

*via 14*

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

1993 FORD RANGER PICKUP

NHTSA No. CP0213

MOBILITY SYSTEMS AND EQUIPMENT COMPANY  
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CFR*

MAY 28, 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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## SECTION 1

### INTRODUCTION

This report presents information on tests conducted on a 1993 Ford Ranger Pickup, NHTSA No. CP0213, 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.

No test failures related to FMVSS 301-75 Rear were identified for the tested 1993 Ford Ranger Pickup.

## SECTION 2

### TEST PROCEDURE AND SUMMARY DATA

The 1993 Ford Ranger Pickup, NHTSA No. CP0213, was subjected to FMVSS 301-75 Rear testing on May 5, 1993. The vehicle is shown in pretest condition in Figures 5-1 to 5-4. The manufacturer's certification label and tire placard are shown in Figure 5-5.

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 accelerometers 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 shoulder 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 frame rail of the driver seat. 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 2-2.

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 29.31 mph. The 1993 Ford Ranger Pickup, NHTSA No. CP0213 had no fuel system leaks. No test failures related to FMVSS 301-75 Rear were identified on the tested 1993 Ford Ranger Pickup.

TABLE 2-1

SUMMARY OF RESULTS

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1993/Ford/Ranger/Pickup

VEHICLE NHTSA No.: CP0213 TEST MODE: Rear Moving Barrier

TEST DATE: 05/05/93 TIME: 4:30 pm TEMPERATURE: 75° F

VEHICLE TEST WEIGHT: 3526 lb IMPACT VELOCITY: 29.31 mph

STATIC CRUSH: Left Side = 9.5 in  
 Right Side = 9.6 in  
 Centerline = 11.0 in

AVERAGE CRUSH: 10.0 in

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

TYPE OF FRONT OCCUPANT RESTRAINT INSTALLED IN TEST VEHICLE:

Driver DSP: 3 Point Continuous Webbing Active Belt

Outboard Front Passenger DSP: 3 Point Continuous Webbing Active Belt

VISIBLE ATD CONTACT POINTS:

Driver ATD: Top of head hit just above the rear window.

Passenger ATD: N/A

VEHICLE DOOR OPENING INFORMATION:

Door	Opened	Jammed
Right Front	Yes	No
Left Front	Yes	Yes
Right Rear	N/A	N/A
Left Rear	N/A	N/A

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	118	44	44	-1	16	1000
2. Overhead	-24	0	236	-90	16	520
3. Left Side View	30	-660	55	-2	28	600
4. Right Side View #1	-55	475	58	-2	13	590
5. Right Side View #2	0	1200	125	-12	15-70 Zoom	24
6. Underbody View #1	71	2	-64	74	16	490
7. Underbody View #2	115	0	-68	78	16	600
8. Underbody View #3	183	-2	-65	57	16	610

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

Y - Film plane to monorail centerline

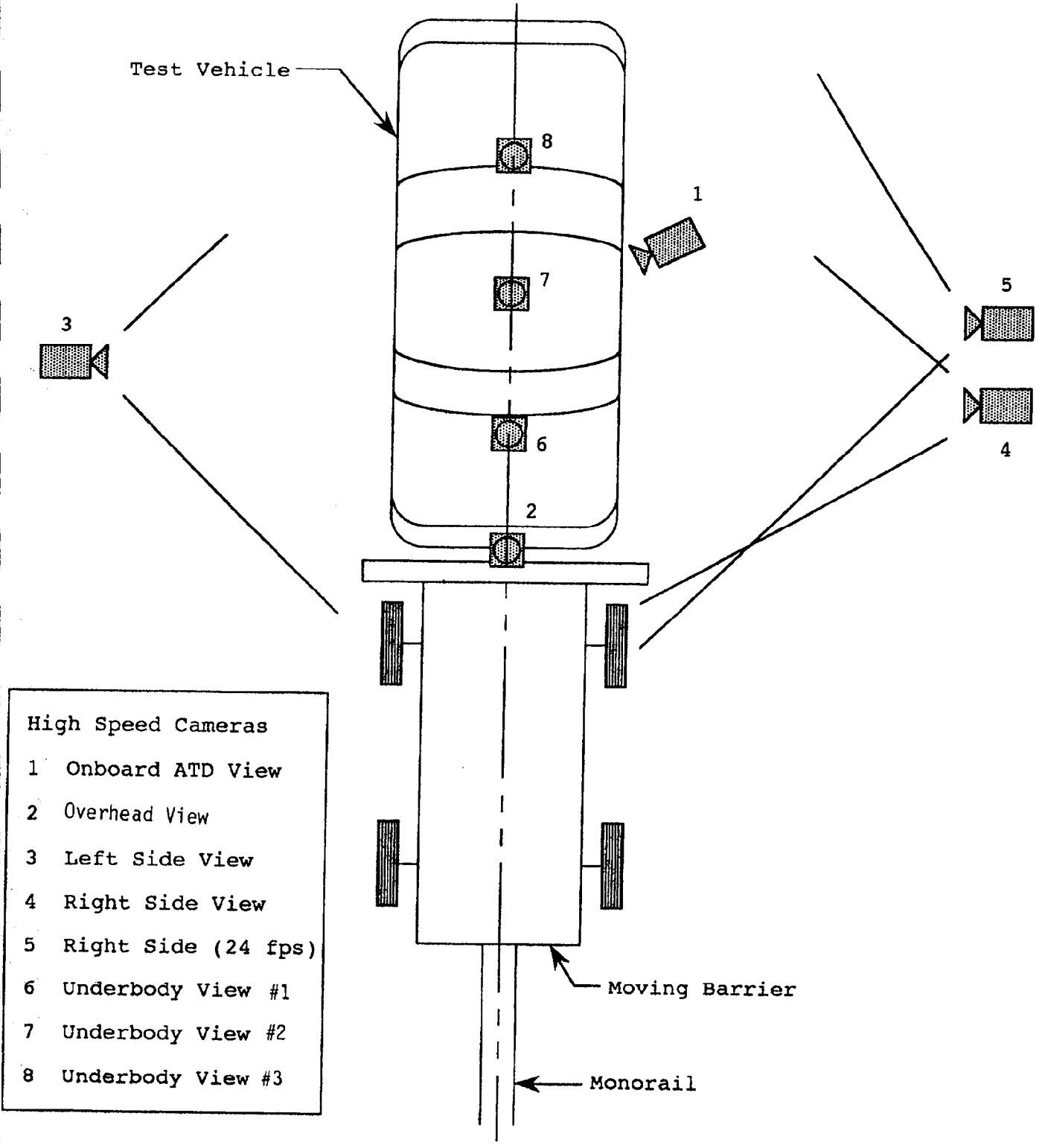
Z - Film plane to ground

Angle with reference to horizontal plane; + upwards, - downwards

\* SEE FIGURE 2-1 FOR CAMERA POSITIONS

FIGURE 2-1

CAMERA POSITIONS



### SECTION 3

#### COMPLIANCE TEST RESULTS

The results of the FMVSS 301-75 Rear compliance tests on the tested 1993 Ford Ranger Pickup, NHTSA No. CP0213, 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 29.31 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 5-6 to 5-9.

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 5-10 to 5-12.

Upon impact the driver ATD moved rearward with its head hitting the rear of the cab above the window. The Head Injury Criteria (HIC) for the driver ATD was 229.9. The chest resultant (3 msec clip) was 24.1 g's. All driver ATD instrumentation results are presented in Table 3-4. The angular rate sensor on the driver seat was not used on this test so no data was acquired.\* Pretest measurements are shown in Tables 3-5 and 3-6. Pretest and posttest views of the Driver ATD position are shown in Figures 5-13 and 5-14.

No test failures related to FMVSS 301-75 Rear were identified for the tested 1993 Ford Ranger Pickup.

\* SEE TABLE 3-7

TABLE 3-1

TEST VEHICLE DATA

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1993/Ford/Ranger/Pickup

VEHICLE NHTSA No.: C P 0 2 1 3; VIN: 1 F T C R 1 0 A 9 P T A 2 4 9 6 8

VEHICLE BODY COLOR: White; MONTH AND YEAR OF MANUFACTURE: 12/92

ENGINE: 4 Cylinders; 140 cu in; 2.3 Liters; \_\_\_\_\_ cc  
 Gas; \_\_\_\_\_ Diesel; \_\_\_\_\_ Turbocharged  
 PLACEMENT:  Longitudinal; \_\_\_\_\_ Transverse (Lateral)

TRANSMISSION: 4 Speed;  Manual; \_\_\_\_\_ Automatic;  Overdrive

FINAL DRIVE: \_\_\_\_\_ Front Wheel Drive;  Rear Wheel Drive; \_\_\_\_\_ Four Wheel Drive

DATE VEHICLE AVAILABLE FOR TESTING: 04/01/93

ODOMETER READING: 131 mi; OPTIONS: \_\_\_\_\_ A/C;  P/S; \_\_\_\_\_ P/Window;  
 \_\_\_\_\_ Tilt Whl.; \_\_\_\_\_ Cruise Control

GVWR: 4220 lb                      GAWR Front: 2050 lb                      GAWR Rear: 2384 lb

DATA RECORD FROM VEHICLE'S TIRE PLACARD:

Location of Placard on Vehicle: Driver Side Door  
 Recommended Cold Tire Pressure: 35 psi Front; 35 psi Rear  
 Tire Pressure (at maximum capacity): 35 psi Front; 35 psi Rear  
 Recommended Tire Size: P195/70R14SL Recommended Load Range: N/A  
 Tires on Vehicle: P195/70R14 Load Range: 3 Plies  
 Tire Manufacturer: Firestone Type of Spare Tire: T135/90D15  
 Number of Occupants: 3 Front; \_\_\_\_\_ Rear; \_\_\_\_\_ Third Seat; 3 TOTAL  
 Type of Front Seats: \_\_\_\_\_ Bucket;  Bench; \_\_\_\_\_ Split Bench  
 Type of Front Seat Back:  Fixed; \_\_\_\_\_ Adj. Lever; \_\_\_\_\_ Adj. Rotating Knob

Vehicle Maximum Capacity Loading: N/A lb  
 No. of Occupants x 150 lb: N/A lb  
 Cargo Capacity (Max - Occupants): 300 lb \*

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Right Front:	<u>787</u> lb		
Left Front:	<u>917</u> lb	Total Front:	<u>1704</u> lb (59% of Total)
Right Rear:	<u>623</u> lb		
Left Rear:	<u>578</u> lb	Total Rear:	<u>1201</u> lb (41% of Total)
		Total Weight:	<u>2905</u> lb

CALCULATION OF TEST VEHICLE TARGET WEIGHT:

Total Test Vehicle Delivered Weight With Maximum Fluids:	<u>2905</u> lb
Maximum Cargo Carrying Capacity of Test Vehicle:	<u>300</u> lb *
Weight of Two Part 572 ATD's (2 * 164 lb):	<u>328</u> lb
TEST VEHICLE TARGET WEIGHT:	<u>3533</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>937 lb</u>	Total Front:	<u>1988 lb</u> (56% of Total)
Left Front:	<u>1051 lb</u>	Total Rear:	<u>1538 lb</u> (44% of Total)
Right Rear:	<u>773 lb</u>		
Left Rear:	<u>765 lb</u>		

Total Weight: 3526 lb (includes 125 lb of sandbag ballast secured in the cargo / luggage area)

VEHICLE COMPONENTS REMOVED TO MEET TARGET WEIGHT:

1. N/A

2. N/A

TEST VEHICLE ATTITUDE:

As Delivered - Right Front:	<u>30.3 in</u>	Ready for Test - Right Front:	<u>29.3 in</u>
Left Front:	<u>30.0 in</u>	Left Front:	<u>29.1 in</u>
Right Rear:	<u>33.3 in</u>	Right Rear:	<u>31.4 in</u>
Left Rear:	<u>33.0 in</u>	Left Rear:	<u>31.5 in</u>

TEST VEHICLE DIMENSIONS:

Total Vehicle Length: 184.5 in

Wheelbase: 108.5 in

C. G. is 47.3 in rearward of front axle centerline.

FUEL SYSTEM DATA:

Fuel System Capacity Listed in Owner's Manual: 16.3 gallons  
Usable Capacity Figure Furnished by COTR: 16.3 gallons  
Test Volume Range (92% to 94% of Usable Capacity)  
15.0 gallons to 15.3 gallons  
ACTUAL TEST VOLUME: 15.3 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 forward of the rear axle, between the driveshaft and left frame rail. The filler neck is at the forward end of the bed on the left side. The filler hose runs straight down and across to the side of the fuel tank.

TABLE 3-2

POST IMPACT DATA

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1993/Ford/Ranger/Pickup

VEHICLE NHTSA No.: CP0213 TEST MODE: Rear Moving Barrier

TEST DATE: 05/05/93 TIME: 4:30 pm TEMPERATURE: 75° F

REQUIRED IMPACT VELOCITY RANGE: 28.9 to 29.9 mph

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

Trap No. 1 = 29.31 mph Trap No. 2 = 28.96 mph

Average Impact Speed = 29.14 mph

VEHICLE STATIC CRUSH:

Location	Pretest (in)	Posttest (in)	Crush(in)
Left Side	184.0	174.5	9.5
Right Side	184.0	174.4	9.6
Centerline	184.5	173.5	11.0
27.5" Left of C.L.	184.0	174.5	9.5
16.5" Left of C.L.	184.4	174.3	10.1
5.5" Left of C.L.	184.5	173.2	11.3
5.5" Right of C.L.	184.5	173.2	11.3
16.5" Right of C.L.	184.4	175.0	9.4
27.5" Right of C.L.	184.0	174.4	9.6

Collision Deformation Classification (CDC) Code: B

Midpoint of Damage: Vehicle Longitudinal Centerline

Length of Damaged Area: 60.0 in

Vehicle Wheelbase: 108.5 in

TABLE No. 3-3

FMVSS No. 301-75 STATIC ROLLOVER DATA

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1993/Ford/Ranger/Pickup

VEH. NHTSA NO.: CP0213 TEST DATE: 05/05/93

USABLE CAPACITY OF VEHICLE'S FUEL TANK: 16.3 Gallons (furnished by Mfr.)

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

15.3 Gallons, which is 93.9% of the stated usable capacity

SOLVENT SPILLAGE MEASUREMENT AFTER 20 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 3-3 Continued:

STATIC ROLLOVER TEST DATA:

A. Test Phase = 0 to 90 degrees

Determination of Stoddard Solvent Collection Time Period:

1. Rollover Fixture 90 degree Rotation Time = 1 minutes, 20 seconds

(Specified Range is 1 to 3 minutes)

2. FMVSS 301 Position Hold Time = 5 minutes, 0 seconds

3. TOTAL = 6 minutes, 20 seconds

4. NEXT WHOLE MINUTE INTERVAL = 7 minutes

Actual Test Vehicle Stoddard Solvent Spillage:

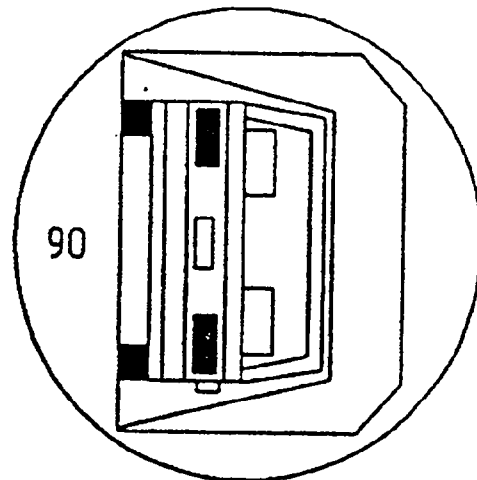
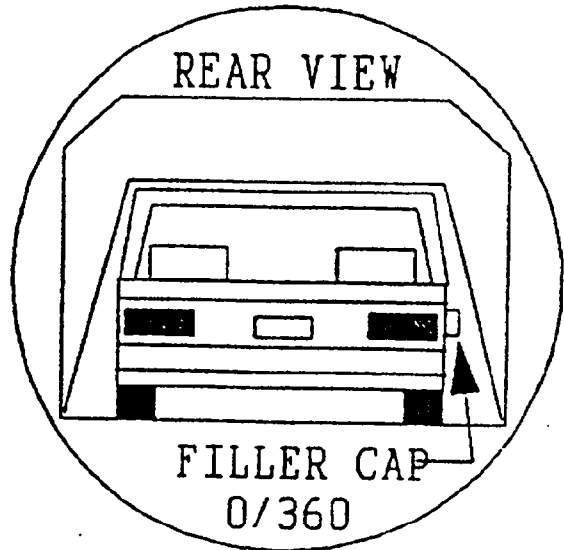
1. First 5 minutes from onset of rotation = 0 oz. (5 oz. allowed)

2. 6th minute = 0 oz. (1 oz. allowed)

3. 7th minute = 0 oz. (1 oz. allowed)

4. 8th minute (if required) = 0 oz. (1 oz. allowed)

Provide Details of Stoddard Solvent Spillage Locations--



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N/A

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TABLE 3-3 Continued: **ued:**

**B. Test Phase = 90 to 180 degrees**

**Determination of Stoddard Solvent Collection Time Period:**

1. Rollover Fixture 90 degree  
Rotation Time = 1 minutes,  
20 seconds

(Specified Range is 1 to 3  
minutes)

2. FMVSS 301 Position Hold  
Time = 5 minutes, 0 seconds

3. TOTAL = 6 minutes, 20  
seconds

4. NEXT WHOLE MINUTE INTERVAL =  
7 minutes

**Actual Test Vehicle Stoddard  
Solvent Spillage:**

1. First 5 minutes from onset of  
rotation = 0 oz. (5 oz.  
allowed)

2. 6th minute = 0 oz. (1 oz.  
allowed)

3. 7th minute = 0 oz. (1 oz.  
allowed)

4. 8th minute (if required) = 0  
oz. (1 oz. allowed)

**Provide Details of Stoddard Solvent Spillage Locations--**

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N/A

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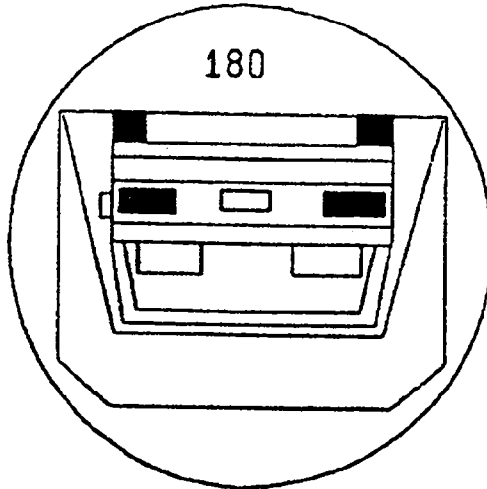
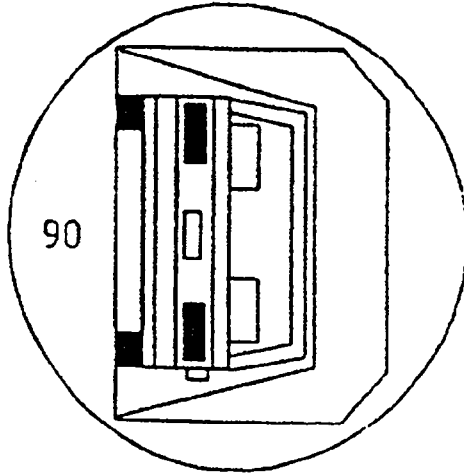


TABLE 3-3 Continued:

C. Test Phase = 180 to 270 degrees

Determination of Stoddard Solvent Collection Time Period:

1. Rollover Fixture 90 degree Rotation Time = 1 minutes, 20 seconds

(Specified Range is 1 to 3 minutes)

2. FMVSS 301 Position Hold Time = 5 minutes, 0 seconds

3. TOTAL = 6 minutes, 20 seconds

4. NEXT WHOLE MINUTE INTERVAL = 7 minutes

Actual Test Vehicle Stoddard Solvent Spillage:

1. First 5 minutes from onset of rotation = 0 oz. (5 oz. allowed)

2. 6th minute = 0 oz. (1 oz. allowed)

3. 7th minute = 0 oz. (1 oz. allowed)

4. 8th minute (if required) = 0 oz. (1 oz. allowed)

Provide Details of Stoddard Solvent Spillage Locations--

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N/A

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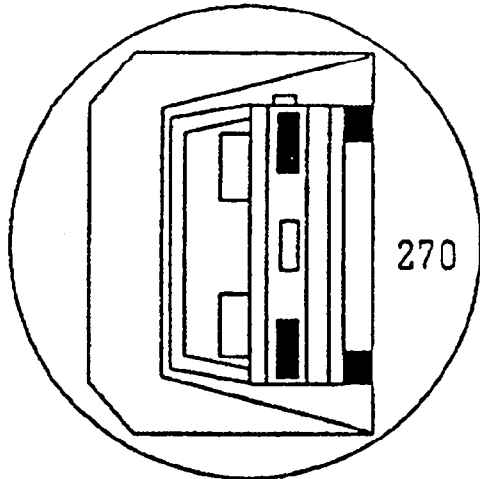
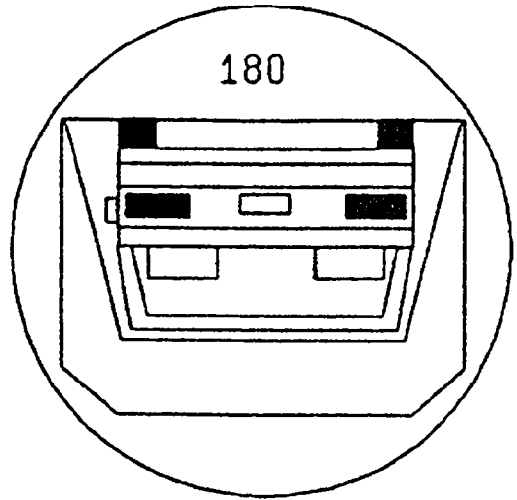


TABLE 3-3 Continued:

D. Test Phase = 270 to 360 degrees

Determination of Stoddard Solvent Collection Time Period:

1. Rollover Fixture 90 degree Rotation Time = 1 minutes, 20 seconds

(Specified Range is 1 to 3 minutes)

2. FMVSS 301 Position Hold Time = 5 minutes, 0 seconds

3. TOTAL = 6 minutes, 20 seconds

4. NEXT WHOLE MINUTE INTERVAL = 7 minutes

Actual Test Vehicle Stoddard Solvent Spillage:

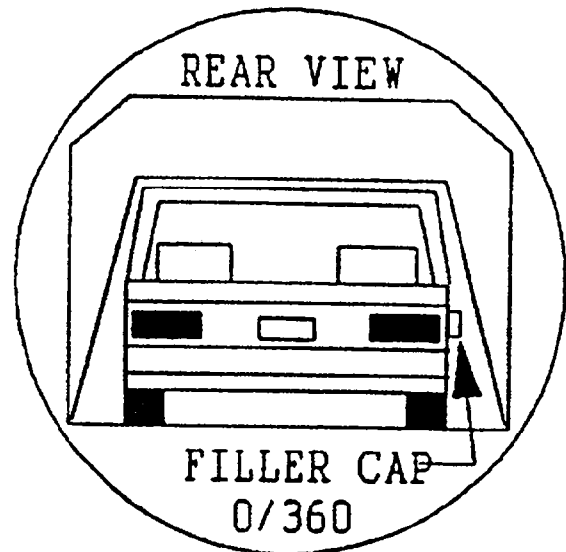
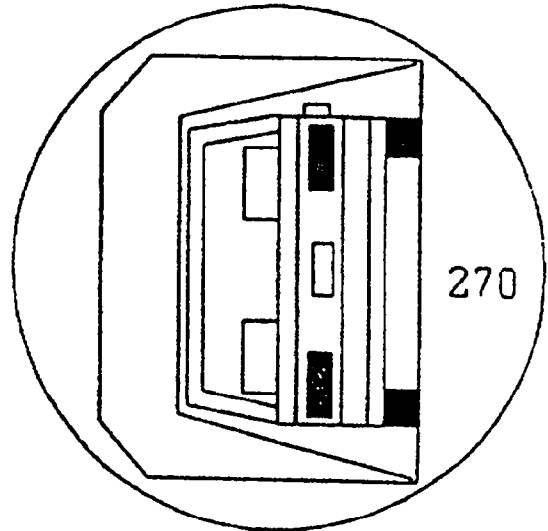
1. First 5 minutes from onset of rotation = 0 oz. (5 oz. allowed)

2. 6th minute = 0 oz. (1 oz. allowed)

3. 7th minute = 0 oz. (1 oz. allowed)

4. 8th minute (if required) = 0 oz. (1 oz. allowed)

Provide Details of Stoddard Solvent Spillage Locations--



N/A

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

VEH. YEAR/MAKE/MODEL/BODY STYLE: 1993/Ford/Ranger/Pickup

VEH. NHTSA NO.: CP0213

TEST DATE: 05/05/93

MAXIMUM ACCELERATION VALUES:

	DRIVER ATD No. 339	PASSENGER ATD No. N/A
Head X	61.8	N/A
Head Y	-3.4	N/A
Head Z	25.7	N/A
HEAD RESULTANT	66.8	N/A
Chest X	32.0	N/A
Chest Y	4.4	N/A
Chest Z	11.6	N/A
CHEST RESULTANT (3msec clip)	24.1	N/A
TIME INTERVAL (msec)	38.5 to 41.5	N/A
Pelvis X	26.7	N/A
Pelvis Y	-5.5	N/A
Pelvis Z	18.3	N/A
PELVIS RESULTANT	26.9	N/A

6 AXIS NECK TRANSDUCER VALUES:

Neck X - Load (lbs)	-103.6	N/A
Neck Y - Load (lbs)	-20.1	N/A
Neck Z - Load (lbs)	-196.7	N/A
NECK LOAD RESULTANT	213.2	N/A
Neck X - Moment (in-lbs)	-63.8	N/A
Neck Y - Moment (in-lbs)	326.1	N/A
Neck Z - Moment (in-lbs)	-69.6	N/A
NECK MOMENT RESULTANT	326.6	N/A

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	229.9	N/A
t <sup>1</sup> (msec)	52.3	N/A
t <sup>2</sup> (msec)	65.0	N/A
Avg. Acceleration t <sup>1</sup> to t <sup>2</sup>	50.3	N/A

MAXIMUM SEAT BELT FORCES:

Lap Belt (N)	53.7	N/A
Shoulder Belt (N)	87.2	N/A

MAXIMUM SEAT BELT WEBBING SPOOLOUT:

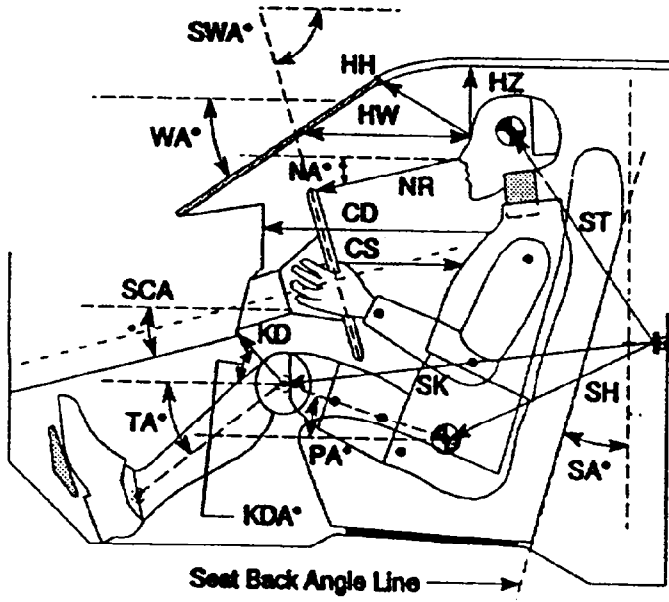
Lap/Shoulder Belt Combination	1.7	N/A
-------------------------------	-----	-----

TABLE No. 3-5  
TEST ATD POSITIONING DATA

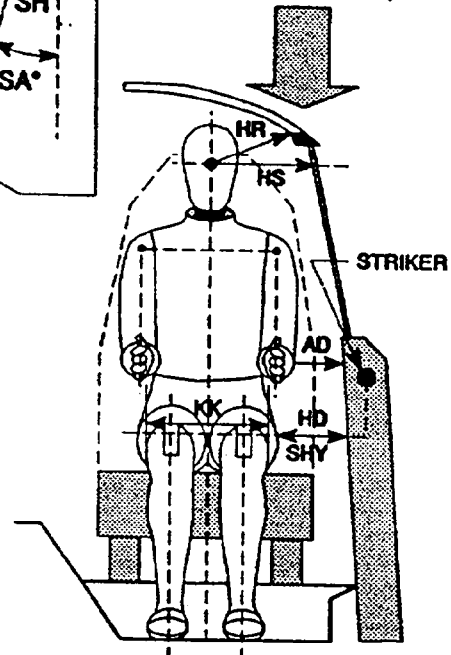
Measurement*	Driver (Serial No. 339)		Passenger (Serial No. N/A)	
	Length (in)	Angle (Degrees)	Length (in)	Angle (Degrees)
WA	---	42	---	---
SWA	---	63	---	---
SCA	---	26	---	---
SA	---	14	---	N/A
HZ	8.8	90	N/A	90
HH	20.0	---	N/A	---
HW	25.2	0	N/A	0
HR	9.9	---	N/A	---
NR	15.9	-11	---	---
CD	22.0	---	N/A	---
CS	12.7	0	---	---
RA	7.1	0	---	---
KDL	8.5	12	N/A	---
KDR	9.0	---	N/A	N/A
PA	---	23	---	N/A
TA	---	-42	---	N/A
KK	12.0	---	N/A	---
ST	21.5	71	N/A	N/A
SK	26.2	-2	N/A	N/A
SH	12.5	-25	N/A	N/A
SHY	7.5	0	N/A	0
HS	10.1	0	N/A	0
HD	6.1	0	N/A	0
AD	3.2	0	N/A	0

\* SEE PAGE 12A

# DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



- AD - Arm to Door
- HD - H-Point to Door
- HR - Head to Side Header
- HS - Head to Side Window
- KK - Knee to Knee
- SHY- Striker to H-Point (Y Direction)



- CD - Chest to Dash
- CS - Steering Wheel to Chest
- HH - Head to Header
- HW - Head to Windshield
- HZ - Head to Roof
- KDA- Knee to Dash Angle
- KDL- Left Knee to Dash
- KDR- Right Knee to Dash
- NA - Nose to Rim Angle
- NR - Nose to Rim
- PA - Pelvic Angle
- RA - Rim to Abdomen
- SA - Seat Back Angle
- SCA- Steering Column Angle
- SH - Striker to H-Point
- SK - Striker to Knee
- ST - Striker to Head
- SWA- Steering Wheel Angle
- TA - Tibial Angle
- WA - Windshield Angle

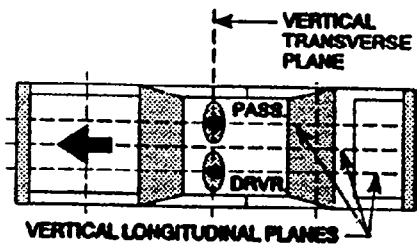
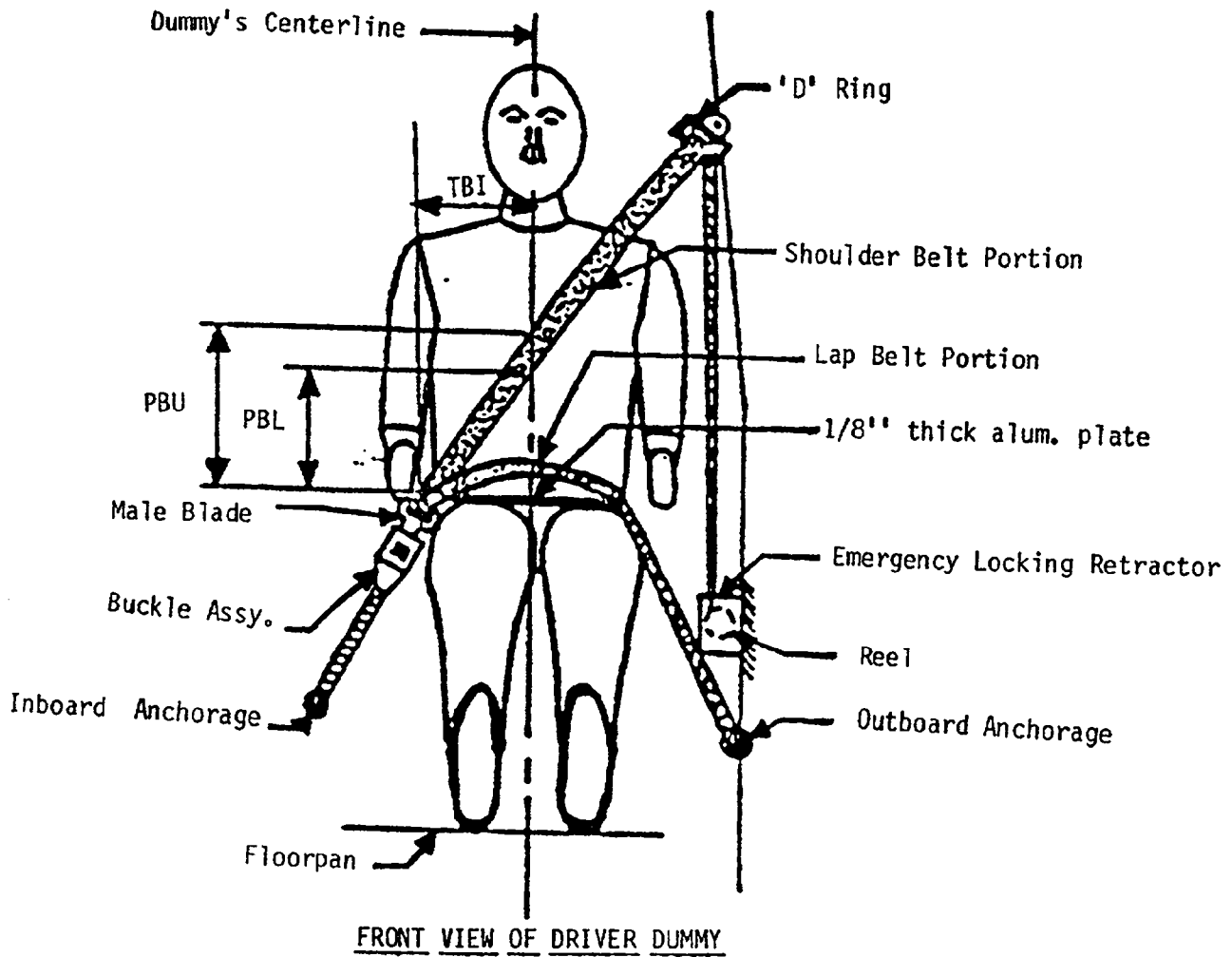


TABLE No. 3-6  
SEAT BELT POSITIONING DATA



Measurement	Driver ATD	Passenger ATD
PBU - Top Surface of alum. plate to belt upper edge (in)	13.5	N/A
PBL - Top Surface of alum. plate to belt lower edge (in)	10.5	N/A
TBI - Vertical Centerline of ATD to belt intersection (in)	6.7	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	114	0	22	33.3	21.9	37.4	32.1
2	Vehicle c.g. Secondary	114	0	22	31.8	21.7	38.4	31.8
3	Top of driver seat Accelerometer	86	0	45	116.7	39.5	68.8	33.0
4	Top of driver seat Rate Sensor **				N/D	N/D	N/D	N/D

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

\*\* Sensor not used due to space limitations

SECTION 4

LABORATORY NOTICE OF TEST FAILURE TO OVSC

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: \_\_\_\_\_

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

SECTION 5  
PHOTOGRAPHS



FIGURE 5-1 PRETEST LEFT SIDE VIEW



FIGURE 5-2 PRETEST FRONT VIEW

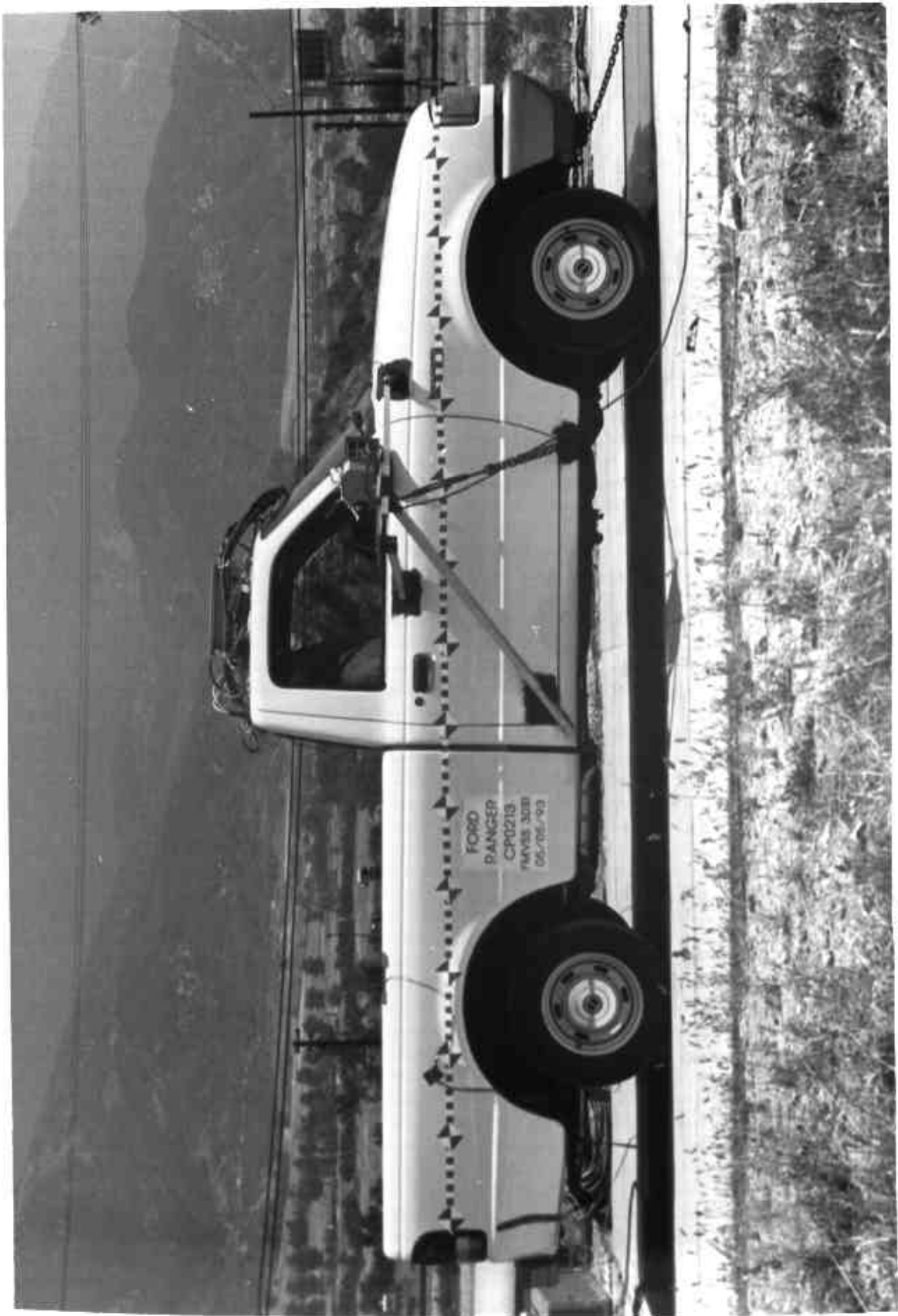


FIGURE 5-3 PRETEST RIGHT SIDE VIEW



FIGURE 5-4 PRETEST REAR VIEW

**MFD. BY FORD MOTOR CO. IN U.S.A.**

DATE: 12/92  
FRONT GVWR: 2050LB  
929KG  
P195/70R14SL  
14X5.5J  
AT 35 PSI COLD

WITH  
TIRES  
RIMS

REAR GVWR: 2384LB  
1081KG  
P195/70R14SL  
14X5.5J  
AT 35 PSI COLD

WITH  
TIRES  
RIMS

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

VIN: 1FTCR10A9PTA24968  
TYPE: TRUCK

F0076  
T0497



YO  
EXTERIOR PAINT COLORS  
NO | TYPE-GWR | BODY | AXLE | TAPE | BSO  
108 | R101 | HV | M | 84 | C B  
F876-1225-A18-045

FIGURE 5-5 MANUFACTURER'S CERTIFICATION LABEL AND TIRE PLACARD



FIGURE 5-6 POSTTEST LEFT SIDE VIEW



FIGURE 5-7 POSTTEST FRONT VIEW



FIGURE 5-8 POSTTEST RIGHT SIDE VIEW



FIGURE 5-9 POSTTEST REAR VIEW

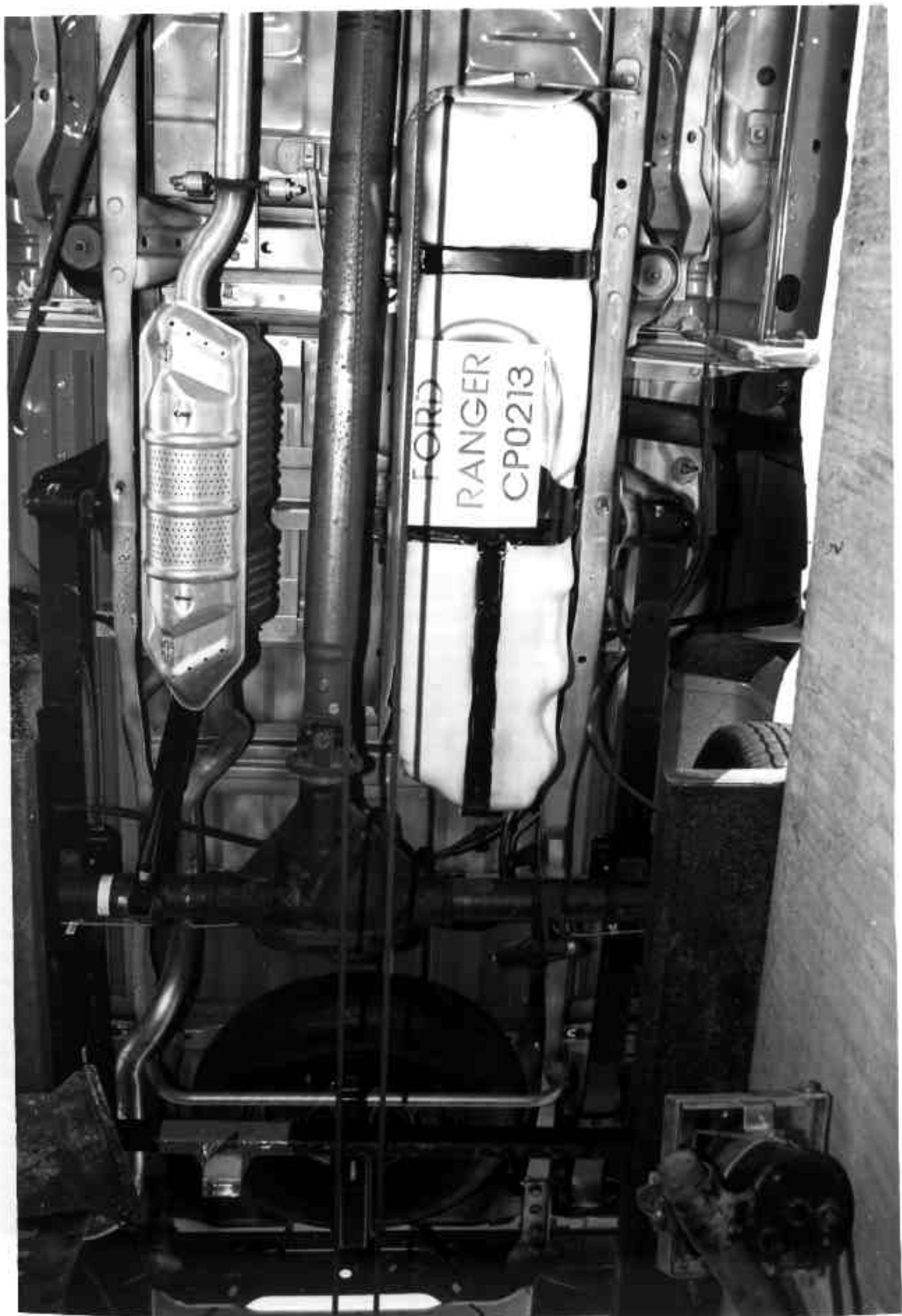


FIGURE 5-10 PRETEST FUEL TANK CLOSEUP VIEW

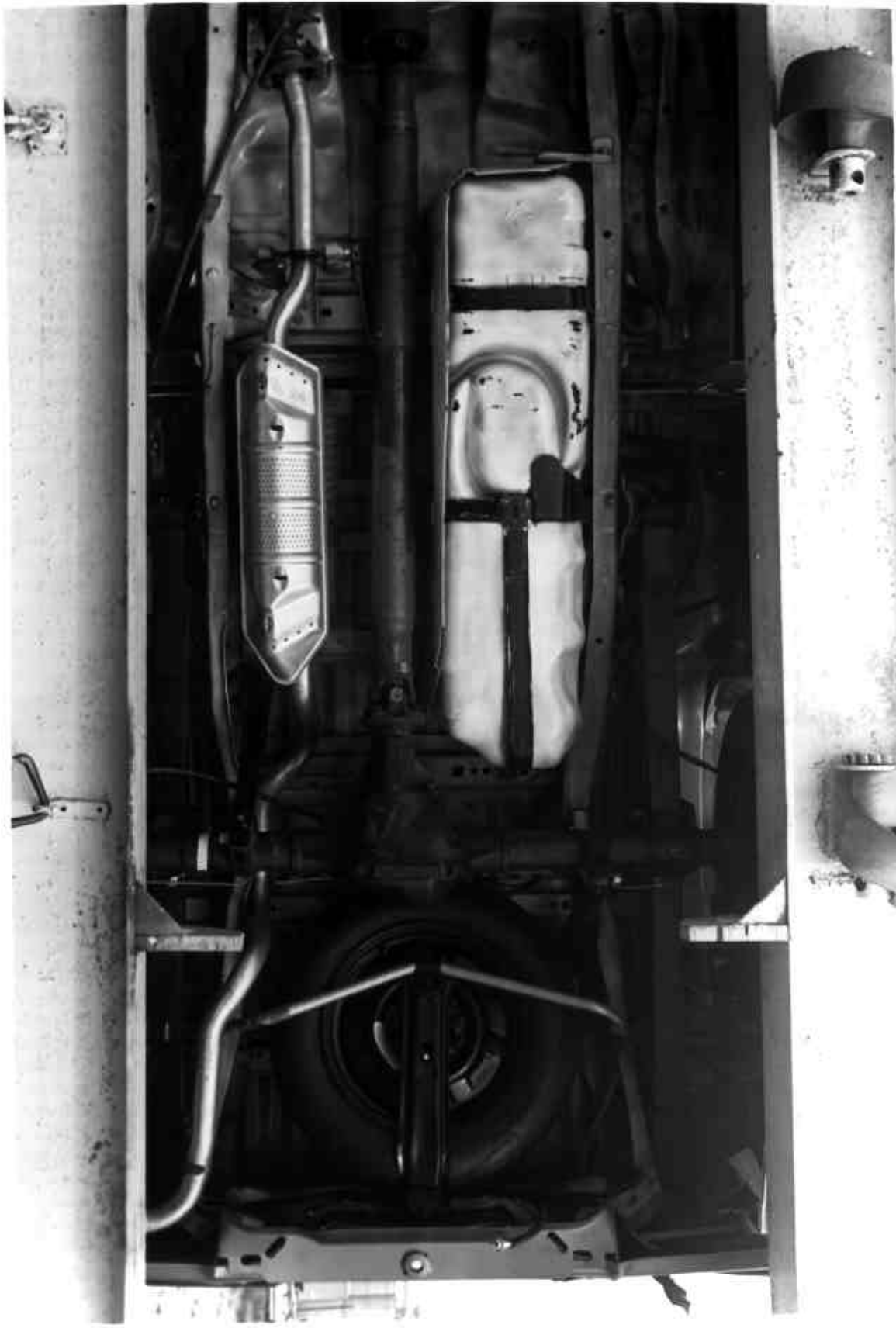


FIGURE 5-11 POSTTEST FUEL TANK CLOSEUP VIEW

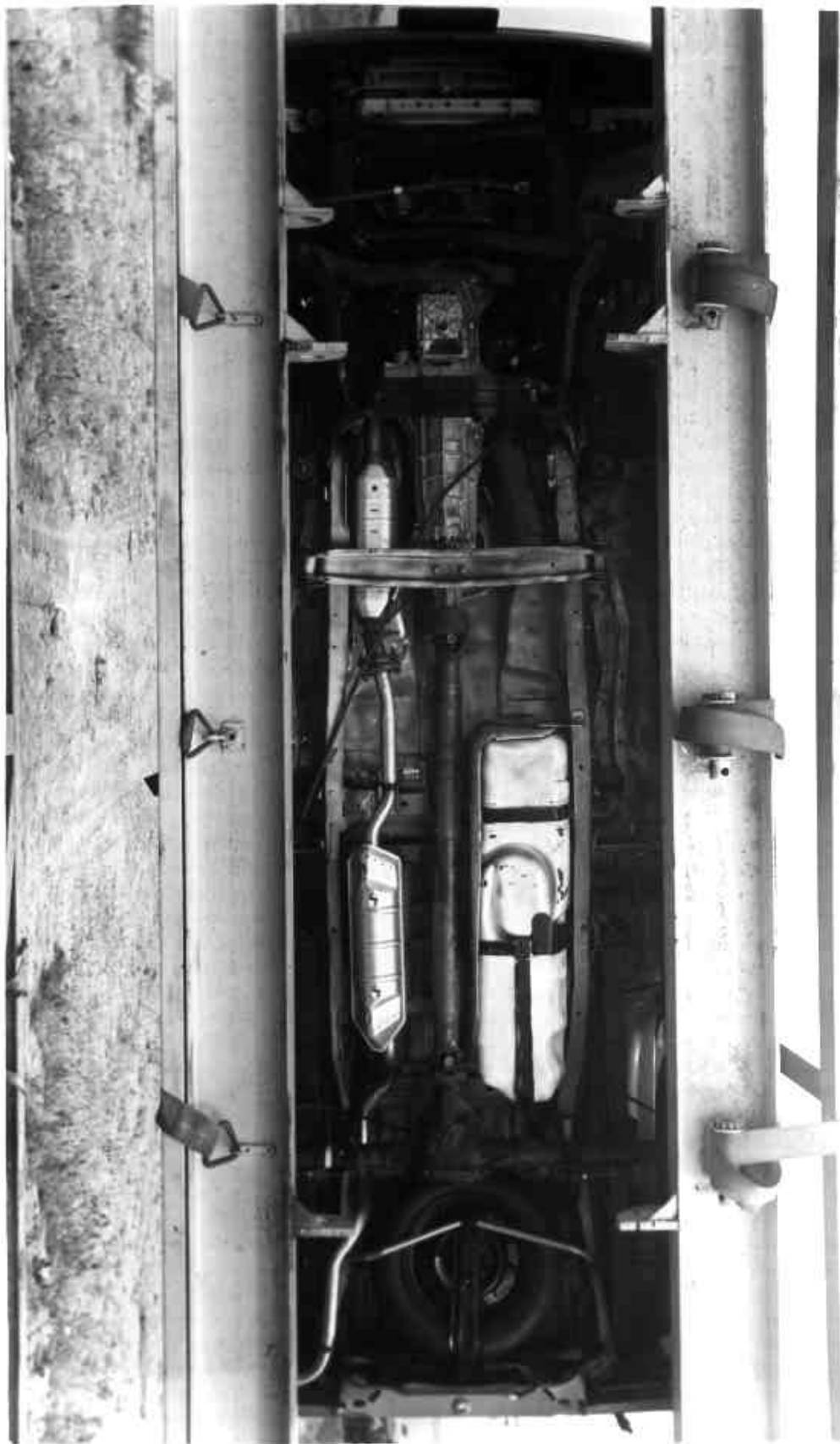


FIGURE 5-12 POSTTEST UNDERBODY VIEW

NOT AVAILABLE

FIGURE 5-13 PRETEST DRIVER ATD POSITION



FIGURE 5-14 POSTTEST DRIVER ATD POSITION

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SECTION 6  
TIME HISTORY DATA PLOTS

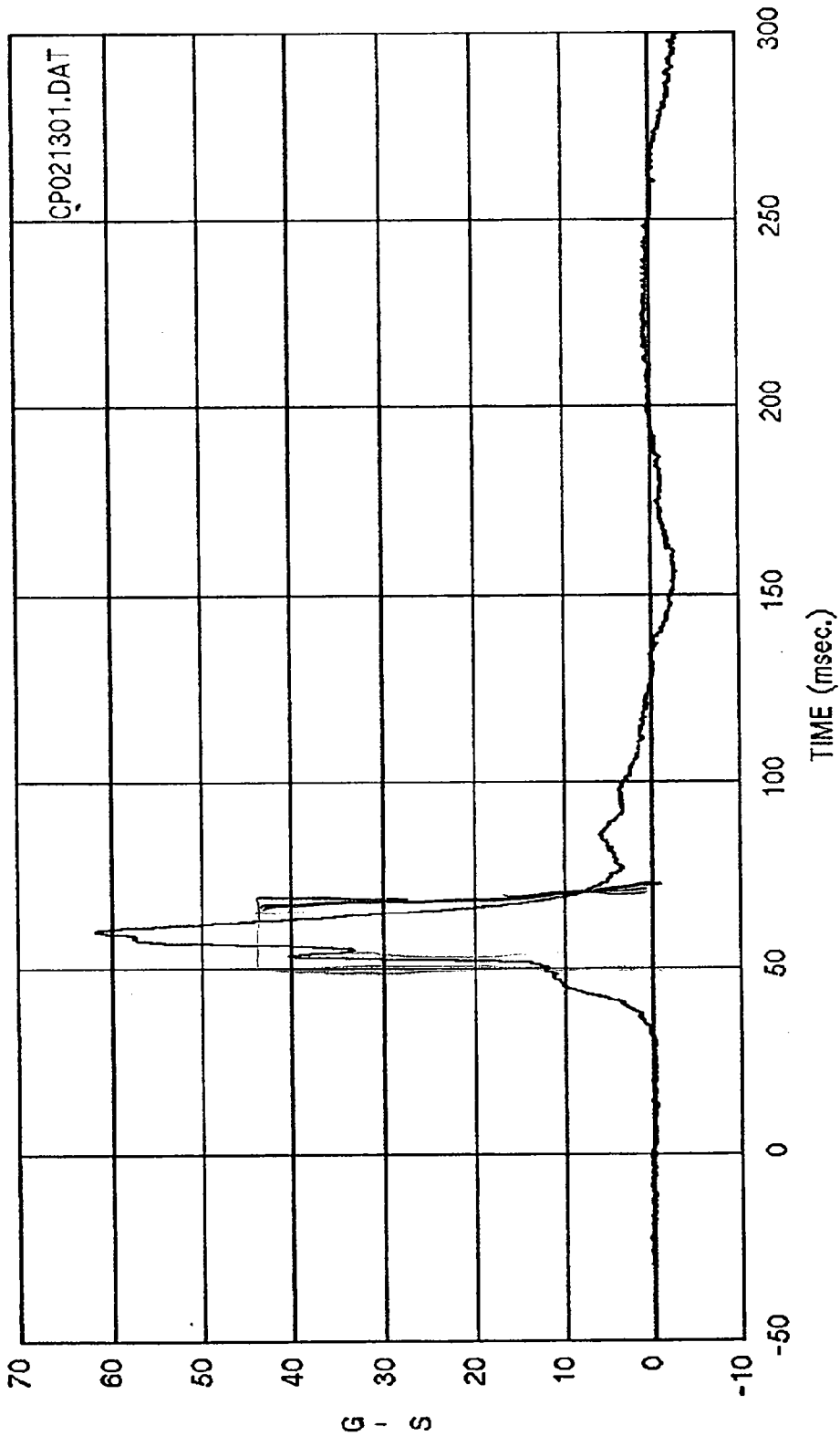


FIGURE 6-1

Curve: Driver head acceleration -- X axis Filter: SAE CLASS 1000 Max = 61.818 Min = -3.5743

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

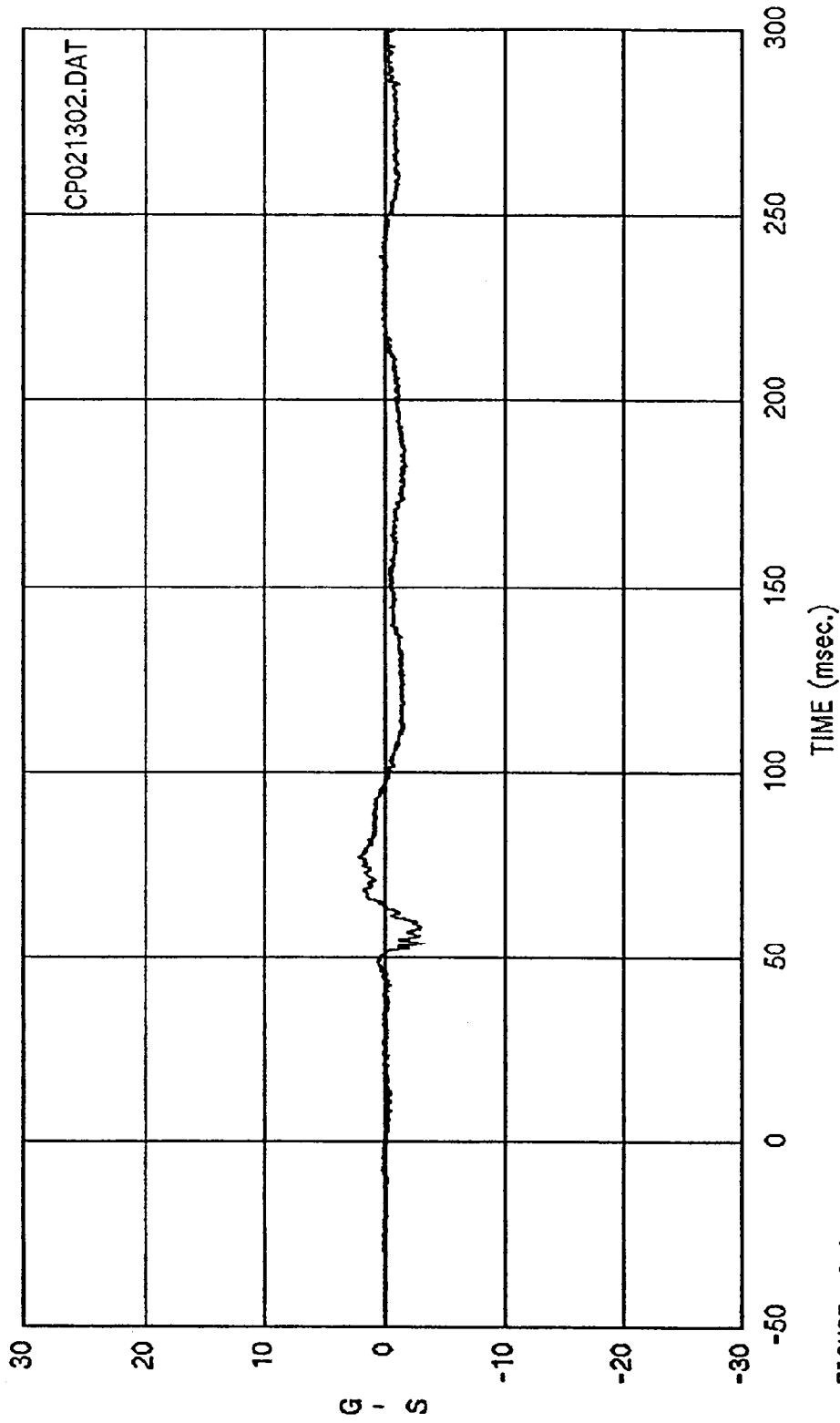


FIGURE 6-2

Curve: Driver head acceleration -- Y axis Filter: SAE CLASS 1000 Max = 2.2993 Min = -3.3884

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

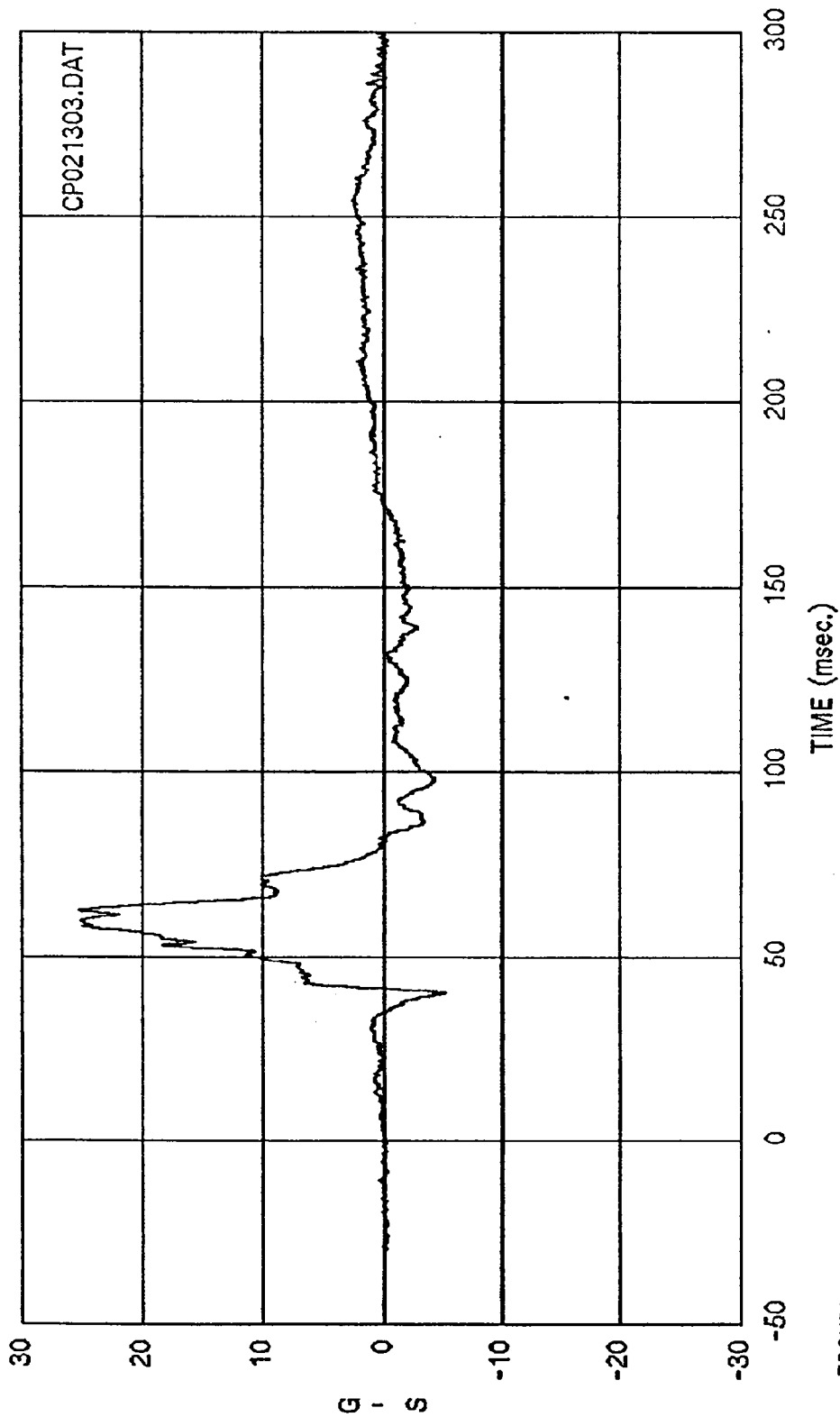


FIGURE 6-3

Curve: Driver head acceleration -- Z axis

Filter: SAE CLASS 1000 Max = 26.686 Min = -5.0876

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear

Vehicle: 1993 Ford Ranger Pickup

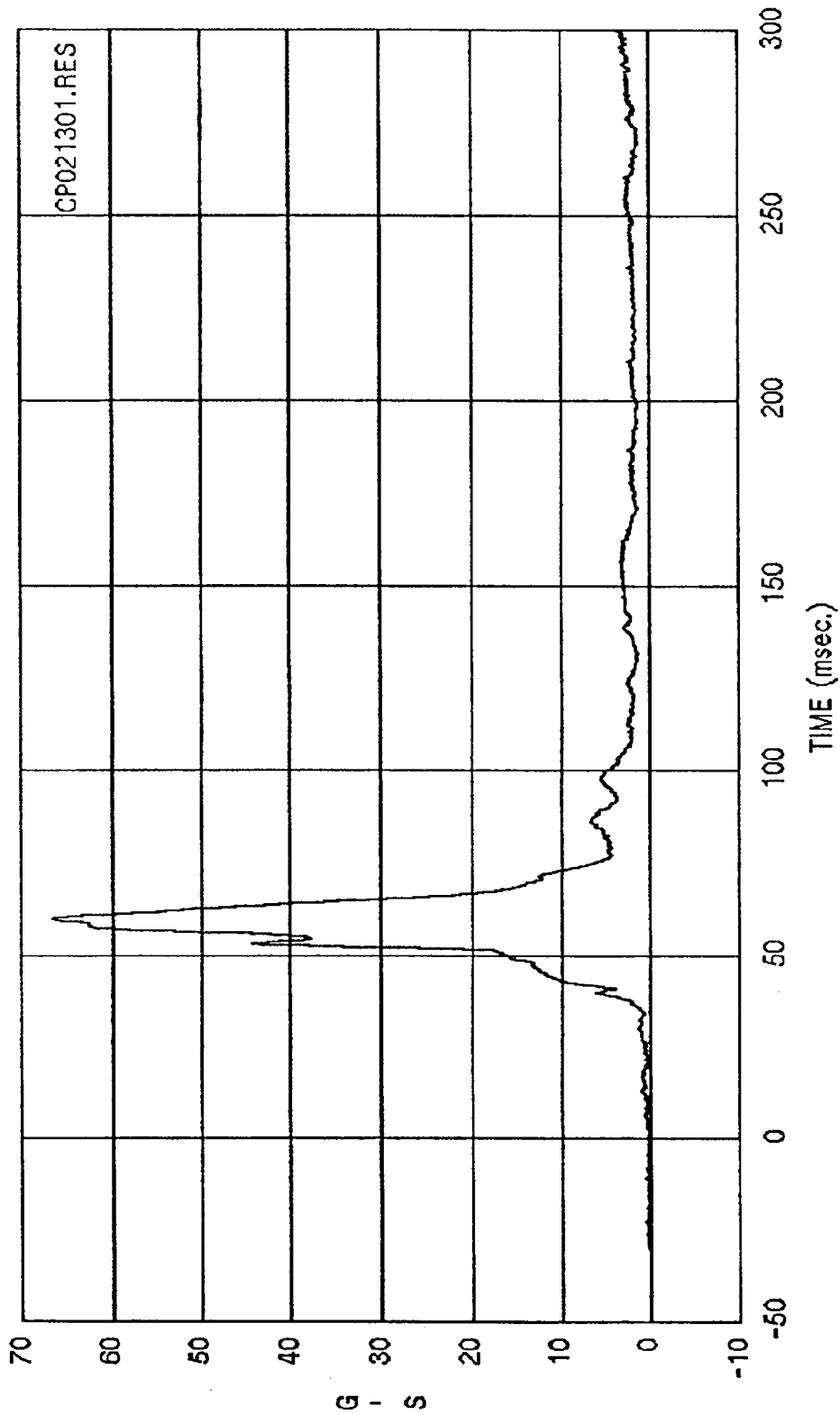


FIGURE 6-4

Curve: Driver head acceleration -- Resultant Filter: SAE CLASS 1000 Max = 66.847 Min = .00000

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

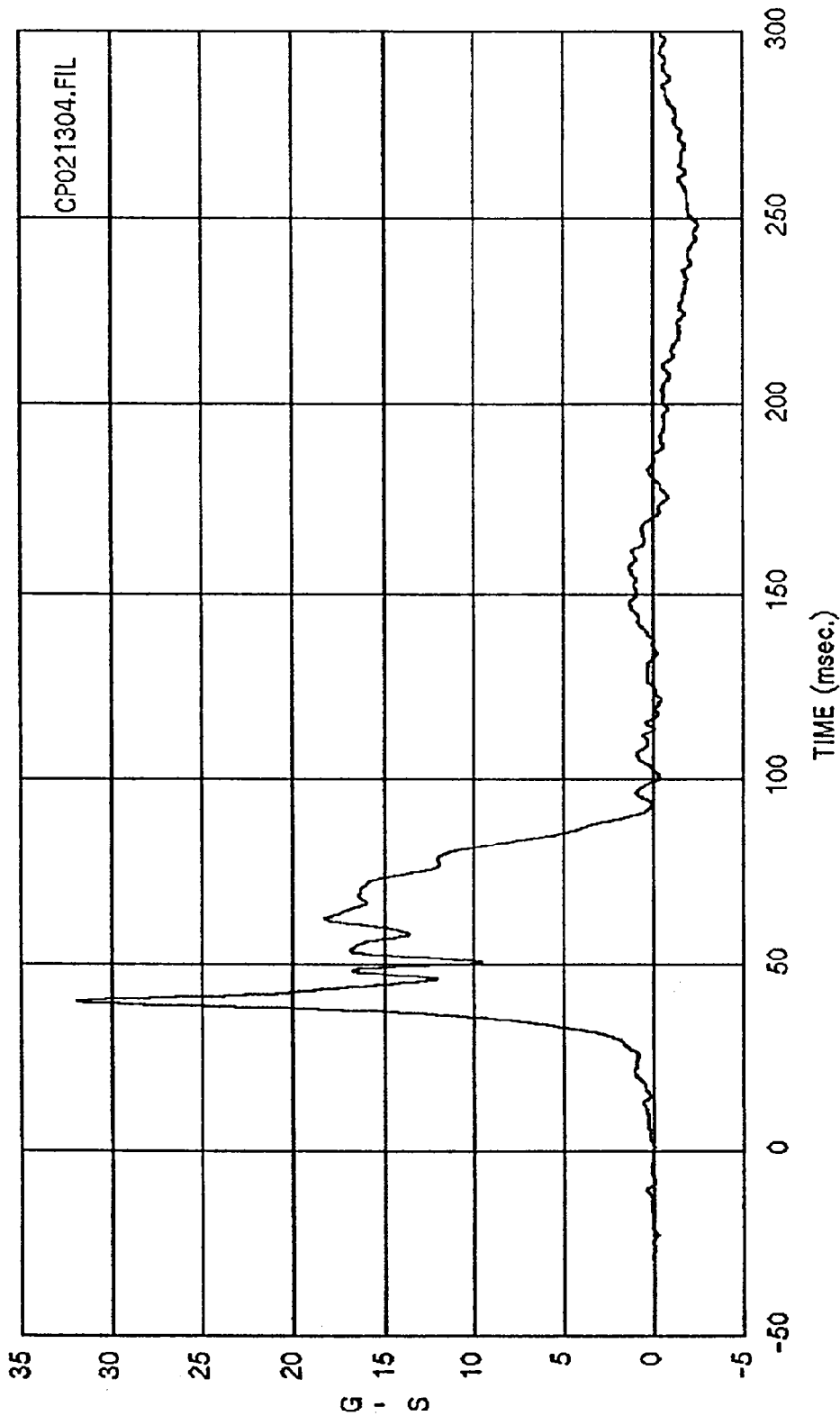


FIGURE 6-5

Curve: Driver chest acceleration -- X axis Filter: SAE CLASS 180 Max = 31.969 Min = -2.5660

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

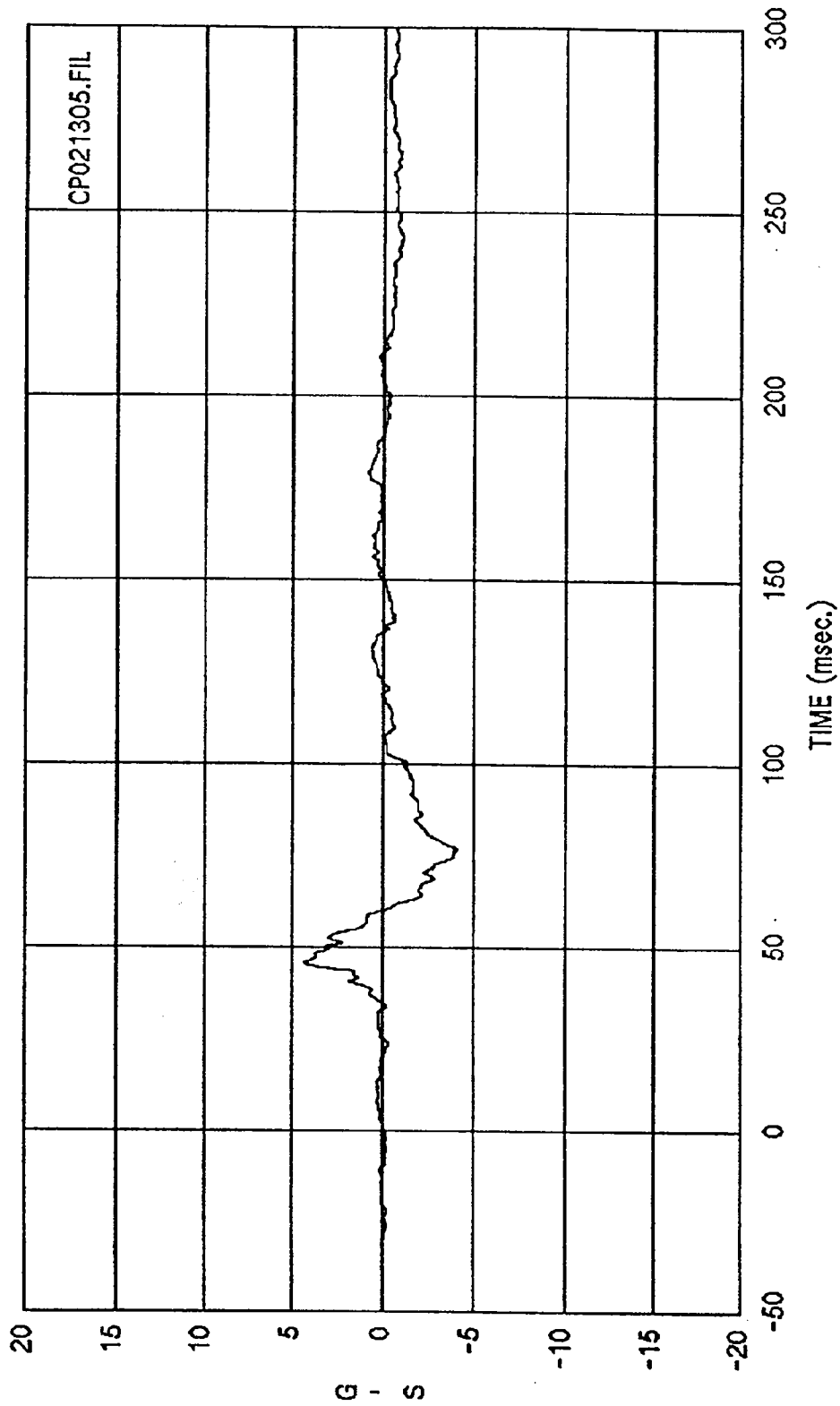


FIGURE 6-6

Curve: Driver chest acceleration -- Y axis Filter: SAE CLASS 180 Max = 4.3989 Min = -4.0580

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

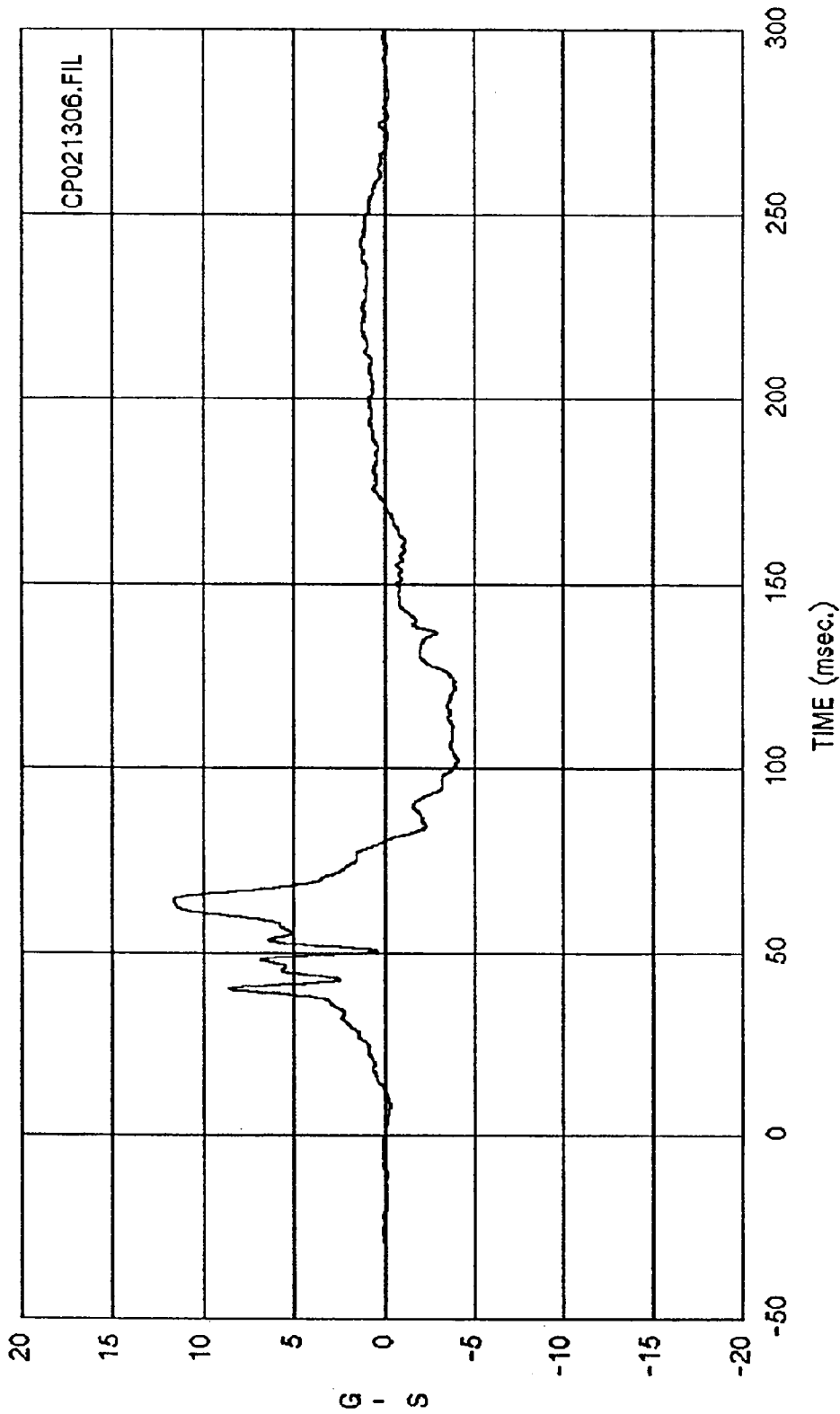


FIGURE 6-7

Curve: Driver chest acceleration -- Z axis Filter: SAE CLASS 180 Max = 11.631 Min = -4.0800

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

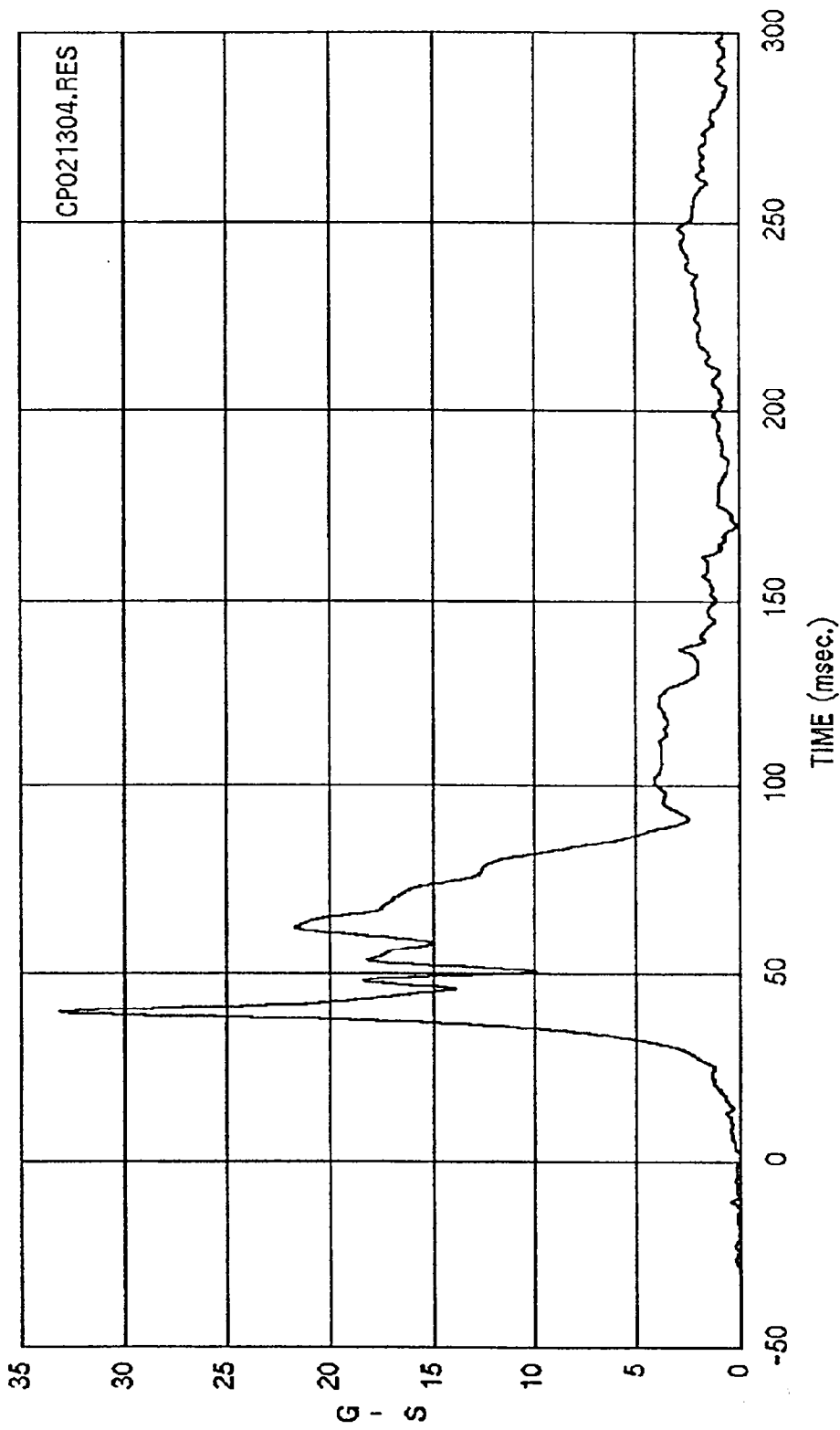


FIGURE 6-8

Curve: Driver chest acceleration -- Resultant Filter: SAE CLASS 180 Max = 33.155 Min = .21844E  
01

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

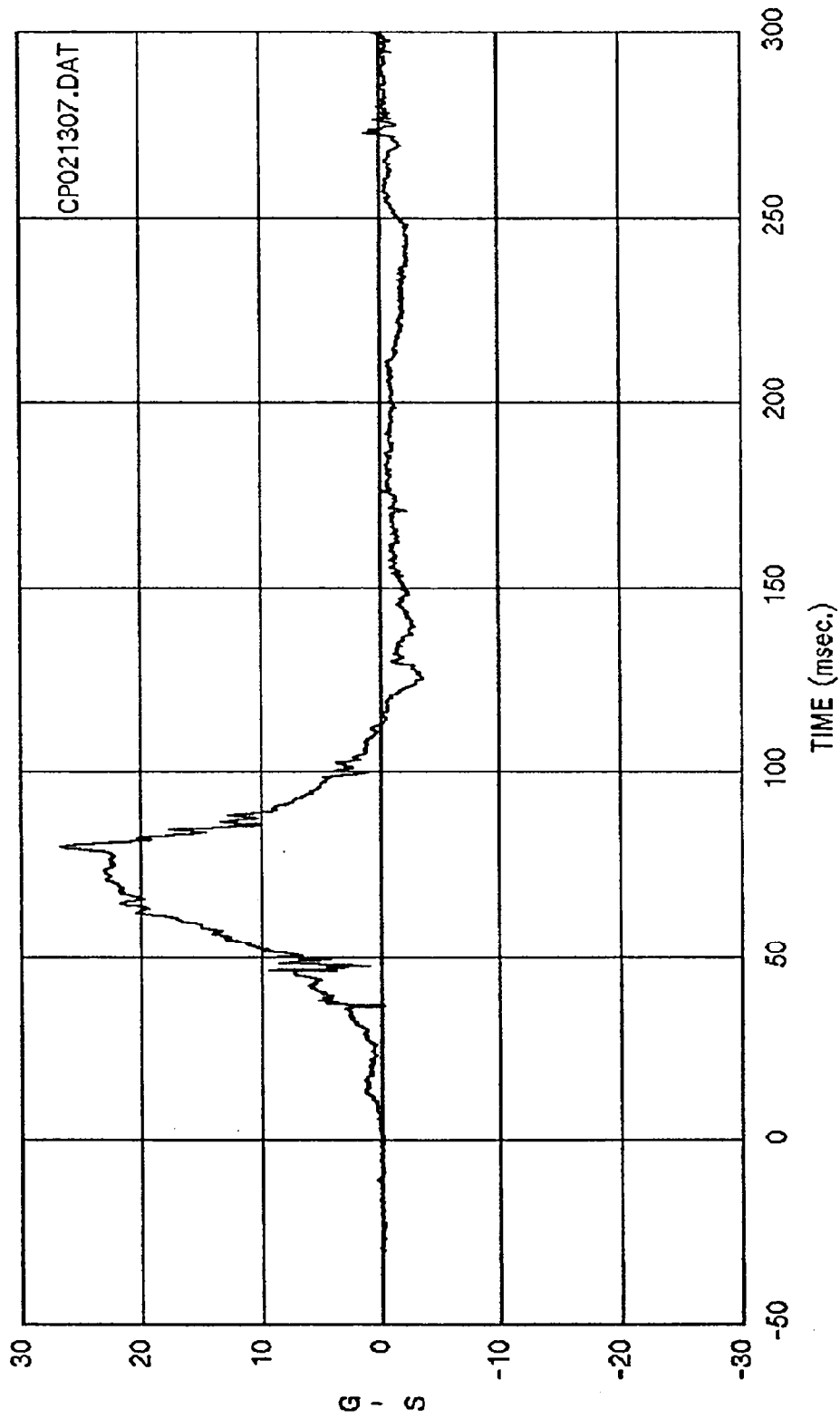


FIGURE 6-9

Curve: Driver pelvis acceleration -- X axis Filter: SAE CLASS 1000 Max = 26.728 Min = -3.5848

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

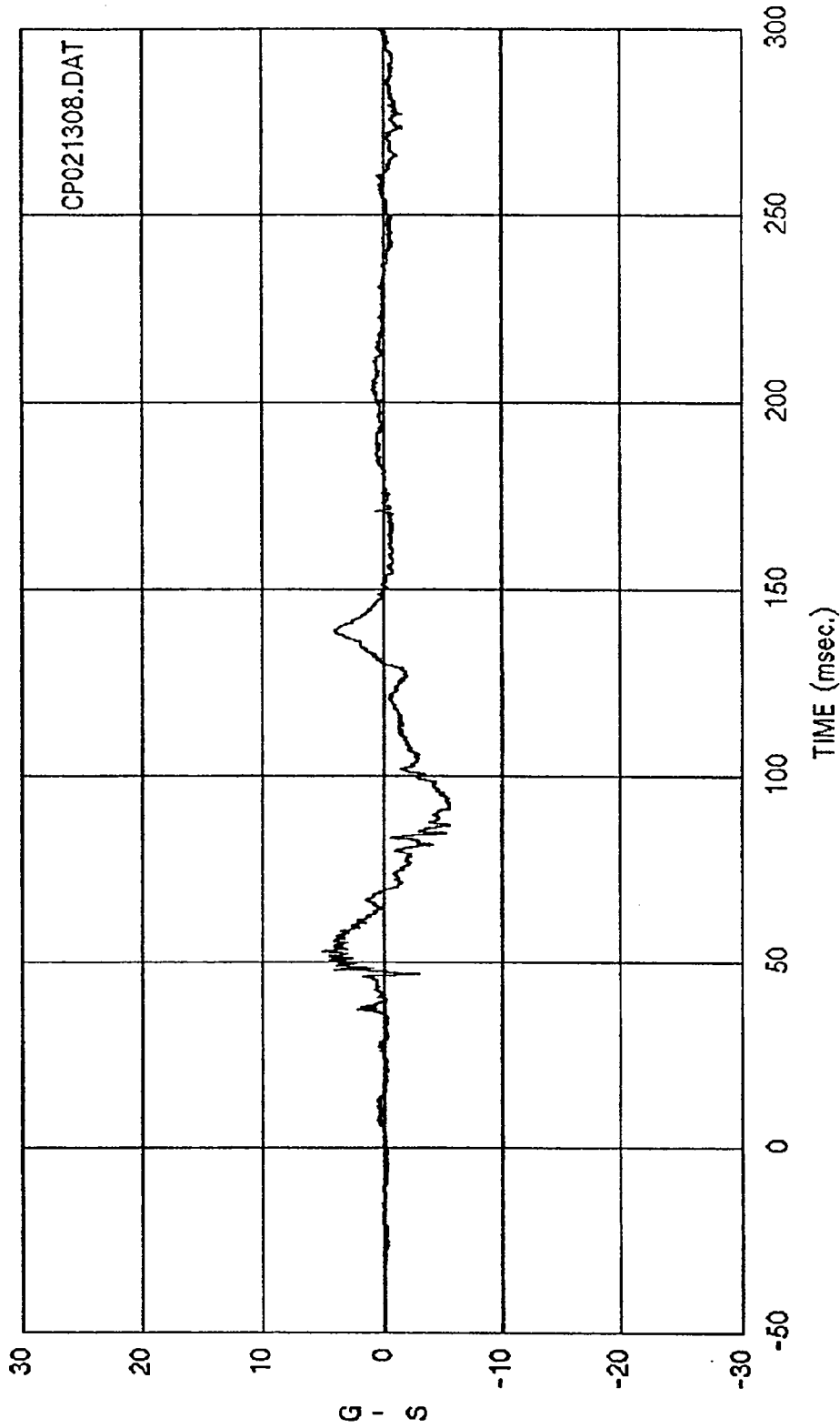


FIGURE 6-10

Curve: Driver pelvis acceleration -- Y axis Filter: SAE CLASS 1000 Max = 5.2663 Min = -5.4742

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

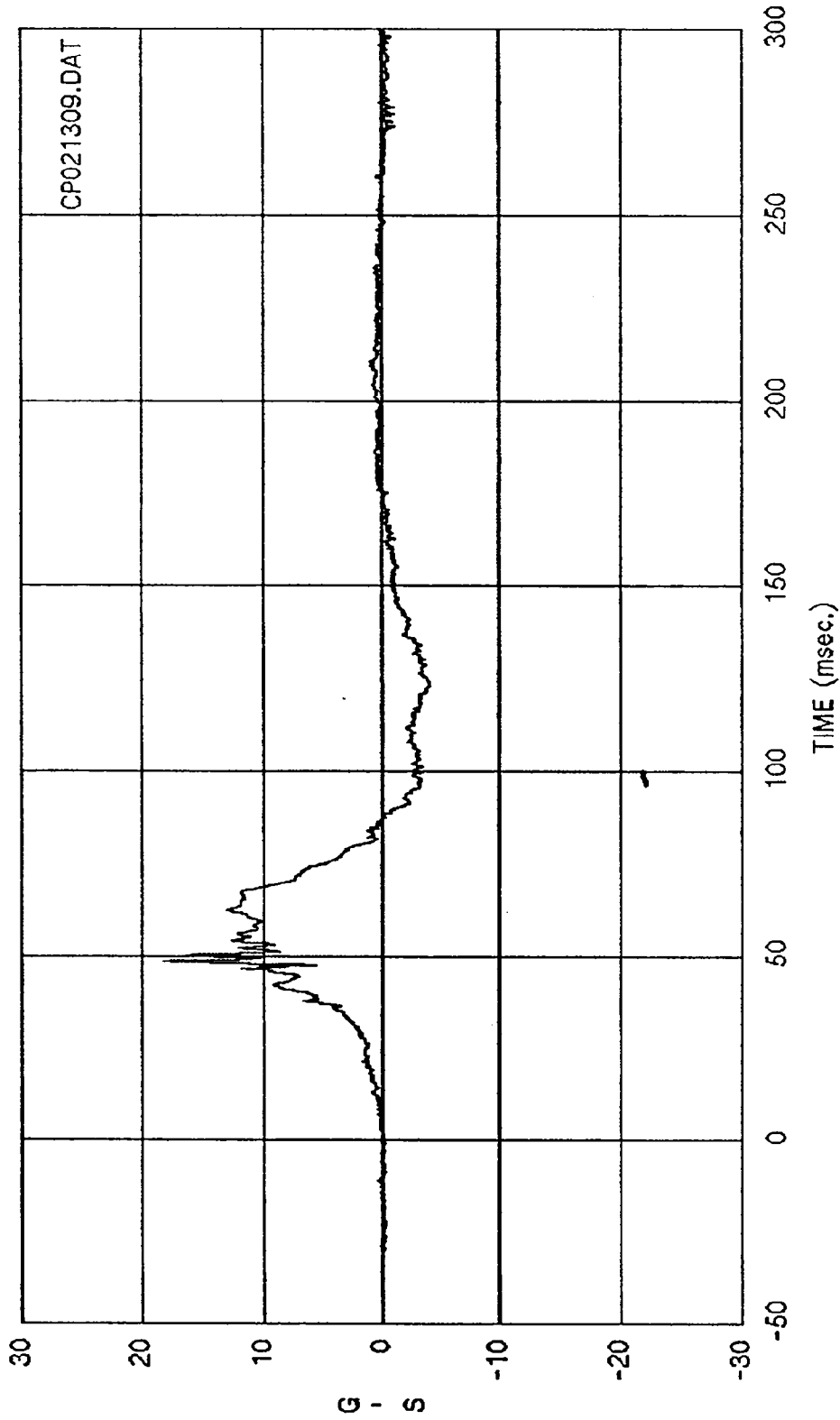


FIGURE 6-11  
 Curve: Driver pelvis acceleration -- Z axis Filter: SAE CLASS 1000 Max = 18.290 Min = -3.9686  
 MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

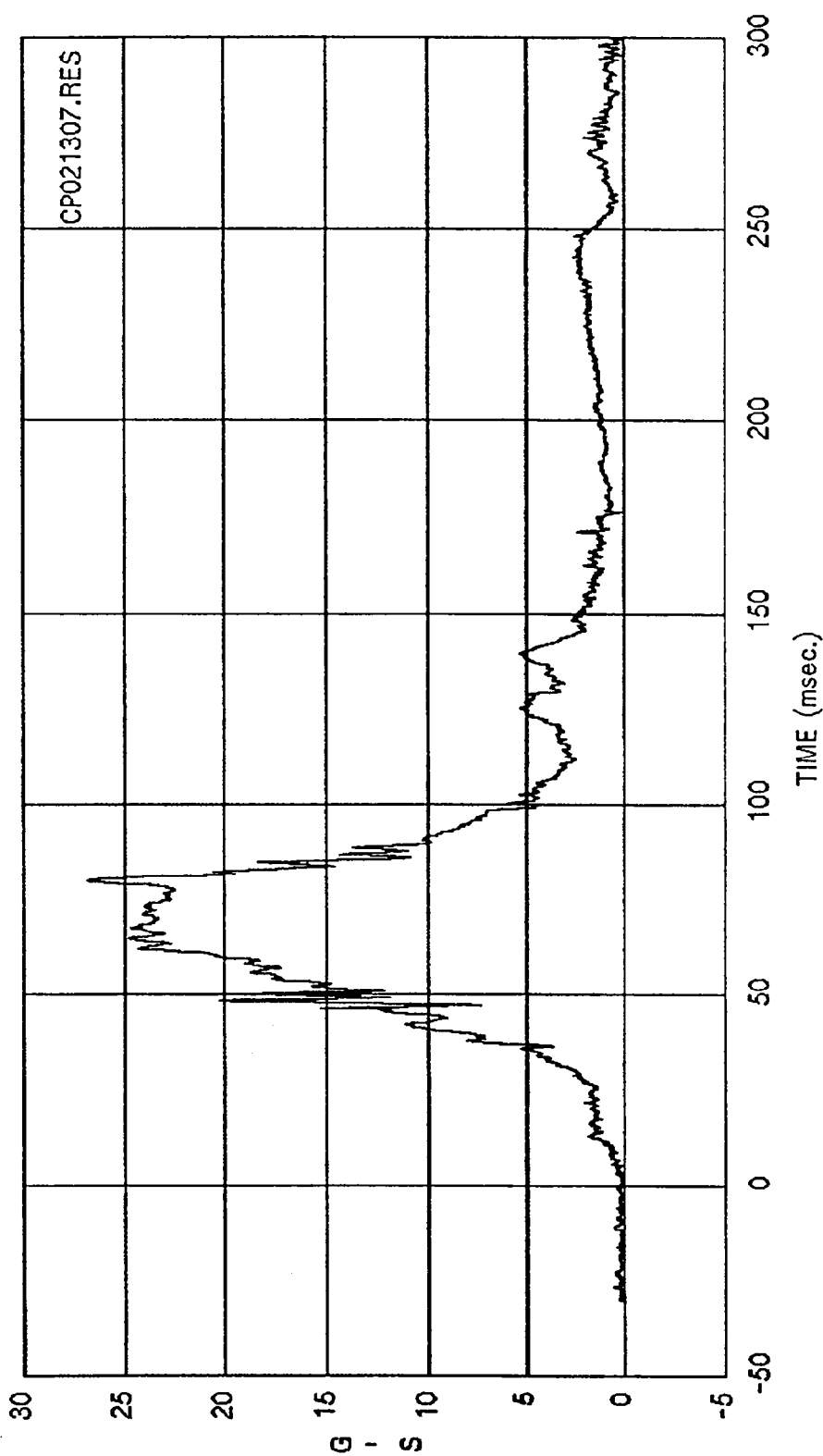


FIGURE 6-12

Curves: Driver pelvis acceleration -- Resultant Filter: SAE CLASS 1000 Max = 26.860 Min = .69293E  
01

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

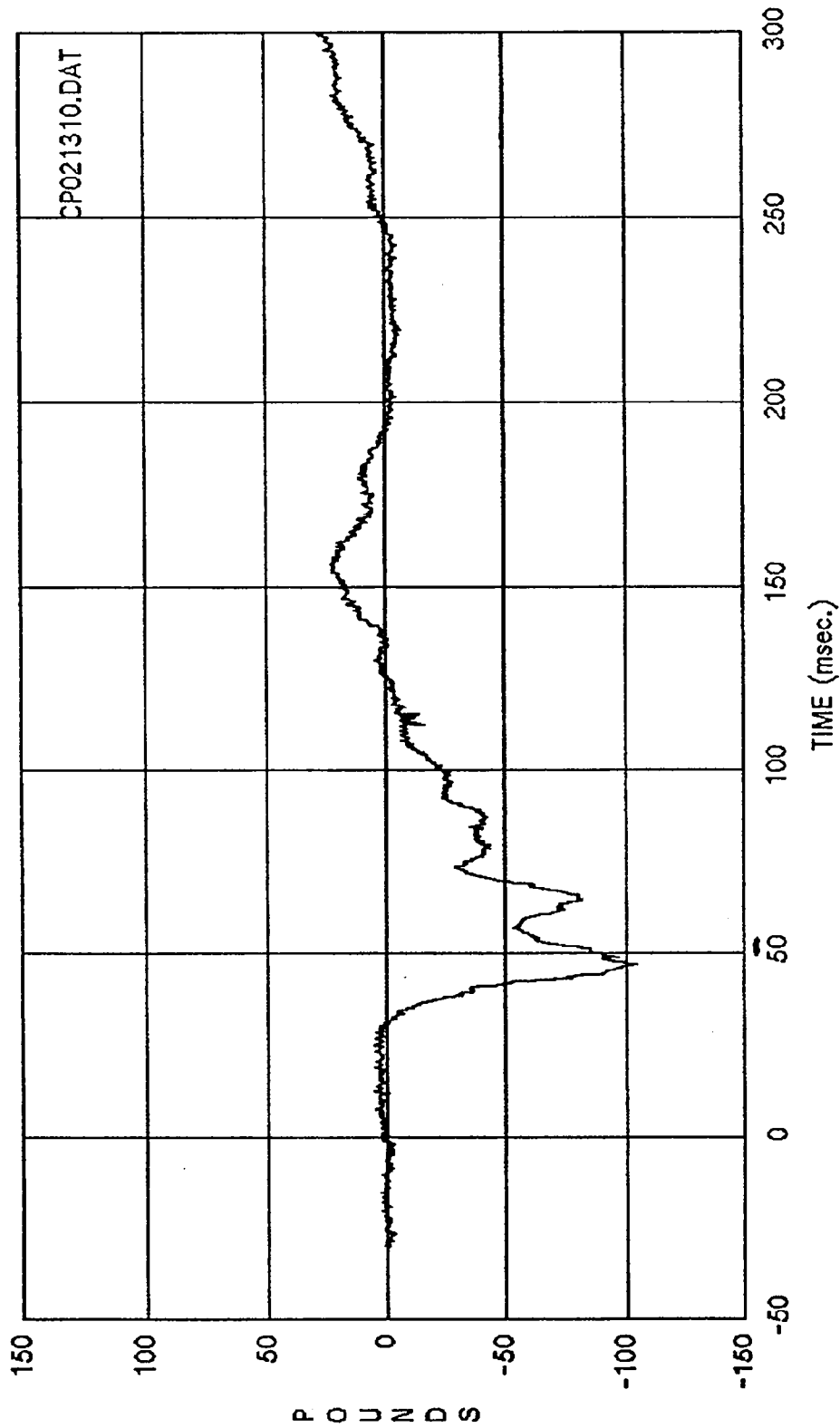


FIGURE 6-13

Curve: Driver neck force -- X axis

Filter: SAE CLASS 1000 Max = 27.955 Min = -103.56

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

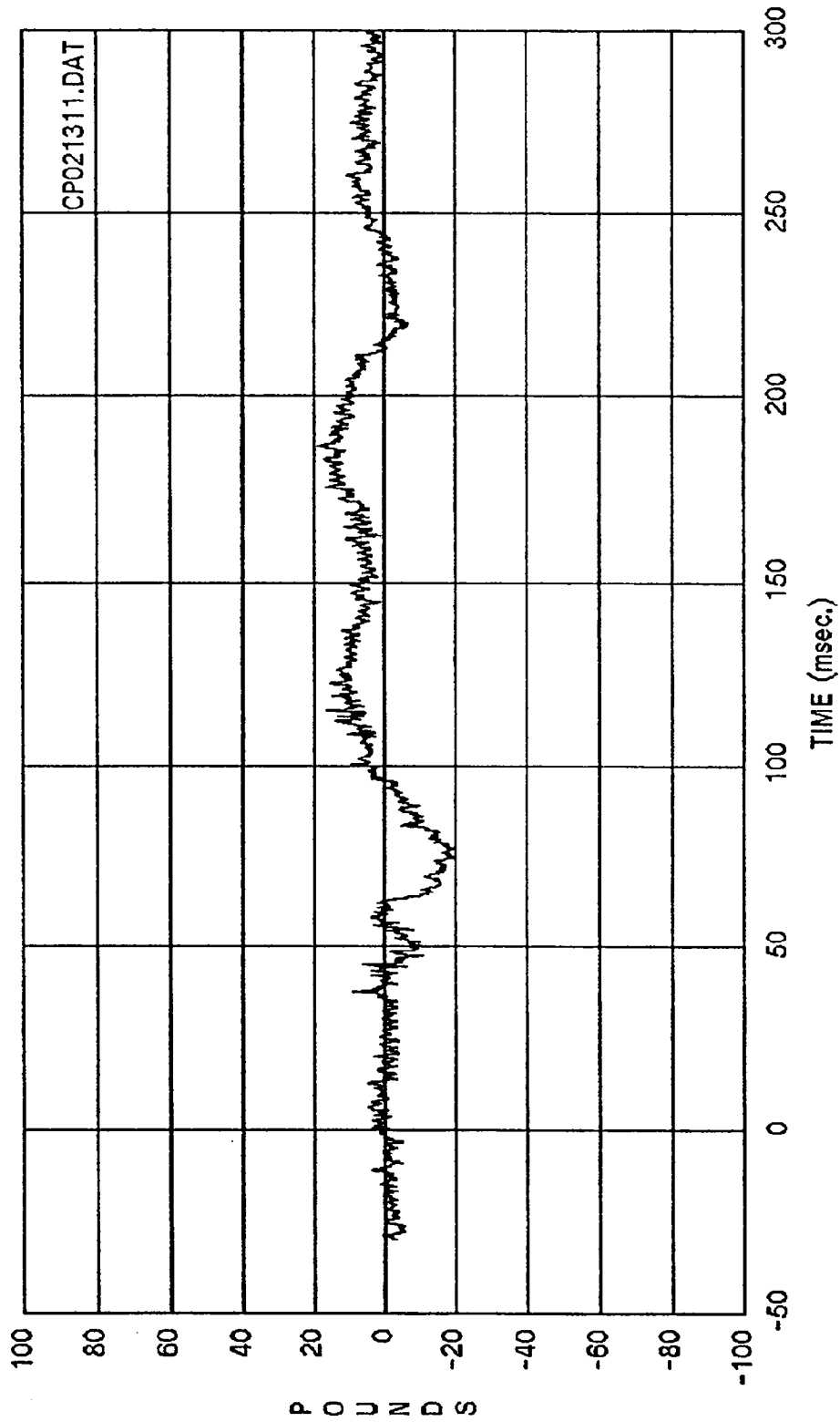


FIGURE 6-14

Curve: Driver neck force -- Y axis Filter: SAE CLASS 1000 Max = 18.787 Min = -20.129

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

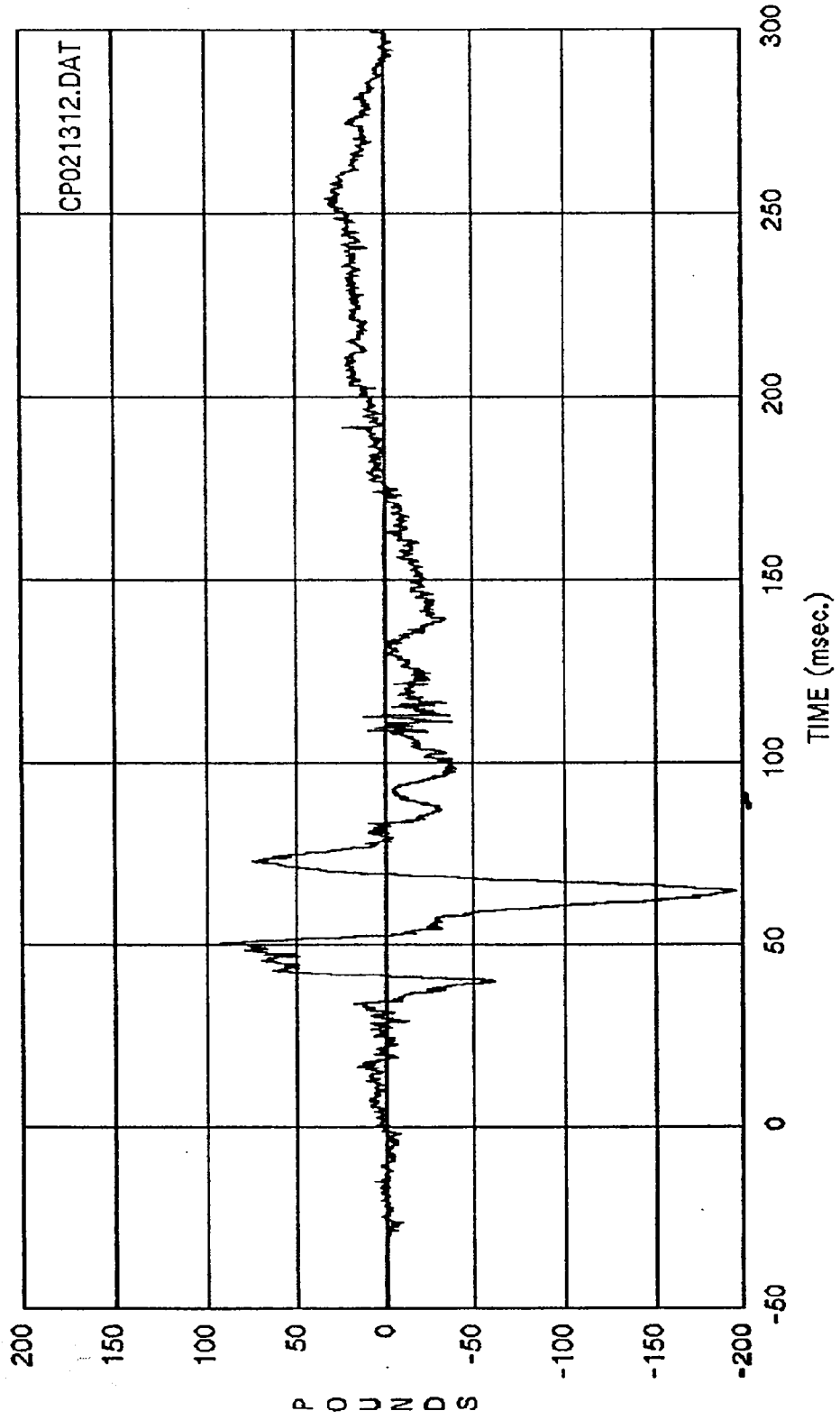


FIGURE 6-15  
 Curve: Driver neck force -- Z axis  
 Filter: SAE CLASS 1000 Max = 92.089 Min = -196.74  
 MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

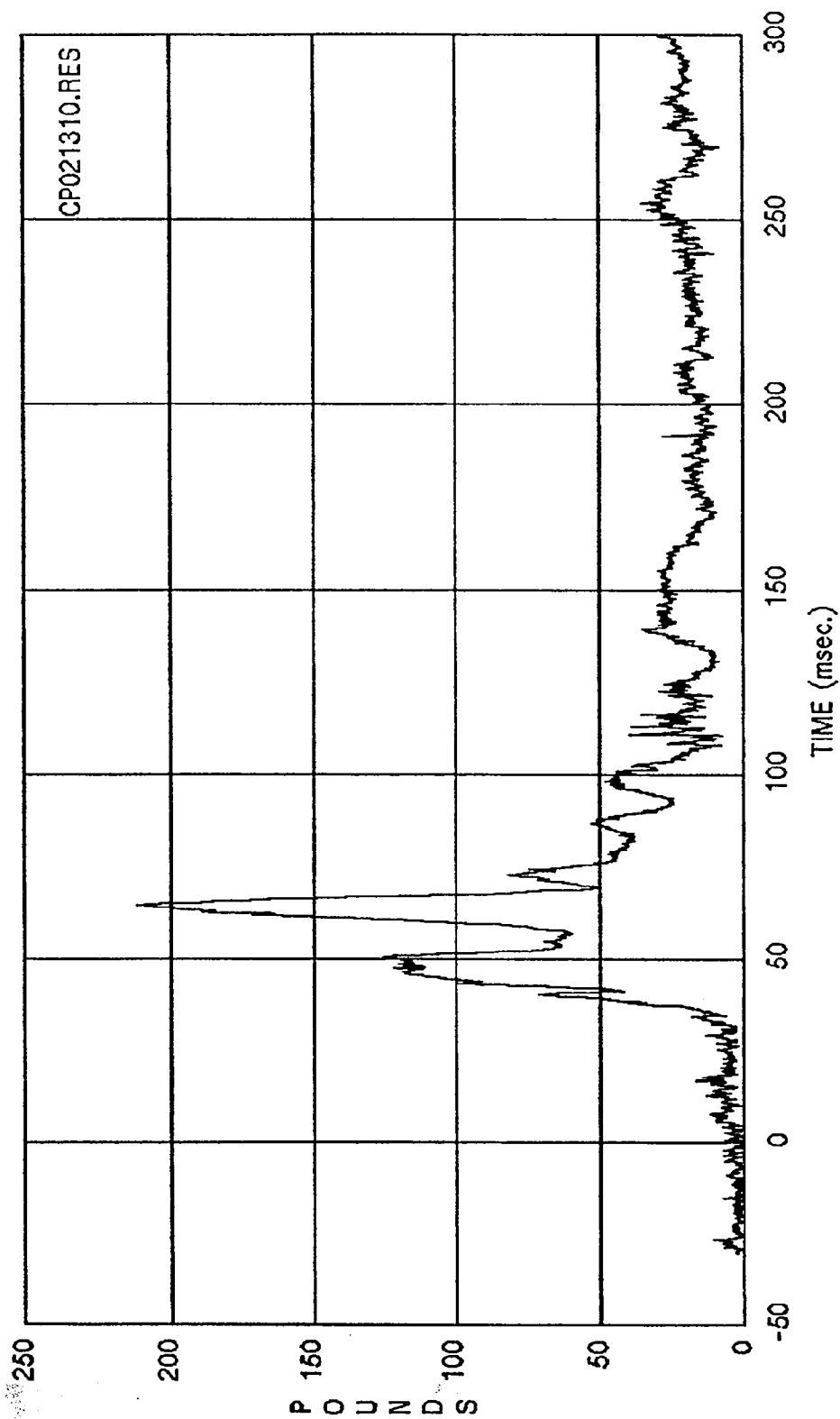


FIGURE 6-16  
 Curve: Driver neck force -- Resultant

Filter: SAE CLASS 1000 Max = 213.19 Min = .28932E-

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

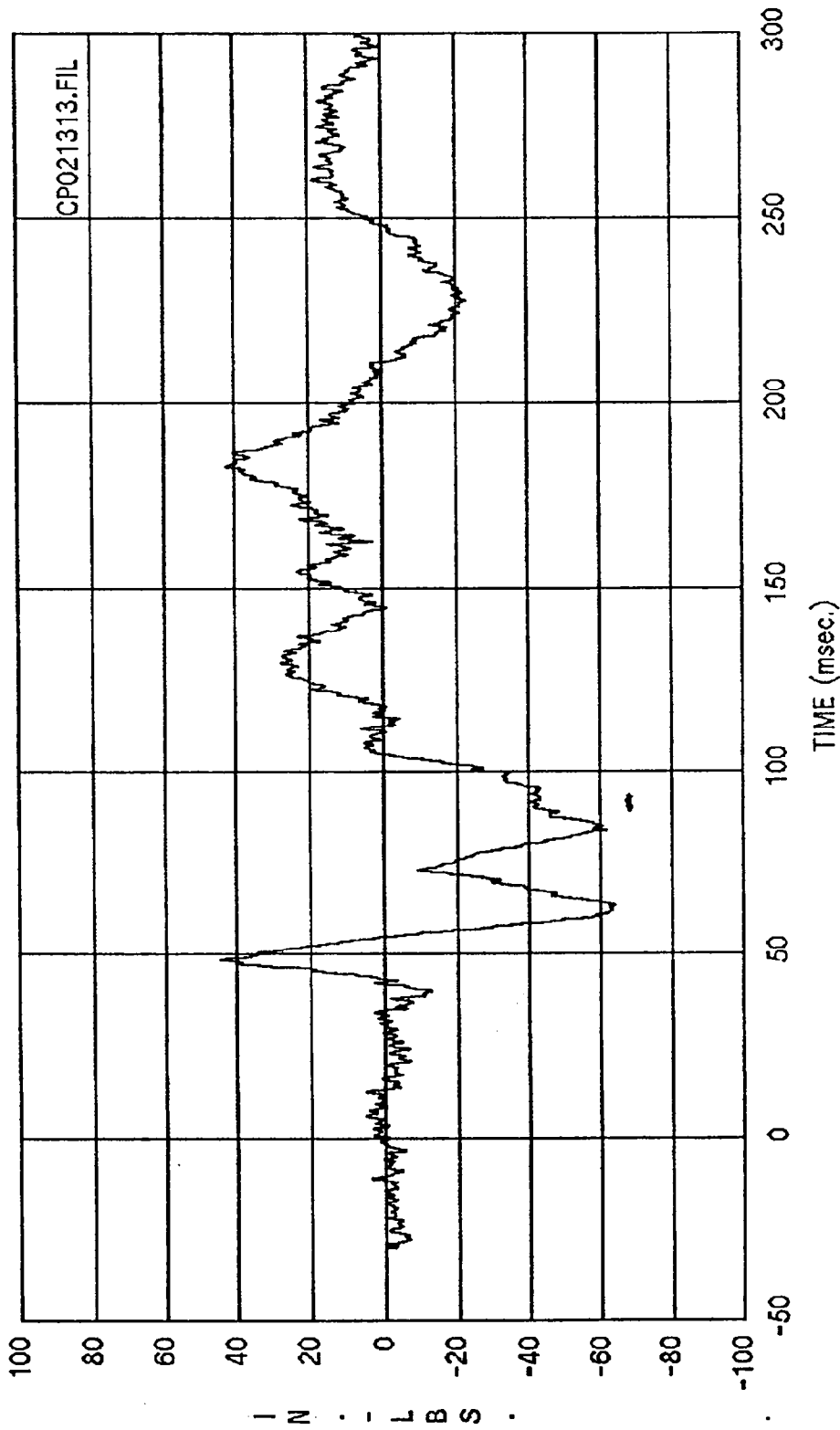


FIGURE 6-17

Curve: Driver neck moment -- X axis Filter: SAE CLASS 600 Max = 44.662 Min = -63.776

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

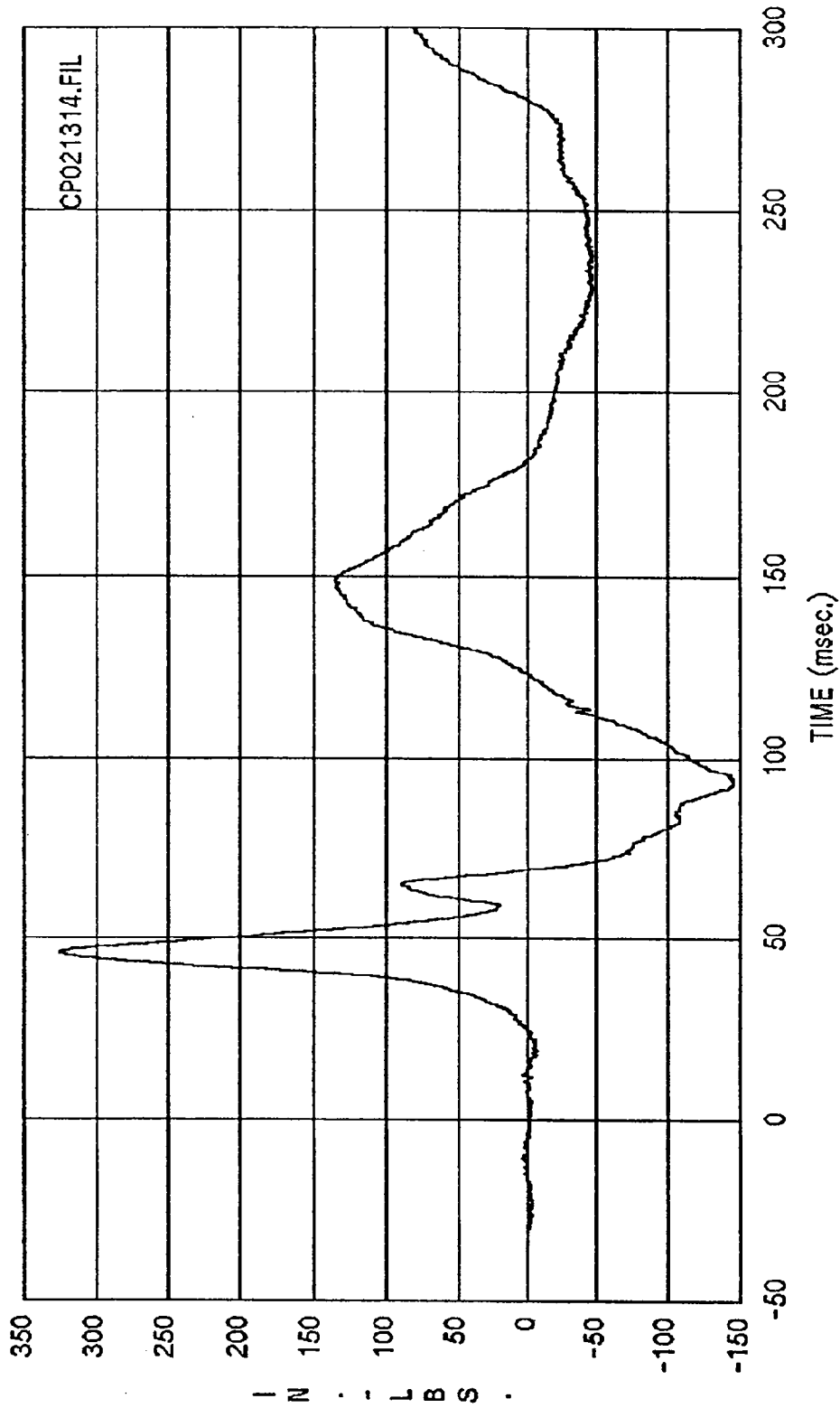


FIGURE 6-18

Curve: Driver neck moment -- Y axis

Filter: SAE CLASS 600 Max = 326.05 Min = -145.33

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

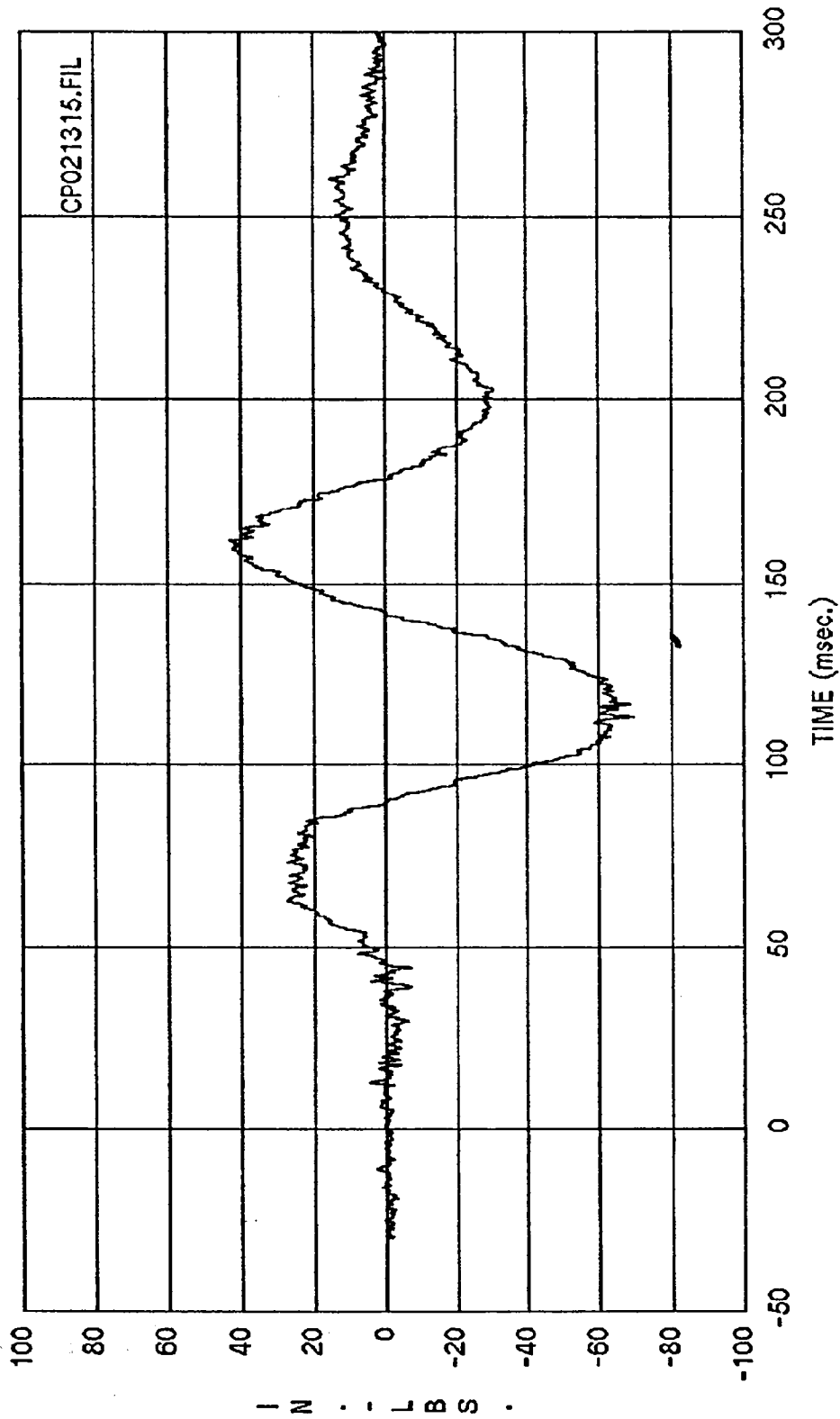


FIGURE 6-19

Curve: Driver neck moment -- Z axis

Filter: SAE CLASS 600 Max = 43.240 Min = -69.648

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

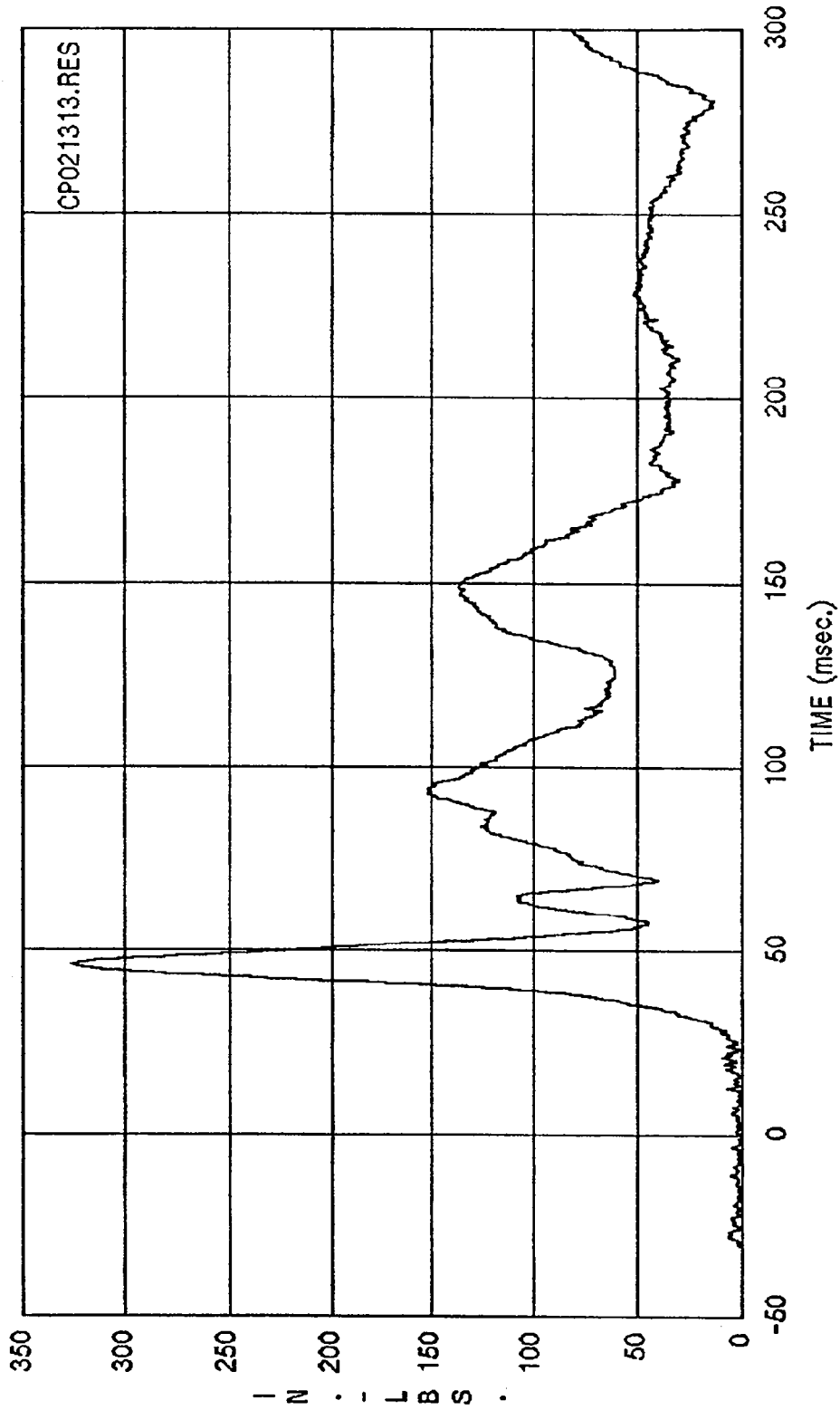


FIGURE 6-20

Curve: Driver neck moment -- Resultant

Filter: SAE CLASS 600 Max = 326.61 Min = .45666

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear

Vehicle: 1993 Ford Ranger Pickup

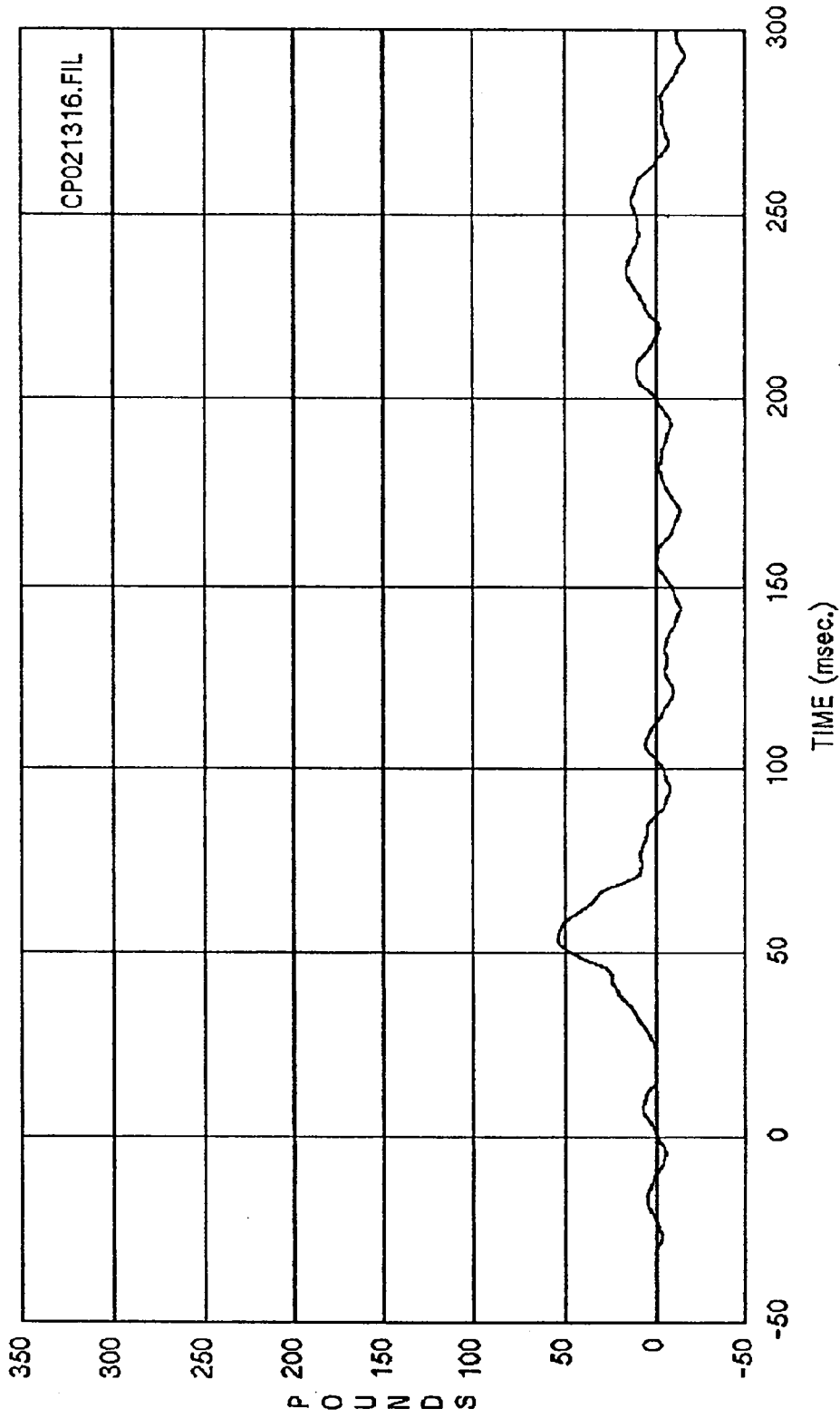


FIGURE 6-21

Curve: Driver lap belt load

Filter: SAE CLASS 60 Max = 53.719 Min = -15.913

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

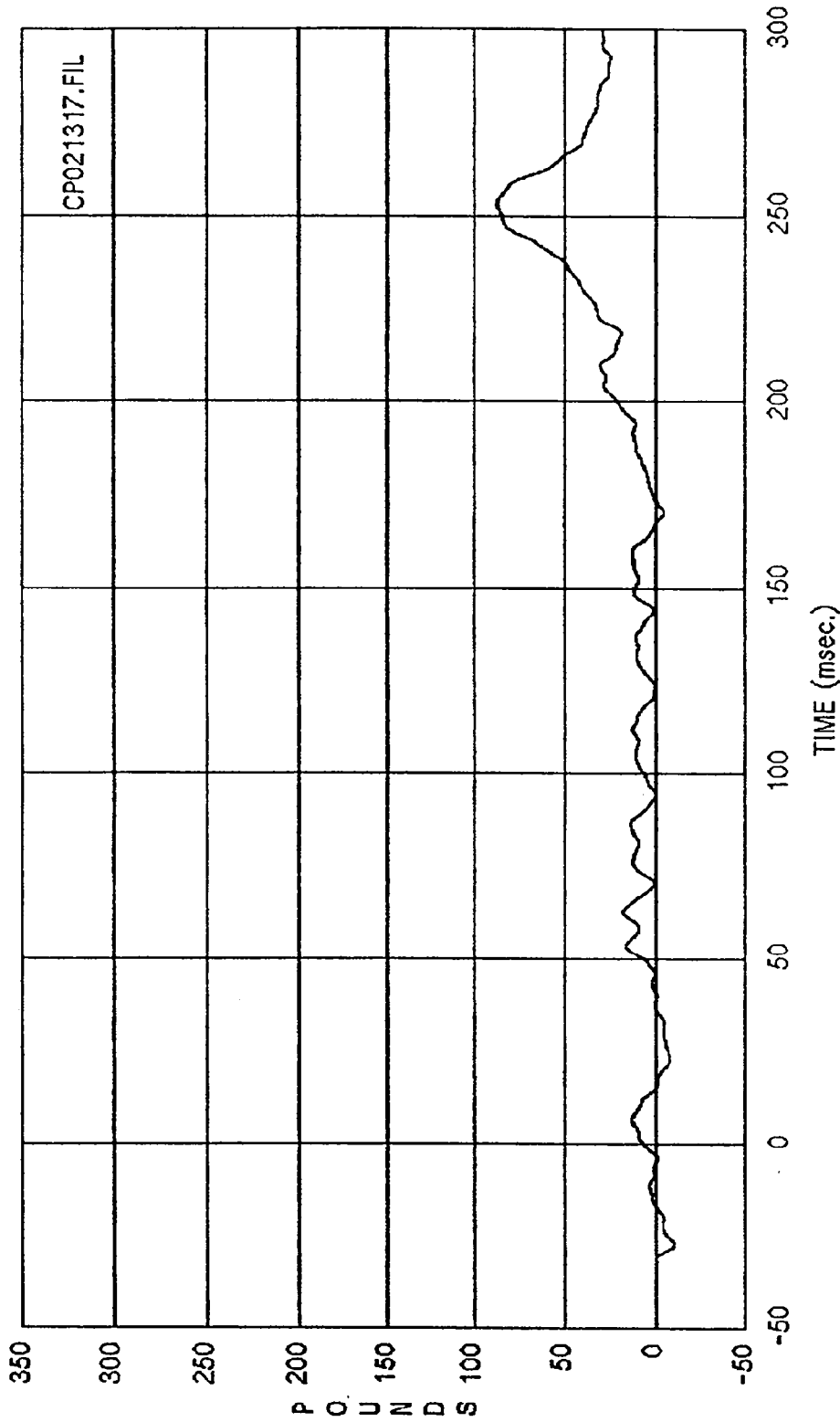


FIGURE 6-22

Curve: Driver shoulder belt load

Filter: SAE CLASS 60 Max = 87.162 Min = -7.5801

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

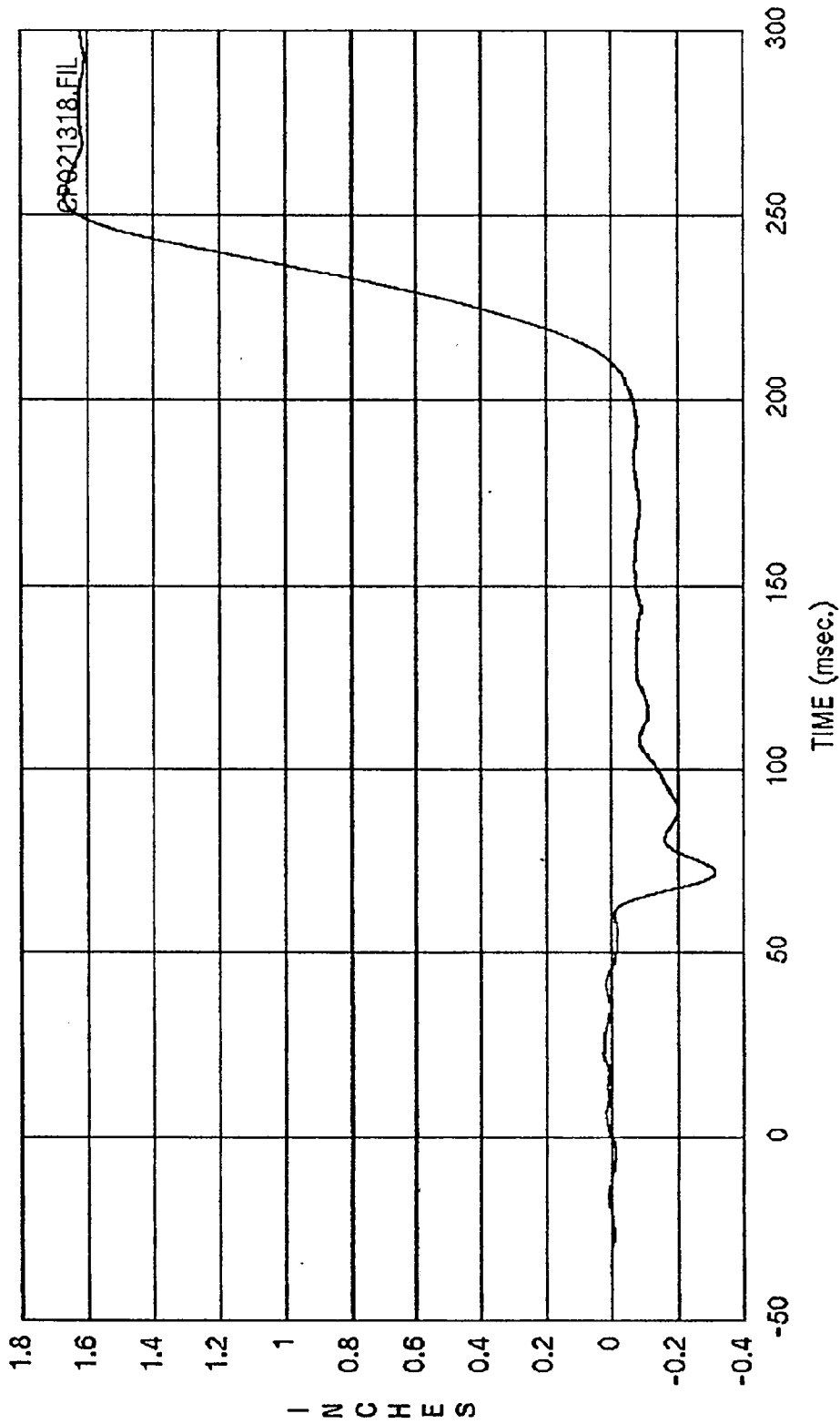


FIGURE 6-23

Curve: Driver seat belt pullout

Filter: SAE CLASS 60

Max = 1.6696

Min = -.31172

MSE Date: 05/05/93

Program: 1993 FMVSS 301 Rear

Vehicle: 1993 Ford Ranger Pickup

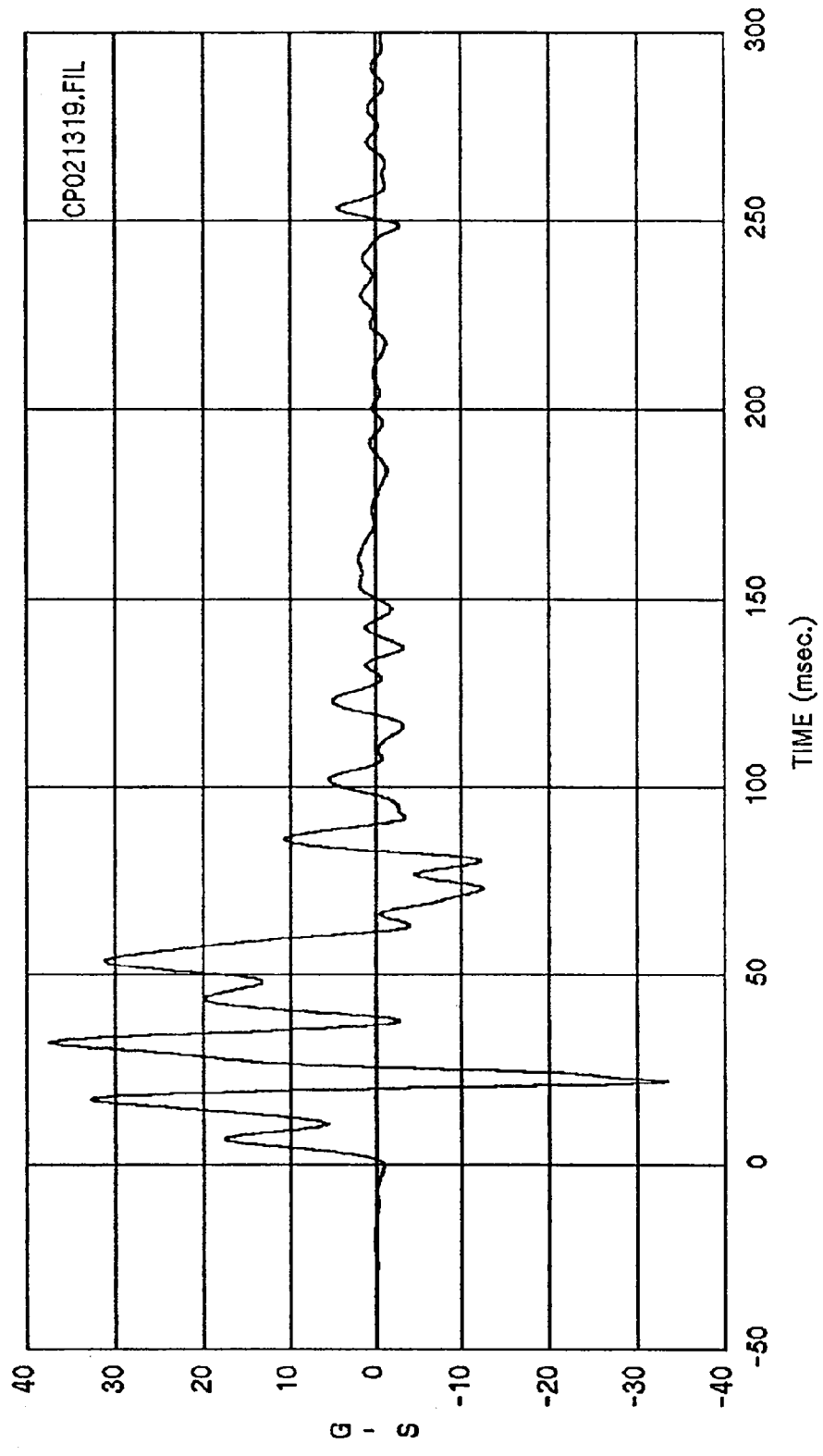


FIGURE 6-24  
 Curve: Vehicle C.G. acceleration -- X axis (Primary) Filter: SAE CLASS 60 Max = 37.428 Min = -33.329  
 MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

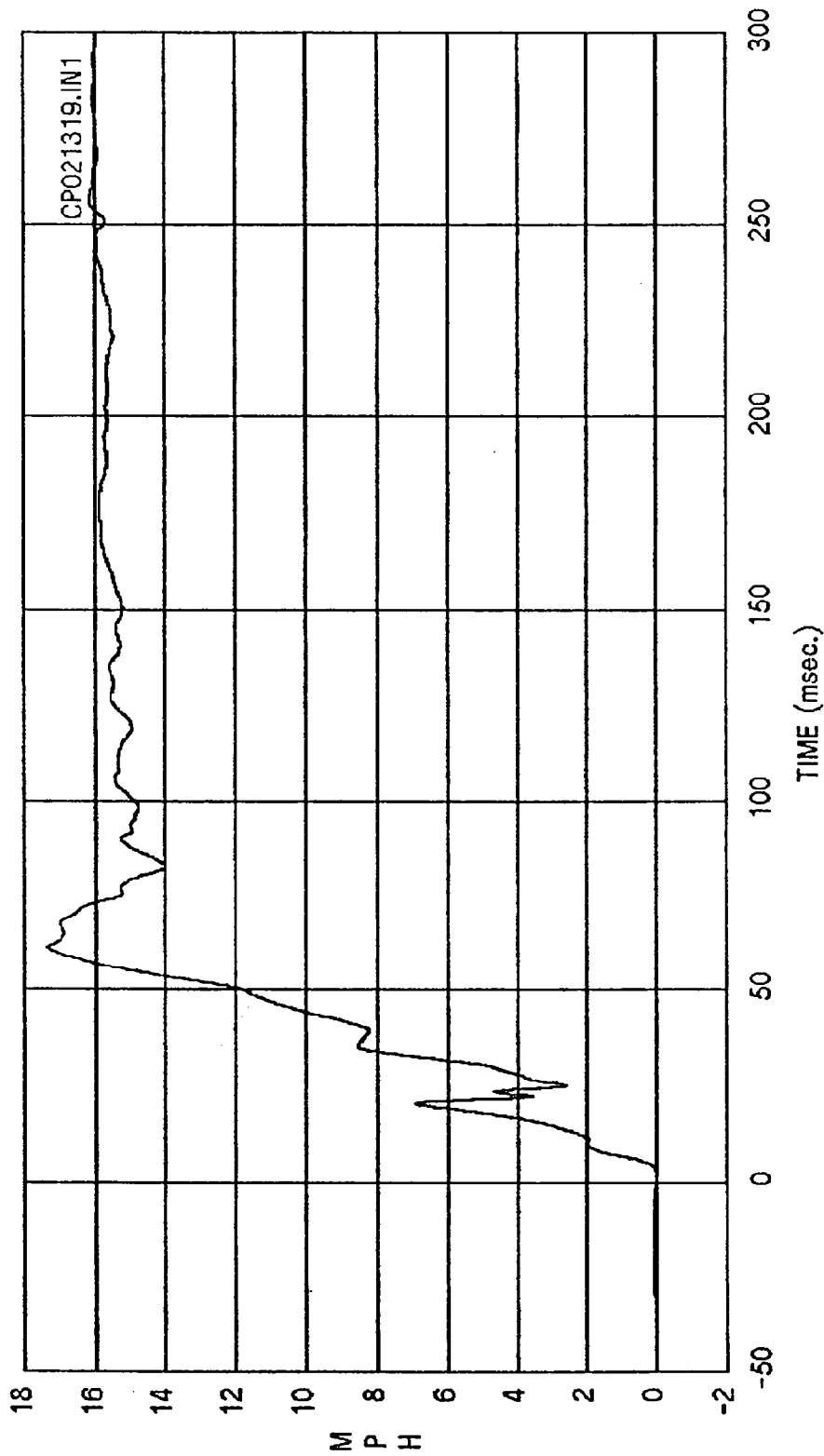


FIGURE 6-25  
 Curve: Vehicle C.G. delta V -- X axis (Primary) Filter: SAE CLASS 180 Max = 17.357 Min = -.90241E  
 02

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

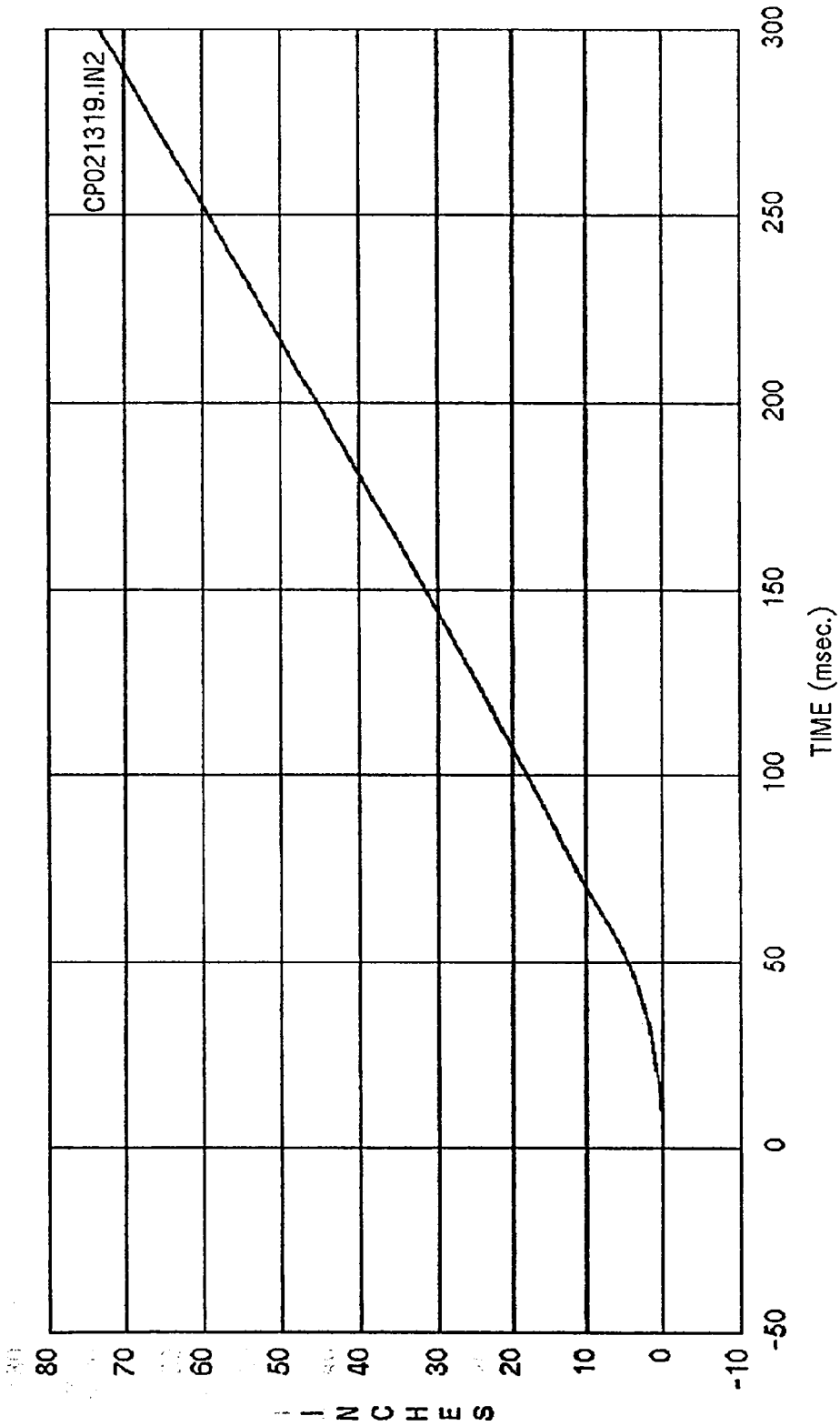


FIGURE 6-26  
 Curve: Vehicle C.G. displacement -- X axis (Primary) Filter: SAE CLASS 180 Max = 73.306 Min = -.24931E-03

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

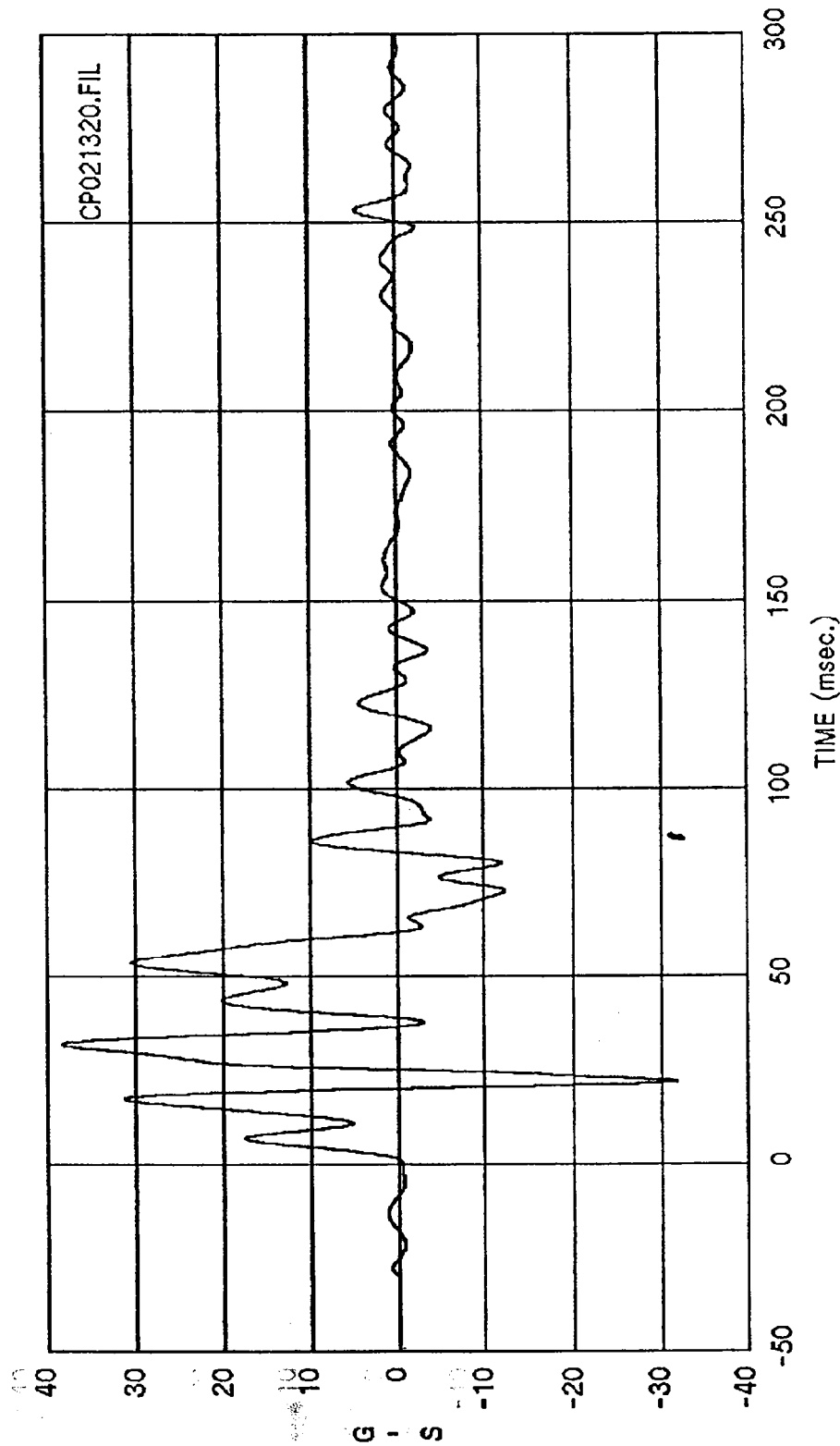


FIGURE 6-27  
 Curve: Vehicle C.G. acceleration -- X axis (Secondary) Filter: SAE CLASS 60 Max = 38.448 Min = -31.71

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

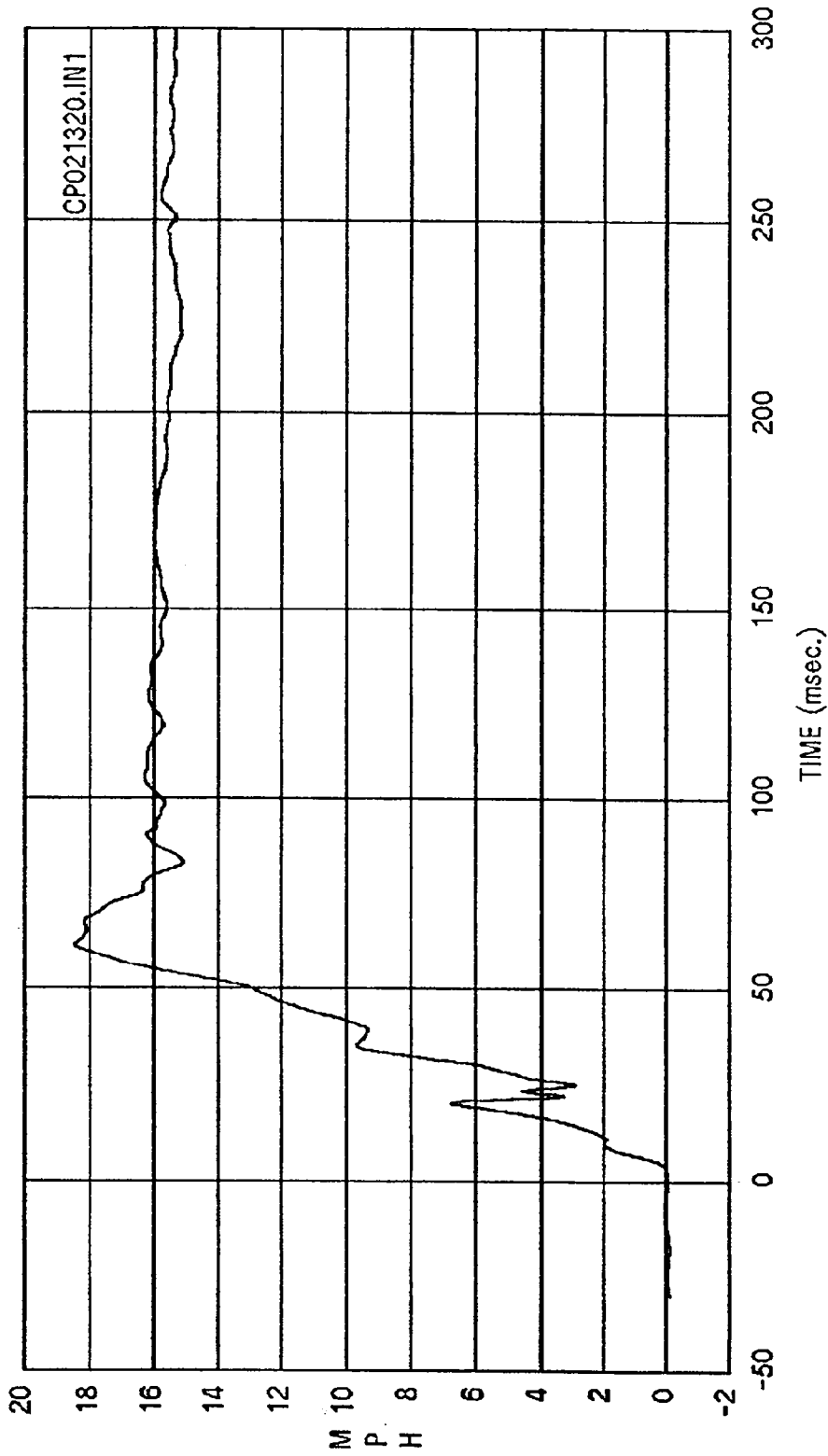


FIGURE 6-28  
 Curve: Vehicle C.G. delta V -- X axis (Secondary) Filter: SAE CLASS 180 Max = 18.472 Min = -.63758E-02

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

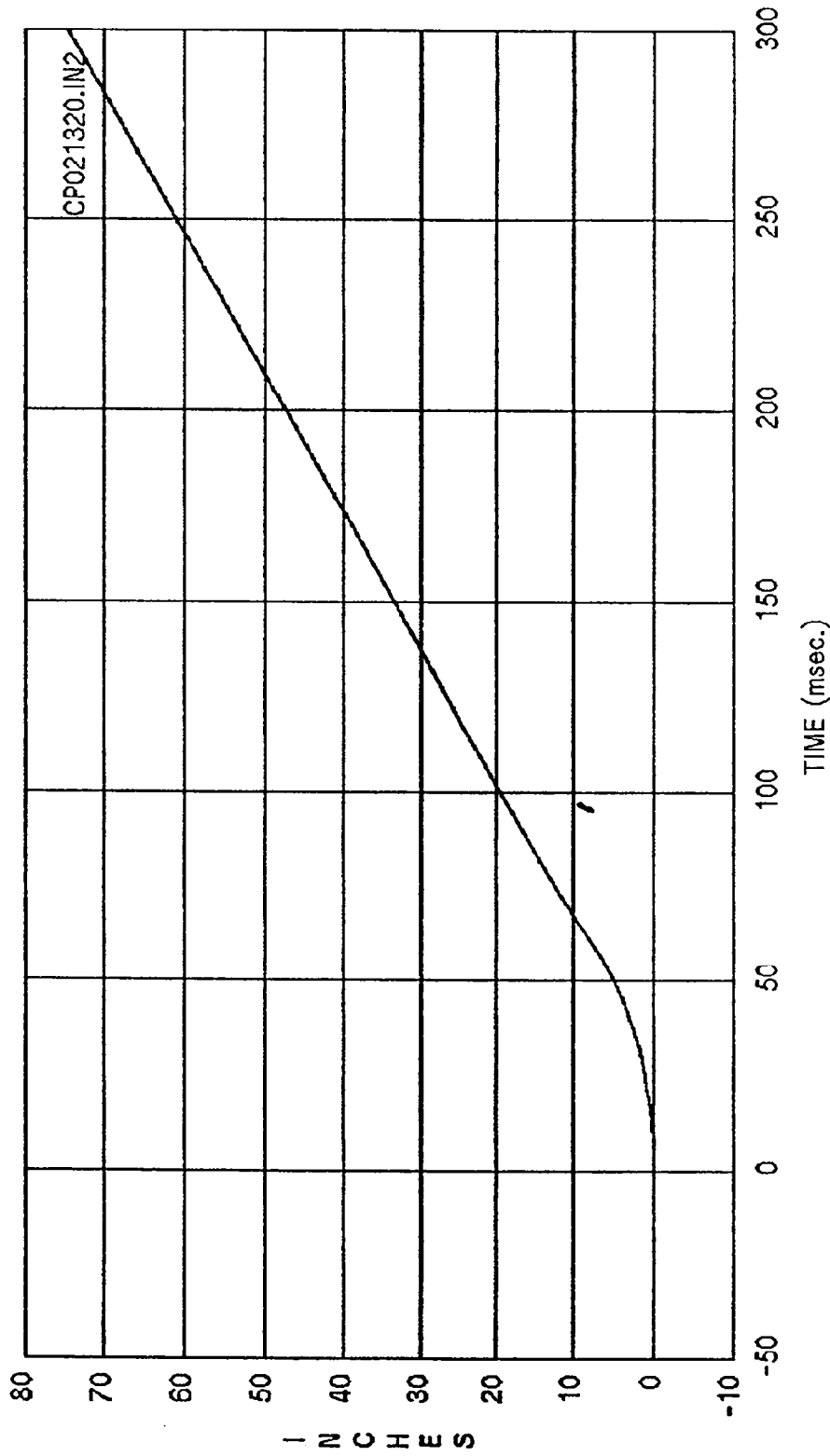


FIGURE 6-29  
 Curve: Vehicle C.G. displacement -- X axis (Secondary) Filter: SAE CLASS 180 Max = 74.666 Min = -.13766E-03

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

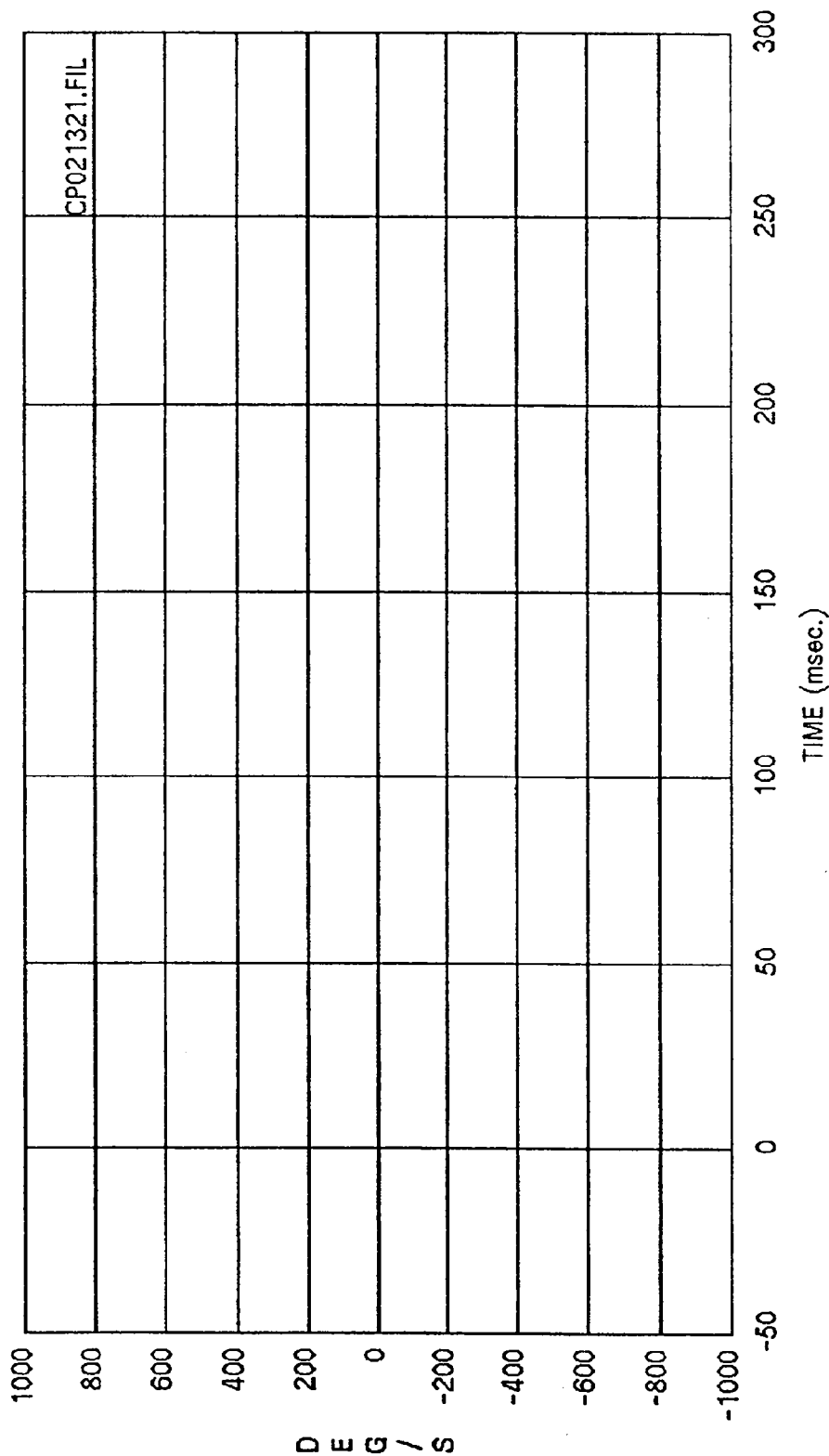


FIGURE 6-30

Curve: Driver seatback angular rate -- X axis (Not Used) Filter: SAE CLASS 60 Max = .00000 Min = .000

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

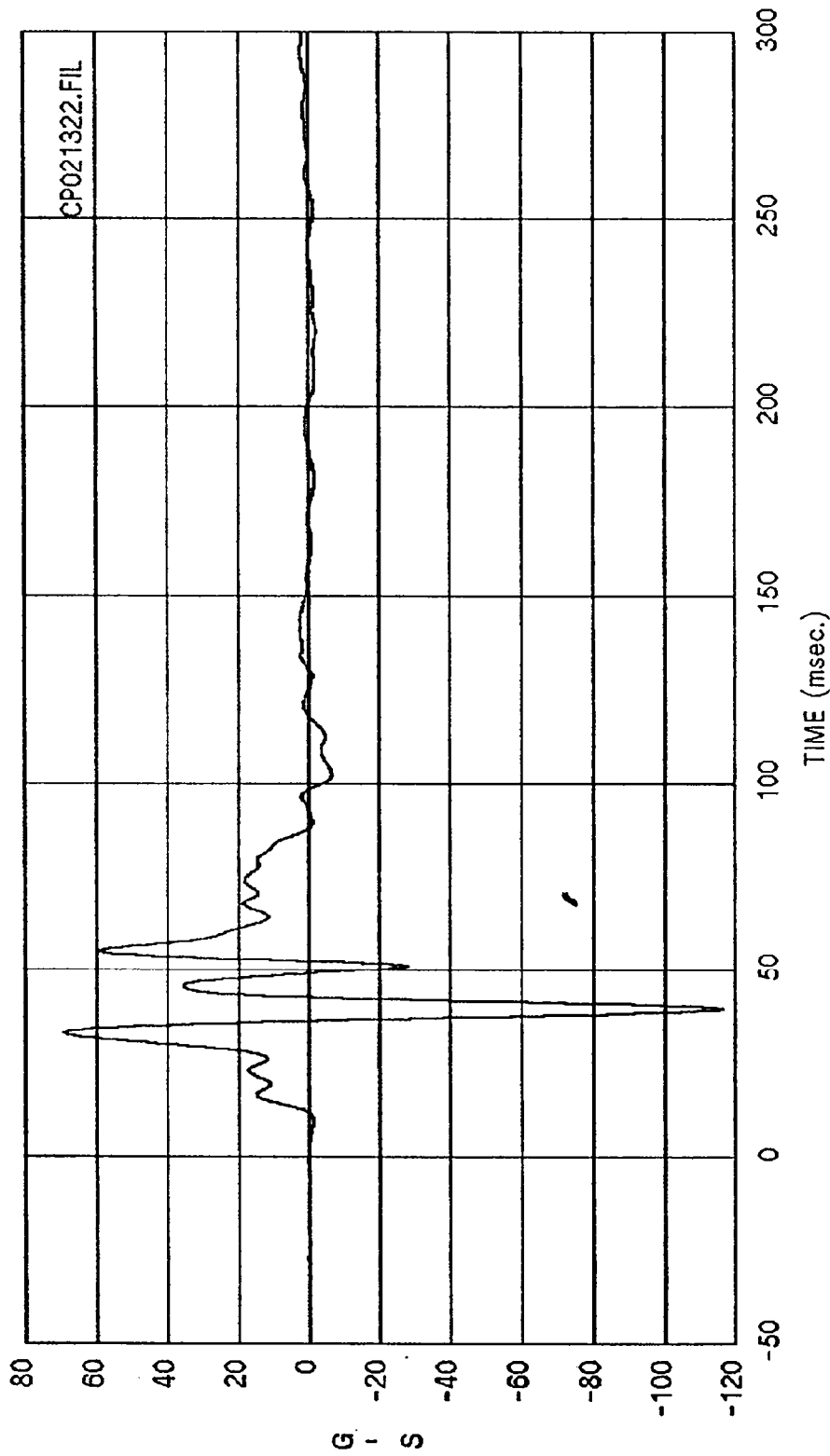


FIGURE 6-31

Curve: Driver seatback acceleration -- X axis

Filter: SAE CLASS 60

Max = 68.827

Min = -116.72

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

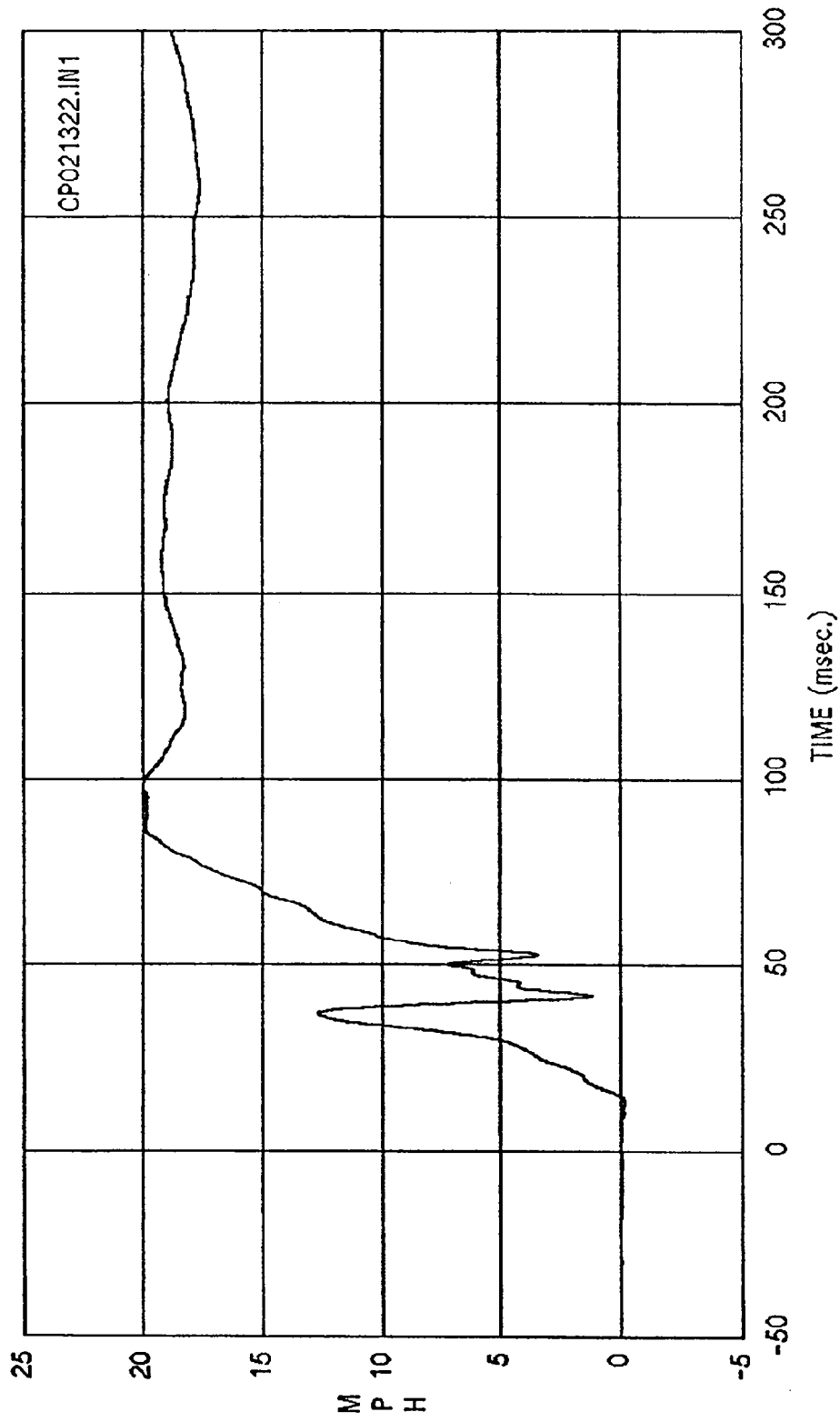


FIGURE 6-32  
 Curve: Driver seatback delta V Filter: SAE CLASS 180 Max = 20.022 Min = -.14567

MSE Date: 05/05/93 Program: 1993 FMVSS 301 Rear Vehicle: 1993 Ford Ranger Pickup

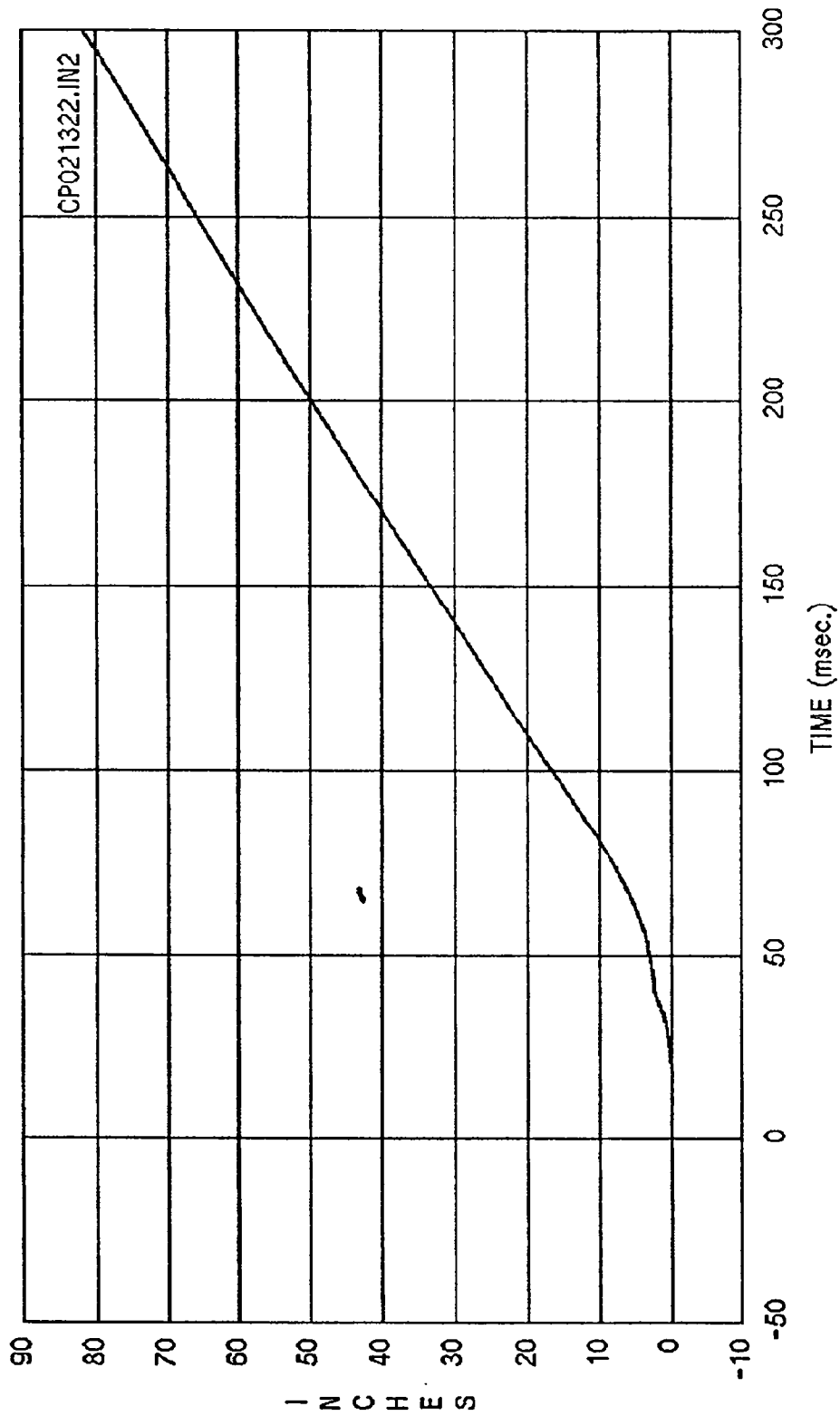


FIGURE 6-33  
 Curve: Driver seatback displacement      Filter: SAE CLASS 180      Max = 81.702      Min = -.13156E-  
 MSE      Date: 05/05/93      Program: 1993 FMVSS 301 Rear      Vehicle: 1993 Ford Ranger Pickup

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: 05/MAY/93            TSTPRF: MSE                    CONNO: DTNH22-93-C-01007  
TSTREF:            CP0213            TSTTYP: COM                    TSTCFN: ITV  
TKSURF: CON                    TKCOND: DRY                    TEMP: 75                        RECTYP: FMT  
LINK: UMB                      CLSSPD: 29.3                    IMPANG: 180                     OFFSET: 0.0  
IMPPNT: 9999.9                MEASUR: ENG                    TOTCRV: 22  
TSTCOM: NO COMMENTS



Vehicle Information

VGID: 2 VEHNO: 2 MAKE: 02 MODEL: 10 YEAR: 93 BODY: PU  
VIN: 1FTCR10A9PTA24968 ENGINE: 4CIF ENGDSP: 2.3 LITERS TRANSM: MR  
VEHTWT: 3526 WHLBAS: 108.5 VEHLEN: 184.5 VEHWID: 70.0  
VEHCG: 47.3 STRSEP: NO COLNEC: EXA 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: 9.5
- 2: 10.1
- 3: 11.3
- 4: 11.3
- 5: 9.4
- 6: 9.6

VDI: 06BDEW9 LENCNT: 60.0 DAMDST: 0.0 CRHDST: 11.3

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 COMMENT



Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	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: 31	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	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: 1	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: 13	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	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: 17	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	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: 7	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5      VEHNO: 1      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: 6      INIVEL: 0.0  
 NFP: -300      NLP: 2999      DELT: 100      DASTAT: AM  
 INSCOM: NO COMMENT

Instrumentation Information

Inst. Group ID: 5      VEHNO: 1      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: 13      INIVEL: 0.0  
 NFP: -300      NLP: 2999      DELT: 100      DASTAT: AM  
 INSCOM: NO COMMENT

Instrumentation Information

Inst. Group ID: 5      VEHNO: 1      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: 1      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: 9      INIVEL: 0.0  
 NFP: -300      NLP: 2999      DELT: 100      DASTAT: AM  
 INSCOM: NO COMMENT

Instrumentation Information

Inst. Group ID: 5      VEHNO: 1      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: 5      INIVEL: 0.0  
 NFP: -300      NLP: 2999      DELT: 100      DASTAT: AM  
 INSCOM: NO COMMENT

Instrumentation Information

Inst. Group ID: 5      VEHNO: 1      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: 1      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: 7      INIVEL: 0.0  
NFP: -300      NLP: 2999      DELT: 100      DASTAT: AM  
INSCOM: NO COMMENT

Instrumentation Information

Inst. Group ID: 5      VEHNO: 1      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: 3      INIVEL: 0.0  
NFP: -300      NLP: 2999      DELT: 100      DASTAT: AM  
INSCOM: UNITS: IN.-LBS.

Instrumentation Information

Inst. Group ID: 5      VEHNO: 1      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: 1      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: 1      CURNO: 016  
SENTYP: LC      SENLOC: NA      SENATT: L8P0  
AXIS: NA      UNITS: LBS      PREFIL: 1650  
INSMAN: MFG: LEBOW,      MODEL: 3371,      S/N: 330  
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: 1      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: 3      INIVEL: 0.0  
NFP: -300      NLP: 2999      DELT: 100      DASTAT: AM  
INSCOM: NO COMMENT

Instrumentation Information

Inst. Group ID: 5      VEHNO: 1      CURNO: 018  
SENTYP: LC      SENLOC: NA      SENATT: SHBT  
AXIS: NA      UNITS: INS      PREFIL: 1650  
INSMAN: MFG: MSE,      MODEL: 101-24,      S/N: 001  
CALDAT: 30/APR/93      INSRAT: 24      CHLMAX: 7      INIVEL: 0.0  
NFP: -300      NLP: 2999      DELT: 100      DASTAT: AM  
INSCOM: NO COMMENT

Instrumentation Information

Inst. Group ID: 5      VEHNO: 1      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: 146      INIVEL: 0.0  
NFP: -300      NLP: 2999      DELT: 100      DASTAT: AM  
INSCOM: NO COMMENT

Instrumentation Information

Inst. Group ID: 5      VEHNO: 1      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: 162      INIVEL: 0.0  
NFP: -300      NLP: 2999      DELT: 100      DASTAT: AM  
INSCOM: NO COMMENT

Instrumentation Information

Inst. Group ID: 5      VEHNO: 1      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: 0      INIVEL: 0.0  
NFP: -300      NLP: 2999      DELT: 100      DASTAT: MN  
INSCOM: NOT INSTALLED, DUE TO SPACE LIMITATION

Instrumentation Information

Inst. Group ID: 5      VEHNO: 1      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: 111      INIVEL: 0.0  
NFP: -300      NLP: 2999      DELT: 100      DASTAT: AM  
INSCOM: NO COMMENT