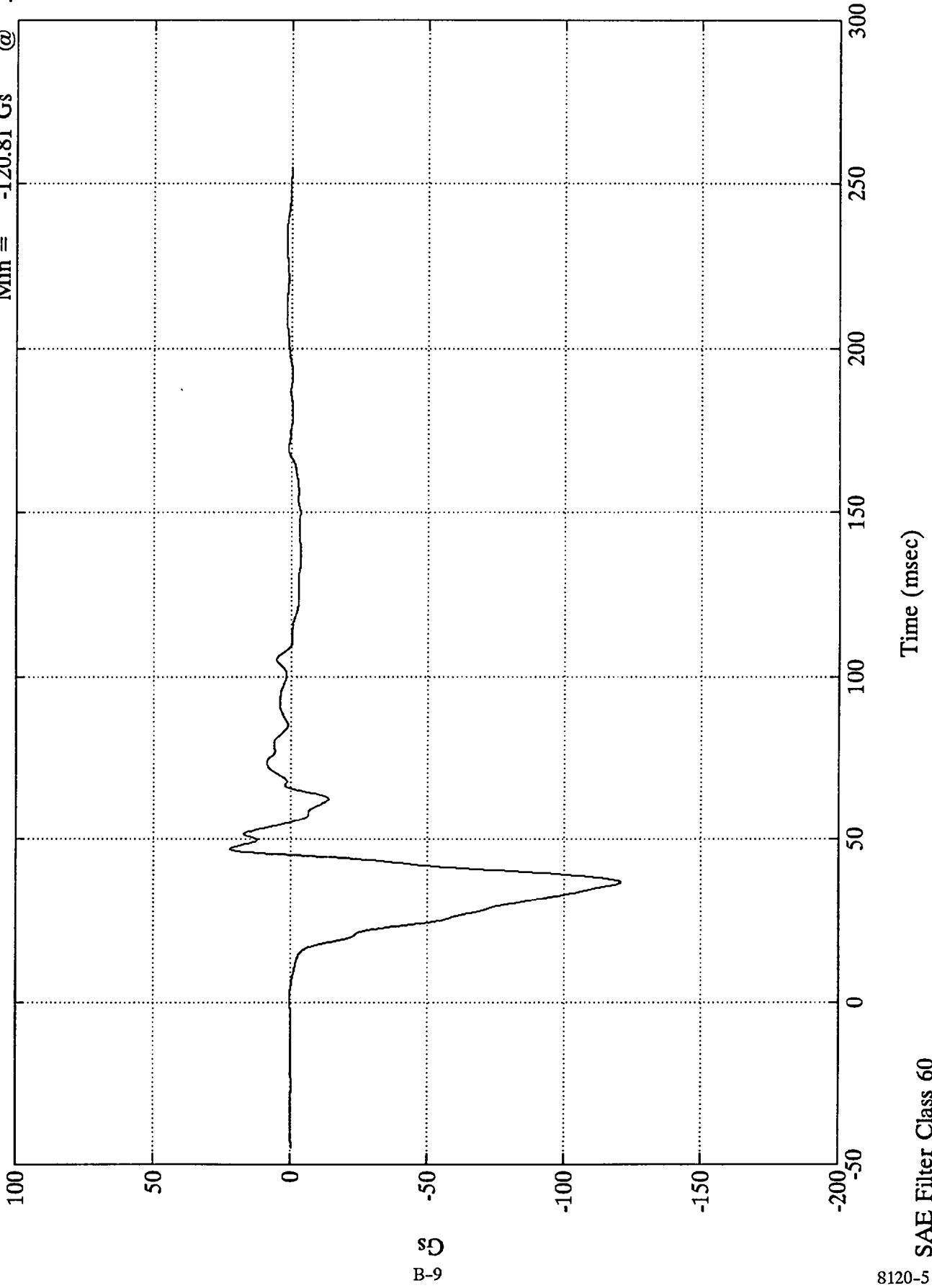
NCAP TEST #5 - INFINITI J30

Acc. #2(x)

Max = 74.55 cms @ 83.04 msec
Min = 0.00 cms @ -0.00 msec



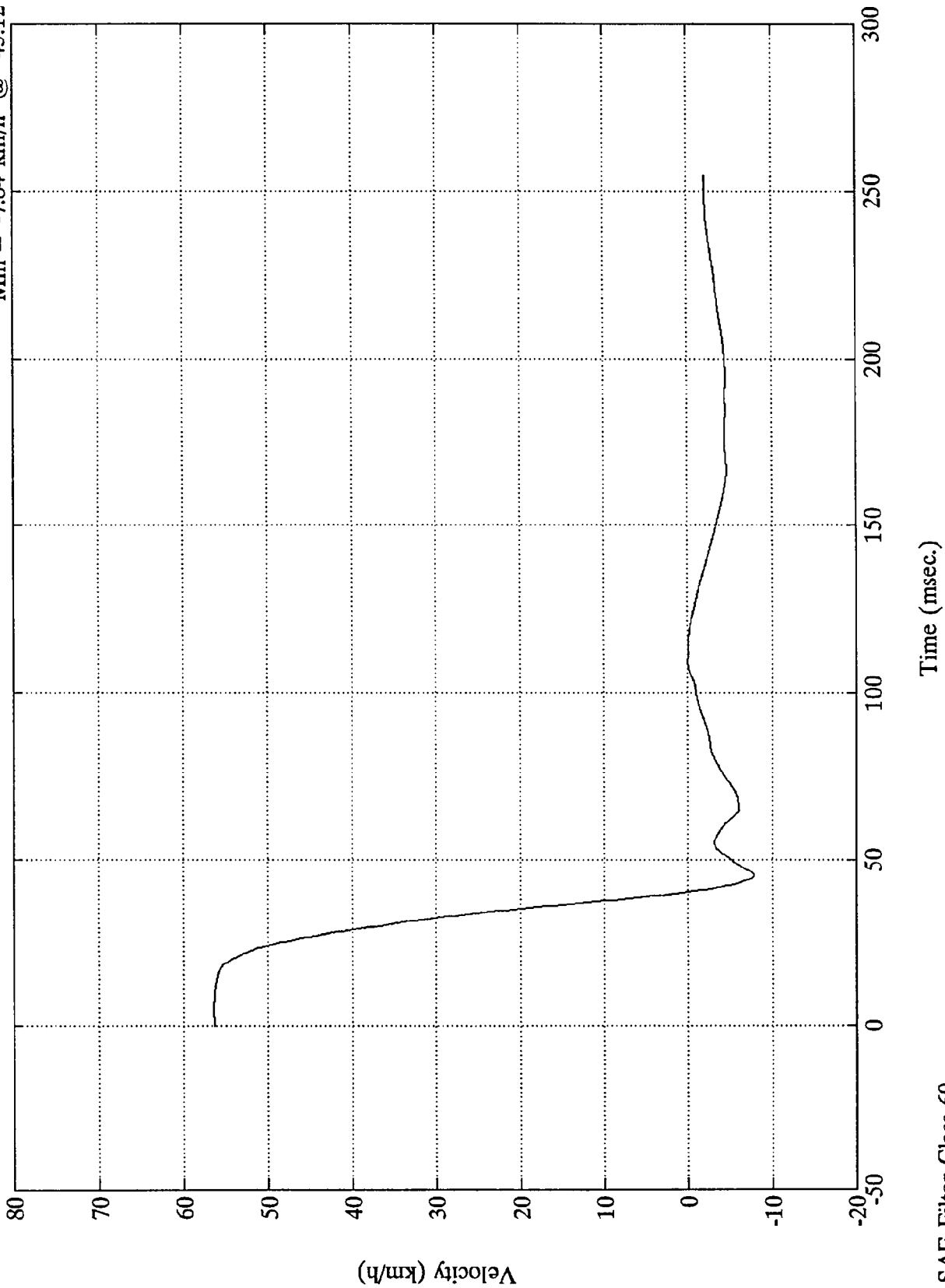
Acc. #3(x) Max = 22.09 Gs @ 47.04 msec
Min = -120.81 Gs @ 36.95 msec



NCAP TEST #5 - INFINITI J30

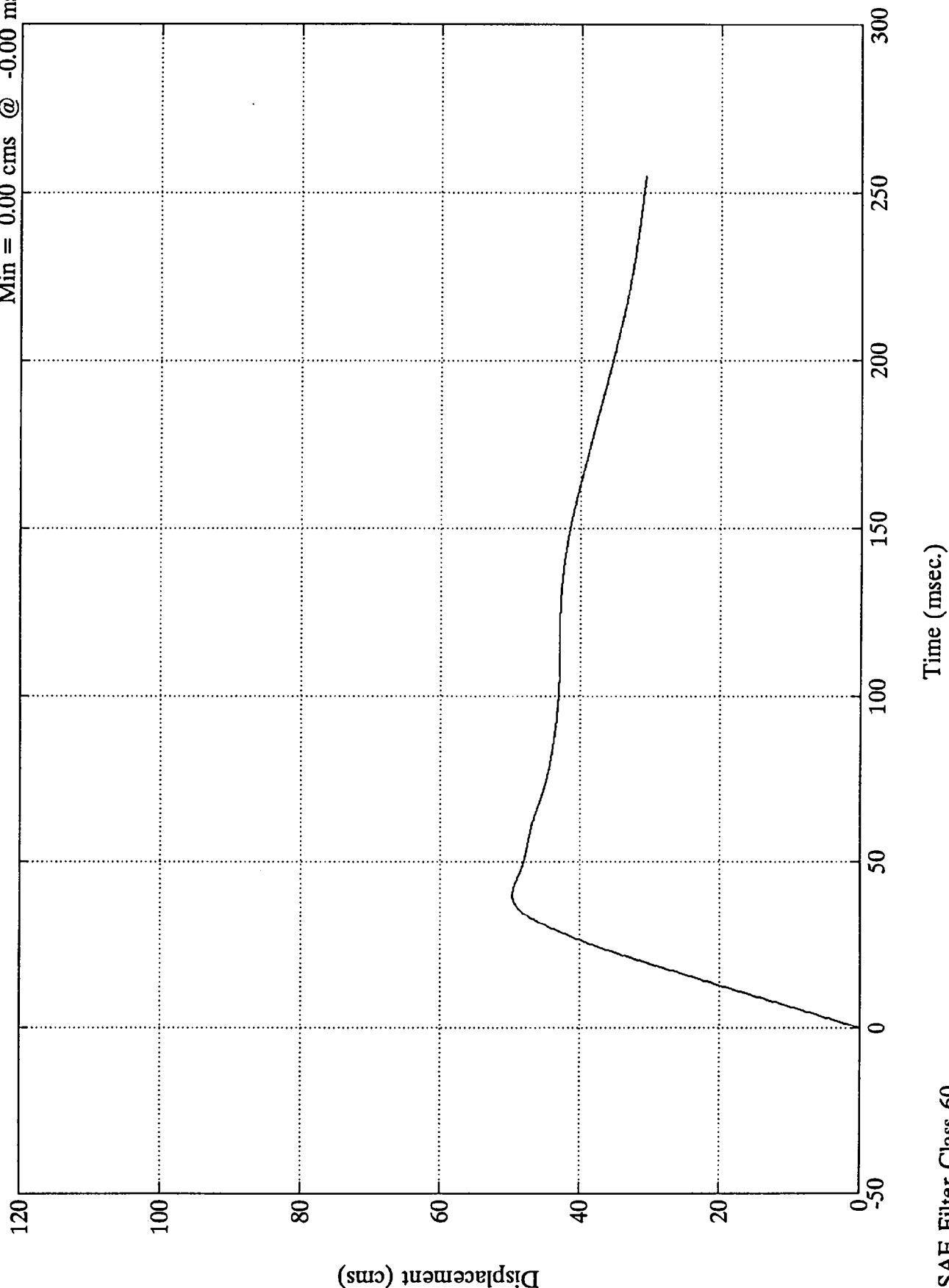
Max = 56.38 km/h @ 6.24 msec
Min = -7.84 km/h @ 45.12 msec

Acc. #3(x)



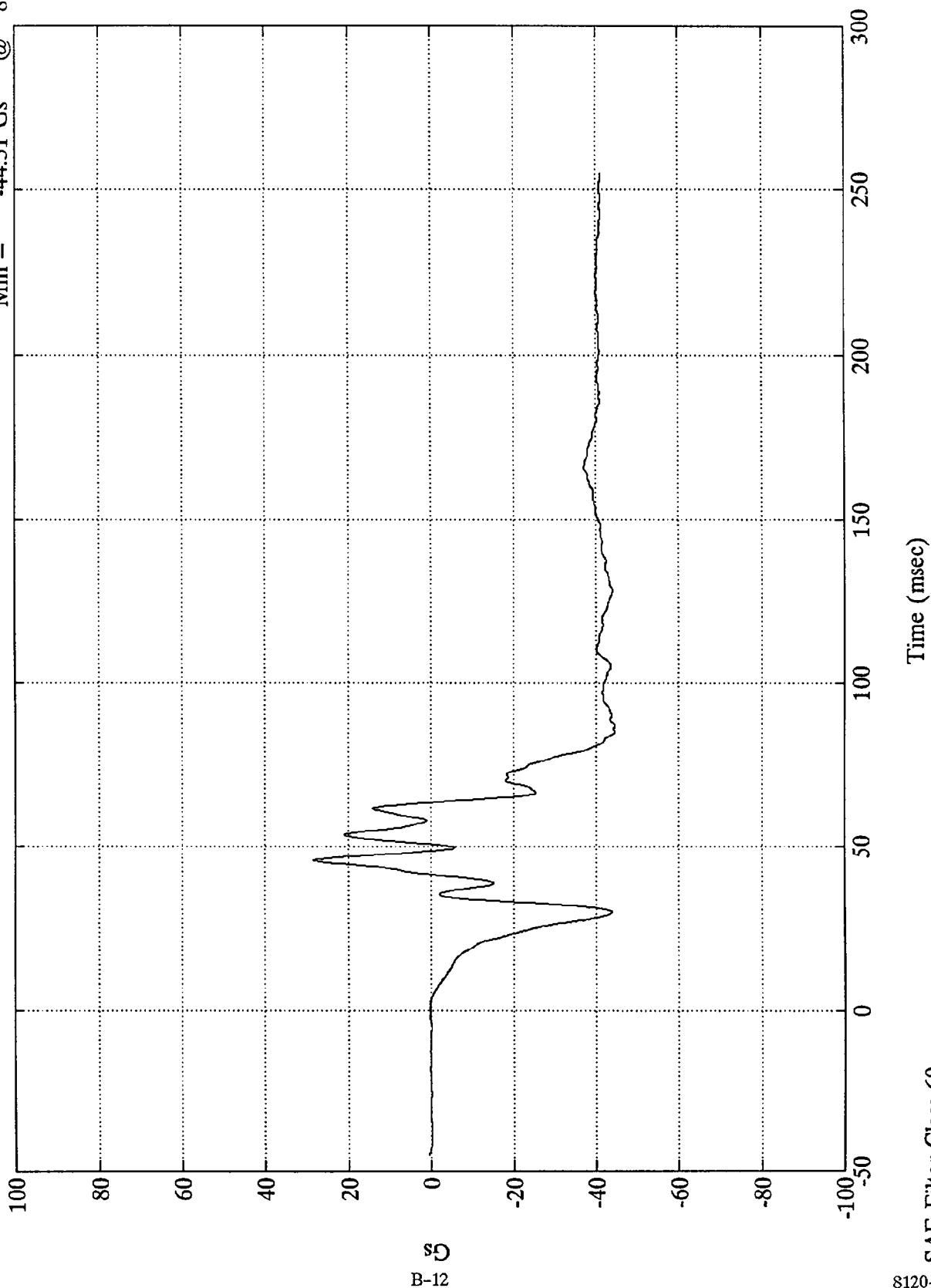
Acc. #3(x)

Max = 49.68 cms @ 40.08 msec
Min = 0.00 cms @ -0.00 msec

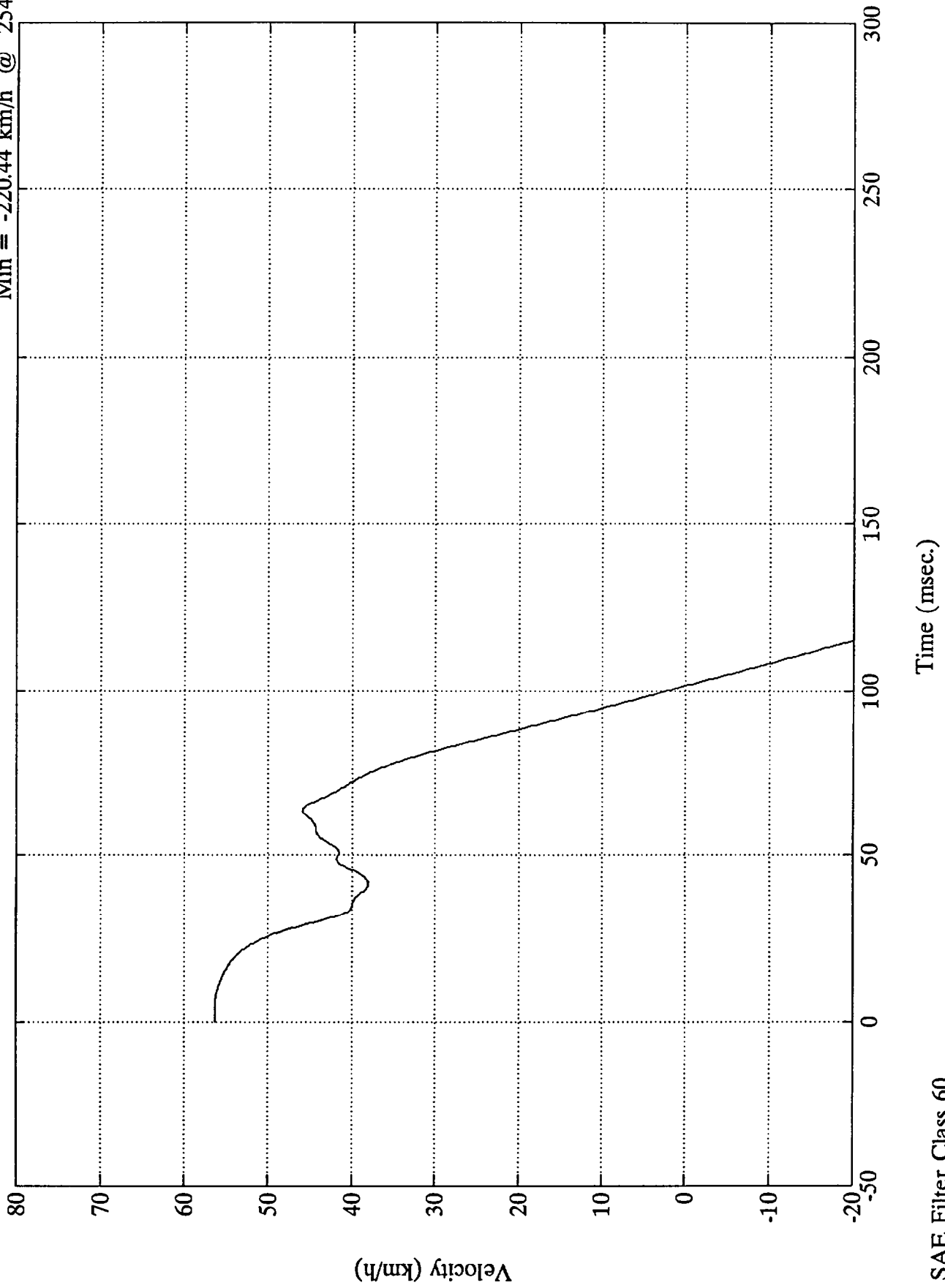


NCAP TEST #5 - 1993 INFINITI J30

Acc. #4(x)
 Max = 28.38 Gs @ 45.60 msec
 Min = -44.51 Gs @ 86.87 msec



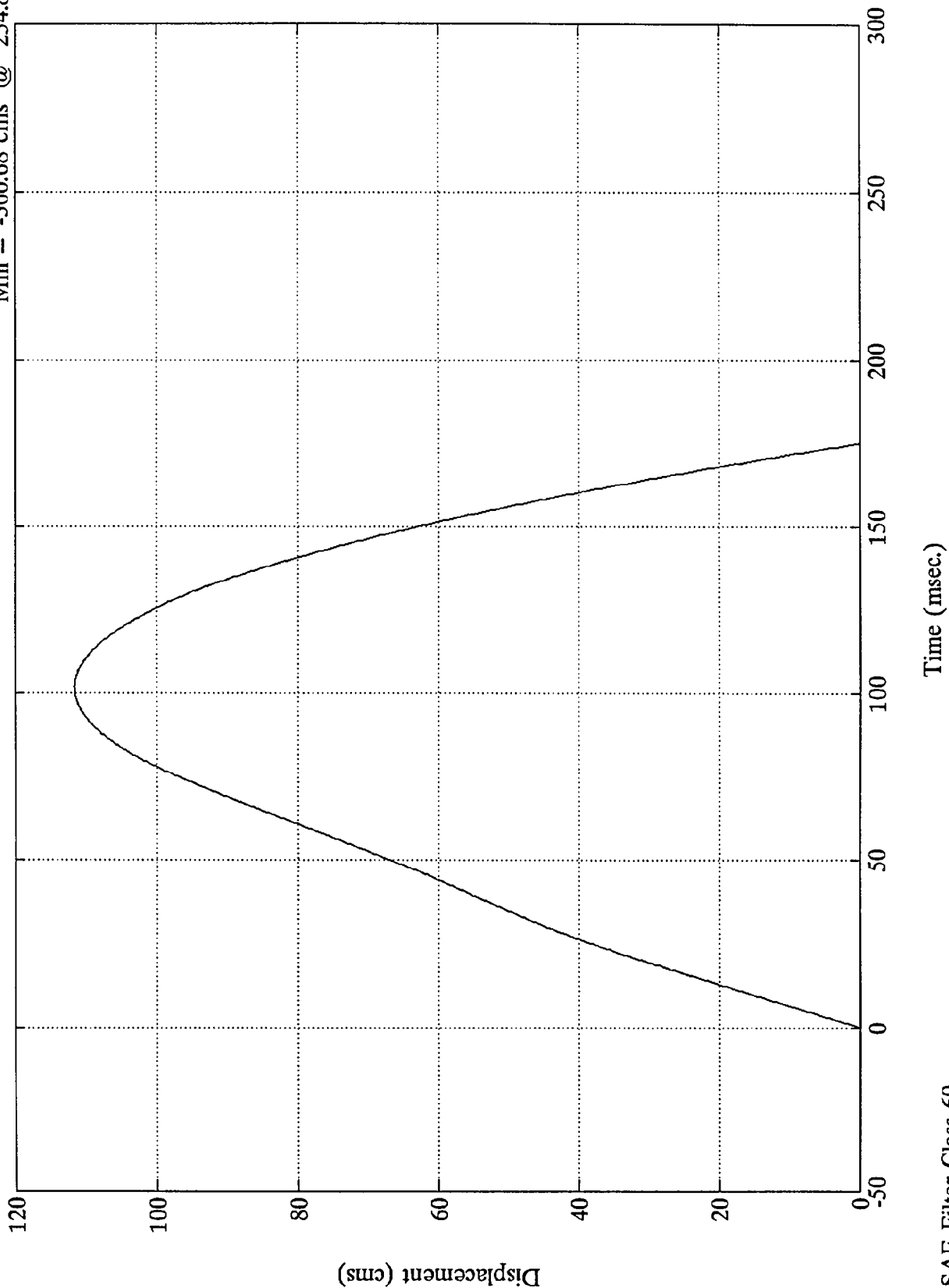
Acc. #4(x)
Max = 56.34 km/h @ 4.32 msec
Min = -220.44 km/h @ 254.88 msec



NCAP TEST #5 - INFINITI J30

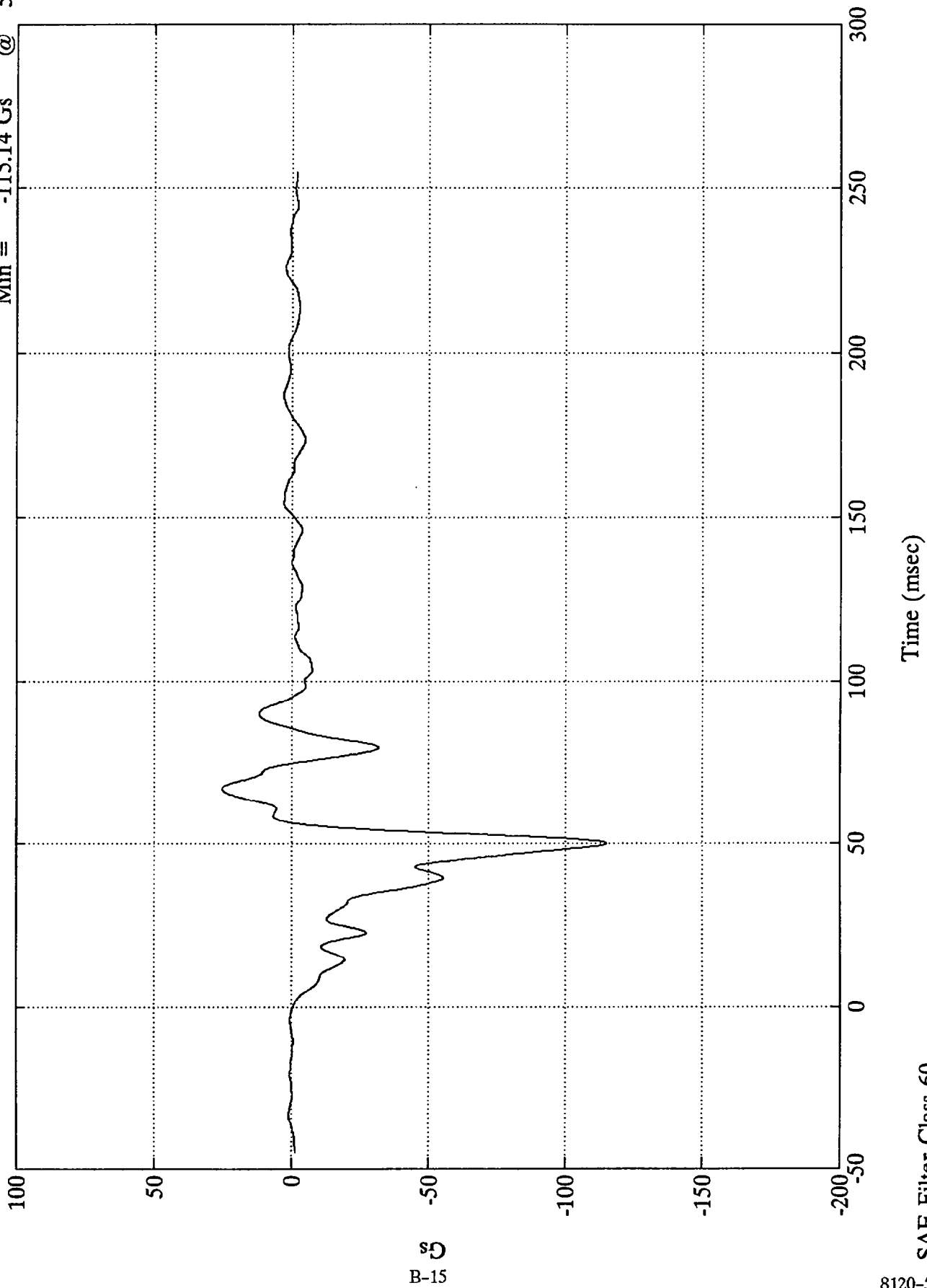
Max = 111.63 cms @ 101.76 msec
Min = -360.68 cms @ 254.88 msec

Acc. #4(x)



Acc. #5(x)

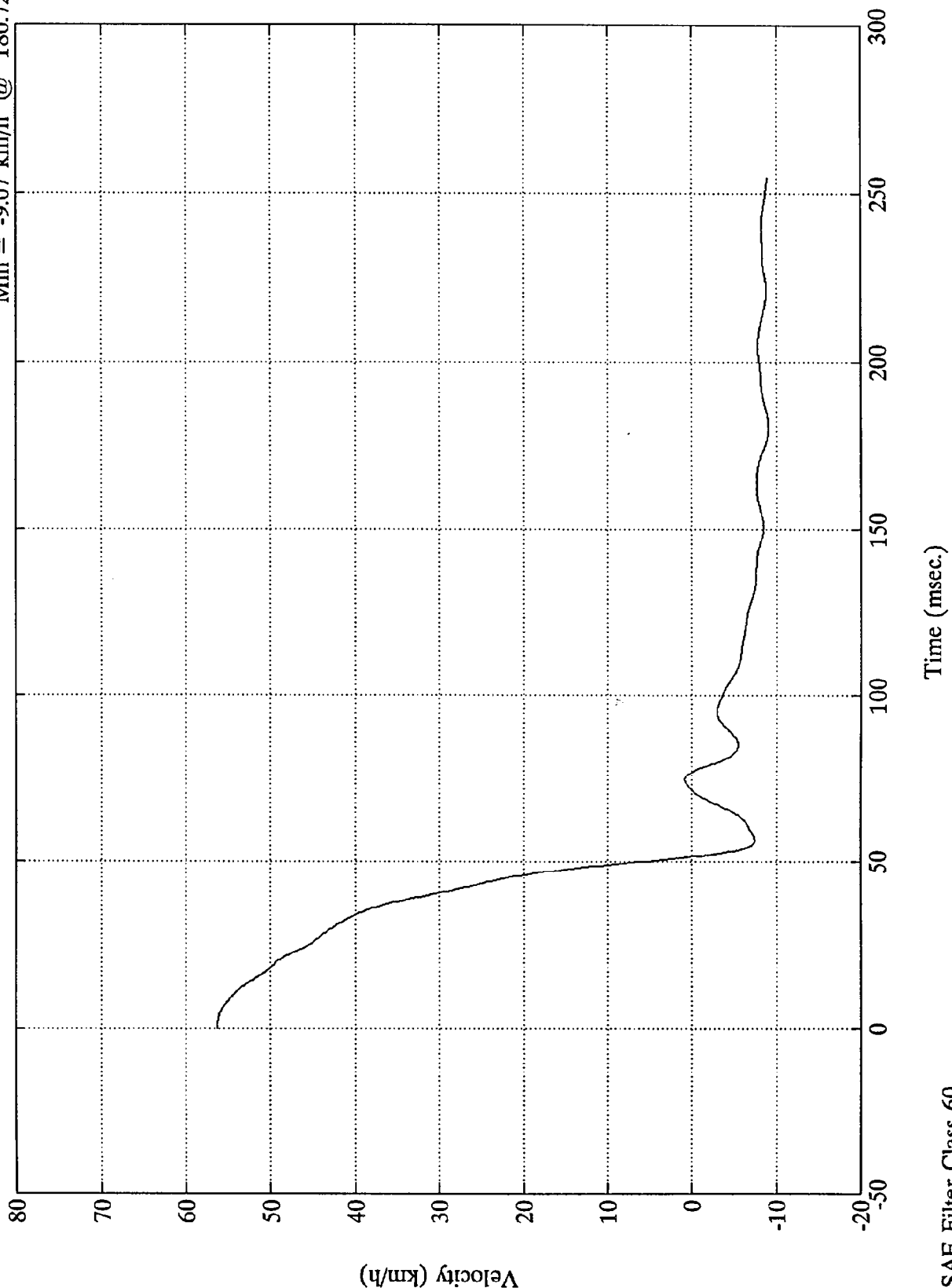
Max = 25.37 Gs @ 66.95 msec
Min = -115.14 Gs @ 50.04 msec



NCAP TEST #5 - INFINITI J30

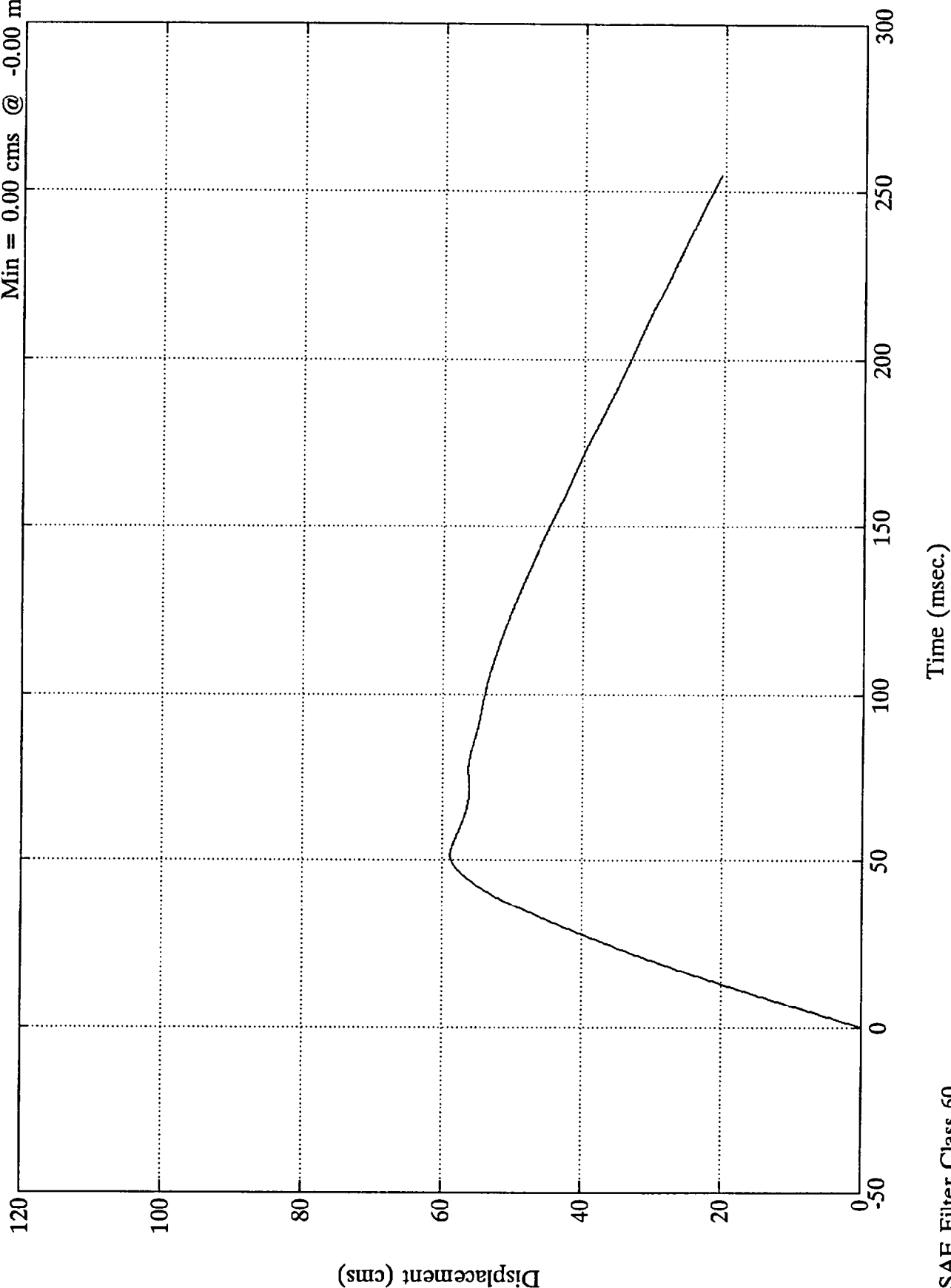
Acc. #5(x)

Max = 56.32 km/h @ 0.24 msec
Min = -9.07 km/h @ 180.72 msec



Acc. #5(x)

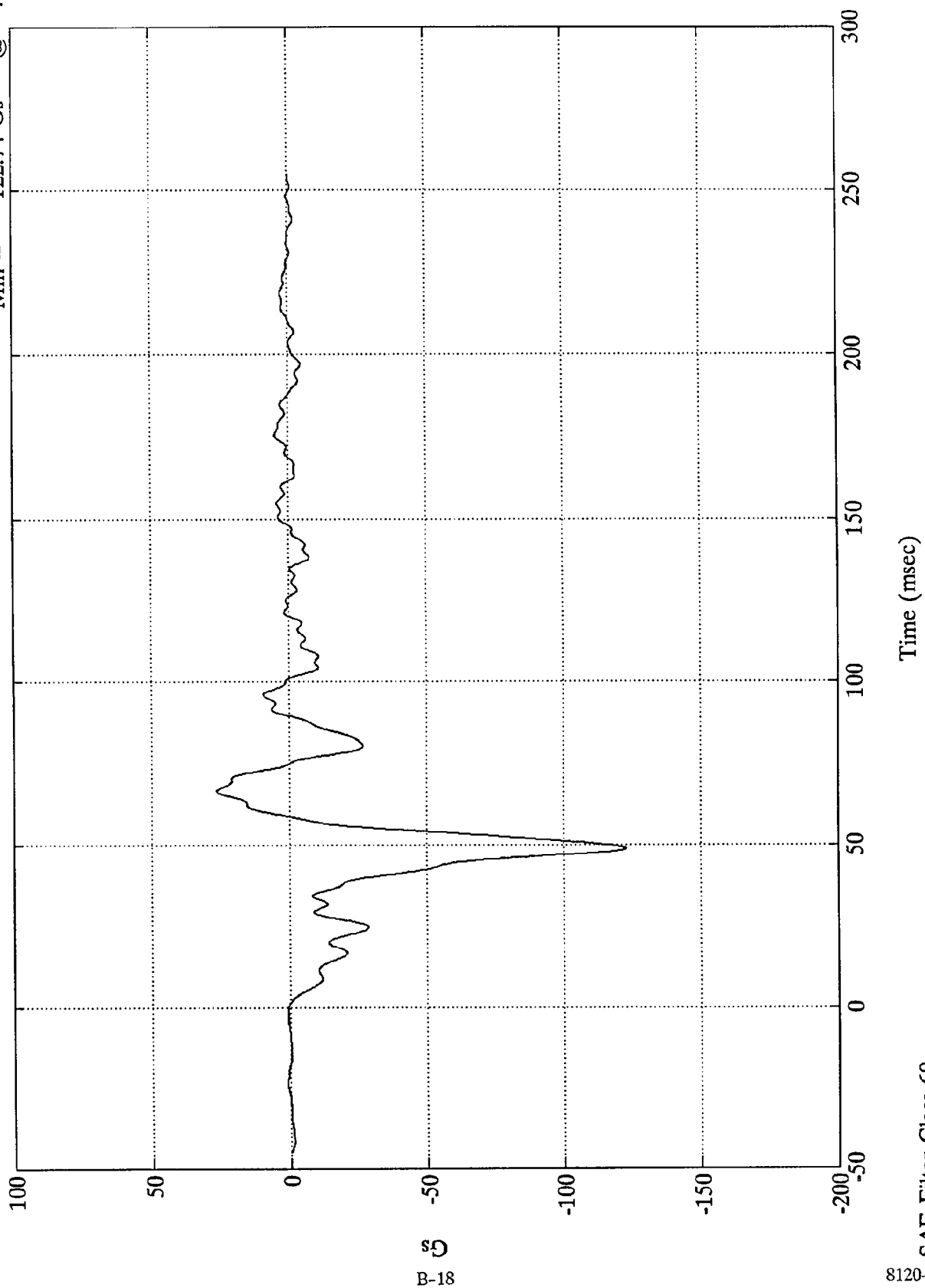
Max = 58.90 cms @ 51.60 msec
Min = 0.00 cms @ -0.00 msec



NCAP TEST #5 - 1993 INFINITI J30

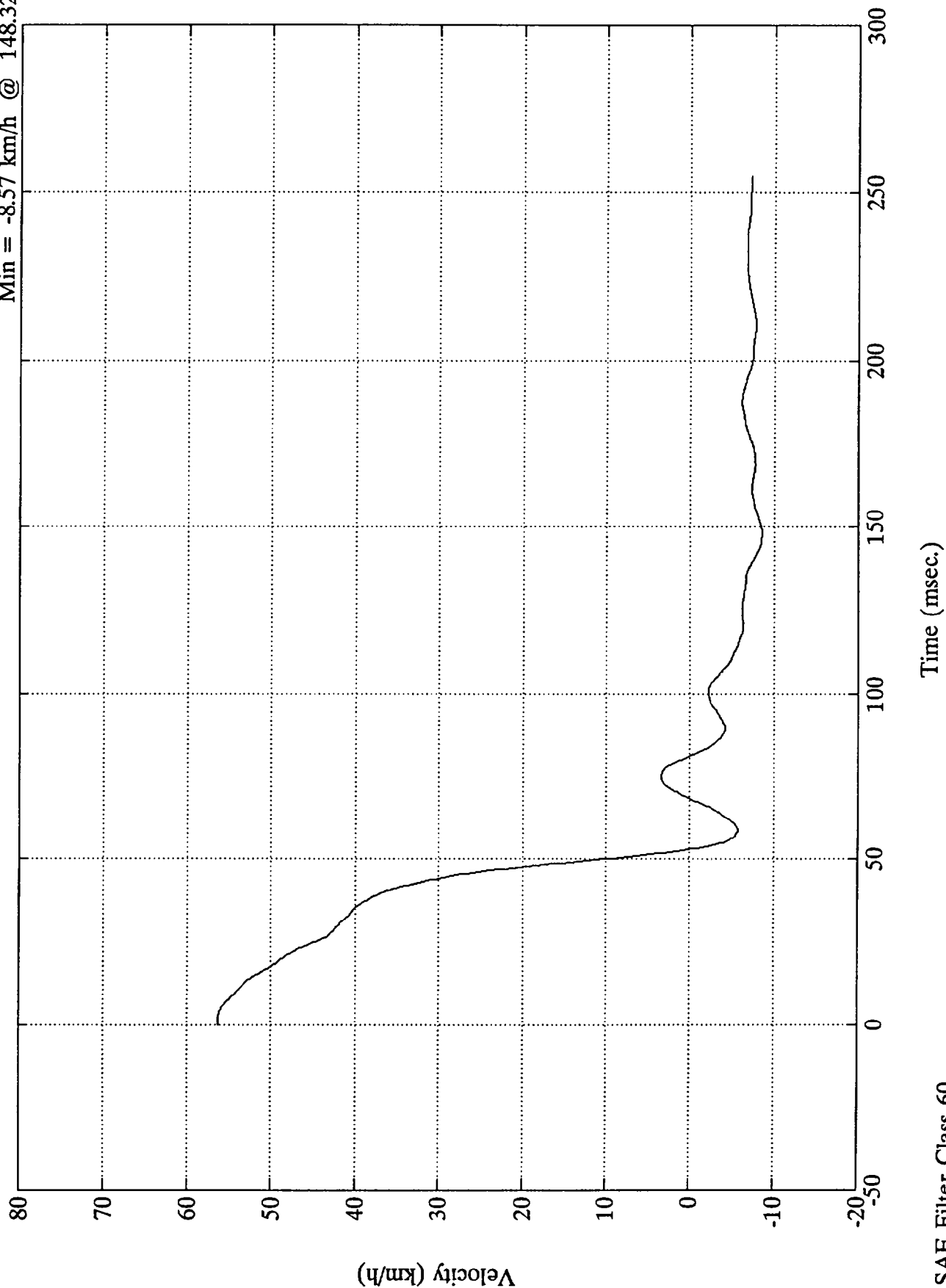
Max = 26.53 Gs @ 66.48 msec
 Min = -122.74 Gs @ 48.84 msec

Acc. #6(x)



Acc. #6(x)

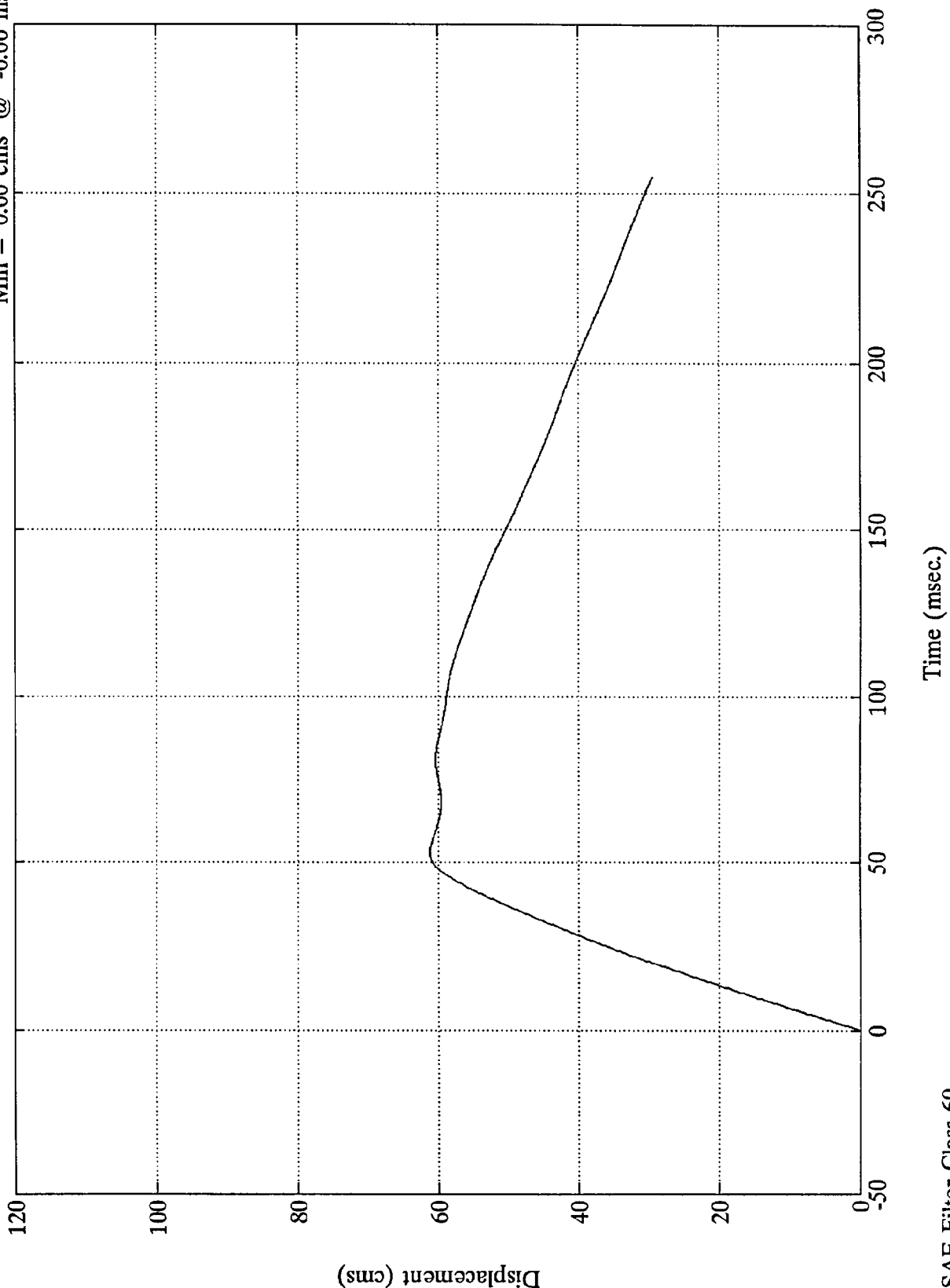
Max = 56.34 km/h @ 1.68 msec
Min = -8.57 km/h @ 148.32 msec



NCAP TEST #5 - INFINITI J30

Max = 61.24 cms @ 53.04 msec
Min = 0.00 cms @ -0.00 msec

Acc. #6(x)



B-20

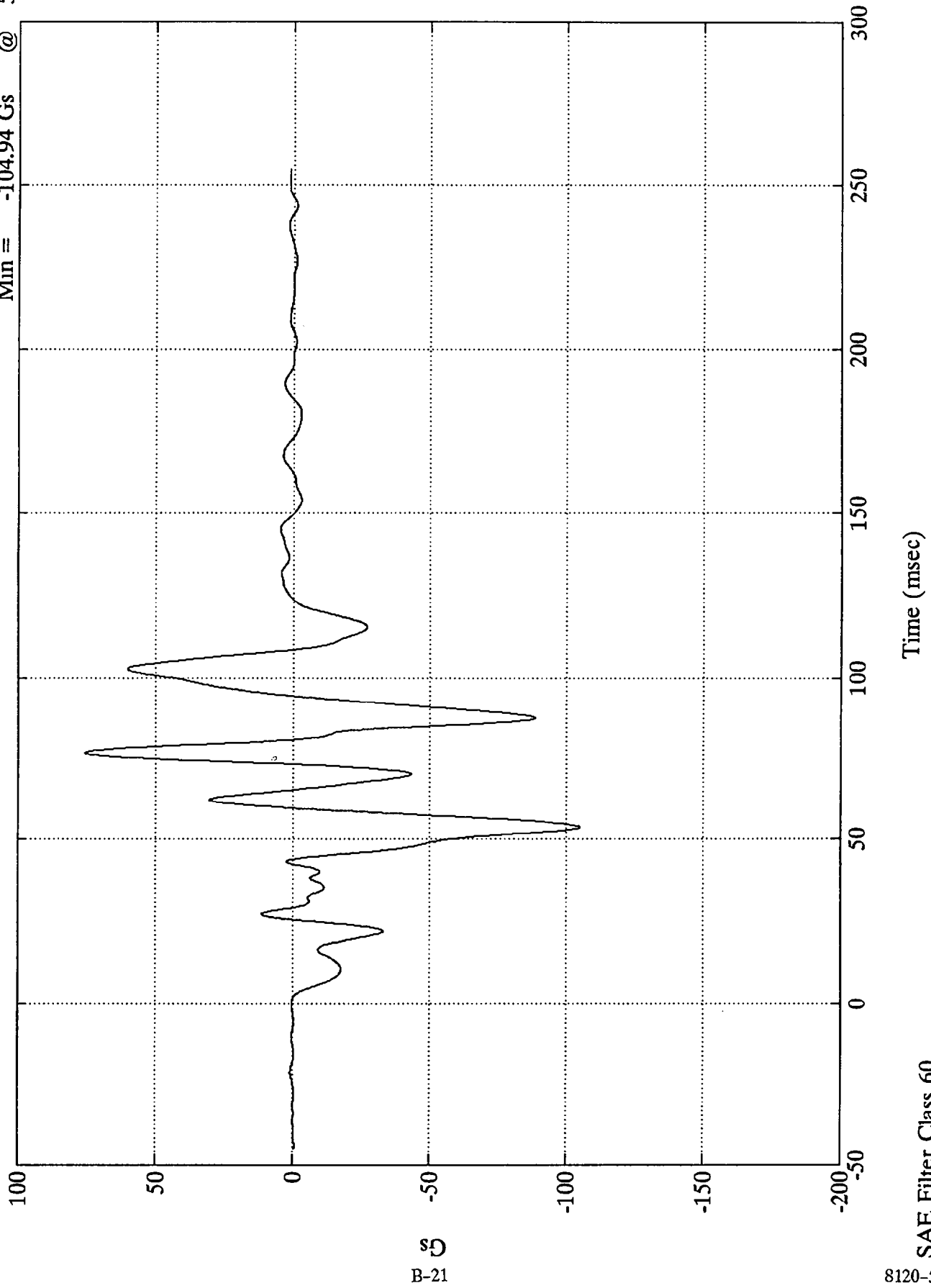
Acc. #7(x)

Max =
Min =

75.89 Gs
-104.94 Gs

@
@

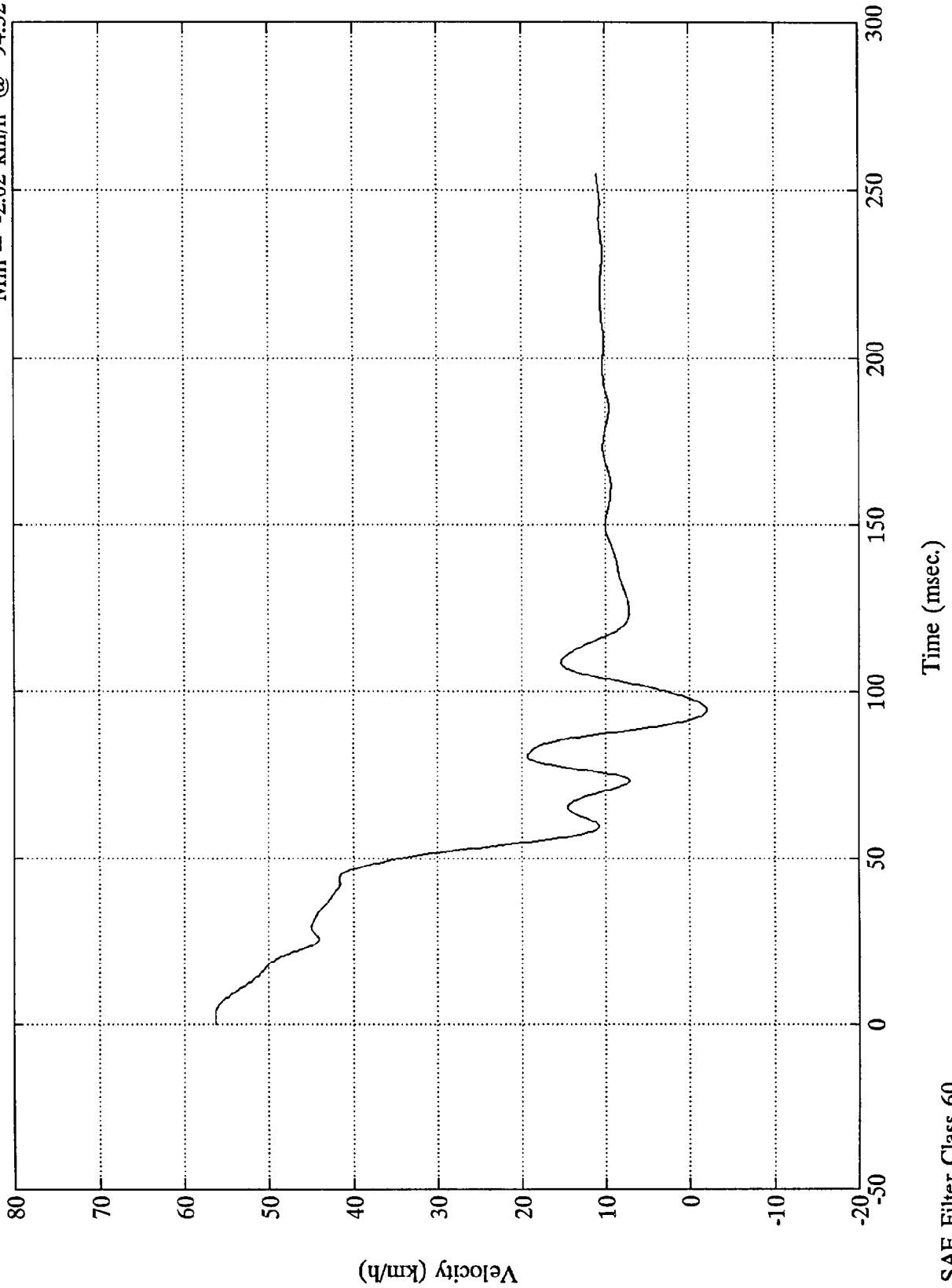
76.68 ms
53.63 ms



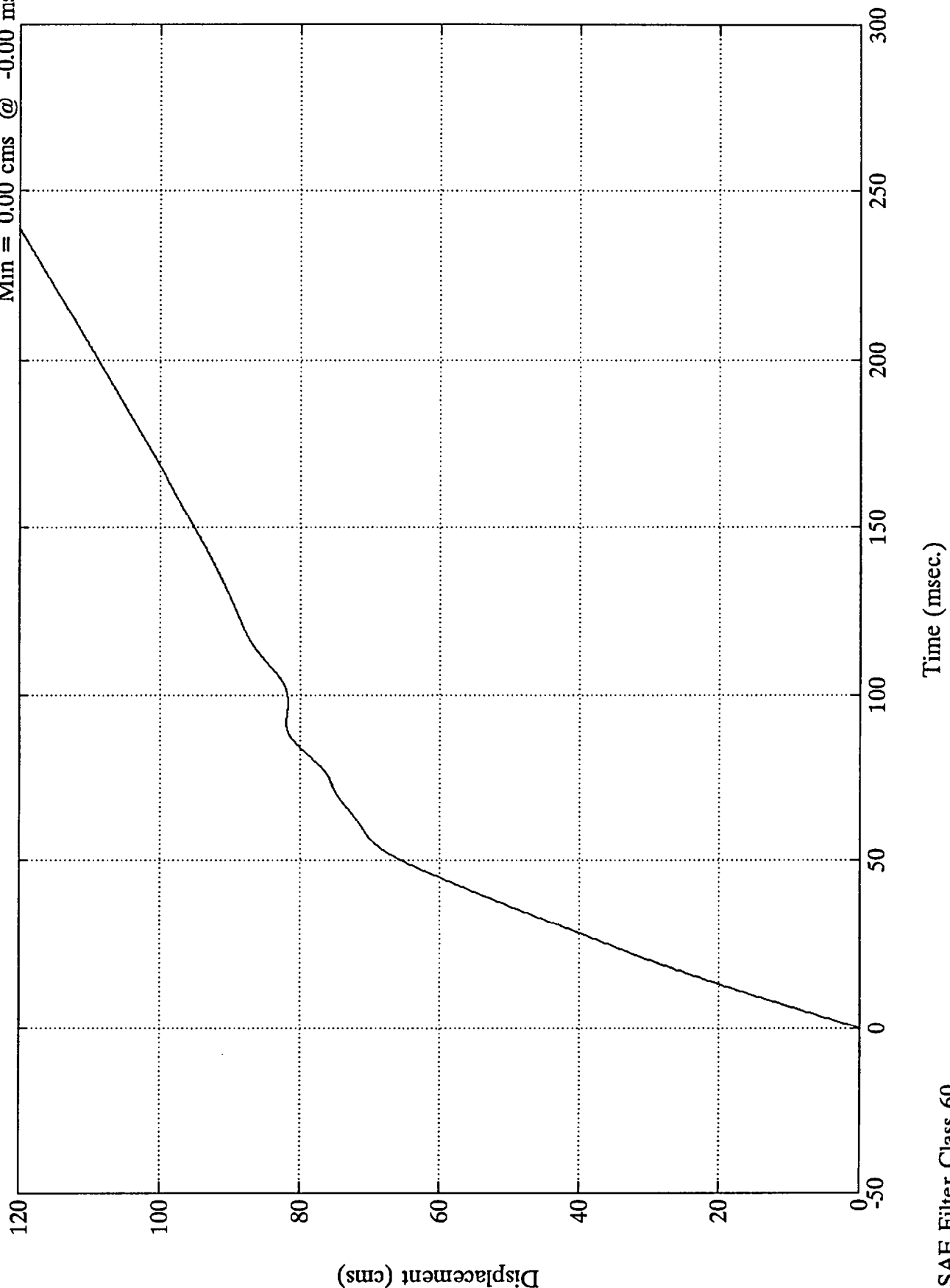
NCAP TEST #5 - INFINITI J30

Acc. #7(x)

Max = 56.34 km/h @ 2.40 msec
Min = -2.02 km/h @ 94.32 msec



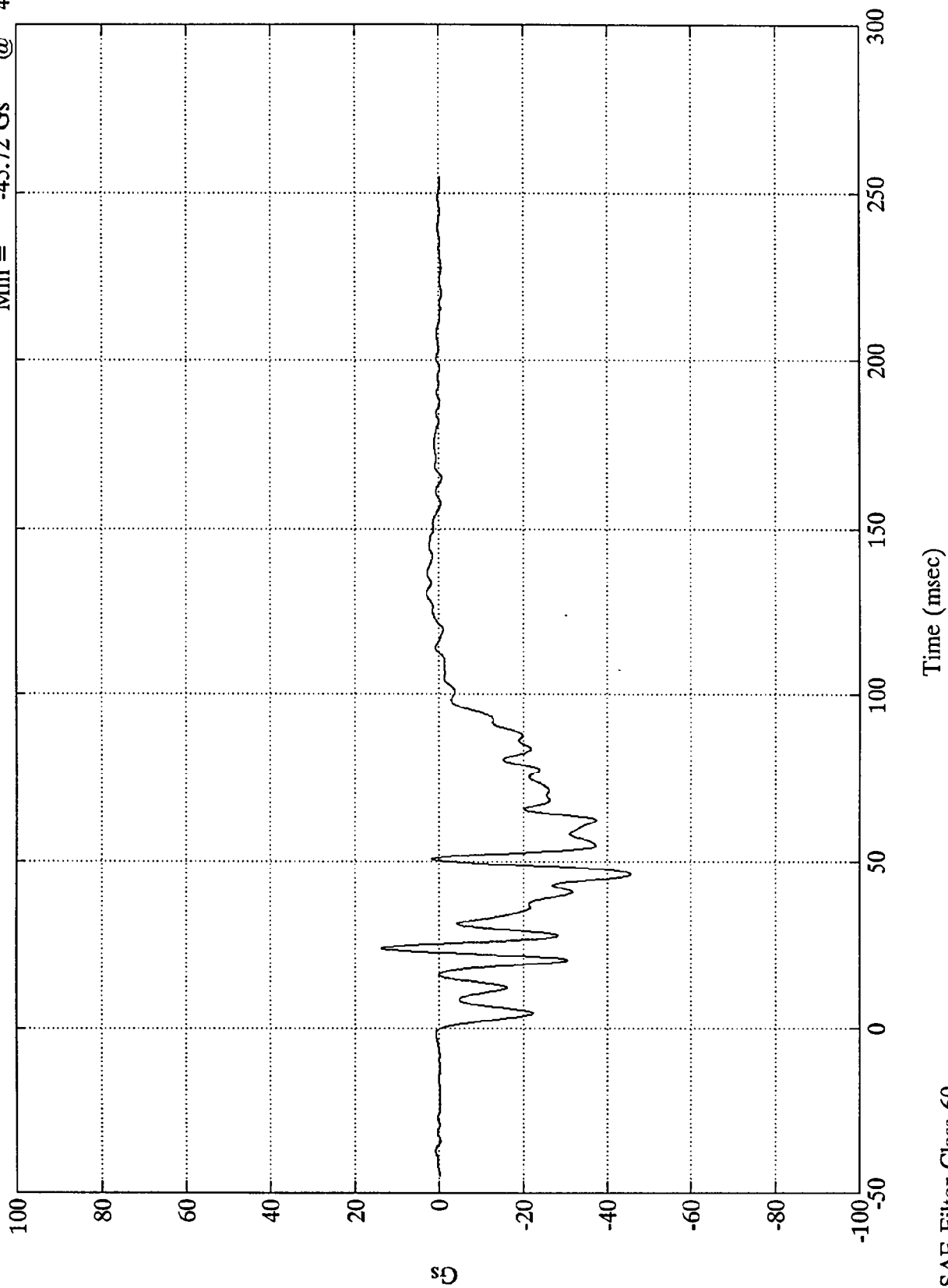
Acc. #7(x)
Max = 124.82 cms @ 254.88 msec
Min = 0.00 cms @ -0.00 msec



NCAP TEST #5 - 1993 INFINITI J30

Max = 13.71 Gs @ 23.87 msec
 Min = -45.72 Gs @ 46.08 msec

Acc. #8(x)



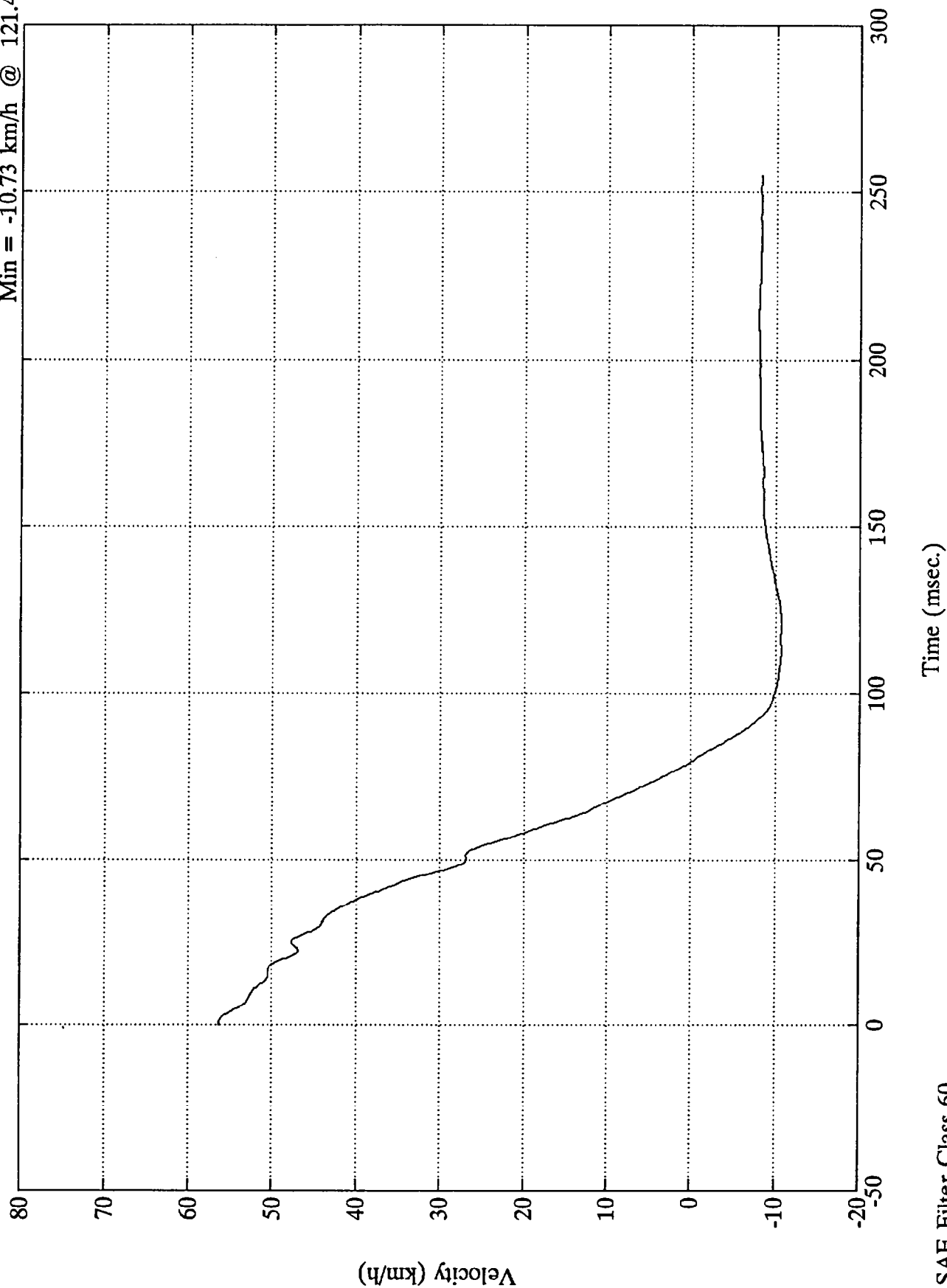
B-24

8120-5

SAE Filter Class 60

NCAP TEST #5 - INFINITI J30

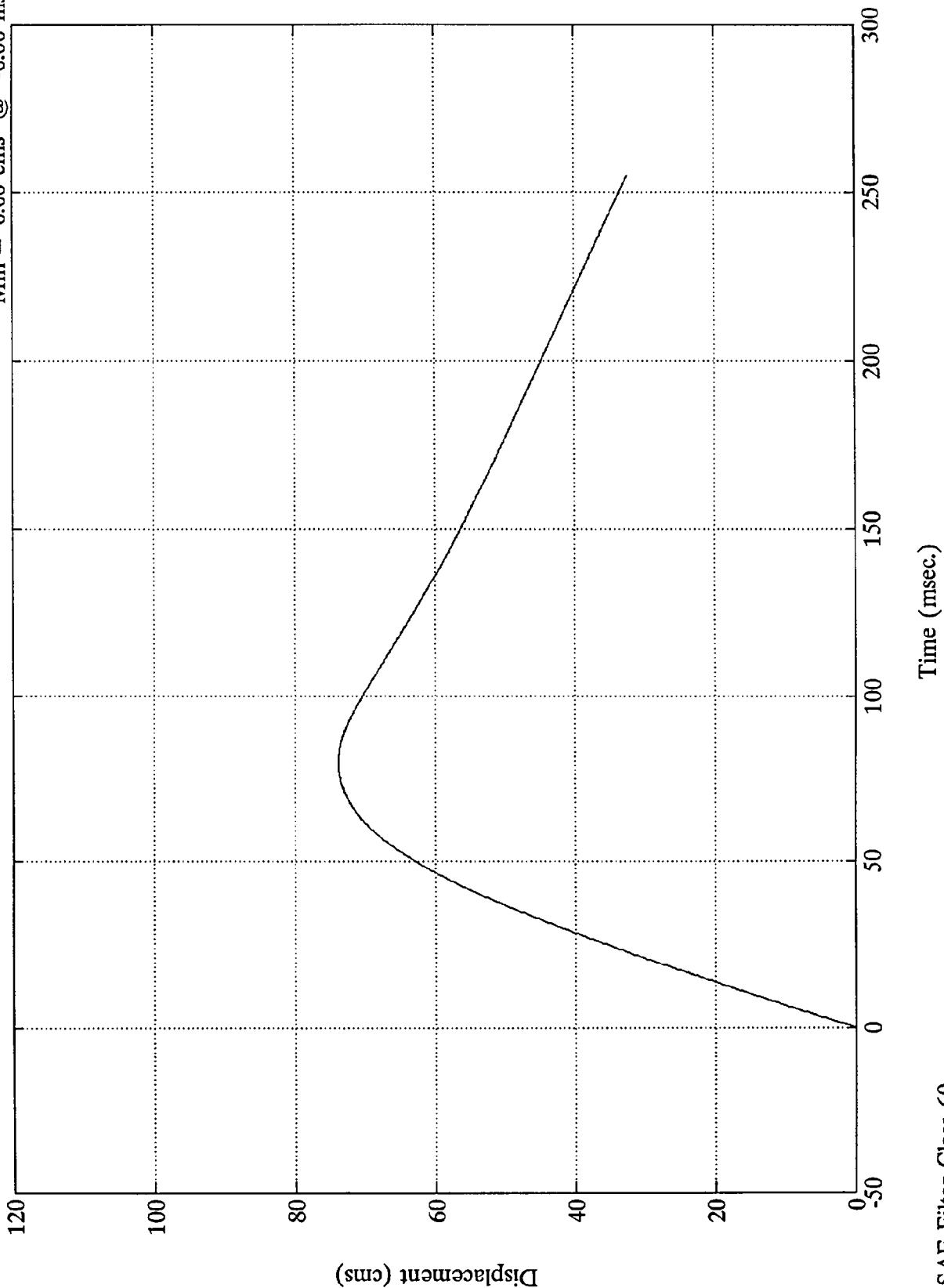
Acc. #8(x)
Max = 56.32 km/h @ 0.24 msec
Min = -10.73 km/h @ 121.44 msec



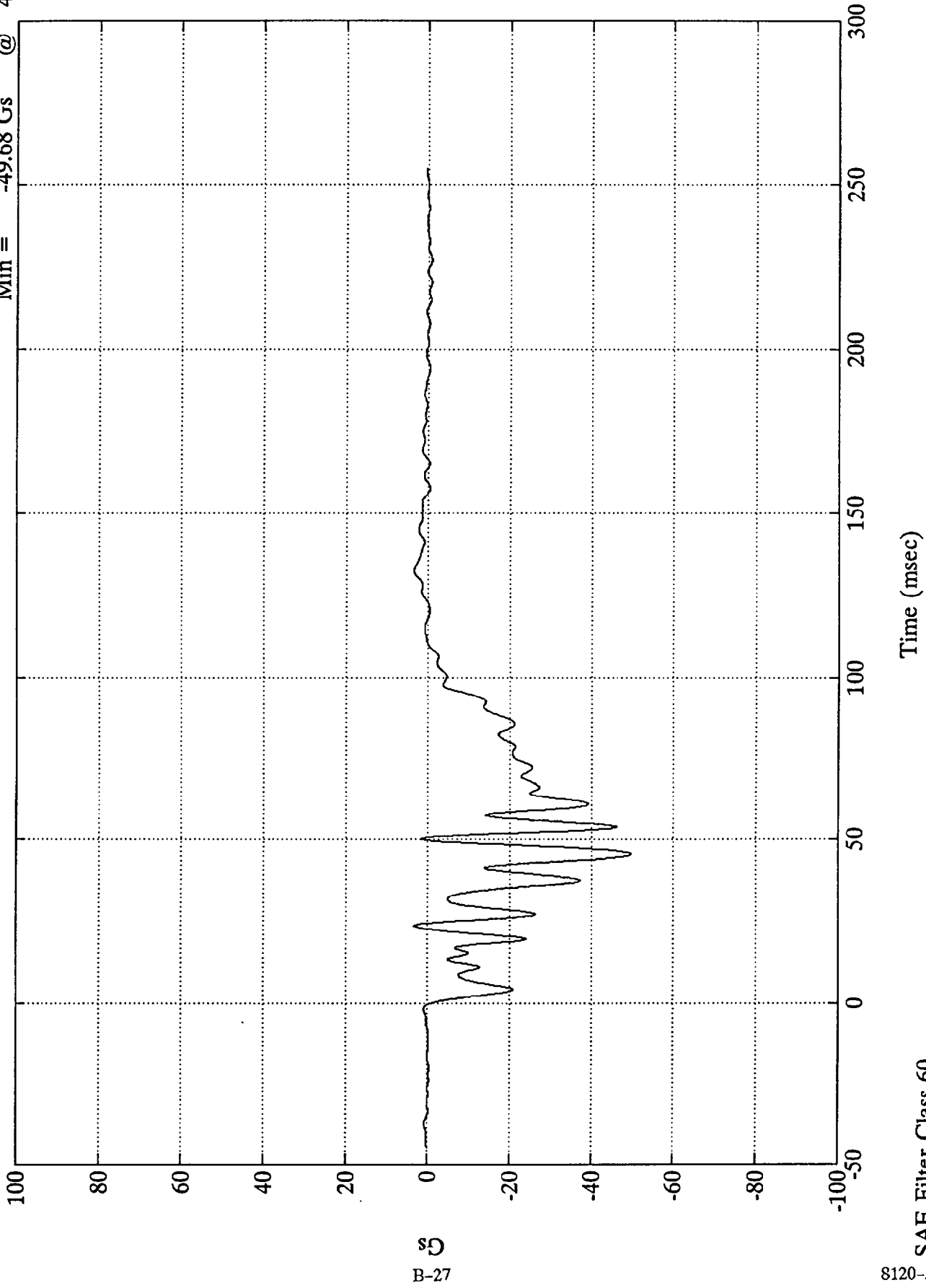
NCAP TEST #5 - INFINITI J30

Max = 73.84 cms @ 80.88 msec
Min = 0.00 cms @ -0.00 msec

Acc. #8(x)



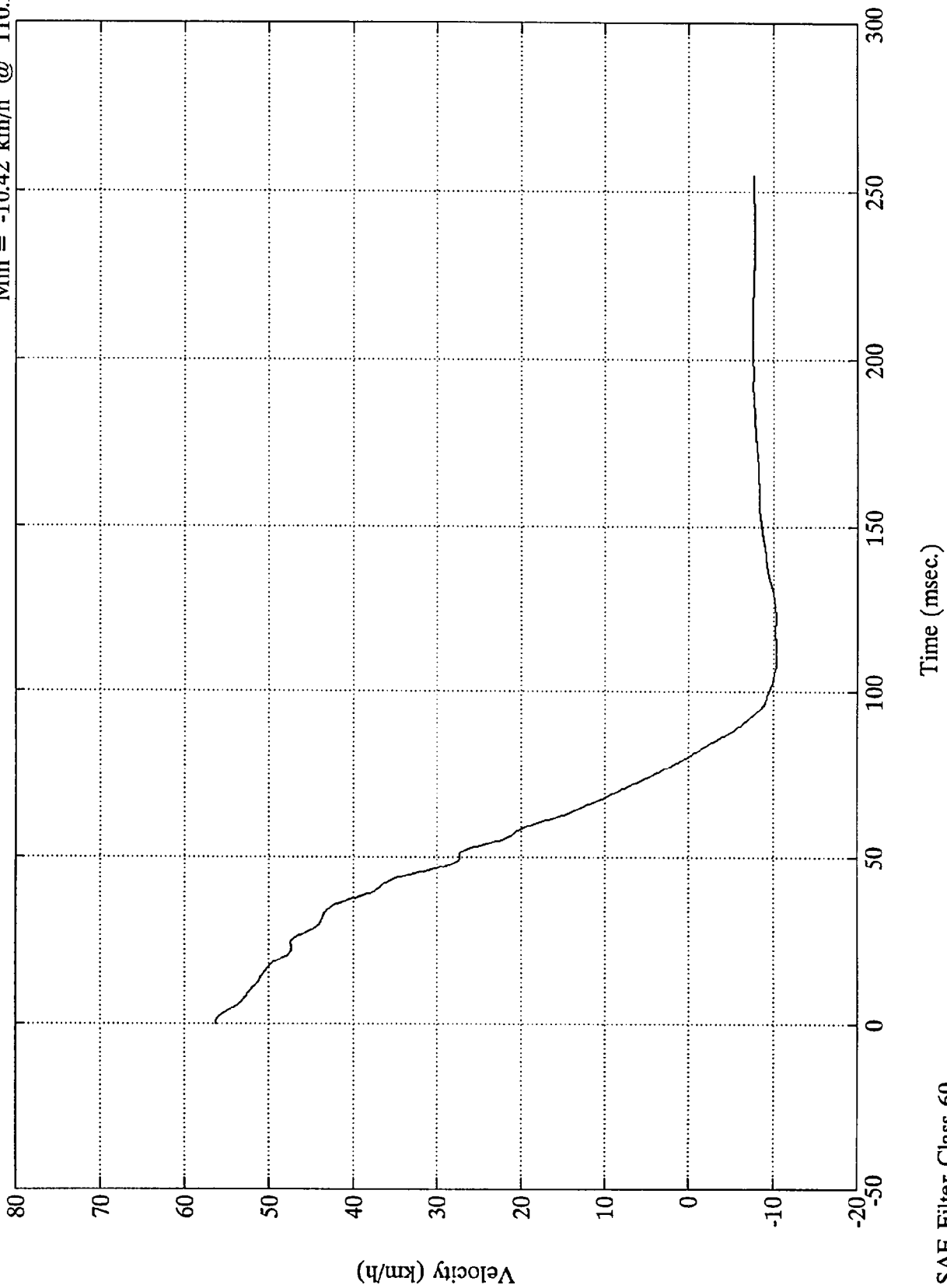
Acc. #9(x) Max = 3.38 Gs @ 132.60 msec
Min = -49.68 Gs @ 45.48 msec



NCAP TEST #5 - INFINITI J30

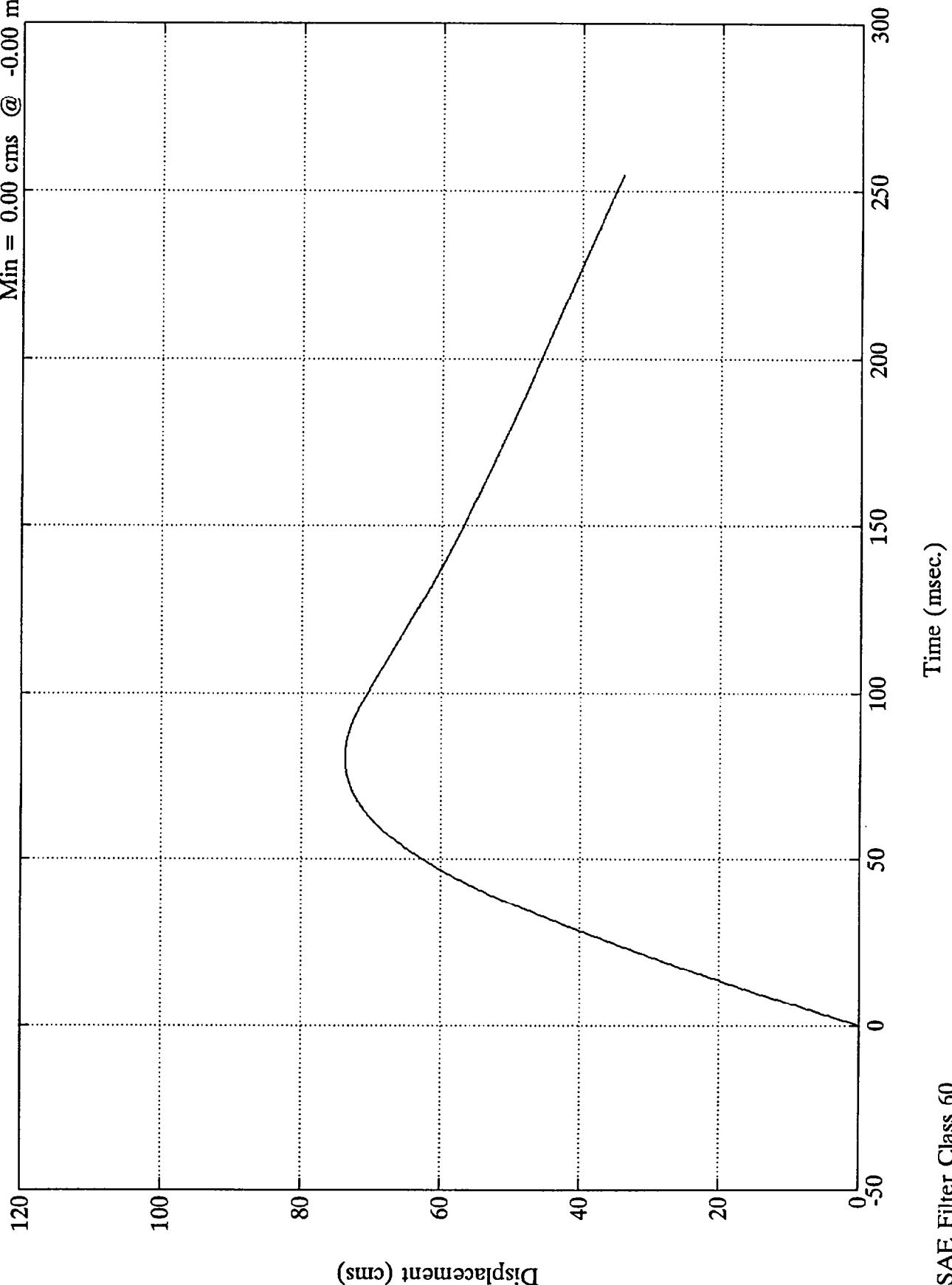
Max = 56.32 km/h @ -0.00 msec
Min = -10.42 km/h @ 110.16 msec

Acc. #9(x)



Acc. #9(x)

Max = 73.76 cms @ 80.64 msec
Min = 0.00 cms @ -0.00 msec



TEST NO. MP5204

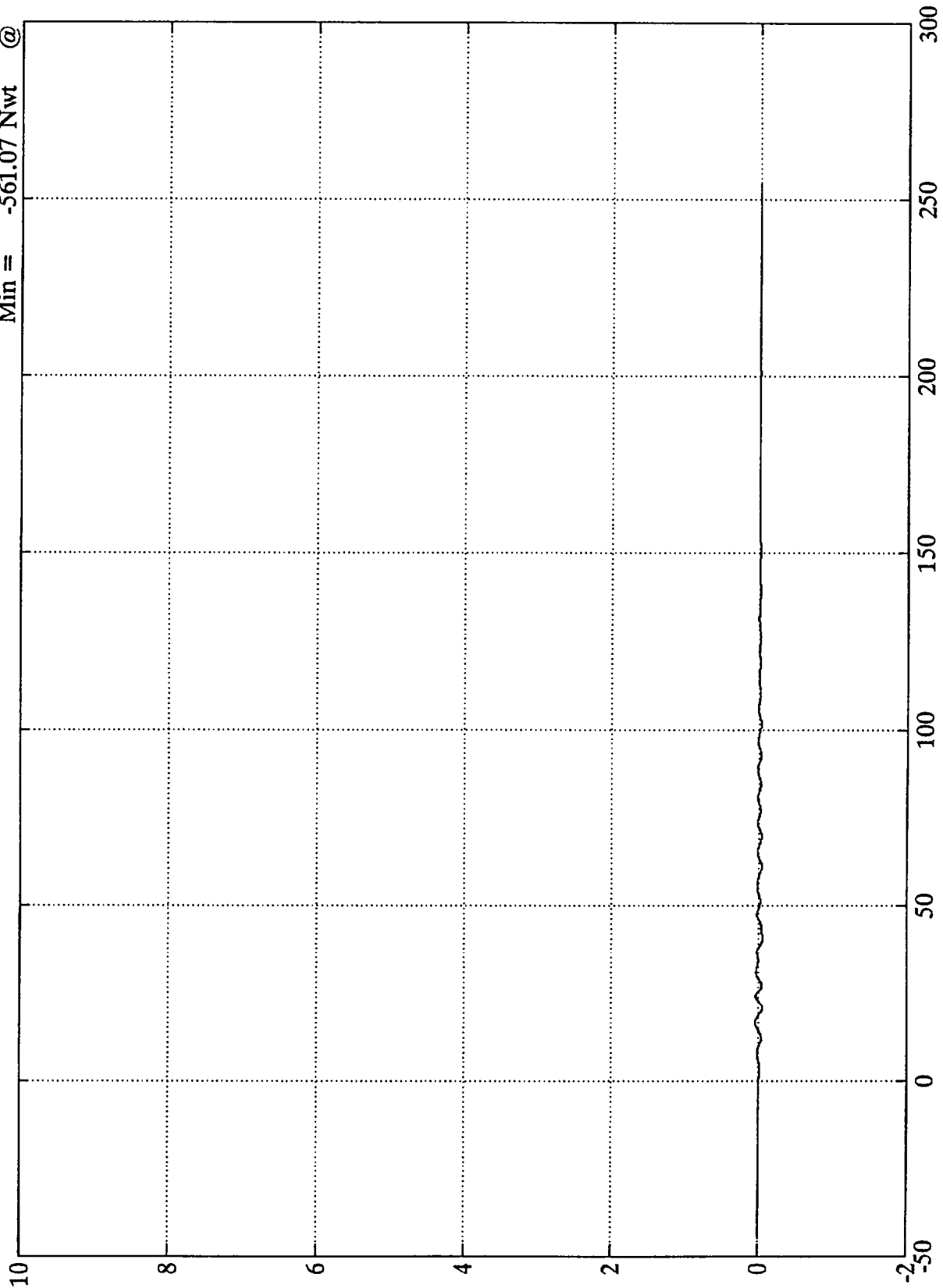
LOAD CELL BARRIER DATA

FILTER CHANNEL CLASS

60

Barrier Load Cell A1

| | | | |
|-------|-------------|---|----------|
| Max = | 453.19 Nwt | @ | 16.68 ms |
| Min = | -561.07 Nwt | @ | 20.87 ms |



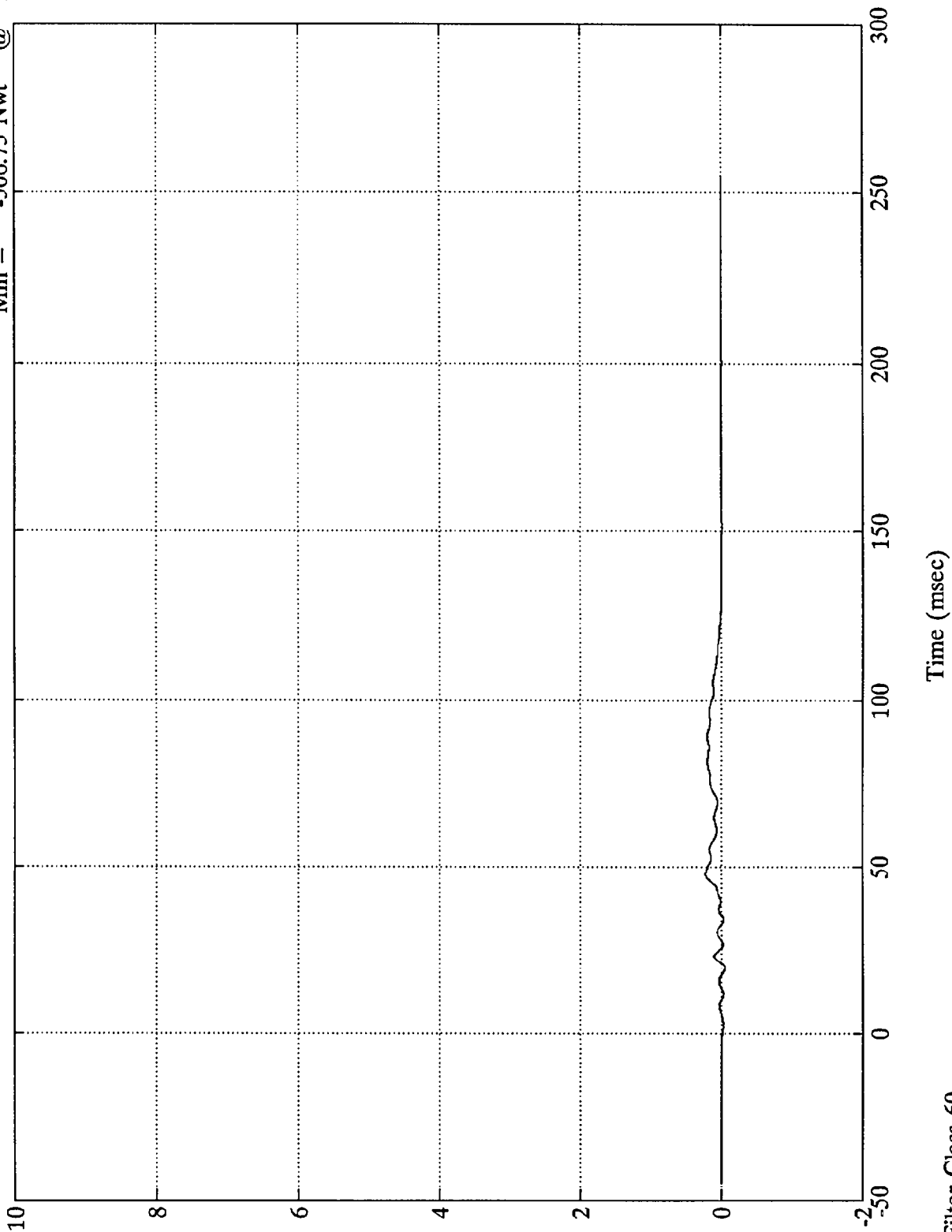
B-31

NCAP TEST #5 - 1993 INFINITI J30

Max = 2243.17 Nwt @ 47.76 msec
 Min = -506.75 Nwt @ 19.67 msec

Barrier Load Cell A2

x10⁴

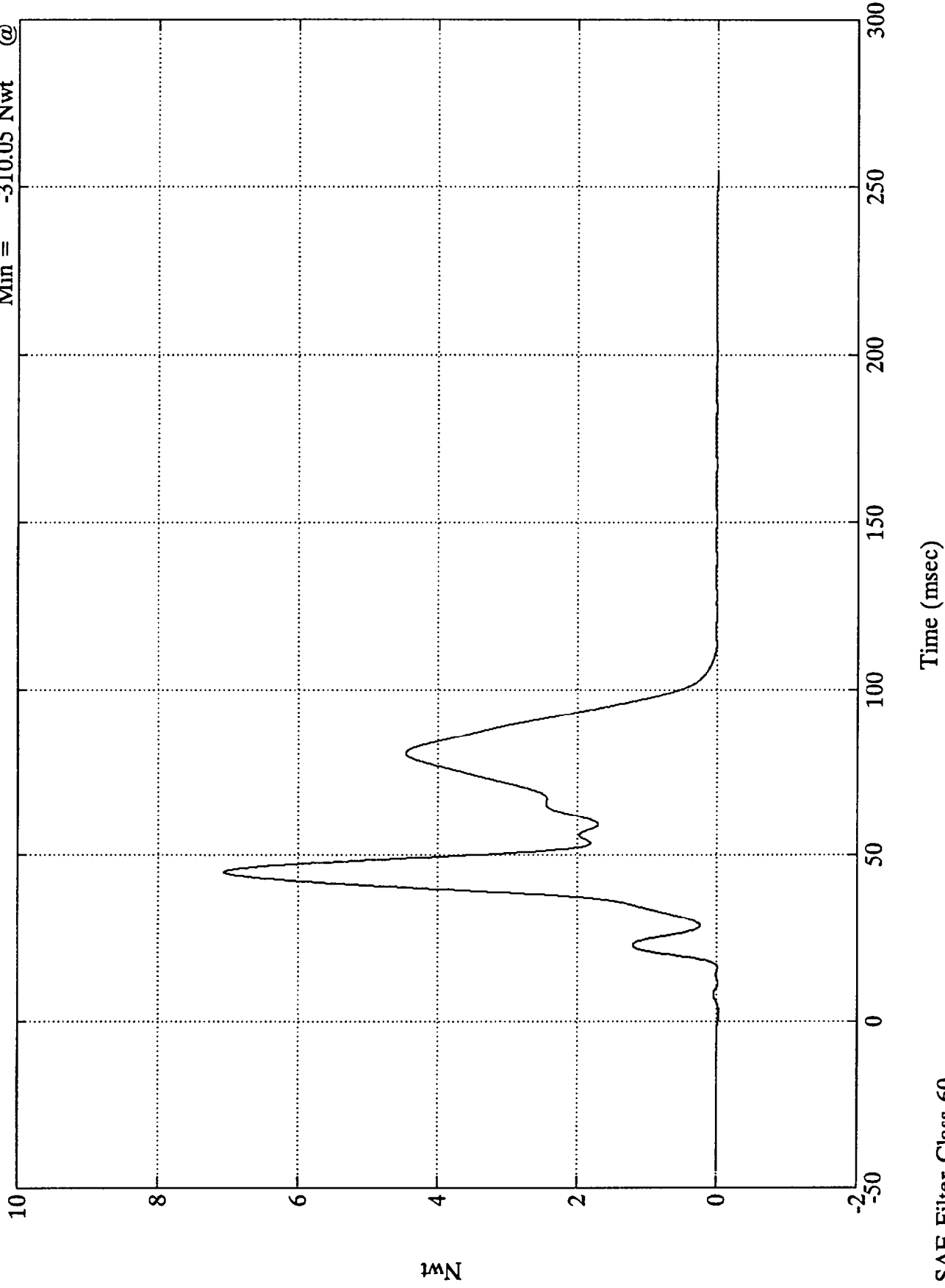


SAE Filter Class 60

Max = 70588.38 Nwt @ 44.87 m
Min = -310.05 Nwt @ 2.03 ms

Barrier Load Cell A3

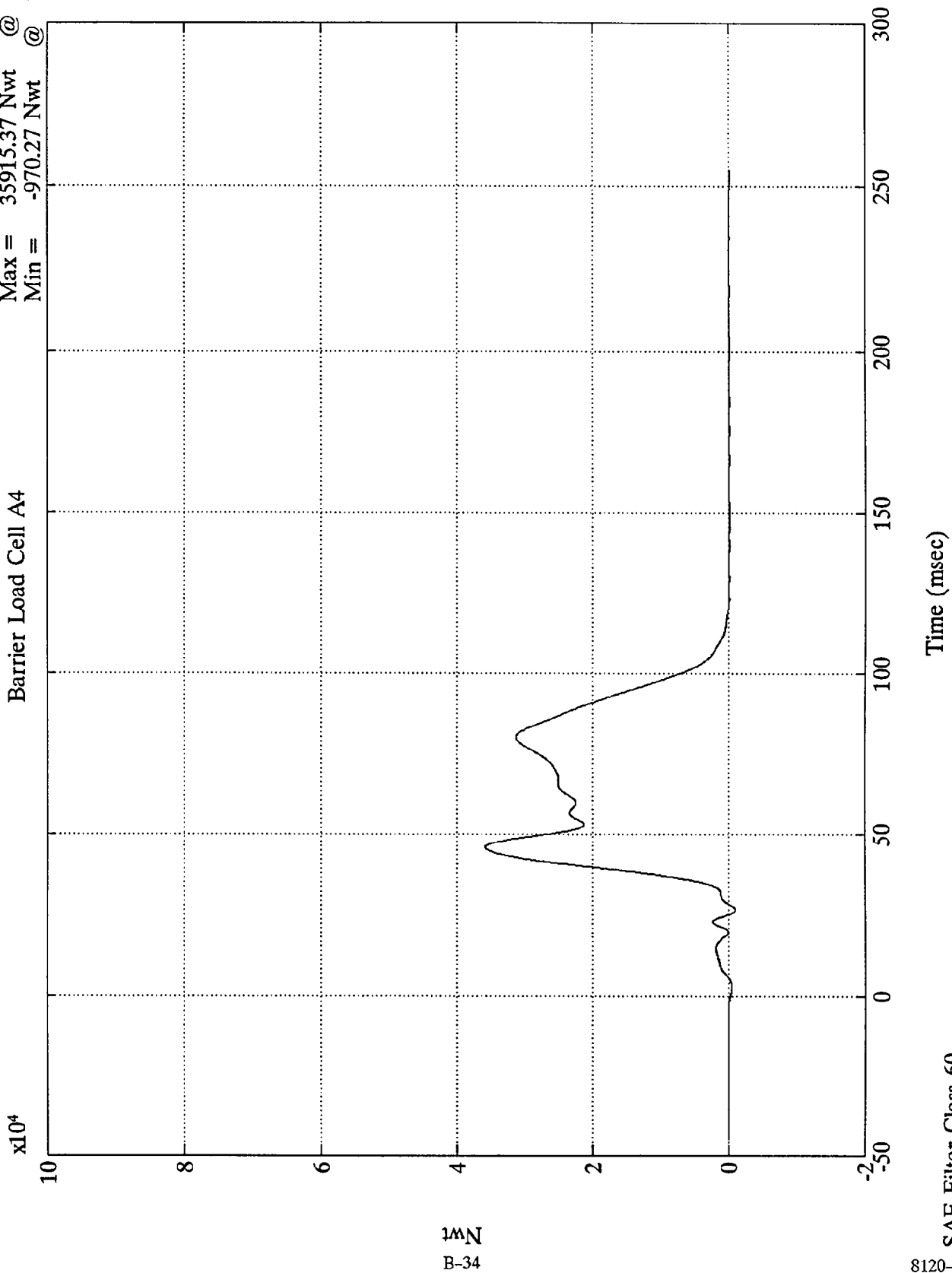
$\times 10^4$



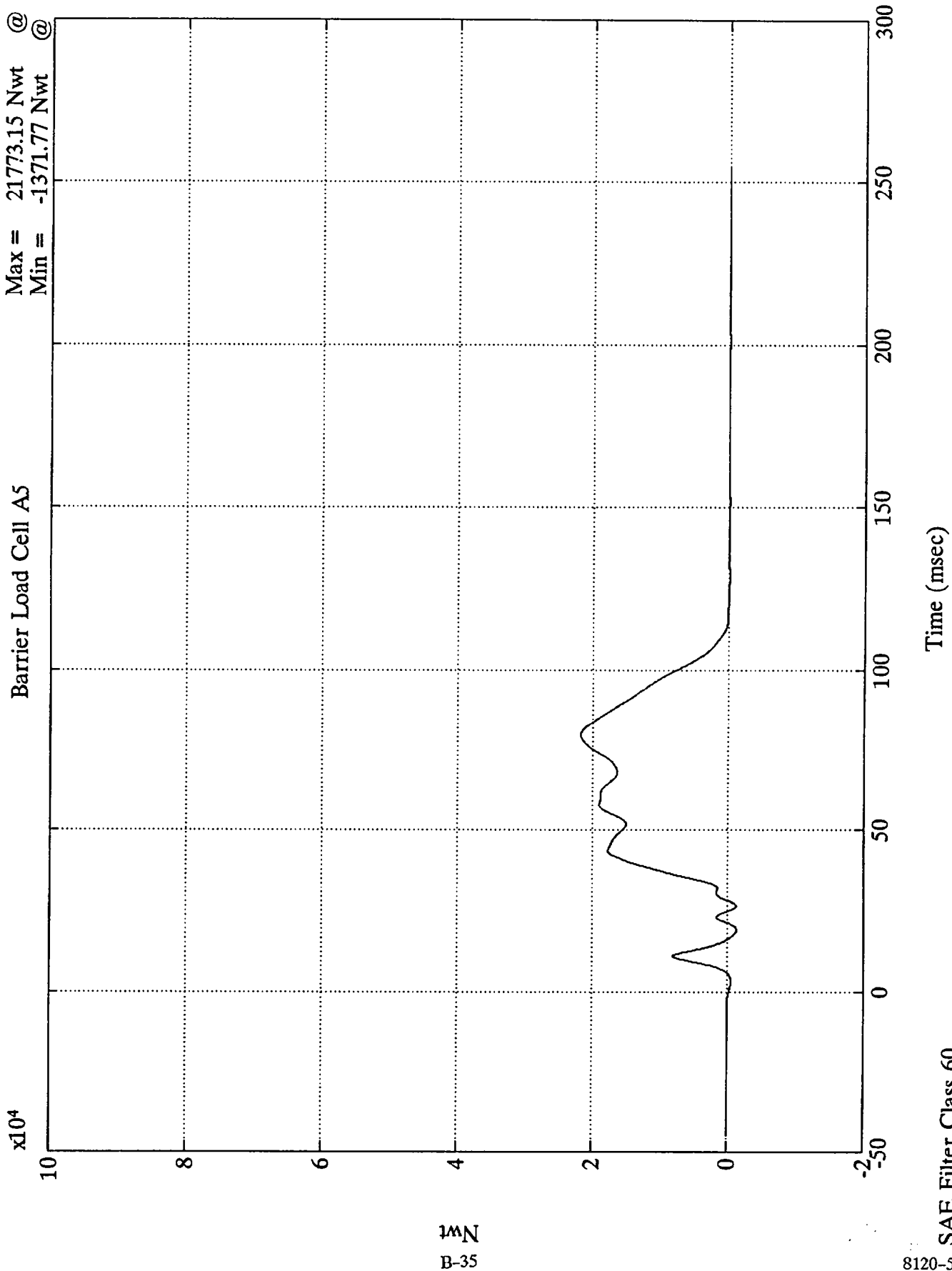
B-33

NCAP TEST #5 - 1993 INFINITI J30

Barrier Load Cell A4
Max = 35915.37 Nwt @ 45.84 msec
Min = -970.27 Nwt @ 26.51 msec



Barrier Load Cell A5
 Max = 21773.15 Nwt @ 79.56 m
 Min = -1371.77 Nwt @ 18.95 ms

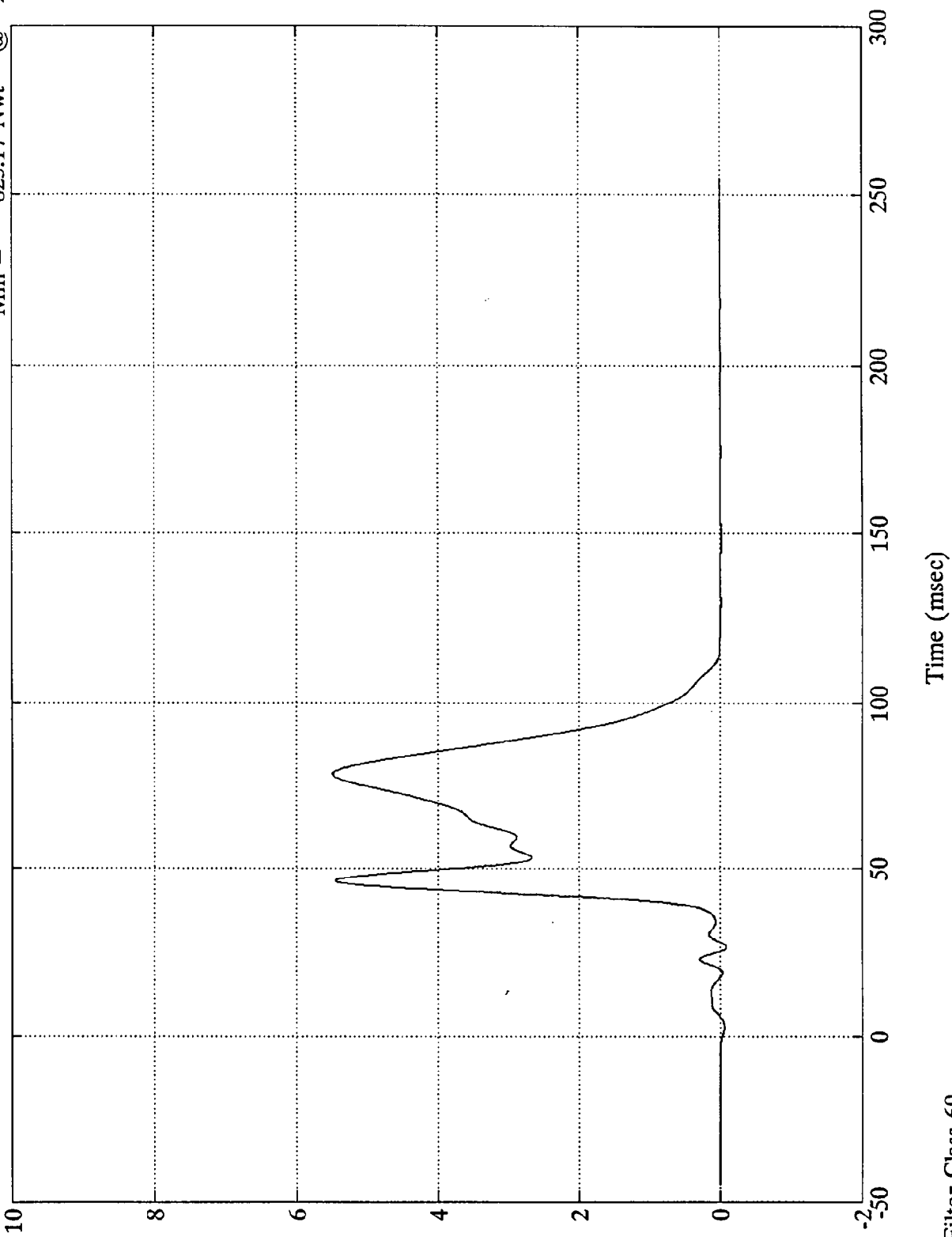


NCAP TEST #5 - 1993 INFINITI J30

Max = 54891.24 Nwt @ 78.60 msec
 Min = -825.17 Nwt @ 26.51 msec

Barrier Load Cell A6

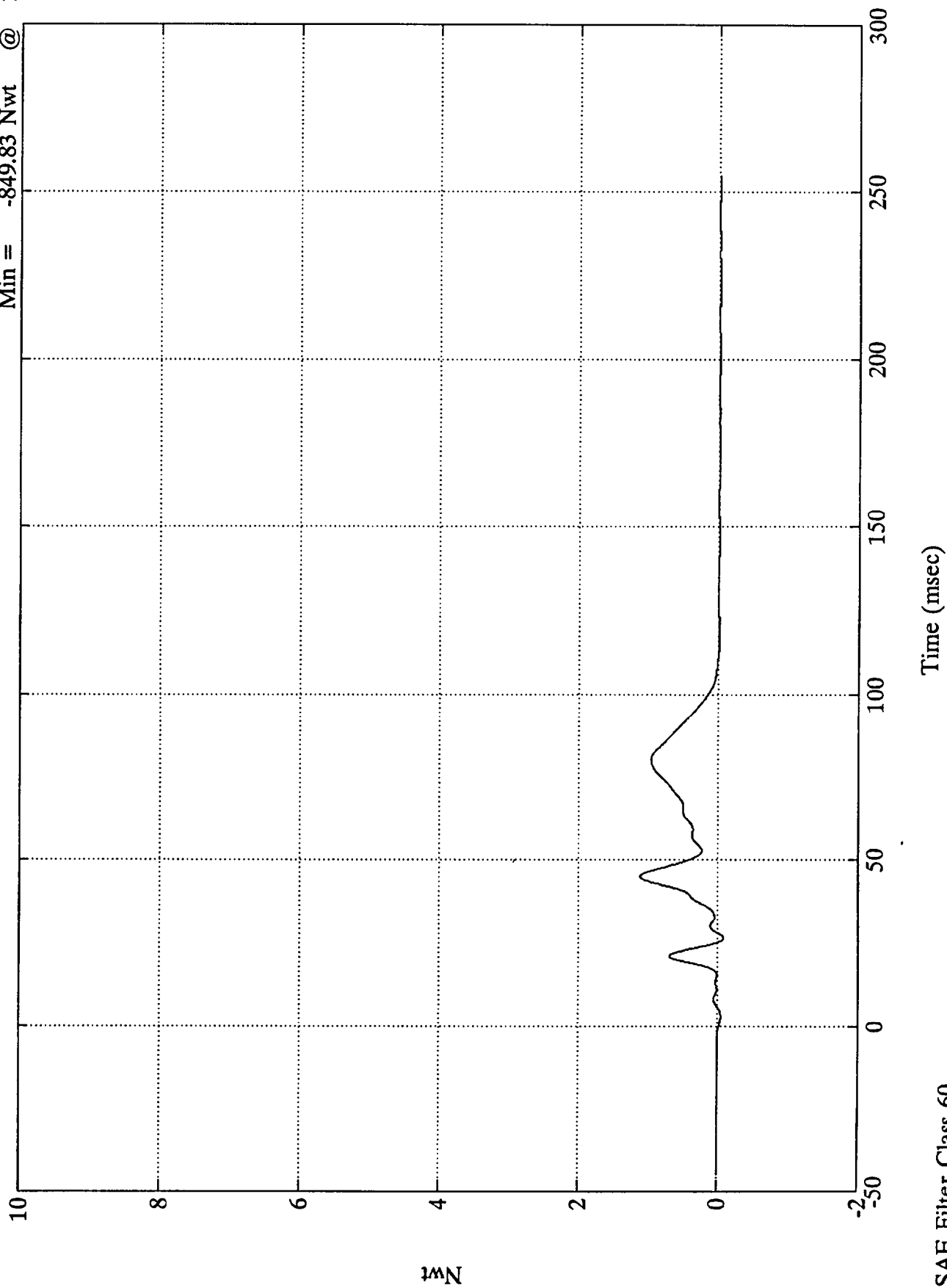
$\times 10^4$



Barrier Load Cell A7

Max = 11093.39 Nwt @ 45.12 m
Min = -849.83 Nwt @ 26.51 ms

$\times 10^4$



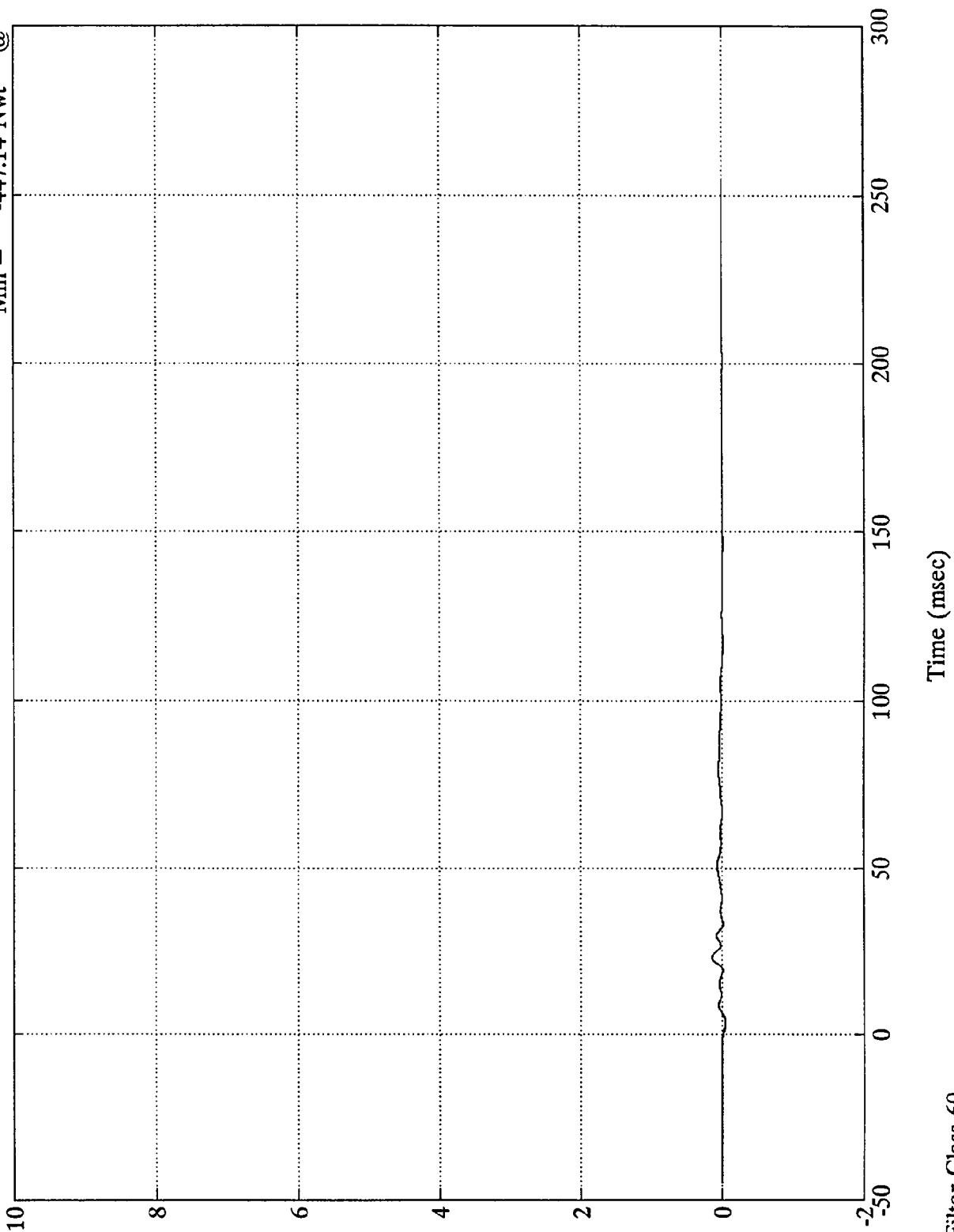
1wN
B-37

NCAP TEST #5 - 1993 INFINITI J30

Max = 1496.60 Nwt @ 22.92 msec
 Min = -447.14 Nwt @ 3.23 msec

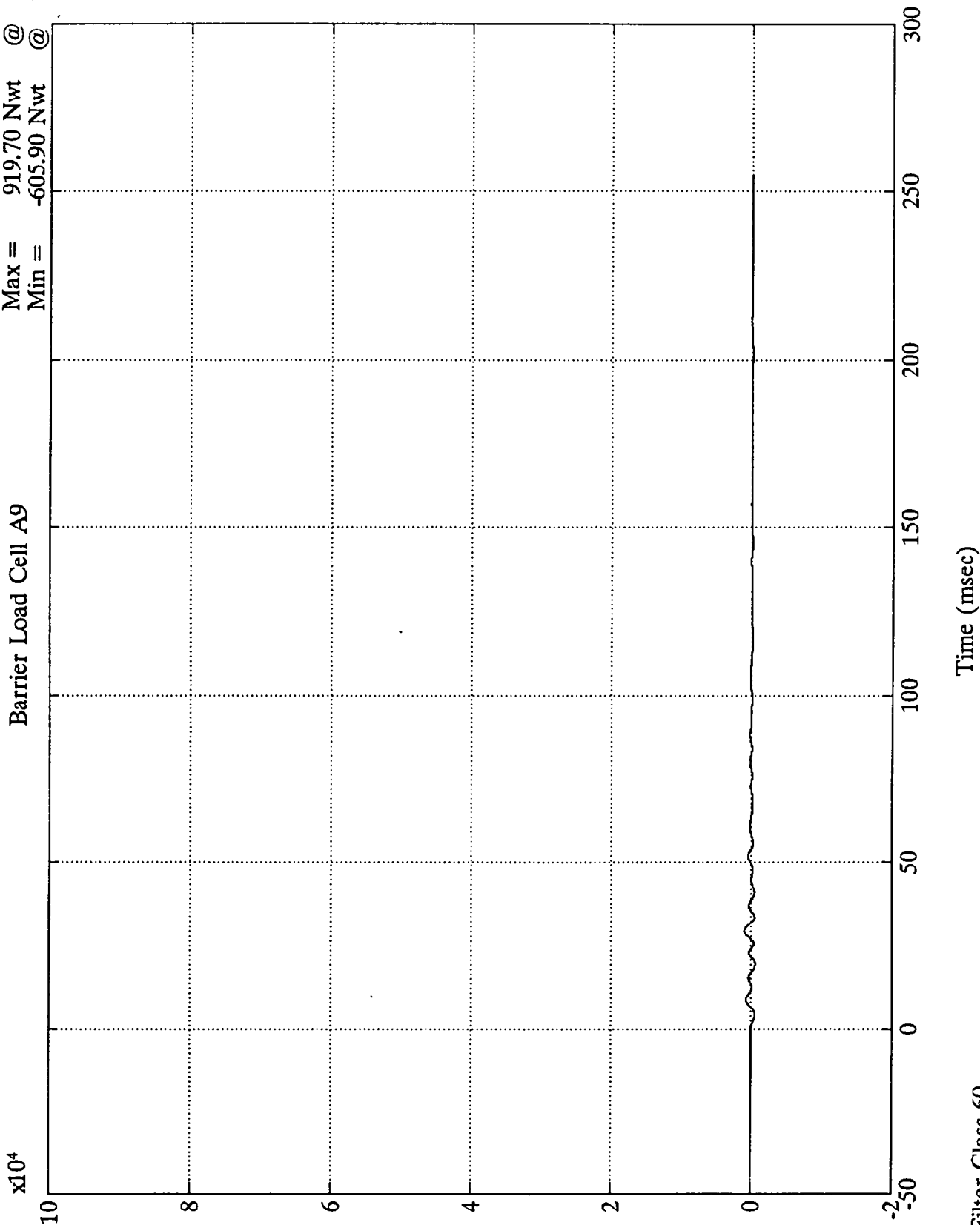
Barrier Load Cell A8

x10⁴



B-38

Barrier Load Cell A9
 Max = 919.70 Nwt @ 29.51 ms
 Min = -605.90 Nwt @ 19.67 ms



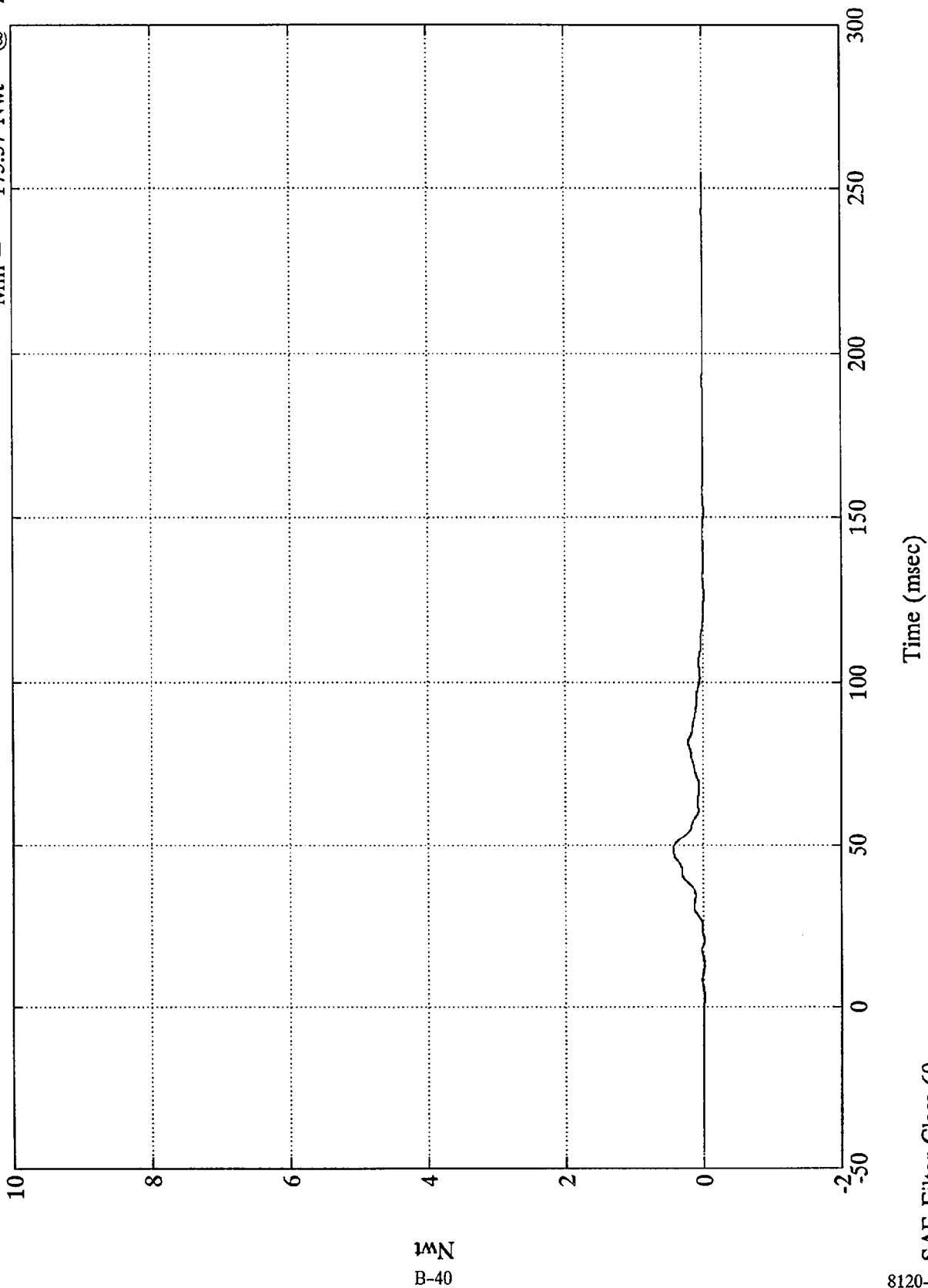
1W
 B-39

NCAP TEST #5 - 1993 INFINITI J30

Max = 4329.74 Nwt @ 48.72 msec
 Min = -175.37 Nwt @ 20.39 msec

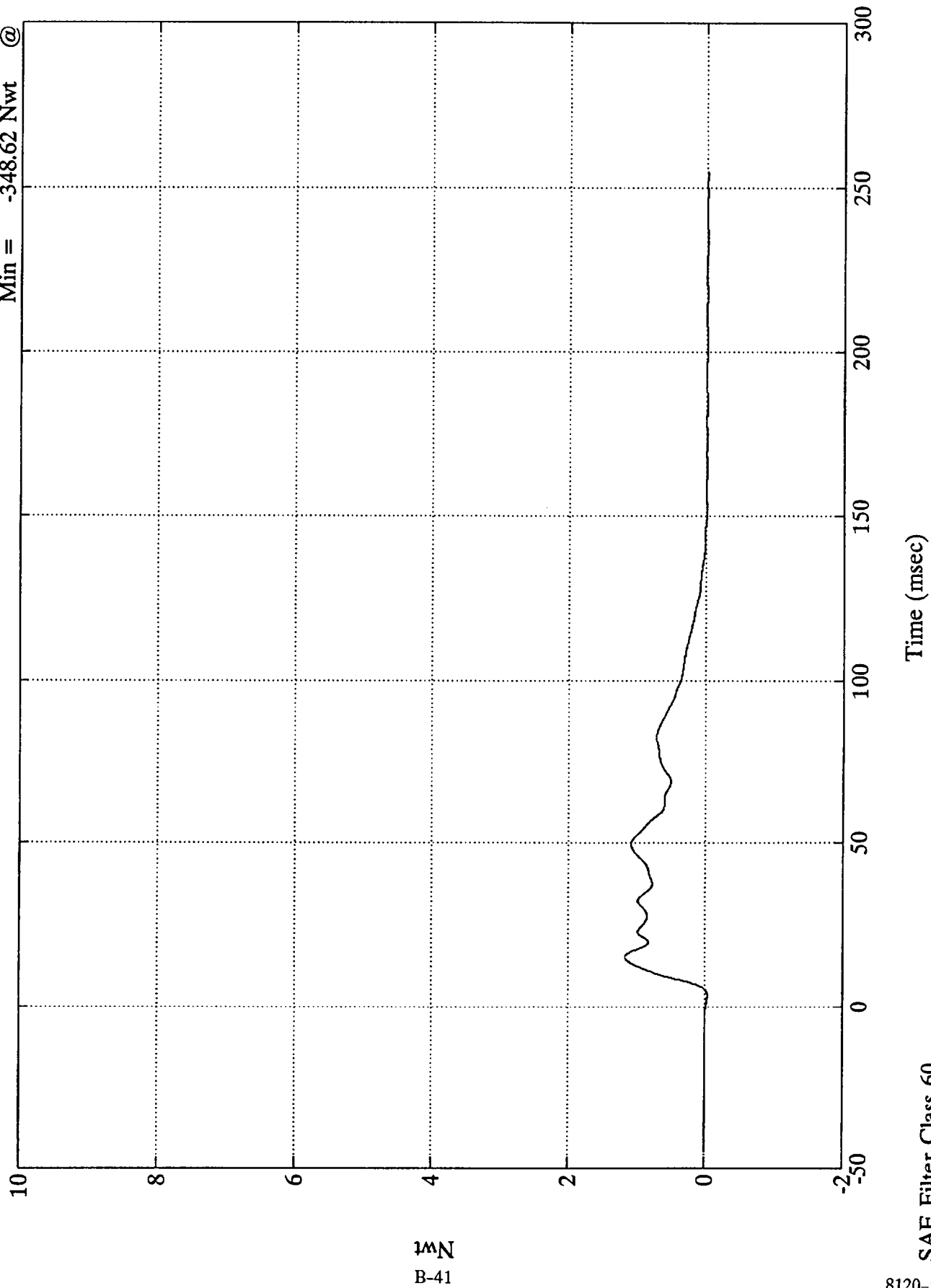
Barrier Load Cell B1

x10⁴



Barrier Load Cell B2

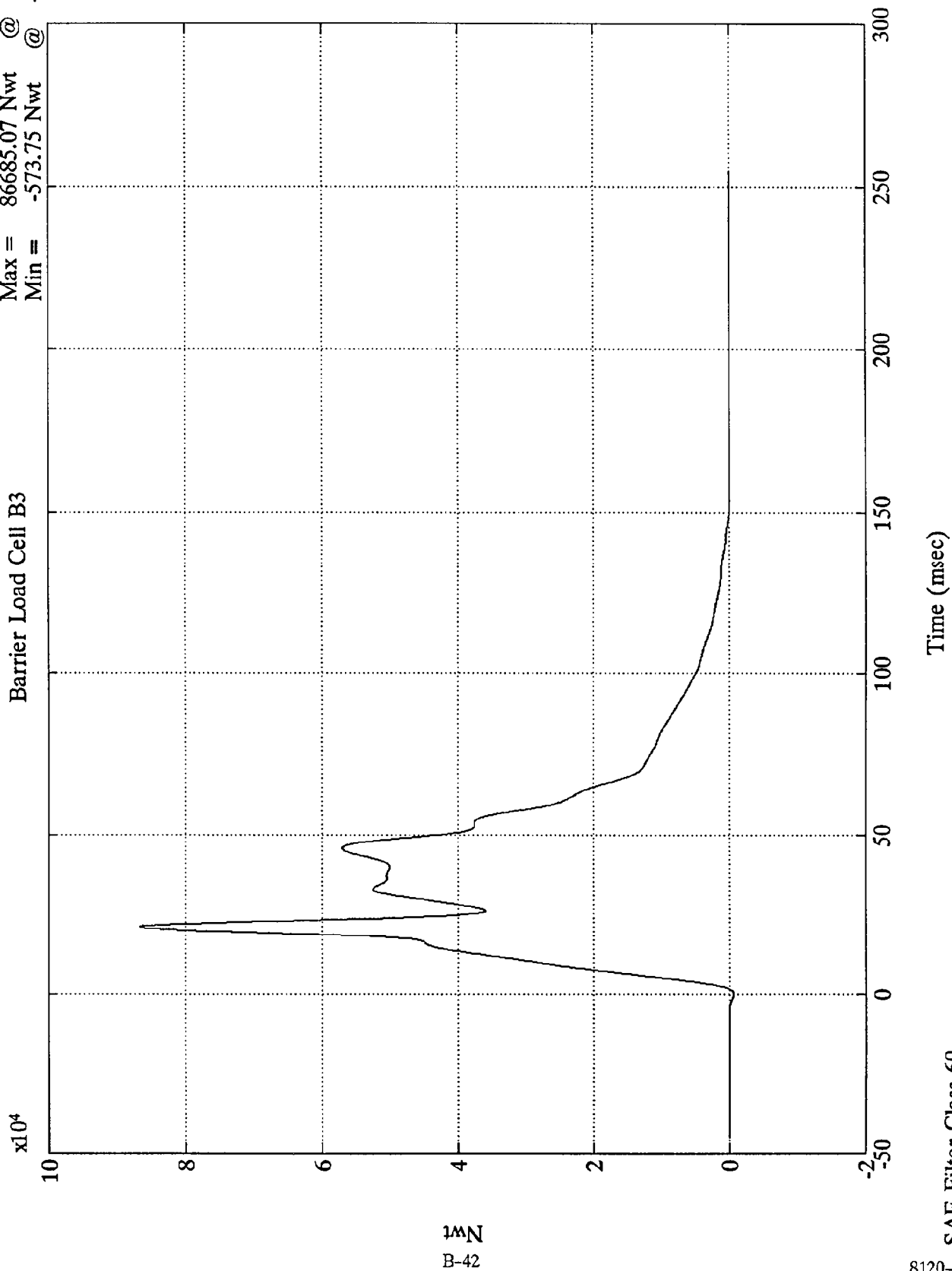
$\times 10^4$



Nwt
B-41

NCAP TEST #5 - 1993 INFINITI J30

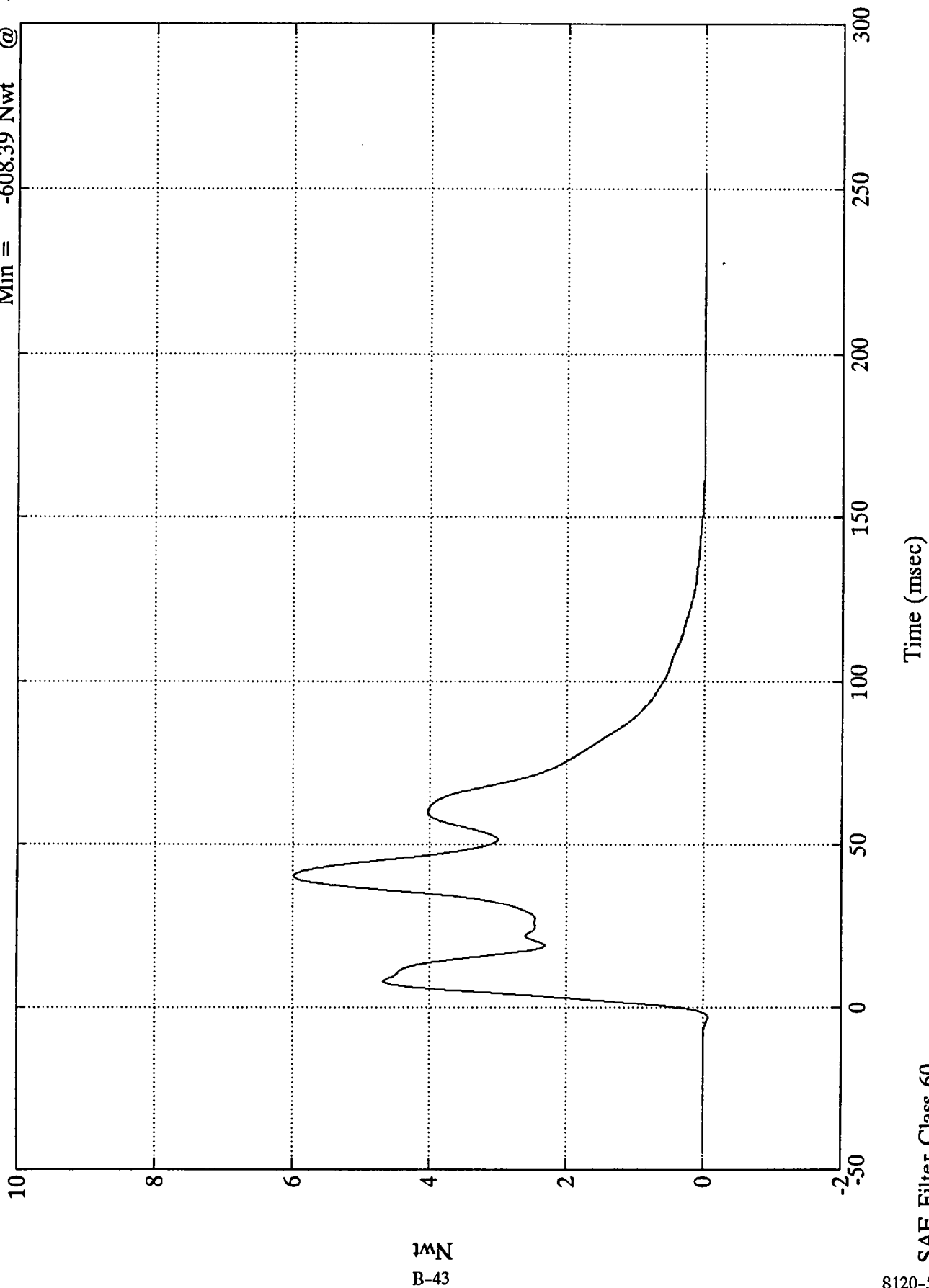
Barrier Load Cell B3
 Max = 86685.07 Nwt @ 20.76 msec
 Min = -573.75 Nwt @ -0.00 msec



NCAP TEST #5 - 1993 INFINITI J30

Barrier Load Cell B4
Max = 59849.36 Nwt @ 40.44 m
Min = -608.39 Nwt @ -3.12 ms

$\times 10^4$

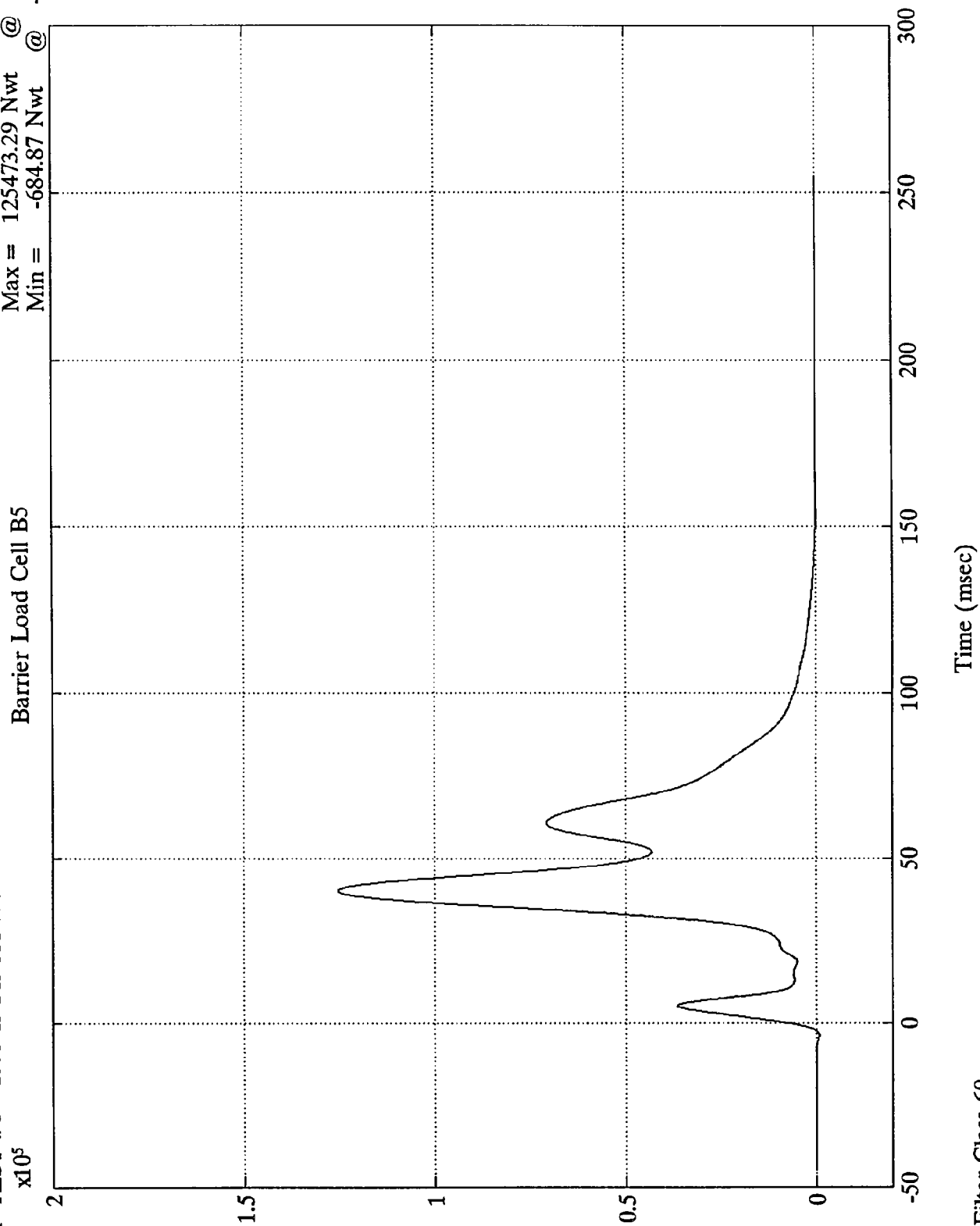


B-43

NCAP TEST #5 - 1993 INFINITI J30

Barrier Load Cell B5

Max = 125473.29 Nwt @ 40.07 msec
Min = -684.87 Nwt @ -3.84 msec



10⁵N
B-44

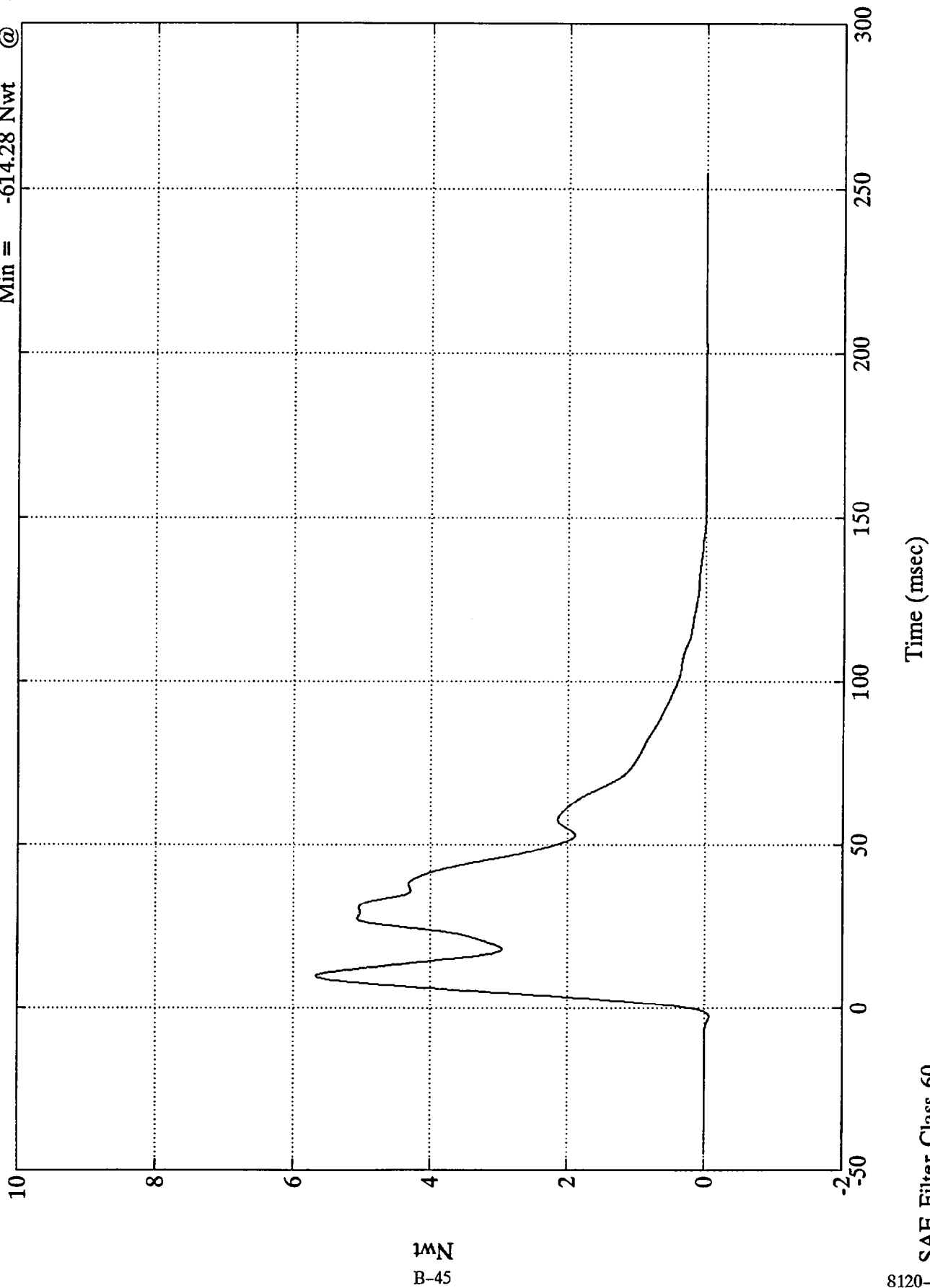
8120-5
SAE Filter Class 60

NCAP TEST #5 - 1993 INFINITI J30

Max = 56731.48 Nwt @ 9.71 m
Min = -614.28 Nwt @ -2.64 m/s

Barrier Load Cell B6

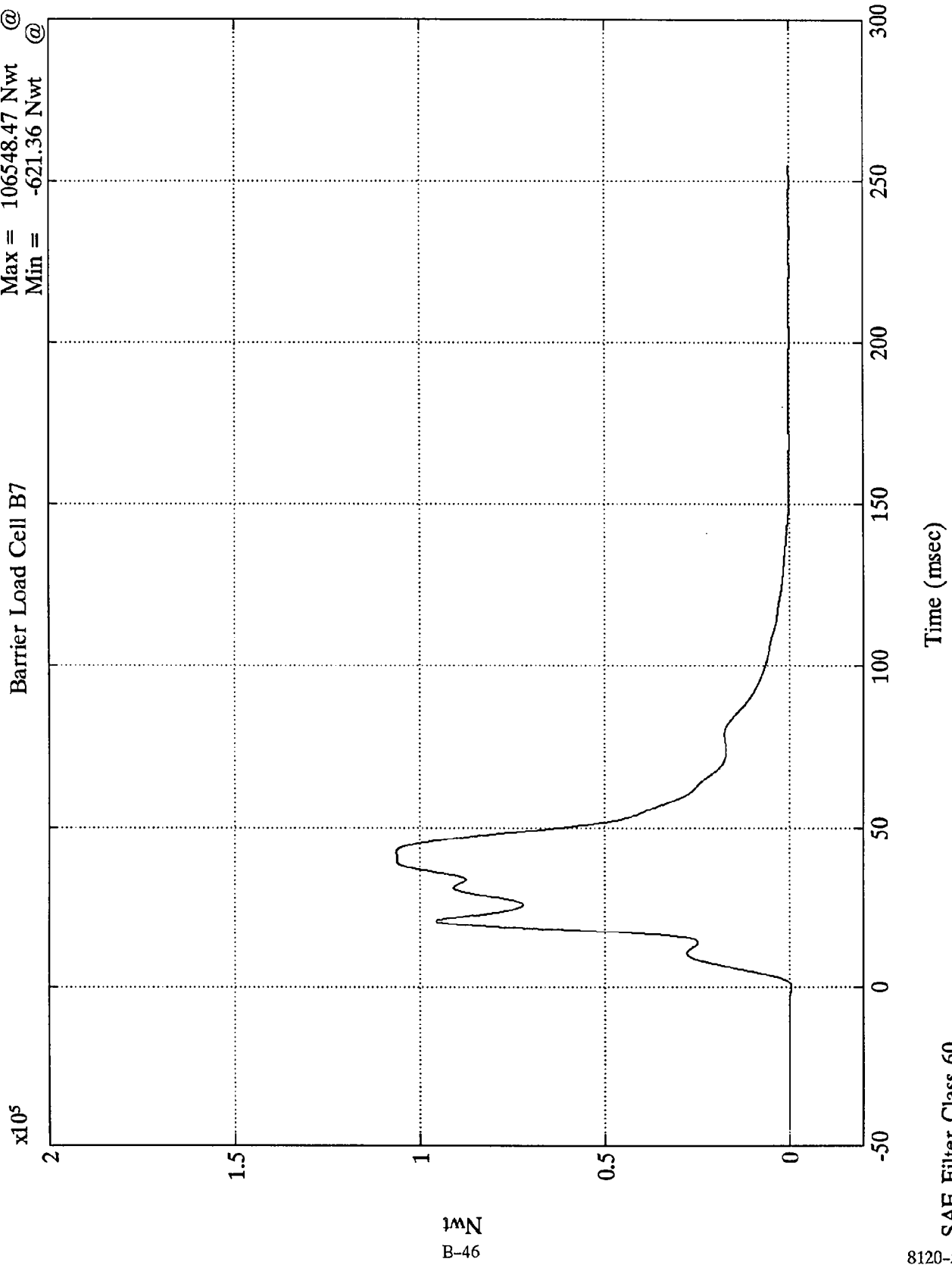
$\times 10^4$



NCAP TEST #5 - 1993 INFINITI J30

Barrier Load Cell B7

Max = 106548.47 Nwt @ 42.36 msec
Min = -621.36 Nwt @ -0.12 msec



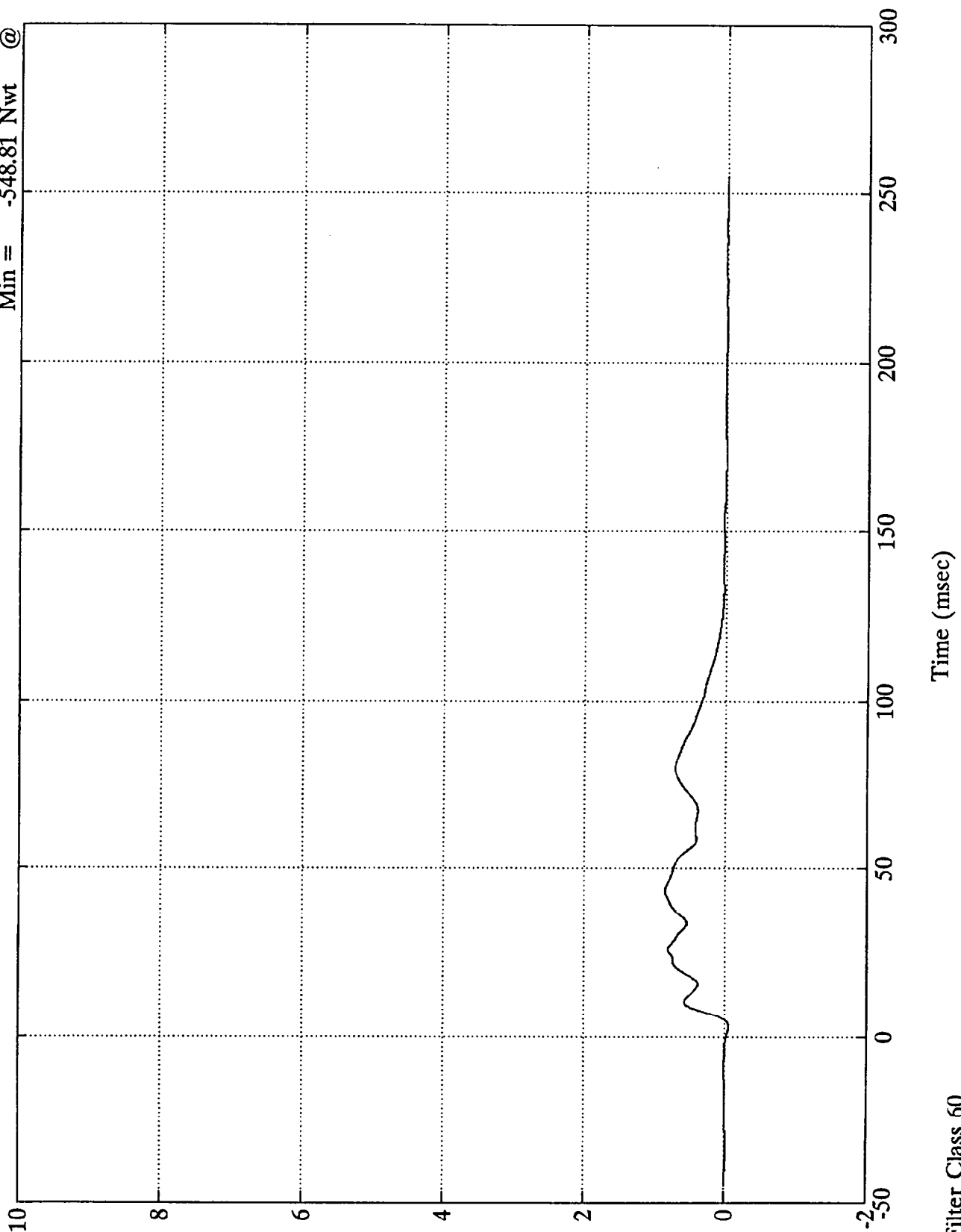
B-46

NCAP TEST #5 - 1993 INFINITI J30

Max = 8495.67 Nwt @ 43.31 m
 Min = -548.81 Nwt @ 2.99 ms

Barrier Load Cell B8

x10⁴



B-47

8120-5

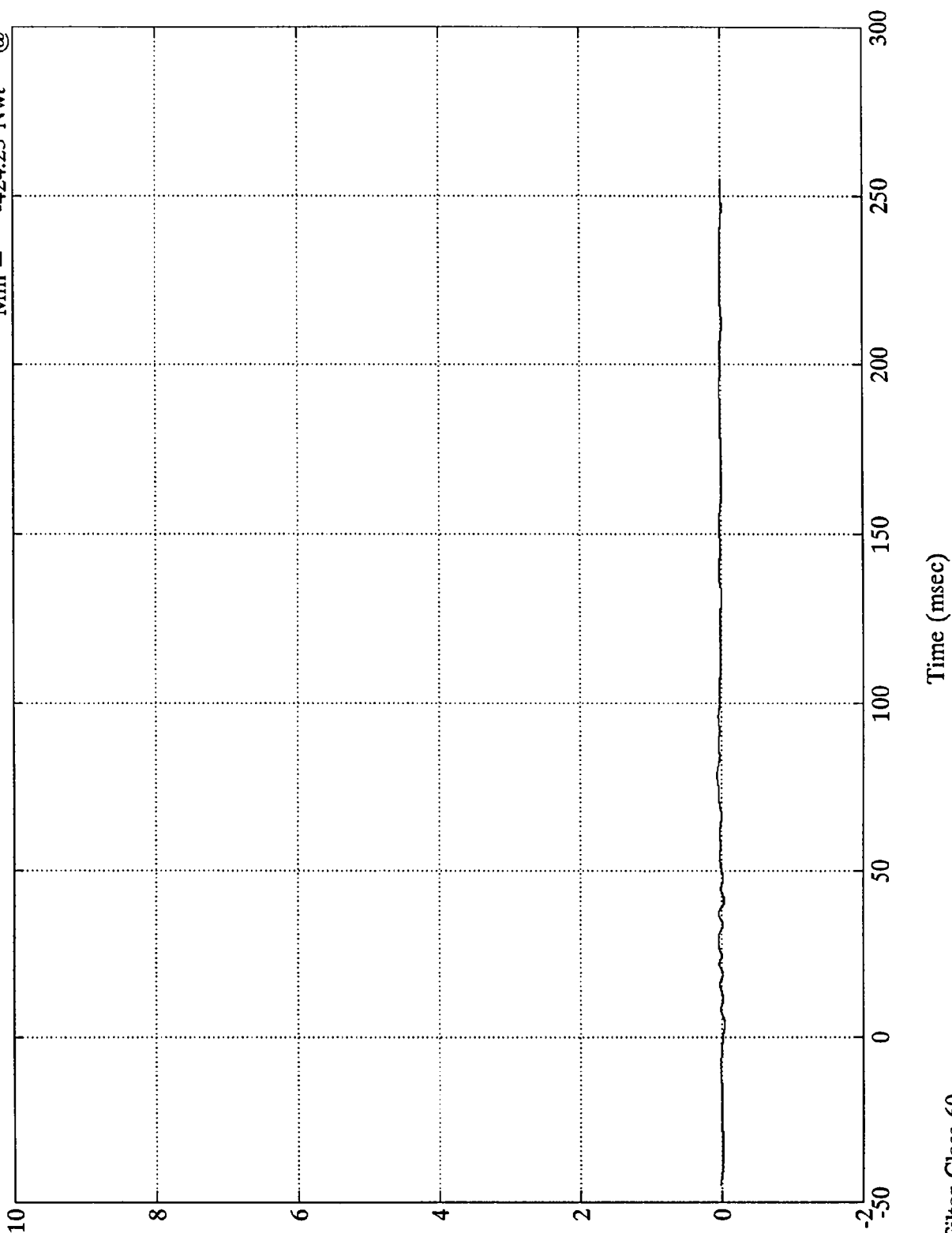
SAE Filter Class 60

NCAP TEST #5 - 1993 INFINITI J30

Max = 679.15 Nwt @ 78.72 msec
 Min = -424.23 Nwt @ 3.71 msec

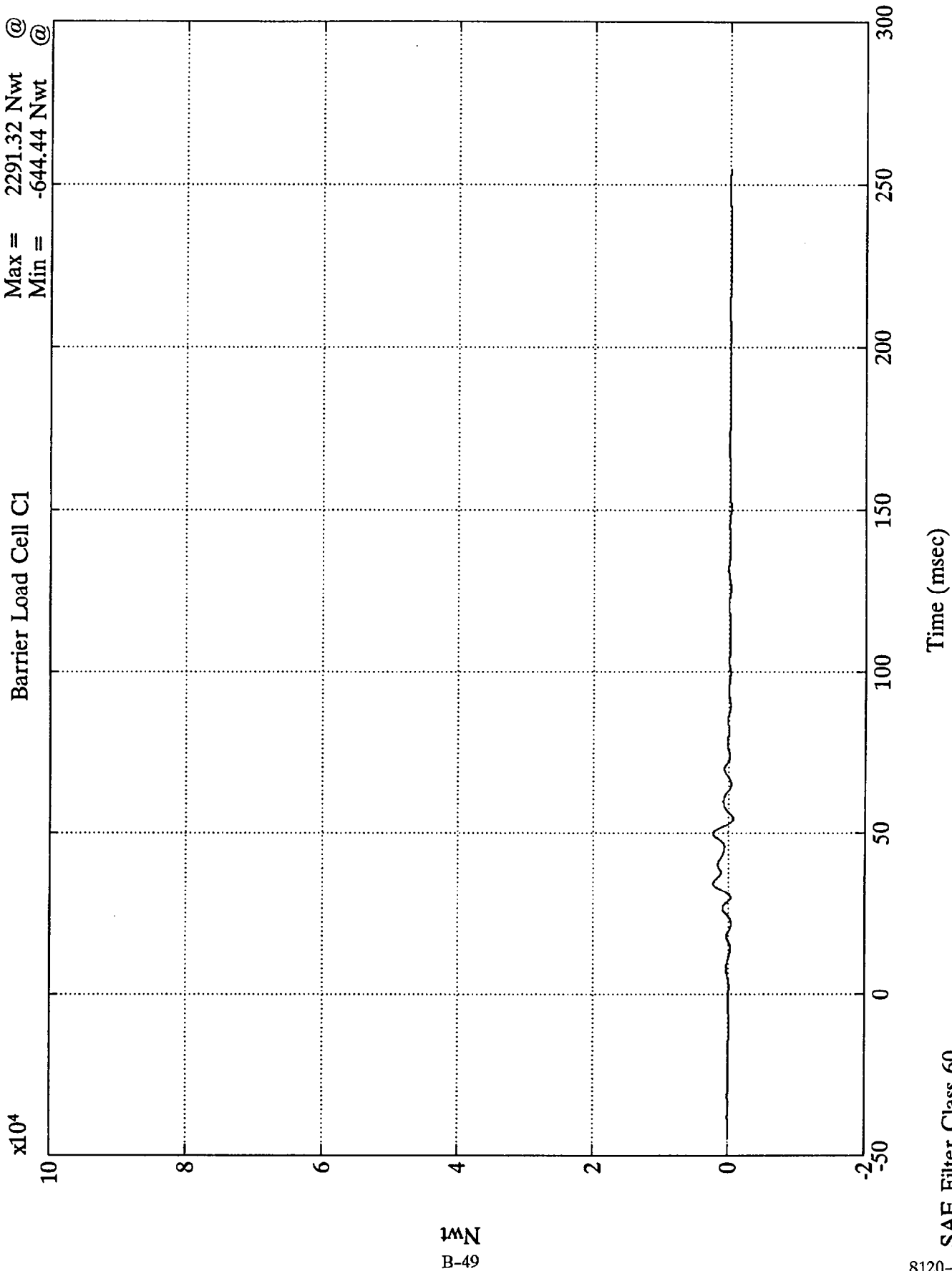
Barrier Load Cell B9

x10⁴



B-48

Barrier Load Cell C1
 Max = 2291.32 Nwt @ 49.92 m:
 Min = -644.44 Nwt @ 54.36 ms



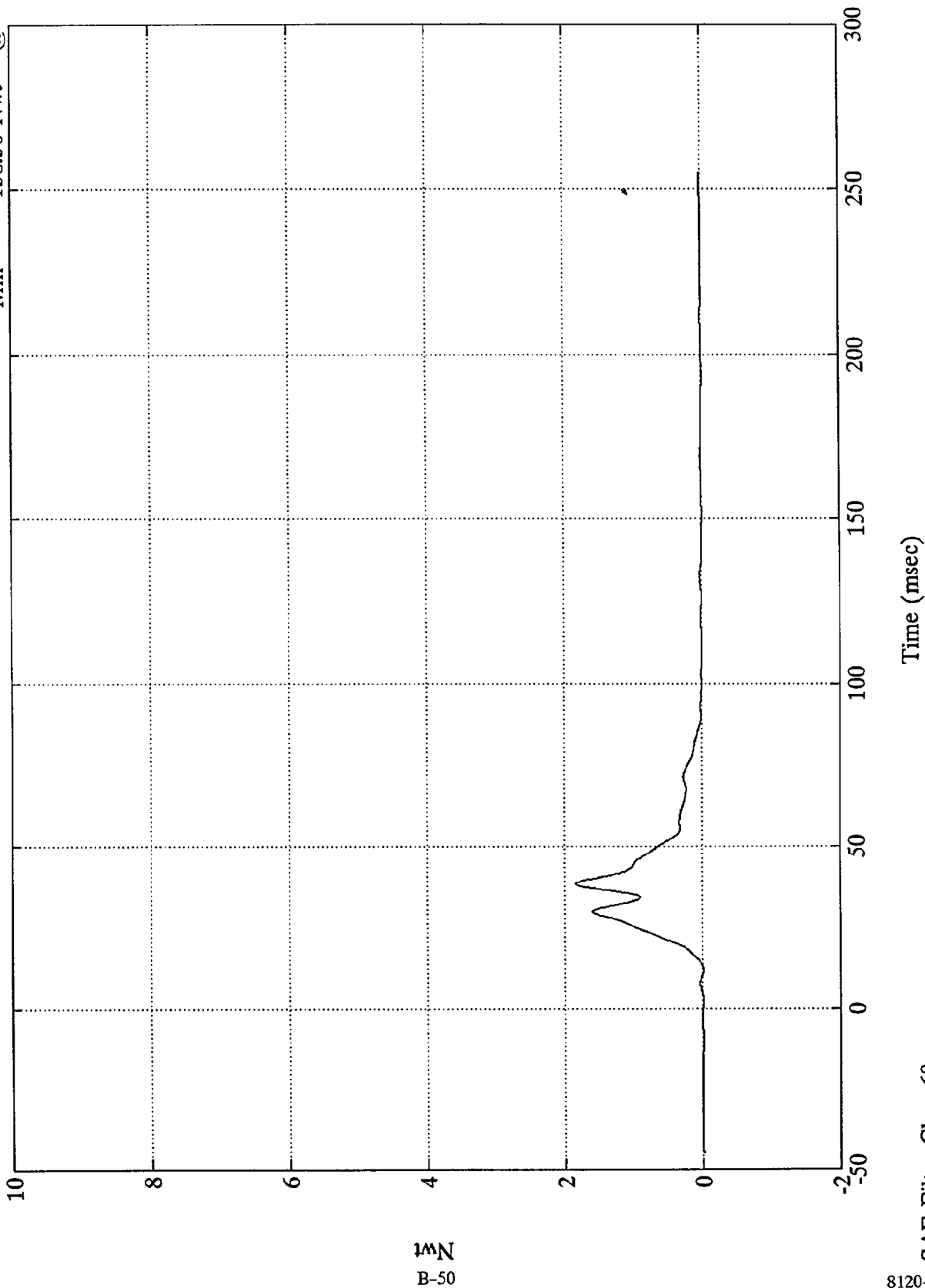
B-49

NCAP TEST #5 - 1993 INFINITI J30

Max = 18419.53 Nwt @ 38.52 msec
Min = -138.50 Nwt @ 2.03 msec

Barrier Load Cell C2

x10⁴



SAE Filter Class 60

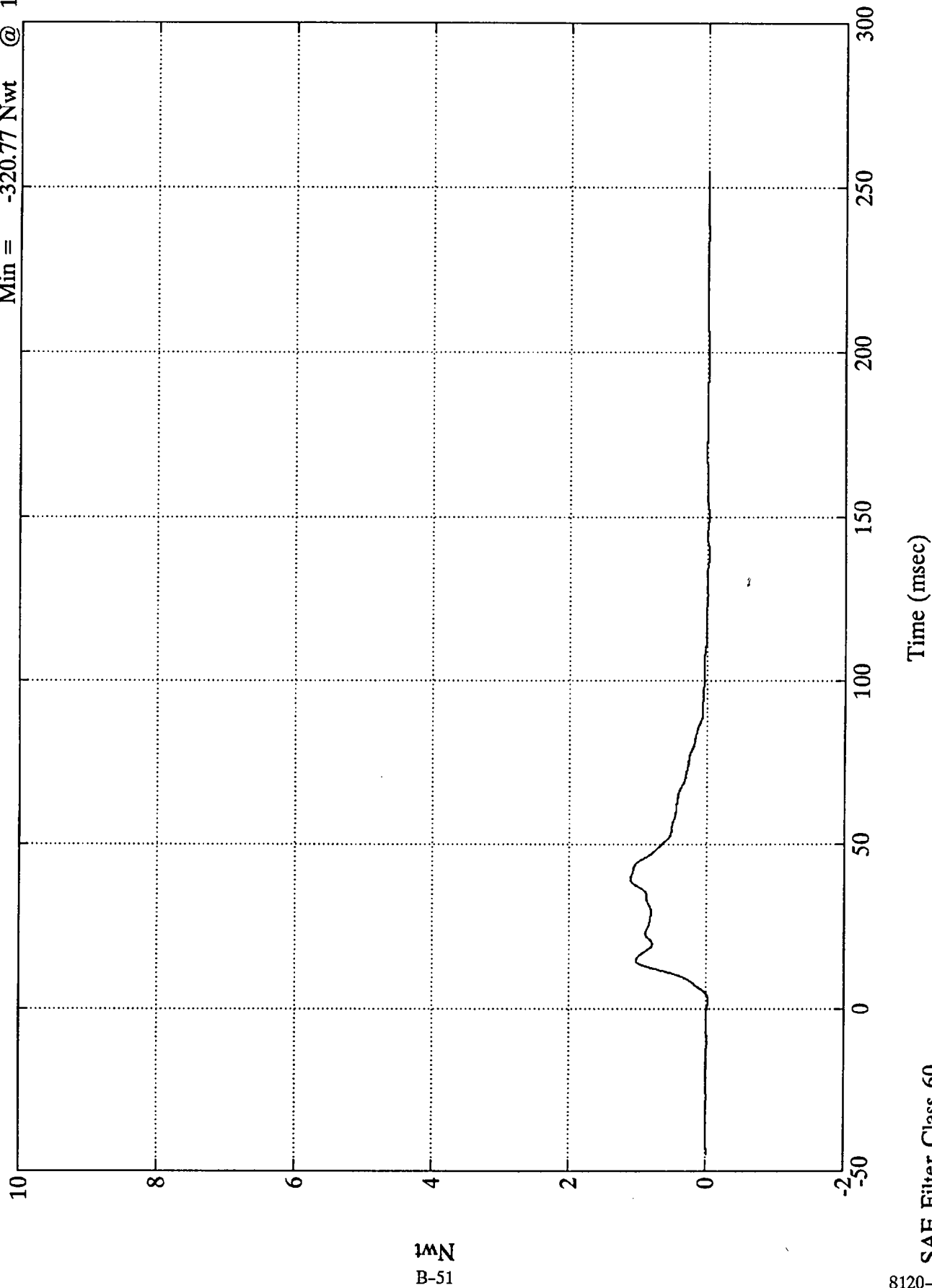
8120-5

B-50

Barrier Load Cell C3

Max = 11044.47 Nwt @ 39.47 m
Min = -320.77 Nwt @ 138.72 m

$\times 10^4$



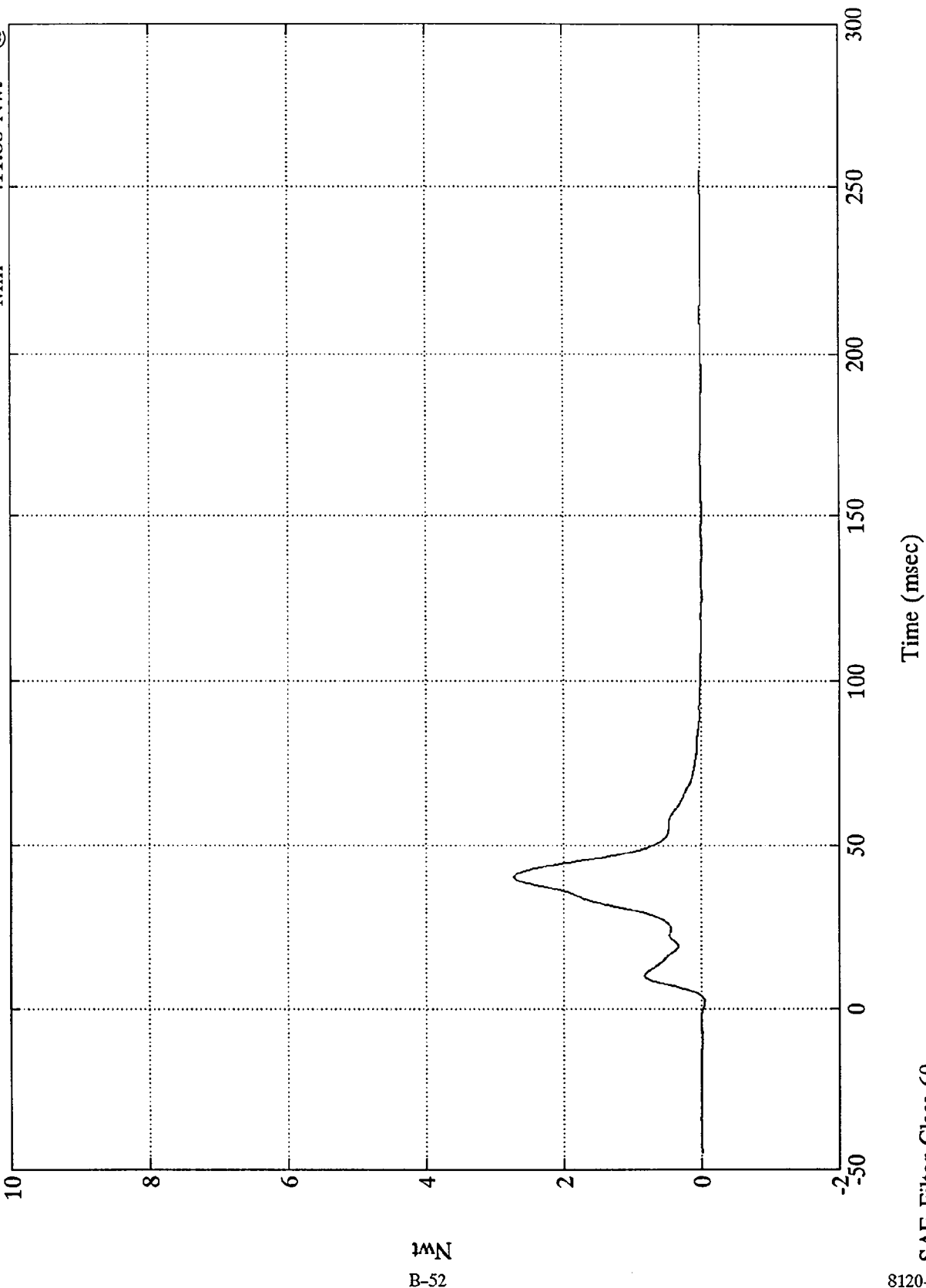
B-51

NCAP TEST #5 - 1993 INFINITI J30

Max = 27209.57 Nwt @ 40.31 msec
 Min = -411.88 Nwt @ 1.91 msec

Barrier Load Cell C4

x10⁴



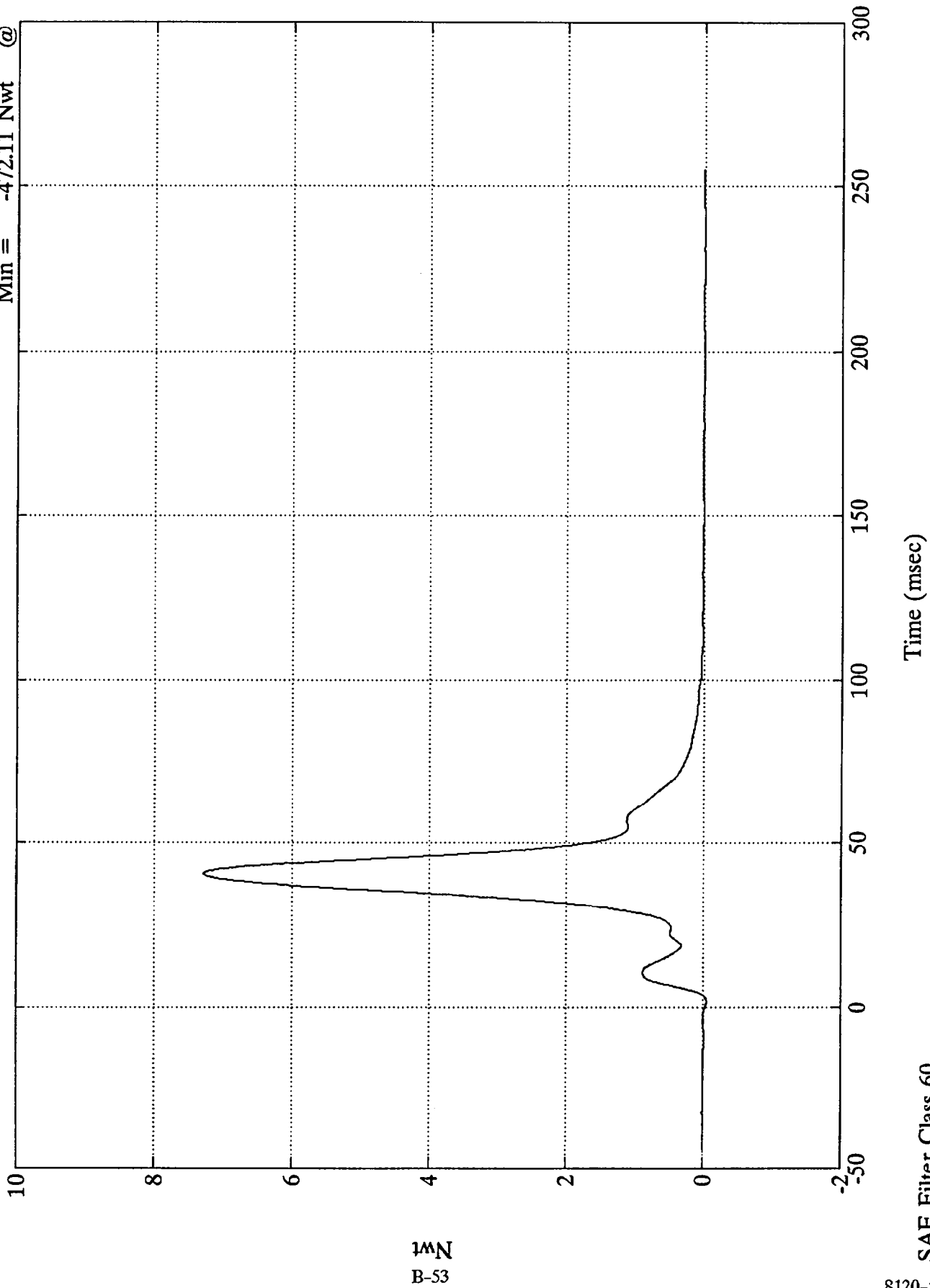
SAE Filter Class 60

8120-5

Max = 72868.70 Nwt @ 40.56 m
Min = -472.11 Nwt @ 1.91 ms

Barrier Load Cell C5

x10⁴

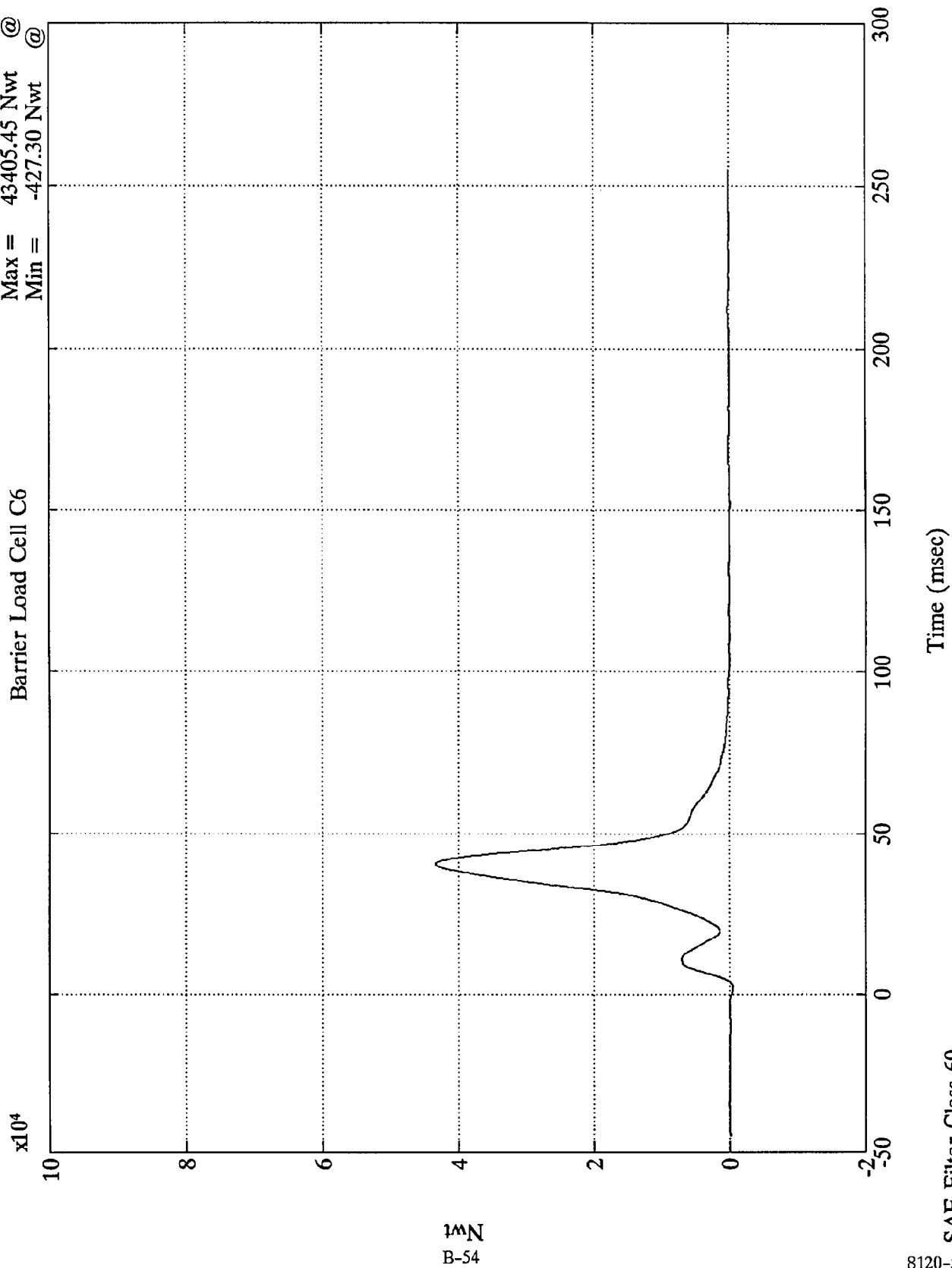


B-53

NCAP TEST #5 - 1993 INFINITI J30

Barrier Load Cell C6

Max = 43405.45 Nwt @ 40.19 msec
Min = -427.30 Nwt @ 1.79 msec

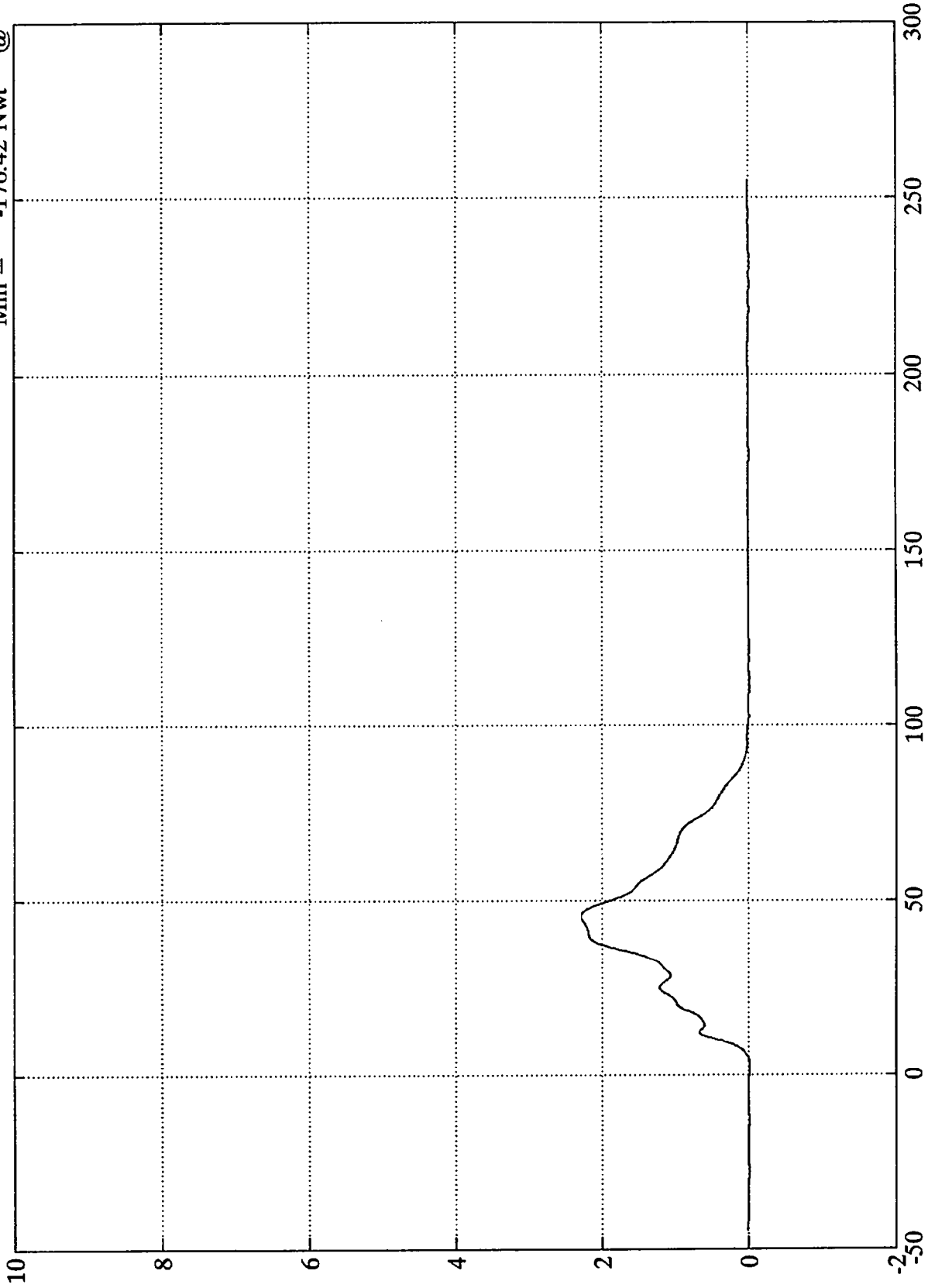


SAE Filter Class 60

Barrier Load Cell C7

Max = 22882.64 Nwt @ 45.72 m
Min = -176.42 Nwt @ 2.03 msec

$\times 10^4$



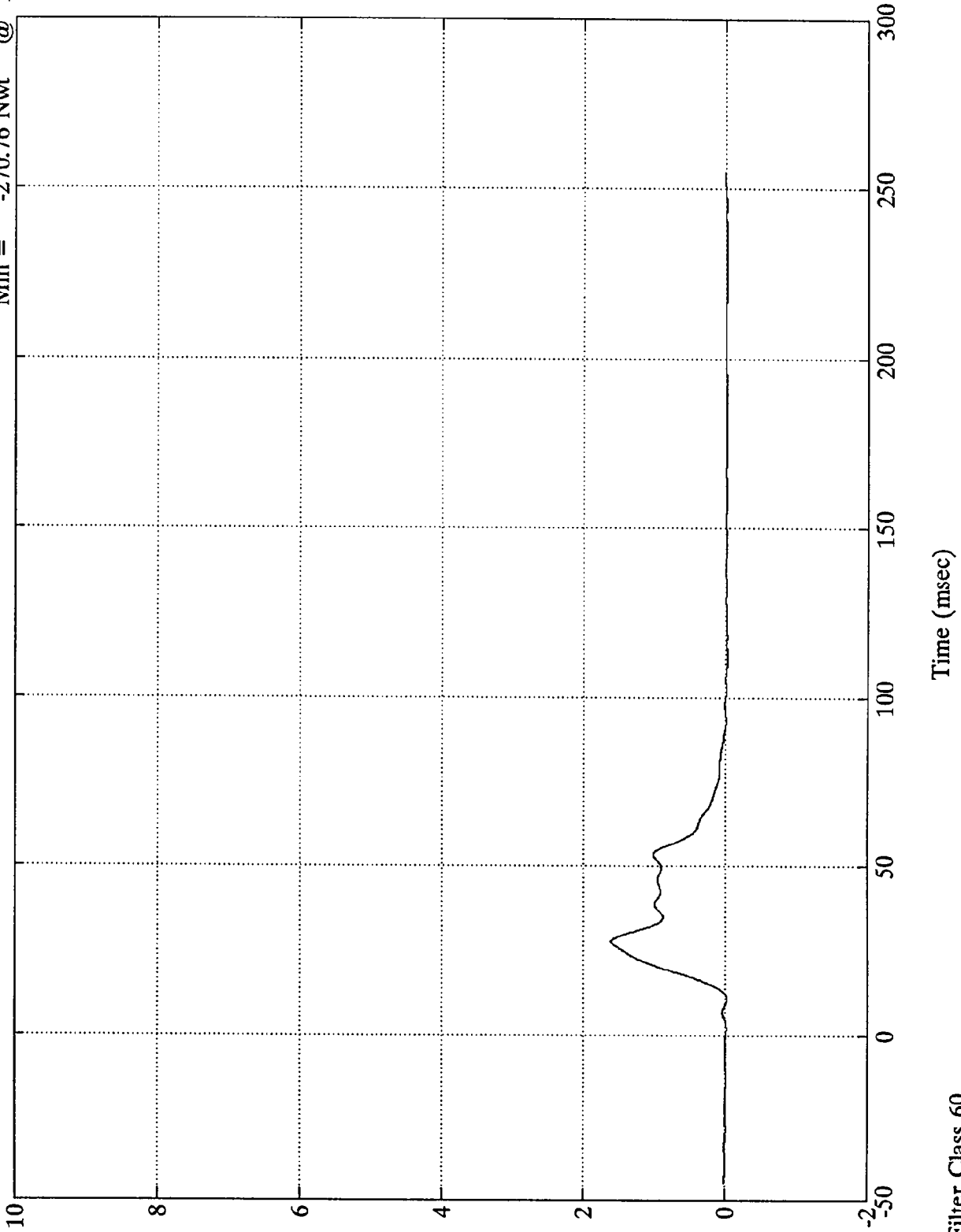
Nwt
B-55

NCAP TEST #5 - 1993 INFINITI J30

Max = 16068.59 Nwt @ 27.72 msec
Min = -270.76 Nwt @ 111.84 msec

Barrier Load Cell C8

x10⁴



B-56

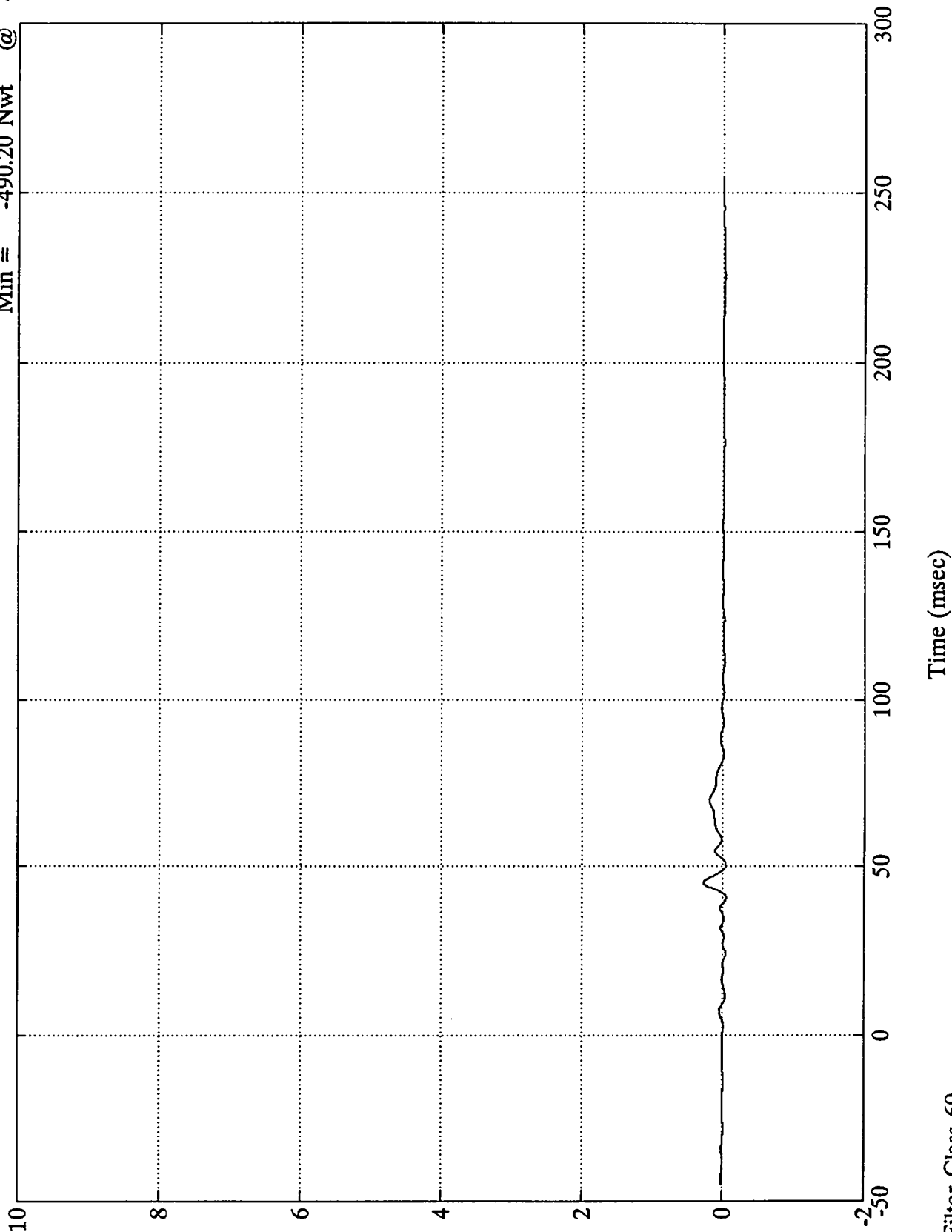
8120-5 SAE Filter Class 60

$\times 10^4$

Barrier Load Cell C9

Max = 2758.36 Nwt
Min = -490.20 Nwt

@ 45.12 m
@ 40.68 ms



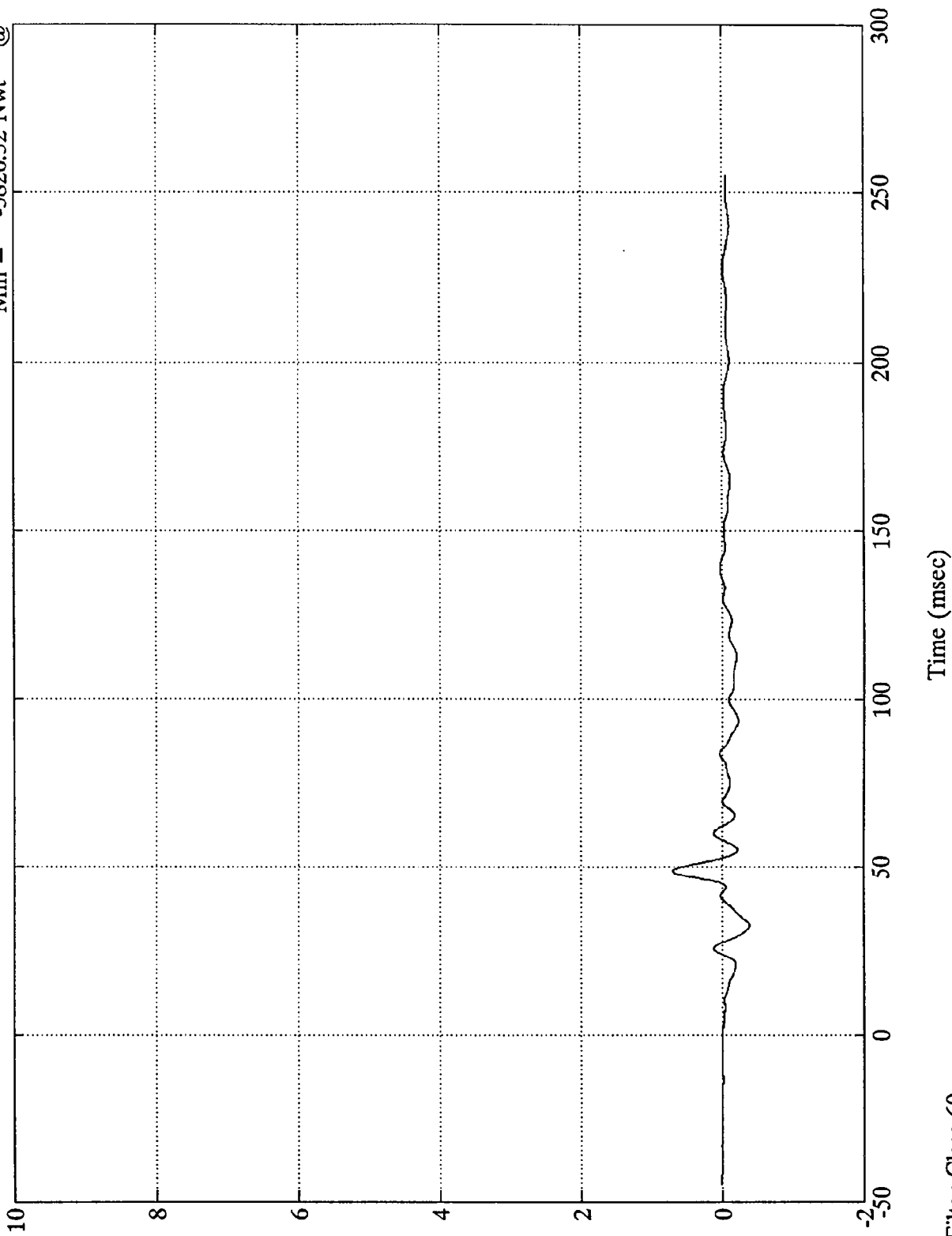
B-57

NCAP TEST #5 - 1993 INFINITI J30

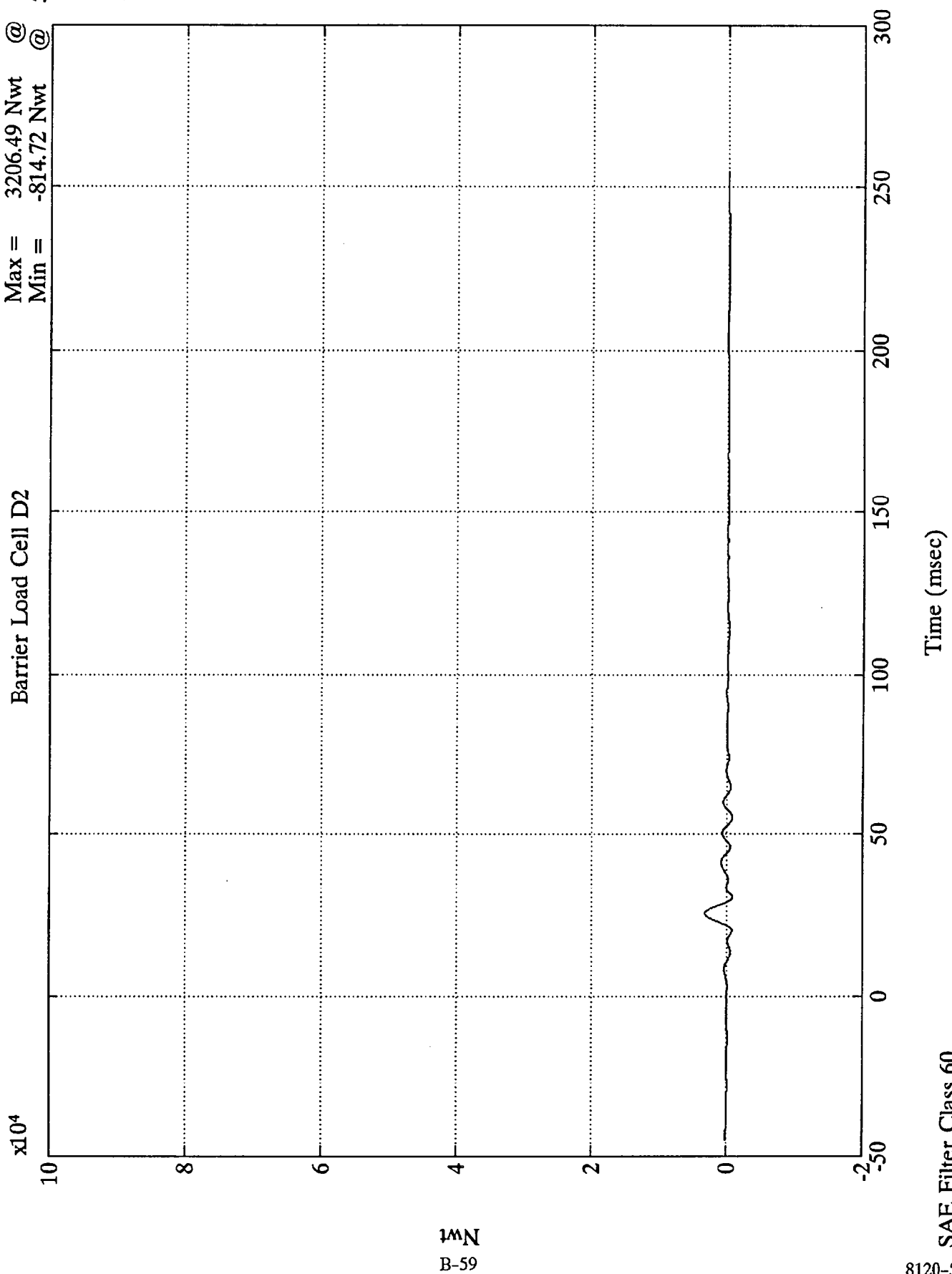
Max = 7043.71 Nwt @ 48.84 msec
 Min = -3826.52 Nwt @ 32.40 msec

Barrier Load Cell D1

x10⁴



Barrier Load Cell D2
Max = 3206.49 Nwt @ 25.79 n
Min = -814.72 Nwt @ 55.20 m



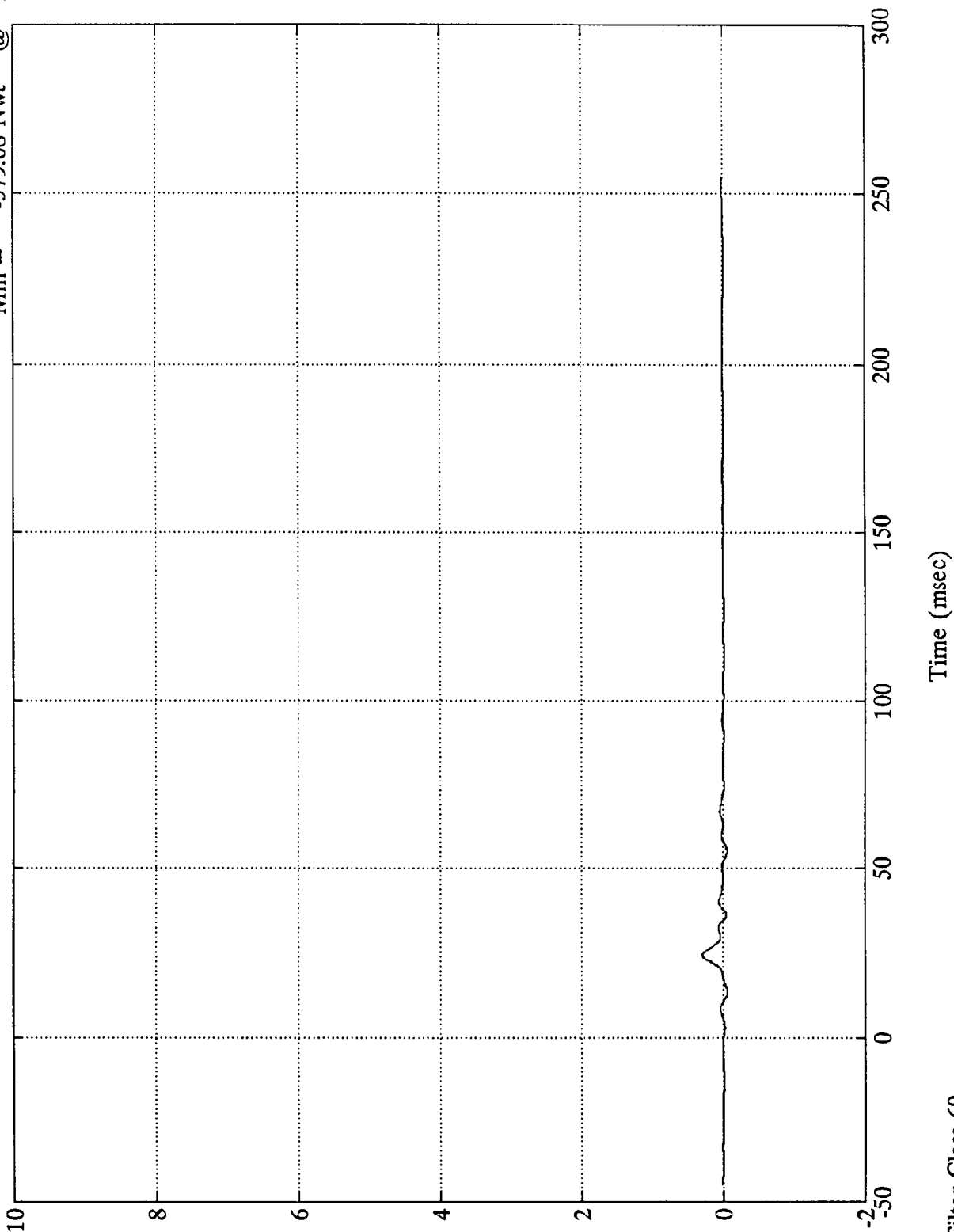
B-59

NCAP TEST #5 - 1993 INFINITI J30

Max = 2947.69 Nwt @ 24.11 msec
 Min = -579.08 Nwt @ 13.19 msec

Barrier Load Cell D3

x10⁴



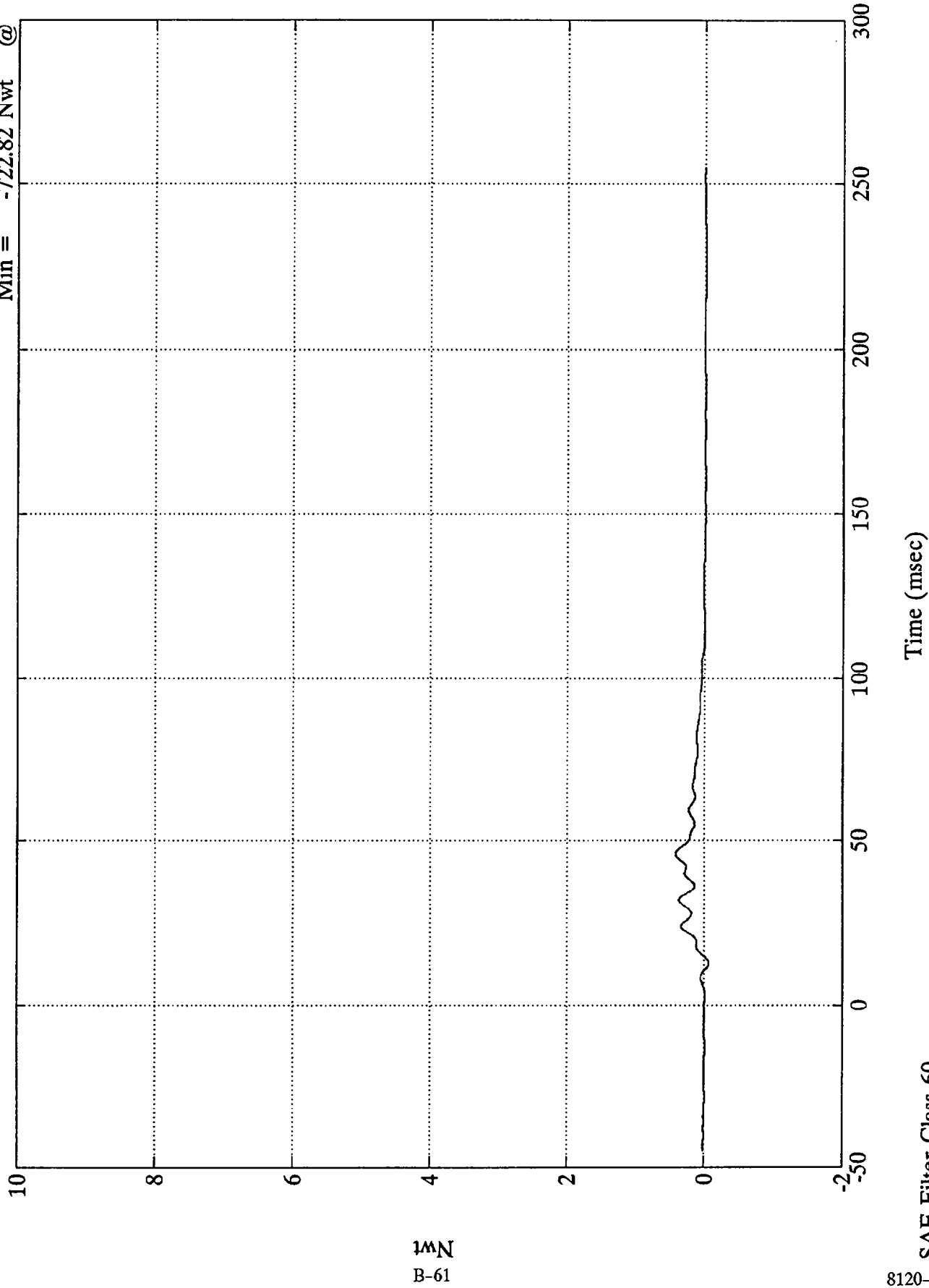
Nwt
 B-60

SAE Filter Class 60

Barrier Load Cell D4

Max = 4229.47 Nwt @ 45.84 m
Min = -722.82 Nwt @ 12.71 ms

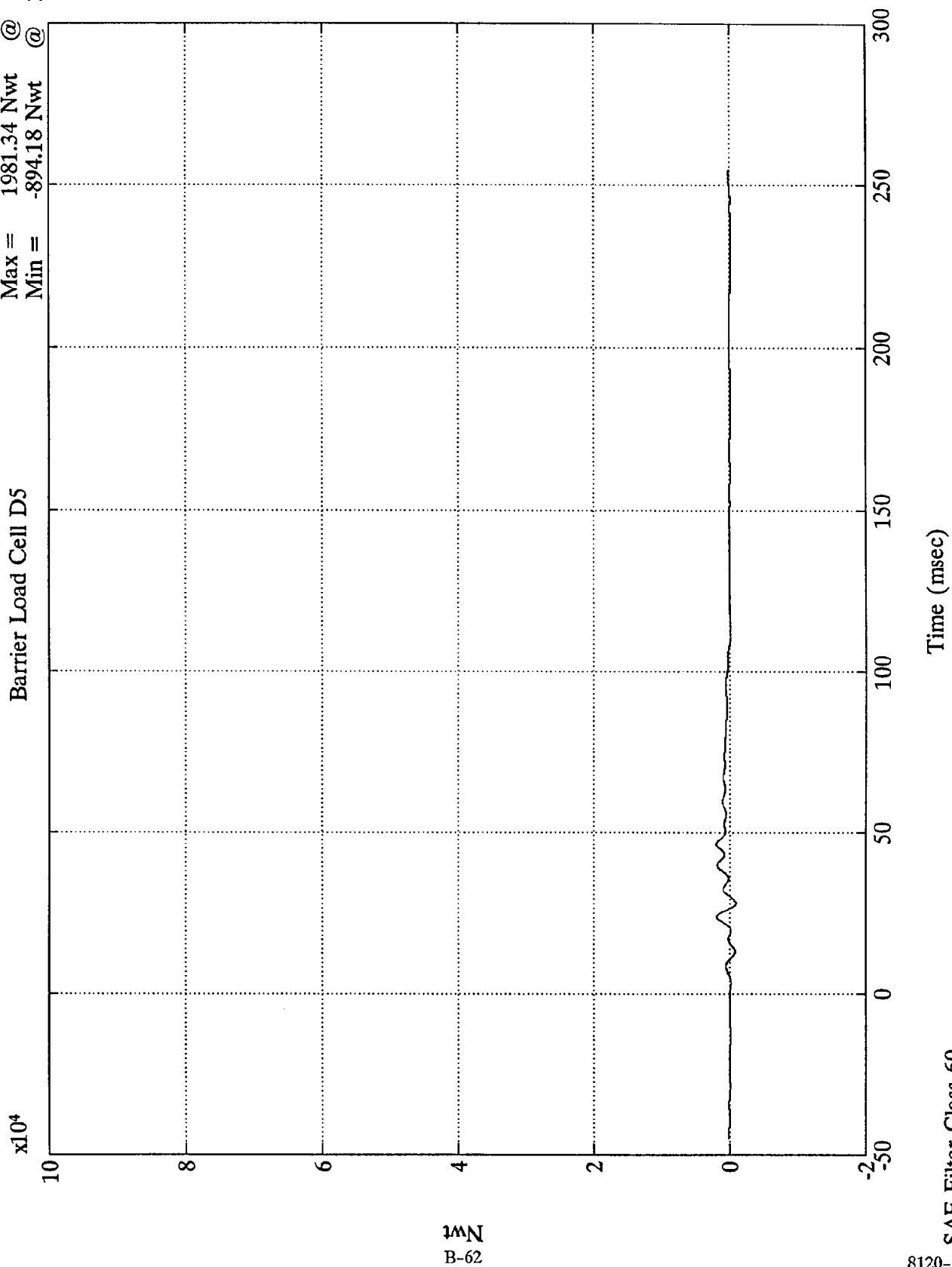
x10⁴



Nwt
B-61

NCAP TEST #5 - 1993 INFINITI J30

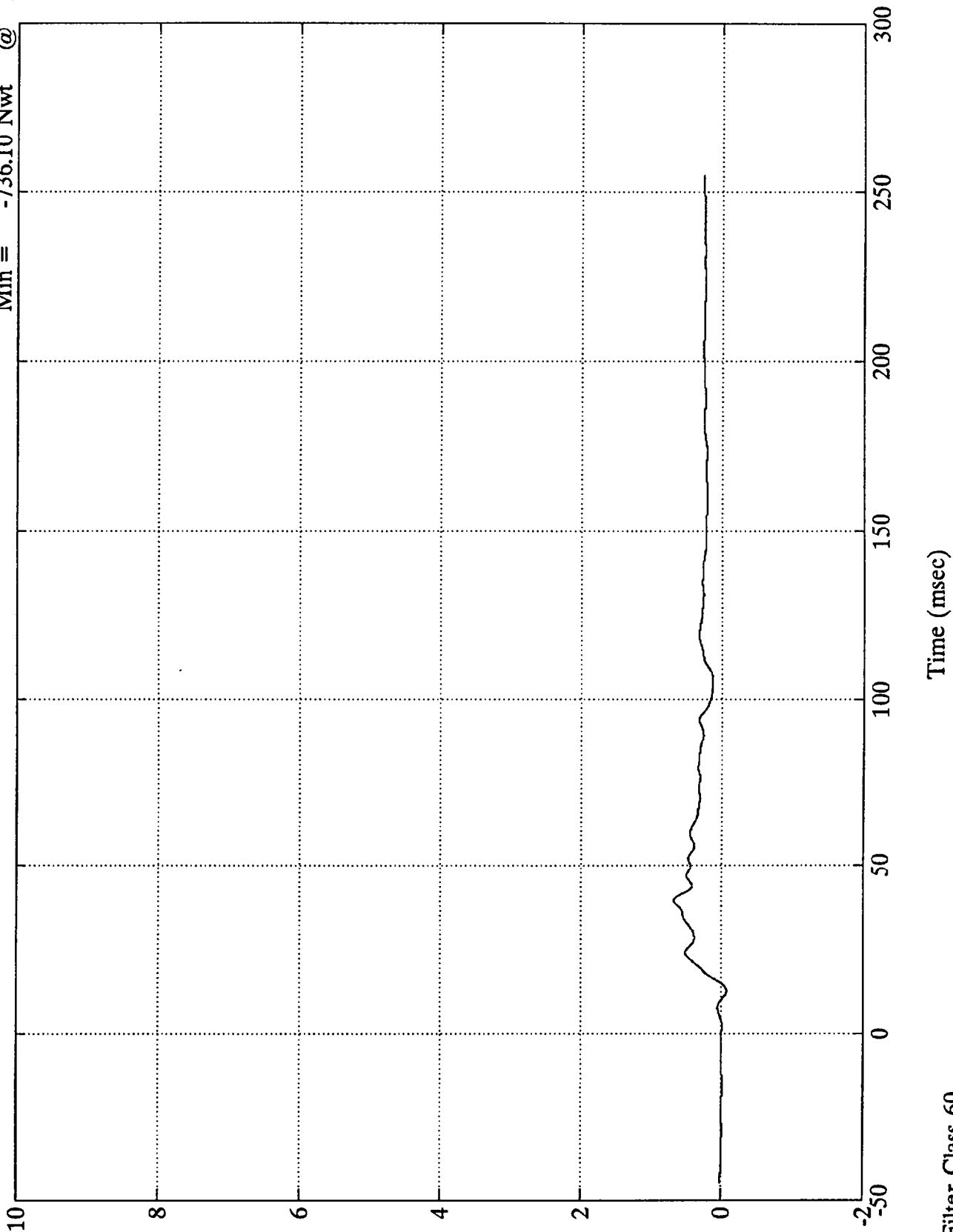
Barrier Load Cell D5
Max = 1981.34 Nwt @ 46.44 msec
Min = -894.18 Nwt @ 28.07 msec



SAE Filter Class 60
8120-5

Barrier Load Cell D6
Max = 6770.38 Nwt @ 39.47 m
Min = -736.10 Nwt @ 12.59 ms

$\times 10^4$

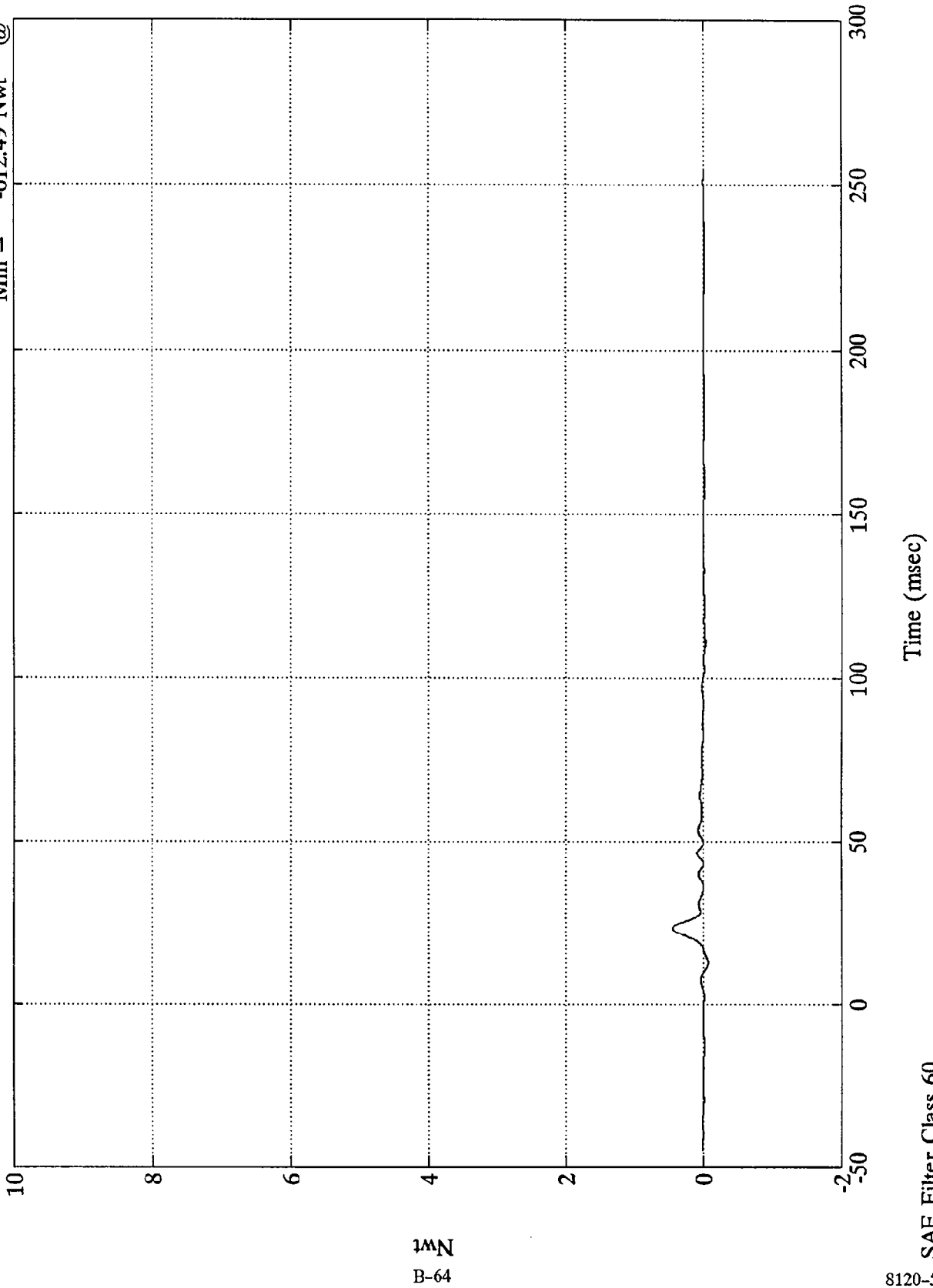


NCAP TEST #5 - 1993 INFINITI J30

Max = 4496.55 Nwt @ 23.28 msec
Min = -612.49 Nwt @ 12.35 msec

Barrier Load Cell D7

$\times 10^4$

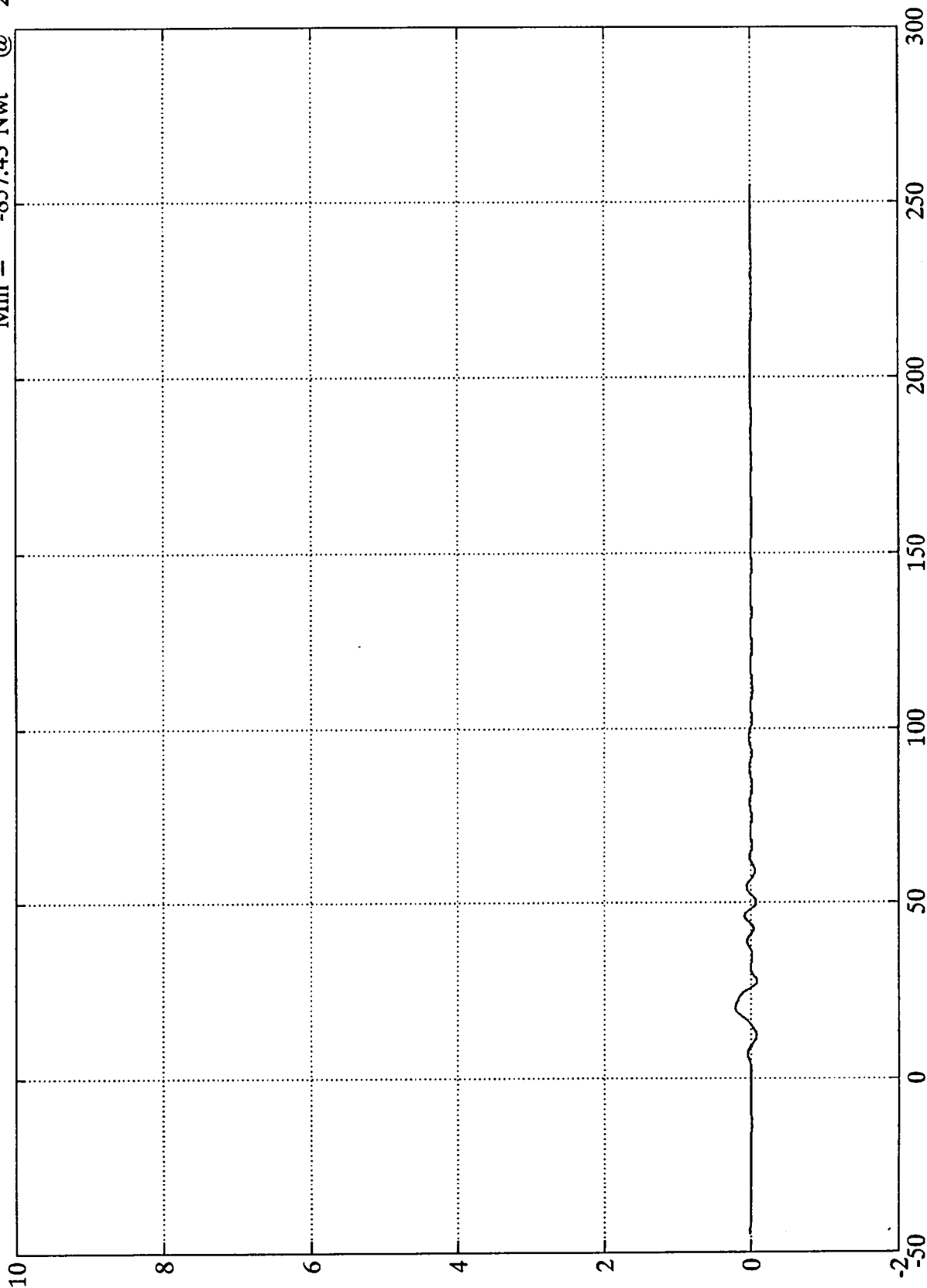


1Nwt
B-64

Barrier Load Cell D8

Max = 2131.96 Nwt @ 19.79 m:
Min = -857.43 Nwt @ 27.48 ms

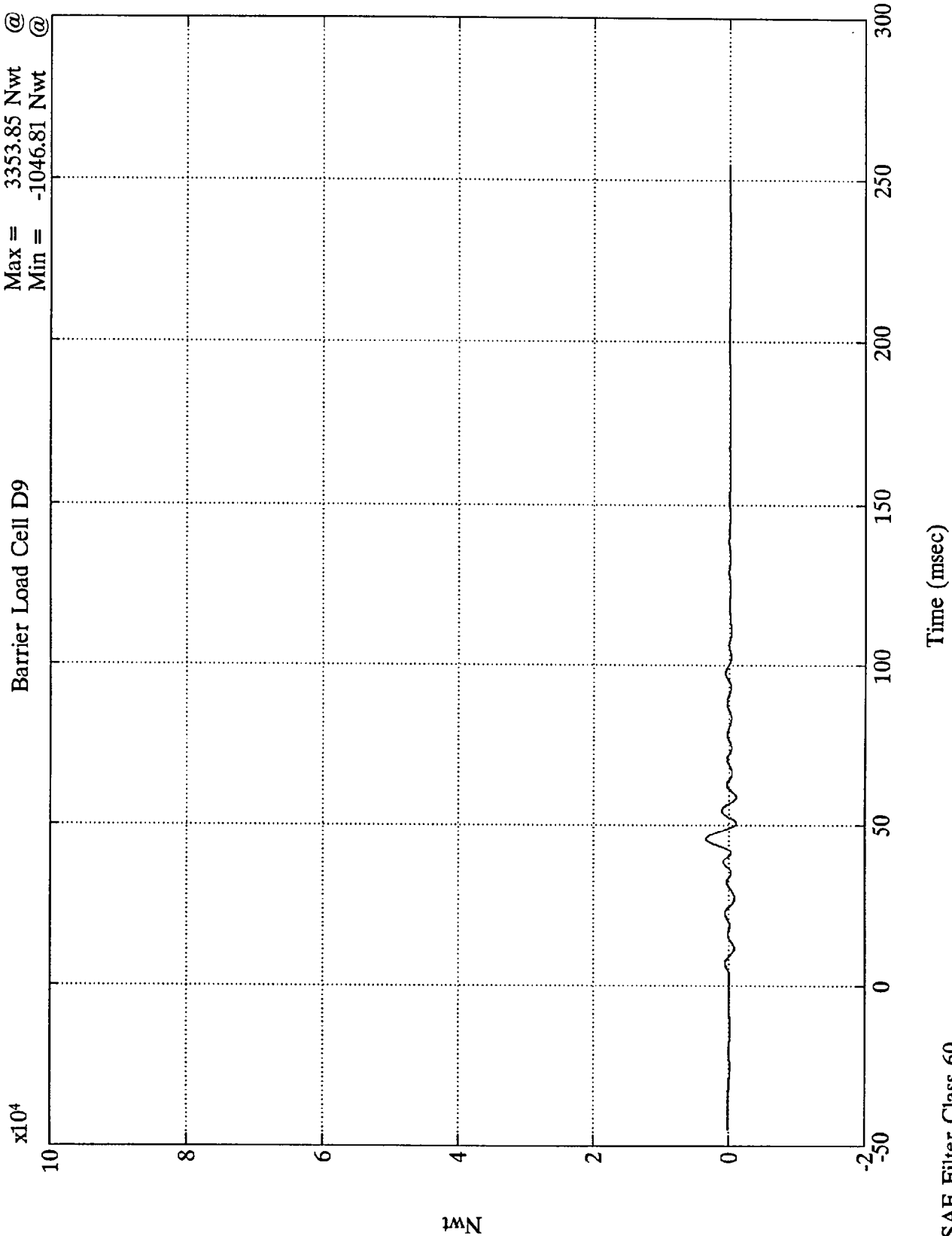
x10⁴



Nwt
B-65

NCAP TEST #5 - 1993 INFINITI J30

Barrier Load Cell D9
Max = 3353.85 Nwt @ 45.60 msec
Min = -1046.81 Nwt @ 58.68 msec

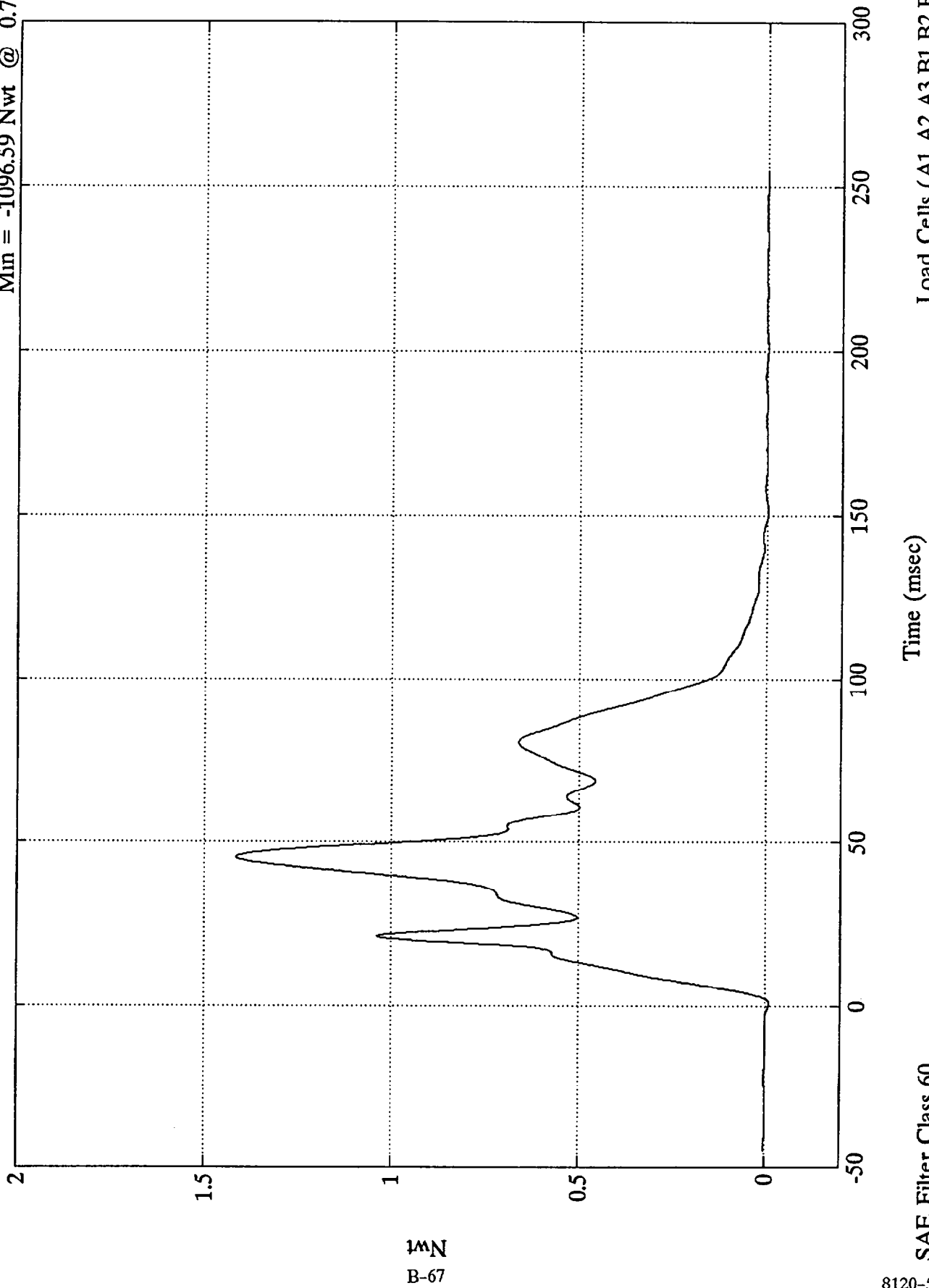


B-66

Group 1 Load Cell Sum

Max = 141740.00 Nwt @ 45.36 msec
Min = -1096.59 Nwt @ 0.72 msec

x10⁵



SAE Filter Class 60

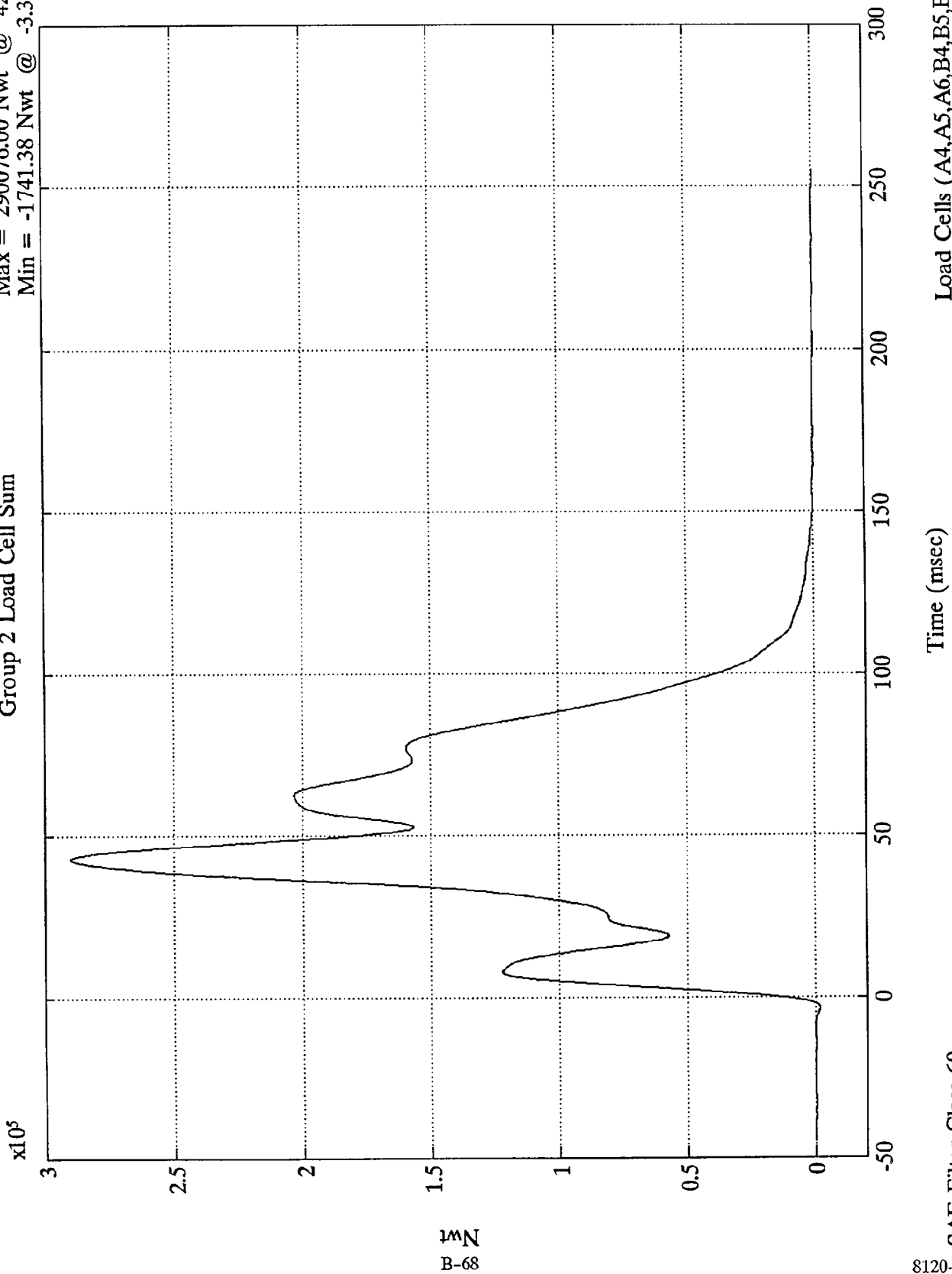
Time (msec)

Load Cells (A1,A2,A3,B1,B2,B3)

NCAP TEST #5 - 1993 INFINITI J30

Max = 290076.00 Nwt @ 42.72 msec
Min = -1741.38 Nwt @ -3.36 msec

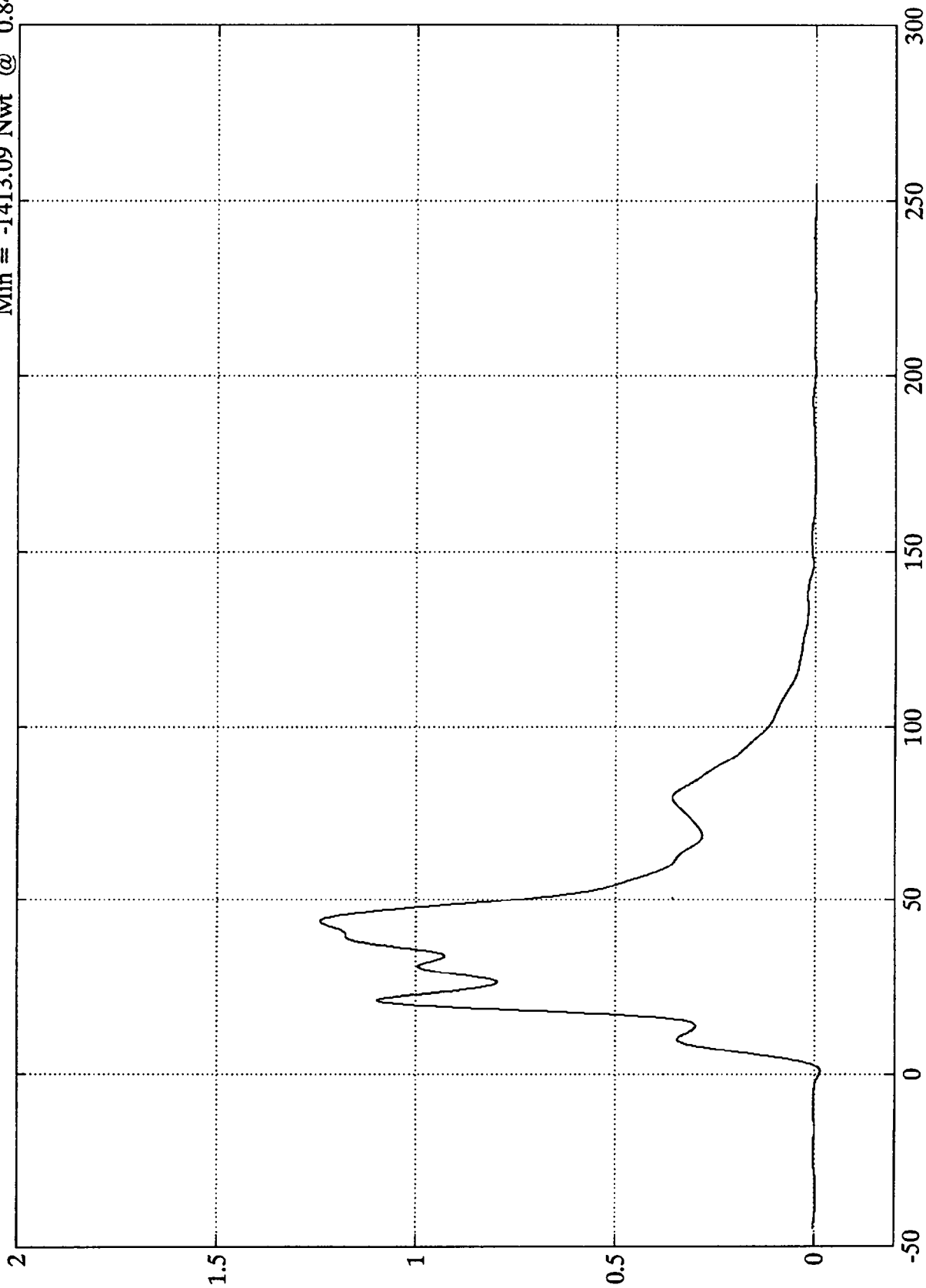
Group 2 Load Cell Sum



Group 3 Load Cell Sum

Max = 124231.00 Nwt @ 43.56 msec
Min = -1413.09 Nwt @ 0.84 msec

x10⁵



B-69

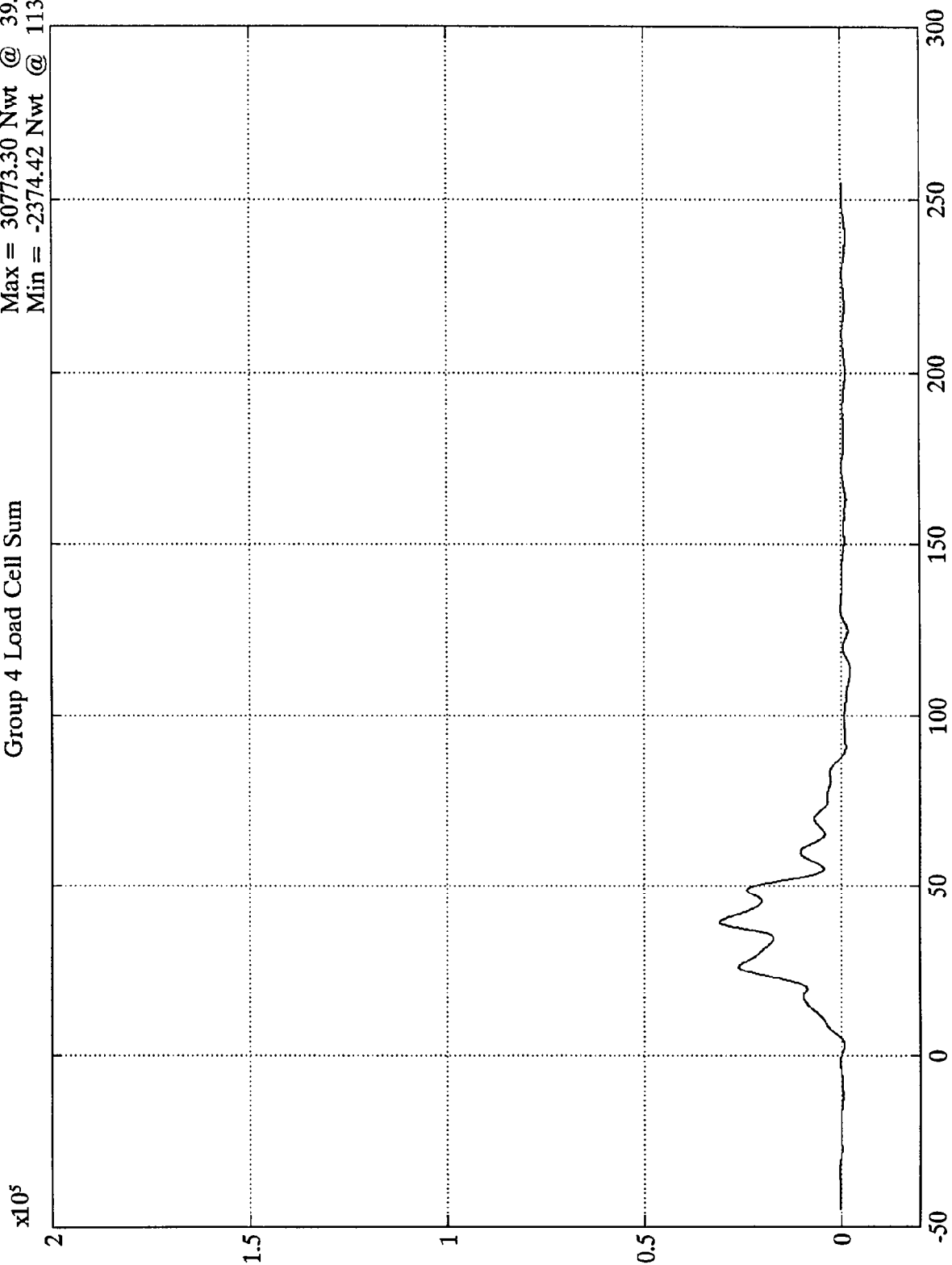
Time (msec)

Load Cells (A7,A8,A9,B7,B8,B9)

NCAP TEST #5 - 1993 INFINITI J30

Group 4 Load Cell Sum

Max = 30773.30 Nwt @ 39.12 msec
Min = -2374.42 Nwt @ 113.16 msec



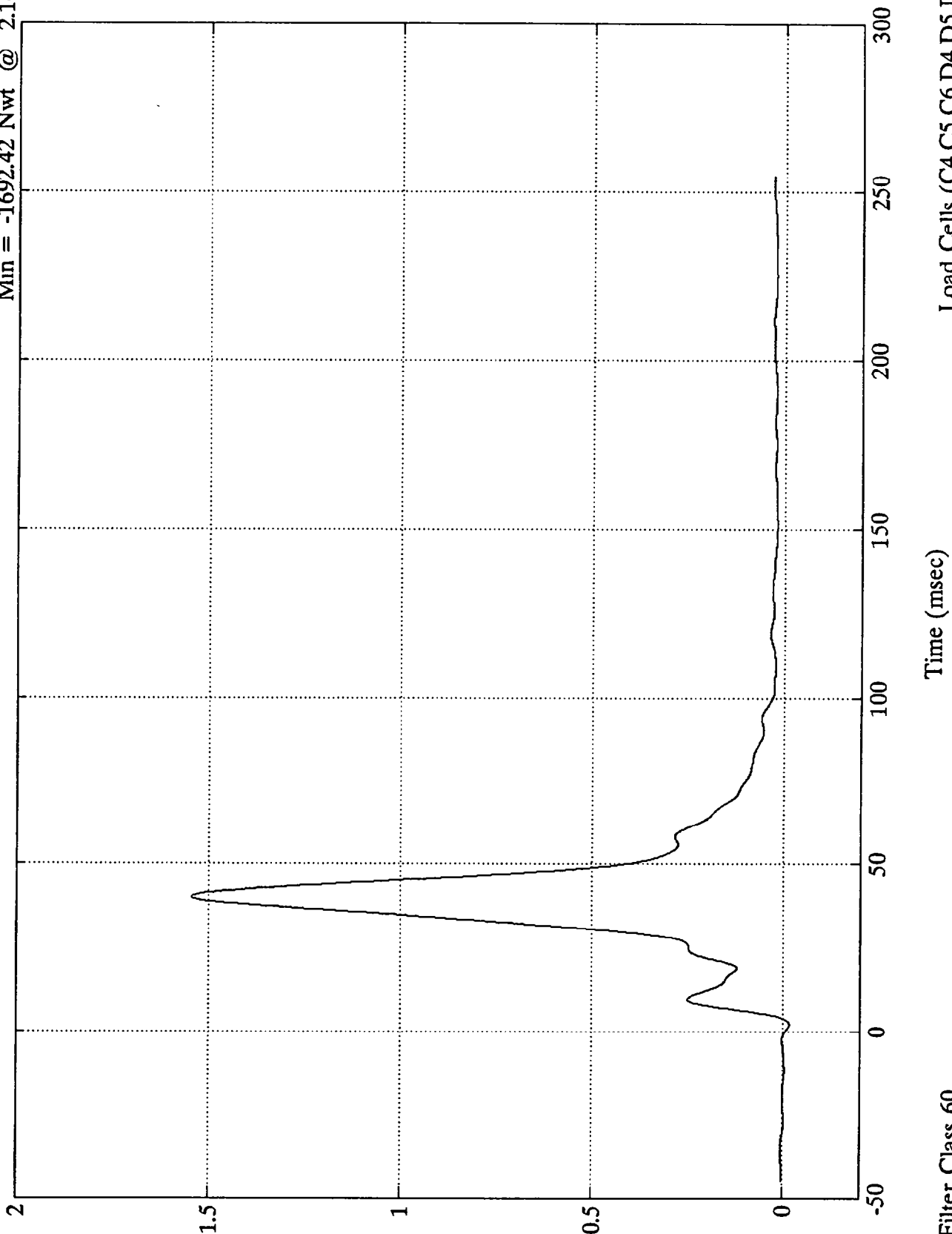
Load Cells (C1,C2,C3,D1,D2,D3)

Time (msec)

SAE Filter Class 60

Group 5 Load Cell Sum

Max = 154572.00 Nwt @ 40.20 msec
Min = -1692.42 Nwt @ 2.16 msec

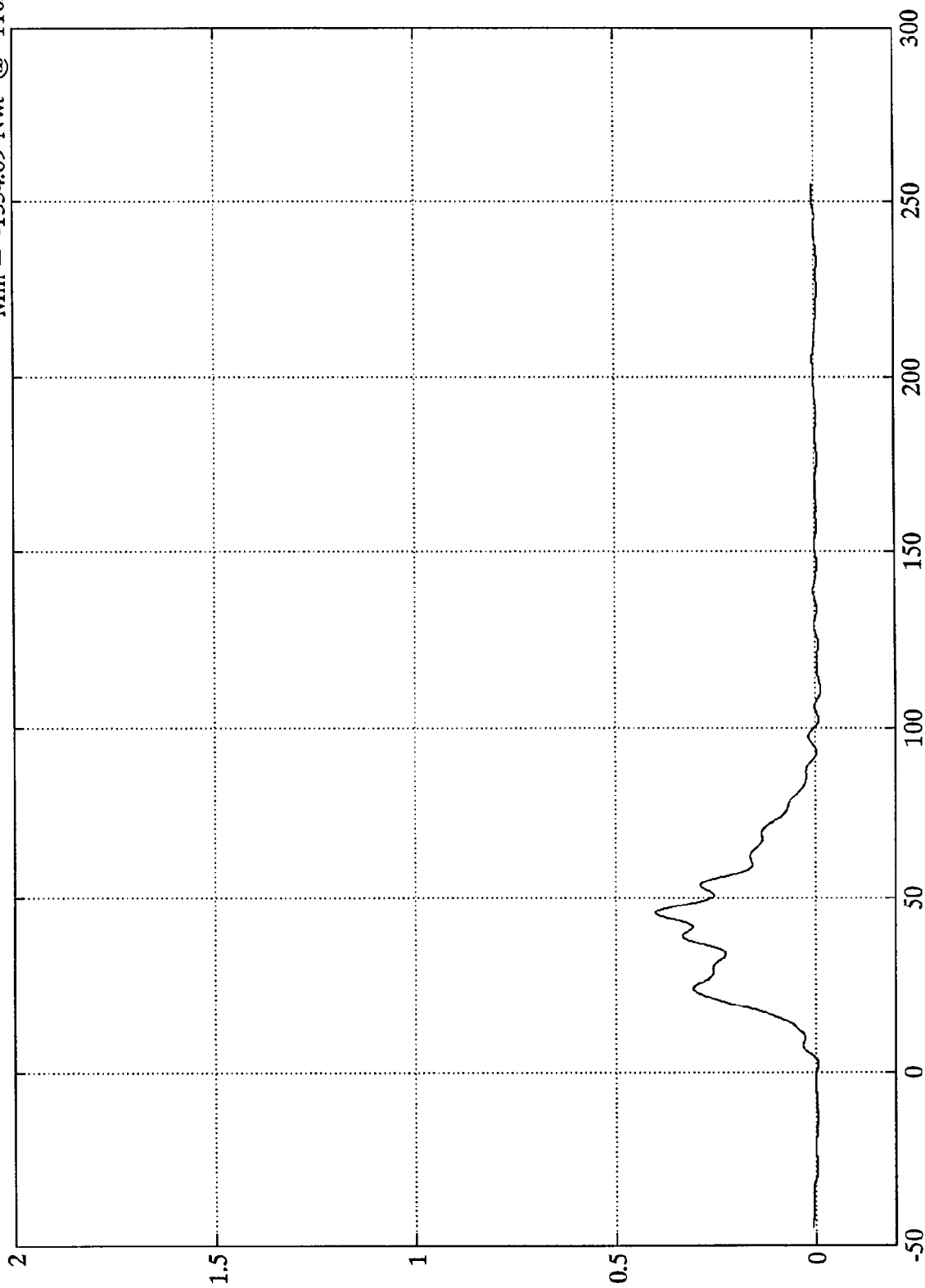


SAE Filter Class 60

NCAP TEST #5 - 1993 INFINITI J30
x10⁵

Group 6 Load Cell Sum

Max = 40073.80 Nwt @ 45.60 msec
Min = -1334.69 Nwt @ 110.88 msec



SAE Filter Class 60

Time (msec)

Load Cells (C7,C8,C9,D7,D8,D9)

Nwt
B-72

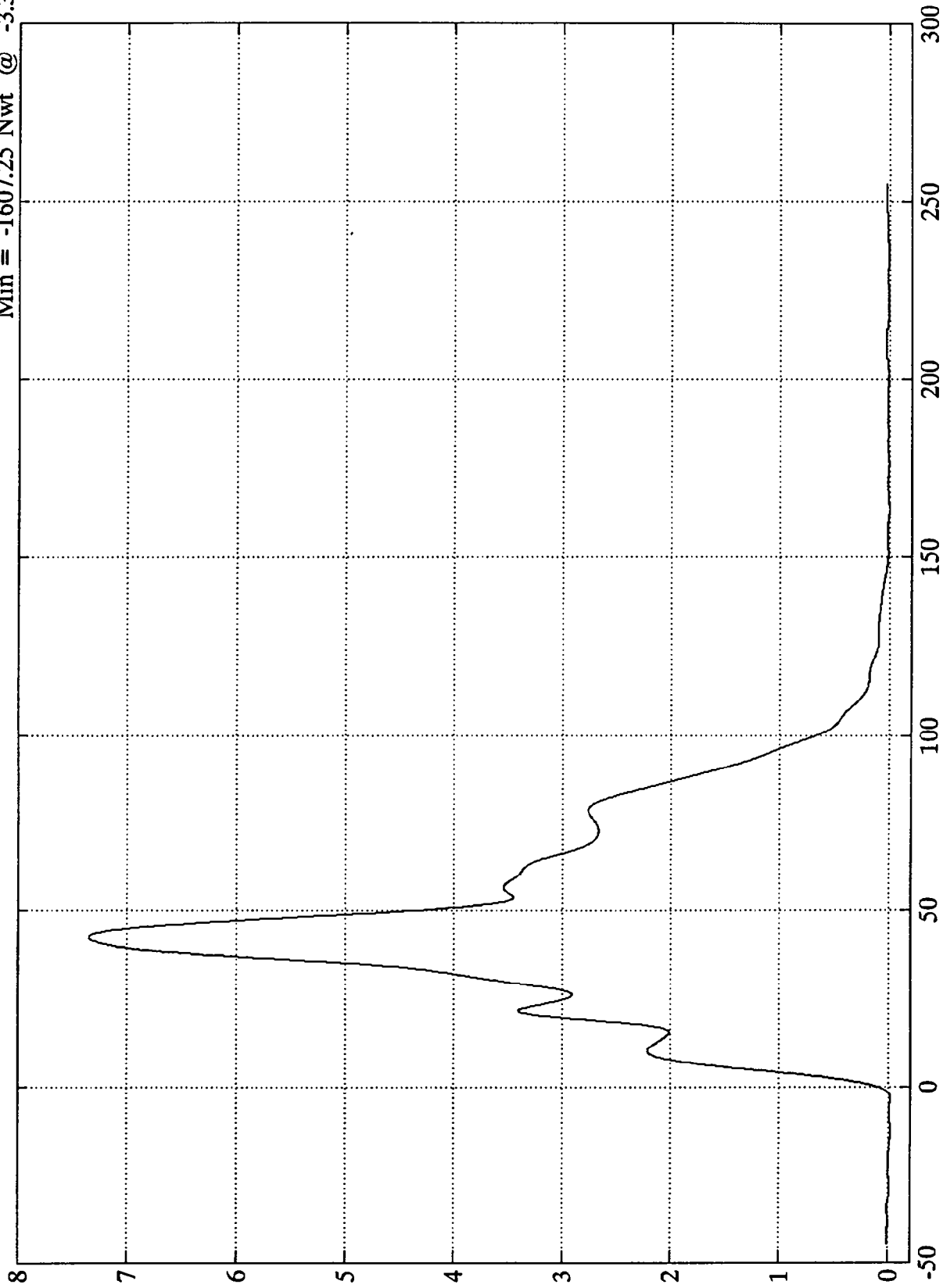
8120-5

NCAP TEST #5 - 1993 INFINITI J30

Max = 735190.00 Nwt @ 42.60 msec
Min = -1607.25 Nwt @ -3.36 msec

Total Load Cell Sum

$\times 10^5$



11N
B-73

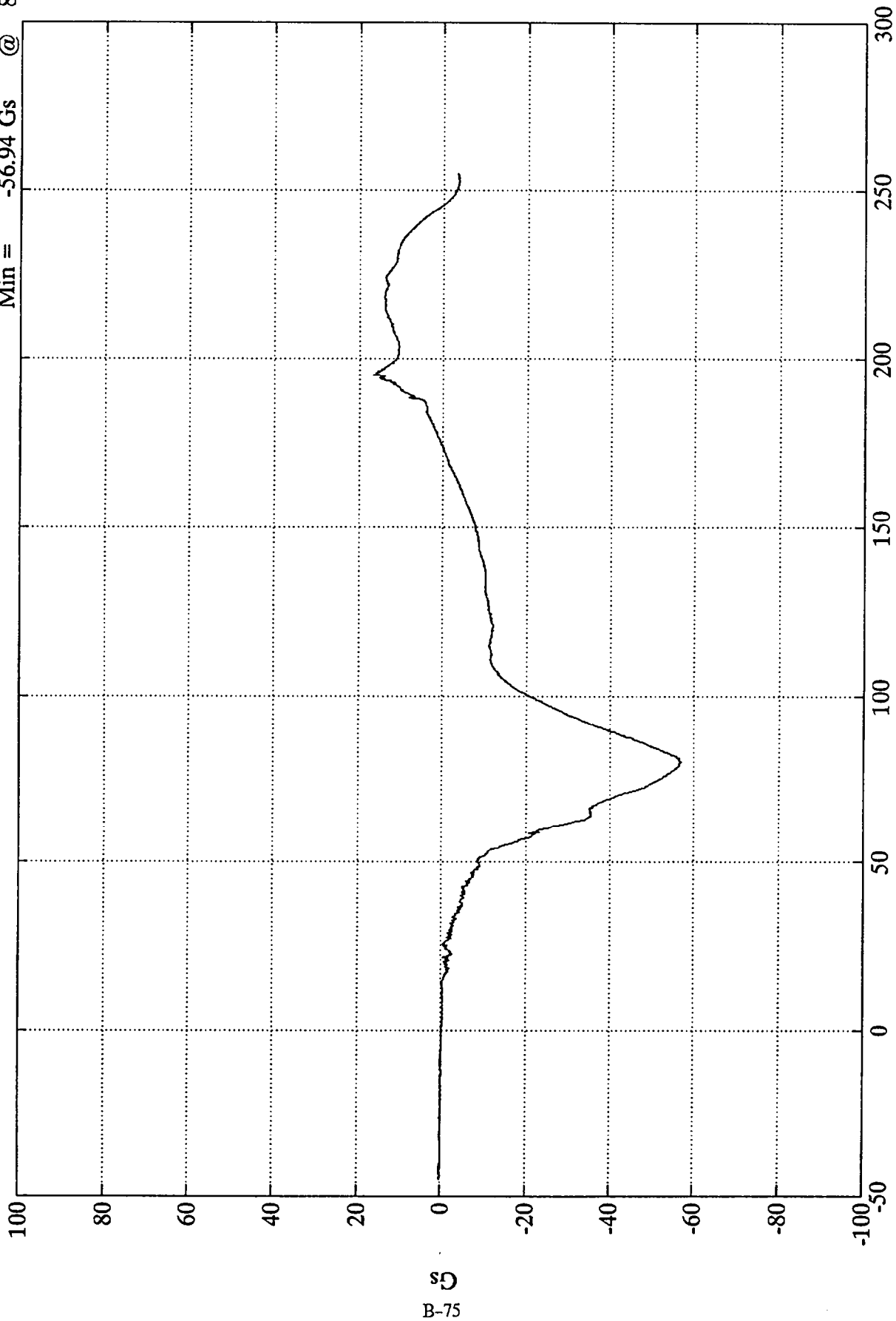
TEST NO. MP5204

DUMMY DATA

| CLASS | FILTER CHANNEL |
|---------------------|----------------|
| Head Accelerations | 1000 |
| Chest Accelerations | 180 |
| Chest Displacements | 60 |
| Femur Forces | 600 |
| Belt Loads | 60 |
| Belt Displacements | 180 |
| Neck Forces | 1000 |
| Neck Moments | 600 |

Max = 16.66 Gs @ 195.12 ms
Min = -56.94 Gs @ 80.27 ms

Pos. 1 Head X



Time (msec)

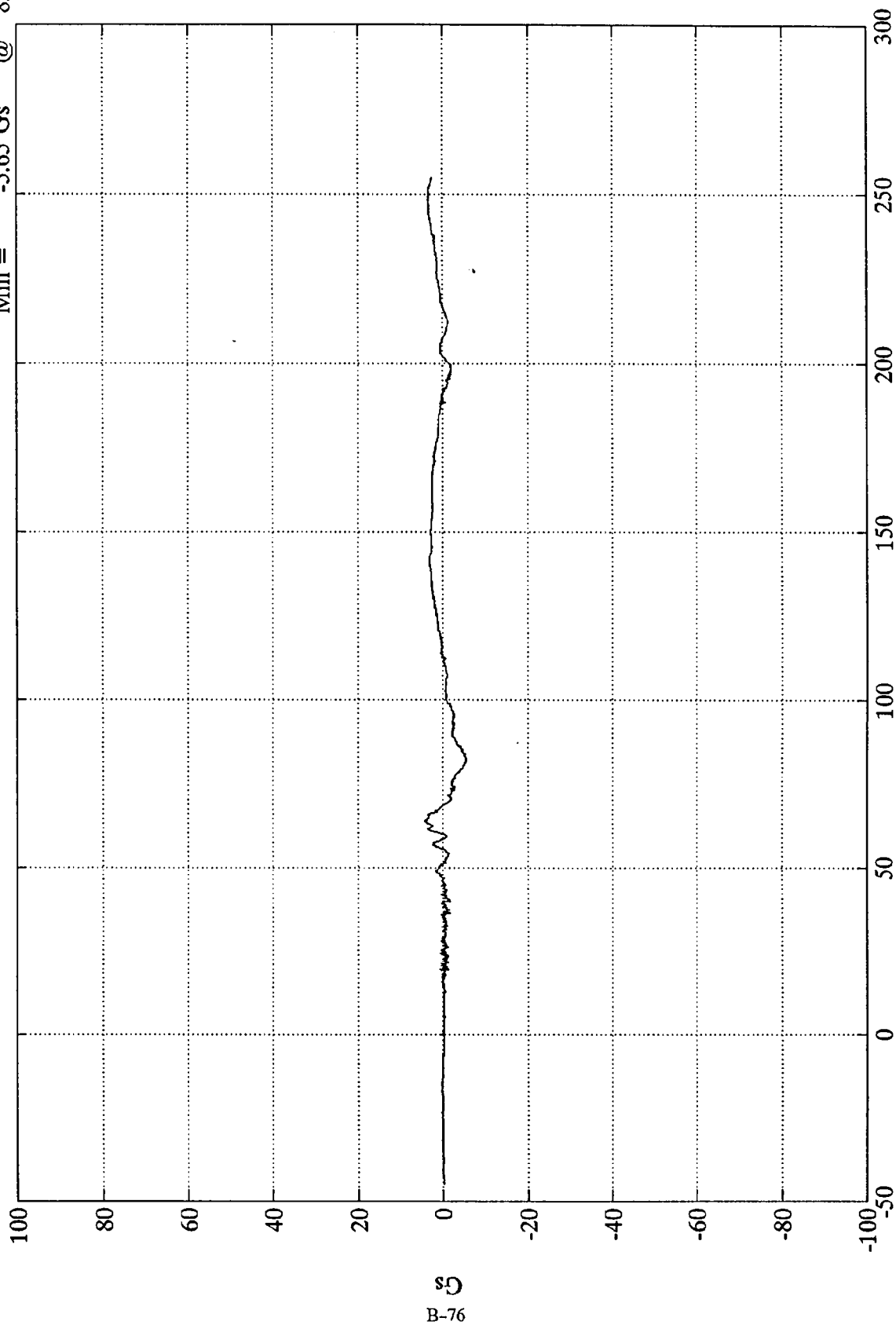
SAE Filter Class 1000

B-75

NCAP TEST #5 - 1993 INFINITI J30

Max = 4.34 Gs @ 63.95 msec
 Min = -5.65 Gs @ 82.80 msec

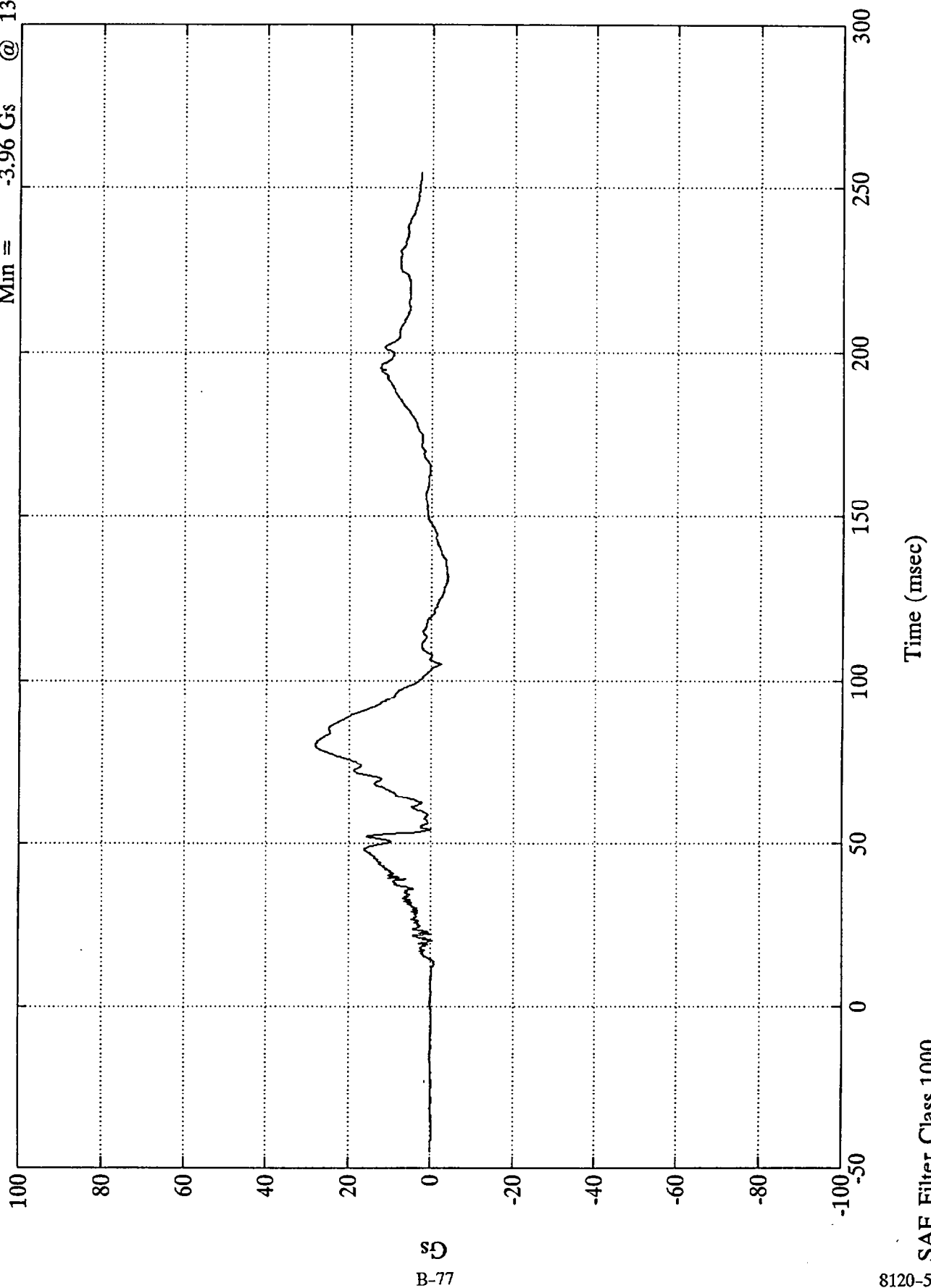
Pos. 1 Head Y



Time (msec)

SAE Filter Class 1000

Pos. 1 Head Z
Max = 28.32 Gs @ 80.40 m:
Min = -3.96 Gs @ 132.48 ms

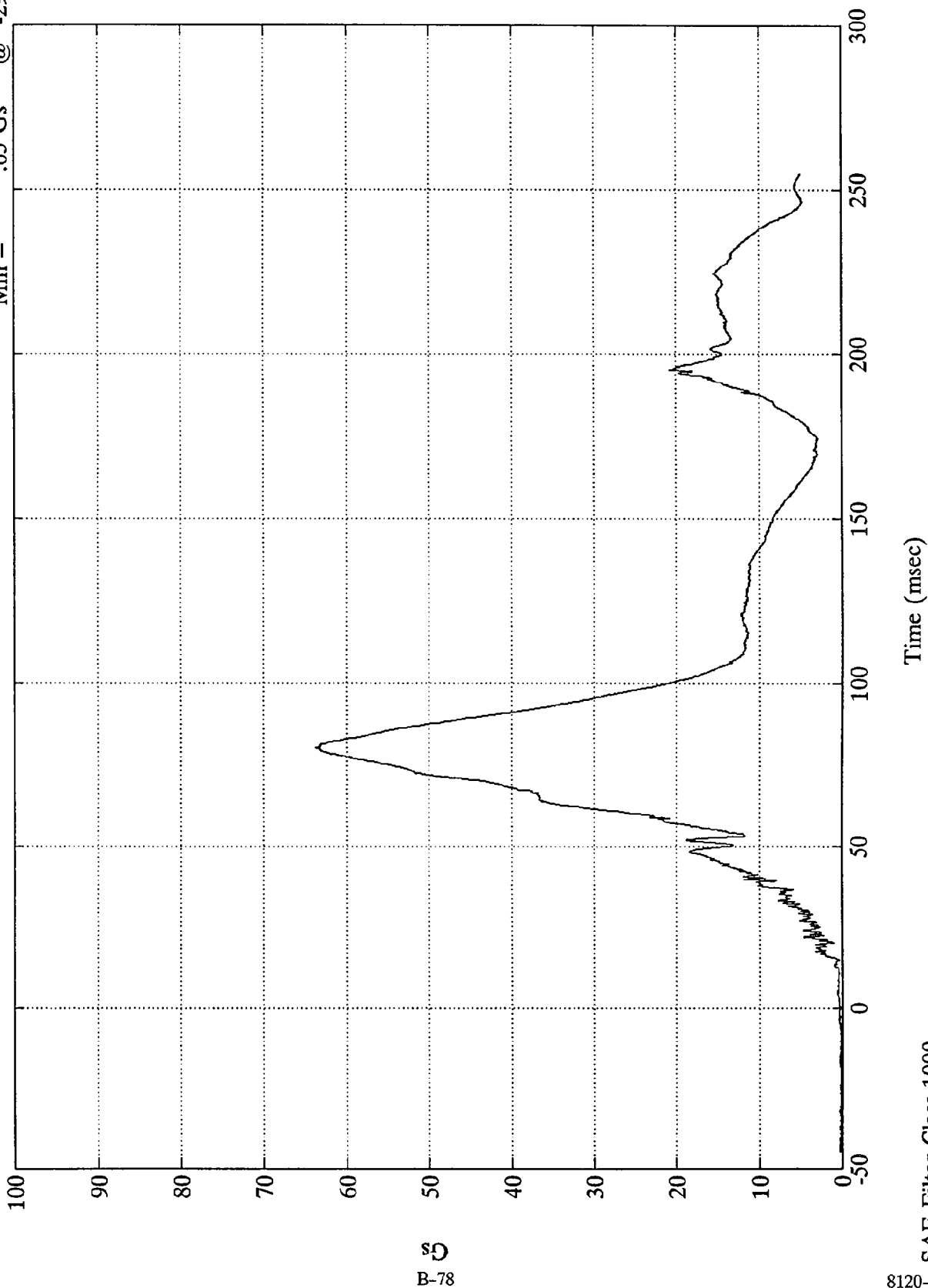


B-77

NCAP TEST #5 - 1993 INFINITI J30

Max = 63.77 Gs @ 80.27 msec
 Min = .05 Gs @ -29.64 msec

Pos. 1 Head Resultant



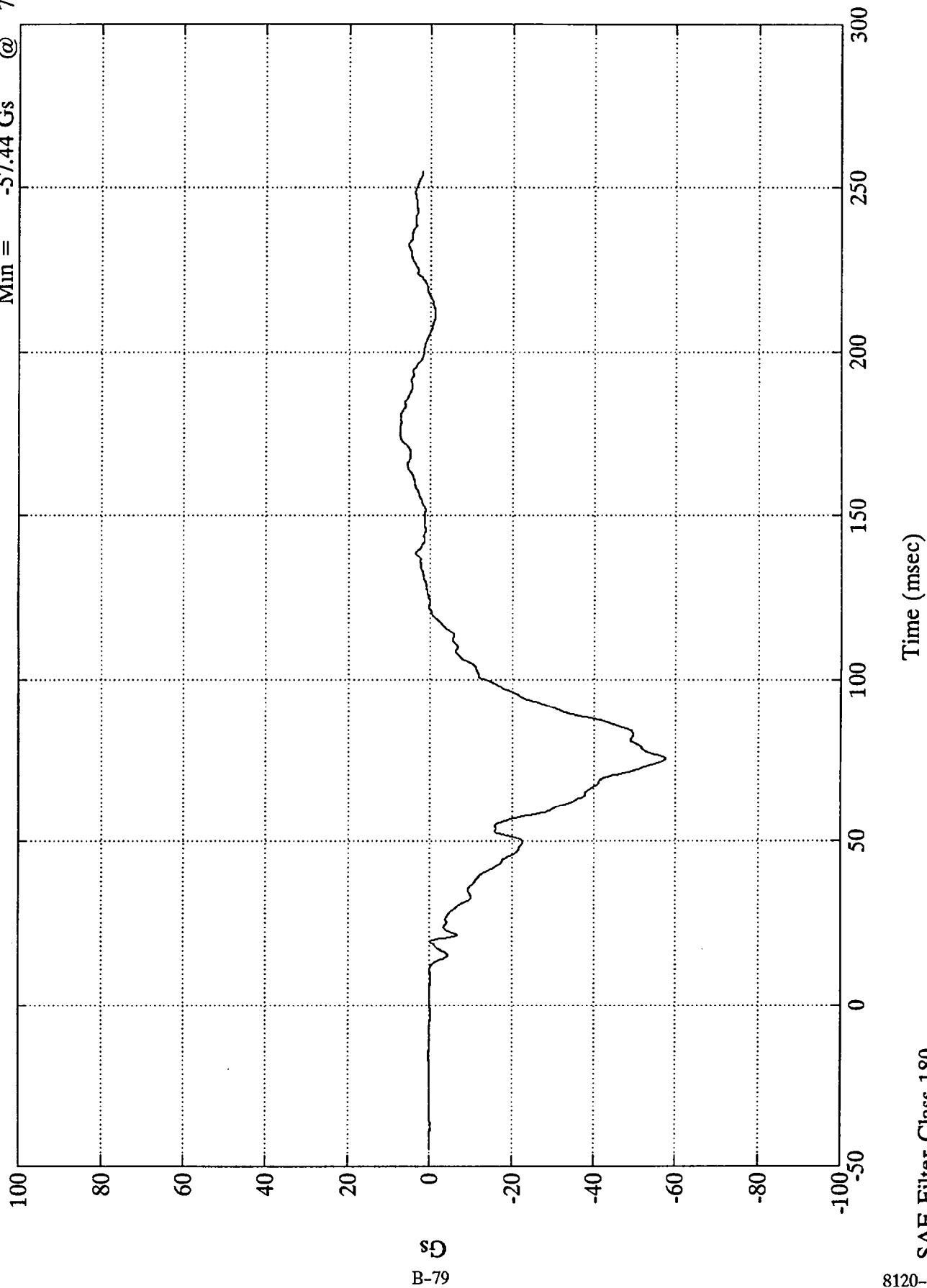
B-78

8120-5 SAE Filter Class 1000

NCAP TEST #5 - 1993 INFINITI J30

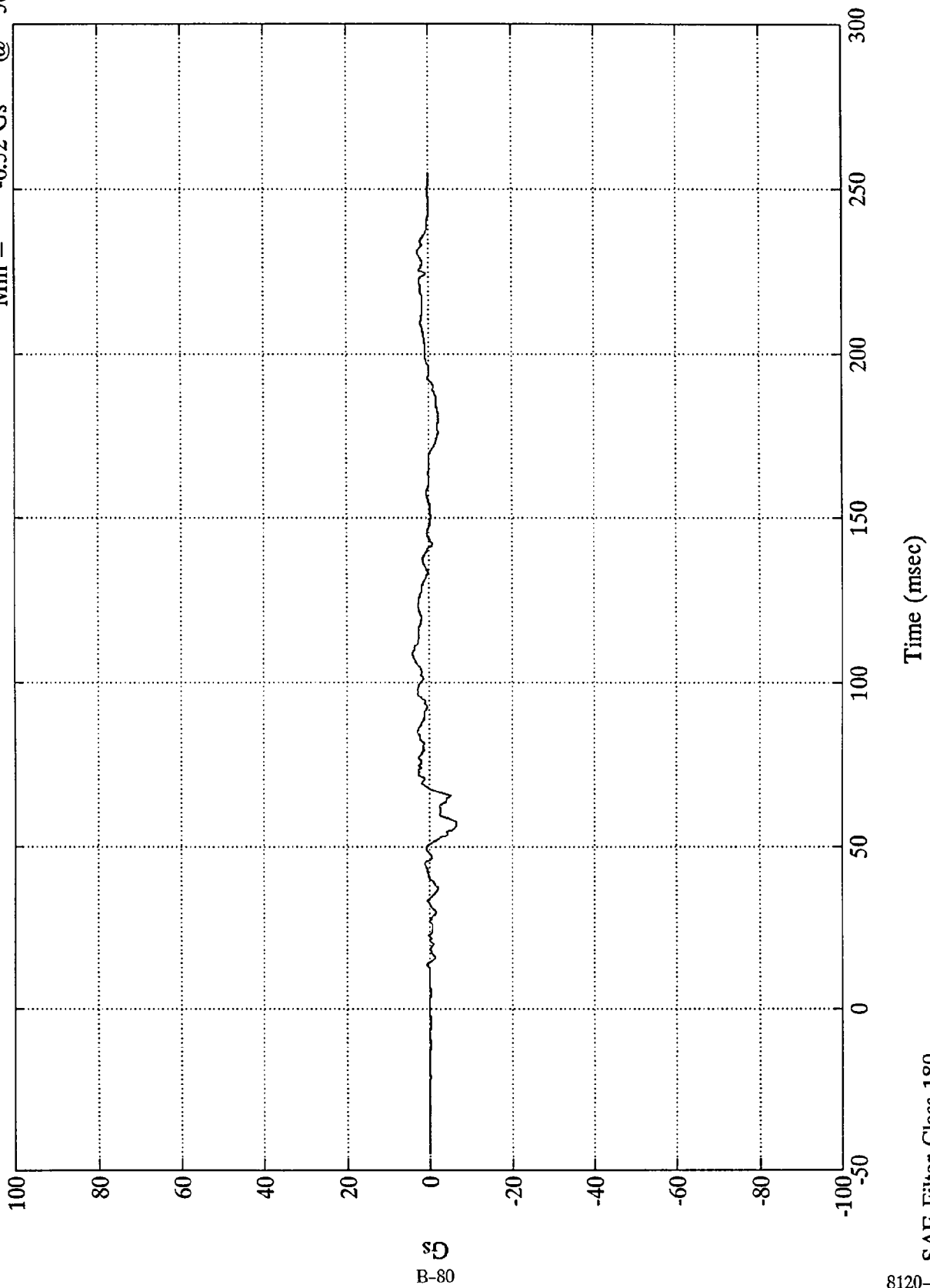
Max = 7.52 Gs @ 175.68 ms
Min = -57.44 Gs @ 75.47 ms

Pos. 1 Chest X



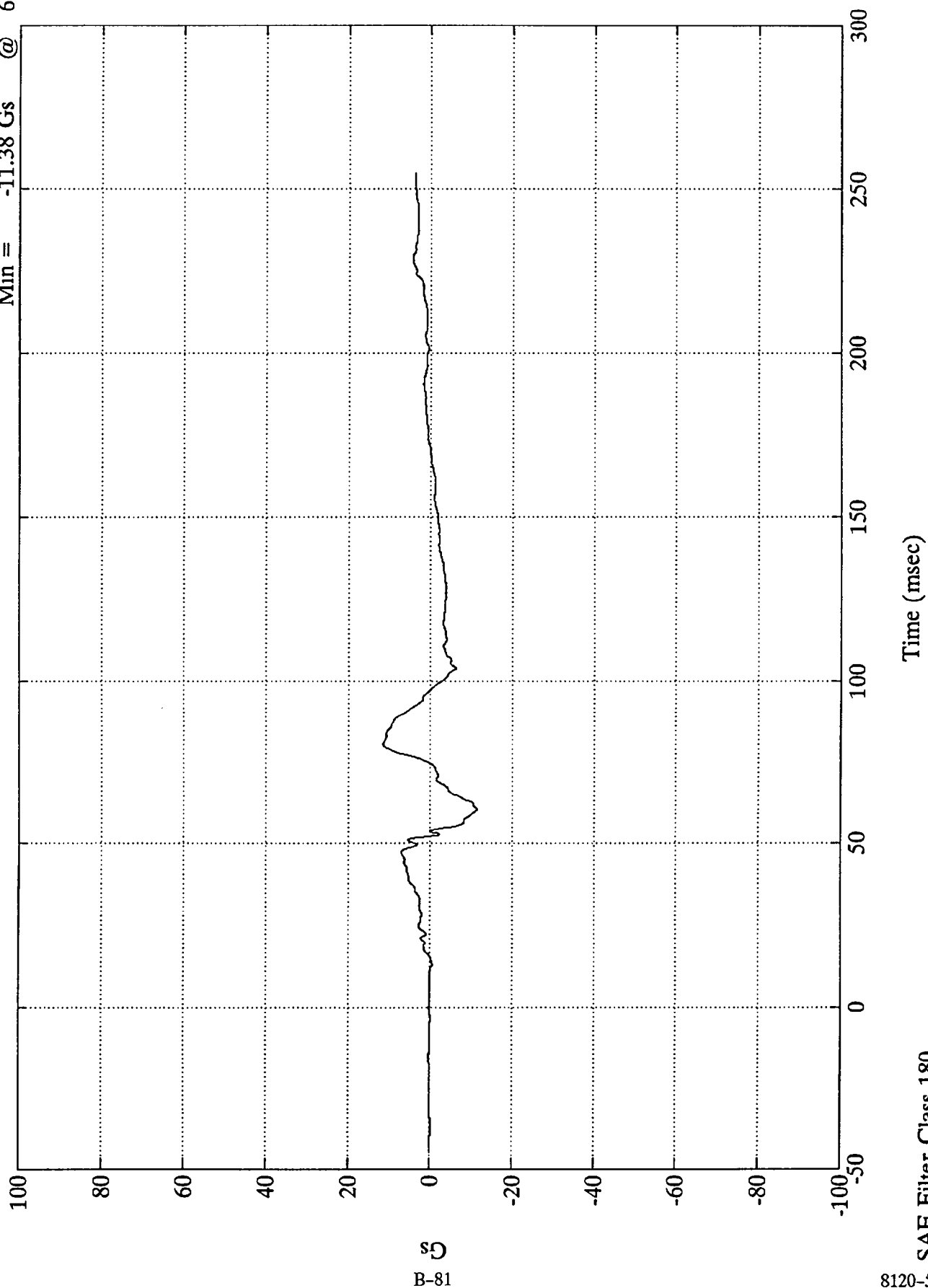
NCAP TEST #5 - 1993 INFINITI J30

Pos. 1 Chest Y
Max = 4.07 Gs @ 108.84 msec
Min = -6.52 Gs @ 56.52 msec



B-80

Pos. 1 Chest Z
Max = 11.57 Gs @ 80.52 ms
Min = -11.38 Gs @ 60.60 ms

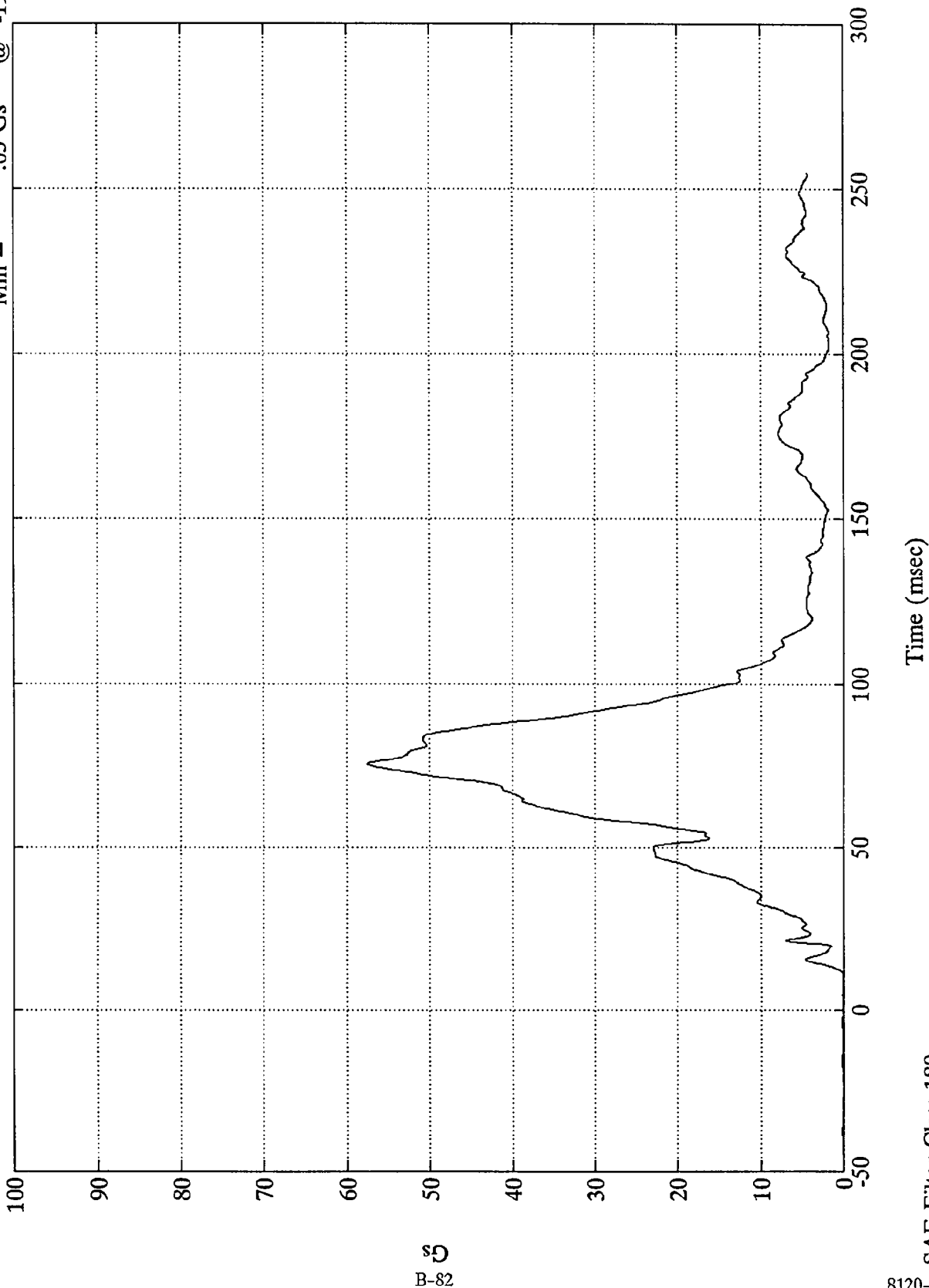


B-81

NCAP TEST #5 - 1993 INFINITI J30

Pos. 1 Chest Resultant

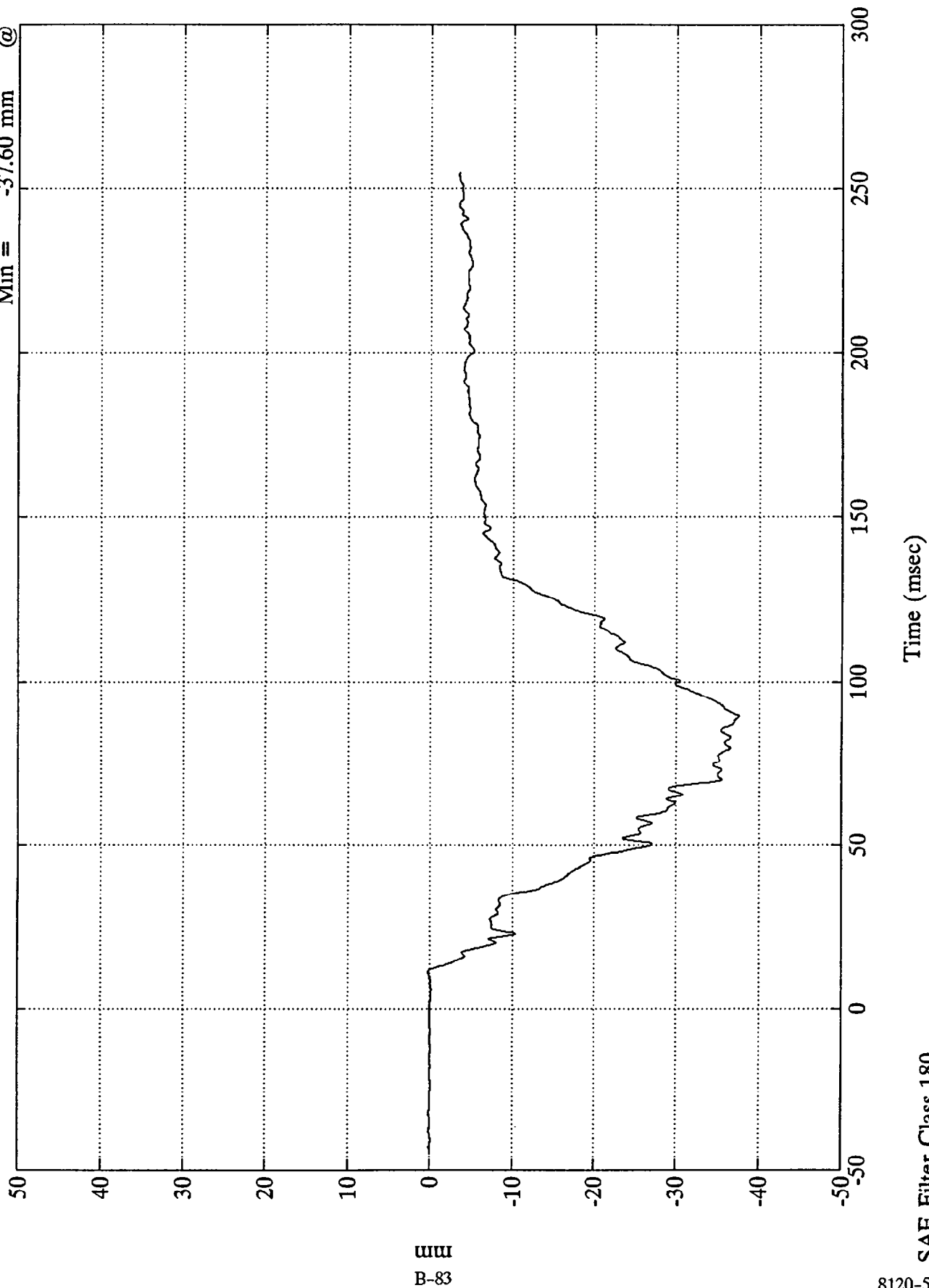
Max = 57.49 Gs @ 75.47 msec
 Min = .03 Gs @ -19.56 msec



SAE Filter Class 180

Pos. 1 Chest Disp.

Max = .23 mm @ 11.15 ms
Min = -37.60 mm @ 89.51 ms

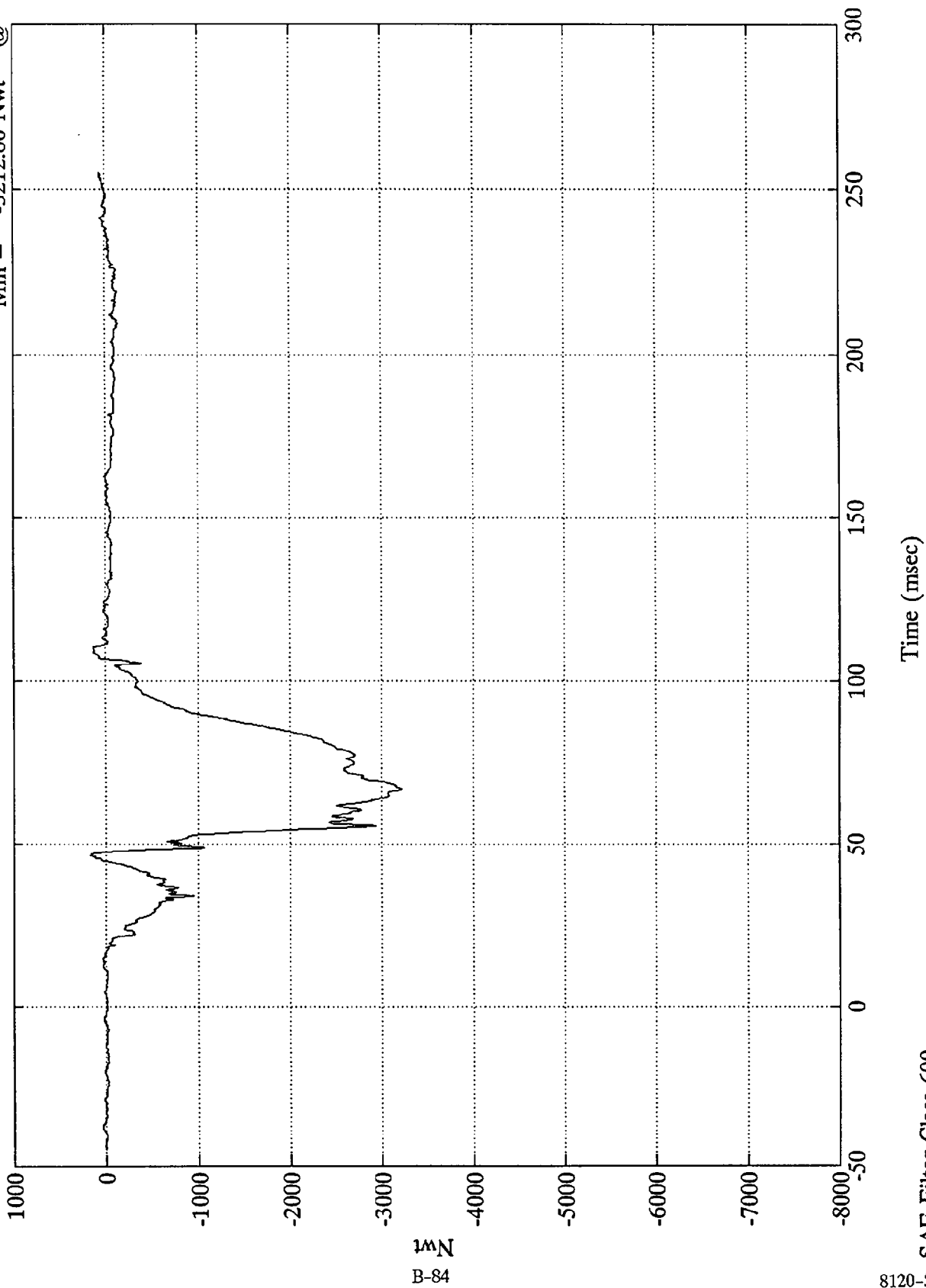


mm
B-83

NCAP TEST #5 - 1993 INFINITI J30

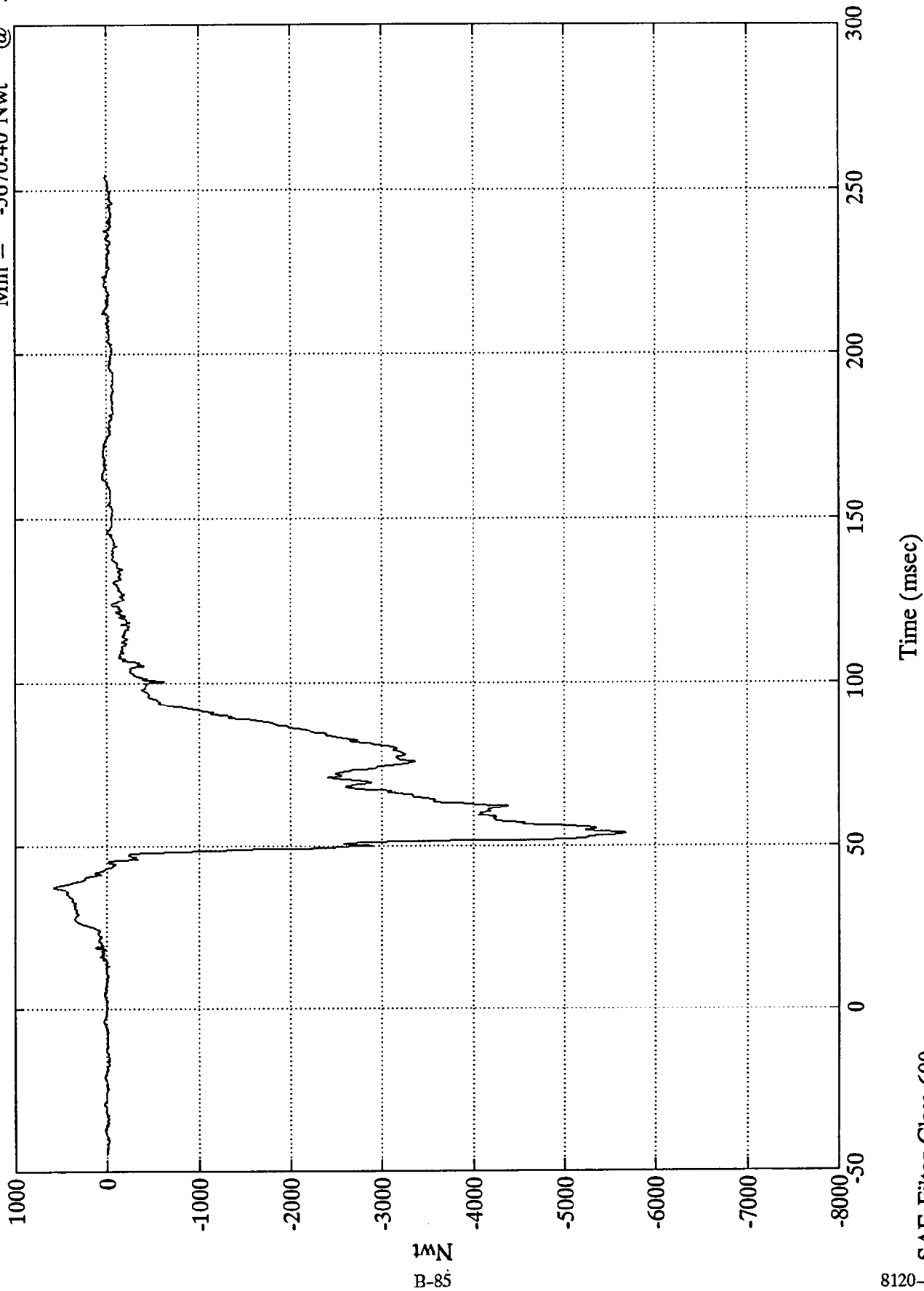
Max = 172.51 Nwt @ 46.44 msec
 Min = -3212.60 Nwt @ 66.95 msec

Pos. 1 Left Femur



1wN
 B-84

Pos. 1 Right Femur
Max = 581.37 Nwt @ 37.44 ms
Min = -5670.40 Nwt @ 53.75 ms

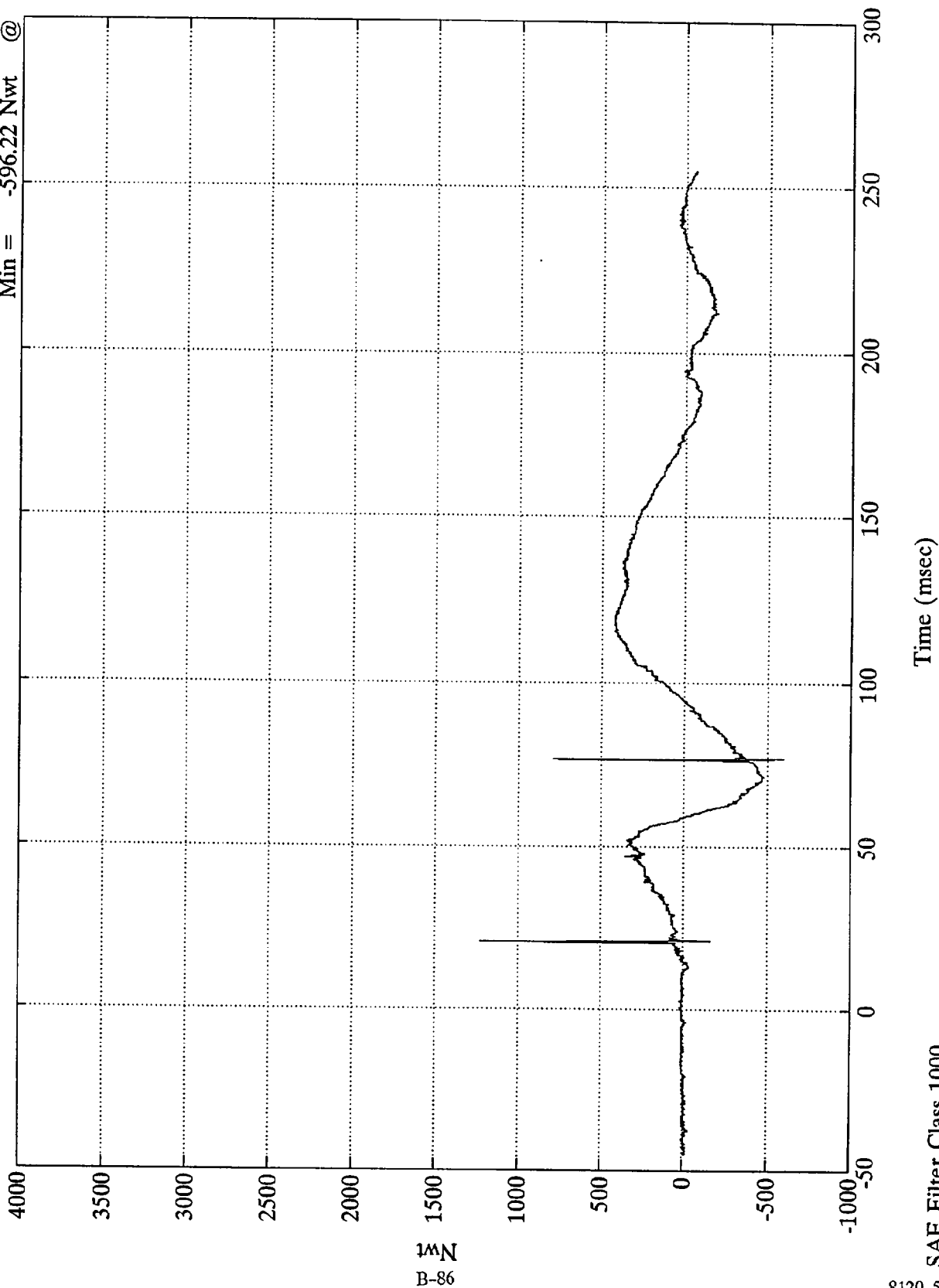


B-85

NCAP TEST #5 - 1993 INFINITI J30

Pos. 1 Upper Neck Fx

Max = 1228.27 Nwt @ 20.76 msec
Min = -596.22 Nwt @ 76.92 msec



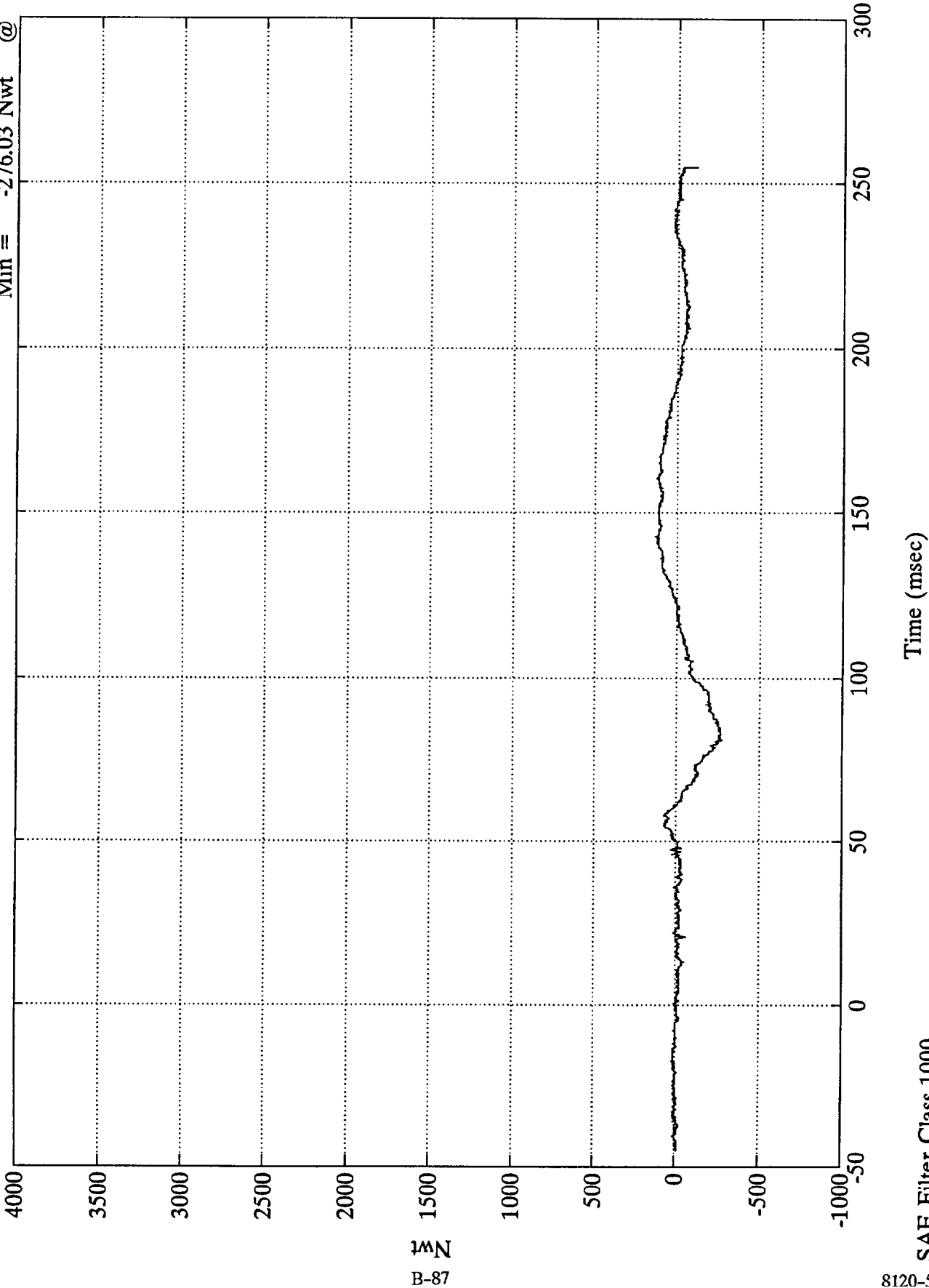
B-86

8120-5

SAE Filter Class 1000

Pos. 1 Upper Neck Fy

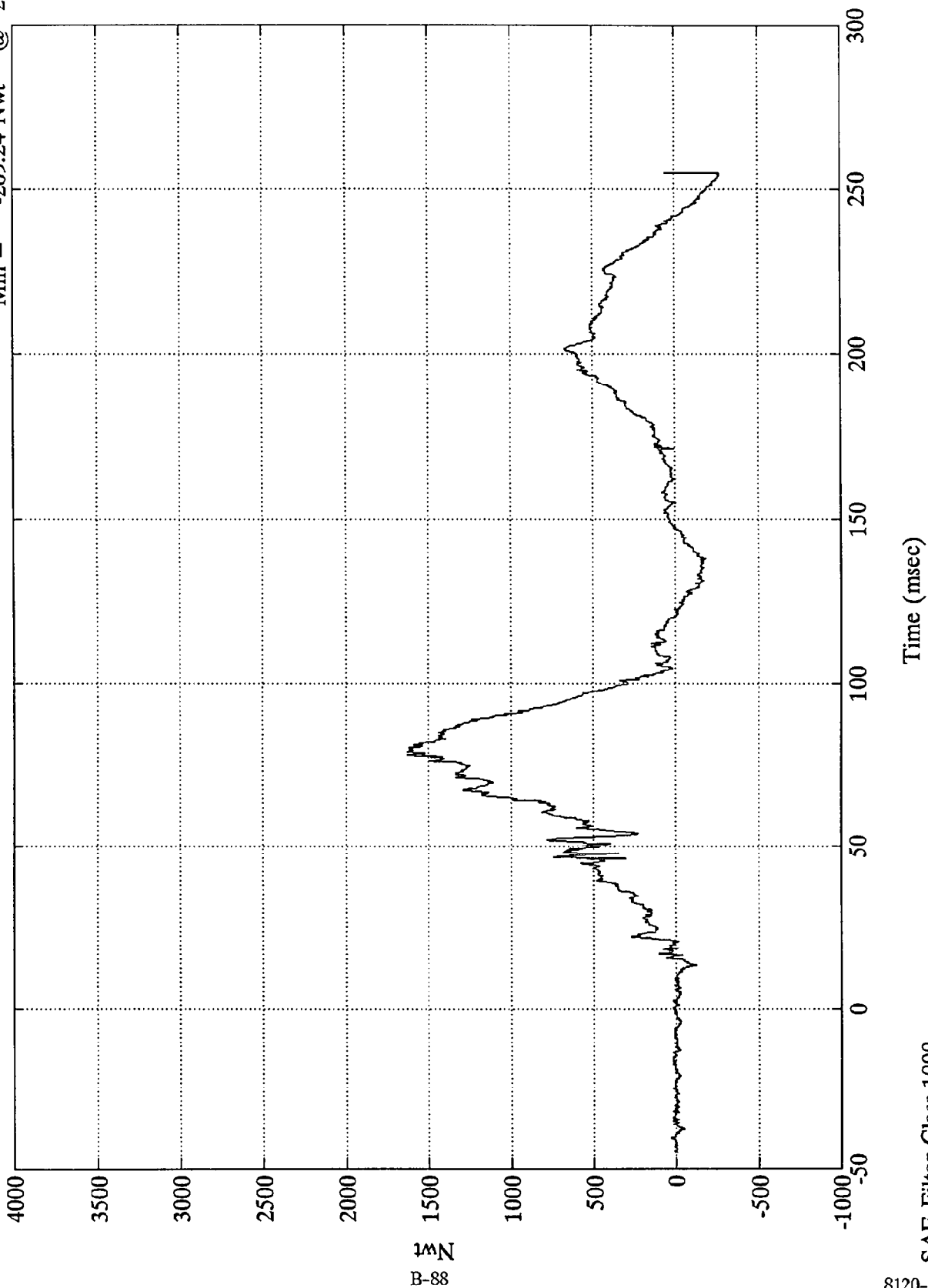
Max = 134.29 Nwt @ 143.04 m
Min = -276.03 Nwt @ 80.88 ms



B-87

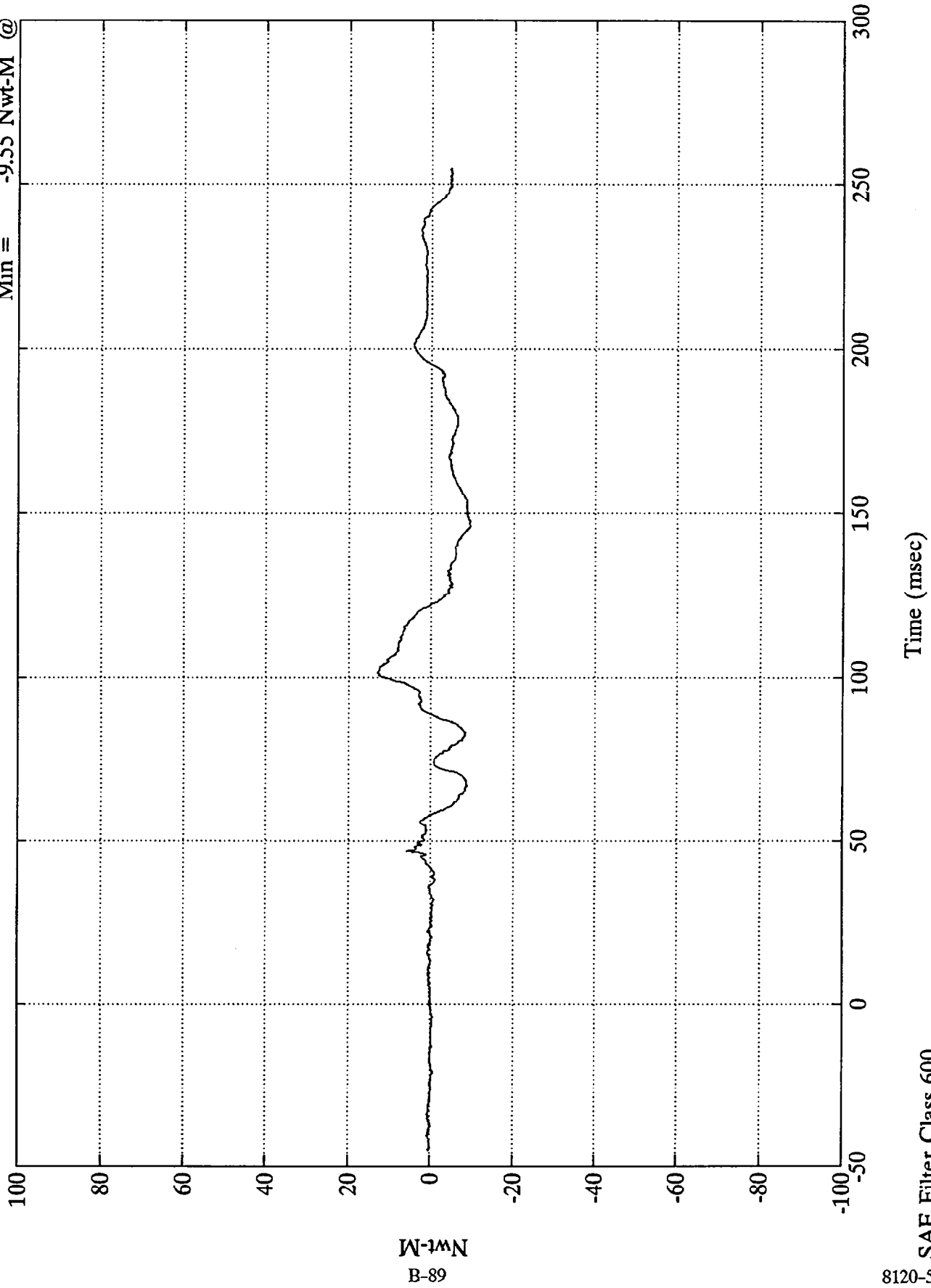
NCAP TEST #5 - 1993 INFINITI J30

Pos. 1 Upper Neck Fz
Max = 1630.26 Nwt @ 79.19 msec
Min = -269.24 Nwt @ 254.75 msec



Pos. 1 Upper Neck Mx

Max = 12.95 Nwt-M @ 101.52 ms
Min = -9.55 Nwt-M @ 147.60 ms

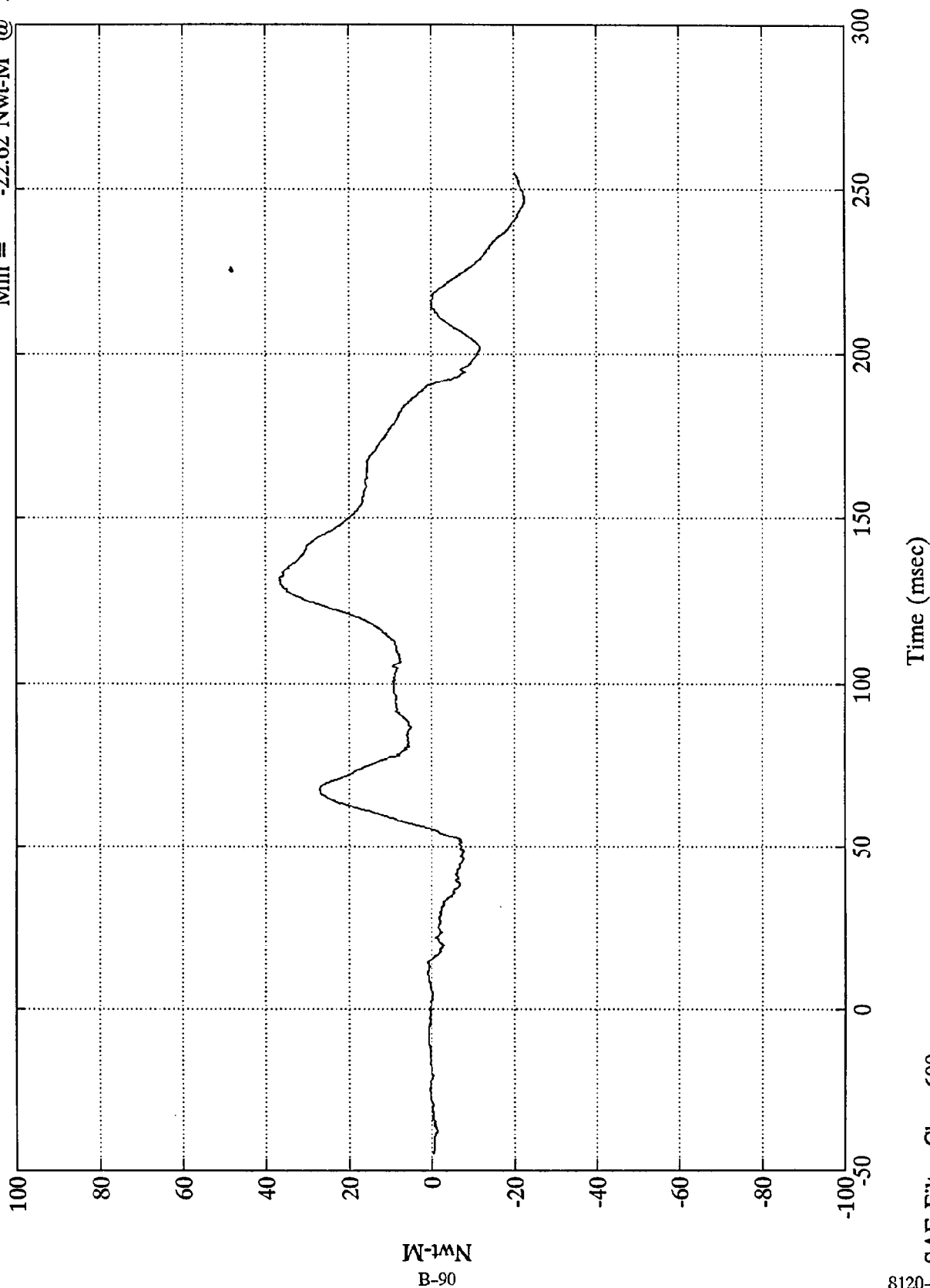


B-89
Nwt-M

NCAP TEST #5 - 1993 INFINITI J30

Pos. 1 Upper Neck My

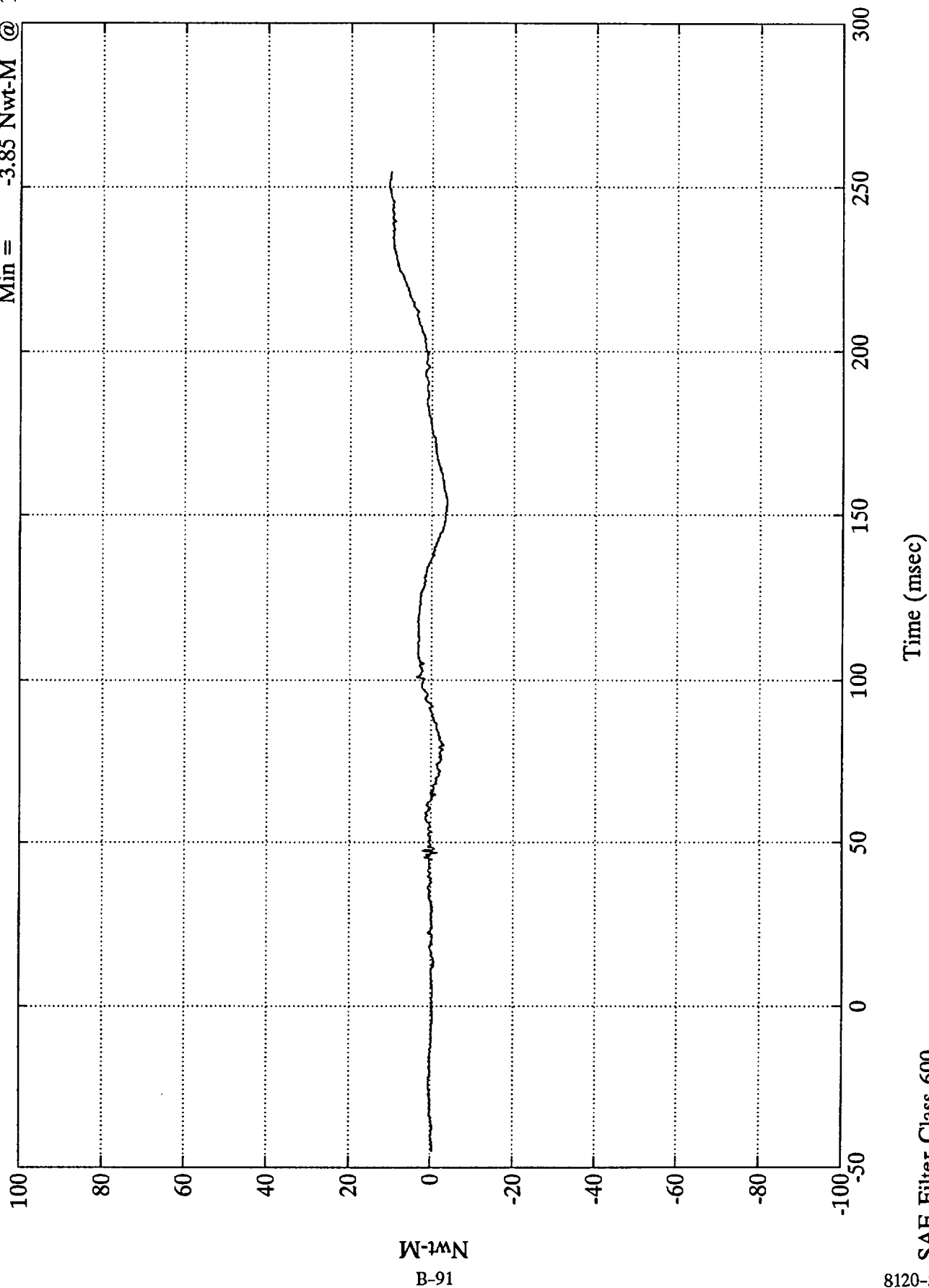
Max = 36.83 Nwt-M @ 131.75 msec
Min = -22.62 Nwt-M @ 246.00 msec



SAE Filter Class 600

Pos. 1 Upper Neck Mz

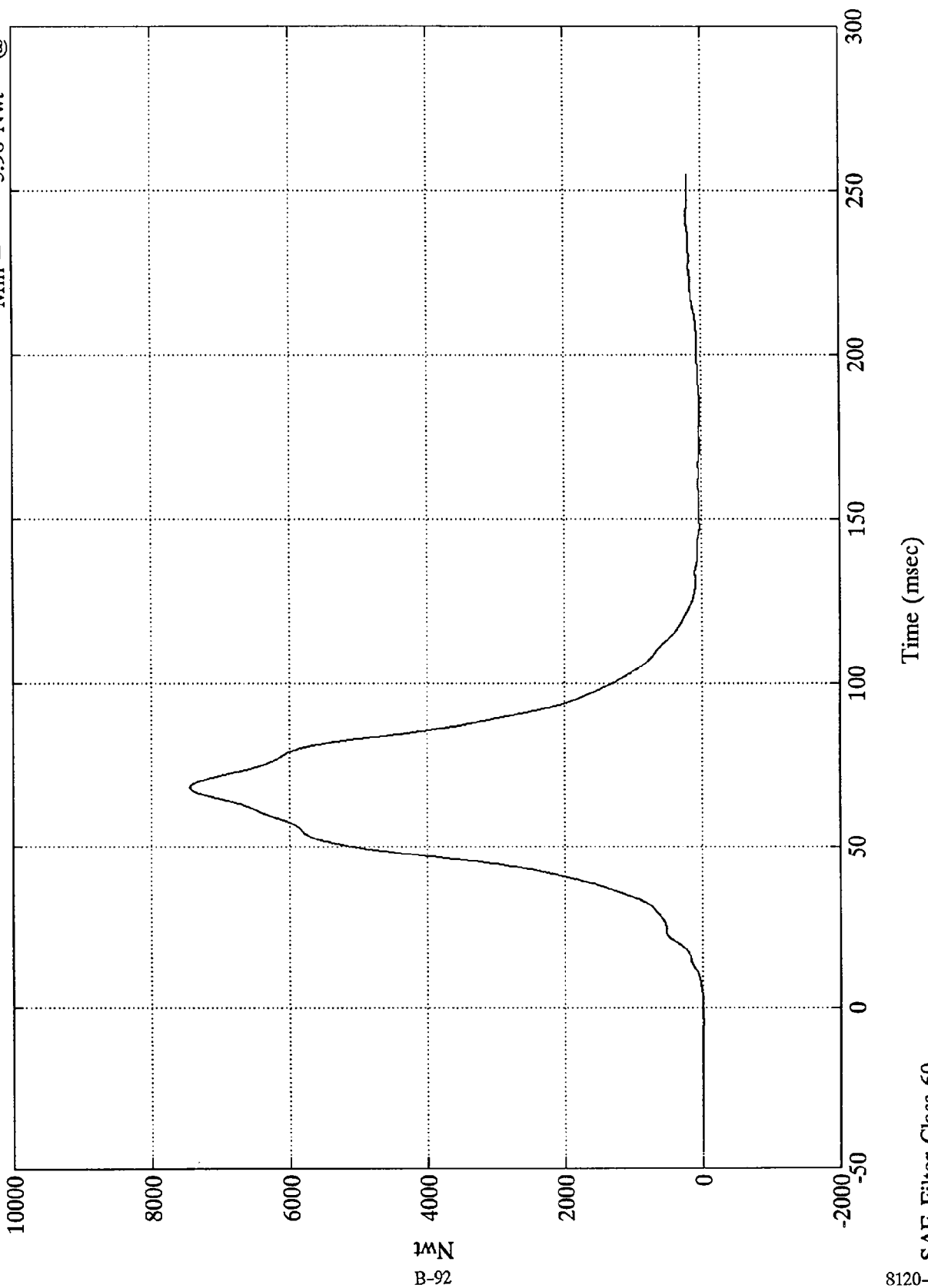
Max = 10.60 Nwt-M @ 251.52
Min = -3.85 Nwt-M @ 154.19 r



NCAP TEST #5 - 1993 INFINITI J30

Pos. 1 Left Belt Load

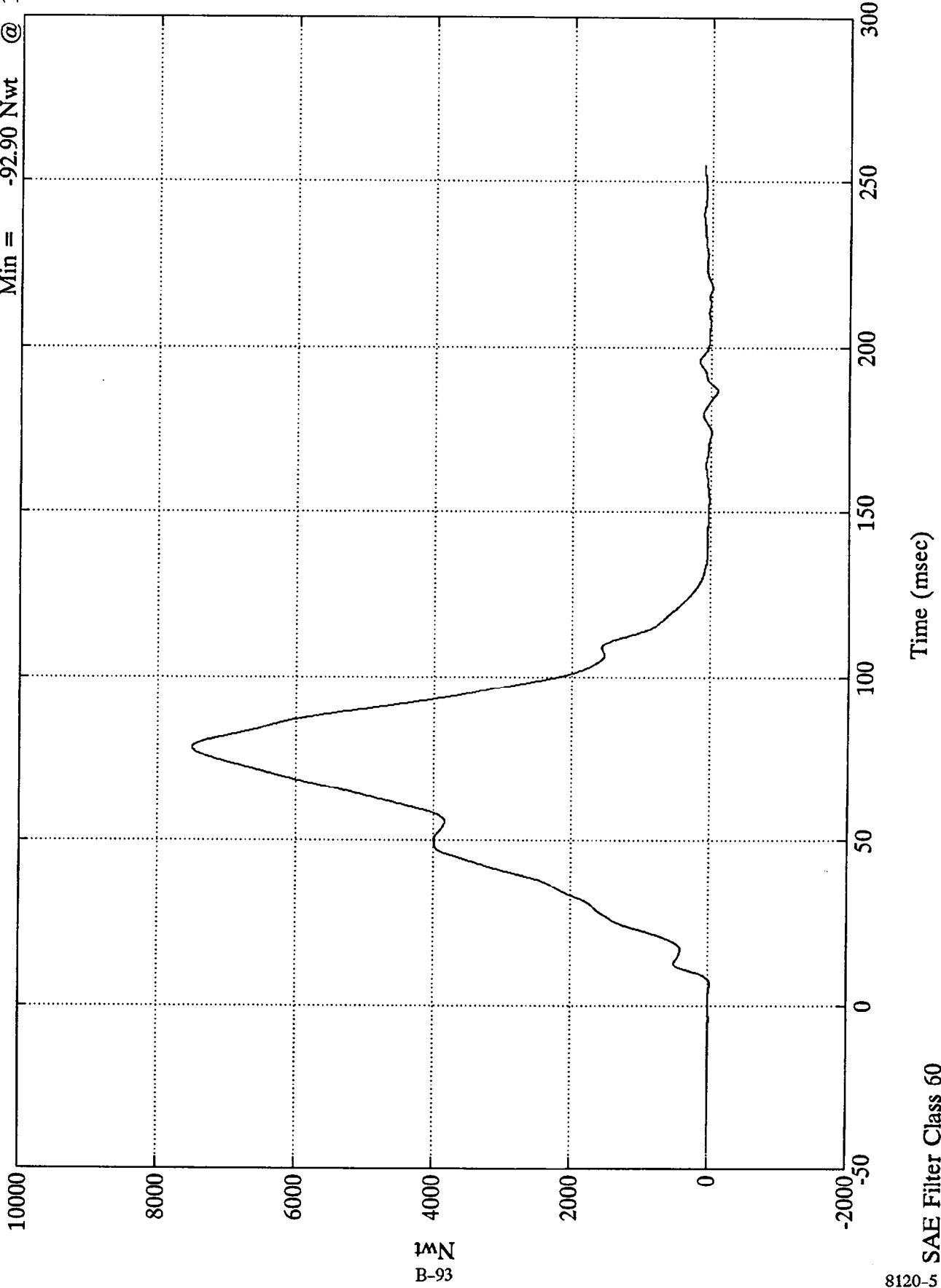
Max = 7446.40 Nwt @ 68.28 msec
Min = -5.96 Nwt @ -4.44 msec



NCAP TEST #5 - 1993 INFINITI J30

Pos. 1 Torso Belt Load

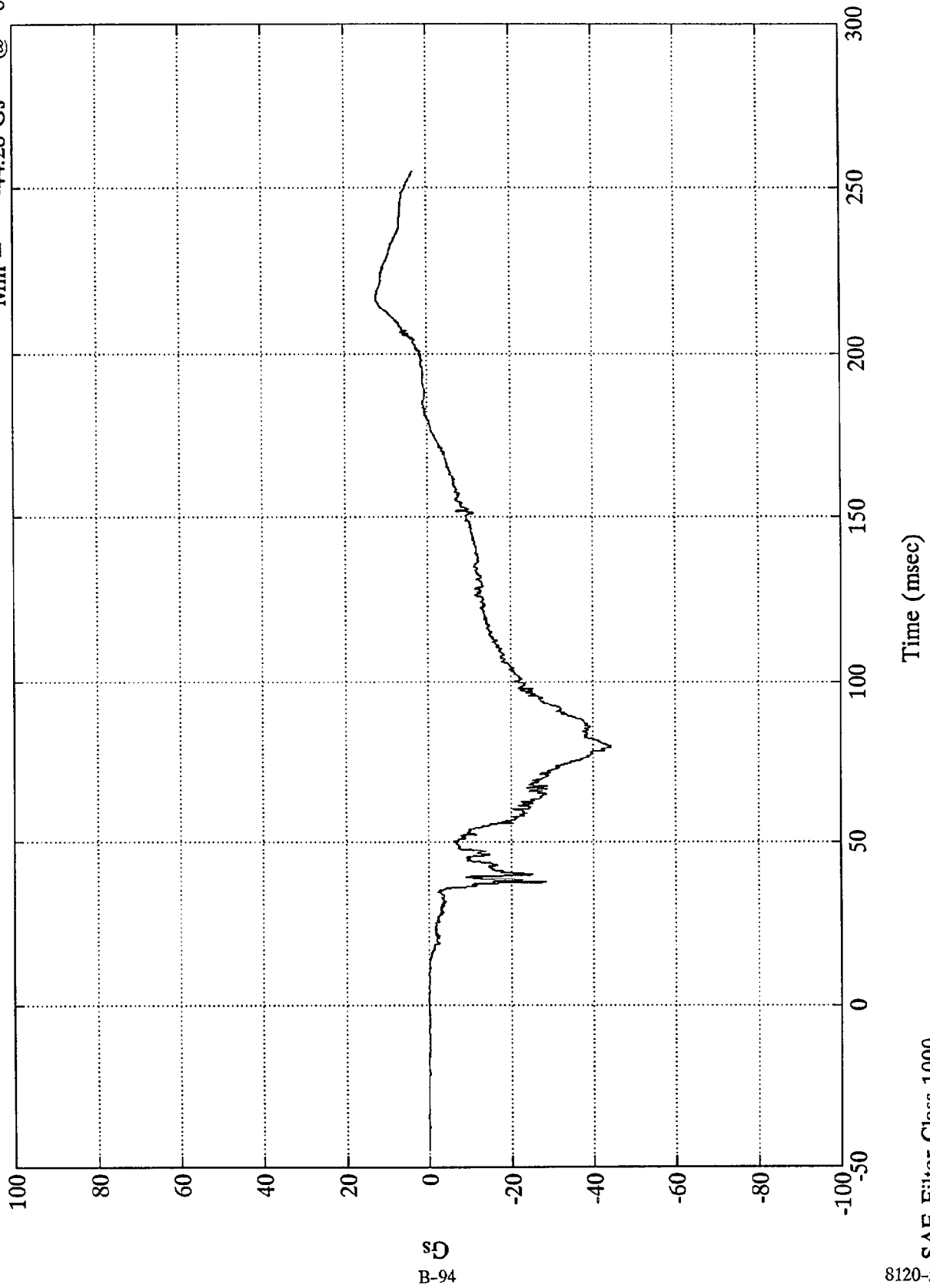
Max = 7506.96 Nwt @ 78.23 m
Min = -92.90 Nwt @ 186.84 m



NCAP TEST #5 - 1993 INFINITI J30

Pos. 2 Head X

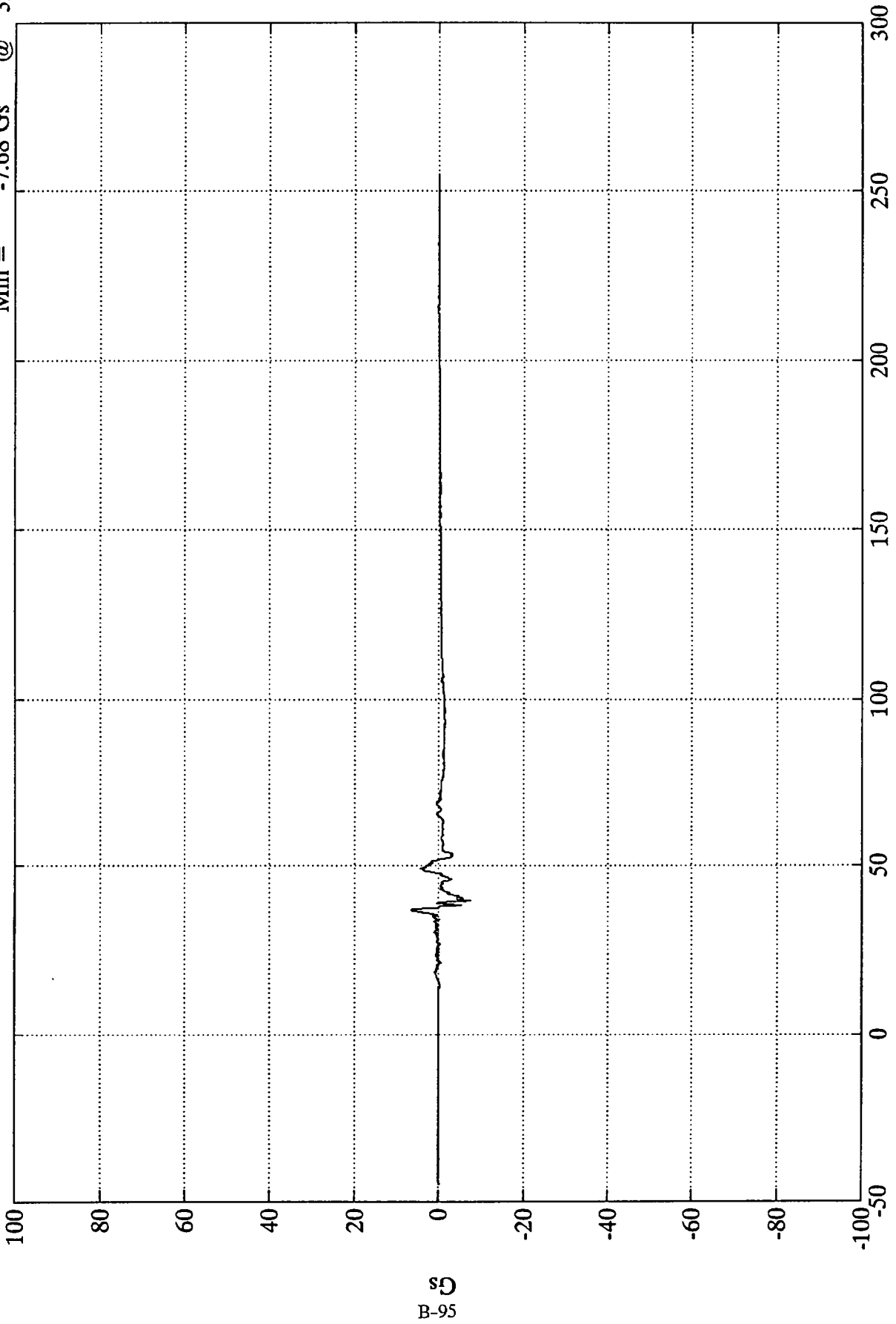
Max = 12.39 Gs @ 216.72 msec
Min = -44.28 Gs @ 80.04 msec



B-94

8120-5 SAE Filter Class 1000

Pos. 2 Head Y
Max = 6.58 Gs @ 36.90 msec
Min = -7.68 Gs @ 39.71 msec

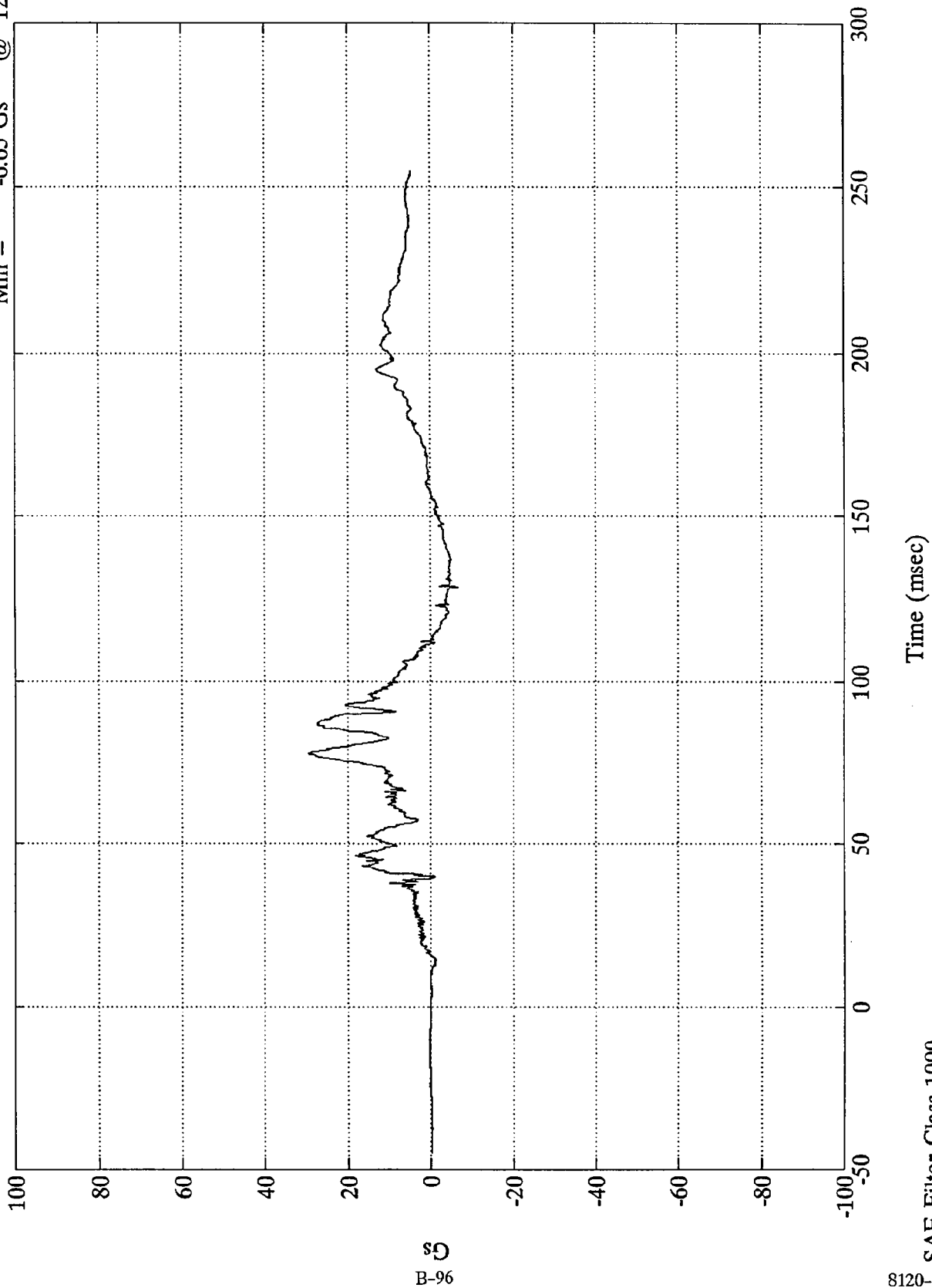


Time (msec)

SAE Filter Class 1000

NCAP TEST #5 - 1993 INFINITI J30

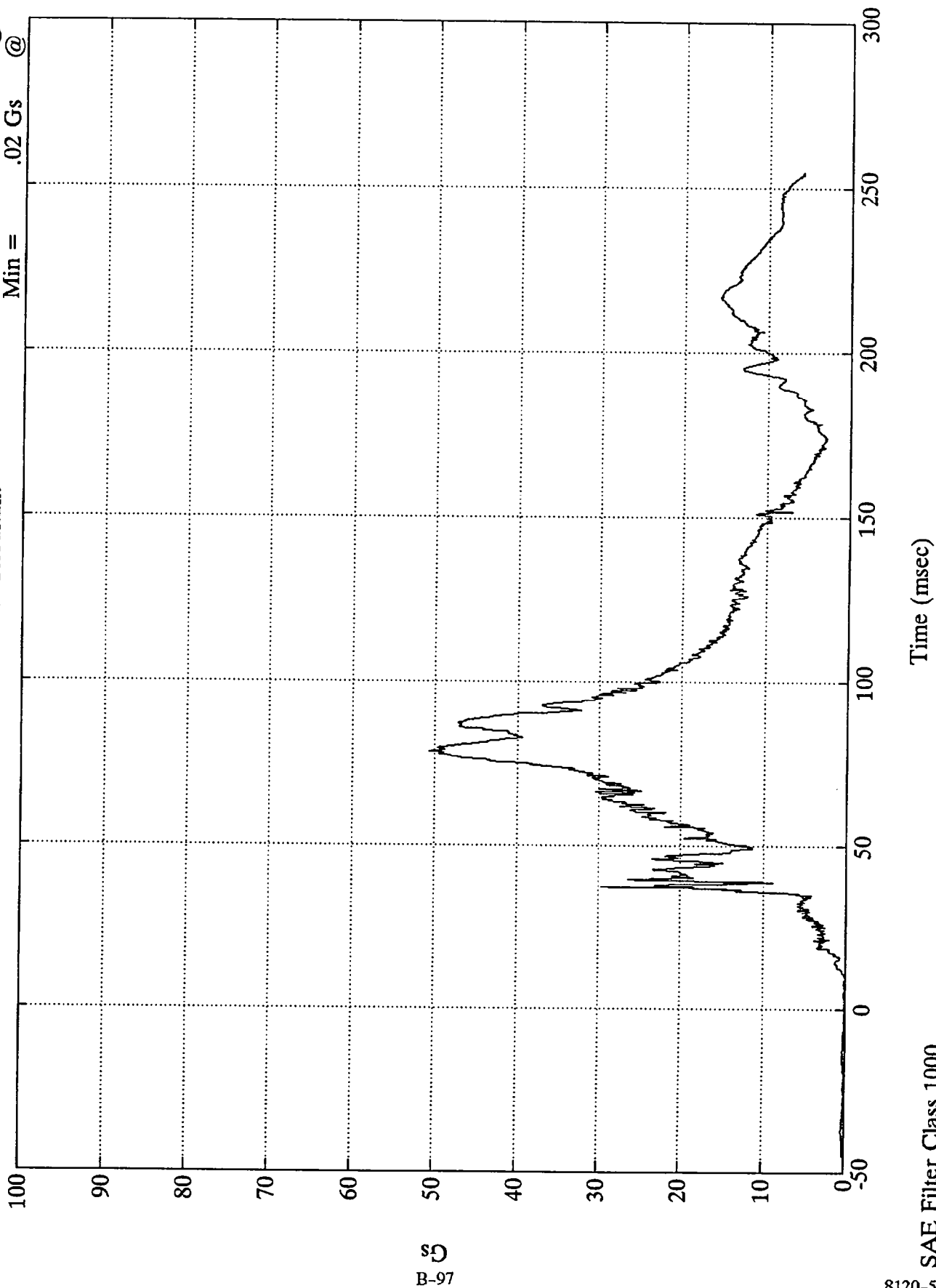
Pos. 2 Head Z
Max = 29.64 Gs @ 77.76 msec
Min = -6.65 Gs @ 128.27 msec



NCAP TEST #5 - 1993 INFINITI J30

Max = 51.01 Gs @ 78.48 ms
Min = .02 Gs @ 9.71 msec

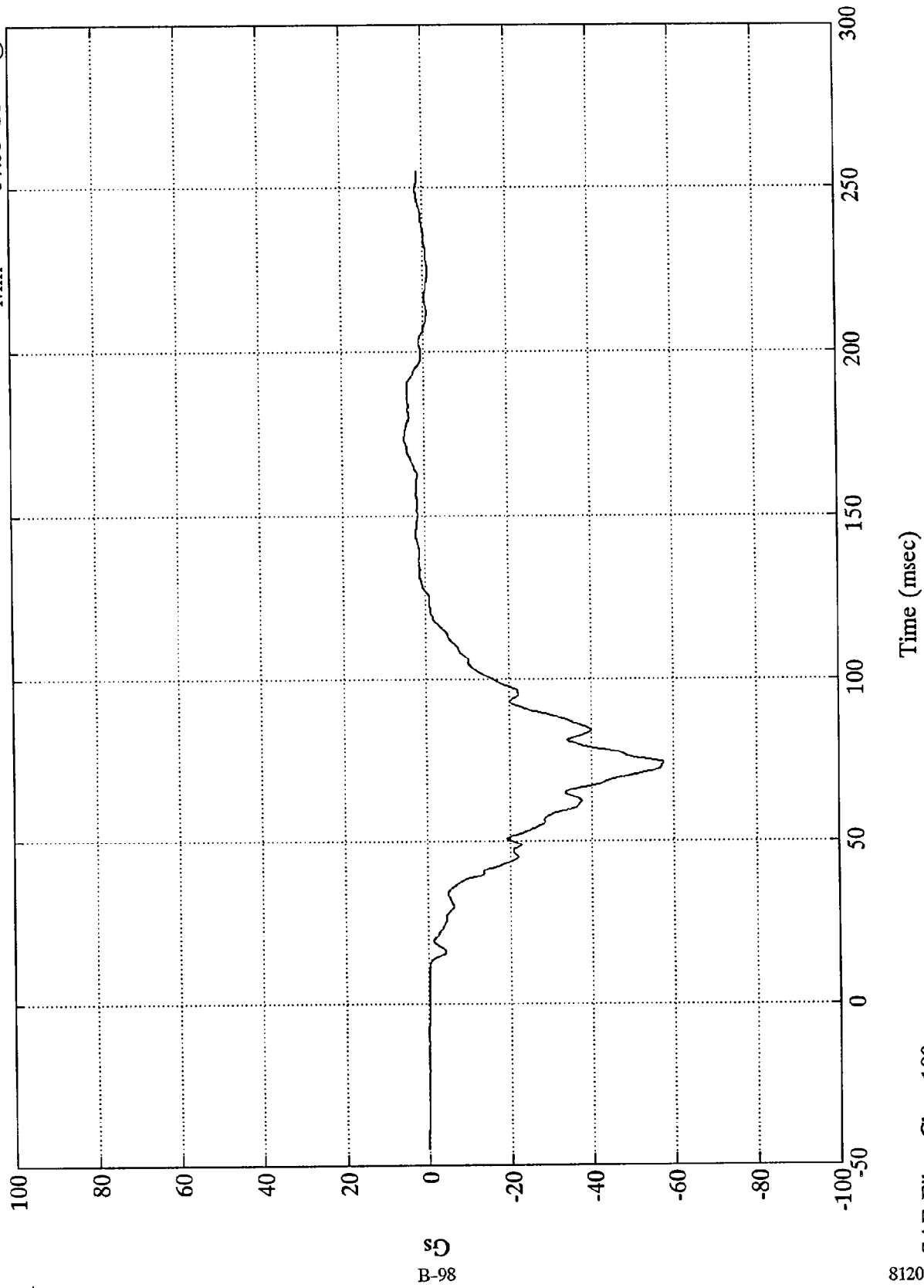
Pos. 2 Head Resultant



NCAP TEST #5 - 1993 INFINITI J30

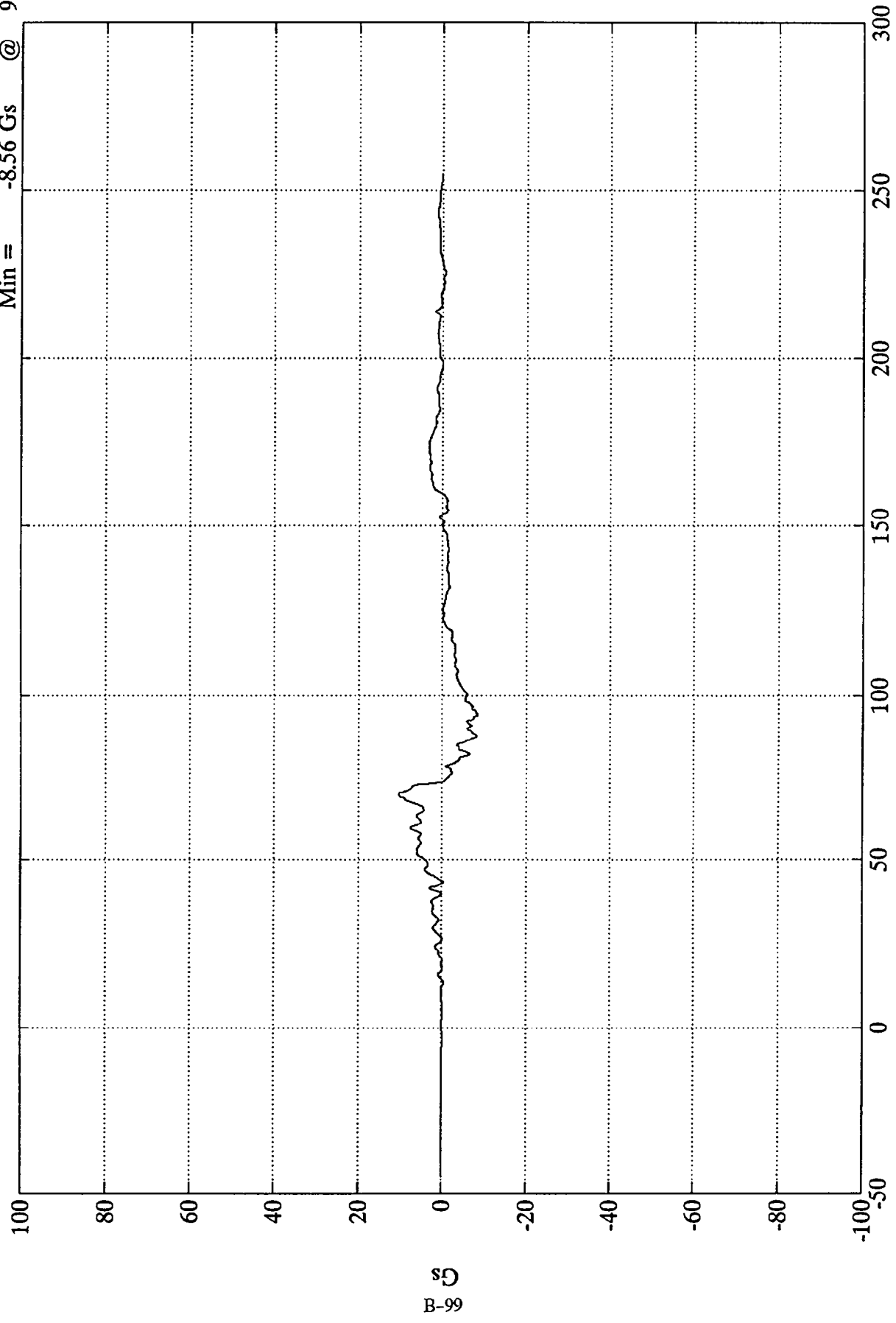
Max = 4.95 Gs @ 173.16 msec
Min = -57.55 Gs @ 73.92 msec

Pos. 2 Chest X



Max = 10.42 Gs @ 70.08 ms
Min = -8.56 Gs @ 94.31 ms

Pos. 2 Chest Y



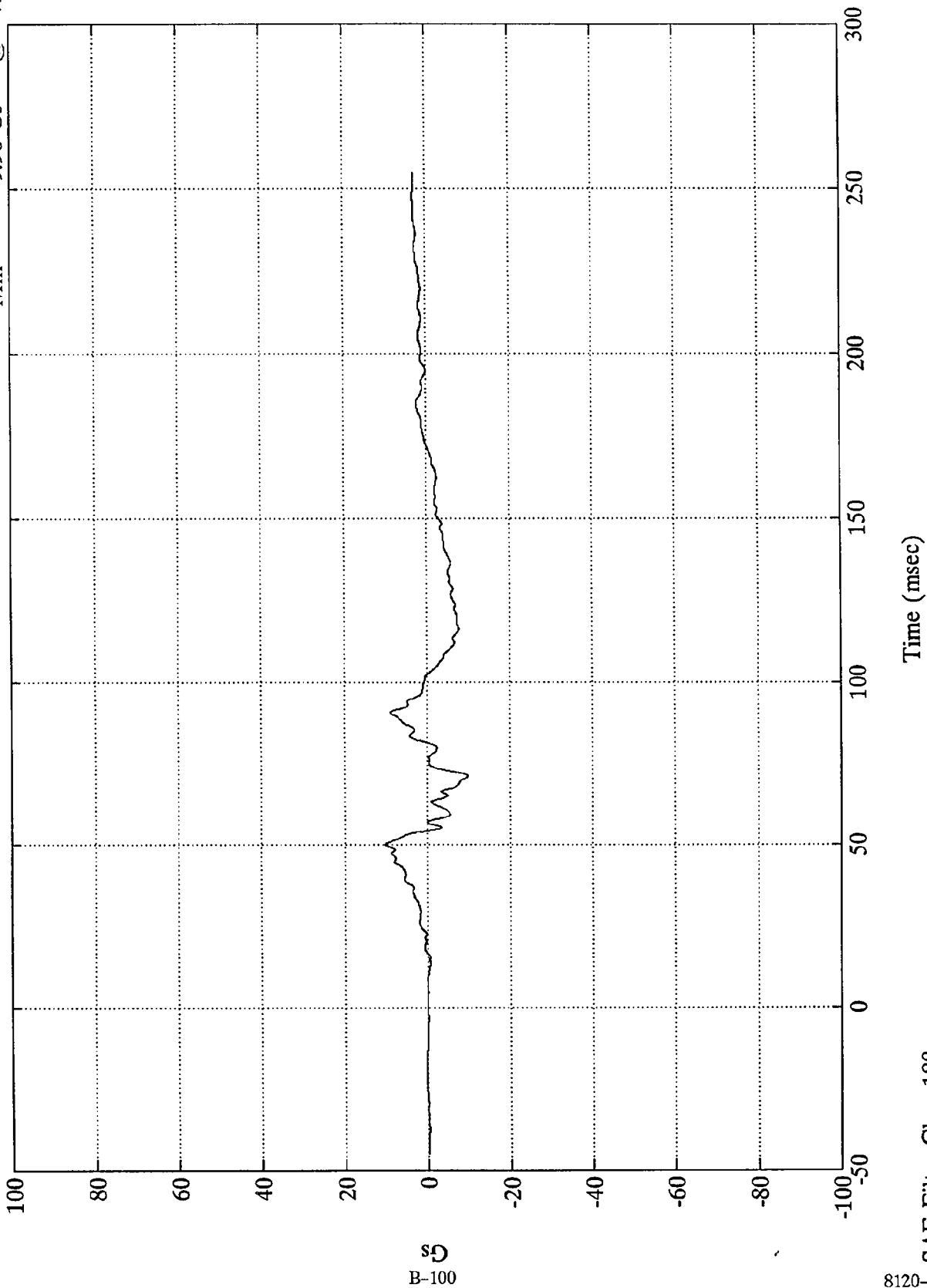
Time (msec)

SAE Filter Class 180

NCAP TEST #5 - 1993 INFINITI J30

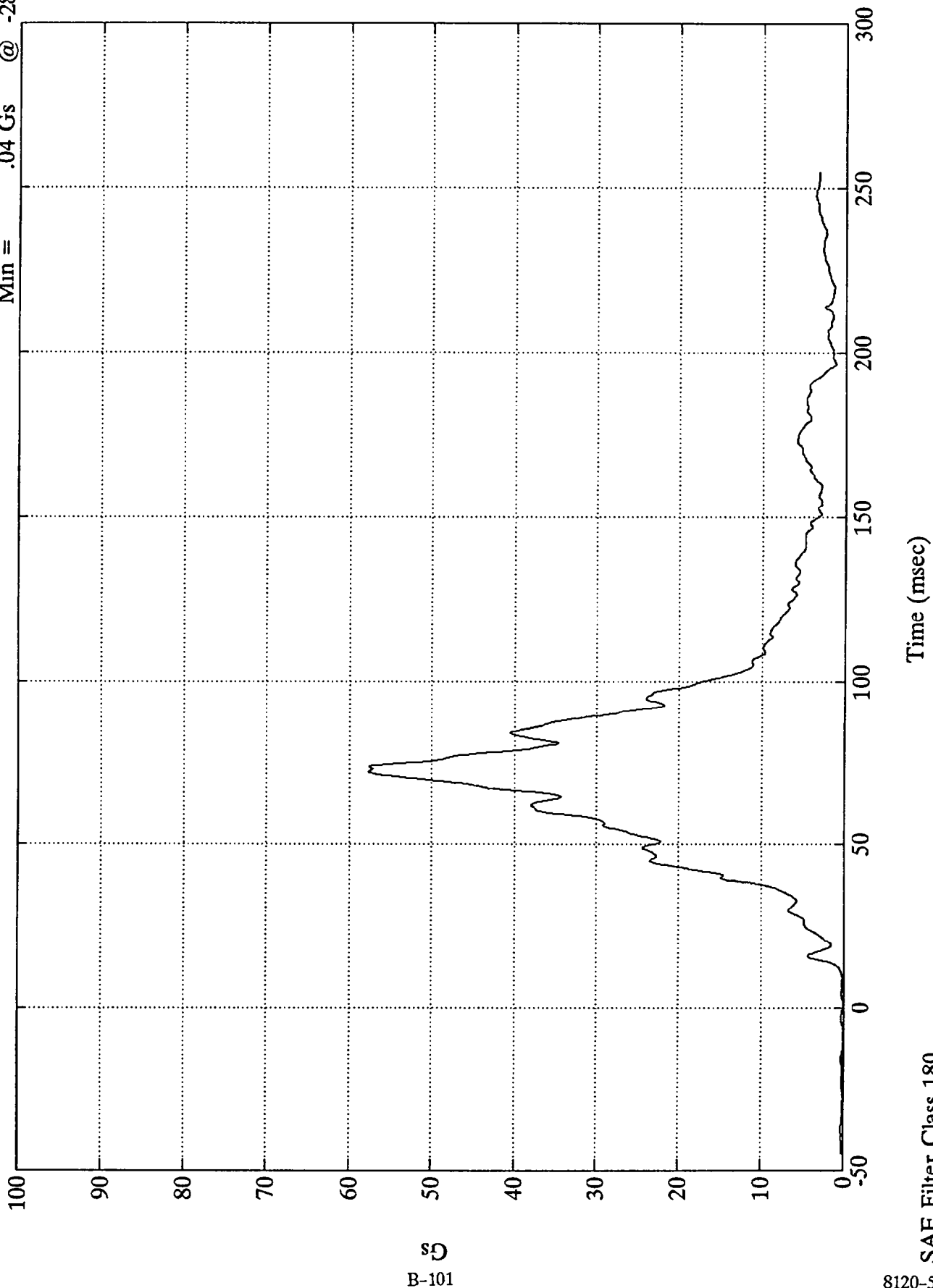
Max = 10.21 Gs @ 50.04 msec
Min = -9.90 Gs @ 71.27 msec

Pos. 2 Chest Z



SAE Filter Class 180

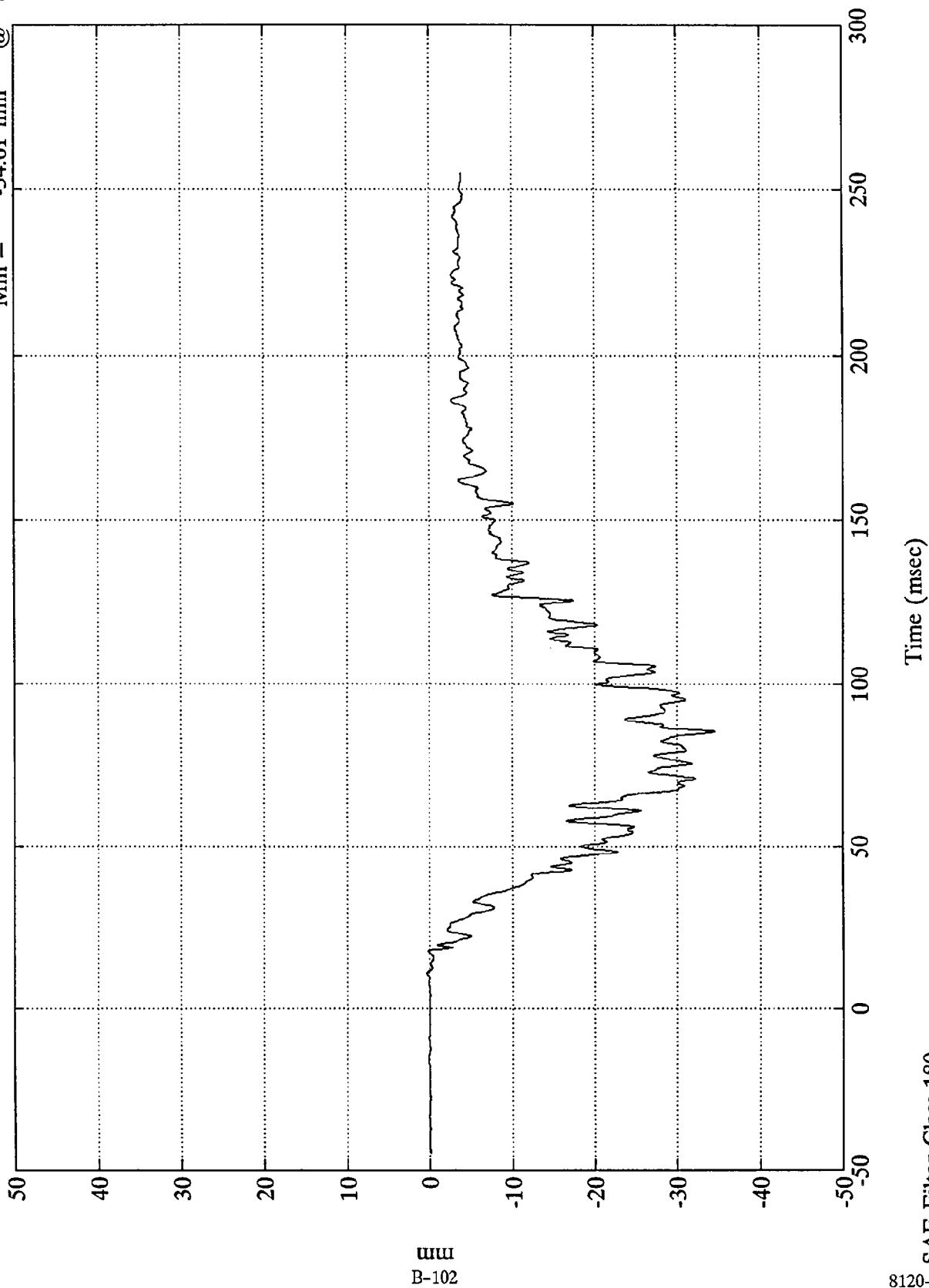
Pos. 2 Chest Resultant
Max = 57.72 Gs @ 72.36 ms
Min = .04 Gs @ -28.08 mse



NCAP TEST #5 - 1993 INFINITI J30

Pos. 2 Chest Disp.

Max = .35 mm @ 10.67 msec
Min = -34.61 mm @ 85.44 msec

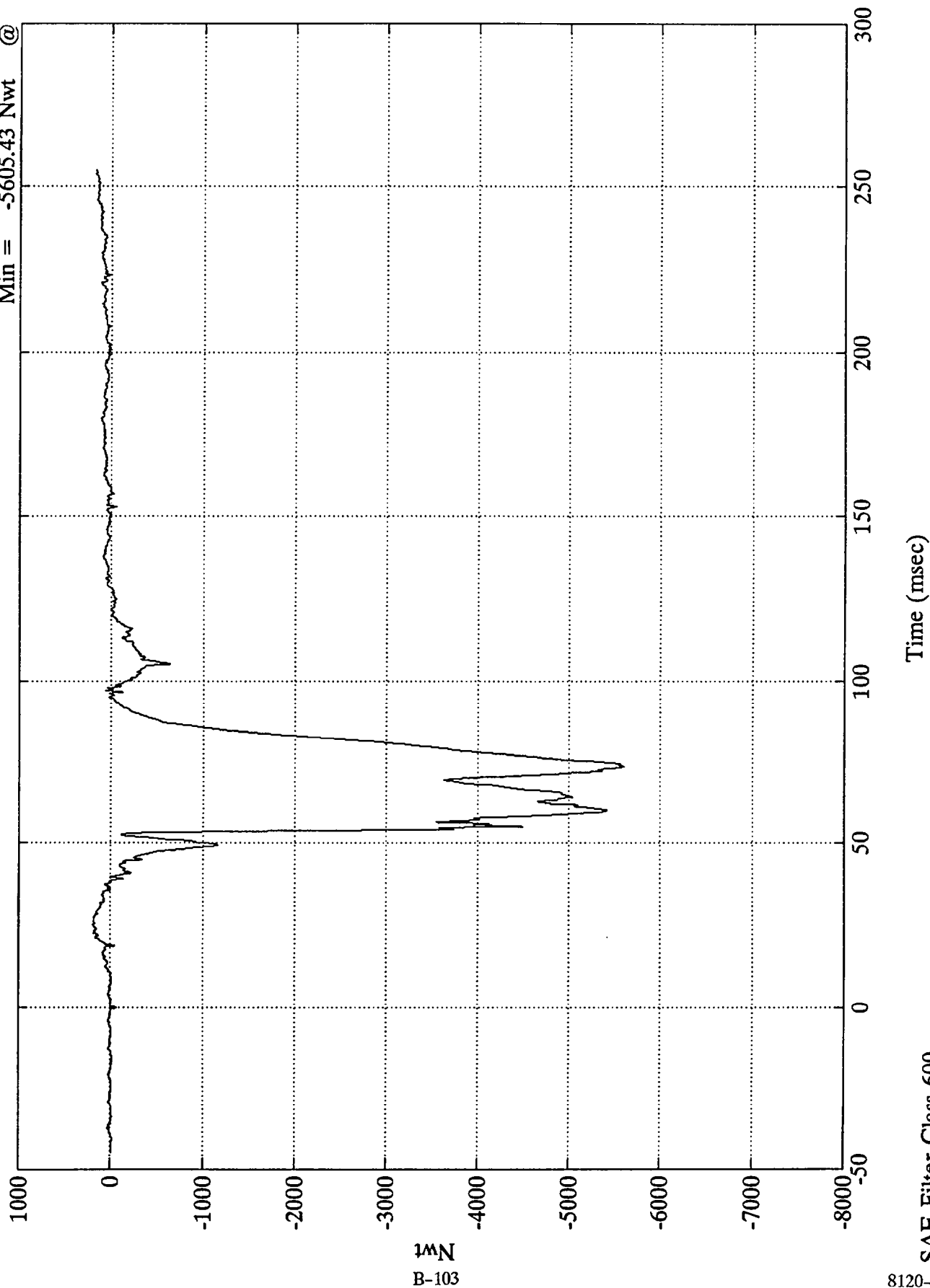


mm
B-102

Pos. 2 Left Femur

Max = 198.99 Nwt
Min = -5605.43 Nwt

@ 25.07 ms
@ 73.55 ms

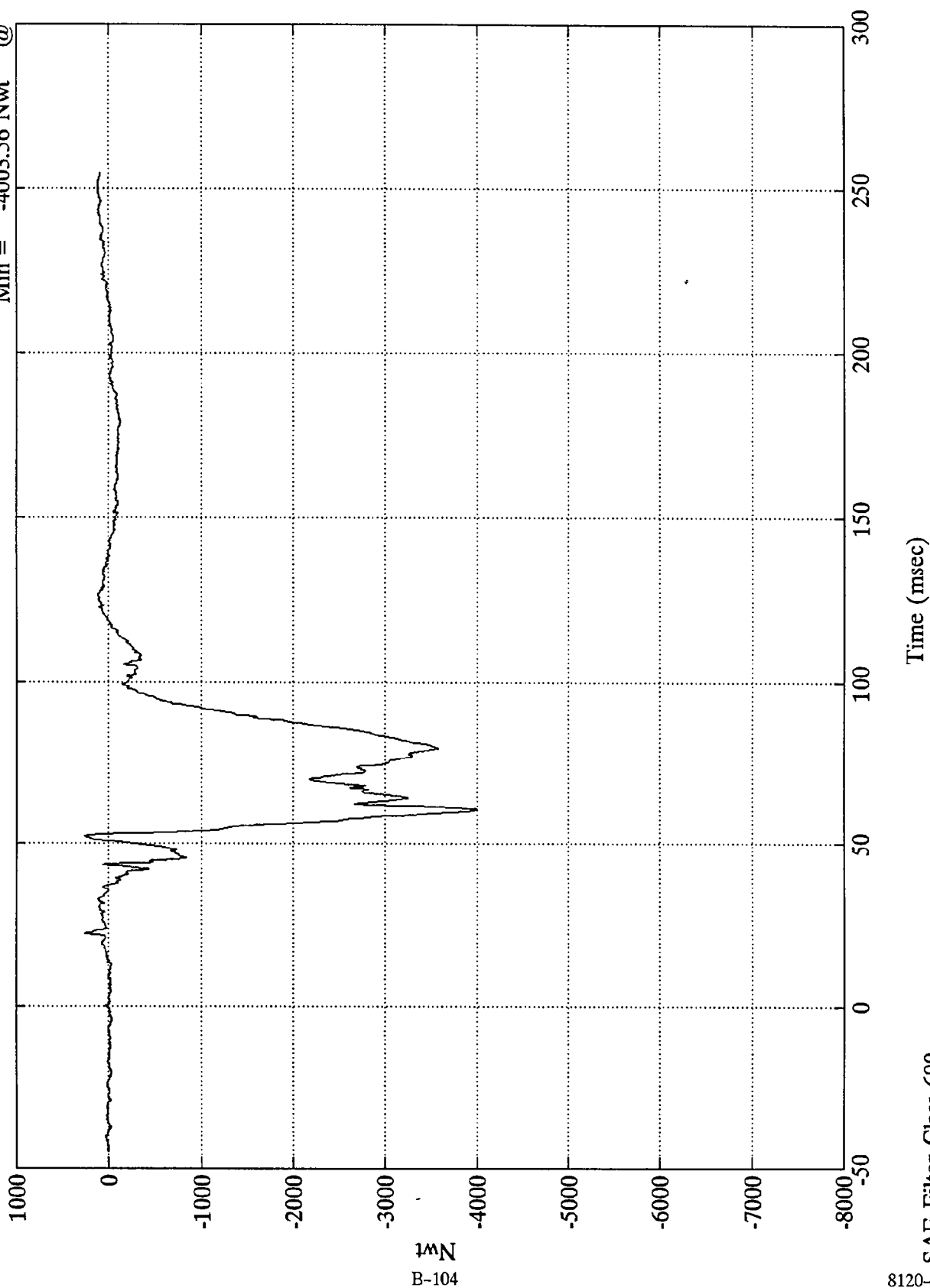


B-103

NCAP TEST #5 - 1993 INFINITI J30

Max = 271.44 Nwt @ 52.31 msec
Min = -4003.56 Nwt @ 60.84 msec

Pos. 2 Right Femur



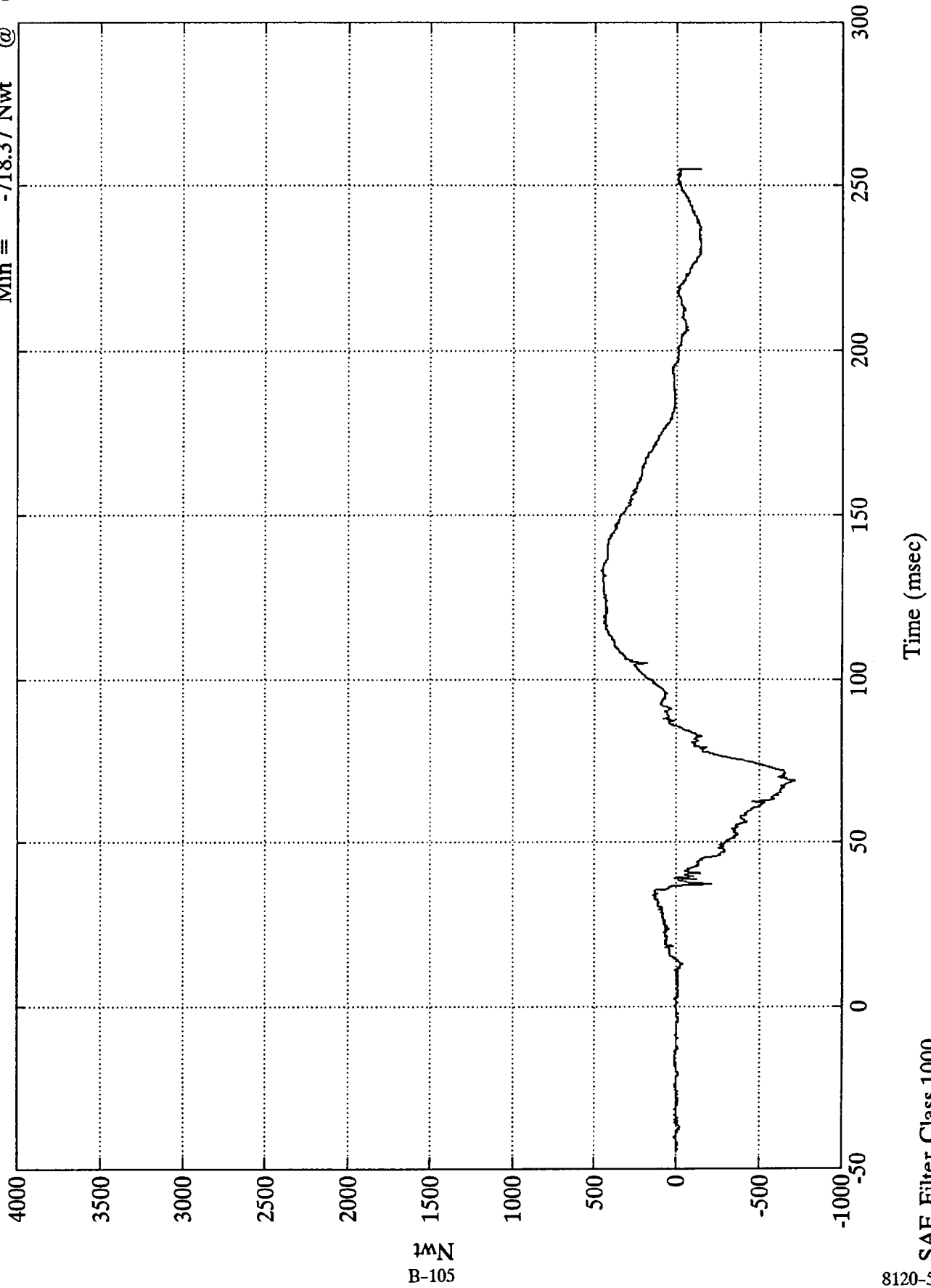
1wN
B-104

8120-5
SAE Filter Class 600

NCAP TEST #5 - 1993 INFINITI J30

Pos. 2 Upper Neck Fx

Max = 461.02 Nwt @ 133.44 m
Min = -718.37 Nwt @ 68.76 ms



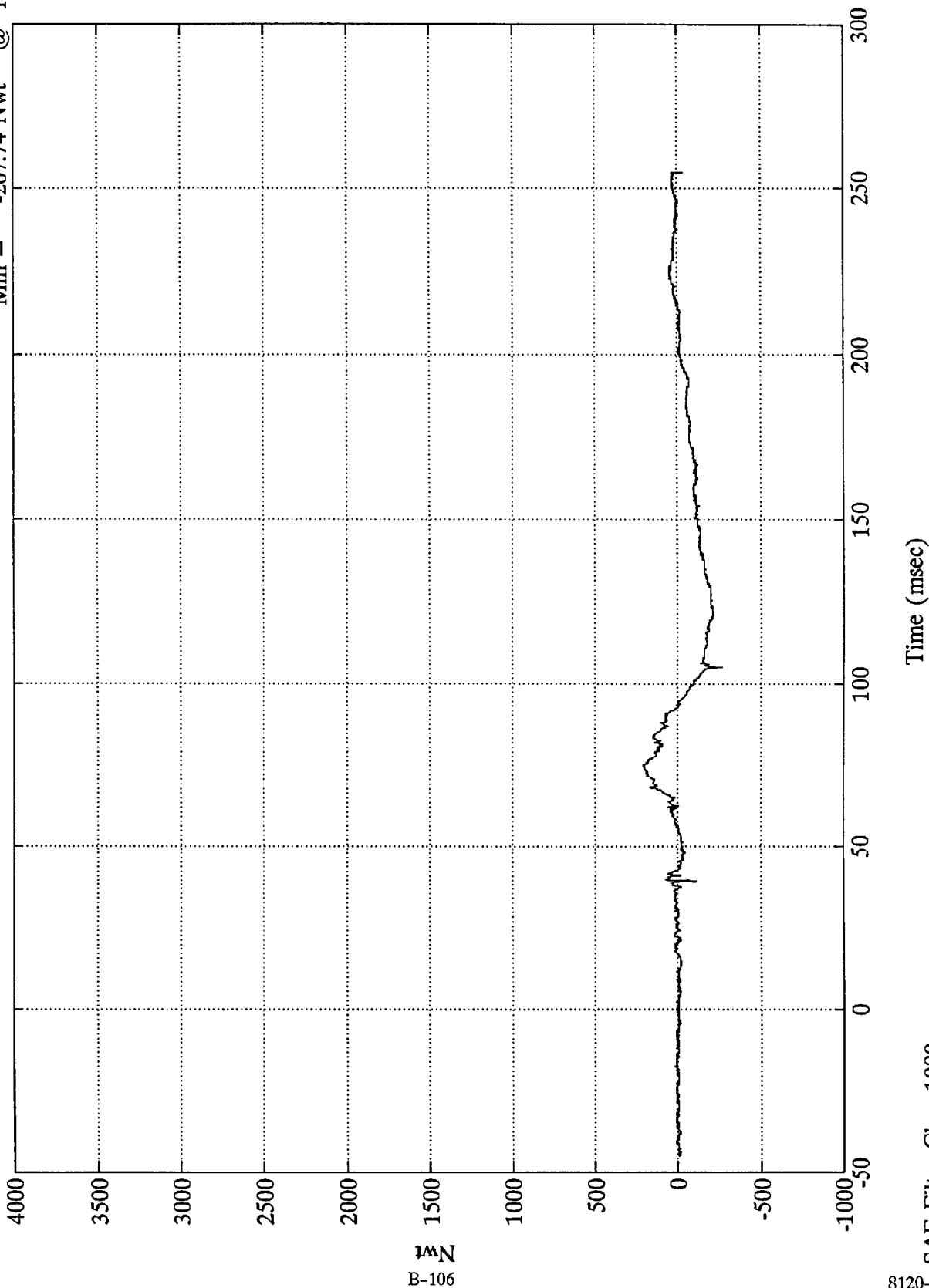
1wN
B-105

8120-5
SAE Filter Class 1000

NCAP TEST #5 - 1993 INFINITI J30

Pos. 2 Upper Neck Fy

Max = 211.28 Nwt @ 74.88 msec
Min = -267.74 Nwt @ 105.00 msec



B-106

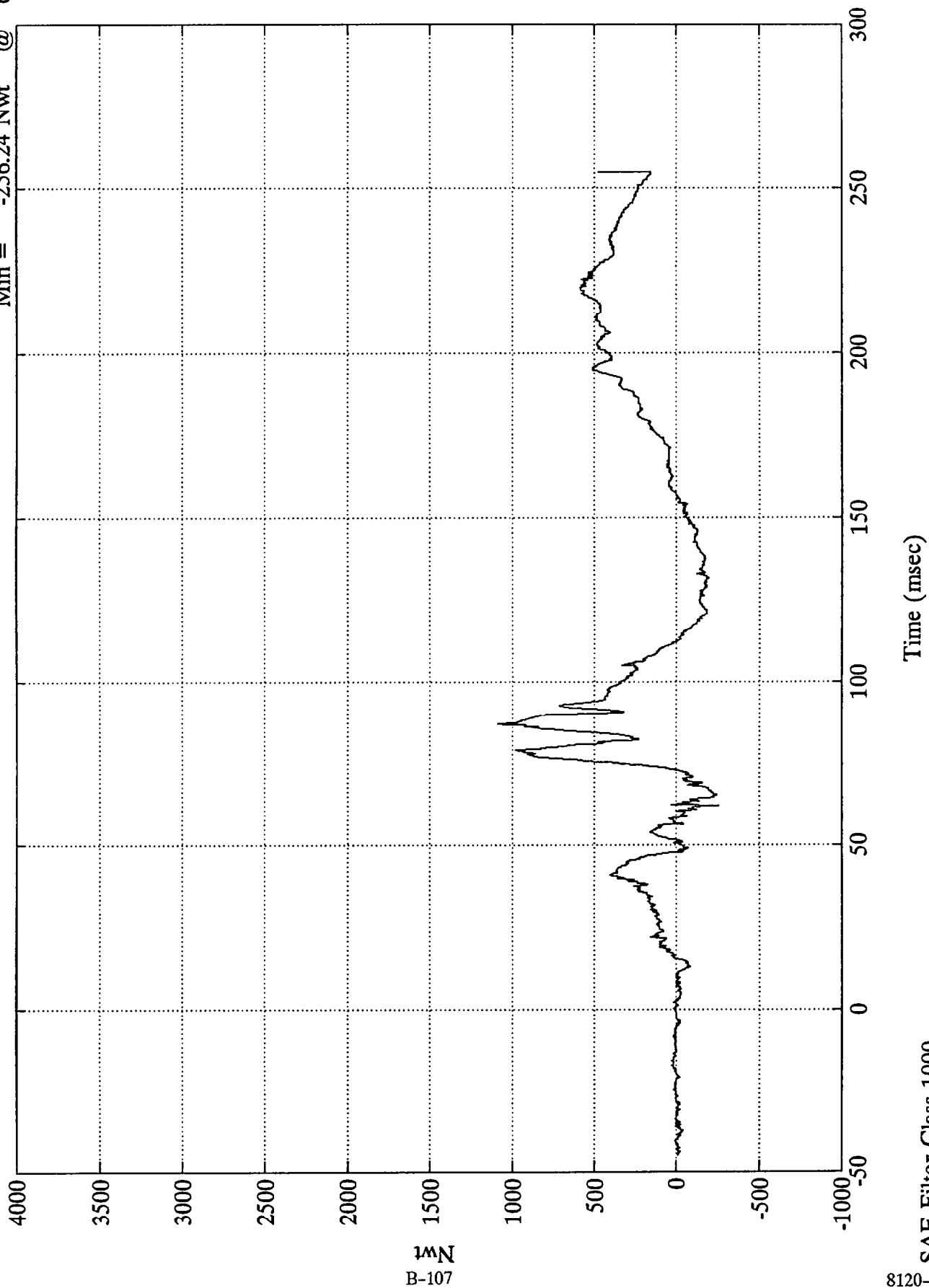
SAE Filter Class 1000

8120-5

Pos. 2 Upper Neck Fz

Max = 1089.02 Nwt
Min = -256.24 Nwt

@ 87.12 m
@ 61.92 ms

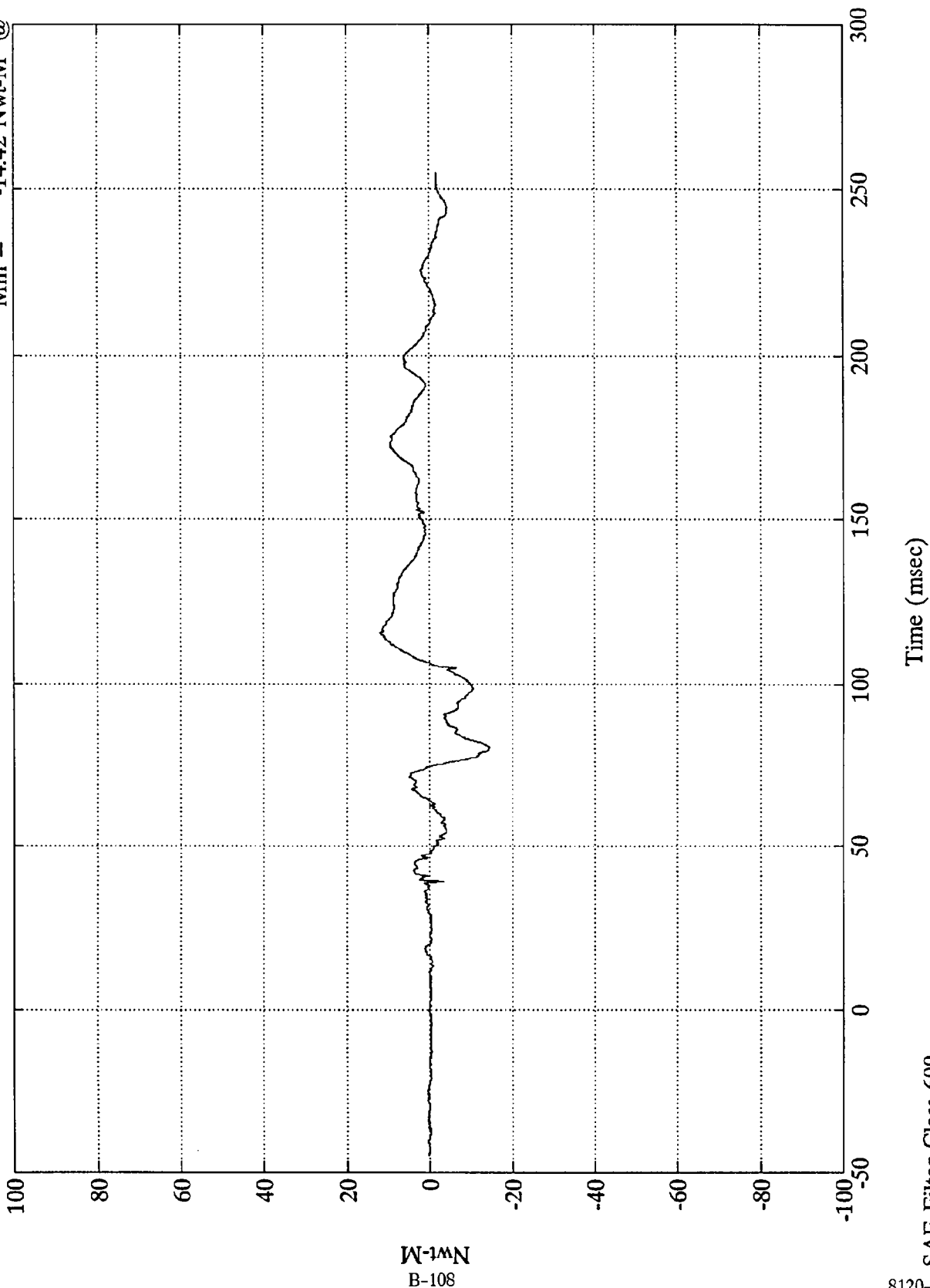


B-107

NCAP TEST #5 - 1993 INFINITI J30

Pos. 2 Upper Neck Mx

Max = 12.00 Nwt-M @ 115.68 msec
Min = -14.42 Nwt-M @ 80.63 msec

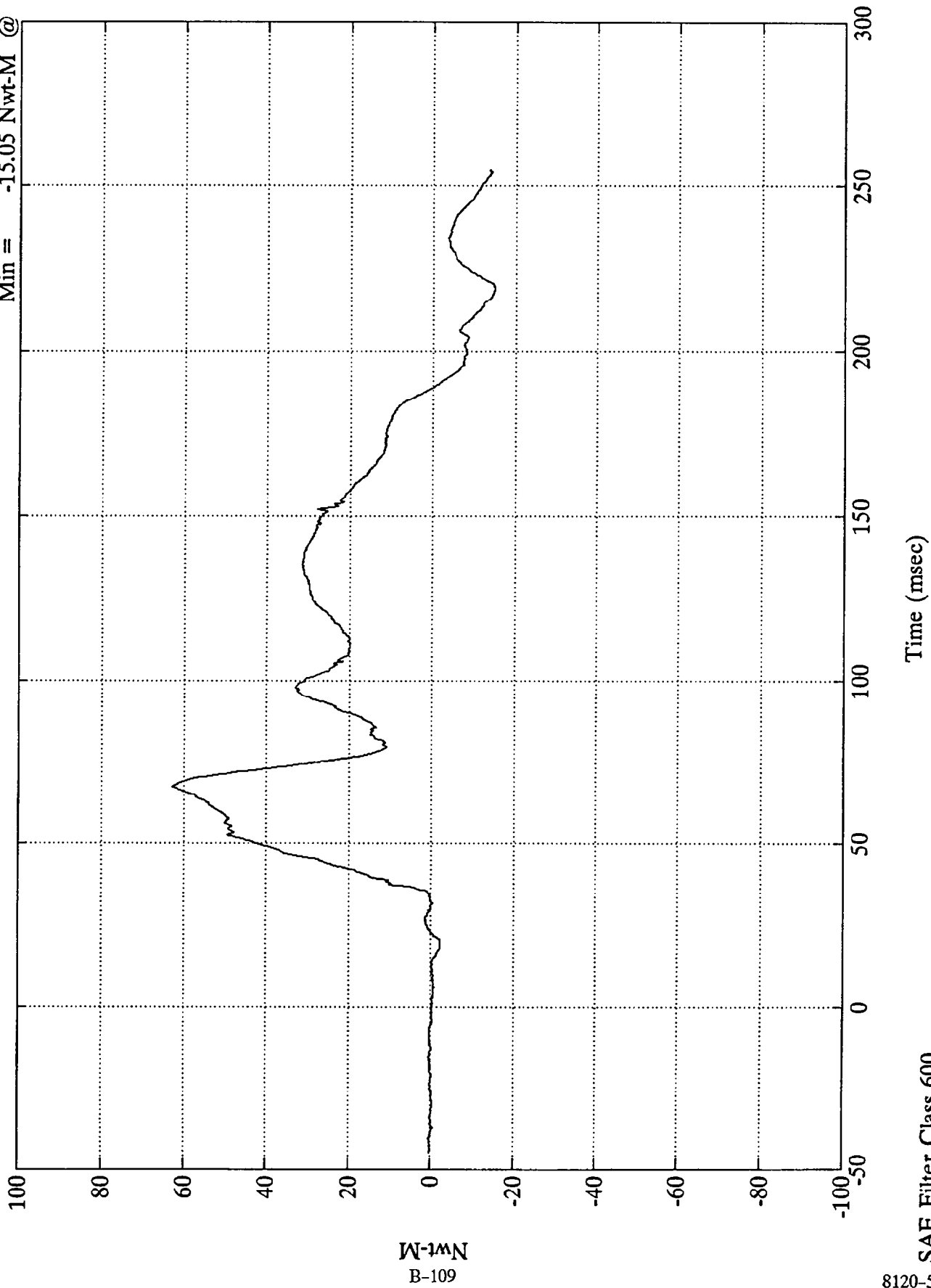


SAE Filter Class 600

Pos. 2 Upper Neck My

Max =
Min =

62.79 Nwt-M @ 67.32 n
-15.05 Nwt-M @ 219.36 n

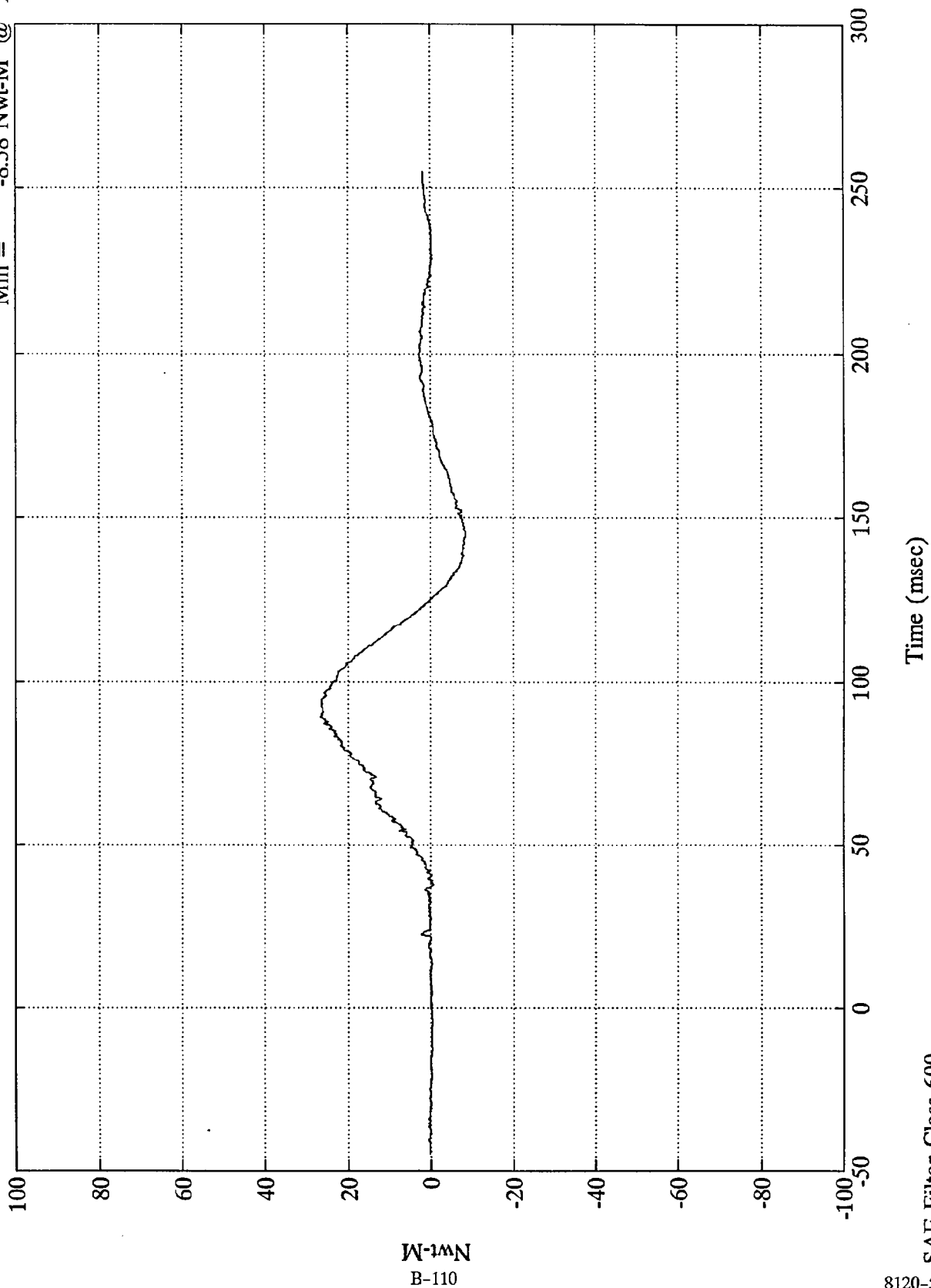


B-109
Nwt-M

NCAP TEST #5 - 1993 INFINITI J30

Pos. 2 Upper Neck Mz

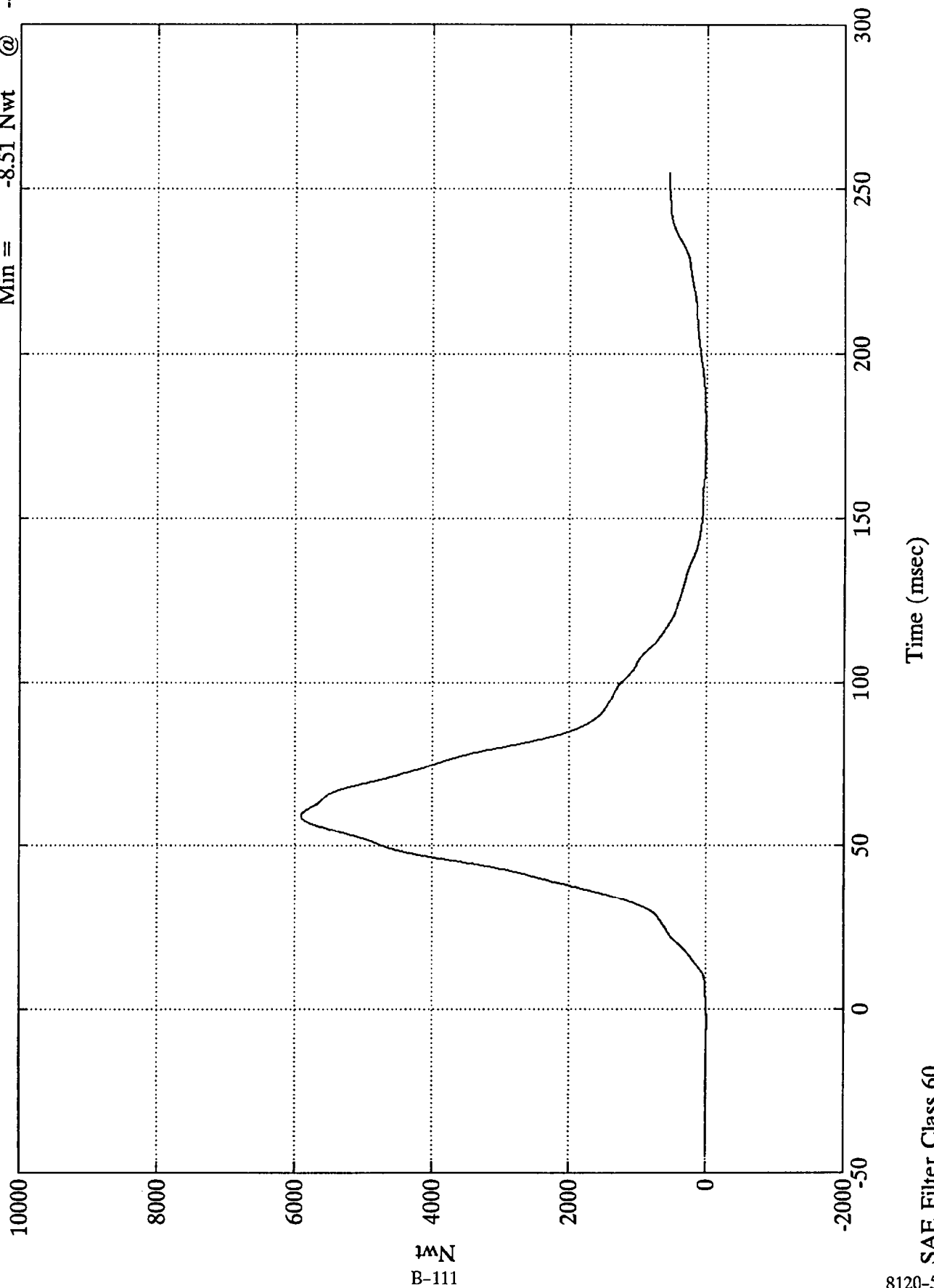
Max = 26.70 Nwt-M @ 89.27 msec
Min = -8.58 Nwt-M @ 145.19 msec



B-110

Pos. 2 Right Belt Load

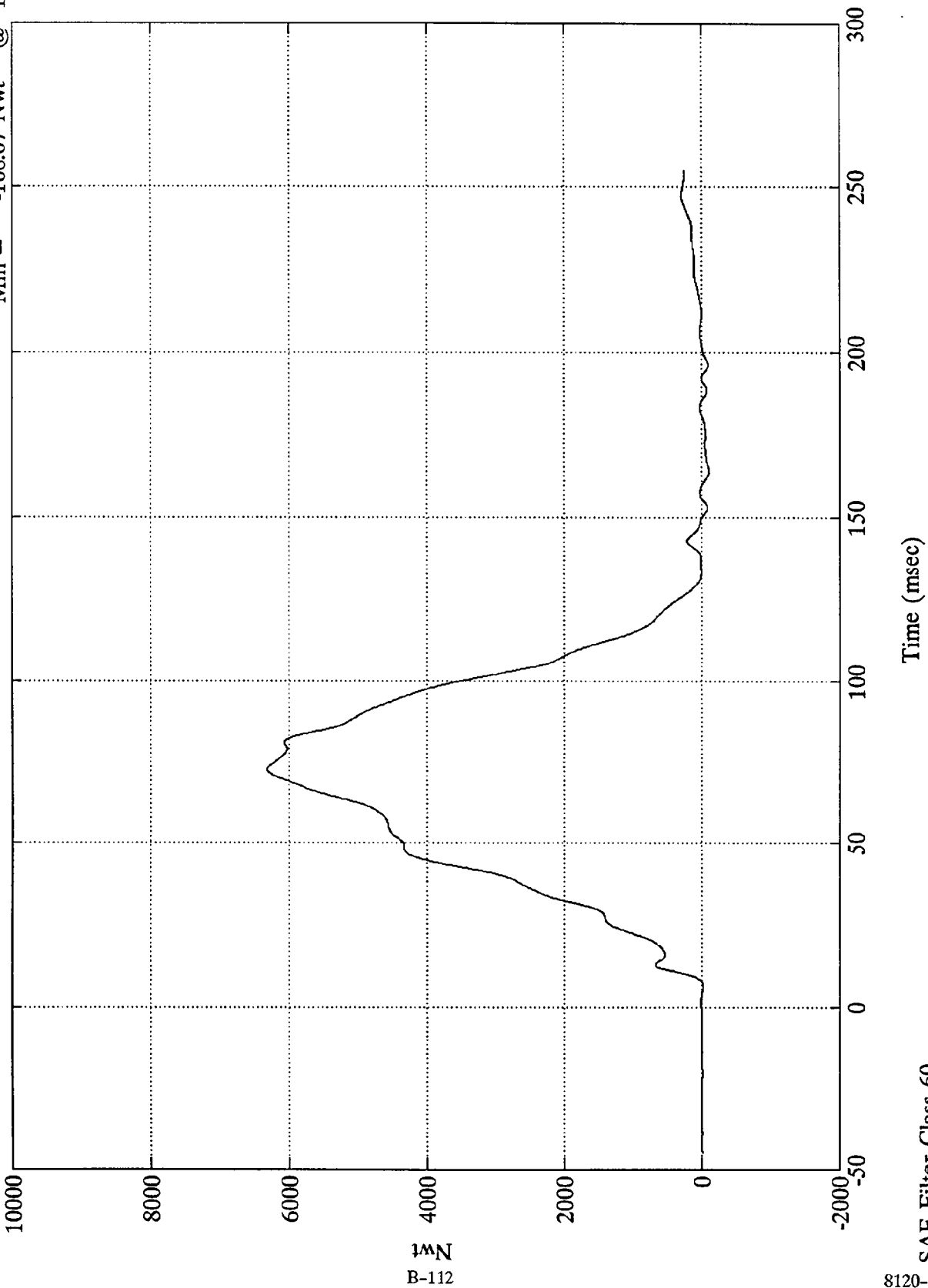
Max = 5913.33 Nwt @ 59.04 π
Min = -8.51 Nwt @ -4.08 msec



NCAP TEST #5 - 1993 INFINITI J30

Pos. 2 Torso Belt Load

Max = 6323.66 Nwt @ 72.24 msec
Min = -108.07 Nwt @ 164.03 msec



B-112

8120-5
SAE Filter Class 60

Appendix C

**PART 572B/E DUMMY CONFIGURATION
AND PERFORMANCE VERIFICATION DATA SHEETS**

Appendix C contains the results from certification tests performed on the 50th percentile male anthropomorphic test devices utilized for this crash test. The results indicate that the dummies meet all of the performance requirements of the six standard tests as specified in 49 CFR Part 572, Federal Register, Volume 42, No. 25, dated February 7, 1977.

The tests were conducted at the Dummy Certification Test Facility of Calspan Corporation, Advanced Technology Center. A summary of the test results, and Part 572 specifications are included in this Appendix.

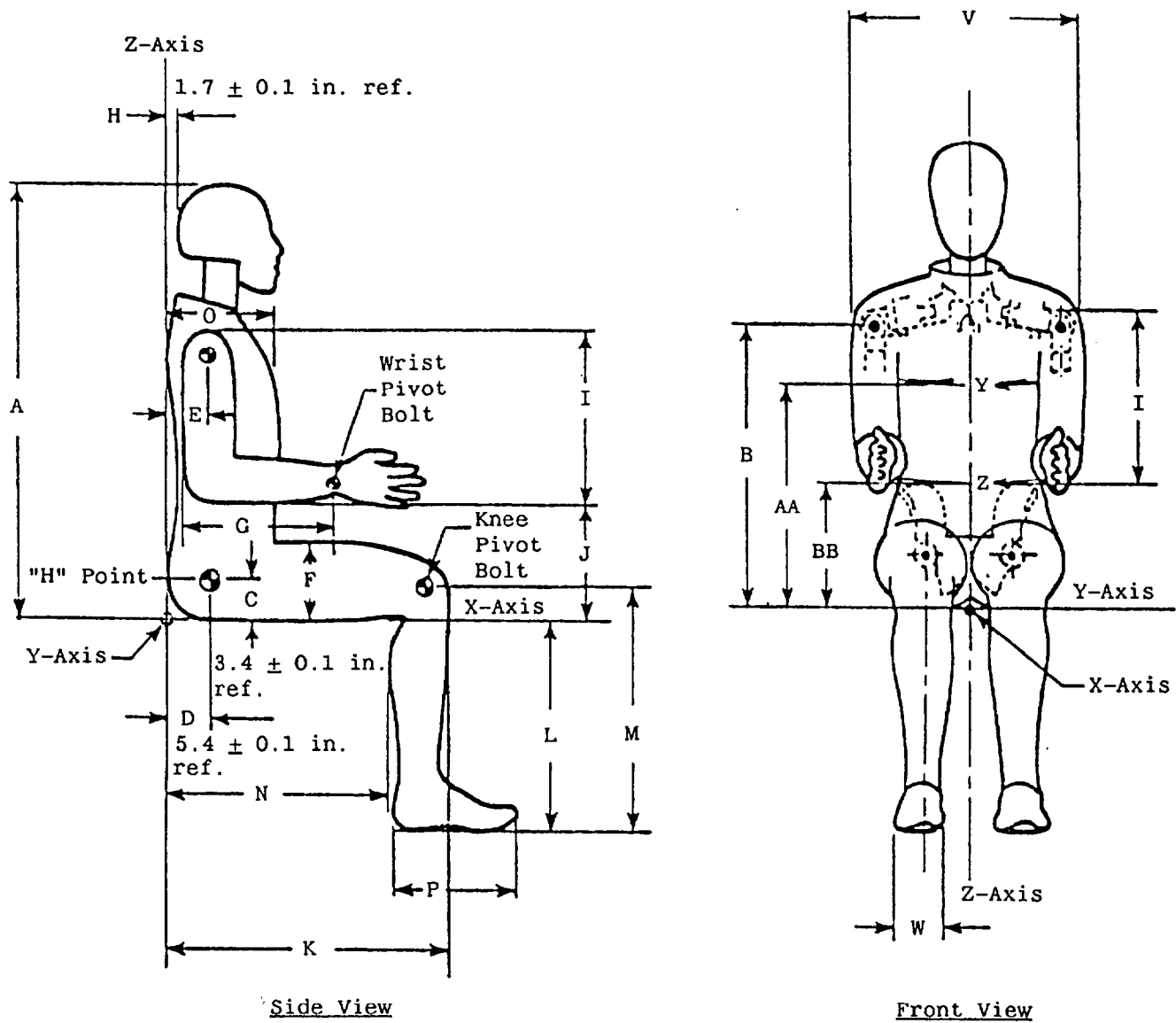
Dummy serial numbers and certification dates are:

| <u>Serial No.</u> | <u>Completion Date</u> |
|-------------------|------------------------|
| 45 | 9/25/93 |
| 150 | 11/2/93 |

Electronic Test Equipment

The complement of signal conditioning, recording and display equipment, in conjunction with dummy certification testing, can be found in New Car Assessment and Standards Inducant Testing Final Report No. 6525-V-1.

DUMMY CONFIGURATION DIMENSIONS



Note: Figure is referenced to the erect seated position. The curved lumbar does not allow the Hybrid III to be positioned in a perfect erect attitude.

HYBRID III EXTERNAL DIMENSIONS

S/N 45 HUMANOID

DUMMY SERIAL NO. 45

DATE: 9/25/93

| | | |
|---------------------------------------|-------------|-------------|
| TEMPERATURE | | 20.5 DEG. C |
| RELATIVE HUMIDITY | | 51 % |
| LOCATION FOR CHEST CIRCUMFERENCE (AA) | 429-434 mm | 432 mm |
| LOCATION FOR WAIST CIRCUMFERENCE (BB) | 226-231 mm | 228 mm |
| CHEST CIRCUMFERENCE (Y) | 970-1001 mm | 1000 mm |
| WAIST CIRCUMFERENCE (Z) | 815-866 mm | 866 mm |
| CHEST DEPTH (O) | 213-229 mm | 213 mm |
| H-POINT HEIGHT (C) | 84-89 mm | 89 mm |
| H-POINT FROM SEAT BACK (D) | 135-140 mm | 137 mm |
| SKULL CAP TO BACKLINE (H) | 41-46 mm | 43 mm |
| TOTAL SITTING HEIGHT (A) | 879-889 mm | 879 mm |
| THIGH CLEARANCE (F) | 140-155 mm | 147 mm |
| BUTTOCK KNEE LENGTH (K) | 580-605 mm | 602 mm |
| BUTTOCK POPLITAL LENGTH (N) | 452-477 mm | 475 mm |
| POPLITEAL LENGTH (L) | 430-455 mm | 447 mm |
| KNEE PIVOT HEIGHT (M) | 485-501 mm | 487 mm |
| FOOT LENGTH (P) | 252-267 mm | 259 mm |
| FOOT BREADTH (W) | 91-107 mm | 101 mm |
| SHOULDER PIVOT FROM BACKLINE (E) | 84-94 mm | 94 mm |
| SHOULDER BREADTH (V) | 422-437 mm | 426 mm |
| SHOULDER PIVOT HEIGHT (B) | 505-521 mm | 510 mm |
| ELBOW REST HEIGHT (J) | 190-211 mm | 195 mm |
| SHOULDER-ELBOW LENGTH (I) | 330-345 mm | 337 mm |
| BACK OF ELBOW TO WRIST PIVOT (G) | 290-305 mm | 292 mm |

DUMMY MEETS SPECIFICATIONS

TECHNICIAN: IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
HEAD DROP TEST
HYBRID III

DATE : 9/9/93

CALSPAN SEQUENTIAL NUMBER 1

HY3 SN: 45 HEAD DROP CAL

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|---------------------------------|----------------|--------------|
| TEMPERATURE | 20 - 25 DEG. C | 20.5 DEG. C |
| RELATIVE HUMIDITY | 10% - 70% | 51 % |
| PEAK RESULTANT ACCELERATION | 225 - 275 G'S | 231.3 G'S |
| PEAK LATERAL ACCELERATION | 15 G'S MAX | 10.6 G'S |
| IS ACCELERATION CURVE UNIMODAL? | YES | YES |

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

NECK FLEXION TEST

HYBRID III

DATE : 9/24/93

6 AXIS NECK TRANSDUCER

CALSPAN SEQUENTIAL NUMBER 1

HY3 SN: 45 CAL NECK FLEXION

| TEST PARAMETER | | SPECIFICATION | TEST RESULTS |
|--|-------|-------------------|--------------|
| TEMPERATURE | | 20.5-22.2 DEG. C | 21 DEG. C |
| RELATIVE HUMIDITY | | 10% - 70% | 45 % |
| IMPACT VELOCITY | | 24.8 - 25.7 KPH | 24.9 KPH |
| PENDULUM
DECELERATION | 10 MS | 22.50 - 27.50 G'S | 26.03 G'S |
| | 20 MS | 17.60 - 22.60 G'S | 22.51 G'S |
| | 30 MS | 12.50 - 18.50 G'S | 17.08 G'S |
| MAX PENDULUM G'S ABOVE 30 MS | | 29 G'S MAX | 17.08 G'S |
| DECELERATION -TIME CURVE
DECAY TIME TO 5 G'S | | 34 - 42 MS | 37.13 MS |
| D PLANE
ROTATION | MAX | 64 - 78 DEG. | 72.93 DEG. |
| | TIME | 57 - 64 MS | 57.88 MS |
| MOMENT ABOUT
OCCIPITAL
CONDYLE | MAX | 88 - 108 N-M | 102.74 N-M |
| | TIME | 47 - 58 MS | 50.5 MS |
| ROTATION ANGLE-TIME CURVE
DECAY TIME TO ZERO | | 113 - 128 MS | 119.75 MS |
| POSITIVE MOMENT-TIME CURVE
DECAY TIME TO ZERO | | 97 - 107 MS | 99.38 MS |

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
NECK EXTENSION TEST
HYBRID III

DATE : 9/24/93

6 AXIS NECK TRANSDUCER

CALSPAN SEQUENTIAL NUMBER 1

HY3 SN: 45 CAL NECK EXTENSION

| TEST PARAMETER | | SPECIFICATION | TEST RESULTS |
|--|-------|--------------------|--------------|
| TEMPERATURE | | 20.5 - 22.2 DEG. C | 20.5 DEG. C |
| RELATIVE HUMIDITY | | 10% - 70% | 50 % |
| IMPACT VELOCITY | | 21.4 - 22.3 KPH | 22.0 KPH |
| PENDULUM
DECELERATION | 10 MS | 17.20 - 21.20 G'S | 17.71 G'S |
| | 20 MS | 14.00 - 19.00 G'S | 16.78 G'S |
| | 30 MS | 11.00 - 16.00 G'S | 15.0 G'S |
| MAX PENDULUM G'S ABOVE 30 MS | | 22 G'S MAX | 18.15 G'S |
| DECELERATION -TIME CURVE
DECAY TIME TO 5 G'S | | 38 - 46 MS | 45.38 MS |
| D PLANE
ROTATION | MAX | 81 - 106 DEG. | 90.83 DEG. |
| | TIME | 72 - 82 MS | 78 MS |
| MOMENT ABOUT
OCCIPITAL
CONDYLE | MAX | -80.0/-52.9 N-M | -66.47 N-M |
| | TIME | 65 - 79 MS | 70.63 MS |
| ROTATION ANGLE-TIME CURVE
DECAY TIME TO ZERO | | 147 - 174 MS | 158.5 MS |
| POSITIVE MOMENT-TIME CURVE
DECAY TIME TO ZERO | | 120 - 148 MS | 130.75 MS |

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
THORAX IMPACT TEST
HYBRID III

DATE : 9/9/93

CALSPAN SEQUENTIAL NUMBER 1

HY3 SN 45

H.S. THORAX

CAL

| TEST PARAMETER | HIGH SPEED TEST | TEST RESULTS |
|-------------------------|---------------------|--------------|
| | SPECIFICATION | |
| TEMPERATURE | 20.5 - 22.2 DEG. C | 20.5 DEG. C |
| RELATIVE HUMIDITY | 10% - 70% | 48 % |
| PENDULUM VELOCITY | 23.7 - 24.6 KPH | 23.7 KPH |
| MAXIMUM DEFLECTION | 64 - 73 mm | 64.3 mm |
| MAXIMUM RESISTIVE FORCE | 4804 - 5538 NEWTONS | 5431 NEWTONS |
| INTERNAL HYSTERESIS | 69% - 85% | 72.2 % |

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
KNEE IMPACT TEST
HYBRID III

DATE : 9/9/93

KNEE: LEFT

CALSPAN SEQUENTIAL NUMBER 1

HY3 SN: 45 KNEE 4.9 KGS CAL

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|------------------------|----------------|--------------|
| TEMPERATURE | 20 - 25 DEG. C | 20.5 DEG. C |
| RELATIVE HUMIDITY | 10% - 70% | 50 % |
| PROBE VELOCITY | 7.5 - 7.7 KPH | 7.68 KPH |
| PEAK KNEE IMPACT FORCE | 4430 - 6965 N | 4786 N |
| PROBE WEIGHT | 4.9 KGS | |

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
KNEE IMPACT TEST
HYBRID III

DATE : 9/9/93

KNEE: RIGHT

CALSPAN SEQUENTIAL NUMBER 1

HY3 SN: 45 KNEE 4.9 KGS CAL

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|------------------------|----------------|--------------|
| TEMPERATURE | 20 - 25 DEG. C | 20.5 DEG. C |
| RELATIVE HUMIDITY | 10% - 70% | 50 % |
| PROBE VELOCITY | 7.5 - 7.7 KPH | 7.68 KPH |
| PEAK KNEE IMPACT FORCE | 4430 - 6965 N | 4781 N |
| PROBE WEIGHT | 4.9 KGS | |

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

INSTRUMENT CALIBRATION INFORMATION

NHTSA DUMMY I.D. NUMBER: 45

A. DUMMY INSTRUMENTS

1. HEAD ACCELEROMETER

HX LONGITUDINAL

HY LATERAL

HZ VERTICAL

2. CHEST ACCELEROMETER

CX LONGITUDINAL

CY LATERAL

CZ VERTICAL

3. FEMUR LOAD CELLS

LEFT SIDE

RIGHT SIDE

| MFG | SERIAL
NUMBER | DATE LAST
CALIBRATED | DATE OF NEXT
CALIBRATION |
|---------|------------------|-------------------------|-----------------------------|
| ENDEVCO | ADMB8 | 9/93 | 3/94 |
| ENDEVCO | ADL44 | 9/93 | 3/94 |
| ENDEVCO | AC2J3 | 9/93 | 3/94 |
| | | | |
| ENDEVCO | ADMB6 | 9/93 | 3/94 |
| ENDEVCO | AC209 | 9/93 | 3/94 |
| ENDEVCO | ADL98 | 9/93 | 3/94 |
| | | | |
| GSE | 951 | 11/93 | 5/94 |
| GSE | 952 | 11/93 | 5/94 |

B. CALIBRATION LABORATORY
INSTRUMENTS

1. PENDULUM ACC.

2. TEST PROBE
ACCELEROMETER

| MFG | SERIAL
NUMBER | DATE LAST
CALIBRATED | DATE OF NEXT
CALIBRATION |
|-----|------------------|-------------------------|-----------------------------|
| CEC | A160 | 6/93 | 12/93 |
| CEC | A161 | 6/93 | 12/93 |

HYBRID III EXTERNAL DIMENSIONS

S/N 150 HUMANOID

DUMMY SERIAL NO. 150

DATE: 11/2/93

| | | |
|---------------------------------------|-------------|-------------|
| TEMPERATURE | | 20.5 DEG. C |
| RELATIVE HUMIDITY | | 36 % |
| LOCATION FOR CHEST CIRCUMFERENCE (AA) | 429-434 mm | 431 mm |
| LOCATION FOR WAIST CIRCUMFERENCE (BB) | 226-231 mm | 228 mm |
| CHEST CIRCUMFERENCE (Y) | 970-1001 mm | 998 mm |
| WAIST CIRCUMFERENCE (Z) | 815-866 mm | 863 mm |
| CHEST DEPTH (O) | 213-229 mm | 213 mm |
| H-POINT HEIGHT (C) | 84-89 mm | 88 mm |
| H-POINT FROM SEAT BACK (D) | 135-140 mm | 137 mm |
| SKULL CAP TO BACKLINE (H) | 41-46 mm | 43 mm |
| TOTAL SITTING HEIGHT (A) | 879-889 mm | 881 mm |
| THIGH CLEARANCE (F) | 140-155 mm | 142 mm |
| BUTTOCK KNEE LENGTH (K) | 580-605 mm | 591 mm |
| BUTTOCK POPLITAL LENGTH (N) | 452-477 mm | 470 mm |
| POPLITEAL LENGTH (L) | 430-455 mm | 452 mm |
| KNEE PIVOT HEIGHT (M) | 485-501 mm | 500 mm |
| FOOT LENGTH (P) | 252-267 mm | 259 mm |
| FOOT BREADTH (W) | 91-107 mm | 96 mm |
| SHOULDER PIVOT FROM BACKLINE (E) | 84-94 mm | 94 mm |
| SHOULDER BREADTH (V) | 422-437 mm | 429 mm |
| SHOULDER PIVOT HEIGHT (B) | 505-521 mm | 513 mm |
| ELBOW REST HEIGHT (J) | 190-211 mm | 208 mm |
| SHOULDER-ELBOW LENGTH (I) | 330-345 mm | 337 mm |
| BACK OF ELBOW TO WRIST PIVOT (G) | 290-305 mm | 292 mm |

DUMMY MEETS SPECIFICATIONS

TECHNICIAN: IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
HEAD DROP TEST
HYBRID III

DATE : 9/23/93

CALSPAN SEQUENTIAL NUMBER 2

HY3 SN: 150 HEAD DROP CAL

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|------------------------------------|----------------|--------------|
| TEMPERATURE | 20 - 25 DEG. C | 20.5 DEG. C |
| RELATIVE HUMIDITY | 10% - 70% | 53 % |
| PEAK RESULTANT ACCELERATION | 225 - 275 G'S | 254.9 G'S |
| PEAK LATERAL ACCELERATION | 15 G'S MAX | 9.8 G'S |
| IS ACCELERATION CURVE
UNIMODAL? | YES | YES |

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

NECK FLEXION TEST

HYBRID III

DATE : 11/2/93

6 AXIS NECK TRANSDUCER

CALSPAN SEQUENTIAL NUMBER 2

HY3 SN:150 CAL NECK FLEXION

| TEST PARAMETER | | SPECIFICATION | TEST RESULTS |
|--|-------|-------------------|--------------|
| TEMPERATURE | | 20.5-22.2 DEG. C | 20.5 DEG. C |
| RELATIVE HUMIDITY | | 10% - 70% | 35 % |
| IMPACT VELOCITY | | 24.8 - 25.7 KPH | 25 KPH |
| PENDULUM
DECELERATION | 10 MS | 22.50 - 27.50 G'S | 25.77 G'S |
| | 20 MS | 17.60 - 22.60 G'S | 20.83 G'S |
| | 30 MS | 12.50 - 18.50 G'S | 16.96 G'S |
| MAX PENDULUM G'S ABOVE 30 MS | | 29 G'S MAX | 16.96 G'S |
| DECELERATION -TIME CURVE
DECAY TIME TO 5 G'S | | 34 - 42 MS | 40.25 MS |
| D PLANE
ROTATION | MAX | 64 - 78 DEG. | 70.12 DEG. |
| | TIME | 57 - 64 MS | 60.5 MS |
| MOMENT ABOUT
OCCIPITAL
CONDYLE | MAX | 88 - 108 N-M | 103.2 N-M |
| | TIME | 47 - 58 MS | 53.25 MS |
| ROTATION ANGLE-TIME CURVE
DECAY TIME TO ZERO | | 113 - 128 MS | 120.38 MS |
| POSITIVE MOMENT-TIME CURVE
DECAY TIME TO ZERO | | 97 - 107 MS | 97.88 MS |

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
NECK EXTENSION TEST
HYBRID III

DATE : 11/2/93

6 AXIS NECK TRANSDUCER

CALSPAN SEQUENTIAL NUMBER 2

HY3 SN:150 CAL NECK EXTENSION

| TEST PARAMETER | | SPECIFICATION | TEST RESULTS |
|--|-------|--------------------|--------------|
| TEMPERATURE | | 20.5 - 22.2 DEG. C | 20.5 DEG. C |
| RELATIVE HUMIDITY | | 10% - 70% | 34 % |
| IMPACT VELOCITY | | 21.4 - 22.3 KPH | 22.16 KPH |
| PENDULUM
DECELERATION | 10 MS | 17.20 - 21.20 G'S | 18.13 G'S |
| | 20 MS | 14.00 - 19.00 G'S | 16.66 G'S |
| | 30 MS | 11.00 - 16.00 G'S | 13.99 G'S |
| MAX PENDULUM G'S ABOVE 30 MS | | 22 G'S MAX | 15.53 G'S |
| DECELERATION -TIME CURVE
DECAY TIME TO 5 G'S | | 38 - 46 MS | 46 MS |
| D PLANE
ROTATION | MAX | 81 - 106 DEG. | 92.25 DEG. |
| | TIME | 72 - 82 MS | 74.88 MS |
| MOMENT ABOUT
OCCIPITAL
CONDYLE | MAX | -80.0/-52.9 N-M | -79.78 N-M |
| | TIME | 65 - 79 MS | 69.38 MS |
| ROTATION ANGLE-TIME CURVE
DECAY TIME TO ZERO | | 147 - 174 MS | 152.5 MS |
| POSITIVE MOMENT-TIME CURVE
DECAY TIME TO ZERO | | 120 - 148 MS | 128 MS |

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
THORAX IMPACT TEST
HYBRID III

DATE : 9/22/93

CALSPAN SEQUENTIAL NUMBER 2

HY3 SN 150

H.S. THORAX

CAL

| TEST PARAMETER | HIGH SPEED TEST | TEST RESULTS |
|-------------------------|---------------------|--------------|
| | SPECIFICATION | |
| TEMPERATURE | 20.5 - 22.2 DEG. C | 21 DEG. C |
| RELATIVE HUMIDITY | 10% - 70% | 50 % |
| PENDULUM VELOCITY | 23.7 - 24.6 KPH | 23.7 KPH |
| MAXIMUM DEFLECTION | 64 - 73 mm | 65.5 mm |
| MAXIMUM RESISTIVE FORCE | 4804 - 5538 NEWTONS | 5471 NEWTONS |
| INTERNAL HYSTERESIS | 69% - 85% | 75.1 % |

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
KNEE IMPACT TEST
HYBRID III

DATE : 10/21/93

KNEE: LEFT

CALSPAN SEQUENTIAL NUMBER 2

HY3 SN: 150 KNEE 4.9 KGS CAL

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|------------------------|----------------|--------------|
| TEMPERATURE | 20 - 25 DEG. C | 21 DEG. C |
| RELATIVE HUMIDITY | 10% - 70% | 41 % |
| PROBE VELOCITY | 7.5 - 7.7 KPH | 7.68 KPH |
| PEAK KNEE IMPACT FORCE | 4430 - 6965 N | 4892 N |
| PROBE WEIGHT | 4.9 KGS | |

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

KNEE IMPACT TEST

HYBRID III

DATE : 10/21/93

KNEE: RIGHT

CALSPAN SEQUENTIAL NUMBER 2

HY3 SN: 150 KNEE 4.9 KGS CAL

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|------------------------|----------------|--------------|
| TEMPERATURE | 20 - 25 DEG. C | 21 DEG. C |
| RELATIVE HUMIDITY | 10% - 70% | 41 % |
| PROBE VELOCITY | 7.5 - 7.7 KPH | 7.68 KPH |
| PEAK KNEE IMPACT FORCE | 4430 - 6965 N | 5048 N |
| PROBE WEIGHT | 4.9 KGS | |

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

INSTRUMENT CALIBRATION INFORMATION

NHTSA DUMMY I.D. NUMBER: 150

A. DUMMY INSTRUMENTS

1. HEAD ACCELEROMETER

HX LONGITUDINAL

HY LATERAL

HZ VERTICAL

2. CHEST ACCELEROMETER

CX LONGITUDINAL

CY LATERAL

CZ VERTICAL

3. FEMUR LOAD CELLS

LEFT SIDE

RIGHT SIDE

| MFG | SERIAL
NUMBER | DATE LAST
CALIBRATED | DATE OF NEXT
CALIBRATION |
|---------|------------------|-------------------------|-----------------------------|
| ENDEVCO | A39J | 9/93 | 3/94 |
| ENDEVCO | A33F | 9/93 | 3/94 |
| ENDEVCO | A27F | 9/93 | 3/94 |
| ENDEVCO | A12C | 9/93 | 3/94 |
| ENDEVCO | A60C | 9/93 | 3/94 |
| ENDEVCO | A84G | 9/93 | 3/94 |
| GSE | 954 | 11/93 | 5/94 |
| GSE | 955 | 11/93 | 5/94 |

**B. CALIBRATION LABORATORY
INSTRUMENTS**

1. PENDULUM ACC.

**2. TEST PROBE
ACCELEROMETER**

| MFG | SERIAL
NUMBER | DATE LAST
CALIBRATED | DATE OF NEXT
CALIBRATION |
|-----|------------------|-------------------------|-----------------------------|
| CEC | A160 | 6/93 | 12/93 |
| CEC | A161 | 6/93 | 12/93 |

Appendix D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

| DRIVER DUMMY | Serial # | Manufacturer | Calibration | |
|--------------------------|----------|----------------|-------------|------|
| | | | Last | Next |
| Head | | | | |
| X | ADMB8 | ENDEVCO | 9-93 | 3-94 |
| Y | ADL44 | ENDEVCO | 9-93 | 3-94 |
| Z | AC2J3 | ENDEVCO | 9-93 | 3-94 |
| Chest | | | | |
| X | ADBM6 | ENDEVCO | 9-93 | 3-94 |
| Y | AC209 | ENDEVCO | 9-93 | 3-94 |
| Z | ADL98 | ENDEVCO | 9-93 | 3-94 |
| Right Femur Load Cell | 952 | GSE | 11-93 | 5-94 |
| Left Femur Load Cell | 77 | GSE | 11-93 | 5-94 |
| Neck Load Cell | | | | |
| X | 269 | DENTON | 10-93 | 4-94 |
| Y | 269 | DENTON | 10-93 | 4-94 |
| Z | 269 | DENTON | 10-93 | 4-94 |
| Neck Moment | | | | |
| X | 269 | DENTON | 10-93 | 4-94 |
| Y | 269 | DENTON | 10-93 | 4-94 |
| Z | 269 | DENTON | 10-93 | 4-94 |
| Chest Deflection Gauge | | | | |
| Hybrid III Use Only | 45 | HUMANOID | 8-93 | 2-94 |
| Lap Belt Load Cells | 706 | LEBOW | 11-93 | 5-94 |
| Shoulder Belt Load Cells | 707 | LEBOW | 11-93 | 5-94 |
| Spool-Out Potentiometer | N/A | SERVONIC INST. | - | - |
| Belt Stretch Transducer | N/A | CALSPAN | - | - |

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

| PASSENGER DUMMY | Serial # | Manufacturer | Calibration | |
|--------------------------|----------|----------------|-------------|------|
| | | | Last | Next |
| Head | | | | |
| X | A39J | ENDEVCO | 9-93 | 3-94 |
| Y | AC2R5 | ENDEVCO | 9-93 | 3-94 |
| Z | A27F | ENDEVCO | 9-93 | 3-94 |
| Chest | | | | |
| X | A12C | ENDEVCO | 9-93 | 3-94 |
| Y | A60C | ENDEVCO | 9-93 | 3-94 |
| Z | A84G | ENDEVCO | 9-93 | 3-94 |
| Right Femur Load Cell | 955 | GSE | 11-93 | 5-93 |
| Left Femur Load Cell | 954 | GSE | 11-93 | 5-93 |
| Neck Load Cell | | | | |
| X | 076 | DENTON | 10-93 | 4-93 |
| Y | 076 | DENTON | 10-93 | 4-93 |
| Z | 076 | DENTON | 10-93 | 4-93 |
| Neck Moment | | | | |
| X | 076 | DENTON | 10-93 | 4-93 |
| Y | 076 | DENTON | 10-93 | 4-93 |
| Z | 076 | DENTON | 10-93 | 4-93 |
| Chest Deflection Gauge | 150 | HUMANOID | 8-93 | 2-94 |
| Hybrid III Use Only | | | | |
| Lap Belt Load Cells | 710 | LEBOW | 11-93 | 5-93 |
| Shoulder Belt Load Cells | 711 | LEBOW | 11-93 | 5-93 |
| Spool-Out Potentiometer | N/A | SERVONIC INST. | - | - |
| Belt Stretch Transducer | N/A | CALSPAN | - | - |

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

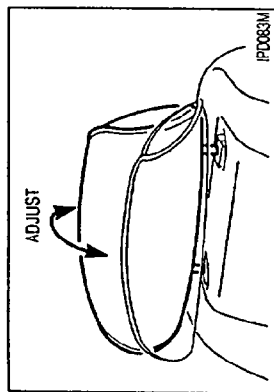
(6 Month Calibration Minimum)

| | Serial # | Manufacturer | Calibration | |
|-----------------------------|----------|--------------|-------------|------|
| | | | Last | Next |
| Left Seat Rear Crossmember | A151 | CEC | 10-93 | 4-94 |
| Right Rear Seat Crossmember | A175 | CEC | 9-93 | 3-94 |
| Top of Engine | D05 | CEC | 11-93 | 5-94 |
| Bottom of Engine | A152 | CEC | 10-93 | 4-94 |
| Left Disc Brake Caliper | A29 | CEC | 10-93 | 4-94 |
| Right Disc Brake Caliper | A183 | CEC | 10-93 | 4-94 |
| Instrument Panel | D19 | CEC | 11-93 | 5-94 |
| Left Rear Crossmember (R) | A147 | CEC | 10-93 | 4-94 |
| Right Rear Crossmember (R) | A142 | CEC | 9-93 | 3-94 |

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

PRE-DRIVING CHECKS AND ADJUSTMENTS

protection against whiplash injury. Do not remove them.



To adjust the head restraint, push it forward or rearward as shown.

SEAT BELTS

PRECAUTIONS ON SEAT BELT USAGE

Your chances of being injured in an accident and/or the severity of injury may be greatly reduced if you are wearing your seat belt and it is properly adjusted. INFINITI strongly encourages you and all of your passengers to buckle up every time you drive.

Some states, provinces or territories require that seat belts be worn at all times when a vehicle is being driven.

WARNING:

- *The belt should be adjusted to a snug fit. Failure to do so will reduce the effectiveness of the entire restraint system.*
- *Never wear the belt inside out or twisted.*
- *Do not allow more than one person to use the same belt.*
- *All seat belt assemblies including retractors and attaching hardware should be inspected after any collision by your INFINITI dealer. INFINITI recommends that all seat belt assemblies in use during a collision be replaced unless the collision was minor and the belts show no damage and continue to operate properly. Seat belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.*
- *Once the pre-tensioner has activated, it cannot be reused and must be replaced together with the retractor by your INFINITI dealer.*

2-21

PRE-DRIVING CHECKS AND ADJUSTMENTS

Be sure to observe the following cautions when using seat belts. Failure to do so could increase the chance and/or severity of injury in an accident.

- *Always route the shoulder belt over your shoulder and across your chest. Never position the belt under your arm. Serious injury can occur if seat belt is not worn properly.*
- *Position the lap belt as low as possible AROUND THE HIPS, NOT THE WAIST.*

Infant or small child

INFINITI recommends that infants or small children be seated in a child restraint system. You should choose a child restraint system which fits your vehicle and always follow the manufacturer's instructions for installation and use.

Children

Children who are too large for child restraint systems should be seated and restrained by the seat belts which are provided.

INFINITI recommends that children sit in the rear seat if available. According to accident statistics, children are safer when properly restrained in the rear seat than in the front seat.

If the child's seating position has a shoulder belt that fits close to the face or neck, the use of a booster seat (commercially available) may help overcome this. The booster seat should raise the child so that the shoulder belt is properly positioned across the top, middle portion of the shoulder and the lap belt is low on the hips. The booster seat should fit the vehicle seat and have a label certifying that it complies with Federal Motor Vehicle Safety Standards or Canadian Motor Vehicle Safety Standards. Once the child has grown so the shoulder belt is no longer on or near the face and neck, use

the shoulder belt without the booster seat.

Never let a child stand or kneel on any seat and do not allow a child in the cargo areas while the vehicle is moving.

Pregnant women

INFINITI recommends that pregnant women use seat belts. Contact your doctor for specific recommendations. The lap belt should be worn snug and positioned as low as possible around the hips, not the waist.

Injured persons

INFINITI recommends that injured persons use seat belts, depending on the injury. Check with your doctor for specific recommendations.

PRE-DRIVING CHECKS AND ADJUSTMENTS

3-POINT TYPE WITH RETRACTOR

Every person who drives or rides in this vehicle should wear a seat belt at all times.

Fastening the belts



1. Adjust the seat.

The seatback should not be reclined any more than needed for comfort. Seat belts are most effective when the passenger sits well back and straight up in the seat. If the seat is reclined, the risk of sliding under the lap belt and being injured is increased.

2. Slowly pull the seat belt out of the retractor and insert the tongue into the buckle until it snaps.



The retractor is designed to lock during a sudden stop or on impact. A slow pulling

motion will permit the belt to move, and allow you some freedom of movement in the seat.



3. Position the lap belt portion **low on the hips** as shown.
4. Pull the shoulder belt portion toward the retractor to take up extra slack.

The front seat passenger side lap belt and rear 3-point seat belts have a cinching mechanism for child seat installation. It is referred to as the automatic locking mode.

PRE-DRIVING CHECKS AND ADJUSTMENTS

When the cinching mechanism is activated the seat belt cannot be withdrawn again until the seat belt tongue is detached from the buckle and fully retracted. Refer to "Child Restraint Systems for Infants and Small Children" later in this section for more information.

WARNING:

- ***The automatic locking mode should be used only for child seat installation. During normal seat belt use by a passenger, the locking mode should not be activated. If it is activated it will cause uncomfortable seat belt tension.***

Unfastening the belts

To unfasten the belt, press the button on the buckle. The seat belt will automatically retract.

Checking seat belt operation (3-point type with retractor)

Your seat belt retractors are designed to lock belt movement by two separate methods:

- 1) When the belt is pulled quickly from the retractor.
- 2) When the vehicle slows down rapidly.

To increase your confidence in the belts, check the operation as follows:

- Grasp the shoulder belt and pull quickly forward. The retractor should lock and restrict further belt movement.

If the retractor does not lock during this check or if you have any question about belt operation, see your INFINITI dealer.

Shoulder belt height adjustment

The shoulder belt anchor height should be adjusted to the position best for you.



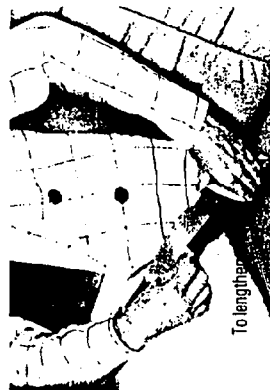
To adjust, push the release button, then move it to the desired position, so that the belt passes over the shoulder.

PRE-DRIVING CHECKS AND ADJUSTMENTS

2-POINT TYPE WITHOUT RE-TRACTOR (Rear center lap belt) Fastening the belts

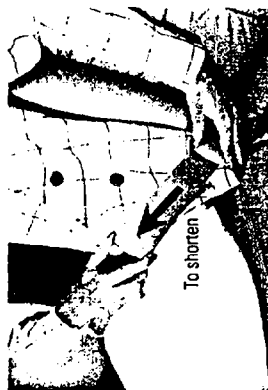


- 1 Insert the tongue into the buckle until it snaps.



To lengthen

2. To lengthen, hold the tongue at a right angle to the belt and pull on the belt.



To shorten

To shorten, pull the free end of the belt away from the tongue, then pull the belt clip to take up the slack.



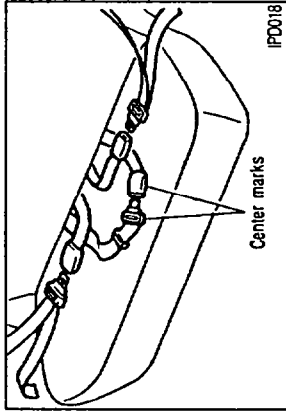
3. Position the lap belt **low on the hips** as illustrated.

Unfastening the belts

To unfasten the belt, press the button on the buckle.

2-25

PRE-DRIVING CHECKS AND ADJUSTMENTS



Selecting correct set of belts

The center seat belt buckle and tongue are identified by the "CENTER" label. The center seat belt tongue can be fastened **only** into the center seat belt buckle.

SEAT BELT EXTENDERS

If, because of body size or driving position, it is not possible to properly fit the lap-shoulder belt and fasten it, an extender is available which is compatible with the installed seat belts. The extender adds approximately 8 inches (200 mm) of length and may be used for either the driver or front passenger seating position. See your INFINITI dealer for assistance if the extender is required.

WARNING:

- **Only INFINITI belt extenders, made by the same company which made the original equipment belts, should be used with the INFINITI belts.**
- **Persons who can use the standard seat belt should not use an extender. Such unnecessary use could result in serious personal injury in the event**

of an accident.

SEAT BELT MAINTENANCE

- **To clean the belt webbing,** apply a mild soap solution or any non-caustic solution recommended for gently cleaning cloth upholstery or carpets. Then brush it, wipe with a cloth and allow it to dry in the shade. Do not allow the belts to retract until they are completely dry.
- **Periodically check to see that the belt and the metal components** such as buckles, tongues, retractors, flexible wires and anchors work properly. If loose parts, deterioration, cuts or other damage on the webbing are found, the entire belt assembly should be replaced.

2-26