

44-636900

REPORT NUMBER: 201-CAL-03-05

**SAFETY COMPLIANCE TESTING FOR FMVSS 201
OCCUPANT PROTECTION IN INTERIOR IMPACT**

**DAIMLER CHRYSLER CORPORATION
2003 CHRYSLER PT CRUISER 4-DOOR MPV**

NHTSA NUMBER: C30303

VERIDIAN TEST NUMBER: 8655-05

VERIDIAN ENGINEERING
TRANSPORTATION SCIENCES CENTER
P.O. BOX 400
BUFFALO, NEW YORK 14225



Test Date: September 8, 2005

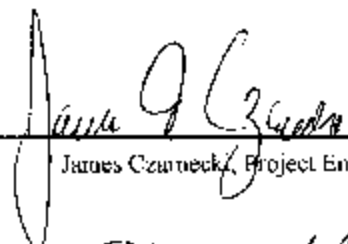
FINAL REPORT

PREPARED FOR:

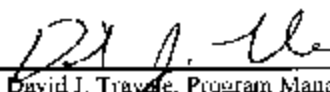
U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
Mail Code: NVS-220, Room 6111
400 Seventh Street, SW
Washington, DC 20590

This publication is distributed by the U. S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared by:


James Czannek, Project Engineer

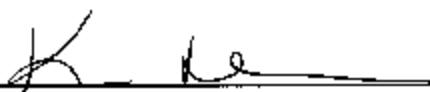
Approved by:

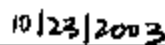

David J. Travie, Program Manager
Transportation Science Center

Approval Date:


September 18, 2003

FINAL REPORT ACCEPTANCE BY NHTSA.


COTR Vehicle Safety Compliance


10/23/2003
Date of Report Acceptance

10/23/03
10/23/03

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. CAL-03-05	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Final Report of FMVSS 201 Compliance Testing of a 2003 Chrysler PT Cruiser 4-door MPV, NHTSA No. C30303		5. Report Date September 8, 2003	
		6. Performing Organization Code CAL	
7. Author(s) David J. Travale, Program Manager James Czarnecki, Project Engineer		8. Performing Organization Report No. 8655-05	
9. Performing Organization Name and Address Veridian Engineering 4455 Genesee Street Buffalo, New York 14225		10. Work Unit No.	
		11. Contract or Grant No. DTNH22-01-C-01025	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance Mail Code NVS-220 400 Seventh SW, Room 6111 Washington, D.C. 20590		13. Type of Report and Period Covered Final Report September 2003	
		14. Sponsoring Agency Code NVS-220	
15. Supplementary Notes			
16. Abstract Compliance tests were conducted on the subject vehicle a 2003 Chrysler PT Cruiser 4-door MPV in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure TP-201-02 for determination of FMVSS 201 compliance. Test failures identified were as follows: None			
17. Key Words Compliance Testing Safety Engineering FMVSS 201		18. Distribution Statement Copies of this report are available from: NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, DC 20590	
19. Security Classif. (of this report) UNCLASSIFIED	20. Security Classif. (of this page) UNCLASSIFIED	21. No. of Pages	22. Price

Form DOT F1700.7 (8-69)

TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	PURPOSE AND TEST PROCEDURE	1-1
2	SUMMARY OF INTERIOR IMPACTS	2-1
APPENDIX A	PHOTOGRAPHS	A-1
APPENDIX B	DATA PLOTS	B-1
APPENDIX C	INTERIOR COMPARTMENT CALCULATIONS	C-1

LIST OF DATA SHEETS

<u>DATA SHEET</u>	<u>DESCRIPTION</u>	<u>PAGE NO.</u>
2-1	TEST VEHICLE RECEIVING INSPECTION DATA SHEET	2-2
2-2	HEADFORM IMPACT TEST RESULTS INSTRUMENT PANEL	2-3
2-3	HEADFORM IMPACT TEST RESULTS SEAT BACKS	2-4
2-4	SUNVISOR AND ARMREST EVALUATION	2-5
2-5	DOOR LATCH EVALUATION	2-6
2-6	SUMMARY OF RESULTS	2-7

SECTION 1

PURPOSE AND TEST PROCEDURE

This head impact compliance test is part of the FMVSS 201 Occupant Protection in Interior Impact Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-01-C-01025. The purpose of this impact compliance test was to determine whether the subject vehicle, a 2003 Chrysler PT Cruiser 4-door MPV, NHTSA No. C30305, meets the performance requirements of FMVSS 201, Occupant Protection in Interior Impact. The compliance test was conducted using the requirements found in the OVSC Laboratory Test Procedure No. TP-201-02 dated March 3, 1989.

SECTION 2

SUMMARY OF OCCUPANT PROTECTION IN INTERIOR IMPACTS

A 2003 Chrysler PT Cruiser 4-door MPV, NHTSA No. C30303, was impacted at various locations throughout its instrument cluster/dash panel and seat back area by a 15 lb., 6.5 inch diameter steel headform. A total of four (4) impacts were performed in this test series. The target area impacts were chosen by the NHTSA Contracting Officer's Technical Representative (COTR). The four (4) chosen impact points were

Seat Back / Head Rest Area

Instrument Panel Cluster Area

Airbag Cover / Dash Panel Area (2 impacts)

The selected impact areas on the test vehicle appeared to comply with the performance requirements of FMVSS 201.

The 6.5 inch diameter steel headform weighed 15 lb. and had an accelerometer mounted along the centerline of the head.

One (1) channel of data for each target impact test was recorded on a Keyser Trade data acquisition system. Data plots can be found in Appendix B along with still photographs can be found in Appendix A of this report.

To document each target area impact test, one digital photo was taken pre- and post-test at various locations to view the headform contact with the selected target areas.

DATA SHEET 2-1

TEST VEHICLE RECEIVING INSPECTION DATA SHEET

VEHICLE YEAR/MAKE/MODEL/STYLE:	2003 Chrysler PT Cruiser 4-door MPV
NHTSA NO.:	C30303
VIN:	3C4FY48B73T544020
DATE OF MANUFACTURE:	09/02 (SEE CERTIFICATION LABEL)
COLOR:	White
ODOMETER READING:	74 km
LABORATORY:	Veridian Engineering
TEST DATE:	May 20 and September 8, 2003

NUMBER OF SEATING POSITIONS:

FRONT: 2 REAR: 3

INSTRUMENT PANEL:

NOTE UNUSUAL FEATURES: None

TYPE OF FRONT SEATS:

BENCH: - BUCKET: X SPLIT BACKS: -

TYPE OF HEAD RESTRAINTS:

FIXED: - ADJUSTABLE: X

VEHICLE EQUIPPED WITH ARMRESTS?

NO: - YES: X NUMBER: 2

LOCATION: Front and rear door panels

VEHICLE EQUIPPED WITH SUN VISORS?

NO: - YES: X

VEHICLE EQUIPPED WITH INTERIOR DOOR LATCHES?

NO: - YES: X NUMBER: 1

LOCATION: Glove Box

DATA SHEET 2-2

HEADFORM IMPACT TEST RESULTS INSTRUMENT PANEL

VEHICLE YEAR/MAKE/MODEL/STYLE:	2003 Chrysler PT Cruiser 4-door MPV
NHTSA NO.:	C30303
VIN:	3C4FY48B73T544020
DATE OF MANUFACTURE:	09/02 (SEE CERTIFICATION LABEL)
COLOR:	White
ODOMETER READING:	74 km
LABORATORY:	Veridian Engineering
TEST DATE:	September 8, 2003

IMPACT LOCATION AND NUMBER				VELOCITY (mph)	PEAK ACCELERATION (3 ms Clip) Gs
NUMBER	X (inches)	Y (inches)	ANGLE (degrees)		
1 IP CLUSTER VENT	23.6	-12.3	-34	11.50	60.18
2 LEFT SIDE OF AIRBAG COVER	26.7	-4.9	-37	11.46	58.39
3 RIGHT SIDE OF AIRBAG COVER	26.6	3.9	-40	11.45	58.33

REFERENCE POINT: Seating Reference Position (SGRP) on front passenger side is the reference point (x positive forward from SGRP and y positive to the right of the SGRP).

REMARKS:

DATA SHEET 2-3**HEADFORM IMPACT TEST RESULTS
SEAT BACKS**

VEHICLE YEAR/MAKE/MODEL/STYLE:	2003 Chrysler PT Cruiser 4-door MPV
NHTSA NO.:	C30303
VIN:	3C4FY48B73T544020
DATE OF MANUFACTURE:	09/02 (SEE CERTIFICATION LABEL)
COLOR:	White
ODOMETER READING:	74 km
LABORATORY:	Veridian Engineering
TEST DATE:	May 20, 2003

IMPACT LOCATION AND NUMBER				VELOCITY (mph)	PEAK ACCELERATION (3 ms Clip) Gs
NUMBER	X (inches)	Y (inches)	ANGLE (degrees)		
1 SEAT BACK *	-15.9	0	-48	14.4	26.65

*VIZUALOGIC HEADREST W/ VIDEO MONITOR

REFERENCE POINT: SGRP on rear passenger side is the reference point (x positive forward from SGRP and y positive to the right of the SGRP).

DATA SHEET 2-4

SUNVISOR AND ARMREST EVALUATION

VEHICLE YEAR/MAKE/MODEL/STYLE:	2003 Chrysler PT Cruiser 4-door MPV
NHTSA NO.:	C30303
VIN:	3C4FY48B73T544020
DATE OF MANUFACTURE:	09/02 (SEE CERTIFICATION LABEL)
COLOR:	White
ODOMETER READING:	74 km
LABORATORY:	Veridian Engineering
TEST DATE:	September 8, 2003

SUN VISOR INFORMATION:

1. Are sun visors constructed of or covered with energy absorbing material?

YES (PASS): X NO (FAIL): -

2. Are any edges statically contactable by a spherical 6.5 inch diameter head form of radius less than 0.125 inch?

YES (FAIL): - NO (PASS): X

ARMREST INFORMATION:

A. FIXED ARMREST

1. Is it constructed of energy absorbing material with the capability of laterally deflecting 2 inches without contacting any underlying rigid material?

YES: N/A NO: N/A

2. Is it constructed of energy absorbing material that deflects or collapses within 1.25 inches of the rigid test panel surface without contacting underlying rigid material between 0.50 and 1.25 inches from the panel which has a vertical height of less than 1 inch?

YES: N/A NO: N/A

3. Does it provide adequate pelvic area impact protection?

YES: X NO: -

4. Does it meet at least one of the criteria No. 1 to 3?

YES (PASS): X NO (FAIL): -

B. FOLDING ARMREST

Is it made of or covered with energy absorbing material? Or does it meet at least one of the criteria No. 1 to 3?

YES (PASS): X NO (FAIL): -

DATA SHEET 2-5

DOOR LATCH EVALUATION

VEHICLE YEAR/MAKE/MODEL/STYLE:	2003 Chrysler PT Cruiser 4-door M1V
NHTSA NO.:	C30303
VIN:	3C4FY48B73T544020
DATE OF MANUFACTURE:	09/02 (SEE CERTIFICATION LABEL)
COLOR:	White
ODOMETER READING:	74 km
LABORATORY:	Veridian Engineering
TEST DATE:	September 8, 2003

LATCH ENGAGEMENT INTERFERENCE

DESCRIPTION OF LATCH LOCATION	NO LOAD	10G HORIZONTAL TRANSVERSE	10G VERTICAL	30G HORIZONTAL LONGITUDINAL
Glove Box	N/A	N/A	N/A	N/A

N/A Latch systems were not evaluated.

(APPENDIX C CONTAINS CALCULATION SHEETS WHICH ARE BASED ON MANUFACTURER'S DATA)

DATA SHEET 2-6

SUMMARY OF RESULTS

VEHICLE YEAR/MAKE/MODEL/STYLE:	2003 Chrysler PT Cruiser 4-door MPV
NIITSA NO :	C30303
VIN:	3C4FY48B7ST544020
DATE OF MANUFACTURE:	09/02 (SEE CERTIFICATION LABEL)
COLOR:	White
ODOMETER READING:	74 km
LABORATORY:	Veridian Engineering
TEST DATE:	May 20 and September 8, 2003

	NUMBER OF IMPACTS	PASS/FAIL
INSTRUMENT PANEL	3	YES
SEAT BACK	1	YES
SUN VISORS	N/A	YES
ARMRESTS	N/A	YES
INTERIOR COMPARTMENT DOORS	N/A*	N/A

REMARKS:

* N/A Latch systems were not evaluated.

APPENDIX A
PHOTOGRAPHS

PHOTOGRAPHS

FIGURE	VIEW
A-1	LEFT SIDE VIEW OF VEHICLE
A-2	RIGHT SIDE VIEW OF VEHICLE
A-3	3/4 FRONTAL VIEW FROM LEFT SIDE OF VEHICLE
A-4	3/4 REAR VIEW FROM RIGHT SIDE OF VEHICLE
A-5	VEHICLE'S CERTIFICATION LABEL
A-6	VEHICLE'S TIRE INFORMATION LABEL
A-7	SUN VISOR CONSTRUCTION
A-8	ARMREST LEFT FRONT DOOR
A-9	ARMREST LEFT REAR DOOR
A-10	INSTRUMENT PANEL
A-11	DELINEATED INSTRUMENT PANEL IMPACT ZONE PRE-TEST
A-12	DELINEATED INSTRUMENT PANEL IMPACT ZONE POST-TEST
A-13	INSTRUMENT PANEL IMPACT #1 PRE-TEST
A-14	INSTRUMENT PANEL IMPACT #1 POST-TEST
A-15	INSTRUMENT PANEL IMPACT #2 PRE-TEST
A-16	INSTRUMENT PANEL IMPACT #2 POST-TEST
A-17	INSTRUMENT PANEL IMPACT #3 PRE-TEST
A-18	INSTRUMENT PANEL IMPACT #3 POST-TEST
A-19	HEADREST
A-20	HEADREST IMPACT AREA PRE-TEST
A-21	HEADREST IMPACT AREA POST-TEST



Figure A-1 : LEFT SIDE VIEW OF VEHICLE

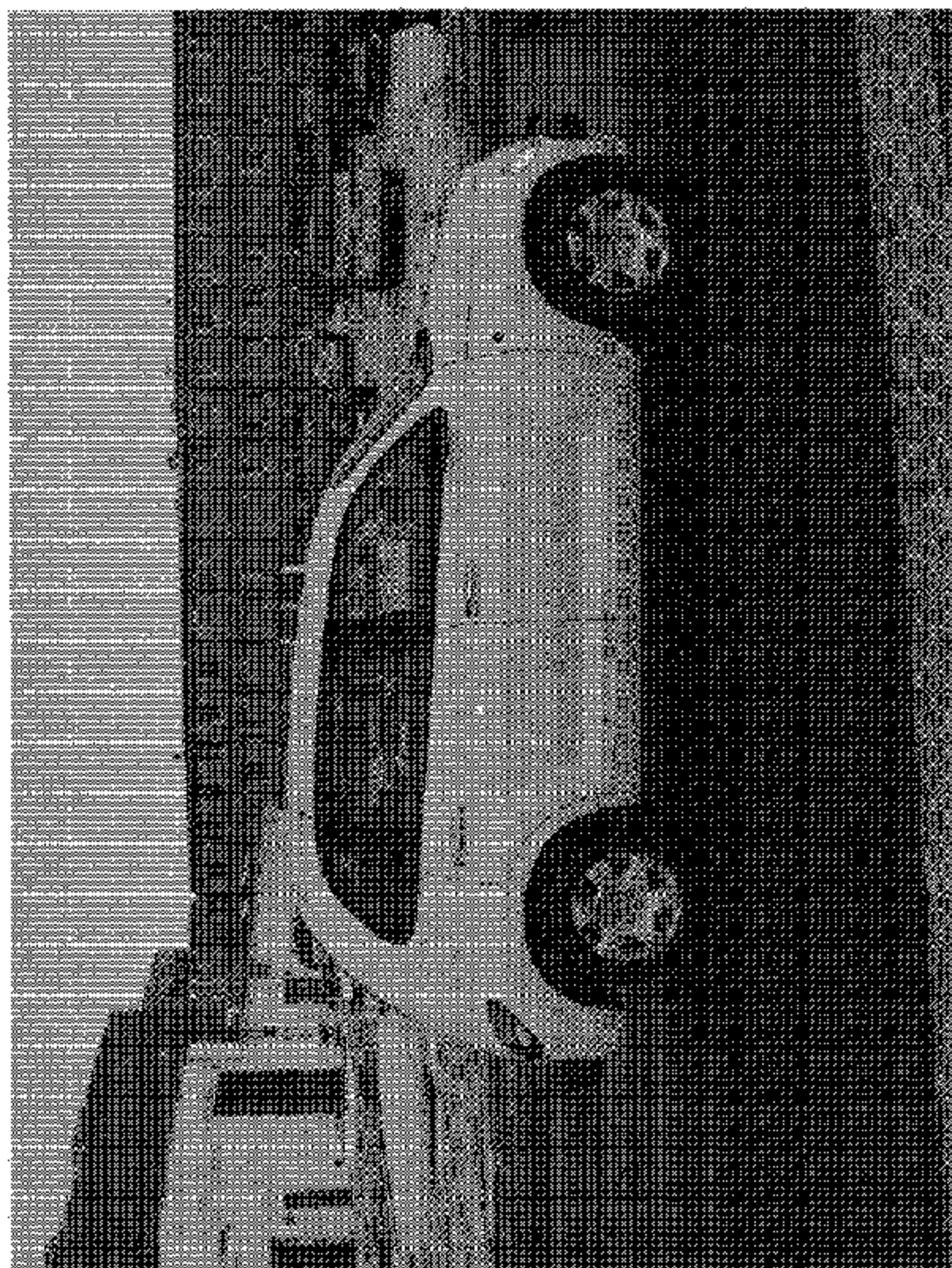


Figure A-2: RIGHT SIDE VIEW OF VEHICLE

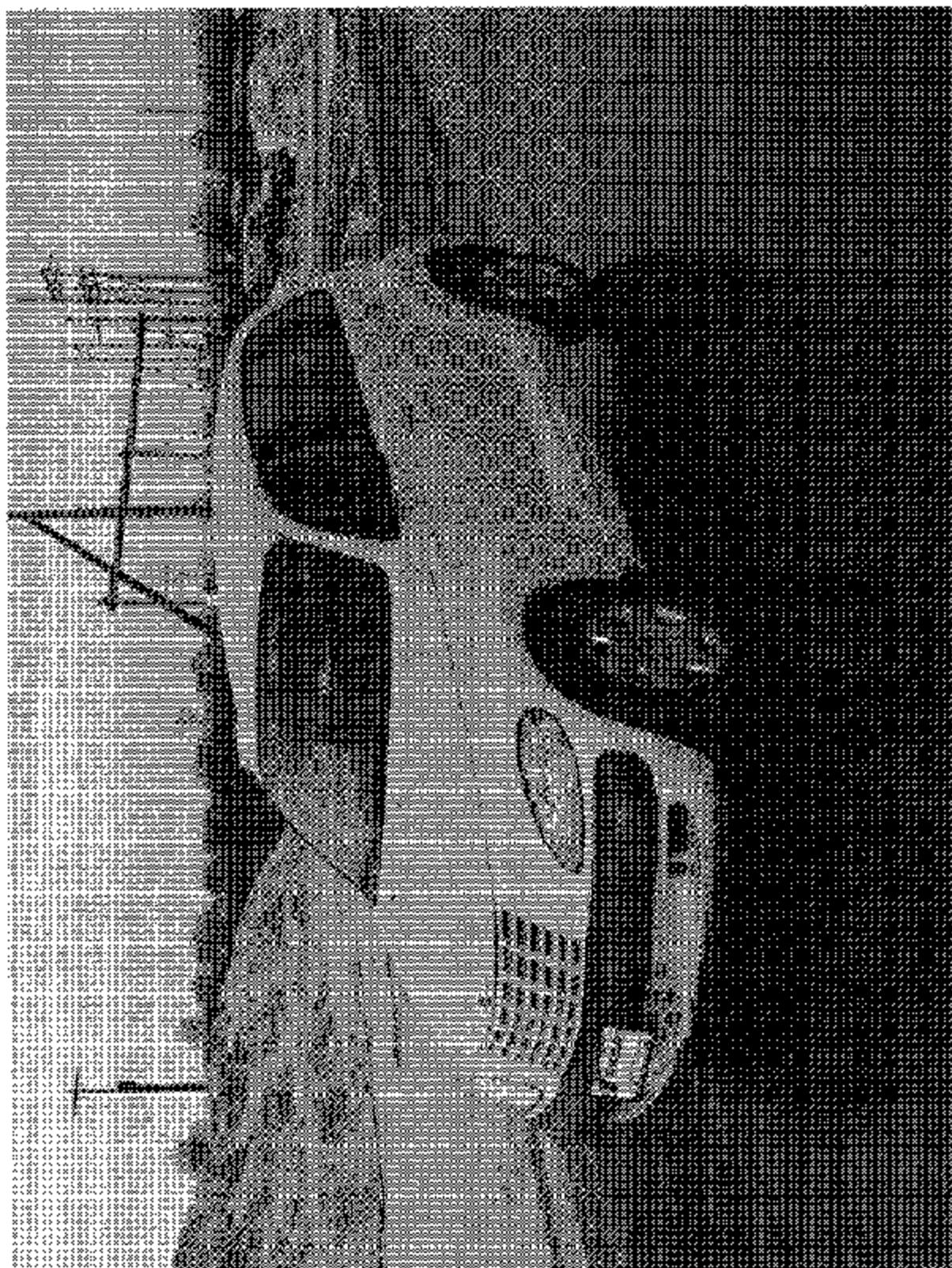


Figure A-3: 3/4 Frontal View From Left Side of Vehicle



Figure A-4: 34 REAR VIEW FROM RIGHT SIDE OF VEHICLE



FIGURE A-5: VEHICLES CERTIFICATION LABEL

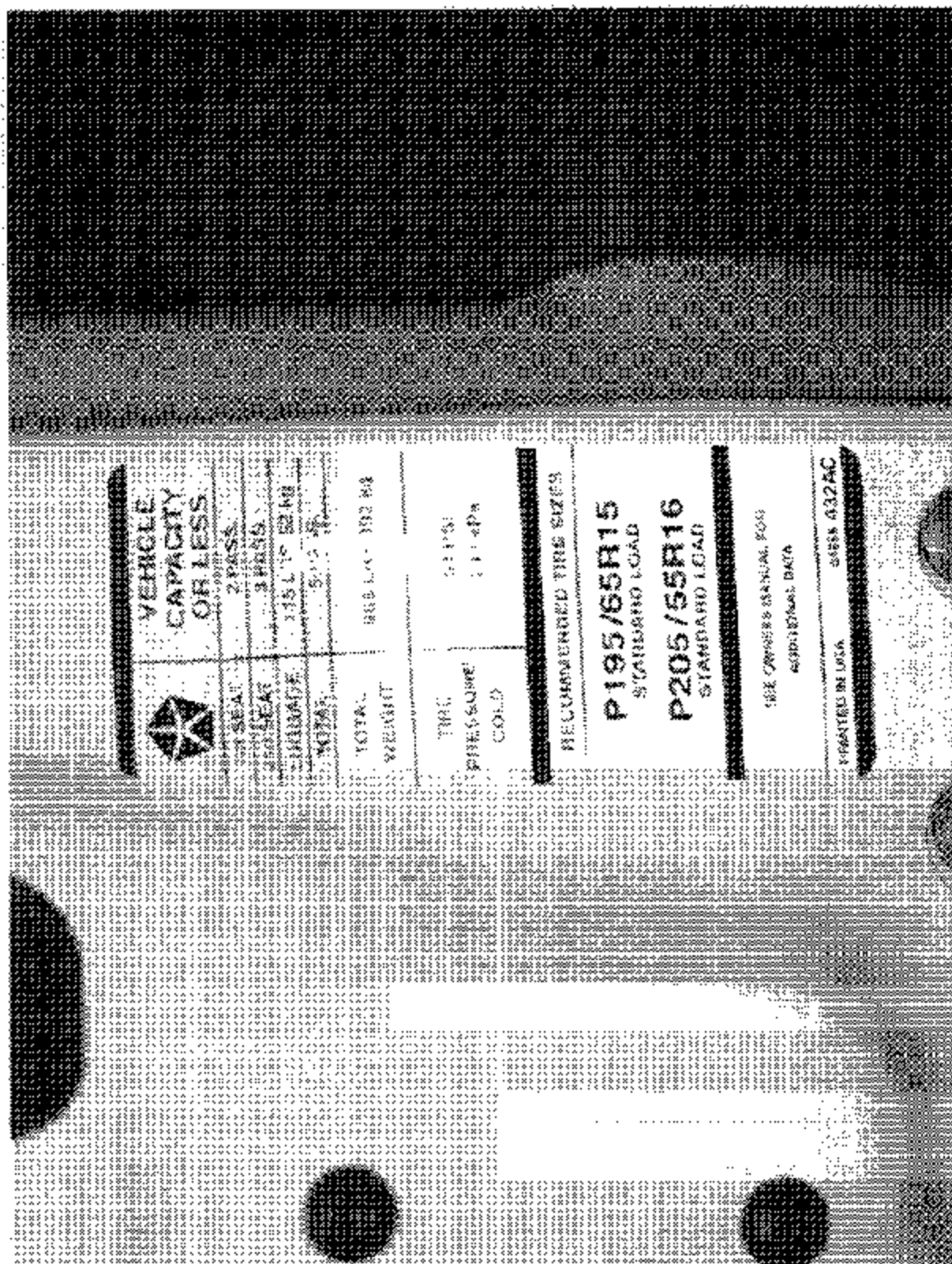


Figure A-6 : VEHICLE'S TIRE INFORMATION LABEL

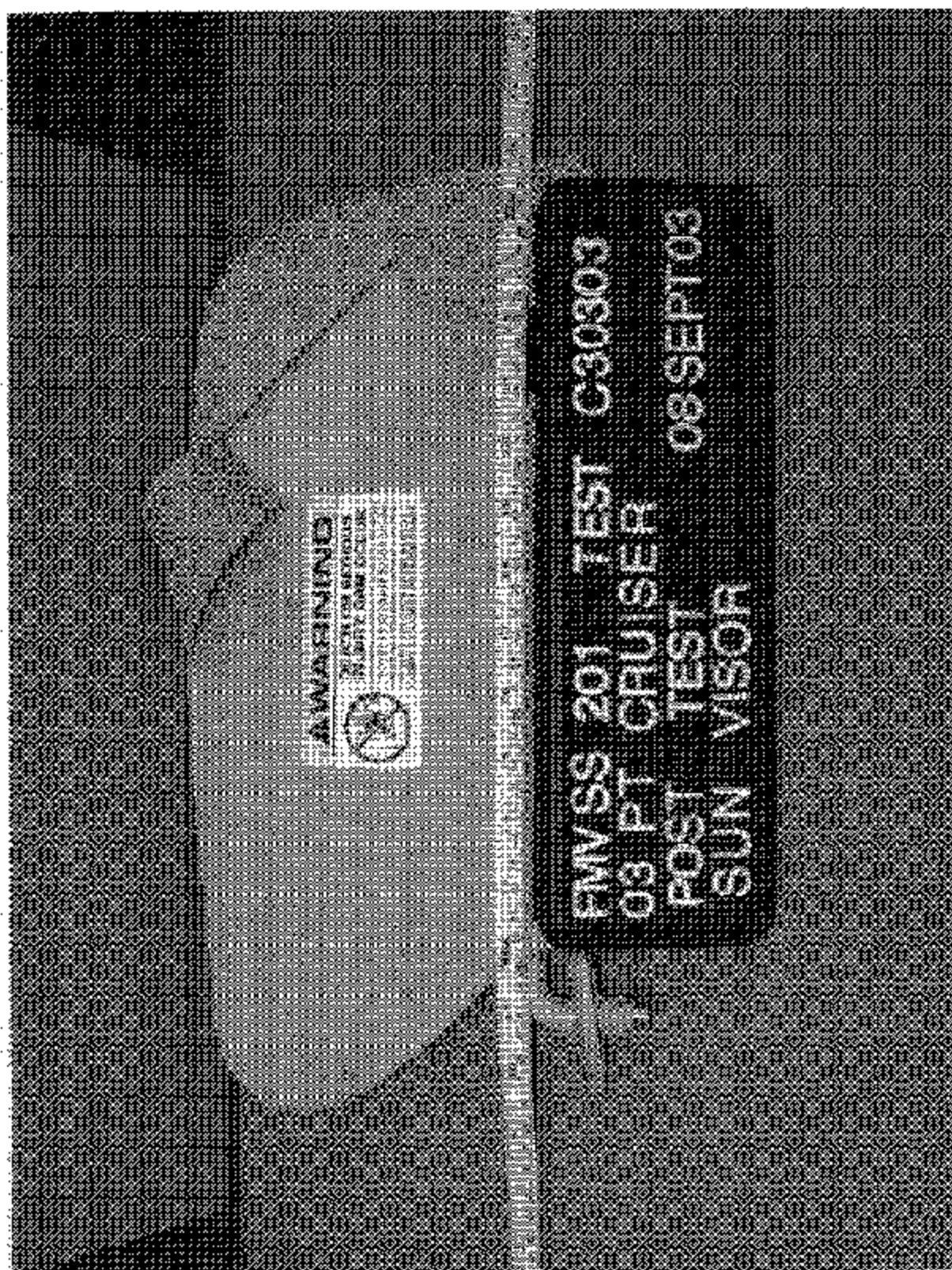


Figure A-7 : SUN VISOR CONSTRUCTION

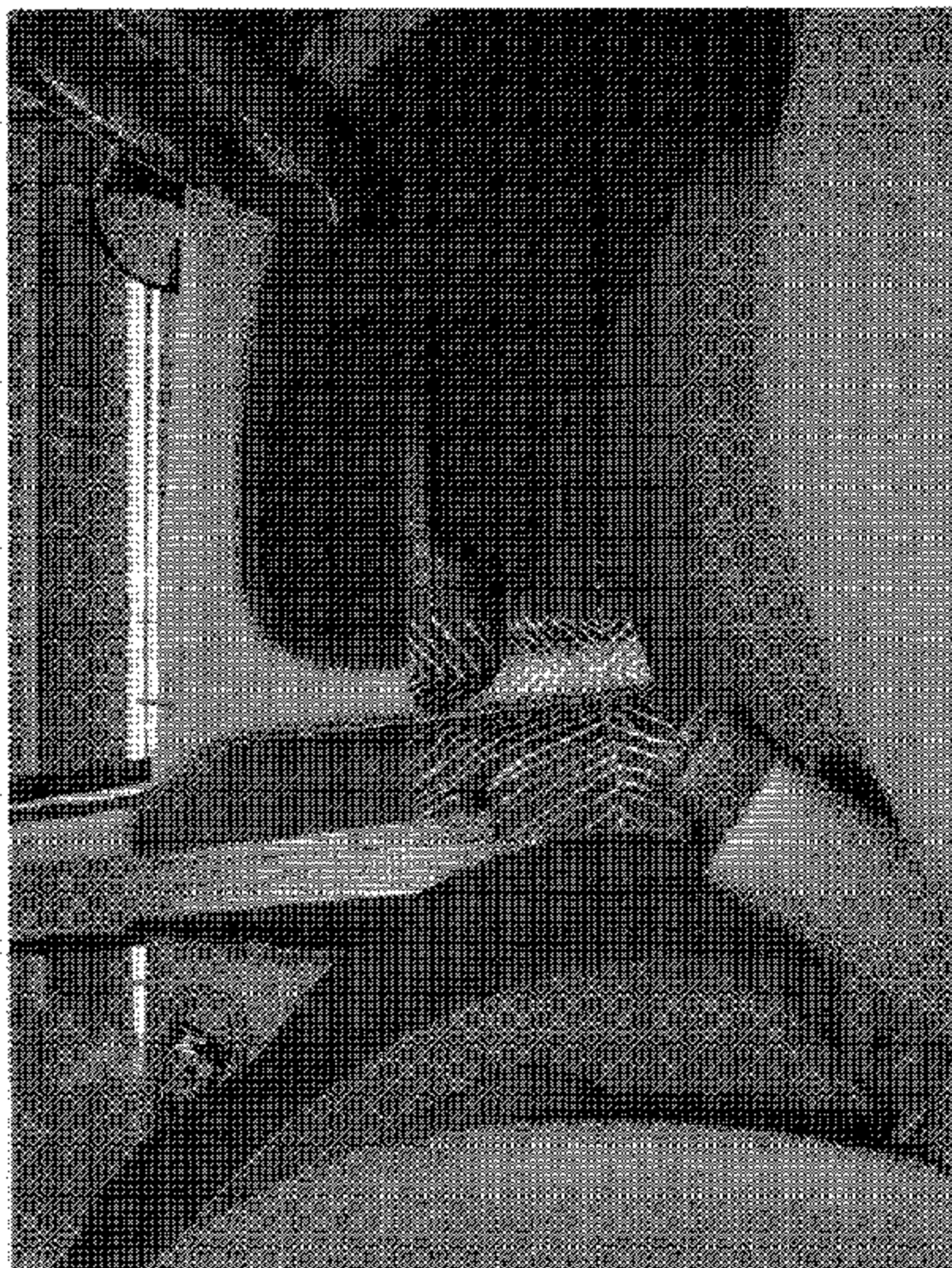


Figure A-8: ARMREST LEFT FRONT DOOR



Figure A-9 ARMREST LEFT REAR DOOR

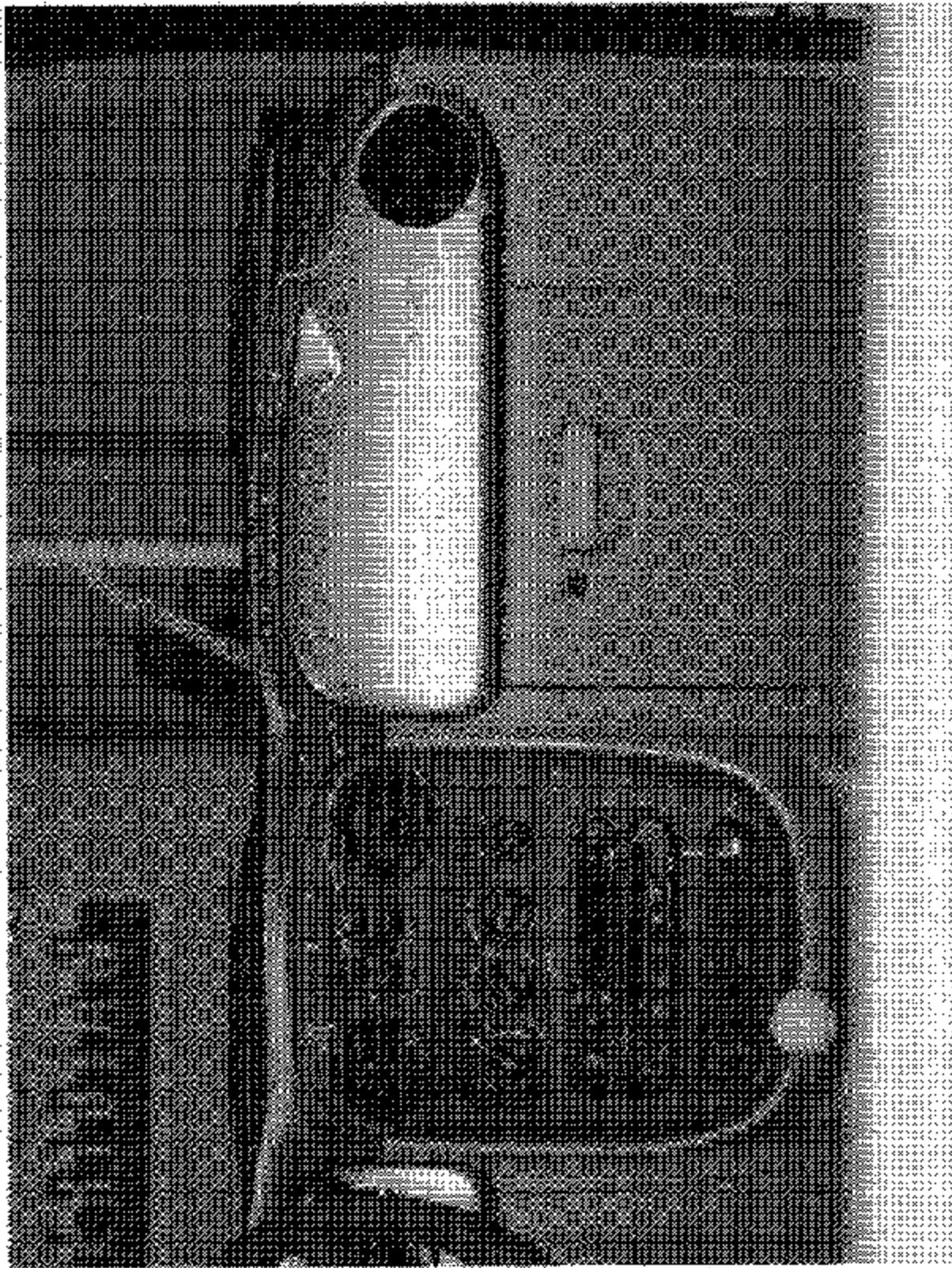


Figure A-10. INSTRUMENT PANEL.

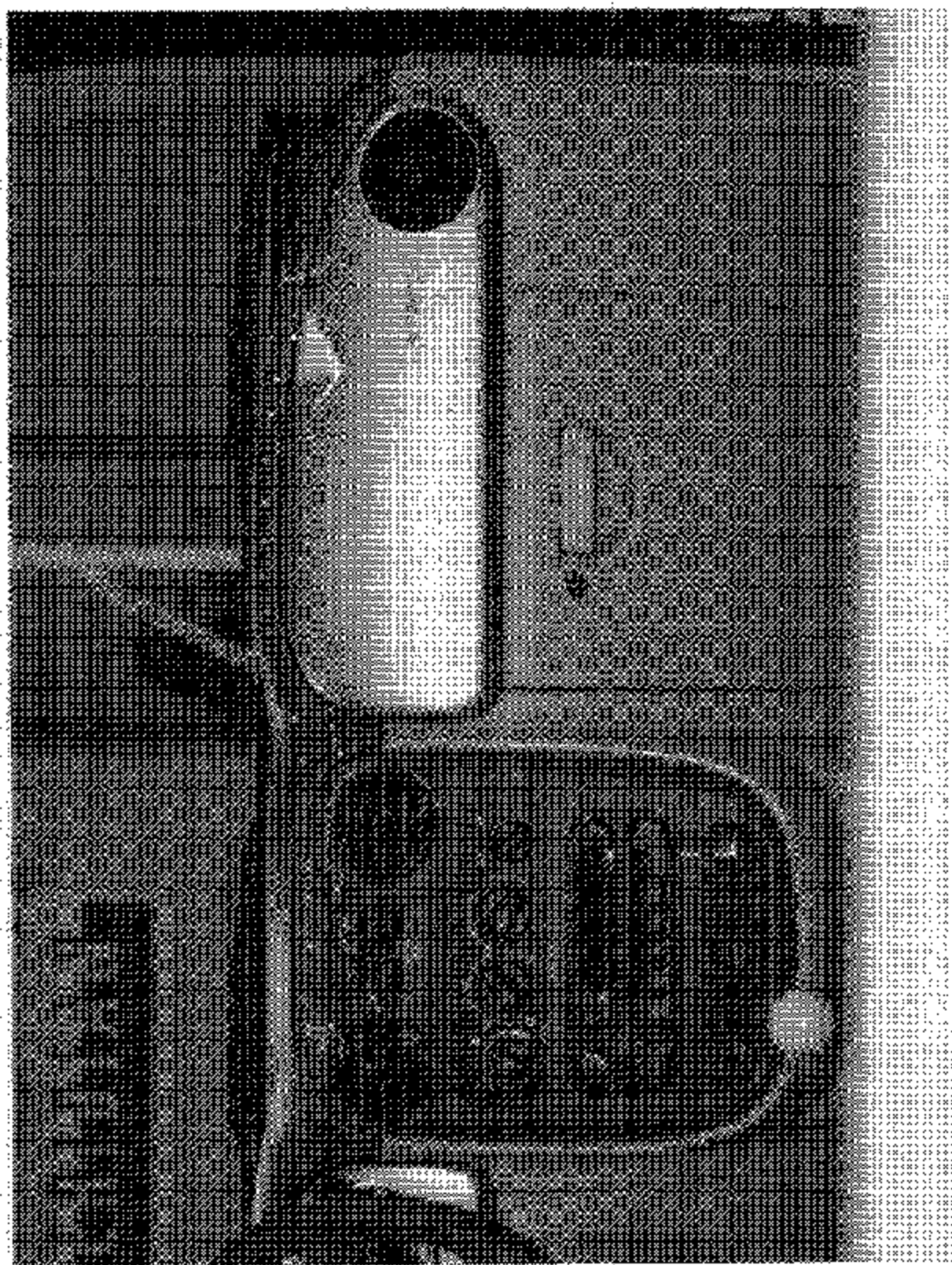


Figure A-11 DELIMITED INSTRUMENT PANEL IMPACT ZONE PRE-TEST

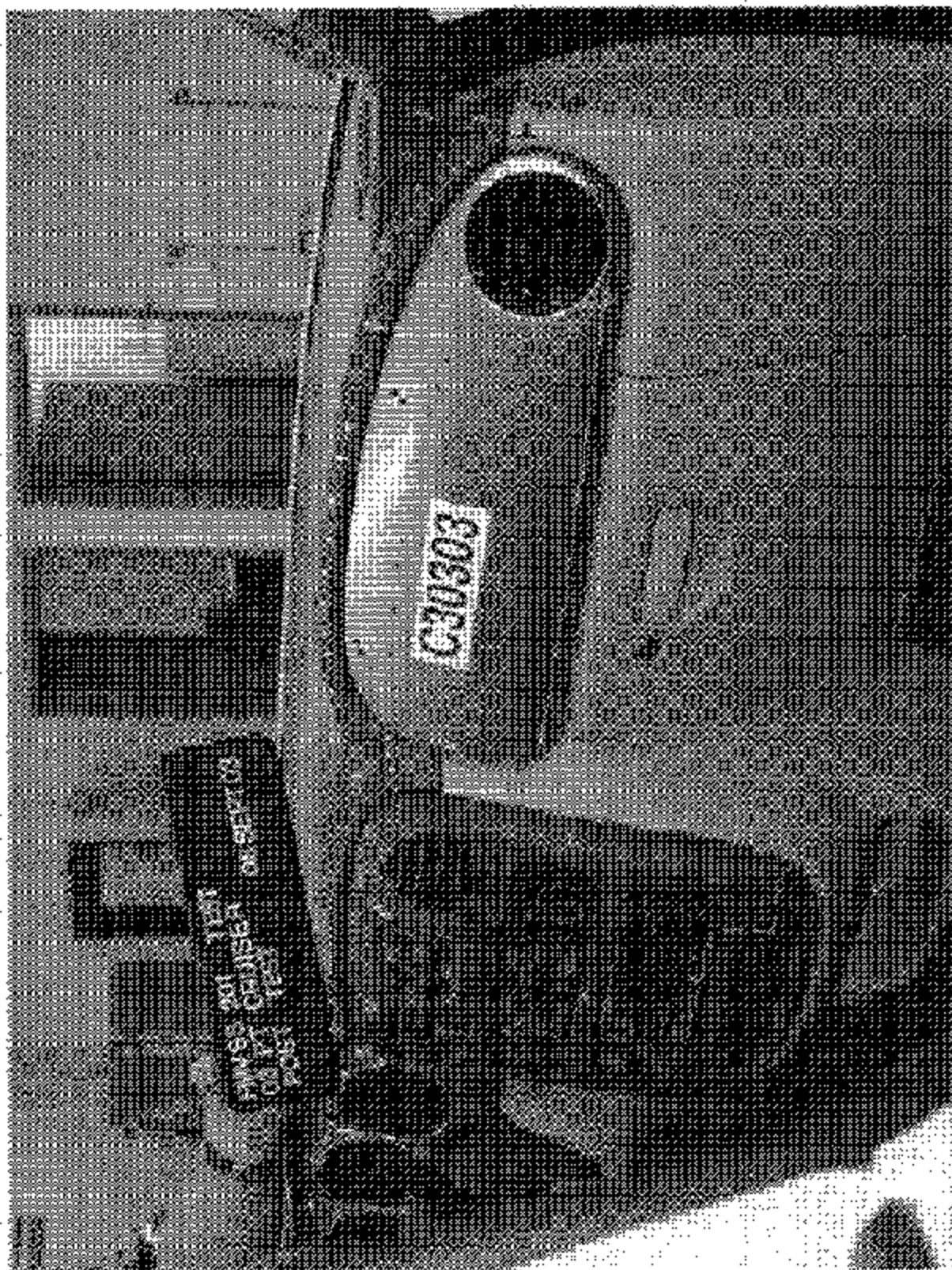


Figure A-12: DELAMINATED INSTRUMENT PANEL IMPACT ZONE POST-TEST



Figure A-13 : INSTRUMENT PANEL LEFT SIDE AIRBAG COVER IMPACT PRE-TEST



Figure A-14 : INSTRUMENT PANEL LEFT SIDE AIRBAG COVER IMPACT POST TEST

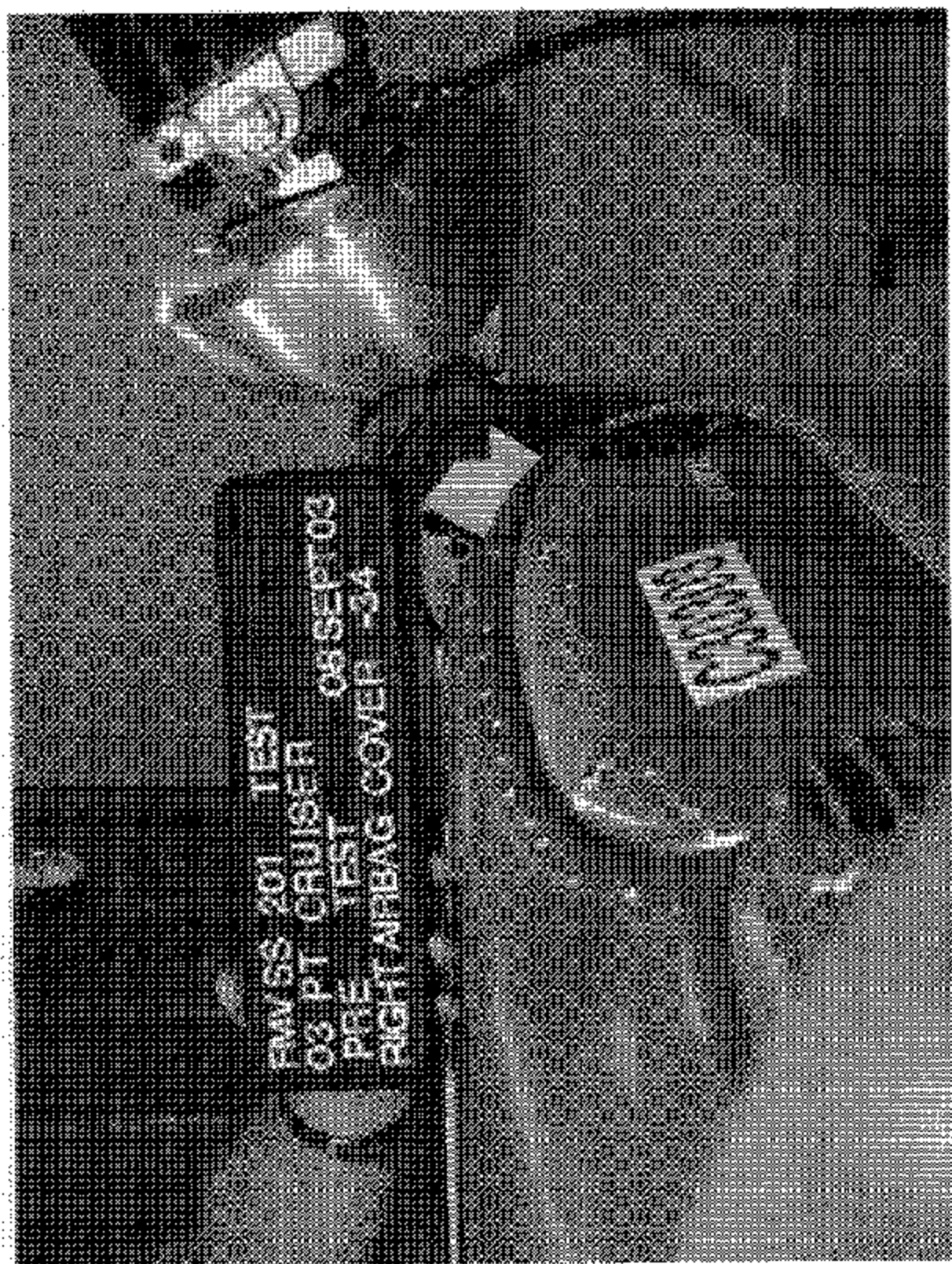


Figure A-15: INSTRUMENT PANEL RIGHT SIDE AIRBAG COVER IMPACT PRE-TEST

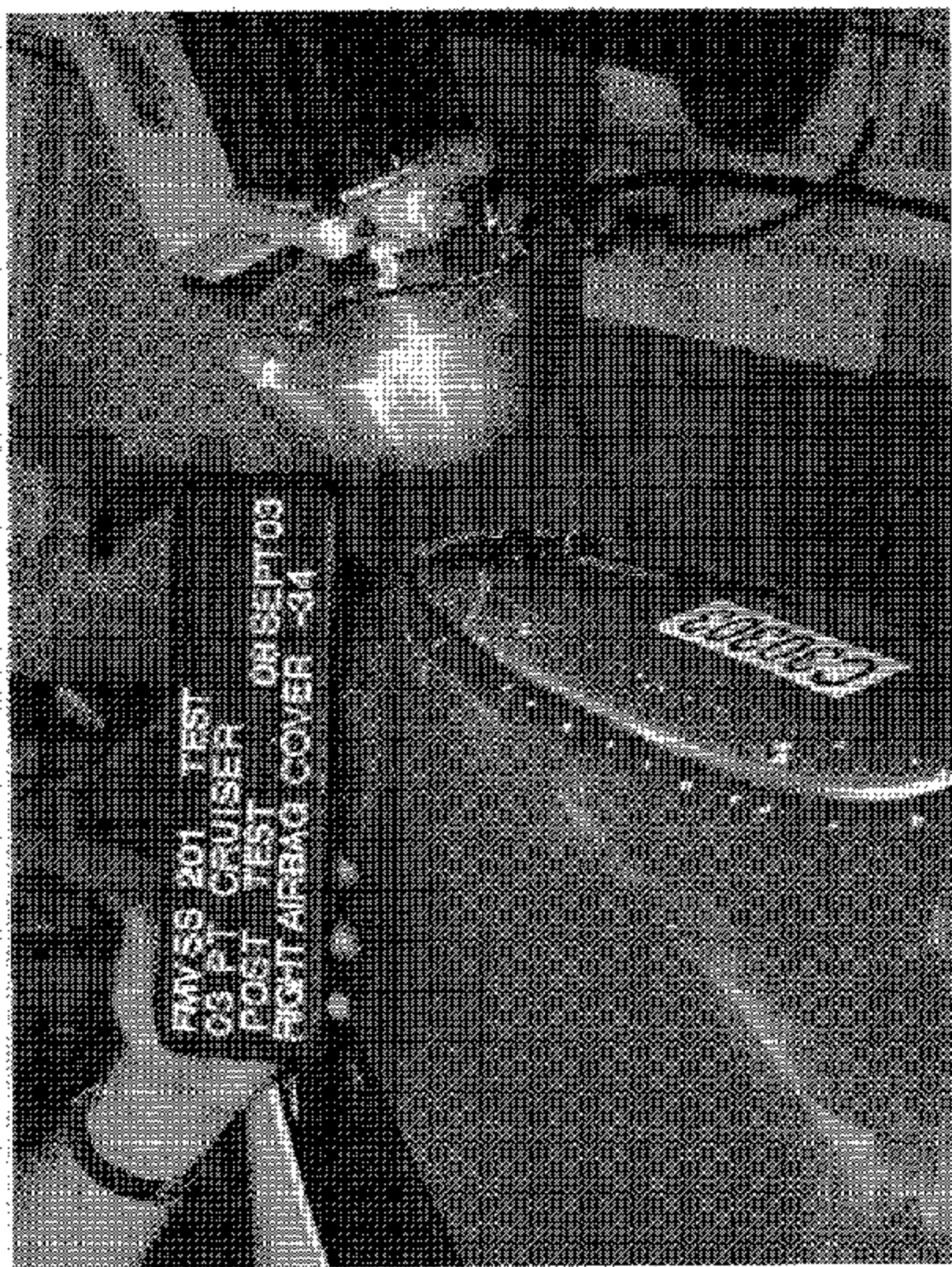


Figure A-16: INSTRUMENT PANEL/RIGHT SIDE AIRBAG COVER IMPACT POST-TEST

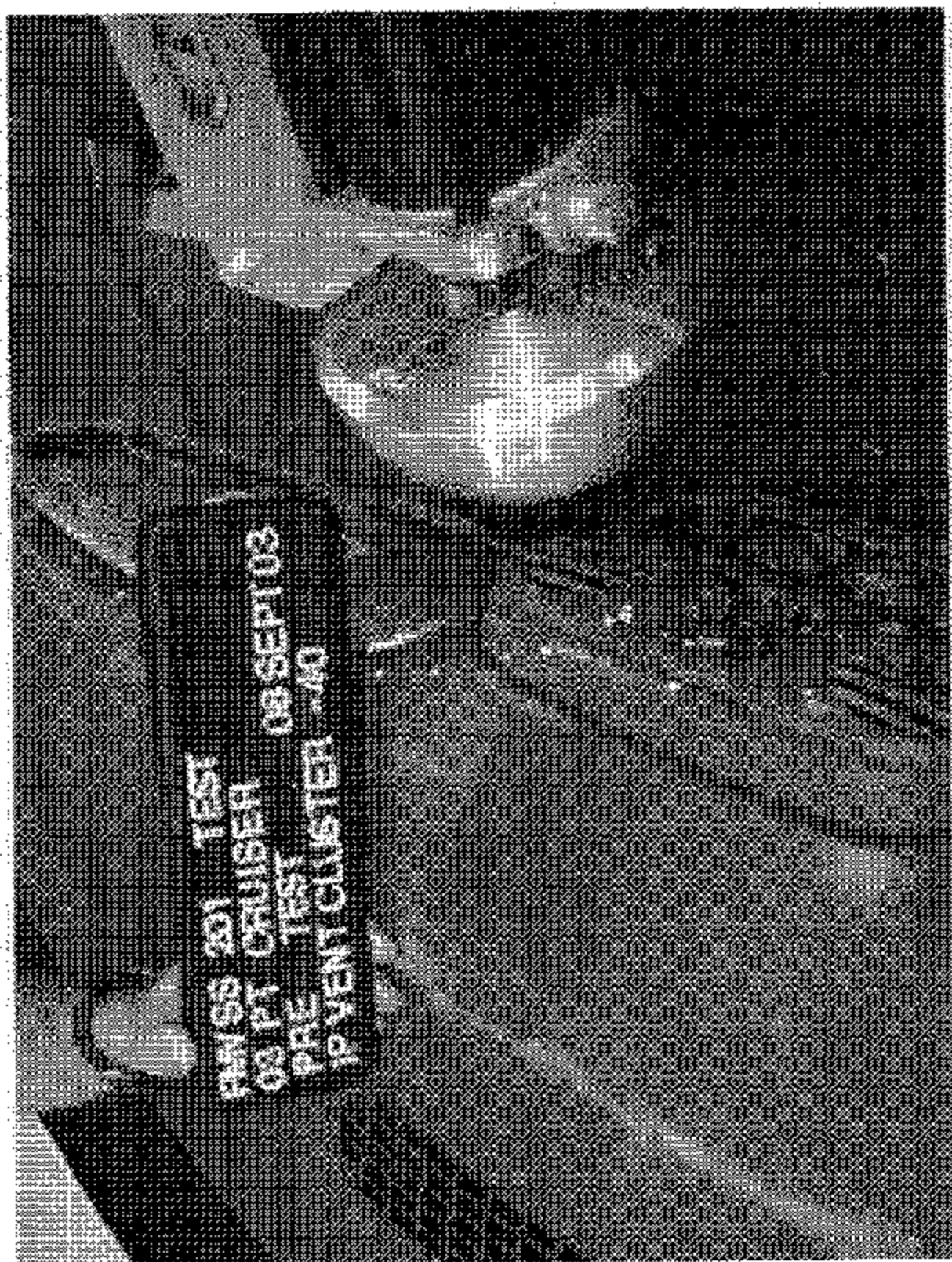


Figure A-17: INSTRUMENT PANEL CONSOLE VENT IMPACT PRE-TEST

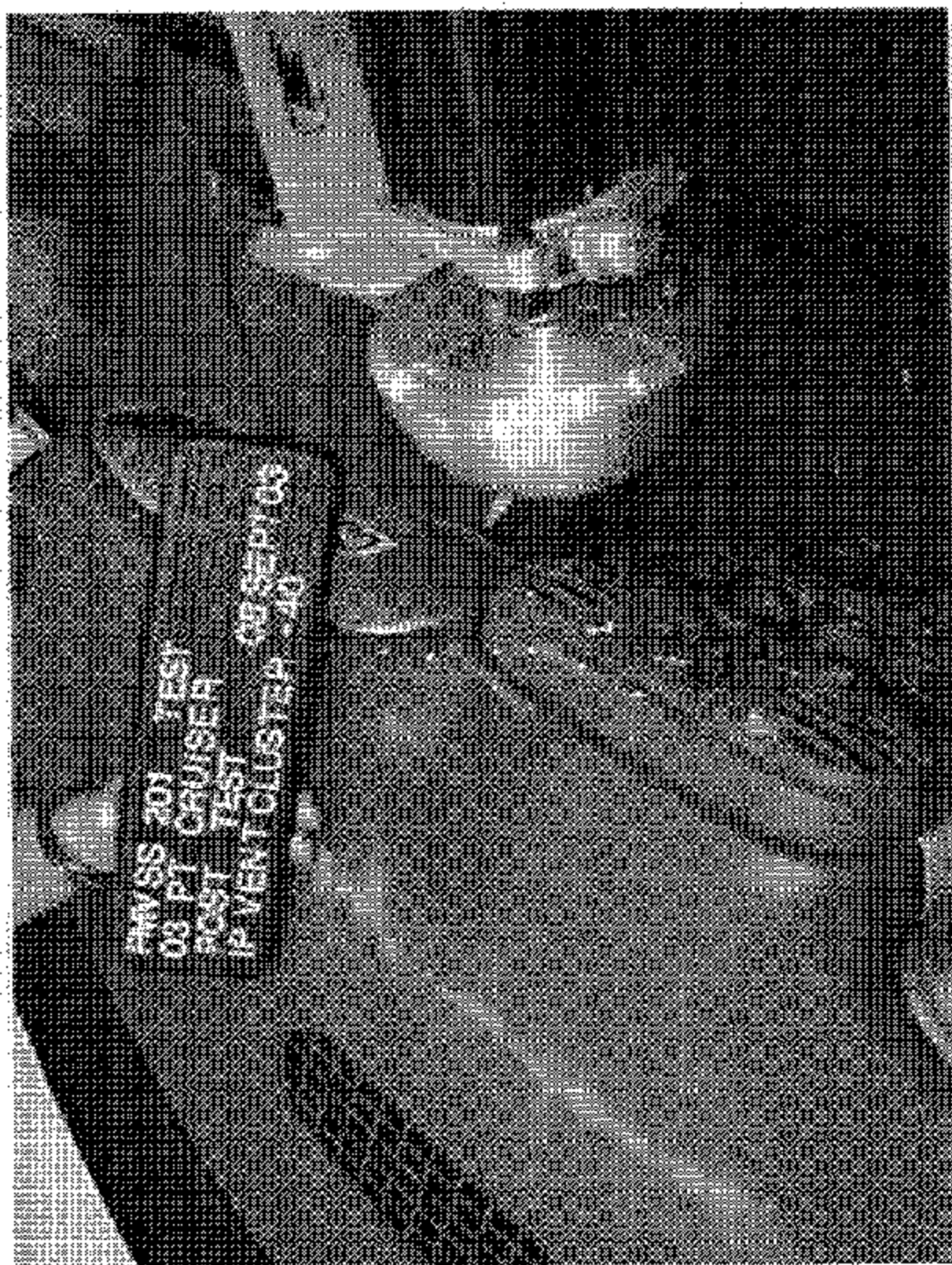


Figure A-18: INSTRUMENT PANEL CONSOLE VENT IMPACT POST-TEST

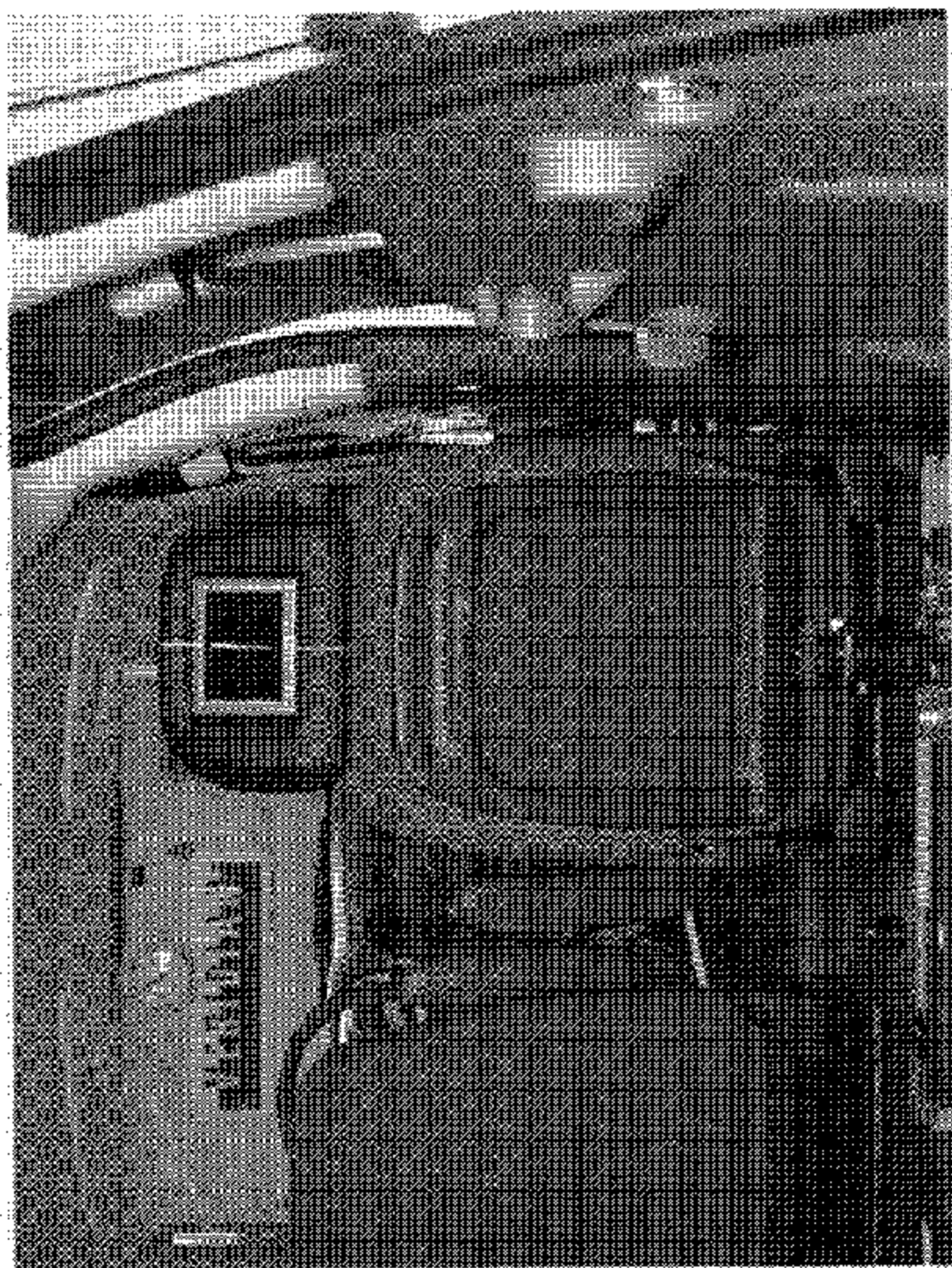


Figure A-19: HEAD RESTRAINT



Figure A-20: HEAD RESTRAINT IMPACT AREA PRE-TEST

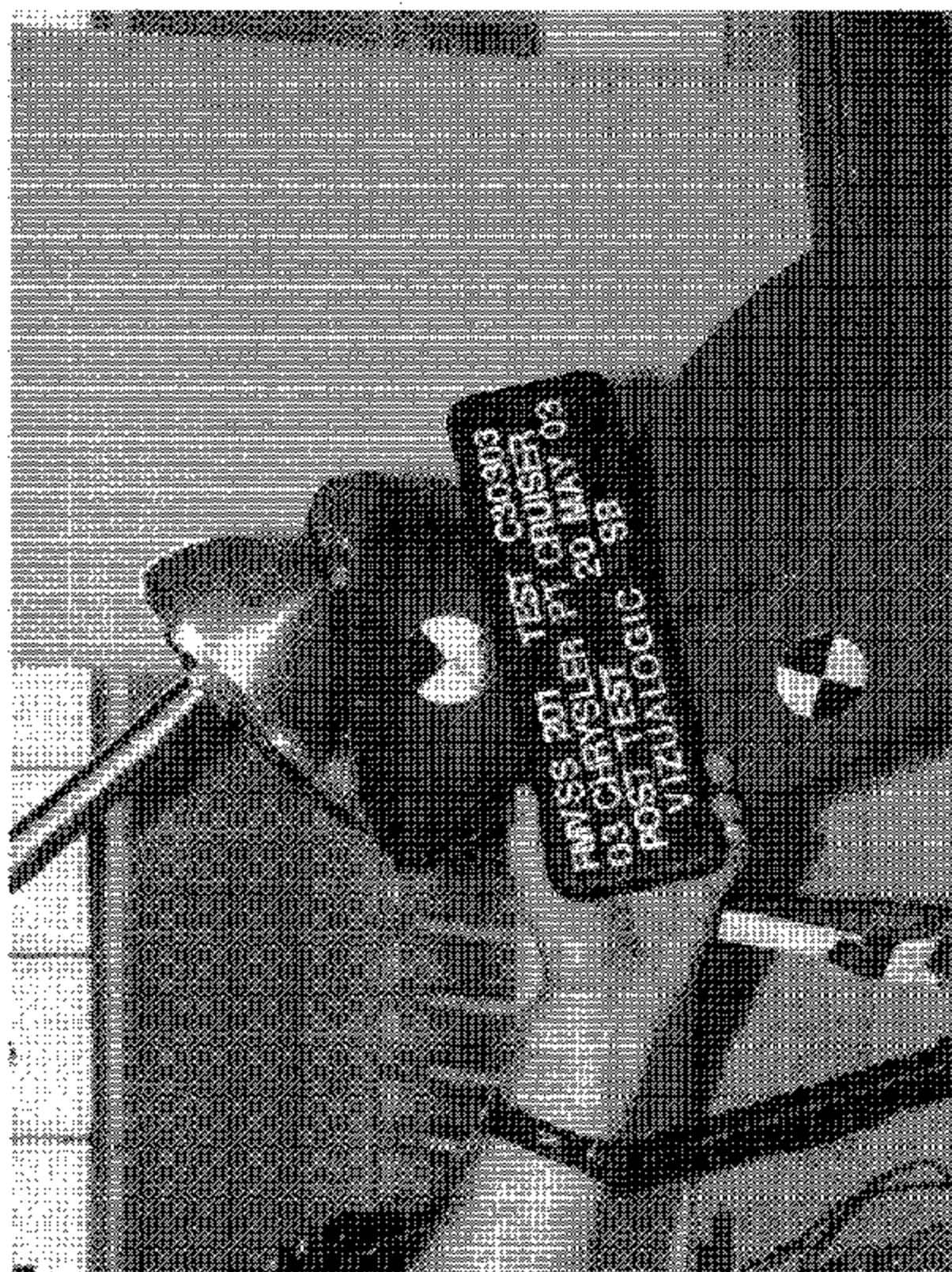


Figure A-21 : HEAD RESTRAINT IMPACT AREA POST-TEST

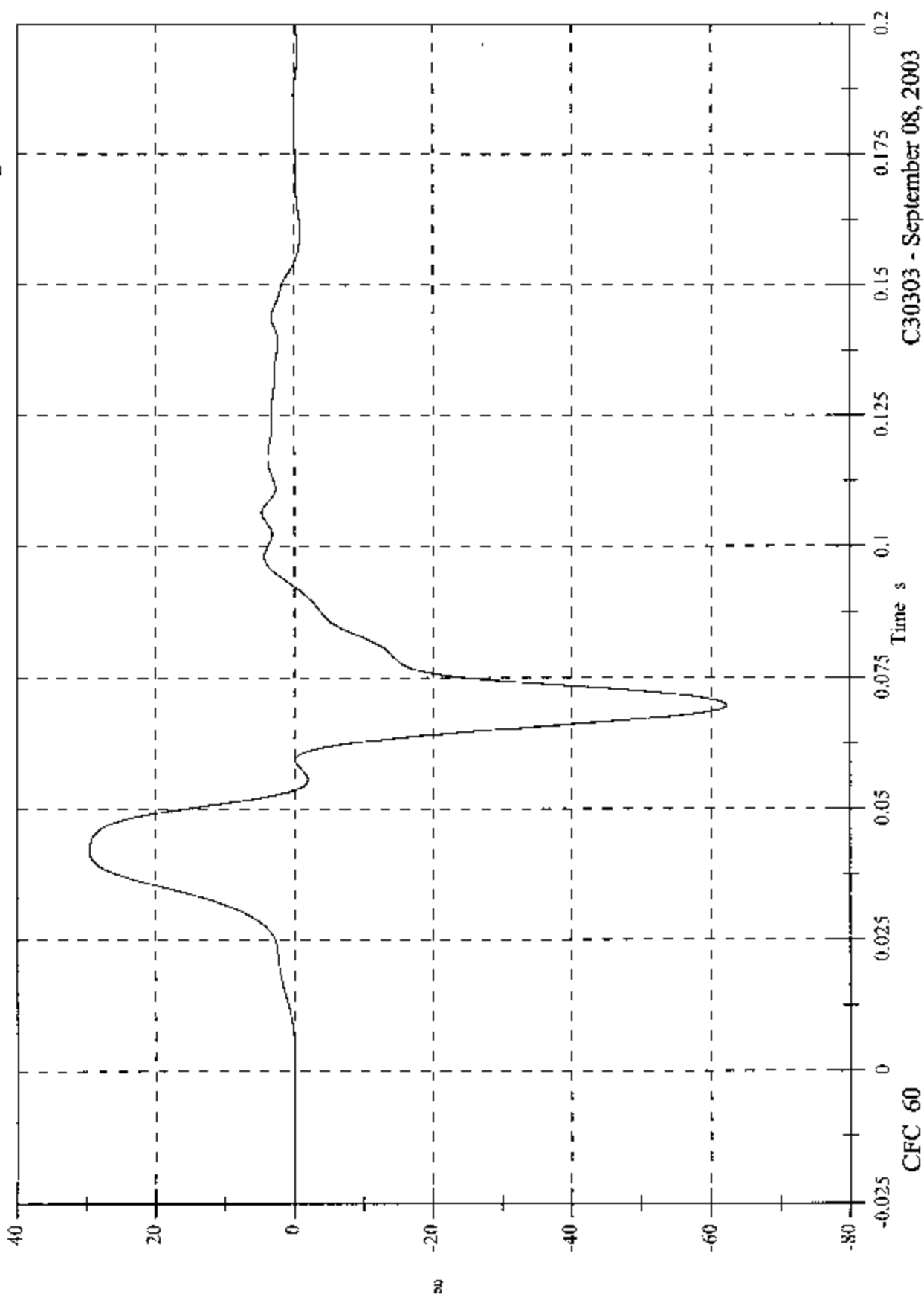
APPENDIX B

DATA PLOTS

FMVSS 201 Linear Impact - 2003 Chrysler PT Cruiser

Headform Ax

Max: 29.6 g at 0.042 s
Min: -62.1 g at 0.070 s

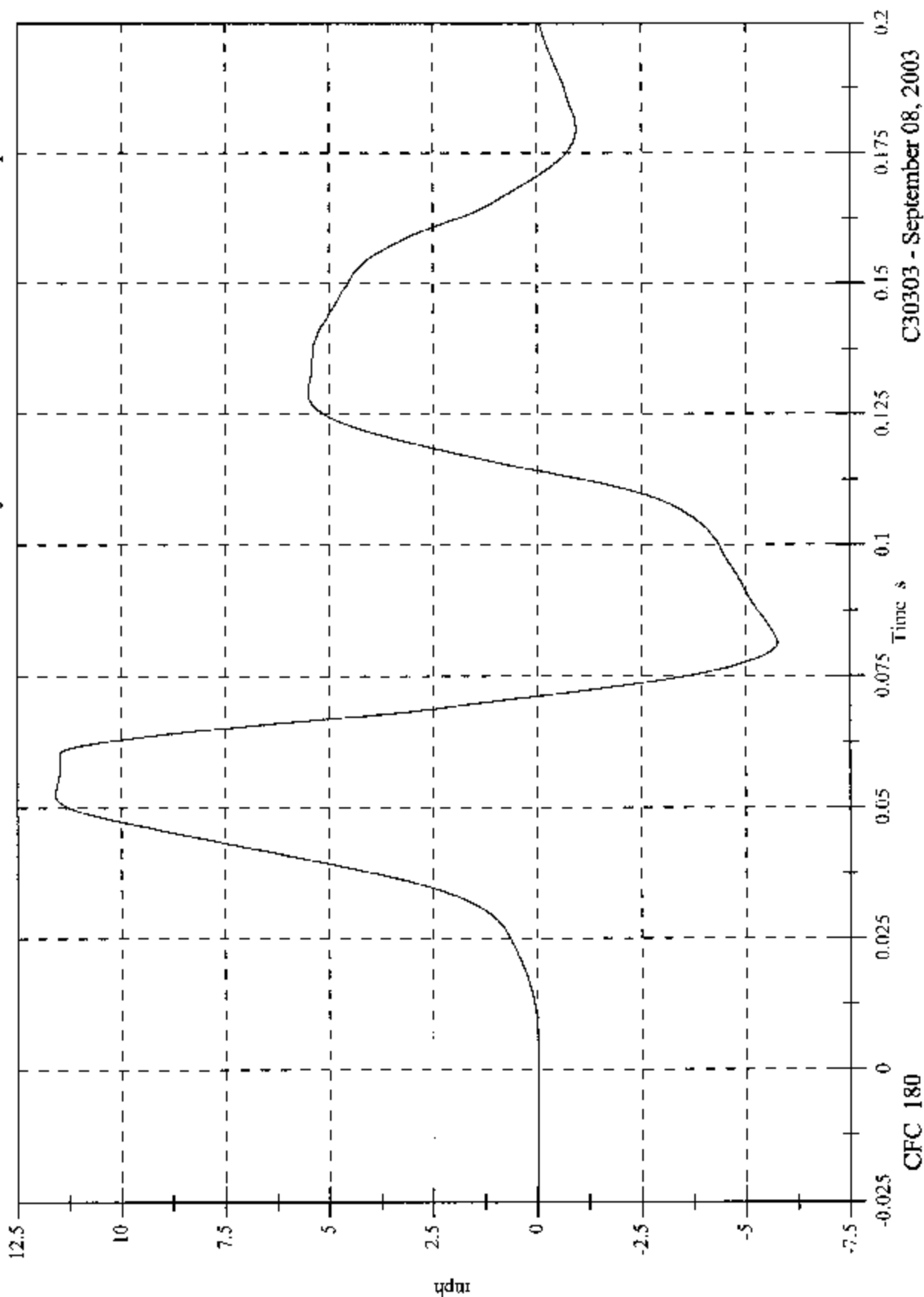


C30303 - September 08, 2003

FMVSS 201 Linear Impact - 2003 Chrysler PT Cruiser

Headform Ax Velocity

Max: 11.6 mph at 0.053 s
Min: -5.7 mph at 0.081 s

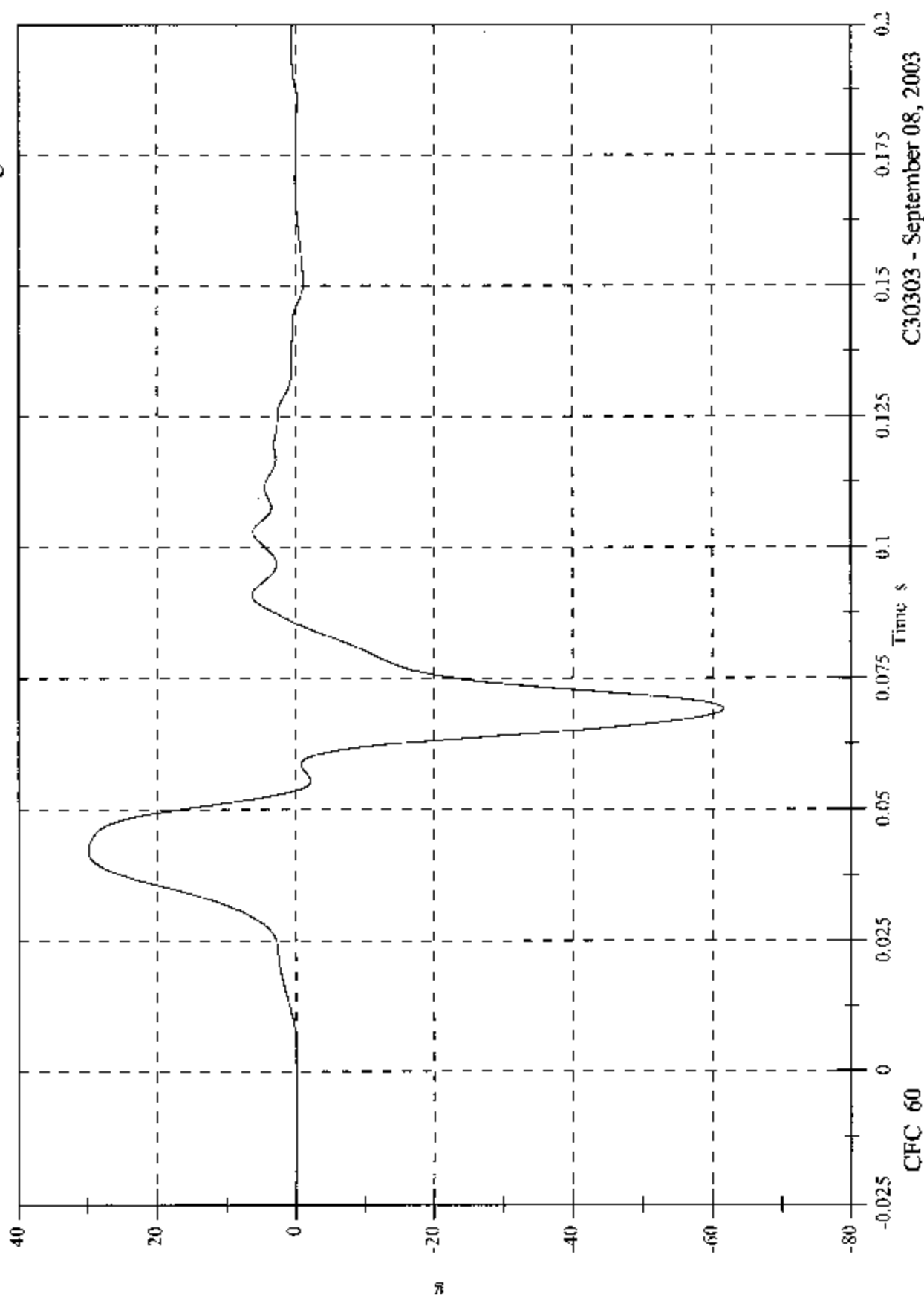


C30303 - September 08, 2003

FMVSS 201 Linear Impact - 2003 Chrysler PT Cruiser

Max: 29.9 g at 0.042 s
Min: -61.6 g at 0.069 s

Headform Ax

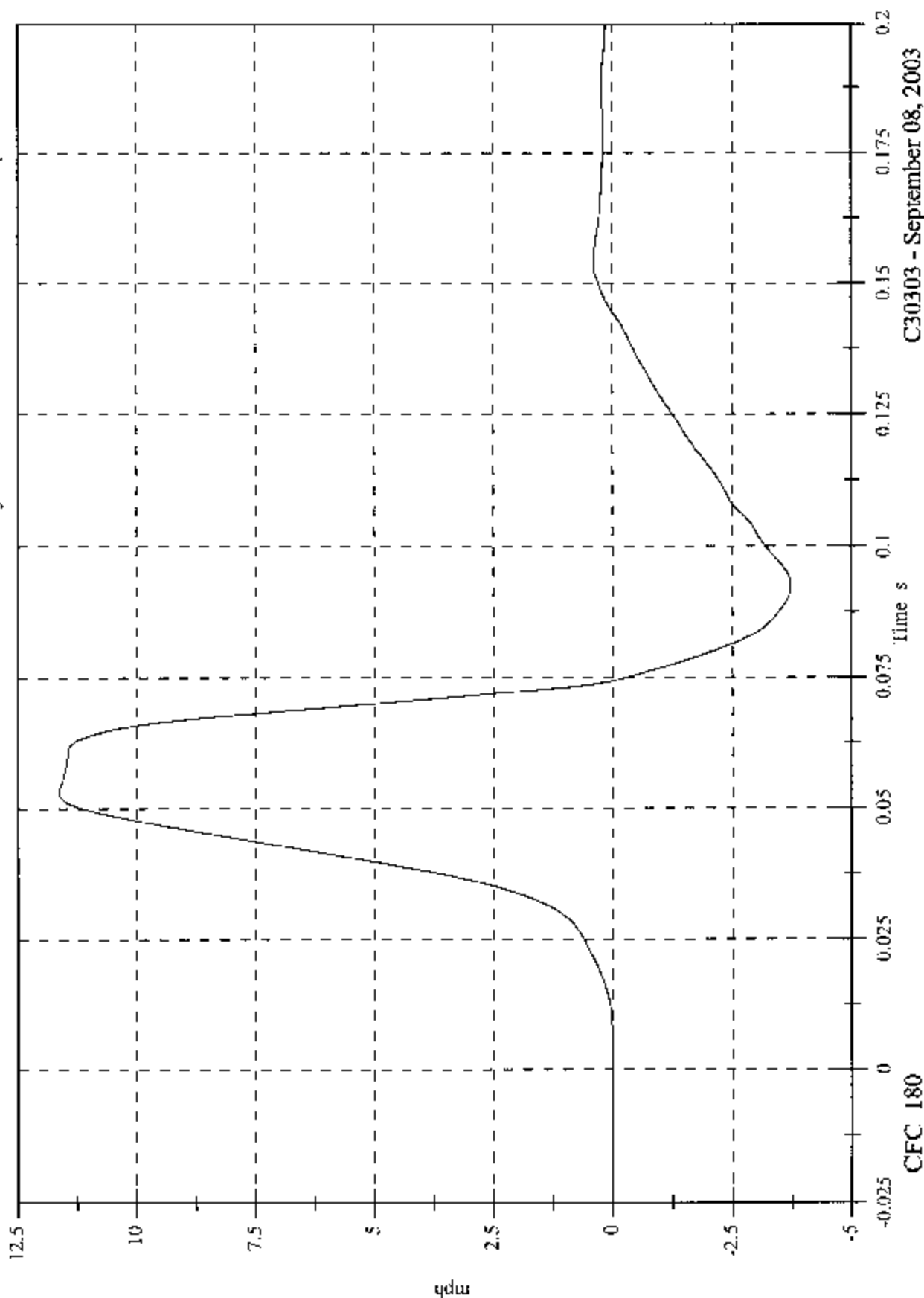


C30303 - September 08, 2003

FMVSS 201 Linear Impact - 2003 Chrysler PT Cruiser

Max: 11.6 mph at 0.053 s
Min: -3.7 mph at 0.093 s

Headform Ax Velocity

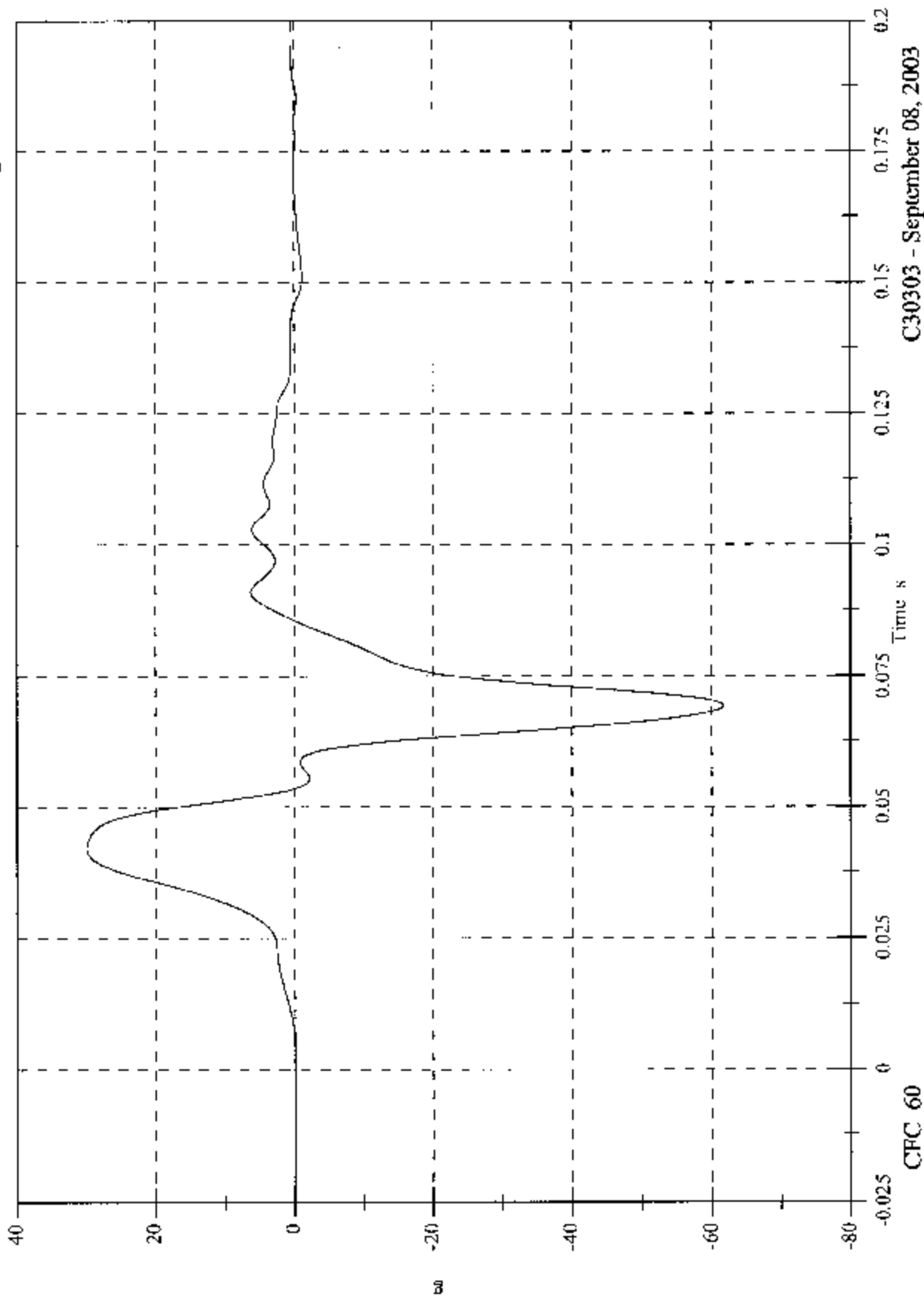


C30303 - September 08, 2003

FMVSS 201 Linear Impact - 2003 Chrysler PT Cruiser

Headform Ax

Max: 29.9 g at 0.042 s
Min: -61.6 g at 0.069 s

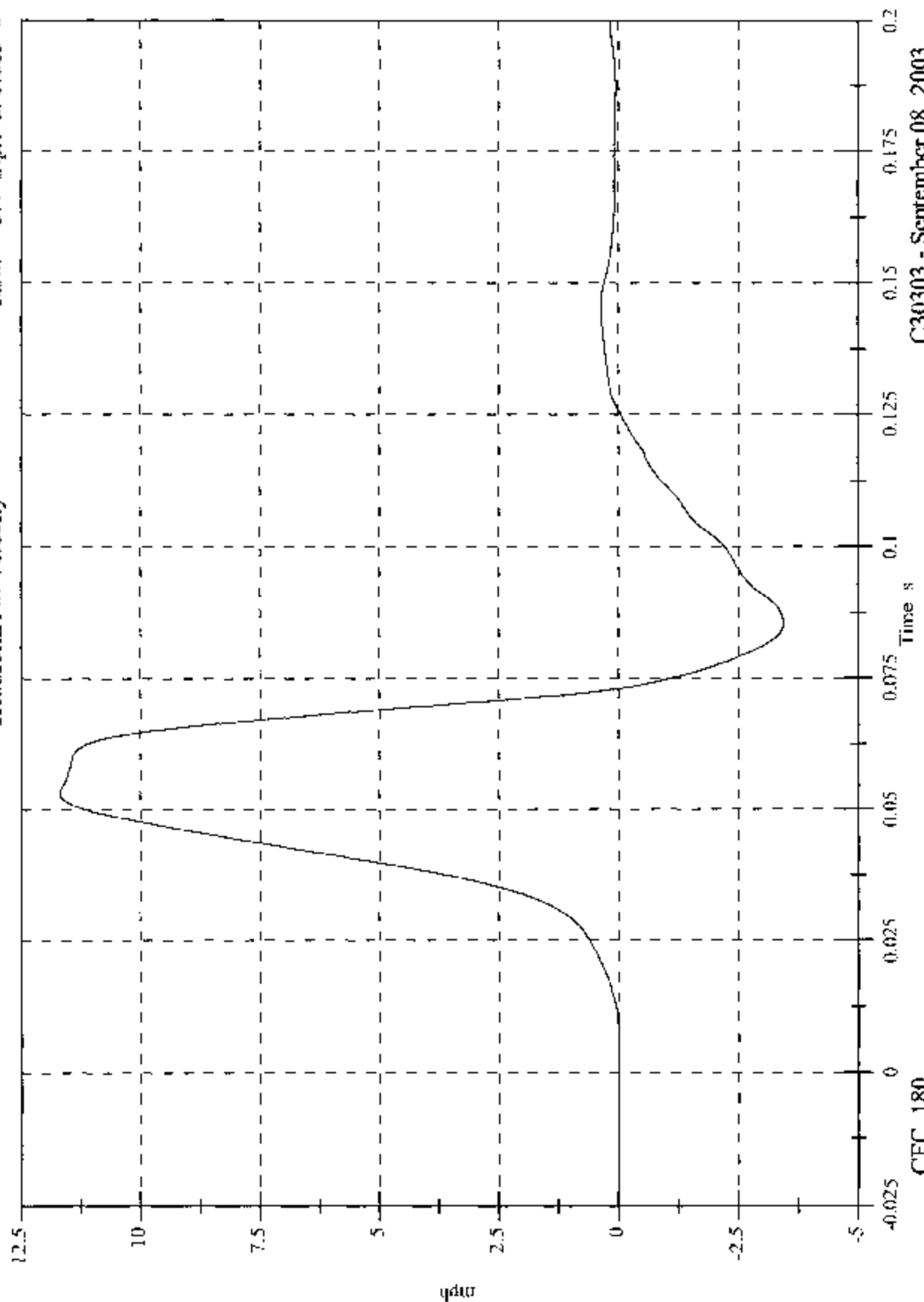


C30303 - September 08, 2003

FMVSS 201 Linear Impact - 2003 Chrysler PT Cruiser

Max: 11.7 mph at 0.053 s
Min: -3.4 mph at 0.085 s

Headform Ax Velocity



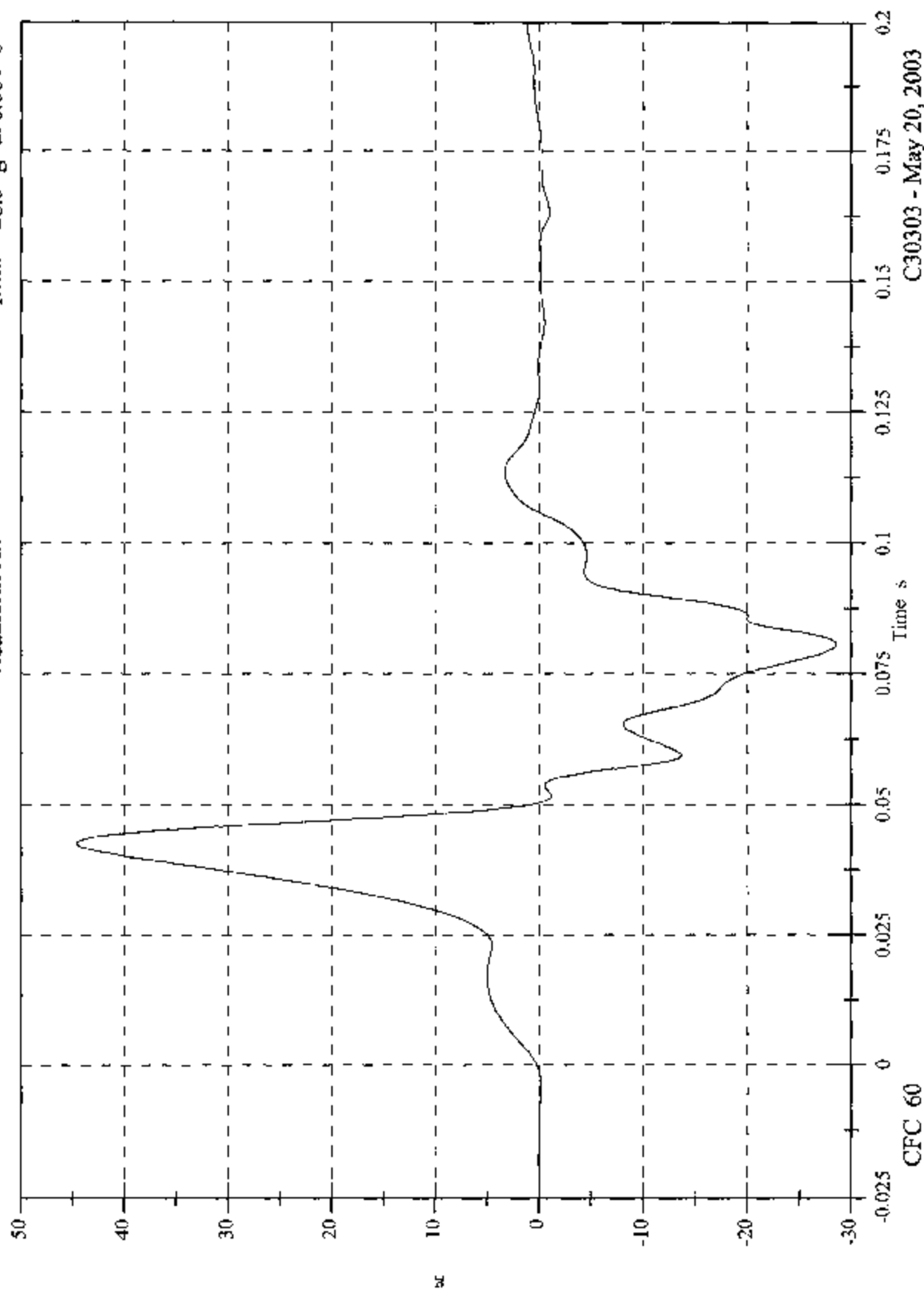
CFC 180

C30303 - September 08, 2003

FMVSS 201 Linear Impact - 2003 Chrysler PT Cruiser

Headform Ax

Max: 44.7 g at 0.043 s
Min: -28.5 g at 0.081 s

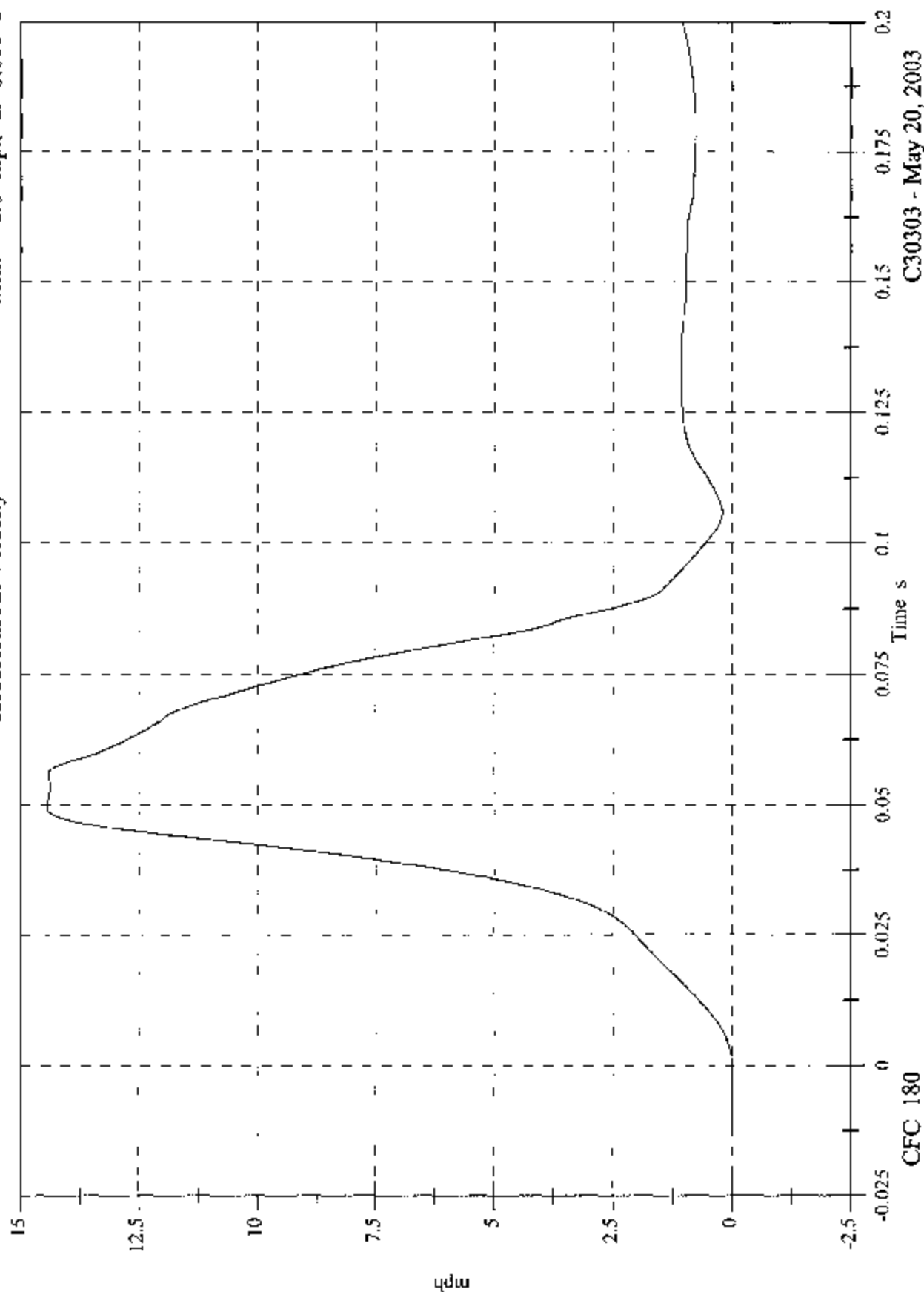


C30303 - May 20, 2003

FMVSS 201 Linear Impact - 2003 Chrysler PT Cruiser

Headform Ax Velocity

Max: 14.4 mph at 0.050 s
Min: -0.0 mph at -0.001 s



C30303 - May 20, 2003

APPENDIX C

INTERIOR COMPARTMENT DOOR CALCULATIONS

Latch systems were not evaluated.