V2731

REPORT NO. MGA-98-N06

NEW CAR ASSESSMENT PROGRAM (NCAP)

FRONTAL BARRIER IMPACT TEST

1998 FORD ESCORT 4 DOOR
NHTSA NO. MW0204

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105

Test Date: November 25, 1997

Report Date: January 2, 1998

FINAL REPORT

Prepared For:

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15. Supplementary Notes

16. Abstract

A 56 kph (35 mph) frontal barrier impact using a rigid barrier was conducted on a 1998 Ford Escort 4 Door in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure No. TP-NCAP090196 for the determination of vehicle crashworthiness on November 25, 1997.

The barrier impact velocity was 56.5 kph (35.1 mph), and the ambient temperature at the time of impact was 21.1°C. The post-test maximum static crush was 370 mm.

The test vehicle appeared to comply with the requirements of the following Federal Motor Vehicle Safety Standards:

1. FMVSS 212, "Windshield Mounting"
2. FMVSS 219 (partial), "Windshield Zone Intrusion"
3. FMVSS 301, "Fuel System Integrity"

With regard to "Occupant Crash Protection" injury criteria, the driver's HIC was 681 and the 3 msec. Clip (Chest g's) was 54.8 g's. The left and right femur loads for the driver were 2647 and 3982 Newtons, respectively. The passenger's HIC was 532 and the 3 msec Clip was 63.7 g's. The left femur maximum load was 6093 Newtons. No valid data was recorded from the right femur.

17. Key Words	18. Distribution Statement
35 mph Frontal Barrier Impact Test New Car Assessment Program (NCAP) FMVSS 212 Indicant Testing FMVSS 219 (partial) Indicant Testing FMVSS 301 Indicant Testing	Copies of this report are available from: Technical Ref. Division, NHTSA, NASSIF Building, Room 5108 400 Seventh Street, S.W. Washington, D.C. 20590

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Date of Report Acceptance

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Contracting Officer's Tech. Rep. (COTR)

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Date of Report Acceptance

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SECTION 1

PURPOSE AND SUMMARY OF NCAP TEST

This 35 mph frontal barrier impact test is part of the Composite FY'98 Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-96-D-12010. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 48 kph (30 mph) FMVSS 208/212/219/301-75 requirements.

The 56 kph (35 mph) frontal barrier impact test was conducted in accordance with the National Highway Traffic Safety Administration (NHTSA) Indicant Test Procedure for New Car Assessment Program (NCAP) dated January 1, 1990. Data for FMVSS No. 212, "Windshield Mounting", FMVSS No. 219 (Partial), "Windshield Zone Intrusion", FMVSS No. 301-75, "Fuel System Integrity," as well as occupant performance data are provided herein.

A flat concrete barrier covered with 3/4" plywood was impacted by a 1998 Ford Escort 4 Door at a velocity of 56.5 kph (35.1 mph). The test was performed at the MGA Proving Grounds and Crash Test Center on November 25, 1997. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

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

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

Both ATDs were fully instrumented with head and chest primary and redundant triaxial accelerometers, pelvis triaxial accelerometers, a chest displacement transducer, a six axis neck

load cell, right/left femur load cells, right/left lower leg sensors, and right/left feet accelerometers. Seat belt load cells were also on the driver and passenger shoulder and lap belts to measure dummy torso and pelvic section loading. Calibrated ATDs, driver (Serial No. 066), and the right front passenger (Serial No. 065), were used for this test. Certification details, along with instrumentation calibration data, are found in Appendix C and D.

The 105 channels of data were recorded on 10 computers. Appendix B contains the vehicle and dummy response data traces.

The driver's head struck the inflated airbag. The driver HIC was 681 and the maximum chest (CLIP) deceleration over 3 milliseconds was 54.8 g's. The maximum chest compression was 38 mm. The left and right femur loads were 2647 and 3982 Newtons respectively.

The right front passenger's head struck the inflated airbag. The passenger HIC was 532 and maximum chest (CLIP) deceleration over 3 milliseconds was 63.7 g's. The maximum chest compression was 33 mm. The left femur load was 6093 Newtons. No valid data was recorded on the right femur.

SECTION 2

OCCUPANT AND VEHICLE

INFORMATION/DATA SHEETS

DATA SHEET NO. 1

CRASH TEST SUMMARY

Vehicle Yr/Make/Model/Body Style: 1998/Ford/Escort/4 Door

NHTSA No.: MW0204 VIN.: 1FAFP10P6WW130000

Vehicle Test Weight: 1302.3 kgs.

Impact Velocity: 56.5 kph Maximum Static Crush: 370 mm

Vehicle Rebound: 345 mm

DUMMIES:	DRIVER	PASSENGER
Serial Number:	066	065
Restraint System:	Airbag and type II belt	Airbag and type II belt
No. Data Channels:	40	40

Number of Cameras: 1 Real Time

16 High Speed

Door Opening Data: Yes LF Yes RF Yes LR Yes RR
(without use of tools)

FRONT SEAT(S) DATA	DRIVER	FRONT PASSENGER
Seat Shift:	0 mm rearward;	0 mm rearward
Seat Back Movement:	None	None

VISIBLE DUMMY

CONTACT POINTS:	DRIVER	PASSENGER
Head	to airbag	to airbag
Chest	to airbag	to airbag
Left Knee	to steering column and dash	to glove compartment
Right Knee	to steering column and dash	to glove compartment

DATA SHEET NO. 2

GENERAL TEST AND VEHICLE PARAMETER DATA (Cont'd)

Vehicle Yr/Make/Model/Body Style: 1998/Ford/Escort/4 Door

NHTSA No.: MW0204 VIN.: 1FAFP10P6WW130000

Body color: Silver Date of Manufacture: 10/97

Engine: 4 Cylinders; __ C.I.D.; __ Liters;

X Gas; __ Diesel; ___Turbocharged

___ Longitudinal; X Transverse

Transmission: 5 Speed; X Manual; __ Automatic; __ Overdrive

Final Drive: X Front Wheel; ___ Rear Wheel; __ Four Wheel

Odometer Reading: 223 miles

Major Option:

X A/C; X P/S; X P/B; __ P/wdo;

___ P/locks; __Tilt Wheel; __Cruise Control; __ABS

Other: _____

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): Front 220 kPa (32 Psi) Rear 220 kPa (32 Psi)

Recommended Tire Size: 185/65R14

Recommended Cold Tire Pressure: Front 220 kPa (32 Psi) Rear 220 kPa (32 Psi)

Tires on Vehicle: 185/65R14 Manufacturer: Uniroyal

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

Type of Front Seats: X Bucket; ___ Bench; __Split Bench

Type of Front Seat Back: __Fixed; X Adj. With; __ Power; X Lever

Vehicle Capacity Weight (VCW) = 376.5 kg. (A)

No. of Occupants x 68.0 kg. = 340.0 kg. (B)

Rated Cargo Weight (RCW) A-B = 36.5 kg.

GVWR 1920.8 kg. GAWR: Front 866.8 kg.; Rear 714.0 kg.

GENERAL TEST AND VEHICLE PARAMETER DATA (Cont'd)

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (WITH MAXIMUM FLUIDS) = UDW:

Right Front = 342.5 kg Right Rear = 213.6 kg

Left Front = 348.4 kg Left Rear = 210.0 kg

TOTAL FRONT WEIGHT = 690.9 kg (62.0 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 423.6 kg (38.0 % of Total Vehicle Weight)

TOTAL UNLOADED DELIVERED WEIGHT (UDW) = 1114.5 kg

CALCULATION FOR TARGET TEST WEIGHT:

UDW = Unloaded Delivered Weight 1114.5 kg

VCW = Vehicle Capacity Weight 376.5 kg

DSC = Designated Seating Capacity 5 RCW = VCW - 68 (DSC) = 36.5 kg*

Target Test Weight = UDW + RCW + (2 dummies x 78.0 kg/dummy)

Target Test Weight = 1307.0 kg

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND CARGO:

Right Front = 389.2 kg Right Rear = 254.0 kg

Left Front = 396.9 kg Left Rear = 262.2 kg

TOTAL FRONT WEIGHT = 786.1 kg (60.4 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 516.2 kg (39.6 % of Total Vehicle Weight)

TOTAL TEST WEIGHT = 1302.3 kg

Weight of ballast secured in vehicle trunk area = 0 kg

Vehicle components removed to meet target weight: Rear seats, spare time and trunk components

VEHICLE ATTITUDE (all dimensions in mm):

Delivered Attitude:	RF 665	LF 664	RR 634	LR 632
Test Attitude:	RF 653	LF 649	RR 613	LR 609
Post Test	RF 695	LF 699	RR 606	LR 606

Wheel Base: 2500 mm; C.G. = 991 mm rearward of front wheel C/L

Remarks: _____

* light trucks and MPVs RCW is 136 kgs or manufacturer's value, whichever is less

GENERAL TEST AND VEHICLE PARAMETER DATA (Cont'd)

Location of Vehicle's C.G. = _____ (if required)

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual = 48.0 liters

Usable Capacity Figure Furnished by COTR = 48.0 liters

Test Volume Range (92 to 94% of Usable Capacity) = 44.16 to 45.12 liters

ACTUAL TEST VOLUME = 44.7 liters

Test Fluid Type: Stoddard Solvent ; Spec. Grav. = 0.77

Kinematic Viscosity = 1.788 centistrokes; Color = Purple

Type of Fuel Pump; Electric X ; Mechanical _____

Does Electric Pump operate with ignition switch "ON" & engine "Off"?

Yes X No _____

DATA SHEET NO. 3

POST-IMPACT DATA

Vehicle Yr/Make/Model/Body Style: 1998/Ford/Escort/4 Door

NHTSA No.: MW0204 VIN.: 1FAFP10P6WW130000

Type of Test: 35 mph Frontal Impact Impact Angle: 0°

Date of Test: November 25, 1997 Time of Test: 1:55 p.m.

Ambient Temperature: 21.1°C (70°F) (Spec. Range = 18.8 to 25.6°C)

Temperature in Occupant Compartment: 21.1° C

Windshield Molding Temperature: 21.1° C

Required Impact Velocity Range: 55.5 to 57.1 kph

Impact Velocity: primary = 56.5 kph; secondary = 56.6 kph

Distance From Front Bumper to Barrier Face When

Entering Speed Trap: 1425 mm

Exiting Speed Trap: 300 mm

VEHICLE REBOUND AND CRUSH (mm):

Vehicle Length:	Pre-test	= Right 4023	C/L 4165	Left 4017
	Post-test	= Right 3701	C/L 3800	Left 3654
	Crush	= Right 322	C/L 365	Left 363

Distance from front of test vehicle to point of impact (rebound):

R 293 mm C_L 288 mm L 454 mm

Average = 345 mm

DATA SHEET NO. 4

TEST VEHICLE INFORMATION

	Front		Rear	
Post-Test Door Opening	Left	Right	Left	Right
(without use of tools)	Yes	Yes	Yes	Yes

	Front		Rear	
Seat Movement	Left	Right	Left	Right
Seat Back Movement	0	0	N/A	N/A

Seat Shift (mm) 0 mm forward N/A

Glazing Damage

Backlight/Windshield Cracked

Other Notable Impact Effects:

SECTION 3

SUMMARY OF RESULTS FOR-------

FMVSS 212, "Windshield Mounting"

FMVSS 219 (Partial), "Windshield Zone Intrusion"

FMVSS 301-75, "Fuel System Integrity"

DATA SHEET 5

FMVSS NO. 212, "WINDSHIELD MOUNTING", DATA SHEET

Details of windshield mounting such as retention method, trim type, etc.:

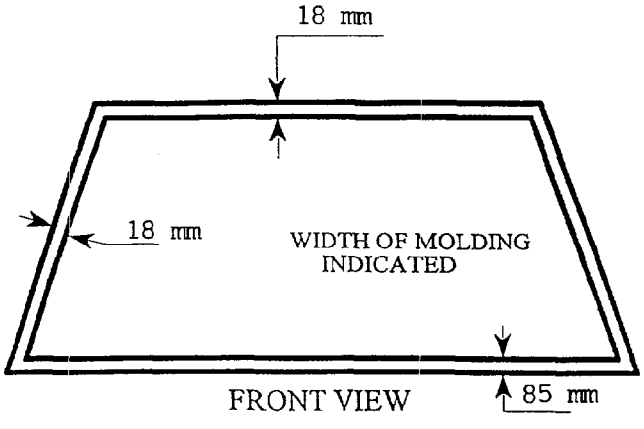
Windshield set in rubber molding with glue

FMVSS 212 Requirements: The Post-Test periphery retention amount must be at least 75% of the Pre-Test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

FMVSS 212 TEST DATA:

	WINDSHIELD PERIPHERY		
	PRE-TEST (mm)	POST-TEST (mm)	PERCENT RETENTION
RIGHT SIDE	1944	1944	100%
LEFT SIDE	1944	1944	100%
TOTAL	3888	3888	100%

AREA OF RETENTION FAILURE: None



FRONT VIEW

FAILURE DETAILS: None

DATA SHEET 6

FMVSS NO. 219, "WINDSHIELD ZONE INTRUSION", DATA SHEET

PROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 6.5" dia. rigid sphere weighing 15 pounds in a position such that it simultaneously contacts the inner surface of the windshield and the surface of the instrument panel, including padding, and drawing the locus of points on the inner surface of the windshield contactable by the sphere across the width of the instrument panel. From the outermost contact points, extend the locus line horizontally to the edges of the windshield, and then draw a line on the inner surface of the windshield below and ½" distant from the locus line. The LOWER EDGE OF THE PROTECTED ZONE is the longitudinal projection onto the outer surface of the windshield of this line.

FMVSS 219 TEST DATA:

A= 1060 mm

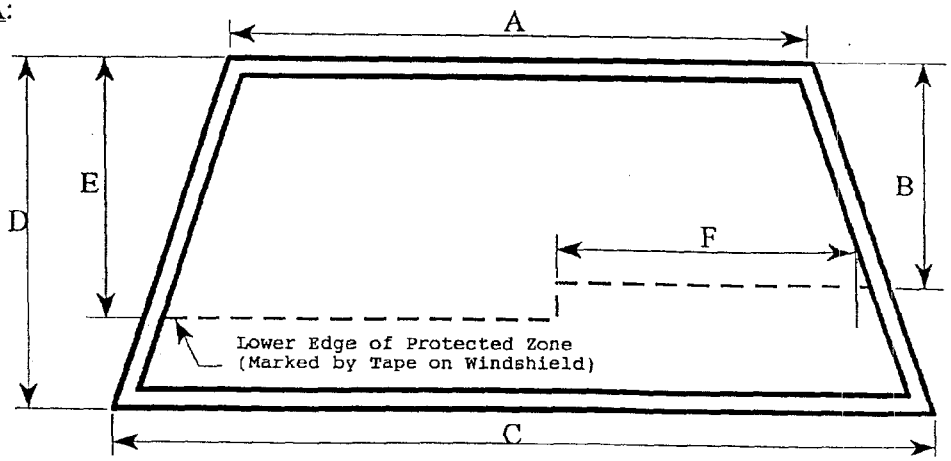
B= 382 mm

C= 1445 mm

D= 663 mm

E= 236 mm

F= 642 mm



FRONT VIEW

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 1/4":

(Show location of penetration)

NONE

DATA SHEET 7

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

FMVSS NO. 301

Test Vehicle NHTSA NO.: MW0204 Test Date: November 25, 1997

Vehicle Mfgr./Make/Model: Ford/Escort/4 Door

Usable Capacity of Vehicle's Fuel Tank: 48 Liters
(figure furnished by vehicle manufacturer)

TEST REQUIREMENTS:

Drain the test vehicle's fuel system and operate the engine until the fuel system is dry. Add Stoddard solvent, which has been dyed purple, until 92-94% of the stated usable capacity is reached. Operate the engine to assure the Stoddard solvent is present throughout the entire fuel system.

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

44.7 Liters which is 93.1 % of the stated USABLE CAPACITY.

TEST VEHICLE IMPACT TYPE: X Frontal (35 mph)

___ Oblique (30 mph) with __° barrier face first contacting (driver/passenger) side

___ Rear Moving Barrier (30 mph)

___ Side Impact MDB (33.2 mph)

FUEL SPILLAGE MEASUREMENT:

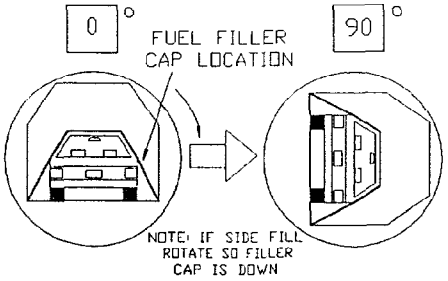
	ACTUAL	MAX ALLOWED
1. From impact until vehicle motion ceases	0	1 OZ
2. For 5 minute period after vehicle motion ceases	0	5 OZ
3. For next 25 minutes	0	1 oz./1 MIN

SOLVENT SPILLAGE DETAILS: None

DATA SHEET 8

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE: 0° - 90° Vehicle NHTSA ID No.: MW0204



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 46 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 46 seconds

Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0

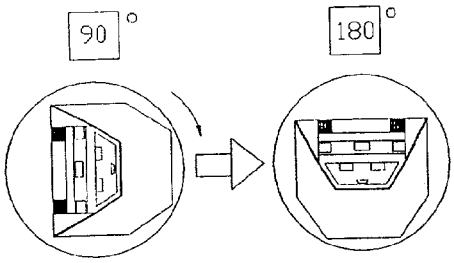
Note: Record Spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATIONS(S):

DATA SHEET 8

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (Cont'd)

TEST PHASE: 90° - 180° Vehicle NHTSA ID No.: MW0204



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 31 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 31 seconds

Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0

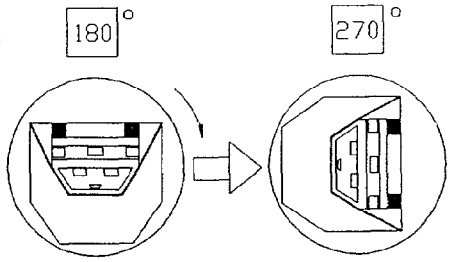
Note: Record Spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATIONS(S): None

DATA SHEET 8

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (Cont'd)

TEST PHASE: 180° - 270° Vehicle NHTSA ID No.: MW0204



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 31 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 31 seconds

Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0

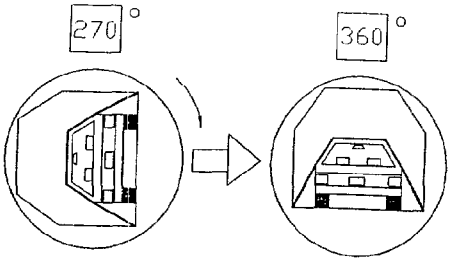
Note: Record Spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATIONS(S): None

DATA SHEET 8

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (Cont'd)

TEST PHASE: 270° - 360° Vehicle NHTSA ID No.: MW0204



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 14 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 14 seconds

Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0

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

IV. SOLVENT SPILLAGE LOCATIONS(S): None

SECTION 4

OMI FINAL DATA

Occupant and Vehicle Information

I. OMI DATA

1. Dummy Injury Criteria Data Summary
2. Dummy Positioning Data
3. Seat Belt Positioning Data
4. Seat Belt Performance Assessment Data
5. Camera Locations
6. Vehicle Target Locations

II. OVR DATA

1. Vehicle Accelerometer Data
2. Post-Test Airbag Data
3. Test Vehicle Measurements

III. AID DATA

1. Accident Investigation Damage Data Summary

DATA SHEET 9

DUMMY INJURY CRITERIA VALUES DATA SHEET

Vehicle Year/Make/Model/Body Style: 1998/Ford/Escort/4 Door

Veh. NHTSA No.: MW0204 Test Date: November 25, 1997

ACCELERATION VALUES: (g's)	DRIVER # 066		PASSENGER # 065	
	Min.	Max.	Min.	Max.
Head Channel X	-66.0 @ 81 msec.	*	-51.4 @ 82 msec.	2.1 @ 30 msec.
Head Channel Y	-21.1 @ 85 msec.	3.2 @ 147 msec.	-4.5 @ 51 msec.	17.2 @ 91 msec.
Head Channel Z	-33.9 @ 73 msec.	2.1 @ 20 msec.	-42.2 @ 82 msec.	1.6 @ 133 msec.
HEAD RESULTANT	*		67.2 @ 82 msec.	
Chest Channel X	-56.0 @ 67 msec.	13.5 @ 152 msec.	-62.5 @ 79 msec.	4.2 @ 162 msec.
Chest Channel Y	-4.4 @ 85 msec.	12.1 @ 58 msec.	-13.8 @ 82 msec.	1.8 @ 111 msec.
Chest Channel Z	-10.8 @ 47 msec.	7.9 @ 92 msec.	-14.4 @ 81 msec.	8.7 @ 107 msec.
CLIP	54.8		63.7	
TIME INTERVAL (msec) [3. msec. minimum]	$t_1 = 65.6$ $t_2 = 68.7$		$t_1 = 77.0$ $t_2 = 80.1$	

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	681		532	
t_1 = (msec)	57.9		64.6	
t_2 = (msec)	93.9		100.6	
Avg. Accel. t_1 to t_2 (g's)	51.4		46.5	
$t_2 - t_1$	36		36	

[The maximum time interval from t_1 to t_2 is 36 milliseconds.]

COMPRESSIVE FEMUR FORCES:

Left Side (N)	-2647 @ 56 msec.	693 @ 48 msec.	6093 @ 65msec.	242 @ 44 msec.
Right Side (N)	-3982 @ 52 msec.	796 @ 78 msec.	**	**

SEAT BELT FORCES:

Lap Belt (N)	7090 @ 60 msec.	3808 @ 67 msec.
Shoulder Belt (N)	8636 @ 74 msec.	6654 @ 80 msec.

* Spike in data @ 111 msec. ** Not valid after 62 msec.

DATA SHEET 9

DUMMY INJURY CRITERIA VALUES DATA SHEET (Cont'd)

HYBRID III NECK, CHEST AND PELVIS DATA SHEET

	DRIVER DUMMY #066		PASSENGER DUMMY #065	
	Min.	Max.	Min.	Max.
Neck Load X (N)	-786 @ 116 msec.	111 @ 19 msec.	-321 @ 67 msec.	667 @ 96 msec.
Neck Load Y (N)	-259 @ 108 msec.	195 @ 63 msec.	-1101 @ 74 msec.	316 @ 197 msec.
Neck Load Z (N)	-2241 @ 74 msec.	81 @ 16 msec.	-3207 @ 88 msec.	1315 @ 155 msec.
Neck Moment X (Nm)	-7.1 @ 88 msec.	20.3 @ 64 msec.	-16.7 @ 126 msec.	14.6 @ 73 msec.
Neck Moment Y (Nm)	-50.8 @ 122 msec.	24.5 @ 55 msec.	-12.4 @ 82 msec.	7.1 @ 178 msec.
Neck Moment Z (Nm)	-13.3 @ 132 msec.	27.6 @ 85 msec.	-15.0 @ 83 msec.	4.5 @ 126 msec.
Chest Deflection X (mm)	38 @ 81 msec.		33 @ 82 msec.	
Pelvis X Acceleration (g's)	-70.9 @ 53 msec.	5.9 @ 100 msec.	-75.4 @ 52 msec.	7.5 @ 147 msec.
Pelvis Y Acceleration (g's)	-14.8 @ 92 msec.	12.6 @ 48 msec.	*	*
Pelvis Z Acceleration (g's)	-34.8 @ 65 msec.	5.0 @ 156 msec.	-26.1 @ 72 msec.	6.2 @ 184 msec.
Pelvis Resultant (g's)	75.0 @ 62 msec.		78.1 @ 52 msec.	

* Spike in data at approximately 30 msec.

DATA SHEET 10

DUMMY POSITIONING IN VEHICLE

Vehicle NHTSA No.: MW0204 Vehicle: 1998/Ford/Escort/4 Door

SEAT TYPE:	ADJUSTER TYPE:		BUCKET SEAT BACK TYPE:
____Bench	Driver:	_X_ Manual	____Fixed
_X_ Bucket		____ Power	_X_ Adjustable Reclining
____Split Bench			
	Passenger:	____ Manual	____Fixed
		____ Power	_X_ Adjustable Reclining

DRIVER SEAT POSITION
12th detent out of 23 detents

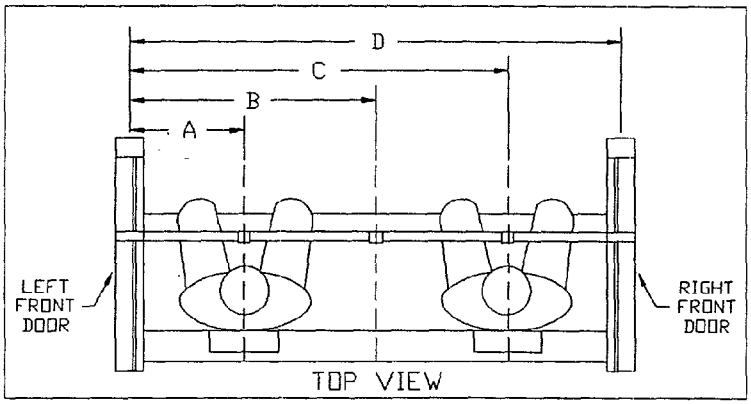
Seat back angle ___*___

PASSENGER SEAT POSITION
12th detent of 23 detents

Seat back angle ___*___

* Set in the 5th locking position with the first locking position as 0.

Steering column set to mid position. Steering column angle 24.4°



_066_ DUMMY ID_065_

A	= Left Door to Driver Centerline	_385_ mm
B	= Left Door to Center Passenger Centerline	_715_ mm
C	= Left Door to Right Passenger Centerline	_1048_ mm
D	= Left Door to Right Door	_1430_ mm

DATA SHEET 10

DUMMY POSITIONING IN VEHICLE (Cont'd)

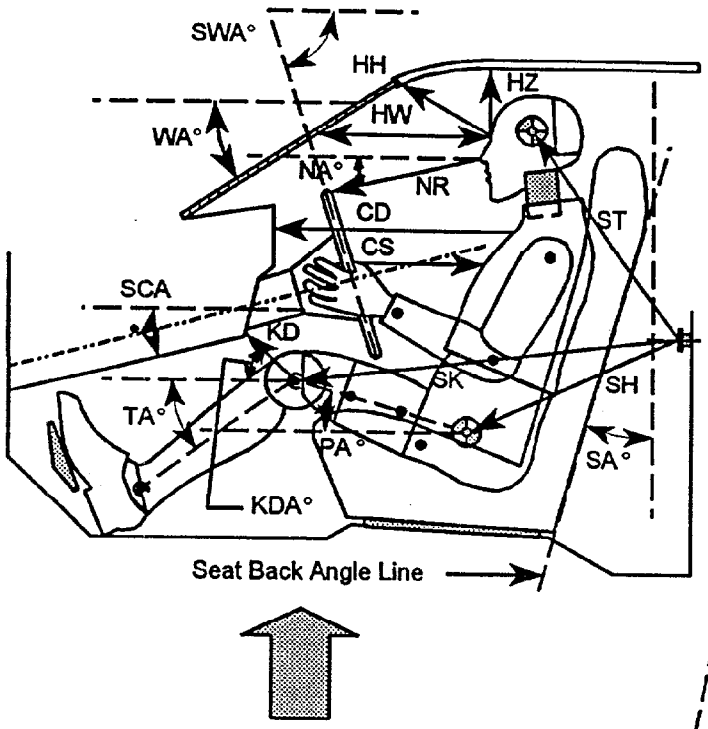
Units (mm)

	DRIVER (Serial #066)	PASSENGER (Serial #065)
WA°	30.7°	
SWA°	66.6°	N/A
SCA°	24.4°	N/A
SA°	** (Angle = NR)	** (Angle = NR)
HZ	150	164
HH	310	300
HW	510	516
HR	210	220
NR	405 Angle 12.0°	N/A
CD	404	626
CS	320	N/A
RA	182	N/A
KDL	170 Angle (KDA) 20.0°	135
KDR	155	144 Angle 18.8°
PA°	23.6°	22.6°
TA°	35.5°	36.7°
KK	320	260
ST*	567 Angle 6.3°	558 Angle 8.6°
SK*	576 Angle 88.5°	580 Angle 91.3°
SH*	229 Angle 109.3°	217 Angle 130.1°
SHY	238	254
HS	300	300
HD	160	120
AD	82	100

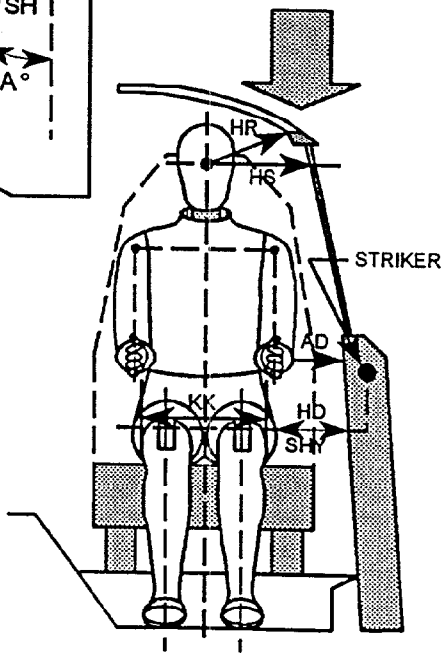
N/A = Not Applicable NR = Not Recorded

** Set in the 5th locking position with the first locking position at 0.

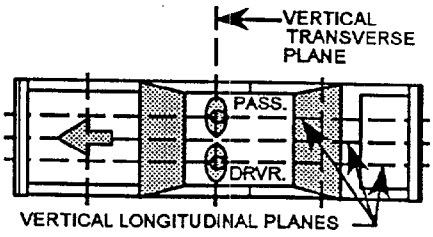
FRONT SEAT MEASUREMENTS



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

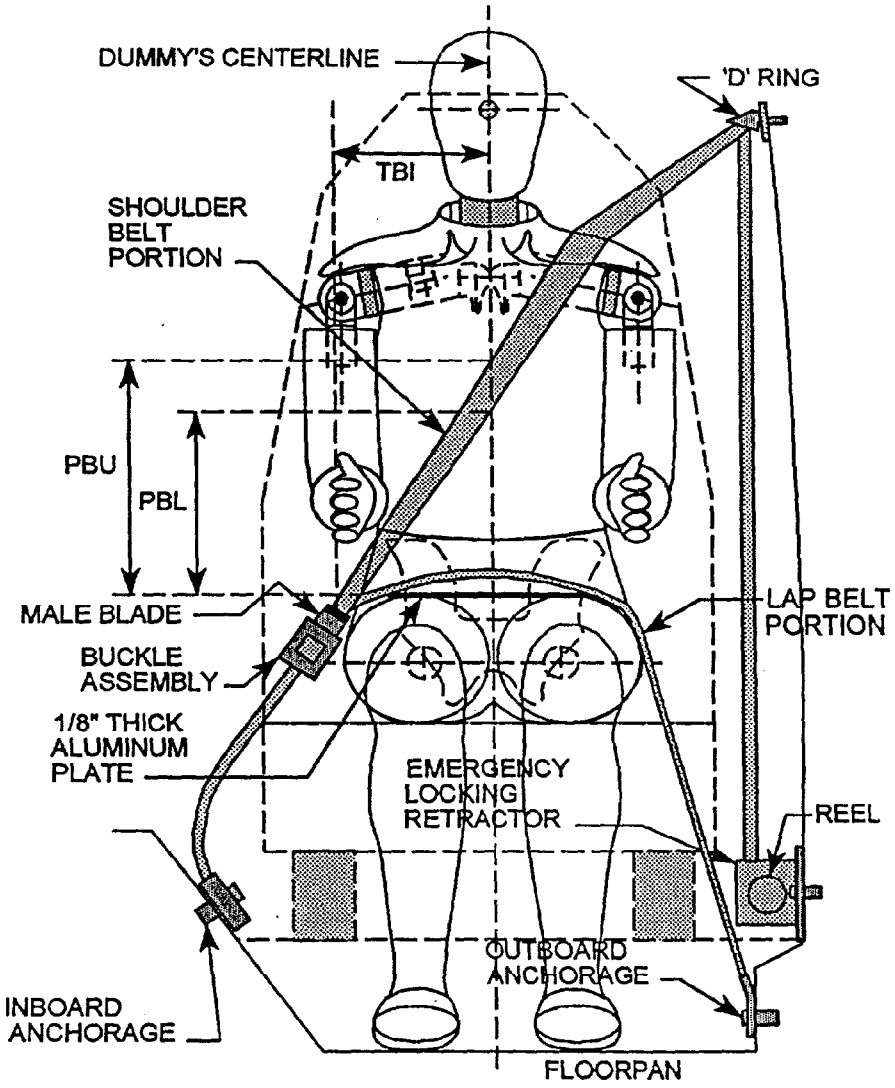


CD - Chest to Dash
CS - Steering Wheel to Chest
HH - Head to Header
HW - Head to Windshield
HZ - Head to Roof
KDA - Knee to Dash Angle
KDL - Left Knee to Dash
KDR - Right Knee to Dash
NA - Nose to Rim Angle
NR - Nose to Rim
PA - Pelvic Angle
RA - Rim to Abdomen
SA - Seat Back Angle
SCA - Steering Column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



DATA SHEET 11

SEAT BELT POSITIONING DATA



FRONT VIEW OF DUMMY

(illustration)

Dimension = mm

	DRIVER DUMMY	PASSENGER DUMMY
PBU -- Top surface of alum. plate to upper edge	368	360
PBL -- Top surface of alum. plate to belt lower edge	292	290

DATA SHEET 12

SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:	Driver	Passenger
Length from trim above retractor reel to "D" ring as measured on dummy.	135 mm	140 mm
Shoulder belt length as measured on Part 572 Dummy.	800 mm	808 mm
Lap belt length as measured on Part 572 Dummy.	822 mm	812 mm
SHOULDER BELT SPOOL-OFF DATA:		
As determined by film analysis	*	*
As determined mechanically		
Shoulder	N/A	57 mm
Retractor	30 mm	55 mm
BELT STRETCH DATA:		
Measured electronically between shoulder belt load cell and the "D" ring.	NR	NR
Measured mechanically	NR	NR
RETRACTOR LOCK-UP TIME:		
As determined by shoulder belt spool-off observed in on-board cameras	*	*

* Onboard cameras removed to achieve test weight

DATA SHEET 13

CAMERA LOCATIONS

Veh. NHTSA No.: MW0204 ; Test Date: November 25, 1997

VehicleYear/Make/Model/Body Style: 1998/Ford/Escort/4 Door

CAMERA POSITION NO.	VIEW	CAMERA POSITIONS (mm.)*			ANGLE (deg)	FILM PLANE TO HEAD TARGET (mm)	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Left Side View	-	-	-	-	-	18	32
2	Left Front View	970	-8210	1560	90	7780	25	806
3	Steering Column Top	2010	-7640	1560	90	7210	25	1242
4	Steering Column Bottom	2000	-7630	1030	90	7200	25	939
5	Driver Close-up	1450	-10280	1460	90	9850	75	962
6	Driver Angle	4850	-5300	2030			50	980
7	Onboard Driver	**						
8	Onboard Passenger	**						
9	Right Overall	2580	8000	1420	90	7580	13	952
10	Right Passenger Half	930	8110	1450	90	7690	25	1000
11	Right Close-up	1600	10550	1350	90	10130	75	1039
12	Right Angle	4910	5600	1940			50	1159
13	Windshield	-380	0	2750			13	1039
14	Top Driver	-100	-450	1600			13	920
15	Top Passenger	-100	460	1610			13	823
16	Pit Front	1240	0	-3155			13	1010
17	Pit Rear	3000	0	-3165			13	1005

* COORDINATES:

+X = film plane rearward of barrier

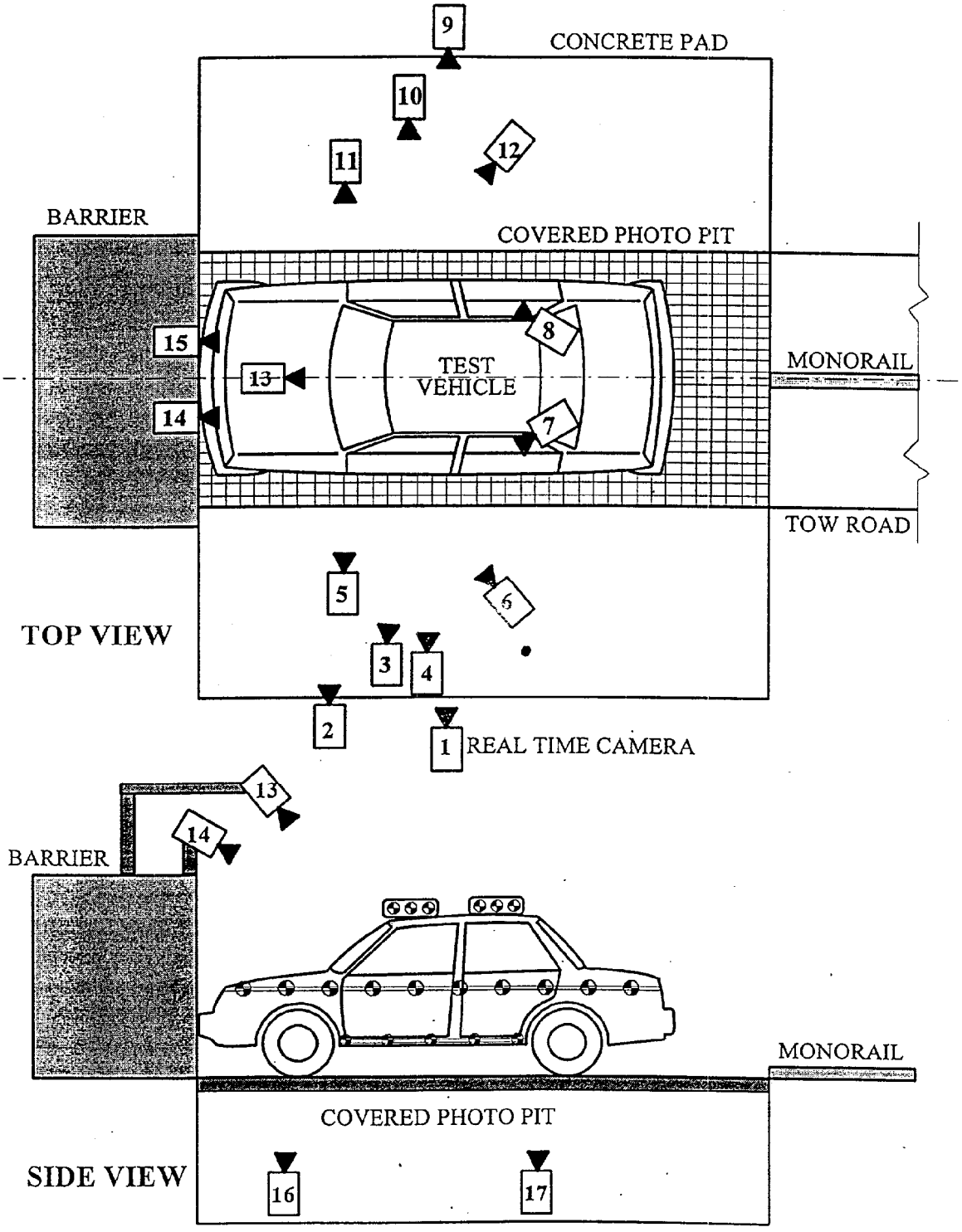
+Y = film plane to right of monorail centerline

+Z = film plane to above ground level

ORIGIN: For X and Y it is the Impact Point. For Z it is the Floor.

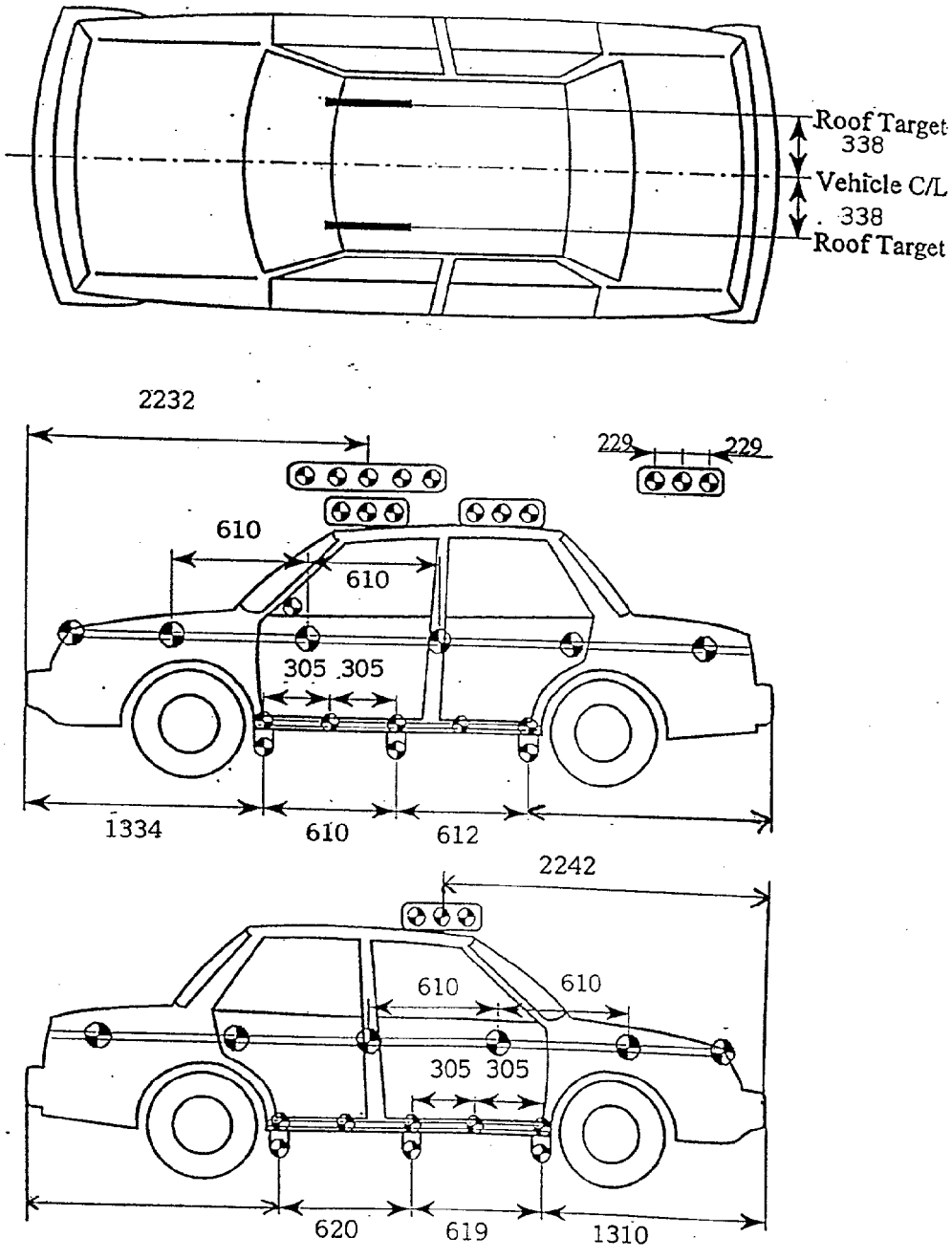
** Camera removed to achieve test weight

CAMERA LOCATIONS (Cont'd)



DATA SHEET 14

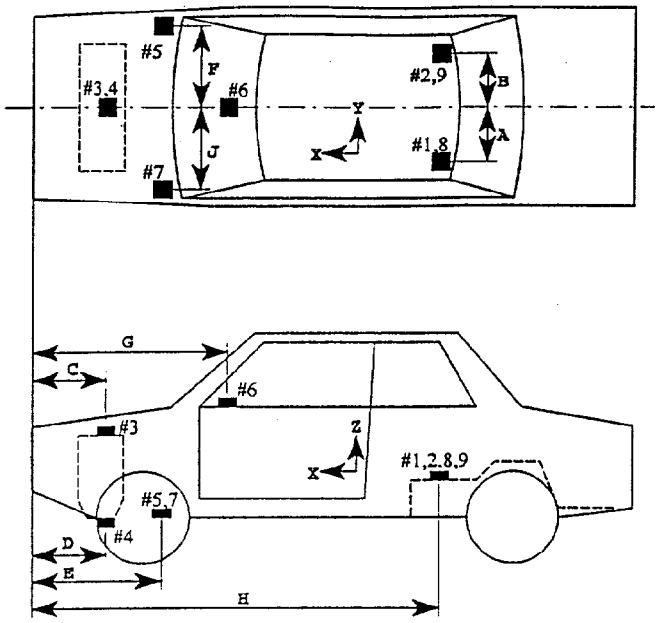
VEHICLE TARGET LOCATIONS



(DIMENSIONS IN MM)

DATA SHEET 15

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



Units: (mm)

Dimension	Length
A	580
B	580
C	3492
D	3500
E	3390
F	612
G	2808
H	1476
J	612

ACCEL. NO.	ACCELEROMETER	DIRECTION
1 and 8	Left Rear Seat Crossmember	X
2 and 9	Right Rear Seat Crossmember	X
3	Top of Engine	X
4	Bottom of Engine	X
5	Right Side Brake Caliper	X
6	Instrument Panel	X
7	Left Side Brake Caliper	X

DATA SHEET 16

POST TEST AIRBAG DATA

A. Number of Vent Holes: Driver _2_; Passenger _2_

B. Size of Vent Holes: Driver _25 mm dia;_. Passenger _50 mm dia;_

C. Total Vent Area; Driver _9.8 cm^2_ Passenger _20.4 cm^2_

D. Deflated Airbag Length and Width Dimensions or, if Round, Diameter

Driver; Length____mm, Width____mm, Diameter_590_ mm

Passenger; Length_750_ mm, Width _610_ mm, Diameter ____ mm

E. Is the Airbag Tethered?

Driver; _X_ Yes; __ No; If yes, record length of tether_300_ mm

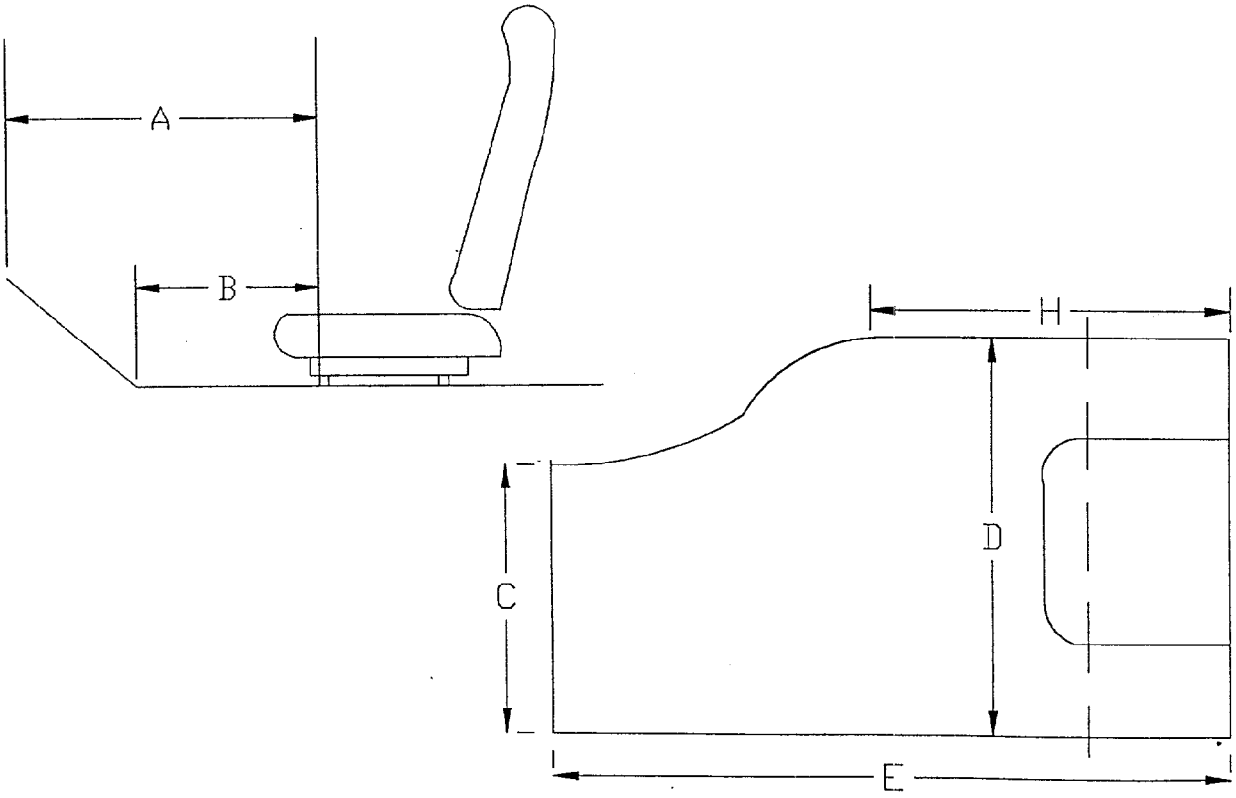
Passenger; __ Yes; _X_ No, If yes, record length of tether____mm

DATA SHEET 17

TEST VEHICLE MEASUREMENTS

STATIC FOOTWELL DEFORMATION

Driver's Side



Units = mm

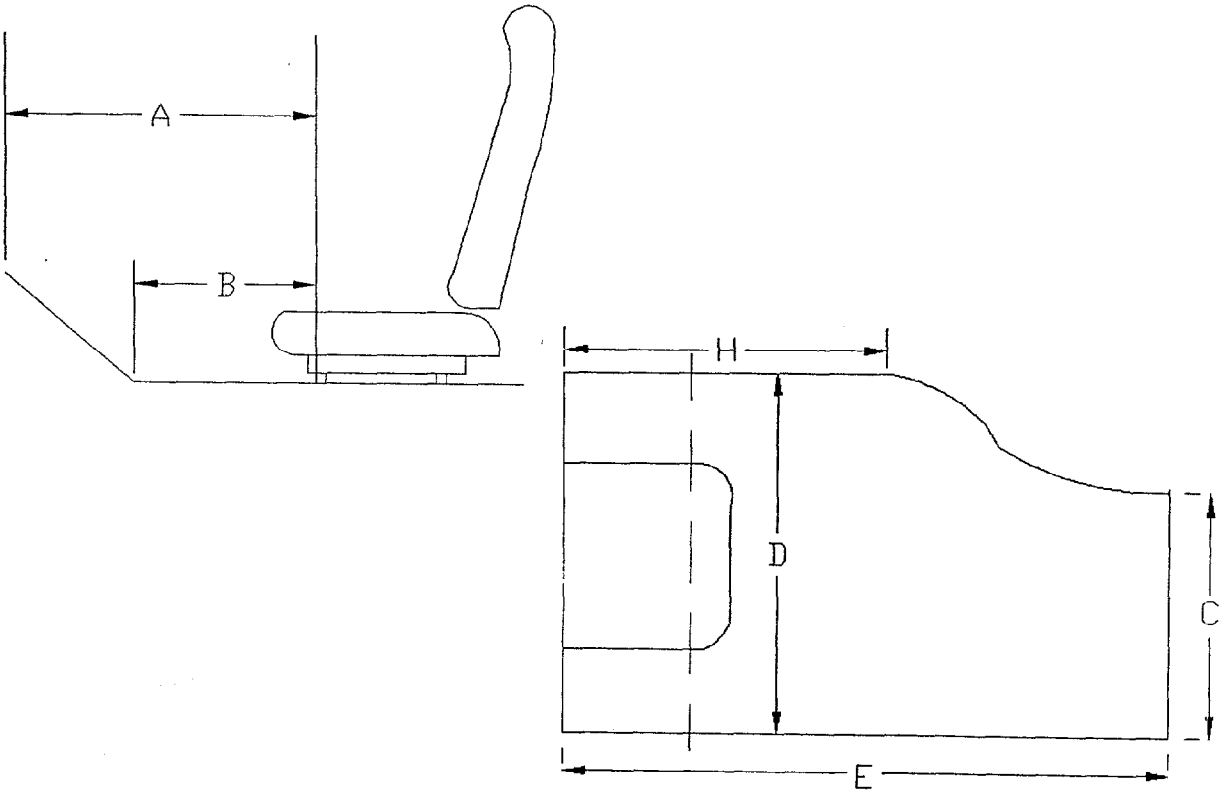
MEASUREMENT	PRE TEST	POST TEST	DIFFERENCE
A	771	602	169
B	570	474	99
C	442	N/A	N/A
D	440	437	3
E	1890	1818	72
H	1530	N/A	N/A

DATA SHEET 17

TEST VEHICLE MEASUREMENTS (Cont'd)

STATIC FOOTWELL DEFORMATION

Passenger's Side



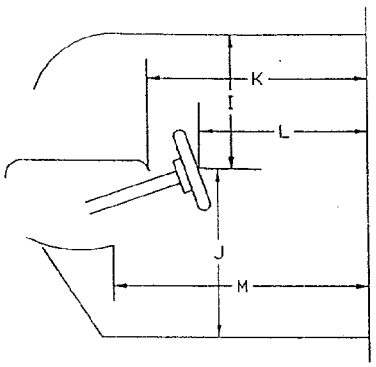
Units = mm

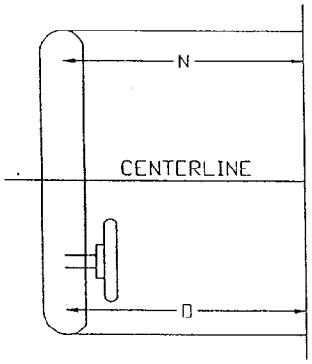
MEASUREMENT	PRE TEST	POST TEST	DIFFERENCE
A	781	620	161
B	556	467	89
C	410	393	17
D	461	460	1
E	1830	1821	9
H	1510	1501	9

DATA SHEET 17

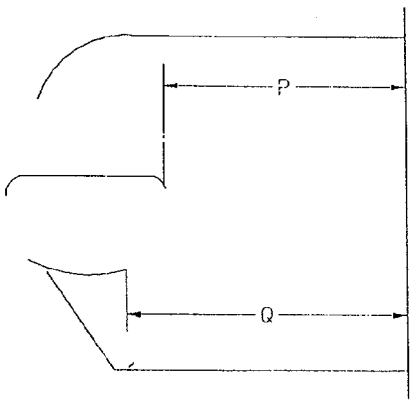
TEST VEHICLE MEASUREMENTS (Cont'd)

STATIC PASSENGER COMPARTMENT INTRUSION





MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



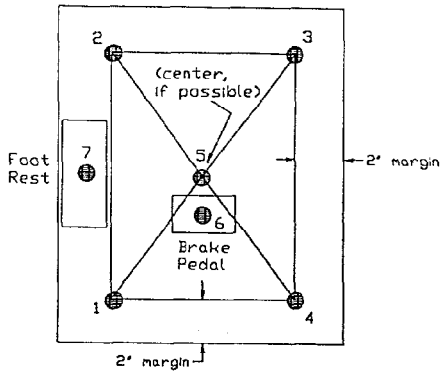
Units = mm

MEASUREMENT	PRE TEST	POST TEST	DIFFERENCE
I	447	404	43
J	614	662	-48
K	1655	1410	245
L	1425	1455	-30
M	1760	1698	62
N	1900	1897	3
O	1900	1889	11
P	1620	1612	-2
Q	1800	1759	41

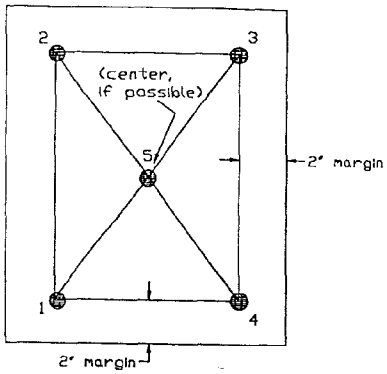
DATA SHEET 17

TEST VEHICLE MEASUREMENTS (Cont'd)

TOE PAN MEASUREMENTS



DRIVER



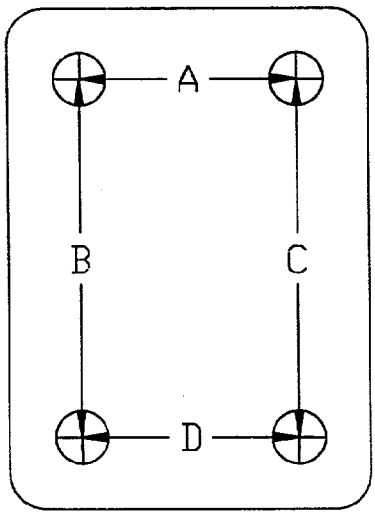
PASSENGER

Driver						
Location	**X**			**Z**		
	Pre-Test	Post-Test	Def.	Pre-Test	Post-Test	Def.
1	604	498	106	-71	-34	37
2	725	588	137	85	-184	-269
3	730	564	166	80	-151	-231
4	570	451	119	-61	N/A	N/A
5	685	521	164	68	-146	-214
6	576	433	143	92	-163	-255
7	658	563	95	98	-192	-290
Passenger						
Location	**X**			**Z**		
	Pre-Test	Post-Test	Def.	Pre-Test	Post-Test	Def.
1	587	493	94	-54	-34	20
2	745	557	158	90	-186	-276
3	738	608	130	110	-192	-302
4	588	485	103	-37	-41	-4
5	685	526	159	48	-154	-202

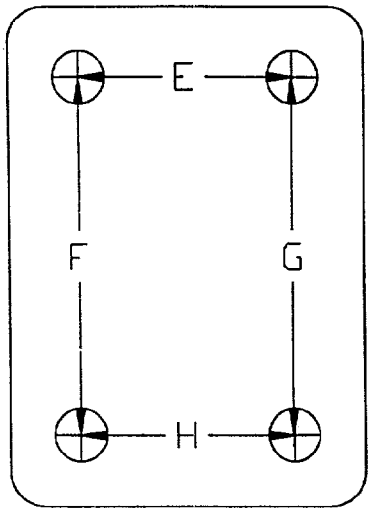
DATA SHEET 17
TEST VEHICLE MEASUREMENTS (Cont'd)

UNDERBODY FLOORBOARD DEFORMATION

DRIVER'S SIDE



PASSENGER'S SIDE



MEASUREMENT	PRE TEST	POST TEST	DIFFERENCE
A	411	421	-10
B	333	325	8
C	342	327	15
D	385	401	-16
E	396	404	-8
F	376	346	30
G	361	344	17
H	351	356	-5

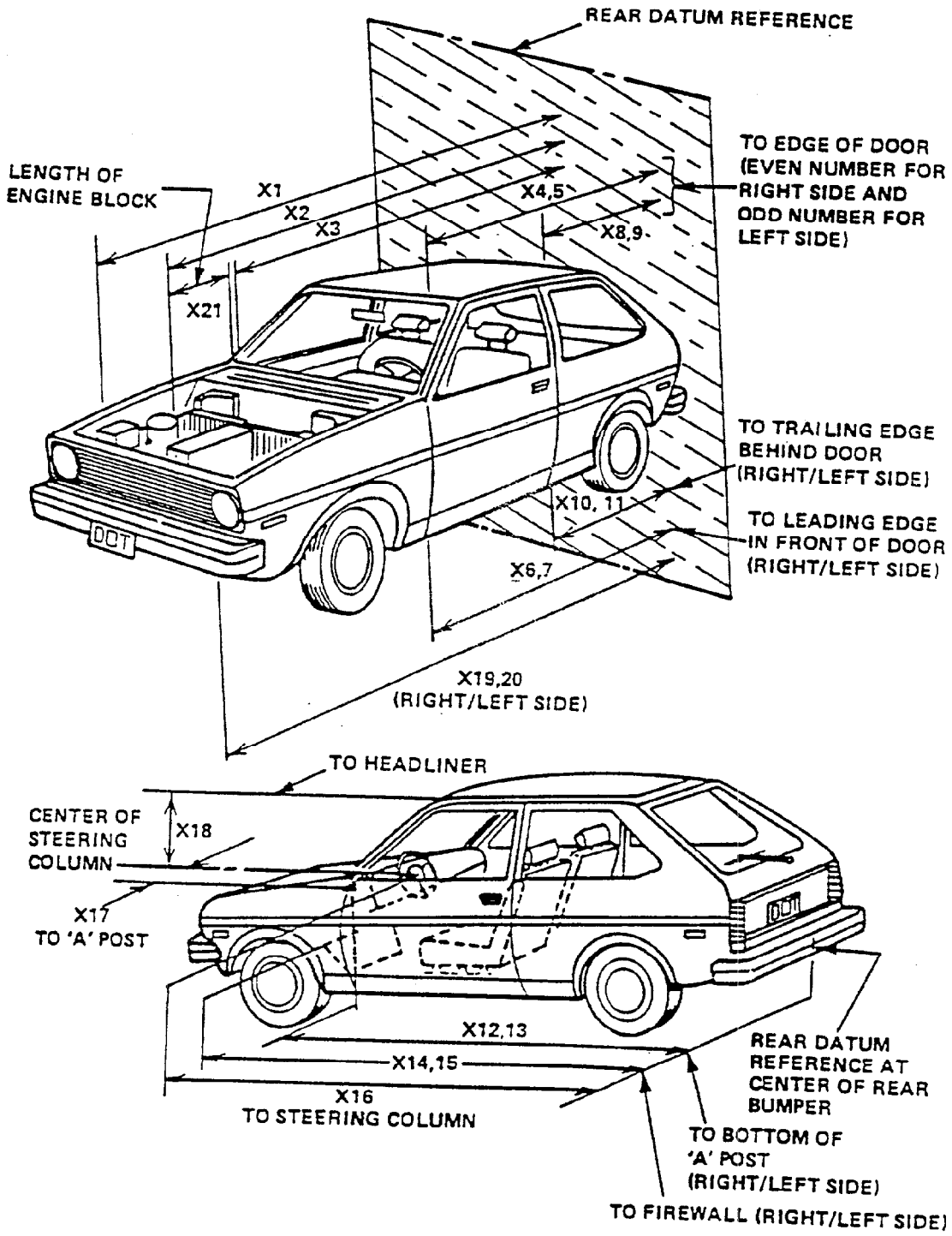
DATA SHEET 17

TEST VEHICLE MEASUREMENTS (Cont'd)

No.	MEASUREMENT DESCRIPTION:	Pre-Test (mm)	Post-Test (mm)	Diff. (mm)
X1	Total Length of Test Vehicle at Centerline	4165	3800	365
X2	Rear Surface of Vehicle to Front of Engine	3643	3420	223
X3	Rear Surface of Vehicle to Firewall	3111	2818	293
X4	Rear Surface to Upr. Leading Edge of Rt. Door	2782	2795	-13
X5	Rear Surface to Upr. Leading Edge of Left Door	2775	2787	-12
X6	Rear Surface to Lwr. Leading Edge of Rt. Door	2780	2771	9
X7	Rear Surface to Lwr. Leading Edge of Left Door	2778	2777	1
X8	Rear Surface to Upr. Trailing Edge of Rt. Door	1786	1793	-7
X9	Rear Surface to Upr. Trailing Edge of Left Door	1782	1790	-8
X10	Rear Surface to Lwr. Trailing Edge of Rt. Door	1786	1782	4
X11	Rear Surface to Lwr. Trailing Edge of Left Door	1781	1780	1
X12	Rear Surface to Bottom of A-Post on Rt. Side	2774	2764	10
X13	Rear Surface to Bottom of A-Post on Left Side	2794	2788	6
X14	Rear Surface to Firewall on Right Side	3045	N/A	N/A
X15	Rear Surface to Firewall on Left Side	3028	3006	22
X16	Rear Surface to Steering Column	2328	2380	-52
X17	Center of Steering Column to A-Post	413	370	43
X18	Center of Steering Column to Headlining	447	404	43
X19	Rear Surface to Right Side of Front Bumper	4023	3701	322
X20	Rear Surface to Left Side of Front Bumper	4017	3654	363
X21	Length of Engine Block	420	420	0

DATA SHEET 17

TEST VEHICLE MEASUREMENTS (Cont'd)



DATA SHEET 18

ACCIDENT INVESTIGATION DIVISION DATA

FOR 35 MPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: 1998/Ford/Escort/4 Door

Veh. NHTSA No.: MW0204 ; VIN: 1FAFP10P6WW130000

Model Year: 1998 ; Build Date: 10-97 ; Test Date: November 25, 1997

Veh. Size Category: Compact ; TEST WEIGHT: 1302.3 kg

Veh. Wheelbase: 2500 mm; Front Overhang: 885 mm; Overall Width: 1690 mm

ACCELEROMETER DATA:

Location: As per measurements on pages 4-13

Calibration Procedure: As per MGA Calibration Procedure

Linearity: >99.9% ; Integration Algorithm: Trapezoidal

Veh: Impact Speed: 56.5 kph ; Time Of Separation: 230 msec

Velocity Change: 64 kph

Collision Deformation Classification (CDC) Code: F (Frontal)

Crush Depth C1 = 363 mm

Dimensions: C2 = 361 mm

C3 = 370 mm

C4 = 361 mm

C5 = 336 mm

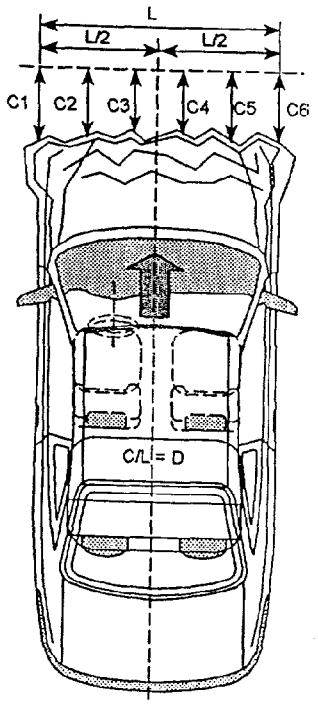
C6 = 322 mm

Midpoint Of D = 365 Vehicle Centerline

Damage: (Longitude)

Length Of

Damaged Region: L = 1395 mm



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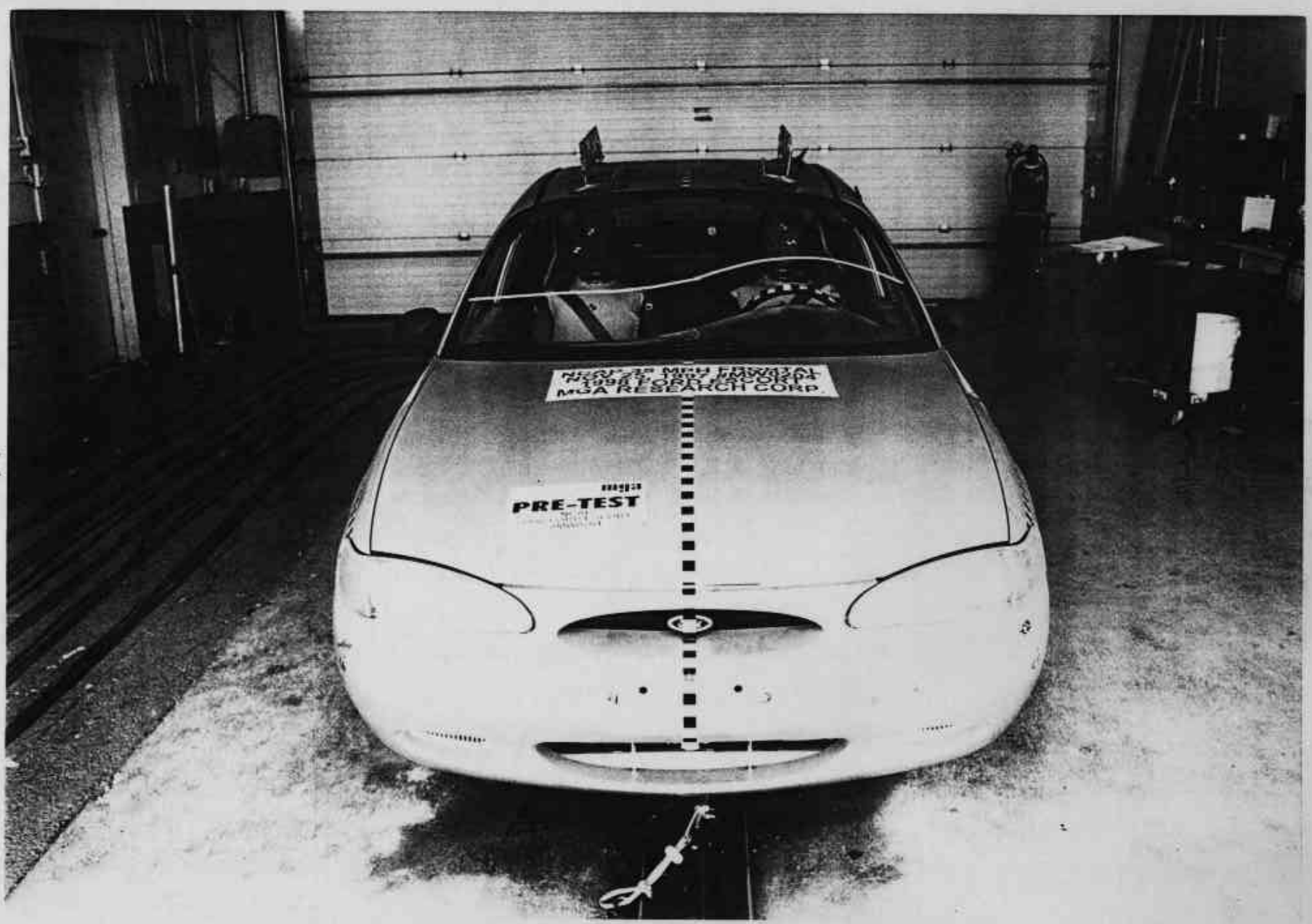
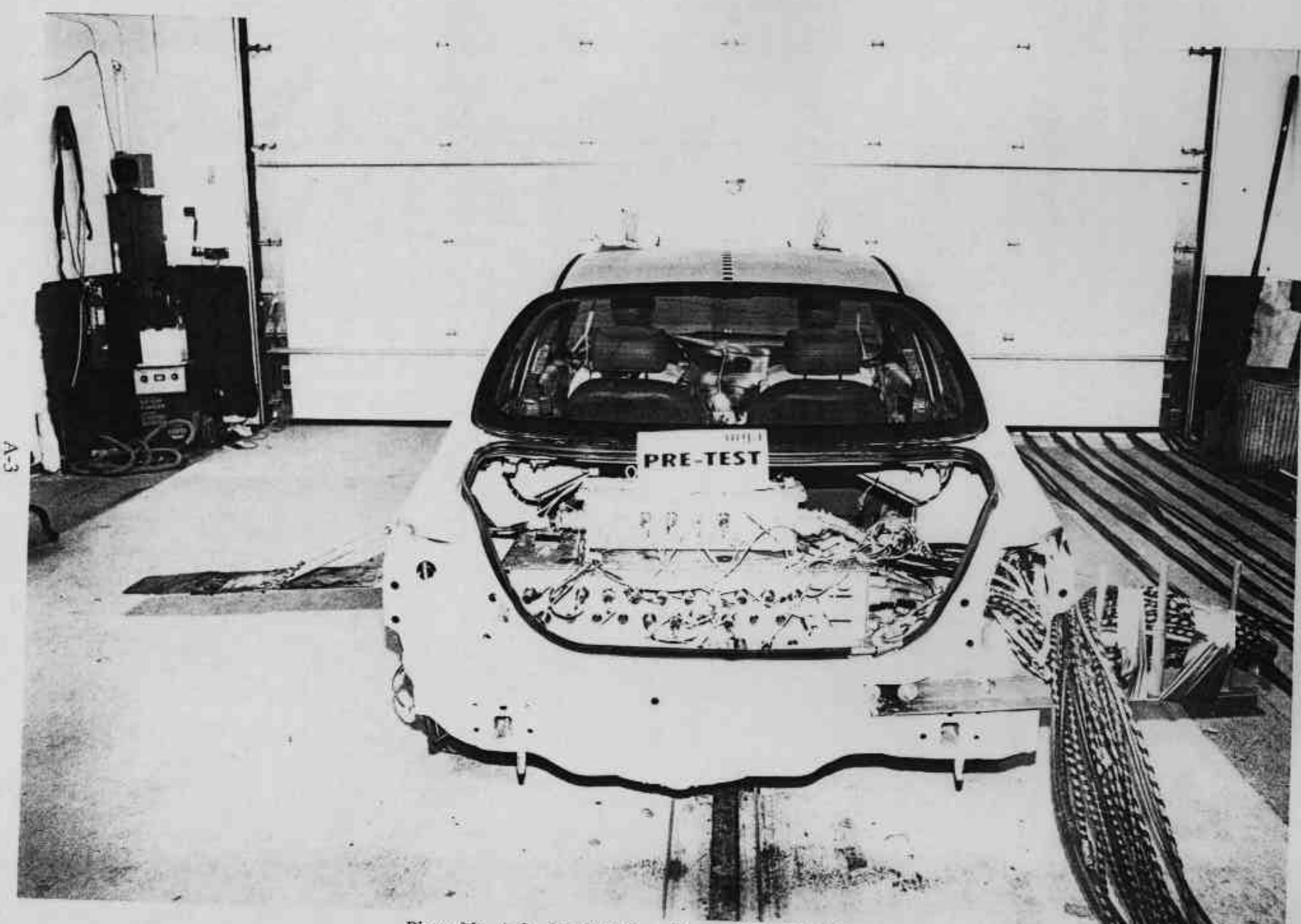


A-1

Photo No. A-1 - Pre-Test Front View of Test Vehicle

A-2

Photo No. A-2 - Post-Test Front View of Test Vehicle



A-3

Photo No. A-3 - Pre-Test Rear View of Test Vehicle

A-4

Photo No. A-4 - Post-Test Rear View of Test Vehicle

Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

A-6

Photo No. A-6 - Post-Test Left Side View of Test Vehicle

A-7

Photo No. A-7 - Pre-Test Left Rear Three-Quarter View of Test Vehicle

Photo No. A-8 - Post-Test Left Rear Three-Quarter View of Test Vehicle

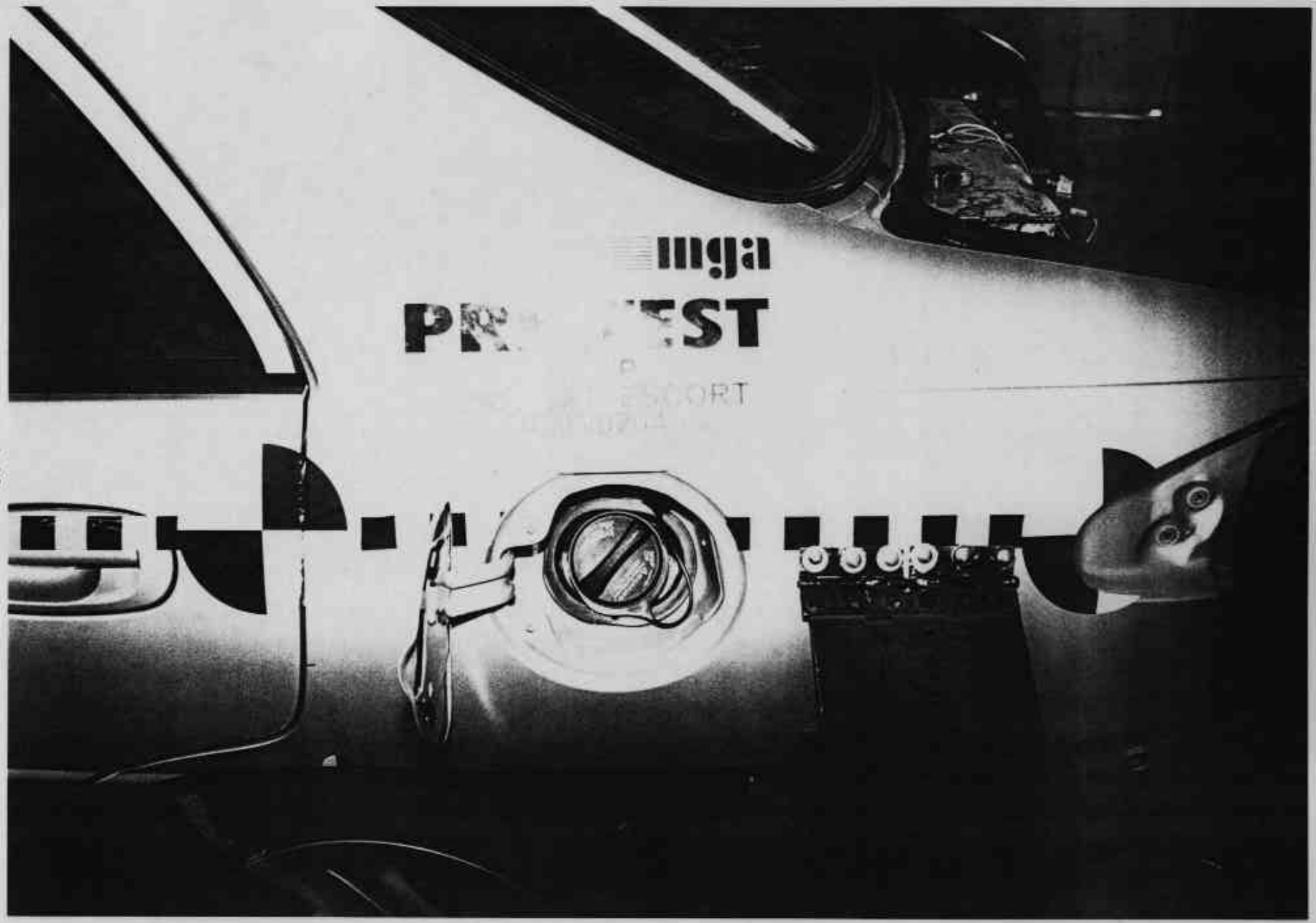
Photo No. A-9 - Pre-Test Right Side View of Test Vehicle

Photo No. A-10 - Post-Test Right Side View of Test Vehicle

A-11

Photo No. A-11 - Pre-Test Right Front Three-Quarter View of Test Vehicle

Photo No. A-12 - Post-Test Right Front Three-Quarter View of Test Vehicle



A-13

Photo No. A-13 - Pre-Test Fuel Filler Cap View

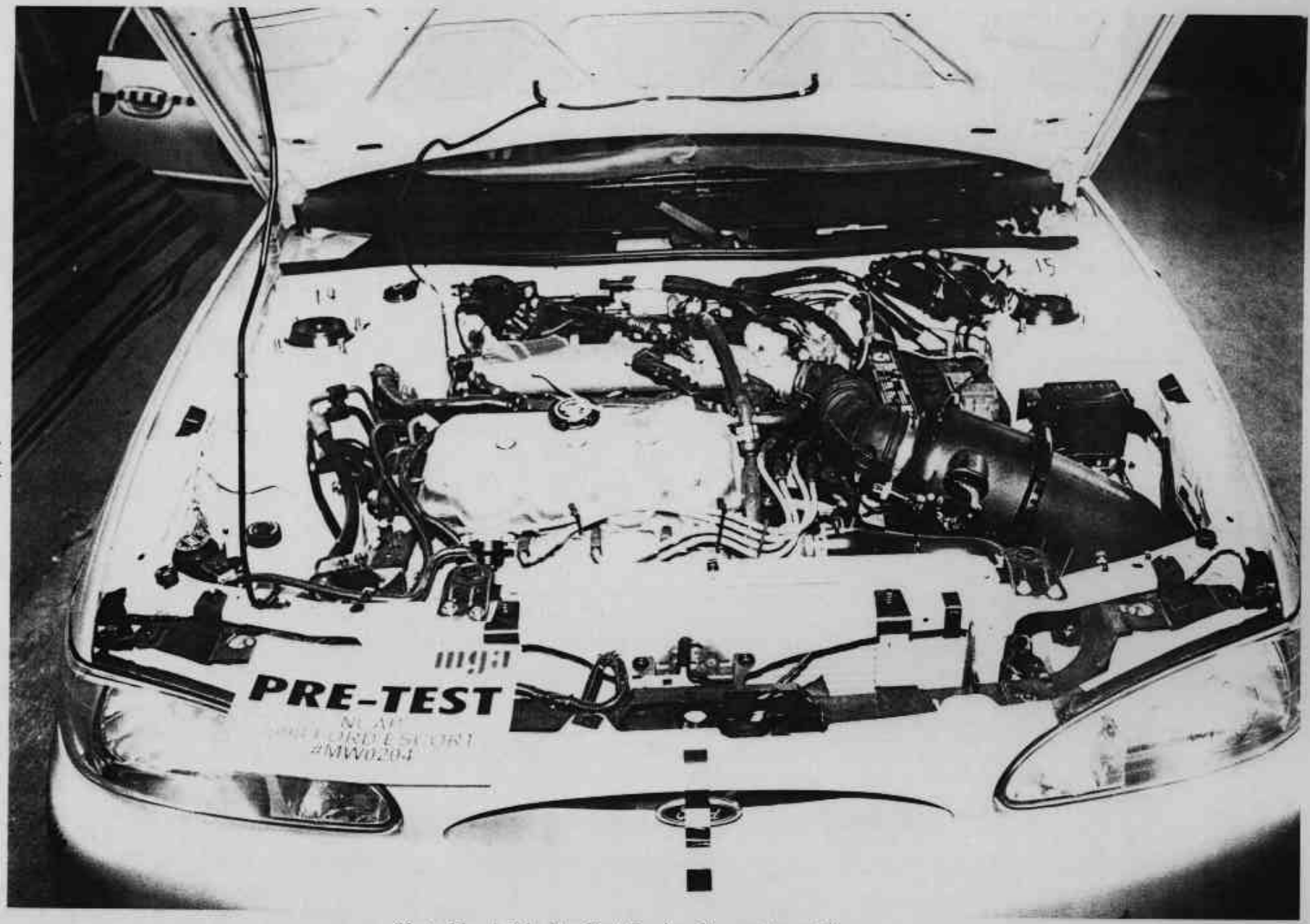


Photo No. A-14 - Pre-Test Engine Compartment View

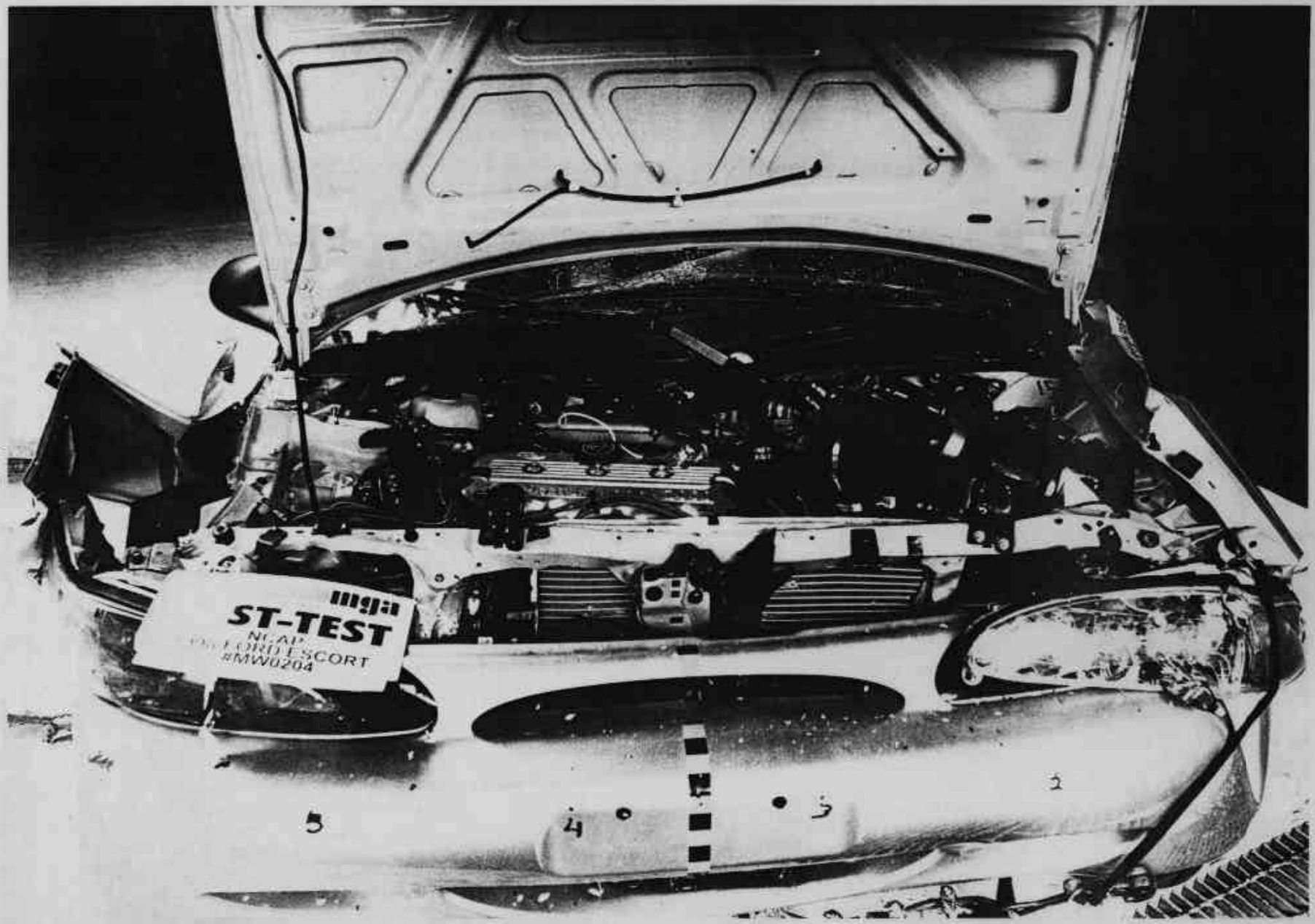


Photo No. A-15 - Post-Test Engine Compartment View

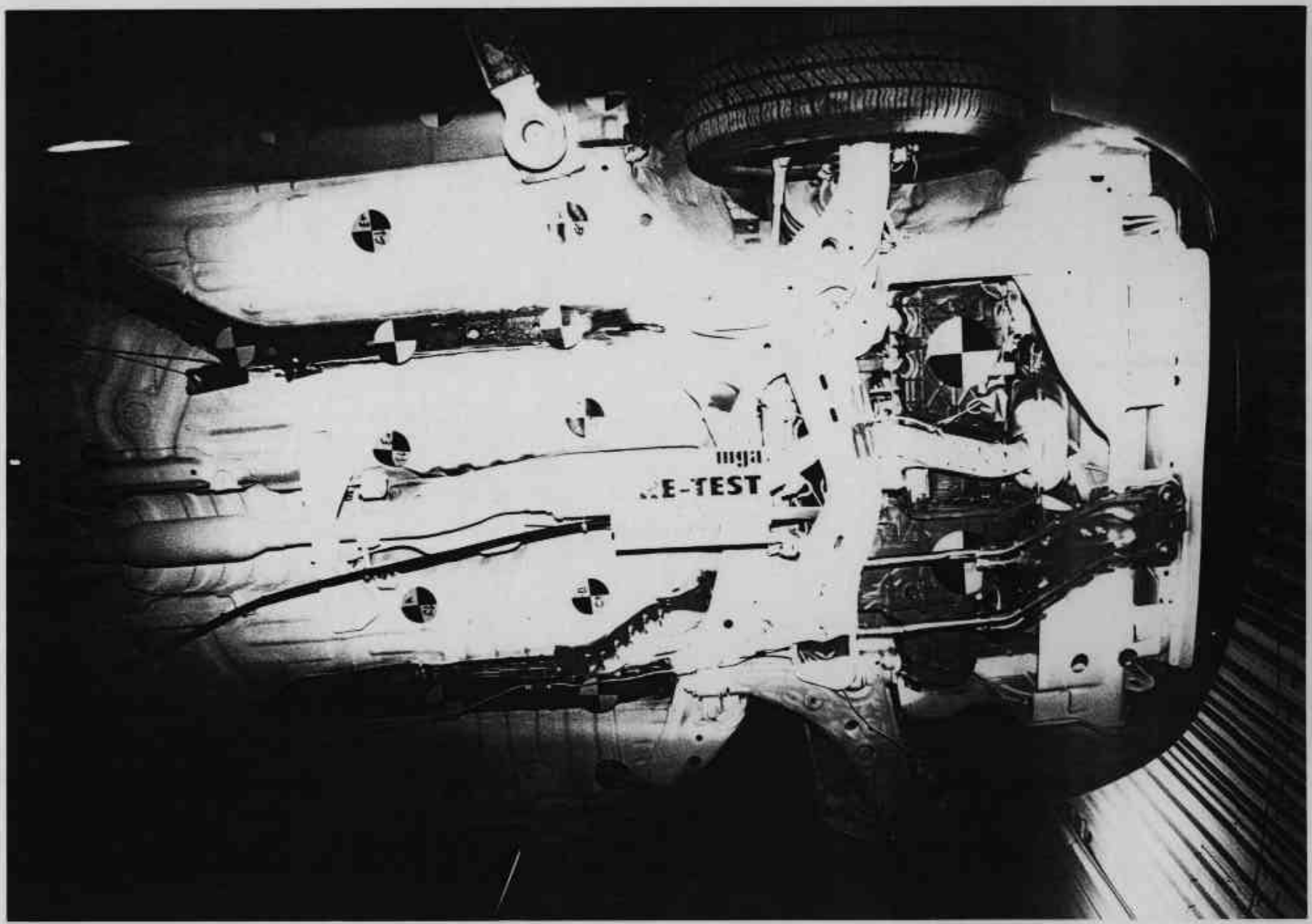


Photo No. A-16 - Pre-Test Front Underbody View

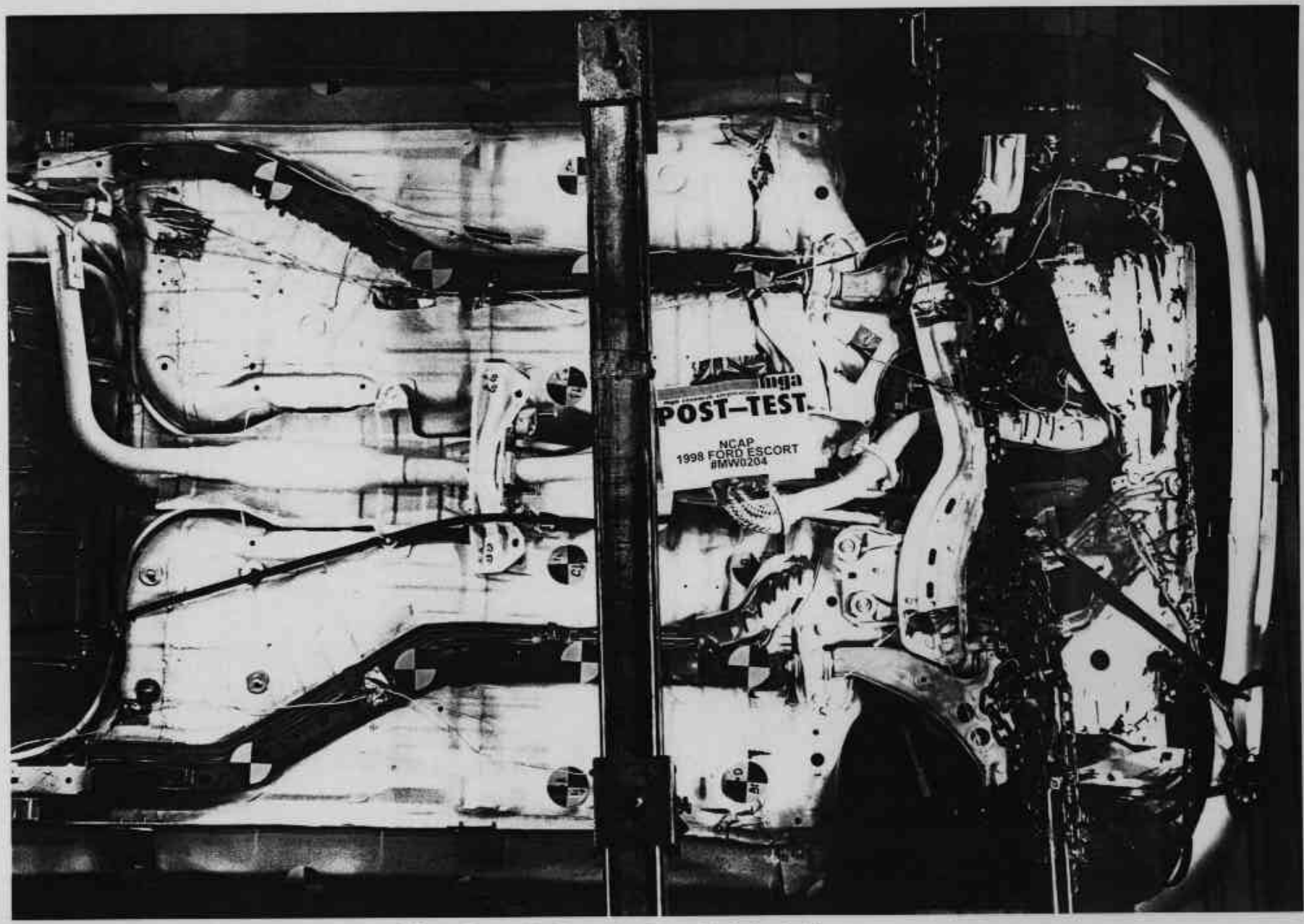


Photo No. A-17 - Post-Test Front Underbody View

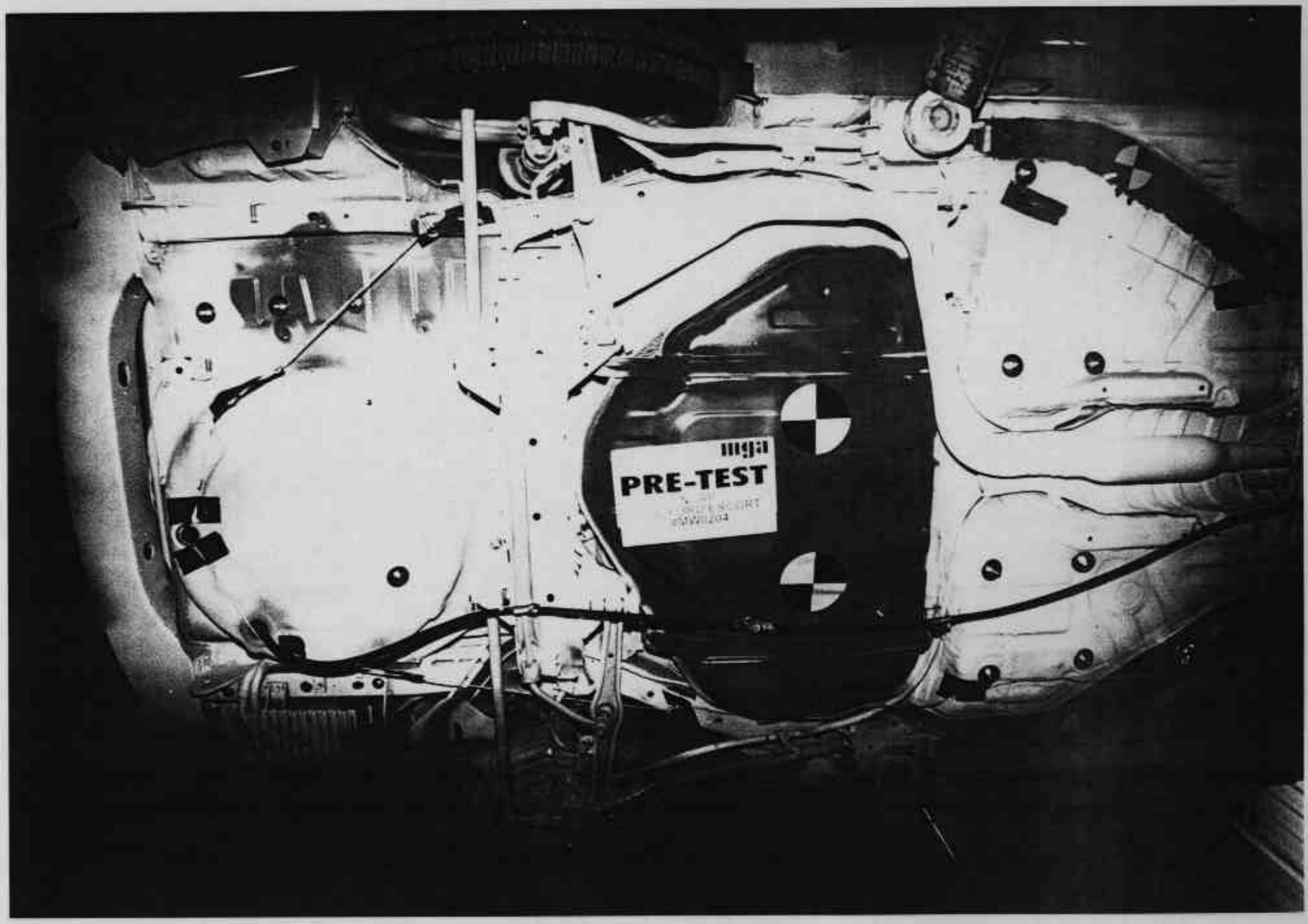


Photo No. A-18 - Pre-Test Rear Underbody View

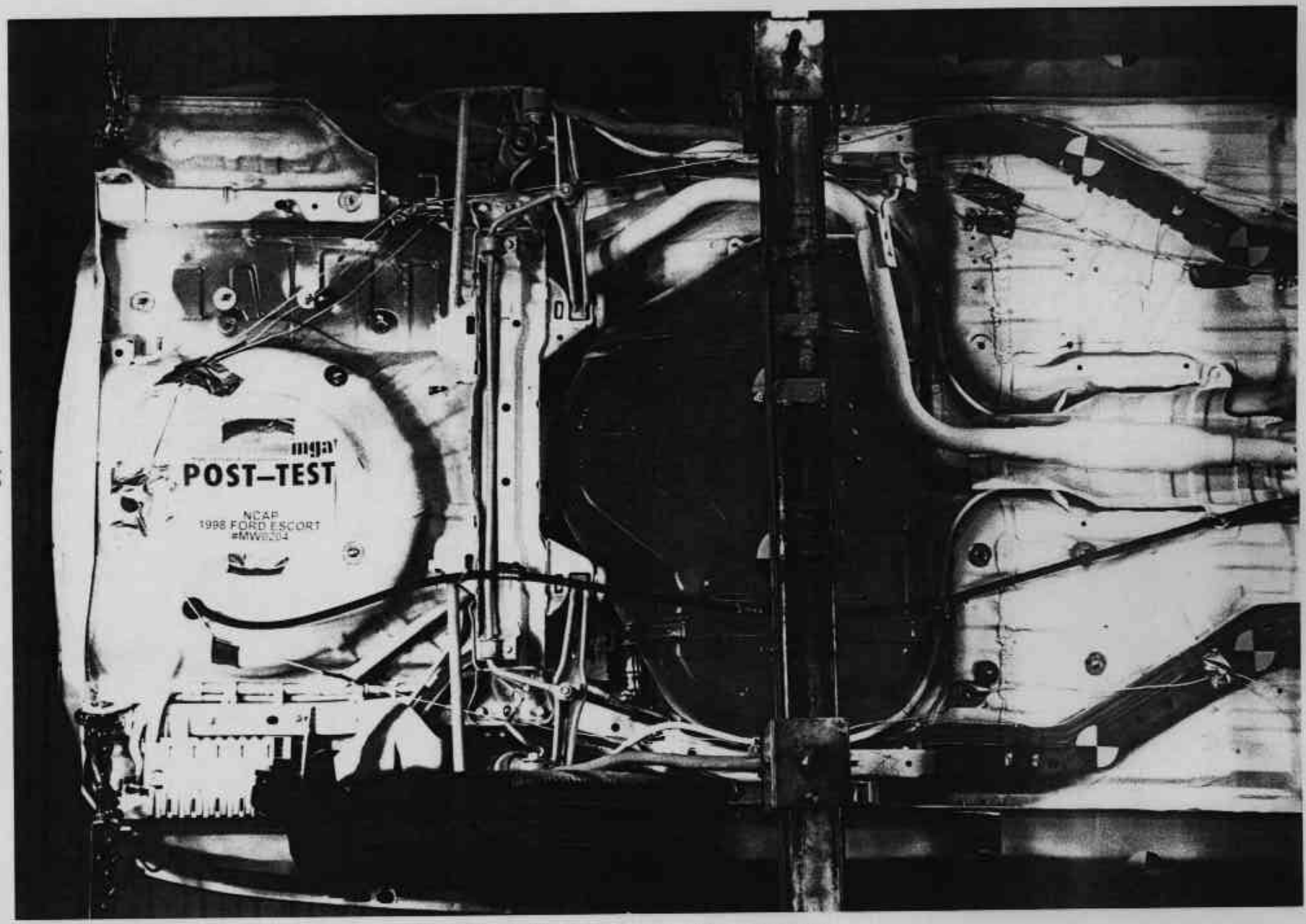


Photo No. A-19 - Post-Test Rear Underbody View

Photo No. A-20 - Pre-Test Windshield View

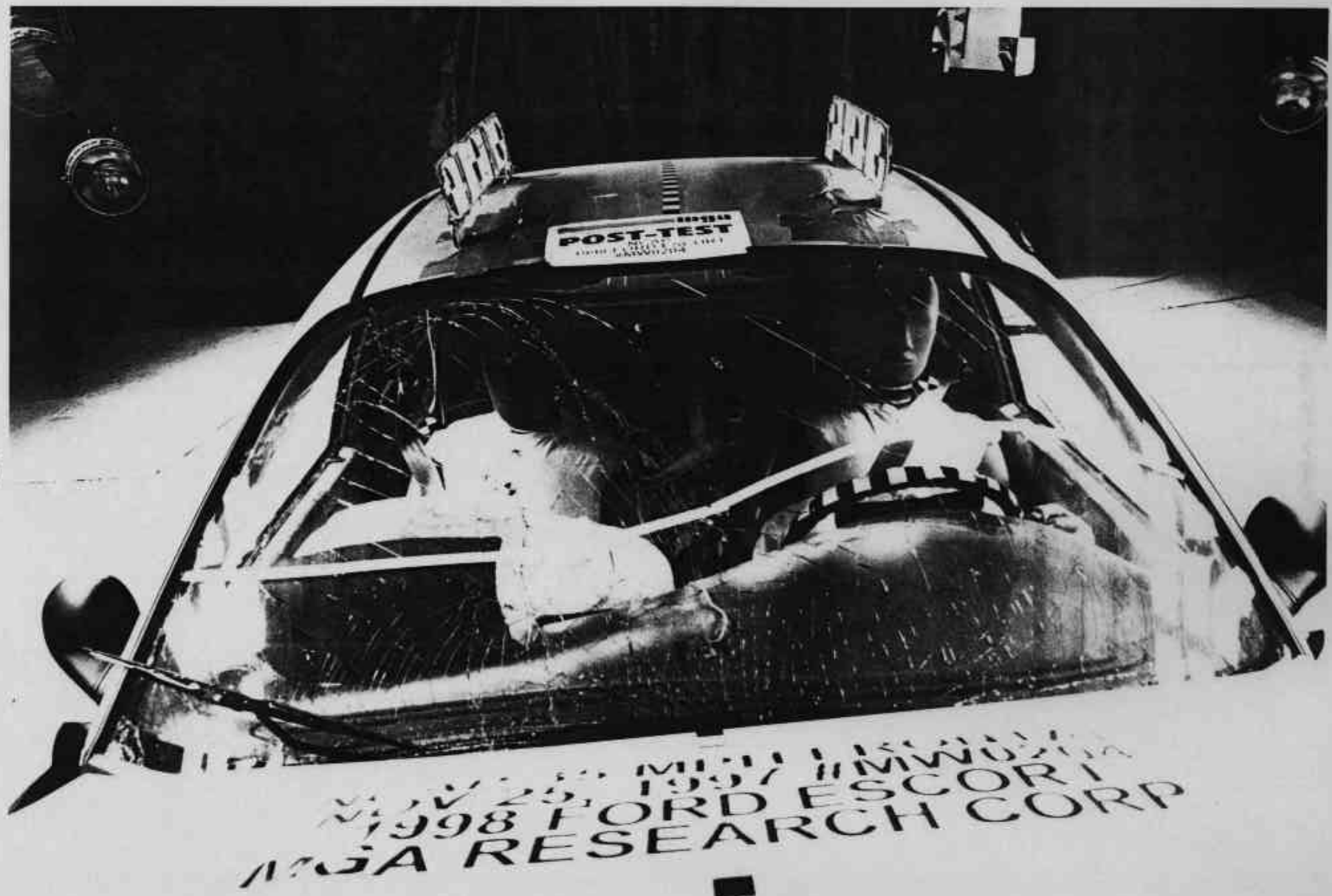


Photo No. A-21 - Post-Test Windshield View

A-22

Photo No. A-22 - Pre-Test Driver Dummy Position Left Side View

A-23

Photo No. A-23 - Post-Test Driver Dummy Position Left Side View

Photo No. A-24 - Pre-Test Driver Dummy Position Left Side View (Door Open)

Photo No. A-25 - Post-Test Driver Dummy Position Left Side View (Door Open)

Photo No. A-26 - Pre-Test Driver Seat Position View

Photo No. A-27 - Post-Test Driver Seat Position View

A-28

Photo No. A-28 - Pre-Test Driver Dummy Knee Position

Photo No. A-29 - Post-Test Driver Dummy Knee Position

Photo No. A-30 - Post-Test Driver Airbag Contact

Photo No. A-31 - Post-Test Driver Knee Contact View

A-32

Photo No. A-32 - Pre-Test Passenger Dummy Position Right Side View

Photo No. A-33 - Post-Test Passenger Dummy Position Right Side View

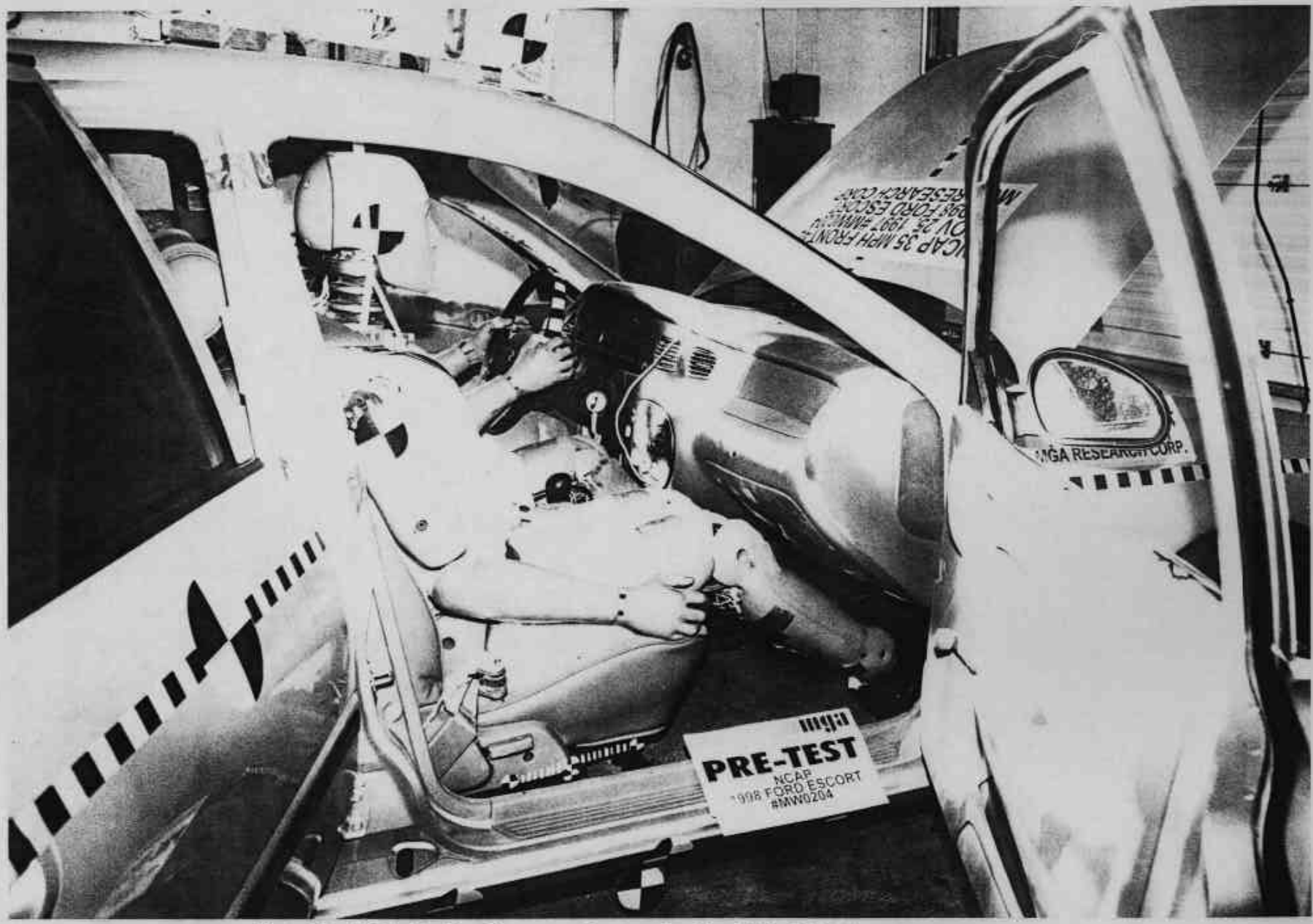


Photo No. A-34 - Pre-Test Passenger Dummy Position Right Side View (Door Open)

Photo No. A-35 - Post-Test Passenger Dummy Position Right Side View (Door Open)

Photo No. A-36 - Pre-Test Passenger Seat Position View

Photo No. A-37 - Post-Test Passenger Seat Position View

Photo No. A-38 - Pre-Test Passenger Dummy Knee Position

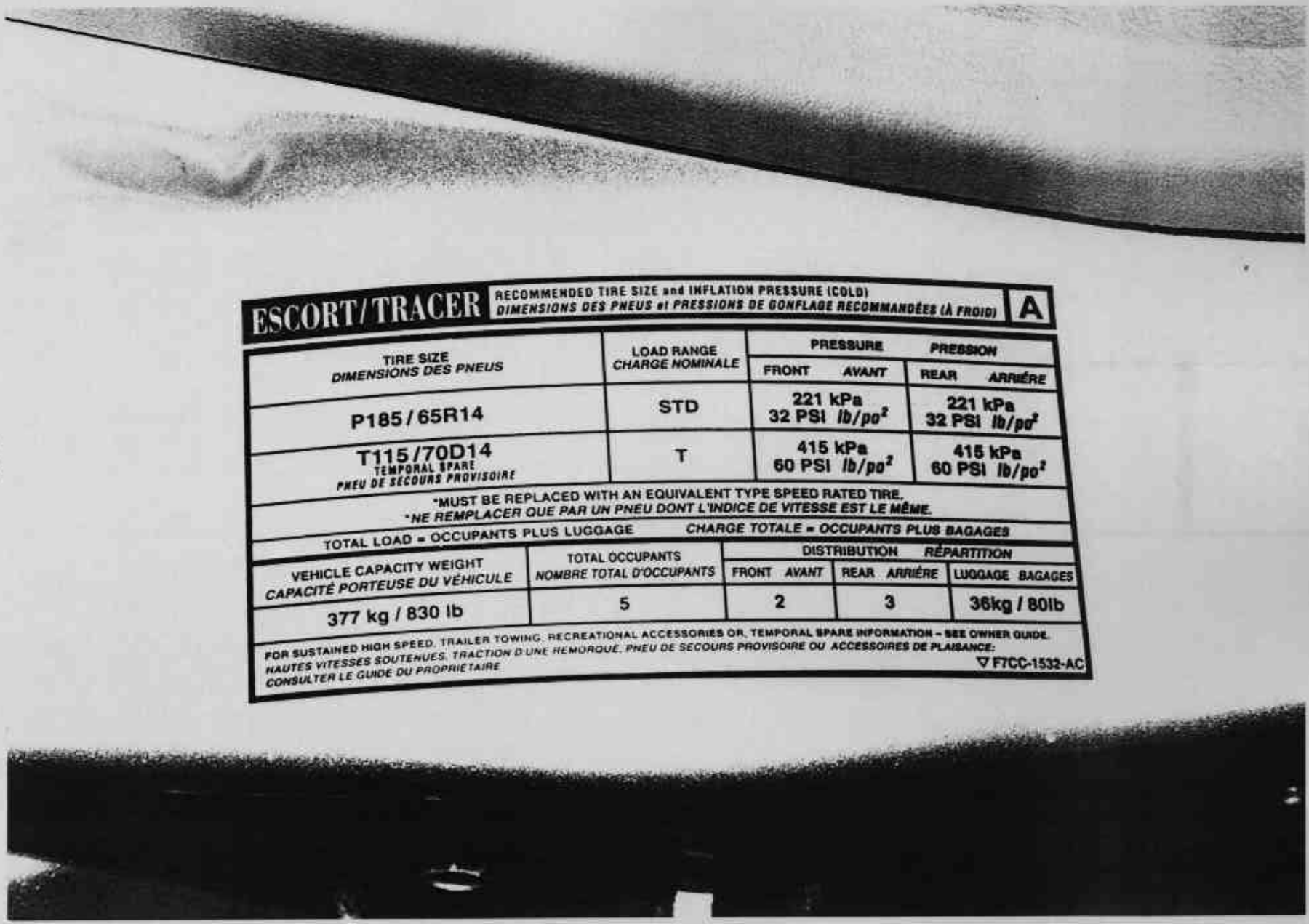
Photo No. A-39 - Post-Test Passenger Dummy Knee Position

Photo No. A-40 - Post-Test Passenger Airbag Contact

Photo No. A-41 - Post-Test Passenger Knee Contact View

A-42

Photo No. A-42 - Vehicle Certification Label



ESCORT/TRACER — RECOMMENDED TIRE SIZE and INFLATION PRESSURE (COLD) / *DIMENSIONS DES PNEUS et PRESSIONS DE GONFLAGE RECOMMANDÉES (À FROID)* — **A**

TIRE SIZE / *DIMENSIONS DES PNEUS*	LOAD RANGE / *CHARGE NOMINALE*	PRESSURE / *PRESSION* FRONT / *AVANT*	PRESSURE / *PRESSION* REAR / *ARRIÈRE*
P185/65R14	STD	221 kPa 32 PSI *lb/po²*	221 kPa 32 PSI *lb/po²*
T115/70D14 TEMPORAL SPARE / *PNEU DE SECOURS PROVISOIRE*	T	415 kPa 60 PSI *lb/po²*	415 kPa 60 PSI *lb/po²*

*MUST BE REPLACED WITH AN EQUIVALENT TYPE SPEED RATED TIRE.
**NE REMPLACER QUE PAR UN PNEU DONT L'INDICE DE VITESSE EST LE MÊME.*

TOTAL LOAD = OCCUPANTS PLUS LUGGAGE — *CHARGE TOTALE = OCCUPANTS PLUS BAGAGES*

VEHICLE CAPACITY WEIGHT / *CAPACITÉ PORTEUSE DU VÉHICULE*	TOTAL OCCUPANTS / *NOMBRE TOTAL D'OCCUPANTS*	DISTRIBUTION / *RÉPARTITION* FRONT / *AVANT*	REAR / *ARRIÈRE*	LUGGAGE / *BAGAGES*
377 kg / 830 lb	5	2	3	36kg / 80lb

FOR SUSTAINED HIGH SPEED, TRAILER TOWING, RECREATIONAL ACCESSORIES OR, TEMPORAL SPARE INFORMATION – SEE OWNER GUIDE.
HAUTES VITESSES SOUTENUES, TRACTION D'UNE REMORQUE, PNEU DE SECOURS PROVISOIRE OU ACCESSOIRES DE PLAISANCE: CONSULTER LE GUIDE DU PROPRIÉTAIRE

▽ F7CC-1532-AC

Photo No. A-43 - Tire Placard

Photo No. A-44 - Vehicle Impact

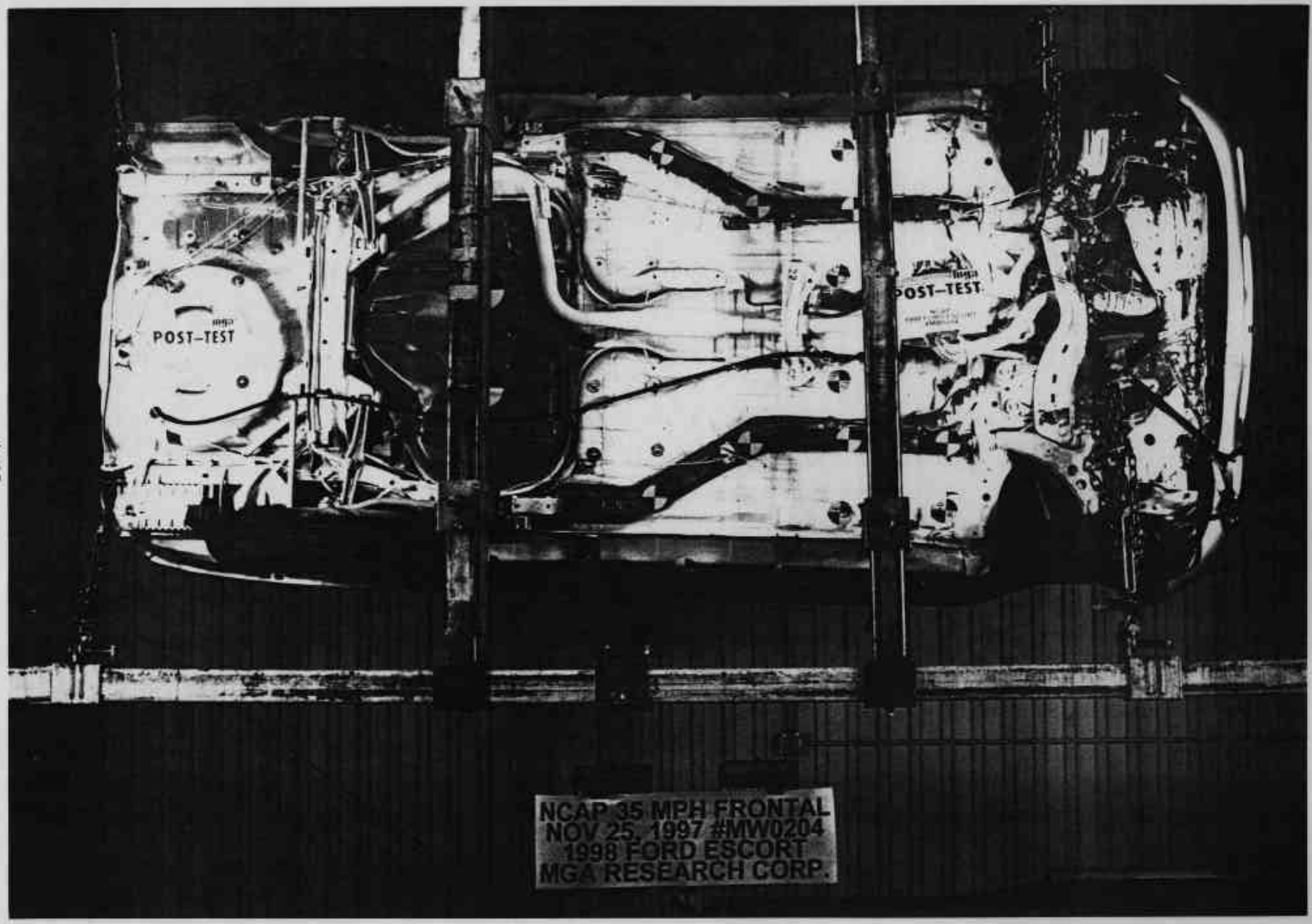


Photo No. A-45 - Rollover 90°

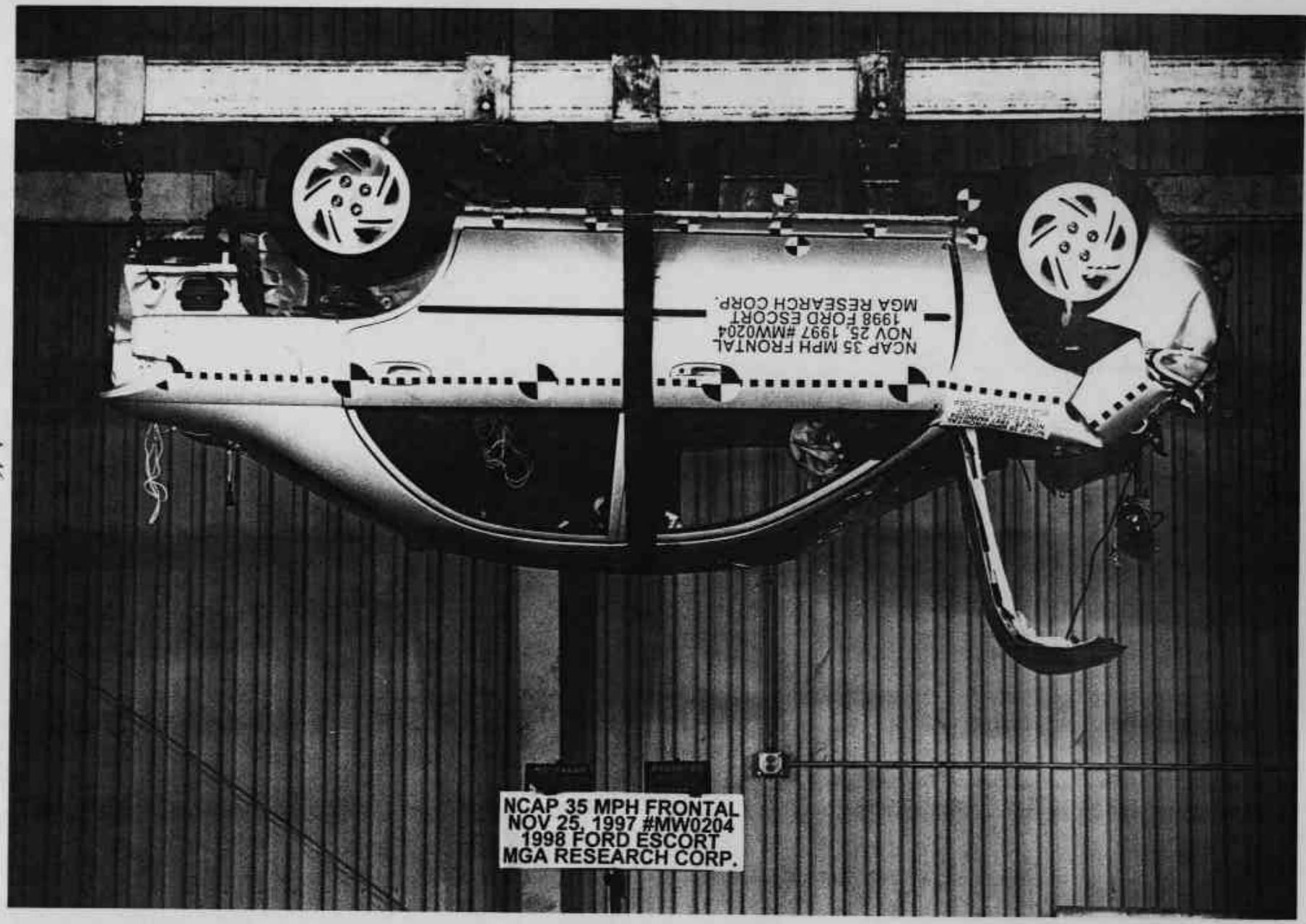


Photo No. A-46 - Rollover 180°

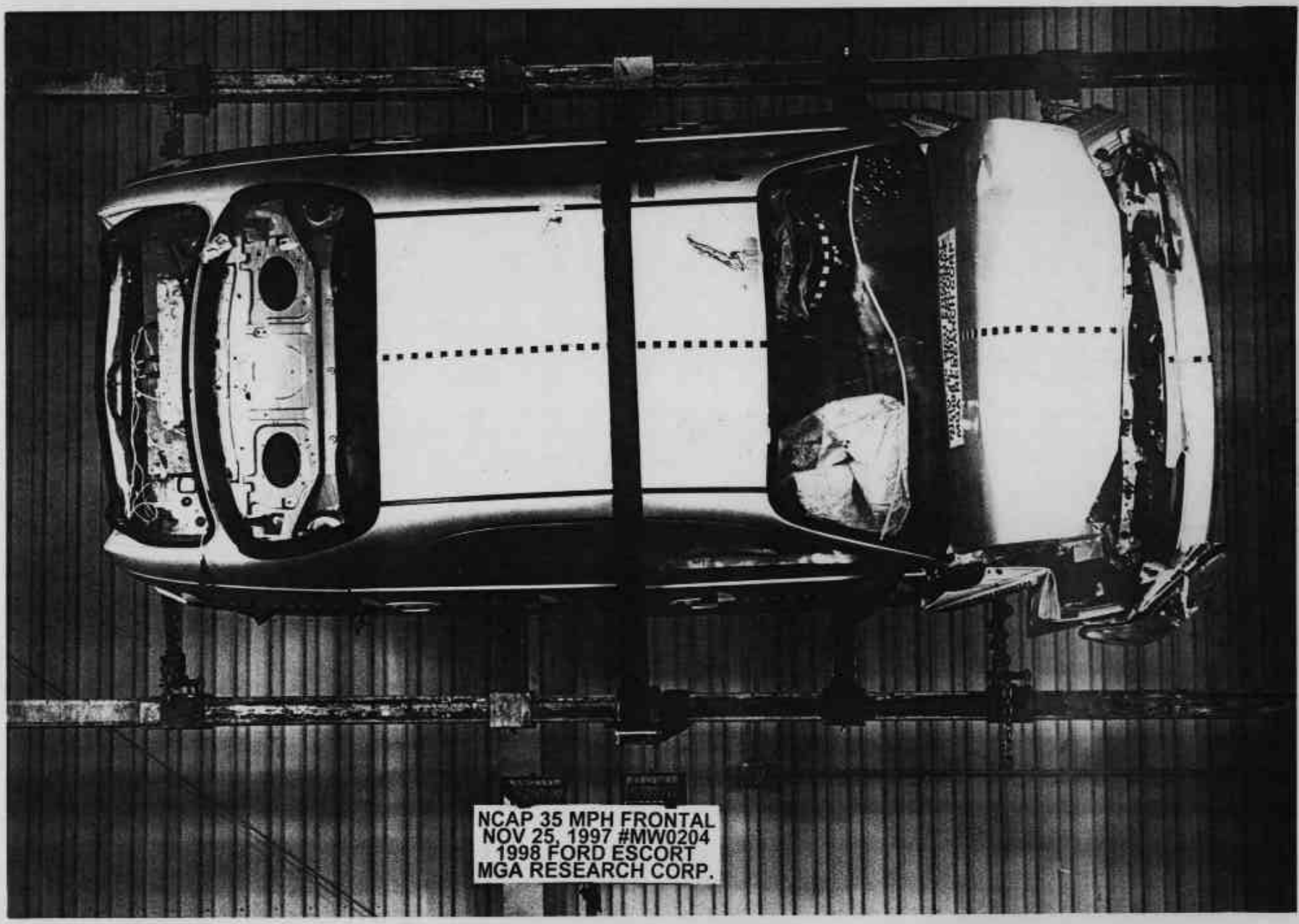


Photo No. A-47 - Rollover 270°

Photo No. A-48 - Rollover 360°

APPENDIX B

VEHICLE, LOAD CELL BARRIER AND DUMMY RESPONSE DATA

1998 Ford Escort 4 Door

NHTSA NO.: MW0204

VEHICLE DATA FILTER CHANNEL CLASS

Head Accelerations 1000 (1650 Hz)

Chest Accelerations 180 (300 Hz)

Vehicle Accelerations 60 (100 Hz)

Barrier Load Cells 60 (100 Hz)

Femur Load Cells 600 (1000 Hz)

Lap and Torso Belts 60 (100 Hz)

Occupant Data	Page No.
Figure B-1 - Driver Head X Acceleration vs. Time*	B-1
Figure B-2 - Driver Head Y Acceleration vs. Time	B-2
Figure B-3 - Driver Head Z Acceleration vs. Time	B-3
Figure B-4 - Driver Head Resultant Acceleration vs. Time*	B-4
Figure B-5 - Driver Head X Velocity vs. Time	B-5
Figure B-6 - Driver Head Redundant X Acceleration vs. Time	B-6
Figure B-7 - Driver Head Redundant Y Acceleration vs. Time	B-7
Figure B-8 - Driver Head Redundant Z Acceleration vs. Time	B-8
Figure B-9 - Driver Head Redundant Resultant Acceleration vs. Time	B-9
Figure B-10 - Driver Head Redundant X Velocity vs. Time	B-10
Figure B-11 - Driver Neck Force X vs. Time	B-11
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Figure B-14 - Driver Neck Force Resultant vs. Time	B-14
Figure B-15 - Driver Neck Moment X vs. Time	B-15
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Figure B-18 - Driver Neck Moment Resultant vs. Time	B-18
Figure B-19 - Driver Chest X Acceleration vs. Time	B-19
Figure B-20 - Driver Chest Y Acceleration vs. Time	B-20

* There is a spike in the data at approximately 111 msec.

Occupant Data: (Cont'd) Page No.

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Figure B-22 - Driver Chest Resultant Acceleration vs. Time B-22

Figure B-23 - Driver Chest X Velocity vs. Time B-23

Figure B-24 - Driver Chest Redundant X Acceleration vs. Time B-24

Figure B-25 - Driver Chest Redundant Y Acceleration vs. Time B-25

Figure B-26 - Driver Chest Redundant Z Acceleration vs. Time B-26

Figure B-27 - Driver Chest Redundant Resultant Acceleration vs. Time B-27

Figure B-28 - Driver Chest Redundant X Velocity vs. Time B-28

Figure B-29 - Driver Chest Compression vs. Time B-29

Figure B-30 - Driver Pelvis X Acceleration vs. Time B-30

Figure B-31 - Driver Pelvis Y Acceleration vs. Time B-31

Figure B-32 - Driver Pelvis Z Acceleration vs. Time B-32

Figure B-33 - Driver Pelvis Resultant Acceleration vs. Time B-33

Figure B-34 - Driver Pelvis X Velocity vs. Time B-34

Figure B-35 - Driver Left Femur Force vs. Time B-35

Figure B-36 - Driver Right Femur Force vs. Time B-36

Figure B-37 - Driver Left Upper Tibia Moment X vs. Time B-37

Figure B-38 - Driver Left Upper Tibia Moment Y vs. Time B-38

Figure B-39 - Driver Left Lower Tibia Force X vs. Time B-39

Figure B-40 - Driver Left Lower Tibia Force Z vs. Time B-40

Figure B-41 - Driver Left Lower Tibia Moment Y vs. Time B-41

Figure B-42 - Driver Right Upper Tibia Moment X vs. Time B-42

Figure B-43 - Driver Right Upper Tibia Moment Y vs. Time B-43

Figure B-44 - Driver Right Lower Tibia Force X vs. Time B-44

Figure B-45 - Driver Right Lower Tibia Force Z vs. Time B-45

Figure B-46 - Driver Right Lower Tibia Moment Y vs. Time B-46

Figure B-47 - Driver Left Foot Ball Z Acceleration vs. Time B-47

Figure B-48 - Driver Left Foot Heel X Acceleration vs. Time B-48

Figure B-49 - Driver Left Foot Heel Z Acceleration vs. Time B-49

Figure B-50 - Driver Right Foot Ball Z Acceleration vs. Time B-50

Occupant Data: (Cont'd) Page No.

Figure B-51 - Driver Right Foot Heel X Acceleration vs. Time B-51

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Figure B-53 - Driver Lap Belt Force vs. Time B-53

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Figure B-58 - Passenger Head Resultant Acceleration vs. Time B-58

Figure B-59 - Passenger Head X Velocity vs. Time B-59

Figure B-60 - Passenger Head Redundant X Acceleration vs. Time B-60

Figure B-61 - Passenger Head Redundant Y Acceleration vs. Time B-61

Figure B-62- Passenger Head Redundant Z Acceleration vs. Time B-62

Figure B-63 - Passenger Head Redundant Resultant Acceleration vs. Time B-63

Figure B-64 - Passenger Head Redundant X Velocity vs. Time B-64

Figure B-65 - Passenger Neck Force X vs. Time B-65

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Figure B-67 - Passenger Neck Force Z vs. Time B-67

Figure B-68 - Passenger Neck Force Resultant vs. Time B-68

Figure B-69 - Passenger Neck Moment X vs. Time B-69

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Figure B-73 - Passenger Chest X Acceleration vs. Time B-73

Figure B-74 - Passenger Chest Y Acceleration vs. Time B-74

Figure B-75 - Passenger Chest Z Acceleration vs. Time B-75

Figure B-76 - Passenger Chest Resultant Acceleration vs. Time B-76

Figure B-77 - Passenger Chest X Velocity vs. Time B-77

Figure B-78 - Passenger Chest Redundant X Acceleration vs. Time B-78

Figure B-79 - Passenger Chest Redundant Y Acceleration vs. Time B-79

Figure B-80 - Passenger Chest Redundant Z Acceleration vs. Time B-80

Occupant Data: (Cont'd) Page No.

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Figure B-82 - Passenger Chest Redundant X Velocity vs. Time B-82
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Figure B-84 - Passenger Pelvis X Acceleration vs. Time B-84
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Figure B-88 - Passenger Pelvis X Velocity vs. Time B-88
Figure B-89 - Passenger Left Femur Force vs. Time B-89
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Figure B-93 - Passenger Left Lower Tibia Force X vs. Time B-93
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Figure B-95 - Passenger Left Lower Tibia Moment Y vs. Time B-95
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Figure B-102 - Passenger Left Foot Heel X Acceleration vs. Time B-102
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Figure B-106 - Passenger Right Foot Heel Z Acceleration vs. Time B-106
Figure B-107 - Passenger Lap Belt Force vs. Time B-107
Figure B-108 - Passenger Shoulder Belt Force vs. Time B-108

* There is a spike in the data at approximately 30 msec.

** Data is not valid after aproximately 62 msec.

Vehicle and Barrier Data:	Page No.
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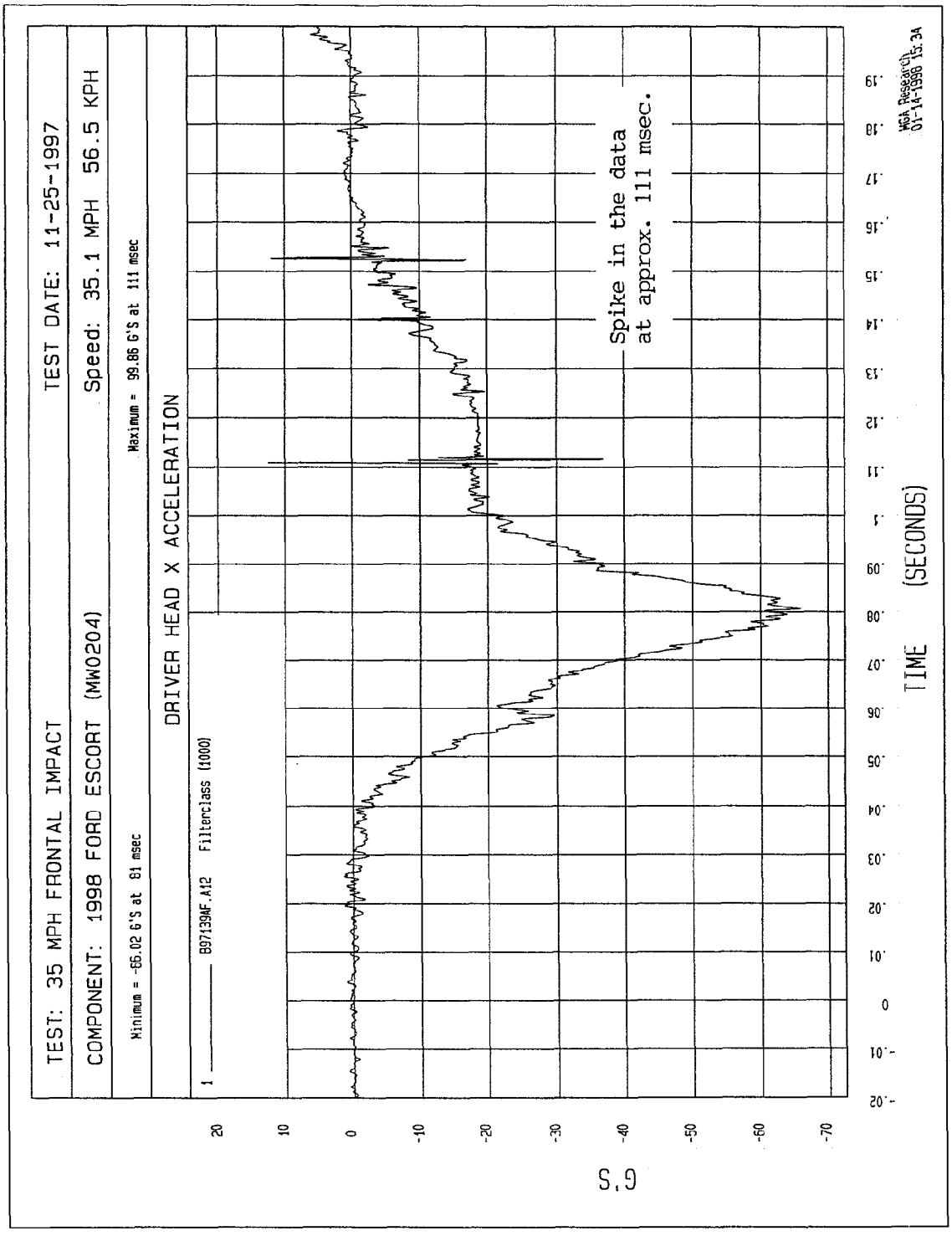
Figure B-134 - Right Rear Seat Crossmember Redundant X Velocity vs.Time	B-134
Figure B-135 - Right Rear Seat Crossmember Redundant X Displacement vs. Time	B-135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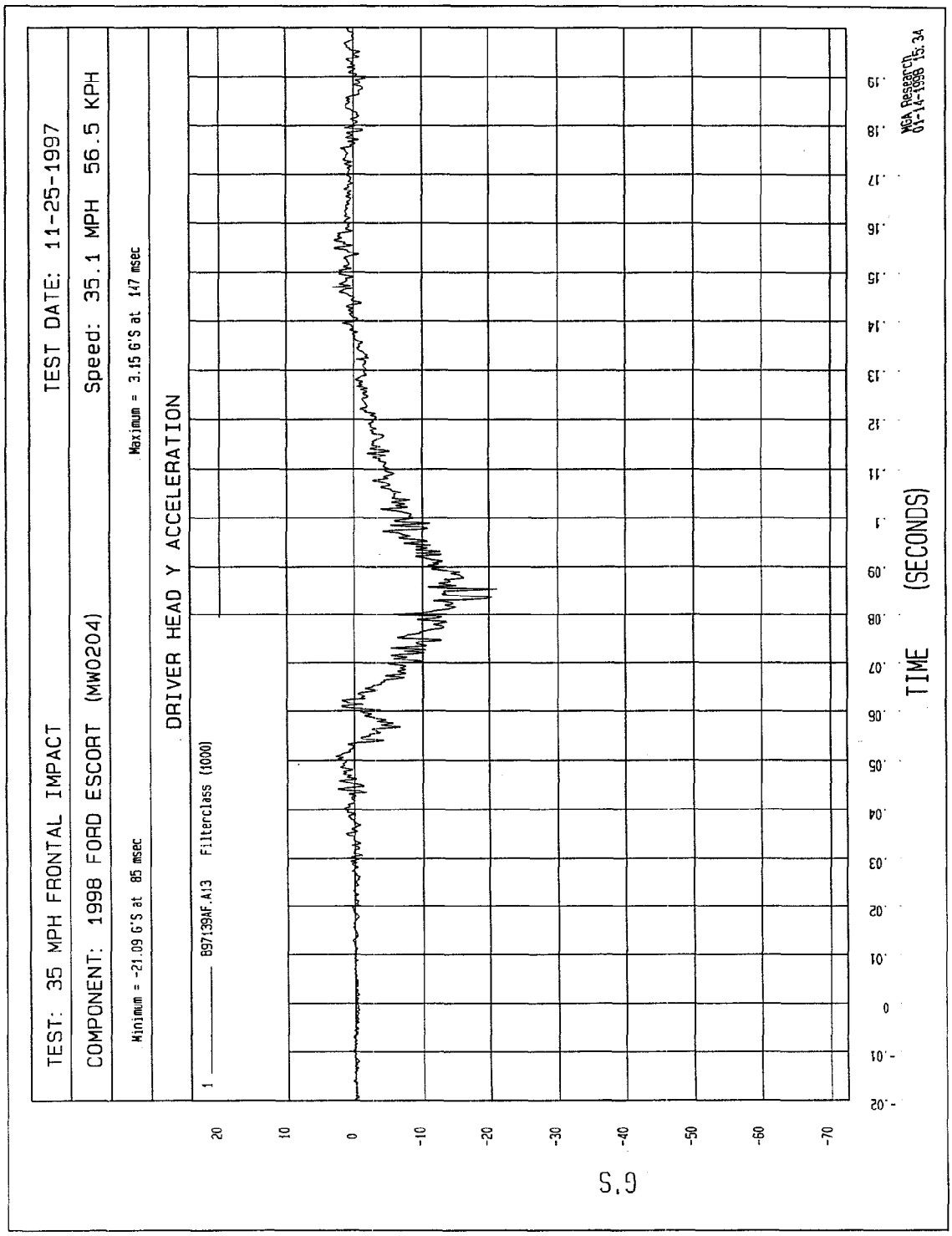
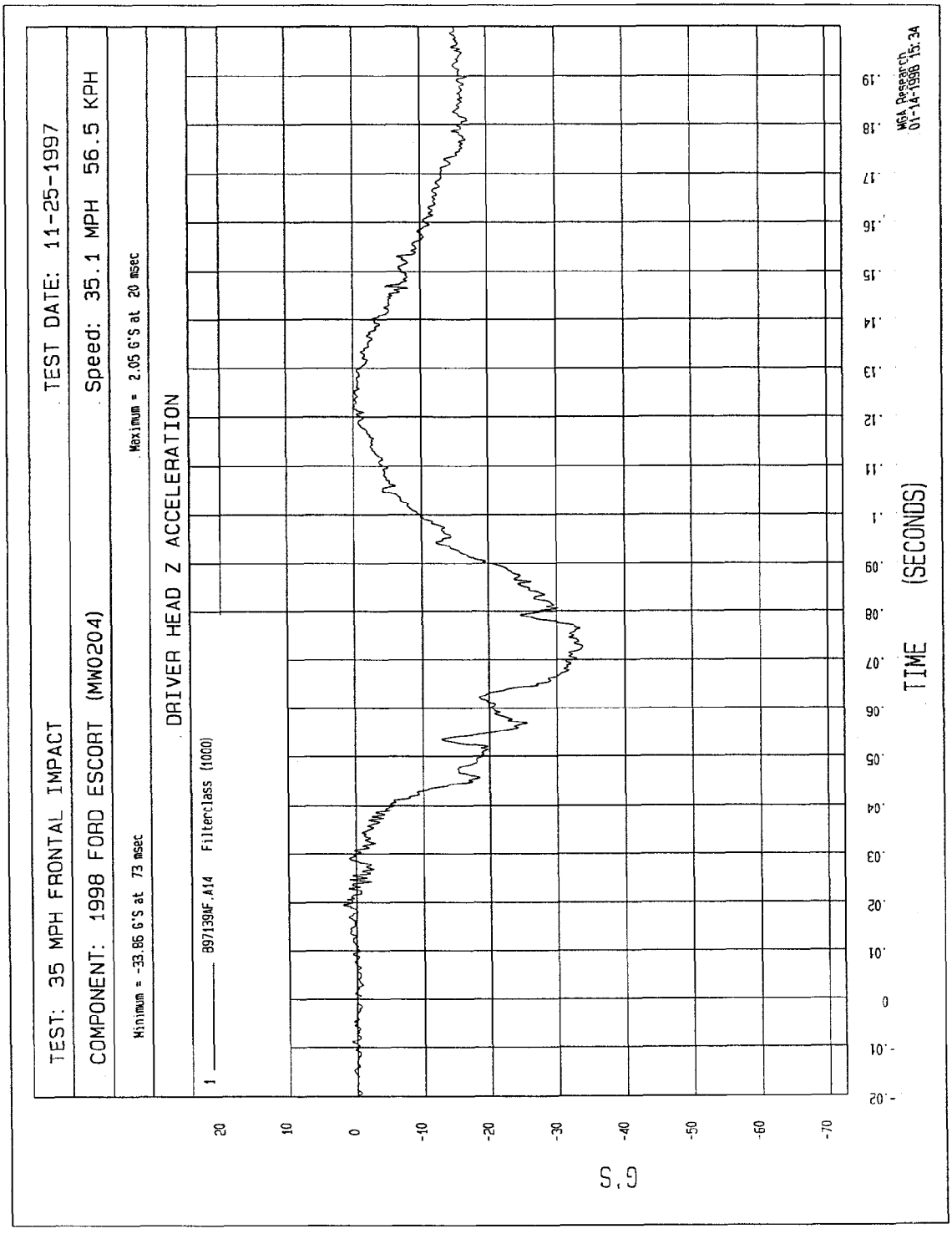
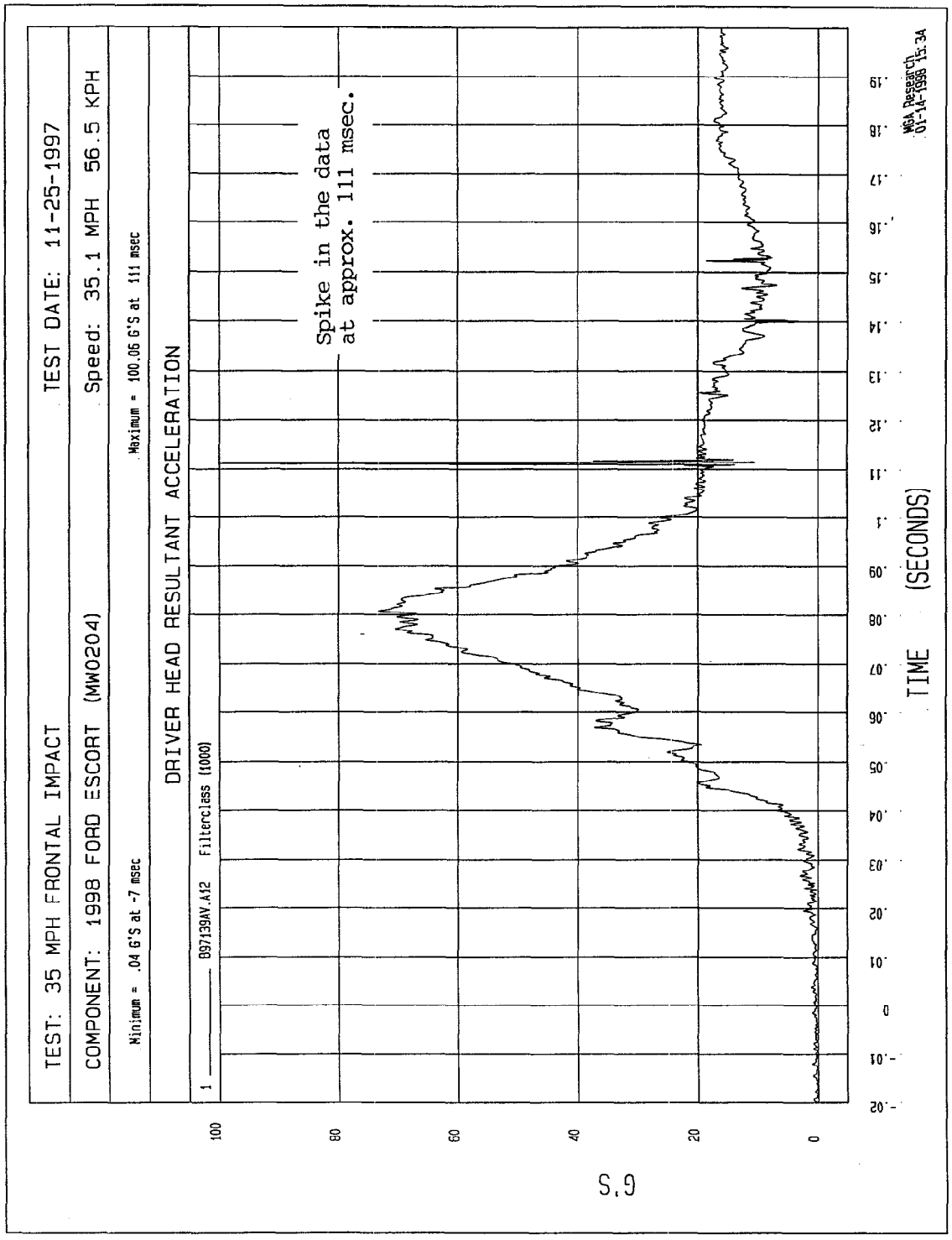
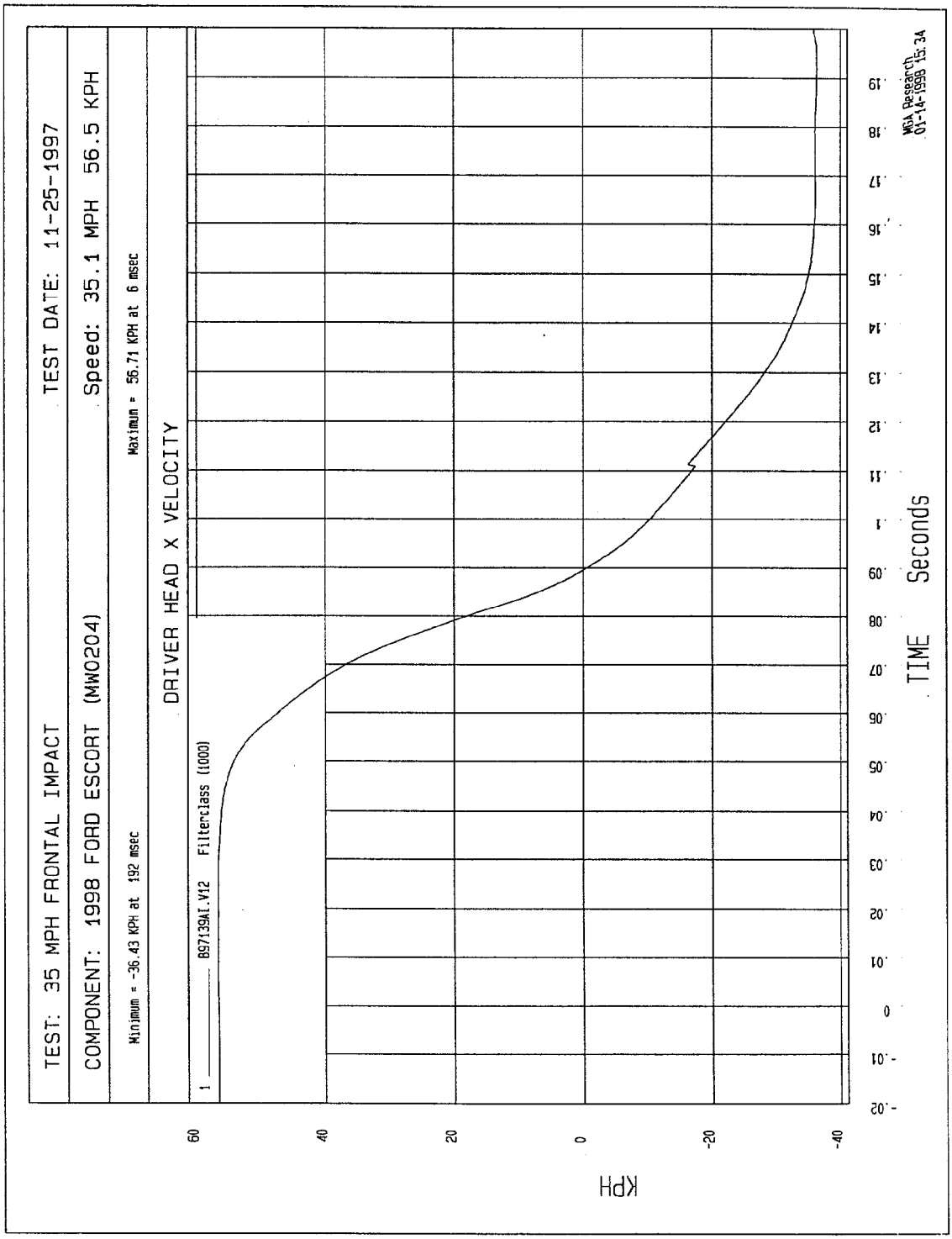
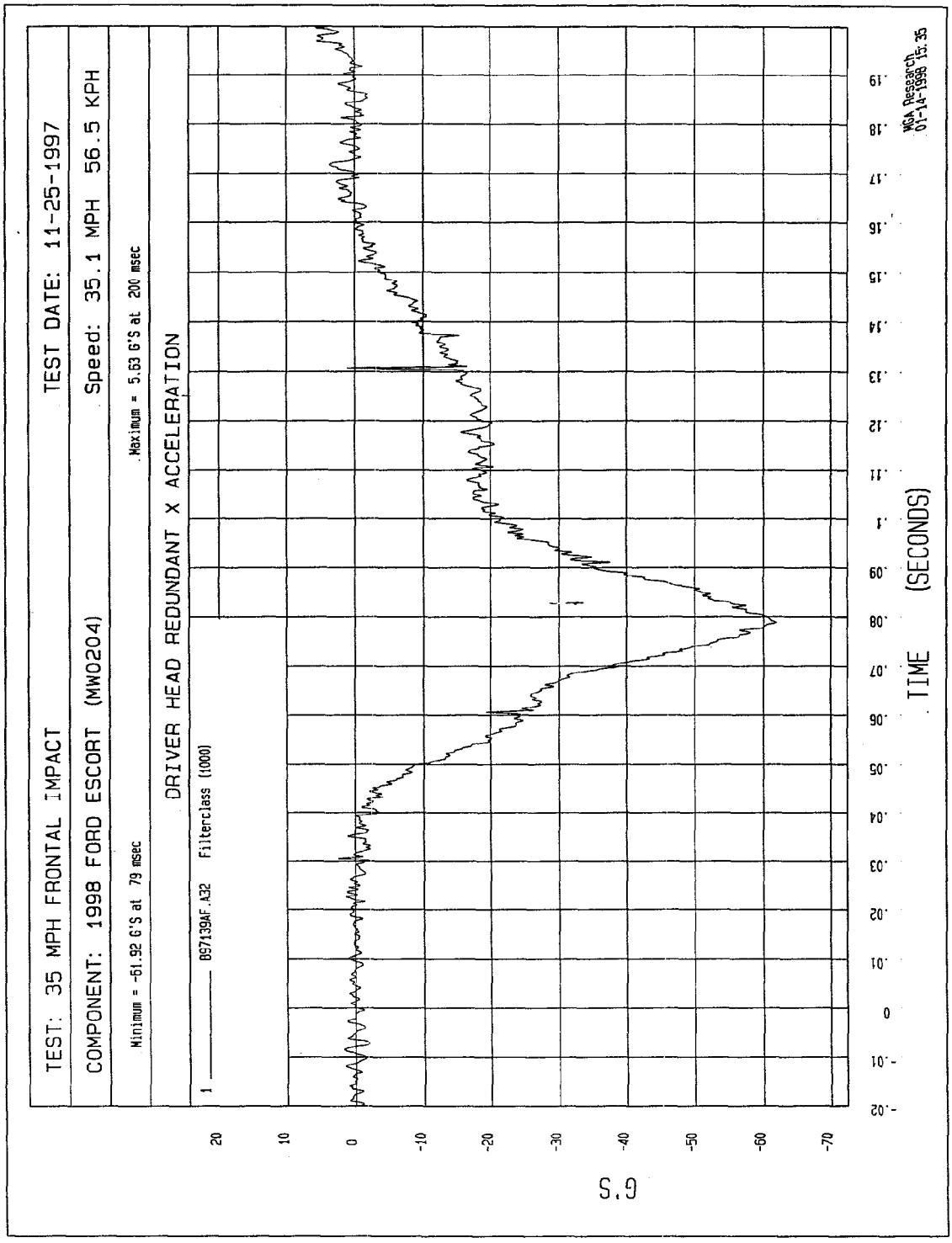
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -66.02 G'S at 81 msec
Maximum = 99.86 G'S at 111 msec
DRIVER HEAD X ACCELERATION
1 B97139MF.A12 Filterclass (1000)
Spike in the data
at approx. 111 msec.
G's
TIME (SECONDS)
MGA Research
01-14-1998 15:34

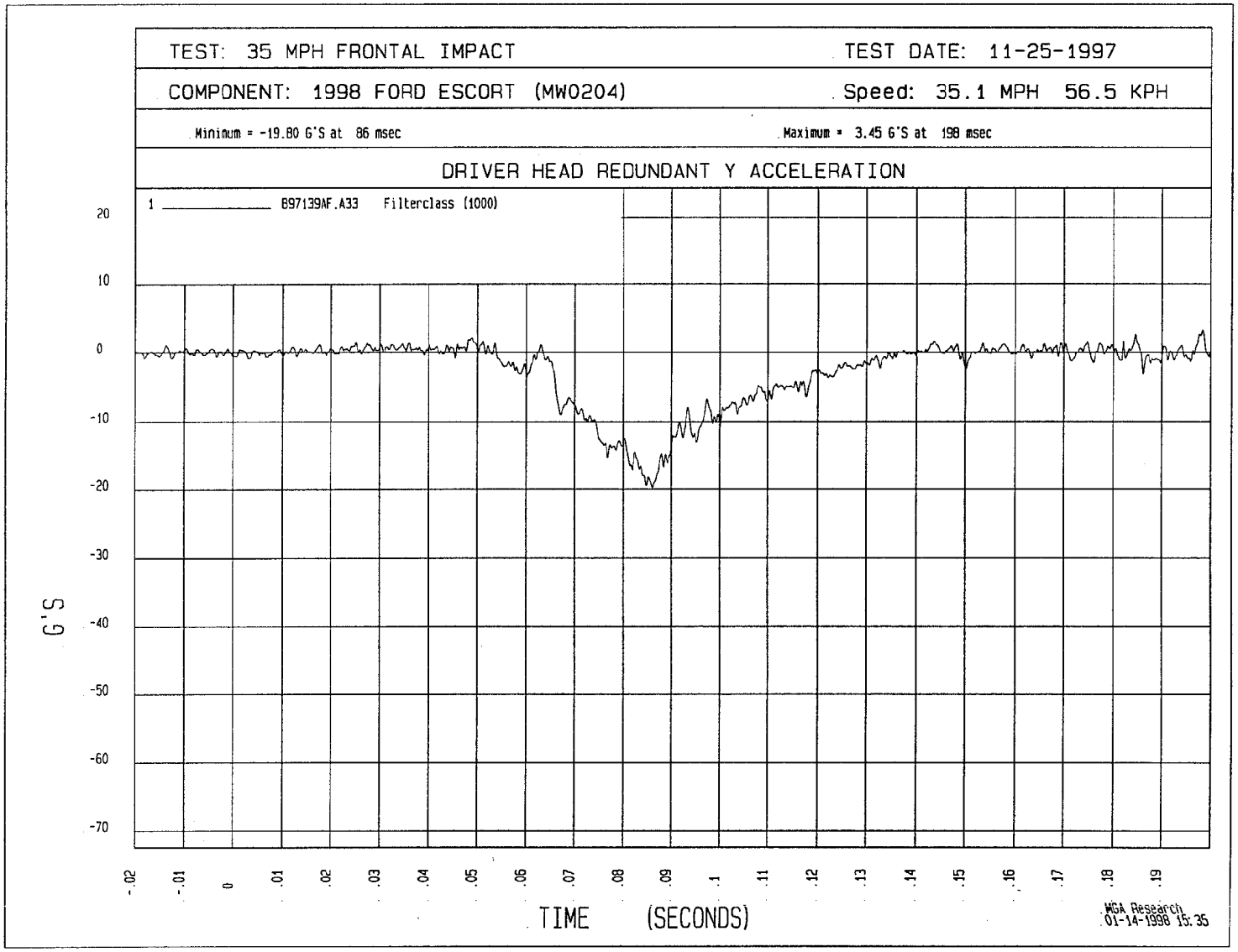

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -21.09 G'S at 85 msec
Maximum = 3.15 G'S at 147 msec
DRIVER HEAD Y ACCELERATION
1 B97139AF.A13 Filterclass (1000)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:34

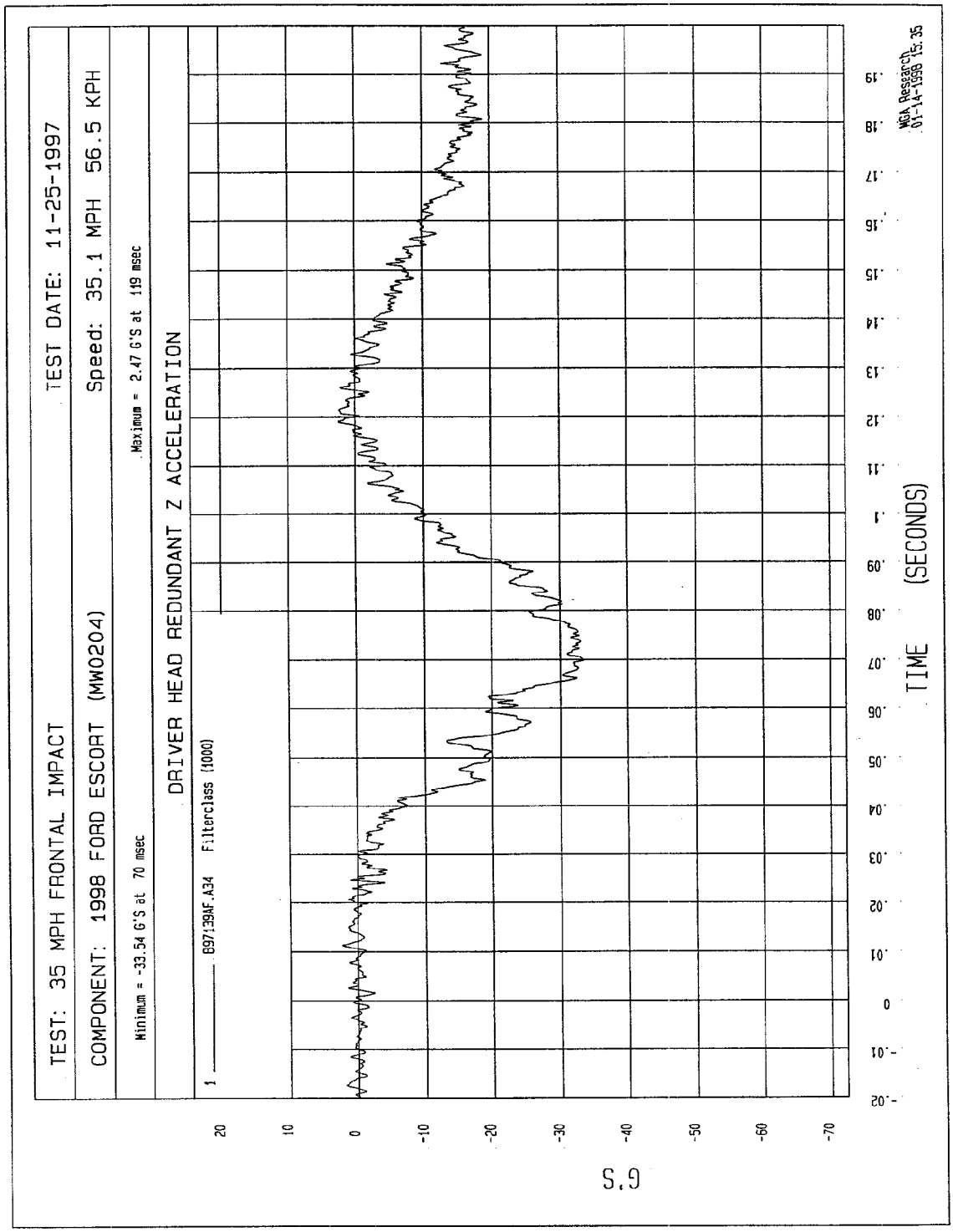

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -33.86 G'S at 73 msec
Maximum = 2.05 G'S at 20 msec
DRIVER HEAD Z ACCELERATION
1 B971390F.A14 Filterclass (1000)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (SECONDS)
MGA Research
01-14-1998 15:34

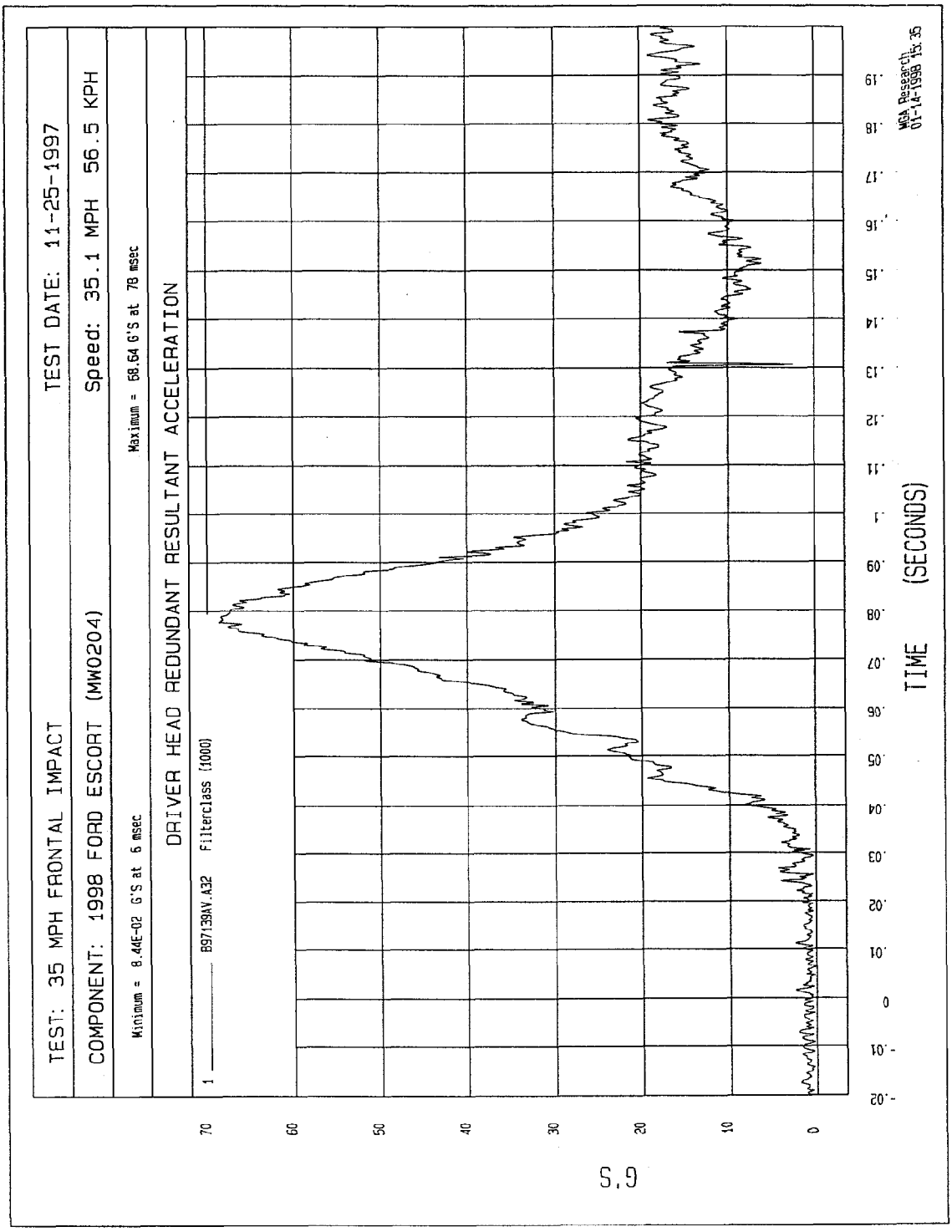

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = .04 G'S at -7 msec
Maximum = 100.06 G'S at 111 msec
DRIVER HEAD RESULTANT ACCELERATION
1 _____ 097139AV.A12 Filterclass (1000)
Spike in the data
at approx. 111 msec.
100
80
60
40
20
0
-20
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:34
G's

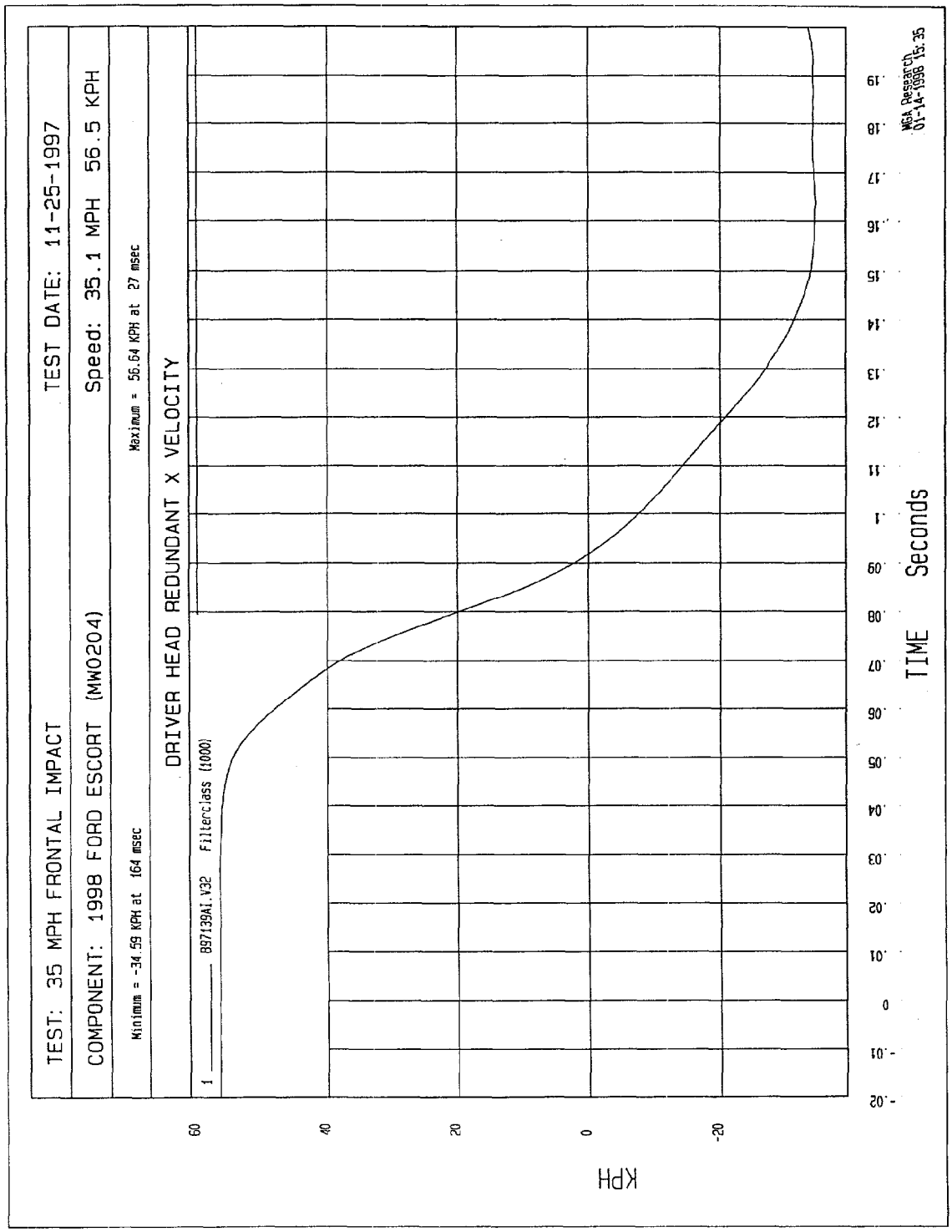

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -36.43 KPH at 192 msec
Maximum = 56.71 KPH at 6 msec
DRIVER HEAD X VELOCITY
1 _____ B97139AI.V12 Filterclass (1000)
KPH
60
40
20
0
-20
-40
TIME Seconds
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
1
11
12
13
14
15
16
17
18
19
MGA Research
01-14-1998 15:34


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -61.92 G'S at 79 msec
Maximum = 5.63 G'S at 200 msec
DRIVER HEAD REDUNDANT X ACCELERATION
1 _____ 097139AF.A32 Filterclass (1000)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
-02
-01
0
01
02
03
04
05
06
07
08
09
1
11
12
13
14
15
16
17
18
19
TIME (SECONDS)
MGA Research
01-14-1998 15:35


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -19.80 G'S at 86 msec
Maximum = 3.45 G'S at 198 msec
DRIVER HEAD REDUNDANT Y ACCELERATION
1 B97139NF.A33 Filterclass (1000)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:35


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -33.54 G'S at 70 msec
Maximum = 2.47 G'S at 119 msec
DRIVER HEAD REDUNDANT Z ACCELERATION
1 _____ 697139NF.A34 Filterclass (1000)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:35


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 8.44E-02 G'S at 6 msec
Maximum = 68.64 G'S at 78 msec
DRIVER HEAD REDUNDANT RESULTANT ACCELERATION
1 B97139AV.A32 Filterclass (1000)
70
60
50
40
30
20
10
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:35
S.9


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -34.59 KPH at 164 msec
Maximum = 56.64 KPH at 27 msec
DRIVER HEAD REDUNDANT X VELOCITY
1 B97139AI.V32 Filterclass (1000)
KPH
60
40
20
0
-20
TIME Seconds
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
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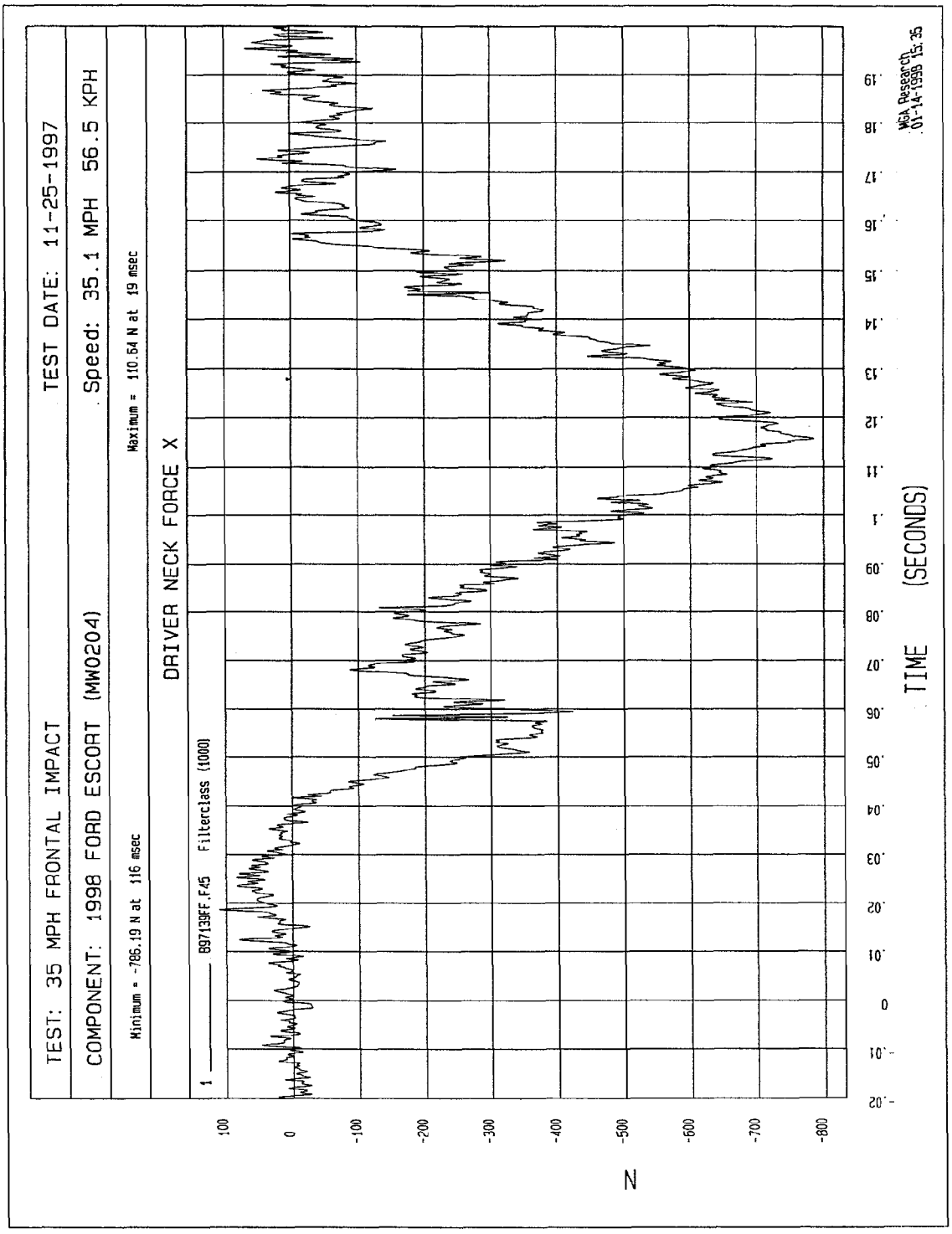
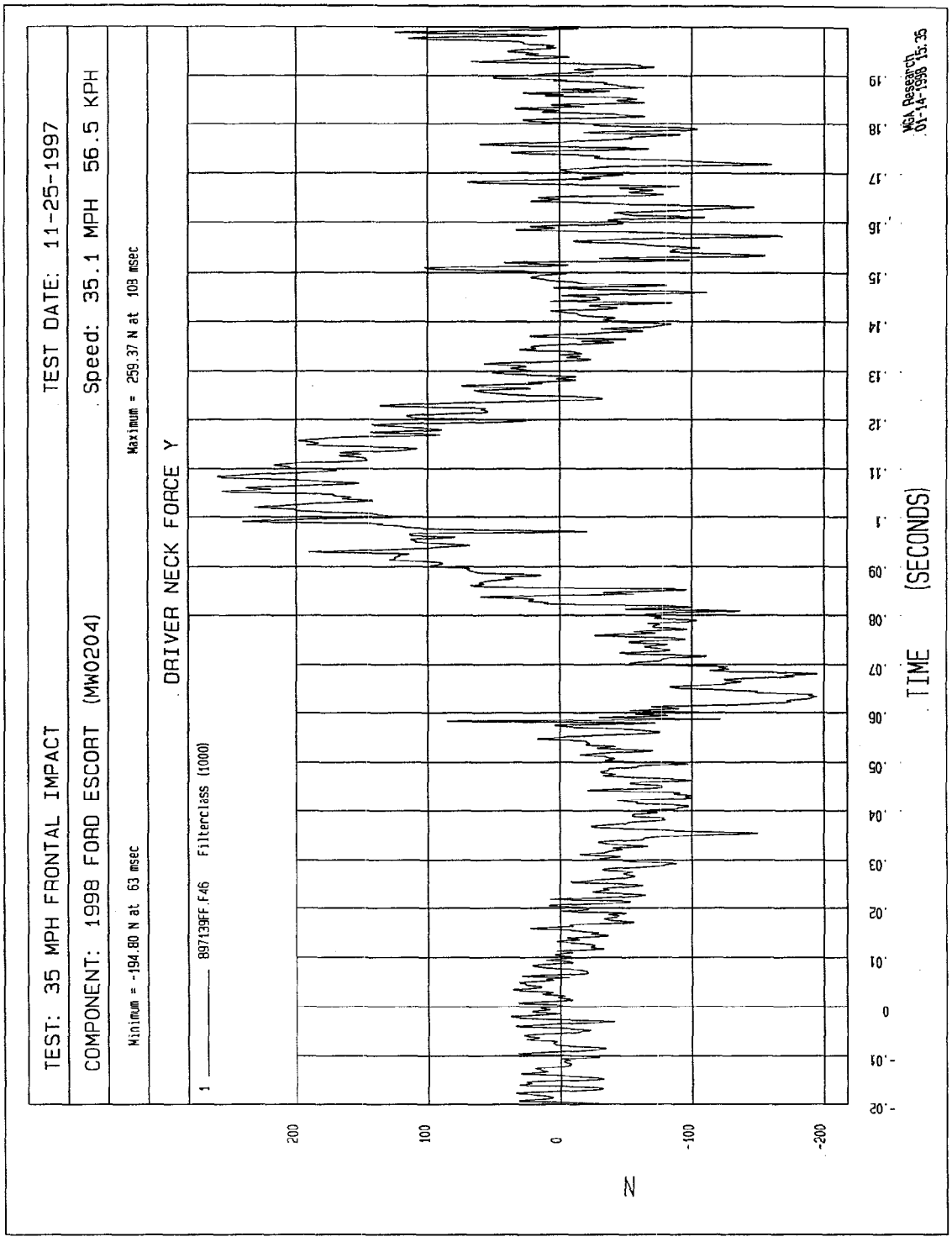
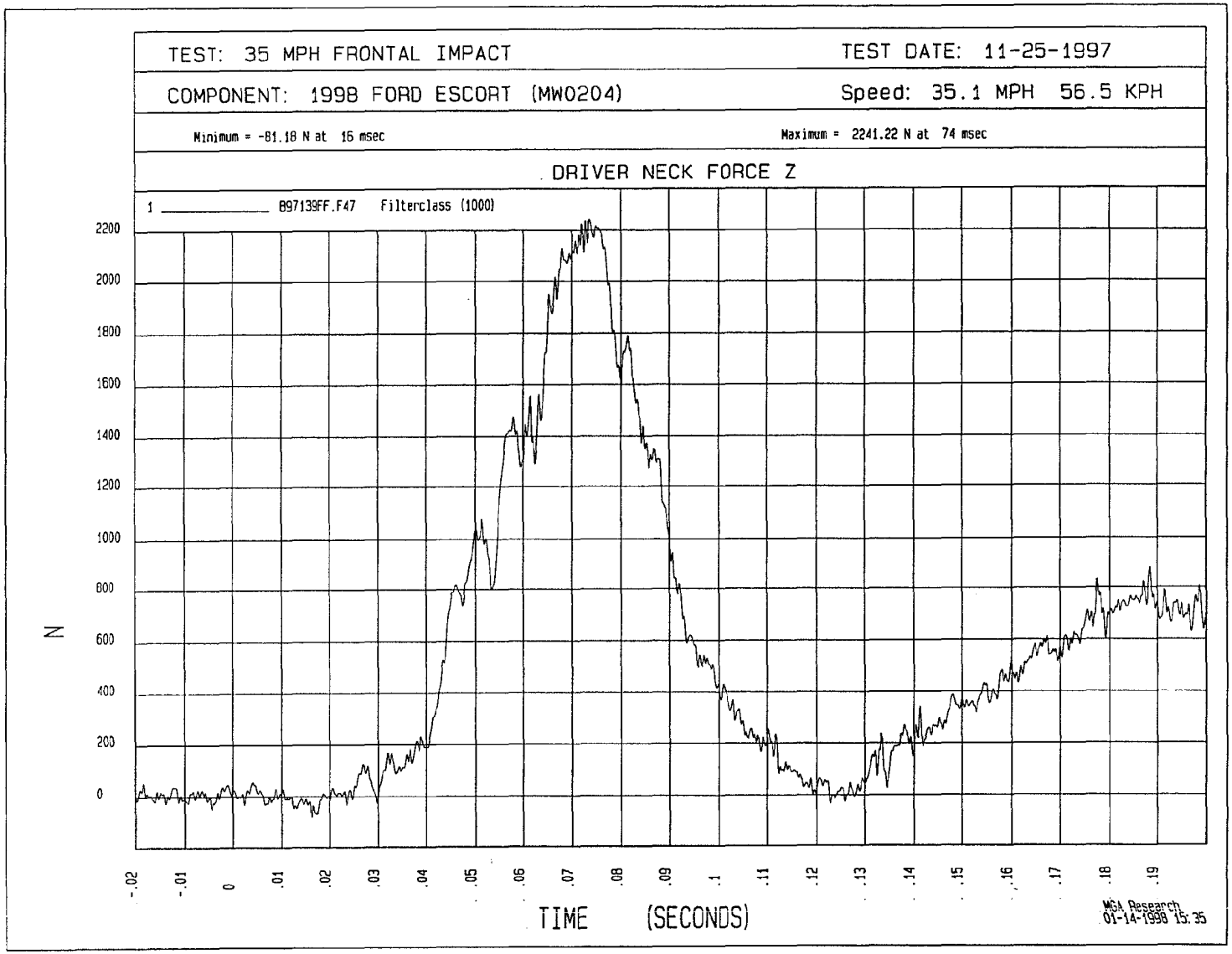
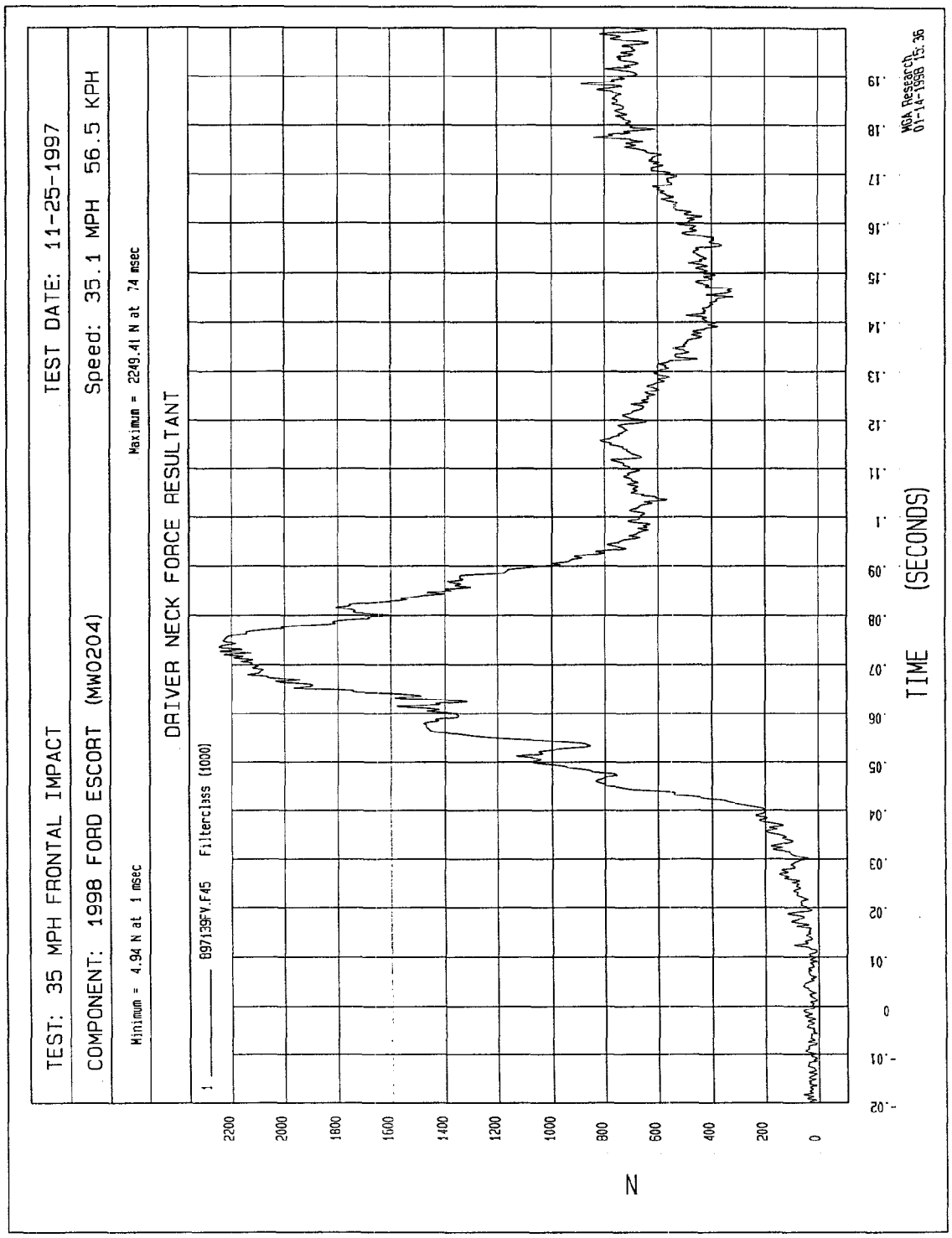
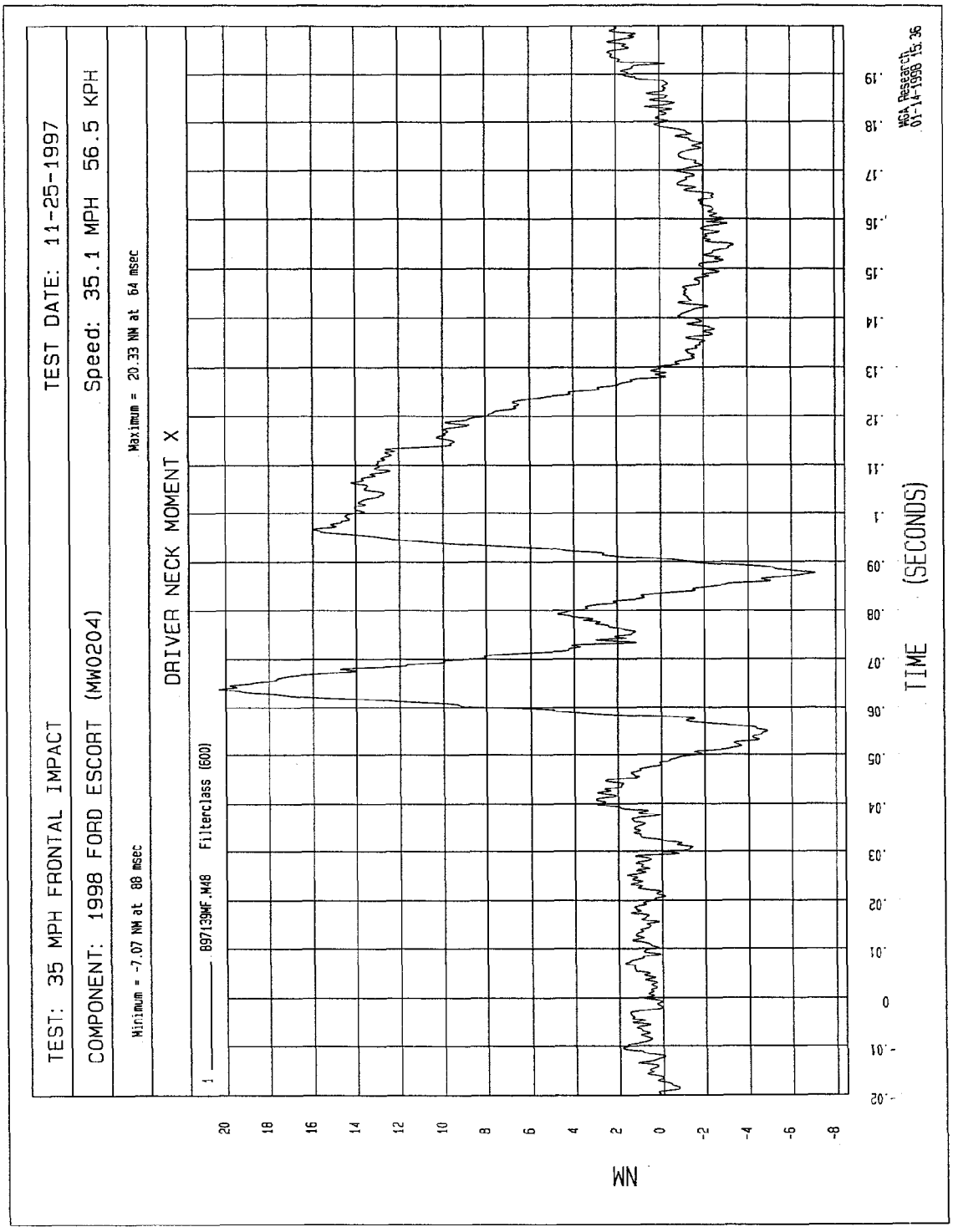
.18
.19
MGA Research
01-14-1998 15:35

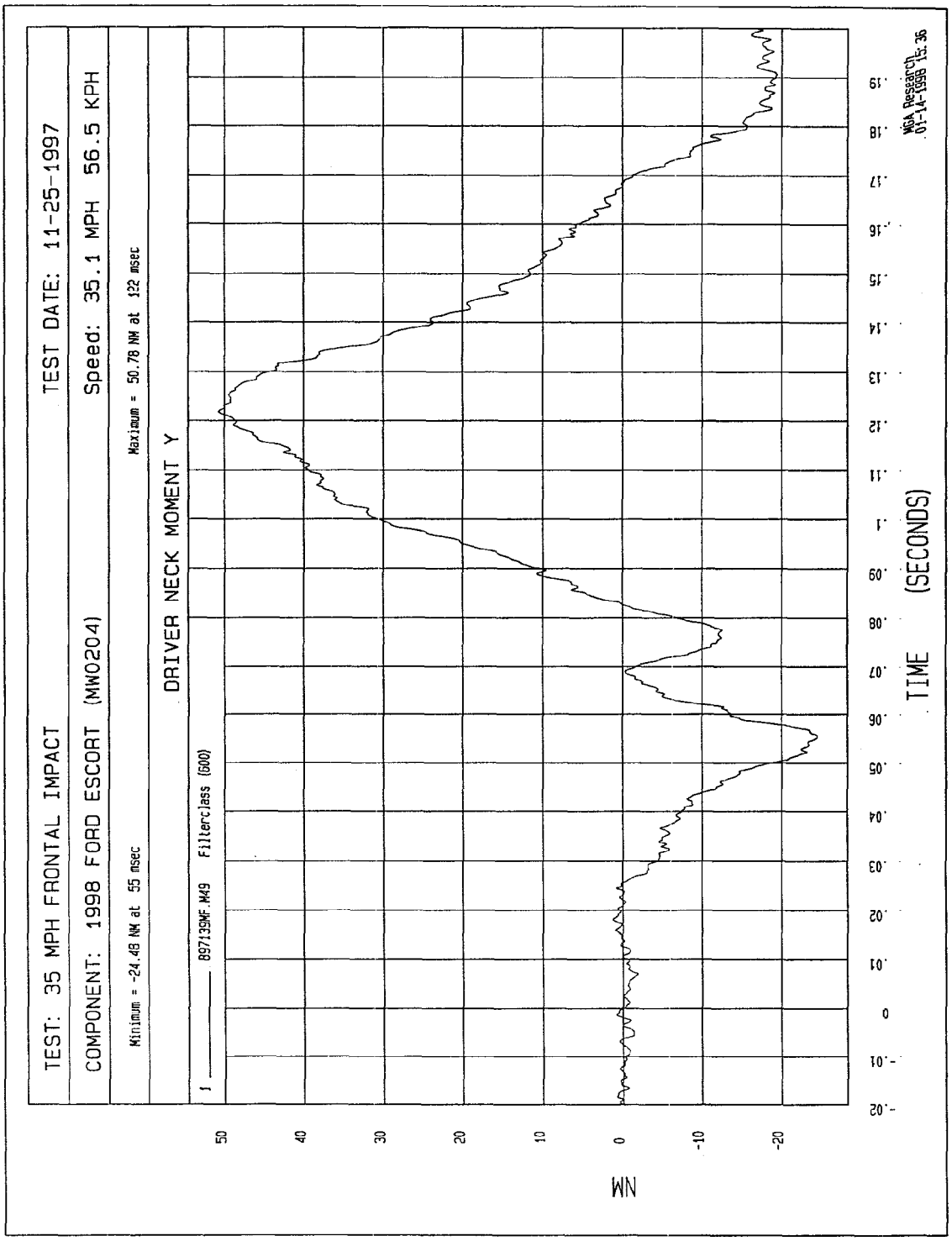

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -786.19 N at 116 msec
Maximum = 110.64 N at 19 msec
DRIVER NECK FORCE X
1 B97139FF.F45 Filterclass (1000)
100
0
-100
-200
-300
-400
-500
-600
-700
-800
N
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:35

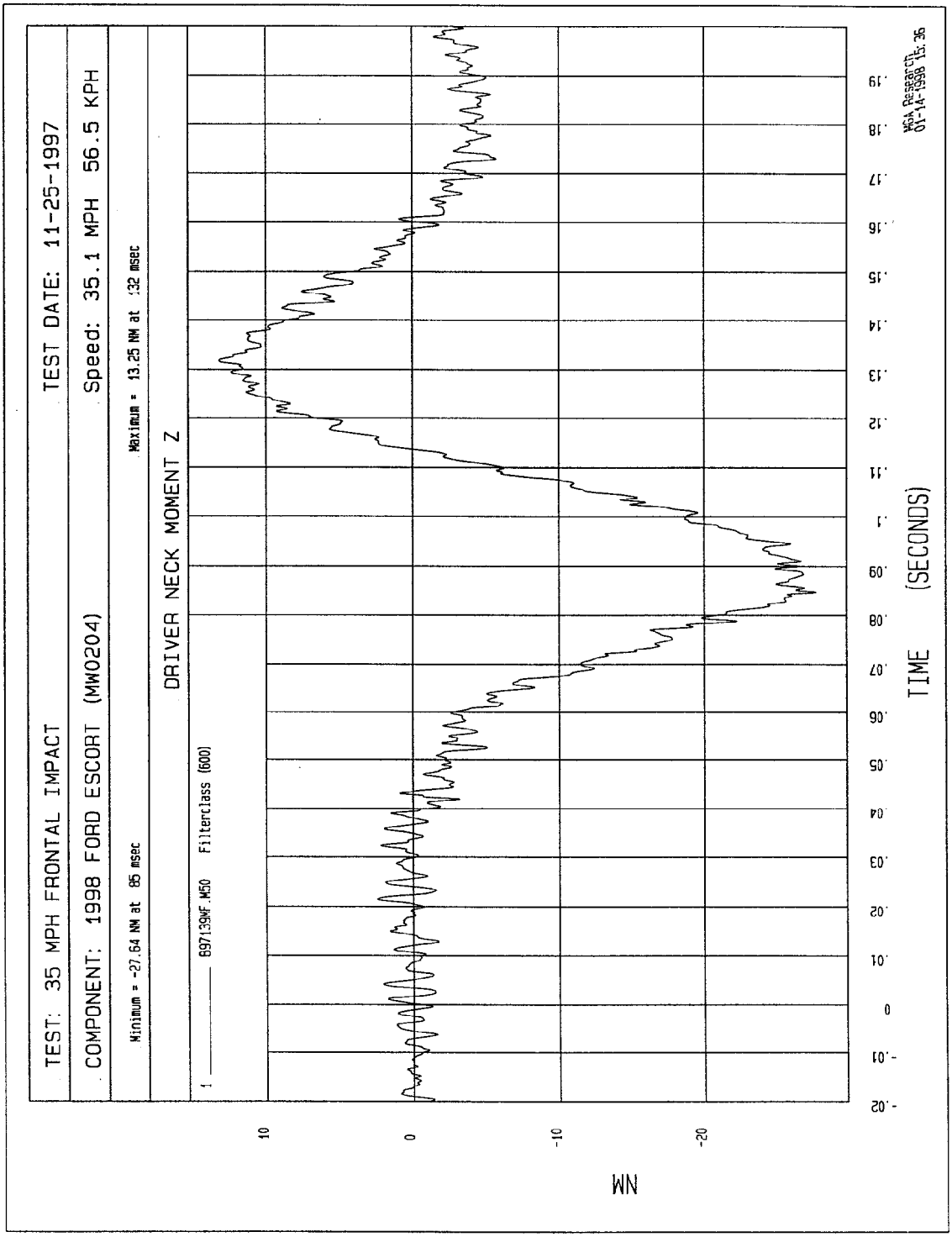

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -194.80 N at 63 msec
Maximum = 259.37 N at 109 msec
DRIVER NECK FORCE Y
1 _____ 897139FF.F46 Filterclass (1000)
200
100
0
-100
-200
N
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:35


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -81.18 N at 16 msec
Maximum = 2241.22 N at 74 msec
DRIVER NECK FORCE Z
1 B97139FF.F47 Filterclass (1000)
N
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:35


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 4.94 N at 1 msec
Maximum = 2249.41 N at 74 msec
DRIVER NECK FORCE RESULTANT
1 _____ 697139FV.F45 Filterclass (1000)
N
TIME (SECONDS)
MGA Research
01-14-1998 15:36


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -7.07 NM at 88 msec
Maximum = 20.33 NM at 64 msec
DRIVER NECK MOMENT X
1 B97139MF.M48 Filterclass (600)
NM
TIME (SECONDS)
MGA Research
01-14-1998 15:36


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -24.48 NM at 55 msec
Maximum = 50.78 NM at 122 msec
DRIVER NECK MOMENT Y
1 _____ 897139NF.M49 Filterclass (600)
NM
TIME (SECONDS)
MGA Research
01-14-1998 15:36


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -27.64 NM at 85 msec
Maximum = 13.25 NM at 132 msec
DRIVER NECK MOMENT Z
1 _____ 897139MF.M50 Filterclass (600)
NM
10
0
-10
-20
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
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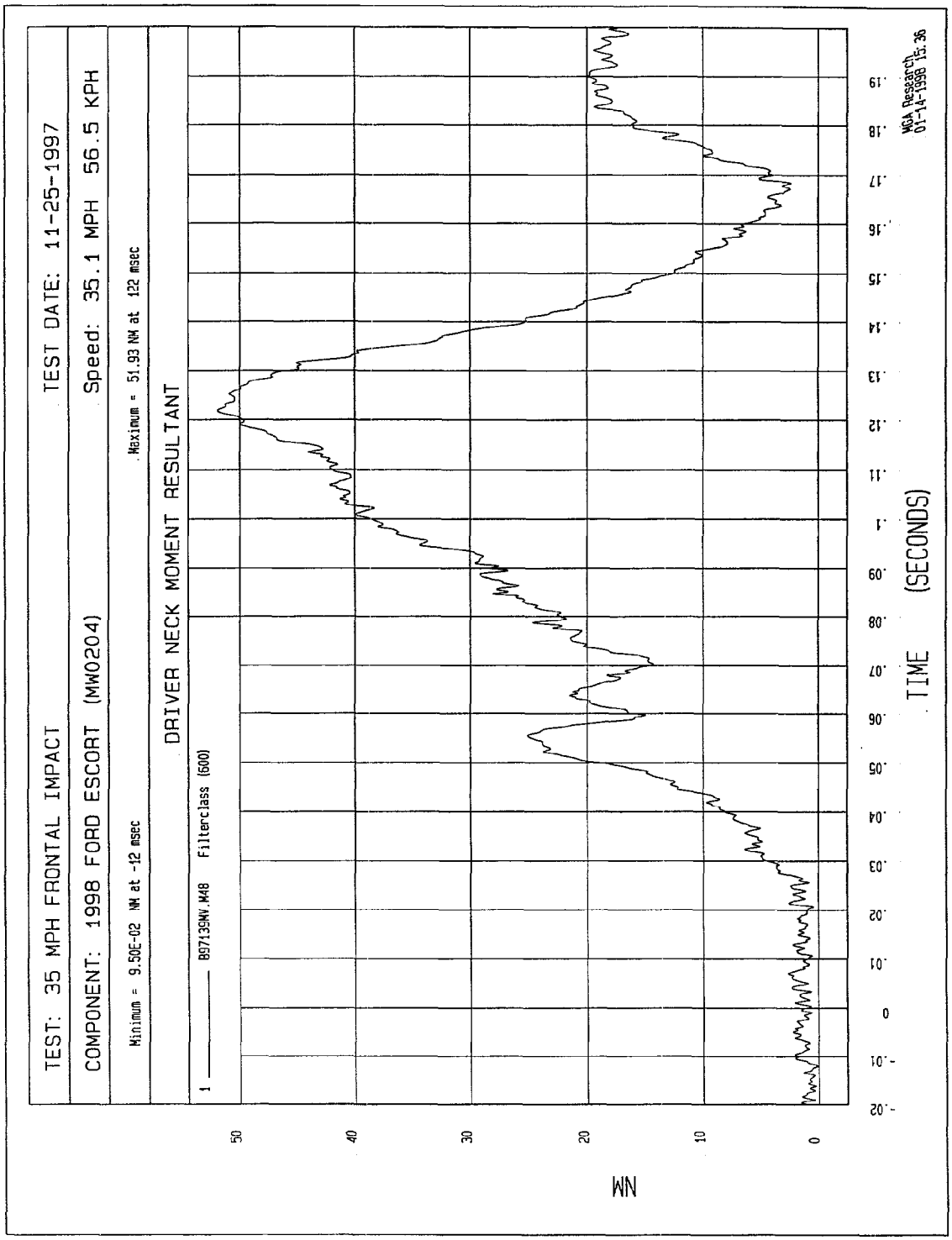
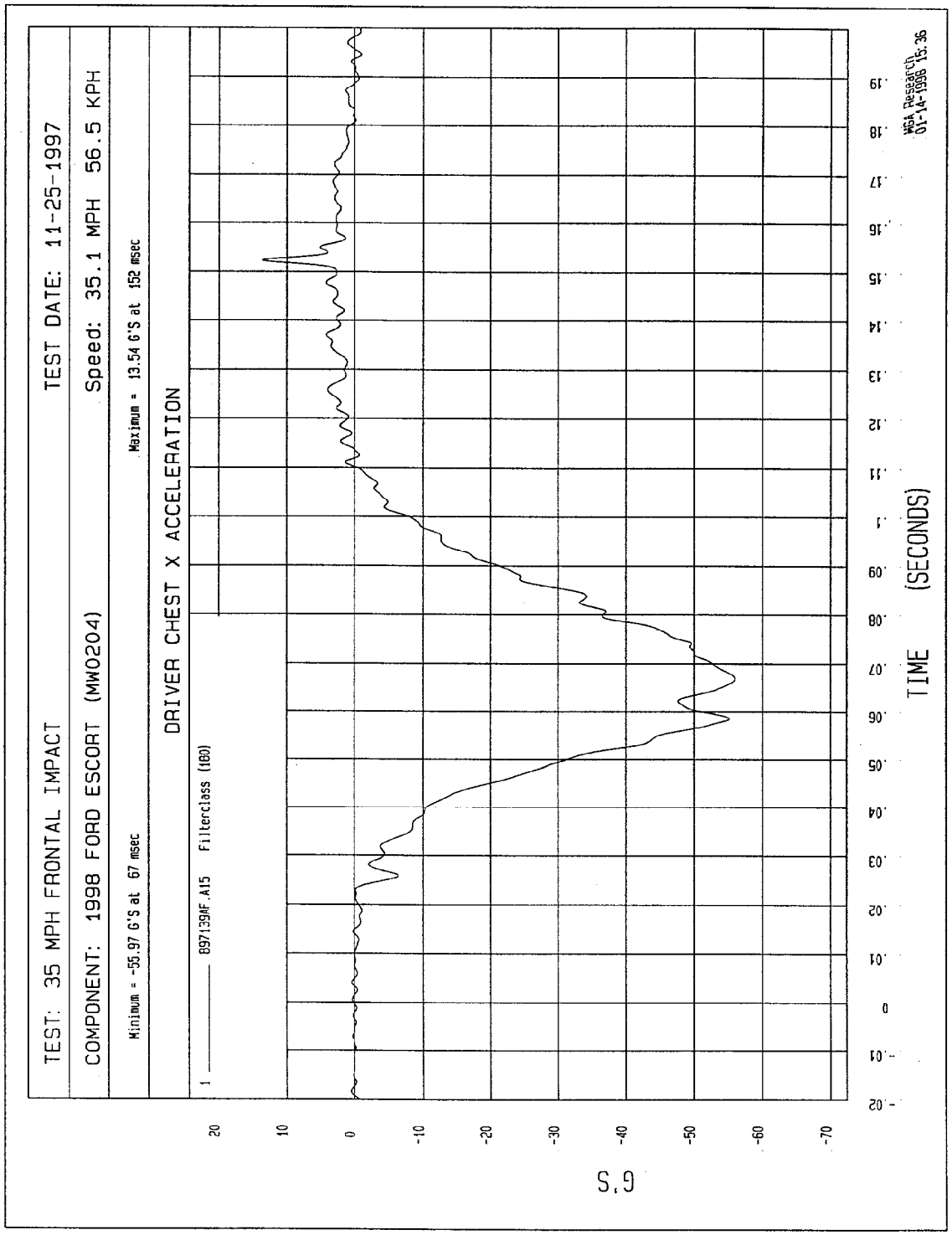
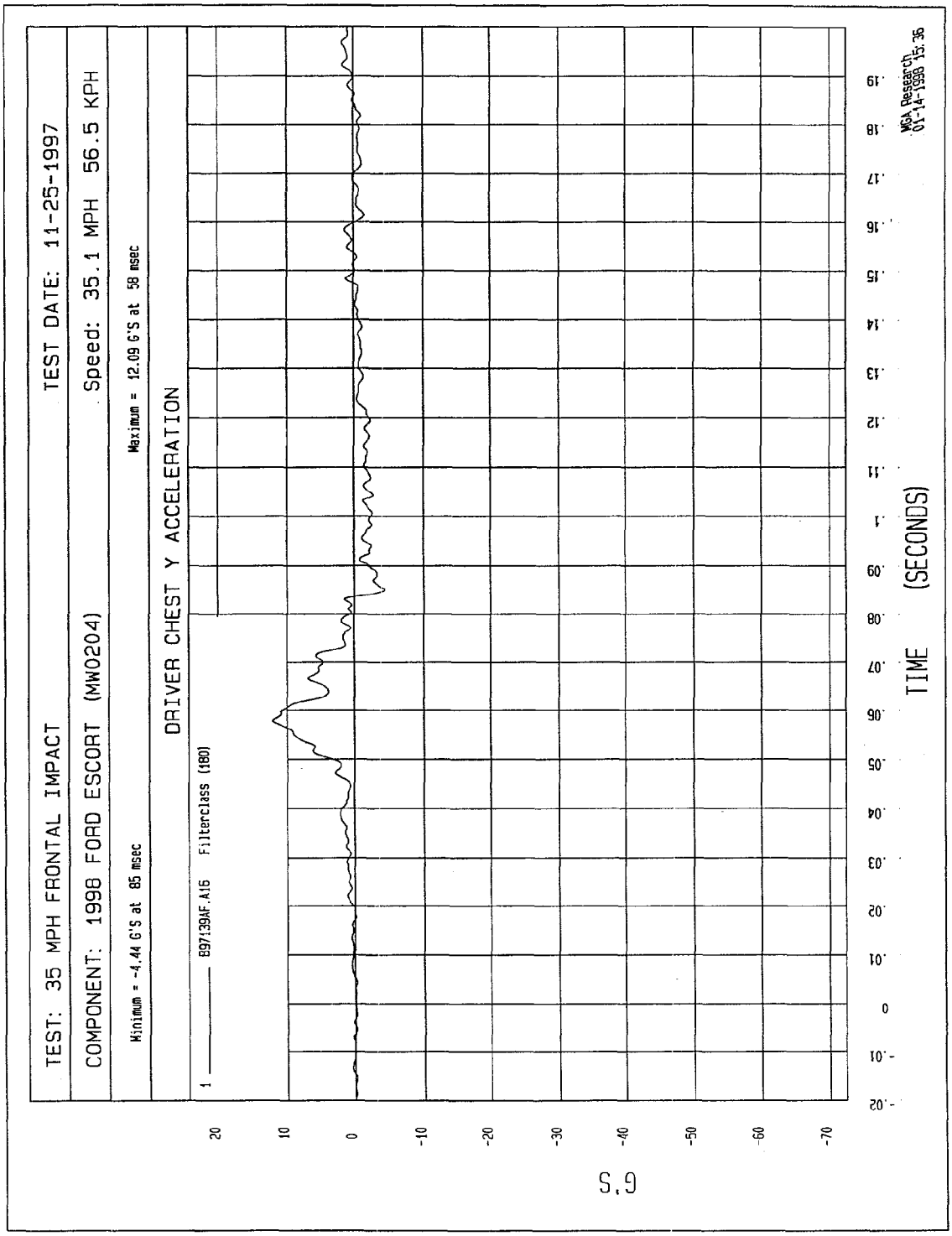
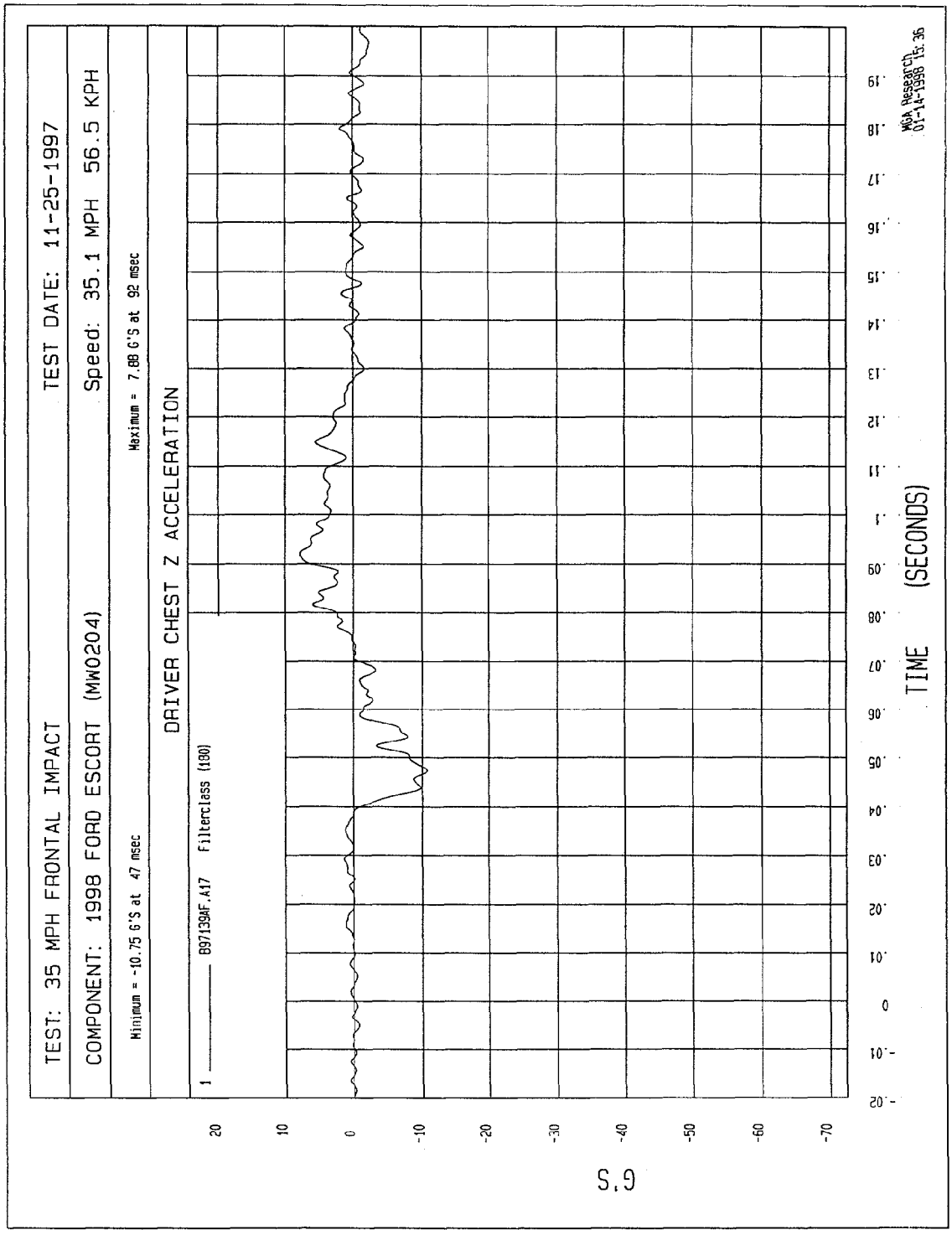
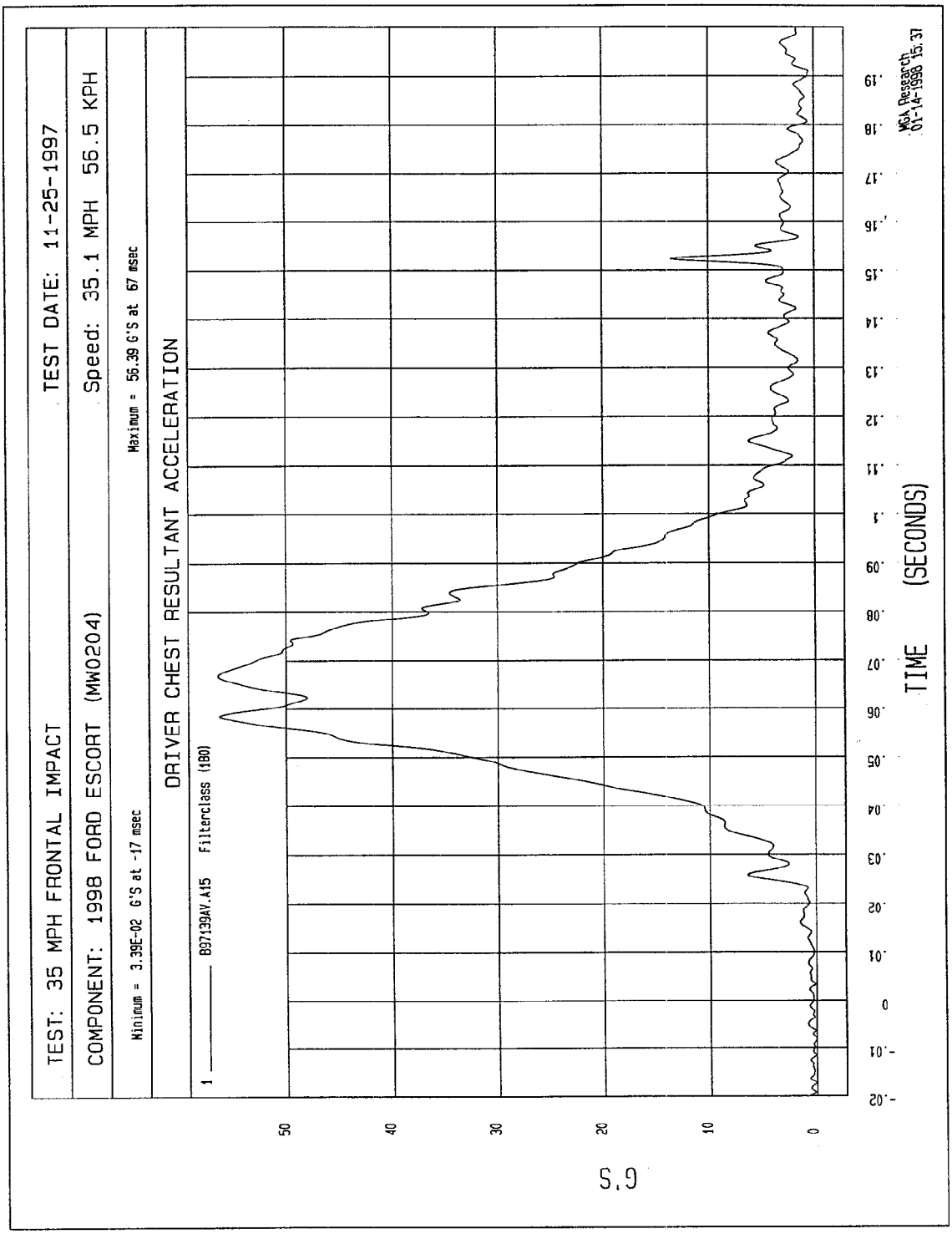
.18
.19
MGA Research
01-14-1998 15:36


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 9.50E-02 NM at -12 msec
Maximum = 51.93 NM at 122 msec
DRIVER NECK MOMENT RESULTANT
1 ——— 897139NV.M48 Filterclass (600)
NM
TIME (SECONDS)
MGA Research
01-14-1998 15:36


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -55.97 G'S at 67 msec
Maximum = 13.54 G'S at 152 msec
DRIVER CHEST X ACCELERATION
1 897139NF.A15 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
MGA Research
01-14-1998 15:36


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -4.44 G'S at 85 msec
Maximum = 12.09 G'S at 58 msec
DRIVER CHEST Y ACCELERATION
1 ——— 897139AF.A16 FilterClass (180)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:36


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -10.75 G'S at 47 msec
Maximum = 7.88 G'S at 92 msec
DRIVER CHEST Z ACCELERATION
1 B971398F.A17 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
MGA Research
01-14-1998 15:36


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 3.39E-02 G'S at -17 msec
Maximum = 56.39 G'S at 67 msec
DRIVER CHEST RESULTANT ACCELERATION
1 B97139AV.A15 Filterclass (180)
50
40
30
20
10
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
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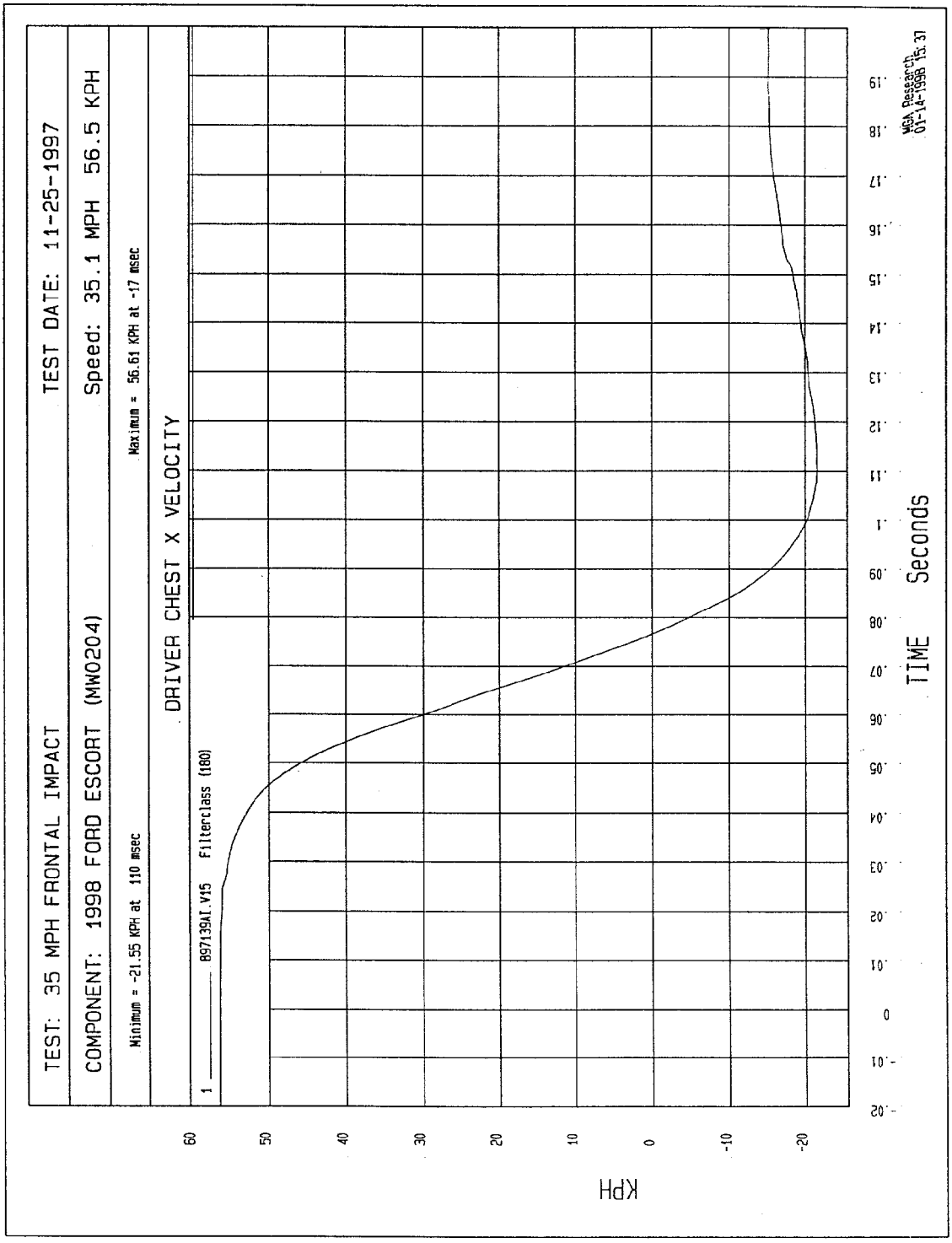
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:37
6.5
5.9


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -21.55 KPH at 110 msec
Maximum = 56.61 KPH at -17 msec
DRIVER CHEST X VELOCITY
1 897139AI.V15 Filterclass (180)
KPH
60
50
40
30
20
10
0
-10
-20
TIME Seconds
-.02
-.01
0
.01
.02
.03
.04
.06
.07
.08
.09
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.12
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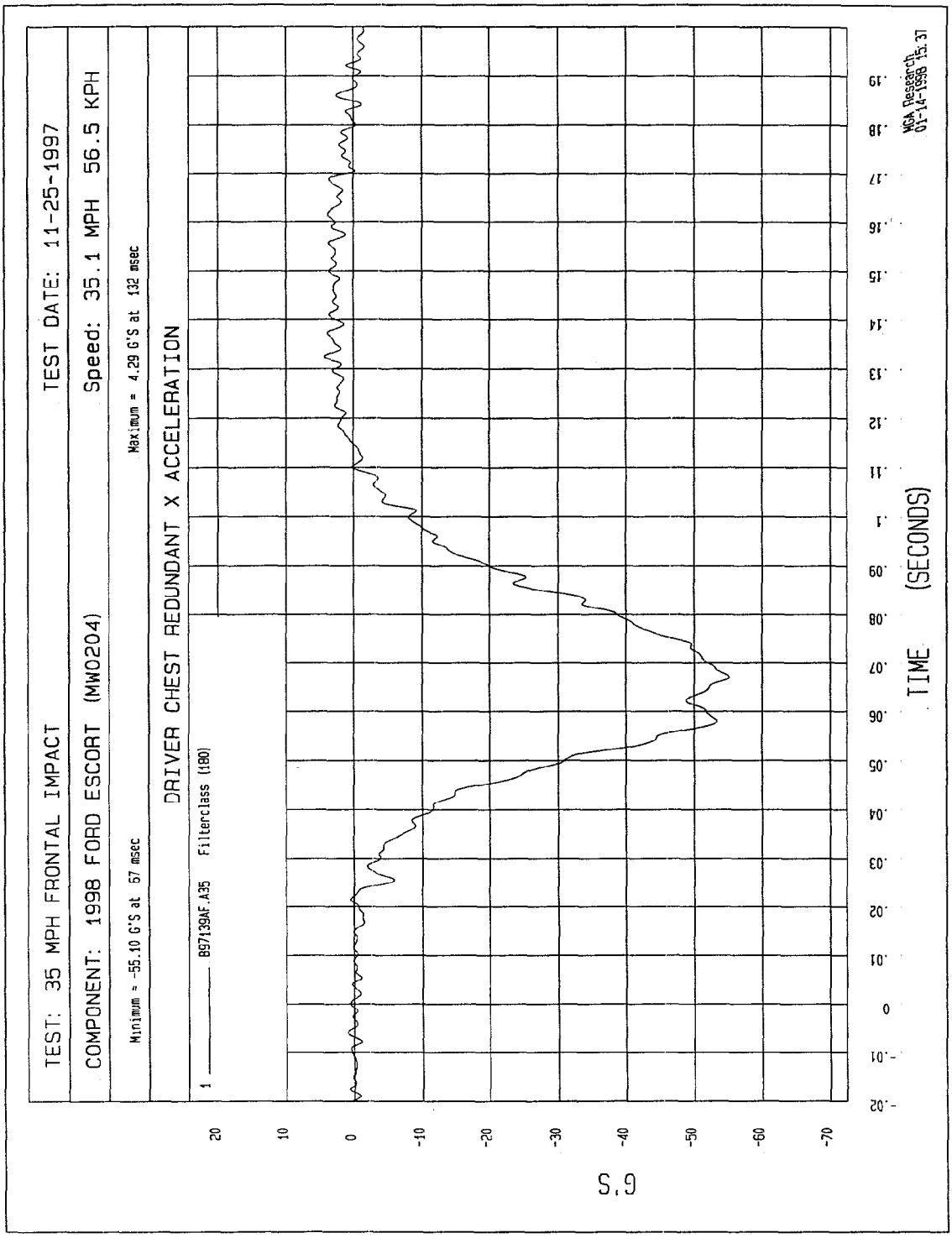
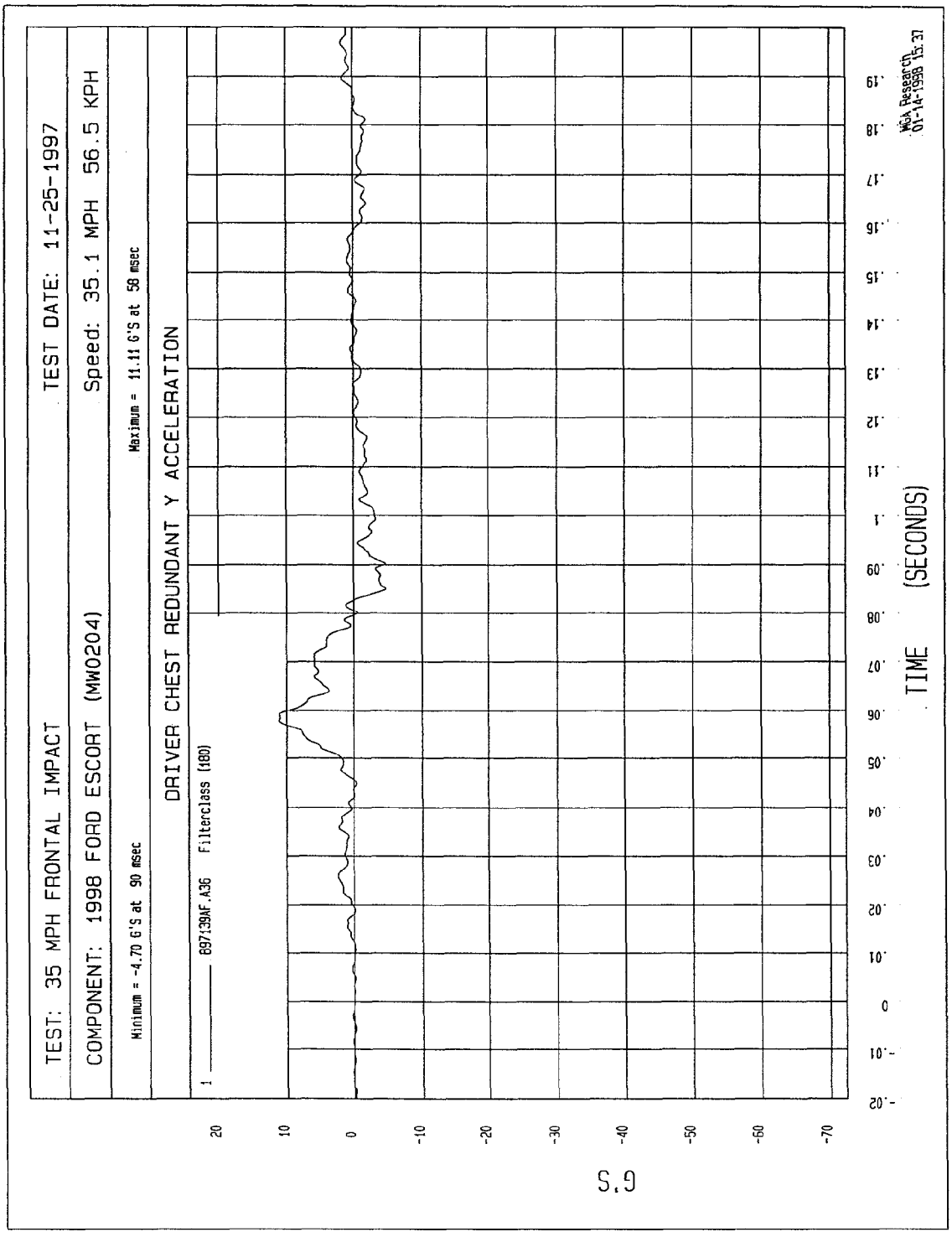
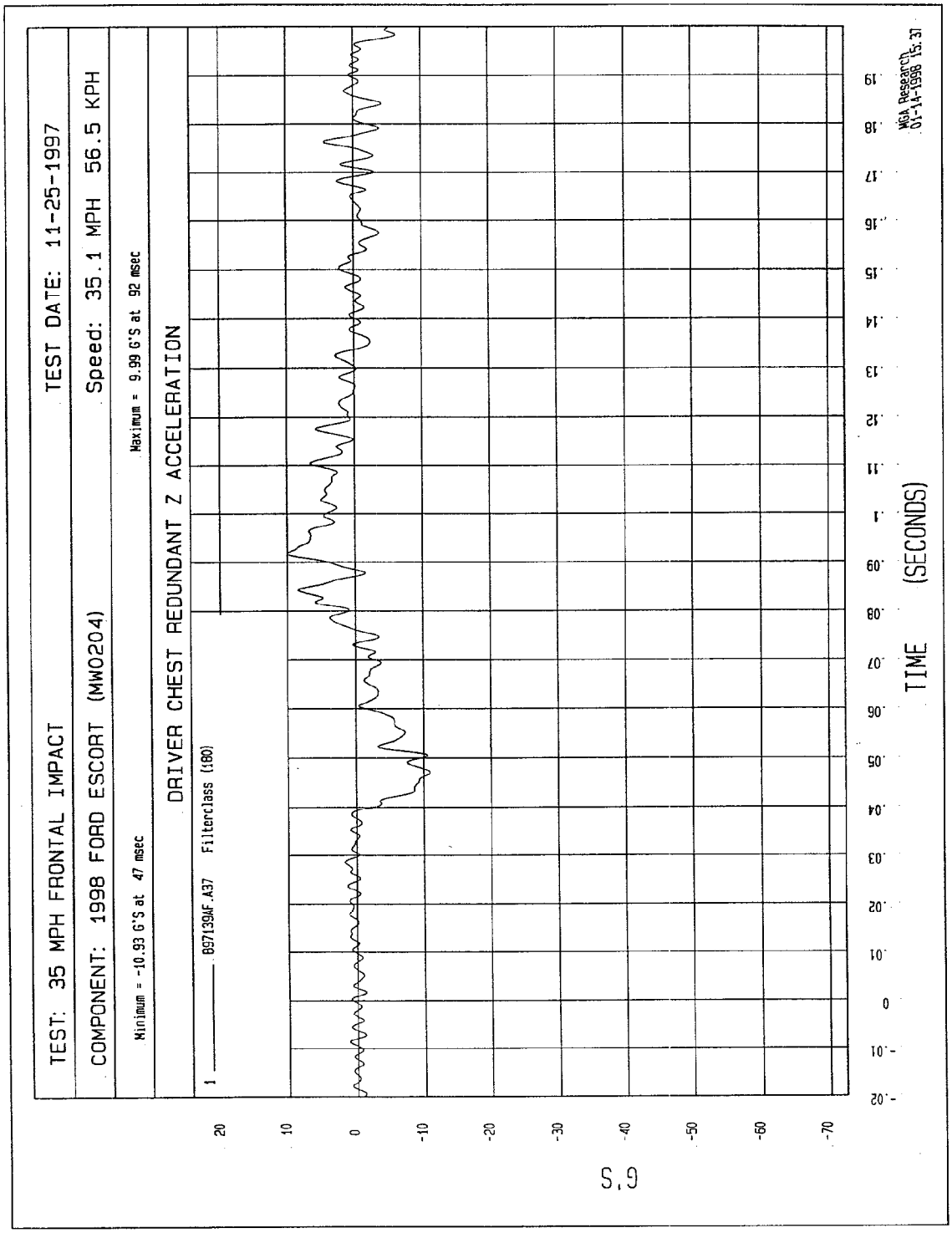
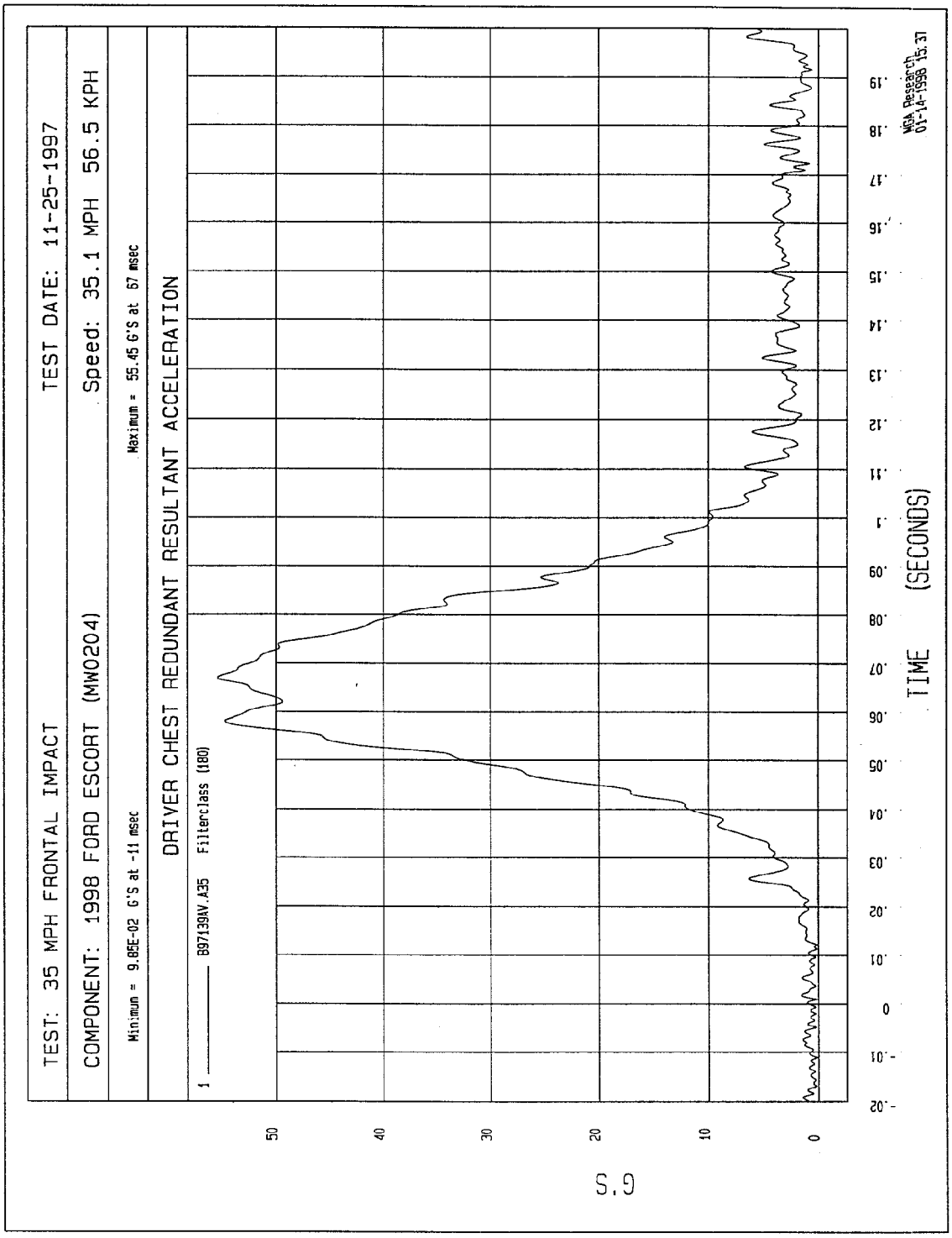
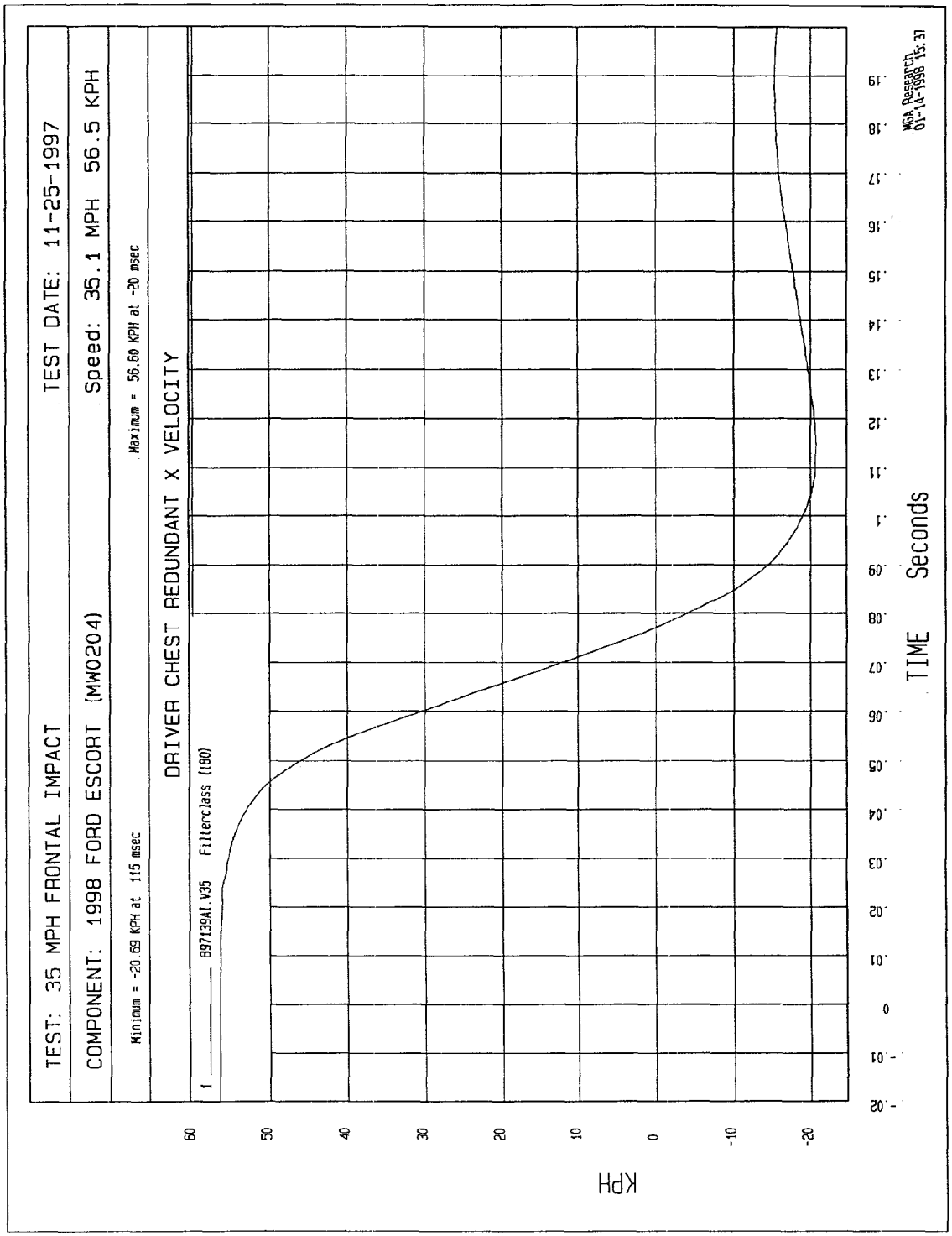
.14
.15
.16
.17
.18
.19
MGA Research
01-14-1998 15:37

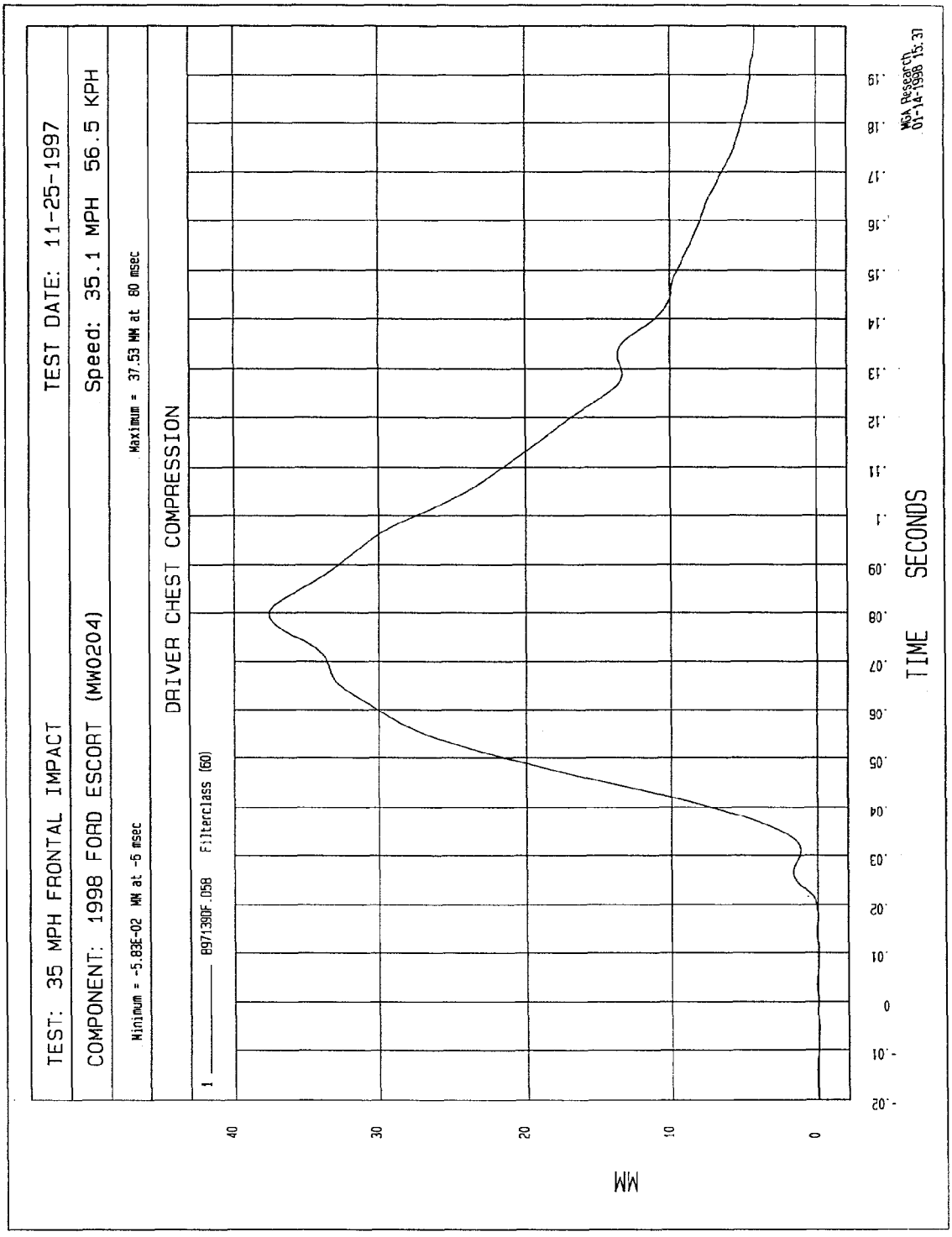

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -55.10 G'S at 57 msec
Maximum = 4.29 G'S at 132 msec
DRIVER CHEST REDUNDANT X ACCELERATION
1 B97139AF.A35 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:37

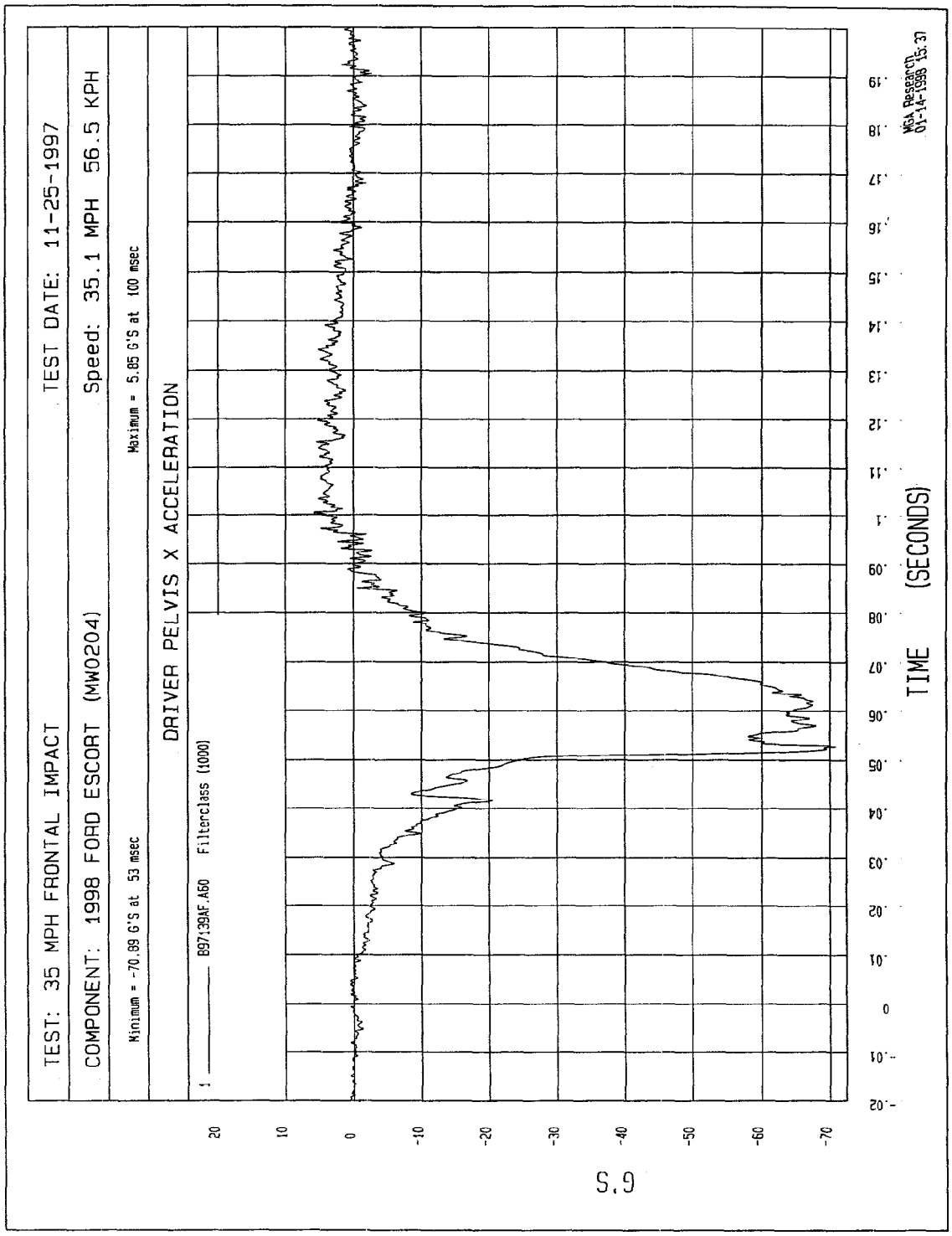

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -4.70 G'S at 90 msec
Maximum = 11.11 G'S at 58 msec
DRIVER CHEST REDUNDANT Y ACCELERATION
1 _____ 897139AF.A36 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
.02
.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:37

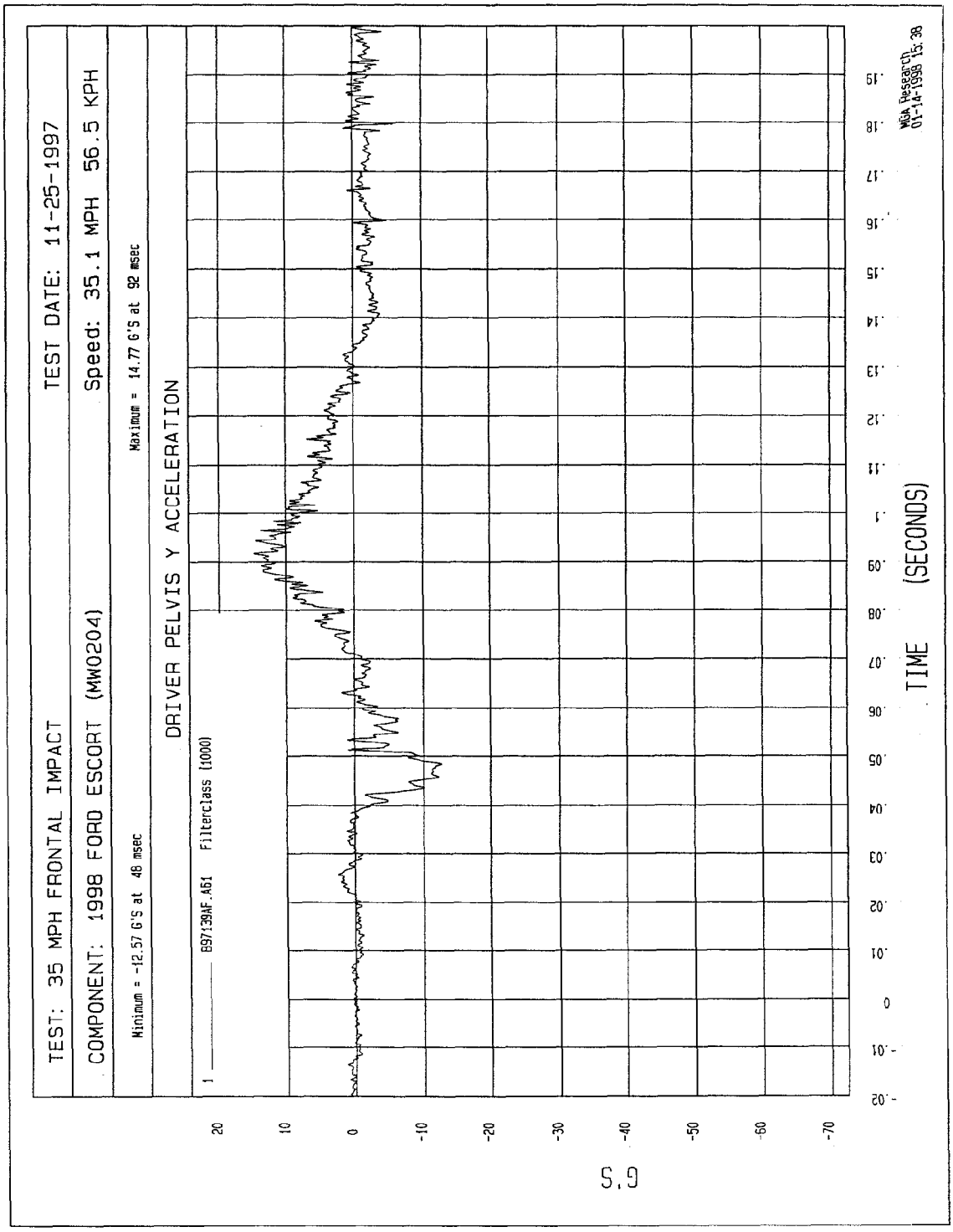

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -10.93 G'S at 47 msec
Maximum = 9.99 G'S at 92 msec
DRIVER CHEST REDUNDANT Z ACCELERATION
1 B97139AF.A37 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:37

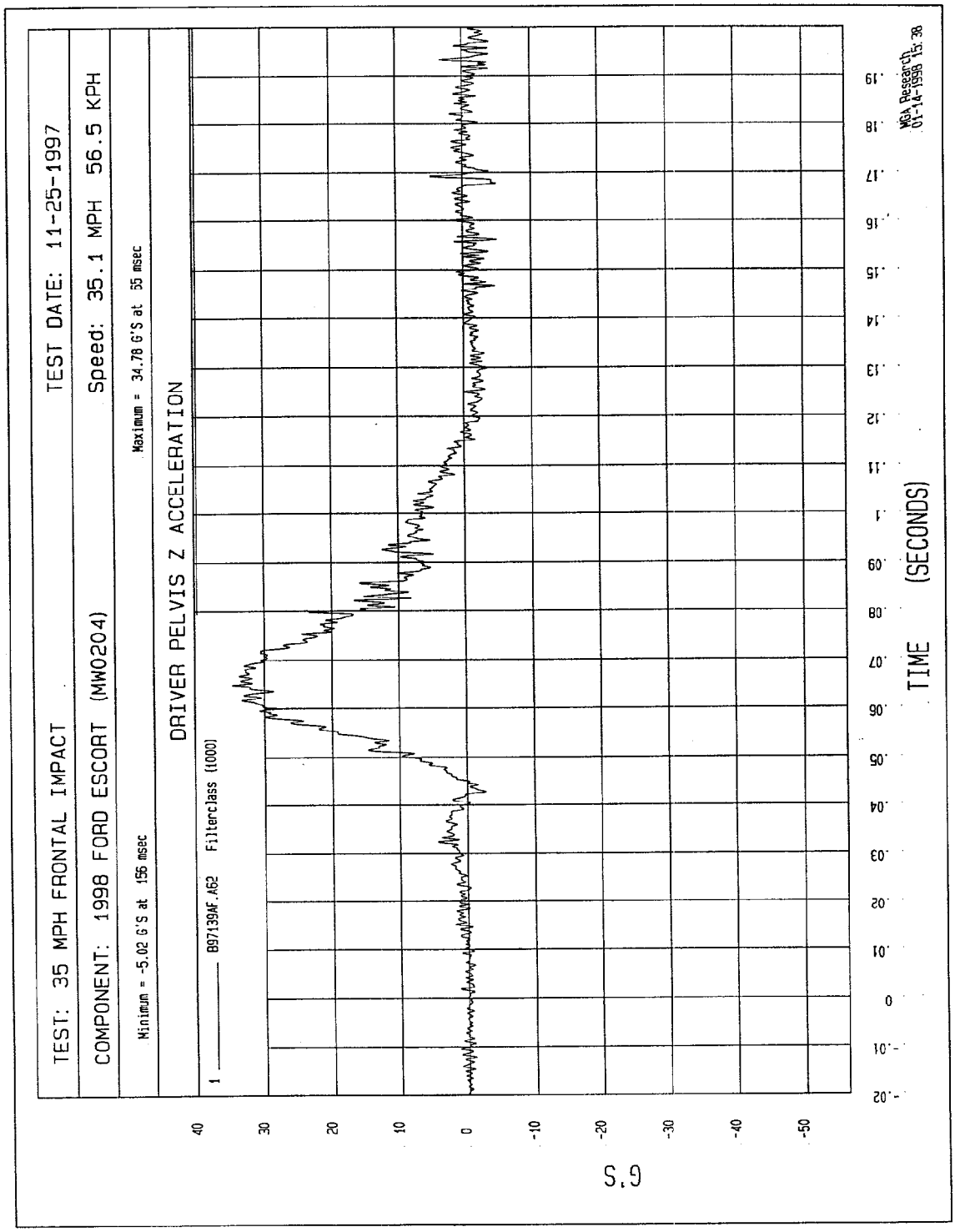

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 9.85E-02 G'S at -11 msec
Maximum = 55.45 G'S at 67 msec
DRIVER CHEST REDUNDANT RESULTANT ACCELERATION
1 B97139AV.A35 Filterclass (180)
G'S
TIME (SECONDS)
MGA Research
01-14-1998 15:37

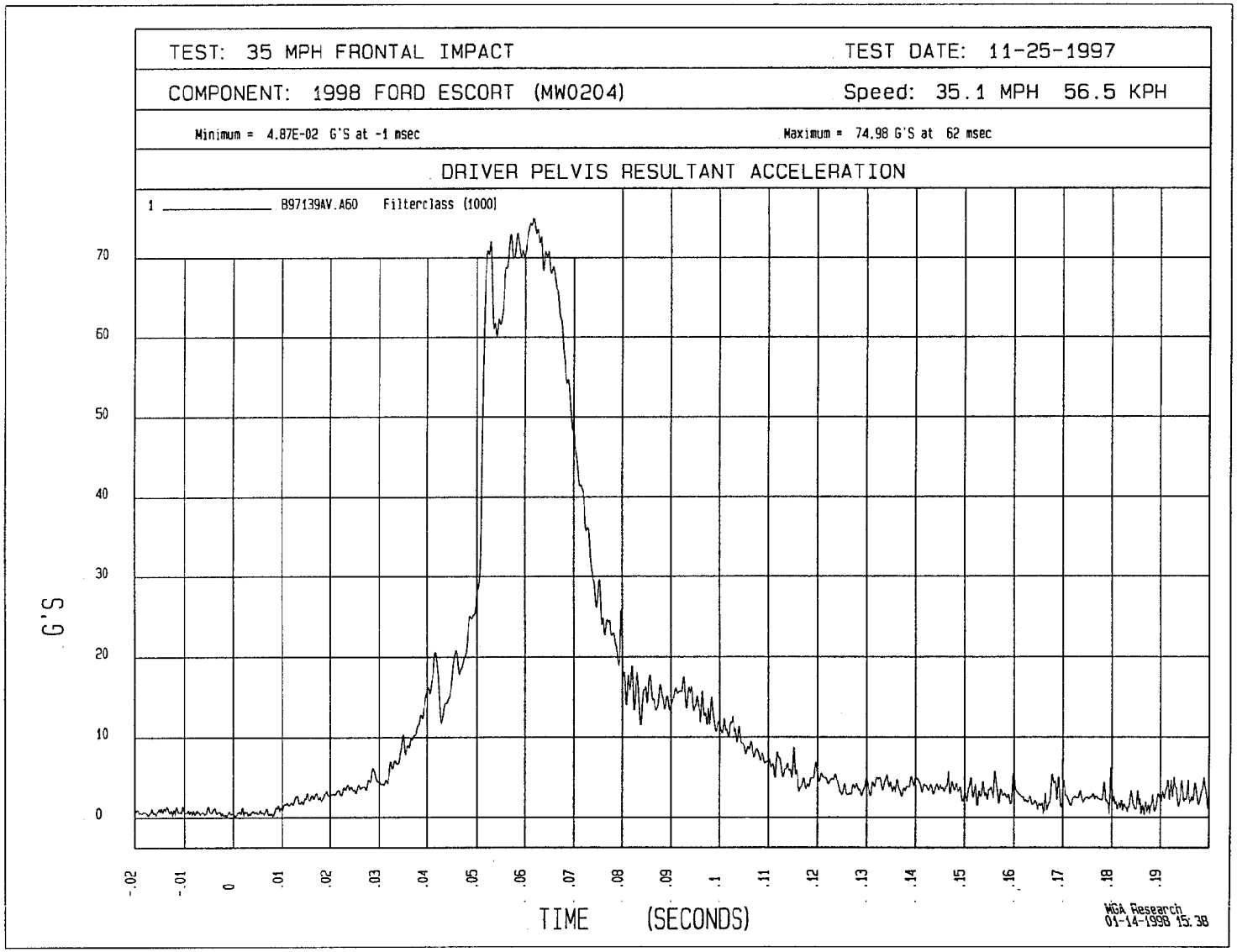

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -20.69 KPH at 115 msec
Maximum = 56.60 KPH at -20 msec
DRIVER CHEST REDUNDANT X VELOCITY
1 _____ B97139AI.V35 Filterclass (180)
KPH
60
50
40
30
20
10
0
-10
-20
TIME Seconds
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
MGA Research
01-14-1998 15:37


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -5.83E-02 MM at -6 msec
Maximum = 37.53 MM at 80 msec
DRIVER CHEST COMPRESSION
1 E971390F.058 Filterclass (60)
MM
TIME SECONDS
MGA Research
01-14-1998 15:31


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -70.99 G'S at 53 msec
Maximum = 5.85 G'S at 100 msec
DRIVER PELVIS X ACCELERATION
1 B97:39AF.A60 Filterclass (1000)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (SECONDS)
MGA Research
01-14-1998 15:37


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -12.57 G'S at 48 msec
Maximum = 14.77 G'S at 92 msec
DRIVER PELVIS Y ACCELERATION
1 ——— 897139AF.A61 Filterclass (1000)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
.02
.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:38


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -5.02 G'S at 156 msec
Maximum = 34.78 G'S at 55 msec
DRIVER PELVIS Z ACCELERATION
1 B97139AF.A62 Filterclass (1000)
40
30
20
10
0
-10
-20
-30
-40
-50
G'S
.02
.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:38


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 4.87E-02 G'S at -1 msec
Maximum = 74.98 G'S at 62 msec
DRIVER PELVIS RESULTANT ACCELERATION
1 B97139AV.A60 Filterclass (1000)
G's
70
60
50
40
30
20
10
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
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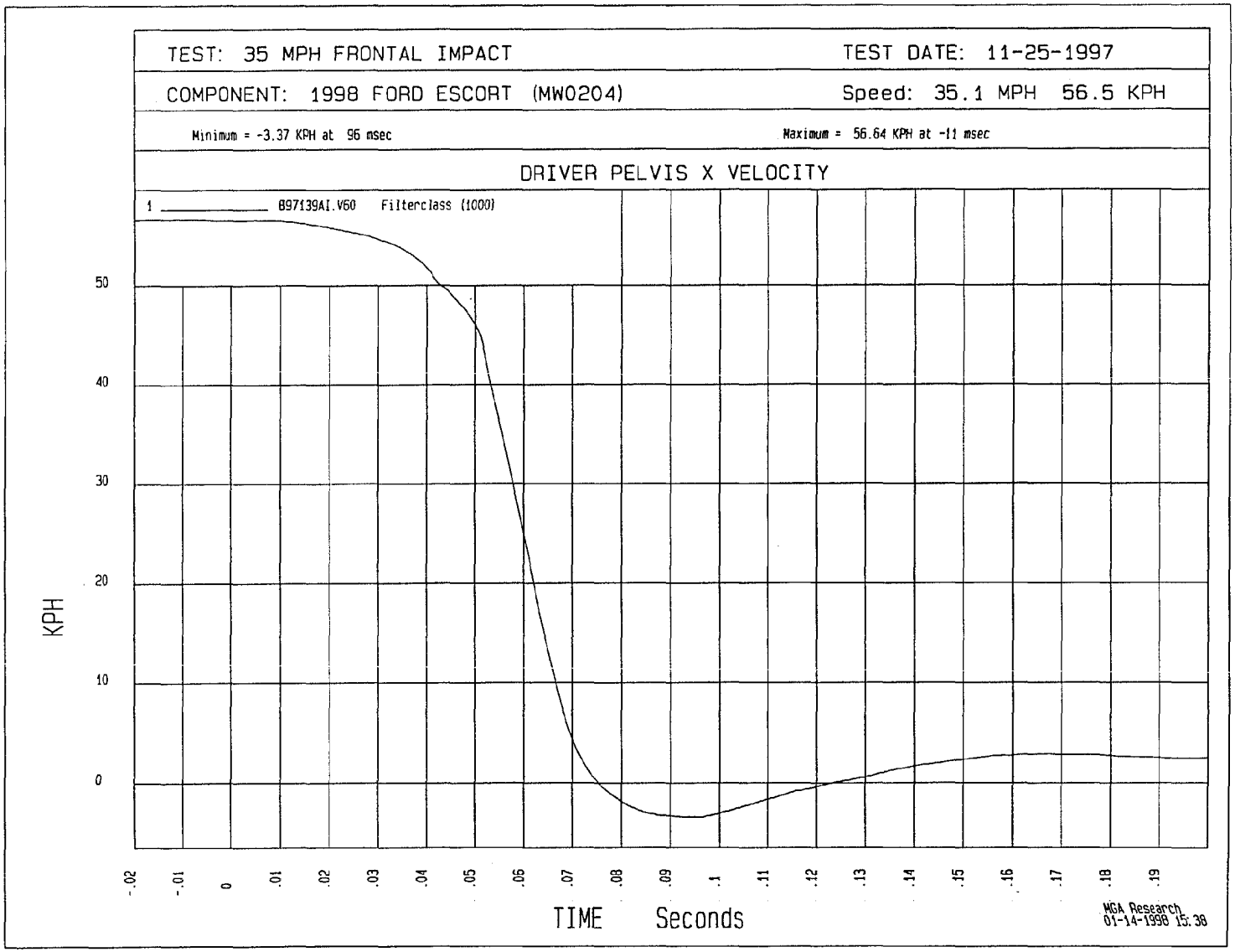
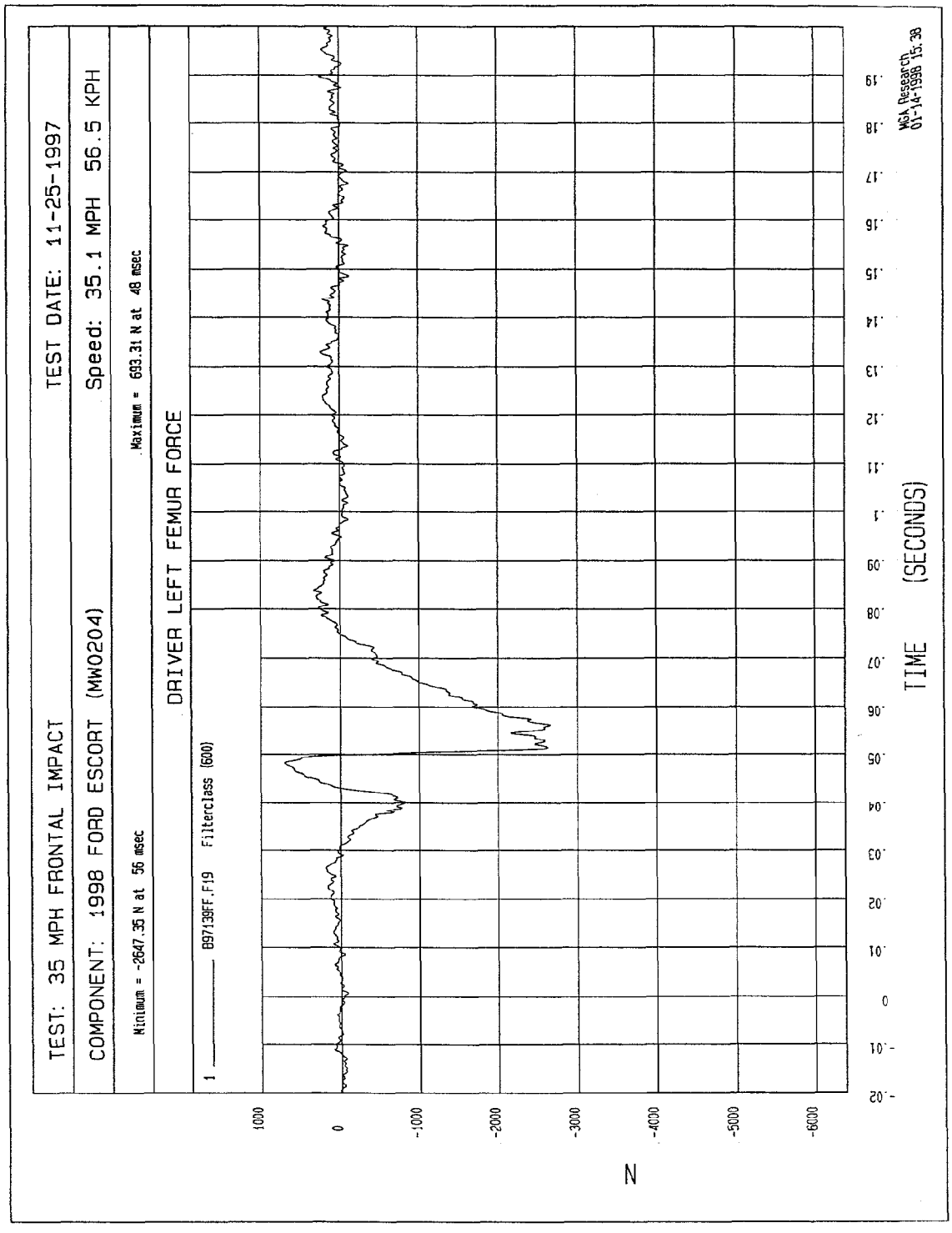
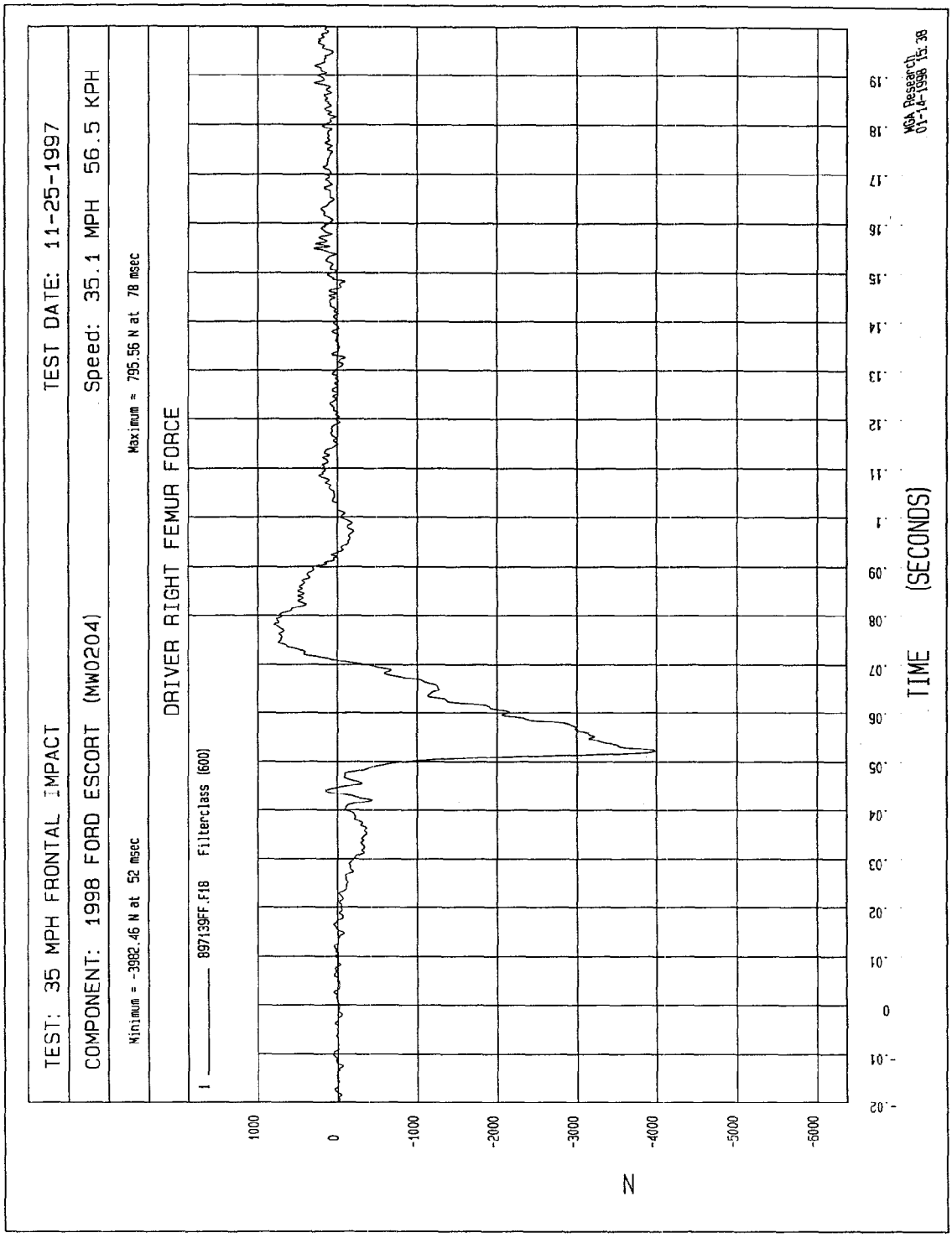
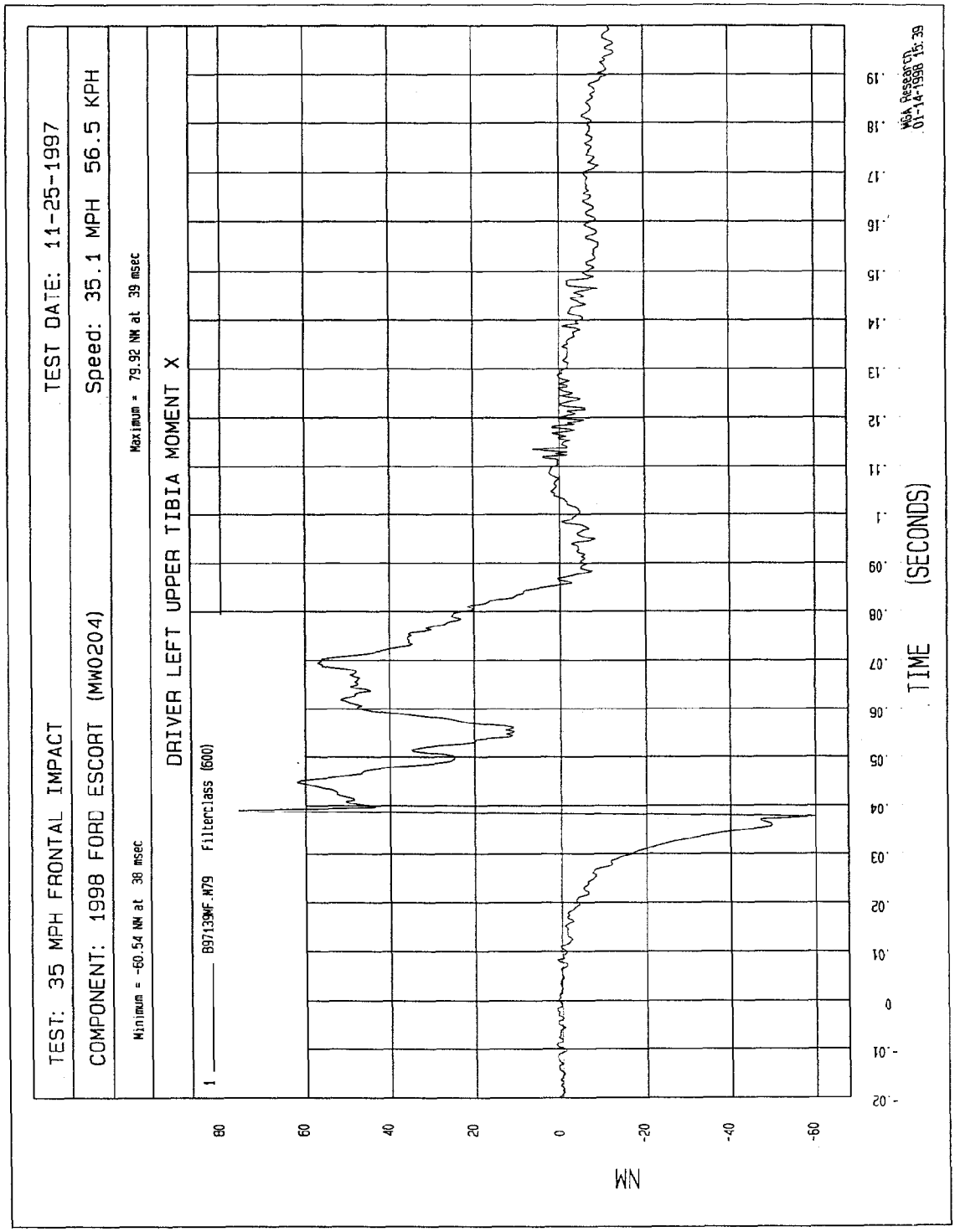
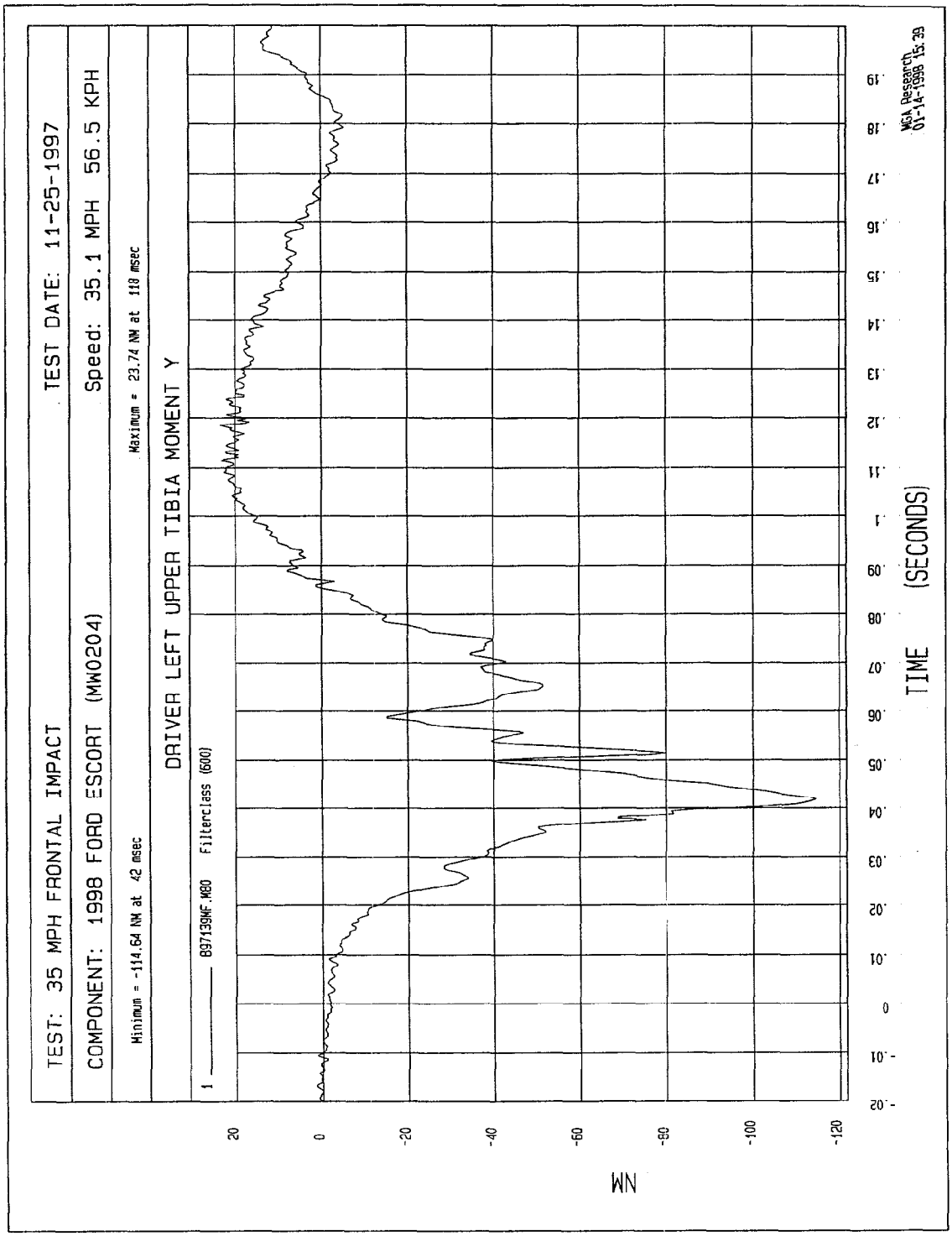
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:38

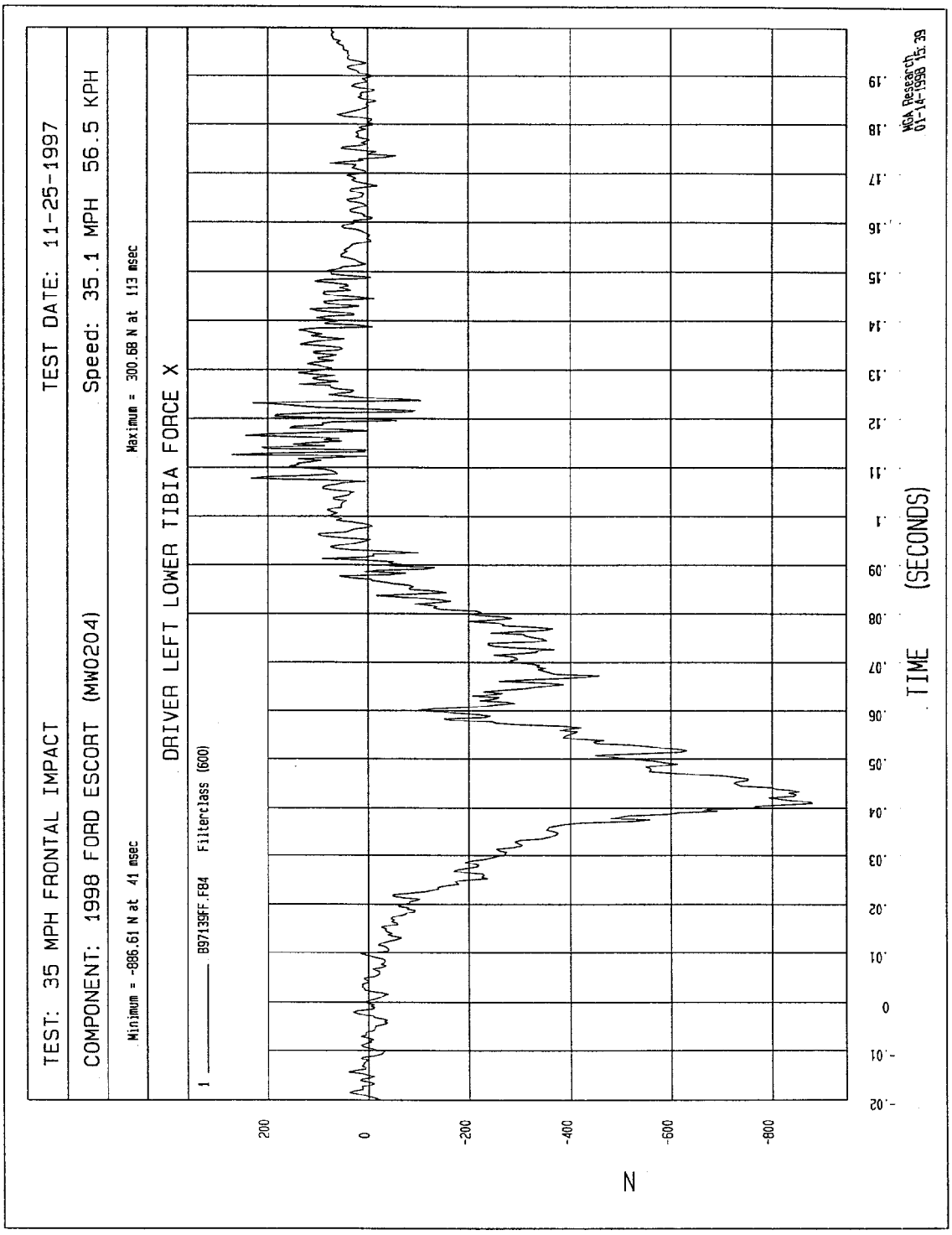

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -3.37 KPH at 96 msec
Maximum = 56.64 KPH at -11 msec
DRIVER PELVIS X VELOCITY
1 897139AI.V60 Filterclass (1000)
KPH
50
40
30
20
10
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-14-1998 15:38

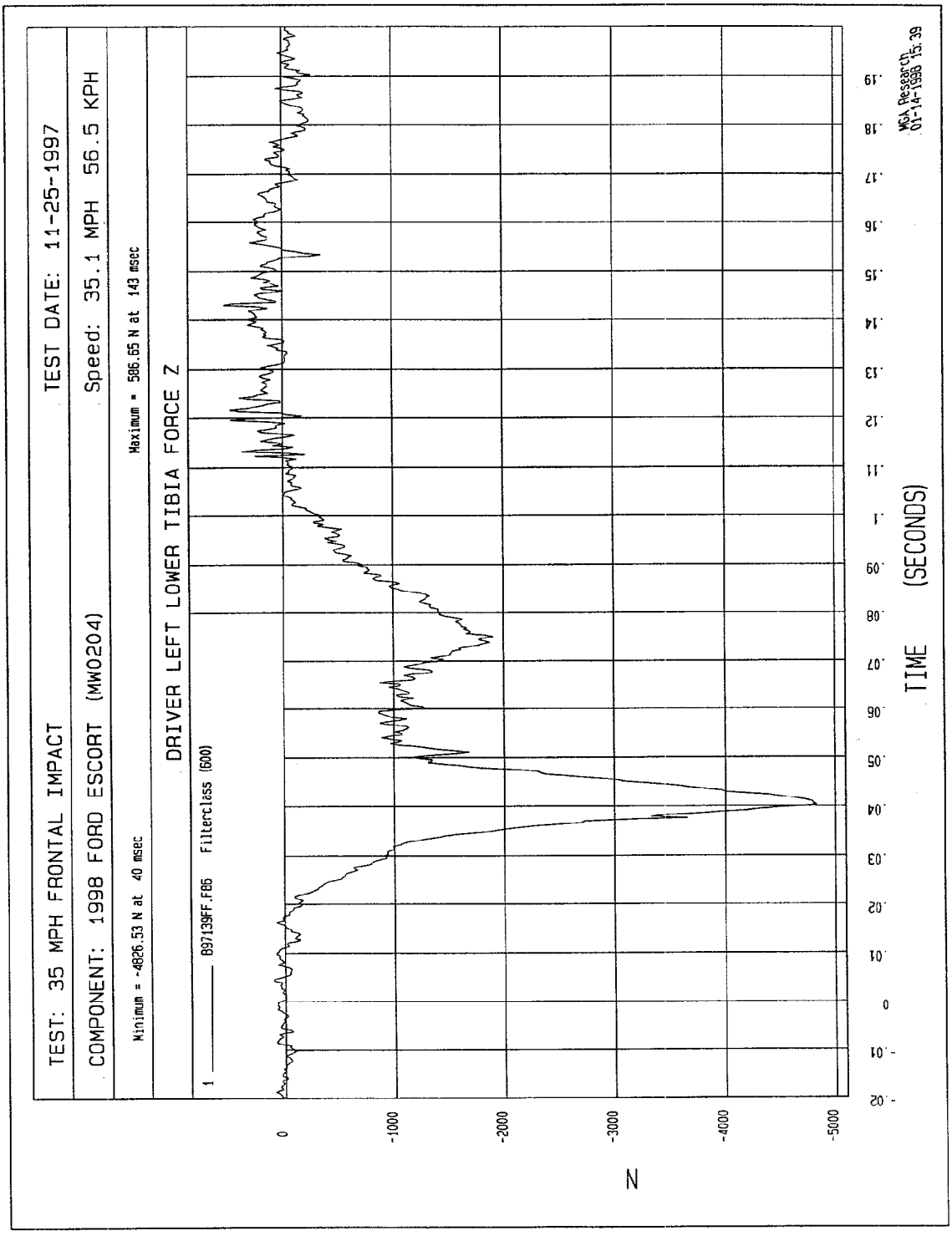

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -2647.35 N at 56 msec
Maximum = 693.31 N at 48 msec
DRIVER LEFT FEMUR FORCE
1 097139FF.F19 Filterclass (600)
1000
0
-1000
-2000
-3000
-4000
-5000
-6000
N
-02
-01
0
01
02
03
04
05
06
07
08
09
1
11
12
13
14
15
16
17
18
19
TIME (SECONDS)
MGA Research
01-14-1998 15:38


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -3982.46 N at 52 msec
Maximum = 795.56 N at 78 msec
DRIVER RIGHT FEMUR FORCE
1 _____ 897139FF.F18 Filterclass (600)
1000
0
-1000
-2000
-3000
-4000
-5000
-6000
N
.02
.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:38


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -60.54 kN at 38 msec
Maximum = 79.92 kN at 39 msec
DRIVER LEFT UPPER TIBIA MOMENT X
1 B97139MF.M79 Filterclass (600)
kN
TIME (SECONDS)
MGA Research
01-14-1998 15:39


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -114.64 NM at 42 msec
Maximum = 23.74 NM at 118 msec
DRIVER LEFT UPPER TIBIA MOMENT Y
1 B97139WF.MB0 Filterclass (600)
NM
TIME (SECONDS)
MGA Research
01-14-1998 15:39


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -886.61 N at 41 msec
Maximum = 300.68 N at 113 msec
DRIVER LEFT LOWER TIBIA FORCE X
1 B97139FF.FB4 Filterclass (600)
200
0
-200
-400
-600
-800
N
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:39


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -4826.53 N at 40 msec
Maximum = 586.65 N at 143 msec
DRIVER LEFT LOWER TIBIA FORCE Z
1 _____ B97139FF.F86 Filterclass (600)
0
-1000
-2000
-3000
-4000
-5000
N
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
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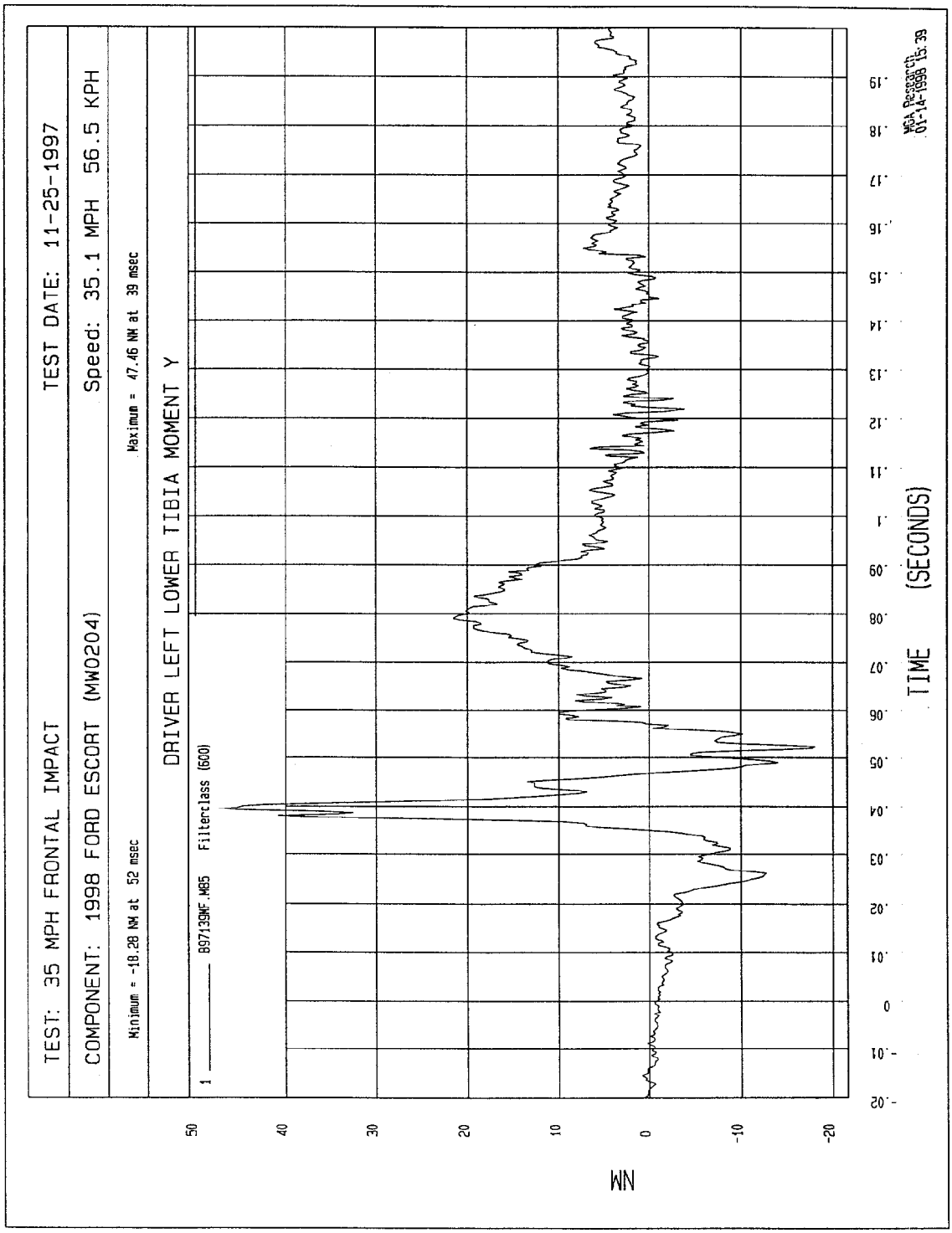
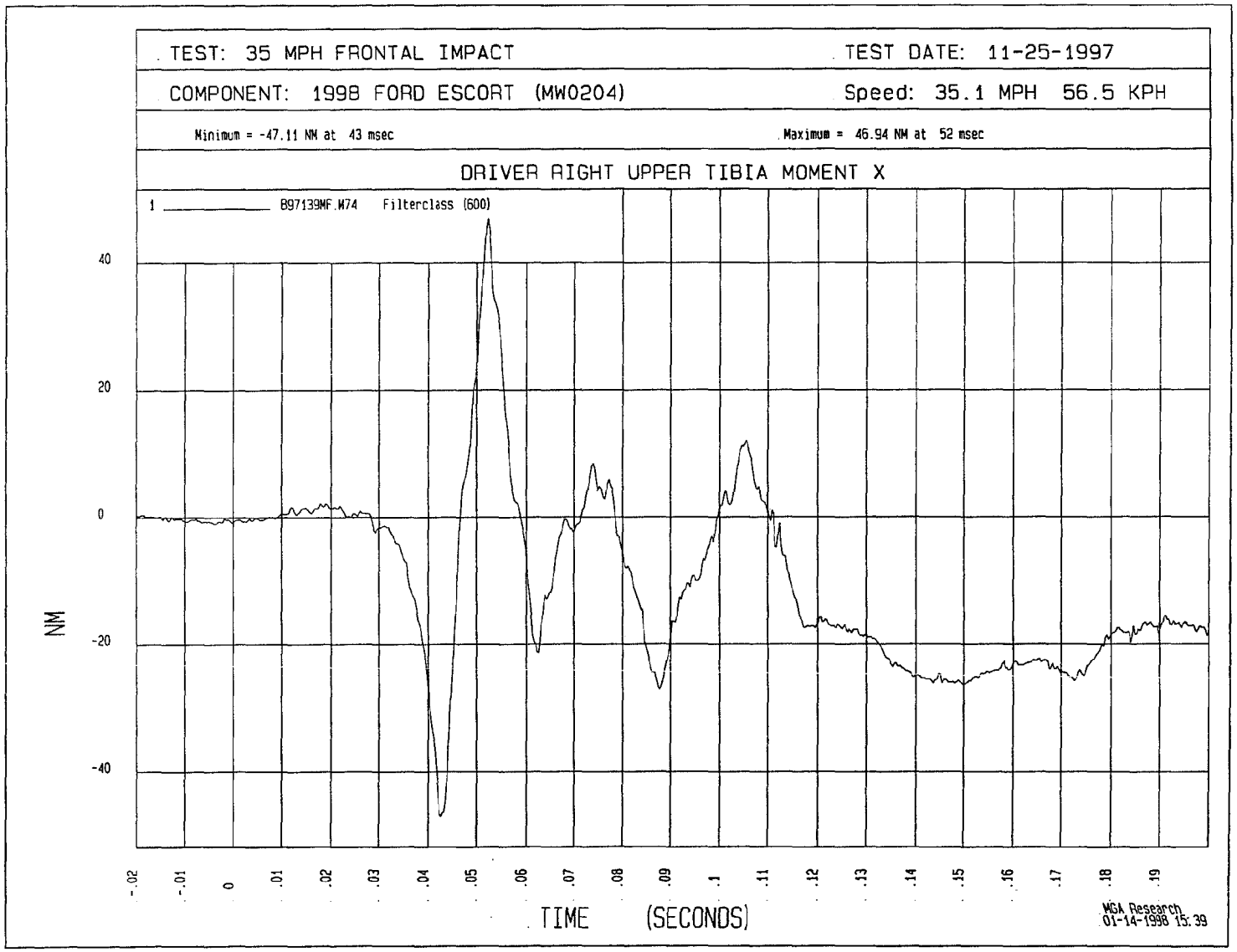
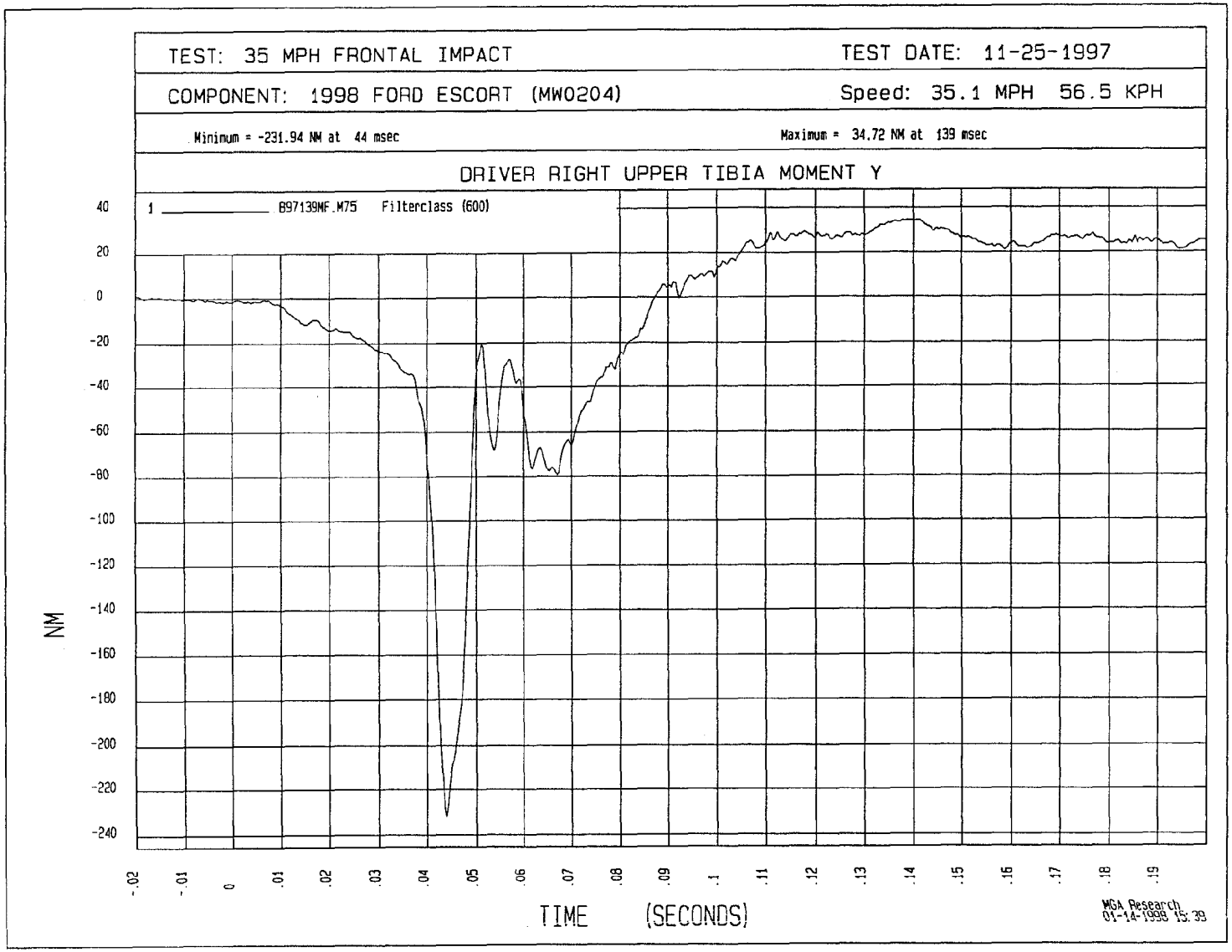
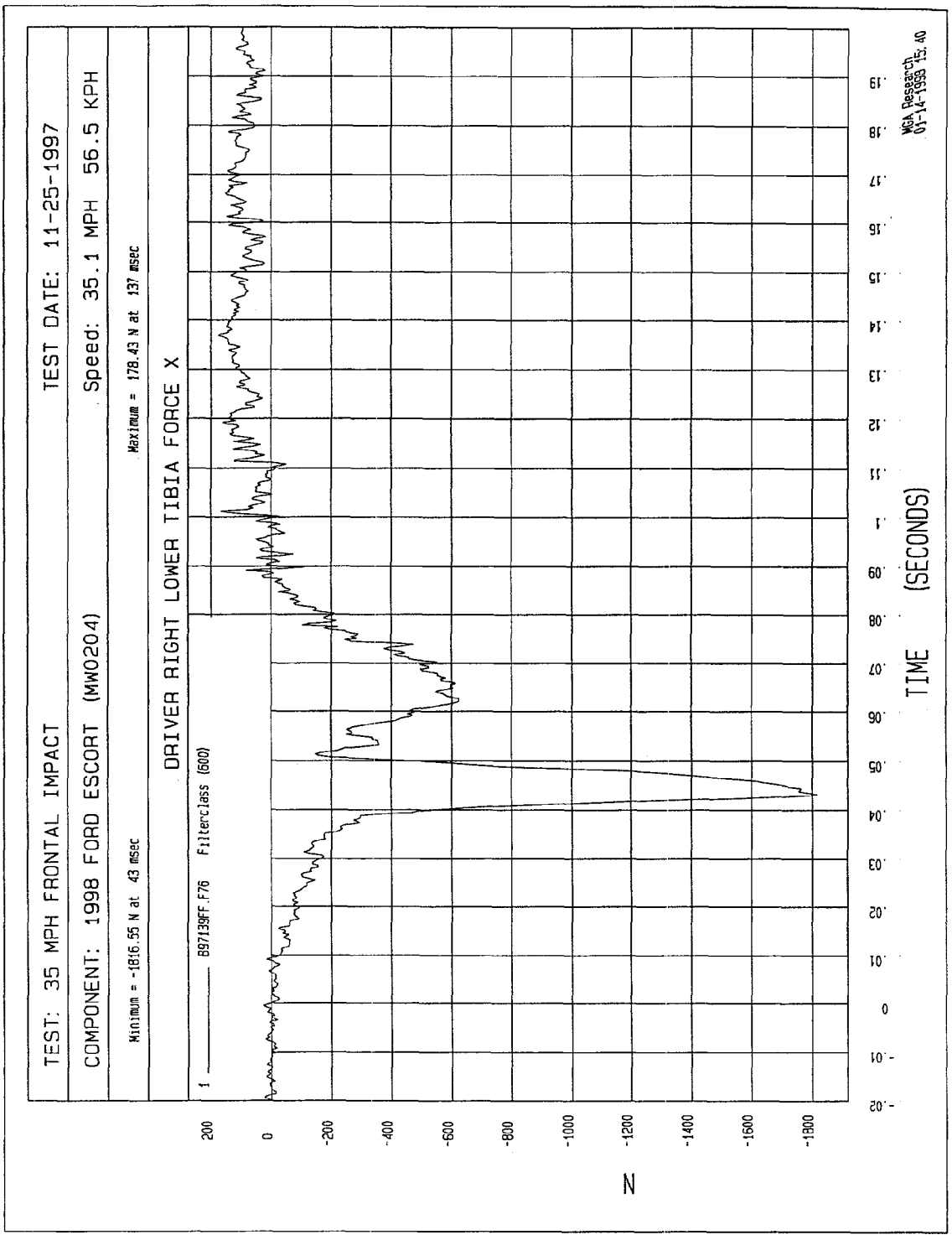
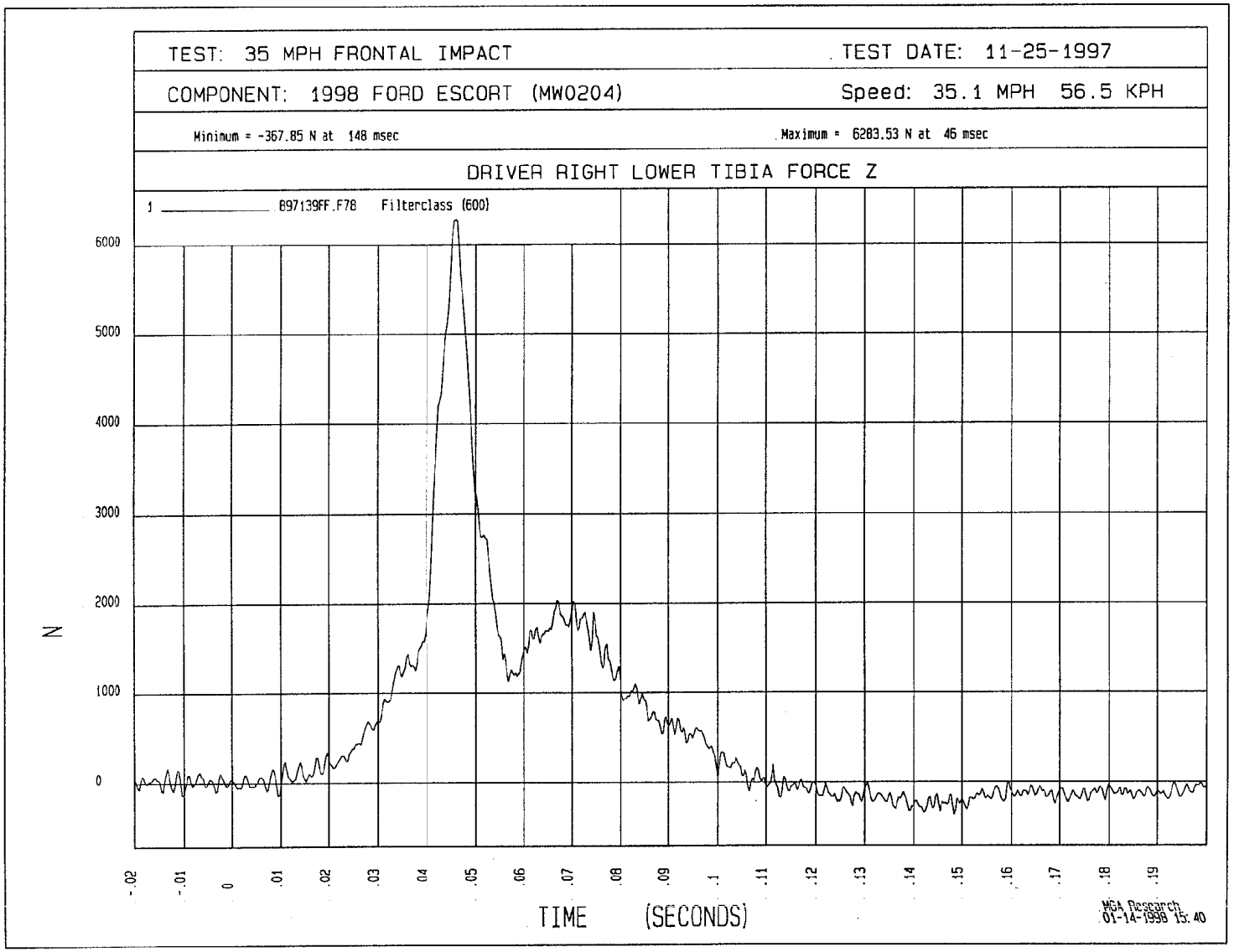
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:39

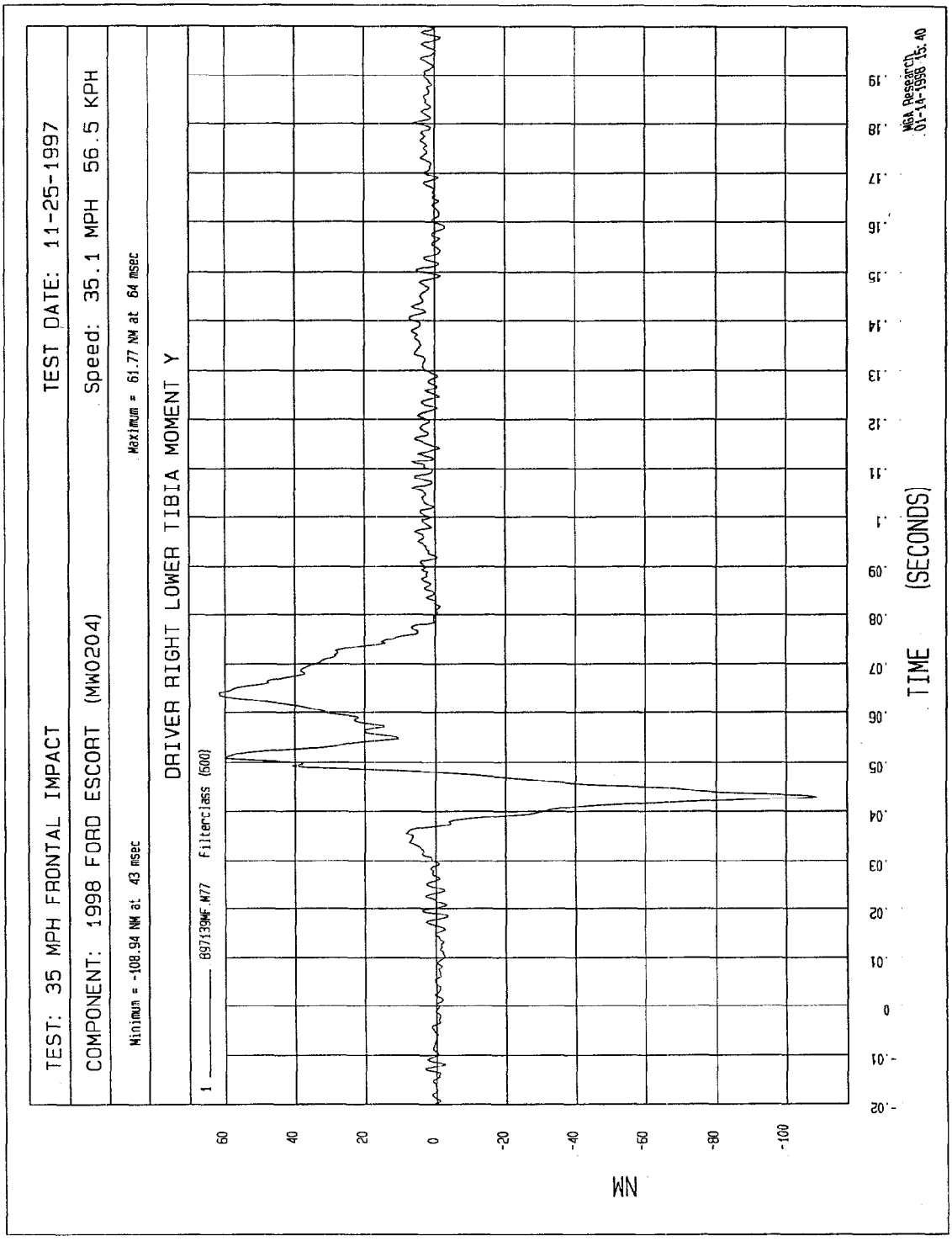

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -18.28 NM at 52 msec
Maximum = 47.46 NM at 39 msec
DRIVER LEFT LOWER TIBIA MOMENT Y
1 B97139MF.M85 Filterclass (600)
NM
TIME (SECONDS)
MGA Research
01-14-1998 15:39

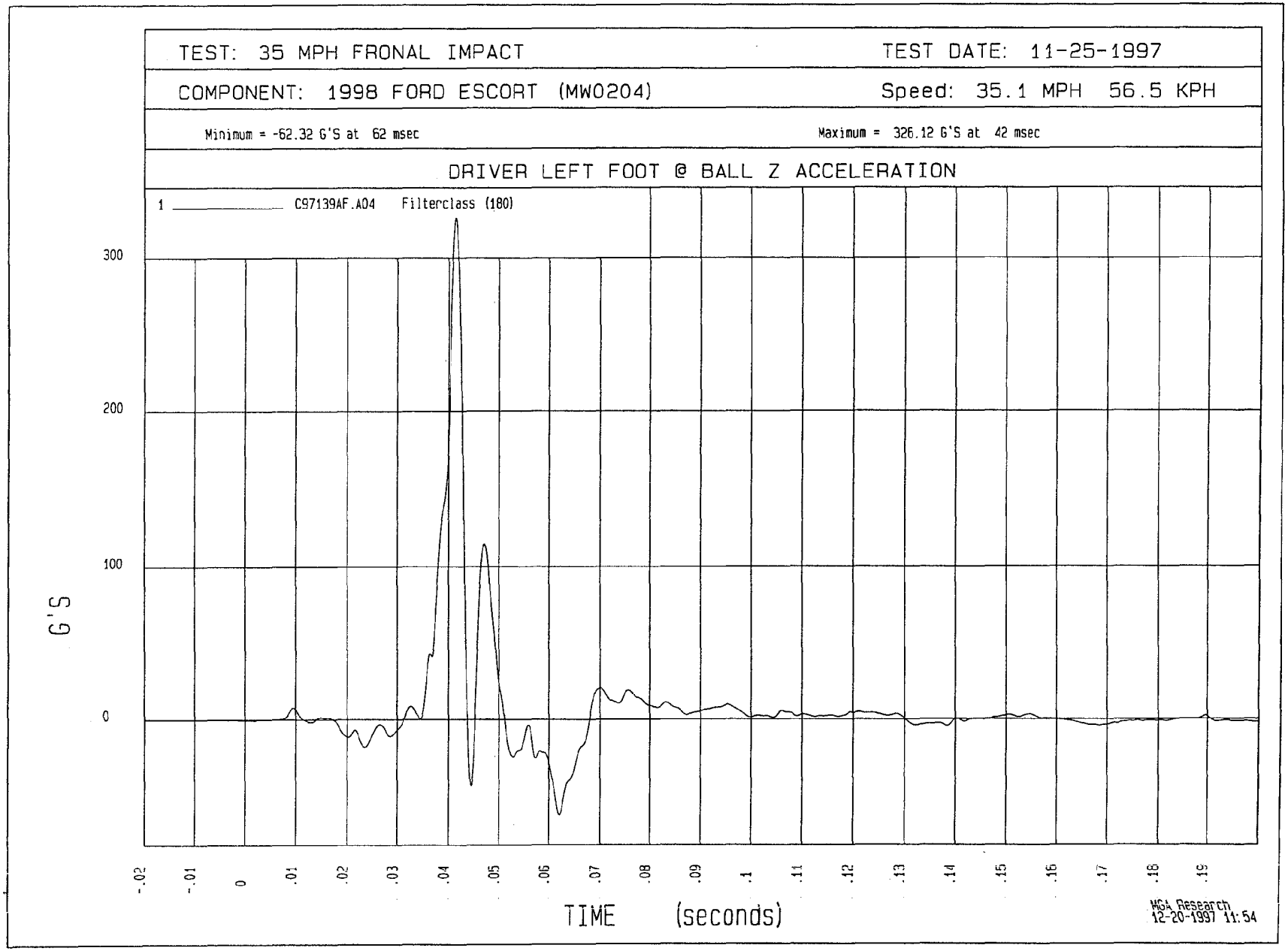

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -47.11 NM at 43 msec
Maximum = 46.94 NM at 52 msec
DRIVER RIGHT UPPER TIBIA MOMENT X
1 897139MF.W74 Filterclass (600)
40
20
0
-20
-40
NM
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:39

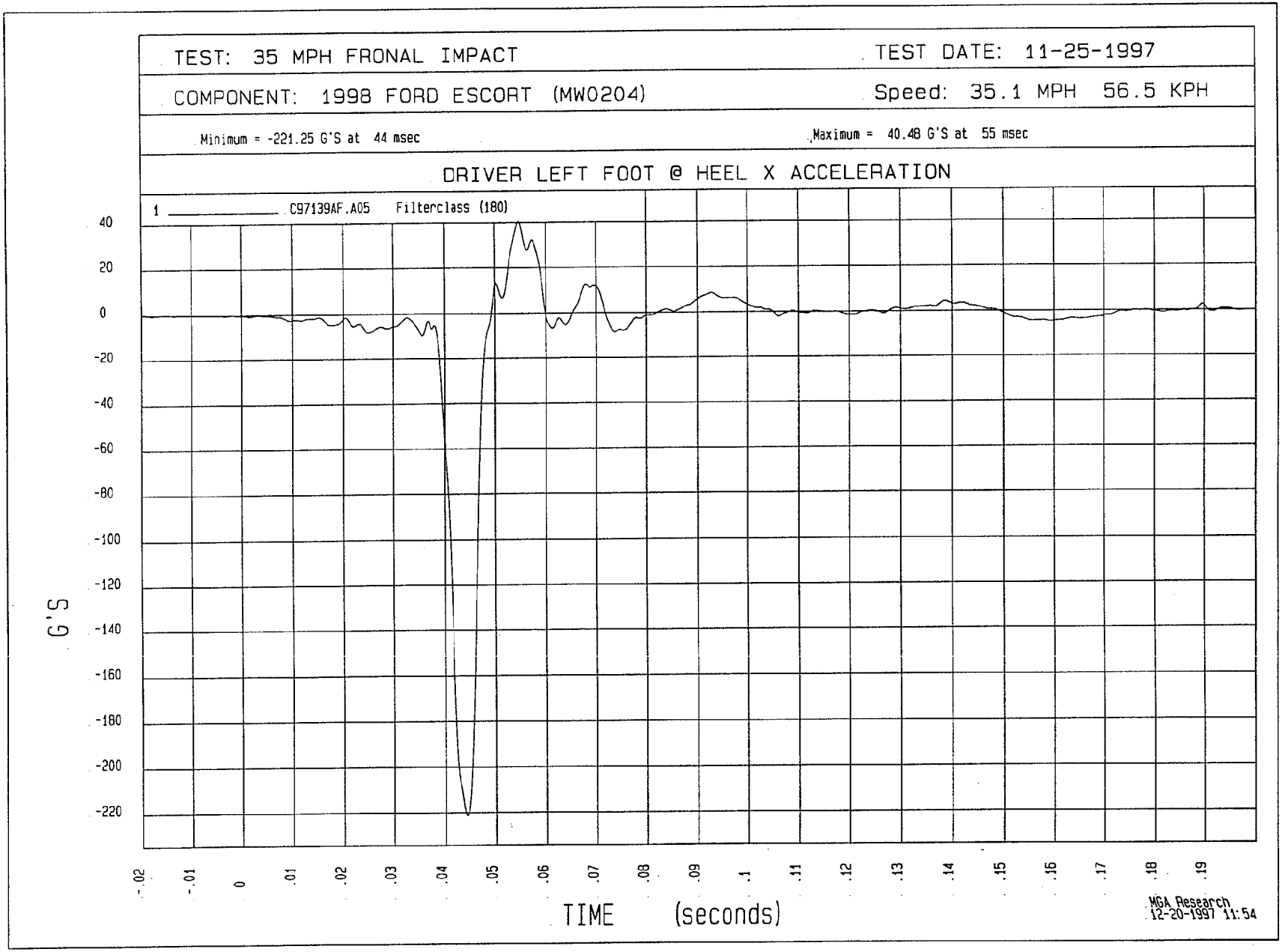

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -231.94 NM at 44 msec
Maximum = 34.72 NM at 139 msec
DRIVER RIGHT UPPER TIBIA MOMENT Y
1 B97139MF.M75 Filterclass (600)
NM
40
20
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
-220
-240
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:39

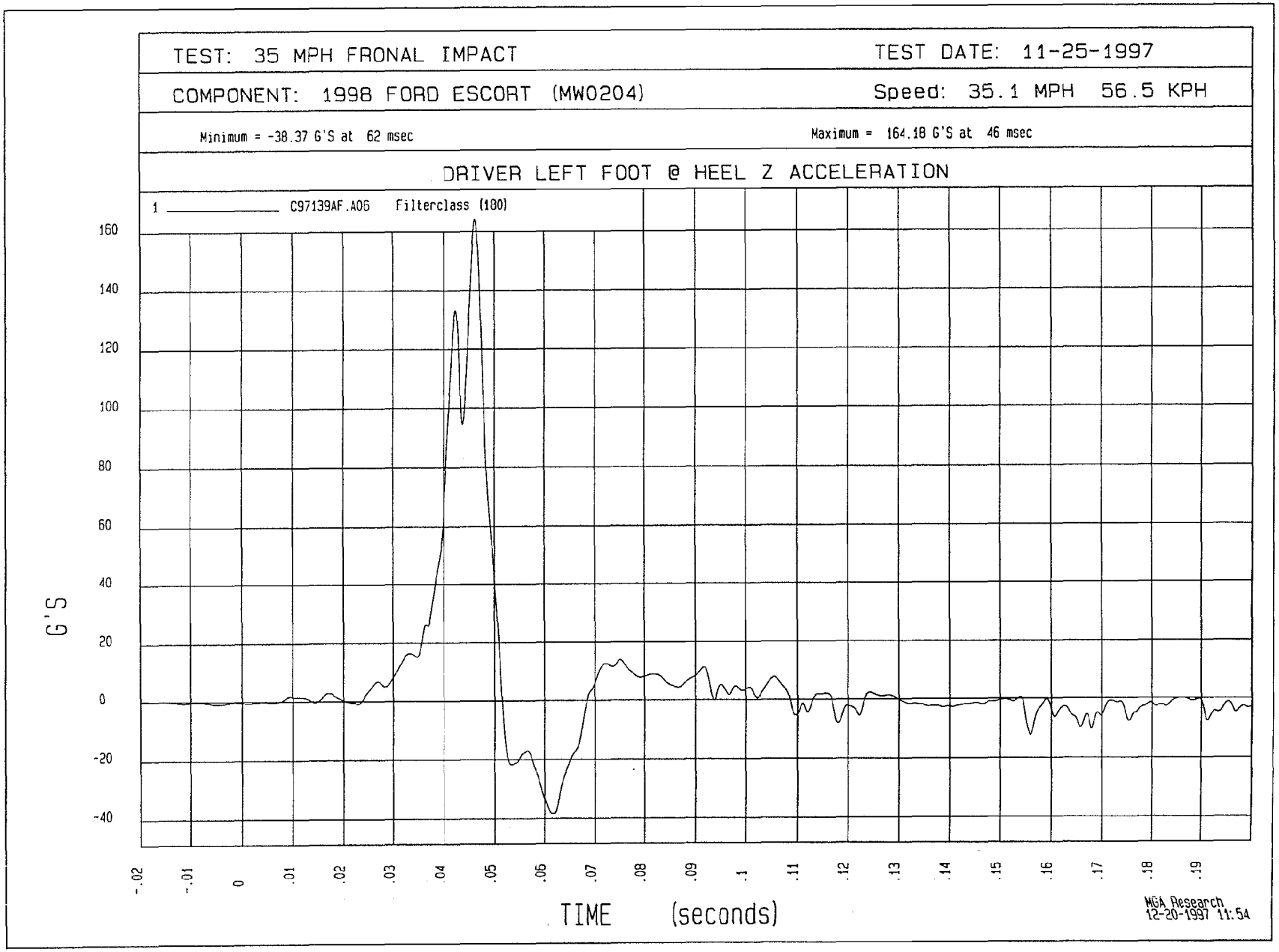

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -1816.55 N at 43 msec
Maximum = 178.43 N at 137 msec
DRIVER RIGHT LOWER TIBIA FORCE X
1 B97139FF.F76 Filterclass (600)
200
0
-200
-400
-600
-800
-1000
-1200
-1400
-1600
-1800
N
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15: 40

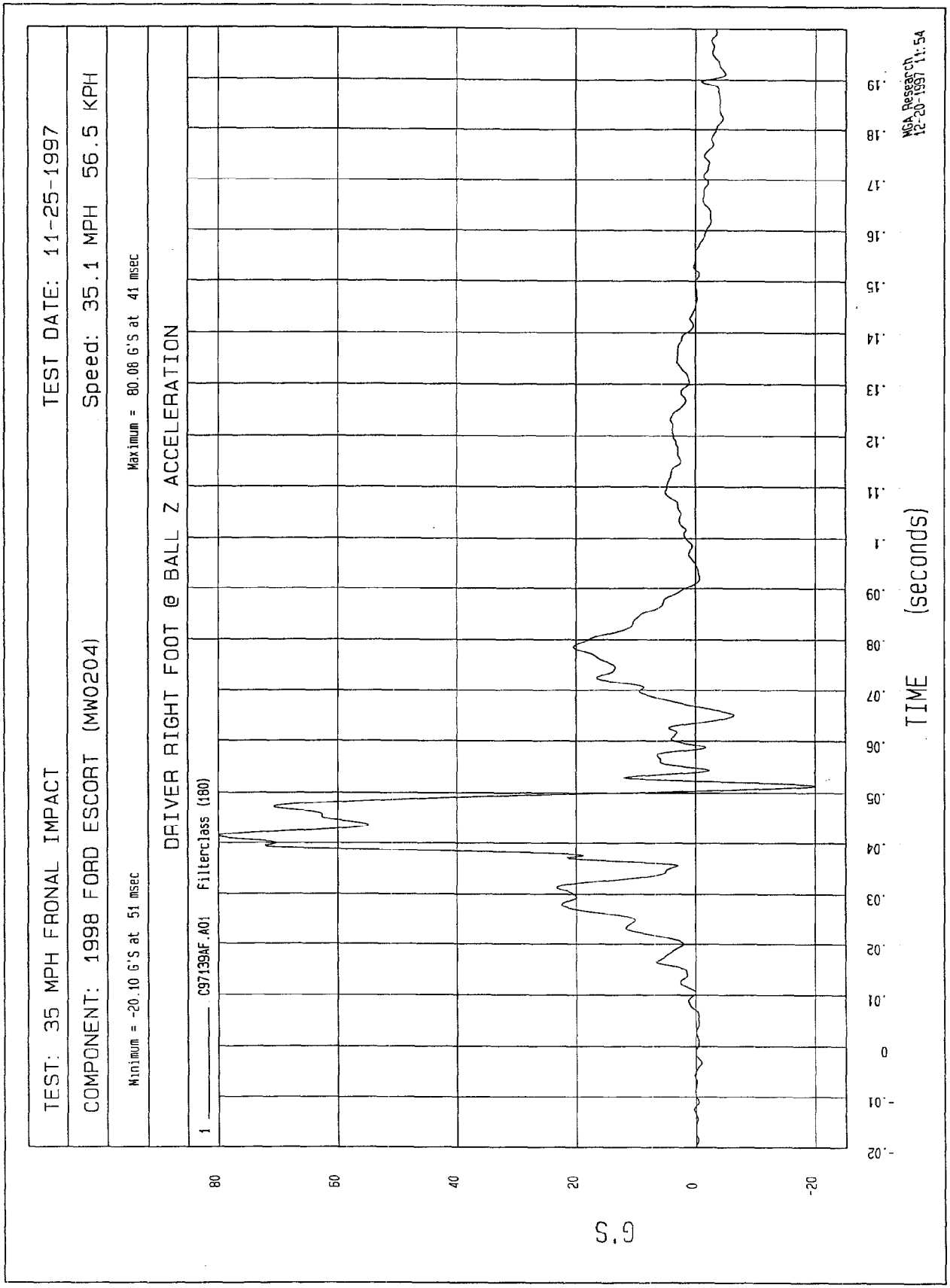

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -367.85 N at 148 msec
Maximum = 6283.53 N at 46 msec
DRIVER RIGHT LOWER TIBIA FORCE Z
1 B97139FF.F78 Filterclass (600)
6000
5000
4000
3000
2000
1000
0
N
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:40

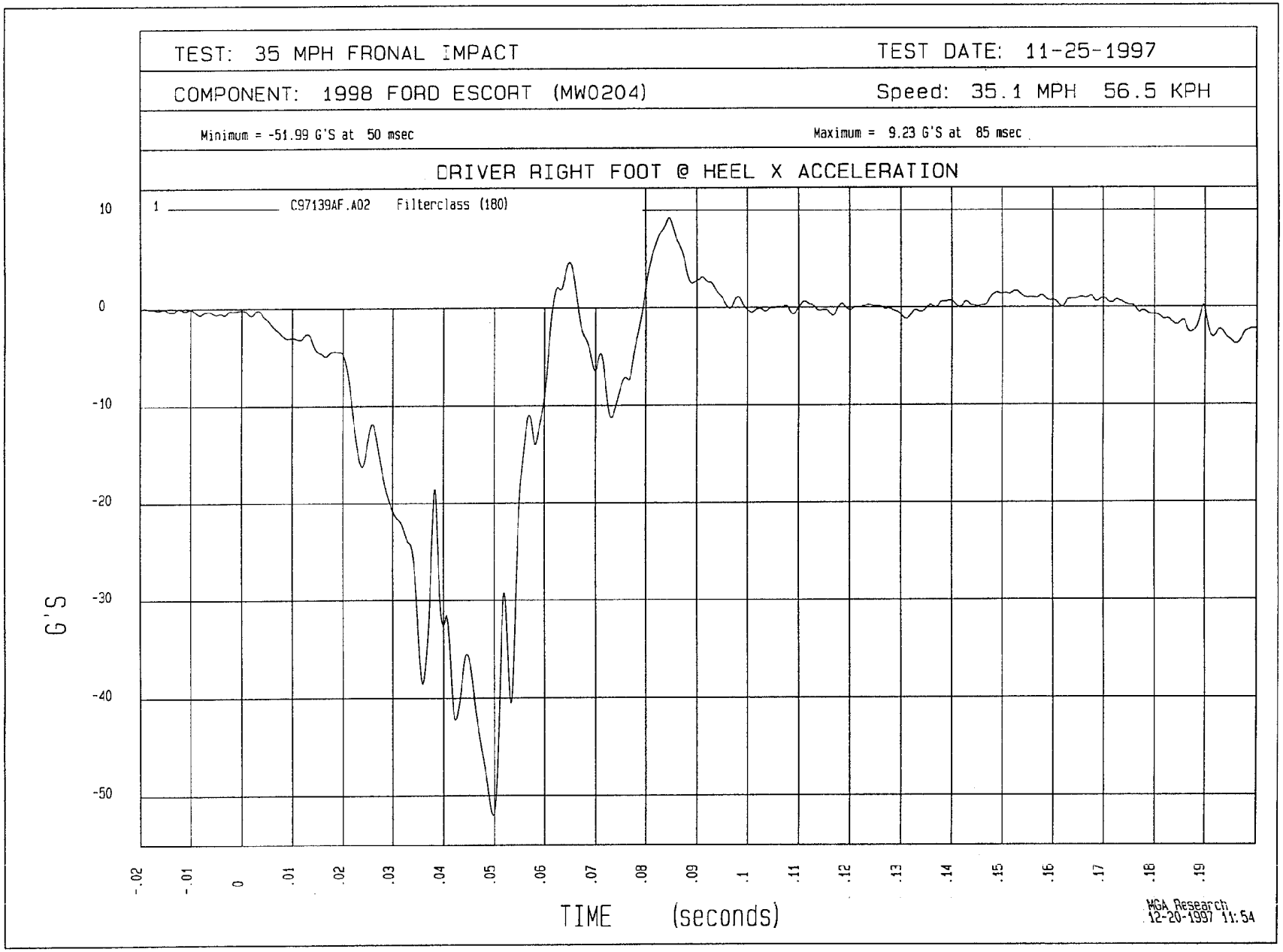

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -108.94 NM at 43 msec
Maximum = 61.77 NM at 64 msec
DRIVER RIGHT LOWER TIBIA MOMENT Y
1 B97139MF.W77 Filterclass (600)
NM
TIME (SECONDS)
Mga Research
01-14-1998 15:40

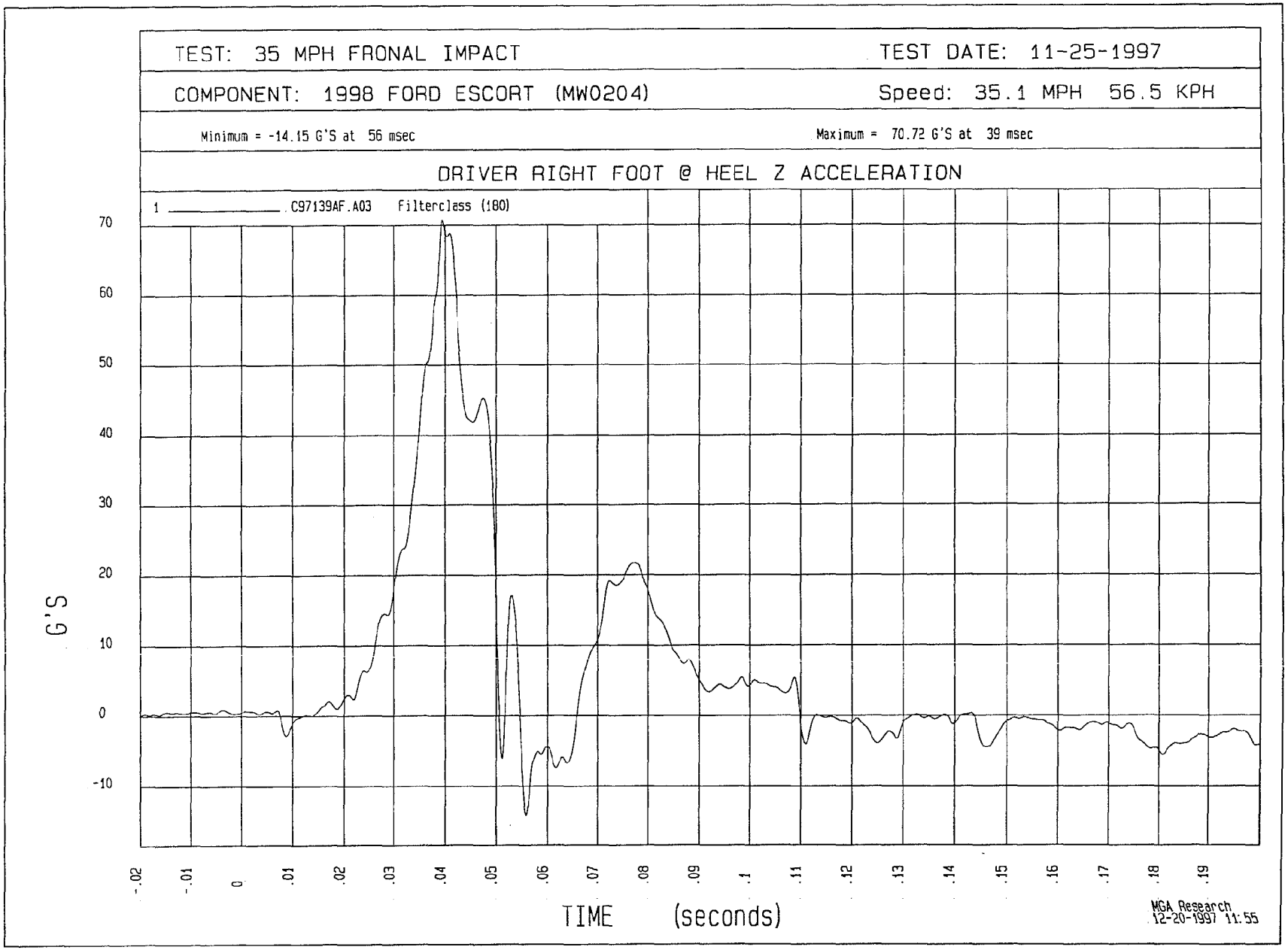

TEST: 35 MPH FRONAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -62.32 G'S at 62 msec
Maximum = 326.12 G'S at 42 msec
DRIVER LEFT FOOT @ BALL Z ACCELERATION
1 C97139AF.A04 Filterclass (180)
300
200
100
0
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (seconds)
MGA Research
12-20-1997 11:54

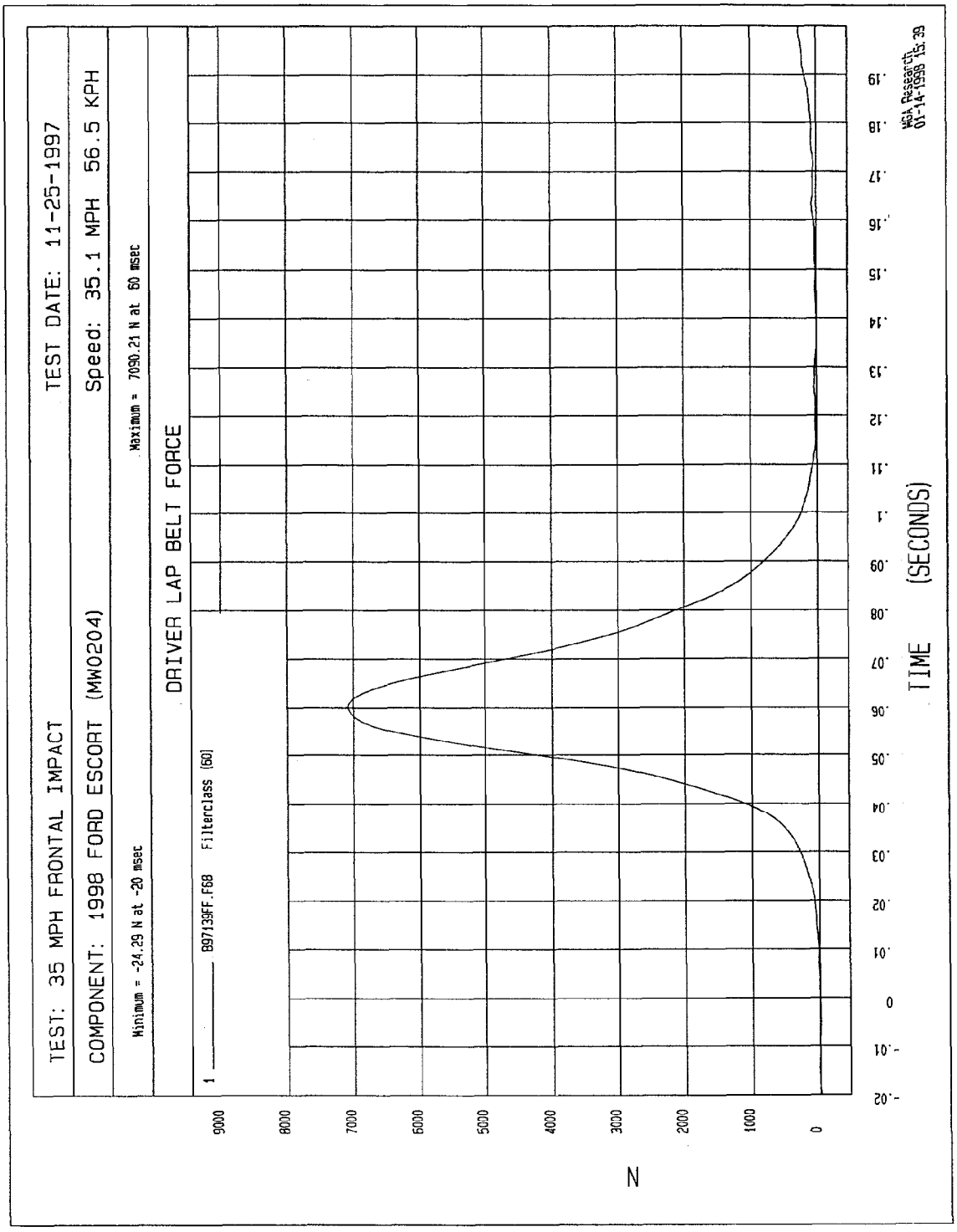

TEST: 35 MPH FRONAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -221.25 G'S at 44 msec
Maximum = 40.48 G'S at 55 msec
DRIVER LEFT FOOT @ HEEL X ACCELERATION
1 C97139AF.A05 Filterclass (180)
40
20
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
-220
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (seconds)
MGA Research
12-20-1997 11:54

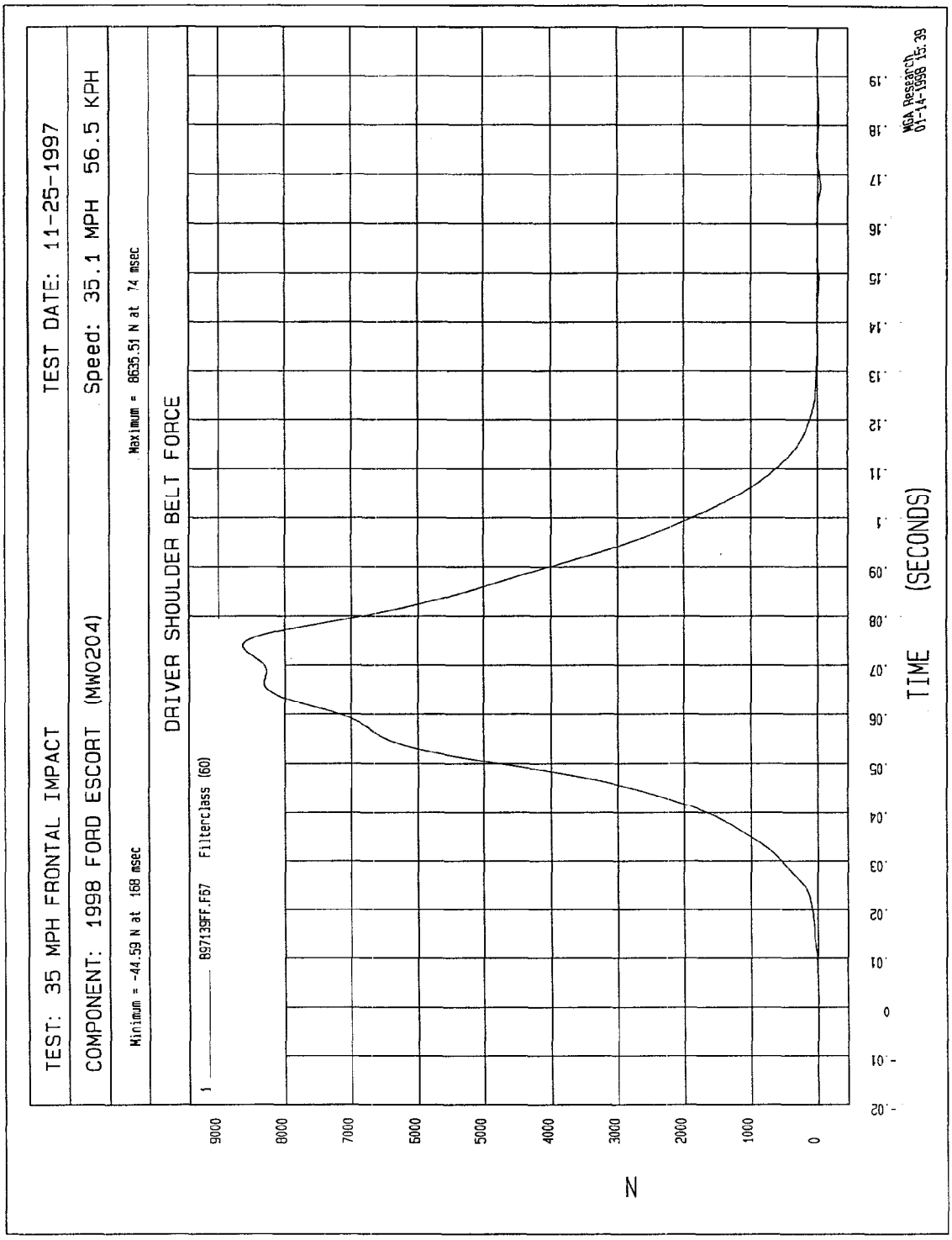

TEST: 35 MPH FRONAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -38.37 G'S at 62 msec
Maximum = 164.18 G'S at 46 msec
DRIVER LEFT FOOT @ HEEL Z ACCELERATION
1 C97139AF.A06 Filterclass (180)
160
140
120
100
80
60
40
20
0
-20
-40
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (seconds)
MGA Research
12-20-1997 11:54

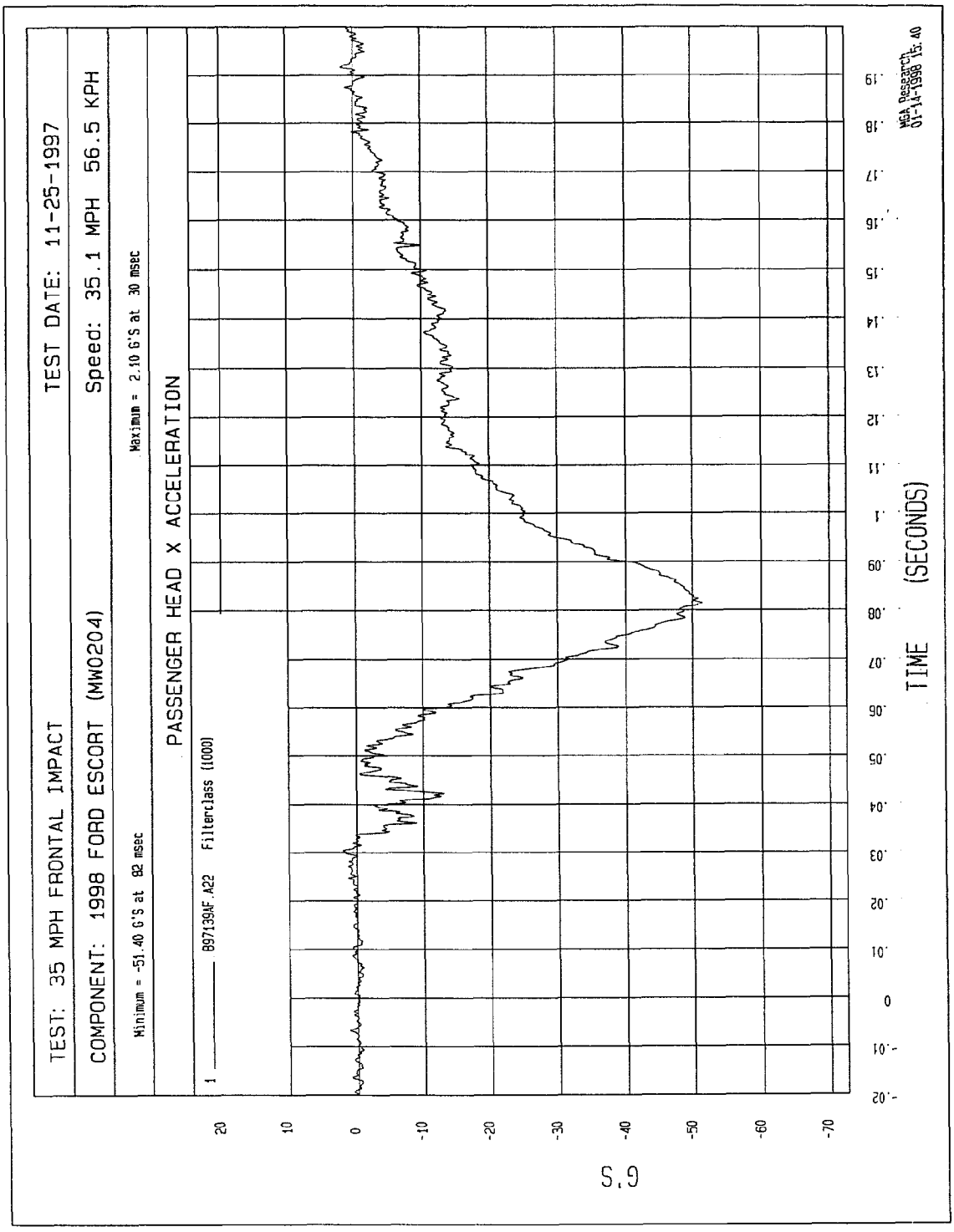

TEST: 35 MPH FRONAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -20.10 G'S at 51 msec
Maximum = 80.08 G'S at 41 msec
DRIVER RIGHT FOOT @ BALL Z ACCELERATION
1 C97139AF.A01 Filterclass (180)
80
60
40
20
0
-20
G's
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (seconds)
NGA Research
12-20-1997 11:54

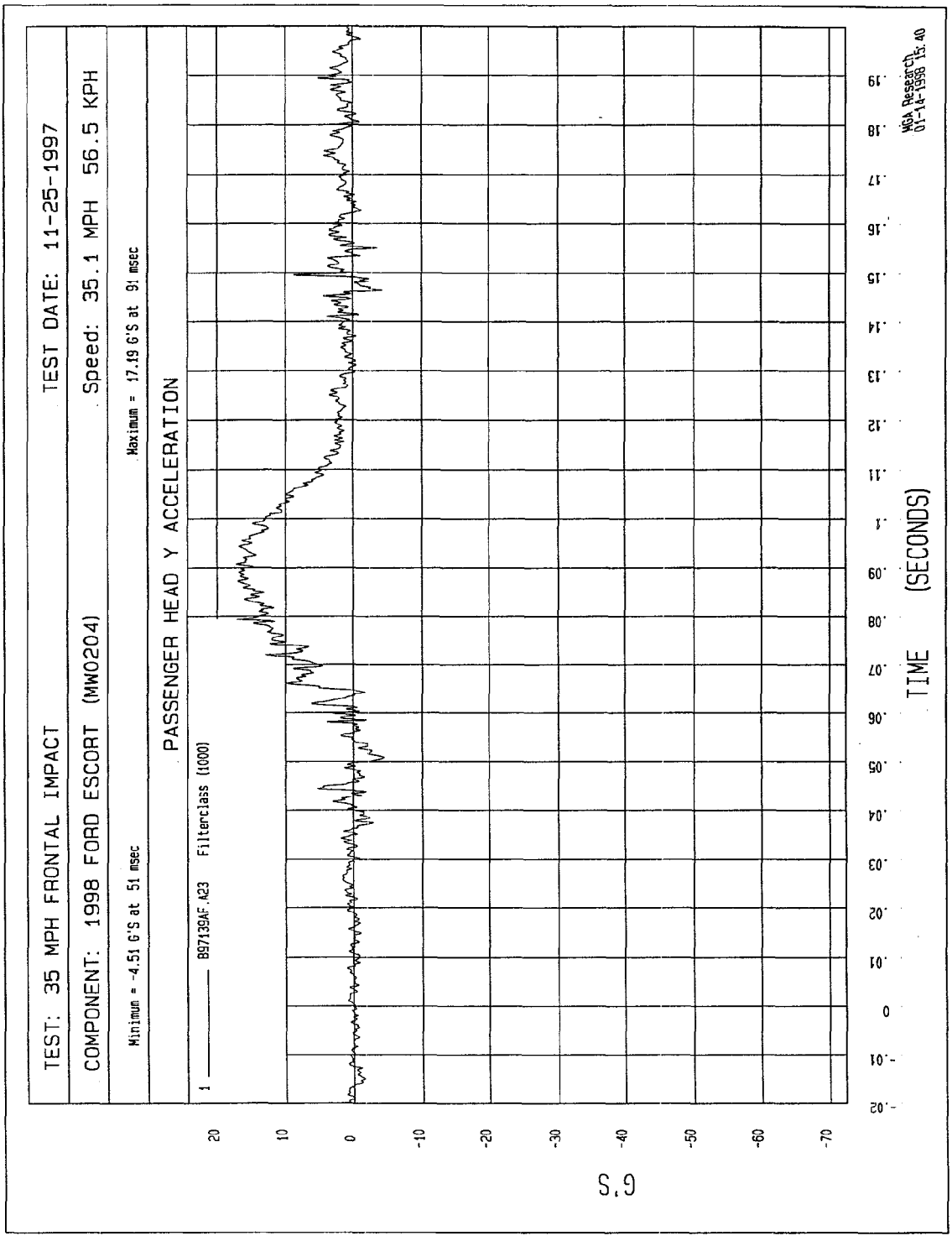

TEST: 35 MPH FRONAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -51.99 G'S at 50 msec
Maximum = 9.23 G'S at 85 msec
DRIVER RIGHT FOOT @ HEEL X ACCELERATION
1 C97139AF.A02 Filterclass (180)
10
0
-10
-20
-30
-40
-50
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (seconds)
MGA Research
12-20-1997 11:54

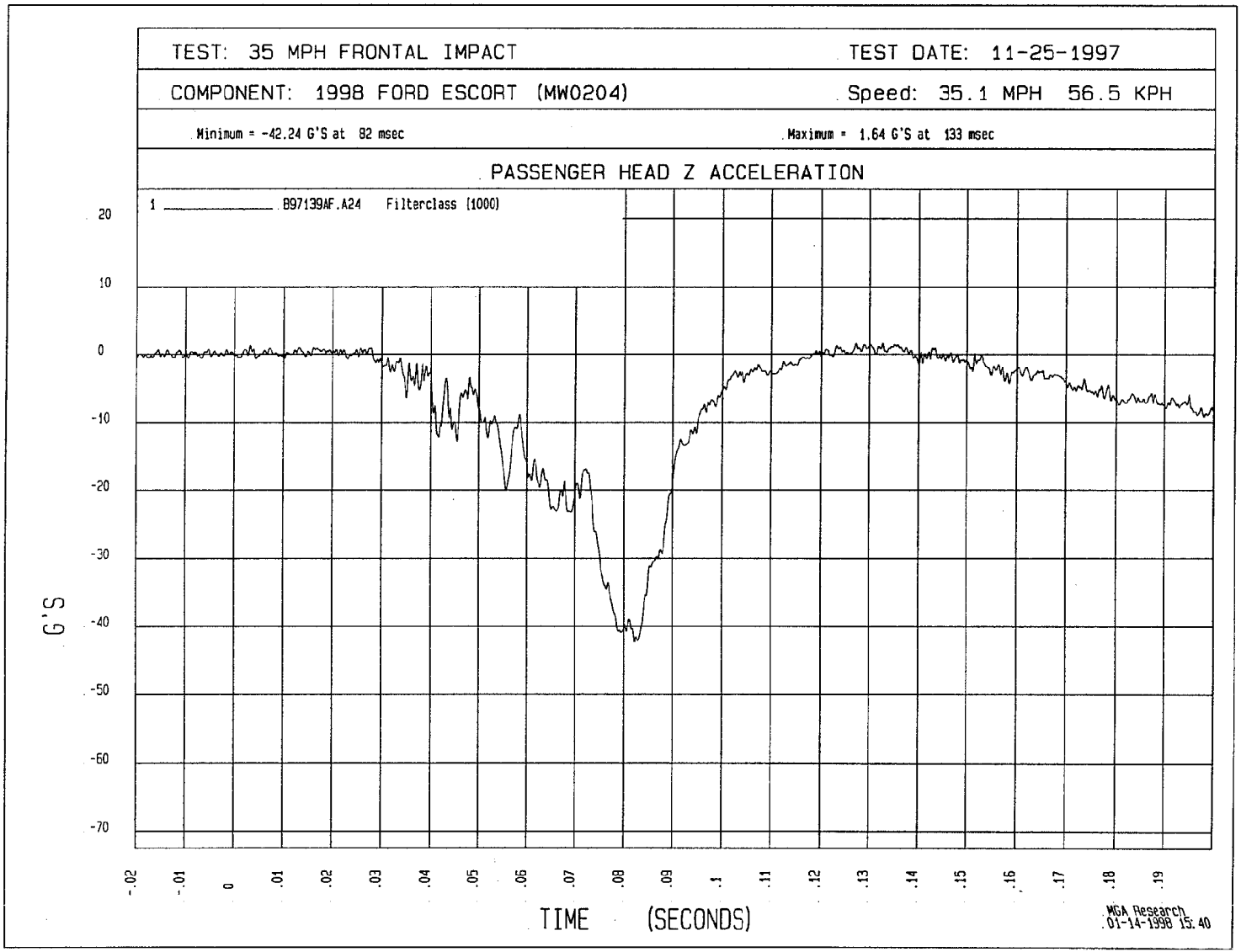

TEST: 35 MPH FRONAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -14.15 G'S at 56 msec
Maximum = 70.72 G'S at 39 msec
DRIVER RIGHT FOOT @ HEEL Z ACCELERATION
1 C97139AF.A03 Filterclass (180)
70
60
50
40
30
20
10
0
-10
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (seconds)
MGA Research
12-20-1997 11:55

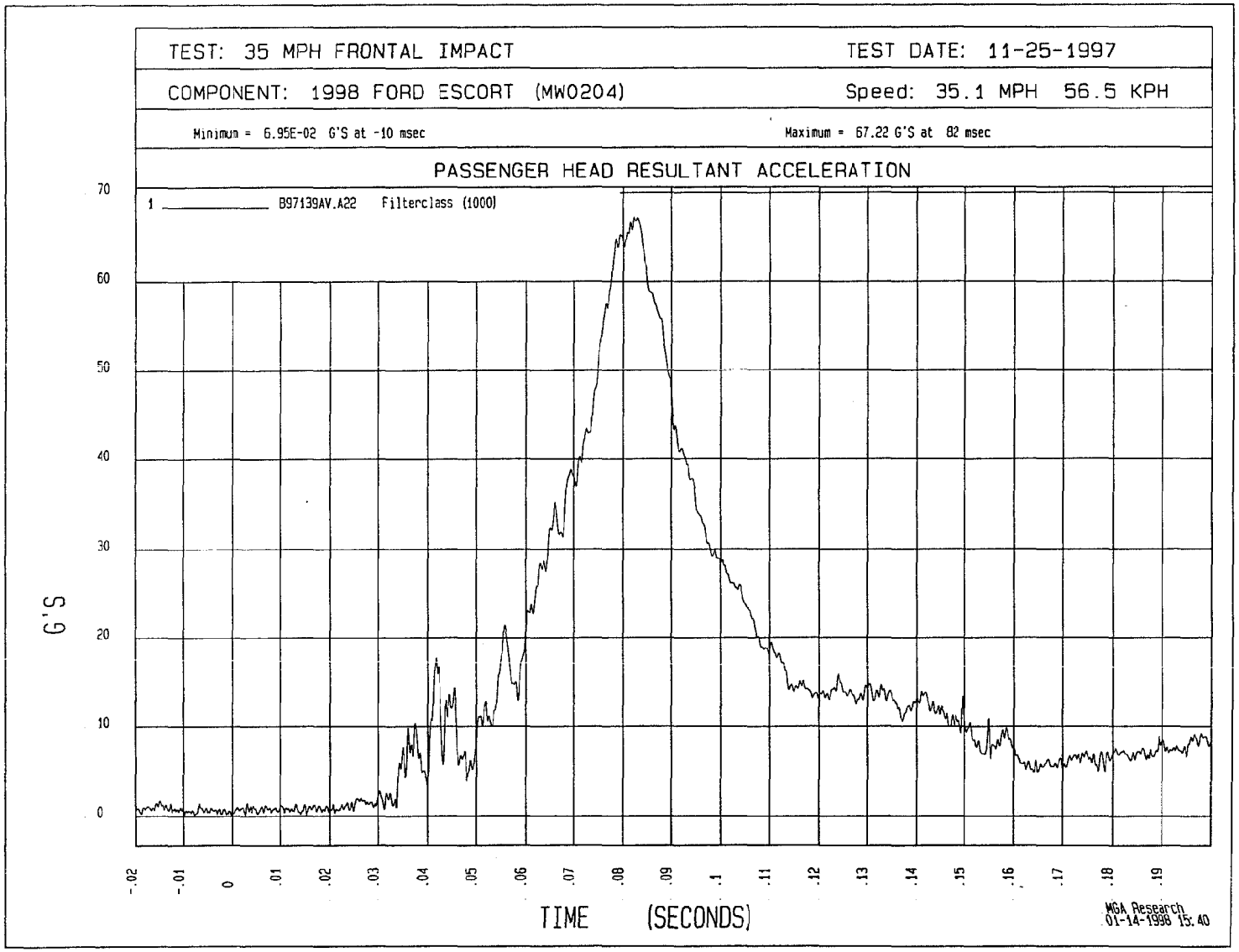

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -24.29 N at -20 msec
Maximum = 7090.21 N at 60 msec
DRIVER LAP BELT FORCE
1 B97139FF.F68 Filterclass [60]
N
TIME (SECONDS)
MGA Research
01-14-1998 15:39

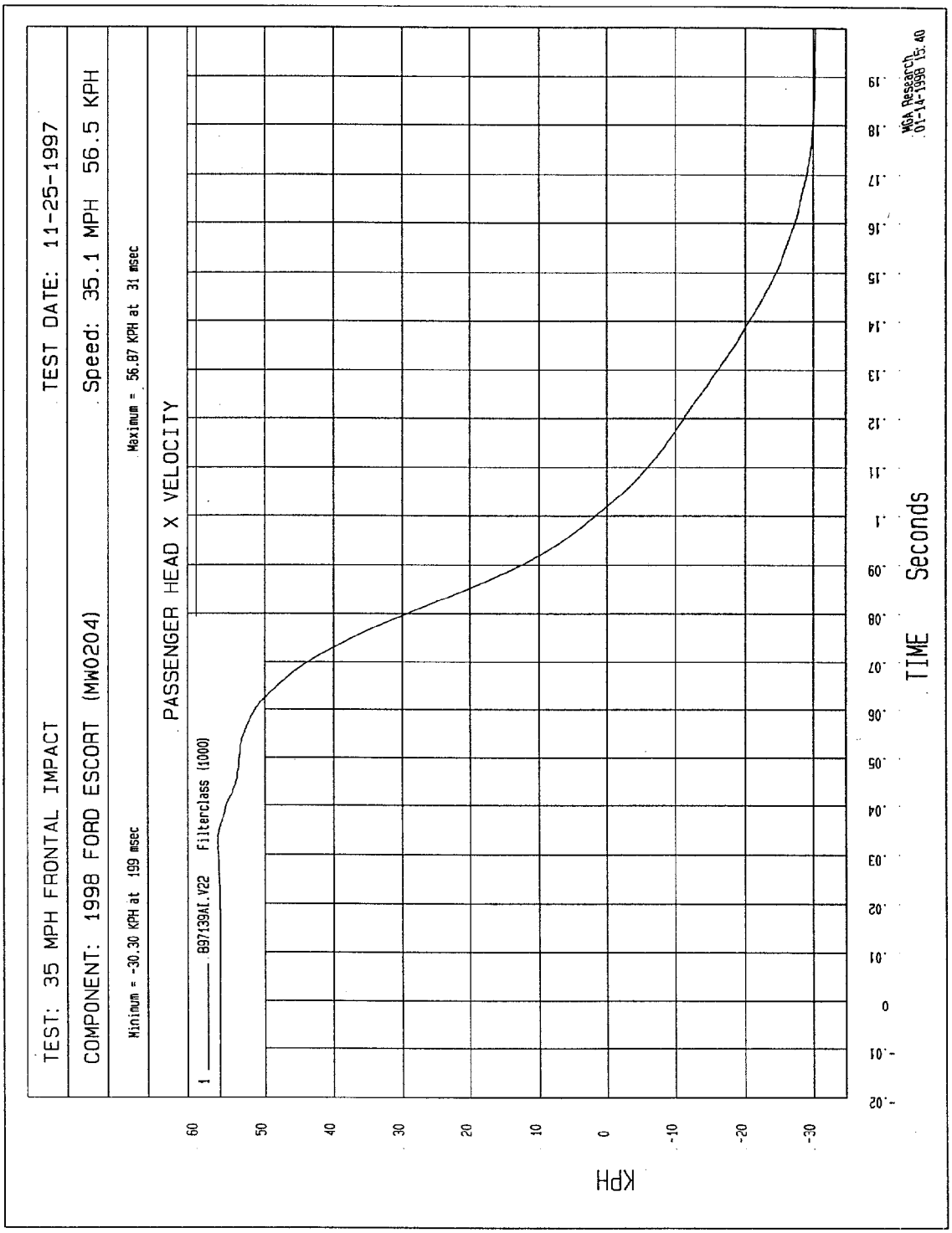

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -44.59 N at 168 msec
Maximum = 8635.51 N at 74 msec
DRIVER SHOULDER BELT FORCE
1 B97139FF.F67 Filterclass (60)
N
TIME (SECONDS)
MGA Research
01-14-1998 15:39

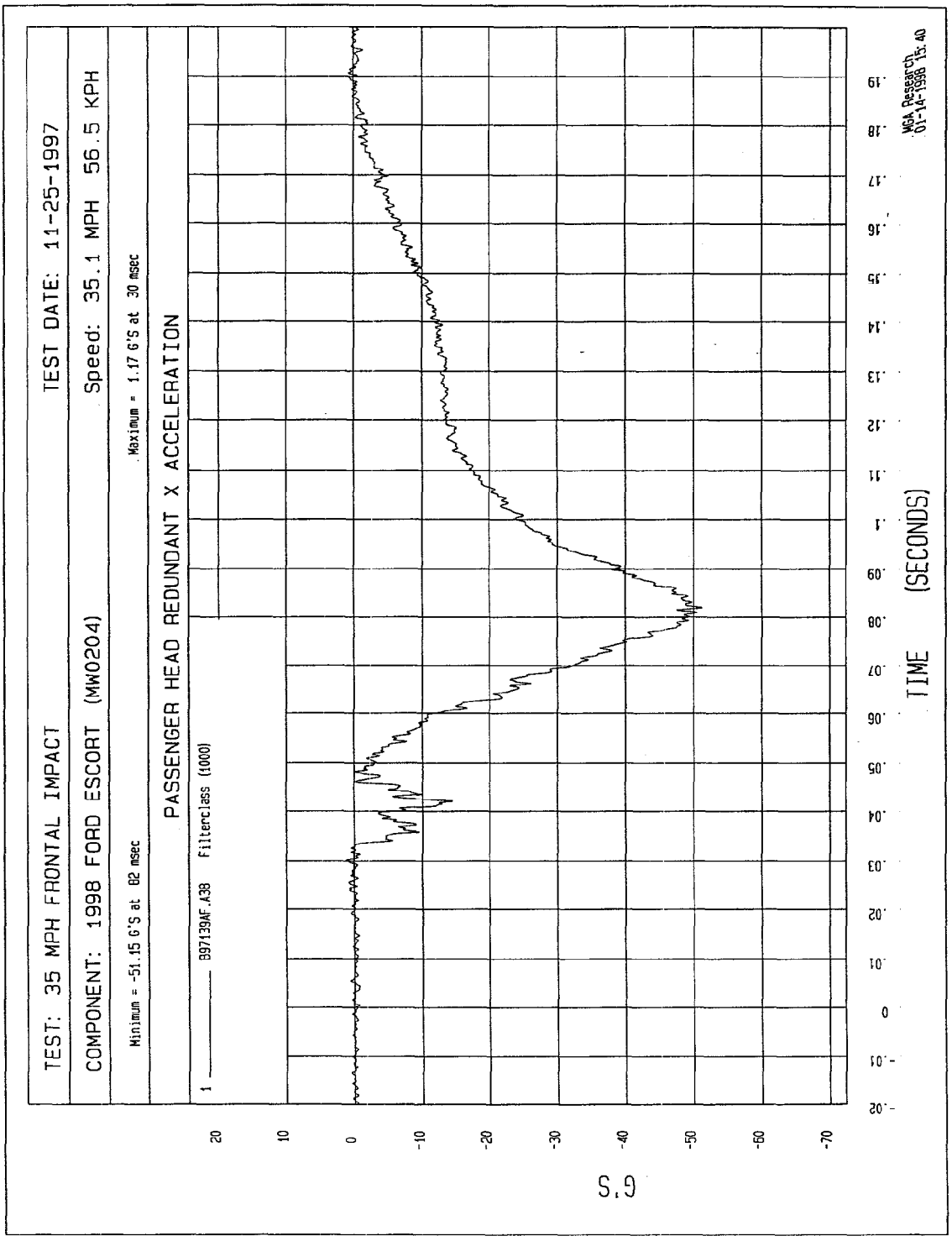

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -51.40 G'S at 82 msec
Maximum = 2.10 G'S at 30 msec
PASSENGER HEAD X ACCELERATION
1 B971399AF.A22 Filterclass (1000)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
MGA Research
01-14-1998 15:40

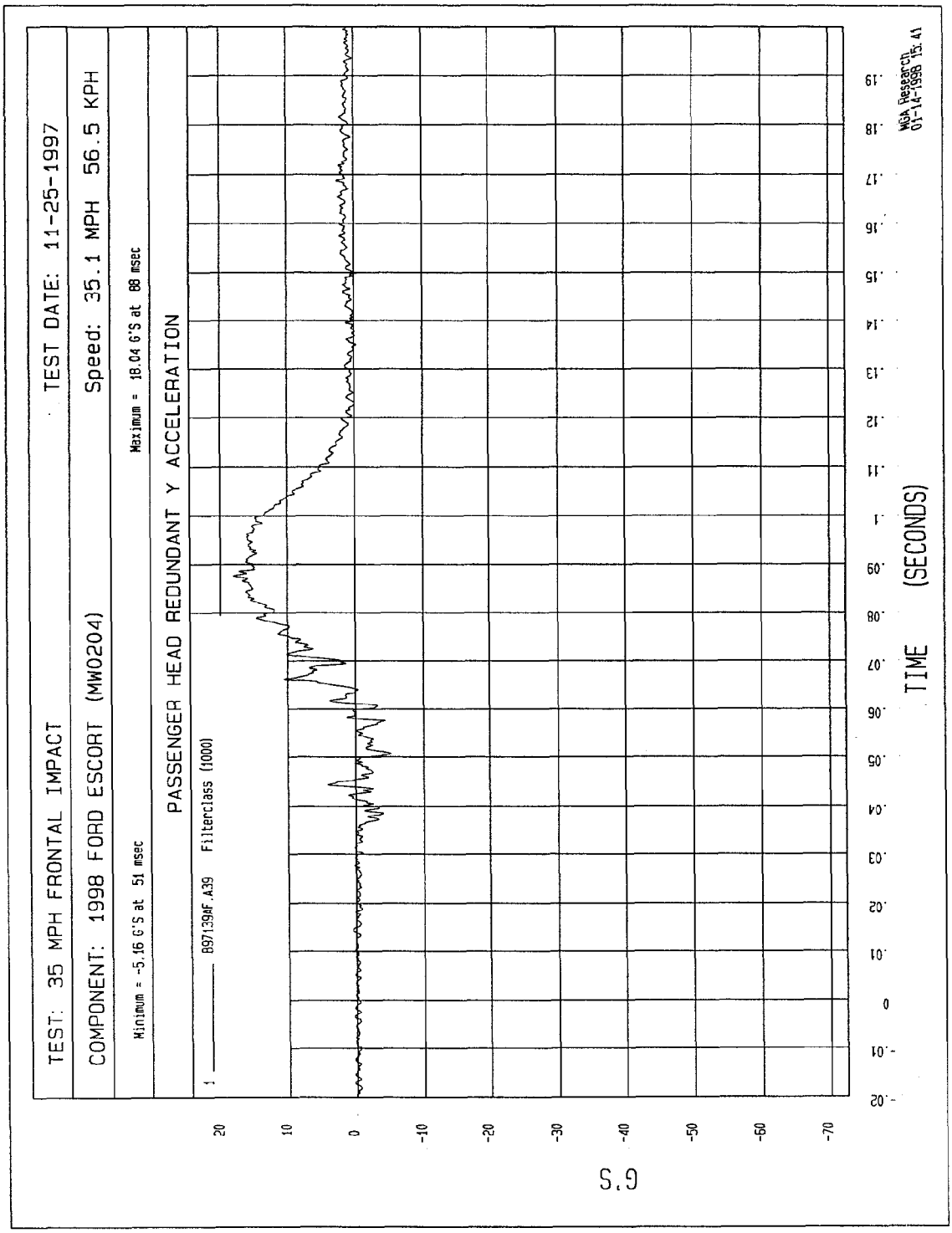

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -4.51 G'S at 51 msec
Maximum = 17.19 G'S at 91 msec
PASSENGER HEAD Y ACCELERATION
1 B97139AF.A23 Filterclass (1000)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:40

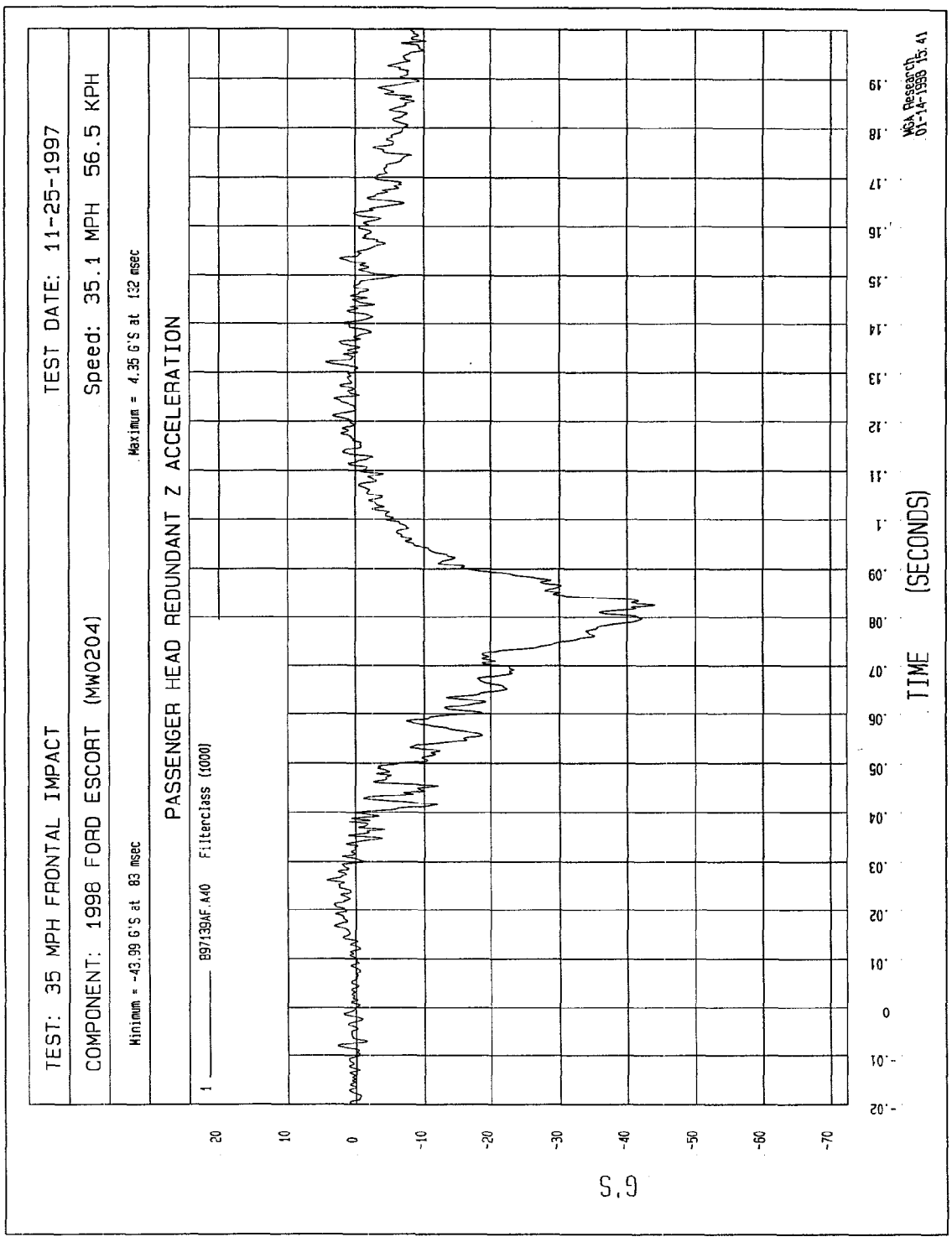

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -42.24 G'S at 82 msec
Maximum = 1.64 G'S at 133 msec
PASSENGER HEAD Z ACCELERATION
1 B97139AF.A24 Filterclass (1000)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:40

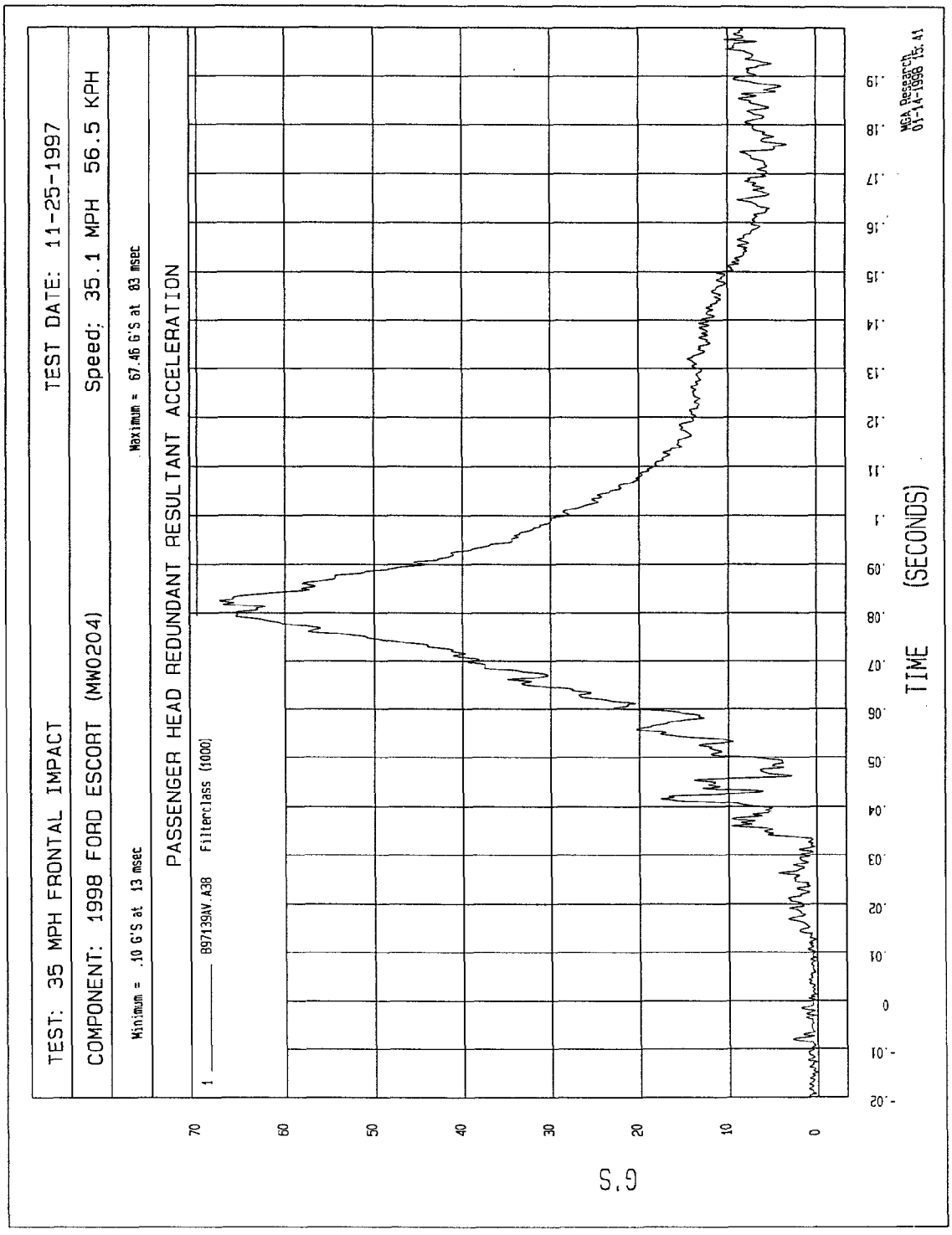

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 6.95E-02 G'S at -10 msec
Maximum = 67.22 G'S at 82 msec
PASSENGER HEAD RESULTANT ACCELERATION
1 B97139AV.A22 Filterclass (1000)
G'S
70
60
50
40
30
20
10
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:40

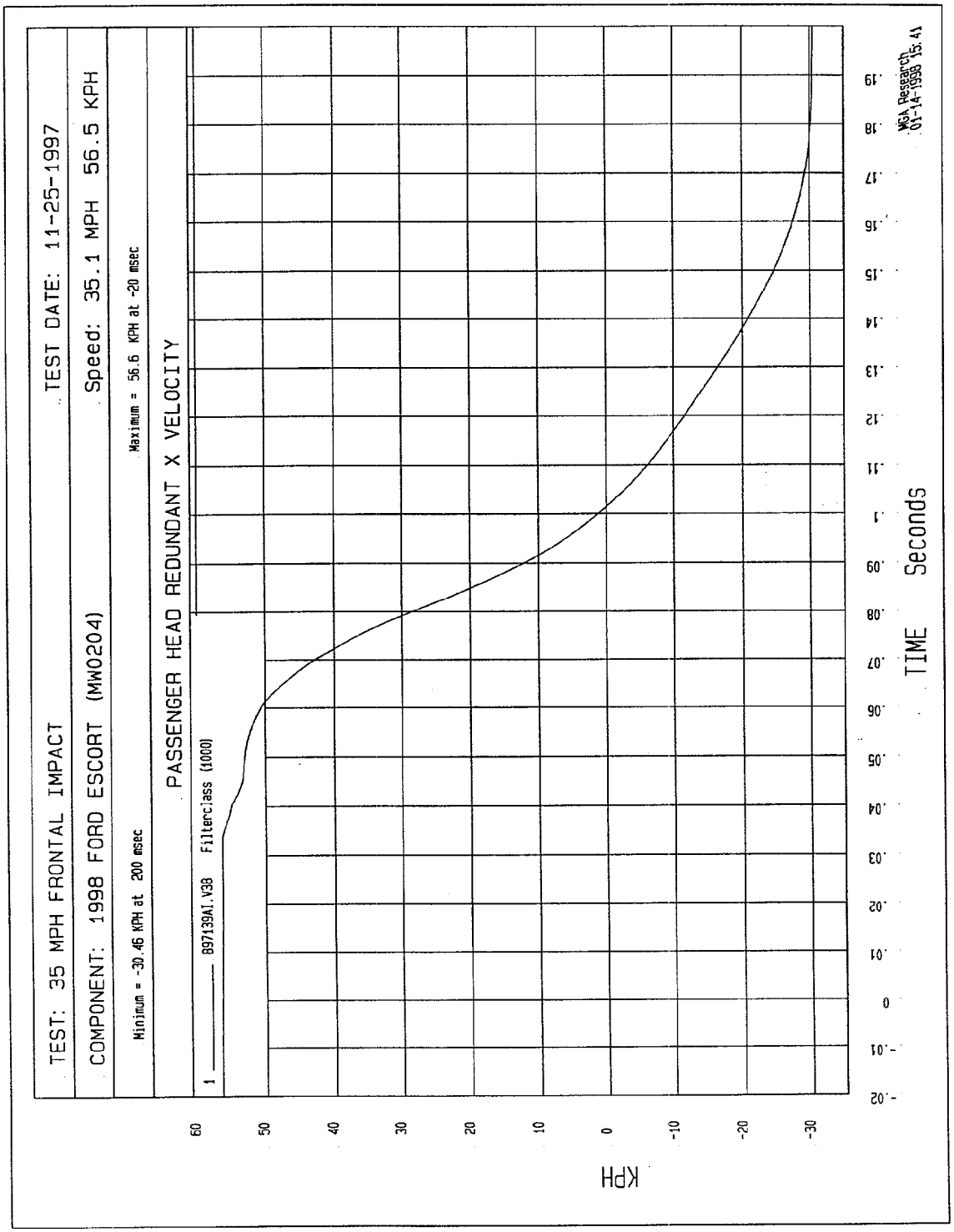

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -30.30 KPH at 199 msec
Maximum = 56.87 KPH at 31 msec
PASSENGER HEAD X VELOCITY
1 B97139AI.V22 Filterclass (1000)
KPH
TIME Seconds
MGA Research
01-14-1998 15:40

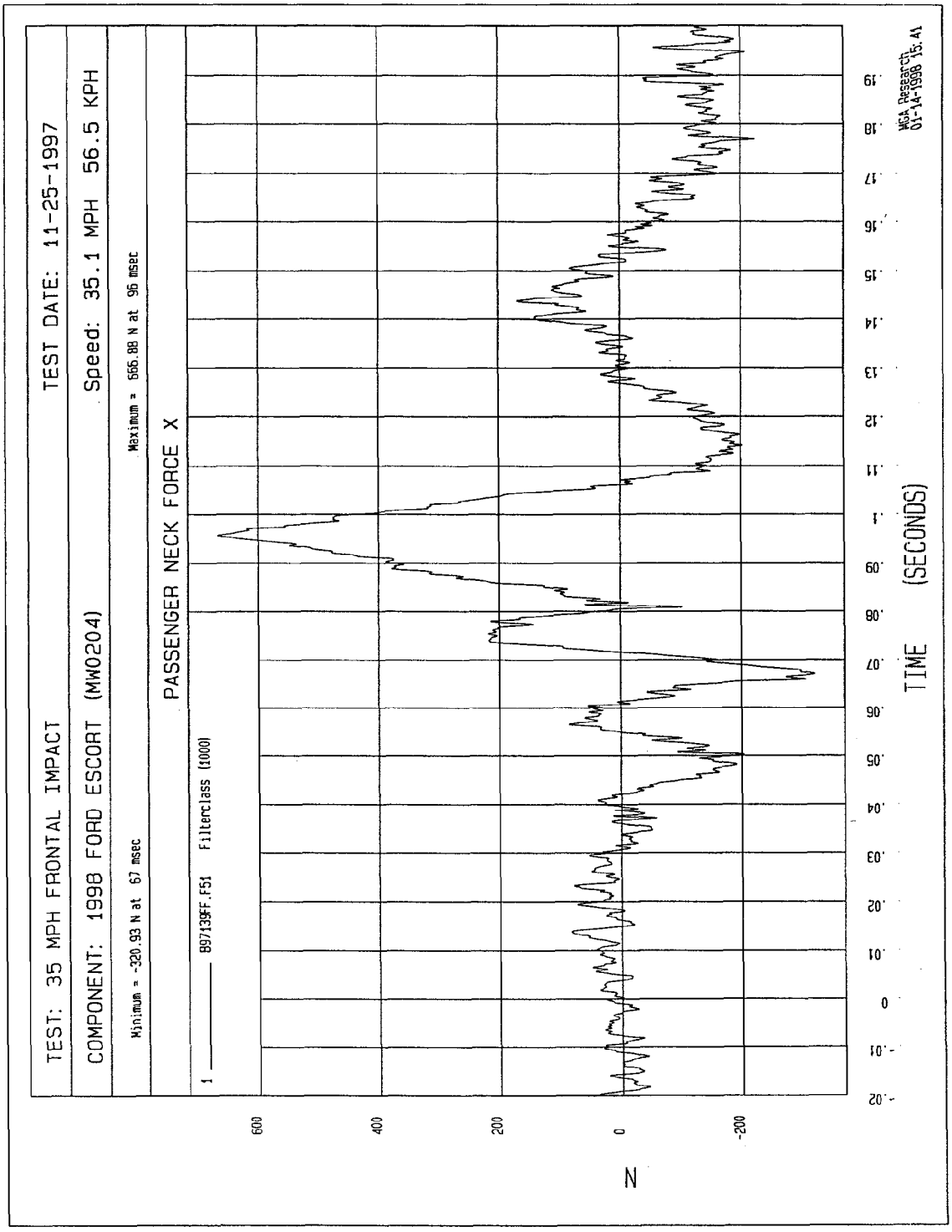

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -51.15 G'S at 82 msec
Maximum = 1.17 G'S at 30 msec
PASSENGER HEAD REDUNDANT X ACCELERATION
1 _____ 997139AF.A3B Filterclass (1000)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
TIME (SECONDS)
MGA Research
01-14-1998 15:40

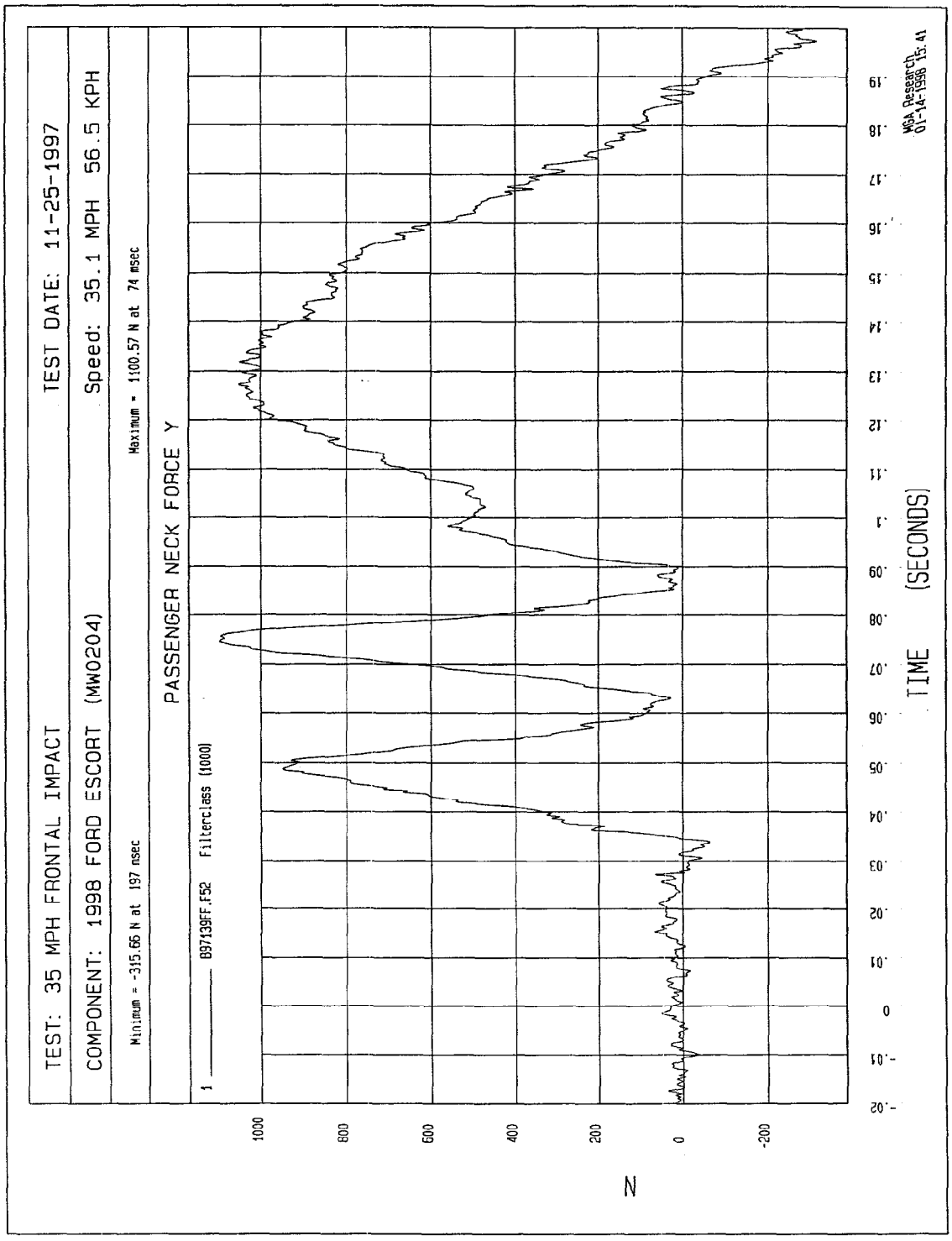

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -5.16 G'S at 51 msec
Maximum = 18.04 G'S at 88 msec
PASSENGER HEAD REDUNDANT Y ACCELERATION
1 897139NF.A39 Filterclass (1000)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
MGA Research
01-14-1998 15:41

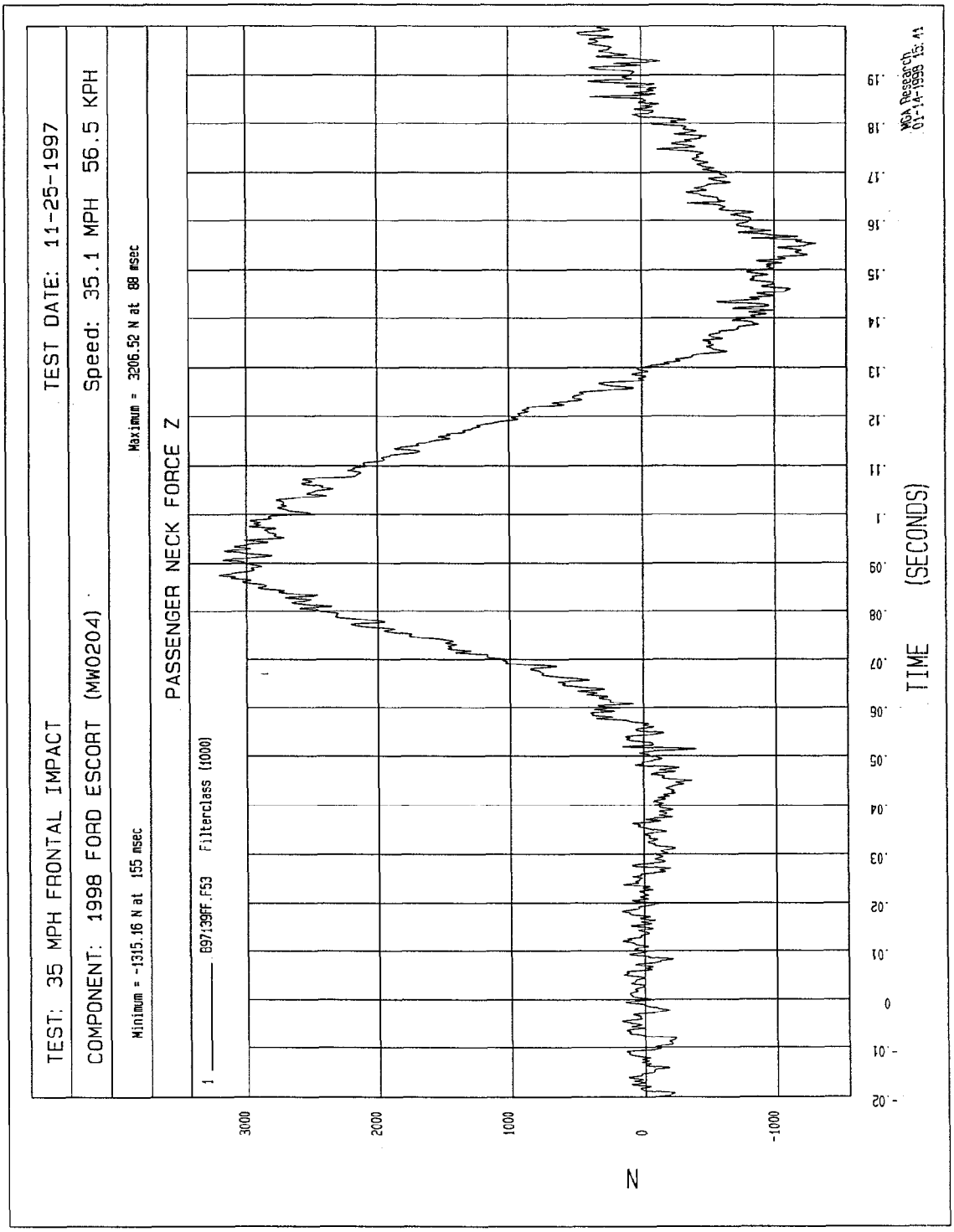

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -43.99 G'S at 83 msec
Maximum = 4.35 G'S at 132 msec
PASSENGER HEAD REDUNDANT Z ACCELERATION
1 B97139AF.A40 Filterclass (1000)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:41

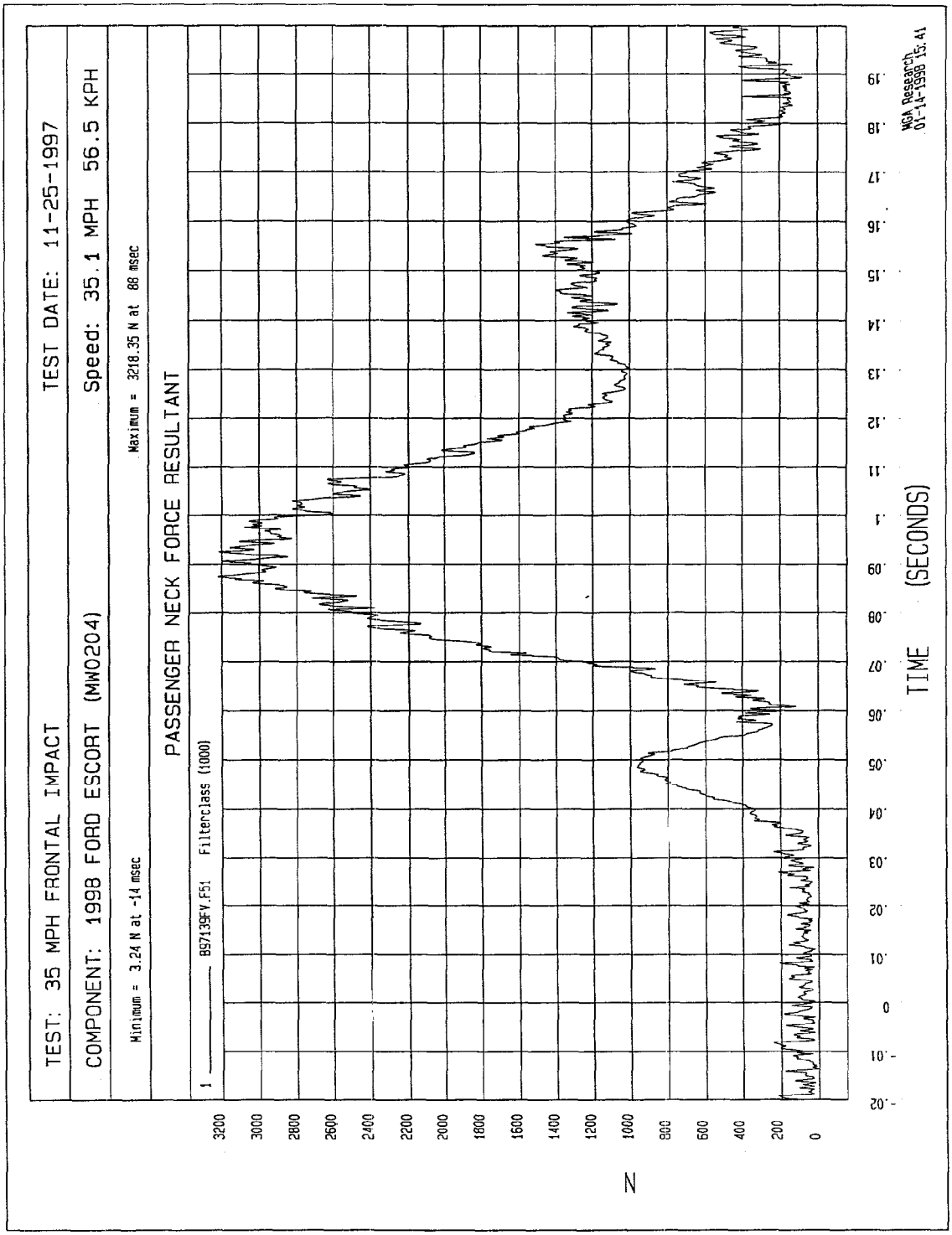

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = .10 G'S at 13 msec
Maximum = 67.46 G'S at 83 msec
PASSENGER HEAD REDUNDANT RESULTANT ACCELERATION
1 B97139AV.A38 Filterclass (1000)
G'S
TIME (SECONDS)
MGA Research
01-14-1998 15: 41

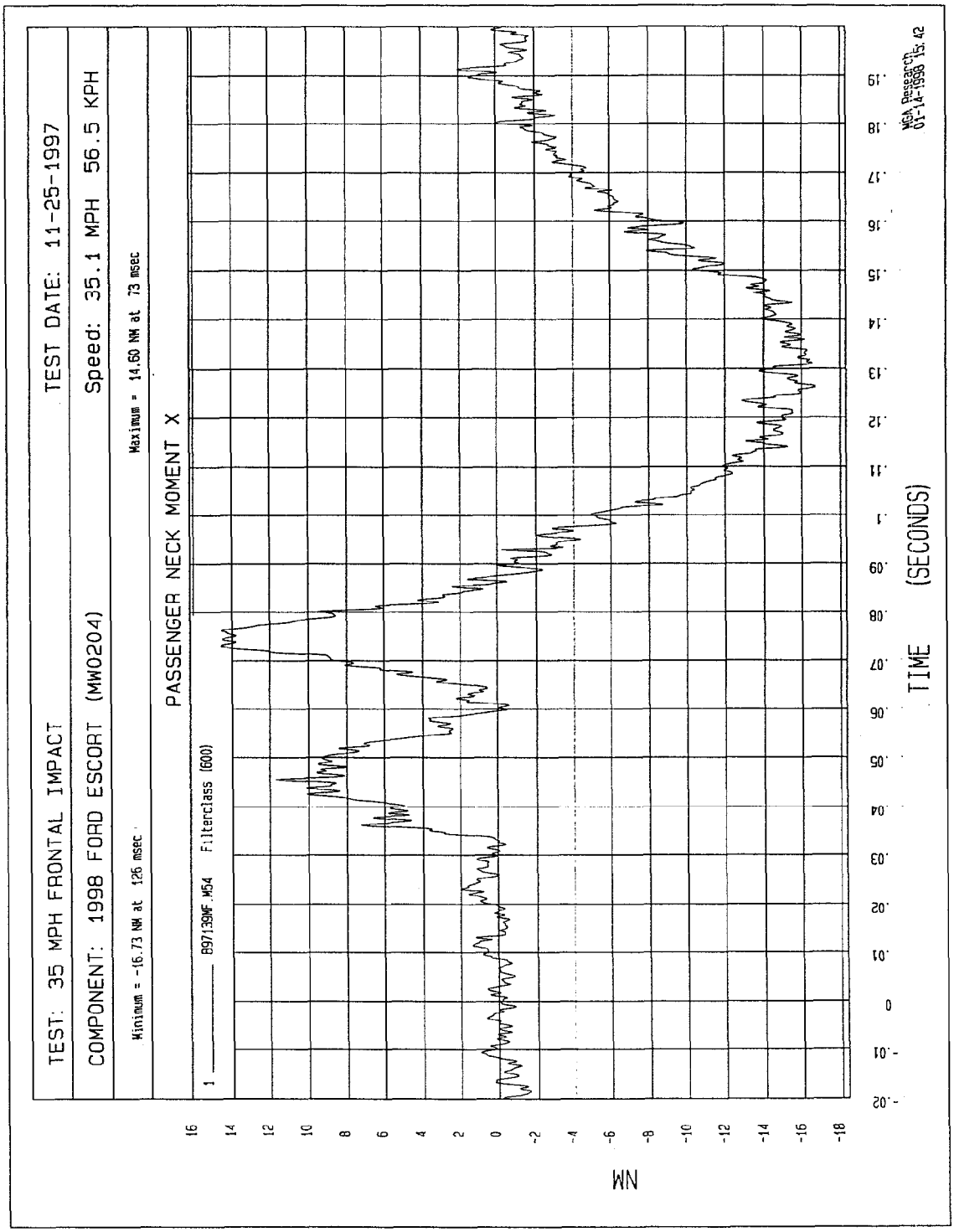

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -30.46 KPH at 200 msec
Maximum = 56.6 KPH at -20 msec
PASSENGER HEAD REDUNDANT X VELOCITY
1 897139AI.V38 Filterclass (1000)
KPH
TIME Seconds
WSA Research
01-14-1998 15:41

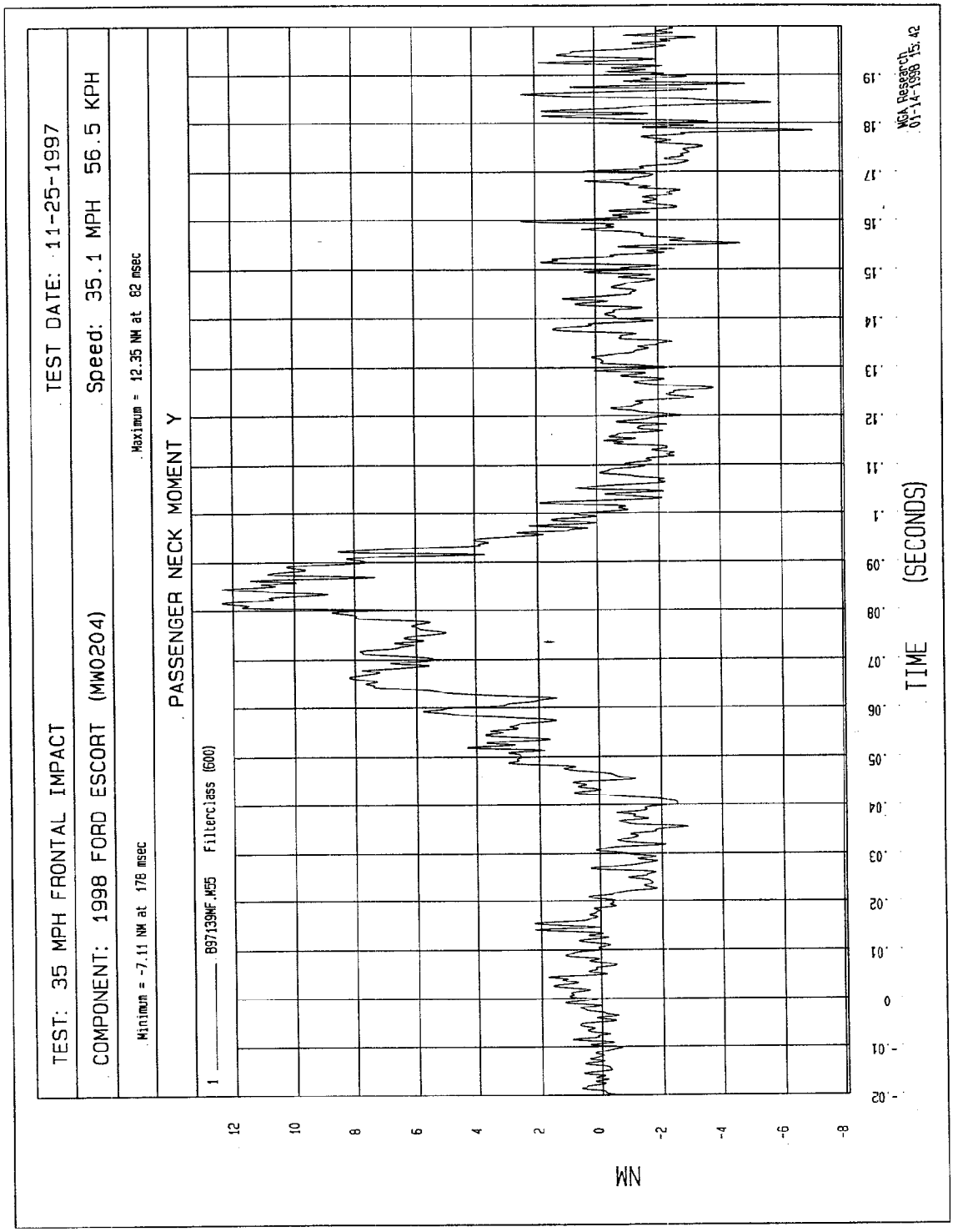

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -320.93 N at 67 msec
Maximum = 666.98 N at 96 msec
PASSENGER NECK FORCE X
1 B97139FF.F51 Filterclass (1000)
600
400
200
0
-200
N
TIME (SECONDS)
MGA Research
01-14-1998 16: 41

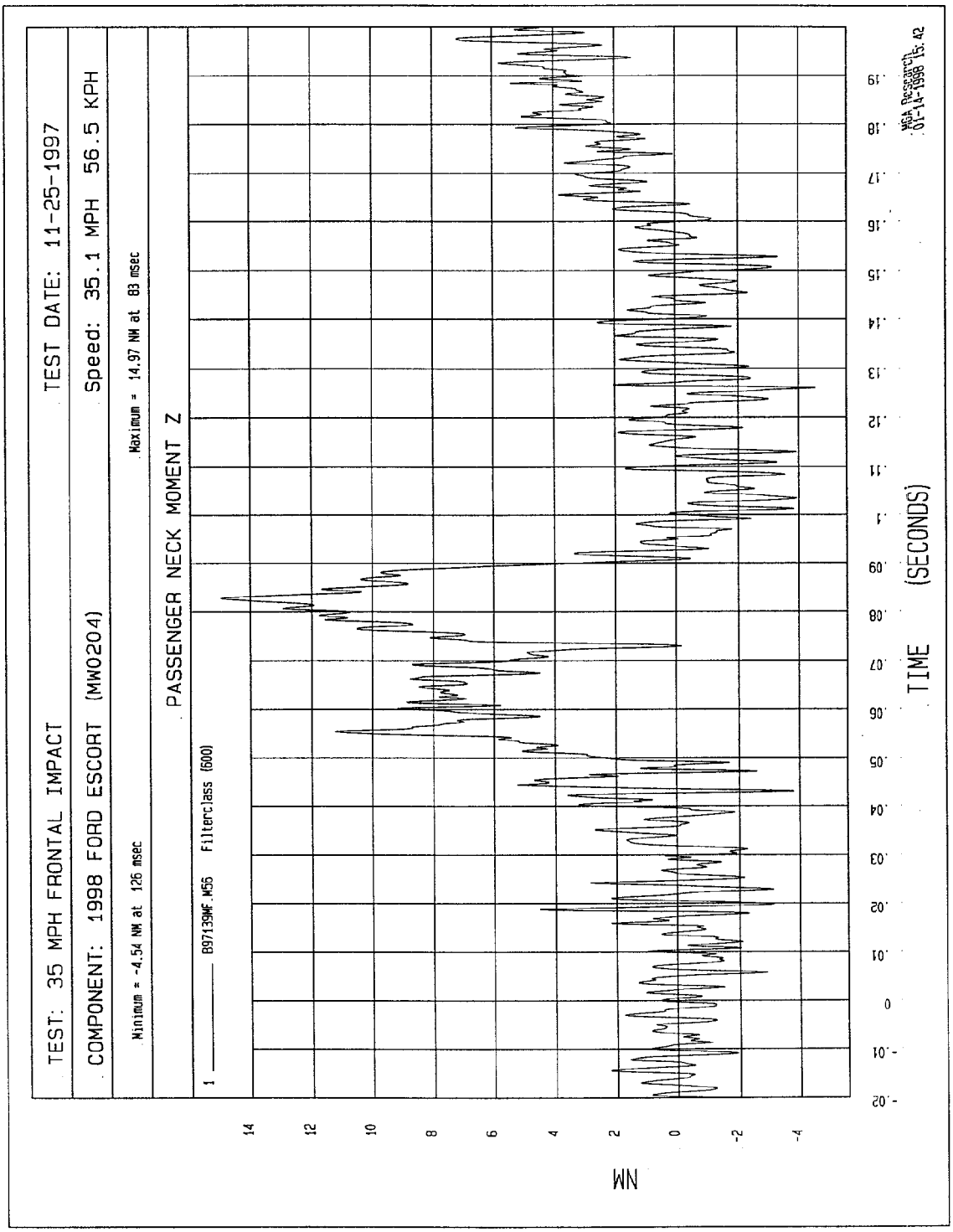

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -315.66 N at 197 msec
Maximum = 1100.57 N at 74 msec
PASSENGER NECK FORCE Y
1 _____ B97139FF.FS2 Filterclass (1000)
1000
800
600
400
200
0
-200
N
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (SECONDS)
MGA Research
01-14-1998 15:41

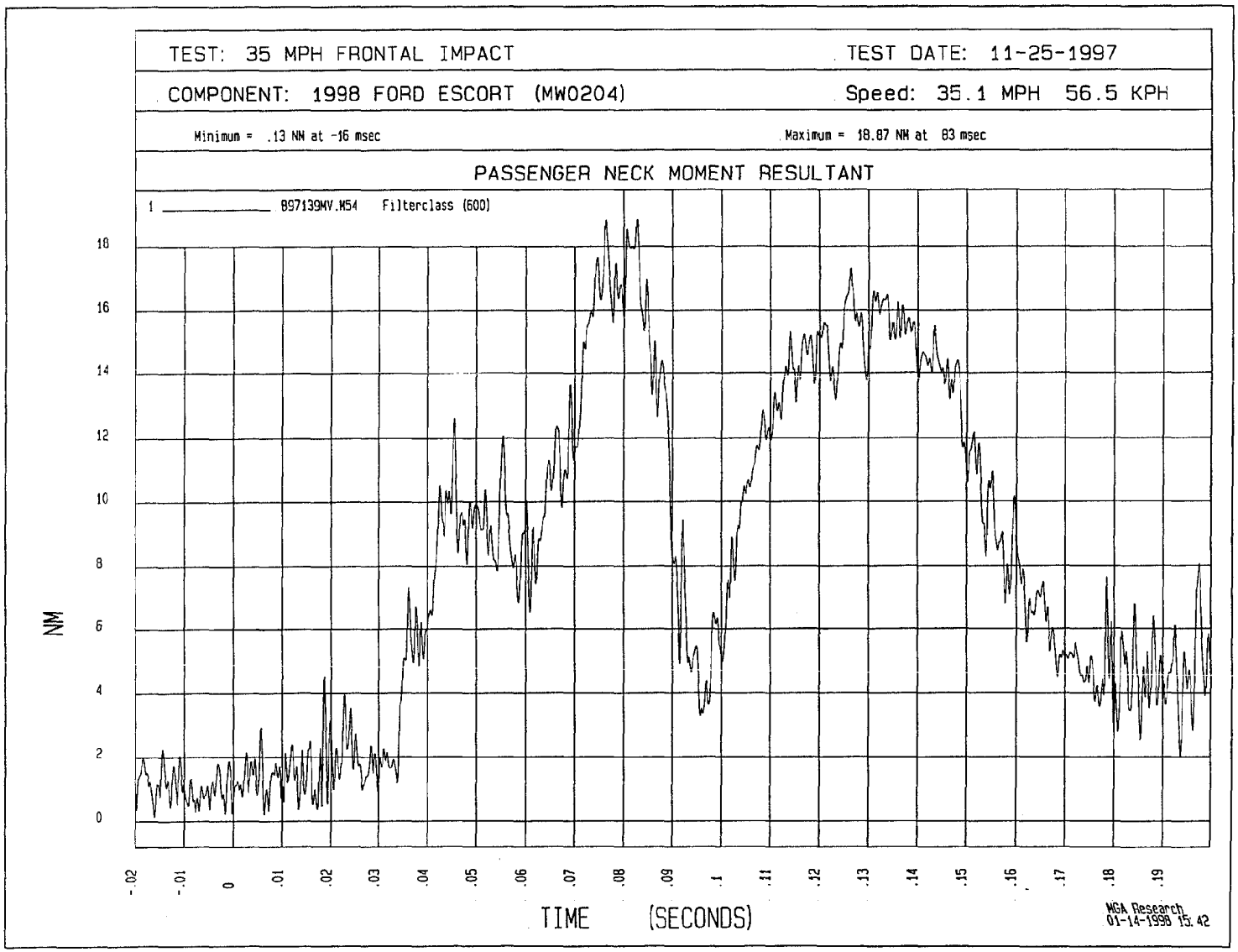

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -1315.16 N at 155 msec
Maximum = 3206.52 N at 88 msec
PASSENGER NECK FORCE Z
1 B97139FF.F53 Filterclass (1000)
3000
2000
1000
0
-1000
N
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
WSA Research
01-14-1999 15:41

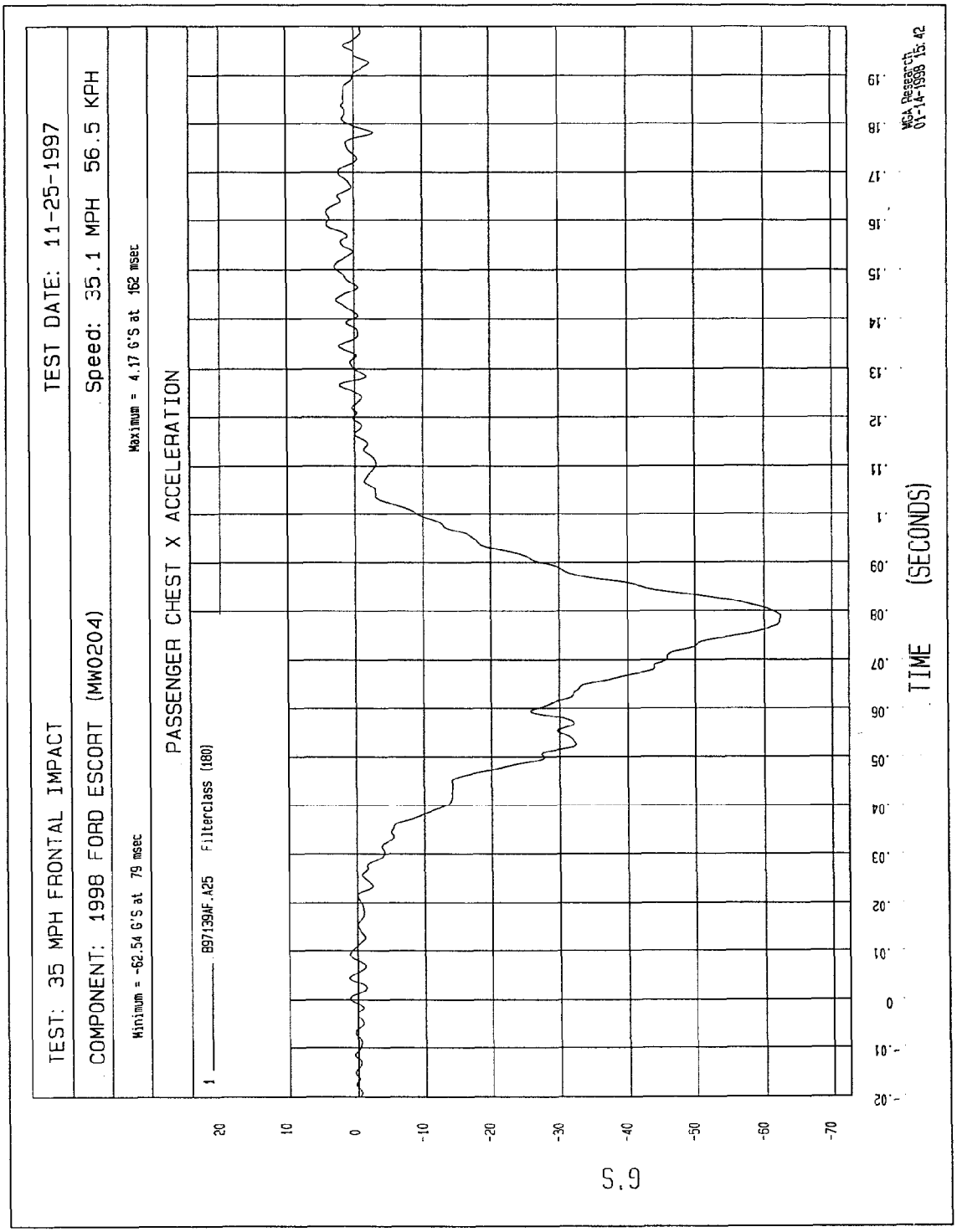

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 3.24 N at -14 msec
Maximum = 3218.35 N at 88 msec
PASSENGER NECK FORCE RESULTANT
1 B97139FY.F51 Filterclass (1000)
N
TIME (SECONDS)
WGA Research
01-14-1998 15:41

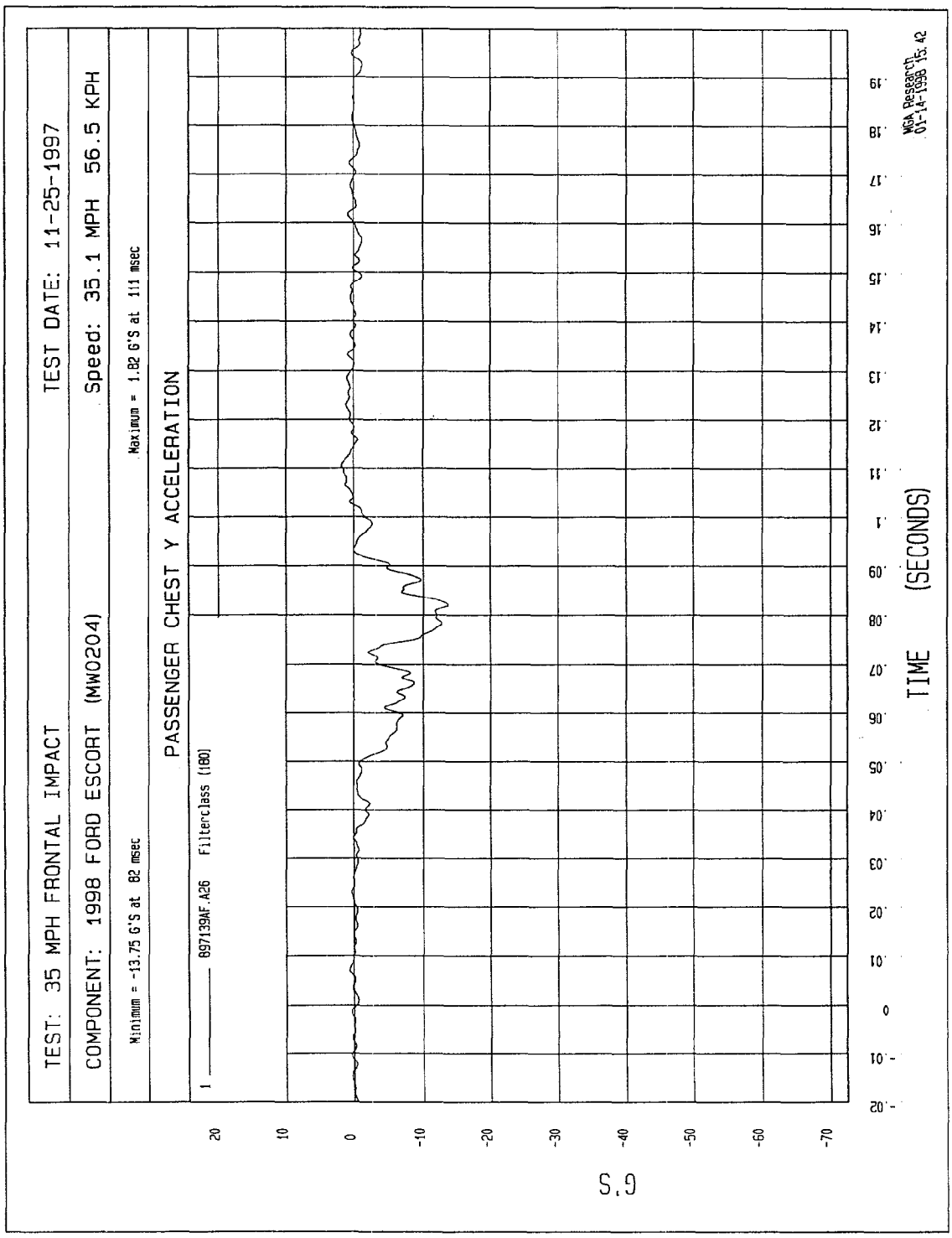

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -16.73 NM at 126 msec
Maximum = 14.60 NM at 73 msec
PASSENGER NECK MOMENT X
1 B97139MF.M54 Filterclass (600)
NM
TIME (SECONDS)
MGA Research
01-14-1998 15:42

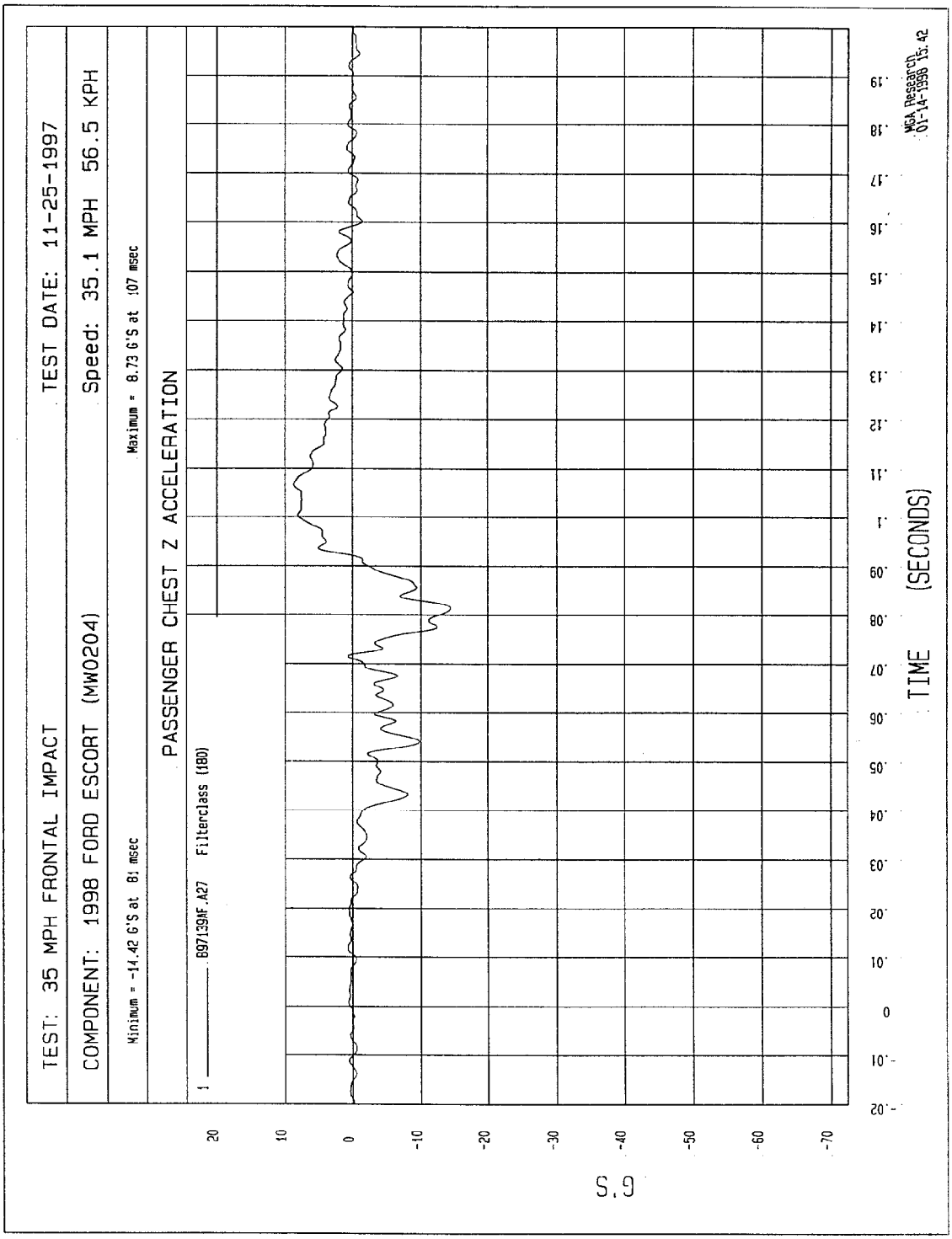

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -7.11 NM at 178 msec
Maximum = 12.35 NM at 82 msec
PASSENGER NECK MOMENT Y
1 B97139NF.M55 Filterclass (600)
NM
TIME (SECONDS)
NCA Research
01-14-1998 15:42

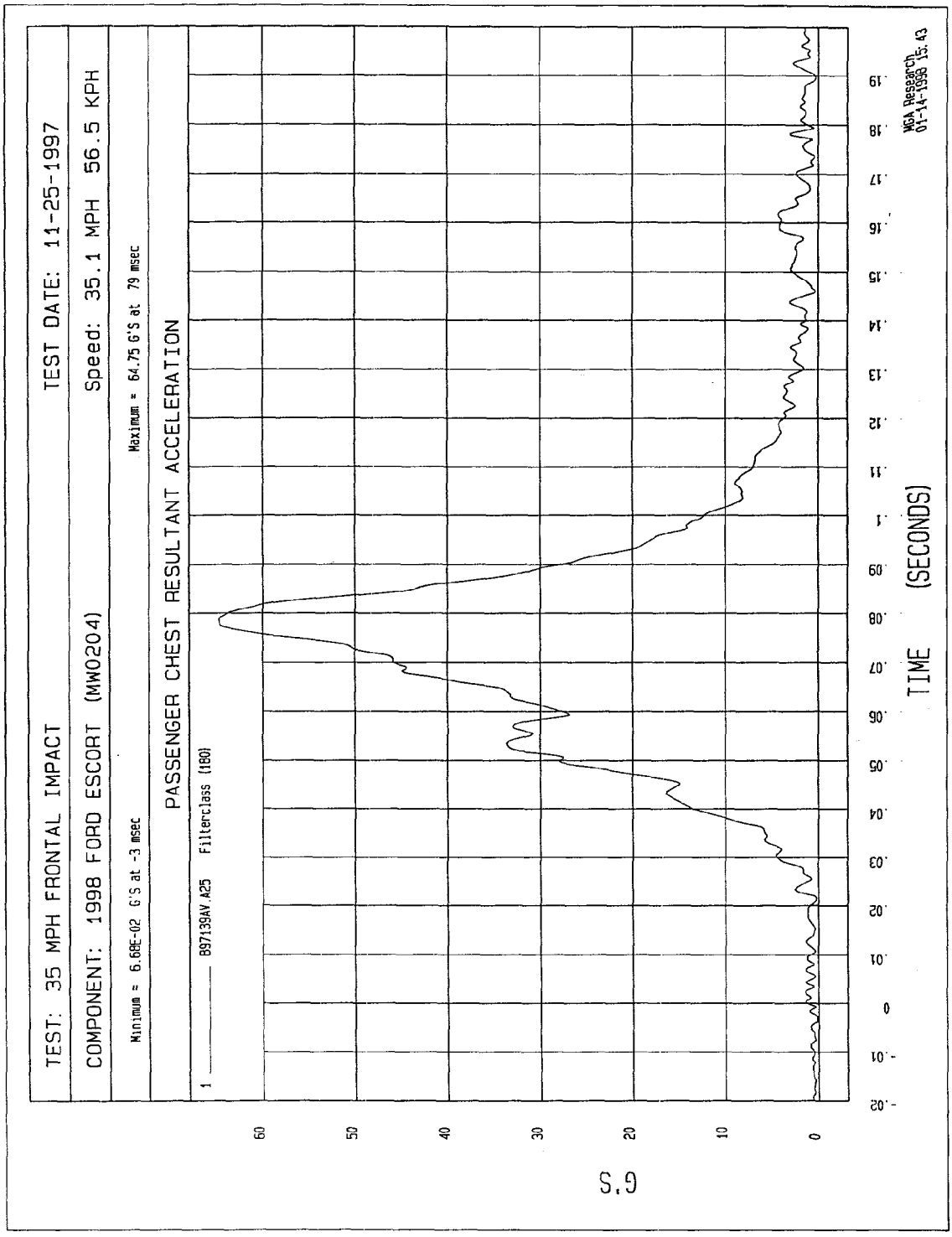

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -4.54 NM at 126 msec
Maximum = 14.97 NM at 83 msec
PASSENGER NECK MOMENT Z
1 B97139MF.M56 Filterclass (600)
NM
TIME (SECONDS)
MGA Research
01-14-1998 15:42

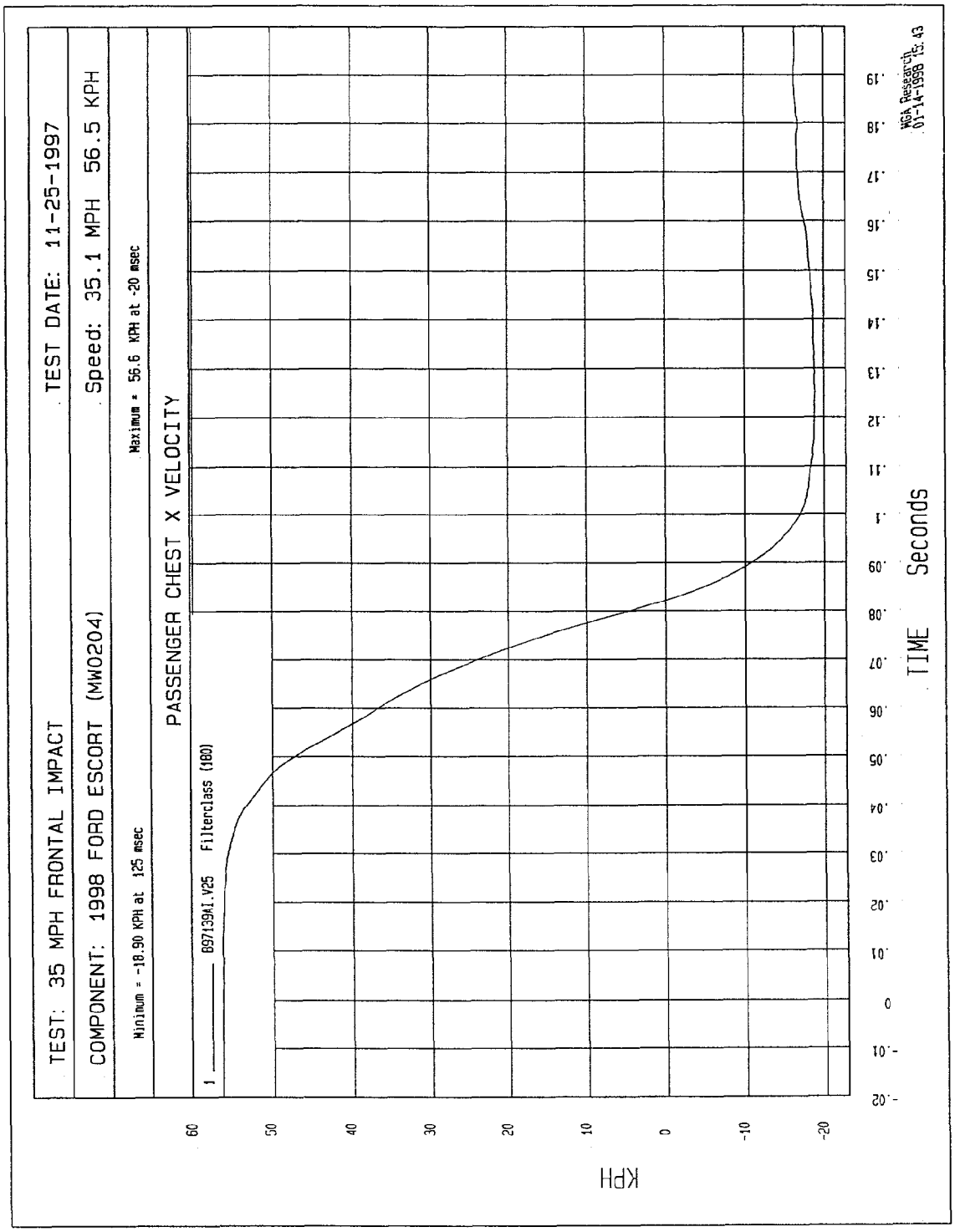

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = .13 NM at -16 msec
Maximum = 18.87 NM at 83 msec
PASSENGER NECK MOMENT RESULTANT
1 897139MV.M54 Filterclass (600)
NM
18
16
14
12
10
8
6
4
2
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
NGA Research
01-14-1998 15:42

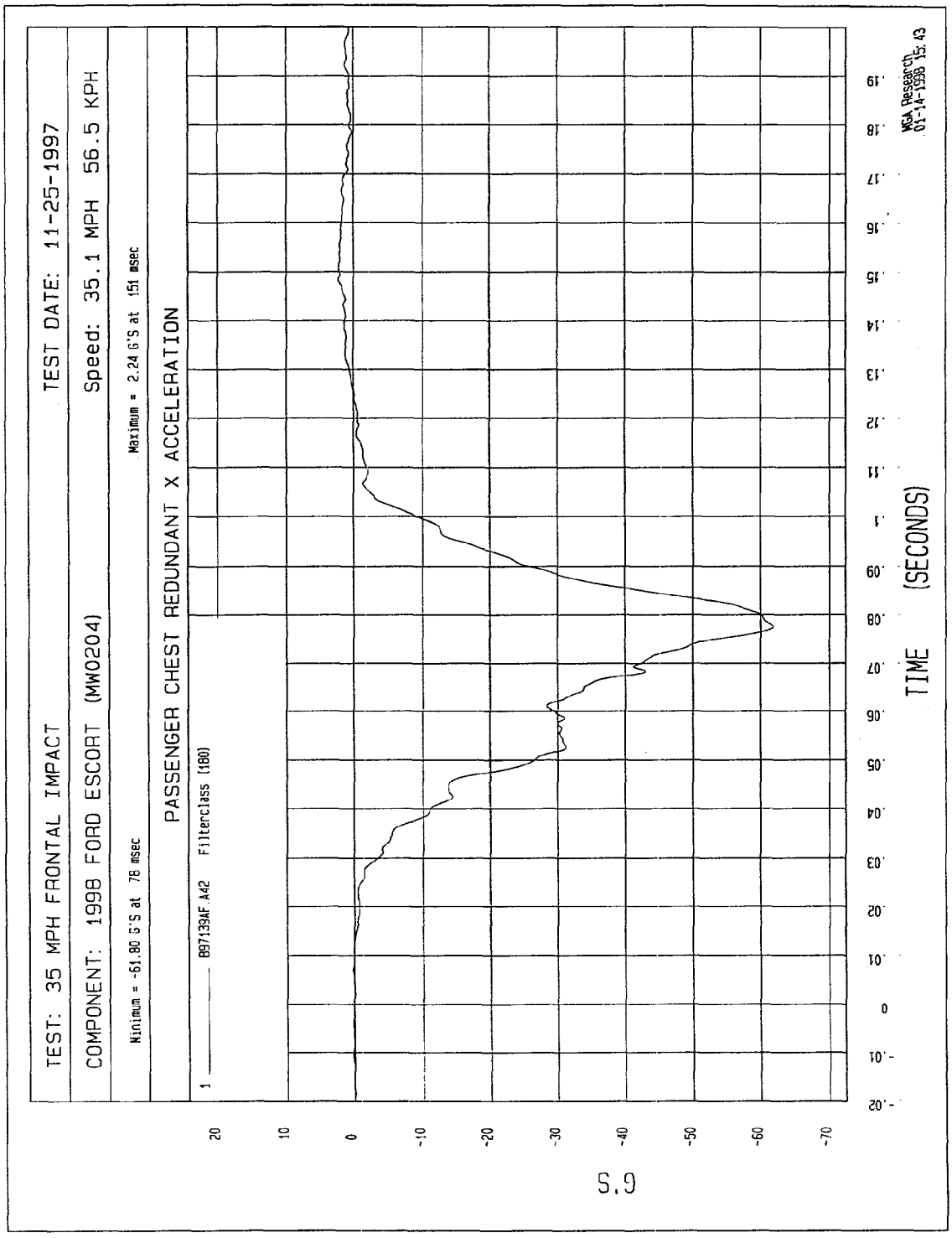

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -62.54 G'S at 79 msec
Maximum = 4.17 G'S at 162 msec
PASSENGER CHEST X ACCELERATION
1 B97139AF.A25 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
-60
-70
.02
.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:42
5.9

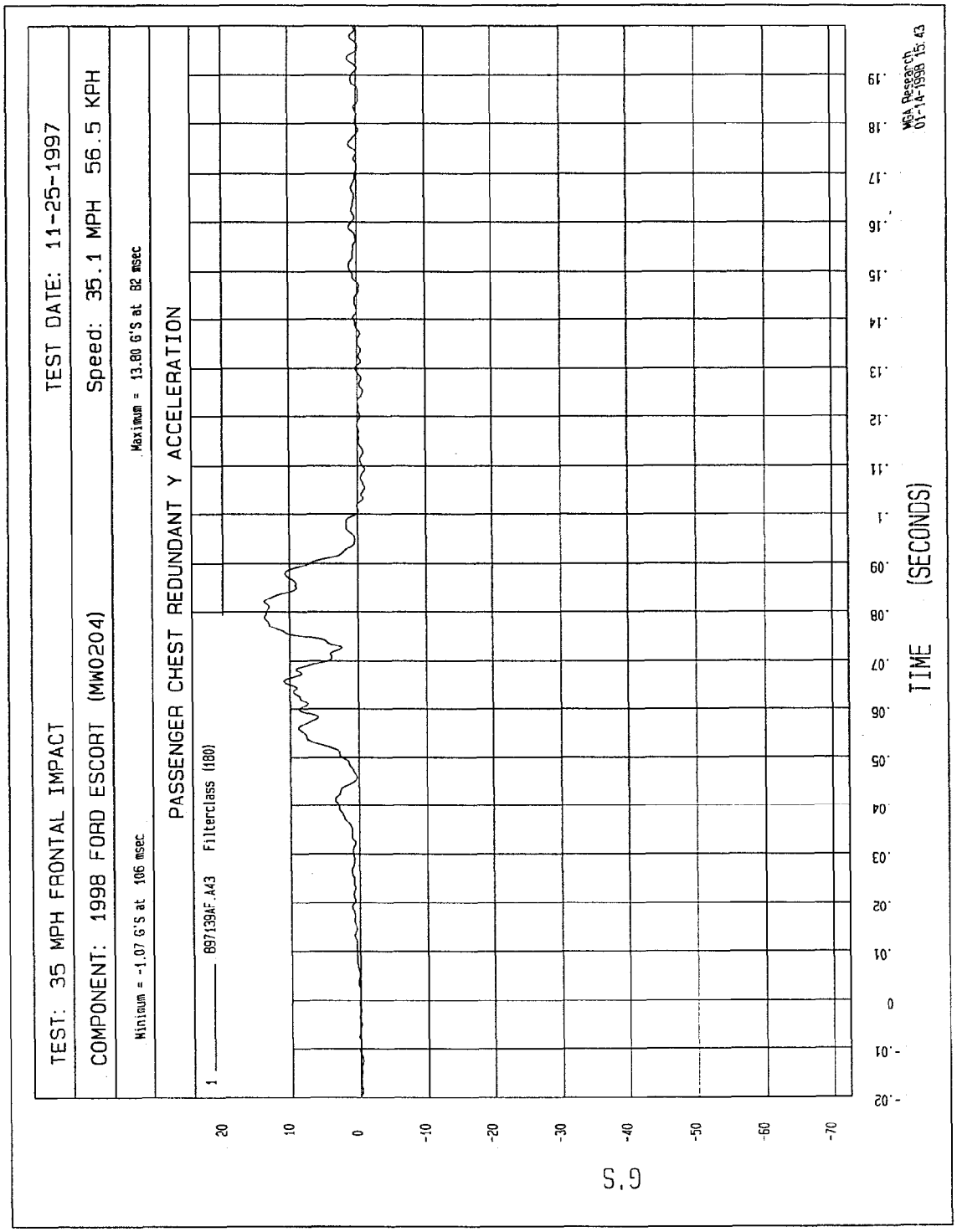

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -13.75 G'S at 82 msec
Maximum = 1.82 G'S at 111 msec
PASSENGER CHEST Y ACCELERATION
1 897139AF.A26 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:42

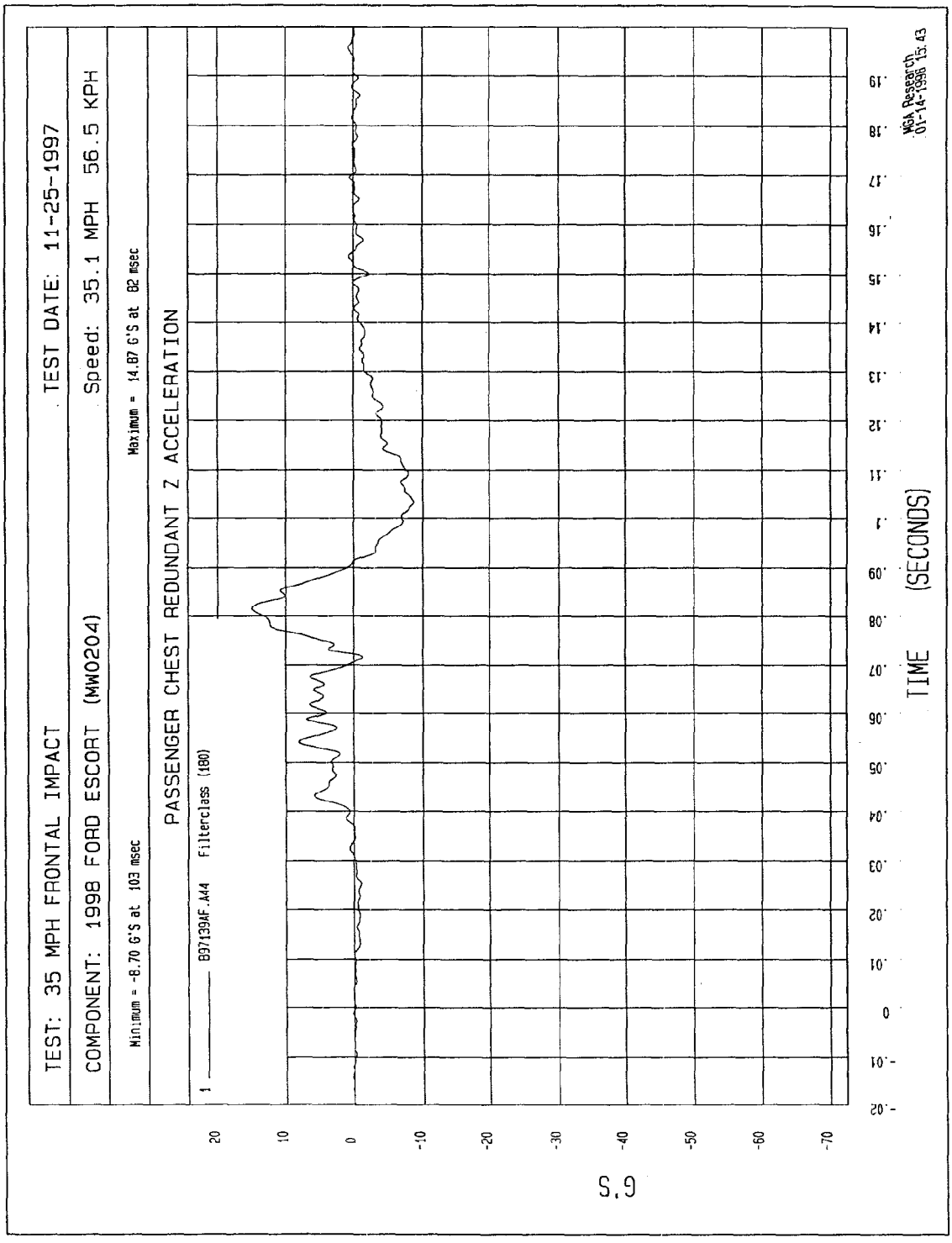

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -14.42 G'S at 81 msec
Maximum = 8.73 G'S at 107 msec
PASSENGER CHEST Z ACCELERATION
1 B97139MF.A27 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
-60
-70
.02
.01
0
.10
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:42
6.5.9

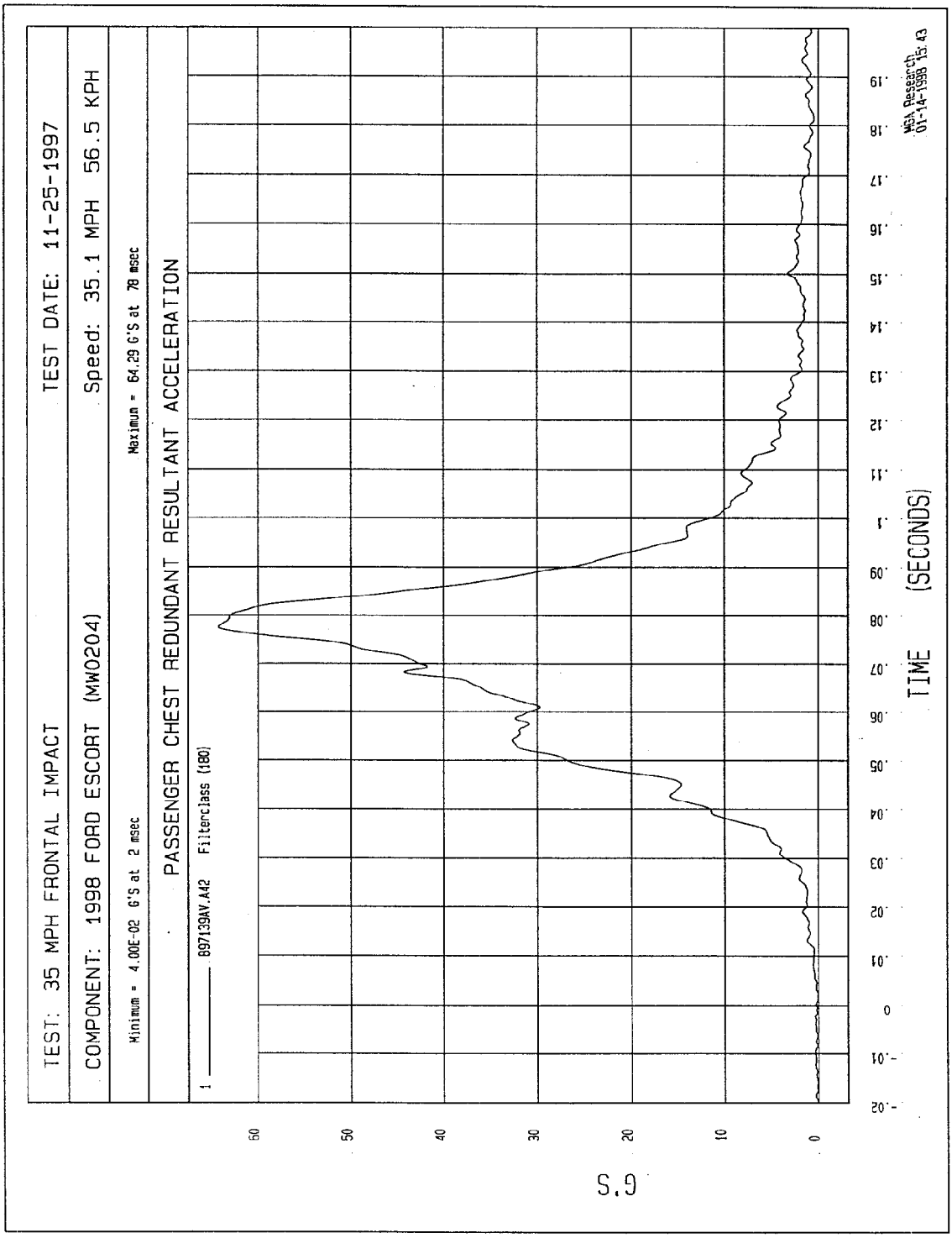

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 6.68E-02 G'S at -3 msec
Maximum = 64.75 G'S at 79 msec
PASSENGER CHEST RESULTANT ACCELERATION
1 897139AV.A25 Filterclass (180)
G's
60
50
40
30
20
10
0
-02
-01
0
01
02
03
04
05
06
07
08
09
1
11
12
13
14
15
16
17
18
19
TIME (SECONDS)
MGA Research
01-14-1998 15:43

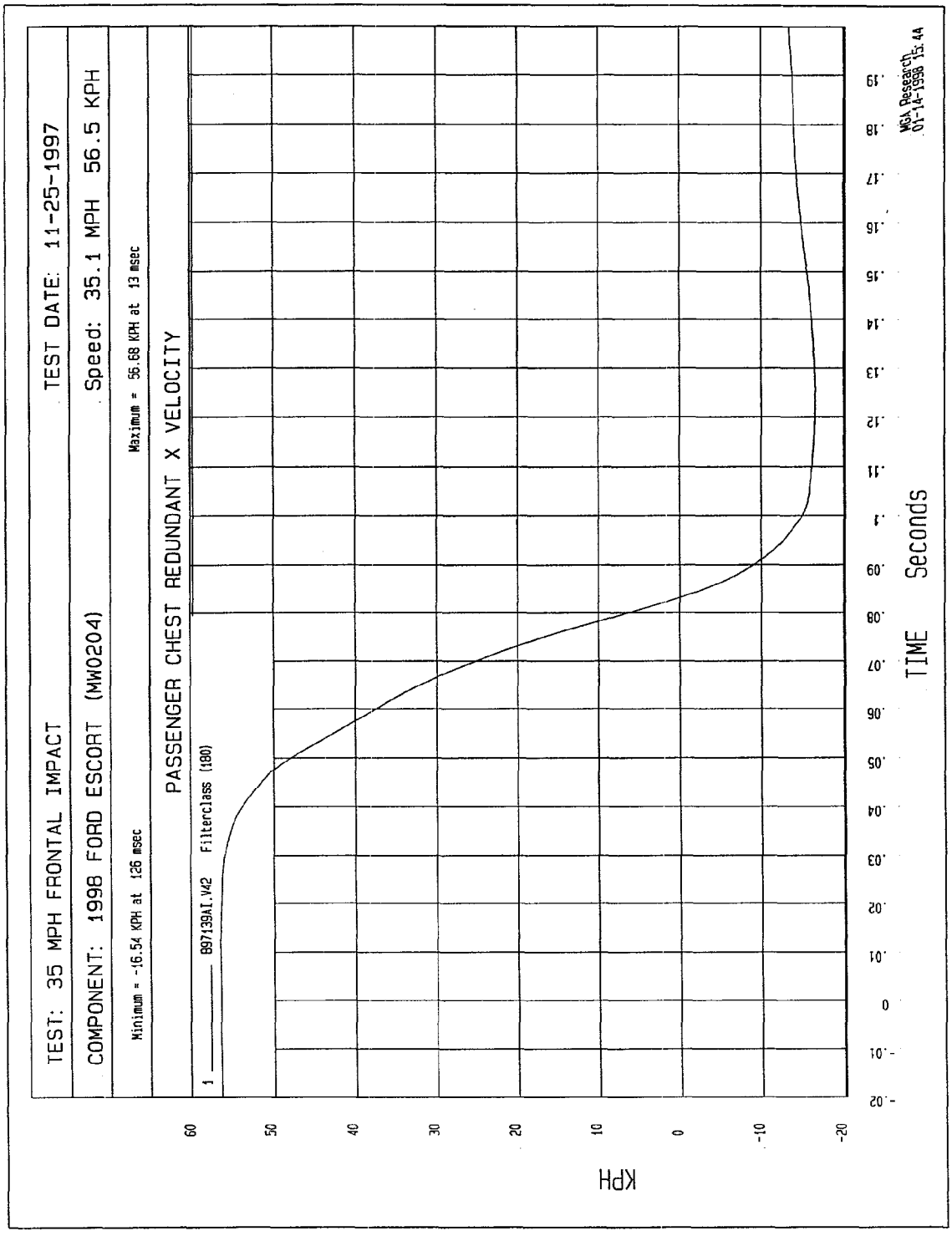

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -18.90 KPH at 125 msec
Maximum = 56.6 KPH at -20 msec
PASSENGER CHEST X VELOCITY
1 B97139A1.V25 Filterclass (180)
KPH
TIME Seconds
MGA Research
01-14-1998 15:43

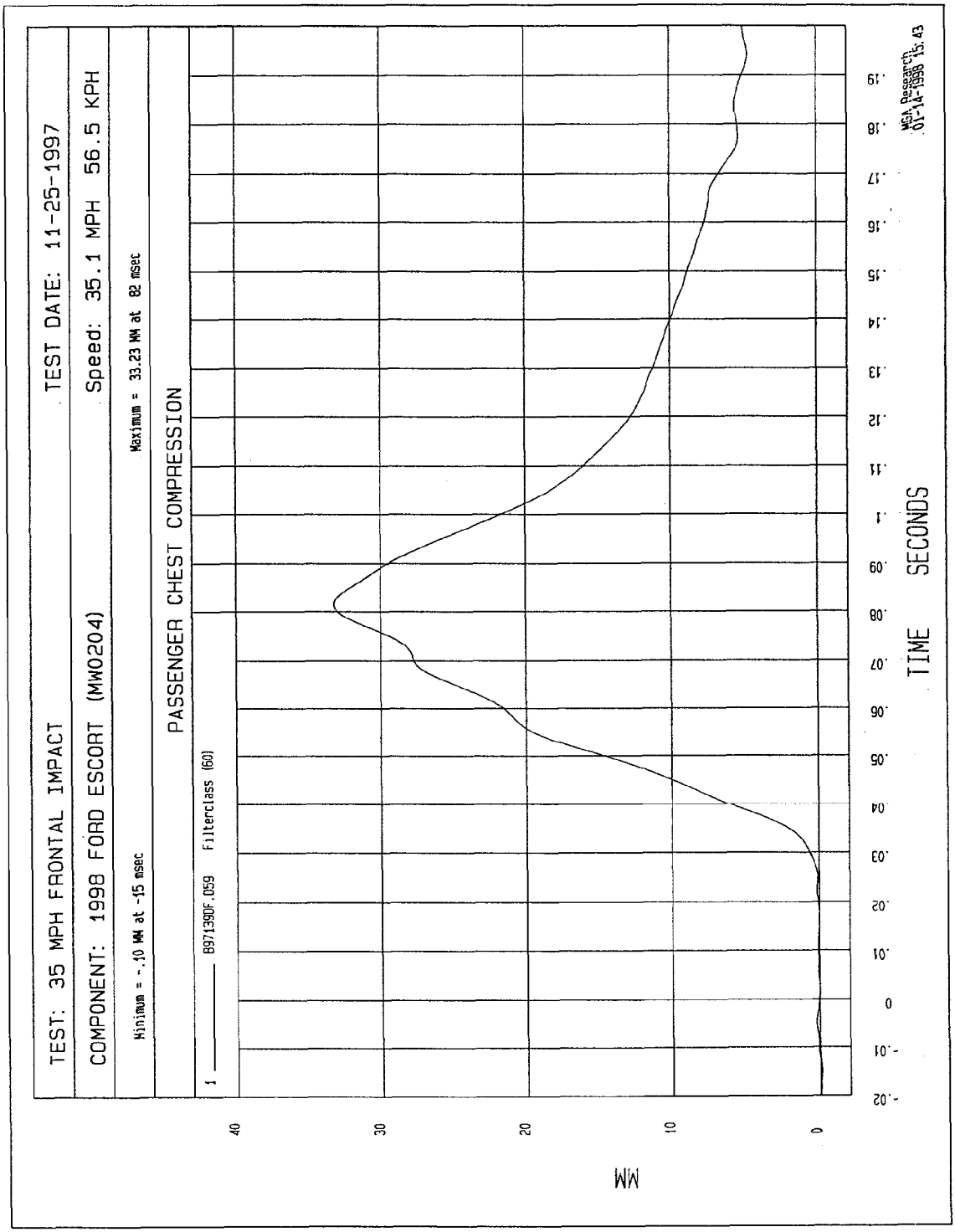

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -61.80 G'S at 78 msec
Maximum = 2.24 G'S at 151 msec
PASSENGER CHEST REDUNDANT X ACCELERATION
1 B97139AF A42 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
.02
.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:43

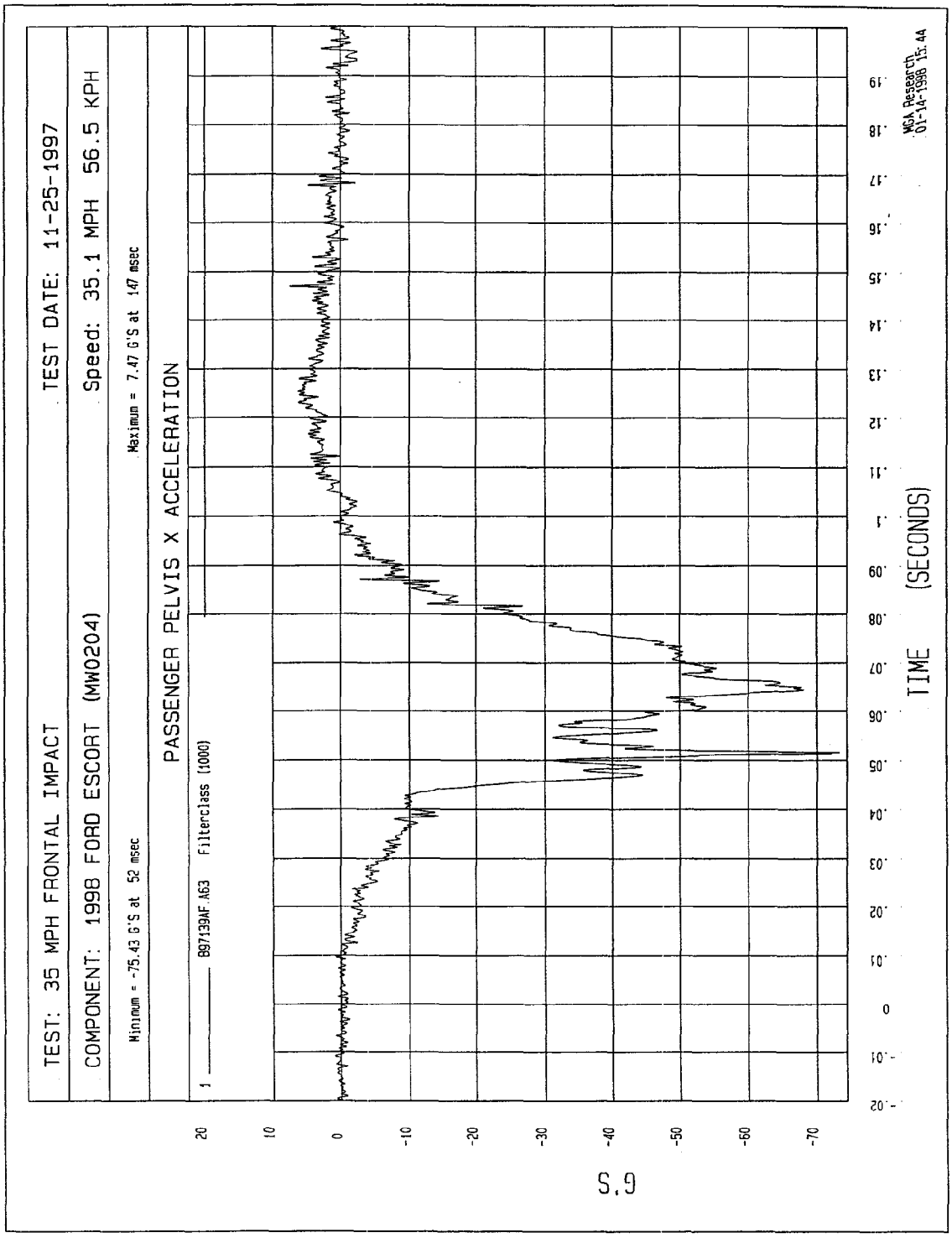

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -1.07 G'S at 106 msec
Maximum = 13.80 G'S at 82 msec
PASSENGER CHEST REDUNDANT Y ACCELERATION
1 897139AF.A43 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:43

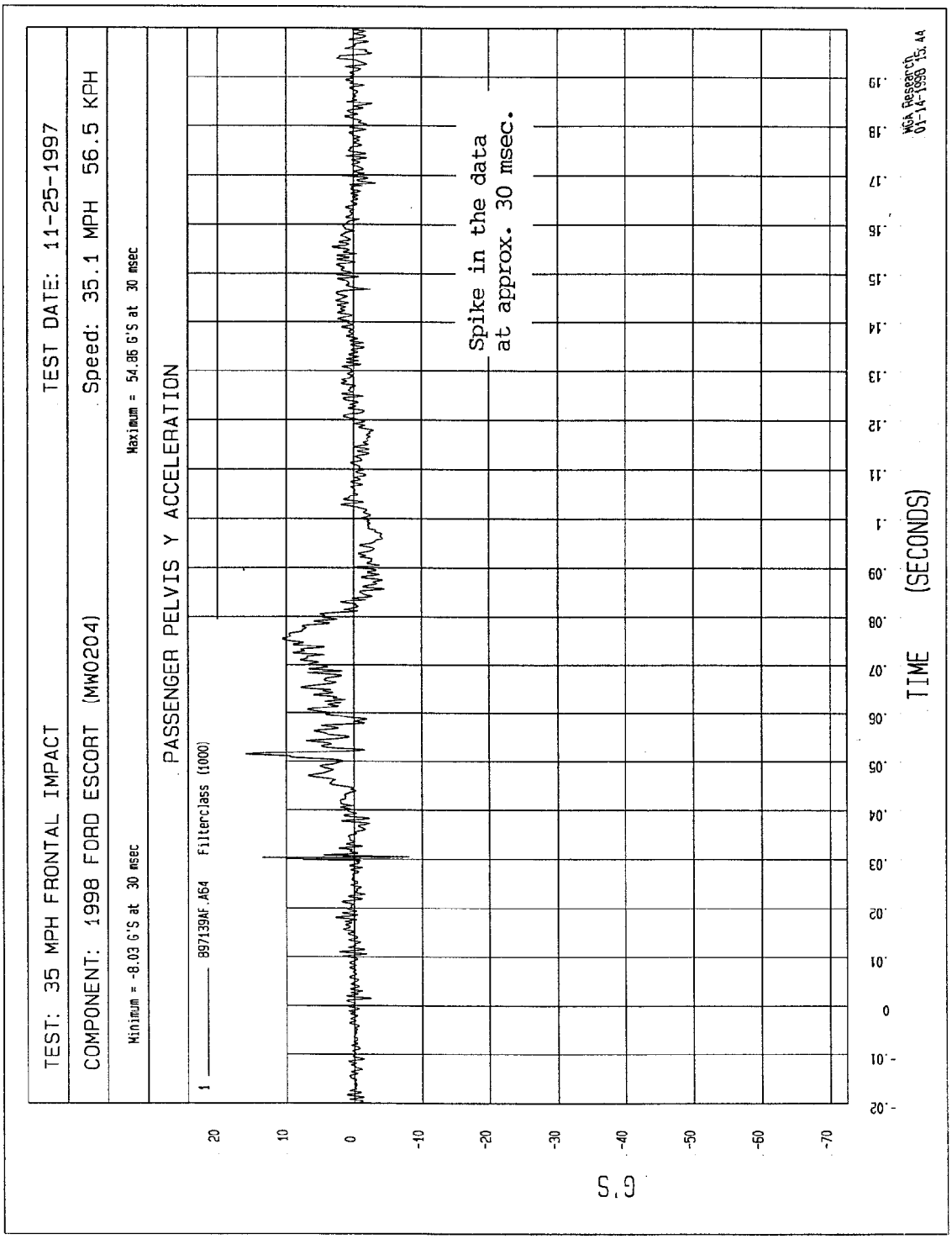

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -8.70 G'S at 103 msec
Maximum = 14.87 G'S at 82 msec
PASSENGER CHEST REDUNDANT Z ACCELERATION
1 B971394F.A44 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
MGA Research
01-14-1998 15:43

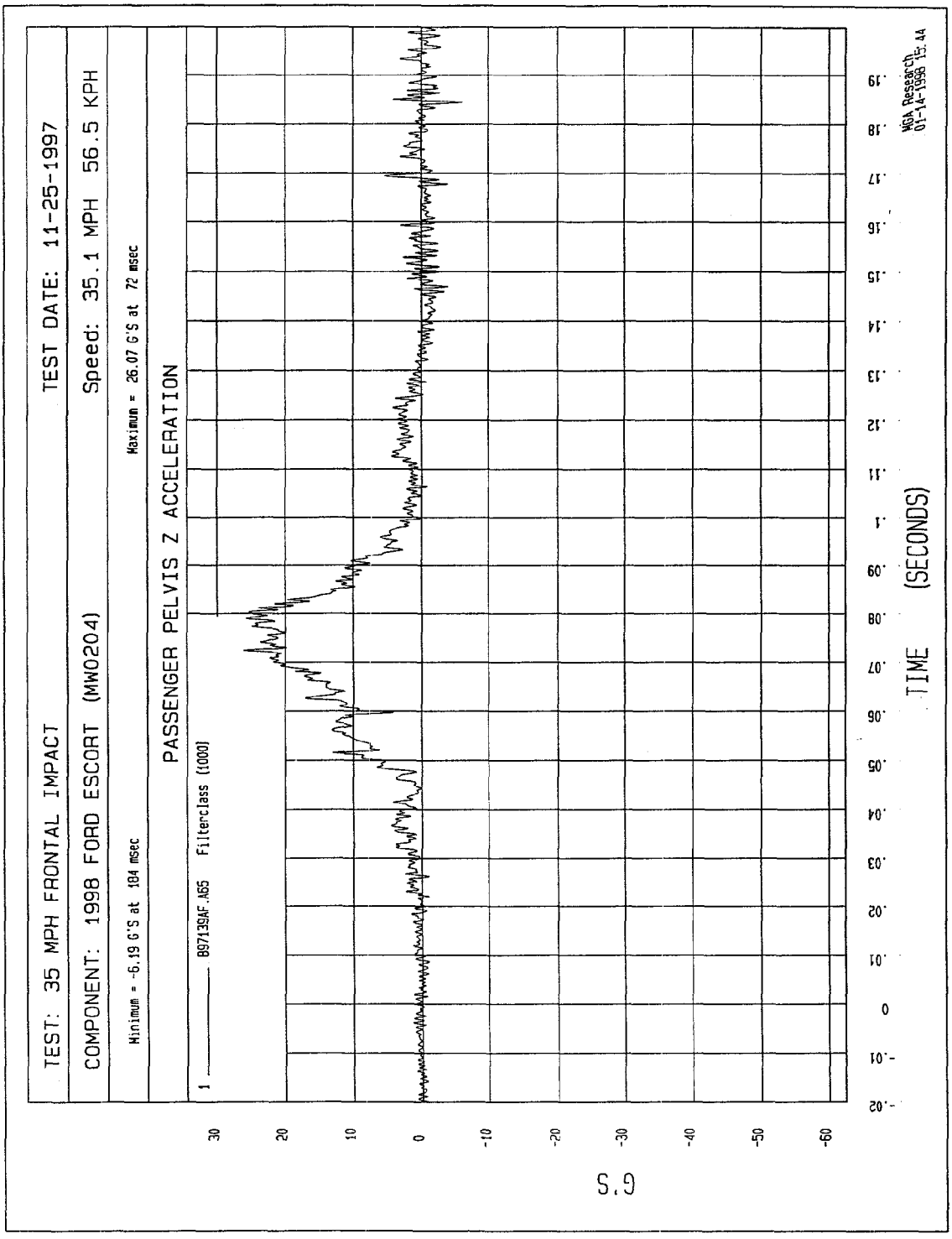

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 4.00E-02 G'S at 2 msec
Maximum = 64.29 G'S at 78 msec
PASSENGER CHEST REDUNDANT RESULTANT ACCELERATION
1 _____ 897139AY.A42 Filterclass (180)
MGA Research
01-14-1998 15:43
G'S
TIME (SECONDS)

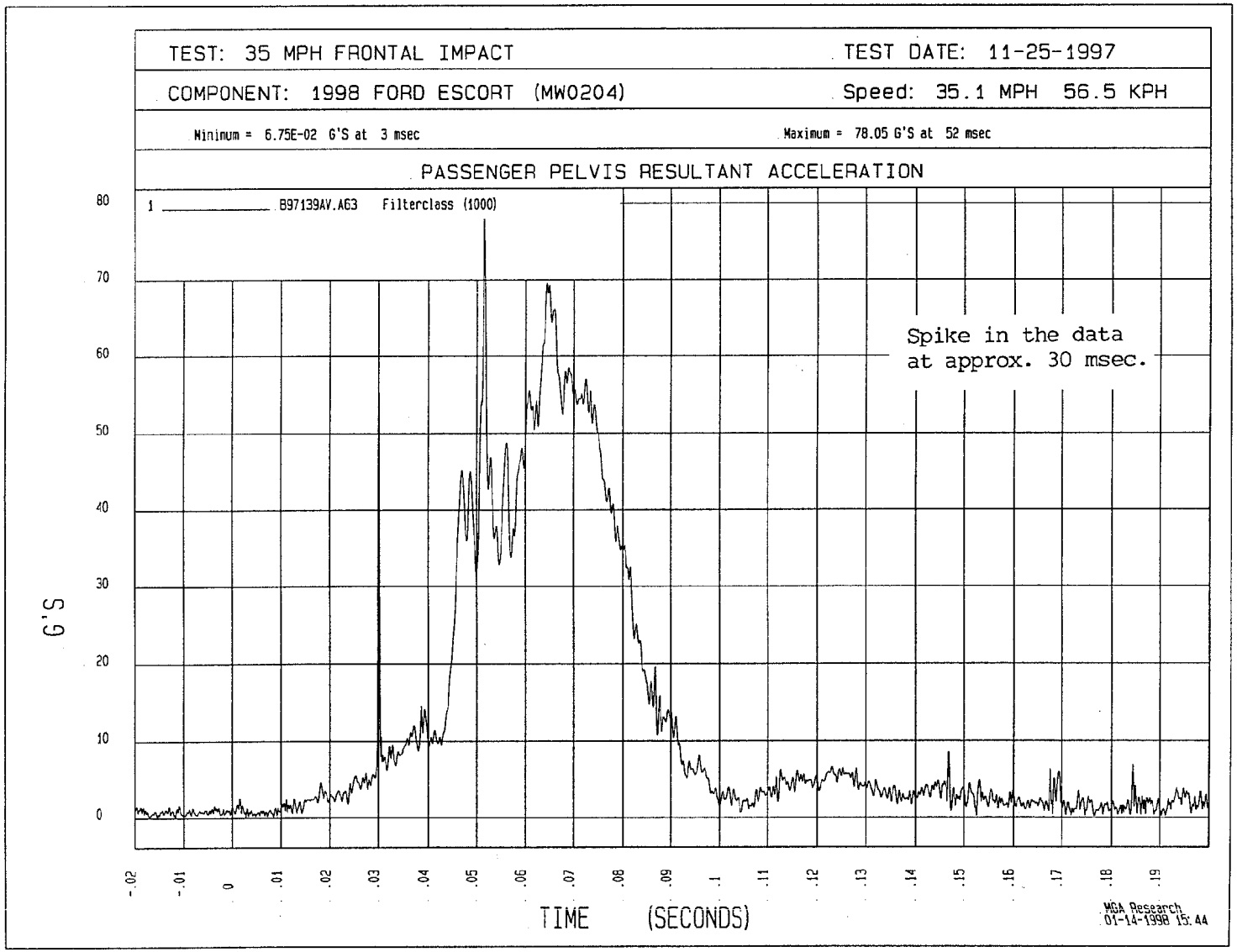

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -16.54 KPH at 126 msec
Maximum = 56.68 KPH at 13 msec
PASSENGER CHEST REDUNDANT X VELOCITY
1 B97139AI.W42 Filterclass (180)
KPH
TIME Seconds
MGA Research
01-14-1998 15:44

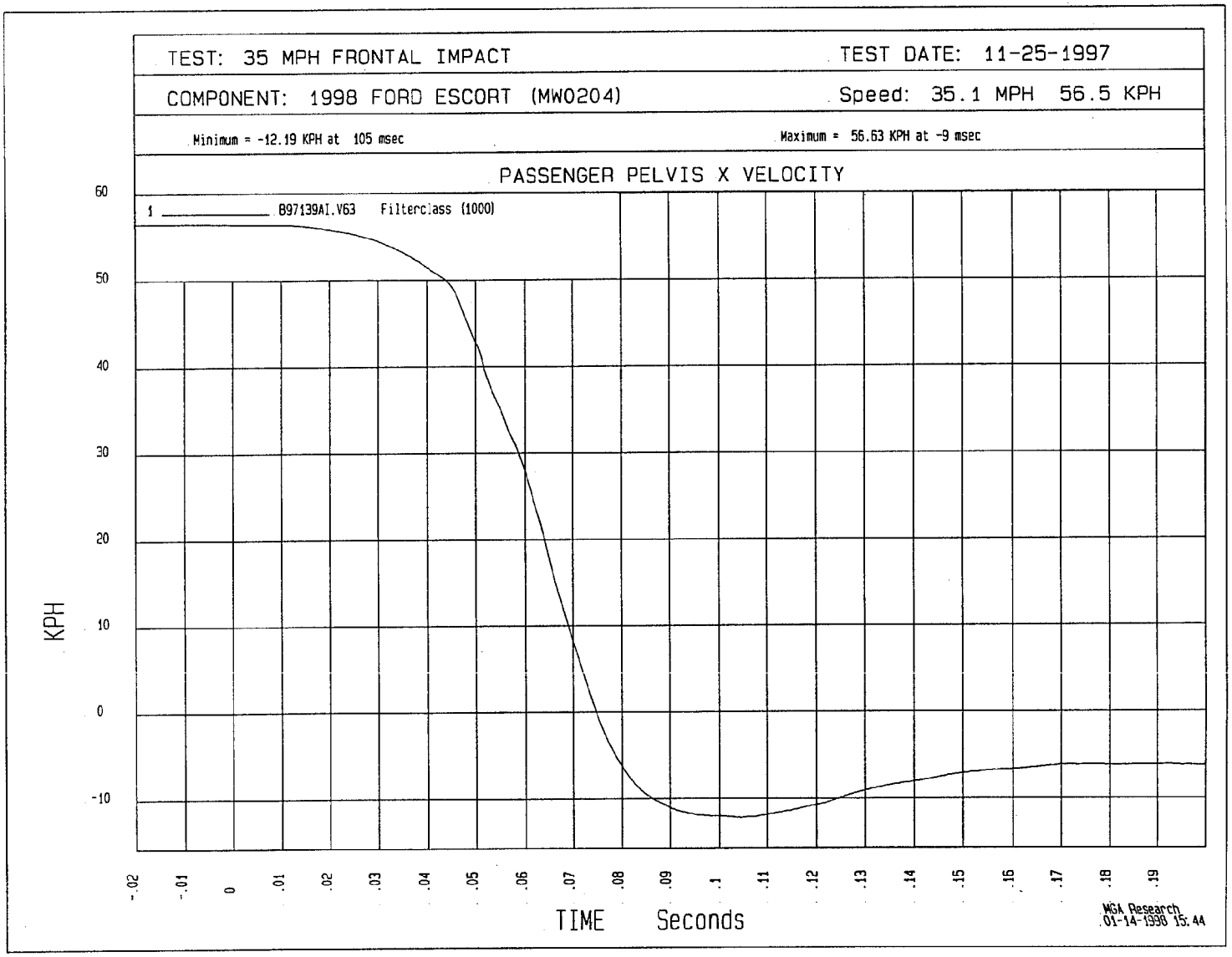

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -.10 MM at -15 msec
Maximum = 33.23 MM at 82 msec
PASSENGER CHEST COMPRESSION
1 B971390F.059 Filterclass (60)
MM
TIME SECONDS
MGA Research
01-14-1998 15:43

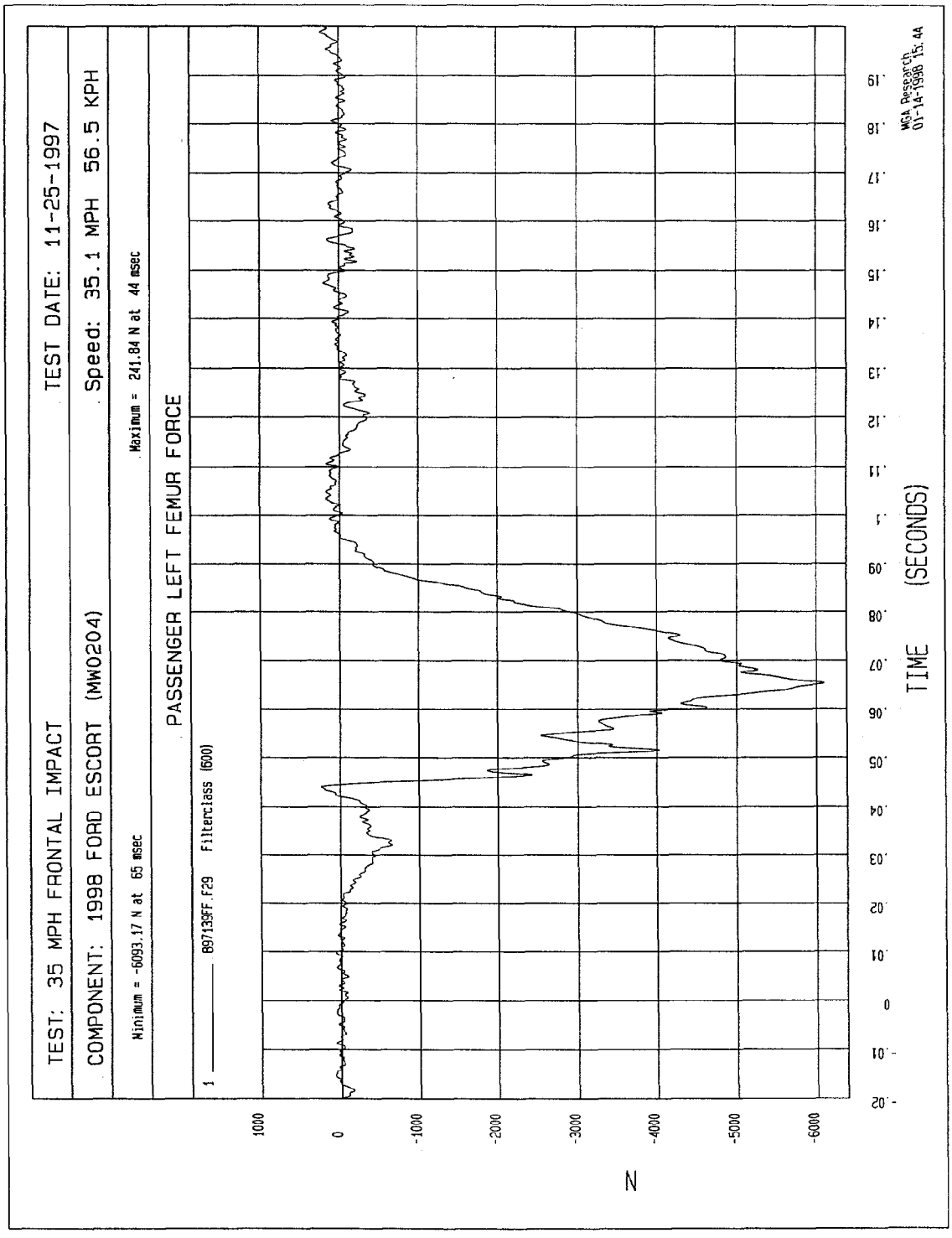

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -75.43 G'S at 52 msec
Maximum = 7.47 G'S at 147 msec
PASSENGER PELVIS X ACCELERATION
1 _____ B97139AF A63 Filterclass (1000)
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
TIME (SECONDS)
MGA Research
01-14-1998 15:44

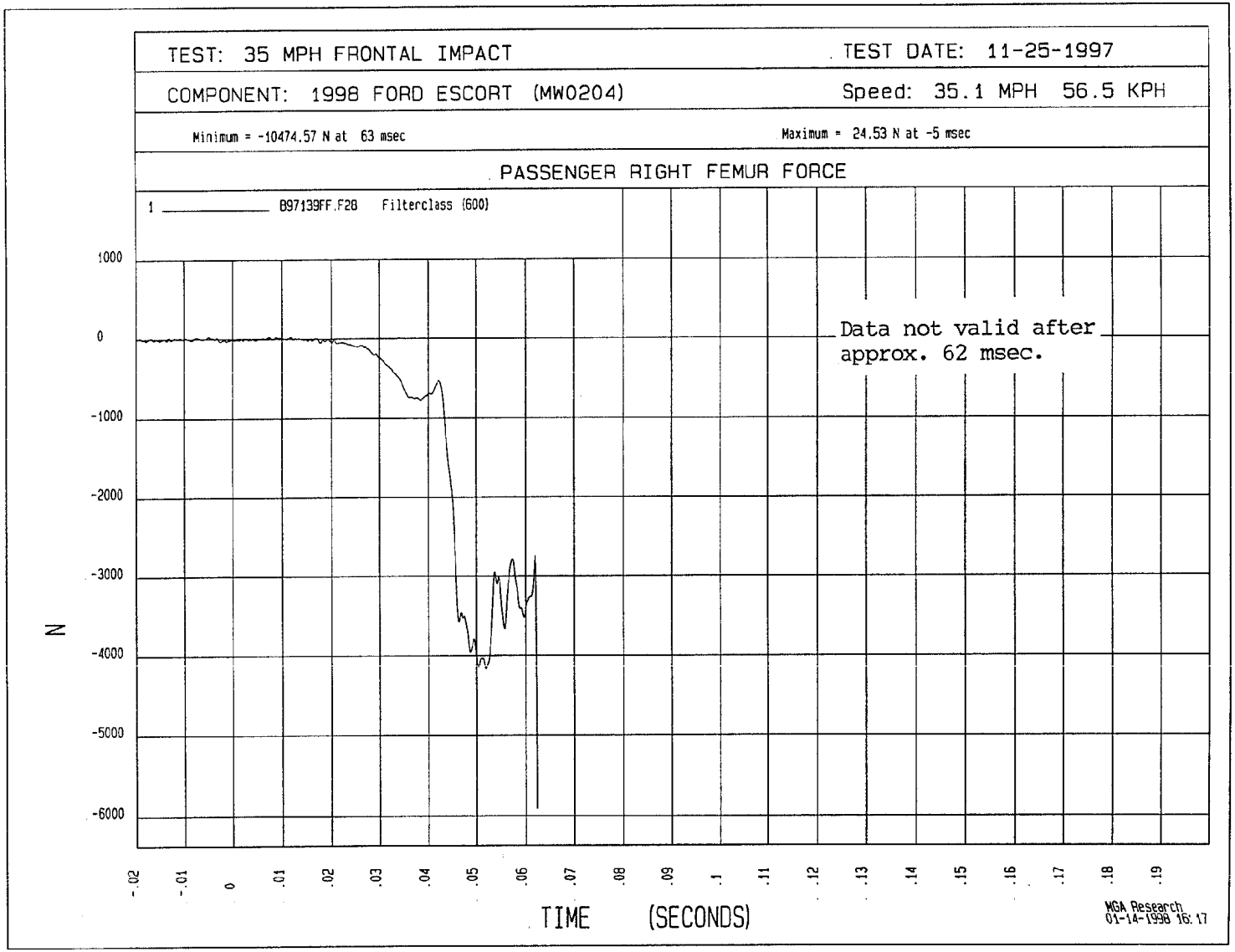

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -8.03 G'S at 30 msec
Maximum = 54.86 G'S at 30 msec
PASSENGER PELVIS Y ACCELERATION
1 _____ 897139AF.A64 Filterclass (1000)
Spike in the data
at approx. 30 msec.
20
10
0
-10
-20
-30
-40
-50
-60
-70
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:44

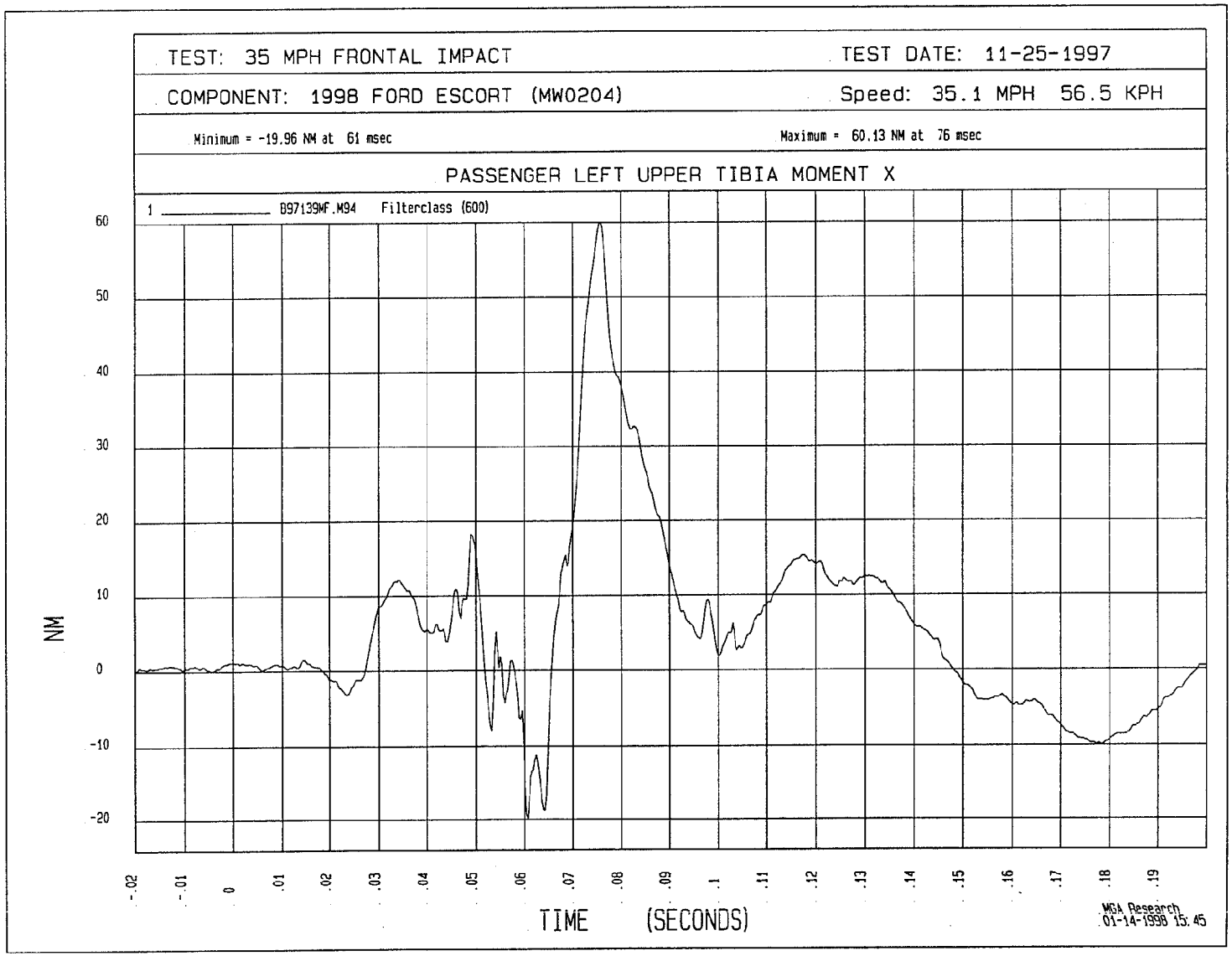

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -6.19 G'S at 104 msec
Maximum = 26.07 G'S at 72 msec
PASSENGER PELVIS Z ACCELERATION
1 B97139AF.A6S Filterclass (1000)
30
20
10
0
-10
-20
-30
-40
-50
-60
G'S
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (SECONDS)
MGA Research
01-14-1998 15:44

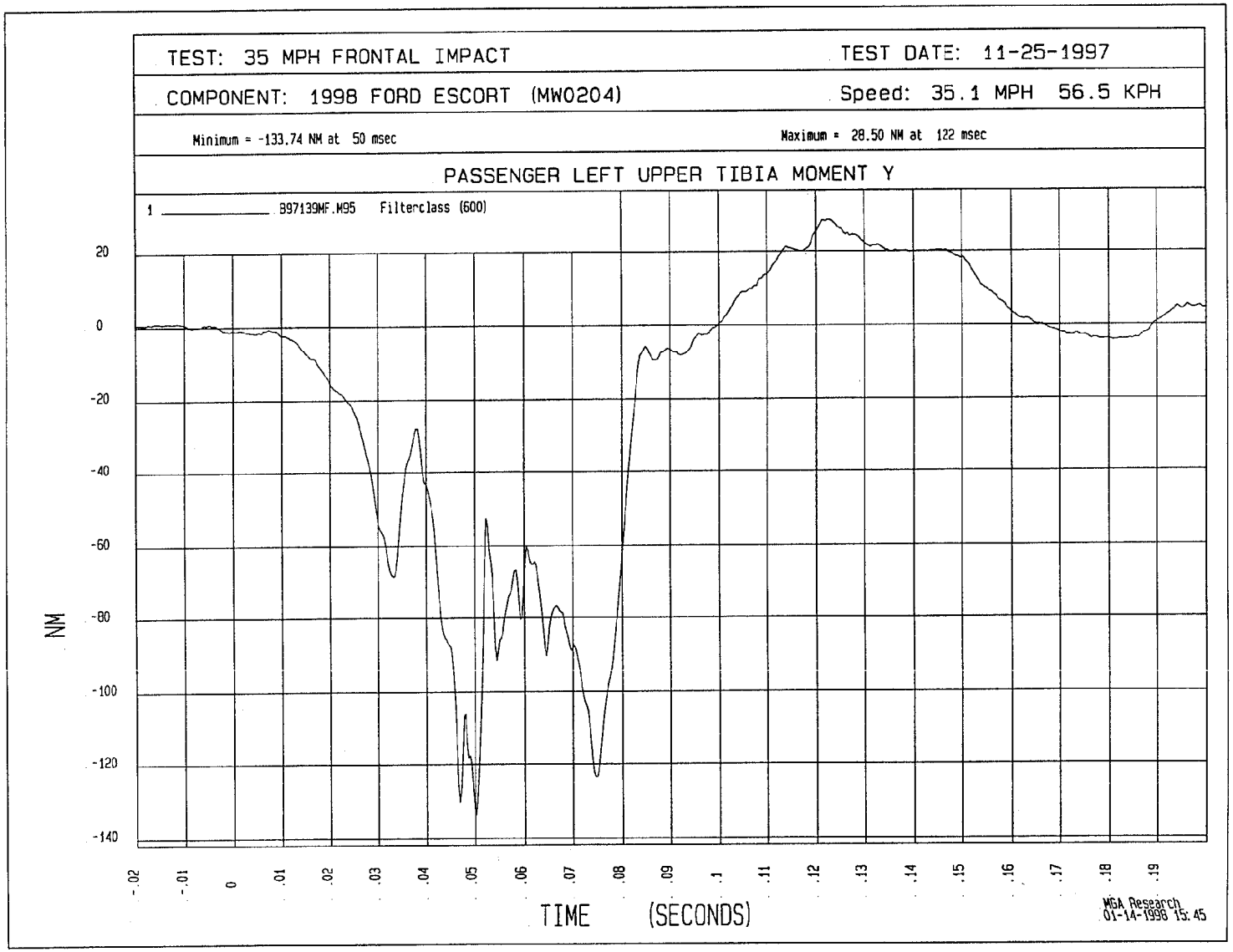

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 6.75E-02 G'S at 3 msec
Maximum = 78.05 G'S at 52 msec
PASSENGER PELVIS RESULTANT ACCELERATION
1 B97139AV.A63 Filterclass (1000)
Spike in the data at approx. 30 msec.
G'S
80
70
60
50
40
30
20
10
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:44

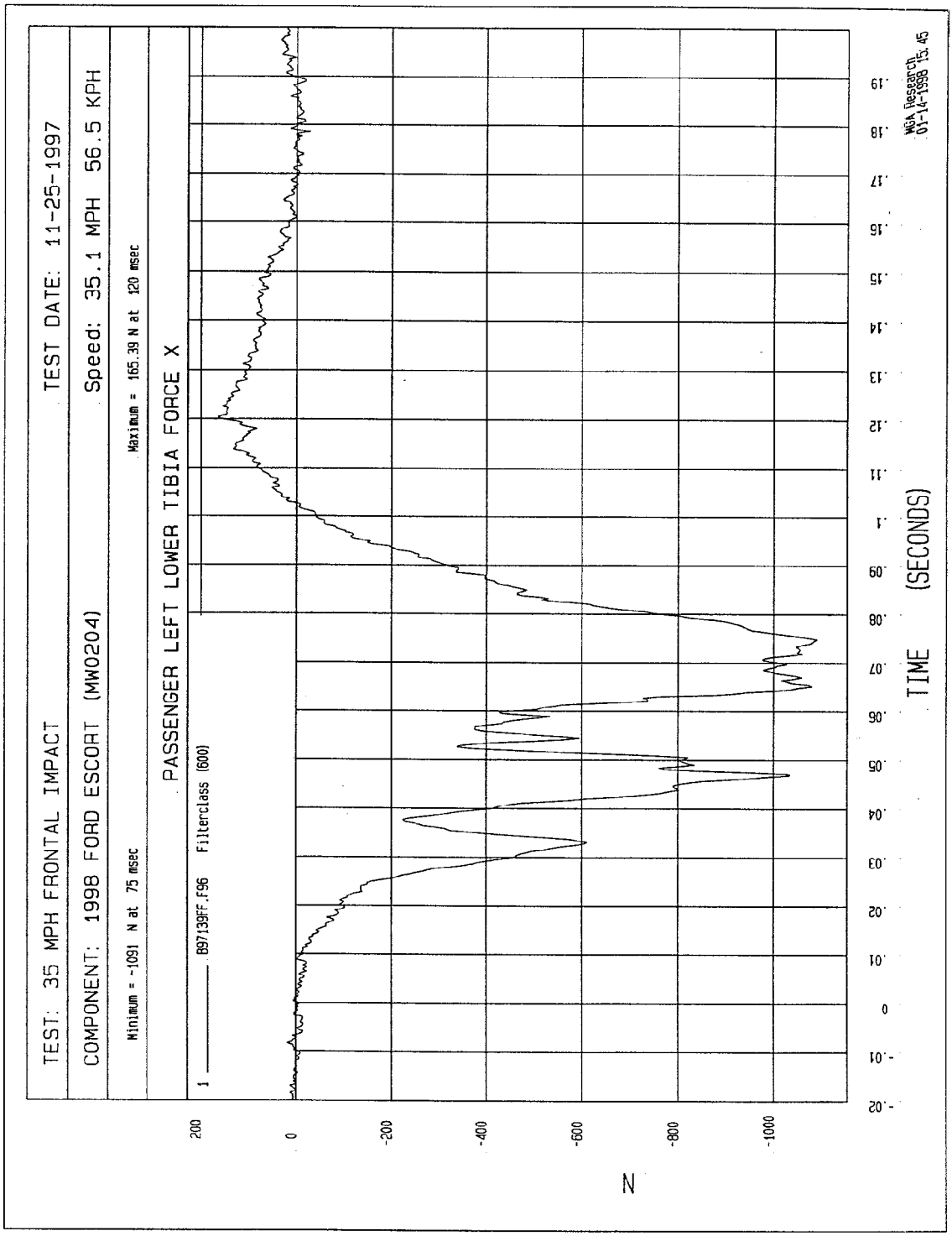

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -12.19 KPH at 105 msec
Maximum = 56.63 KPH at -9 msec
PASSENGER PELVIS X VELOCITY
1 B97139AI.V63 Filterclass (1000)
KPH
60
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
WGA Research
01-14-1998 15:44

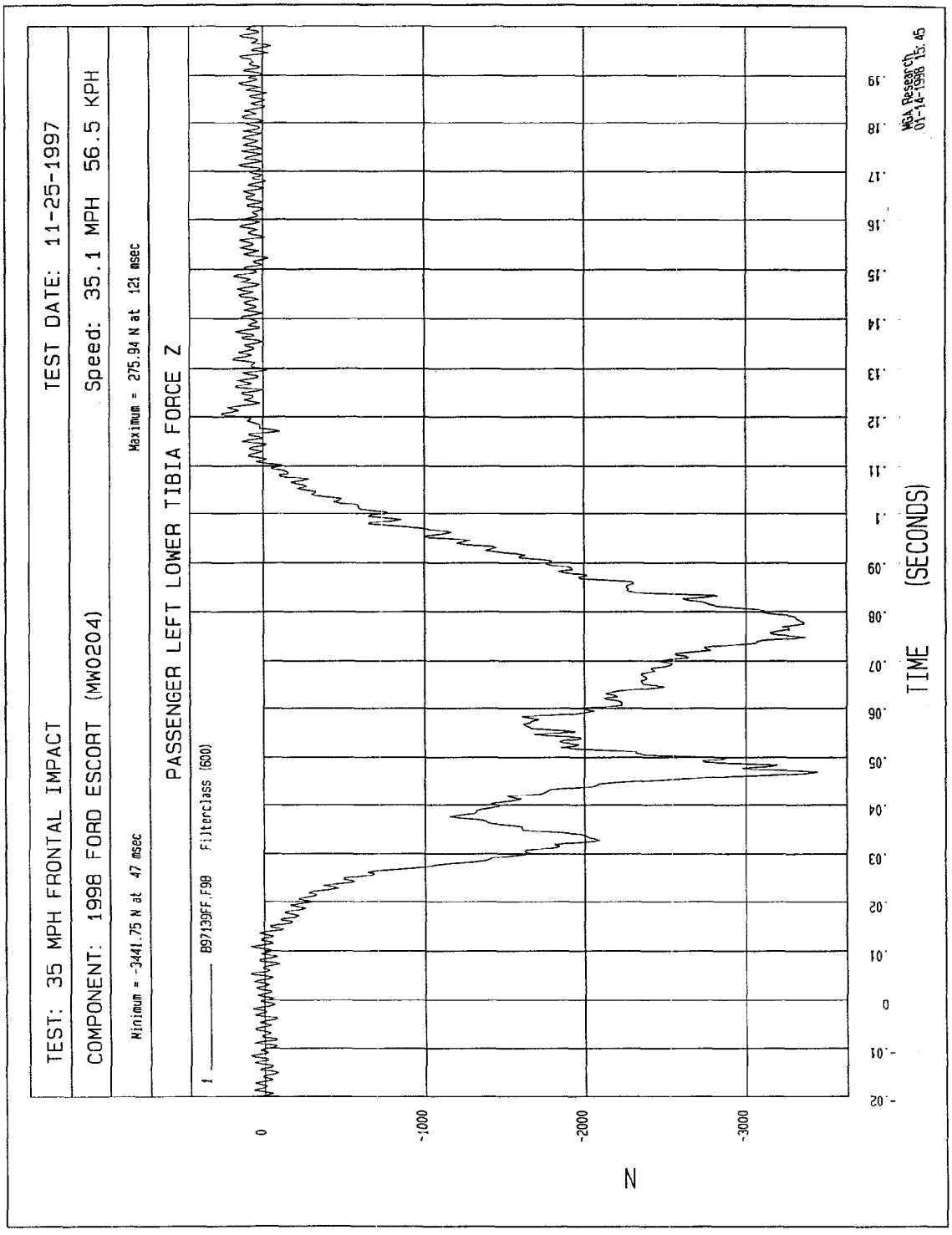

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -6093.17 N at 65 msec
Maximum = 241.84 N at 44 msec
PASSENGER LEFT FEMUR FORCE
1 B97139FF.F29 Filterclass (600)
1000
0
-1000
-2000
-3000
-4000
-5000
-6000
N
.02
.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:44

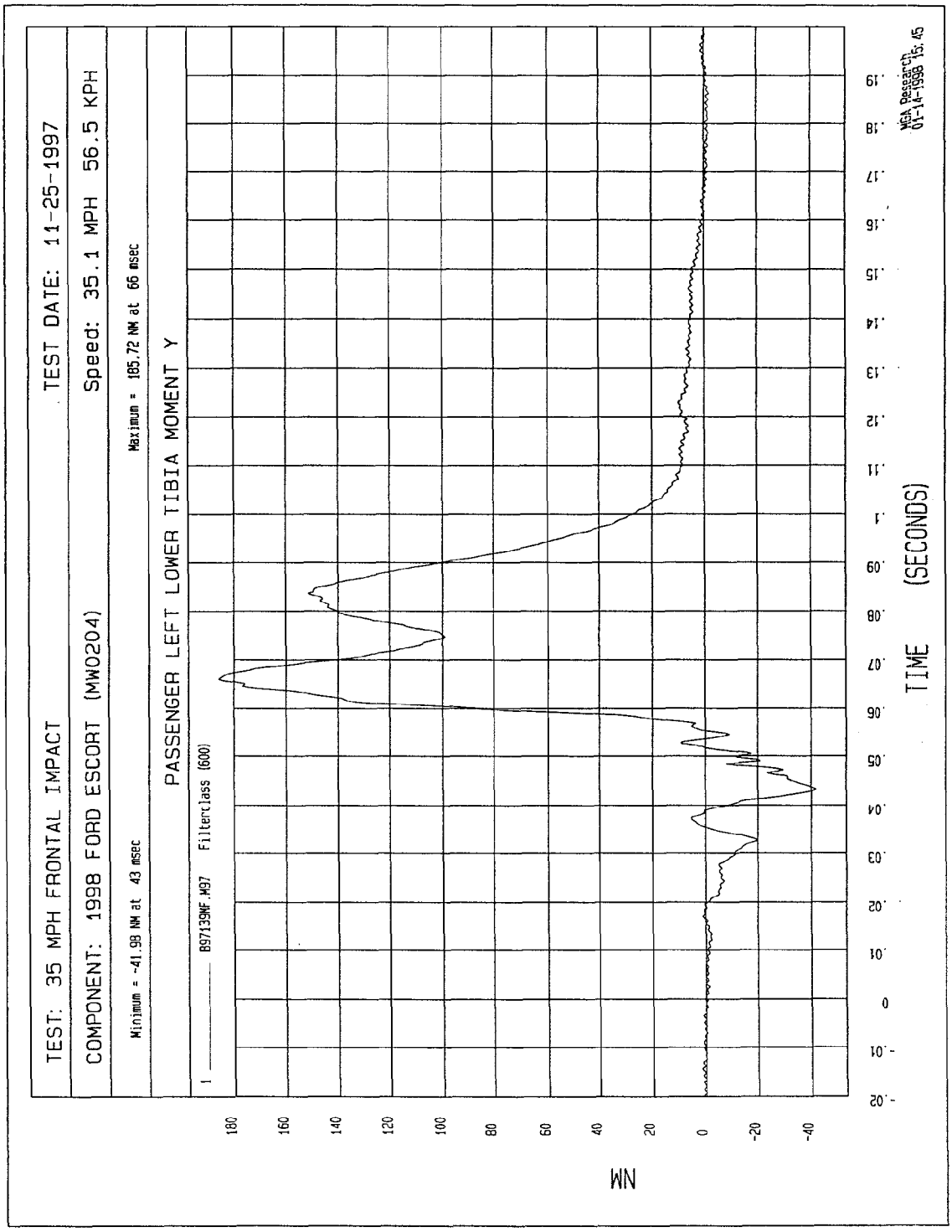

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -10474.57 N at 63 msec
Maximum = 24.53 N at -5 msec
PASSENGER RIGHT FEMUR FORCE
1 B97139FF.F28 Filterclass (600)
Data not valid after approx. 62 msec.
N
1000
0
-1000
-2000
-3000
-4000
-5000
-6000
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 16:17

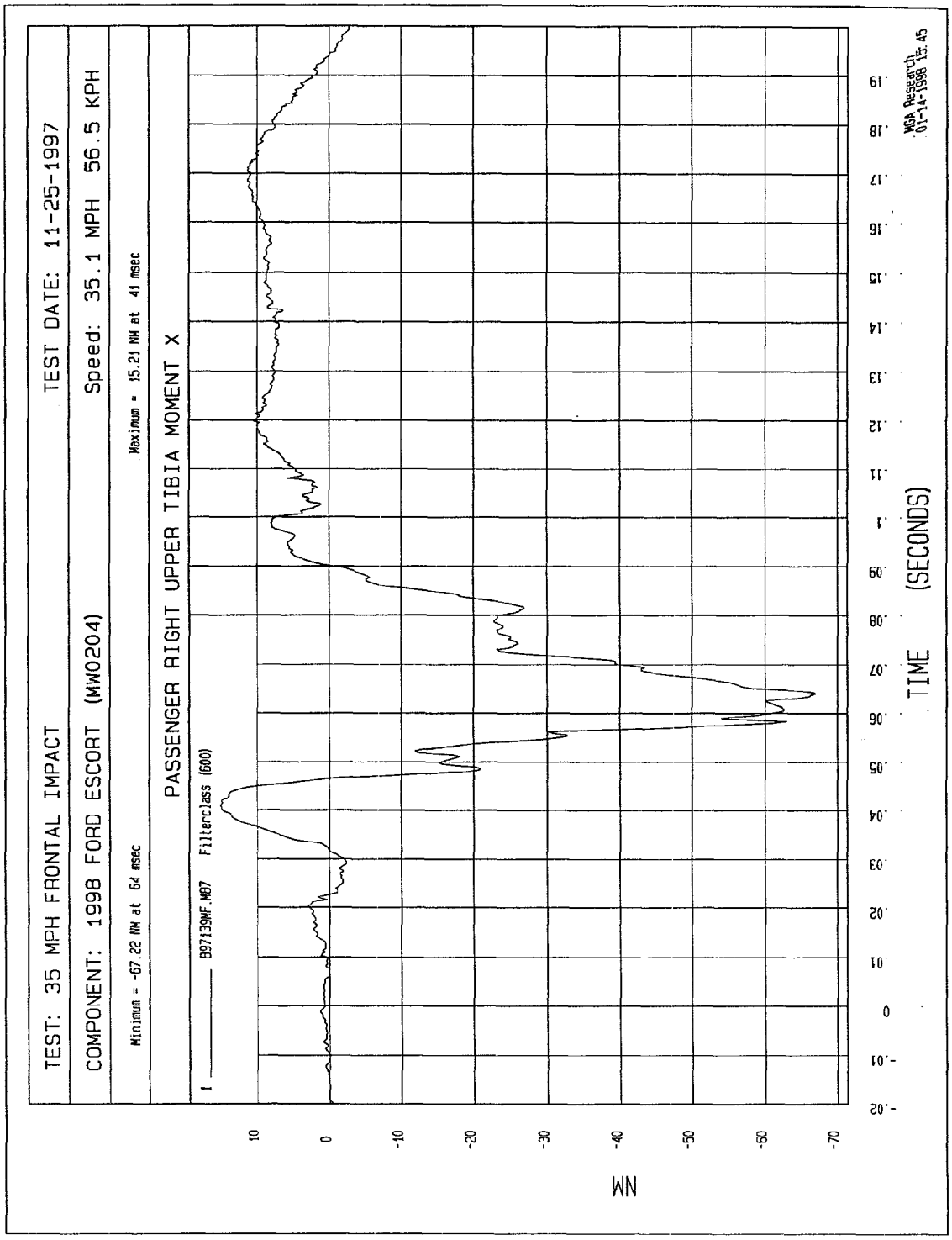

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -19.96 NM at 61 msec
Maximum = 60.13 NM at 76 msec
PASSENGER LEFT UPPER TIBIA MOMENT X
1 B97139MF.M94 Filterclass (600)
NM
60
50
40
30
20
10
0
-10
-20
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:45

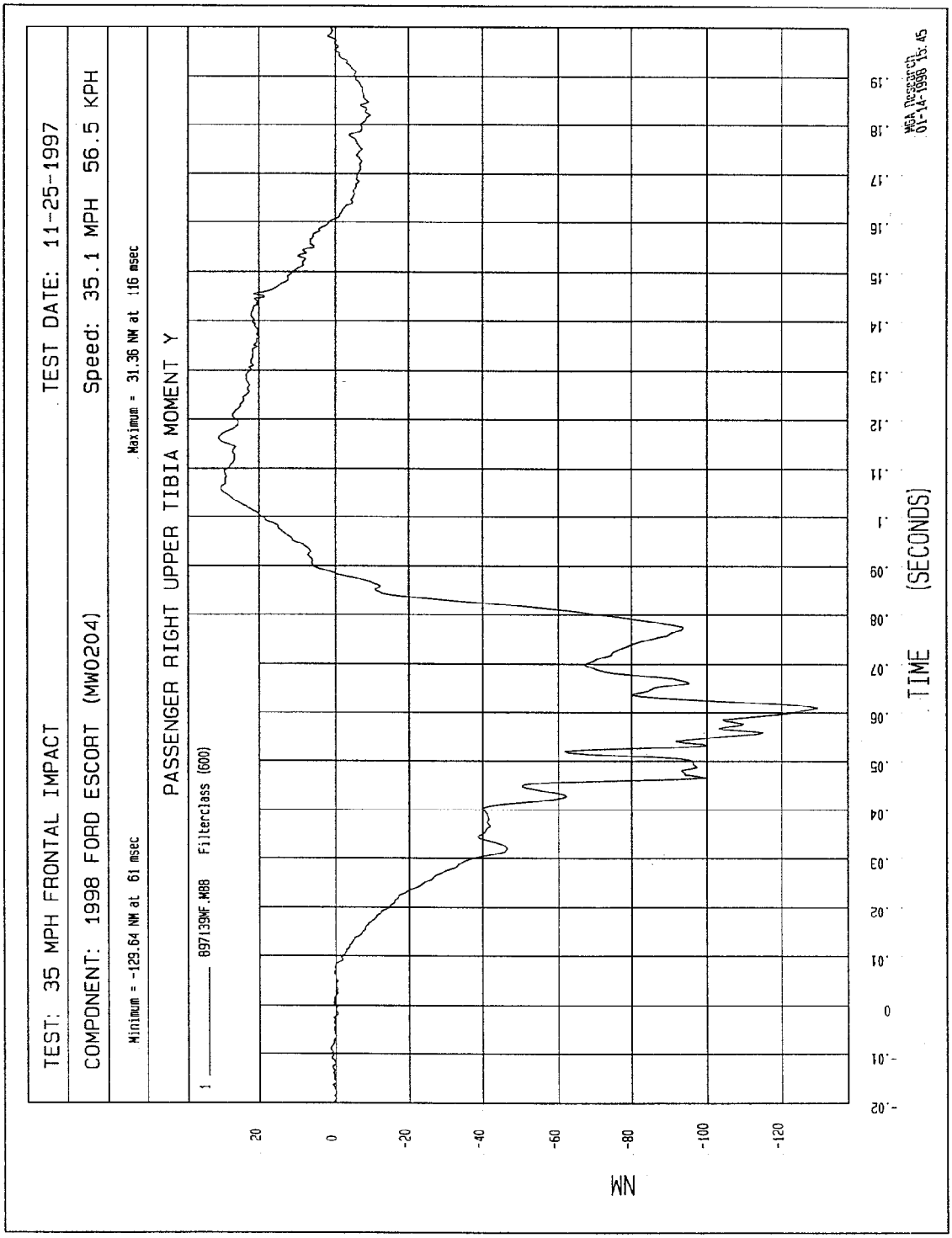

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -133.74 NM at 50 msec
Maximum = 28.50 NM at 122 msec
PASSENGER LEFT UPPER TIBIA MOMENT Y
1 B97139MF.M95 Filterclass (600)
20
0
-20
-40
-60
-80
-100
-120
-140
NM
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:45

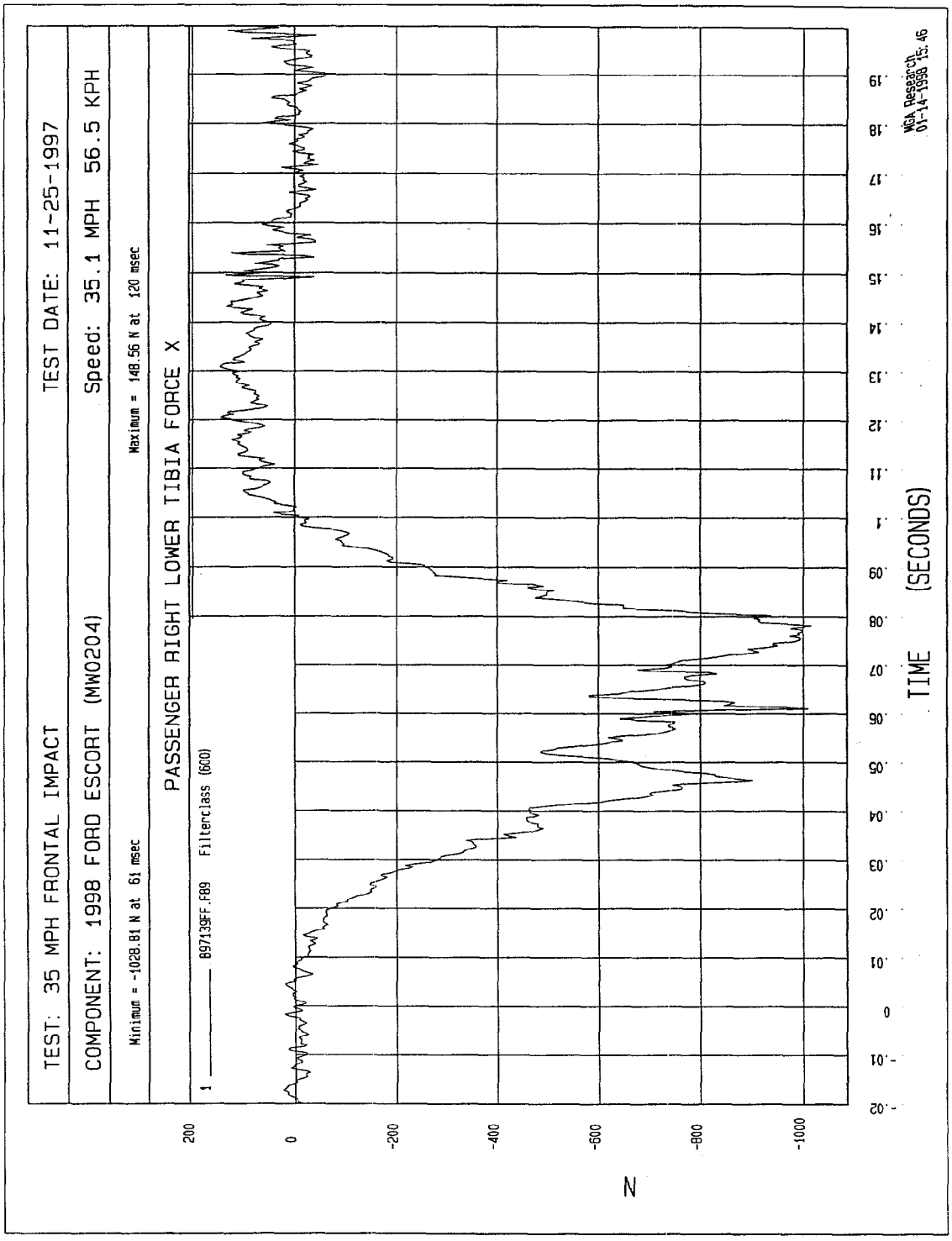

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -1091 N at 75 msec
Maximum = 165.39 N at 120 msec
PASSENGER LEFT LOWER TIBIA FORCE X
1 B97139FF.F96 Filterclass (600)
200
0
-200
-400
-600
-800
-1000
N
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:45

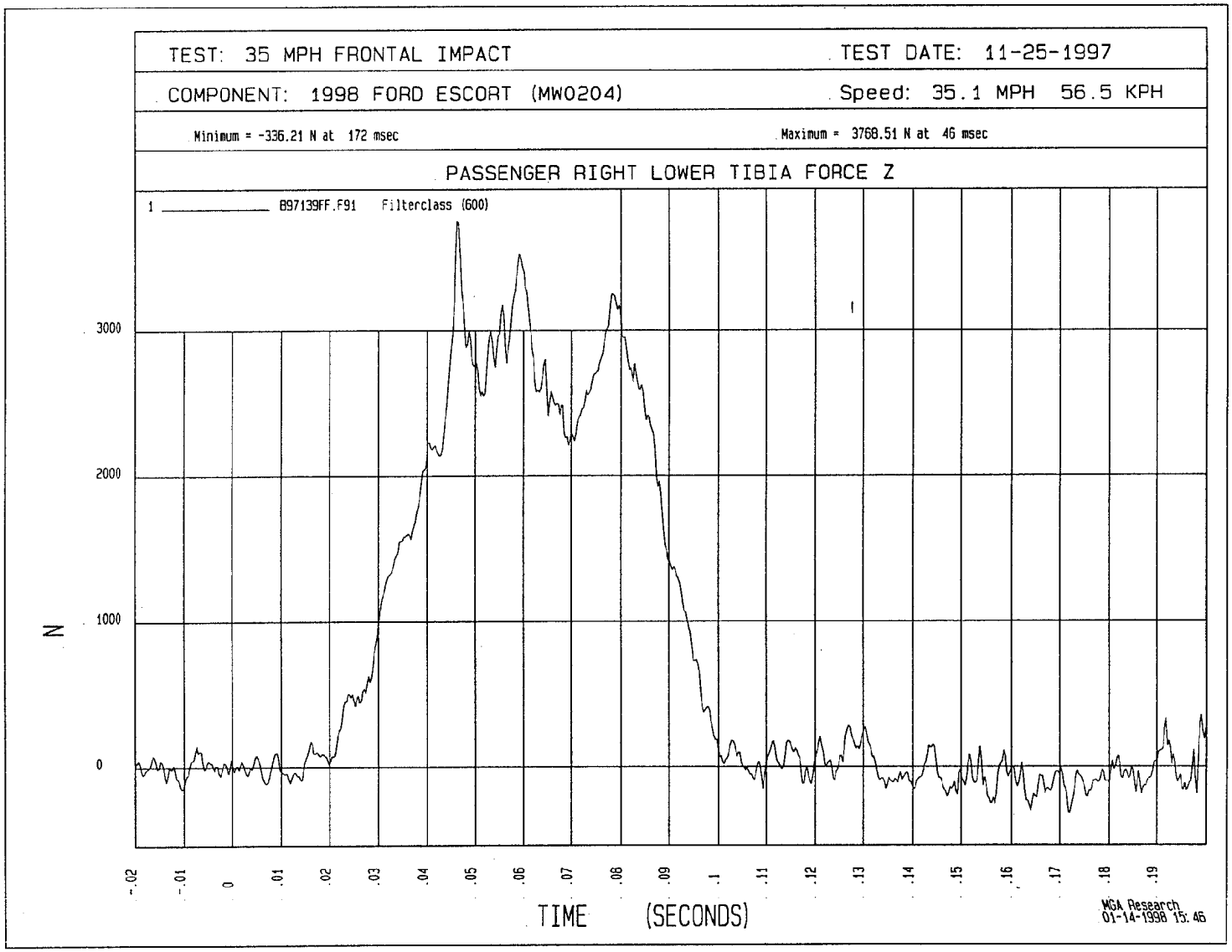

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -3441.75 N at 47 msec
Maximum = 275.94 N at 121 msec
PASSENGER LEFT LOWER TIBIA FORCE Z
1 B97139FF.F9B Filterclass (600)
0
-1000
-2000
-3000
N
TIME (SECONDS)
MGA Research
01-14-1998 15:46

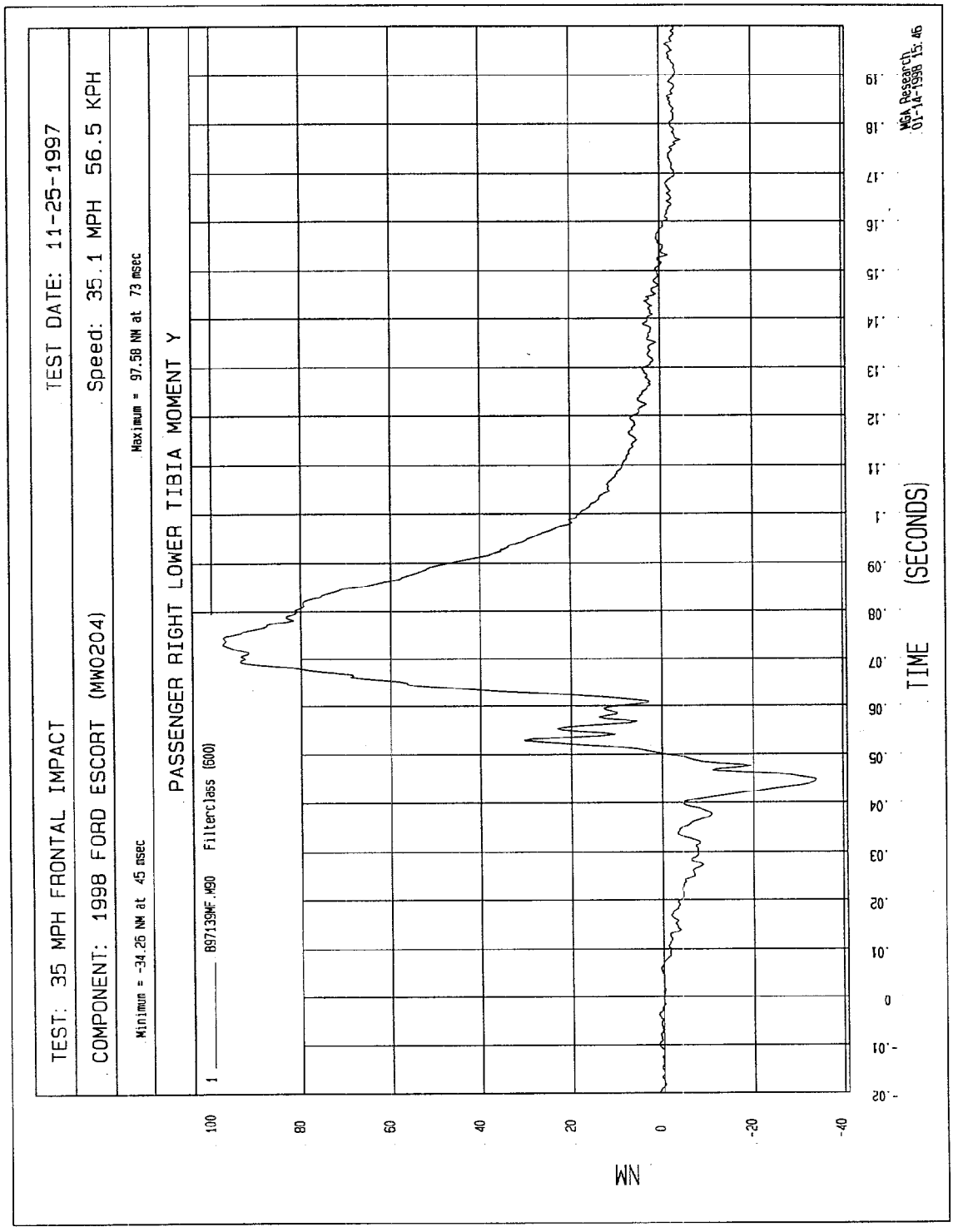

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -41.98 NM at 43 msec
Maximum = 185.72 NM at 66 msec
PASSENGER LEFT LOWER TIBIA MOMENT Y
1 B97139NF.M97 Filterclass (600)
NM
TIME (SECONDS)
MGA Research
01-14-1998 15:45

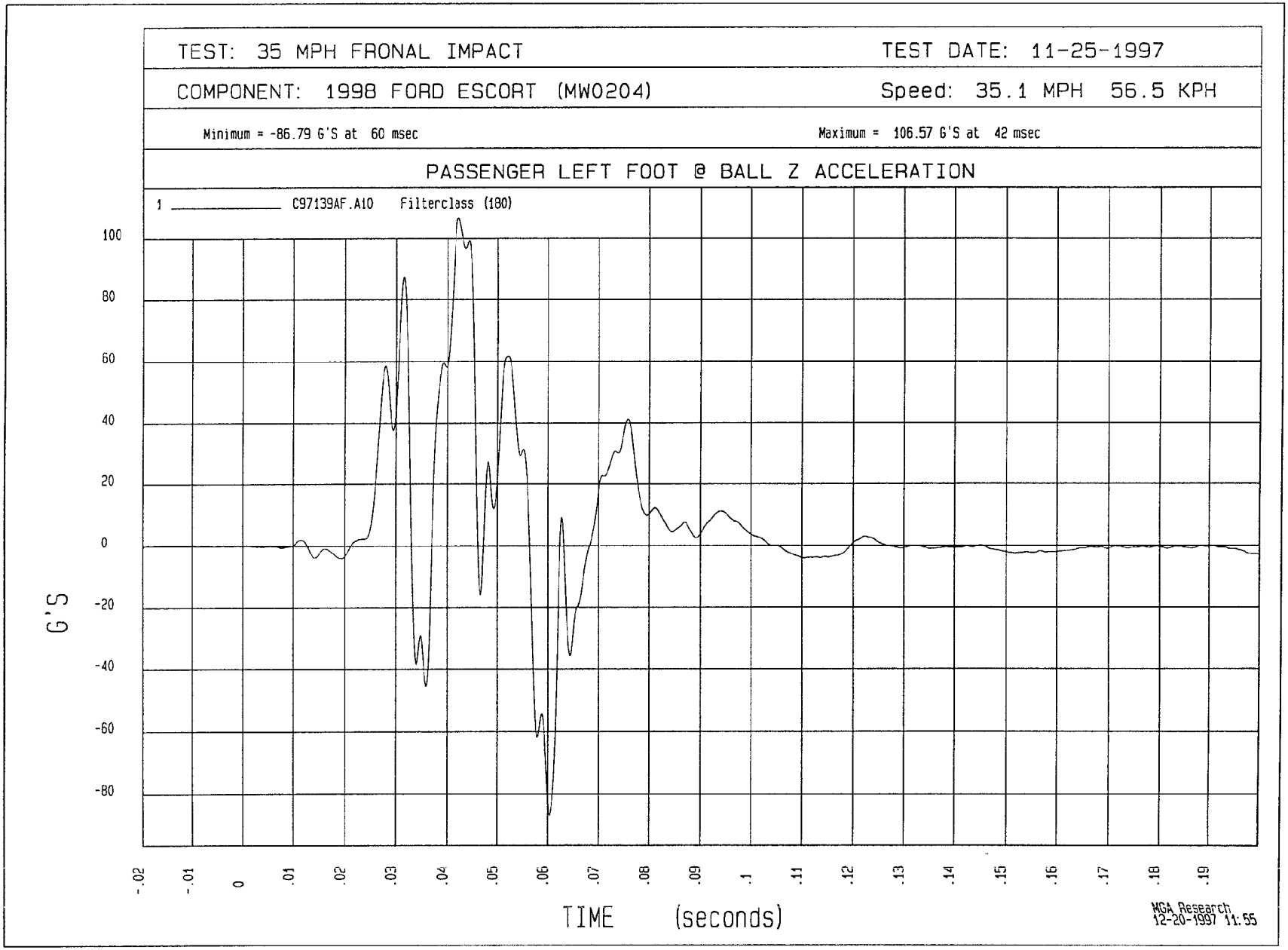

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -67.22 NM at 64 msec
Maximum = 15.21 NM at 41 msec
PASSENGER RIGHT UPPER TIBIA MOMENT X
1 B97139MF.M07 Filterclass (600)
NM
TIME (SECONDS)
MGA Research
01-14-1998 15:45

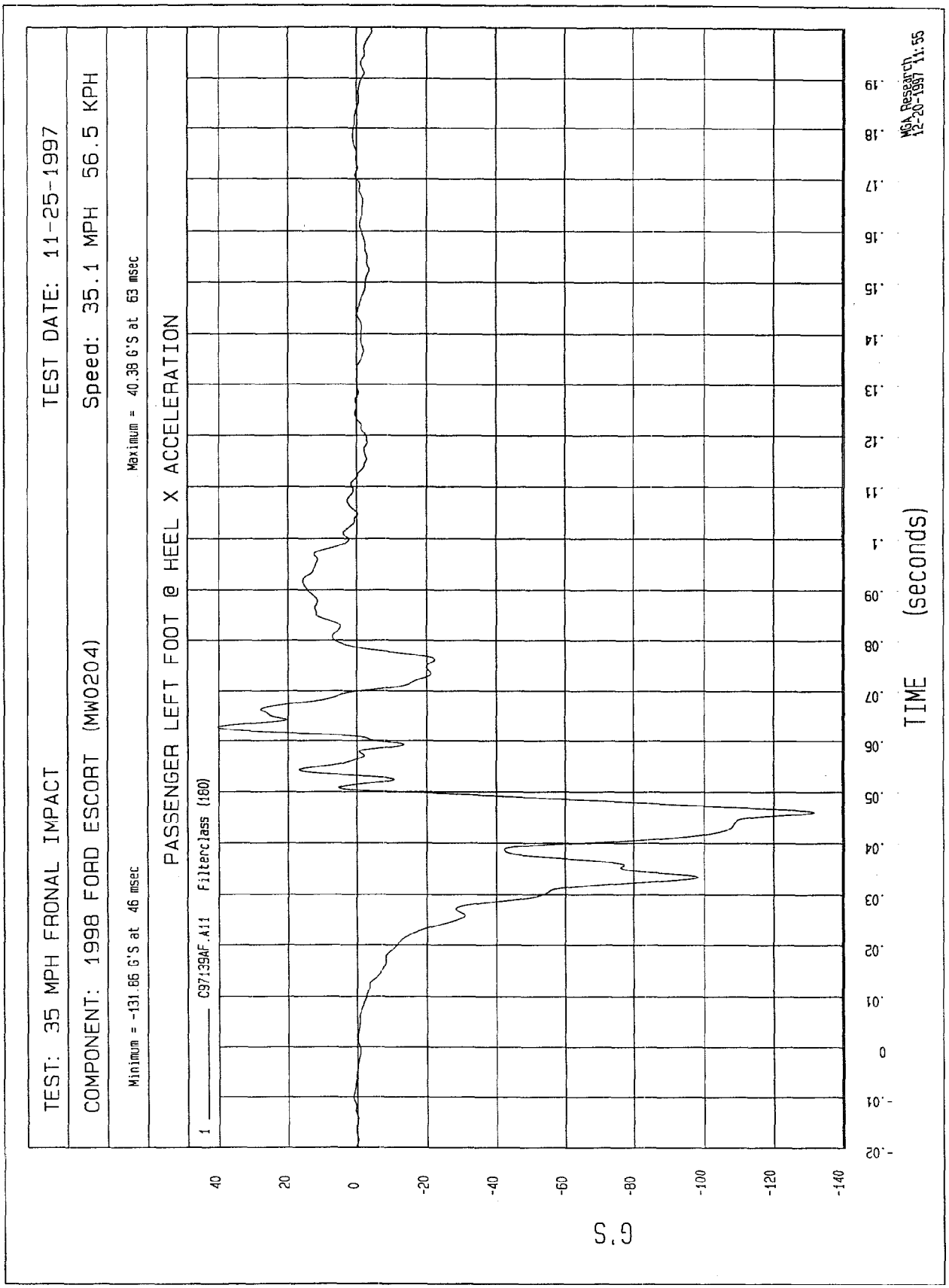

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -129.64 NM at 61 msec
Maximum = 31.36 NM at 116 msec
PASSENGER RIGHT UPPER TIBIA MOMENT Y
1 897139NF.M88 Filterclass (600)
NM
20
0
-20
-40
-60
-80
-100
-120
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
MGA Research
01-14-1998 15:45

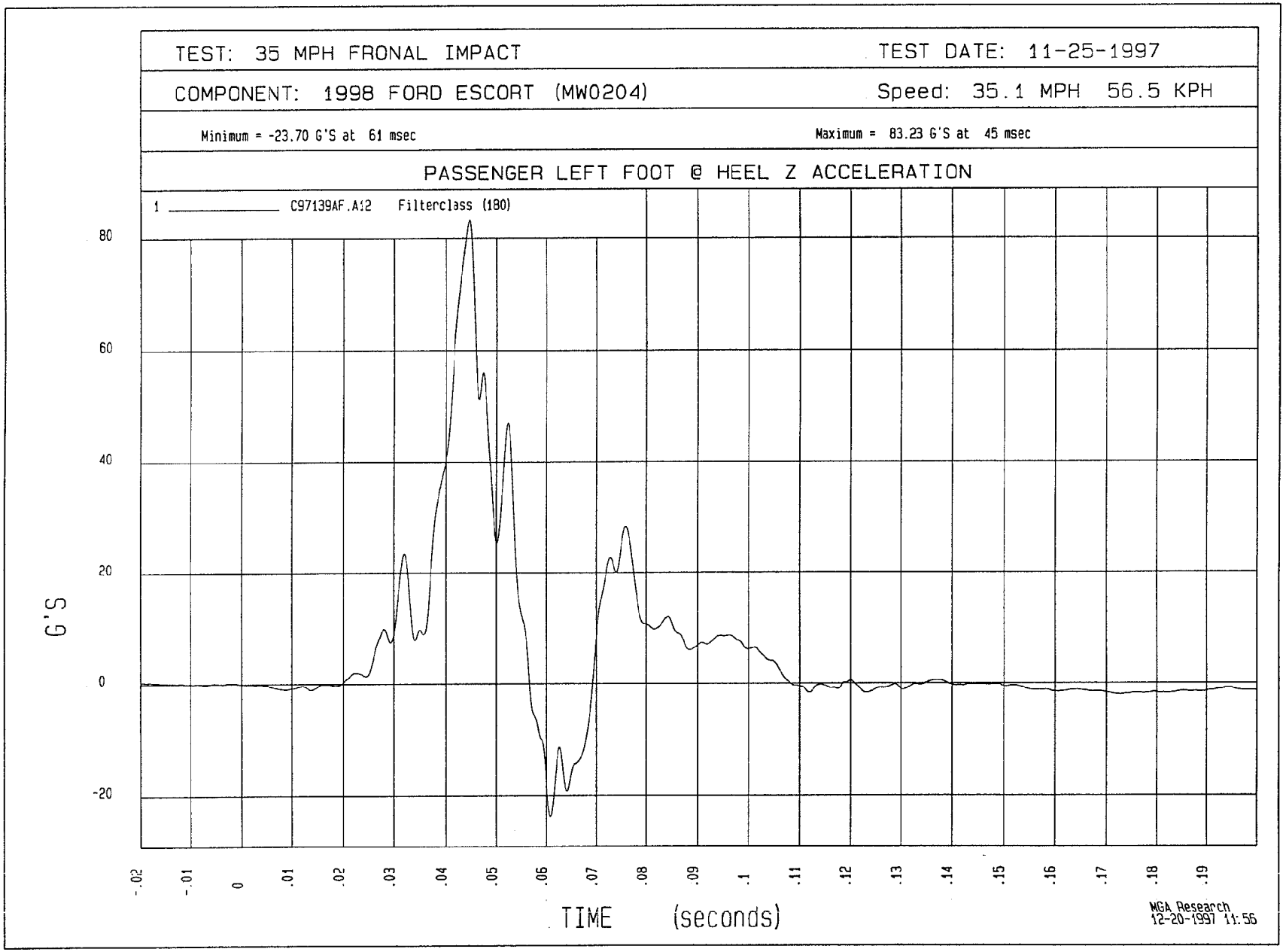

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -1028.81 N at 61 msec
Maximum = 148.56 N at 120 msec
PASSENGER RIGHT LOWER TIBIA FORCE X
1 B97139FF.F89 Filterclass (600)
200
0
-200
-400
-600
-800
-1000
N
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:46

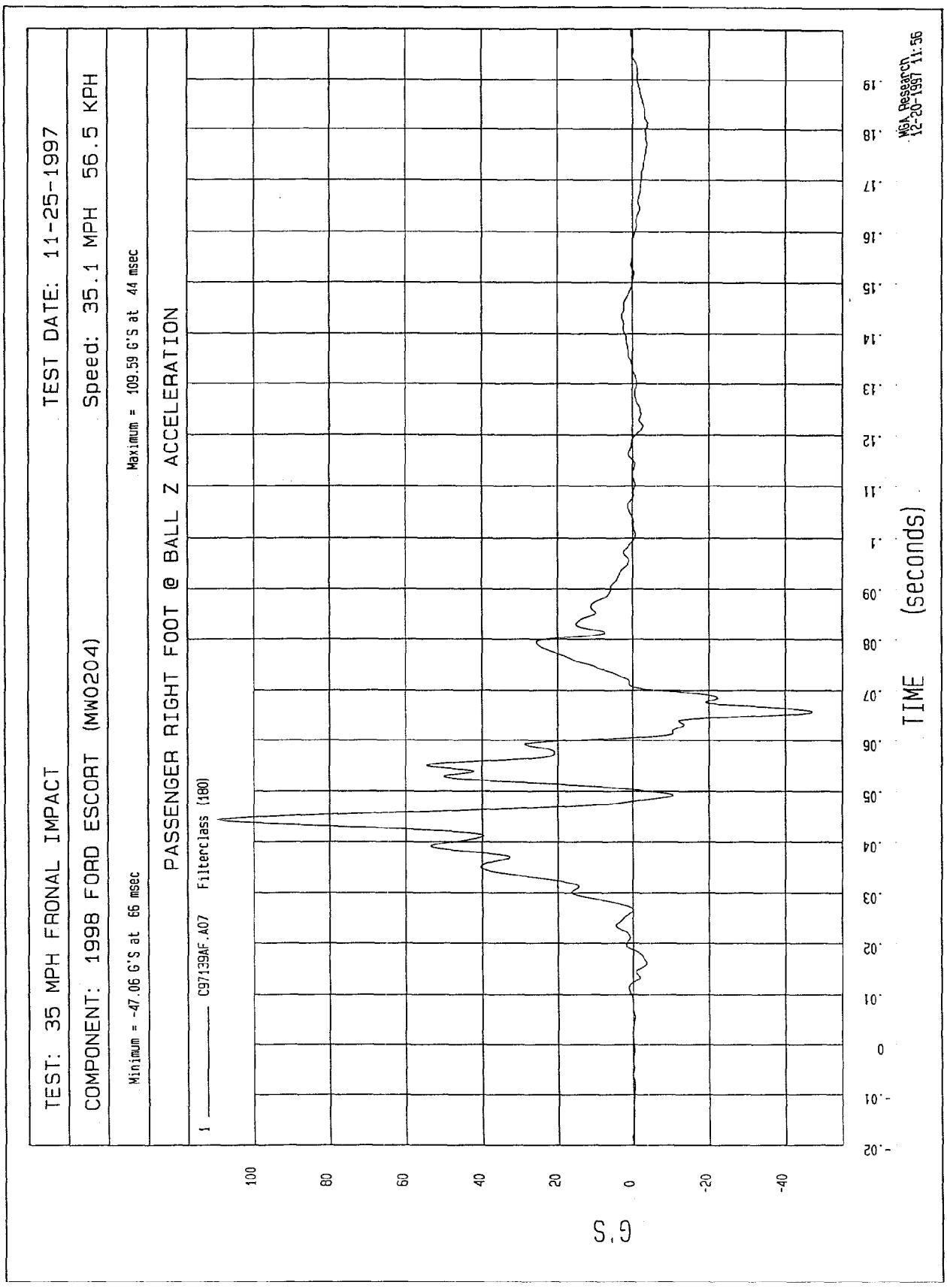

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -336.21 N at 172 msec
Maximum = 3768.51 N at 46 msec
PASSENGER RIGHT LOWER TIBIA FORCE Z
1 B97139FF.F91 Filterclass (600)
3000
2000
1000
0
N
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:46

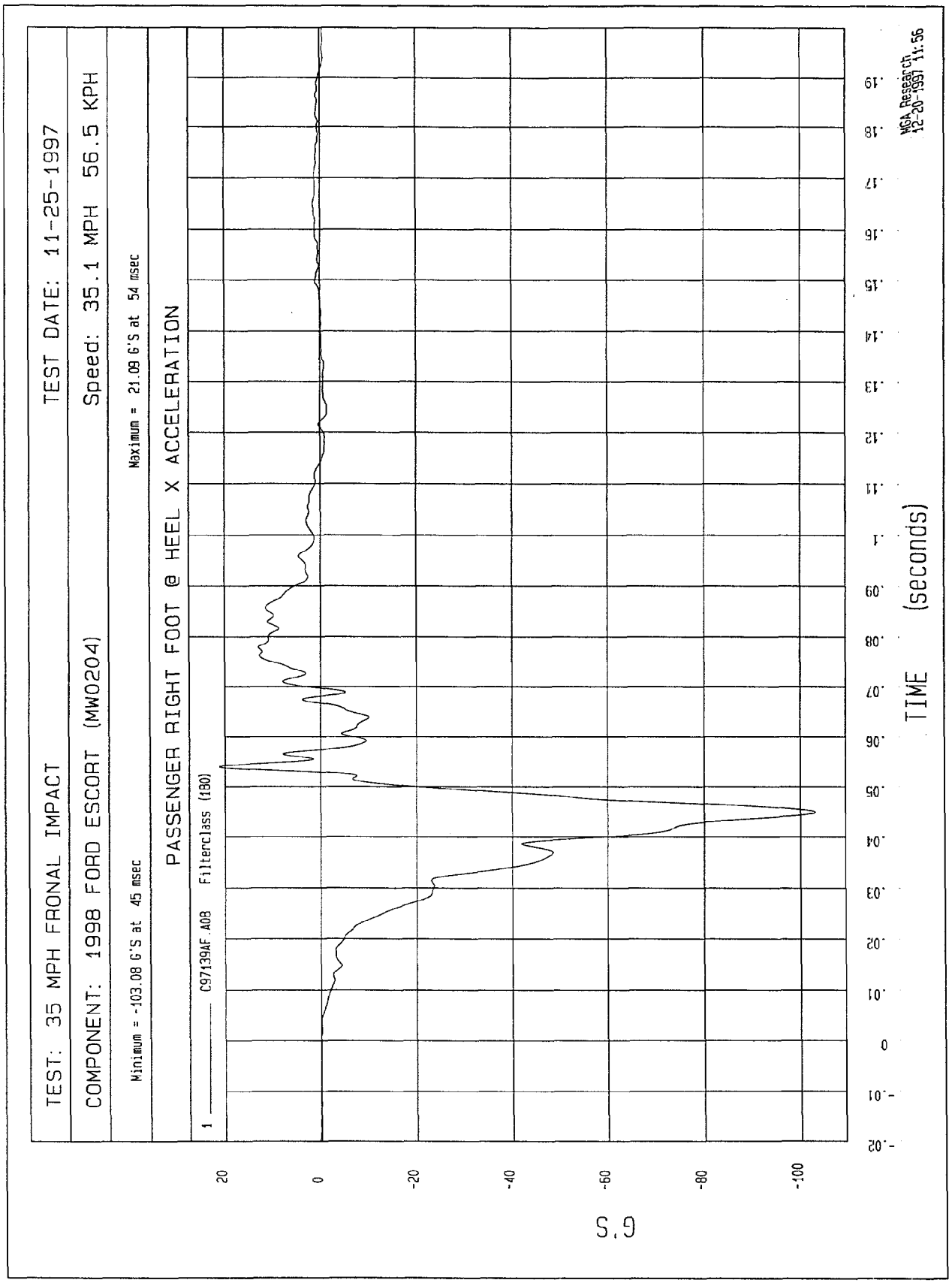

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -34.26 NM at 45 msec
Maximum = 97.58 NM at 73 msec
PASSENGER RIGHT LOWER TIBIA MOMENT Y
1 _____ 897139MF.M90 Filterclass (600)
NM
TIME (SECONDS)
MGA Research
01-14-1998 15:46

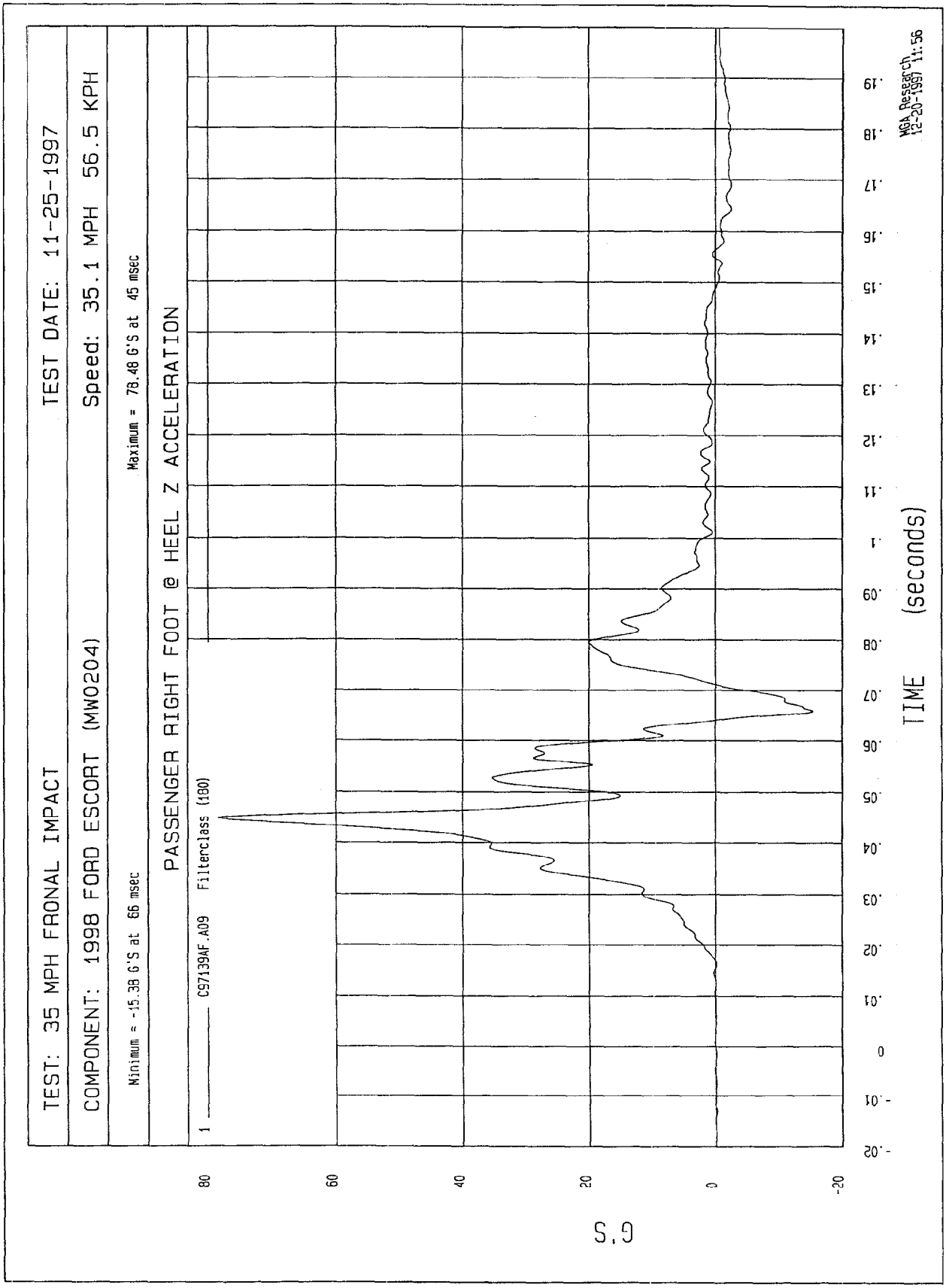

TEST: 35 MPH FRONAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -86.79 G'S at 60 msec
Maximum = 106.57 G'S at 42 msec
PASSENGER LEFT FOOT @ BALL Z ACCELERATION
1 C97139AF.A10 Filterclass (180)
100
80
60
40
20
0
-20
-40
-60
-80
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (seconds)
MGA Research
12-20-1997 11:55

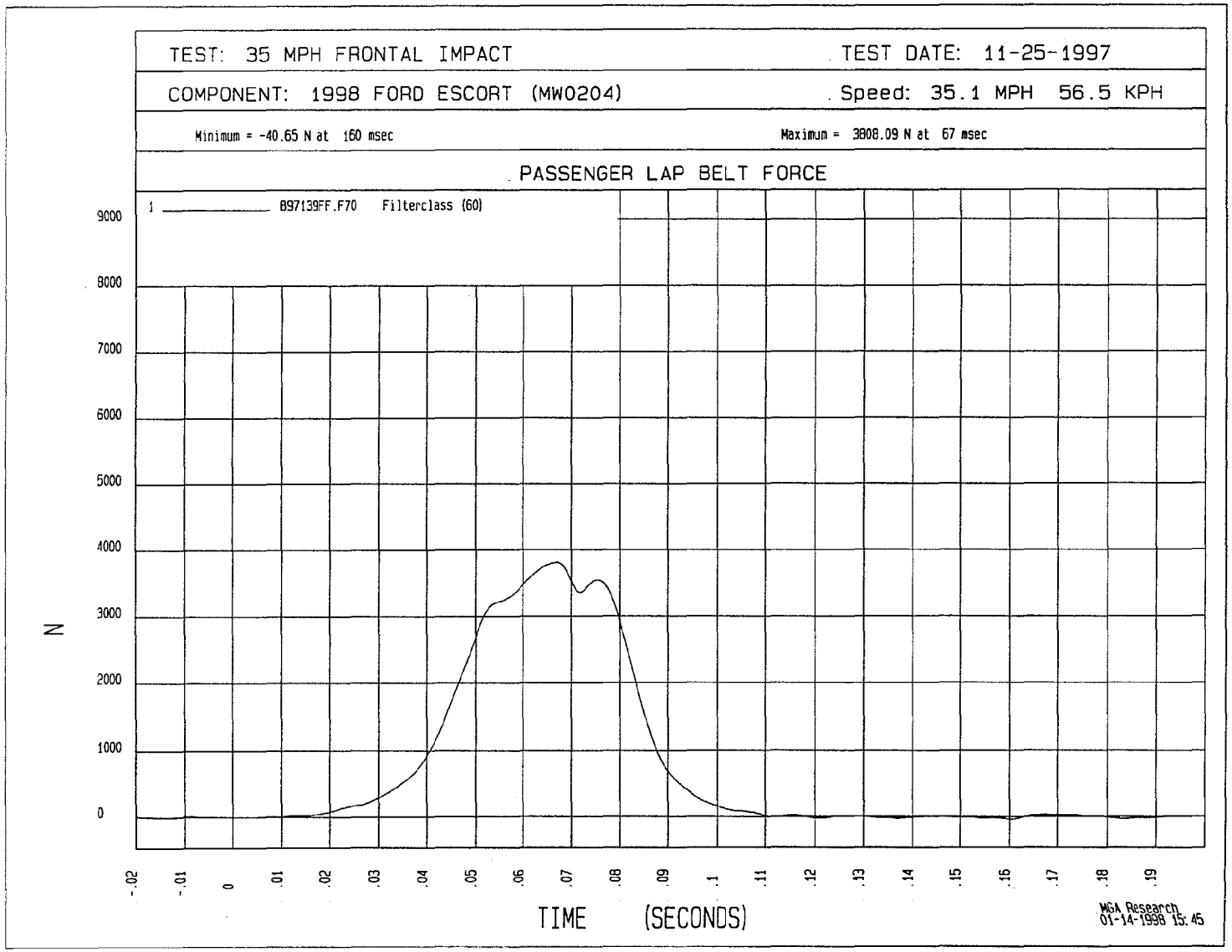

TEST: 35 MPH FRONAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -131.86 G'S at 46 msec
Maximum = 40.38 G'S at 63 msec
PASSENGER LEFT FOOT @ HEEL X ACCELERATION
1 C97139AF.A11 Filterclass (180)
40
20
0
-20
-40
-60
-80
-100
-120
-140
G'S
.02
.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (seconds)
MGA Research
12-20-1997 11:55

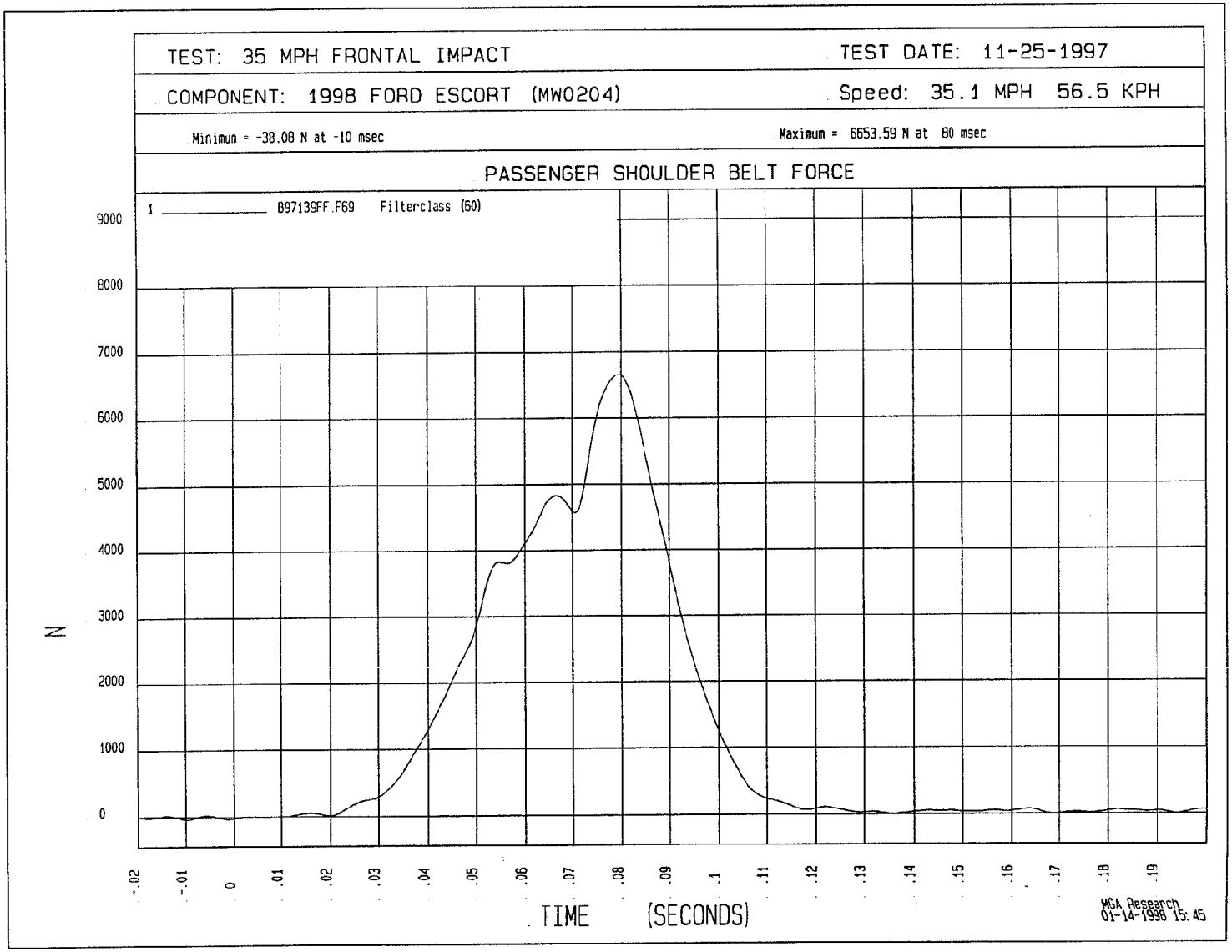

TEST: 35 MPH FRONAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -23.70 G'S at 61 msec
Maximum = 83.23 G'S at 45 msec
PASSENGER LEFT FOOT @ HEEL Z ACCELERATION
1 C97139AF.A12 Filterclass (180)
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (seconds)
MGA Research
12-20-1997 11:56

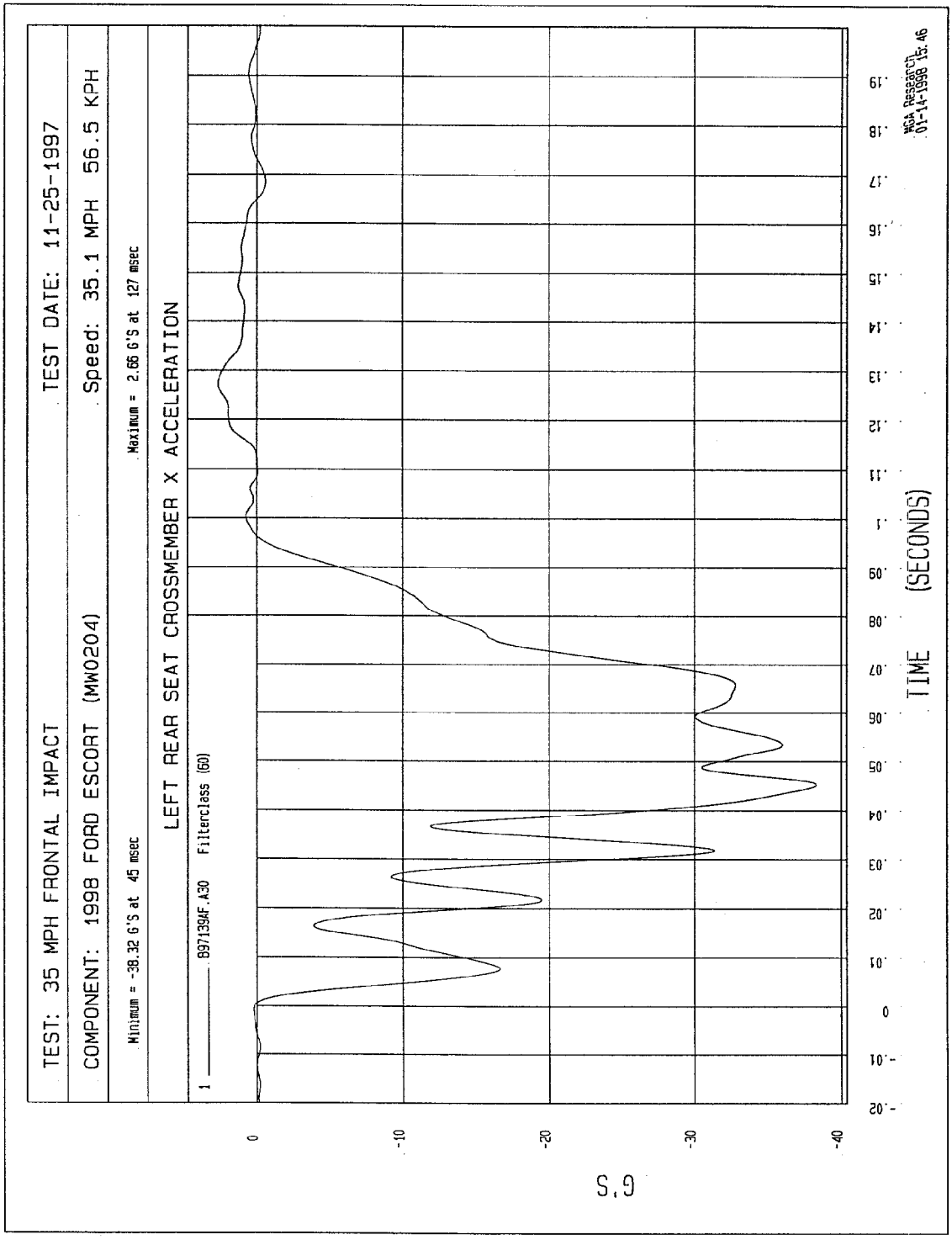

TEST: 35 MPH FRONAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -47.06 G'S at 66 msec
Maximum = 109.59 G'S at 44 msec
PASSENGER RIGHT FOOT @ BALL Z ACCELERATION
1 C97139AF.A07 Filterclass (180)
100
80
60
40
20
0
-20
-40
G'S
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (seconds)
MGA Research
12-20-1997 11:56

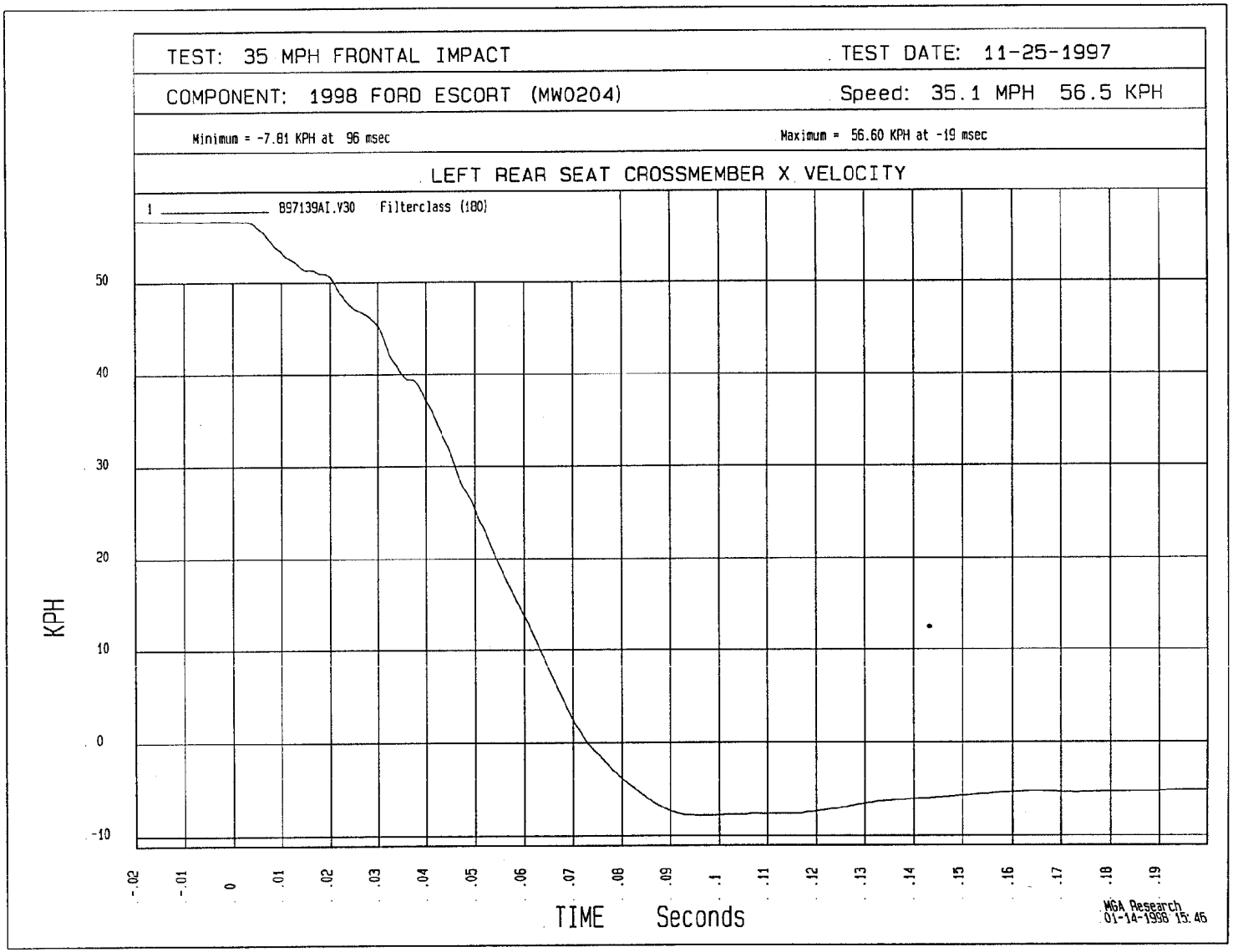

TEST: 35 MPH FRONAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -103.08 G'S at 45 msec
Maximum = 21.09 G'S at 54 msec
PASSENGER RIGHT FOOT @ HEEL X ACCELERATION
1 C97139AF.A08 Filterclass (180)
MGA Research
12-20-1997 11:56
G'S
TIME (seconds)

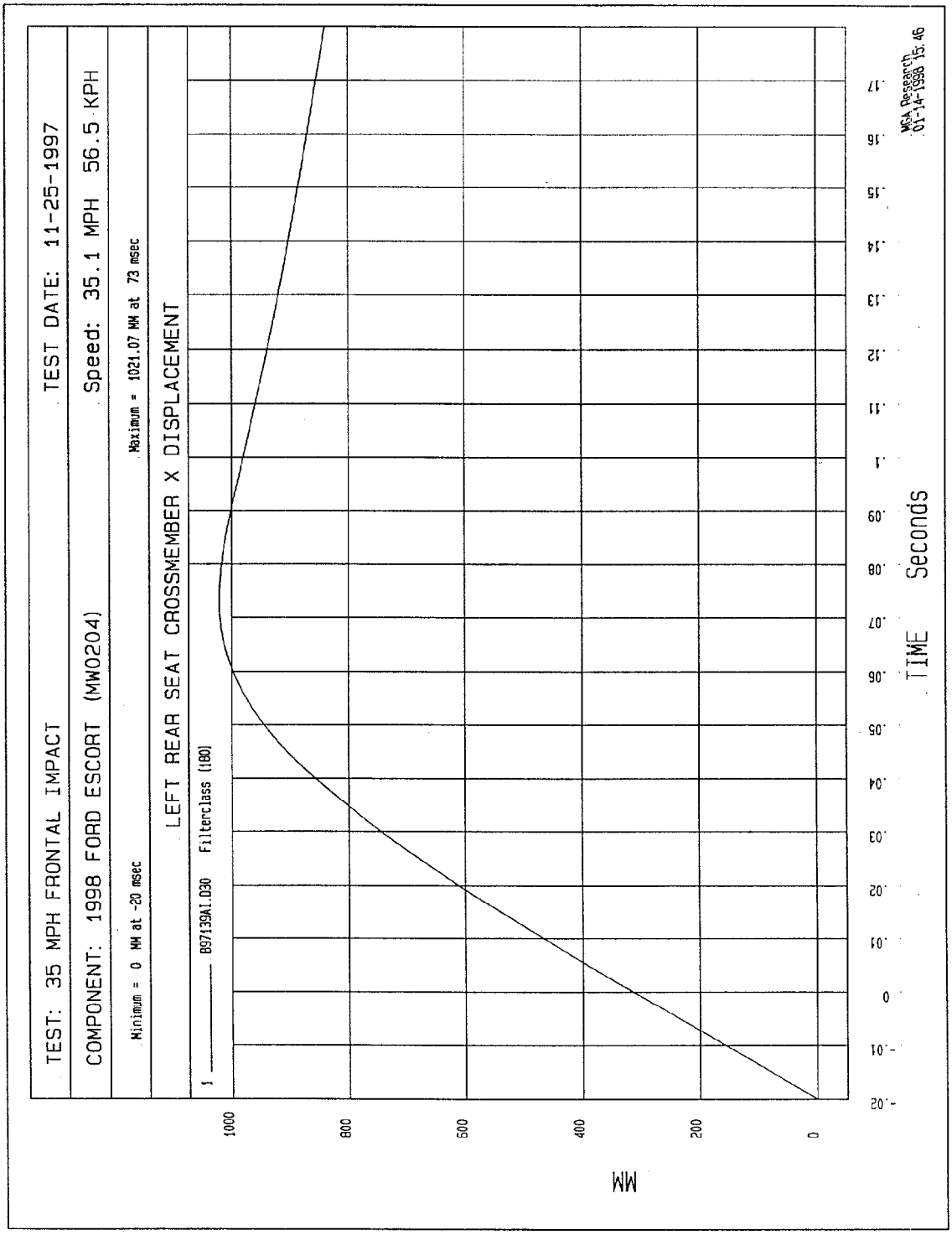

TEST: 35 MPH FRONAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -15.38 G'S at 66 msec
Maximum = 78.48 G'S at 45 msec
PASSENGER RIGHT FOOT @ HEEL Z ACCELERATION
1 C97139AF.A09 Filterclass (180)
MGA Research
12-20-1997 11:56
G's
TIME (seconds)
80
60
40
20
0
-20
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02

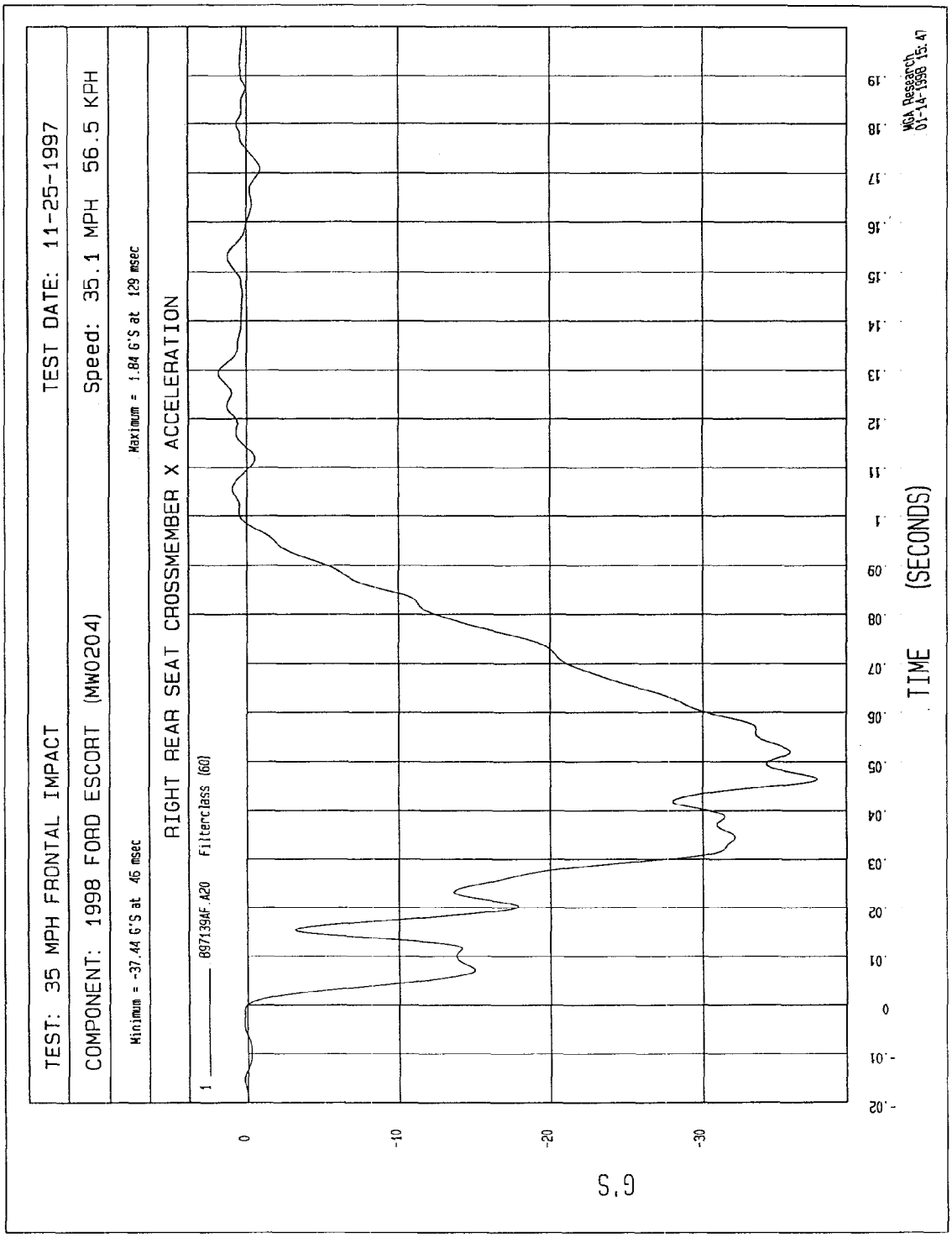

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -40.65 N at 160 msec
Maximum = 3808.09 N at 67 msec
PASSENGER LAP BELT FORCE
1 B97139FF.F70 Filterclass (60)
N
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:45

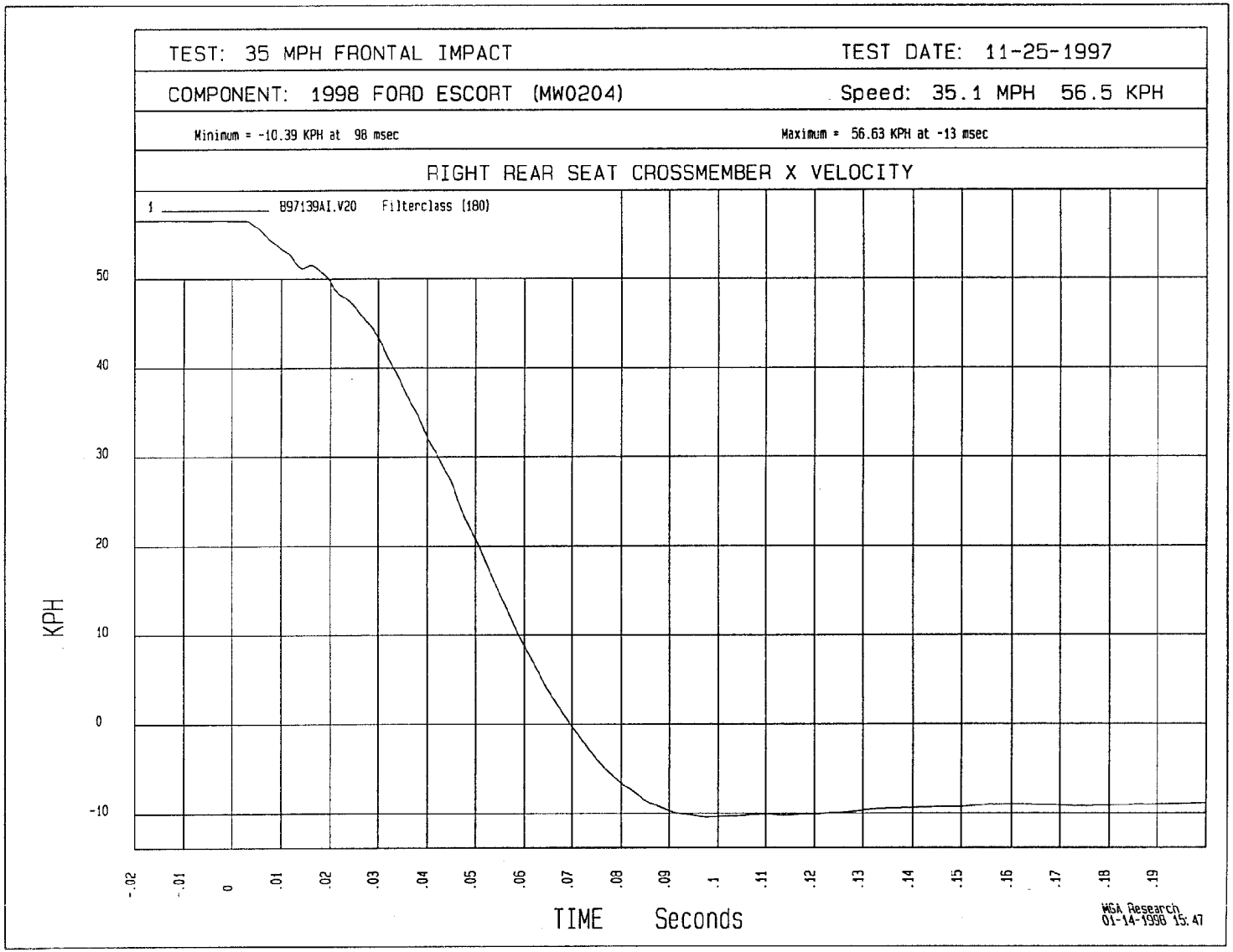

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -38.08 N at -10 msec
Maximum = 6653.59 N at 80 msec
PASSENGER SHOULDER BELT FORCE
1 B97139FF.F69 Filterclass (60)
N
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:45

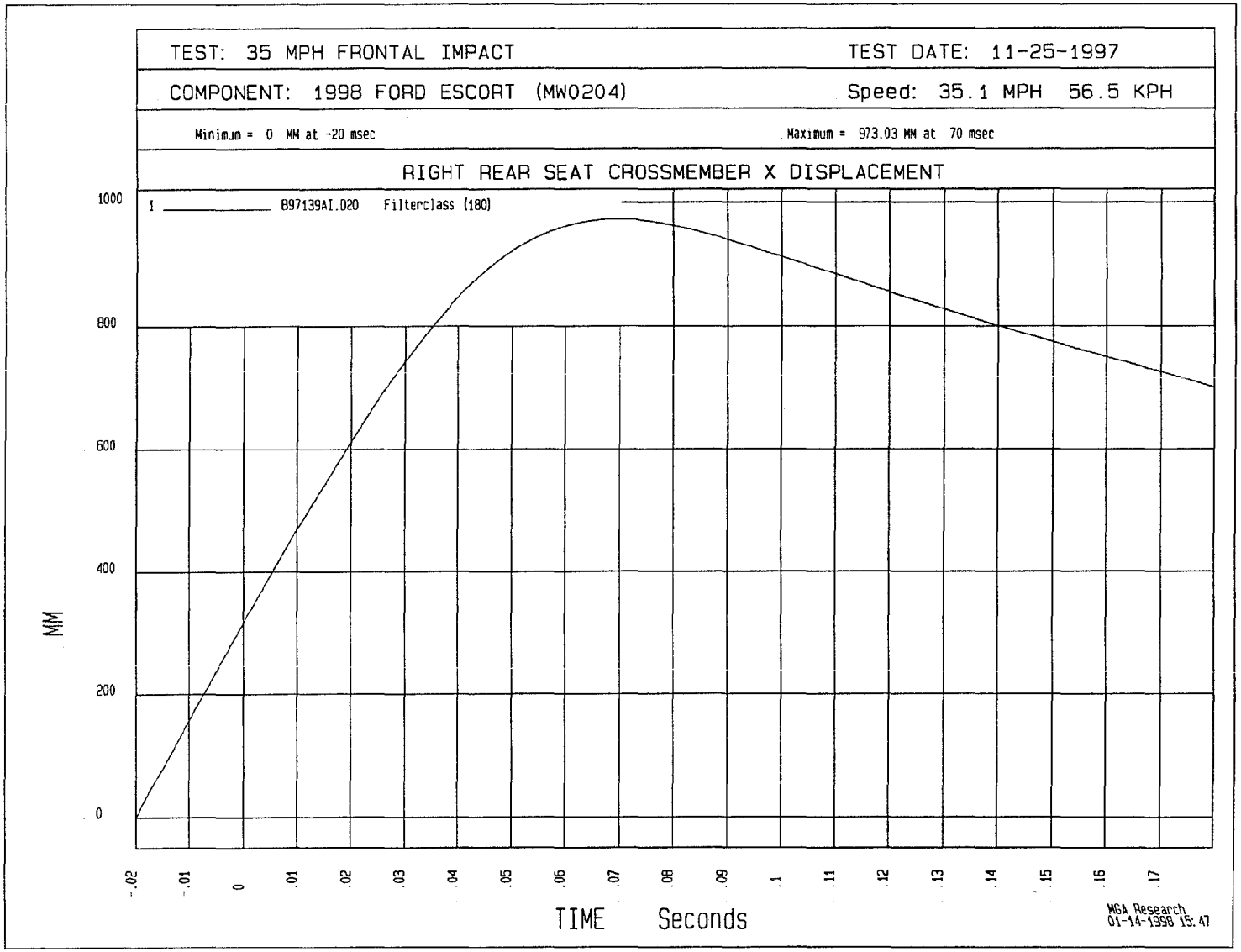

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -38.32 G'S at 45 msec
Maximum = 2.66 G'S at 127 msec
LEFT REAR SEAT CROSSMEMBER X ACCELERATION
1 _____ 897139AF.A30 Filterclass (60)
MGA Research
01-14-1998 15:46
0
-10
-20
-30
-40
G'S
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (SECONDS)

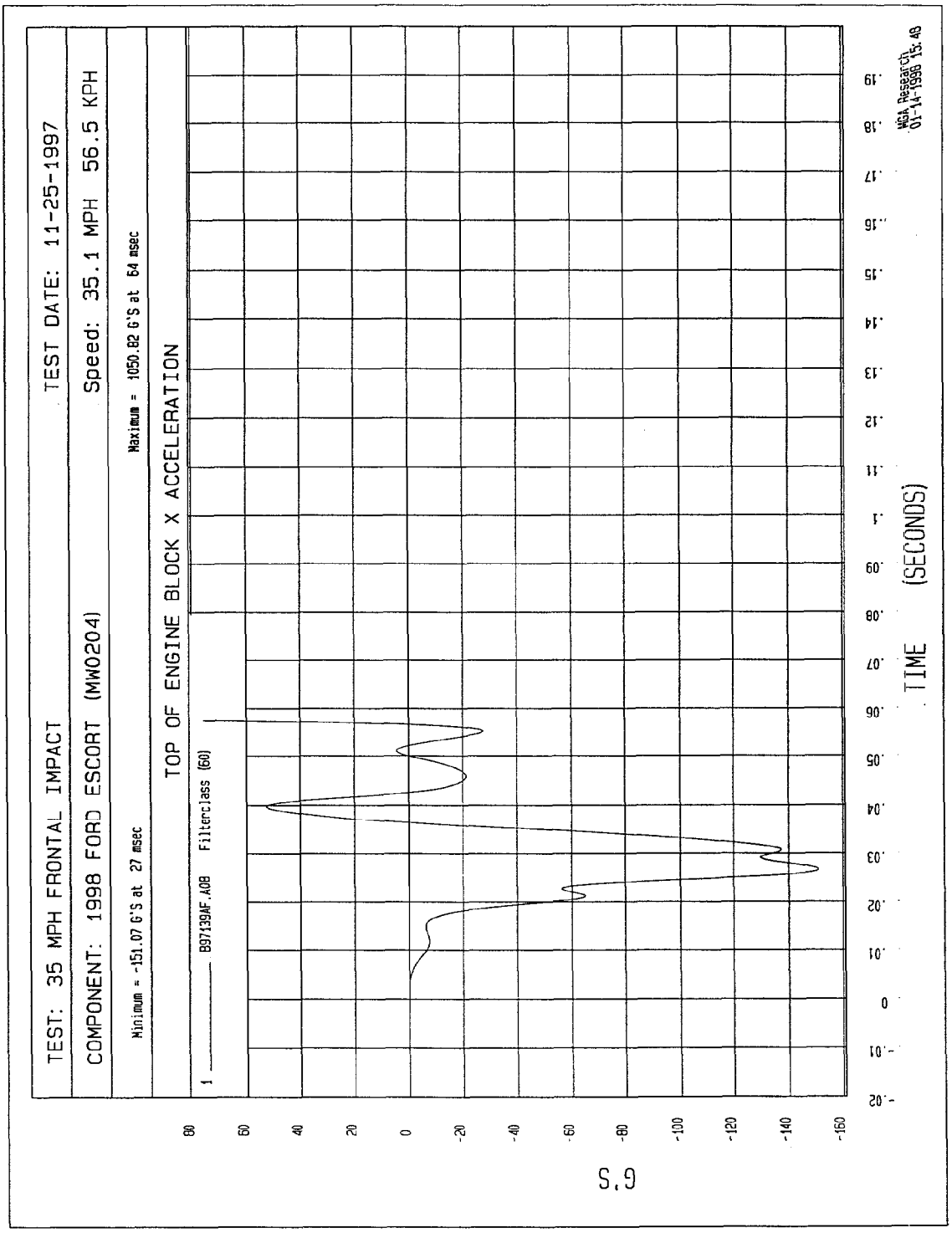

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -7.81 KPH at 96 msec
Maximum = 56.60 KPH at -19 msec
LEFT REAR SEAT CROSSMEMBER X VELOCITY
1 897139AI.V30 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-14-1998 15:46

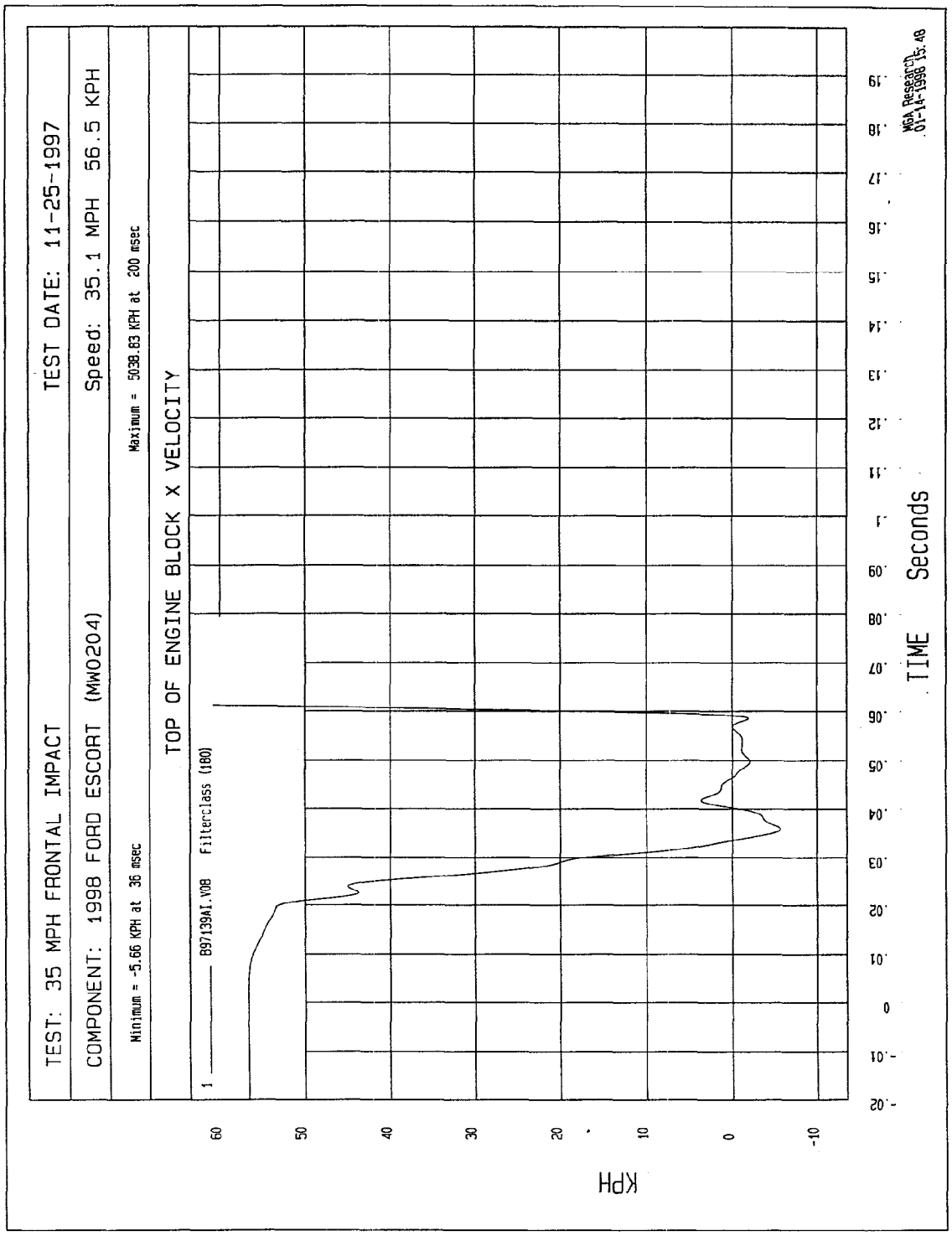

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 0 MM at -20 msec
Maximum = 1021.07 MM at 73 msec
LEFT REAR SEAT CROSSMEMBER X DISPLACEMENT
1 B97139A1.D30 Filterclass (180)
MM
1000
800
500
400
200
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
TIME Seconds
MGA Research
01-14-1998 15:46

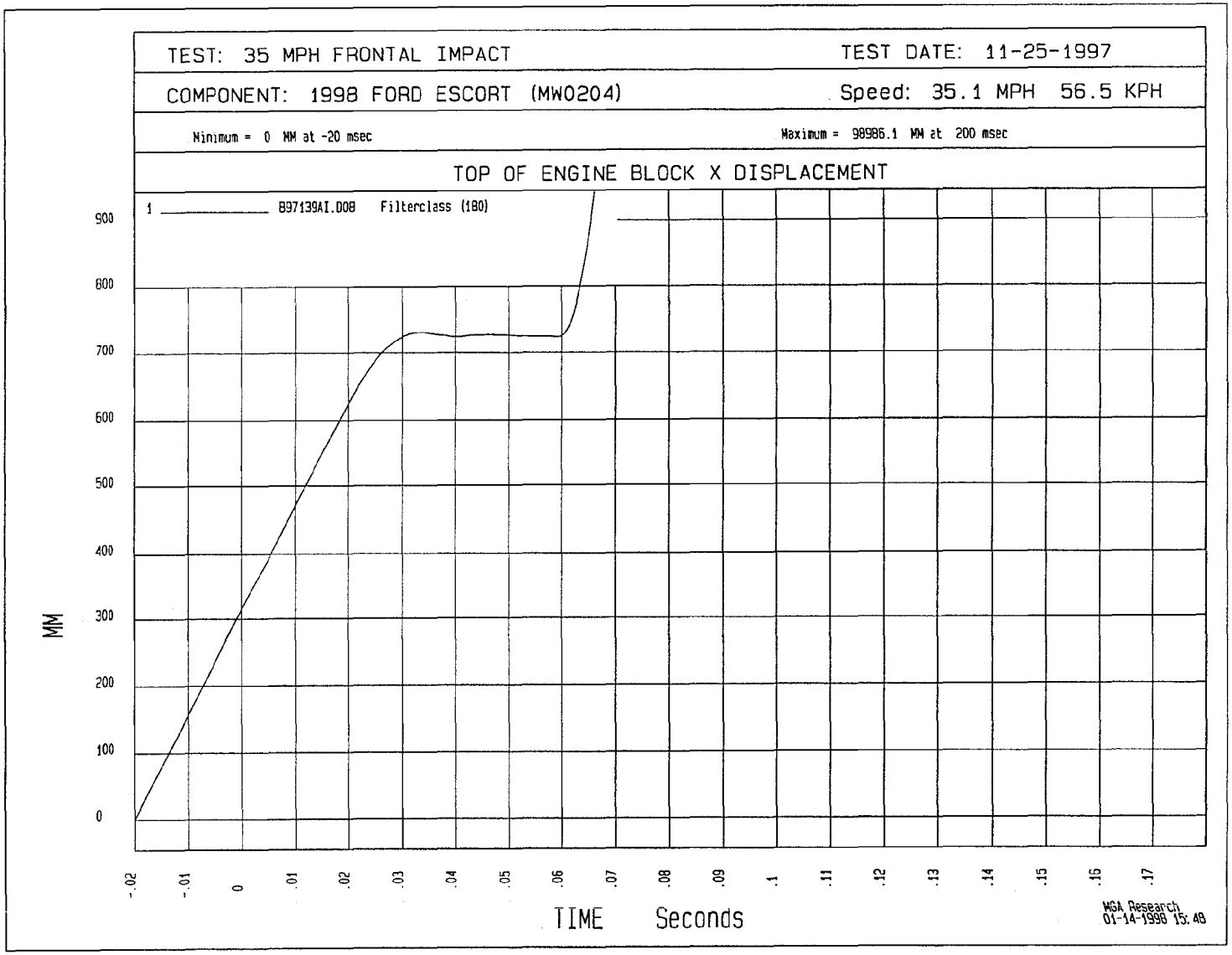

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -37.44 G'S at 45 msec
Maximum = 1.84 G'S at 129 msec
RIGHT REAR SEAT CROSSMEMBER X ACCELERATION
1 _____ 8971394F.A20 Filterclass (60)
0
-10
-20
-30
G'S
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
MGA Research
01-14-1998 15:47

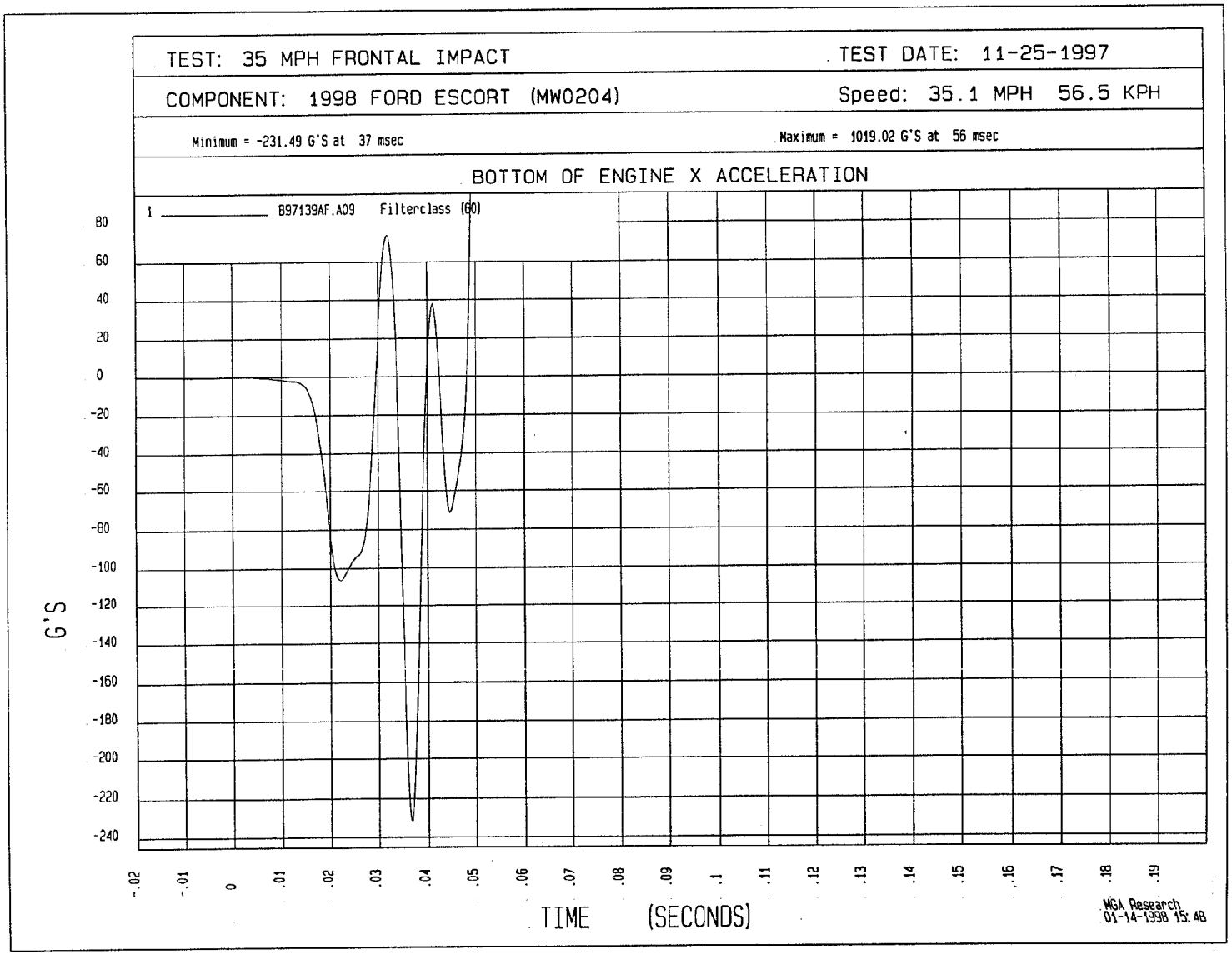

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -10.39 KPH at 98 msec
Maximum = 56.63 KPH at -13 msec
RIGHT REAR SEAT CROSSMEMBER X VELOCITY
1 B97139AI.V20 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-14-1998 15:47

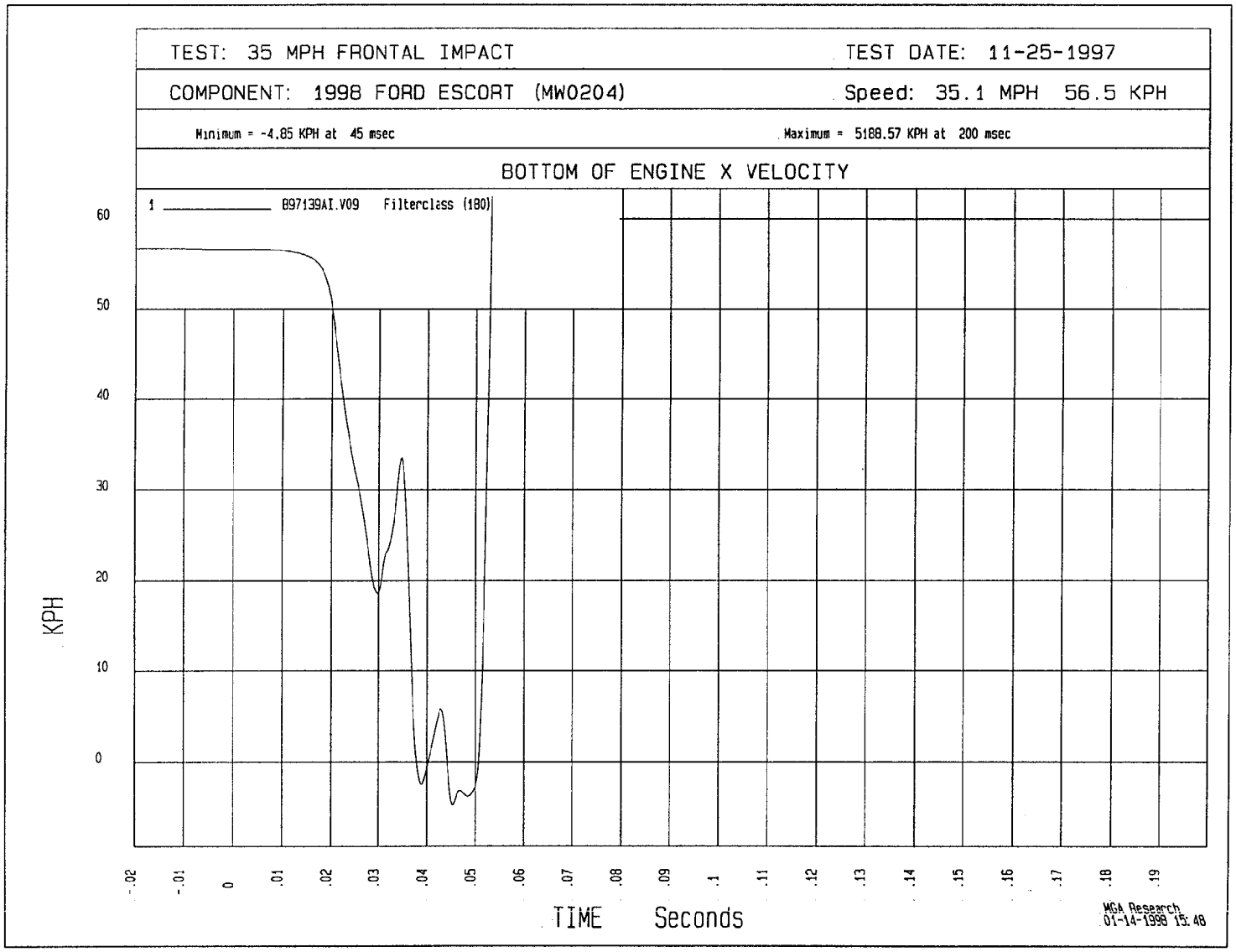

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 0 MM at -20 msec
Maximum = 973.03 MM at 70 msec
RIGHT REAR SEAT CROSSMEMBER X DISPLACEMENT
1 B97139AI.020 Filterclass (180)
1000
800
600
400
200
0
MM
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
TIME Seconds
MGA Research
01-14-1998 15:47

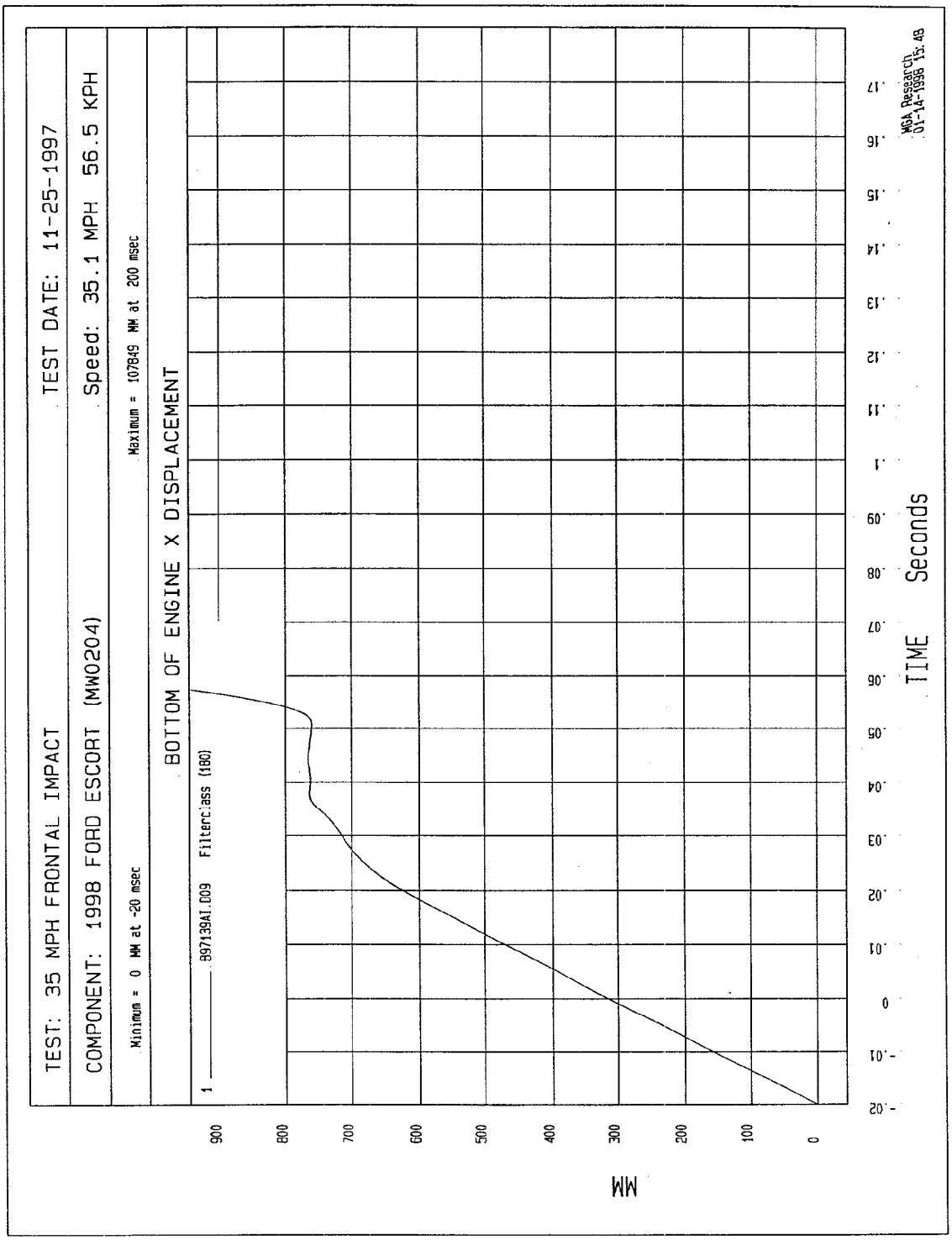

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -151.07 G'S at 27 msec
Maximum = 1050.82 G'S at 64 msec
TOP OF ENGINE BLOCK X ACCELERATION
1 B97139AF.A0B Filterclass (60)
80
60
40
20
0
-20
-40
-60
-80
-100
-120
-140
-160
G's
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:48

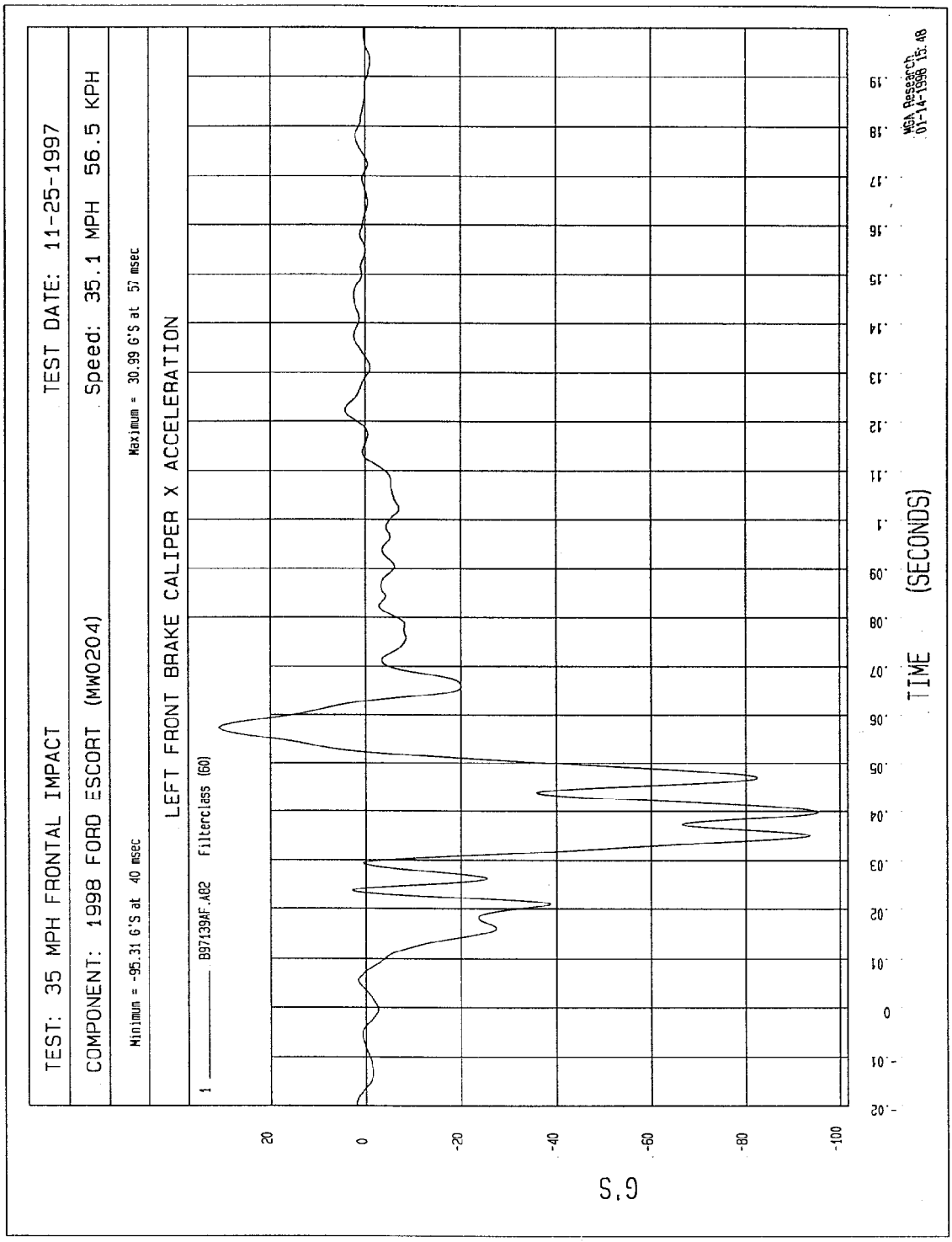

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -5.66 KPH at 36 msec
Maximum = 5038.83 KPH at 200 msec
TOP OF ENGINE BLOCK X VELOCITY
1 B97139AI.V0B Filterclass (180)
KPH
60
50
40
30
20
10
0
-10
-20
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-14-1998 15:48

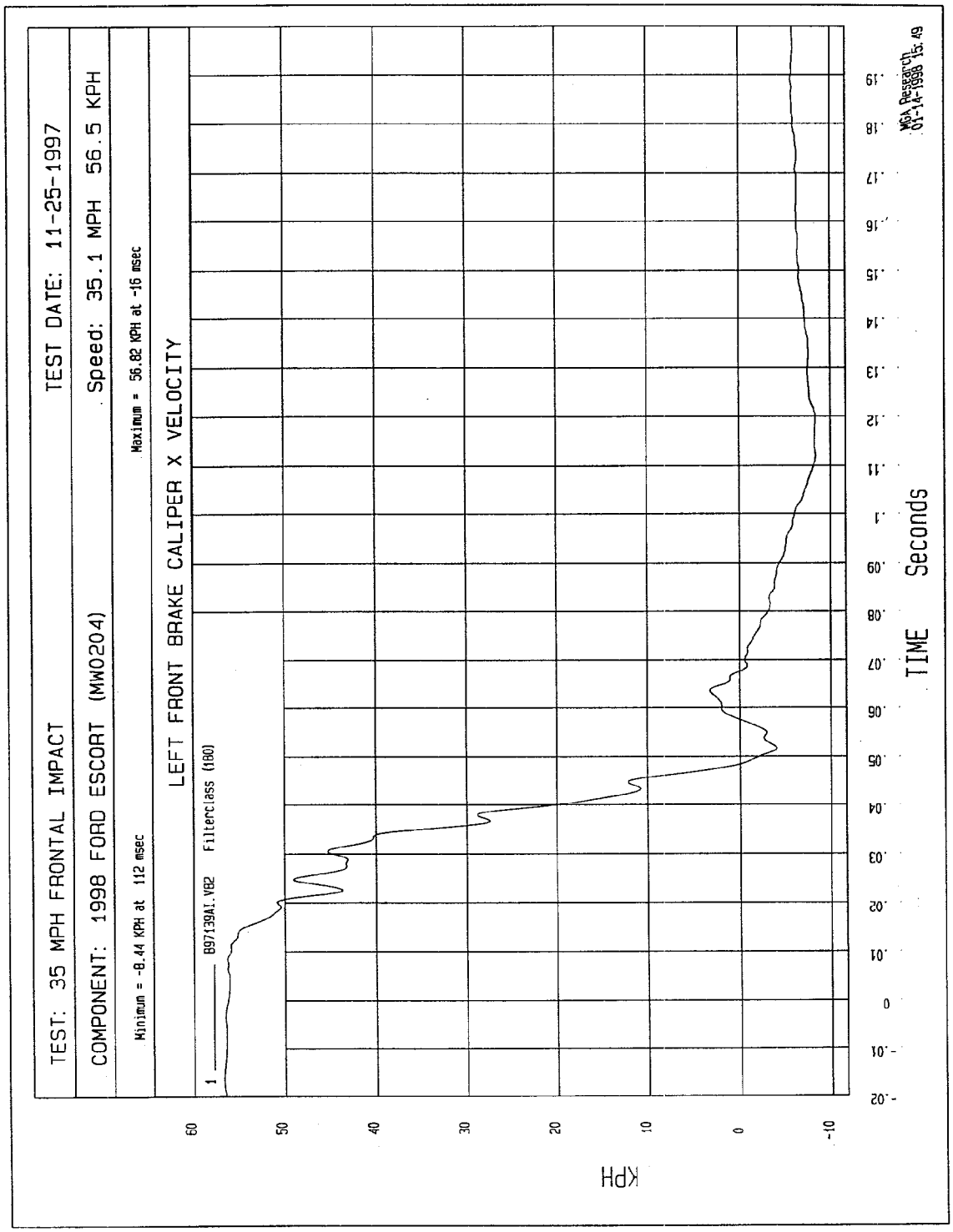

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 0 MM at -20 msec
Maximum = 98985.1 MM at 200 msec
TOP OF ENGINE BLOCK X DISPLACEMENT
1 897139AI.D08 Filterclass (180)
MM
900
600
700
600
500
400
300
200
100
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
TIME Seconds
MGA Research
01-14-1998 15:48

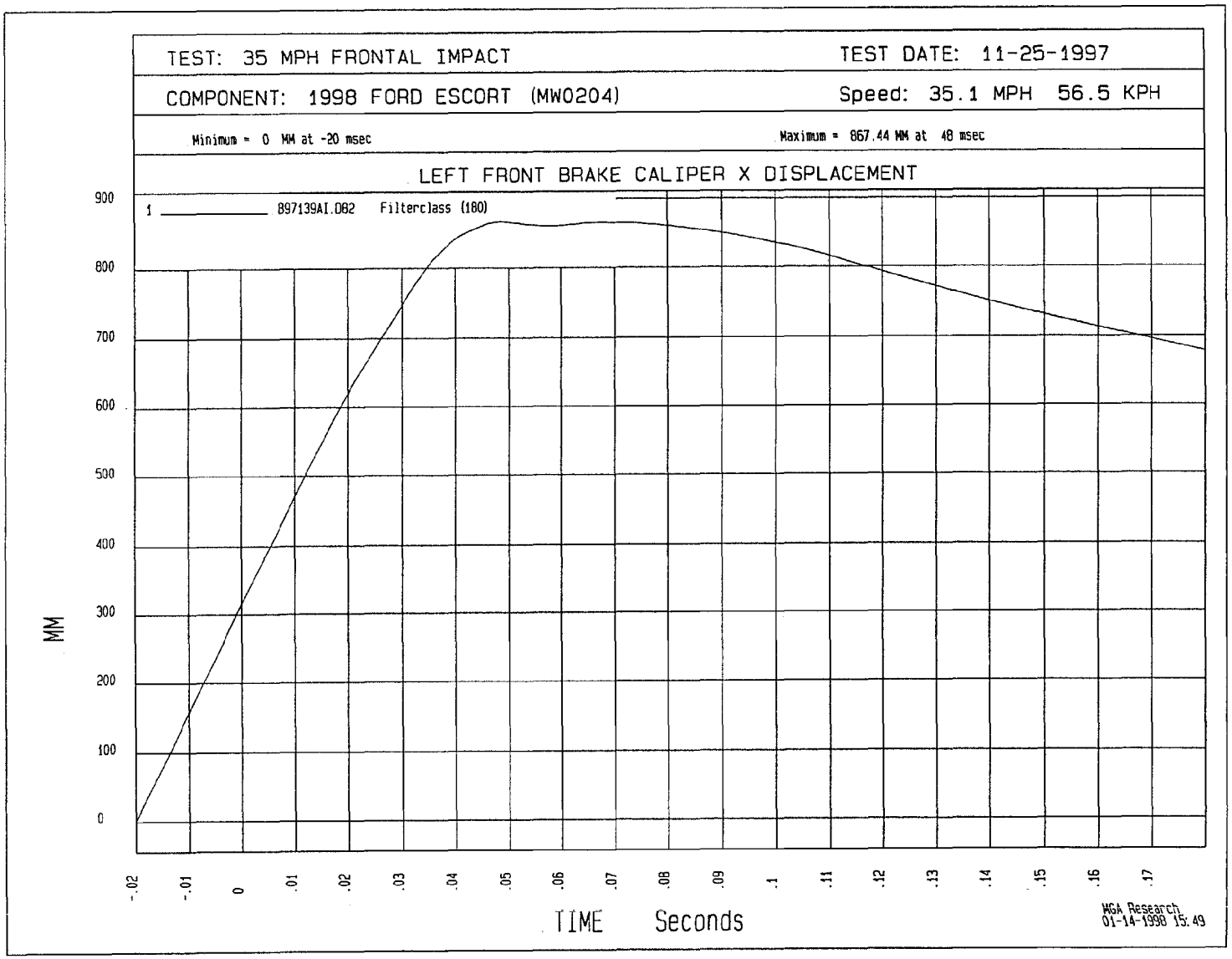

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -231.49 G'S at 37 msec
Maximum = 1019.02 G'S at 56 msec
BOTTOM OF ENGINE X ACCELERATION
1 B97139AF.A09 Filterclass (60)
80
60
40
20
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
-220
-240
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:48

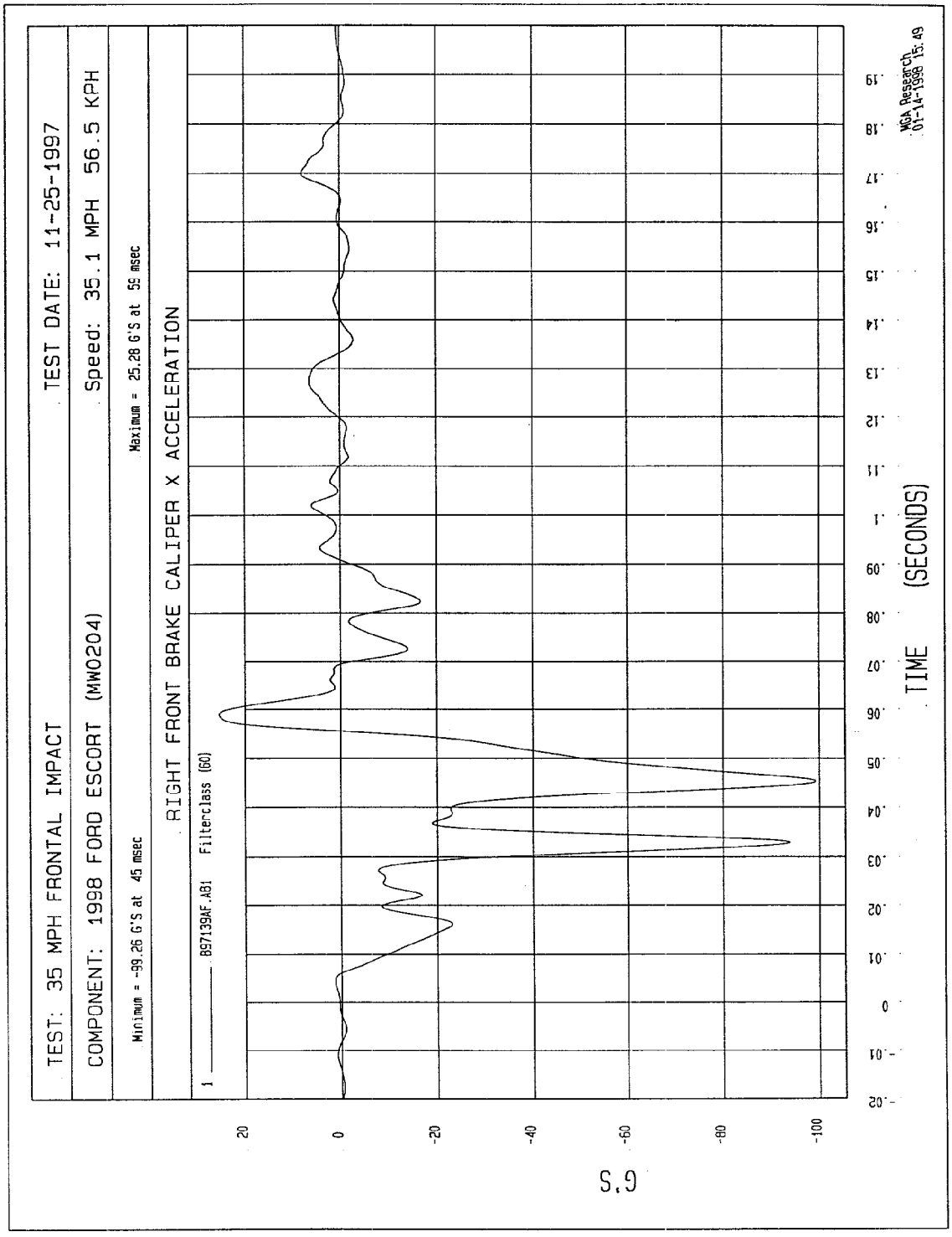

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -4.85 KPH at 45 msec
Maximum = 5188.57 KPH at 200 msec
BOTTOM OF ENGINE X VELOCITY
1 B97139AI.V09 Filterclass (180)
KPH
60
50
40
30
20
10
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-14-1998 15:48

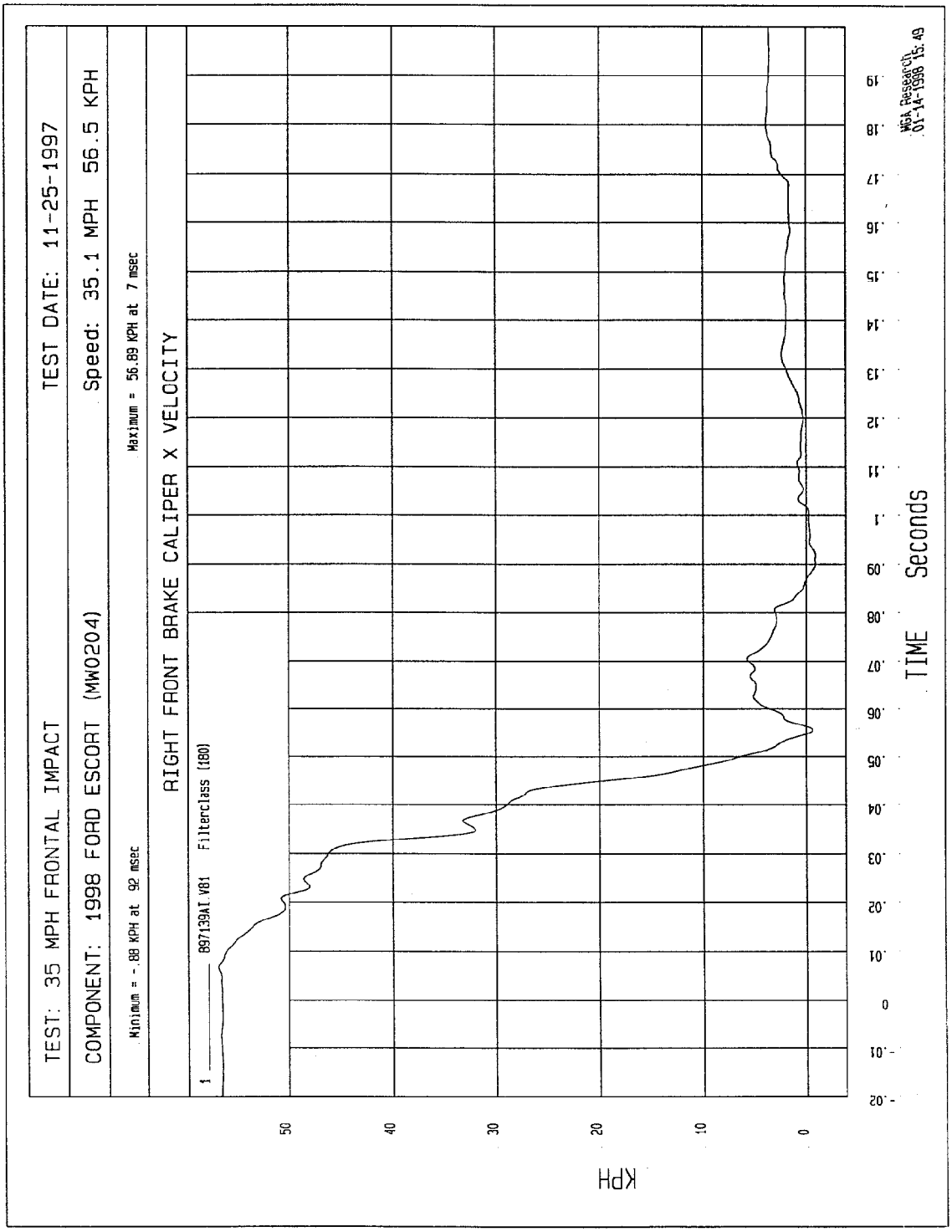

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 0 MM at -20 msec
Maximum = 107849 MM at 200 msec
BOTTOM OF ENGINE X DISPLACEMENT
1 B97139A1.D09 Filter Class (180)
MM
TIME Seconds
MGA Research
01-14-1998 15:48

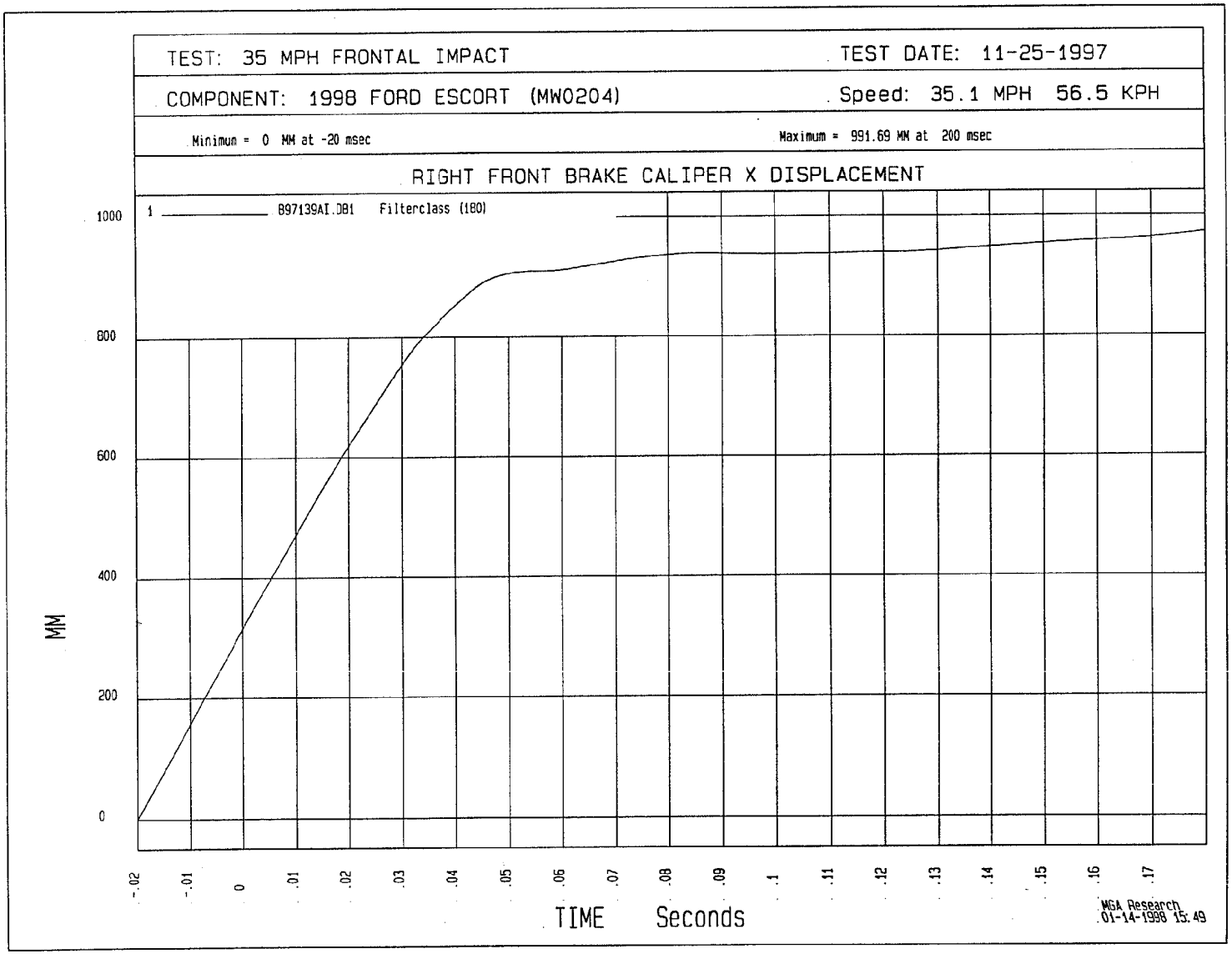

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -95.31 G'S at 40 msec
Maximum = 30.99 G'S at 57 msec
LEFT FRONT BRAKE CALIPER X ACCELERATION
1 B97139AF.A02 Filterclass (60)
20
0
-20
-40
-60
-80
-100
G'S
TIME (SECONDS)
MGA Research
01-14-1998 15:48

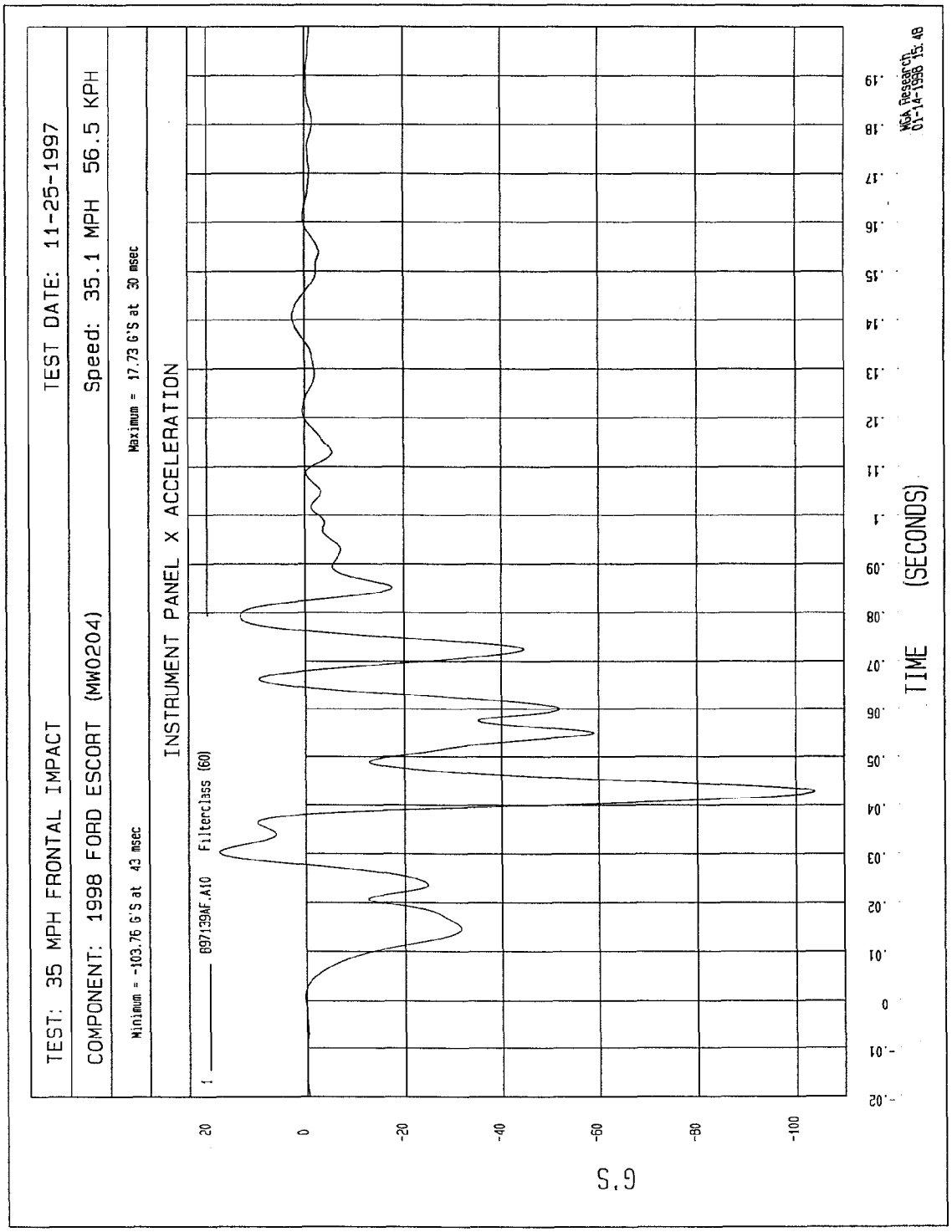

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -8.44 KPH at 112 msec
Maximum = 56.82 KPH at -16 msec
LEFT FRONT BRAKE CALIPER X VELOCITY
1 B97139A1.VB2 Filterclass (180)
KPH
TIME Seconds
MGA Research
01-14-1998 15:49

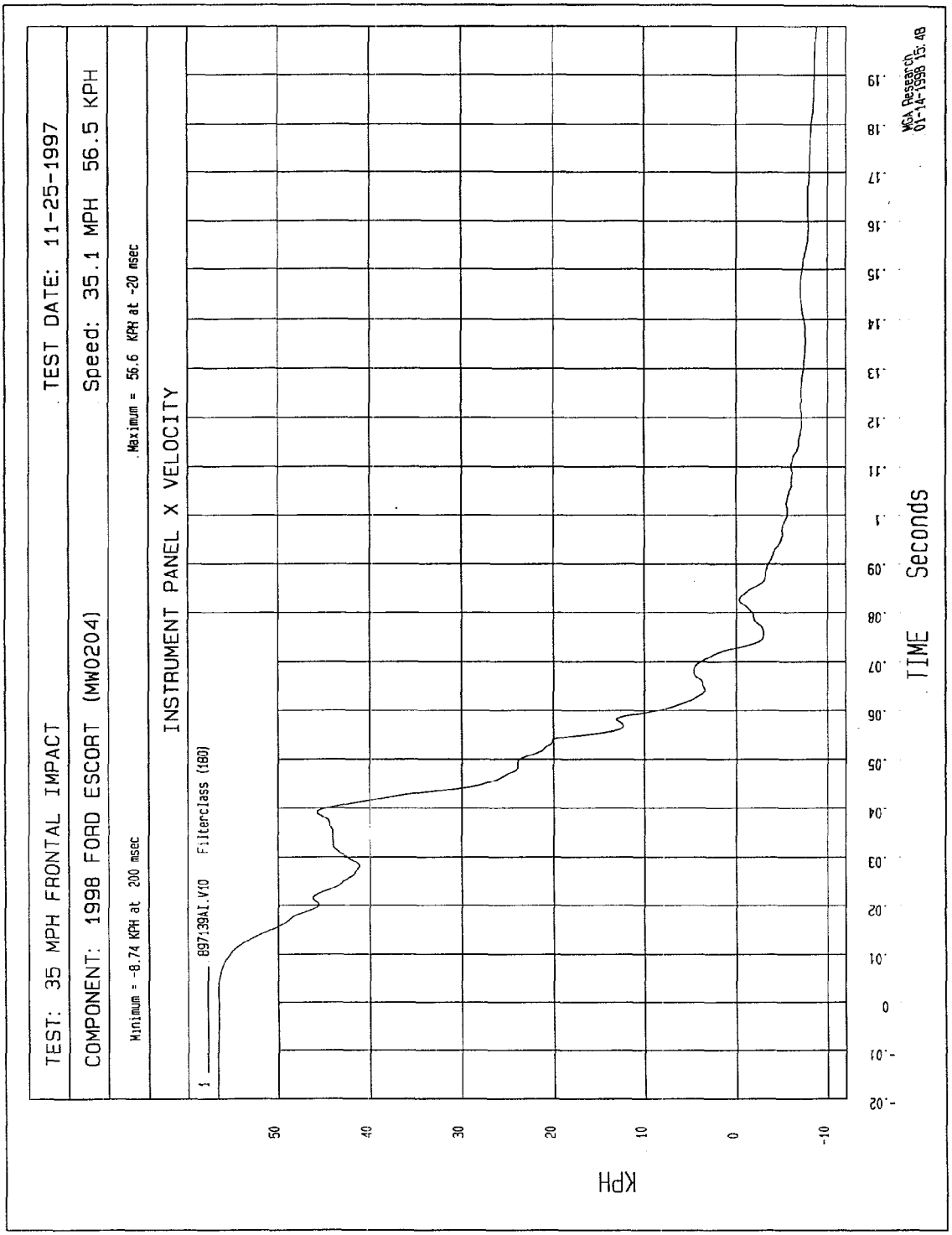

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 0 MM at -20 msec
Maximum = 867.44 MM at 48 msec
LEFT FRONT BRAKE CALIPER X DISPLACEMENT
1 897139AI.D82 Filterclass (180)
MM
900
800
700
600
500
400
300
200
100
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
TIME Seconds
MGA Research
01-14-1998 15:49

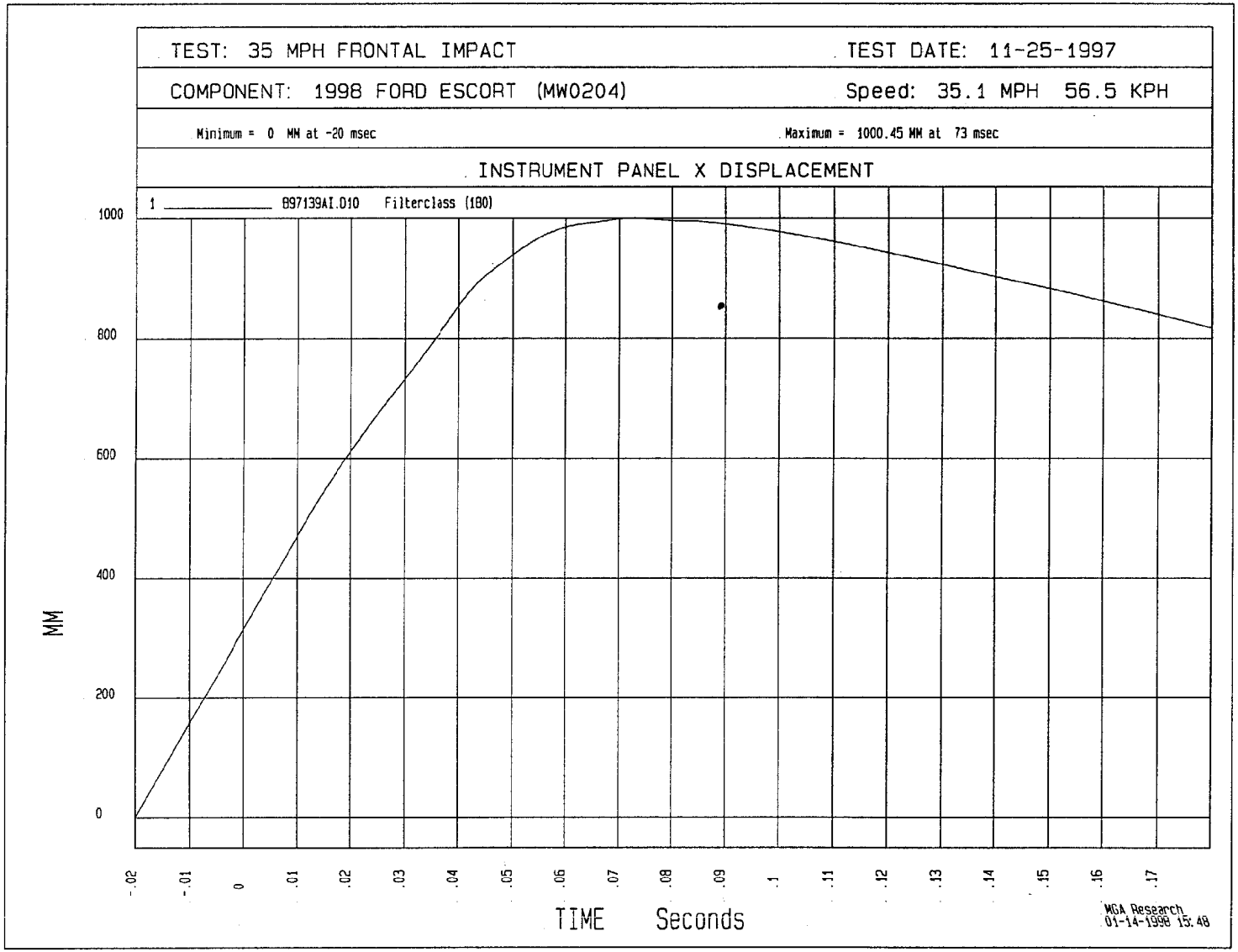

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -99.26 G'S at 45 msec
Maximum = 25.28 G'S at 58 msec
RIGHT FRONT BRAKE CALIPER X ACCELERATION
1 B97139AF.A81 Filterclass (60)
20
0
-20
-40
-60
-80
-100
G's
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:49

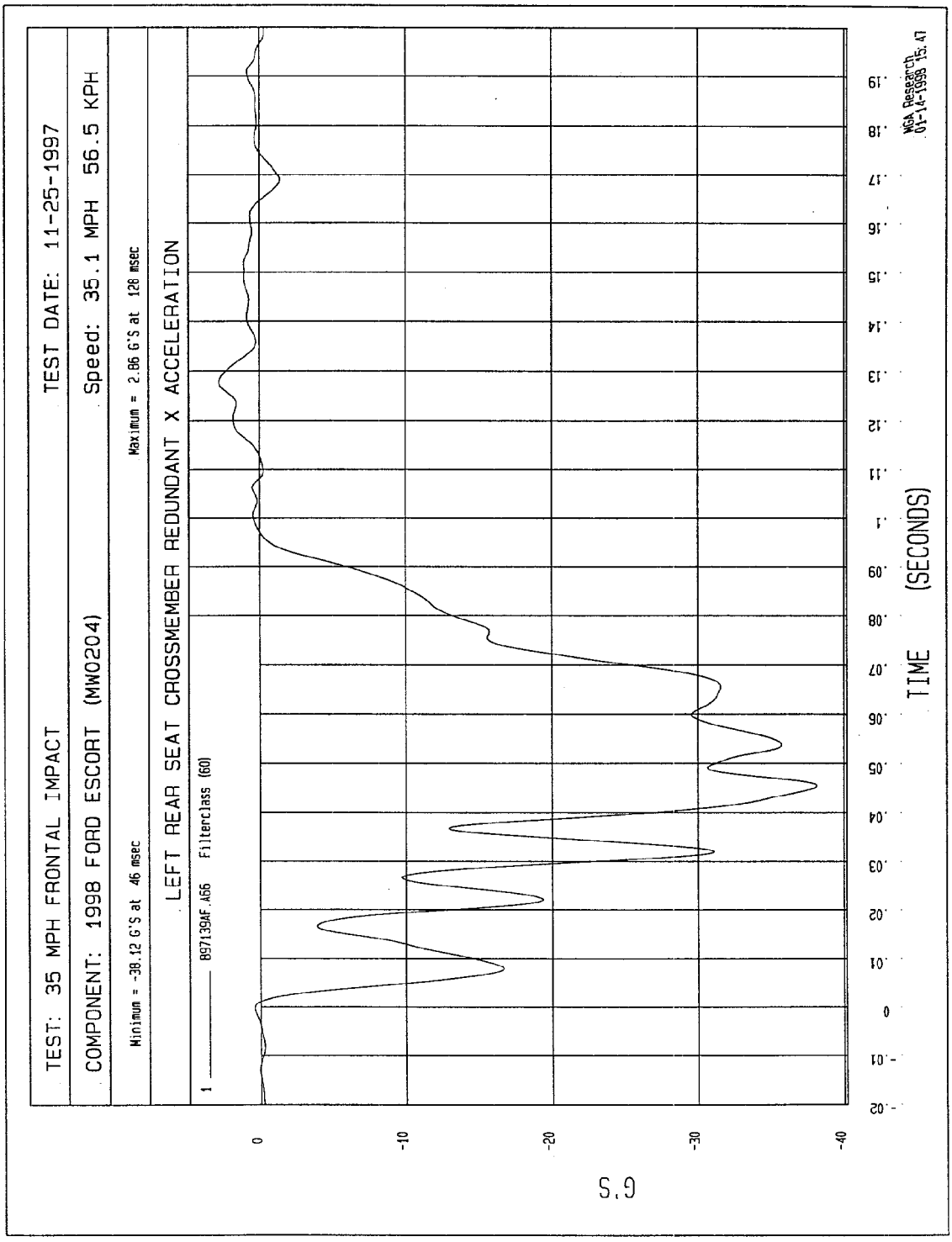

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -.88 KPH at 92 msec
Maximum = 56.89 KPH at 7 msec
RIGHT FRONT BRAKE CALIPER X VELOCITY
1 897139AI V81 Filterclass (180)
KPH
50
40
30
20
10
0
-02
-01
0
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
TIME Seconds
MGA Research
01-14-1998 15:49

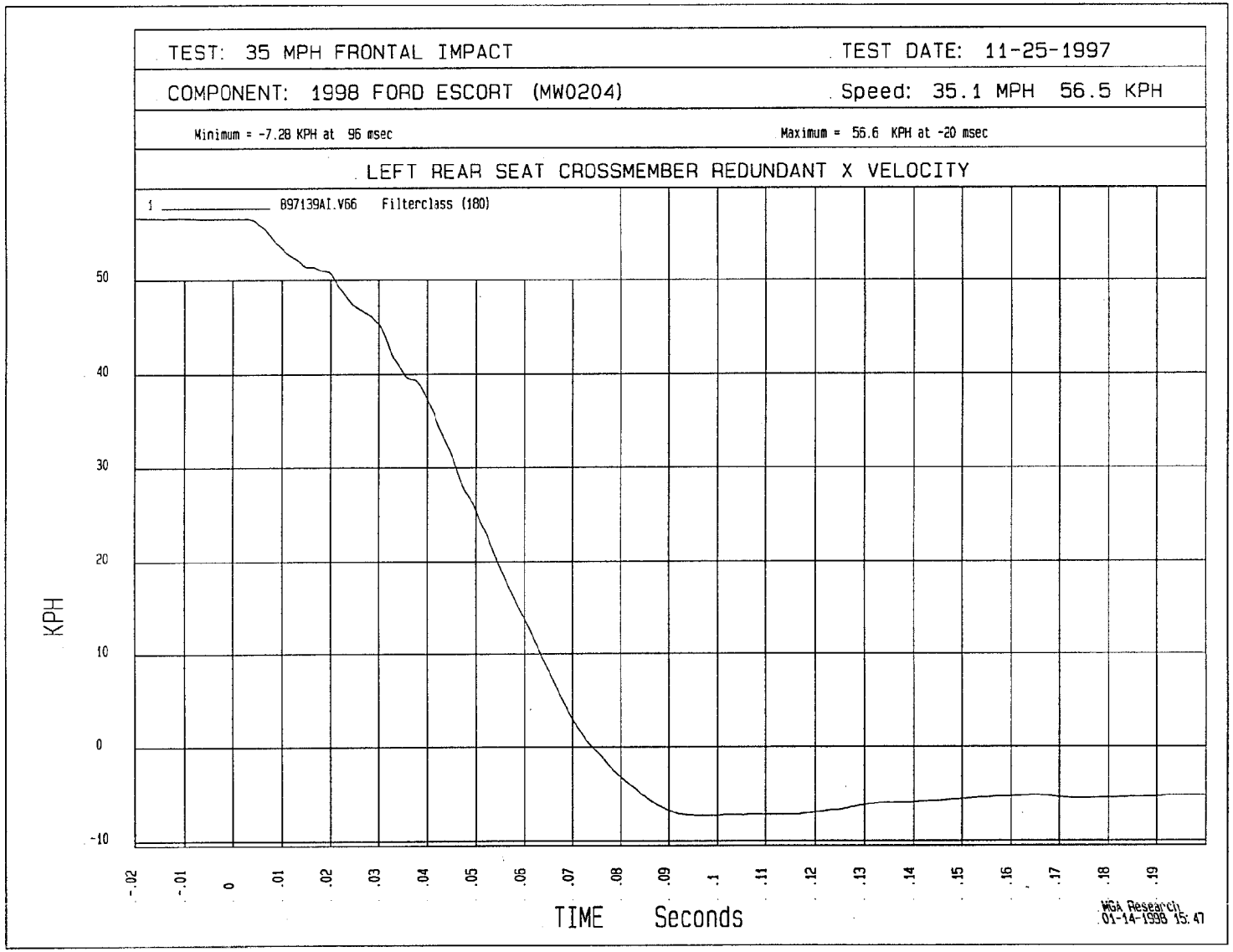

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 0 MM at -20 msec
Maximum = 991.69 MM at 200 msec
RIGHT FRONT BRAKE CALIPER X DISPLACEMENT
1 B9713SAI.DB1 Filterclass (180)
1000
800
600
400
200
0
MM
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
TIME Seconds
MGA Research
01-14-1998 15:49

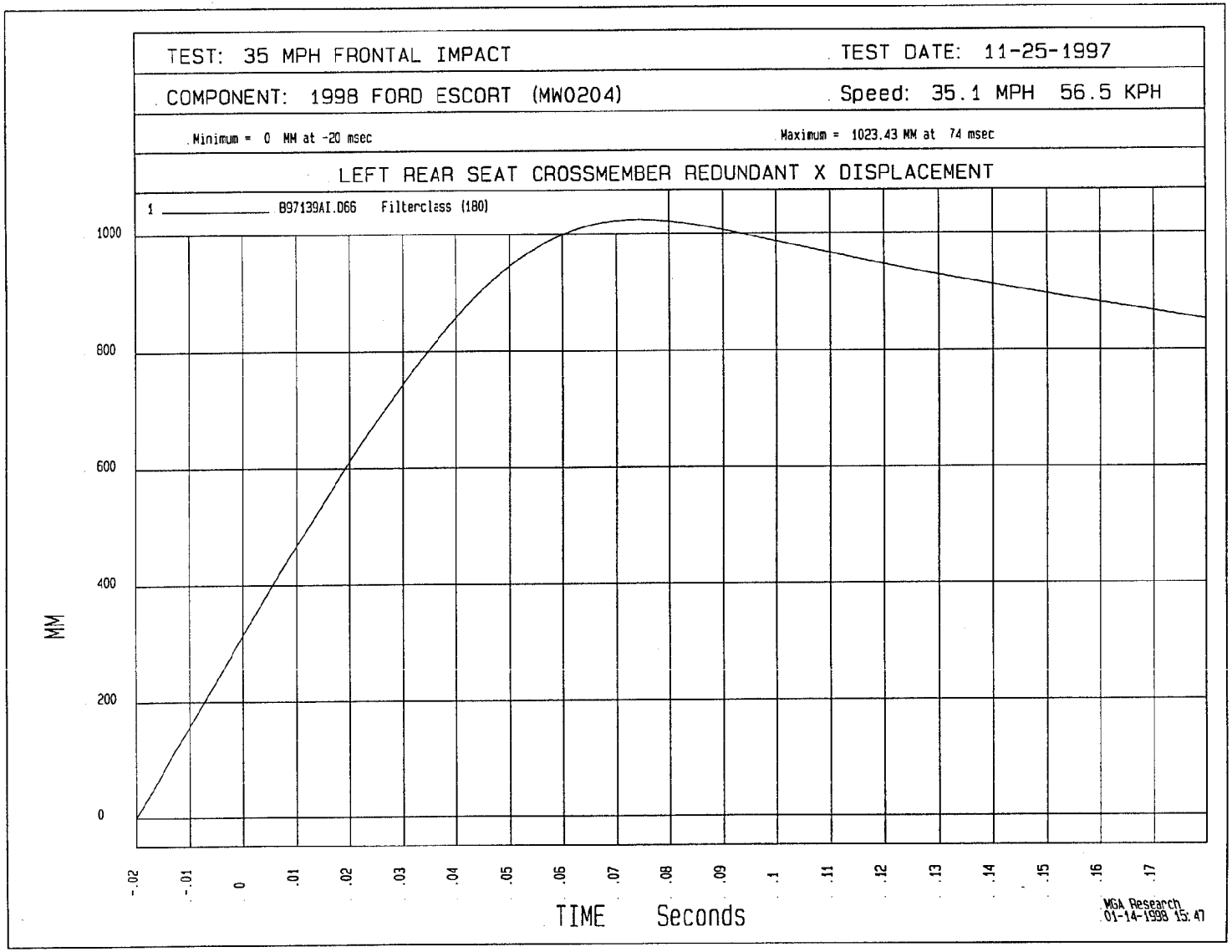

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -103.76 G'S at 43 msec
Maximum = 17.73 G'S at 30 msec
INSTRUMENT PANEL X ACCELERATION
1 _____ 097139AF.A10 Filterclass (60)
20
0
-20
-40
-60
-80
-100
G'S
.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-14-1998 15:48

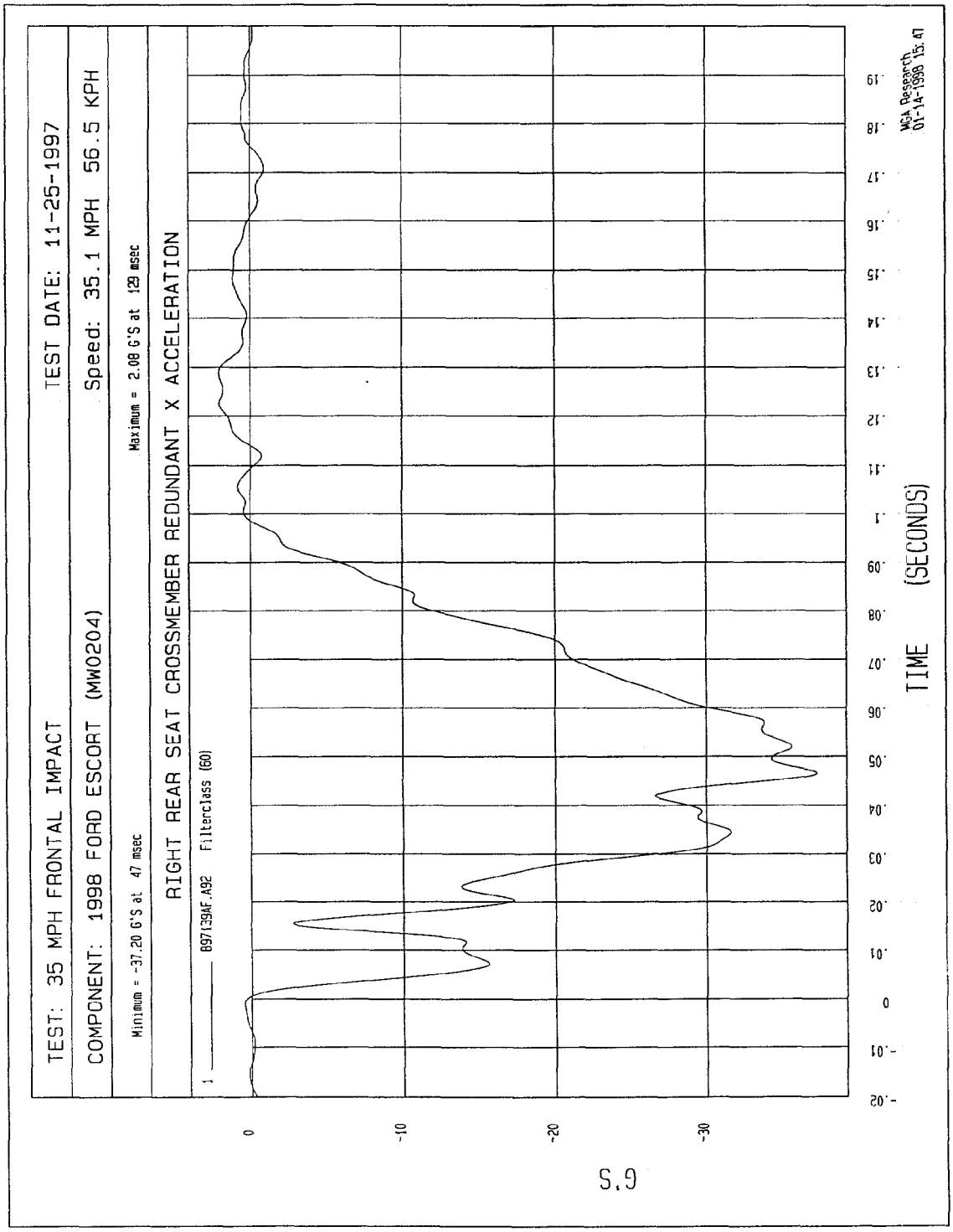

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -8.74 KPH at 200 msec
Maximum = 56.6 KPH at -20 msec
INSTRUMENT PANEL X VELOCITY
1 897:39A1.V10 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-14-1998 15:48

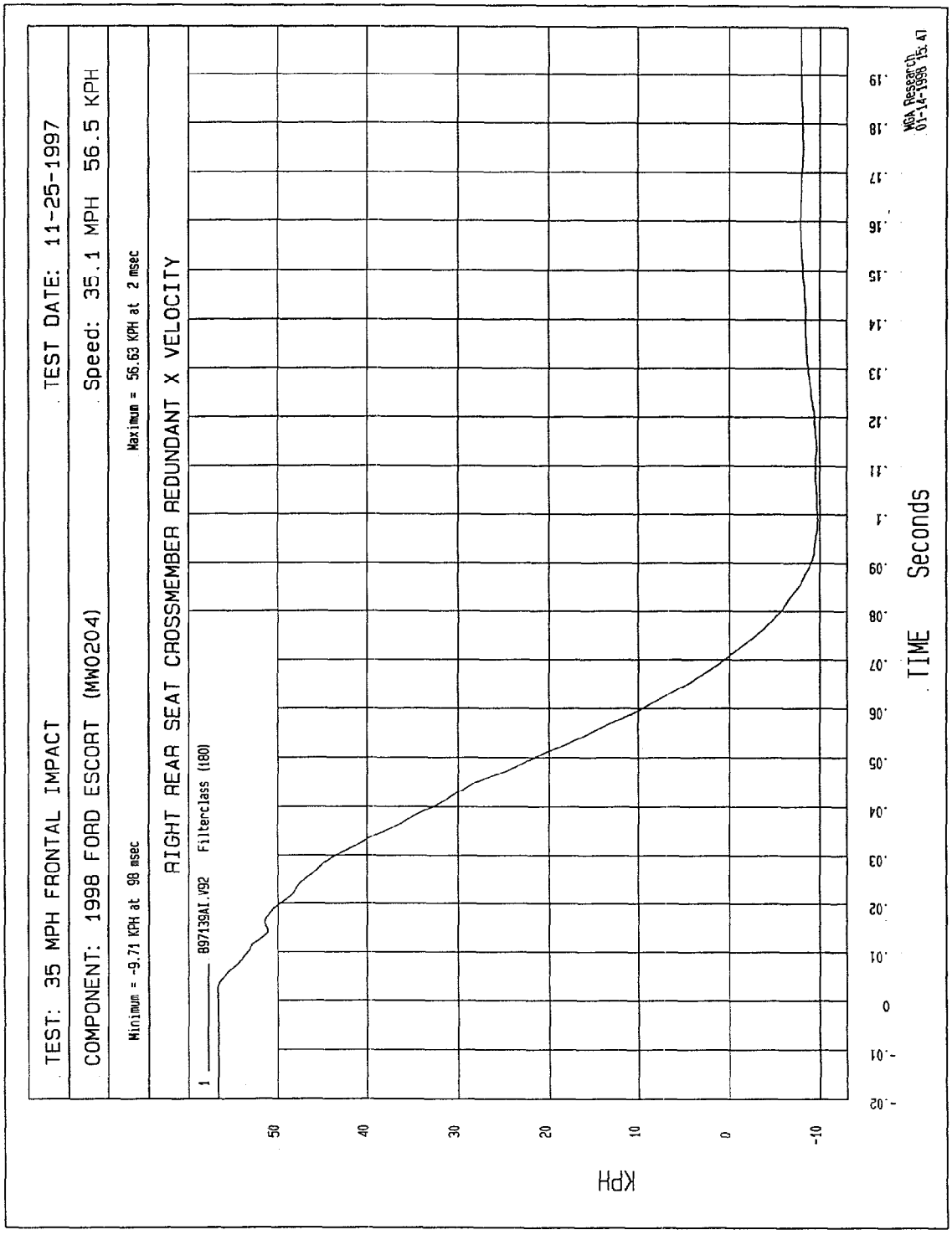

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 0 MM at -20 msec
Maximum = 1000.45 MM at 73 msec
INSTRUMENT PANEL X DISPLACEMENT
1 _____ B97139AI.D10 Filterclass (180)
MM
1000
800
600
400
200
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
TIME Seconds
MGA Research
01-14-1998 15:48

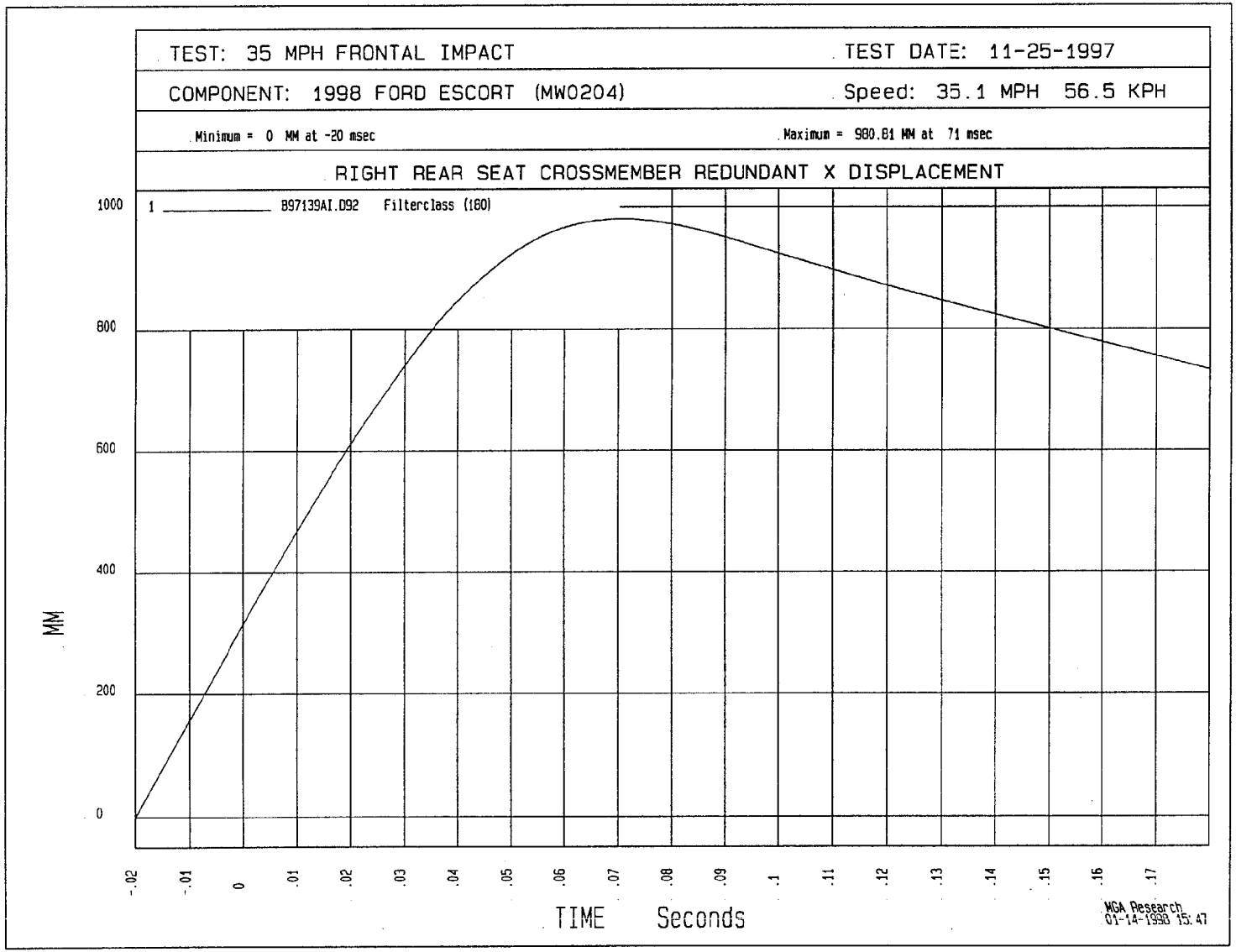

TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -38.12 G'S at 46 msec
Maximum = 2.86 G'S at 128 msec
LEFT REAR SEAT CROSSMEMBER REDUNDANT X ACCELERATION
1 _____ 897139AF.A66 Filterclass (60)
0
-10
-20
-30
-40
G'S
.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
NGA Research
01-14-1998 15:47


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -7.28 KPH at 96 msec
Maximum = 56.6 KPH at -20 msec
LEFT REAR SEAT CROSSMEMBER REDUNDANT X VELOCITY
1 B97139AI.V66 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-14-1998 15:47


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 0 MM at -20 msec
Maximum = 1023.43 MM at 74 msec
LEFT REAR SEAT CROSSMEMBER REDUNDANT X DISPLACEMENT
1 B97139AI.D66 Filterclass (180)
1000
800
600
400
200
0
MM
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
TIME Seconds
MGA Research
01-14-1998 15:47


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -37.20 G'S at 47 msec
Maximum = 2.08 G'S at 129 msec
RIGHT REAR SEAT CROSSMEMBER REDUNDANT X ACCELERATION
1 _____ 897139AF.A92 Filterclass (60)
0
-10
-20
-30
TIME (SECONDS)
MGA Research
01-14-1998 15:47
S.9
6'S


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = -9.71 KPH at 98 msec
Maximum = 56.63 KPH at 2 msec
RIGHT REAR SEAT CROSSMEMBER REDUNDANT X VELOCITY
1 B97139AI.V92 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-20
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-14-1998 15:47


TEST: 35 MPH FRONTAL IMPACT
TEST DATE: 11-25-1997
COMPONENT: 1998 FORD ESCORT (MW0204)
Speed: 35.1 MPH 56.5 KPH
Minimum = 0 MM at -20 msec
Maximum = 980.81 MM at 71 msec
RIGHT REAR SEAT CROSSMEMBER REDUNDANT X DISPLACEMENT
1 B97139AI.D92 Filterclass (180)
1000
800
600
400
200
0
MM
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
TIME Seconds
MGA Research
01-14-1998 15:47

APPENDIX C

DUMMY CONFIGURATION & PERFORMANCE VERIFICATION DATA

HYBRID III DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 066 DUMMY CALIBRATION BY: Tim Michnay

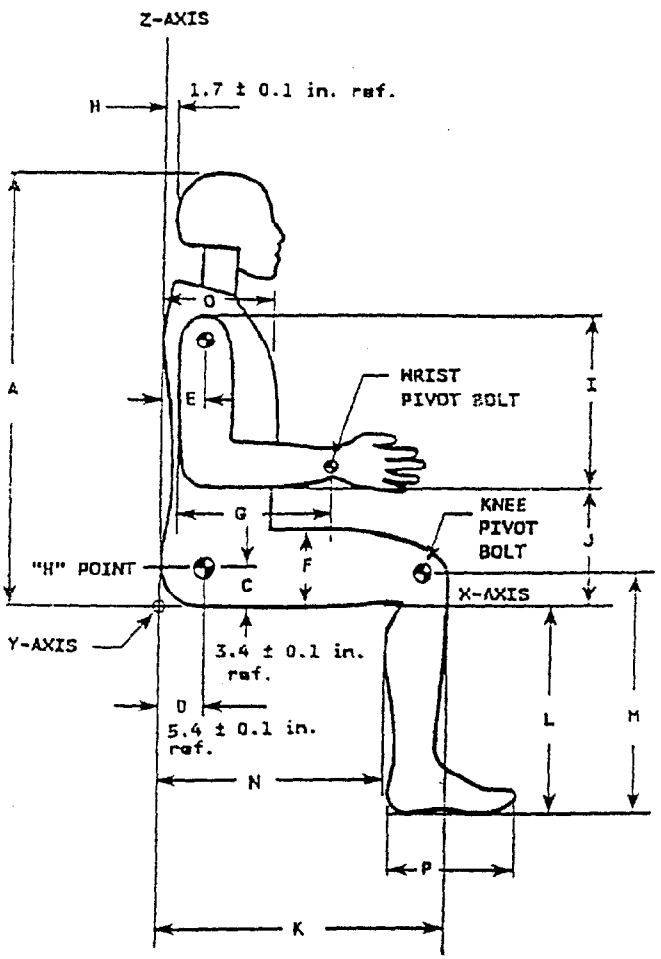
I. CONFIGURATION VERIFICATION DATA

DATE OF VERIFICATION: November 10, 1997

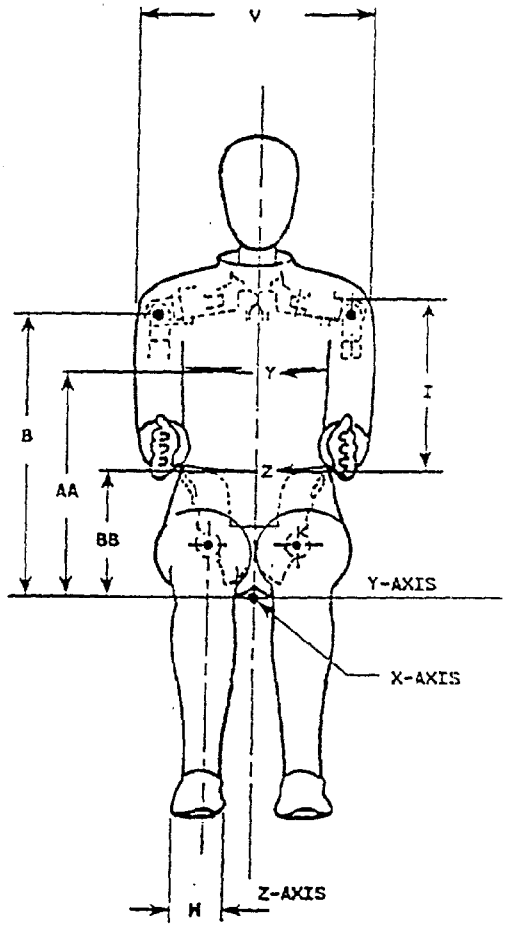
DESCRIPTION	SPECIFICATION (Inches)	ACTUAL MEASUREMENT (inches)
A - Total Sitting Height	34.6 - 35.0	34.8
B - Shoulder Pivot Height	19.9 - 20.5	20.5
C - "H" Point Height	3.3 - 3.5	3.5
D - "H" Point from Seat Back	5.3 - 5.5	5.5
E - Shoulder Pivot From Backline	3.3 - 3.7	3.5
F - Thigh Clearance	5.5 - 6.1	6.1
G - Back of Elbow to Wrist Pivot	11.4 - 12.0	11.5
H - Skull Cap Skin to Backline	1.6 - 1.8	1.7
I - Shoulder Elbow Length	13.0 - 13.6	13.0
J - Elbow Rest Height	7.5 - 8.3	8.0
K - Buttock Knee Length	22.8 - 23.8	23.5
L - Popliteal Height	16.9 - 17.9	17.0
M - Knee Pivot Height	19.1 - 19.9	19.5
N - Buttock Popliteal Length	17.8 - 18.8	18.5
O - Chest Depth at 3rd Rib	8.4 - 9.0	8.8
P - Foot Length	9.9 - 10.5	10.3
V - Shoulder Breadth	16.6 - 17.2	16.8
W - Foot Breadth	3.5 - 4.2	4.0
Y - Chest Circumference	38.2 - 39.4	39.0
Z - Waist Circumference	32.9 - 34.1	33.5

Note: (See next page for external dimensions)

HYBRID III EXTERNAL DIMENSIONS



SIDE VIEW



FRONT VIEW

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

HYBRID III DUMMY CALIBRATION DATA SUMMARY SHEET

DUMMY NO.: 066 DUMMY CALIBRATION BY: Tim Michnay

VERIFICATION DATE: November 25, 1997

VERIFICATION LABORATORY TEMPERATURE (66° - 78°): 70°

1.0 HEAD DROP TEST

	SPECIFICATION	MEASUREMENT
Peak Resultant Acceleration	225 - 275 G	269
Peak Lateral Acceleration	15 G. MAX	-2.5
Is Acceleration Curve Unimodel	within 10% of peak	Yes

2.0 NECK FLEXION TEST

		SPECIFICATION	MEASUREMENT
Pendulum Speed		22.6 - 23.4 FT/SEC	22.8
Pendulum Deceleration	10 MS	22.50 - 27.50 G	23.96
	20 MS	17.60 - 22.60 G	21.70
	30 MS	12.50 - 18.50 G	15.41
Max. Pendulum G Above 30 MS		29.0 G MAX	15.4
Deceleration - Time Curve Decay Time to 5 G		34 - 42 MS	37
D Plane Rotation	MAX	64 - 78 DEG.	75
	TIME	57 - 64 MS	57
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 MS	114
Moment About Occipital Condyle	MIN.	65 - 80 FT.LBS	70
	TIME	47 - 58 MS	49
Positive Moment - Time Curve Decay Time to Zero		97 - 107 MS	102

HYBRID III DUMMY CALIBRATION DATA SUMMARY SHEET (CONT.)

3.0 NECK EXTENSION TEST

		SPECIFICATION	MEASUREMENT
Pendulum Speed		19.50 - 20.30 F/S	19.99
Pendulum Deceleration	10 MS	17.20 - 21.20 G	19.80
	20 MS	14.00 - 19.00 G	16.51
	30 MS	11.00 - 16.00 G	14.11
Max. Pendulum G Above 30 MS		22 G Max	14
Deceleration - Time Curve Decay Time to 5 G		38 - 46 MS	39
D Plane Rotation	MAX	81 - 106 DEG.	100
	TIME	72 - 82 MS	73
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 MS	152
Moment About Occipital Condyle	MIN.	-59.0/-39.0 FT LBS	-55.0
	TIME	65 - 79 MS	70
Positive Moment - Time Curve Decay Time to Zero		120 - 148 MS	139

4.0 CHEST IMPACT TESTS

	SPECIFICATION	MEASUREMENT
Probe Speed	21.6 to 22.4 F/S	21.7
Peak Deflection	2.50 to 2.86 IN.	2.59
Peak Resistive Force	1160 to 1325 LBS.	1292
Internal Hysteresis	69 to 85%	70%

HYBRID III DUMMY CALIBRATION DATA SUMMARY SHEET (CONT.)

5.0 KNEE IMPACT TESTS

LEFT KNEE	SPECIFICATION	MEASUREMENT
Probe Speed	6.8 to 7.0 F/S	7.0
Maximum Force	1060 - 1300 LBS.	1263

RIGHT KNEE	SPECIFICATION	MEASUREMENT
Probe Speed	6.8 to 7.0 F/S	6.9
Maximum Force	1060 - 1300 LBS.	1257

6.0 HIP JOINT-FEMUR FLEXION TEST

LEFT KNEE	SPECIFICATION	MEASUREMENT	
		LEFT	RIGHT
Relative Humidity	10 - 70%	17%	
Rotation Rate	5-10 DEG/SEC.	Yes	Yes
70 FT-LBF	30 DEGREE MAX. ROTATION	56	48
150 FT-LBF	40-50 DEGREE MAX. ROTATION	45	43

HYBRID III DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 065 DUMMY CALIBRATION BY: Tim Michnay

I. CONFIGURATION VERIFICATION DATA

DATE OF VERIFICATION: November 25, 1997

DESCRIPTION	SPECIFICATION (inches)	ACTUAL MEASUREMENT (inches)
A - Total Sitting Height	34.6 - 35.0	34.9
B - Shoulder Pivot Height	19.9 - 20.5	20.5
C - "H" Point Height	3.3 - 3.5	3.5
D - "H" Point from Seat Back	5.3 - 5.5	5.5
E - Shoulder Pivot From Backline	3.3 - 3.7	3.5
F - Thigh Clearance	5.5 - 6.1	6.1
G - Back of Elbow to Wrist Pivot	11.4 - 12.0	11.5
H - Skull Cap Skin to Backline	1.6 - 1.8	1.7
I - Shoulder - Elbow Length	13.0 - 13.6	13.0
J - Elbow Rest Height	7.5 - 8.3	8.0
K - Buttock to Knee Length	22.8 - 23.8	23.5
L - Popliteal Height	16.9 - 17.9	17.0
M - Knee Pivot Height	19.1 - 19.9	19.5
N - Buttock Popliteal Length	17.8 - 18.8	18.5
O - Chest Depth at 3rd Rib	8.4 - 9.0	8.8
P - Foot Length	9.9 - 10.5	10.3
V - Shoulder Breadth	16.6 - 17.2	16.8
W - Foot Breadth	3.6 - 4.2	4.0
Y - Chest Circumference	38.2 - 39.4	39.0
Z - Waist Circumference	32.9 - 34.1	33.5

Note: (See next page C-2 for external dimensions)

HYBRID III DUMMY CALIBRATION DATA SUMMARY SHEET (CONT.)

DUMMY NO.: 065 DUMMY CALIBRATION BY: Tim Michnay

VERIFICATION DATE: November 25, 1997

VERIFICATION LABORATORY TEMPERATURE (66° - 78°): 70°

1.0 HEAD DROP TEST

	SPECIFICATION	MEASUREMENT
Peak Resultant Acceleration	225 - 275 G	272
Peak Lateral Acceleration	15 G. MAX	-4
Is Acceleration Curve Unimodal	within 10% of peak	Yes

2.0 NECK FLEXION TEST

		SPECIFICATION	MEASUREMENT
Pendulum Speed		22.6 - 23.4 FT/SEC	22.9
Pendulum Deceleration	10 MS	22.50 - 27.50 G	24.2
	20 MS	17.60 - 22.60 G	20.30
	30 MS	12.50 - 18.50 G	14.99
Max. Pendulum G Above 30 MS		29.0 G MAX	15.0
Deceleration - Time Curve Decay Time to 5 G		34 - 42 MS	38
D Plane Rotation	MAX	64 - 78 DEG.	76
	TIME	57 - 64 MS	57
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 MS	114
Moment About Occipital Condyle	MIN.	65 - 80 FT.LBS	70
	TIME	47 - 58 MS	51
Positive Moment - Time Curve Decay Time to Zero		97 - 107 MS	103

HYBRID III DUMMY CALIBRATION DATA SUMMARY SHEET (CONT.)

3.0 NECK EXTENSION TEST

		SPECIFICATION	MEASUREMENT
Pendulum Speed		19.50 - 20.30 F/S	20.18
Pendulum Deceleration	10 MS	17.20 - 21.20 G	19.22
	20 MS	14.00 - 19.00 G	17.11
	30 MS	11.00 - 16.00 G	14.20
Max. Pendulum G Above 30 MS		22 G Max	14
Deceleration - Time Curve Decay Time to 5 G		38 - 46 MS	40
D Plane Rotation	MAX	81 - 106 DEG.	99
	TIME	72 - 82 MS	72
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 MS	155
Moment About Occipital Condyle	MIN.	-59.0/-39.0 FT LBS	-53.6
	TIME	65 - 79 MS	70
Positive Moment - Time Curve Decay Time to Zero		120 - 148 MS	140

4.0 CHEST IMPACT TESTS

	SPECIFICATION	MEASUREMENT
Probe Speed	21.6 to 22.4 F/S	21.7
Peak Deflection	2.50 to 2.86 IN.	2.62
Peak Resistive Force	1160 to 1325 LBS.	1286
Internal Hysteresis	69 to 85%	70%

HYBRID III DUMMY CALIBRATION DATA SUMMARY SHEET (CONT.)

5.0 KNEE IMPACT TESTS

LEFT KNEE	SPECIFICATION	MEASUREMENT
Probe Speed	6.8 to 7.0 F/S	7.0
Maximum Force	1060 - 1300 LBS.	1158

RIGHT KNEE	SPECIFICATION	MEASUREMENT
Probe Speed	6.8 to 7.0 F/S	7.0
Maximum Force	1060 - 1300 LBS.	1226

6.0 HIP JOINT-FEMUR FLEXION TEST

LEFT KNEE	SPECIFICATION	MEASUREMENT	
		LEFT	RIGHT
Relative Humidity	10 - 70%	18%	
Rotation Rate	5-10 DEG/SEC.	Yes	Yes
70 FT-LBF	30 DEGREE MAX. ROTATION	61	65
150 FT-LBF	40-50 DEGREE MAX. ROTATION	41	41

APPENDIX D

TEST EQUIPMENT & INSTRUMENTATION CALIBRATION

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENTS FOR DUMMY NO. 066

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	ACCY6	Endevco	October 28, 1997
Head Y	ACCH1	Endevco	October 28, 1997
Head Z	AAMW5	Endevco	October 28, 1997
Head X Redundant	AJ9D2	Endevco	October 28, 1997
Head Y Redundant	AII1E2	Endevco	October 28, 1997
Head Z Redundant	AJ7K3	Endevco	October 28, 1997
Chest X	ACCY1	Endevco	October 29, 1997
Chest Y	ACCC8	Endevco	October 29, 1997
Chest Z	ACCT7	Endevco	October 29, 1997
Chest X Redundant	AJ9D4	Endevco	October 29, 1997
Chest Y Redundant	AJ9F3	Endevco	October 29, 1997
Chest Z Redundant	AJ9D9	Endevco	October 29, 1997
Right Femur Load Cell	261	Denton	October 31, 1997
Left Femur Load Cell	262	Denton	October 31, 1997
Pelvis X	ALDY8	Endevco	October 28, 1997
Pelvis Y	ALEK9	Endevco	October 28, 1997
Pelvis Z	ALE80	Endevco	October 28, 1997

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENTS FOR DUMMY NO. 066

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Neck Load Cell X	443	Denton	September 22, 1997
Neck Load Cell Y	443	Denton	September 22, 1997
Neck Load Cell Z	443	Denton	September 22, 1997
Neck Moment X	443	Denton	September 22, 1997
Neck Moment Y	443	Denton	September 22, 1997
Neck Moment Z	443	Denton	September 22, 1997
Chest Deflection Gauge	066	Servo	October 30, 1997
Lap Belt Load Cell	212	GSE	June 12, 1997
Torso Belt Load Cell	657	GSE	June 3, 1997

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENTS FOR DUMMY NO. 066

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Right Tibia Moment X	040	Denton	September 23, 1997
Upper Right Tibia Moment Y	040	Denton	September 23, 1997
Lower Right Tibia Moment Y	034	Denton	September 26, 1997
Lower Right Tibia Force X	034	Denton	September 26, 1997
Lower Right Tibia Force Z	034	Denton	September 26, 1997
Upper Left Tibia Moment X	023	Denton	September 26, 1997
Upper Left Tibia Moment Y	023	Denton	September 26, 1997
Lower Left Tibia Moment Y	019	Denton	September 26, 1997
Lower Left Tibia Force X	019	Denton	September 26, 1997
Lower Left Tibia Force Z	019	Denton	September 26, 1997
Right Foot Ball Z	J13652	Endevco	October 30, 1997
Right Foot Heel X	J14006	Endevco	October 30, 1997
Right Toe Z	J13628	Endevco	October 30, 1997
Left Foot Ball Z	J13650	Endevco	October 30, 1997
Left Foot Heel X	J13424	Endevco	October 30, 1997
Left Foot Heel Z	J14007	Endevco	October 30, 1997

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENTS FOR DUMMY NO. 065

	PASSENGER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	AAMN8	Endevco	October 28, 1997
Head Y	ACC61	Endevco	October 28, 1997
Head Z	ACCW9	Endevco	October 28, 1997
Head X Redundant	AJ621	Endevco	October 28, 1997
Head Y Redundant	AJ619	Endevco	October 28, 1997
Head Z Redundant	AHY54	Endevco	October 28, 1997
Chest X	ACC78	Endevco	October 28, 1997
Chest Y	ACCE6	Endevco	October 28, 1997
Chest Z	ACCY3	Endevco	October 28, 1997
Chest X Redundant	AJ9J7	Endevco	October 28, 1997
Chest Y Redundant	AJ7A2	Endevco	October 28, 1997
Chest Z Redundant	AJ819	Endevco	October 28, 1997
Right Femur Load Cell	259	Denton	October 31, 1997
Left Femur Load Cell	260	Denton	October 31, 1997
Pelvis X	ALE80	Endevco	October 28, 1997
Pelvis Y	ALB87	Endevco	October 28, 1997
Pelvis Z	AHRP5	Endevco	October 28, 1997

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENTS FOR DUMMY NO. 065

	PASSENGER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Neck Load Cell X	442	Denton	September 22, 1997
Neck Load Cell Y	442	Denton	September 22, 1997
Neck Load Cell Z	442	Denton	September 22, 1997
Neck Moment X	442	Denton	September 22, 1997
Neck Moment Y	442	Denton	September 22, 1997
Neck Moment Z	442	Denton	September 22, 1997
Chest Deflection Gauge	065	Servo	October 30, 1997
Lap Belt Load Cell	211	GSE	June 12, 1997
Torso Belt Load Cell	624	Lebow	June 12, 1997

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENTS FOR DUMMY NO. 065

	PASSENGER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Right Tibia Moment X	036	Denton	September 23, 1997
Upper Right Tibia Moment Y	036	Denton	September 23, 1997
Lower Right Tibia Moment Y	040	Denton	September 26, 1997
Lower Right Tibia Force X	040	Denton	September 26, 1997
Lower Right Tibia Force Z	040	Denton	September 26, 1997
Upper Left Tibia Moment X	039	Denton	September 23, 1997
Upper Left Tibia Moment Y	039	Denton	September 23, 1997
Lower Left Tibia Moment Y	033	Denton	September 26, 1997
Lower Left Tibia Force X	033	Denton	September 23, 1997
Lower Left Tibia Force Z	033	Denton	September 26, 1997
Right Foot Ball Z	J11625	Endevco	October 28, 1997
Right Foot Heel X	J10730	Endevco	October 28, 1997
Right Toe Z	J11625	Endevco	October 28, 1997
Left Foot Ball Z	J11784	Endevco	October 28, 1997
Left Foot Heel X	J11047	Endevco	October 28, 1997
Left Foot Heel Z	J11046	Endevco	October 28, 1997

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Rear Seat Crossmember X	F11-G07	Entran	July 16, 1997
Right Rear Seat Crossmember X	G01-J10	Entran	August 7, 1997
Top of Engine Block X	E13-D06	Entran	November 5, 1997
Bottom of Engine X	D05-R05	Entran	July 2, 1997
Left Brake Caliper X	J06-D22	Entran	June 12, 1997
Right Brake Caliper X	C20-J10	Entran	August 6, 1997
Instrument Panel X	I26-D06	Entran	August 5, 1997
Redundant Left Rear Seat Crossmember X	F12-G05	Entran	August 7, 1997
Redundant Right Rear Seat Crossmember X	H02-J02	Entran	August 6, 1997

	LABORATORY INSTRUMENTS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Neck Bending Pendulum Accelerometer	C12871	Endevco	October 27, 1997
Neck Bending Head Rotary Potentiometer	018	Spectrol	August 7, 1997
Neck Bending Pendulum Rotary Potentiometer	019	Spectrol	August 7, 1997
Chest Probe Accelerometer	J13780	Endevco	September 15, 1997
Knee Impact Accelerometer	J13530	Entran	June 4, 1997

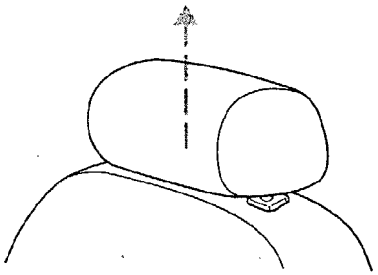
APPENDIX E

VEHICLE OWNER'S OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

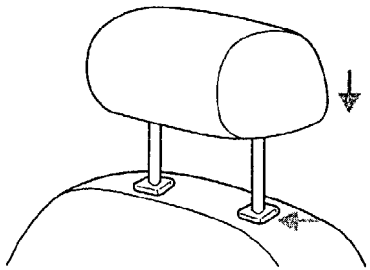
SEATING

Adjustable head restraints (if equipped)

The head restraints can be moved up and down.



Push control to lower head restraint.



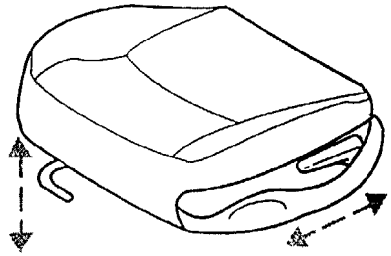
Front seats

⚠ Never adjust the driver's seat or seatback when the vehicle is moving.

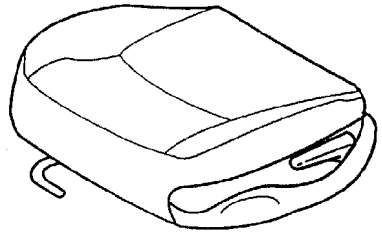
⚠ Do not pile cargo higher than the seatbacks to avoid injuring people in a collision or sudden stop.

⚠ Always drive and ride with your seatback upright and the lap belt snug and low across the hips.

Lift handle to move seat forward or backward.

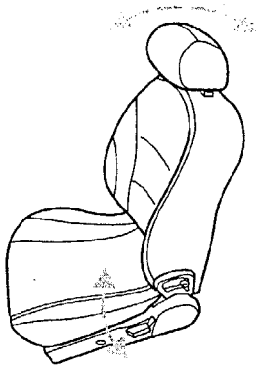


Pull lever up to adjust seatback.

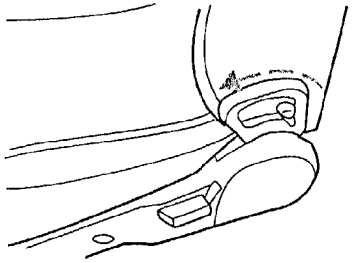


Driver seat memory recliner (if equipped)

- Pull control to adjust seatback.



- To retain selected seatback position, release seatback by moving memory recliner control forward to release seatback.



- Push seatback rearward until the seatback latches. This will be the first position selected.

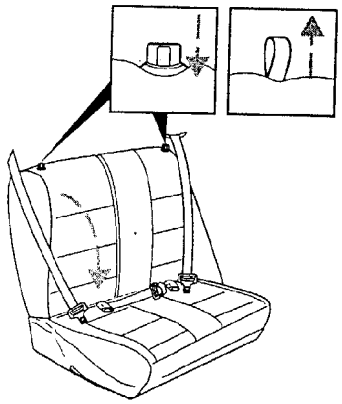
Folding rear seats (if equipped)

Folding down the rear seats

If your vehicle is equipped with a built-in child seat, the seatback cannot be folded down unless the built-in child seat is fully stowed. See *Built-in child seats* in this chapter for more information.

To fold the seatback down:

- Press the latch control downward or pull up on strap and
- Push the seatback down.



Returning the seat to the upright position

Check to see that the seat and seatback is latched securely in position. Keep floor area free of objects that would prevent proper seat engagement. Never attempt to adjust the seat while the vehicle is in motion.

To return the seat to the upright/normal seating position:

- Rotate seat upward and latch.

The full rear bench seat is shown. The split-folding rear seat (if equipped) operates in a similar manner.

SAFETY RESTRAINTS

Safety restraints precautions

⚠ Always drive and ride with your seatback upright and the lap belt snug and low across the hips.

⚠ To prevent the risk of injury, make sure children sit where they can be properly restrained.

⚠ Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.

⚠ All occupants of the vehicle, including the driver, should always wear their safety belts.

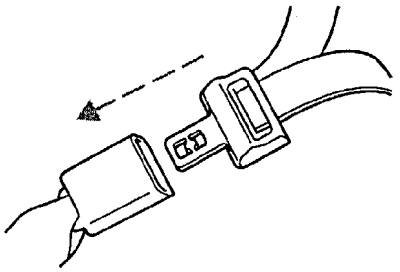
⚠ It is extremely dangerous to ride in a cargo area, inside or outside of a vehicle. In a collision, people riding in these areas are more likely to be seriously injured or killed. Do not allow people to ride in any area of your vehicle that is not equipped with seats and safety belts. Be sure everyone in your vehicle is in a seat and using a safety belt properly.

⚠ Each seating position in your vehicle has a specific safety belt assembly which is made up of one buckle and one tongue that are designed to be used as a pair. 1) Use the shoulder belt on the outside shoulder only. Never wear the shoulder belt under the arm. 2) Never swing it around your neck over the inside shoulder. 3) Never use a single belt for more than one person.

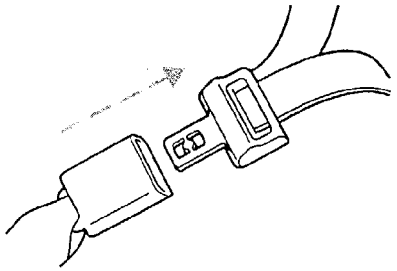
⚠ The ZX2 Coupe was designed to accommodate up to four people. Do not attempt to carry more occupants. All designed seating positions are equipped with safety belts. All occupants should be properly restrained. Failure to follow this warning could result in serious personal injury or death.

Combination lap and shoulder belts

1. To fasten, insert the tongue into the slot in the buckle.



2. To unfasten, push the red release button and remove the tongue from the buckle.



The front and rear outboard safety restraints in the vehicle are combination lap and shoulder belts. The front and rear seat passenger outboard safety belts have two types of locking modes described below:

Automatic locking mode

In this mode, the shoulder belt is automatically pre-locked. The belt will still retract to remove any slack in the shoulder belt.

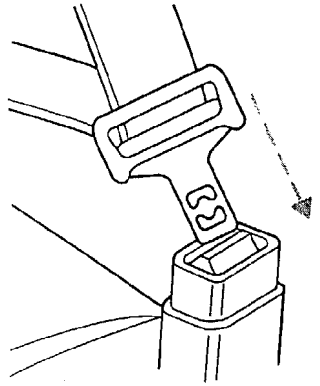
The automatic locking mode is not available on the driver safety belt.

When to use the automatic locking mode

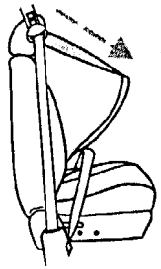
- When a tight lap/shoulder fit is desired.
- **Anytime** a child safety seat is installed in the vehicle. Refer to *Safety Restraints for Children* or *Safety Seats for Children* later in this chapter.

How to use the automatic locking mode

- Buckle the combination lap and shoulder belt.



- Grasp the shoulder portion and pull downward until the entire belt is extracted.



- Allow the belt to retract. As the belt retracts, you will hear a clicking sound. This indicates the safety belt is now in the automatic locking mode.

How to disengage the automatic locking mode

Disconnect the combination lap/shoulder belt and allow it to retract completely to disengage the automatic locking mode and activate the vehicle sensitive (emergency) locking mode.

Front safety belt height adjustment

Your vehicle has safety belt height adjustments for the driver and front passenger. Adjust the height of the shoulder belt so the belt rests across the middle of your shoulder.

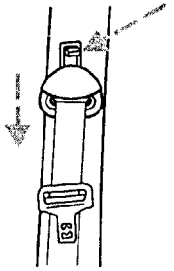
To lower the shoulder belt height, push the button and slide the height control down. To raise the height of the shoulder belt, slide the height adjuster up. Pull down on the height adjustment assembly to make sure it is locked in place.

⚠ Position the shoulder belt height adjuster so that the belt rests across the middle of your shoulder. Failure to adjust the safety belt properly could reduce the effectiveness of the safety belt and increase the risk of injury in a collision.

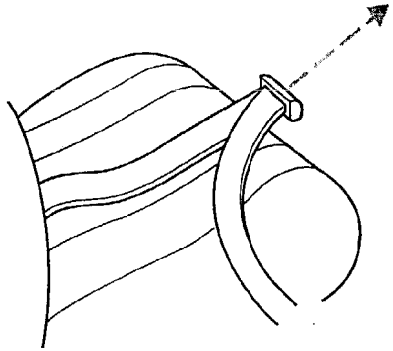
Lap belts

Adjusting the lap belt

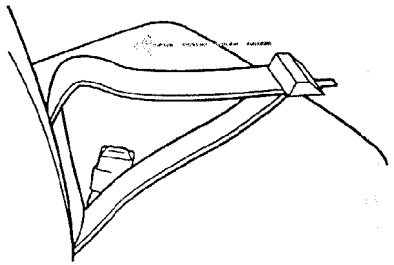
The lap belt does not adjust automatically. Adjust to fit snugly and as low as possible around your hips. Do not wear the lap belt around your waist.



Insert the tongue into the correct buckle. To lengthen the belt, turn the tongue at a right angle to the belt and pull across your lap until it reaches the buckle. To tighten the belt, pull the loose end of the belt through the tongue until it fits snugly across the hips.



Shorten and fasten the belt when not in use.



Safety belt extension assembly

If the safety belt assembly is too short, even when fully extended, 20 cm (8 inches) can be added to the safety belt assembly by adding a safety belt extension assembly (part number 611C22). Safety belt extension assemblies can be obtained from your dealer at no cost.

Use only extensions manufactured by the same supplier as the safety belt. Manufacturer identification is located at the end of the webbing on the label. Also, use the safety

belt extension only if the safety belt is too short for you when fully extended. Do not use extensions to change the fit of the shoulder belt across the torso.

Safety belt warning light and indicator chime

The seat belt warning light illuminates in the instrument cluster and a chime sounds to remind the occupants to fasten their safety belts.

Conditions of operation

If...	Then...
The driver's safety belt is not buckled before the ignition key is turned to ON...	The safety belt warning light illuminates for one to two minutes and the warning chime sounds for four to eight seconds.
The driver's safety belt is buckled while the indicator light is illuminated and the warning chime is sounding...	The safety belt warning light turns off.
The driver's safety belt is buckled before the ignition key is turned to ON...	The safety belt warning light remains off.

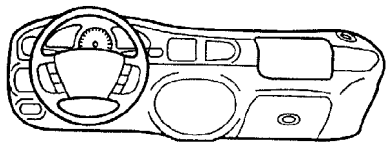
Safety belt maintenance

Check the safety belt systems periodically to make sure they work properly and are not damaged. Check the safety belts to make sure there are no nicks, wears or cuts. All safety belt assemblies, including retractors, buckles, front seat belt buckle assemblies (slide bar)(if equipped), shoulder belt height adjusters (if equipped), child safety seat tether bracket assemblies (if equipped), and attaching hardware, should be inspected after a collision. Ford recommends that all safety belt assemblies used in vehicles involved in a collision be replaced. However, if the collision was minor and a qualified technician finds that the belts do not show damage and continue to operate properly, they do not need to be replaced. Safety belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

⚠ Failure to replace the safety belt assembly under the above conditions could result in severe personal injuries in the event of a collision.

Refer to *Cleaning and maintaining the safety belts* in the *Maintenance and care* section.

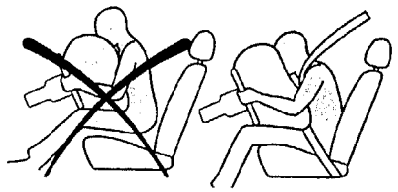
AIR BAG SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

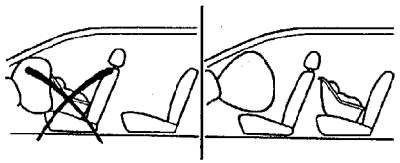


Important supplemental restraint system (SRS) precautions

The supplemental restraint system is designed to:

- work with the safety belt to protect the driver and right front passenger
- reduce certain upper body injuries





⚠ Failure to follow these instructions will affect the performance of the safety belts and increase the risk of personal injury.

⚠ The right front passenger air bag is not designed to restrain occupants in the center front seating position.

⚠ All occupants of the vehicle including the driver should always wear their safety belts even when air bag SRS is provided.

⚠ Do not place objects or mount equipment on or near the air bag cover on the steering wheel or in front seat areas that may come into contact with a deploying air bag. Failure to follow this instruction may increase the risk of personal injury in the event of a collision.

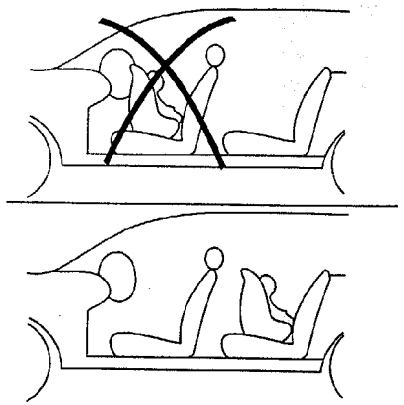
⚠ Do not attempt to service, repair, or modify the Air Bag Supplemental Restraint System or its fuses. See your Ford or Lincoln-Mercury dealer.

Children and air bags

For additional important safety information, read all information on safety restraints in this guide.

Children should always wear their safety belts. Failure to follow these instructions may increase the risk of injury in a collision.

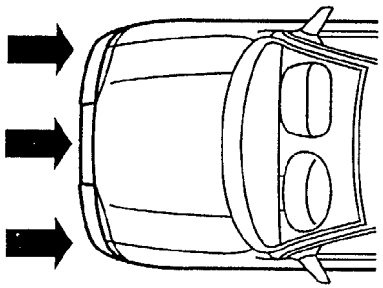
⚠ Air bag can kill or injure a child in a child seat. If you must use a forward-facing child seat in the front seat, move seat all the way back.



How does the air bag supplemental restraint system work?

The SRS is designed to activate when the vehicle sustains sufficient longitudinal deceleration.

The fact that the air bags did not inflate in a collision does not mean that something is wrong with the system. Rather, it means the forces were not of the type sufficient to cause activation.



The air bags inflate and deflate rapidly upon activation.

After air bag deployment, it is normal to notice a smoke-like, powdery residue or smell the burnt propellant. This may consist of cornstarch, talcum powder (to lubricate the bag) or sodium compounds (e.g., baking soda) that result from the combustion process that inflates the air bag. Small amounts of sodium hydroxide may be present which may irritate the skin and eyes, but none of the residue is toxic.

Several air bag system components get hot after inflation. Do not touch them after inflation.

If the air bag is inflated, the air bag will not function again and must be replaced immediately. If the air bag is not replaced, the unrepaired area will increase the risk of injury in a collision.

The SRS consists of:

- driver and passenger air bag modules (which include the inflators and air bags),
- one or more impact and safing sensors,
- a readiness light and tone
- and the electrical wiring which connects the components.

The diagnostic module monitors its own internal circuits and the supplemental air bag electrical system warning (including the impact sensors), the system wiring, the air bag system readiness light, the air bag back up power and the air bag ignitors.

Determining if the system is operational

The SRS uses a readiness light in the instrument cluster or a tone to indicate the condition of the system. Refer to the *Air bag readiness* section in the *Instrumentation* chapter. Routine maintenance of the air bag is not required.

A difficulty with the system is indicated by one or more of the following:

- The readiness light will either flash or stay lit.
- The readiness light will not illuminate immediately after ignition is turned on.
- A series of five beeps will be heard. The tone pattern will repeat periodically until the problem and light are repaired.

If any of these things happen, even intermittently, have the SRS serviced at your dealership or by a qualified technician immediately. Unless serviced, the system may not function properly in the event of a collision.

Disposal of air bags and air bag equipped vehicles

For disposal of air bags or air bag equipped vehicles, see your local dealership or qualified technician. Air bags MUST BE disposed of by qualified personnel.

SAFETY RESTRAINTS FOR CHILDREN

Important child restraint precautions

You are required by law to use safety restraints for children in the U.S. and Canada. If small children ride in your vehicle (generally children who are four years old or younger and who weigh 18 kg [40 lbs] or less), you must put them in safety seats made especially for children. Check your local and state or provincial laws for specific requirements regarding the safety of children in your vehicle.

⚠ Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.

Always follow the instructions and warnings that come with any infant or child restraint you might use.

When possible, place children in the rear seat of your vehicle. Accident statistics suggest that children are safer when properly restrained in the rear seating positions than in the front seating position.

Children and safety belts

Children who are too large for child safety seats (as specified by your child safety seat manufacturer) should always wear safety belts.

Follow all the important safety restraint and air bag precautions that apply to adult passengers in your vehicle.

If the shoulder belt portion of a combination lap and shoulder belt can be positioned so it does not cross or rest in front of the child's face or neck, the child should wear the lap and shoulder belt. Moving

the child closer to the center of the vehicle may help provide a good shoulder belt fit.

If the shoulder belt cannot be properly positioned:

- move the child to one of the seats with a lap belt only (if equipped)

OR

- if the child is the proper size, restrain the child in a safety seat.

⚠ Do not leave children, unreliable adults, or pets unattended in your vehicle.

To improve the fit of lap and shoulder belts on children who have outgrown child safety seats, Ford recommends use of a belt-positioning booster seat that is labelled as conforming to all Federal motor vehicle safety standards. Belt-positioning booster seats raise the child and provide a shorter, firmer seating cushion that encourages safer seating posture and better fit of lap and shoulder belts on the child. A belt-positioning booster should be used if the shoulder belt rests in front of the child's face or neck, or if the lap belt does not fit snugly on both thighs, or if the thighs are too short to let the child sit all the way back on the seat cushion when the lower legs hang over the edge of the seat cushion. You may wish to discuss the special needs of your child with your pediatrician.

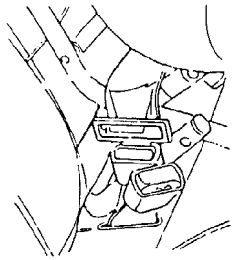
SAFETY SEATS FOR CHILDREN

Child and infant or child safety seats

Use a safety seat that is recommended for the size and weight of the child. Carefully follow all of the manufacturer's instructions with the safety seat you put in your vehicle. If you do not install and use the safety seat properly, the child may be injured in a sudden stop or collision.

When installing a child safety seat:

- Use the correct safety belt buckle for that seating position.
- Make sure the tongue is securely fastened in the buckle.
- Keep the buckle release button pointing up and away from the safety seat, with the tongue between the child seat and the release button, to prevent accidental unbuckling.
- Place seat back in upright position.
- Put the safety belt in the automatic locking mode. Refer to *Automatic locking mode.*



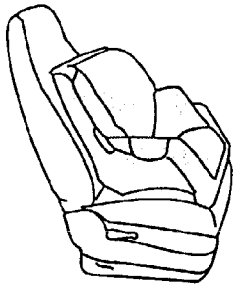
Ford recommends the use of a child safety seat having a top tether strap. Install the child safety seat in a seating position which is capable of providing a tether anchorage. For more information on top tether straps, refer to

Attaching safety seats with tether straps.

⚠ Carefully follow all of the manufacturer's instructions included with the safety seat you put in your vehicle. If you do not install and use the safety seat properly, the child may be injured in a sudden stop or collision.

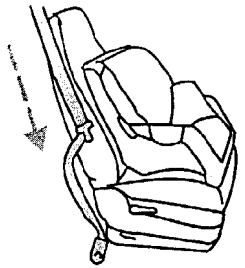
Installing child safety seats in combination lap and shoulder belt seating positions

1. Position the child safety seat in a seat with a combination lap and shoulder belt.

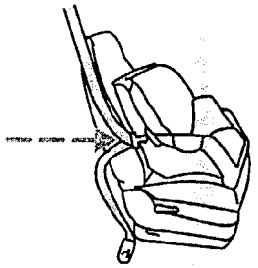


⚠ Air bag can kill or injure a child in a child seat. If you must use a forward-facing child seat in the front seat, move seat all the way back.

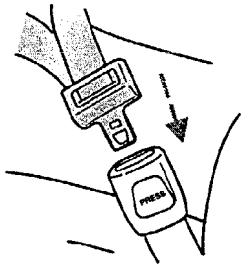
2. Pull down on the shoulder belt and then grasp the shoulder belt and lap belt together.



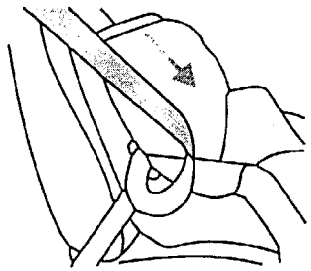
3. While holding the shoulder and lap belt portions together, route the tongue through the child seat according to the child seat manufacturer's instructions. Be sure the belt webbing is not twisted.



4. Insert the belt tongue into the proper buckle for that seating position until you hear and feel the latch engage. Make sure the tongue is latched securely by pulling on it.

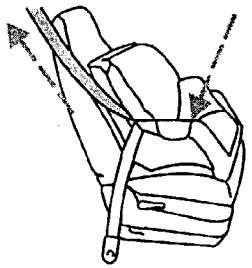


5. To put the retractor in the automatic locking mode, grasp the shoulder portion of the belt and pull downward until all of the belt is extracted and a click is heard.



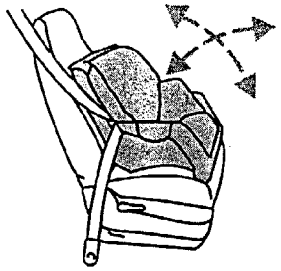
6. Allow the belt to retract. The belt will click as it retracts to indicate it is in the automatic locking mode.

7. Pull the lap belt portion across the child seat toward the buckle and pull up on the shoulder belt while pushing down with your knee on the child seat.



8. Allow the safety belt to retract to remove any slack in the belt.

9. Before placing the child in the seat, forcibly tilt the seat forward and back to make sure the seat is securely held in place.



10. Try to pull the belt out of the retractor to make sure the retractor is in the automatic locking mode (you should not be able to pull more belt out). If the retractor is not locked, unbuckle the belt and repeat steps two through nine.

Check to make sure the child seat is properly secured before each use.

Attaching safety seats with tether straps

Some manufacturers make safety seats that include a tether strap that goes over the back of the vehicle seat and attaches to an anchoring point. Other manufacturers offer the tether strap as an accessory. Contact the manufacturer of your child safety seat for information about ordering a tether strap.

Tether anchorage hardware (Coupe)

Attachment holes (at each rear outboard seating position) have been provided in your vehicle to attach anchor hardware, if required. Tether anchorage hardware kits (part number 613D74) including instructions, may be obtained at no charge from any Ford or Lincoln-Mercury dealer. All vehicles built for sale in Canada include a tether anchor hardware kit.

Be sure to follow the child safety seat manufacturer's instructions.

Tighten the anchor according to specifications. Otherwise, the safety seat may not be properly secured and the child may be injured in a sudden stop or collision.

1. Install the child safety seat in the rear right or rear left seat position. For instructions on how to install the seat, refer to *Installing child safety seats in combination lap and shoulder belt seating positions* in this chapter.

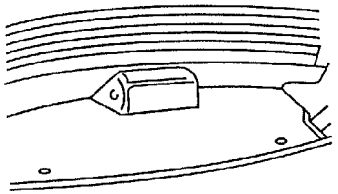
2. Refer to the instructions provided in the tether anchor kit.

3. Refer to the instructions provided with your child safety seat to securely attach the child safety seat by tether to the tether strap anchor location.

Tether anchorage hardware (Sedan/Wagon)

Attachment holes (at each rear seating position) have been provided in your vehicle to attach anchor hardware, if required. Tether anchorage hardware kits including instructions, may be obtained at no charge from any Ford or Lincoln-Mercury dealer. All vehicles built for sale in Canada include a tether anchor hardware kit.

Be sure to follow the child safety seat manufacturer's instructions.



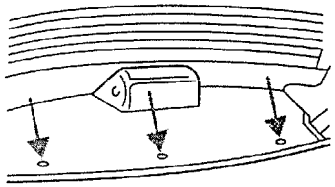
Tighten the anchor according to specifications. Otherwise, the safety seat may not be properly secured and the child may be injured in a sudden stop or collision.

1. Install the child safety seat in the rear right, rear left or rear center seat position. For instructions on how to install the seat, refer to *Installing child safety seats in combination lap and shoulder belt seating positions* in this chapter.

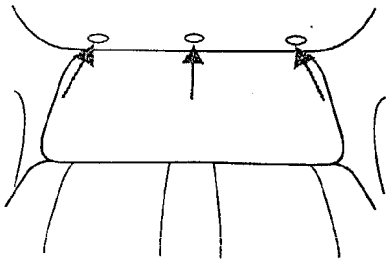
2. Refer to the instructions provided in the tether anchor kit.

3. Refer to the instructions provided with your child safety seat to securely attach the child safety seat by tether to the tether strap anchor location.

- Sedan



- Wagon



BUILT-IN CHILD SEATS

Built-in child safety seat (if equipped)

The rear seat may include a built-in child seat. This child seat conforms to all Federal and local motor vehicle safety standards. Read the labels located on the child seat cushion and shoulder belt for information on the built-in child seat.

Use the built-in child seat **only** if the child is at least 9 months old, weighs 9–27 kg (20–60 lb) and the child's shoulders (top) are below the shoulder harness slots in the built-in child seat.

Children not meeting these requirements should be secured in an approved aftermarket seat. Refer to *Children and infant or child safety seats* in this chapter.

Built-in child seat retractors

The belts on built-in child seats are equipped with a retractor that locks when both tongues are latched into the crotch safety belt buckle. The retractor will automatically snug the belts around the child. If the belts do not remain snug, take the vehicle to the dealer for child seat repair. The belts will not snug during a collision.

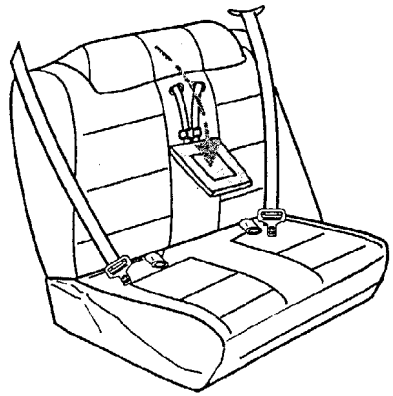
Placing your child in the built-in child seat

⚠ Failure to follow all of the instructions on the use of this child restraint system can result in your child striking the vehicle's interior during a sudden stop or crash.

⚠ Never use the Built-In Child Seat as a booster cushion with the adult safety belts. A child using the adult belts could slide forward and out from under the safety belts.

⚠ The rear seatback must be fully locked before operating the child restraint system.

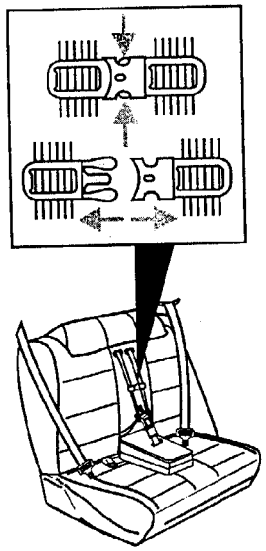
1. Grasp the child seat at the top of the seatback and pull the top forward to release the latch.



2. Continue to unfold the child seat until it rests on the seat.

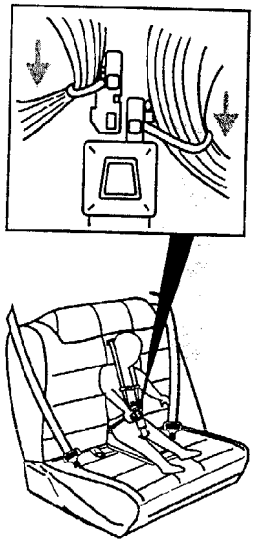
3. Read all information and warnings on the child seat cushion and shoulder safety belt. Make sure the child is not too large for the child seat.

4. If connected, squeeze the top and the bottom of the right half of the chest clip and pull to separate both halves.

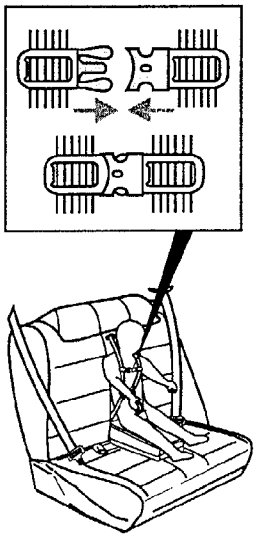


5. Place the child on the child seat and position the shoulder belts over each shoulder.

6. Insert either the left or the right safety belt tongue into the single opening of the crotch safety belt buckle (it doesn't matter which tongue is inserted first). Insert other tongue. The color green must appear in the indicator window on the crotch safety belt buckle when buckled. Allow belts to retract and fit snugly.



7. Fasten both halves of the chest clip below the child's shoulders and adjust it to comfortably hold the shoulder belts in place on the child's chest. The color green must appear in the indicator window when fastened.



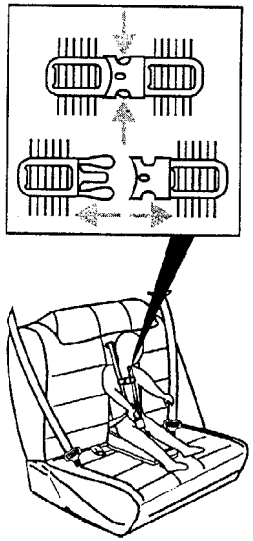
8. Pull the shoulder belts toward you to make sure the crotch safety belt buckle is properly fastened and the retractor is locked.

9. If the belts become too tight, unbuckle the crotch safety belt buckle to unlock the retractors, then reinsert both belt tongues.

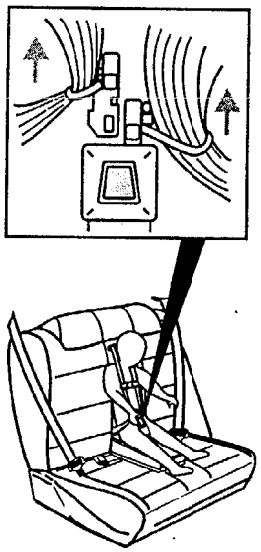
Removing your child from the built-in child seat

1. Squeeze the tabs on the top and the bottom of the chest clip and pull the halves apart to open the chest clip.

2. Press the release button on the crotch safety belt buckle.



3. Slide the shoulder belts off the child's shoulders and remove the child.



To stow the built-in child seat

Return the child seat cushion to the upright position, then press firmly in the center and top of the child seat.

Inspecting the built-in child seat after a collision

Inspect all built-in child restraints, including seats, buckles, retractors, seat latches. Interlocks and attaching hardware should be inspected by a qualified technician after any collision. If the child seat was in use during a collision, Ford recommends replacing it. Built-in child restraints not in use during a collision should be inspected and replaced if either damage or improper operation is noted.