

DOT/19/1

ACCELERATION AND DIMENSIONAL
DATA ON SELECTED
1978 AUTOMOTIVE VEHICLES

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Contract DOT-HS-6-01478



October 1978

FINAL REPORT

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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
acres	acres	0.4	hectares	ha

MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons	0.9	metric ton	t
		(2000 lb.)		

VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
in ³	cubic inches	16	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	L
pt	pints	0.47	liters	L
qt	quarts	0.95	liters	L
gal	gallons	3.8	liters	L
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³

TEMPERATURE (exact)				
F	degrees Fahrenheit	5/9 (after subtracting 32)	degrees Celsius	°C

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares	2.5	acres	acres
	(10,000 m ²)			

MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	metric ton	1.1	short tons	
	(1000 kg)			

VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
ml	milliliters	0.06	cubic inches	in ³
L	liters	2.1	pints	pt
L	liters	1.06	quarts	qt
L	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³

TEMPERATURE (exact)				
°C	degrees Celsius	9/5 (then add 32)	degrees Fahrenheit	°F

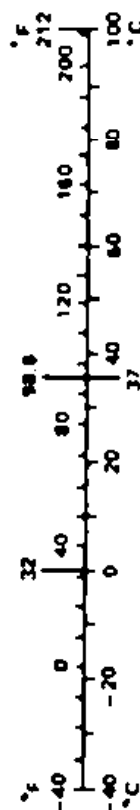


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INTRODUCTION

This report presents acceleration and dimensional data on selected 1978 passenger cars and pickups which were subjected to impact tests per the requirements of FMVSS 301-75.

The vehicles shown in Table 1 are included in this report. The acceleration data were all filtered per Class 60 of SAE J211a.

The report is organized by sections for each impact type (i.e. rear, front, etc.).

Placement of the accelerometers on the vehicle depended on the impact direction and is shown for each type of impact in the particular section relating to that impact direction.

TABLE 1. LIST OF VEHICLES (1978 MODELS)

	<u>Test Date (1978)</u>	<u>Impact Speed (mph)</u>	<u>See Page</u>
Section 1 - Passenger Car Rear End Impact			4
Chevrolet Caprice Four-Door Sedan	Feb. 6	29.44	7
Ford Granada Four-Door Sedan	Feb. 6	29.04	13
Oldsmobile Delta Two-Door Coupe	Feb. 7	28.98	19
Chevrolet Monza Three-Door Hatchback	Feb. 7	29.21	25
Chevrolet Chevette Four-Door Sedan	March 13	29.64	31
Toyota Corolla Two-Door Sedan	March 30	29.50	37
Subaru DL Four-Door Sedan	March 30	29.31	43
Plymouth Sapporo Two-Door Coupe	April 3	29.80	49
Triumph Spitfire Two-Door Coupe	April 4	29.65	55
Pontiac LeMans Two-Door Coupe	April 5	29.44	61
BMW 320i Two-Door Coupe	April 5	29.52	67
Buick Regal Two-Door Coupe	April 6	29.9	73
Pontiac Phoenix Four-Door Sedan	April 7	28.81	79
Ford Fiesta Three-Door Hatchback	April 8	29.81	85
Mazda Cosmo Two-Door Sedan	April 8	29.00	91
Plymouth Horizon Four-Door Hatchback	April 5	29.44	97
Buick Opel Two-Door Sedan	April 11	30.27	103
Pontiac Sunbird Three-Door Hatchback	April 27	29.32	109
Fiat 124 Spider Two-Door Coupe	April 28	29.48	115
Chevrolet Malibu Four-Door Sedan	Sep. 13	29.83	121
Dodge Diplomat Two-Door Coupe	Sep. 26	29.73	128
Datsun 510 Two-Door Coupe	Sep. 27	29.52	135
Ford Fairmont Two-Door Sedan	Sep. 27	29.49	142
Saab 99GL Three-Door Hatchback	Sep. 28	29.29	149
Honda Accord Three-Door Hatchback	Sep. 28	29.64	156

TABLE 1. LIST OF VEHICLES (CONTD)

	<u>Test Date (1978)</u>	<u>Impact Speed (mph)</u>	<u>See Page</u>
Section 2 - Passenger Car Frontal Impact			163
Subaru Brat Multipurpose Passenger Vehicle	March 16	29.56	166
Oldsmobile Cutlass Two-Door Coupe	May 4	29.84	171
Pontiac Grand Prix Two-Door Coupe	May 11	29.36	176
Chevrolet Monte Carlo Two-Door Coupe	May 12	29.45	181
Buick LeSabre Two-Door Coupe	May 17	29.65	186
Datsun F-10 Station Wagon	May 18	29.80	191
Mazda RX-4 Station Wagon	May 22	30.04	196
Dodge Monaco Two-Door Coupe	June 20	29.37	201
Toyota Cressida Station Wagon	June 22	29.61	206
VW Rabbit Four-Door Hatchback	June 26	29.58	211
Section 3 - Truck Rear End Impact			216
Jeep CJ5 Multipurpose Passenger Vehicle	March 8	29.36	219
Ford Ranchero Pickup	March 8	29.11	225
Chevrolet G-10 Van	March 9	29.18	231
Ford F-100 Pickup	March 9	29.66	237
Datsun Pickup	April 4	29.40	243
Dodge D-100 Pickup	April 5	29.43	249
GMC C1500 Pickup	April 6	29.18	255
Dodge B-100 Van	April 10	29.20	261
Toyota Pickup	April 28	29.48	267
Ford E100 Van	Sep. 13	29.48	273

SECTION 1
PASSENGER CAR REAR
END IMPACT

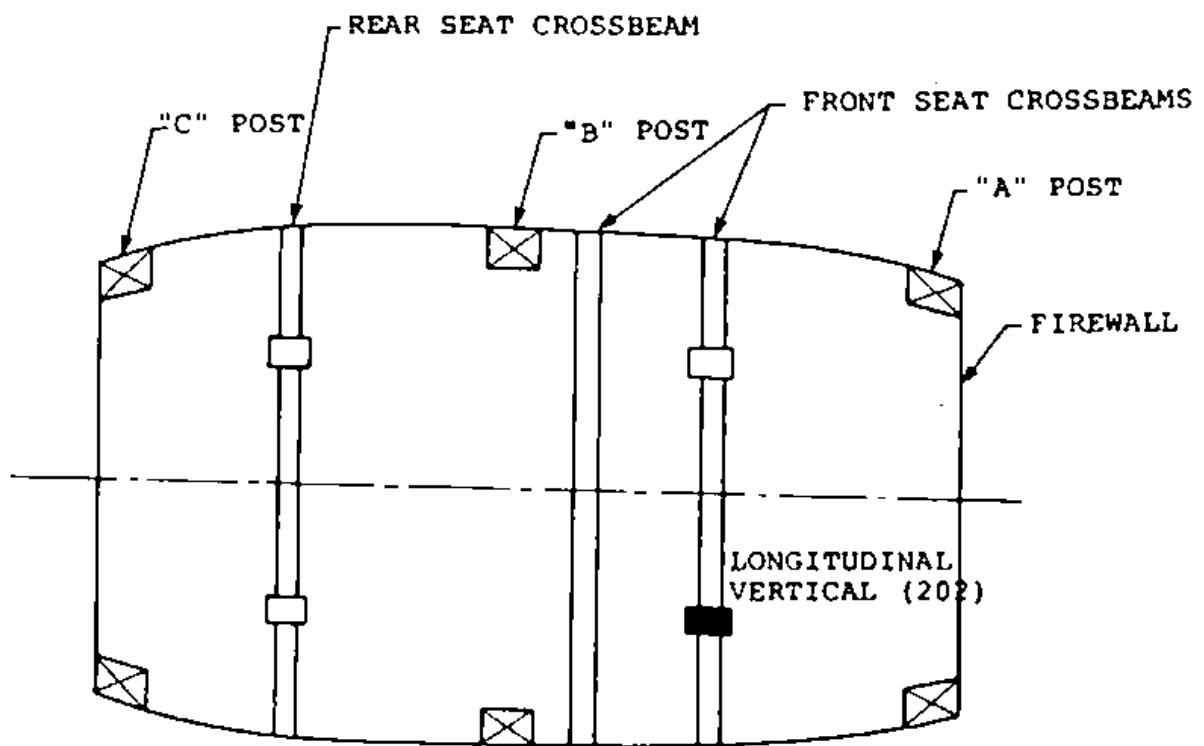


Figure 1. Accelerometer Location for Passenger Car Rear End Impacts.

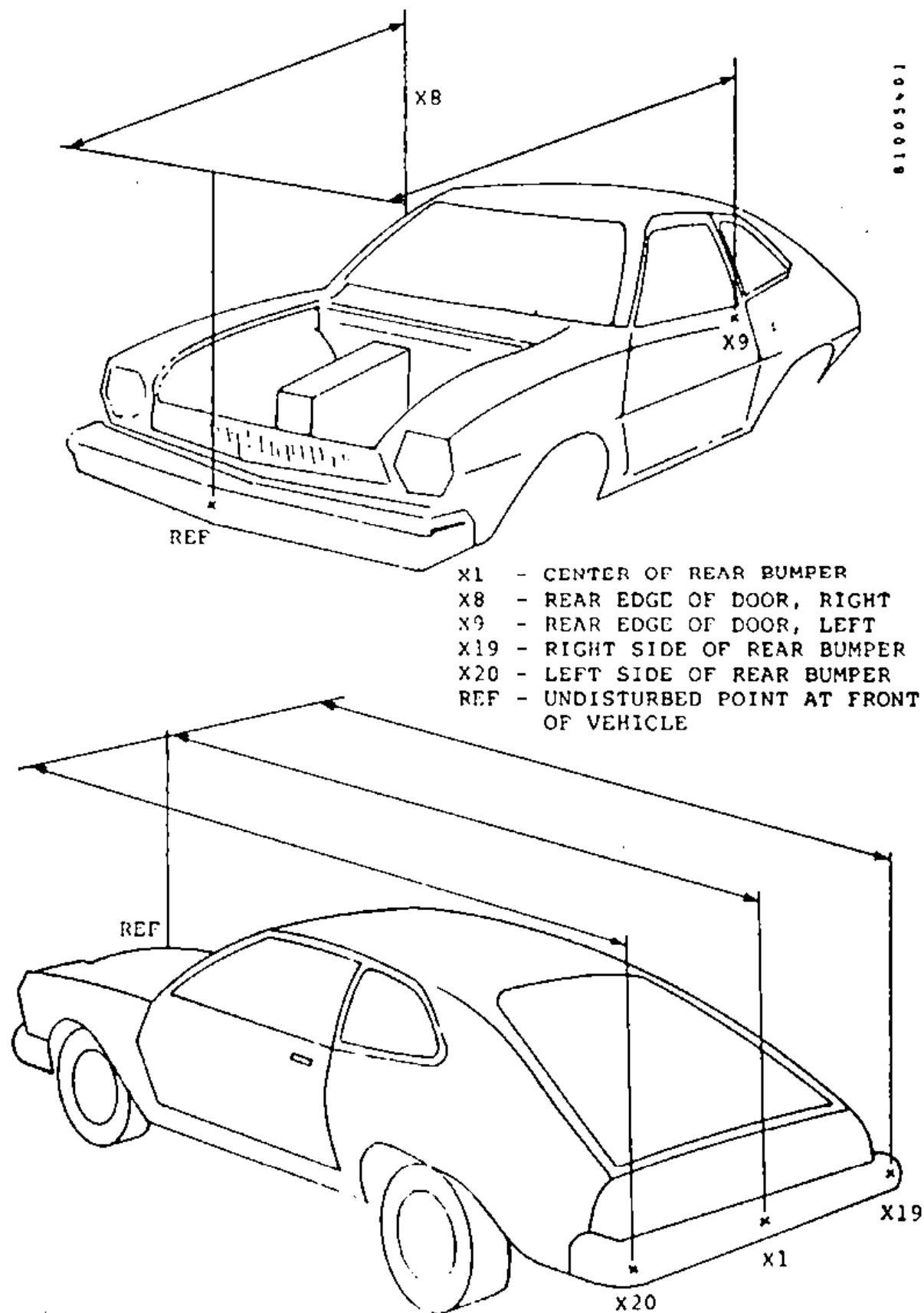


Figure 2. Dimensional Measurements for FMVSS 301-75 Rear Impacts Conducted After April 1977.

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SUMMARY OF TEST CONDITIONS
1978 AMC Jeep CJ5 MPV, NHTSA 781303

TEST VEHICLE IDENTIFICATION

Manufacturer: Jeep Corporation
Make/Model: AMC Jeep CJ5
Body Style: MPV Model Year: 1978
VIN: J8F83AA059839 ; Build Date: December 1977
NHTSA No.: 781303 ; Color: Bronze
Engine Data: 6 cylinders; 258 c.i.d.
Transmission Data: 3 speed
☒ Manual ☐ Automatic
Major Options: _____

TEST CONDITIONS

Date of Test: March 8, 1978 ; Time of Test: 1051
Ambient Temperature 65 °F at impact area

TEST VEHICLE WEIGHT (data taken from tire pressure placard)

Vehicle Capacity Weight:	<u>NA</u>	<u>1b</u>
Designated Seating Capacity:	Front <u>2</u>	
	Rear <u>0</u>	
	Total <u>2</u>	
GVWR (taken from Certification Label):	<u>3750</u>	<u>1b</u>
	GAWR Front: <u>2200</u>	<u>1b</u>
	GAWR Rear: <u>2700</u>	<u>1b</u>
Vehicle Delivered Weight	Front: <u>1525</u>	<u>1b</u>
(fluids to capacity)	Rear: <u>1248</u>	<u>1b</u>
	Total: <u>2773</u>	<u>1b</u>
Calculated Vehicle Test Weight:	<u>3401</u>	<u>1b</u>
Actual Vehicle Test Weight	Front: <u>1630</u>	<u>1b</u>
	Rear: <u>1771</u>	<u>1b</u>
	Total: <u>3401</u>	<u>1b</u>

REMARKS: _____

PRE- AND POST-TEST MEASUREMENT DATA SHEET

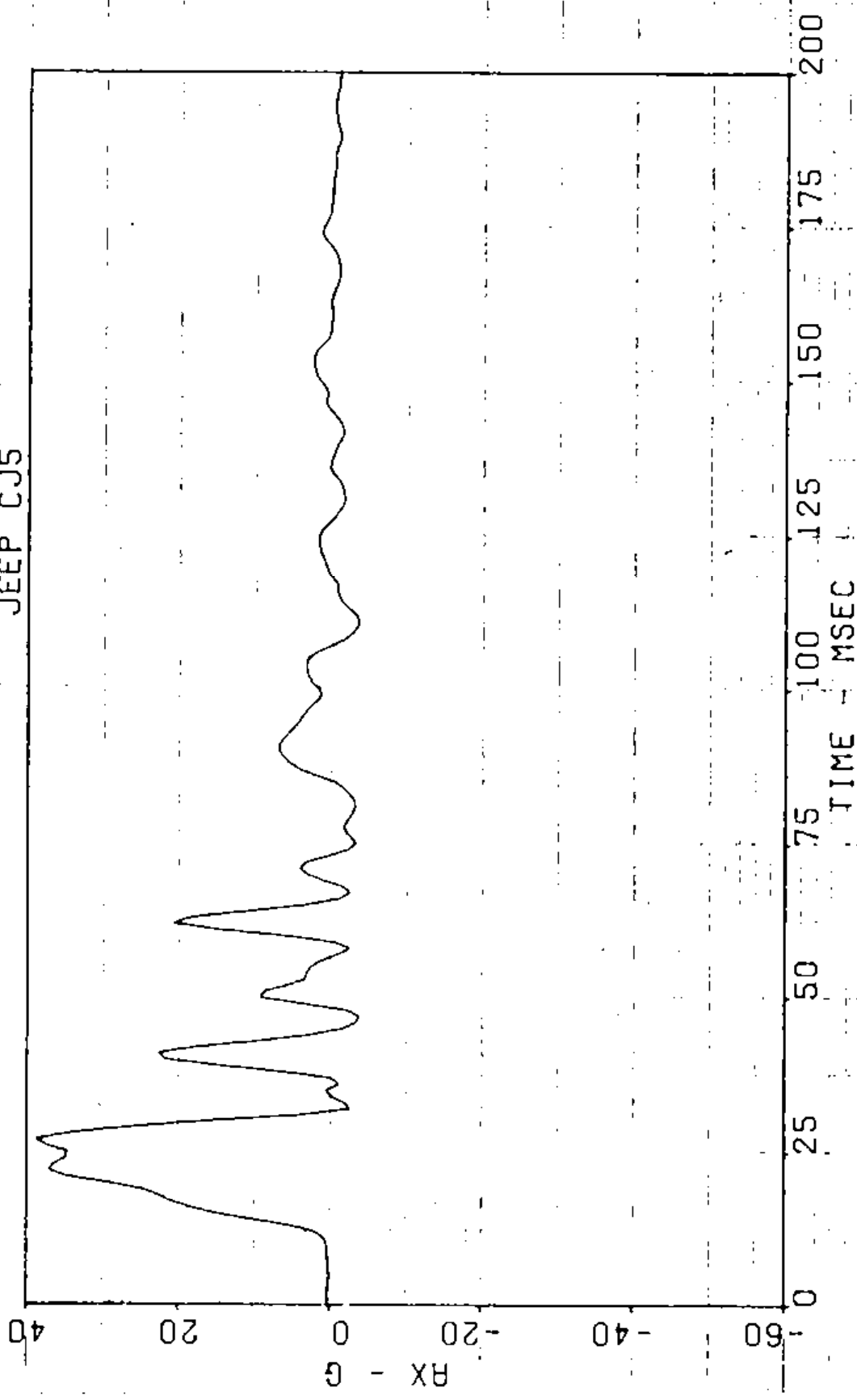
VEHICLE: 1978 Jeep CJ5

TYPE OF IMPACT: Rear

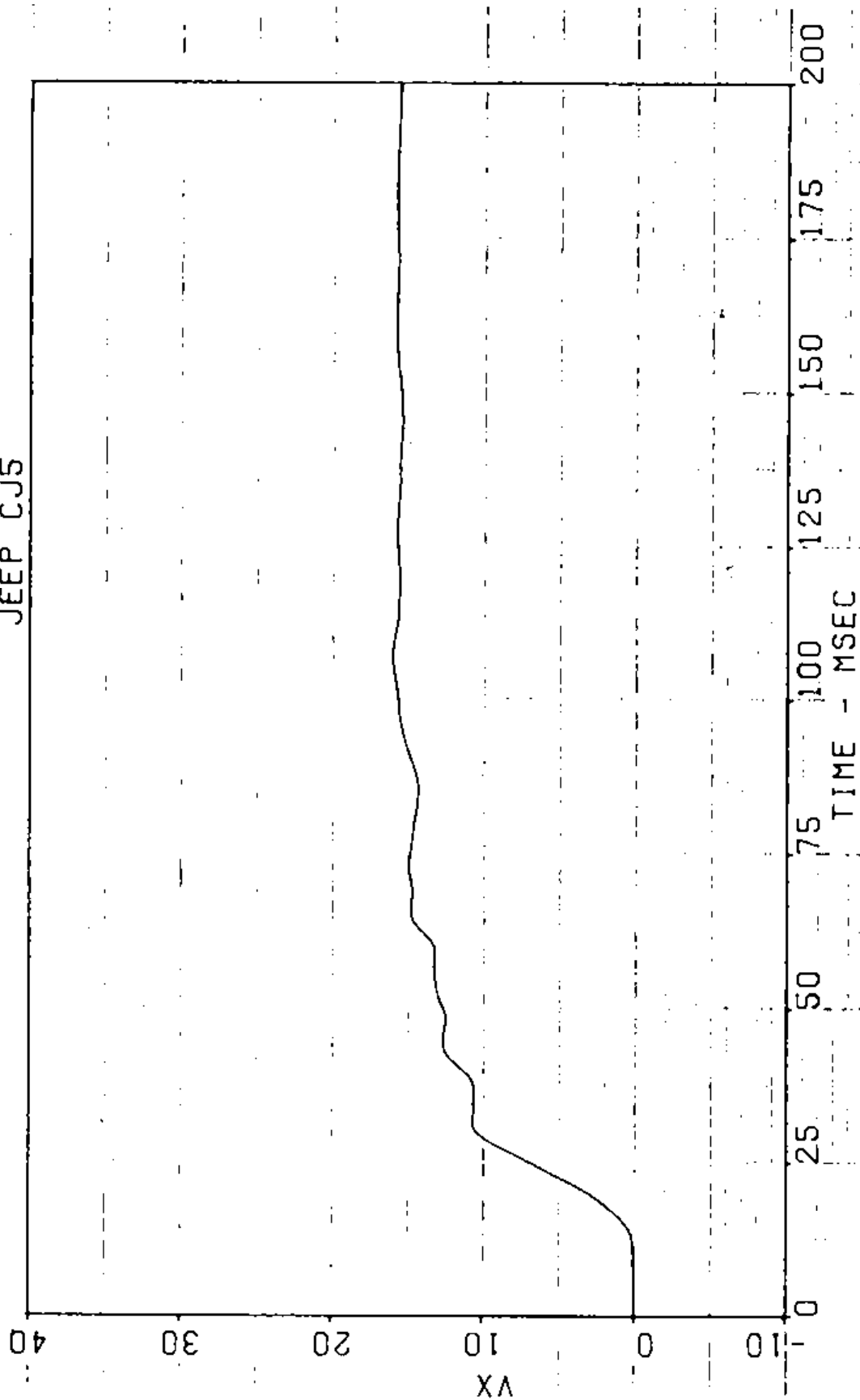
Measurement Point	Distance to Datum Reference (in.)	
	Pre-test	Post-test
<u>x1</u>	<u>132.3</u>	<u>127.5</u>
<u>x8</u>	<u>NA*</u>	<u>NA*</u>
<u>x9</u>	<u>NA*</u>	<u>NA*</u>
<u>x19</u>	<u>132.3</u>	<u>127.3</u>
<u>x20</u>	<u>132.3</u>	<u>127.0</u>

*Vehicle has no doors.

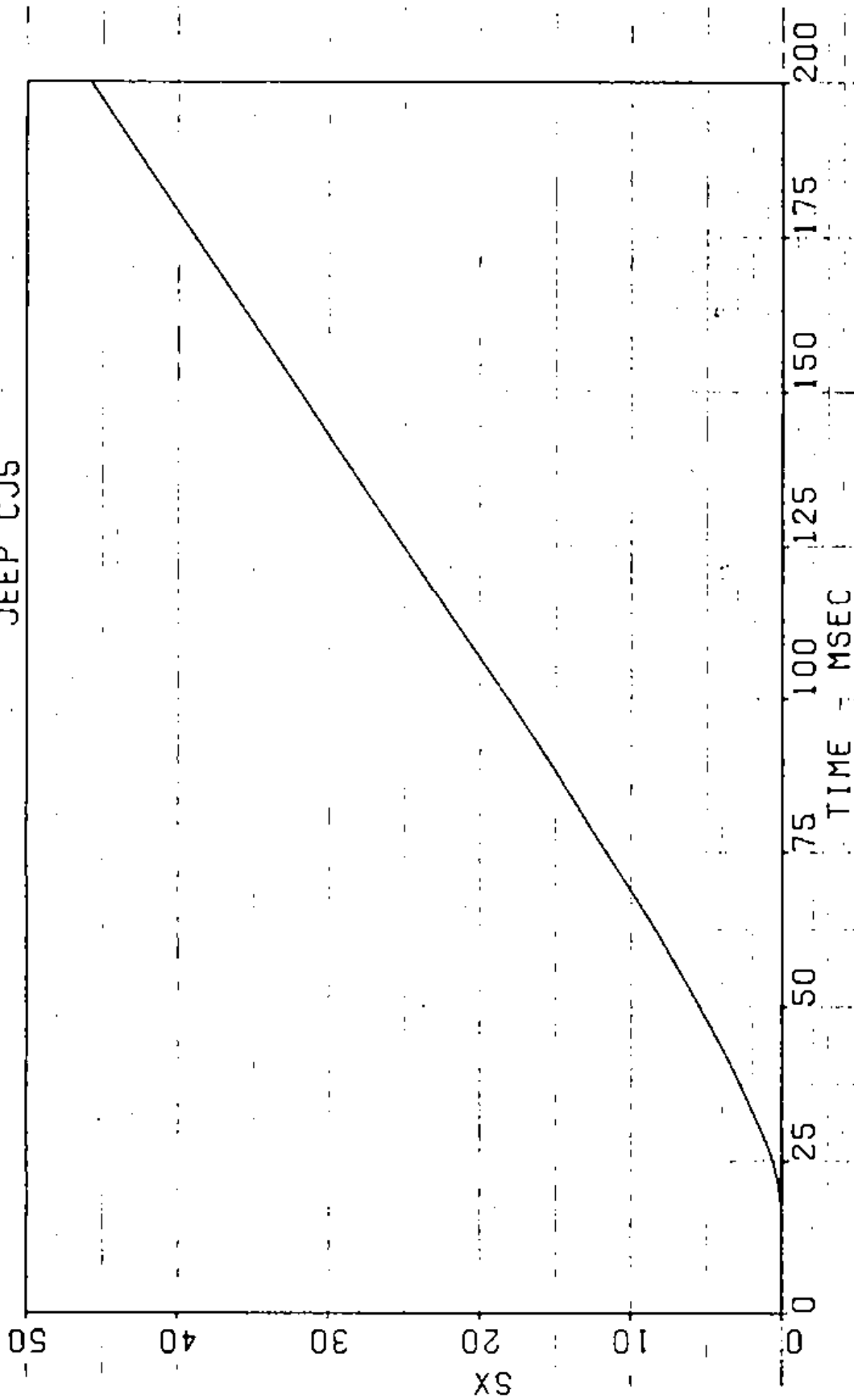
DATE 3-8-78 FILTER 315/100 LOCATION 202 TEST NO 102078
BARR/JEEP
JEEP CJ5



DATE 3-8-78 FILTER 315/100 LOCATION 202 TEST NO 102078
BARR/JEEP
JEEP CJ5



DATE 3-8-78 FILTER 315/100 LOCATION 202 TEST NO 102078
BARR/JEEP
JEEP CJ5



DATE 3-8-78 FILTER 315/100 LOCATION 202 TEST NO 102078
BARR/JEEP
JEEP CJS

