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REPORT No. 301-MSE-93-109-TR93003-09 FUJI HEAVY INDUSTRIES, LTD. R93003-09

**SAFETY COMPLIANCE TEST FOR
FMVSS 301-75R
FUEL SYSTEM INTEGRITY**

1993 SUBARU LOYALE 4 DOOR SEDAN

NHTSA No. CP5502

MOBILITY SYSTEMS AND EQUIPMENT COMPANY
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JULY 22, 1993

FINAL REPORT

Prepared Under Contract No. DTNH22-93-C-01007

For:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
Office of Vehicle Safety Compliance
400 Seventh Street, S.W.
Washington, DC 20590

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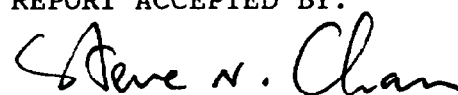
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MOBILITY SYSTEMS AND EQUIPMENT COMPANY

Approved by: 
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Contracting Officer's Technical Representative,
Office of Vehicle Safety Compliance

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SECTION 1

INTRODUCTION

This report presents information on tests conducted on a 1993 Subaru Loyale 4 Door Sedan, NHTSA No. CP5502, to determine compliance with the requirements of FMVSS 301-75 Rear impact testing. All tests were conducted in accordance with the National Highway Traffic Safety Administration (NHTSA) Office of Vehicle Safety Compliance (OVSC) Laboratory Procedure TP-301-00 dated April 26, 1989 and the corresponding Mobility Systems and Equipment Company (MSE) Test Procedure MSE-TP-301-75/R-01 dated March 19, 1993, which is approved by NHTSA officials. The tests were conducted under contract No. DTNH22-93-C-01007.

Section 2 of this report describes the test procedure and presents the summary data. Section 3 of this report presents all the test results. Section 5 presents all the pertinent photographs. Section 6 presents all the time history data plots. Section 7 presents instrumentation and calibration data.

No test failures related to FMVSS 301-75 Rear were identified for the tested 1993 Subaru Loyale 4 Door Sedan.

SECTION 2

TEST PROCEDURE AND SUMMARY DATA

The 1993 Subaru Loyale 4 Door Sedan, NHTSA No. CP5502, was subjected to FMVSS 301-75 Rear testing on July 6, 1993. The vehicle is shown in pretest condition in Figures 5-1 to 5-4. The manufacturer's certification label is shown in Figure 5-5 and the tire placard is shown in Figure 5-6.

The vehicle was inspected, measured, weighed, marked, photographed and tested in accordance with the procedure requirements. A partially instrumented part 572E Anthropomorphic Test Device (ATD) was positioned in the vehicle, in the driver position. ATD instrumentation consists of triaxial accelerometer mountings in the head, chest and pelvis and a six-axis neck transducer. Seven additional sensors were installed in the vehicle. The driver lap and shoulder belts were instrumented with load cells. A displacement transducer was installed to measure driver lap belt pullout. Primary and redundant X-axis accelerometers were placed at the approximate vehicle c.g. An angular rate sensor and an accelerometer were placed on the top of the driver seatback. A non-instrumented part 572B ATD was positioned in the front passenger position for ballast.

High speed cameras were set up as required in the test procedure. The camera positions for the FMVSS 301-75 Rear test are as shown in Figure 2-1. Actual locations are presented in Table 2-1. All high speed cameras were set to run at a minimum of 500 frames per second. The onboard camera was set to run at a minimum of 1000 frames per second. Actual camera speeds are also presented in Table 2-1.

The test was conducted with a moving barrier impacting the rear of the stationary test vehicle. The center of the moving barrier was set to impact the longitudinal centerline of the vehicle. The test vehicle was checked for fuel system leaks for a thirty minute period after the initial impact and for successive 7 minute periods afterwards at 90, 180, 270 and 360 degree rollover attitudes.

The velocity of the impact sled was 29.51 mph. The 1993 Subaru Loyale 4 Door Sedan, NHTSA No. CP5502 had no fuel system leaks. No test failures related to FMVSS 301-75 Rear were identified on the tested 1993 Subaru Loyale 4 Door Sedan.

TABLE 2-1
SUMMARY OF RESULTS

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1993/Subaru/Loyale/4 Door Sedan

VEHICLE NHTSA No.: CP5502 TEST MODE: Rear Moving Barrier

TEST DATE: 07/06/93 TIME: 3:20 pm TEMPERATURE: 93° F

VEHICLE TEST WEIGHT: 2774 lb IMPACT VELOCITY: 29.51 mph

STATIC CRUSH: Left Side = 18.7 in

Right Side = 19.1 in

Centerline = 18.0 in

AVERAGE CRUSH: 18.6 in

VEHICLE REBOUND: N/A in (Frontal impacts only)

TYPE OF FRONT OCCUPANT RESTRAINT INSTALLED IN TEST VEHICLE:

Driver DSP: Automatic Shoulder Belt and Manual Lap Belt

Outboard Front Passenger DSP: Automatic Shoulder and Manual Lap Belts

VISIBLE ATD CONTACT POINTS:

Driver ATD: Top of head contacted the rear seat seatback

Passenger ATD: N/A

VEHICLE DOOR OPENING INFORMATION:

Door	Opened	Jammed
Right Front	Yes	No
Left Front	Yes	No
Right Rear	Yes	Yes
Left Rear	Yes	No

LOSS OF WINDSHIELD RETENTION: N/A

PENETRATION OF WINDSHIELD ZONE TEMPLATE: N/A

STODDARD SOLVENT SPILLAGE FROM VEHICLE'S FUEL SYSTEM: No spillage

TABLE 2-2
CAMERA DATA

Camera Location	Coordinates (inches)			Angle (degrees)	Lens Size (mm)	Film Speed (fps)
	X	Y	Z			
1. Onboard	109	38	36	0/25	16	1000
2. Overhead	-24	0	236	-90/6	16	610
3. Left Side	30	-660	55	-2/3	28	600
4. Right Side #1	20	475	58	-1/2	13	600
5. Right Side #2	50	1200	125	-5/2	15-70 Zoom	24
6. Underbody #1	69	-1	-65	65/43	16	N/D *
7. Underbody #2	114	-2	-65	66/30	16	600
8. Underbody #3	145	-3	-65	78/24	16	600

COORDINATE REFERENCE: X - Film plane to barrier face impact plane

Y - Film plane to monorail centerline

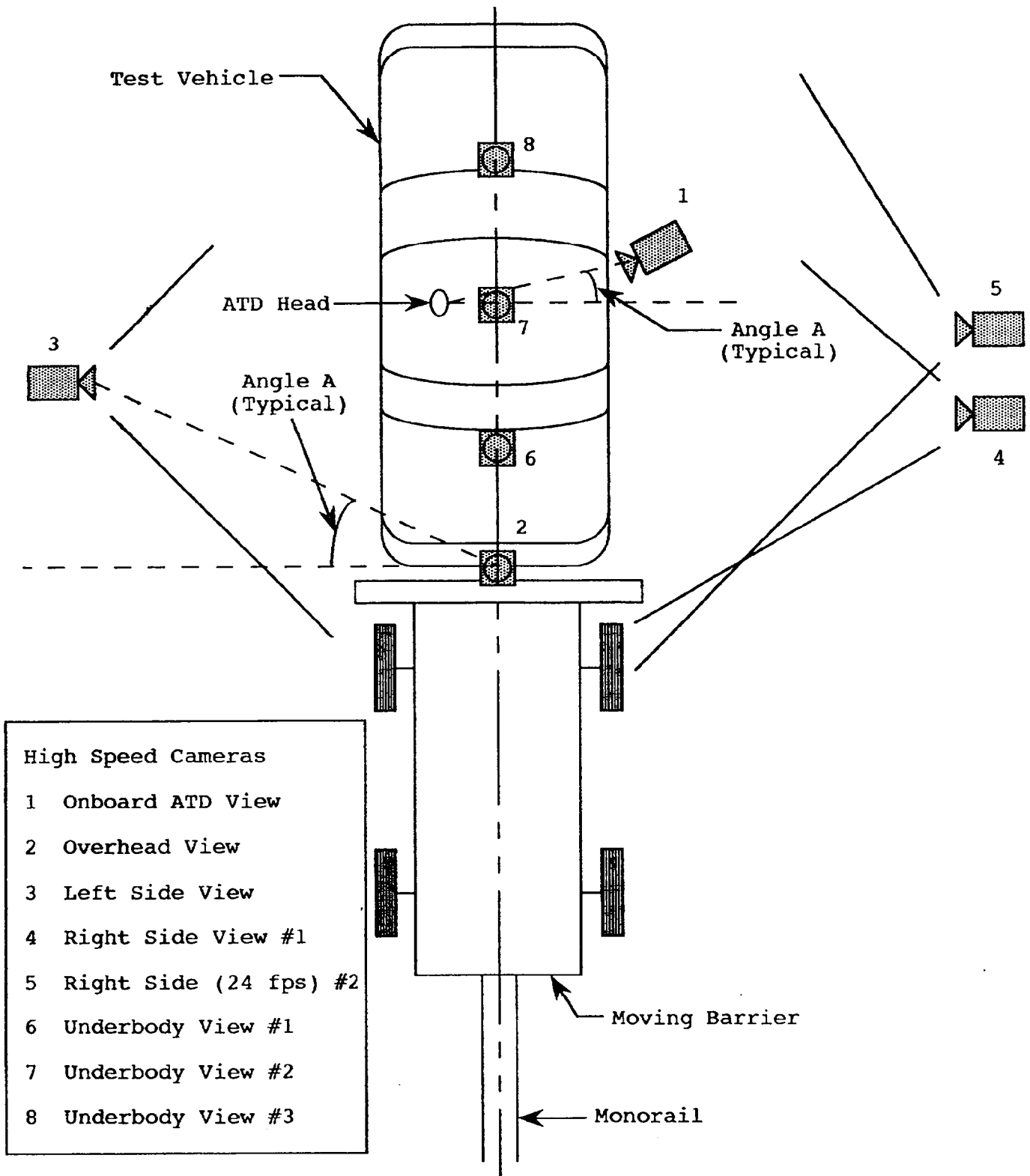
Z - Film plane to ground

Angle - Degrees from horizontal plane / Angle A as
shown in Figure 2-1

* Film was damaged beyond repair during testing.

FIGURE 2-1

CAMERA POSITIONS



SECTION 3

COMPLIANCE TEST RESULTS

The results of the FMVSS 301-75 Rear compliance tests on the tested 1993 Subaru Loyale 4 Door Sedan, NHTSA No. CP5502, are presented in this section.

The test vehicle was inspected upon receipt. Vehicle pretest information, delivered weights and attitudes, test weights and attitudes, tire information and fuel system capacity were recorded and are presented in Table 3-1.

The velocity of the rear impact sled was 29.51 mph. Test velocity information and posttest crush details are given in Table 3-2. Posttest left side, front, right side and rear views of the test vehicle are given in Figures 5-7 to 5-10.

No solvent leaked from any part of the vehicle's fuel system during impact or for 30 minutes after the impact event. The vehicle was then placed on the static rollover machine and rotated to the 90, 180, 270 and 360 degree positions successively at the required time intervals. No fuel system leaks were detected at any of the rollover positions. The details of the rollover test sequence are presented in Table 3-3. Pretest and posttest views of the vehicle underbody are shown in Figures 5-11 to 5-13.

Upon impact the driver ATD moved rearward as the seatback gave way. The top of his head hit the rear seatback. The Head Injury Criteria (HIC) for the driver ATD was 211.0. The chest resultant (3 msec clip) was 11.5 g's. All driver ATD instrumentation results are presented in Table 3-4. Pretest measurements are shown in Tables 3-5 and 3-6. Pretest and posttest views of the Driver ATD position are shown in Figures 5-14 and 5-15. Figures 5-16 and 5-17 show the vehicle and seat mounted sensor locations.

No test failures related to FMVSS 301-75 Rear were identified for the tested 1993 Subaru Loyale 4 Door Sedan.

TABLE 3-1

TEST VEHICLE DATA

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1993/Subaru/Loyale/4 Door Sedan

VEHICLE NHTSA No.: C P 5 5 0 2; VIN: J F 1 A C 4 2 2 1 P B 2 0 9 0 9 1

VEHICLE BODY COLOR: White; MONTH AND YEAR OF MANUFACTURE: 09/92

ENGINE: 4 Cylinders; 108.7 cu in; 1.8 Liters; 1781 cc
X Gas; Diesel; Turbocharged
 PLACEMENT: X Longitudinal; Transverse (Lateral)

TRANSMISSION: 5 Speed; X Manual; Automatic; Overdrive

FINAL DRIVE: X Front Wheel Drive; Rear Wheel Drive; Four Wheel Drive

DATE VEHICLE AVAILABLE FOR TESTING: 03/11/93

ODOMETER READING: 122 mi; OPTIONS: X A/C; X P/S; X P/Window;
X Tilt Whl.; Cruise Control

GVWR: 3430 lb GAWR Front: 1860 lb GAWR Rear: 1570 lb

DATA RECORD FROM VEHICLE'S TIRE PLACARD:

Location of Placard on Vehicle: Driver Side B-Pillar

Recommended Cold Tire Pressure: 28 psi Front; 28 psi Rear

Tire Pressure (at maximum capacity): 28 psi Front; 28 psi Rear

Recommended Tire Size: 175/70SR13 Recommended Load Range: N/A

Tires on Vehicle: 175/70SR13 Load Range: 3 Plies

Tire Manufacturer: Bridgestone Type of Spare Tire: T125/70D14

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

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

Type of Front Seat Back: Fixed; X Adj. Lever; Adj. Rotating Knob

Vehicle Maximum Capacity Loading: 810 lb

No. of Occupants x 150 lb: 750 lb

Cargo Capacity (Max - Occupants): 60 lb *

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Right Front:	<u>689</u> lb		
Left Front:	<u>765</u> lb	Total Front:	<u>1454</u> lb (61% of Total)
Right Rear:	<u>474</u> lb		
Left Rear:	<u>461</u> lb	Total Rear:	<u>935</u> lb (39% of Total)
		Total Weight:	<u>2389</u> lb

CALCULATION OF TEST VEHICLE TARGET WEIGHT:

Total Test Vehicle Delivered Weight With Maximum Fluids:	<u>2389</u> lb
Maximum Cargo Carrying Capacity of Test Vehicle:	<u>60</u> lb *
Weight of Two Part 572 ATD's (2 * 164 lb):	<u>328</u> lb
TEST VEHICLE TARGET WEIGHT:	<u>2777</u> lb

* 300 lb for light trucks and MPV's

TABLE 3-1 (Cont.)

TEST VEHICLE DATA

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 ATD's AND CARGO:

Right Front:	<u>805 lb</u>		
Left Front:	<u>832 lb</u>	Total Front:	<u>1637 lb</u> (59% of Total)
Right Rear:	<u>591 lb</u>		
Left Rear:	<u>546 lb</u>	Total Rear:	<u>1137 lb</u> (41% of Total)

Total Weight: 2774 lb (includes 0 lb of sandbag ballast secured in the cargo / luggage area)

VEHICLE COMPONENTS REMOVED TO MEET TARGET WEIGHT:

1. Spare Tire (Front Storage)
2. N/A

TEST VEHICLE ATTITUDE:

As Delivered - Right Front:	<u>24.9 in</u>	Ready for Test - Right Front:	<u>23.7 in</u>
Left Front:	<u>24.5 in</u>	Left Front:	<u>24.1 in</u>
Right Rear:	<u>24.4 in</u>	Right Rear:	<u>23.0 in</u>
Left Rear:	<u>24.0 in</u>	Left Rear:	<u>23.2 in</u>

TEST VEHICLE DIMENSIONS:

Total Vehicle Length: 174.7 in

Wheelbase: 97.2 in

C. G. is 39.8 in rearward of front axle centerline.

FUEL SYSTEM DATA:

Fuel System Capacity Listed in Owner's Manual: 15.9 gallons

Usable Capacity Figure Furnished by COTR: 15.9 gallons

Test Volume Range (92% to 94% of Usable Capacity)

14.6 gallons to 14.9 gallons

ACTUAL TEST VOLUME: 14.75 gallons (with entire fuel system filled)

Test Fluid Type: Stoddard Solvent

Test Fluid Specific Gravity: 0.764

Test Fluid Kinematic Viscosity: as per ASTM Standard D484-71

Test Fluid Color: Red (Red is preferred)

Type of Vehicle Fuel Pump: Electric

Electric Fuel Pump Operation with Ignition ON and Engine OFF:

Electric fuel pump does not operate with ignition on and engine off

Details of Fuel System: Fuel tank is located aft of the rear axle,
slightly offset to the right side of the longitudinal centerline.

The filler neck is aft of the right rear wheel. The filler hose
runs inboard and down to the right rear corner of the tank.

TABLE 3-2

POST IMPACT DATA

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1993/Subaru/Loyale/4 Door SedanVEHICLE NHTSA No.: CP5502 TEST MODE: Rear Moving BarrierTEST DATE: 07/06/93 TIME: 3:20 pm TEMPERATURE: 93° FREQUIRED IMPACT VELOCITY RANGE: 28.9 to 29.9 mph

ACTUAL IMPACT VELOCITY: (speed traps located within 5 feet of impact plane)

Trap No. 1 = 29.51 mph Trap No. 2 = 29.70 mphAverage Impact Speed = 29.61 mph

VEHICLE STATIC CRUSH:

Location	Pretest (in)	Posttest (in)	Crush(in)
Left Side	173.6	154.9	18.7
Right Side	173.5	154.4	19.1
Centerline	174.7	156.7	18.0
30.0" Left of C.L.	173.6	154.9	18.7
18.0" Left of C.L.	174.4	155.5	18.9
6.0" Left of C.L.	174.7	155.6	19.1
6.0" Right of C.L.	174.7	155.4	19.3
18.0" Right of C.L.	174.4	155.1	19.3
30.0" Right of C.L.	173.5	154.4	19.1

Collision Deformation Classification (CDC) Code: BMidpoint of Damage: Vehicle Longitudinal CenterlineLength of Damaged Area: 60.0 inVehicle Wheelbase: 97.2 in

TABLE No. 3-3

FMVSS No. 301-75 STATIC ROLLOVER DATA

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1993/Subaru/Loyale/4 Door SedanVEH. NHTSA NO.: CP5502 TEST DATE: 07/06/93USABLE CAPACITY OF VEHICLE'S FUEL TANK: 15.9 Gallons (furnished by Mfr.)

AMOUNT OF STODDARD SOLVENT ADDED TO THE VEHICLE'S FUEL TANK:

14.75 Gallons, which is 92.8% of the stated usable capacity

SOLVENT SPILLAGE MEASUREMENT AFTER 30 MPH MOVING BARRIER IMPACT TEST:

	Actual	Max. Allowed
From impact until vehicle motion ceases	<u>0 oz.</u>	1 oz.
For 5 min. period after vehicle motion ceases	<u>0 oz.</u>	5 oz.
For next 25 min. at barrier face	<u>0 oz.</u>	1 oz./min.

SOLVENT SPILLAGE DETAILS: None

STATIC ROLLOVER MACHINE ROTATION TIME INFORMATION: (Spec. range = 1 to 3 min)

Time reqd. for machine to rotate 90°	<u>1</u> minutes, <u>20</u> seconds
FMVSS 301-75 position hold time	<u>5</u> minutes, <u>00</u> seconds
Total	<u>6</u> minutes, <u>20</u> seconds
Next whole minute interval	<u>7</u> minutes

VEHICLE STATIC ROLLOVER DATA:

	1st 5 Min.	6th min.	7th min.	8th min.
Max allowable solvent spillage	5 oz.	1 oz.	1 oz.	1 oz.
0° to 90° (filler cap down)	0 oz.	0 oz.	0 oz.	N/A
90° to 180°	0 oz.	0 oz.	0 oz.	N/A
180° to 270°	0 oz.	0 oz.	0 oz.	N/A
270° to 360°	0 oz.	0 oz.	0 oz.	N/A

SOLVENT SPILLAGE LOCATIONS: None

TABLE No. 3-3 (Cont.)

FMVSS No. 301-75 STATIC ROLLOVER DATA

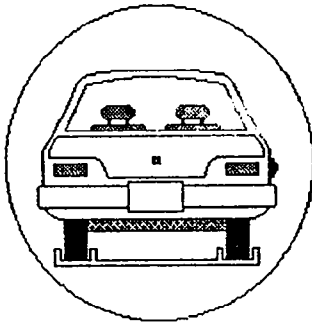
Test Phase A: 0 to 90 degrees

90° Fixture Rotation Time: 1 minute 20 seconds
(Range = 1 to 3 minutes)

Position Hold Time: 5 minutes 0 seconds

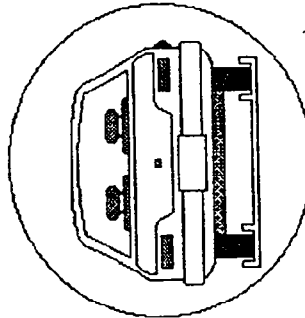
Total: 6 minutes 20 seconds

Next Whole Minute Interval: 7 minutes



0 Degrees

Filler
Cap



90 Degrees

Actual Test Vehicle Fuel Spillage:

First 5 minutes from start of rotation: 0 oz.
(5 oz. allowed)

6th minute: 0 oz.
(1 oz. allowed)

7th minute: 0 oz.
(1 oz. allowed)

Details of Fuel Spillage Locations: No spillage

TABLE No. 3-3 (Cont.)

FMVSS No. 301-75 STATIC ROLLOVER DATA

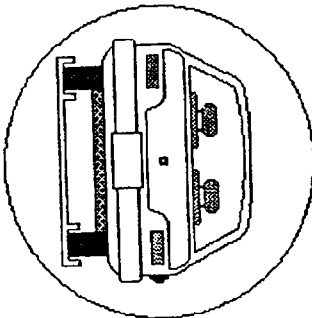
Test Phase B: 90 to 180 degrees

90° Fixture Rotation Time: 1 minute 20 seconds
(Range = 1 to 3 minutes)

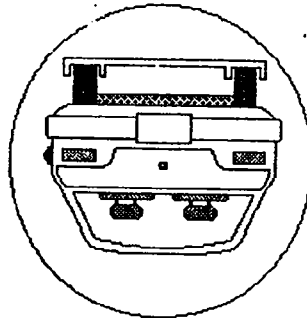
Position Hold Time: 5 minutes 0 seconds

Total: 6 minutes 20 seconds

Next Whole Minute Interval: 7 minutes



90 Degrees



180 Degrees

Actual Test Vehicle Fuel Spillage:

First 5 minutes from start of rotation: 0 oz.
(5 oz. allowed)

6th minute: 0 oz.
(1 oz. allowed)

7th minute: 0 oz.
(1 oz. allowed)

Details of Fuel Spillage Locations: No spillage

TABLE No. 3-3 (Cont.)

FMVSS No. 301-75 STATIC ROLLOVER DATA

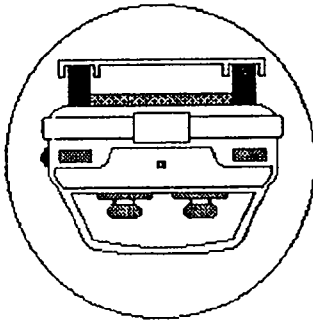
Test Phase C: 180 to 270 degrees

90° Fixture Rotation Time: 1 minute 20 seconds
(Range = 1 to 3 minutes)

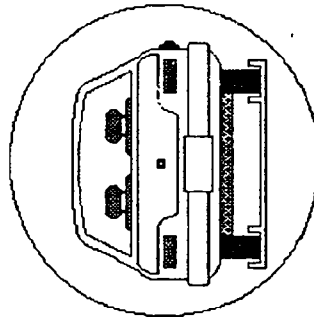
Position Hold Time: 5 minutes 0 seconds

Total: 6 minutes 20 seconds

Next Whole Minute Interval: 7 minutes



180 Degrees



270 Degrees

Actual Test Vehicle Fuel Spillage:

First 5 minutes from start of rotation: 0 oz.
(5 oz. allowed)

6th minute: 0 oz.
(1 oz. allowed)

7th minute: 0 oz.
(1 oz. allowed)

Details of Fuel Spillage Locations: No spillage

TABLE No. 3-3 (Cont.)

FMVSS No. 301-75 STATIC ROLLOVER DATA

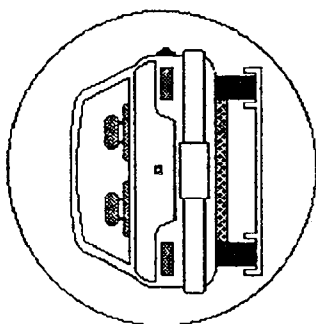
Test Phase D: 270 to 360 degrees

90° Fixture Rotation Time: 1 minute 20 seconds
(Range = 1 to 3 minutes)

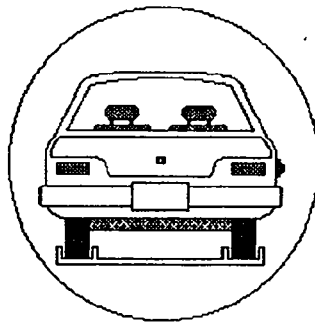
Position Hold Time: 5 minutes 0 seconds

Total: 6 minutes 20 seconds

Next Whole Minute Interval: 7 minutes



270 Degrees



360 Degrees

Actual Test Vehicle Fuel Spillage:

First 5 minutes from start of rotation: 0 oz.
(5 oz. allowed)

6th minute: 0 oz.
(1 oz. allowed)

7th minute: 0 oz.
(1 oz. allowed)

Details of Fuel Spillage Locations: No spillage

Recorded By: Brian O'Keefe

Date: 07/07/93

Approved By: *amb*

Date: 07-22-93

TABLE No. 3-4
FMVSS No. 208 OCCUPANT CRASH PROTECTION DATA SHEET

VEH. YEAR/MAKE/MODEL/BODY STYLE: 1993/Subaru/Loyale/4 Door Sedan

VEH. NHTSA NO.: CP5502

TEST DATE: 07/06/93

MAXIMUM ACCELERATION VALUES (g):

	DRIVER ATD No. 339	PASSENGER ATD No. N/A
Head X	34.6	N/A
Head Y	-3.3	N/A
Head Z	28.3	N/A
HEAD RESULTANT	39.7	N/A
Chest X	10.2	N/A
Chest Y	-1.9	N/A
Chest Z	7.2	N/A
CHEST RESULTANT (3msec clip)	11.5	N/A
TIME INTERVAL (msec)	94.0 to 97.0	N/A
Pelvis X	21.3	N/A
Pelvis Y	-5.8	N/A
Pelvis Z	7.4	N/A
PELVIS RESULTANT	22.5	N/A

6 AXIS NECK TRANSDUCER VALUES:

Neck X - Load (lbs)	-40.1	N/A
Neck Y - Load (lbs)	19.5	N/A
Neck Z - Load (lbs)	376.0	N/A
NECK LOAD RESULTANT	376.1	N/A
Neck X - Moment (in-lbs)	-149.6	N/A
Neck Y - Moment (in-lbs)	-329.3	N/A
Neck Z - Moment (in-lbs)	75.1	N/A
NECK MOMENT RESULTANT	352.5	N/A

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	211.0	N/A
t ¹ (msec)	128.7	N/A
t ² (msec)	164.7	N/A
Avg. Acceleration t ¹ to t ² (g)	32.1	N/A

MAXIMUM SEAT BELT FORCES:

Lap Belt (lbs)	31.1	N/A
Shoulder Belt (lbs)	67.9	N/A

MAXIMUM SEAT BELT WEBBING SPOOL-OUT (in):

Lap Belt	1.1	N/A
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TABLE No. 3-5
TEST ATD POSITIONING DATA

Measurement	Driver (Serial No. 339)		Passenger (Serial No. N/A)	
	Length (in)	Angle (Degrees)	Length (in)	Angle (Degrees)
WA	---	35	---	---
SWA	---	65	---	---
SCA	---	24	---	---
SA	---	25	---	N/A
HZ	6.1	90	N/A	90
HH	12.0	---	N/A	---
HW	18.4	0	N/A	0
HR	7.4	---	N/A	---
NR	14.4	-12	---	---
CD	19.4	---	N/A	---
CS	11.5	0	---	---
RA	6.2	0	---	---
KDL	5.6	47	N/A	---
KDR	6.5	---	N/A	N/A
PA	---	24	---	N/A
TA	---	-45	---	N/A
KK	10.9	---	N/A	---
ST	22.0	85	N/A	N/A
SK	21.7	6	N/A	N/A
SH	7.8	-26	N/A	N/A
SHY	7.9	0	N/A	0
HS	10.9	0	N/A	0
HD	6.3	0	N/A	0
AD	4.0	0	N/A	0

TABLE No. 3-5 (Cont.)
TEST ATD POSITIONING DATA

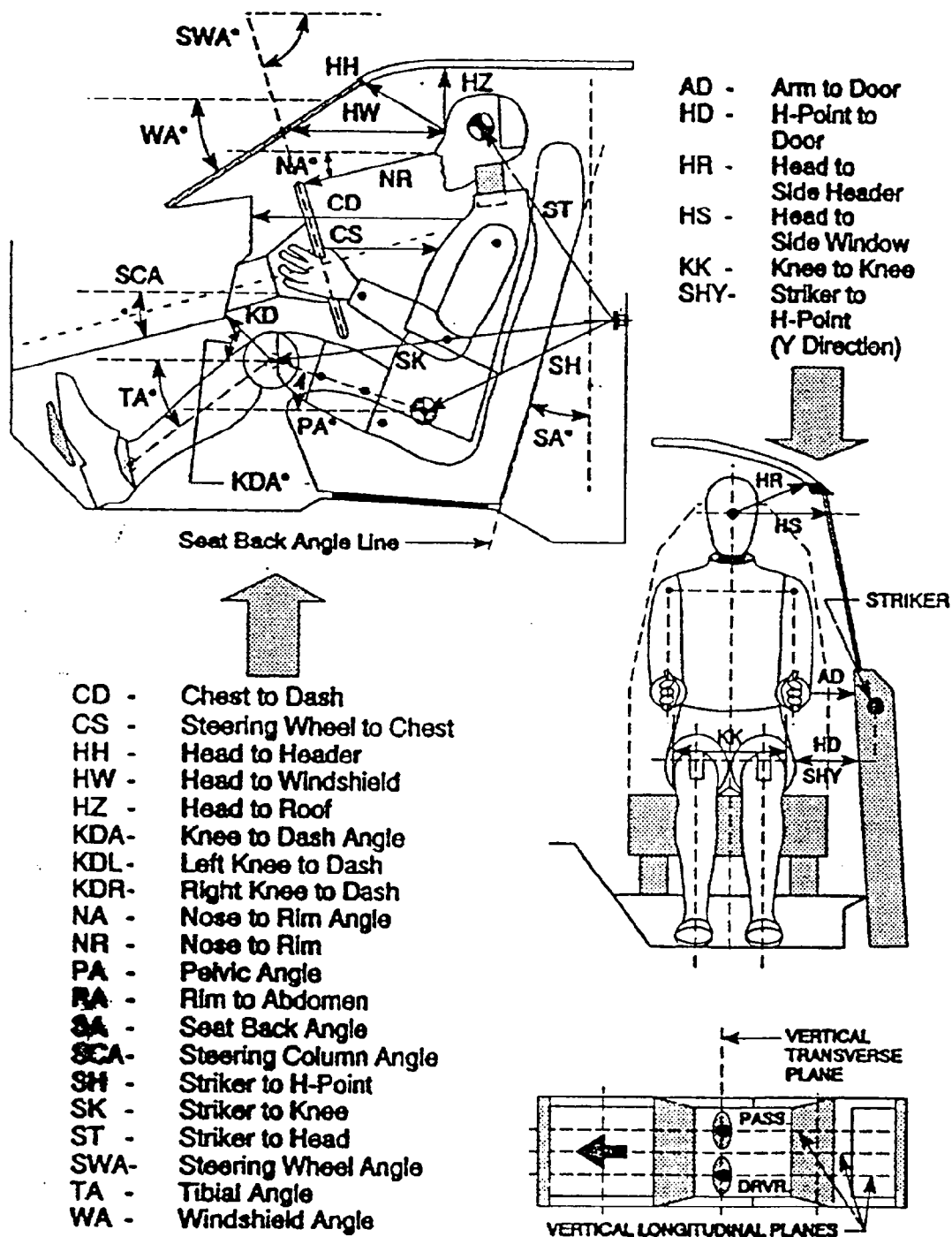
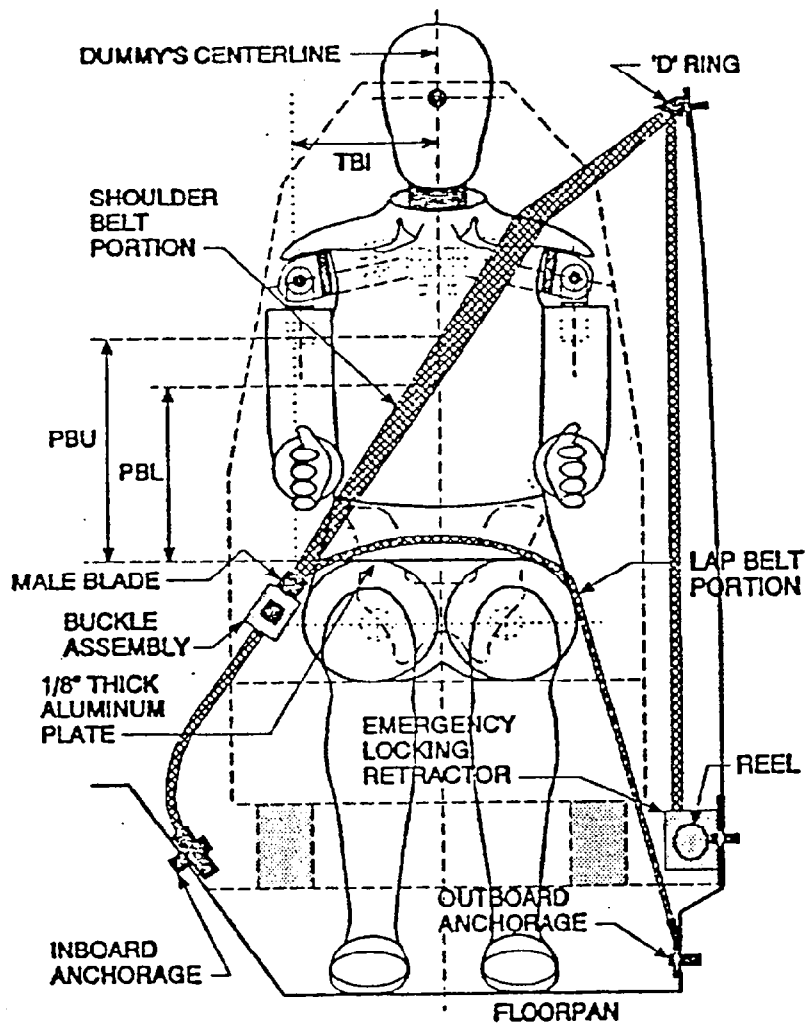


TABLE No. 3-6
SEAT BELT POSITIONING DATA



Measurement	Driver ATD	Passenger ATD
PBU - Top Surface of alum. plate to belt upper edge (in)	12.5	N/A
PBL - Top Surface of alum. plate to belt lower edge (in)	9.5	N/A
TBI - Vertical Centerline of ATD to belt intersection (in)	N/A	N/A
Lap Belt Tension (lbs)	N/D	N/A
Shoulder Belt Tension (lbs)	N/D	N/A

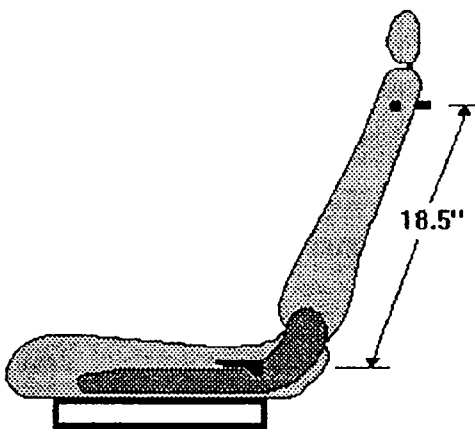
TABLE No. 3-7
VEHICLE TRANSDUCER LOCATION AND DATA SUMMARY

No.	Description	Location			Maximum Value *			
		X	Y	Z	-X	msec	+X	msec
1	Vehicle c.g. Primary	95	0	13	1.7	177.8	15.9	31.0
2	Vehicle c.g. Secondary	95	0	13	1.8	177.8	16.4	31.0
3	Top of driver seat Accelerometer	78	-5	33	12.9	80.0	12.8	61.1
4	Top of driver seat Rate Sensor	78	-5	33	1.5	265.0	11.5	82.1

REFERENCE: X - Rear bumper trailing edge
Y - Vehicle centerline (Right Pos., Left Neg.)
Z - Ground level

All dimensions in inches

* g's for accelerometers, radians per second for rate sensor



Rate sensor mounted 18.5 inches above seatback pivot point, on inboard edge. Seatback accel 18.5 inches above pivot point on inboard edge.

SECTION 4

LABORATORY NOTICE OF TEST FAILURE TO OVSC
(Applies only in case of failure)

FMVSS NO.: 301(R)

TEST DATE: _____

LABORATORY: MOBILITY SYSTEMS AND EQUIPMENT CO.

CONTRACT NO.: DTNH22-93-C-01007 DELV. ORDER NO.: _____

LABORATORY PROJECT ENGINEER'S NAME: _____

TEST SPECIMEN DESCRIPTION: _____

VEHICLE NHTSA NO.: _____ VIN: _____

MFR.: _____

TEST FAILURE DESCRIPTION: _____

N/A

FMVSS REQUIREMENT, PARAGRAPH S : _____

NOTIFICATION TO NHTSA (COTR): _____

DATE: _____; BY: _____

REMARKS: No Failure - Data Sheet Not Applicable

SECTION 5
PHOTOGRAPHS





FIGURE 5-2 PRETEST FRONT VIEW

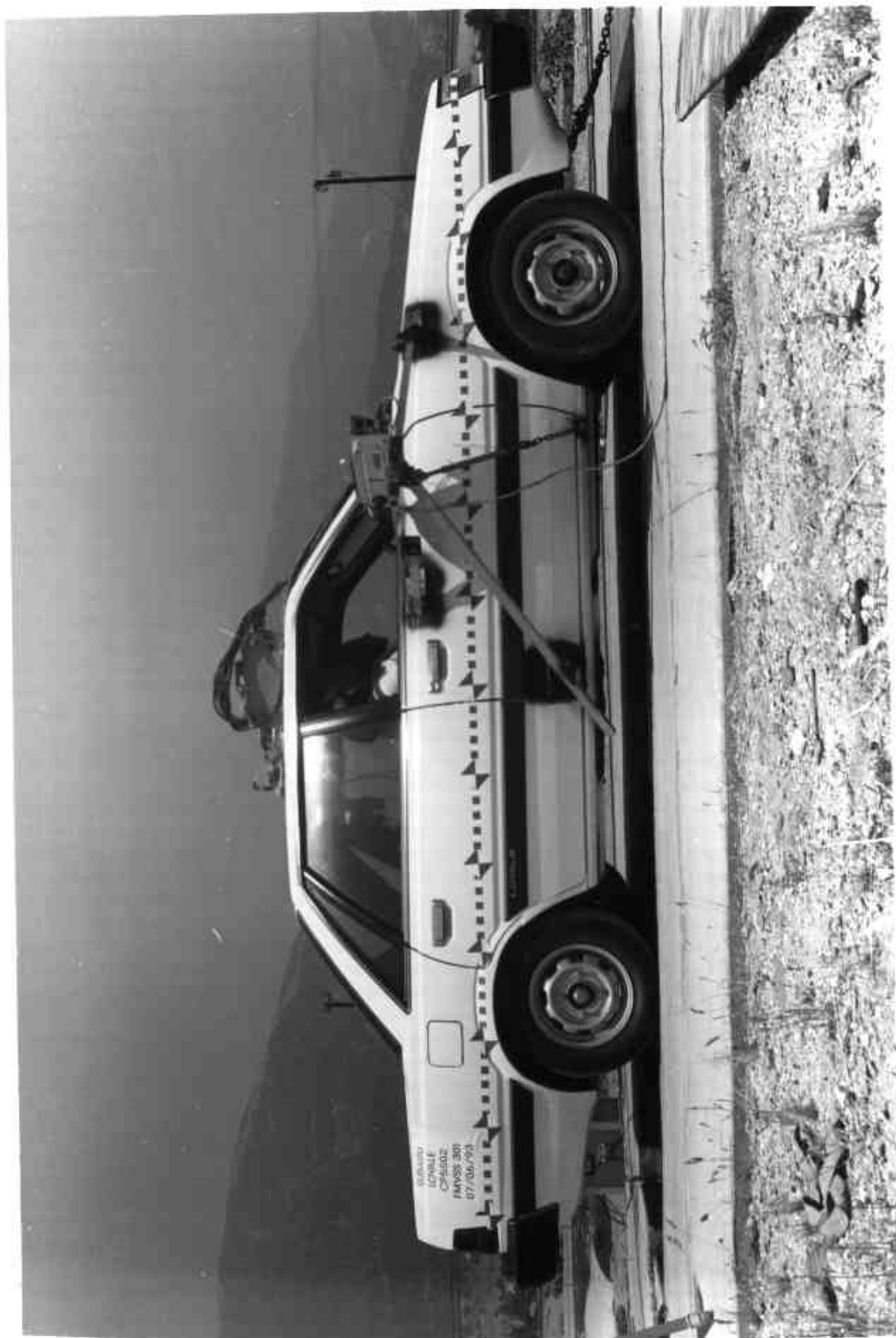


FIGURE 5-3 PRETEST RIGHT SIDE VIEW



FIGURE 5-4 PRETEST REAR VIEW

MFD BY FUJI HEAVY IND. LTD., JAPAN

MFD IN

09/92

GVWR : 3430LB(1555KG)
GAWR : FRONT-1860LB(845KG)
REAR -1570LB(710KG)

THIS VEHICLE CONFORMS TO ALL
APPLICABLE FEDERAL MOTOR VEHICLE
SAFETY, BUMPER, AND THEFT PREVENTION
STANDARDS IN EFFECT ON THE DATE OF
MANUFACTURE SHOWN ABOVE.

1F1ACW221

P22T091

PASSENGER CAR

• VEHICLE CAPACITY WEIGHT:
810LB(365KG)

• NUMBER OF OCCUPANTS:
5(FRONT 2/REAR 3)

• TIRE PRESSURE:

FRONT	28 PSI
REAR	28 PSI

• TIRE SIZE: 175/70SR13 (790)



FIGURE 5-5 MANUFACTURER'S CERTIFICATION LABEL

INCLUDED IN FIGURE 5 - 5

FIGURE 5-6 TIRE PLACARD



FIGURE 5-7 POSTTEST LEFT SIDE VIEW



FIGURE 5-8 POSTTEST FRONT VIEW



FIGURE 5-9 POSTTEST RIGHT SIDE VIEW



FIGURE 5-10 POSTTEST REAR VIEW



FIGURE 5-11 PRETEST FUEL TANK CLOSEUP VIEW

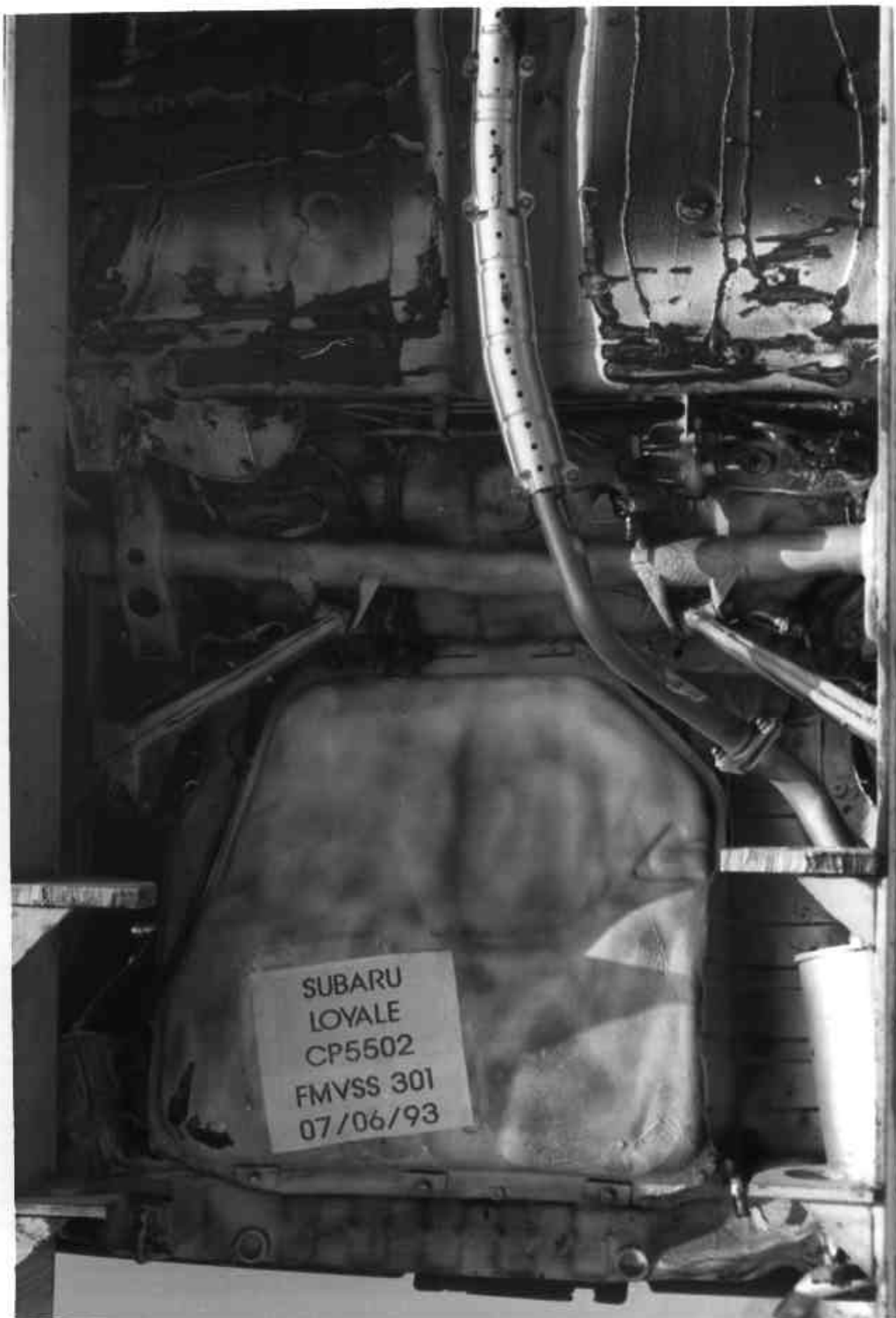


FIGURE 5-12 POSTTEST FUEL TANK CLOSEUP VIEW



FIGURE 5-13 POSTTEST UNDERBODY VIEW



FIGURE 5-14 PRETEST DRIVER ATD POSITION



FIGURE 5-15 POSTTEST DRIVER ATD POSITION

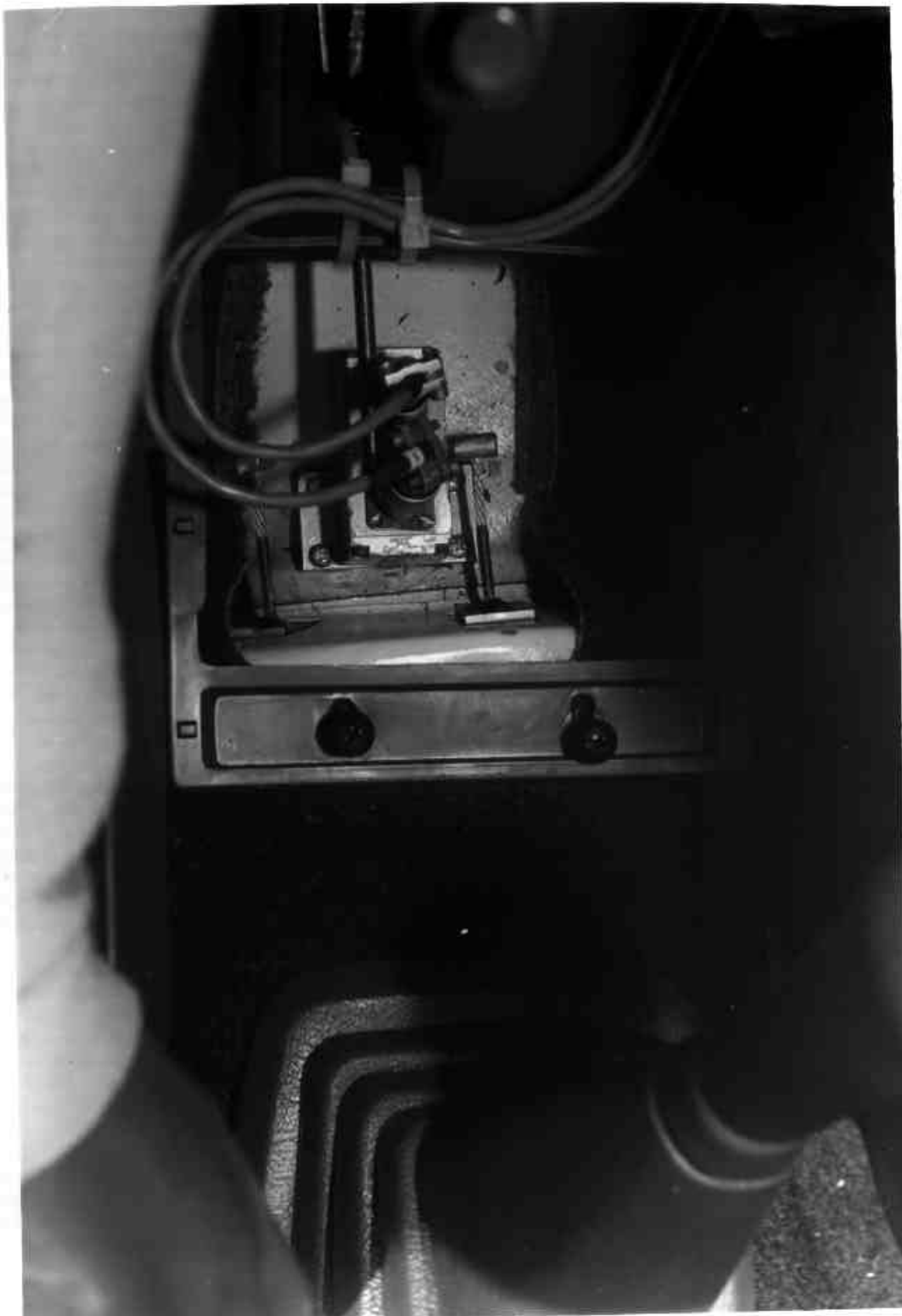


FIGURE 5-16 VEHICLE ACCELEROMETERS

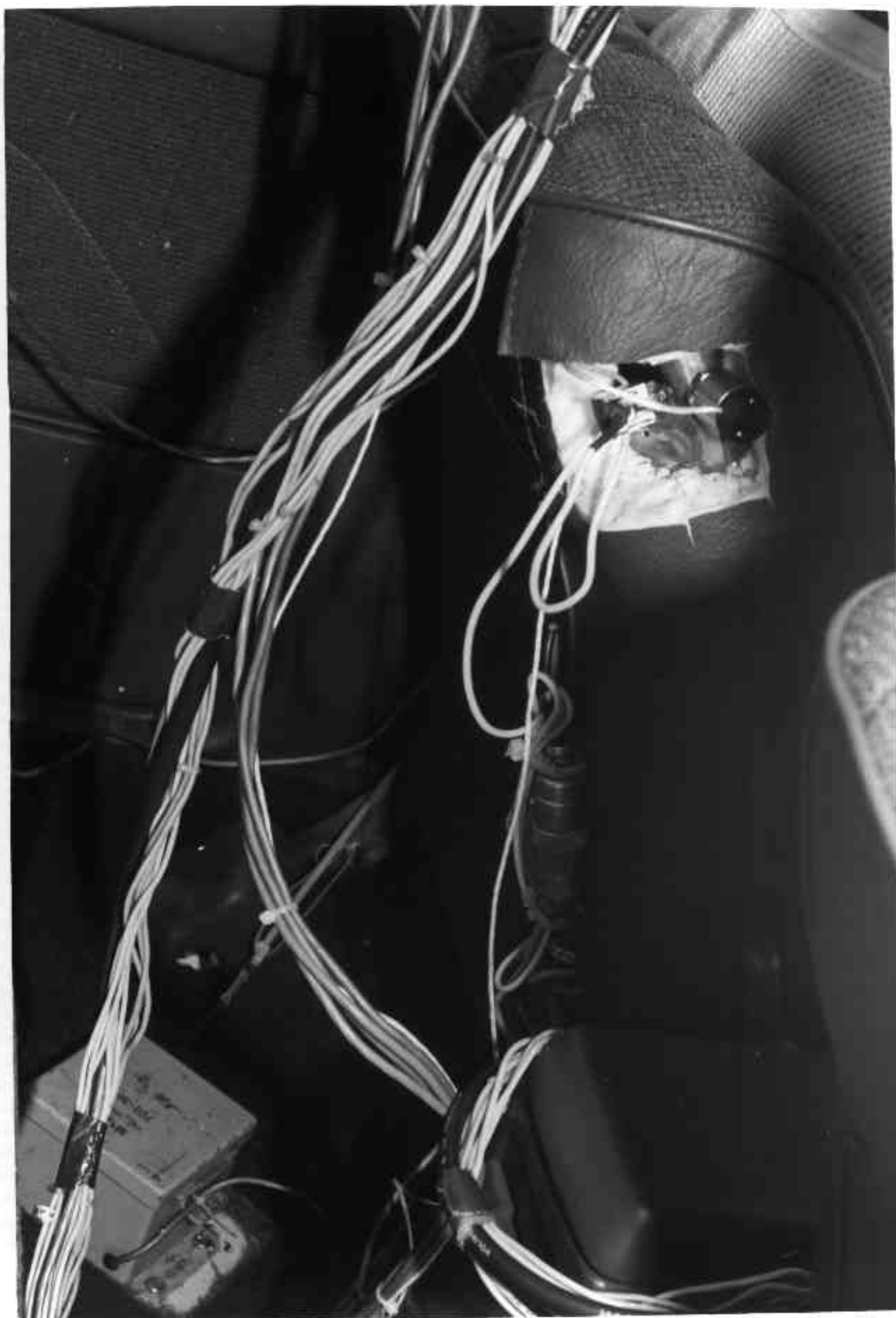
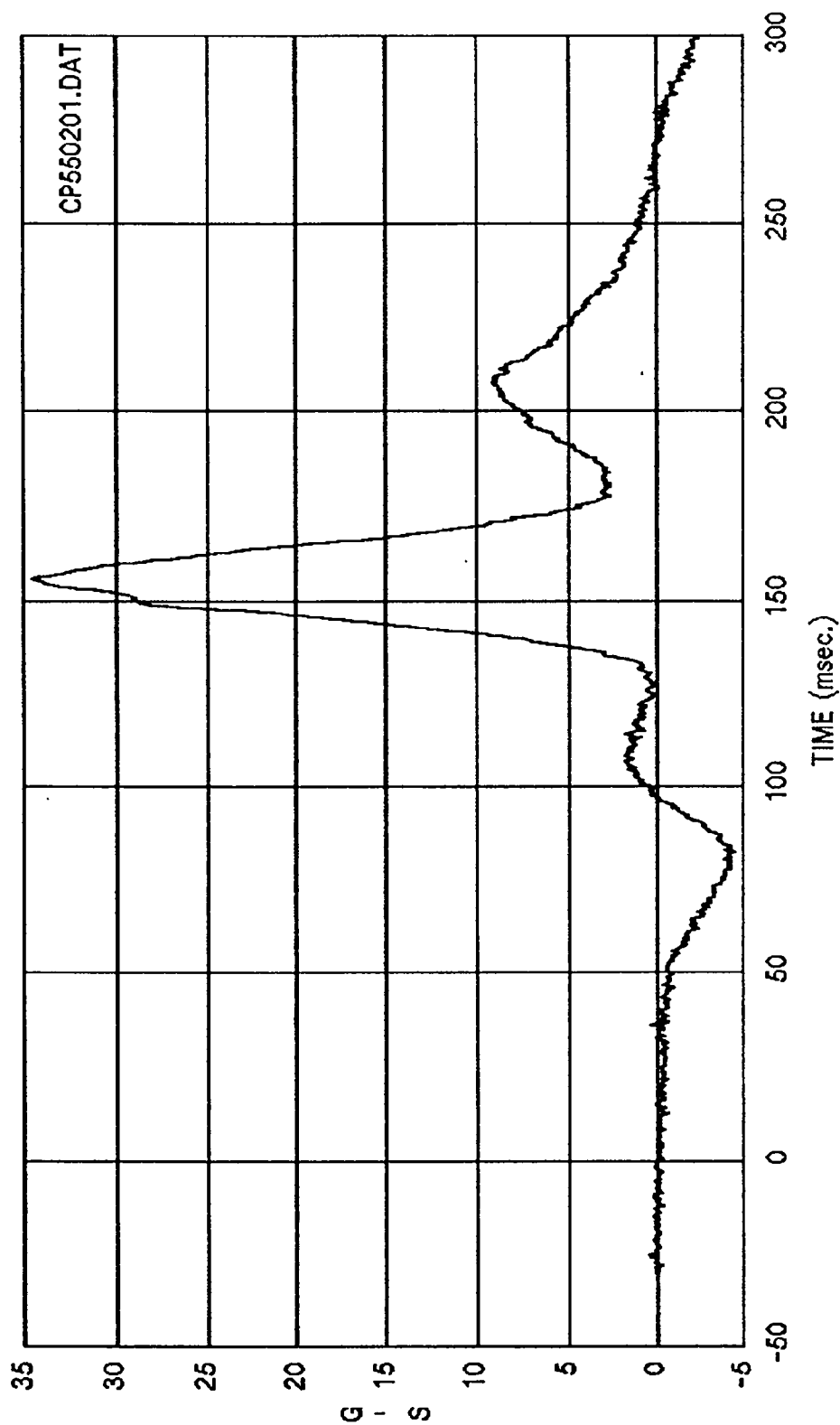


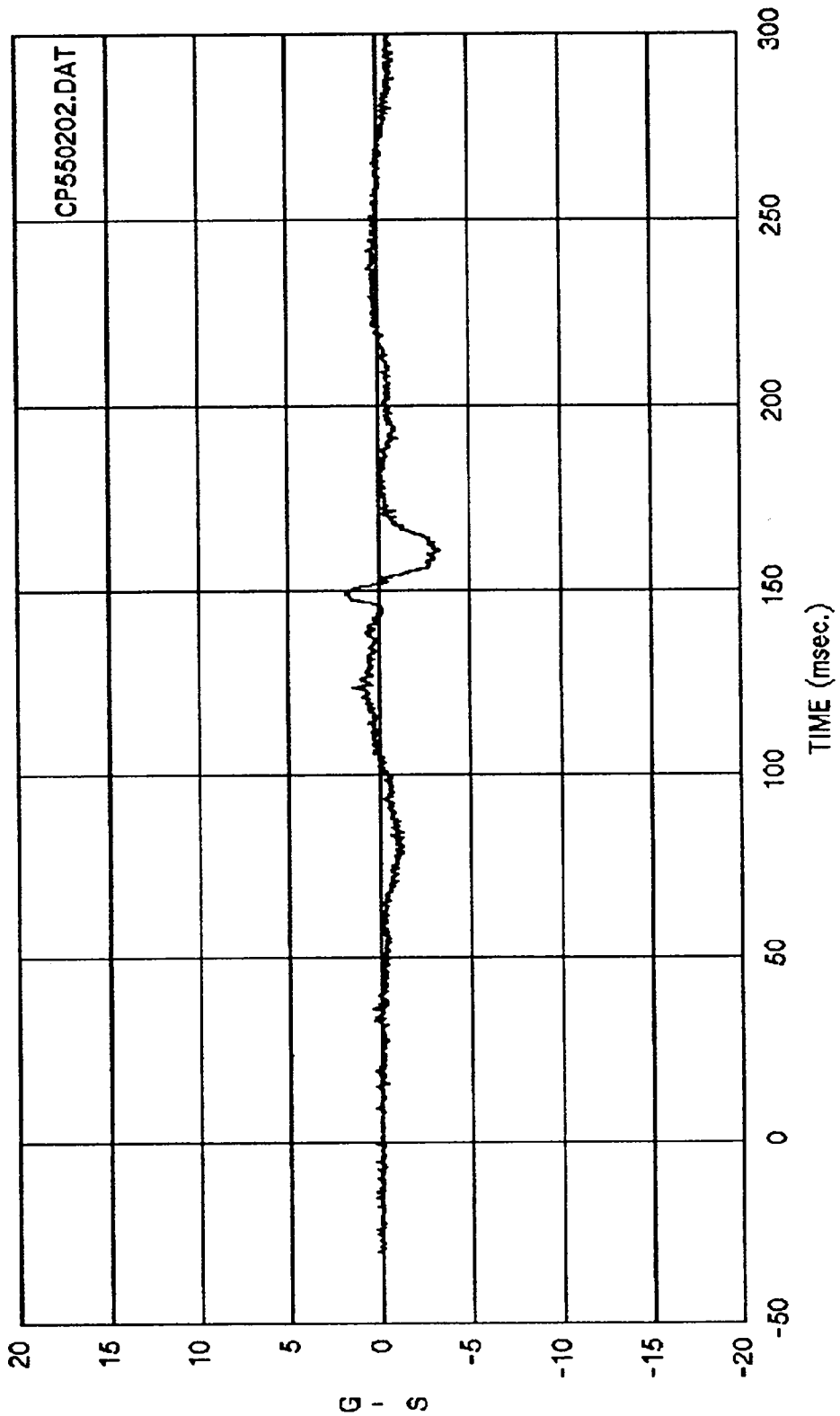
FIGURE 5-17 SEAT FRAME MOUNTED ACCELEROMETERS AND MHD SENSOR

SECTION 6
TIME HISTORY DATA PLOTS

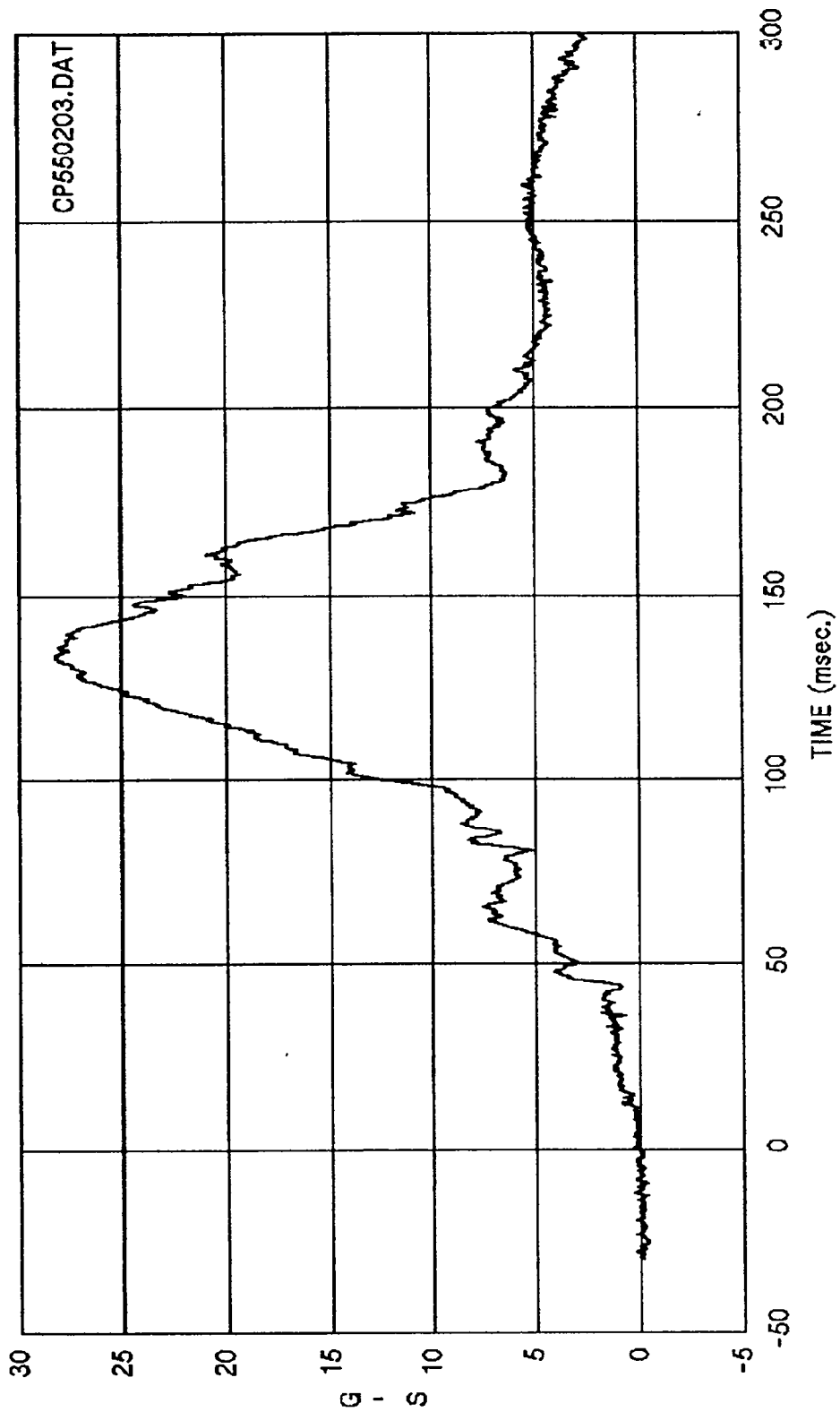


Curve: Driver head acceleration -- X axis Filter: SAE CLASS 1000 Max = 34.554 Min = -4.4586

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale

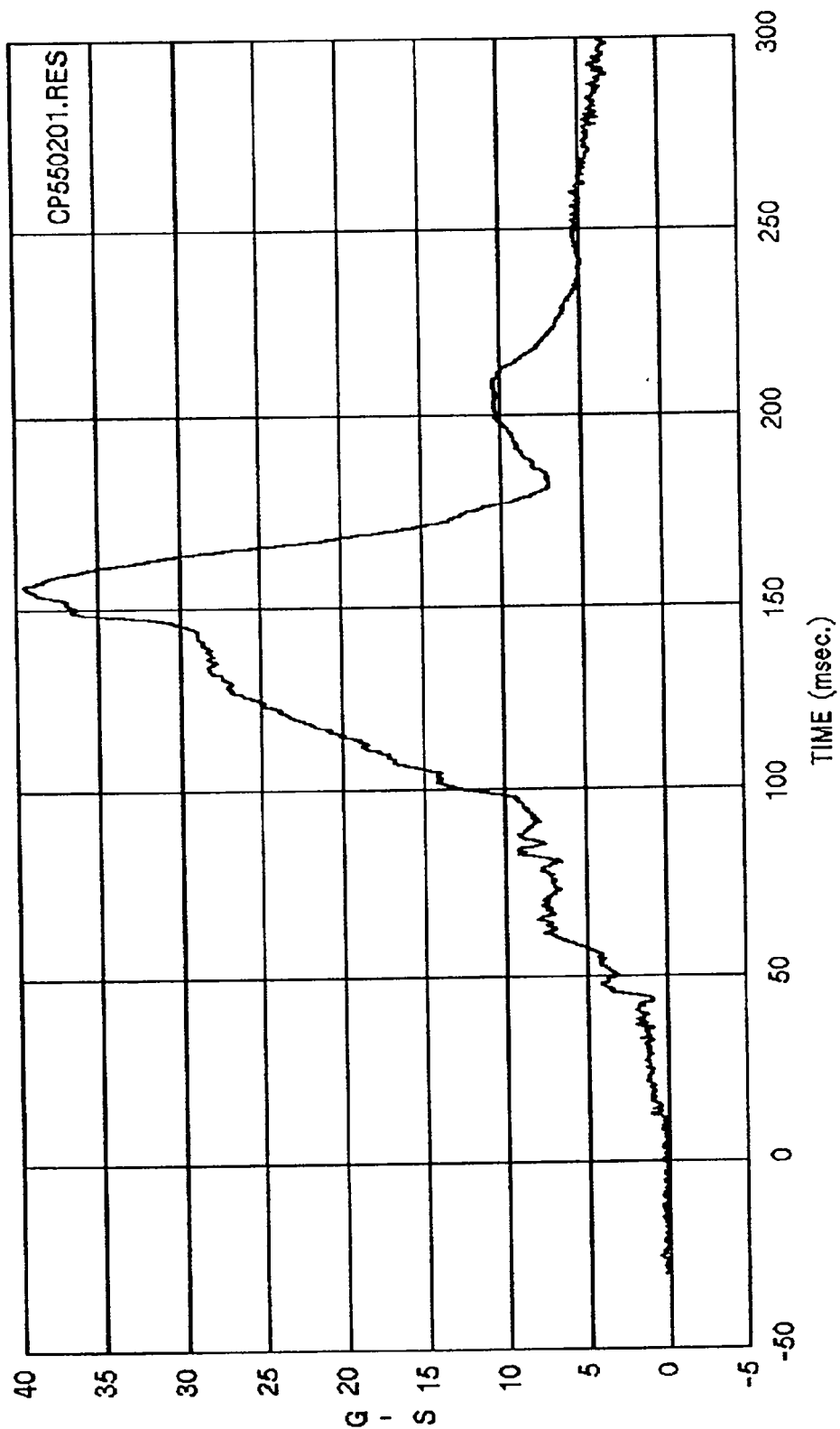


Curve: Driver head acceleration -- Y axis Filter: SAE CLASS 1000 Max = 1.9874 Min = -3.3124
MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale

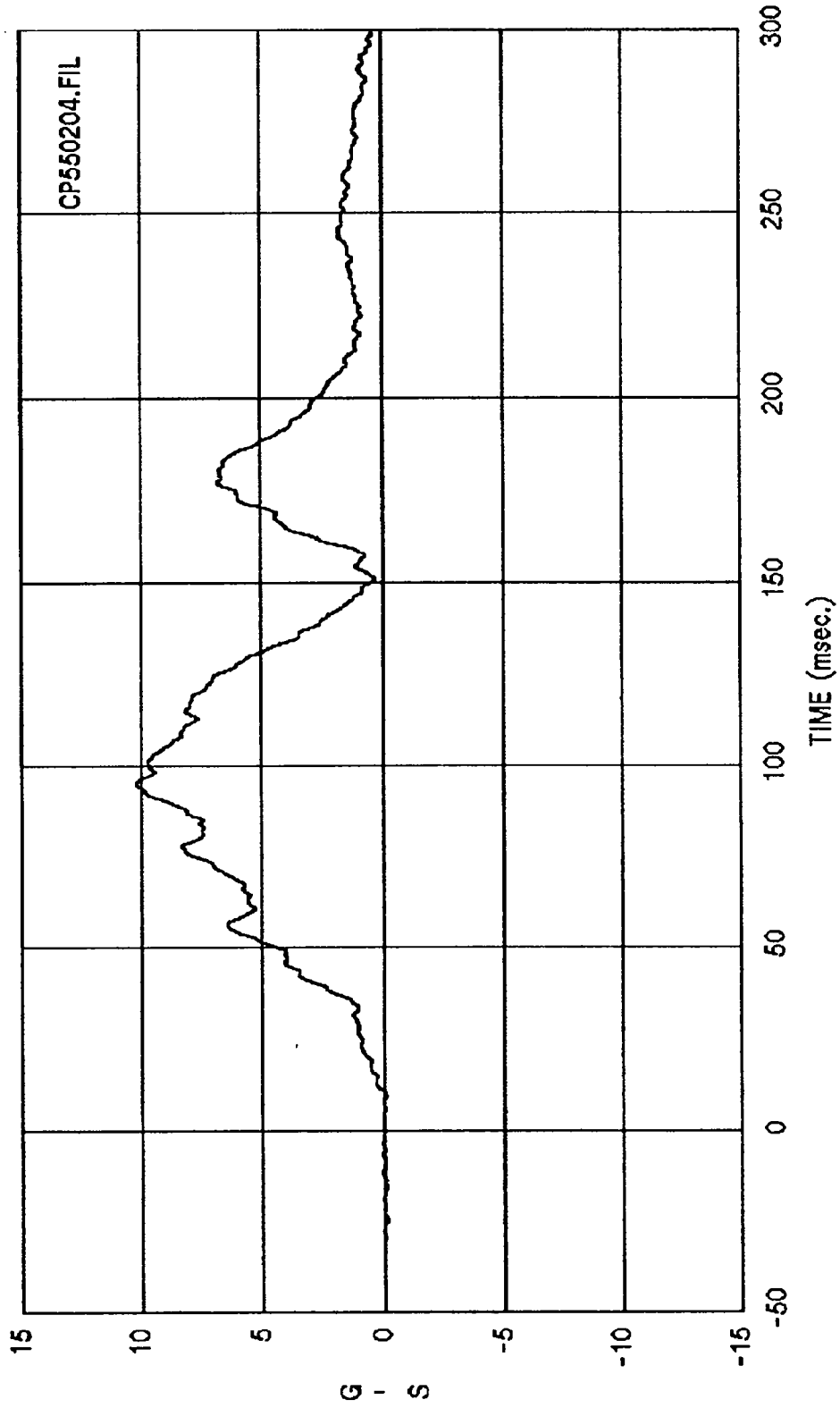


Curve: Driver head acceleration -- Z axis Filter: SAE CLASS 1000 Max = 28.309 Min = .00000

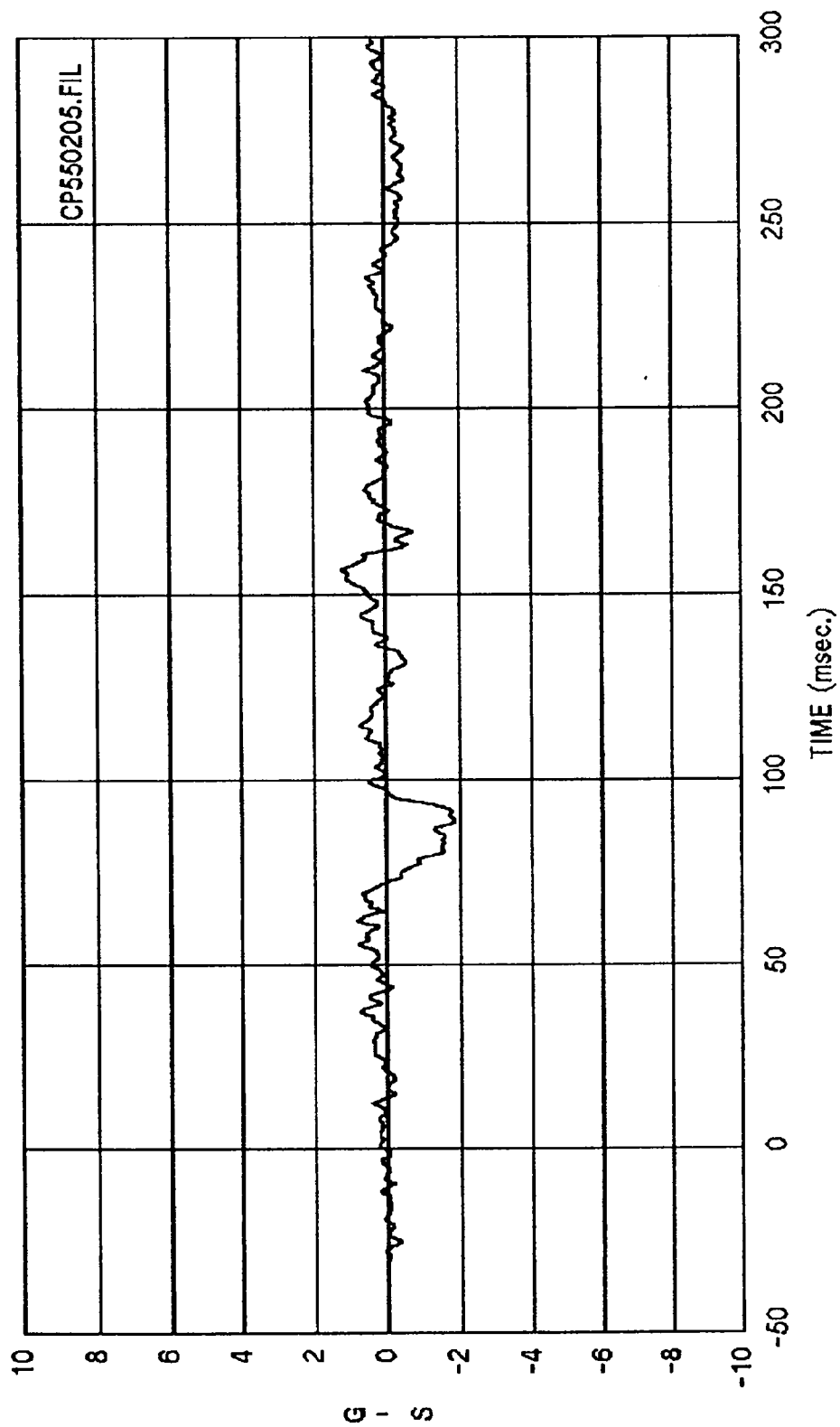
MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



Curve: Driver head acceleration -- Resultant Filter: SAE CLASS 1000 Max = 39.734 Min = .00000
MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale

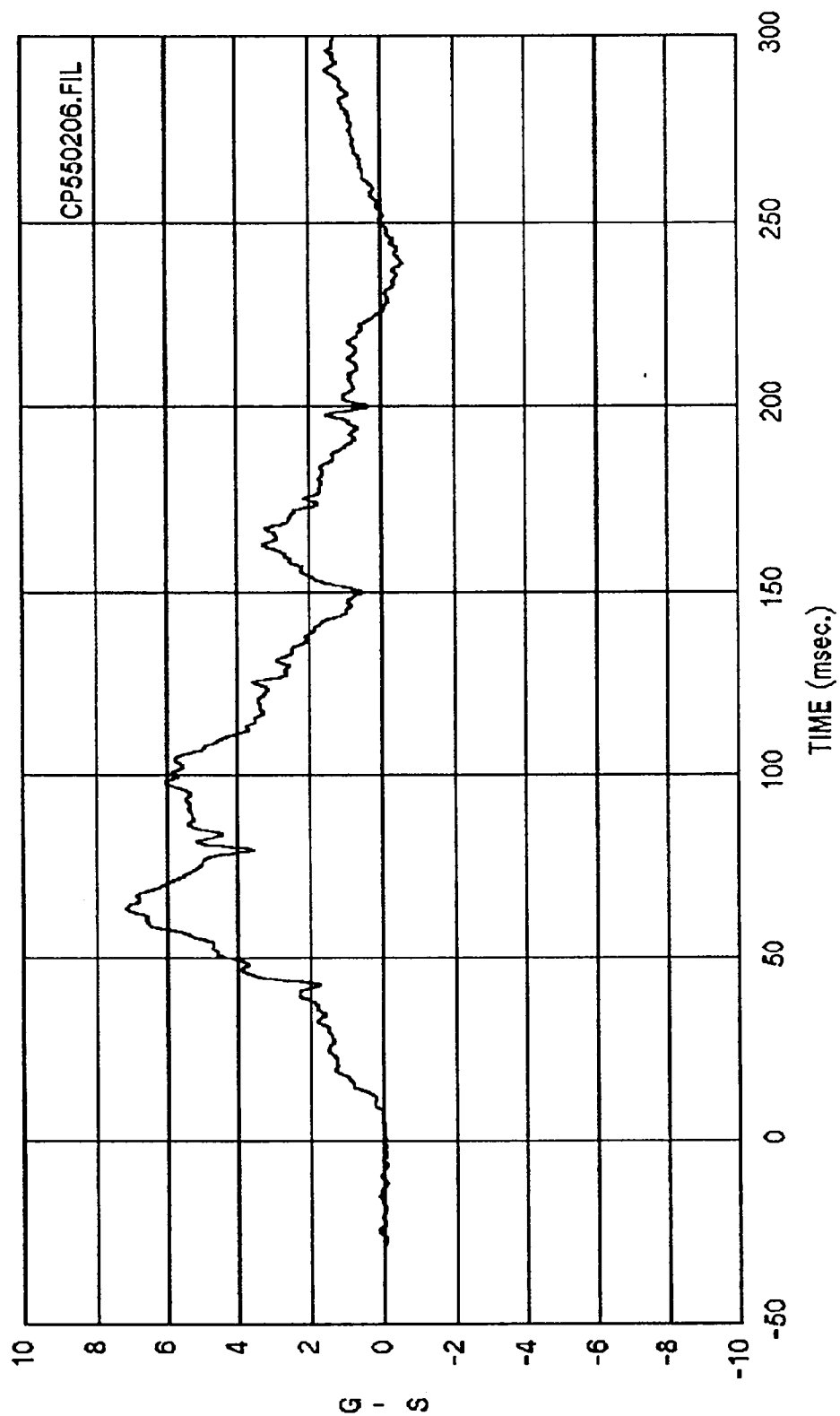


Curve: Driver chest acceleration -- X axis Filter: SAE CLASS 180 Max = 10.243 Min = -.67915E-
MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



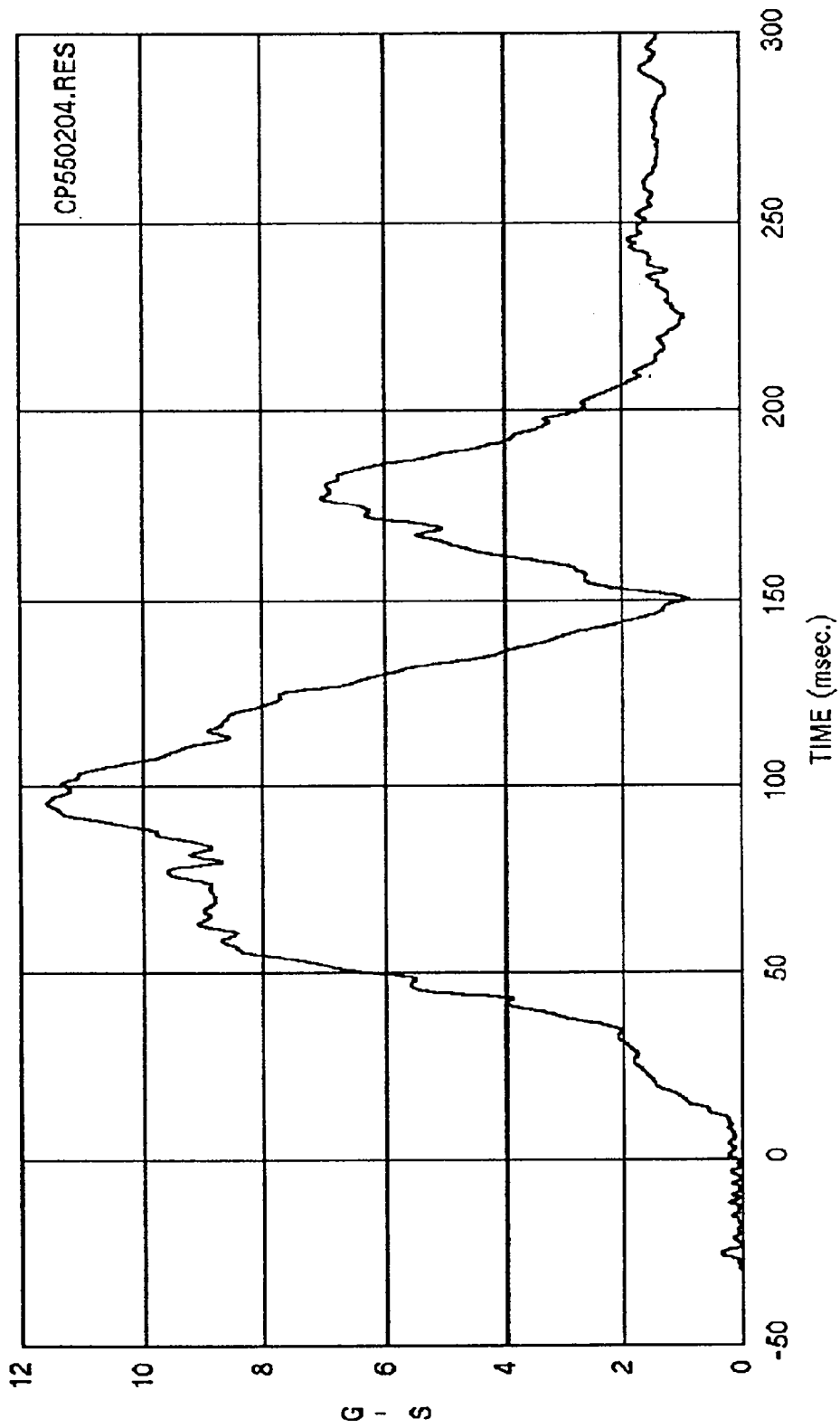
Curve: Driver chest acceleration -- Y axis Filter: SAE CLASS 180 Max = 1.2010 Min = -1.8662

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



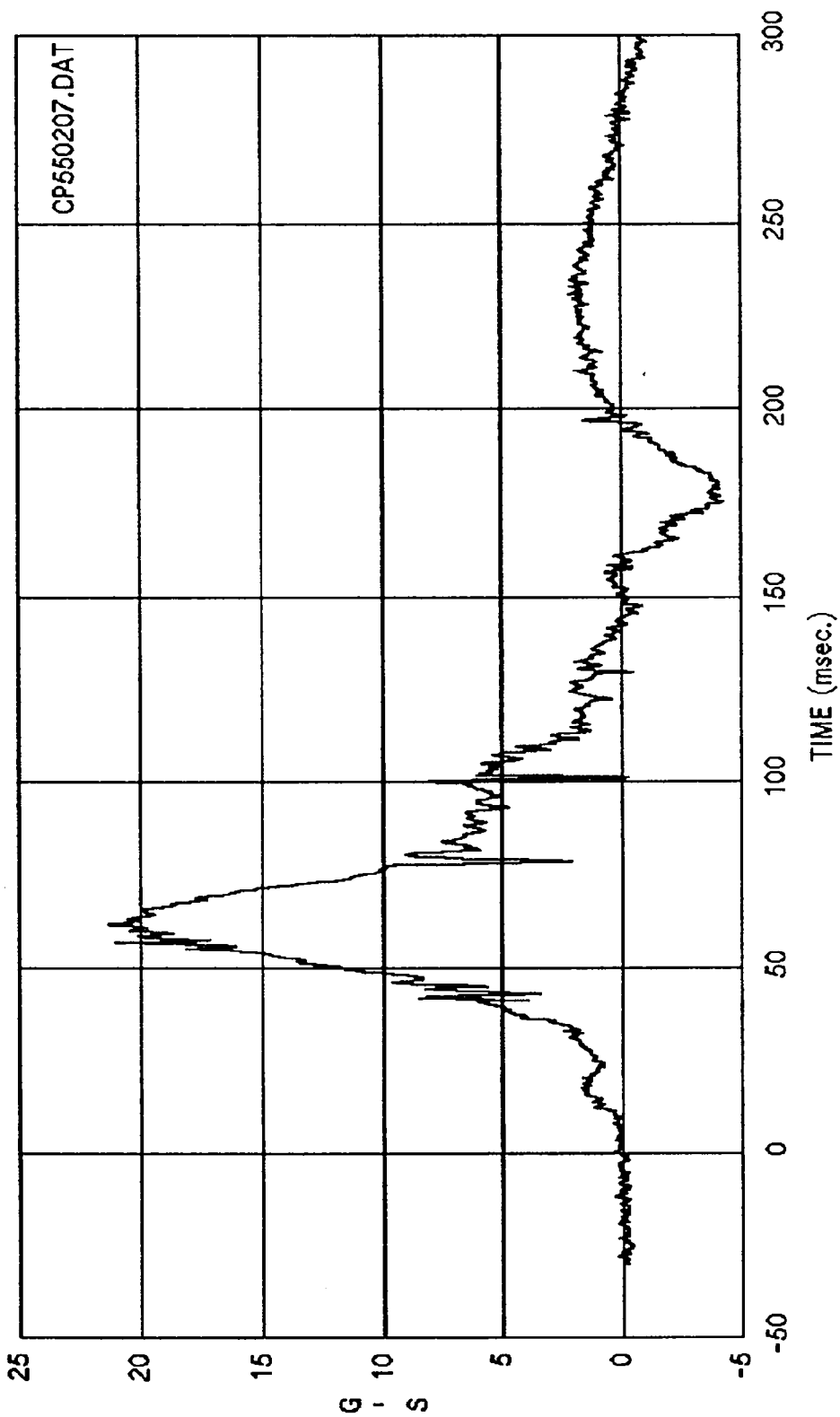
Curve: Driver chest acceleration -- Z axis Filter: SAE CLASS 180 Max = 7.1573 Min = -.56765

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



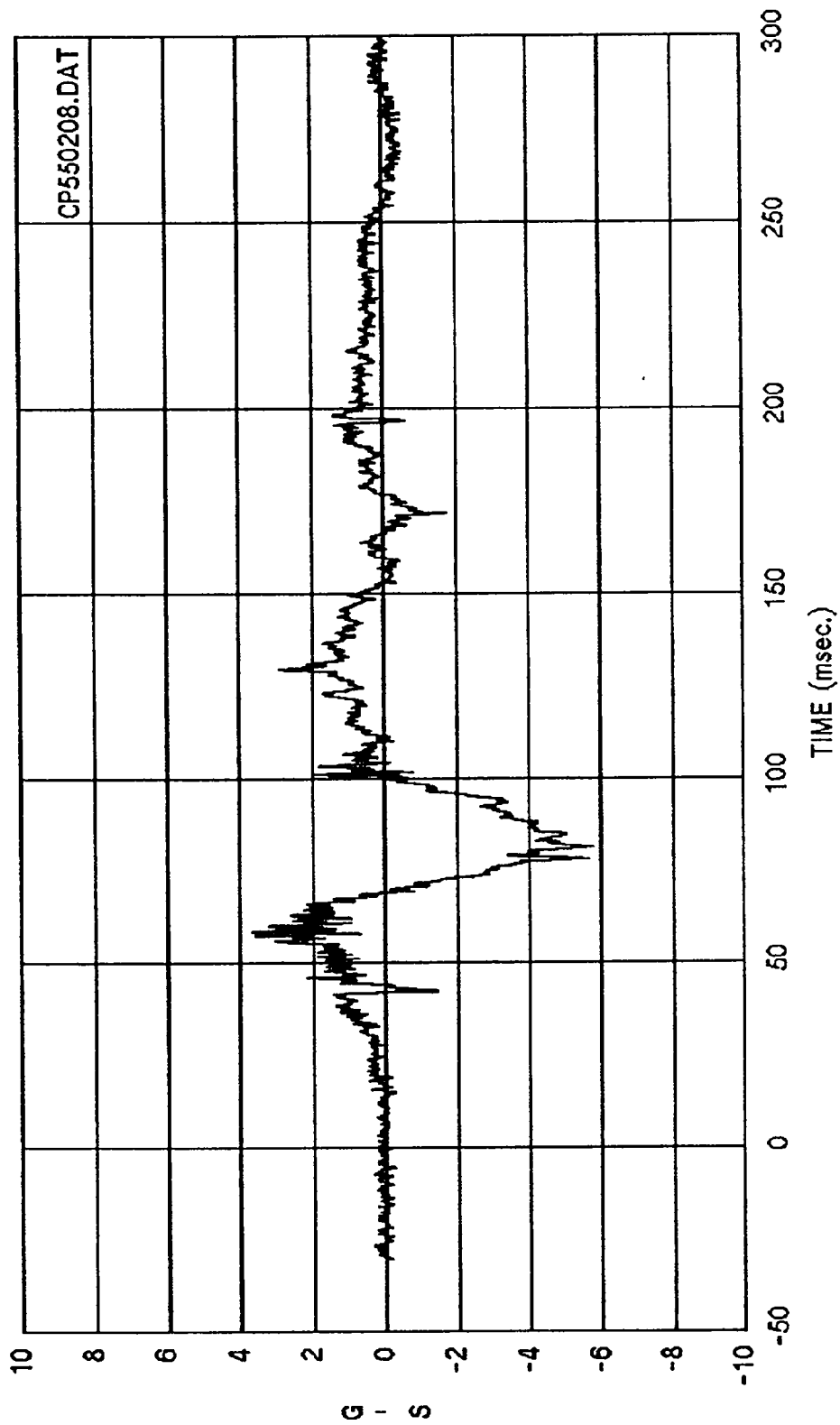
Curve: Driver chest acceleration -- Resultant Filter: SAE CLASS 180 Max = 11.568 Min = .14498

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



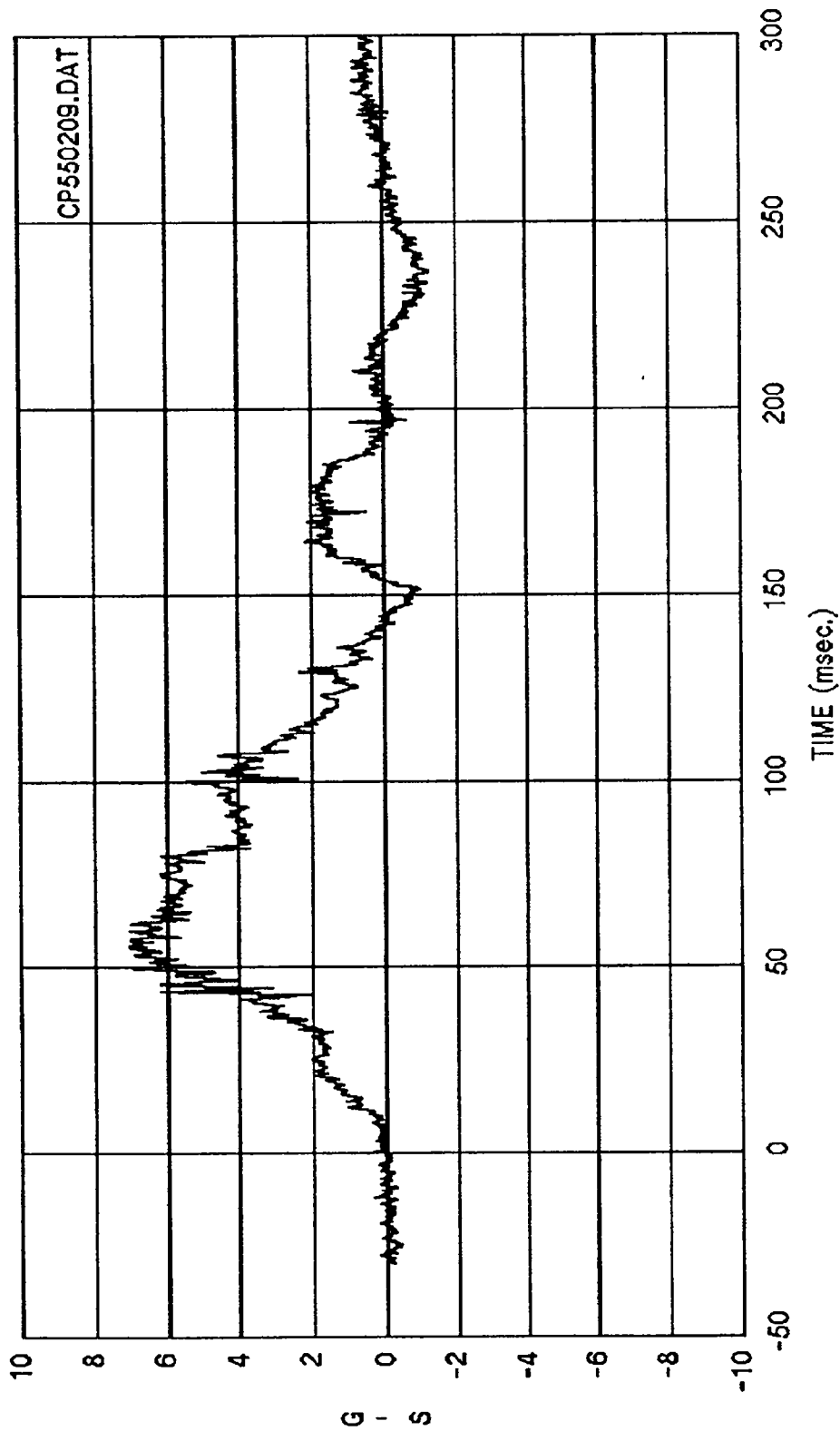
Curve: Driver pelvis acceleration -- X axis Filter: SAE CLASS 1000 Max = 21.283 Min = -4.2566

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



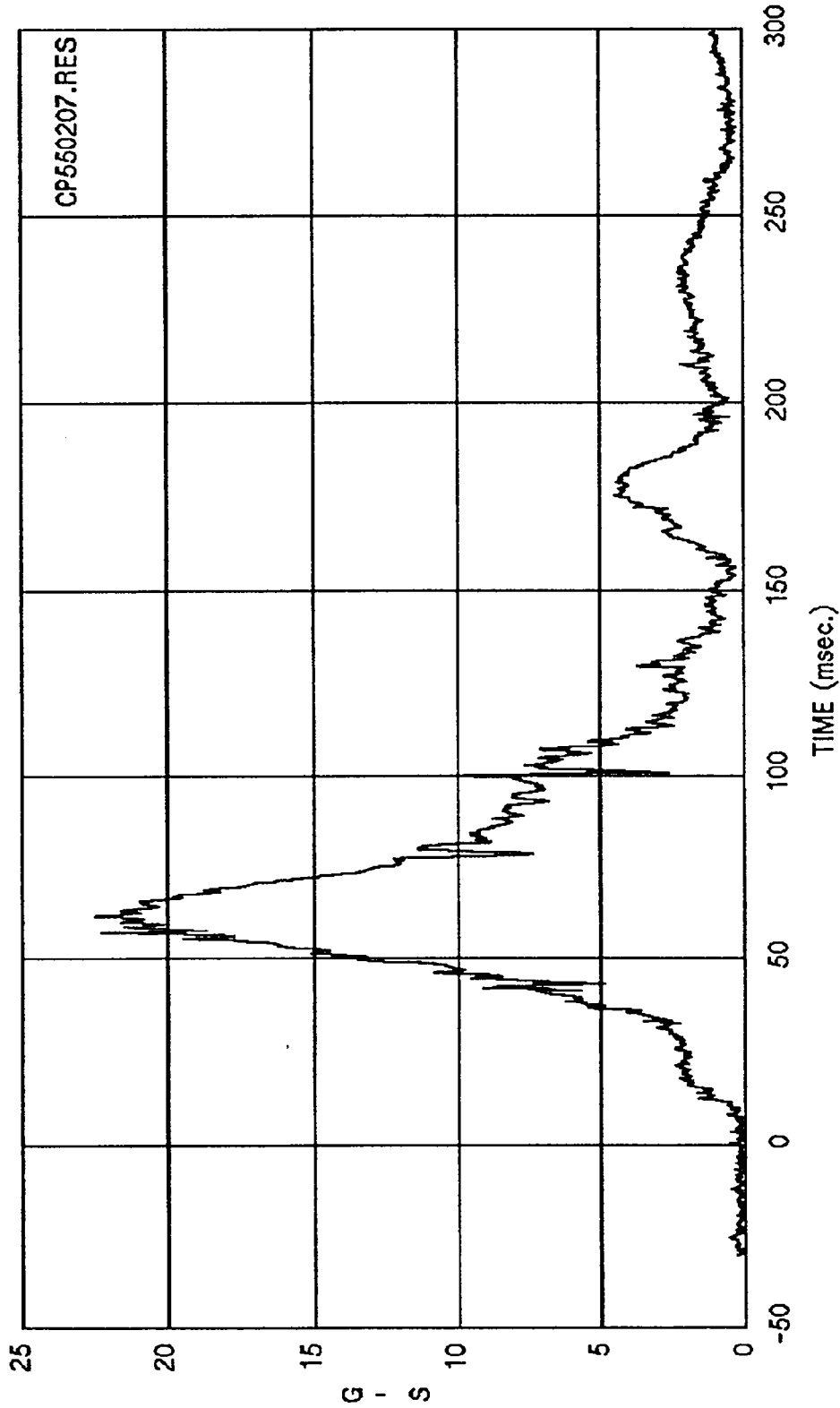
Curve: Driver pelvis acceleration -- Y axis Filter: SAE CLASS 1000 Max = 3.7582 Min = -5.7625

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



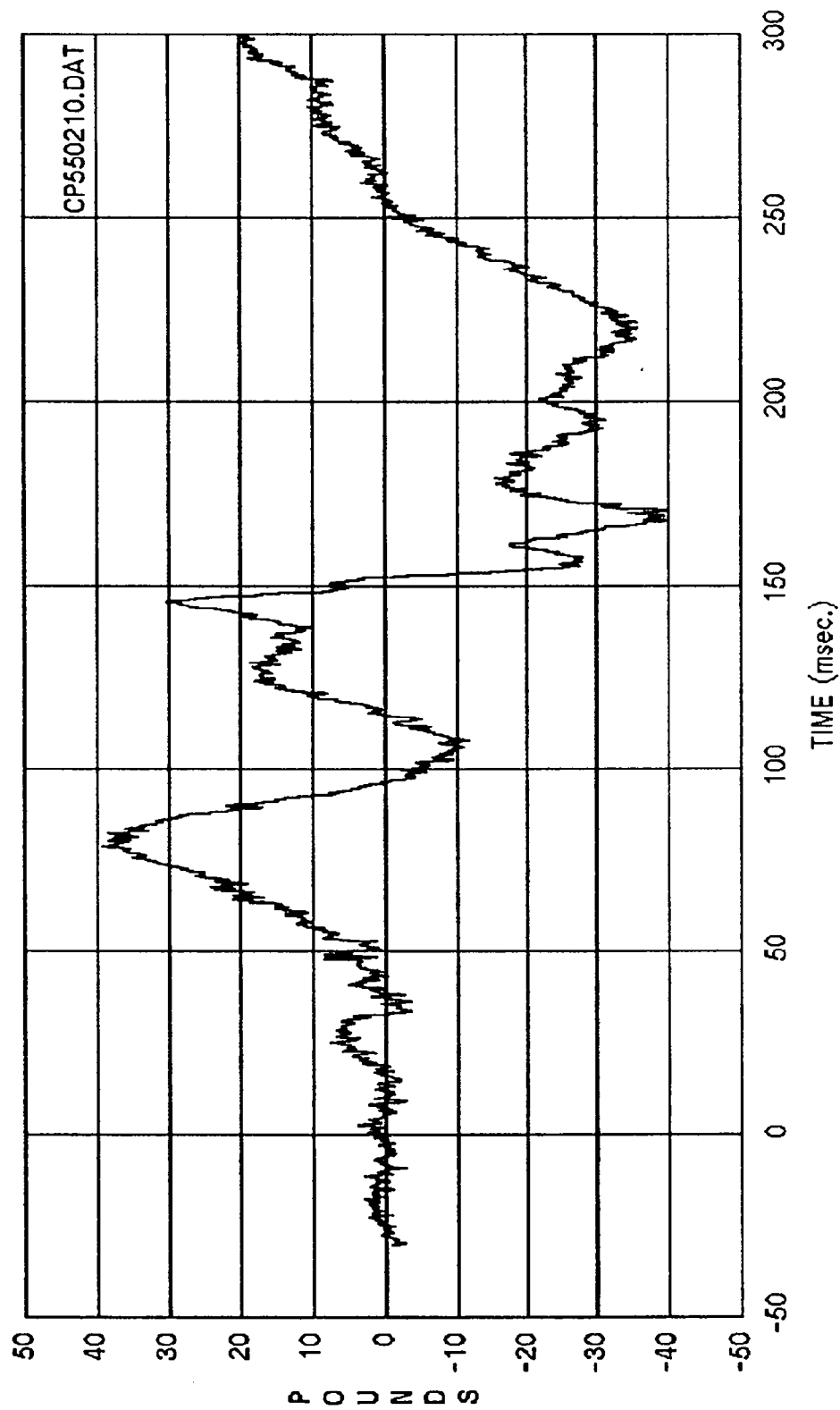
Curve: Driver pelvis acceleration -- Z axis Filter: SAE CLASS 1000 Max = 7.4127 Min = -1.2741

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



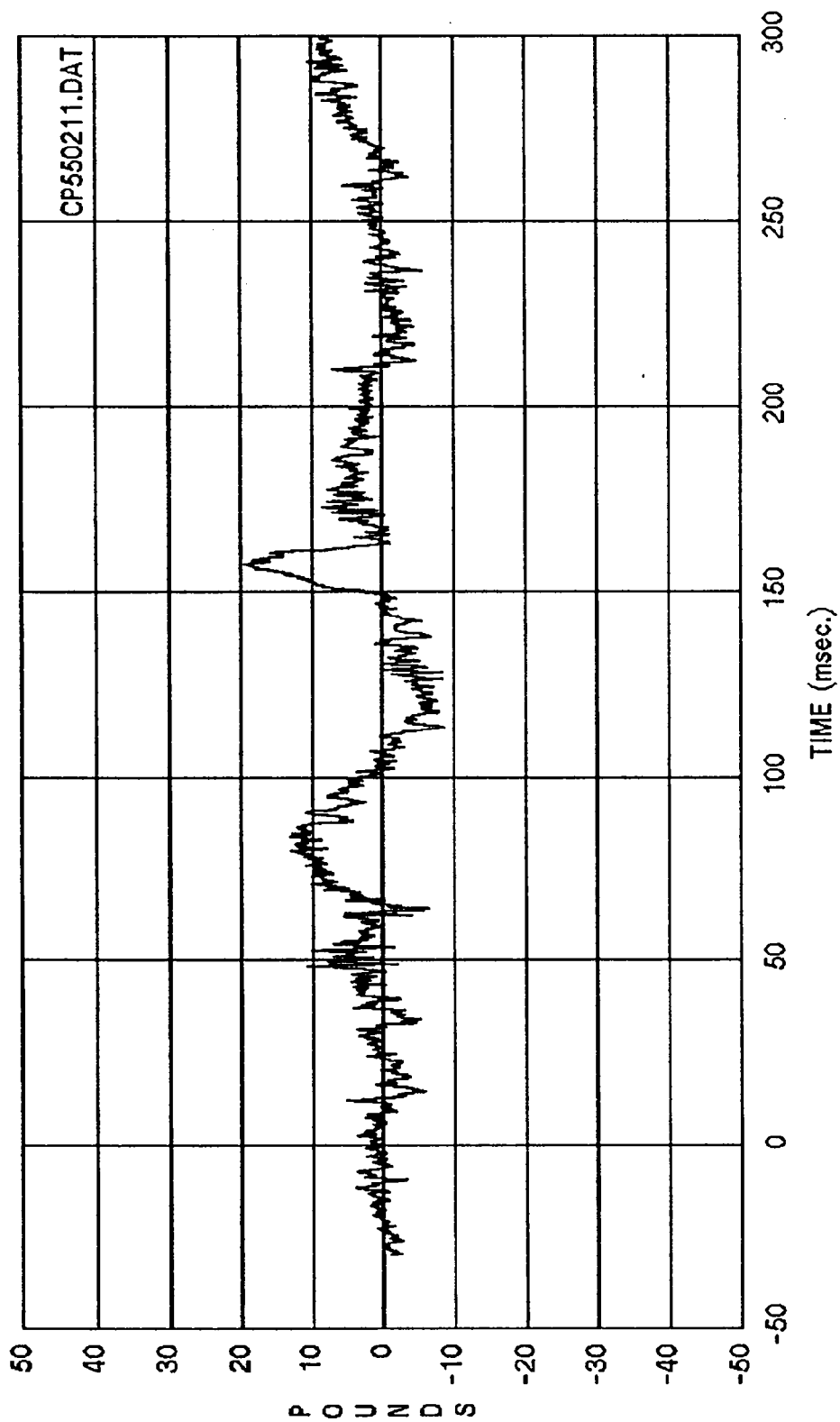
Curve: Driver pelvis acceleration -- Resultant Filter: SAE CLASS 1000 Max = 22.493 Min = .00000

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



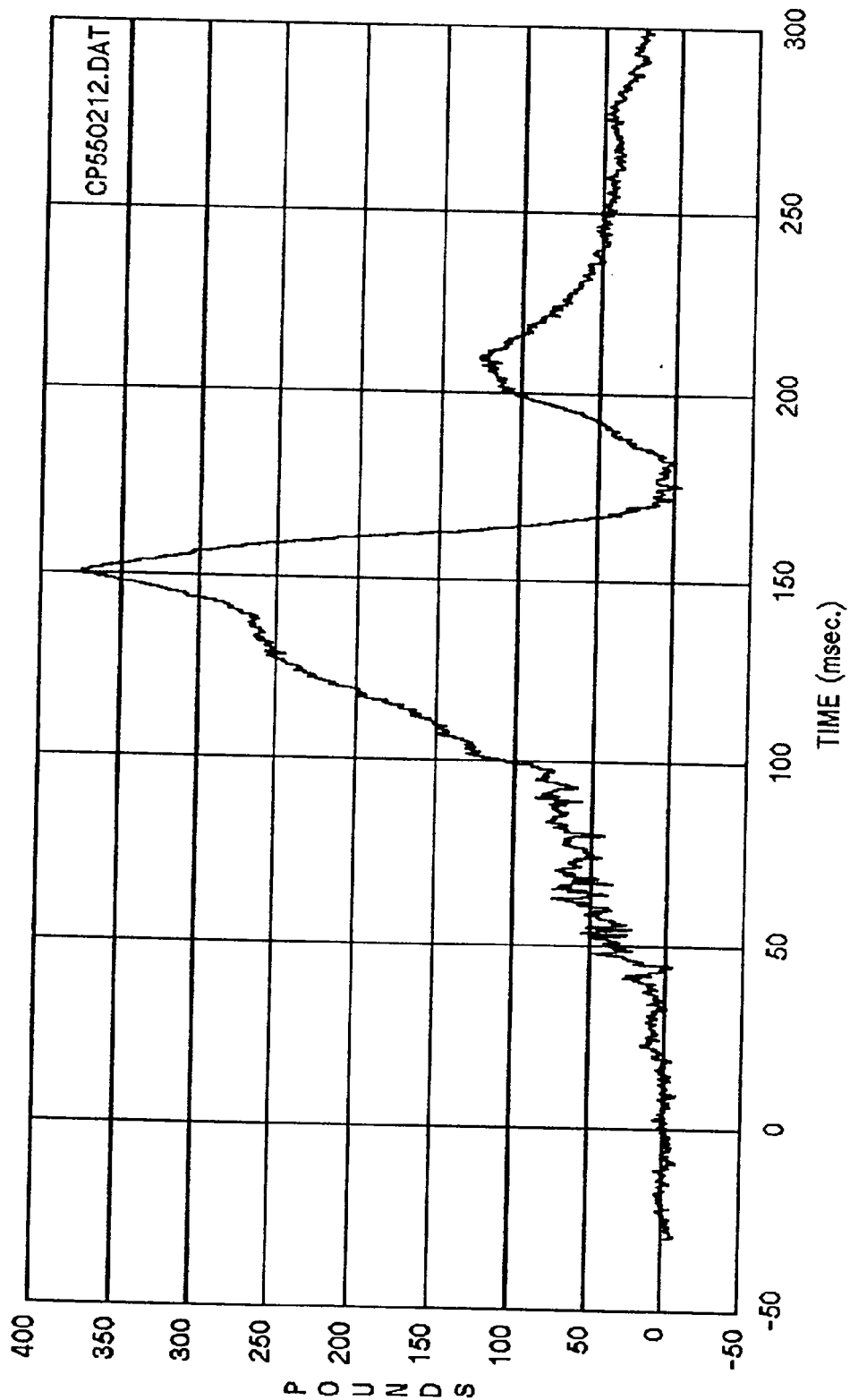
Curve: Driver neck force -- X axis Filter: SAE CLASS 1000 Max = 39.343 Min = -40.060

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



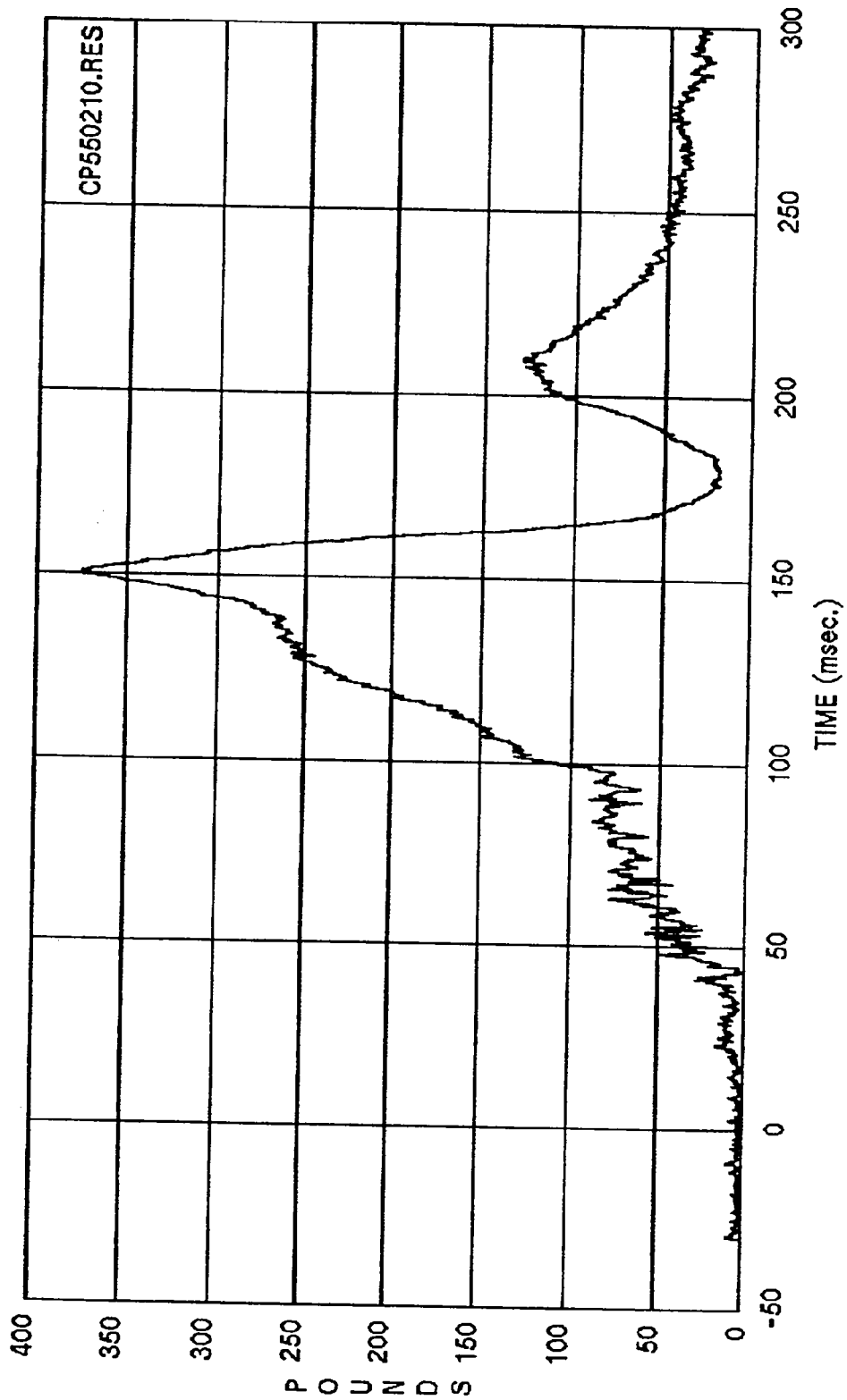
Curve: Driver neck force -- Y axis Filter: SAE CLASS 1000 Max = 19.471 Min = -8.8661

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



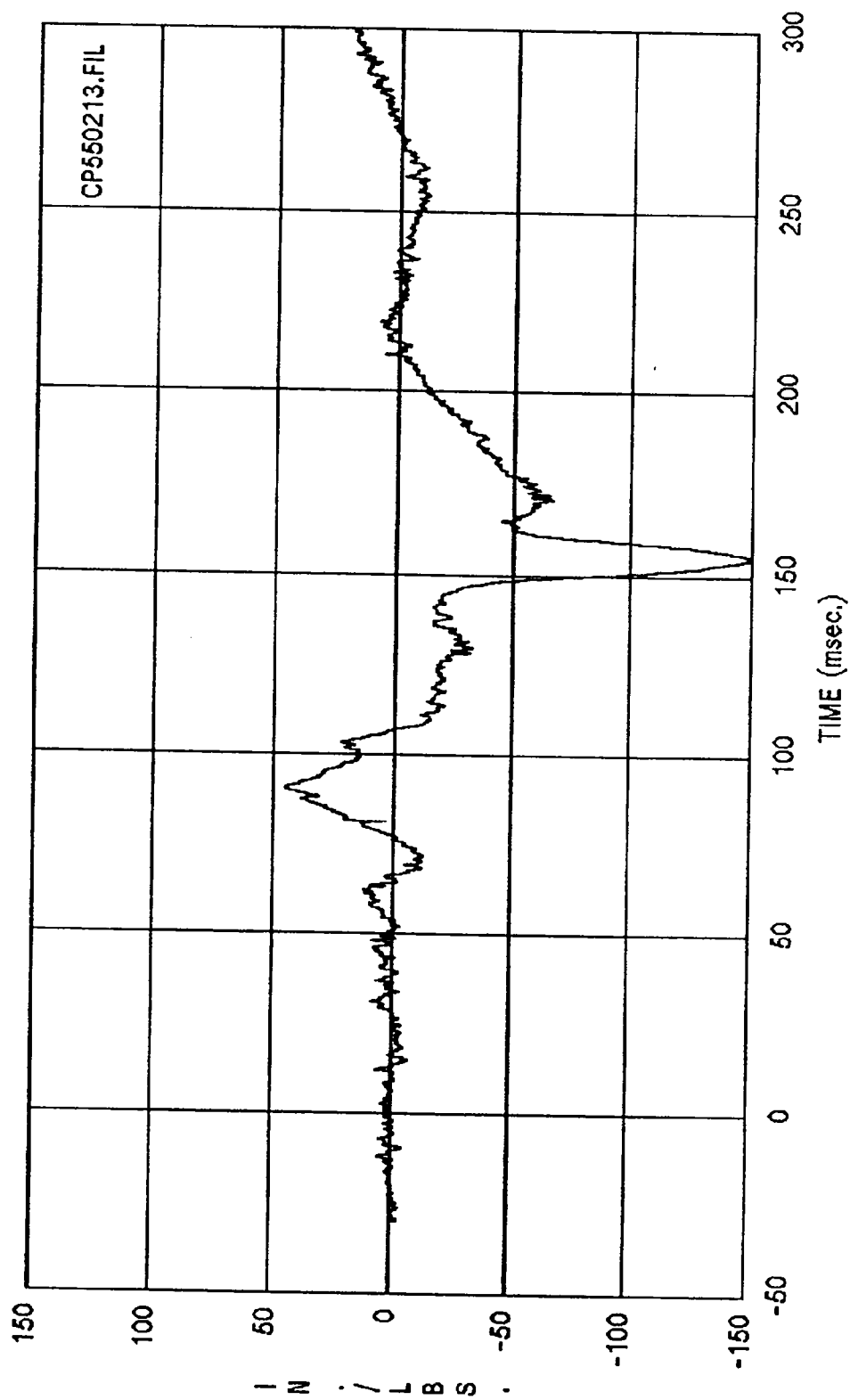
Curve: Driver neck force -- Z axis Filter: SAE CLASS 1000 Max = 376.03 Min = -7.4950

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



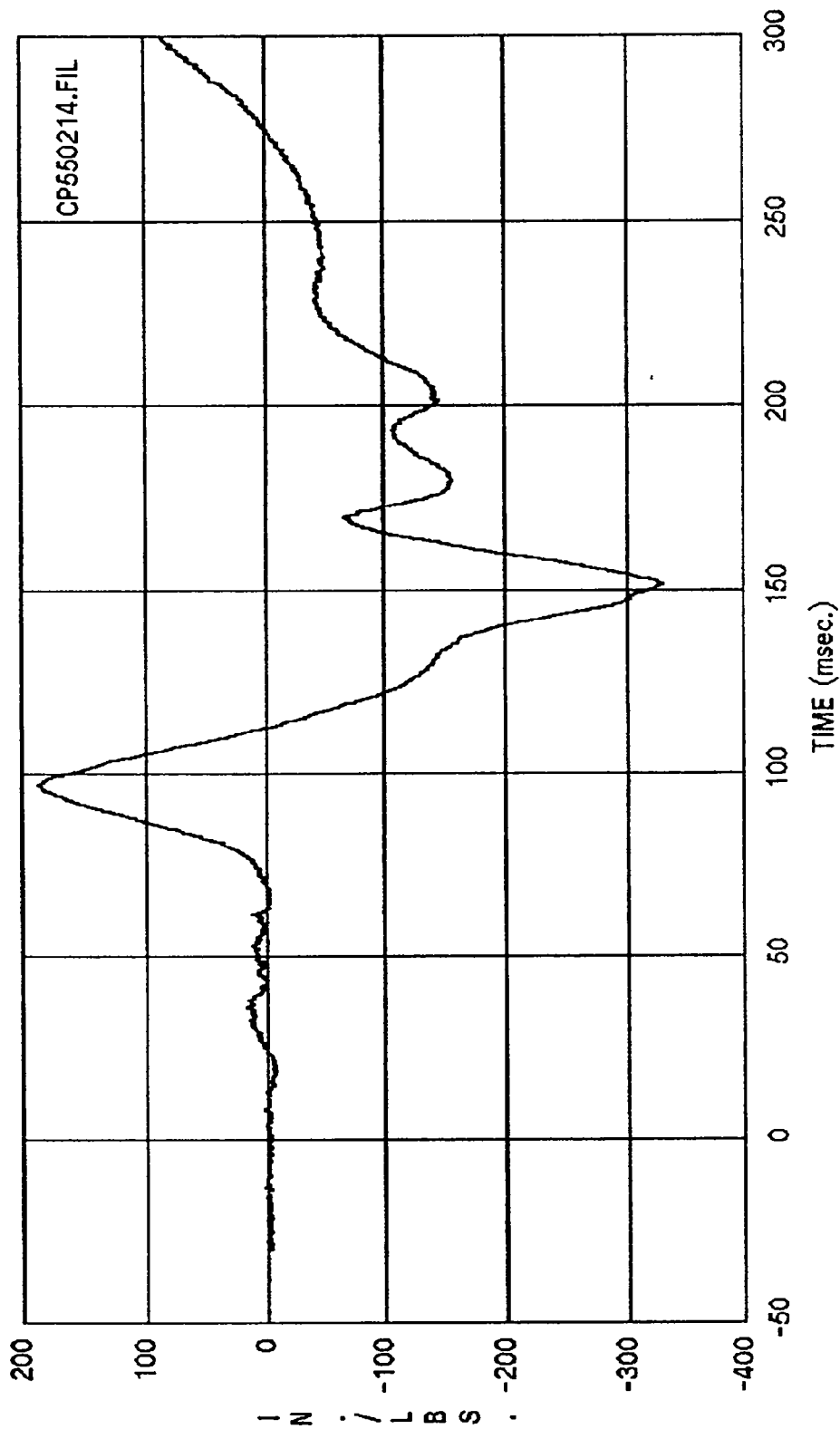
Curve: Driver neck force -- Resultant Filter: SAE CLASS 1000 Max = 376.12 Min = .31488

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



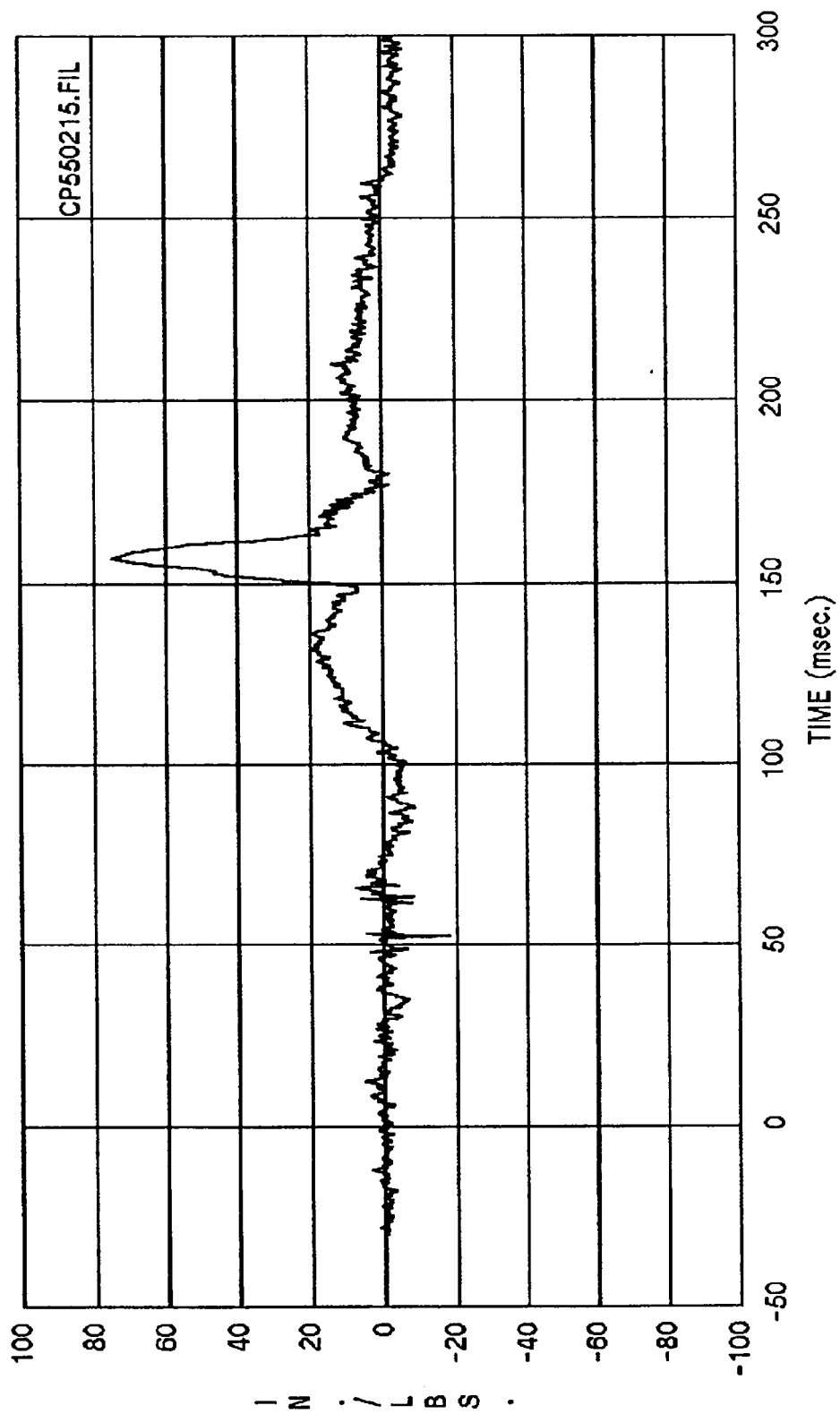
Curve: Driver neck moment -- X axis Filter: SAE CLASS 600 Max = 45.322 Min = -149.62

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



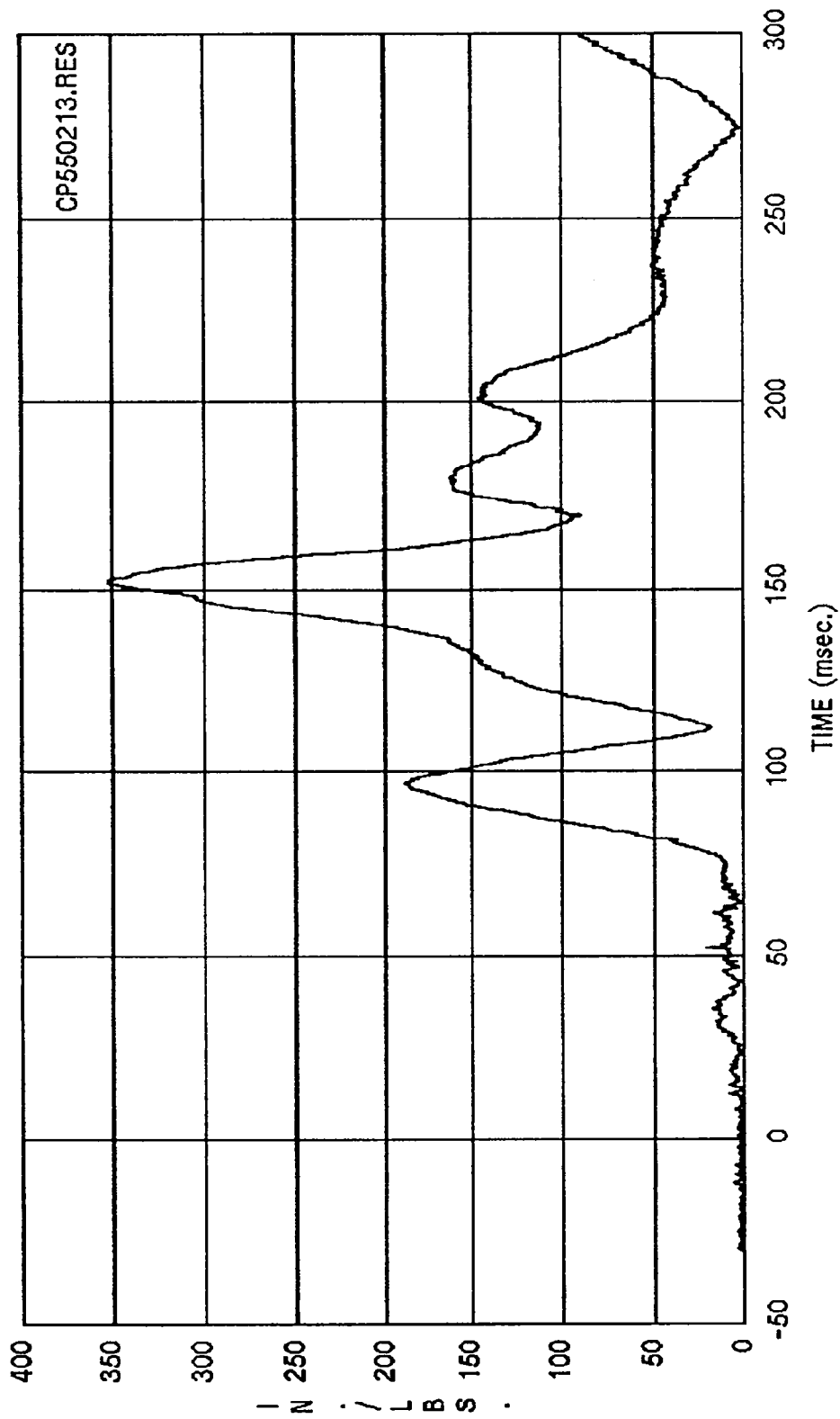
Curve: Driver neck moment -- Y axis Filter: SAE CLASS 600 Max = 188.41 Min = -329.31

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



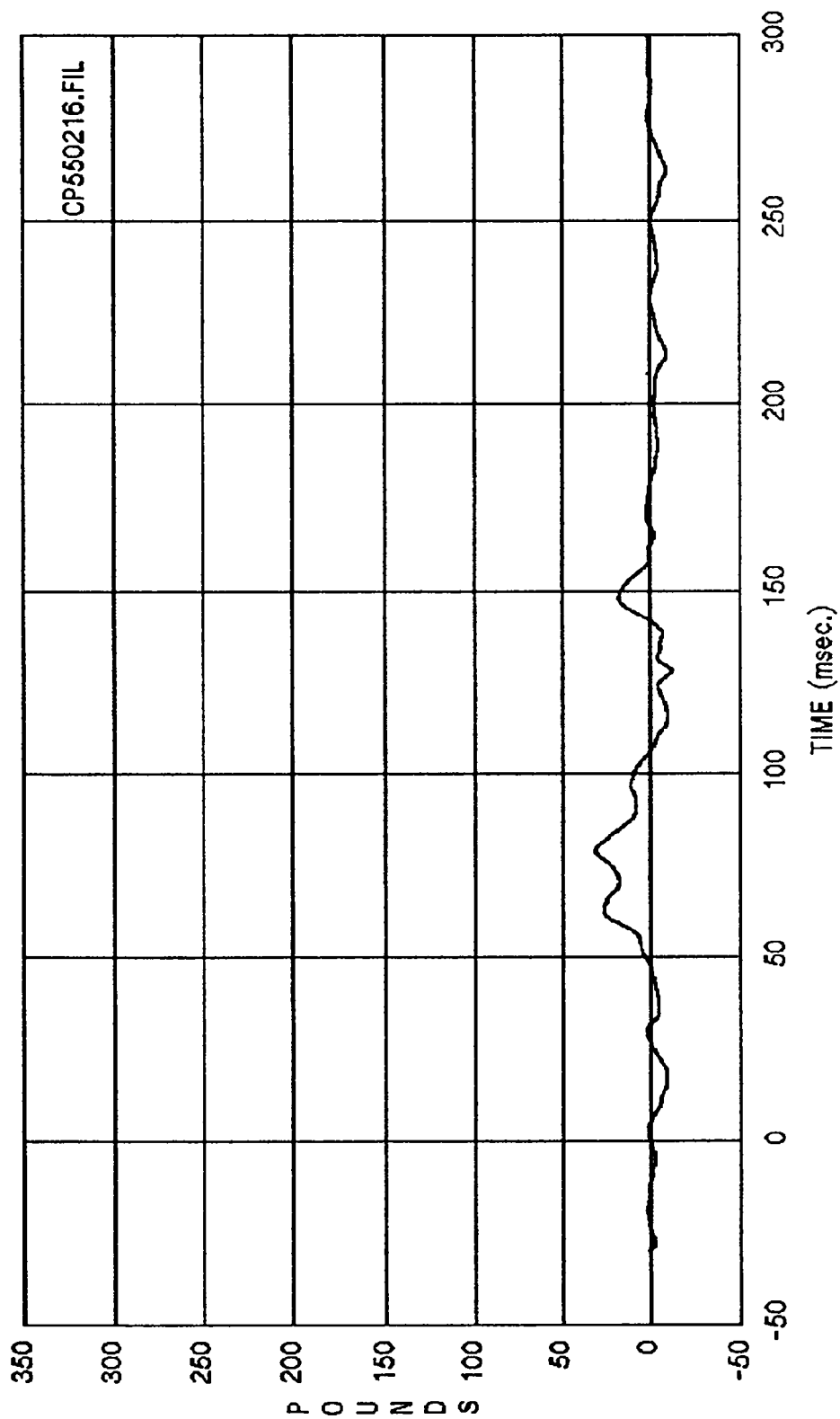
Curve: Driver neck moment -- Z axis Filter: SAE CLASS 600 Max = 75.075 Min = -17.974

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



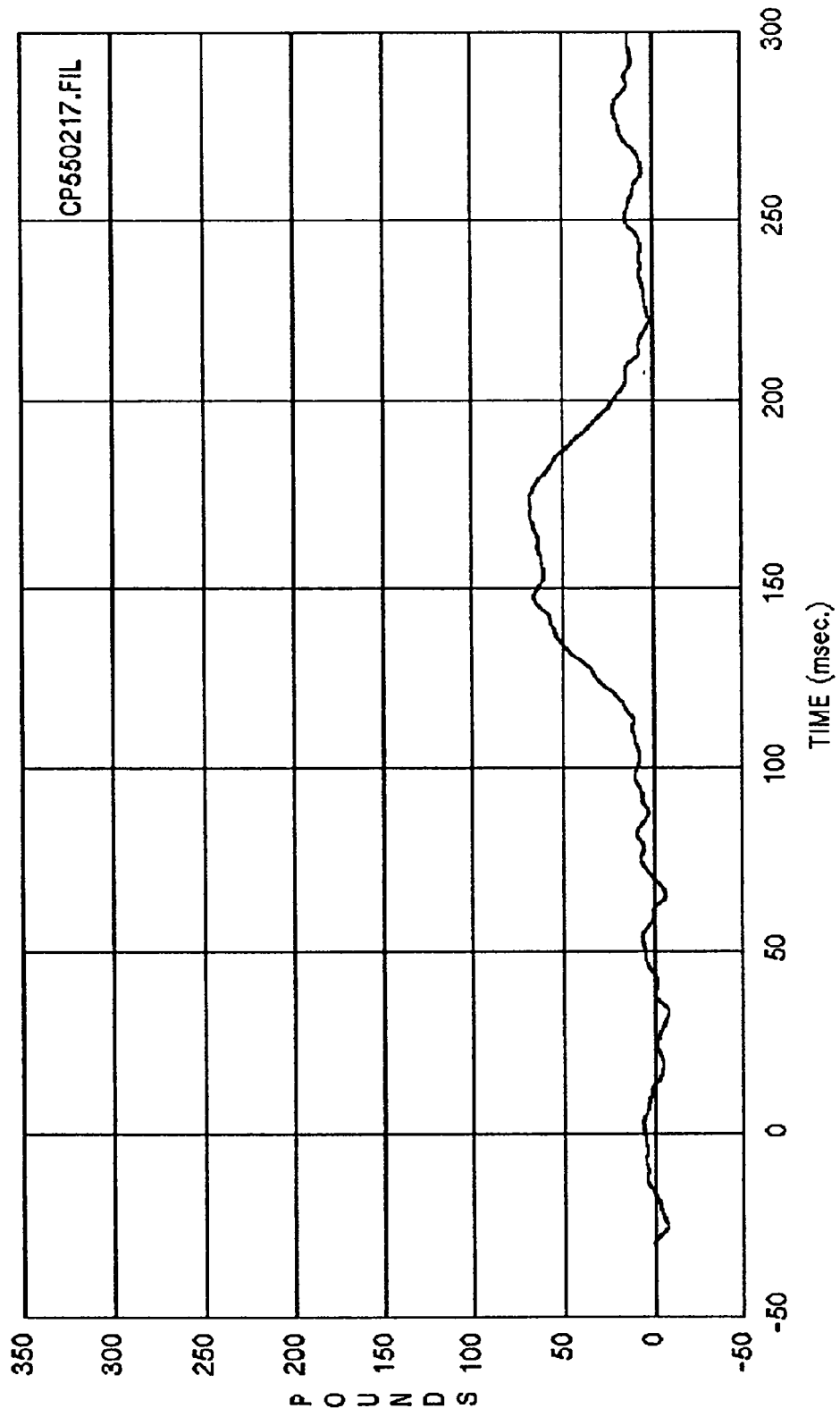
Curve: Driver neck moment -- Resultant Filter: SAE CLASS 600 Max = 352.52 Min = .74628

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale

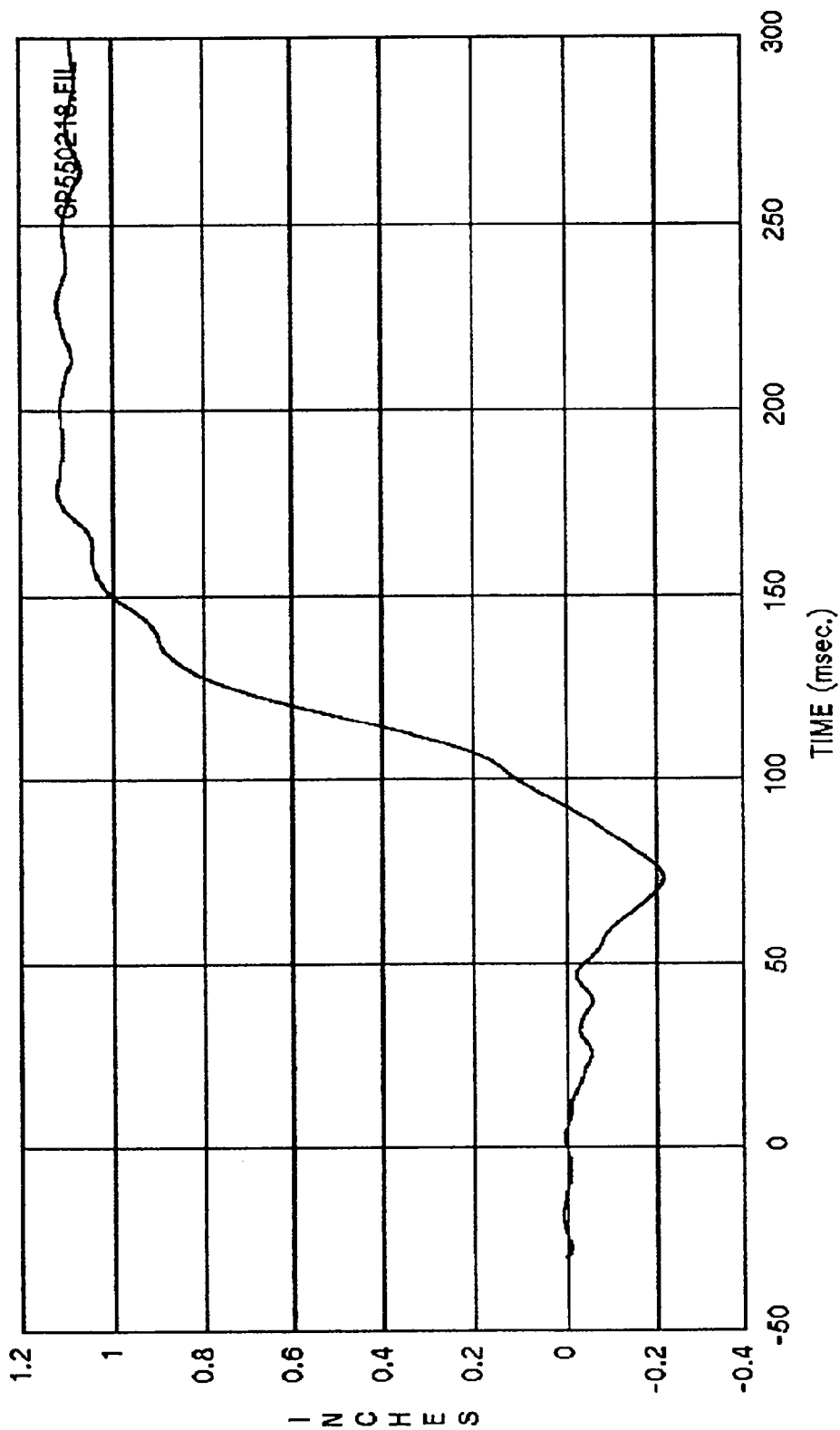


Curve: Driver lap belt load Filter: SAE CLASS 60 Max = 31.106 Min = -12.049

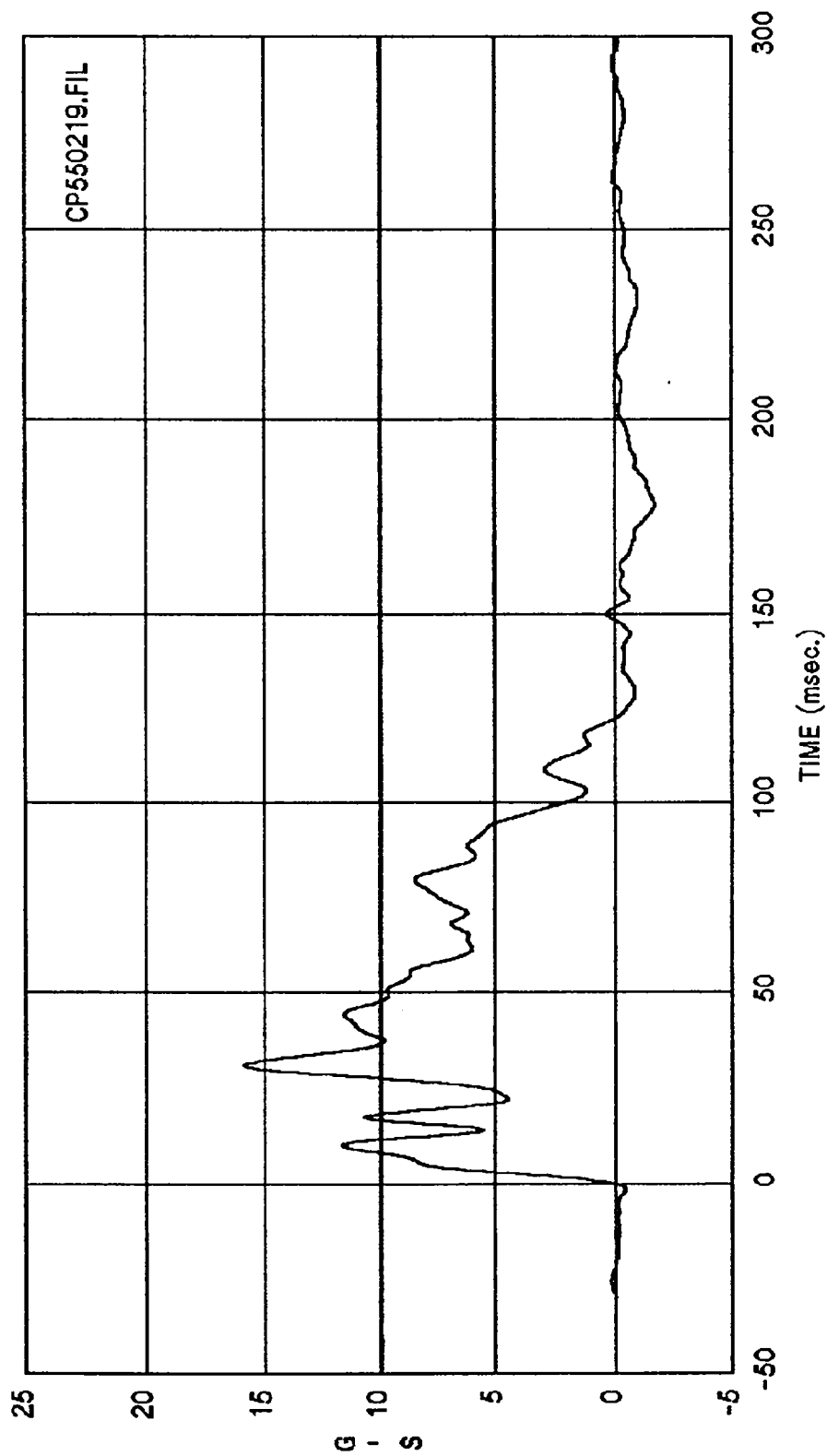
MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



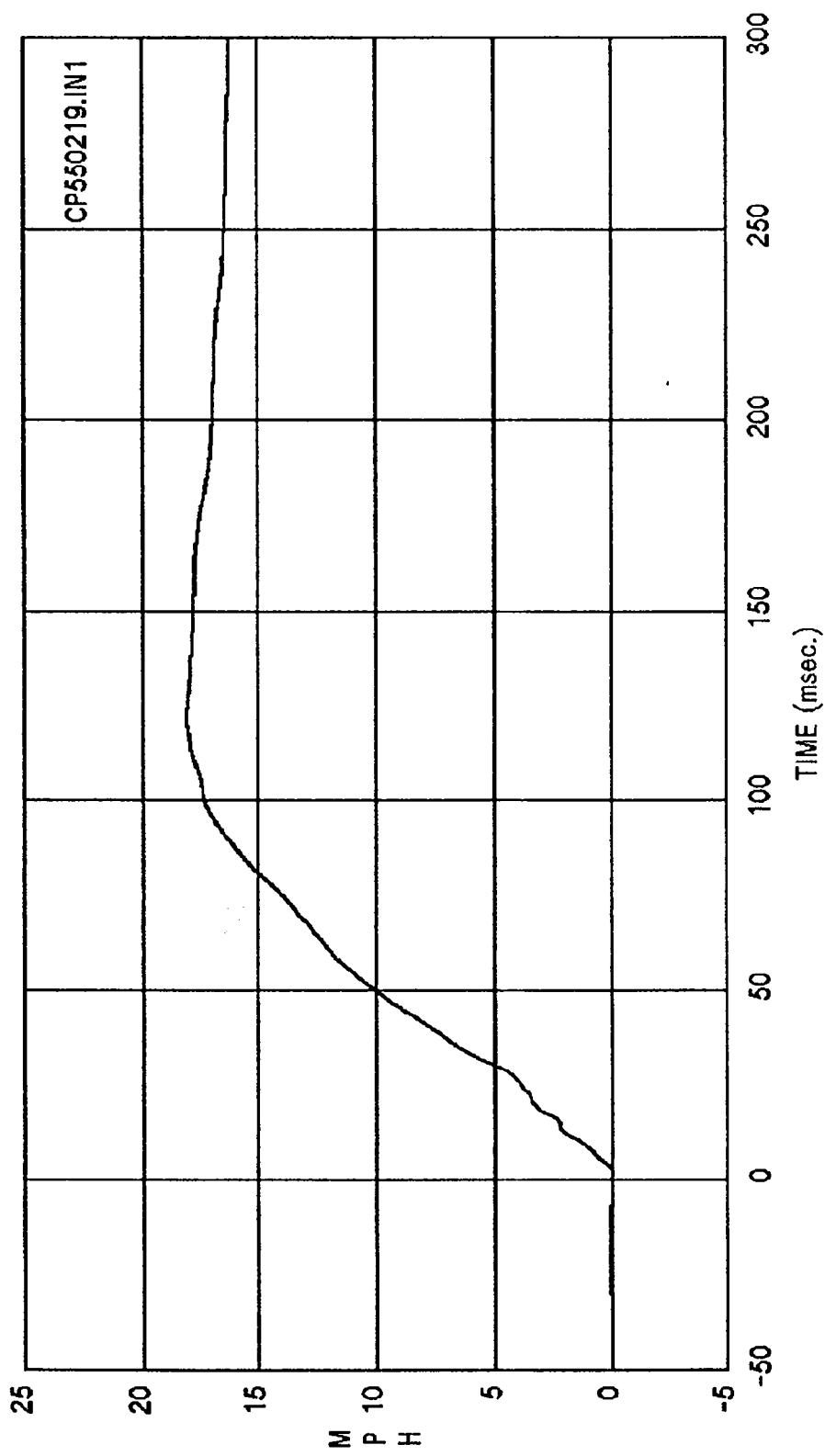
Curve: Driver shoulder belt load Filter: SAE CLASS 60 Max = 67.923 Min = -7.8336
MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



Curve: Driver lap belt pullout Filter: SAE CLASS 60 Max = 1.1209 Min = -.21520
MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale

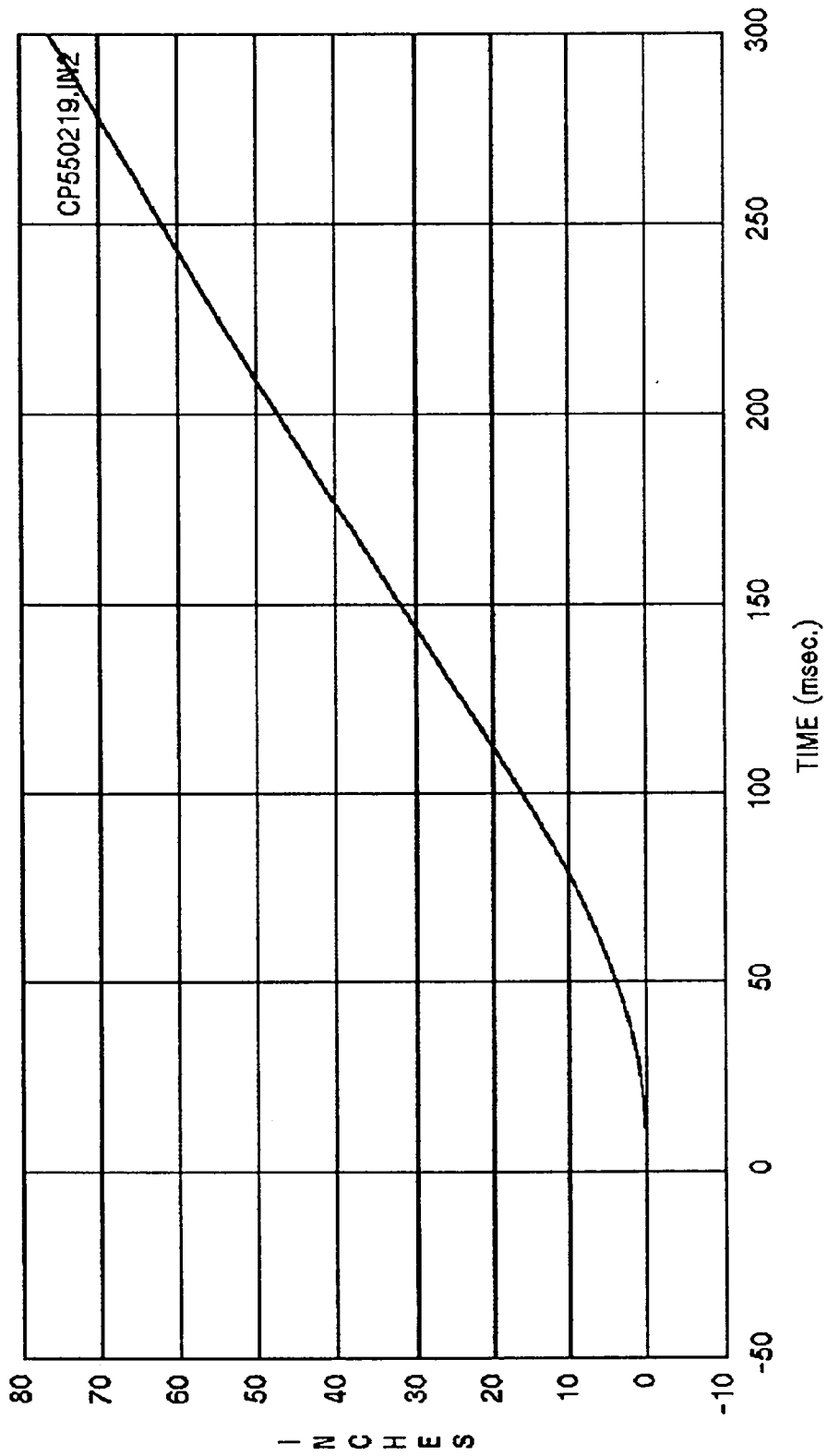


Curve: Vehicle C.G. acceleration -- X axis (Primary) Filter: SAE CLASS 60 Max = 15.879 Min = -1.6999
MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



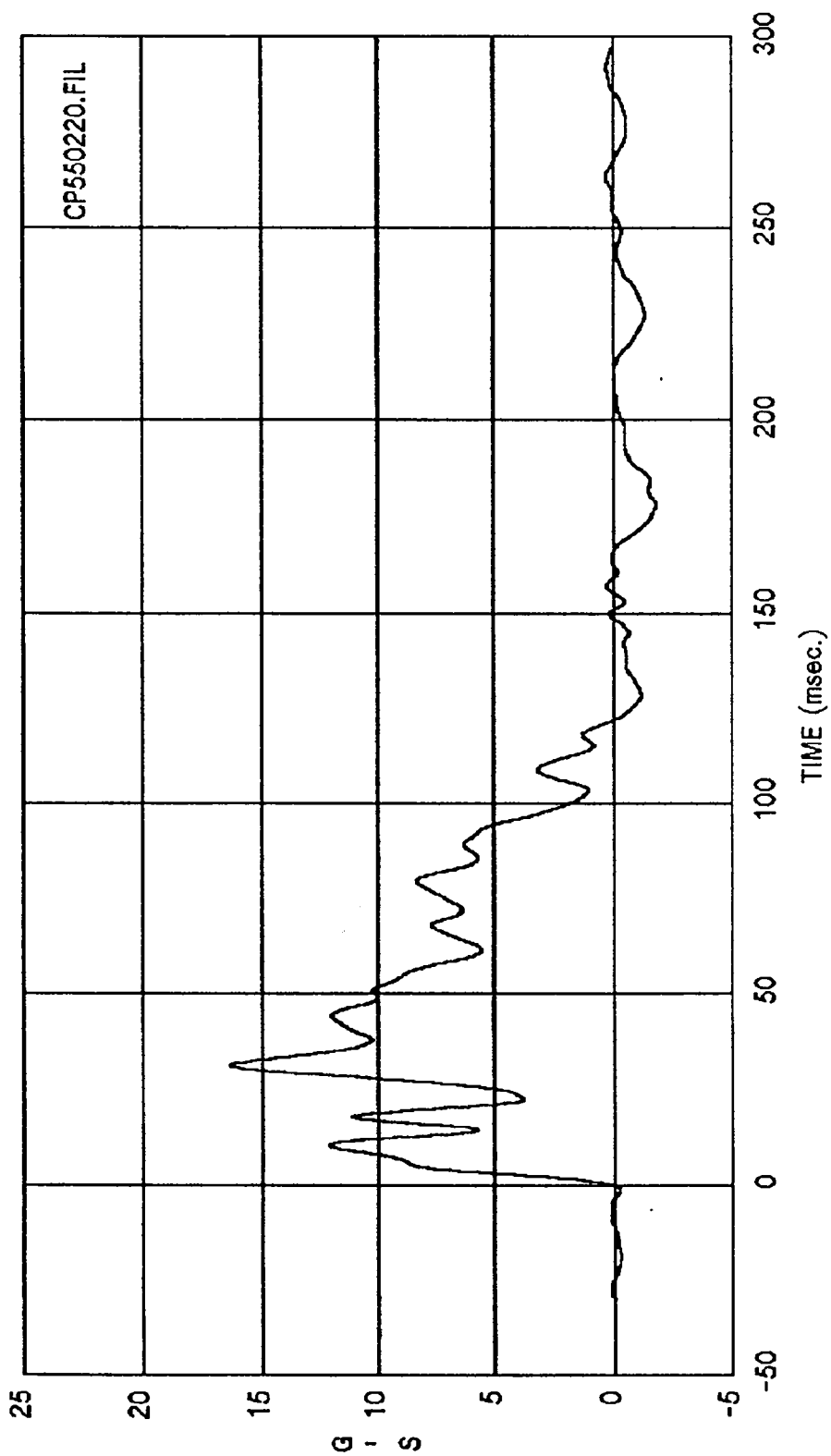
Curve: Vehicle C.G. delta V -- X axis (Primary) Filter: SAE CLASS 180 Max = 18.104 Min = -.10736E
01

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



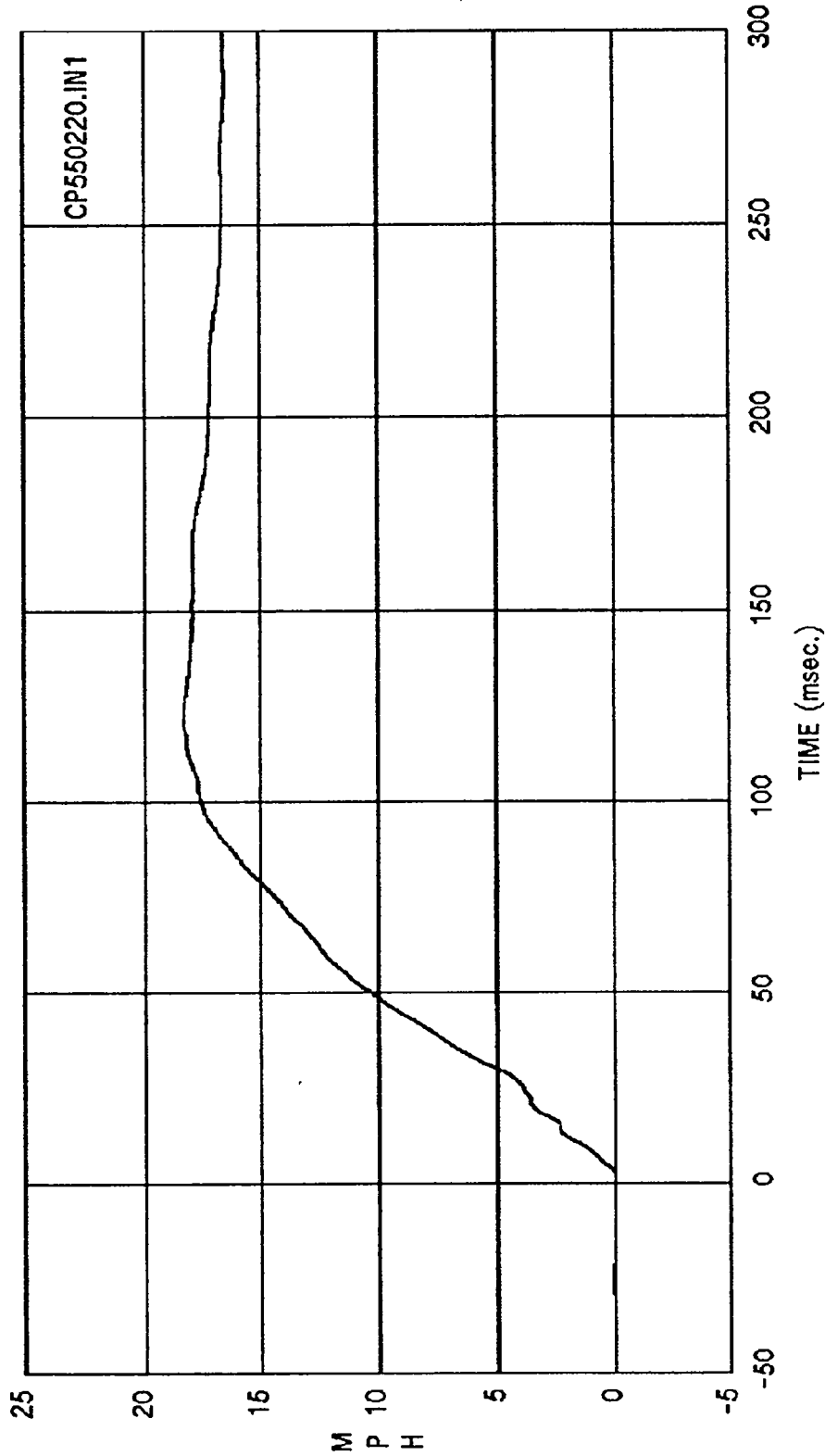
Curve: Vehicle C.G. displacement -- X axis (Primary) Filter: SAE CLASS 180 Max = 76.394 Min = -
.25036E-03

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



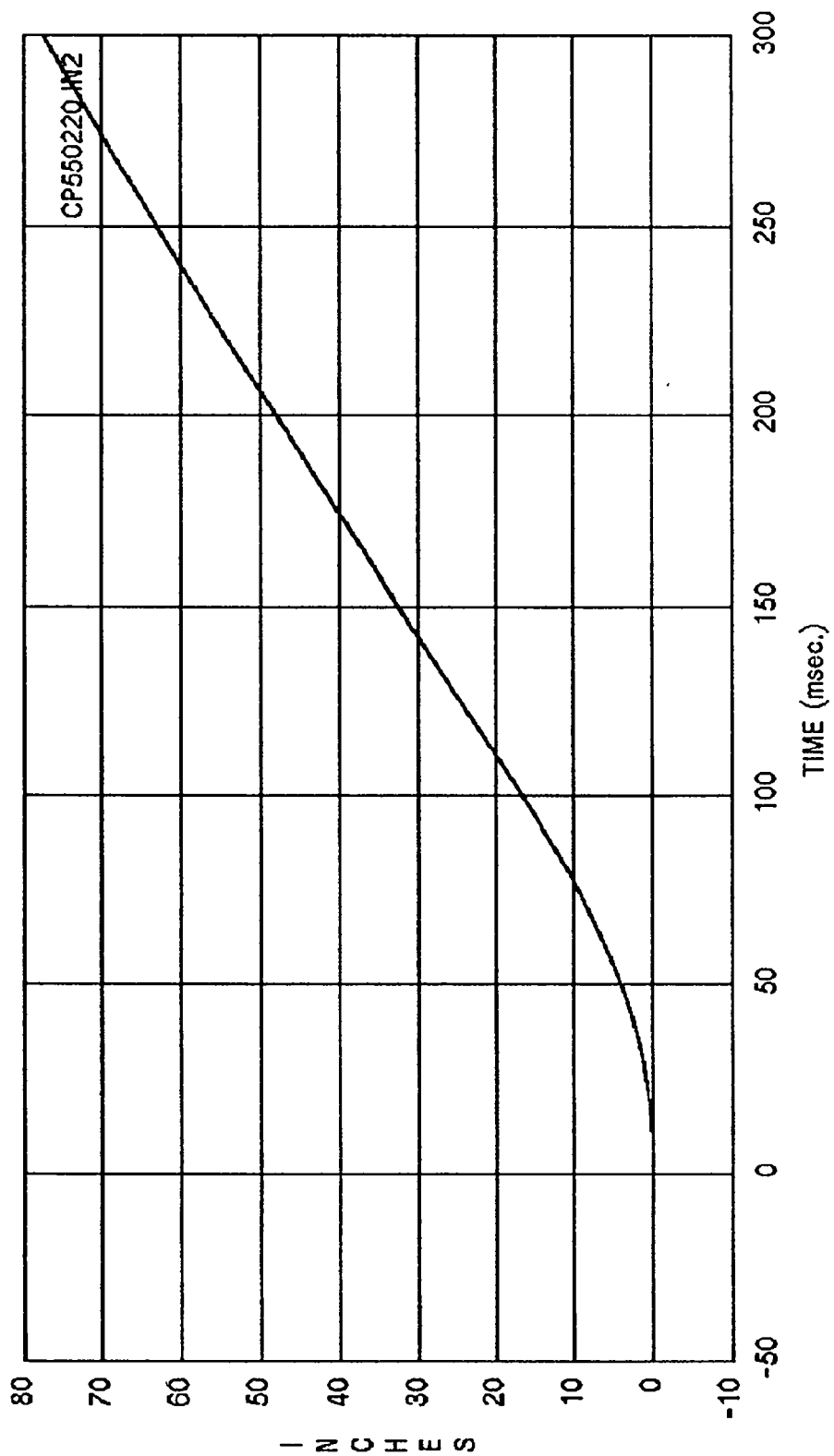
Curve: Vehicle C.G. acceleration -- X axis (Secondary) Filter: SAE CLASS 60 Max = 16.358 Min = -1.783

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



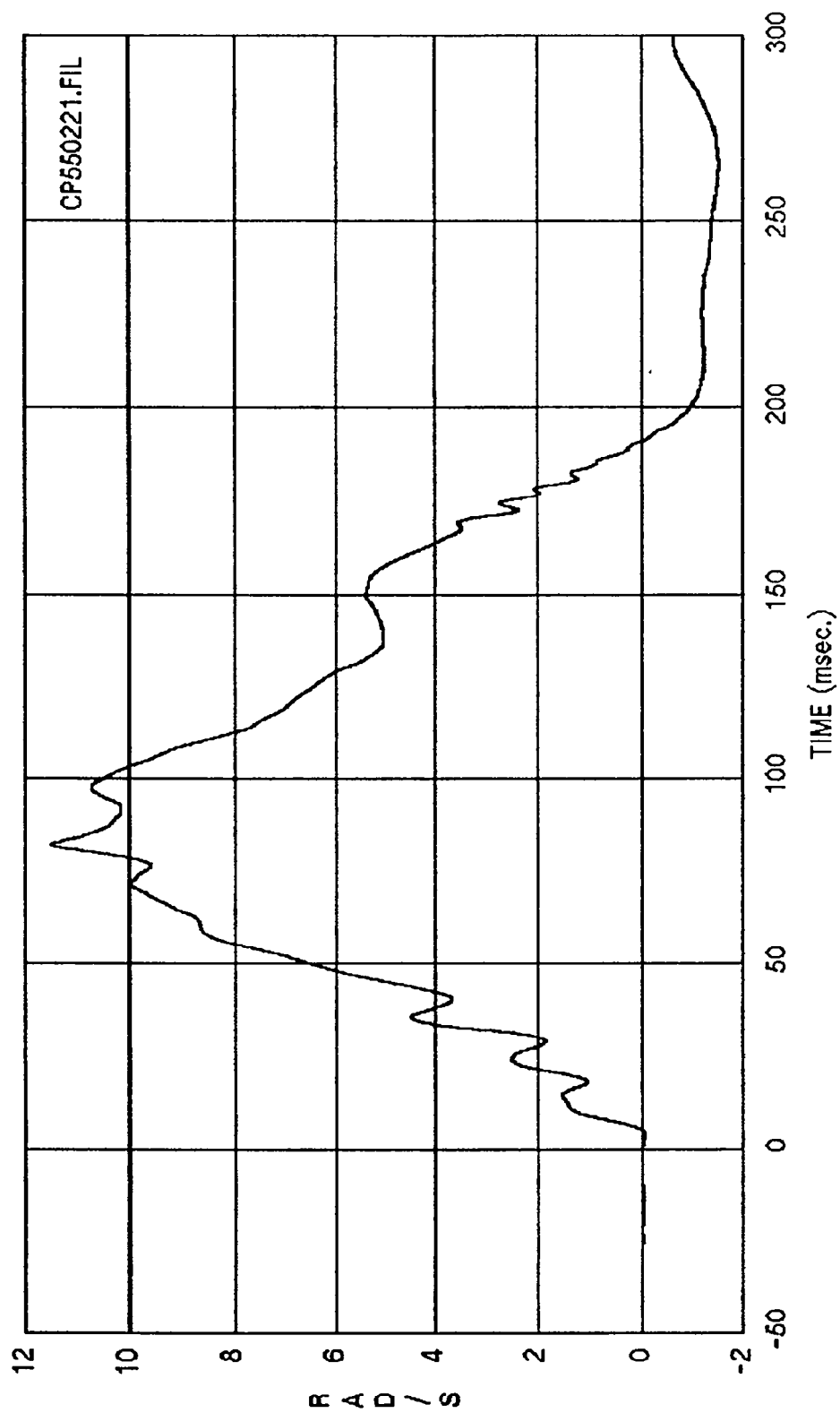
Curve: Vehicle C.G. delta V -- X axis (Secondary) Filter: SAE CLASS 180 Max = 18.348 Min = -
.65214E-02

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



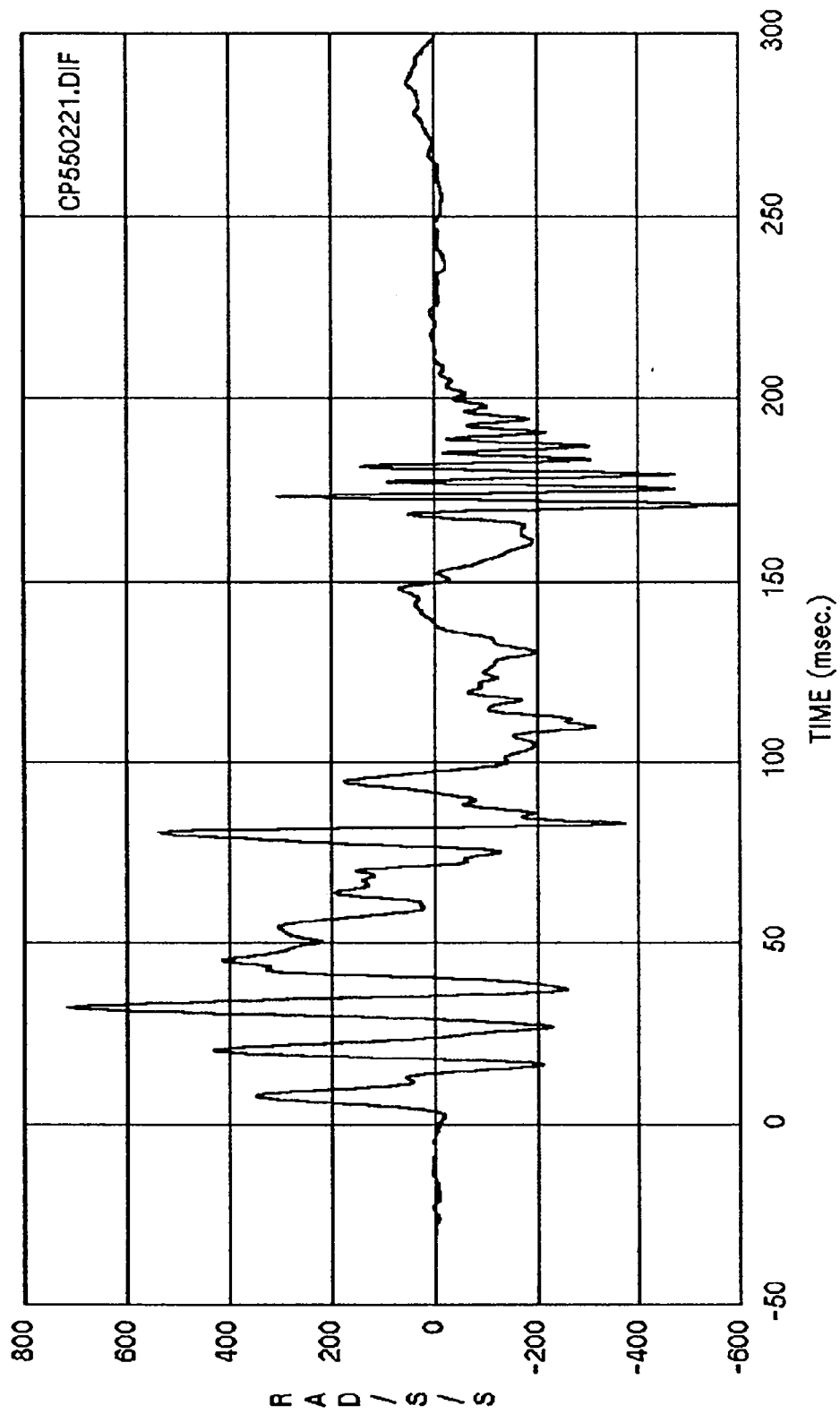
Curve: Vehicle C.G. displacement -- X axis(Secondary) Filter: SAE CLASS 180 Max = 77.626 Min = -
.12961E-03

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



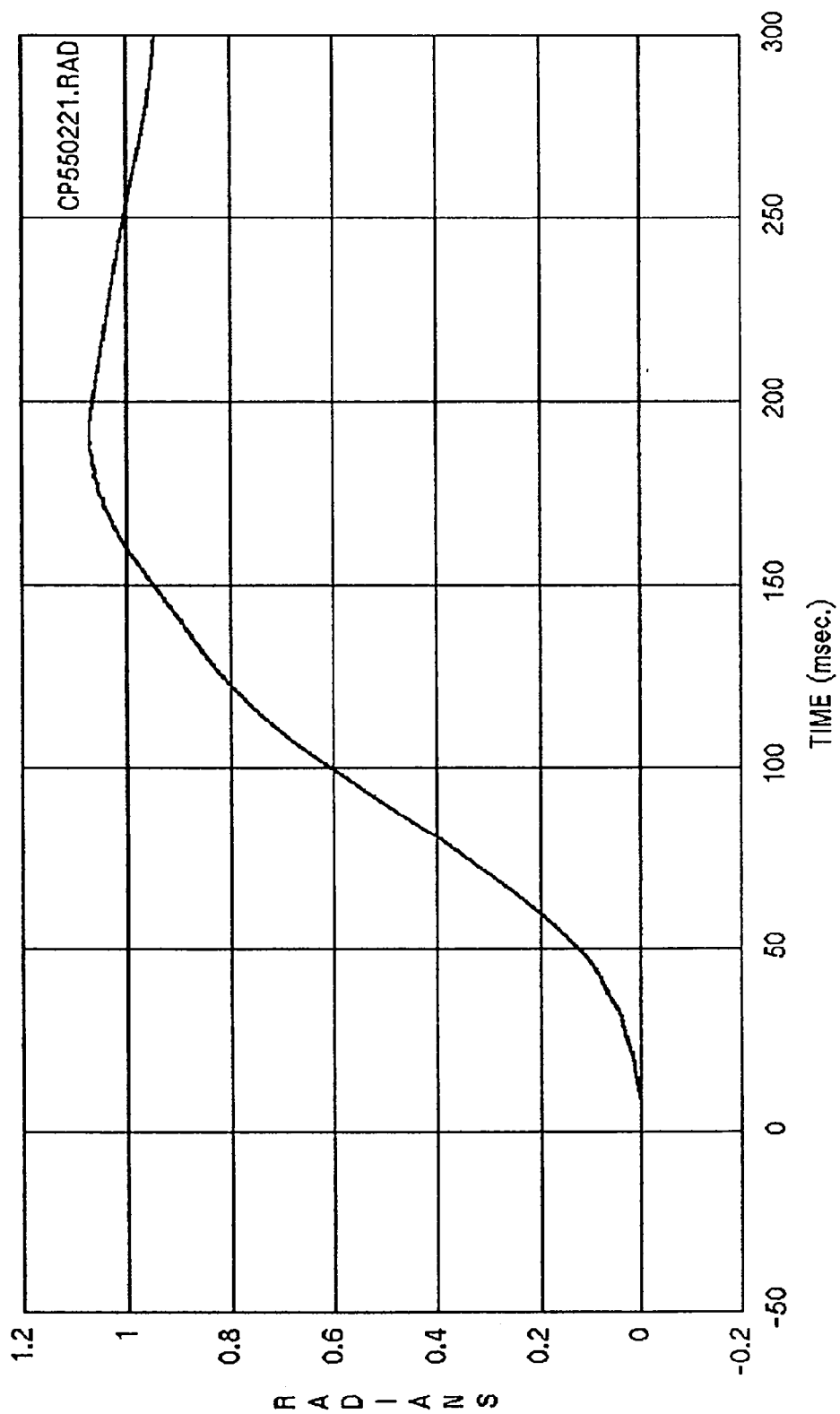
Curve: Driver seatback angular rate -- X axis Filter: SAE CLASS 60 Max = 11.497 Min = -1.4833

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale

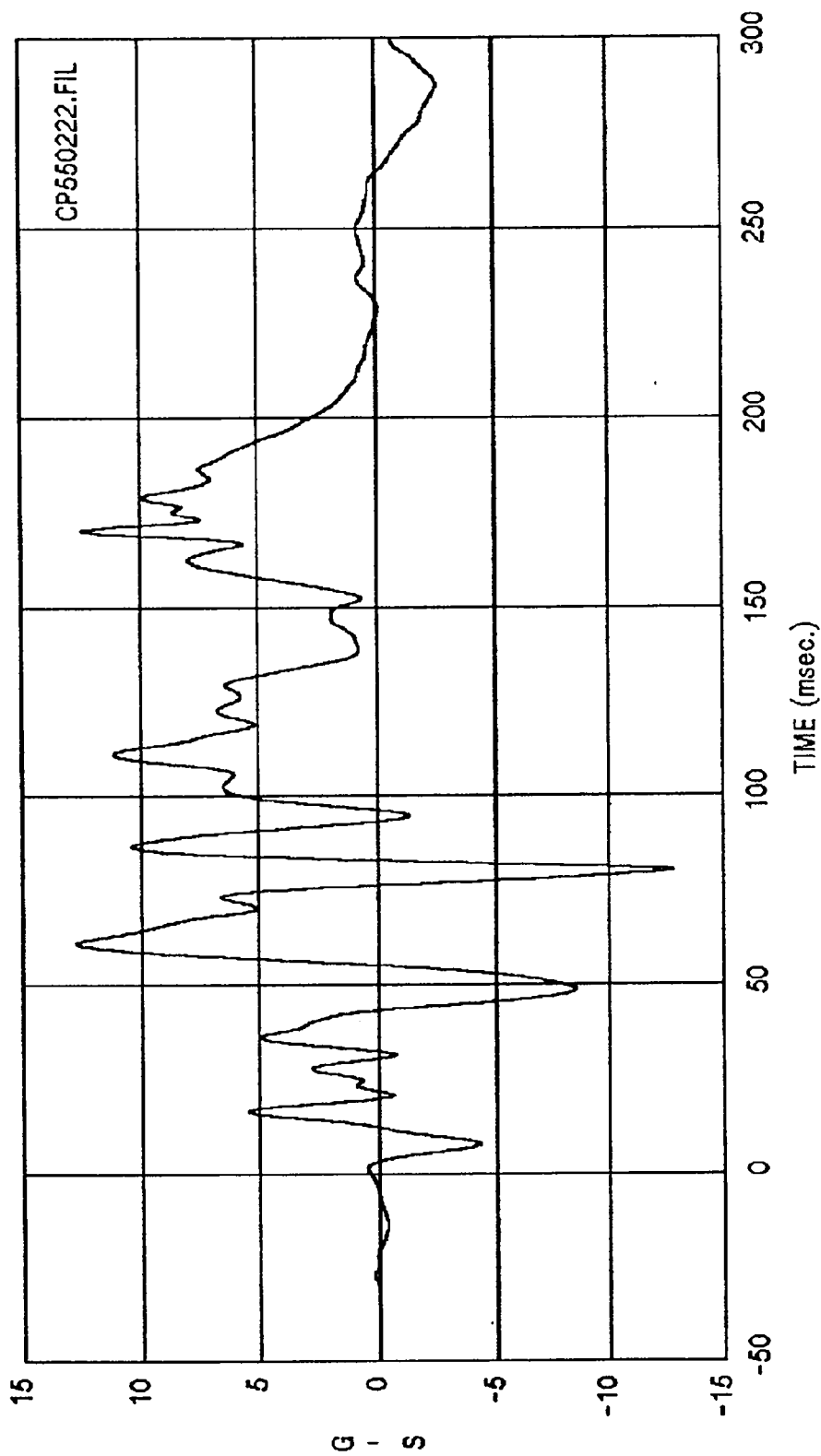


Curve: Driver seatback angular acceleration Filter: SAE CLASS 60 Max = 716.65 Min = -598.38

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale

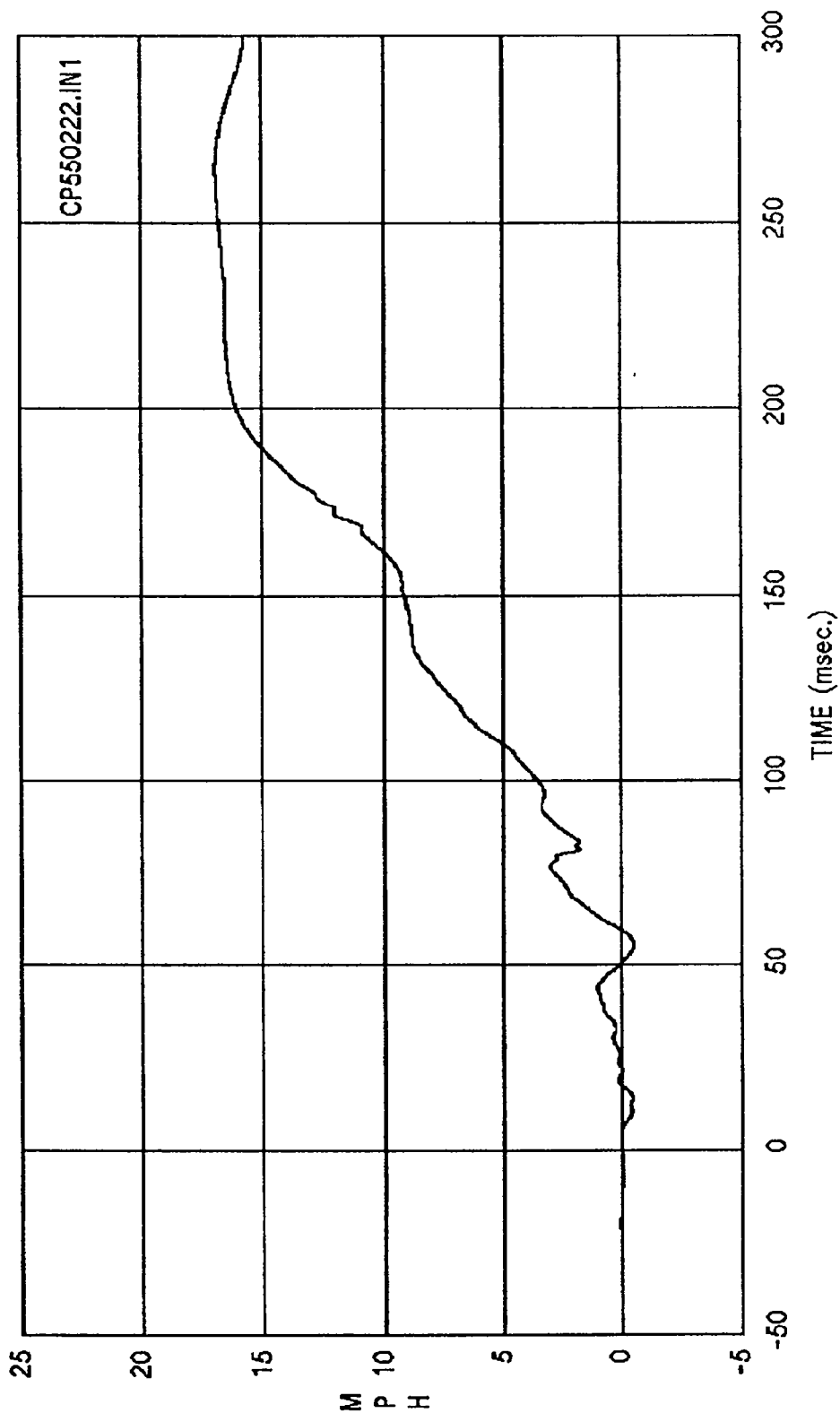


Curve: Driver seatback angular rotation Filter: SAE CLASS 180 Max = 1.0720 Min = -.46274E-
MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale

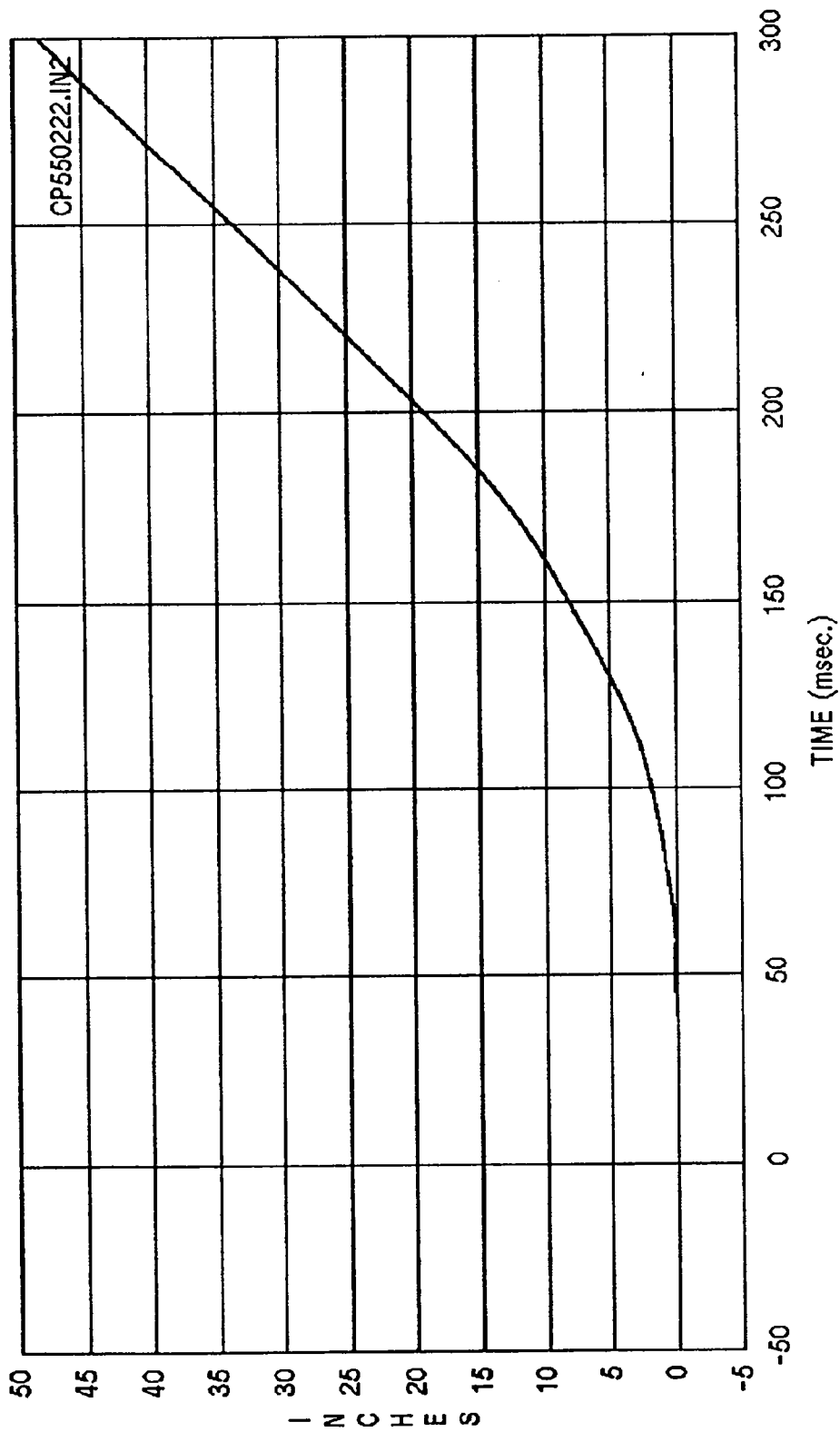


Curve: Driver seatback acceleration -- X axis Filter: SAE CLASS 60 Max = 12.757 Min = -12.905

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



Curve: Driver seatback delta V -- X axis Filter: SAE CLASS 180 Max = 16.902 Min = -.48668
MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale



Curve: Driver seatback displacement Filter: SAE CLASS 180 Max = 48.186 Min = -.55540E-01

MSE Date: 07/06/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Subaru Loyale

SECTION 7
INSTRUMENTATION AND CALIBRATION DATA

General Test Information

VERSNO: V2 TGID: 1
TITLE: 1993 FMVSS 301-75 REAR COMPLIANCE
TSTOBJ: DETERMINE COMPLIANCE TO 301-75 REAR/ACQUIRE DRIVER DUMMY DATA
TSTDAT: 06/JUL/93 TSTPRF: MSE CONNO: DINH22-93-C-01007
TSTREF: CP5502 TSTTYP: COM TSTCFN: ITV
TKSURF: CON TKCOND: DRY TEMP: 93 RECTYP: FMT
LINK: UMB CLSSPD: 29.5 IMPANG: 180 OFFSET: 0.0
IMPPNT: 9999.9 MEASUR: ENG TOTCRV: 22
TSTCOM: NO COMMENTS

VGINO:	VEHNO:	MAKE:	MODEL:	YEAR:	BODY:
VIN:	ENGINE:	NAPP	ENGDSP:	TRANSM:	NA
VEHIWT:	WHLBAS:	102.0	VEHLEN:	139.0	VEHWID:
72.5	STRSEP:	NA	COLMEC:	NAP	MODIND:
R	MODDSC:	FLAT IMPACTOR,	Moving		

1:9999.9
2:9999.9
3:9999.9
4:9999.9
5:9999.9
6:9999.9
7:9999.9
8:9999.9
9:9999.9
10:9999.9
11:9999.9
12:9999.9
13:9999.9
14:9999.9
15:9999.9
16:9999.9
17:9999.9
18:9999.9
19:9999.9
20:9999.9
21:9999.9

BMPENG: NA

```

1: 0.0
2: 0.0
3: 0.0
4: 0.0
5: 0.0
6: 0.0

```

CRHDST: 999.9

1:9999.9
2:9999.9
3:9999.9
4:9999.9
5:9999.9
6:9999.9
7:9999.9
8:9999.9
9:9999.9
10:9999.9
11:9999.9
12:9999.9
13:9999.9
14:9999.9
15:9999.9
16:9999.9
17:9999.9
18:9999.9
19:9999.9
20:9999.9
21:9999.9

VEHOR: 999

VEHCOM: NO COMMENTS

Vehicle Information

VGID: 2 VEHNO: 2 MAKE: 26 MODEL: 03 YEAR: 93 BODY: 4S
 VIN: JFIAC4221PB209091 ENGINE: 4CIF ENGDSP: 1.8 LITERS TRANSM: MF
 VEHIWT: 2774 WHLBAS: 97.2 VEHLLEN: 174.7 VEHWID: 65.4
 VEHCG: 39.8 STRSEP: UN COLMEC: NAP MODIND: P
 MODDSC: UNMODIFIED

BX

1:9999.9
 2:9999.9
 3:9999.9
 4:9999.9
 5:9999.9
 6:9999.9
 7:9999.9
 8:9999.9
 9:9999.9
 10:9999.9
 11:9999.9
 12:9999.9
 13:9999.9
 14:9999.9
 15:9999.9
 16:9999.9
 17:9999.9
 18:9999.9
 19:9999.9
 20:9999.9
 21:9999.9

VEHSPD: 0.0 CRBANG: 0 PDOF: 180 BMPENG: DE
 SILENG: NA APLENG: NA

DPD

1: 18.7
 2: 18.9
 3: 19.1
 4: 19.3
 5: 19.3
 6: 19.1

VDI: 06BDEW9 LENCNT: 60.0 DAMDST: 0.0 CRHDST: 19.3

AX

1:9999.9
 2:9999.9
 3:9999.9
 4:9999.9
 5:9999.9
 6:9999.9
 7:9999.9
 8:9999.9
 9:9999.9
 10:9999.9
 11:9999.9
 12:9999.9
 13:9999.9
 14:9999.9
 15:9999.9
 16:9999.9
 17:9999.9
 18:9999.9
 19:9999.9
 20:9999.9
 21:9999.9

CARANG: 999 VEHOR: 999
 VEHCOM: NO COMMENTS

Occupant Information

Occupant Group ID: 4 VEHNO: 2
OCCLOC: 01 OCCFYP: H3 OCCAGE: 99 OCCSEX: M OCCHT: 999 OCCWT: 999
MTHCAL: H3 DUMSIZ: 50
DUMMAN: MFG: FIRST TECHNOLOGY SAFETY SYSTEMS, S/N: 339
DUMMOD: UNMODIFIED
DUMDSC: NO COMMENT
HH: 12.0 HW: 18.4 HR: 7.4 HS: 10.9 CD: 19.4 CS: 11.5 AD: 4.0 HD: 6.3
KD: 5.6 HB:999.9 NB:999.9 CB:999.9 KB:999.9
RESTR1: PS2 RESTR2: LAP
RESTXT: NO COMMENTS
SEPOSN: CN AIRDEP: NA
CNTRH1: OT CNTRH2: NO CNTRC1: NO CNTRC2: NO CNTRL1: NO CNTRL2: NO
HIC: 211. T1: 128.700 T2: 164.700
CLIP3M: 11.5 LFEM: 9999. RFEM: 9999. CSI: 25. LBELT: 31. SBELT: 68.
OCCCOM: CNTRH1: HEAD CONTACTED HEADREST AND REAR SEAT

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 001	
SENTYP: AC	SENLOC: 01	SENATT: HDCG	
AXIS: XL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-200,	S/N: BF83H	
CALDAT: 01/APR/93	INSRAT: 200	CHLMAX: 17	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 002	
SENTYP: AC	SENLOC: 01	SENATT: HDCG	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-200,	S/N: BJ15H	
CALDAT: 01/APR/93	INSRAT: 200	CHLMAX: 2	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 003	
SENTYP: AC	SENLOC: 01	SENATT: HDCG	
AXIS: ZL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-200,	S/N: BG29H	
CALDAT: 01/APR/93	INSRAT: 200	CHLMAX: 14	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 004	
SENTYP: AC	SENLOC: 01	SENATT: CHST	
AXIS: XL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-200,	S/N: BJ61H	
CALDAT: 01/APR/93	INSRAT: 200	CHLMAX: 5	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 005	
SENTYP: AC	SENLOC: 01	SENATT: CHST	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-200,	S/N: BG95H	
CALDAT: 01/APR/93	INSRAT: 200	CHLMAX: 2	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 006	
SENTYP: AC	SENLOC: 01	SENATT: CHST	
AXIS: ZL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-200,	S/N: BJ54H	
CALDAT: 01/APR/93	INSRAT: 200	CHLMAX: 4	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 007	
SENTYP: LC	SENLOC: 01	SENATT: PVCN	
AXIS: XL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-200,	S/N: AE09	
CALDAT: 01/APR/93	INSRAT: 200	CHLMAX: 11	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 008	
SENTYP: LC	SENLOC: 01	SENATT: PVCN	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-200,	S/N: AD61	
CALDAT: 01/APR/93	INSRAT: 200	CHLMAX: 3	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 009	
SENTYP: AC	SENLOC: 01	SENATT: PVCN	
AXIS: ZL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-200,	S/N: AD98	
CALDAT: 01/APR/93	INSRAT: 200	CHLMAX: 4	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 010	
SENTYP: LC	SENLOC: 01	SENATT: NECU	
AXIS: XL	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: R. A. DENTON,	MODEL: 1716A,	S/N: 0441 FX	
CALDAT: 02/NOV/92	INSRAT: 2000	CHLMAX: 2	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 011	
SENTYP: LC	SENLOC: 01	SENATT: NECU	
AXIS: YL	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: R. A. DENTON, MODEL: 1716A,	S/N: 0441 FY		
CALDAT: 02/NOV/92	INSRAT: 2000	CHLMAX: 1	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 012	
SENTYP: LC	SENLOC: 01	SENATT: NECU	
AXIS: ZL	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: R. A. DENTON, MODEL: 1716A,	S/N: 0441 FZ		
CALDAT: 02/NOV/92	INSRAT: 3000	CHLMAX: 13	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 013	
SENTYP: LC	SENLOC: 01	SENATT: NECU	
AXIS: XL	UNITS: OTH	PREFIL: 1650	
INSMAN: MFG: R. A. DENTON, MODEL: 1716A,	S/N: 0441 MX		
CALDAT: 02/NOV/92	INSRAT: 2500	CHLMAX: 6	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: UNITS: IN.-LBS.			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 014	
SENTYP: LC	SENLOC: 01	SENATT: NECU	
AXIS: YL	UNITS: OTH	PREFIL: 1650	
INSMAN: MFG: R. A. DENTON, MODEL: 1716A,	S/N: 0441 MY		
CALDAT: 02/NOV/92	INSRAT: 2500	CHLMAX: 13	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: UNITS: IN.-LBS.			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 015	
SENTYP: LC	SENLOC: 01	SENATT: NECU	
AXIS: ZL	UNITS: OTH	PREFIL: 1650	
INSMAN: MFG: R. A. DENTON, MODEL: 1716A,	S/N: 0441 MZ		
CALDAT: 02/NOV/92	INSRAT: 2500	CHLMAX: 3	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: UNITS: IN.-LBS.			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 016	
SENTYP: LC	SENLOC: NA	SENATT: LBPO	
AXIS: NA	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: LEBOW,	MODEL: 3371, S/N: 330		
CALDAT: 05/APR/93	INSRAT: 3500	CHLMAX: 1	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 017	
SENTYP: LC	SENLOC: NA	SENATT: SHBT	
AXIS: NA	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: LEBOW,	MODEL: 3371, S/N: 308		
CALDAT: 05/APR/93	INSRAT: 3500	CHLMAX: 2	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 018	
SENTYP: DS	SENLOC: NA	SENATT: LBPO	
AXIS: NA	UNITS: INS	PREFIL: 1650	
INSMAN: MFG: MSE, MODEL: 101-24, S/N: 001			
CALDAT: 30/APR/93	INSRAT: 24	CHLMAX: 5	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENTS			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 019	
SENTYP: AC	SENLOC: NA	SENATT: VECG	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSOR, MODEL: 3031-200, S/N: 23-200			
CALDAT: 30/MAR/93	INSRAT: 200	CHLMAX: 16	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 020	
SENTYP: AC	SENLOC: NA	SENATT: VECG	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSOR, MODEL: 3031-200, S/N: 26-200			
CALDAT: 30/MAR/93	INSRAT: 200	CHLMAX: 18	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 021	
SENTYP: AV	SENLOC: NA	SENATT: SELF	
AXIS: XG	UNITS: RPS	PREFIL: 1650	
INSMAN: MFG: ATA,	MODEL: ARS-01, S/N: 185		
CALDAT: 26/APR/93	INSRAT: 200	CHLMAX: 8	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 022	
SENTYP: AC	SENLOC: NA	SENATT: SELF	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSOR,	MODEL: 3031-200, S/N: HDIMP		
CALDAT: 30/MAR/93	INSRAT: 200	CHLMAX: 107	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			