

SAFETY TEST
VEHICLE CRASH TEST LETTER

PAGE 01

VC05681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI ITEM ZJ8262R
1997 MVSS DEVELOPMENT - 301.
TEST DATE 11/04/95

TEST PURPOSE PRIMARY, 1997 USA 301 DEVELOPMENT.
OBSERVE FUEL SYSTEM INTEGRITY.

IMPACT TYPE TARGET SPEED; 30.1 MPH
DAMAGE LOCATION; REAR
BARRIER TYPE; REAR TYPE IV
BARRIER SURFACE; PLYWOOD

VEHICLE BODY CLASS; ZJ
CAR LINE; J
BODY; 74
ENGINE; 5.2 LITRE
ENGINE NOTE; ELECTRONIC FUEL INJECTION
TRANSMISSION; 3 SPEED AUTO 4x4
TRANS. NOTE;
VIN AS TESTED; 1J4EZ58YXTC146387 MOD.
VIN AS BUILT; 1J4EZ58YXTC146387 MOD.

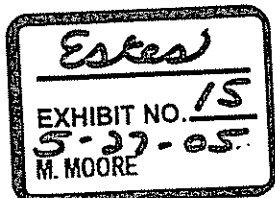
TEST SPEED 30.2 MPH BY ELECTRONIC TRAP.

TEST WEIGHT (LBS) 4796 TOTAL, 2855 FRONT, 1941 REAR

OCCUPANTS LEFT FRONT, HYB II, BALLAST. AD-52
RESTRAINT-BELTS ONLY.
RIGHT FRONT, HYB II, BALLAST. AD-53
RESTRAINT-BELTS ONLY.

BUILD CONDITION 1996 PRODUCTION ZJ MODIFIED TO REPRESENT 1997.
AECM SENSOR SYSTEM PRODUCTION INTENT FOR 1997.
5.2 LITRE (V8) ENGINE, 3-SPEED AUTO TRANS. 4X4,
POWER STEERING, ABS BRAKES, AIR CONDITIONING.
1997 AECM MODULE AND BRACKET BIW REINFORCEMENTS.
UNDER FLOORPAN FOR 1997 DESIGN INTENT.
BUCKET SEAT (CLOTH) ON ELECTRIC TRACKS.
FULL CENTER CONSOLE AND OVERHEAD CONSOLE.
P225/75R15 TIRES WITH ALUMINUM WHEELS & FULL
SPARE WITH MODIFIED ATTACHMENT BOLT.
HEAVYWEIGHT VEHICLE TO TEST AECM.
1997 FUEL SENDING UNIT AND 1997 FUEL TANK DESIGN.

TARGET WEIGHT (LBS) 4166 TOTAL, 2311 FRONT, 1854 REAR, REP MAX OPT WT.
NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.



DC 03093

SAFETY TEST
VEHICLE CRASH TEST LETTER

PAGE 02

VC05681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI ITEM ZJ8262R
1997 MVSS DEVELOPMENT - 301.
TEST DATE 11/04/95

FUEL AND BALLAST 21.8 GALLONS OF STODDARD SOLVENT.
300 LBS OF LUGGAGE BALLAST SECURED IN CARGO AREA.
(INCLUDES THE FOLLOWING: 100 LBS SECURED TO RR
FLOORPAN. 100 LBS SECURED TO LR FLOORPAN. 115 LBS
SECURED TO RF FLOORPAN.)
100 LBS SECURED TO FRONT HEADLIGHT AREA.

POST TEST REMARKS FUEL LEAK AT IMPACT.

REPORT CODES A = TRANSDUCER DATA B = ALL FILM DATA
 C = HIGH SPEED FILM D = ENGINEER'S REPORT
 E = DUMMY KINEMATICS F = STEERING COLUMN
 G = UNDERBODY H = A-POST
 I = DYNAMIC CRUSH J = ENGINE COMPARTMENT
 K = DOOR CRUSH L = FORCE/CRUSH/ENERGY
 M = SPECIAL N = CATALOG EDP DATA
 * = REPORT REQUESTOR

DISTRIBUTION D.J. MCKENZIE 422-05-01 (AB)
 J.B. ESTES 514-15-58 (AB)

DATE 11/07/95 TIME 07.56.58.

DC 03094

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 01

ITEM ZJ8262R CHARGE NO. DISCOVER ISSUE DATE 10/02/95

VC 5681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI.
1997 MVSS DEVELOPMENT - 301.

TEST DATE 11/4/95 ENGINEER Collings
SPEED 30.2 MPH SOURCE

TEST PURPOSE PRIMARY, 1997 USA 301 DEVELOPMENT.
OBSERVE FUEL SYSTEM INTEGRITY.

IMPACT TYPE TARGET SPEED; 30.1 MPH
DAMAGE LOCATION; REAR
BARRIER TYPE; REAR TYPE IV
BARRIER SURFACE; PLYWOOD

VEHICLE BODY CLASS; ZJ
CAR LINE; J
BODY; 74
ENGINE; 5.2 LITRE
ENGINE NOTE; ELECTRONIC FUEL INJECTION
TRANSMISSION; 3 SPEED AUTO 4x4
TRANS. NOTE;
VIN AS TESTED; 1J4EZ58YXTC146387 MOD.
VIN AS BUILT; 1J4EZ58YXTC146387 MOD.

BUILD CONDITION 1996 PRODUCTION ZJ MODIFIED TO REPRESENT 1997.
AECM SENSOR SYSTEM PRODUCTION INTENT FOR 1997.
5.2 LITRE (V8) ENGINE, 3-SPEED AUTO TRANS. 4X4,
POWER STEERING, ABS BRAKES, AIR CONDITIONING.
1997 AECM MODULE AND BRACKET BIW REINFORCEMENTS
UNDER FLOORPAN FOR 1997 DESIGN INTENT.
BUCKET SEAT (CLOTH) ON ELECTRIC TRACKS.
FULL CENTER CONSOLE AND OVERHEAD CONSOLE.
P225/75R15 TIRES WITH ALUMINUM WHEELS & FULL
SPARE WITH MODIFIED ATTACHMENT BOLT.
HEAVYWEIGHT VEHICLE TO TEST AECM.
1997 FUEL SENDING UNIT AND 1997 FUEL TANK DESIGN.

TARGET WEIGHT (LBS) 4166 TOTAL, 2311 FRONT, 1854 REAR, REP MAX OPT WT.
NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.

TEST WEIGHT (LBS) 4176 TOTAL, 2315 FRONT, 1141 REAR

FUEL BALLAST 21.8 GALLONS OF STODDARD SOLVENT.

LUGGAGE BALLAST 300 LBS OF LUGGAGE BALLAST SECURED IN CARGO AREA.

POST TEST REMARKS _____

DC 03095

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 01

OTHER BALLAST

100 lbs of ballast secured to RR-THORAN. 50 lbs
of ballast secured to LR-THORAN. 115 lbs of ballast secured
to RR-THORAN. 100 lbs of ballast secured to LR-THORAN.

OCCUPANTS

LEFT FRONT, HYB II, BALLAST. AD NO 52
RESTRAINT-BELTS ONLY.
RIGHT FRONT, HYB II, BALLAST. AD NO 53
RESTRAINT-BELTS ONLY.

MECHANICAL REQ

PLACE SEAT IN MID TRACK POSITION.
FUEL PUMP TO BE RUNNING DURING TEST.
RUN FUEL PUMP PRE TEST TO CHECK CONNECTIONS.
PRESSURE CHECK PRE AND POST TEST.
STATIC ROLL POST TEST.
PAINT REAR DIFFERENTIAL AND GAS TANK FOR VIEWING.
PAINT FILLER NECK AREA FOR VISIBILITY.

INSTRUMENTATION REQ SEE 3RD SHEET NO. 107 FOR ACCELEROMETER REQUIREMENTS AND LOCATIONS (THE 4 SILL ACCELEROMETERS ARE TO BE BI-AXIAL).
TRI-AXIAL ACCELEROMETER ON AECM BRACKET.
MONITOR AECM SAFING, SQUIB AND INT. ACC. OUTPUTS.
BI-AXIS ACC. AT FRONT ROLOMITE LOCATIONS. (X&Z)
INSURE AIRBAGS DO NOT FIRE.

PHOTOGRAPHIC REQ

1-LEFT SIDE OVERALL CAMERA TO VIEW ENTIRE VEHICLE.
1-RIGHT SIDE OVERALL CAMERA TO VIEW ENTIRE VEHICLE
1-CATWALK CAMERA TO VIEW ENTIRE VEHICLE.
1-PIT CAMERA TO VIEW UNDERBODY, AXLE TO BUMPER.
1-PIT CAMERA CLOSE-UP OF FILLER NECK.

FILM ANALYSIS

VEHICLE VELOCITY, ONLY IF REQUESTED.
DYNAMIC CRUSH.

REMARKS

MAKE 1 FILM COPY AND 1 VHS COPY, SEND TO:
J.B. ESTES 514-15-58
PLEASE RETURN VEHICLE POST TEST TO JTE.

T. E. REPORT

301 FUEL SYSTEMS REPORT REQUIRED.

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 01

REPORT CODES

A = TRANSDUCER DATA	B = ALL FILM DATA
C = HIGH SPEED FILM	D = ENGINEER'S REPORT
E = DUMMY KINEMATICS	F = STEERING COLUMN
G = UNDERBODY	H = A-POST
I = DYNAMIC CRUSH	J = ENGINE COMPARTMENT
K = DOOR CRUSH	L = FORCE/CRUSH/ENERGY
M = SPECIAL	N = CATALOG EDP DATA
* = REPORT REQUESTOR	

DISTRIBUTION

D.J. MCKENZIE	422-05-01 (AB)
J.B. ESTES	514-15-58 (AB)

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 01

*****CHANGED 10/20/95 AT 13.49.09. SUPPLEMENT NO. 01

VEHICLE

MODIFY	VIN AS TESTED;	XXX	MOD.
	TO READ VIN AS TESTED;	1J4EZ58YXTC146387	MOD.
MODIFY	VIN AS BUILT;	XXX	MOD.
	TO READ VIN AS BUILT;	1J4EZ58YXTC146387	MOD.

X, Y, Z DIMENSIONS

TEST NUMBER VC5681

TEST ENGINEER COLLINGS

ITEM NUMBER ZJ8262R V.I.N. 1J4EZ58YXTCL46387 TEST DATE 11/4/95

TEST TYPE: 30 MPH REAR TYPE IV MOVING BARRIER IMPACT

LOCATION	X	Y	Z	LOCATION	X	Y	Z
BC1	0	0.0	XXXX	BC2	XXXX	0.0	XXXX
B1	162.5	18.4	XXXX	B2	162.4	17.3	XXXX
LFS	46.4	34.1	12.6			44-	
LMS	76.1	34.5	13.3			44-	
LRA	123.2	31.3	13.6			44-	

TRAMMEL DIMENSIONS;

LMS-LRS PRE 24

TUBE COLOR Blue

FRONT SILL

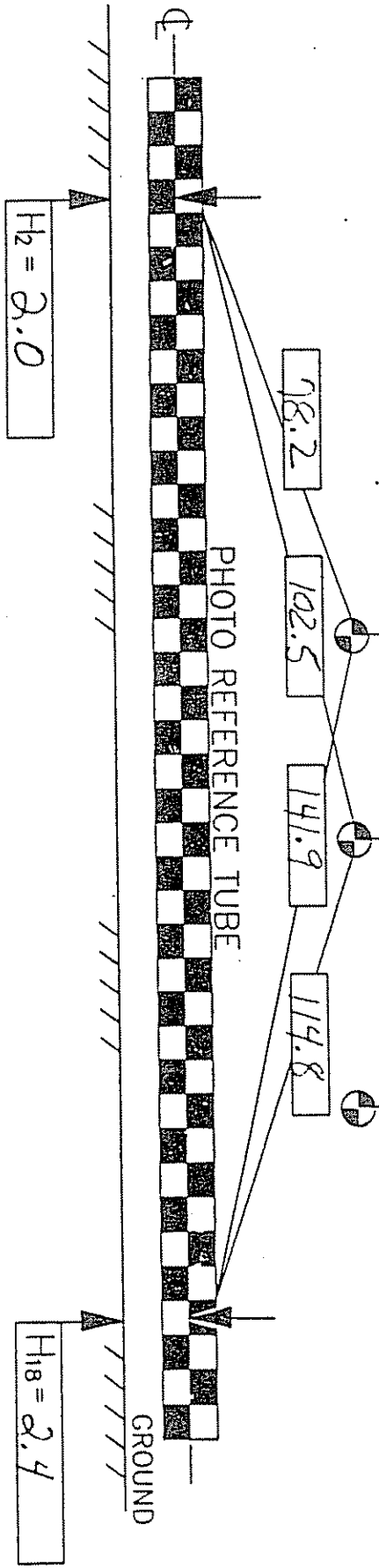
X =	46.4
Y =	-34.1
Z =	12.5

REAR SILL

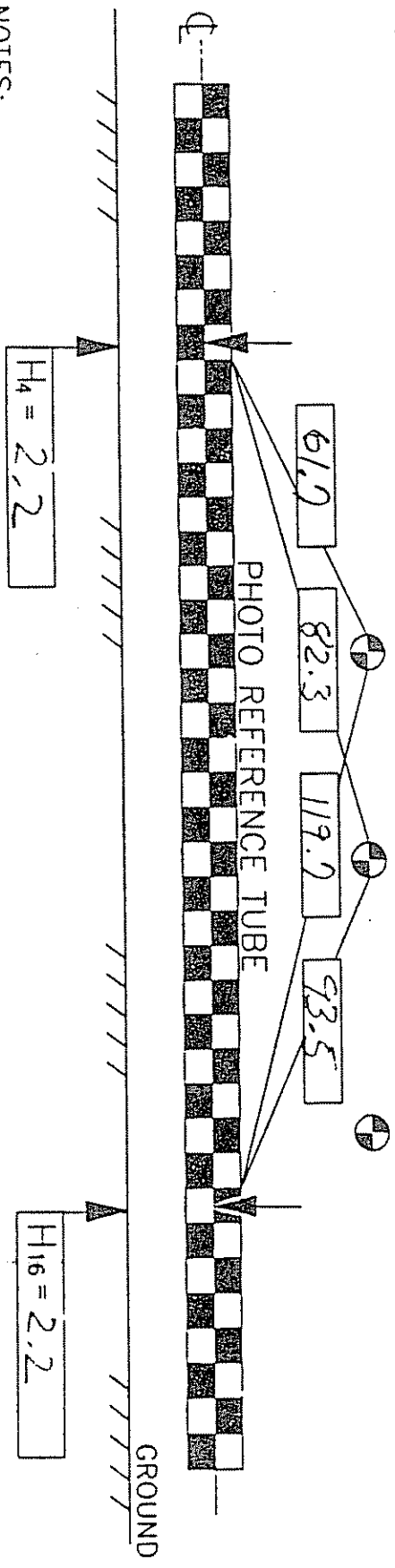
X =	76.1
Y =	-34.5
Z =	13.0

REAR AXLE

X =	123.2
Y =	-31.3
Z =	13.6



FORWARD



NOTES:

1. THE Z DIMENSION FOR THE SILL TARGETS AND REAR AXLE MUST BE RETAKEN AT THE TEST SITE
2. IF OTHER TUBE POINTS ARE USED, SO INDICATE

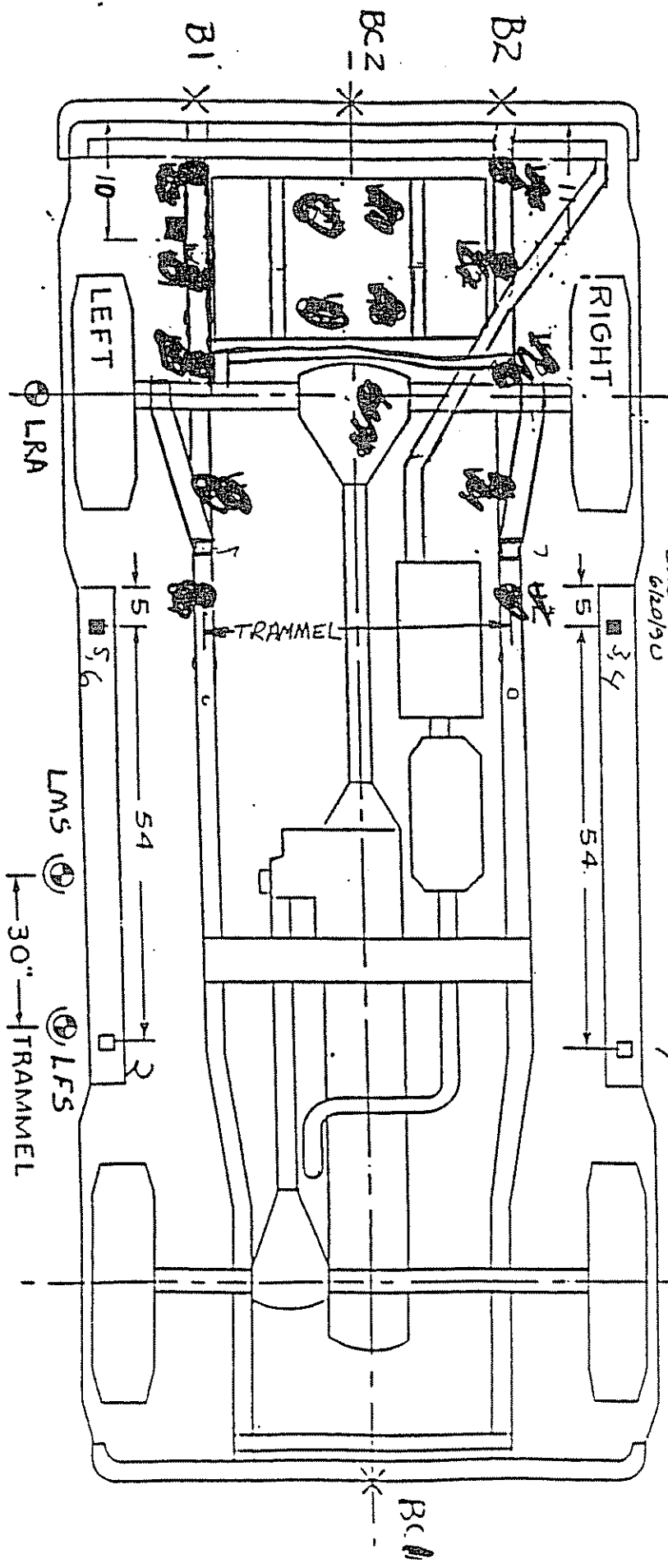
FOR REAR IMPACT TESTS - DIMENSIONING BETWEEN SILL TARGETS AND PHOTO REFERENCE TUBE TEST ENGR Collings VC 5681

ORD SHEET 106, ITEM 218262R. V 568
 JEEP ZJ 4x4
 TARGET AND ACCELEROMETER LOCATIONS
 FOR REAR IMPACTS

ZENONS RECD ON ROOF

ELEC FUEL PUMP TO BE
 RUNNING DURING IMPACT

ACCEL. LOCATIONS ARE XJ (REF. SHEET 102)
 ACTUAL LOCATIONS PER T. MAULE
 GABUSS
 6/20/90



TARGETS

- X PUNCH POINT
- ⊙ UNDERBODY
- ⊙ SIDE VIEW

- LEGEND
- ACCELEROM - □ SINGLE AXIS, X
 ETTERS ■ BIAXIAL, X & Z
- NOTES -
1. PRE AND POST DIMENSIONS ARE REQUIRED PER BREITMOSELER LETTER OF 01-04-88
 2. NUMBERS ASSIGNED TO EACH TARGET ARE PERMANENT
 3. TARGETS MAY BE DELETED BY NUMBER PER TR.
 4. ADDITIONAL TARGETS MAY BE REQUESTED BY TR.
 5. LOCATIONS SHOWN ARE APPROX TO ± 0.5 IN. ACTUAL IMPACT POINT TO ± 0.1 INCH

FUEL SYSTEM AND STATIC ROLLOVER SUMMARY

TEST NUMBER VC5681 ITEM NUMBER ZJ8262R TEST ENGINEER COLLINGS

V.I.N. 1J4EZ58YXTC146387, TEST DATE 11/4/95, ROLL DATE 1/1

TEST TYPE; 30 MPH FRONT FLAT FIXED BARRIER IMPACT

FUEL; TYPE AND QUANTITY - .767 S.G. STODDARD SOLVENT, 21.8 GALLONS

TEST SPEED 30.2 MPH, TEST WEIGHT 4776 POUNDS.

POST TEST FUEL SYSTEM OBSERVATIONS Fuel leak at ...

More than 5 oz.

POST IMPACT LEAKAGE(OZ); AT IMPACT >5oz
 1ST 5 MIN. >5oz
 NEXT 25 MIN. _____

POST TEST PRESSURE CHECK See above

ELECTRIC FUEL PUMP RUN See above

STATIC ROLL LEAKAGE WITH VEHICLE See above SIDE DOWN FIRST

		FUEL LEAKAGE LOCATIONS DURING STATIC ROLL				TOTAL
ROLL TIME						
0-90	1ST 5 MIN					*
	POST 5 MIN					**
90-180	1ST 5 MIN					*
	POST 5 MIN					**
180-270	1ST 5 MIN					*
	POST 5 MIN					**
270-360	1ST 5 MIN					*
	POST 5 MIN					**

* OUNCES IN 5 MINUTES, ** OUNCES PER MINUTE

LAST FORM MODIFICATION 5/27/93 - GAB

VEHICLE ATTITUDE

TEST NUMBER VC5681

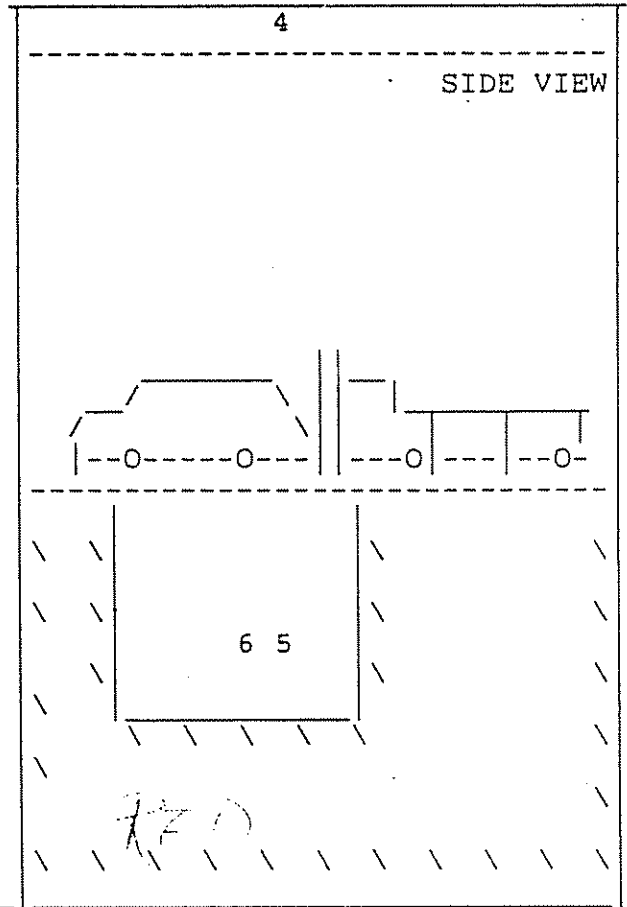
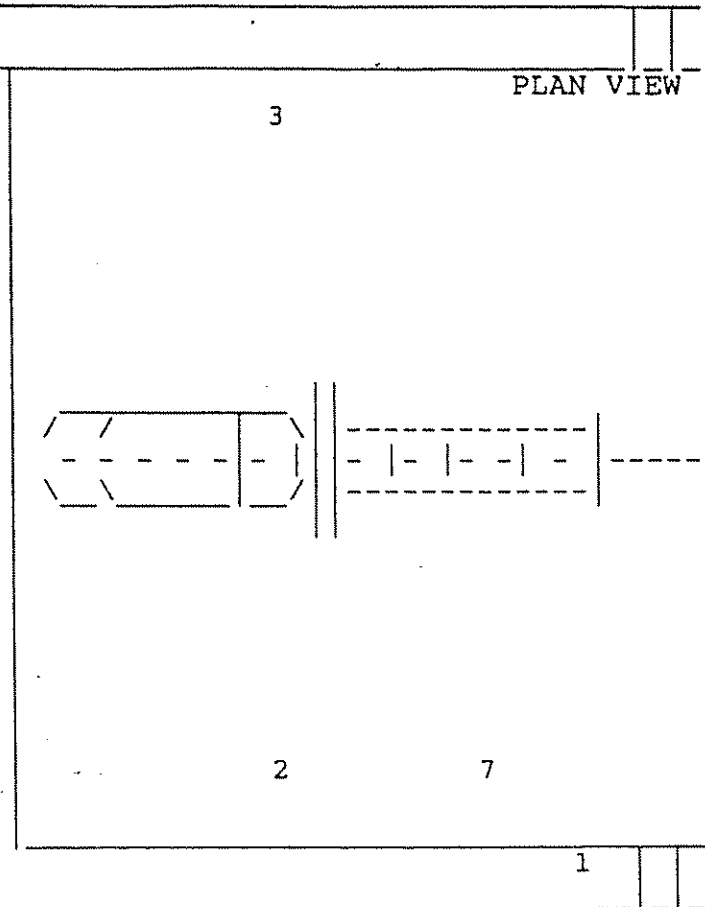
TEST ENGINEER COLLINGS

ITEM NUMBER ZJ8262R

TEST DATE 11/4/95

FENDER/WHEELWELL HEIGHTS SILL HEIGHTS

	LF	LR	RF	RR
AS RECEIVED	31.7	32.7	31.6	32.7
AS BUILT-UP				
AS TESTED	30.8	32.0	30.8	32.0



TEST NUMBER VC5681 TEST TYPE: 30 MPH TYPE IV MOVING BARRIER REAR IMPACT
 TEST ENGINEER COLLINGS REQUEST DATE : 10/19/95 VEHICLE BODY CLASS : ZJ

#	VIEW DESCRIPTION	CAM S/N	LENS F.L.	LENS S/N	LENS MFG.	F-STOP	PNL	SKT	CBL	CAM MFG
1	PANNING									
2	LT. OVERALL - DYNAMIC CRUSH	1879	25mm	106468	KIN	5.6				
3	RT. OVERALL	1890	18mm	107230	KIN	5.6				
4	CATWALK OVERALL	1891	18mm	107231	KIN	8				
5	PIT-AXLE TO BUMPER	424	25mm	63092	COS	5.6				
6	PIT-FILLER NECK	425	200m	953	SCHWABER	4				
7	A-VELOCITY	286	100mm	82088	EIKON	5.6				
	L+ D/A L-TRIP		25	84162	KIN	8				

10 5 95

RECEIVED NOV 11 1995

FILED NO. 211895

DATE 11/07/95
TIME 09.03.35.

ELECTRONIC DATA PROCESSING
EDP TEST LETTER

VEHICLE CRASH ENGINEERING
DEPT 5320

VC05681 ITEM ZJ8262R
VC05681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI ITEM ZJ8262R
1997 MVSS DEVELOPMENT - 301.
TEST DATE 11/04/95

TEST PURPOSE PRIMARY, 1997 USA 301 DEVELOPMENT.
OBSERVE FUEL SYSTEM INTEGRITY.

IMPACT TYPE TARGET SPEED; 30.1 MPH
DAMAGE LOCATION; REAR
BARRIER TYPE; REAR TYPE IV
BARRIER SURFACE; PLYWOOD

VEHICLE BODY CLASS; ZJ
CAR LINE; J
BODY; 74
ENGINE; 5.2 LITRE
ENGINE NOTE; ELECTRONIC FUEL INJECTION
TRANSMISSION; 3 SPEED AUTO 4x4
TRANS. NOTE;
VIN AS TESTED; 1J4EZ58YXTC146387 MOD.
VIN AS BUILT; 1J4EZ58YXTC146387 MOD.

TEST SPEED 30.2 MPH BY ELECTRONIC TRAP.

TEST WEIGHT (LBS) 4796 TOTAL, 2855 FRONT, 1941 REAR

OCCUPANTS LEFT FRONT, HYB II, BALLAST. AD-52
RESTRAINT-BELTS ONLY.
RIGHT FRONT, HYB II, BALLAST. AD-53
RESTRAINT-BELTS ONLY.

BUILD CONDITION 1996 PRODUCTION ZJ MODIFIED TO REPRESENT 1997.
AECM SENSOR SYSTEM PRODUCTION INTENT FOR 1997.
5.2 LITRE (V8) ENGINE, 3-SPEED AUTO TRANS. 4X4,
POWER STEERING, ABS BRAKES, AIR CONDITIONING.
1997 AECM MODULE AND BRACKET BIW REINFORCEMENTS
UNDER FLOORPAN FOR 1997 DESIGN INTENT.
BUCKET SEAT (CLOTH) ON ELECTRIC TRACKS.
FULL CENTER CONSOLE AND OVERHEAD CONSOLE.
P225/75R15 TIRES WITH ALUMINUM WHEELS & FULL
SPARE WITH MODIFIED ATTACHMENT BOLT.
HEAVYWEIGHT VEHICLE TO TEST AECM.
1997 FUEL SENDING UNIT AND 1997 FUEL TANK DESIGN.

TARGET WEIGHT (LBS) 4166 TOTAL, 2311 FRONT, 1854 REAR, REP MAX OPT WT.
NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.

DC 03105

DATE 11/07/95
TIME 09.03.35.

ELECTRONIC DATA PROCESSING
EDP TEST LETTER

VEHICLE CRASH ENGINEERING
DEPT 5320

VC05681 ITEM ZJ8262R
VC05681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI ITEM ZJ8262R
1997 MVSS DEVELOPMENT - 301.
TEST DATE 11/C4/95

FUEL AND BALLAST 21.8 GALLONS OF STODDARD SOLVENT.
300 LBS OF LUGGAGE BALLAST SECURED IN CARGO AREA.
(INCLUDES THE FOLLOWING: 100 LBS SECURED TO RR
FLOORPAN. 100 LBS SECURED TO LR FLOORPAN. 115 LBS
SECURED TO RF FLOORPAN.)
100 LBS SECURED TO FRONT HEADLIGHT AREA.

POST TEST REMARKS FUEL LEAK AT IMPACT.

EDP TECHNICIAN S. MARCHENIA

No. of Pages 35
CC

J. B. ESTES 514-15-58
D. J. MCKENZIE 422-05-01

DC 03106

TITLE: Page Index of EDP plots Pages 001 - 035
***** VC05681A ***** Page I-01

TITLE: Transducer Summary Reports Pages 001 - 003
PAGE: 001 TSR Channels 001 - 008
PAGE: 002 TSR Channels 009 - 016
PAGE: 003 TSR Channels 017 - 020

***** VC05681B *****
TITLE: Vehicle Channels Pages 004 - 031

PAGE: 004 Average of Sill Chls 1, 3, 5, & 7
PAGE: 005 Average of Frt Sill Chls 1 & 3
PAGE: 006 LEFT FRONT SILL X, Chl 1
PAGE: 007 LEFT FRONT SILL X, Chl 1, VD
PAGE: 008 LEFT FRONT SILL Z, Chl 2
PAGE: 009 RIGHT FRONT SILL X, Chl 3
PAGE: 010 RIGHT FRONT SILL X, Chl 3, VD
PAGE: 011 RIGHT FRONT SILL Z, Chl 4
PAGE: 012 LEFT REAR SILL X, Chl 5
PAGE: 013 LEFT REAR SILL X, Chl 5, VD
PAGE: 014 LEFT REAR SILL Z, Chl 6
PAGE: 015 RIGHT REAR SILL X, Chl 7
PAGE: 016 RIGHT REAR SILL X, Chl 7, VD
PAGE: 017 RIGHT REAR SILL Z, Chl 8
PAGE: 018 LT RAIL TRAIL ARM PIV X, Chl 9
PAGE: 019 LT RAIL TRAIL ARM PIV X, Chl 9, VD
PAGE: 020 RT RAIL TRAIL ARM PIV X, Chl 10
PAGE: 021 RT RAIL TRAIL ARM PIV X, Chl 10, VD
PAGE: 022 RT REAR RAIL MID TANK X, Chl 11 *C*
PAGE: 023 RT REAR RAIL MID TANK X, Chl 11, VD *C*
PAGE: 024 RT REAR RAIL MID TANK Z, Chl 12
PAGE: 025 AECM SQUIB, Chl 13, Event *N*
PAGE: 026 AECM SAFING SEN, Chl 14, Event *N*
PAGE: 027 AECM INTERN ACCEL G, Chl 15
PAGE: 028 AECM EXTERN X, Chl 16
PAGE: 029 AECM EXTERN X, Chl 16, VD
PAGE: 030 AECM EXTERN Y, Chl 17
PAGE: 031 AECM EXTERN Z, Chl 18

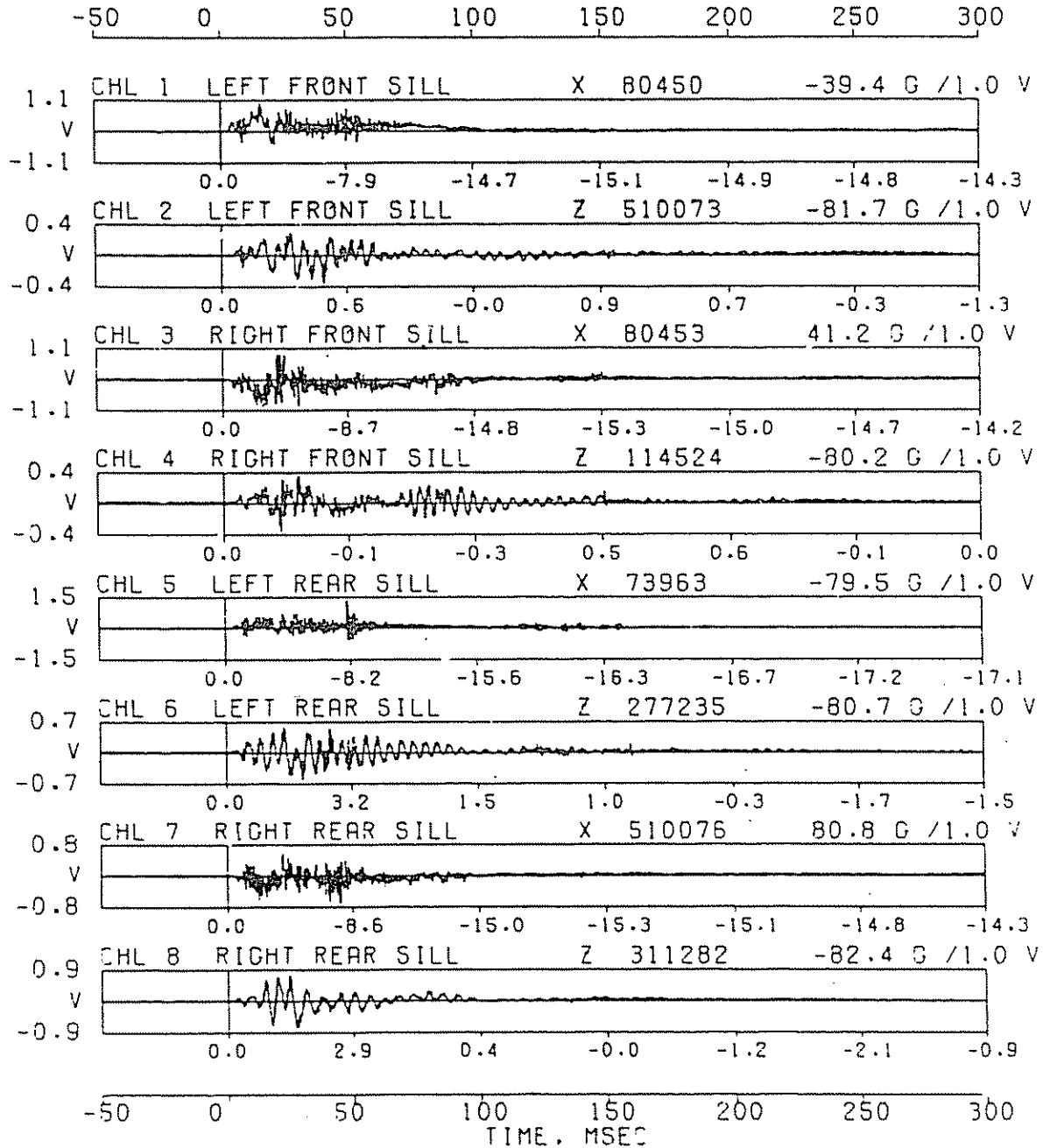
***** VC05681C *****
TITLE: Moving barrier Channels Pages 032 - 035

PAGE: 032 LT RAIL MBAR MID X Chl 19
PAGE: 033 LT RAIL MBAR MID X , Chl 19, VD
PAGE: 034 RT RAIL MBAR MID X Chl 20
PAGE: 035 RT RAIL MBAR MID X , Chl 20, VD

TRANSDUCER SUMMARY REPORT

VC05681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI, ITEM ZJ8262R
 1997 MVSS DEVELOPMENT - 301.
 IMPACT ANALYSIS DEPT. 5320
 NOV 7, 1995

PAGE 001
 OF 035
 DATA SET 11/04/9583
 ERRATA 1



NOTE COMPUTED FIRST INTEGRAL VALUES ARE INDICATED BELOW EACH CHANNEL AND BRIDGED DATA IS INDICATED BY A -B-.

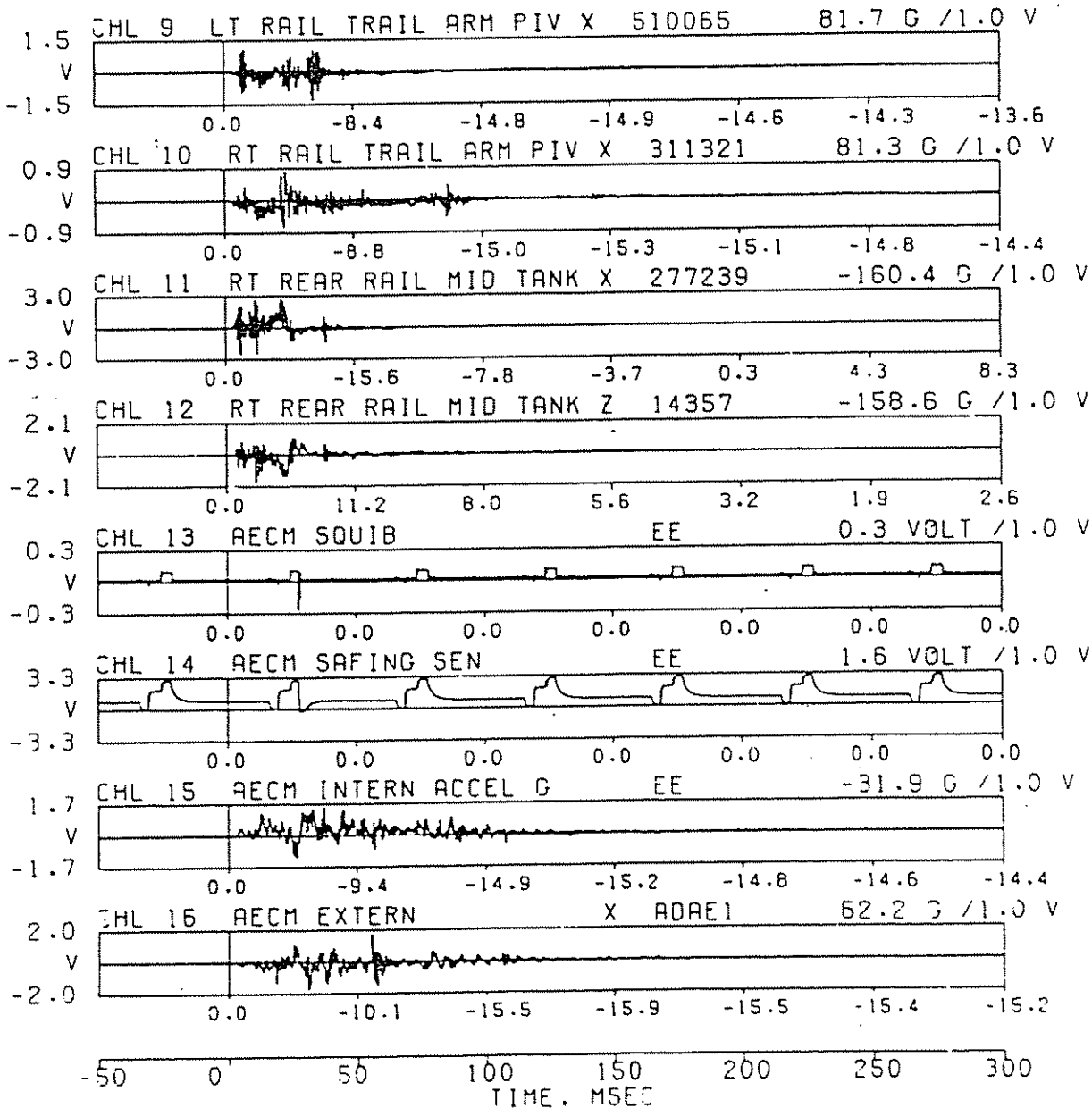
TRANSDUCER SUMMARY REPORT

VC05681 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI. ITEM ZJB262R
 1997 MVSS DEVELOPMENT - 301.
 IMPACT ANALYSIS DEPT. 5320
 NOV 7.1995

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 OF 035

DATA SET 11/04/95B0
 ERRATA 1

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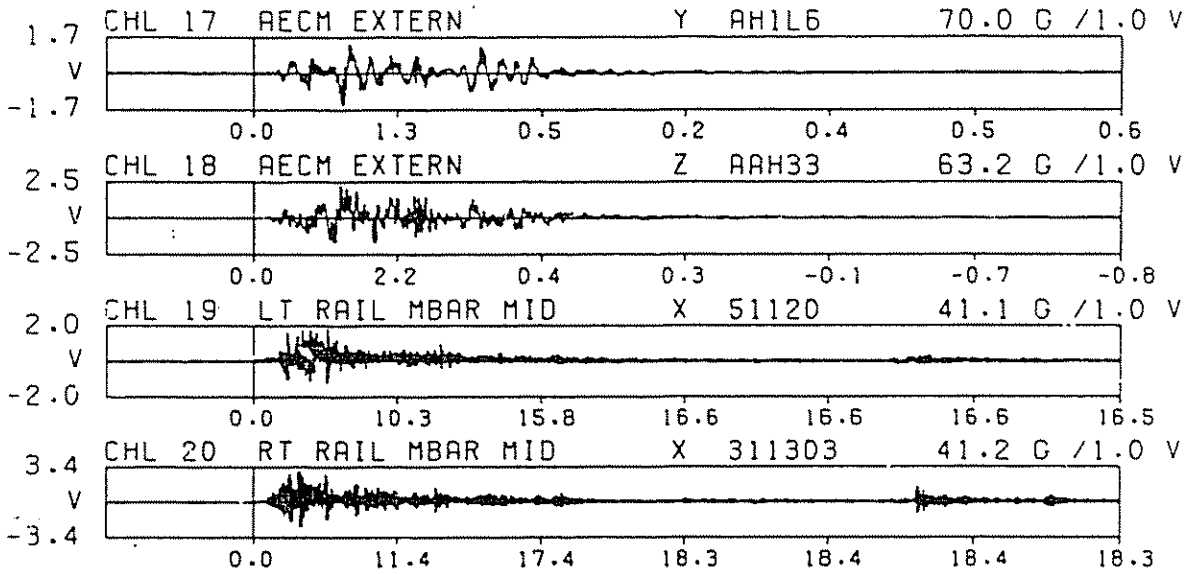
NOTE COMPUTED FIRST INTEGRAL VALUES ARE INDICATED BELOW
 EACH CHANNEL AND BRIDGED DATA IS INDICATED BY A -B-

TRANSDUCER SUMMARY REPORT

VC05681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI, ITEM ZJ82E2R
 1997 MVSS DEVELOPMENT - 301.
 IMPACT ANALYSIS DEPT. 5320
 NOV 7.1995

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 OF 035
 DATA SET 11/04/95BR
 ERRATA 1

-50 0 50 100 150 200 250 300



-50 0 50 100 150 200 250 300
 TIME, MSEC

NOTE COMPUTED FIRST INTEGRAL VALUES ARE INDICATED BELOW
 EACH CHANNEL AND BRIDGED DATA IS INDICATED BY A -B-.

VC05681 30 MPH REAR BARRIER, ZJJ74. 5.2L MPI. ITEM ZJB262R
1997 MVSS DEVELOPMENT - 301.
AVERAGE OF

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OF 035

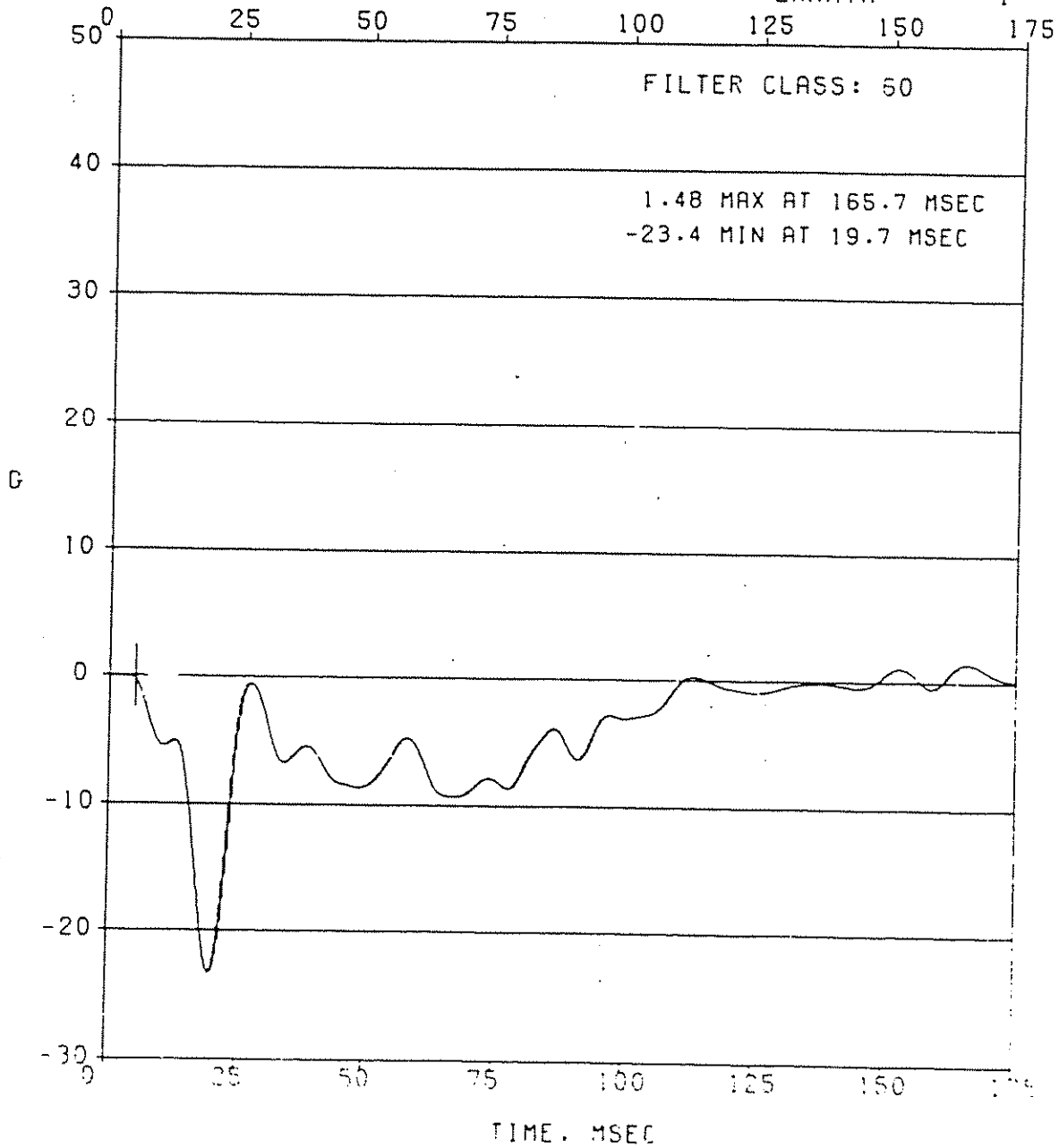
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CHANNEL 003 RIGHT FRONT SILL	X	80453
CHANNEL 005 LEFT REAR SILL	X	73963
CHANNEL 007 RIGHT REAR SILL	X	510076

FILTER TYPE: SAE J211B/80 DC C60(TPF-R) EFF 3/24/86
IMPACT ANALYSIS DEPT. 5320

DATA SET 11/04/9580

NOV 7.1995

ERRATA 1



DC 03111

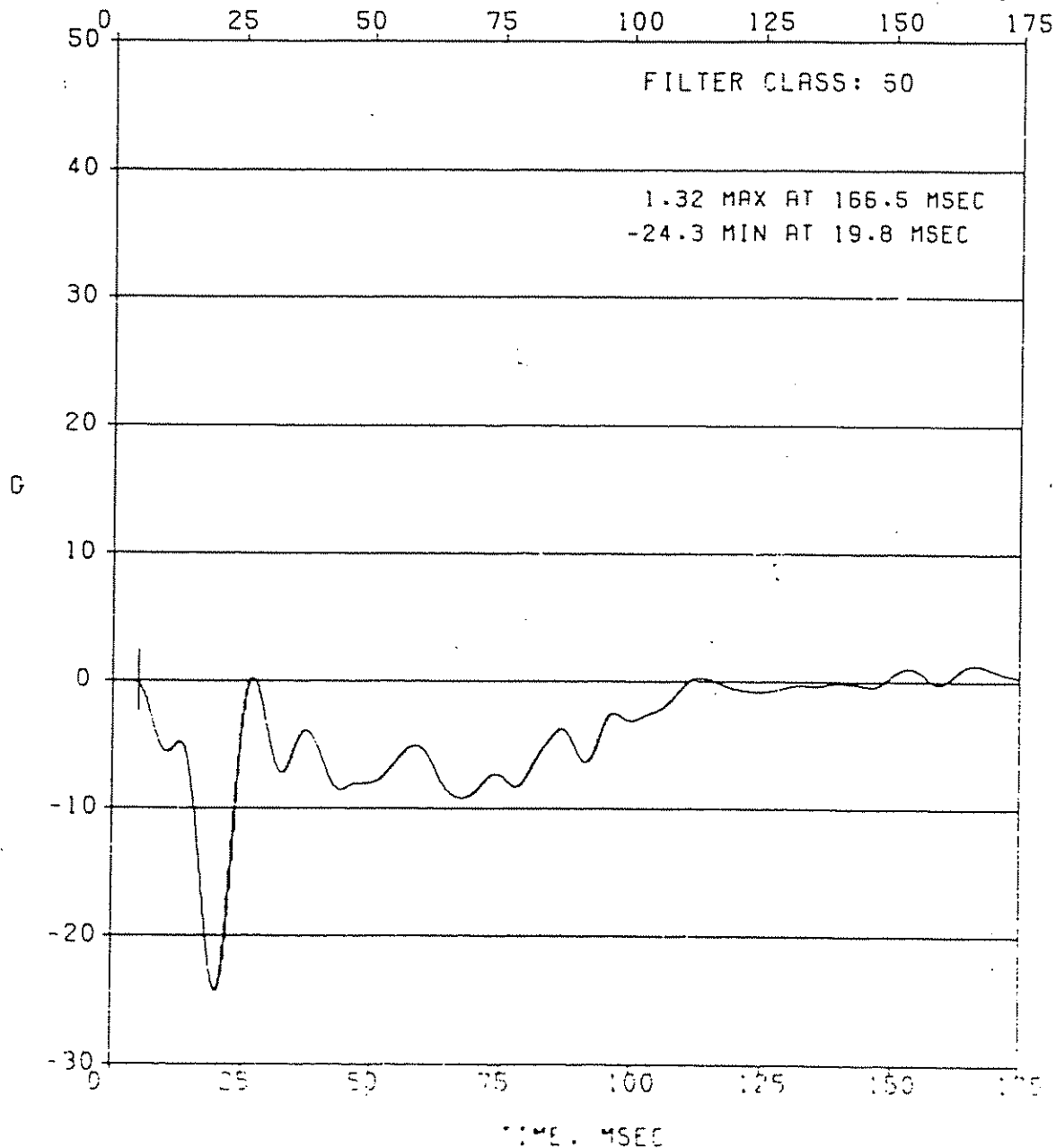
VC056B1 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI. ITEM ZJB262R
1997 MVSS DEVELOPMENT - 301.
AVERAGE OF

PAGE 005
OF 035

CHANNEL 001 LEFT FRONT SILL X 80450
CHANNEL 003 RIGHT FRONT SILL X 80453

FILTER TYPE: SAE J211B/80 DC C60(TPF-R) EFF 3/24/86
IMPACT ANALYSIS DEPT. 5320
NOV 7, 1995

DATA SET 11/04/95B0
ERRATA 1



DC 03112

VC05681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI, ITEM ZJ8262R

PAGE 006

1997 MVSS DEVELOPMENT - 301.

OF 035

CHANNEL 001 LEFT FRONT SILL X 80450

FILTER TYPE: 0BDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)

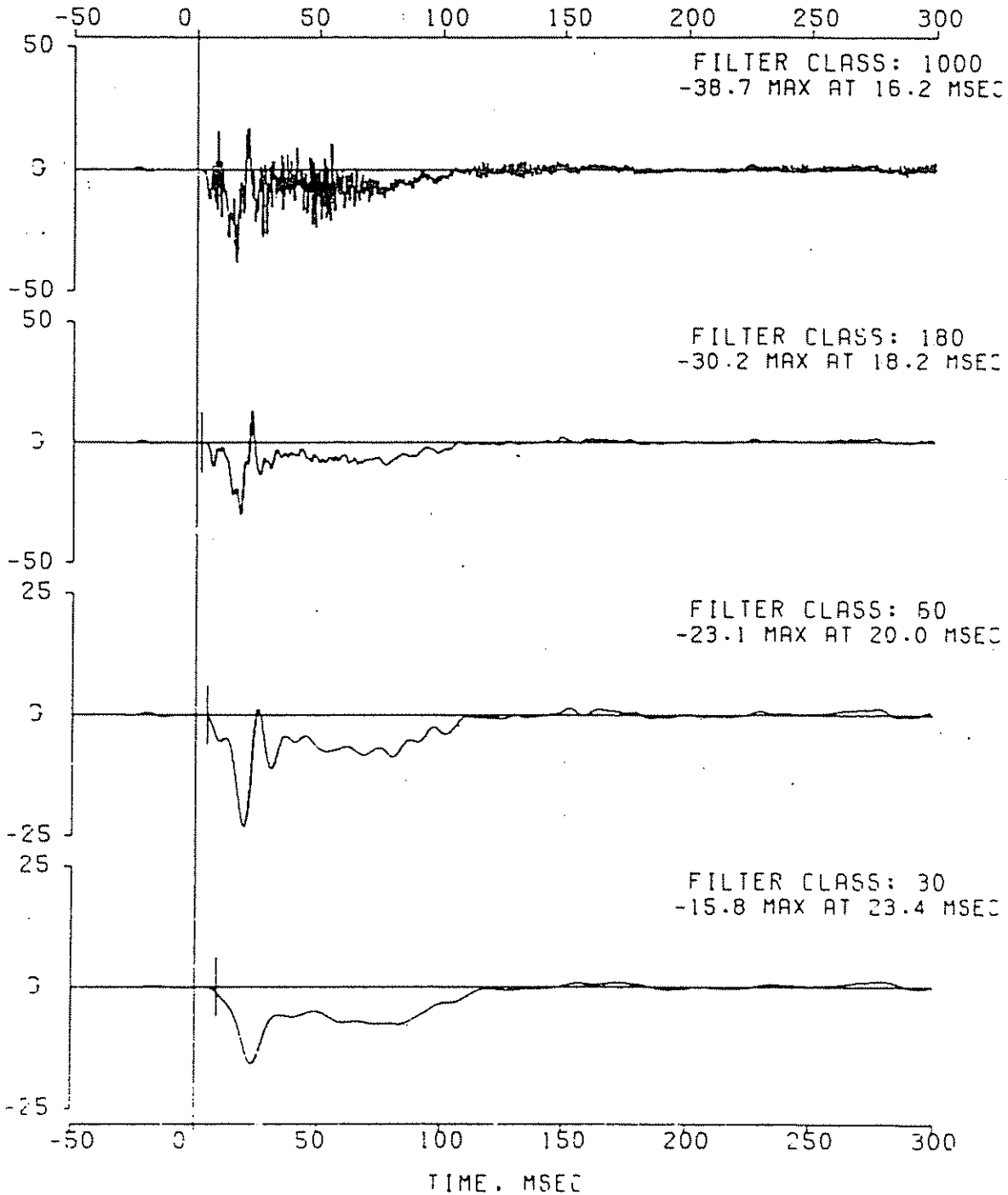
IMPACT ANALYSIS DEPT. 5320

DATA SET 11/04/95BQ

NOV 7, 1995

ERRATA

1



DC 03113

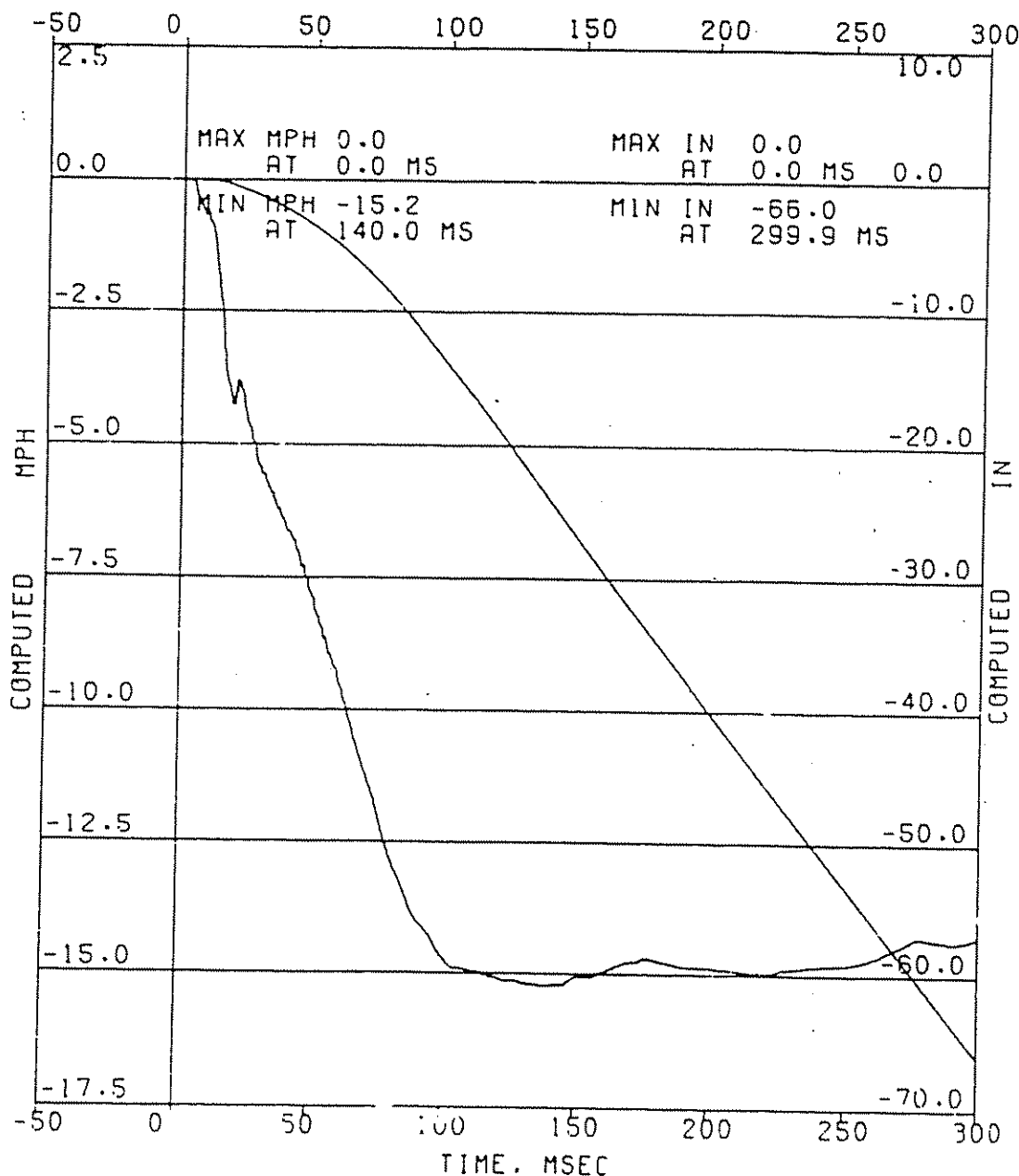
VC05681 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI. ITEM ZJB262R
1997 MVSS DEVELOPMENT - 301.
CHANNEL 001 LEFT FRONT SILL X 80450

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OF 035

FILTER TYPE: OBDAS-III RESPONSE CORRECTION. CLASS 1000 FILTER(1650)
FILTER CLASS: 1000

IMPACT ANALYSIS DEPT. 5320
NOV 7, 1995

DATA SET 11/04/95B0
ERRATA 1



COMPUTED MPH
COMPUTED IN

DC 03114

VC05681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI. ITEM ZJ8262R

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1997 MVSS DEVELOPMENT - 301.

OF 035

CHANNEL 002 LEFT FRONT SILL

Z 510073

FILTER TYPE: 0BDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)

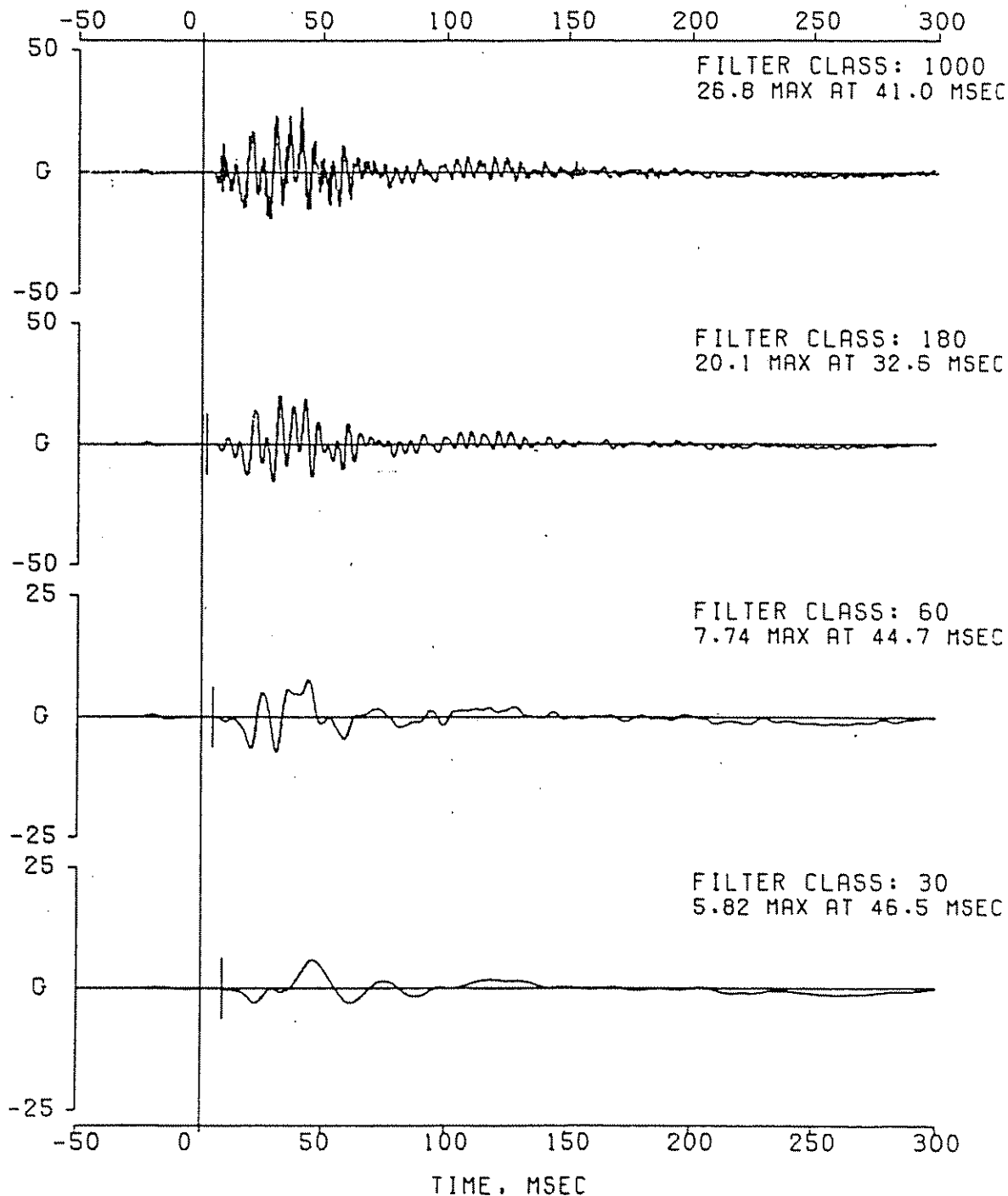
IMPACT ANALYSIS DEPT. 5320

DATA SET 11/04/95BQ

NOV 7.1995

ERRATA

1

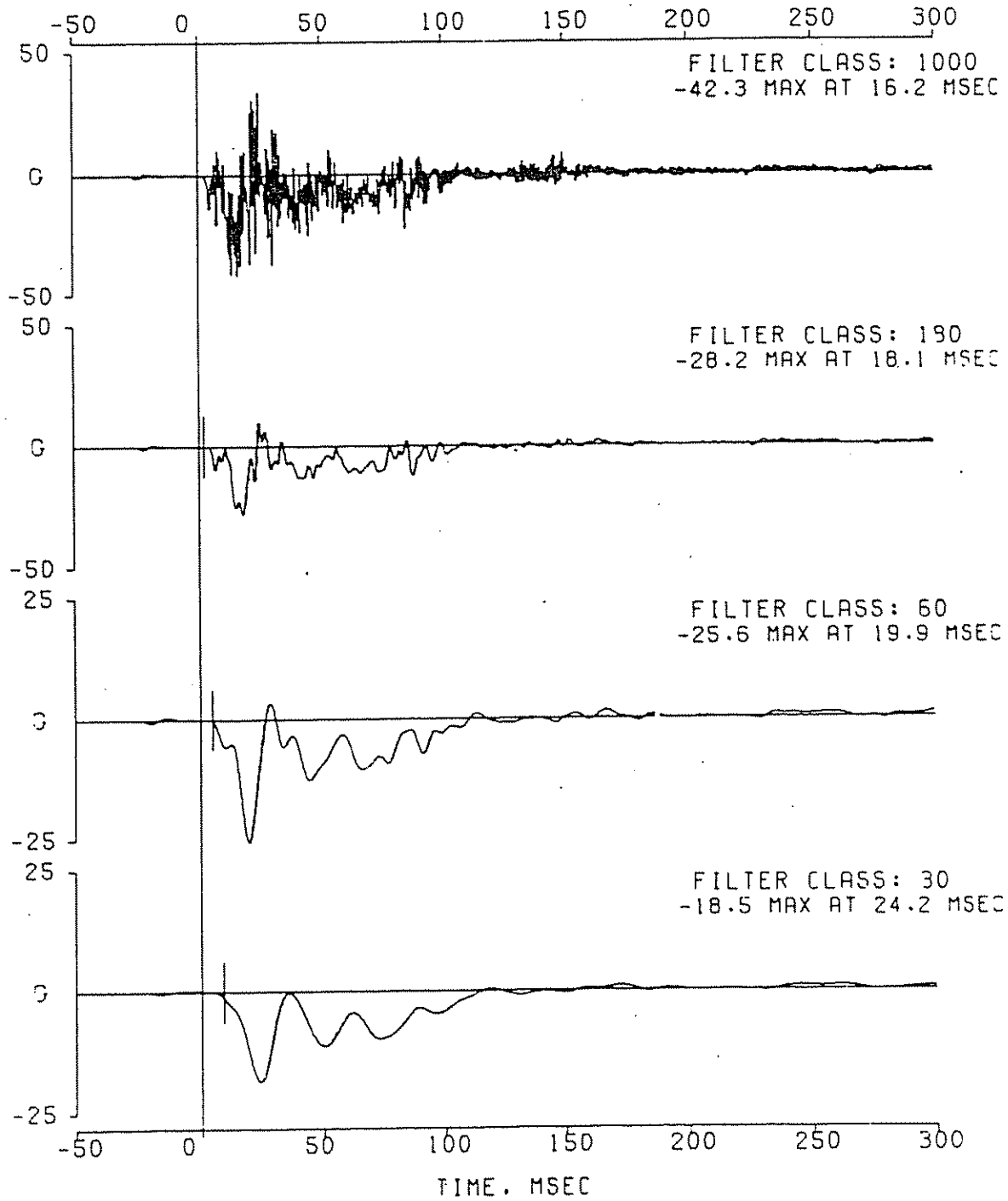


DC 03115

VC05681 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI. ITEM ZJB262R
1997 MVSS DEVELOPMENT - 301.
CHANNEL 003 RIGHT FRONT SILL X 80453
FILTER TYPE: 080AS-III RESPONSE CORRECTION. CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320
NOV 7.1995

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DATA SET 11/04/95B0
ERRATA 1



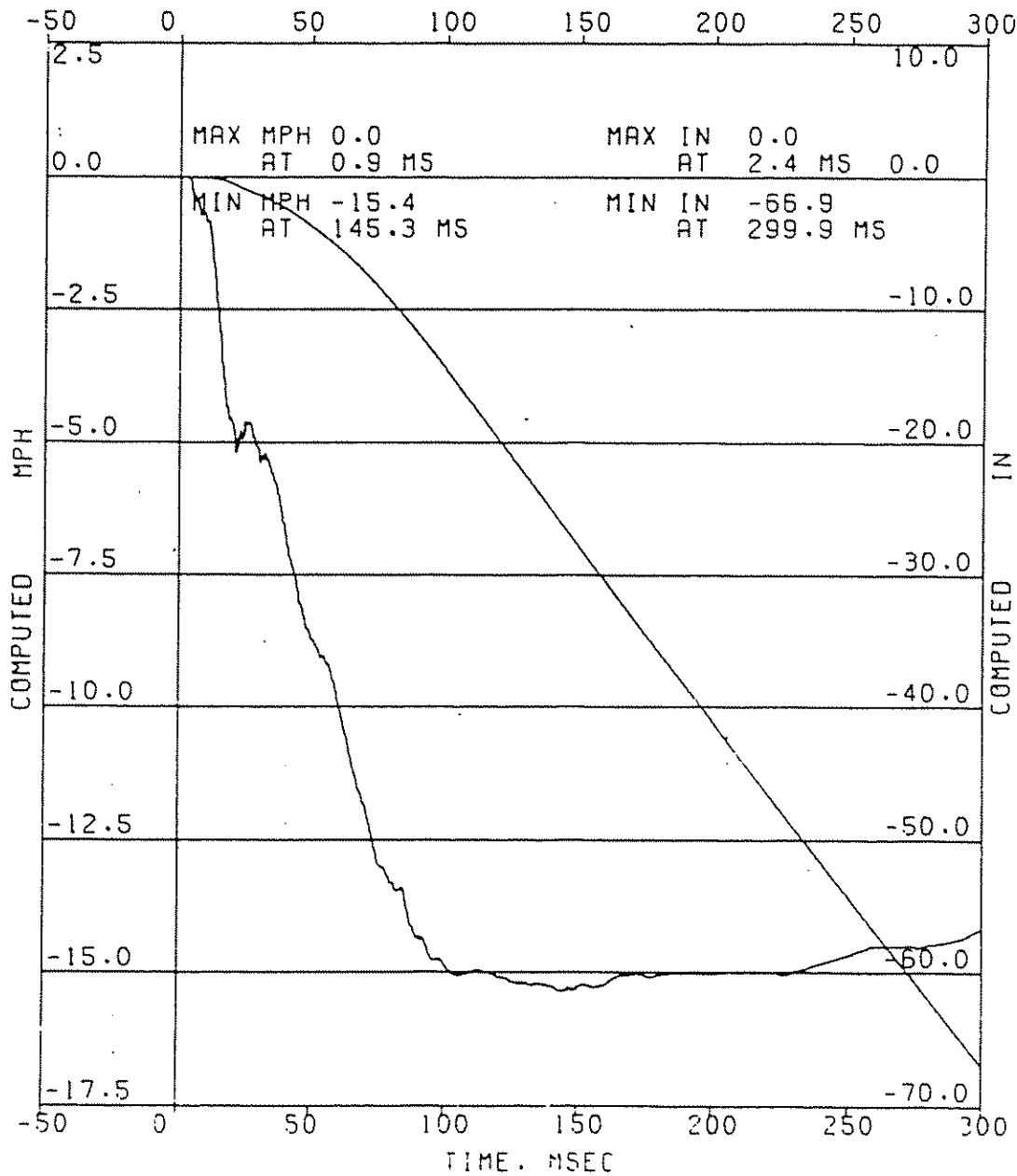
VC05681 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI. ITEM ZJ8262R
1997 MVSS DEVELOPMENT - 301.
CHANNEL 003 RIGHT FRONT SILL X 80453

PAGE 010
OF 035

FILTER TYPE: OBDAS-III RESPONSE CORRECTION. CLASS 1000 FILTER(1650)
FILTER CLASS: 1000

IMPACT ANALYSIS DEPT. 5320
NOV 7.1995

DATA SET 11/04/95BQ
ERRATA 1



COMPUTED MPH
COMPUTED IN

DC 03117

VC056B1 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI. ITEM ZJB262R

PAGE 011

1997 MVSS DEVELOPMENT - 301.

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CHANNEL 004 RIGHT FRONT SILL Z 114524

FILTER TYPE: 0BDAS-III RESPONSE CORRECTION. CLASS 1000 FILTER(1650)

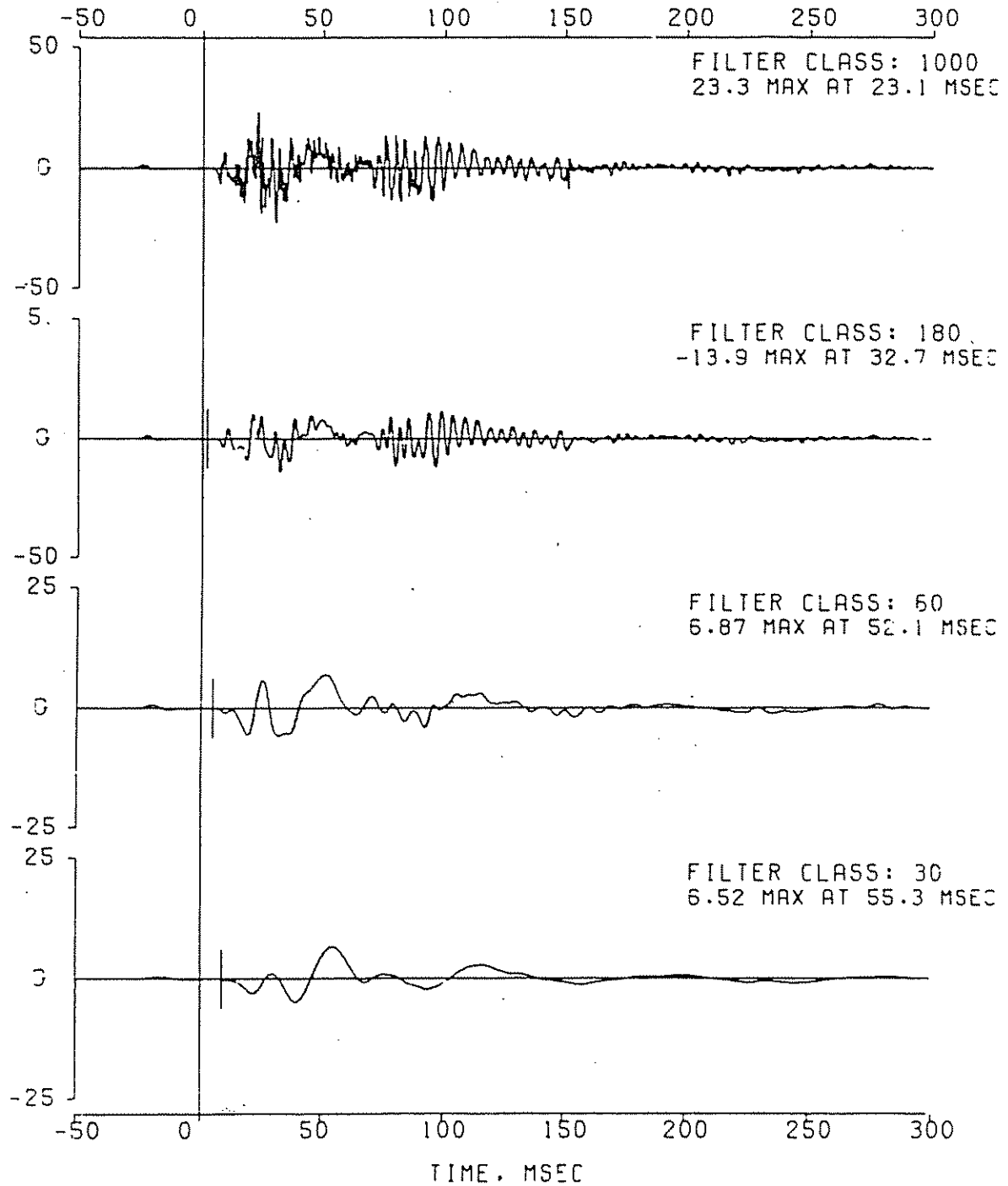
IMPACT ANALYSIS DEPT. 5320

DATA SET 11/04/95B0

NOV 7.1995

ERRATA

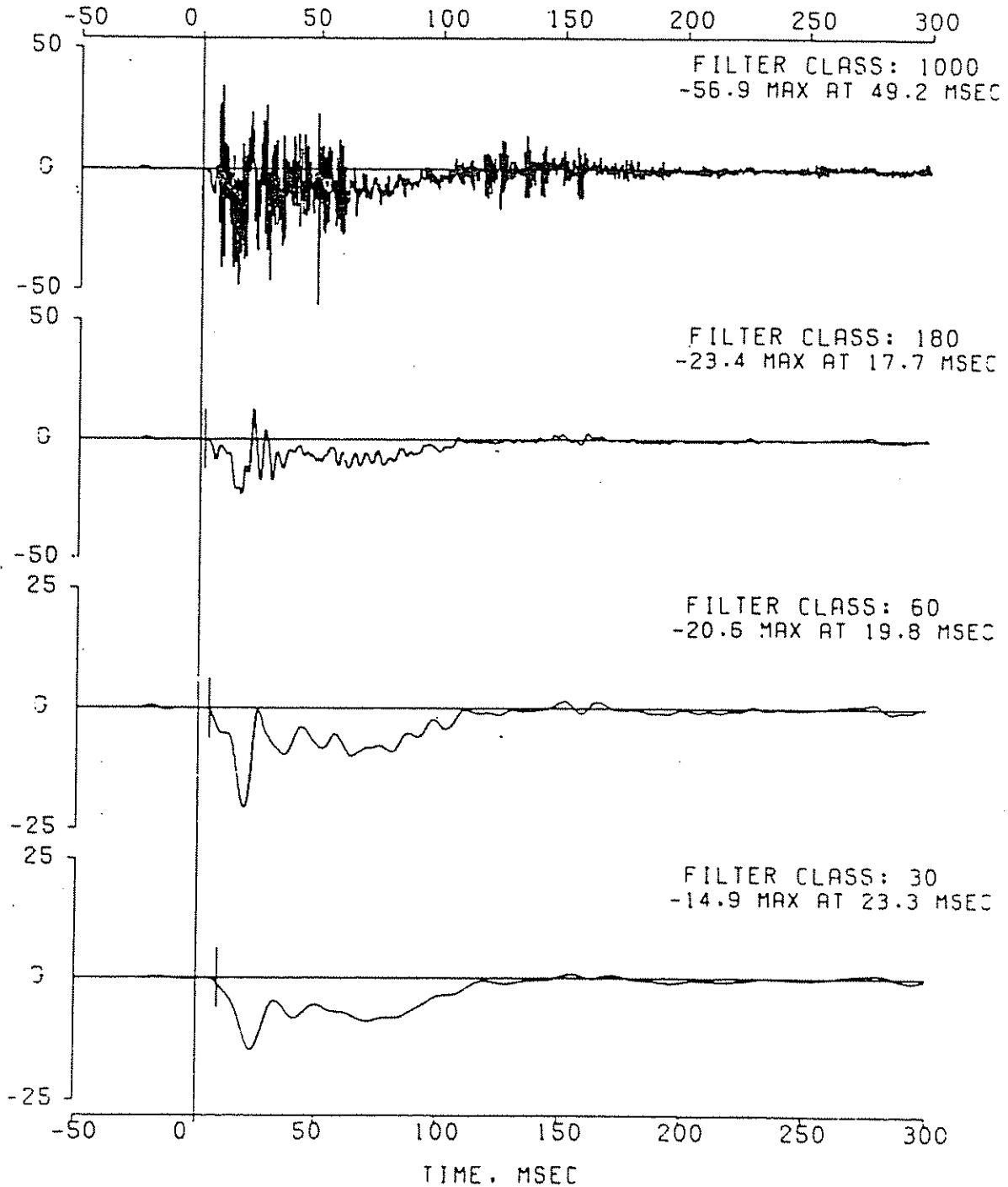
1



VC05681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI, ITEM ZJ8262R
1997 MVSS DEVELOPMENT - 301.
CHANNEL 005 LEFT REAR SILL X 73963
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320
NOV 7, 1995

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DATA SET 11/04/95B0
ERRATA 1

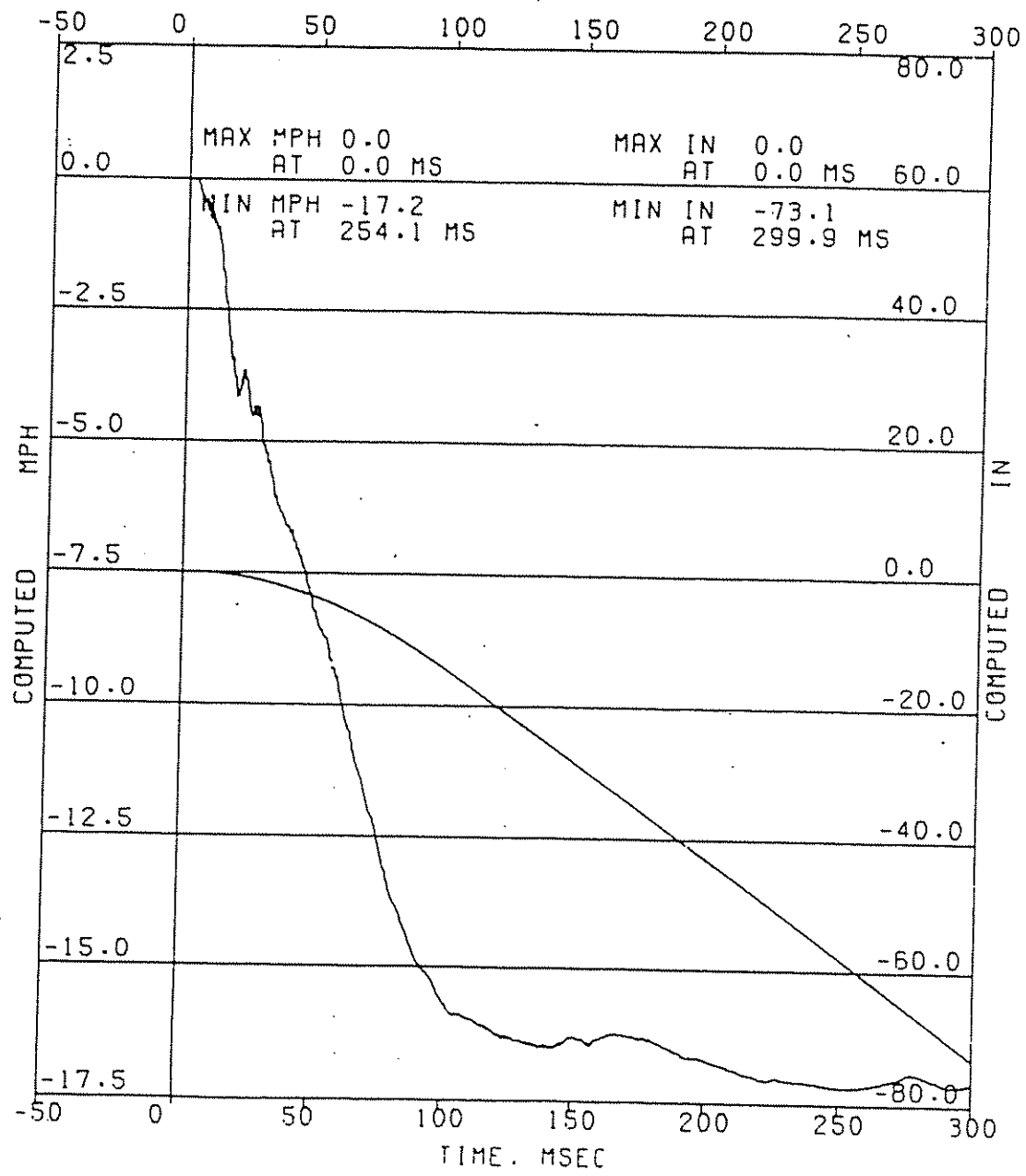


DC 03119

FILTER TYPE: OBDAS-III RESPONSE CORRECTION. CLASS 1000 FILTER(1650)
 FILTER CLASS: 1000

IMPACT ANALYSIS DEPT. 5320
 NOV 7, 1995

DATA SET 11/04/9580
 ERRATA 1



COMPUTED MPH
 COMPUTED IN

DC 03120

VC05681 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI. ITEM ZJB262R

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1997 MVSS DEVELOPMENT - 301.

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CHANNEL 006 LEFT REAR SILL

Z 277235

FILTER TYPE: QBDAS-III RESPONSE CORRECTION. CLASS 1000 FILTER(1650)

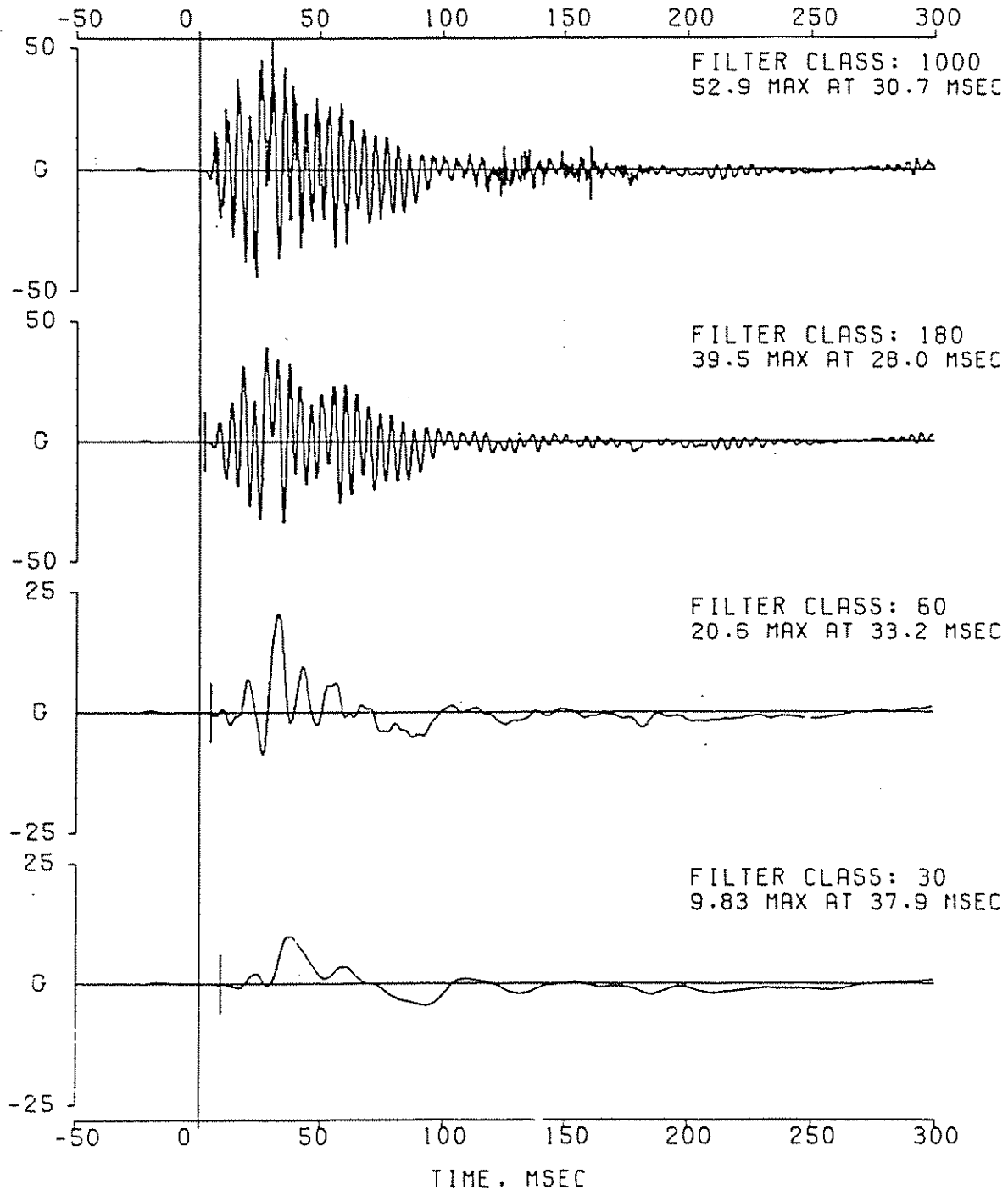
IMPACT ANALYSIS DEPT. 5320

DATA SET 11/04/95B0

NOV 7, 1995

ERRATA

1



DC 03121

VC05681 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI. ITEM ZJB262R
1997 MVSS DEVELOPMENT - 301.

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CHANNEL 007 RIGHT REAR SILL X 510076

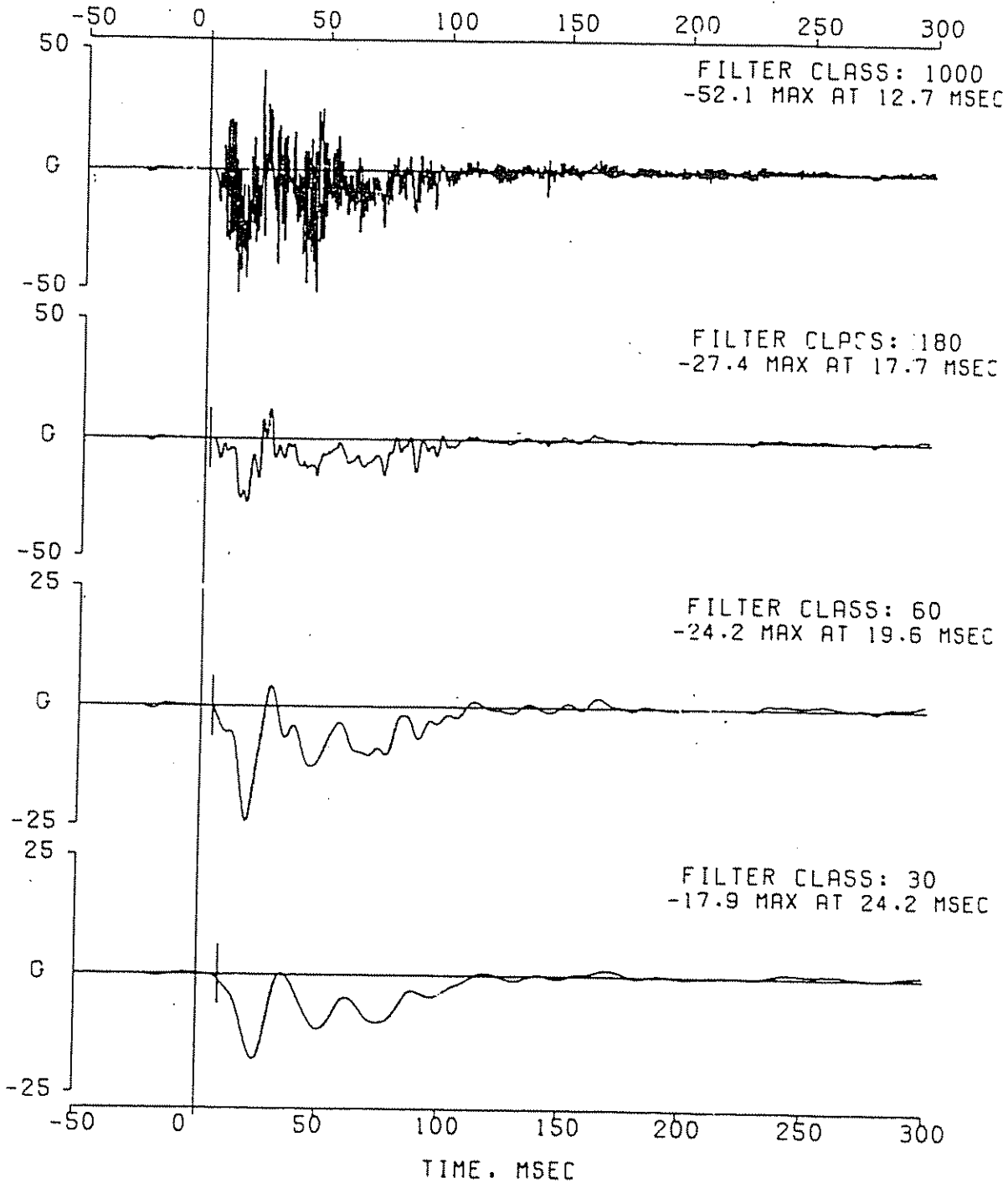
FILTER TYPE: OBDAS-III RESPONSE CORRECTION. CLASS 1000 FILTER(1650)

DATA SET 11/04/95B0

IMPACT ANALYSIS DEPT. 5320

ERRATA

NOV 7.1995

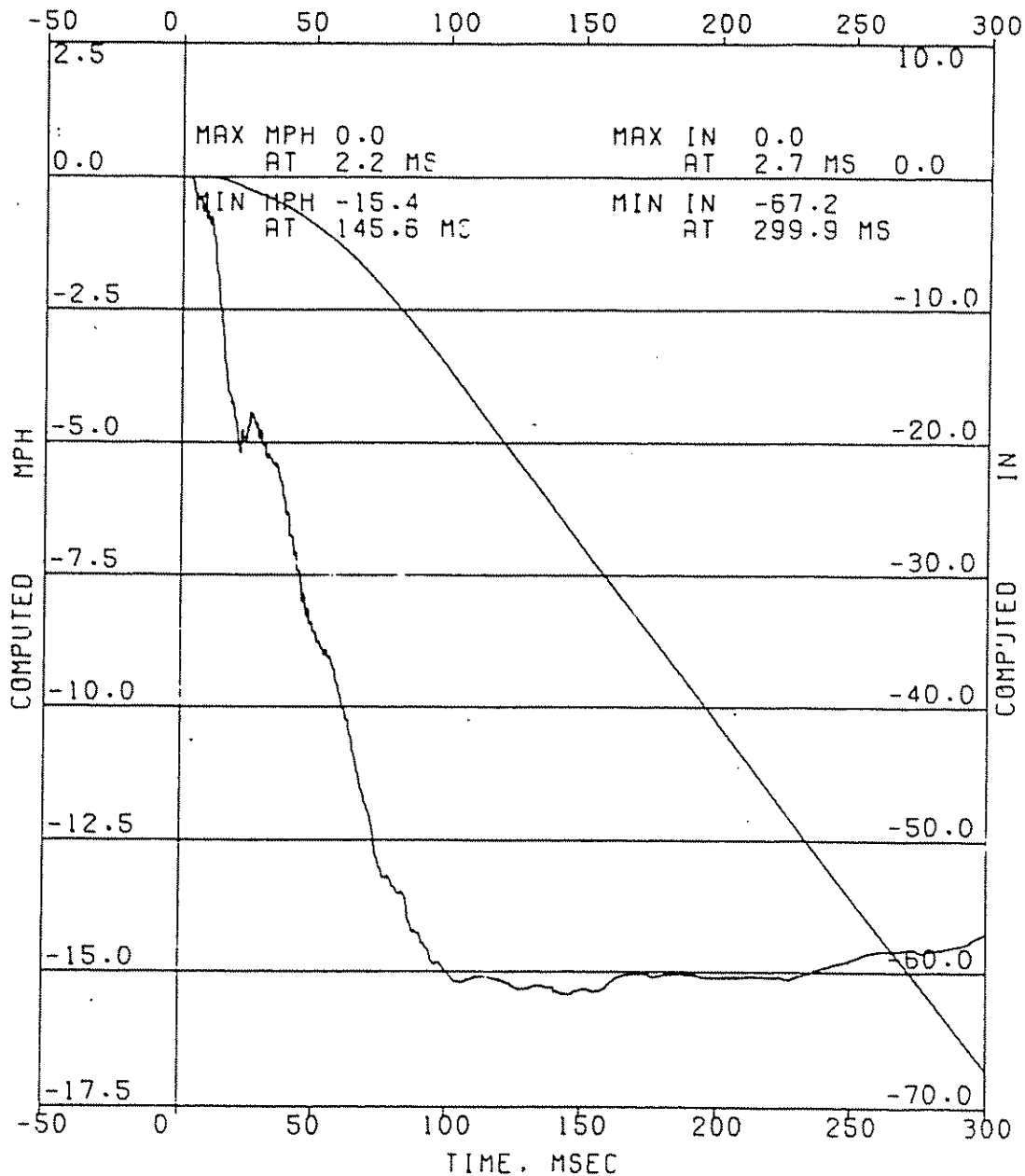


DC 03122

FILTER TYPE: 0BDAS-III RESPONSE CORRECTION. CLASS 1000 FILTER(1650)
FILTER CLASS: 1000

IMPACT ANALYSIS DEPT. 5320
NOV 7, 1995

DATA SET 11/04/95B0
ERRATA 1

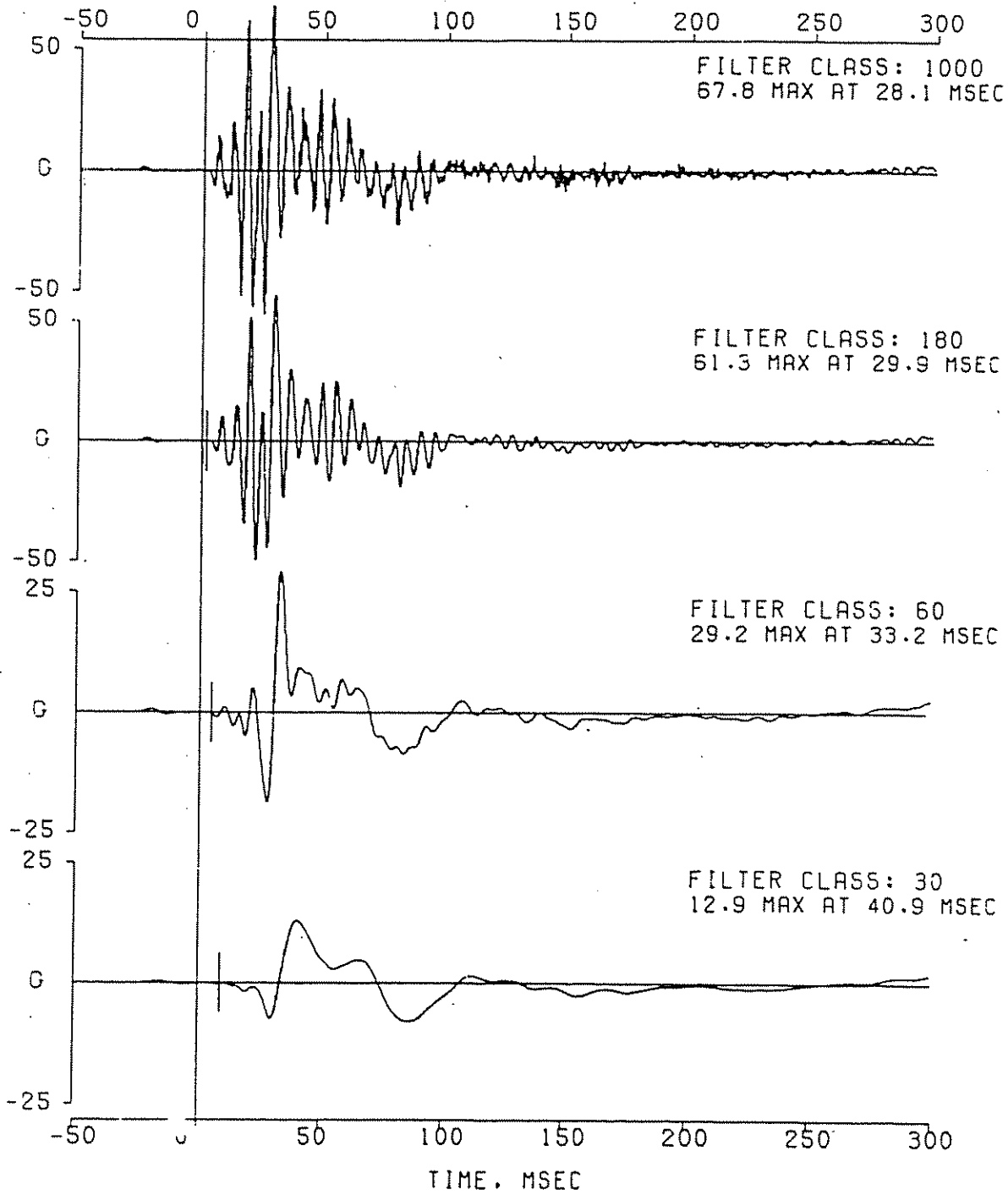


COMPUTED MPH
COMPUTED IN

VC05681 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI. ITEM ZJB262R
1997 MVSS DEVELOPMENT - 301.
CHANNEL 008 RIGHT REAR SILL Z 311282
FILTER TYPE: OBDAS-III RESPONSE CORRECTION. CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320
NOV 7.1995

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DATA SET 11/04/95B0
ERRATA 1



DC 03124

VC05681 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI. ITEM ZJ8262R
1997 MVSS DEVELOPMENT - 301.

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CHANNEL 009 LT RAIL TRAIL ARM PIV X 510065

FILTER TYPE: OBDAS-III RESPONSE CORRECTION. CLASS 1000 FILTER(1650)

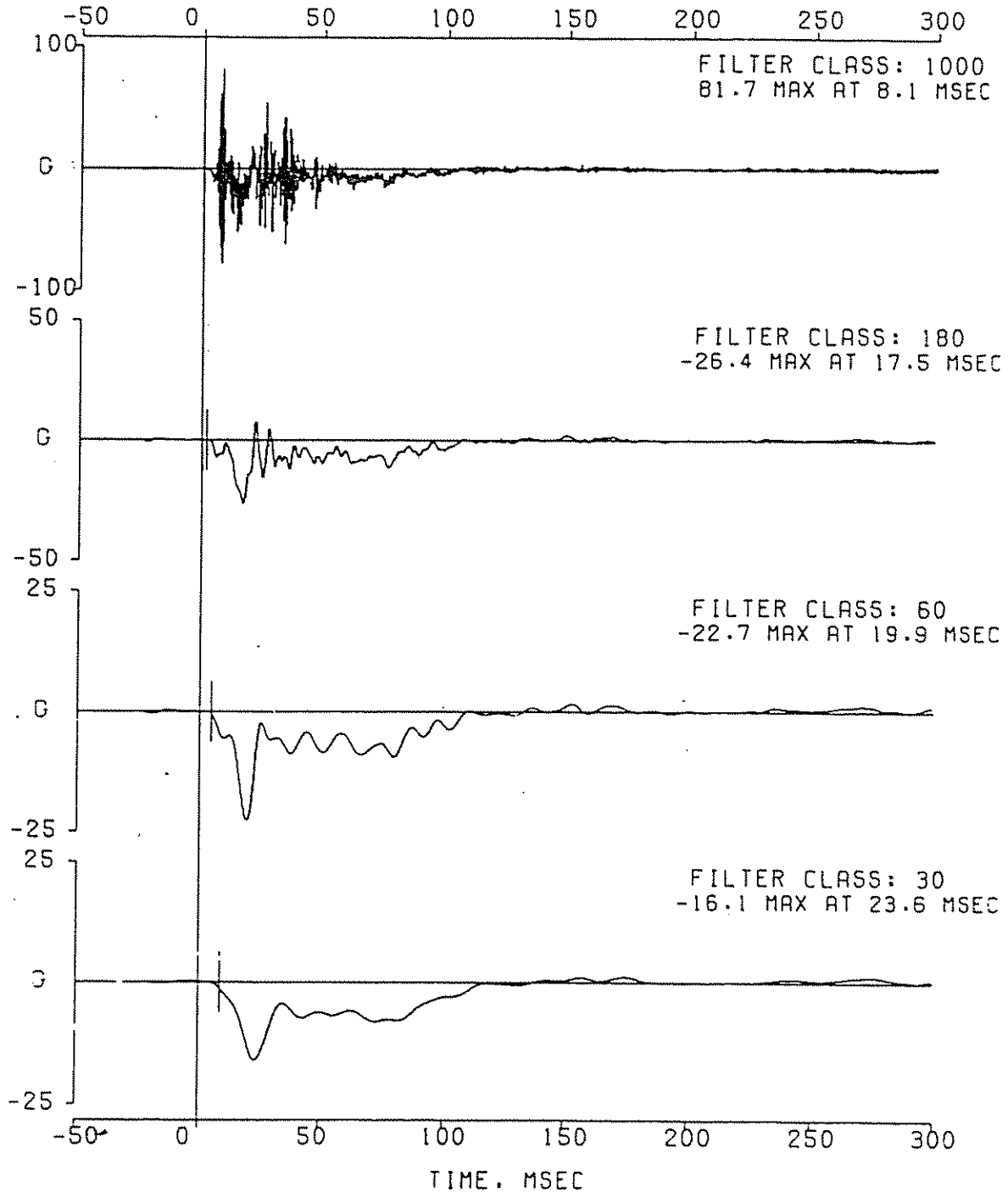
IMPACT ANALYSIS DEPT. 5320

DATA SET 11/04/95BQ

NOV 7.1995

ERRATA

1

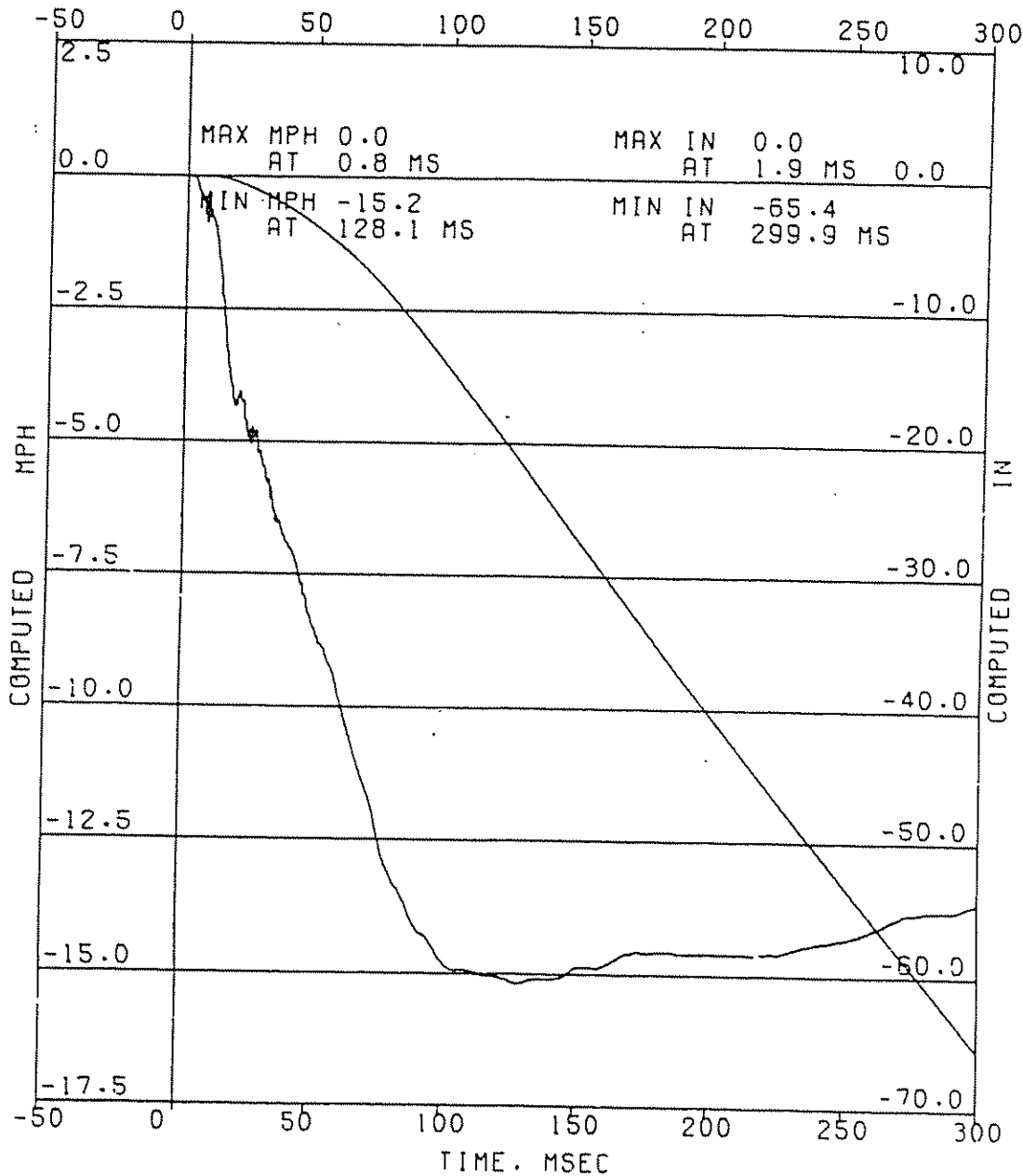


DC 03125

FILTER TYPE: 08DAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
FILTER CLASS: 1000

IMPACT ANALYSIS DEPT. 5320
NOV 7, 1995

DATA SET 11/04/9580
ERRATA 1



COMPUTED MPH
COMPUTED IN

VC05681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI, ITEM ZJ8262R
1997 MVSS DEVELOPMENT - 301.

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OF 035

CHANNEL 010 RT RAIL TRAIL ARM PIV X 311321

FILTER TYPE: 08DAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)

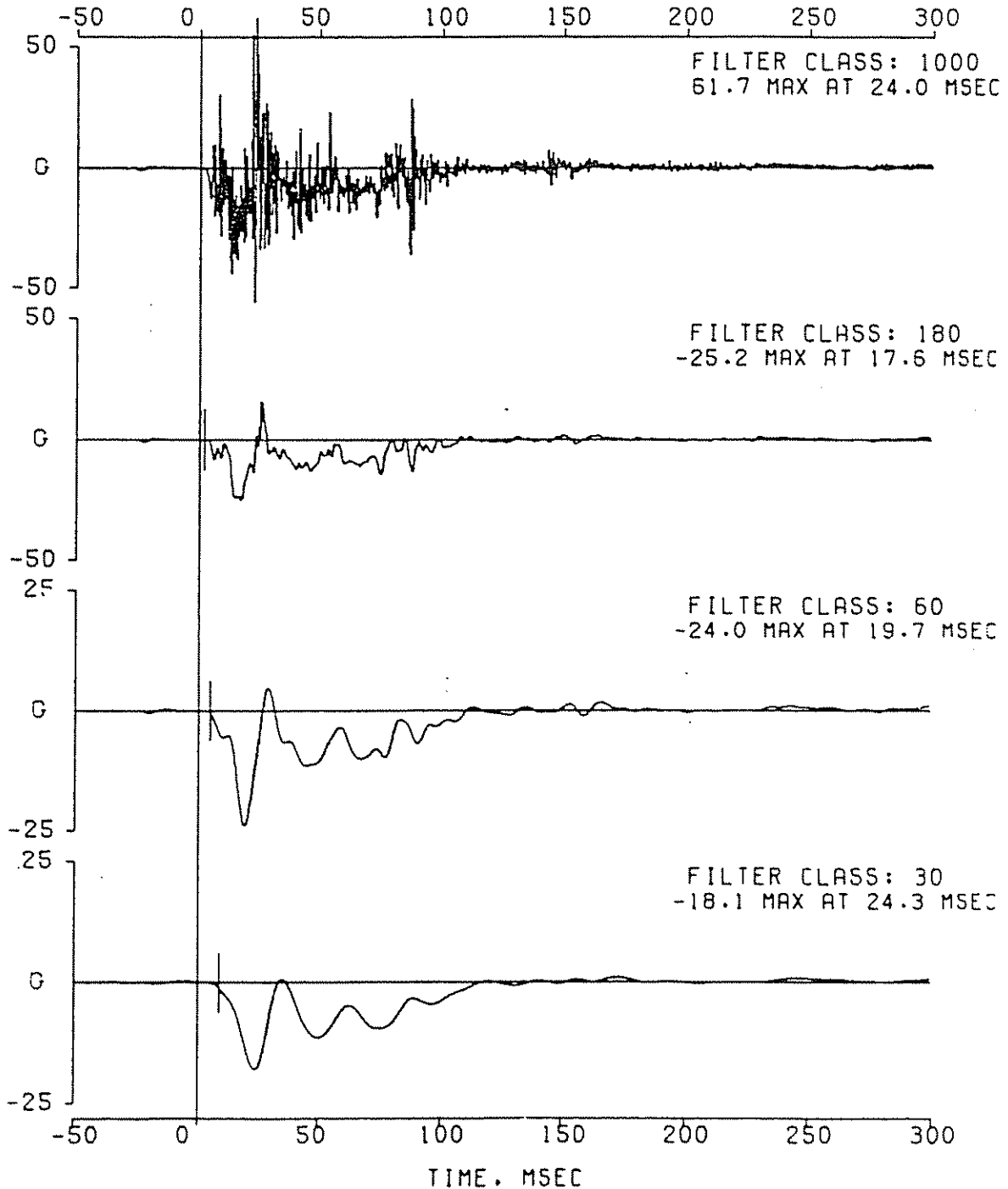
IMPACT ANALYSIS DEPT. 5320

DATA SET 11/04/95B0

NOV 7, 1995

ERRATA

1



DC 03127

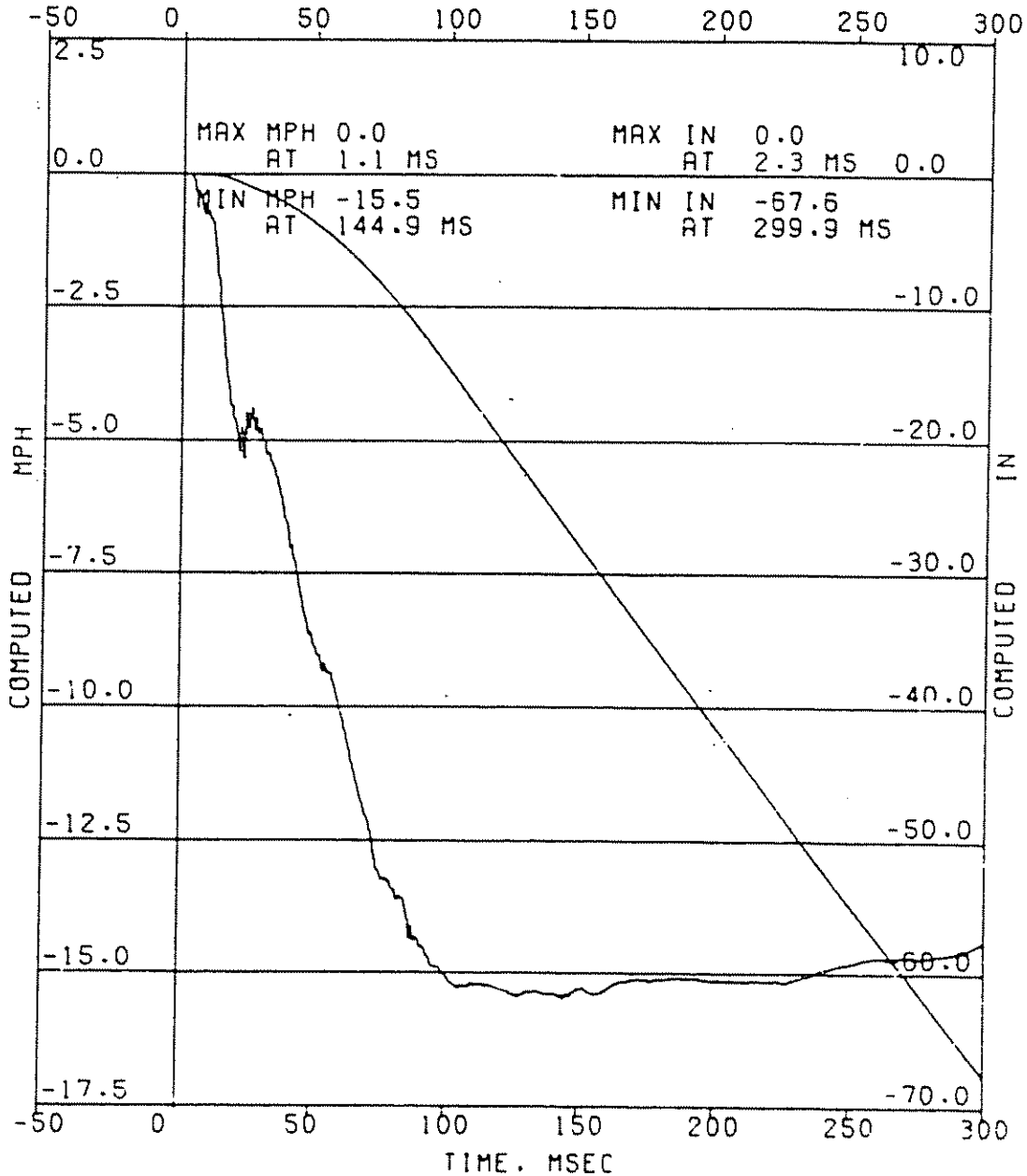
VC05681 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI. ITEM ZJB262R
1997 MVSS DEVELOPMENT - 301.
CHANNEL 010 RT RAIL TRAIL ARM PIV X 311321

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OF 035

FILTER TYPE: 0BDPS-111 RESPONSE CORRECTION. CLASS 1000 FILTER(1650)
FILTER CLASS: 1000

IMPACT ANALYSIS DEPT. 5320
NOV 7, 1995

DATA SET 11/04/95B0
ERRATA 1



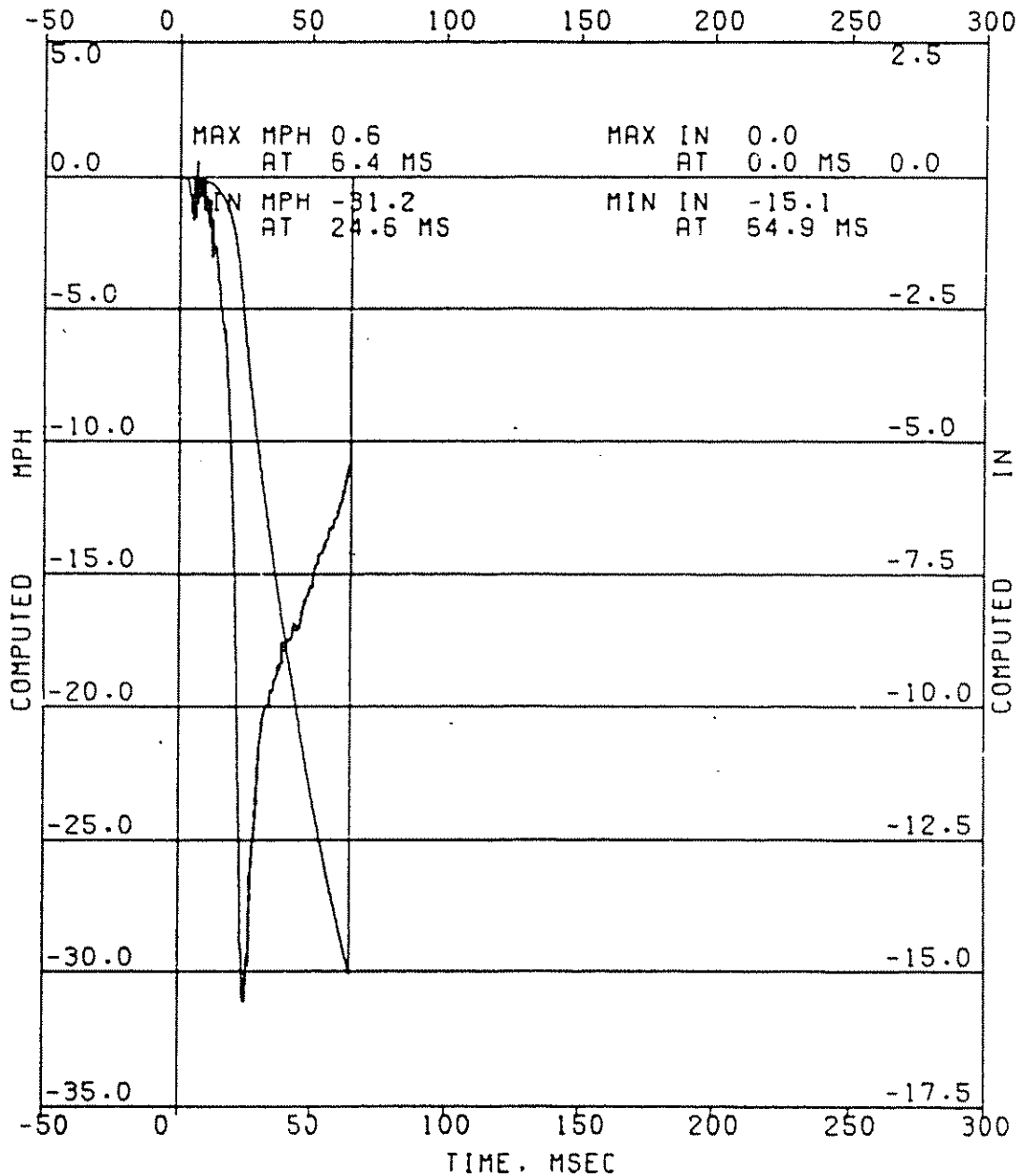
COMPUTED MPH
COMPUTED IN

DC 03128

FILTER TYPE: OBDAS-III RESPONSE CORRECTION. CLASS 1000 FILTER(1650)
FILTER CLASS: 1000

IMPACT ANALYSIS DEPT. 5320
NOV 7.1995

DATA SET 11/04/95B0
ERRATA 1



***** CAUTION *****
***** INST. MALFUNCTION AFTER 65.0 MS *****

COMPUTED MPH
COMPUTED IN

VC05681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI, ITEM ZJB252R
1997 MVSS DEVELOPMENT - 301.

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CHANNEL 012 RT REAR RAIL MID TANK Z 14357

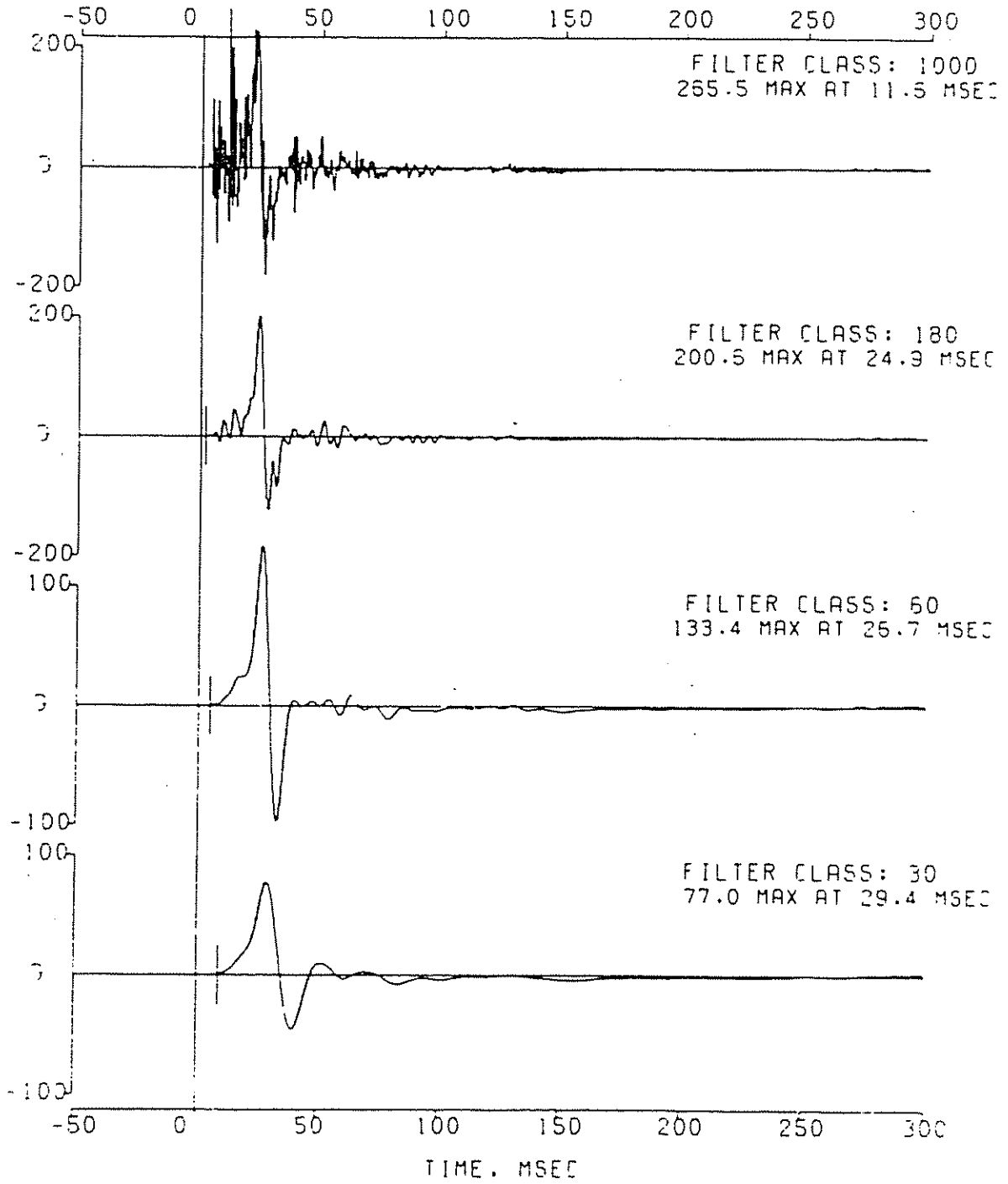
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)

IMPACT ANALYSIS DEPT. 5320

DATA SET 11/04/95B0

NOV 7, 1995

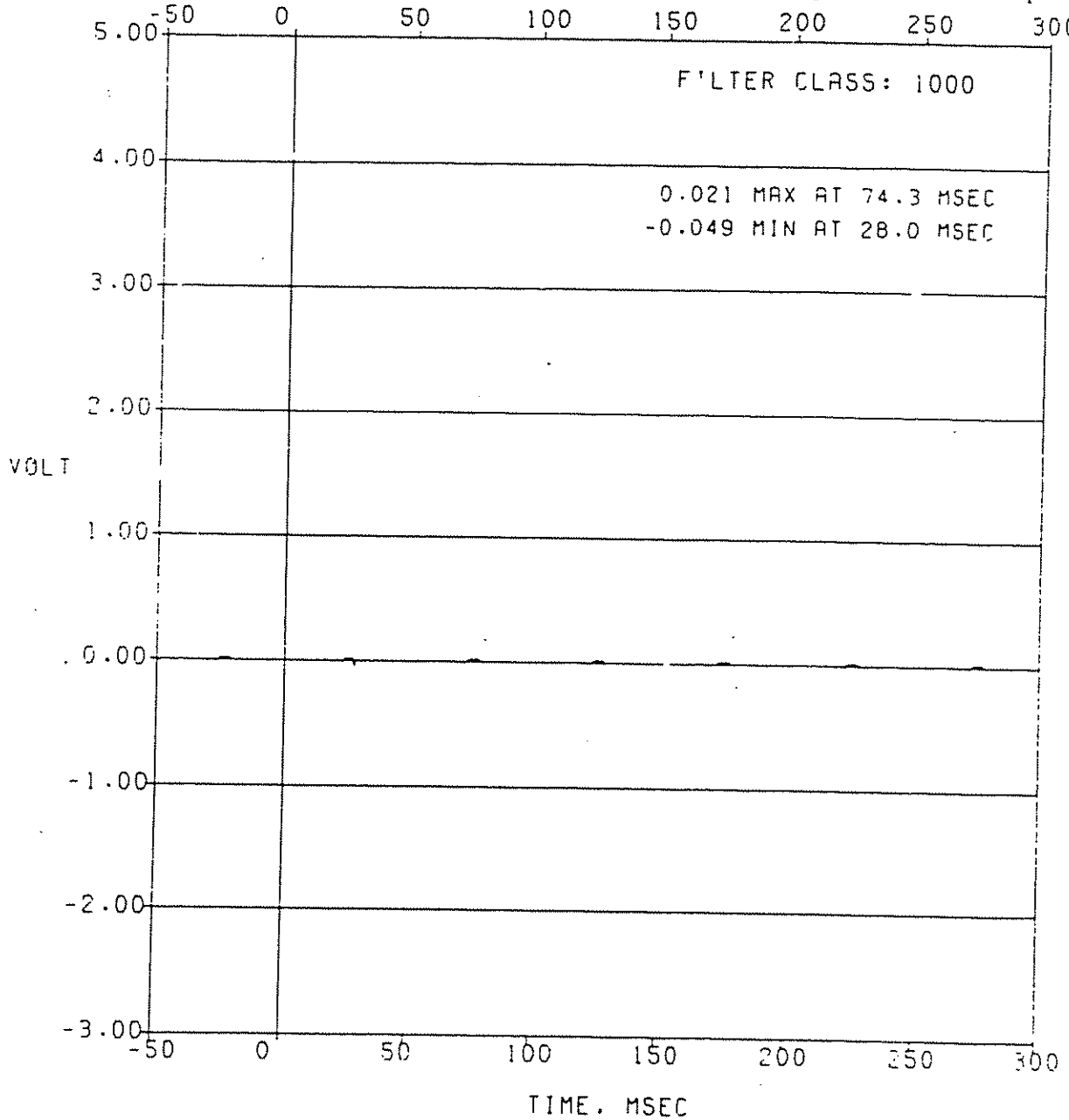
ERRATA 1



CHANNEL 013 RECM SOU1B

EE

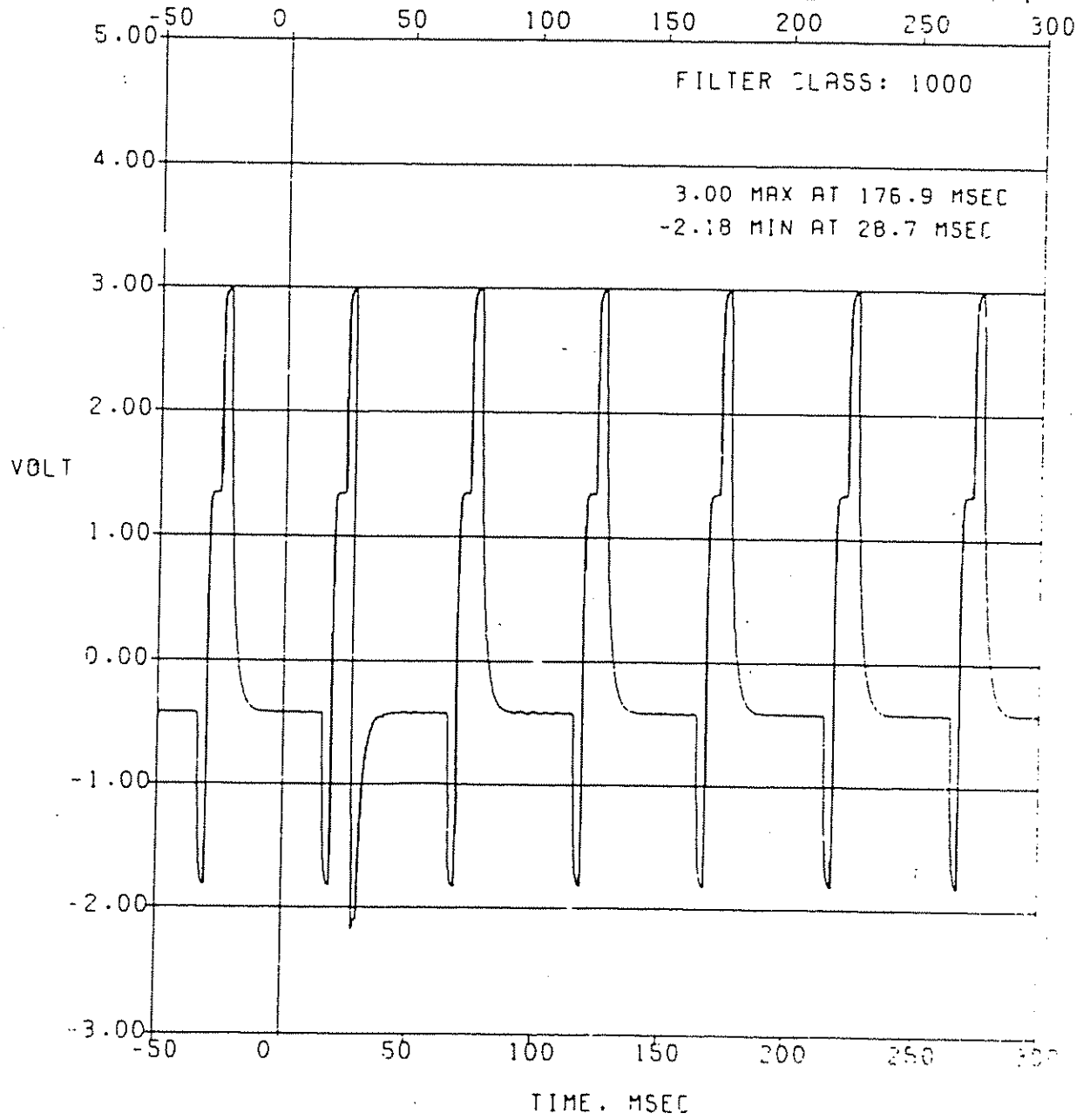
FILTER TYPE: 0BDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 11/04/95B0
NOV 7, 1995 ERRATA 1



..... NOTE
..... NO EVENT

CHANNEL 014 RECM SAFING SEN EE

FILTER TYPE: OBDAS-III RESPONSE CORRECTION. CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 11/04/95BC
NOV 7, 1995 ERRATA 1



..... NOTE
..... CLOSURE AT 28.5 MS

V005681 30 MPH REAR BARRIER, ZJJ74, 5.2L MP!, ITEM ZJR262R

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1997 MVSS DEVELOPMENT - 30!

OF 030

CHANNEL 015 RECM INTERN ACCEL G EE

FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)

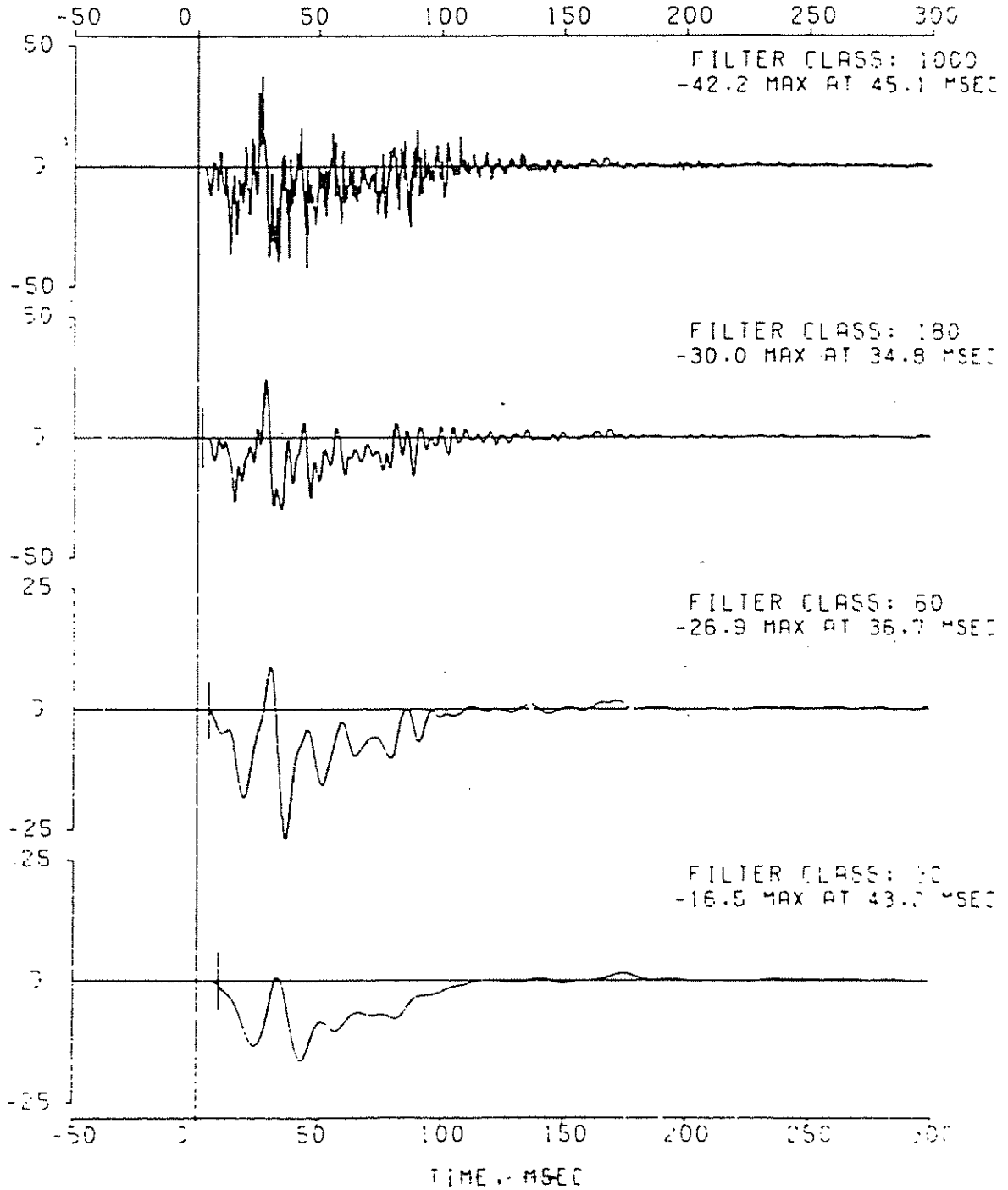
IMPACT ANALYSIS DEPT. 5320

DATA SET: 11/04/95B0

NOV 7, 1995

ERRATA

1



DC 03134

VC05681 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI. ITEM ZJ8252R
1997 MVSS DEVELOPMENT - 301.

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OF 005

CHANNEL 016 RECM EXTERN

X ADRE1

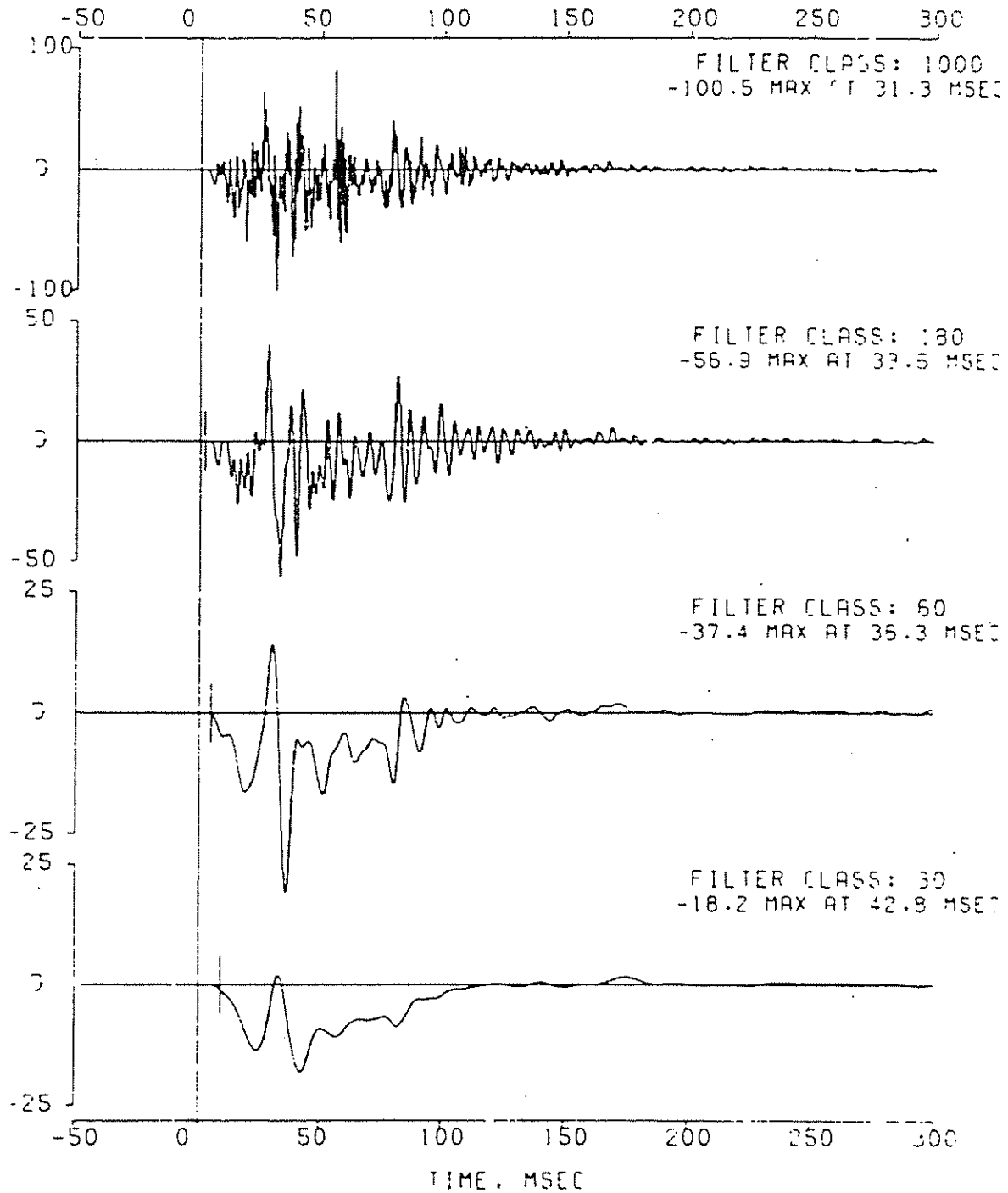
FILTER TYPE: OBDAS-III RESPONSE CORRECTION. CLASS 1000 FILTER 1550:

IMPACT ANALYSIS DEPT. 5320

DATA SET 11704-0580

NOV 7, 1995

ERRATA



DC 03135

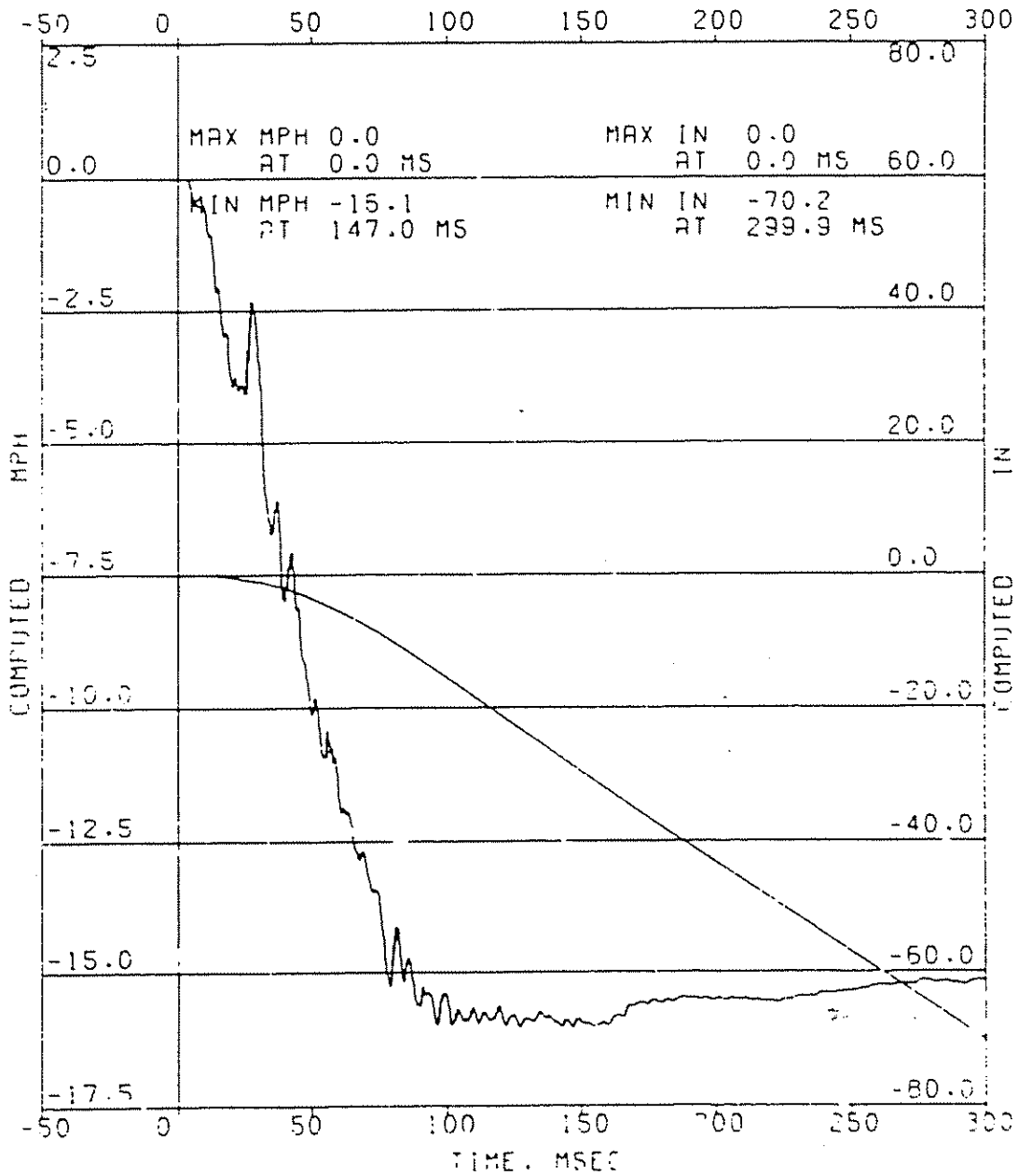
VC05681 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI. ITEM ZJ8252R
1997 MVSS DEVELOPMENT - 301.
CHANNEL 015 RECM EXTERN X ADRE1

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OF 035

FILTER TYPE: OBDAS-III RESPONSE CORRECTION. CLASS 1000 FILTER 15301
FILTER CLASS: 1000

IMPACT ANALYSIS DEPT. 5320
NOV 7, 1995

DATA SET 11/04/9580
ERRATA 1



COMPUTED MPH
COMPUTED IN

DC 03136

VC05681 30 MPH REAR BARRIER. ZJJ74. S.2L MPI. ITEM ZJ0262R

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1997 MVS DEVELOPMENT - 301.

OF 035

CHANNEL 017 RECM EXTERN

Y AH1L6

FILTER TYPE: CBDRS-III RESPONSE CORRECTION. CLASS 1000 F TER 1000

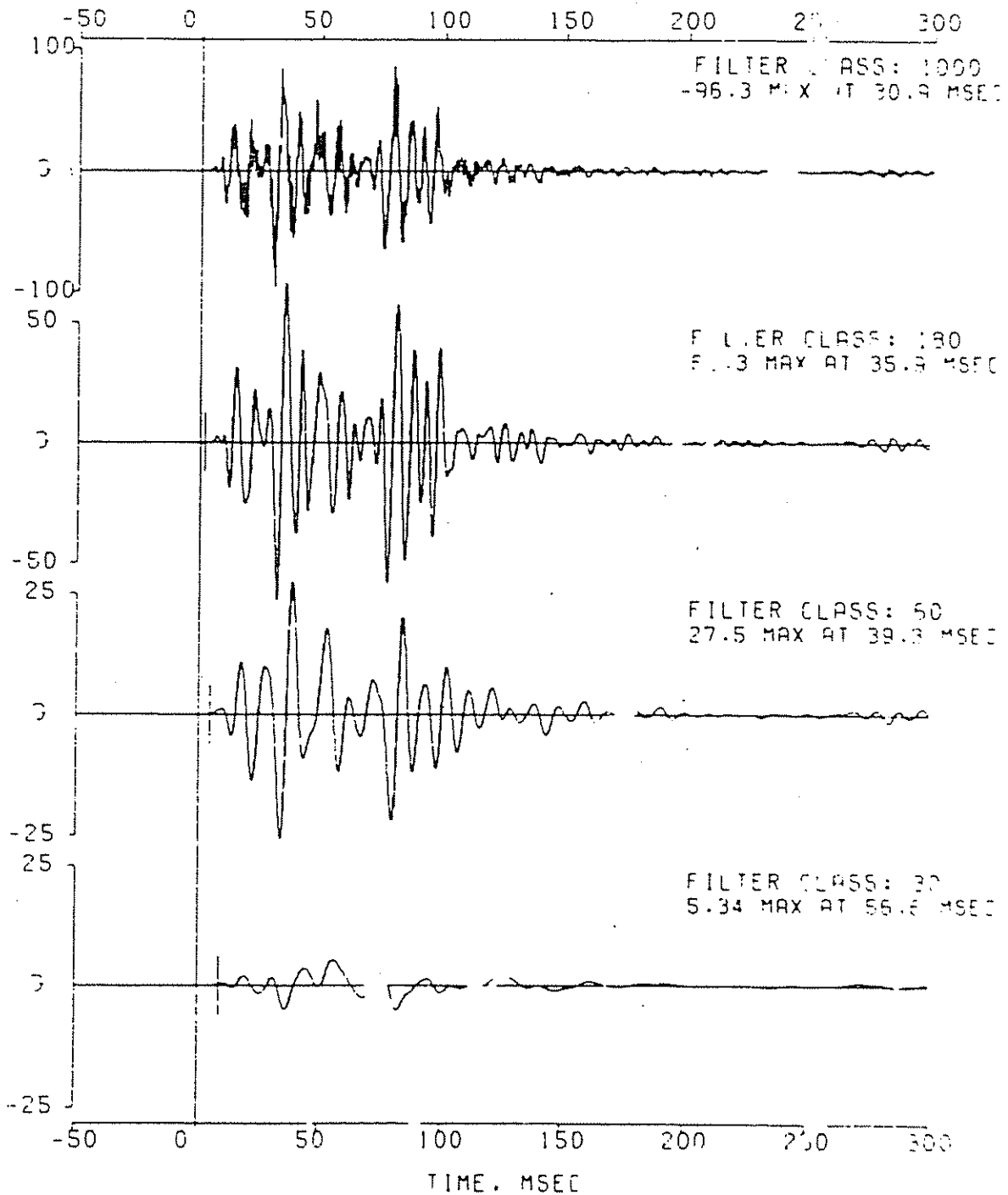
IMPACT ANALYSIS DEPT. 5320

DATA # 11.04/95BR

NOV 7. 1995

ERRAT

1

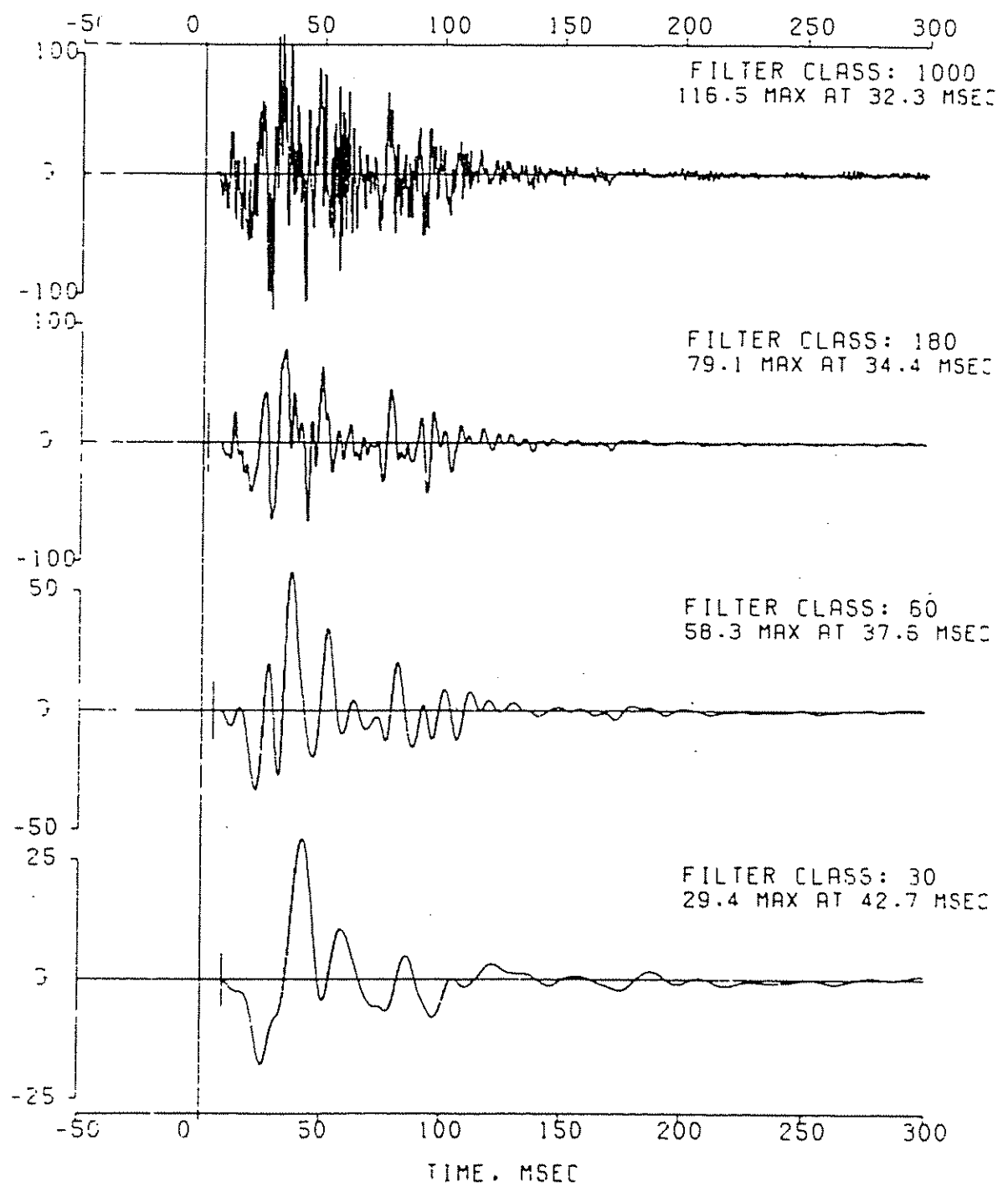


DC 03137

VC05681 MPH REAR BARRIER, ZJJ74, 5.2L MPI, ITEM ZJ8262R
DART MOTOR DEVELOPMENT - 301.
CHANNEL 018 RECM EXTERN Z RAH33
FILTER TYPE: 880AS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320
NOV 7, 1995

PAGE 031
OF 035

DATA SET 11/04/95BR
ERRATA 1



VC05681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI, ITEM ZJB262R

PAGE 032

1997 MVSS DEVELOPMENT - 301.

OF 035

CHANNEL 019 LT RAIL MBR MID X 51120

FILTER TYPE: 0BDAS-111; RESPONSE CORRECTION, CLASS 1000 FILTER(1650)

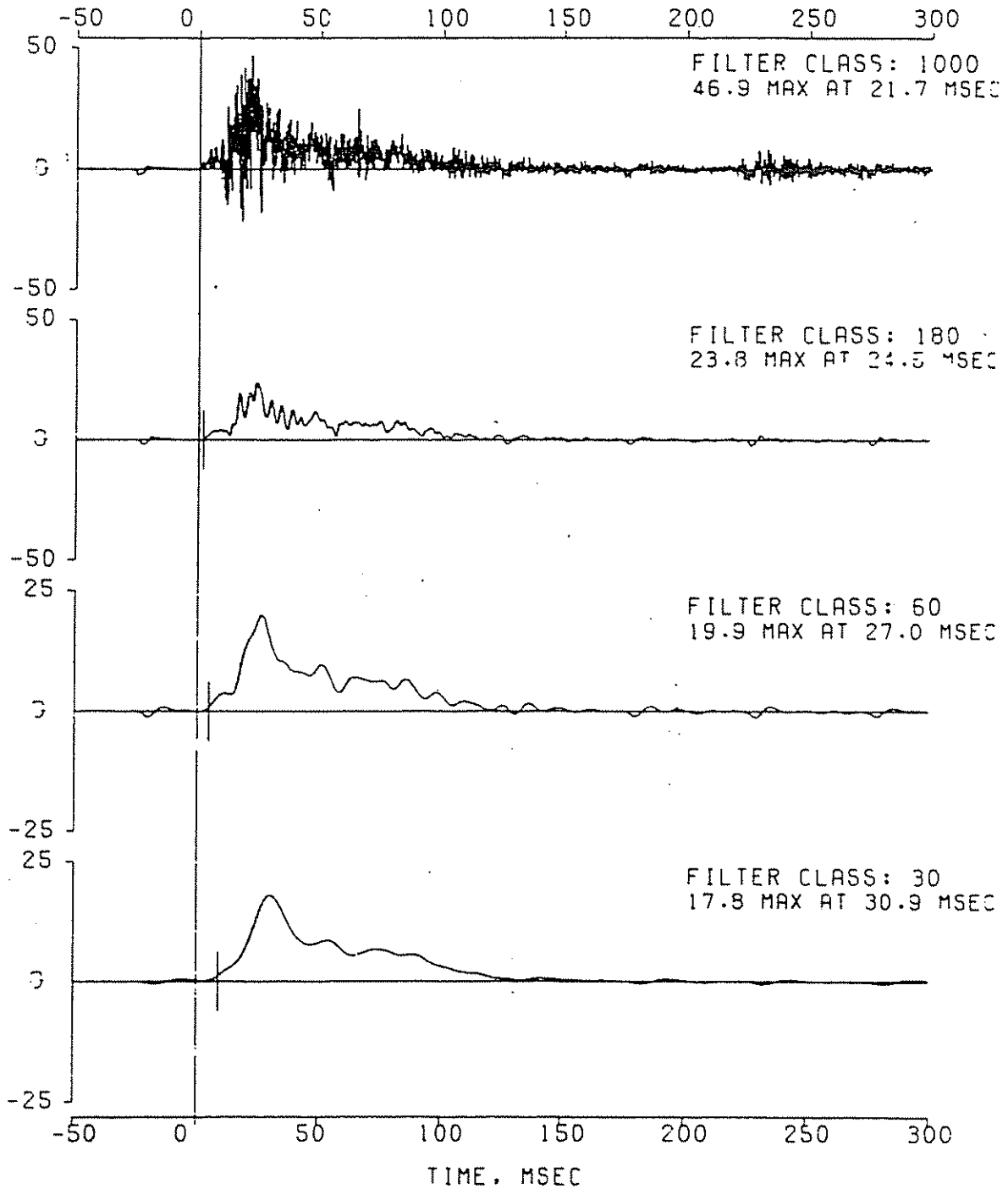
IMPACT ANALYSIS DEPT. 5320

DATA SET 11/04/95BR

NOV 7, 1995

ERRATA

1



DC 03139

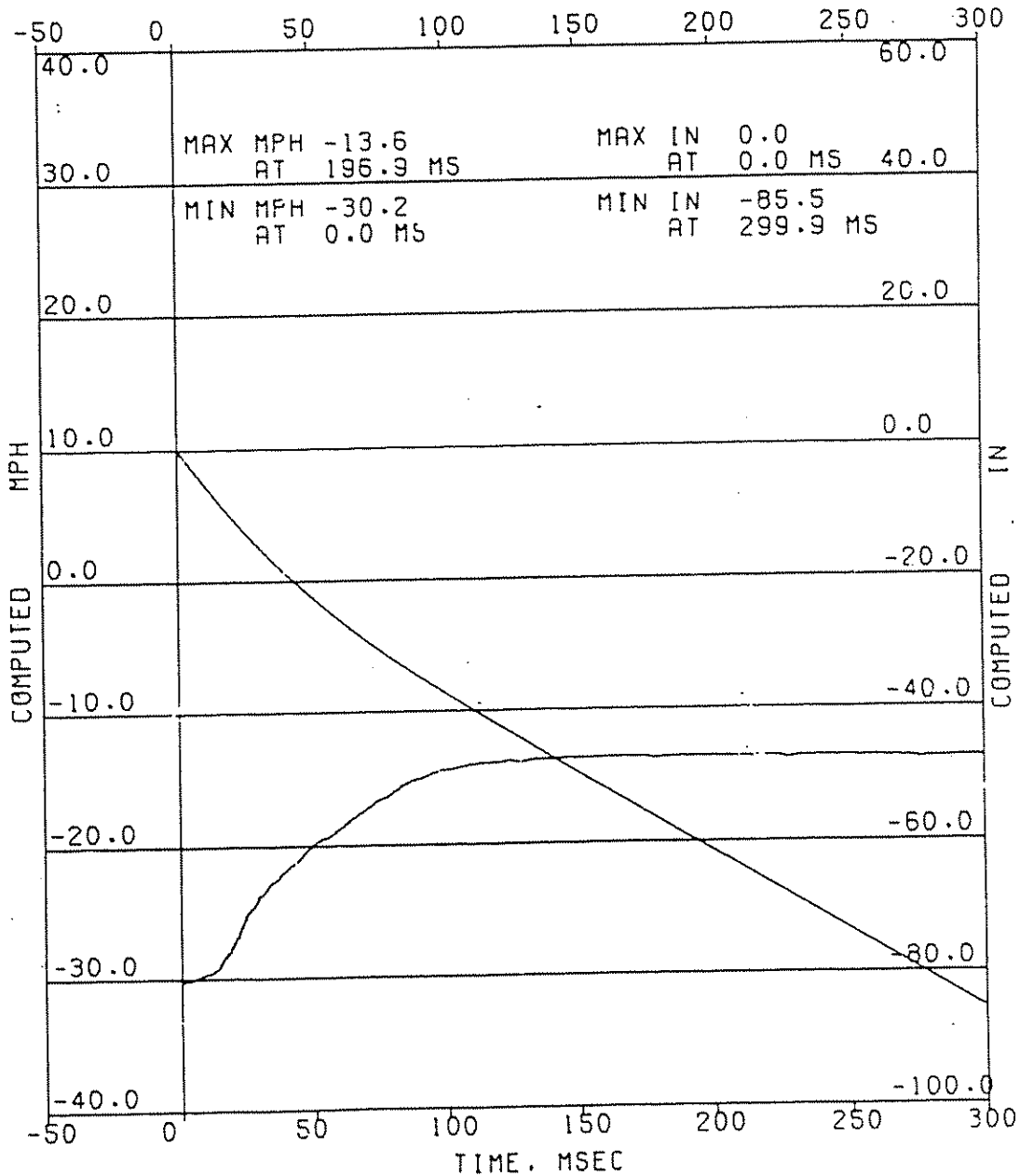
VC05681 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI. ITEM ZJ8262R
 1997 MVSS DEVELOPMENT - 301.
 CHANNEL 019 LT RAIL MBAR MID X 51120

PAGE 033
 OF 035

FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
 FILTER CLASS: 1000

IMPACT ANALYSIS DEPT. 5320
 NOV 7, 1995

DATA SET 11/04/95BR
 ERRATA 1



COMPUTED MPH
 COMPUTED IN

DC 03140

VC05681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI, ITEM ZJ8252R

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1997 MVSS DEVELOPMENT - 301.

OF 035

CHANNEL 020 RT RAIL MBAR MID X 311303

FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)

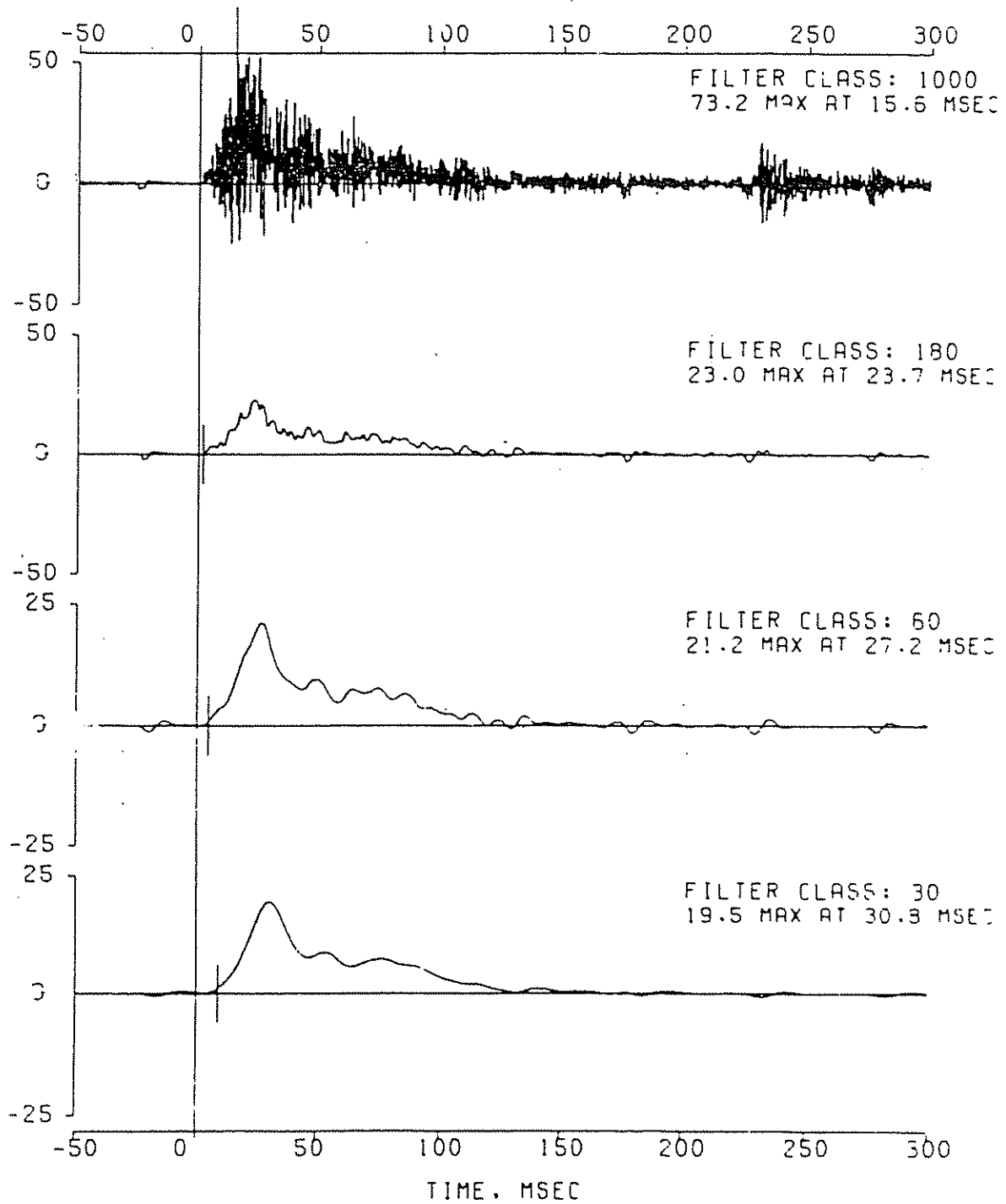
IMPACT ANALYSIS DEPT. 5320

DATA SET 11/04/95BR

NOV 7, 1995

ERRATA

1



DC 03141

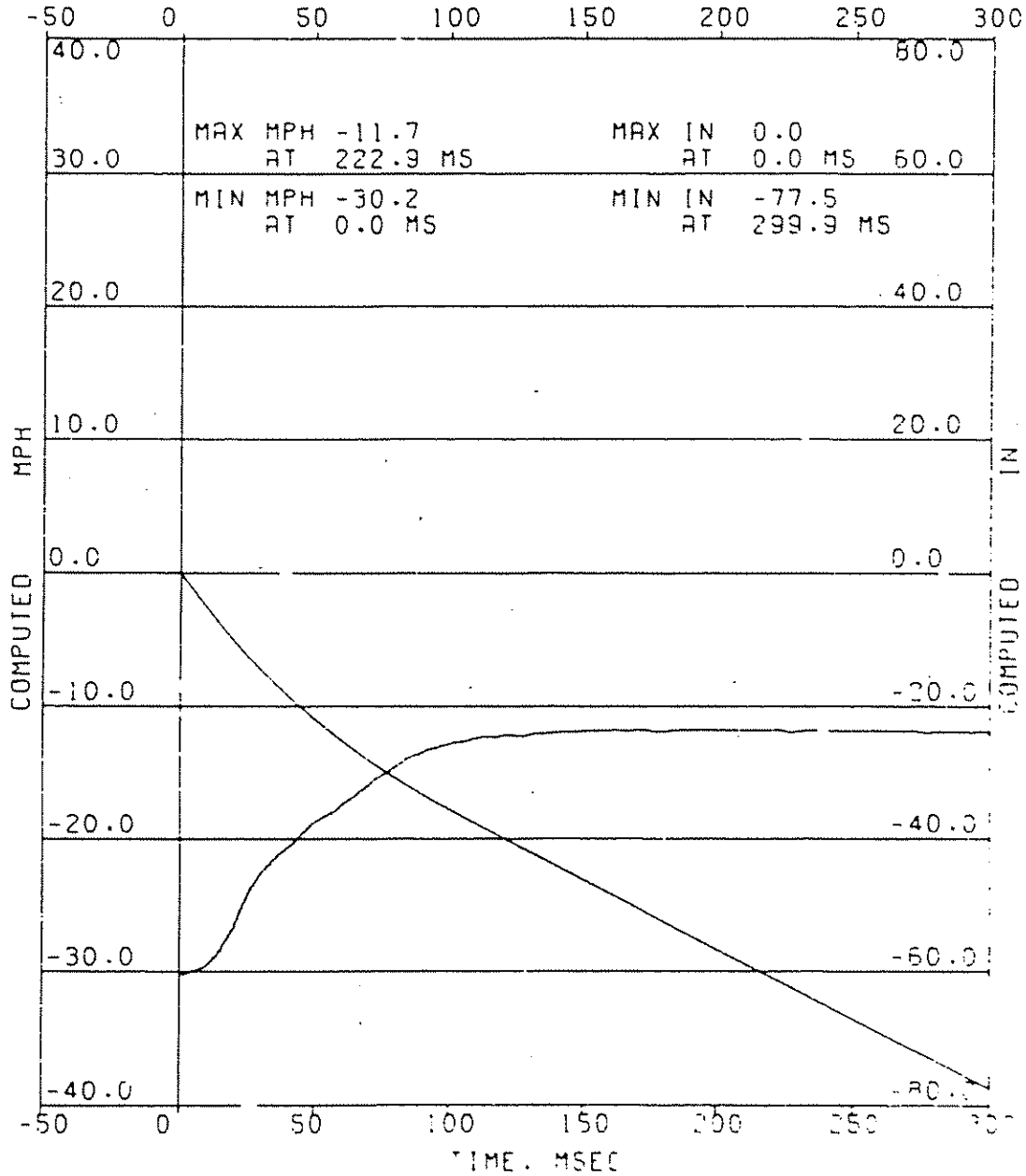
VC056B1 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI. ITEM ZJ8262R
 1997 MVSS DEVELOPMENT - 301.
 CHANNEL 020 RT RAIL MBAR MID X 311303

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 OF 035

FILTER TYPE: OBDAS-III RESPONSE CORRECTION. CLASS 1000 FILTER(1550)
 FILTER CLASS: 1000

IMPACT ANALYSIS DEPT. 5320
 NOV 7, 1995

DATA SET 11/04/95BR
 ERRATA



COMPUTED MPH
 COMPUTED IN

DC 03142

RECEIVED

INTER COMPANY CORRESPONDENCE

TO
DISTRIBUTION

DATE 11/10/95

FROM
K. M. HAUTDEPARTMENT
5320PLANT/OFFICE
CTCCIMS NUMBER
481-02-18

SUBJECT:

REAR DYNAMIC CRUSH ANALYSIS
 VC05681 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI ITEM ZJ0262R
 1997 MVSS DEVELOPMENT - 301.
 TEST DATE 11/04/95

TEST PURPOSE PRIMARY, 1997 USA 301 DEVELOPMENT.
OBSERVE FUEL SYSTEM INTEGRITY.

IMPACT TYPE TARGET SPEED: 30.1 MPH
DAMAGE LOCATION: REAR
BARRIER TYPE: REAR TYPE IV
BARRIER SURFACE: PLYWOOD

VEHICLE BODY CLASS: ZJ
CAR LINE: J
BODY: 74
ENGINE: 5.2 LITRE
ENGINE NOTE: ELECTRONIC FUEL INJECTION
TRANSMISSION: 3 SPEED AUTO 4x4
TRANS. NOTE:
VIN AS TESTED: 1J4EZ58YXTC146387 MOD.
VIN AS BUILT: 1J4EZ58YXTC146387 MOD.

TEST SPEED 30.2 MPH BY ELECTRONIC TRAP.

TEST WEIGHT (LBS) 4796 TOTAL; 2855 FRONT, 1941 REAR

OCCUPANTS LEFT FRONT, HYB II, BALLAST. AD-52
RESTRAINT-BELTS ONLY.
RIGHT FRONT, HYB II, BALLAST. AD-53
RESTRAINT-BELTS ONLY.

BUILD CONDITION 1996 PRODUCTION ZJ MODIFIED TO REPRESENT 1997.
AECM SENSOR SYSTEM PRODUCTION INTENT FOR 1997.
5.2 LITRE (V8) ENGINE, 3-SPEED AUTO TRANS. 4X4.
POWER STEERING, ABS BRAKES, AIR CONDITIONING.
1997 AECM MODULE AND BRACKET BIW REINFORCEMENTS
UNDER FLOORPAN FOR 1997 DESIGN INTENT.
BUCKET SEAT (CLOTH) ON ELECTRIC TRACKS.
FULL CENTER CONSOLE AND OVERHEAD CONSOLE.
P225/75R15 TIRES WITH ALUMINUM WHEELS & FULL
SPARE WITH MODIFIED ATTACHMENT BOLT.
HEAVYWEIGHT VEHICLE TO TEST AECM.
1997 FUEL SENDING UNIT AND 1997 FUEL TANK DESIGN.

TARGET WEIGHT (LBS) 4166 TOTAL, 2311 FRONT, 1854 REAR. REP MAX OPT WT.

TEST VC05681 11/10/95 13.57 PAGE 1 OF 2

DC 03143

NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.

FUEL AND BALLAST 21.8 GALLONS OF STODDARD SOLVENT.
300 LBS OF LUGGAGE BALLAST SECURED IN CARGO AREA.
(INCLUDES THE FOLLOWING: 100 LBS SECURED TO RR
FLOORPAN. 100 LBS SECURED TO LR FLOORPAN. 115 LBS
SECURED TO RF FLOORPAN.)
100 LBS SECURED TO FRONT HEADLIGHT AREA.

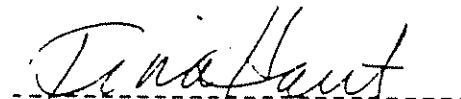
POST TEST REMARKS FUEL LEAK AT IMPACT.

DYNAMIC CRUSH, PITCH, AND REAR WHEEL MOTION RELATIVE TO THE FRONT
SILL HAVE BEEN DETERMINED BY FILM ANALYSIS. TIME WAS BASED ON
CAMERA TIMING DATA.

DYNAMIC CRUSH 21.1 +OR- 1 INCH AT 86. +OR- 5 MSEC.



C. M. ANDERSON



K. M. HAUT

GRAPHS - 4

G L O S S A R Y O F T E R M S

U S E D I N S T A N D A R D R E P O R T S

AD	ANTHROPOMORPHIC DEVICE
ADT	ANTHROPOMORPHIC TEST DEVICE
BASE COORD	BASE COORDINATE SYSTEM
C/L	CENTERLINE
CAR COORD	CAR COORDINATE SYSTEM
CCW	COUNTER CLOCKWISE
CORR-IN	SEPARATION IN INCHES (MINUS INITIAL LENGTH)
CORR-MM	SEPARATION IN MM (MINUS INITIAL LENGTH)
CORR-P	CORRECTED (ZEROED) PITCH
CORR-R	CORRECTED (ZEROED) ROLL
CORR-Y	CORRECTED (ZEROED) YAW
CW	CLOCKWISE
EFI	ELECTRONIC FUEL INJECTOR
ENG	ENGINE
ENGPY	ENGINE PITCH AND YAW
FESM	FRONT END SHEET METAL
FIDUCIAL	REFERENCE POINT OR TARGET
FS	FRONT SILL TARGET
FWD	FORWARD
IP	INSTRUMENT PANEL TARGET
LBS	POUNDS
LCP.LQP	LEFT C-POST & QUARTER PANEL TARGETS
LFS.LMS.LRS	LEFT FRONT SILL, MID SILL, & REAR SILL TARGETS
LT	LEFT
MS	MID SILL TARGET
NORMALIZE	PUT ON A COMMON BASIS
NOSE-DOWN	LEADING END BELOW TRAILING
NOSE-UP	LEADING END ABOVE TRAILING
PERF	PERFORMANCE
REF	REFERENCE
REL	RELATIVE TO (ONE-DIMENSIONAL)
RCP.RQP	RIGHT C-POST & QUARTER PANEL TARGETS
RFS.RMS.RRS	RIGHT FRONT, MID, & REAR SILL TARGETS
ROLL-LEFT	LEFT SIDE LOWER THAN RIGHT
ROLL-RIGHT	RIGHT SIDE LOWER THAN LEFT
RS	REAR SILL TARGET
RT	RIGHT
SEP	SEPARATION OF (THREE-DIMENSIONAL)
SYS	SYSTEM
TBI	THRUSTLE BODY INJECTOR
TIME.MS	TIME IN MILLISECONDS
U/B	UNDERBODY
VS	VERSUS
X	LONGITUDINAL AXIS (INCREASING TOWARD TRAILING EDGE)
XF	X-FILTERED
Y	LATERAL AXIS (INCREASING TO THE RIGHT)
YAW-LEFT	LEADING EDGE TO LEFT
YAW-RIGHT	LEADING EDGE TO RIGHT
Z	VERTICAL AXIS (INCREASING UPWARD)
ZERDED	SHIFTED TO START AT ZERO
ZERD-IN	ZERDED INCHES
ZERD-MM	ZERDED MILLIMETERS

IMPACT ANALYSIS
DEPARTMENT 5320
11/10/95 13.57
TEST VC05581

DC 03145

VC05681 30 MPH REAR BARRIER. ZJJ74. 5.2L MPI ITEM ZJ8262R
 1997 MVSS DEVELOPMENT - 301.

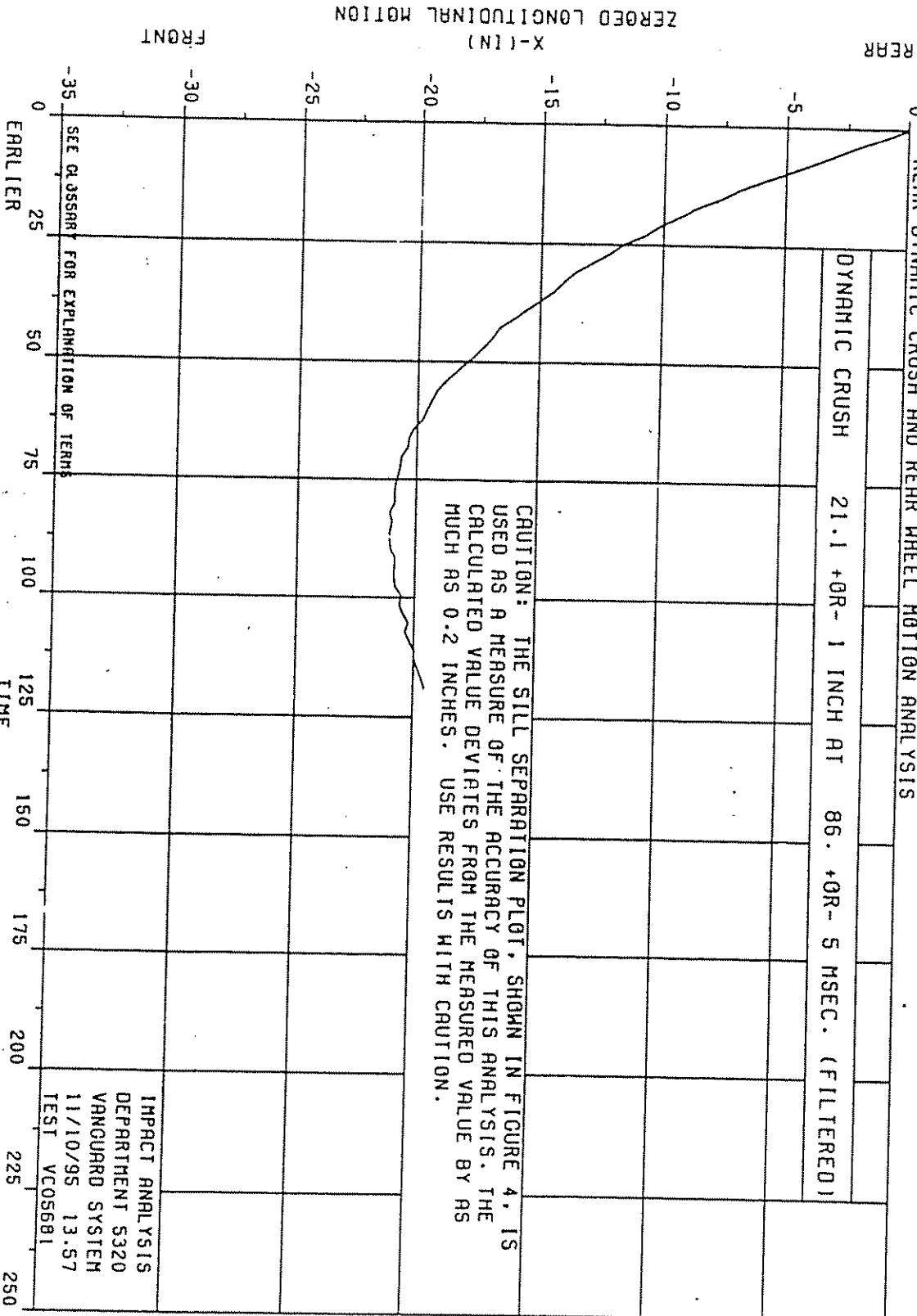
ZERGED X MOTION OF F3 REL TO LFS IN BASE COORD SYS
 VERSUS TIME IN MILLISECONDS

REAR DYNAMIC CRUSH AND REAR WHEEL MOTION ANALYSIS

REAR

DYNAMIC CRUSH 21.1 +0R- 1 INCH AT 86. +0R- 5 HSEC. (FILTERED)

CAUTION: THE SILL SEPARATION PLOT, SHOWN IN FIGURE 4, IS
 USED AS A MEASURE OF THE ACCURACY OF THIS ANALYSIS. THE
 CALCULATED VALUE DEVIATES FROM THE MEASURED VALUE BY AS
 MUCH AS 0.2 INCHES. USE RESULTS WITH CAUTION.



SEE GLASSRAT FOR EXPLANATION OF TERMS

IMPACT ANALYSIS
 DEPARTMENT 5320
 VANGUARD SYSTEM
 11/10/95 13.57
 TEST VC05681

FIGURE 1

ZERGED LONGITUDINAL MOTION

FRONT

EVENT TIME

LATER

VC05681 30 MPH REAR BARRIER, ZJ74, 5.2L MPI ITEM ZJ8262R
 1997 HVSS DEVELOPMENT - 301.

ZERGED Z OF WHEEL RELATIVE TO LFS IN CAR COORD
 VERSUS ZERGED X OF WHEEL RELATIVE TO LFS IN CAR COORD
 REAR DYNAMIC CRUSH AND REAR WHEEL MOTION ANALYSIS

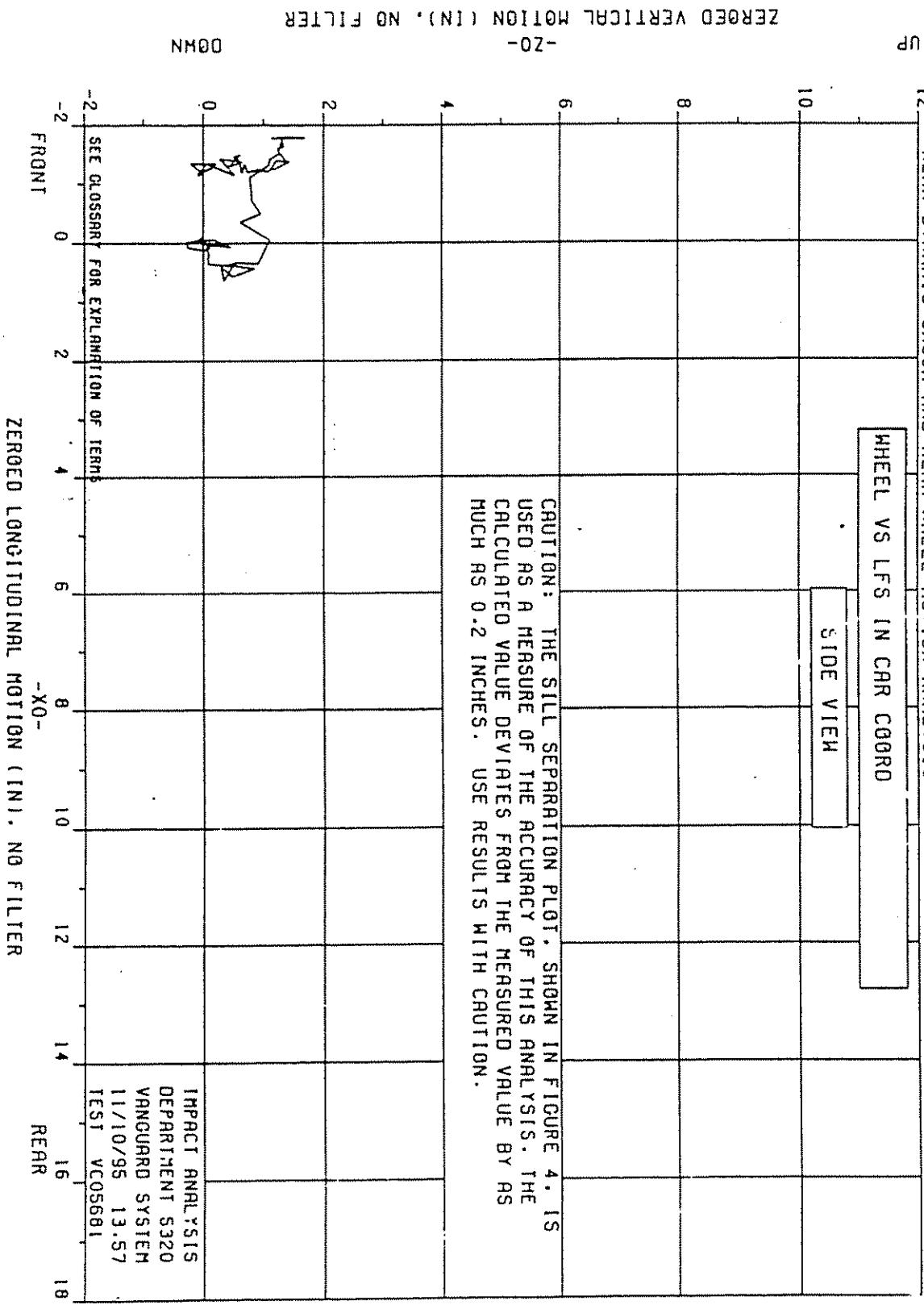


FIGURE 2

VC05681 30 MPH REAR BARRIER, ZJJ74, S.2L HPI ITEM ZJ8262R
 1997 MVSS DEVELOPMENT - 301.

ZERGED PITCH OF LMS TO LFS IN BASE COORD SYSTEM
 VERSUS TIME IN MILLISECONDS

NOSE-UP

CORR-P

DEGREES CCM AROUND Y RELATIVE TO X (RT SIDE VIEW) 50HZ FILTER
 NOSE-DOWN

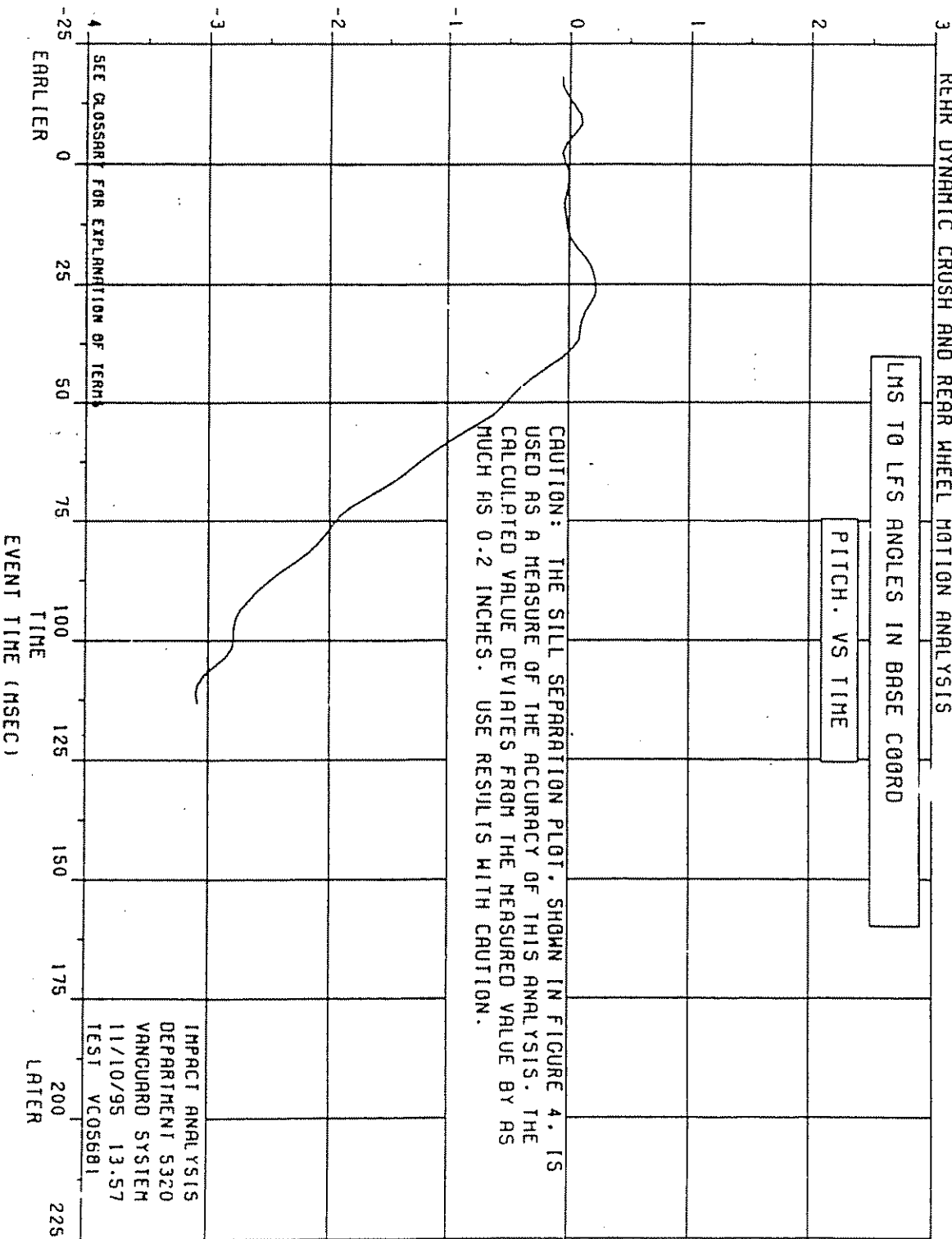


FIGURE 3

VLOS681 30 MPH REAR BARRIER. ZUJ74. S.2L MPI ITEM ZJ8262R
 1997 HVSS DEVELOPMENT - 301.

LHS 10 LFS DISTANCE -29.62 INCHES (INITIAL DIST) (IN)
 VERSUS TIME IN MILLISECONDS

REAR DYNAMIC CRUSH AND REAR WHEEL MOTION ANALYSIS

SEPARATION OF LHS AND LFS

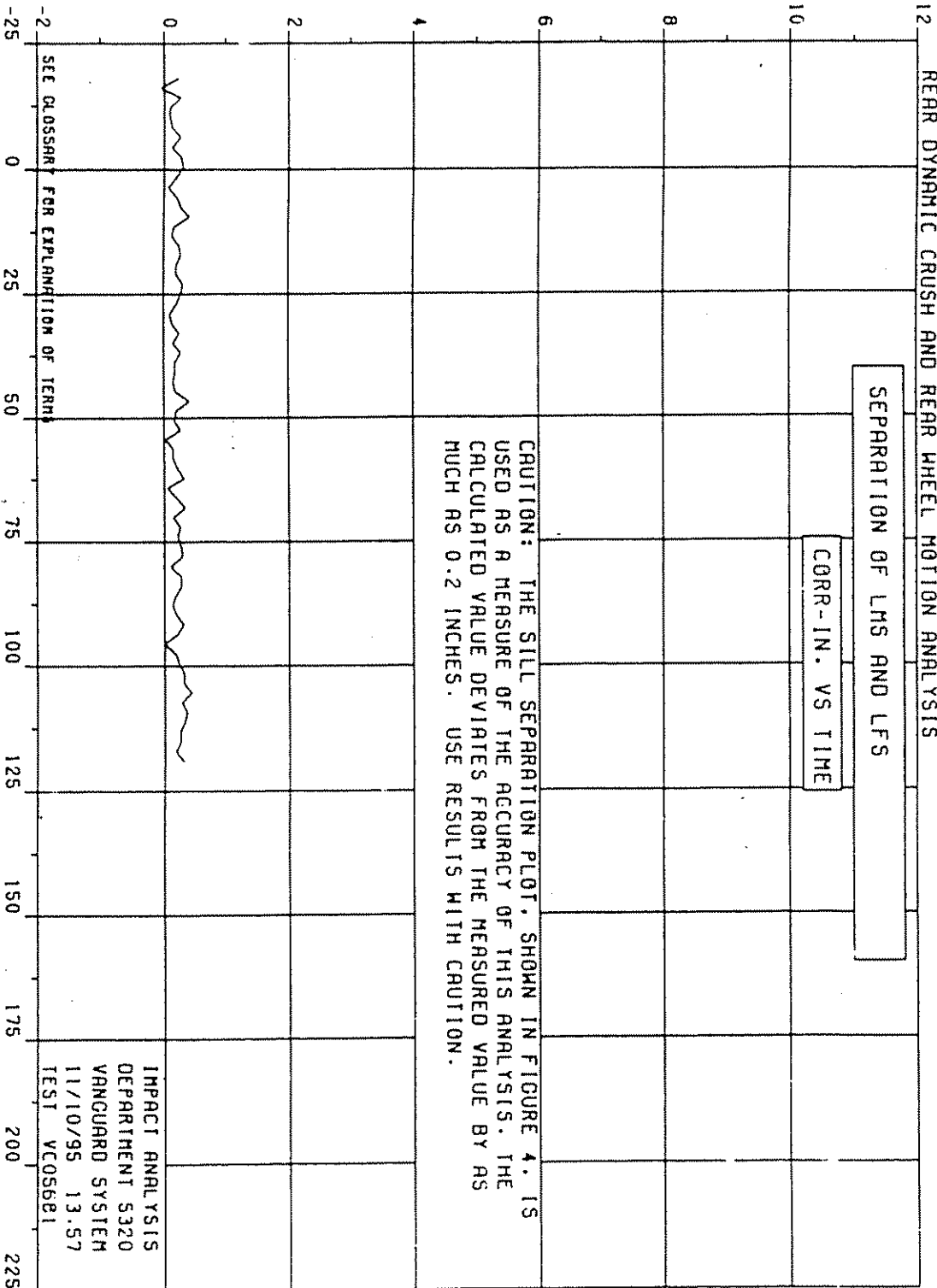
CORR-IN. VS TIME

CAUTION: THE SILL SEPARATION PLOT, SHOWN IN FIGURE 4, IS
 USED AS A MEASURE OF THE ACCURACY OF THIS ANALYSIS. THE
 CALCULATED VALUE DEVIATES FROM THE MEASURED VALUE BY AS
 MUCH AS 0.2 INCHES. USE RESULTS WITH CAUTION.

LESS-THAN

CORR-IN SEPARATION (IN)

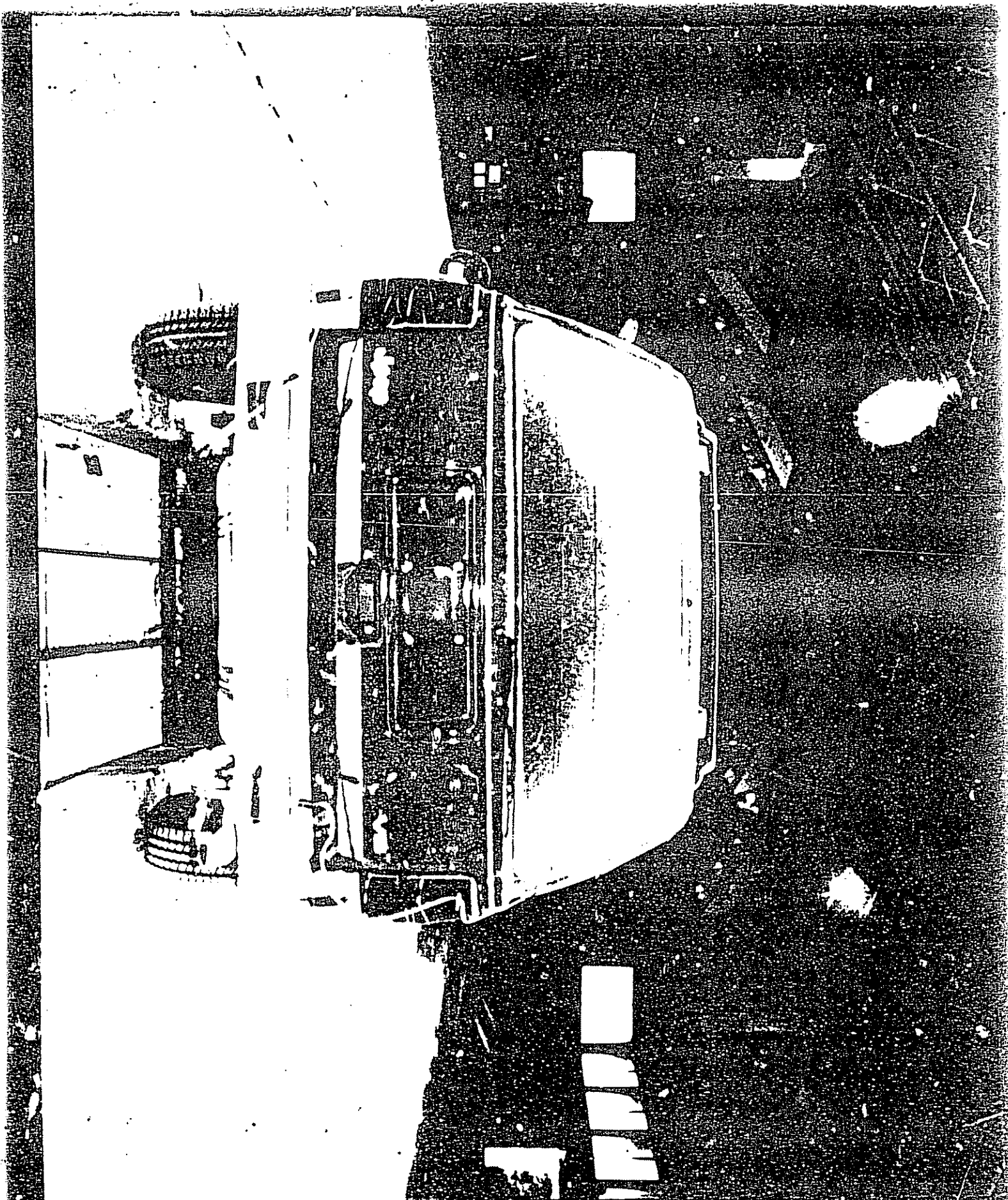
GREATER



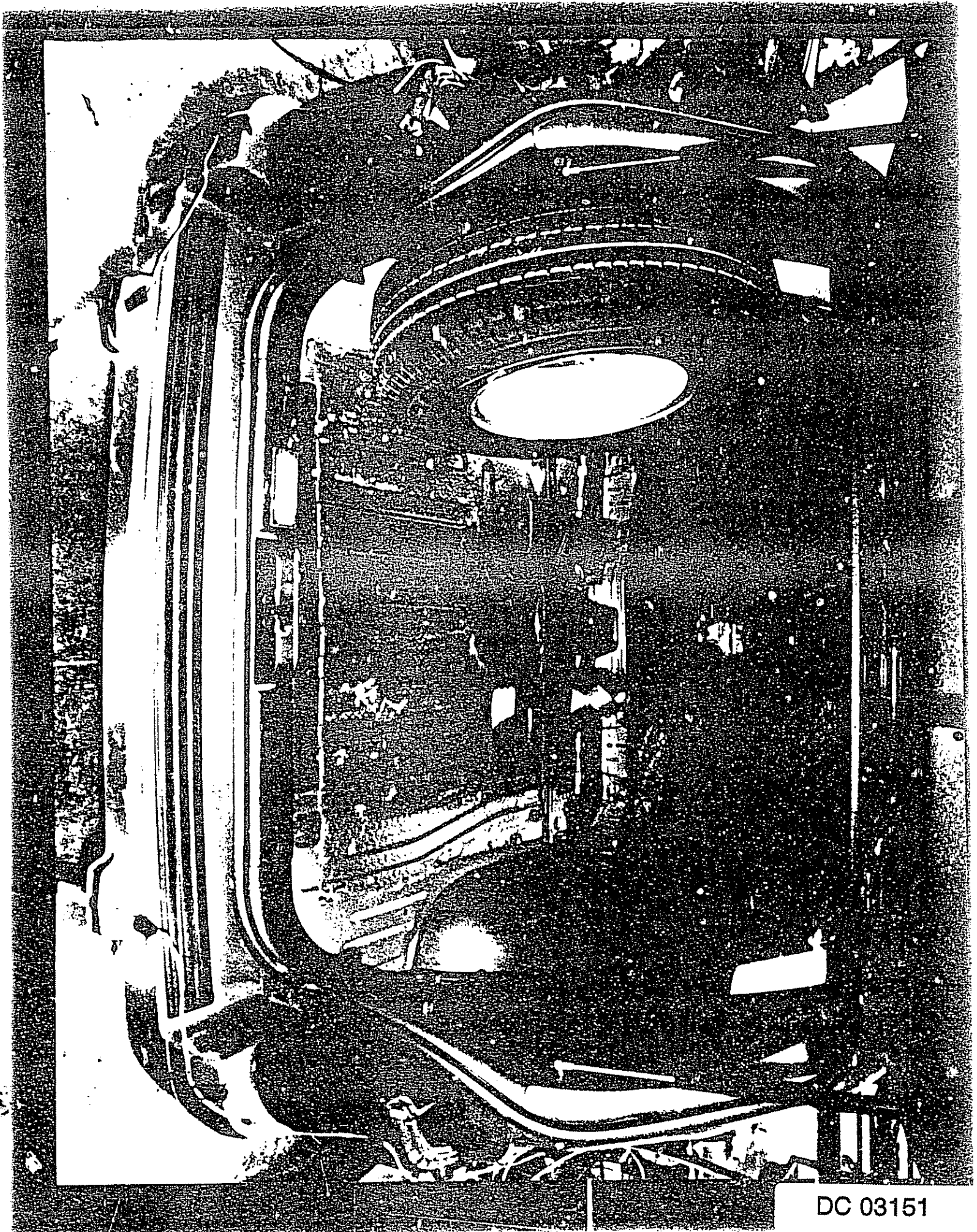
IMPACT ANALYSIS
 DEPARTMENT 5320
 VANGUARD SYSTEM
 11/10/95 13.57
 TEST VLOS681

EARLIER
 0
 25
 50
 75
 100
 125
 150
 175
 200
 LATER
 EVENT TIME (MSEC)

FIGURE 4



DC 03150



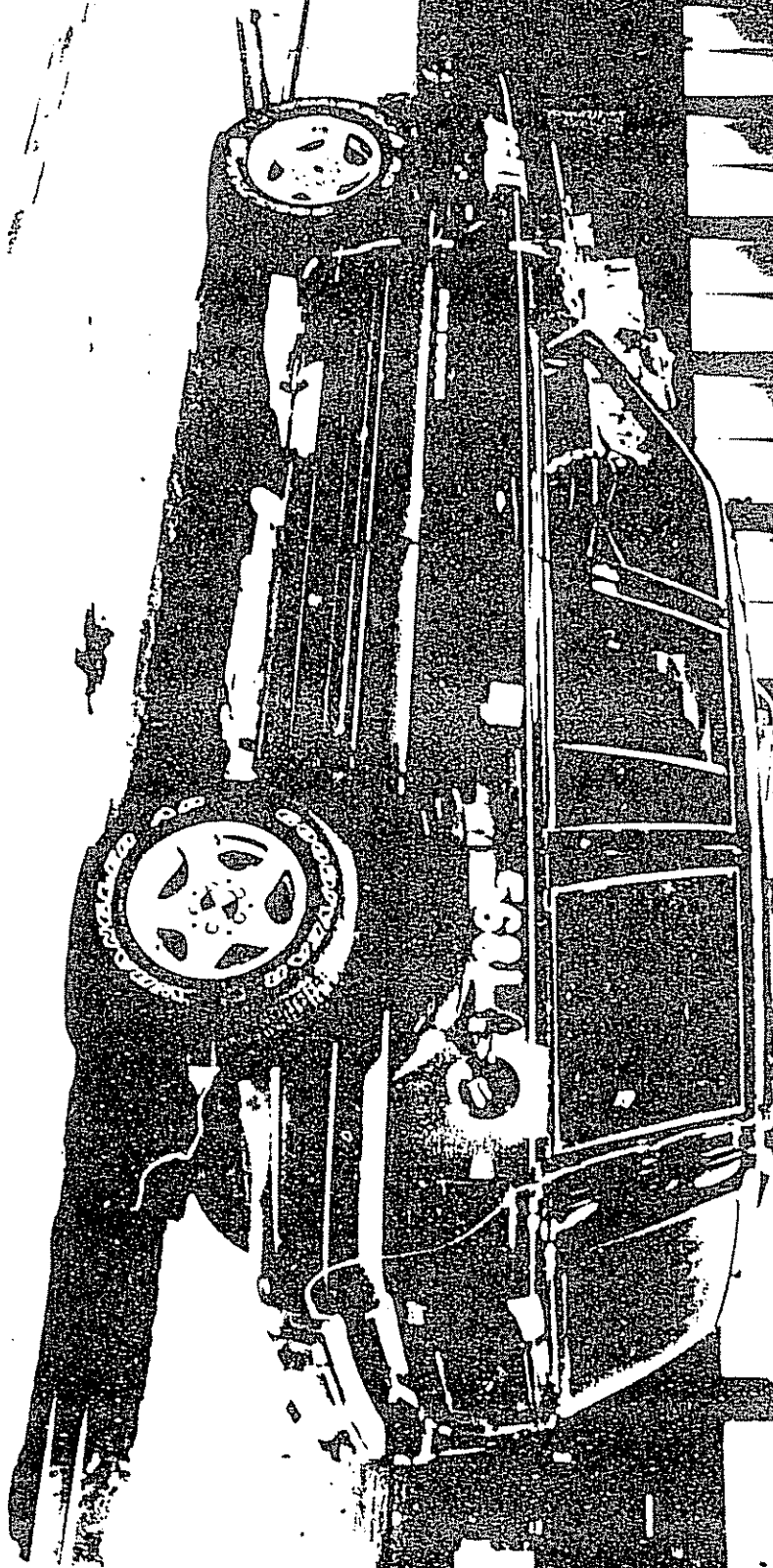
DC 03151

5681

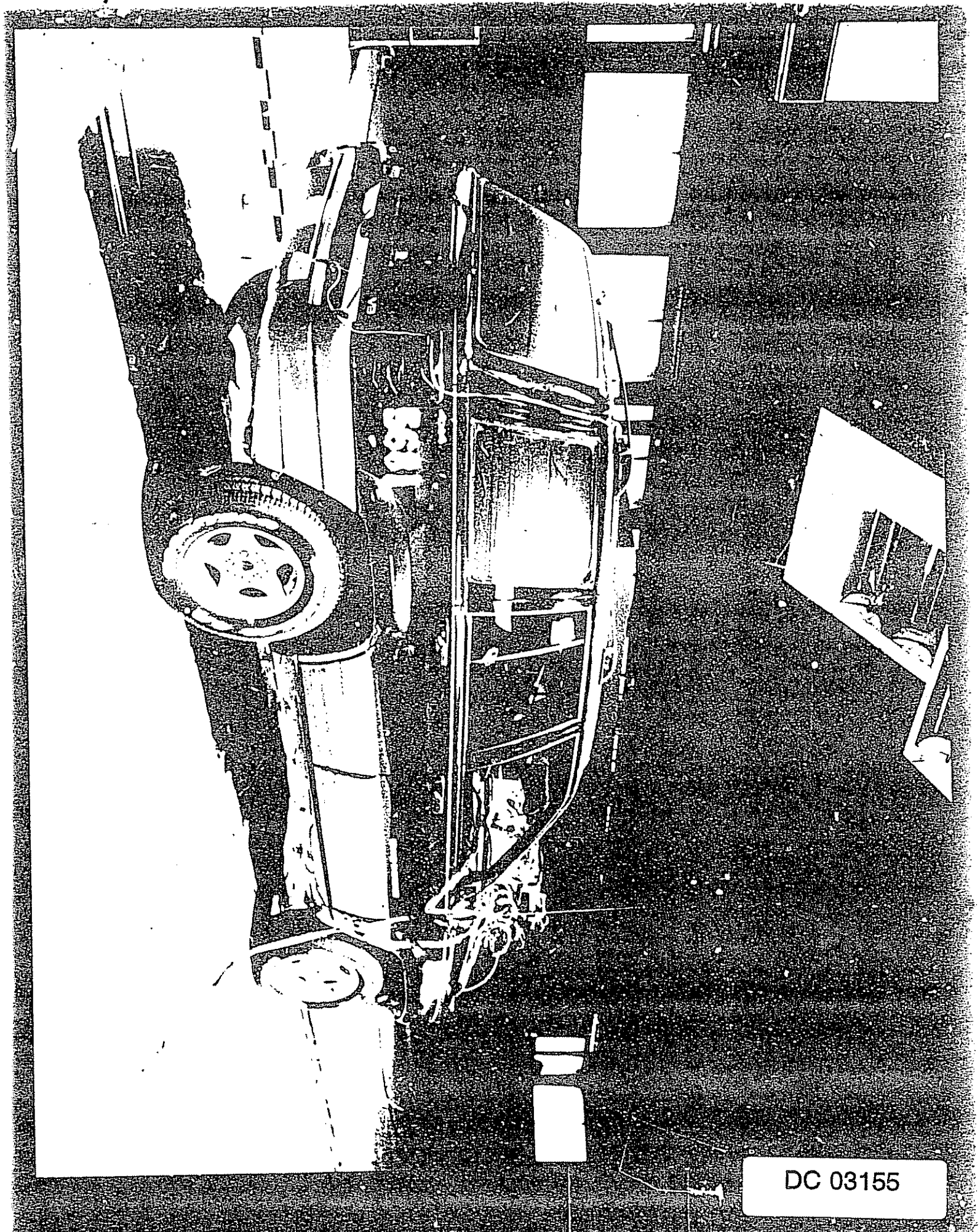
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5681

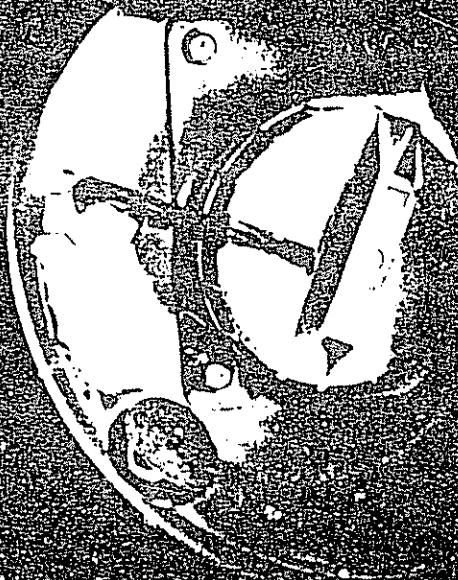
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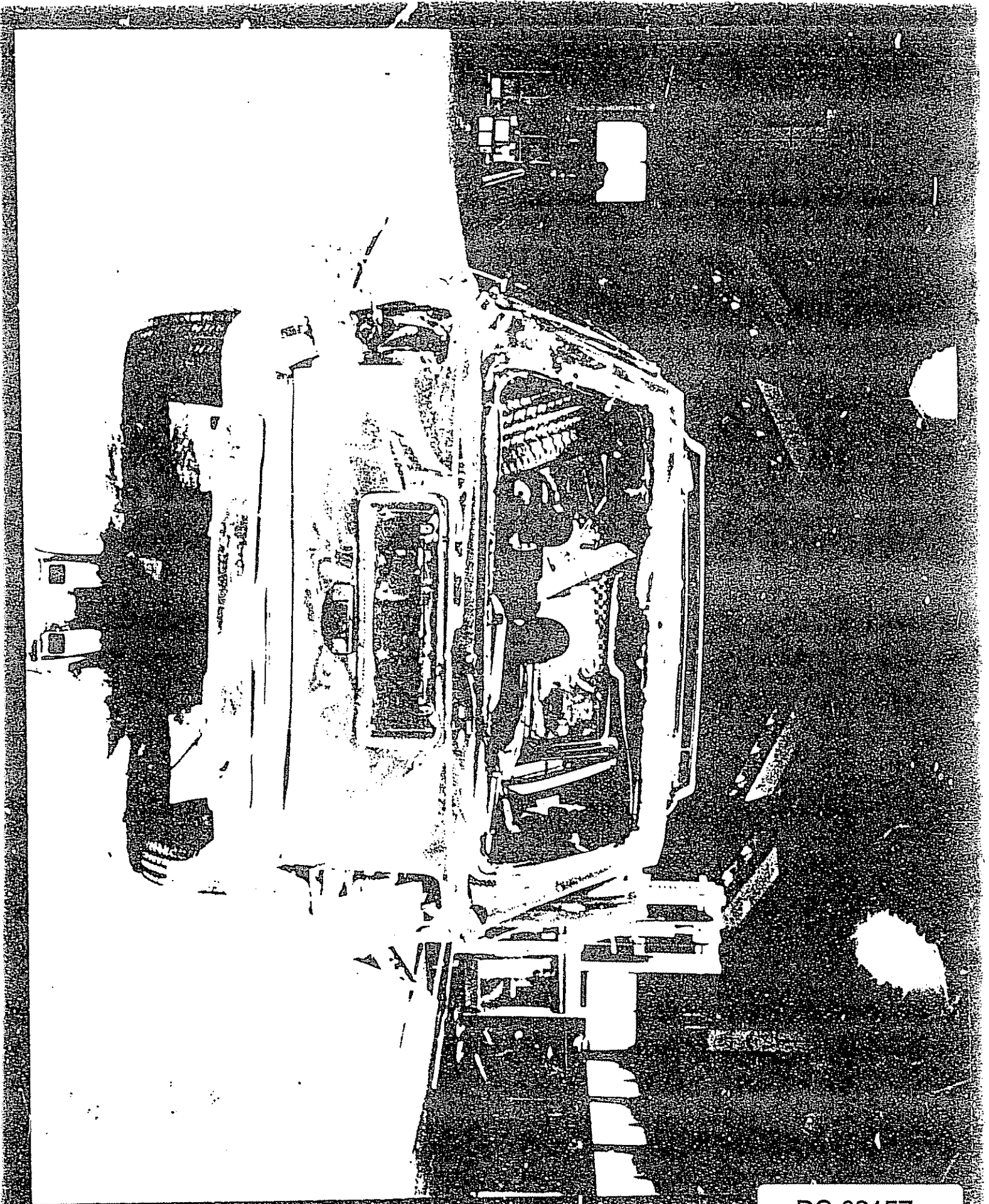
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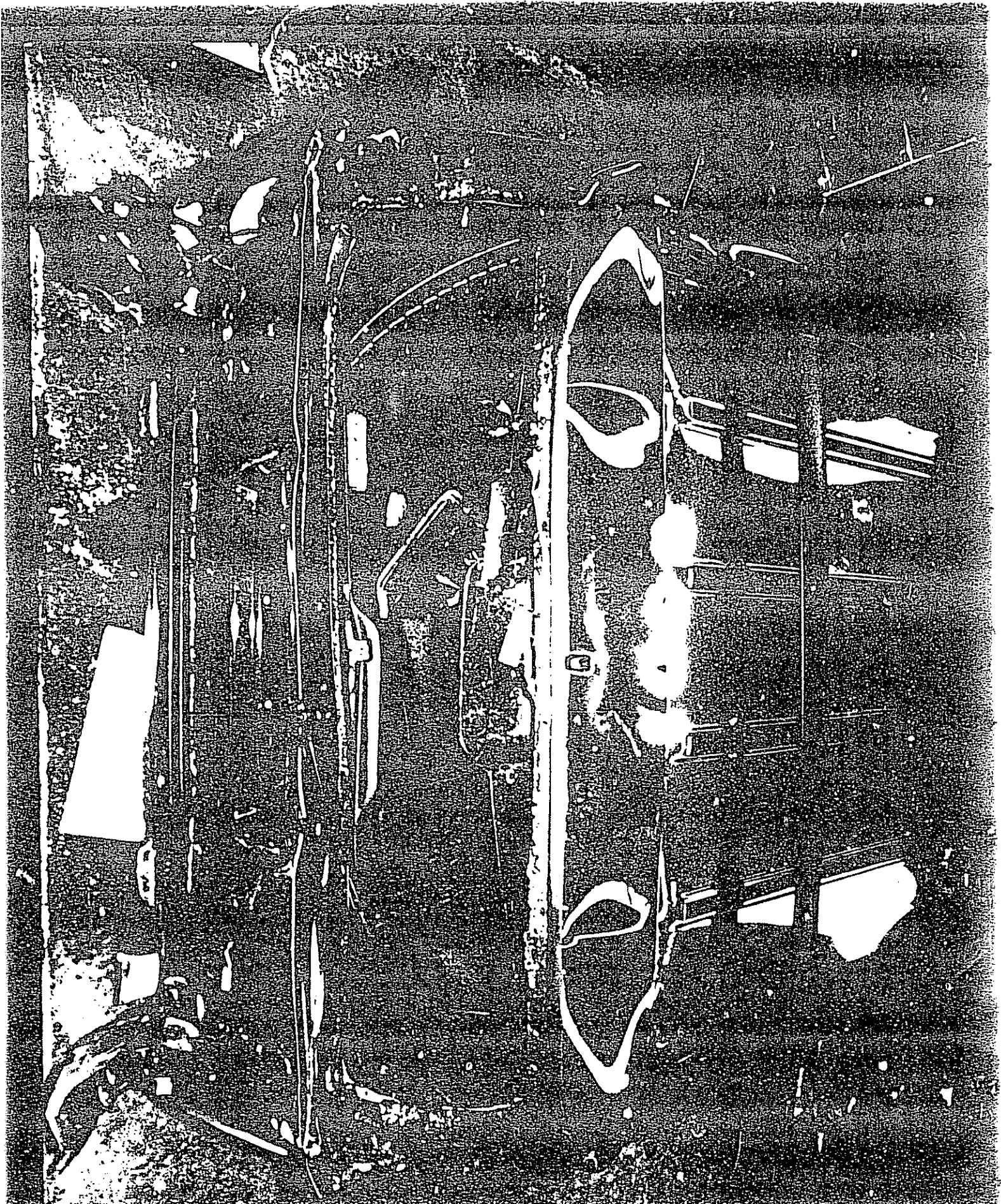
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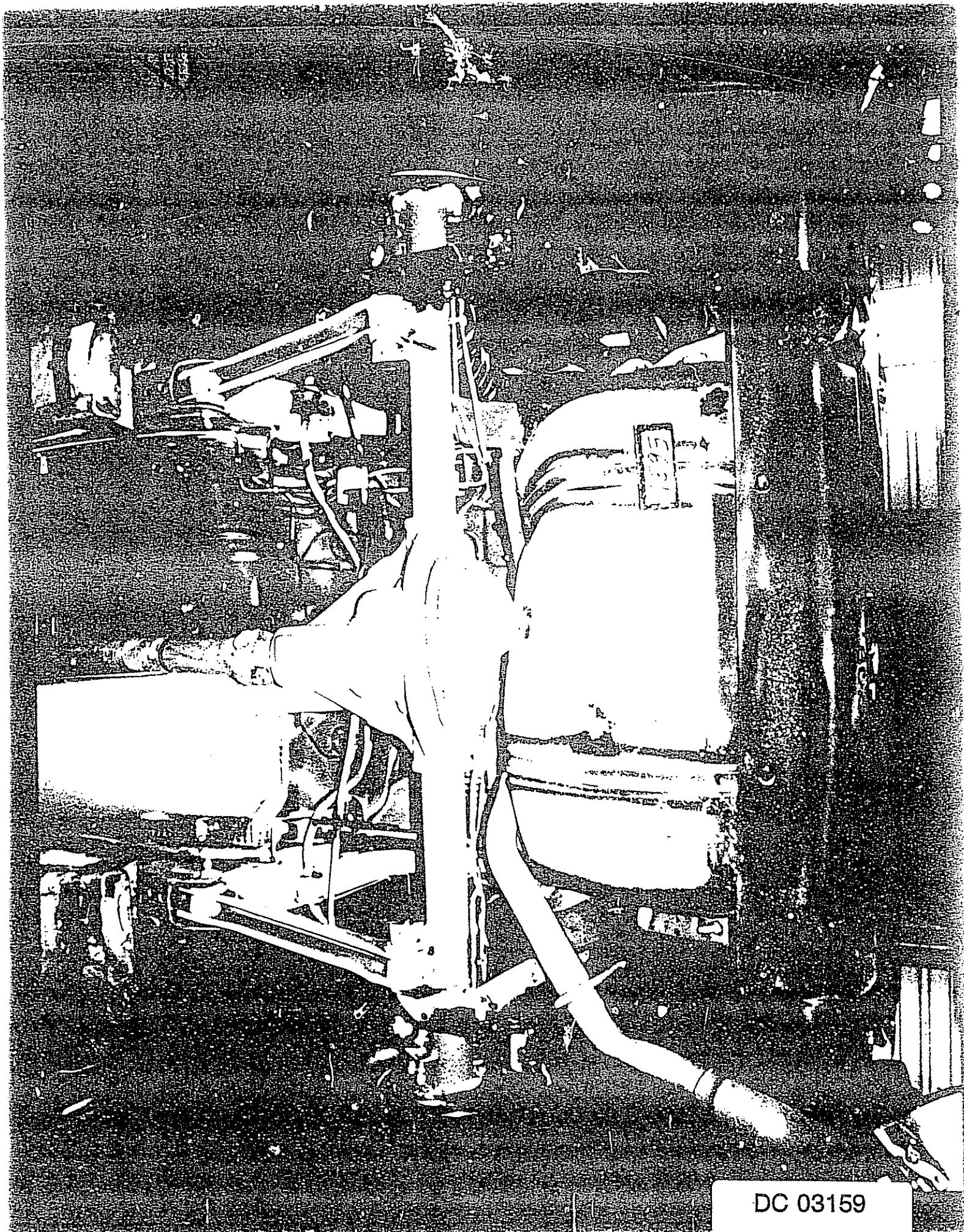
218 Gal. S.S.



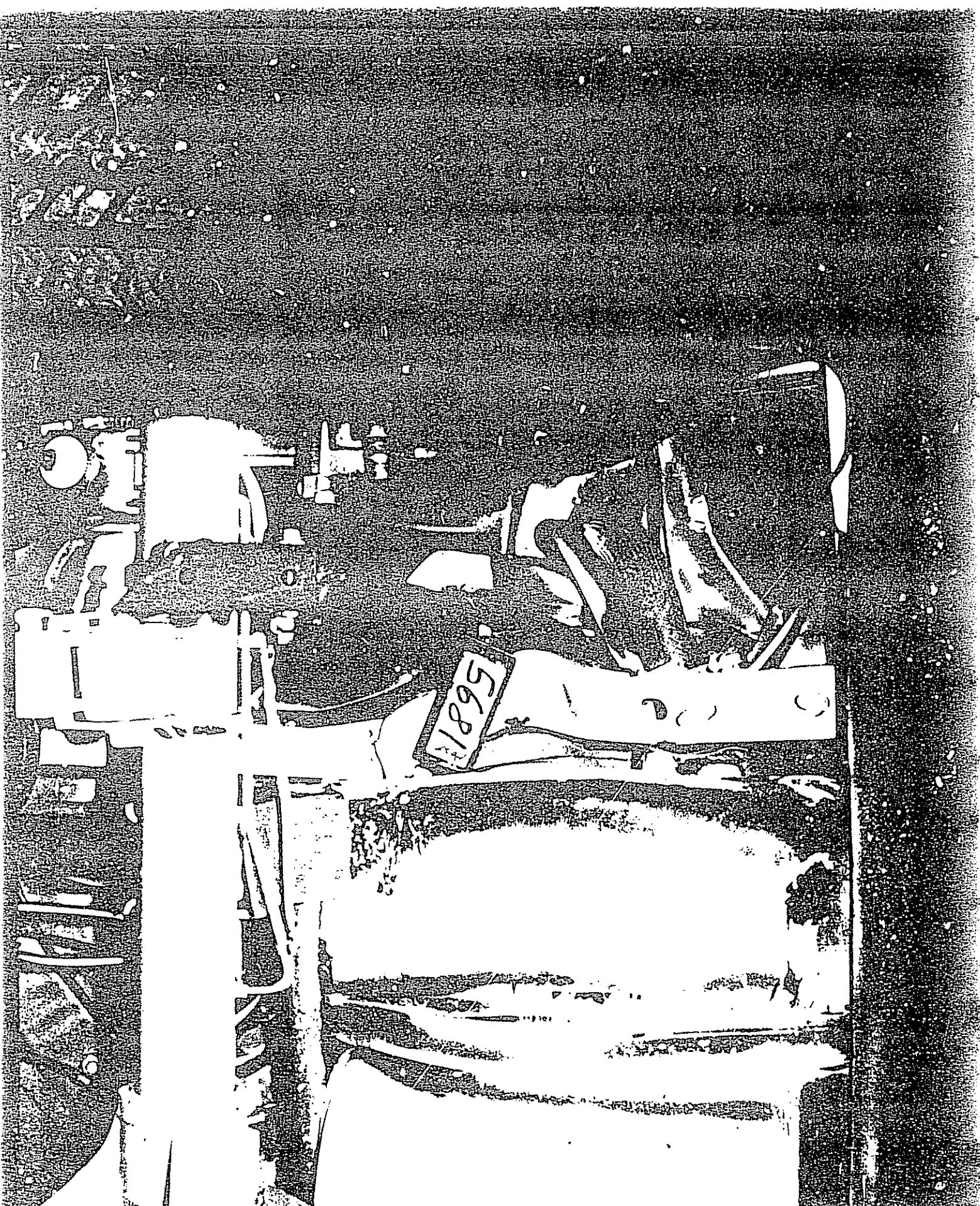
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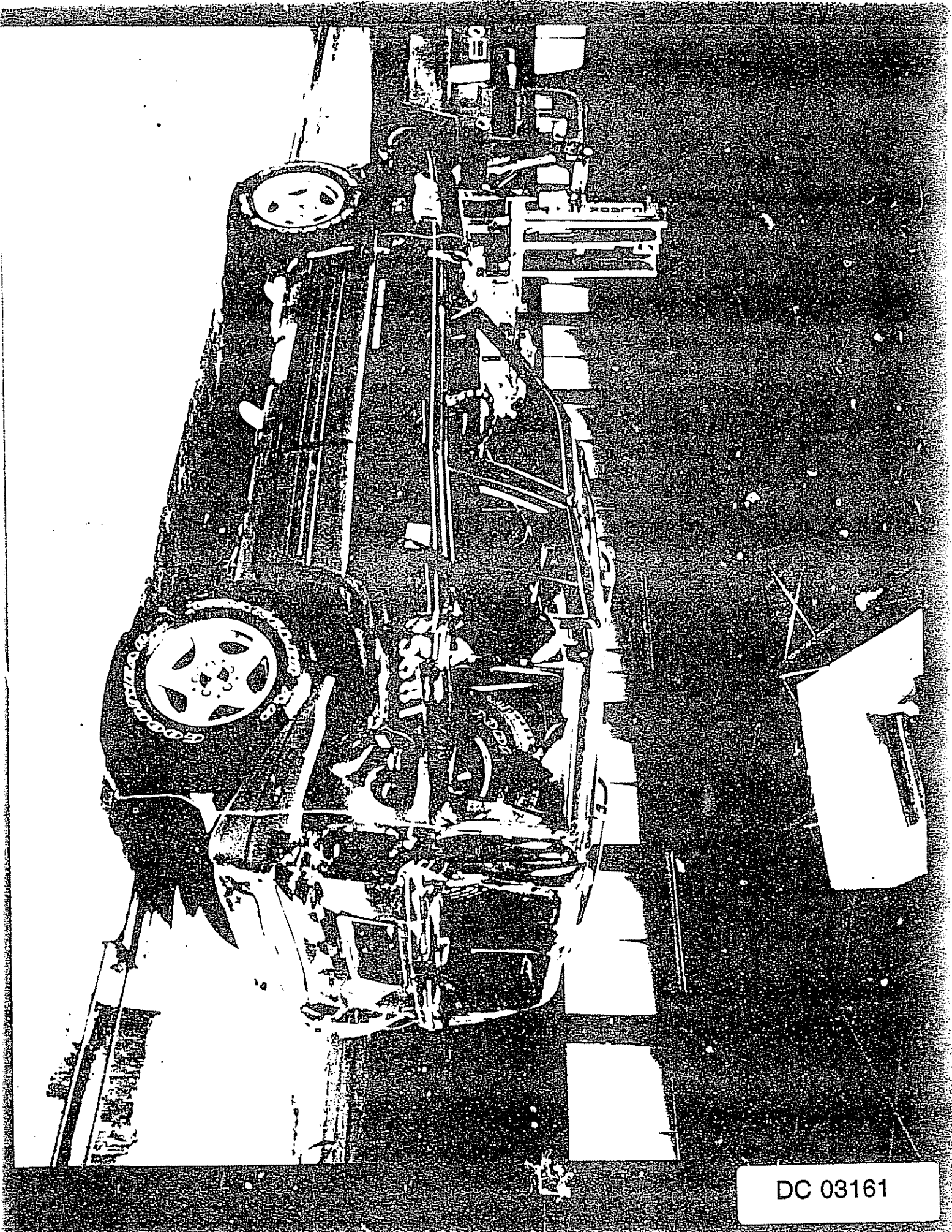
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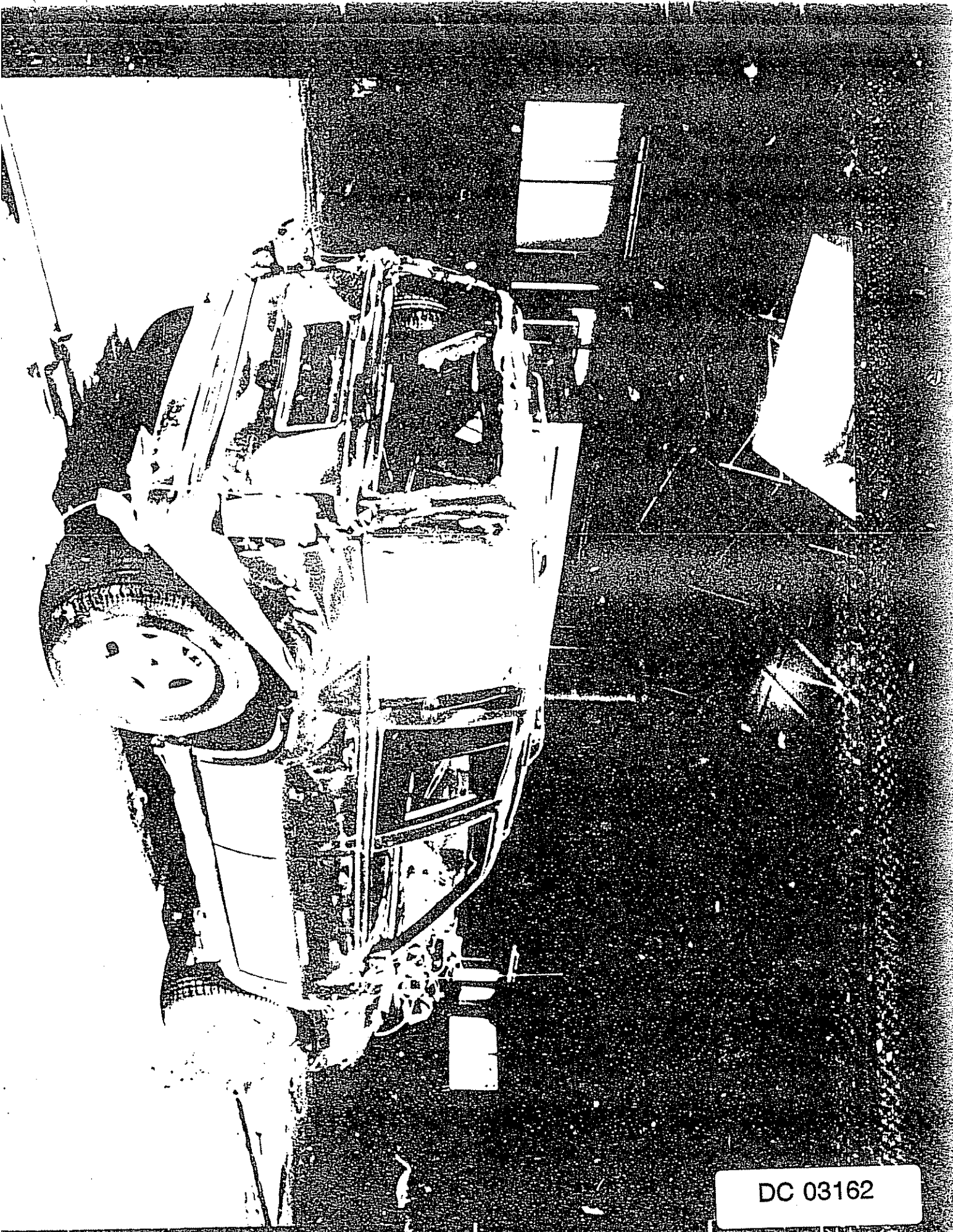
DC 03159



DC 03160



DC 03161



DC 03162

KOST

155
155

DC 03163