

SAFETY COMPLIANCE TESTING FOR FMVSS 201U
Occupant Protection In Interior Impact
Upper Interior Head Impact Protection

NISSAN MOTOR CO., LTD.
2005 Nissan Pathfinder 4-Door MPV
NHTSA No. C55202

MGA RESEARCH CORPORATION
446 Executive Drive
Troy, Michigan 48083



Test Dates: April 28-28, 2005
Report Date: April 29, 2005

FINAL REPORT

PREPARED FOR:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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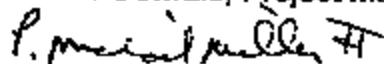
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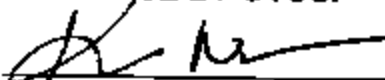

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16. Abstract A compliance test series was conducted on the subject 2005 Nissan Pathfinder 4-Door MPV, NHTSA No. C55202, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-201U-01 for the determination of FMVSS 201U compliance. The testing was conducted at MGA Research Corporation in Troy, Michigan on April 26-28, 2005. Test failures identified were as follows: None The data recorded seems to indicate that the 2005 Nissan Pathfinder 4-Door MPV tested appears to comply with the requirements for FMVSS 201U which were set forth by the National Highway Traffic Safety Administration.			
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1.0 PURPOSE OF COMPLIANCE TEST

The purpose of this head impact compliance test was to determine whether the subject vehicle, a 2005 Nissan Pathfinder 4-Door MPV, meets the performance requirements of FMVSS 201U, Occupant Protection In Interior Impact - Upper Interior Head Impact Protection.

Tests were conducted during April 26-28, 2005 on a 2005 Nissan Pathfinder 4-Door MPV, manufactured by Nissan Motor Co., Ltd.

All tests were conducted in accordance with the U. S. Department of Transportation, National Highway Traffic Safety Administration's Laboratory Test Procedure TP-201U-01 dated April 3, 1998 and the corresponding MGA Research Corporation's FMVSS 201U procedure number MGATP201U_FRAME#2 dated March 20, 2003.

All tests were conducted at MGA Research Corporation in Troy, Michigan and were performed by MGA engineers and technicians. The FMVSS 201U impactor test machine was used to conduct the testing. Target locations were determined by using a Coordinate Measurement Machine in conjunction with the MGA EZ-Target™ program and MGA procedure MGATP201U_Test Series dated March 20, 2003.

2.0 COMPLIANCE TEST DATA SUMMARY

The 2005 Nissan Pathfinder 4-Door MPV was equipped with A, B, C, and rear-pillars, an assist handle on each A-pillar, a grab handle located on the side rail above the front passenger door and above each rear door, an adjustable seat belt anchorage on each B and C-pillar, and a fixed seat belt anchorage on each rear-pillar, and a light console on the center of the upper roof.

Upon completion of targeting the test vehicle, twelve (12) targets were chosen to be impacted based upon engineering judgment and certification test data provided by Nissan. Targets were chosen which appeared most likely to give high HIC(d) values. The twelve (12) targets chosen were:

AP1	BP4	RP2	SR3-3
BP1	OP1	FH1	UR2
BP3	RP1	SR2A	UR5

The 2005 Nissan Pathfinder 4-Door MPV tested appears to comply with the performance criteria for FMVSS 201U. The HIC(d) measured using the Part 572L (Free Motion Headform) was below 1000 for each tested component.

TABLE 2-1
SUMMARY TABLE OF TEST RESULTS

VEH. MOD YR/MAKE/MODEL/BODY: 2005 Nissan Pathfinder 4-Door MPV

VEH. NHTSA NO.: C55202 VIN: 5N1AR18W15C738075 COLOR: White

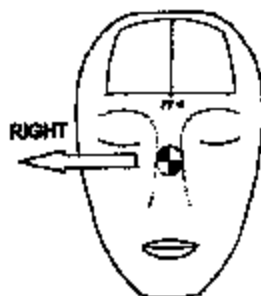
VEH. BUILD DATE: February, 2005 TEST DATES: April 26-28, 2005

TEST LABORATORY: MGA Research Corporation

OBSERVERS: David Gotwals, Nicholas Brzuch, Bryan Hood, Matt Kerr

TARGET	VEHICLE SIDE	HORIZONTAL ANGLE (deg)	VERTICAL ANGLE (deg)	VELOCITY (kph)	HIC(d)	FMH HIC	IMPACT ON FMH (mm)	
							Above	Left/Right
AP1	Right	112	25	24.0	496	437	12	6 Right
BP1	Right	90	21	23.3	560	522	30	6 Left
BP3	Left	270	-3	23.8	588	529	18	9 Left
BP4	Right	90	-1	23.3	615	595	14	11 Left
OP1	Right	90	1	23.8	447	371	12	11 Right
RP1	Right	30	25	24.1	611	589	51	17 Left
RP2	Left	270	12	23.6	631	616	12	4 Left
FH1	Left	180	50	23.4	601	576	34	4 Right
SR2A	Left	270	27	23.5	444	368	32	7 Right
SR3-3	Right	90	50	23.6	850	906	23	8 Right
UR2	Left	270	35	24.0	681	549	42	6 Left
UR5	Right	90	32	23.5	782	816	50	10 Left

Above and left/right refers to the position relative to reference pt. 0 where the target made contact with the Free Motion Headform. See the diagram below for details.



POST TEST COMMENTS:

The following description lists any post-test damage or other test observations for each target.

BP1 Right: Headliner deformation.

BP4 Right: Assist handle compressed into the B-pillar trim.

UR5 Right: Headliner deformation.

REMARKS:

The targets listed were impacted in the following order:

Right: AP1, BP4, BP1, UR5, OP1, SR3-3, RP1

Left: SR2A, BP3, UR2, FH1, RP2

The 150 mm rule was observed for targets horizontal to each other and the 200 mm rule was observed for vertical components.

RECORDED BY: Nicholas J. Brzuch

DATE: April 26, 2005

APPROVED BY: David G. Gotwals

TABLE 2-2

GENERAL TEST AND VEHICLE PARAMETER DATA

VEH. MOD YR/MAKE/MODEL/BODY: 2005 Nissan Pathfinder 4-Door MPVVEH. NHTSA NO.: C55202 VIN: 5N1AR18W15C738075 COLOR: WhiteVEH. BUILD DATE: February, 2005 TEST DATES: April 26-28, 2005TEST LABORATORY: MGA Research CorporationOBSERVERS: David Gotwals, Nicholas Brzuch, Bryan Hood, Matt Kerr

INTERIOR TRIM INFORMATION: A, B, C, and rear-pillars, an assist handle on each A-pillar, a grab handle located on the side rail above the front passenger door and above each rear door, an adjustable seat belt anchorage on each B and C-pillar, and a fixed seat belt anchorage on each rear-pillar, and a light console on the center of the upper roof.

SUNROOF INFORMATION:

Installed: Yes X No
Operation: Electric Manual

ROLL-BAR INFORMATION:

Installed: Yes X No
Padded: Yes X No
Braces: Yes X No

GENERAL INFORMATION:

Date Received: March 29, 2005; Odometer Reading 37 miles

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Nissan Motor Co., Ltd.Date of Manufacture: February, 2005; VIN: 5N1AR18W15C738075GVWR: 2721 kg; GAWR FRONT: 1258 kg;

GAWR REAR: 1587 kg

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 240 kpa REAR: 240 kpaRecommended Tire Size: P245/75R16

Recommended Cold Tire Pressure:

FRONT: 240 kpa REAR: 240 kpaSize of Tire on Test Vehicle: P245/75R16Type of Spare Tire: P245/75R16 Saver: ; Standard X

VEHICLE CAPACITY DATA:

Type of Front Seats: Bench ; Bucket X; Split Bench Number of Occupants: Front 2; Rear 5; TOTAL 7VEHICLE CAPACITY WEIGHT (VCW) = 640 kgNo. of Occupants x 68 kg = 476 kgRated Cargo/Luggage Weight (RCLW) = 164 kg (difference) (362 lbs.)Max. Test Cargo/Luggage Weight (RCLW) = 136 kg (300 lbs.)

WEIGHT OF TEST VEHICLE AS DELIVERED AT LABORATORY: (with maximum fluids)

Right Front = 527.0 kg Right Rear = 508.0 kgLeft Front = 541.0 kg Left Rear = 522.5 kgTOTAL FRONT = 1068.0 kg TOTAL REAR = 1030.5 kg% Total Weight = 50.9 % % Total Weight = 49.1 %TOTAL DELIVERED WEIGHT = 2098.5 kg

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight = 2098.5 kgMax. Test Cargo/Luggage Weight = 136.0 kgTarget Test Weight = 2234.5 kg

WEIGHT OF TEST VEHICLE FULLY LOADED:

Right Front =	<u>527.0</u> kg	Right Rear =	<u>575.5</u> kg
Left Front =	<u>539.5</u> kg	Left Rear =	<u>583.0</u> kg
TOTAL FRONT =	<u>1066.5</u> kg	TOTAL REAR =	<u>1168.5</u> kg
% Total Weight =	<u>47.7</u> %	% Total Weight =	<u>52.3</u> %
TOTAL TEST WEIGHT = <u>2235.0</u> kg			

Weight of ballast secured in vehicle's cargo area = 136.5 kg

TEST VEHICLE ATTITUDE:

AS DELIVERED: Right Front 907 mm; Left Front 900 mm;
 Right Rear 897 mm; Left Rear 892 mm;
 Pitch Angle at Right Door Sill = -0.1 Rear higher
 Pitch Angle at Left Door Sill = 0.3 Rear higher
 Roll Angle at Front Bumper = -0.1 Right side higher
 Roll Angle at Rear Bumper = 0.1 Right side higher

FULLY LOADED: Right Front 906 mm; Left Front 900 mm;
 Right Rear 827 mm; Left Rear 831 mm;
 Pitch Angle at Right Door Sill = 0.2 Front higher
 Pitch Angle at Left Door Sill = 0.0
 Roll Angle at Front Bumper = -0.1 Right side higher
 Roll Angle at Rear Bumper = 0.2 Right side higher

AS TARGETED: Right Front 1054 mm; Left Front 1045 mm;
 Right Rear 1026 mm; Left Rear 1018 mm;
 Pitch Angle at Right Door Sill = 0.2 Front higher
 Pitch Angle at Left Door Sill = 0.0
 Roll Angle at Front Bumper = -0.1 Right side higher
 Roll Angle at Rear Bumper = 0.1 Right side higher

AS TESTED ON RIGHT SIDE:

Pitch Angle at Right Door Sill = -0.1 Rear higher
 Pitch Angle at Left Door Sill = 0.0
 Roll Angle at Front Bumper = -0.1 Right side higher
 Roll Angle at Rear Bumper = 0.1 Right side higher

AS TESTED ON LEFT SIDE:

Pitch Angle at Right Door Sill = 0.0Pitch Angle at Left Door Sill = 0.0Roll Angle at Front Bumper = -0.1 Right side higherRoll Angle at Rear Bumper = 0.2 Right side higherVEHICLE WHEELBASE = 2855 mm

REMARKS: The seat travel distance was measured to be 240 mm for the driver front seat and 240 mm for the passenger front seat.

RECORDED BY: Nicholas J. BrzuchDATE: April 23, 2005APPROVED BY: David G. Gotwals

TABLE 2-3

HORIZONTAL IMPACT ANGLE RANGE FOR A AND B PILLARS

VEH. MOD YR/MAKE/MODEL/BODY: 2005 Nissan Pathfinder 4-Door MPVVEH. NHTSA NO.: C55202 VIN: 5N1AR18W15C738075 COLOR: WhiteVEH. BUILD DATE: February, 2005 TEST DATES: April 26-28, 2005TEST LABORATORY: MGA Research CorporationOBSERVERS: David Gotwals, Nicholas Brzuch, Bryan Hood, Matt Kerr

HORIZONTAL IMPACT ANGLE RANGE FOR A AND B PILLARS

	HORIZONTAL ANGLE SPECIFIED RANGE	MINIMUM HORIZONTAL ANGLE	MAXIMUM HORIZONTAL ANGLE
A-PILLAR	L 195°-255°	L 196.9°	L 247.7°
	R 105°-165°	R 112.0°	R 162.7°
B-PILLAR	L 195°-345°	L 201.3°	L 271.6°
	R 15°-165°	R 85.9°	R 158.4°

AS DETERMINED USING THE PROCEDURES SPECIFIED IN S8.13.4.1

REMARKS:

RECORDED BY: Nicholas J. BrzuchDATE: April 23, 2005APPROVED BY: David G. Gotwals

TABLE 2-4

VERTICAL IMPACT ANGLE RANGES

VEH. MOD YR/MAKE/MODEL/BODY: 2005 Nissan Pathfinder 4-Door MPVVEH. NHTSA NO.: C55202 VIN: 5N1AR18W15C738075 COLOR: WhiteVEH. BUILD DATE: February, 2005 TEST DATES: April 26-28, 2005TEST LABORATORY: MGA Research CorporationOBSERVERS: David Gotwals, Nicholas Brzuch, Bryan Hood, Matt Kerr

VERTICAL IMPACT ANGLE RANGES

		VERTICAL ANGLE SPECIFIED RANGE		MINIMUM VERTICAL ANGLE	MAXIMUM VERTICAL ANGLE
FRONT HEADER	FH1	L	0°-50°	L 0°	L 50°
		R	0°-50°	R 0°	R 50°
	FH2	L	0°-50°	L 0°	L 50°
		R	0°-50°	R 0°	R 50°
SIDE RAIL	SR1	L	0°-50°	L 0°	L 20°
		R	0°-50°	R 0°	R 18°
	SR2A	L	0°-50°	L 0°	L 27°
		R	0°-50°	R 0°	R 31°
	SR2B	L	0°-50°	L 0°	L 23°
		R	0°-50°	R 0°	R 50°
	SR3-1	L	0°-50°	L 0°	L 27°
		R	0°-50°	R 0°	R 27°
	SR3-2	L	0°-50°	L 0°	L 27°
		R	0°-50°	R 0°	R 26°
	SR3-3	L	0°-50°	L 0°	L 50°
		R	0°-50°	R 0°	R 50°
REAR HEADER	RH	L	0°-50°	L 0°	L 50°
		R	0°-50°	R 0°	R 50°

		VERTICAL ANGLE SPECIFIED RANGE	MINIMUM VERTICAL ANGLE	MAXIMUM VERTICAL ANGLE
A-PILLAR	AP1	L -5°-50°	L -5°	L 24°
		R -5°-50°	R -5°	R 25°
	AP2	L -5°-50°	L -5°	L 23°
		R -5°-50°	R -5°	R 23°
	AP3	L -5°-50°	L -5°	L 44°
		R -5°-50°	R -5°	R 44°
B-PILLAR	BP1	L -10°-50°	L -10°	L 20°
		R -10°-50°	R -10°	R 21°
	BP2*	L 0°-50°	L 0°	L 0°
		R 0°-50°	R 0°	R 0°
	BP3	L -10°-50°	L -10°	L -3°
		R -10°-50°	R -10°	R -3°
	BP4	L -10°-50°	L -10°	L -1°
		R -10°-50°	R -10°	R -1°
OTHER PILLAR	OP1*	L 0°-50°	L 0°	L 2°
		R 0°-50°	R 0°	R 1°
	OP2	L -10°-50°	L -10°	L -3°
		R -10°-50°	R -10°	R -3°
REAR PILLAR	RP1	L -10°-50°	L -10°	L 26°
		R -10°-50°	R -10°	R 25°
	RP2*	L 0°-50°	L 0°	L 12°
		R 0°-50°	R 0°	R 12°
UPPER ROOF 1		0°-50°	0°	35°
UPPER ROOF 2		0°-50°	0°	35°
UPPER ROOF 3		0°-50°	0°	35°
UPPER ROOF 4		0°-50°	0°	25°
UPPER ROOF 5		0°-50°	0°	32°

	VERTICAL ANGLE SPECIFIED RANGE	MINIMUM VERTICAL ANGLE	MAXIMUM VERTICAL ANGLE
UPPER ROOF 8	0°-50°	0°	45°

As determined using the Procedures specified in S8.13.4.2. *Targets BP2, OP1, and RP2 are seat belt anchorage locations.

RECORDED BY: Nicholas J. Brzuch

DATE: April 23, 2005

APPROVED BY: David G. Gotwals

TABLE 2-5

TARGET MEASUREMENTS

VEH. MOD YR/MAKE/MODEL/BODY: 2005 Nissan Pathfinder 4-Door MPVVEH. NHTSA NO.: C55202 VIN: 5N1AR18W15C738075 COLOR: WhiteVEH. BUILD DATE: February, 2005 TEST DATES: April 26-28, 2005TEST LABORATORY: MGA Research CorporationOBSERVERS: David Gotwals, Nicholas Brzuch, Bryan Hood, Matt Kerr

Measurement	Description	Left Side	Right Side
M	Seat Fore/Aft Travel (Front seats)	240 mm	240 mm
T°	Horizontal < {CG-F1 (Left Seat) to (Right A-Pillar)}	112.3°	--
A1°	360° - T°	247.7°	--
W°	Horizontal < {CG-2 (Left Seat) to (Left A-Pillar)}	196.9°	--
A2°	A2° = W°	196.9°	--
U°	Horizontal < {CG-2 (Left Seat) to (Left B-Pillar)}	271.6°	--
B1°	B1° = U°	271.6°	--
V°	Horizontal < {CG-R (Left Seat) to (Left B-Pillar)}	201.3°	--
B2°	B2° = V°	201.3°	--
W° (right)	Horizontal < {CG-F2 (Right Seat) to (Right A-Pillar)}	--	162.7°
A1° (right)	A1° (right) = W° (right)	--	162.7°
T° (right)	Horizontal < {CG-F1 (Right Seat) to (Left A-Pillar)}	--	246.0°
A2° (right)	360° - T° (right)	--	112.0°
V° (right)	Horizontal < {CG-R (Right Seat) to (Right B-Pillar)}	--	158.4°
B1° (right)	B1° (right) = V° (right)	--	158.4°
U° (right)	Horizontal < {CG-F2 (Right Seat) to (Right B-Pillar)}	--	85.9°
B2° (right)	B2° (right) = U° (right)	--	85.9°
J	A-Pillar {(Plane 3) - (Plane 5)}	339.2 mm	342.6 mm
J/2	J ÷ 2	169.6 mm	171.3 mm
D1	Upper Roof {(Plane A) - (Plane B)}	2530.0 mm	
D1/2	D1 ÷ 2	1265.0 mm	
D2	Upper Roof {(Plane C) - (Plane D)}	1280.8 mm	

Measurement	Description	Left Side	Right Side
D2/2	$D2 \div 2$	640.4 mm	
.35D1	$.35 \times D1$	885.5 mm	
.35D2	$.35 \times D2$	448.3 mm	
N	B-Pillar {(BPR) - (lowest point on daylight opening forward of B-Pillar)}	490.5 mm	491.0 mm
N/2	B-Pillar {(BP3) - (lowest point on daylight opening forward of B-Pillar)}	245.3 mm	245.5 mm
N/4	B-Pillar {(BP4) - (lowest point on daylight opening forward of B-Pillar)}	122.7 mm	122.8 mm
Q	O-Pillar (Plane 13 – Plane 14)	468.1 mm	467.2 mm
Q/2	$Q / 2$	234.1 mm	233.6 mm
D	R-Pillar (Point 7 – Point M)	995.0 mm	997.0 mm
3D/7	$3 \times D / 7$	426.4 mm	427.3 mm

As determined using the Procedures specified in S10.1-10.13.

SgRP Locations (world coordinates)						
	Left (mm)			Right (mm)		
	x	y	z	x	y	z
Front	1542.4	-397.1	348.0	1542.7	393.1	347.6
Rear Row	2292.8	-398.6	346.5	2293.0	391.6	346.1
3 rd Row	3105.0	-400.2	344.8	3105.2	389.9	344.4

SgRP Locations (vehicle coordinates)						
	Left (mm)			Right (mm)		
	x	y	z	x	y	z
Front	1541.8	-395.0	349.6	1541.8	395.0	349.6
Rear	2292.0	-395.0	349.6	2292.0	395.0	349.6
3 rd Row	3104.0	-395.0	349.6	3104.0	395.0	349.6

CG Locations (world coordinates)						
	Left (mm)			Right (mm)		
	x	y	z	x	y	z
CGF1	1462.4	-397.1	1008.0	1462.7	393.1	1007.6
CGF2	1702.4	-397.1	1008.0	1702.7	393.1	1007.6
CGR	2452.8	-398.6	1006.5	2453.0	391.6	1006.0
3 rd Row	3265.2	-400.2	1004.8	3265.2	389.9	1004.4

REFERENCE FOR WORLD COORDINATE SYSTEM (measured in millimeters):
 Top driver-side door striker bolt anchorage (x, y, z) = 1671.0, -796.4, 429.3

REMARKS:

RECORDED BY: Nicholas J. Brzuch

DATE: April 23, 2005

APPROVED BY: David G. Gotwals

TABLE 2-8

SUMMARY OF TARGETING RESULTS

VEH. MOD YR/MAKE/MODEL/BODY: 2005 Nissan Pathfinder 4-Door MPVVEH. NHTSA NO.: C55202 VIN: 5N1AR18W15C738075 COLOR: WhiteVEH. BUILD DATE: February, 2005 TEST DATES: April 26-28, 2005TEST LABORATORY: MGA Research CorporationOBSERVERS: David Gotwals, Nicholas Brzuch, Bryan Hood, Matt Kerr

SUMMARY OF TARGETING RESULTS								
Target	Location (mm)			Horizontal Angle (deg)	Vertical Angle (deg)	Relocation (Yes/No)	Extension (# of 25 mm Spheres)	Impact (Yes/No)
	x	y	z					
A-Pillar Left Side								
AP1	1212.1	-545.0	1141.0	--	--	Yes	--	--
REL	1251.9	-558.5	1125.1	247	24	--	2	No
AP2	1124.3	-578.9	1053.8	197	23	No	--	No
AP3	1023.0	-596.7	972.4	197	44	No	--	No
A-Pillar Right Side								
AP1	1210.8	545.7	1145.5	--	--	Yes	--	--
REL	1253.2	564.0	1125.4	112	25	--	2	Yes
AP2	1125.6	584.7	1058.5	162	23	No	--	No
AP3	1022.8	599.3	974.1	162	44	No	--	No
B-Pillar Left Side								
BP1	1749.5	-515.1	1189.7	270	20	No	--	No
BP2	1740.5	-823.9	934.6	270	0	No	--	No
BP3	1705.2	-850.9	945.4	--	--	Yes	--	Yes
REL	1815.0	-858.5	855.8	270	-3	--	-1	--
BP4	1835.7	-890.4	824.1	--	--	Yes	--	--
REL	1815.0	-858.5	855.8	270	-1	--	2	No
B-Pillar Right Side								
BP1	1750.2	517.0	1181.7	90	21	No	--	Yes
BP2	1740.6	624.3	934.8	90	0	No	--	No

SUMMARY OF TARGETING RESULTS								
Target	Location (mm)			Horizontal Angle (deg)	Vertical Angle (deg)	Relocation (Yes/No)	Extension (# of 25 mm Spheres)	Impact (Yes/No)
	x	y	z					
BP3	1705.7	650.8	947.1	--	--	Yes	--	No
REL	1682.2	651.6	947.2	90	-3	--	1	--
BP4	1835.3	691.7	825.7	--	--	Yes	--	Yes
REL	1814.1	659.8	856.7	90	-1	--	2	--
Other Pillar Left Side								
OPR	2815.4	-517.4	1190.4	--	--	--	--	--
OP1	2749.7	-833.3	953.4	270	2	No	--	No
OP2	2782.0	-862.0	956.2	--	--	Yes	--	--
REL	2804.7	-863.4	949.8	270	-3	--	1	No
Other Pillar Right Side								
OPR	2819.5	523.2	1194.5	--	--	--	--	--
OP1	2753.7	836.5	957.0	90	1	No	--	Yes
OP2	2786.1	665.4	981.4	--	--	Yes	--	--
REL	2806.1	666.4	956.2	90	-3	--	1	No
Rear Pillar Left Side								
RP1	3419.3	-539.0	1156.5	--	--	Yes	--	--
REL	3372.6	-518.8	1158.0	330	26	--	2	No
RP2	3577.8	-514.7	1042.2	270	12	No	--	Yes
Rear Pillar Right Side								
RP1	3424.2	540.5	1158.8	--	--	Yes	--	--
REL	3378.9	518.6	1160.7	30	25	--	2	Yes
RP2	3577.2	613.1	1046.2	60	12	No	--	No
Front Header Left Side								
FH1	1152.9	-428.9	1163.9	180	50	No	--	Yes
FH2	1141.8	-274.8	1168.4	180	50	No	--	No
Front Header Right Side								
FH1	1152.5	425.8	1165.0	180	50	No	--	No
FH2	1144.1	275.4	1160.7	180	50	No	--	No

SUMMARY OF TARGETING RESULTS								
Target	Location (mm)			Horizontal Angle (deg)	Vertical Angle (deg)	Relocation (Yes/No)	Extension (# of 25 mm Spheres)	Impact (Yes/No)
	x	y	z					
Side Rail Left Side								
SR1	1361.7	-522.5	1169.6	--	--	Yes	--	--
REL	1383.3	-521.3	1162.6	270	20	--	1	No
SR2A	1512.5	-517.8	1182.5	270	27	No	--	Yes
SR2B	1449.4	-522.6	1173.2	270	23	No	--	No
SR3-1	2078.4	-530.3	1170.0	270	27	No	--	No
SR3-2	2242.9	-531.3	1170.9	270	27	No	--	No
SR3-3	2966.2	-554.2	1155.0	270	50	No	--	No
Side Rail Right Side								
SR1	1360.6	527.2	1170.2	--	--	Yes	--	--
REL	1336.9	524.4	1167.8	90	18	--	1	No
SR2A	1508.9	528.2	1187.1	--	--	Yes	--	--
REL	1511.2	517.6	1165.4	90	31	--	2	No
SR2B	1450.2	533.1	1182.8	--	--	Yes	--	--
REL	1448.6	520.1	1181.8	90	50	--	2	No
SR3-1	2078.7	534.9	1168.7	90	27	No	--	No
SR3-2	2243.9	532.5	1169.8	90	26	No	--	No
SR3-3	2969.2	555.2	1180.3	90	50	No	--	Yes
Rear Header Left Side								
RH	3404.9	-400.6	1170.6	0	50	No	--	No
Rear Header Right Side								
RH	3408.6	389.8	1174.3	0	50	No	--	No
Upper Roof Left Side								
UR1	1553.7	-446.1	1214.6	270	35	No	--	No
UR2	1750.5	-440.8	1234.7	270	35	No	--	Yes
UR3	2811.9	-440.0	1232.2	270	35	No	--	No
Upper Roof Right Side								
UR4	1562.9	438.0	1224.4	90	25	No	--	No
UR5	2075.8	438.5	1241.2	90	32	No	--	Yes

SUMMARY OF TARGETING RESULTS								
Target	Location (mm)			Horizontal Angle (deg)	Vertical Angle (deg)	Relocation (Yes/No)	Extension (# of 25 mm Spheres)	Impact (Yes/No)
	x	y	z					
UR6	3236.6	440.2	1210.9	60	45	No	—	No

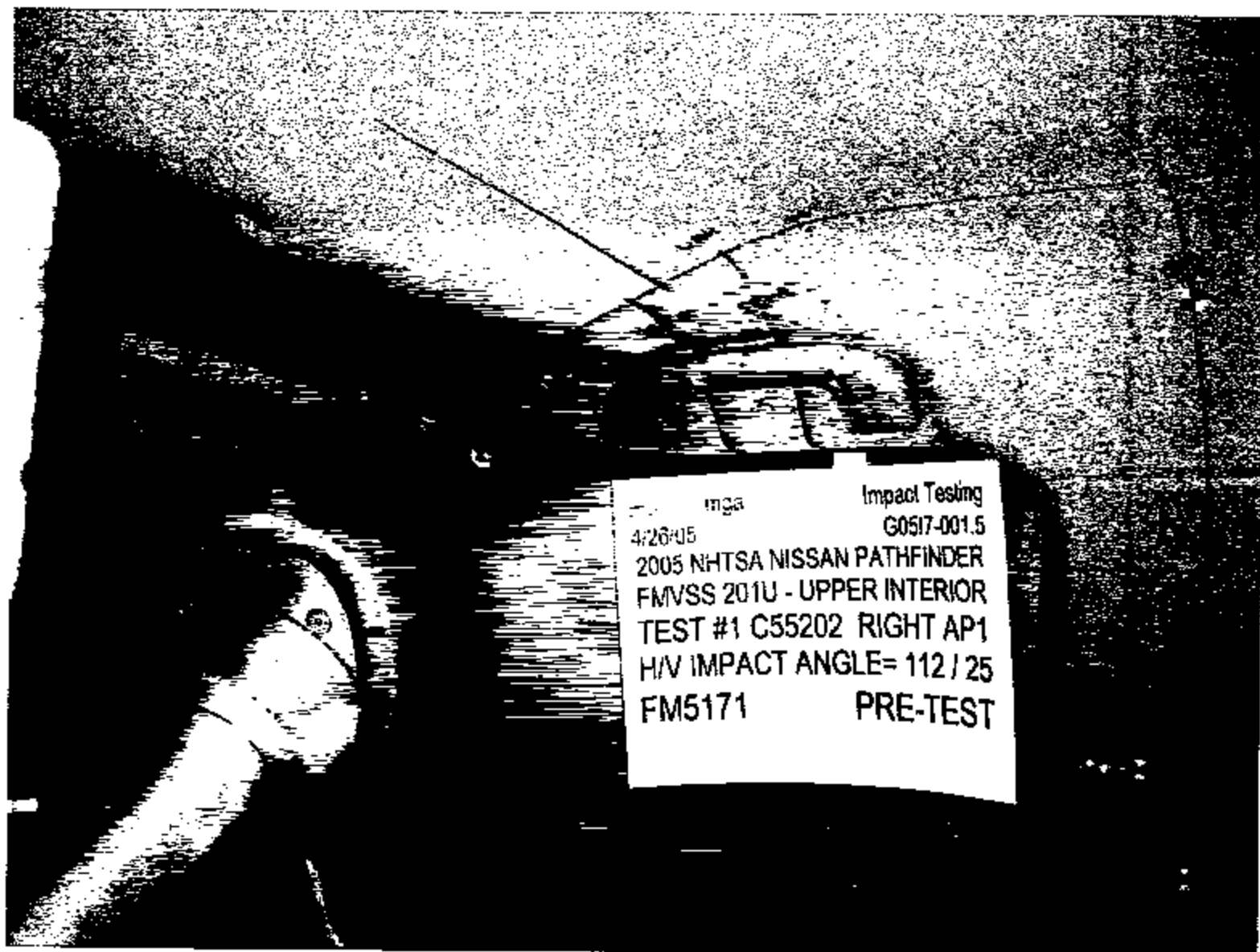
As determined using the Procedures specified in S10.1-10.13.

REMARKS:

RECORDED BY: Nicholas J. Brzuch

DATE: April 23, 2005

APPROVED BY: David G. Gotwals



inga Impact Testing
4/26/05 G0517-001.5
2005 NHTSA NISSAN PATHFINDER
FMVSS 201U - UPPER INTERIOR
TEST #1 C55202 RIGHT AP1
H/V IMPACT ANGLE= 112 / 25
FM5171 PRE-TEST

mga

Impact Testing

4/26/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #1 C55202 RIGHT AP1

H/V IMPACT ANGLE= 112 / 25

FM5171

POST-TEST

===== mga

Impact Testing

4/26/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #1 C55202 RIGHT API

H/V IMPACT ANGLE= 112 / 25

FM5171

POST TEST



MICHIGAN OPERATIONS
DATE: 2/8/01
SUPERCEDES: MGATP207210.2

DOC. NO.: MGATP207210.3
REVISION NO.: 2
PAGE 1 OF 1

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0517-001.5 VEHICLE YR/MAKE/MODEL:2005/NHTSA/Nissan Pathfinder

GENERAL TEST PARAMETERS:

Test Number:#1

Target (Vehicle Side): AP1 Right

Temperature:22C

MGA Test Reference No.:FM5171

Humidity:40%

Approach Horizontal Angles:112°

Time of Test:12:10 PM

Approach Vertical Angles:25°

FMH Serial No:035

Additional Description:

TEST RESULTS:

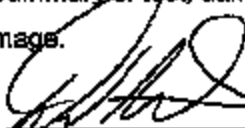
HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
498	437	9.3	24.0	12	6 R

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35924	-94.1	1.44	1.44
Y	6	J35919	94.3	1.54	1.54
Z	7	J22684	92.7	1.39	1.39

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

No visible damage.

Recorded By:  Approved By*:  Date: 4/26/05

*Only necessary for NHTSA (Government) Compliance testing.

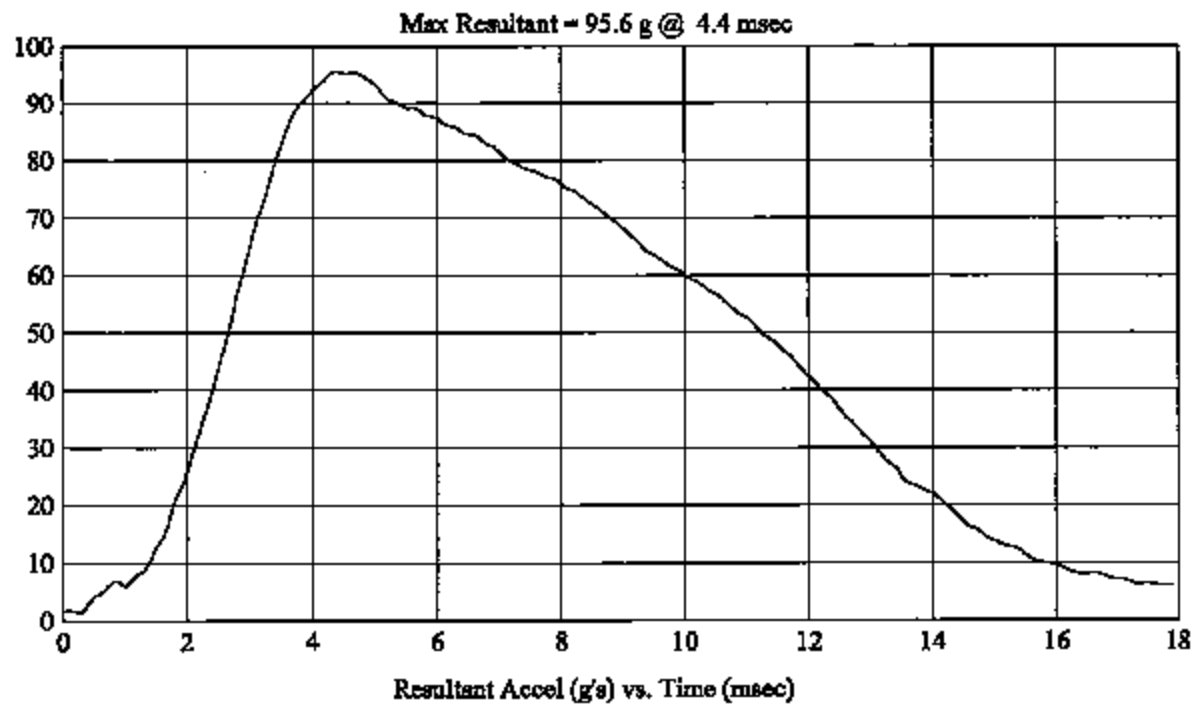
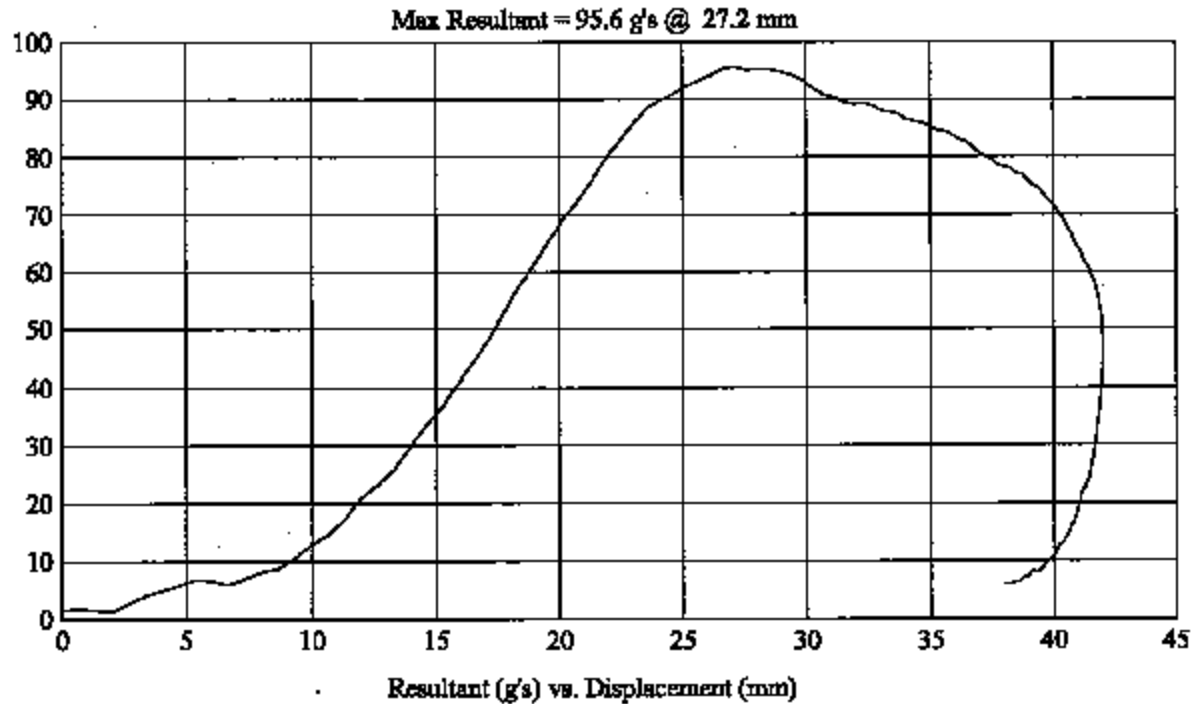
Customer: NHTSA
Test # 1
FM5171
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/26/05

Model Year: 2005
Target: AP1
Vehicle Side: Right
Horz/Vert Angle: 112/25

HIC(d) = 496, HIC = 437, Delta T = 9.3 msec

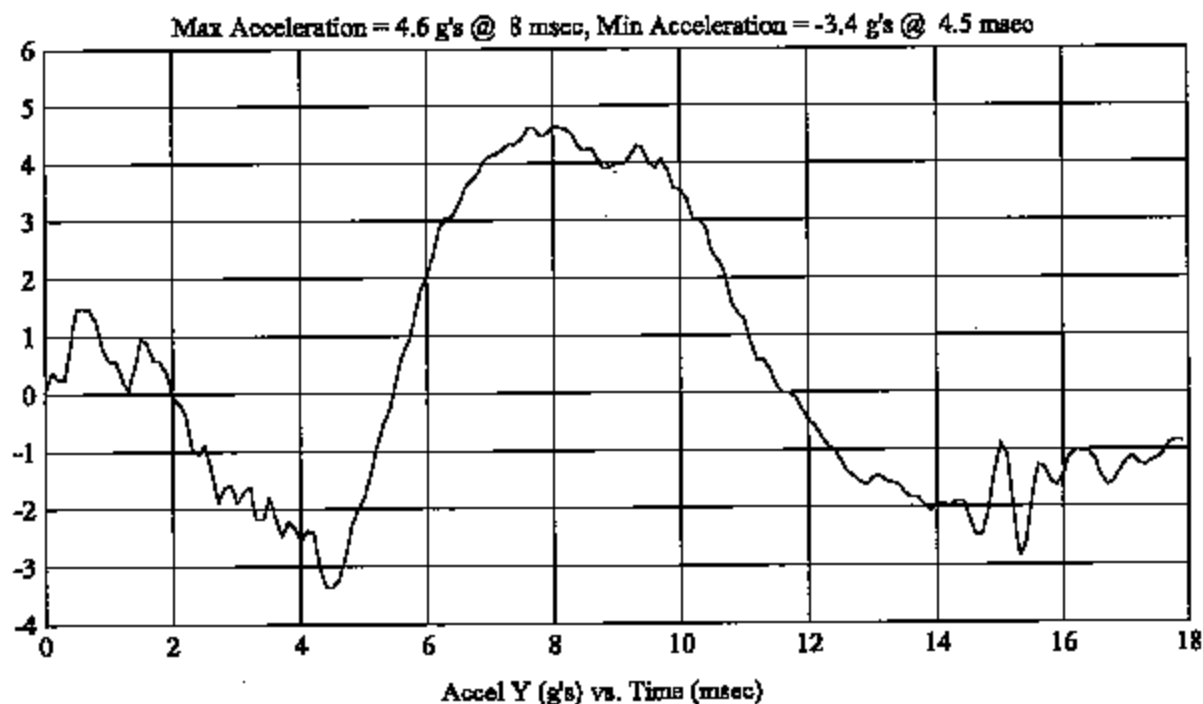
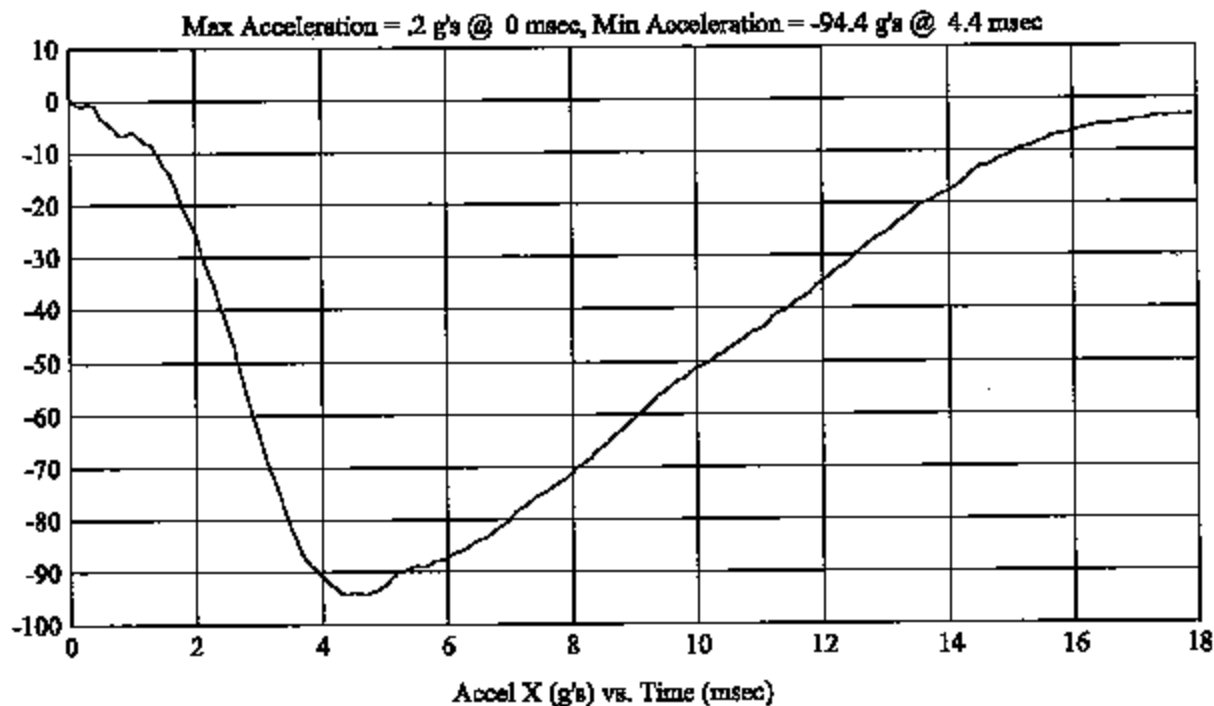


Customer: NHTSA
Test # 1
FM5171
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder
Test Date: 4/26/05

Model Year: 2005
Target: AP1
Vehicle Side: Right
Horz/Vert Angle: 112/25

HIC(a) = 496, HIC = 437, Delta T = 9.3 msec

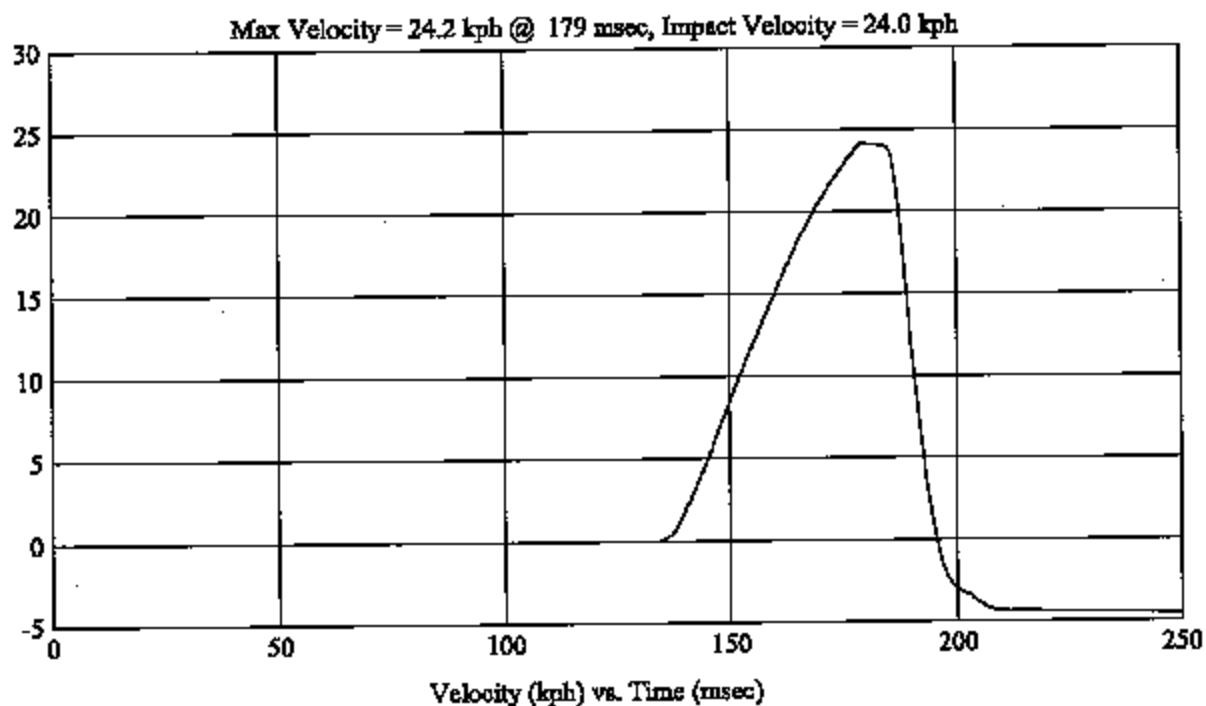
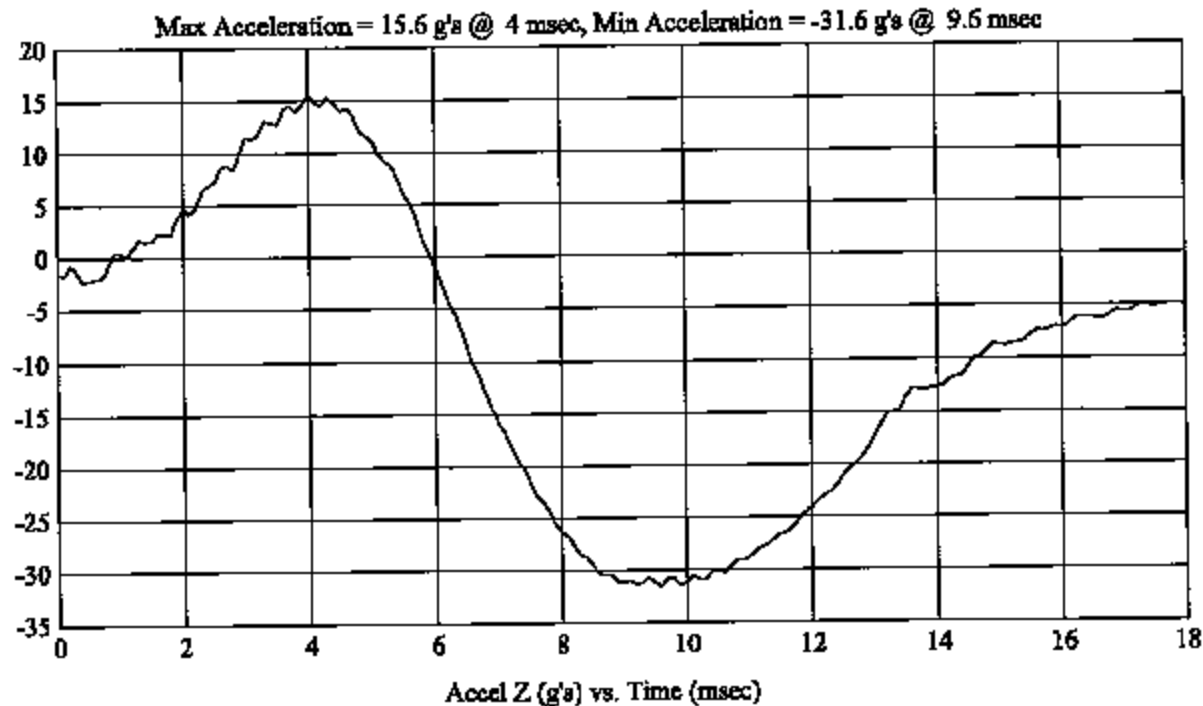


Customer: NHTSA
Test # 1
FM5171
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder
Test Date: 4/26/05

Model Year: 2005
Target: AP1
Vehicle Side: Right
Horz/Vert Angle: 112/25

HIC(d) = 496, HIC = 437, Delta T = 9.3 msec



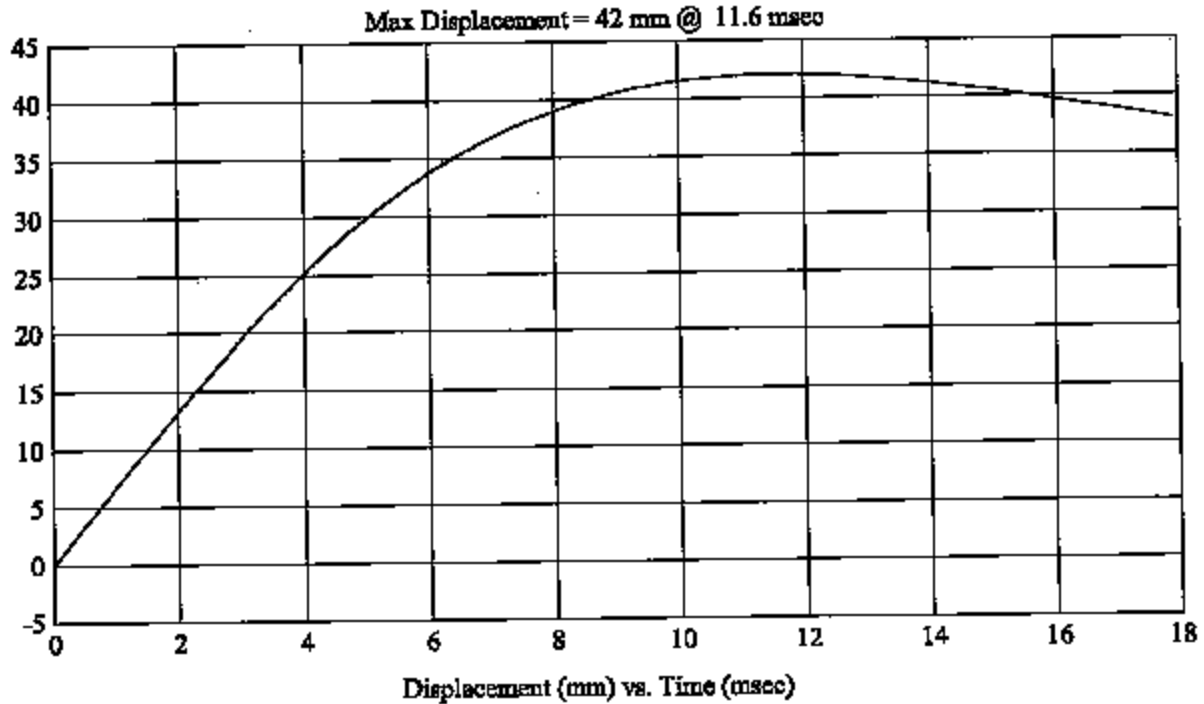
Customer: NHTSA
Test # 1
FM5171
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/26/05

Model Year: 2005
Target: AP1
Vehicle Side: Right
Horz/Vert Angle: 112/25

HIC(d) = 496, HIC = 437, Delta T = 9.3 msec



mga

Impact Testing

4/26/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #3 C55202 RIGHT BP1

H/V IMPACT ANGLE= 90 / 21

FM5173

PRE-TEST

===== mga

Impact Testing

4/26/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #3 C55202 RIGHT BP1

H/V IMPACT ANGLE= 90 / 21

FM5173

POINT-TEST



MICHIGAN OPERATIONS
DATE: 2/8/01
SUPERCEDES: MGATP207210.2

DOC. NO.: MGATP207210.3
REVISION NO.: 2
PAGE 1 OF 1

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0617-001.5 VEHICLE YR/MAKE/MODEL: 2005/NHTSA/Nissan Pathfinder

GENERAL TEST PARAMETERS:

Target (Vehicle Side): BP1 Right

MGA Test Reference No.: FM5173

Approach Horizontal Angles: 90°

Approach Vertical Angles: 21°

Additional Description:

Test Number: #3

Temperature: 22C

Humidity: 40%

Time of Test: 2:00 PM

FMH Serial No: 038

TEST RESULTS:

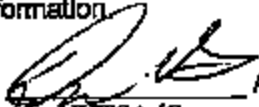
HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
580	522	10	23.3	30	6 L

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J36197	-110	1.44	1.44
Y	6	J36193	101.9	1.54	1.53
Z	7	J36353	96.7	1.39	1.39

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

Headliner Deformation

Recorded By: 

Approved By: 

Date: 4/26/05

*Only necessary for NHTSA (Government) Compliance testing.

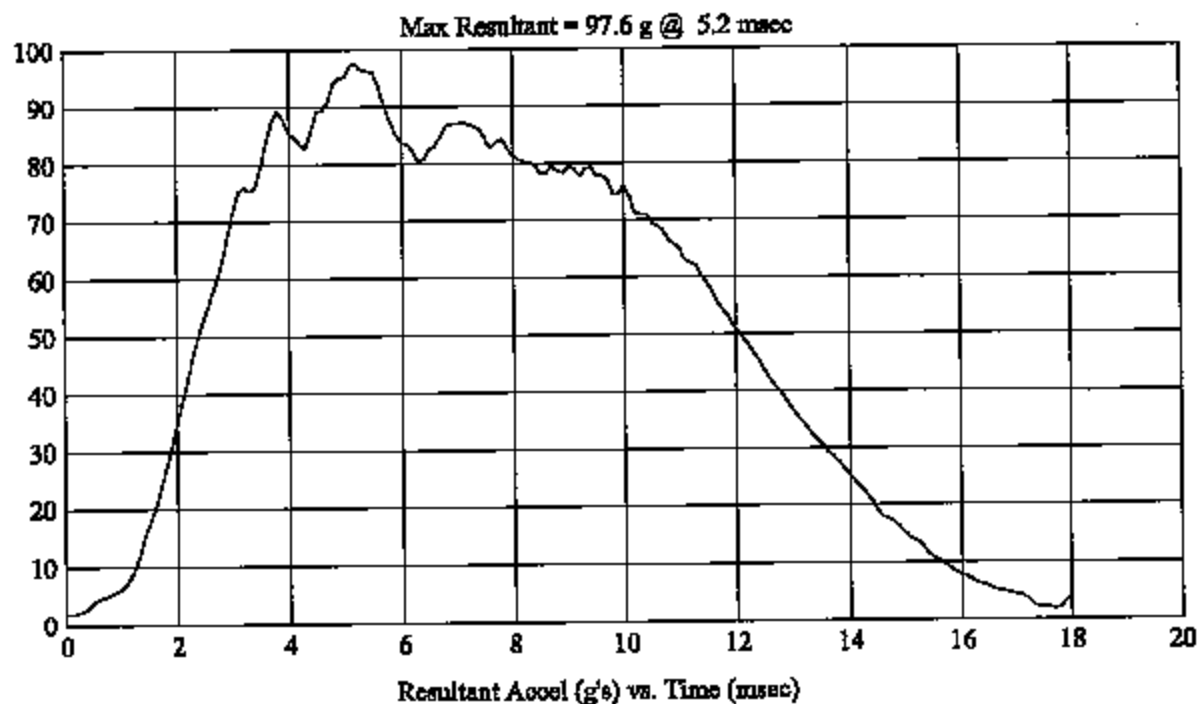
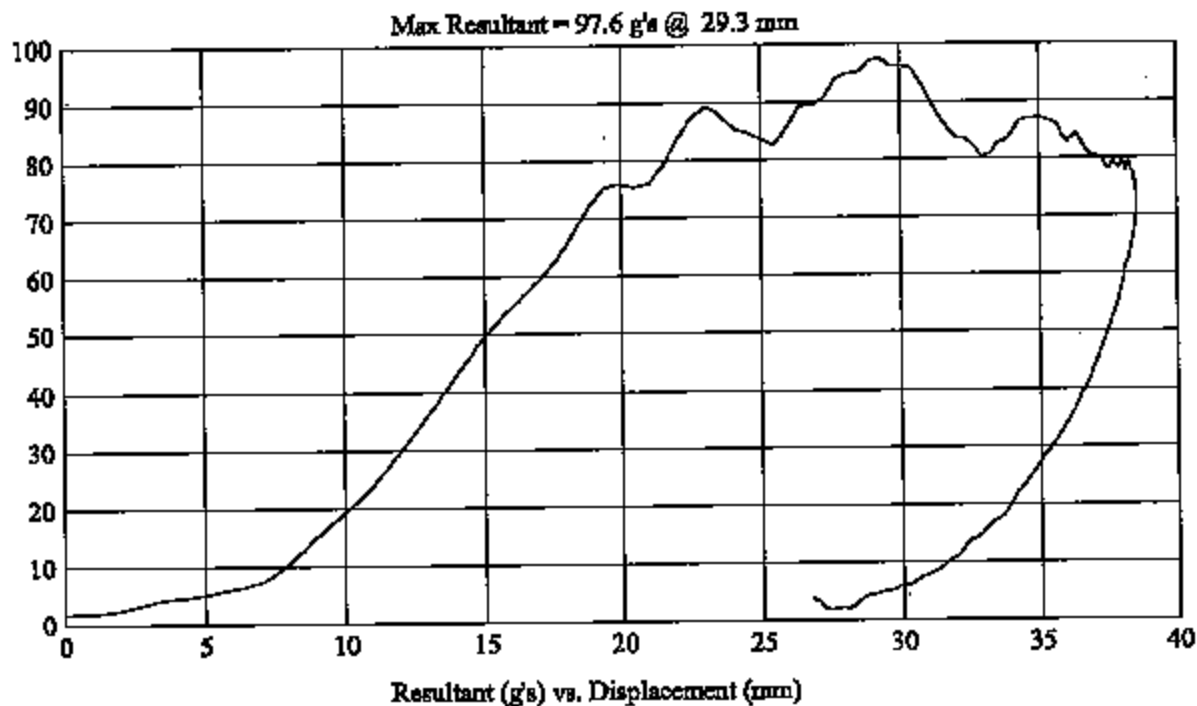
Customer: NHTSA
Test # 3
FM5173
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/26/05

Model Year: 2005
Target: BP1
Vehicle Side: Right
Horz/Vert Angle: 90/21

HIC(d) = 560, HIC = 522, Delta T = 10 msec



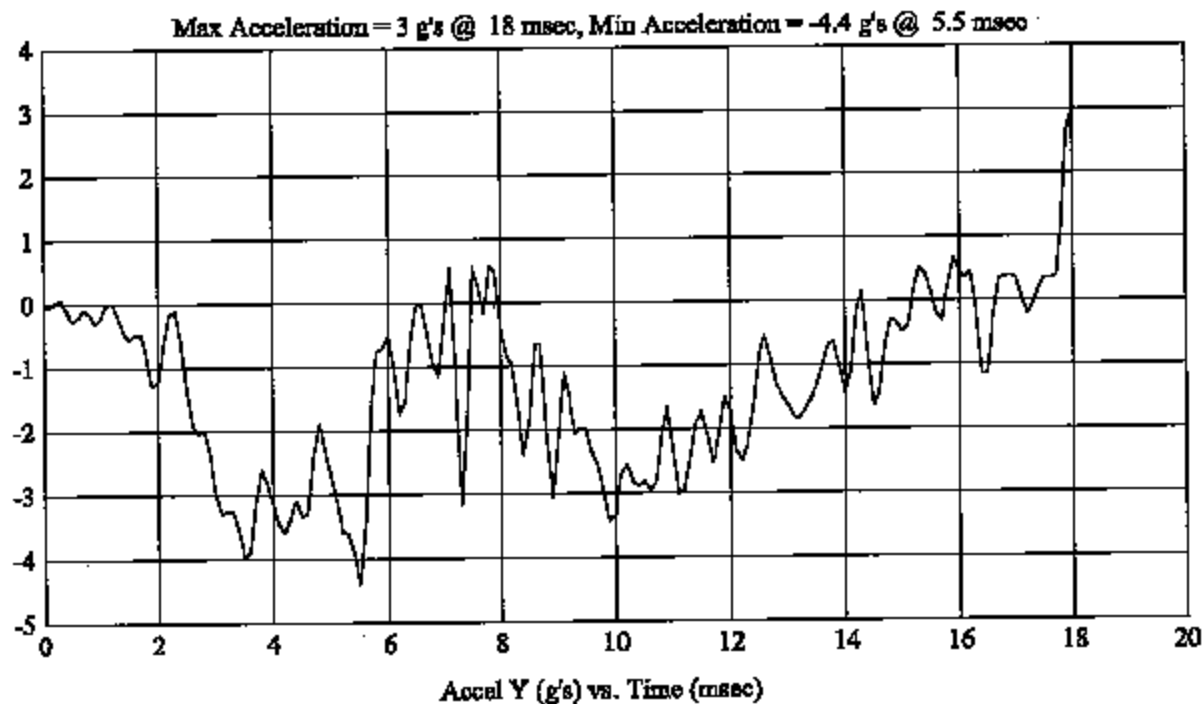
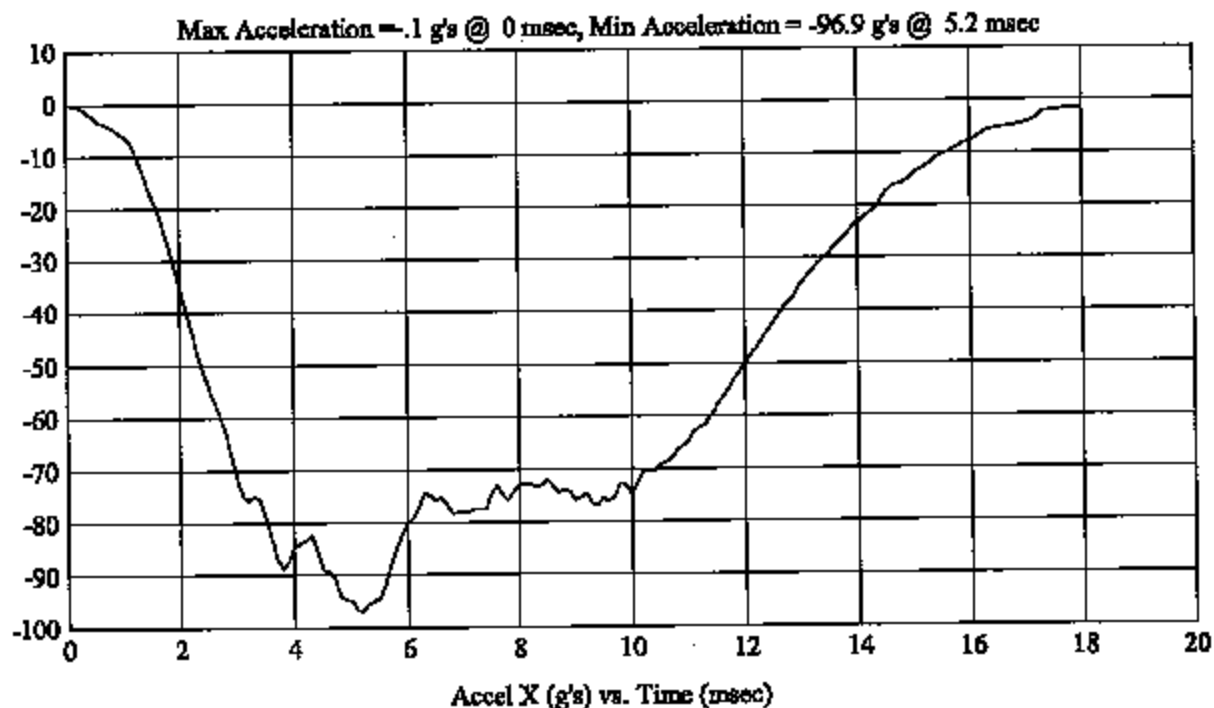
Customer: NETSA
Test # 3
FM5173
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/26/05

Model Year: 2005
Target: BP1
Vehicle Side: Right
Horz/Vert Angle: 90/21

HIC(d) = 560, HIC = 522, Delta T = 10 msec



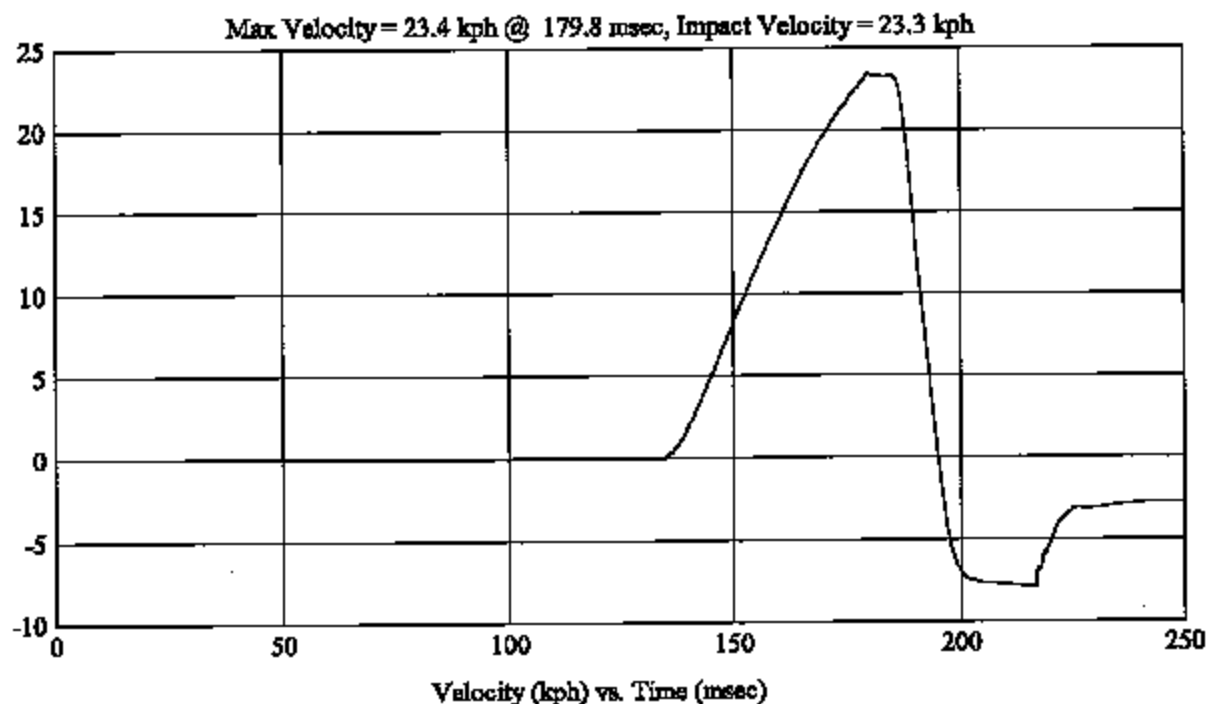
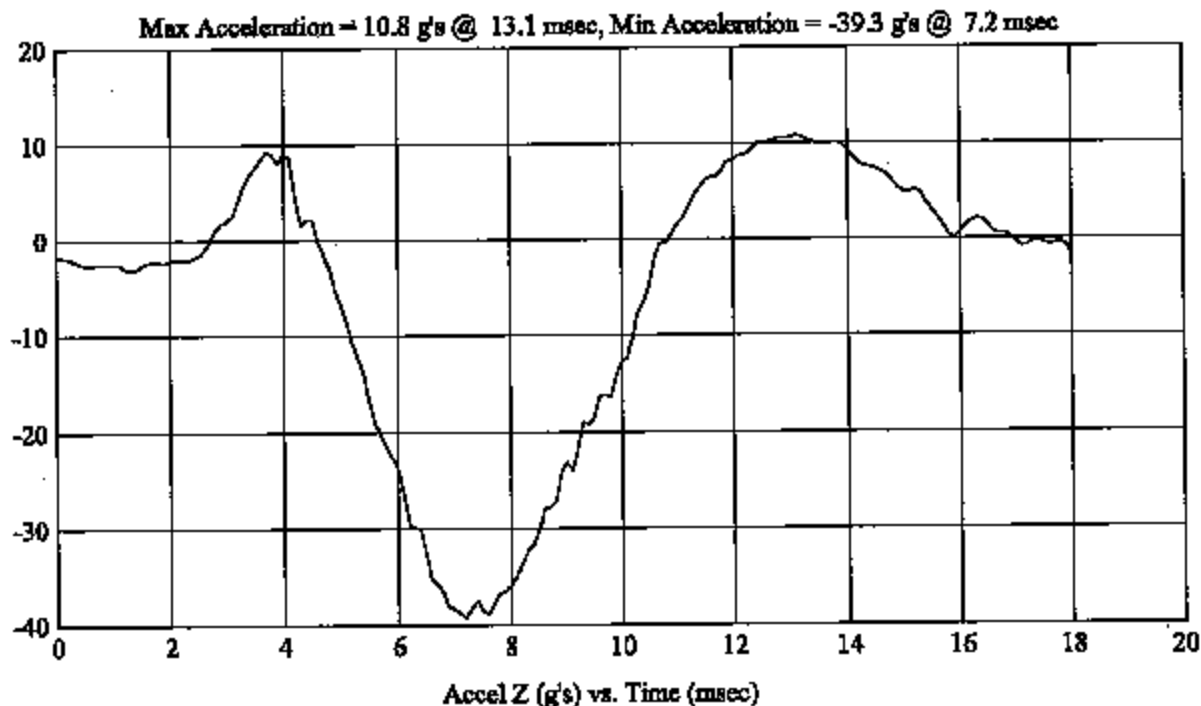
Customer: NHTSA
Test # 3
FM5173
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/26/05

Model Year: 2005
Target: BP1
Vehicle Side: Right
Horz/Vert Angle: 90/21

HIC(d) = 560, HIC = 522, Delta T = 10 msec



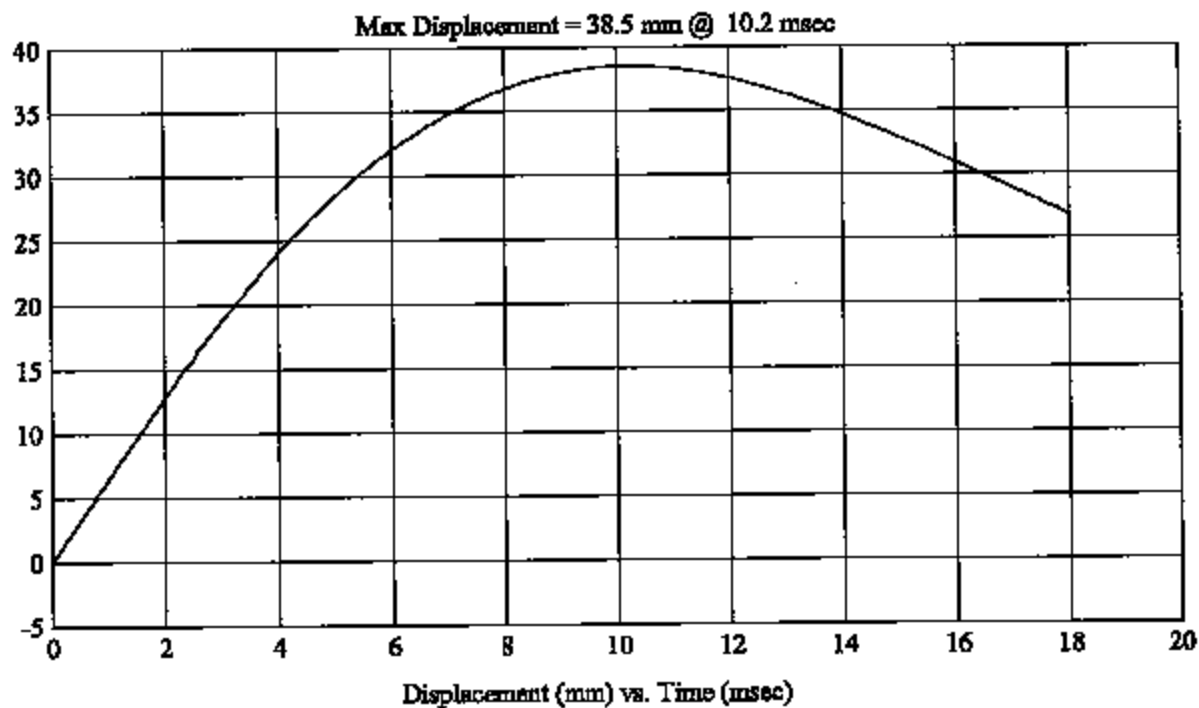
Customer: NHTSA
Test # 3
FM5173
Additional Desc: N/A

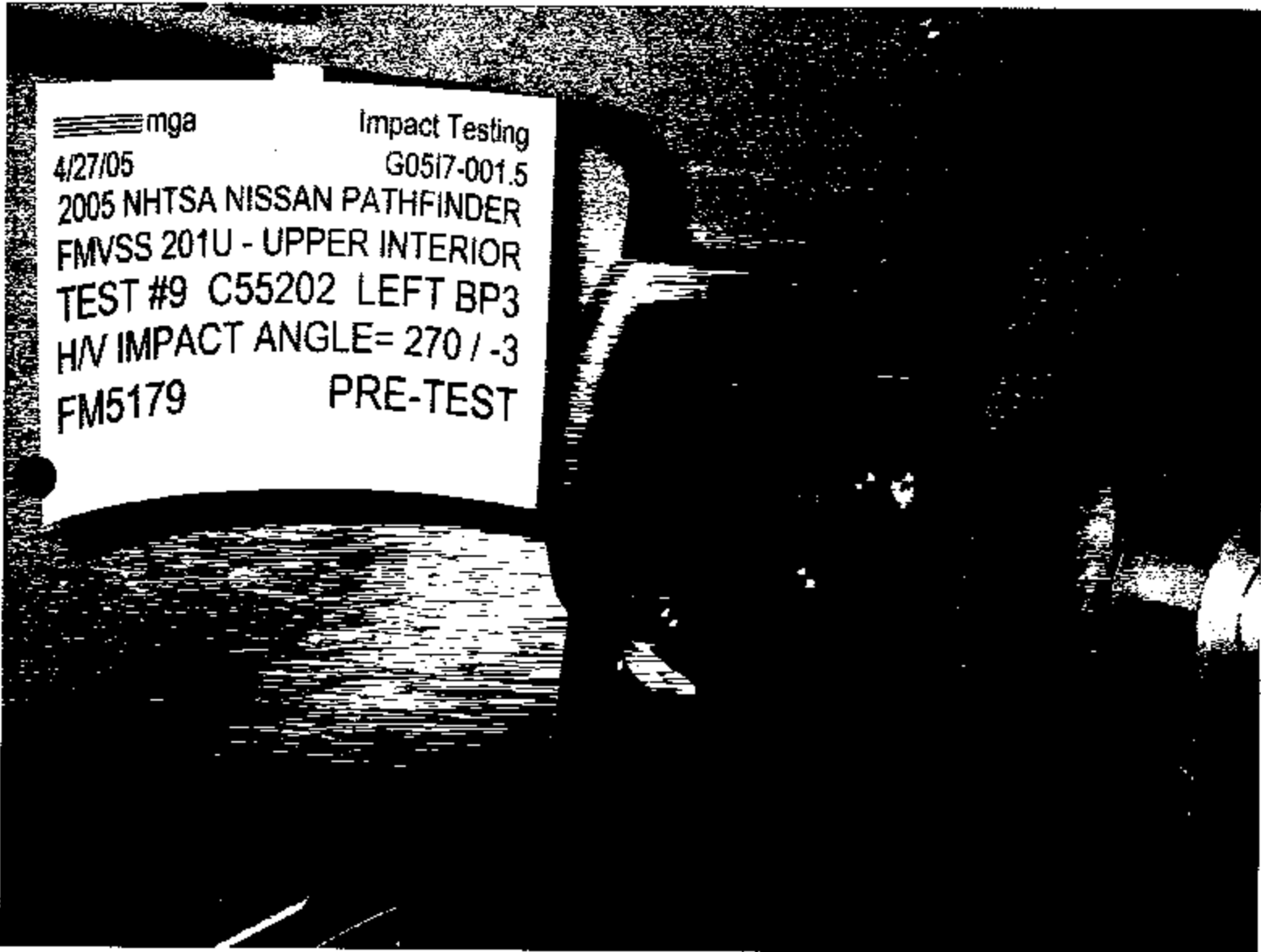
Vehicle Program : Nissan Pathfinder

Test Date: 4/26/05

Model Year: 2005
Target: BP1
Vehicle Side: Right
Horz/Vert Angle: 90/21

HIC(d) = 560, HIC = 522, Delta T = 10 msec





mga

4/27/05

Impact Testing

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #9 C55202 LEFT BP3

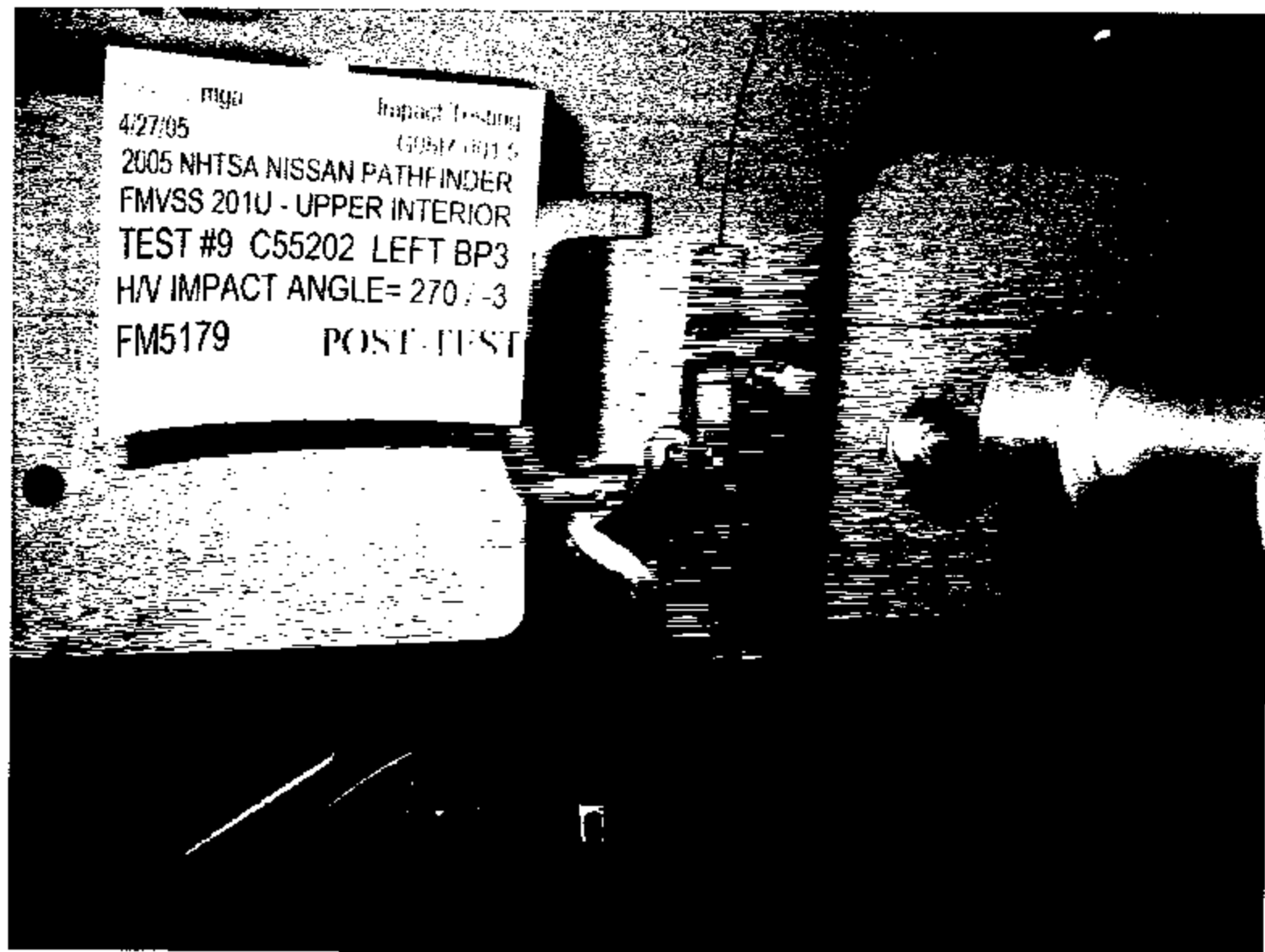
H/V IMPACT ANGLE= 270 / -3

FM5179

PRE-TEST

4/27/05
2005 NHTSA NISSAN PATHFINDER
FMVSS 2010 - UPPER INTERIOR
TEST #9 C55202 LEFT BP3
H/V IMPACT ANGLE= 270 / -3
FM5179 POST-TEST

Impact Testing
G09517 0013



 mga

Impact Testing

4/27/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #9 C55202 LEFT BP3

H/V IMPACT ANGLE= 270 / -3

FM5179

POST-TEST

MICHIGAN OPERATIONS
DATE: 2/8/01
SUPERCEDES: MGATP207210.2

DOC. NO.: MGATP207210.3
REVISION NO.: 2
PAGE 1 OF 1

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0517-001.5 VEHICLE YR/MAKE/MODEL:2005/NHTSA/Nissan Pathfinder

GENERAL TEST PARAMETERS:

Test Number:#9

Target (Vehicle Side): BP3 Left

Temperature:21C

MGA Test Reference No.:FM5179

Humidity:39%

Approach Horizontal Angles:270°

Time of Test:2:40 PM

Approach Vertical Angles:-3°

FMH Serial No:038

Additional Description:

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
586	529	8.6	23.8	18	9 L

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J36197	-110	1.44	1.43
Y	6	J36193	101.9	1.54	1.54
Z	7	J36353	96.7	1.39	1.40

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

No visible damage.

Recorded By:  Approved By:  Date: 4/27/05
*Only necessary for NHTSA (Government) Compliance testing

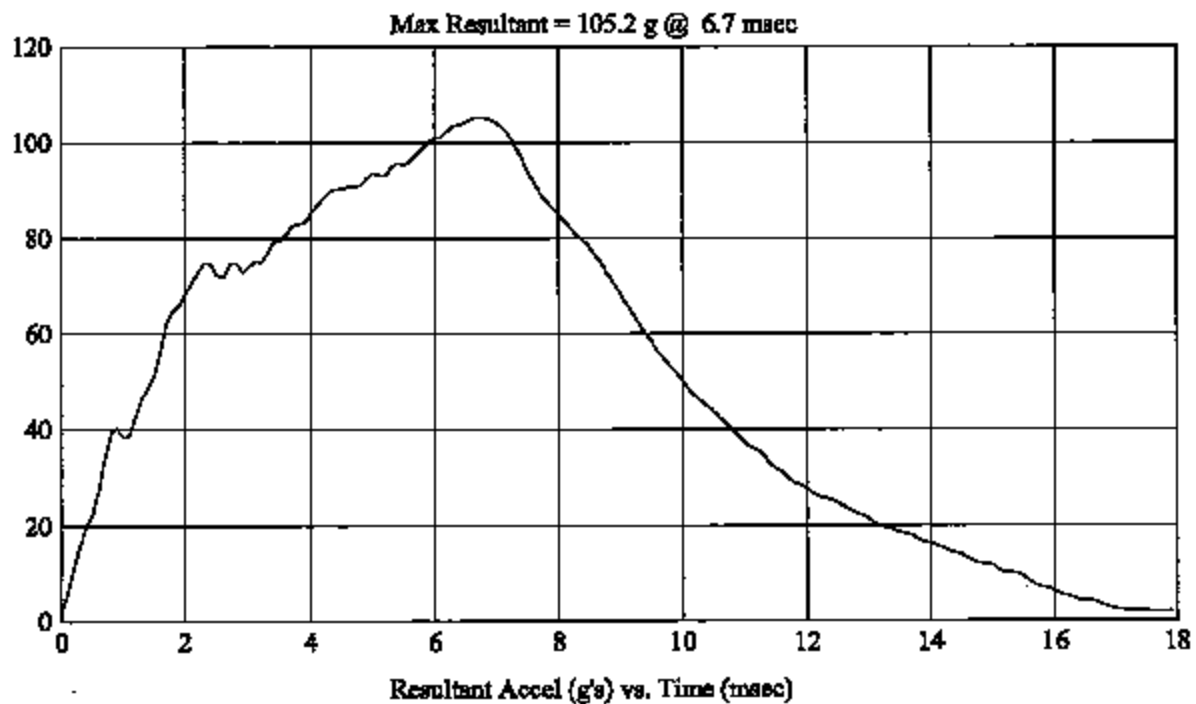
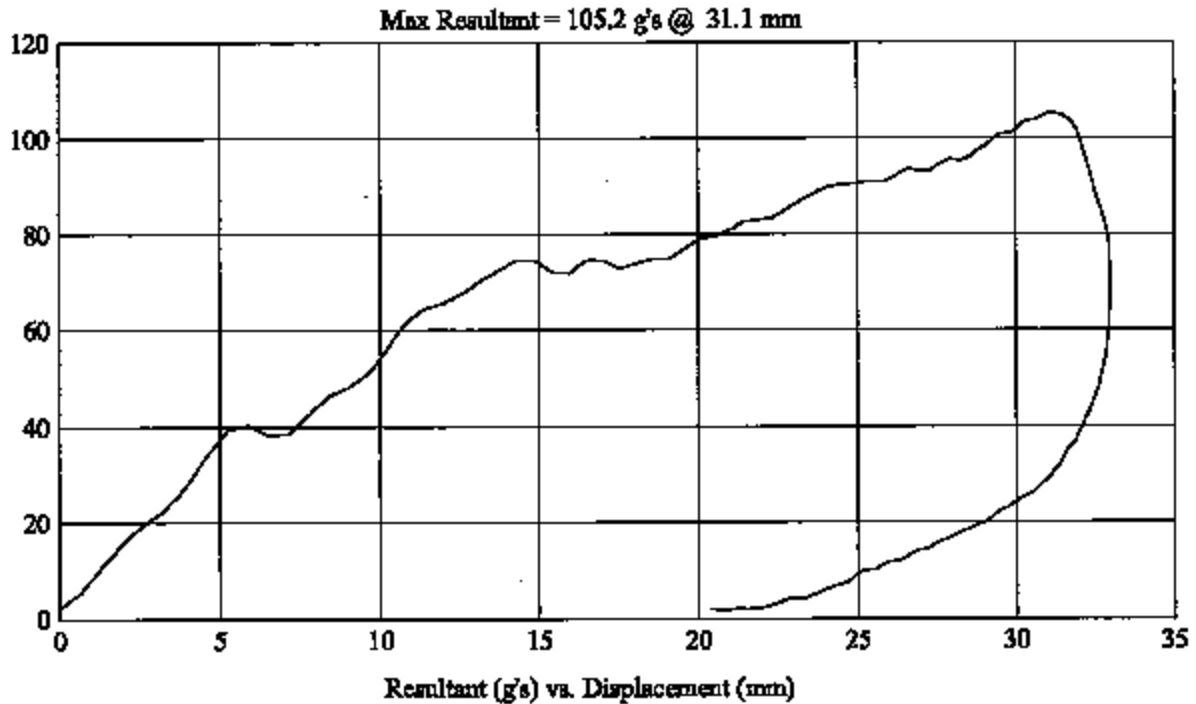
Customer: NHTSA
Test # 9
FM5179
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: BP3
Vehicle Side: Left
Horz/Vert Angle: 270/-3

HIC(d) = 566, HIC = 529, Delta T = 8.6 msec



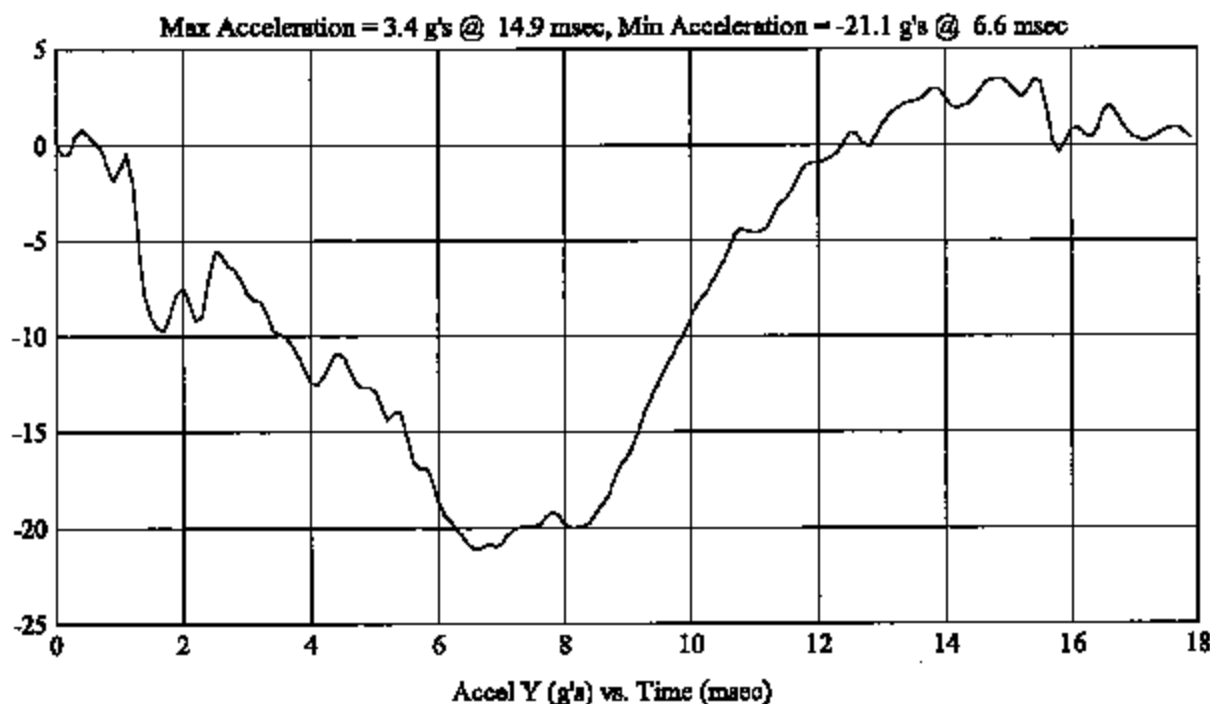
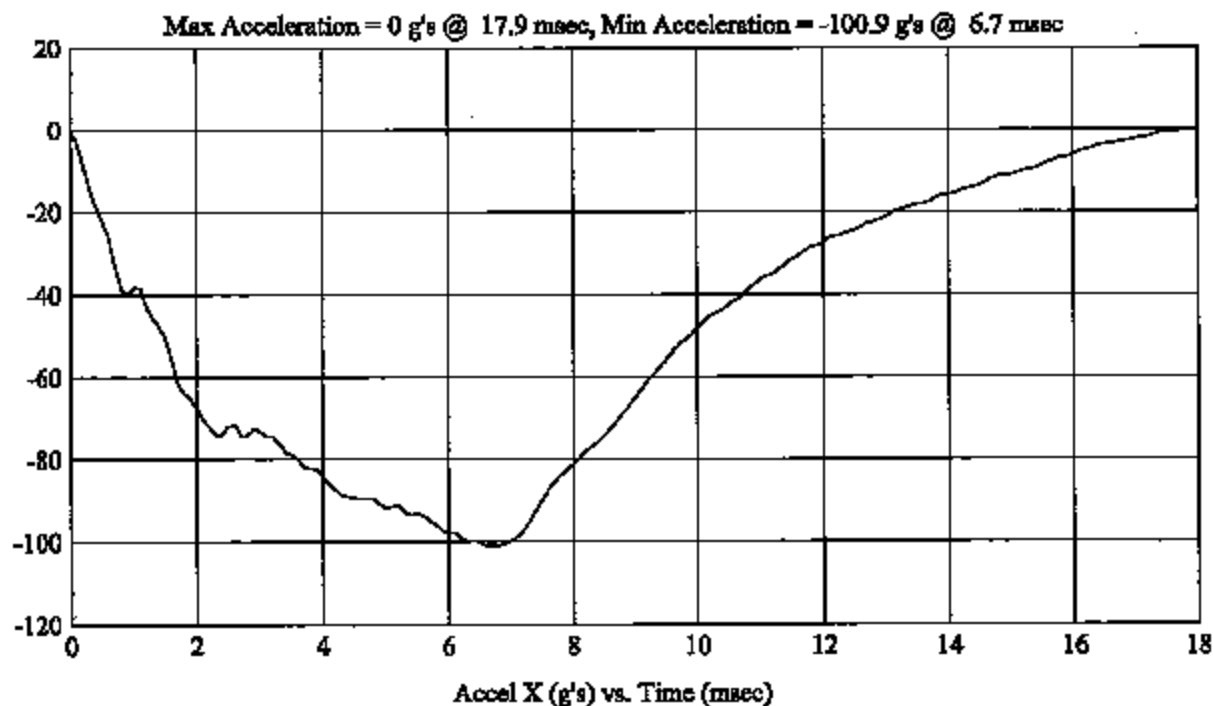
Customer: NHTSA
Test # 9
FM5179
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: BP3
Vehicle Side: Left
Horz/Vert Angle: 270/-3

HIC(d) = 566, HIC = 529, Delta T = 8.6 msec



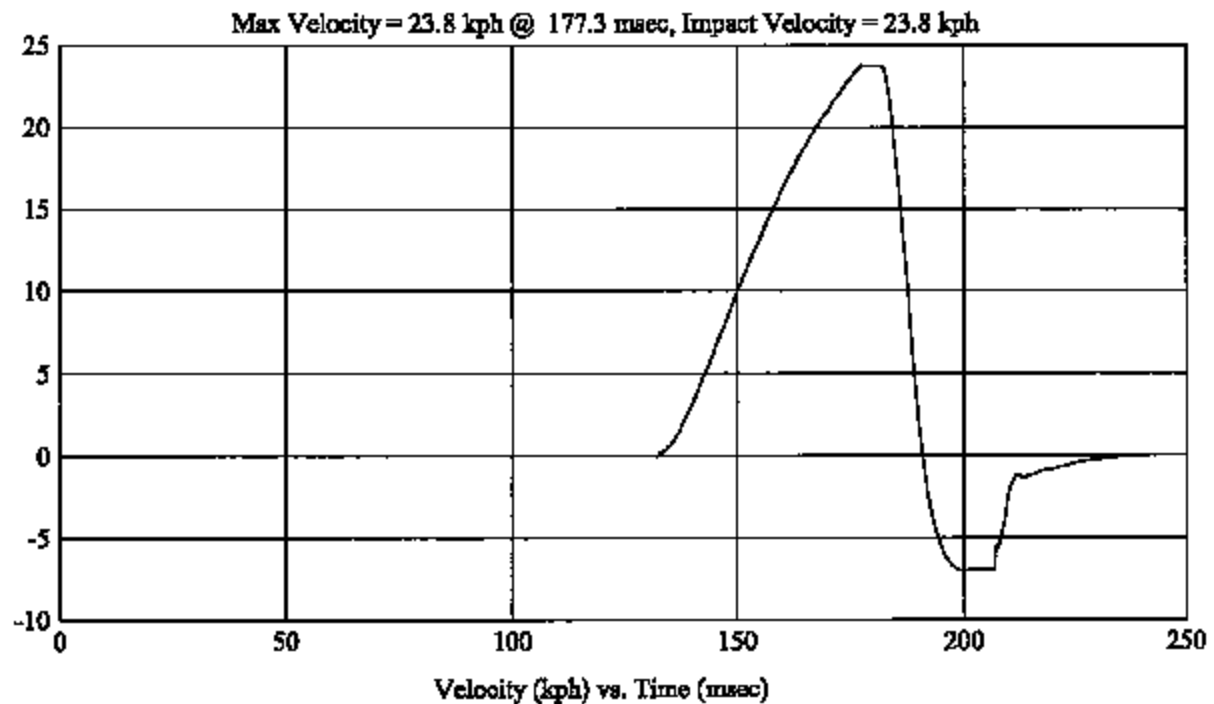
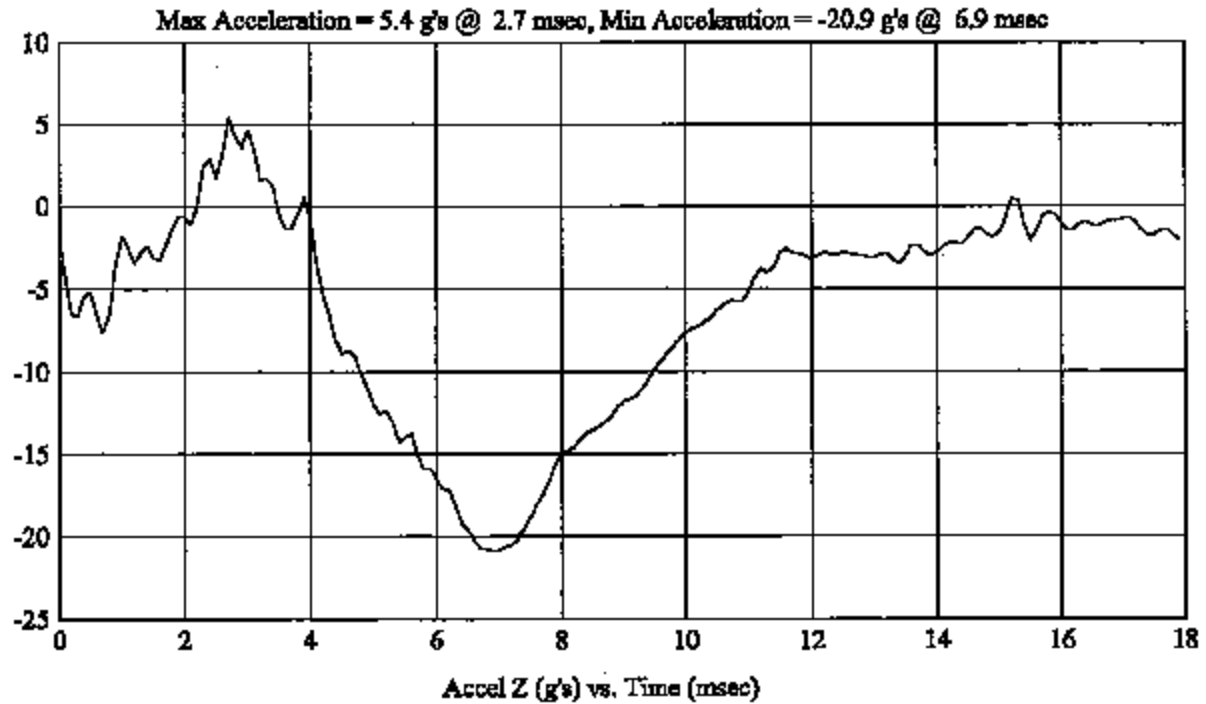
Customer: NHTSA
Test # 9
FM5179
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: BP3
Vehicle Side: Left
Horz/Vert Angle: 270/-3

HIC(d) = 566, HIC = 529, Delta T = 8.6 msec



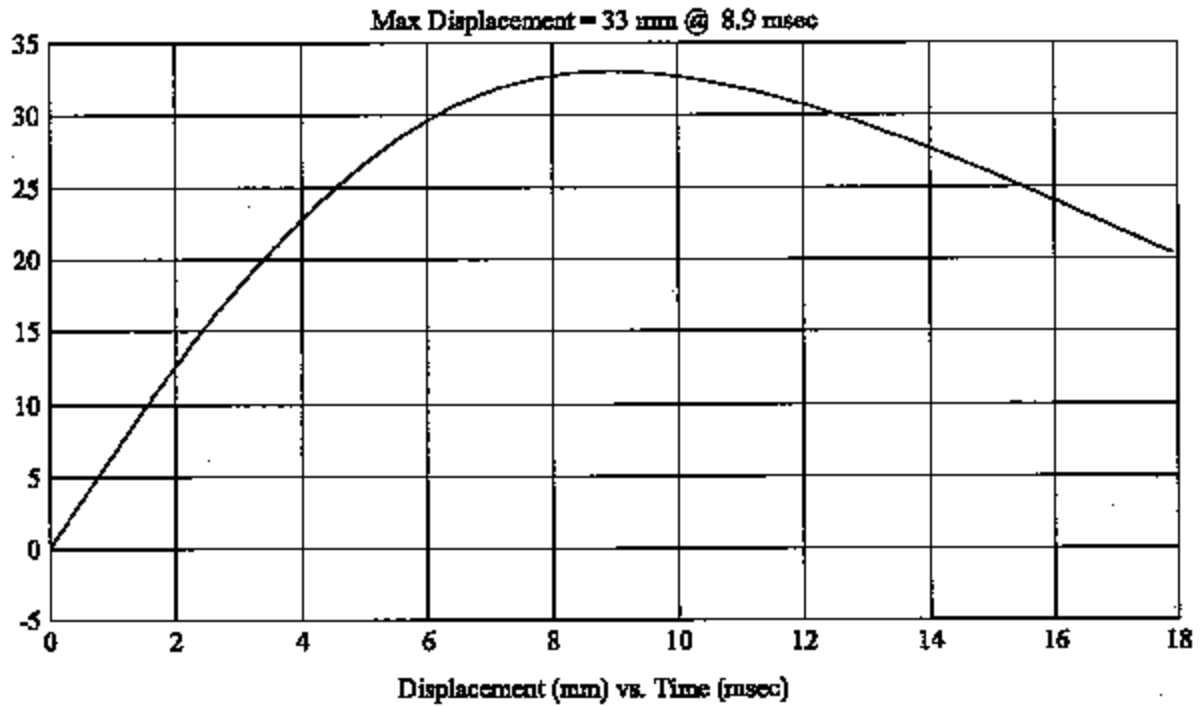
Customer: NHTSA
Test # 9
FM5179
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

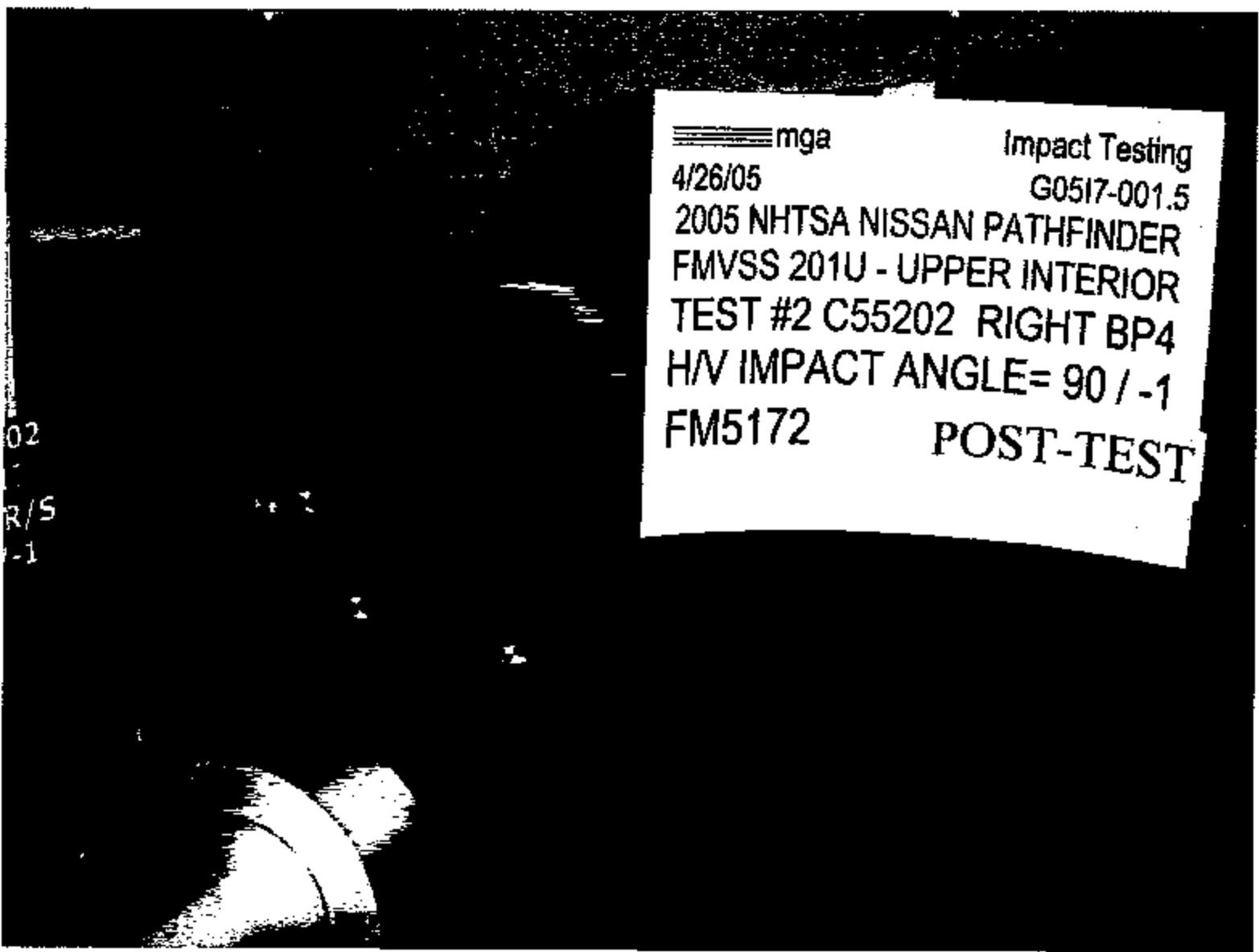
Model Year: 2005
Target: BP3
Vehicle Side: Left
Horz/Vert Angle: 270/-3

HIC(d) = 566, HIC = 529, Delta T = 8.6 msec



C55202
FM5172
BP4 R/S
90/-1

Impact Testing
4/26/05 G057-001.5
2005 NHTSA NISSAN PATHFINDER
FMVSS 2010 - UPPER INTERIOR
TEST #2 C55202 RIGHT BP4
H/V IMPACT ANGLE= 90 / -1
FM5172 PRE-TEST



mga

4/26/05

Impact Testing

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #2 C55202 RIGHT BP4

H/V IMPACT ANGLE= 90 / -1

FM5172

POST-TEST

=====mga

Impact Testing

4/26/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #2 C55202 RIGHT BP4

H/V IMPACT ANGLE= 90 / -1

FM5172

POST TEST



MICHIGAN OPERATIONS
DATE: 2/3/01
SUPERCEDES: MGATP207210.2

DOC. NO.: MGATP207210.3
REVISION NO.: 2
PAGE 1 OF 1

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0517-001.5 VEHICLE YR/MAKE/MODEL:2005/NHTSA/Nissan Pathfinder

GENERAL TEST PARAMETERS:

Test Number:#2

Target (Vehicle Side): BP4 Right

Temperature:22 C

MGA Test Reference No.:FM5172

Humidity:40%

Approach Horizontal Angles:90°

Time of Test:1:15 PM

Approach Vertical Angles:-1°

FMH Serial No:037

Additional Description:

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
615	595	5.7	23.3	14	11 L

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35800	-98.4	1.44	1.44
Y	6	J35841	92.6	1.54	1.54
Z	7	J35791	88.8	1.39	1.39

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

Assist Handle Compressed into the B-Pillar Trim.

Recorded By: [Signature] Approved By*: [Signature] Date: 4/26/05

*Only necessary for NHTSA (Government) Compliance testing.

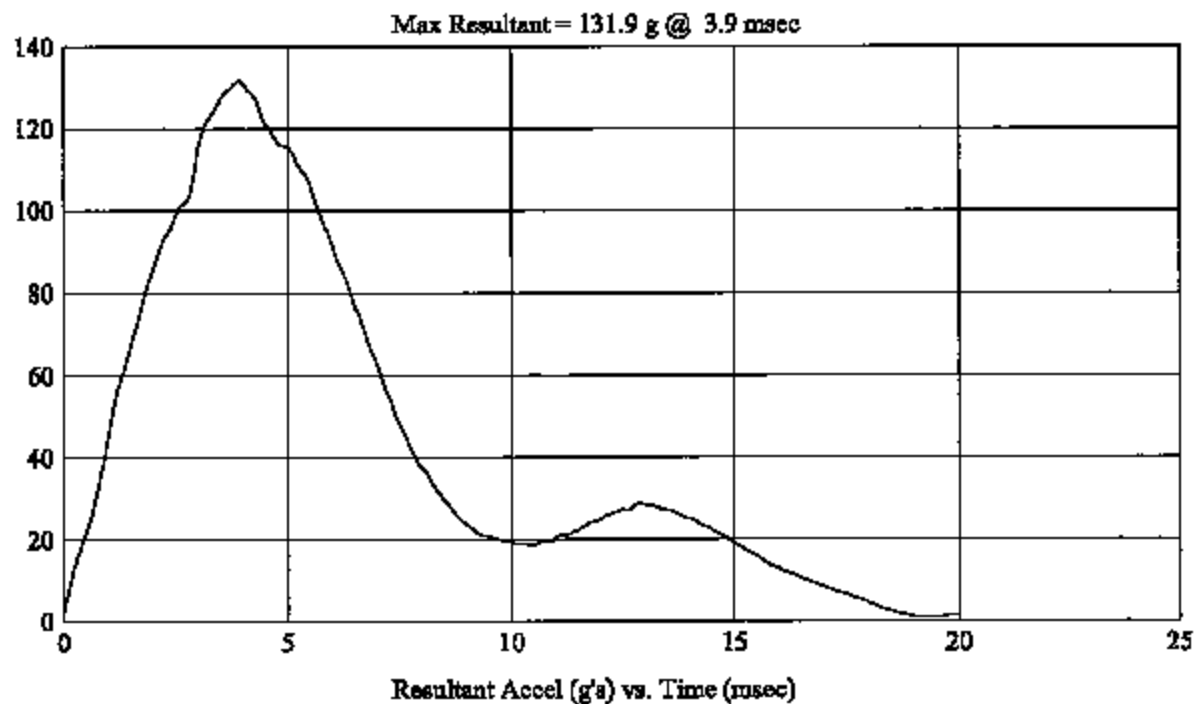
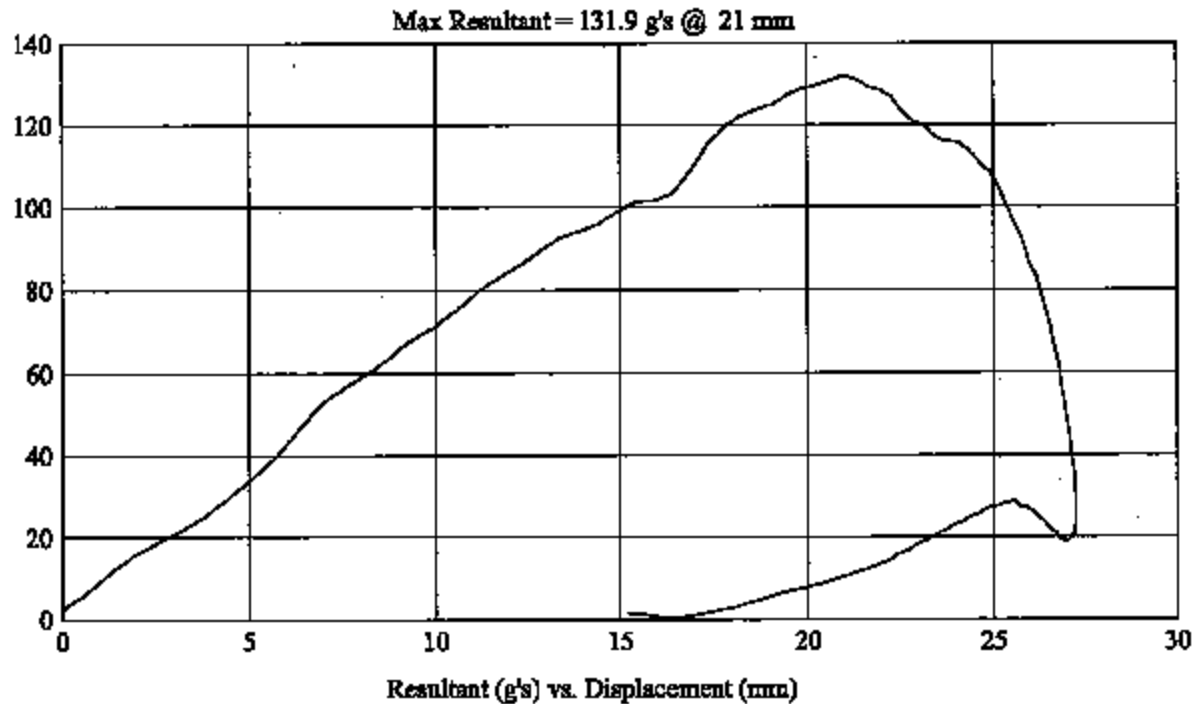
Customer: NHTSA
Test # 2
FMS172
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/26/05

Model Year: 2005
Target: BP4
Vehicle Side: Right
Horz/Vert Angle: 90/-1

HIC(d) = 615, HIC = 595, Delta T = 5.7 msec

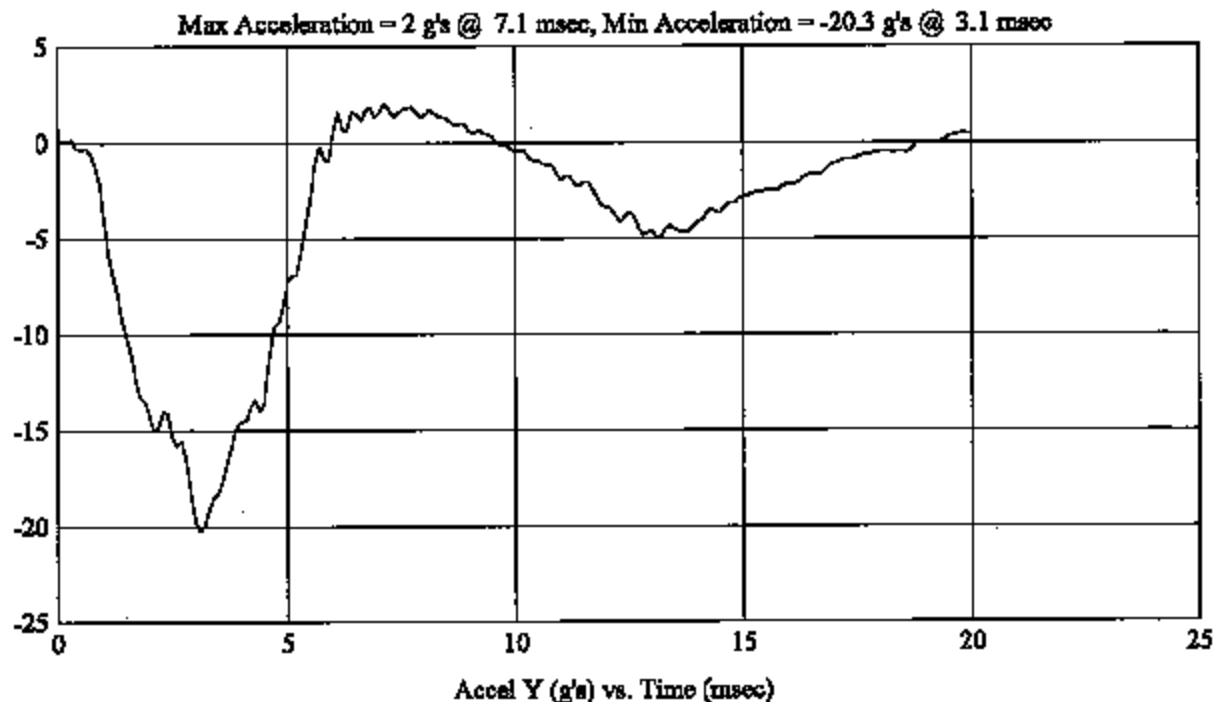
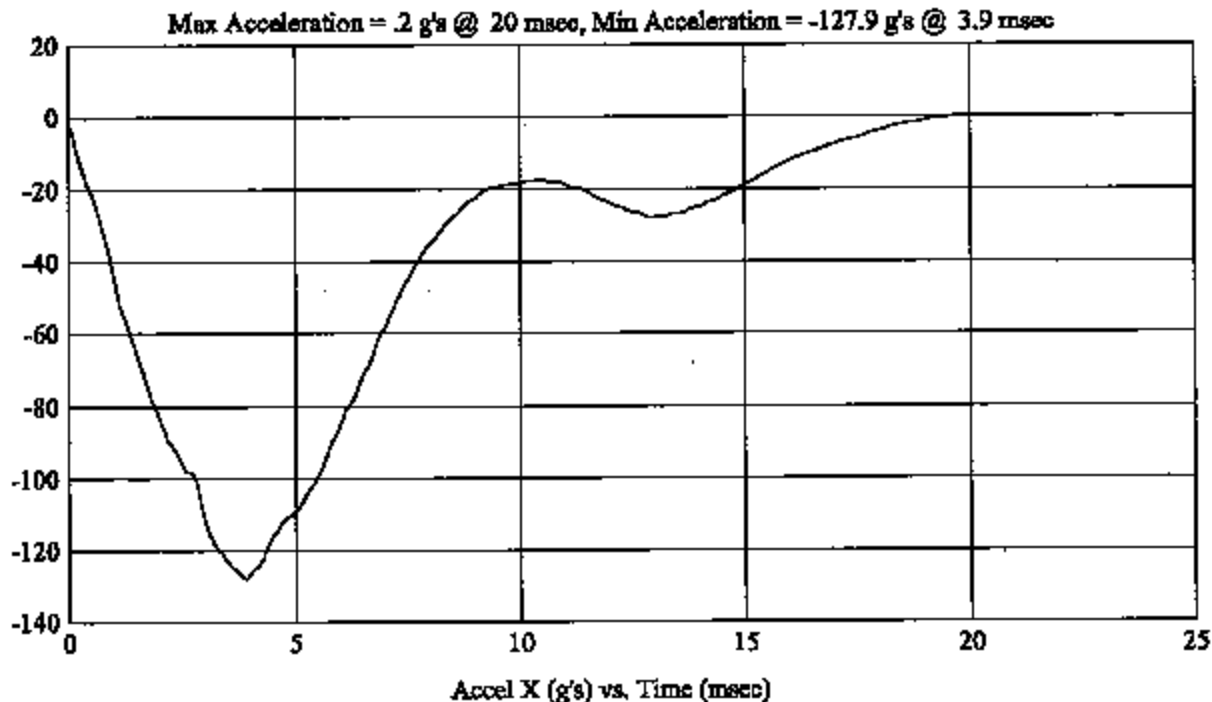


Customer: NHTSA
Test # 2
FM5172
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder
Test Date: 4/26/05

Model Year: 2005
Target: BP4
Vehicle Side: Right
Horz/Vert Angle: 90/-1

HIC(d) = 615, HIC = 595, Delta T = 5.7 msec



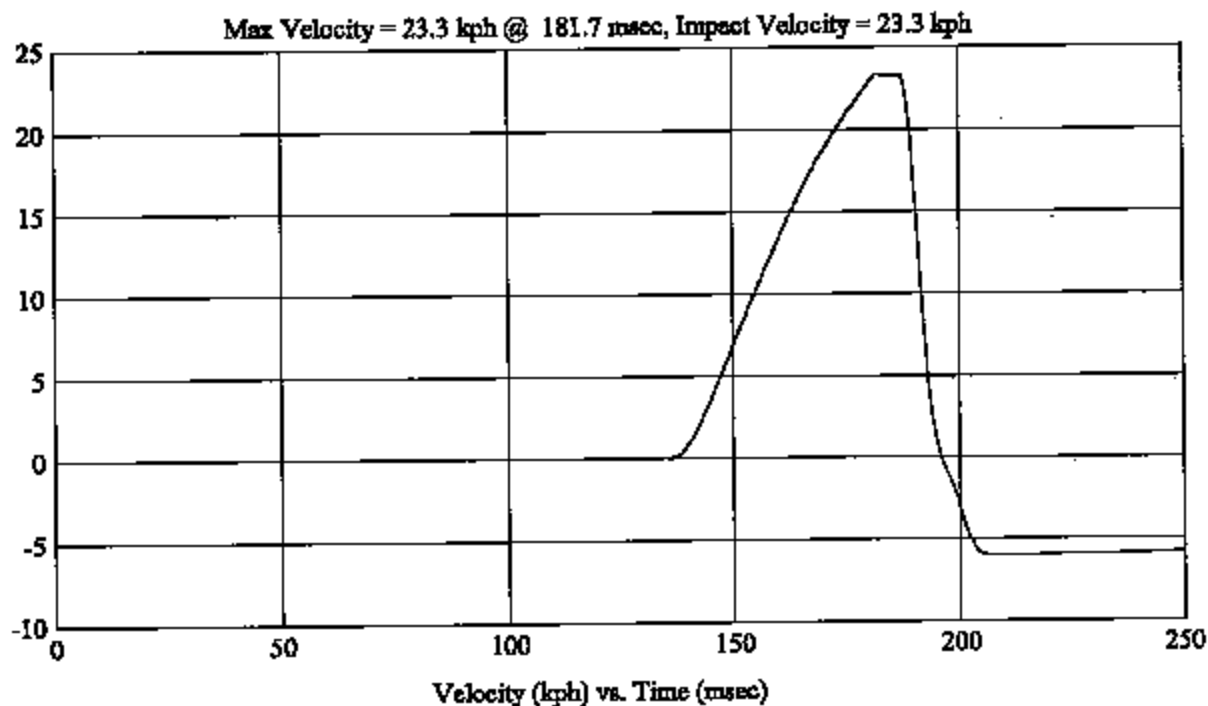
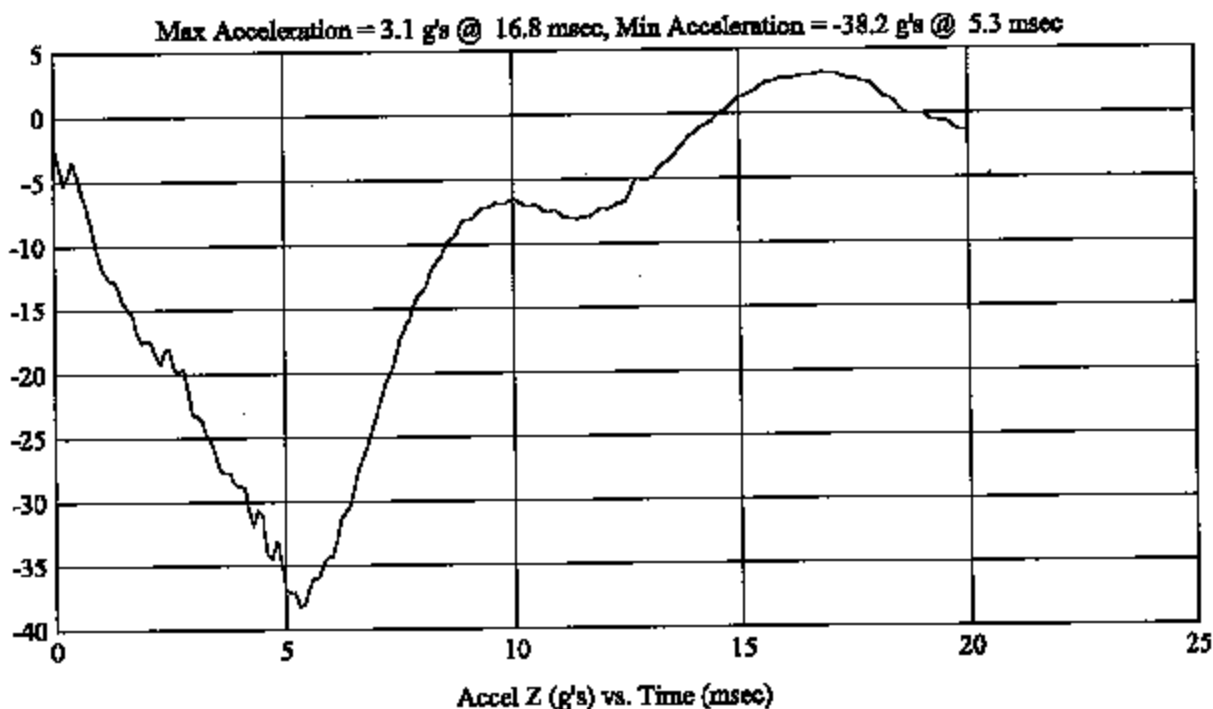
Customer: NHTSA
Test # 2
FM5172
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/26/05

Model Year: 2005
Target: BP4
Vehicle Side: Right
Horz/Vert Angle: 90/-1

HIC(d) = 615, HIC = 595, Delta T = 5.7 msec

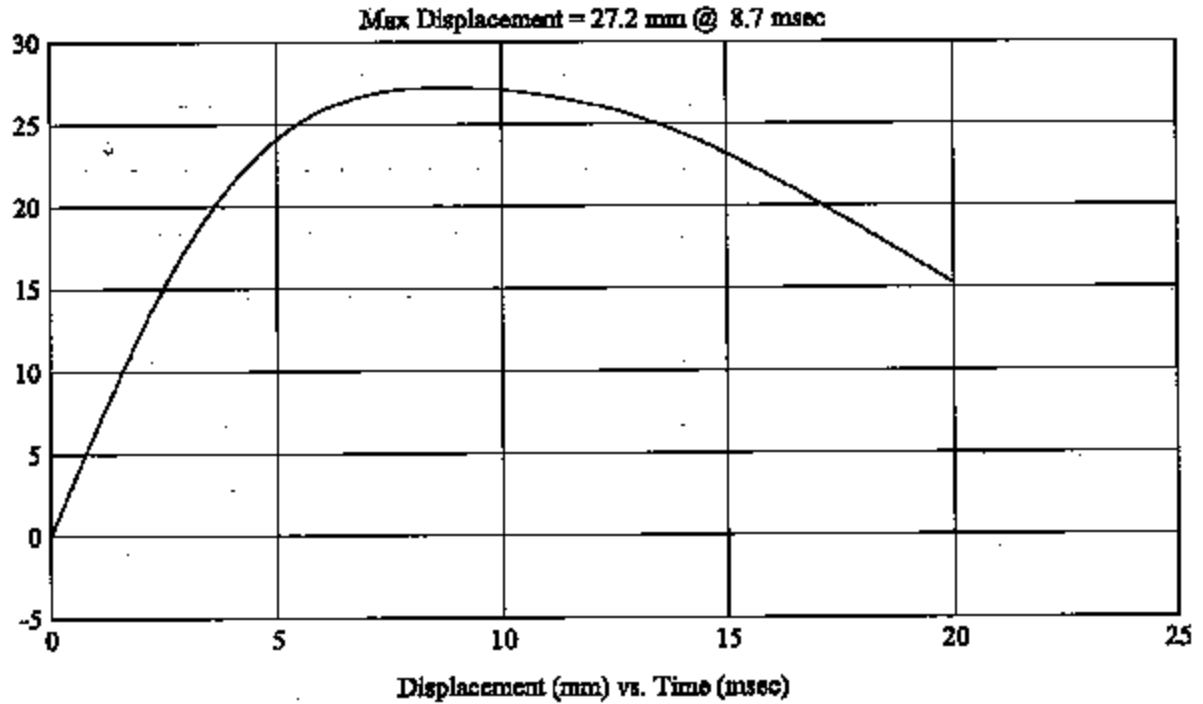


Customer: NHTSA
Test # 2
FM5172
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder
Test Date: 4/26/05

Model Year: 2005
Target: BP4
Vehicle Side: Right
Horz/Vert Angle: 90/-1

HIC(d) = 615, HIC = 595, Delta T = 5.7 msec



 mga

Impact Testing

4/26/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

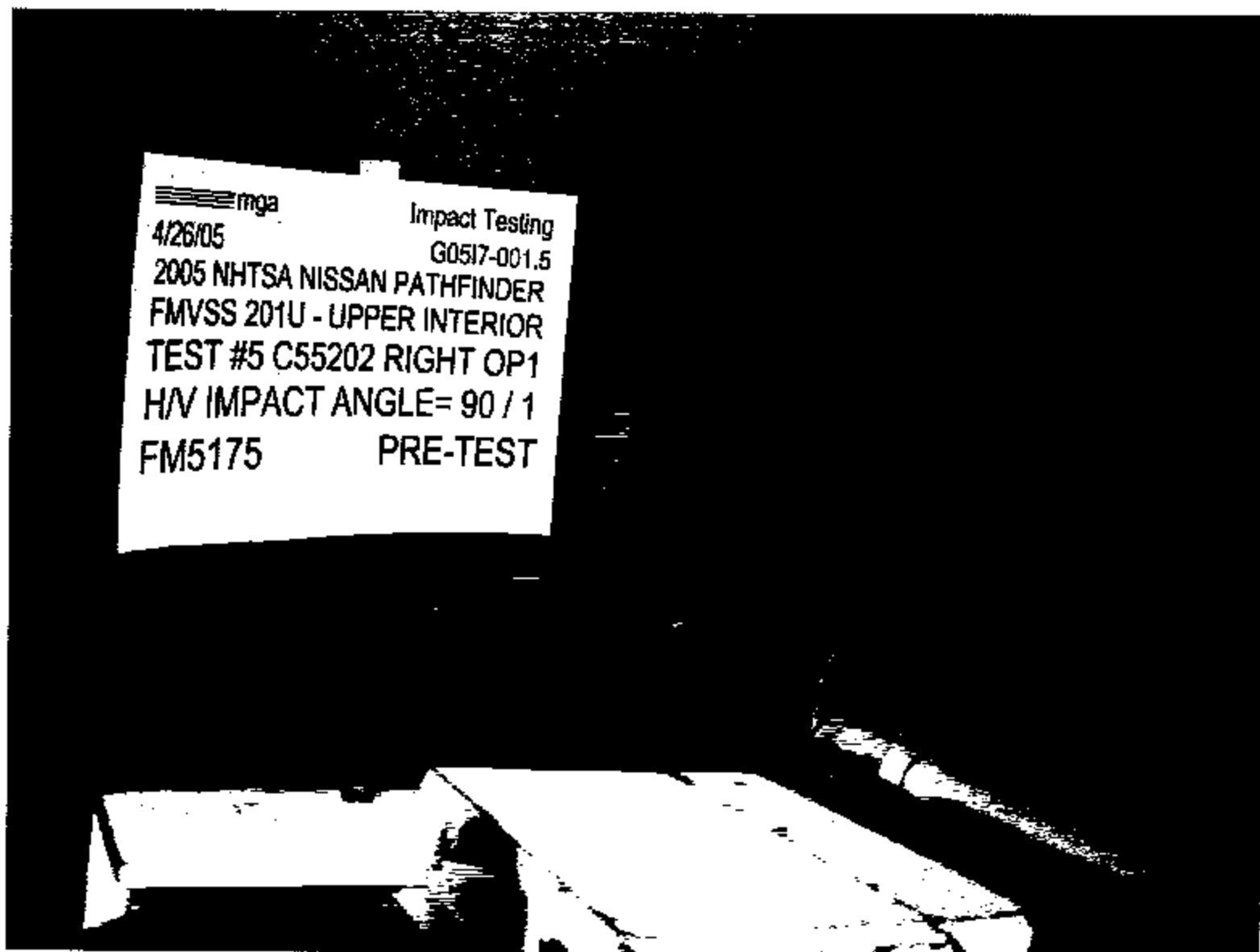
FMVSS 201U - UPPER INTERIOR

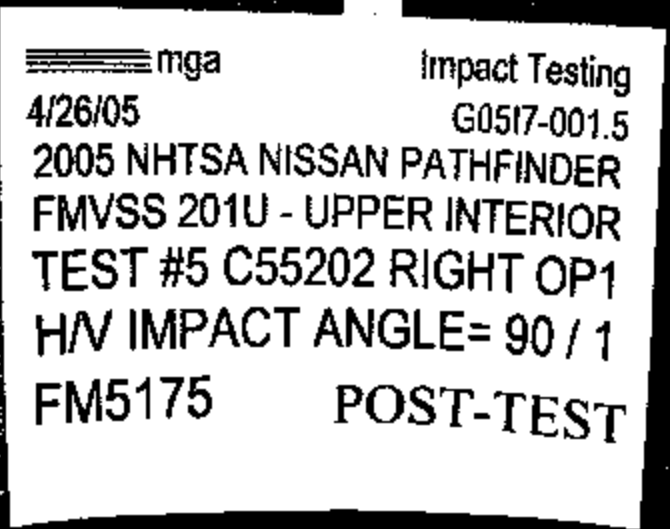
TEST #5 C55202 RIGHT OP1

H/V IMPACT ANGLE= 90 / 1

FM5175

PRE-TEST





===== mga

Impact Testing

4/26/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

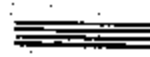
FMVSS 201U - UPPER INTERIOR

TEST #5 C55202 RIGHT OP1

H/V IMPACT ANGLE= 90 / 1

FM5175

POST-TEST

 mga

Impact Testing

4/26/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #5 C55202 RIGHT OP1

H/V IMPACT ANGLE= 90 / 1

FM5175

POST-TEST

MICHIGAN OPERATIONS
DATE: 2/8/01
SUPERCEDES: MGATP207210.2

DOC. NO.: MGATP207210.3
REVISION NO.: 2
PAGE 1 OF 1

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0517-001.5 VEHICLE YR/MAKE/MODEL: 2005/NHTSA/Nissan Pathfinder

GENERAL TEST PARAMETERS:

Target (Vehicle Side): OP1 Right

MGA Test Reference No.: FM5175

Approach Horizontal Angles: 90°

Approach Vertical Angles: 1°

Additional Description:

Test Number: #5

Temperature: 22C

Humidity: 40%

Time of Test: 4:15 PM

FMH Serial No: 037

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
447	371	10.4	23.8	12	11 R

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35800	-98.4	1.44	1.44
Y	6	J35841	92.6	1.54	1.54
Z	7	J35791	88.8	1.39	1.39

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

No visible damage.

Recorded By:  Approved By:  Date: 4/26/05

*Only necessary for NHTSA (Government) Compliance testing.

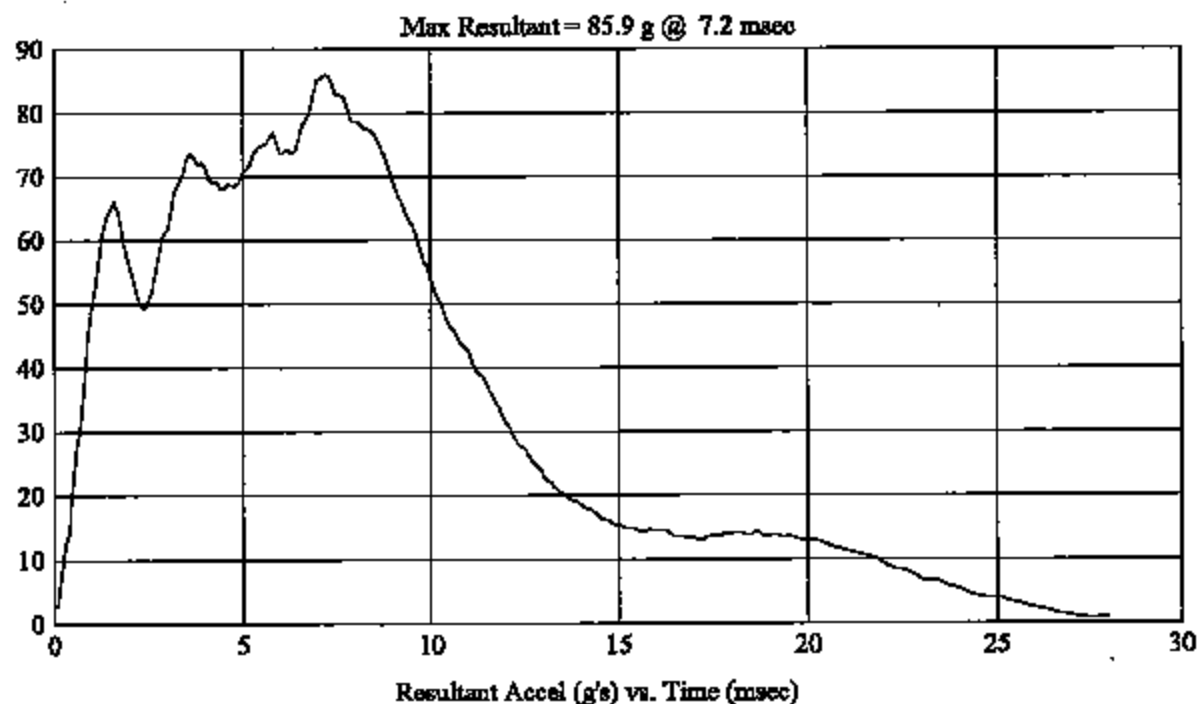
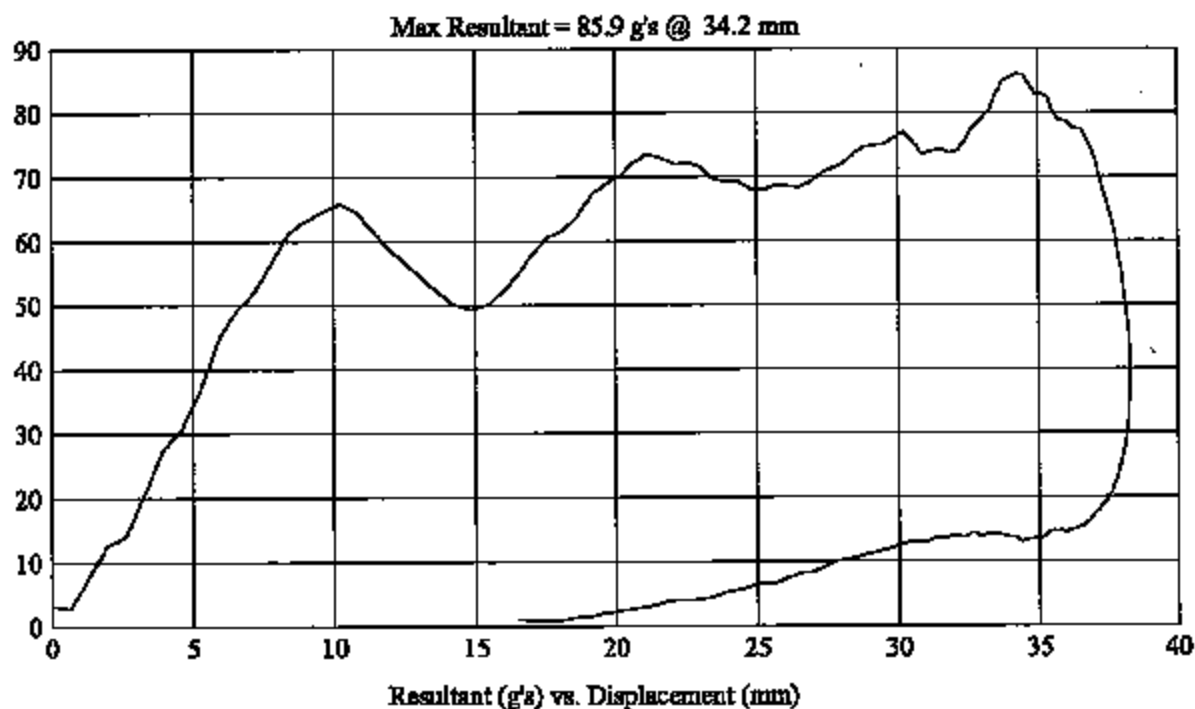
Customer: NHTSA
Test # 5
FM5175
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/26/05

Model Year: 2005
Target: OP1
Vehicle Side: Right
Horz/Vert Angle: 90/1

HIC(d) = 447, HIC = 371, Delta T = 10.4 msec



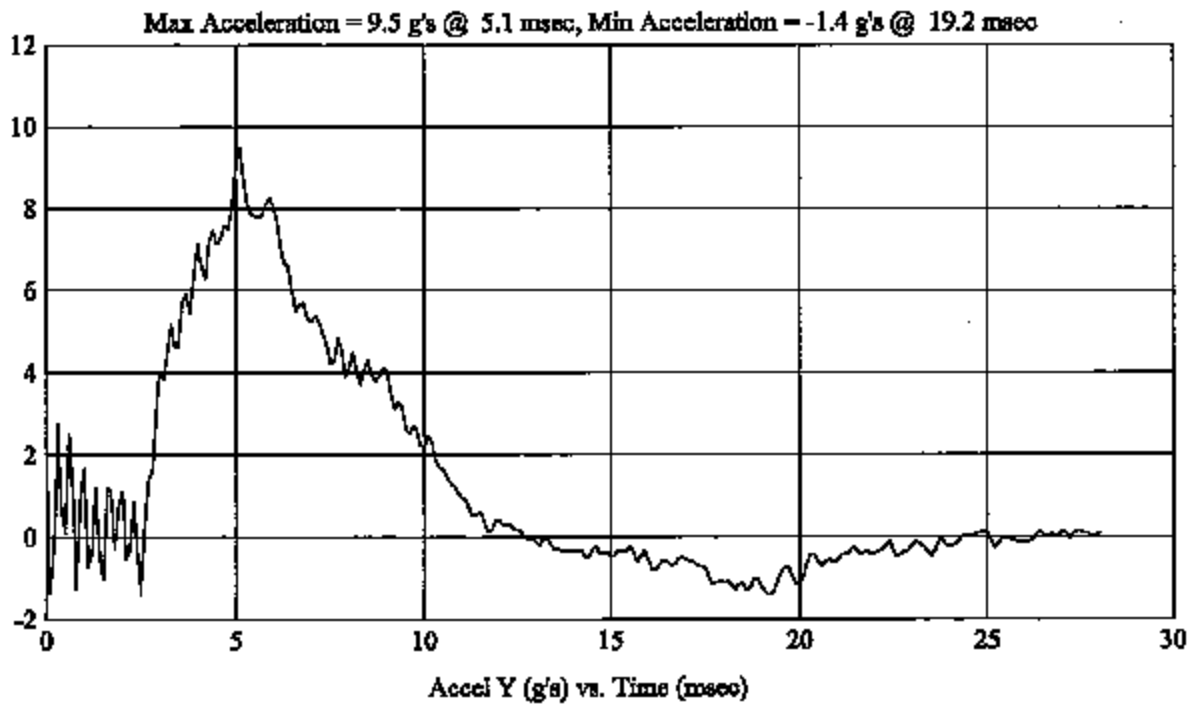
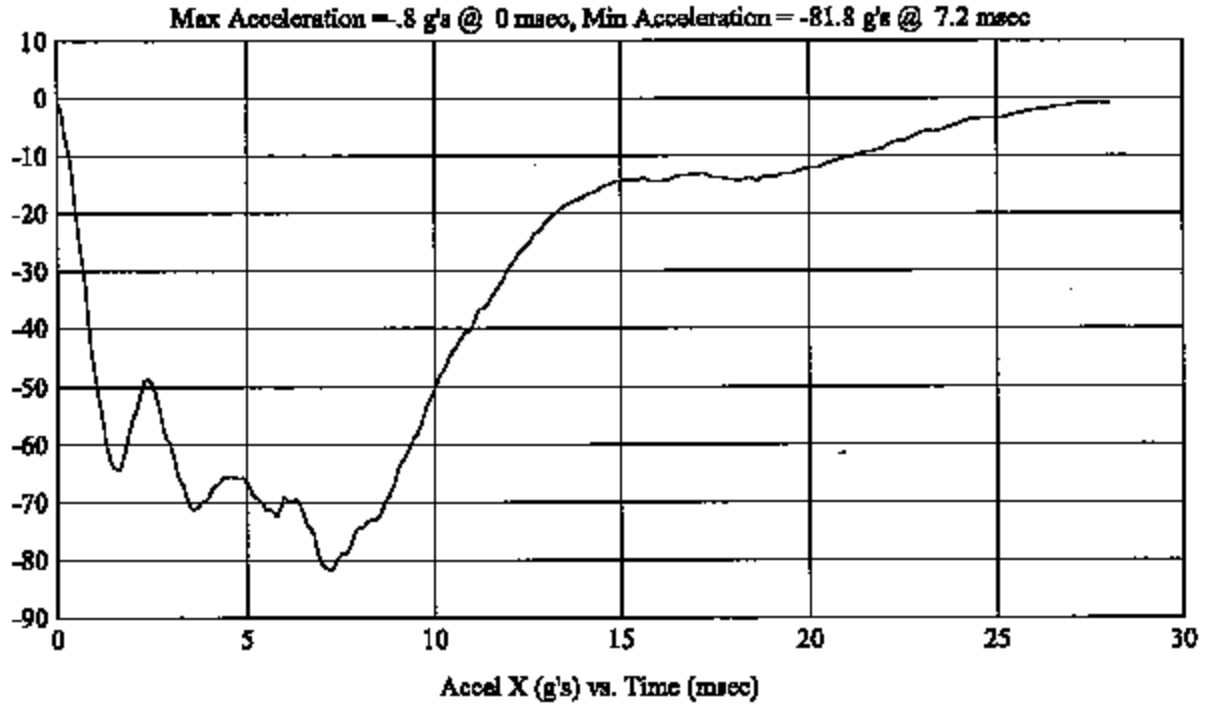
Customer: NHTSA
Test # 5
FM5175
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/26/05

Model Year: 2005
Target: OP1
Vehicle Side: Right
Horz/Vert Angle: 90/1

HIC(d) = 447, HIC = 371, Delta T = 10.4 msec



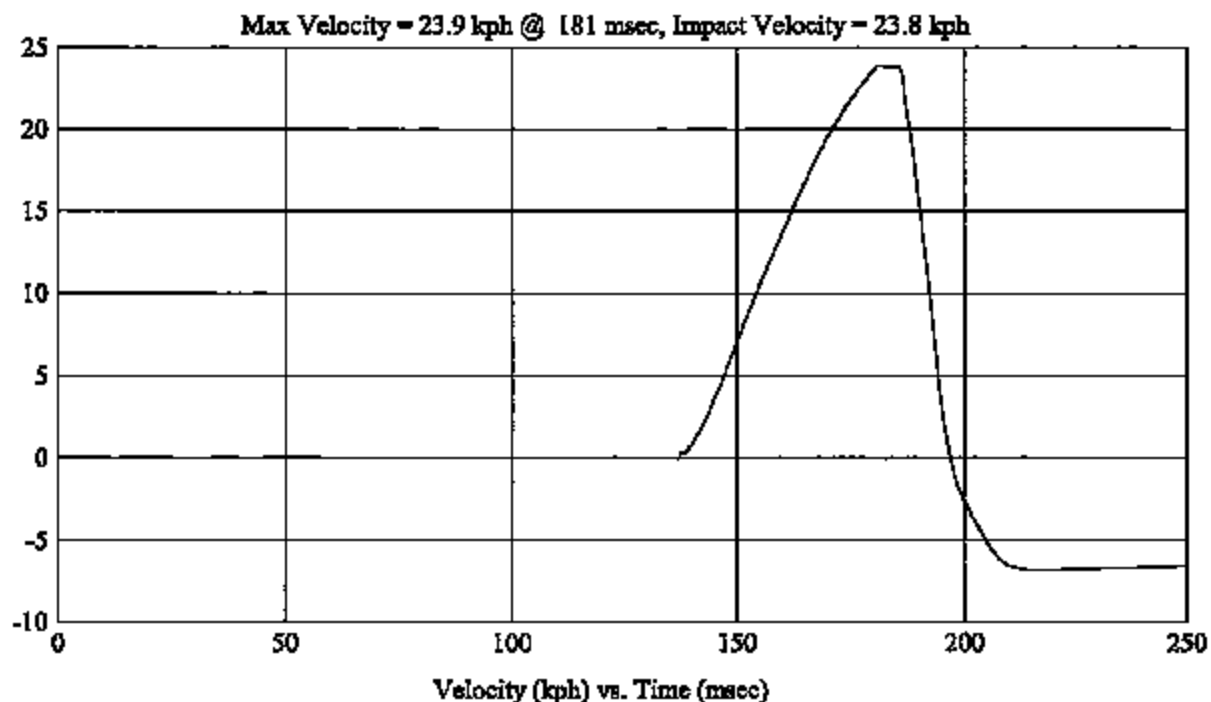
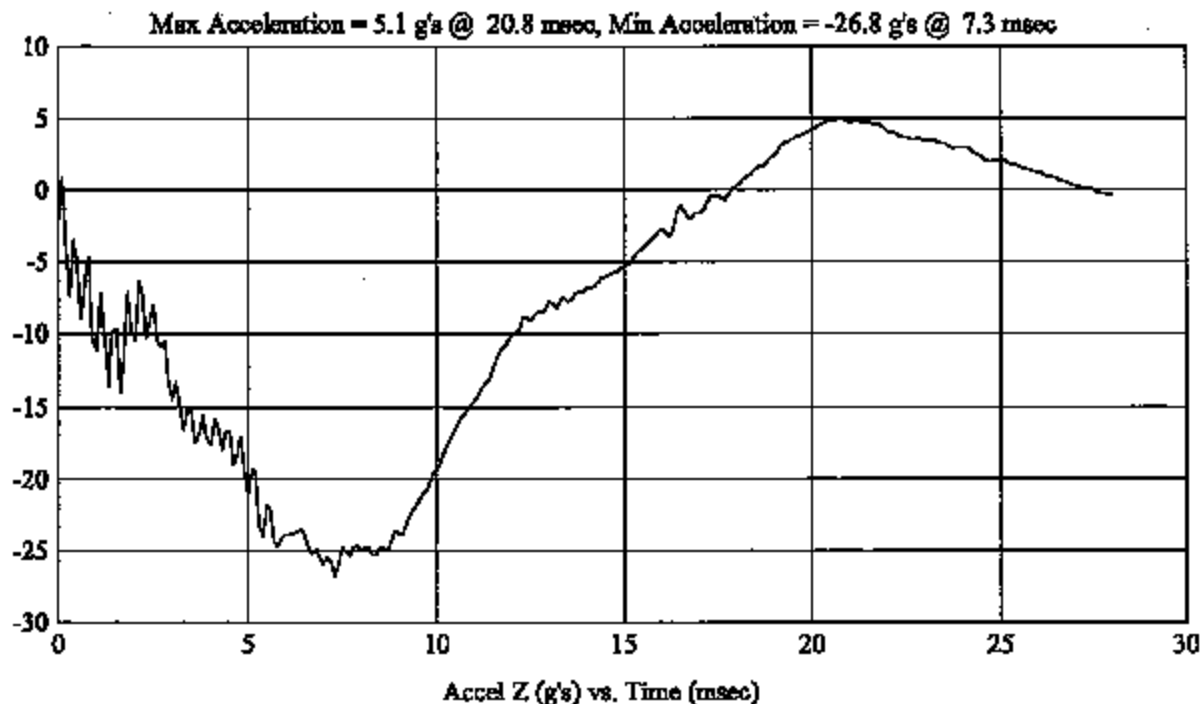
Customer: NHTSA
Test # 5
FMS175
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/26/05

Model Year: 2005
Target: OP1
Vehicle Side: Right
Horz/Vert Angle: 90/1

HIC(d) = 447, HIC = 371, Delta T = 10.4 msec



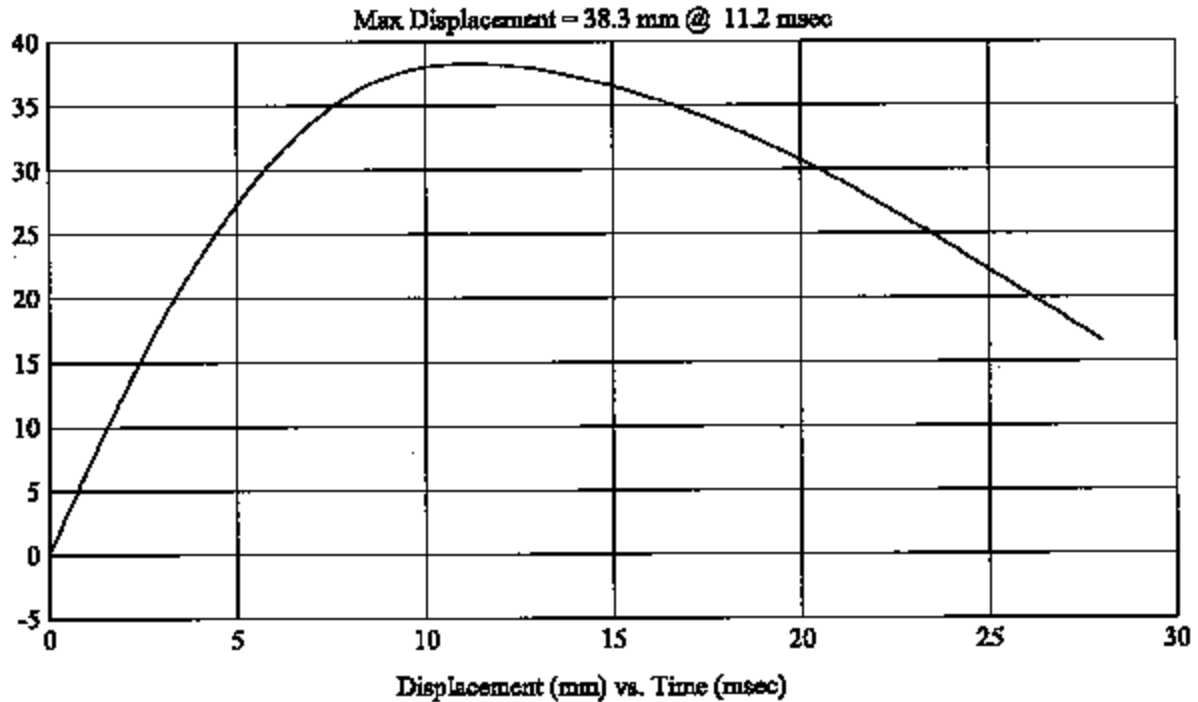
Customer: NHTSA
Test # 5
FM5175
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/26/05

Model Year: 2005
Target: OPI
Vehicle Side: Right
Horz/Vert Angle: 90/1

HIC(d) = 447, HIC = 371, Delta T = 10.4 msec





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Impact Testing

4/27/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

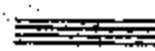
FMVSS 201U - UPPER INTERIOR

TEST #7 C55202 RIGHT RP1

H/V IMPACT ANGLE= 30 / 25

FM5177

PRE-TEST

 mga

Impact Testing

4/27/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #7 C55202 RIGHT RP1

H/V IMPACT ANGLE= 30 / 25

FM5177

POST-TEST

MICHIGAN OPERATIONS
DATE: 2/8/01
SUPERCEDES: MGATP207210.2

DOC. NO.: MGATP207210.3
REVISION NO.: 2
PAGE 1 OF 1

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0517-001.5 VEHICLE YR/MAKE/MODEL: 2005/NHTSA/Nissan Pathfinder

GENERAL TEST PARAMETERS:

Target (Vehicle Side): RP1 Right

MGA Test Reference No.: FM5177

Approach Horizontal Angles: 30°

Approach Vertical Angles: 25°

Additional Description:

Test Number: #7

Temperature: 21°C

Humidity: 38%

Time of Test: 10:45 AM

FMH Serial No: 035

TEST RESULTS:

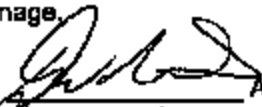
HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
611	580	7.7	24.1	51	17 L

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35924	-94.1	1.44	1.44
Y	6	J35919	94.3	1.54	1.54
Z	7	J22864	92.7	1.39	1.39

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

No visible damage.

Recorded By:  Approved By:  Date: 4/27/05

*Only necessary for NHTSA (Government) Compliance testing

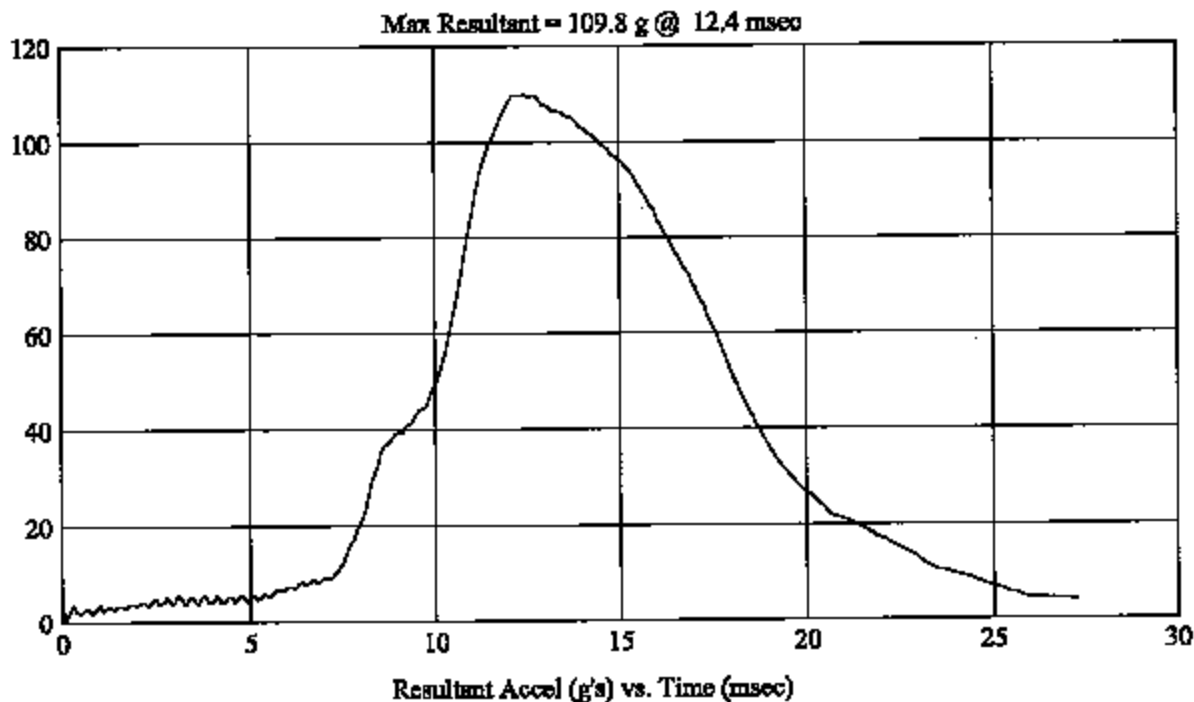
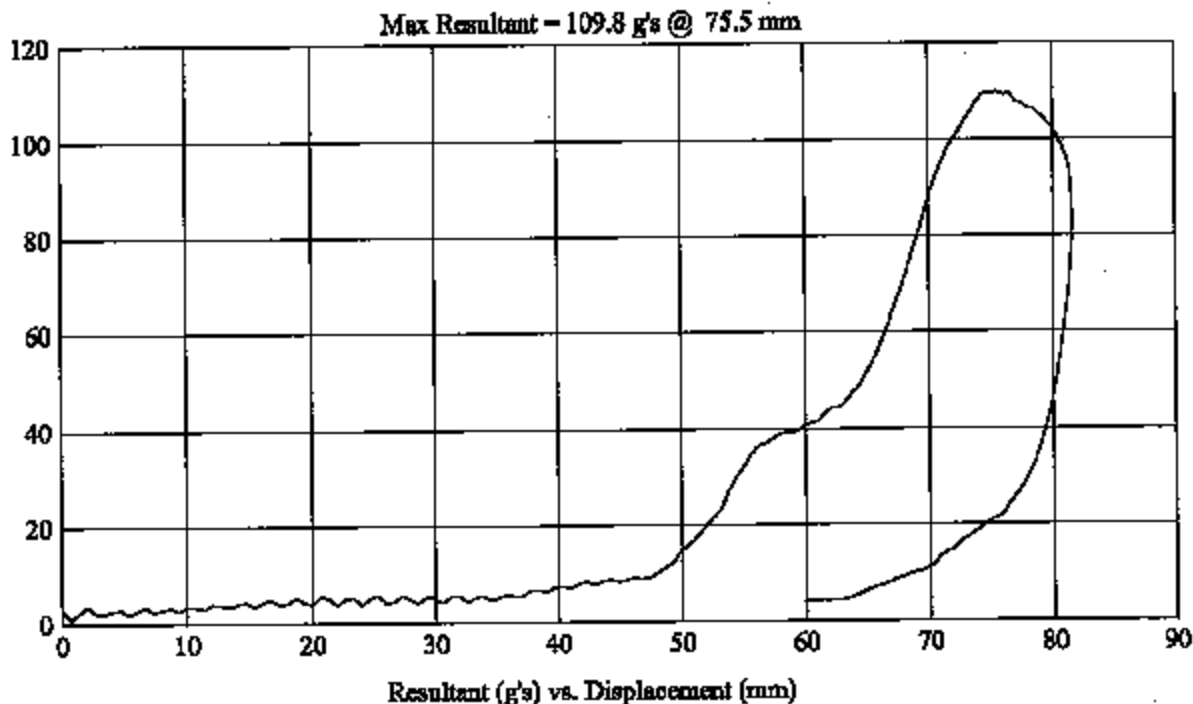
Customer: NHTSA
Test # 7
FM5177
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: RP1
Vehicle Side: Right
Horz/Vert Angle: 30/25

HIC(d) = 611, HIC = 589, Delta T = 7.7 msec



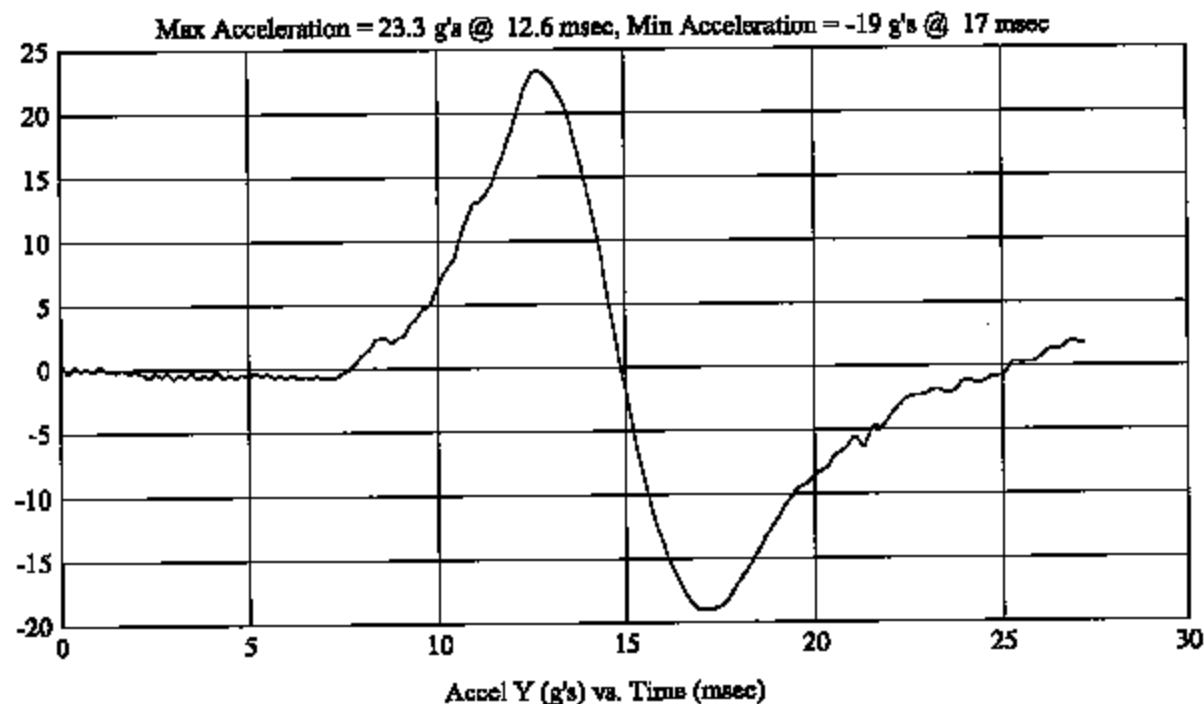
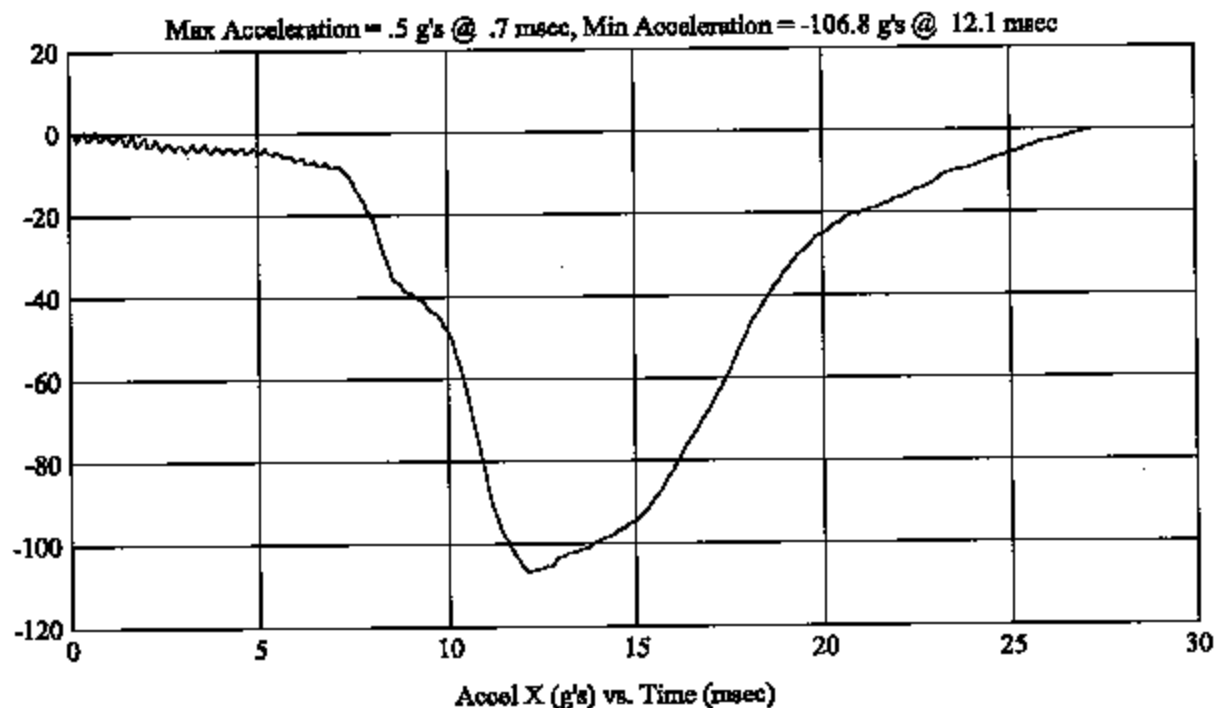
Customer: NHTSA
Test # 7
FM5177
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: RP1
Vehicle Side: Right
Horz/Vert Angle: 30/25

HIC(d) = 611, HIC = 589, Delta T = 7.7 msec



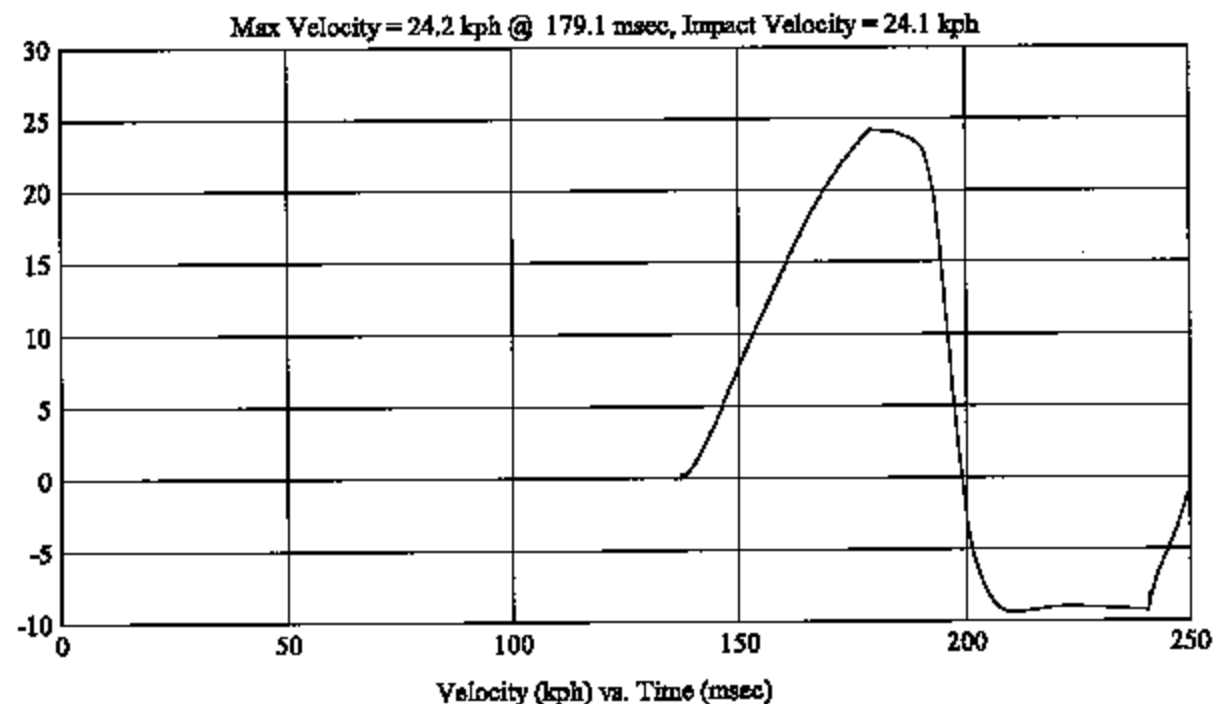
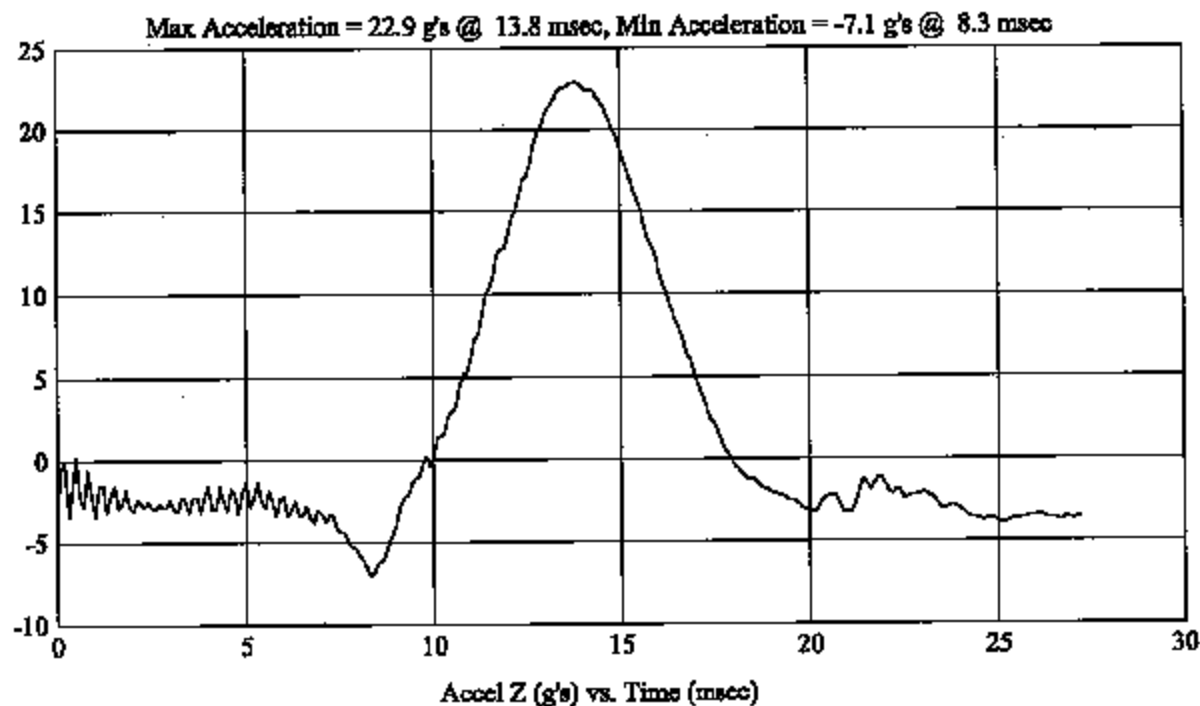
Customer: NETSA
Test # 7
FM5177
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: RP1
Vehicle Side: Right
Horz/Vert Angle: 30/25

HIC(d) = 611, HIC = 589, Delta T = 7.7 msec



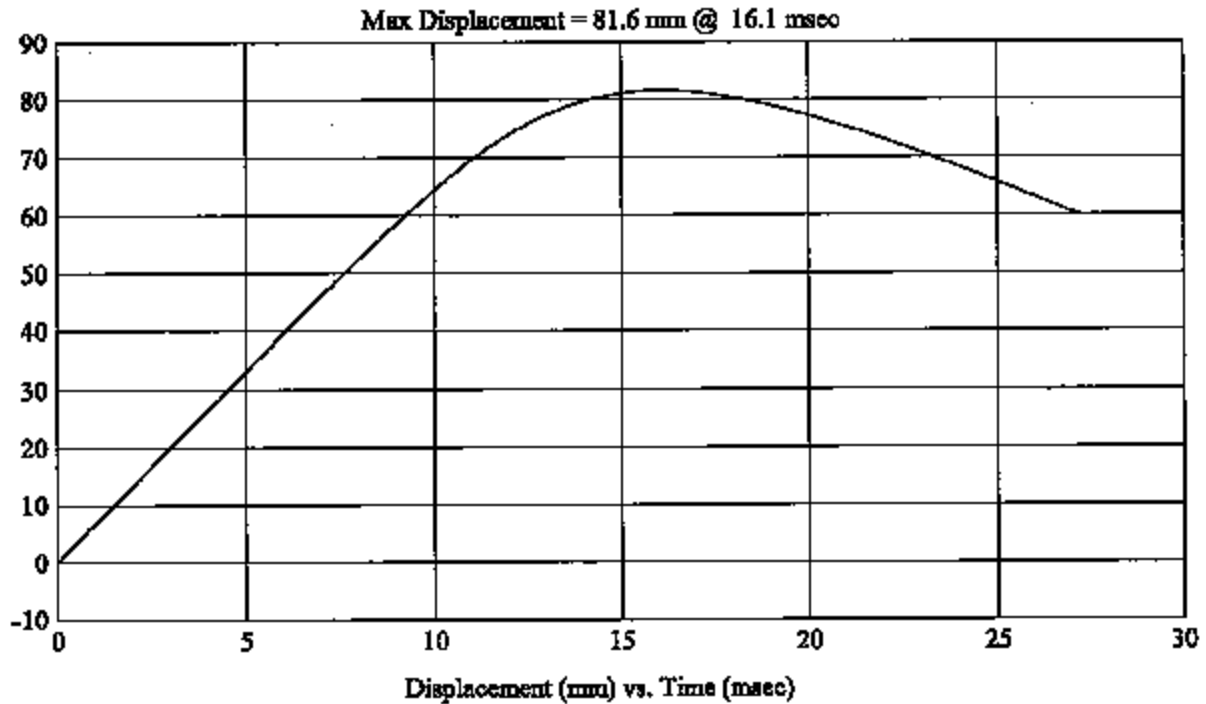
Customer: NHTSA
Test # 7
FM5177
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: RP1
Vehicle Side: Right
Horz/Vert Angle: 30/25

HIC(d) = 611, HIC = 589, Delta T = 7.7 msec



mga

4/28/05

Impact Testing
G0517-001.52005 NHTSA NISSAN PATHFINDER
FMVSS 201U - UPPER INTERIOR
TEST #12 C55202 LEFT RP2
H/V IMPACT ANGLE= 270 / 12
FM5182 PRE-TEST

mg

0005

Impact Testing

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #12 C55202 LEFT RP2

HV IMPACT ANGLE= 270 / 12

FM5182

POST-TEST

 mga

Impact Testing

4/28/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER
FMVSS 201U - UPPER INTERIOR
TEST #12 C55202 LEFT RP2
H/V IMPACT ANGLE= 270 / 12
FM5182 POST-TEST

MICHIGAN OPERATIONS
DATE: 2/8/01
SUPERCEDES: MGATP207210.2

DOC. NO.: MGATP207210.3
REVISION NO.: 2
PAGE 1 OF 1

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0517-001.5 VEHICLE YR/MAKE/MODEL:2005/NHTSA/Nissan Pathfinder

GENERAL TEST PARAMETERS: Test Number:#12
Target (Vehicle Side): RP2 Left Temperature:20C
MGA Test Reference No.:FM5182 Humidity:26%
Approach Horizontal Angles:270° Time of Test:10:15 AM
Approach Vertical Angles:12° FMH Serial No:038
Additional Description:

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
631	616	5.8	23.5	12	4 L

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J36197	-110	1.44	1.44
Y	6	J36193	101.9	1.54	1.54
Z	7	J36353	96.7	1.39	1.39

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

No visible damage.

Recorded By: mgp Approved By: an j Date: 4/28/05

*Only necessary for NHTSA (Government) Compliance testing

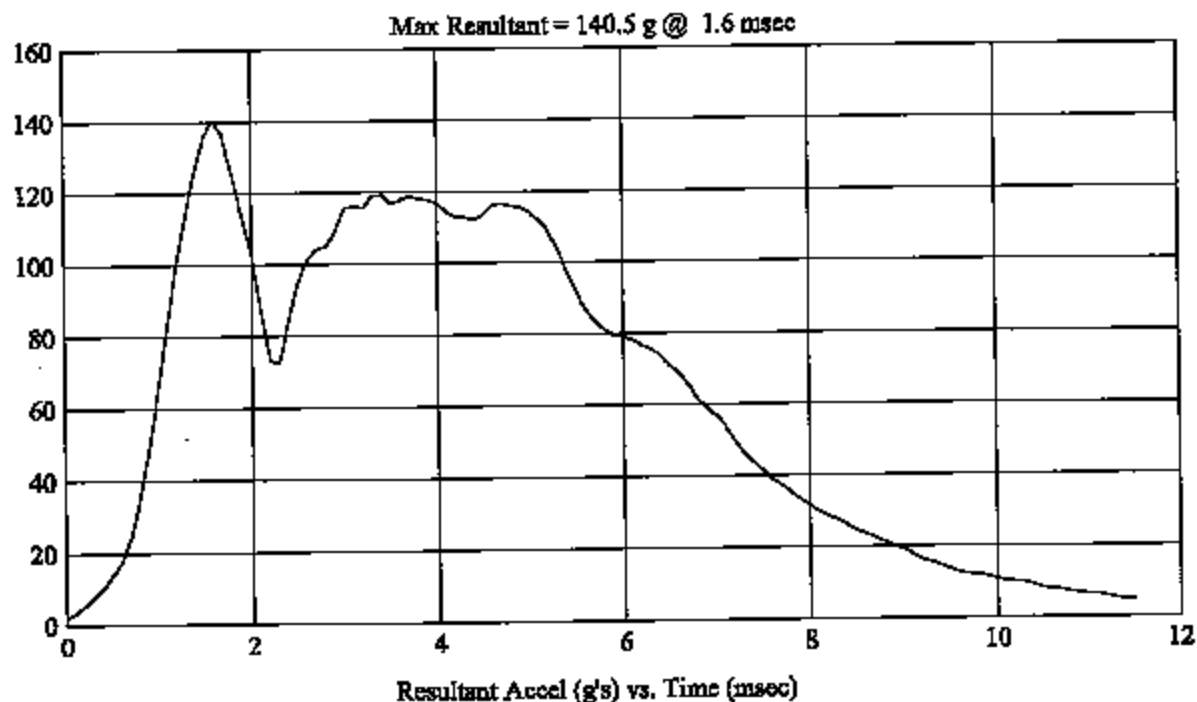
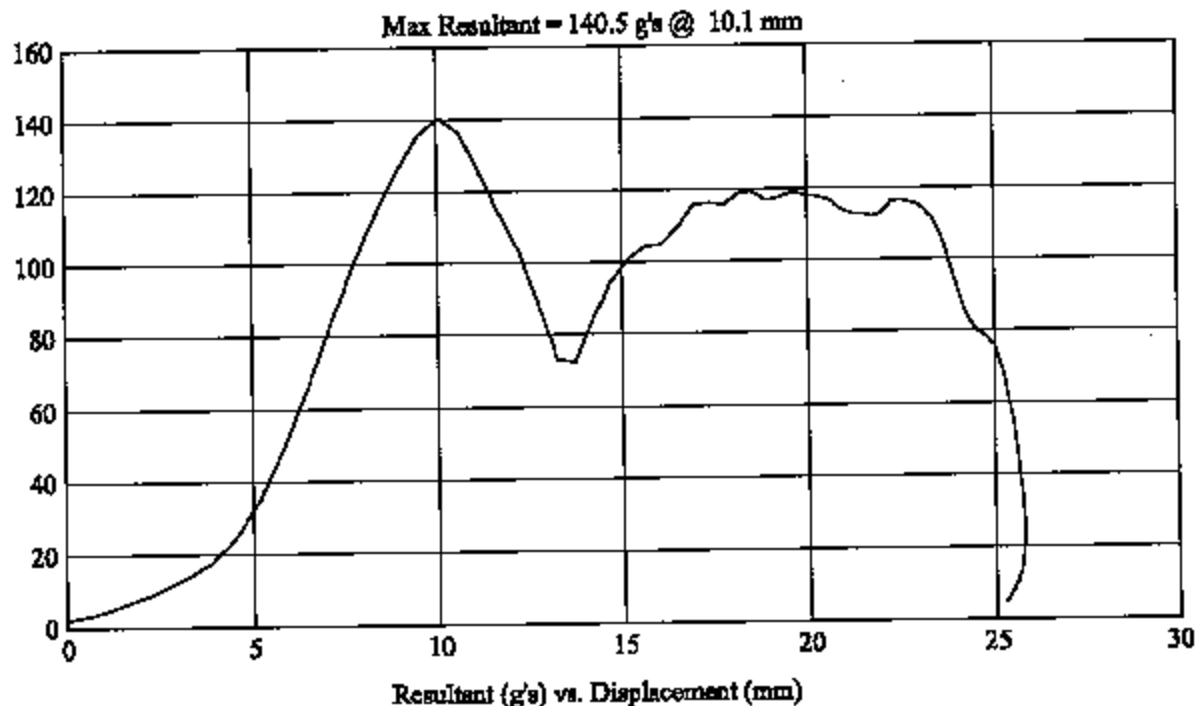
Customer: NHTSA
Test # 12
FM5182
Additional Desc: N/A

Vehicle Program: Nissan Pathfinder

Test Date: 4/28/05

Model Year: 2005
Target: RP2
Vehicle Side: Left
Horz/Vert Angle: 270/12

HIC(d) = 631, HIC = 616, Delta T = 5.8 msec



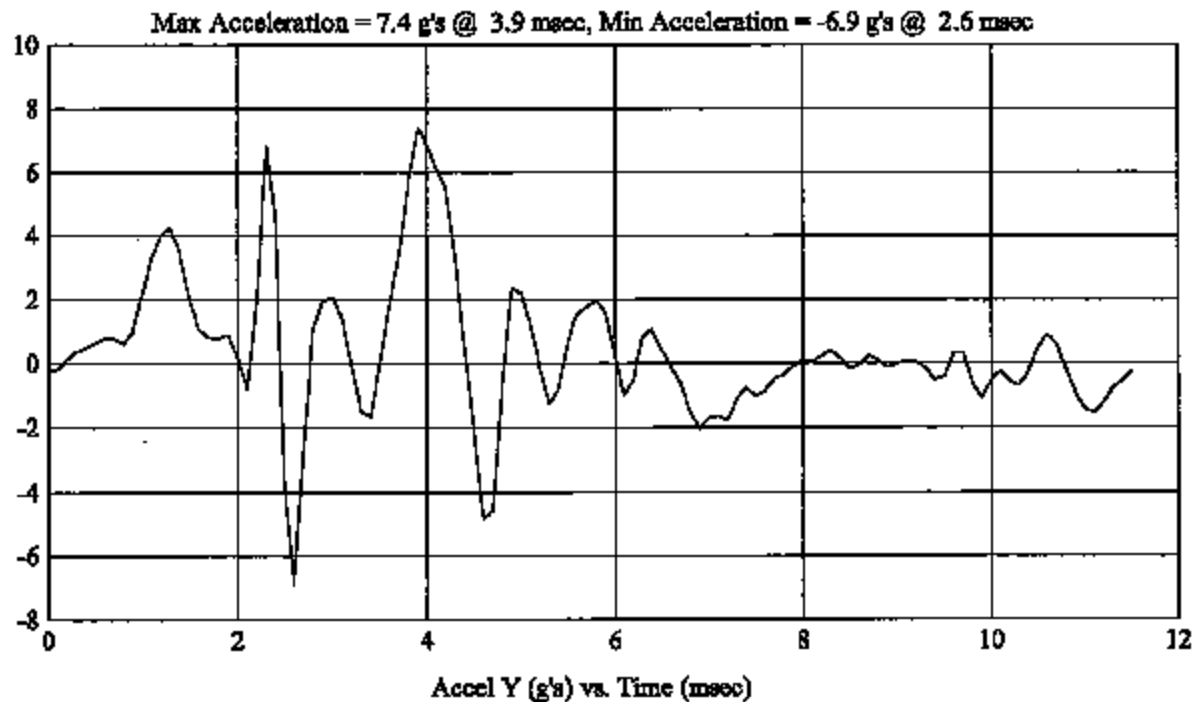
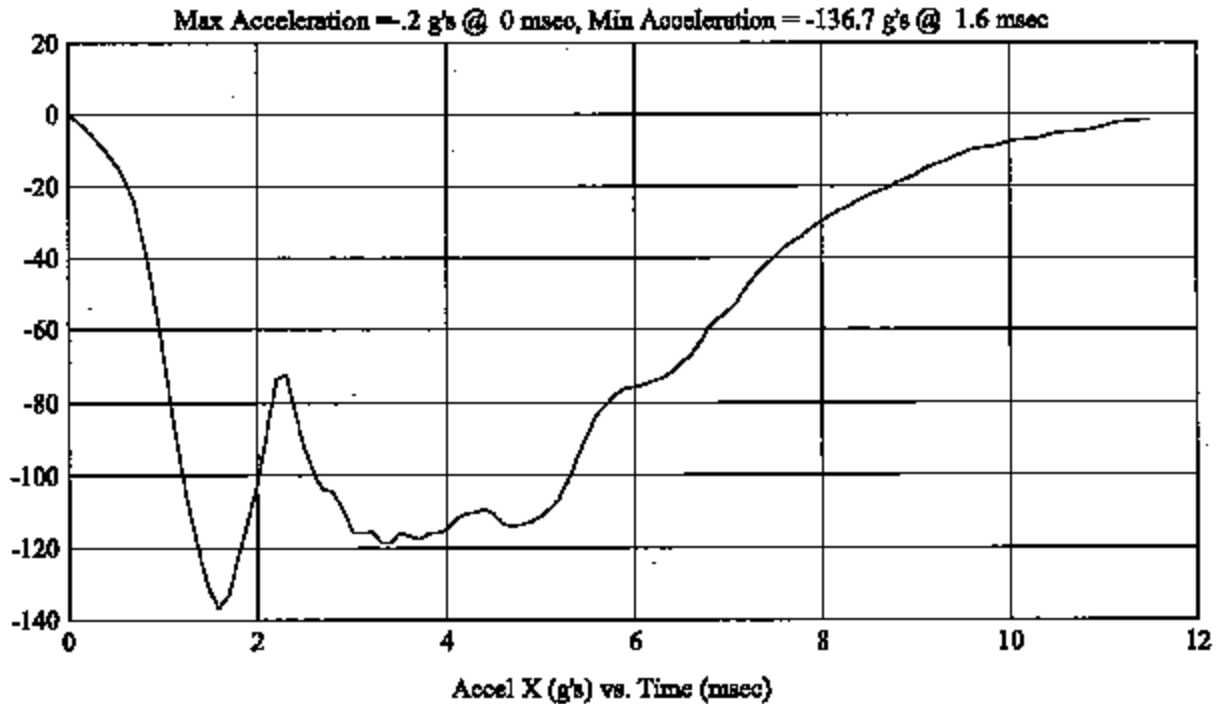
Customer: NHTSA
Test # 12
FM5182
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/28/05

Model Year: 2005
Target: RP2
Vehicle Side: Left
Horz/Vert Angle: 270/12

HIC(d) = 631, HIC = 616, Delta T = 5.8 msec



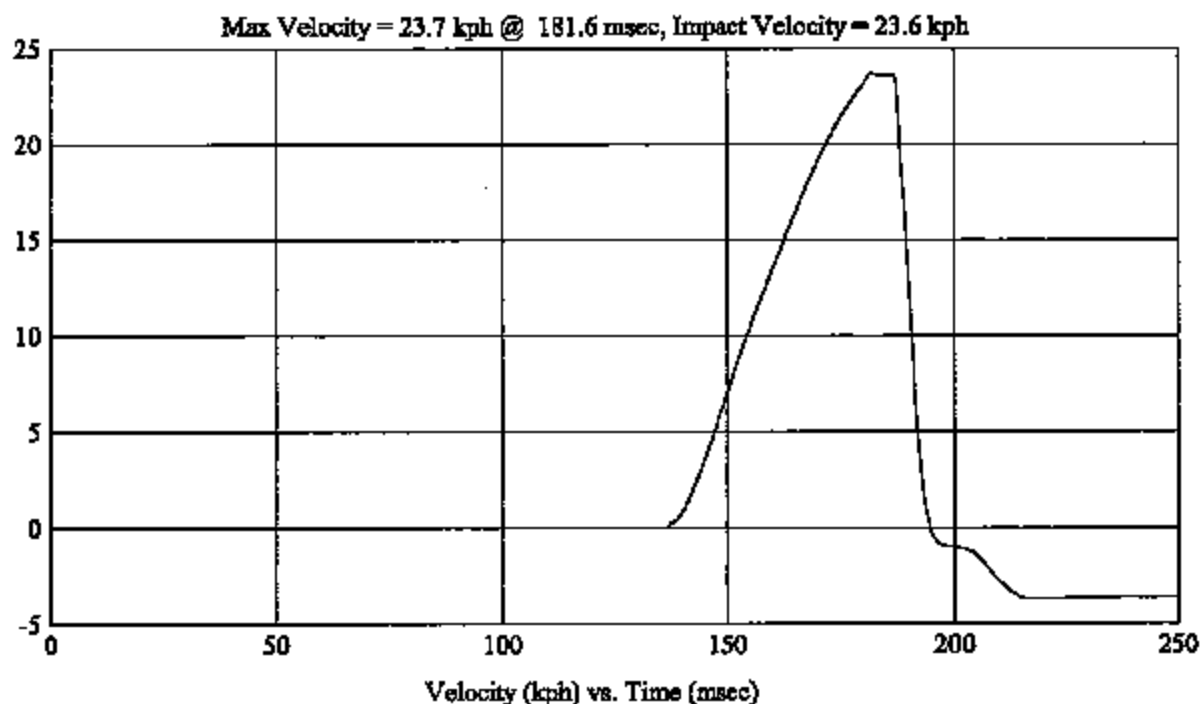
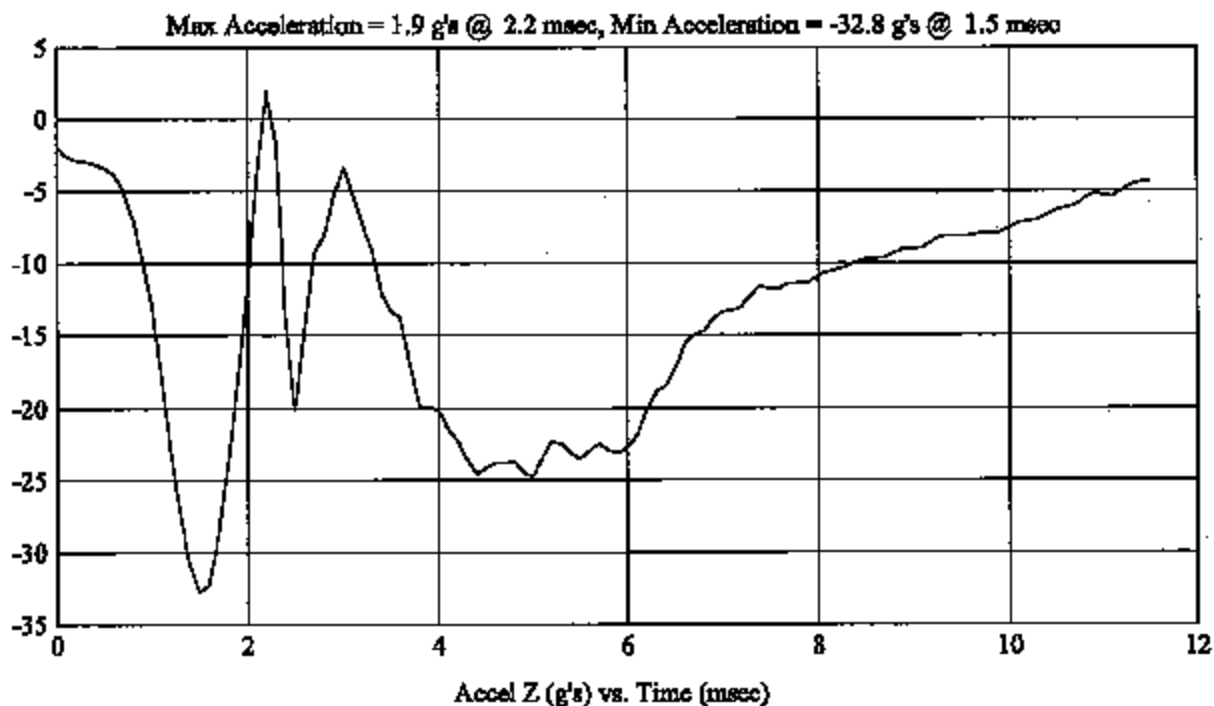
Customer: NHTSA
Test # 12
FMS182
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/28/05

Model Year: 2005
Target: RP2
Vehicle Side: Left
Horz/Vert Angle: 270/12

HIC(d) = 631, HIC = 616, Delta T = 5.8 msec



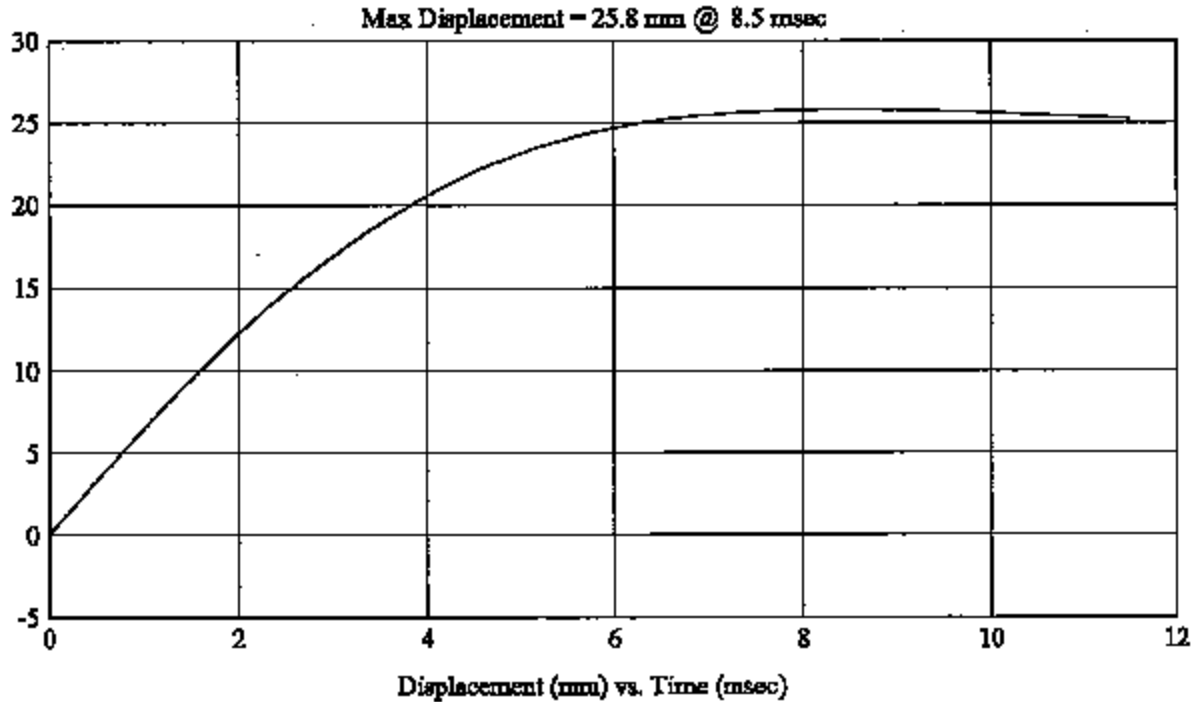
Customer: NHTSA
Test # 12
FM5182
Additional Desc: N/A

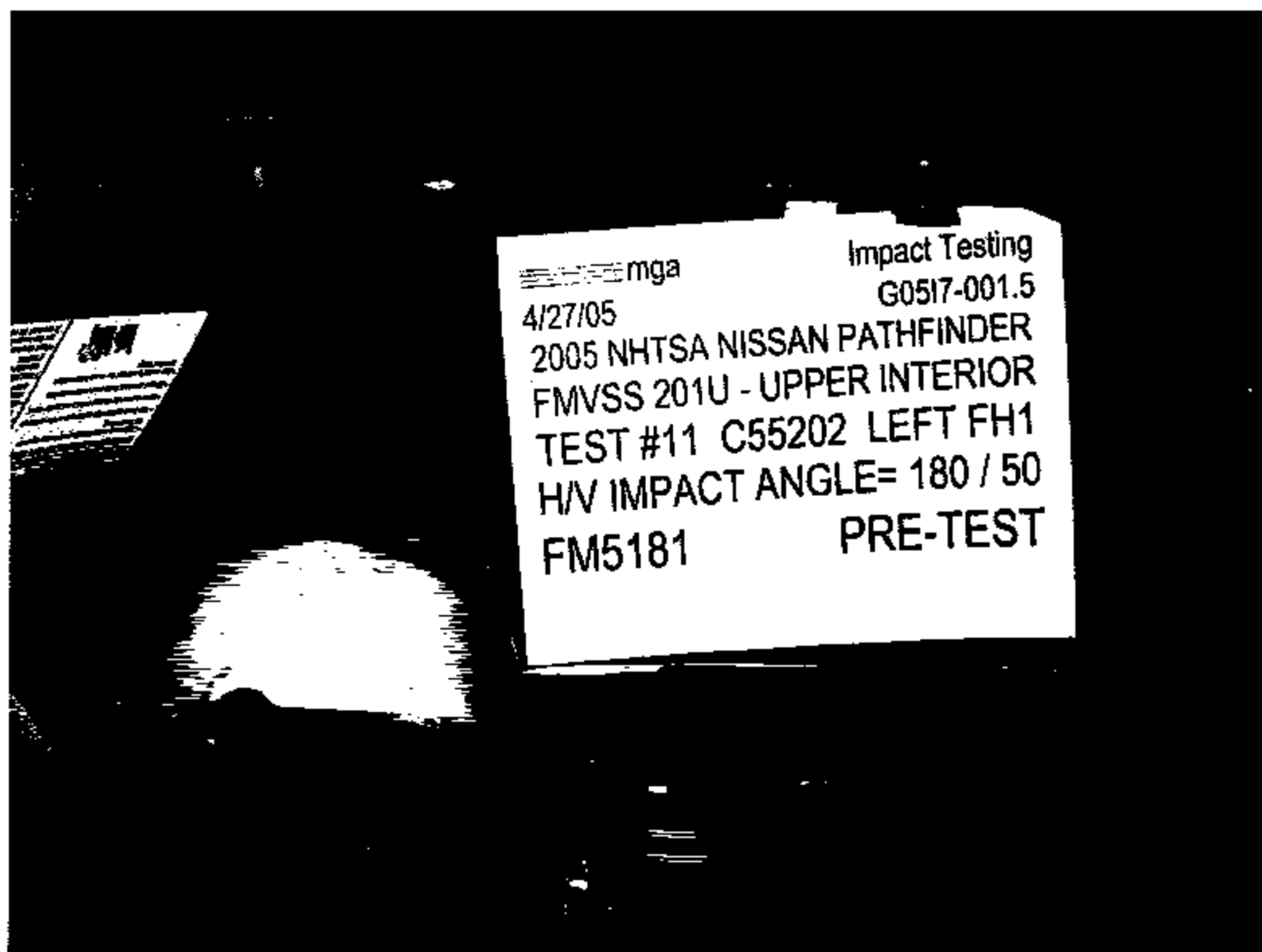
Vehicle Program : Nissan Pathfinder

Test Date: 4/28/05

Model Year: 2005
Target: RP2
Vehicle Side: Left
Horz/Vert Angle: 270/12

HIC(d) = 631, HIC = 616, Delta T = 5.8 msec





==== mga

4/27/05

Impact Testing

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #11 C55202 LEFT FH1

H/V IMPACT ANGLE= 180 / 50

FM5181

POST-TEST

 mga

Impact Testing

4/27/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #11 C55202 LEFT FH1

H/V IMPACT ANGLE= 180 / 50

FM5181

POST-TEST

MICHIGAN OPERATIONS
DATE: 2/8/01
SUPERCEDES: MGATP207210.2

DOC. NO.: MGATP207210.3
REVISION NO.: 2
PAGE 1 OF 1

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0617-001.5 VEHICLE YR/MAKE/MODEL: 2005/NHTSA/Nissan Pathfinder

GENERAL TEST PARAMETERS:

Test Number: #11

Target (Vehicle Side): FH1 Left

Temperature: 21C

MGA Test Reference No.: FM5181

Humidity: 39%

Approach Horizontal Angles: 180°

Time of Test: 4:45 PM

Approach Vertical Angles: 50°

FMH Serial No: 037

Additional Description:

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
601	576	4.7	23.4	34	4 R

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35800	-98.4	1.44	1.44
Y	6	J35841	92.6	1.54	1.54
Z	7	J35791	88.8	1.39	1.39

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

No visible damage.

Recorded By:  Approved By:  Date: 4/27/05

*Only necessary for NHTSA (Government) Compliance testing.

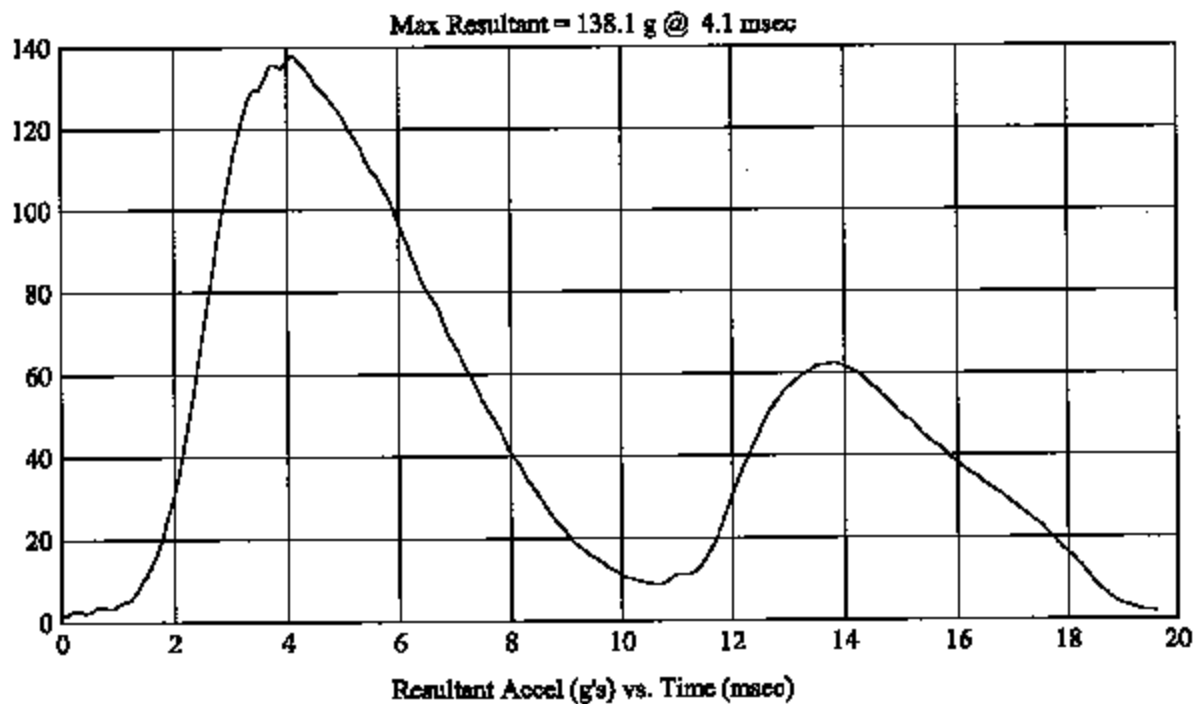
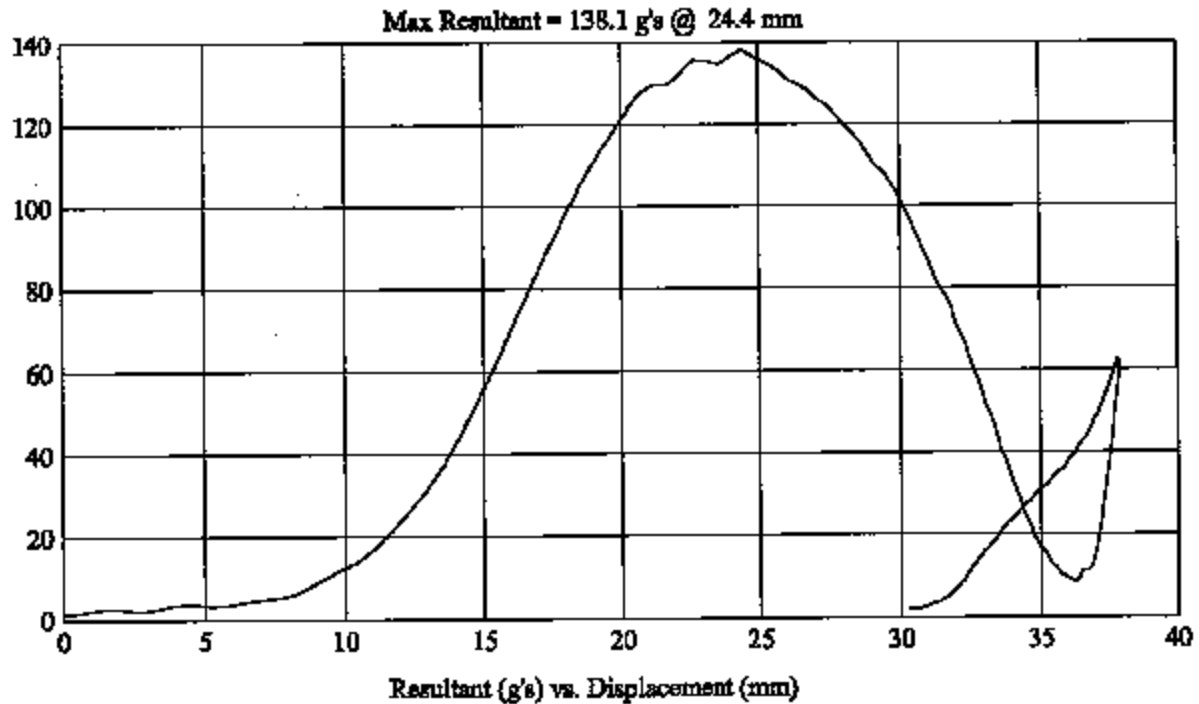
Customer: NHTSA
Test # 11
FMS181
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: FH1
Vehicle Side: Left
Horz/Vert Angle: 180/50

HIC(d) = 601, HIC = 576, Delta T = 4.7 msec



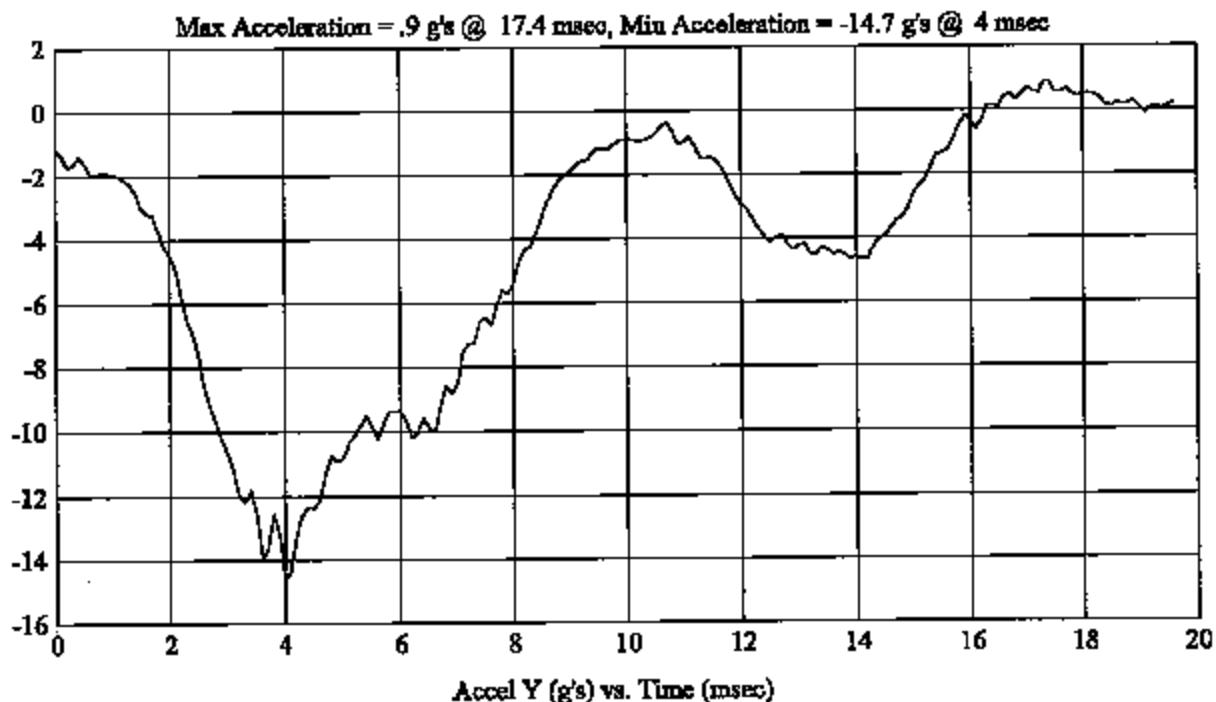
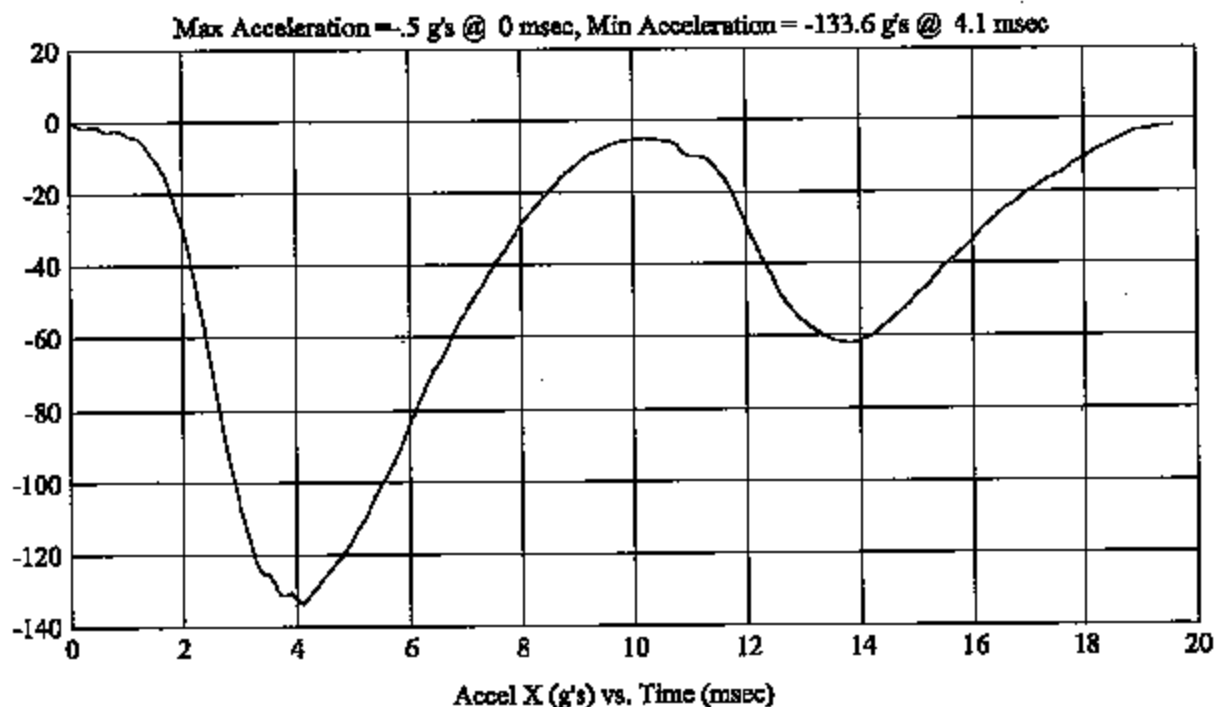
Customer: NHTSA
Test # 11
FM5181
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: FH1
Vehicle Side: Left
Horz/Vert Angle: 180/50

HIC(d) = 601, HIC = 576, Delta T = 4.7 msec



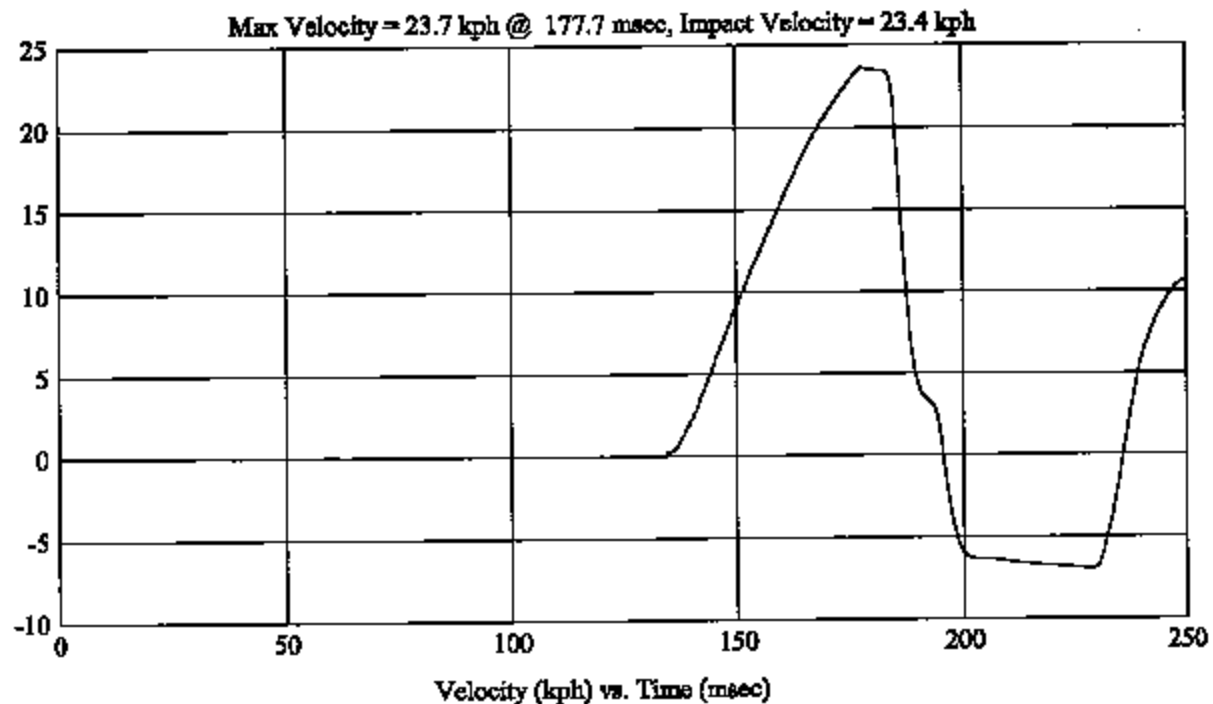
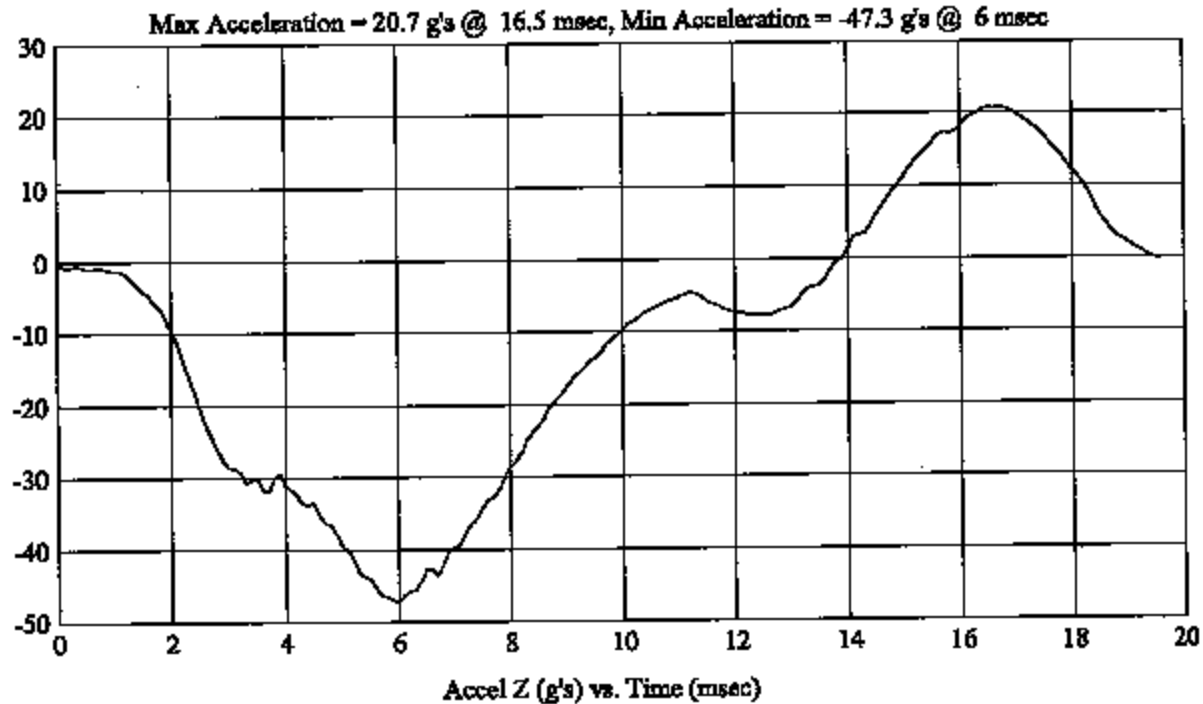
Customer: NHTSA
Test # 11
FM5181
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: FH1
Vehicle Side: Left
Horz/Vert Angle: 180/50

HIC(d) = 601, HIC = 576, Delta T = 4.7 msec



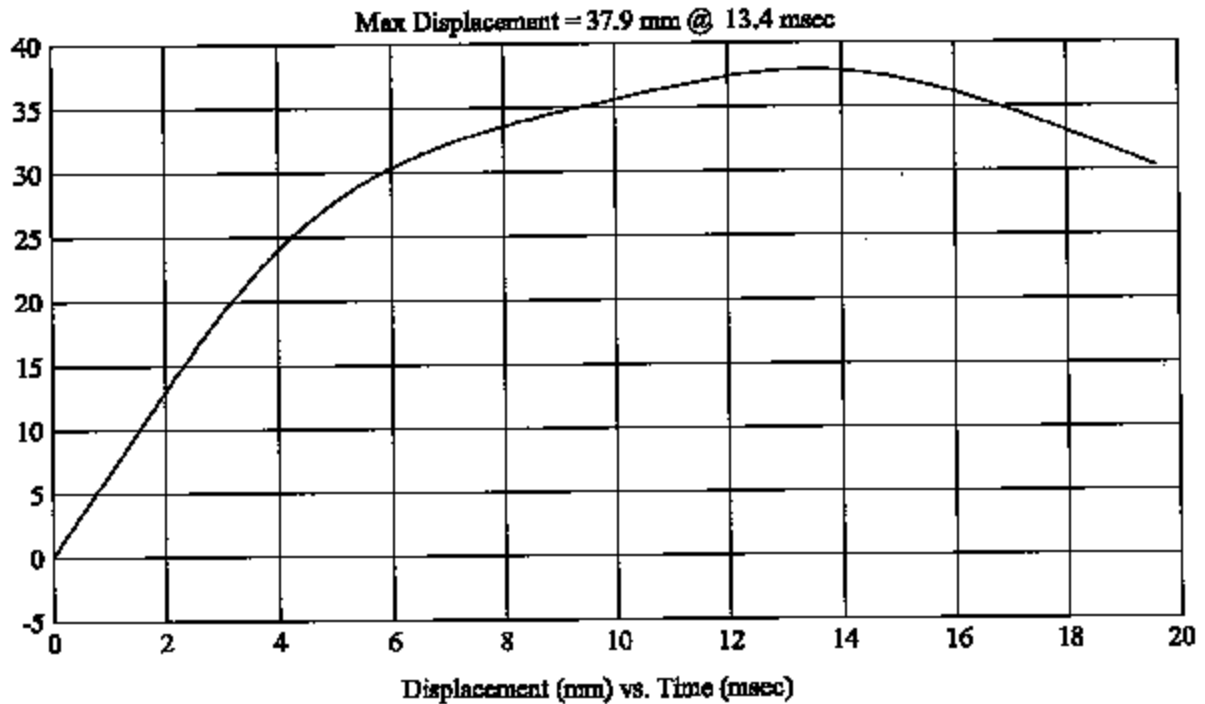
Customer: NHTSA
Test # 11
PM5181
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: FH1
Vehicle Side: Left
Horz/Vert Angle: 180/50

HIC(d) = 601, HIC = 576, Delta T = 4.7 msec



 mga

Impact Testing

4/27/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #8 C55202 LEFT SR2(A)

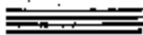
H/V IMPACT ANGLE= 270 / 27

FM5178

PRE-TEST

mga Impact Testing
4/27/05 G0517-001.5
2005 NHTSA NISSAN PATHFINDER
FMVSS 201U - UPPER INTERIOR
TEST #8 C55202 LEFT SR2(A)
HV IMPACT ANGLE= 270 / 27
FM5178 POST-TEST



 mga

Impact Testing

4/27/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER
FMVSS 201U - UPPER INTERIOR
TEST #8 C55202 LEFT SR2(A)
H/V IMPACT ANGLE= 270 / 27

FM5178 POST-TEST

MICHIGAN OPERATIONS
DATE: 2/8/01
SUPERCEDES: MGATP207210.2

DOC. NO.: MGATP207210.3
REVISION NO.: 2
PAGE 1 OF 1

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0517-001.5 VEHICLE YR/MAKE/MODEL: 2005/NHTSA/Nissan Pathfinder

GENERAL TEST PARAMETERS:

Test Number: #8

Target (Vehicle Side): SR2(a) Left

Temperature: 21C

MGA Test Reference No.: FM5178

Humidity: 38%

Approach Horizontal Angles: 270°

Time of Test: 1:45 PM

Approach Vertical Angles: 27°

FMH Serial No: 037

Additional Description:

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
444	368	12.2	23.5	32	7 R

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35800	-98.4	1.44	1.44
Y	6	J35841	92.6	1.54	1.54
Z	7	J35791	88.8	1.39	1.39

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

No visible damage.

Recorded By:  Approved By:  Date: 4/27/05

*Only necessary for NHTSA (Government) Compliance testing.

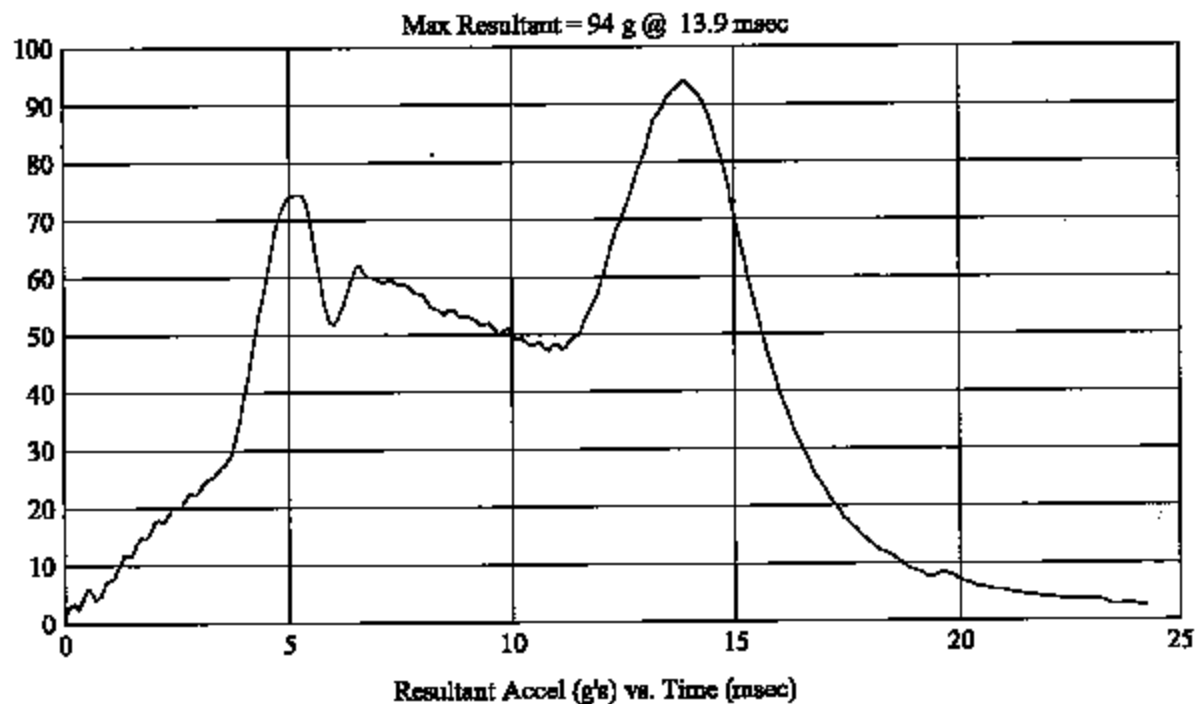
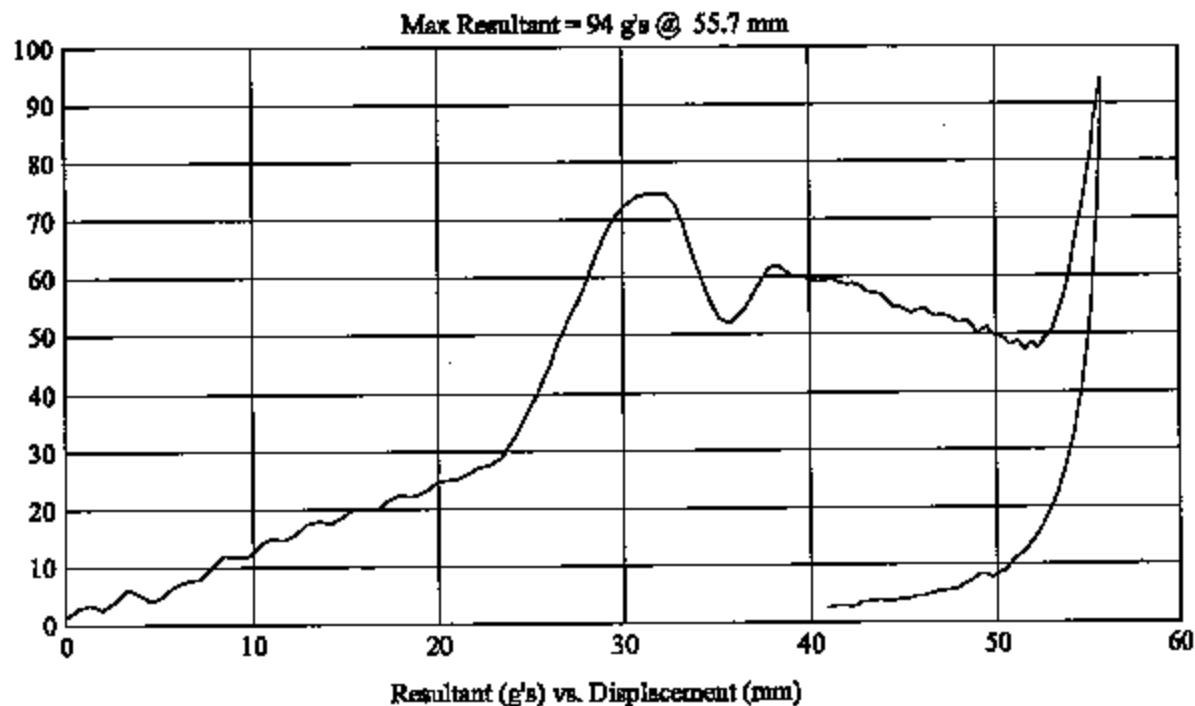
Customer: NHTSA
Test # 8
FM5178
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target SR2(a)
Vehicle Side: Left
Horz/Vert Angle: 270/27

HIC(d) = 444, HIC = 368, Delta T = 12.2 msec



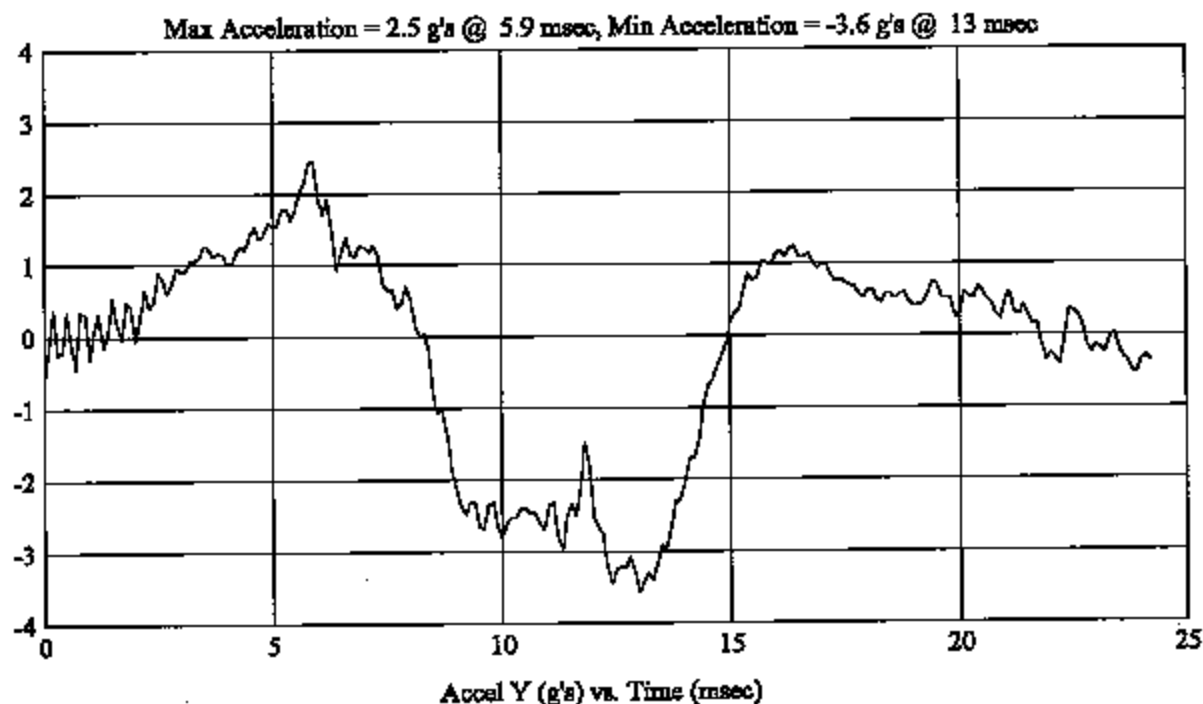
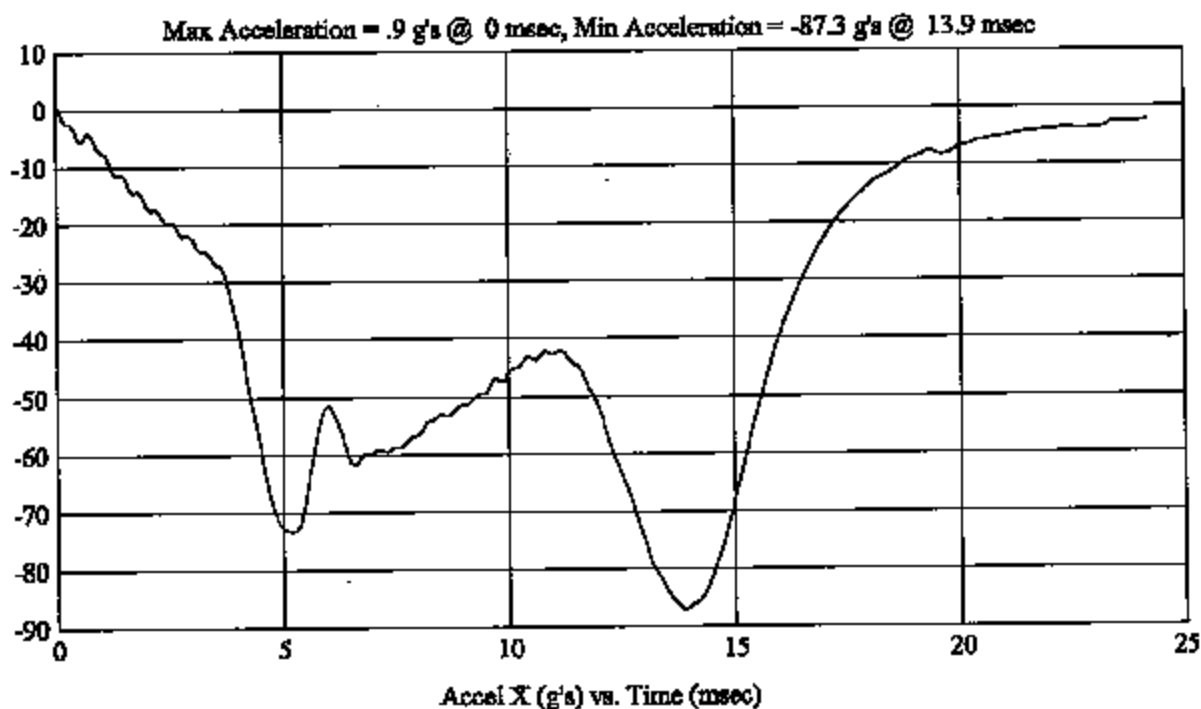
Customer: NHTSA
Test# 8
FM5178
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: SR2(a)
Vehicle Side: Left
Horz/Vert Angle: 270/27

HIC(Δ) = 444, HIC = 368, Delta T = 12.2 msec



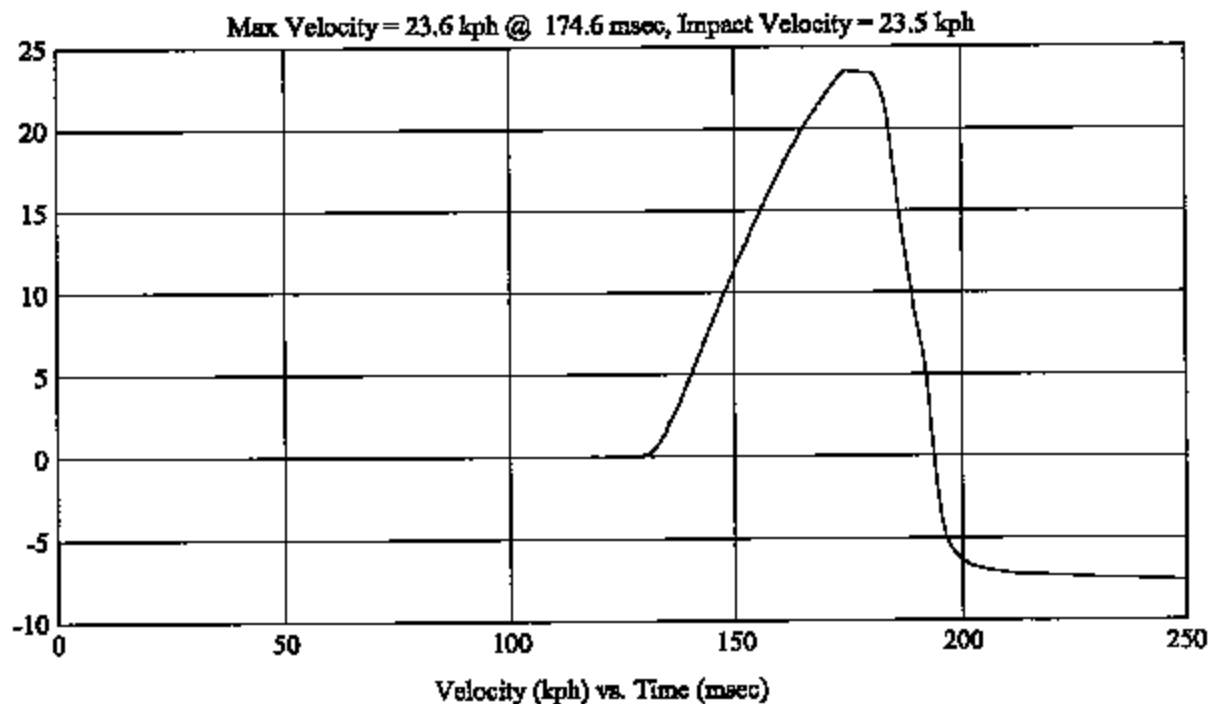
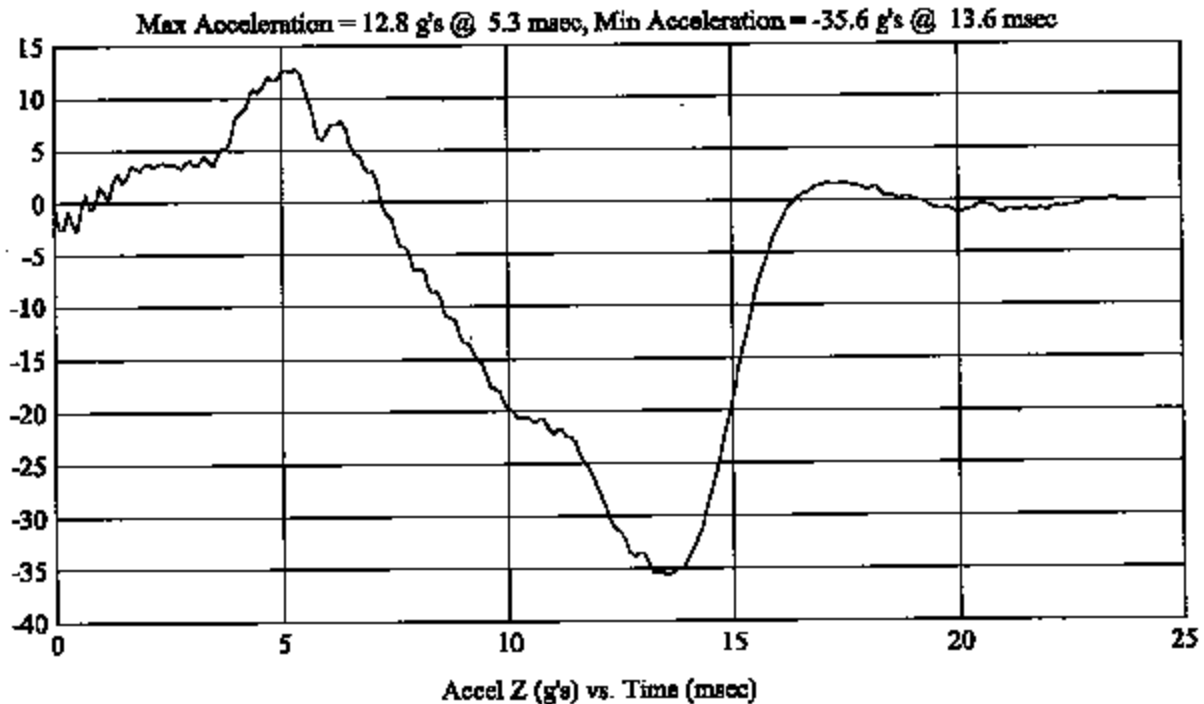
Customer: NETSA
Test # 8
FM5178
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: SR2(a)
Vehicle Side: Left
Horz/Vert Angle: 270/27

HIC(d) = 444, HIC = 368, Delta T = 12.2 msec



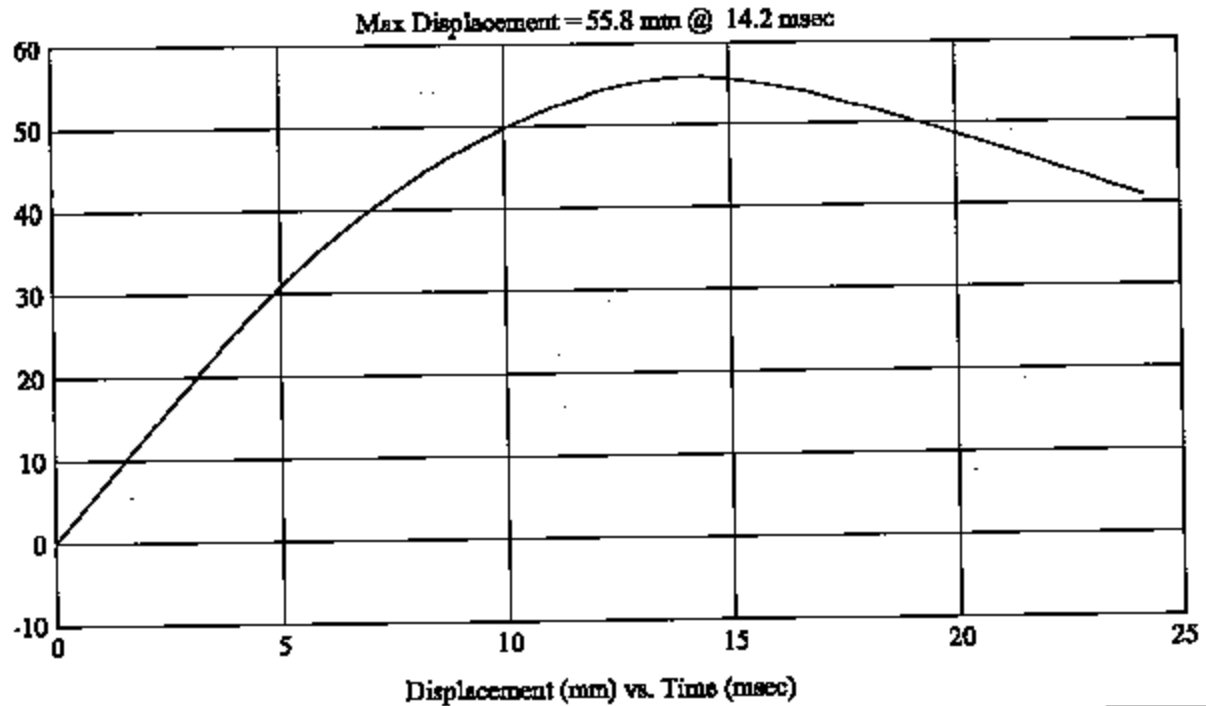
Customer: NHTSA
Test # 8
FM5178
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: SR2(a)
Vehicle Side: Left
Horz/Vert Angle: 270/27

HIC(d) = 444, HIC = 368, Delta T = 12.2 msec



 mga

Impact Testing

4/27/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #6 C55202 RIGHT SR3(3)

H/V IMPACT ANGLE= 90 / 50

FM5176

PRE-TEST

mga

Impact Testing

4/27/05

G0517-0015

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

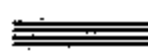
TEST #6 C55202 RIGHT SR3(3)

H/V IMPACT ANGLE= 90 / 50

FM5176

POST-TEST

C55202
FM5176
SR3-3 4 5
90/50

 mga

Impact Testing

4/27/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #6 C55202 RIGHT SR3(3)

H/V IMPACT ANGLE= 90 / 50

FM5176

POST-TEST

MICHIGAN OPERATIONS
DATE: 2/8/01
SUPERCEDES: MGATP207210.2

DOC. NO.: MGATP207210.3
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SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0517-001.5 VEHICLE YR/MAKE/MODEL:2005/NHTSA/Nissan Pathfinder

GENERAL TEST PARAMETERS:

Test Number:#6

Target (Vehicle Side): SR3(3) Right

Temperature:21C

MGA Test Reference No.:FM5176

Humidity:38%

Approach Horizontal Angles:80°

Time of Test:9:28 AM

Approach Vertical Angles:50°

FMH Serial No:098

Additional Description:

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above PL O	Left/Right Pl. O
850	906	6.9	23.6	23	8 R

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J36197	-110	1.44	1.44
Y	6	J36193	101.9	1.54	1.54
Z	7	J36353	96.7	1.39	1.39

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

No visible damage.

Recorded By:  Approved By*:  Date: 4/27/05

*Only necessary for NHTSA (Government) Compliance testing.

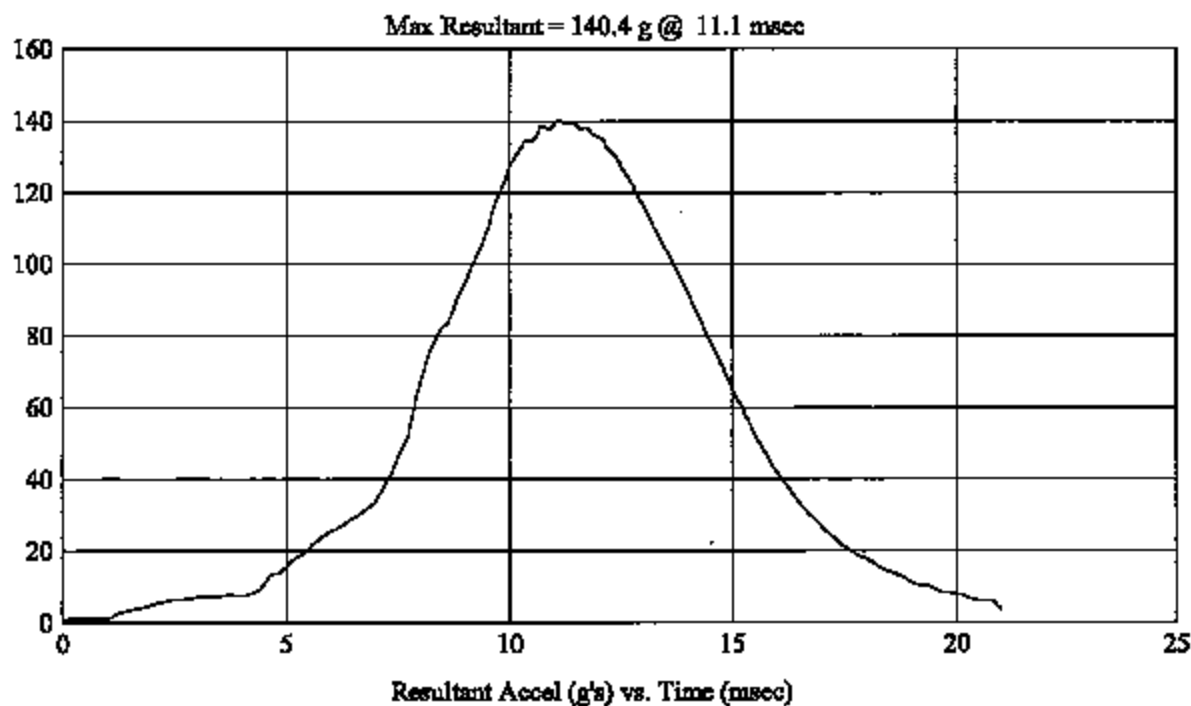
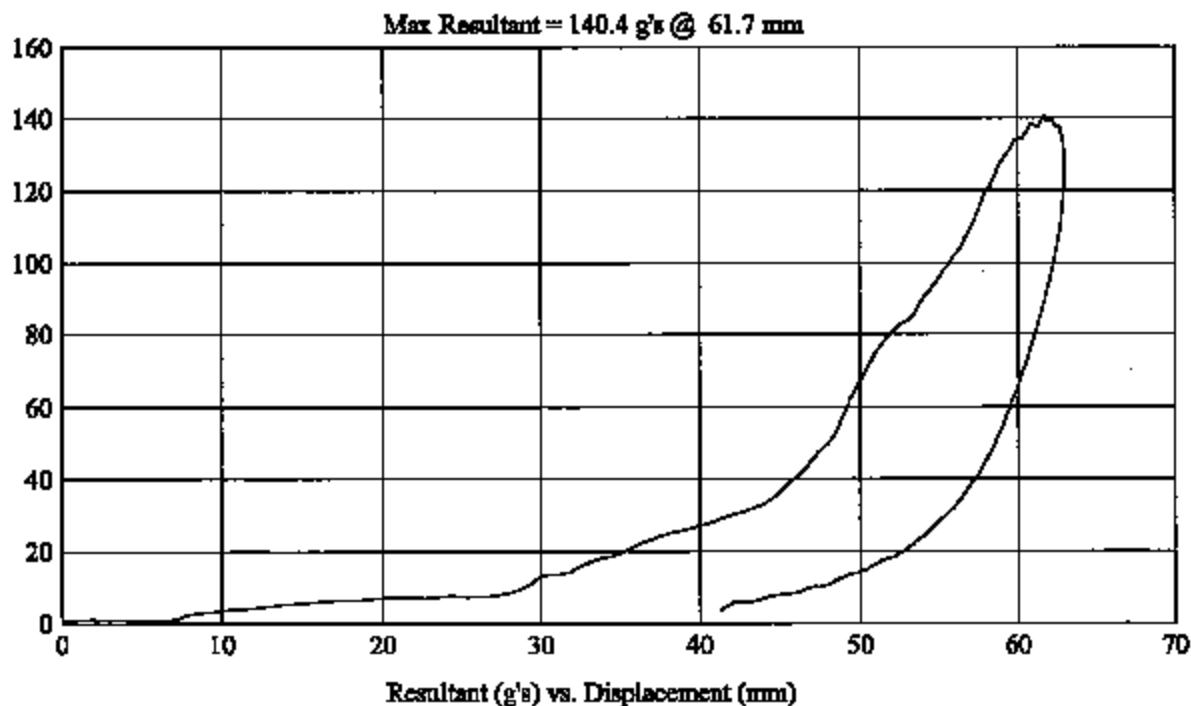
Customer: NHTSA
Test # 6
PM5176
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: SR3(3)
Vehicle Side: Right
Horz/Vert Angle: 90/50

HIC(d) = 850, HIC = 906, Delta T = 6.9 msec

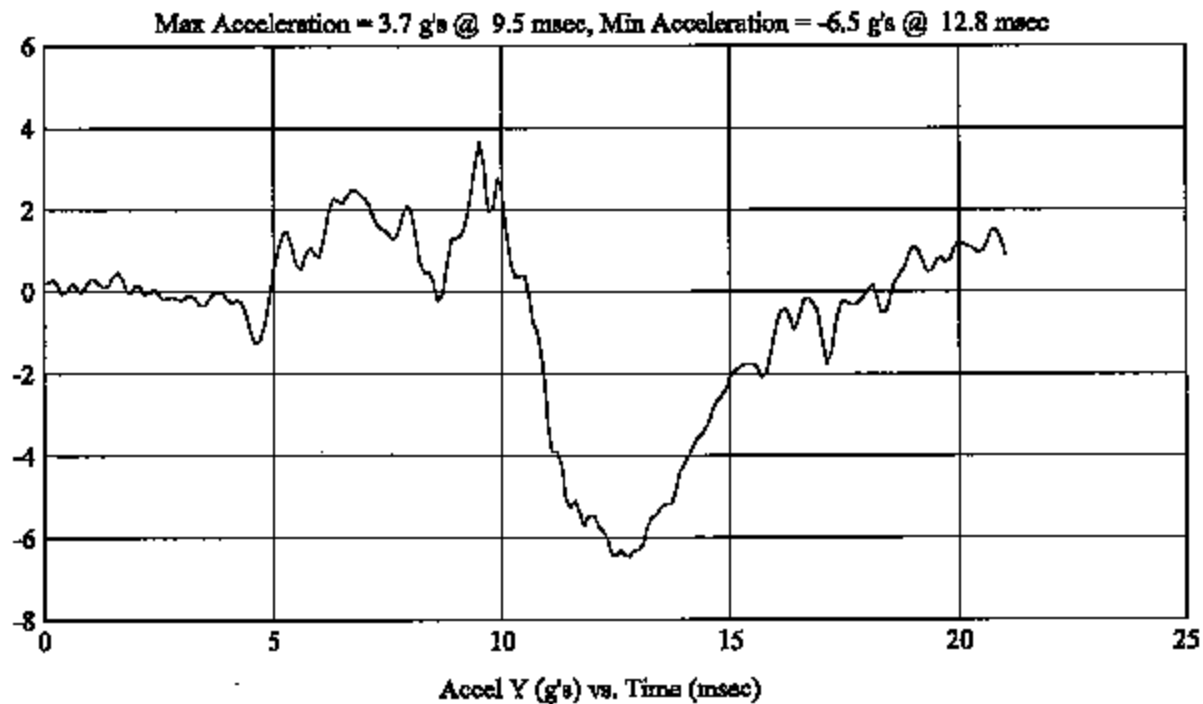
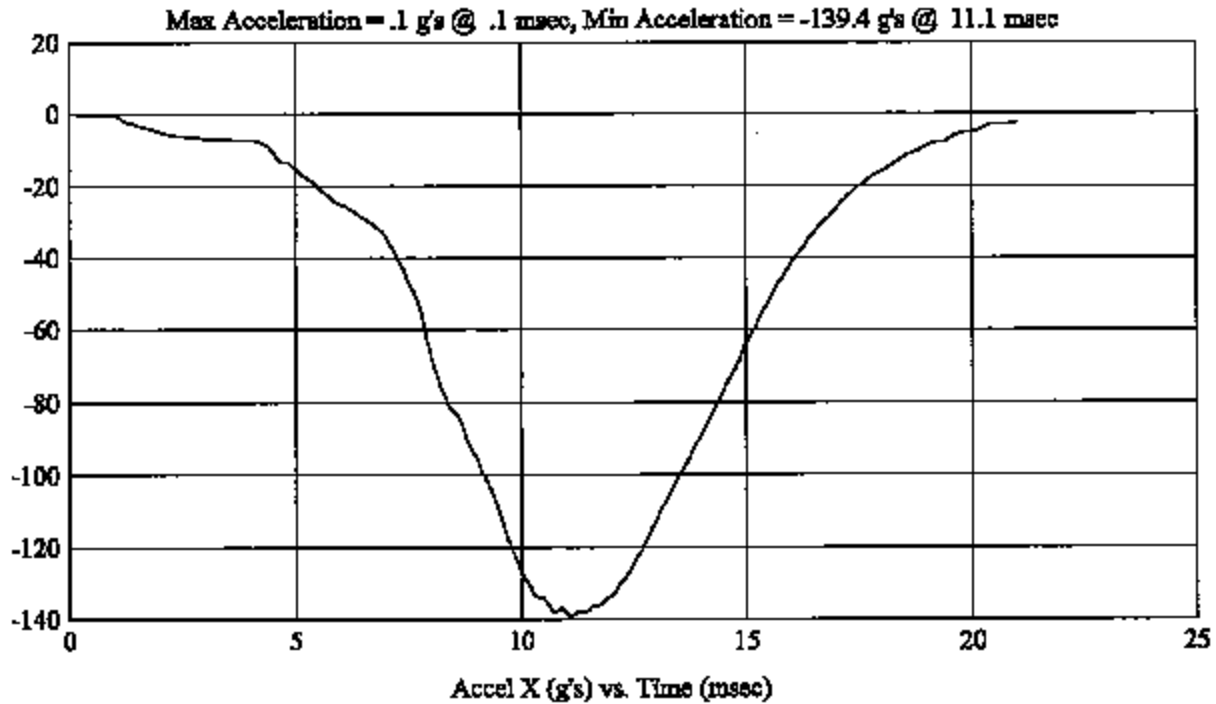


Customer: NHTSA
Test # 6
FM5176
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder
Test Date: 4/27/05

Model Year: 2005
Target: SR3(3)
Vehicle Side: Right
Horz/Vert Angle: 90/50

HIC(d) = 850, HIC = 906, Delta T = 6.9 msec



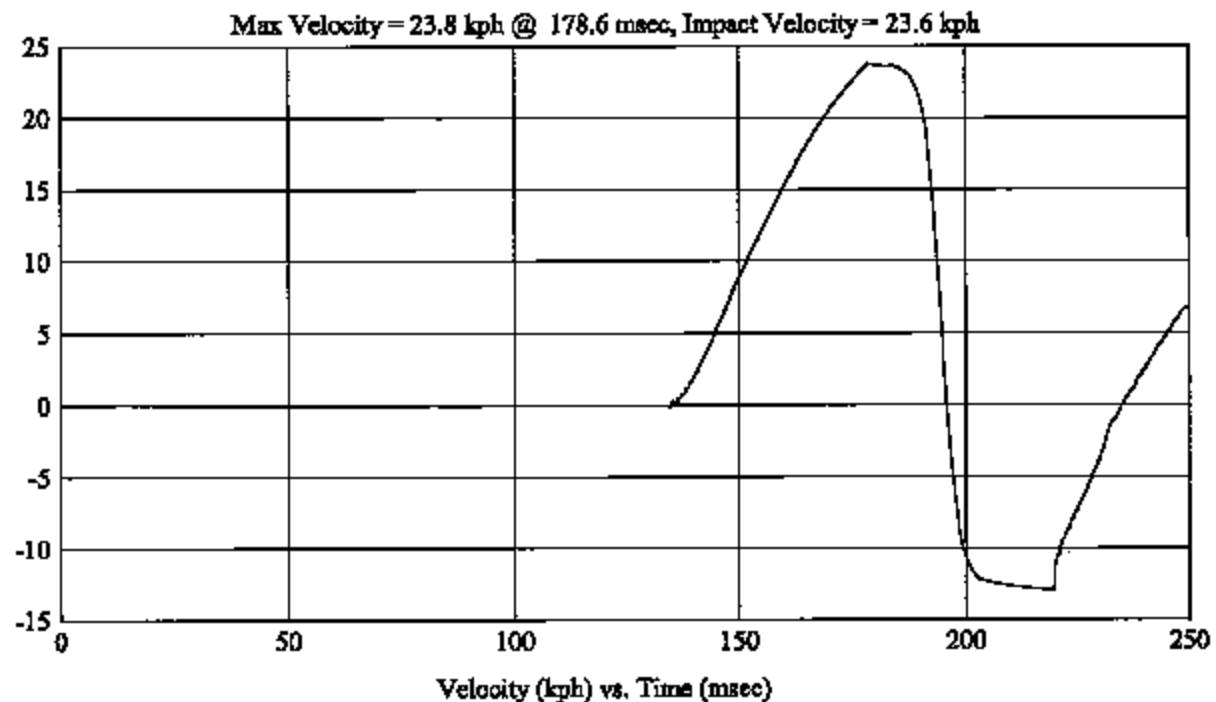
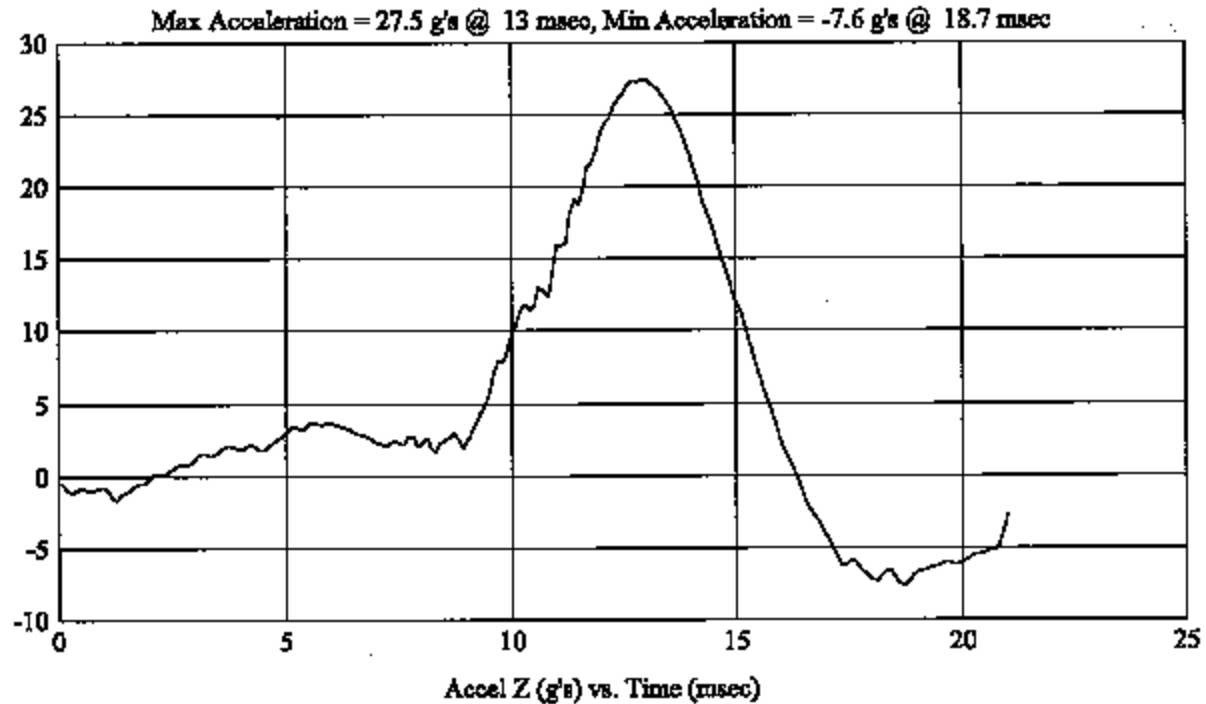
Customer: NHTSA
Test # 6
FM5176
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: SR3(3)
Vehicle Side: Right
Horz/Vert Angle: 90/50

HIC(d) = 850, HIC = 906, Delta T = 6.9 msec



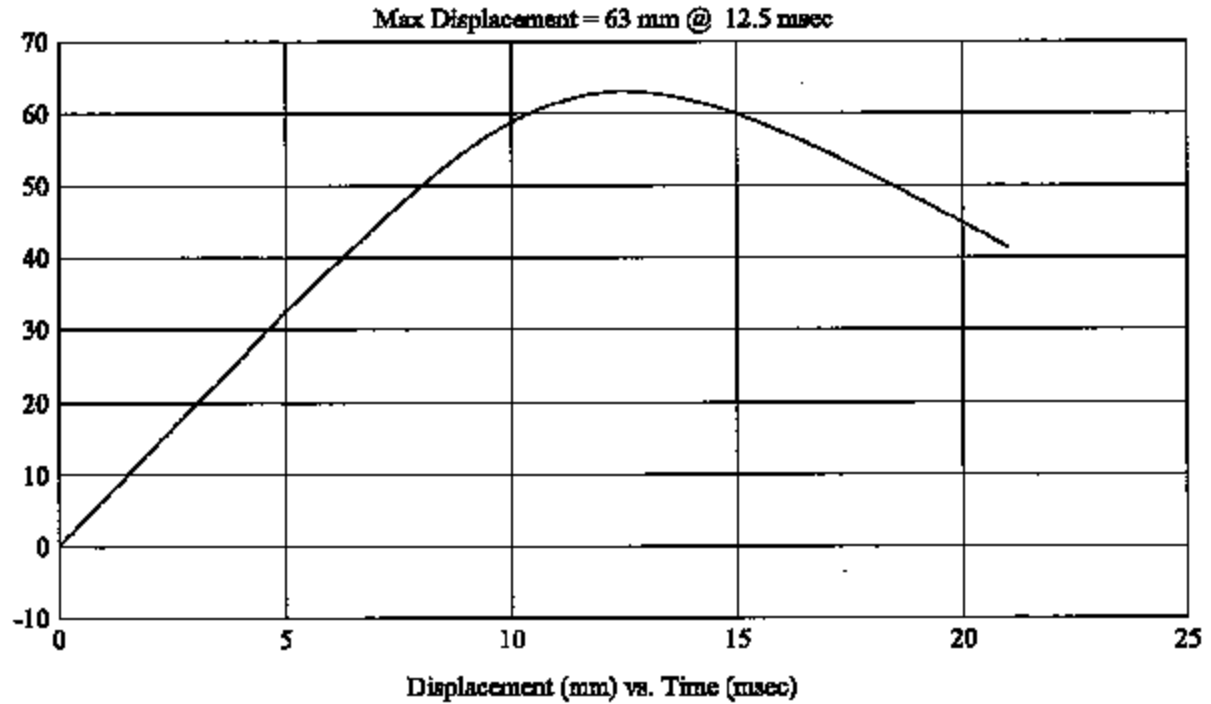
Customer: NHTSA
Test # 6
FM5176
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: SR3(3)
Vehicle Side: Right
Horz/Vert Angle: 90/50

HIC(d) = 850, HIC = 906, Delta T = 6.9 msec



 mga

Impact Testing

4/27/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

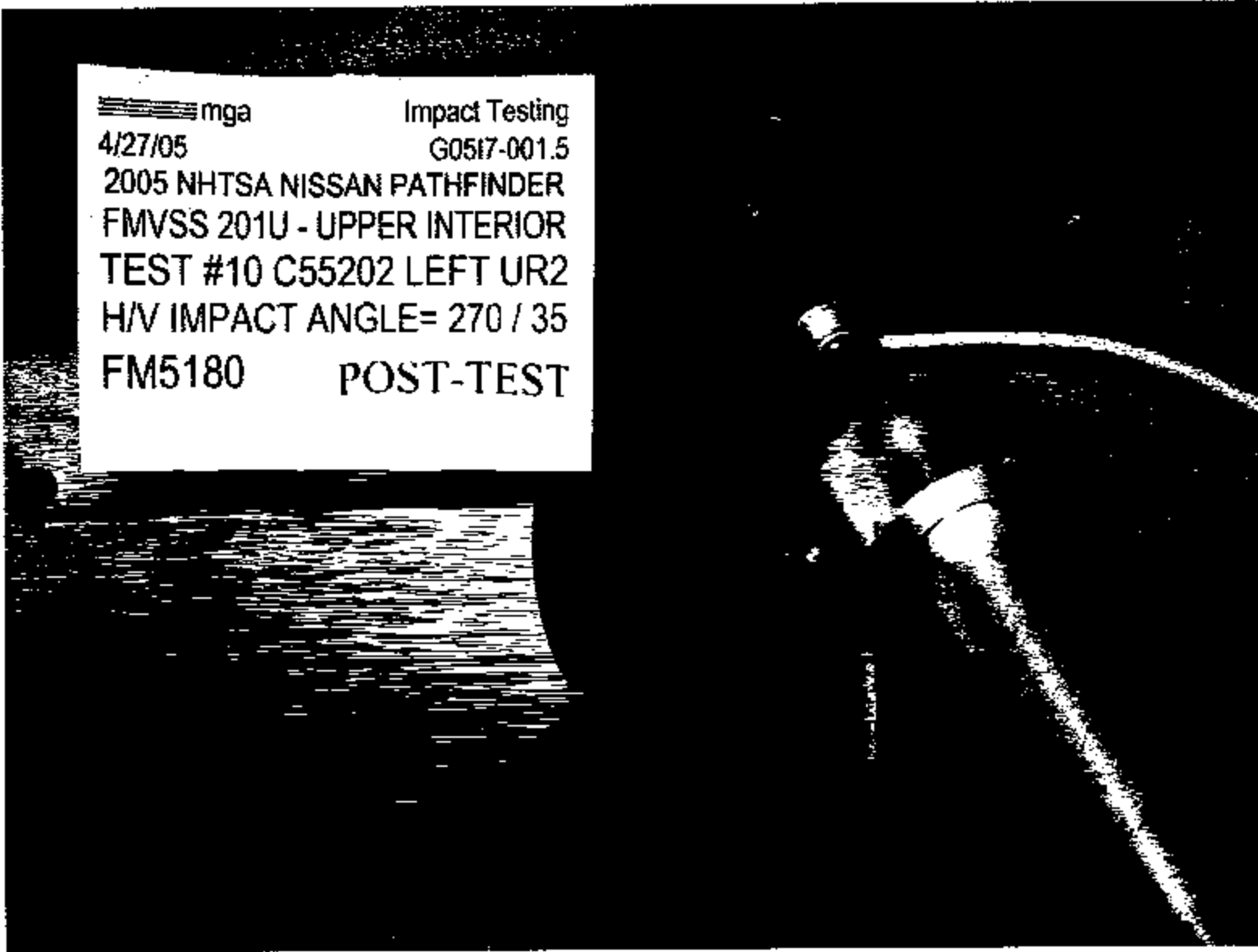
FMVSS 201U - UPPER INTERIOR

TEST #10 C55202 LEFT UR2

H/V IMPACT ANGLE= 270 / 35

FM5180

PRE-TEST



mga

4/27/05

Impact Testing

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

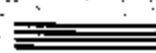
FMVSS 201U - UPPER INTERIOR

TEST #10 C55202 LEFT UR2

H/V IMPACT ANGLE= 270 / 35

FM5180

POST-TEST

 mga

Impact Testing

4/27/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #10 C55202 LEFT UR2

H/V IMPACT ANGLE= 270 / 35

FM5180

POST-TEST

MICHIGAN OPERATIONS
 DATE: 2/8/01
 SUPERCEDES: MGATP207210.2

DOC. NO.: MGATP207210.3
 REVISION NO.: 2
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SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0517-001.5 VEHICLE YR/MAKE/MODEL: 2005/NHTSA/Nissan Pathfinder

GENERAL TEST PARAMETERS:

Target (Vehicle Side): UR2 Left

MGA Test Reference No.: FM5180

Approach Horizontal Angles: 270°

Approach Vertical Angles: 35°

Additional Description:

Test Number: #10

Temperature: 21F

Humidity: 39%

Time of Test: 3:26 PM

FMH Serial No: 035

TEST RESULTS:

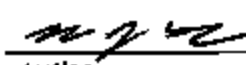
HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
581	549	5.2	24.0	42	6 L

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	6	J35924	-94.1	1.44	1.42
Y	6	J35919	94.3	1.54	1.54
Z	7	J22664	92.7	1.39	1.39

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

No visible damage.

Recorded By:  Approved By*:  Date: 4/27/05

*Only necessary for NHTSA (Government) Compliance testing.

Customer: NHTSA
Test # 10
FM5180
Additional Desc: N/A

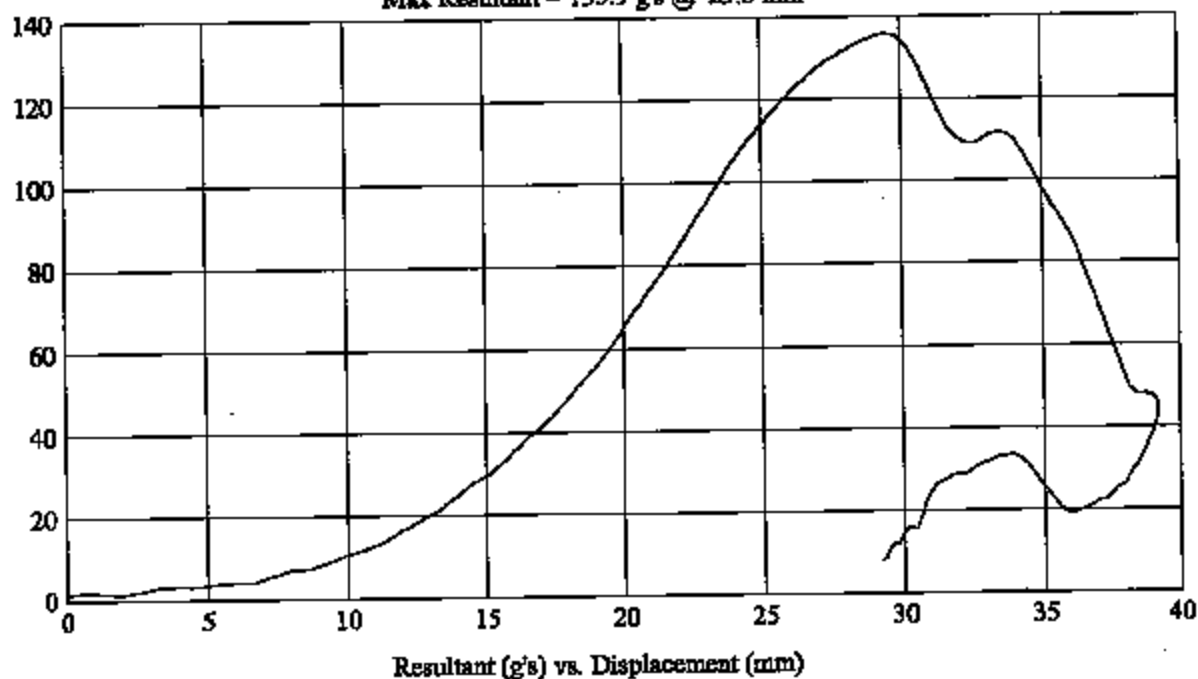
Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

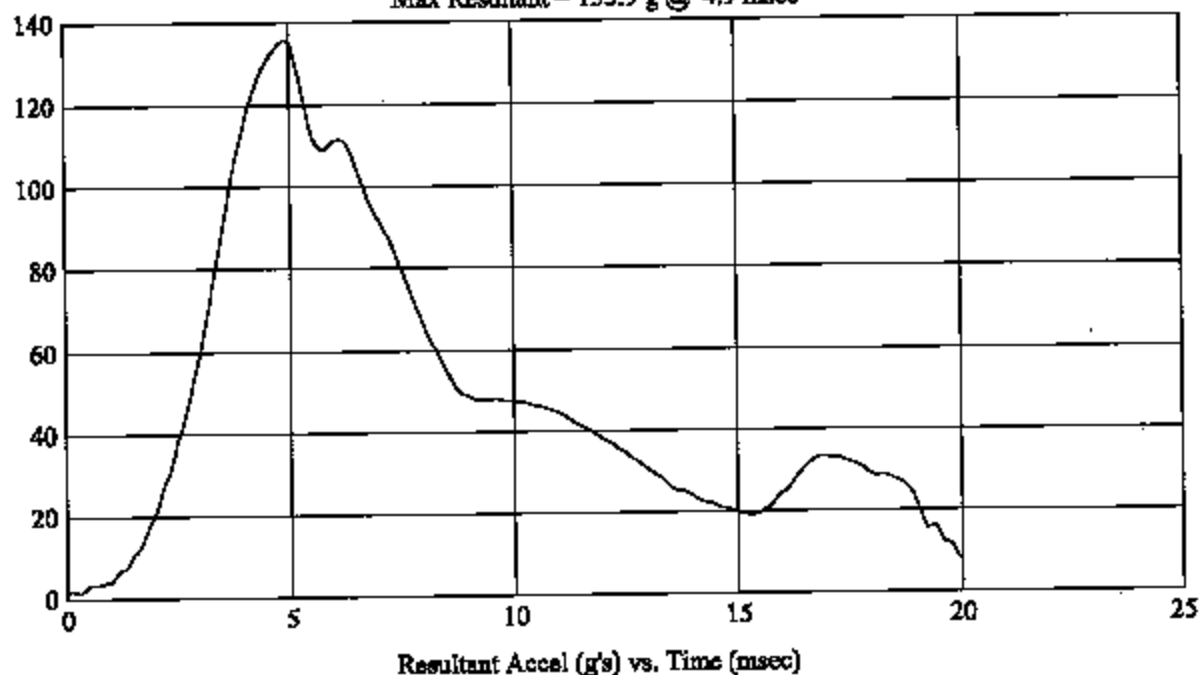
Model Year: 2005
Target: UR2
Vehicle Side: Left
Horz/Vert Angle: 270/35

HIC(d) = 581, HIC = 549, Delta T = 5.2 msec

Max Resultant = 135.9 g's @ 29.5 mm



Max Resultant = 135.9 g @ 4.9 msec



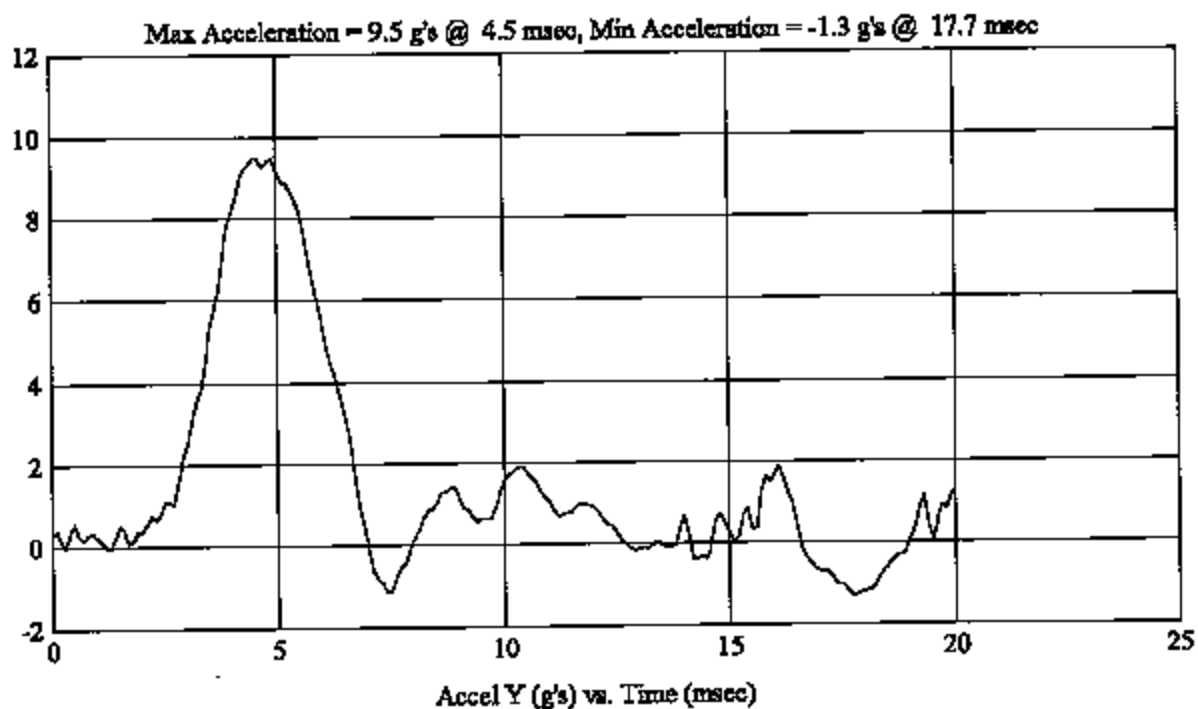
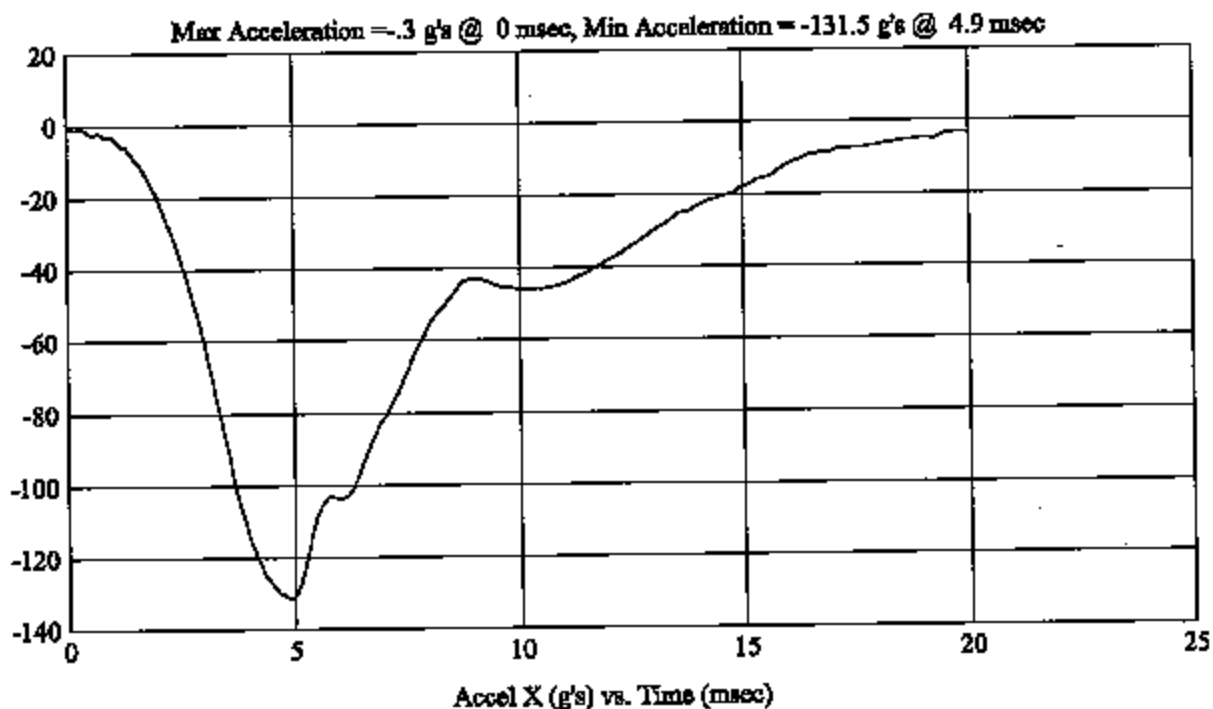
Customer: NHTSA
Test # 10
FM5180
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: UR2
Vehicle Side: Left
Horz/Vert Angle: 270/35

HIC(d) = 581, HIC = 549, Delta T = 5.2 msec



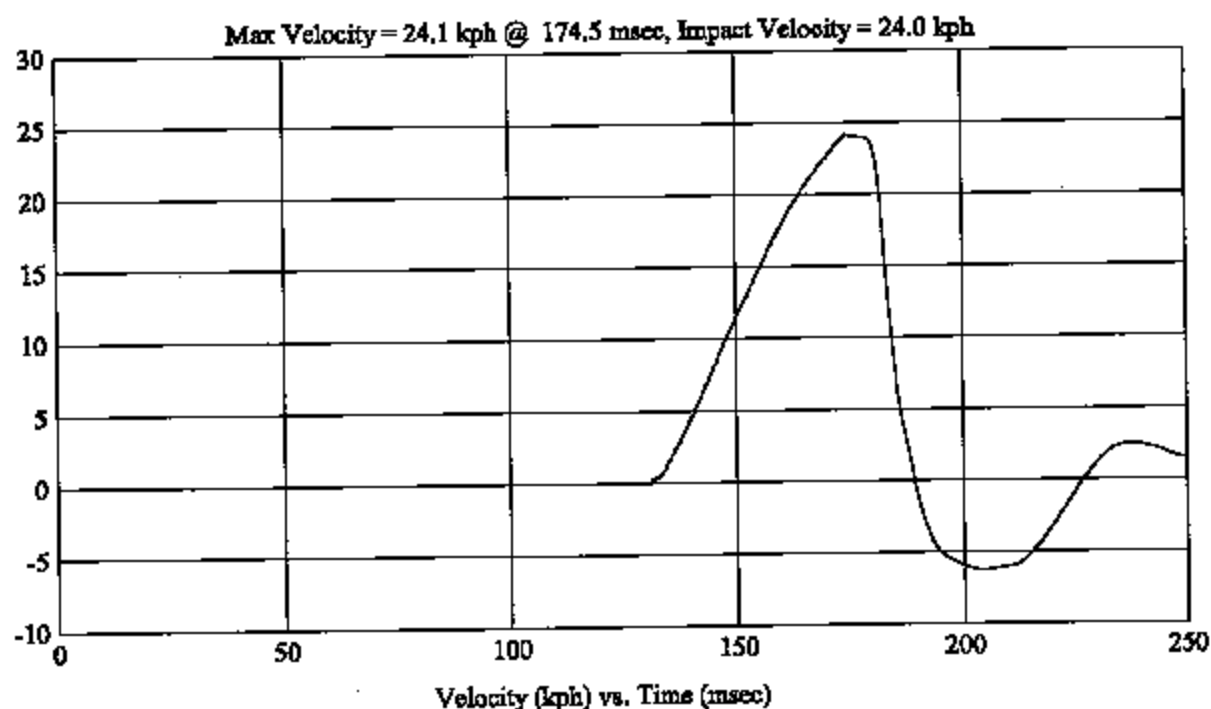
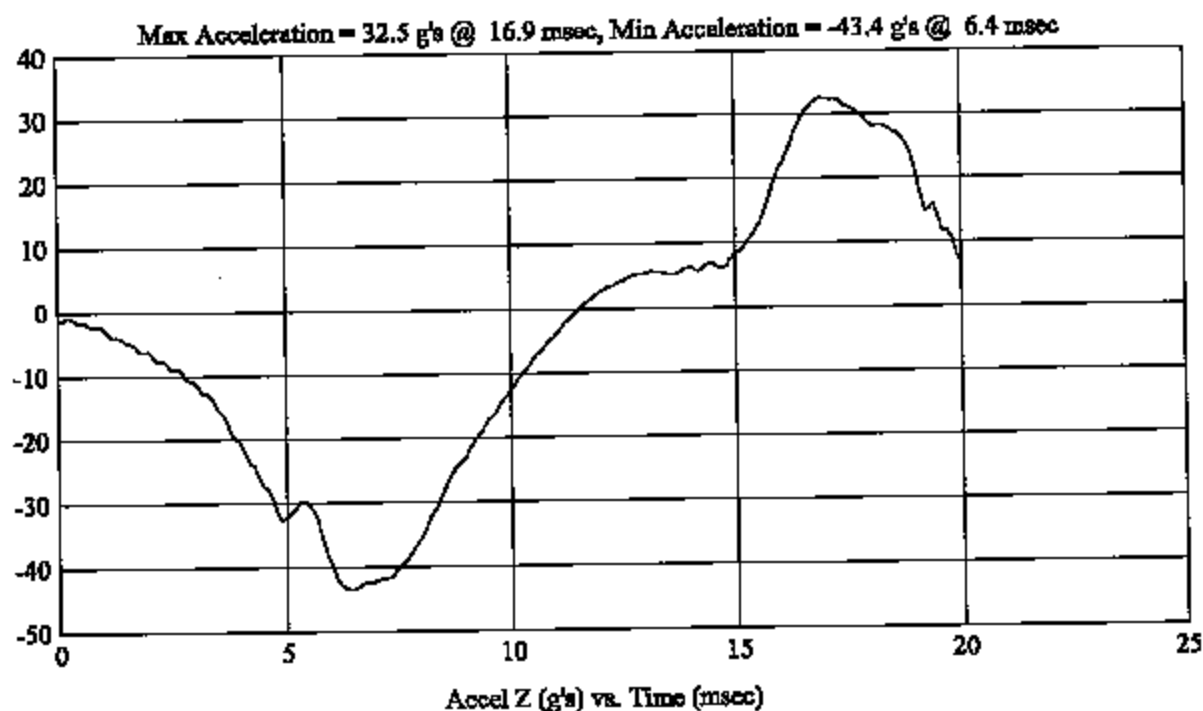
Customer: NHTSA
Test # 10
FM5180
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: UR2
Vehicle Side: Left
Horz/Vert Angle: 270/35

HIC(d) = 581, HIC = 549, Delta T = 5.2 msec



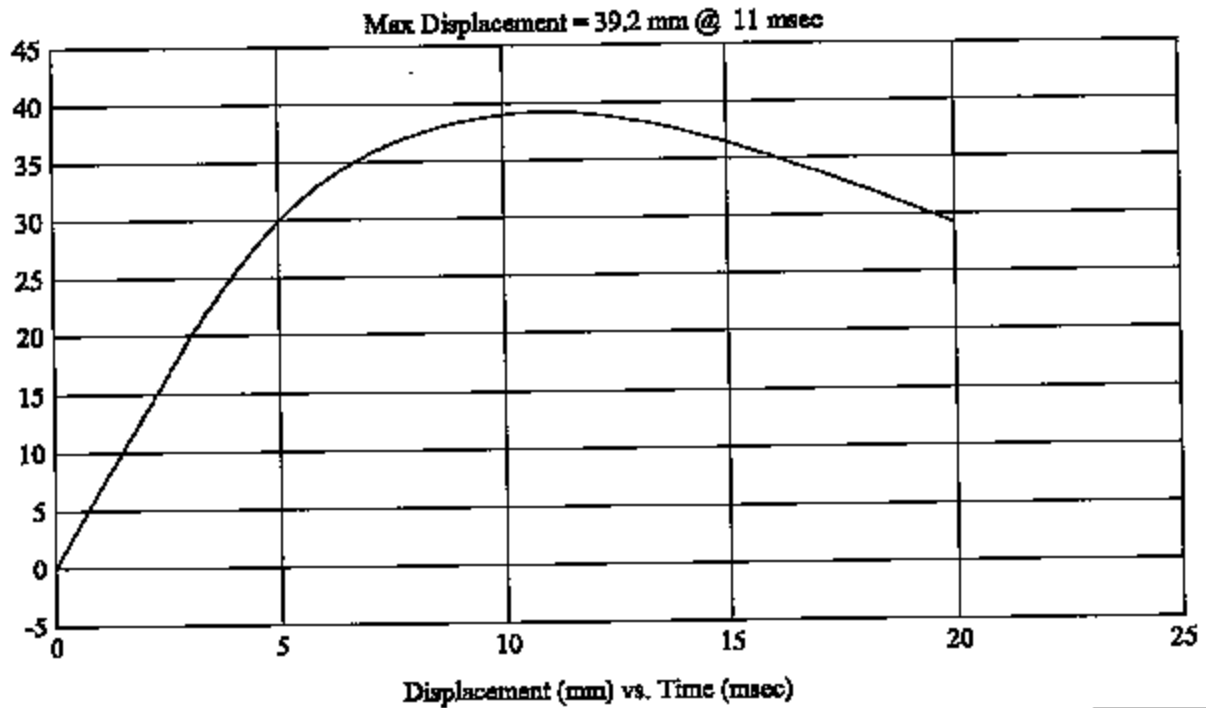
Customer: NHTSA
Test # 10
FM5180
Additional Desc: N/A

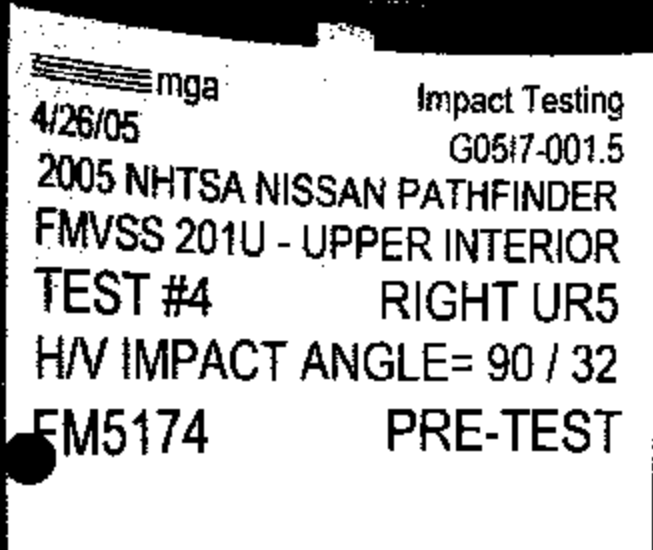
Vehicle Program : Nissan Pathfinder

Test Date: 4/27/05

Model Year: 2005
Target: UR2
Vehicle Side: Left
Horz/Vert Angle: 270/35

HIC(d) = 581, HIC = 549, Delta T = 5.2 msec





mga

4/26/05

Impact Testing

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #4 RIGHT UR5

H/V IMPACT ANGLE= 90 / 32

FM5174

PRE-TEST

 mgm

Impact Testing

4/26/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #4 RIGHT UR5

H/V IMPACT ANGLE= 90 / 32

FM5174 POST-TEST



mga

Impact Testing

4/26/05

G0517-001.5

2005 NHTSA NISSAN PATHFINDER

FMVSS 201U - UPPER INTERIOR

TEST #4 RIGHT UR5

H/V IMPACT ANGLE= 90 / 32

FM5174 PO - TEST



MICHIGAN OPERATIONS
DATE: 2/8/01
SUPERCEDES: MGAIP207210.2

DOC. NO.: MGAIP207210.3
REVISION NO.: 2
PAGE 1 OF 1

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0517-001.5 VEHICLE YR/MAKE/MODEL:2005/NHTSA/Nissan Pathfinder

GENERAL TEST PARAMETERS:

Test Number:#4

Target (Vehicle Side): UR5 Right

Temperature:22C

MGA Test Reference No.:FM5174

Humidity:40%

Approach Horizontal Angles:90°

Time of Test:3:15 PM

Approach Vertical Angles:32°

FMH Serial No:036

Additional Description:

TEST RESULTS:

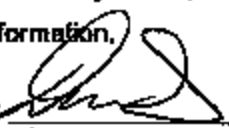
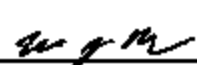
HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
782	816	6.4	23.5	50	10 L

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35824	-94.1	1.44	1.44
Y	6	J35819	94.3	1.54	1.54
Z	7	J22664	92.7	1.39	1.39

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

Headliner Deformation.

Recorded By:  Approved By:  Date: 4/26/05

*Only necessary for NHTSA (Government) Compliance testing.

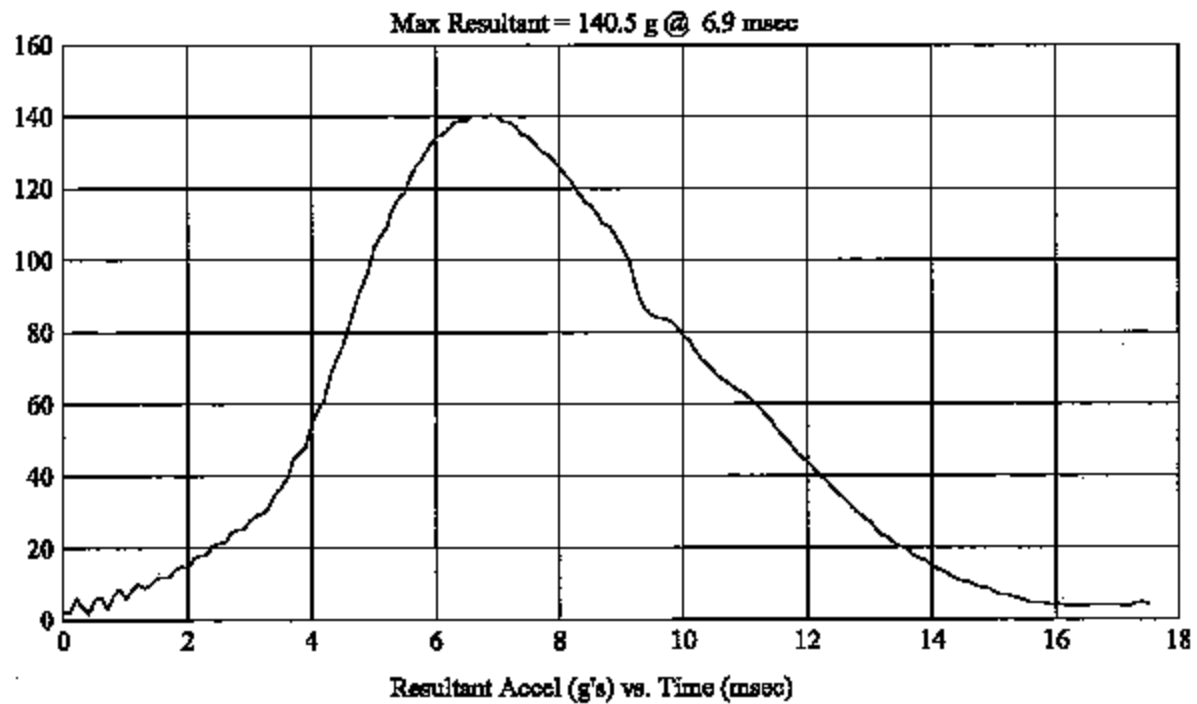
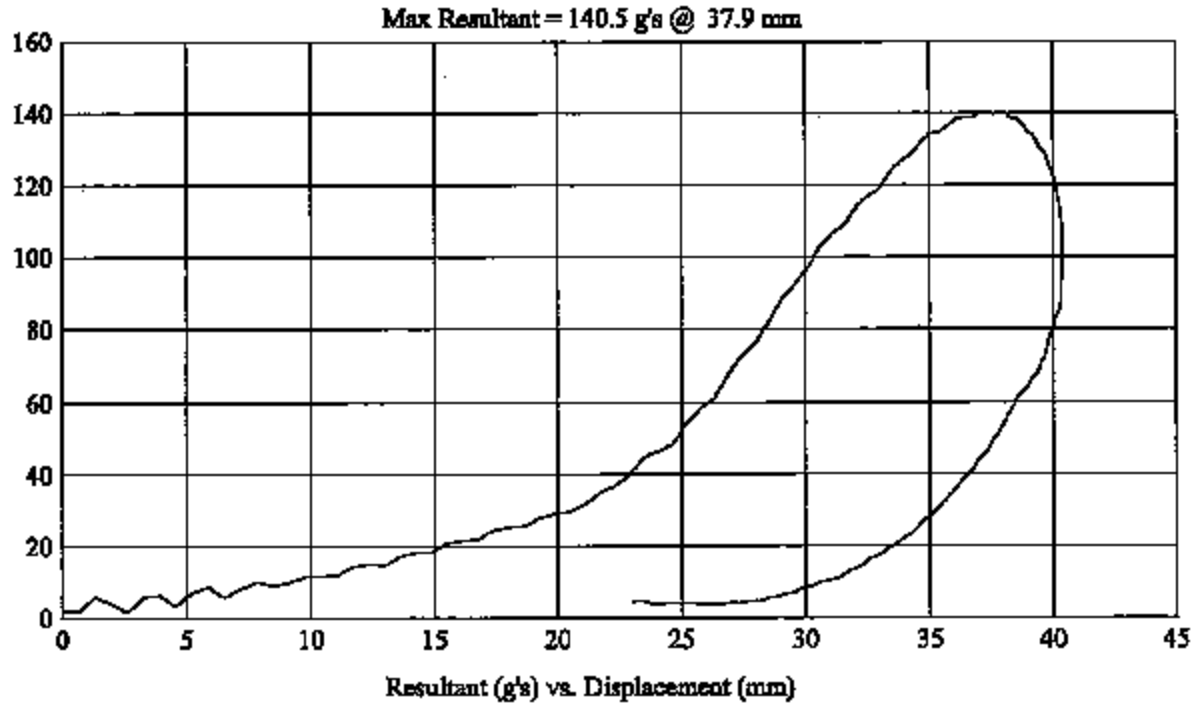
Customer: NHTSA
Test # 4
FM5174
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/26/05

Model Year: 2005
Target: UR5
Vehicle Side: Right
Horz/Vert Angle: 90/32

HIC(d) = 782, HIC = 816, Delta T = 6.4 msec

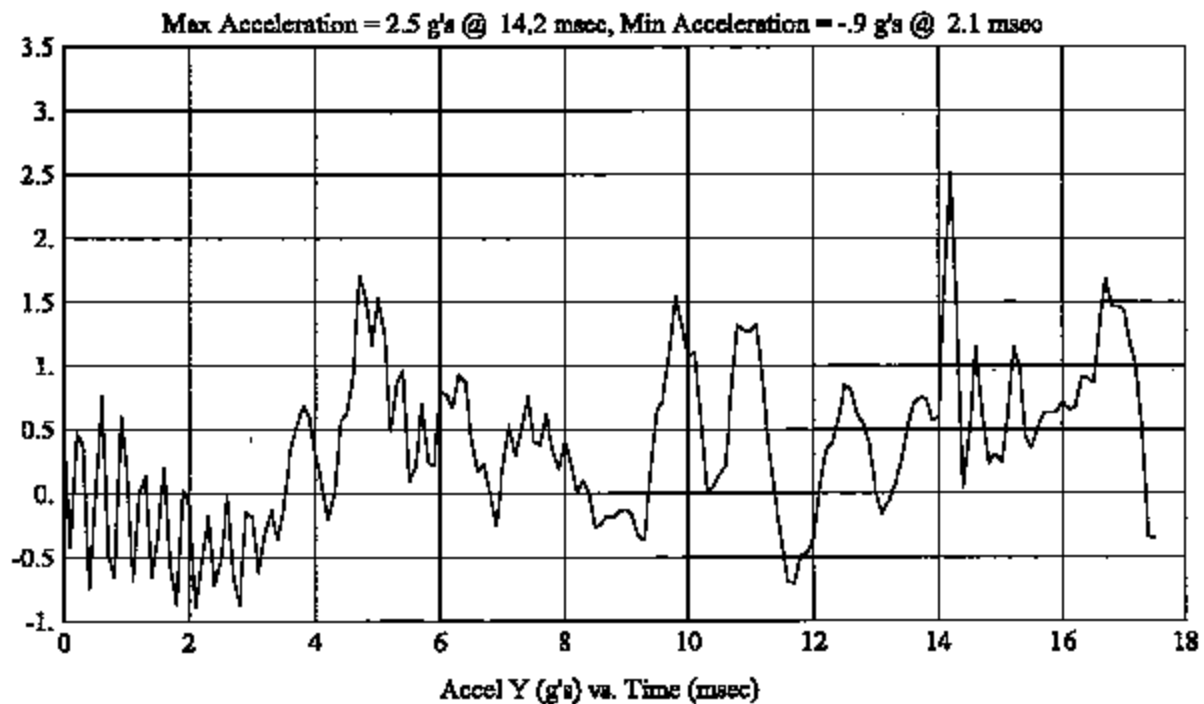
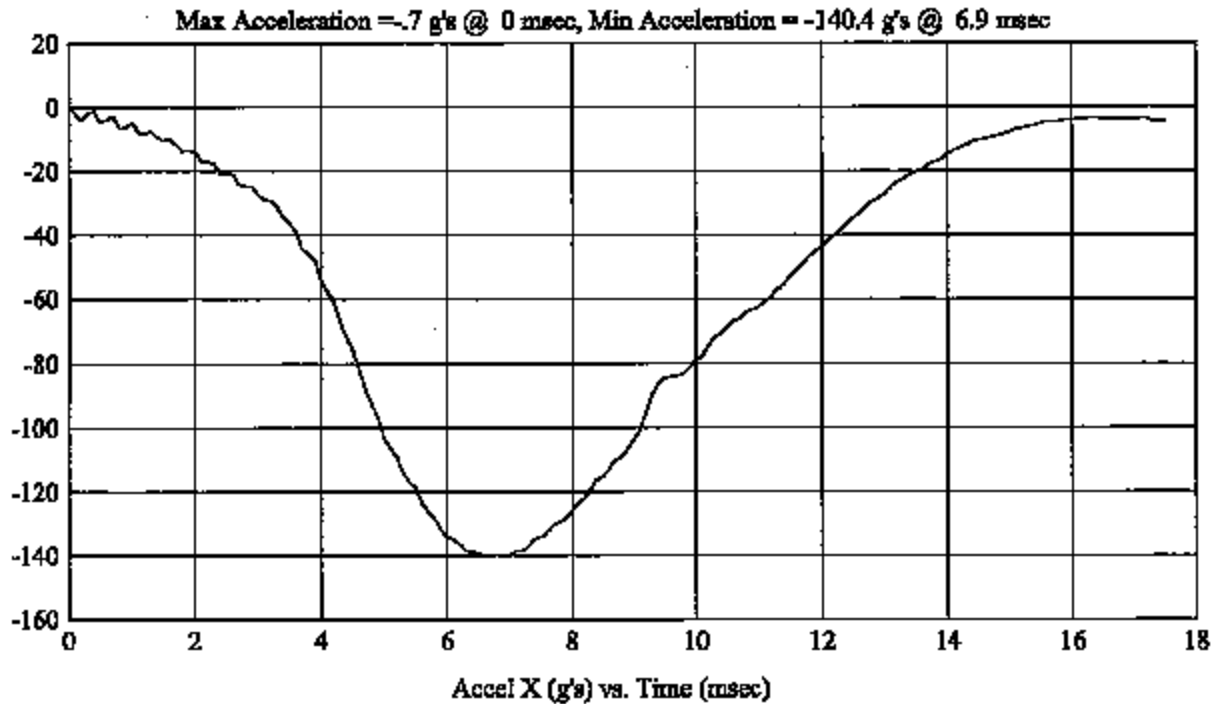


Customer: NHTSA
Test # 4
FM5174
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder
Test Date: 4/26/05

Model Year: 2005
Target: UR5
Vehicle Side: Right
Horz/Vert Angle: 90/32

HIC(d) = 782, HIC = 816, Delta T = 6.4 msec

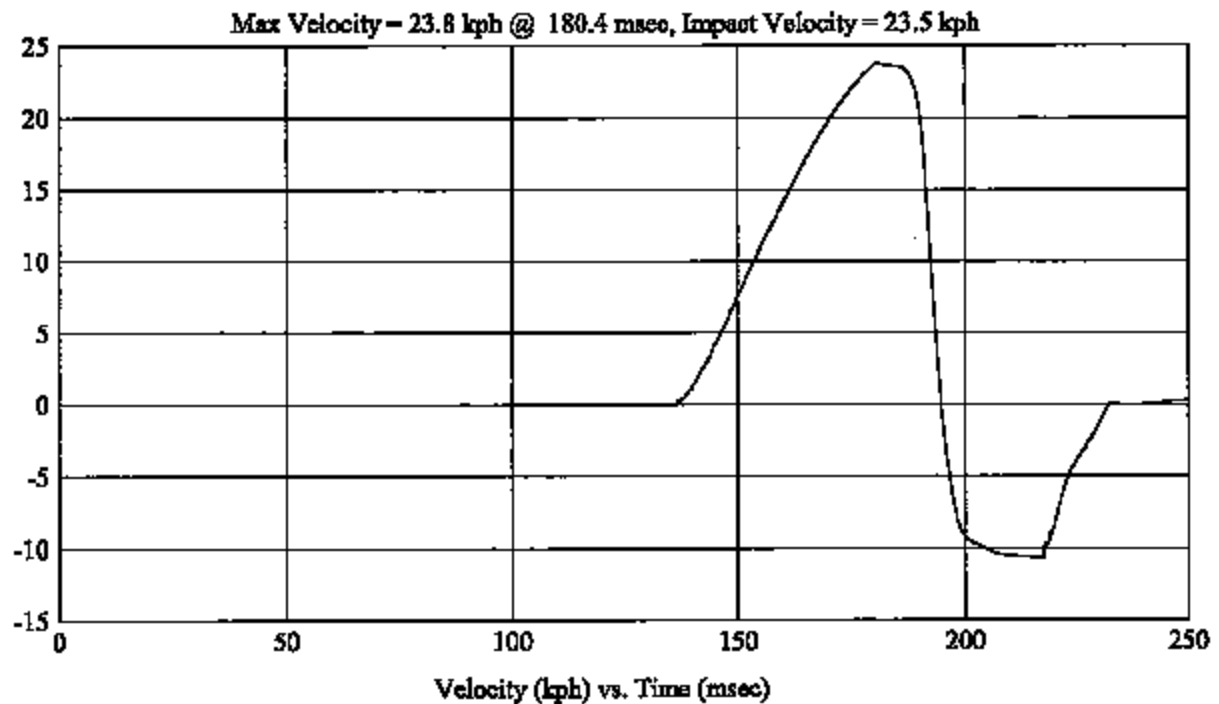
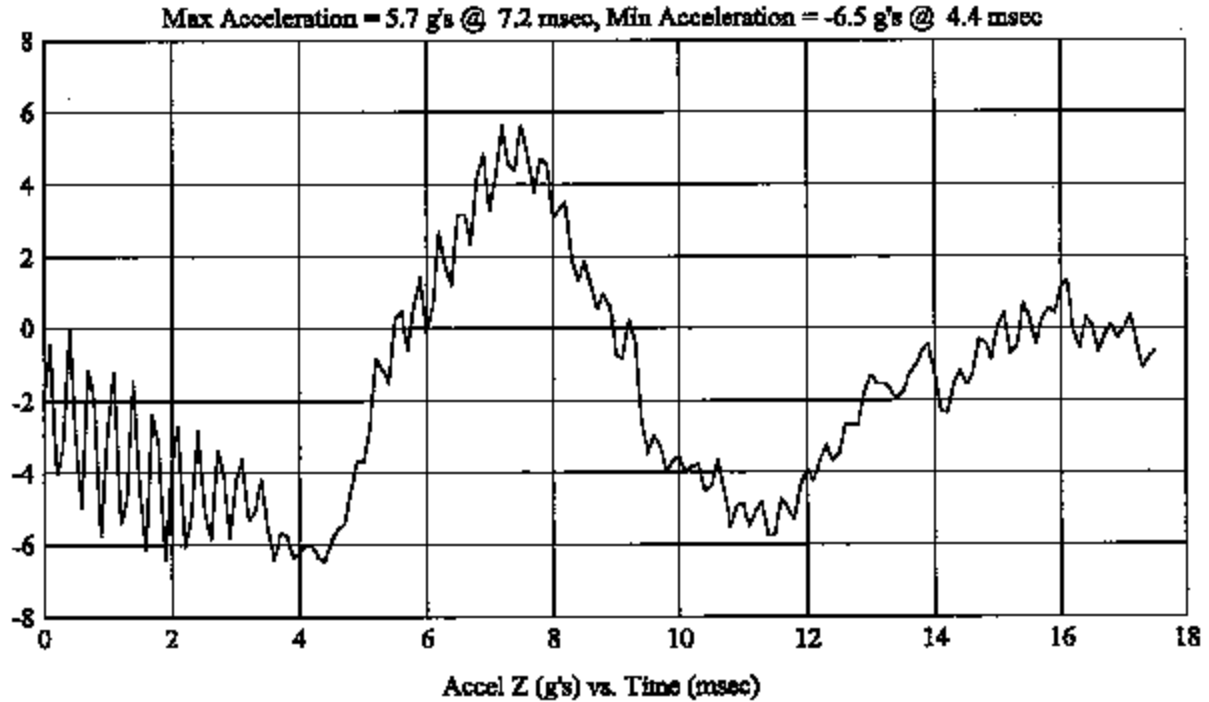


Customer: NHTSA
Test # 4
FM5174
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder
Test Date: 4/26/05

Model Year: 2005
Target: UR5
Vehicle Side: Right
Horz/Vert Angle: 90/32

HIC(d) = 782, HIC = 816, Delta T = 6.4 msec



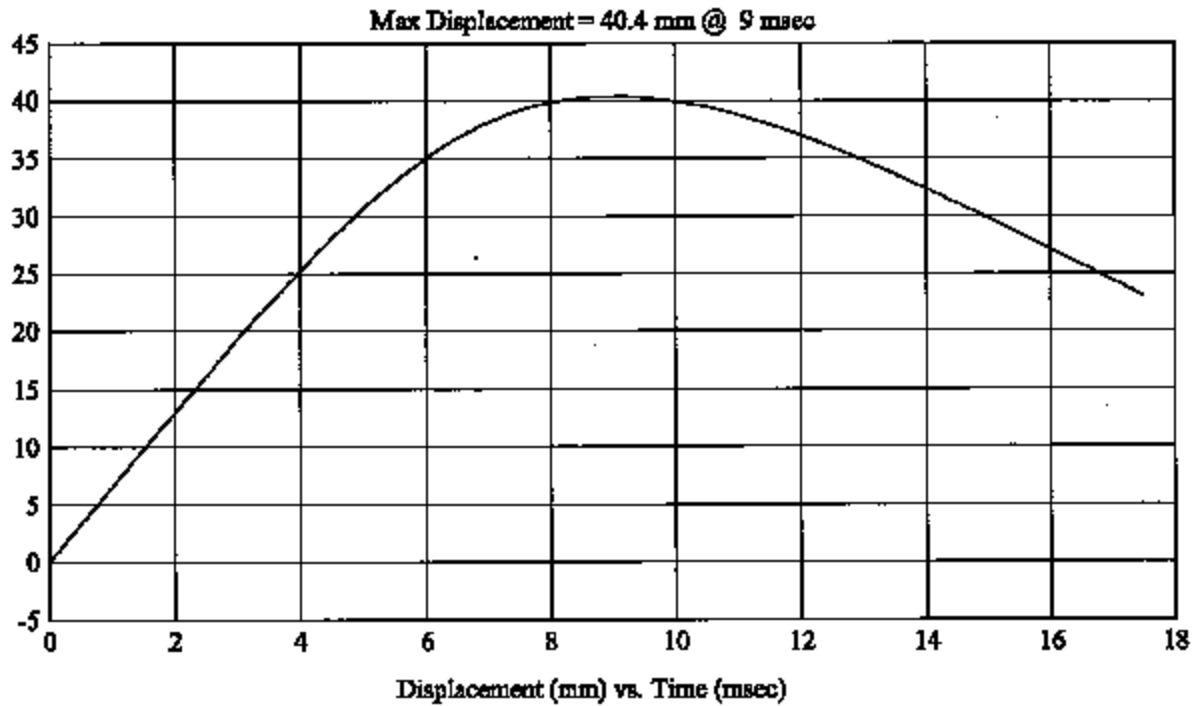
Customer: NHTSA
Test # 4
FM5174
Additional Desc: N/A

Vehicle Program : Nissan Pathfinder

Test Date: 4/26/05

Model Year: 2005
Target: URS
Vehicle Side: Right
Horz/Vert Angle: 90/32

HIC(d) = 782, HIC = 816, Delta T = 6.4 msec



4.0 TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

The following section lists the test equipment for the compliance test series. Items marked with an asterisk are calibrated by an external lab. An additional summary table is given for the pre and post-test calibration data for the Free Motion Headforms. The temperature trace to confirm testing was conducted between 66°F and 78°F (19°C - 26°C) is included in Appendix A. Calibration certificates can be found in Appendix B.

TABLE 4-1 LIST OF ITEMS USED

ITEM	MANUFACTURER NAME	MODEL #	FUNCTION OF ITEM	ACCURACY	CAL INTERNAL
Head Drop Tower (includes test frame and DAS)	MGA Research Corp.	MGA-100-DC	FMH Calibration	N/A	N/A
Accelerometers	Endevco	7264-2000	Acceleration Data	±0.5%	6 months
*Digital Inclinometer	Mitutoyo	PRO 360	Set Angle of FMH/Targeting	0.1°	Annual
FMVSS 201U Test Frame (Includes the propulsion control system, actuator, test frame, and DAS)	MGA Research Corp.	MGA-100-FMH	Test System	N/A	N/A
Free Motion Headforms	UTAMA UTAMA UTAMA	035 037 038	Test Device	N/A	Pre and Post-Test Series
High Speed Video	Redlake	HGLE	Record Event	N/A	N/A
*FARO™	Faro Technologies	G08020203122	Targeting	0.1 mm	Annual
Measuring Devices: - Tape Measure - Plumb Bobs - Protractor	Jonnson N/A Mitutoyo	457 -- MGA00071	Measurement Targeting FMH setup Horizontal Measurement	1 mm N/A 0.5°	Annual
*Vehicle Scale	Intercomp	26032389	Weighing Vehicle	± .5 kg	Annual
* Scale	Detecto	MGA00081	Weigh FMH Head	± 0.01 lb	Annual
*Temperature Recorder	Dickson	TM-325	Record Temperature and Humidity	± 1°C ± 1% RH	Annual

TABLE 4-2 FMH CALIBRATION SUMMARY DATA SUMMARY TABLE

FMH Serial #		Weight (lbs)	Temp (°C)	% Humidity	Peak Resultant Acceleration (G's)	Peak Lateral Acceleration (G's)	Unimodal
Post	#35	10.02	22.0	26.0	249.6	9.2	Yes
Pre	#35	10.02	23.0	26.1	247.1	1.5	Yes
Post	#37	9.96	22.0	26.0	257.7	13.6	Yes
Pre	#37	9.96	23.0	26.1	258.9	12.7	Yes
Post	#38	9.92	22.0	26.0	245.5	6.5	Yes
Pre	#38	9.92	23.0	26.1	251.6	8.2	Yes

RECORDED BY: Nicholas J. BrzuchDATE: April 29, 2005APPROVED BY: David G. Gotwals

MICHIGAN OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATPHOT.5

DOC. NO.: MGATP201UHD
REVISION NO.: 6
PAGE 6 OF 7

HEAD DROP TEST SUMMARY PART 572L

HEADFORM SERIAL NUMBER: <u>35</u>		CALIBRATION DATE: <u>4/21/05</u>
TEST PARAMETER	SPECIFICATION	TEST RESULTS
Weight	9.90 to 10.10 lbs.	<u>10.02</u>
Temperature	19° C to 26° C	<u>22</u>
Relative Humidity	10% to 70%	<u>26</u>
Peak Resultant Acceleration	225 G's to 275 G's	<u>249.6</u>
Peak Lateral Acceleration	15 G's Maximum	<u>9.2</u>
Unimodal Acceleration Curve	YES	<u>YES</u>

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	Manufacturer	Model Number	Serial Number	Date of Last Calibration	Date of Next Calibration
<u>1</u>	ENDEVCO	7264-2000	<u>J35924</u>	<u>11/9/04</u>	<u>5/9/05</u>
<u>2</u>	ENDEVCO	7264-2000	<u>J35919</u>	<u>11/9/04</u>	<u>5/9/05</u>
<u>3</u>	ENDEVCO	7264-2000	<u>J32664</u>	<u>11/9/04</u>	<u>5/9/05</u>

REMARKS:

RECORDED BY: [Signature]

DATE: 4/21/05

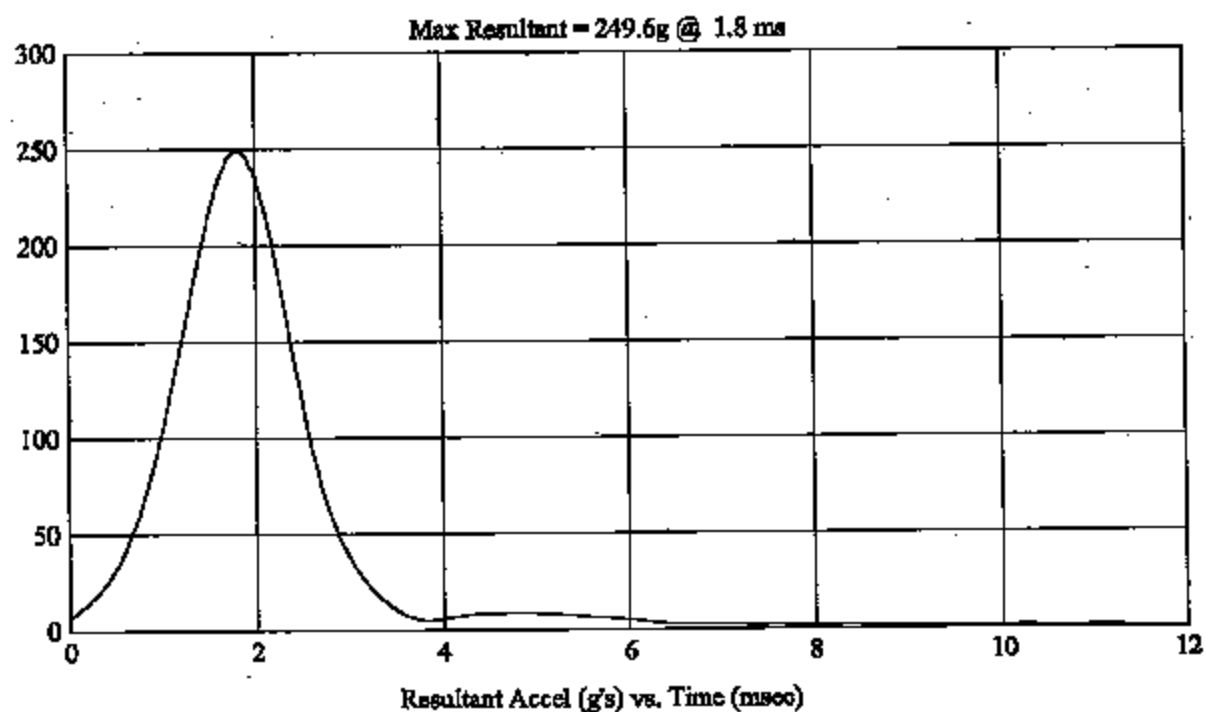
APPROVED BY: [Signature]

Head Drop
(Preliminary Test Report)

Test Number: H35291
Test Description: 10.02

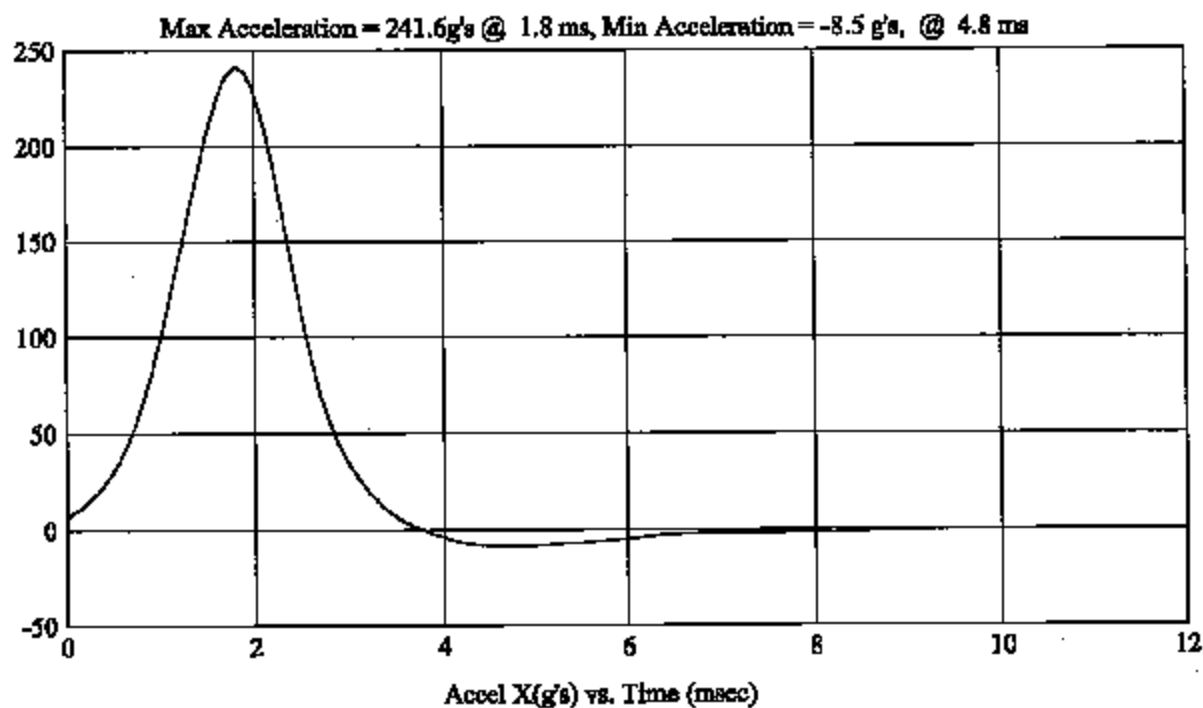
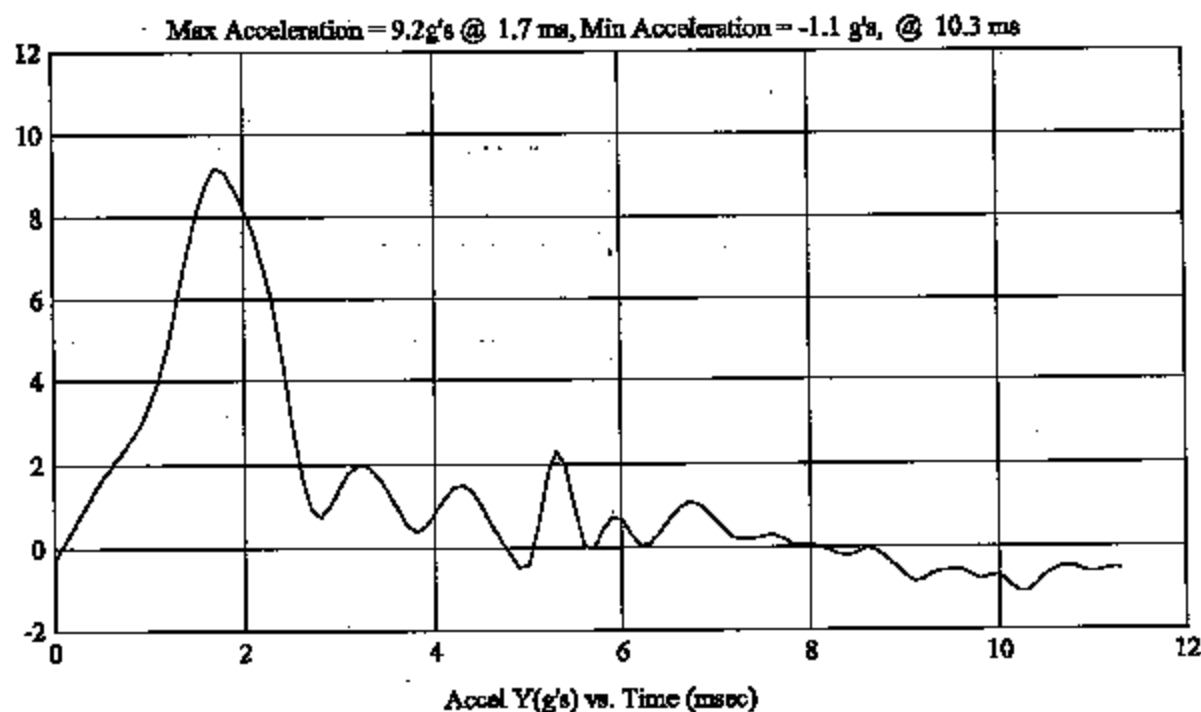
MGA Job Number: G0517-001.5

Test Date: 04/29/2005
Head #: 35



Head Drop
(Preliminary Test Report)Test Number: H35291
Test Description: 10.02

MGA Job Number: G05I7-001.5

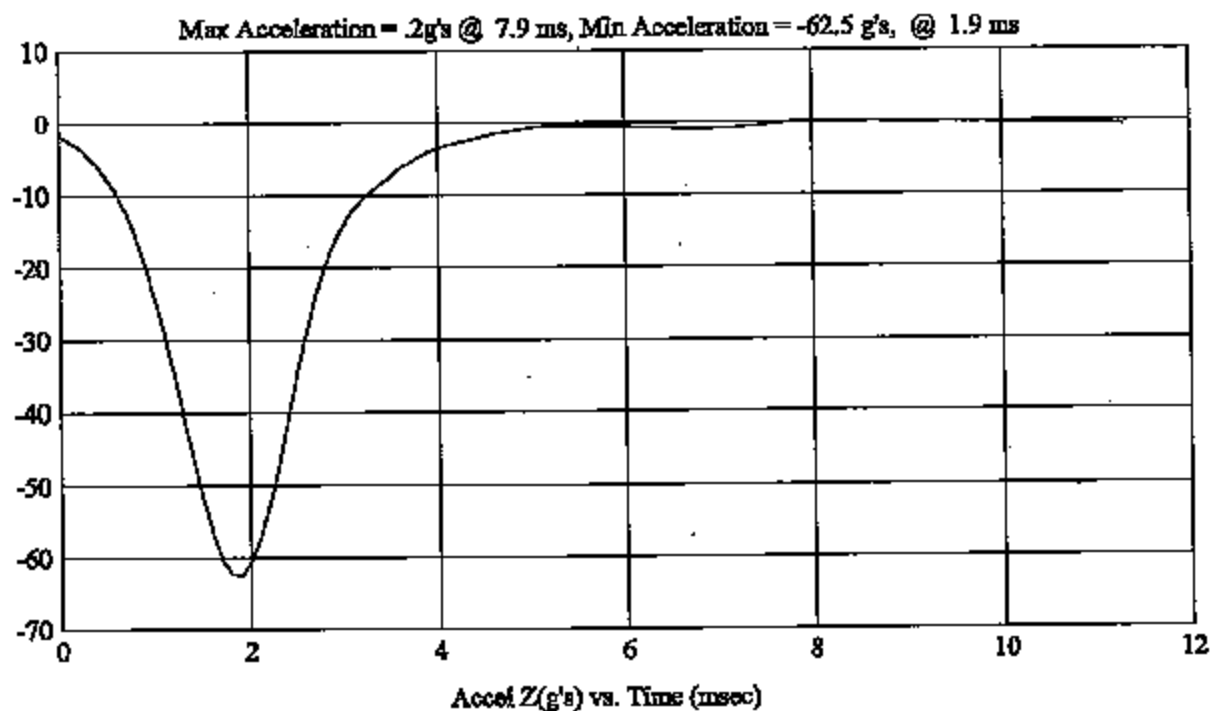
Test Date: 04/29/2005
Head #: 35

Head Drop
(Preliminary Test Report)

Test Number: H35291
Test Description: 10.02

MGA Job Number: G05T7-001.5

Test Date: 04/29/2005
Head #: 35



MICHIGAN OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATPHDT.5

DOC. NO.: MGATP2010RED
REVISION NO.: 6
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HEAD DROP TEST SUMMARY PART 572L

HEADFORM SERIAL NUMBER: <u>35</u>		CALIBRATION DATE: <u>4-26-05</u>
TEST PARAMETER	SPECIFICATION	TEST RESULTS
Weight	9.90 to 10.10 lbs.	10.02
Temperature	19° C to 26° C	23°
Relative Humidity	10% to 70%	26%
Peak Resultant Acceleration	225 G's to 275 G's	247.1
Peak Lateral Acceleration	15 G's Maximum	1.5
Unimodal Acceleration Curve	YES	Yes

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	Manufacturer	Model Number	Serial Number	Date of Last Calibration	Date of Next Calibration
1	ENDEVCO	7264-2000	J35924	11/09/04	5/09/05
2	ENDEVCO	7264-2000	J35919	11/09/04	5/09/05
3	ENDEVCO	7264-2000	J22664	11/09/04	5/09/05

REMARKS:

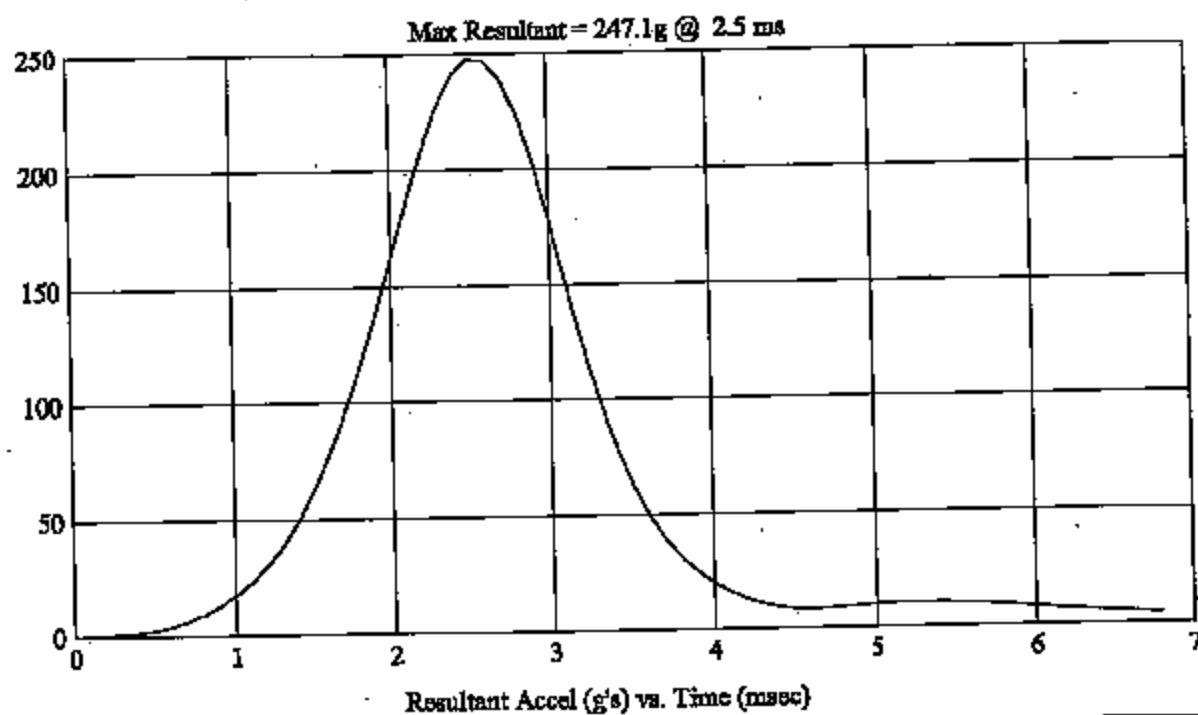
RECORDED BY: Matt Kn

DATE: 5/24/05

APPROVED BY: on j m

Head Drop
(Preliminary Test Report)Test Number: H35290
Test Description: 10.02

MGA Job Number: G05I7-001.5

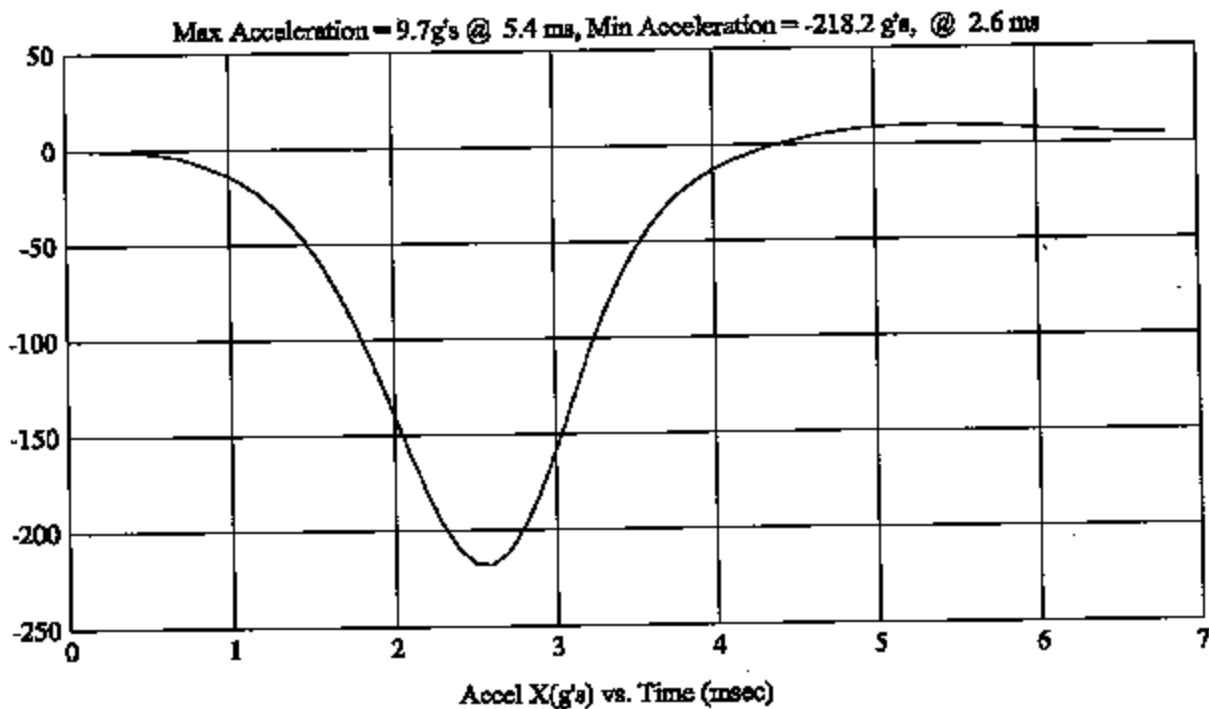
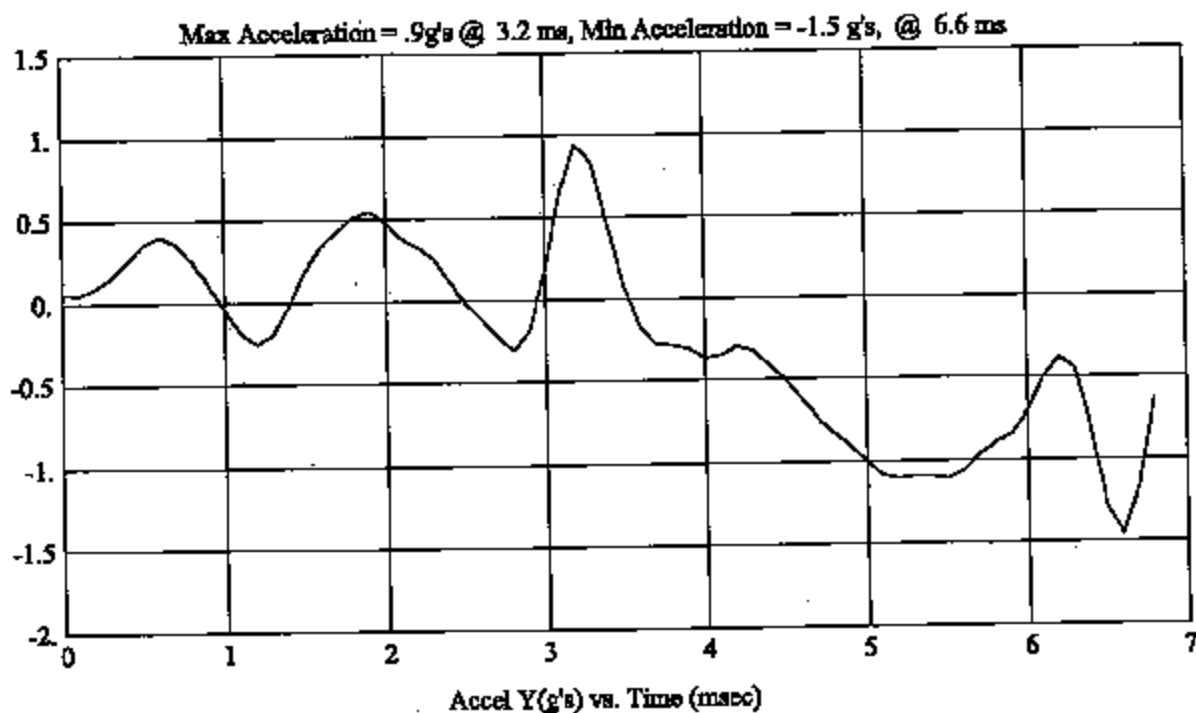
Test Date: 04/26/2005
Head #: 35

Head Drop
(Preliminary Test Report)

Test Number: H35290
Test Description: 10.02

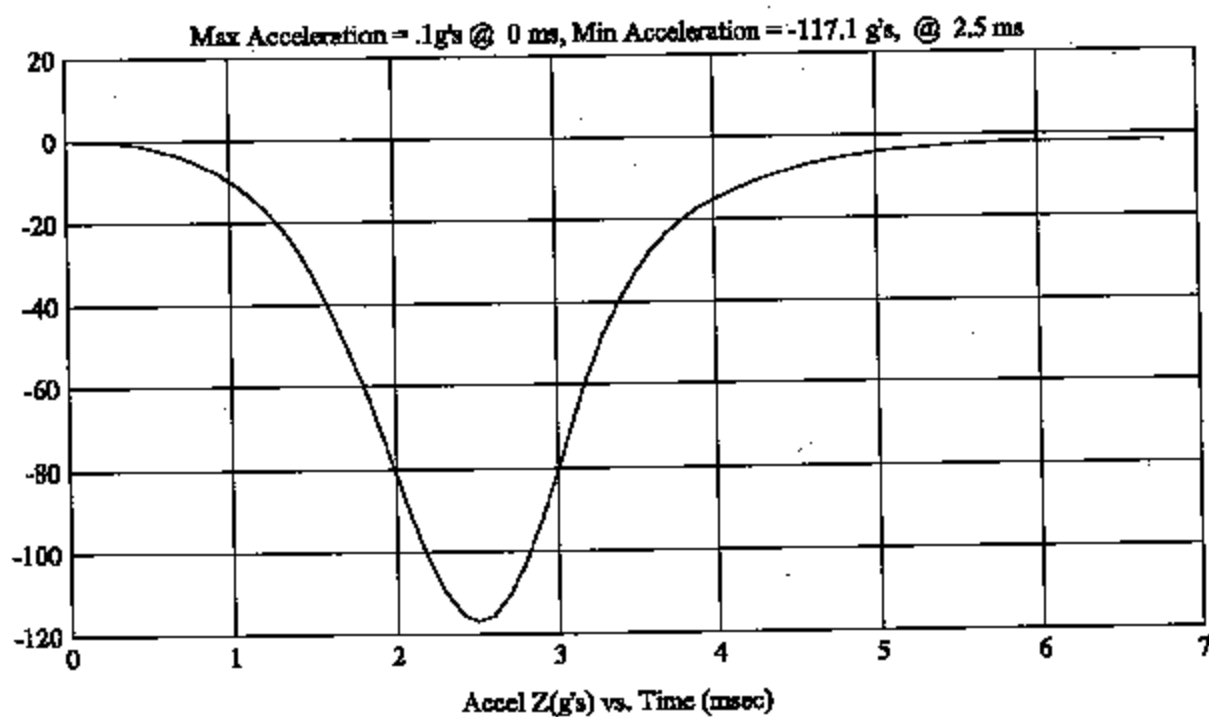
MGA Job Number: G0517-001.5

Test Date: 04/26/2005
Head #: 35



Head Drop
(Preliminary Test Report)Test Number: E35290
Test Description: 10.02

MGA Job Number: G05I7-001.5

Test Date: 04/26/2005
Head #: 35

MECHANICAL OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATPHDT.5

DOC. NO.: MGATP201UHD
REVISION NO.: 6
PAGE 6 OF 7

HEAD DROP TEST SUMMARY PART 572L

HEADFORM SERIAL NUMBER: <u>37</u> CALIBRATION DATE: <u>4-29-05</u>		
TEST PARAMETER	SPECIFICATION	TEST RESULTS
Weight	9.90 to 10.10 lbs.	<u>9.96</u>
Temperature	19° C to 26° C	<u>22</u>
Relative Humidity	10% to 70%	<u>26</u>
Peak Resultant Acceleration	225 G's to 275 G's	<u>257.7</u>
Peak Lateral Acceleration	15 G's Maximum	<u>13.6</u>
Unimodal Acceleration Curve	YES	<u>YES</u>

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	Manufacturer	Model Number	Serial Number	Date of Last Calibration	Date of Next Calibration
<u>1</u>	ENDEVCO	7264-2000	<u>535900</u>	<u>10-9-04</u>	<u>5-9-05</u>
<u>2</u>	ENDEVCO	7264-2000	<u>535821</u>	<u>11-9-04</u>	<u>5-9-05</u>
<u>3</u>	ENDEVCO	7264-2000	<u>535791</u>	<u>11-9-04</u>	<u>5-9-05</u>

REMARKS:

RECORDED BY: [Signature]

DATE: 4-29-05

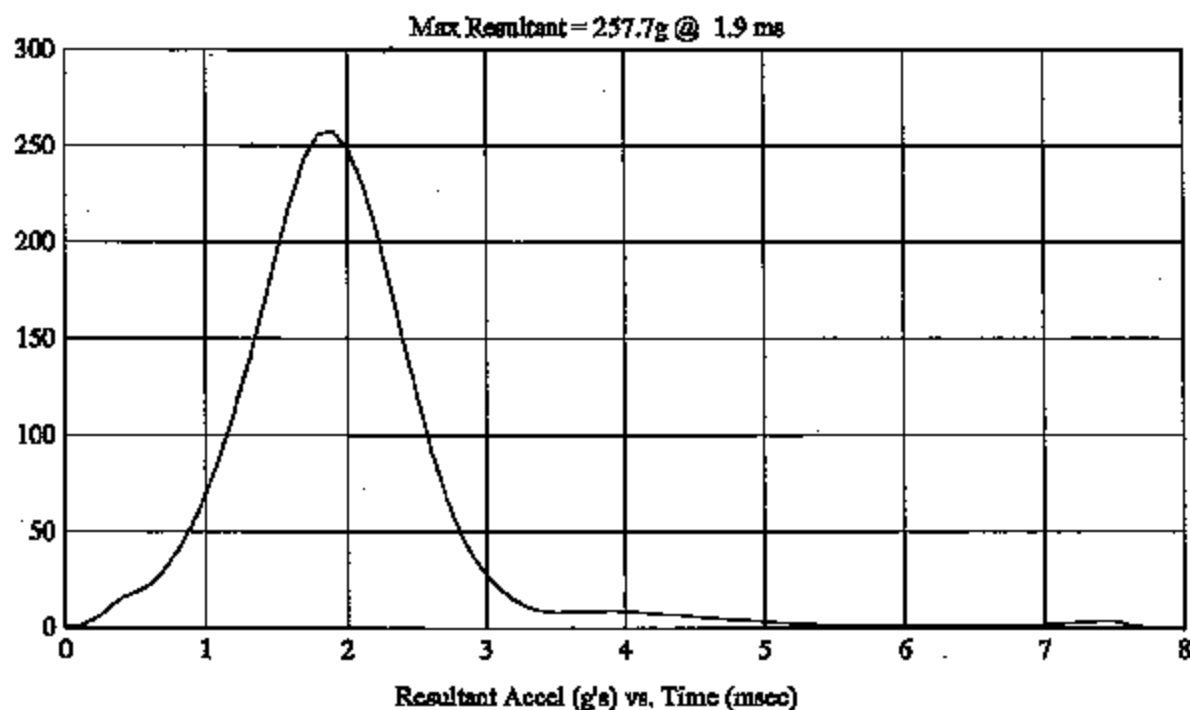
APPROVED BY: [Signature]

Head Drop
(Preliminary Test Report)

Test Number: H37162
Test Description: 9.96

MGA Job Number: G0517-001.5

Test Date: 04/29/2005
Head #: 37

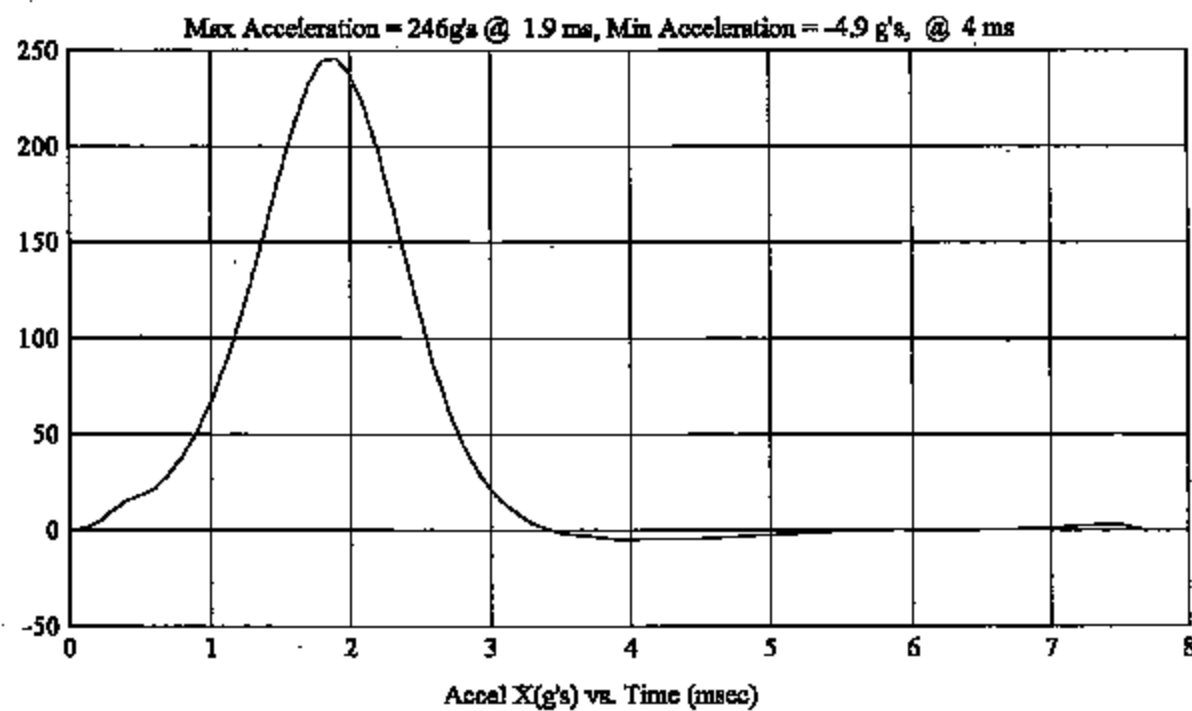
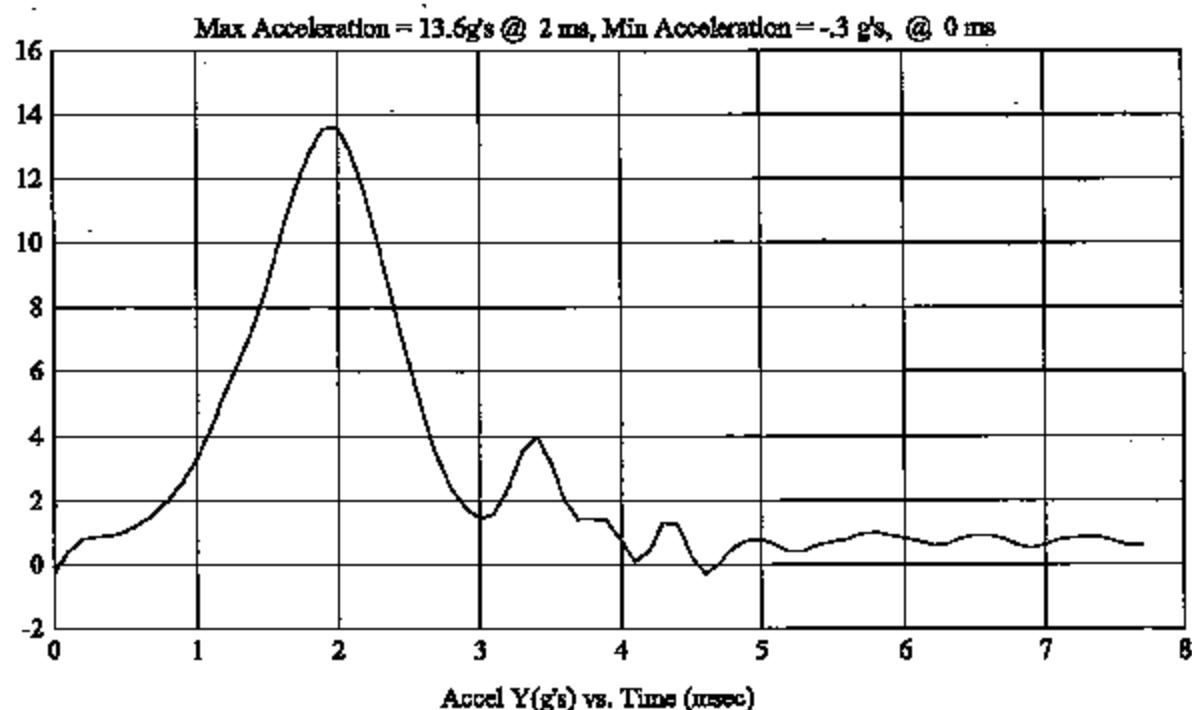


Head Drop
(Preliminary Test Report)

Test Number: H37162
Test Description: 9.96

MGA Job Number: G0517-001.5

Test Date: 04/29/2005
Head #: 37

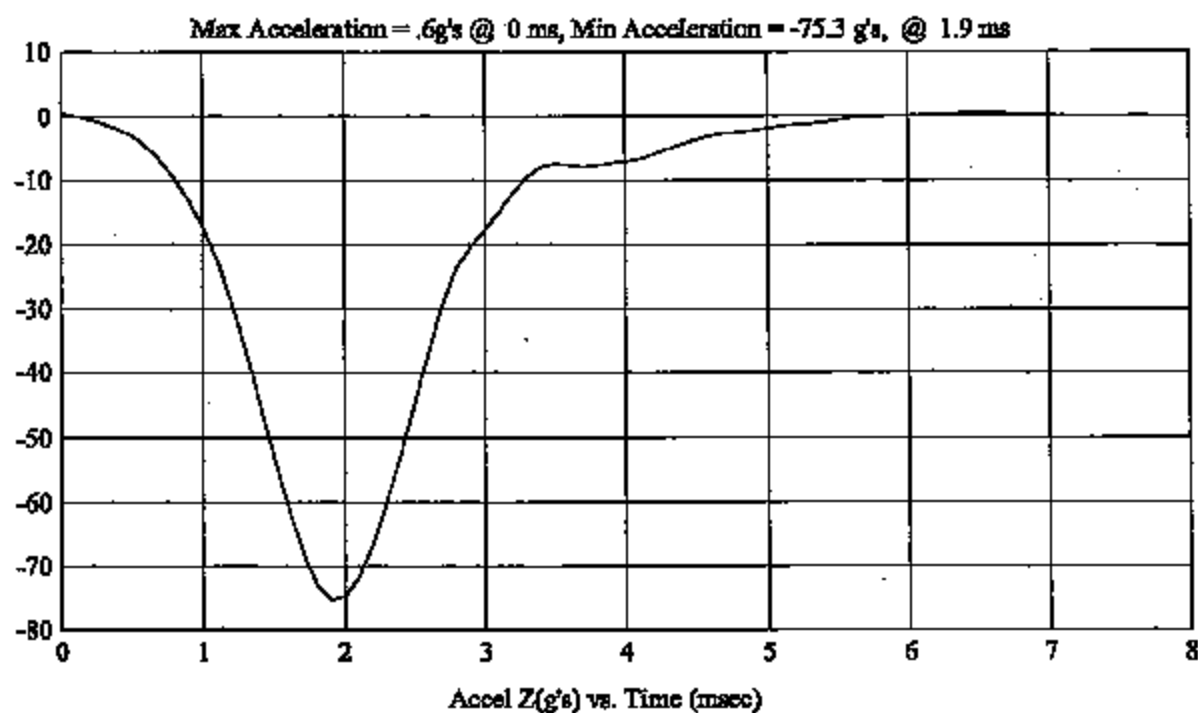


Head Drop
(Preliminary Test Report)

Test Number: H37162
Test Description: 9.96

MGA Job Number: G0517-001.5

Test Date: 04/29/2005
Head #: 37



MICHIGAN OPERATIONS
DATE: 3/29/03
SUPERCEDES: MGATPHDT.5

DOC. NO.: MGATP201UHD
REVISION NO.: 6
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HEAD DROP TEST SUMMARY PART 572L

HEADFORM SERIAL NUMBER: <u>37</u>		CALIBRATION DATE: <u>4/26/05</u>
TEST PARAMETER	SPECIFICATION	TEST RESULTS
Weight	9.90 to 10.10 lbs.	9.96
Temperature	19° C to 26° C	23°
Relative Humidity	10% to 70%	26%
Peak Resultant Acceleration	225 G's to 275 G's	258.9
Peak Lateral Acceleration	15 G's Maximum	12.4
Unimodal Acceleration Curve	YES	Yes

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	Manufacturer	Model Number	Serial Number	Date of Last Calibration	Date of Next Calibration
1	ENDEVCO	7264-2000	J35800	11/09/04	5/09/05
2	ENDEVCO	7264-2000	J35841	11/09/04	5/09/05
3	ENDEVCO	7264-2000	J35741	11/09/04	5/09/05

REMARKS:

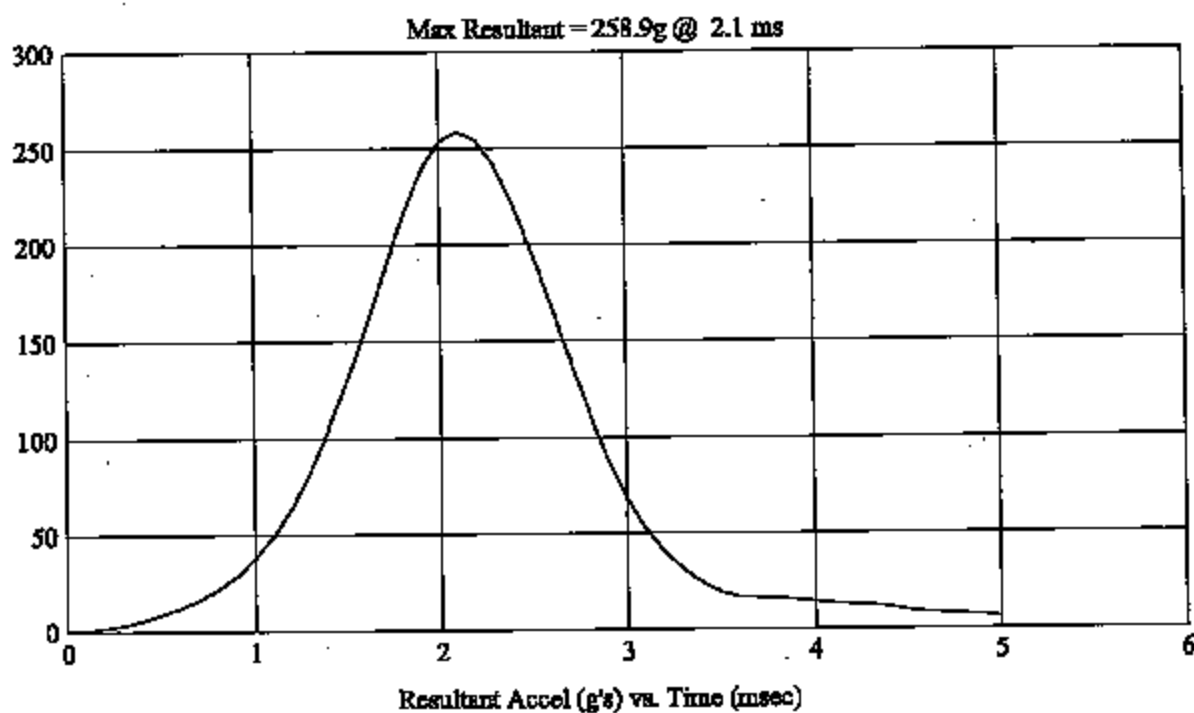
RECORDED BY: *Matthew*DATE: 4-26-05APPROVED BY: *[Signature]*

Head Drop
(Preliminary Test Report)

Test Number: H37161
Test Description: 9.96

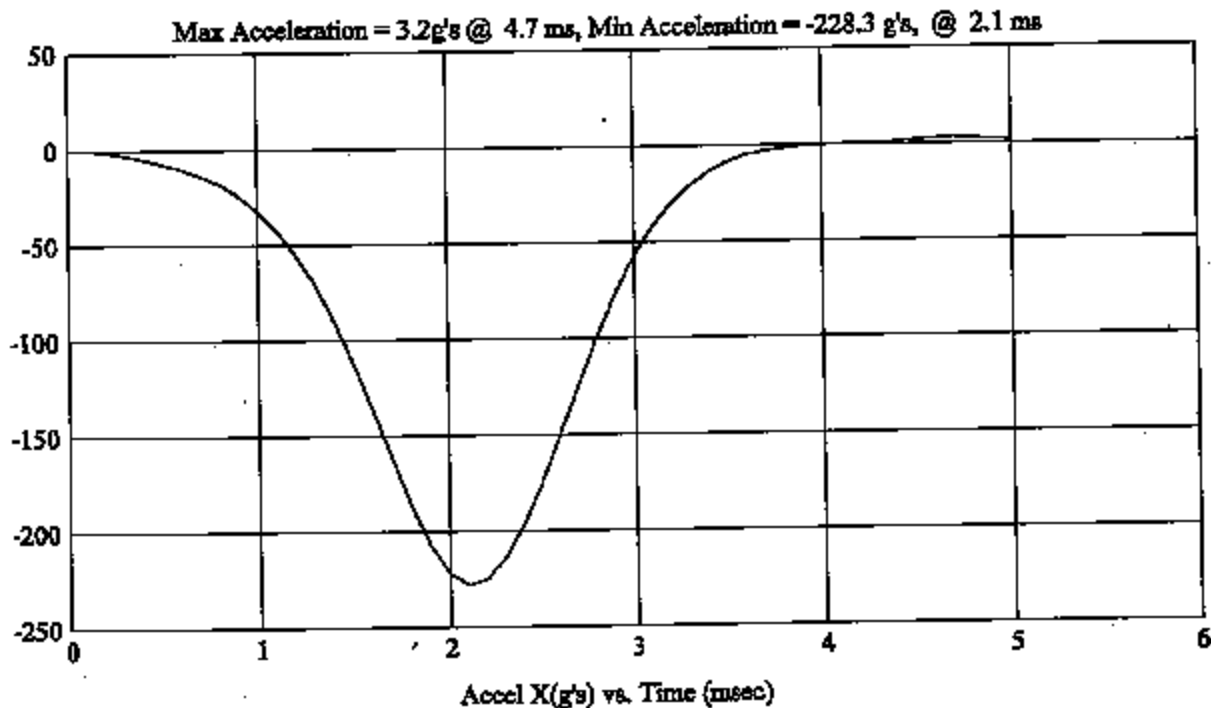
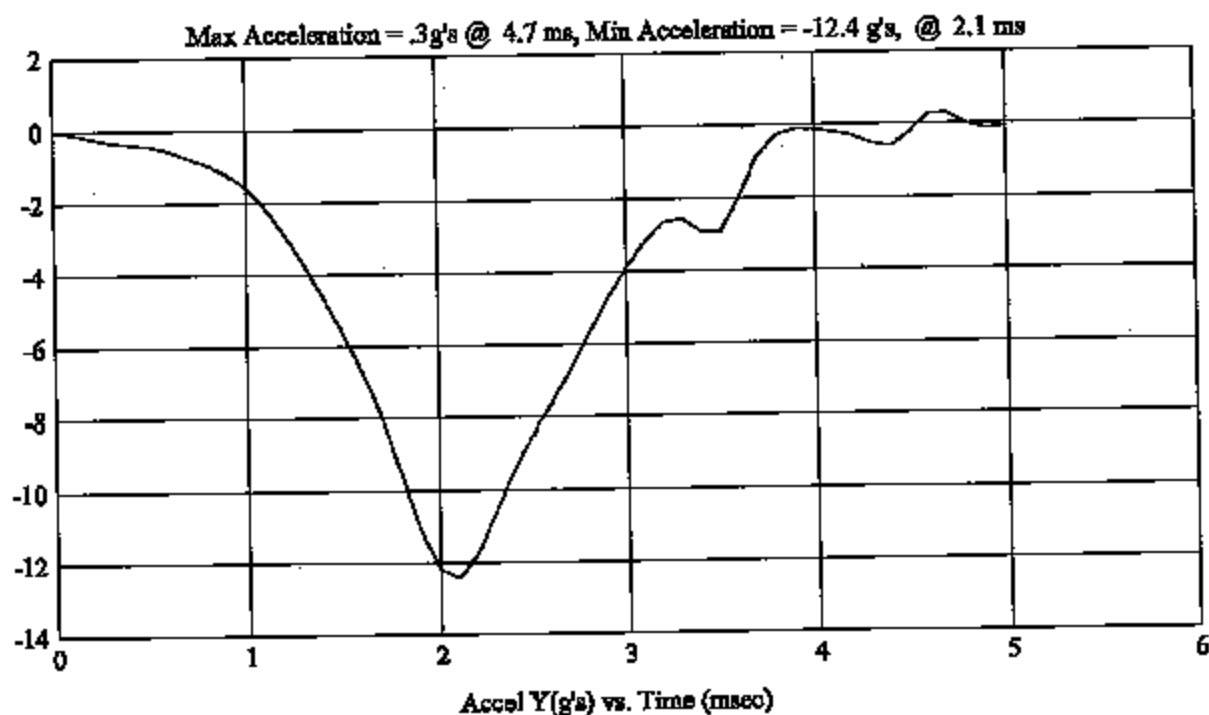
MGA Job Number: G0517-001.5

Test Date: 04/26/2005
Head #: 37



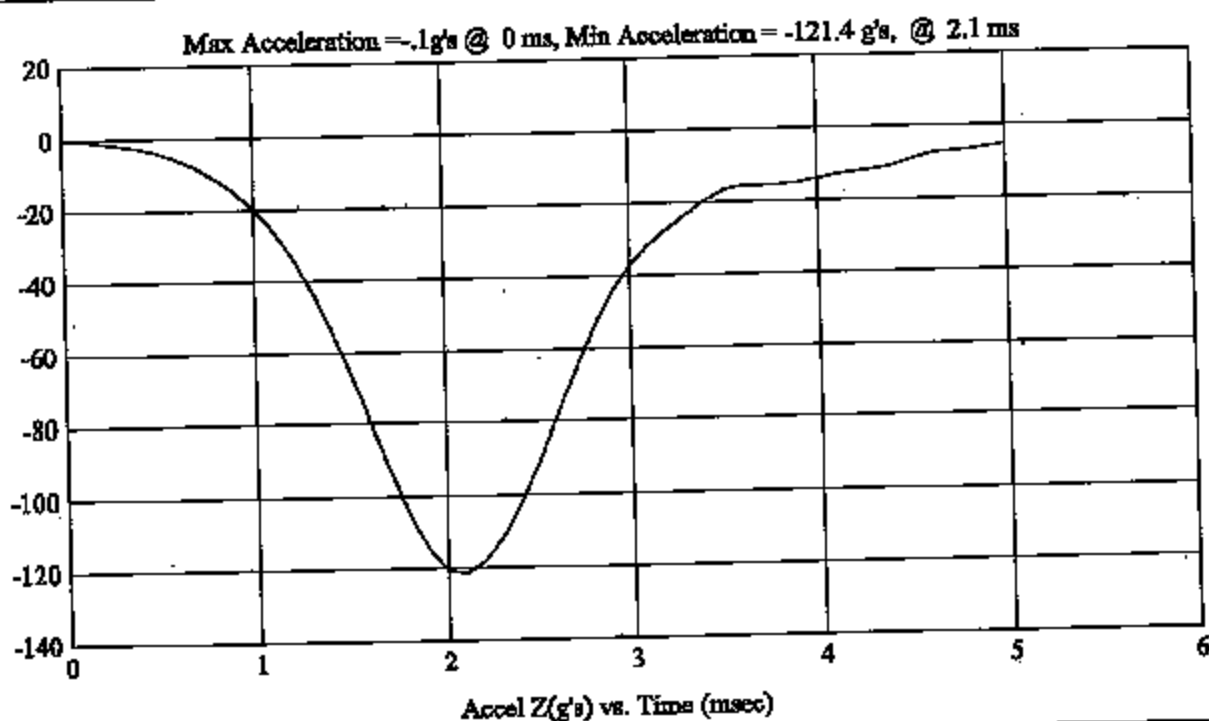
Head Drop
(Preliminary Test Report)Test Number: H37161
Test Description: 9.96

MGA Job Number: G05I7-001.5

Test Date: 04/26/2005
Head #: 37

Head Drop
(Preliminary Test Report)Test Number: H37161
Test Description: 9.96

MGA Job Number: G0517-001.5

Test Date: 04/26/2005
Head #: 37

MICHIGAN OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATPHDT.5

DOC. NO.: MGATP201UHD
REVISION NO.: 6
PAGE 6 OF 7

HEAD DROP TEST SUMMARY PART 572L

HEADFORM SERIAL NUMBER: <u>38</u>		CALIBRATION DATE: <u>4-29-05</u>
TEST PARAMETER	SPECIFICATION	TEST RESULTS
Weight	9.90 to 10.10 lbs.	9.92
Temperature	19° C to 26° C	22
Relative Humidity	10% to 70%	26
Peak Resultant Acceleration	225 G's to 275 G's	245.5
Peak Lateral Acceleration	15 G's Maximum	8.5
Unimodal Acceleration Curve	YES	Yes

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	Manufacturer	Model Number	Serial Number	Date of Last Calibration	Date of Next Calibration
1	ENDEVCO	7264-2000	536193	11-9-04	5-9-05
2	ENDEVCO	7264-2000	536192	11-9-04	5-9-05
3	ENDEVCO	7264-2000	536353	11-9-05	9-4-05

REMARKS:

RECORDED BY: [Signature]

DATE: 4-29-05

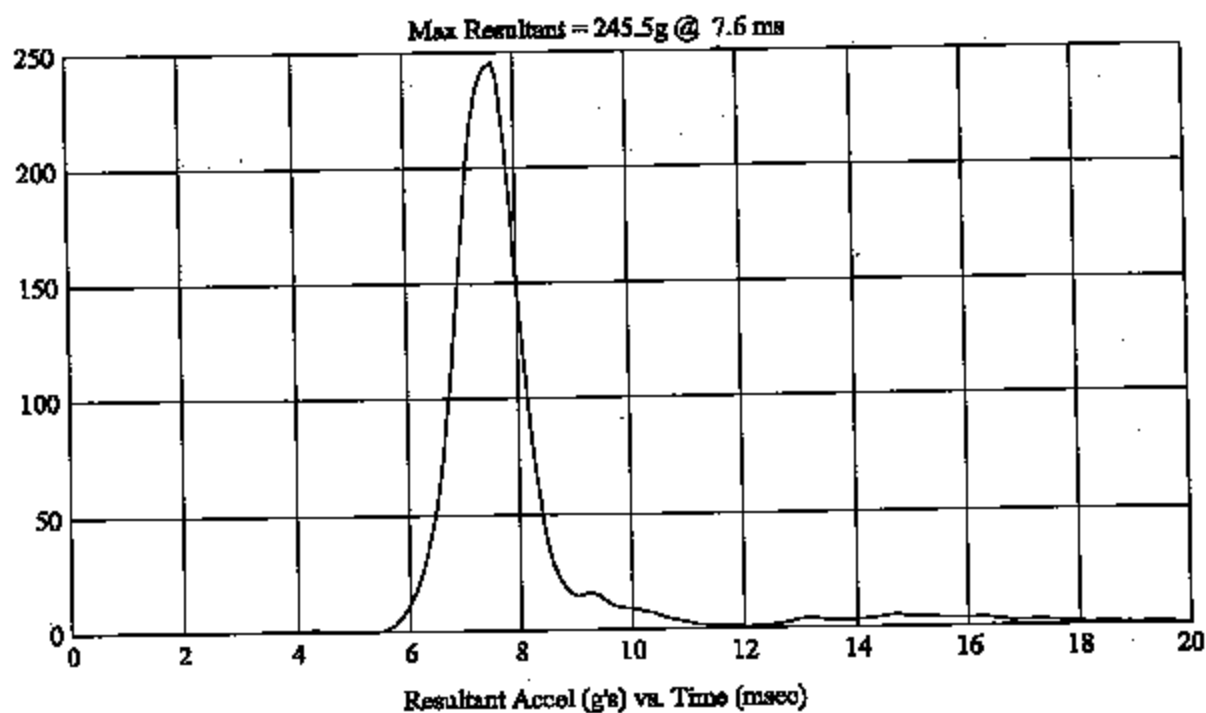
APPROVED BY: [Signature]

Head Drop
(Preliminary Test Report)

Test Number: H38271
Test Description: 9.92

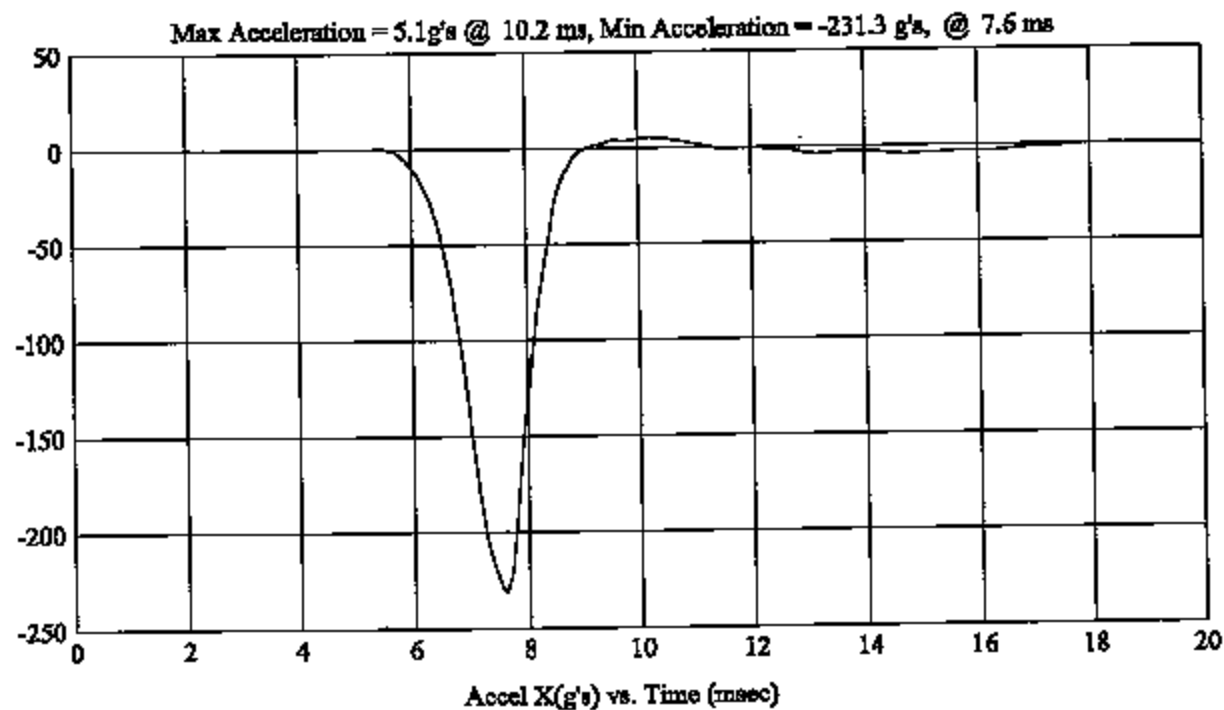
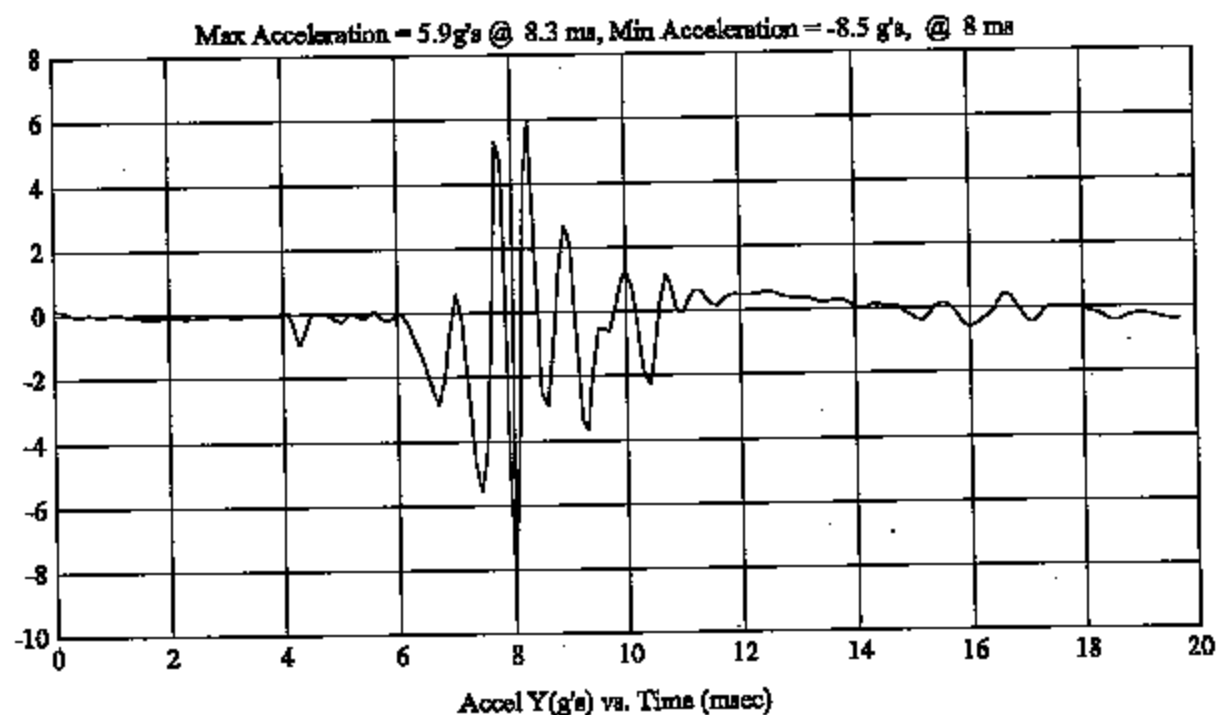
MGA Job Number: G05F7-001.5

Test Date: 04/29/2005
Head #: 38



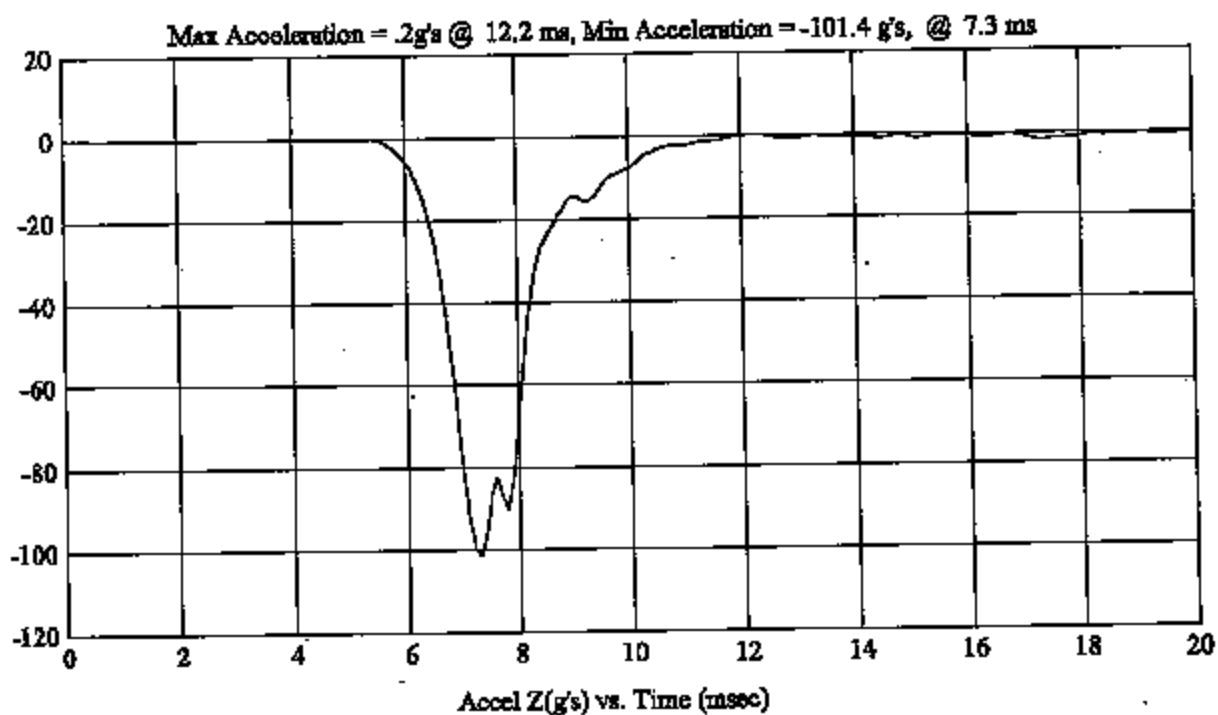
Head Drop
(Preliminary Test Report)Test Number: H38271
Test Description: 9.92

MGA Job Number: G05I7-001.5

Test Date: 04/29/2005
Head #: 38

Head Drop
(Preliminary Test Report)Test Number: H38271
Test Description: 9.92

MGA Job Number: G0517-001.5

Test Date: 04/29/2005
Head #: 38

MICHIGAN OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATPHDT.5

DOC. NO.: MGATP201UHD
REVISION NO.: 6
PAGE 6 OF 7

HEAD DROP TEST SUMMARY PART 572L

HEADFORM SERIAL NUMBER: <u>38</u>		CALIBRATION DATE: <u>4-26-05</u>
TEST PARAMETER	SPECIFICATION	TEST RESULTS
Weight	9.90 to 10.10 lbs.	<u>9.92</u>
Temperature	19° C to 26° C	<u>23°</u>
Relative Humidity	10% to 70%	<u>26.1°</u>
Peak Resultant Acceleration	225 G's to 275 G's	<u>251.6</u>
Peak Lateral Acceleration	15 G's Maximum	<u>8.2</u>
Unimodal Acceleration Curve	YES	<u>Yes</u>

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	Manufacturer	Model Number	Serial Number	Date of Last Calibration	Date of Next Calibration
<u>1</u>	ENDEVCO	7264-2000	<u>J36197</u>	<u>11-09-04</u>	<u>5-9-05</u>
<u>2</u>	ENDEVCO	7264-2000	<u>J36193</u>	<u>11-09-04</u>	<u>5-9-05</u>
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REMARKS:

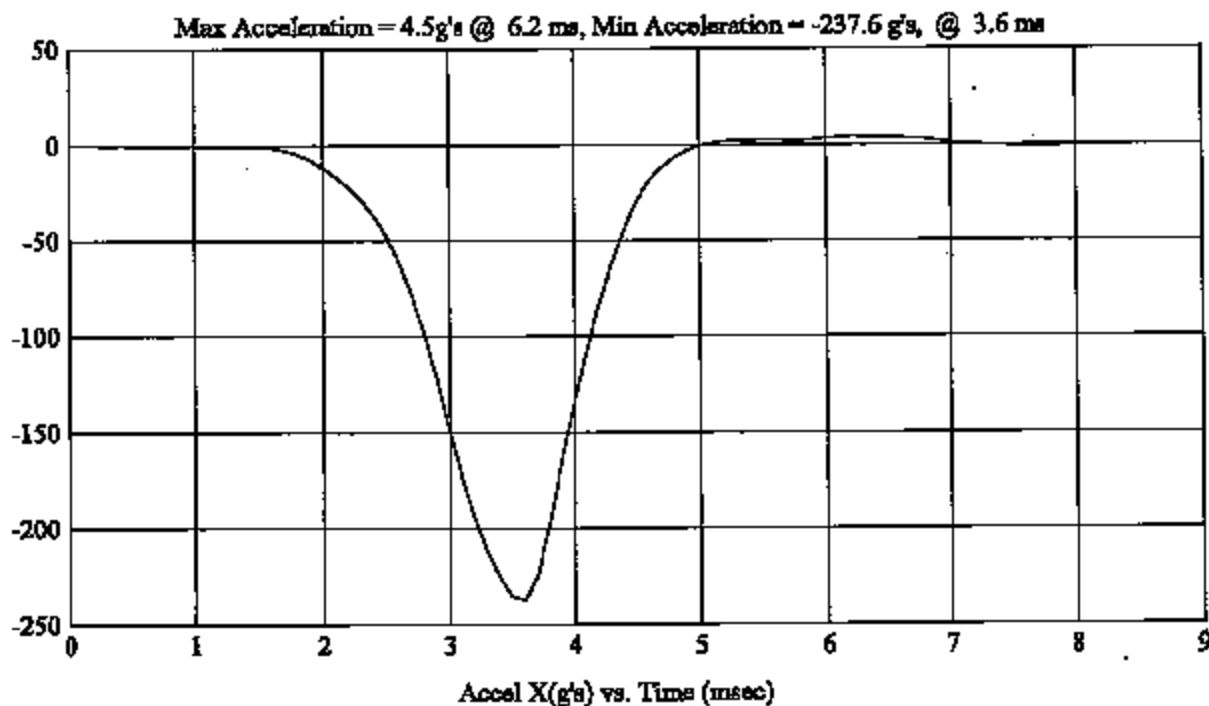
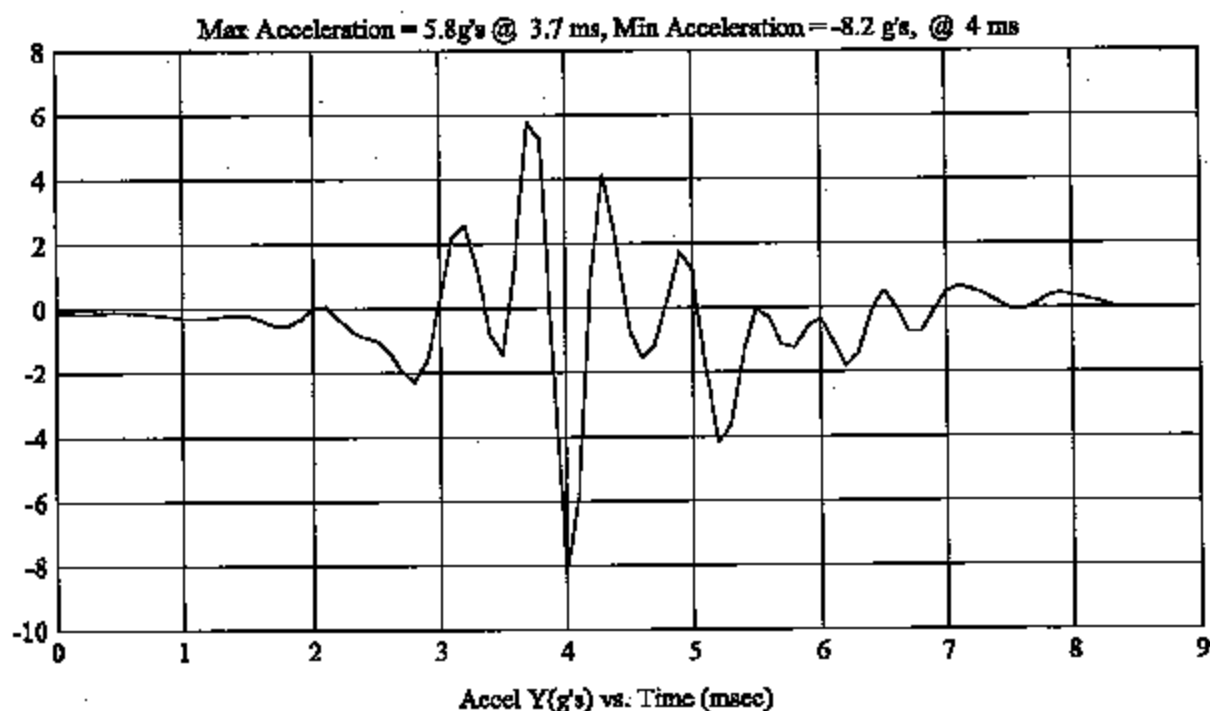
RECORDED BY: Matthew

DATE: 4-26-05

APPROVED BY: [Signature]

Head Drop
(Preliminary Test Report)Test Number: H38270
Test Description: 9.92

MGA Job Number: G0517-001.5

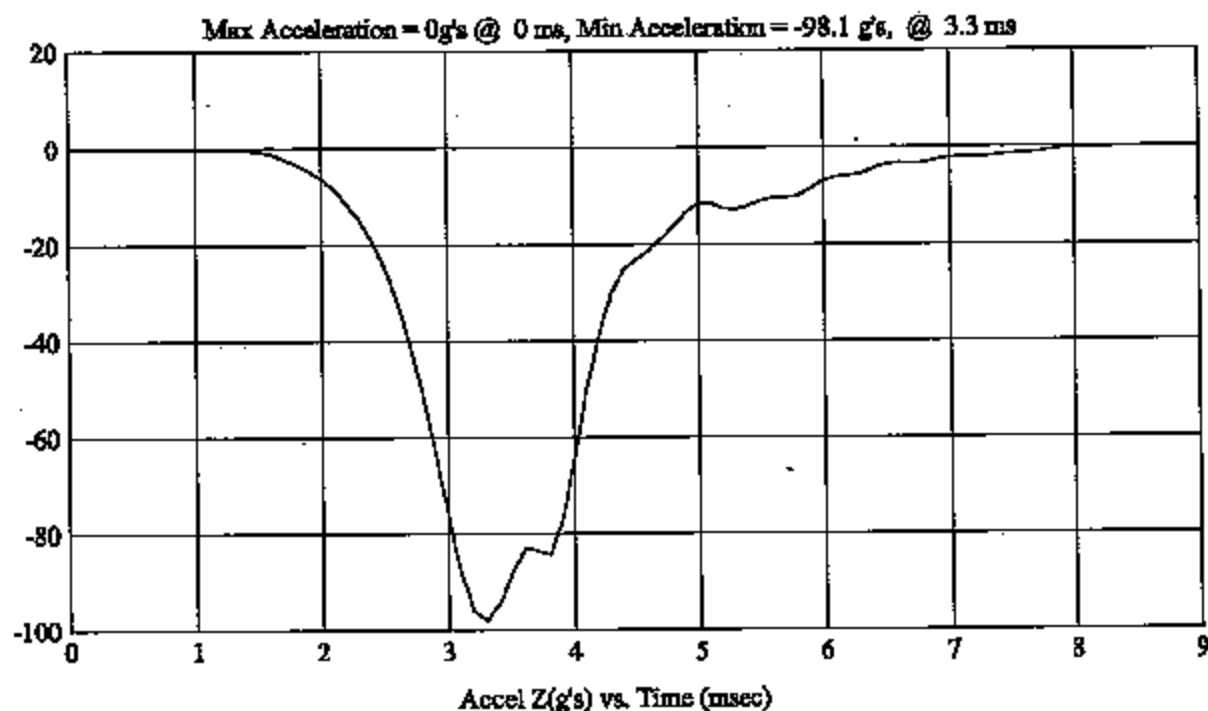
Test Date: 04/26/2005
Head #: 38

Head Drop
(Preliminary Test Report)

Test Number: E38270
Test Description: 9.92

MGA Job Number: Q05T7-001.5

Test Date: 04/26/2005
Head #: 38

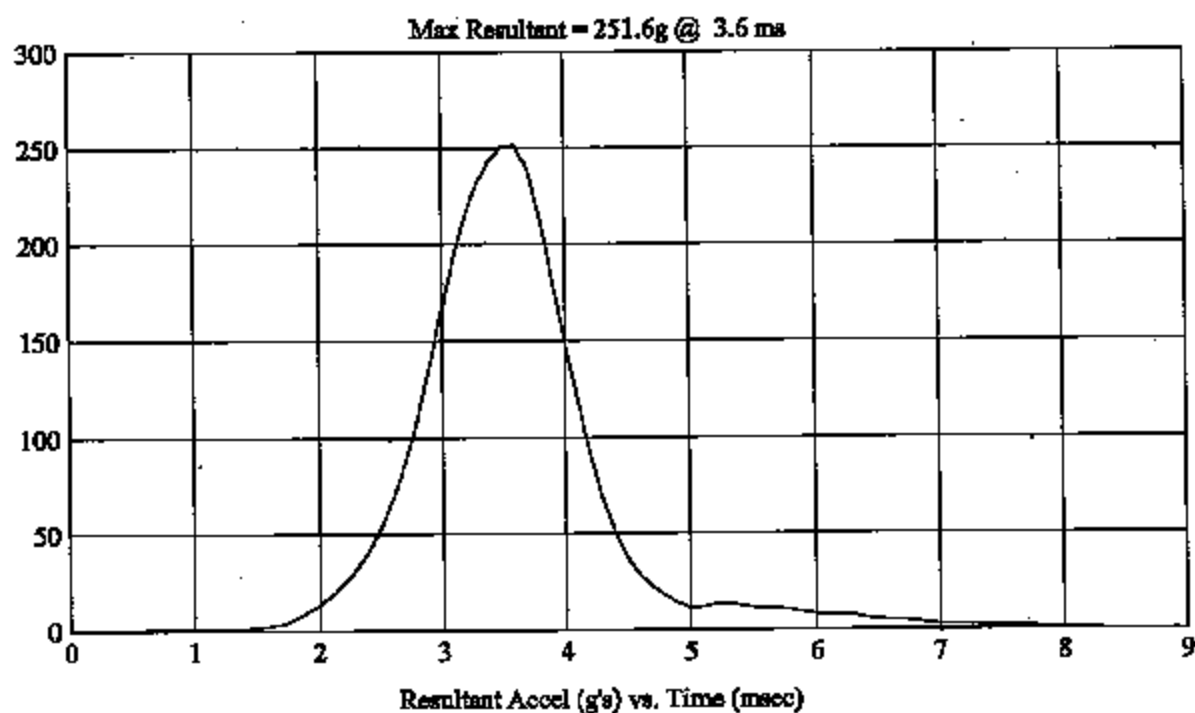


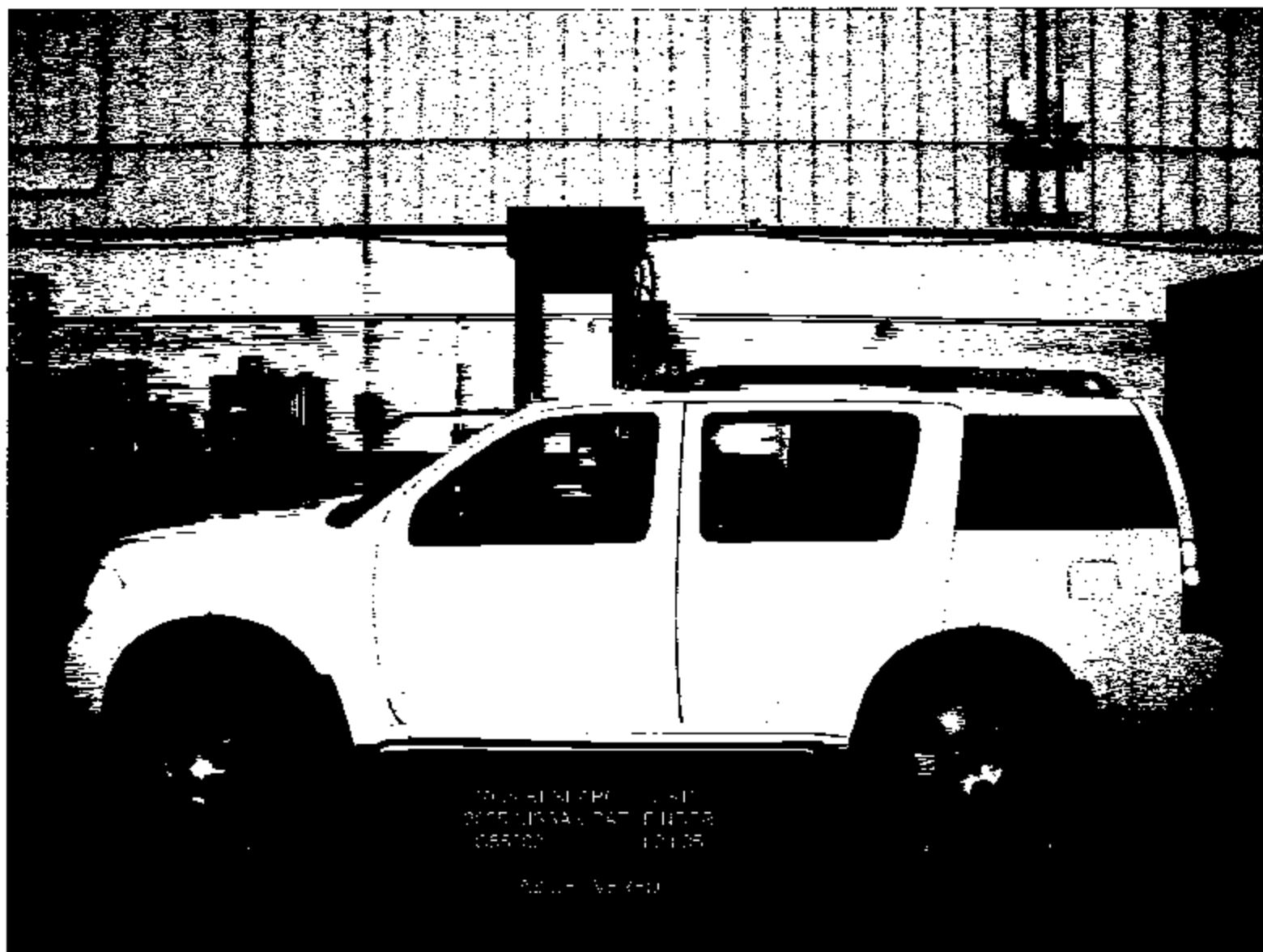
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(Preliminary Test Report)

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Test Description: 9.92

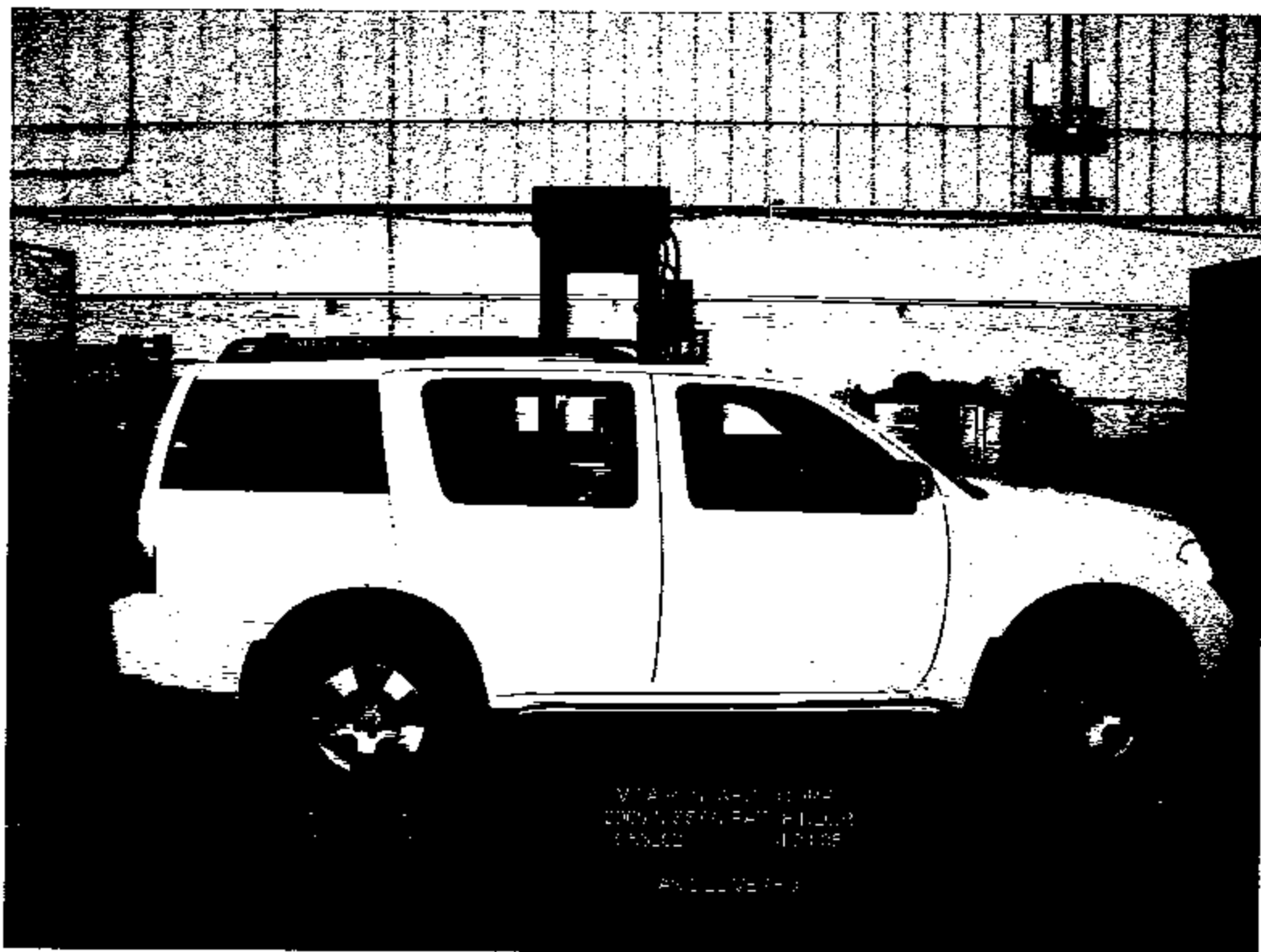
MGA Job Number: G0517-001.5

Test Date: 04/26/2005
Head #: 38











MOA STATE - 40000
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MFD BY NISSAN MOTOR CO., LTD.

DATE 02/05

GAWR 6000 LB

GAWR 2775 LB

WITH P245/75R16 TIRES

16X7.0 RIMS AT 35 PSI

COLD SINGLE

GAWR 3500 LB

WITH P245/75R16 TIRES

16X7.0 RIMS AT 35 PSI

COLD SINGLE

THIS VEHICLE CONFORMS TO

ALL APPLICABLE FEDERAL MOTOR

VEHICLE SAFETY AND

THEFT PREVENTION STANDARDS

IN EFFECT ON THE DATE OF

MANUFACTURE SHOWN ABOVE.

SEE OWNERS MANUAL FOR

ADDITIONAL INFORMATION.

5N1AR18W15C738075

MPV

MODEL: JCKZLNN-EUA 02000

COLOR TRIM TRANS

0001

0001

0001

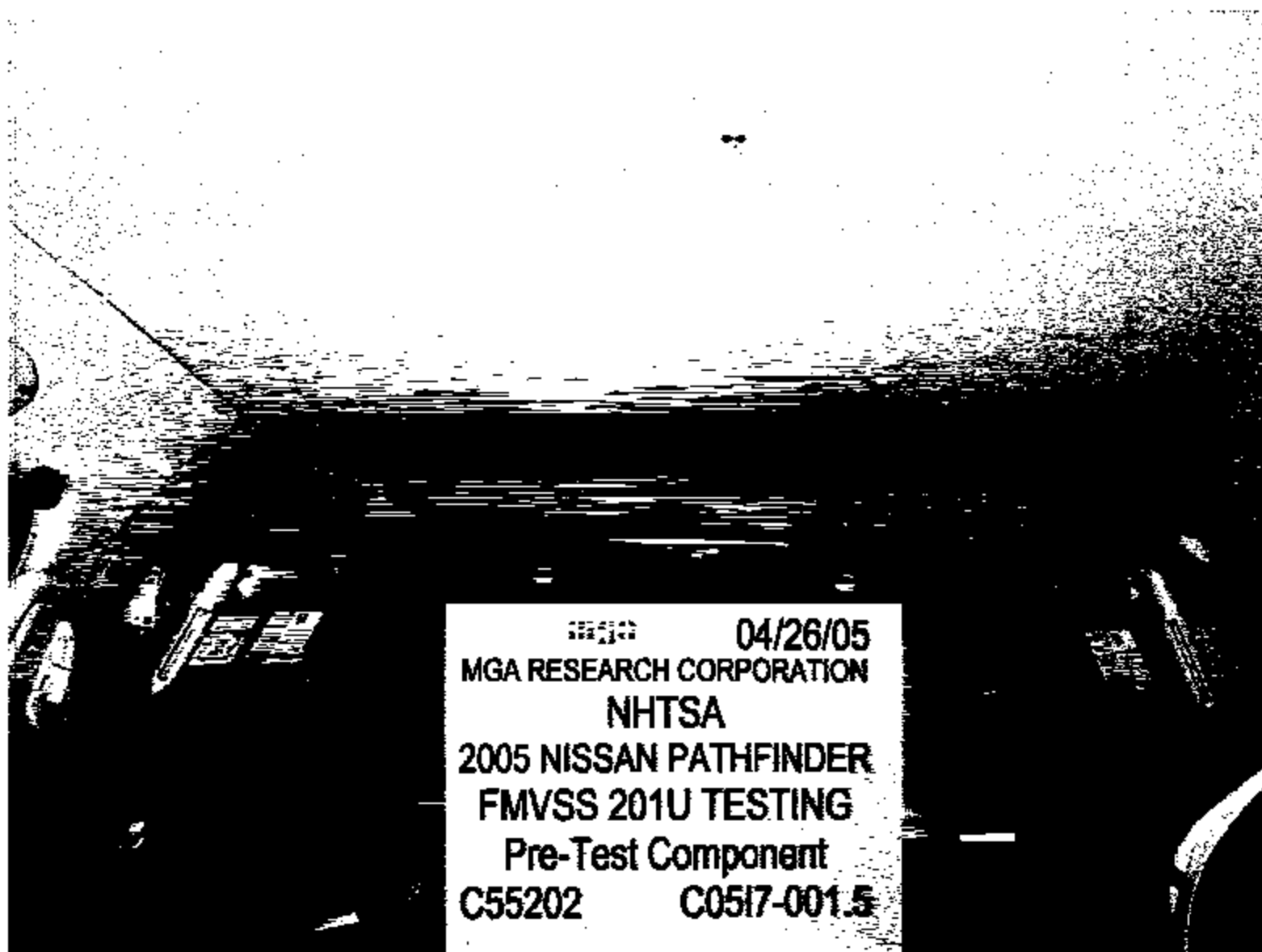
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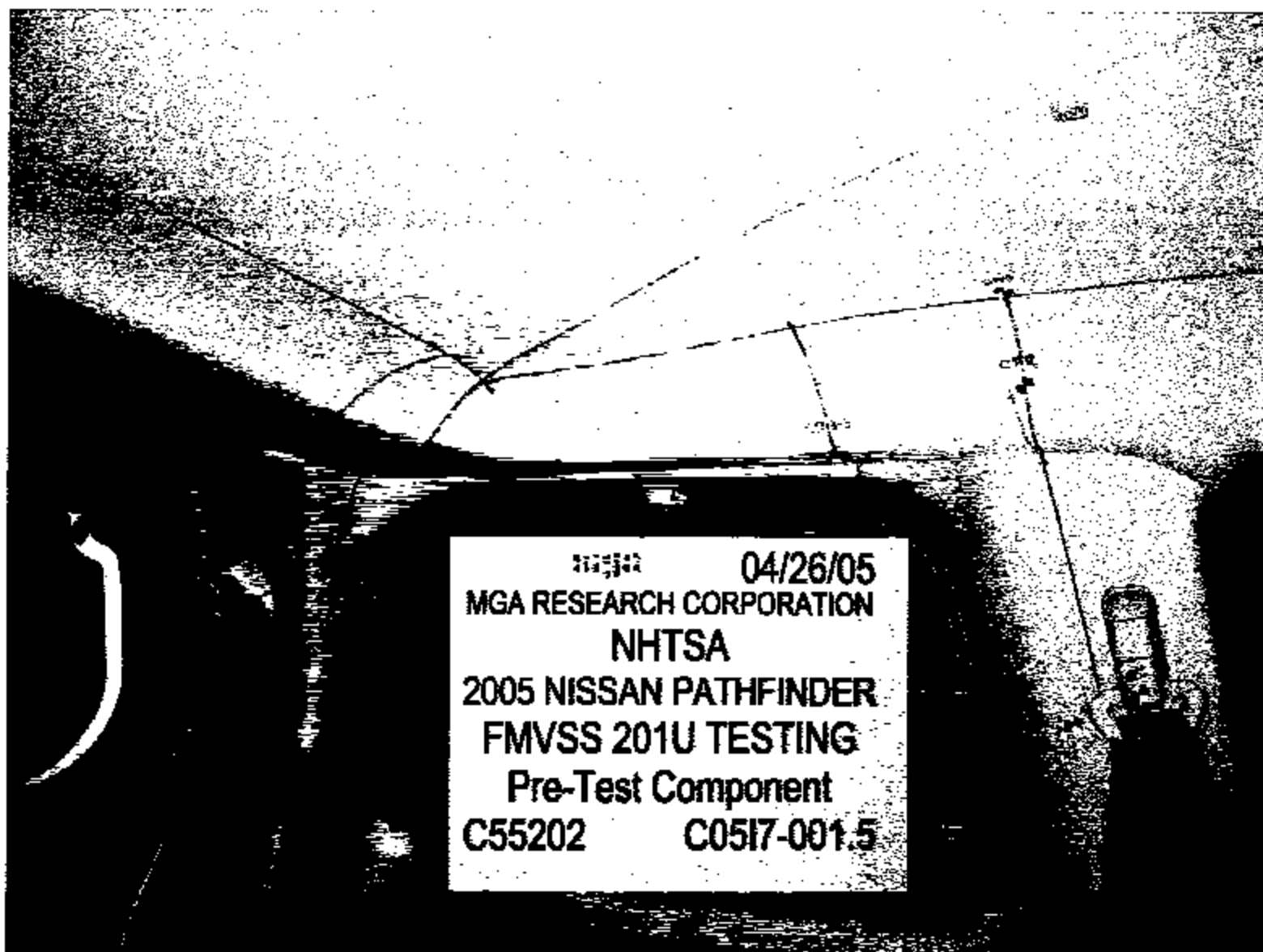
RECOMMENDED COLD TIRE INFLATION PRESSURE
PRESSION DE GONFLAGE RECOMMANDEE DES PNEUS FROIDS

TIRE SIZE DIMENSIONS		kPa (psi)
P235/75R15	P245/75R16	FRONT: 240 (35)
P265/70R16	P265/75R16	
P265/65R17		REAR: 240 (35)

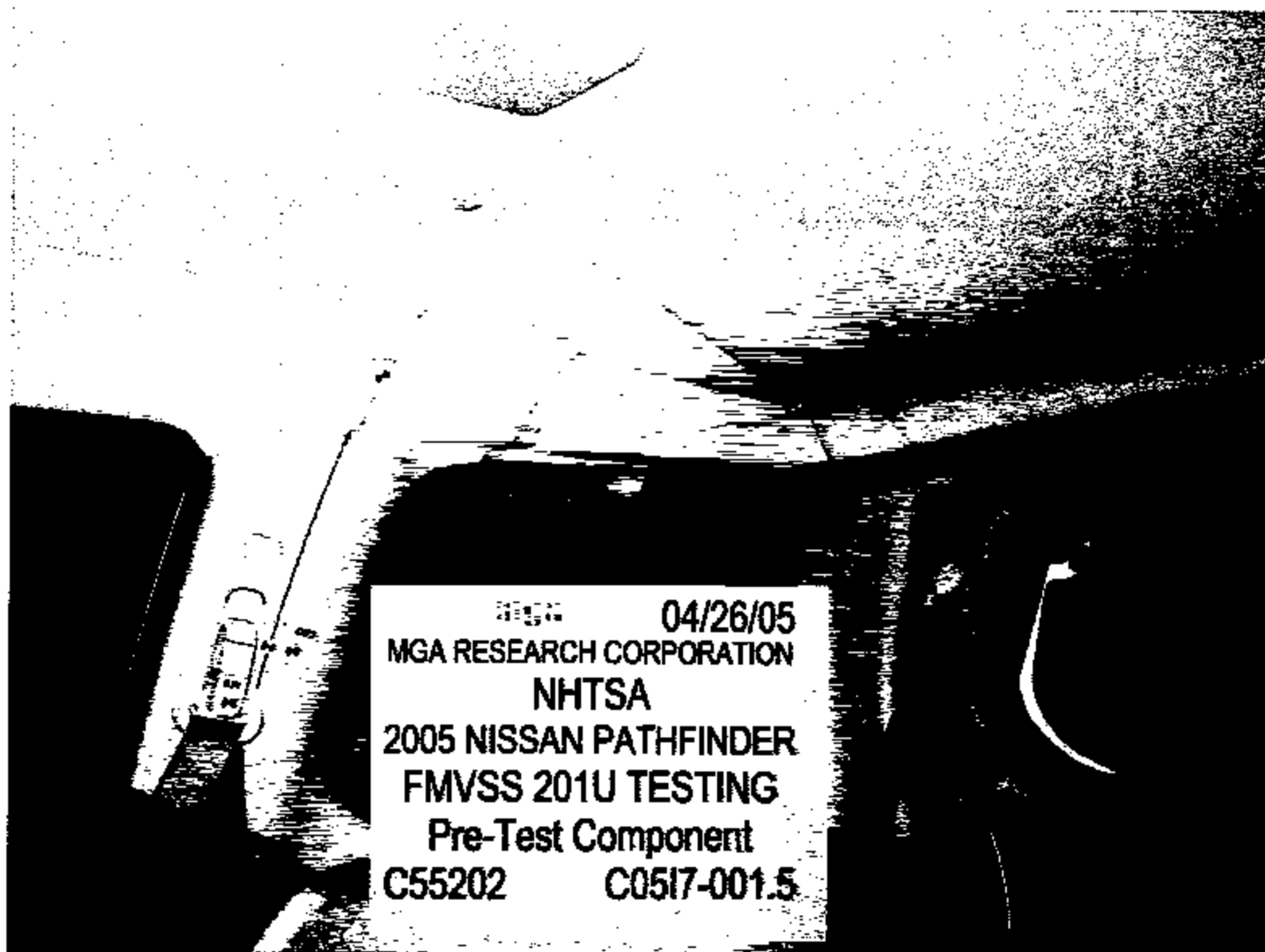
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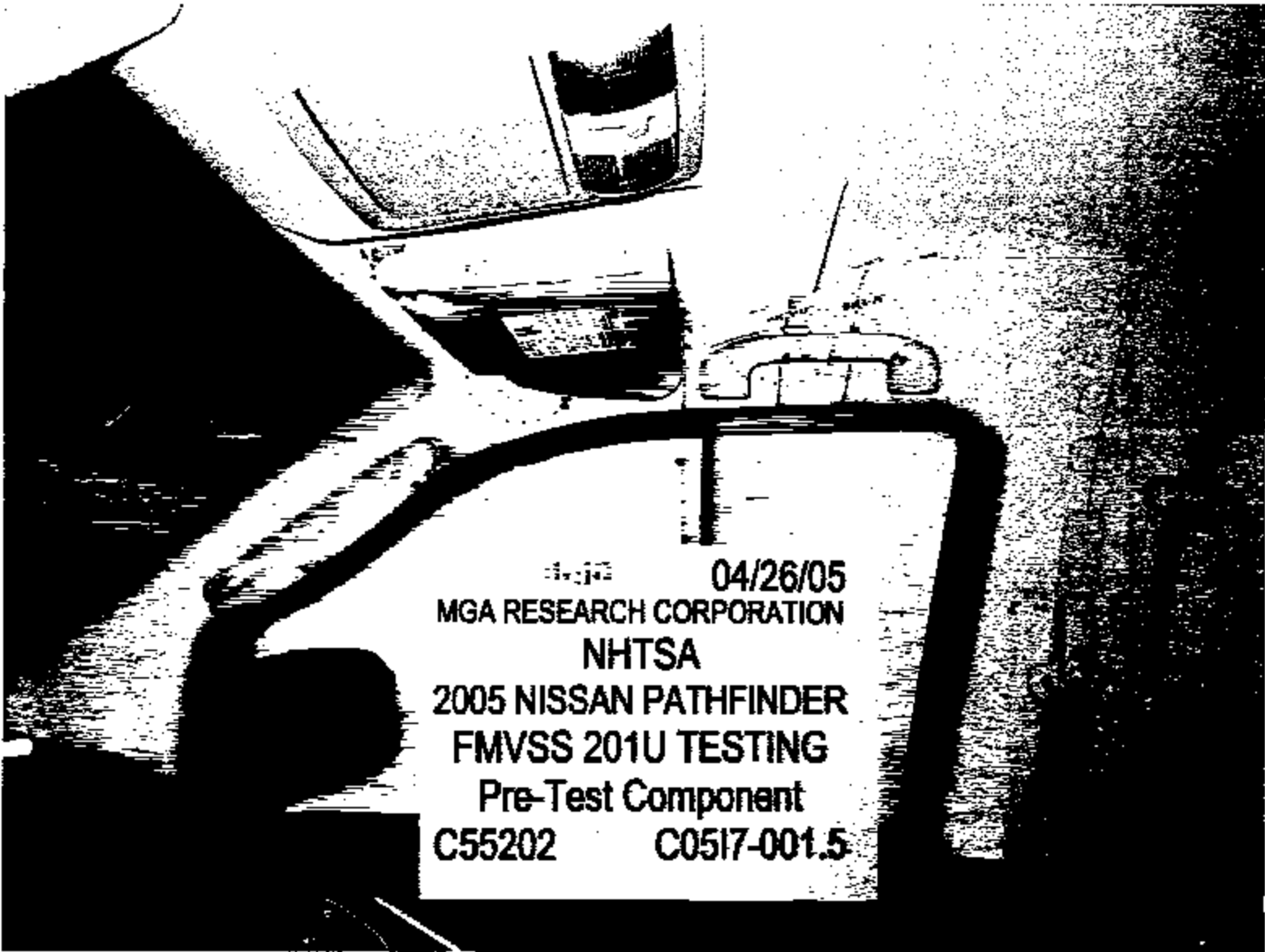
04/26/05
MGA RESEARCH CORPORATION
NHTSA
2005 NISSAN PATHFINDER
FMVSS 201U TESTING
Pre-Test Component
C55202 C0517-001.5



04/26/05
MGA RESEARCH CORPORATION
NHTSA
2005 NISSAN PATHFINDER
FMVSS 201U TESTING
Pre-Test Component
C55202 C0517-001.5

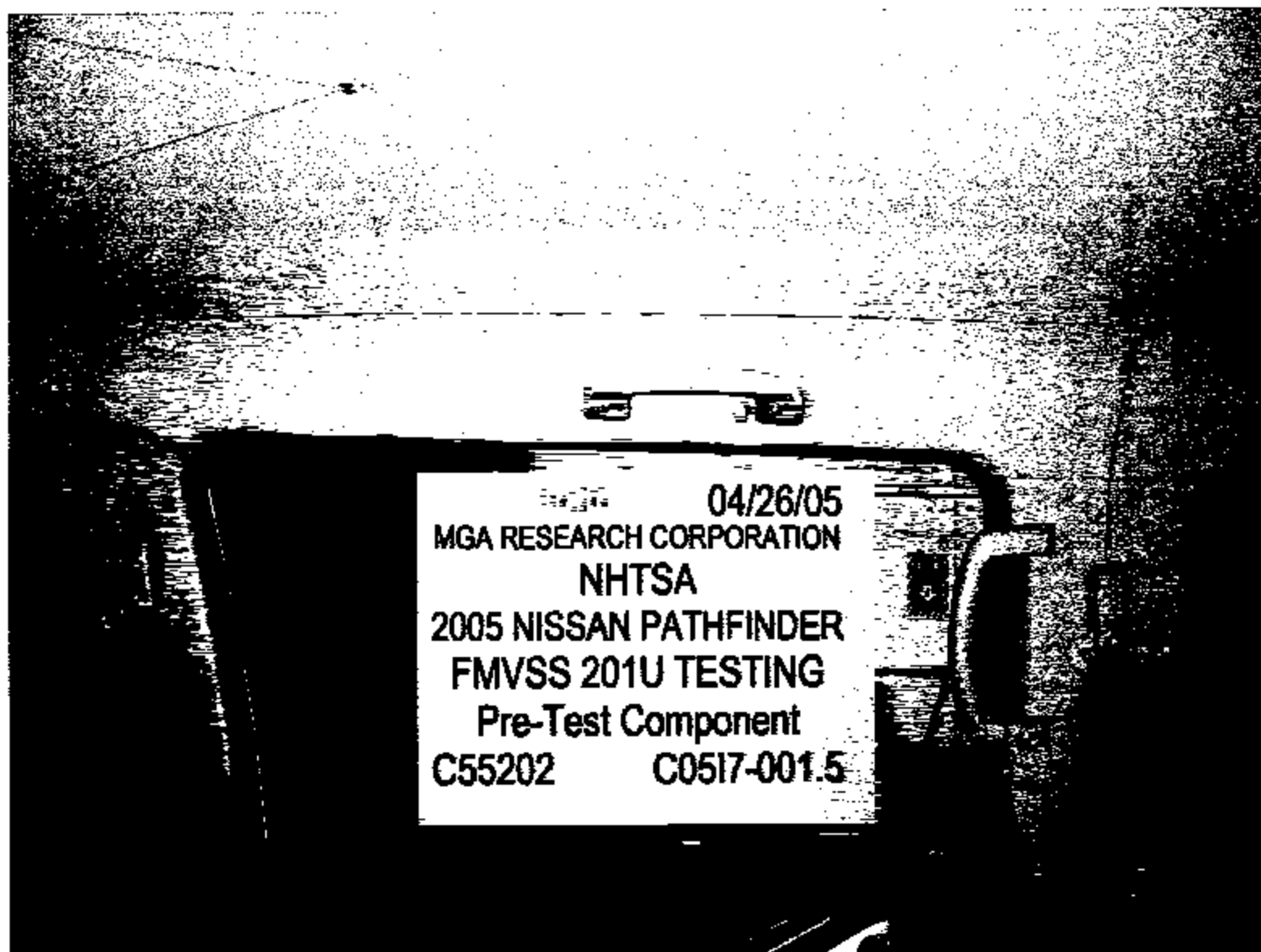


04/26/05
MGA RESEARCH CORPORATION
NHTSA
2005 NISSAN PATHFINDER
FMVSS 201U TESTING
Pre-Test Component
C55202 C0517-001.5



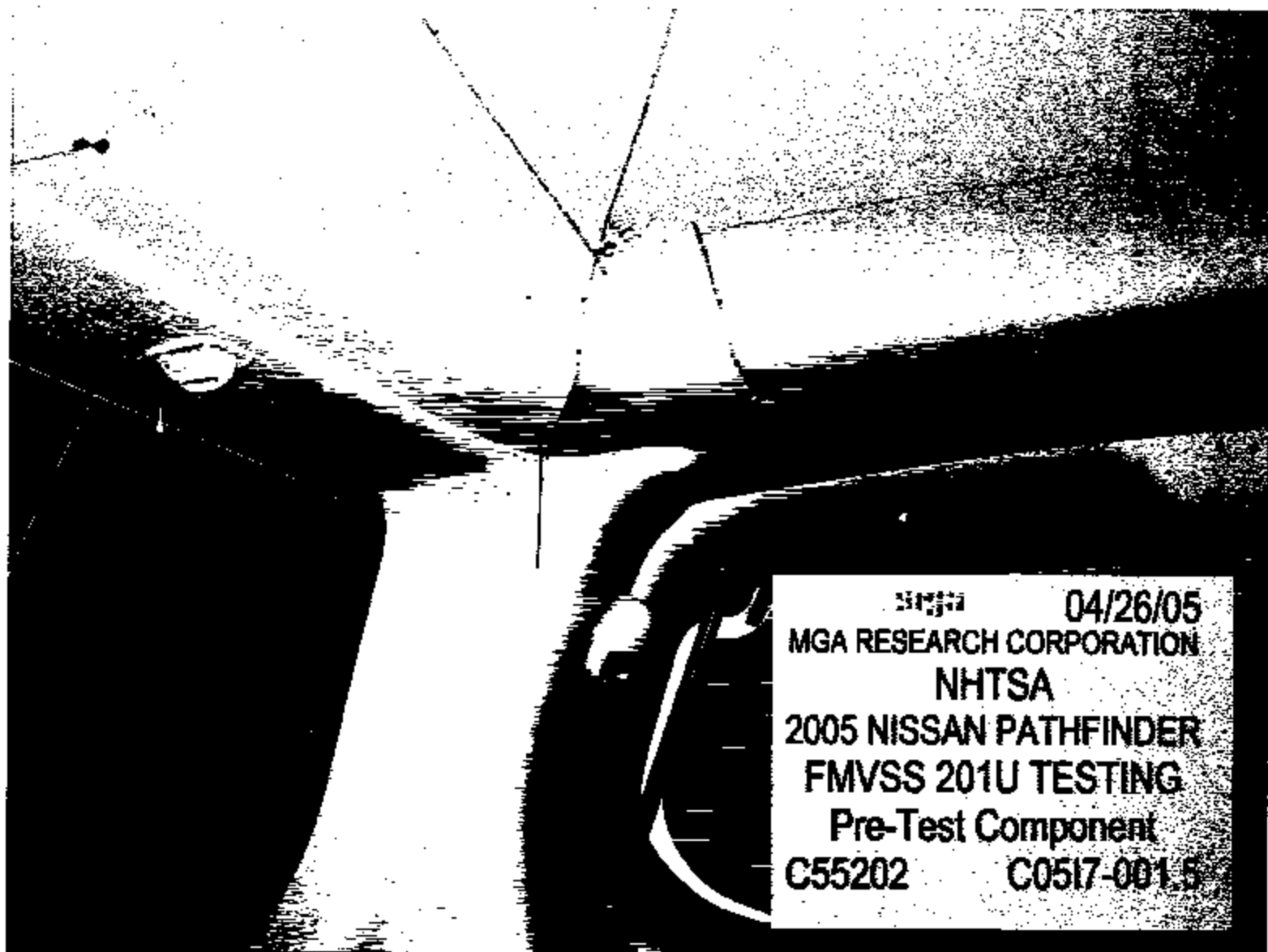
04/26/05
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NHTSA
2005 NISSAN PATHFINDER
FMVSS 201U TESTING
Pre-Test Component
C55202 C0517-001.5



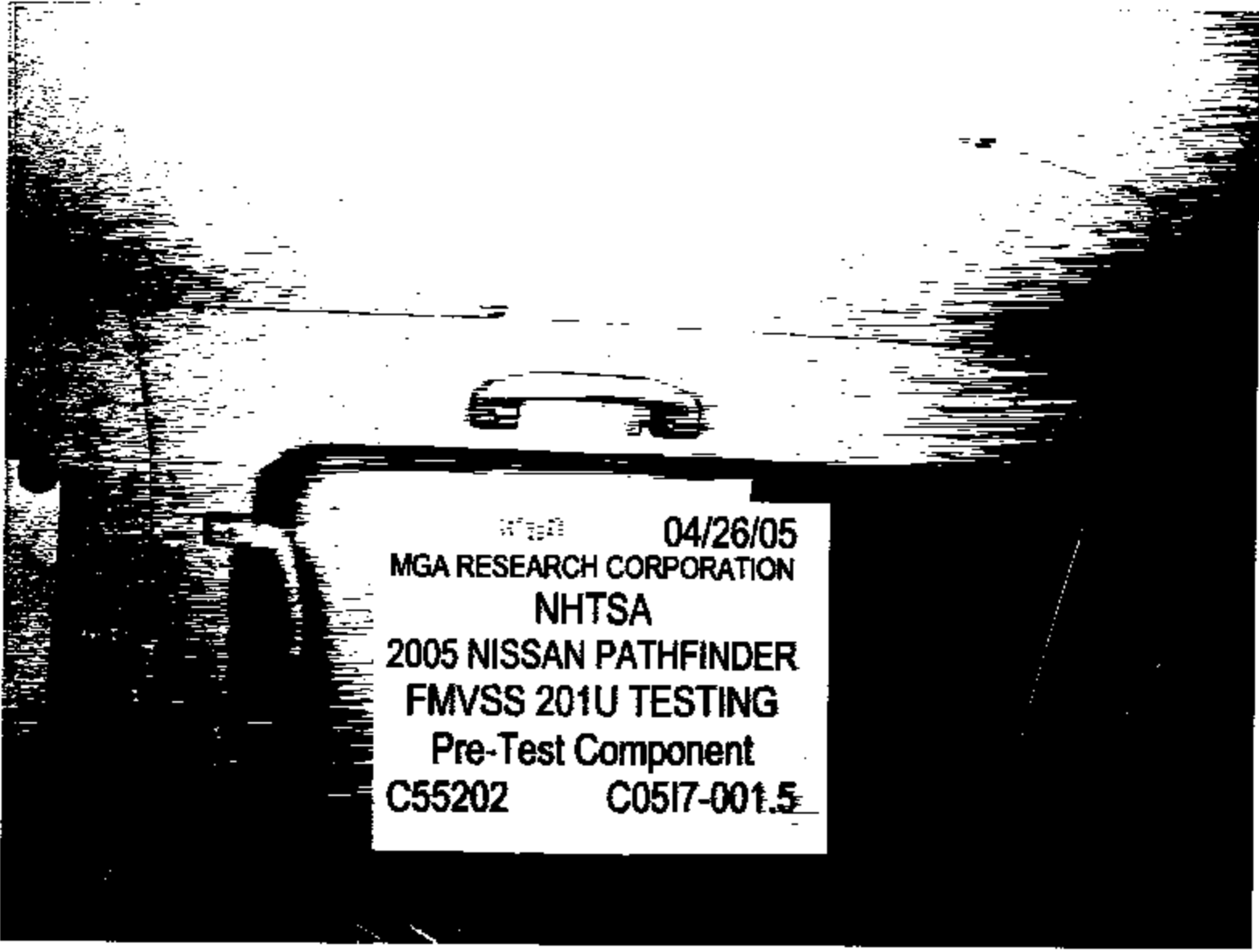




04/26/05
MGA RESEARCH CORPORATION
NHTSA
2005 NISSAN PATHFINDER
FMVSS 201U TESTING
Pre-Test Component
C55202 C0517-001.5



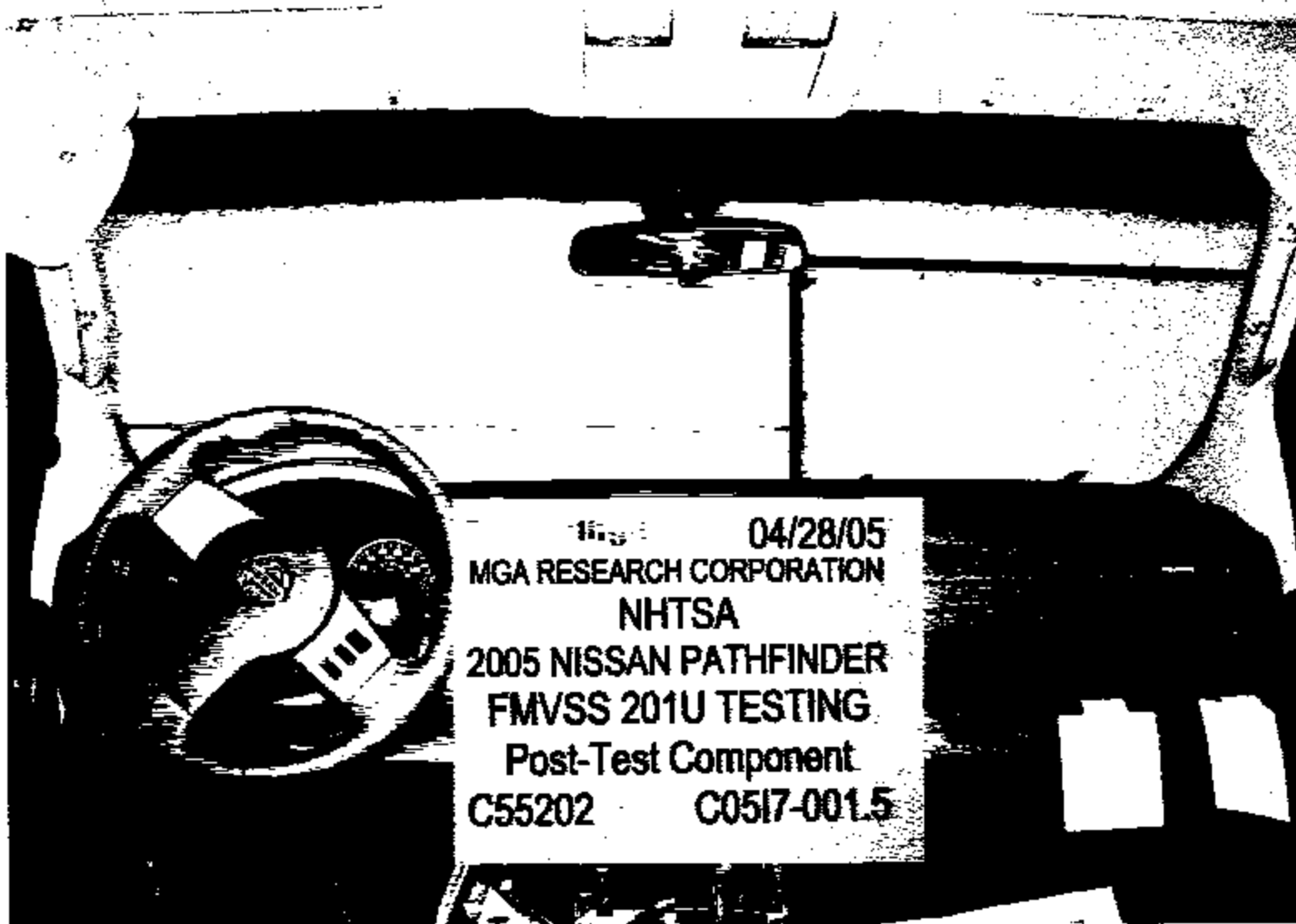
04/26/05
MGA RESEARCH CORPORATION
NHTSA
2005 NISSAN PATHFINDER
FMVSS 201U TESTING
Pre-Test Component
C55202 C0517-001.5



04/26/05
MGA RESEARCH CORPORATION
NHTSA
2005 NISSAN PATHFINDER
FMVSS 201U TESTING
Pre-Test Component
C55202 C0517-001.5



04/28/05
MGA RESEARCH CORPORATION
NHTSA
2005 NISSAN PATHFINDER
FMVSS 201U TESTING
Post-Test Component
C55202 C0517-001.5



04/28/05

MGA RESEARCH CORPORATION

NHTSA

2005 NISSAN PATHFINDER

FMVSS 201U TESTING

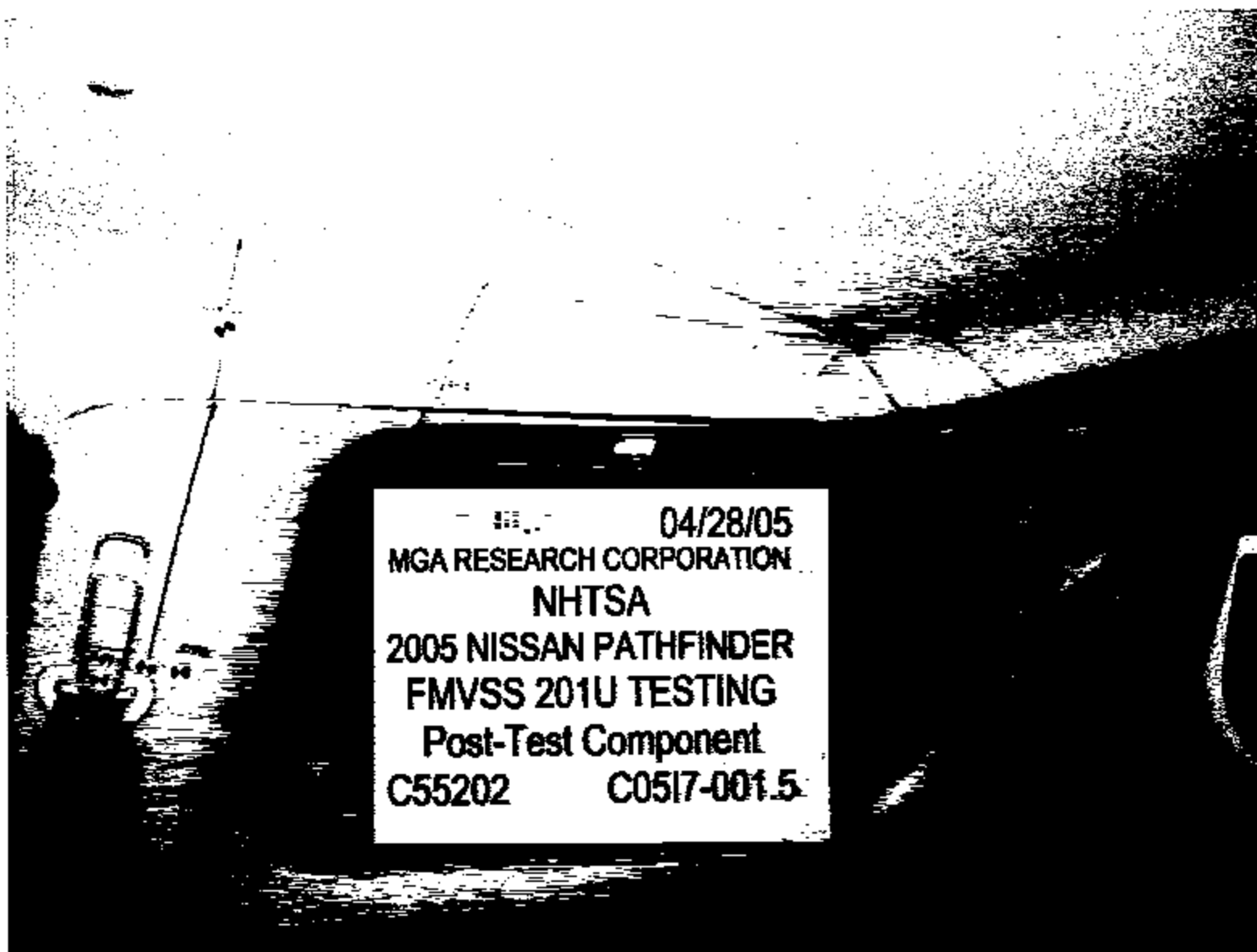
Post-Test Component

C55202

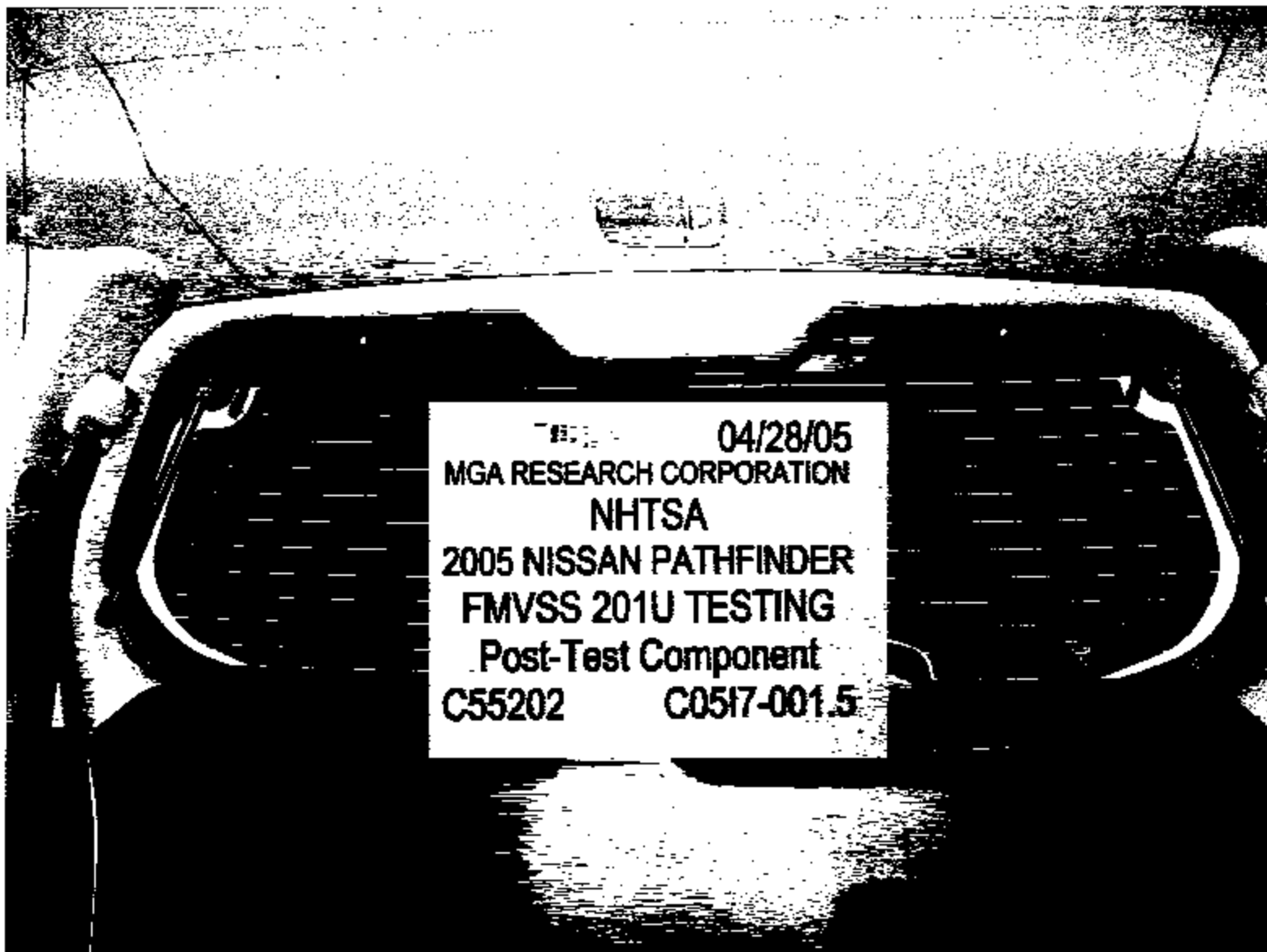
C0517-001.5



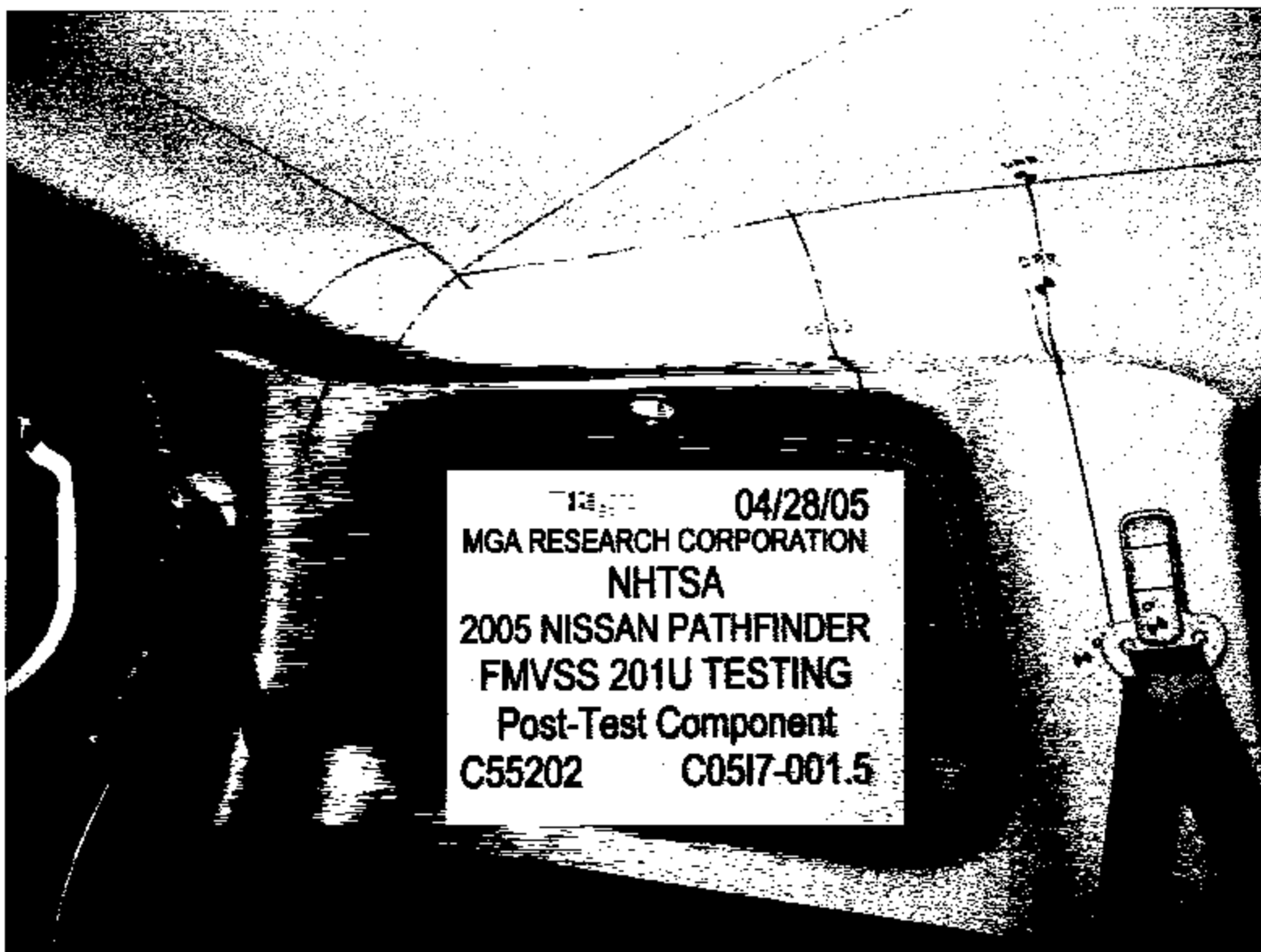
04/28/05
MGA RESEARCH CORPORATION
NHTSA
2005 NISSAN PATHFINDER
FMVSS 201U TESTING
Post-Test Component
C55202 C0517-001.5



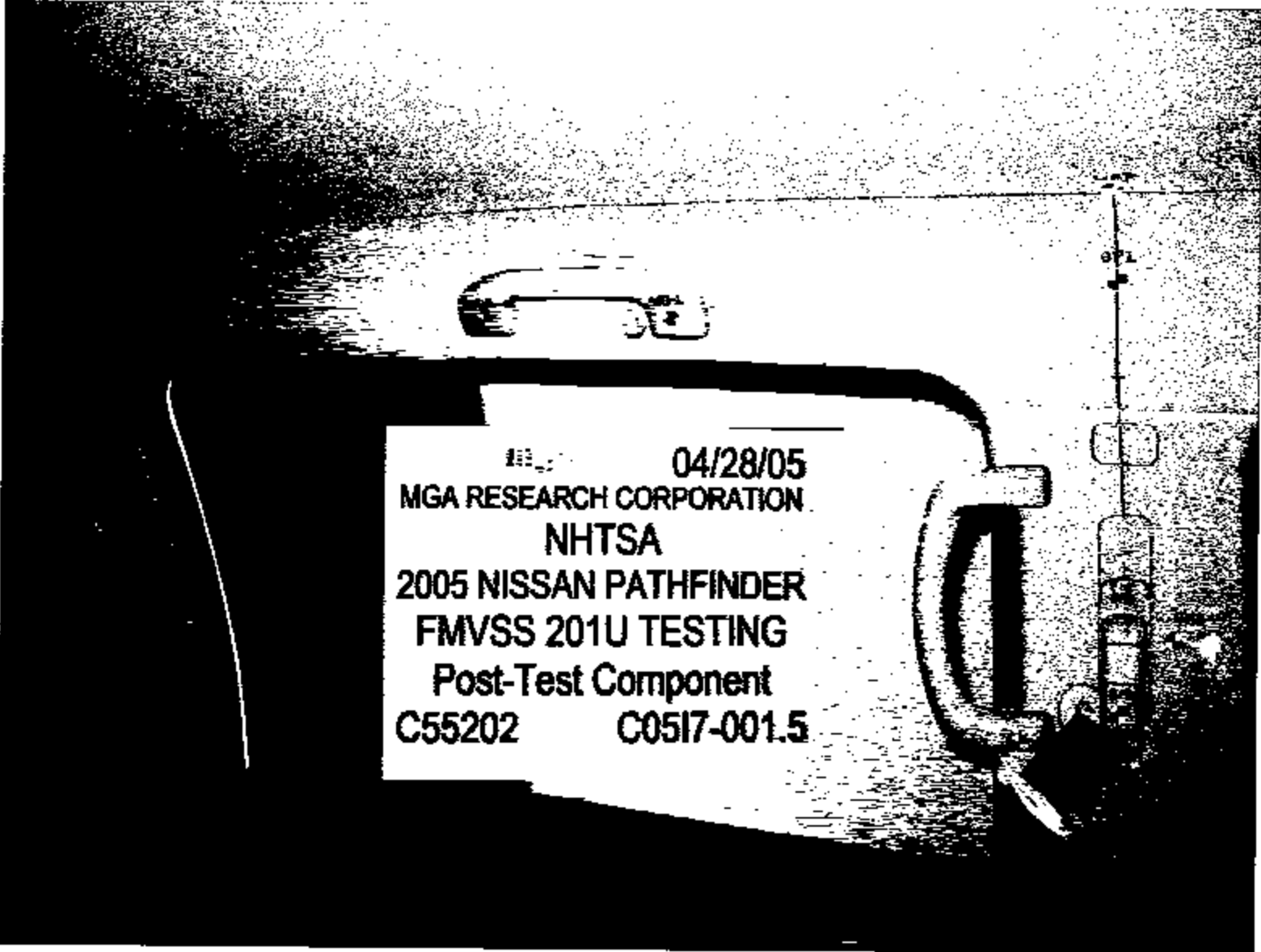
04/28/05
MGA RESEARCH CORPORATION
NHTSA
2005 NISSAN PATHFINDER
FMVSS 201U TESTING
Post-Test Component
C55202 C0517-001.5



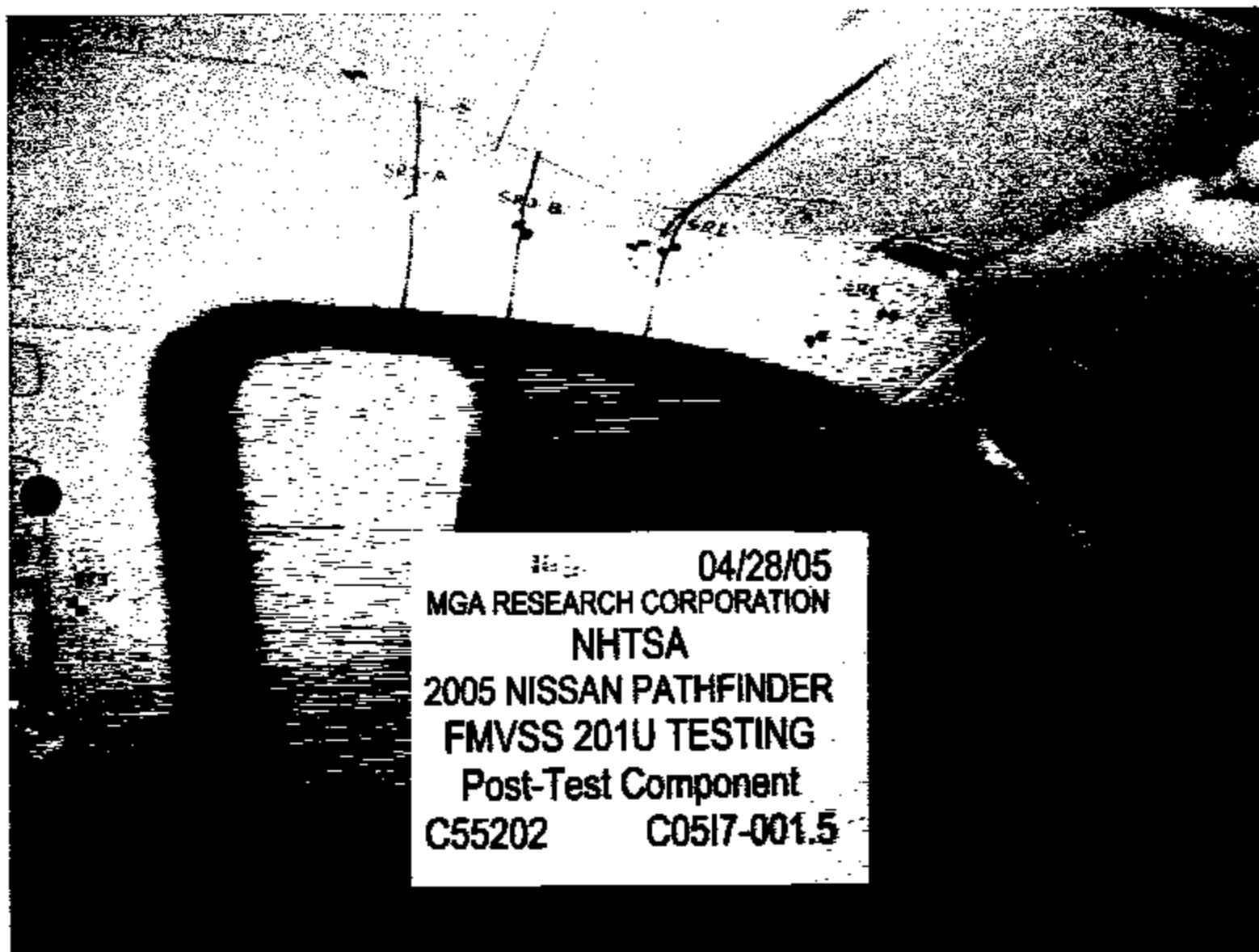
04/28/05
MGA RESEARCH CORPORATION
NHTSA
2005 NISSAN PATHFINDER
FMVSS 201U TESTING
Post-Test Component
C55202 C0517-001.5



04/28/05
MGA RESEARCH CORPORATION
NHTSA
2005 NISSAN PATHFINDER
FMVSS 201U TESTING
Post-Test Component
C55202 C0517-001.5



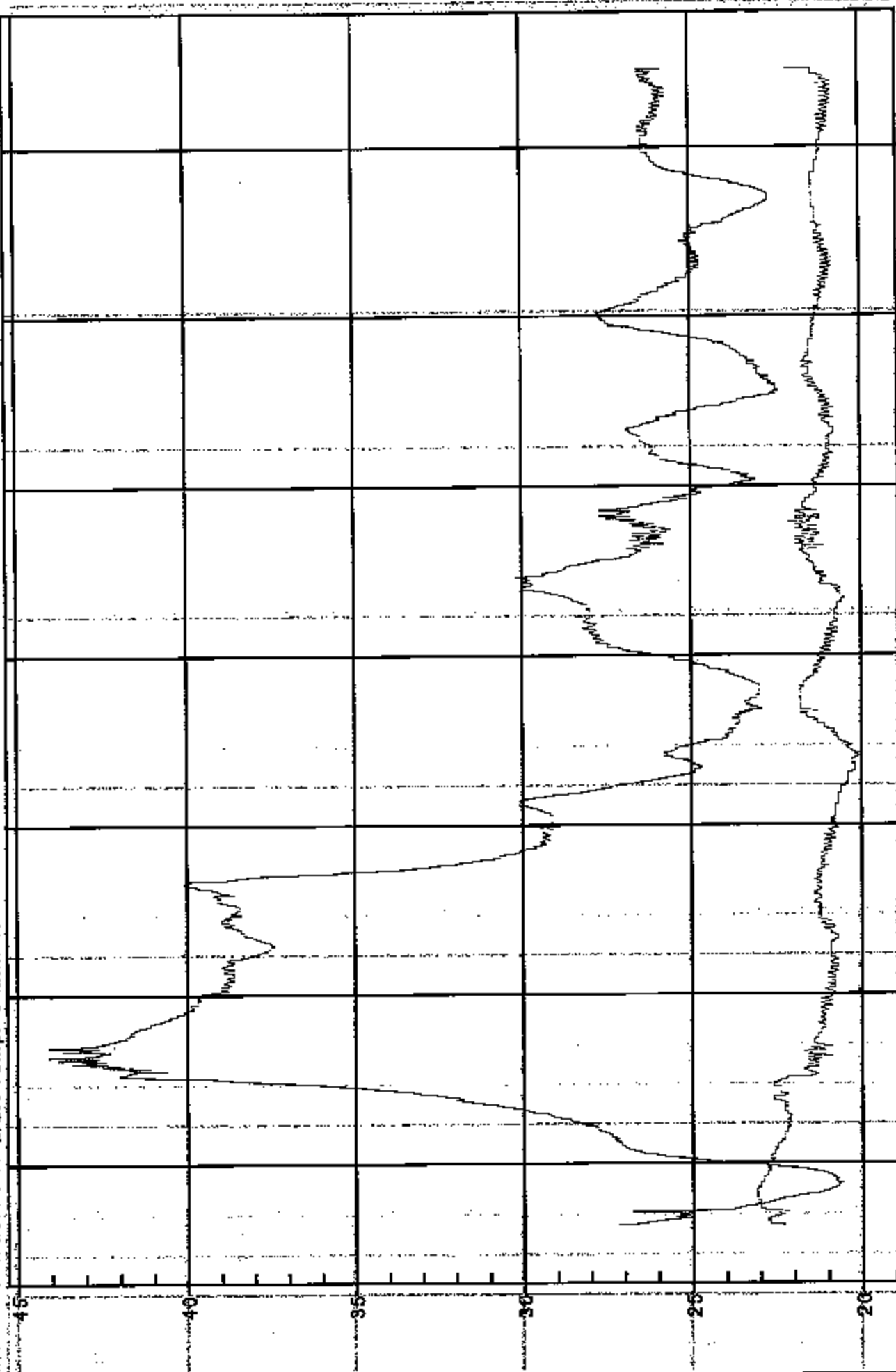
04/28/05
MGA RESEARCH CORPORATION
NHTSA
2005 NISSAN PATHFINDER
FMVSS 201U TESTING
Post-Test Component
C55202 C0517-001.5



Downloaded Data - Monday, May 02, 2005

A-1

MGA-Temp/°C Min: 20.1 Max: 23.1 MGA-RH/% Min: 20.6 Max: 44.1 Avg: 28.5



mga research corporation
CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: Reference Accelerometer
Model: 7264-2000	Model: 301M09/484B
S/N: J35924	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 11/9/04	Calibration Date: 5/11/04
	Calibrated By: Chris Vega/PCB Piezotronics, Inc.

Test Reference Number: A0424

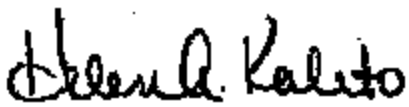
New DLR (100k, Units: G): 94.1

StdDeviation (%): 0.247

% Difference in DLR (New vs. Old): 1.899

Temperature (°F): ... 72

Humidity (%): 35

Performed By: Approved By: 

All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 0.8\%$.
 All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor k=2.

446 executive drive • troy, mi 48083

248 / 577-5001 • fax 248 / 577-5025

www.mgaresearch.com

mga research corporation**CALIBRATION CERTIFICATE**

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7264-2000	Model: 301M09/484B
S/N: J35919	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 11/9/04	Calibration Date: 5/11/04
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0424

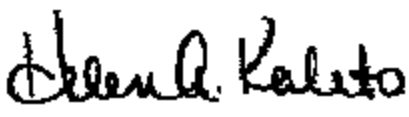
New DLR (100k, Units: G): 94.3

StdDeviation (%): 0.198

% Difference in DLR (New vs. Old): 0.447

Temperature (°F): 72

Humidity (%): 35

Performed By: Approved By: 

All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 3.8\%$.
All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor $k=2$.

446 executive drive • troy, mi 48083

248 / 577-5001 • fax 248 / 577-5025

www.mgaresearch.com



mga research corporation

CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7264-2000	Model: 301M09/484B
S/N: J22664	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 11/9/04	Calibration Date: 5/11/04
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0424

New DLR (100k, Units: G): 92.7

StdDeviation (%): 0.495

% Difference in DLR (New vs. Old): 0.224

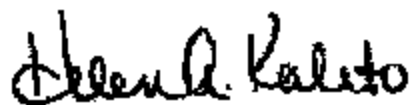
Temperature (°F): 72

Humidity (%): 35

Performed By:



Approved By:



All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 3.8\%$. All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor $k=2$.

446 executive drive • troy, mi 48063

248 / 577-5001 • fax 248 / 577-5025

www.mga-research.com

mga research corporation
CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7264-2000	Model: 301M09/484B
S/N: J35800	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 11/9/04	Calibration Date: 5/11/04
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0422

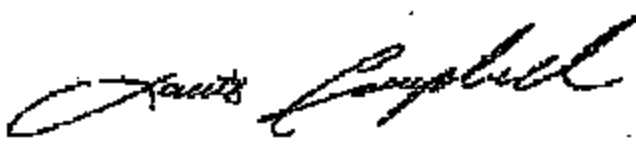
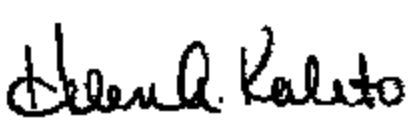
New DLR (100k, Units: G): 98.4

StdDeviation (%): 0.266

% Difference in DLR (New vs. Old): -0.586

Temperature (°F): 72

Humidity (%): 24

Performed By: Approved By: 

All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 3.8\%$.
 All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor $k=2$.

mga research corporation
CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7264-2000	Model: 301M09/484B
S/N: J35841	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 11/9/04	Calibration Date: 5/11/04
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0422

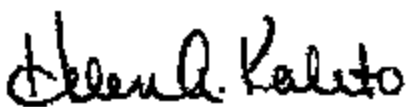
New DLR (100k, Units: G): 92.6

StdDeviation (%): 0.092

% Difference in DLR (New vs. Old): -0.35

Temperature (°F): 72

Humidity (%): 24

Performed By: Approved By: 

All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 3.8\%$.
 All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor $k=2$.



mga research corporation

CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7264-2000	Model: 301M09/484B
S/N: J35791	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 11/9/04	Calibration Date: 5/11/04
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0422

New DLR (100k, Units: G): 88.8

StdDeviation (%): 0.323

% Difference in DLR (New vs. Old): -0.776

Temperature (°F): 72

Humidity (%): 24

Performed By:

Approved By:

All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 3.8\%$.
All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor k=2.



mga research corporation

CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7264-2000	Model: 301M09/484B
S/N: J36197	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 11/9/04	Calibration Date: 5/11/04
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0423

New DLR (100k , Units: G): 110.0

StdDeviation (%): 0.117

% Difference in DLR (New vs. Old): 1.822

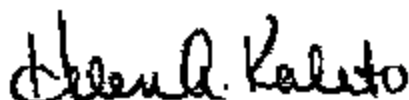
Temperature (°F): 72

Humidity (%): 32

Performed By:



Approved By:



All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 3.5\%$.
All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor $k=2$.



mga research corporation

CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7264-2000	Model: 301M09/484B
S/N: J36193	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 11/9/04	Calibration Date: 5/11/04
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0423

New DLR (100k, Units: G): 101.9

StdDeviation (%): 0.206

% Difference in DLR (New vs. Old): 0.497

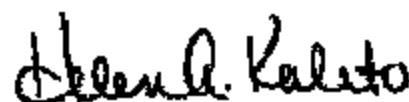
Temperature (°F): 72

Humidity (%): 32

Performed By:



Approved By:



All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is ±3.8%.
All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor k=2.



mga research corporation

CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: Reference Accelerometer
Model: 7264-2000	Model: 301M09/484B
S/N: J36353	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 11/9/04	Calibration Date: 5/11/04
	Calibrated By: Chris Vega/PCB Piezotronics, Inc.

Test Reference Number: A0423

New DLR (100k, Units: G): 96.7

StdDeviation (%): 0.158

% Difference in DLR (New vs. Old): -0.171

Temperature (°F): 72

Humidity (%): 32

Performed By:



Approved By:



All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is ±3.8%.
All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor k=2.

~Certificate of Calibration~

Model Number: 444B	N.I.S.T. Project #: 8720012
Serial Number: 2470	Calibration Date: 08/11/2004
Description: Signal Conditioner	Recalibration Date:
Test Procedure: AT-100-1	Calibration Technician: Chris Vega <i>CV. #36</i>
Temperature: 74° F	Relative Humidity: 42%

<u>TESTS</u>	<u>BEFORE</u>	<u>AFTER</u>
INPUT VOLTAGE ($24 \pm 0.1V$)	24.02	24.02
ICP CURRENT ($4 \pm 0.6mA$)	3.97	3.97
DC OFFSET A.C. MODE (volts)	-.001	-.001
GAIN (REF 1 VRMS, 1kHz)	1.0000	NOT ADJUSTABLE
DRIFT (DC MODE)	< 2mV/min	NOT ADJUSTABLE
FREQUENCY RESPONSE 10 Vp-p, 1 kHz REFERENCE	FLAT TO 200kHz	NOT ADJUSTABLE

As Received: In tolerance

As Left: In tolerance

Special Notes: MGA Research

This document certifies that the equipment referenced above meets published specifications. The calibration procedure is in compliance with ISO 10012-1, and follows MIL-STD-46002A and is traceable to NIST. *Measurement uncertainty (95% confidence level w/coverage factor of 2) for some factors is $\pm 0.2\%$.

This certificate may not be reproduced, except in full, without written approval of

~ Calibration Certificate ~

For ISO 17025-21

 Model Number: 30TMS9/49-4R (30-4917 SYSTEM)

 Serial Number: 362/2479

 Description: ICPB Accelerometer

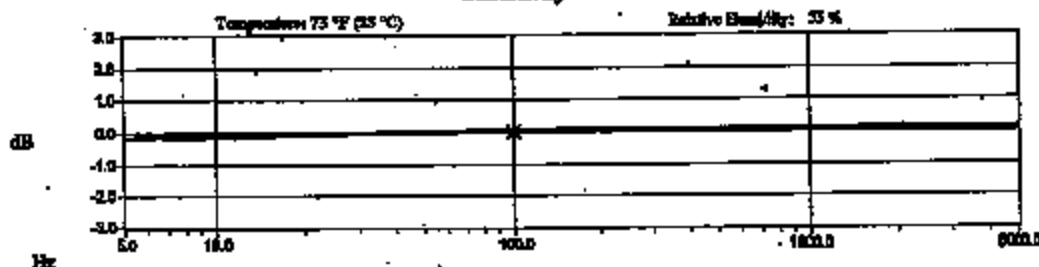
 Method: Back-to-Back Comparison Calibration

 Manufacturer: PCB

Calibration Data

Sensitivity @ 180.0 Hz: 31.17 mV/g Output Bias: 0.6 VDC
 (2.179 mV/m/s²) Temperature Sensitivity: 3.0 %

Sensitivity



Data Points

Frequency (Hz)	Dev. (%)	Frequency (Hz)	Dev. (%)	Frequency (Hz)	Dev. (%)
5.0	-2.3	RSP. FREQ.	0.0	5000.0	1.1
10.0	-1.9	300.0	0.7		
15.0	-1.4	500.0	0.8		
30.0	-0.6	1000.0	1.0		
50.0	-0.2	3000.0	1.5		

 Manufacturer: Shibata Electronics Corp. Tokyo, Japan

 Part Number: 30TMS9/49-4R

 Revision: 001

 Date: 03/13/04

Condition of Unit

 As Found: In Tolerance, No Adjustment Necessary

 As Left: In Tolerance

Notes

1. Calibration is NIST Traceable thru Project 822/267406 and PTB Traceable thru Project 1033.
2. This certificate shall not be reproduced, except in full, without written approval from PCB Piezotronics, Inc.
3. Calibration is performed in compliance with ISO 9001, ISO 10012-1, ANSI/NCSL Z540-1-1994 and ISO 17025.
4. See Manufacturer's Specification Sheet for a detailed listing of performance specifications.
5. Measurement uncertainty (95% confidence level with coverage factor of 2) for frequency ranges tested during calibration are as follows: 5-9 Hz, $\pm 2.0\%$, 10-99 Hz, $\pm 1.5\%$, 100-1999 Hz, $\pm 1.0\%$, 2-10 kHz, $\pm 2.5\%$.

 Technician: Chuck DiMaggio

 Check: DiMaggio

 Date: 03/13/04


0401 No 1002.01

PCB 1 of 1

PCB PIEZOTRONICS

VIBRATION DIVISION

3421 Walton Avenue, Dayton, NY 14543

TEL: 716-684-8000 FAX: 716-684-8005 www.pcb.com

0401-21000002

Interim Certification Document

Part Description: Gold
 Single Point 2 Sigma: G08-02 $\pm .0010$ mm (+/- .0020")
 Linear Displacement 2 Sigma: G08-02 $\pm .072$ mm (+/- .0028")
 Calibration Date: 02/17/05
 Serial #: G08-02-02-03122
 Certificate #: G08/2228-400
 Ambient Temperature: 22°C $\pm$ 3°C

Measurement Standards, NIST, U.K.A.S. Traceability
 Kit Number: 803
 NIST/UKAS Cert No: LLO1010001
 Date: 02/16/05

10mm Step Gauge, Mitutoyo Corporation: Code No.: 515-744
 Asset No.: 052
 NIST/UKAS Cert No: 110107226
 Date: 10/22/03
 U.K.A.S. Cert No: 144631
 Date: 17/03/03

Measuring range: 1.6m

*The subject above has been calibrated with a device traceable to NIST and UKAS standards (see test number above). Expanded measurement uncertainty is 2.0 $\times$ 1.5% maximum, where 1.5% maximum is expressed at approximately the 95% Level of Confidence using a 1.5%.

Certification Results

A basic four quadrant certification included with all FARO Arms and comprised of 2 vertical level single point repeatability test in 4 quadrants with 6 repeats from 4 directions

Step Gauge Test in 4 quadrants, 3 orientations per quadrant

3 Length, 3 position free ball bar test in 4 quadrants

*Calibration and certification conforms to procedures developed in accordance with ASME B89.4.23-200X.

Instrument condition as received

Not within specifications

Instrument condition outgoing

Within specifications

Date: 2-22-05

Technician: David Richards

21736

David Richards

Technician

This certificate shall not be reproduced, except in full, without permission of FARO Technologies, Inc.

The results of this certificate relate only to the items as listed or marked.

FARO Technologies, Inc.
 Michigan Regional Office
 PH1-248-890-8620

40000 Mesquite Drive
 Warren, MI 48093
 USA

FAX 248-890-8069

FARO

LABORATORY
 ACCREDITATION
 BUREAU
 ISO/IEC 17025 Accredited

Page 1 of 10

MECHANICAL OPERATIONS
DATE: 2/20/05
SUPERVISOR: M. G. HARRIS

DOC. NO.: MGA-1000
REVISION NO.: 6
PAGE 3 OF 5

Tape Measure Calibration Certificate

Reference Steel Rule

Brand: JOHN DEERE
SN: 1868700122
Calibration Date: 3/18/04

Subject Tape Measure

Brand: STANLEY
SN: 457
Calibration Date: 3/18/05

Reference (in/mm)	Subject Tape Measure	Difference	Reference (in/mm)	Subject Tape Measure	Difference
0 (0)	0	0	18 (450)	18	0
1 (25)	1	0	19 (475)	19	0
2 (50)	2	0	20 (500)	20	0
3 (75)	3	0	21 (525)	21	0
4 (100)	4	0	22 (550)	22	0
5 (125)	5	0	23 (575)	23	0
6 (150)	6	0	24 (600)	24	0
7 (175)	7	0	25 (625)	25	0
8 (200)	8	0	26 (650)	26	0
9 (225)	9	0	27 (675)	27	0
10 (250)	10	0	28 (700)	28	0
11 (275)	11	0	29 (725)	29	0
12 (300)	12	0	30 (750)	30	0
13 (325)	13	0	31 (775)	31	0
14 (350)	14	0	32 (800)	32	0
15 (375)	15	0	33 (825)	33	0
16 (400)	16	0	34 (850)	34	0
17 (425)	17	0	35 (875)	35	0

If all differences are $\pm 1/32$ of an inch (1 mm), then the tape measure is acceptable.

Pass X Fail Maximum Difference = 0

Date: 3/17/05 Performed By: 2/ Mike

All calibrations are traceable to the National Institute of Standards and Technology. Estimated repeatability of the measurement is ± 0.005 .
All certification data and equipment are on file for inspection at your request. Best measurement equipment required, inspected at approximately the 95% confidence level using a coverage factor k=1.96.

94
3-7-05



4700 Barker Court S.E. • Kentwood, MI 49612 • Telephone: 616.698.3124 • Fax: 616.698.2354



Certificate of Calibration

MGA Research
446 Executive Drive
Troy, MI 48063

Order Number: 48529
Report Number: 09030500
Page: 1 of 1

Gauge Number: 80400571
Gauge Desc: Digital Protractor
Manufacturer: Pro-300
Model Number: 805
Serial Number: 105

Customer PO: 07-01-2004
Last Calibration: 07/04
Calibration Date: 09/05
Next Calibration: 2/06

As Found Condition: In Tolerance

As Left Condition: In Tolerance

MetroCal Inc. maintains reference standards of traceability which are traceable to the National Institute of Standards and Technology, or other authorized National Standards. Calibration was performed in accordance with MetroCal Plan No. CP000 and conformance with the ANSI/ISO 9001, 2000/1 and ISO/IEC 17025 standards. Results shall not be reproduced, except in full, without the written approval of MetroCal, Inc. Results relate only to the items calibrated. Any number of items may cause the original item to drift out of calibration before the recommended interval has elapsed. Statements of compliance should state compliance acceptance rules.

Calibration Personnel
Uniquely Identified
MGA Research (MGA)
+/- 0.005 degrees

Standard Used
Gage Dkt. Gage 841328
Dial Indicator Bar 100-1075

Cal Date
07/10/04
12/05/04

Due Date
07/10/05
12/05/05

Traceable No.
821800345-03
021270000-08 & 3000042010

Results

Units	As Found Readings		
	Standard	Actual	Deviation
Digital Deg.	0.00	0.0	0.00
	10.00	10.1	0.10
	20.00	20.0	0.00
	30.00	30.1	0.10
	40.00	40.1	0.10

Reference Level Checks Within +/- 0.1 degrees

As Left Readings		
Standard	Actual	Deviation
0.00	0.0	0.00
10.00	10.1	0.10
20.00	20.1	0.10
30.00	30.0	0.00
40.00	40.0	0.00

Reference Level Checks Within +/- 0.1 degrees

Comments: (Environmental) conditions during calibration: 68 deg. F., 34 % RH.
Deburred surface for more accurate readings.

[Signature] Date: 09-05
James J. Smith
Calibration Technician

☐ Checked box indicates this calibration was performed at the customer facility.

Form F410/12-3 Revision Date 03-11-03
 Revision Level: E
 STANDARD FORM

20950 Boering St.
 Southfield MI 48075
 Phone (248) 358-0590 Fax (248) 355-2529

Sterling Scale Company Inc.
Scale Certificate of Calibration

Customer: MGA Research
 Location of Calibration: 446 Executive Dr.
Troy, MI 48063
 Certification Number: 6774
 Date of Calibration: 8-11-2004
 **Next Calibration Due: 8-2005
 Environmental Condition: ☒ Good ☐ Fair ☐ Poor

Make:	Model:	Serial/ID#:	Capacity:
<u>SW Scales</u>	<u>SW Deluxe</u>	<u>26032389</u>	<u>5500x116</u>

This certifies that the above scale has been calibrated using the relevant EPO, original equipment manufacturer calibration procedures along with Handbook 44 tolerances using weights traceable to the National Institute of Standards and Technology as well as the International Systems of Units (SI).

Sterling Scale Weight/Weight kit serial #: 1160, 10002, 50967, 20600, 2095, 20150

Calibrated to class: III

Date Weight/Weight kit calibrated: 9/03

Date Weight/Weight kit due: 9/05

Expanded Uncertainty (k=2) confidence level of 95% is reported with the before and after readings on next page.

Temperature 700 Humidity 60%

pg 1 of 3

These items relate only to these results

Tolerances followed are maintenance/acceptance per HB-44

This report shall not be reproduced, except in full, without written approval of the laboratory.

** Any number of factors may cause the calibration item to drift out of calibration before the recommended interval has expired.

The reported uncertainty is valid only for the environment in which it is determined.



1448.01

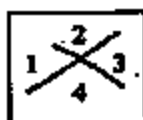
Form F410/12-3 Revision Date 03-11-03
 Revision Level: B
 STANDARD FORM

20950 Boering St.
 Southfield MI 48075
 Phone (248) 358-0590 Fax (248) 358-0590

Sterling Scale Company Inc.
Scale Certificate of Calibration

Applied Test Weight	Before Adjustment	Tolerance +/-	In tolerance Y / N	After Adjustment	In tolerance Y / N	Expanded uncertainty
50 lb	50 lb	1 lb	Y	50 lb	Y	-0.025 lb
1000 lb	1000 lb	2 lb	Y	1000 lb	Y	-0.14 lb
2200 lb	2200 lb	2 lb	Y	2200 lb	Y	-1.3
50 lb	50 lb	1 lb	Y	50 lb	Y	-0.03
1000 lb	1000 lb	2 lb	Y	1000 lb	Y	-0.6
2200 lb	2200 lb	2 lb	Y	2200 lb	Y	-1.3

Shift test:



N/A - Small amt

	1	2	3	4
Before Adj.				
After Adj.				

Scale condition as found: New

Tests performed: ☒ Repeatability ☒ Linearity ☐ Sensitivity ☒ Discrimination

☒ Scale Certified

☐ Scale Rejected

If scale is rejected, why?

Larry / Larry
 Sterling Scale Service Rep.

Date: 8-11-04

at 2-3

These items relate only to these results.

This report shall not be reproduced, except in full, without written approval of the laboratory.
 Tolerances followed are maintenance/acceptance per NIST-44

** Any number of factors may cause the calibration item to drift out of calibration before the recommended interval has expired.



1448.07

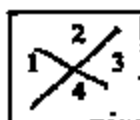
Form: F410/12-3 Revision Date 03-11-03
 Revision Level: B
 STANDARD FORM

20950 Boening St.
 Southfield MI 48075
 Phone (248) 358-0590 Fax (248) 358-0599

Sterling Scale Company Inc.
Scale Certificate of Calibration

Applied Test Weight	Before Adjustment	Tolerance H-	In tolerance Y / N	After Adjustment	In tolerance Y / N	Expanded uncertainty
50 lb	50 lb	1 lb	Y	50 lb	Y	±0.03
1000 lb	1000 lb	2 lb	Y	1000 lb	Y	±0.6
2200 lb	2200 lb	2 lb	Y	2200 lb	Y	±1.3
50 lb	50 lb	1 lb	Y	50 lb	Y	±0.03
1000 lb	1000 lb	2 lb	Y	1000 lb	Y	±0.6
2200 lb	2200 lb	2 lb	Y	2200 lb	Y	±1.3

Shift test:



N/A - Small pad

	1	2	3	4
Before Adj				
After Adj				

Scale condition as found: New

Tests performed: ☒ Repeatability ☒ Linearity ☐ Sensitivity ☒ Discrimination

☒ Scale Certified

☐ Scale Rejected

If scale is rejected, why?

Larry J. Cary
 Sterling Scale Service Rep.

Date: 8-11-04

pg 3 of 3

These items relate only to these results.

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 Tolerances followed are manufacturers' acceptance per NIST-44

** Any number of factors may cause the calibration item to drift out of calibration before the recommended interval has expired.



1448.01



本報地址：上海南京路五洲大藥房對面 電話：二二二二

Certificate of Calibration

100-443887-1

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

As the first of the three, the *Journal of the American Medical Association* is the most widely read and influential of the three. It is a weekly publication that covers a wide range of medical topics, including clinical medicine, public health, and medical education. The journal is known for its high quality of research and its commitment to providing up-to-date information to its readers. It is a must-read for any medical professional.

Abstract

[illegible]

1992

1997

2000

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

1. **مقدمة**
 2. **أهداف البحث**
 3. **الأسئلة البحثية**
 4. **الأساليب**
 5. **النتائج**
 6. **الخلاصة**
 7. **المراجع**

Abstract

Abstract—The purpose of this study was to determine the effect of a 10-week, 100-hr, 100-mile, 100-lb. weight loss program on the body composition of 100 obese women. The program was designed to be a total lifestyle change, including diet, exercise, and behavior modification. The program was evaluated using a variety of methods, including anthropometric measurements, body composition analysis, and self-reporting. The results of the study showed that the program was effective in achieving its goals, with participants losing an average of 100 lbs. and 100% of their excess weight. The program was also found to be safe and sustainable, with no significant changes in blood pressure, cholesterol, or other health markers. The program was well-received by participants, who reported a variety of positive outcomes, including improved self-esteem, increased energy, and improved relationships. The program was found to be a viable option for the treatment of obesity, and its success was attributed to the combination of diet, exercise, and behavior modification.

THE UNIVERSITY OF CHICAGO

[illegible]

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12/15/77

Figure 1 The effect of the information technology network on the customer value

Wang, Y. and J. Wang, 2005, 'The Effect of the Exchange Rate on the Trade Balance in China', *Journal of International Trade and Development* 16(1): 1-14.



Certificate Number: 20042087 Cal

Detroit Testing Laboratory, Inc.



7771 E. 11 Mile Road, Warren, MI 48090-2700 • (800) 704-6500 • FAX (586) 704-8070 • www.dtl-lab.com

Certificate of Calibration

Equipment Information

Customer: MGA Research Corporation
446 Executive Drive
Troy, MI 48063

Model: SC4010
Serial Number: BJ451835
Manufacturer: Ohaus
Description: Scale

System ID: MQA00045

Customer Asset No.:

Calibration Information

Calibration Date: 8/15/2004
Calibration Due: 8/15/2005
Calibration Interval: 12 Month
Level in Tols: Yes/Pass
Returned in Tols: Yes/Pass
Performed On Site: No
Calibration Limitations:

Procedure Used: 33K6-4-3030-1/98
Calibrated to: MFR SPEC
Temperature: 23 °C
Humidity: 44 %RH

The Uncertainty of the Measurements Pertaining to This Calibration are Estimated to be $\pm 0.055\text{ g} + 0.01\%$ ind.

1 Pass/Fail or In/Out of Tolerance statements are opinions only of the person performing the calibration based on data from measurements at the time they were made, procedure utilized, professional experience, and the uncertainty associated with this calibration. It is ultimately up to the user of this equipment to determine if this item meets their specific requirements for accuracy for

Calibration Standards Used

System ID:	Model:	Serial	Manufacturer	Description:	Date Due
09126	C7485B	61201050	OMEGA	Thermohygrometer	5/10/2005
07270	1kg-1kg	QA-1000	TROEMNER	WEIGHT SET	10/6/2005

Any calibration interval and due date of this device, if stated, is at the request of the customer. Due to the fact that many variables may affect drift of reported values over time there is no assurance implied that this item will maintain its stated accuracy through the end of this interval.

This Calibration has been performed per requirements of ISO 17025-1999. Reported results are from standards with accuracies that are traceable to the International System of Units (SI), derived from physical constants, ratio measurements, national measurement standards, or connected to primary standards. Measurement uncertainty is presented at a confidence level of approximately 95% (coverage factor

Signature: <i>Robert West</i>	Date: 8-25-04	Approved: <i>Paul W.</i>	Date: 8-25-04
Rob West	Technician		
Date Printed: 08/18/04	Printed By: Robert West	Page: 1 of 2	QFC 1048-1 Rev 4/77R3

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Detroit Testing Laboratory, Inc.

CALIBRATION DATA SHEET

Date: 8/15/2004
 DTL ID: MGA00045
 Cert No. 20042087 Cal

Cal Point grams		Reading As Found grams	Reading As Left grams	Deviation As Found grams	Deviation As Left grams	% of Allowed Dev as Found	% of Allowed Dev as Left
621		10.0	10.0	0.0	0.0	0.00	0.00
10.00		100.0	100.0	0.0	0.0	0.00	0.00
100.00	(shift test)	200.0	200.0	0.0	0.0	0.00	0.00
200.00	LP	200.0	200.0	0.0	0.0	0.00	0.00
200.00	RF	200.0	200.0	0.0	0.0	0.00	0.00
200.00	LP	200.0	200.0	0.0	0.0	0.00	0.00
200.00	RR	200.0	200.0	0.0	0.0	0.00	0.00
400.00		400.0	400.0	0.0	0.0	0.00	0.00

