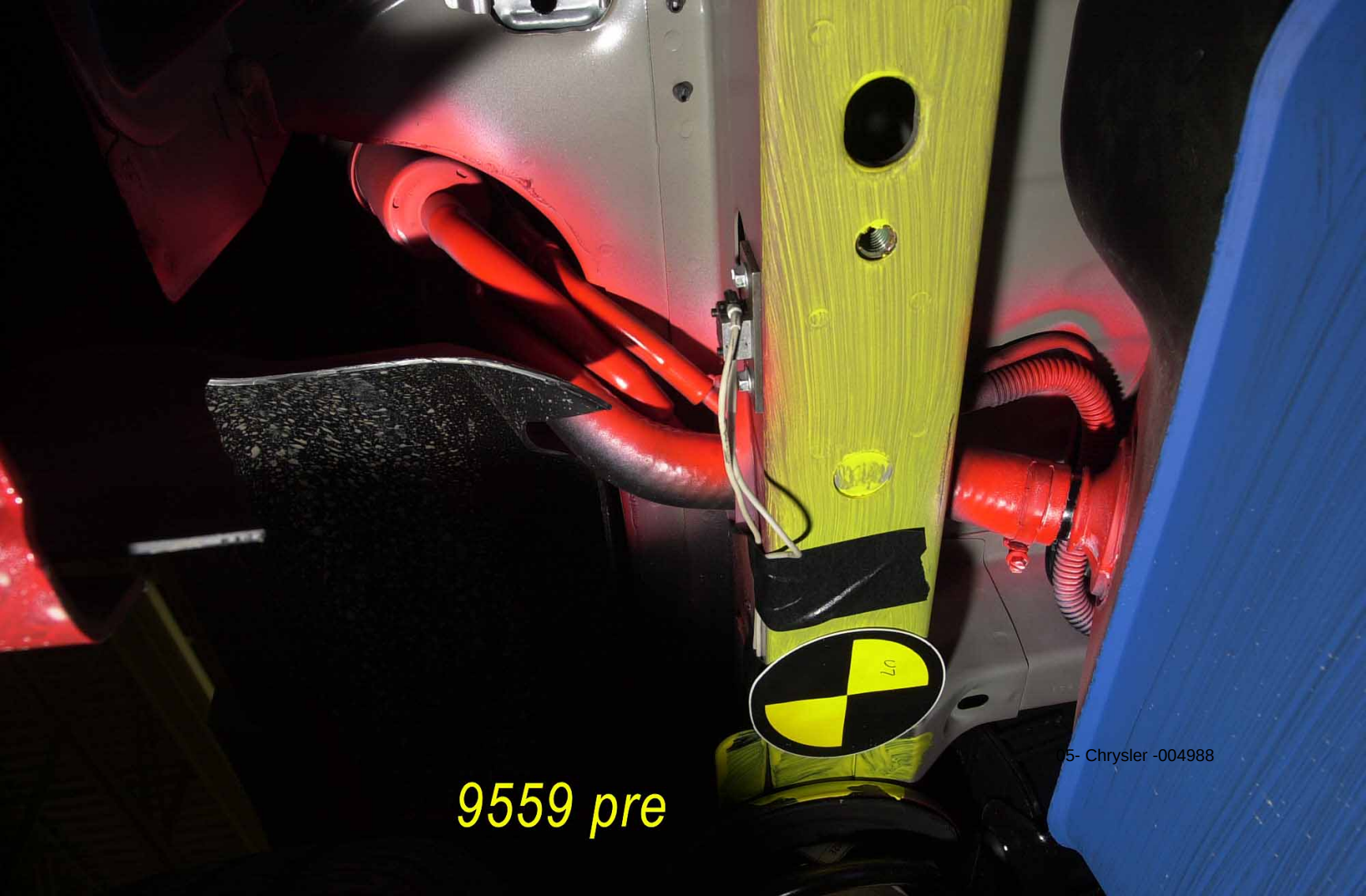
EA12-005
CHRYSLER
12-13-2012
Enclosure 6B
301 Developmental Crash Tests Public
KJ Development Crash Test

VC09559 Photos


KJ1371
Do not
Remove
Do not Remove
A12-005- Chrysler -004987
9559 pre


9559 pre
05- Chrysler -004988


9559 pre


9559 pre


9559
9559
EA12-005- Chrysler -004991
vc09559
pre

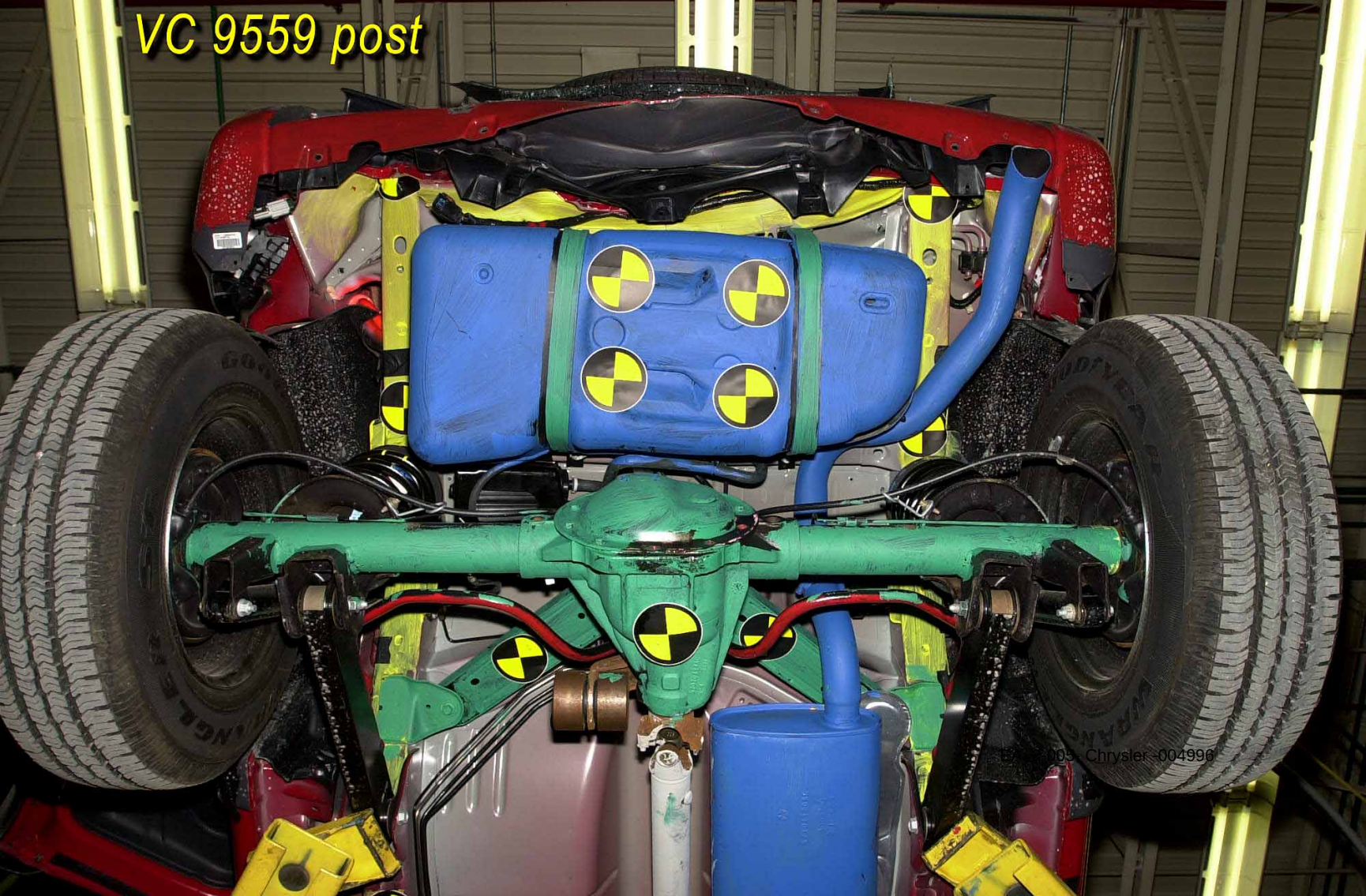

9559
EA12-005- Chrysler -004992
vc09559
pre

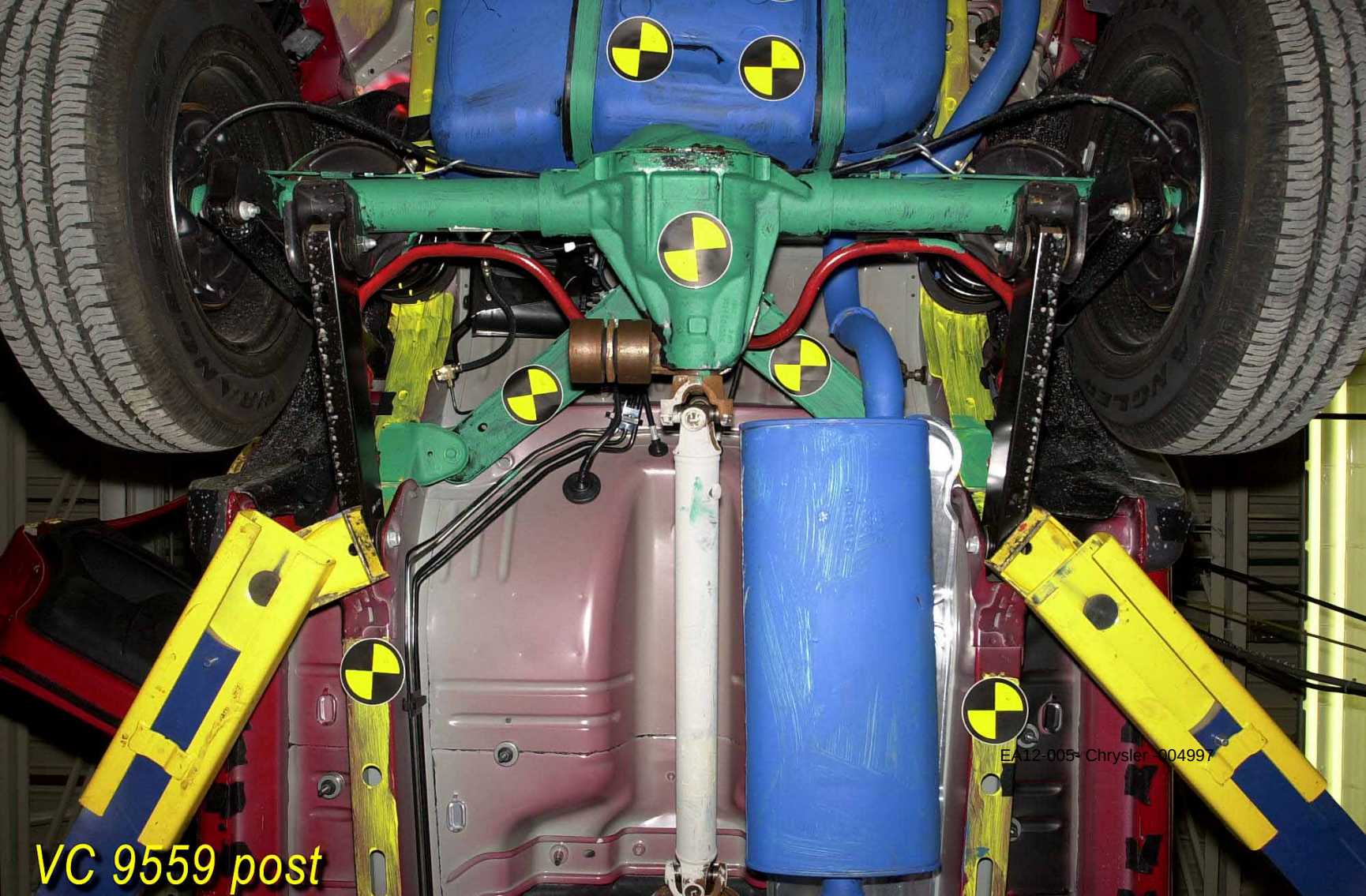

vc9559 post
EA12-005- Chrysler -004993

VC 9559
POST

EA12-005- Chrysler -004994


9559
9559
EA12-005- Chrysler 004995
VC 9559
POST


VC 9559 post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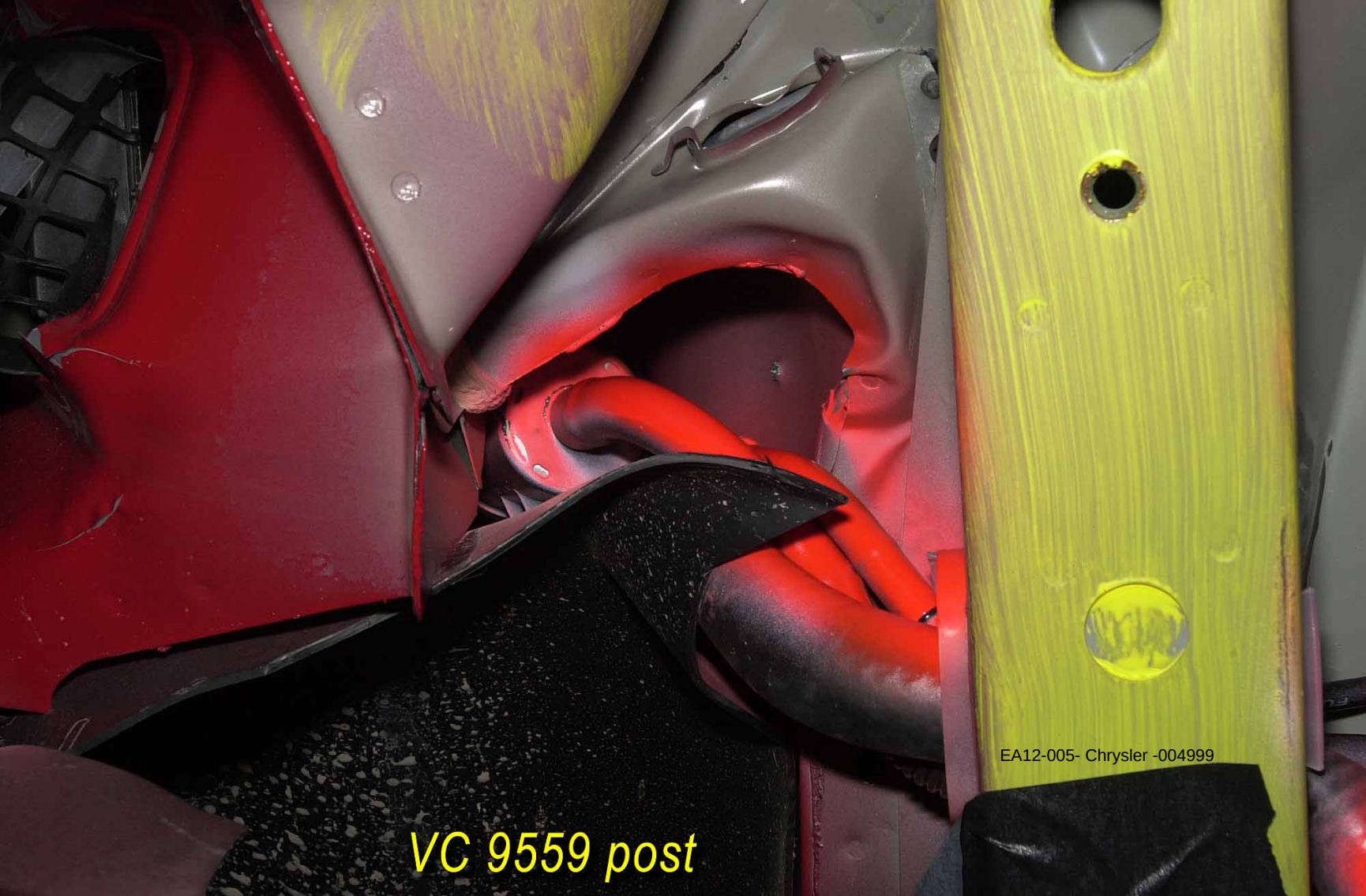
VC 9559 post

LO
EA12-005- Chrysler -004998
VC 9559 post


EA12-005- Chrysler -004999
VC 9559 post


VC 9559 post
EA12-005- Chrysler -005000

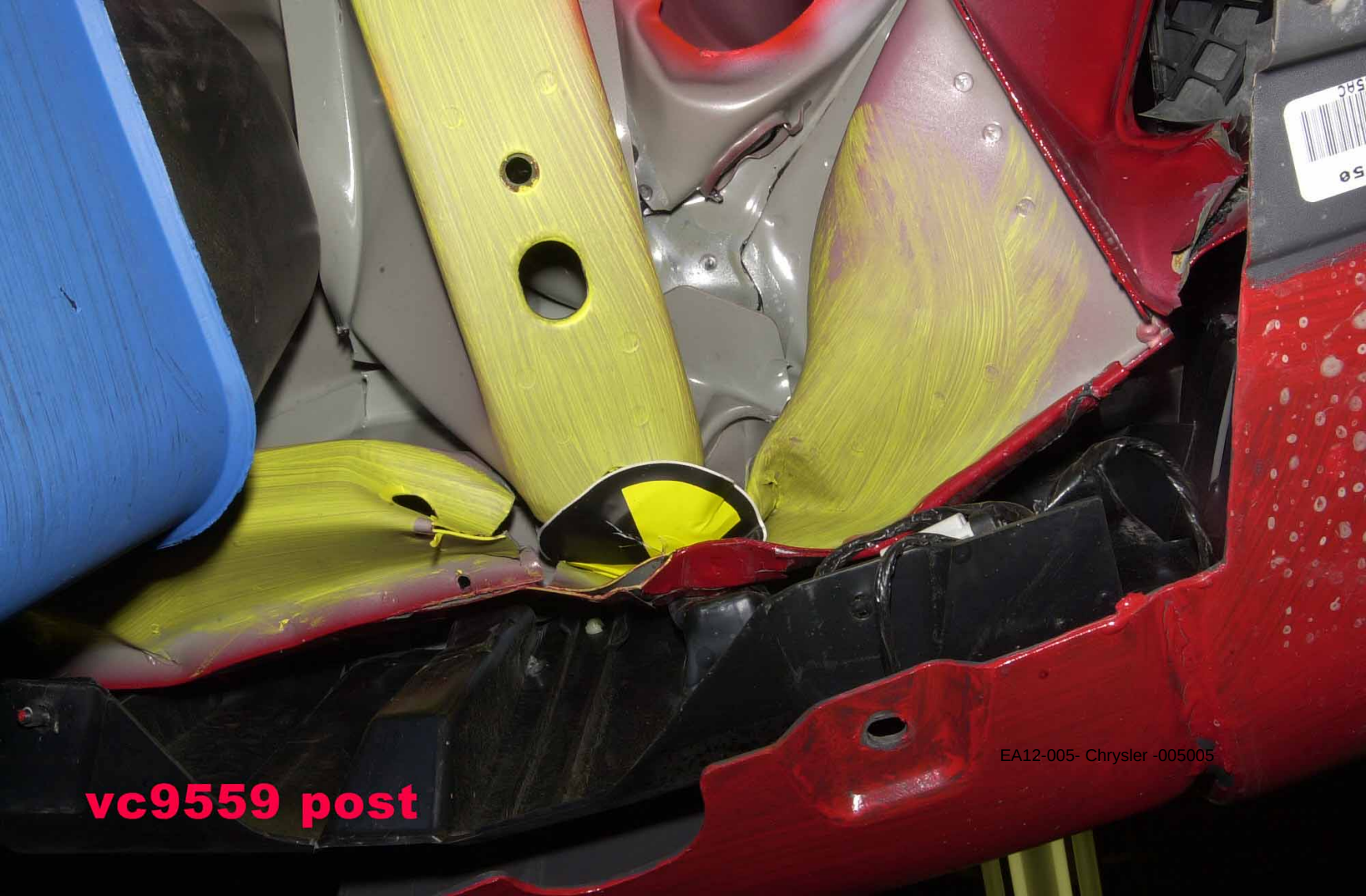
EA12-005- Chrysler -005001

VC 9559 post


VC 9559 post
SWING GATE
SALE OTHER
MADE IN USA
EA12-005 - Chrysler -005002


VC 9559 post
EA12-005- Chrysler -005003


vc9559 post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EA12-005- Chrysler -005005


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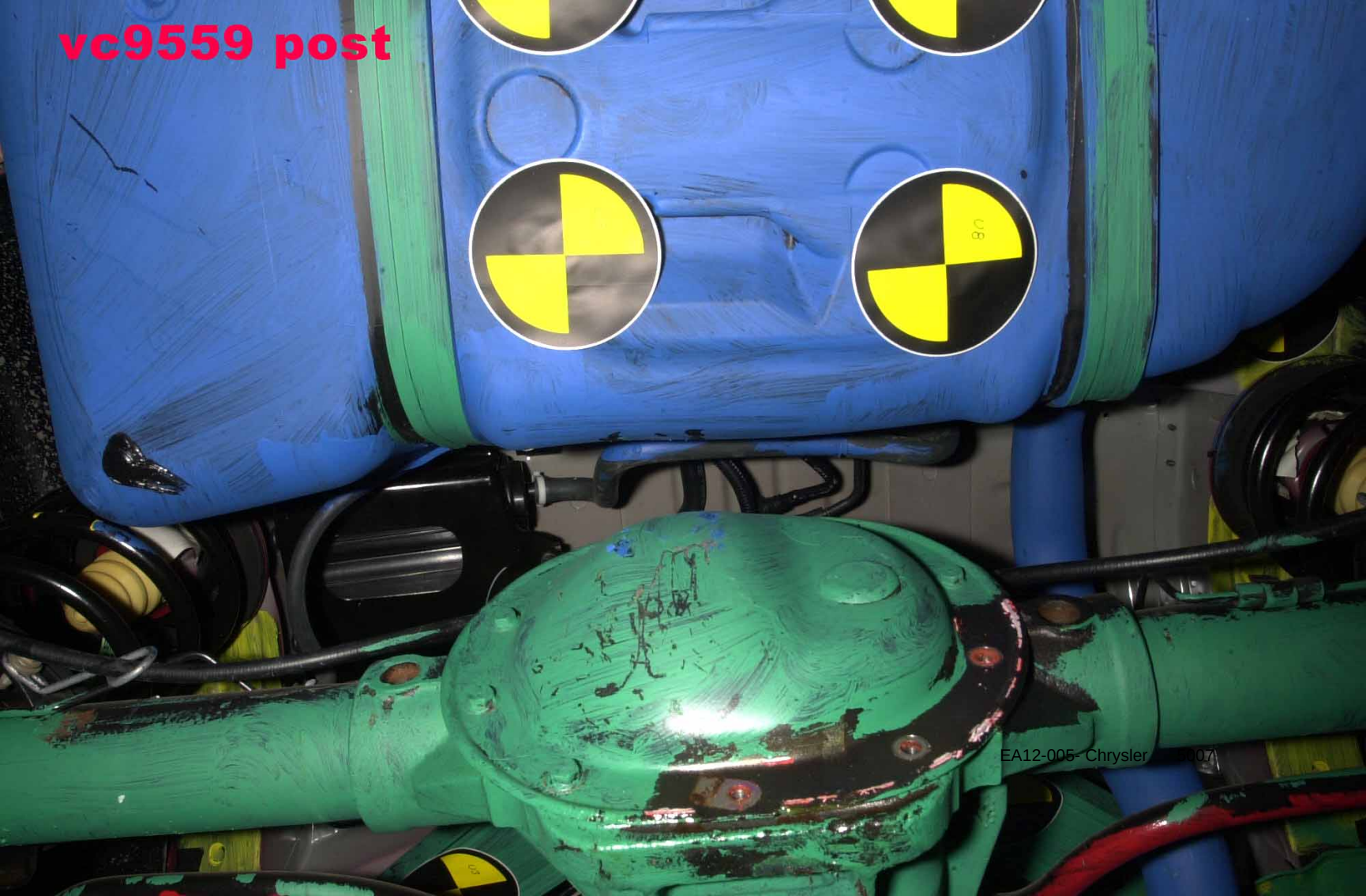

vc9559 post
EA12-005- Chrysler

EA12-005- Chrysler -005008

EA12-005- Chrysler -005009

Note: Scanned Document

EA12-005
CHRYSLER
12-13-2012
Enclosure 6B
301 Developmental Crash Tests Public
KJ Development Crash Test
VC09559 Report Public

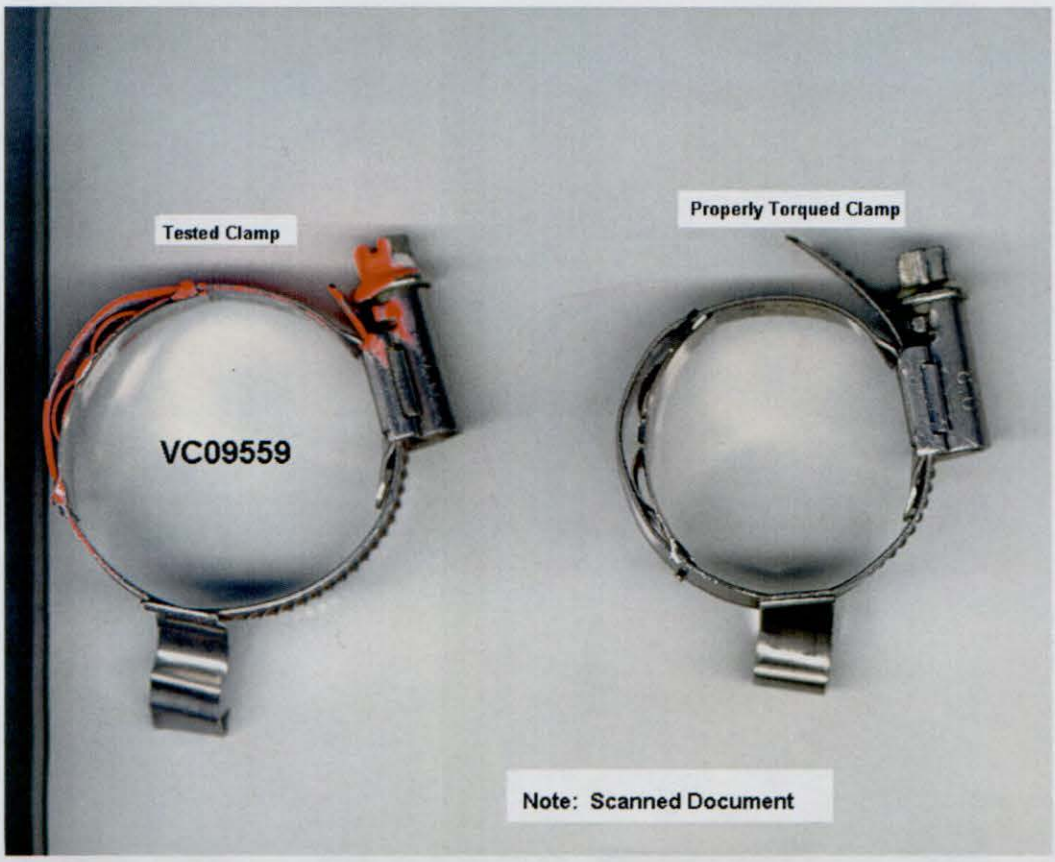
03/04/2002

Letter to File – VC09559:

The main purpose of test VC09559 was for FMVSS 301 assessment. The fuel filler tube was found to be separated from the tank post-test. The cause of this separation was found to be that the clamp was not torqued correctly following lab rework during impact build-up. See the photo of the tested clamp and a properly torqued clamp shown below.

Regards,

Eric Willis
Impact Development Engineer



VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
TEST DATE 02/06/02
TEST SITE CPG

TEST PURPOSE	PRIMARY, 2002 USA 301-REAR DEVELOPMENT	
IMPACT TYPE	TARGET SPEED;	48.3 KPH
	DAMAGE LOCATION;	REAR (FULL)
	BARRIER TYPE;	REAR TYPE IV
	BARRIER SURFACE;	PLYWOOD
VEHICLE	BODY CLASS;	KJ
	CAR LINE;	KJ
	BODY;	J
	ENGINE;	3.7 LITER
	ENGINE NOTE;	V6
	TRANSMISSION;	4 SPEED AUTO
	TRANS. NOTE;	
	VIN AS TESTED;	1J8GL48K82W[redacted] MOD.
	VIN AS BUILT;	1J8GL48K82W[redacted] MOD.
TEST SPEED	48.95 KPH BY TRAP AVERAGE	
TEST WEIGHT (KG)	2204 TOTAL, 1199 FRONT, 1005 REAR	
OCCUPANTS	1L - 50TH MALE BALLAST HYBRID 2, 0 - CH RESTRAINT- 3-PT UNIBELT ONLY	AD-59
	1R - 50TH MALE BALLAST HYBRID 2, 0 - CH RESTRAINT- 3-PT UNIBELT ONLY	AD-50

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
TEST DATE 02/06/02
TEST SITE CPG
BUILD CONDITION

TARGET WEIGHT (KG)	2204 TOTAL, 1173 FRONT, 1031 REAR INCLUDING BALLAST AND OCCUPANTS
FUEL AND BALLAST	64.4 LITERS STODDARD SOLVENT 136.1 KG BALLAST WEIGHT SECURED IN CARGO AREA 136.1 KG ADDITIONAL BALLAST WEIGHT ADDED 200 LBS IN SECOND ROW SEAT AREA. 100 LBS ON LF FLOOR
REPORT CODES	A = TRANSDUCER DATA B = ALL FILM DATA
DISTRIBUTION	M. STEBELTON 422-05-01 (AB) E. WILLIS XXX-XX-XX (AB)

DATE 02/06/02 TIME 17:13:28.

PREP TEST REQUEST. G.BUSS 2/5/02

Test Request for VC09559/ JPE Item No.: KJ1371R1

Doc. Rev. #: 10

Key People:

*Test Requester:	TEST STATUS:
Eric G Willis/JTE/DCC/DCX **Platform:** JPE **Phone:** 733 5470 Others to be copied on correspondence related to this test:	TEST REQUEST APPROVED **Revision # : 10** **Last Revision Made to this Request:** 02/05/2002 03:13:01 PM by: Glenn A Buss **Test Requester Note Pad:**

CPG Personnel Assigned to This Test:	Test Number: **VC09559**
Test Engineer Assigned: Michael E Collings Data Acquisition Test Engineer: Data Acquisition Check Completed By: Tim W Lackey Data Acquisition Write-Up Engineer: Norman D Post Film Analysis Liaison: Michael W Gorecki 722-4274	**Scheduled Test Date: 02/06/2002** **Slot:** 1st Test of the Day **Test Site: CPG**

Test Requested:

MVSS 301 30MPH Flat Rear Impact

*Procedure (Select One): SLTI3500 *Target Speed: 48.3 KPH (30.0 MPH) mph->kph *Best Estimate of Ship Date: Specific Test Date Required?: *When this test is complete, please send test property to: PROC	Regulatory Purpose(s): (used to determine numeric processing) PRIMARY, 2002 USA 301-REAR DEVELOPMENT
*Stage of Development: ○ Compliance ● Development	Priority (optional): ● A ○ B ○ C

***** All Required fields (*) must be entered up to this point for test specification to be accurate ******

Occupants For This Test:

Occupants in this Test:

1L - (Standard) H2-50TH MALE BALLAST DUMMY, 0 - CH, RESTRAINT- 3-PT UNIBELT ONLY 59

1R - (Standard) H2-50TH MALE BALLAST DUMMY, 0 - CH, RESTRAINT- 3-PT UNIBELT ONLY 50

Film Analysis and Photographic Views:

Film Analysis Ordered:
UNDERBODY REAR - FLAT IMPACT
FORCE
CRUSH
ENERGY (REAR IMPACT)

Film Analysis "If Requested":
UNDERBODY REAR - FLAT IMPACT

Test Site Constraints based on Film Analysis:
Advanced Film Analysis Req'd: CPG site recommended

Photographic Views Required:

PIT NORTH MID TARGETS
PIT SOUTH REAR TARGETS
CATWALK OVERALL
CATWALK VEHICLE REAR MDB INTERACTION
CATWALK REAR LIFTGATE HANDLE: close-up of swing gate handle
PIT FUEL FILLER TUBE: need view of filler tube lines passing through rail
LEFT OVERALL: dynamic crush
RIGHT OVERALL
LEFT REAR BUMPER TO BARRIER
RIGHT REAR BUMPER TO BARRIER
LEFT VELOCITY

IMAGING PRODUCT ORDER:
VCE PROVIDES ONE ORIGINAL AND ONE PRINT 16MM FILM REEL WITH EACH TEST.
Additional Imaging Products Required:
VHS Print

Still Photos Required:

Pre-Test Still Photo: Instrumentation
Pre-Test Still Photo: underbody rear
Pre-Test Still Photo: fuel tank and axle area
Pre-Test Still Photo: fuel filler tube
Post-Test Still Photo: underbody rear
Post-Test Still Photo: fuel tank and axle area
Post-Test Still Photo: fuel filler tube

Vehicle Information:

Program: 02 KJ

Core Item No.: KJ1371
NOTE: the **Core Item No.** cannot exceed 10 characters in length.

Restrike No.: R1

Right-Hand Drive | Competitive Car

CAR LINE: KJ **BODY:** J
Number of Doors in this Vehicle: 4
Vehicle Build Level: V1

Other Vehicle Configuration Flag (
optional word or short phrase to use in

Vehicle Readiness to Ship:

THIS IS A MINIMALLY MODIFIED VEHICLE, NO CHECKLIST IS REQUIRED

further sorting of platform reports): **VIN(as built):** 1J8GL48K82W[redacted] **VIN(as tested):** 1J8GL48K82W[redacted]	
ENGINE: 3.7 **Liters** **ENGINE NOTE:** V6 **TRANSMISSION:** 4 SPEED AUTO **TRANS. NOTE:** **DRIVE:** 4 X 4 **GVW (opt):** **kg**	**Vehicle Logistics:** Note: Vehicle must be fully inspected prior to shipment to test site. ☐ **Yes** Shipped to Test Site: Rec'd at Test Site: Returned from Test Site: When I expect vehicle to be off hold:

Build Condition as Reported in Test Letter:

Test Weight:

Target Test Weight Requested **Please note: This is an approximate value and includes vehicle, ballast, fuel, ATDs, and instrumentation.** 1 POUND WEIGHT = 0.4536 KILOGRAMS (KG) **Total Target Test Weight:** 2204 **kg** (4,859 lbs)  lb->kg **Weight Adjustment Method:** (standard procedure to be used unless otherwise specified. Define which parts should be removed first if the vehicle is over the target weight after occupants and instrumentation are added)	**Weight Balance and Luggage:** **Please note: <u>This section is OPTIONAL.</u> Values entered here are approximate.** **Total Front** 1,173 **kg** (2,586 lbs)  lb->kg **Total Rear** 1,031 **kg** (2,273 lbs)  **Luggage:** 136.1 **kg**  lb->kg

Mechanical Requirements:

Specific Work to Be Done at Test Site:

CAUTION: ensure electrical system is powered
DO NOT DISTURB: swing gate, flipper glass, spare tire
TEST VEHICLE WITH 17.3 GALLONS STODDARD IN FUEL SYSTEM
FUEL FILL TO SPEC IS MANDATORY
PRE-TEST PRESSURE CHECK REQUIRED
FUEL PUMP RUNNING DURING TEST
STATIC ROLL ASSESSMENT REQUIRED (SLWI3532)
Pre-Test Measurement: attitude as received and post build-up - adjust if necessary
Film Targeting: target for underbody analysis and dynamic crush
Film Targeting: add targets to top, right side, and left side of spare tire
Paint: swing gate handle (stationary piece and moveable piece contrasting colours)
Paint: fuel filler lines, tank, etc. different colours

Additional General Notes to the Garage:	**Work Orders for This Test:**

Instrumentation:

General Instrumentation Requirements:	
Modules Used:	**Pyrotechnics Used:**
Other Notes: FUEL PUMP RUNNING DURING TEST	**Deployment Method:** **System Power**

Vehicle Channel Entry:	List of Dummy Channel Titles Used on this Test:
Create New Instrumentation Sheet **Attach Instrumentation Sheet Here:** *DO NOT ATTACH MORE THAN ONE FILE TO THIS FIELD.* inst1371R.x Attach New or Replacem Sheet • Protected section of instrumentation sheet indicates **minimum** instrumentation requirements for the test selected and may only be modified by your Data Acquisition Engineer. • Please indicate all changes made to the spreadsheet after Test Request submission at the base of the spreadsheet.	BALLAST DUMMY- NO CHANNELS-1L BALLAST DUMMY- NO CHANNELS-1R

Total Occupant Channels: 0 **Total Vehicle Channels: 22** **TOTAL ON-BOARD CHANNELS FOR THIS TEST: 22**	**Total Data Acq. Boxes Required: 1** Channels in Last Data Acq. Box : 22 out of 32

Extra Attachments, Rich Text or Additional Info here if required:

Document Information

Date Created: 09/13/2001 08:47 AM	**Last Edited:** 02/05/2002 03:13:01 PM
Created By: Eric G Willis/JTE/DCC/DCX	**Edited By:** Glenn A Buss/CPG/DCC/DCX

Edit History:

Edit History:

1/16/02 8:28:27 AM Eric G Willis ATDListAll [1L - (Standard) H2-50TH MALE BALLAST DUMMY, 0 - CH, RESTRAINT- 3-PT, UNIBELT AND AIRBAG] REMOVED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis ATDListAll [Requester Comments:] REMOVED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis ATDListAll [1R - (Standard) H2-50TH MALE BALLAST DUMMY, 0 - CH, RESTRAINT- 3-PT, UNIBELT AND AIRBAG] REMOVED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis ATDListAll [Requester Comments:] REMOVED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis ATDListAll [1L - (Standard) H2-50TH MALE BALLAST DUMMY, 0 - CH, RESTRAINT- 3-PT UNIBELT ONLY] ADDED /Rev# 1

1/16/02 8:28:27 AM Eric G Willis ATDListAll [1R - (Standard) H2-50TH MALE BALLAST DUMMY, 0 - CH, RESTRAINT- 3-PT UNIBELT ONLY] ADDED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis FAPVFALater [] --> [UNDERBODY REAR - FLAT IMPACT] MODIFIED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis FAPVListStills [Pre-Test Still Photo:] REMOVED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis FAPVListStills [Post-Test Still Photo:] REMOVED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis FAPVListStills [Pre-Test Still Photo: Instrumentation] ADDED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis FAPVListStills [Pre-Test Still Photo: underbody rear] ADDED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis FAPVListStills [Pre-Test Still Photo: fuel tank and axle area] ADDED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis FAPVListStills [Pre-Test Still Photo: fuel filler tube] ADDED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis FAPVListStills [Post-Test Still Photo: underbody rear] ADDED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis FAPVListStills [Post-Test Still Photo: fuel tank and axle area] ADDED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis FAPVListStills [Post-Test Still Photo: fuel filler tube] ADDED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis MECHlistall [CAUTION: ensure electrical system is power] REMOVED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis MECHlistall [Film Targeting: No Film Analysis Targeting or Cameras Required] REMOVED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis MECHlistall [CAUTION: ensure electrical system is powered] ADDED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis MECHlistall [Film Targeting: target for underbody analysis and dynamic crush] ADDED /Rev#:1

1/16/02 8:28:27 AM Eric G Willis MECHlistall [Film Targeting: add targets to top, right side, and left side of spare tire] ADDED /Rev#:1

1/16/02 9:45:42 AM Glenn A Buss EditApprovalStatus [] --> [**** TEST REQUEST INITIALLY APPROVED ****] MODIFIED /Rev#:2

1/16/02 9:45:42 AM Glenn A Buss SchedTest [] --> [02/05/2002 12:00:00 AM] MODIFIED /Rev#:2

1/16/02 9:45:42 AM Glenn A Buss Slot [] --> [tbd] MODIFIED /Rev#:2

1/18/02 10:44:57 AM Norman D Post VehicleChan [0] --> [22] MODIFIED /Rev#:3

1/24/02 8:31:29 AM Glenn A Buss SchedTest [02/05/2002 12:00:00 AM] --> [02/06/2002 12:00:00 AM] MODIFIED /Rev#:4

1/28/02 1:22:20 PM Eric G Willis FAOrder [UNDERBODY REAR - FLAT IMPACT] ADDED /Rev#:5

1/28/02 1:22:20 PM Eric G Willis FAPVListDupViews [PIT FUEL FILLER TUBE] REMOVED /Rev#:5

1/28/02 1:22:20 PM Eric G Willis FAPVListDupViews [PIT VEHICLE REAR OVERALL] REMOVED /Rev#:5

1/28/02 1:22:20 PM Eric G Willis FAPVListDupViews [PIT NORTH MID TARGETS] ADDED /Rev#:5

1/28/02 1:22:20 PM Eric G Willis FAPVListDupViews [PIT SOUTH REAR TARGETS] ADDED /Rev#:5

1/28/02 1:22:20 PM Eric G Willis FAPVListDupViews [PIT FUEL FILLER TUBE: need view of filler tube lines passing through rail] ADDED /Rev#:5

2/5/02 9:14:05 AM Eric G Willis BuildConditionMods [- STEEL FUEL FILLER LINE PASS THRU TUBE REMOVED] REMOVED /Rev#:6

2/5/02 9:14:05 AM Eric G Willis BuildConditionMods [- STEEL FUEL FILLER LINE PASS THRU TUBE REMOVED] ADDED /Rev#:6

2/5/02 9:14:05 AM Eric G Willis BuildConditionMods [- MCM GAS CAP - RETAINING LUG CHANGED FROM D-SHAPE TO V-SHAPE] ADDED /Rev#:6

02/05/2002 9:51:12 AM Michael E Collings EditApprovalStatus [**** TEST REQUEST INITIALLY APPROVED ****] --> [02/05/2002 09:48:59 AM **** TEST REQUEST RE- APPROVED ****] MODIFIED /Rev#:7

2/5/02 1:28:43 PM Robert D Burton FAPVListDupViews [CATWALK MDB DOOR: Close-up of swing gate handle] REMOVED /Rev#:8

2/5/02 1:28:43 PM Robert D Burton FAPVListDupViews [LEFT OVERALL: Dynamic Crush] REMOVED /Rev#:8

2/5/02 1:28:43 PM Robert D Burton FAPVListDupViews [LEFT REAR BUMPER TO HEXCEL] REMOVED /Rev#:8

2/5/02 1:28:43 PM Robert D Burton FAPVListDupViews [RIGHT REAR BUMPER TO HEXCEL] REMOVED /Rev#:8

2/5/02 1:28:43 PM Robert D Burton FAPVListDupViews [CATWALK REAR LIFTGATE HANDLE: close-up of swing gate handle] ADDED /Rev#:8

2/5/02 1:28:43 PM Robert D Burton FAPVListDupViews [LEFT OVERALL: dynamic crush] ADDED /Rev#:8

2/5/02 1:28:43 PM Robert D Burton FAPVListDupViews [LEFT REAR BUMPER TO BARRIER] ADDED /Rev#:8

2/5/02 1:28:43 PM Robert D Burton FAPVListDupViews [RIGHT REAR BUMPER TO BARRIER] ADDED /Rev#:8

2/5/02 1:28:43 PM Robert D Burton FAPVListDupViews [LEFT VELOCITY] ADDED /Rev#:8

2/5/02 1:44:49 PM Glenn A Buss SchedTest [02/06/2002 12:00:00 AM] --> [02/07/2002 12:00:00 AM] MODIFIED /Rev#:9

2/5/02 1:44:49 PM Glenn A Buss Slot [tbd] --> [1st] MODIFIED /Rev#:9

Last Edit:

2/5/02 3:12:13 PM Glenn A Buss SchedTest [02/07/2002 12:00:00 AM] --> [02/06/2002 12:00:00 AM] MODIFIED /Rev#:10

Click here to view previous edits

Old Change Method Info

History of Changes to This Record After Test Request Approval:

Date/Time	Edited By	Description
	Eric G Willis/JTE/DCC/DCX	TEST REQUEST INITIALLY APPROVED

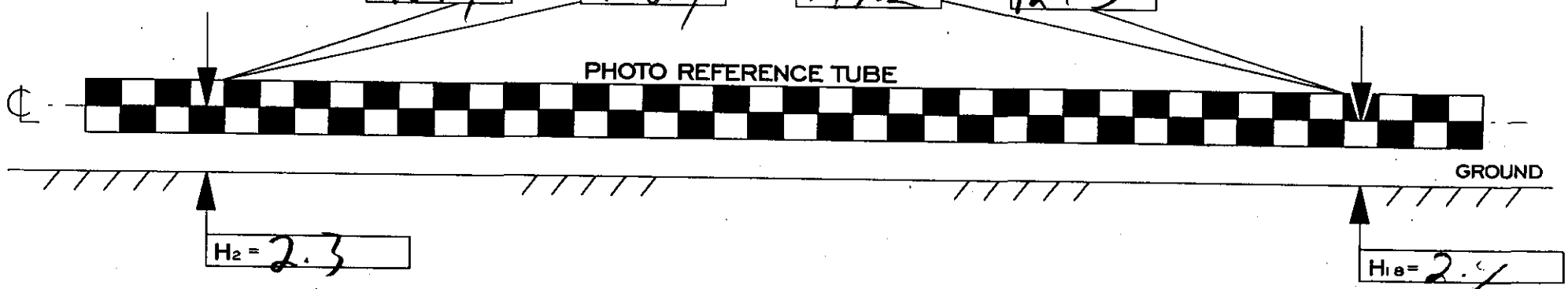
LEAR

SIDE
REAR
DYNAMIC CRUSH

TUBE COLOR Blue

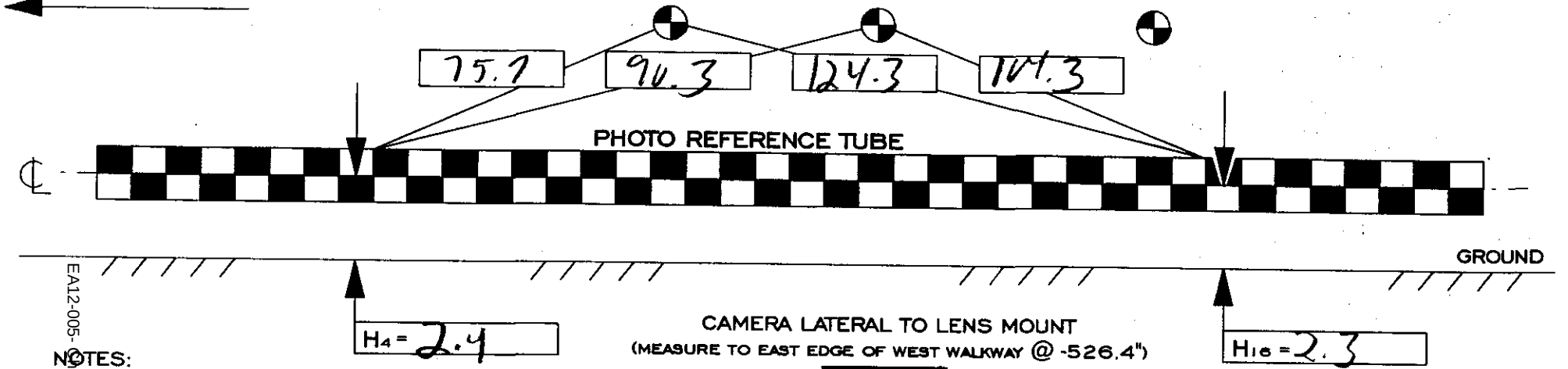
FRONT SILL	REAR SILL	REAR AXLE
X=	X=	X=
Y=	Y=	Y=
Z= 13.6	Z= 13.7	Z= 13.6

96.4 | 106.4 | 145.2 | 124.3



FORWARD

75.7 | 96.3 | 124.3 | 141.3



CAMERA LATERAL TO LENS MOUNT
(MEASURE TO EAST EDGE OF WEST WALKWAY @ -526.4")

524.4 INCHES

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. Colyer

VC 9559

EA12-005-Chrysler-003072

TUBE.PRE FA DIAGRAMS 01/28/97

X, Y, Z DIMENSIONS

TEST NUMBER VC9559
ITEM NUMBER KJ1371R1 V.I.N. 1J8GL48K82W[redacted] TEST DATE 2/6/02
TEST TYPE: 30 MPH REAR TYPE IV MOVING BARRIER IMPACT TEST ENGINEER COLLINGS

LOCATION	X	Y	Z	LOCATION	X	Y	Z
BC1	-100.0	0.0	XXXX	BC2	165.5	0.0	XXXX
B1 (Rear Bumper)	165.8	- 20.0	XXXX	B2 (Rear Bumper)	165.2	19.9	XXXX
U1	104.6	- 18.8	11.6	U2	103.4	18.4	11.2
U3	122.1	- 10.6	18.4	U4	123.9	6.9	18.8
U5	128.1	- 0.2	8.5	U6	137.5	18.6	23.1
U7	138.5	- 19.9	23.2	U8	144.3	4.3	12.9
U9	144.9	- 3.7	12.8	U10	150.5	4.4	23.8
U11	150.8	- 3.6	12.9	U12	154.8	18.5	22.5
U13	156.0	- 19.7	23.5				
UC1	162.4	+ 1.2	18.1				
LFS	61.9	- 32.4	13.5				
LMS	85.9	- 32.3	14.0				
LAP	56.8	50 - 30.3	49.6				
LRW	132.4	50 - 34.9	13.6				

From 100" Line

TRAMMEL DIMENSIONS

LFS-LMS PRE 24.10
POST 24.06

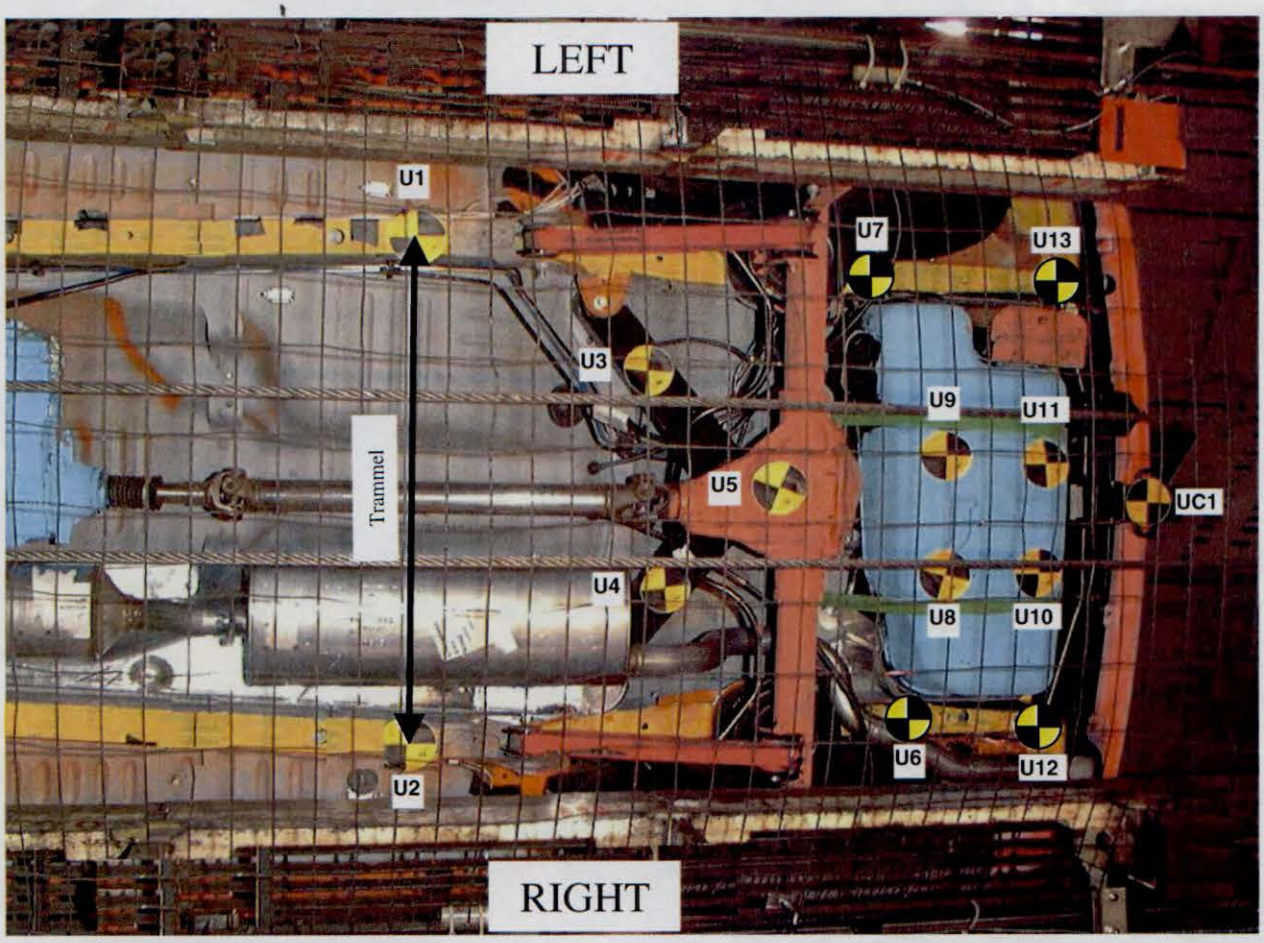
LF 30.7 RF 30.8 } Fenders
LR 32.3 RR 32.5

Program: 02KJ

VC 9559 ; Item No. KJ1371R1

REAR UNDERBODY FOR ALL REAR IMPACTS

Visibility Approved: DGL / 05/03/1999
Approved for CPG Use: GAB / 05/03/1999
Impact Analysis Engineer: DCC / 01/21/2000
DCC T/L: 722-1918; PAGER: 313-709-9150



Guidelines to Placement of Critical Targets:

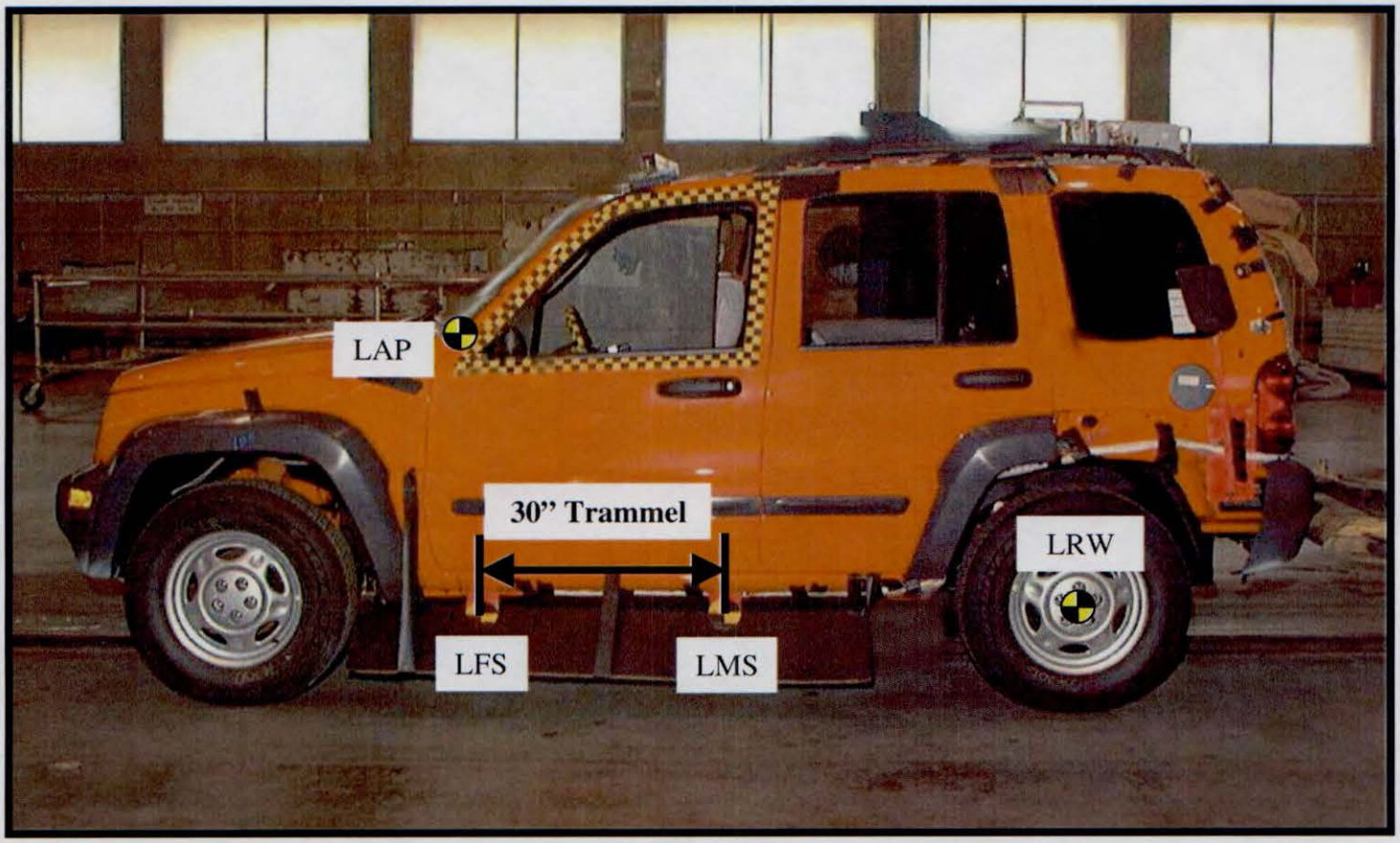
ITEM	COMMENTS
U1 & U2	5.5" IN FRONT OF FORWARD EDGE OF CONTROL ARM MOUNTING BRACKET.
U3 & U4	CENTER OF UPPER SWING ARMS.
U5	ON CENTER OF REAR DIFFERENTIAL
U12 & U13	END OF RAILS AT REAR BUMPER CROSSMEMBER
U6	14" FORE OF U12
U7	ON LEFT RAIL 16" FORWARD OF U13
U8,U9,U10 & U11	IN SQUARE PATTERN, INSIDE STRAPS ON BOTTOM SURFACE OF THE FUEL TANK
UC1	CENTERED ON REAR BUMPER CROSSMEMBER

Program: 02KJ

VC9559 ; Item No. KJ1371R1

LEFT SIDE
FOR ALL REAR IMPACTS

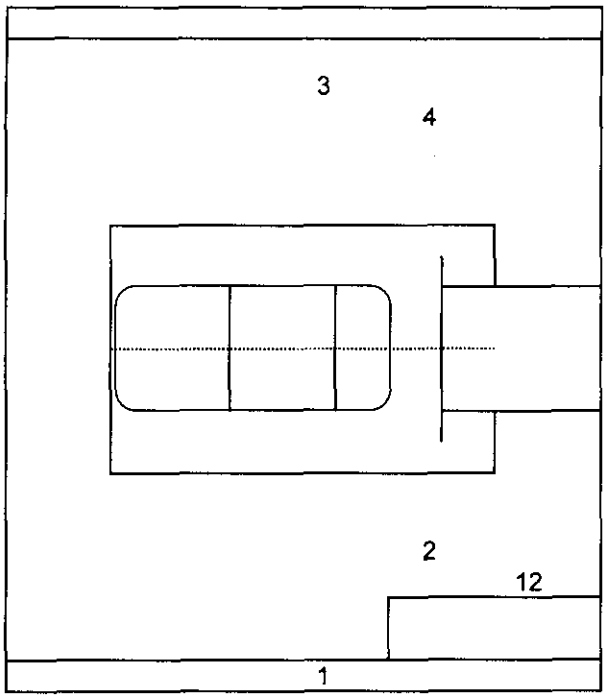
Visibility Approved: DGL / 05/03/1999
Approved for CPG Use: GAB / 05/03/1999
Impact Analysis Engineer: DCC / 01/21/2000
DCC T/L: 722-1918; PAGER: 313-709-9150



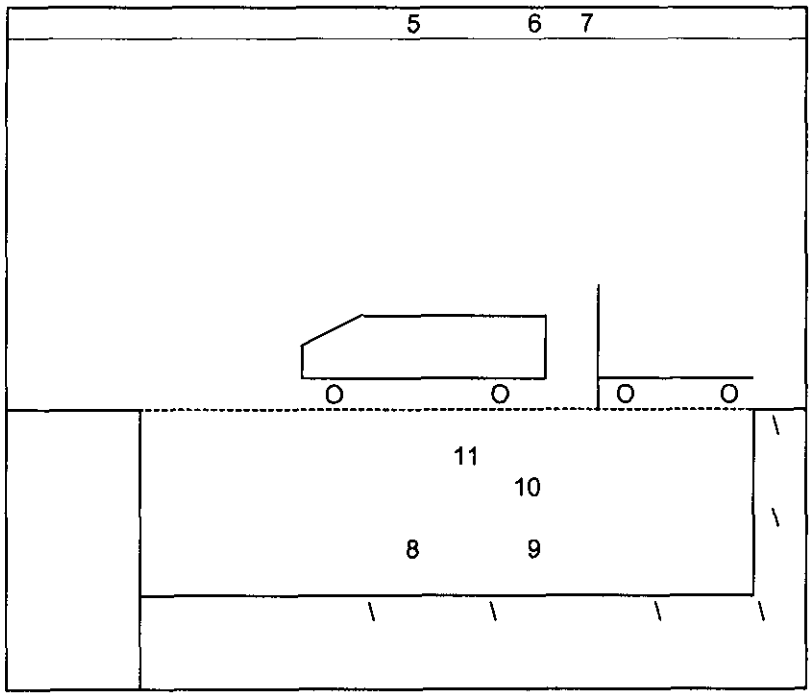
Guidelines to Placement of Critical Targets:

ITEM	COMMENTS
LMS	BOTTOM OF B-POST ON SILL
LRS	30" FORE OF LMS
LRW	CENTER OF REAR WHEEL

PLAN VIEW



SIDE VIEW



TEST NUMBER:	VC9559	**VEHICLE TYPE:**	KJ
TEST TYPE:	30 MPH REAR TYPE IV IMPACT		
REQUEST DATE:	01/17/02	**TEST ENGINEER:**	COLLINGS

#		VIEW DESCRIPTION A=ANALYSIS	CAM S/N	LENS FL	LENS S/N	LENS MFG.	F - STP	PNL	SKT	CBL	MISC
1	A	LT - DYNAMIC CRUSH	282	18MM	116686	KIN	4 3/4				
2	T	LT - BUMPER TO BARRIER (HDRS)	1876	35MM	111302	KIN	4 3/4				
3		RIGHT OVERALL	1875	10MM	V7954	CSC	4 3/4				
4	T	RT - BUMPER TO BARRIER (HDRS)	1878	35MM	111290	KIN	4 1/2				
5	T	CATWALK OVERALL (HDRS)	428	18MM	116693	KIN	5 1/2				
6	T	CATWALK - VEHICLE/BARRIER (HDRS)	284	ZOOM	#4	CAN	5 1/2				
7	T	CATWALK-SWING GATE HANDLE (HDRS	424	ZOOM	#5	CAN	5 1/2				
8	A	PIT - SOUTH	432	13MM	13-7	COS	4				
9	A	PIT - NORTH	433	13MM	13-5	COS	4				
10	T	PIT - FUEL TANK & FILL TUBE (HDRS)	429	ZOOM	#8	CAN	4				
11	A	VELOCITY	286	100MM	B2088	LGT	5 1/2				
		W/O: (1) PRINT, (1) VHS									
		TO: E. WILLIS									

02/06/02

WEDNESDAY #2

FUEL SYSTEM AND STATIC ROLLOVER SUMMARY

TEST NUMBER VC9559, ITEM NUMBER KJ1371R1, TEST ENGINEER COLLINGS

V.I.N. 1J8GL48K82W[redacted] TEST DATE 2/6/02 ROLL DATE 2/9/02

TEST TYPE; 30 MPH TYPE IV REAR MOVING BARRIER IMPACT

FUEL; TYPE AND QUANITY - .767 S.G. STODDARD SOLVENT, 17.3 GALLONS

TEST SPEED 30.4 MPH, TEST WEIGHT 4860 POUNDS.

POST IMPACT LEAKAGE(OZ); AT IMPACT 0

1ST 5 MIN. 0

NEXT 25 MIN. 0

POST TEST PRESSURE CHECK _____

ELECTRIC FUEL PUMP RUN _____

|___| NO STATIC ROLL PERFORMED

STATIC ROLL LEAKAGE WITH VEHICLE Left SIDE DOWN FIRST

		FUEL LEAKAGE LOCATIONS DURING STATIC ROLL					
ROLL TIME						TOTAL	
0-90	1ST 5 MIN					0	*
1:51	POST 5 MIN					0	**
90-180	1ST 5 MIN					0	*
1:42	POST 5 MIN					0	**
180-270	1ST 5 MIN					0	*
1:38	POST 5 MIN					0	**
270-360	1ST 5 MIN					0	*
1:34	POST 5 MIN					0	**

* OUNCES IN 5 MINUTES, ** OUNCES PER MINUTE

POST TEST FUEL SYSTEM OBSERVATIONS _____

LAST FORM MODIFICATION 08/22/96 - GAB (TESTOBS896,DOCVCFORMS)

DATE 02/07/02 ELECTRONIC DATA PROCESSING VEHICLE CRASH ENGINEERING
TIME 10:57:51. EDP TEST LETTER DEPT 5320

VC09559 ITEM KJ1371
VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
TEST DATE 02/06/02
TEST SITE CPG

TEST PURPOSE	PRIMARY, 2002 USA 301-REAR DEVELOPMENT	
IMPACT TYPE	TARGET SPEED;	48.3 KPH
	DAMAGE LOCATION;	REAR (FULL)
	BARRIER TYPE;	REAR TYPE IV
	BARRIER SURFACE;	PLYWOOD
VEHICLE	BODY CLASS;	KJ
	CAR LINE;	KJ
	BODY;	J
	ENGINE;	3.7 LITER
	ENGINE NOTE;	V6
	TRANSMISSION;	4 SPEED AUTO
	TRANS. NOTE;	
	VIN AS TESTED;	1J8GL48K82W[redacted] MOD.
	VIN AS BUILT;	1J8GL48K82W[redacted] MOD.
TEST SPEED	48.95 KPH BY TRAP AVERAGE	
TEST WEIGHT (KG)	2204 TOTAL, 1199 FRONT, 1005 REAR	
OCCUPANTS	1L - 50TH MALE BALLAST HYBRID 2, 0 - CH	AD-59
	RESTRAINT- 3-PT UNIBELT ONLY	
	1R - 50TH MALE BALLAST HYBRID 2, 0 - CH	AD-50
	RESTRAINT- 3-PT UNIBELT ONLY	

DATE 02/07/02 ELECTRONIC DATA PROCESSING VEHICLE CRASH ENGINEERING
TIME 10:57:51. EDP TEST LETTER DEPT 5320

VC09559 ITEM KJ1371
VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
TEST DATE 02/06/02
TEST SITE CPG
BUILD CONDITION

TARGET WEIGHT (KG)	2204 TOTAL, 1173 FRONT, 1031 REAR INCLUDING BALLAST AND OCCUPANTS
FUEL AND BALLAST	64.4 LITERS STODDARD SOLVENT 136.1 KG BALLAST WEIGHT SECURED IN CARGO AREA 136.1 KG ADDITIONAL BALLAST WEIGHT ADDED 200 LBS IN SECOND ROW SEAT AREA. 100 LBS ON LF FLOOR
EDP TECHNICIAN	S. MARCHENIA

No. of Pages 43
CC

M. STEBELTON 422-05-01
E. WILLIS XXX-XX-XX

TITLE: Page Index of EDP plots Pages 001 - 043

********** VC09559A **********

TITLE: Transducer Summary Reports Pages 001 - 004

SYSTEM: METRIC

********** VC09559B **********

TITLE: Vehicle Channels Pages 005 - 039

SYSTEM: METRIC

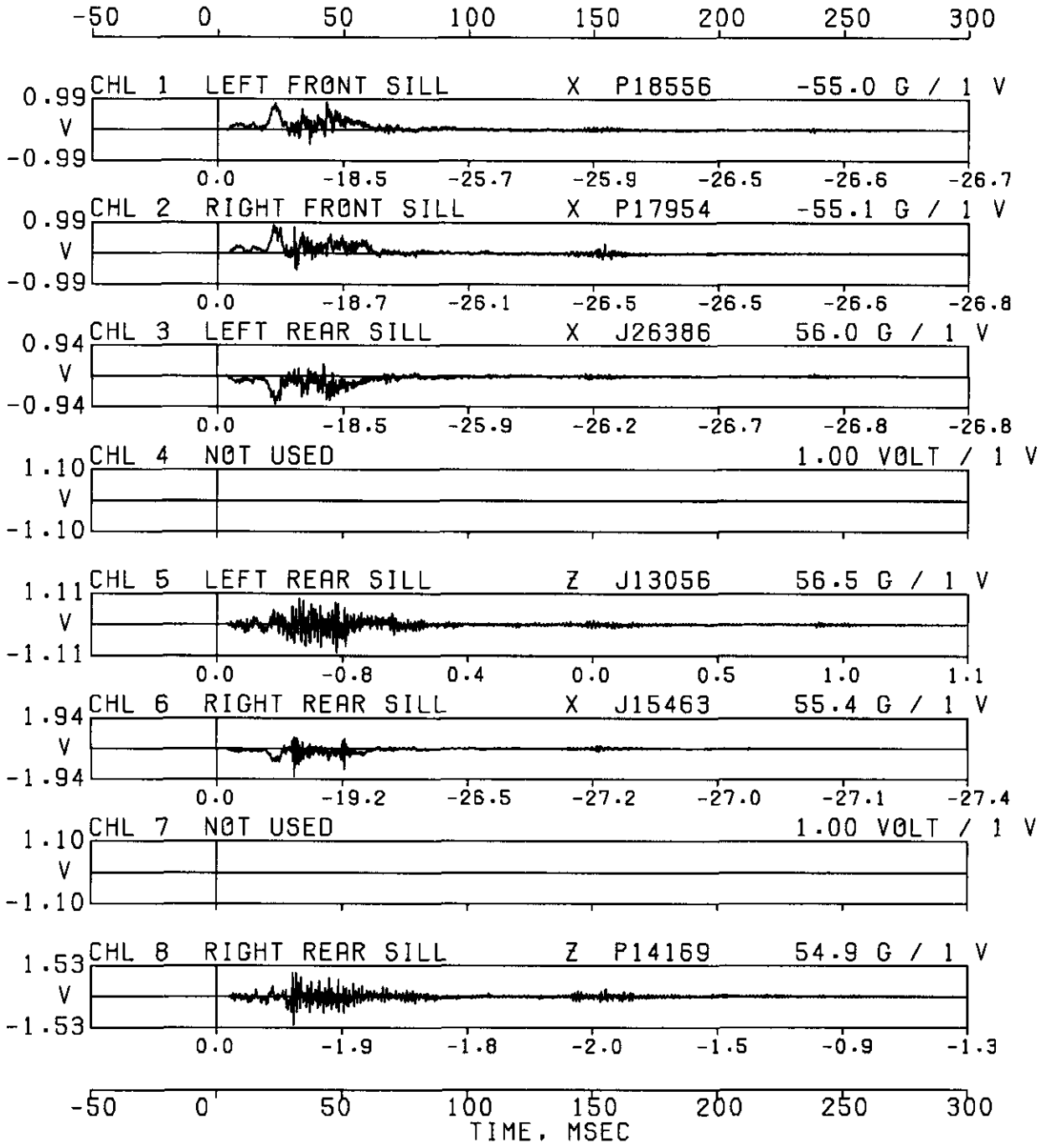
********** VC09559C **********

TITLE: Moving barrier Channels Pages 040 - 043

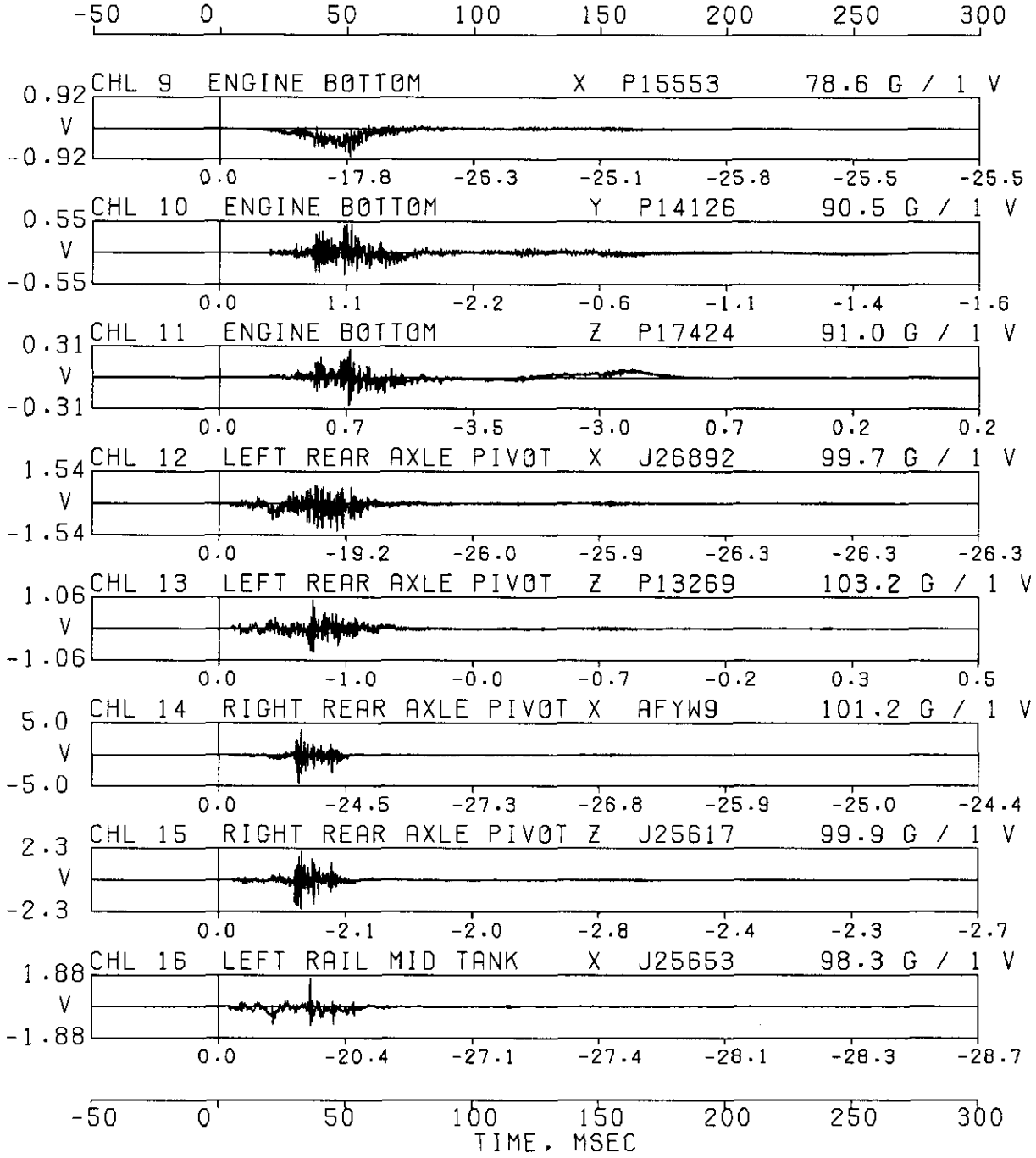
SYSTEM: METRIC

TRANSDUCER SUMMARY REPORT

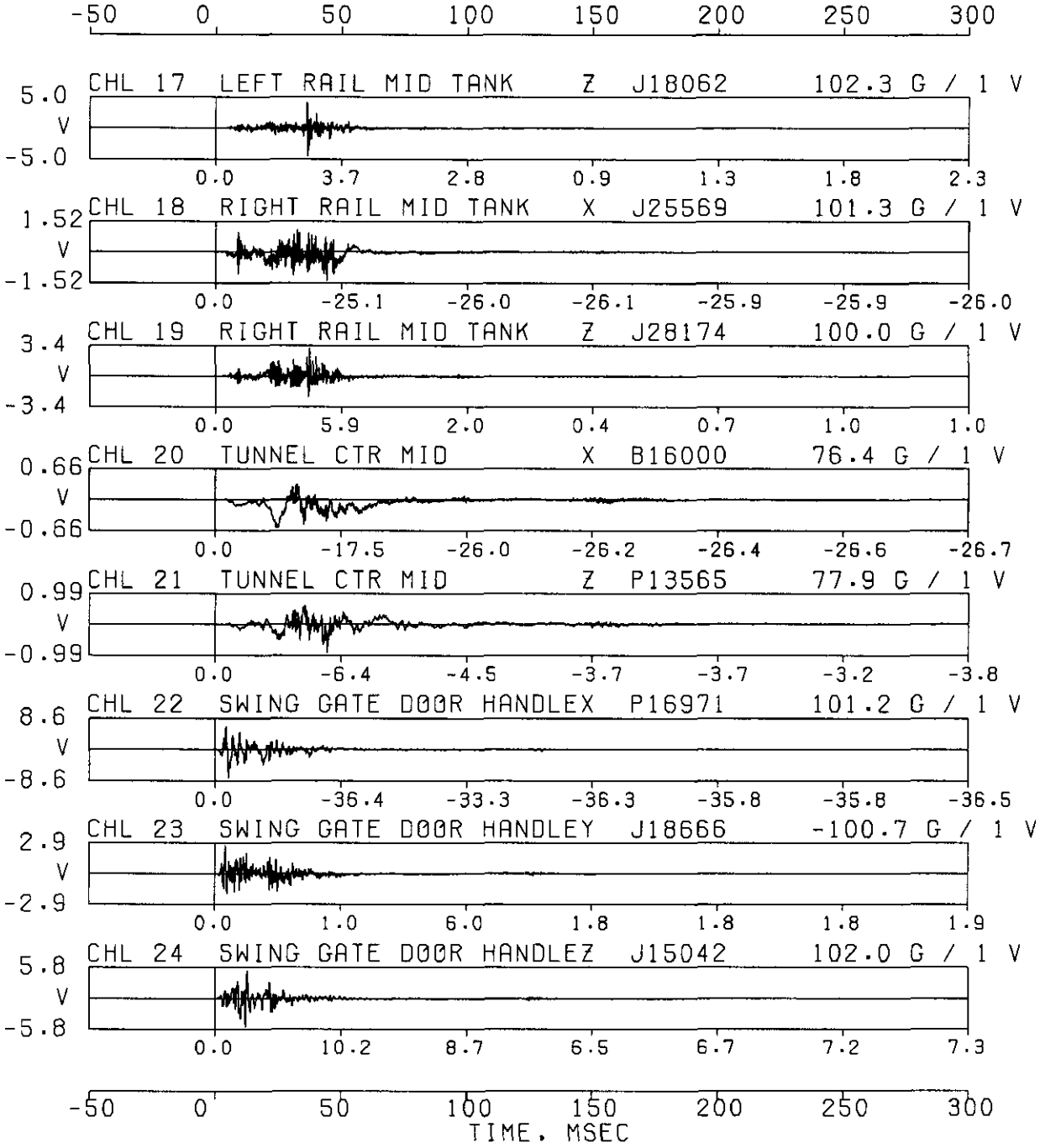
VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371 PAGE 001
02 KJ. USA 301-REAR DEVELOPMENT TEST OF 043
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/0289
FEB 7.2002 ERRATA 1



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



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



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

TRANSDUCER SUMMARY REPORT

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371

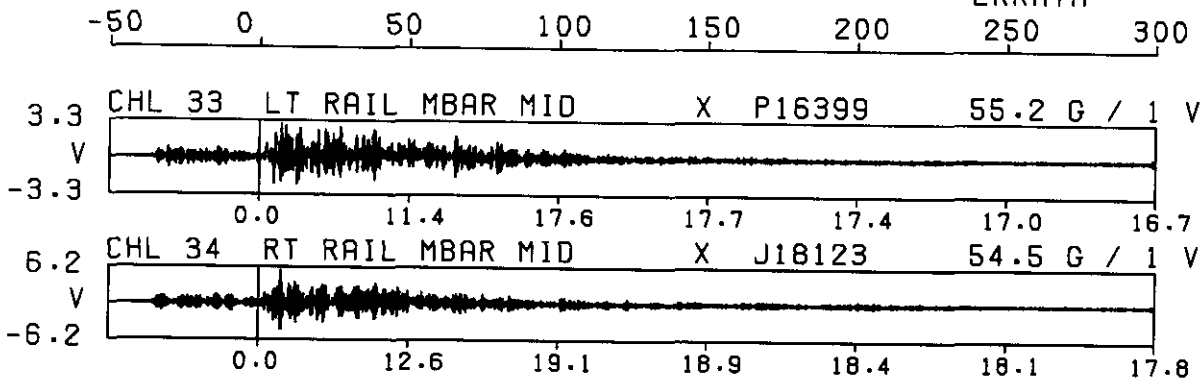
02 KJ. USA 301-REAR DEVELOPMENT TEST

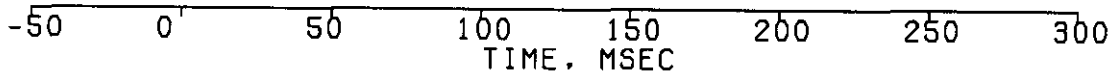
IMPACT ANALYSIS DEPT. 5320

FEB 21,2002

DATA SET 02/06/02CB

ERRATA 1





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

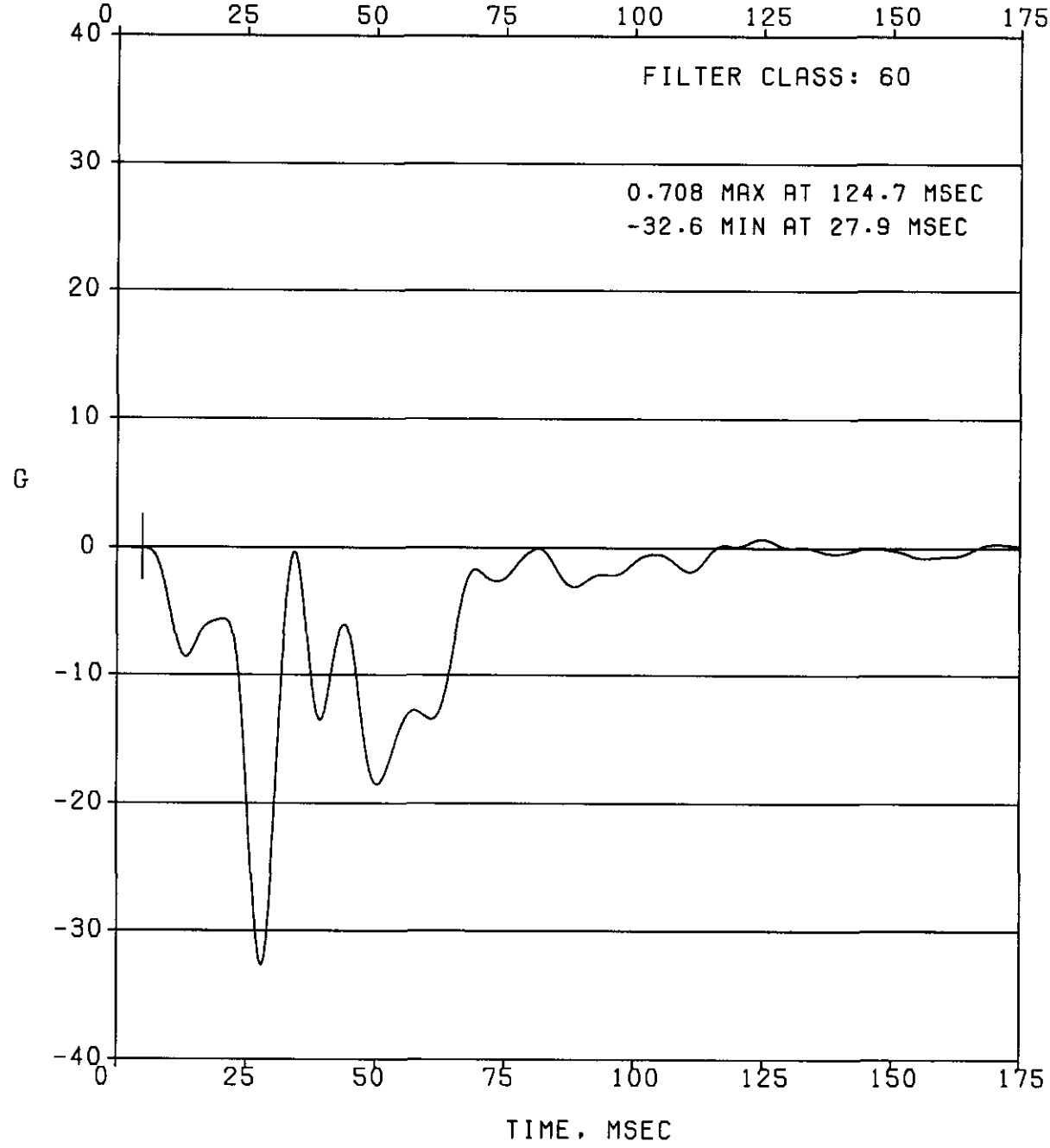
CORRECTED AND REISSUED

AVERAGE OF

CHANNEL 001 LEFT FRONT SILL X P18556
CHANNEL 002 RIGHT FRONT SILL X P17954
CHANNEL 003 LEFT REAR SILL X J26386
CHANNEL 006 RIGHT REAR SILL X J15463

FILTER TYPE: SAE J211B/80 DC C60(TPF-R) EFF 3/24/86
IMPACT ANALYSIS DEPT. 5320
FEB 7.2002

DATA SET 02/06/0289
ERRATA 1

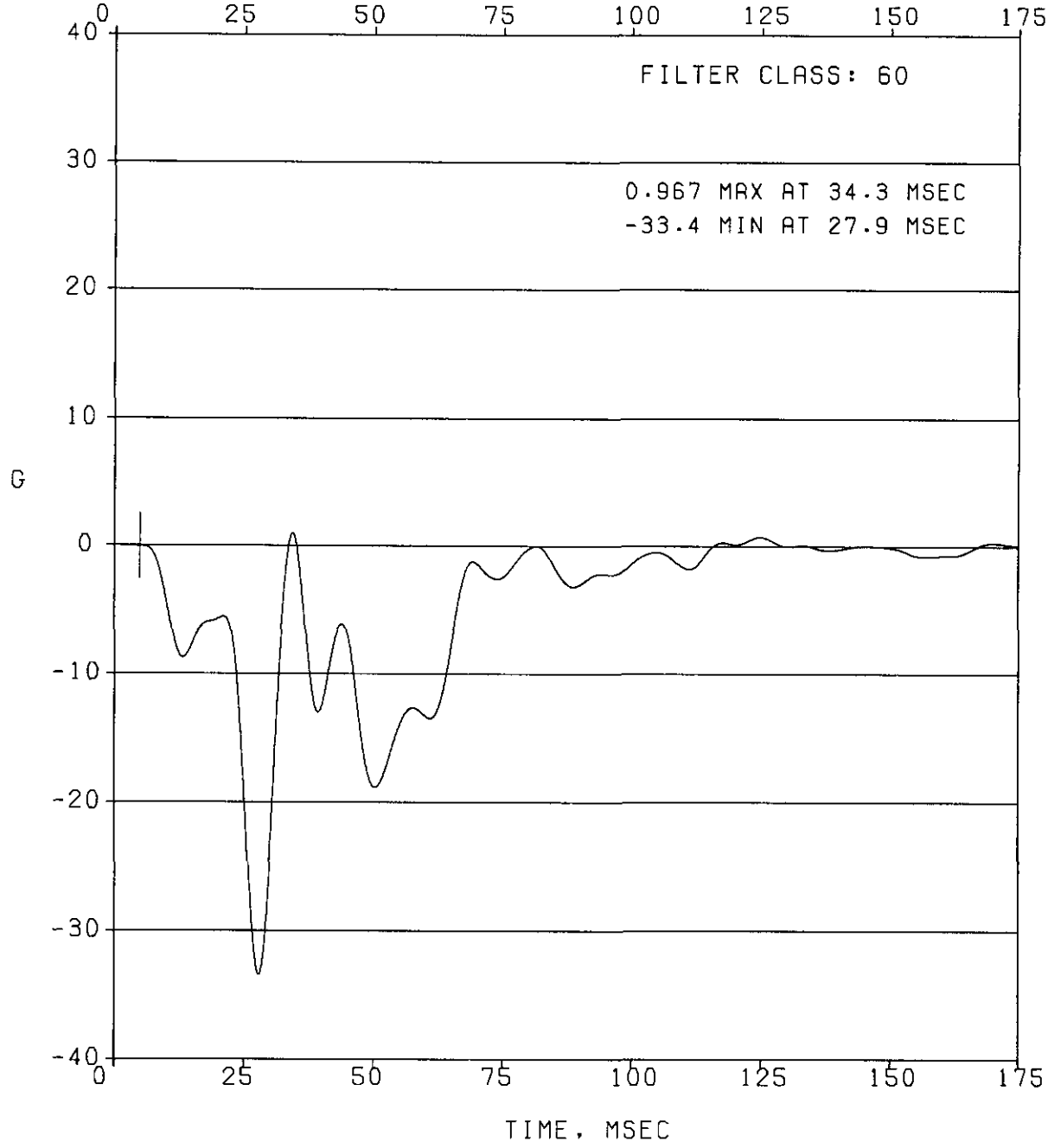


AVERAGE OF

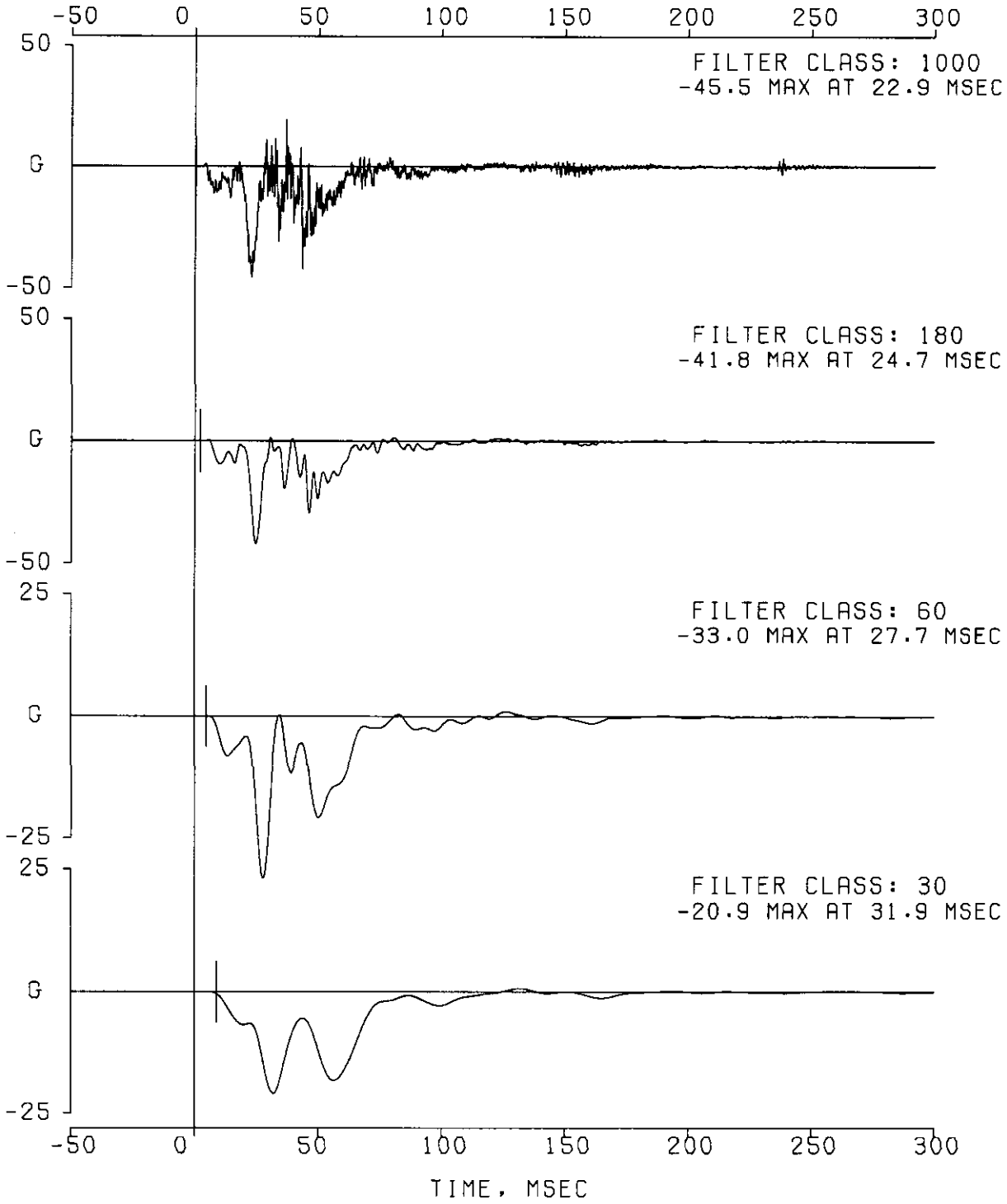
CHANNEL 001 LEFT FRONT SILL X P18556
CHANNEL 002 RIGHT FRONT SILL X P17954

FILTER TYPE: SAE J211B/80 DC C60(TPF-R) EFF 3/24/86
IMPACT ANALYSIS DEPT. 5320
FEB 7,2002

DATA SET 02/06/02B9
ERRATA 1



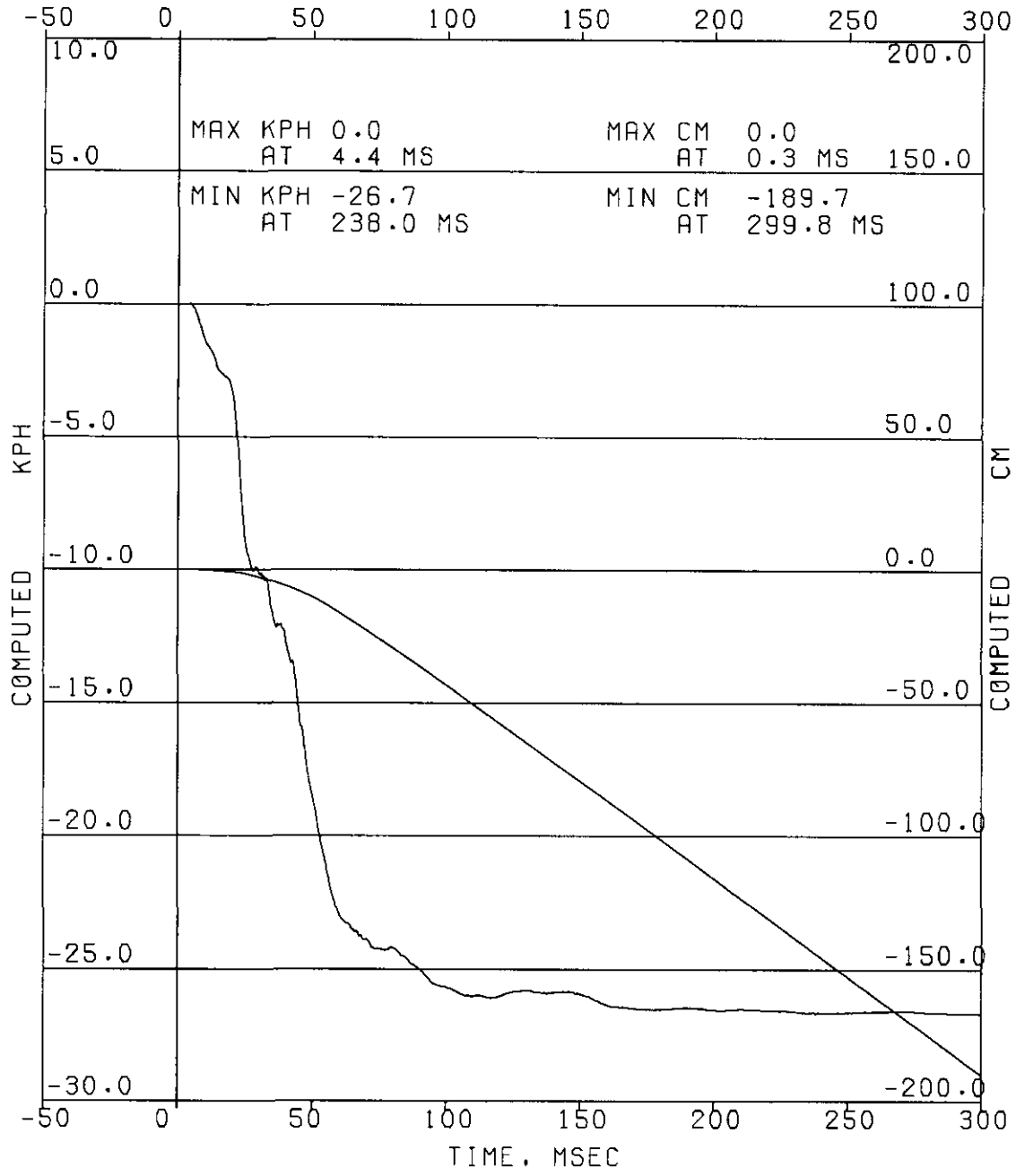
CHANNEL 001 LEFT FRONT SILL X P18556
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/0289
FEB 7,2002 ERRATA 1



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

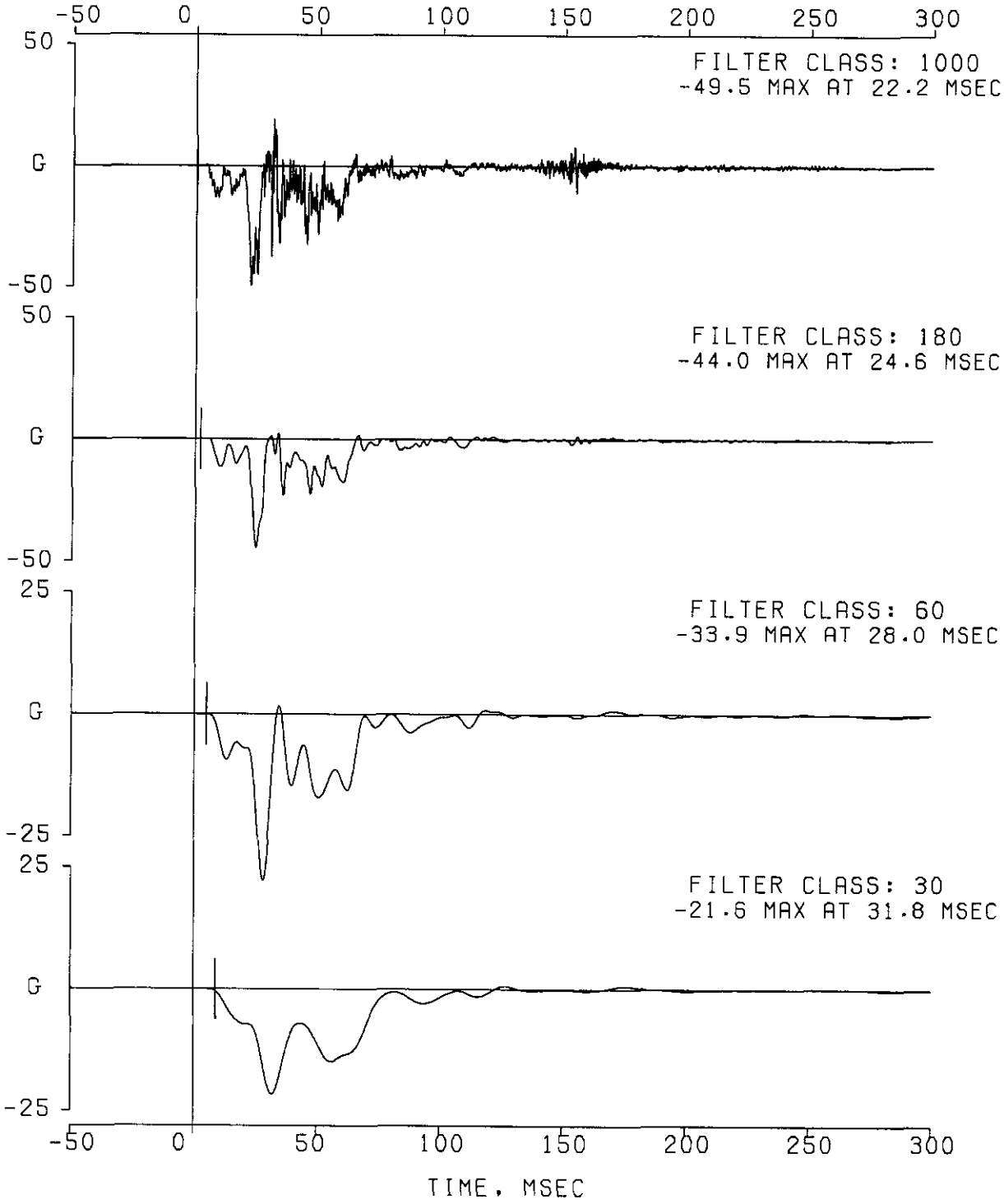
IMPACT ANALYSIS DEPT. 5320
FEB 7,2002

DATA SET 02/06/0289
ERRATA 1



COMPUTED KPH
COMPUTED CM

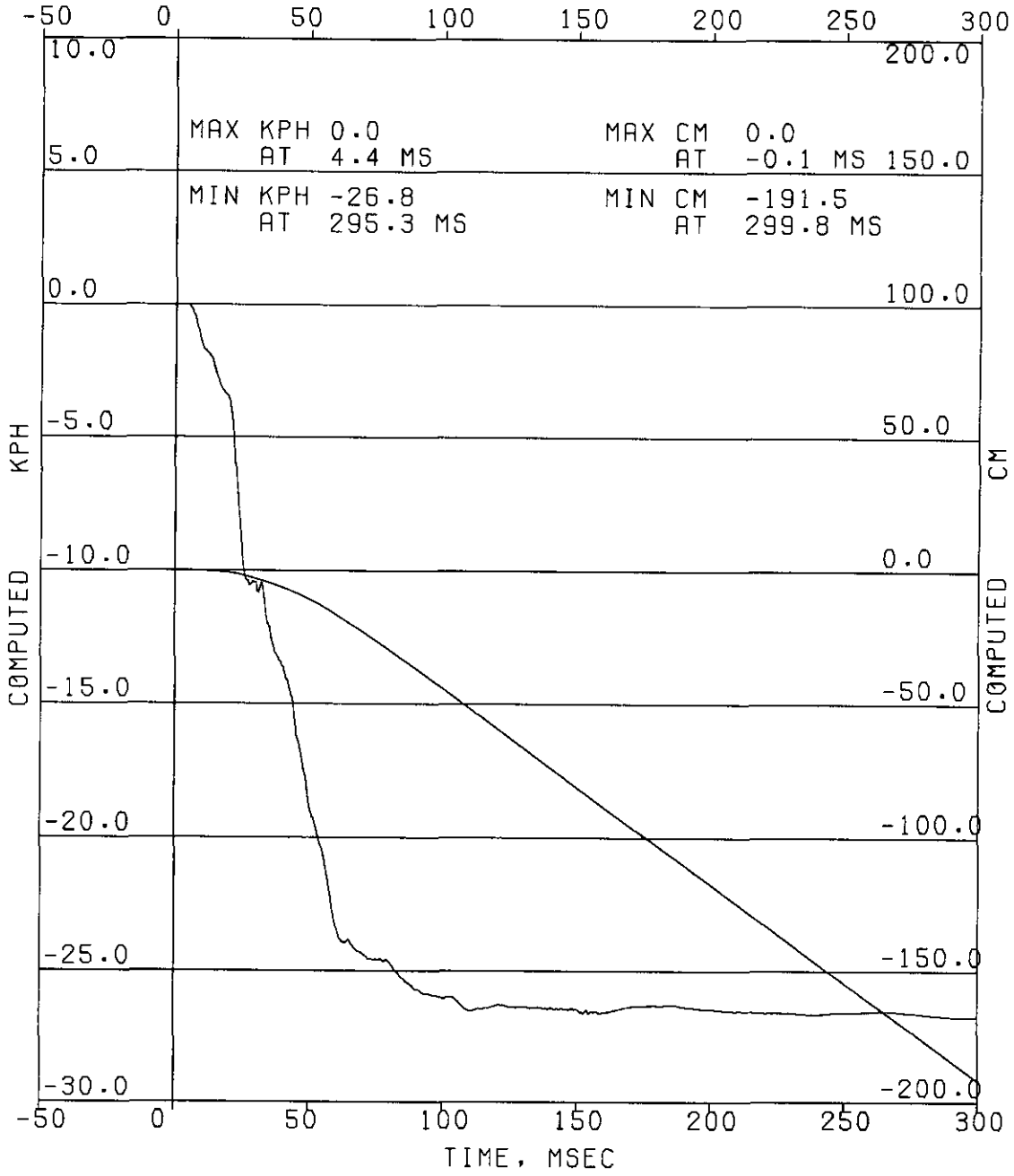
CHANNEL 002 RIGHT FRONT SILL X P17954
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02B9
FEB 7,2002 ERRATA 1



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

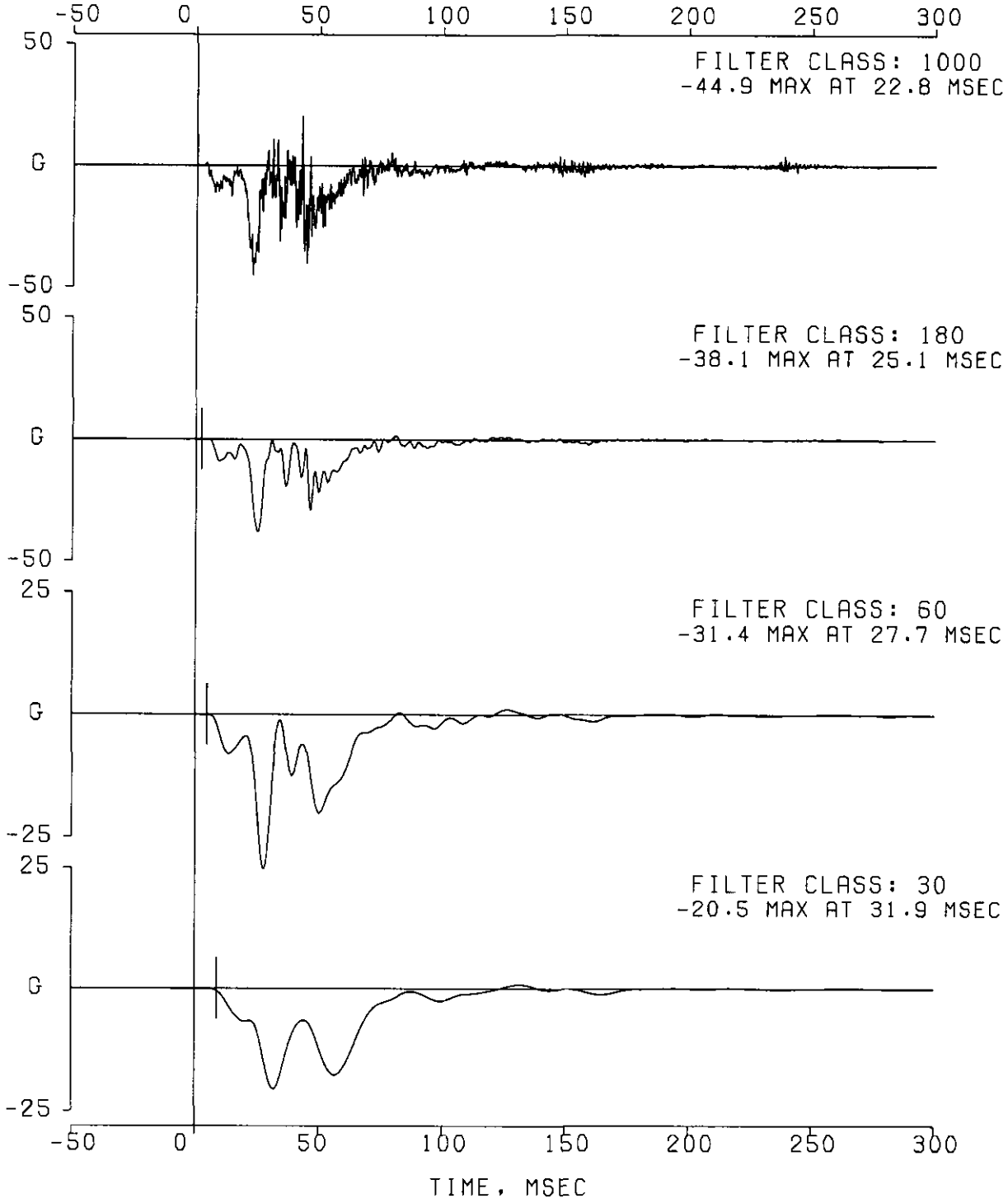
IMPACT ANALYSIS DEPT. 5320
FEB 7,2002

DATA SET 02/06/02B9
ERRATA 1



COMPUTED KPH
COMPUTED CM

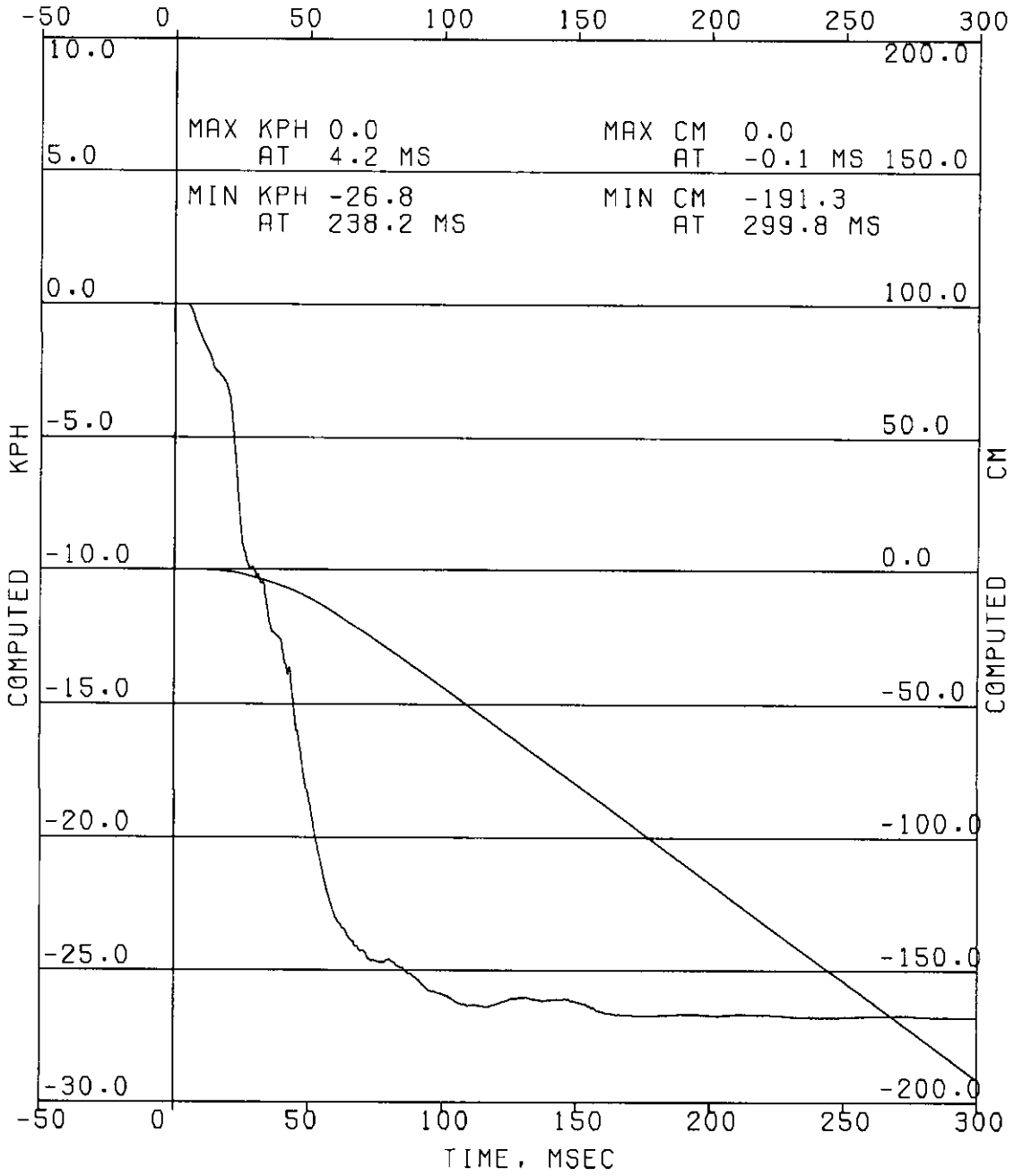
CHANNEL 003 LEFT REAR SILL X J26386
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02B9
FEB 7,2002 ERRATA 1



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

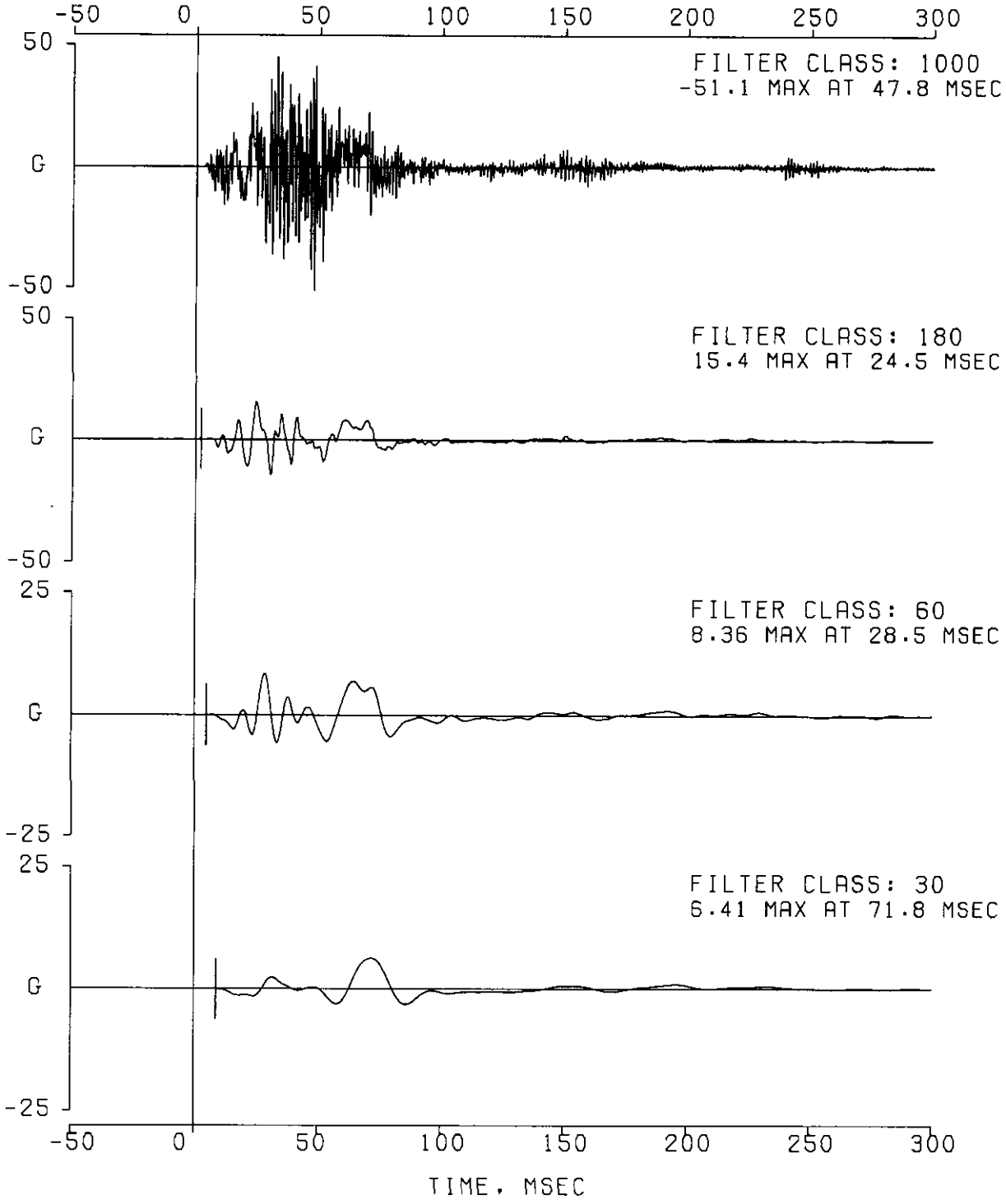
IMPACT ANALYSIS DEPT. 5320
FEB 7,2002

DATA SET 02/06/02B9
ERRATA 1

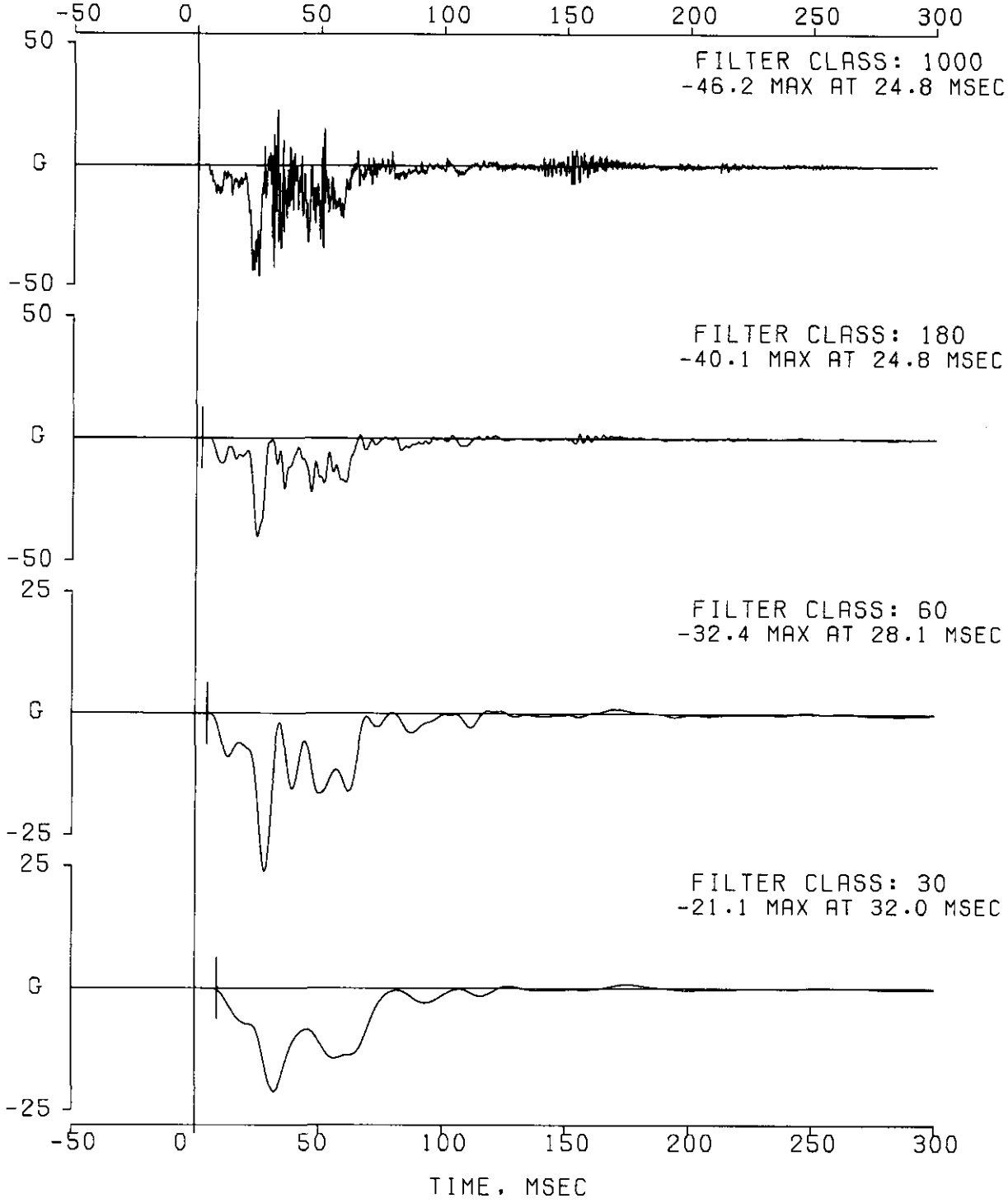


COMPUTED KPH
COMPUTED CM

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371 PAGE 013
02 KJ, USA 301-REAR DEVELOPMENT TEST OF 043
CHANNEL 005 LEFT REAR SILL Z J13056
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02B9
FEB 7,2002 ERRATA 1



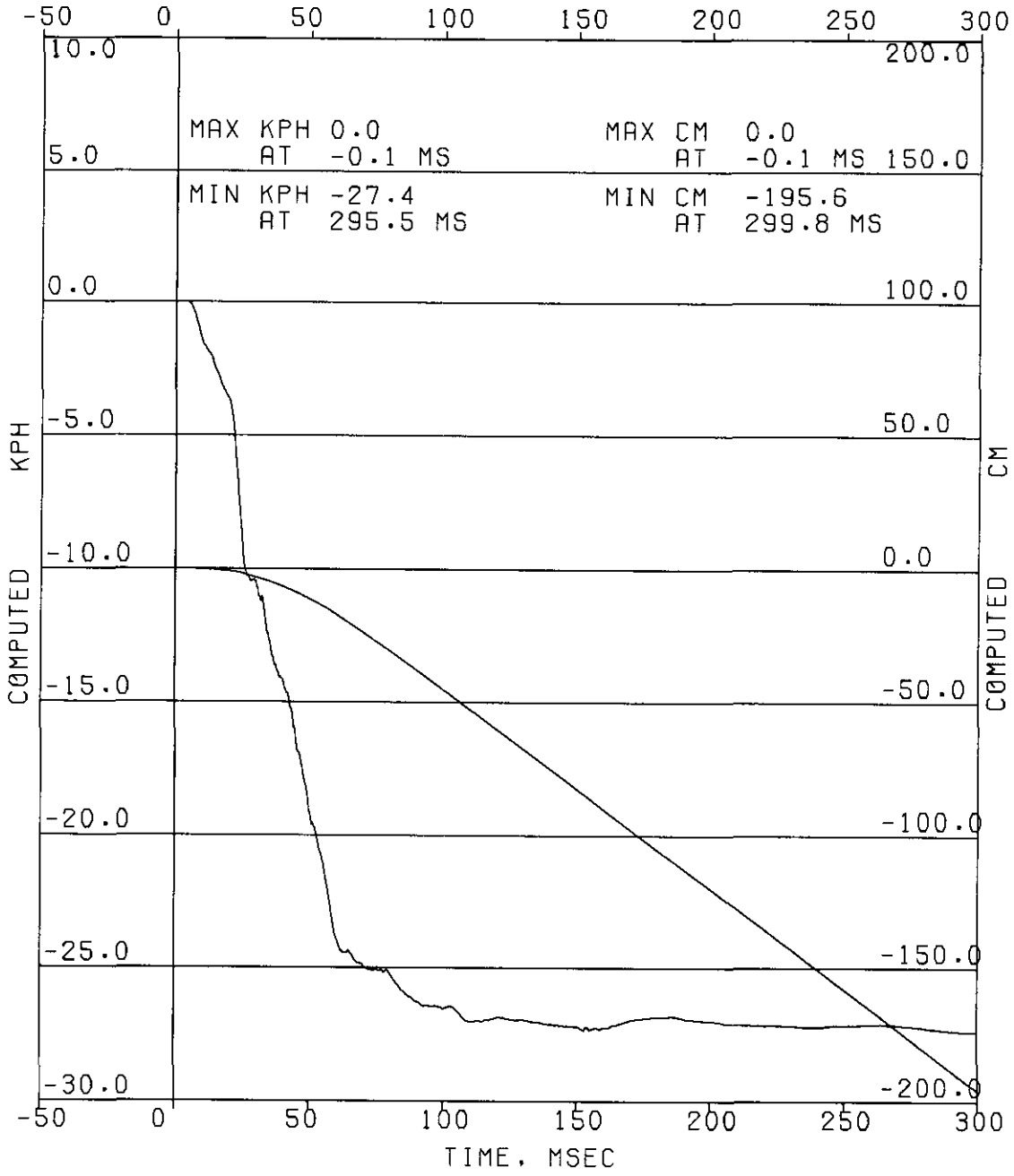
CHANNEL 006 RIGHT REAR SILL X J15463
FILTER TYPE: 0BDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02B9
FEB 7,2002 ERRATA 1



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

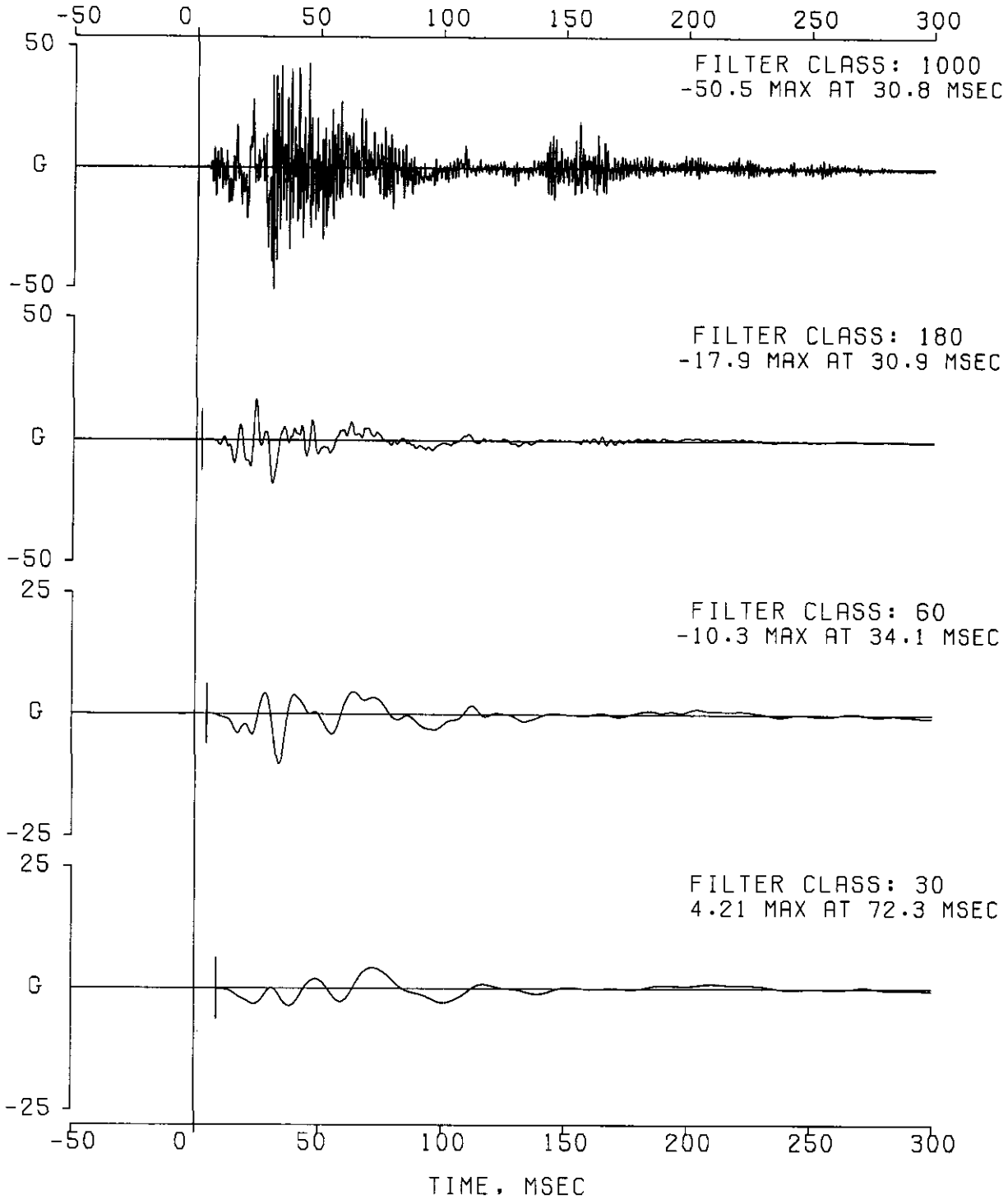
IMPACT ANALYSIS DEPT. 5320
FEB 7,2002

DATA SET 02/06/02B9
ERRATA 1

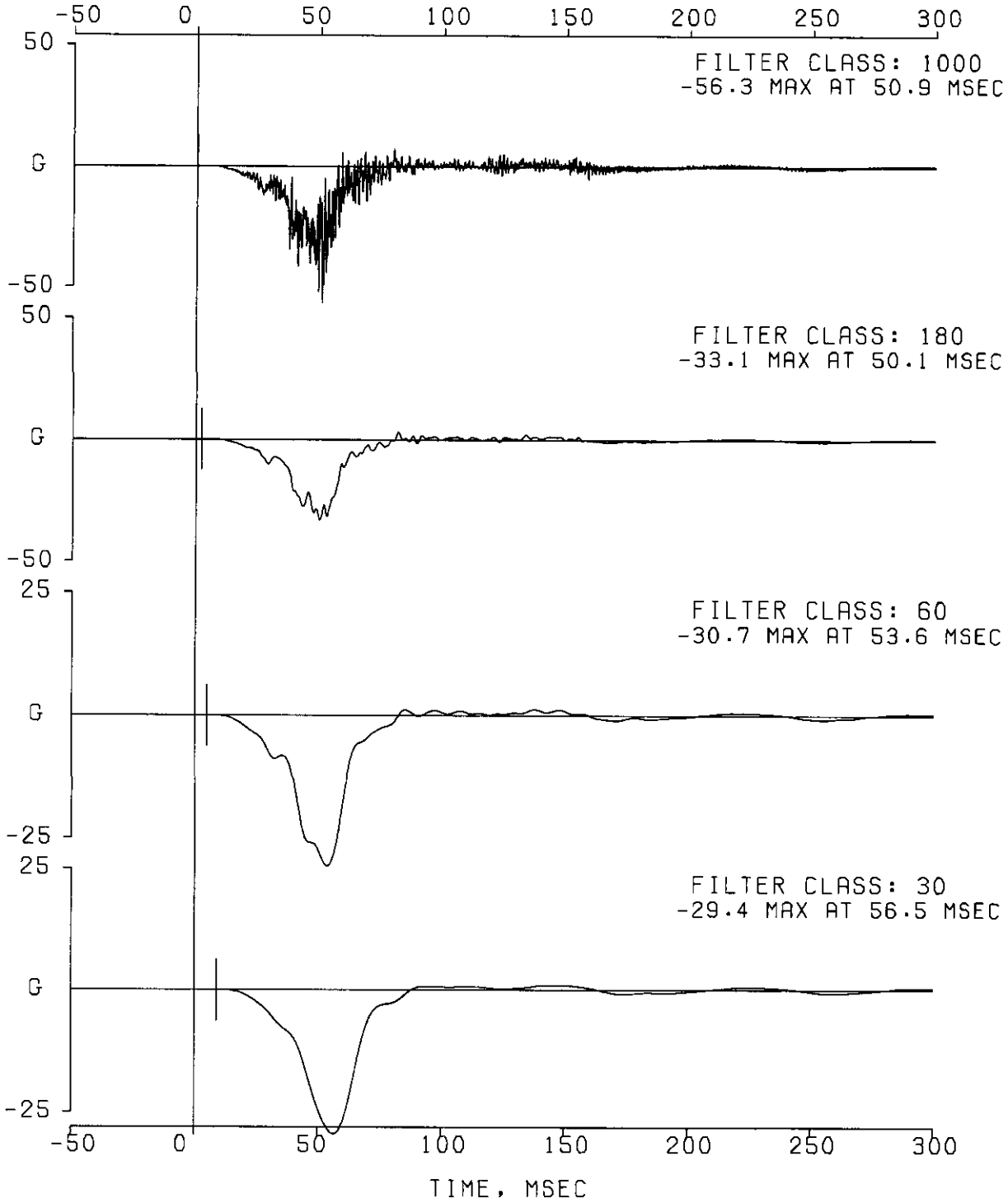


COMPUTED KPH
COMPUTED CM

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371 PAGE 016
02 KJ, USA 301-REAR DEVELOPMENT TEST 0F 043
CHANNEL 008 RIGHT REAR SILL Z P14169
FILTER TYPE: 08DAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02B9
FEB 7,2002 ERRATA 1



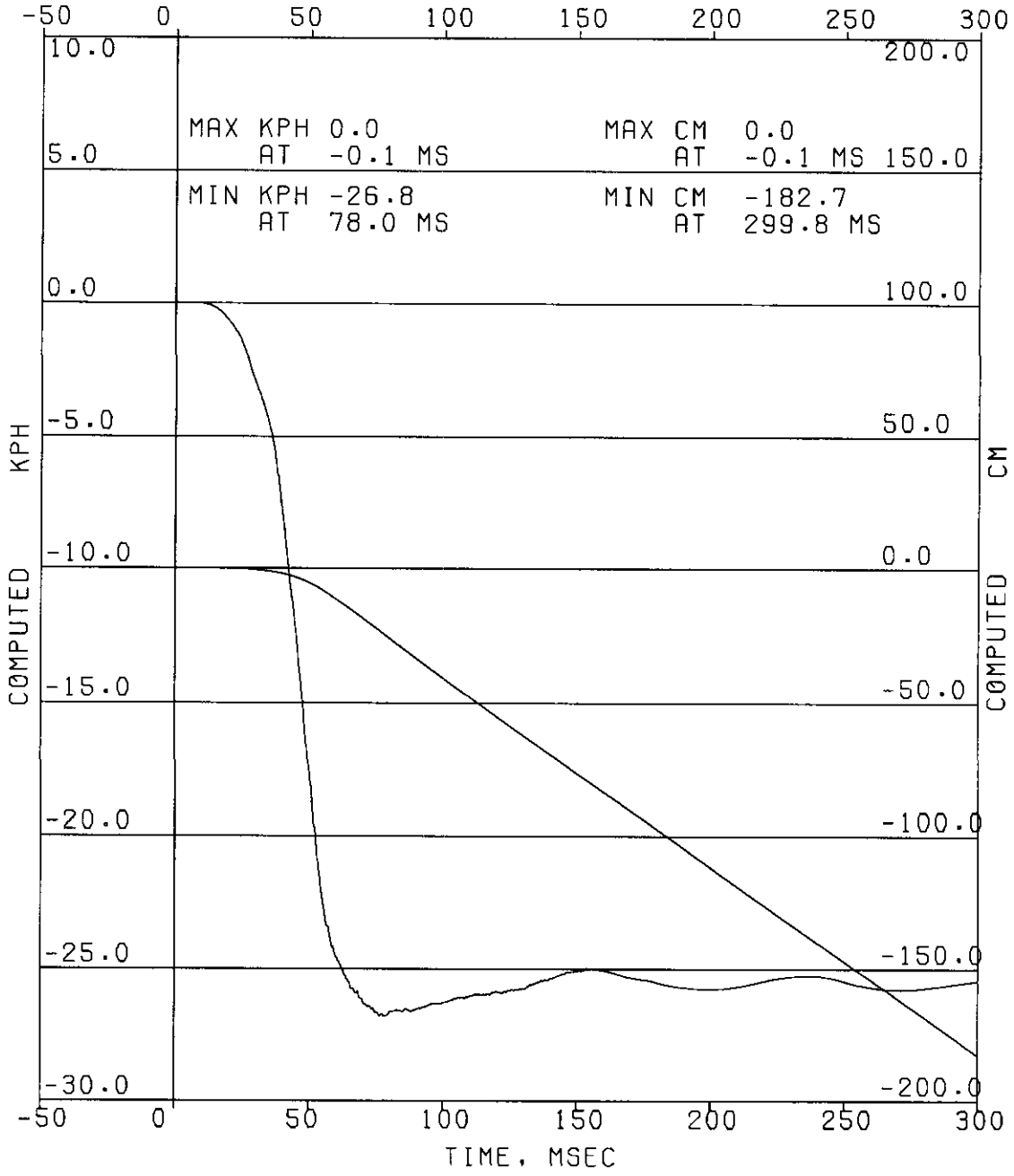
CHANNEL 009 ENGINE BOTTOM X P15553
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02B9
FEB 7,2002 ERRATA 1



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

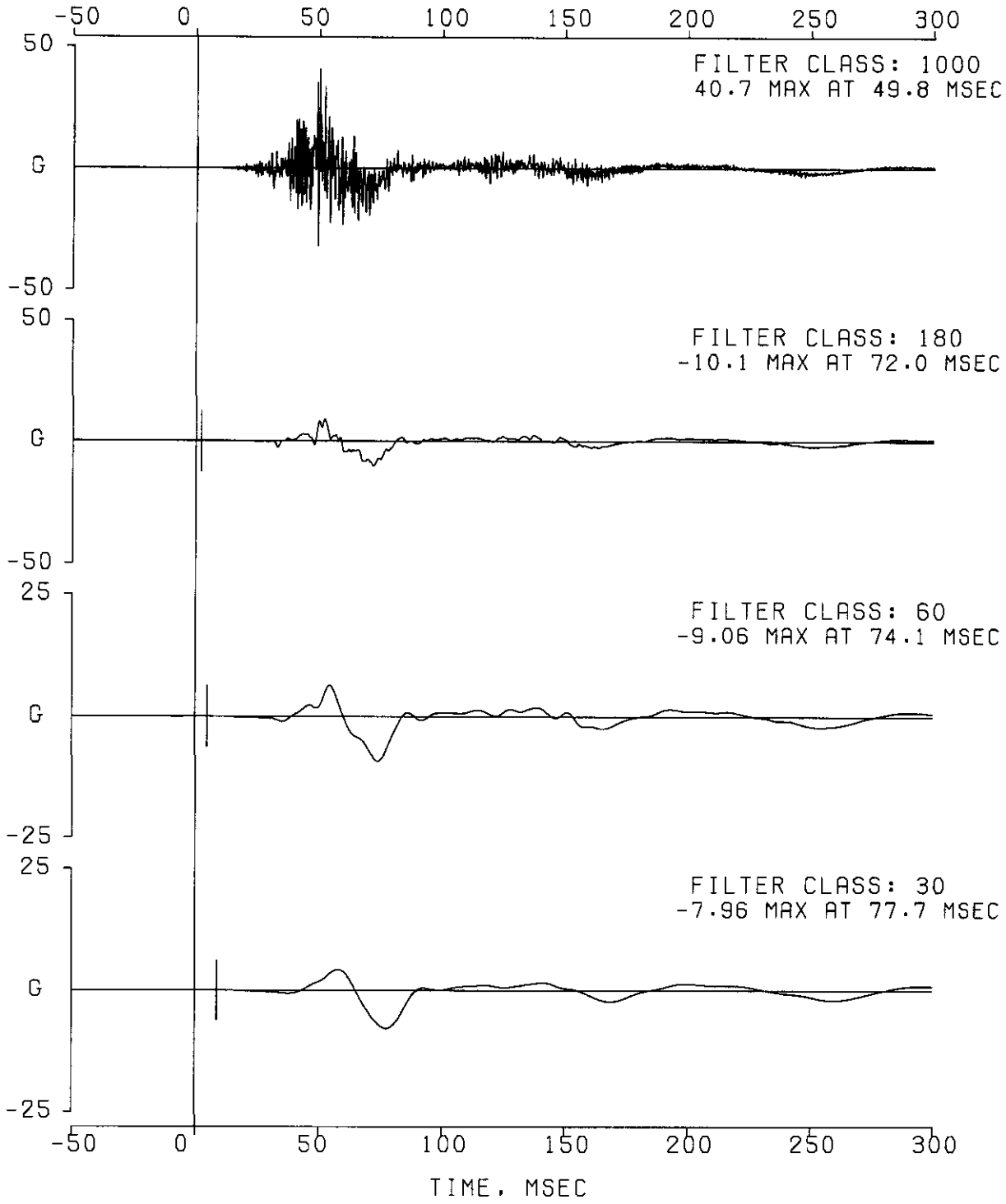
IMPACT ANALYSIS DEPT. 5320
FEB 7,2002

DATA SET 02/06/02B9
ERRATA 1

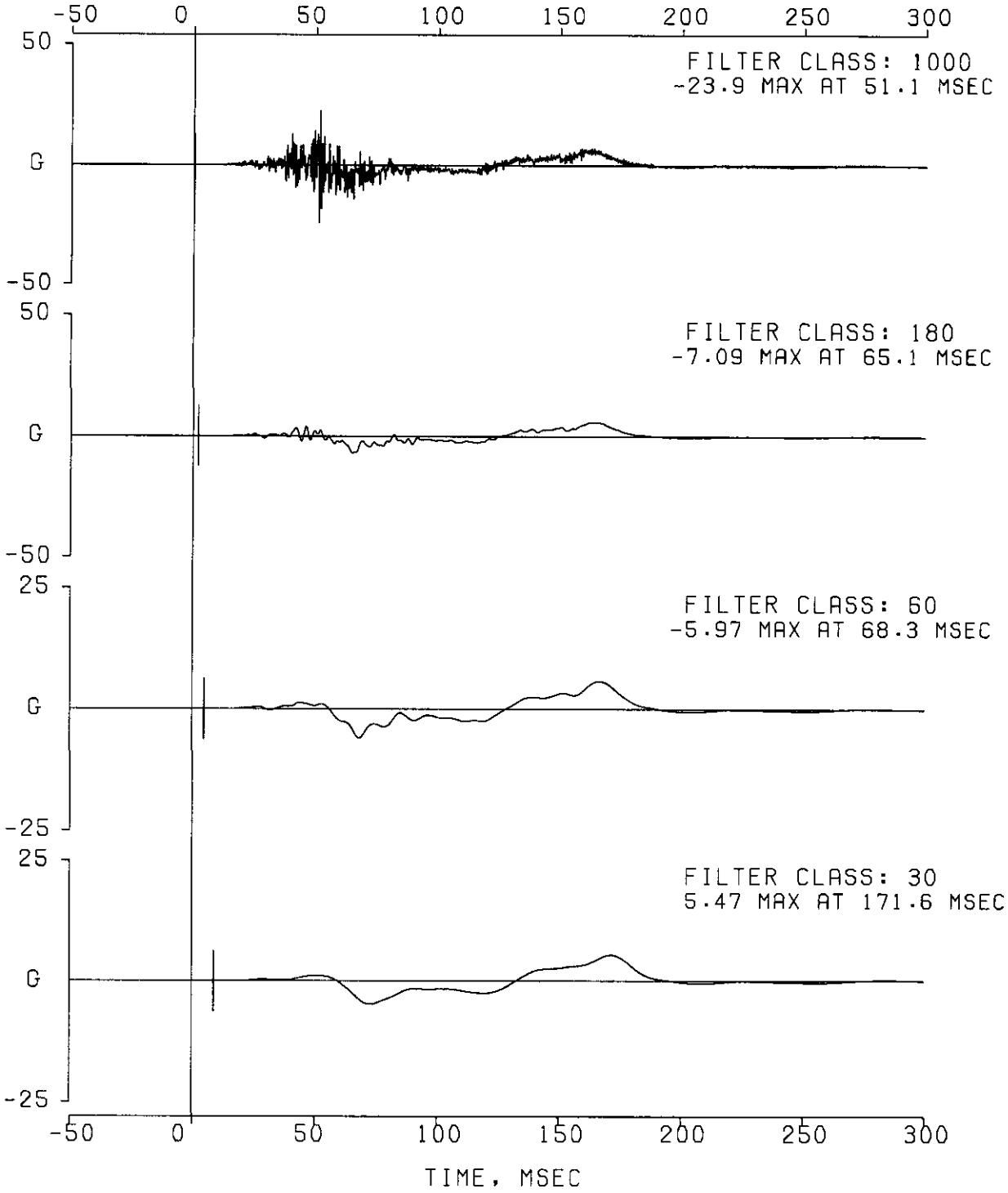


COMPUTED KPH
COMPUTED CM

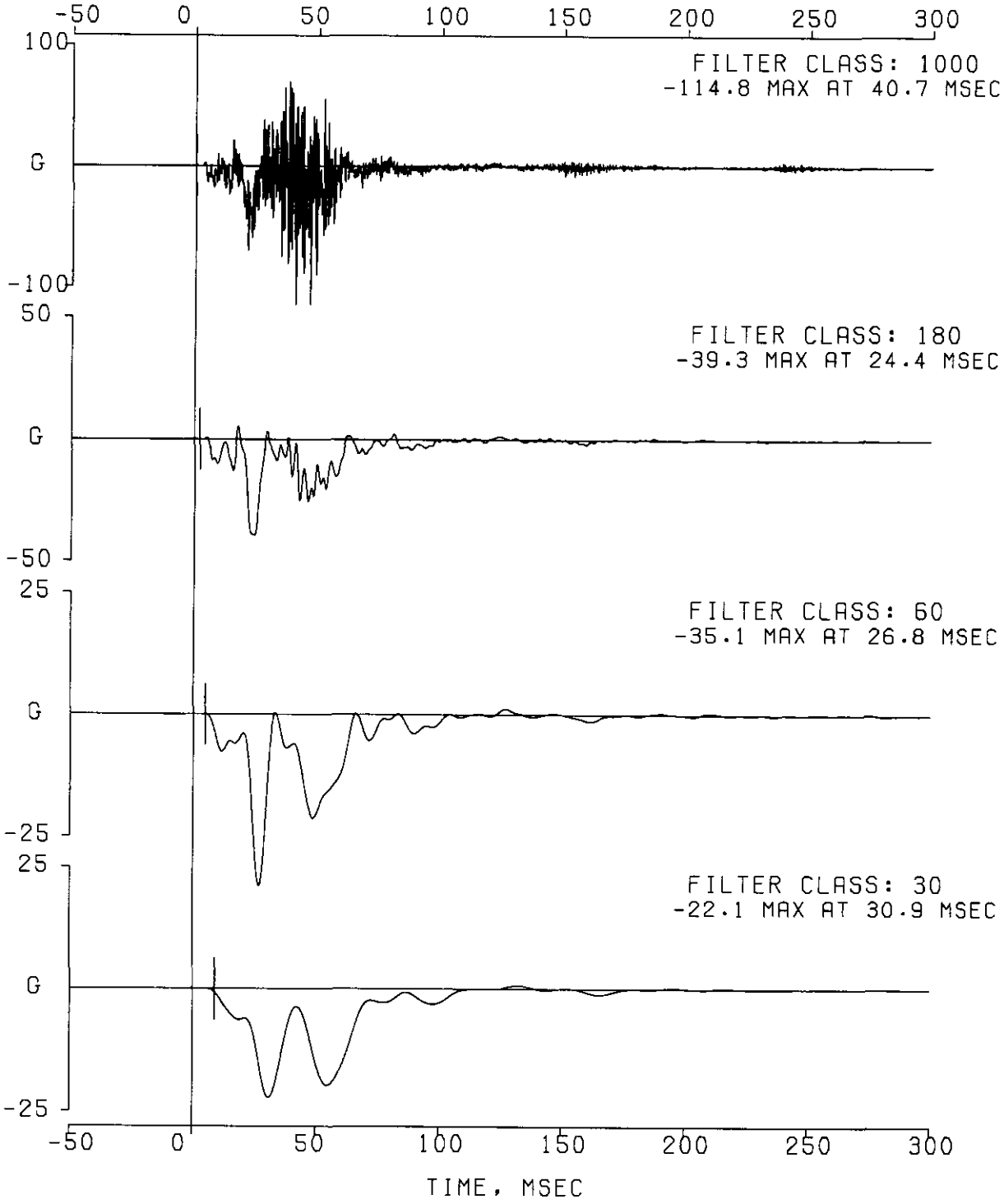
CHANNEL 010 ENGINE BOTTOM Y P14126
FILTER TYPE: OBDAS-III RESPONSE CORRECTION. CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02B9
FEB 7,2002 ERRATA 1



CHANNEL 011 ENGINE BOTTOM Z P17424
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02B9
FEB 7,2002 ERRATA 1



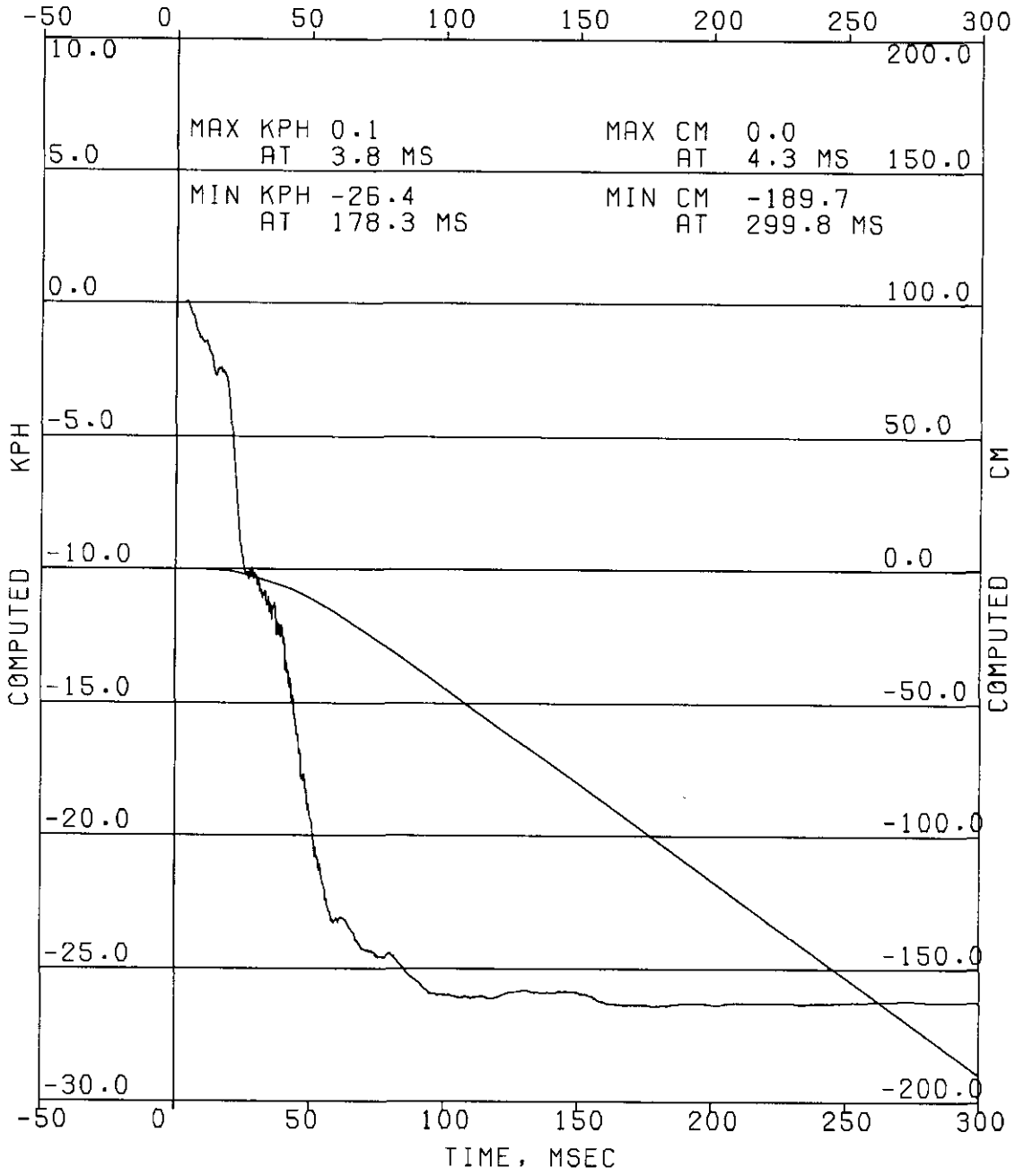
CHANNEL 012 LEFT REAR AXLE PIVOT X J26892
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02B9
FEB 7,2002 ERRATA 1



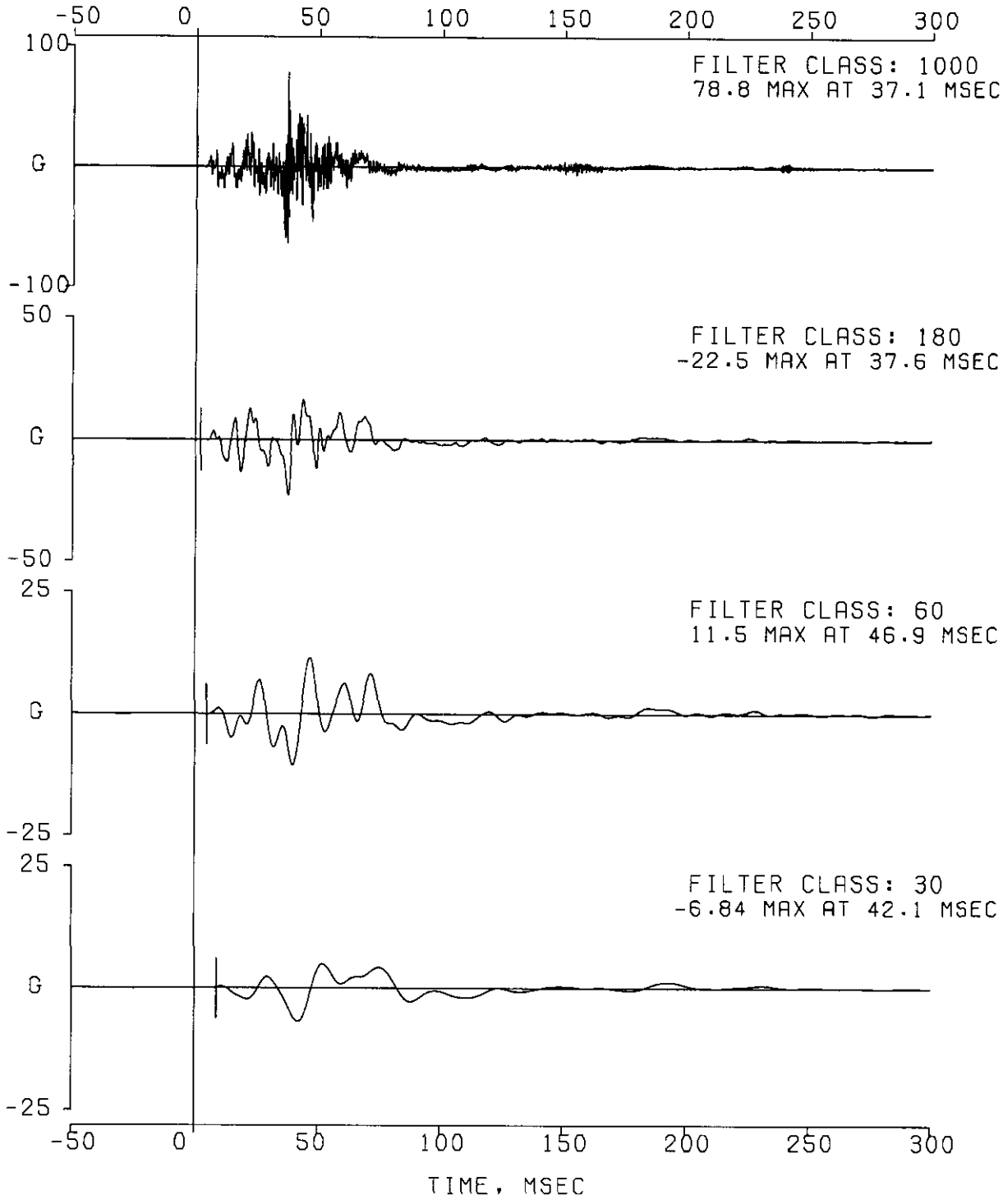
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
FILTER CLASS: 1000

IMPACT ANALYSIS DEPT. 5320
FEB 7,2002

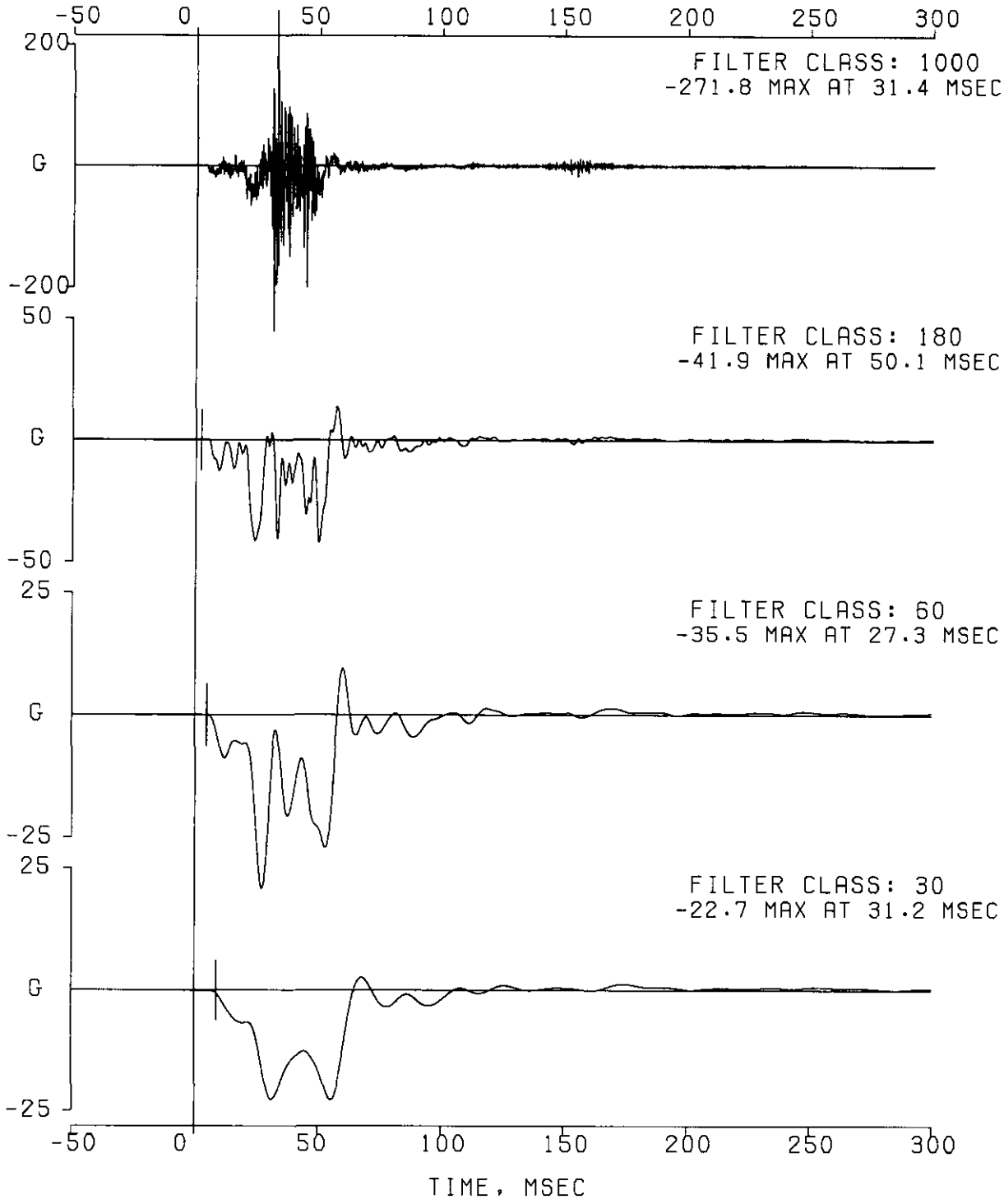
DATA SET 02/06/02B9
ERRATA 1



COMPUTED KPH
COMPUTED CM


-50
0
50
100
150
200
250
300
100
G
-100
FILTER CLASS: 1000
78.8 MAX AT 37.1 MSEC
50
G
-50
FILTER CLASS: 180
-22.5 MAX AT 37.6 MSEC
25
G
-25
FILTER CLASS: 60
11.5 MAX AT 46.9 MSEC
25
G
-25
FILTER CLASS: 30
-6.84 MAX AT 42.1 MSEC
-50
0
50
100
150
200
250
300
TIME, MSEC

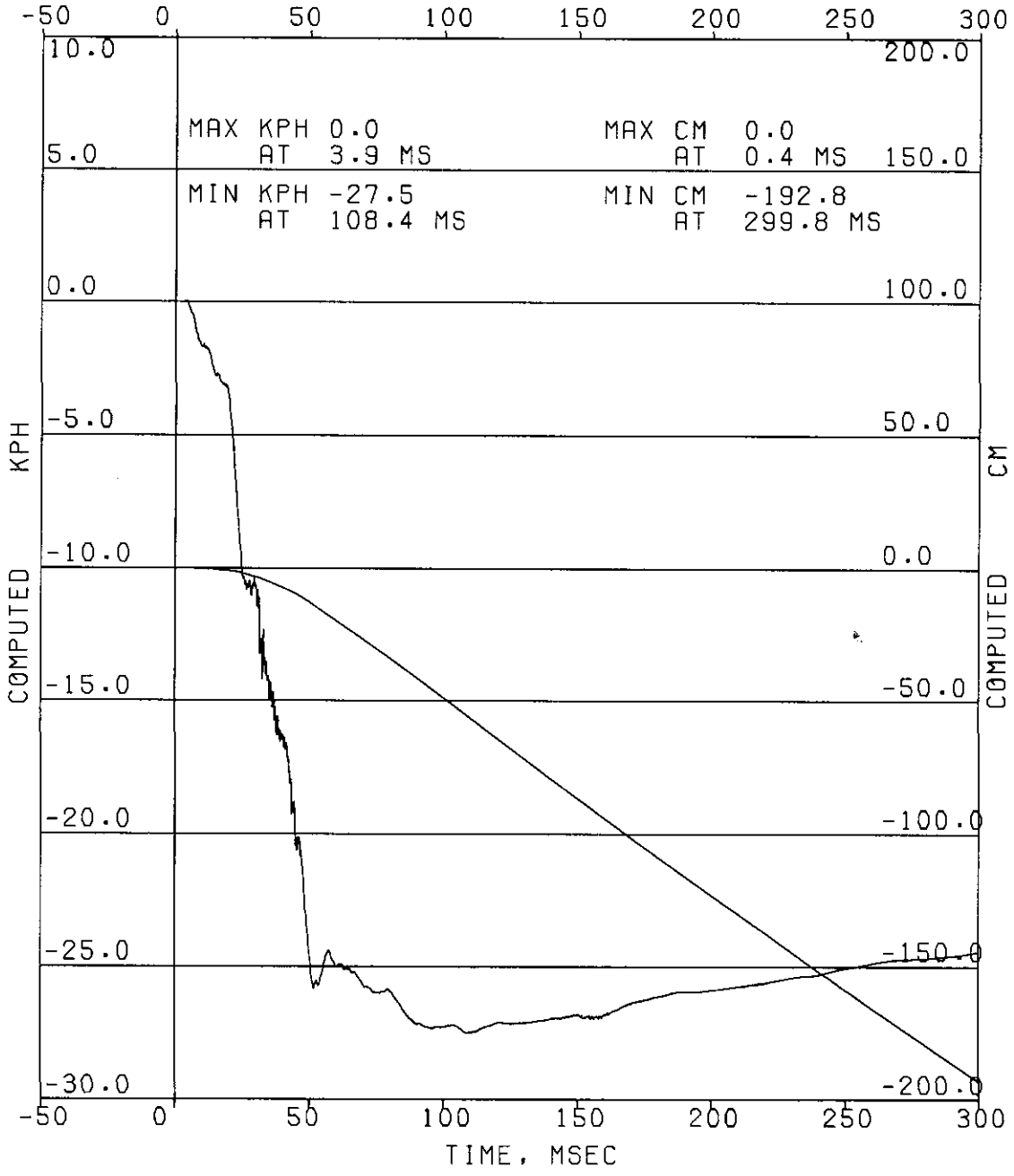
CHANNEL 014 RIGHT REAR AXLE PIVOT X AFYW9
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02B9
FEB 7,2002 ERRATA 1



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

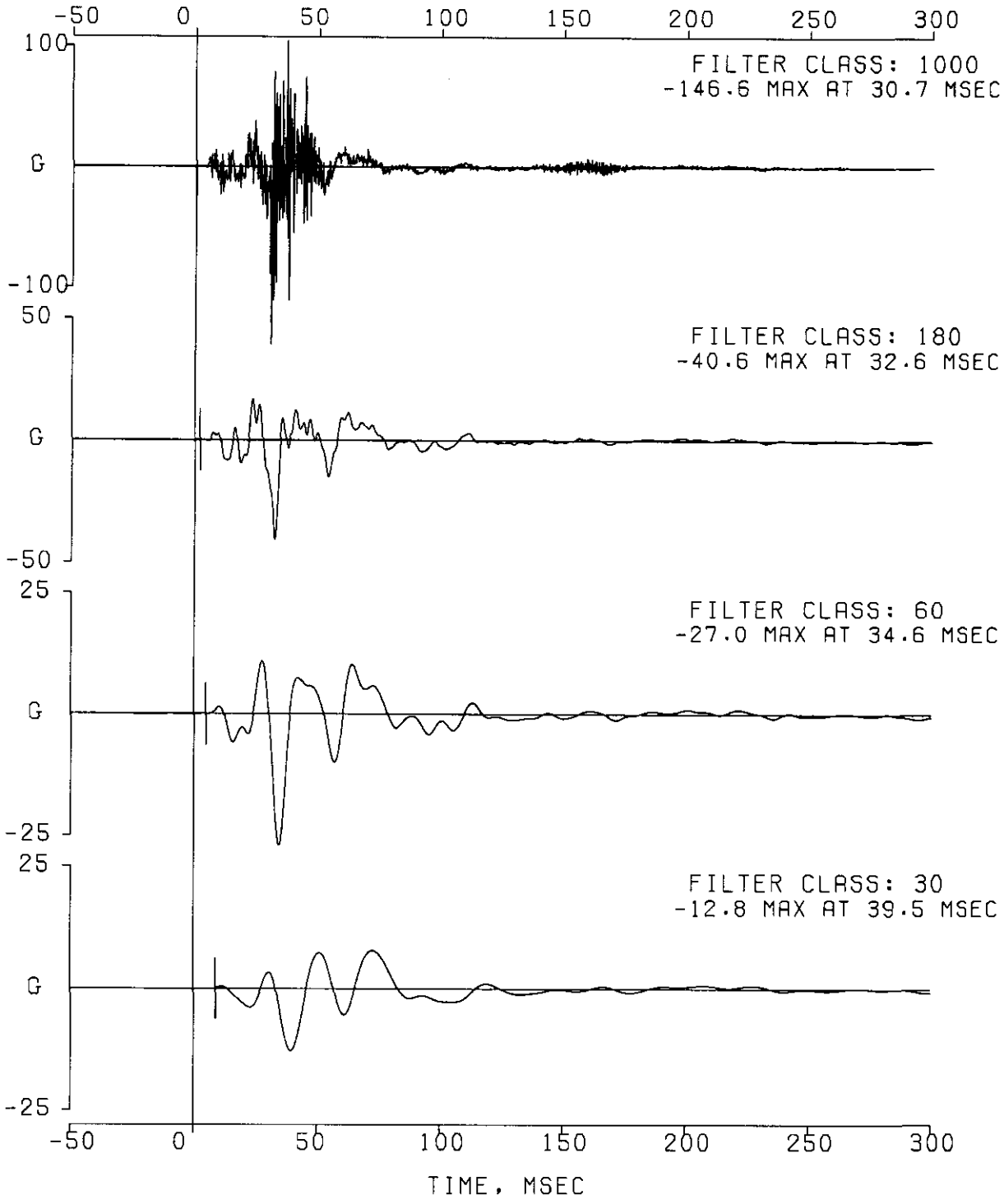
IMPACT ANALYSIS DEPT. 5320
FEB 7,2002

DATA SET 02/06/02B9
ERRATA 1

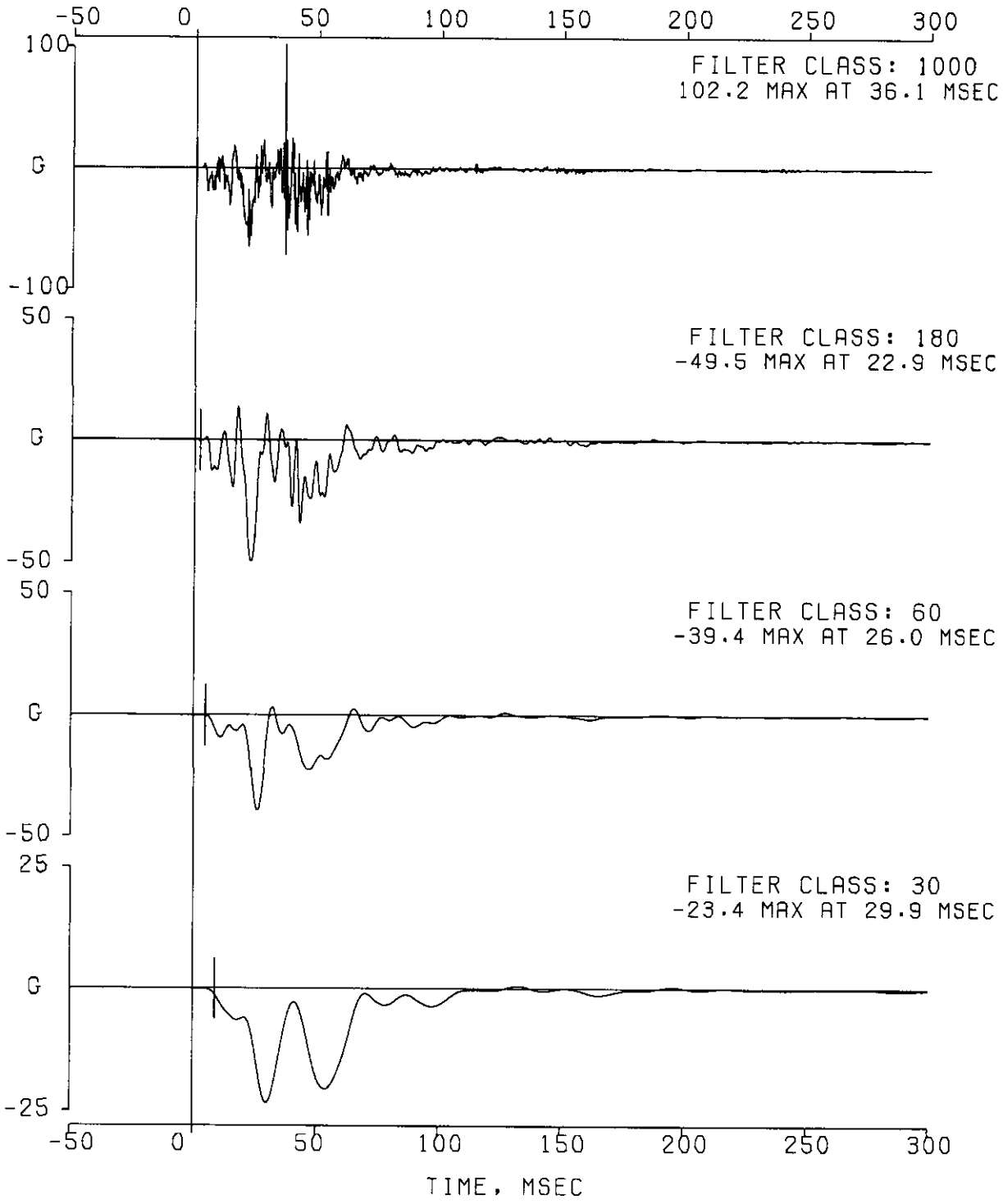


COMPUTED KPH
COMPUTED CM

CHANNEL 015 RIGHT REAR AXLE PIVOT Z J25617
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02B9
FEB 7,2002 ERRATA 1



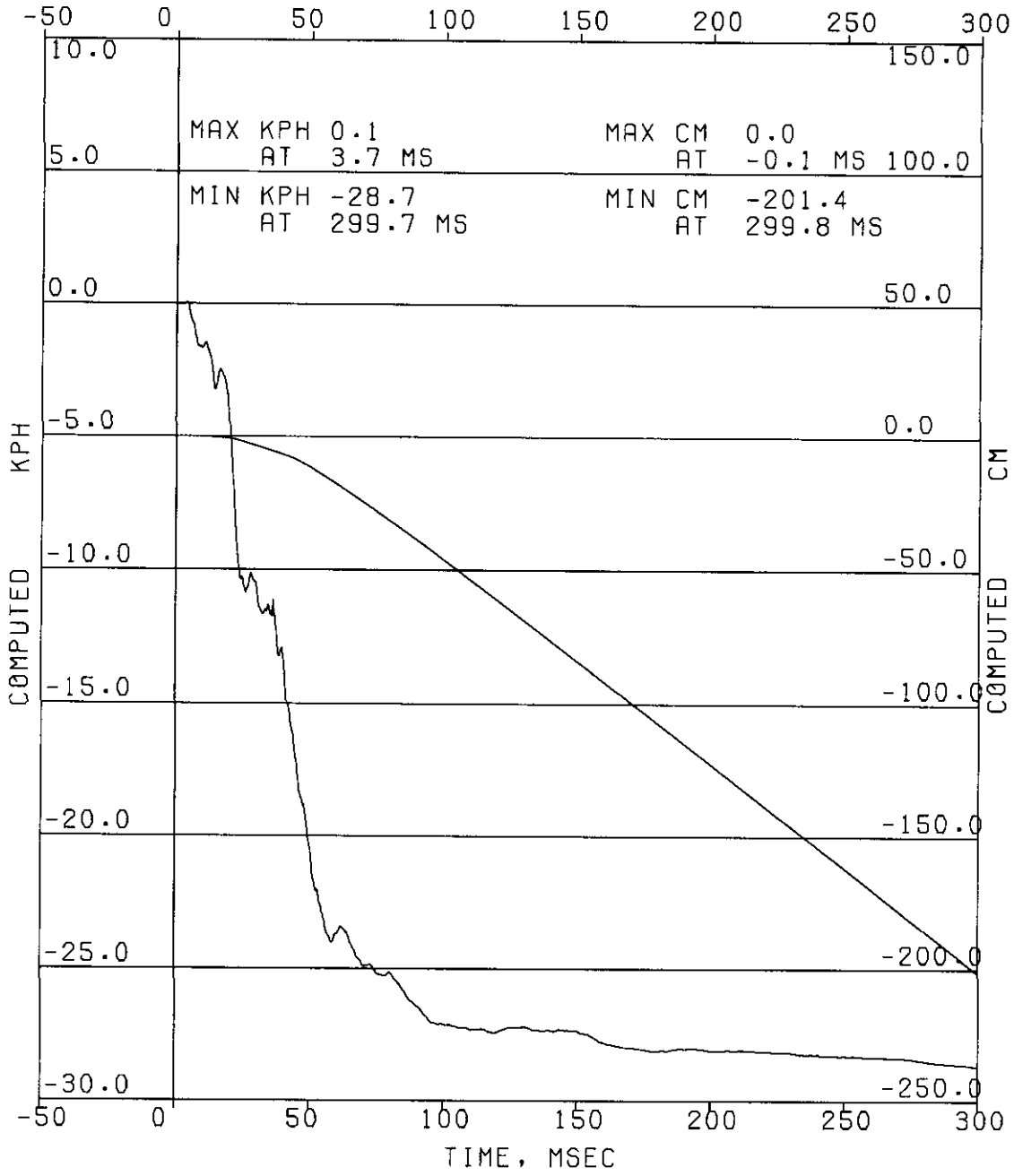
CHANNEL 016 LEFT RAIL MID TANK X J25653
FILTER TYPE: 0BDAS-III RESP0NSE C0RRECTI0N, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02B9
FEB 7.2002 ERRATA 1



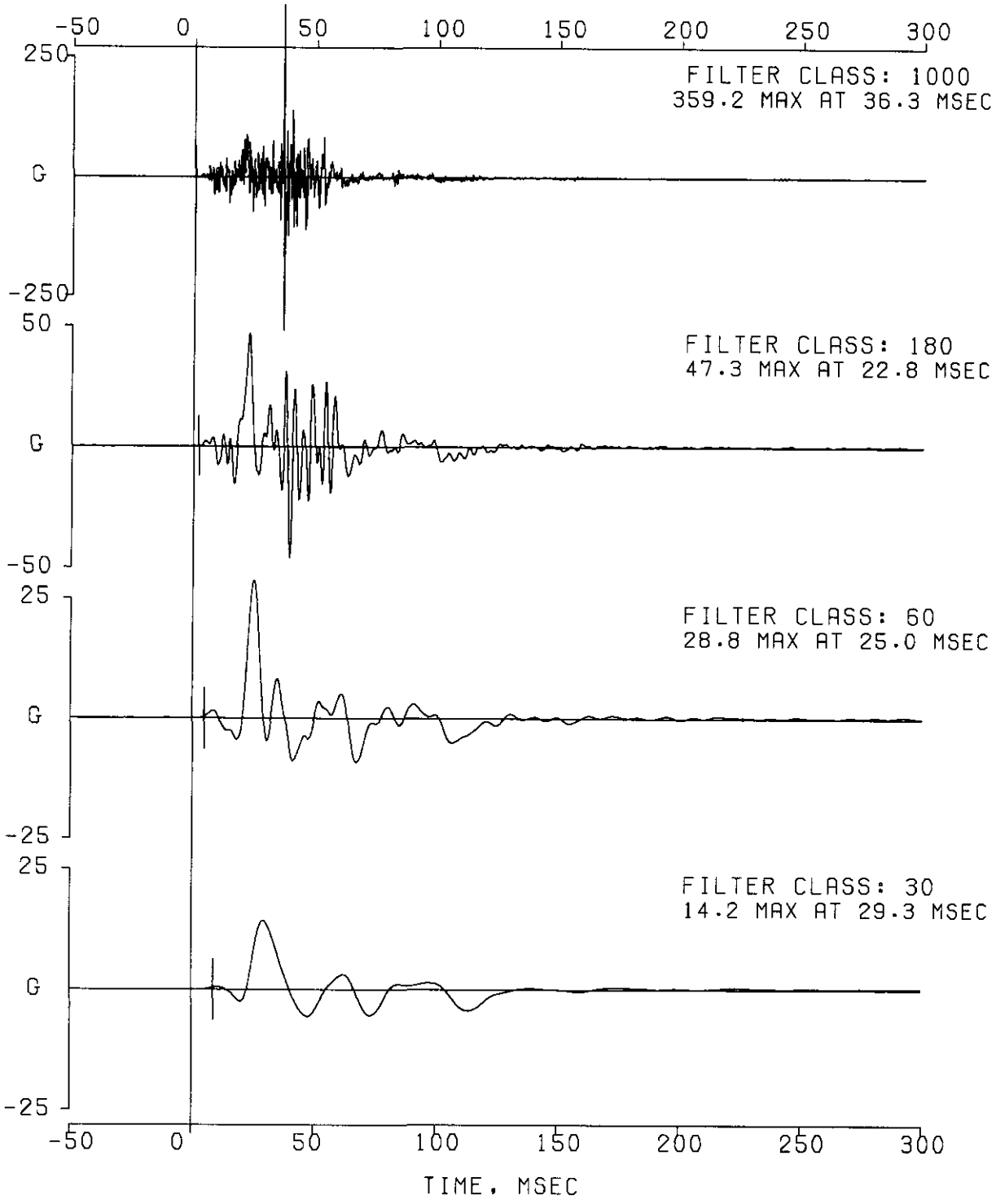
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
FILTER CLASS: 1000

IMPACT ANALYSIS DEPT. 5320
FEB 7,2002

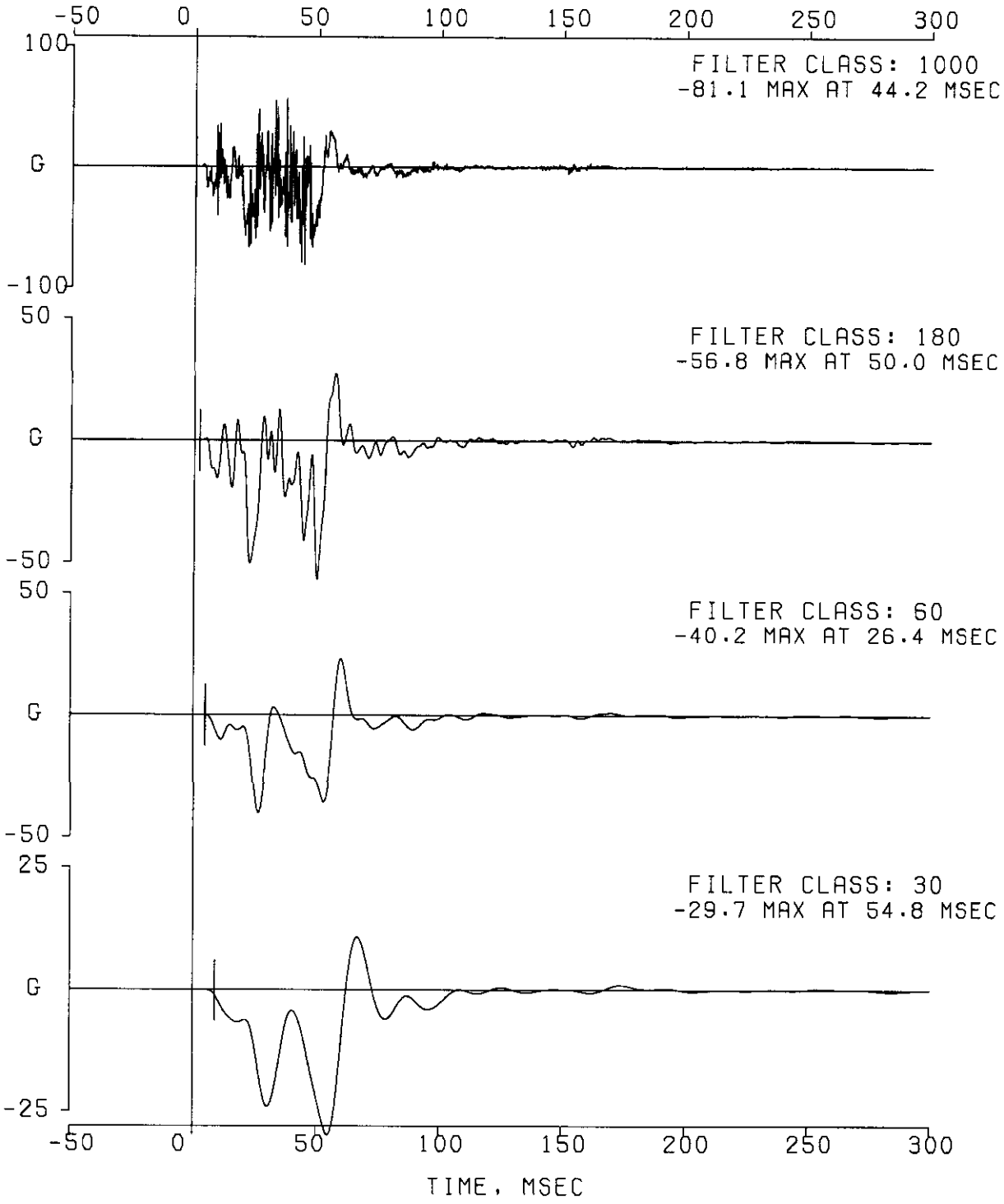
DATA SET 02/06/02B9
ERRATA 1



COMPUTED KPH
COMPUTED CM


-50
0
50
100
150
200
250
300
250
G
-250
FILTER CLASS: 1000
359.2 MAX AT 36.3 MSEC
50
G
-50
FILTER CLASS: 180
47.3 MAX AT 22.8 MSEC
25
G
-25
FILTER CLASS: 60
28.8 MAX AT 25.0 MSEC
25
G
-25
FILTER CLASS: 30
14.2 MAX AT 29.3 MSEC
-50
0
50
100
150
200
250
300
TIME, MSEC

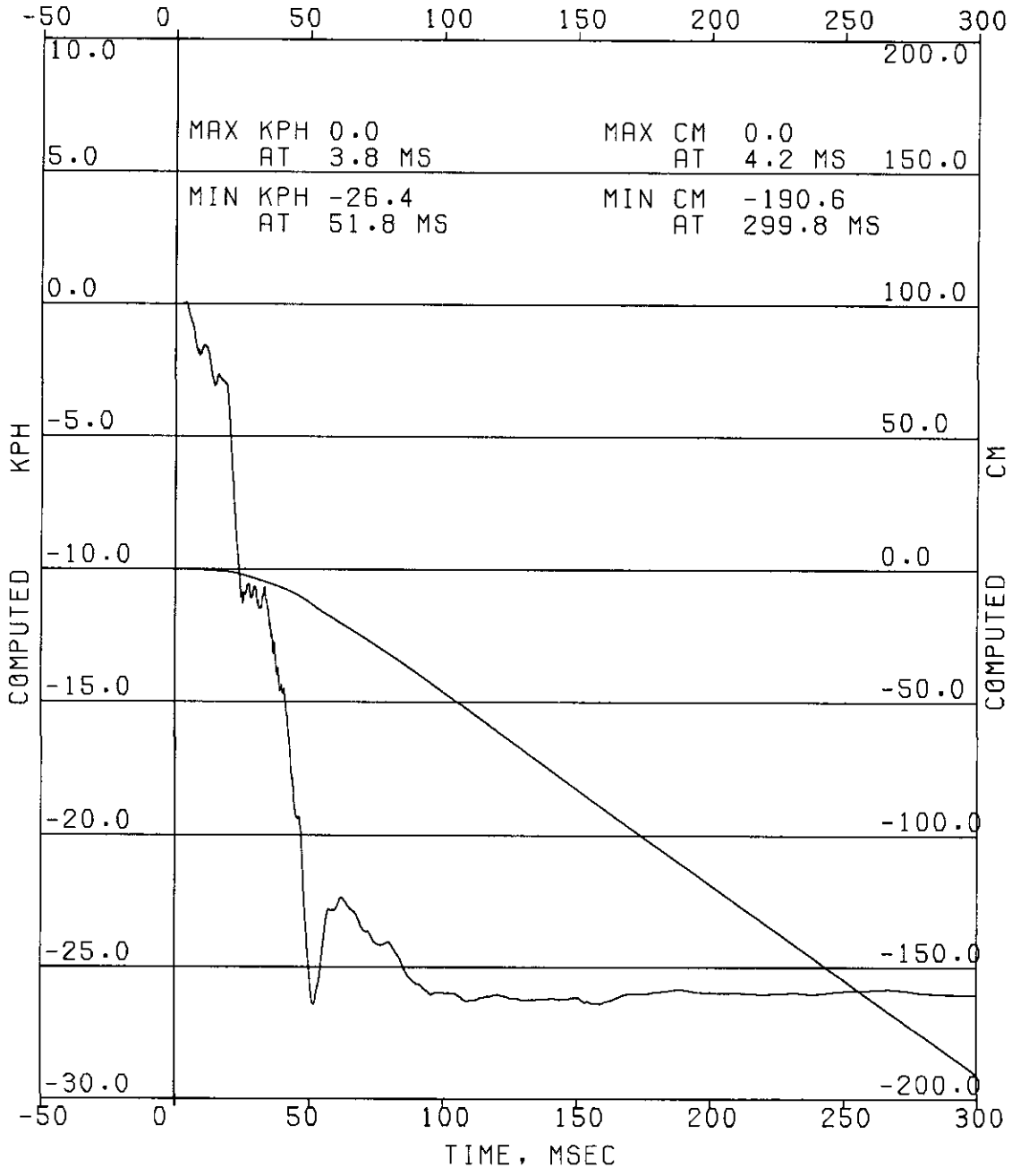
CHANNEL 018 RIGHT RAIL MID TANK X J25569
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02CA
FEB 7,2002 ERRATA 1



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

IMPACT ANALYSIS DEPT. 5320
FEB 7,2002

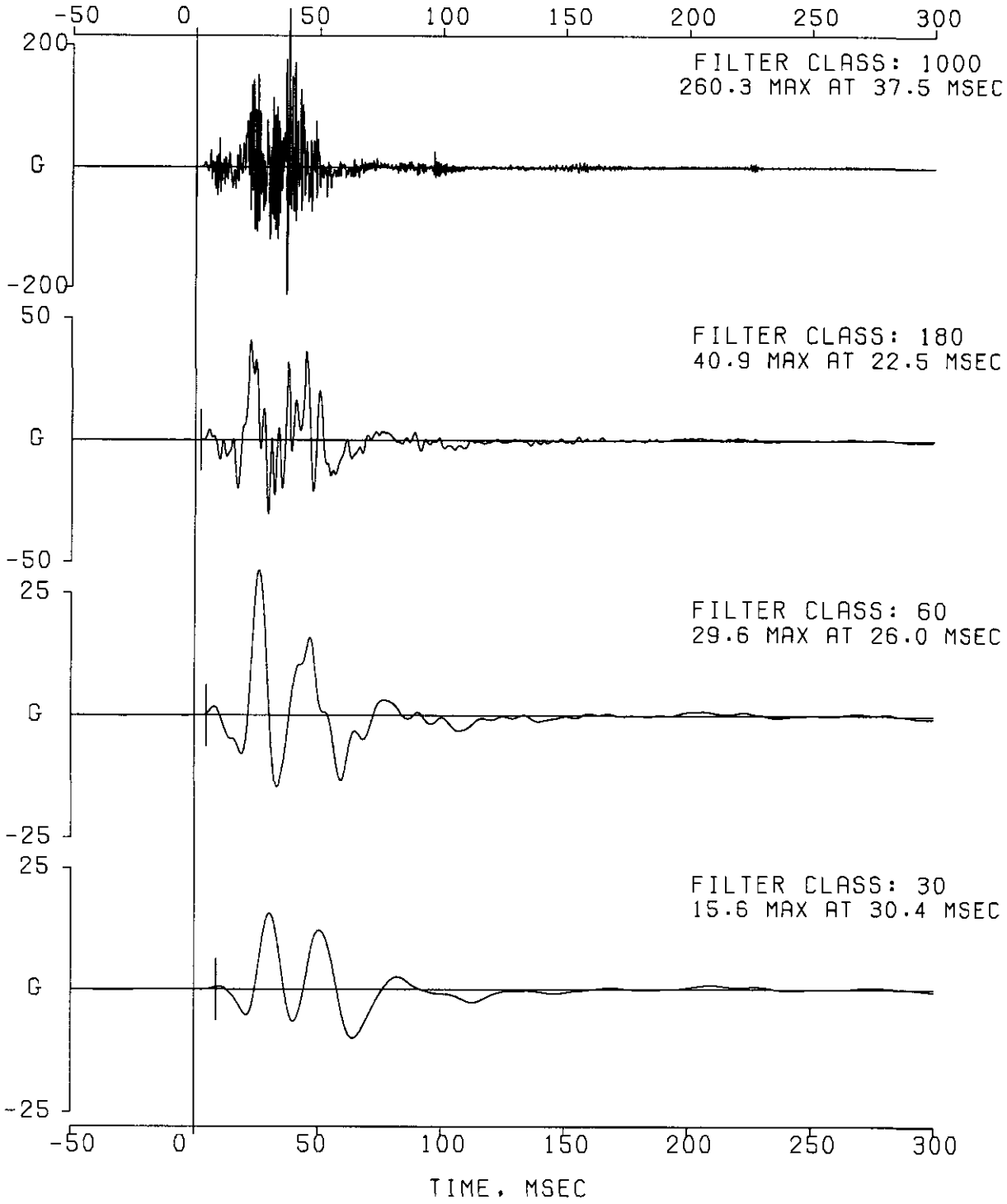
DATA SET 02/06/02CA
ERRATA 1



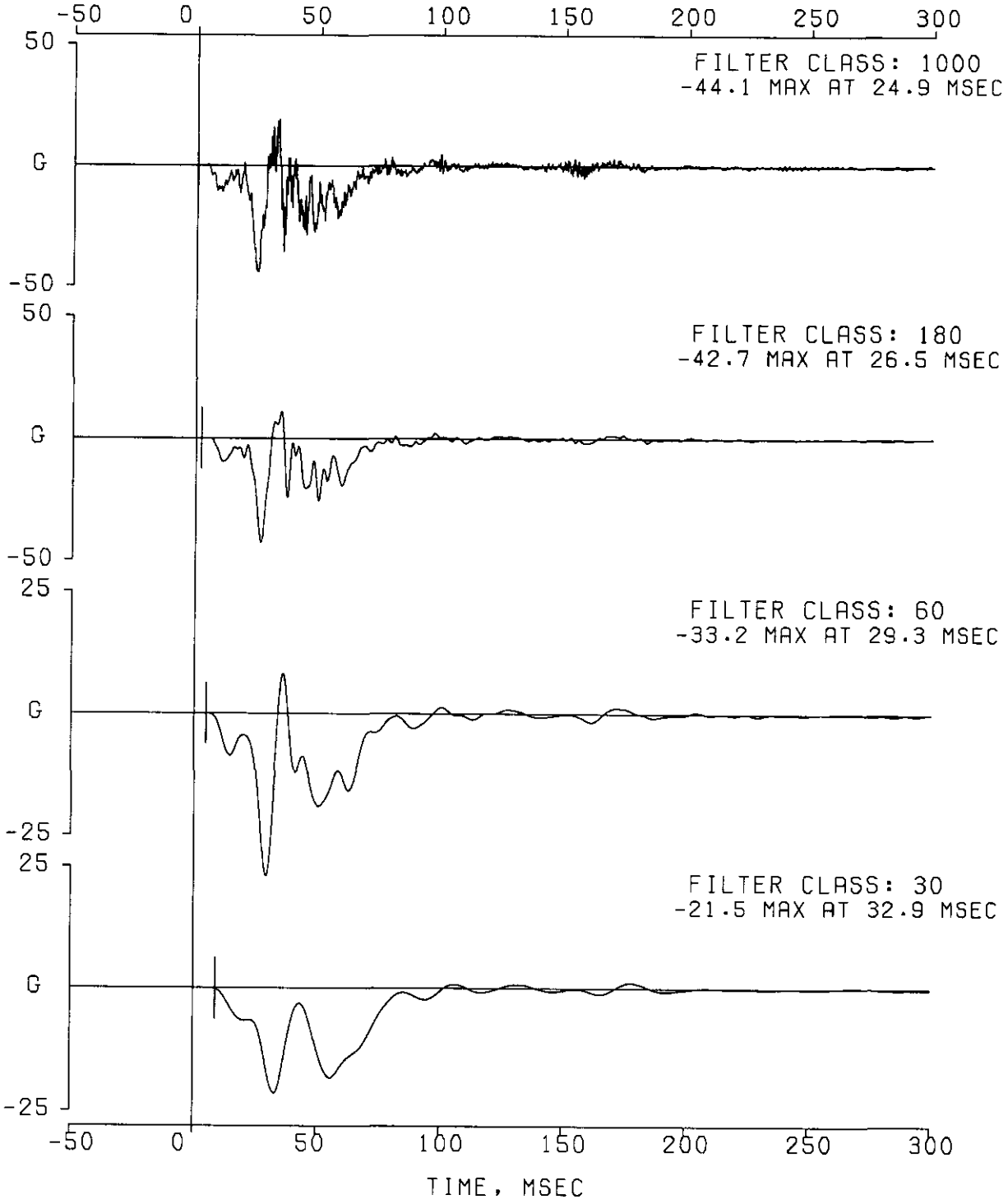
COMPUTED KPH
COMPUTED CM

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
CHANNEL 019 RIGHT RAIL MID TANK Z J28174
FILTER TYPE: 0BDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320
FEB 7,2002

DATA SET 02/06/02CA
ERRATA 1



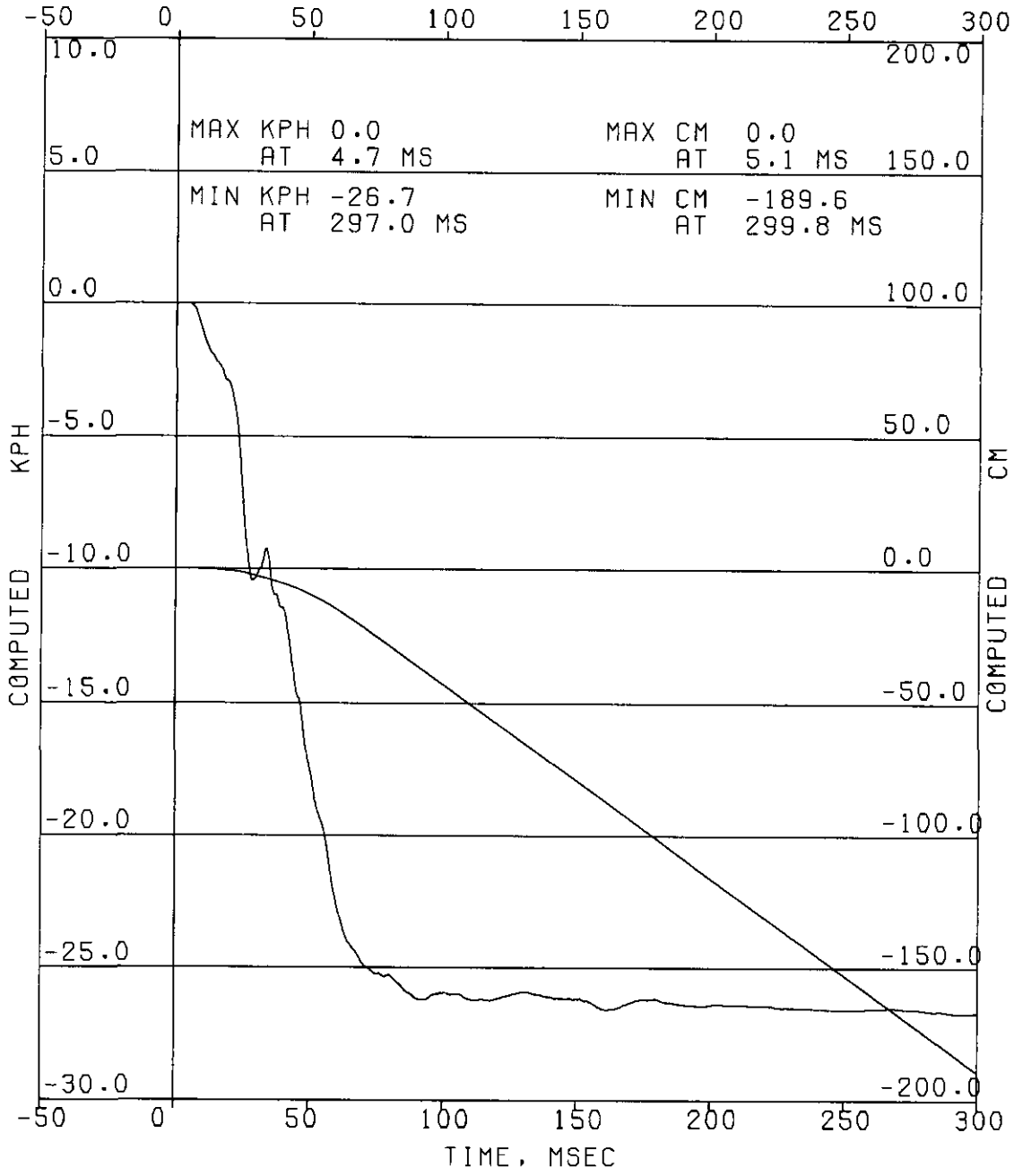
CHANNEL 020 TUNNEL CTR MID X B16000
FILTER TYPE: 0BDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02CA
FEB 7,2002 ERRATA 1



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

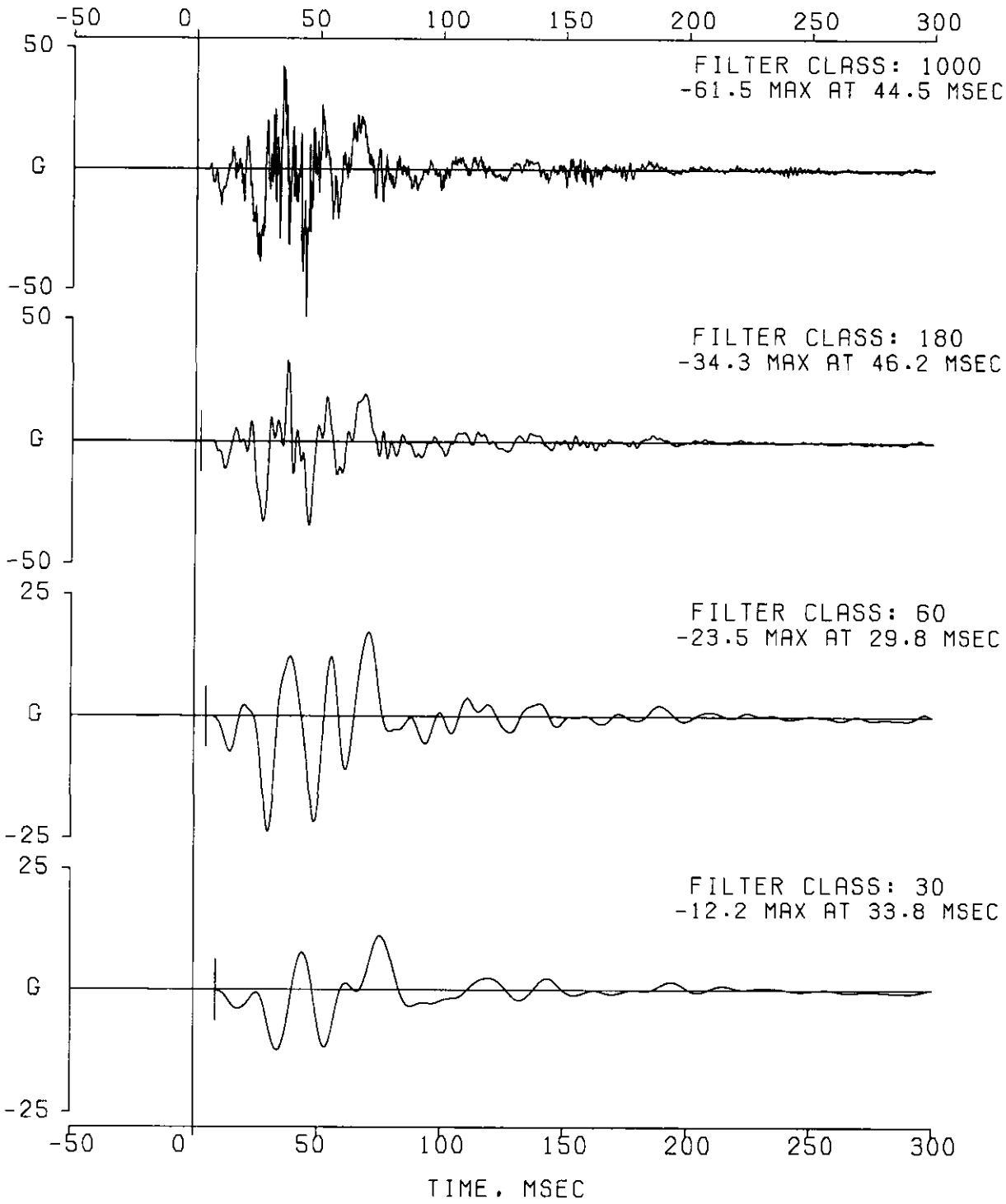
IMPACT ANALYSIS DEPT. 5320
FEB 7,2002

DATA SET 02/06/02CA
ERRATA 1

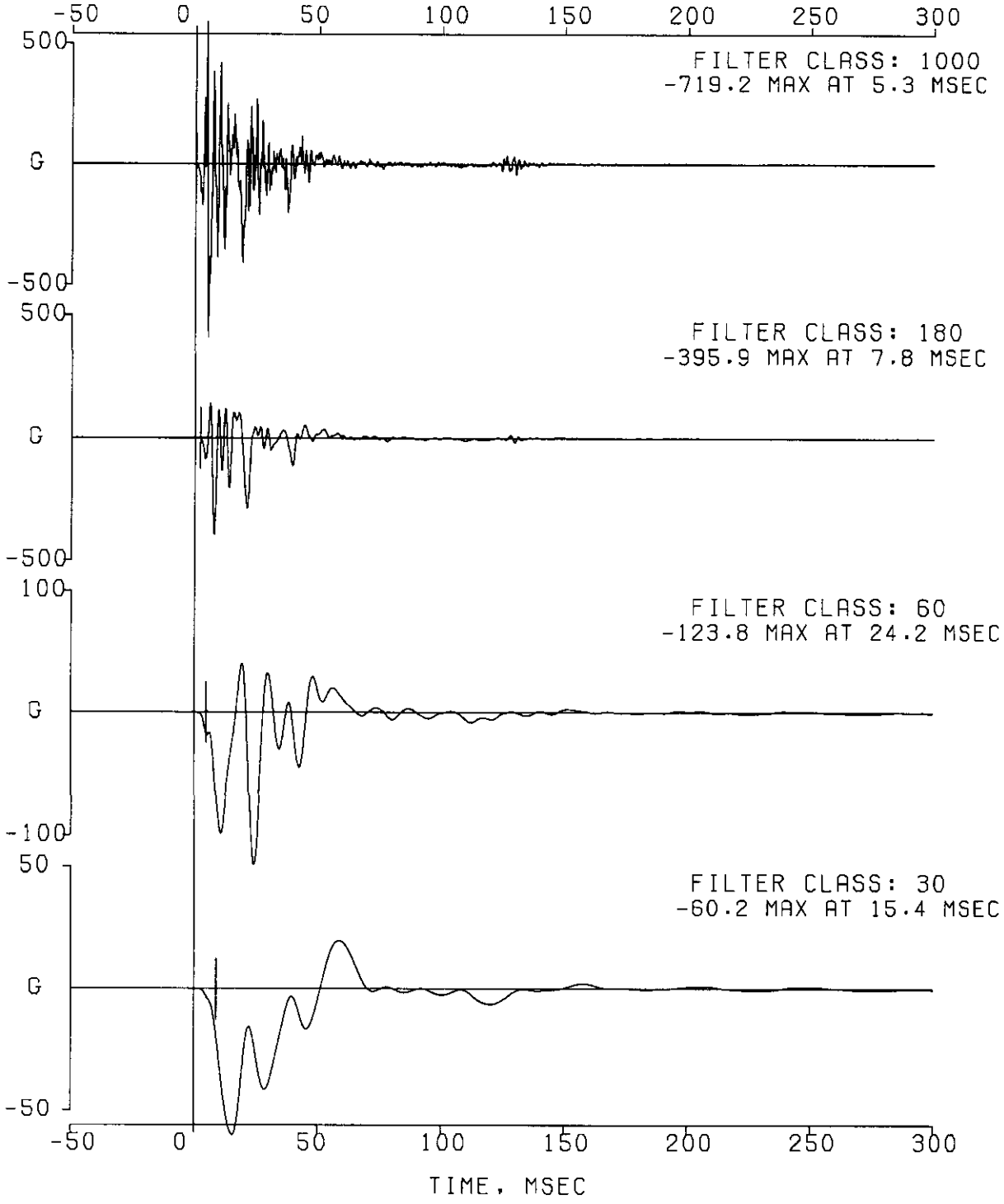


COMPUTED KPH
COMPUTED CM

CHANNEL 021 TUNNEL CTR MID Z P13565
FILTER TYPE: SBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02CA
FEB 7,2002 ERRATA 1



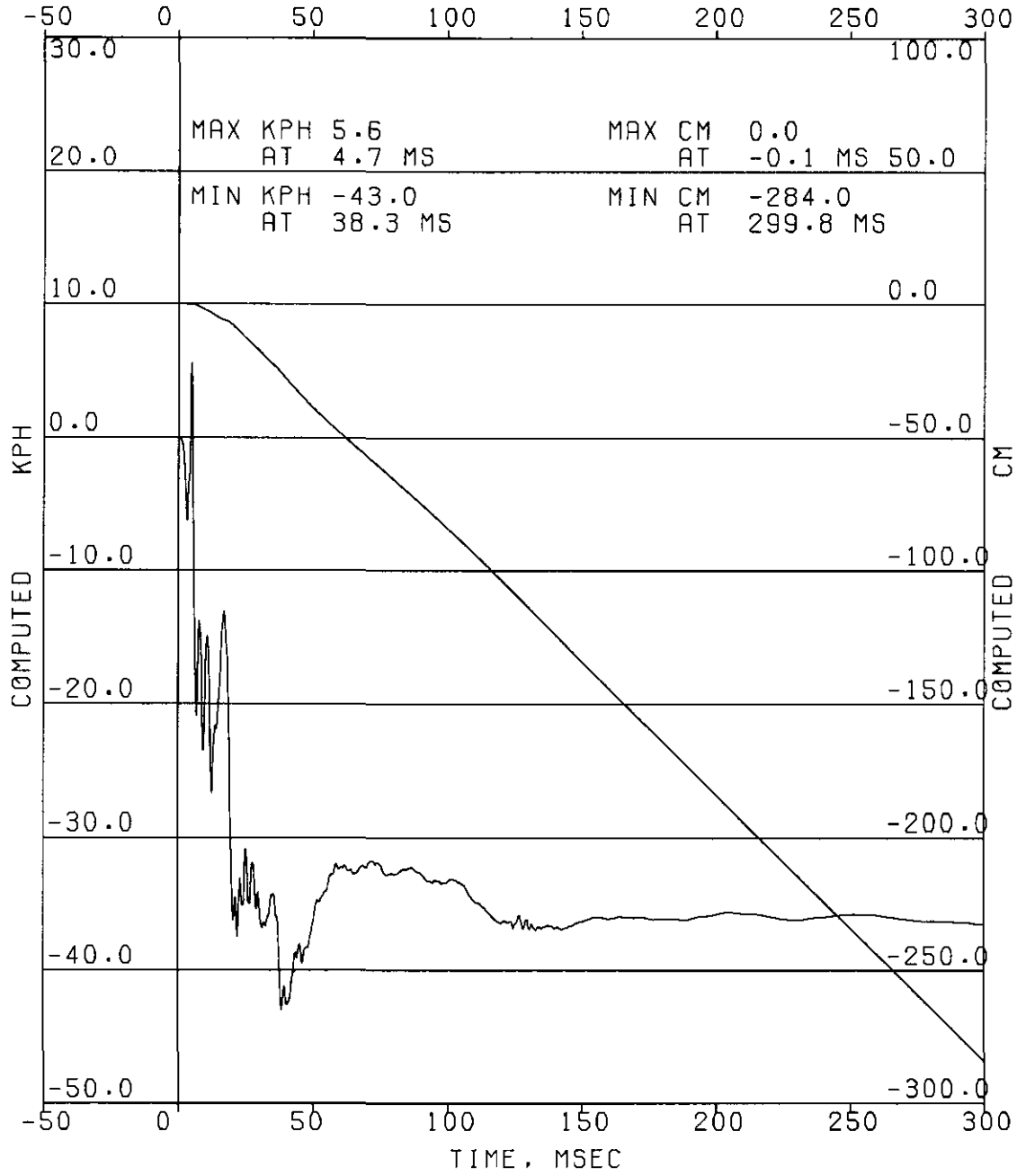
CHANNEL 022 SWING GATE DOOR HANDLEX P16971
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02CA
FEB 7,2002 ERRATA 1



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

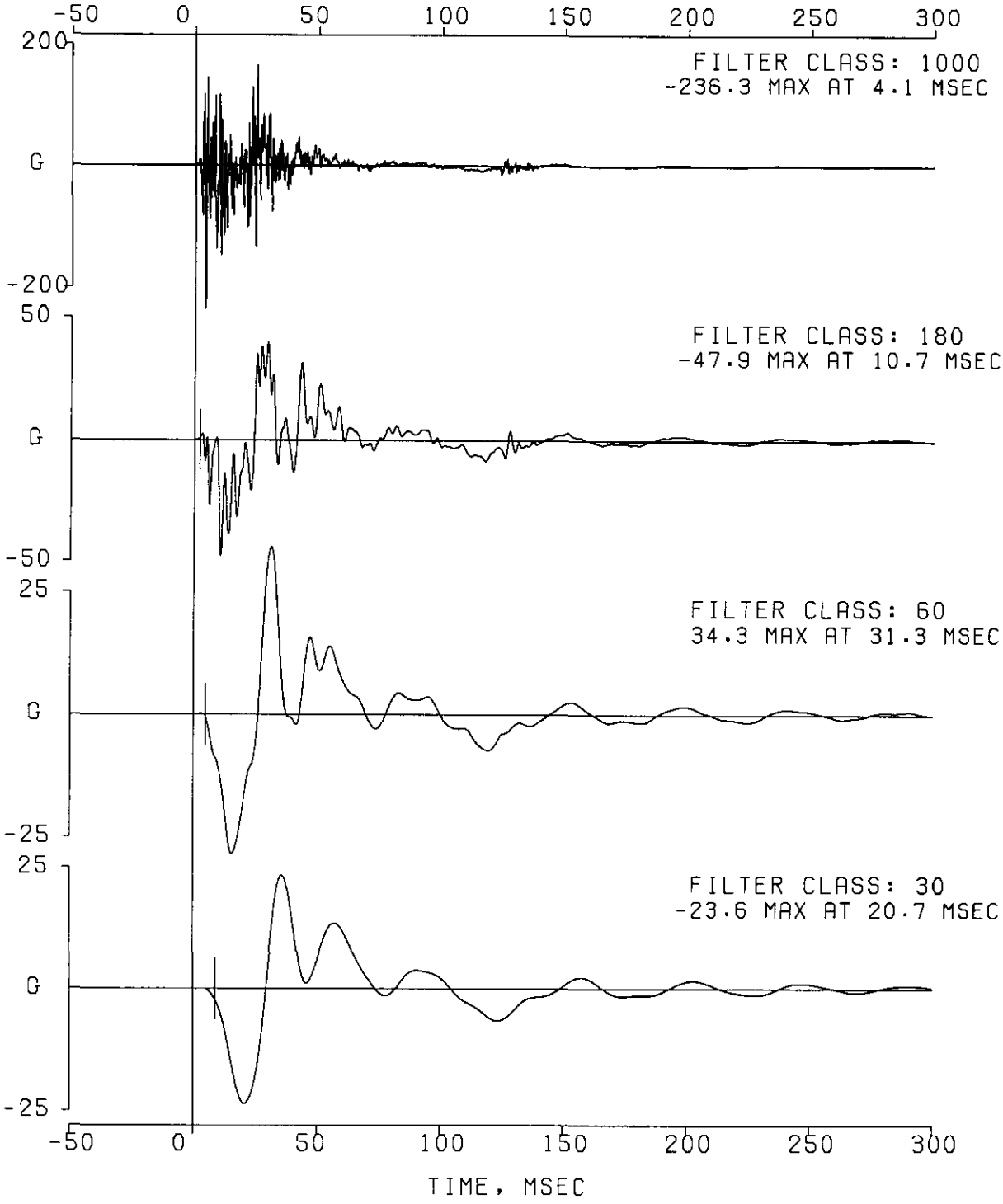
IMPACT ANALYSIS DEPT. 5320
FEB 7,2002

DATA SET 02/06/02CA
ERRATA 1



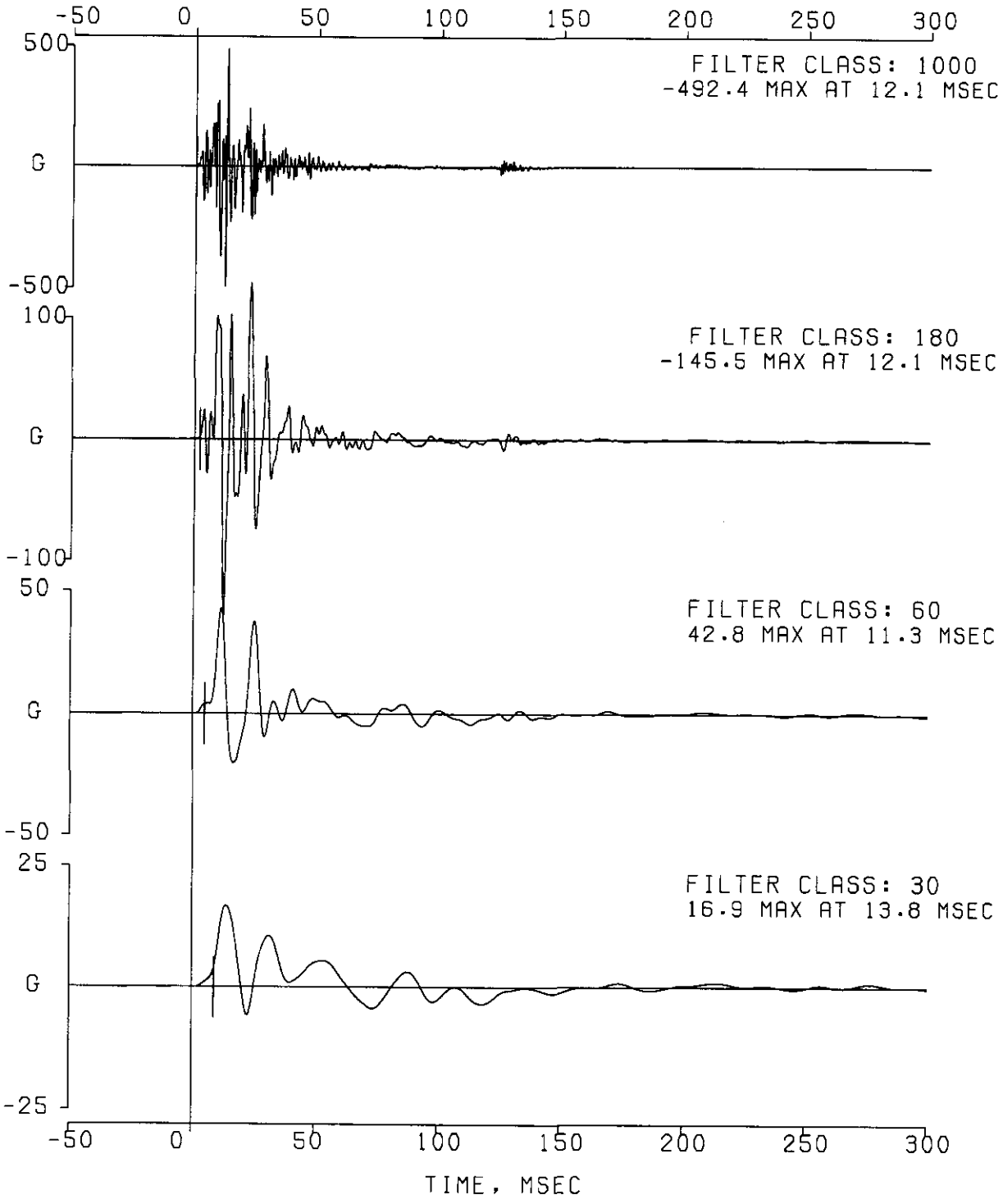
COMPUTED KPH
COMPUTED CM

CHANNEL 023 SWING GATE DOOR HANDLEY J18666
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02CA
FEB 7,2002 ERRATA 1

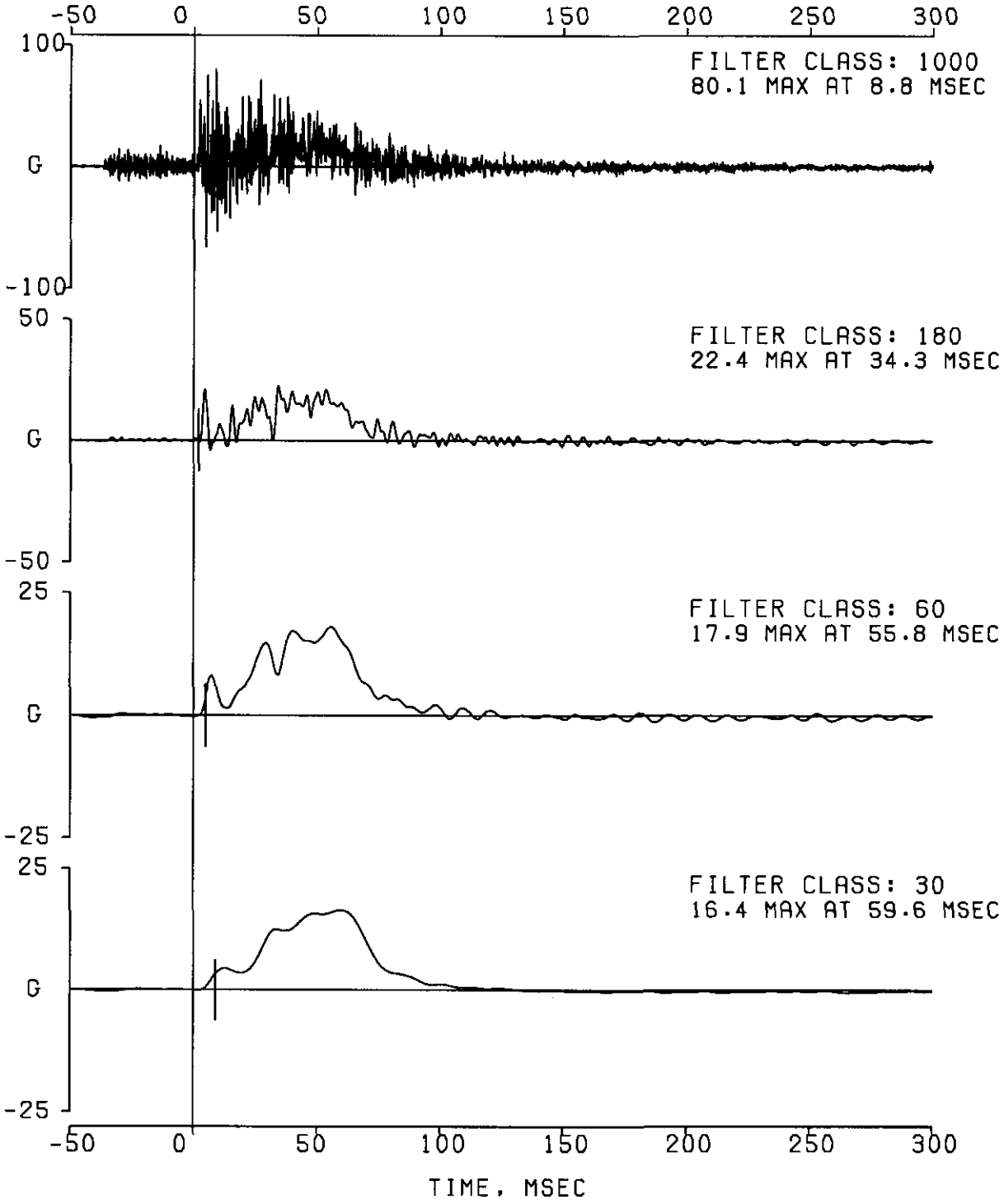


VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
CHANNEL 024 SWING GATE DOOR HANDLEZ J15042
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320
FEB 7,2002

DATA SET 02/06/02CA
ERRATA 1



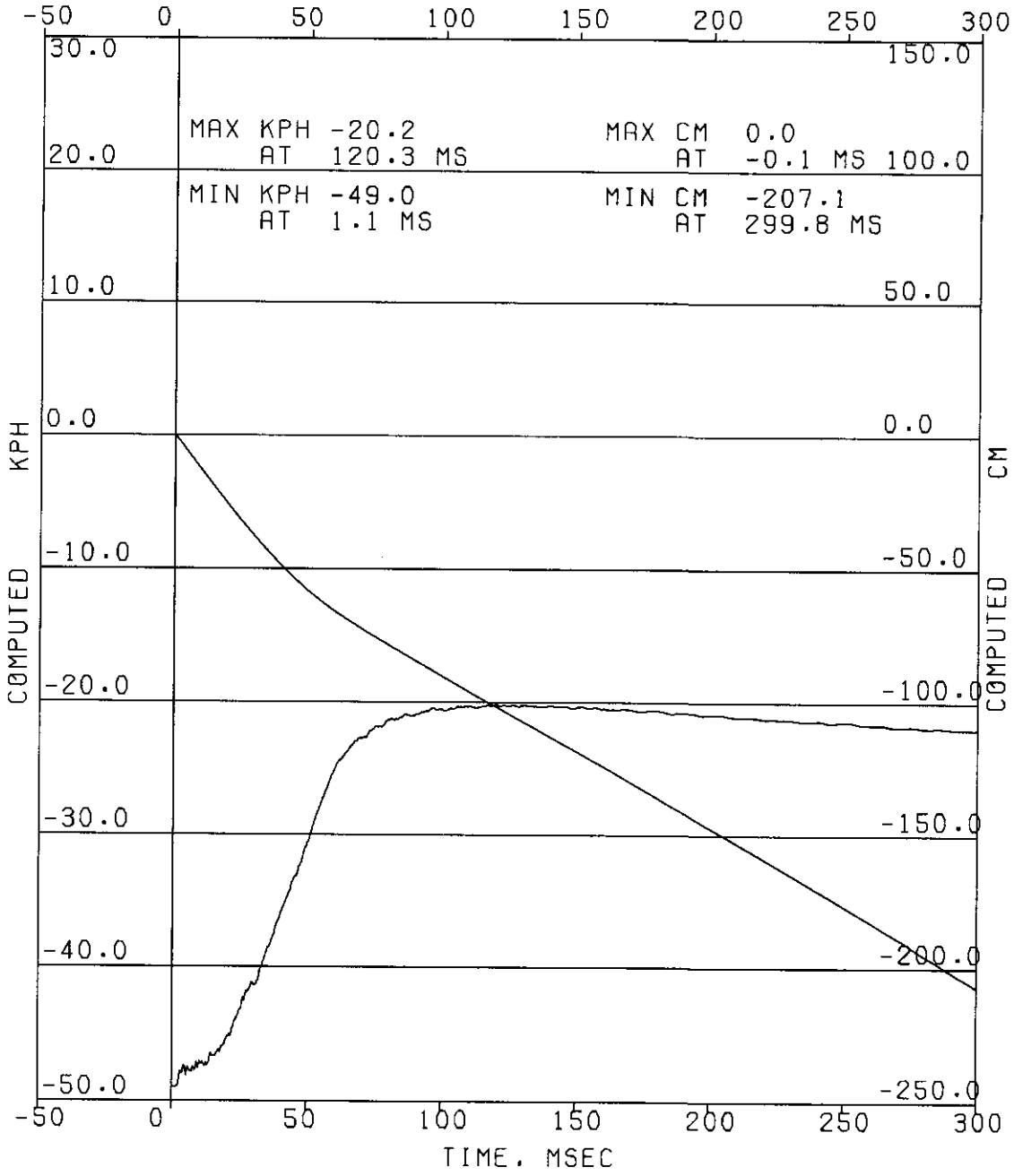
CHANNEL 033 LT RAIL MBAR MID X P16399
FILTER TYPE: 0BDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320 DATA SET 02/06/02CB
FEB 7,2002 ERRATA 1



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

IMPACT ANALYSIS DEPT. 5320
FEB 7,2002

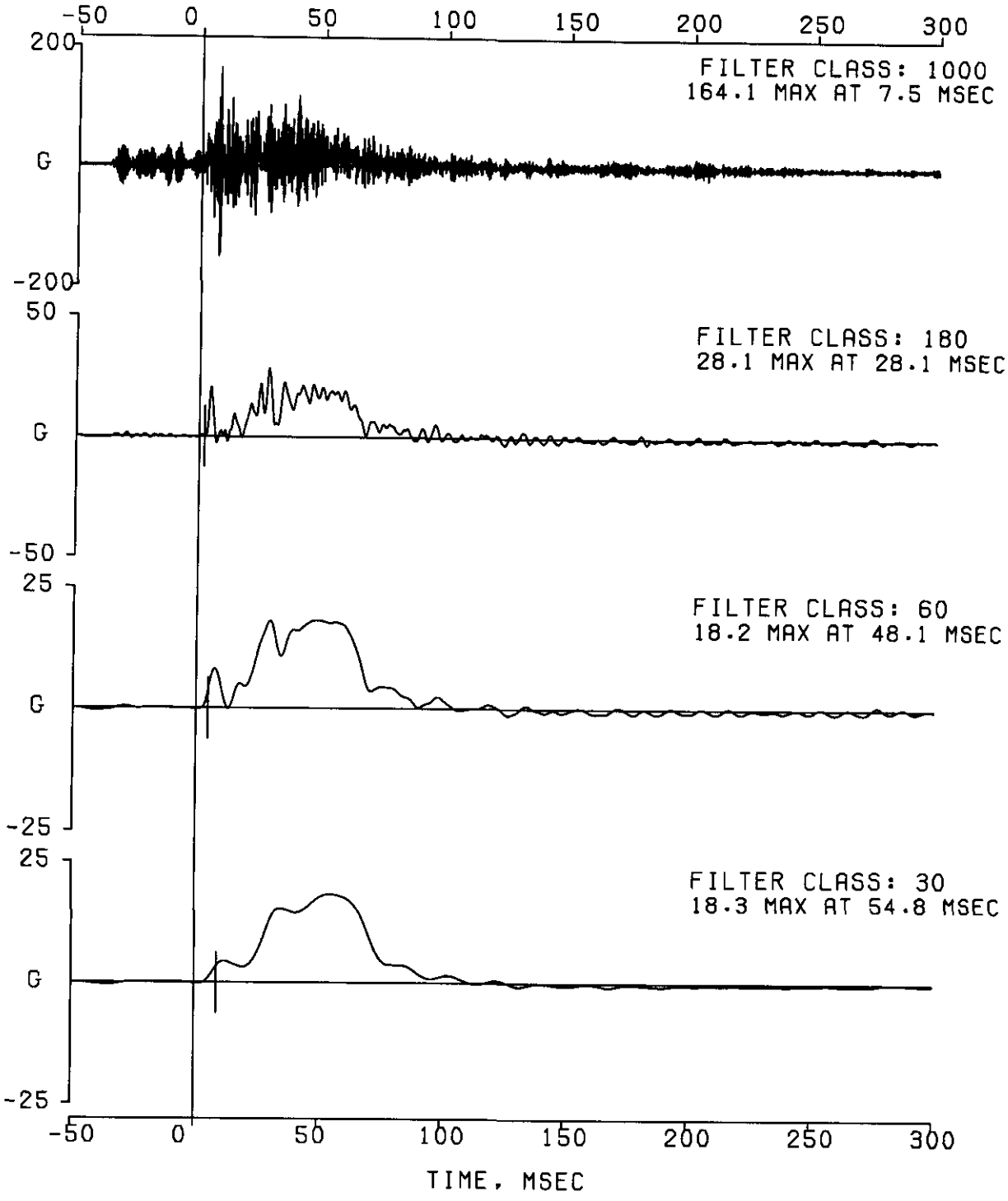
DATA SET 02/06/02CB
ERRATA 1



COMPUTED KPH
COMPUTED CM

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ. USA 301-REAR DEVELOPMENT TEST
CHANNEL 034 RT RAIL MBAR MID X J18123
FILTER TYPE: OBDAS-III RESPONSE CORRECTION, CLASS 1000 FILTER(1650)
IMPACT ANALYSIS DEPT. 5320
FEB 21,2002

DATA SET 02/06/02CB
ERRATA 1



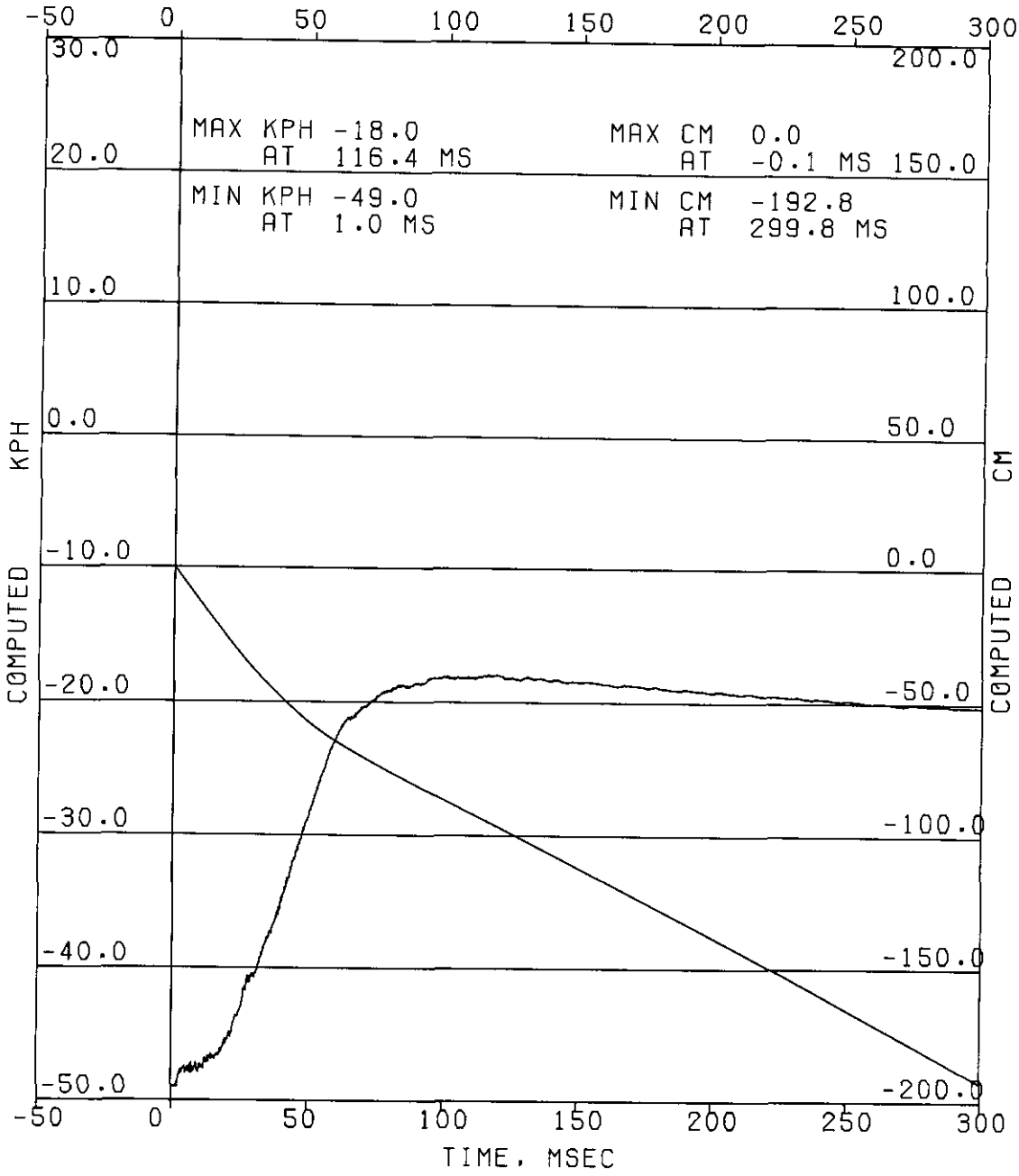
CORRECTED AND REISSUED

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
CHANNEL 034 RT RAIL MBAR MID X J18123

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

IMPACT ANALYSIS DEPT. 5320
FEB 21,2002

DATA SET 02/06/02CB
ERRATA 1



CORRECTED AND REISSUED

COMPUTED KPH
COMPUTED CM

INTER COMPANY CORRESPONDENCE

DATE 02/21/02

TO
DISTRIBUTION

FROM	DEPARTMENT	PLANT/OFFICE	CIMS NUMBER
D. S. CARLISLE	5320	CTC	481-00-27

SUBJECT:
FORCE, TIME, CRUSH, ENERGY ANALYSIS
VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
TEST DATE 02/06/02

TEST SITE CPG

TEST PURPOSE	PRIMARY, 2002 USA 301-REAR DEVELOPMENT
IMPACT TYPE	TARGET SPEED: 48.3 KPH DAMAGE LOCATION: REAR (FULL) BARRIER TYPE: REAR TYPE IV BARRIER SURFACE: PLYWOOD
VEHICLE	BODY CLASS: KJ CAR LINE: KJ BODY: J ENGINE: 3.7 LITER ENGINE NOTE: V6 TRANSMISSION: 4 SPEED AUTO TRANS. NOTE: VIN AS TESTED: 1J8GL48K82W[redacted] MOD. VIN AS BUILT: 1J8GL48K82W[redacted] MOD.
TEST SPEED	48.95 KPH BY TRAP AVERAGE
TEST WEIGHT (KG)	2204 TOTAL, 1199 FRONT, 1005 REAR
OCCUPANTS	1L - 50TH MALE BALLAST HYBRID 2, 0 - CH AD-59 RESTRAINT- 3-PT UNIBELT ONLY 1R - 50TH MALE BALLAST HYBRID 2, 0 - CH AD-50 RESTRAINT- 3-PT UNIBELT ONLY
BUILD CONDITION	

TARGET WEIGHT (KG) 2204 TOTAL, 1173 FRONT, 1031 REAR
INCLUDING BALLAST AND OCCUPANTS

FUEL AND BALLAST 64.4 LITERS STODDARD SOLVENT
136.1 KG BALLAST WEIGHT SECURED IN CARGO AREA
136.1 KG ADDITIONAL BALLAST WEIGHT ADDED
200 LBS IN SECOND ROW SEAT AREA. 100 LBS ON LF FLOOR

THE FORCE ON THE MOVING BARRIER, THE CRUSH, AND THE ENERGY ABSORBED BY THE STRUCK VEHICLE, ALL AS FUNCTIONS OF TIME, WERE CALCULATED FROM ACCELEROMETER DATA. THE FACT THAT ALL THE CALCULATIONS ARE BASED ON THE DATA FROM A SINGLE ACCELEROMETER MOUNTED ON THE MOVING BARRIER INSURES THAT ALL THE CALCULATIONS WILL BE CONSISTENT, BUT NOT NECESSARILY QUANTITATIVELY EXACT. AGREEMENT WITH THE AMOUNT AND TIME OF PEAK DYNAMIC CRUSH OBTAINED FROM FILM ANALYSIS IS OBTAINED BY MANIPULATING THE WEIGHT TRANSFER FUNCTION AND THE ACCELERATION SCALING PARAMETER. NEITHER OF THESE INPUTS IS A MEASURED VALUE AND THERE IS NO QUALIFICATION TEST FOR THEM OUTSIDE OF REASONABLENESS. FOR THESE REASONS THE PLOTS SHOULD BE USED WITH CAUTION.

S. A. MARCHENIA

D. S. CARLISLE

GRAPHS - 5

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
REAR IMPACT FORCE, TIME, CRUSH, ENERGY ANALYSIS

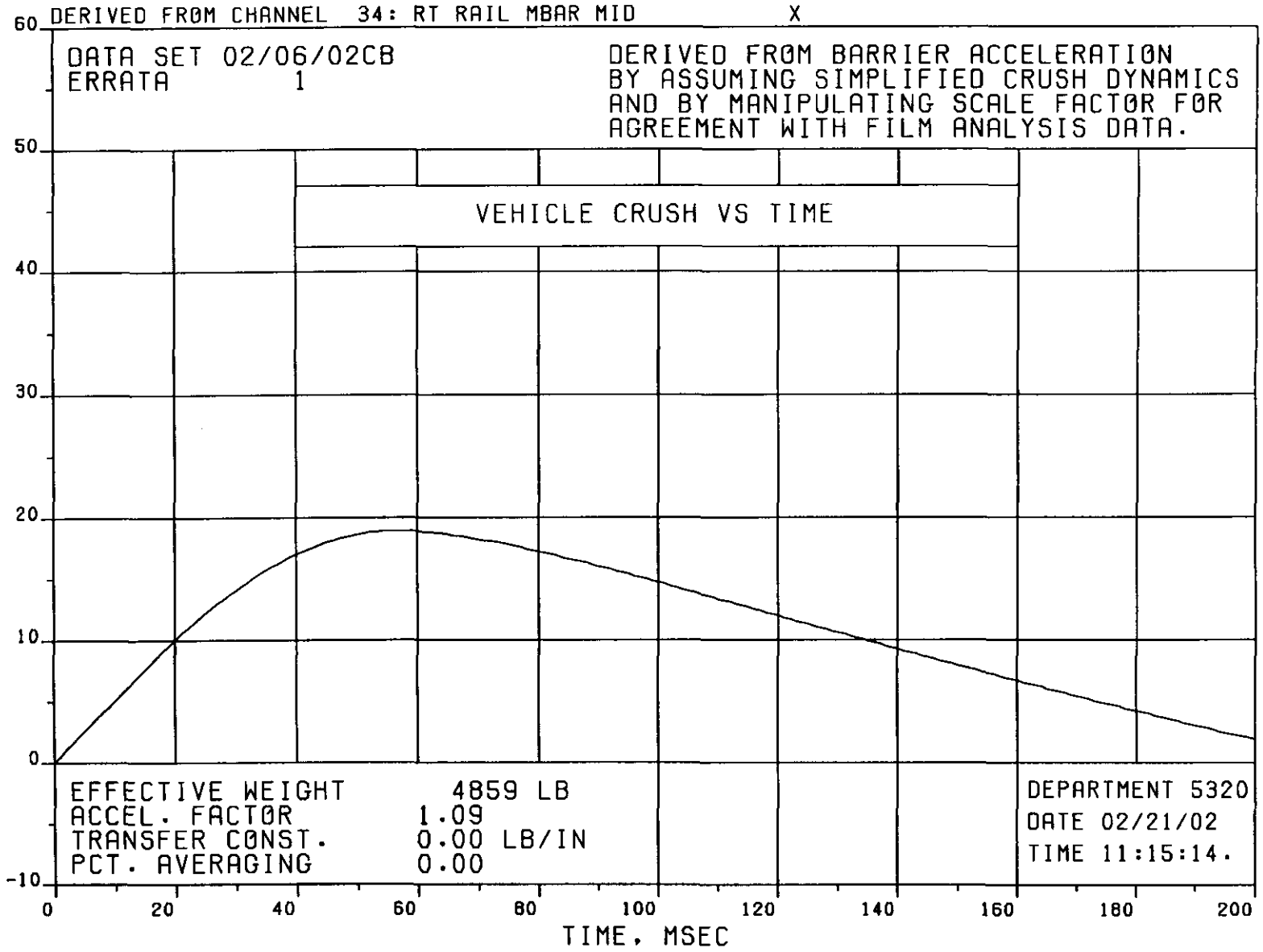


FIGURE 1

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
REAR IMPACT FORCE, TIME, CRUSH, ENERGY ANALYSIS

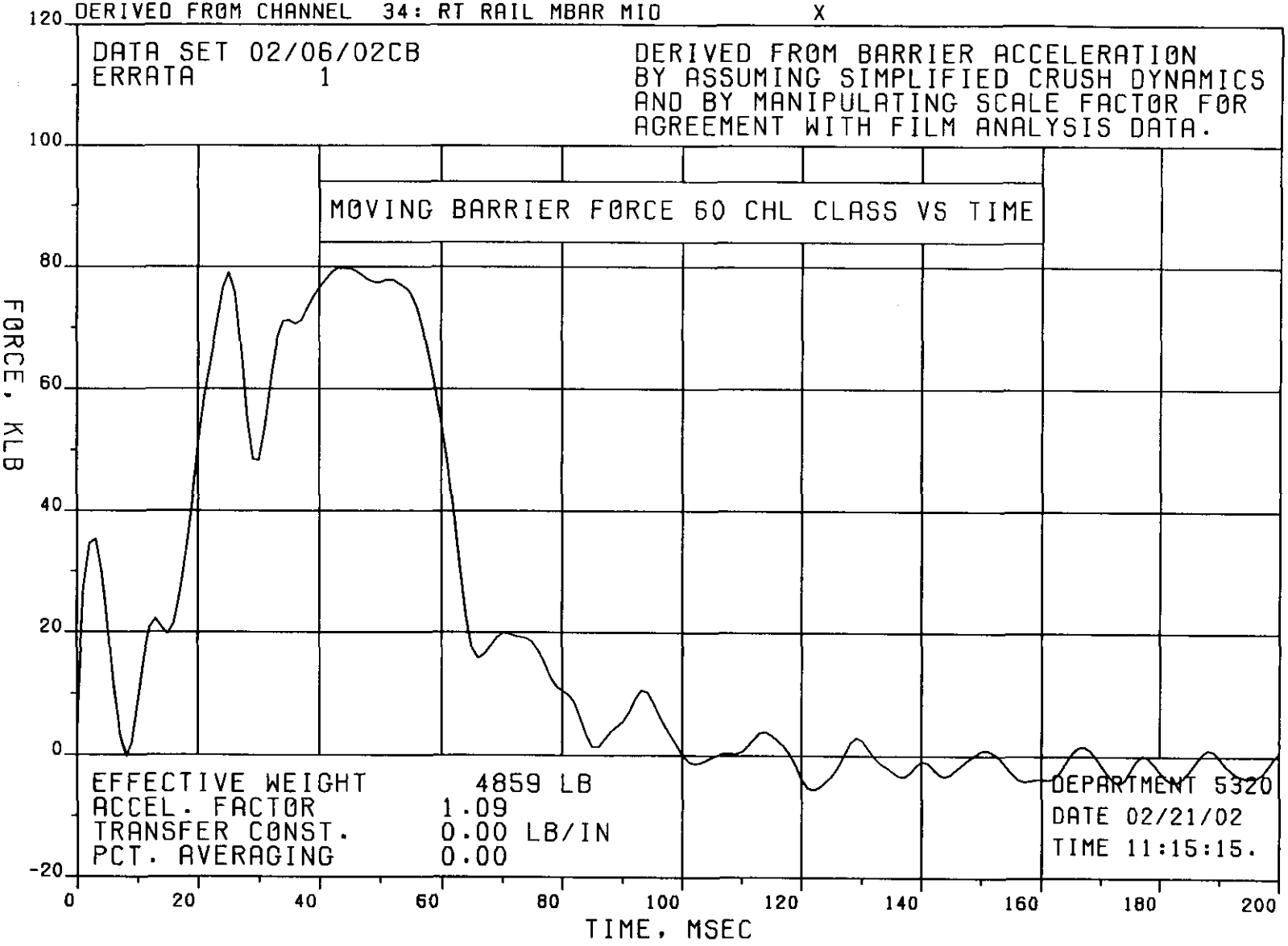


FIGURE 2

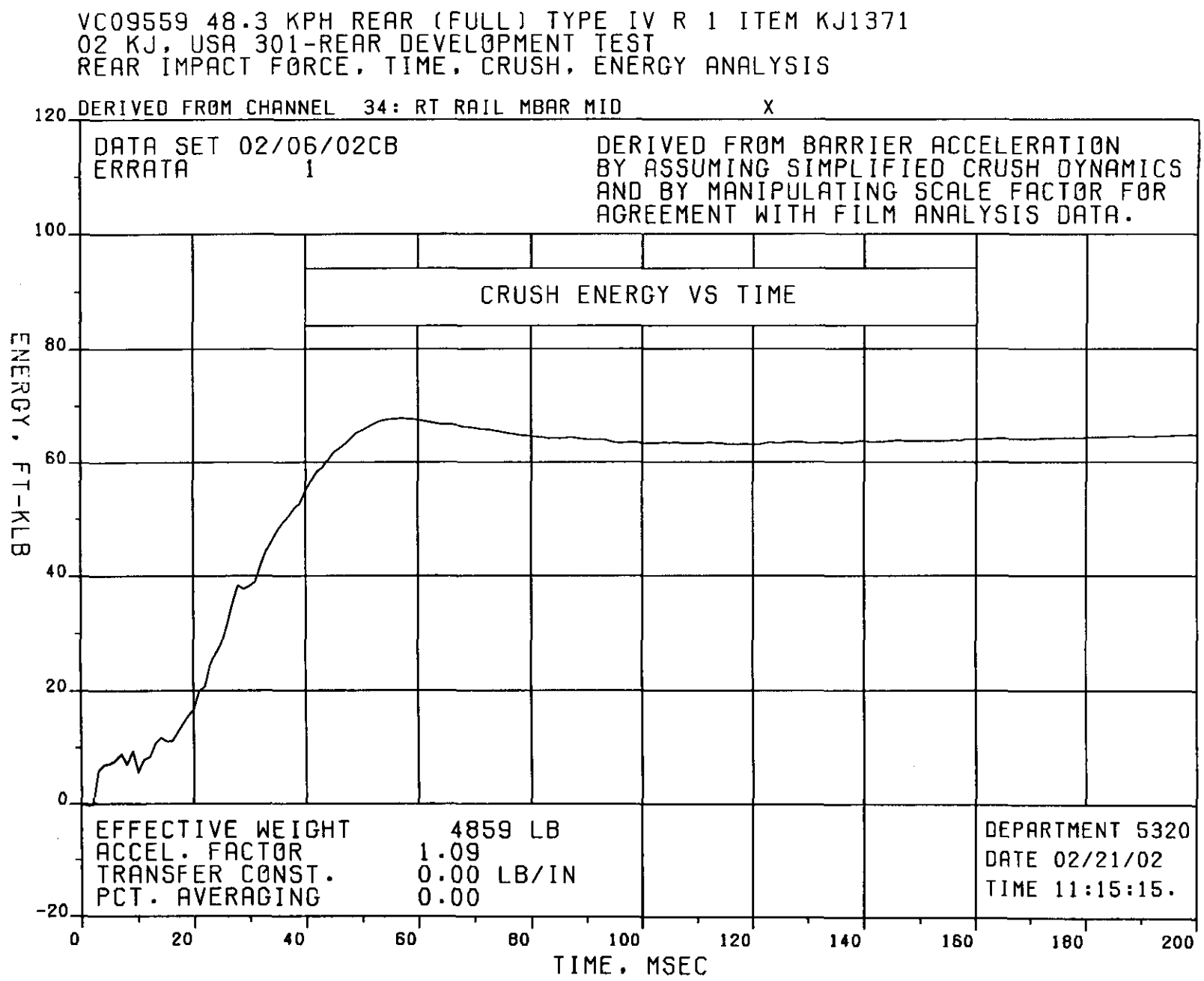


FIGURE 3

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
REAR IMPACT FORCE, TIME, CRUSH, ENERGY ANALYSIS

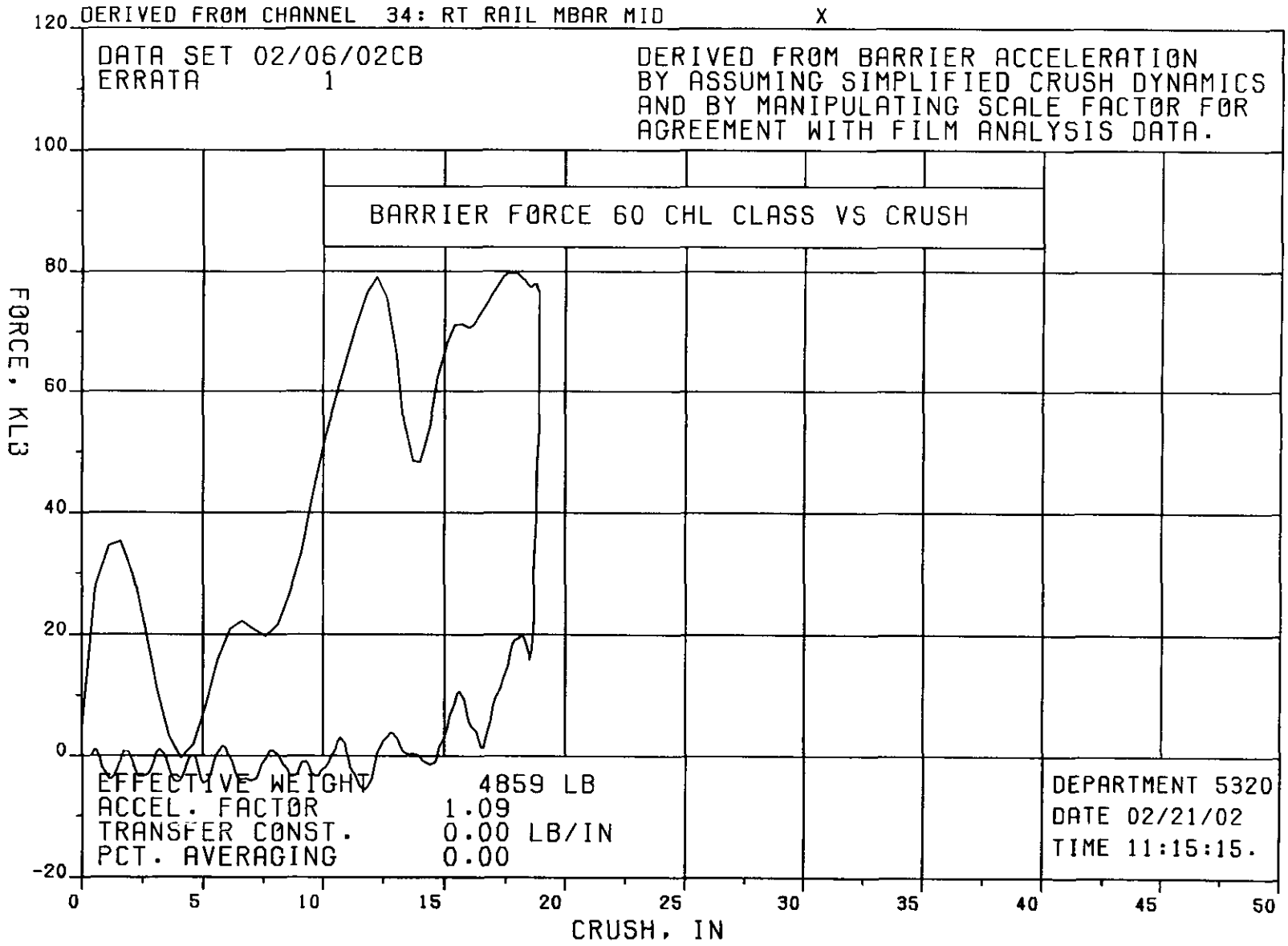


FIGURE 4

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
REAR IMPACT FORCE, TIME, CRUSH, ENERGY ANALYSIS

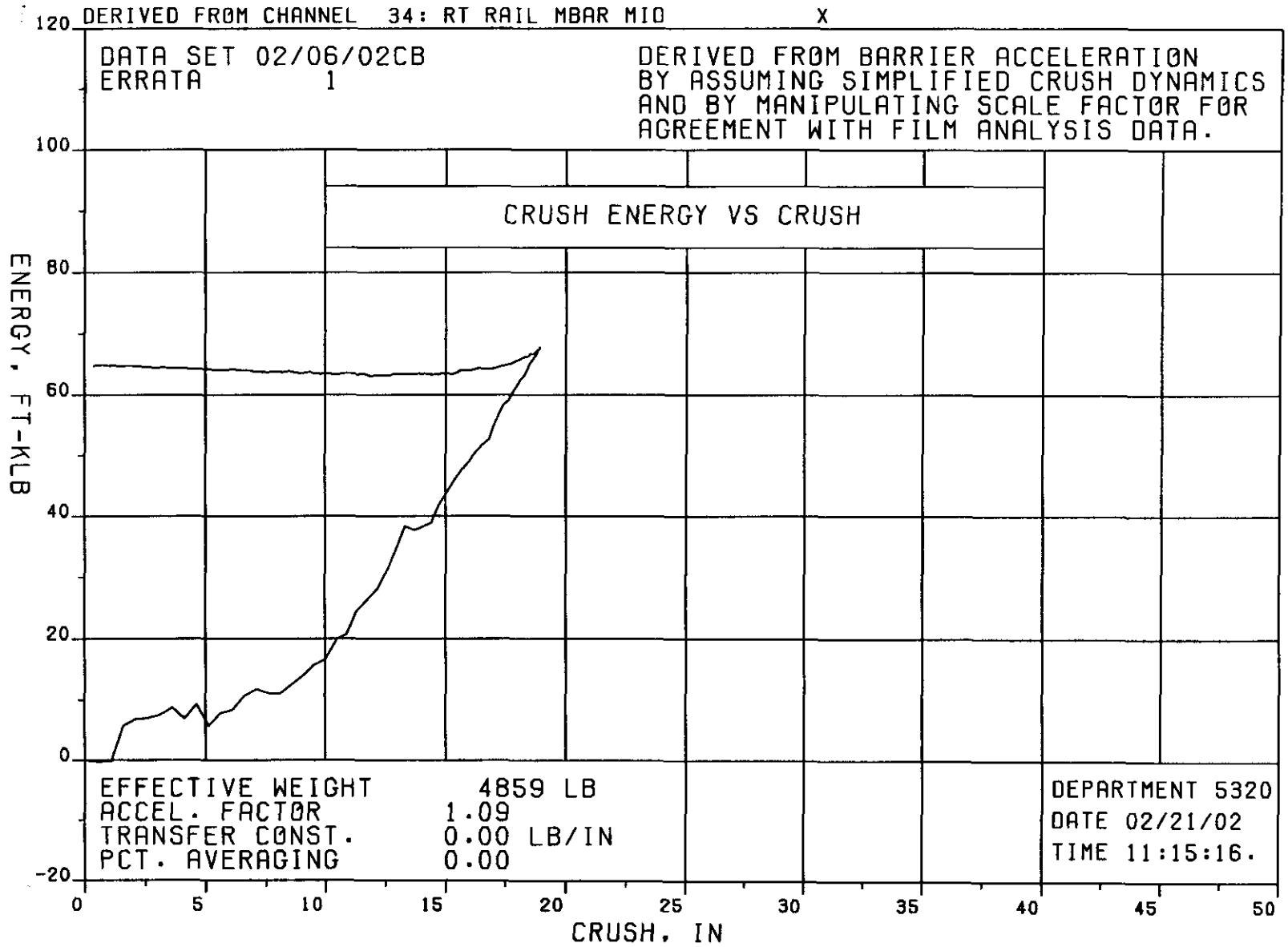


FIGURE 5

INTER COMPANY CORRESPONDENCE

DATE 02/13/02

TO
DISTRIBUTION

FROM	DEPARTMENT	PLANT/OFFICE	CIMS NUMBER
S. P. FLETCHER	5320	CTC	481-00-27

SUBJECT:
REAR DYNAMIC CRUSH ANALYSIS
VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ. USA 301-REAR DEVELOPMENT TEST
TEST DATE 02/06/02

TEST SITE CPG

TEST PURPOSE	PRIMARY. 2002 USA 301-REAR DEVELOPMENT
IMPACT TYPE	TARGET SPEED: 48.3 KPH DAMAGE LOCATION: REAR (FULL) BARRIER TYPE: REAR TYPE IV BARRIER SURFACE: PLYWOOD
VEHICLE	BODY CLASS: KJ CAR LINE: KJ BODY: J ENGINE: 3.7 LITER ENGINE NOTE: V6 TRANSMISSION: 4 SPEED AUTO TRANS. NOTE: VIN AS TESTED: 1J8GL48K82W[redacted] MOD. VIN AS BUILT: 1J8GL48K82W[redacted] MOD.
TEST SPEED	48.95 KPH BY TRAP AVERAGE
TEST WEIGHT (KG)	2204 TOTAL. 1199 FRONT. 1005 REAR
OCCUPANTS	1L - 50TH MALE BALLAST HYBRID 2. 0 - CH AD-59 RESTRAINT- 3-PT UNIBELT ONLY 1R - 50TH MALE BALLAST HYBRID 2. 0 - CH AD-50 RESTRAINT- 3-PT UNIBELT ONLY
BUILD CONDITION	

TARGET WEIGHT (KG)	2204 TOTAL, 1173 FRONT, 1031 REAR INCLUDING BALLAST AND OCCUPANTS
FUEL AND BALLAST	64.4 LITERS STODDARD SOLVENT 136.1 KG BALLAST WEIGHT SECURED IN CARGO AREA 136.1 KG ADDITIONAL BALLAST WEIGHT ADDED 200 LBS IN SECOND ROW SEAT AREA. 100 LBS ON LF FLOOR

DATA FOR THIS ANALYSIS WAS DIGITIZED BY C. M. DURST.

REAR 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. LATERAL VALUES WERE HELD CONSTANT THROUGHOUT THE ANALYSIS.

DYNAMIC CRUSH 18.6 +OR- 1 INCH AT 60. +OR- 5 MSEC.

Q. C. ANALYST

S. P. FLETCHER

GRAPHS - 4

GLOSSARY OF TERMS

USED IN STANDARD REPORTS

AD	ANTHROPOMORPHIC DEVICE
ATD	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	THROTTLE 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)
ZEROED	SHIFTED TO START AT ZERO
ZERO-IN	ZEROED INCHES
ZERO-MM	ZEROED MILLIMETERS

IMPACT ANALYSIS
DEPARTMENT 5320
02/13/02 12:40
TEST VC09559

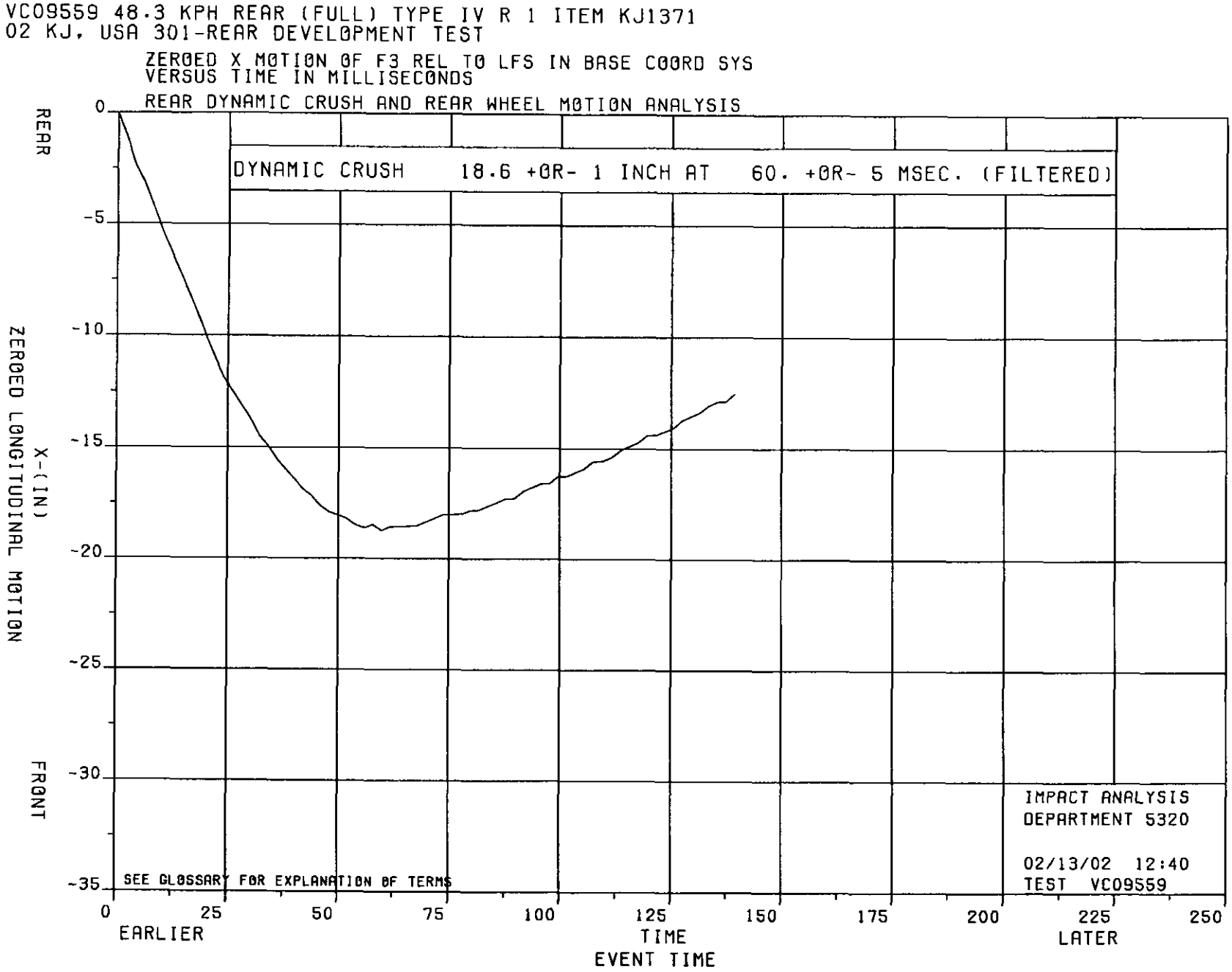


FIGURE 1

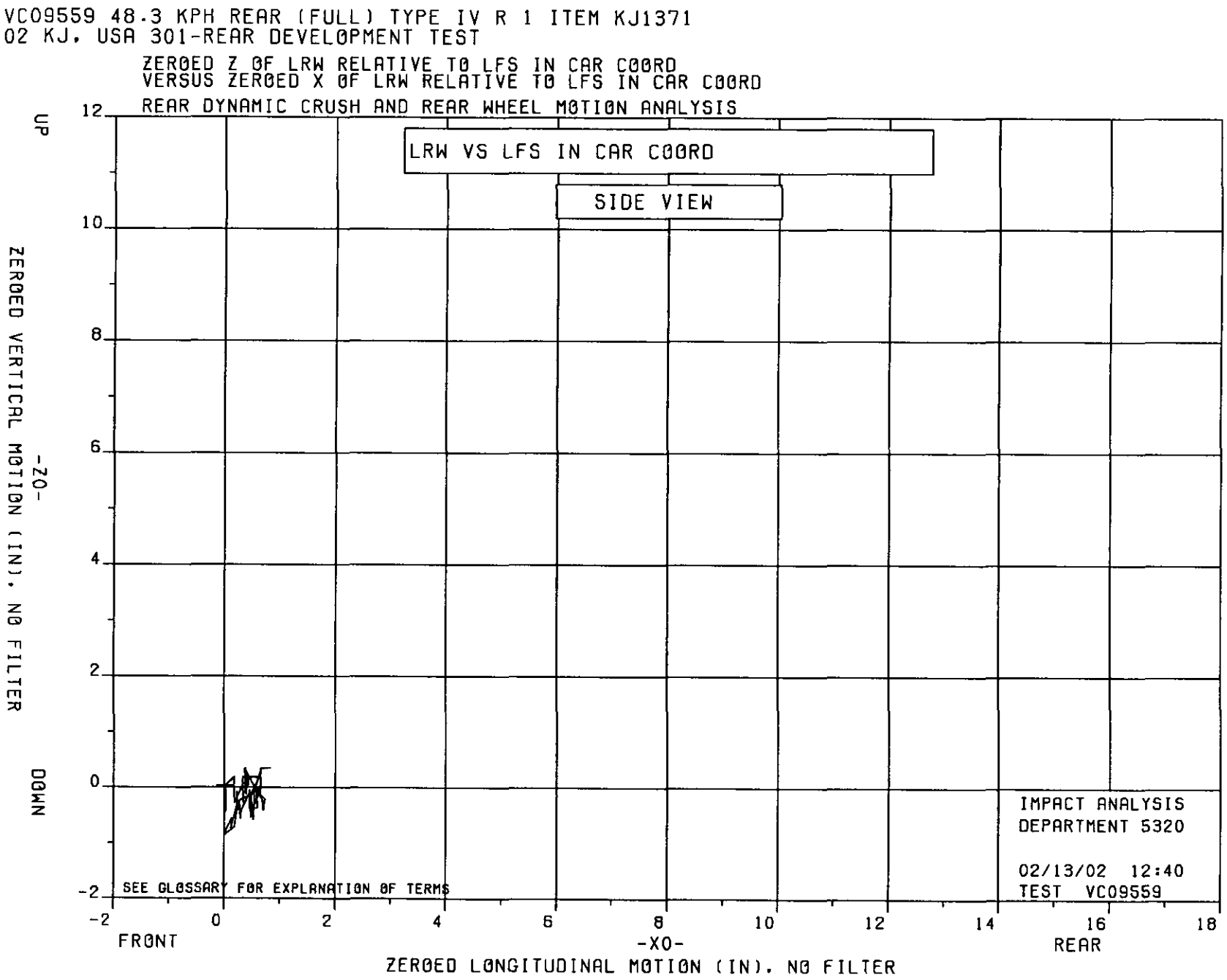


FIGURE 2

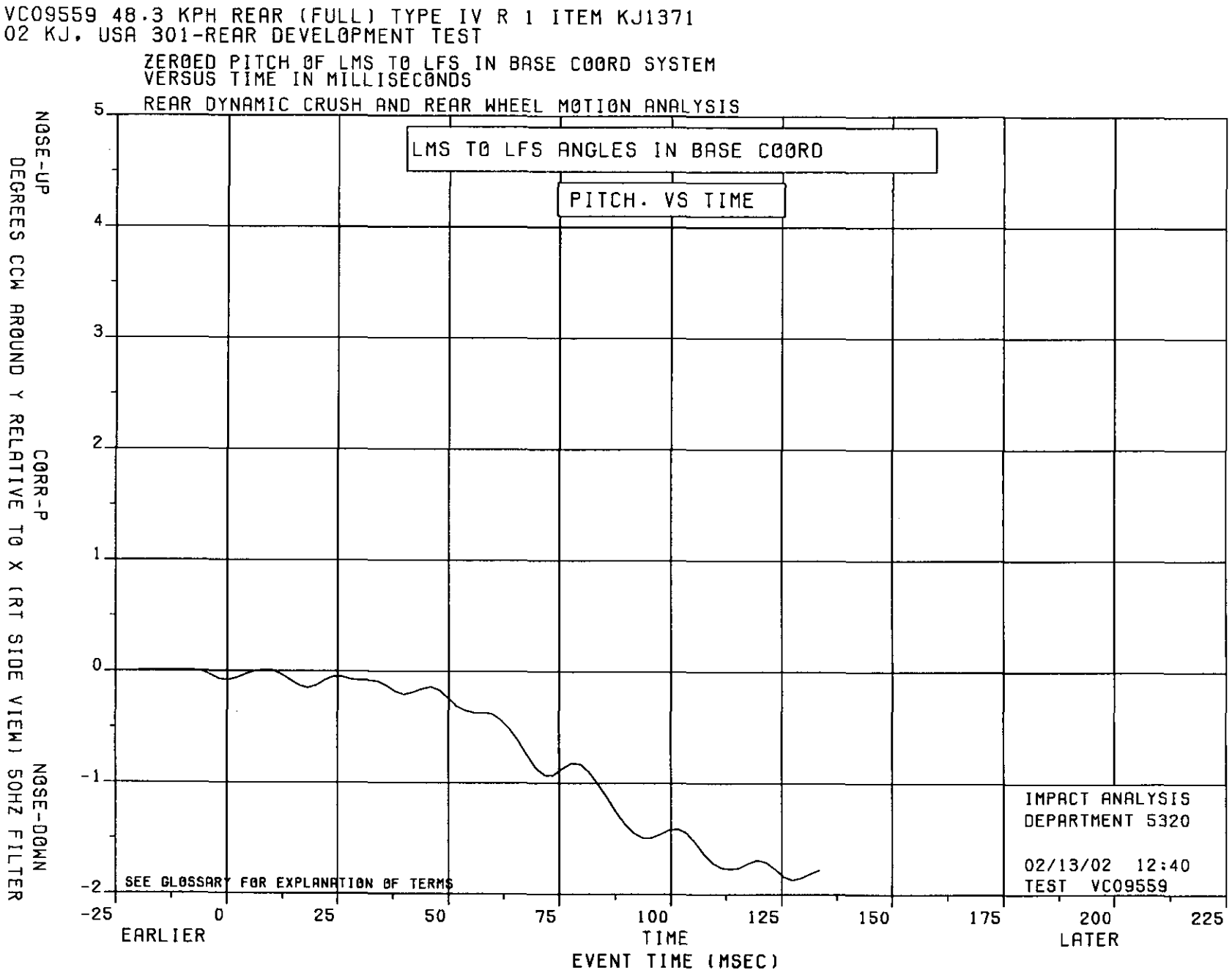

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ. USA 301-REAR DEVELOPMENT TEST
ZEROED PITCH OF LMS TO LFS IN BASE COORD SYSTEM
VERSUS TIME IN MILLISECONDS
REAR DYNAMIC CRUSH AND REAR WHEEL MOTION ANALYSIS
LMS TO LFS ANGLES IN BASE COORD
PITCH. VS TIME
NOSE-UP
DEGREES CCW AROUND Y RELATIVE TO X (RT SIDE VIEW) 50HZ FILTER
CORR-P
NOSE-DOWN
5
4
3
2
1
0
-1
-2
-25
0
25
50
75
100
125
150
175
200
225
EARLIER
TIME
LATER
EVENT TIME (MSEC)
SEE GLOSSARY FOR EXPLANATION OF TERMS
IMPACT ANALYSIS
DEPARTMENT 5320
02/13/02 12:40
TEST VC09559

FIGURE 3

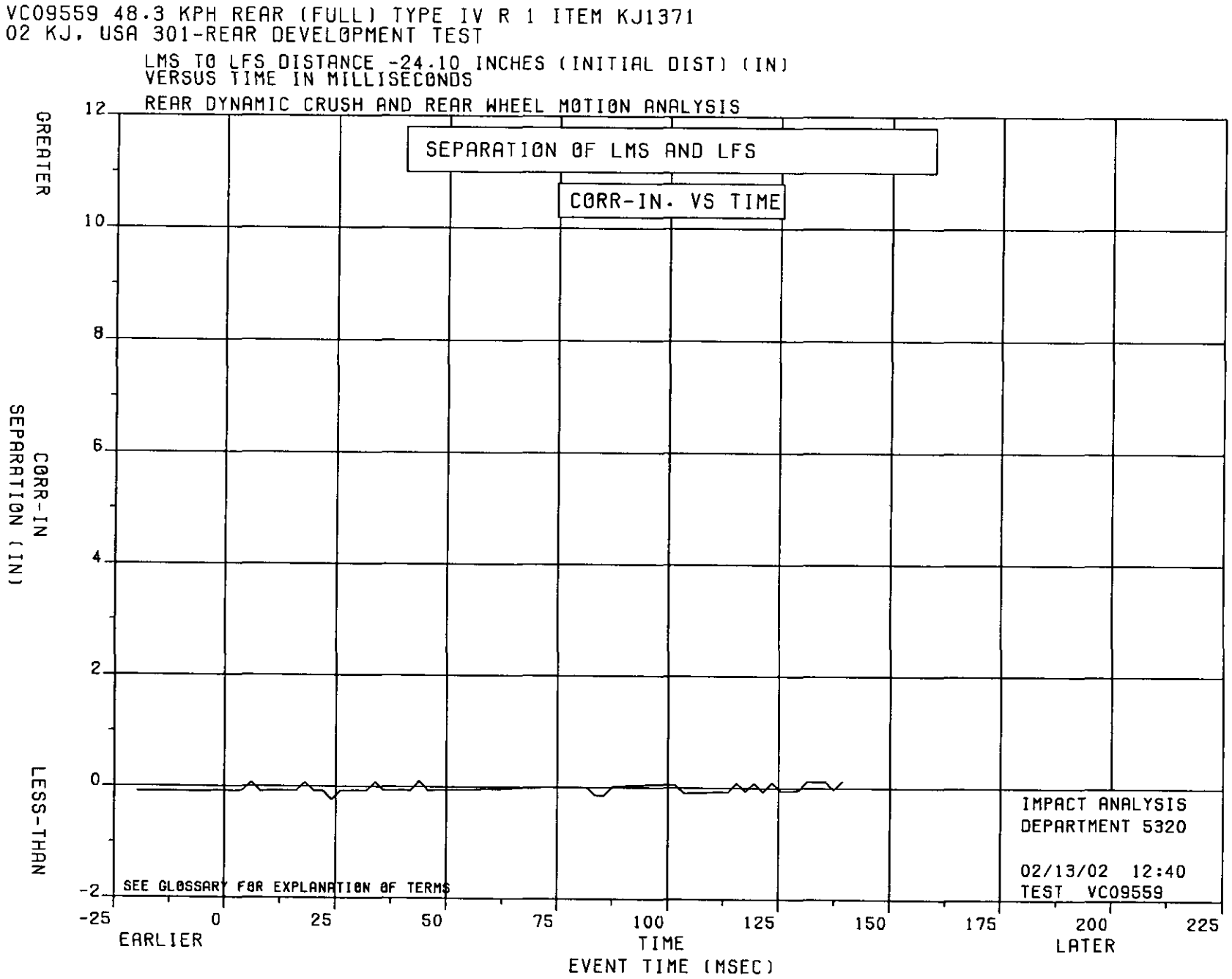


FIGURE 4

INTER COMPANY CORRESPONDENCE

DATE 02/15/02

TO
DISTRIBUTION

FROM	DEPARTMENT	PLANT/OFFICE	CIMS NUMBER
S. P. FLETCHER	5320	CTC	481-00-27

SUBJECT:
REAR UNDERBODY MOTION ANALYSIS
VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
TEST DATE 02/06/02

TEST SITE CPG

TEST PURPOSE	PRIMARY, 2002 USA 301-REAR DEVELOPMENT	
IMPACT TYPE	TARGET SPEED: 48.3 KPH DAMAGE LOCATION: REAR (FULL) BARRIER TYPE: REAR TYPE IV BARRIER SURFACE: PLYWOOD	
VEHICLE	BODY CLASS: KJ CAR LINE: KJ BODY: J ENGINE: 3.7 LITER ENGINE NOTE: V6 TRANSMISSION: 4 SPEED AUTO TRANS. NOTE: VIN AS TESTED: 1J8GL48K82W[redacted]	MOD. MOD.
TEST SPEED	48.95 KPH BY TRAP AVERAGE	
TEST WEIGHT (KG)	2204 TOTAL, 1199 FRONT, 1005 REAR	
OCCUPANTS	1L - 50TH MALE BALLAST HYBRID 2, 0 - CH RESTRAINT- 3-PT UNIBELT ONLY 1R - 50TH MALE BALLAST HYBRID 2, 0 - CH RESTRAINT- 3-PT UNIBELT ONLY	AD-59 AD-50
BUILD CONDITION		

TARGET WEIGHT (KG) 2204 TOTAL, 1173 FRONT, 1031 REAR
INCLUDING BALLAST AND OCCUPANTS

FUEL AND BALLAST 64.4 LITERS STODDARD SOLVENT
136.1 KG BALLAST WEIGHT SECURED IN CARGO AREA
136.1 KG ADDITIONAL BALLAST WEIGHT ADDED
200 LBS IN SECOND ROW SEAT AREA. 100 LBS ON LF FLOOR

DATA FOR THIS ANALYSIS WAS DIGITIZED BY S. D. AMUNDSEN.

THE RELATIVE MOTIONS OF SELECTED REAR UNDERBODY TARGETS HAVE BEEN DETERMINED BY FILM ANALYSIS. TIME WAS BASED ON CAMERA TIMING DATA.

Q. C. ANALYST

S. P. FLETCHER

GRAPHS - 23

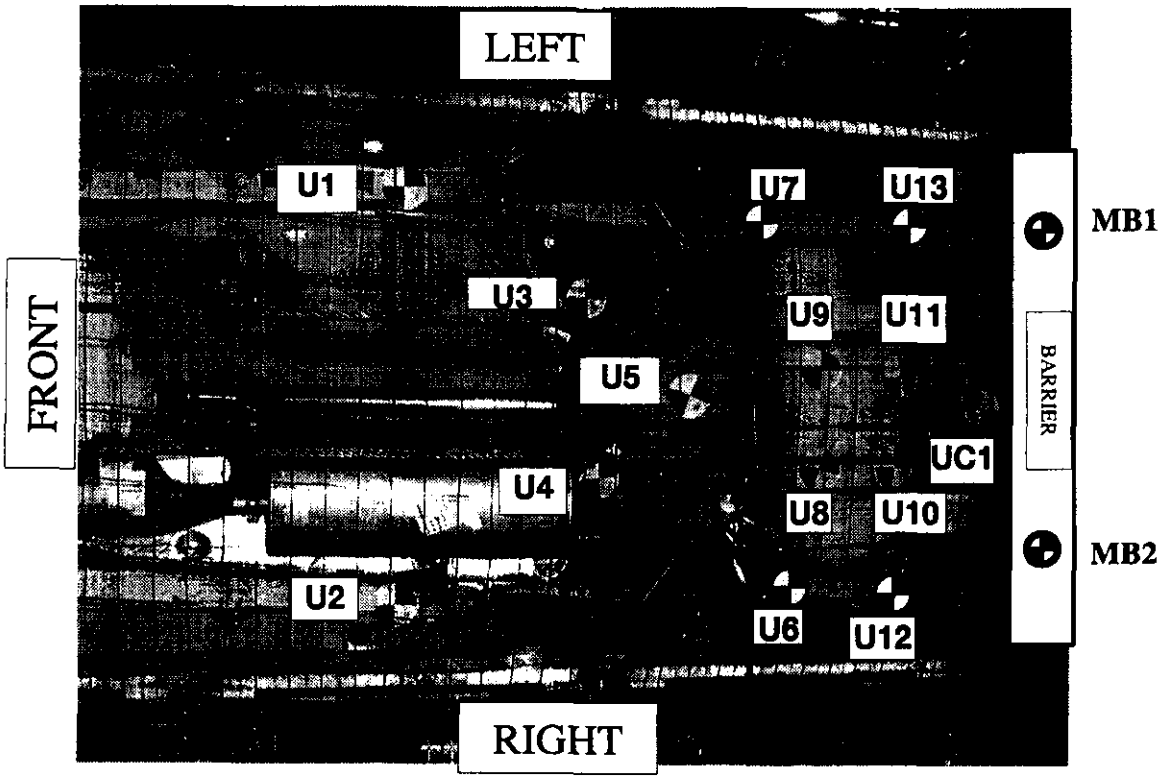
GLOSSARY OF TERMS

USED IN STANDARD REPORTS

AD	ANTHROPOMORPHIC DEVICE
ATD	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	THROTTLE 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)
ZEROED	SHIFTED TO START AT ZERO
ZERO-IN	ZEROED INCHES
ZERO-MM	ZEROED MILLIMETERS

IMPACT ANALYSIS
DEPARTMENT 5320
02/15/02 09:15
TEST VC09559

VC09559 48.3 KPH REAR (FULL) TYPE IV R1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST



TARGET NAME	TARGET DESCRIPTION
UC1	CENTER TARGET, REAR BUMPER CROSSMEMBER
U1	LEFT FOREMOST RAIL TARGET
U2	RIGHT FOREMOST RAIL TARGET
U3	LEFT UPPER SWING-ARM TARGET
U4	RIGHT UPPER SWING-ARM TARGET
U5	REAR DIFFERENTIAL TARGET
*U6	RIGHT RAIL TARGET -RWD OF AXLE
*U7	LEFT RAIL TARGET -RWD OF AXLE
U8	RIGHT FRONT CORNER FUEL TANK TARGET
U9	LEFT FRONT CORNER FUEL TANK TARGET
U10	RIGHT AFT FUEL TANK TARGET
U11	LEFT AFT FUEL TANK TARGET
U12	RIGHT AFTMOST RAIL TARGET -NEAR REAR RIGHT CORNER FUEL TANK
U13	LEFT AFTMOST RAIL TARGET - NEAR REAR LEFT CORNER FUEL TANK
MB1	LEFT MOVING BARRIER BOTTOM TARGET
MB2	RIGHT MOVING BARRIER BOTTOM TARGET

* TARGET NOT VISIBLE FOR THIS ANALYSIS

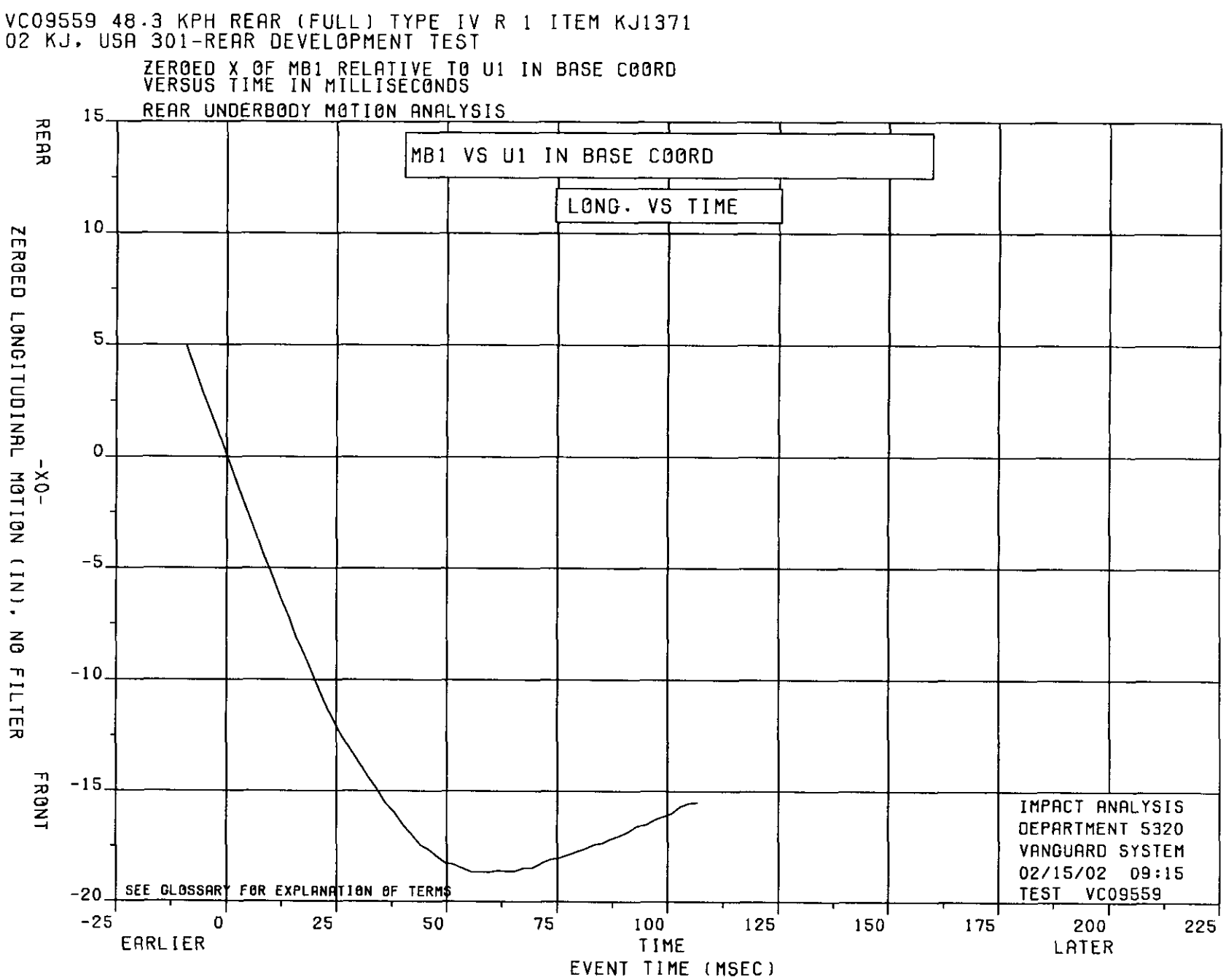


FIGURE 1

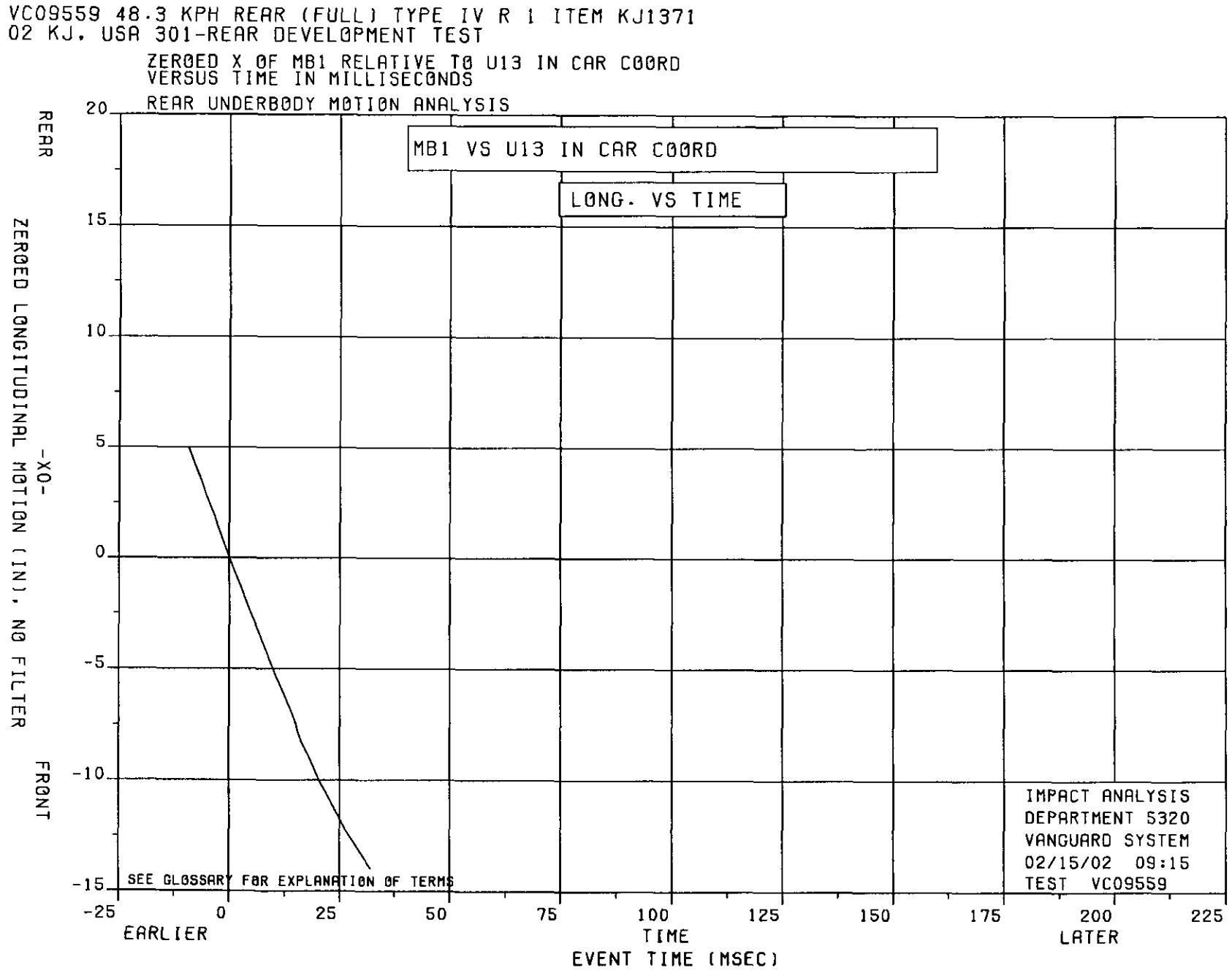


FIGURE 2

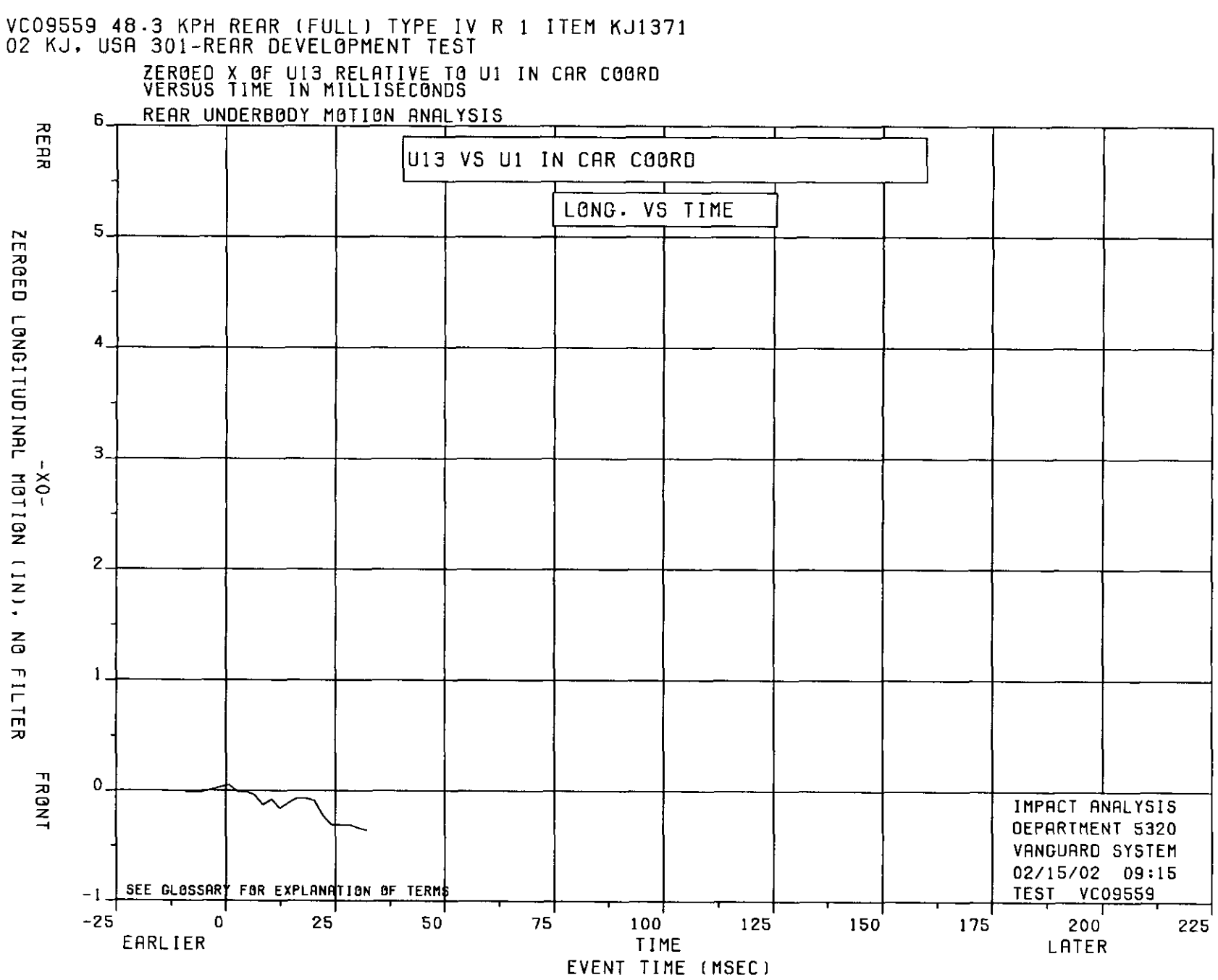

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
ZEROED X OF U13 RELATIVE TO U1 IN CAR COORD
VERSUS TIME IN MILLISECONDS
REAR UNDERBODY MOTION ANALYSIS
U13 VS U1 IN CAR COORD
LONG. VS TIME
REAR
ZEROED LONGITUDINAL MOTION (IN), NO FILTER
-XO-
FRONT
6
5
4
3
2
1
0
-1
-25
0
25
50
75
100
125
150
175
200
225
EARLIER
TIME
LATER
EVENT TIME (MSEC)
SEE GLOSSARY FOR EXPLANATION OF TERMS
IMPACT ANALYSIS
DEPARTMENT 5320
VANGUARD SYSTEM
02/15/02 09:15
TEST VC09559

FIGURE 3

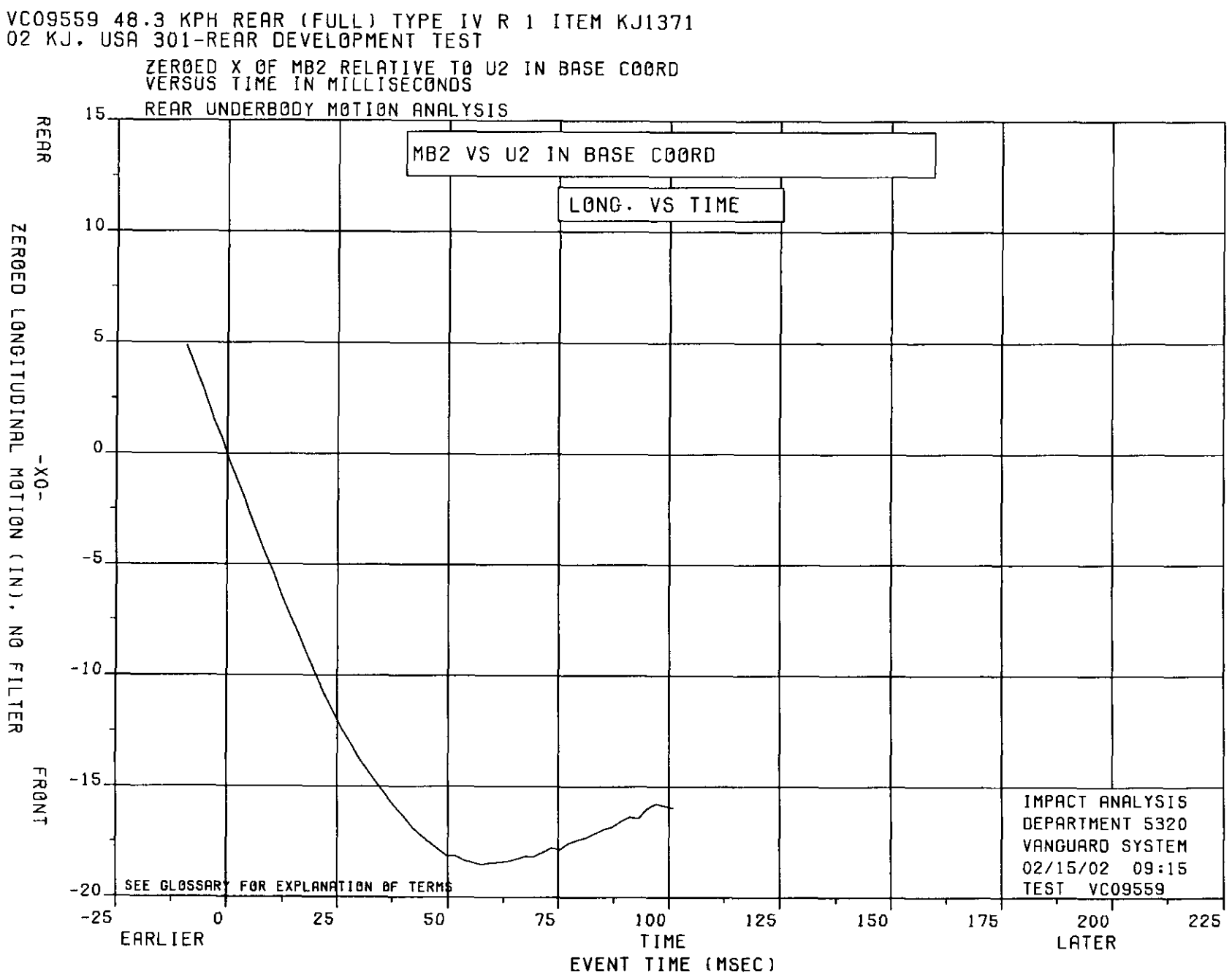

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
ZEROED X OF MB2 RELATIVE TO U2 IN BASE COORD
VERSUS TIME IN MILLISECONDS
REAR UNDERBODY MOTION ANALYSIS
MB2 VS U2 IN BASE COORD
LONG. VS TIME
REAR
FRONT
-XO-
ZEROED LONGITUDINAL MOTION (IN), NO FILTER
15
10
5
0
-5
-10
-15
-20
-25
0
25
50
75
100
125
150
175
200
225
EARLIER
TIME
LATER
EVENT TIME (MSEC)
SEE GLOSSARY FOR EXPLANATION OF TERMS
IMPACT ANALYSIS
DEPARTMENT 5320
VANGUARD SYSTEM
02/15/02 09:15
TEST VC09559

FIGURE 4

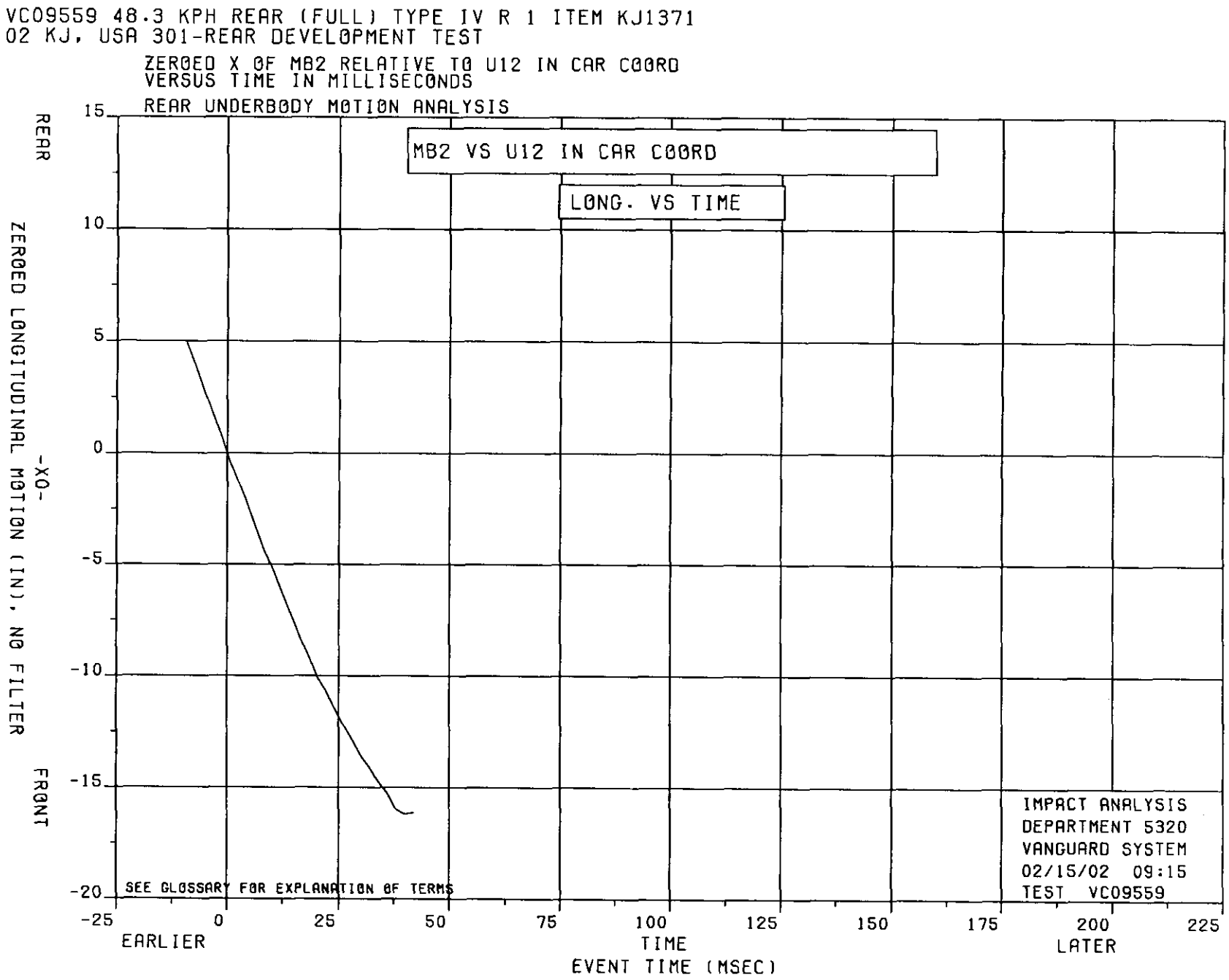

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
ZEROED X OF MB2 RELATIVE TO U12 IN CAR COORD
VERSUS TIME IN MILLISECONDS
REAR UNDERBODY MOTION ANALYSIS
MB2 VS U12 IN CAR COORD
LONG. VS TIME
REAR
FRONT
ZEROED LONGITUDINAL MOTION (IN), NO FILTER
-XO-
15
10
5
0
-5
-10
-15
-20
-25
0
25
50
75
100
125
150
175
200
225
EARLIER
TIME
LATER
EVENT TIME (MSEC)
SEE GLOSSARY FOR EXPLANATION OF TERMS
IMPACT ANALYSIS
DEPARTMENT 5320
VANGUARD SYSTEM
02/15/02 09:15
TEST VC09559

FIGURE 5

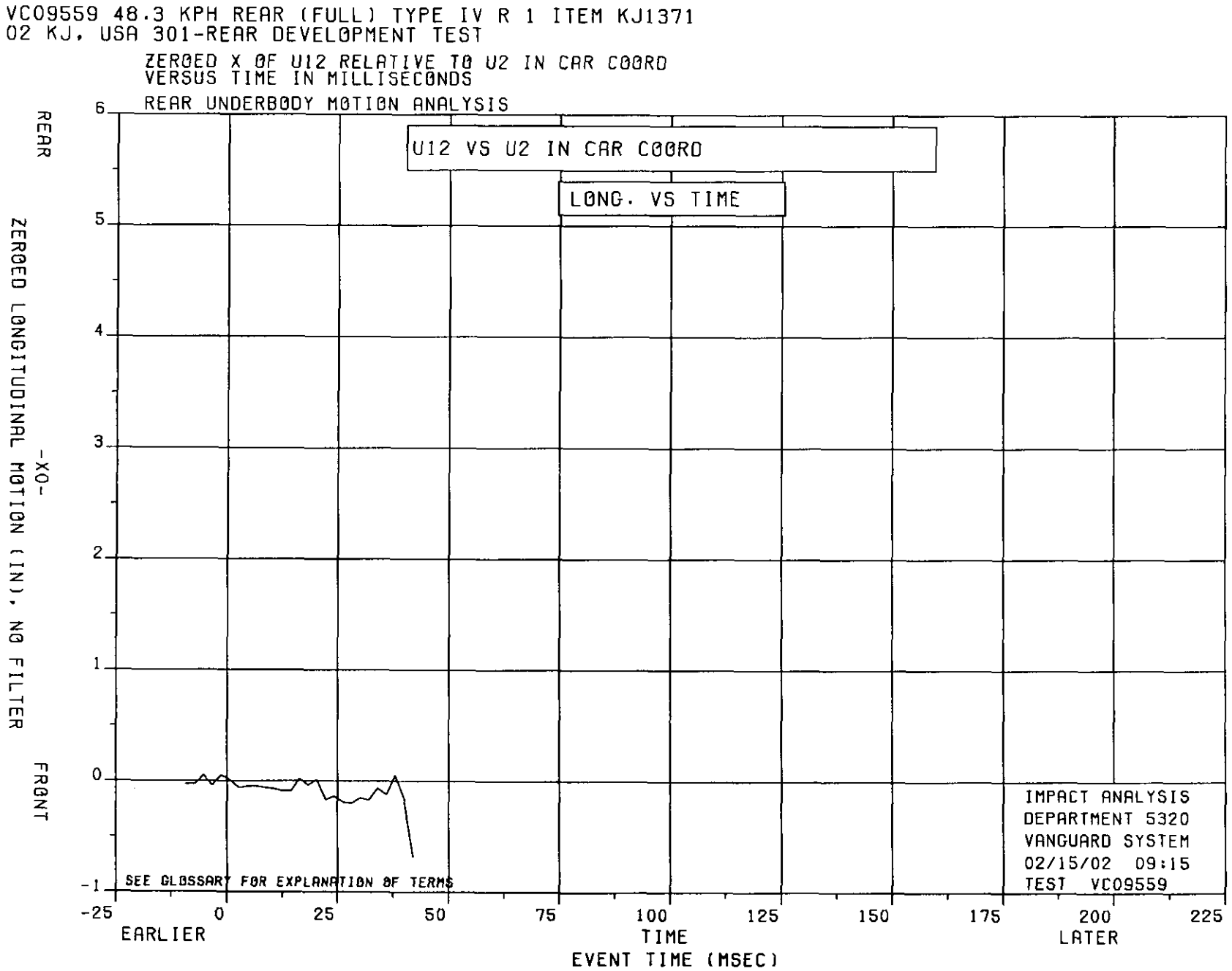

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
ZEROED X OF U12 RELATIVE TO U2 IN CAR COORD
VERSUS TIME IN MILLISECONDS
REAR UNDERBODY MOTION ANALYSIS
U12 VS U2 IN CAR COORD
LONG. VS TIME
REAR
ZEROED LONGITUDINAL MOTION (IN), NO FILTER
-XO-
FRONT
6
5
4
3
2
1
0
-1
SEE GLOSSARY FOR EXPLANATION OF TERMS
IMPACT ANALYSIS
DEPARTMENT 5320
VANGUARD SYSTEM
02/15/02 09:15
TEST VC09559
-25
0
25
50
75
100
125
150
175
200
225
EARLIER
TIME
LATER
EVENT TIME (MSEC)

FIGURE 6

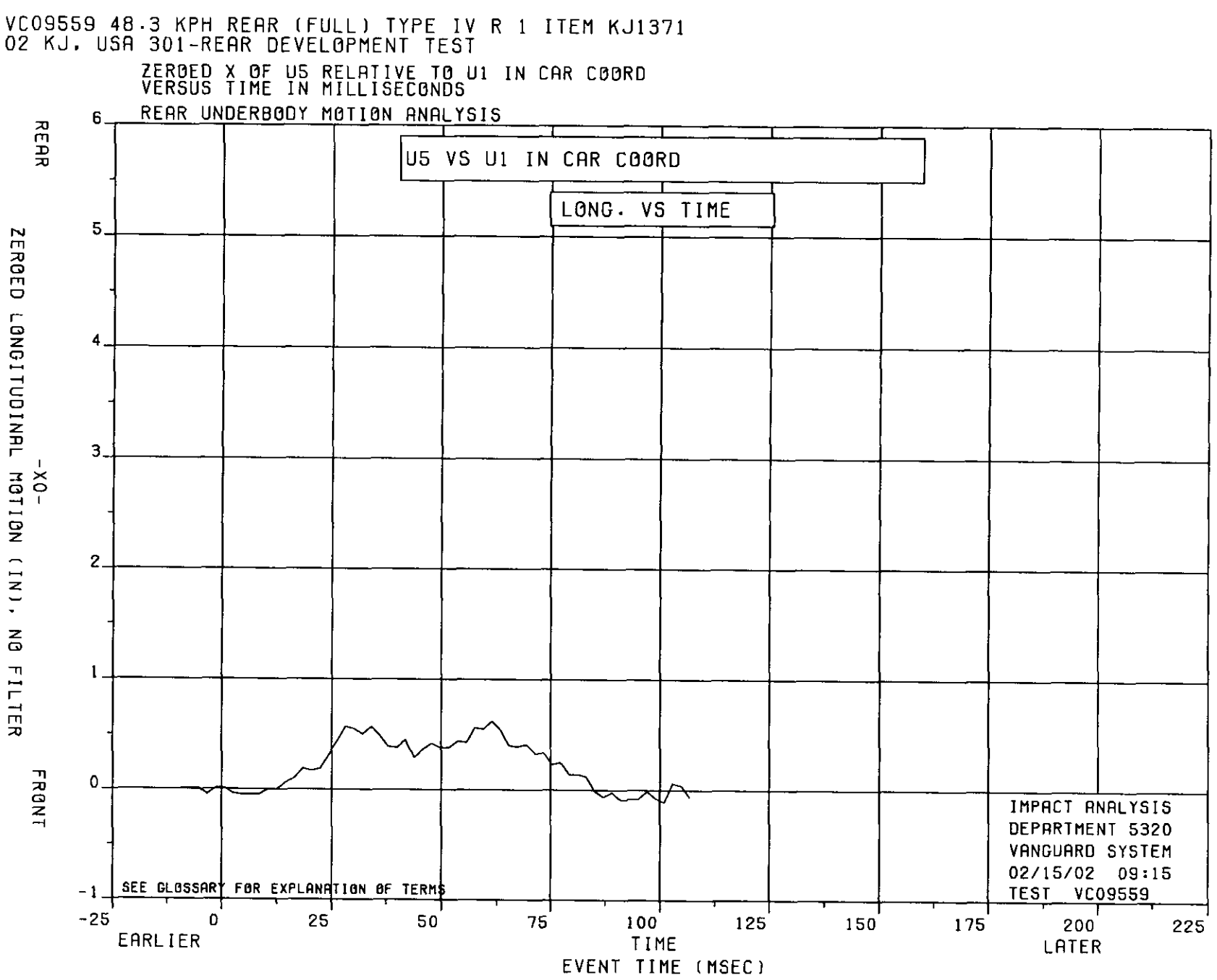

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ. USA 301-REAR DEVELOPMENT TEST
ZEROED X OF U5 RELATIVE TO U1 IN CAR COORD
VERSUS TIME IN MILLISECONDS
REAR UNDERBODY MOTION ANALYSIS
U5 VS U1 IN CAR COORD
LONG. VS TIME
REAR
FRONT
-XO-
ZEROED LONGITUDINAL MOTION (IN), NO FILTER
6
5
4
3
2
1
0
-1
-25
0
25
50
75
100
125
150
175
200
225
EARLIER
TIME
LATER
EVENT TIME (MSEC)
SEE GLOSSARY FOR EXPLANATION OF TERMS
IMPACT ANALYSIS
DEPARTMENT 5320
VANGUARD SYSTEM
02/15/02 09:15
TEST VC09559

FIGURE 7

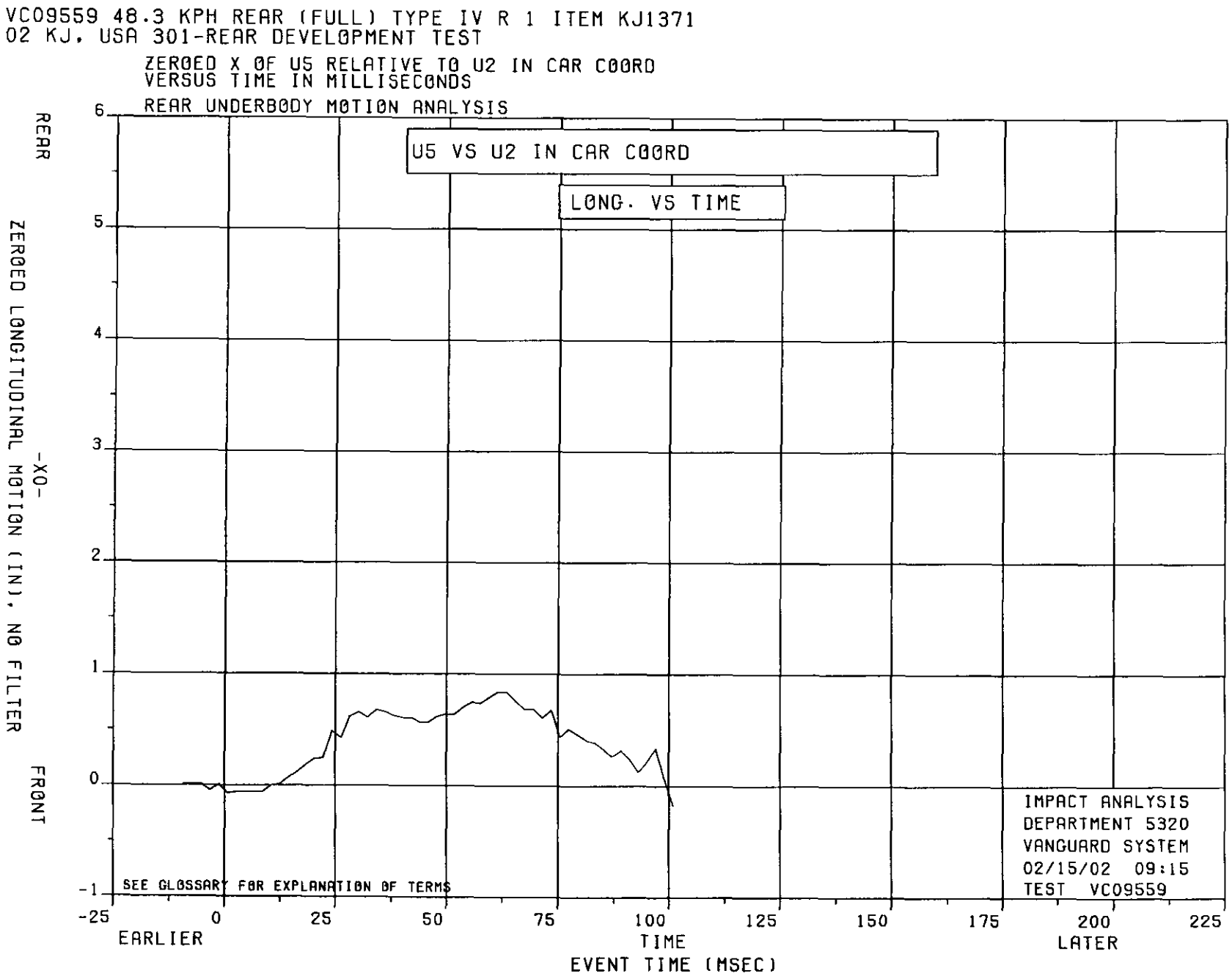


FIGURE 8

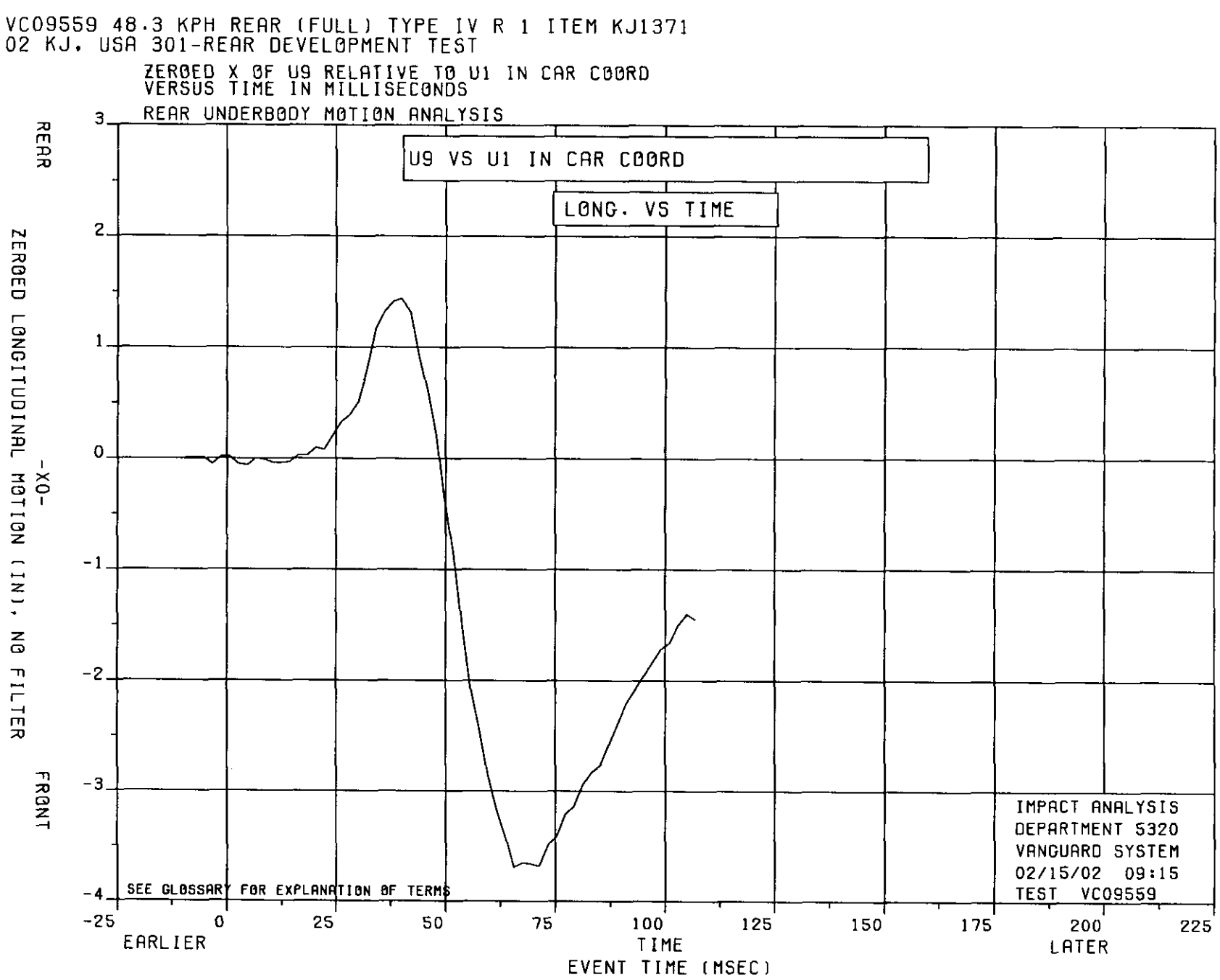

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ. USA 301-REAR DEVELOPMENT TEST
ZEROED X OF U9 RELATIVE TO U1 IN CAR COORD
VERSUS TIME IN MILLISECONDS
REAR UNDERBODY MOTION ANALYSIS
U9 VS U1 IN CAR COORD
LONG. VS TIME
REAR
ZEROED LONGITUDINAL MOTION (IN), NO FILTER
-XO-
FRONT
3
2
1
0
-1
-2
-3
-4
-25
0
25
50
75
100
125
150
175
200
225
EARLIER
TIME
EVENT TIME (MSEC)
LATER
SEE GLOSSARY FOR EXPLANATION OF TERMS
IMPACT ANALYSIS
DEPARTMENT 5320
VANGUARD SYSTEM
02/15/02 09:15
TEST VC09559

FIGURE 9

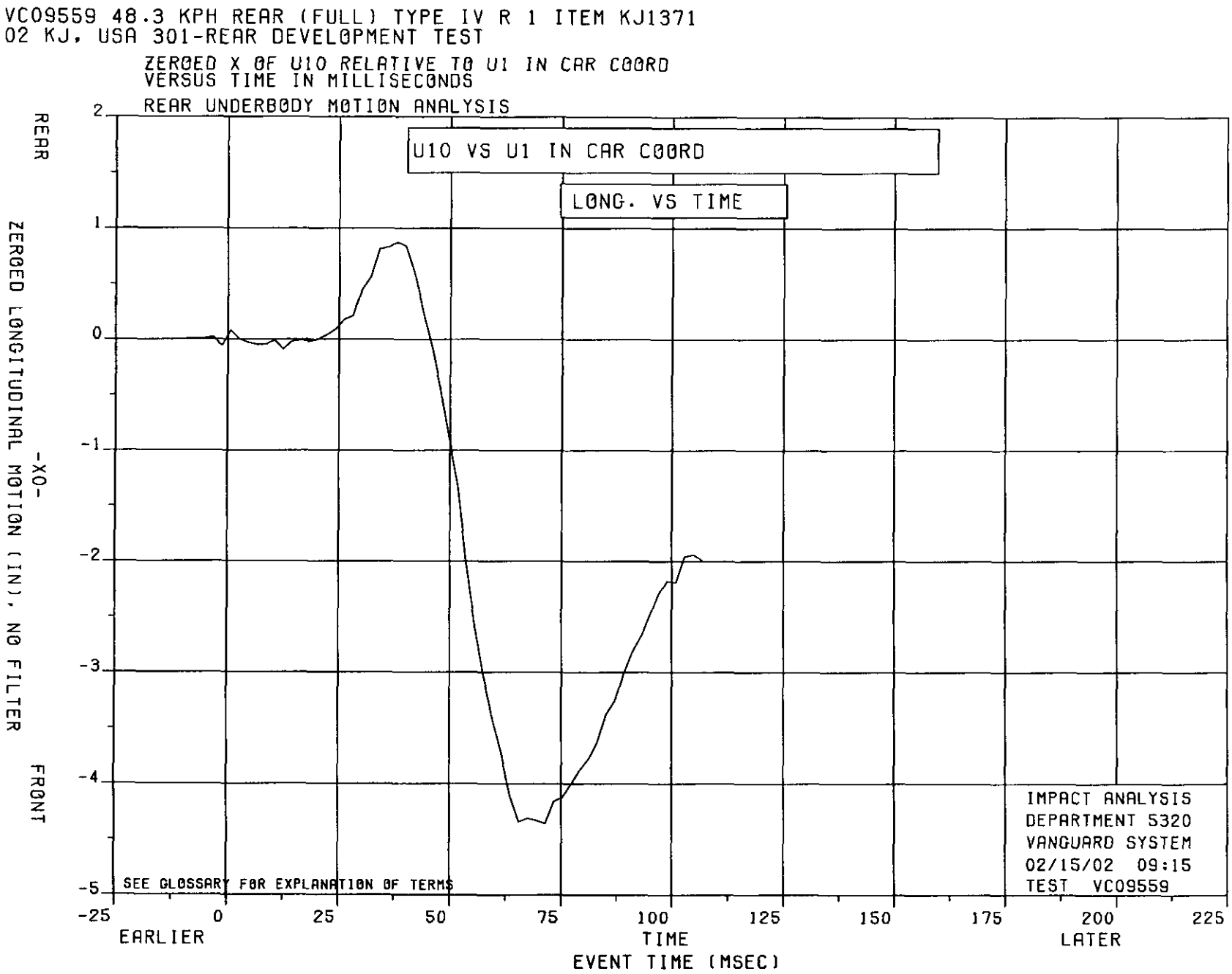


FIGURE 10

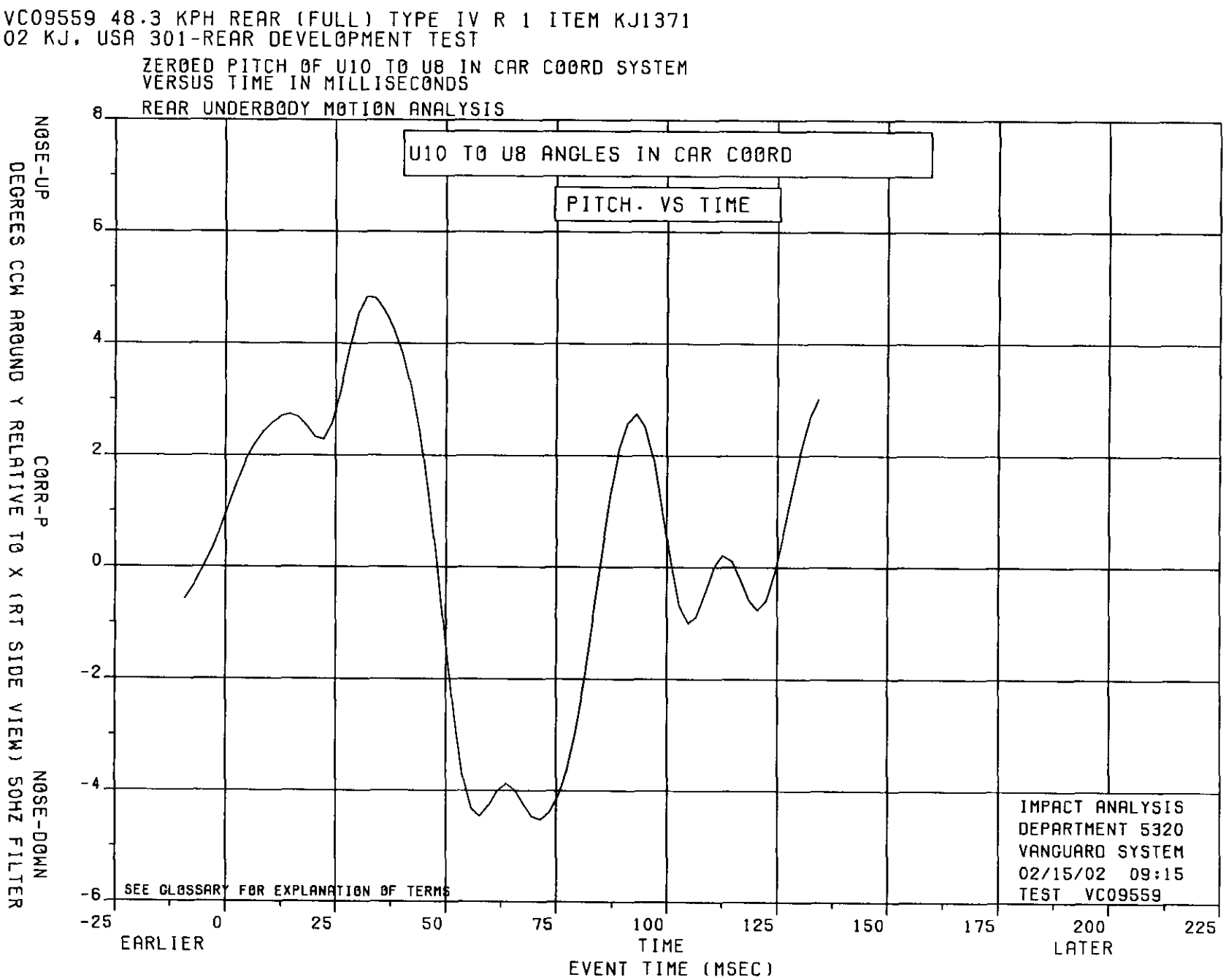


FIGURE 11

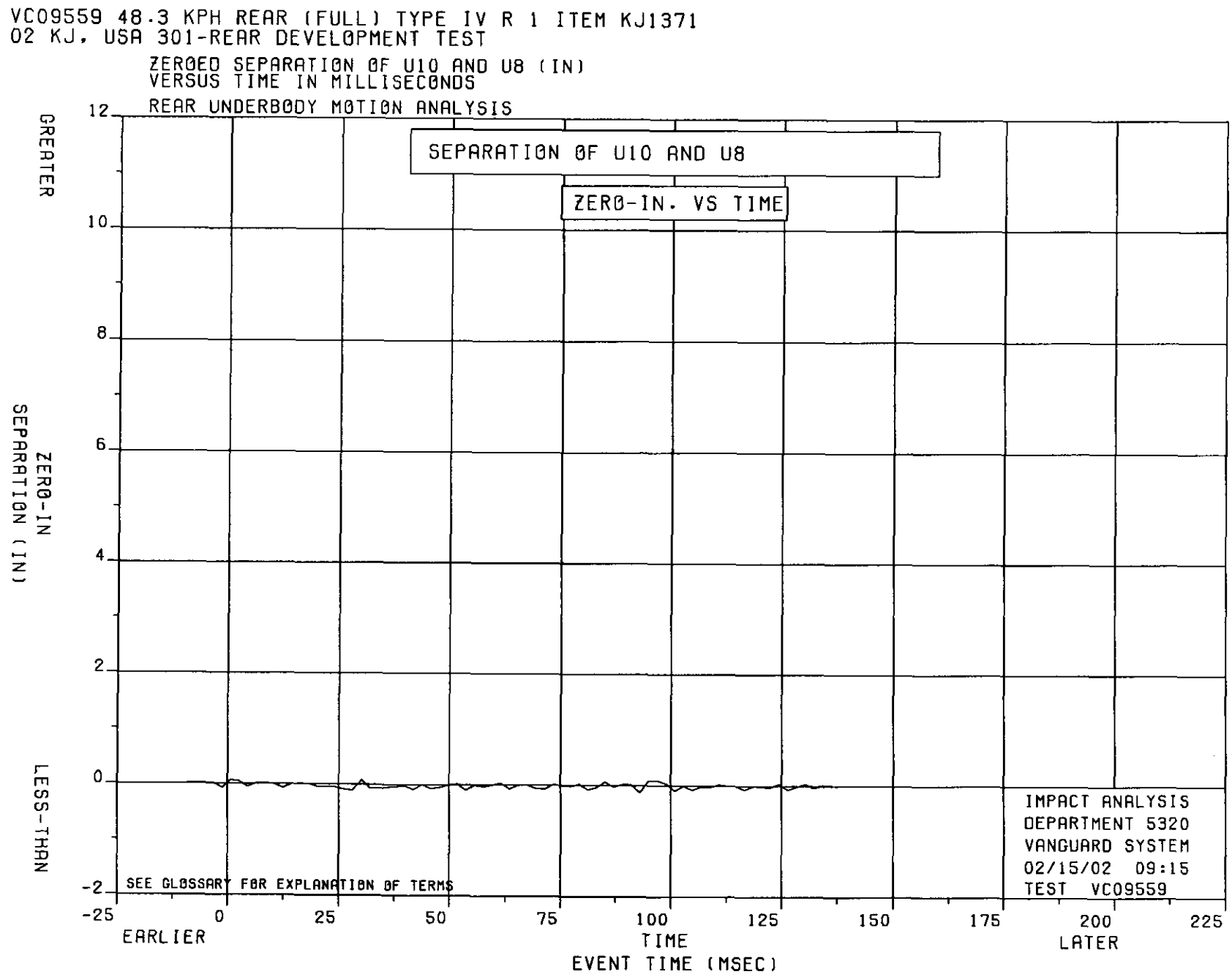


FIGURE 12

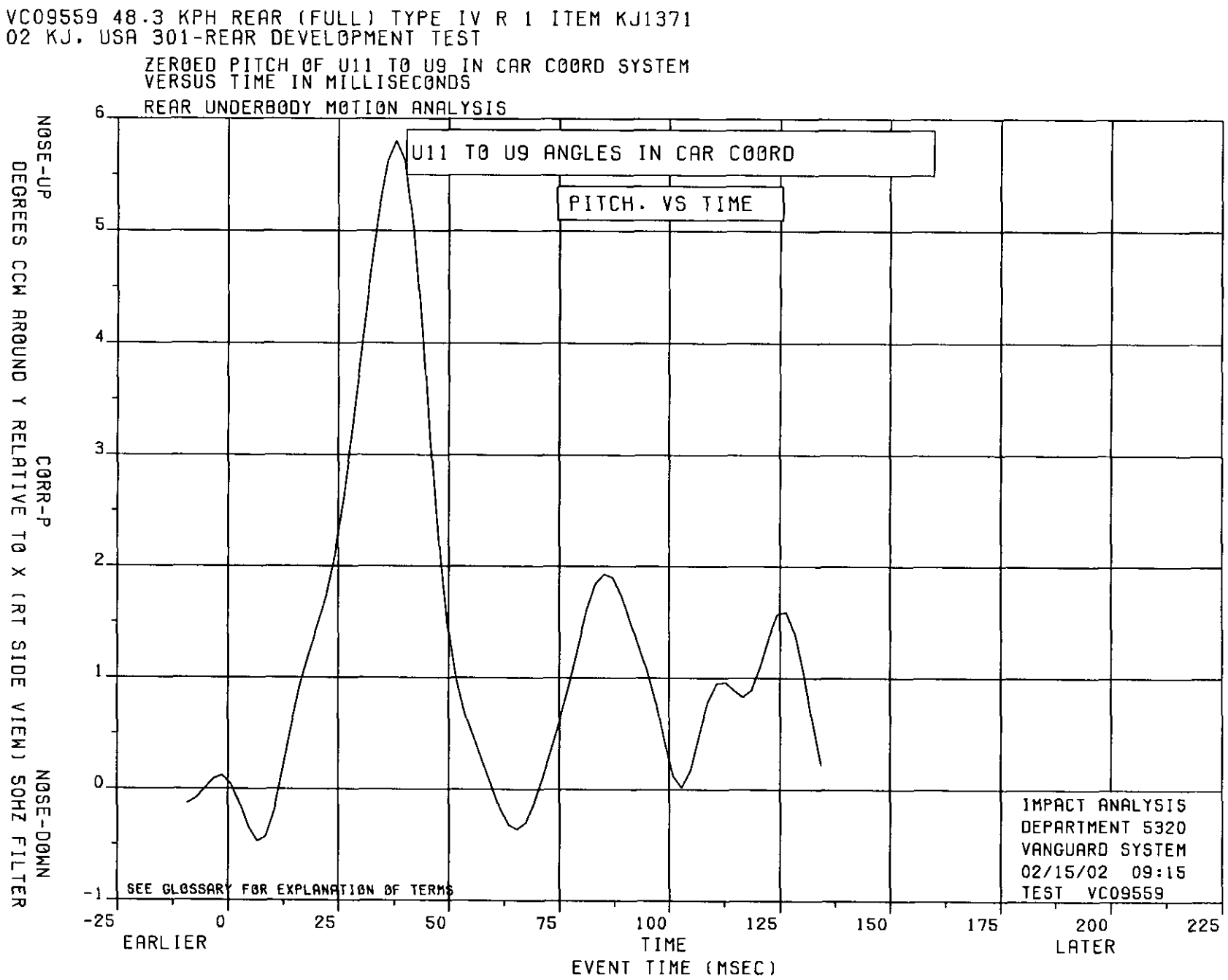

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ. USA 301-REAR DEVELOPMENT TEST
ZEROED PITCH OF U11 TO U9 IN CAR COORD SYSTEM
VERSUS TIME IN MILLISECONDS
REAR UNDERBODY MOTION ANALYSIS
U11 TO U9 ANGLES IN CAR COORD
PITCH. VS TIME
NOSE-UP
DEGREES CCW AROUND Y RELATIVE TO X (RT SIDE VIEW) 50HZ FILTER
CORR-P
NOSE-DOWN
6
5
4
3
2
1
0
-1
-25
0
25
50
75
100
125
150
175
200
225
EARLIER
TIME
LATER
EVENT TIME (MSEC)
SEE GLOSSARY FOR EXPLANATION OF TERMS
IMPACT ANALYSIS
DEPARTMENT 5320
VANGUARD SYSTEM
02/15/02 09:15
TEST VC09559

FIGURE 13

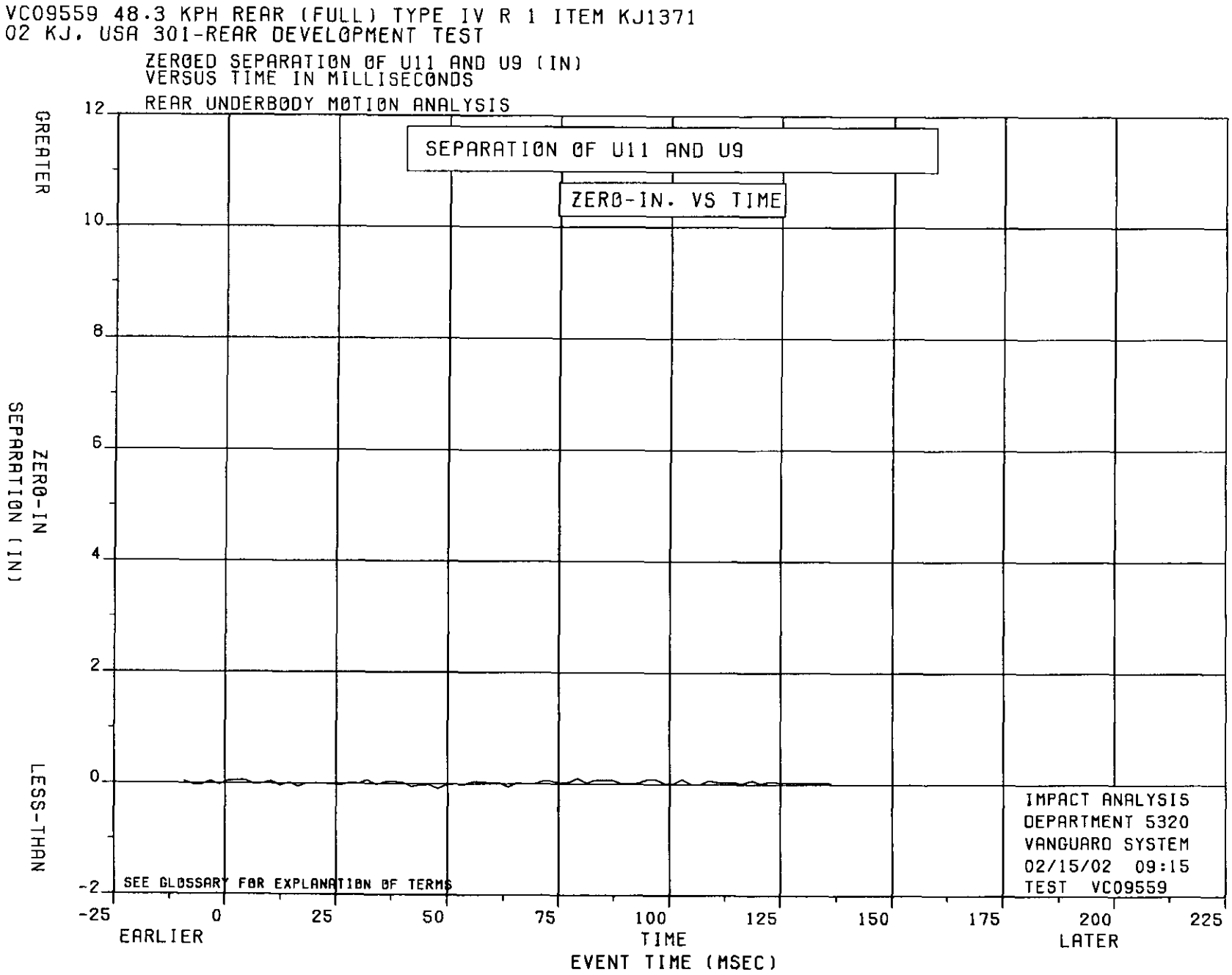

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ. USA 301-REAR DEVELOPMENT TEST
ZEROED SEPARATION OF U11 AND U9 (IN)
VERSUS TIME IN MILLISECONDS
REAR UNDERBODY MOTION ANALYSIS
SEPARATION OF U11 AND U9
ZERO-IN. VS TIME
GREATER
ZERO-IN SEPARATION (IN)
LESS-THAN
12
10
8
6
4
2
0
-2
SEE GLOSSARY FOR EXPLANATION OF TERMS
IMPACT ANALYSIS
DEPARTMENT 5320
VANGUARD SYSTEM
02/15/02 09:15
TEST VC09559
-25
0
25
50
75
100
125
150
175
200
225
EARLIER
TIME
LATER
EVENT TIME (MSEC)

FIGURE 14

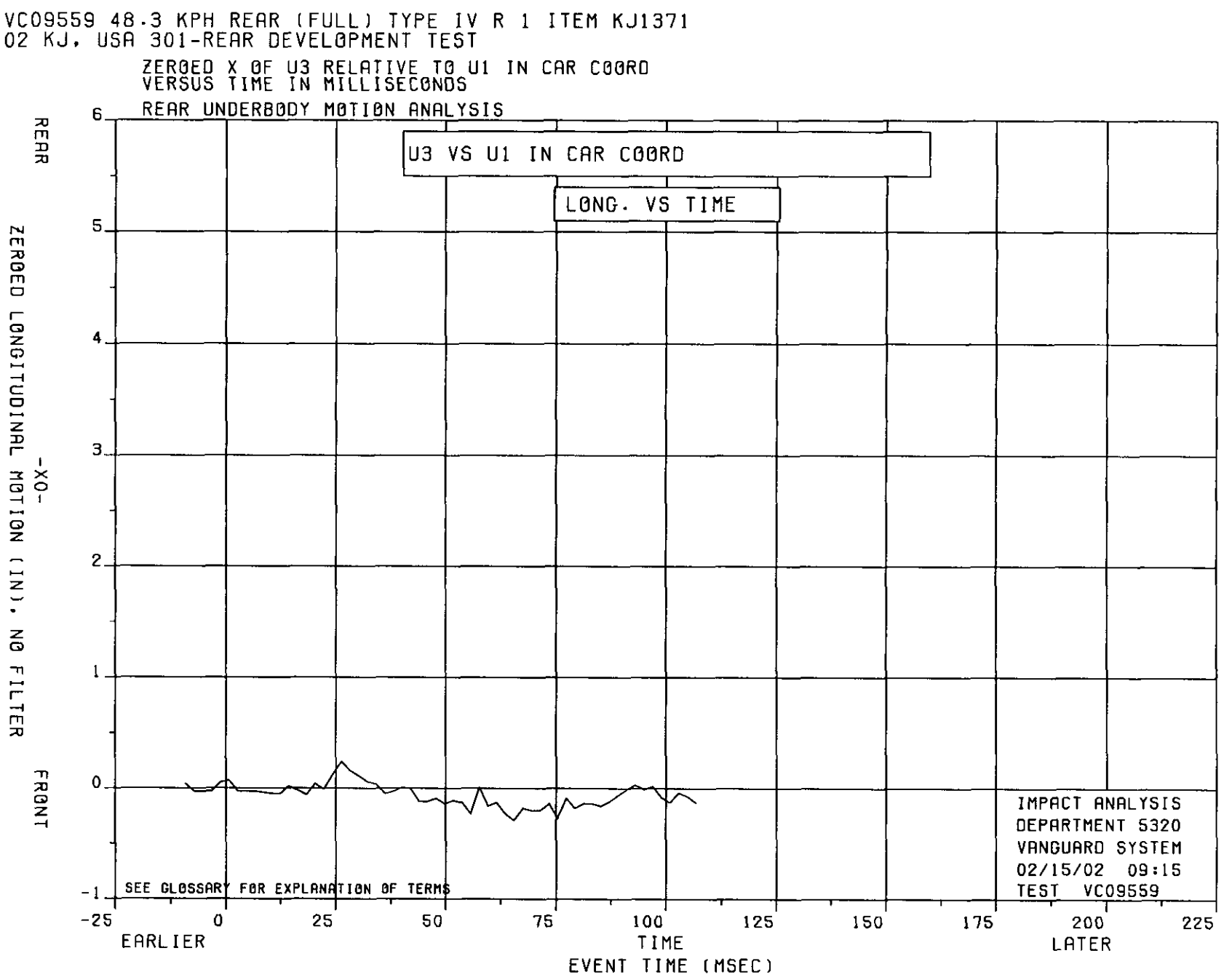


FIGURE 15

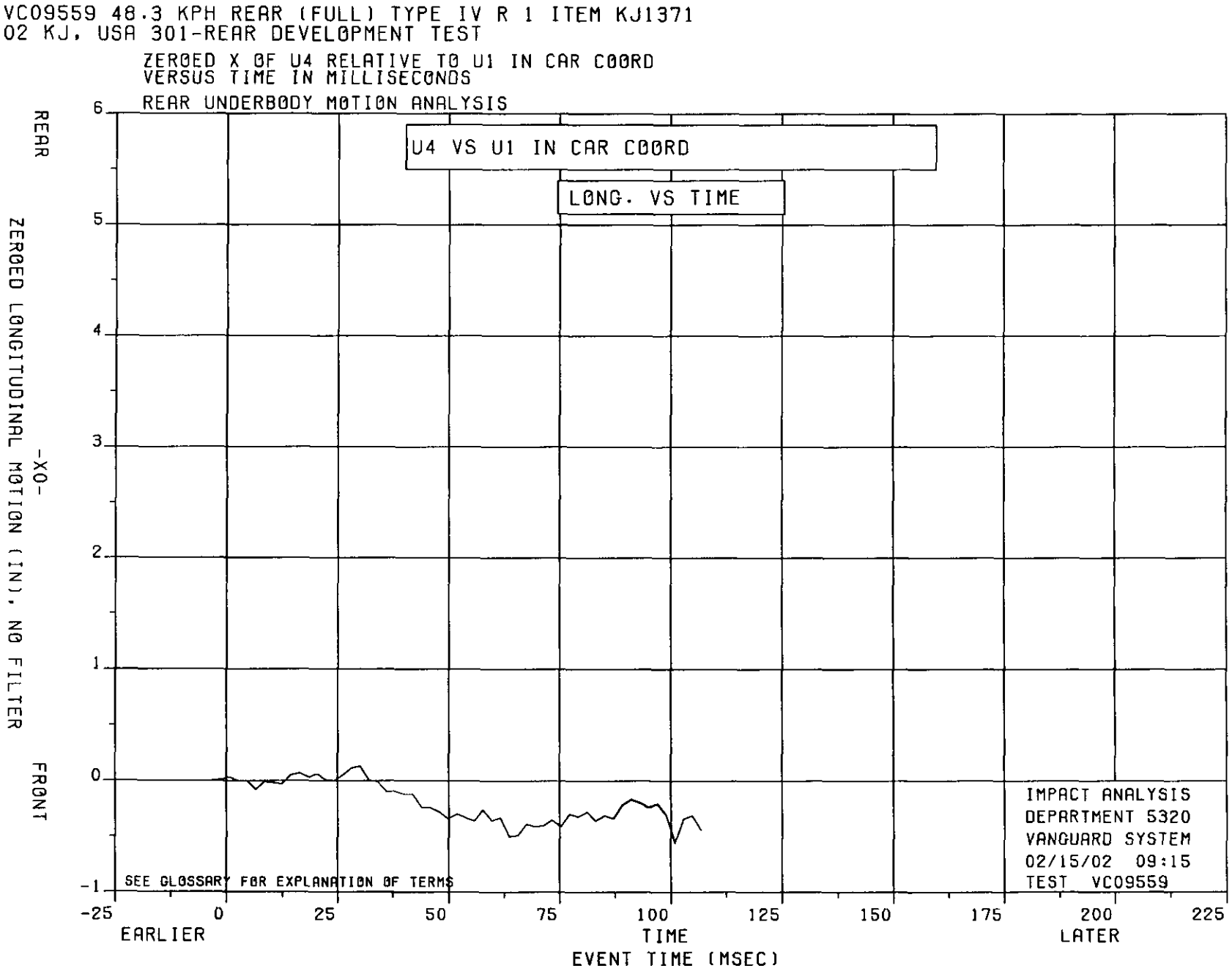


FIGURE 16

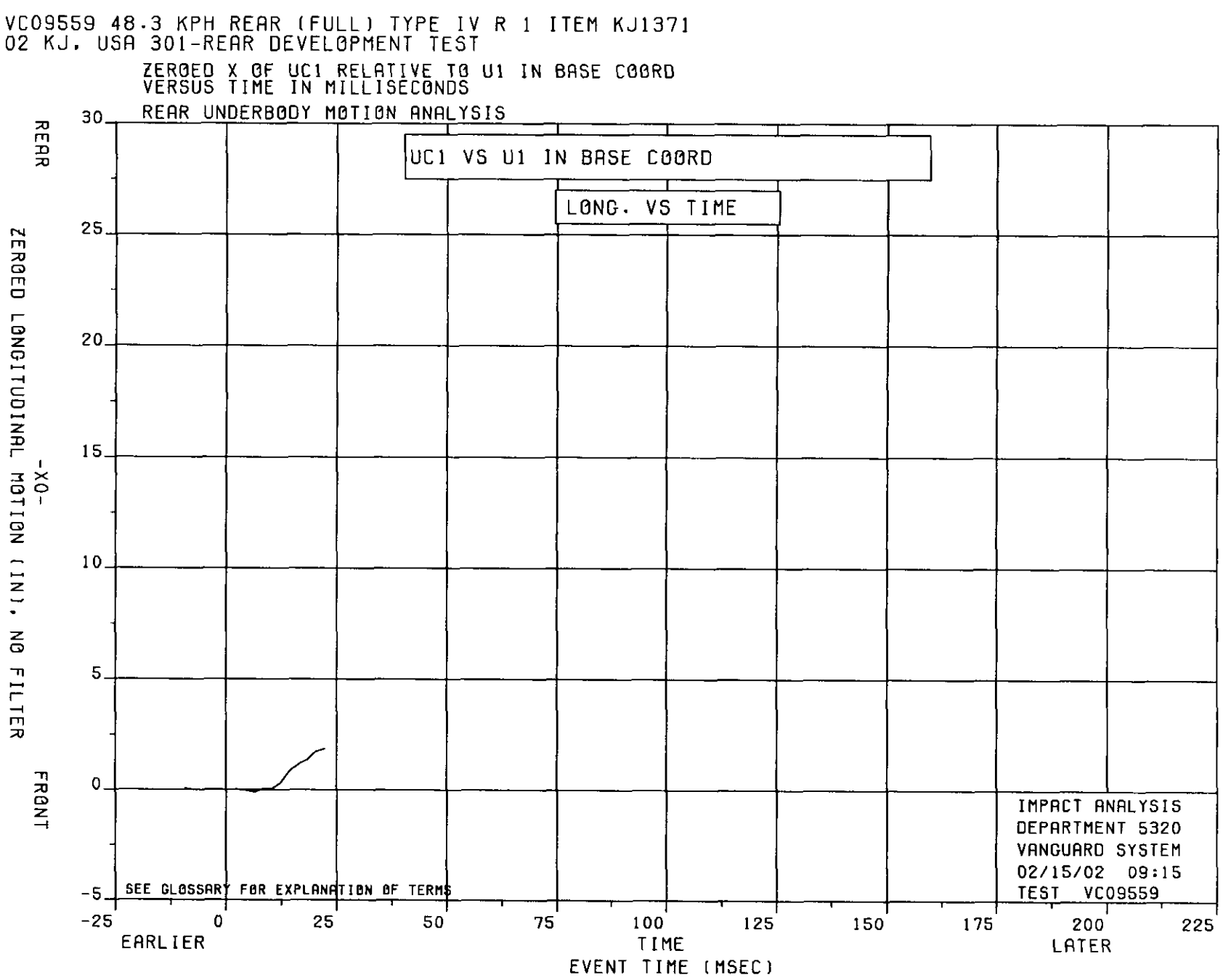

VC09559 48.3 KPH REAR (FULL) TYPE IV R 1 ITEM KJ1371
02 KJ, USA 301-REAR DEVELOPMENT TEST
ZEROED X OF UC1 RELATIVE TO U1 IN BASE COORD
VERSUS TIME IN MILLISECONDS
REAR UNDERBODY MOTION ANALYSIS
UC1 VS U1 IN BASE COORD
LONG. VS TIME
REAR
ZEROED LONGITUDINAL MOTION (IN), NO FILTER
-XO-
FRONT
30
25
20
15
10
5
0
-5
-25
0
25
50
75
100
125
150
175
200
225
EARLIER
TIME
LATER
EVENT TIME (MSEC)
SEE GLOSSARY FOR EXPLANATION OF TERMS
IMPACT ANALYSIS
DEPARTMENT 5320
VANGUARD SYSTEM
02/15/02 09:15
TEST VC09559

FIGURE 17

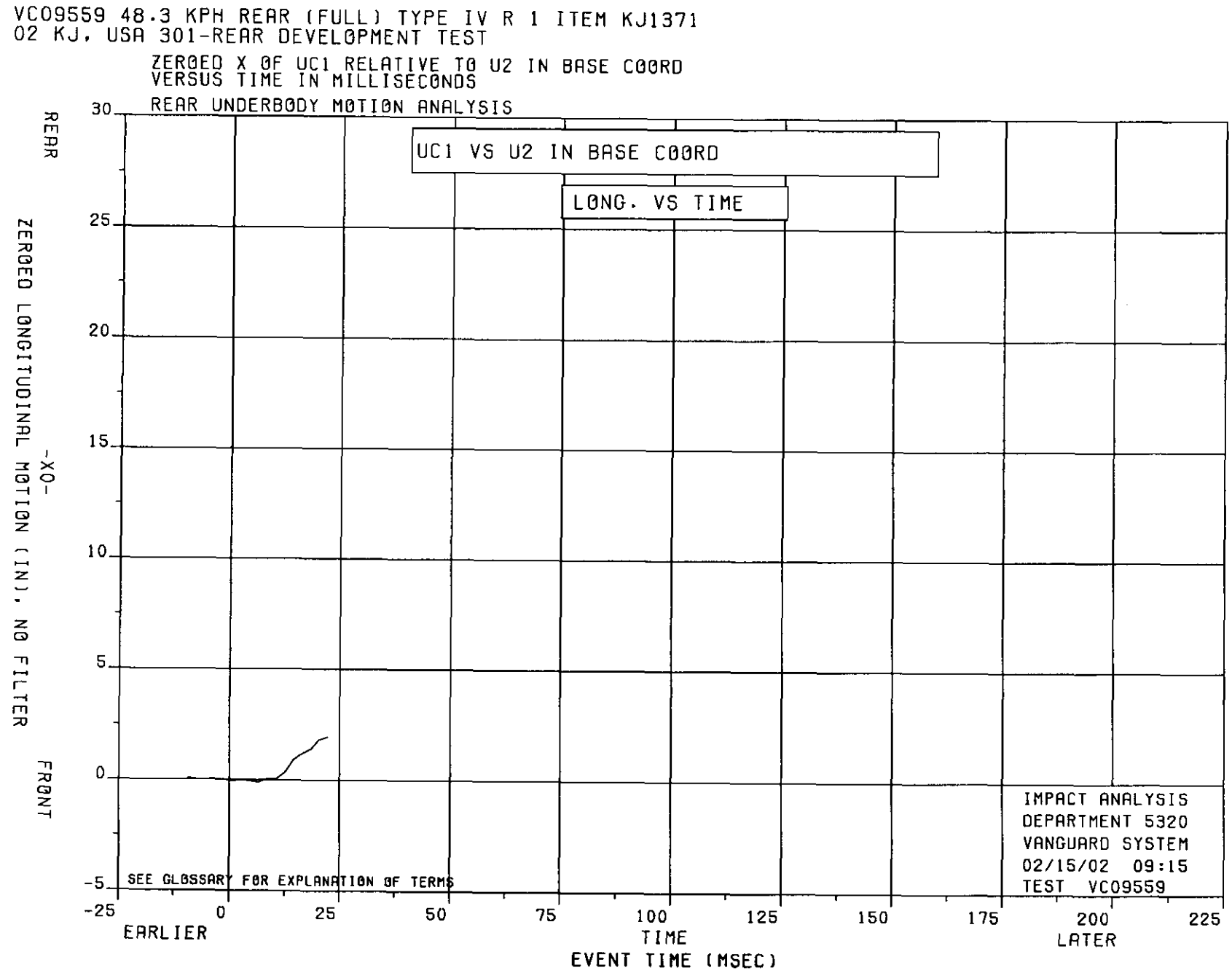


FIGURE 18

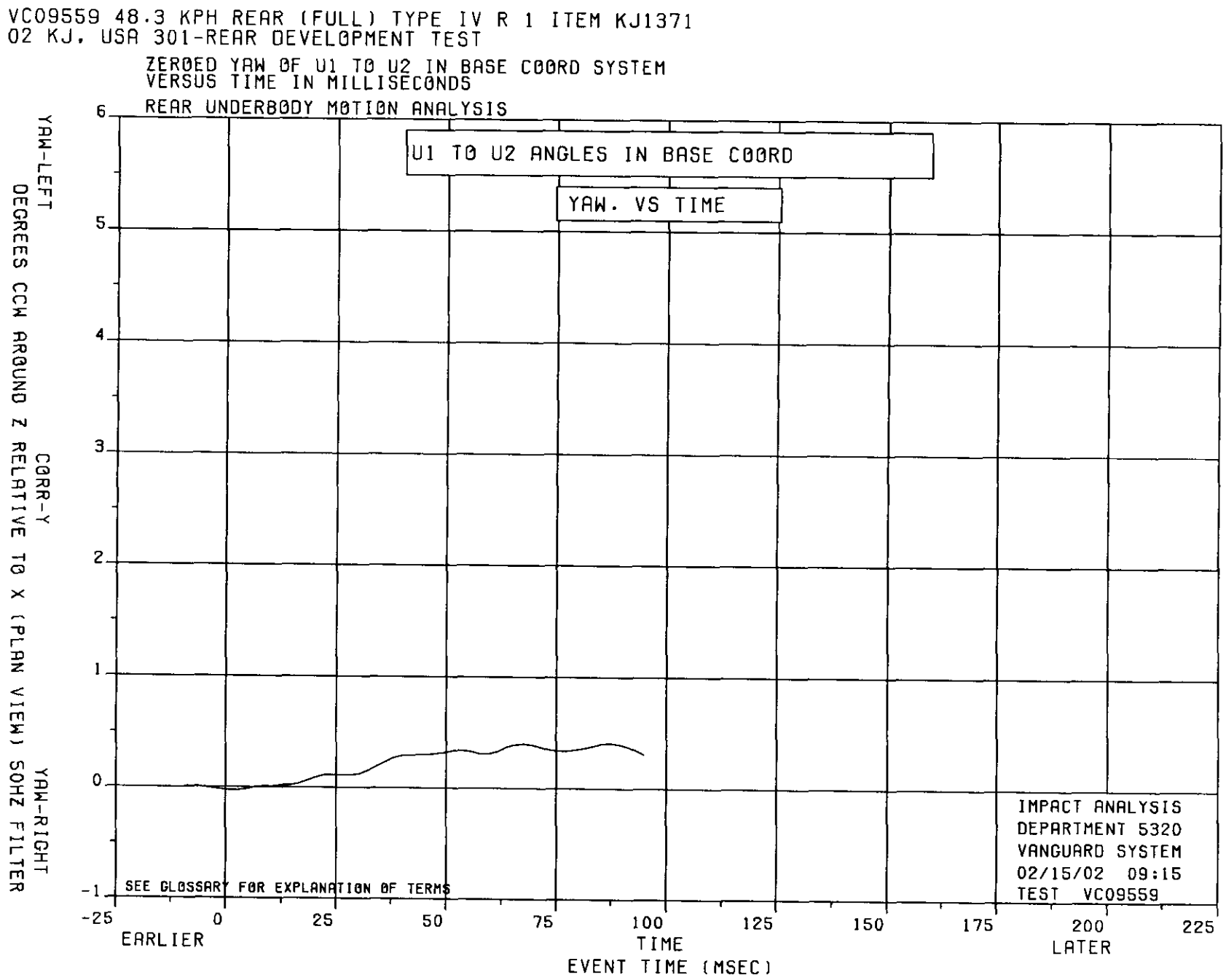


FIGURE 19

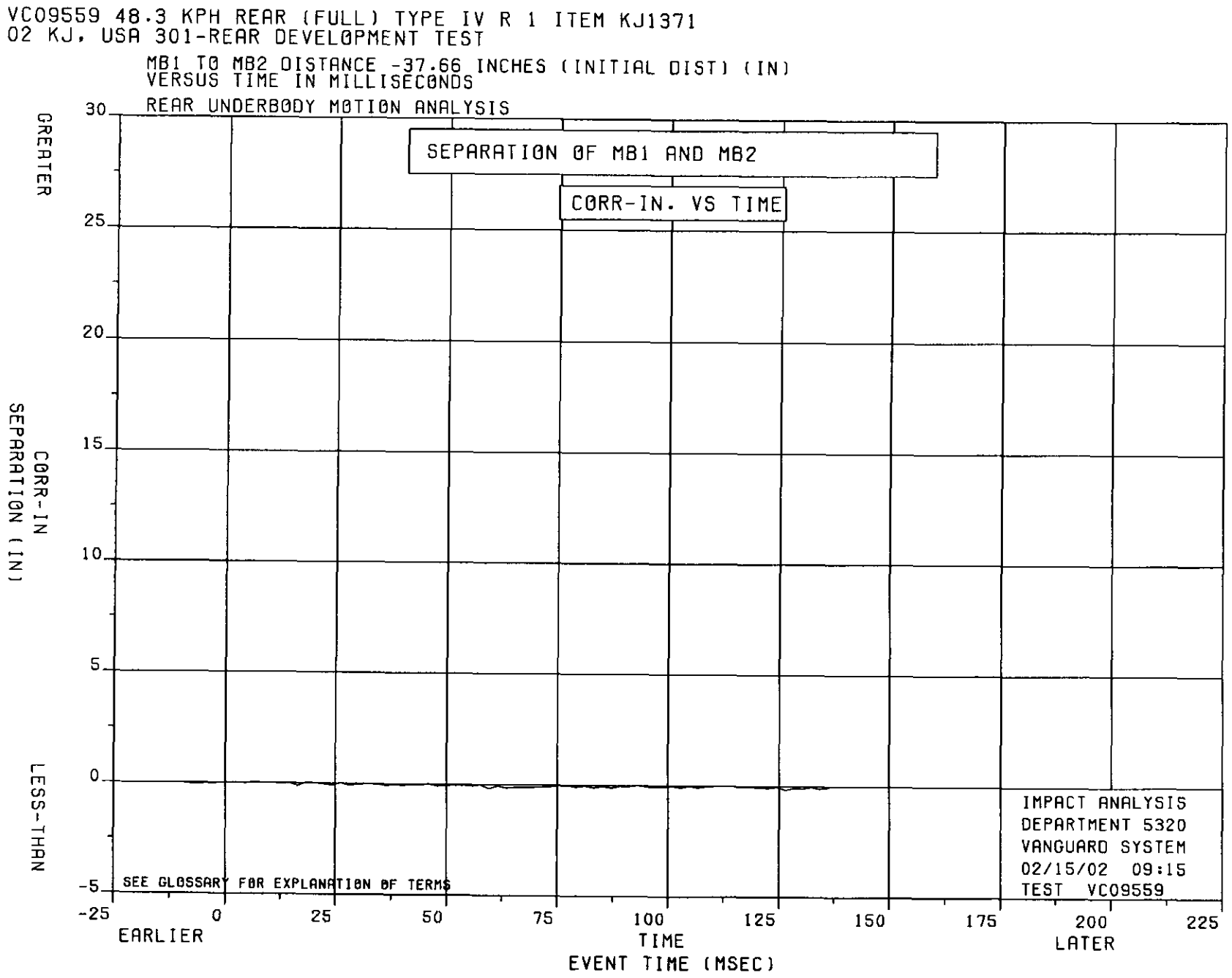


FIGURE 20

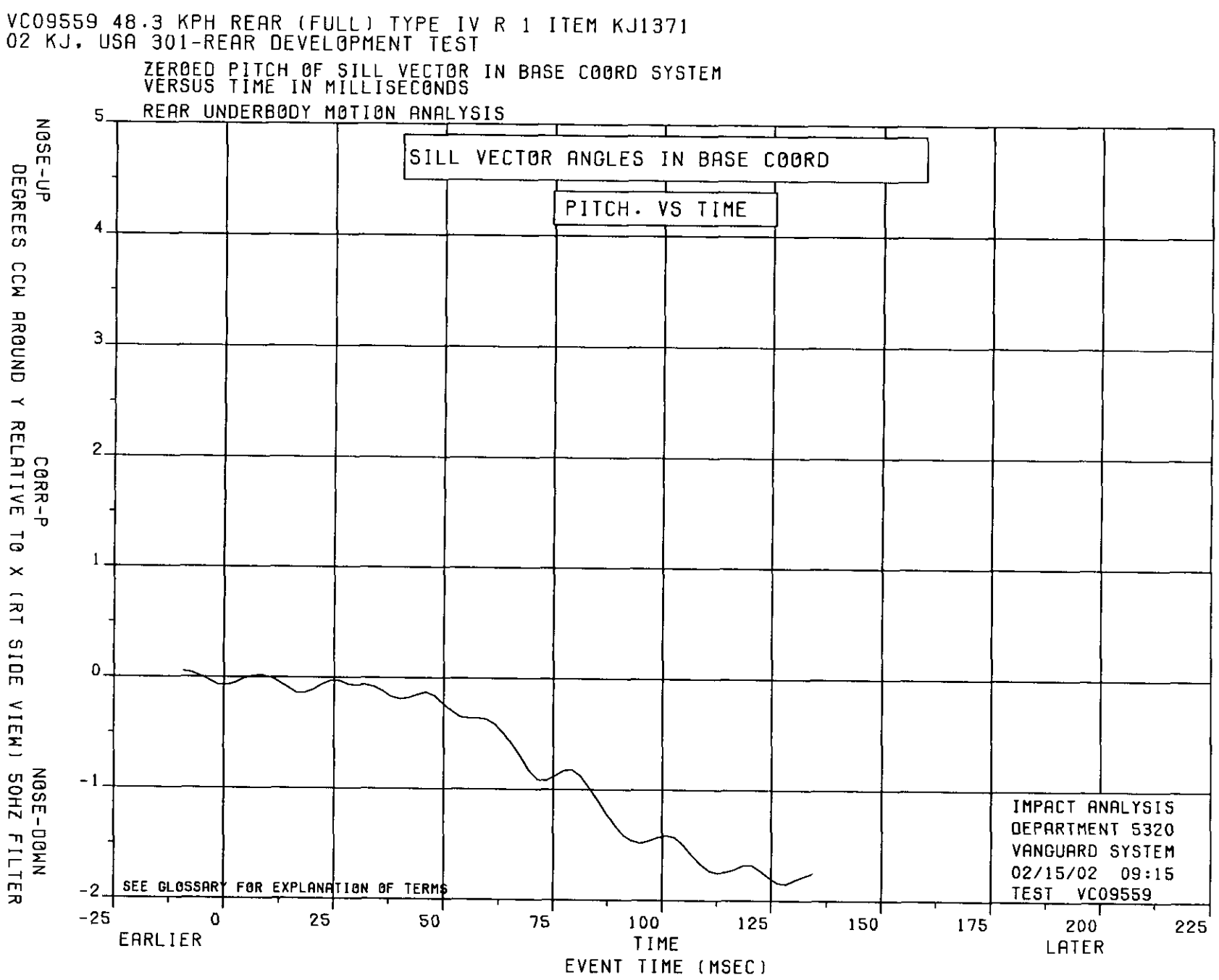


FIGURE 21

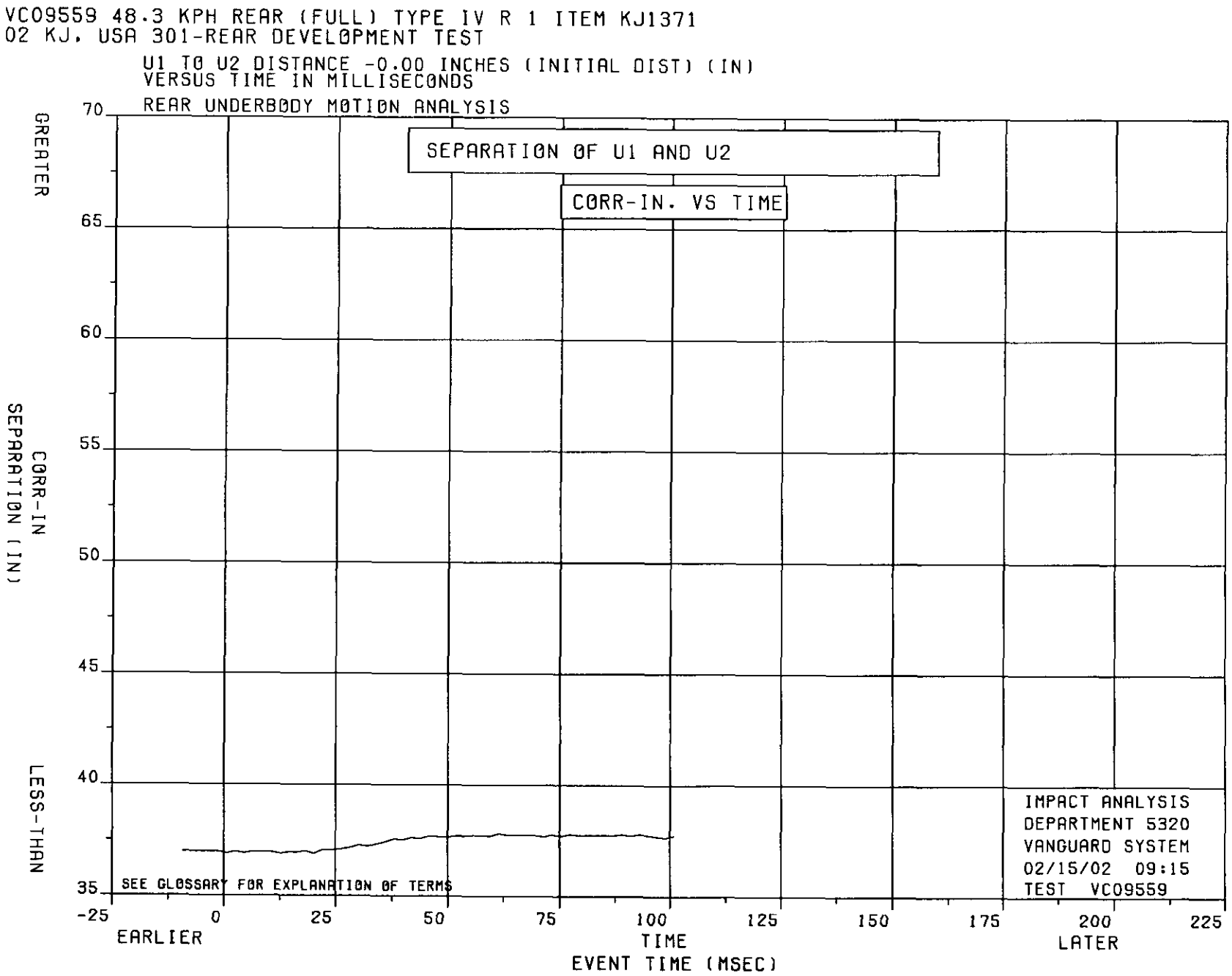


FIGURE 22

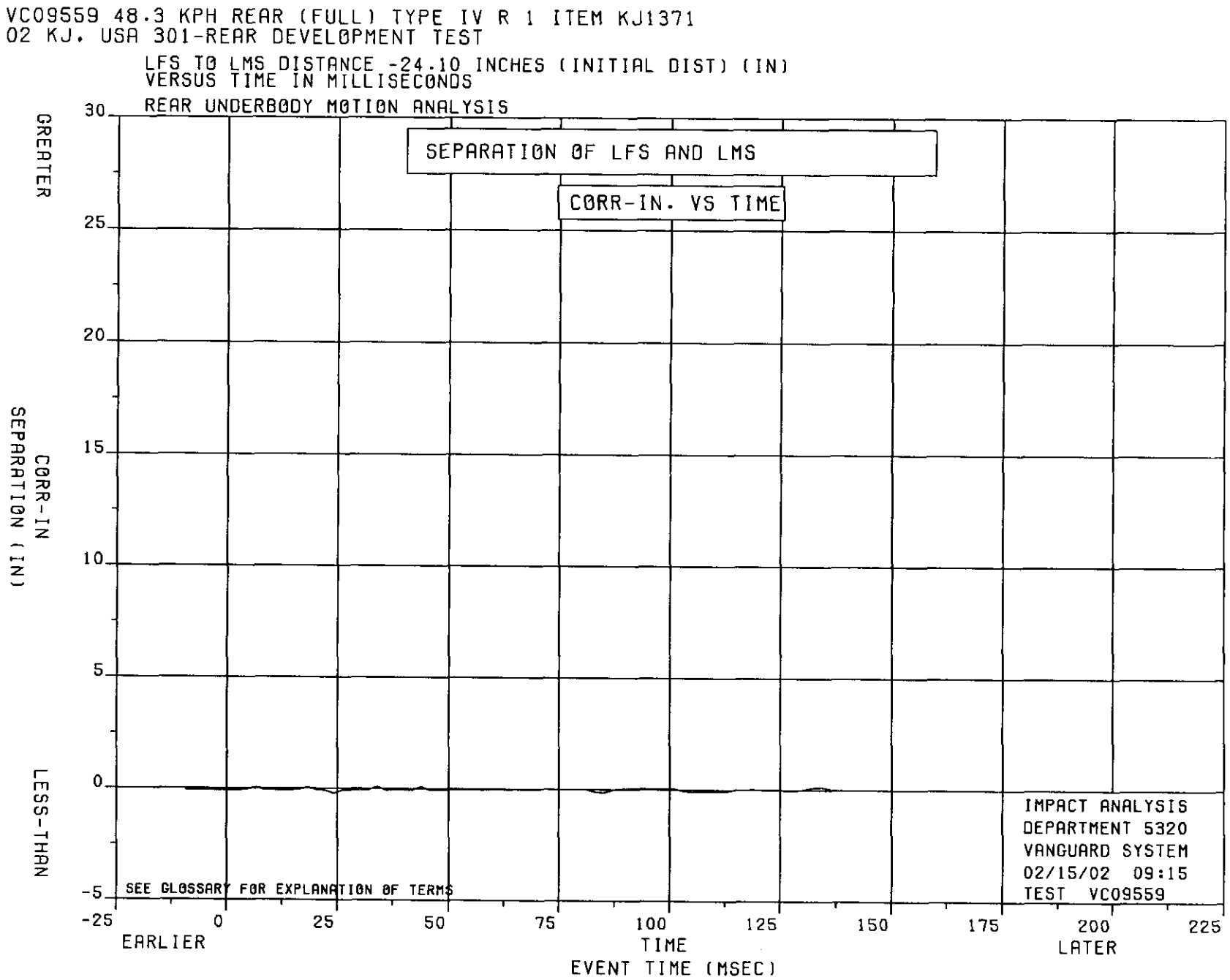


FIGURE 23