

THE STATE OF SOUTH CAROLINA
In the Court of Appeals

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APPEAL FROM BAMBERG COUNTY
Court Of Common Pleas

SC Court of Appeals

The Honorable Doyet A. Early III, Circuit Court Judge

Case No: 2008-CP-05-235

Laura Riley as the Personal Representative
of the Estate of Benjamin Riley Respondent,

v.

Ford Motor Company Appellant.

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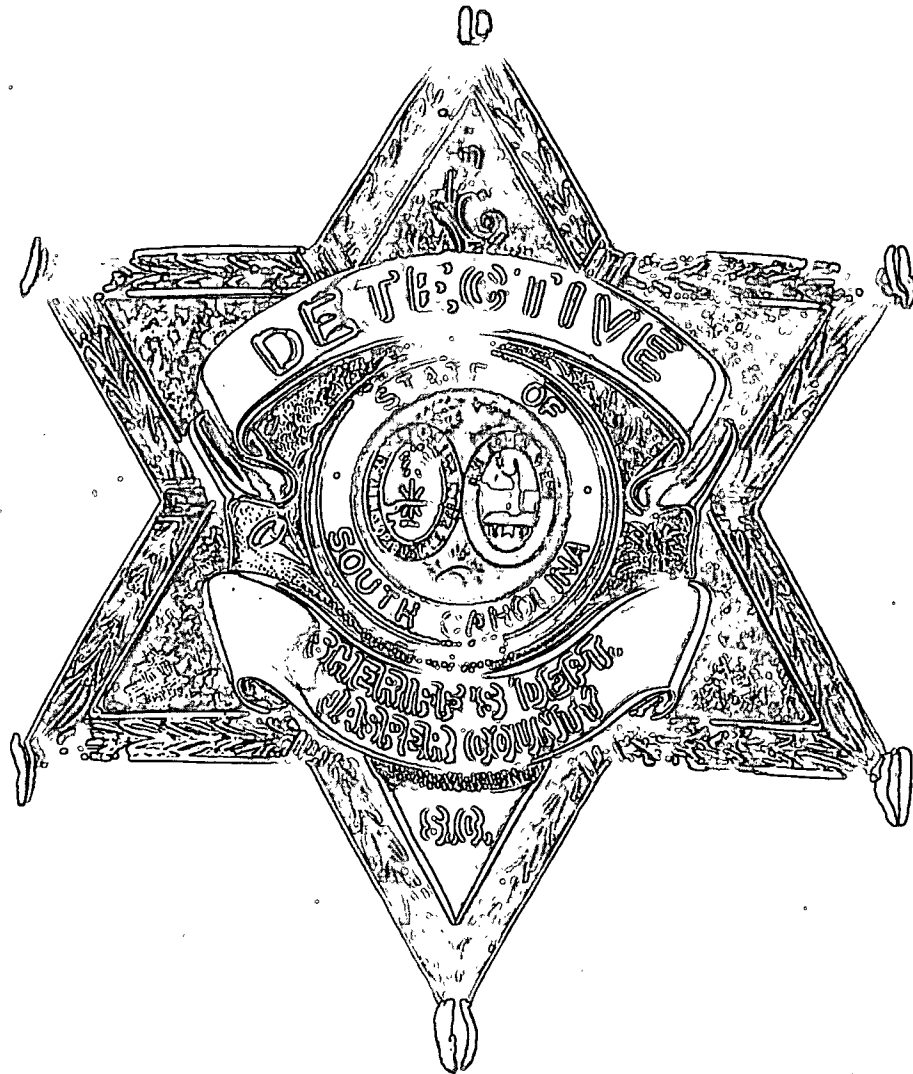
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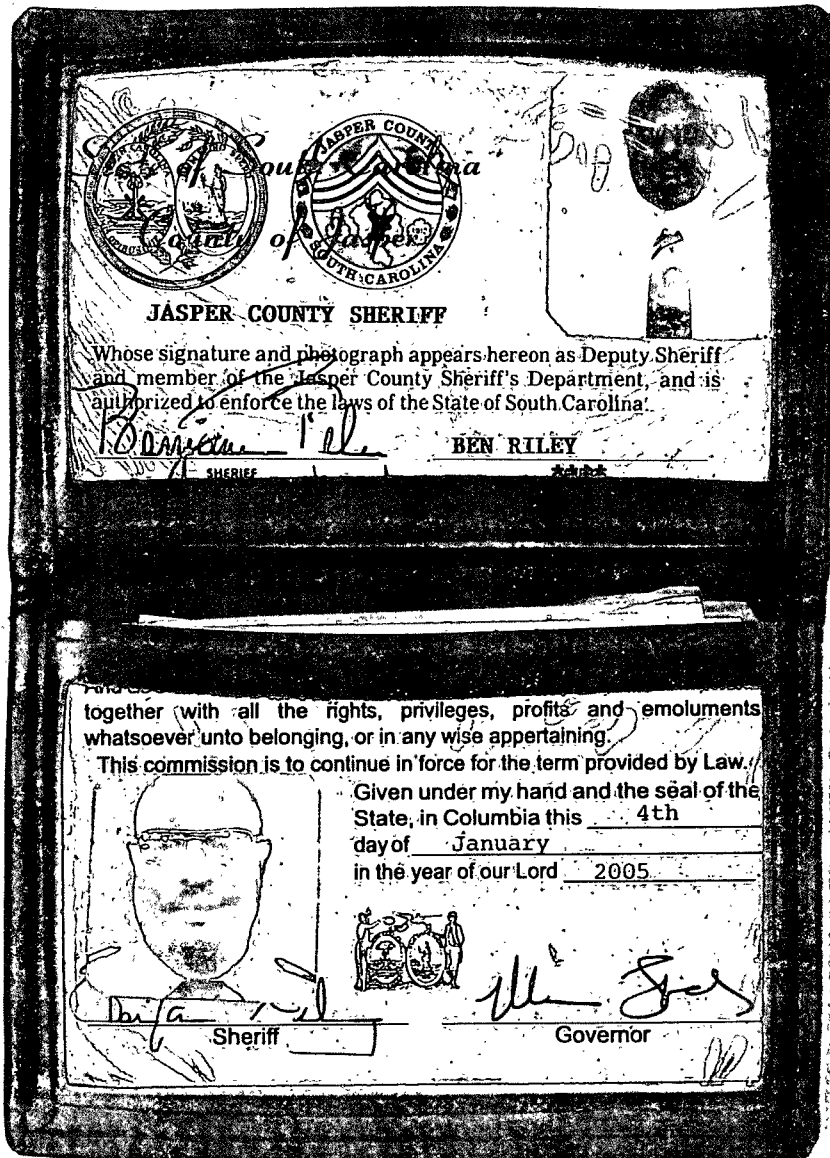
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State Of South Carolina
OFFICE OF THE GOVERNOR



This is to certify that Benjamin Riley
whose signature and photograph appear below is the duly elected and
commissioned

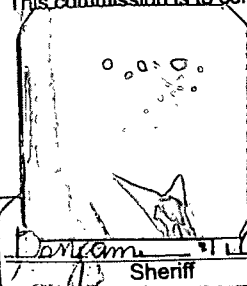
SHERIFF

For the County of Jasper

And as such is to have, hold, exercise and enjoy the said office of sheriff
together with all the rights, privileges, profits and emoluments
whatsoever unto belonging, or in any wise appertaining.

This commission is to continue in force for the term provided by Law.

Given under my hand and the seal of the
State, in Columbia this fourth
day of January
in the year of our Lord 2005



[Signature of Governor]

Governor

[Signature of Benjamin Riley]
Sheriff

Certificate of Ordination

Benjamin Riley

having been chosen one "of good report, full of the Spirit and of wisdom," and capable of using the office well, was set apart publicly to the office and work of

D E A C O N

by The St. Paul Baptist Church

at Cosnewhatchie, South Carolina

on the 4th Sunday day of November, 1975

Anna Ann Riley Clerk

Rev. Harry Albergothia Pastor



0491





US005431462A

United States Patent [19]
Lignell

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[45] **Date of Patent:** **Jul. 11, 1995**

[54] **SECURE DOOR LATCH FOR A VEHICLE**

5,253,906 10/1993 Rogers, Jr. et al. 292/336.3

[75] **Inventor:** **Kirk R. Lignell, Ypsilanti, Mich.**

FOREIGN PATENT DOCUMENTS

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64-256281 5/1991 Japan E05B 65/20

[21] **Appl. No.:** **254,859**

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[22] **Filed:** **Jun. 6, 1994**

[51] **Int. Cl.⁶** **E05C 3/26**

[52] **U.S. Cl.** **292/336.3; 292/216**

[58] **Field of Search** **292/336.3, DIG. 4, DIG. 23, 292/267, 216**

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[57] **ABSTRACT**

A latch mechanism for a vehicle enables the vehicle to withstand fore, aft and side impacts without operating the latch. A linkage assembly has two links connecting the door handle and door latch. The links are connected to one another at a pivot point. The pivot point connecting the links in the vehicle door moves vertically to operate the latch in response to operation of the door handle. The pivot point is free to move horizontally fore, aft and sideways without operating the latch. By having this freedom of movement, the pivot point is free floating so that the vehicle can withstand fore, aft and side impacts without operating the latch.

8 Claims, 2 Drawing Sheets

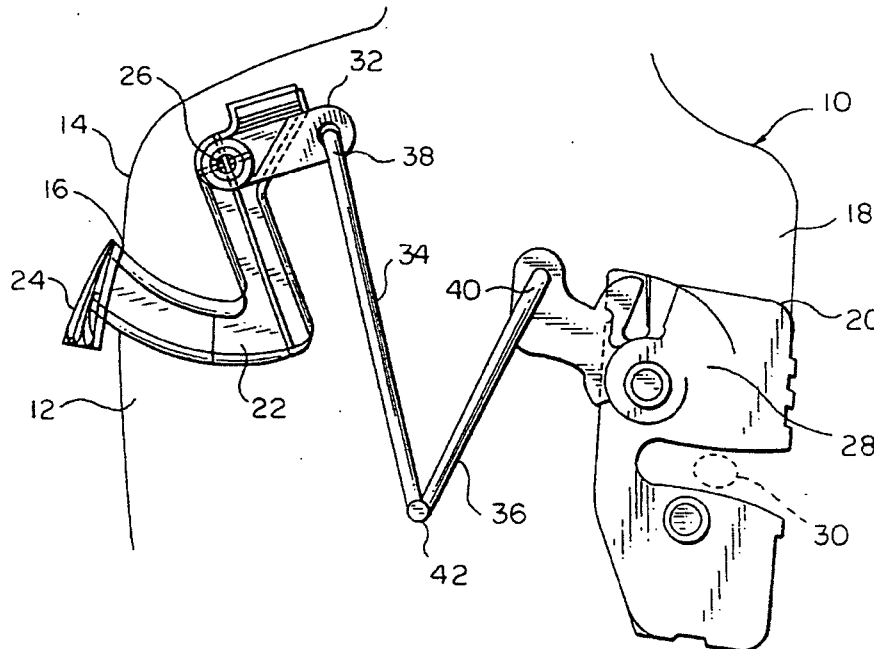


FIG. 1

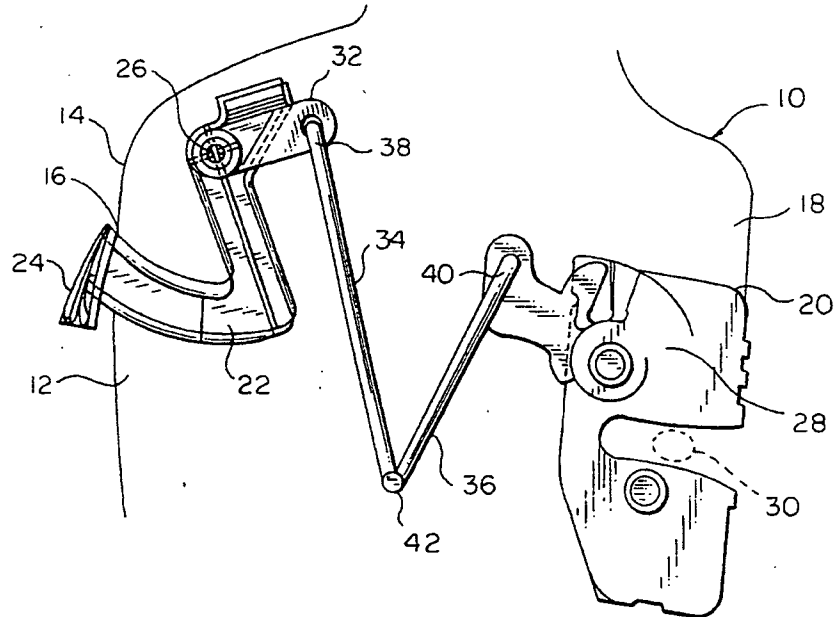


FIG. 2

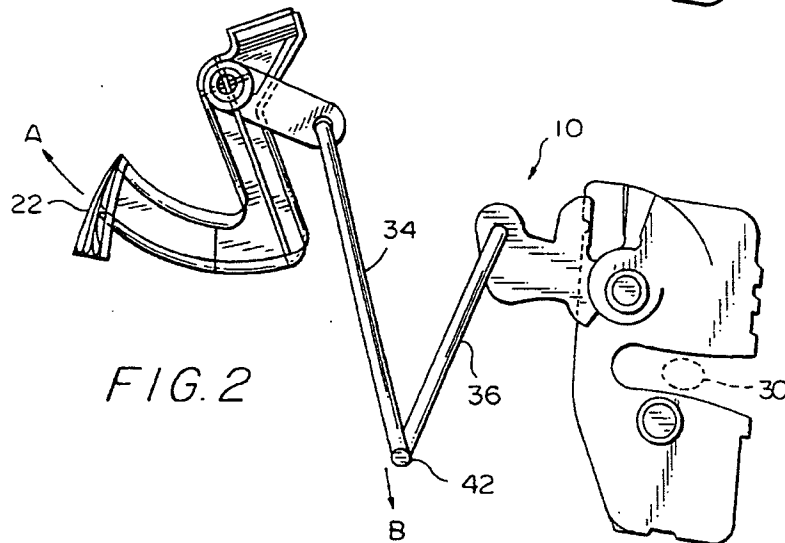


FIG. 3

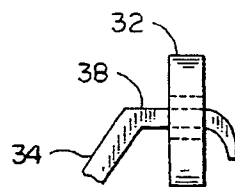


FIG. 4

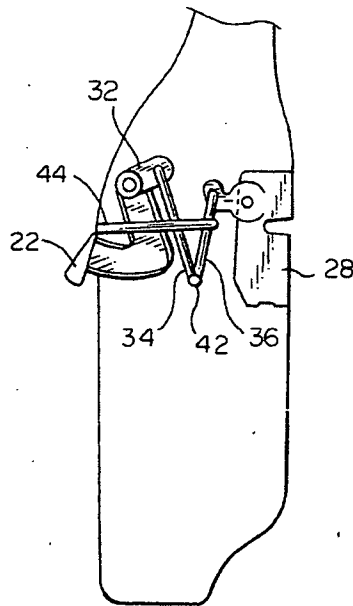


FIG. 5

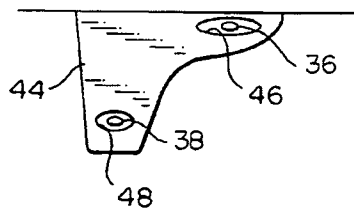


FIG. 6

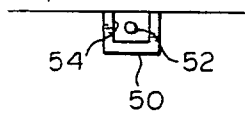
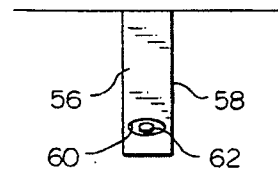


FIG. 7



SECURE DOOR LATCH FOR A VEHICLE

FIELD OF THE INVENTION

The present invention relates to a latch mechanism for a vehicle door.

BACKGROUND OF THE INVENTION

Vehicle doors, especially automobile doors, have elaborate latching mechanisms so the door can be opened from within the vehicle as well as outside the vehicle. Ideally, the latch operates by deliberate operation of the door handle. During operation, a vehicle may be subjected to fore, aft or side forces which may cause the latch to operate. Accordingly, it will be appreciated that it would be highly desirable to have a vehicle door latching mechanism that can withstand fore, aft or side forces without operating. Sometimes the point of impact generating the forces is the vehicle door. It is also desirable for the latch to remain locked when the side forces are generated at the vehicle door.

SUMMARY OF THE INVENTION

The present invention is directed to overcoming one or more of the problems set forth above. Briefly summarized, according to the present invention, a mechanism for a door of a vehicle includes a bell crank connected to the door handle, a latch attached to the door, and a linkage assembly connecting the latch and handle. The linkage assembly has a first link with one end portion pivotally connected to the bell crank and a second link with one end portion pivotally connected to the latch. The links are pivotally connected to one another at a point of mutual connection below the bell crank and latch that moves vertically in response to operation of the door handle to operate the latch. The links and the pivot point being free to move horizontally fore, aft and sideways without operating the latch.

The point of mutual connection is free floating so that the vehicle can withstand fore, aft and side impacts without operating the latch. The free floating pivot point makes the door latch a secure door latch which is less sensitive to impacts. Free movement of the pivot point in fore, aft and side directions permits relative movement between the latch and handle without operating the latch.

These and other aspects, objects, features and advantages of the present invention will be more clearly understood and appreciated from a review of the following detailed description of the preferred embodiments and appended claims, and by reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a diagram of a preferred embodiment of vehicle door and latching mechanism according to the present invention with the latch closed.

FIG. 2 is a diagram similar to FIG. 1 but with the latch open.

FIG. 3 is an end view of the bell crank of FIGS. 1 and 2 with a linkage member.

FIG. 4 is a diagrammatic end view similar to FIG. 1, but illustrating a stabilizing bracket.

FIG. 5 is a top view of the bracket of FIG. 4.

FIG. 6 is a top view similar to FIG. 5, but illustrating another embodiment.

FIG. 7 is a top view similar to FIGS. 5 and 6, but illustrating another embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. 1 and 2, a door 10 of a vehicle has a hollow interior 12, an exterior panel 14 with an opening 16 in communication with the hollow interior 12, and an edge surface 18 with an opening 20 in communication with the hollow interior 12. A handle 22 is provided for opening the door 10.

The door handle 22 has an exterior portion 24 that extends from the exterior panel opening 16. A pivot pin 26 connects the door handle 22 to the door and serves as a pivot point for the pivotal movement of the door handle 22. The door handle is operated by pulling out on the exterior handle portion 22 causing the exterior handle portion 22 to pivot outwardly away from the exterior panel 14 and upwardly about the pivot pin 26.

A latch 28 is attached to the edge surface 18 of the door 10. The latch 28 is operable between an open position at which the latch 28 is free of locking engagement with a striker 30 and a closed position at which the latch 28 engages the striker 30 in locking contact. As is known in the art the latch cooperates with a striker attached to the door frame.

A bell crank 32 is connected to the door handle 22 in the hollow interior 12 of the door 10. Pivotal movement of the handle 22 causes movement of the bell crank 32. As illustrated, movement of the bell crank 32 is pivotal to move a distal end of the bell crank up and down in a slight arc.

A linkage assembly has first and second links 34, 36 positioned in the hollow interior 12 of the door 10. The first link 34 has one end 38 pivotally connected to the bell crank 32 while the second link 36 has one end 40 pivotally connected to the latch 28. FIG. 3 illustrates the connection of the bell crank 32 and first end portion 38 of the first link 34. It is seen that the end portion 38 has an amount of play so that it can move horizontally in the opening. The end 38 protrudes through an opening in the link 32 and is preferably bent downward for retention in the opening. Alternatively, the end portion 38 may be retained by an end cap, clip, cotter pin, nut, or other means. Similarly, the second link is connected to the latch to have an amount of play so that the end of the link can move horizontally.

At a point of mutual connection 42 below the latch 28 and bell crank 32, the first and second links 34, 36 are joined together. The pivot point 42 may be formed by pinning the links together, or a threaded joint may be used. It is also possible to have a single member that is bent or folded to form a pivot point and two links. Pivot point 42 moves vertically in response to operation of the door handle 22 which operates the bell crank 32 to move the first link 34. Vertical movement of pivot point 42 causes the second link 36 to move and operate the latch 28. The first and second links 34, 36 and the pivot point 42 are free to move horizontally fore, aft and sideways without operating the latch 28. The pivot point 42 is thus free floating so that the vehicle can withstand fore, aft and side impacts without operating the latch 28.

Referring to FIGS. 4-5, a stabilizing bracket 44 is positioned in the hollow interior 12 of the door 10 and attached to the exterior door panel 14. The bracket 44 has a first opening or slot 46 through which the second link 36 extends. Alternatively, the second link 36 may

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extend between the bracket 44 and door panel 14. The bracket 44 also has a second opening or slot 48 through which the first link 34 extends. As illustrated, the openings 46, 48 are horizontally and laterally offset from one another to accommodate the links. The bracket 44 limits unwanted movement and constrains the links 34, 36 to move within a predetermined range and thereby discourage rattling. The links 34, 36 or bracket 44, or both, may be coated with a material to reduce noise occasioned by metal to metal contact.

FIG. 6 illustrates a bracket 50 for use with a single link 52. The bracket 50 is a U-shaped bracket that restrains the second link 52 between the bracket and door panel. The bracket 50 has an opening or slot 54 through which the second link 52 extends. FIG. 7 illustrates a bracket 56 which includes a stand off or extension 58 with an opening 60 for holding the first link 62 at the desired location.

Operation of the present invention is believed to be apparent from the foregoing description and drawings, but a few words will be added for emphasis. FIG. 1 illustrates the mechanism with the door closed and handle close to the door panel in the normal closed position. The door 10 is opened by pulling the handle 22 out away from the door in the direction of arrow A causing the handle to pivot about the pivot pin 26. Handle movement causes the bell crank 32 to pivot downward in the direction of arrow B pushing the first link 34 and the pivot point 42 vertically downward. Downward movement of the pivot point 42 pulls the second link 36 vertically downward causing the latch 28 to operate moving from its closed position (FIG. 1) to its open position (FIG. 2). There must be downward vertical motion of the pivot point 42 to operate the latch. The pivot point is therefore free to move fore, aft and sideways without operating the latch because only vertical downward movement of the pivot point opens the latch.

During fore, aft or sideways impacts, there is no downward vertical movement of the pivot point. It is readily seen that in fore and aft impacts the pivot point may move horizontally. During a side impact, even a side impact tending to force the door handle toward the interior of the door, the force will be a horizontal force. Such a horizontal force may cause the handle to pivot about its pivot pin, but the pivoting will be inward causing the bell crank to raise the pivot point vertically upward to keep the latch closed. A horizontal force causes the links to close, like scissors, without vertically moving the pivot point. There can be relative motion between the handle and latch without operating the latch.

The bracket holds the links in position and limits their movement without interfering with their operation. Limiting the movement reduces random contact with other components to promote quiet operation.

It can now be appreciated that there has been presented a vehicle door latching mechanism with which the vehicle can withstand front, rear and side impacts with the latch remaining closed, even when the point of impact is the door. A free floating pivot point makes the latch a secure door latch that withstands impacts. The floating pivot point permits relative movement between the latch and handle without operating the latch.

While the invention has been described with particular reference to an automobile door, it is apparent that the secure door latch is easily adapted to other vehicles. As is evident from the foregoing description, certain aspects of the invention are not limited to the particular details of the examples illustrated, and it is therefore

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contemplated that other modifications and applications will occur to those skilled in the art. It is accordingly intended that the claims shall cover all such modifications and applications as do not depart from the true spirit and scope of the invention.

What is claimed is:

1. A mechanism for a door of a vehicle, said vehicle having a striker, said door having a hollow interior portion, an exterior panel with an opening in communication with said hollow interior portion, an edge surface with an opening in communication with said hollow interior, and a door handle with an exterior portion extending from said exterior panel opening, said mechanism comprising:

15 a bell crank connected to said door handle in said hollow interior portion of said door;

a latch attached to said door and operable between an open position at which said latch is free of locking engagement with said striker and a closed position at which said latch engages said striker in locking contact; and

20 a linkage assembly having a first link with one end portion pivotally connected to said bell crank and a second link with one end portion pivotally connected to said latch, said first and second links being pivotally connected to one another at a moveable pivot point of mutual connection below said bell crank and latch that moves vertically in response to operation of said door handle to operate said latch, said first and second links and said pivot point being free to move horizontally fore, aft and sideways a preselected mount without operating said latch.

2. A mechanism, as set forth in claim 1, wherein said first link one end portion fits through an opening in said bell crank and including means for connecting said first link one end portion and said bell crank so that said first link one end portion moves laterally and horizontally in said bell crank opening without vertically moving said pivot point; and wherein said second link one end portion fits through an opening in said latch and including means for connecting said second link one end portion and said latch so that said second link one end portion moves laterally and horizontally in said latch opening without vertically moving said pivot point so that said pivot point is free floating laterally and horizontally whereby said vehicle can withstand fore, aft and side impacts without opening said latch.

3. A mechanism, as set forth in claim 1, including a stabilizing bracket attached to said exterior panel in said hollow interior portion of said door confining one of said first and second links and limiting fore, aft and sideways movement of said one link.

4. A mechanism, as set forth in claim 3, wherein said one link is confined between said exterior panel and said bracket.

5. A mechanism, as set forth in claim 3, wherein said bracket has an opening confining said one link.

6. A mechanism, as set forth in claim 1, including a stabilizing bracket attached to said exterior panel in said hollow interior portion of said door horizontally and laterally confining said first and second links.

7. A mechanism, as set forth in claim 6, wherein said bracket has an opening confining one of said links.

8. A mechanism, as set forth in claim 6, wherein said bracket has first and second openings and said first link is confined in said first bracket opening and said second link is confined in said second bracket opening.

* * * * *

PN96 Front Door and Tailgate Handles

12. Body Colors

PDL: T96F5-108, Approved: 8/10/92

01.14.00 HANDLES, LATCHES, AND MECHANISMS SUBSYSTEMS
01.14.04 Body Side Doors - Handles, Latches, and Mechanisms

LH & RH Front Door (R/C & S/C) - (PROFS: CHERPEL, PHONE:)

EXTERIOR

Latch - Modified PM63 D21 design with provision for door ajar switches and illuminated entry.

Exterior door handles and bezels - New color matched.

Exterior lock set bezels - New color matched.

INVESTIGATE:

1. Lift type handle similar to WIN88.
2. Integrate lock set bezel into door handle bezel.

INTERIOR

Use carryover corporate handle (WMSB, PM63, etc.).

Use carryover Probe style night latch integrated into door trim panel with positive location.

INVESTIGATE:

1. Use power pull down for improved closing efforts on Supercab models (includes rear 3rdrd door).
2. Integrate manual/power door switch / night latch with door handle i.i.o Probe style.

01.14.05 Rear Doors, Deck Lid, Liftgate and Tailgate - Handles, Latches, and Mechanisms
Tailgate - (PROFS: CHERPEL, PHONE:)

Latch: New latch similar to 1992 F-Series except:

- Integral overslam bumper.
- Latch internal to gate.

Handle and bezel: New plastic handle with improved ergonomic range of motion similar to Aerostar liftgate handle. Handle to be color matched if exposed.

PDL: T96F5-108-R1, Approved 3/19/93

LH & RH Front Door (R/C and S/C)

EXTERIOR

Latch - Modified PM63 D21 design with provision for door ajar switches, illuminated entry and tension rod to the inside handle.

Exterior door handles and bezels - New color matched lift type with integral door lock cylinders.

NOTE: Door handles and bezels will be received PIA body color (color matched) with black surround gimp. Door lock cylinders to be bright chrome.

INTERIOR

All new handle. Handle and mechanism to override door lock when pulled. Use carryover Probe style night latch integrated into door trim panel with positive location.

Supercab Key pad

Tailgate

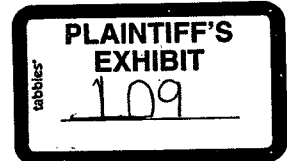
Latch: New latch similar to 1993 F-Series except:

- Integral overslam bumper.
- Latch internal to gate.

Tailgate handle and bezel: New plastic color matched handle with integral tailgate lock (refer to 01.14.01). This handle requires an internal remote control (actuation) latch system.

NOTE:

1. Handle to have improved ergonomic characteristics compared to 1993 F Series.
2. Tailgate handle and bezel will be received PIA body color (color matched) with black surround gimp.



DAAM 0429

Program Letter (Confidential)

1995/05/17 (Last Revised)

Authority Number	GEN00478	Action Type	Action Release	Model Year	1998
Status	Approved	Effect Type	New	PA to Prior MY	Yes
Status Date	1995/05/17	Affected Ltr		* No Cost Financial Supplement	

Subject Complexity Reduction Strategy - **FAO SIDE DOOR LATCH & ACTUATOR** 1997 & Beyond

Vehicle Lines VN108 (C1A-), Escort (CAF-), Ford CT120 (CAJF), Mercury CT120 (CAJM), Tracer (CAN-), Fiesta Facelift (CCD-), Taurus (CDCF), Sable (CDCM), Aspire (CEB-), Crown Victoria (CFB-), Grand Marquis (CFP-), Continental (CJC-), Mark VIII (CLB-), Contour (CNB-), Mystique (CNN-), Thunderbird (CSD-), Cougar (CSP-), C/DT139 (CSQ-), Town Car (CVB-), Probe (CZC-), Mustang (CZE-), SW164 (CZN-), Aerostar (TA1), Windstar (TA3), UN93 (TB3), UN173 (TB4), Villager (TD1), Quest (TD2), VN127 Econoline (TE4-), PN96/PN102 (TF5), PHN131 (250HD, 350, S.D) (TF7-), PN150/151 Ranger (TR3), UX168 (TR6), Transit (TT4), Explorer/Mountaineer (TU3-), PN131 Stripped Chassis (TY3)

Concern/Notice	C10519585	Causal Factor		Project Number	

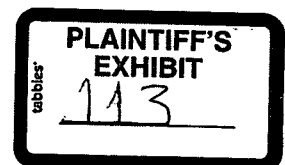
Reference SIDE DOOR LATCH & ACTUATOR strategy approved at November, 1994 Offsite with Mr. Nasser.

Recommended By	Product Strategy Office				
Effective Point Code	Job #1	Effective Point Date	1996/08/01		

Program Support Plan This letter authorizes direction to implement the **Side Door Latches and Actuators** Complexity Reduction Strategy beginning in MY 1998. The Vehicle Line Migration Plan and Complexity Reduction One Page Strategy is included in the hardcopy distribution only. ***Deviation from this plan requires authorization from the Commodity Champion.***
This letter is **DIRECTION ONLY** --- individual vehicle-lines **MUST** release appropriate side door latch and actuator on Vehicle-Line specific PDL consistent with this direction.

Please contact Lynn DaDeppo (Champion) or **D. SCHAFER on x-41921** with any questions.

Weight (kilos)		End Item Complexity		Quality (R/1000)
Weight (lbs)				New Tooled Parts
Emissions Affected	No	RFI Affected	No	Homol Suppl Required
VIN Affected	No	Service Tools Affected	No	

Affiliates Affected ACG, Associates, EAO**Vehicle Lines** **Body/Cab Styles** **Engines** **Transmissions** **Drives**

Prepared By	Approved By
Colleen A. Ameal	Robert F. Widmer 1995/05/17
313-24-82828	

The activities of all affected Ford Companies are recommended to take action as appropriate.

Retention Number 7-2B**Page 1****Retain Until 1998/12/31****PRODUCED BY FORD SUBJECT TO PROTECTIVE ORDER**

0498

Authority Number: GEN00478
 Status Date: 1995/05/17
 Status: Approved
 Priority: Action Release



Program Direction Letter
 (Confidential)

Page: 2
 1997/01/13 1:51:37 am

FAO SIDE DOOR LATCH & ACTUATOR COMPLEXITY REDUCTION
 PRESENT PLAN

	1995	1996	1997	1998	1999	2000	01	2000 Plus
NAAO LATCH \ ACTUATOR	5	6	6	6	4	4		
								DEW
BAO LATCH \ ACTUATOR		6	6	6	3	3	3	
Total FAO	12	12	12	9	7	7		1

DRIVERS OF COMPLEXITY

Door "Package" 1,2 Options - e.g. illum. entry/dr ajar/central lock 1,2"
 Front vs rear door rqmts - e.g. override/child lock 1 EAO vs NAAO latch rqmts/double lock/central locking
 Actuation - cable/rod 1 frt. dr override/noise 1,2"
 S/M change over 1,2"
 1- Latch 2-Actuator

COMPETITIVE BENCHMARKING

North America Latches \ Actuators Families

	1995	
Ford	6 \ 3	(Kramer, maxi, mini, D21, CDW27 U.S. and Villager)
Chrysler	3 \ 4	(2Families similar to maxi/mini and 1 new latch family)
GM	4 \ 3	(Truck, 2 old latch families for cars and mini-wedge latch)
Toyota	3 \ 3	(All relatively new latches)

STRATEGY PROPOSAL

Rationalize present Car and Truck latches \ actuators to achieve a 20% reduction by 2000
 Commonize latch and actuator design between N.A. and Europe.
 Eventual reduction to a single latch and actuator family.

SUMMARY OF RECOMMENDED ACTIONS

1998 Adjunct actuator for PHN131, PN96, DN101. -1 Actuator"
 1998 Commonize UN93, PN96 and PHN131 front and rear door inside handle cable system. -2 latches"
 1999 Adjunct actuator for FN74, FN10, SN95, VN127, WIN126, PN105, UN93. -1 Actuator"
 1999 Replace the CDW27 (US) latch with the DEW latch assembly -2 latches.
 2000 Plus time frame use the DEW latch family.
 Future latch assumptions is to use one latch assembly with two alternatives (high / low content)

PROPOSED LEVEL

	LATCH \ ACTUATOR							
	1995	1996	1997	1998	1999	2000	01	2001 Plus
Present Plan	12	12	12	9	7	7		
Proposed Plan	12	11	9	8	6	4		1
Net Improvement		1	3	1	1	3		3
							67%Reduc.	91%Reduc

FINANCIAL SAVINGS

	1995	1996	1997	1998	1999	2000
Average FAO Veh. Save Latch	0	0	0	\$0.07	TBD	TBD
Average FAO Veh. Save Actuator	0	0	0	\$0.15	\$0.39	\$0.63
Total Save	0	0	0	\$0.22	TBD	TBD

PRODUCED BY FORD SUBJECT TO PROTECTIVE ORDER

0499

PN96 PROGRAM SUMMARY

Vehicle Definition

PN96 is a "ground up" full-sized pick-up truck for the under 8500# gross vehicle weight market. PN96 replaces a portion of the F-150 volume in 1996 and launches at Michigan Truck and Norfolk assembly plants. The third assembly plant, Kansas City, is planned to launch in 1998, however, Program Management has requested it be pulled ahead to 1997. This request is currently under review with approval expected in January, 1992. PN102 is the F-250 (under 8500#) replacement and the UN93 is the Bronco replacement. These vehicles are planned to launch in 1998 but are included in the cycle plan revision request to be pulled ahead to 1997. The information presented in this paper is based on the PN96 vehicle assumptions as the PN102 and UN93 assumptions have not yet been defined. (See Attachment I for Launch Plan and Projected NAAO Volumes)

Program Timing

A/B Sourcing Initiated	12/91
Workhorse Build MRD	2/92
A/B Sourcing Completed	10/92
Structural Prototype MRD	2/93 (67 units estimated)
Confirmation Prototype MRD	1/94 (25 units estimated)
1PP MRD	3/95
FEU MRD	4/95
Integrated Launch MRD	5/95
Job #1	7/31/95

Program Targets

Preliminary variable cost target for the vehicle (Control Model II) is \$1,119 over 1995 F-150. Assessment at PD was (\$403) over target. The preliminary F&T investment target (including 20% efficiency) is \$1.19 billion with \$.85 billion for B&AO. Assessment at PD was (\$.131) billion over target. The PN96 profit margin and ROA targets are similar to the current F-Series and are aggressive considering government regulations and competitive pressures (Toyota is expected to introduce a full-sized pick-up in 1994). PN96 also has established an aggressive weight target of 3930# $\pm$ 50# (approximately 2 ETW classes less than a comparably equipped 1996 F-150). Assessment at PD was (111#) shortfall to the target. Risks and opportunities were identified and weight reduction efforts will become more focused in the PMTs. Quality targets meet the NAAO Imperatives and are substantial improvements over the current F150 results. (See Attachments II, III and IV for Targets)

Product Features

PN96 will have two cab styles (regular and supercab), two box lengths (6' and 8'), and two box styles (styleside and flareside). There will be three engines offered (4.2L V6 - base, 4.6L V8 and 4.6L V8 HO - optional). The vehicle will be slightly narrower but with additional passenger/cargo room in the cab. The 4x2 and 4x4 versions are planned to be differentiated by unique body panels, grilles, tires, wheels and other features not yet identified. There will be four trim levels (including a "sport" model with upgraded features) and all vehicles will include driver and passenger air bags and knee bolsters. All commodities are currently being handled by 12 PMTs however several may divide up due to their size. (See attachment V for New Features and Technology and VI/VII for PMT listings)



NAAO Purchasing
December 18, 1991

DAAM 0332

1996 PN96 Program

Attachment I

PANEL 13

Projected NAAO Volumes (91A)

* A cycle plot revision has been requested to note launch of PN96 UN93 to 1997. Decision to be made in 1992.

(000)	1995		1996		1997		1998	
	FPV	CPV	FPV	CPV	FPV	CPV	FPV	CPV
PN96			288	340	295	340	397	460
PN102							39	45
Subtotal			288	340	295	340	436	505
UN93							69	85
Total PN96/PN102/UN93			288	340	295	340	505	590
F-150	369	424	143	152	146	166		
F-250 U/8500	15	18	15	17	15	17		
F-250 O/8500	120	138	121	137	123	140	136	155
F-350	70	80	69	78	70	80	72	82
Super Duty	36	41	36	41	37	42	38	43
Total F-Series	610	701	384	435	391	445	246	280
Bronco	43	50	42	50	42	50		
UN103							34	40
TOTAL LT Conv.	653	751	714	825	728	835	785	910

PN96 LAUNCH PLAN AND VOLUME PROJECTION (under 8500# GVW only)

		1993	1996	1997	1998	1999	2000
ASSEMBLY PLANT							
Norfolk	F-150	Carryover - X	PN96 -				
	F-250	Carryover - X		PN102			
Michigan Truck	F-150	Carryover - X	PN96 -				
	F-250	Carryover - X		PN102			
	Bronco	Carryover - X		UN93			
Kansas City	F-150	Carryover -		X	PN96		
	F-250	Carryover -		X	PN102		
Ontario Truck	F-150			X	Drop		
	F-250			X	Drop		
o/8500# F-Series		Carryover -					

Twin Cities
Range
F-Series Drop

DAAM 0333

CONTROL MODEL #2 VERSUS PROPOSED TARGETS*

	Variable Cost (Q3/U 1995 F-150)		
	Prelim. Target	PP Assess.	Assess. B/(W) Tgt
<u>Regulatory Actions</u> - Primarily Clean Air & Airbags	(\$915)	(\$992)	(\$77)
<u>Program Actions</u>			(\$245) ✓
- Powertrain	(\$235)	(\$403)	(\$168)
- Vehicle Actions			
- New Platform Cost/Weight Reductions	\$300	\$257	(\$43)
- Other Cost Reductions - Primarily Warranty	\$70	\$41	(\$29)
- Vehicle Product Improvements	(\$235)	(\$306)	(\$71)
- Program/B&AO Provisions	(\$104)	(\$119)	(\$15)
Total Vehicle Actions	831	(\$127)	(\$158) ✓
Total Program Actions	(\$204)	(\$530)	(\$326)
Total Control Model	(\$1,119)	(\$1,522)	(\$403)
Memo: Average Vehicle	(\$718)	(\$1,031)	(\$313)

* 4x2 Regular Cab, 4.6L V8, AODE-W, with 33X Options.

Base is approx \$8500

Cycle Plan Spending Provision
(Incurred Economics)

	Facilities & Tooling			Launching (Mils)	Engineering (Mils)	Total Spending (Mils)
	B&AO (Mils)	All Other (Mils)	Total (Mils)			
Original Cycle Plan	\$1,050	\$350	\$1,400	\$150	\$400	\$1,950
Add: Flareside Pgm (Net) 4.6L/4.6L HO Engines	20	30	50	5	17	72
	•	41	41	4	6	51
Subtotal - Before Efficiencies	\$1,070	\$421	\$1,491	\$154	\$428	\$2,073
Less: Investment Efficiencies Memo: %	-214	-84	-298	N/A	N/A	-298
	20.0%	20.0%	20.0%			
Total PWD Pgm - After Invest. Efficiencies	\$856	\$337	\$1,193	\$154	\$428	\$1,775

* - Included in Base Program

DAAM 0334

1996 PN96 Program

Attachment III

PANEL 4

Weight Targets

CURB WEIGHT TARGET

*Based on 9/20 MSF agreement.

CONTROL MODELS

1	2	3
4x2	4x2	4x4
Reg. Cab	Reg. Cab	Sup. Cab
138.5 WB	138.5 WB	138.5 WB
4.2 L	4.6 L	4.6 L
R-2	AODE-W	R-2
Base Veh.	33% Option	33% Option

♦ PN96 ETW Class Target	4,000 lbs.	4,250 lbs.	4,500 lbs.
♦ ETW target weight minus (40%) build variability	4,085 lbs.	4,230 lbs.	4,584 lbs.
♦ Less 2 passenger weight	- 300 lbs.	- 300 lbs.	- 300 lbs.
♦ Target EPA Curb Weight	3,785 lbs.	*3,930 lbs.	4,284 lbs.

MEMO:

♦ 1992 F-150 ETW Class	4,250 lbs.	4,500 lbs.	5,000 lbs.
♦ 1992 F-150 Curb Weight	3,964 lbs.	4,282 lbs.	4,673 lbs.
♦ 1992 F-150 Curb Weight Adjustment for Added Options 1/	4,019 lbs.	4,369 lbs.	TBD
♦ Equivalent 1996 F-150 Adjusted for FMVSS and Clean Air Act 2/	4,109 lbs.	4,459 lbs.	TBD
♦ 1996 F-150 Curb Weight Fully Adjusted (O)/U PN96 Target	(512) lbs.	(529) lbs.	TBD

- 1/ PN96 Control Model #2 has the following options included in the 33% that are not included in the 1991 F-150 33% option. Body side molding +14%, handling package +39%, and P235 tires vs. P215 tires +32%, and platform adjustment +2%. Total = +87%. PN96 C/M #1 includes rear bumper (+55%).
- 2/ Estimated weight increase for FMVSS requirements passenger side air bag +11.5%, drivers side air bag +2.85%, knee bolster 22%, X-car beam 11.5% side impact 14%, and Clean Air Act +21%, and front end crash +7%. Total=90%

CURB WEIGHT STATUS @ PD

CONTROL MODELS

	1	2	3
♦ Present EPA Curb Weight Status	3886	4041 lbs.	TBD
♦ Target EPA Curb Weight	3785	3930 lbs.	TBD
♦ Present Status (O)/U Target	(101) lbs.	(111) lbs.	TBD
♦ Weight Opportunities	84 lbs.	84 lbs.	TBD
♦ Weight Risks	42 lbs.	42 lbs.	TBD
♦ Potential weight w Opps/Risks	3844 lbs.	3999 lbs.	TBD
♦ Potential Status (O)/U Target	(60) lbs.	(69) lbs.	TBD

DAAM 0335

1996 PN96 Program

Attachment IV

PANEL 2

Quality Targets

The PN96 strategy is to increase the existing F-Series' quality advantage over the domestic competition and launch the PN96 vehicle at quality levels which are equivalent or better than the anticipated Japanese competition (see Appendix 1 for details). The following targets support the NAAO Customer Satisfaction Imperative:

- ♦ Greater than 90% Customer Satisfaction (CNVQS @ 3 MIS)
- ♦ 85% or better Customer Satisfaction (DTS @ 2-6 YIS)
- ♦ 1000 or less (vehicle) TGV/1000 (CNVQS @ 3 MIS)
- ♦ 200 (powertrain) TGV/1000 (CNVQ @ 3 MIS)
- ♦ 3500 TGV/1000 (DTS @ 4 YIS)
- ♦ 800 $\pm$ 5% R/1000 - 4x2 (12/12 warranty)
- ♦ 1000 $\pm$ 5% R/1000 - 4x4 (12/12 warranty)
- ♦ TBD R/1000 (3 years/36,000 miles)

	F-150	C/K 1500	Toyota	PN96 Initial Targets
Customer Satisfaction	76%	76%	83%	>90%
TGV/1000 (1991 MY @ 3 MIS)	1925	2478	1470	1000 or less
DTS TGV (1987 MY @ 4 YIS)	6973	6085	2205	3500
DTS Customer Satisfaction	58%	55%	85%	85% or better

DAAM 0336

1996 PN96 Program

Attachment V

PANEL 12

New Features & Technology

VEHICLE COMPONENT/PRODUCT CONTENT

♦ PERFORMANCE

- * Torque On Demand 4X4 Transfer Case
- Flexible Fuel Capability
- * Conical Air Cleaner
- Overhead Cam Engine
- * EDIS Ignition
- * Split Port V-6 Engine
- Thin Finned Radiator Design
- Linear/Compact Fuel Level Indicator
- * Aluminum Hood
- Composite Driveshaft
- * Electronic Wide Ratio Transmission

♦ FEATURES

- * Supercab 3rd Door
- * Behind the Seat Storage on Regular Cab
- * Pickup Box Cover
- Overhead Console
- Anti-theft Protection System
- Composite Flareside Pickup Box
- Backlit Switches
- Differentiated Model Derivatives (4x2, 4x4, Sport models) through use of composite materials
- Power seats and bucket seats
- * Rear split bench on Supercab
- * Keyless entry/remote entry/anti-theft
- 16" tires & wheels standard
- CD player and changer options
- Cellular phone
- Solar tint glass
- Electronic cluster option
- I/P mounted cup holders
- 4 Wheel antilock brakes
- Next generation speed control (electronic)

* Ford First in Segment

FEATURES UNDER CONSIDERATION

♦ PERFORMANCE

- Plastic Torsion Bar Frt. Suspension
- Engine Mounted Fan Shroud
- SMMI Fuel Injectors
- Underhood EEG Module w/ Cool Box
- VCT-Variable Cam Timing for 4.6L Eng.
- Integral Transmission Coolers
- CVT-Constantly Variable Transmission
- Particulate Air Filtration
- Advanced Blower Wheel Assembly
- Solid State Relays
- Active Noise Cancelling Muffler
- GEN-Generic Electronic Module
- Battery Thermal Management
- Composite Integral Front End
- Composite Intake Manifold
- Reduced # of air bag sensors
- Composite leaf springs
- 4 wheel disc brakes

♦ FEATURES

- Load leveling suspension
- Traction control function
- Electronic PRNDL (electronic cluster only)
- Oil condition gauge
- Tip/slide seats (power-glide)
- 40/20/40 split bench seat
- Lighted ignition switch

DAAM 0337

**PN96 PICKUP PROGRAMS
PMT RESOURCE CONTACT LIST
AFFORDABLE TARGETS**

PMT NUMBER	PMT NAME	TEAM LEADER	ATP TEAM SUPPORT RESOURCE		
			PLANNING	FINANCIALS	COST ESTIMATING
1	BODYSHELL/WINDSHIELD	L. MALTBY x-75779	TBD	M. SENESKI x-07748	J. SMITH x-51520
2	DOORS/GLASS/LOCKS & MECHS/WIPERS	T. SIEDLECKI x-25387	TBD	M. SENESKI x-07748	J. GUOTANA x-78515
3A	EXTERIOR ORNAMENTATION/ EXTERIOR LIGHTING	B. STRASSER x-37232	TBD	M. SENESKI x-07748	J. LaCROSS x-52744
3B	BUMPERS/PAINT	B. STRASSER x-37232	TBD	M. SENESKI x-07748	J. LaCROSS x-52744
4	UNDERBODY/FRONT END/PICKUP BOX/TAIlgATE	P. JENSEN x-38508	TBD	M. SENESKI x-07748	R. ROYAL x-78518
5	SEATS/RESTRAINTS	G. CRAWFORD x-73154	Y. VANDER-LUGT x-07888	M. LEWIS x-07911	R. KUBIAK x-31268
6	INTERIOR TRIM & LIGHTING/DOOR TRIM/CONSOLE/AUDIO	G. CRAWFORD x-73154	Y. VANDER-LUGT x-07888	M. LEWIS x-07911	M. BOUFFORD x-52745
7	INSTRUMENT PANEL/CLUSTERS/AIRBAG/ CLIMATE CONTROL	M. MCLEAN x-81398	K. TYBURSKI x-07891	M. LEWIS x-07911	P. KRUPP x-23537
8	ELECTRICAL DISTRIBUTION WIRING & MODULES	F. McNULTY x-07887	K. TYBURSKI x-07891	D. ALLEN x-07913	P. RAGNONI x-24888
9	FRAMES & MOUNTS/FUEL SYSTEM/BRAKES/REAR AXLE	R. GRIFFITH x-23100	D. SCHOEN x-07728	J. HUNLEY x-07844	D. BURNS x-23119
10	STEERING COLUMN & WHEEL/STEERING SYSTEM/SUSPENSION/WHEELS & TIRES	C. BOYD x-40725	D. SCHOEN x-07728	J. HUNLEY x-07844	J. LAMB x-55468/ D. MARSEE x-78584
11	POWERTRAIN CONTROLS/DRIVELINE COMPONENTS Clutch, Trans Case, Frt. Axle, Accel. Controls, FEAB, ENGINE (GAS), Exhaust	D. HUDDLESTON x-01834	J. DUNHAM x-07907	J. HUNLEY x-07844	K. CAIRNS x-41950/ H. WYNGARD x-78097
12	ENGINE/AUTO TRANS.	P. DEWEY x-44772	J. DUNHAM x-07907	S. AGRAWAL x-08588	J. MALEY x-78582

NOTE: ALL PMT'S

PURCHASING REP	L. ZIS	x-32394
MARKETING REP	A. SARKISIAN	x-15733
QUALITY REP	J. SAIEG	x-07921
WEIGHT CONTROL	L. ANDARY	x-08838
WEIGHT CERTIFICATION	D. VOLKER	x-73288

Program Manager - Tom Baughman x-07653
 Finance Manager - Larry Savage x-07661
 Bus. Strategy Mgr - Phong Vu x-08566
 Chief Program Eng. - Bob Himes x-06571

PMT CONTACT LIST
12/18/91

DAAM 0338

**PN96 Pickup Programs
PMT Meeting Schedule**

PMT NUMBER	PMT NAME	TEAM LEADER	PHONE	MEETING DAY	MEETING TIME	FREQUENCY	MEETING PLACE
1	BODYSHELL/WINDSHIELD	L. MALTBY	x-75779	WED	7:30	WEEKLY	1050
2	DOORS/GLASS/LOCKS & MECHS/WIPERS	T. SIEDLECKI	x-25367	WED	9:30	WEEKLY	CAFE.
3A	EXTERIOR ORNAMENTATION/ EXTERIOR LIGHTING	B. STRASSER	x-37232	TUES	2:30	BI-WKLY	2111D
3B	BUMPERS/PAINT	B. STRASSER	x-37232	FRI	9:00	BI-WKLY	2103
4	UNDERBODY/FRONT END/PICKUP BOX/TAI/GATE	P. JENSEN	x-36505	WED	7:30	WEEKLY	1050
5	SEATS/RESTRAINTS	G. CRAWFORD	x-73154	FRI	1:00	WEEKLY	2103
6	INTERIOR TRIM & LIGHTING/DOOR TRIM/CONSOLE/AUDIO	G. CRAWFORD	x-73154	TUES	2:00	WEEKLY	1153A
7	INSTRUMENT PANEL/CLUSTERS/AIRBAG/ CLIMATE CONTROL	M. MCLEAN	x-81365	TUES	10:00	WEEKLY	STUDIO 2000X Des. Ctr.
8	ELECTRICAL DISTRIBUTION WIRING & MODULES	F. MCNULTY	x-07667	MON	2:00	WEEKLY	AFL (next to SEC Annex)
9	FRAMES & MOUNTS/FUEL SYSTEM/BRAKES/REAR AXLE	R. GRIFFITH	x-23100	FRI	10:00	BI-WKLY	SEC 3A
10	STEERING COLUMN & WHEEL/STEERING SYSTEM/SUSPENSION/WHEELS & TIRES	C. BOYD	x-40725	FRI	8:00	WEEKLY	SEC-A 5A
11	POWERTRAIN CONTROLS/DRIVELINE COMPONENTS	D. HUDDLESTON	x-01934	TUES	8:30	BI-WKLY	SEC A 5B
12	ENGINE/AUTO TRANS.	P. DEWEY	x-44772	TUES	1:00	BI-WKLY	SEC-A 5B

*All meeting locations are at the Body Engineering building, unless otherwise noted.

Revised: 12/10/91

DAAM 0339

300 dept

***** PRELIMINARY / DRAFT *****

01.02.00 Front End Subsystem

01.02.01 Front Structure

• Radiator Support Assembly:

One Piece Main Panel Construction:

- All new design
- One piece main construction consisting of 6 - 10 reinforcements that is to be common for gas and diesel models
- Assembly will consist of:
 - i) One piece main stamping
 - ii) Welded in lower radiator support running from front mount to front mount
 - iii) F-mount reinforcements welded to the assembly
 - iv) Vertical supports that run from top to bottom of the assembly
 - v) Outboard gussets that start at the vertical supports and run outboard to weld to the shotgun.
- Radiator to be mounted using an iso mount type attachment at top and bottom of the support assembly
- Support assembly to be welded to shotguns and mounted to FESM body mounts
- Provide mounting holes for wire harness 12A581 attachment.

3007 • Apron Assembly-Front Fender:

- Part to be plastic similar to carryover

• Tray Assembly-Battery:

- Part is to be plastic and totally enclose the battery in a "cool box" environment.
- Main tray tie-down will utilize E7TB-10747 carryover battery hold down
- Tray will bolt in to front end structure

• Shotgun Assembly:

- All new design similar to passenger car.
- Will consist of an inner and outer panel.

5

DAAM 0340

***** PRELIMINARY / DRAFT *****

- Inner panel will be part of the front end subassembly welding to the DOP inner and the radiator support assembly. Fore/aft and up/down adjustment is available.
- Front fenders will mount to outer shotgun panels.
- Outer shotgun panels will be welded during framing and will float up/down and fore/aft giving B&A the adjustment required. Explorer type construction. Outer panel will weld to inner shotgun, DOP outer, and the radiator support assembly.

01.02.03 Front Fenders

• Front Fender Assembly:

- All new design.
- Assembly to consist of main fender panel with 3-4 reinforcements.
- Reinforcements will be located at the front of the panel, at the upper rear corner, and the lower rear reinforcing the traditional dog leg. Reinforcements will be PIA.
- 600 - 4 x 2 fenders steel.
- Attachments will be along the catwalk (3), at the bottom of the dog leg, at the front of the assembly, and at the rear to a bracket off the DOP.
- Fender will accommodate P&T lamp and probably tie to the GOR/GOP.
- Provide for wiring troughs on rh/lh side fender inner for 12A581 wire harness similar to Ranger.

300 Front SMC Fender - 4X4

- New SMC fender design
- Assembly to consist of main fender panel with no reinforcements
- Apron assembly same as steel c/o
- Fasteners same as steel where possible. Will combine steel and plastic designs as much as possible without compromising advantages of each particular design
- Fenders will mount to front end at catwalk, at A pillar front of DOP and tie in to GOR and accommodate P&T lamp.

***** PRELIMINARY / DRAFT *****

- Fender wall thickness 2.5-3.0 mm, class A surface, to withstand temperature range of -27° to 420° F
- Fenders to be supplied with conductive prime and installed prior to taupe prime.

01.02.04 Deflectors and Shields

- 300/400? • Front Bumper Stone Deflector - All new sheetmetal. Wrap around like present "F" Series. Common on all models. (D. Leanhardt 76490)

01.02.05 Hood and Mounting

• Hood Assembly:

- Hood- All new construction and mounting
- 650 - Investigating the use of aluminum for the inner and outer panels.
- Investigating the type of flange to be used: hem flange versus a down standing flange between inner and outer panels.
- Hood Hinge- All new. Investigate gas cylinder.
- Cowl Top Vent Grille - Not required due to hidden wiper system. "Leaf" screen required underhood. 200
- Hood Prop Rod - All new. Pivot to be located as far outboard as possible. Storage end to secure "Up-Down". Delete if gas cylinders are used.
- Package protect for hood insulator mounting attachments, and mounting for non-retractable underhood trouble light.

01.02.06 Headlamp Mounting Panel

- Provide adequate hand clearance for easy front-end lighting socket removal.

01.03.00 Body Closures Subsystem

Adv Eng
Martin Steinhauser X 35951

01.03.01 Front Side Doors

Bert Manakion X - 07646
P1916 Body Proj mgr.

• Front Doors:

- 650 - Front doors are all new steel construction (10 year rust through) protection.
- Doors will have three side flush glass.

***** PRELIMINARY / DRAFT *****

- Door design is a limo style top with an insert "A" pillar and exposed rocker.
- Doors will have full power windows, door locks, keyless entry, electric and heated mirror options.
- 300 - The primary seal will be on the door, with a secondary seal on the body opening pinch weld flange.
- Include 68.0 mm flanged clearance holes in door inners, offset 50.5mm below the A-Pillar hole, for wiring grommets.
- Add hole in LH door outer panel for keyless entry keypad.

01.03.03 Tailgate and Liftgate

- 300 • Tailgate Assembly - All new. Inner & Outer (all models) H.S. SMC.
- SMC • Brackets / Reinforcements - Steel

01.04.00 Second Unit Body Subsystem

01.04.01 Pickup Box Body

- Two lengths 6-1/2 ft. and 8 ft.
- Styleside Inner 4x2 and 4x4 - New - Steel
- 300? - Flareside Inner 4x2 and 4x4 - New - HSC
- Styleside Outer 4x2 - Steel with modified "anti-smile" rail.
- 300? - Styleside Outer 4x4 - New - SMC
- Styleside Loadfloor - New - Rolled Steel
- Headboard (all models) - New - Steel with modified closed section rail similar to Chevrolet's
- 8 foot box must hold 4'x8' building material flat on floor, and vertical with 8' edge on floor and parallel to grids with tailgate closed. Both conditions above must be met with a bed-liner in place. (Minimum of 49.5 in between wheel wells.)
- Eight integral tie downs positioned in the four corners near the box rail and at the floor. The tie down points must withstand a 800# pull applied at 45° and 90° angles.

***** PRELIMINARY / DRAFT *****

Chevy) for boards for two level loading and sub division of floor space.

- Elimination of stamped area for fuel fill clearance in body side inner panel.
- Rigid pick-up box cover offered RPO.

3007.

• HSC Box (Flareside only)

- Box inner integral tie down hooks instead of stake pockets.
- Incorporate board pockets for insertion of wood boards for vertical (2 layer) and horizontal (3 section) division of cargo.
- Eliminate panel offset for fuel pipe clearance.
- Low grade plastic WBL splash cover, snap-on attachment to box and body side outer panel.
- Steel hardware retention bracket replaces hinge reinf. install hinge on HSC Box-inner body same as present design on 1992-1/2 FS
- Latch mechanism C/O from PN63.
- Grain pattern on inner walls or exposed surfaces molded in grey/black.
- Inner box to include the upper rail as an integral part
- Mechanical fasteners for attaching the side panels to box inner
- Tailgate, inner VE-SMC and outer low density SMC
- Tailgate inner to outer will be attached by adhesive and mechanical fasteners.
- SMC side body panels
- One piece integrated inner box which incorporates the supt. ass'y body steps.
- Modify/integrate Valance assy. rear bumper, and its bracket assembly.
- Potential to eliminate angle brackets for T/G reinforcement. (Based on HSC Ranger experience)

Note: Design assumptions are based on 1992-1/2 FS design and Ranger (pilot/89) composite pickup box

***** PRELIMINARY / DRAFT *****

an encapsulated 25mm fiberglass absorber, depending on how well the 2mm barrier handles the pass through noise problem.

01.06.03 Heat Control

- 400
- Heat Patches - Composite material that consists of 1) Aluminum foil 2) polyester fiber 3) Aluminum foil 4) polyester fiber or 3 to 5 micron fiberglass. The product will absorb heat. The foil will spread the hot spots, that will lower peak temperatures. Polyester is protected to 375 F.

01.07.00 Sealing

300 01.07.02 Dynamic Weatherstrips

- Use primary and secondary seal which is a noise and leak proof system similar to VN58.

01.07.07 Door and Quarter Panel Watershields

- 400/300
- Door Watershields - Provide a seal around the power window, lock, and mirror door wiring as it routes through the watershield to the door inner panel trim.

01.08.00 Exterior Trim and Ornamentation

01.08.01 Radiator Grille and Headlamp Bezels

- 300
- Grilles - 2 unique, 4X4 and 4X2. 2 trim levels, bright and paint. Construction similar to C/O 92 F-Series, 20% larger for additional rake caused by 5.3" additional front overhang.
 - 300 • Headlamp Bezels - 2 Unique, 4X4 and 4X2. 2 Trim levels, bright and painted. May be part of head lamp assembly.

01.08.02 Front End - Trim and Ornamentation

- 300
- Front Windshield Molding - Rehau molding system similar to WIN88.
 - 300 • Name Plates - F-150 and Trim Level in one badge. Use tape or plastic (Vitrolux) similar to GM C/K.
 - 300 • Body Side Moldings - Two moldings- 1) base protection (mid-level trim), and 2) large w/tape insert (high series), similar to high series Explorer. All moldings molded, not extruded.

01.08.03 Front End - Air Dam Extensions

- 300
- Deflector, Air Upper - Similar to C/O
 - 300 • Lower Air Dam - Similar to C/O, soft lower bumper fascia to provide function on high series and Sport Truck models.

***** PRELIMINARY / DRAFT *****

01.08.05 Body Side and Quarter - Trim and Ornamentation

- 300 • Body Side Moldings - Two moldings- 1) base protection (mid series trim), and 2) large w/tape insert (high series trim), similar to high series Explorer. All moldings molded, not extruded.
- Wheel Lip Moldings - None on base truck. 4X4 TBD.

01.08.06 Body Rear End - Trim and Ornamentation

- 300 • Body Side Moldings - Two moldings- 1) base protection (mid series trim), and 2) large w/tape insert (high series), similar to high series Explorer. All moldings molded, not extruded.
- 300 • Tailgate Applique - Decal or Vitrolux similar to GM C/K (85mm wide)
ALTERNATIVE: Investigate TPO system like Ranger (\$15, but 3.5lbs)

01.09.00 Rear View Mirrors

01.09.01 Inside Mirrors

- 300 ? • Inside Rearview Mirror - C/O ?

01.09.02 Outside Mirrors

- 300 • Assume driver's side power mirror switch is same as 92 F-Series, except switch is lighted.
- 300 • Manual Mirrors - New. Aero, door mounted near sail area. No bright, paintable. RPO Trailer Tow swing lock mirror also available.
- 300 • Electric Mirror Assembly - New. Mirror connector interface to be sealed and mounted to door inner panel sheetmetal.

01.09.03 Heated Outside Mirror Assembly

- 300 • Package protect for RPO heated mirrors.

01.09.07 Automatic Electric "Day/Night" Inside Mirror

- 300 ? • Investigate usage of electrochromatic day/night rear view mirror system (possible system coordination with O/S mirrors)

01.10.00 Seating - Adsc : see - Bacc a fog might want built up
see 13

01.10.01 Front Seat Trim and Ornamentation

- 400 • Bench Seat w/ Split Back
 - 70%/30% Split Back Cushion (30% Driver's Side)
 - All Inboard Seat Belt Anchorages are attached to the seats

***** PRELIMINARY / DRAFT *****

Switches to be illuminated when headlamps or parking lamps are on.

- Push-pull headlamp switch with integral I/P dimmer rheostat. Will be driven by autolamp decision.

• I/P Wiring

100

- Include dedicated wiring trough in I/P.

- Include integrated molded connector receptacles in I/P trim panel blanks to secure mated I/P harness connectors and preclude rattles.

- Use low insertion/extraction force connectors on trim panel-mounted switches for easier assembly and service.

01.12.02 Console Unit

400 • Floor Console - may be PIA issue - PTPD work it!

• Grained, color keyed, non-painted HCFP with a hinged, padded top designed to be compatible with door trim panel arm rest height for optimum comfort. Features include two cupholders, coin holder, cassette/CD storage, trash compartment/tissue holder, and the main floor area covered with a vinyl mat for anti-rattle/skid feature.

• Protect for rear seat heating/cooling blower motor and duct

400

• Overhead Console - may be PIA to headliner - PIA.

• Regular & Super Cab Models w/o sunroof - Full length overhead console with 2 map lights, generic bins, compass & outside temperature display, power controls.

• Super Cab Model with sunroof option - Partial overhead console with 2 map lights, generic bins, controls for sunroof.

01.14.00 Handles, Locks, Latches, and Mechanisms

01.14.03 Body Front End Latches, Hood Latches, and Mechanisms

Gray

300?

Hood Latch - Use carryover from Taurus. Assumption is to mount to the upper center portion of the radiator support assembly.

• Hood Release Cable - Attachment location to cowl side panel inside passenger compartment similar to 92 F-Series. Redesign component with mechanical advantage (3 to 1 if feasible) to decrease pull efforts for customer.

01.14.04 Body Side Doors - Handles, Latches, and Mechanisms

Long Tony

→

300

• Handles, Latches, and Mechanism - Use carryover from PN63.

21

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***** PRELIMINARY / DRAFT *****

- Door Ajar Switches - Standard equipment, replacing jamb-mounted courtesy lamp switches. Door handle switches for illuminated entry to be included on front doors of all vehicles.

01.14.05 Tailgate - Handles, Latches, and Mechanisms

- Harry
Greg* → 300
- Handles, Latches, and Mechanism - Use carryover from PN63.

01.14.07 Power Lock Solenoids and Motors

- Greg* → 300
- Investigate 2 position power lock: 1) turn once unlock single door, 2) turn again unlocks all doors.

01.14.09 Keyless Entry

- ?
- Package key pad on D/S and P/S doors as an RPO option. Must function with RKE system.

01.14.10 Fuel Filler Door, Latches, Mechanisms

- Greg* 600 ?
- Fuel Filler Door - Use carryover 92 F-Series.
Alternative: Remote cable release - Mechanical or electric.

01.16.00 Wipers and Washers

01.16.01 Windshield / Backlight Wipers

- 600
- Wiper Arm & Blade - Similar to C/O except 30% larger
- 100
- Intermittent Feature - Standard, controlled by GEM via relays mounted in underhood power network box or modular relay block. Includes single-sweep feature activated by pushing wash switch for less than 40 ms.

01.16.02 Linkages

- 600
- Arm & Pivot Shaft Assembly - Similar to C/O

01.16.03 Windshield/Backlite Washers

- 600
- Dual Fluidic System similar to C/O 92F

01.16.05 Wiper Motor

- 600
- Motor Assy - F-Motor - C/O 94F

01.16.06 Wiper/Washer Controls

- Switch - Use FR Column version of multi-function switch.
- Package W/S Washer Fluid Level System

01.17.00 Convertible Top and Roof Opening Panel Subsystem

- 600
- 01.17.03 Roof Opening Panels

***** PRELIMINARY / DRAFT *****

600

- RPO: All new, mechanical, pop-up and removable tinted glass sunroof panel with storage cover (similar to Probe)

01.17.04 Roof Opening Panel Hinging/Removal Mechanism

- Hinges and mechanisms TBD to support new sunroof panel.

01.18.00 Body Paint Subsystem

300

01.18.01 Body Paint

- Standard: Colors TBD
- RPO : Clearcoat paint. New Tutone paint patterns

01.18.02 Body Corrosion Protection

- 10 year body panel perforation protection. 4 year cosmetic corrosion protection.

01.18.03 Body Stripes

300

01.18.05 Tape Stripes

- Tape Stripes - Similar to C/O

01.19.00 Bumpers

300

01.19.01 Front Bumper

- Base Bumper - Similar to 92 1/2 F except plastic with large front airdam. Black Fleet RPO.
- Sport Truck - Same as base bumper with add-on soft lower fascia, including provision for integrated fog lamps. (Similar to 93/94F FPSD Option)
- High Series - Soft covered plastic bumper with high series moldings/appliques. (Detail TBD)

300

01.19.02 Rear Bumper

- Plastic, soft fascia w/separate steel tow plate (2000lb trailering capability) High series painted body color, low series black. Wrap around appearance executed by separate rear quarter panel lower bumper extension moldings similar to high series Explorer.
- Include clearance hole for securing trailer tow receptacle connector.
- Flairside Bumper- Unique/similar to C/O Flairside bumper

300

01.19.04 License Plate Attachments and Frames

***** PRELIMINARY / DRAFT *****

300.

License Plate Bracket (Front) - Delete, Style into bumper.

01.20.00 Occupant Restraining Device

400

01.20.01 Seat Belts/Shoulder Harness

- Restraint components to be carry-over 92 F-Series Web Grabber retractor and buckle.
- Buckles must move with the seat.
- Adjustable "D" rings

Alternative 1: Opportunity for conventional retractor based on FMVSS 208 crash performance.

Alternative 2: Electronic sensing web-locking retractors for shorter front end crush space.

Alternative 3: Investigate pre-tensioning buckles for shorter front end crush space.

01.20.04 Passive Restrain Systems

400

- Air bags to be provided for driver and front passenger.
- Use WIN88 D/S air bag, and 4" height P/S air bag similar to Town Car
- Passenger side aluminum inflator
- 4" Carry-over UPN105 can.
- DNS pillow bag design

01.20.05 Restraining Device Actuation Sensing

400

- Assumes 3 forward sensors with dwell enhancing circuit and safing sensor packaged inside diagnostic module.
- Alternative: Reduce forward sensors from 3 to 2 dependant upon B&CK crash test results.

Alternative: Opportunity to reduce to two sensor system

Alternative: Opportunity for single point sensor system

02.00 Frame and Mounting System

02.01.00 Frame

02.01.01 Frame Assembly

200

- Frame - New four piece sidemember assembly consisting of a front seam welded box section (including added front horn length of 5.9" for FMVSS 208), extending back just beyond

***** PRELIMINARY / DRAFT *****

- Trend set processing vs. end of line set for caster, camber, toe is being evaluated through variation simulation analysis.

04.02.00 Rear Suspension 200

- Hotchkiss rear suspension with overslung springs - similar to c/o but with springs splayed to match frame. Spring geometry optimized for understeer and pinion travel. The 4x4 ride height is higher than the 4x2, requiring differences in rear suspensions.
- Rear Springs - New lighter weight optimized two stage steel springs for new rates and load ratings for revised vehicle weights.

Alternate 1) Investigate Fiberglass, single leaf rear springs for weight reduction.

Alternate 2) Investigate single leaf steel spring for weight reduction.

Alternate 3) Investigate BASF bumper in place of second stage rear spring.

- Rear Spring Shackle - New for rear spring geometry.

Alternate 1) Investigate - Cast aluminum shackle.

Alternate 2) Investigate - Vacuum cast steel shackle.

- Rear Spring Hanger - New for rear spring geometry.

Alternate 1) Investigate - Forged aluminum hanger.

Alternate 2) Investigate - Vacuum cast steel hanger.

04.03.00 Shock Absorbers 100

- 134 • Front Shocks - New, revised mounting and valving, 1 3/16" Std. and 1 3/8" Handling

Alternate 1) Investigate - Bayonet mounting on lower end of shock.

- 134 • Rear Shocks - New, revised mounting and valving, 1 3/16" Std. and 1 3/8" Handling. To be compatible with super single fuel tank package.

04.04.00 Wheels and Tires 300

- 3.24 • All New 16.0 inch wheels
- | | |
|-----------|--|
| Base: | - New 16x6.5JJ Steel |
| Optional: | - New 16x7.0JJ mid-styled weight/cost optimized aluminum |

***** PRELIMINARY / DRAFT *****

(high volume wheel)

- New 16x7.5JJ high styled aluminum

Brady
321 • Tires

4x2 Base: - P215/70R16 A/S
optional: - P235/70R16 A/S
- LT225/75R16C A/S
- P265/60R16 A/S (Sport Model Only)

Don
4x4 Base: - P235/70R16 A/S
Optional: - P235/70R16 A/T
- LT225/75R16C A/S
- LT225/75R16C A/T
- P265/75R16 A/T
- P265/70R16 A/T

Brady
Spare Wheel - Same as base HSLA steel wheel

• Spare Tire - Full size but limited service spare tire.

04.05.00 Suspension Load Leveling Control Subsystem

100

- Air assisted shocks to control load level. Compressor and actuator valve similar to FN-36. Functions controlled by separate module (Not integrated in GEM) New brackets required to package with live axle.

05.00 Driveline System

05.01.00 Driveshaft Subsystem 200 tac?

- Rear Driveshaft:
1 piece rear drive shaft on all Regular Cabs (excluding LWB manual 4X2). Steel tubes or aluminum where feasible. Composite tubes under investigation to avoid 2 piece drivelines on Regular Cab LWB automatic vehicles. Circular flange rear attachments. Slip yoke front joint on all 4X2's. Investigate front yokes versus slip between center fixed flange front joint on rear shafts on 4X4.
- Reduced driveline U-Joint angles and matched angles front & rear where possible. Nickel plated 28 tooth slip yokes where applicable.
- 2 piece drivelines (where applicable) shall be improved for optimum balancing with improved center bearing design for longer service life.
- Front Driveshaft:
Circular flange front and rear connections. 2" diameter steel shaft with slip between center splines.

05.02.00 Rear Drive Housed Axle Subsystem

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DAAM 0352

ENGINEERING STATEMENT OF WORK
1996 PN96 DOOR AND TAILGATE HANDLES

- 1.0 Overview
- 2.0 Commodity Plan/Program Timing
- 3.0 General Responsibilities
 - 3.1 Competitive Analysis/Benchmarking
 - 3.2 Concern Resolution/Drawing Transmittal
 - 3.3 Installation Manuals
 - 3.4 Assembly Process Manuals
 - 3.5 Cost of Repair
- 4.0 Program Management Responsibilities
 - 4.1 Personnel
 - 4.2 Communication/Documentation
 - 4.3 Gantt/CPM Charts (Critical Path Method)
- 5.0 Design Responsibilities
- 6.0 Engineering Responsibilities
- 7.0 Continuing Responsibilities

DAAM 0353

Date 92/09/04
Revised _____

1996 PN96 DOOR AND TAILGATE HANDLES
PRODUCTION PURCHASE CONTRACT ADDENDUM
FOR GRAY BOX AGREEMENTS
GBCA-01.14.04-22400/1-TVFI

This Addendum to the Production Purchase Contract for Gray Box programs has been jointly developed by Ford and Donnelly Corporation and is issued by the responsible production buyer. It consists of specific product information, responsibilities and associated timing for the following program:

Component/System	<u>Door and Tailgate Handles</u>
Model Year/Vehicle	<u>1996 F-150 Pickup (PN96)</u>
Body Style/Model	<u>Regular and Supercab</u>

The Production Purchase Contract Addendum is not inclusive of all specific program responsibilities. The Statement of Work constitutes the complement of program requirements.

Engineering Statement of Work: ESW-01.14.04-22400/1-TVFI

1.0 OVERVIEW AND PROGRAM ASSUMPTIONS

1.1 This document identifies the responsibilities and duties associated with the design and development of Ford vehicles where prime design and engineering work has been placed with a "full service" supplier. The Gray Box supplier shall be the prime manufacturing source for the program and will maintain a shared responsibility for meeting quality, cost, timing, and weight objectives.

1.2 The PN96 Front Door will have new handles both inside and outside.

The Outside Handle Assemblies will be modular lift type similar to DN101 made of an appropriate plastic material and color matched to the exterior color.

The Inside Handles will be one piece similar to the current F-Series made of an appropriate black plastic material.

1.3 The Tailgate Handle Assembly will be a modular lift type with a plastic handle, a steel housing and a steel pivot bracket. It will also be color matched to the exterior color.

2.0 PERFORMANCE REQUIREMENTS

2.1 Ford shall issue to the Gray Box supplier the following information:

- Affordable Targets
- PPL/Bill of Material/Build Schedules
- Design Check Sheets
- Applicable Ford Standards, Specifications and Procedures
- Details of all Carry-Over Parts
- Master Sections/Pre-Program Drawings as available
- Program Timing Requirements
- Prototype Tooling Requirements
- Quality Requirements for SP, CP and LPP Builds

DAAM 0354

3.2 Concern Resolution and Drawing Transmittal

- 3.2.1 The supplier is responsible to furnish a Concern per Procedure 3-109 (Concern Reporting Modifications and Changes) to resolve any discrepancy. Concern resolution shall be accomplished according to Body Engineering Procedure B-B-7 (Problem Sheets and Product Changes), and B-B-7:2 (Pre-Release Changes). The supplier must provide the Ford Design Section with a completion date for the change. The supplier shall provide a 5 Mil mylar drawing to the responsible Design Section for approval.
- 3.2.2 Concern reports initiated by activities outside of Body Engineering will be received by Change Control. Change Control will forward the concern to the affected Gray Box supplier and a copy to Body Engineering Systems Engineering Department.

3.3 Installation Manuals

- 3.3.1 Body Engineering Illustration shall provide formats and standards required for the preparation of the specific pages of the Hardware Installation Manual necessary to specify the component installation information.
- 3.3.2 The supplier shall help develop removal and installation procedures, and aid in any necessary illustration preparations in accordance with the detailed drawing standards required for installation manuals, shop manuals and owners manuals.

3.4 Assembly Process Manuals and Sheets

- 3.4.1 Body & Assembly Operations shall prepare Installation Process Manuals and Sheets as necessary to specify Body & Assembly installation information for the design produced.
- 3.4.2 The supplier shall provide installation and package definition to support the development of Assembly Process Manuals and Sheets with formal review and acceptance by assembly plant personnel.

3.5 Cost of Repair

The supplier shall consult with B.E. Service Engineering to consider the potential cost of repair during the component design phase. It is the responsibility of the supplier to conduct an analysis to identify the costs for field repair. The analysis shall provide detailed assumptions related to the repair operations, processes and materials required. A preliminary analysis shall be prepared and a copy conveyed to Ford Engineering prior to issuance of "Engineering Use" drawings. This analysis shall be updated and maintained consistent with designs through the program and shall be accessible to Ford upon request. A finalized analysis shall be completed and a copy conveyed to Ford Engineering prior to ISW.

DAAM 0355

2.5 Second Tier Suppliers

2.5.1 The tier one supplier shall be responsible for second tier supplier capability and performance. The first tier supplier shall develop second tier source selection criteria and acceptance levels. This source selection criteria shall include, but not be limited to, considerations of the following:

- Management System Effectiveness
- Program Management Capability
- Project Resource Adequacy
- Manufacturing Expertise/Proficiency
- Quality Operating System
- Returned Sales Performance
- Workforce Stability
 - Turnover
 - Labor Agreement Status
- Workflow and Scheduling Methods
- Financial Resources
- Manufacturing Facility Adequacy
 - Fire Prevention Equipment
 - Conformance with Applicable Codes
- Preventive Maintenance Program
- Record Keeping and Documentation
- Safety/Regulatory/Environmental Considerations
 - Safety Record
 - Regulatory Compliance (Air Quality/Environment)
 - Toxic Substances/Hazardous Material Procedures
- Shipping/Scheduling Methods/Practices
- Inspection Lab Equipment Adequacy
- Customer Support/Follow-Up
- PDGS Compatibility
- On-line Access to Tier One Supplier Program Database

2.5.2 Plans must be jointly established by the first and second tier suppliers to immediately resolve any deficiencies noted during or after the second tier supplier evaluation audit.

3.0 FINANCIAL TERMS OF AGREEMENT

Engineering/Design costs, incurred by suppliers for Gray Box Programs, are to be treated as normal costs of doing business. These costs should be included in the fixed overhead of the supplier.

3.1 Prototype tooling and tooling aids properly executed in compliance to Ford Motor Company Supply Practice 35, Purchase Of Tooling For Use By Outside Suppliers, will be reimbursed to the Gray Box supplier in increments upon completion of specific events agreed to by the supplier and Ford's engineer.

DAAM 0356

3.2 Design & Engineering efforts at the supplier that are comparable to the normal part of the design work for a commodity when designed in house, are not reimbursable. Supplier may negotiate with Ford for reimbursement of costs incurred due to the Ford required changes that are listed below:

- New or revised design required to meet new/unknown regulatory requirement or interpretation thereof made by Ford.
- Improvements needed to correct not previously known field or durability concerns.
- Late change in program definition caused by revisions to Product Letters and Added Starters.
- Supplier digitization of manually designed existing components for use in designing Gray Box Commodity by CAD.
- Revisions to the design resulting from an incomplete assembly feasibility prove-out or "turn-arounds".
- Revisions resulting from the assembly variations exceeding agreed upon variations in the program.
- Revisions to the design that result from a change in specific Ford direction regarding acceptable appearance/fit and finish.
- Program delay or compression required by Ford.
- Cancellation of the original RPS due to resourcing by NAAO Purchasing.
- Program cancellation by Ford.

4.0 COST/WEIGHT/QUALITY TARGETS

It is imperative that the supplier's designs meet the affordable targets for cost, weight and quality as communicated by Ford. Accordingly, the supplier shall become a member of the Program Module Team and actively participate to ensure compliance with the targets.

5.0 DELIVERABLES

- 5.1 The Supplier shall provide prototype tooling, tooling aids and gages representing production process in support of the prototype builds.
- 5.2 The Supplier shall provide PIST data to verify that prototype parts meet design intent.
- 5.3 Drawing shall meet program timing to support models, fixtures and prototype tool and production tool start dates.
- 5.4 The supplier shall provide redesigns as required to correct concerns generated from the test, development, certification, prototype and production builds.
- 5.5 The supplier shall provide an initial FMEA and DVP&R within thirty days after design freeze, to be updated at all subsequent milestones until 90 days after Job #1.
- 5.6 The supplier shall ensure that Corporate timing (Prototype and Production MRD's) is met and that appropriate initial release documentation is issued.
- 5.7 The supplier shall use Computer Aided Engineering to optimize the design, e.g.: stress analysis, mold flow analysis, VSA, and FEA.

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- Initially scheduled start and completion dates
- Revised start and/or completion dates
- Actual start and/or completion dates
- Ford required "key dates", such as material required dates, drawing release dates, Job #1, etc...

The software must be capable of providing timing overlays for each phase of the program.

Gantt Charts must include Critical Path Analysis.

The supplier shall be responsible to implement Gantt/CPM charts at the beginning of this contract and continue utilizing it throughout the program.

5.0 DESIGN RESPONSIBILITIES

The supplier shall produce all drawings using PDGS software throughout the design development and Launch phase of the program.

5.1 Graphics Data

- 5.1.1 Body Design shall be responsible for archiving of 3D CAD data prior to releasing data.
- 5.1.2 Graphics Data for Gray Box parts is proprietary to Ford Motor Company and must be organized and transmitted as follows:
 - The supplier shall provide CAD data at every transmittal level (EU, ER, CR/CR, etc.), when requested to support in-house design efforts and if the ongoing engineering responsibility is transferred to Body Engineering.
 - The Graphics data must be complete 3D data in vehicle coordinates.
 - Graphics data in the supplier CAD system and at all transmittals must be organized as follows:

PDGS System: Per Graphics Design and Checking Bulletin
GB1 Picture File Structure/ Labeling, with
formats for Ford released drawings.

5.2 Drawings

The supplier shall furnish all required drawings and forms required to support each scheduled event using Design Transmittal (Form 7027) to Body Engineering and the suppliers who have component design responsibility for mating parts.

DAAM 0358

5.12 Dimensional Control Plan

The supplier shall provide a dimensional control datum scheme for each part or component and for each piece in an assembly per Procedure B-B-15, the Body & Assembly Locator Manual and the Body Engineering Control Point Guide.

6.0 ENGINEERING RESPONSIBILITIES

6.1 Regulatory Compliance

The Body Engineering and Car/Truck Program Management and Gray Box supplier shall be responsible to conform to all Federal, State and Local regulations including, but not limited to, FMVSS 206, Engineering Design standard DD 1.00-129 and requirements as specified in Procedures 3-186.

6.2 Critical and Significant Characteristics

The supplier shall develop and show on drawings critical and significant characteristics with team agreement.

6.3 Control Plans

The supplier shall prepare and submit Control Plans to Purchasing and Hardware Engineering for all new parts prior to vehicle launch.

The supplier shall obtain concurrence on the control plans from Ford SQA/SQI and Hardware Engineering. Guidelines for preparation of a control plan are included in Appendix A of Ford Q-101 Quality System Standard.

6.4 Engineering Assessments

The supplier shall aid in completing Engineering Assessments as specified in Procedure 3-133 and Body Engineering Procedure B-B-10.

6.5 CAE (Computer Aided Engineering)/FEA (Finite Element Analysis)

The supplier shall develop an FEA model which he will use for both fatigue and static analyses prior to structure drawing completion.

6.6 QFD (Quality Function Deployment)

The supplier shall be responsible to perform a QFD(s) as required.

6.7 DFA (Design for Assembly) DFM (Design for Manufacturing)

The supplier shall provide formal DFA and DFM analyses utilizing computer software. The analyses shall include a comparison of the design being developed and the principle competitive designs.

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-5-

5.8 The supplier shall design each handle according to the latest applicable Engineering Specification.

6.0 EXCEPTIONS

Exceptions to the Engineering Statement of Work:

6.1 The supplier will not be required to provide control drawings for this program.

AD-DON

DAAM 0360

Produced by Ford Subject to Protective Order

0528

6.17 Assembly Feasibility

The supplier shall design components and assemblies to incorporate features which prevent misassembly and provide proper fit, finish, and function.

6.18 Repair and Defect Standard

The supplier shall work with Body Engineering and Body & Assembly to develop repair and defect standards.

7.0 CONTINUING RESPONSIBILITIES

The supplier shall continue design and engineering support for the life of part.

GB-DON

DAAM 0361

Attachment VI

PN96 EARLY SOURCING WORKSHEET

Attachment V

COMPONENT/PART NAME: Front Door Handle 9/5 ENGINEER'S NAME: Greg Claire SOURCE REQUIRED DATE/(MRJ#1): 9/2/8
 COMPARATOR PART BASE NUMBER: _____ ENGINEER'S PHONE NUMBER: 56225 PNT NUMBER: 2

CURRENT PART(S)	NEW PART
PART NUMBER: <u>E7TB-1522400-1</u>	PART NUMBER (if known): <u>F65B-1522400-A-A</u>
CURRENT SUPPLIER: <u>Hudson Bay</u>	TEAM PROPOSED SUPPLIER(S): <u>Donnelly Corp.</u>
BUYER'S NAME/CODE: <u>R. Thaisen 327</u>	TEAM PROPOSED SOURCING METHOD: <u>Quality Supplier with cover matched paint capability. Grey Box.</u>
Brief Word Description: <u>Push button design</u>	New Product Content: <u>Plastic modular handle with lock cylinder attached. Probe type handle possible which would be die cast</u>
Material: <u>Zinc die cast</u>	Material or Process Changes: <u>To have color matched paint.</u>
Weight: _____	Component Cycle Life: _____
PURCHASING TO PRODUCE IN PRODUCTION Economic Level Contract Terms	

DRAH 0362

PN96 EARLY SOURCING WORKSHEET

COMPONENT/PART NAME: Front Door Handle-1/5 ENGINEER'S NAME: Enrique Delannoy SOURCE REQUIRED DATE/(MRJ#1): 92/8
 COMPARATOR PART BASE NUMBER: 22614-5 ENGINEER'S PHONE NUMBER: 38426 PHT NUMBER: 2

CURRENT PART(S)	NEW PART
PART NUMBER: <u>E7TB-1522614-5-A</u>	PART NUMBER (if known): <u>F65B-1522614-5-A</u>
CURRENT SUPPLIER: <u>Nyloncraft</u>	TEAM PROPOSED SUPPLIER(S): <u>Donnelly Corp.</u>
BUYER'S NAME/CODE: <u>Per the user 327</u>	TEAM PROPOSED SOURCING METHOD: <u>Color matched paint capability & Grey Box Cap</u>
Brief Word Description: <u>Molded plastic one piece handle in black.</u>	New Product Content: <u>Molded plastic one piece handle - color matched.</u>
Material: <u>Plastic</u>	Material or Process Changes: <u>Color matched paint added.</u>
Weight: _____	Component Cycle Life: _____
PURCHASING TO PROVIDE: 199 Piece Cost: _____ Tooling Cost: _____ Economic Level: _____ Proposed Supplier(s): _____ Contract Terms: _____ Proposed Sourcing Method: _____	

DRAM 0363

PN96 EARLY SOURCING WORKSHEET

... attachment V

COMPONENT/PART NAME: Tailgate Handle Assy ENGINEER'S NAME: Greg Claire SOURCE REQUIRED DATE/(MRJ#1): 92/8
 COMPARATOR PART BASE NUMBER: 431B82 ENGINEER'S PHONE NUMBER: 56225 PHT NUMBER: 4

CURRENT PART(S)	NEW PART
PART NUMBER: <u>E2TB-99431B82-A</u>	PART NUMBER (if known): <u>E65B-99431B82-A</u>
CURRENT SUPPLIER: <u>Nelson Metal</u>	TEAM PROPOSED SUPPLIER(S): <u>Midway Prod. *</u>
BUYER'S NAME/CODE: <u>R. Theisen 327</u>	TEAM PROPOSED SOURCING METHOD: <u>Grey Box</u>
	* Midway will have responsibility for the complete latching system on the tailgate. Donnelly
Brief Word Description: <u>Zinc die cast with steel mounting bracket.</u>	New Product Content: <u>Plastic handle with steel mounting bracket.</u>
Material: <u>↑</u>	Material or Process Changes: _____
Weight: _____	Component Cycle Life: _____
PURCHASING TO PROVIDE: 199 Piece Cost: _____ Tooling Cost: _____ Economic Level: _____ Proposed Supplier(s): _____ Contract Terms: _____ Proposed Sourcing Method: _____	

DAAM 0364

Date 92/09/04
Revised _____

1996 PN96 DOOR AND TAILGATE HANDLES
PRODUCTION PURCHASE CONTRACT ADDENDUM
FOR GRAY BOX AGREEMENTS
GBCA-01.14.04-22400/1-TVF1

This Addendum to the Production Purchase Contract for Gray Box programs has been jointly developed by Ford and Donnelly Corporation and is issued by the responsible production buyer. It consists of specific product information, responsibilities and associated timing for the following program:

Component/System Door and Tailgate Handles
Model Year/Vehicle 1996 F-150 Pickup (PN96)
Body Style/Model Regular and Supercab

The Production Purchase Contract Addendum is not inclusive of all specific program responsibilities. The Statement of Work constitutes the complement of program requirements.

Engineering Statement of Work: ESW-01.14.04-22400/1-TVF1

1.0 OVERVIEW AND PROGRAM ASSUMPTIONS

1.1 This document identifies the responsibilities and duties associated with the design and development of Ford vehicles where prime design and engineering work has been placed with a "full service" supplier. The Gray Box supplier shall be the prime manufacturing source for the program and will maintain a shared responsibility for meeting quality, cost, timing, and weight objectives.

1.2 The PN96 Front Door will have new handles both inside and outside.

The Outside Handle Assemblies will be modular lift type similar to DN101 made of an appropriate plastic material and color matched to the exterior color.

The Inside Handles will be one piece similar to the current F-Series made of an appropriate black plastic material.

1.3 The Tailgate Handle Assembly will be a modular lift type with a plastic handle, a steel housing and a steel pivot bracket. It will also be color matched to the exterior color.

2.0 PERFORMANCE REQUIREMENTS

2.1 Ford shall issue to the Gray Box supplier the following information:

- Affordable Targets
- PPL/Bill of Material/Build Schedules
- Design Check Sheets
- Applicable Ford Standards, Specifications and Procedures
- Details of all Carry-Over Parts
- Master Sections/Pre-Program Drawings as available
- Program Timing Requirements
- Prototype Tooling Requirements
- Quality Requirements for SP, CP and 1PP Builds

DAAM 0365

SEP 14 '92 13:14 FROM PN 96 DESIGN CENTER

PAGE.001

To: Ron Theisen
From: Conrad
Hempel

ENGINEERING STATEMENT OF WORK
1996 PN96 DOOR AND TAILGATE HANDLES

1.0 Overview

Commodity Plan/Program Timing

General Responsibilities

Competitive Analysis/Benchmarking

Concern Resolution/Drawing Transmittal

Installation Manuals

3.4 Assembly Process Manuals

3.5 Cost of Repair

4.0 Program Management Responsibilities

4.1 Personnel

4.2 Communication/Documentation

4.3 Cont./CPM Charts (Critical Path Method)

5.0 Design Responsibilities

6 Engineering Responsibilities

7.0 Continuing Responsibilities

*Purchase agreement
should be done*

DAAM 0366

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Date 92/09/04
Revised _____

1996 PN96 DOOR AND TAILGATE HANDLES
ENGINEERING STATEMENT OF WORK
ESW-01.14.04-22400/1-TVFI

This Statement of Work has been jointly developed by Ford and Donnelly Corporation and is issued by the responsible product engineer.

This Statement of Work includes the roles, responsibilities and expectations for the 1996 PN96 Door and Tailgate Handles. Specific responsibilities are defined in the Production Purchase Contract Addendum.

Production Purchase Contract Addendum: GBCA-01.14.04-22400/1-TVFI

1.0 OVERVIEW

This document identifies responsibilities and documentation required for overall program control of Engineering, Design, Development, Testing and Manufacturing of Prototype and Production components.

2.0 COMMODITY PLAN TIMING (World Class Timing)

- 2.1 The supplier is responsible to support the Body Engineering Program Timing and Release Department in monitoring program progress from initiation of a program to its completion.
- 2.2 The supplier shall have access to WERS.
- 2.3 Program timing dates applicable to the specific program shall be provided in the addendum to the production purchase order. Deviation from the timing schedule must be approved by Body Engineering and NAAO Purchasing and accompanied by a comprehensive support plan.

3.0 GENERAL RESPONSIBILITIES

3.1 Competitive Analysis/Benchmarking

Body Engineering, Car/Truck Program Management and the supplier shall be responsible to perform analyses of applicable components on facing competitive vehicles as required. These competitive analyses shall include actual measurements where possible or estimates where the data cannot be obtained.

The supplier is expected to be knowledgeable through formal competitive analyses to incorporate innovations that exceed the competitive product.

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3.2 Concern Resolution and Drawing Transmittal

3.2.1 The supplier is responsible to furnish a Concern per Procedure 3-109 (Concern Reporting Modifications and Changes) to resolve any discrepancy. Concern resolution shall be accomplished according to Body Engineering Procedure B-B-7 (Problem Sheets and Product Changes), and B-B-7:2 (Pre-Release Changes). The supplier must provide the Ford Design Section with a completion date for the change. The supplier shall provide a 5 Mil mylar drawing to the responsible Design Section for approval.

3.2.2 Concern reports initiated by activities outside of Body Engineering will be received by Change Control. Change Control will forward the concern to the affected Gray Box supplier and a copy to Body Engineering Systems Engineering Department.

3.3 Installation Manuals

3.3.1 Body Engineering Illustration shall provide formats and standards required for the preparation of the specific pages of the Hardware Installation Manual necessary to specify the component installation information.

3.3.2 The supplier shall help develop removal and installation procedures, and aid in any necessary illustration preparations in accordance with the detailed drawing standards required for installation manuals, shop manuals and owners manuals.

3.4 Assembly Process Manuals and Sheets

3.4.1 Body & Assembly Operations shall prepare Installation Process Manuals and Sheets as necessary to specify Body & Assembly installation information for the design produced.

3.4.2 The supplier shall provide installation and package definition to support the development of Assembly Process Manuals and Sheets with formal review and acceptance by assembly plant personnel.

3.5 Cost of Repair

The supplier shall consult with B.E. Service Engineering to consider the potential cost of repair during the component design phase. It is the responsibility of the supplier to conduct an analysis to identify the costs for field repair. The analysis shall provide detailed assumptions related to the repair operations, processes and materials required. A preliminary analysis shall be prepared and a copy conveyed to Ford Engineering prior to issuance of "Engineering Use" drawings. This analysis shall be updated and maintained consistent with designs through the program and shall be accessible to Ford upon request. A finalized analysis shall be completed and a copy conveyed to Ford Engineering prior to ISW.

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4.0 PROGRAM MANAGEMENT RESPONSIBILITIES

4.1 Personnel

The supplier shall be responsible to maintain program control in support of the program objectives and requirements. The supplier shall implement a Program Management organization at the onset of this contract. Approval of the organization structure, staffing, qualification of personnel and operating practices shall be obtained from Ford Engineering and Purchasing.

4.2 Communication/Documentation

The supplier shall be responsible to prepare and maintain various documents (where applicable) utilizing formats which are concurred upon by the contracting Ford Engineering Activity. Program documentation shall be retained consistent with the Ford Record's Retention Guidelines.

- Design and Process FMEA's
- FMA's (Failure Modes Analysis)
- DVP&R (Design Verification Plan & Report)
- SD's (Eight Discipline Reports)
- Test Reports & Data
- Repair Standards
- CR/CR's (Concern Report/Change Request)
- Project Timing Plans
- Program Overview Executive Summaries
- Risks and Opportunities Tracking Sheets
- Minutes of Meetings
- Prototype Tooling Expense Logs
- Prototype and Production Engineering Fixture Gage/CMM Expense Logs
- Cost Estimate Worksheets for Piece Price and Tooling Quotations (for Prototype and Production)
- Second Tier supplier Evaluation Forms
- Process/Quality Control Plans
- Significant & Critical Characteristics Documents
- PIST/PIPC Data
- Process Capability Data/Summaries
- Detail Drawings
- Assembly Drawings
- Open Issues Matrix

4.3 Gantt/CPM Charts (Critical Path Method)

The supplier shall be responsible to provide program timing, tracking and reporting in a formalized manner. The program utilized must be computer based and result in standardized charts and reports that include:

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- Initially scheduled start and completion dates
- Revised start and/or completion dates
- Actual start and/or completion dates
- Ford required "key dates", such as material required dates, drawing release dates, Job #1, etc...

The software must be capable of providing timing overlays for each phase of the program.

Gantt Charts must include Critical Path Analysis.

The supplier shall be responsible to implement Gantt/CPM charts at the beginning of this contract and continue utilizing it throughout the program.

5.0 DESIGN RESPONSIBILITIES

The supplier shall produce all drawings using PDGS software throughout the design development and Launch phase of the program.

5.1 Graphics Data

5.1.1 Body Design shall be responsible for archiving of 3D CAD data prior to releasing data.

5.1.2 Graphics Data for Gray Box parts is proprietary to Ford Motor Company and must be organized and transmitted as follows:

- The supplier shall provide CAD data at every transmittal level (EU, ER, CR/CR, etc.), when requested to support in-house design efforts and if the ongoing engineering responsibility is transferred to Body Engineering.
- The Graphics data must be complete 3D data in vehicle coordinates.
- Graphics data in the supplier CAD system and at all transmittals must be organized as follows:

PDGS System: Per Graphics Design and Checking Bulletin
GB1 Picture File Structure/ Labeling, with
formats for Ford released drawings.

5.2 Drawings

The supplier shall furnish all required drawings and forms required to support each scheduled event using Design Transmittal (Form 7027) to Body Engineering and the suppliers who have component design responsibility for mating parts.

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5.3 Feasibility Drawings

The supplier shall provide F&D (Feasibility & Design) sheets for all applicable designs.

5.4 Structure Drawings

The supplier shall support Structure Meetings with drawings.

5.5 Control Drawings

The supplier/Ford shall furnish PDGS Control Drawings, as specified in the contract addendum.

5.6 Math Surface Data

The supplier/Ford must furnish complete math surface definition required to manufacture and check the part.

5.7 Detail Drawings

The supplier shall furnish Detail Drawings in GDT system per ANSI Y14.5M standard (in vehicle coordinates when required), as specified in the contract Addendum.

5.8 Design Check Sheets

5.8.1 Design Check Sheets shall be provided initially by Ford Engineering and enhanced jointly during the program. The supplier shall submit completed check sheets with the approved drawing and graphic data at final EU.

5.8.2 The supplier/Ford shall be responsible for development of and adherence to Design Standards including integration of prior information.

5.9 Service Part Drawings

The supplier shall prepare and release unique service part kit drawings when required.

5.10 Digitize Information

Body Design shall provide digitized information for components which have been manually designed.

5.11 Fixturing/Gaging

The supplier/Ford shall provide gages or checking fixtures as specified in the contract addendum that reflect the Dimensional Control datum and Locator Plan and provide variable data at points selected through interfaces with team members.

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5.12 Dimensional Control Plan

The supplier shall provide a dimensional control datum scheme for each part or component and for each piece in an assembly per Procedure B-B-15, the Body & Assembly Locator Manual and the Body Engineering Control Point Guide.

6.0 ENGINEERING RESPONSIBILITIES

6.1 Regulatory Compliance

The Body Engineering and Car/Truck Program Management and Gray Box supplier shall be responsible to conform to all Federal, State and Local regulations including, but not limited to, FMVSS 206, Engineering Design standard DD 1.00-129 and requirements as specified in Procedures 3-186.

6.2 Critical and Significant Characteristics

The supplier shall develop and show on drawings critical and significant characteristics with team agreement.

6.3 Control Plans

The supplier shall prepare and submit Control Plans to Purchasing and Hardware Engineering for all new parts prior to vehicle launch.

The supplier shall obtain concurrence on the control plans from Ford SQA/SQI and Hardware Engineering. Guidelines for preparation of a control plan are included in Appendix A of Ford Q-101 Quality System Standard.

6.4 Engineering Assessments

The supplier shall aid in completing Engineering Assessments as specified in Procedure 3-133 and Body Engineering Procedure B-B-10.

6.5 CAE (Computer Aided Engineering)/FEA (Finite Element Analysis)

The supplier shall develop an FEA model which he will use for both fatigue and static analyses prior to structure drawing completion.

6.6 QFD (Quality Function Deployment)

The supplier shall be responsible to perform a QFD(s) as required.

6.7 DFA (Design for Assembly) DFM (Design for Manufacturing)

The supplier shall provide formal DFA and DFM analyses utilizing computer software. The analyses shall include a comparison of the design being developed and the principle competitive designs.

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6.8 FMEA (Failure Modes and Effects Analysis)

6.8.1 The supplier shall be responsible to develop separate FMEA's that begin at the subassembly level and progress to the system level for both design and manufacturing processes. (See Form 1696 Potential Failure Mode and Effects Analysis, an instructional manual.)

6.8.2 The supplier shall provide a manufacturing process flow diagram linked to the FMEA and significant characteristics.

6.9 DVP&R (Design Verification Plan and Report)

The supplier shall establish a Design Verification Plan including the PVS (Product Verification Specifications) and DVP&R testing that organizes the entire testing program to assure that the product meets design intent (see Procedures 3-149 and B-B-10).

6.10 DOE (Taguchi Design of Experiments)

The supplier shall be responsible to perform Taguchi Design of Experiments (Statistical Process Analyses) to establish production process control and root cause for problem situations.

6.11 Compatibility Reviews

The supplier must support Ford organized Compatibility Reviews with drawings, graphic data, and personnel.

6.12 Launch Support

The supplier shall support the design and development program into the assembly plant and beyond as required.

6.13 QRT Process Support

The supplier shall participate in the QRT process assisting in the analysis of durability discrepancies and field returns.

6.14 Tooling Aid Direction Sheets

The supplier shall aid in completing Tooling Aid Sheets for all applicable designs.

6.15 Tooling Aid Cost

Tooling aids shall be competitively quoted and any changes to the tooling aid program that impacts timing, cost or coordination must be approved by Body Engineering Tooling Aid Design Activity.

6.16 Prototype Vehicle Program Support

The supplier shall participate in all program prototype builds and sign-offs (including vehicle durability).

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6.17 Assembly Feasibility

The supplier shall design components and assemblies to incorporate features which prevent misassembly and provide proper fit, finish, and function.

6.18 Repair and Defect Standard

The supplier shall work with Body Engineering and Body & Assembly to develop repair and defect standards.

7.0 CONTINUING RESPONSIBILITIES

The supplier shall continue design and engineering support for the life of part.

GB-DON

DAAM 0374

Contract Addendum

- 1.0 Overview
- 2.0 Performance Requirements
- 3.0 Financial Terms of Agreements
- 4.0 Cost/Weight/Quality Targets
- 5.0 Deliverables
- 6.0 Exceptions

DAAM 0375

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Date 92/09/04
Revised _____

1996 PN96 DOOR AND TAILGATE HANDLES
PRODUCTION PURCHASE CONTRACT ADDENDUM
FOR GRAY BOX AGREEMENTS
GBCA-01.14.04-22400/1-TVf1

This Addendum to the Production Purchase Contract for Gray Box programs has been jointly developed by Ford and Donnelly Corporation and is issued by the responsible production buyer. It consists of specific product information, responsibilities and associated timing for the following program:

Component/System	<u>Door and Tailgate Handles</u>
Model Year/Vehicle	<u>1996 F-150 Pickup (PN96)</u>
Body Style/Model	<u>Regular and Supercab</u>

The Production Purchase Contract Addendum is not inclusive of all specific program responsibilities. The Statement of Work constitutes the complement of program requirements.

Engineering Statement of Work: ESW-01.14.04-22400/1-TVf1

1.0 OVERVIEW AND PROGRAM ASSUMPTIONS

1.1 This document identifies the responsibilities and duties associated with the design and development of Ford vehicles where prime design and engineering work has been placed with a "full service" supplier. The Gray Box supplier shall be the prime manufacturing source for the program and will maintain a shared responsibility for meeting quality, cost, timing, and weight objectives.

1.2 The PN96 Front Door will have new handles both inside and outside.

The Outside Handle Assemblies will be modular lift type similar to DN101 made of an appropriate plastic material and color matched to the exterior color.

The Inside Handles will be one piece similar to the current F-Series made of an appropriate black plastic material.

1.3 The Tailgate Handle Assembly will be a modular lift type with a plastic handle, a steel housing and a steel pivot bracket. It will also be color matched to the exterior color.

2.0 PERFORMANCE REQUIREMENTS

2.1 Ford shall issue to the Gray Box supplier the following information:

- Affordable Targets
- PPL/Bill of Material/Build Schedules
- Design Check Sheets
- Applicable Ford Standards, Specifications and Procedures
- Details of all Carry-Over Parts
- Master Sections/Pre-Program Drawings as available
- Program Timing Requirements
- Prototype Tooling Requirements
- Quality Requirements for SP, CP and LPP Builds

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2.2 Program Objectives

The Supplier shall assist Body Engineering, Truck Program Management and Body & Assembly Operations in establishing the program cost, package, manufacture, design, styling, process and reliability objectives prior to program implementation.

2.3 Program Approvals

- 2.3.1 Body Engineering shall be responsible for the overall system design and final design acceptance.
- 2.3.2 Body Engineering shall provide compatibility review of the overall system components and interfacing subsystem.
- 2.3.3 Body Engineering shall manage sign-off of the system components.
- 2.3.4 The Supplier shall obtain Body Engineering design release approval for components and obtain Materials and Corrosion Protection Engineering approval for all materials, fasteners and corrosion protection treatments per Body Engineering Procedure B-B-2.
- 2.3.5 The Supplier shall obtain formal manufacturing, assembly, and servicing feasibility sign-off approvals.
- 2.3.6 The Supplier shall update Purchasing using Cost Control Summary "CCS" sheets to address piece cost/tooling revisions and support the Redbook updates.
- 2.3.7 The supplier shall provide the Program Planning, Timing and Release Department with information for CEPR.
- 2.3.8 Ford Body & Assembly Operation shall be responsible for reviewing/assessing process capability of parts and provide assembly feasibility approval and sign-off designs.

2.4 Program Management/Support

- 2.4.1 The PN96 Program Management Office shall be responsible for meeting Corporate Program Management events in support of program objectives. CPM Office shall also establish affordable "targets" with the support of BE, Body & Assembly, Purchasing and the supplier. Program Management shall coordinate/monitor work efforts to ensure quality events and assist in the decision making process (piece cost/tooling approval) toward resolving critical issues to the program.
- 2.4.2 Ford Purchasing shall provide approval to the Supplier for all product changes where program costs are affected. Implement Cost Control Summary "CCS" sheet approval procedure to track piece cost/tooling changes.

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2.5 Second Tier Suppliers

2.5.1 The tier one supplier shall be responsible for second tier supplier capability and performance. The first tier supplier shall develop second tier source selection criteria and acceptance levels. This source selection criteria shall include, but not be limited to, considerations of the following:

- Management System Effectiveness
- Program Management Capability
- Project Resource Adequacy
- Manufacturing Expertise/Proficiency
- Quality Operating System
- Returned Sales Performance
- Workforce Stability
 - Turnover
 - Labor Agreement Status
- Workflow and Scheduling Methods
- Financial Resources
- Manufacturing Facility Adequacy
 - Fire Prevention Equipment
 - Conformance with Applicable Codes
- Preventive Maintenance Program
- Record Keeping and Documentation
- Safety/Regulatory/Environmental Considerations
 - Safety Record
 - Regulatory Compliance (Air Quality/Environment)
 - Toxic Substances/Hazardous Material Procedures
- Shipping/Scheduling Methods/Practices
- Inspection Lab Equipment Adequacy
- Customer Support/Follow-Up
- PDGS Compatibility
- On-line Access to Tier One Supplier Program Database

2.5.2 Plans must be jointly established by the first and second tier suppliers to immediately resolve any deficiencies noted during or after the second tier supplier evaluation audit.

3.0 FINANCIAL TERMS OF AGREEMENT

Engineering/Design costs, incurred by suppliers for Gray Box Programs, are to be treated as normal costs of doing business. These costs should be included in the fixed overhead of the supplier.

3.1 Prototype tooling and tooling aids properly executed in compliance to Ford Motor Company Supply Practice 35, Purchase Of Tooling For Use By Outside Suppliers, will be reimbursed to the Gray Box supplier in increments upon completion of specific events agreed to by the supplier and Ford's engineer.

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3.2 Design & Engineering efforts at the supplier that are comparable to the normal part of the design work for a commodity when designed in house, are not reimbursable. Supplier may negotiate with Ford for reimbursement of costs incurred due to the Ford required changes that are listed below:

- New or revised design required to meet new/unknown regulatory requirement or interpretation thereof made by Ford.
- Improvements needed to correct not previously known field or durability concerns.
- Late change in program definition caused by revisions to Product Letters and Added Starters.
- Supplier digitization of manually designed existing components for use in designing Gray Box Commodity by CAD.
- Revisions to the design resulting from an incomplete assembly feasibility prove-out or "turn-arounds".
- Revisions resulting from the assembly variations exceeding agreed upon variations in the program.
- Revisions to the design that result from a change in specific Ford direction regarding acceptable appearance/fit and finish.
- Program delay or compression required by Ford.
- Cancellation of the original RPS due to resourcing by NAAO Purchasing.
- Program cancellation by Ford.

4.0 COST/WEIGHT/QUALITY TARGETS

It is imperative that the supplier's designs meet the affordable targets for cost, weight and quality as communicated by Ford. Accordingly, the supplier shall become a member of the Program Module Team and actively participate to ensure compliance with the targets.

5.0 DELIVERABLES

- 5.1 The Supplier shall provide prototype tooling, tooling aids and gages representing production process in support of the prototype builds.
- 5.2 The Supplier shall provide PIST data to verify that prototype parts meet design intent.
- 5.3 Drawing shall meet program timing to support models, fixtures and prototype tool and production tool start dates.
- 5.4 The supplier shall provide redesigns as required to correct concerns generated from the test, development, certification, prototype and production builds.
- 5.5 The supplier shall provide an initial FMEA and DVP&R within thirty days after design freeze, to be updated at all subsequent milestones until 90 days after Job #1.
- 5.6 The supplier shall ensure that Corporate timing (Prototype and Production MRD's) is met and that appropriate initial release documentation is issued.
- 5.7 The supplier shall use Computer Aided Engineering to optimize the design, e.g.: stress analysis, mold flow analysis, VSA, and FEA.

DAAM 0379

-5-

5.8 The supplier shall design each handle according to the latest applicable Engineering Specification.

6.0 EXCEPTIONS

Exceptions to the Engineering Statement of Work:

6.1 The supplier will not be required to provide control drawings for this program.

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DAAM 0380

-4-

3.2 Design & Engineering efforts at the supplier that are comparable to the normal part of the design work for a commodity when designed in house, are not reimbursable. Supplier may negotiate with Ford for reimbursement of costs incurred due to the Ford required changes that are listed below:

- New or revised design required to meet new/unknown regulatory requirement or interpretation thereof made by Ford.
- Improvements needed to correct not previously known field or durability concerns.
- Late change in program definition caused by revisions to Product Letters and Added Starters.
- Supplier digitization of manually designed existing components for use in designing Gray Box Commodity by CAD.
- Revisions to the design resulting from an incomplete assembly feasibility prove-out or "turn-arounds".
- Revisions resulting from the assembly variations exceeding agreed upon variations in the program.
- Revisions to the design that result from a change in specific Ford direction regarding acceptable appearance/fit and finish.
- Program delay or compression required by Ford.
- Cancellation of the original RPS due to resourcing by NAAO Purchasing.
- Program cancellation by Ford.

4.0 COST/WEIGHT/QUALITY TARGETS

It is imperative that the supplier's designs meet the affordable targets for cost, weight and quality as communicated by Ford. Accordingly, the supplier shall become a member of the Program Module Team and actively participate to ensure compliance with the targets.

5.0 DELIVERABLES

- 5.1 The Supplier shall provide prototype tooling, tooling aids and gages representing production process in support of the prototype builds.
- 5.2 The Supplier shall provide PIST data to verify that prototype parts meet design intent.
- 5.3 Drawing shall meet program timing to support models, fixtures and prototype tool and production tool start dates.
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-4-

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5.0 DELIVERABLES

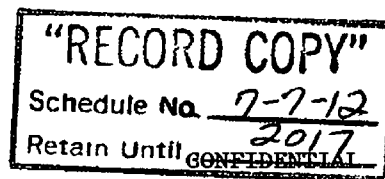
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DAAM 0382

** TOTAL PAGE.017 **

0550

Produced by Ford Subject to Protective Order



FINAL TEST REPORT

Global Test Operations
Advanced Vehicle Technology

TO: J. Mark
M. E. Tokarsky

Test Order No. T-A0801
Work Task W.O. No. R11
Test Dates 3/17/97
Date Reported 5/30/97
Sheet 1 of 275

SUBJECT: Crash Test 10631 (Right Side Impact at 33.9 ± 0.4 mph, 54.6 ± 0.6 km/h) - 1999 PN-96 (4X4) Styleside
Impacted by an NHTSA Moving Deformable Barrier crabbed at a 27° angle

REQUESTED BY: - Vehicle Safety and CAE Department, Advanced Vehicle Technology - P. Culkeen

OBJECT: To obtain development data relative to FMVSS 214 and safety design guideline door openability.

SUMMARY OF

TEST RESULTS:

- See Section 1 for injury criteria data.
- See Section 2 for post-impact door openability data.


I. Jackson
Product Test Engineer


Concur: M. Hamilton
Unit Supervisor
Crash Test Operations Section

CRTS 0010631

0551

VEHICLE DATA: (TARGET)

Make and Model 1999 PN-96 (4X4) Styleside (Structural Prototype)

ID Numbers 1FTDX1861VNA64120, 294-W-881, F59244

Power Train 5.4L, EFI, Automatic (E40D) Transmission

Fuel Tank(s) Usable Capacity: 30.0 gal. (114L)
Test Condition: Filled with water for ballast.

Front Seat(s) Type: Bucket
Cover: Cloth
Tracks/Position: Manual/Mechanical Mid
Seat Backs Position: Adjustable/21.6° Rear of Vertical
Head Restraints/Position: Integral/Fixed

Rear Seat(s) Type: Bench
Cover: Cloth

Restraint System RF: 3-Point Continuous Loop Active Belt
RR: 3-Point Continuous Loop Active Belt

Occupants RF: US-SID Instrumented Dummy
RR: US-SID Instrumented Dummy

Test Weight Front: 3489 lb (1583 kg)
Rear: 2633 lb (1194 kg)
Total: 6122 lb (2777 kg)

Tires Front: P235/70R16
Rear: P235/70R16
Spare: Removed

Significant Content or Accessories Air Conditioning, Power Steering, Power Brakes, Tilt Steering Wheel

CART DATA: (BULLET)

Test Weight The NHTSA Moving Deformable Barrier test weight was 3037 lb (1378 kg).

CRTS 0010631

GENERAL TEST COMMENTS:**1. Test Procedure**

The test was performed according to the following Corporate test procedure's:

- Side Impact Occupant Crash Protection, ST-15 dated October 22, 1992.
- Post-Impact Door Opening Evaluation, Proposal P4-103D dated July 25, 1983.

1.1 Vehicle Alignment

The cart wheels were positioned (crabbed) at 27° to the left of the cart centerline. The longitudinal centerline of the cart was perpendicular to the longitudinal centerline of the test vehicle at impact. The cart was aligned so that (at impact) a longitudinal plane tangent to the right side of the cart passed through the impact reference point, 20 inches rearward of the center of the test vehicle's wheelbase.

2. Remarks

Crash movies, pre- and post- crash still images of the test vehicle and copies of this report are available only through the Crash Test Operations Section after permission is obtained from the test requesting department. The crash still images are stored on CD ROMs. The file names of the still images are listed under crash number and a three digit sequence number which are 10631001 through 10631060.

TEST RESULTS:**1. Occupant Injury Data (FMVSS 214)**

	<u>R. F. Dummy</u>	<u>R. R. Dummy</u>
Head Injury Criteria (HIC)	47	44
Interval t1	62 ms	57 ms
t2	98 ms	93 ms
Upper Rib FIR Filter	17 g	24 g
Lower Rib FIR Filter	20 g	30 g
Lower Spine FIR Filter (T12)	21 g	35 g
Pelvis FIR Filter	34 g	39 g
Thoracic Trauma Index (TTI)	21	33

Time histories of the dummy instrumentation are included in this report.

Time histories of the dummy dynamic displacements obtained from Film Analysis are included in this report.

Time histories of the air bag/sensor(s) are included in this report.

Time histories of any requested derived data (i.e. integrations, etc.) were given to the requesting activity and are not included in this report.

2.0 Door Openability

The left front door could be unlatched and opened manually following impact.

The right front and rear doors could not be unlatched or opened manually following impact.

3. Vehicle Displacement and Instrumentation Data

Time histories of the vehicle/cart accelerations and other instrumentation are included in this report.

Time histories of vehicle dynamic displacements obtained from Film Analysis are included in this report.

Static displacements of various body points obtained by Dimensional Analysis are included in this report.

Time histories of any requested derived data (i.e. integrations, etc.) were given to the requesting activity and are not included in this report.

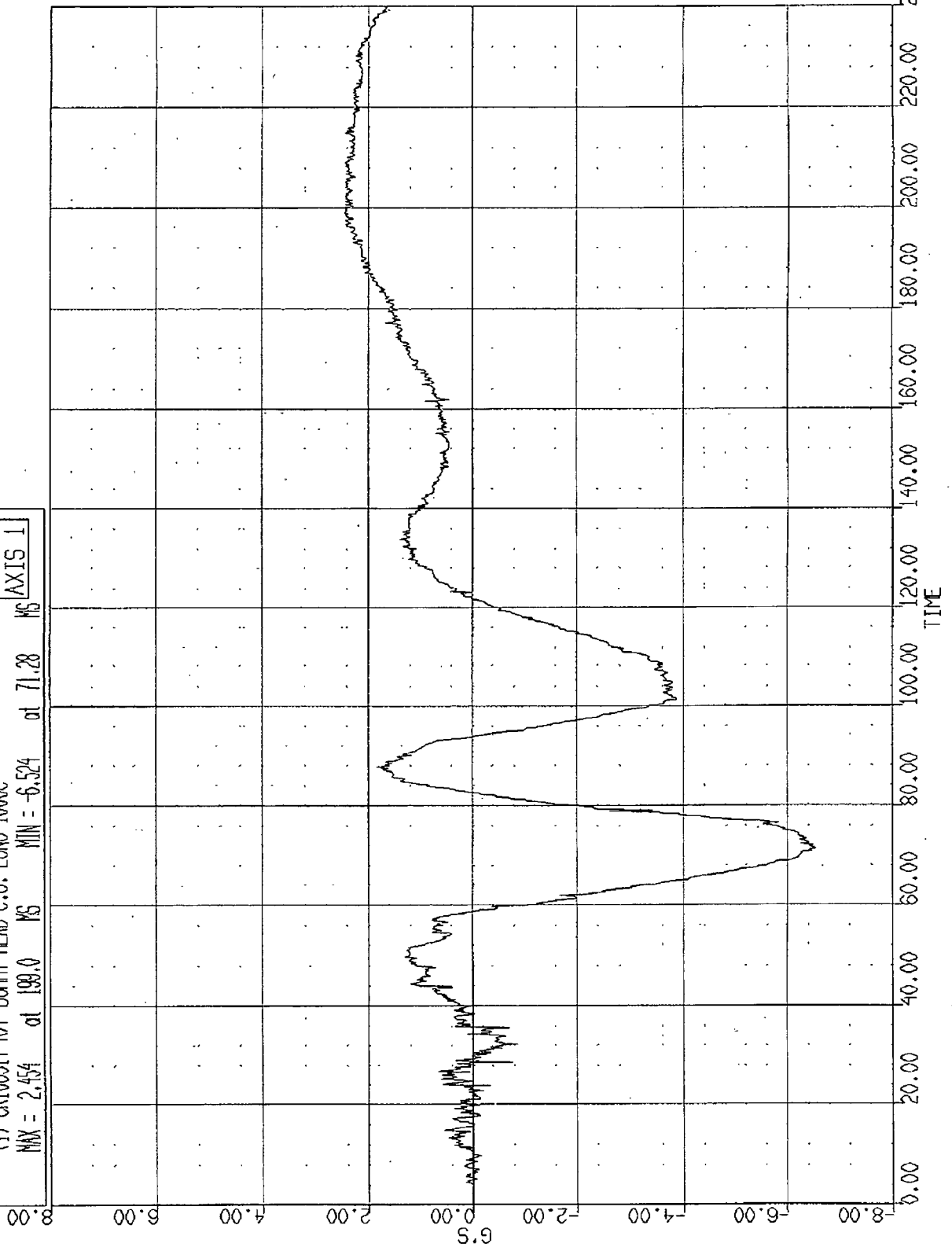
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(1) CR10631T R/F DUMMY HEAD C.G. LONG 1000C

MAX = 2.454 at 199.0 MS MIN = -6.524 at 71.28 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(2) CR10631T R/F DUMMY HEAD C.G. VERT 1000C

MAX = 23.20 at 76.96 MS MIN = -7.855 at 30.40 MS

AXIS 1

30.00

25.00

20.00

15.00

10.00

5.00

0.00

-5.00

-10.00

G.S

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00

TIME

CRTS 0010631

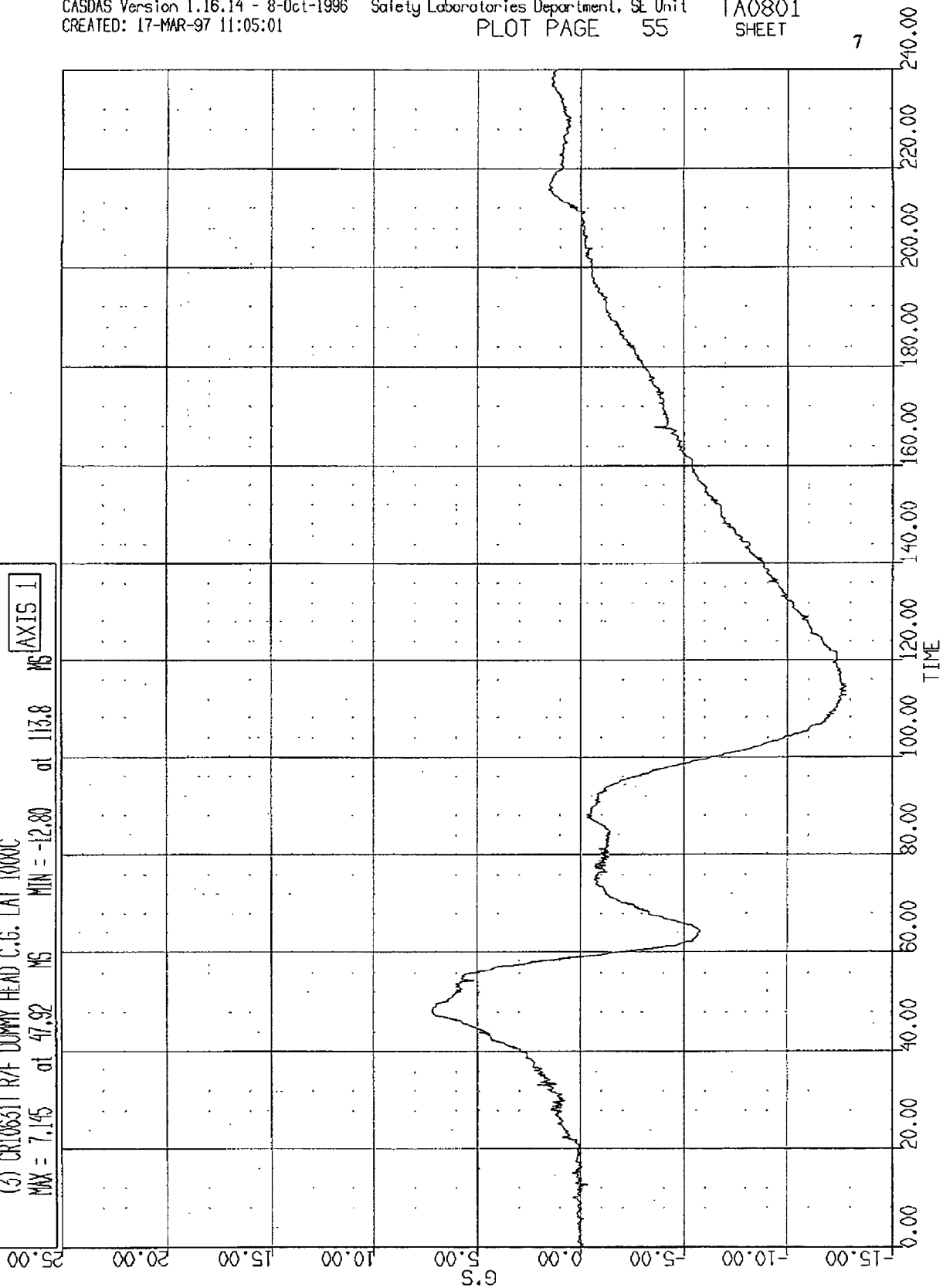
0556

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(3) CR10631T R/F DUMMY HEAD C.G. LAT 1000C

MAX = 7.15 at 47.92 MS MIN = -12.80 at 113.8 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(4) CR10631T R/F DUMMY CHEST DEFLECTION 180C

MAX = 0.1357E-01 at 44.16 MS MIN = -.5888 at 141.3 MS

AXIS 1

7.00

6.00

5.00

4.00

3.00

2.00

1.00

0.00

-1.00

INCHES

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

TIME

CRTS 0010631

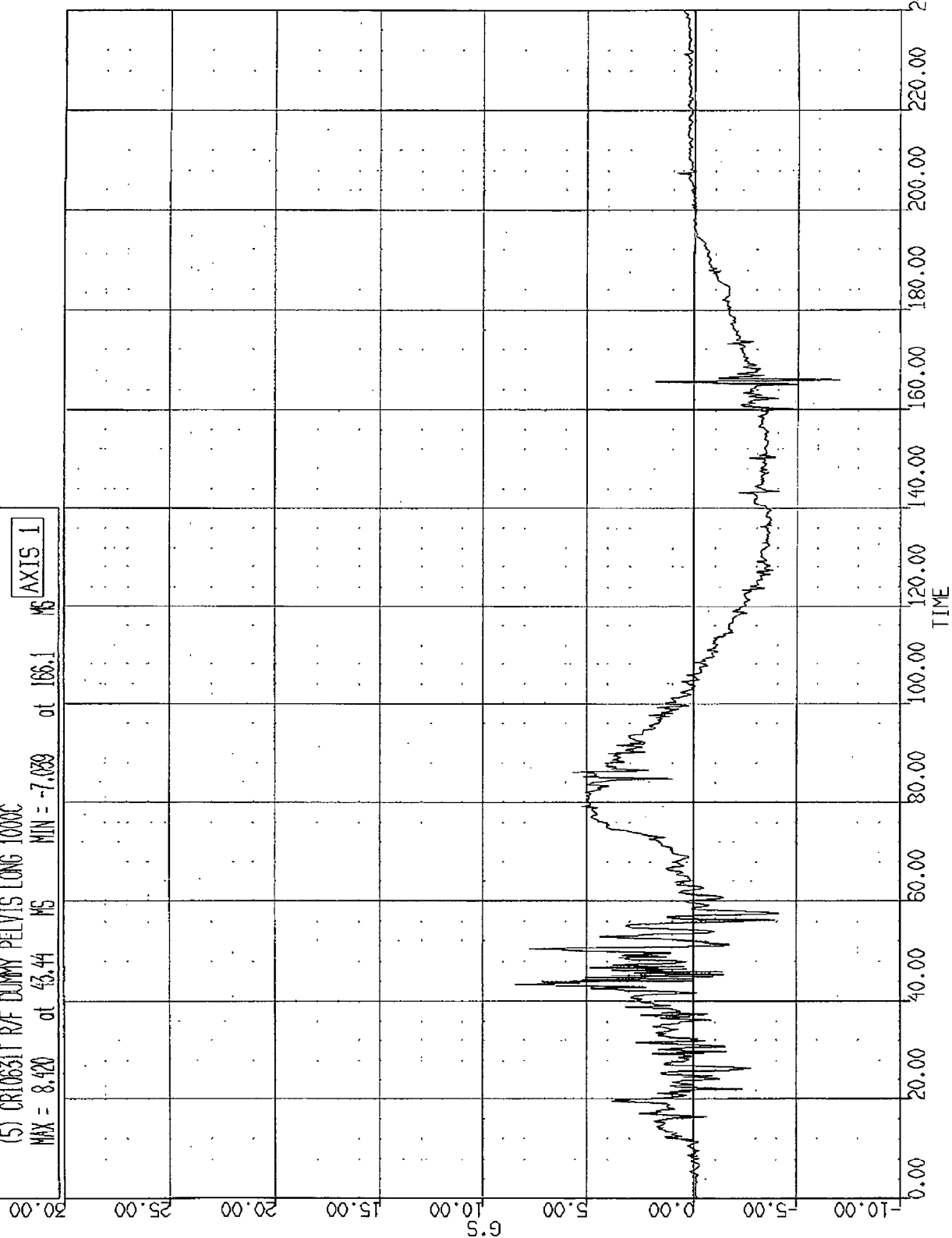
0558

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA.

(5) CR10631T R/F DUMMY PELVIS LONG 1000C

MAX = 8.420 at 43.44 MS MIN = -7.039 at 166.1 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(6) CR10631T R/F DUMMY PELVIS VERT 1000C

MAX = 4.894

at 78.80

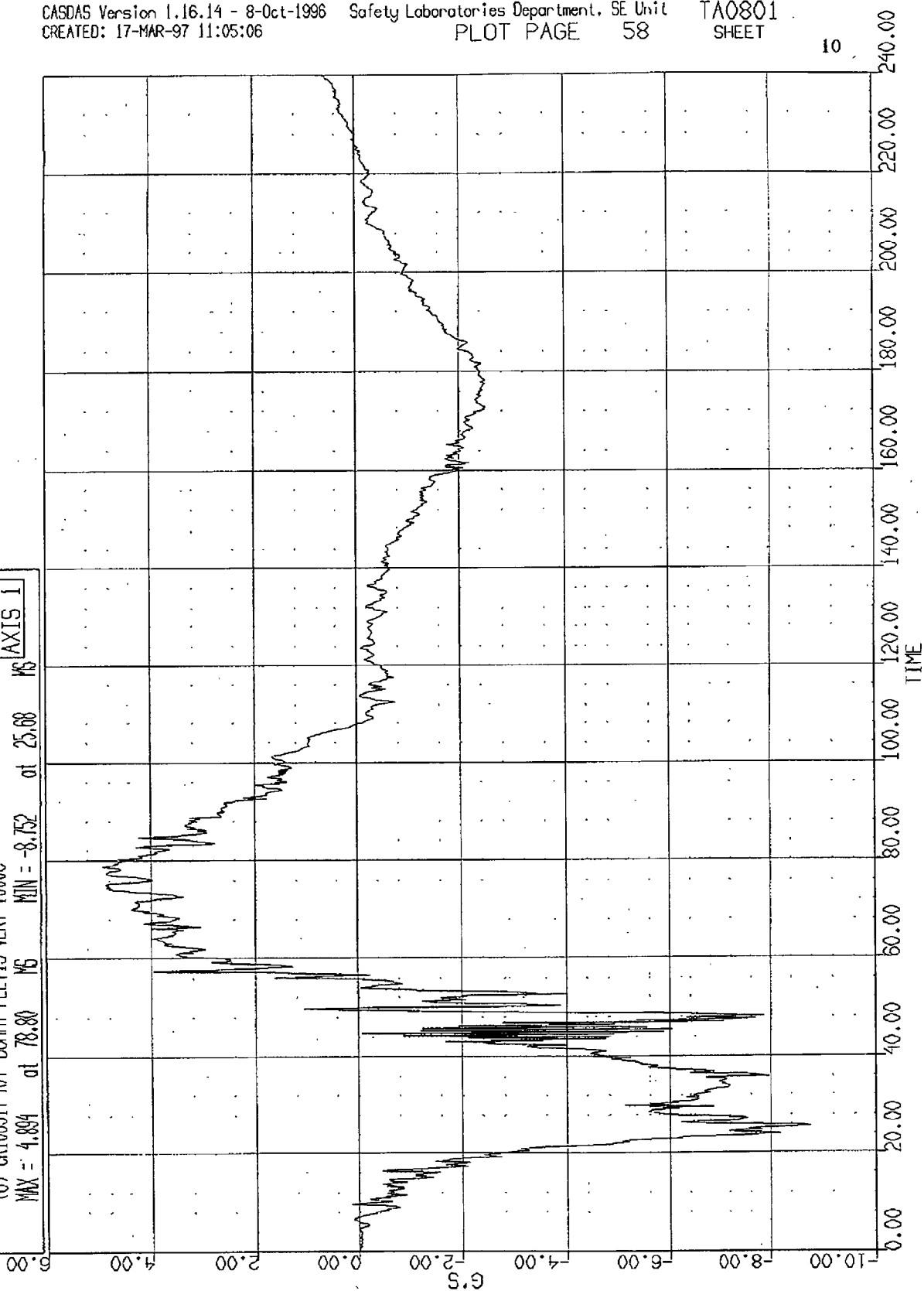
MS

MIN = -8.752

at 25.68

MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(7) CR10631T R/F DUMMY PELVIS LAT 1000C

MAX = 10.77 at 76.00 MS MIN = -36.70 at 44.48 MS

AXIS 1

40.00

30.00

20.00

10.00

0.00
G.S.

-10.00

-20.00

-30.00

-40.00

0.00

TIME

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

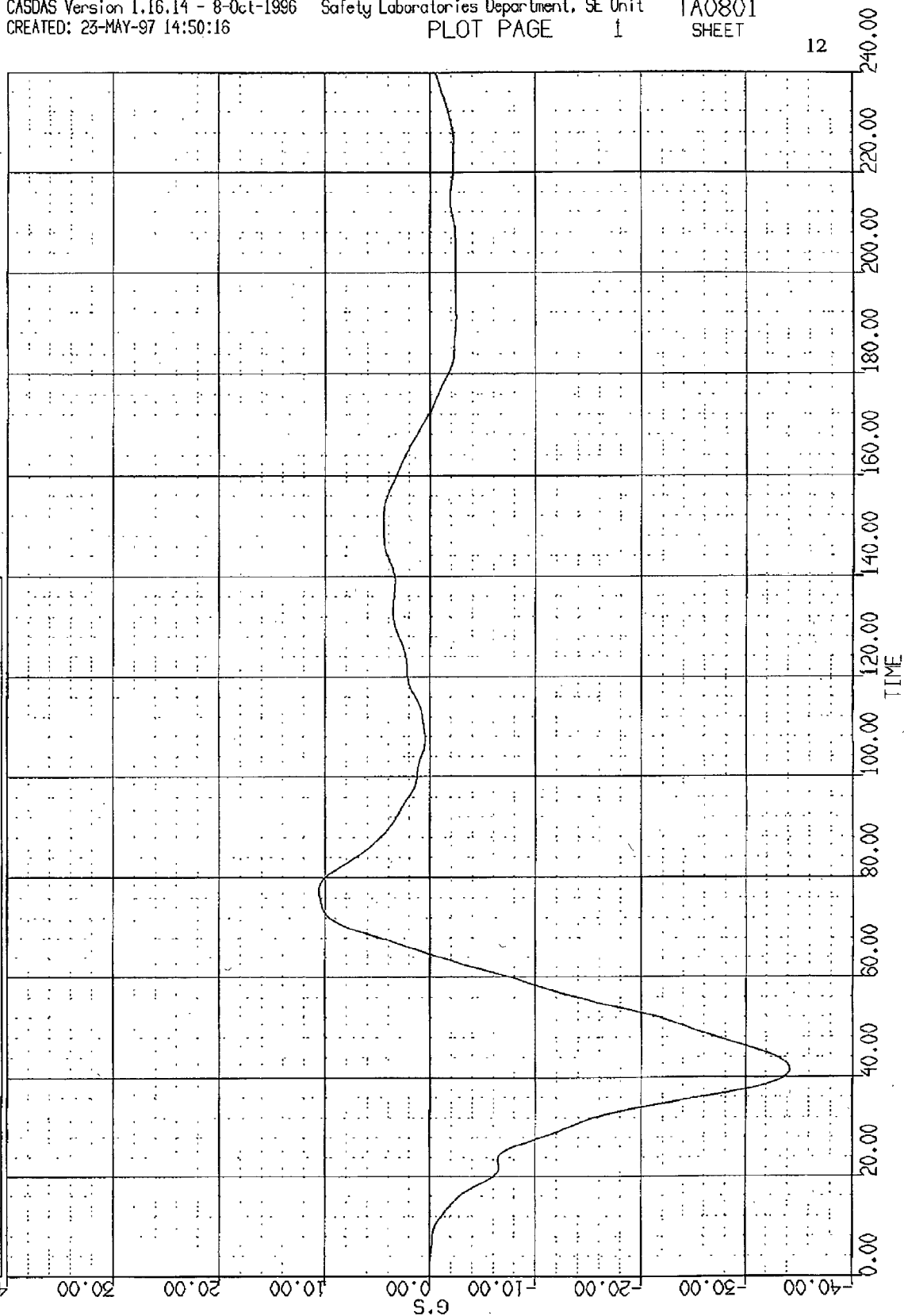
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CRTS 0010631

0561

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

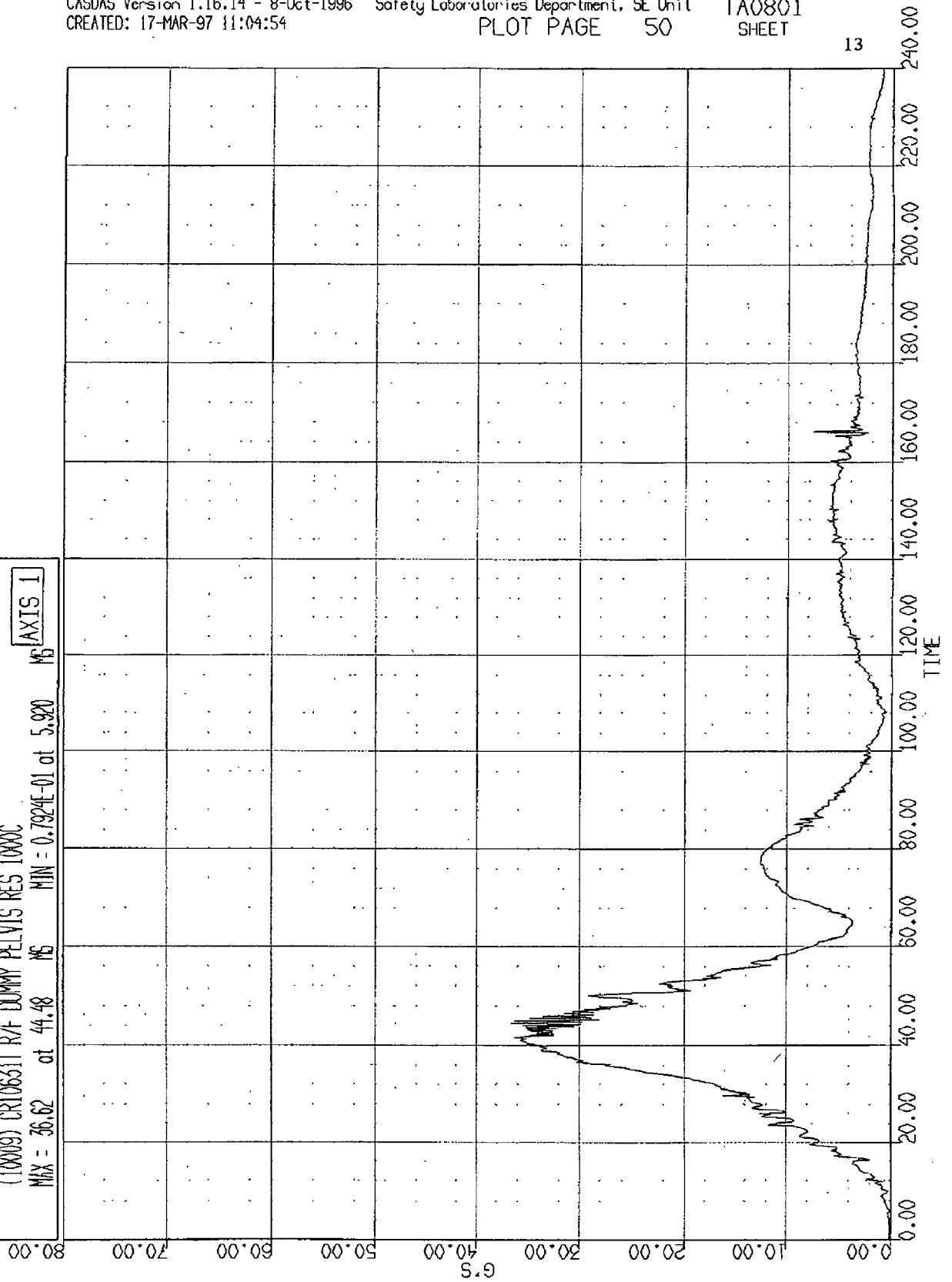
(7) CR10631T R/F DUMMY PELVIS LAT 100F
MAX = 10.60 at 77.50 MS MIN = -34.23 at 41.25 MS AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(10009) CR10631T R/F DUMMY PELVIS RES 1000C
MAX = 36.62 at 44.48 MS MIN = 0.7924E-01 at 5.920 MS
AXIS 1



CRTS 0010631

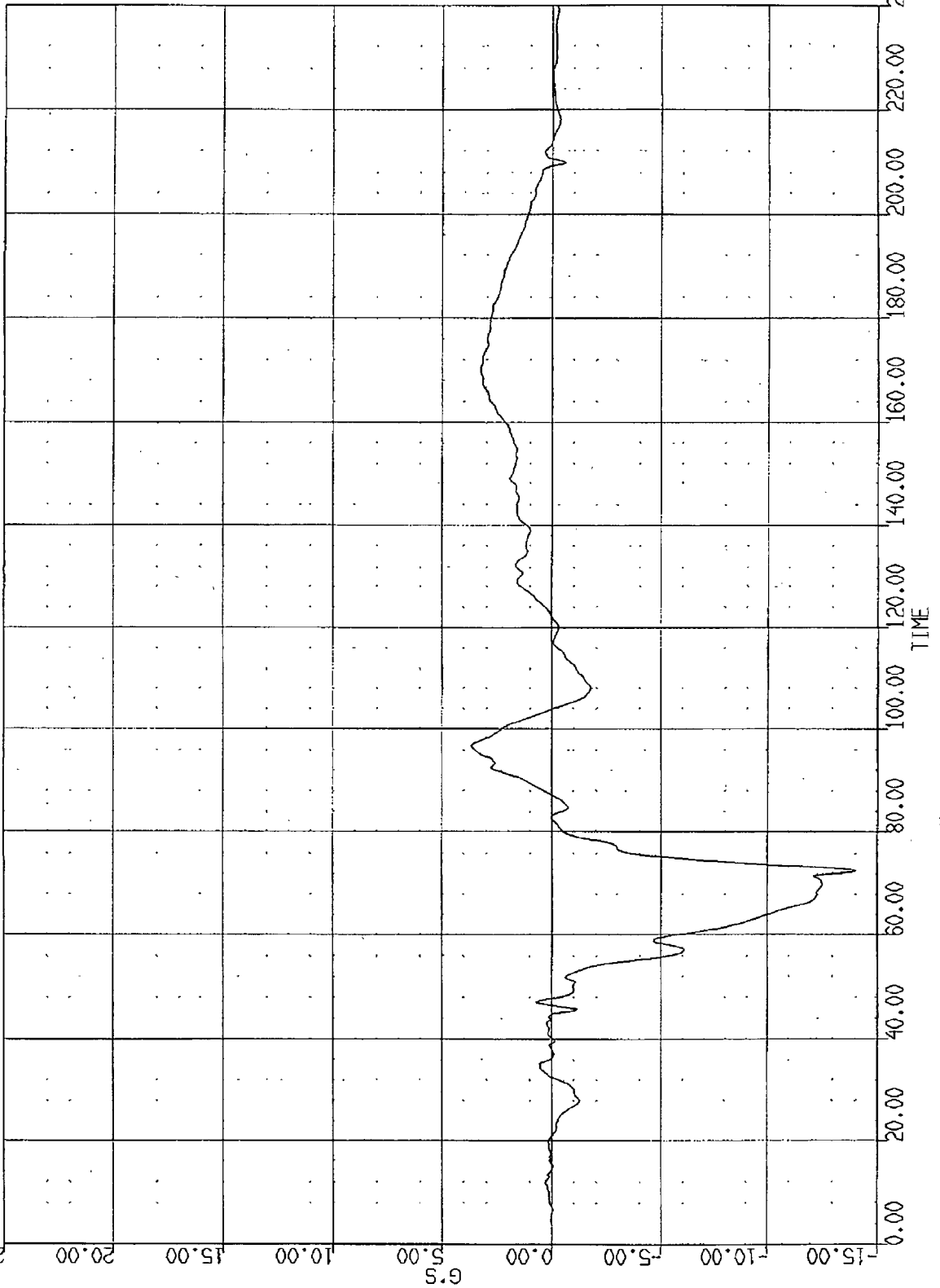
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(8) CR10631T R/F DUMMY T1 LONG [80C

MAX = 3.674 at 96.80 MS MIN = -14.07 at 72.64 MS

AXIS 1

25.00



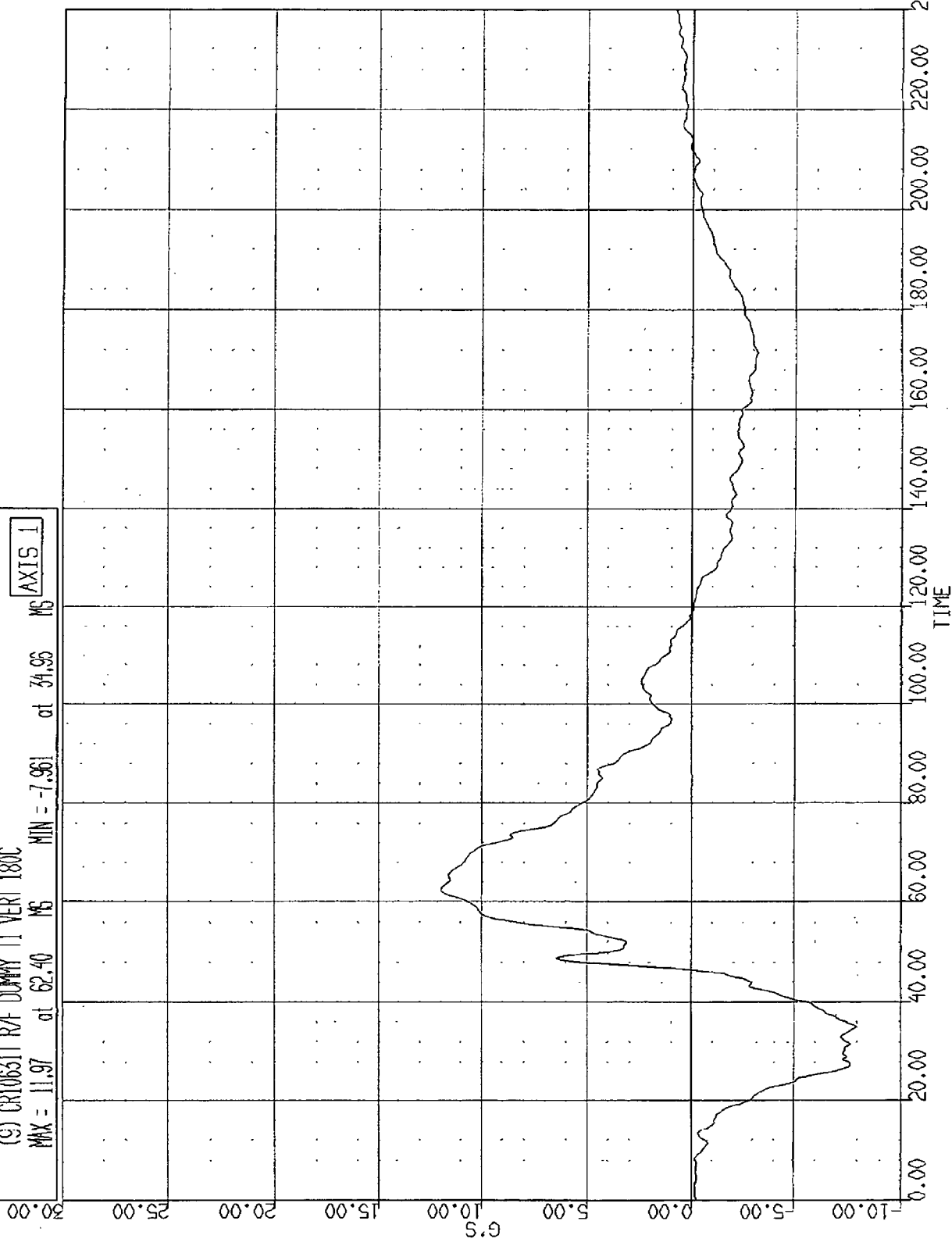
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(9) CR10631T R/F DUMMY T1 VERT 180C

MAX = 11.97 at 62.40 MS MIN = -7.961 at 34.95 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(10) CR10631T R/F DUMMY T1/L LAT 180C

MAX = 4.693 at 109.8 MS MIN = -17.40 at 76.08 MS

AXIS 1

20.00

15.00

10.00

5.00

0.00

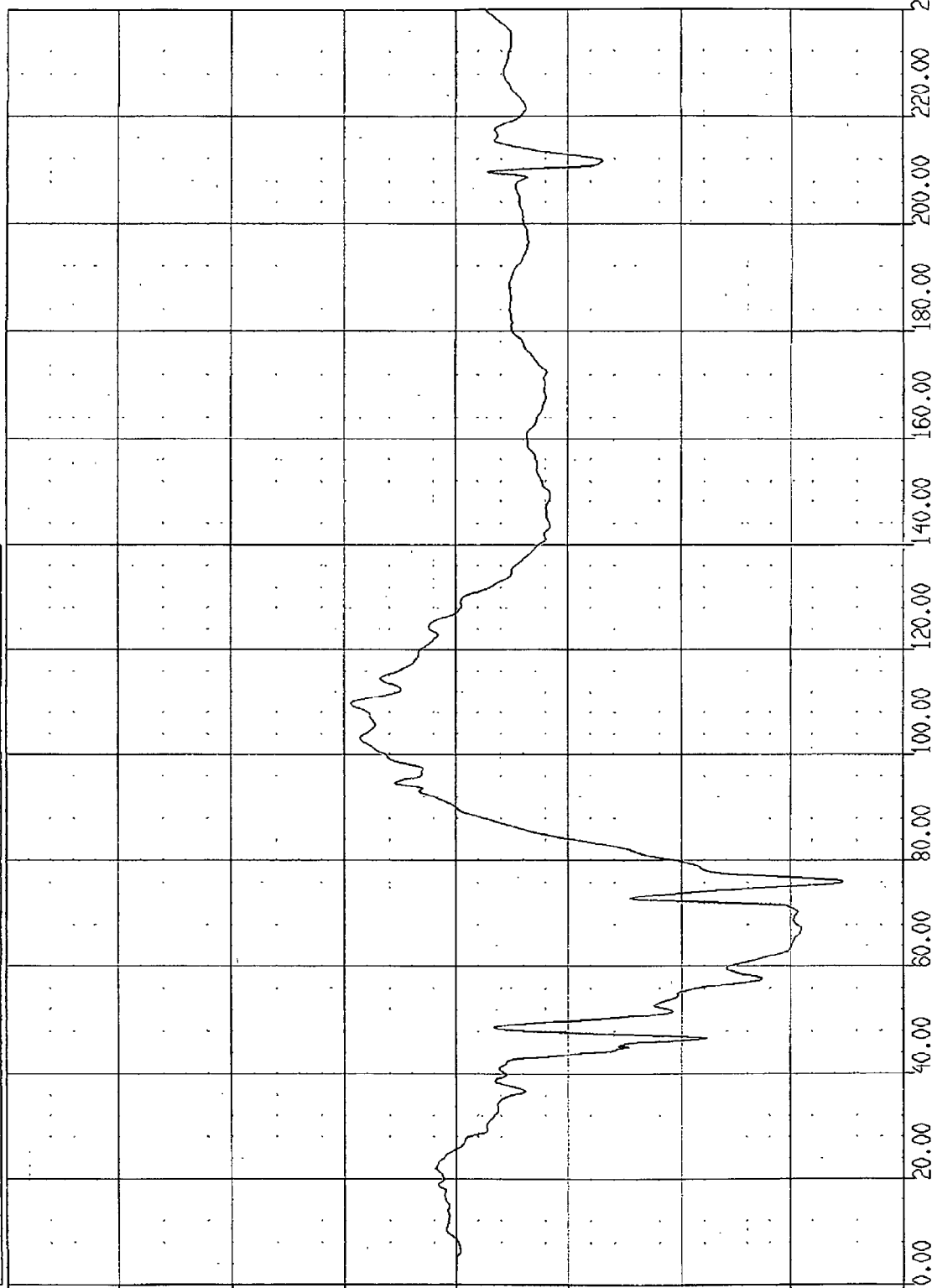
6.5

-5.00

-10.00

-15.00

-20.00



TIME

CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(10) CR10631T R/F DUMMY T1/L LAT 100F
MAX = 4.144 at 108.1 MS MIN = -15.95 at 67.50 MS

AXIS 1

20.00

15.00

10.00

5.00

0.00

G.S

-5.00

-10.00

-15.00

-20.00

0.00

TIME

240.00
220.00
200.00
180.00
160.00
140.00
120.00
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20.00
0.00

CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1998 PN-96 1998 MOVING DEFORMABLE BA

(11) CR10631T R/F DUMMY T12 LONG 180C

MAX = 4.212 at 145.8 MS MIN = -14.45 at 72.80 MS

AXIS 1

25.00

20.00

15.00

10.00

5.00

0.00

-5.00

-10.00

-15.00

-20.00

-25.00

-30.00

-35.00

-40.00

-45.00

-50.00

-55.00

-60.00

-65.00

-70.00

-75.00

-80.00

-85.00

-90.00

-95.00

-100.00

-105.00

-110.00

-115.00

-120.00

-125.00

-130.00

-135.00

-140.00

-145.00

-150.00

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-965.00

-970.00

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-980.00

-985.00

-990.00

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-1000.00

-1005.00

-1010.00

-1015.00

-1020.00

-1025.00

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-1100.00

-1105.00

-1110.00

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-1190.00

-1195.00

-1200.00

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-1295.00

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-1305.00

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-1430.00

-1435.00

-1440.00

-1445.00

-1450.00

-1455.00

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(12) CR10631T R/F DUMMY T12 VERT 180C

MIX = 7.540 at 62.80 MS MIN = -7.304 at 27.28 MS

AXIS 1

30.00

25.00

20.00

15.00

10.00

5.00

0.00

-5.00

-10.00

G.S

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

TIME

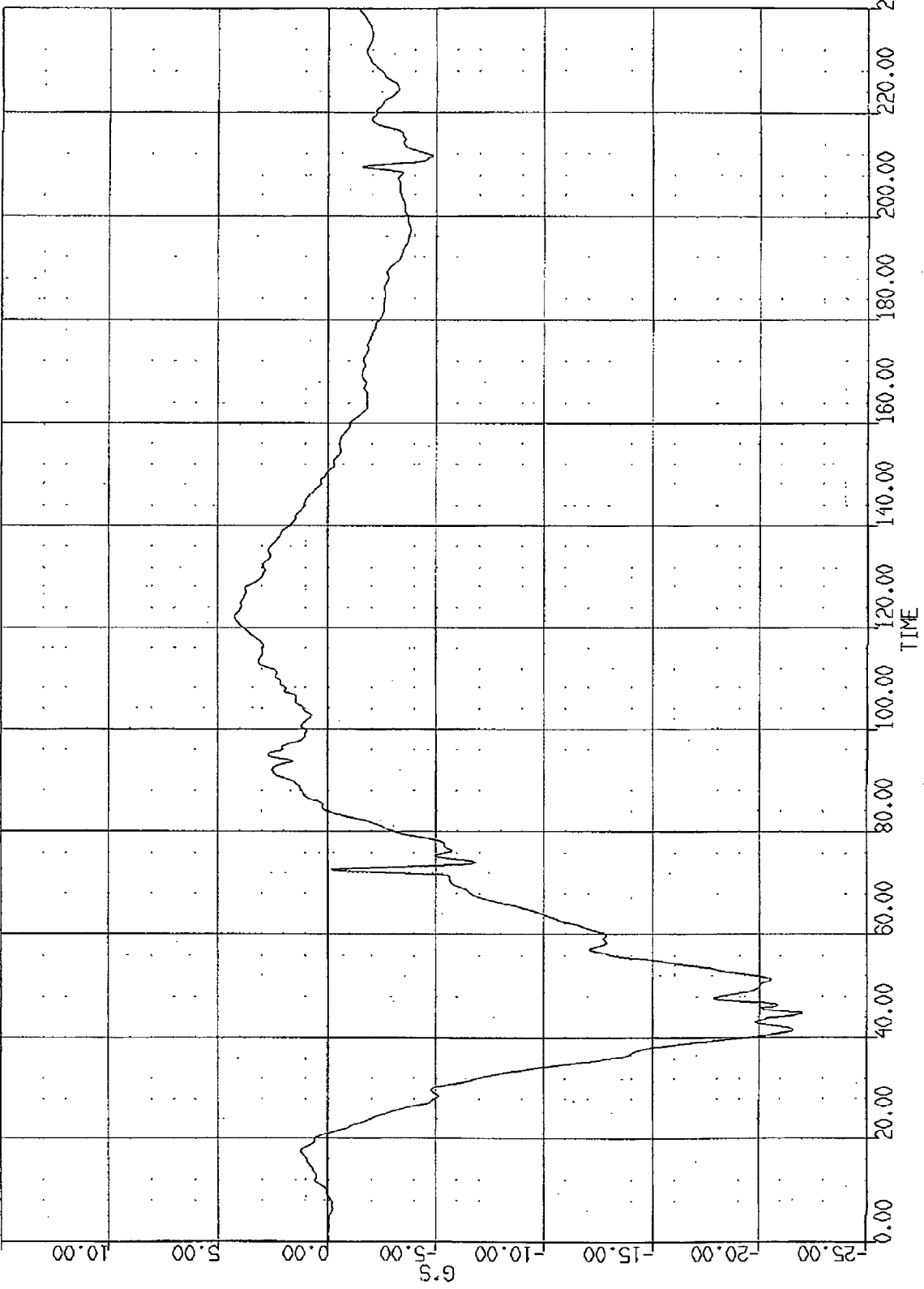
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(13) CR10631T R/F DUMMY T12/FRT LAT 180C
MAX = 4.236 at 122.4 MS MIN = -22.14 at 44.80 MS

AXIS 1

15.00

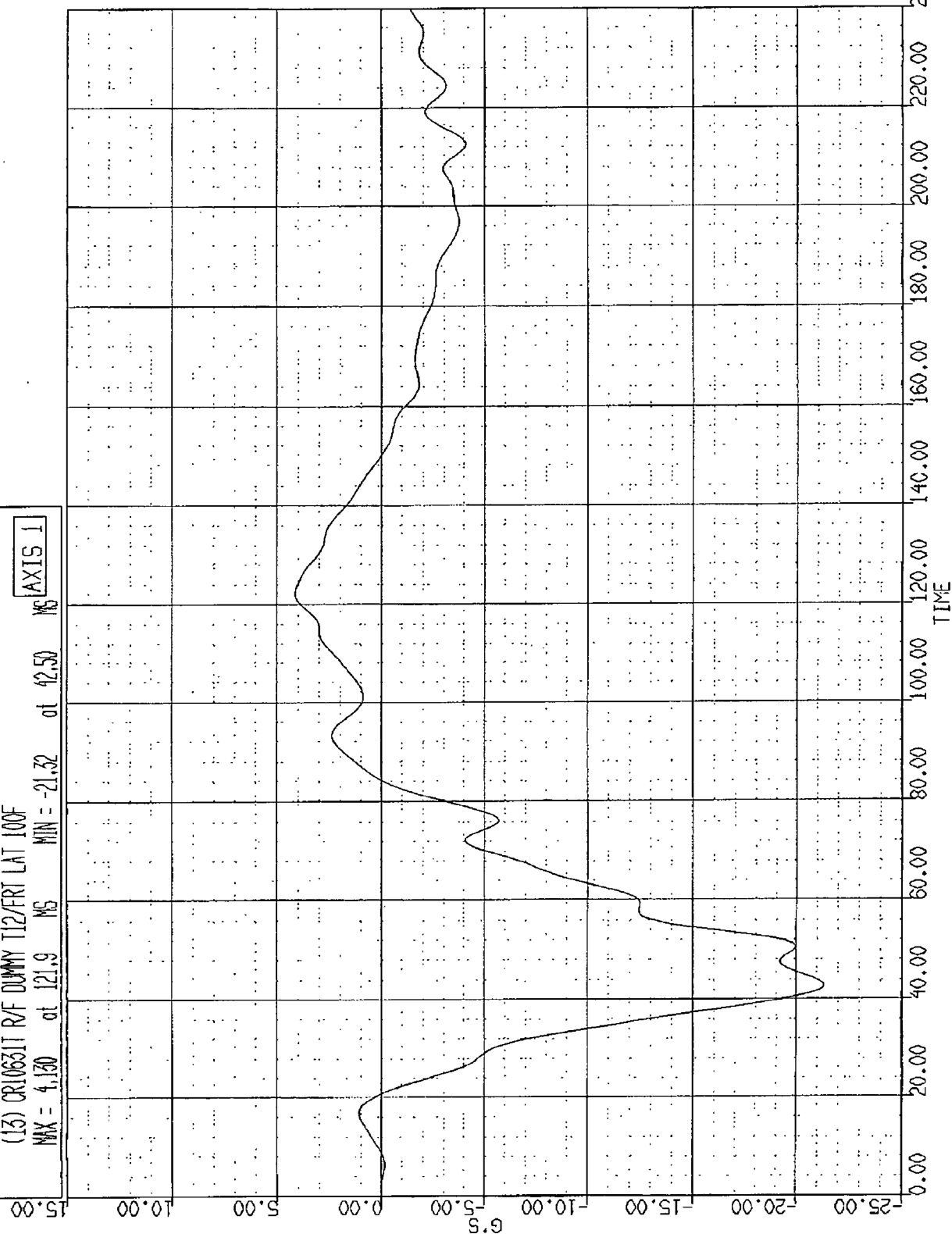


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(13) CR10631T R/F DUMMY T12/FRT LAT 100F
 MAX = 4.130 at 121.9 MS MIN = -21.32 at 42.50 MS

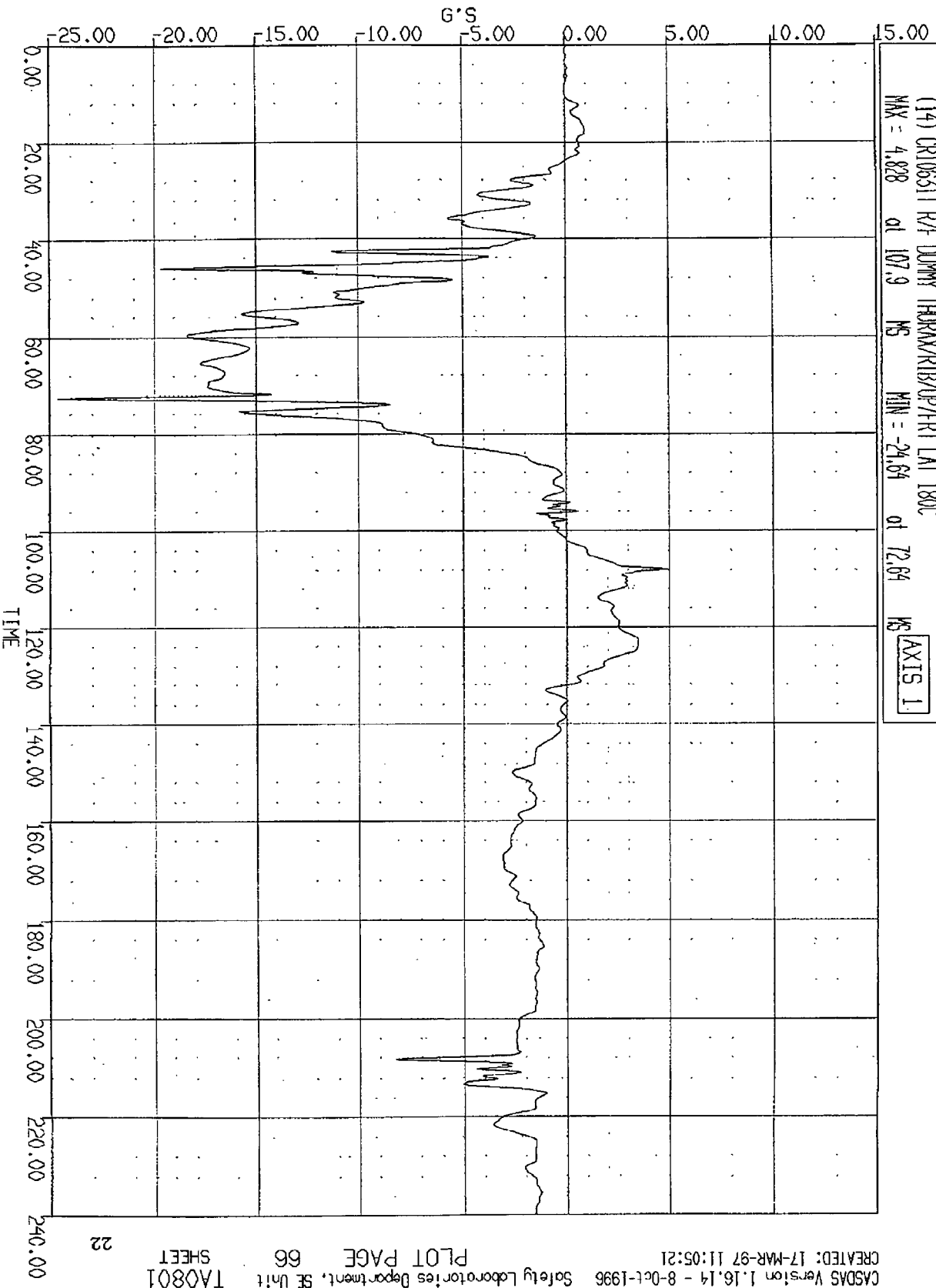
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(14) CR106311 R/F DUMMY THORAX/RIB/CP/FRI LAT 180C
 MAX = 4.828 at 107.9 MS MIN = -24.64 at 72.64 MS
 [AXIS 1]

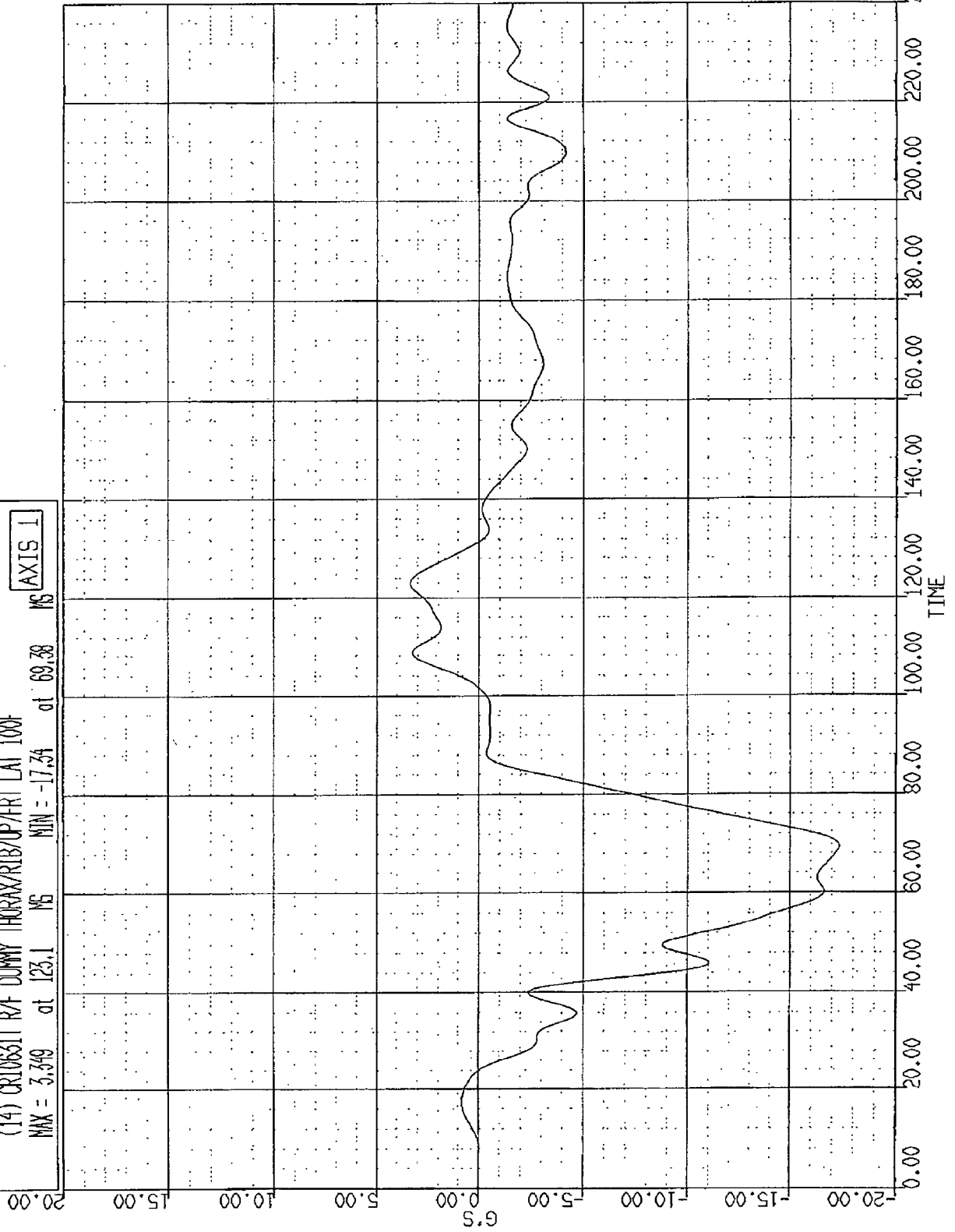


CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(14) CR10631T R/F DUMMY THORAX/RIB/UP/FRT LAT 100F

MAX = 3.349 at 123.1 MS MIN = -17.34 at 69.38 MS

AXIS 1



CRTS 0010631

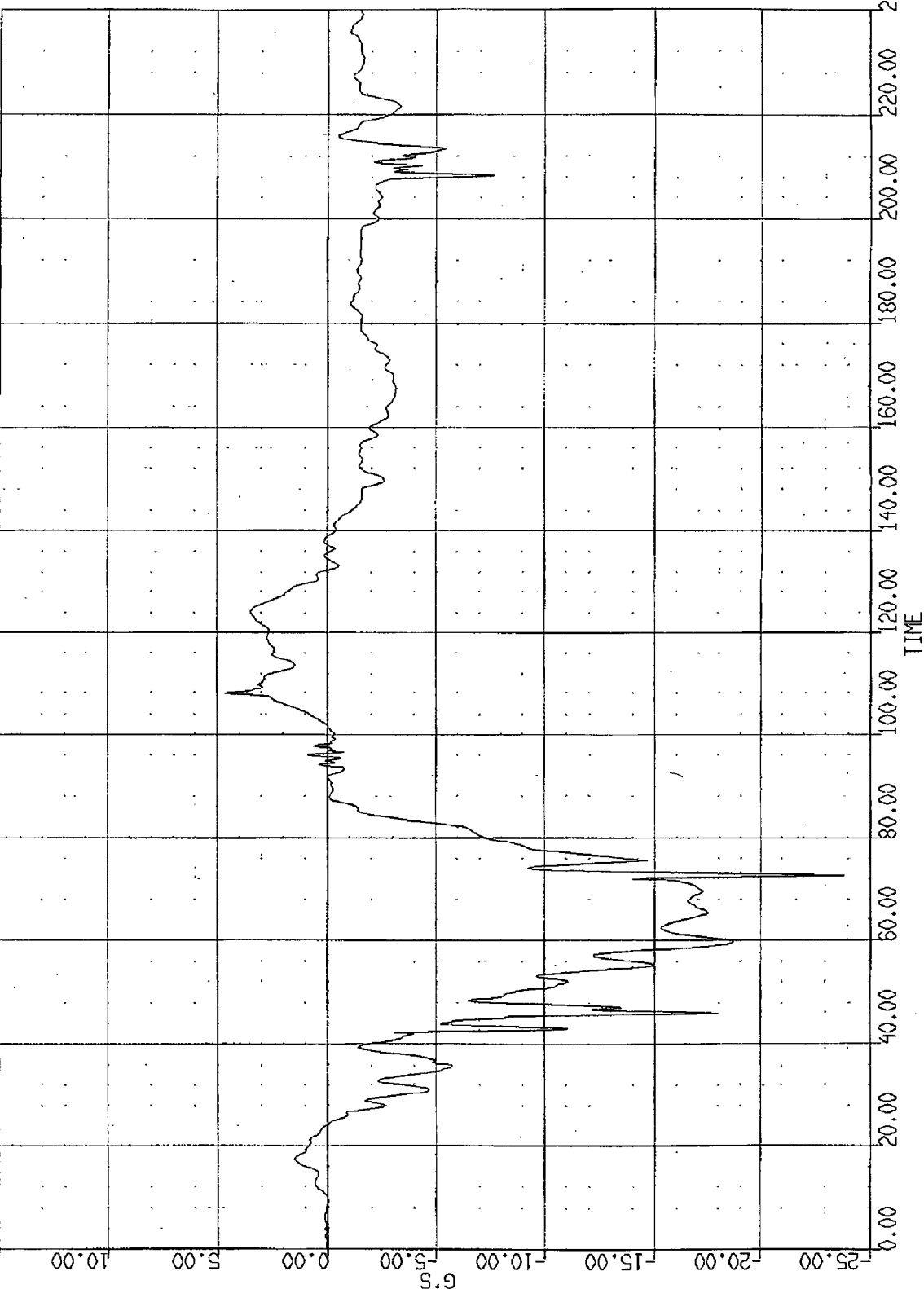
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(15) CR10631T R/F DUMMY THORAX/RIB/UP/REAR LAT 180C

MAX = 4.627 at 108.0 MS MIN = -23.84 at 72.64 MS

AXIS 1

15.00



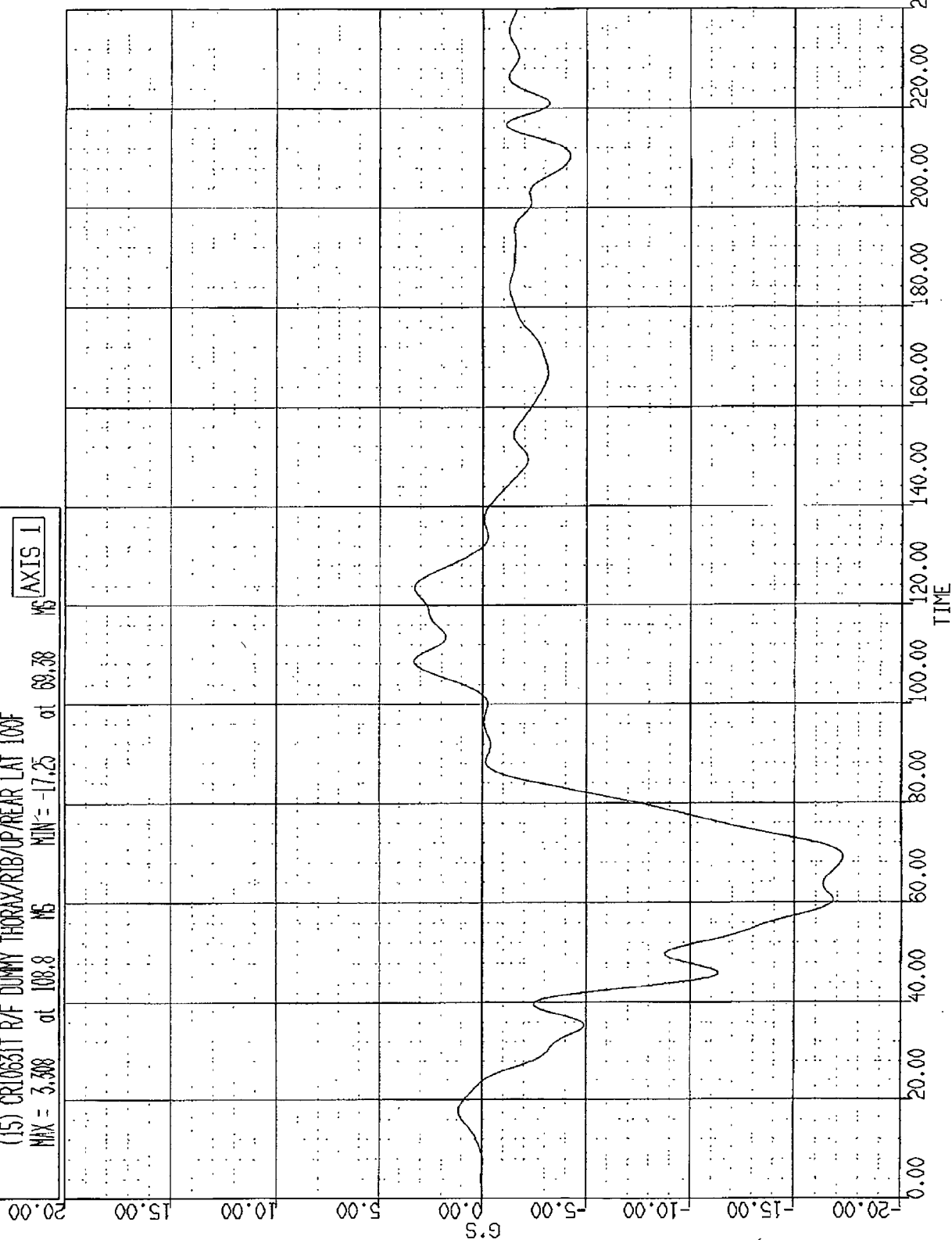
CRTS 0010631

CR R: 10631 TO: TAO801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(15) CR10631T R/F DUMMY THORAX/RIB/UP/REAR LAT 100F

MAX = 3.308 at 108.8 MS MIN = -17.25 at 69.38 MS

AXIS 1



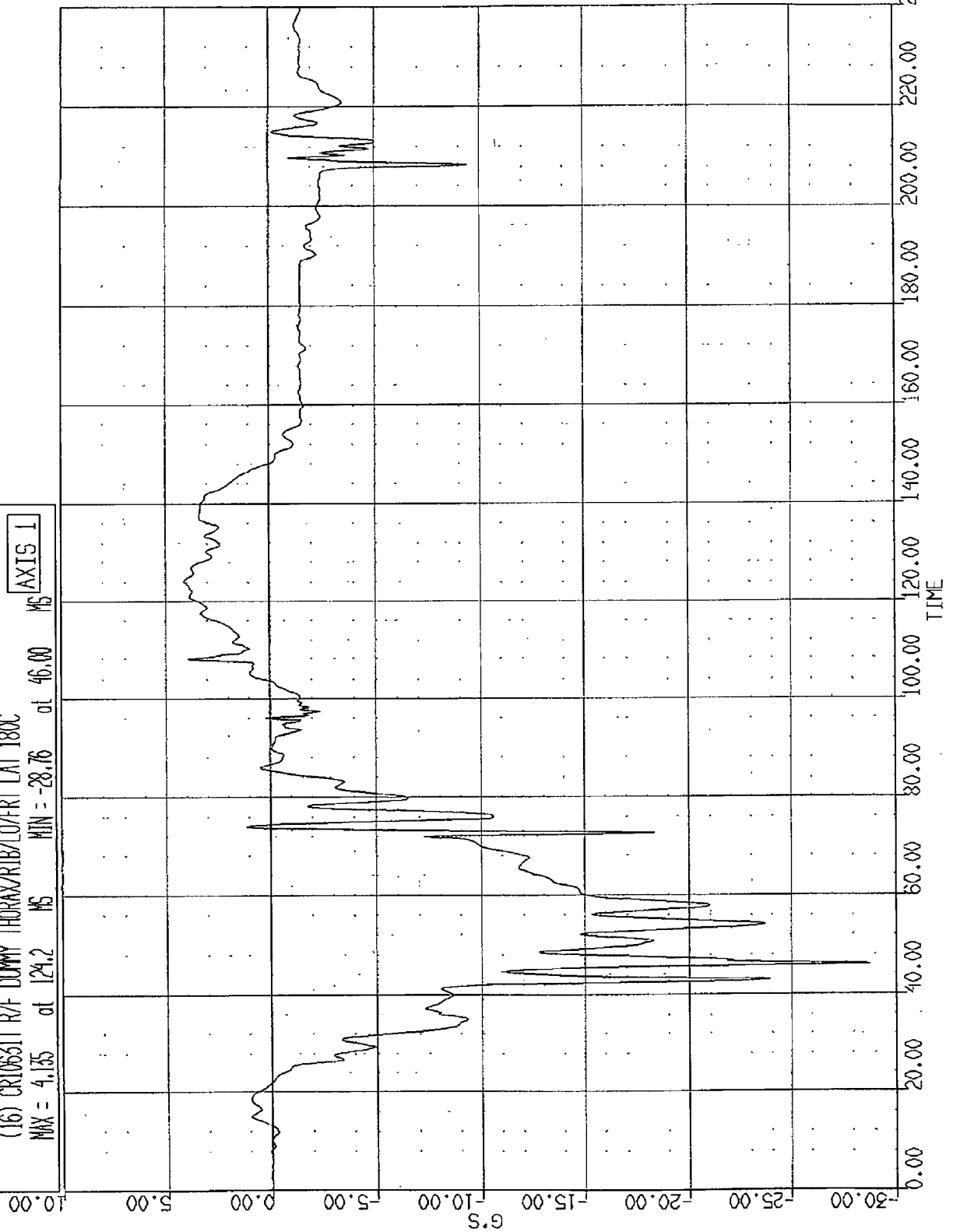
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(16) CR10631T R/F DUMMY THORAX/RIB/LO/FRT LAT 180C

MAX = 4.135 at 124.2 MS MIN = -28.76 at 46.00 MS

AXIS 1



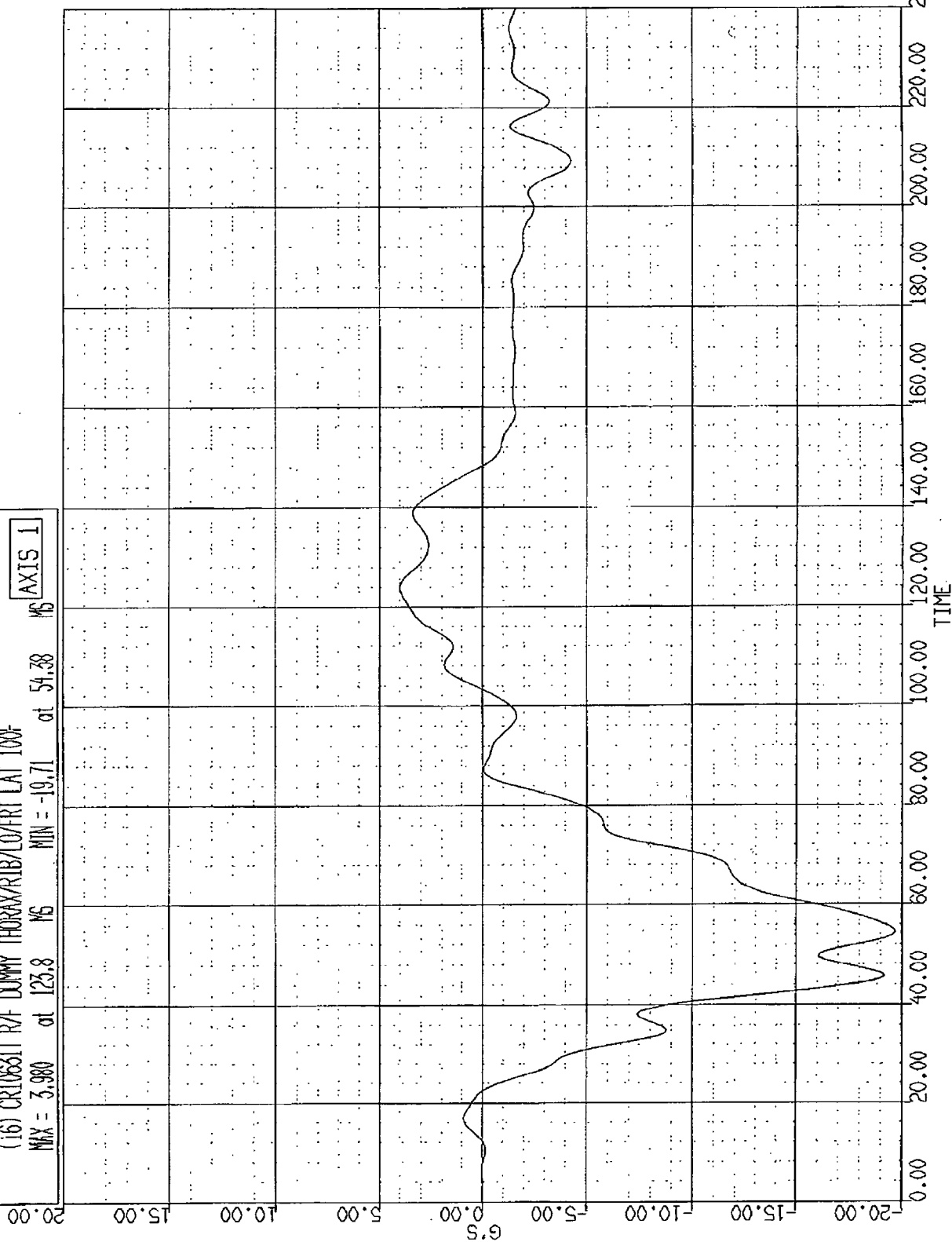
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(16) CR10631T R/F DUMMY THORAX/RIB/LO/FRT LAT 100F

MAX = 3.980 at 123.8 MS MIN = -19.71 at 54.38 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(17) CR10631T R/F DUMMY THORAX/RIB/O/REAR LAT 180C

MAX = 3.802 at 124.2 MS MIN = -27.39 at 46.00 MS

AXIS 1

10.00

5.00

0.00

-5.00

-10.00

-15.00

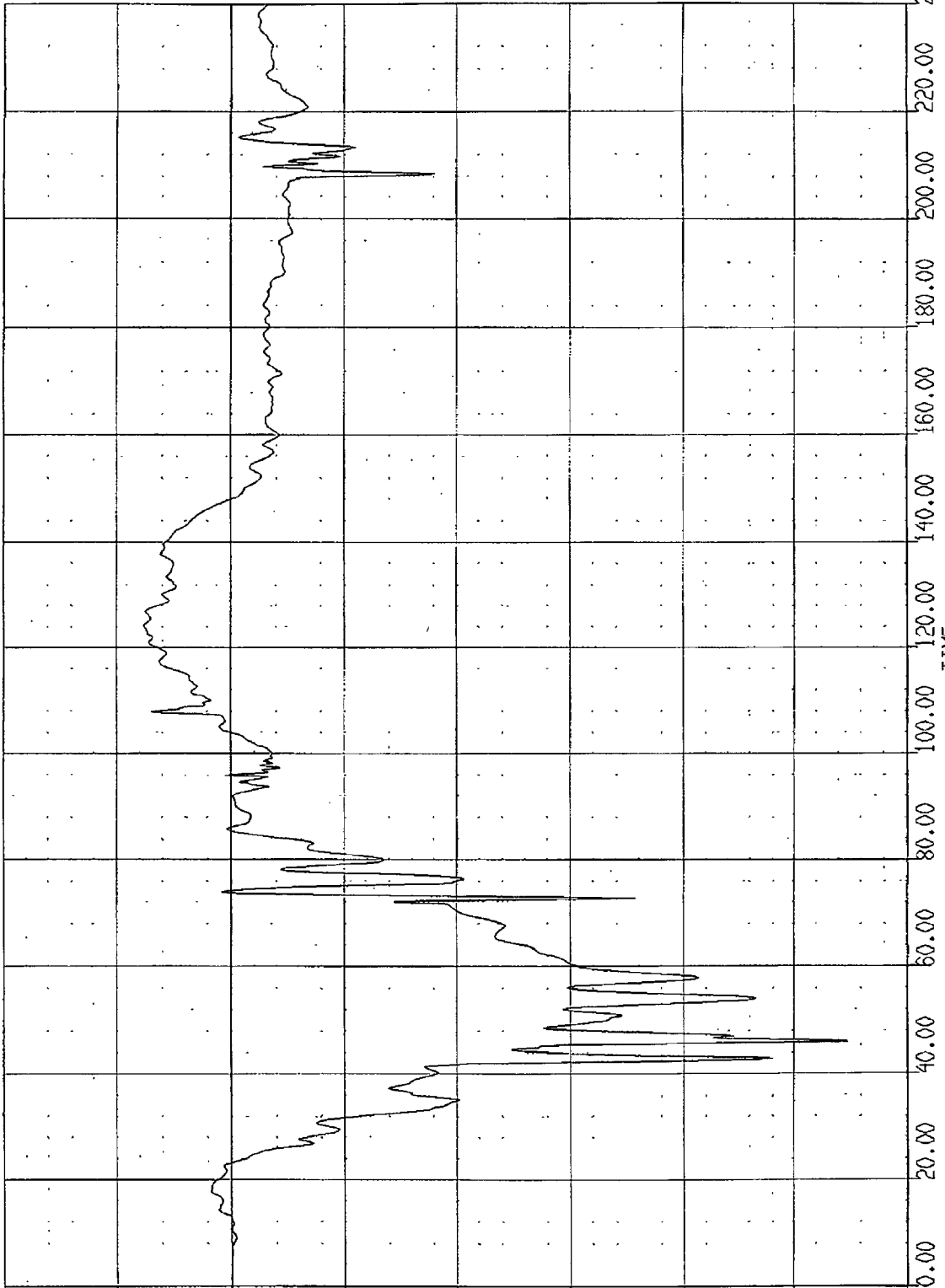
-20.00

-25.00

-30.00

G'S

TIME



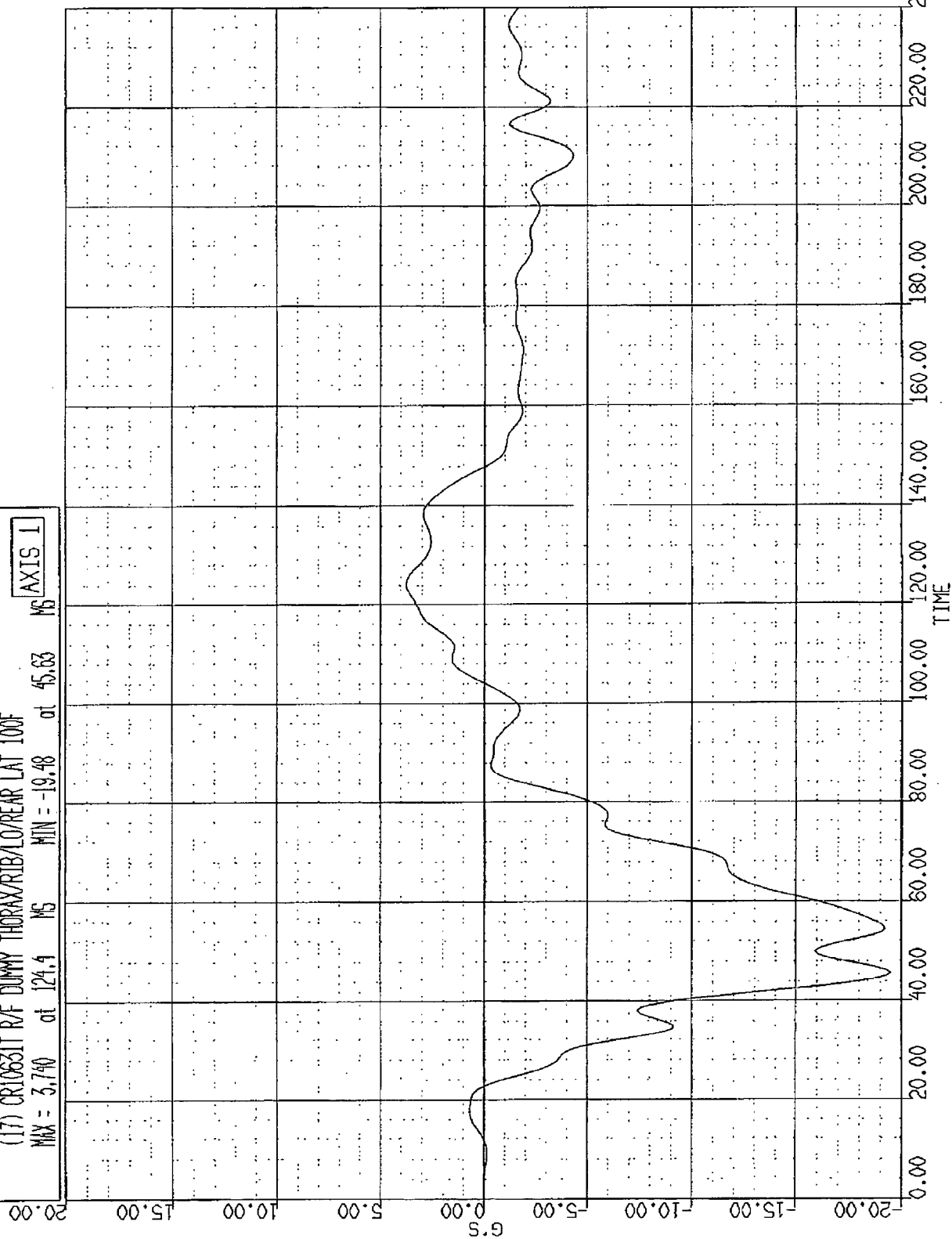
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(17) CR106311 R/F DUMMY THORAX/RIB/L/REAR LAT 100F

MAX = 3.740 at 124.4 MS MIN = -19.48 at 45.63 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(18) CR10631T R/F DUMMY HEAD SW 4000C

MAX = -.4309E-01 at -.7629E-05 MS MIN = -.4309E-01 at -.7629E-05 MS

AXIS 1

7.00

6.00

5.00

4.00

3.00

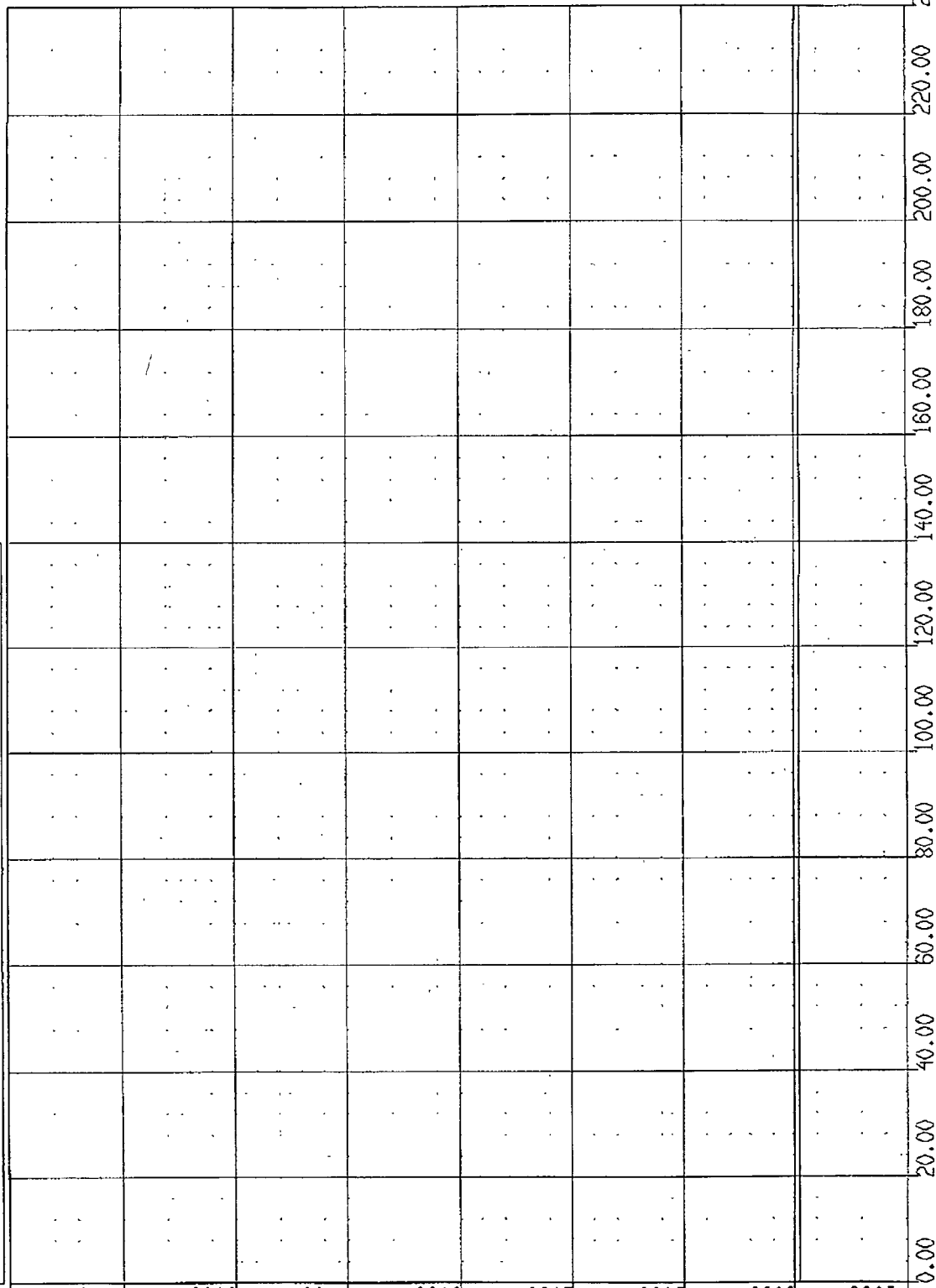
2.00

1.00

0.00

-1.00

VOLTS



TIME

CRTS 0010631

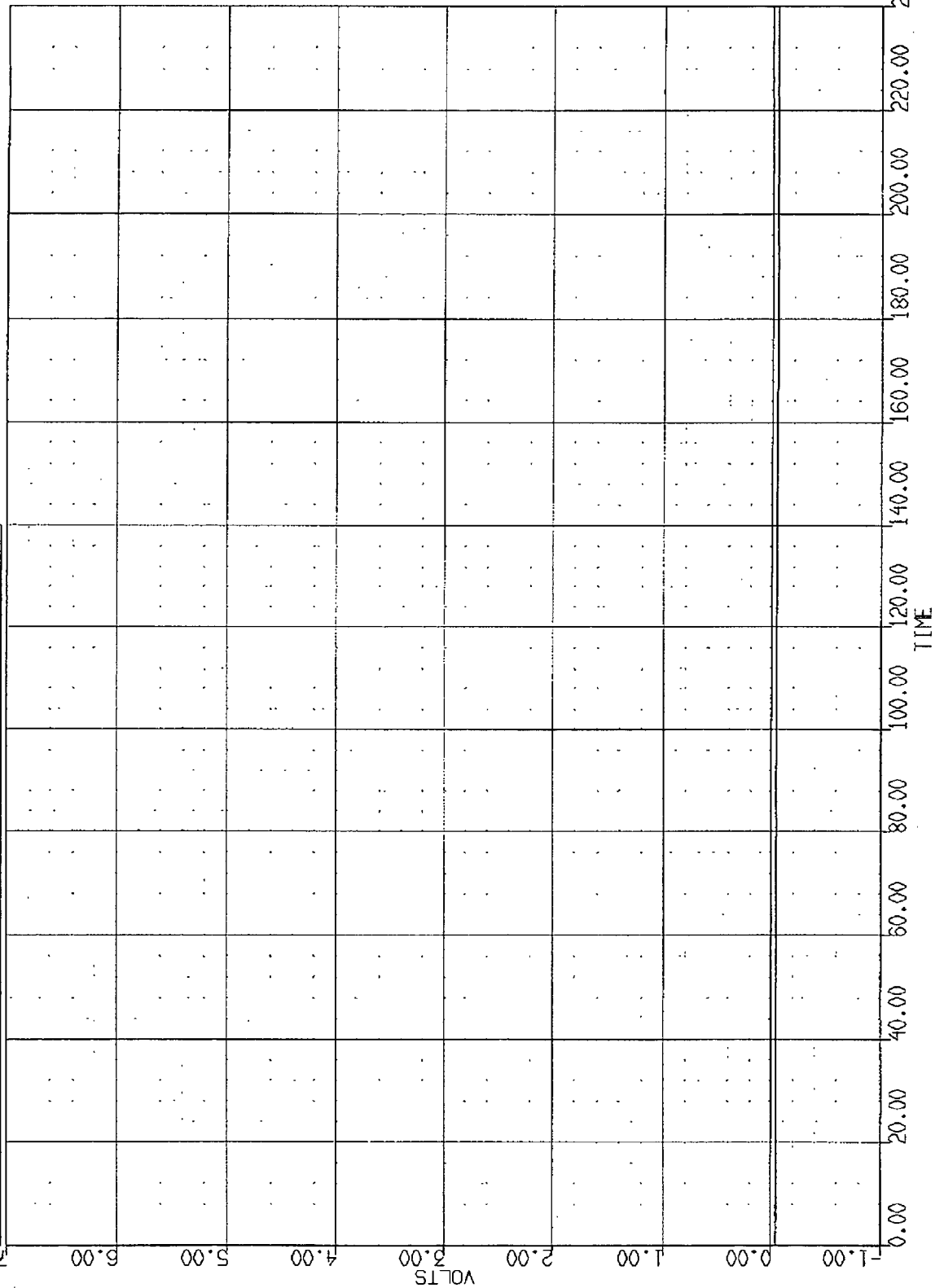
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(19) CR10631T R/F DUMMY THORAX SN 4000C

MAX = -.4395E-01 at -.7629E-05 MS MIN = -.4395E-01 at -.7629E-05 MS

AXIS 1

7.00



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(20) CR10631T R/F DUMMY ABDOMEN SW 4000C

MAX = 0.9570 at 128.6 MS MIN = -.4395E-01 at -.7629E-05 MS

AXIS 1

7.00

6.00

5.00

4.00

3.00

2.00

1.00

0.00

-1.00

VOLTS

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00

TIME

CRTS 0010631

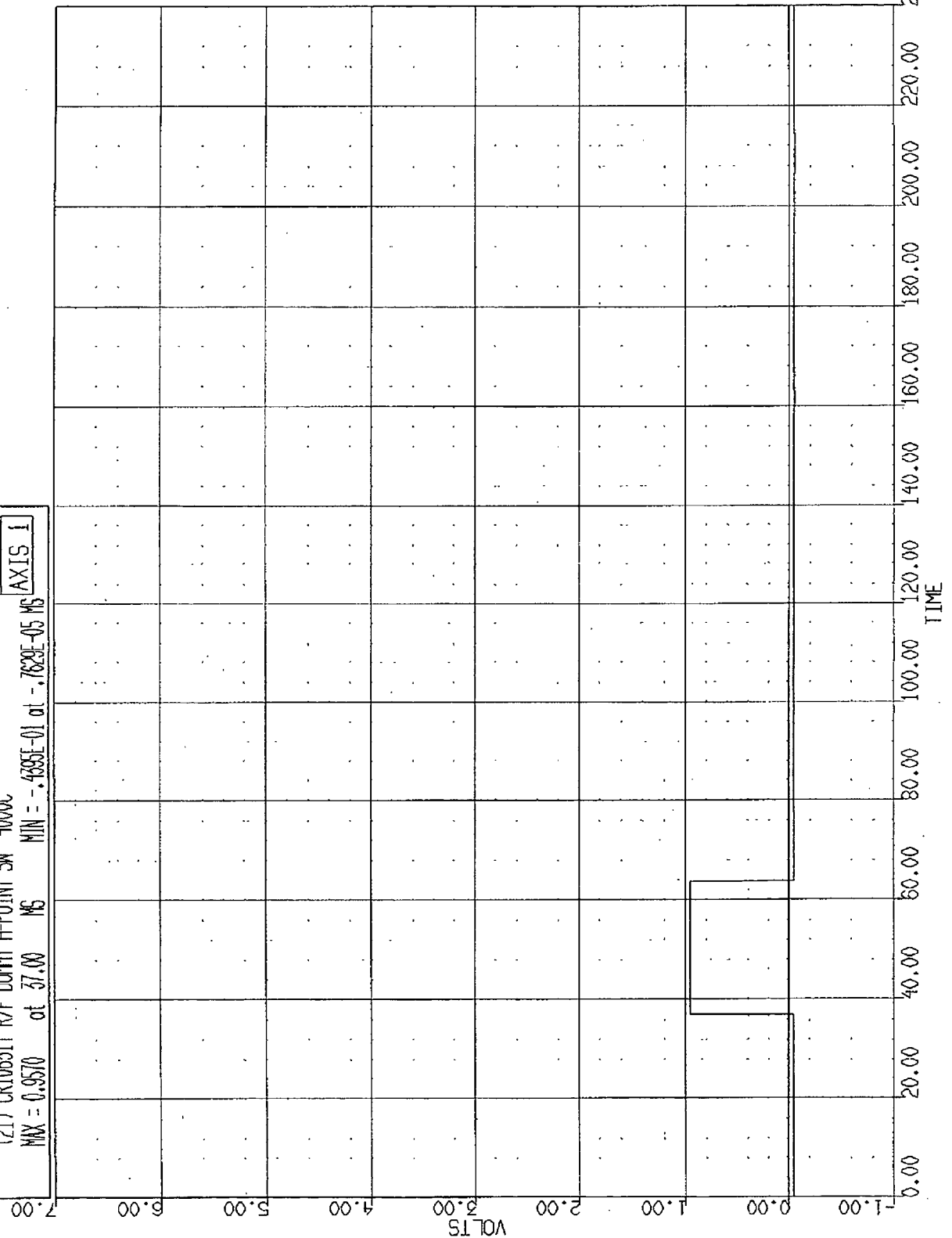
0582

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(21) CR10631 R/F DUMMY H-POINT SW 4000C

MAX = 0.9570 at 37.00 MS MIN = -.4335E-01 at -.7629E-05 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(22) CR10631T R/F DUMMY THIGH SW 4000C

MAX = 0.9570 at 29.40 MS MIN = -.4395E-01 at -.7629E-05 MS

AXIS 1

7.00

6.00

5.00

4.00

3.00

2.00

1.00

0.00

-1.00

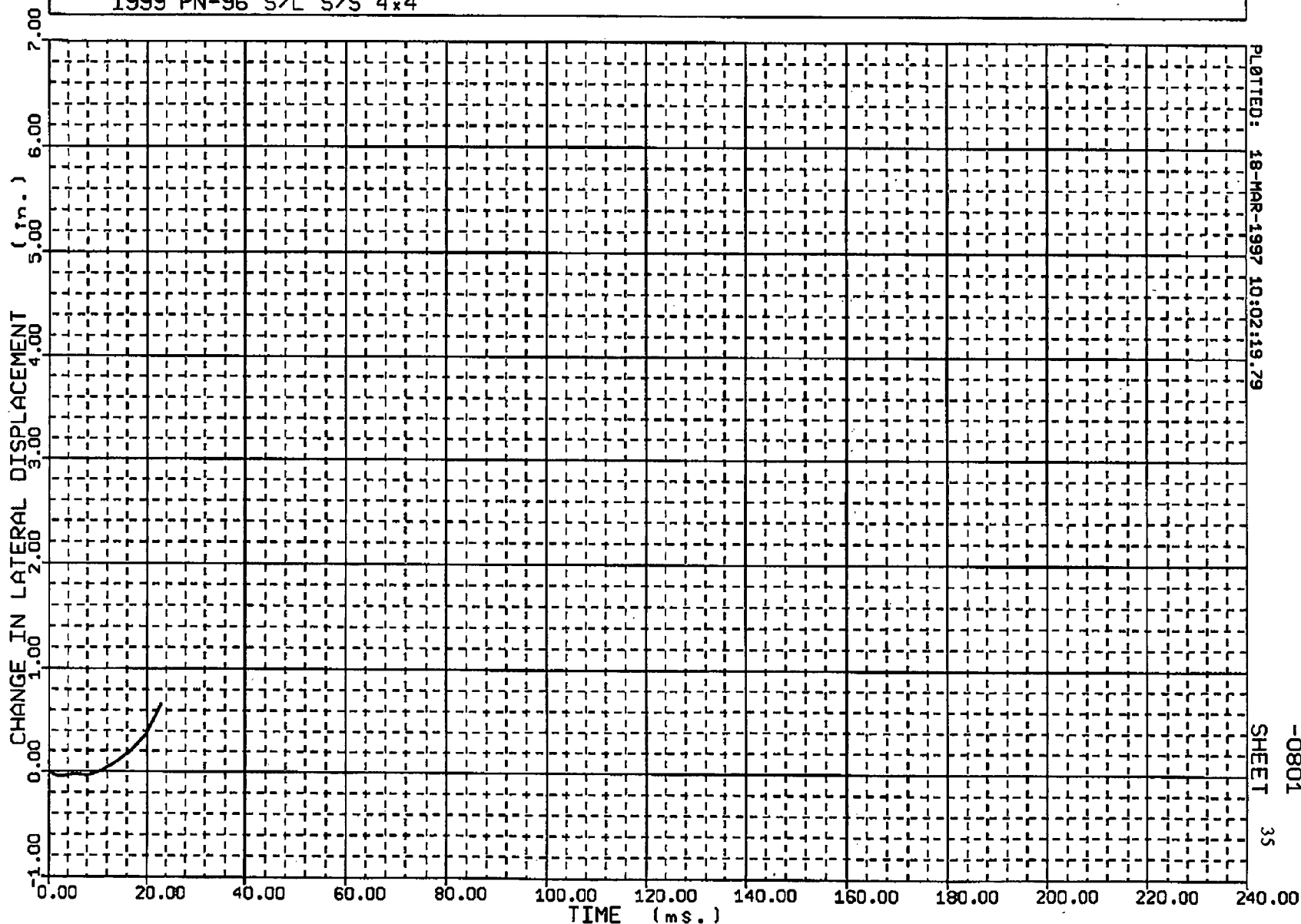
VOLTS

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00
 TIME

CRTS 0010631

0584

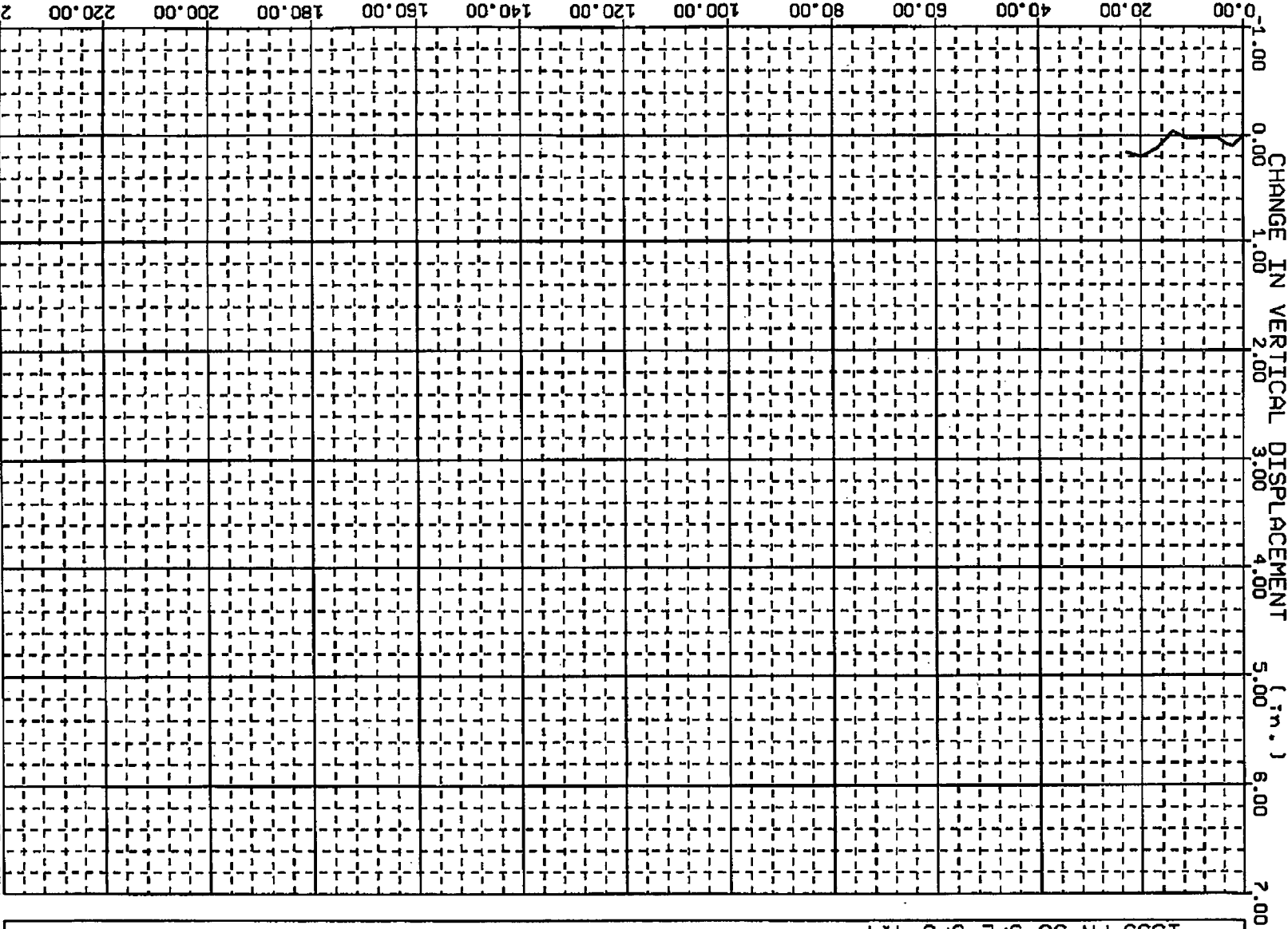
Y - AXIS: PASSENGER HEAD WRT R00F C/L AT A-PILLAR					MAX = 0.6671	at 23.00	MIN = -.4540E-01	at 2.00
RUN NØ.	FACILITY	TEST ØRDER NØ.	FILM ANALYSIS METHØD		PITCH CØRRECTION			
10631	BARRIER	-0801	SCALE		NØT APPLIED			
1999 PN-96 S/L S/S 4x4								



CRTS 0010631

0585

Y - AXIS: PASSENGER HEAD WRT ROOF C/L AT A-PILLAR			
MAX = 0.2020 at 20.00 MIN = -.4164E-01 at 14.00			
RUN NO.	FACILITY	TEST ORDER NO.	FILM ANALYSIS METHOD
10631	BARRIER	-0801	SCALE
		PITCH CORRECTION	NOT APPLIED

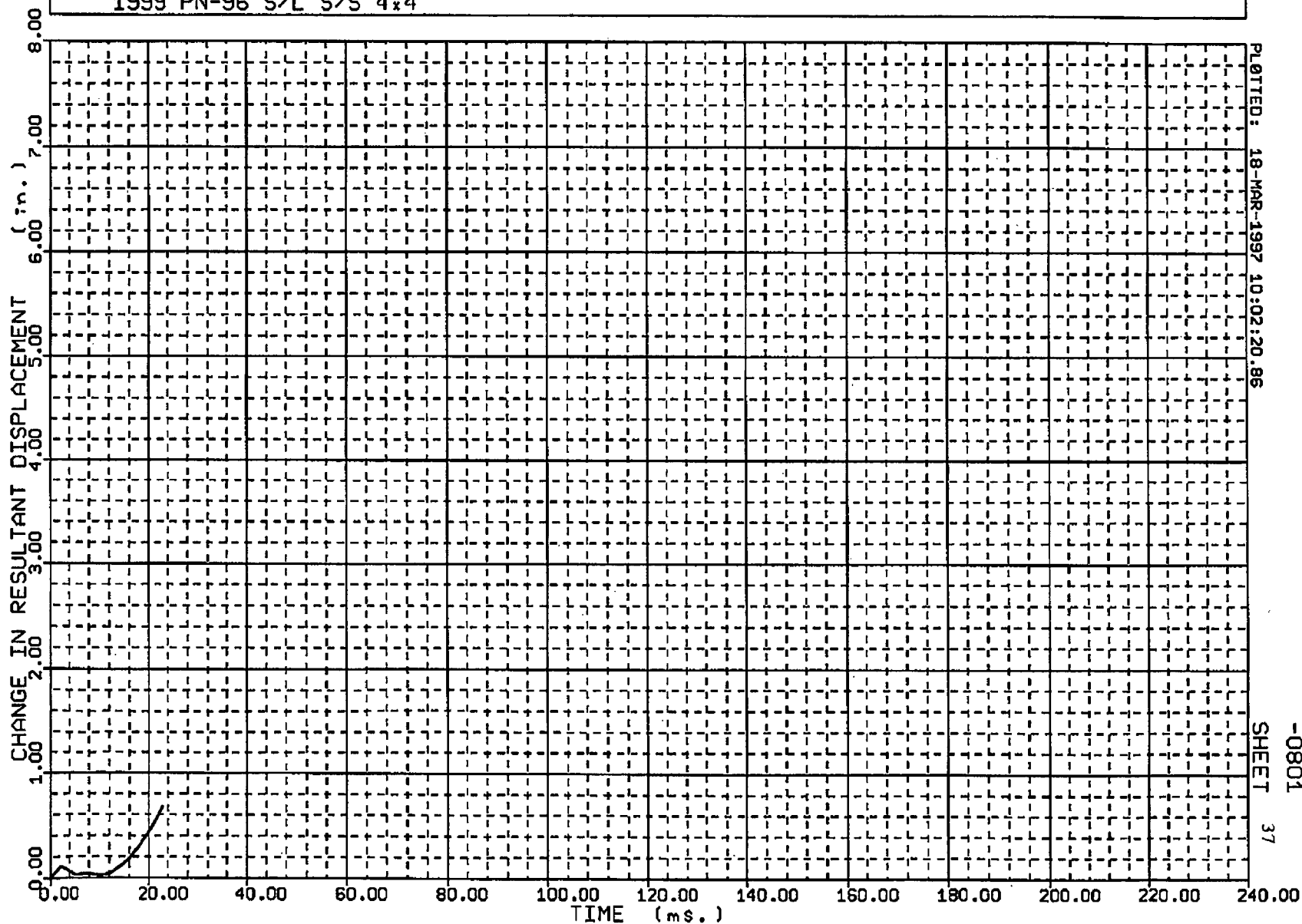


PLOTTED: 18-MAR-1997 10:02:20.34

-0801
SHEET 36

CRTS 0010631

Y - AXIS: PASSENGER HEAD WRT R00F C/L AT A-PILLAR					MAX = 0.6850	at 23.00	MIN = 0.0000E+00	at 0.00
RUN NØ.	FACILITY	TEST ØRDER NØ.	FILM ANALYSIS METHØD		PITCH CØRRECTION			
10631	BARRIER	-0801	SCALE		NØT APPLIED			
1999 PN-96 S/L S/S 4x4								



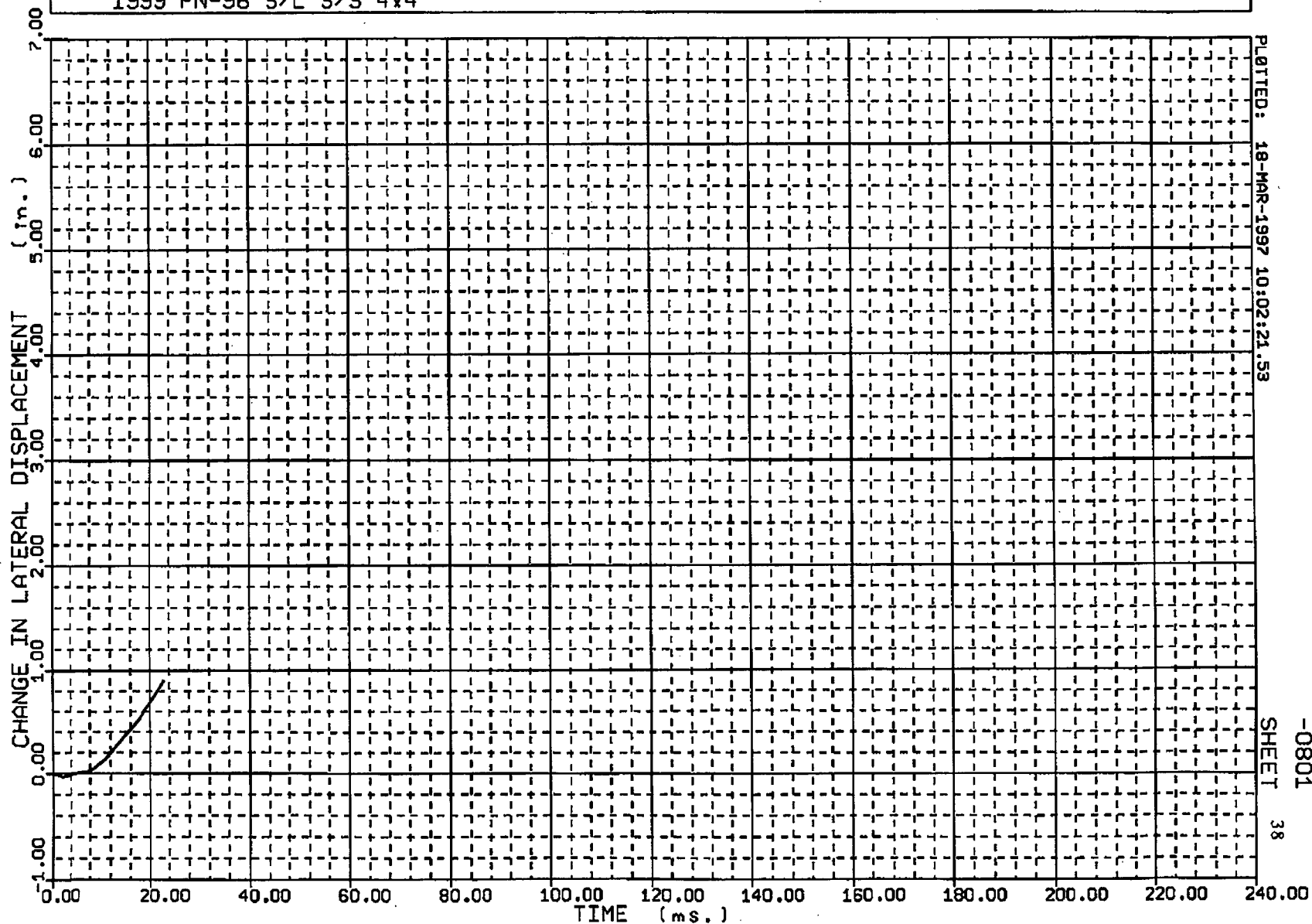
PLOTTED: 18-MAR-1997 10:02:20.86

-0801
SHEET 37

CRTS 0010631

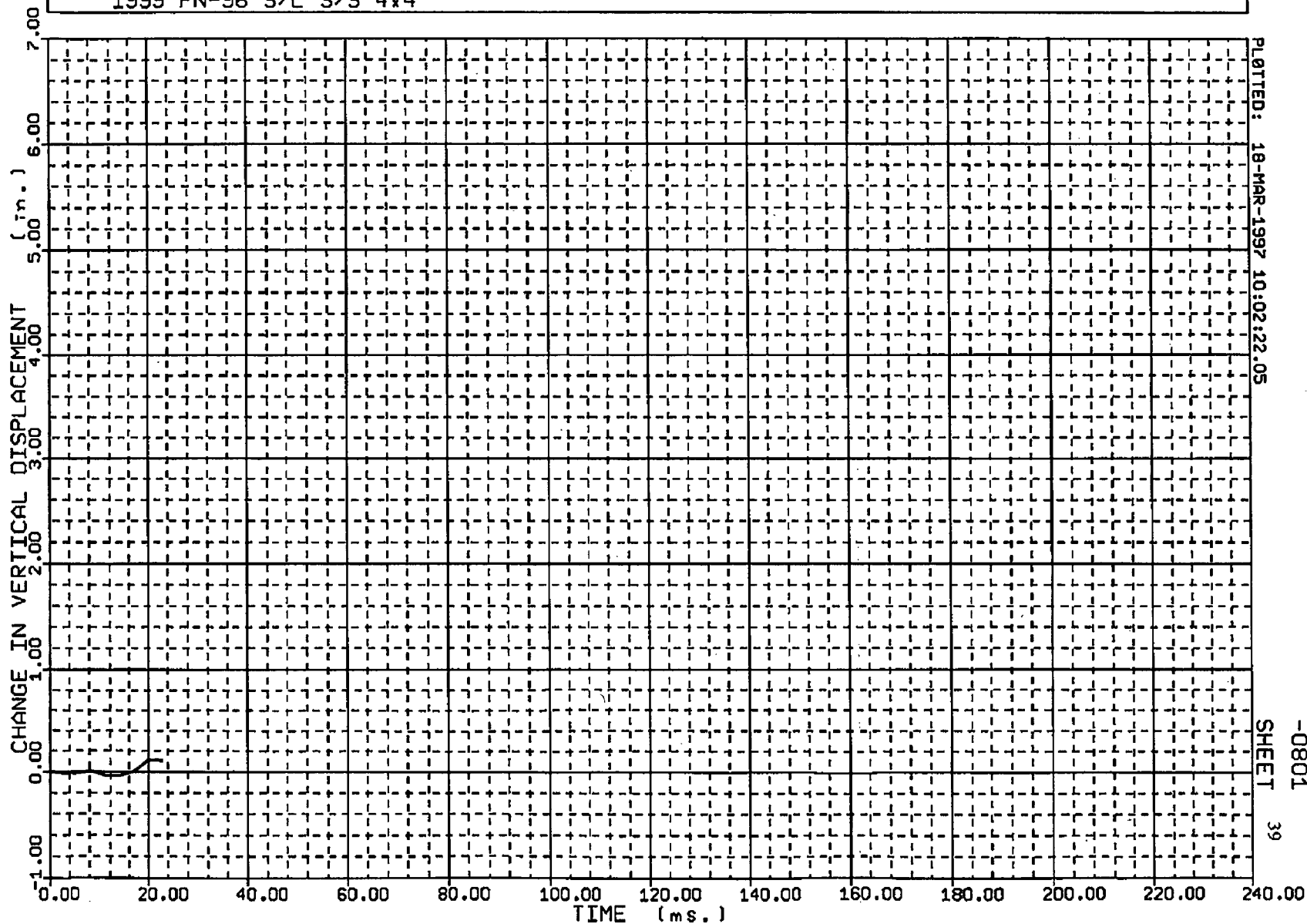
0587

Y - AXIS: PASSENGER CHEST WRT ROOF C/L AT A-PILLAR					MAX = 0.9083	at 23.00	MIN = -.3093E-01	at 2.00
RUN NO.	FACILITY	TEST ORDER NO.	FILM ANALYSIS METHOD			PITCH CORRECTION		
10631	BARRIER	-0801	SCALE			NOT APPLIED		
1999 PN-96 S/L S/S 4x4								

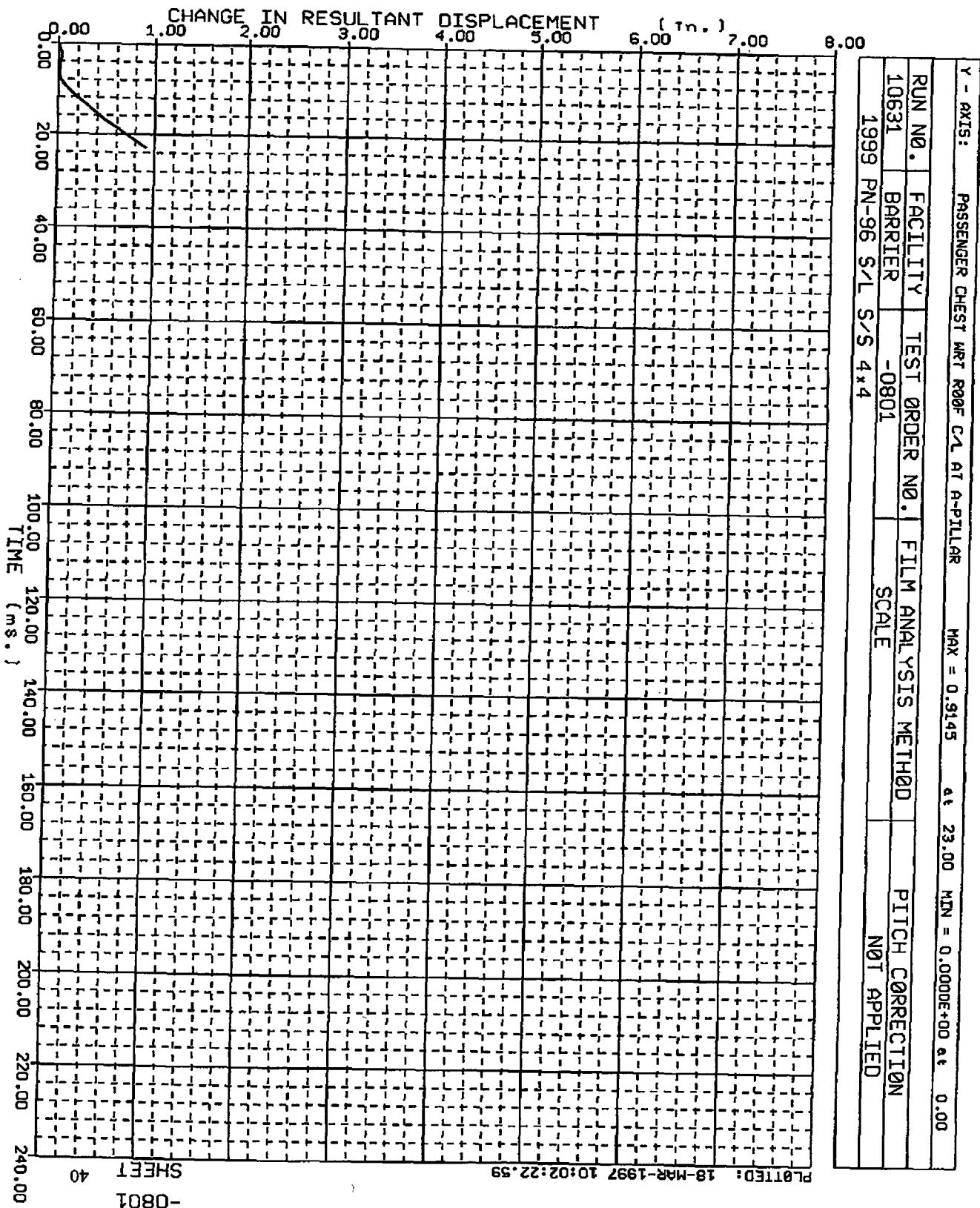


CRTS 0010631

Y - AXIS: PASSENGER CHEST WRT R00F C/L AT A-PILLAR					MAX = 0.1112	at 20.00	MIN = -.3494E-01	at 12.00
RUN NØ.	FACILITY	TEST ØRDER NØ.	FILM ANALYSIS METHØD		PITCH CØRRECTION			
10631	BARRIER	-0801	SCALE		NØT APPLIED			
1999 PN-96 S/L S/S 4x4								

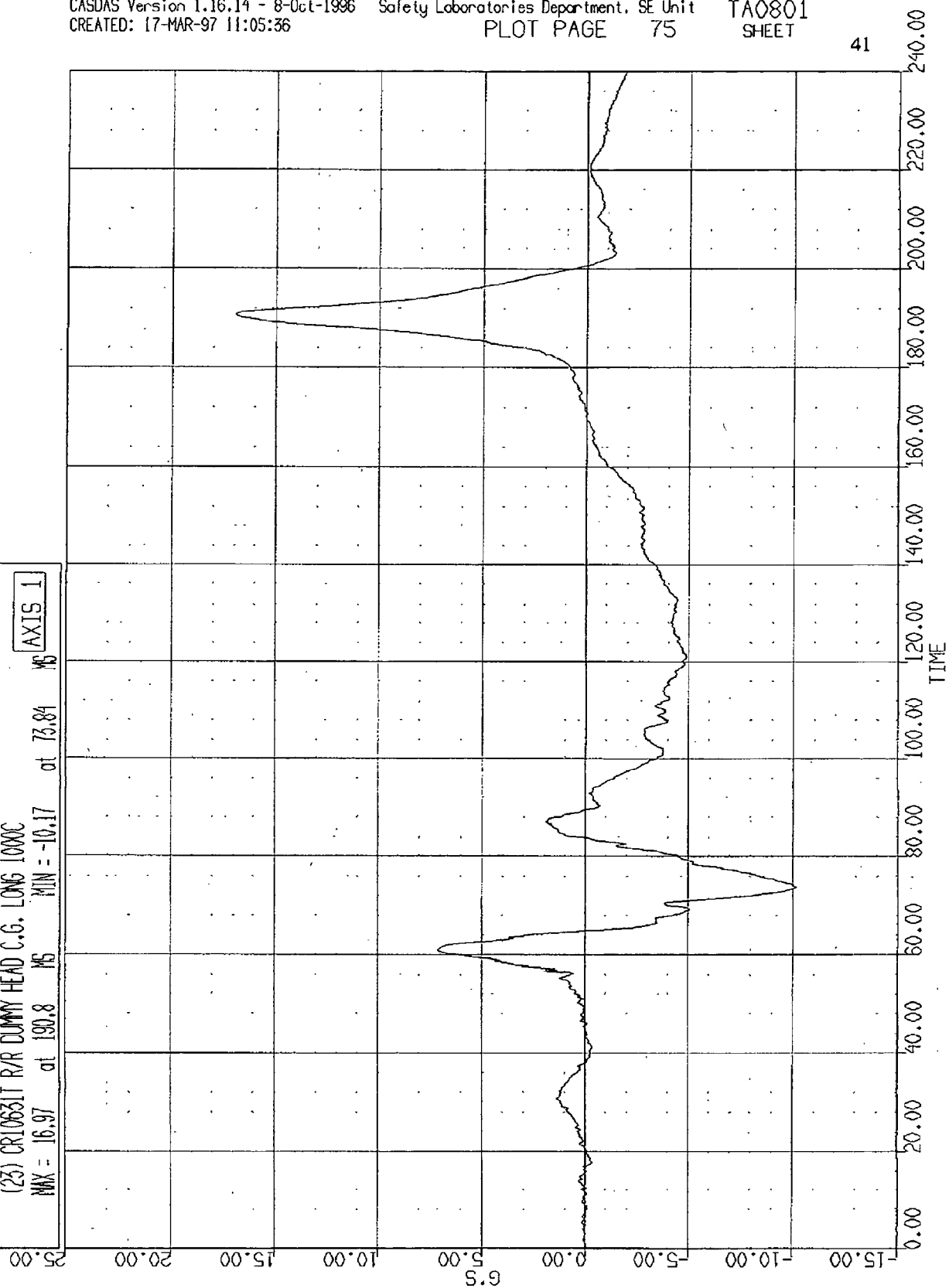


CRTS 0010631



CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(23) CR10631T R/R DUMMY HEAD C.G. LONG 1000C
MAX = 16.97 at 190.8 MS MIN = -10.17 at 73.84 MS
AXIS 1



CRTS 0010631

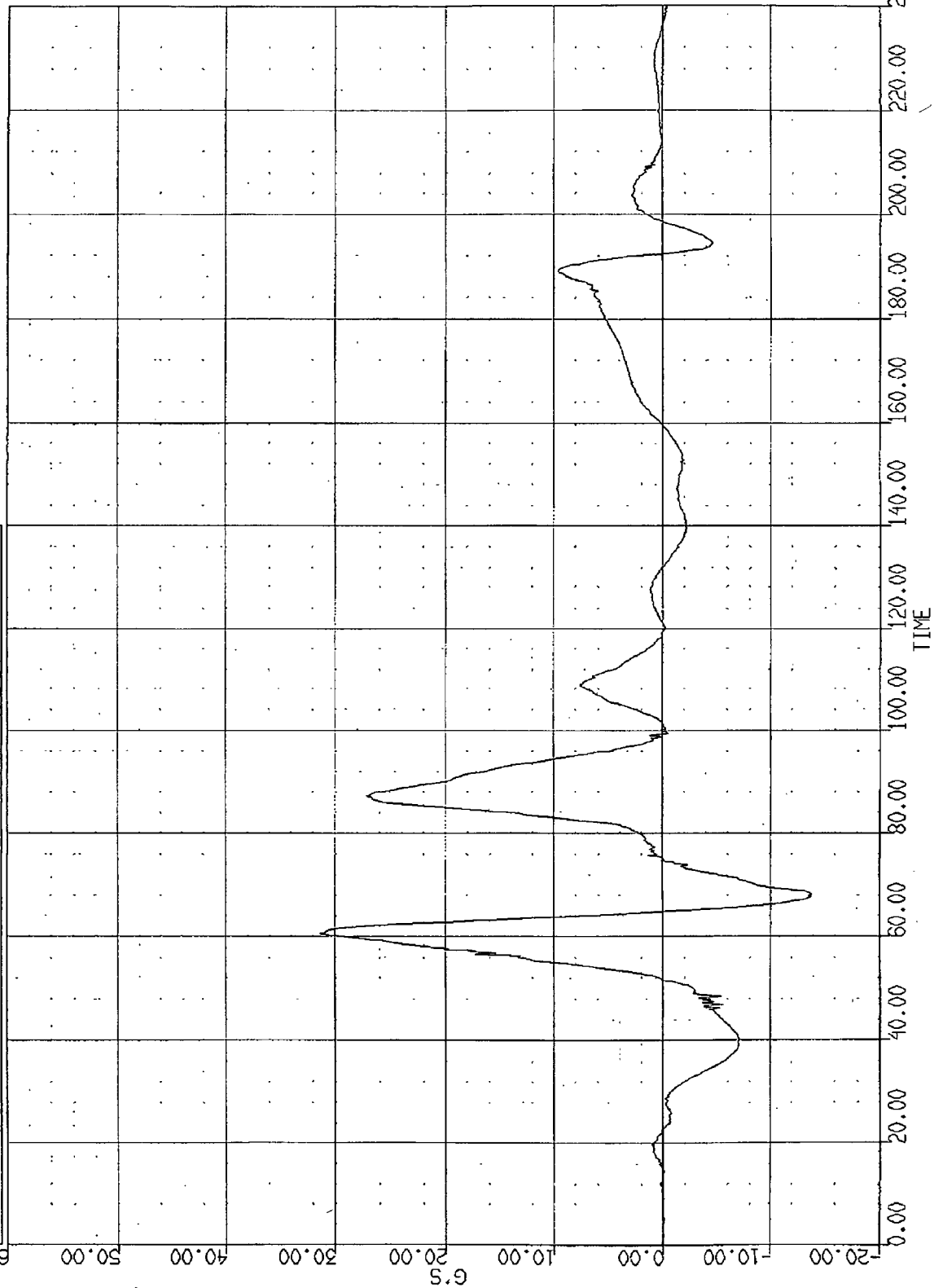
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(24) CR10631T R/R DUMMY HEAD C.G. VERT 1000C

MAX = 31.31 at 60.56 MS MIN = -13.86 at 68.24 MS

AXIS 1

60.00



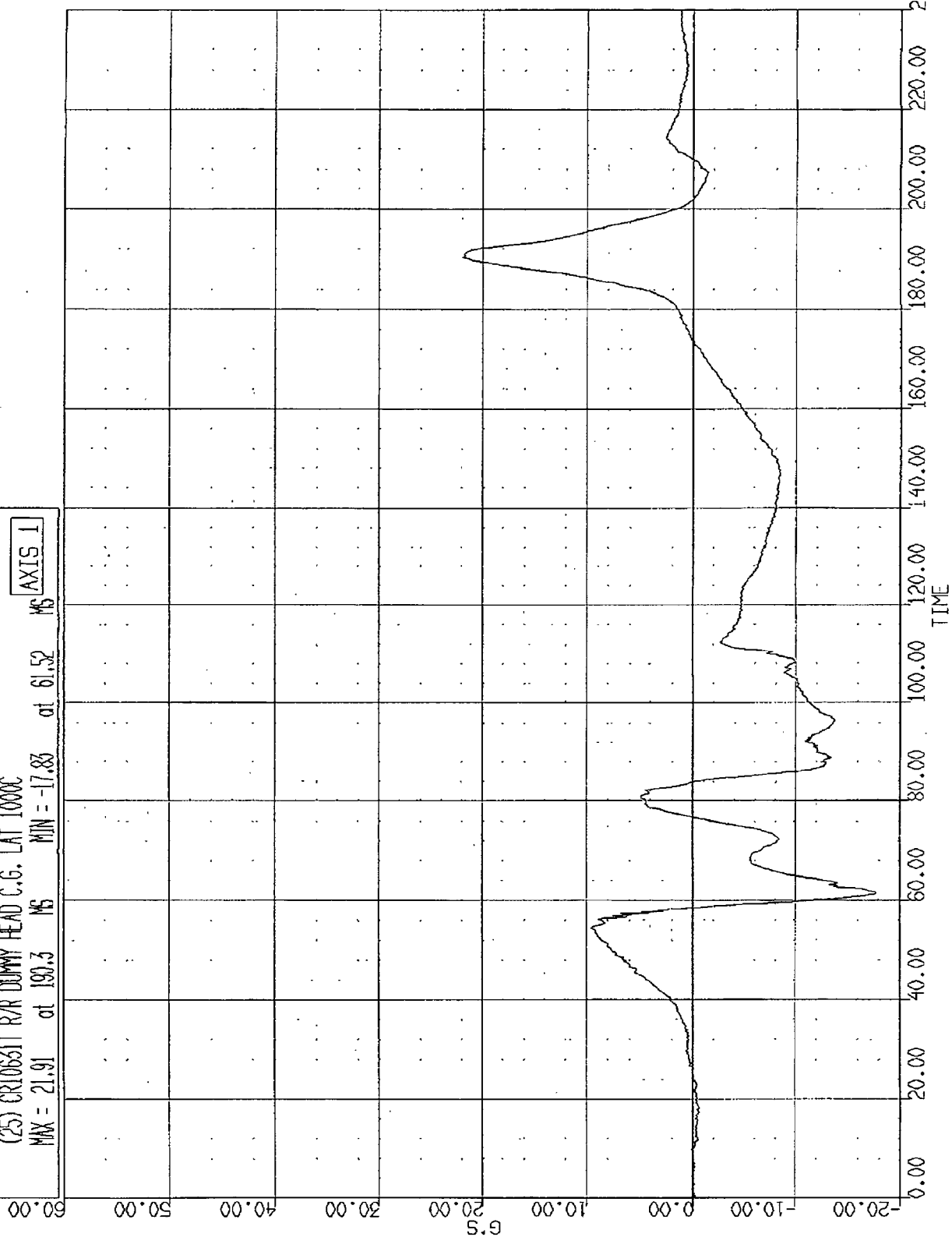
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(25) CR10631T R/R DUMMY HEAD C.G. LAT 1000C

MAX = 21.91 at 190.3 MS MIN = -17.83 at 61.52 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA
HIC: 62. DUR: 240.0 T1/T2: 37.3 / 198.
HIC: 44. DUR: 36.0 T1/T2: 57.0 / 93.0
HIC: 28. DUR: 15.0 T1/T2: 83.5 / 98.5

(10005) CR10631T R/R DUMMY HEAD C.G. RES 1000C
MAX = 35.85 at 61.28 MS MIN = 0.187E-01 at 1.200 MS
AXIS 1

80.00

70.00

60.00

50.00

40.00

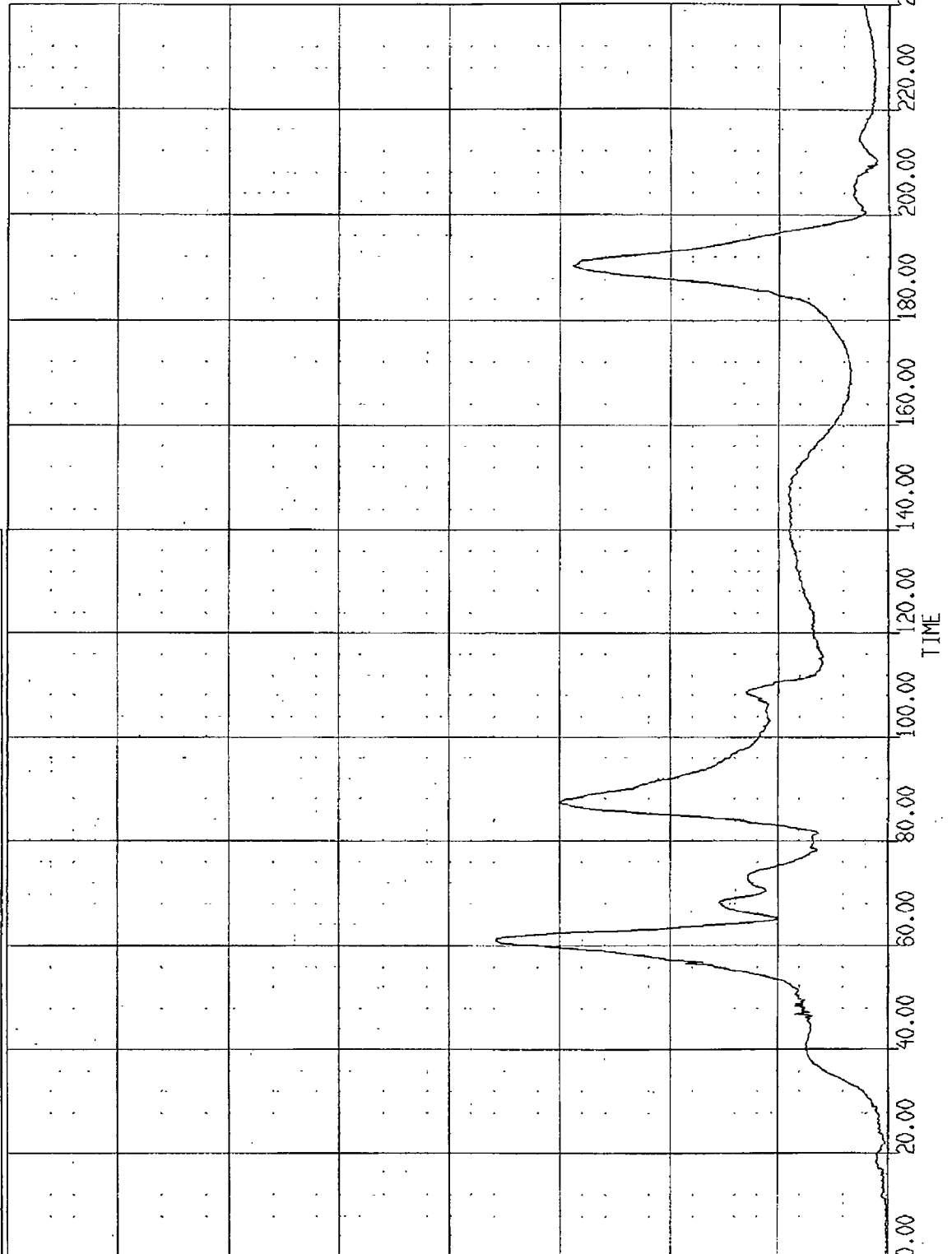
S.G

30.00

20.00

10.00

0.00



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

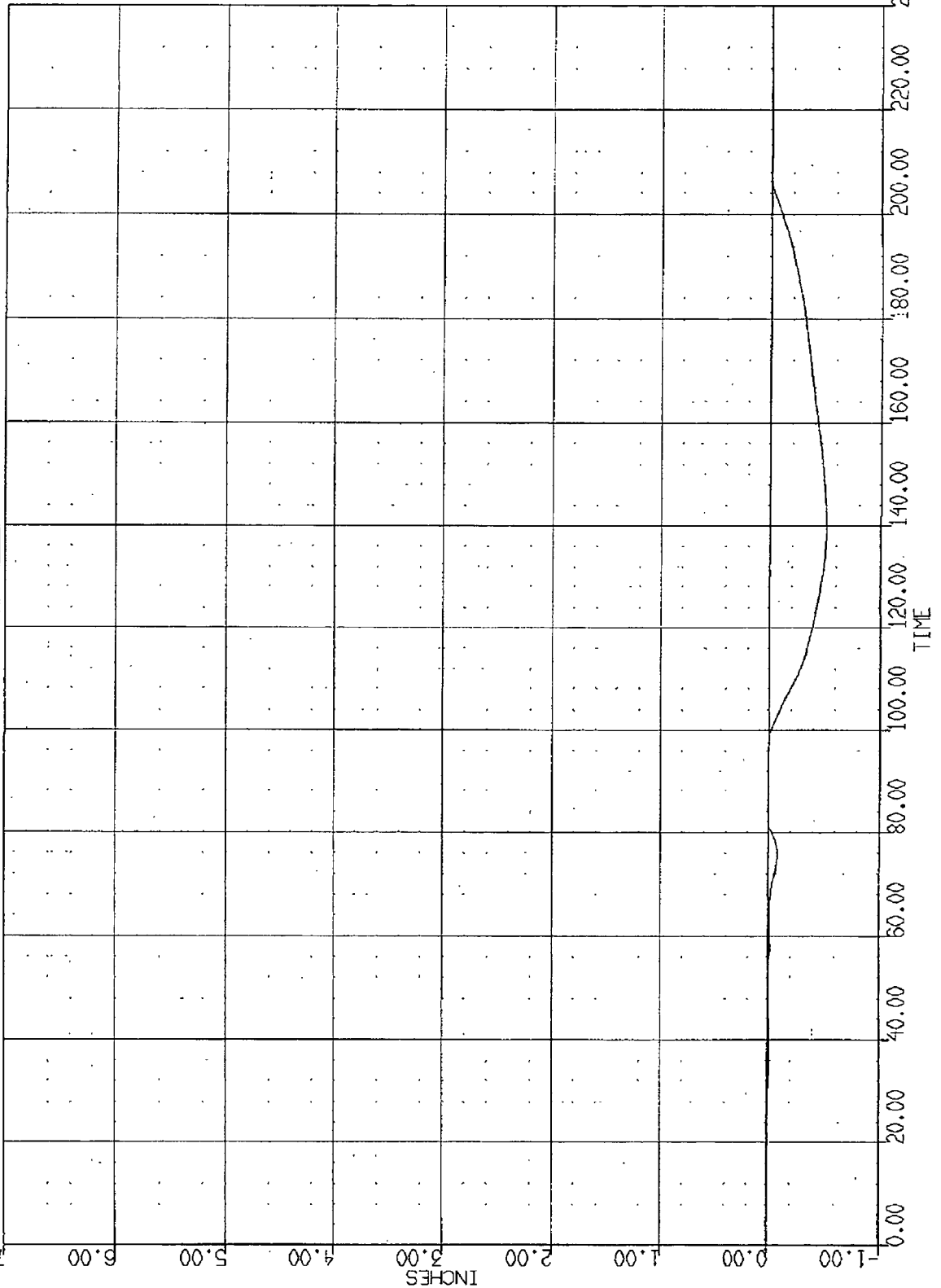
(26) CR10631T R/R DUMMY CHEST DEFLECTION 180C

MAX = 0.6757E-02 at 207.4 MS

MIN = -.5120 at 139.3 MS

AXIS 1

INCHES



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(27) CR10631T R/R DUMY PELVIS LONG 1000C

MAX = 5.928 at 132.0 MS MIN = -18.91 at 49.68 MS

AXIS 1

20.00

15.00

10.00

5.00

0.00

G.S.

-5.00

-10.00

-15.00

-20.00

TIME

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00

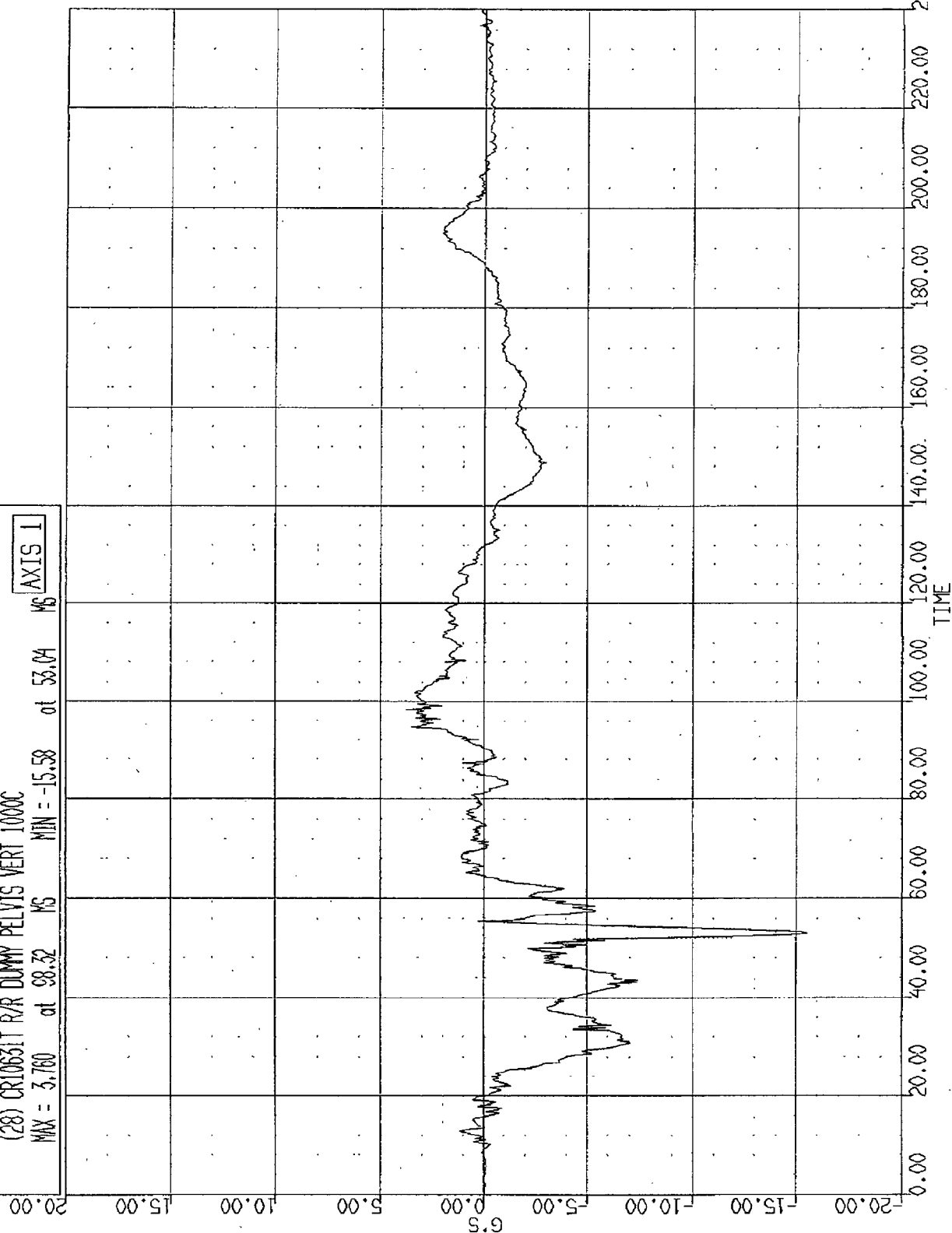
CRTS 0010631

0596

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(28) CR10631T R/R DUMMY PELVIS VERT 1000C
MAX = 3.760 at 98.32 MS MIN = -15.58 at 53.04 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(29) CR10631T R/R DUMMY PELVIS LAT 1000C

MAX = 8.854 at 86.24 MS MIN = -40.14 at 46.80 MS

AXIS 1

30.00

20.00

10.00

0.00

-10.00

-20.00

-30.00

-40.00

-50.00

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

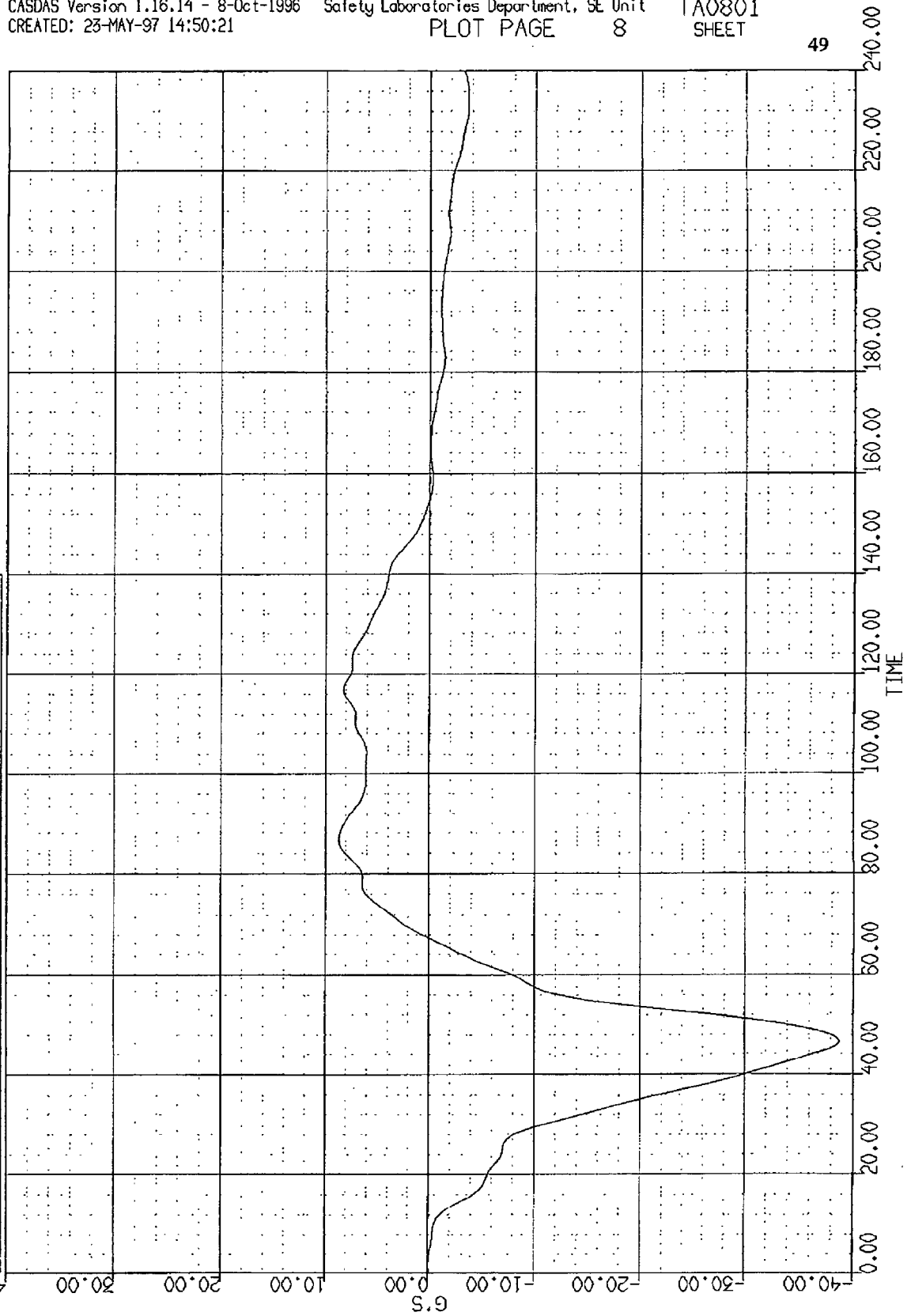
240.00

TIME

CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(29) CR10631T R/R DUMMY PELVIS LAT 100F
MAX = 8.647 at 86.88 MS MIN = -38.76 at 46.25 MS
AXIS 1



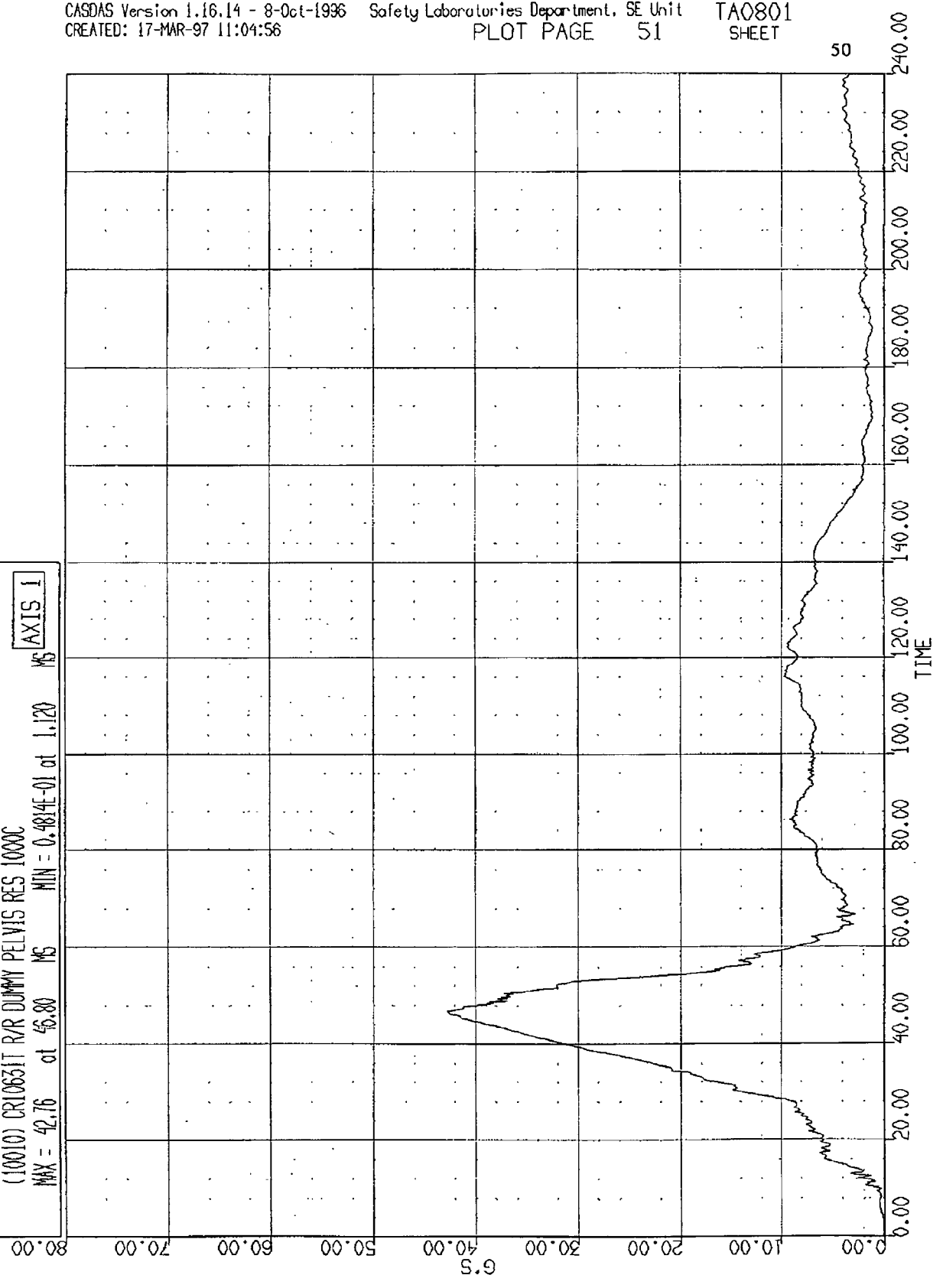
CRTS 001063.1

50

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(10010) CR10631T R/R DUMMY PELVIS RES 1000C
MAX = 42.76 at 46.80 MS MIN = 0.4814E-01 at 1.120 MS

AXIS 1



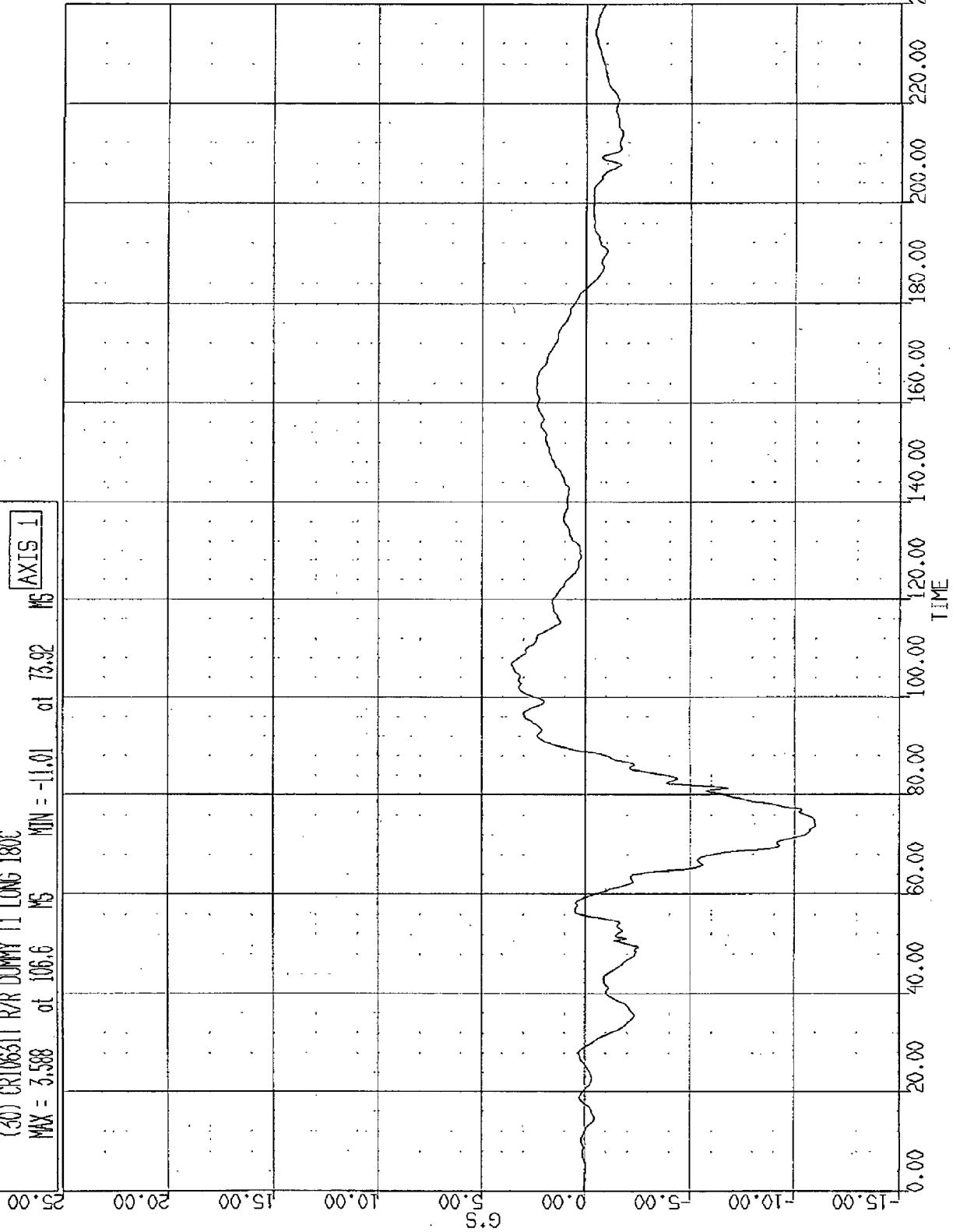
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(30) CR10631T R/R DUMY T1 LONG 180C

MAX = 3.588 at 106.6 MS MIN = -11.01 at 73.92 MS

AXIS 1

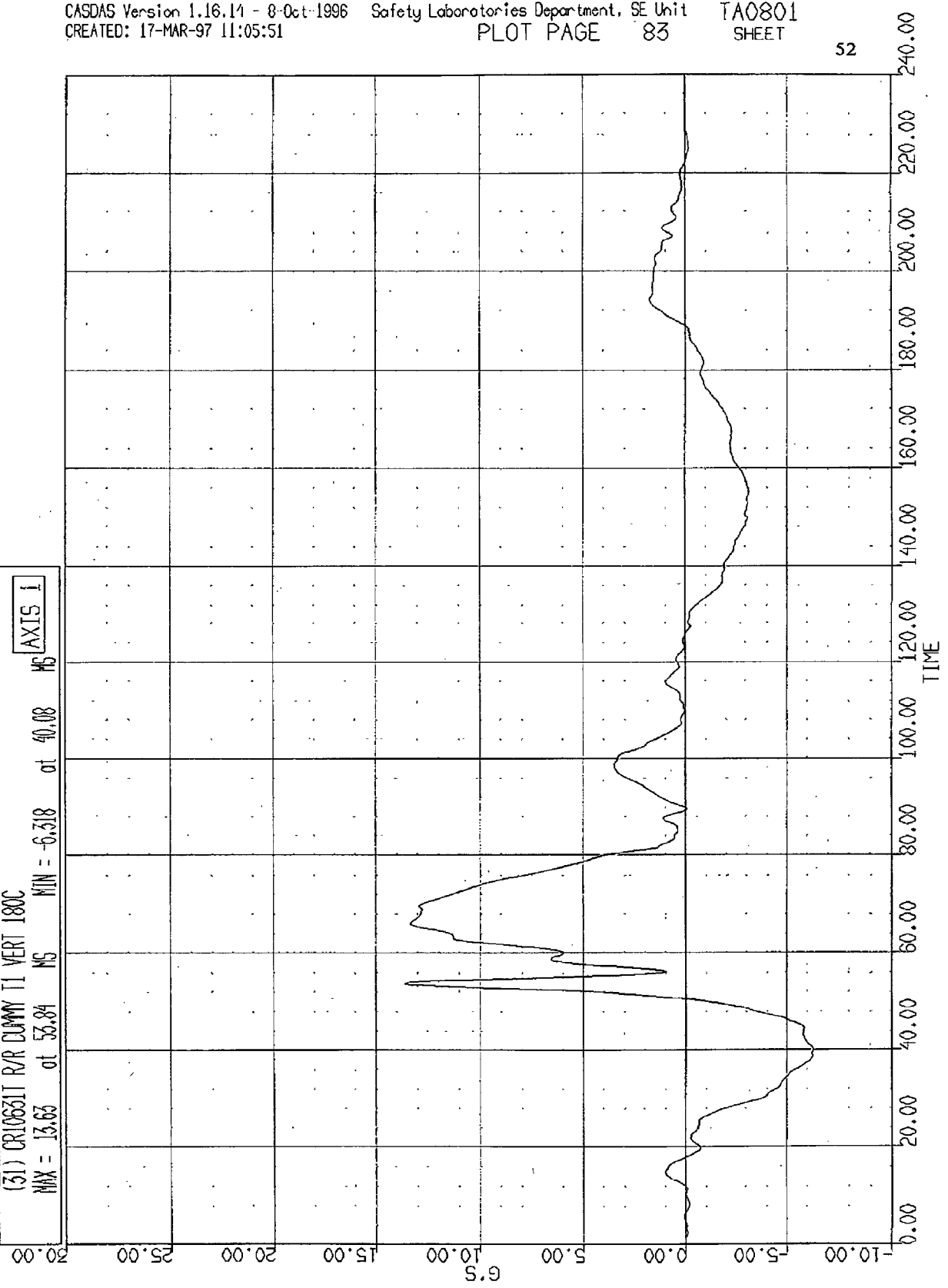


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(31) CR10631T R/R DUMY T1 VERT 180C
MAX = 13.63 at 53.84 MS MIN = -6.318 at 40.08 MS

AXIS 1



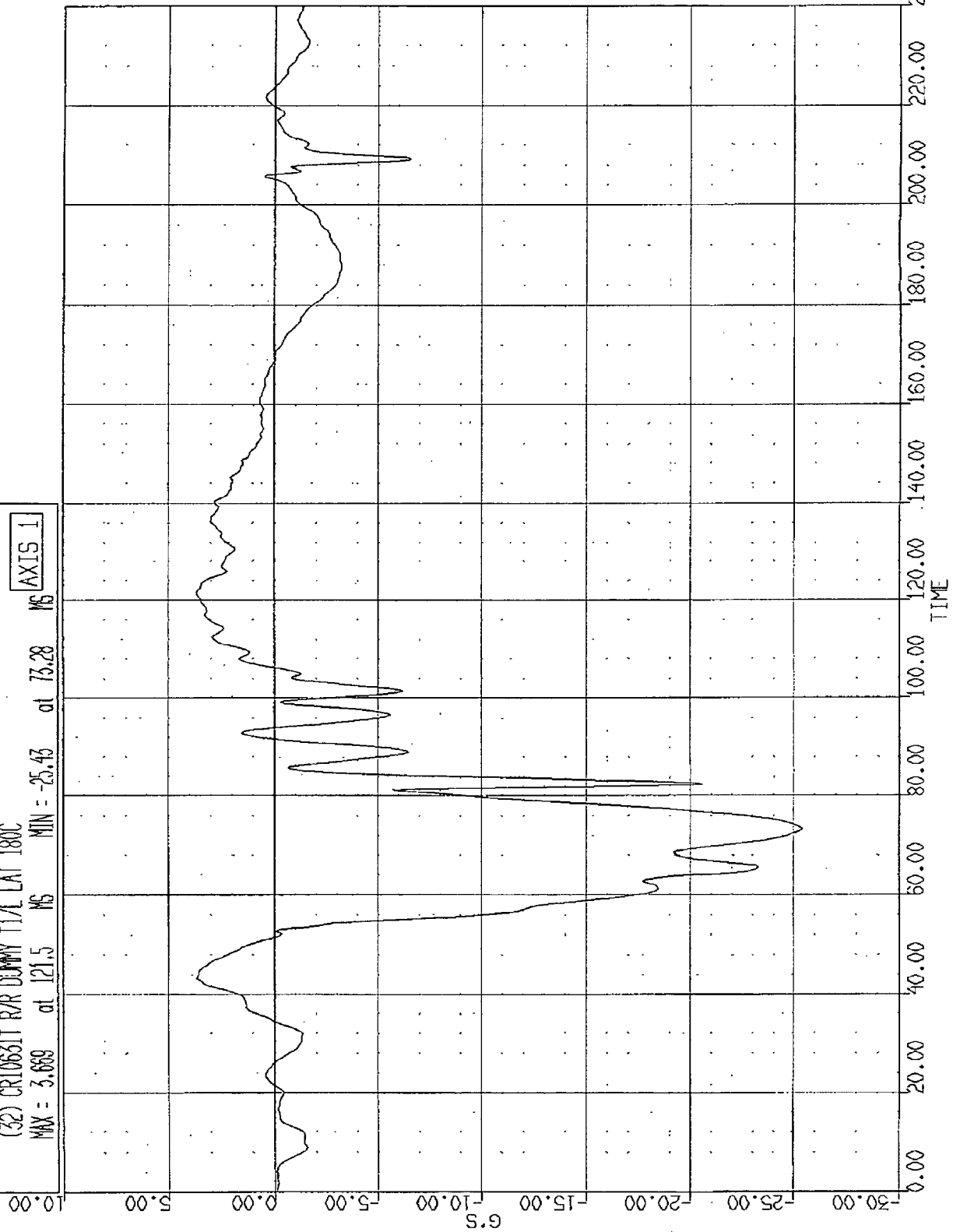
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(32) CR10631T R/R DUMY T1/L LAT 180C

MAX = 3.669 at 121.5 MS MIN = -25.43 at 73.28 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(32) CR10631T R/R DUMMY T1/L LAT 100F

MAX = 3.774 at 43.75 MS MIN = -25.95 at 73.75 MS

AXIS 1

10.00

5.00

0.00

-5.00

-10.00

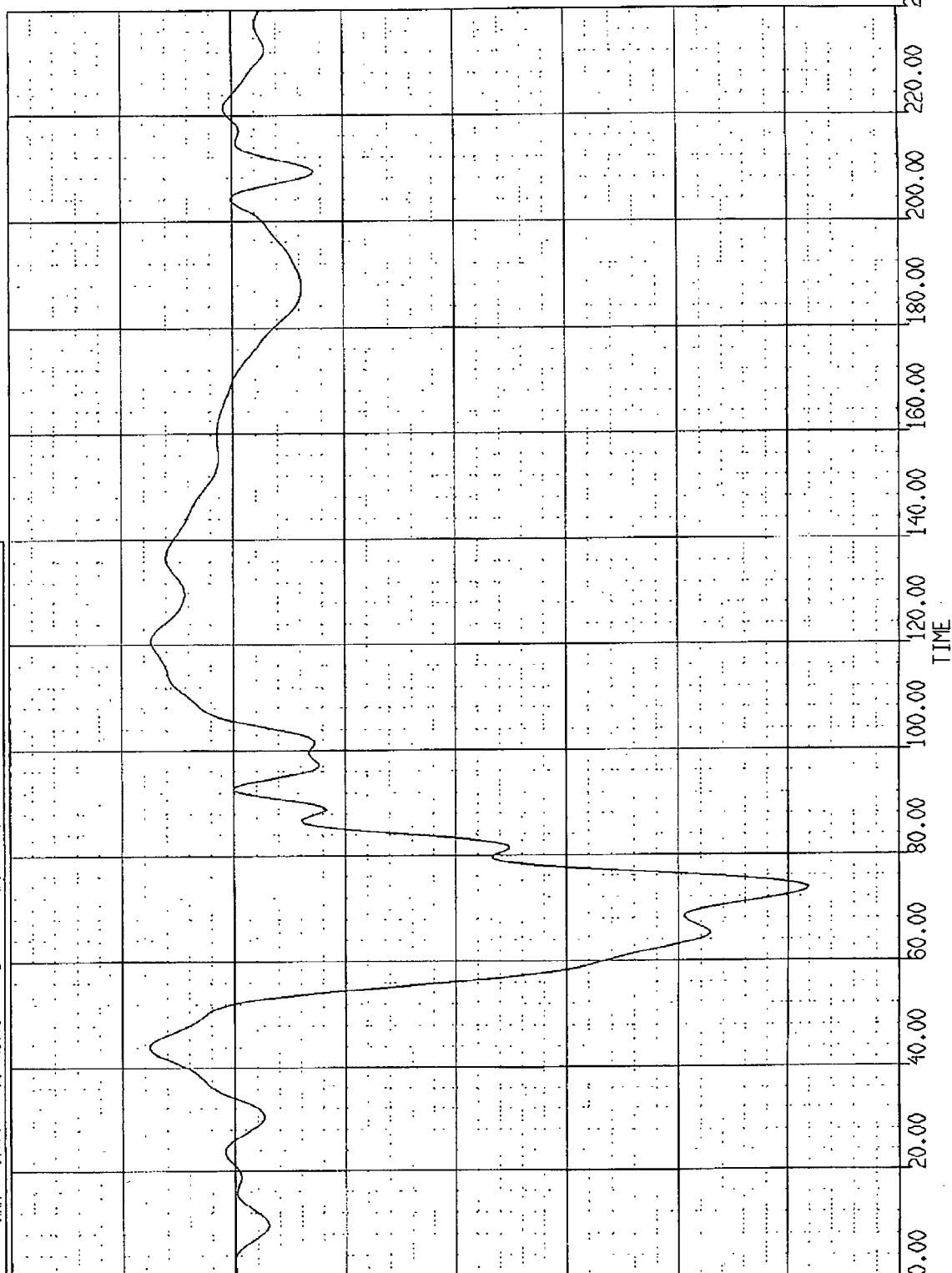
-15.00

-20.00

-25.00

-30.00

G's



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(33) CR10631T R/R DUMY T12 LONG 180C

MAX = 4.945 at 109.7 MS MIN = -10.62 at 81.44 MS

AXIS 1

25.00

20.00

15.00

10.00

5.00

G.S.

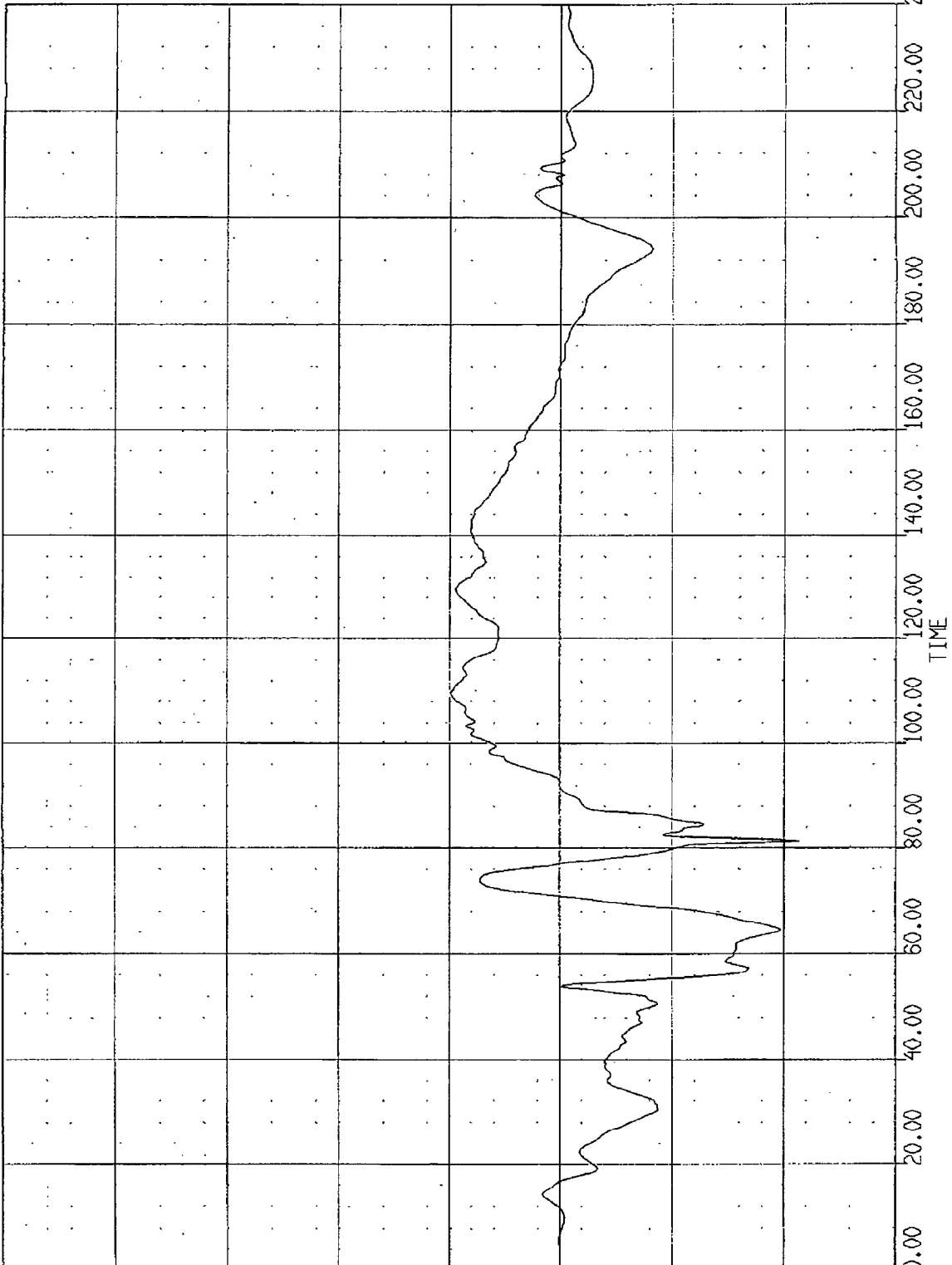
0.00

-5.00

-10.00

-15.00

0.00



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(34) CR10631T R/R DUMMY T12 VERT 180C

MAX = 6.652 at 53.68 MS

MIN = -7.082 at 56.32 MS

AXIS 1

8.00

6.00

4.00

2.00

0.00

6.5

-2.00

-4.00

-6.00

-8.00

TIME

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00

CRTS 0010631

0606

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(35) CR10631T R/R DUMMY T12/FRT LAT 180C

MAX = 7.466 at 121.0 MS MIN = -37.30 at 53.84 MS

AXIS 1

40.00

30.00

20.00

10.00

0.00

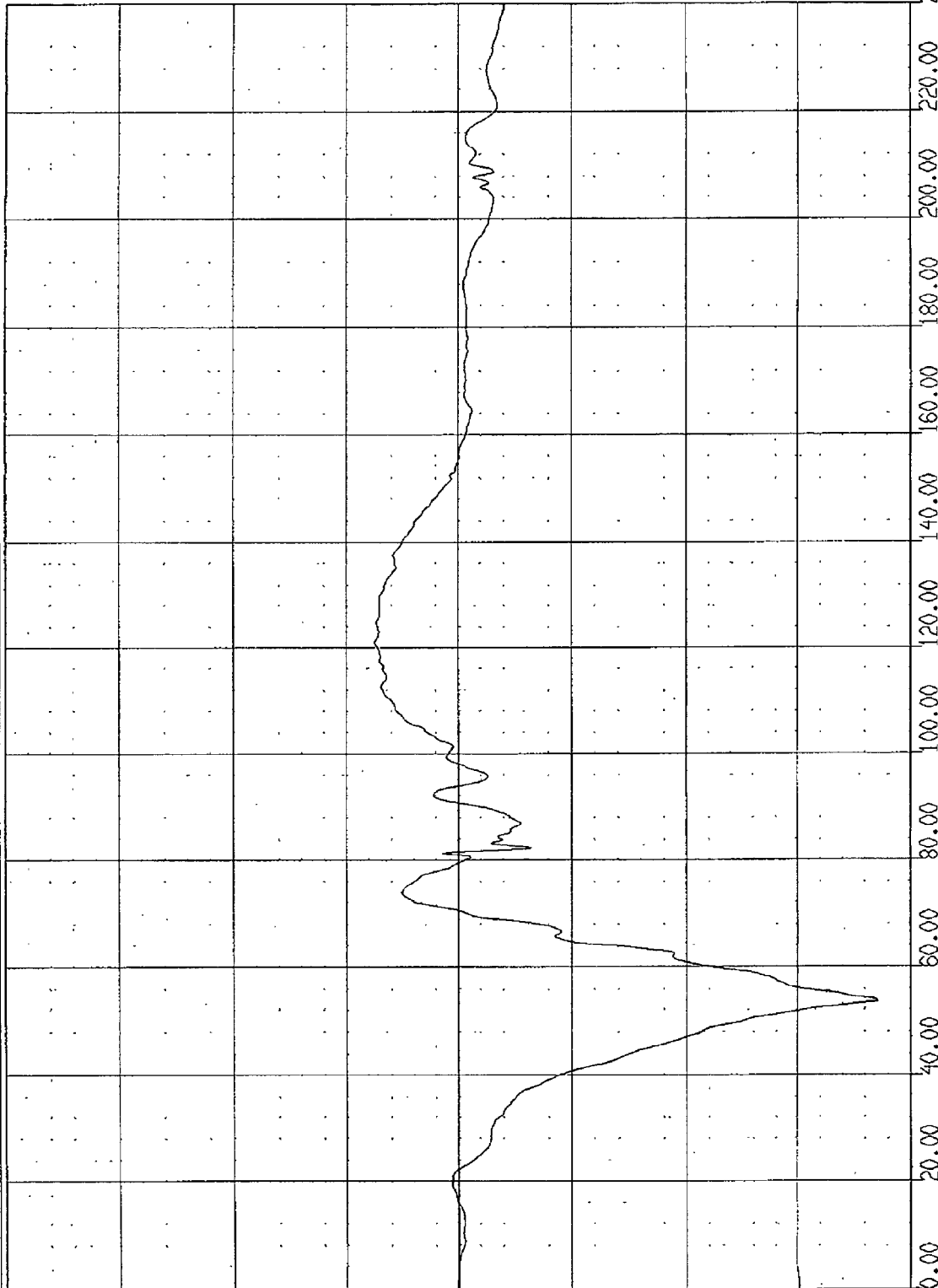
S.9

-10.00

-20.00

-30.00

-40.00



CRTS 0010631

CR R: 10631 TO: TAO801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(35) CR10631T R/R DUMY T12/FRT LAT 100F

MAX = 7.231 at 121.3 MS MIN = -34.70 at 53.75 MS

AXIS 1

40.00

30.00

20.00

10.00

0.00

5.5

-10.00

-20.00

-30.00

-40.00

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

TIME

CRTS 0010631

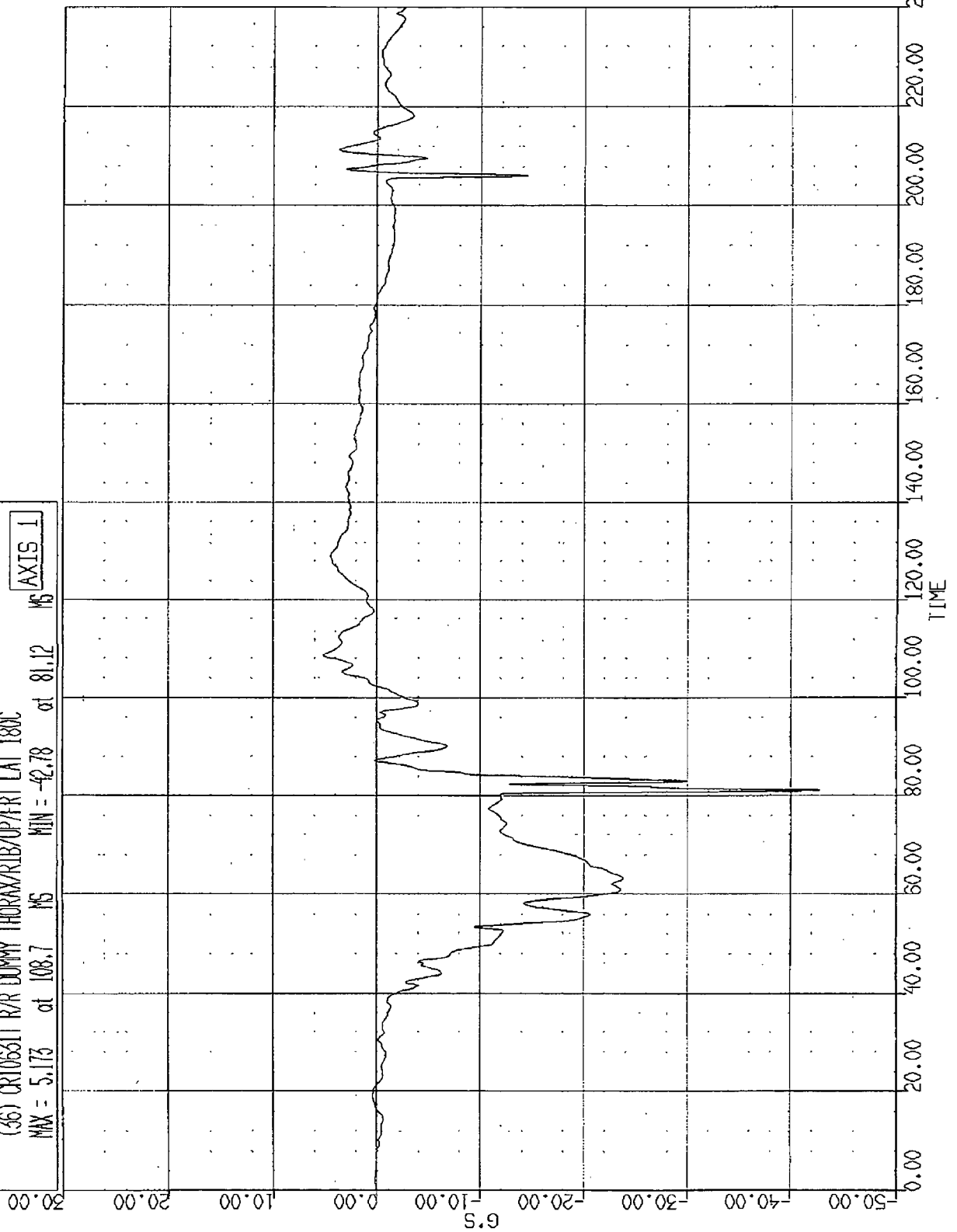
0608

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(36) CR10631T R/R DUMMY THORAX/RIB/UP/ERT LAT 180C

MAX = 5.173 at 108.7 MS MIN = -42.78 at 81.12 MS

AXIS 1



CRTS 0010631

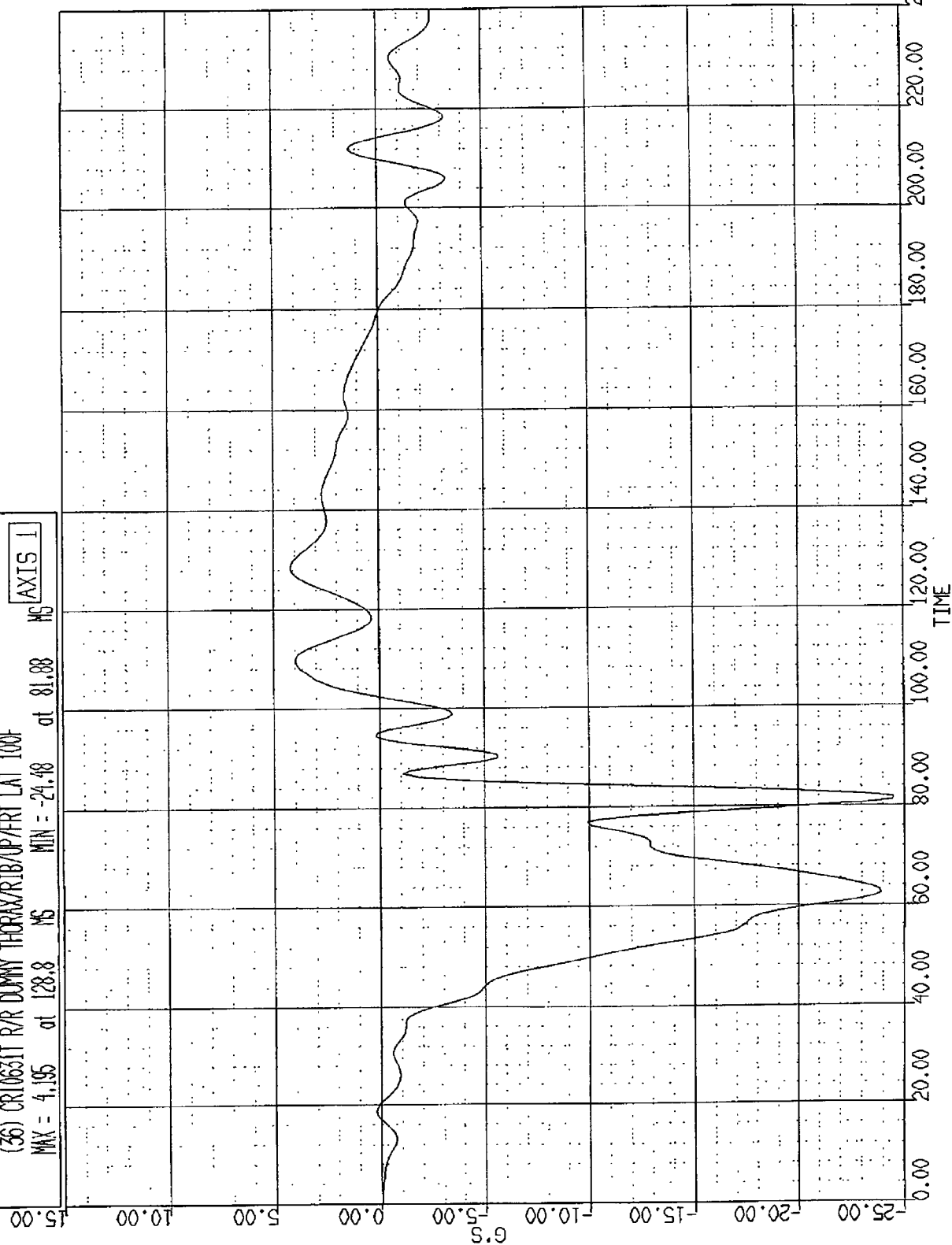
60

CR R: 10631 TO: TAO801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(36) CR10631T R/R DUMMY THORAX/RIB/UP/FRT LAT 100F

MAX = 4.195 at 128.8 MS MIN = -24.48 at 81.88 MS

AXIS 1



CRTS 0010631

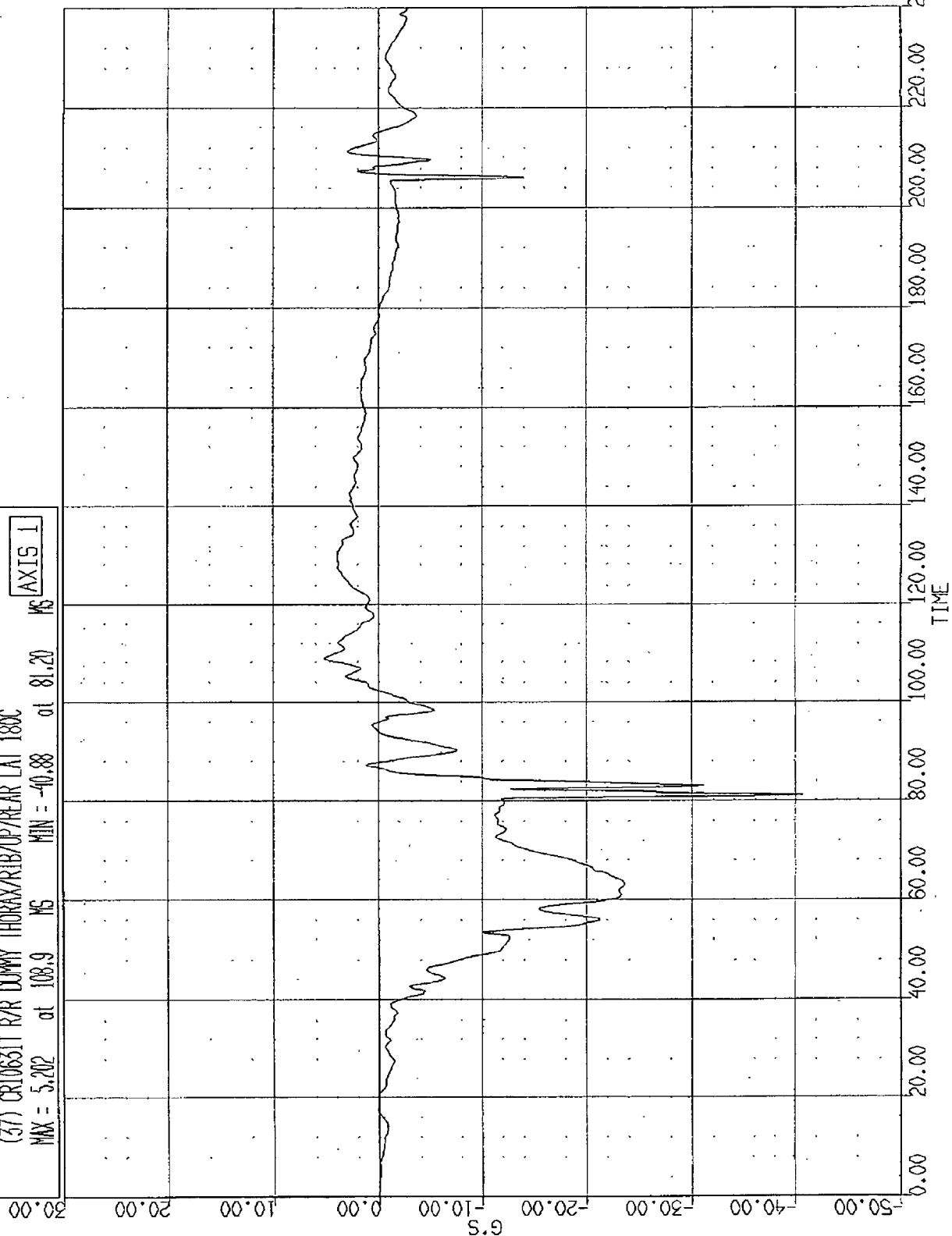
0610

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(37) CR10631T R/R DUMMY THORAX/RIB/UP/REAR LAT 180C

MAX = 5.202 at 108.9 MS MIN = -40.88 at 81.20 MS

AXIS 1

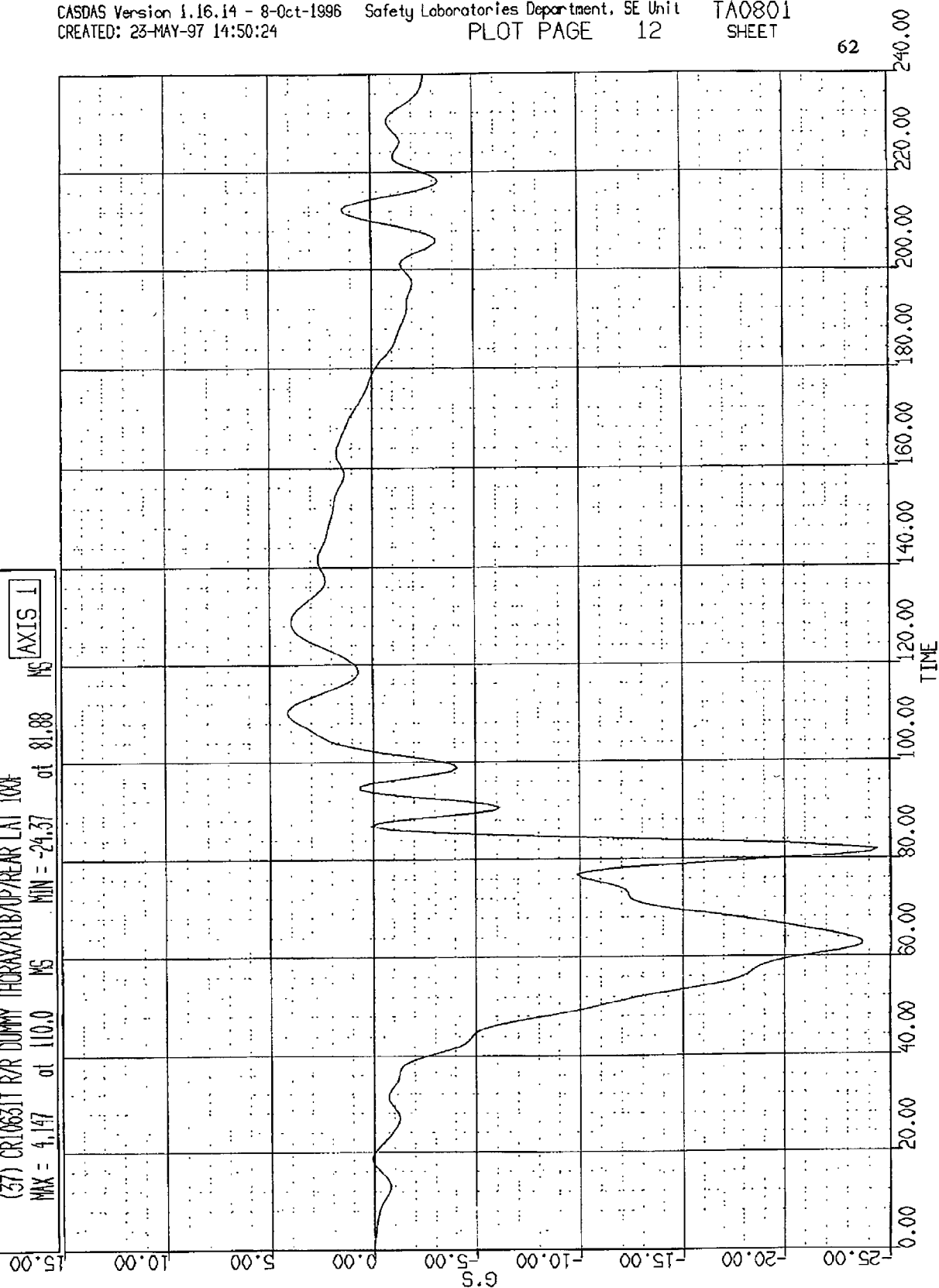


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(37) CR10631T R/R DUMMY THORAX/RIB/UP/REAR LAT 100F
 MAX = 4.147 at 110.0 MS MIN = -24.37 at 81.88 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1998 PN-96 1998 MOVING DEFORMABLE BA

(38) CR10631T R/R DUMY THORAX/RIB/LO/FRT LAT 180C

AXIS 1

MAX = 7.131 at 111.4 MS MIN = -38.41 at 81.12 MS

40.00

30.00

20.00

10.00

0.00

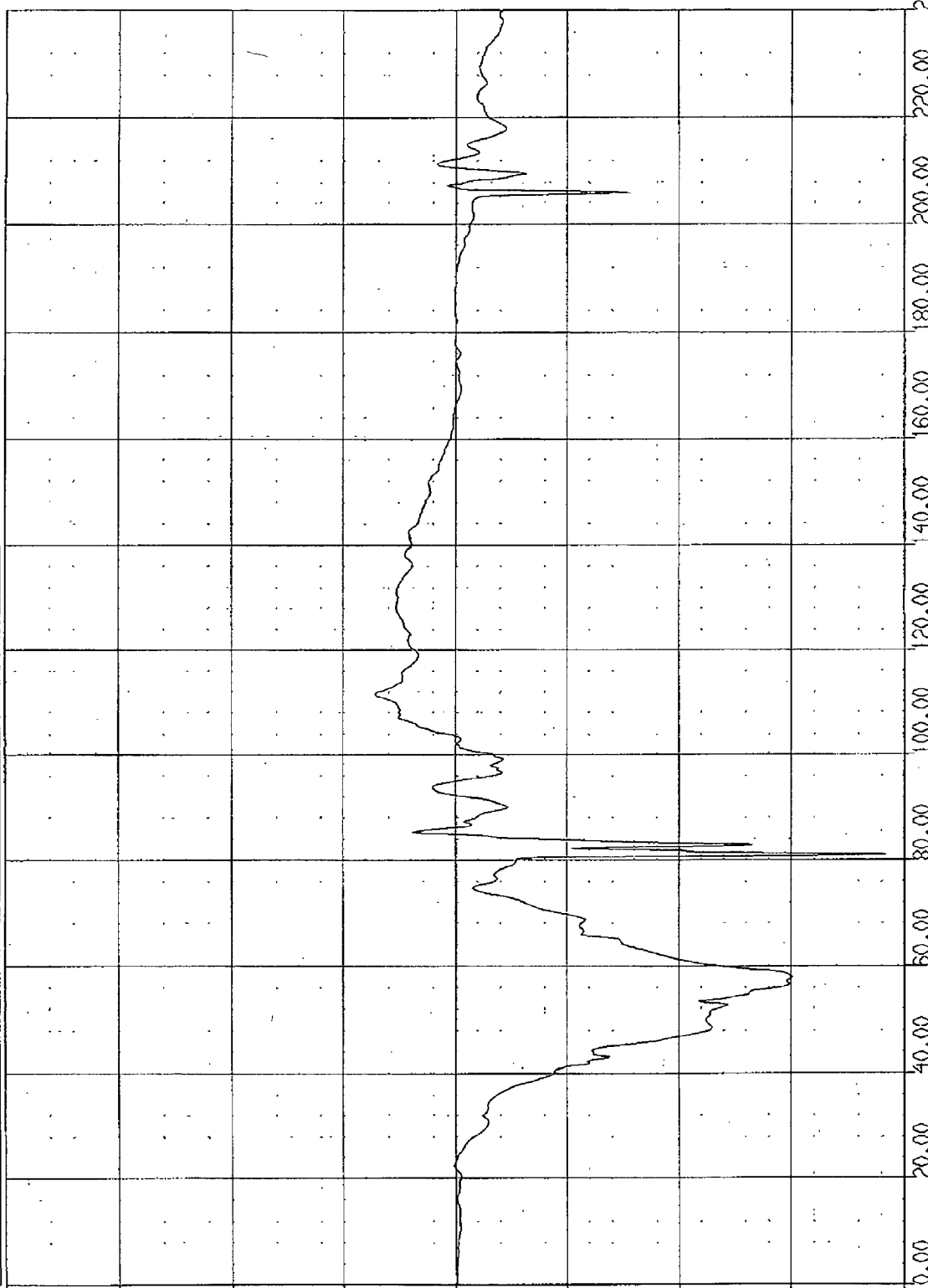
G.S.

-10.00

-20.00

-30.00

-40.00



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(38) CR10631T R/R DUMMY THORAX/RIB/LO/FRT LAT 100F
 MAX = 6.28 at 111.3 MS MIN = -29.70 at 56.88 MS

AXIS 1

50.00

40.00

30.00

20.00

10.00
S.G

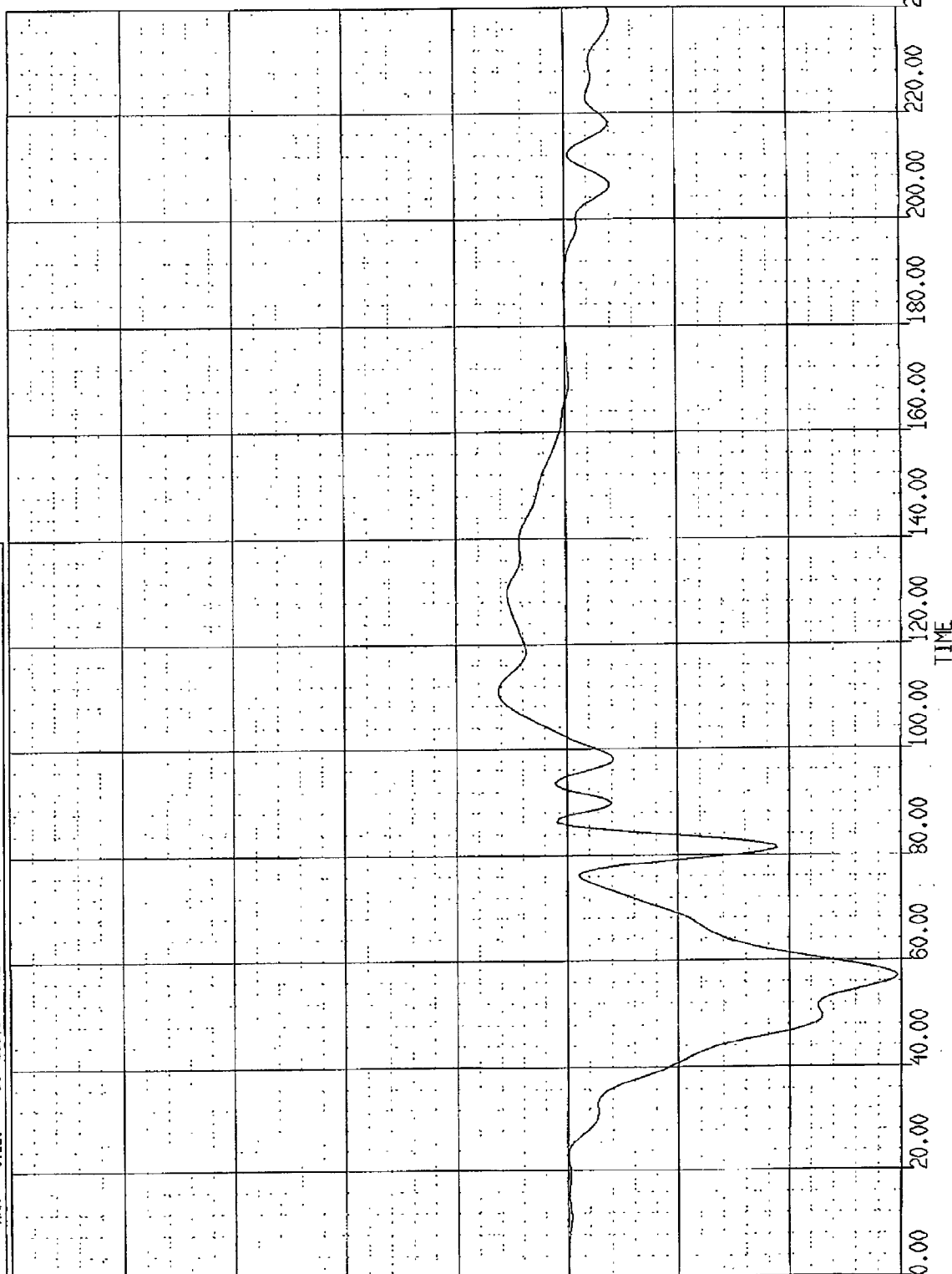
0.00

-10.00

-20.00

-30.00

0.00



CRTS 0010631

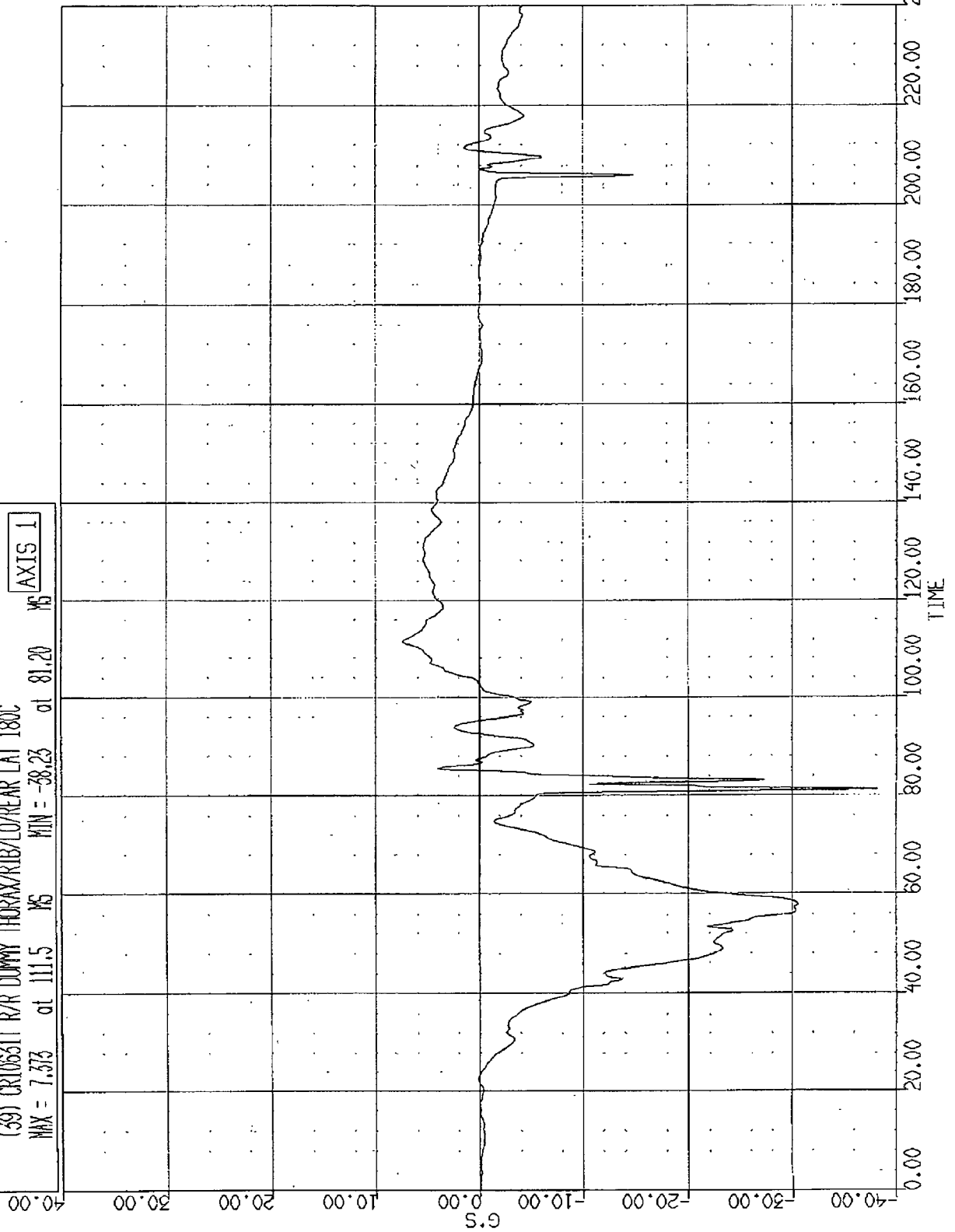
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(59) CR10631T R/R DUMMY THORAX/RIB/LO/REAR LAT 180C

MAX = 7.373 at 111.5 MS

MIN = -38.23 at 81.20 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(39) CR10631T R/R DUMMY THORAX/RIB/O/REAR LAT 100F
MAX = 6.637 at 111.9 MS MIN = -30.11 at 56.88 MS

AXIS 1

40.00

30.00

20.00

10.00

0.00

G.S

-10.00

-20.00

-30.00

-40.00

0.00

TIME

240.00
220.00
200.00
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00

CRTS 0010631

0616

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(40) CR10631T R/R DUMMY HEAD SW 4000C

MAX = -4395E-01 at -7629E-05 MS MIN = -4395E-01 at -7629E-05 MS

AXIS 1

7.00

6.00

5.00

4.00

3.00

2.00

1.00

0.00

-1.00

VOLTS

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

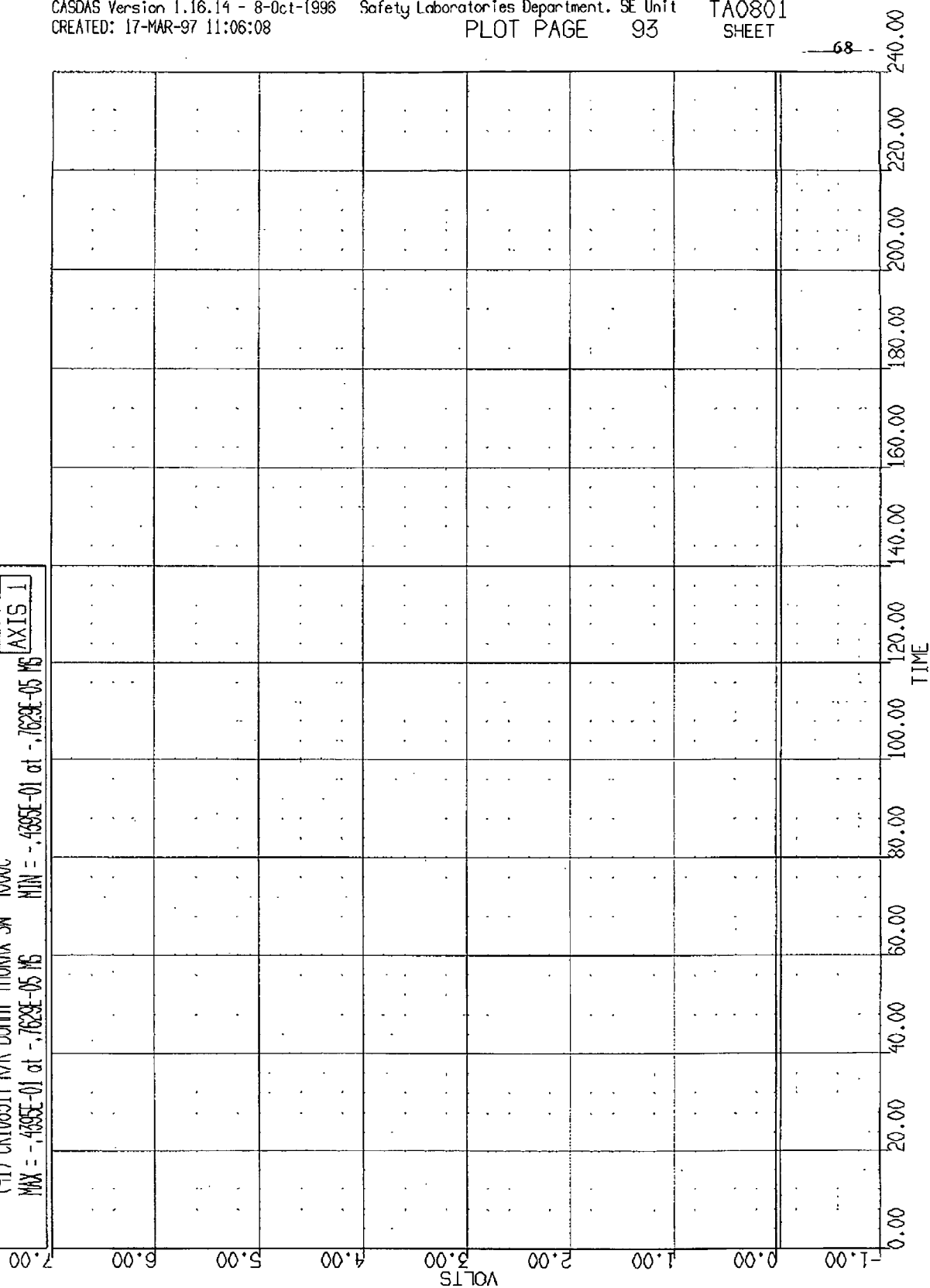
TIME

CRTS 0010631

0617

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(41) CR10631T R/R DUMMY THORAX SW 4000C
 MAX = -4395E-01 at -7623E-05 MS
 MIN = -4395E-01 at -7623E-05 MS
 AXIS 1



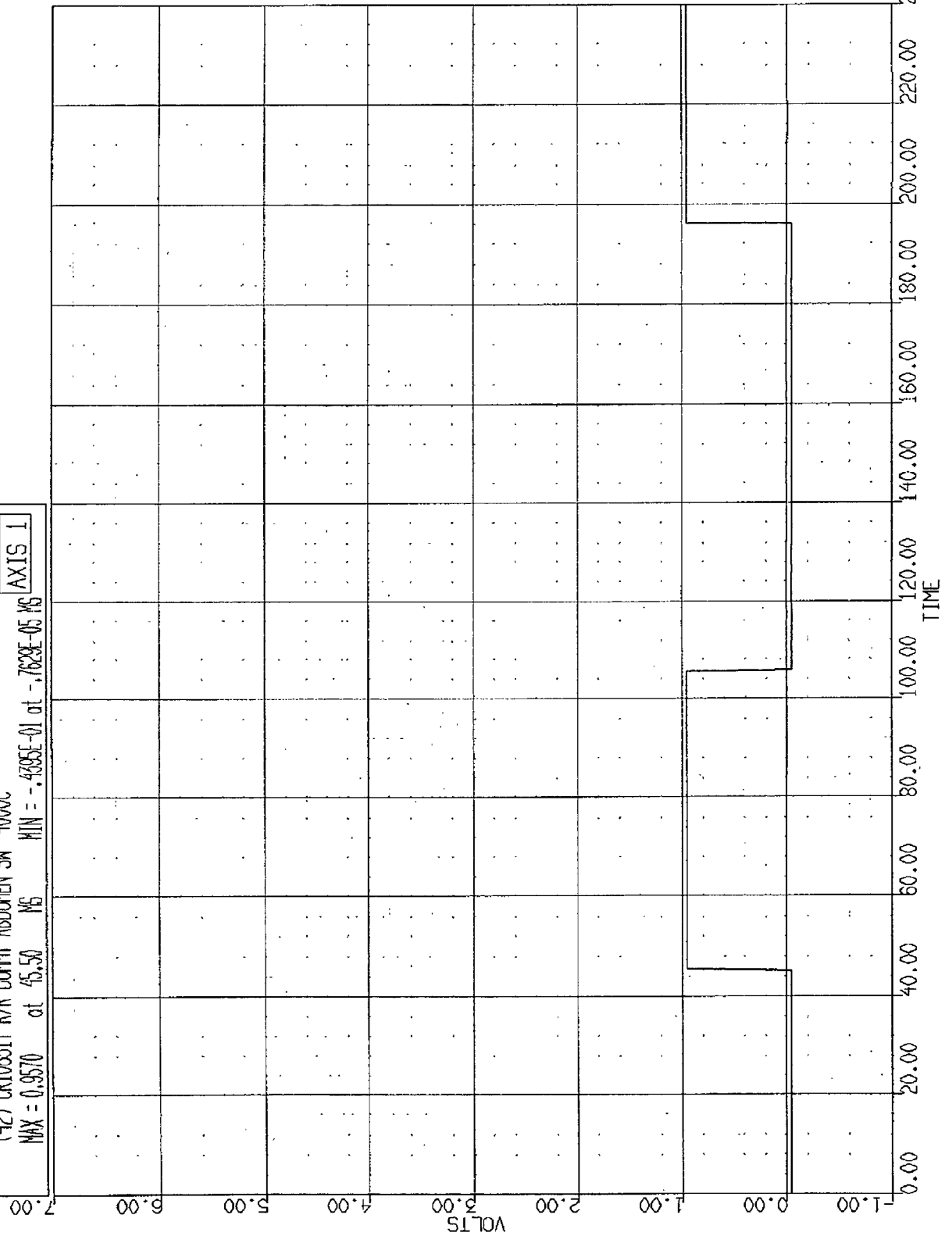
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(42) CR106311 R/R DUMMY ABDOMEN SW 4000C

MAX = 0.9570 at 45.50 MS MIN = -.4395E-01 at -.7629E-05 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(43) CR10631T R/R DUMMY H-POINT SW 4000C
MAX = 0.9570 at 34.20 MS MIN = -.4395E-01 at -.7629E-05 MS
AXIS 1

7.00

6.00

5.00

4.00

3.00

2.00

1.00

0.00

-1.00

VOLTS

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00
TIME

---70---

CRTS 0010631

0620

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(44) CR10631T R/R DUMY THIGH SW 4000C

MAX = 0.9570 at 32.60 MS MIN = -.7629E-05 MS

AXIS 1

7.00

6.00

5.00

4.00

3.00

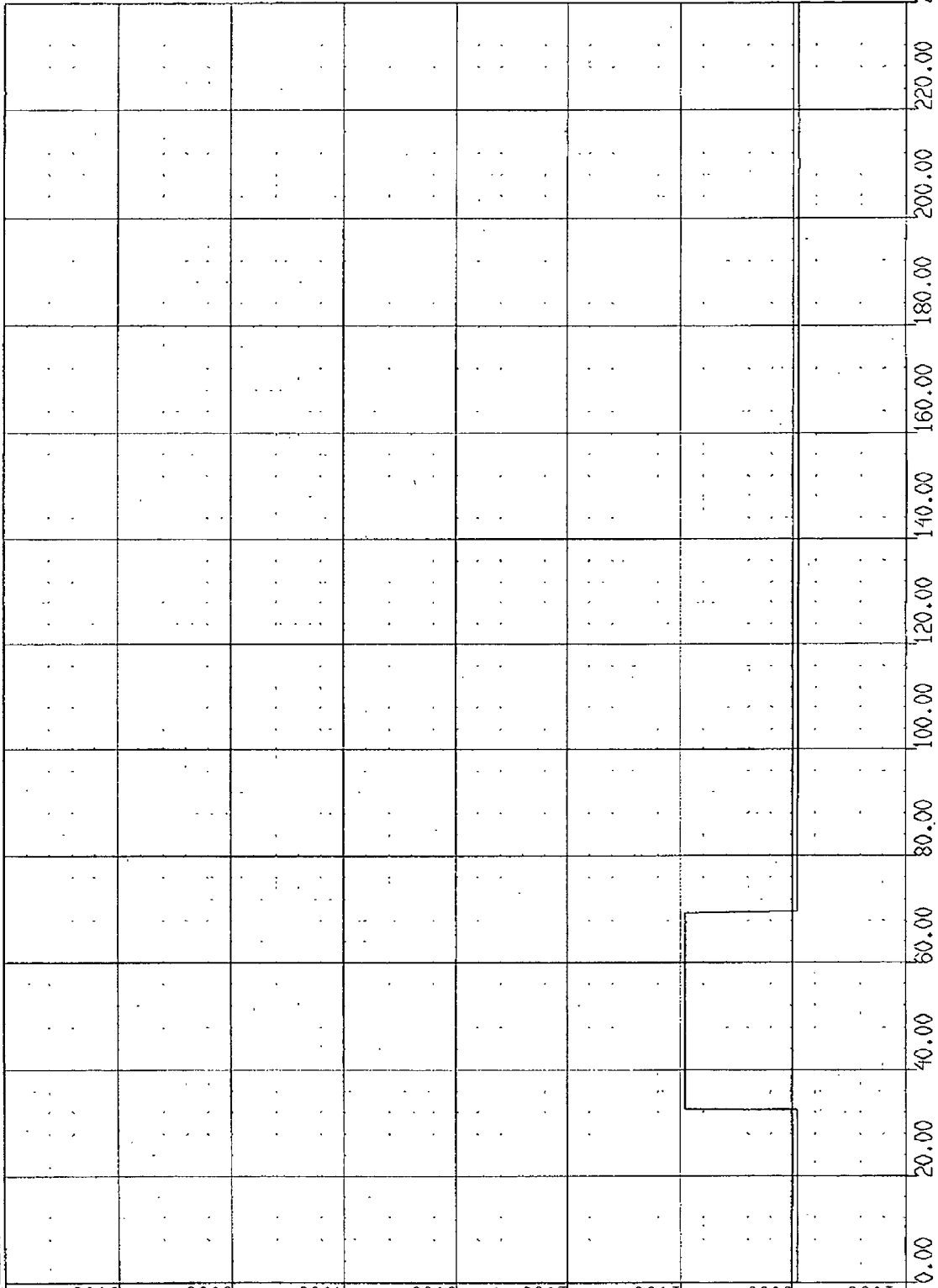
2.00

1.00

0.00

-1.00

VOLTS



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(45) CR10631T L/RAD UP FRT LONG 60C

MAX = 11.00 at 36.96 MS MIN = -18.95 at 20.88 MS

AXIS 1

20.00

15.00

10.00

5.00

0.00

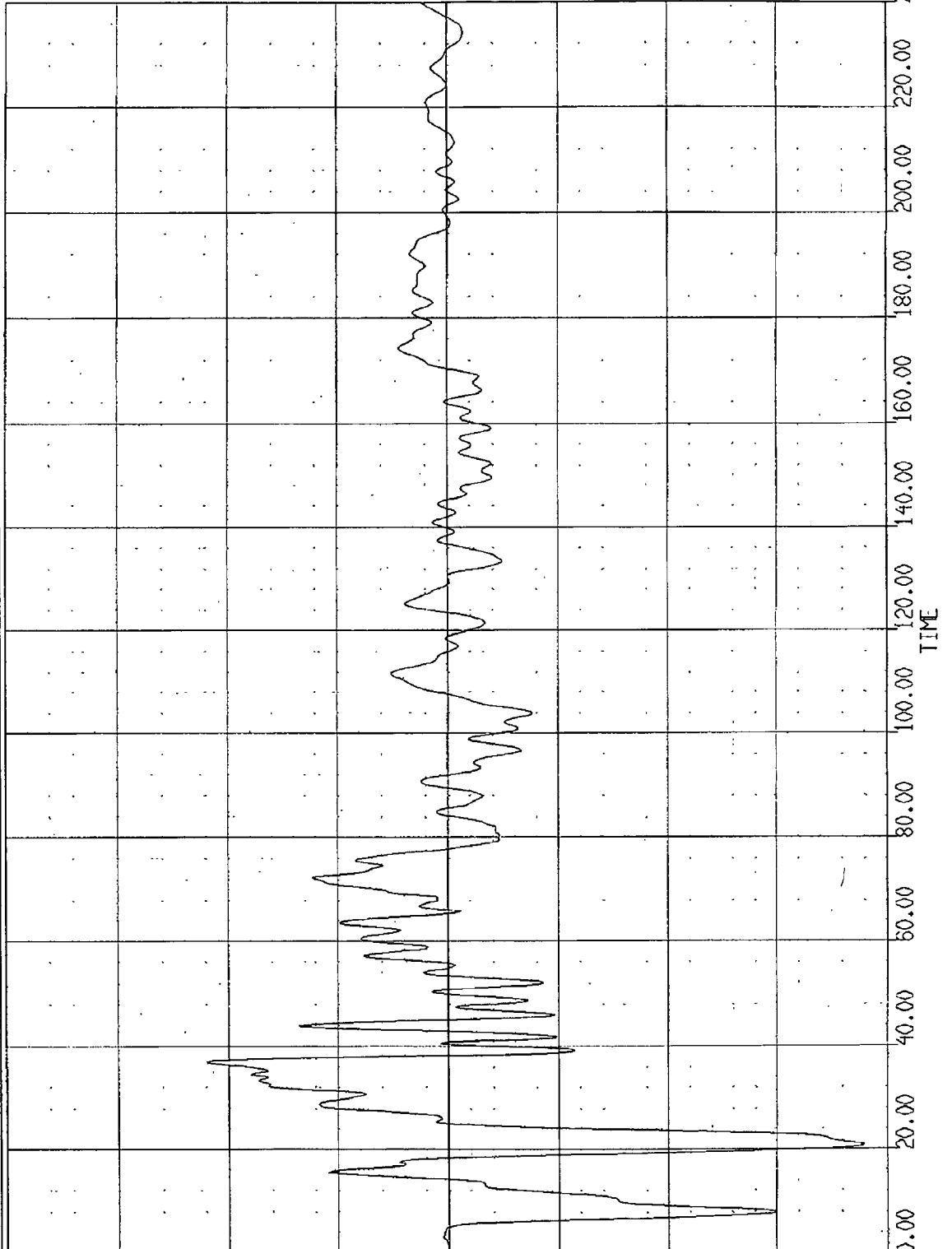
6.5

-5.00

-10.00

-15.00

-20.00



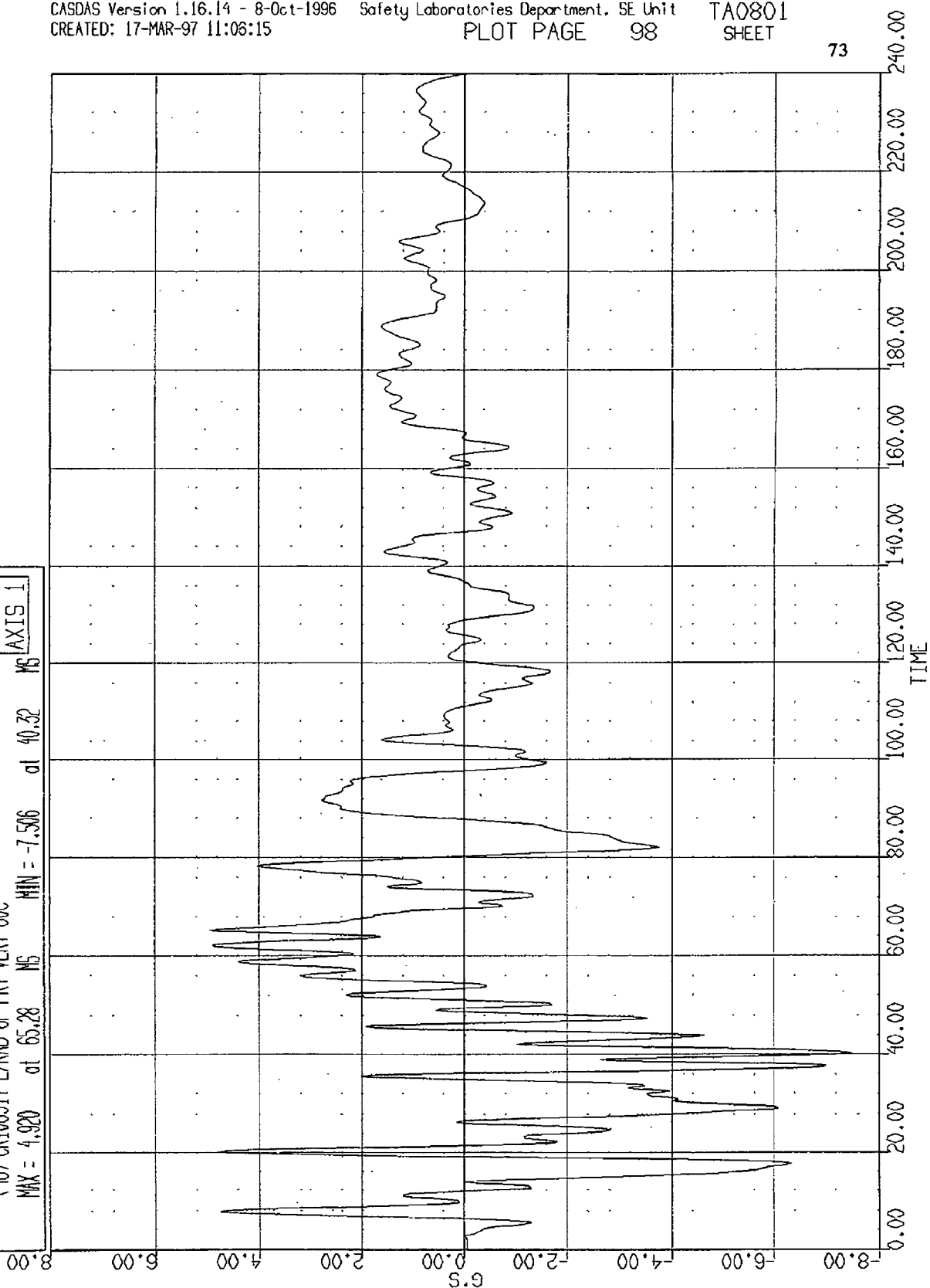
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(46) CR10631T L/RND UP FRT VERT 60C

AXIS 1

MAX = 4.920 at 65.28 MS MIN = -7.506 at 40.32 MS



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(47) CR10631T L/RAD UP FRT LAT 60C

MAX = 8.217 at 7.680 MS MIN = -13.95 at 71.12 MS

AXIS 1

25.00

20.00

15.00

10.00

5.00

0.00

-5.00

-10.00

-15.00

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

TIME

CRTS 0010631

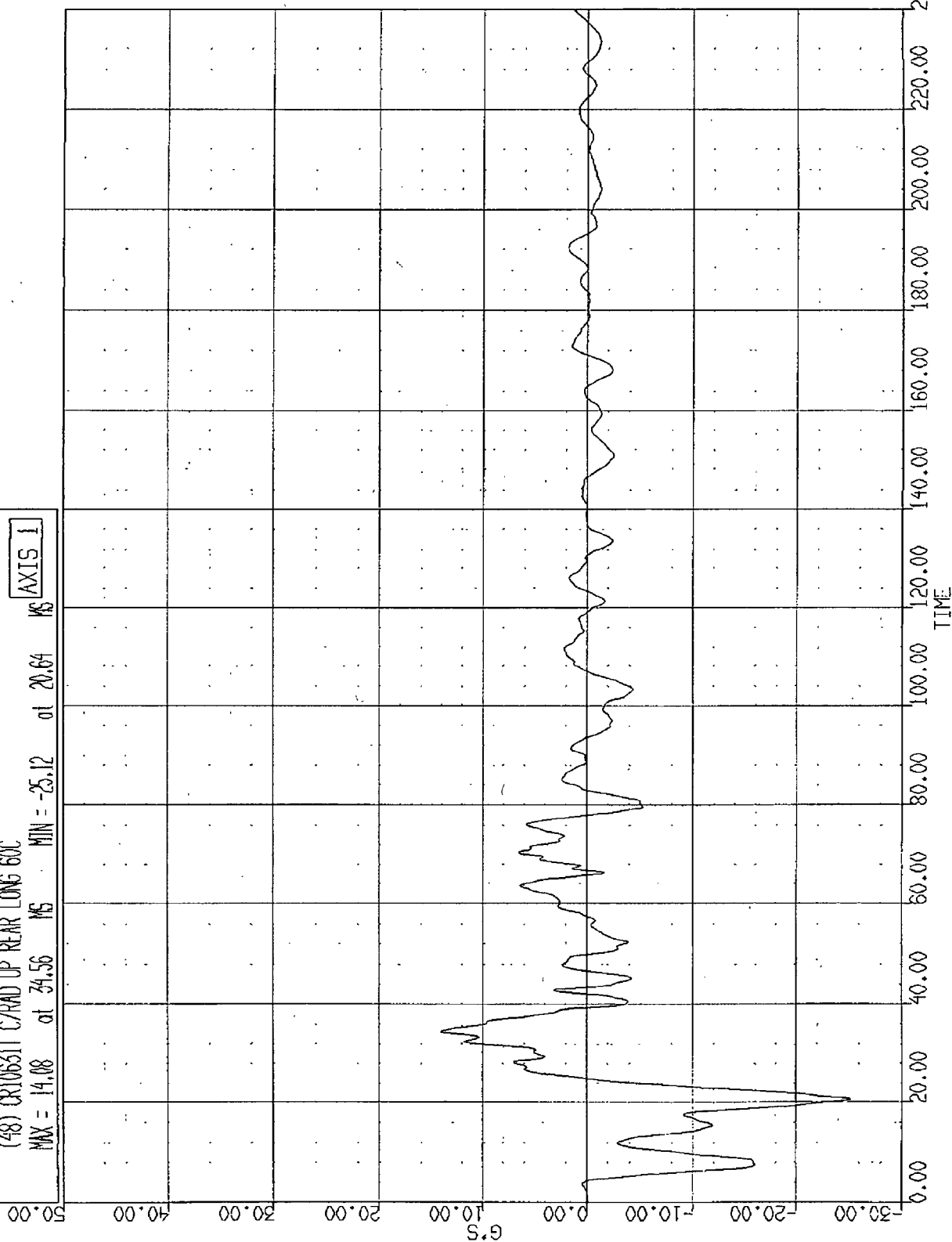
0624

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(48) CR10631T C/RAD UP REAR LONG GOC

MAX = 14.08 at 34.56 MS MIN = -25.12 at 20.64 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(49) CR10631T C/RAD UP REAR VERT 60C

MAX = 8.011 at 44.96 MS MIN = -12.51 at 17.52 MS

AXIS 1

25.00

20.00

15.00

10.00

5.00

G.S

0.00

-5.00

-10.00

-15.00

0.00

TIME

240.00

220.00

200.00

180.00

160.00

140.00

120.00

100.00

80.00

60.00

40.00

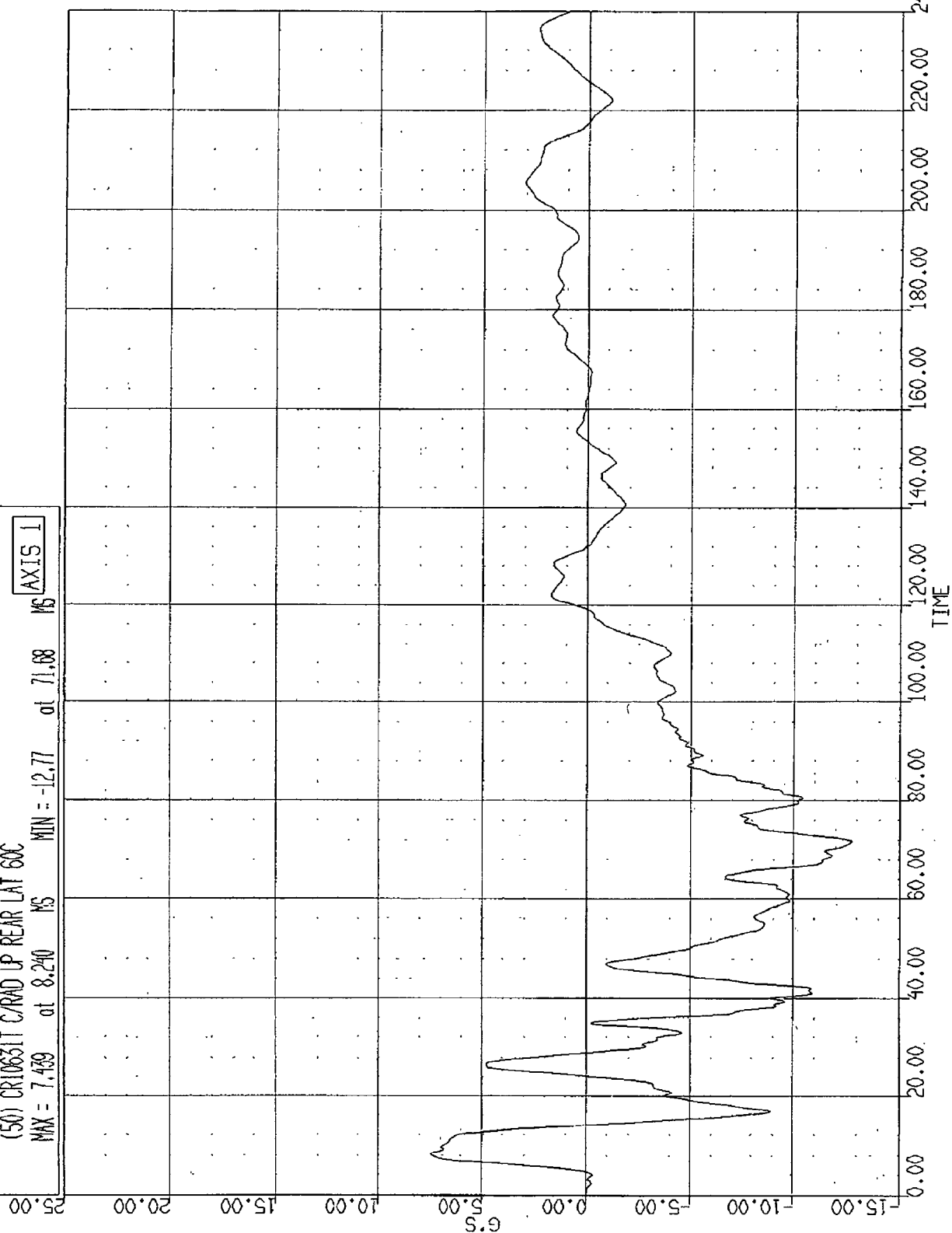
20.00

CRTS 0010631

0626

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(50) CR10631T C/RAD UP REAR LAT 60C
 MAX = 7.439 at 8.240 MS MIN = -12.77 at 71.68 MS
 AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(51) CR10631T C/RAD LWR FRT LONG 60C

MAX = 21.21 at 39.92 MS MIN = -34.35 at 35.44 MS

AXIS 1

40.00

20.00

20.00

10.00

6.5

0.00

-10.00

-20.00

-30.00

-40.00

TIME

240.00

220.00

200.00

180.00

160.00

140.00

120.00

100.00

80.00

60.00

40.00

20.00

0.00

CRTS 0010631

0628

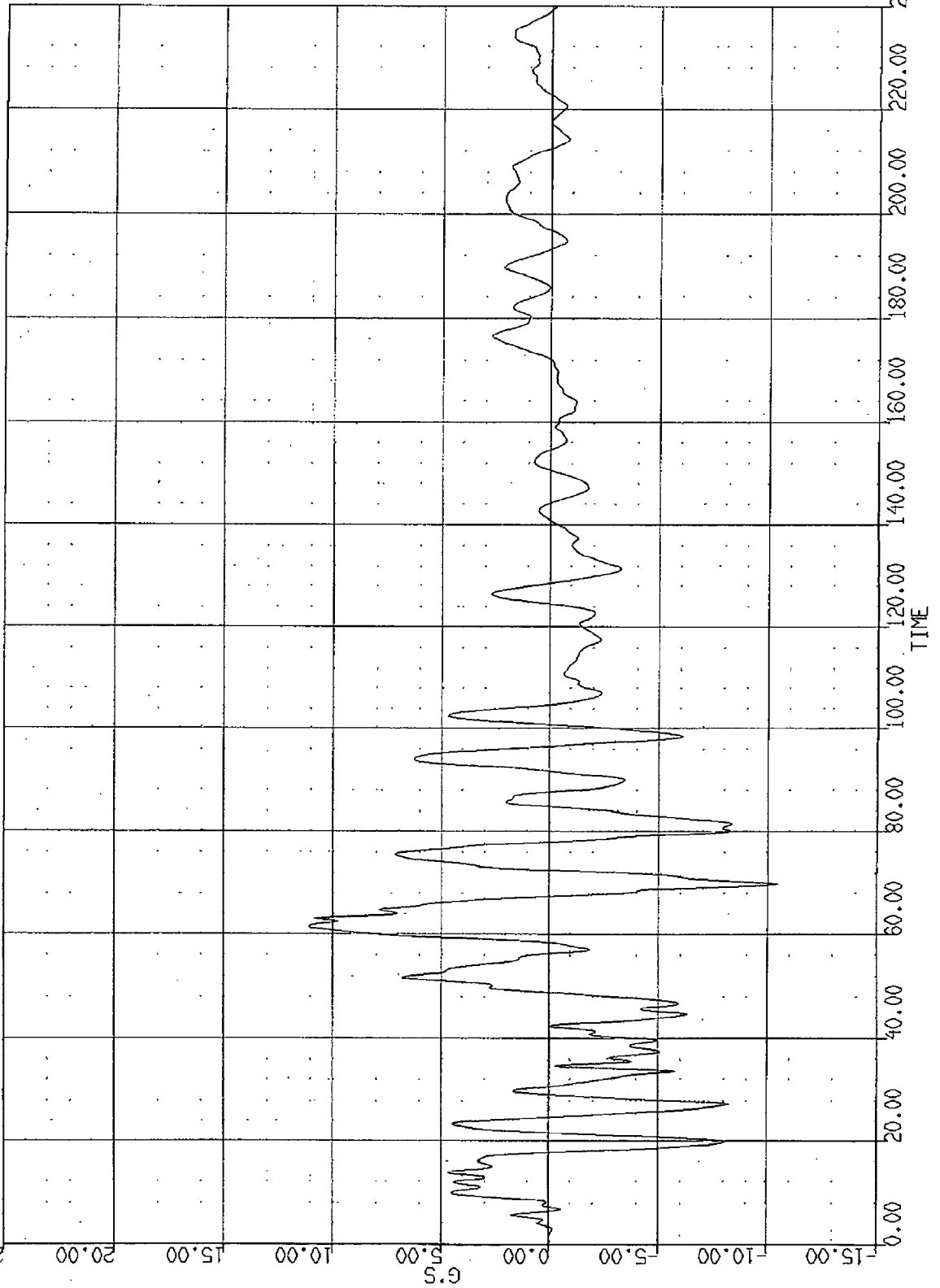
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(52) CR10631T C/RAD LWR FRT VERT 60C

MAX = 11.11 at 61.60 MS MIN = -10.45 at 69.84 MS

AXIS 1

25.00



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(53) CR10631T C/RAD LWR FRT LAT 60C

MAX = 13.60 at 61.92 MS MIN = -5.276 at 15.44 MS

AXIS 1

30.00

25.00

20.00

15.00

10.00

G.S

5.00

0.00

-5.00

-10.00

0.00

TIME

240.00

220.00

200.00

180.00

160.00

140.00

120.00

100.00

80.00

60.00

40.00

20.00

CRTS 0010631

0630

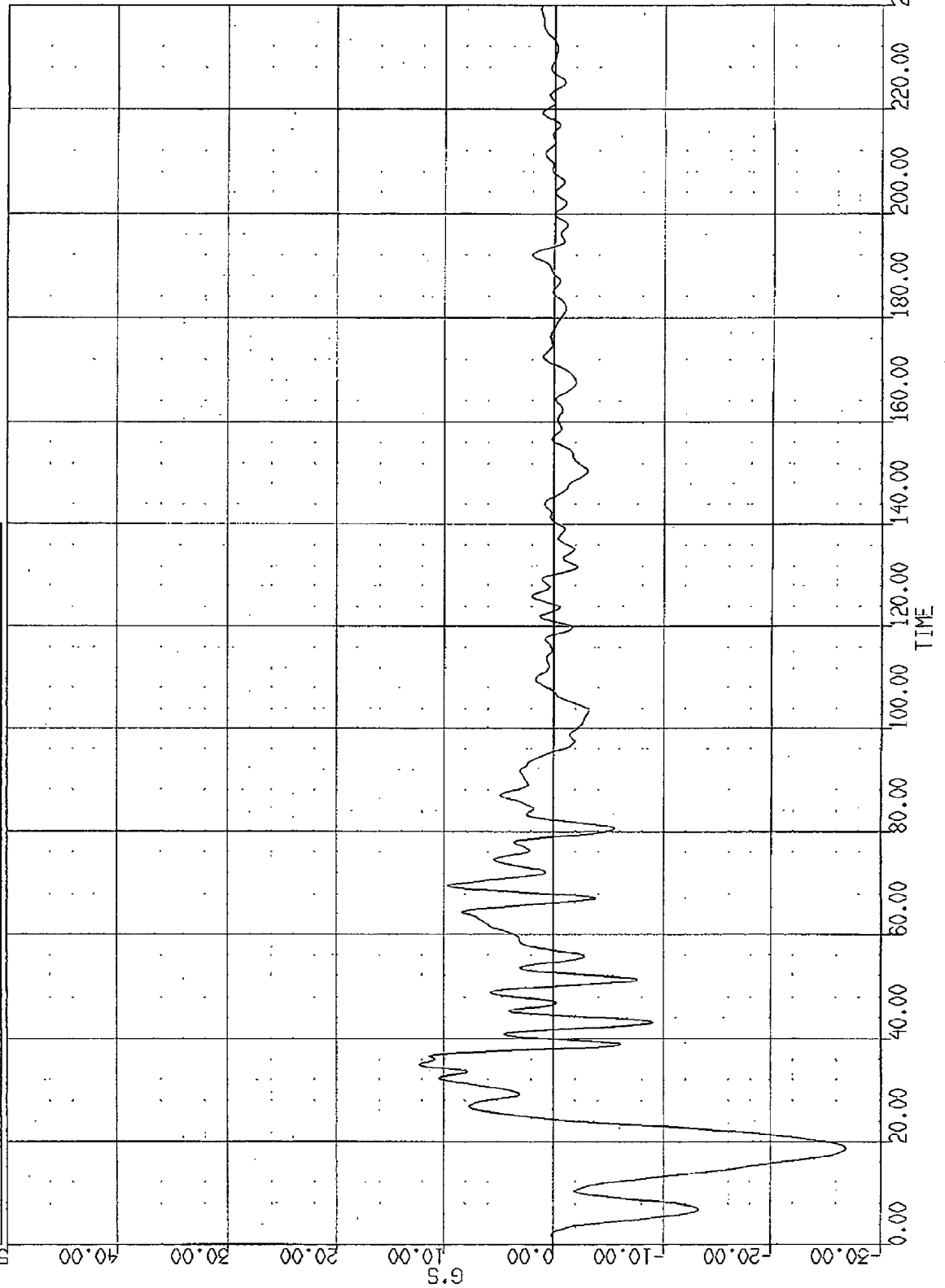
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(54) CR10631T R/RAD UP FRI LONG 60C

MAX = 12.29 at 34.96 MS MIN = -26.93 at 18.72 MS

AXIS 1

50.00

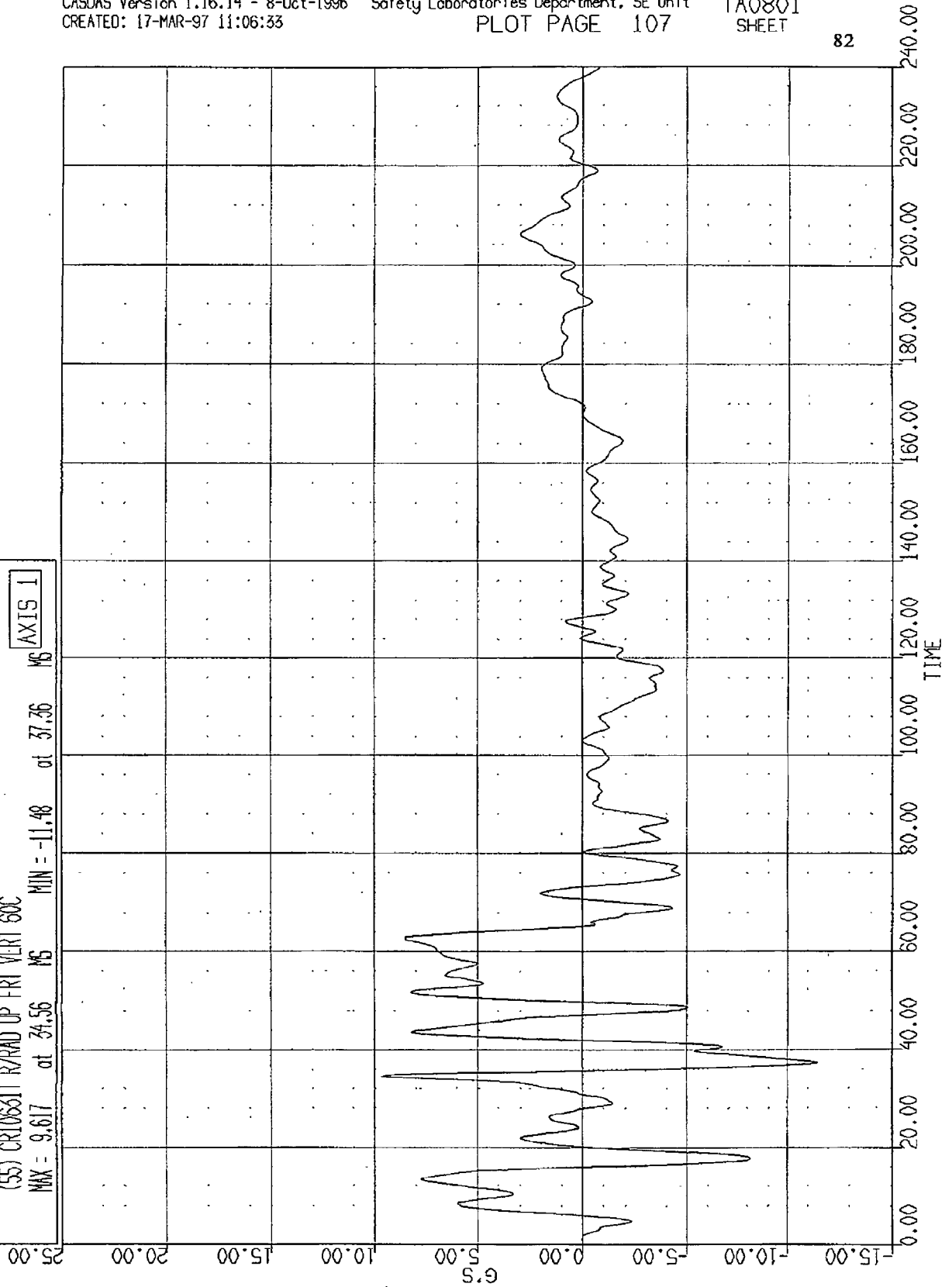


CRTS 0010631

0631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(55) CR10631T R/RAD UP FRT VERT 60C
MAX = 9.617 at 34.56 MS
MIN = -11.48 at 37.36 MS
AXIS 1

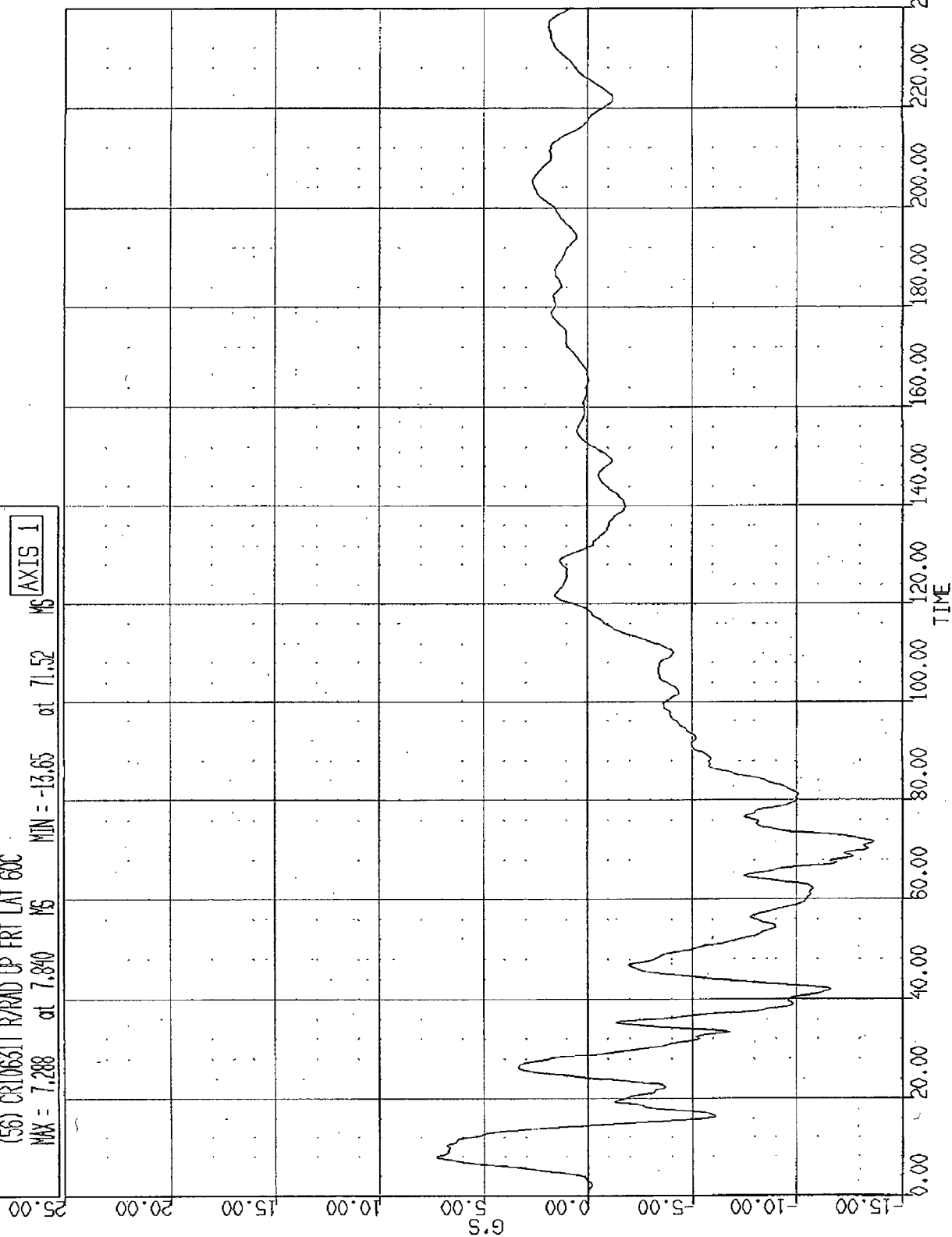


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(56) CR10631T R/RAD UP FRI LAT 60C
MAX = 7.288 at 7.840 MS MIN = -13.65 at 71.52 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

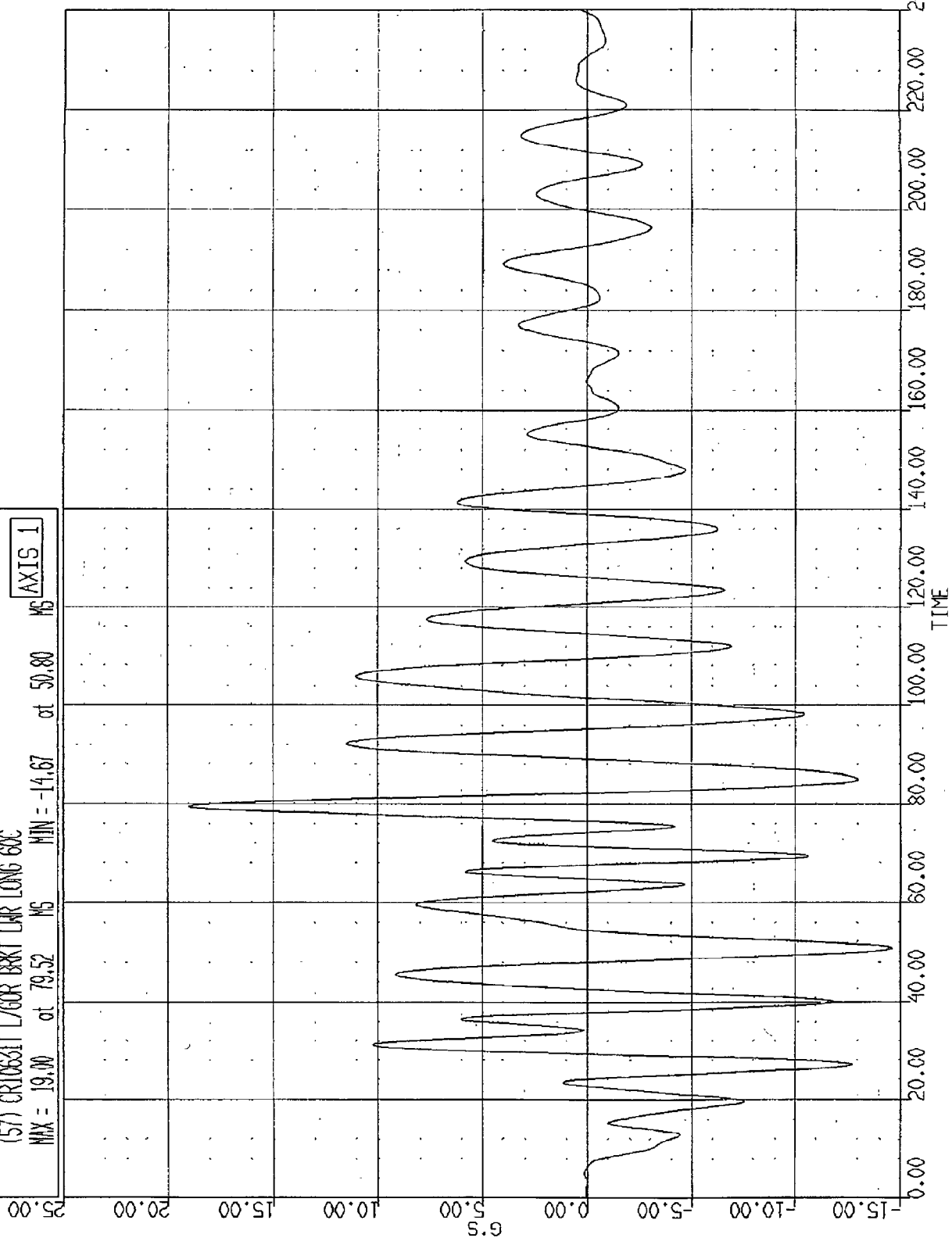
(57) CR10631T L/GOR BRKT LMR LONG 60C

MAX = 19.00 at 79.52 MS

MIN = -14.67

at 50.80 MS

AXIS 1

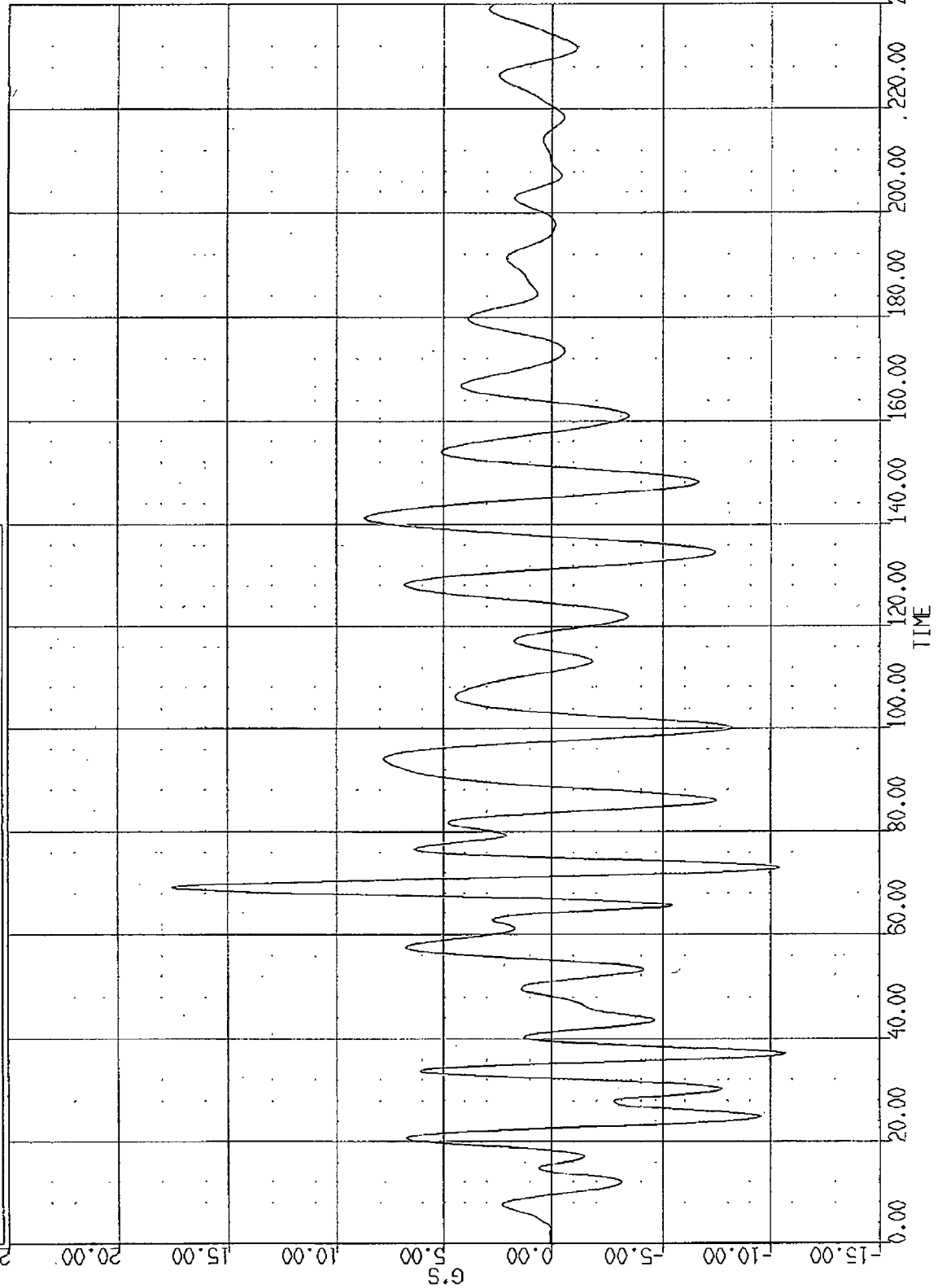


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-98 1999 MOVING DEFORMABLE BA

(58) CR10631T L/60R BRKT LMR VERT 60C
MAX = 17.51 at 69.12 MS MIN = -10.68 at 37.20 MS [AXIS 1]

25.00



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(59) CR10631T L/COR BRKT LWR LAT 60C

MAX = 6.644 at 16.48 MS MIN = -19.74 at 76.48 MS

AXIS 1

20.00

15.00

10.00

5.00

0.00

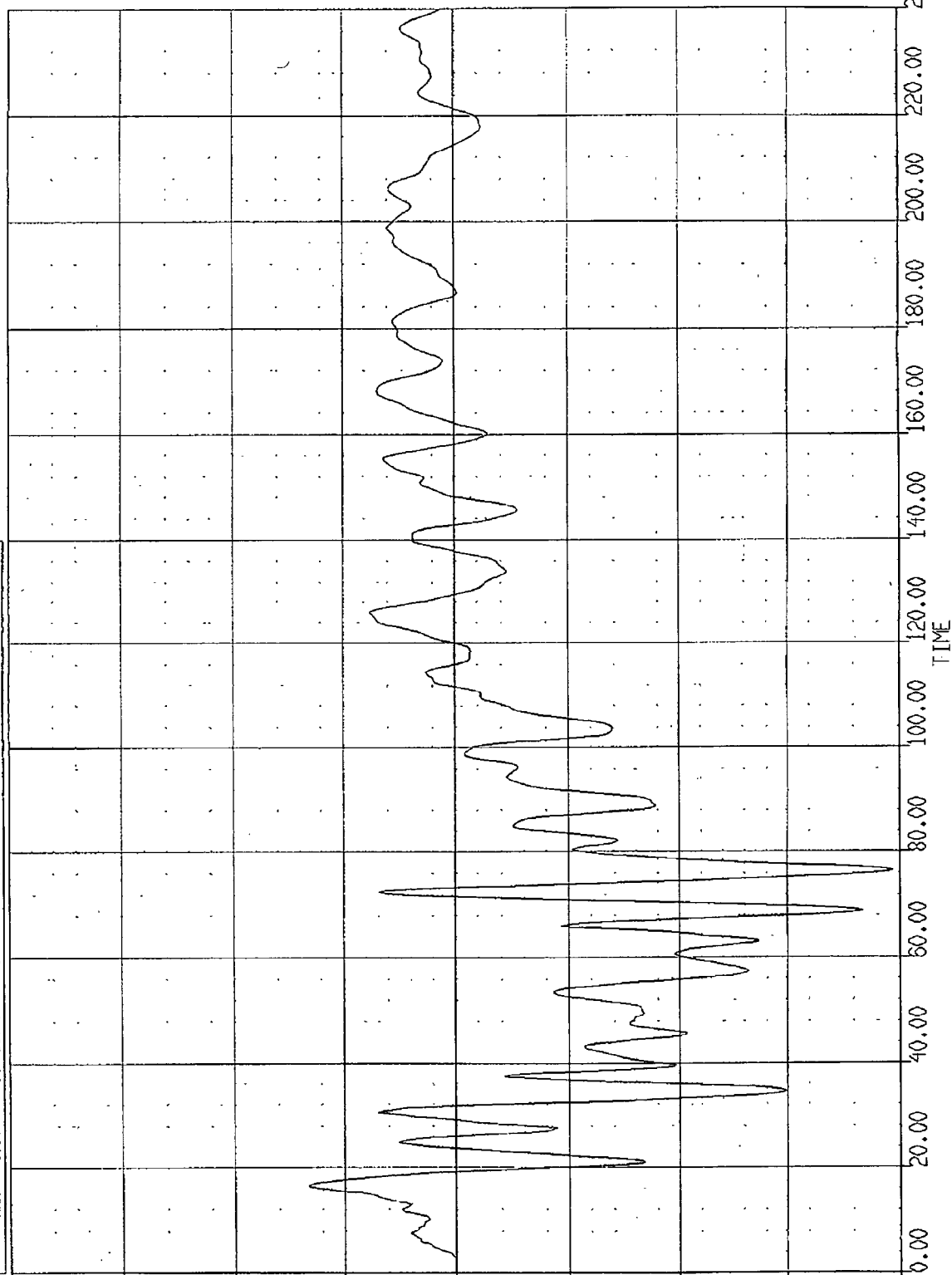
G.S.

-5.00

-10.00

-15.00

-20.00



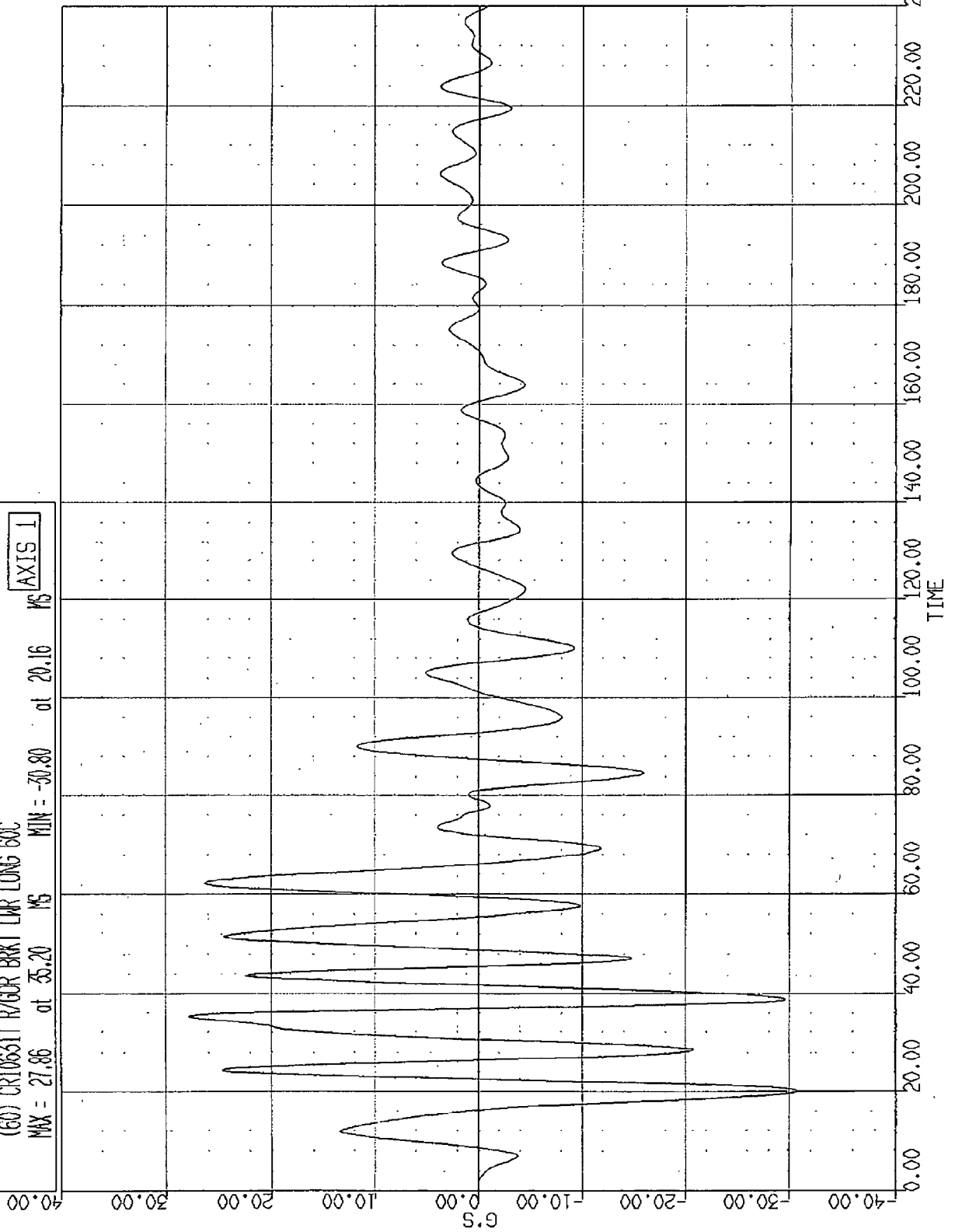
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(60) CR10631T R/GOR BRKT LWR LONG 60C

MAX = 27.86 at 35.20 MS MIN = -30.80 at 20.16 MS

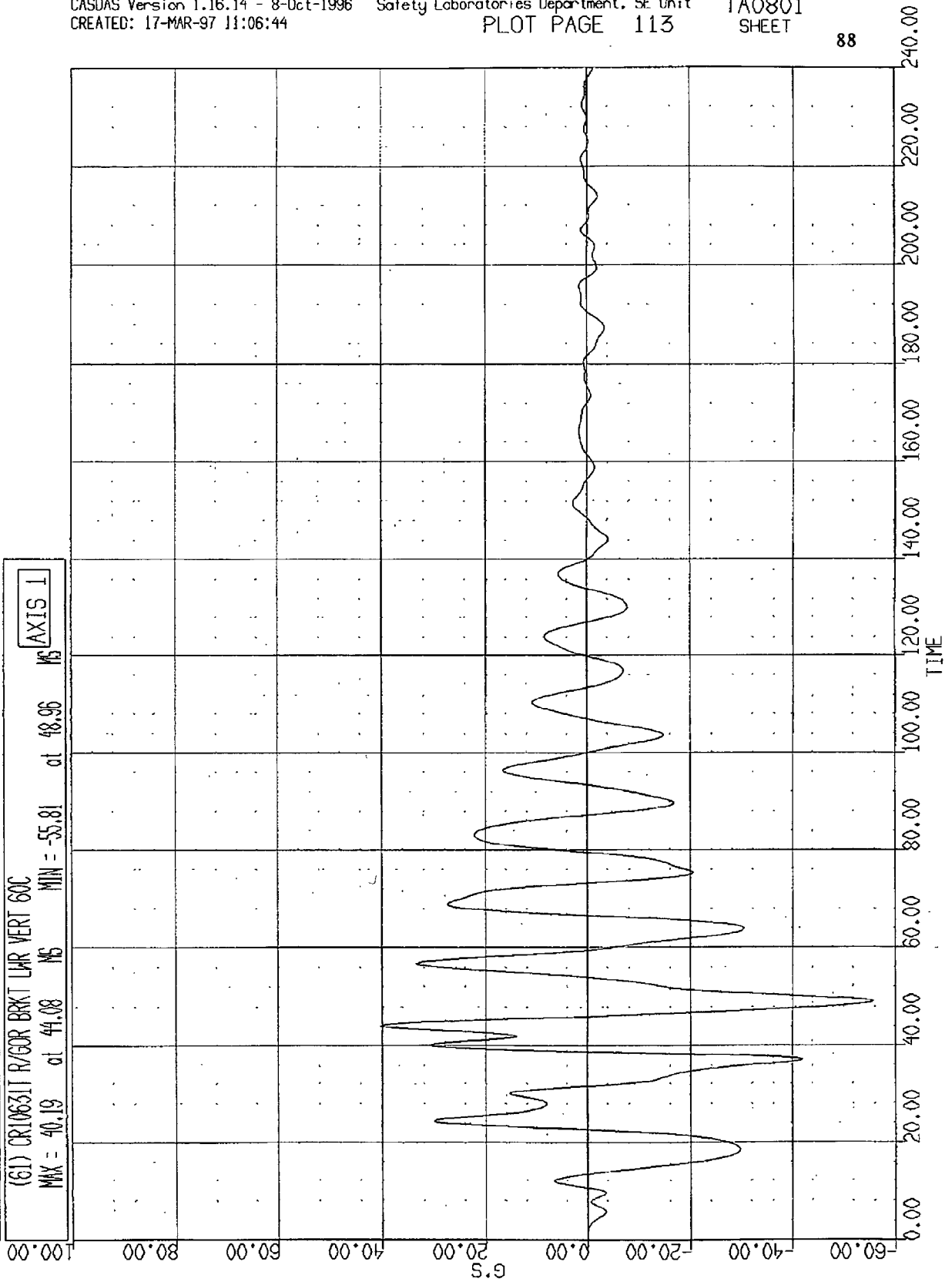
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(61) CR10631T R/60R BRKT LAR VERT 60C
MAX = 40.19 at 44.08 MS MIN = -55.81 at 48.96 MS
AXIS 1



CRTS 0010631

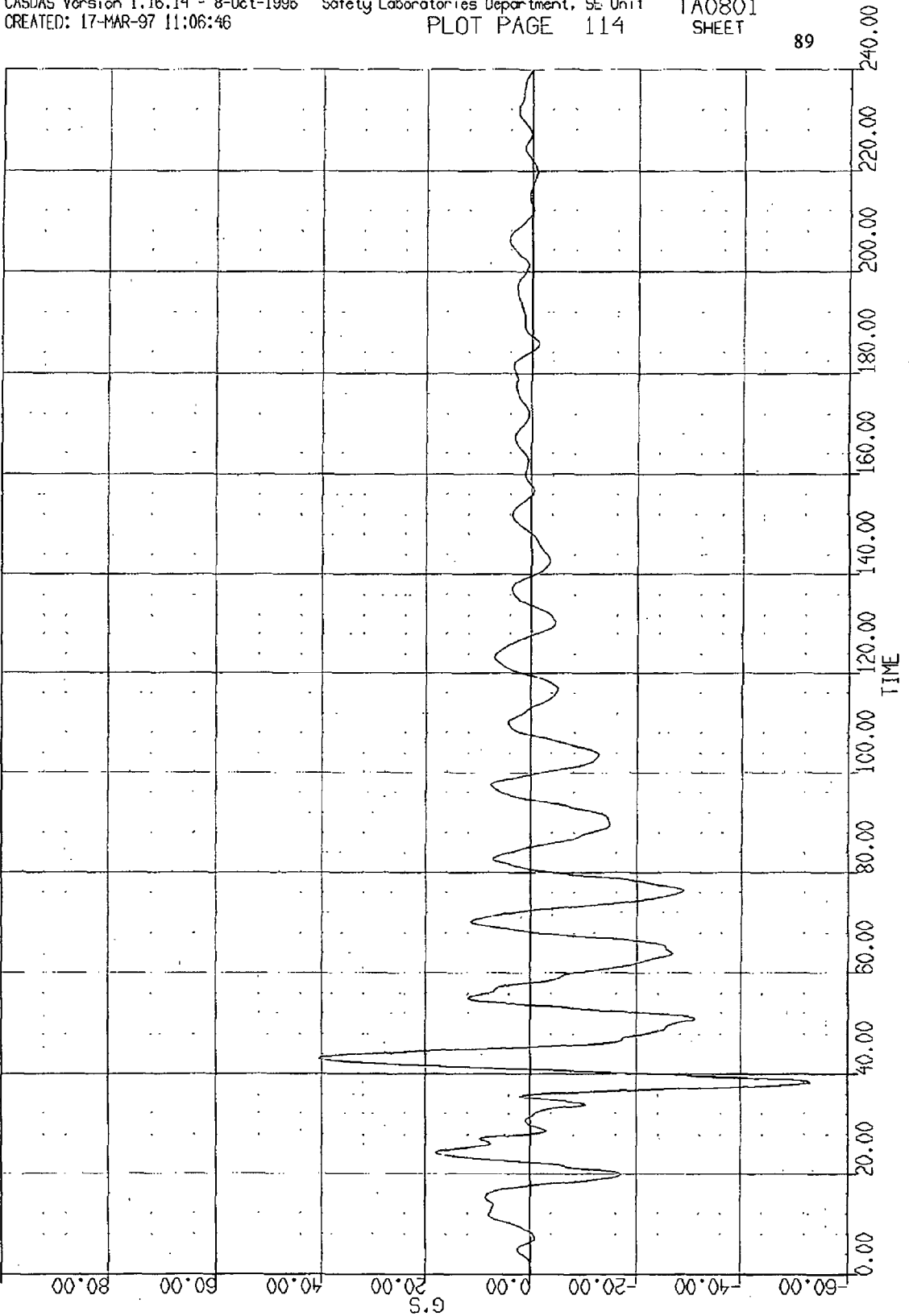
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(62) CR106311 R/GOR BRKT LWR LAT 60C

MAX = 40.61 at 43.12 MS MIN = -53.17 at 38.40 MS

AXIS 1

100.00



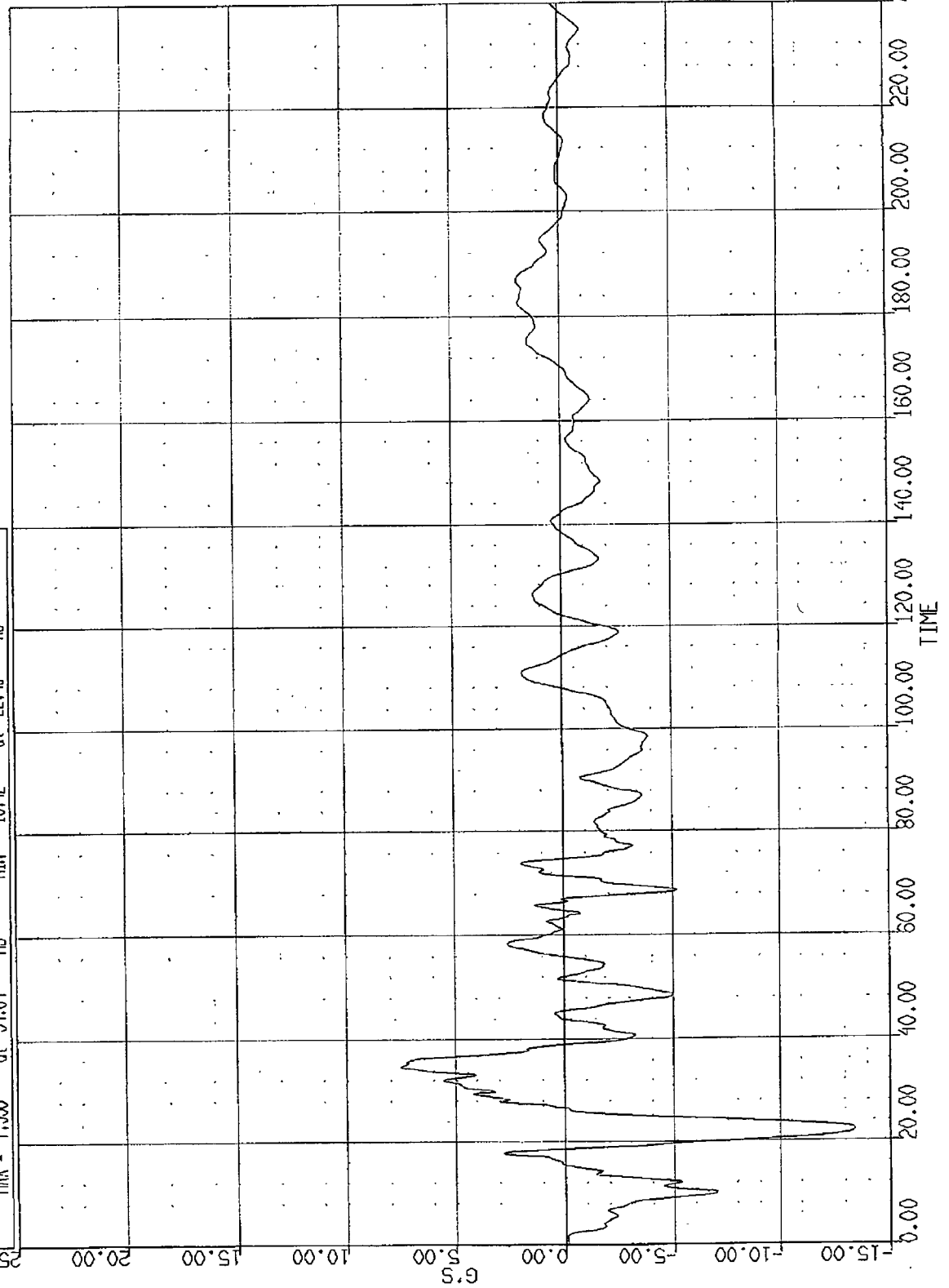
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(63) CR10631T L/GUR BRKT UPR LONG 60C
MAX = 7.536 at 34.64 MS MIN = -13.42 at 22.40 MS

AXIS 1

25.00



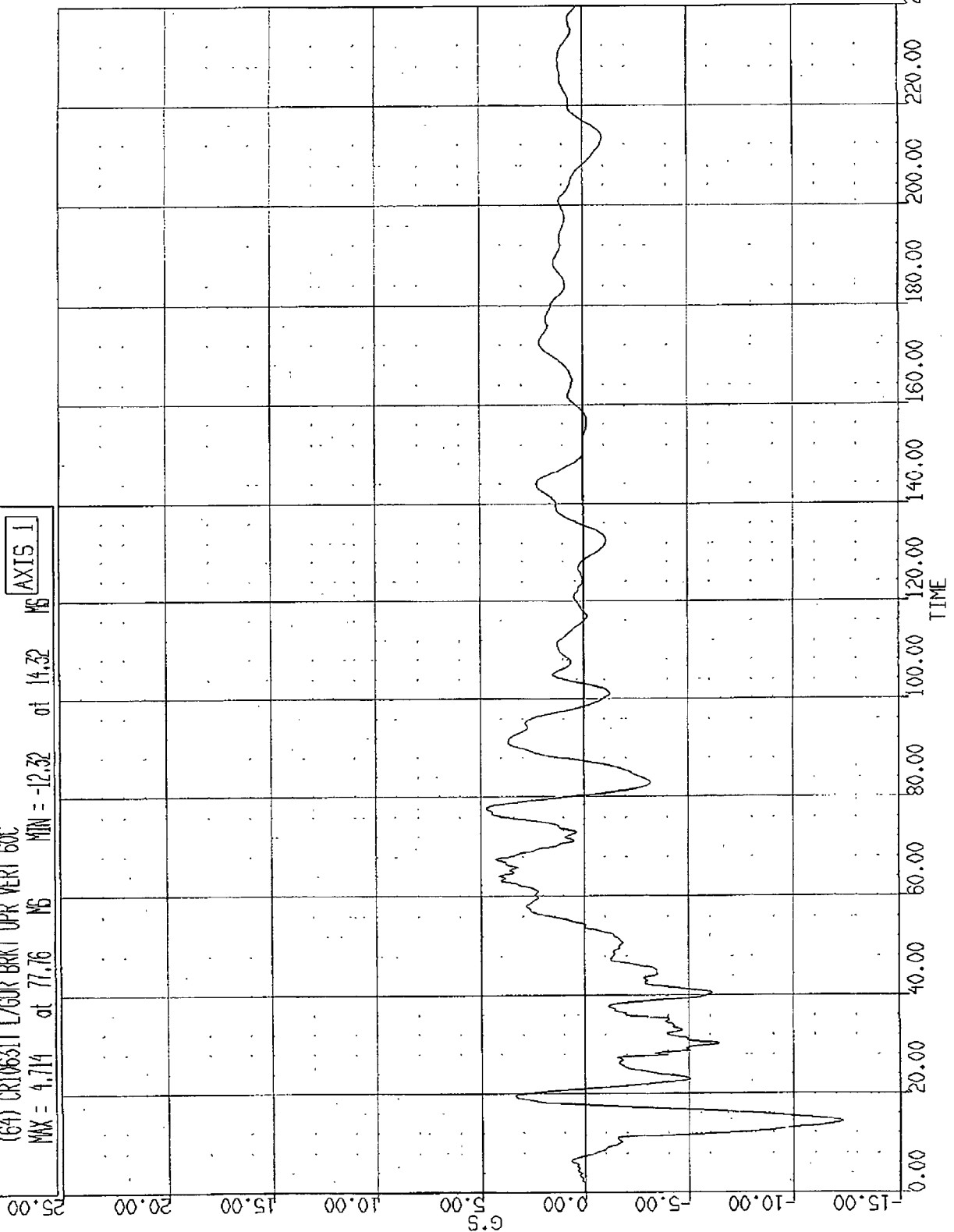
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(64) CR10631T L/GOR BRKT UPR VERT 60C

MAX = 4.714 at 77.76 MS MIN = -12.32 at 14.32 MS

AXIS 1



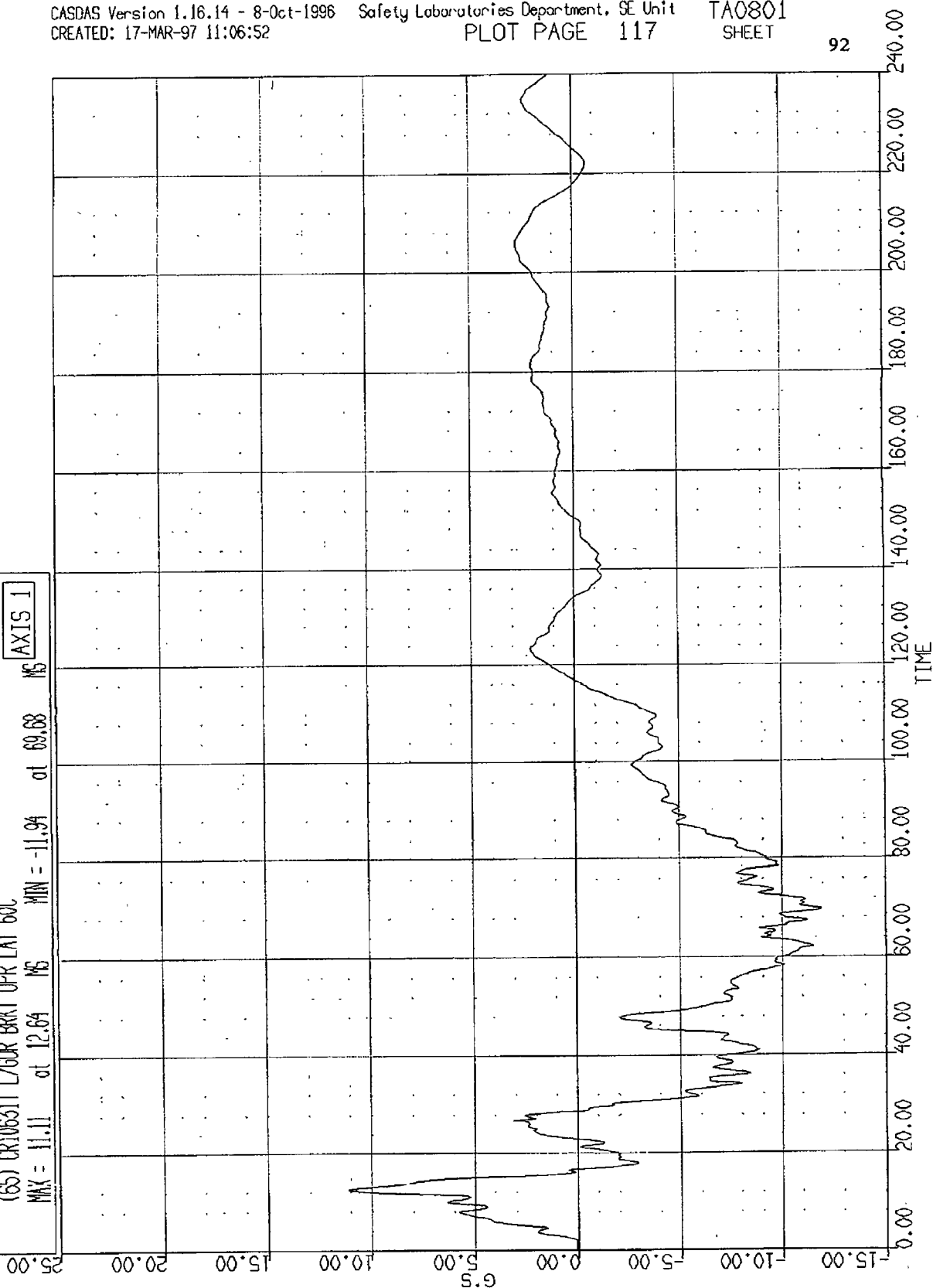
CRTS 0010631

0641

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-98 1999 MOVING DEFORMABLE BA

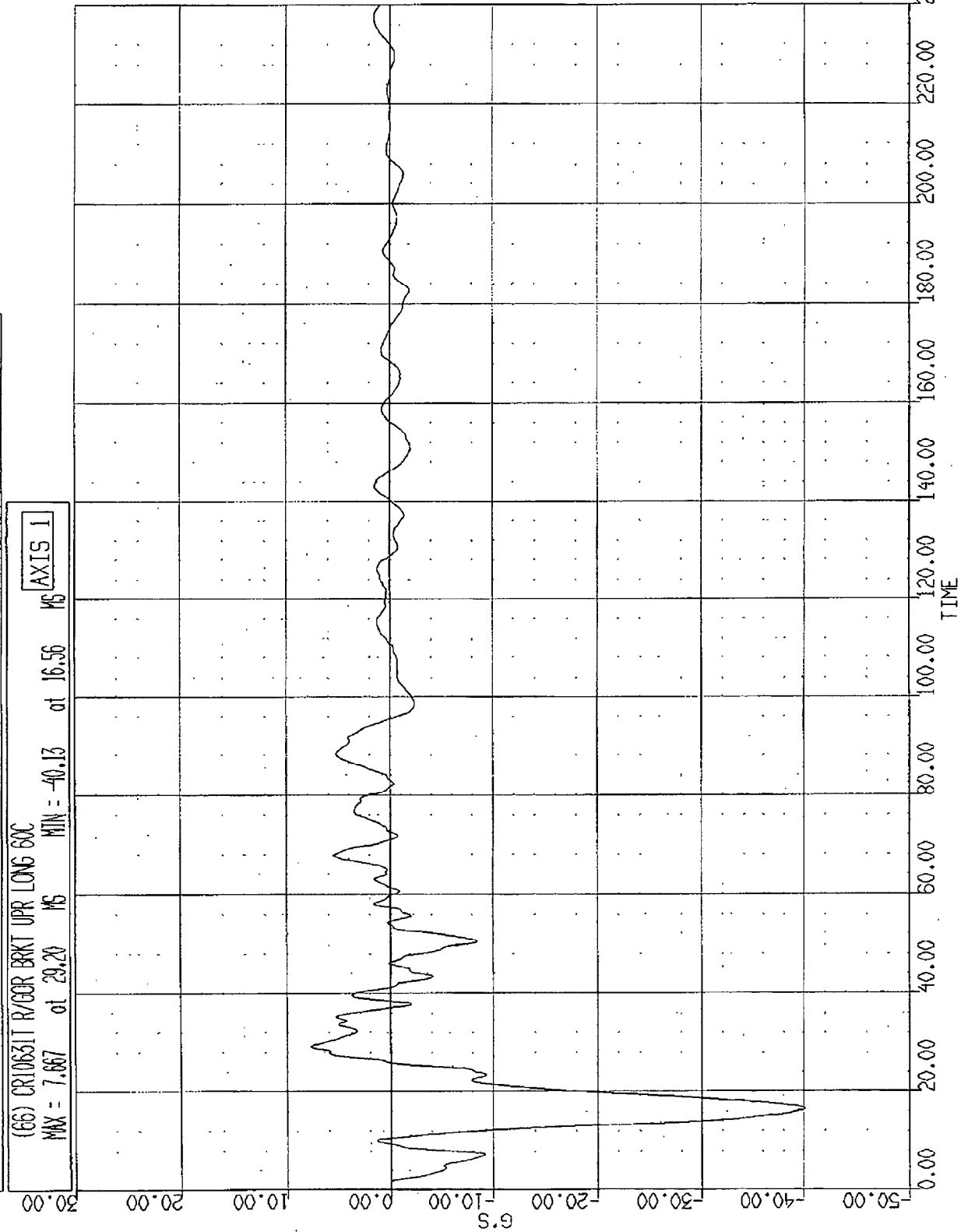
(65) CR10631T L/60R BRKT UPR LAT 60C
 MAX = 11.11 at 12.64 MS MIN = -11.94 at 69.68 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

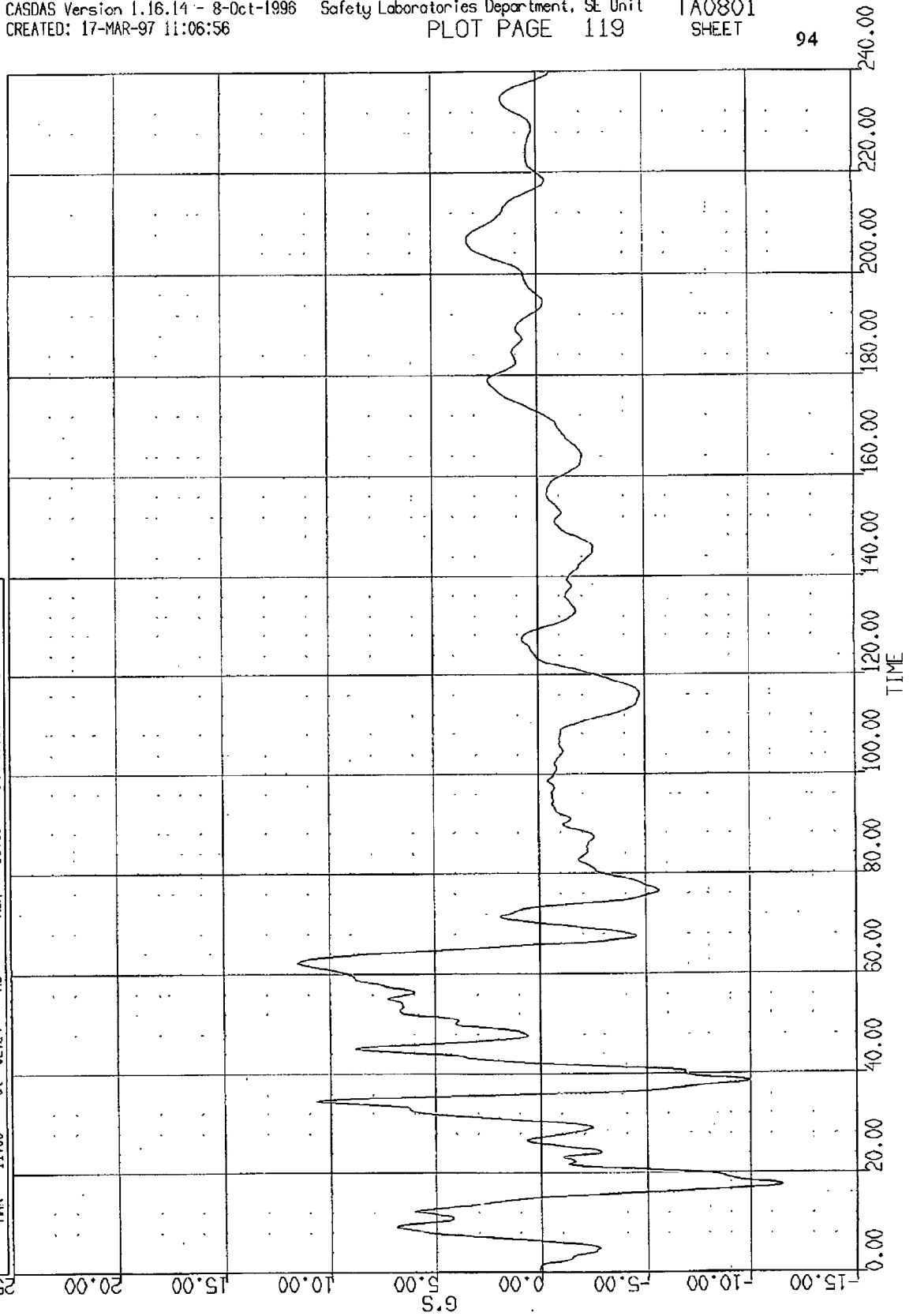


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(67) CR10631T R/GGR BRKT UPR VERT 60C
MAX = 11.53 at 62.24 MS MIN = -11.55 at 17.68 MS

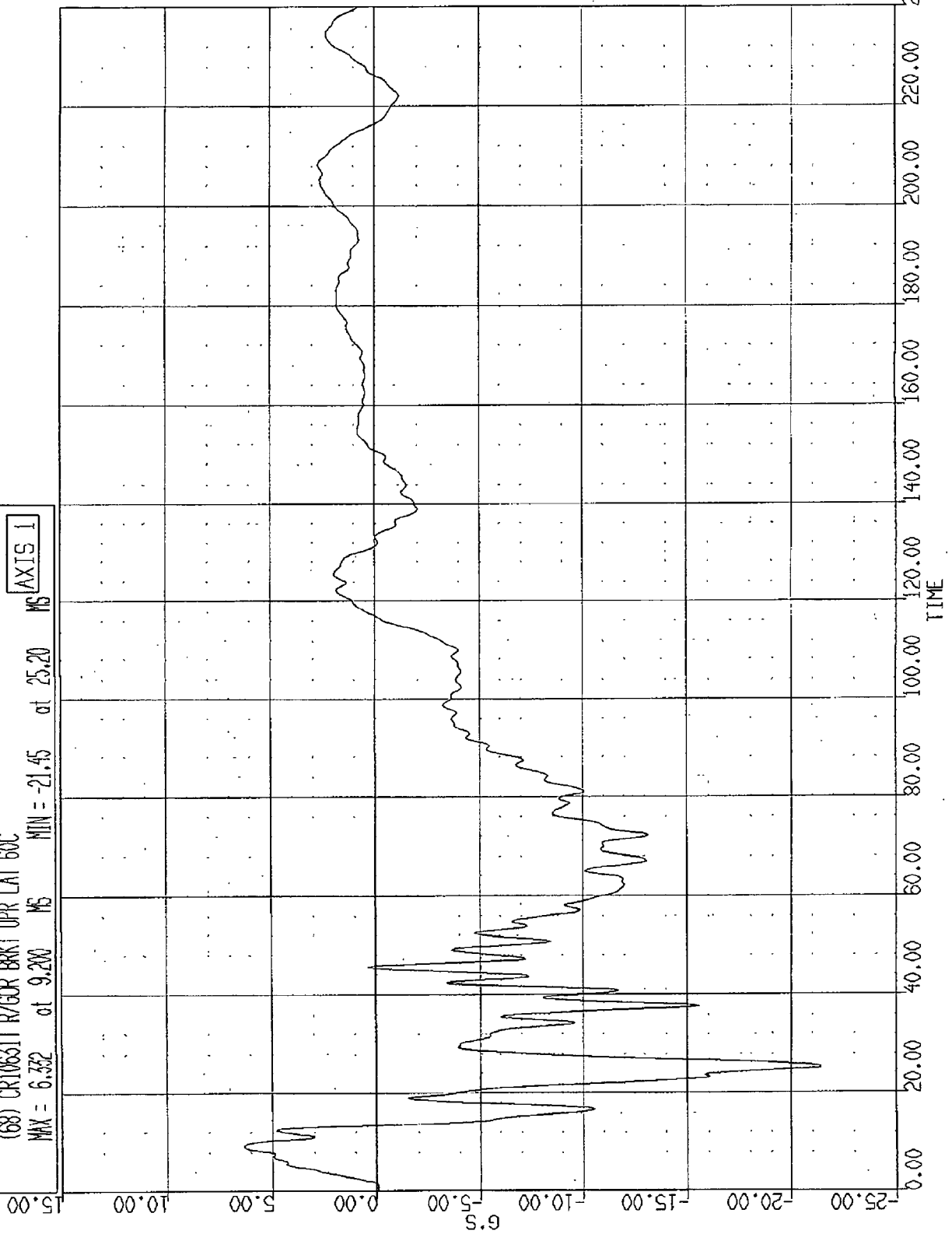
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(68) CR10631T R/GOR BRKT UPR LAT 60C
MAX = 6.332 at 9.200 MS MIN = -21.45 at 25.20 MS
AXIS 1



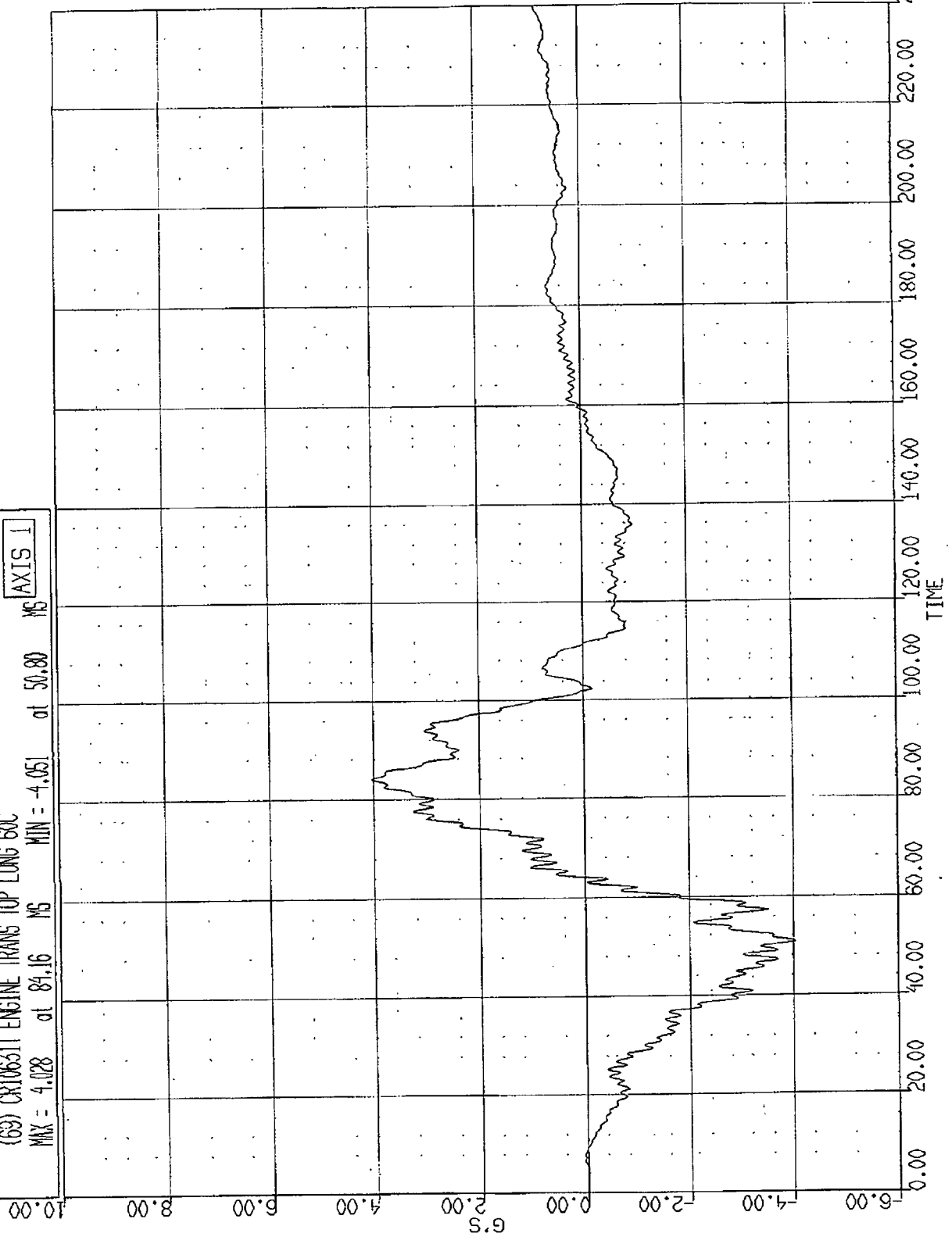
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-06 1999 MOVING DEFORMABLE BA

(69) CR10631T ENGINE TRANS TOP LONG 60C

MAX = 4.028 at 84.16 MS MIN = -4.051 at 50.80 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(70) CR10631T ENGINE TRANS TOP VERT 60C

MAX = 6.010 at 38.64 MS MIN = -8.939 at 57.28 MS

AXIS 1

30.00

25.00

20.00

15.00

10.00

5.00

0.00

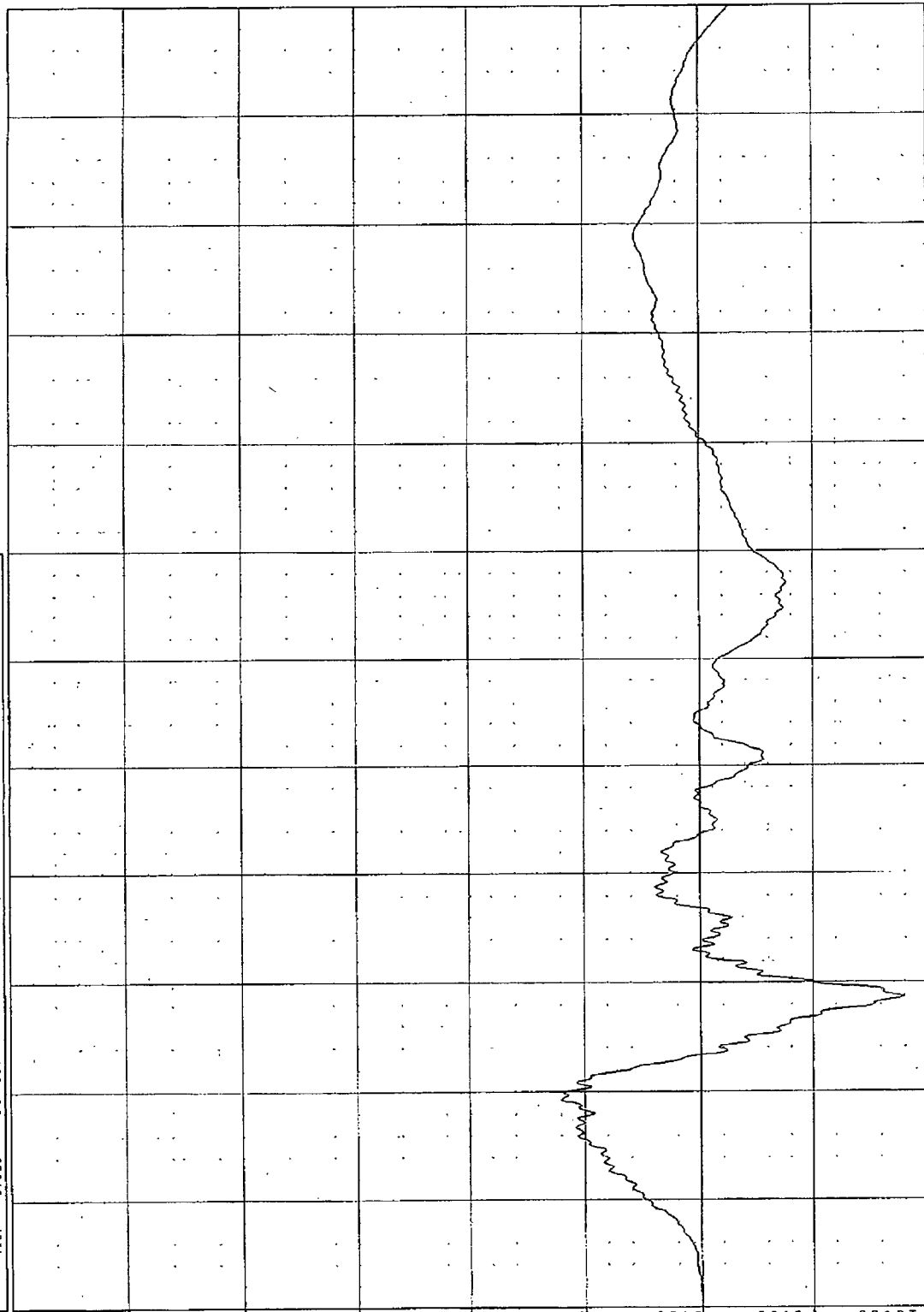
-5.00

-10.00

0.00

TIME

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(71) CR10631T ENGINE TRANS TOP LAT 60C

MAX = 2.912 at 194.5 MS MIN = -14.78 at 66.48 MS

AXIS 1

25.00

20.00

15.00

10.00

5.00

0.00

-5.00

-10.00

-15.00

G.S.

TIME

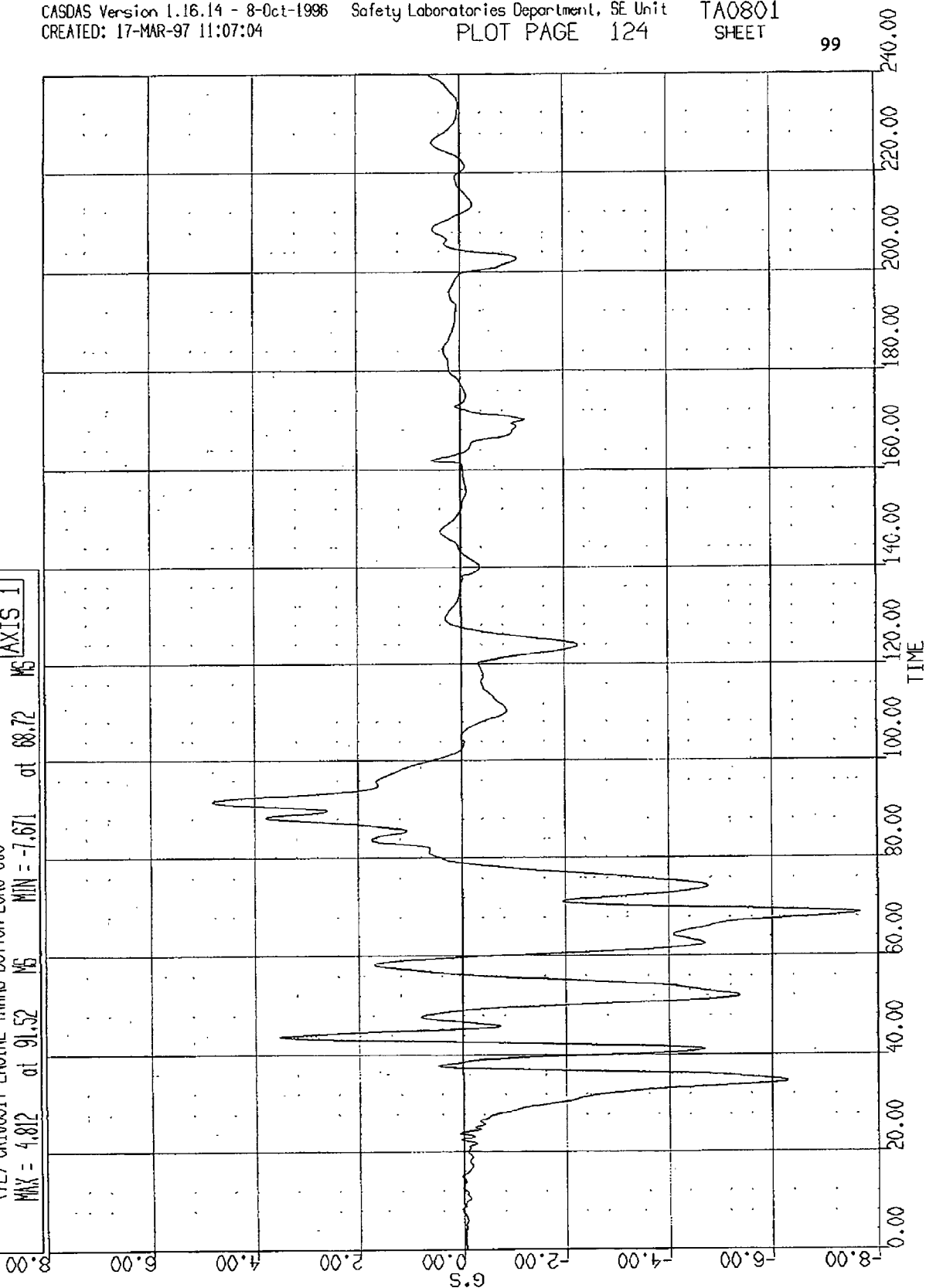
0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00

CRTS 0010631

0648

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(72) CR10631T ENGINE TRANS BOTTOM LONG 60C
MAX = 4.812 at 91.52 MS MIN = -7.671 at 88.72 MS
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(73) CR10631T ENGINE TRANS BOTTOM VERT 60C

AXIS 1

MAX = 14.90 at 41.88 MS MIN = -21.42 at 46.00 MS

50.00

40.00

30.00

20.00

10.00

5.0

0.00

-10.00

-20.00

-30.00

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

TIME

CRTS 0010631

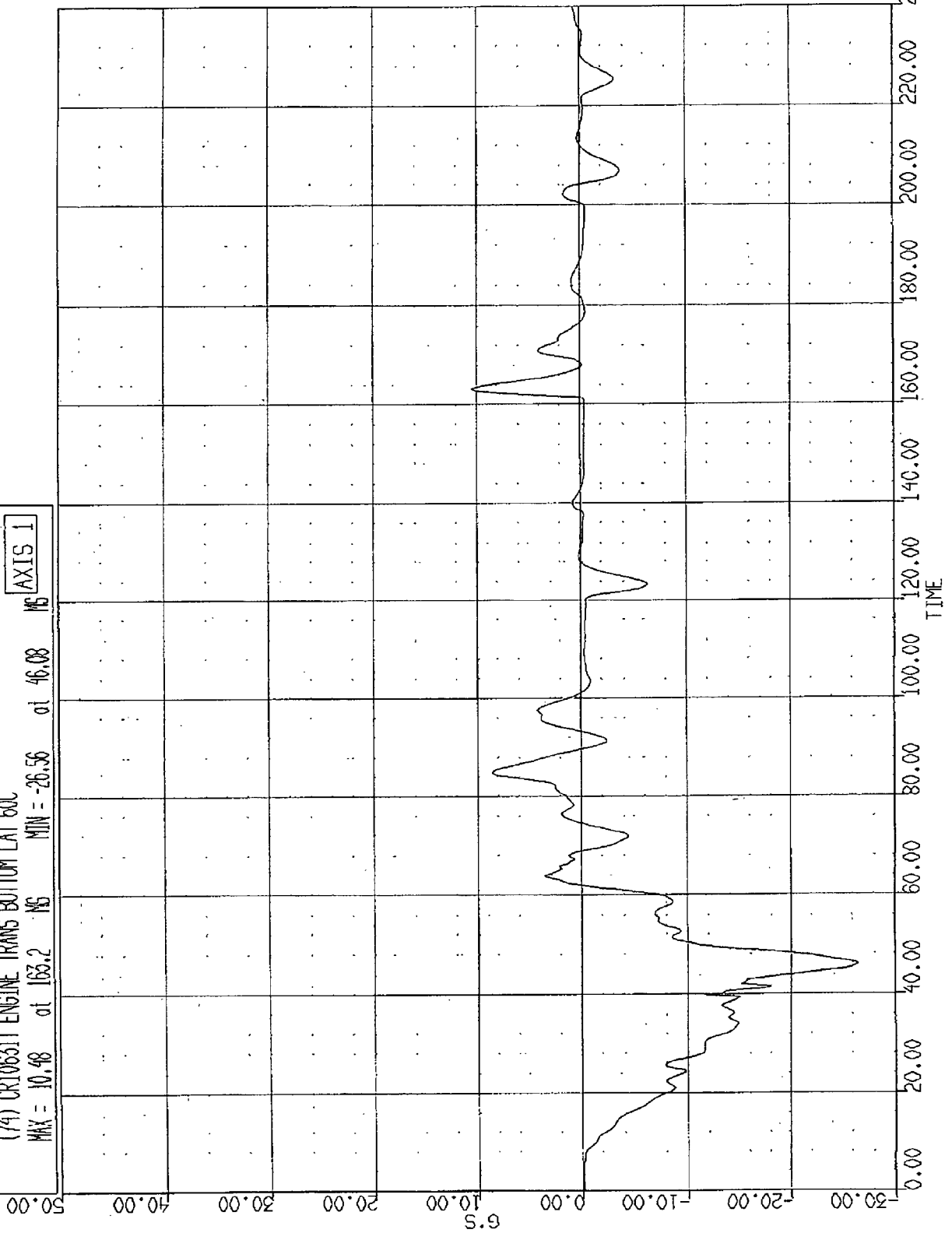
0650

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(74) CR10631T ENGINE TRANS BOTTOM LAT 60C

MAX = 10.48 at 163.2 MS MIN = -26.56 at 46.08 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(75) CR10631T R/F DOOR @ BELTLINE MID LAT 60C
 MAX = 62.95 at 27.84 MS MIN = -81.00 at 19.20 MS

AXIS 1

200.00

250.00

200.00

150.00

100.00

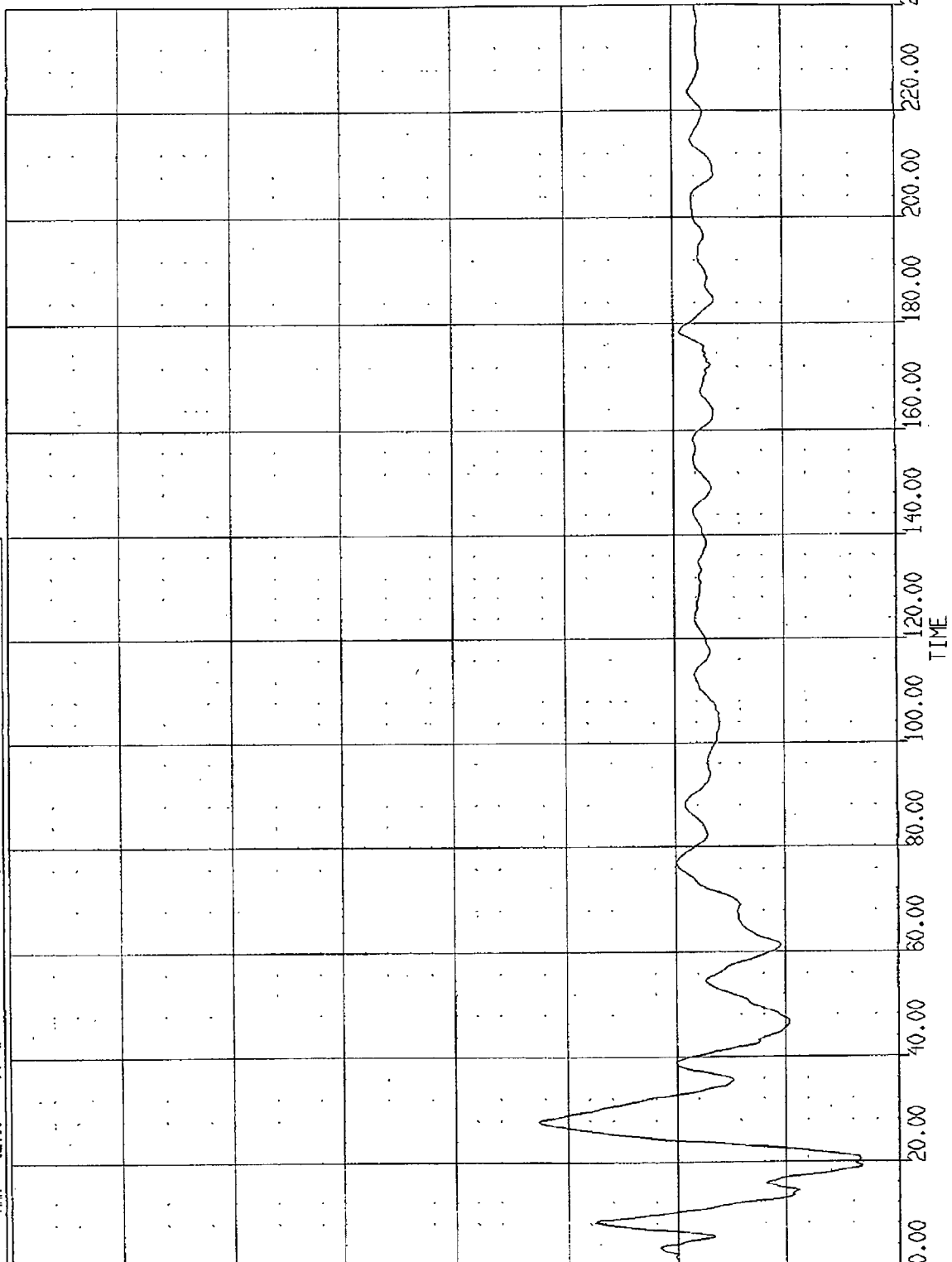
50.00

0.00

-50.00

-100.00

G.S



CRTS 0010631

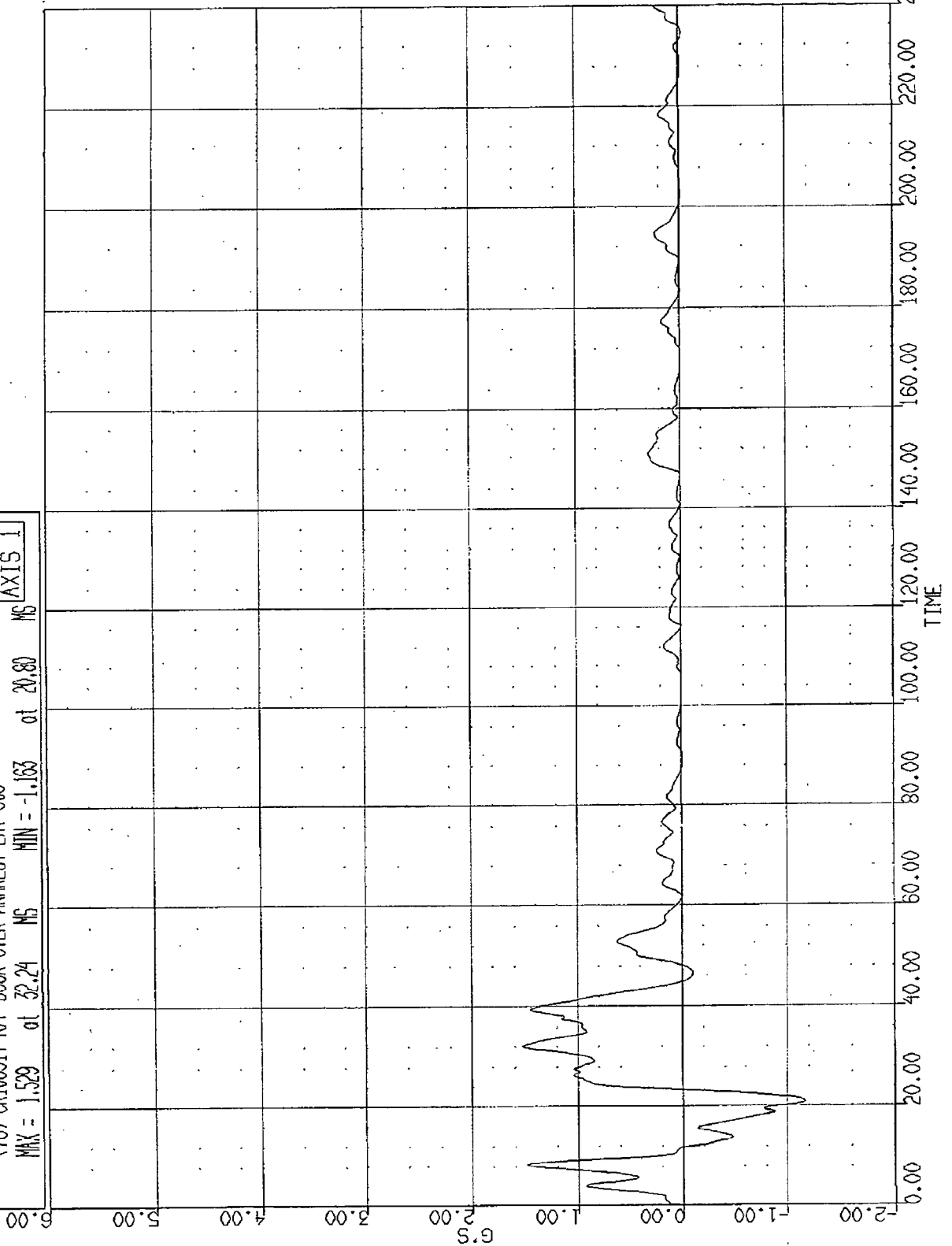
FULL SCALE TOO HIGH

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(76) CR10631T R/F DOOR OVER ARMREST LAT 60C

MAX = 1.529 at 32.24 MS MIN = -1.163 at 20.80 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TAO801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(77) CR10631T RVF DOOR REAR OF SEAT HPT LAT 60C

MAX = 164.9 at 21.84 MS MIN = 228.1 at 25.68 MS

AXIS 1

500.00

400.00

300.00

200.00

100.00

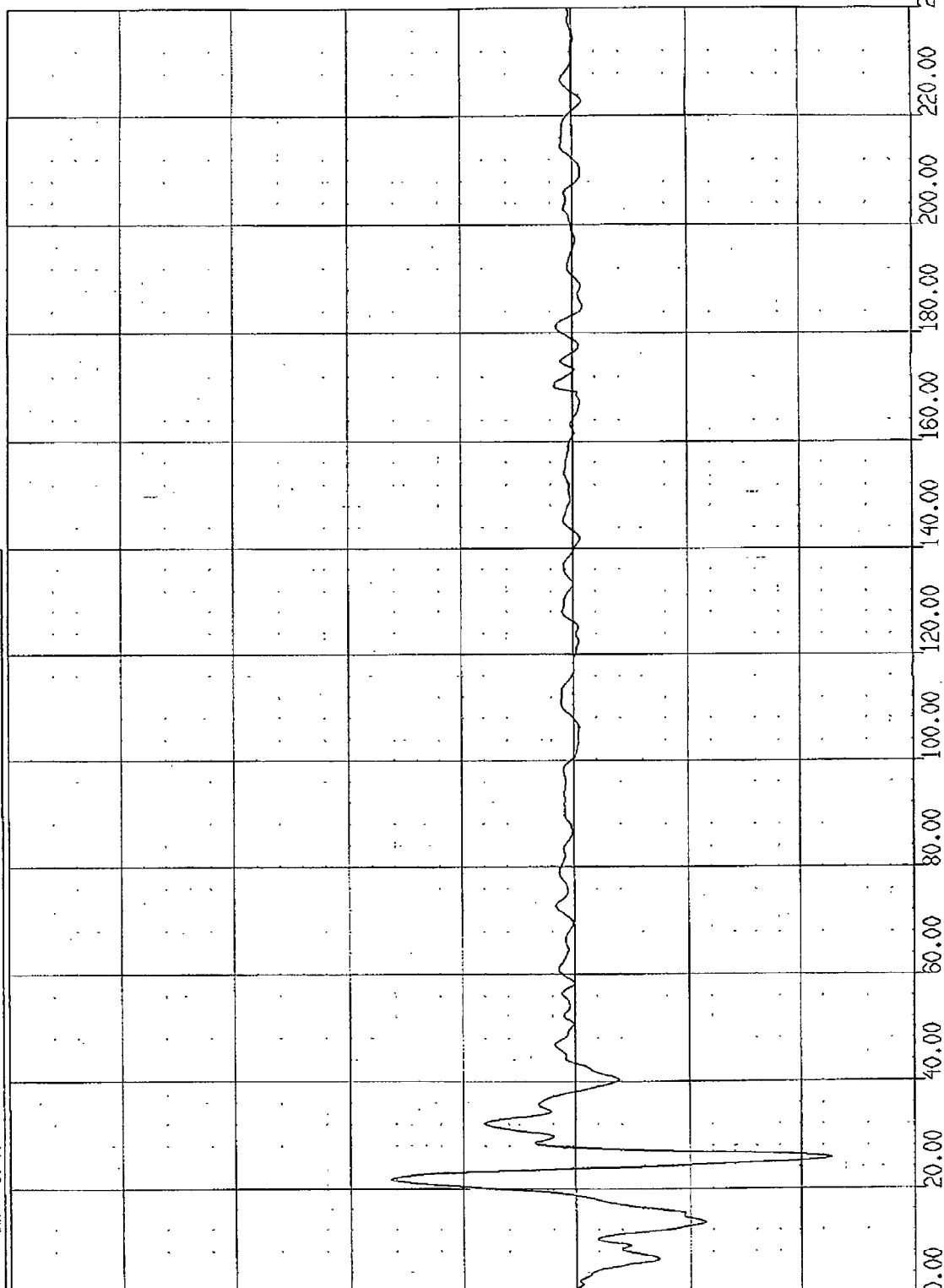
0.00

-100.00

-200.00

-300.00

G.S.



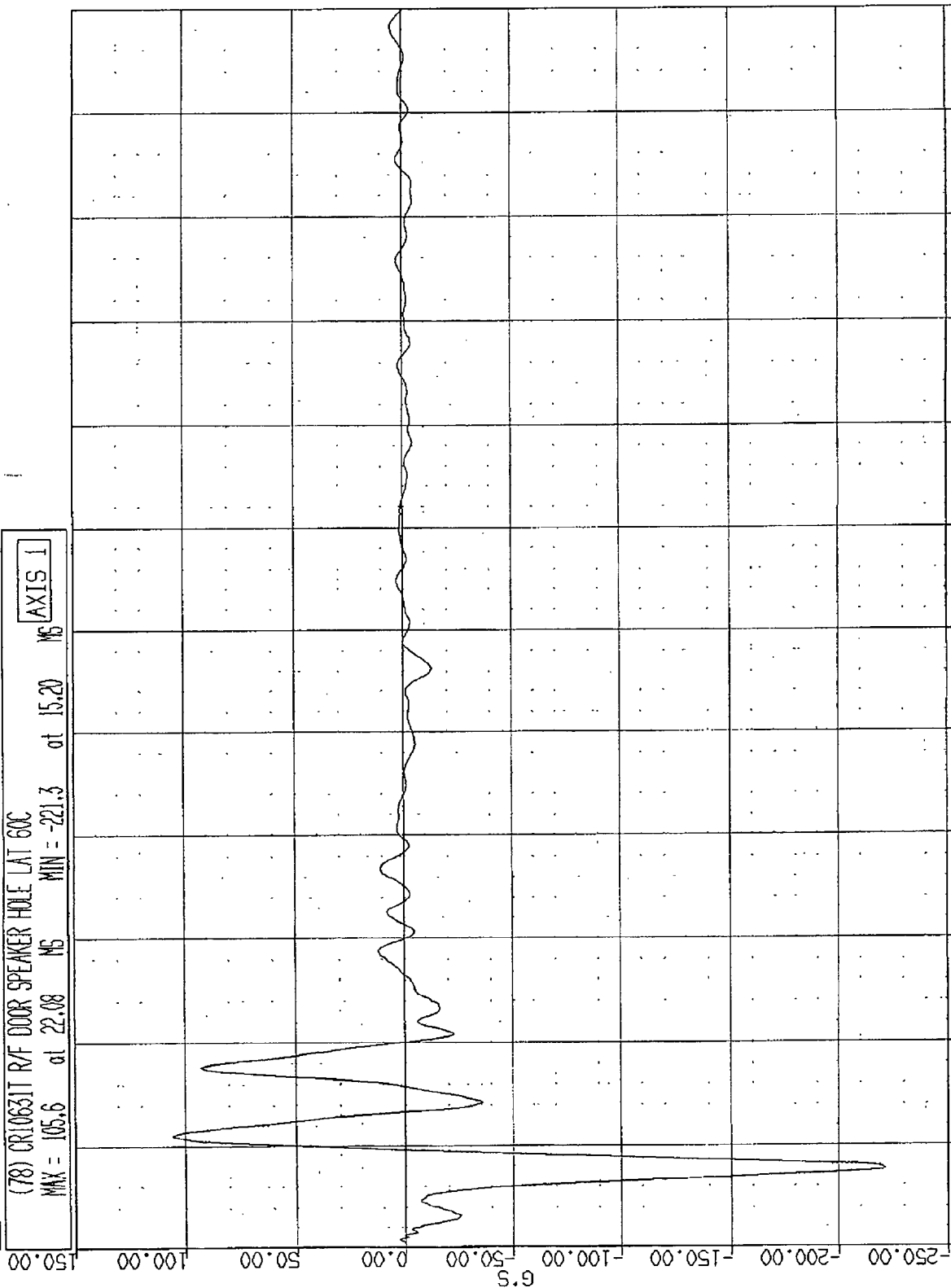
TIME

CRTS 0010631

240.00
220.00
200.00
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
TIME

(78) CR10631T R/F DOOR SPEAKER HOLE LAT 60C
MAX = 105.6 at 22.08 MS MIN = -221.3 at 15.20 MS
AXIS 1

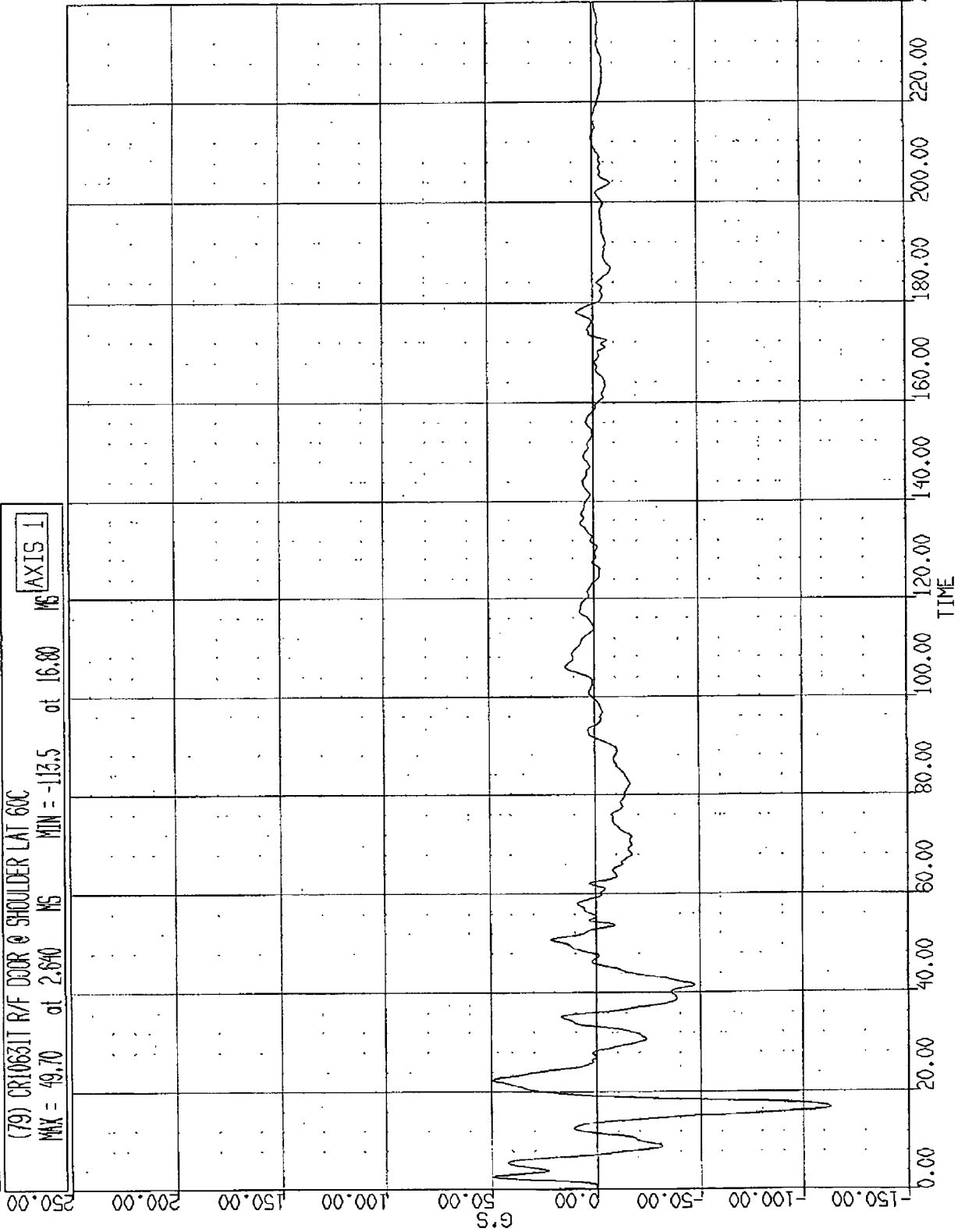
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(79) CR10631T R/F DOOR @ SHOULDER LAT 60C
MAX = 49.70 at 2.640 NS MIN = -113.5 at 16.80 NS
AXIS 1

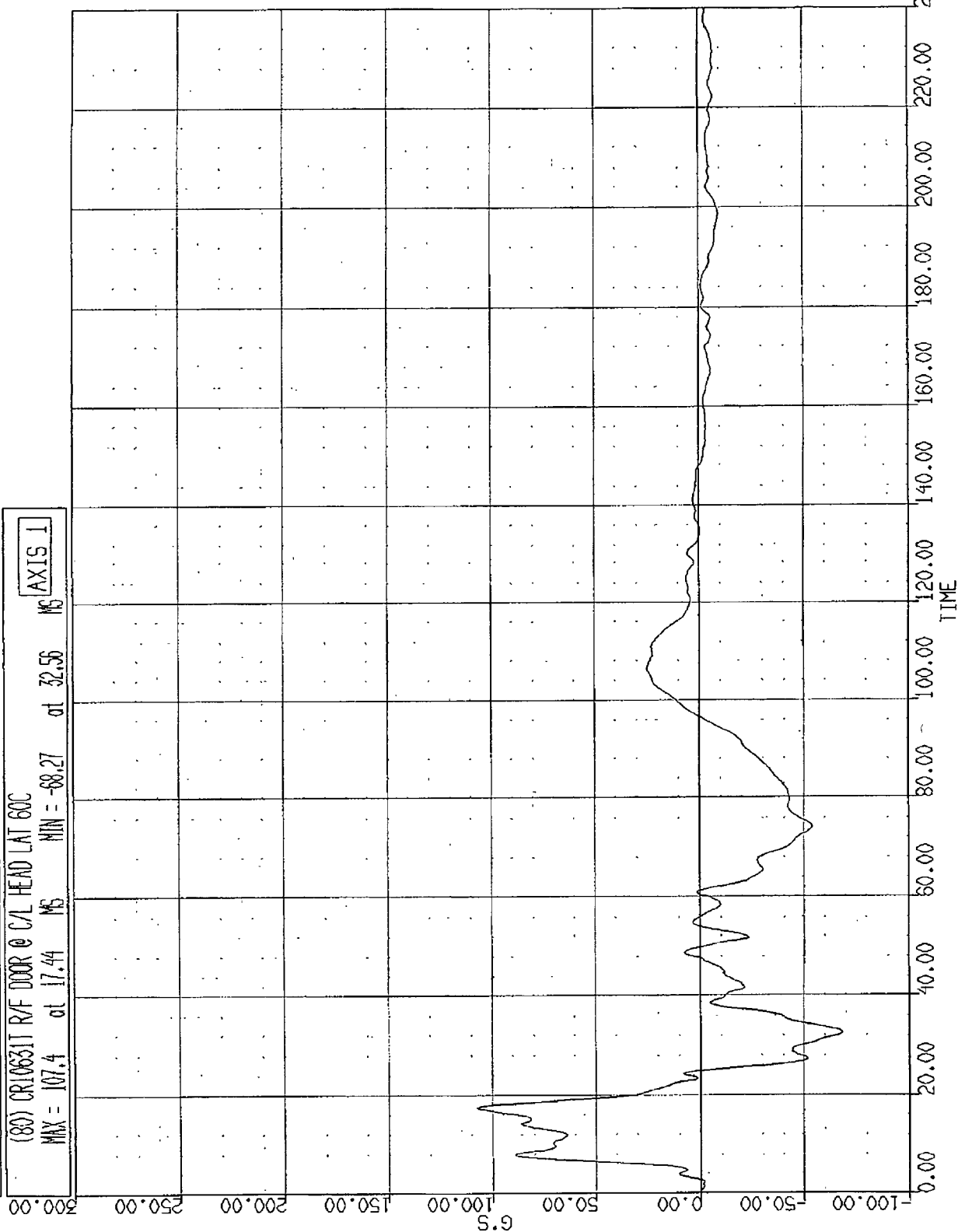


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(80) CR10631T R/F DOOR @ C/L HEAD LAT 60C
MAX = 107.4 at 17.44 MS MIN = -68.27 at 32.56 MS

AXIS 1

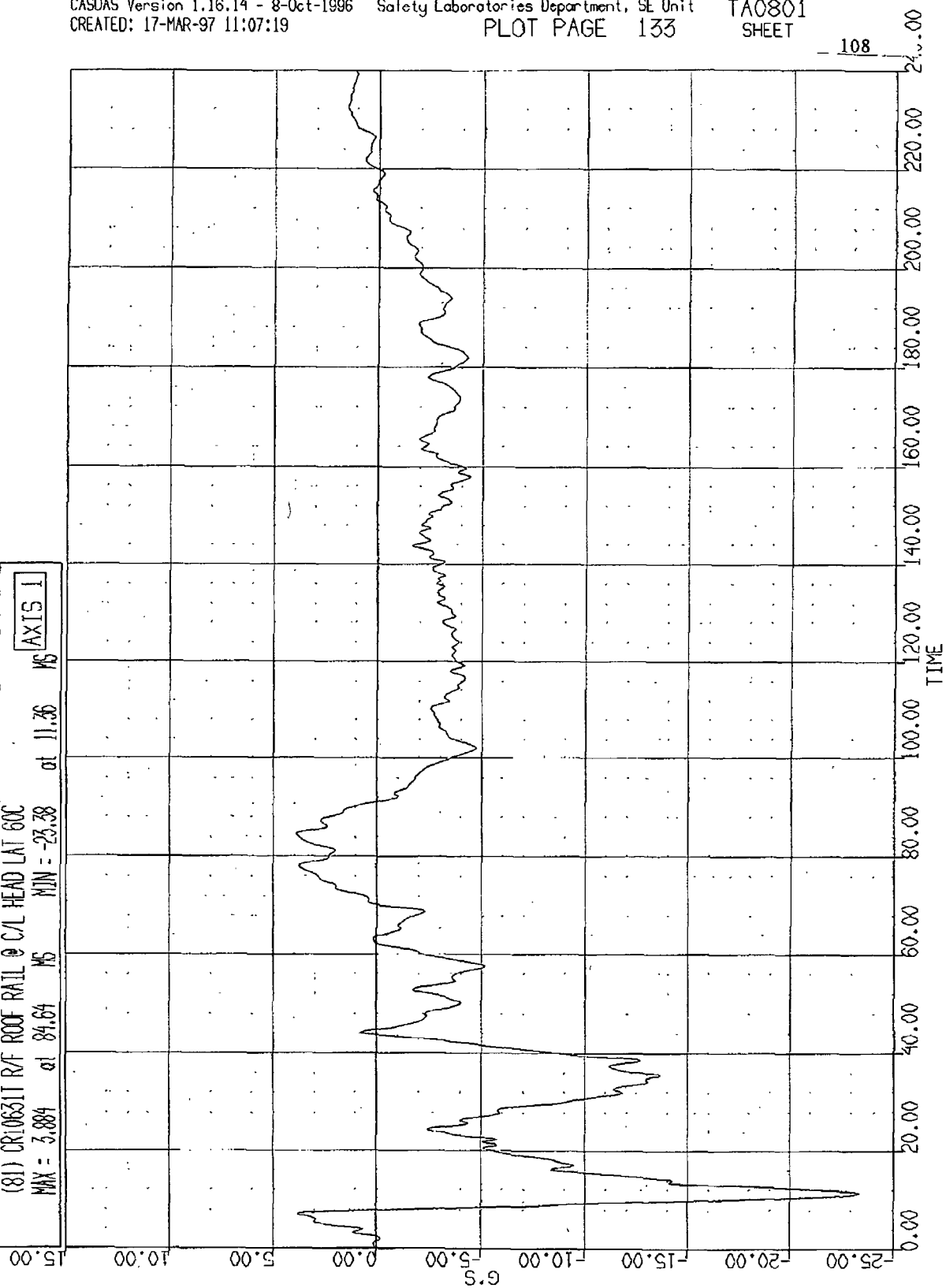


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(81) CR10631T R/F ROOF RAIL @ C/L HEAD LAT 60C
 MAX = 3.884 at 84.64 MS MIN = -23.38 at 11.36 MS

AXIS 1



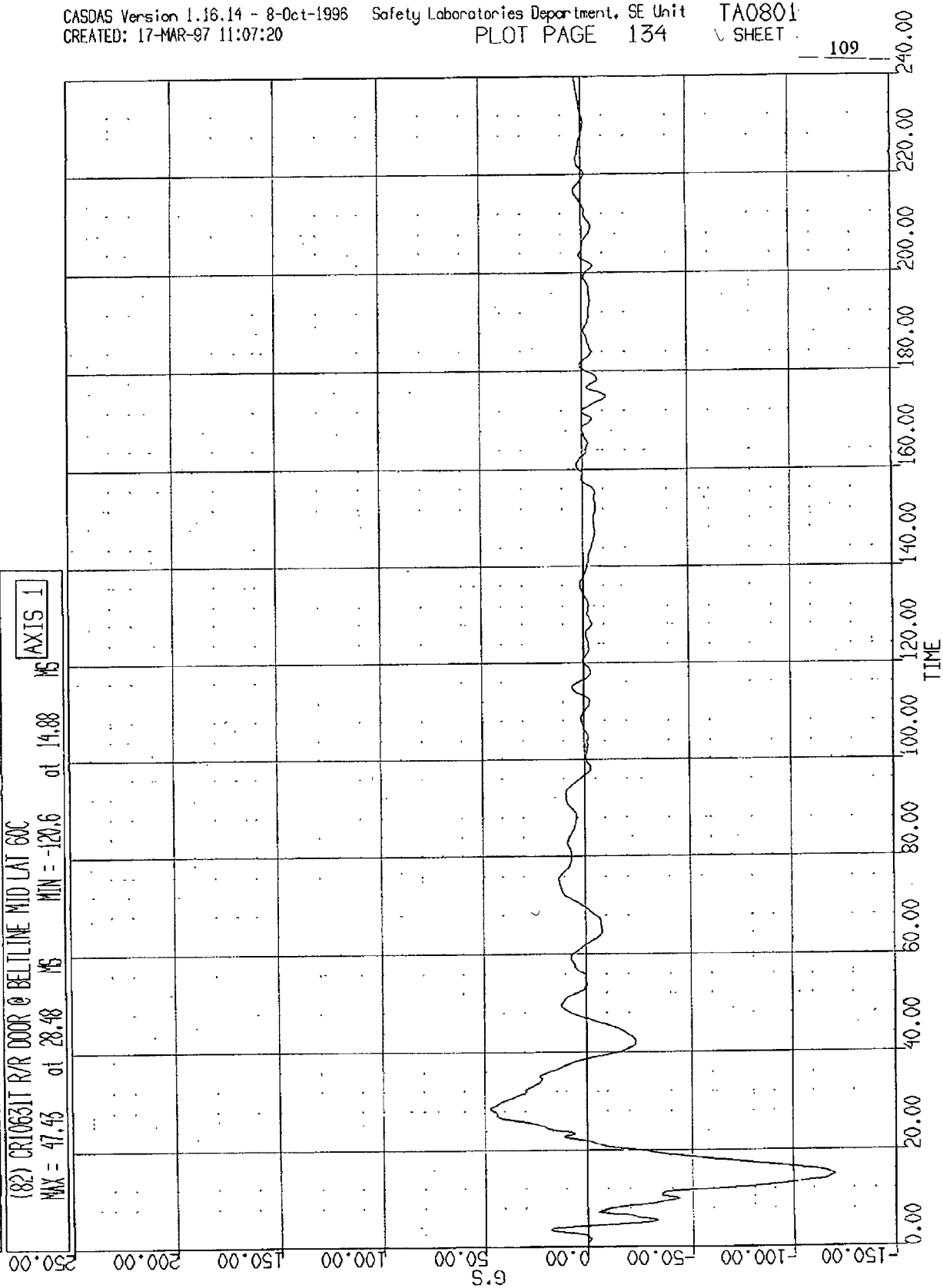
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(82) CR10631T R/R DOOR @ BELTLINE MID LAT 60C

MAX = 47.43 at 28.48 MS MIN = -120.6 at 14.88 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TAO801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(83) CR10631T R/R DOOR OVER ARMREST LAT 60C
 MAX = 50.55 at 29.52 MS MIN = -100.4 at 18.32 MS

AXIS 1

250.00

200.00

150.00

100.00

50.00

0.00

-50.00

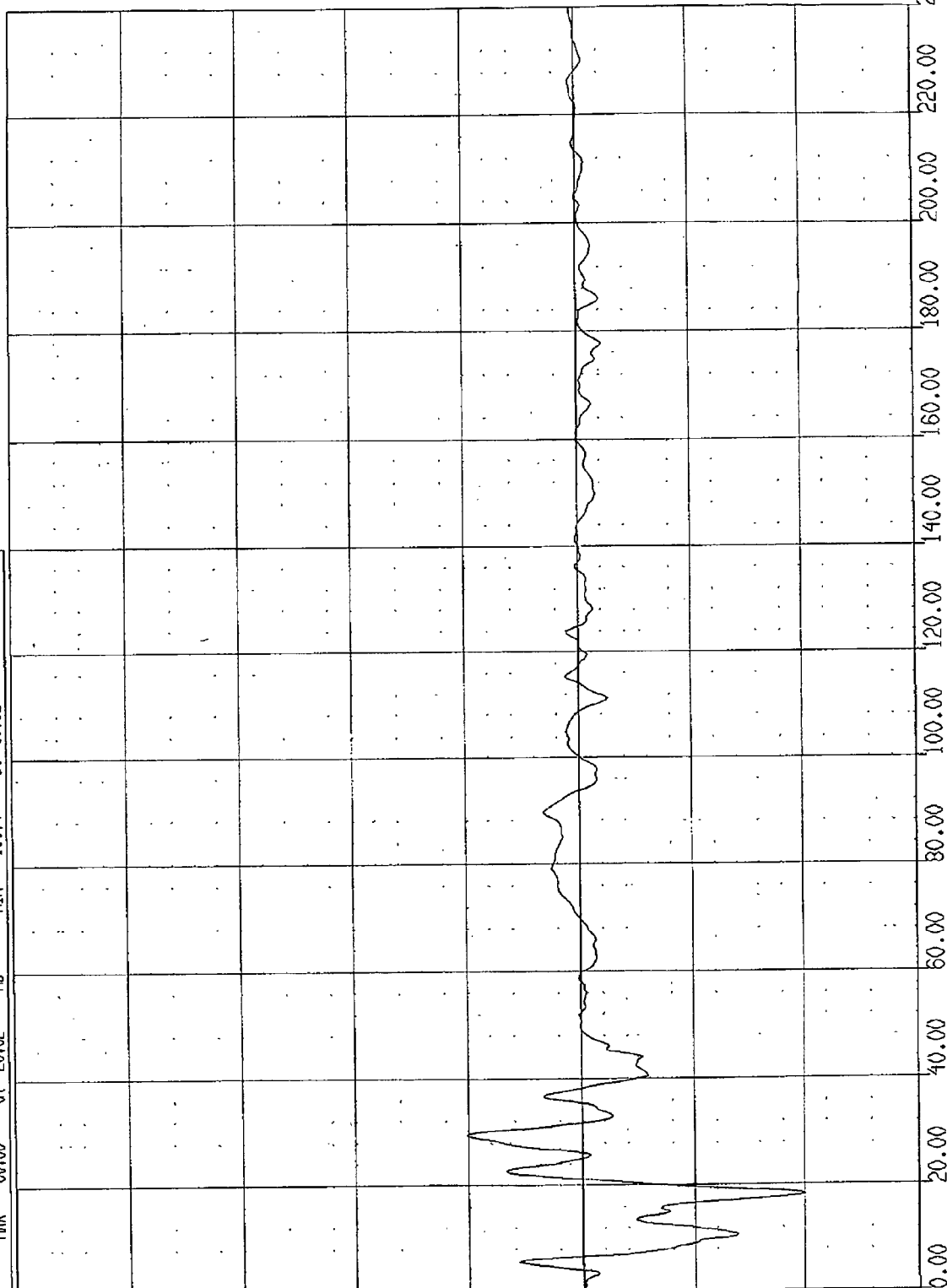
-100.00

-150.00

0.00

G.S.

TIME



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(84) CR10631T R/R ROOF RAIL @ C/L HEAD LAT 60C

MAX = 7.785

at 84.72

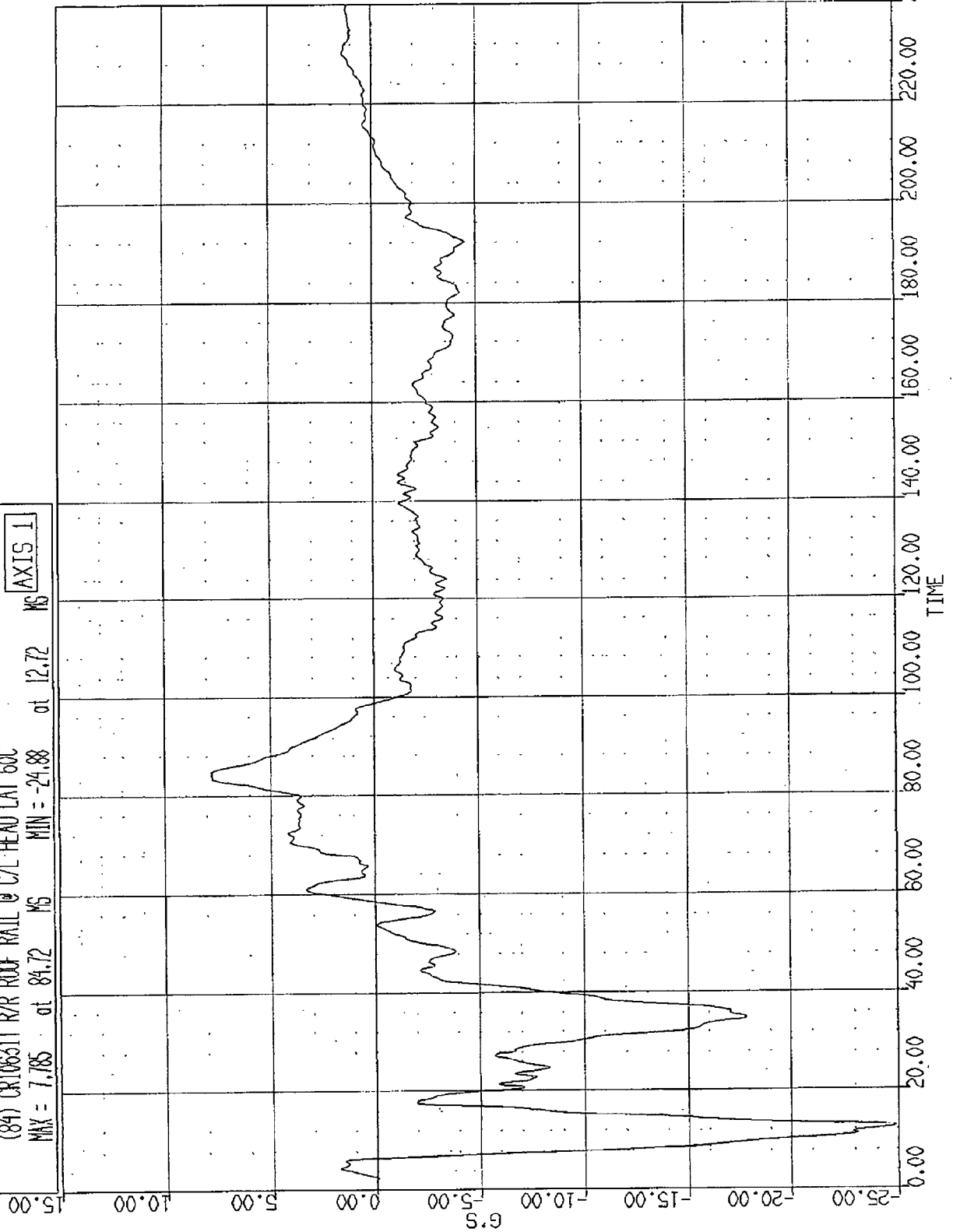
MS

MIN = -24.88

at 12.72

MS

AXIS 1



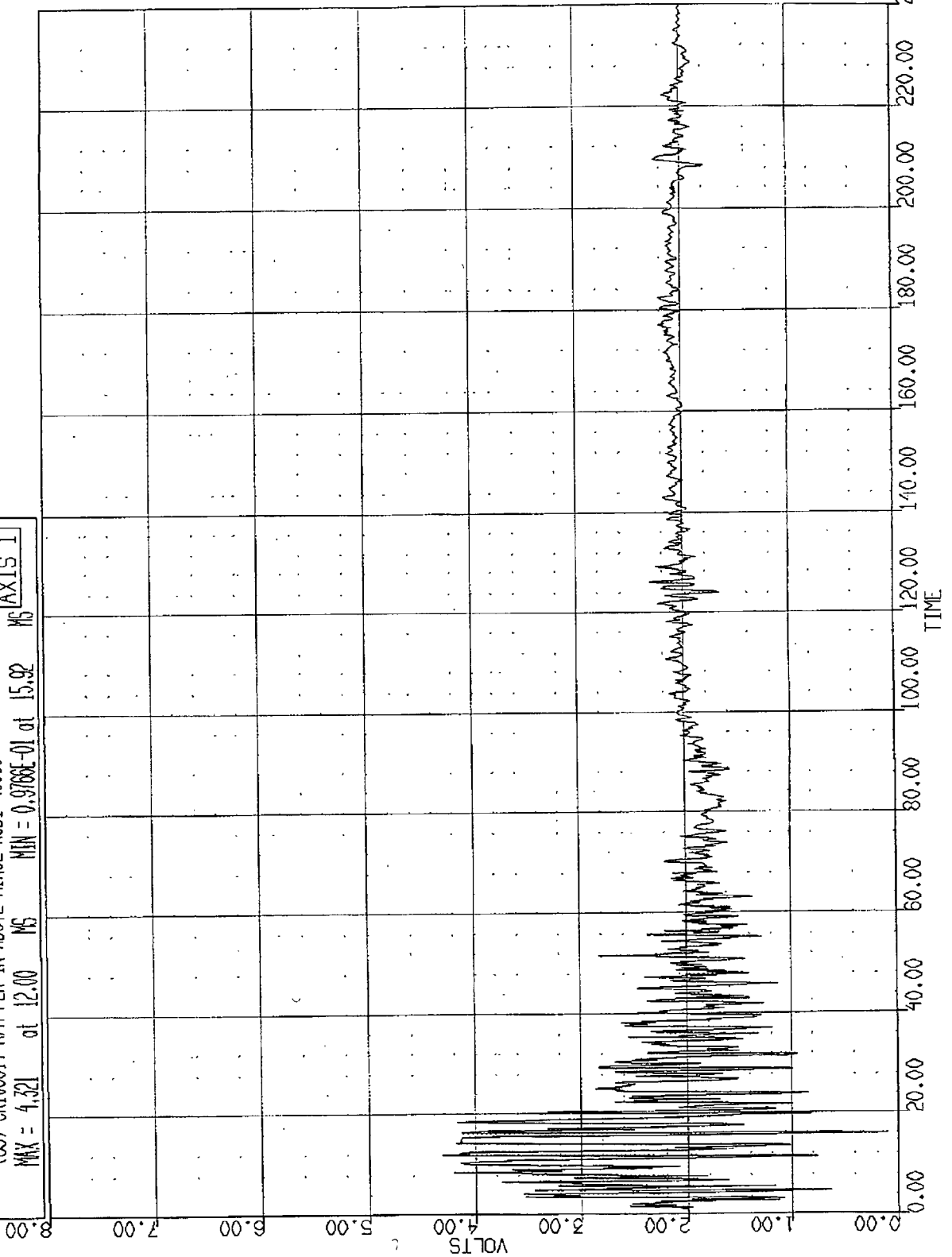
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(85) CR10631T R/A-PLR IN ABOVE HINGE ACCL 4000C

MAX = 4.321 at 12.00 MS MIN = 0.9768E-01 at 15.92 MS

AXIS 1



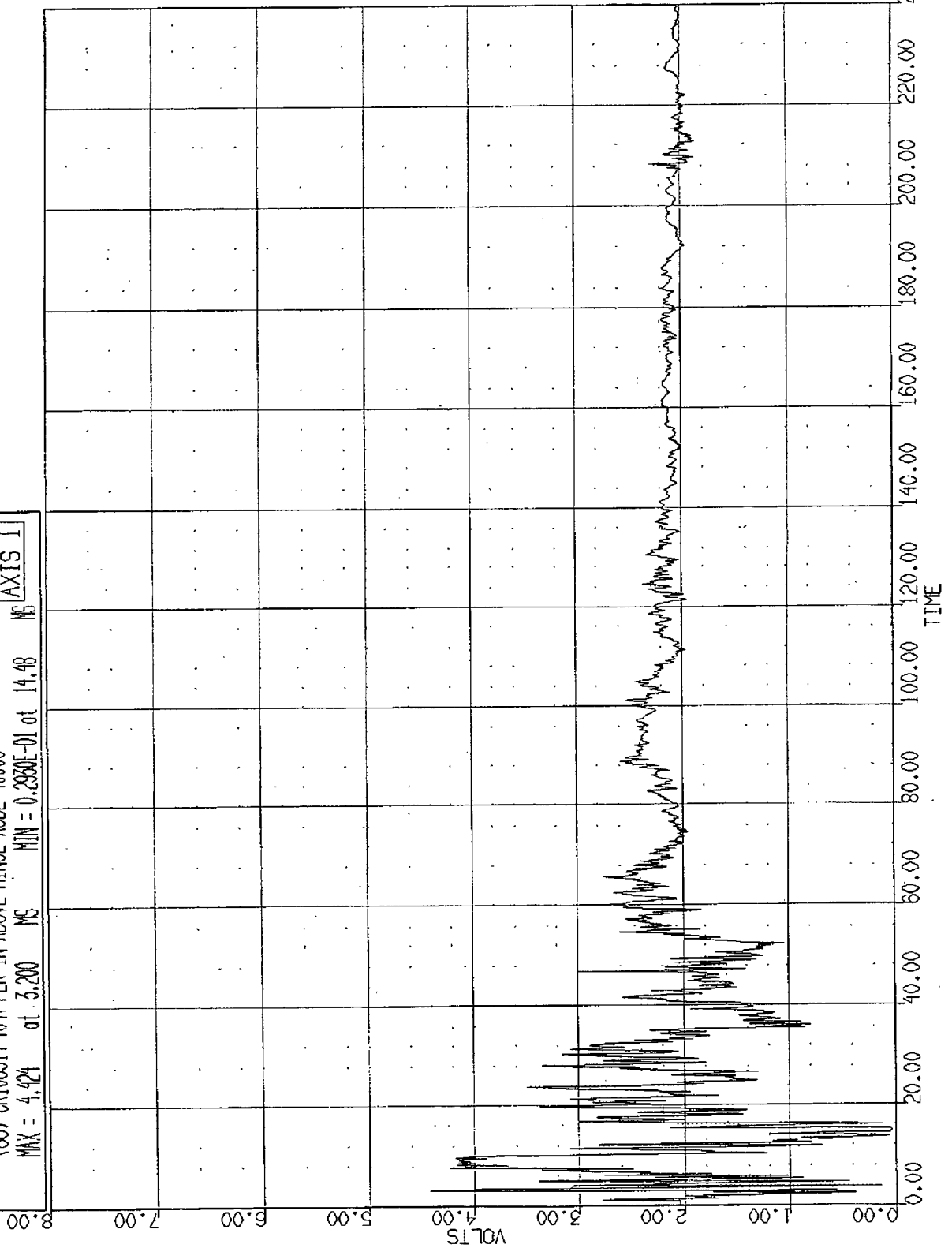
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(86) CR10631T R/A-PLR IN ABOVE HINGE ACC2 4000C

MAX = 4.424 at 3.200 MS MIN = 0.2330E-01 at 14.48 MS

AXIS 1

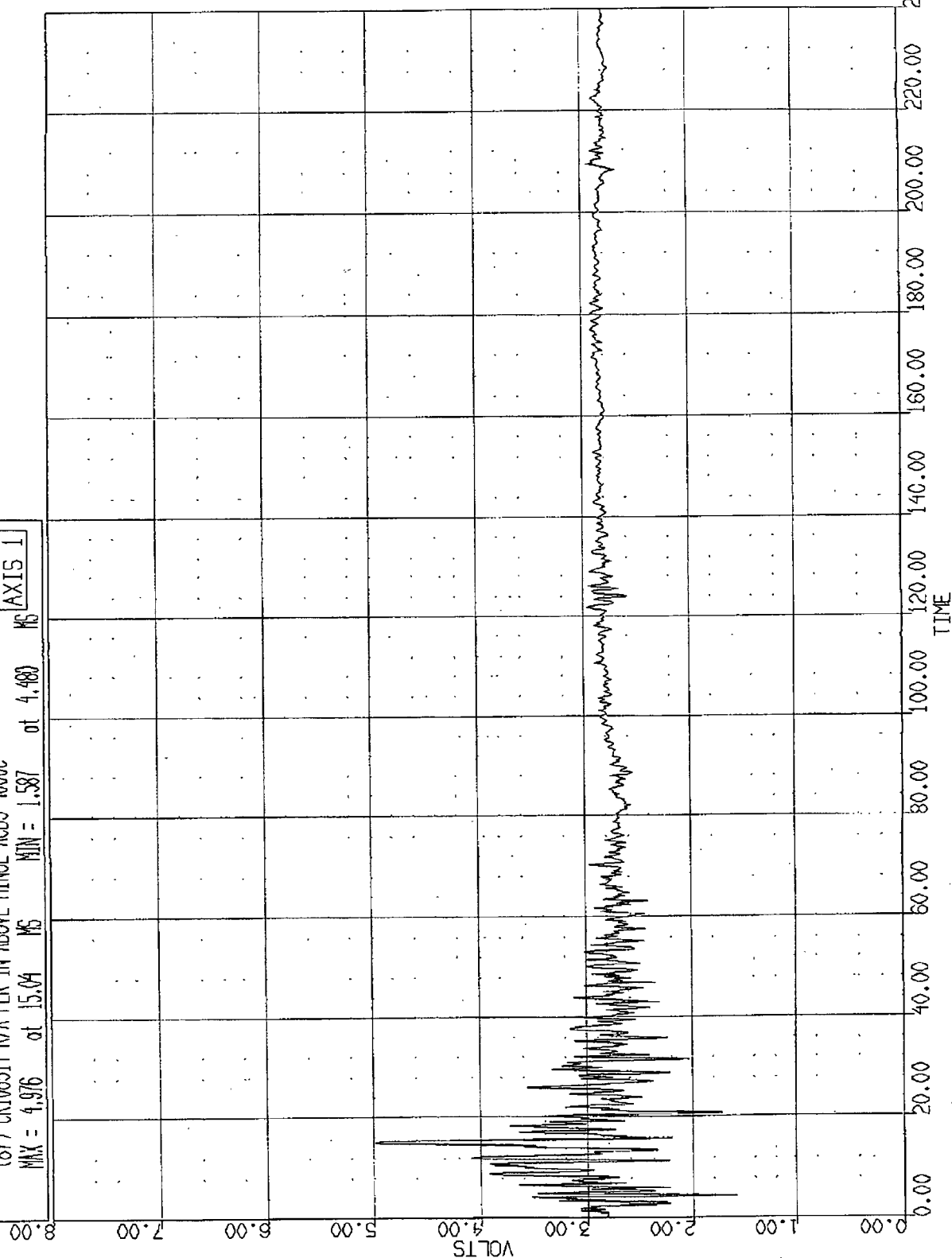


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(87) CR10631T R/A-PLR IN ABOVE HINGE ACC3 4000C
 MAX = 4.976 at 15.04 MS MIN = 1.537 at 4.480 MS

AXIS 1



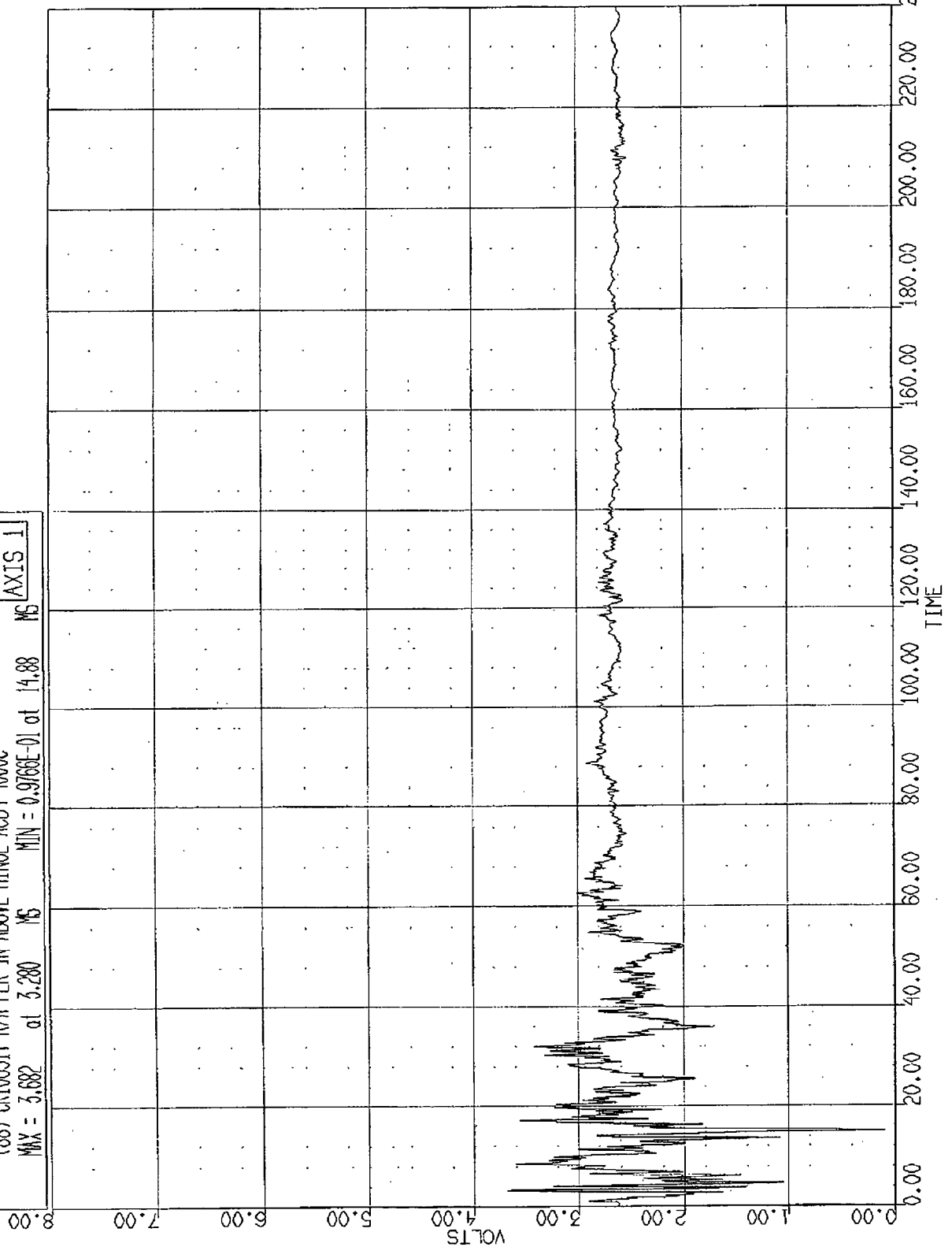
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(88) CR10631T R/A-PLR IN ABOVE HINGE ACQ4 4000C

MAX = 3.682 at 3.280 MS MIN = 0.9760E-01 at 14.88 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(89) CR10631T R/A-PLR IN ABOVE HINGE ADCS 4000C

MAX = 1.812 at 164.4 MS MIN = 1.788 at 6.320 MS

AXIS 1

8.00

7.00

6.00

5.00

4.00
VOLTS

3.00

2.00

1.00

0.00

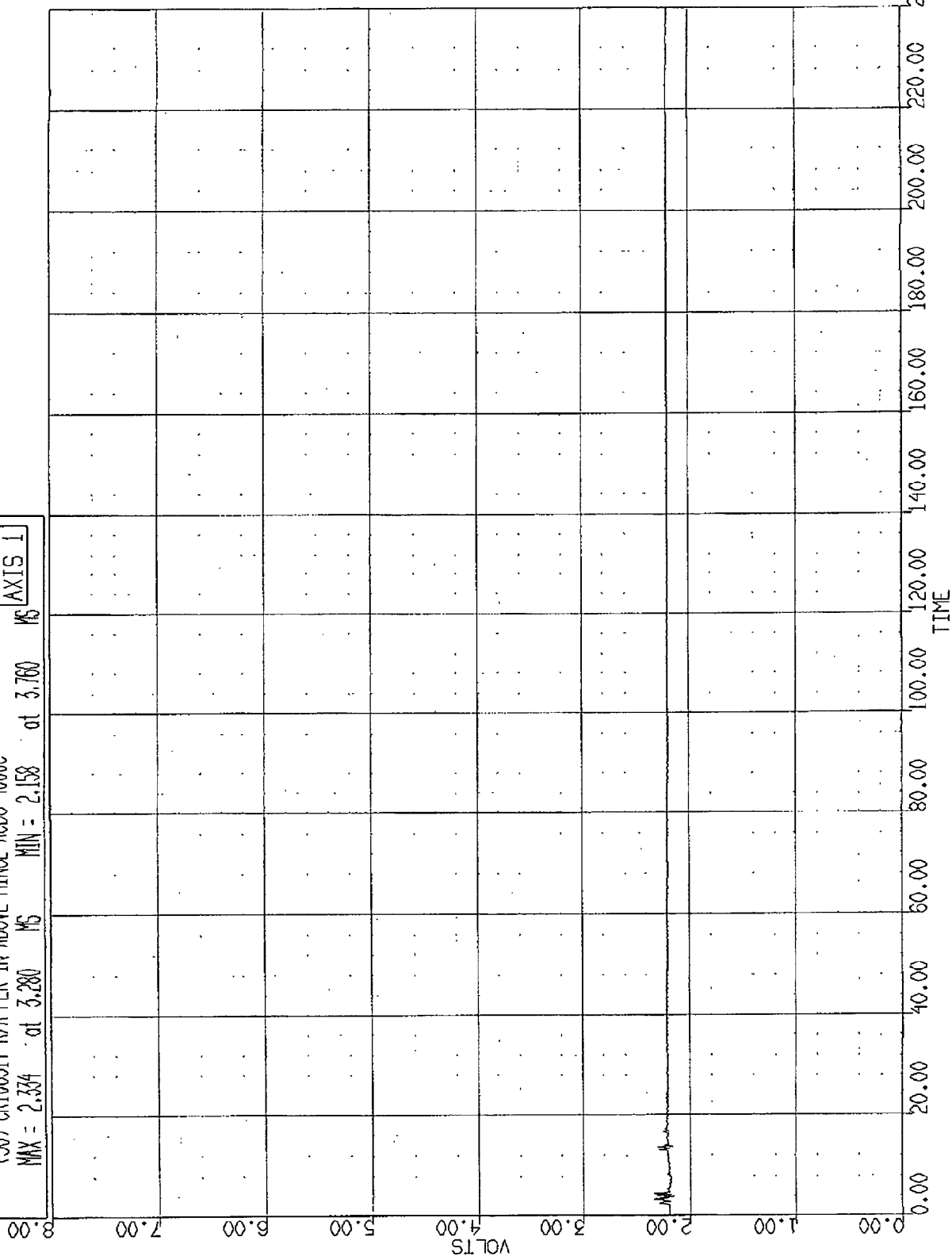
0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00
TIME

CRTS 0010631

0666

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(90) CR10631T R/A-PLR IN ABOVE HINGE ACC6 400C
MAX = 2.334 at 3.280 MS MIN = 2.158 at 3.760 MS
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(91) CR10631T R/A-PLR IN ABOVE HINGE ACCT 4000C

MAX = 5.337 at 11.35 MS MIN = 3.281 at 139.0 MS

AXIS 1

8.00

7.00

6.00

5.00

4.00

3.00

2.00

1.00

0.00

VOLTS

TIME

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00

CRTS 0010631

0668

TIME

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(92) CR10631T R/A-PLR IN ABOVE HINGE AC08 4000C

MAX = 5.029 at 13.36 MS MIN = -.7422 at 139.0 MS

AXIS 1

7.00

6.00

5.00

4.00

3.00

2.00

1.00

0.00

-1.00

VOLTS

CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(03) CR106311 R/A-PLR IN ABOVE HINGE SENS. LONG 60C
 MAX = 9.644 at 24.72 MS MIN = -28.50 at 16.40 MS

AXIS 1

50.00

40.00

30.00

20.00

10.00

G.S

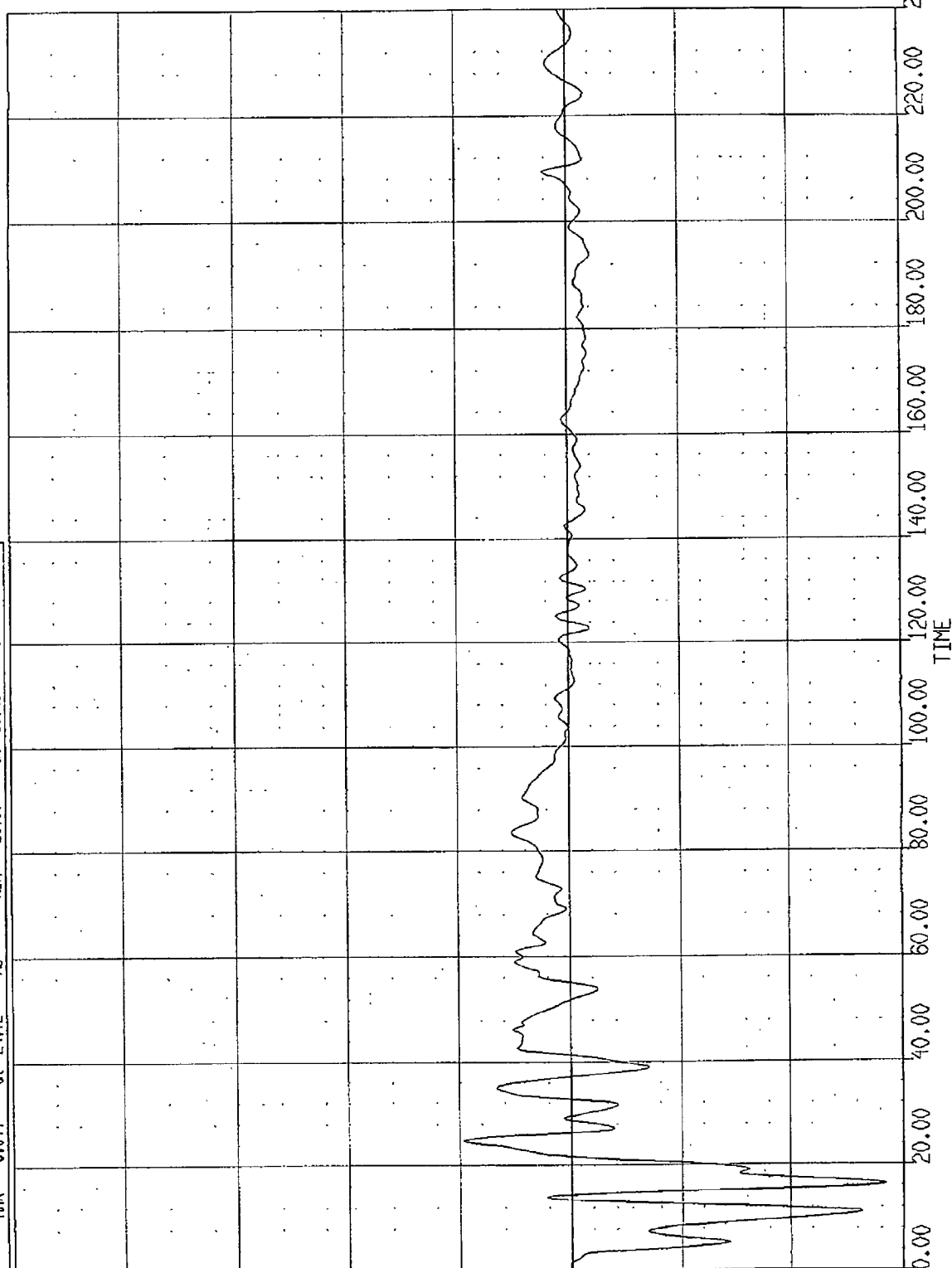
0.00

-10.00

-20.00

-30.00

0.00

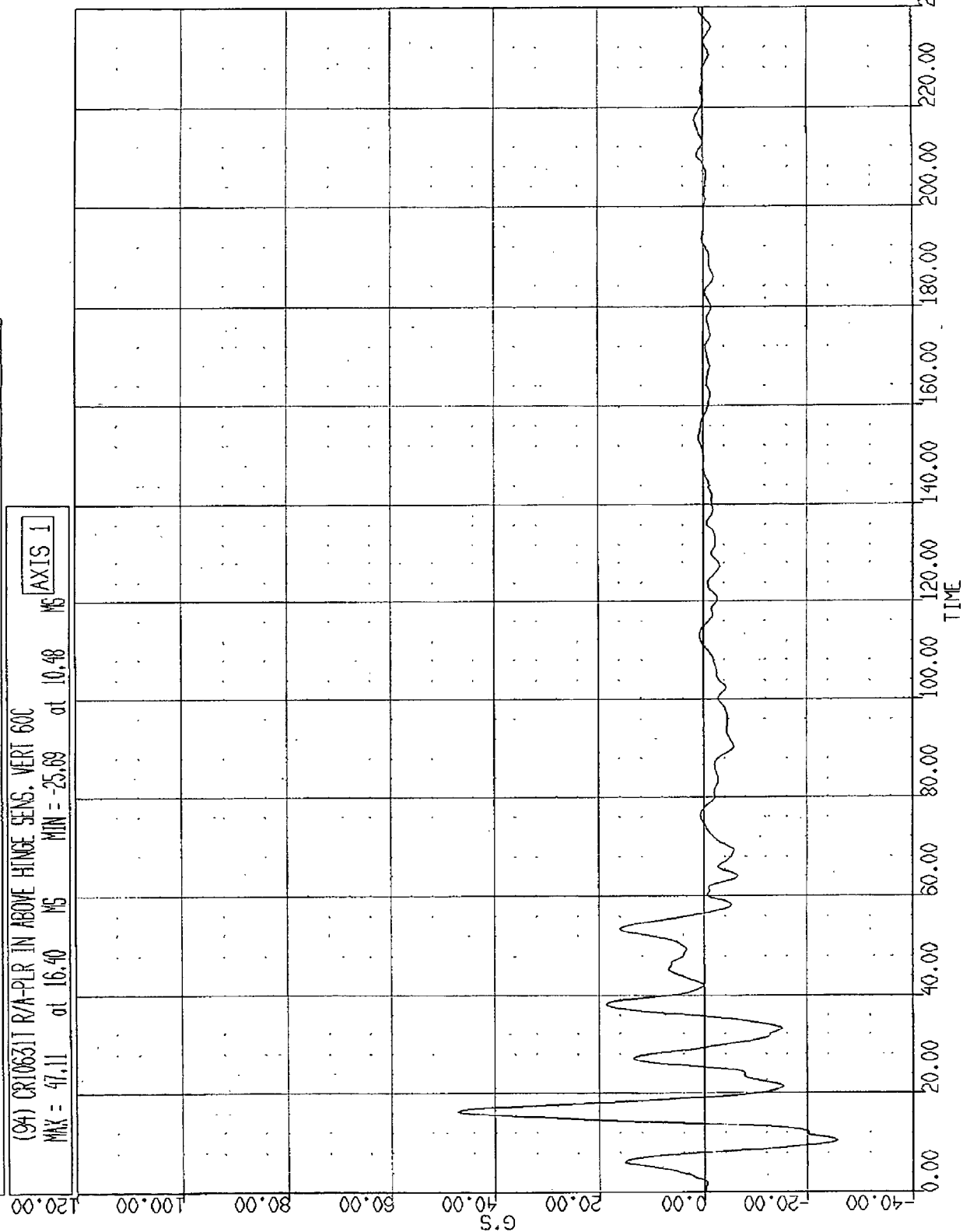


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(94) CR106311 R/A-PLR IN ABOVE HINGE SENS. VERT 600
MAX = 47.11 at 16.40 MS MIN = -25.69 at 10.48 MS

AXIS 1

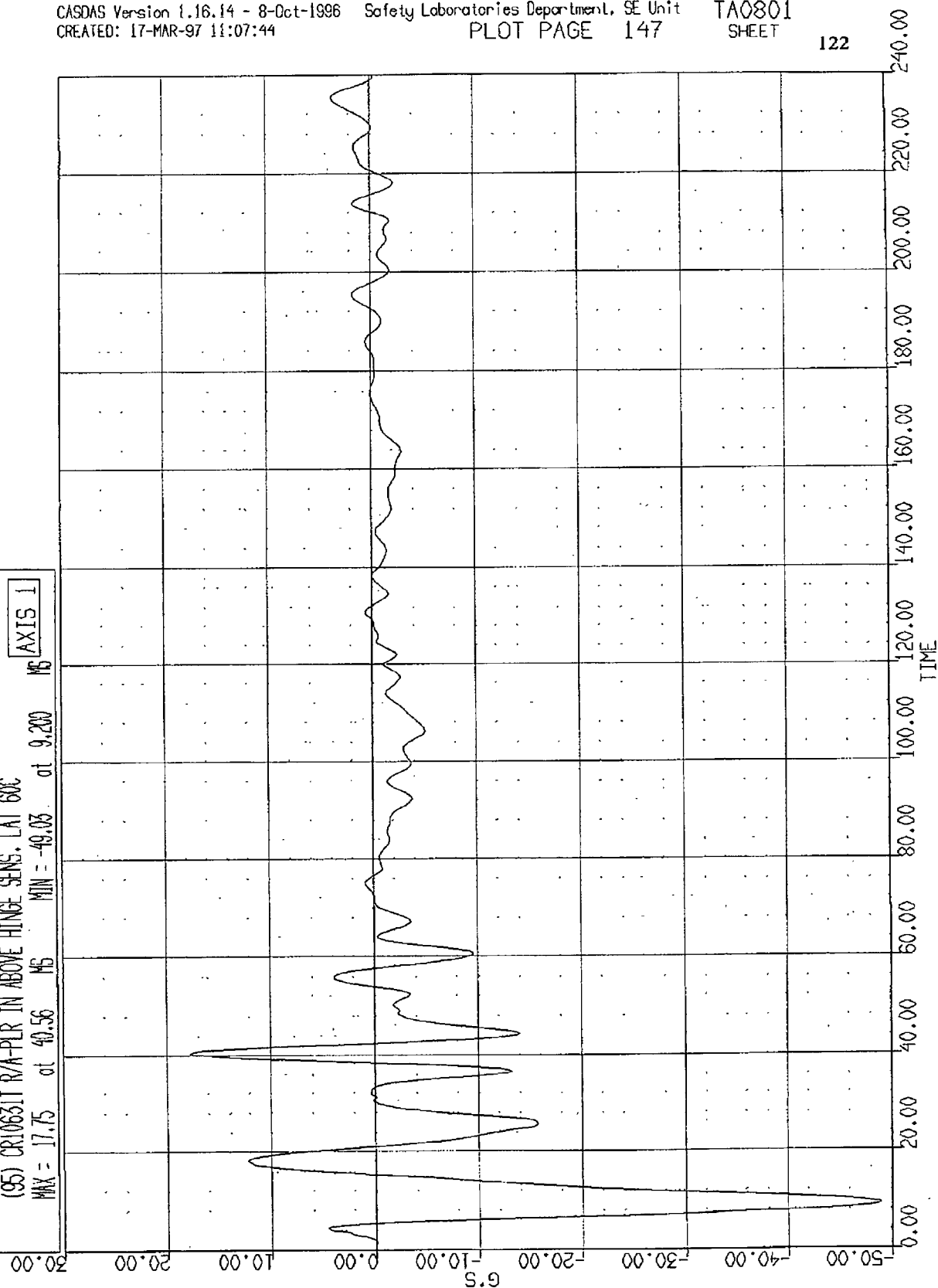


CRTS 0010631

CR R: 10631 TO: TAO801 DATE: 970317 09:52:04
 1999 PN-98 1999 MOVING DEFORMABLE BA

(95) CR106311 R/A-PLR IN ABOVE HINGE SENS. LAT 60C
 MAX = 17.75 at 40.56 MS MIN = -49.03 at 9.200 MS

AXIS 1



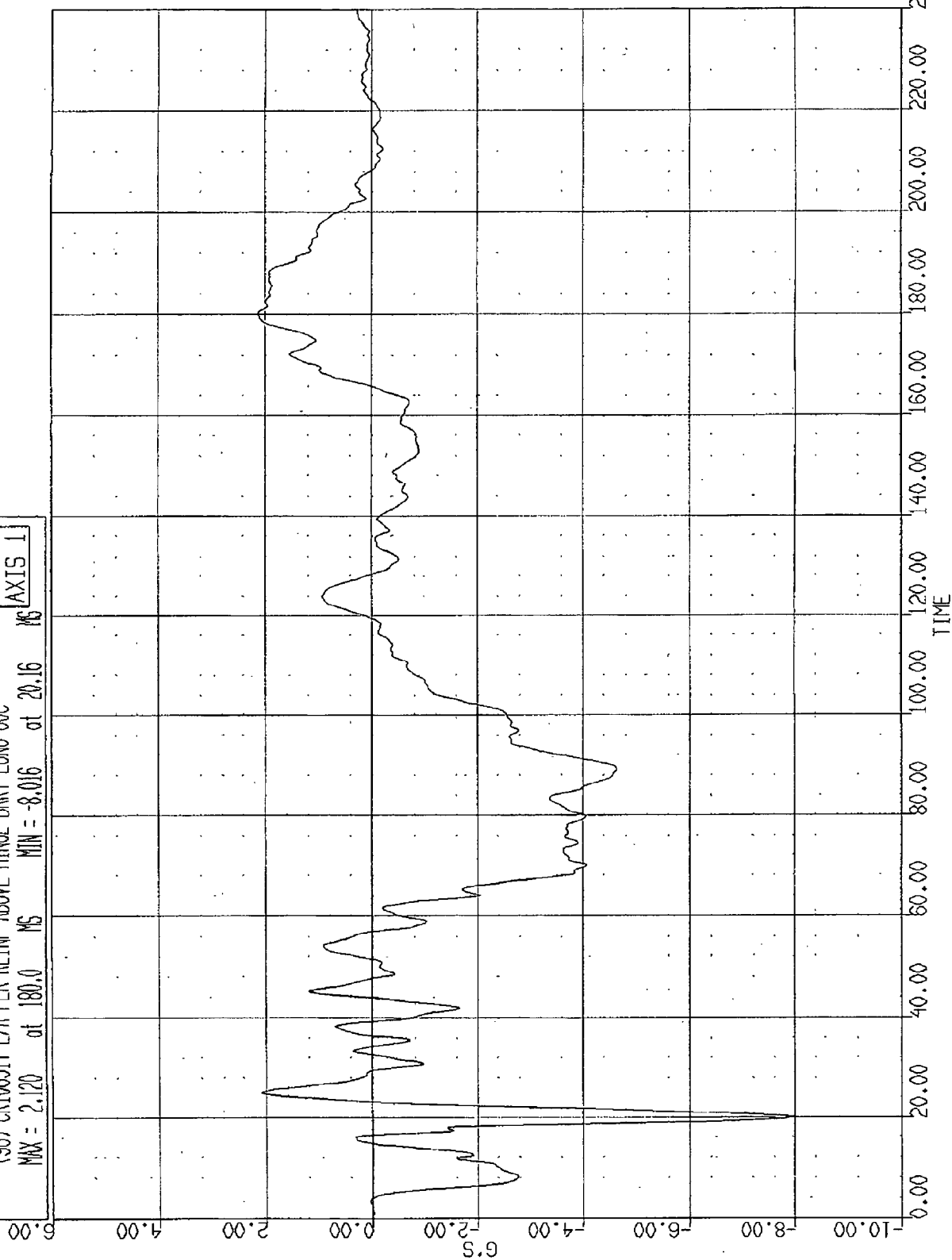
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(96) CR10631T L/A-PLR REINF ABOVE HINGE BRKT LONG 60C

MAX = 2.120 at 180.0 MS MIN = -8.016 at 20.16 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(97) CR10631T L/A-PLR REINF ABOVE HINGE BRKT VERT 60C
MAX = 4.495 at 84.24 MS MIN = -8.580 at 13.28 MS

AXIS 1

6.00

4.00

2.00

0.00

-2.00

-4.00

-6.00

-8.00

-10.00

6.5

TIME

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00

CRTS 0010631

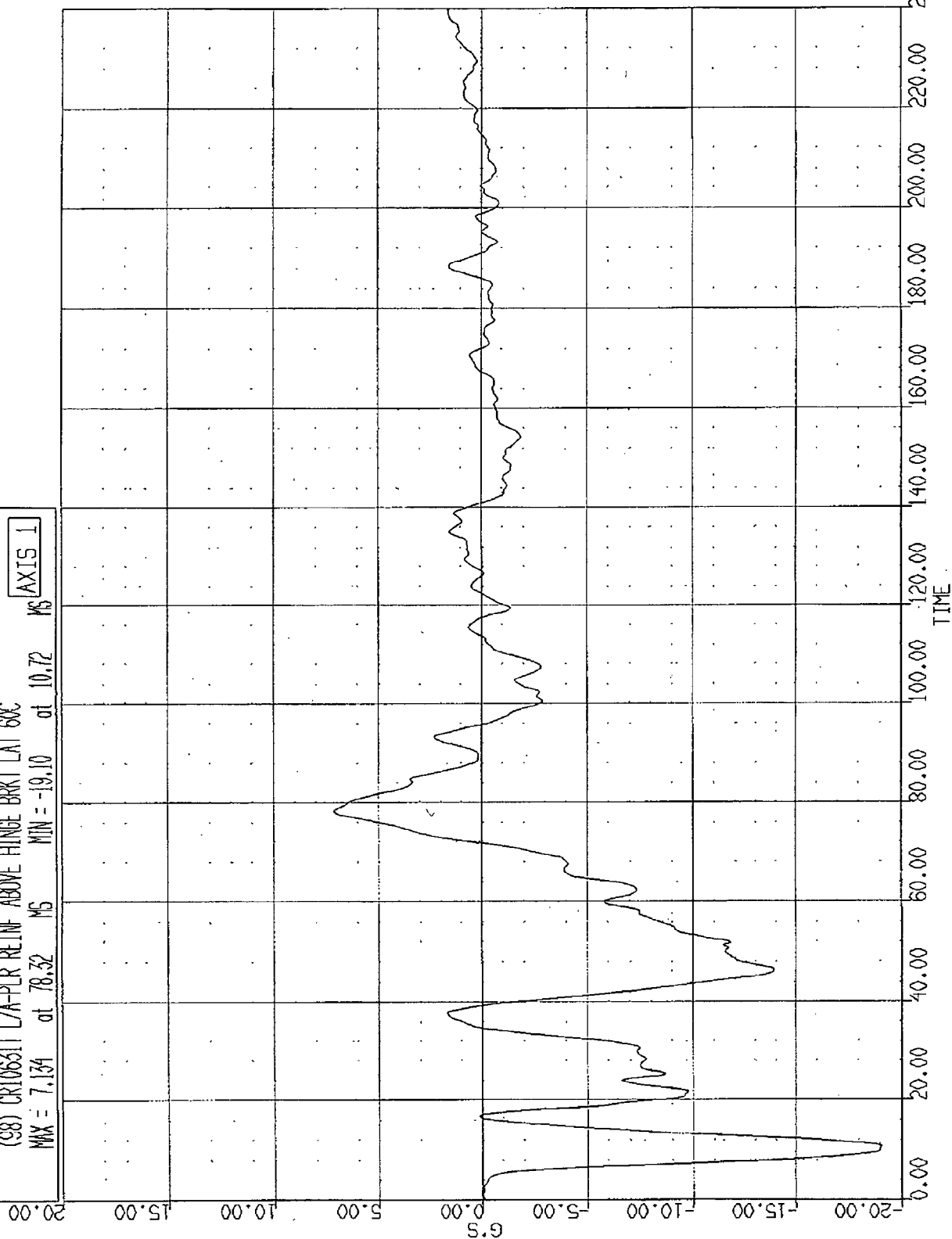
0674

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(98) CR10631T L/A-PLR REINF ABOVE HINGE BRKT LAT 68C

MAX = 7.134 at 78.32 MS MIN = -19.10 at 10.72 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(99) CR10631T R/A-PLR REINF ABOVE HINGE BRKT LONG 60C
MAX = 23.57 at 16.40 MS MIN = -31.74 at 10.96 MS

AXIS 1

40.00

30.00

20.00

10.00

0.00

10.00

-10.00

-20.00

-30.00

-40.00

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

TIME

CRTS 0010631

0676

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(100) CR10631T R/A-PIR REINF ABOVE HINGE BRKT VERT 60C
MAX = 21.73 at 14.40 MS MIN = -17.10 at 10.56 MS

AXIS 1

60.00

50.00

40.00

30.00

20.00

G.S.

0.00

-10.00

-20.00

TIME

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

CRTS 0010631

0677

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(101) CR106311 R/A-PLR REINF ABOVE HINGE BRKT LAT 60C
 MAX = 35.88 at 16.56 MS MIN = -133.5 at 5.600 MS

AXIS 1

250.00

200.00

150.00

100.00

50.00

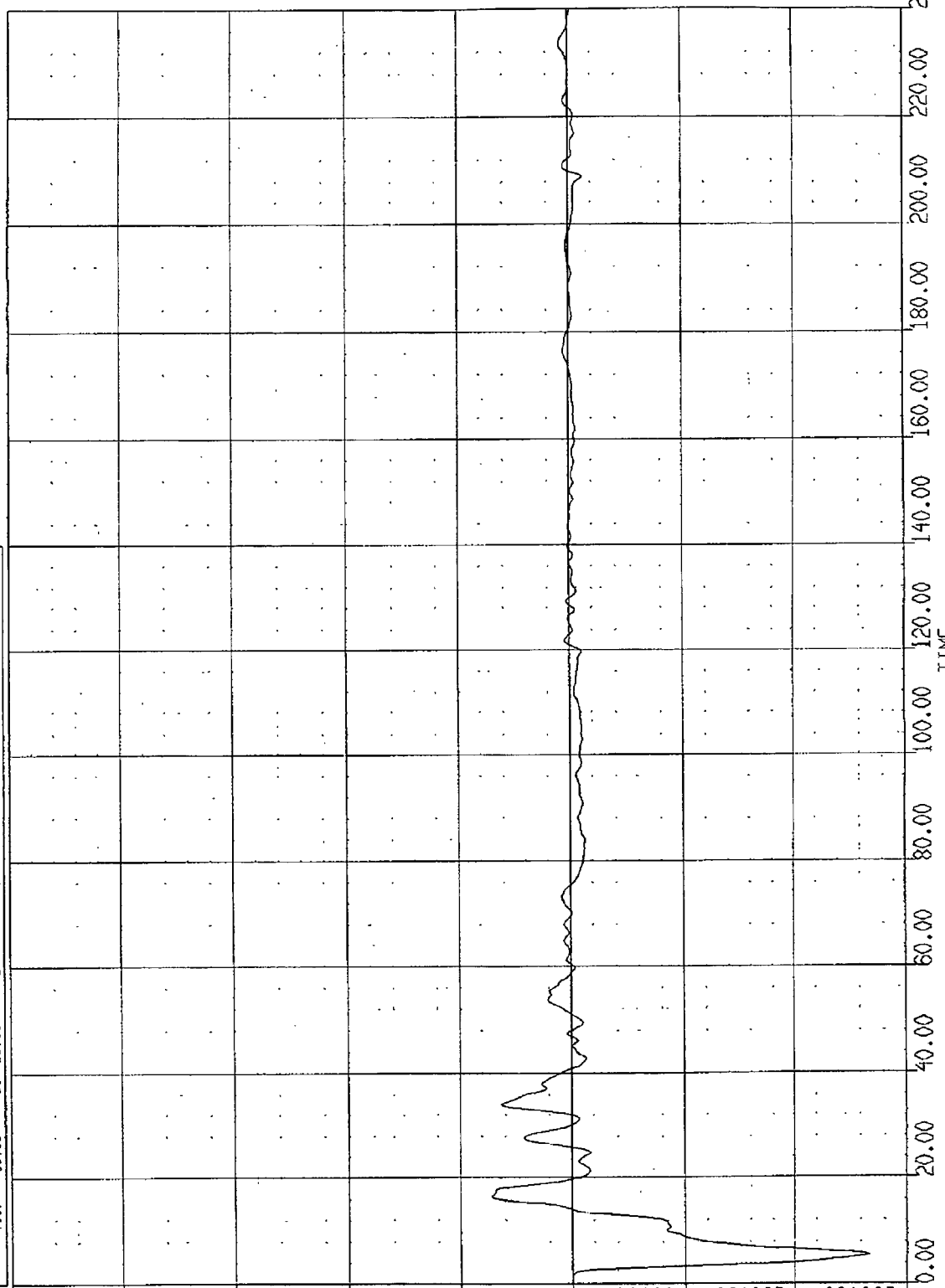
0.00

-50.00

-100.00

-150.00

G.S.



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(102) CR10631T R/B-PILLAR INSIDE UPPER LAT 60C

MAX = 65.37 at 25.84 MS MIN = -131.0 at 17.36 MS

AXIS 1

250.00

200.00

150.00

100.00

50.00

G.S.

0.00

-50.00

-100.00

-150.00

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

TIME

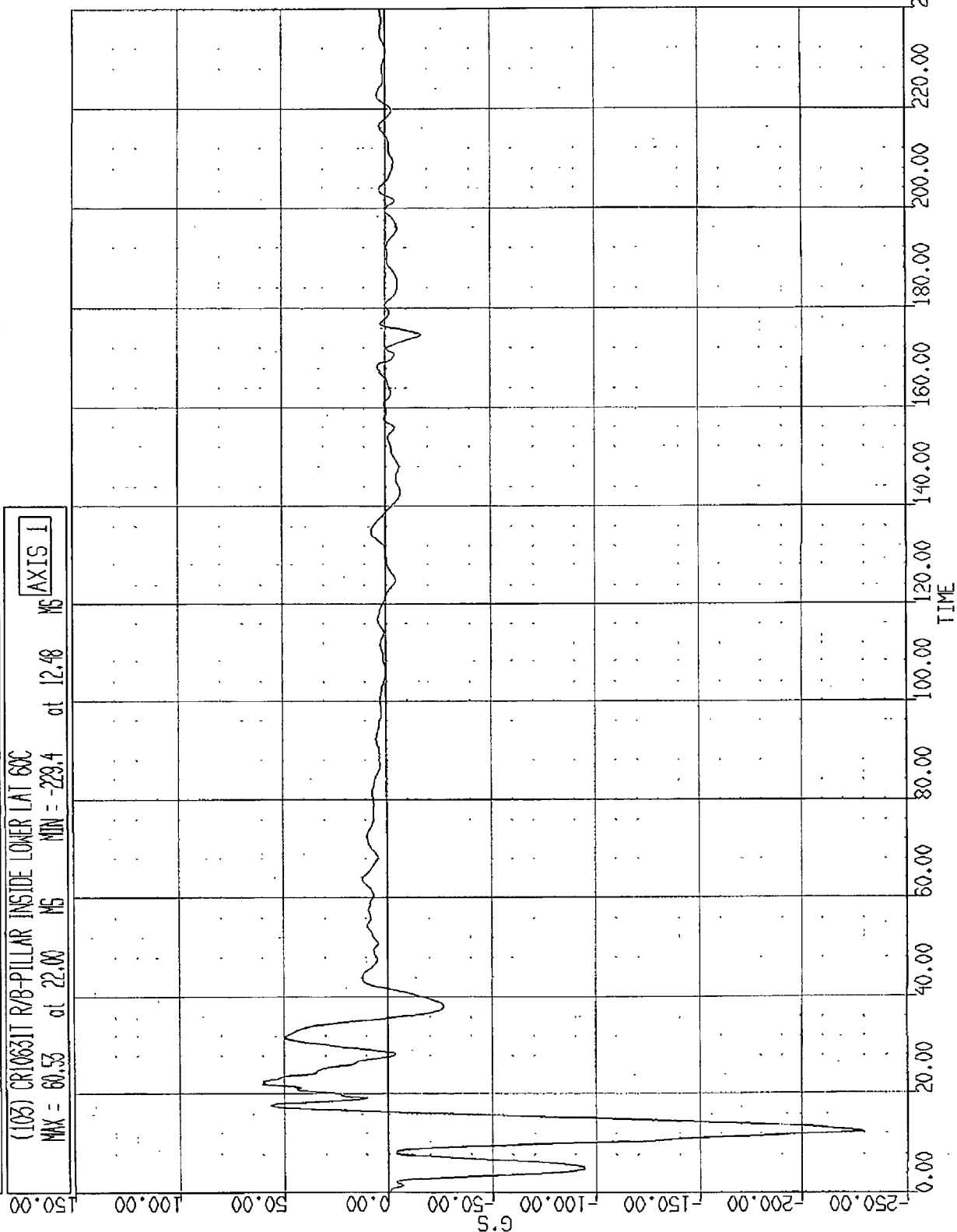
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-86 1999 MOVING DEFORMABLE BA

(103) CR10631T R/B-PILLAR INSIDE LOWER LAT 60C

MAX = 60.53 at 22.00 MS MIN = -239.4 at 12.48 MS

AXIS 1



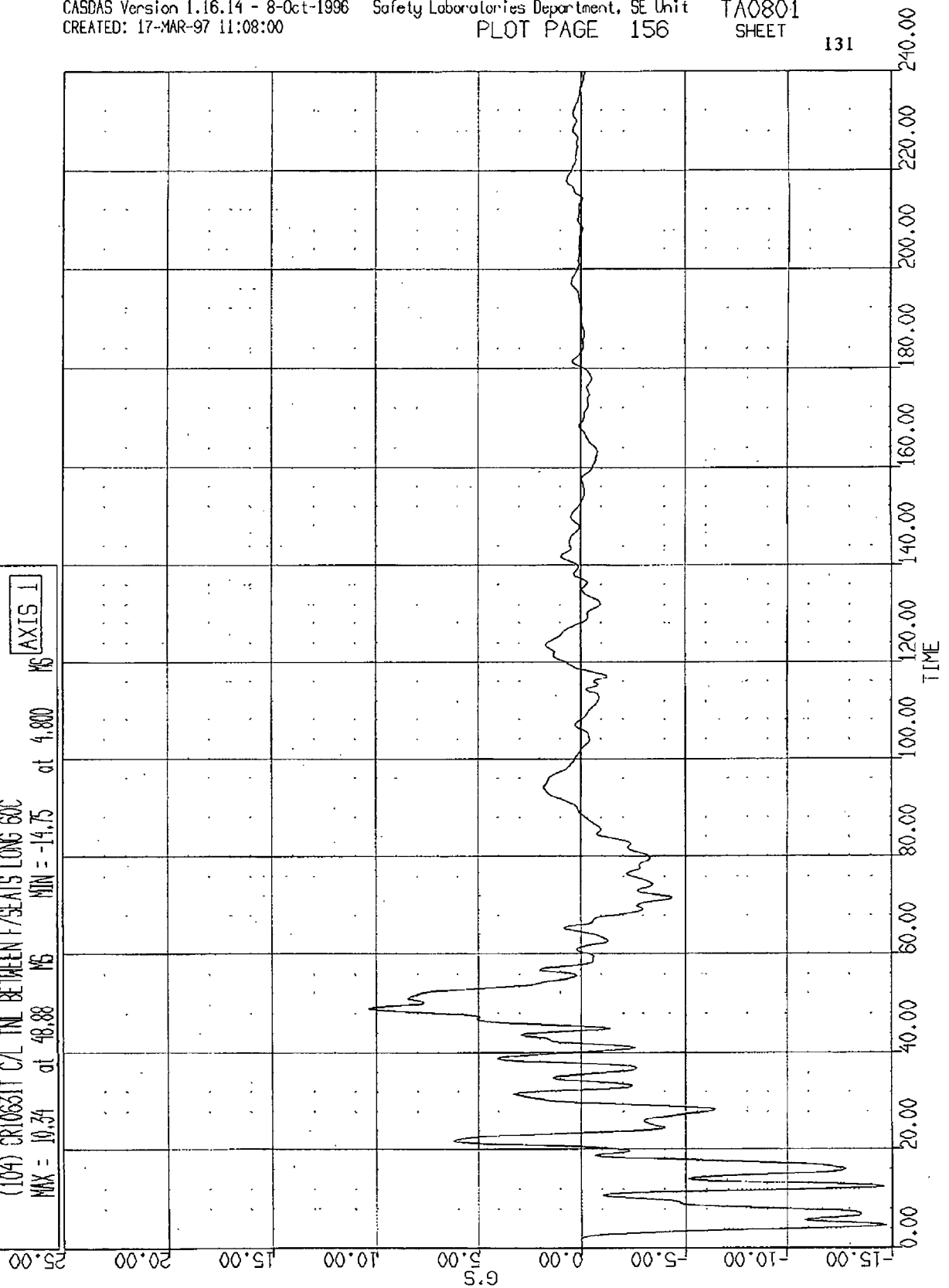
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(104) CR10631 C/L TNL BETWEEN F/SEATS LONG 60C

MAX = 10.34 at 48.88 MG MIN = -14.75 at 4.800 MG

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(105) CR10631T C/L TNL BETWEEN F/SEATS VERT 60C

MAX = 50.33 at 39.52 MS MIN = -46.51 at 43.20 MS

AXIS 1

100.00

80.00

60.00

40.00

20.00

5.5

0.00

-20.00

-40.00

-60.00

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

TIME

CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(106) CR10631T C/L TNL BETWEEN F/SEATS LAT 60C

MAX = 18.25 at 36.40 MS MIN = -37.07 at 5.760 MS

AXIS 1

40.00

30.00

20.00

10.00

G.S

0.00

-10.00

-20.00

-30.00

-40.00

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

TIME

CRTS 0010631

0683

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(107) CR10631T C/L TNL @ DASH AC01 AC 4000C

MAX = 4.175 at 13.12 MS MIN = 0.1953E-01 at 11.28 MS

AXIS 1

8.00

7.00

6.00

5.00

4.00
VOLTS

3.00

2.00

1.00

0.00

0.00

TIME

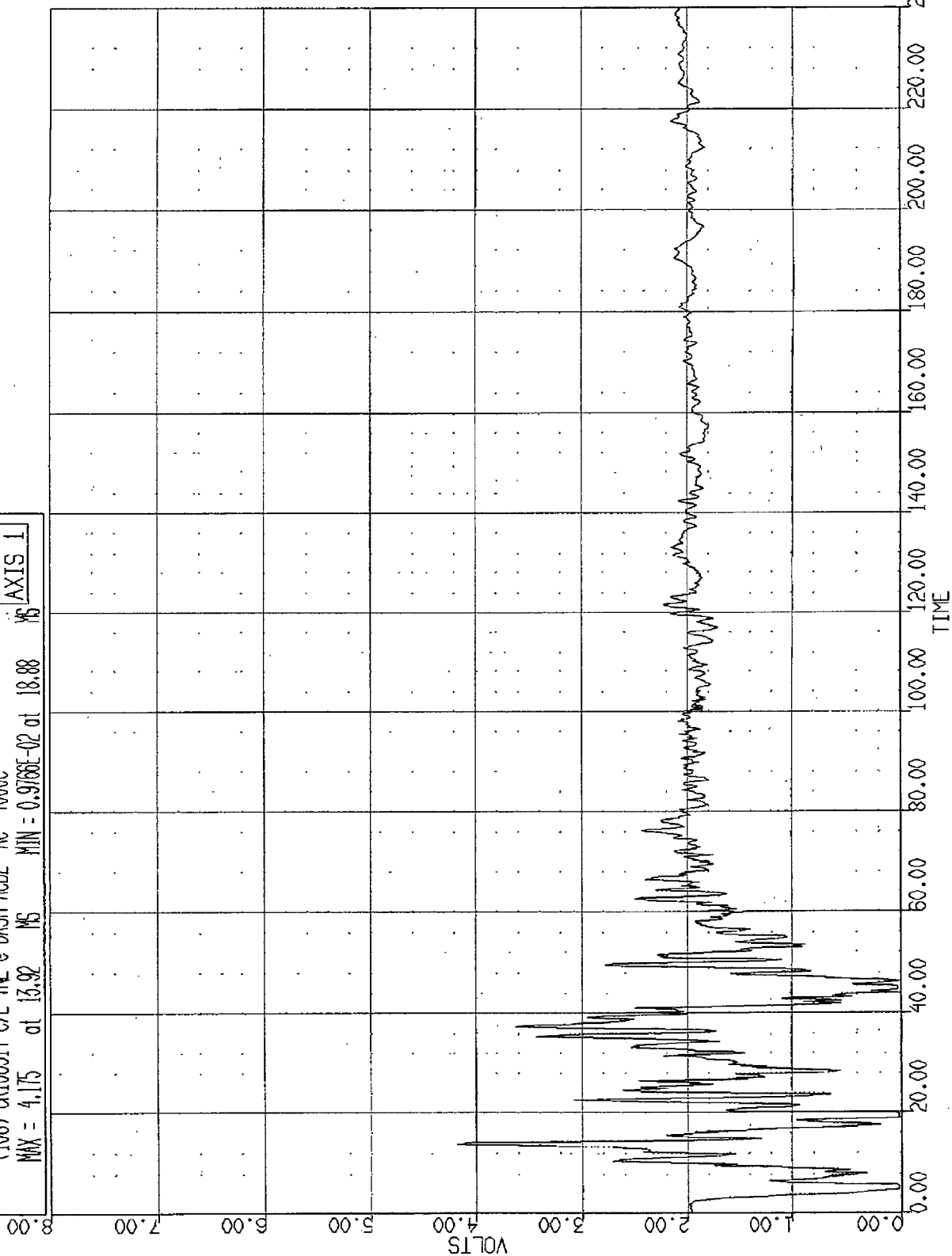
0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00

CRTS 0010631

0684

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(108) CR10631T C/L TN @ DASH ACC2 AC 4000C
MAX = 4.175 at 13.92 MS MIN = 0.9768E-02 at 18.88 MS
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(109) CR10631T C/L INL @ DASH AC03 AC 4000C
MAX = 4.097 at 15.52 MS MIN = 1.270 at 11.20 MS

AXIS 1

8.00

7.00

6.00

5.00

4.00

3.00

2.00

1.00

0.00

VOLTS

TIME

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00

CRTS 0010631

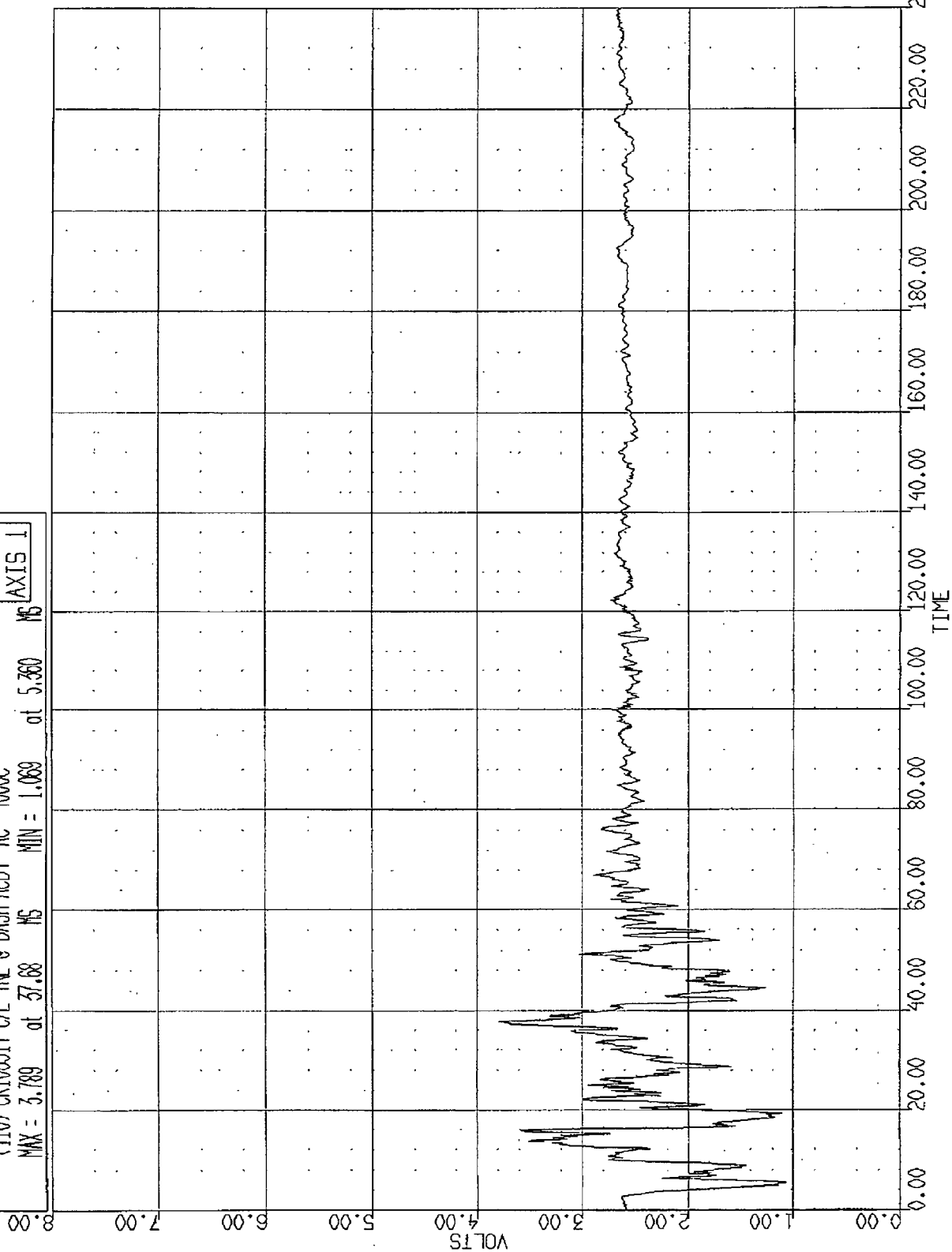
0686

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(110) CR10631T C/L INL @ DASH AC4 AC 4000

MAX = 3.789 at 37.68 MS MIN = 1.069 at 5.360 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-99 1999 MOVING DEFORMABLE BA

(111) CR10631T C/L TNL @ DASH ACDS AC 4000C
 MAX = 1.763 at 0.3200 MS MIN = 1.714 at 56.40 MS

AXIS 1

8.00

7.00

6.00

5.00

4.00

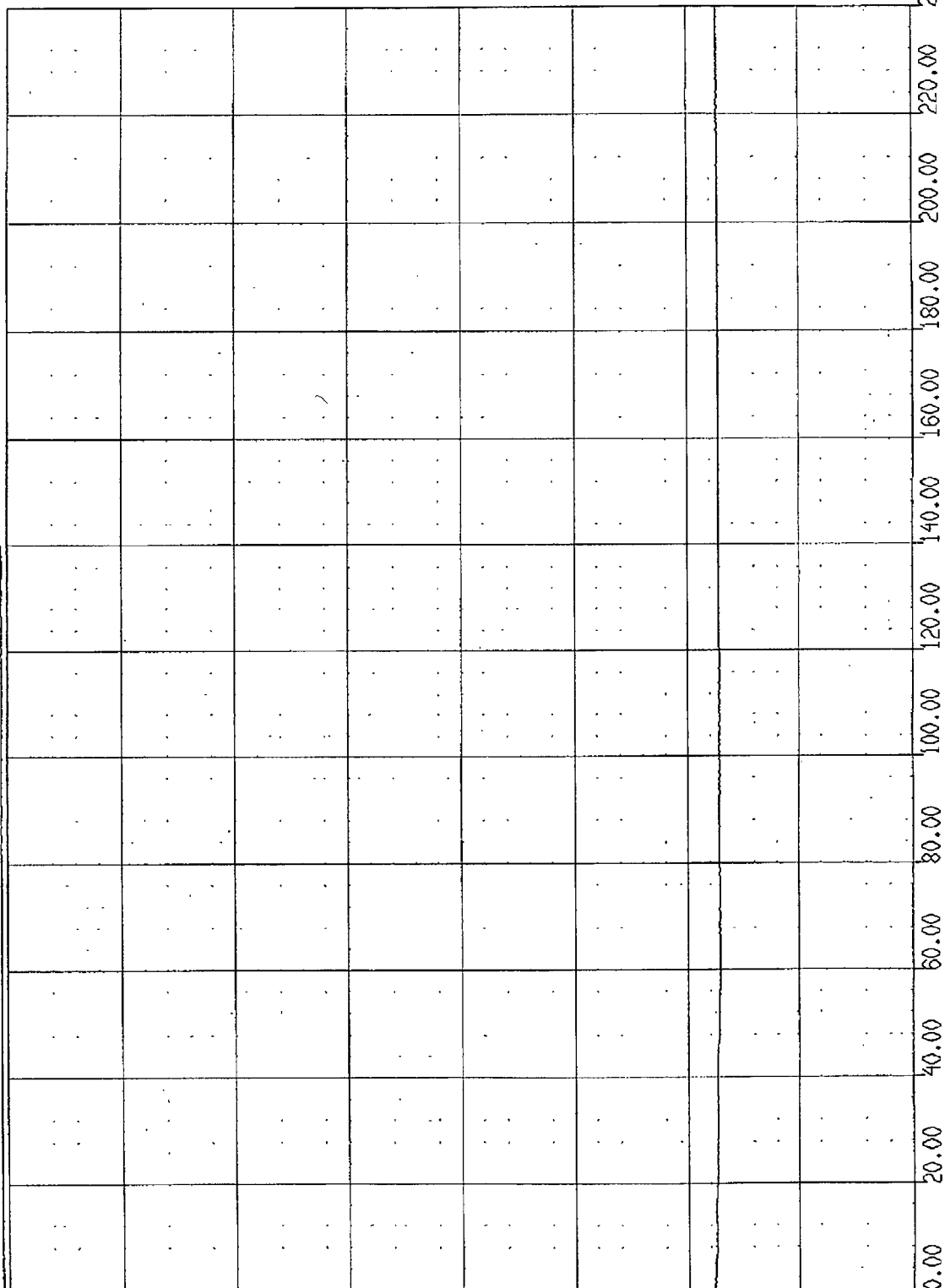
3.00

2.00

1.00

0.00

VOLTS



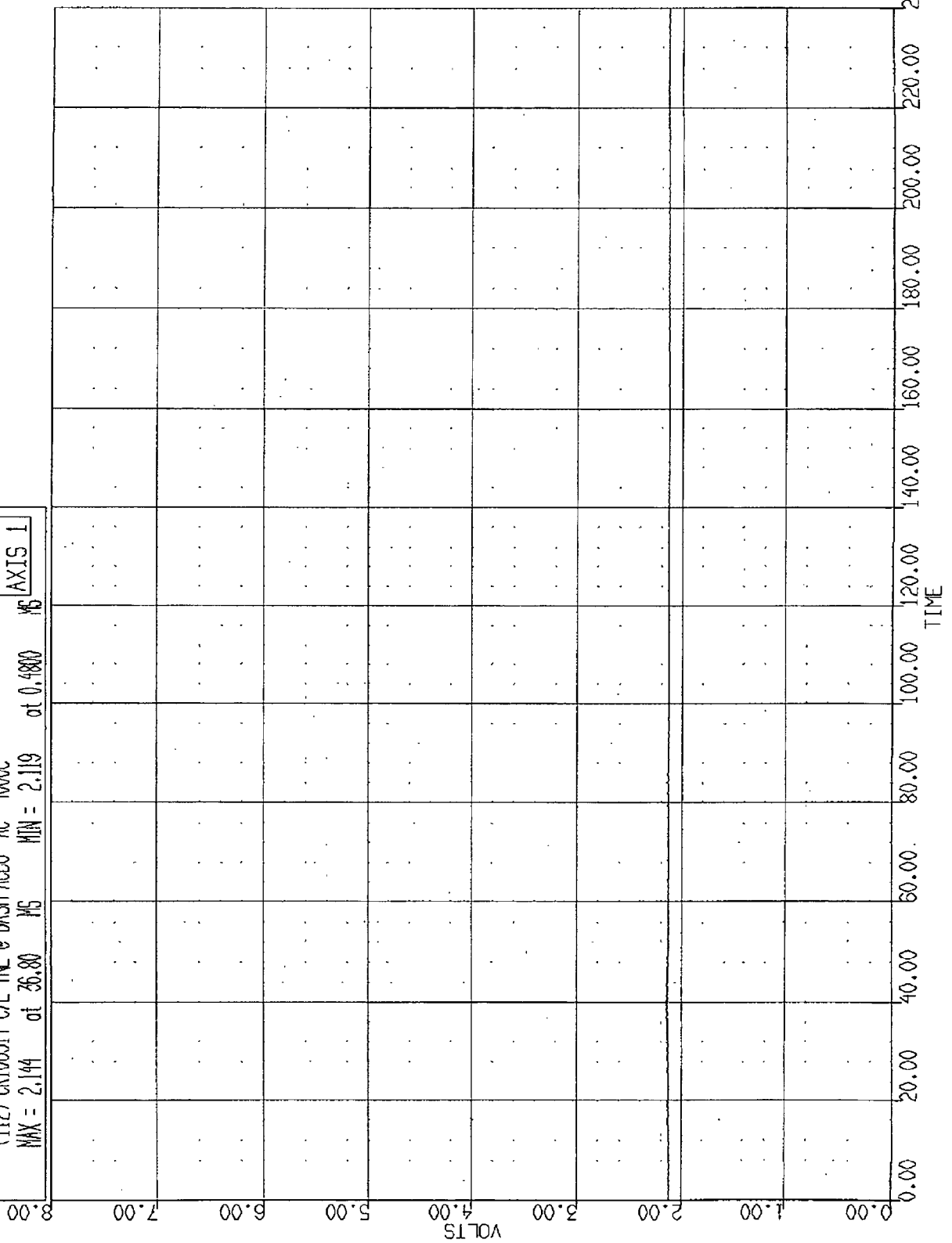
TIME

CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(112) CR106317 C/L TNL @ DASH A006 AC 4000C
MAX = 2.144 at 36.80 MS MIN = 2.119 at 0.4800 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(113) CR10631T C/L TNL @ DASH AC07 AC 4000C
MAX = 5.352 at 70.56 MS MIN = 3.262 at 142.8 MS

AXIS 1

8.00

7.00

6.00

5.00

4.00

3.00

2.00

1.00

0.00

VOLTS

TIME

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00

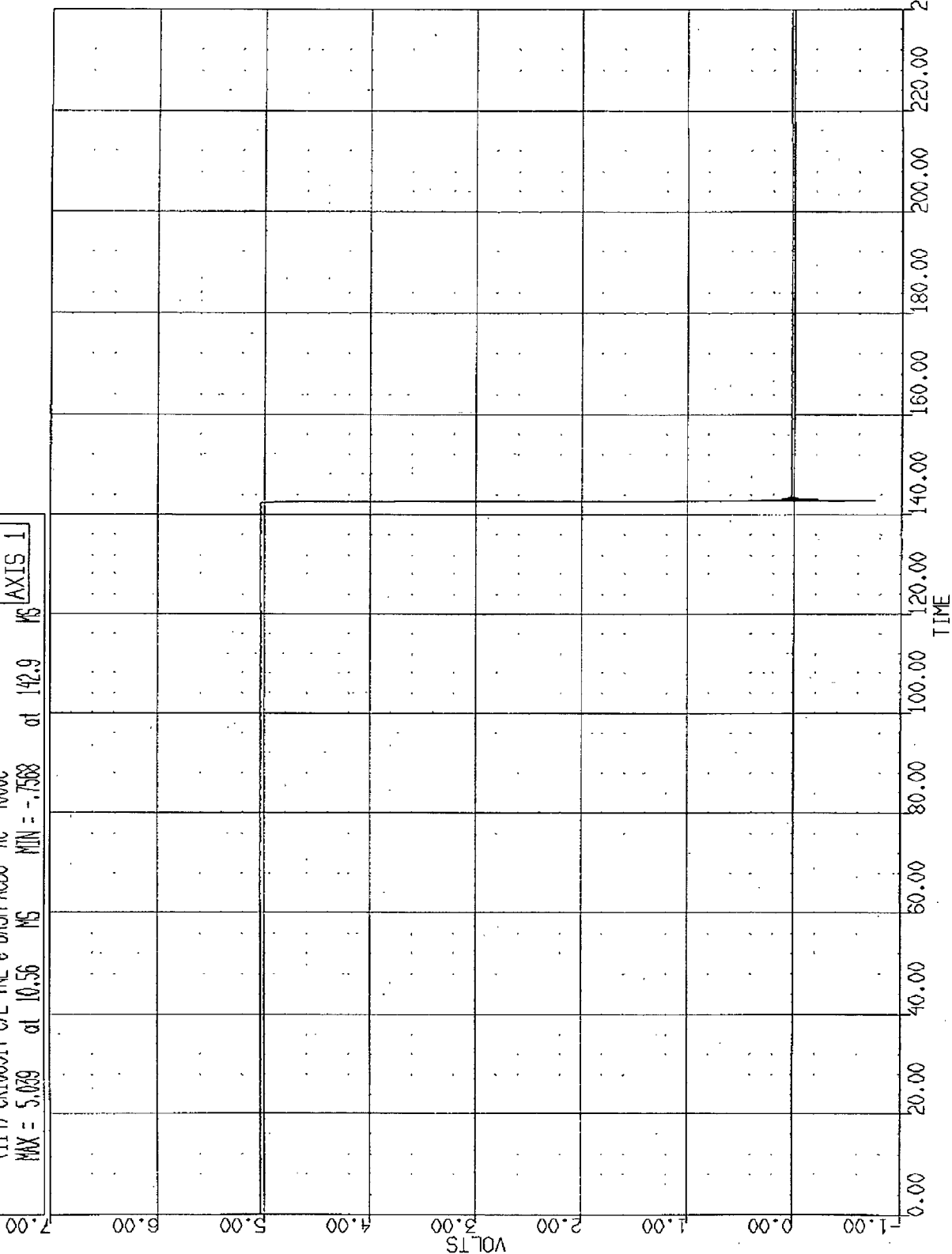
CRTS 0010631

0690

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1998 PN-96 1998 MOVING DEFORMABLE BA

(114) CR10631T C/L TNL 0 DASH A008 AC 4000
 MAX = 5.039 at 10.56 MS MIN = -.7568 at 142.9 MS

AXIS 1



CRTS 0010631

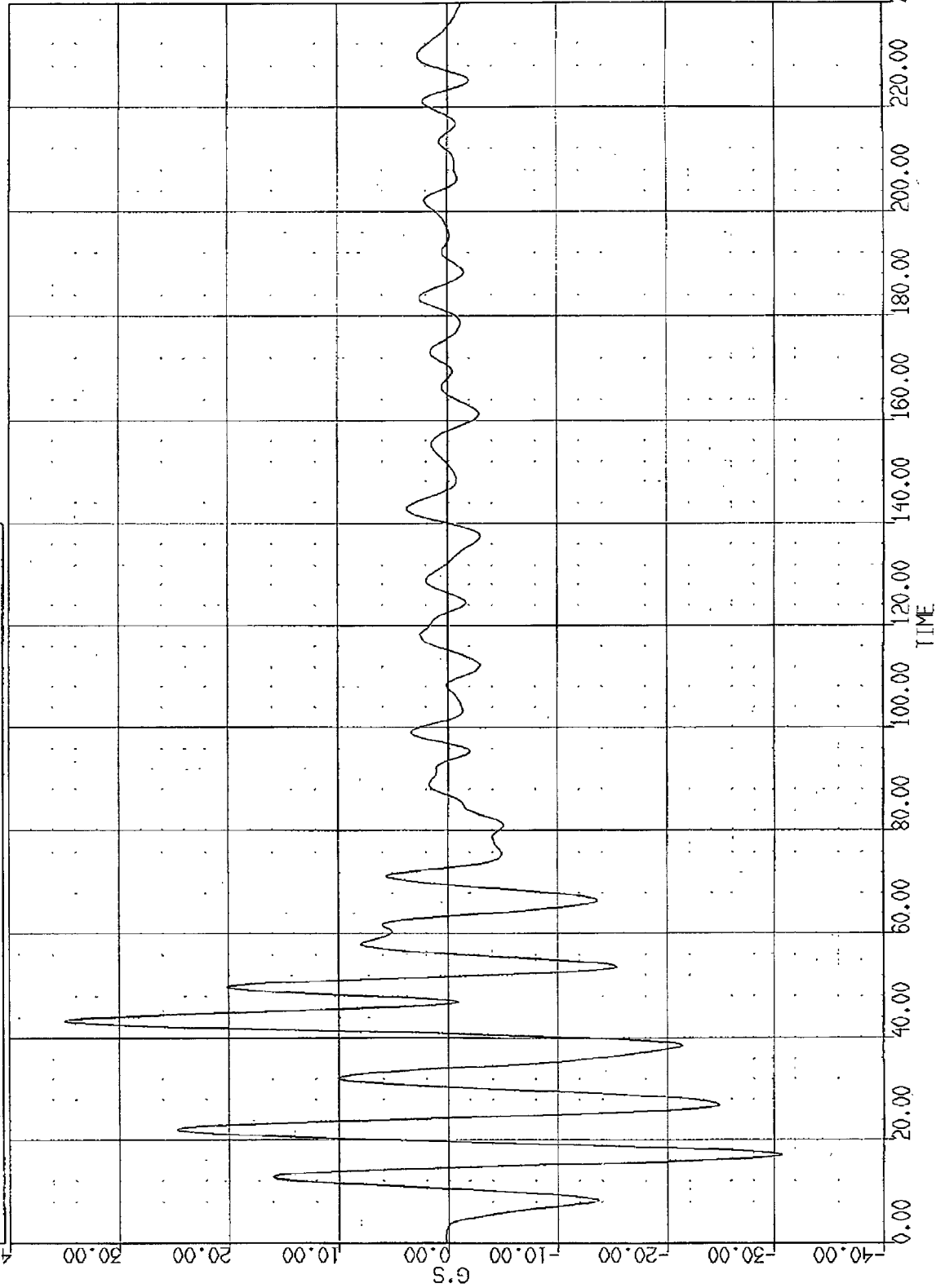
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(115) CR10631T C/L TNL @ DASH SENSOR LONG 60C

MAX = 35.00 at 43.36 MS MIN = -30.77 at 17.04 MS

AXIS 1

40.00



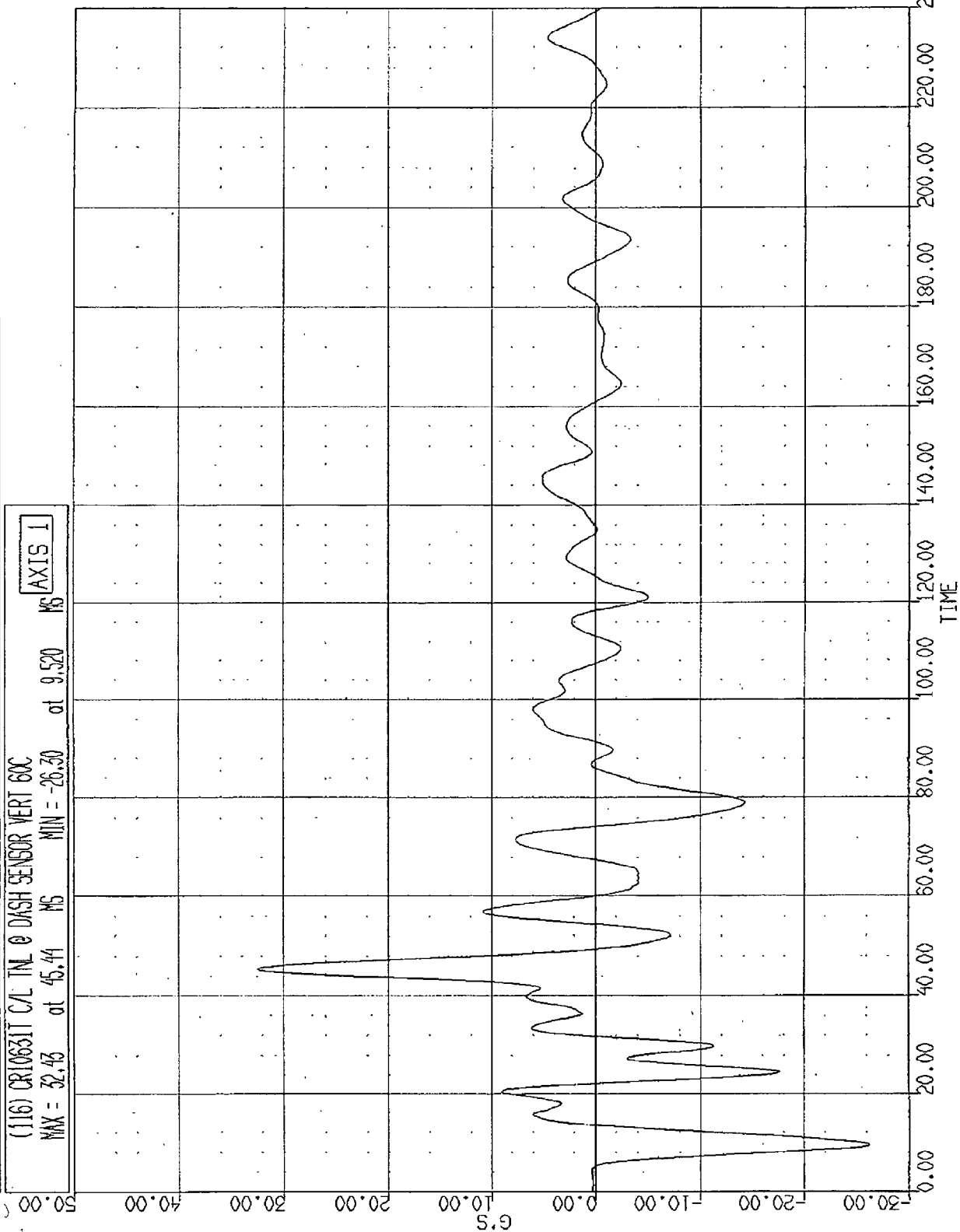
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(116) CR10631T C/L TNL @ DASH SENSOR VERT 60C

MAX = 32.43 at 45.44 MS MIN = -26.30 at 9.520 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(117) CR10631T C/L TNL @ DASH SENSOR LAT 60C
MAX = 21.93 at 14.56 MS MIN = -35.49 at 47.04 MS

AXIS 1

40.00

20.00

20.00

10.00

0.00

9.5

-10.00

-20.00

-30.00

-40.00

0.00

TIME

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00

CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(118) CR10631T C/L INL @ DASH BRKT LONG 60C
MAX = 38.34 at 21.92 MS MIN = -33.41 at 6.640 MS

AXIS 1

120.00

100.00

80.00

60.00

40.00

G'S

20.00

0.00

-20.00

-40.00

TIME

240.00

220.00

200.00

180.00

160.00

140.00

120.00

100.00

80.00

60.00

40.00

20.00

0.00

CRTS 0010631.

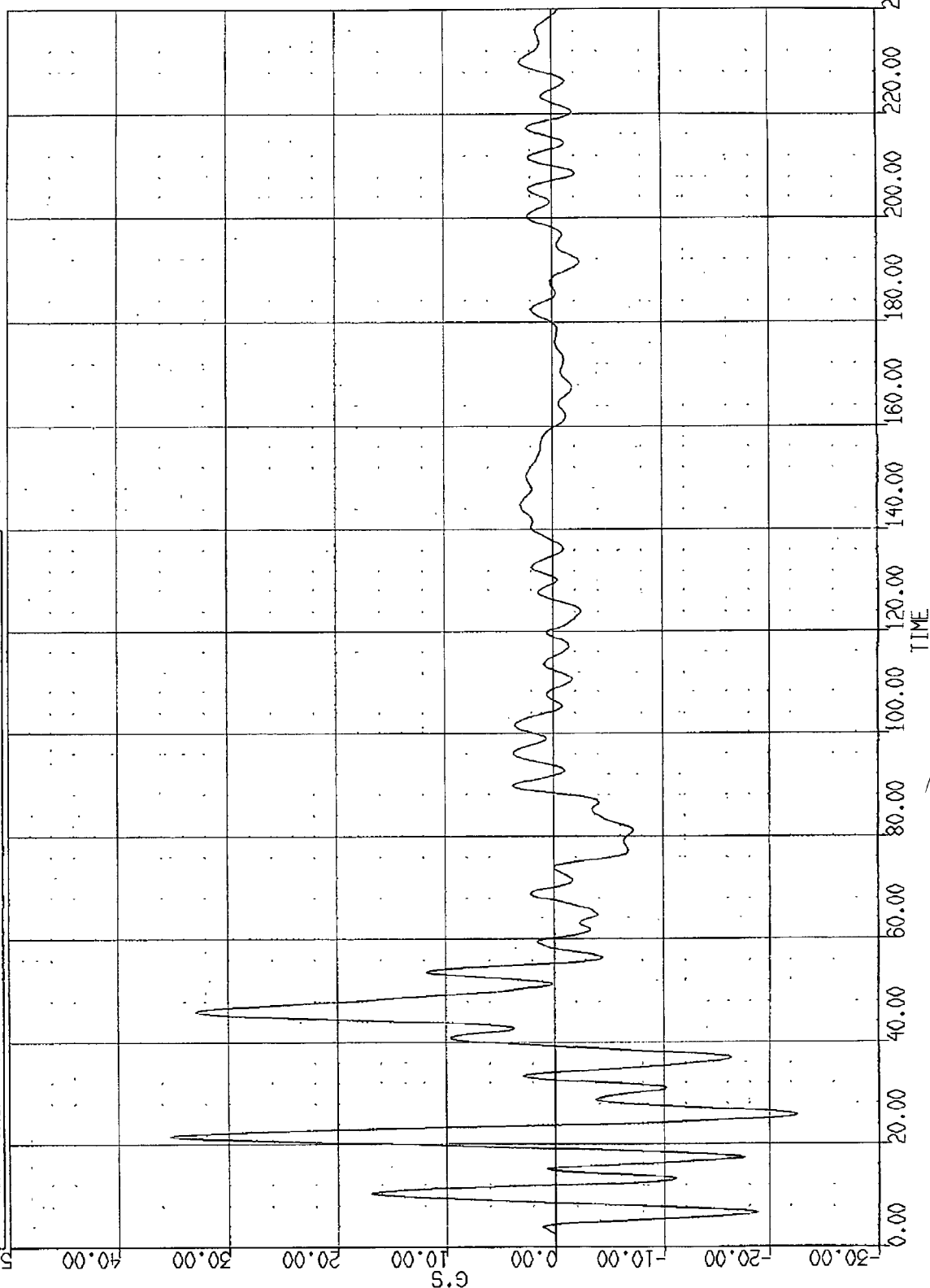
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(119) CR10631T C/L TNL @ DASH BRKT VERT 60C

MAX = 35.27 at 21.60 MS MIN = -22.65 at 25.76 MS

AXIS 1

50.00

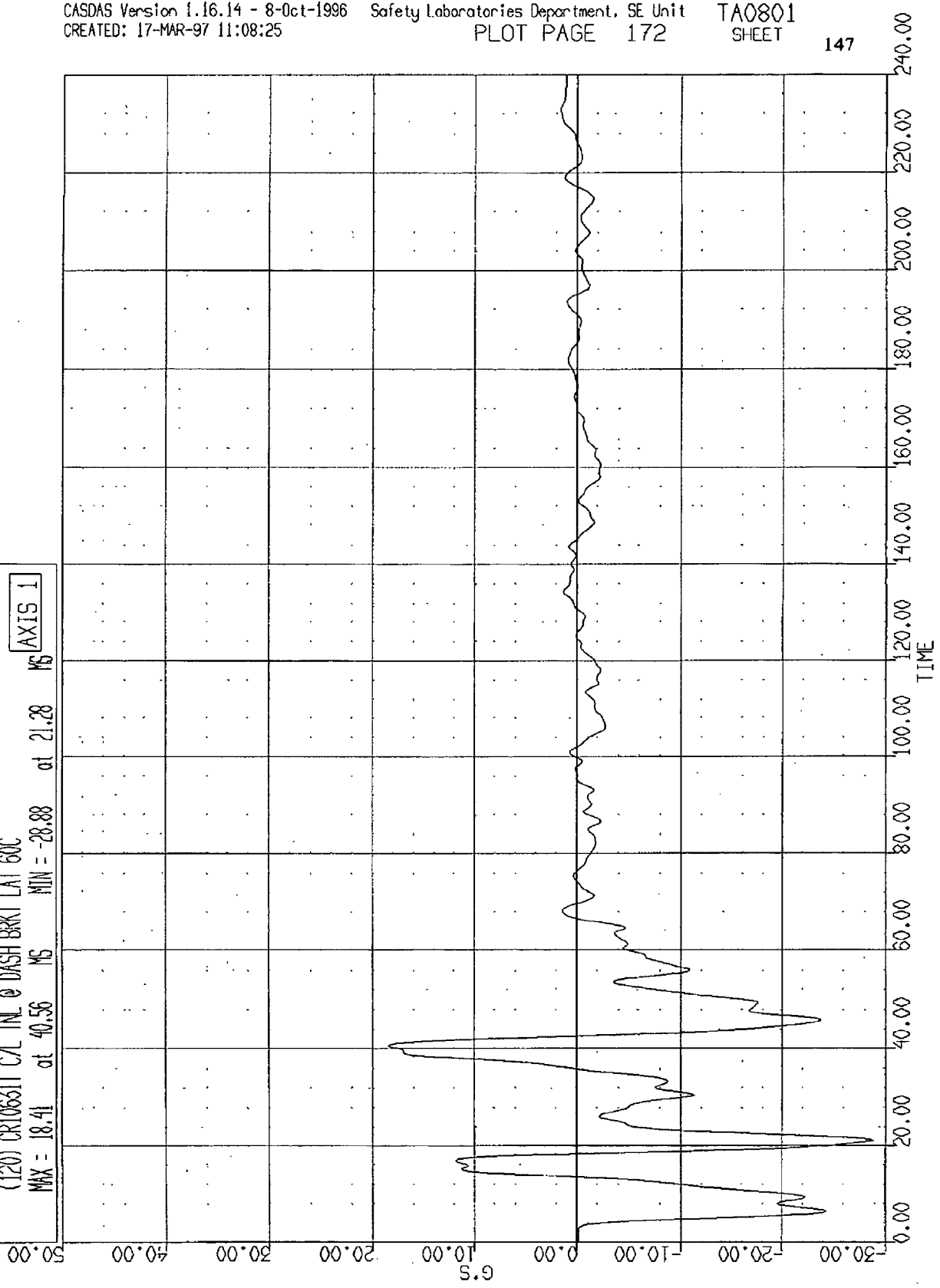


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(120) CR10631T C/L INL @ DASH BRKT LAT 60C
MAX = 18.41 at 40.56 MS MIN = -28.88 at 21.28 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(121) CR10631T C/L TNL @ DASH TAKATAL 4000C

MAX = 7.222 at 16.96 MS MIN = 0.1514 at 22.56 MS

AXIS 1

16.00

14.00

12.00

10.00

8.00

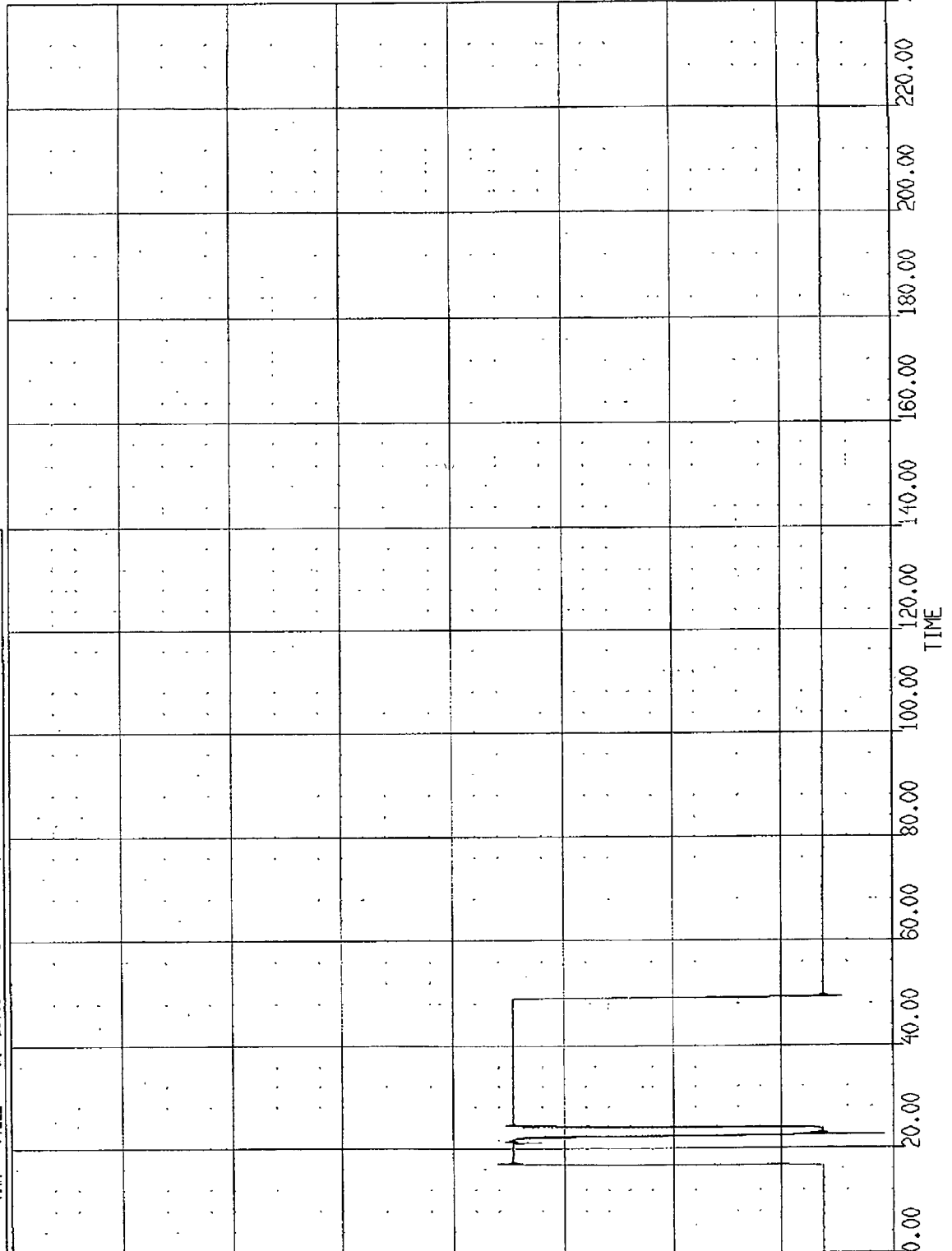
Volts

6.00

4.00

2.00

0.00

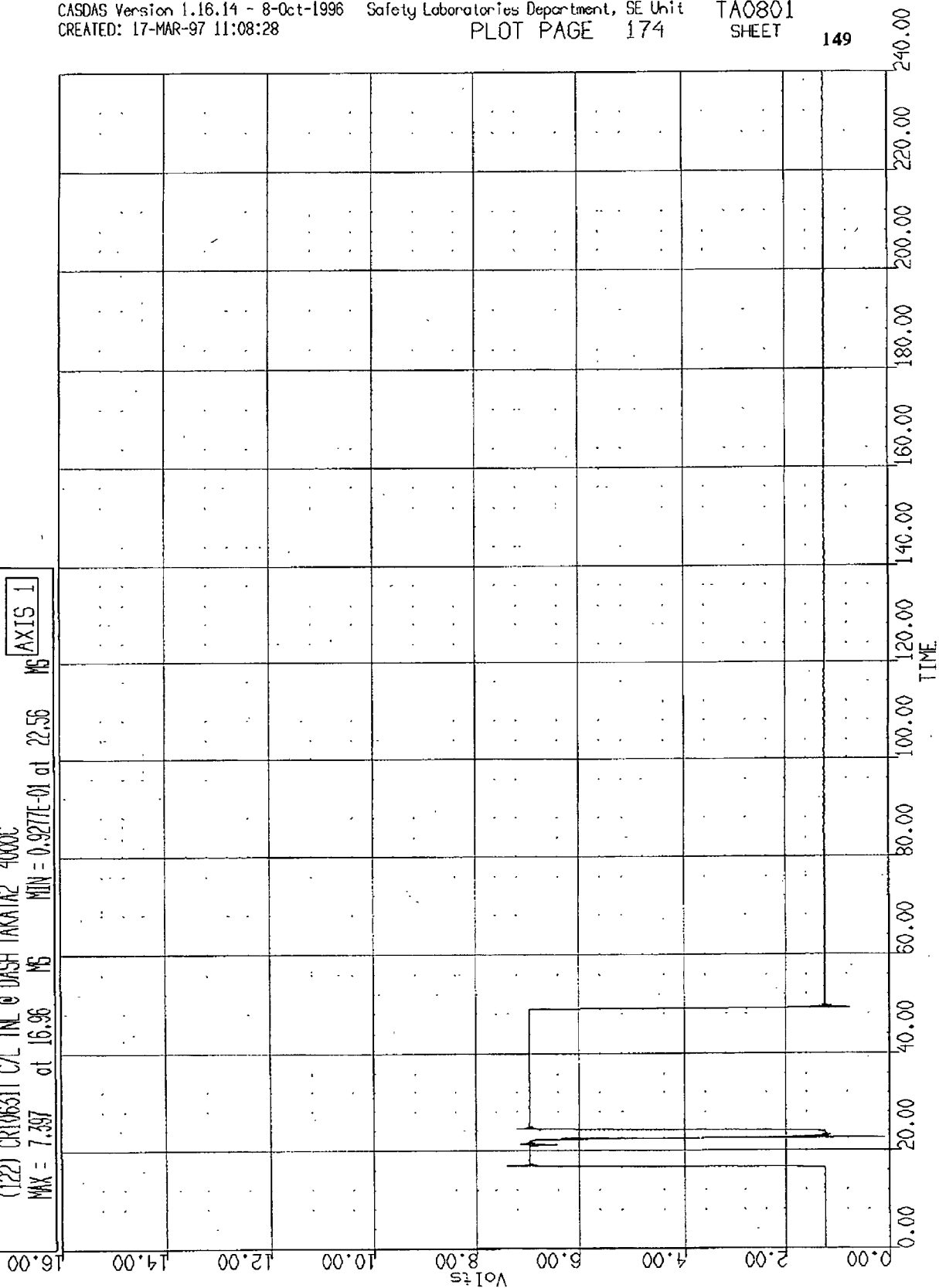


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(122) CR10631T C/L TNL @ DASH TAKATA2 4000C
 MAX = 7.397 at 16.96 MS MIN = 0.927E-01 at 22.56 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(123) CR10631T C/L TNL @ DASH BREED 4000C

AXIS 1

MAX = 4.985 at 2.960 MS MIN = 4.976 at 0.7999E-01 MS

8.00

7.00

6.00

5.00

4.00
 VOLTS

3.00

2.00

1.00

0.00

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00
 TIME

CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(124) CR10631T R/ROCKER @ FRONT SEAT MID LAT 60C
MAX = 151.8 at 32.32 MS MIN = -235.0 at 13.20 MS

AXIS 1

500.00

400.00

300.00

200.00

100.00

G

0.00

-100.00

-200.00

-300.00

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

TIME

CRTS 0010631

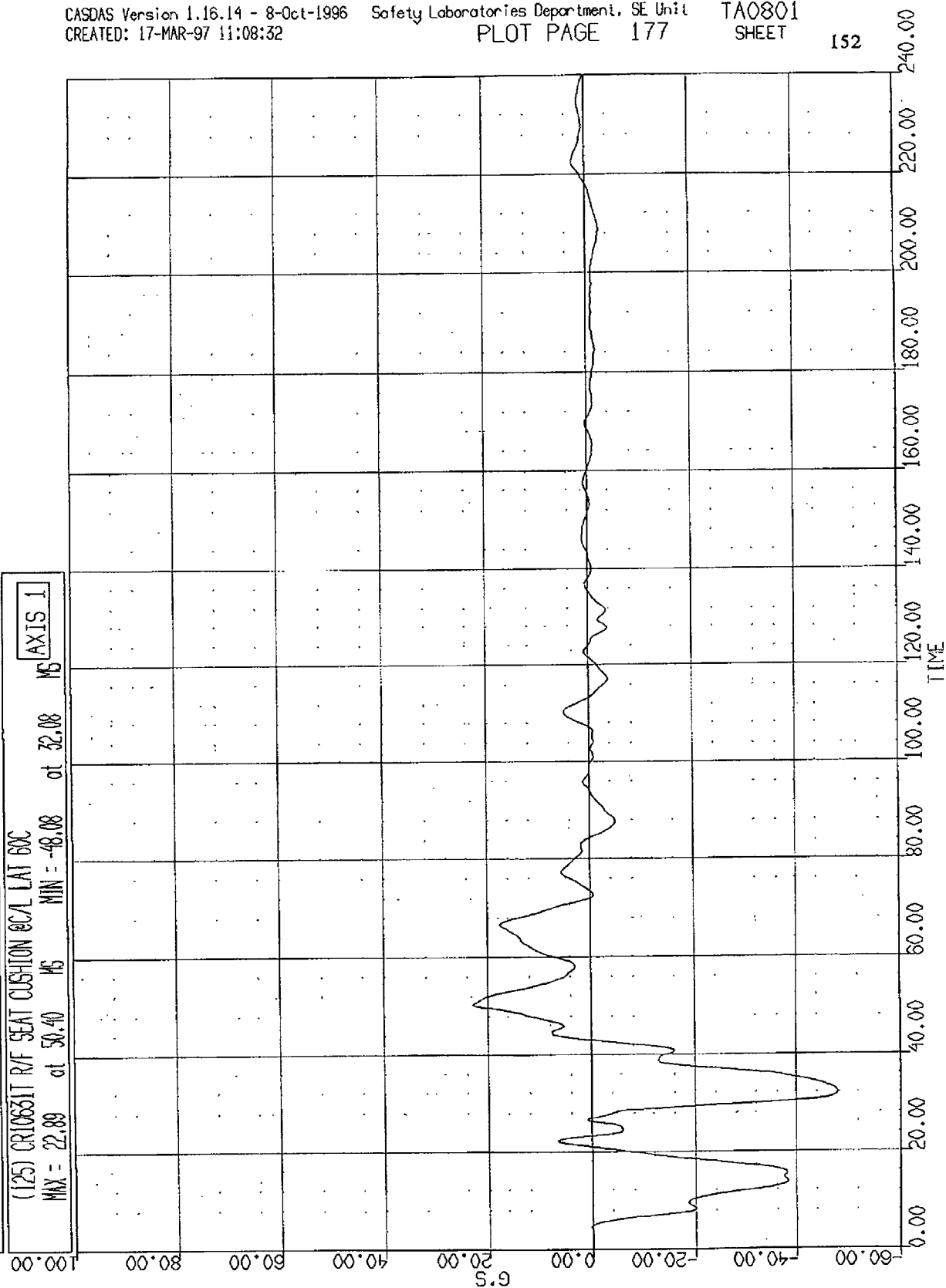
0701

CR R: 10631 TO: TAO801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(125) CR10631T R/F SEAT CUSHION @C/L LAT 60C

MAX = 22.89 at 50.40 MS MIN = -48.08 at 32.08 MS

AXIS 1

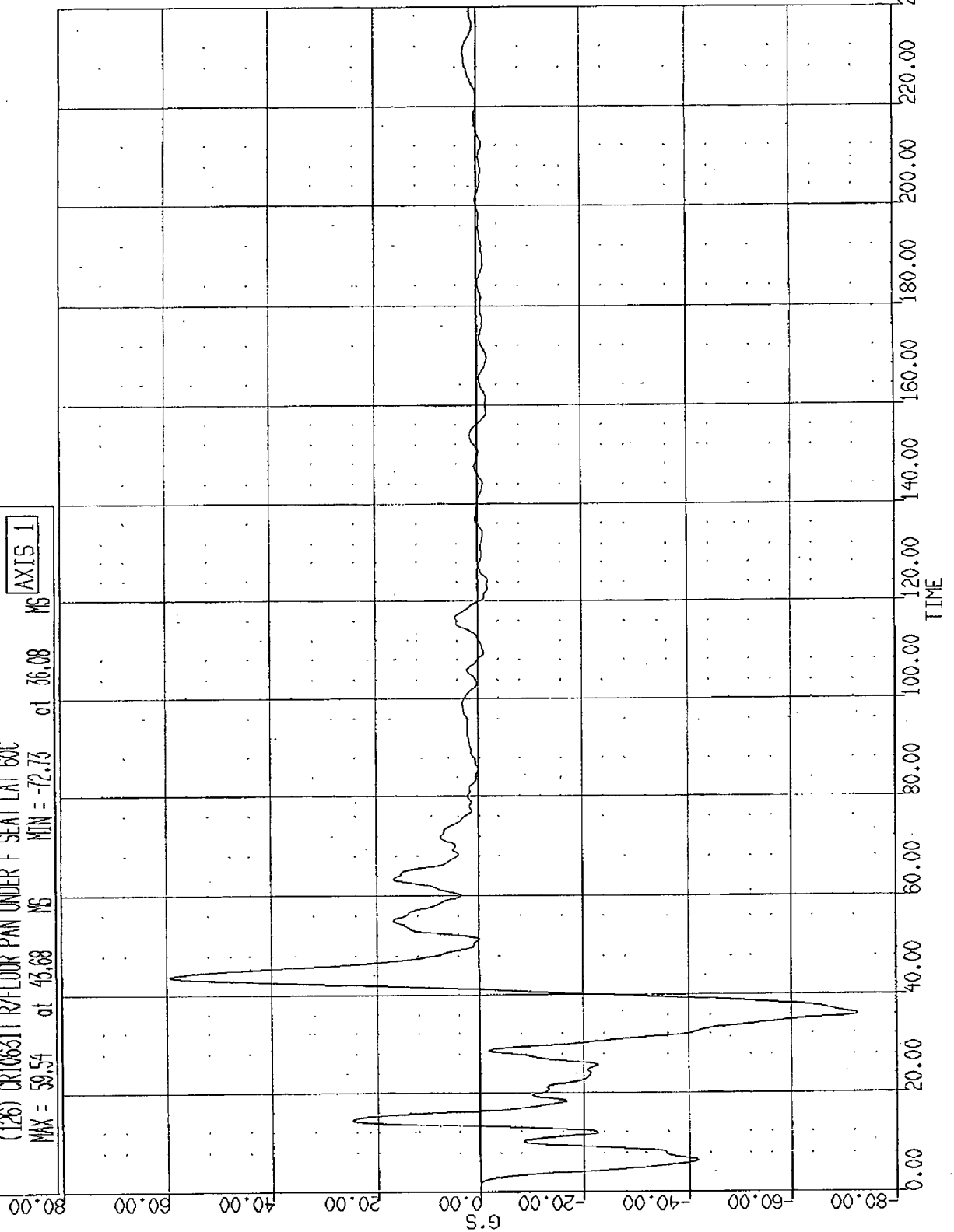


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(126) CR10631T R/FLOOR PAN UNDER F SEAT LAT 60C
 MAX = 59.54 at 43.68 MS MIN = -72.73 at 36.08 MS

AXIS 1

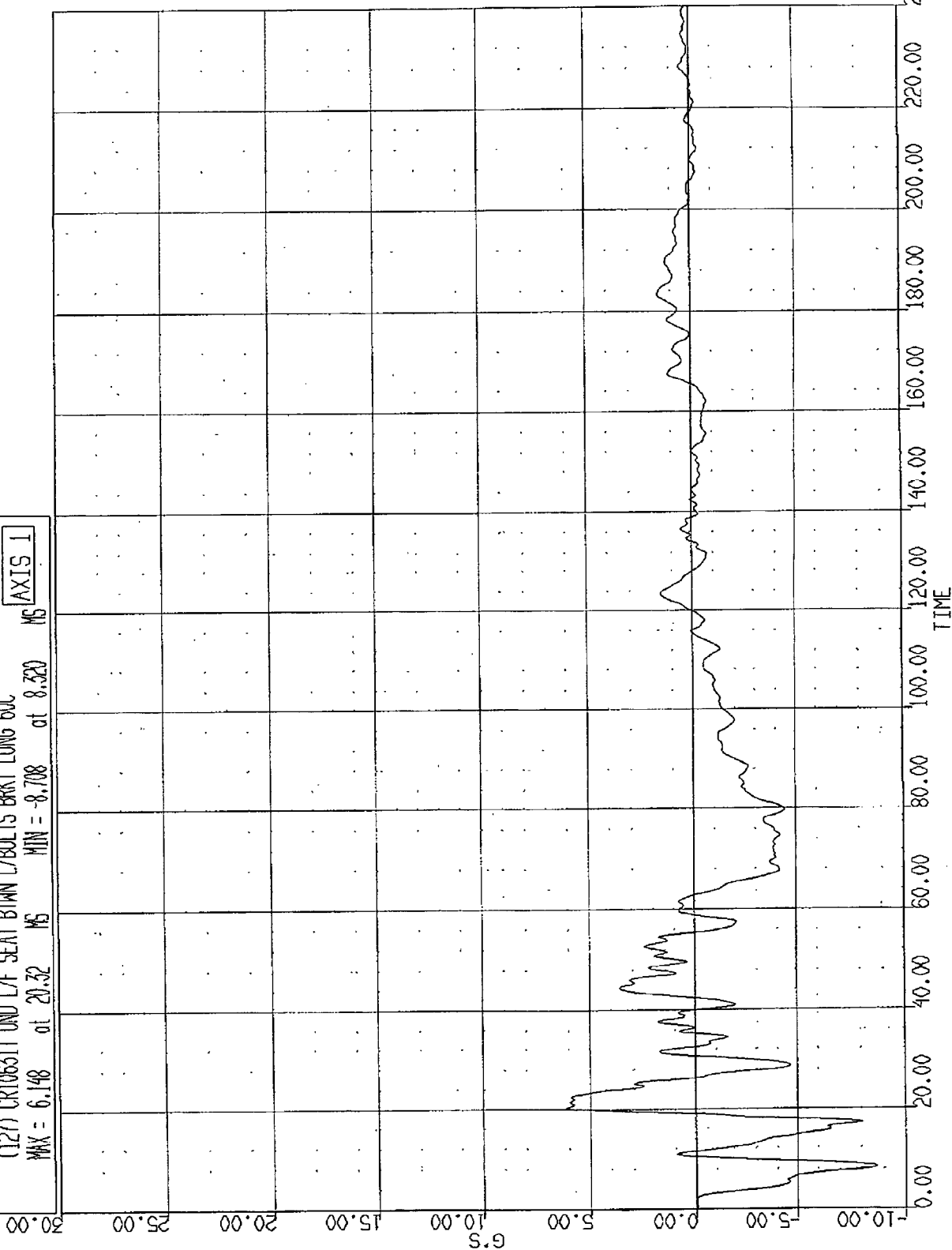


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(127) CR10631T UND L/F SEAT BTWN L/BOLTS BRKT LONG 60C
MAX = 6.148 at 20.32 MS MIN = -8.708 at 8.320 MS

AXIS 1

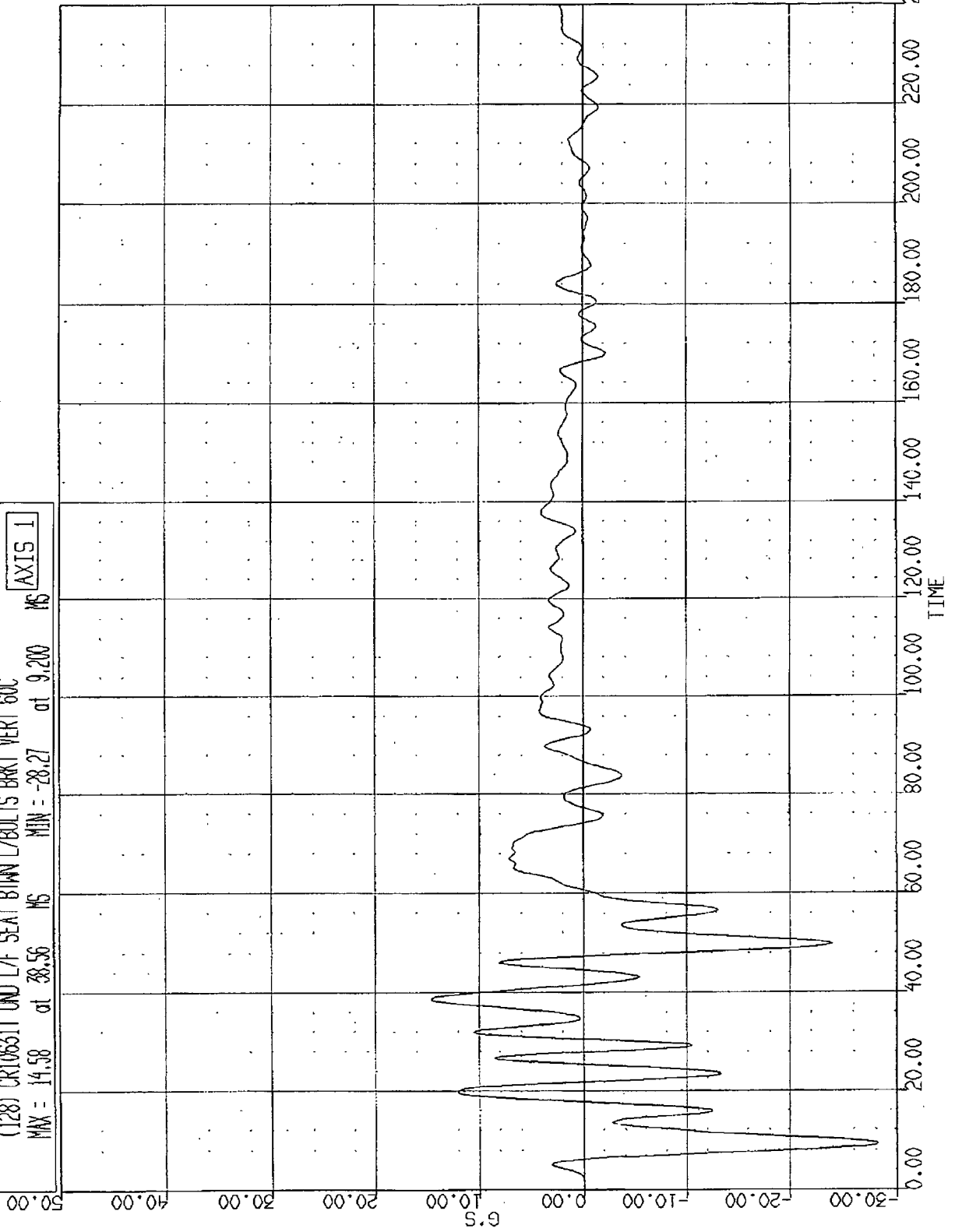


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(128) CR10631T UND L/F SEAT BTWN L/BOLTS BRKT VERT 60C
MAX = 14.58 at 38.56 MS MIN = -28.27 at 9.200 MS

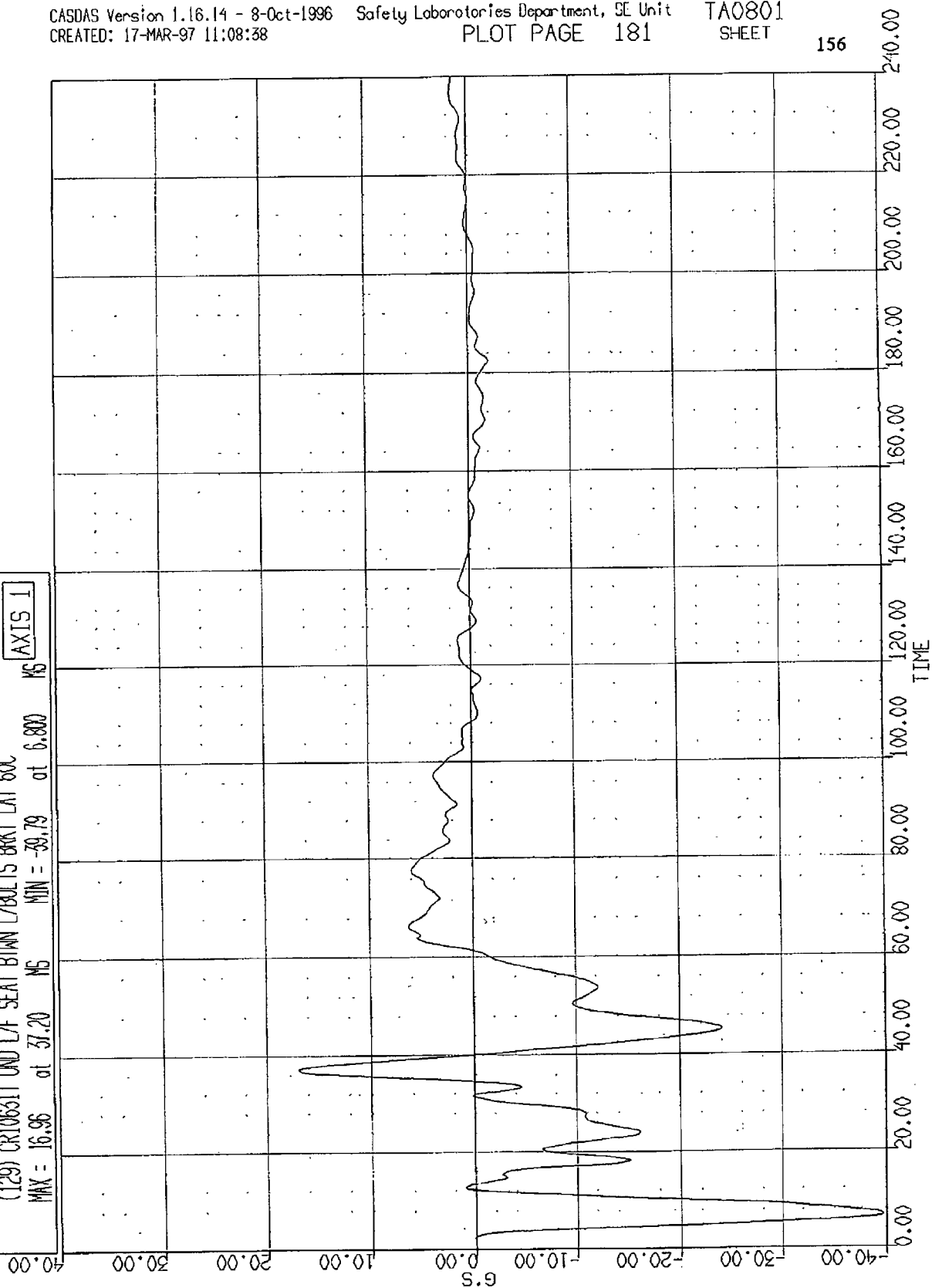
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(129) CR10631T UND L/F SEAT BINN L/800 TS BRKT LAT 600
 MAX = 16.96 at 37.20 MS MIN = -39.79 at 6.800 MS
 AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(130) CR10631T UND L/F SEAT @ L/F BOLT LONG 60C

MAX = 9.047 at 22.80 MS

MIN = -6.942 at 14.16 MS

AXIS 1

30.00

25.00

20.00

15.00

10.00

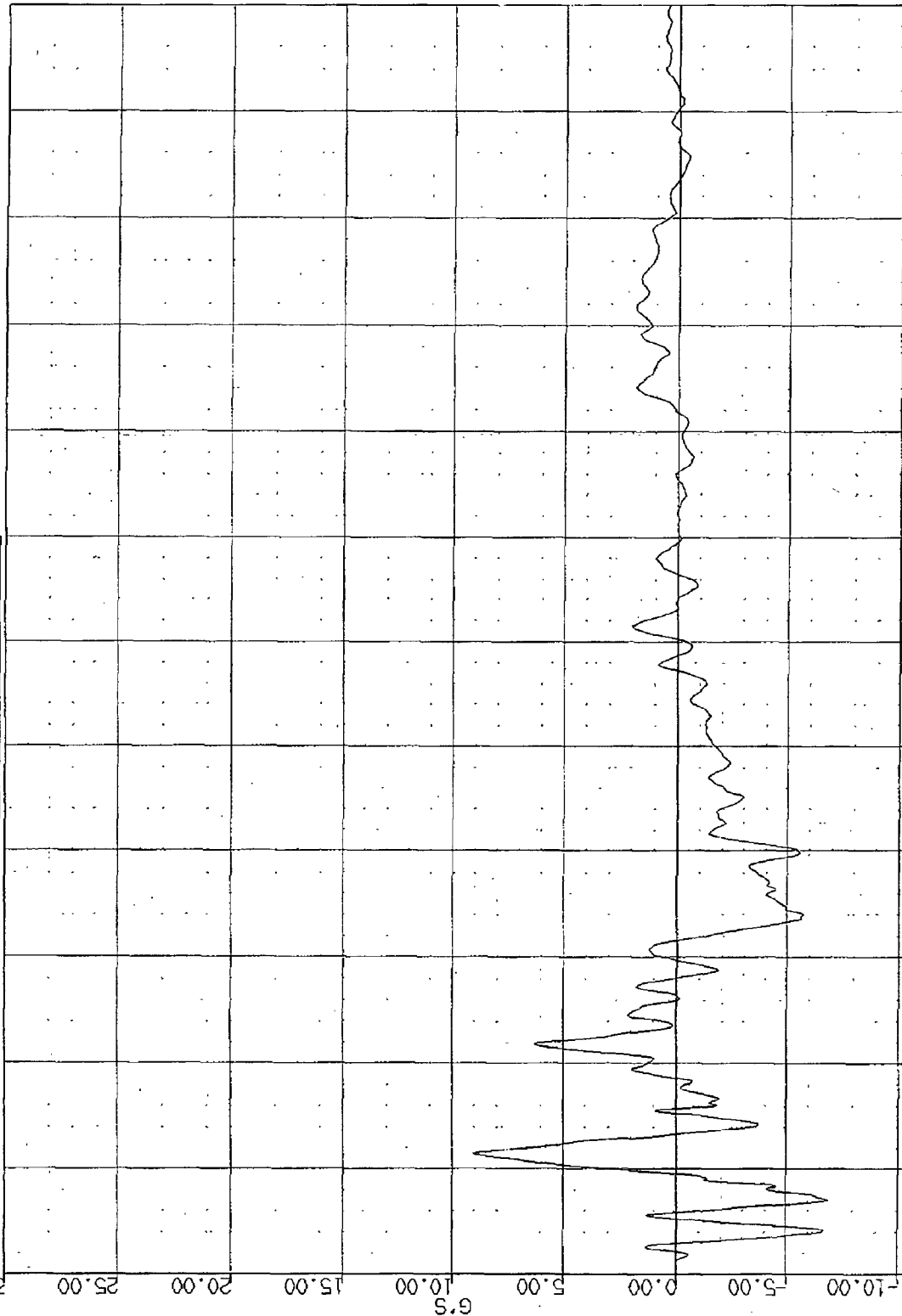
5.00

0.00

-5.00

-10.00

240.00
220.00
200.00
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
TIME

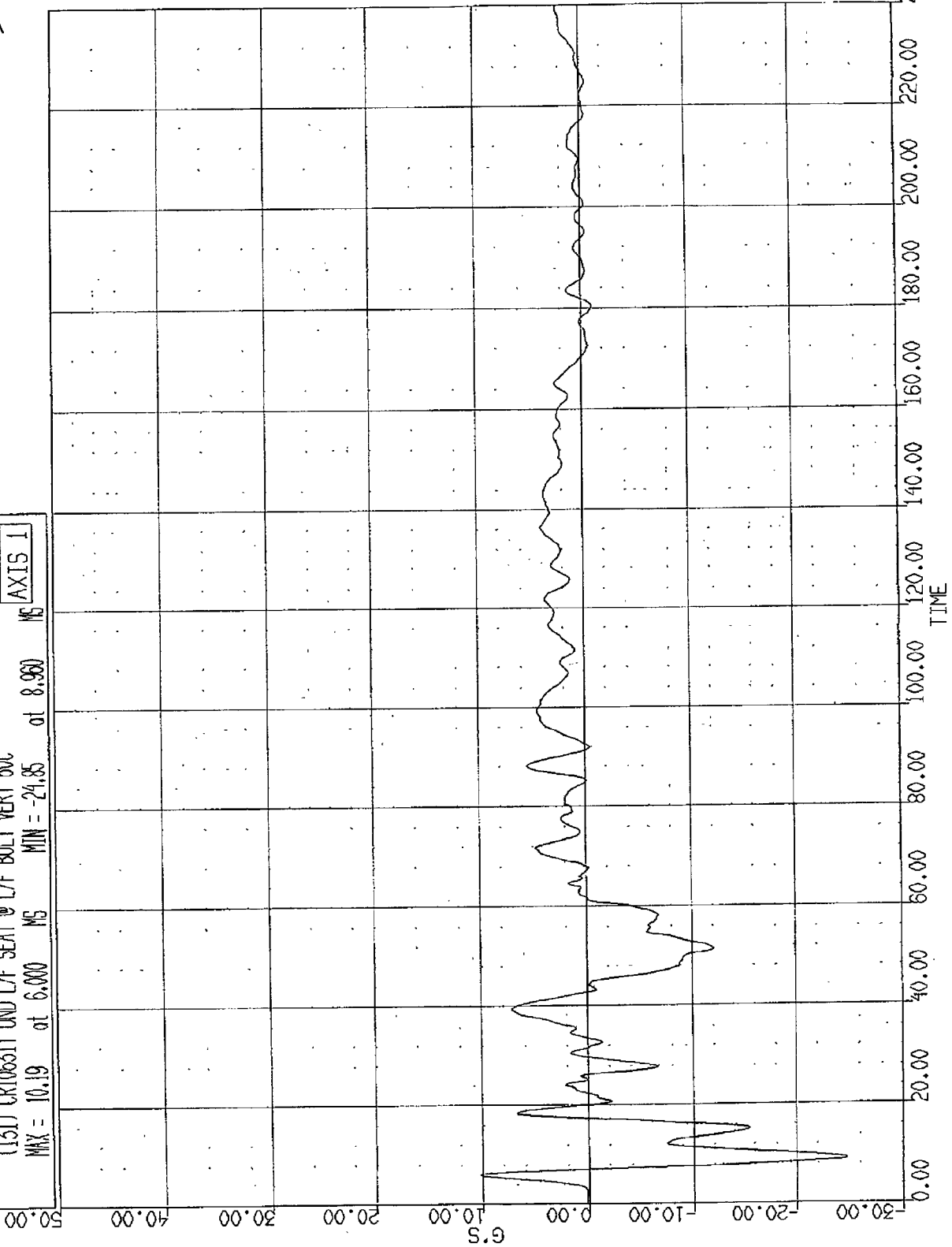


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(131) CR10631T UND L/F SEAT @ L/F BOLT VERT 500
MAX = 10.19 at 6.000 MS MIN = -24.85 at 8.960 MS

AXIS 1

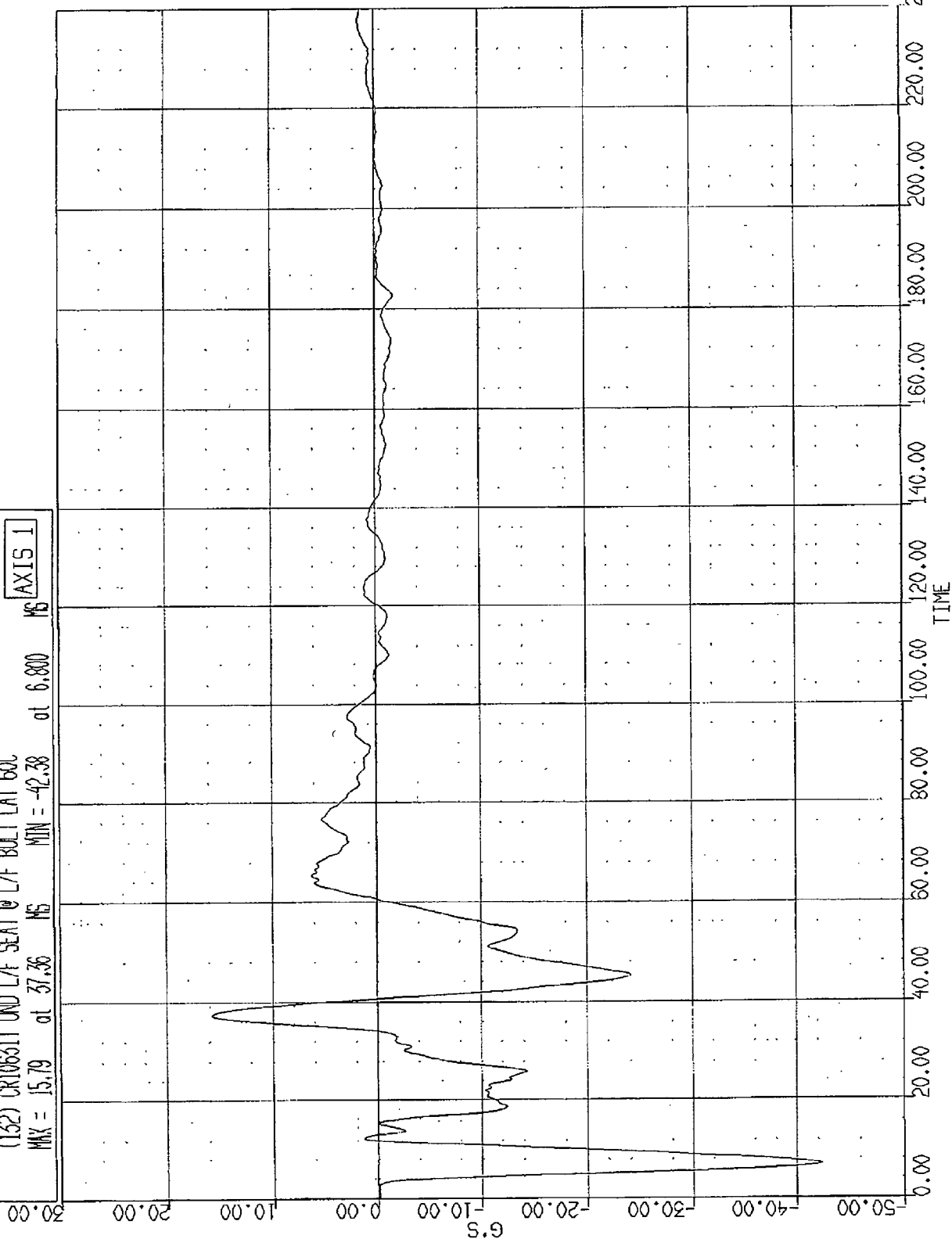


CRTS 0010631

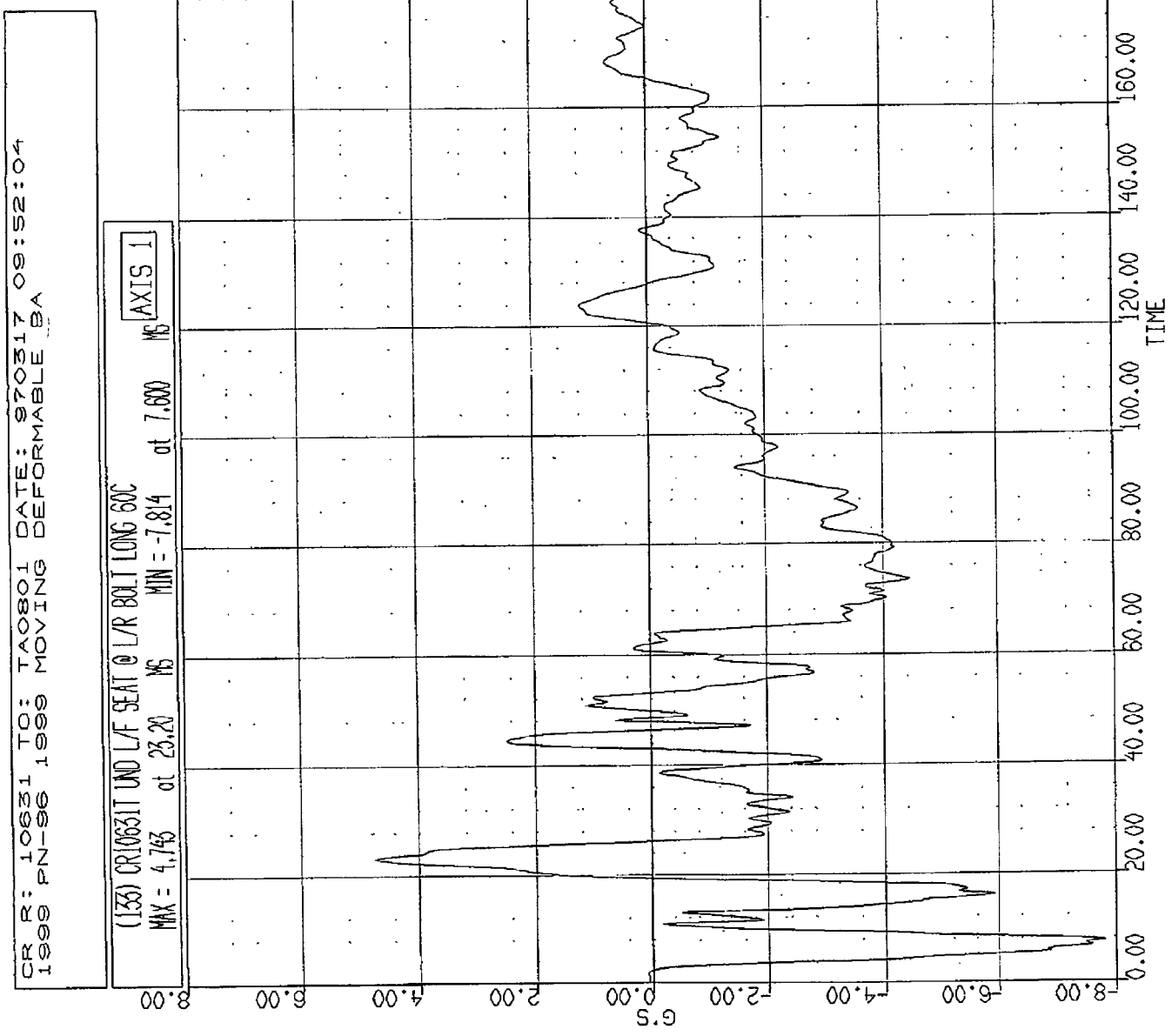
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(132) CR10631T UND L/F SEAT @ L/F BOLT LAT 60C
MAX = 15.79 at 37.36 MS MIN = -42.38 at 6.800 MS

AXIS 1



CRTS 0010631



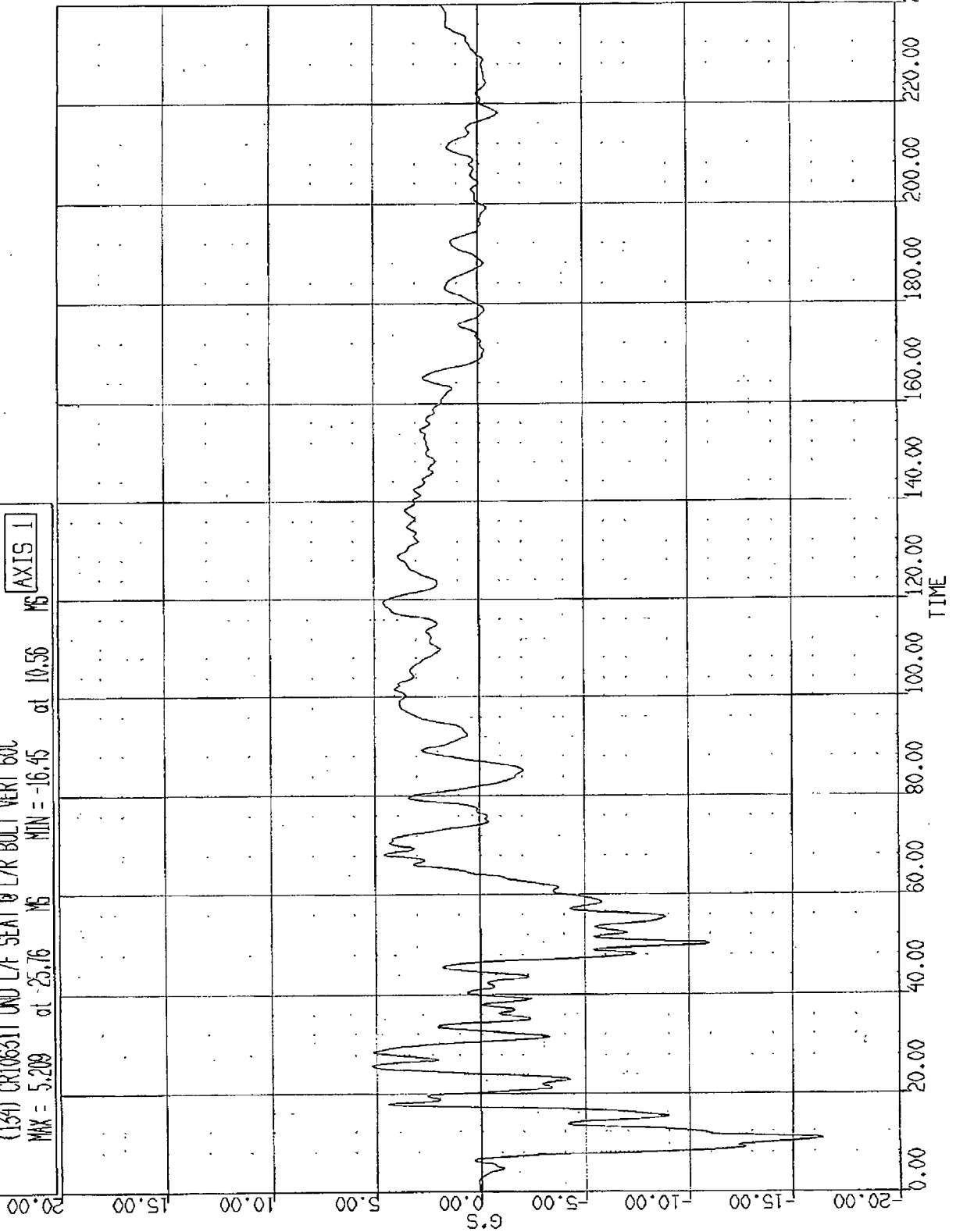
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(134) CR10631T UND L/F SEAT @ L/R BOLT VERT 60C

MAX = 5.209 at 25.76 MS MIN = -16.45 at 10.56 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(135) CR10631T UND L/F SEAT @ L/R BOLT LAT 60C

MAX = 7.440 at 37.44 MS MIN = -37.33 at 6.560 MS

AXIS 1

40.00

30.00

20.00

10.00

0.00

6.5

-10.00

-20.00

-30.00

-40.00

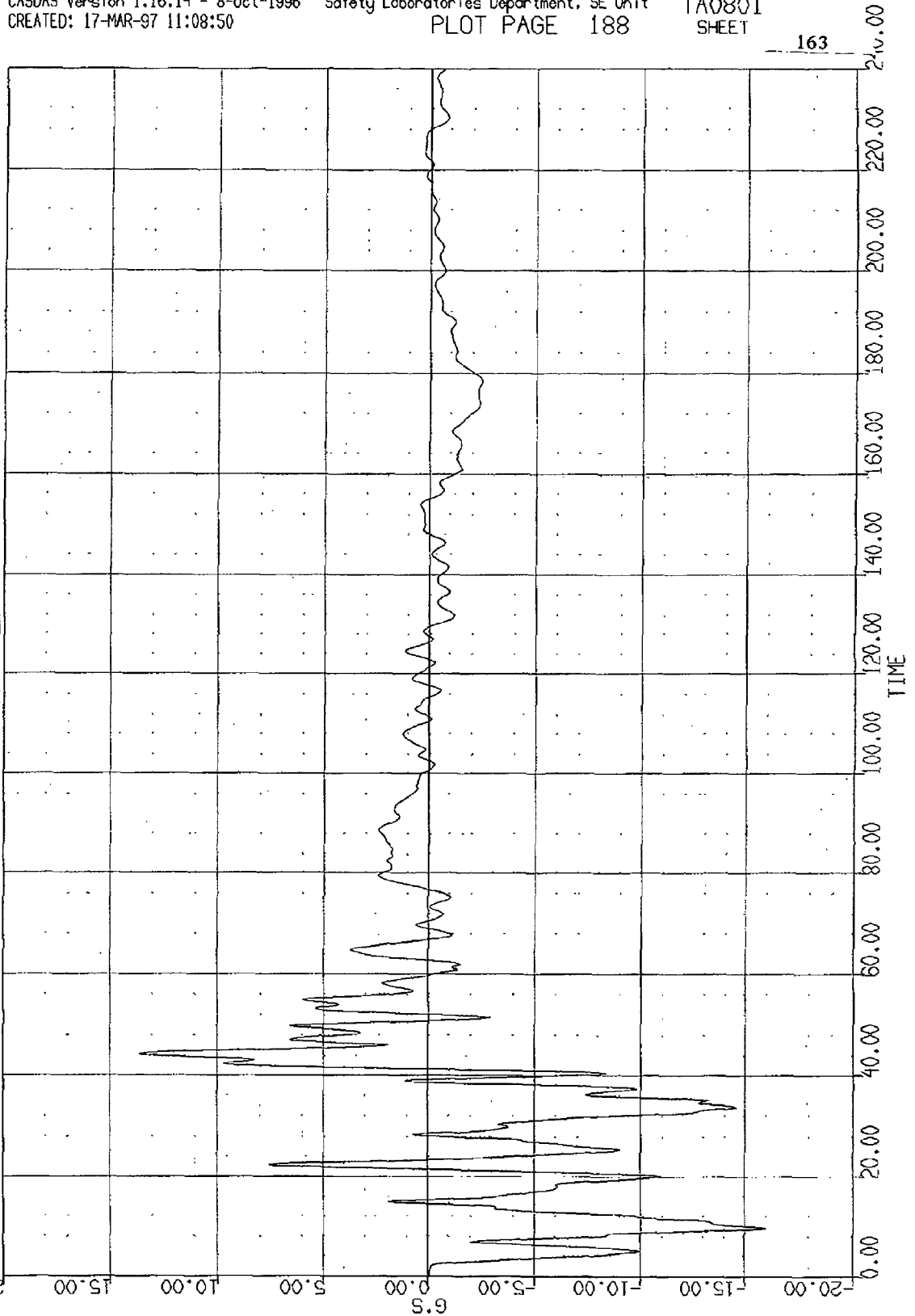
TIME

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00

CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(136) CR10631T UND R/F SEAT BTNN R/BOLTS BRKT LONG 60C
 MAX = 13.56 at 44.24 MS MIN = -15.95 at 9.680 MS
 AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 08:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(137) CR10631F UND R/F SEAT BTWN R/BOLTS BRKT VERT 60C
MAX = 40.77 at 33.20 MS MIN = -78.10 at 13.44 MS

AXIS 1

80.00

60.00

40.00

20.00

0.00

-20.00

-40.00

-60.00

-80.00

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00

TIME

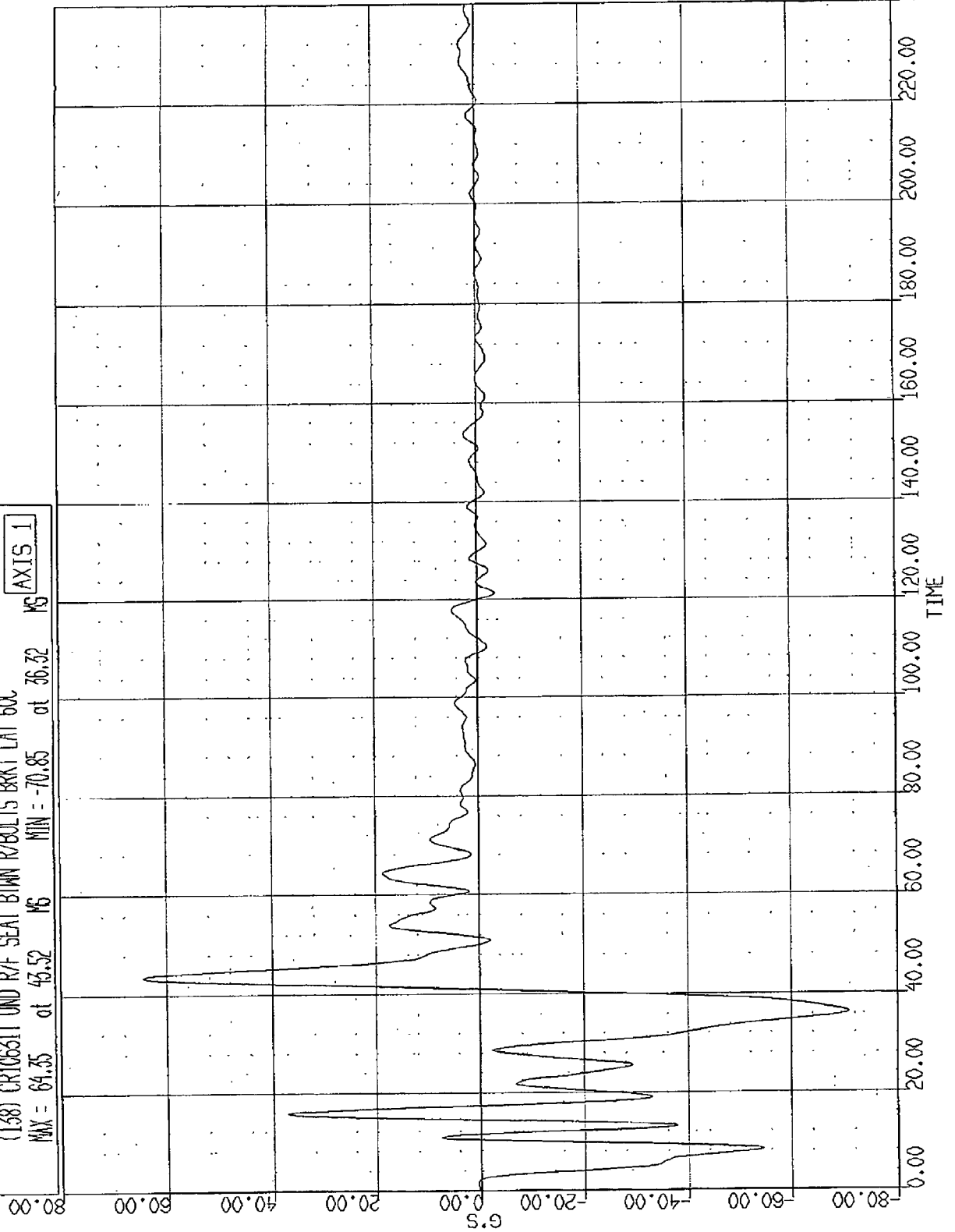
CRTS 0010631

0714

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(138) CR10631T UND R/F SEAT BTWN R/BOLTS BRKT LAT 60C
MAX = 64.35 at 43.52 MS MIN = -70.85 at 36.32 MS

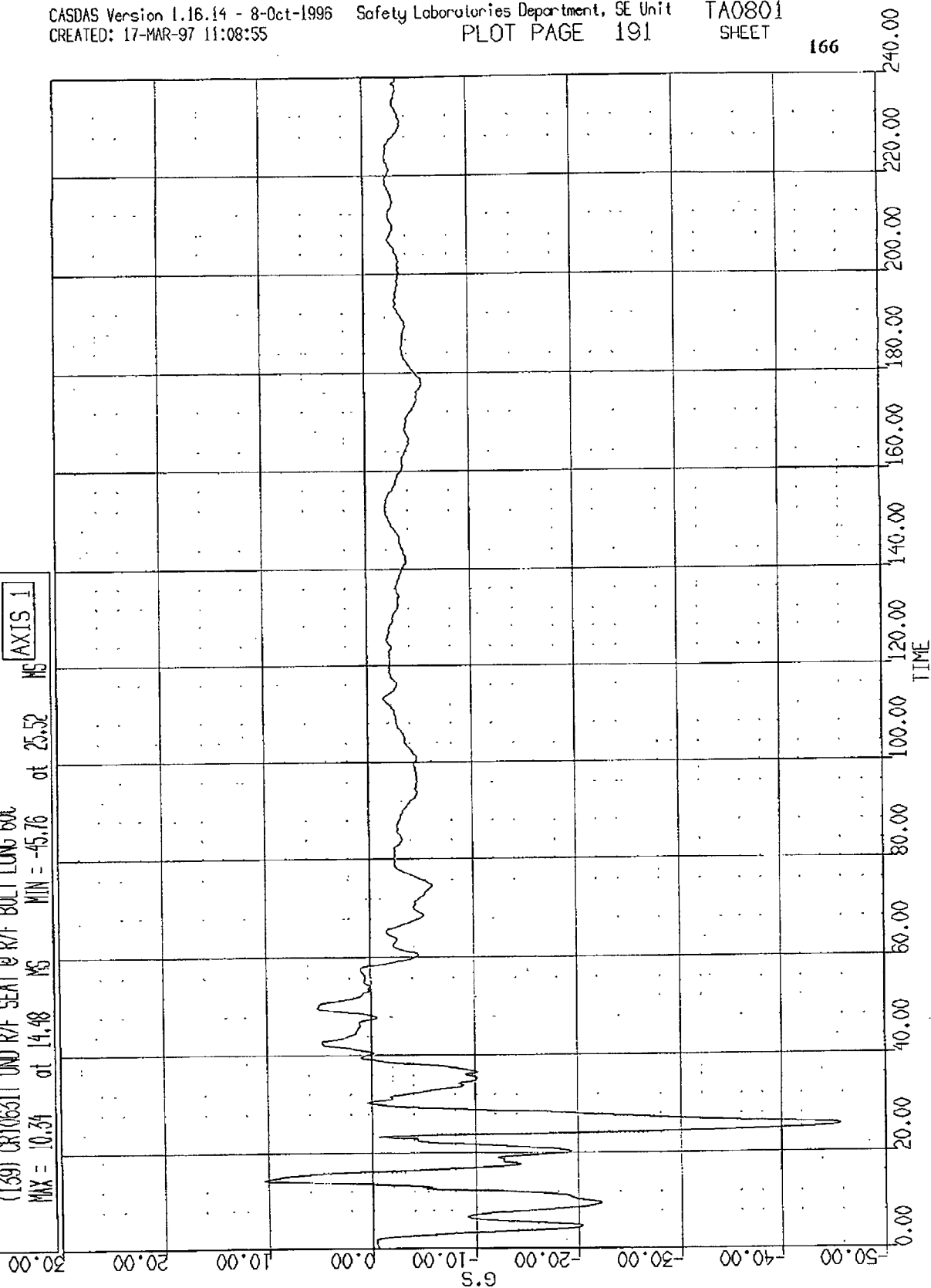
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(139) CR10631T UND R/F SEAT @ R/F BOLT LONG 600
MAX = 10.34 at 14.48 MS MIN = -45.76 at 25.52 MS
AXIS 1



CRTS 0010631

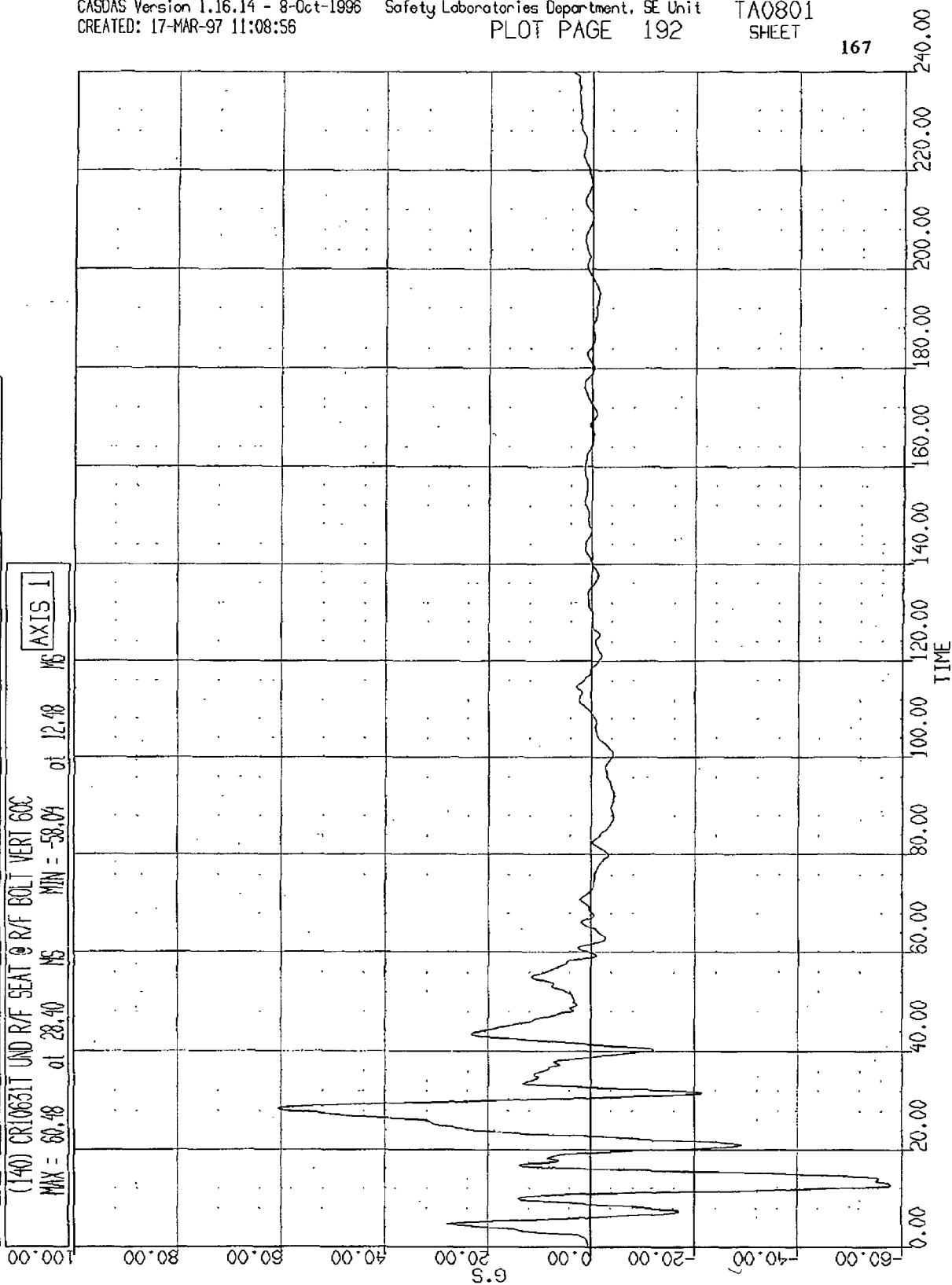
167

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(140) CR10631T UND R/F SEAT @ R/F BOLT VERT 60C

MAX = 60.48 at 28.40 MS MIN = -58.04 at 12.48 MS

AXIS 1



CRTS 0010631

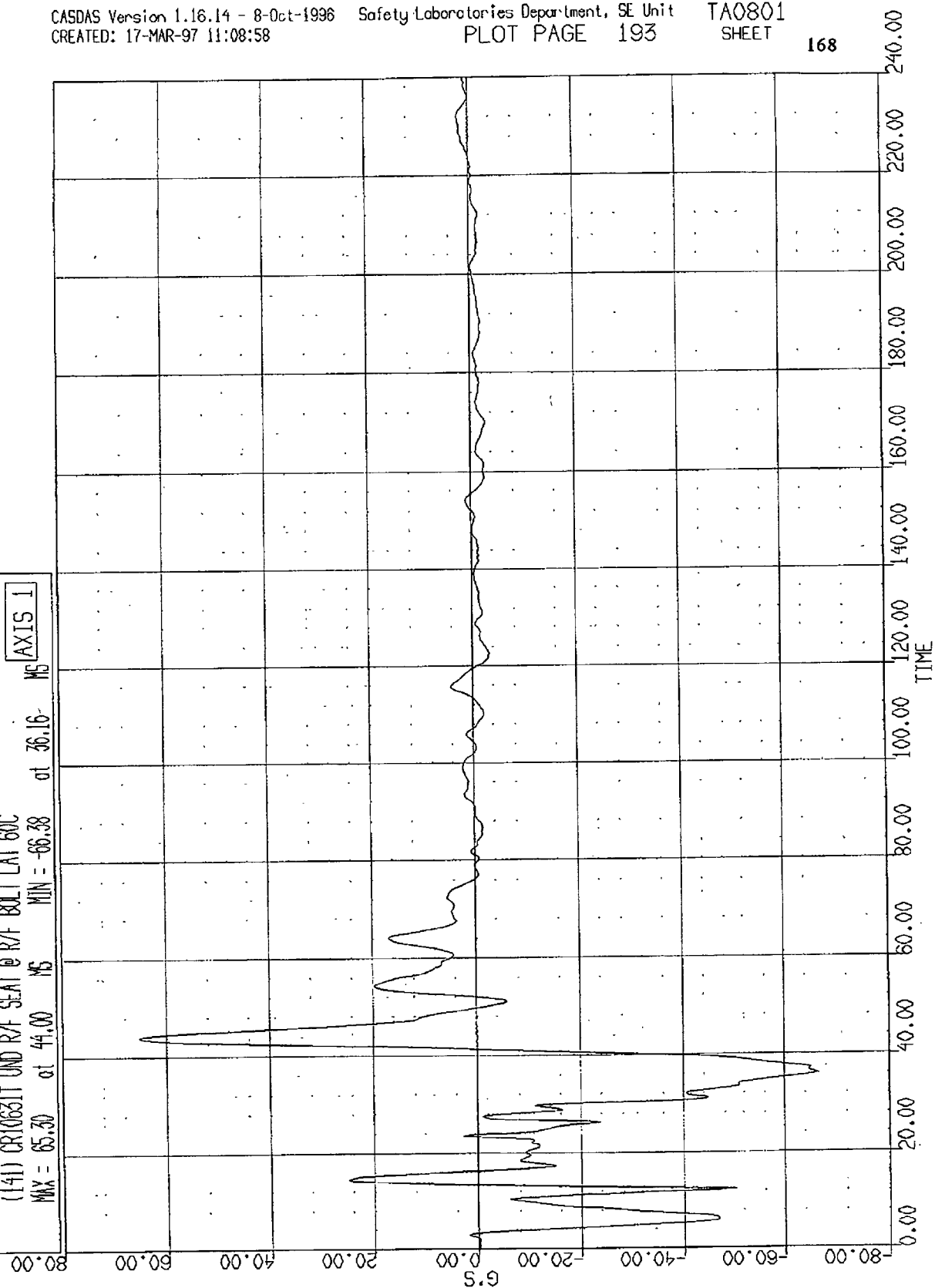
0717

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(141) CR10631T UND R/F SEAT @ R/F BOLT LAT 60C

MAX = 65.30 at 44.00 MS MIN = -66.38 at 36.16 MS

AXIS 1



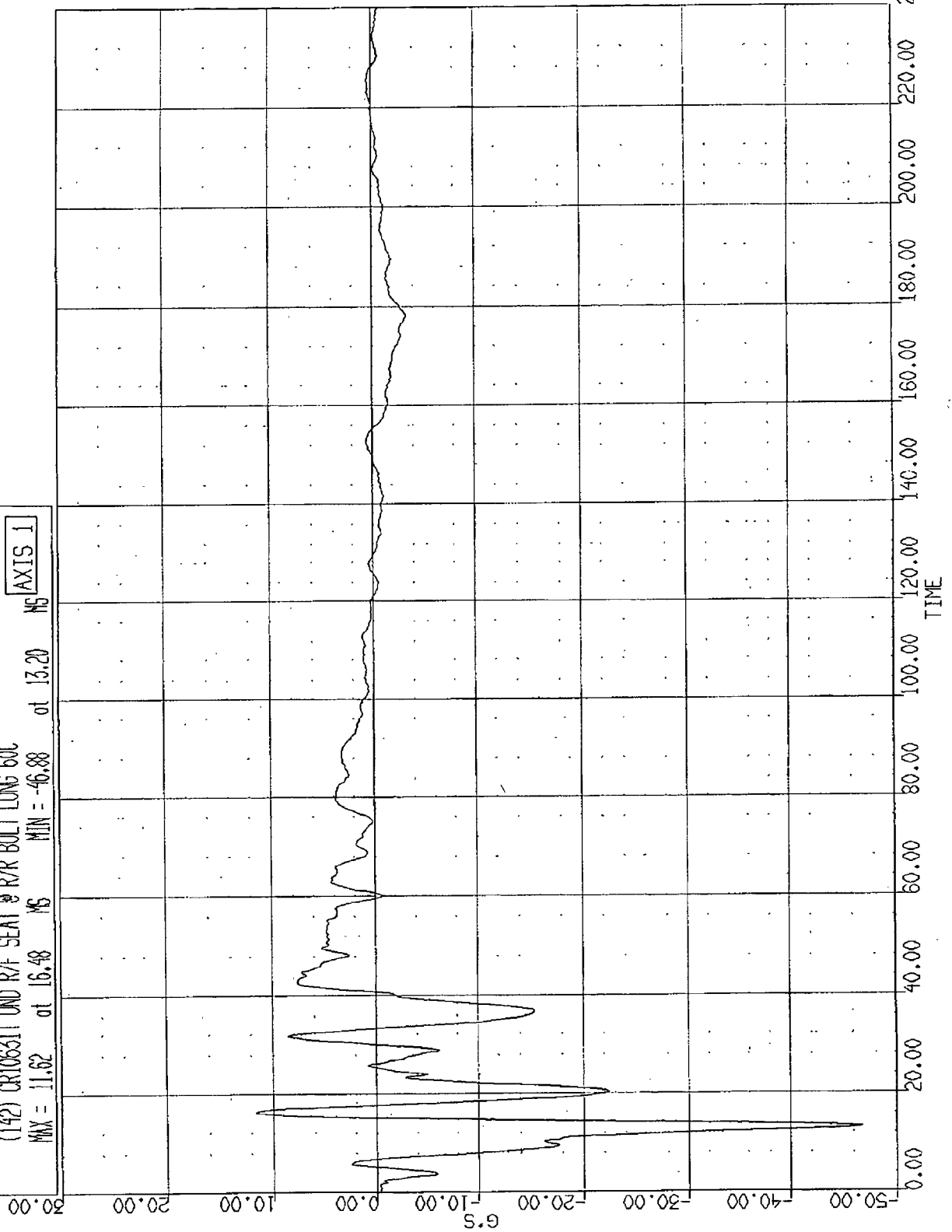
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(142) CR10631T UND R/F SEAT @ R/R BOLT LONG 60C

MAX = 11.62 at 16.48 MS MIN = -46.88 at 13.20 MS

AXIS 1



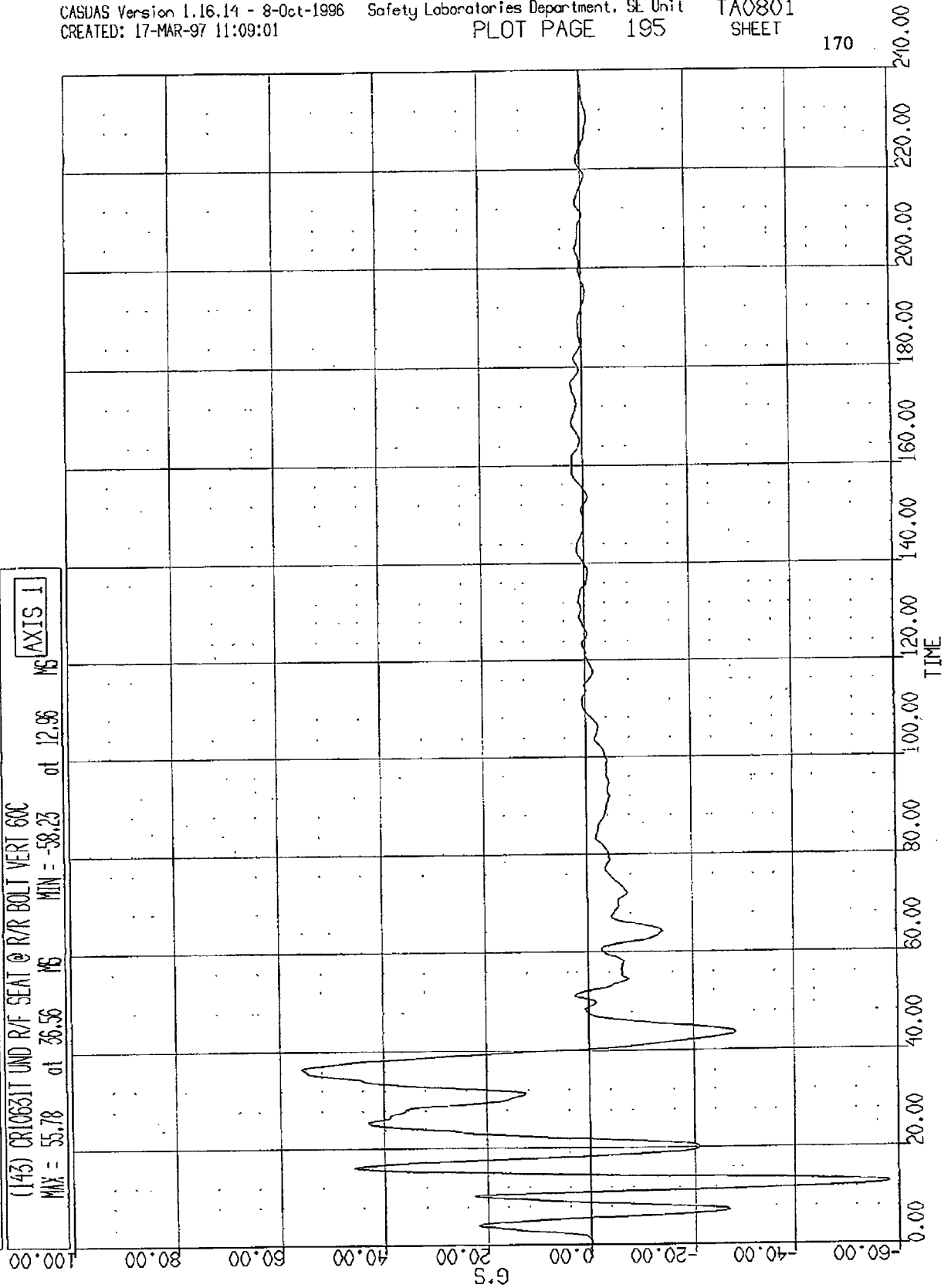
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(143) CR10631T UND R/F SEAT @ R/R BOLT VERT 60C

MAX = 55.78 at 36.56 MS MIN = -58.23 at 12.96 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(144) CR10631T UND R/F SEAT @ R/R BOLT LAT 60C

MAX = 38.75 at 43.92 MS MIN = -51.72 at 5.840 MS

AXIS 1

100.00

80.00

60.00

40.00

20.00

G.S

0.00

-20.00

-40.00

-60.00

TIME

240.00

220.00

200.00

180.00

160.00

140.00

120.00

100.00

80.00

60.00

40.00

20.00

0.00

CRTS 0010631

0721

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(145) CR10631T R/ROCKER @ A-PILLAR VERT 60C

MAX = 72.06 at 13.84 MS MIN = -49.30 at 10.88 MS

AXIS 1

100.00

80.00

60.00

40.00

20.00

G.S.

0.00

-20.00

-40.00

-60.00

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

TIME

CRTS 0010631

0722

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(146) CR10631T R/ROCKER @ A-PILLAR LAT 60C
MAX = 158.2 at 13.68 MS MIN = -137.7 at 3.920 MS

AXIS 1

250.00

200.00

150.00

100.00

50.00

G.S

0.00

-50.00

-100.00

-150.00

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

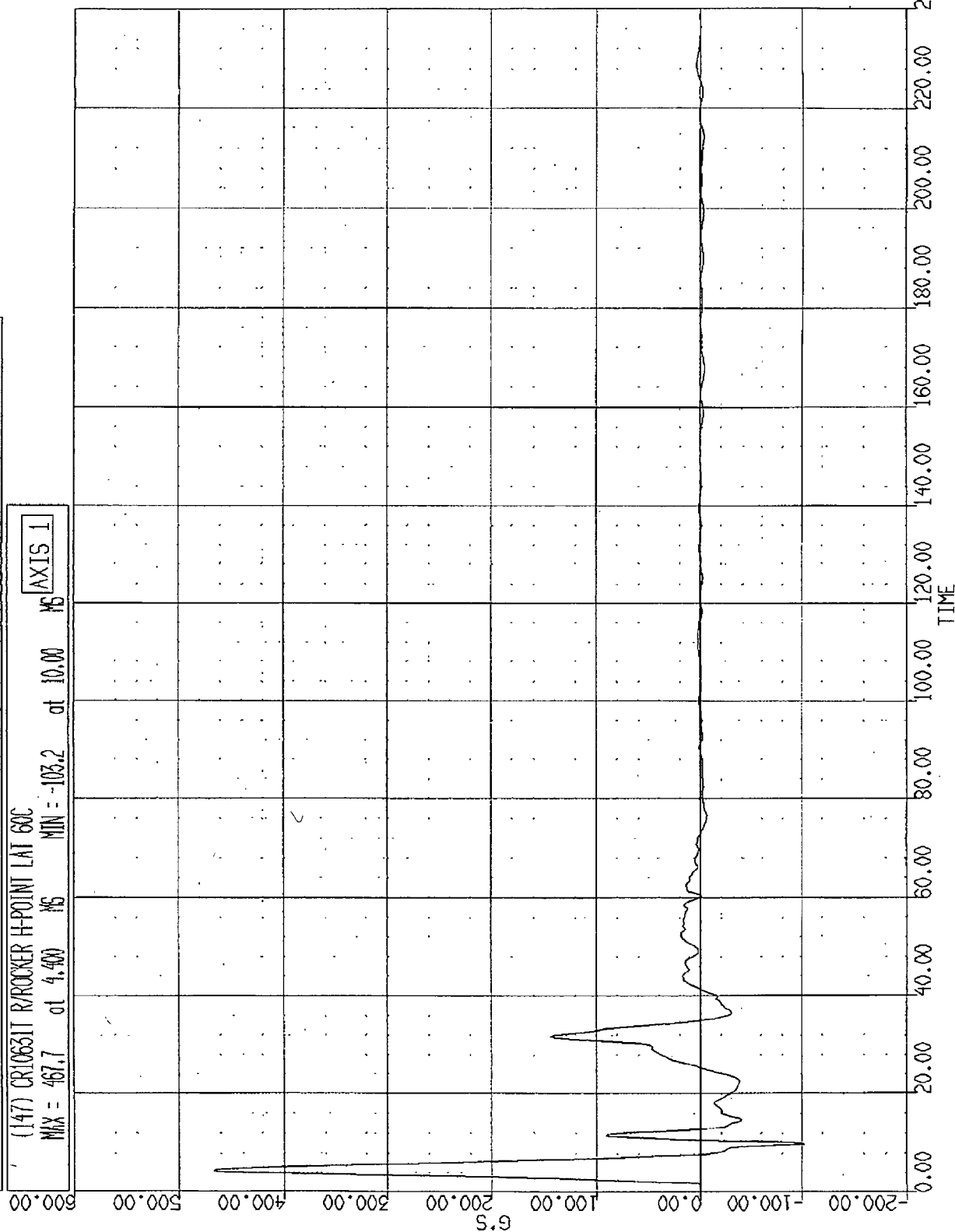
TIME

CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(147) CR10631T R/ROCKER H-POINT LAT 60C
MAX = 467.7 at 4.400 MS MIN = -103.2 at 10.00 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(148) CR10631T R/ROCKER @ B-PILLAR VERT 600

MAX = 241.3 at 12.08 MS MIN = -112.6 at 31.84 MS

AXIS 1

600.00

500.00

400.00

300.00

200.00

100.00

0.00

-100.00

-200.00

G.S.

TIME

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00

CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(149) CR10631T R/ROCKER @ 8-PILLAR LAT 60C

MAX = 155.5 at 30.95 MS MIN = -202.8 at 12.24 MS

AXIS 1

500.00

400.00

300.00

200.00

100.00

G.S.

0.00

-100.00

-200.00

-300.00

0.00

TIME

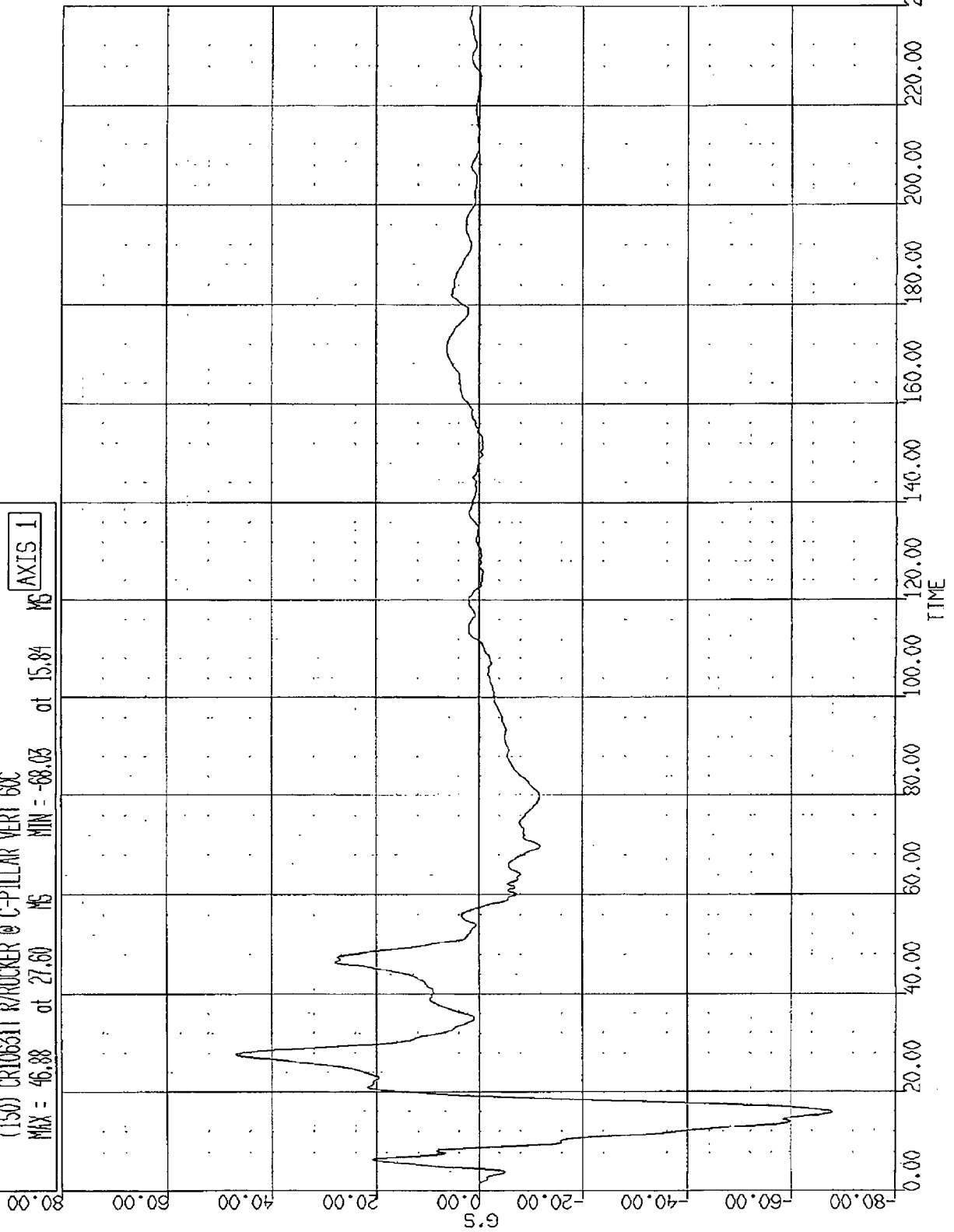
240.00
220.00
200.00
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00

CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(150) CR10631T R/ROCKER @ C-PILLAR VERT 600
MAX = 46.88 at 27.60 MS MIN = -68.03 at 15.84 MS

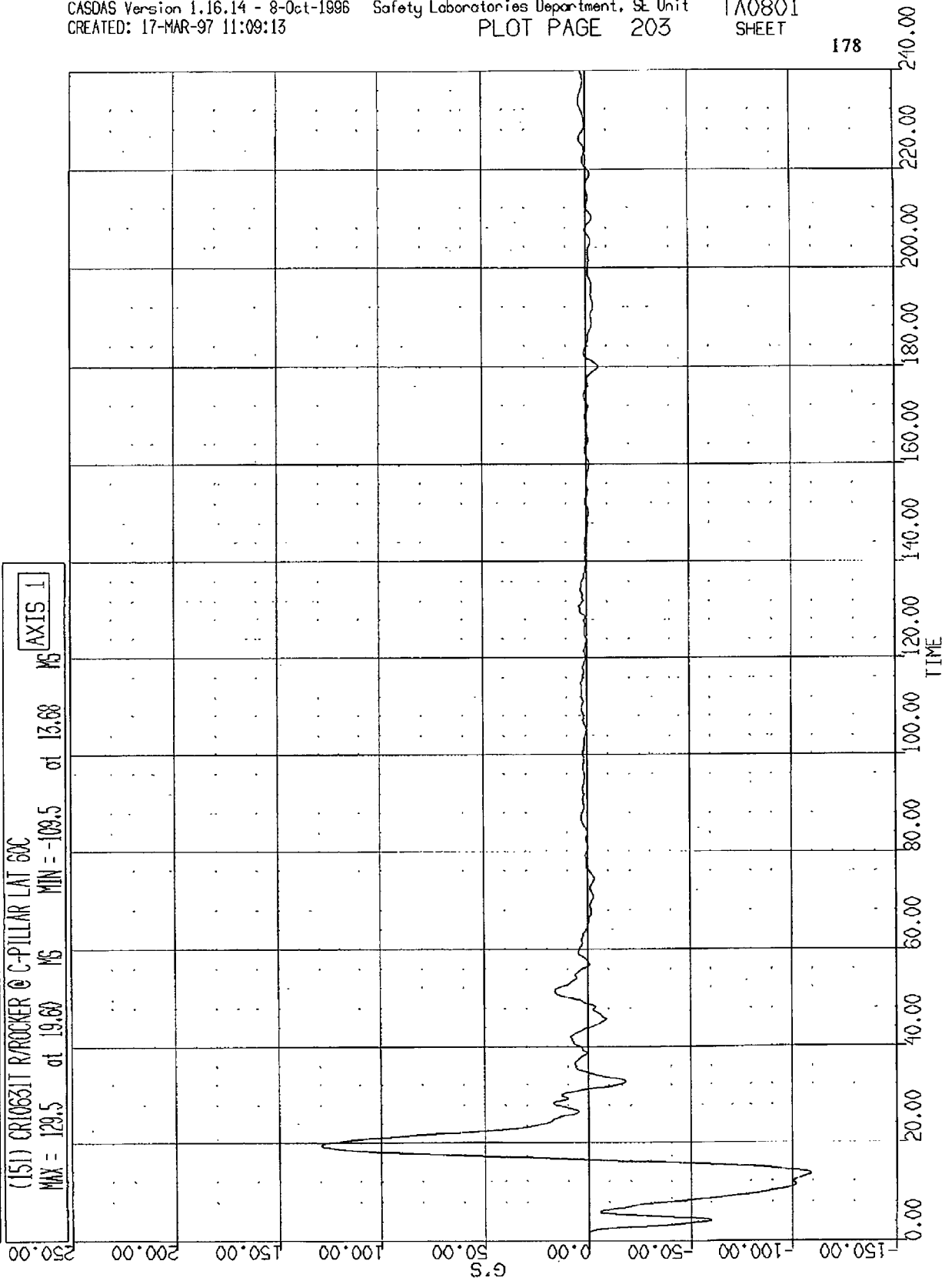
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(151) CR10631T R/ROCKER @ C-PILLAR LAT 60C
MAX = 129.5 at 19.60 MS MIN = -109.5 at 13.68 MS
AXIS 1

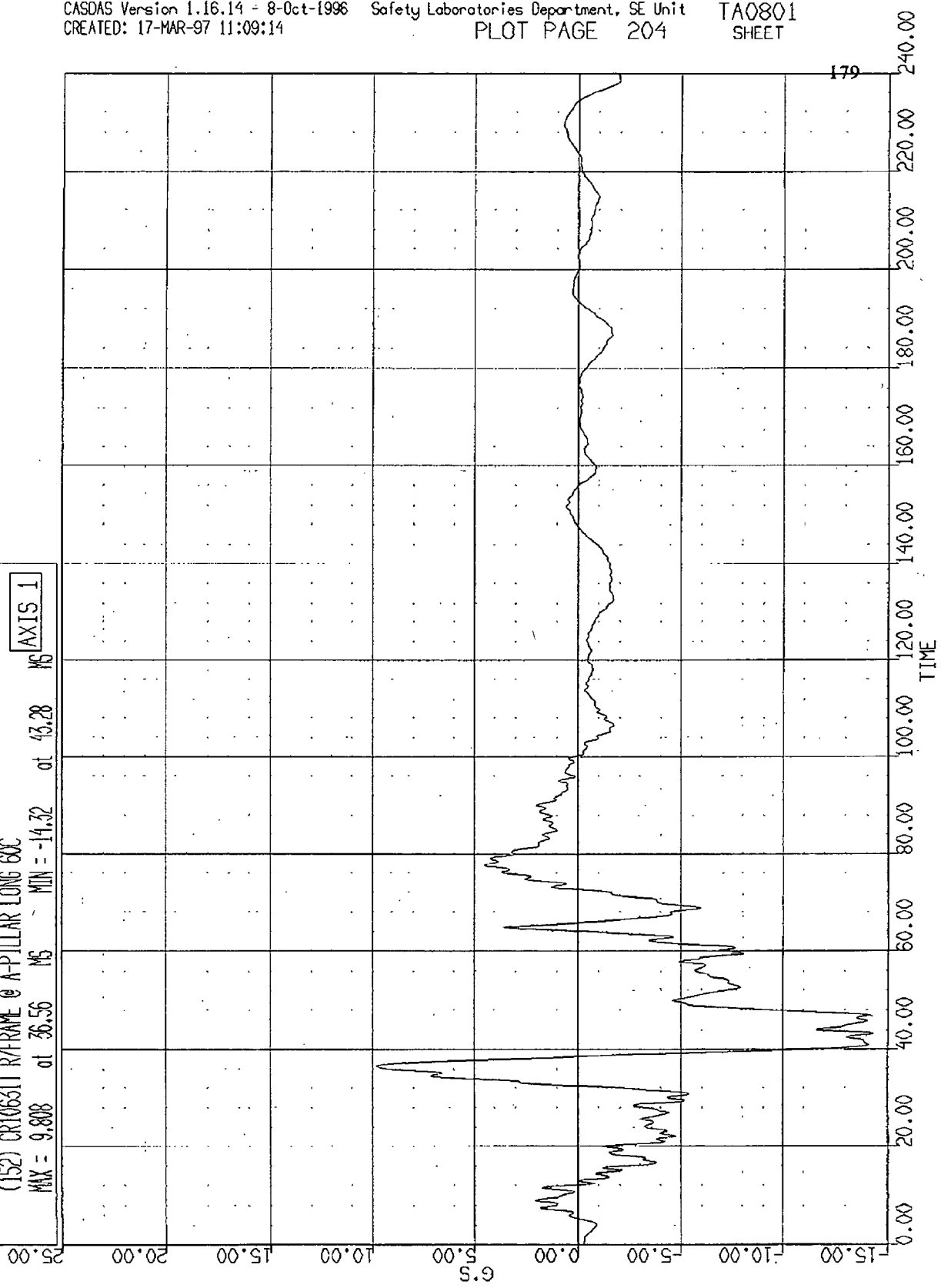


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(152) CR10631T R/FRAME @ A-PILLAR LONG 60C
 MAX = 9.808 at 36.56 MS MIN = -14.32 at 43.28 MS

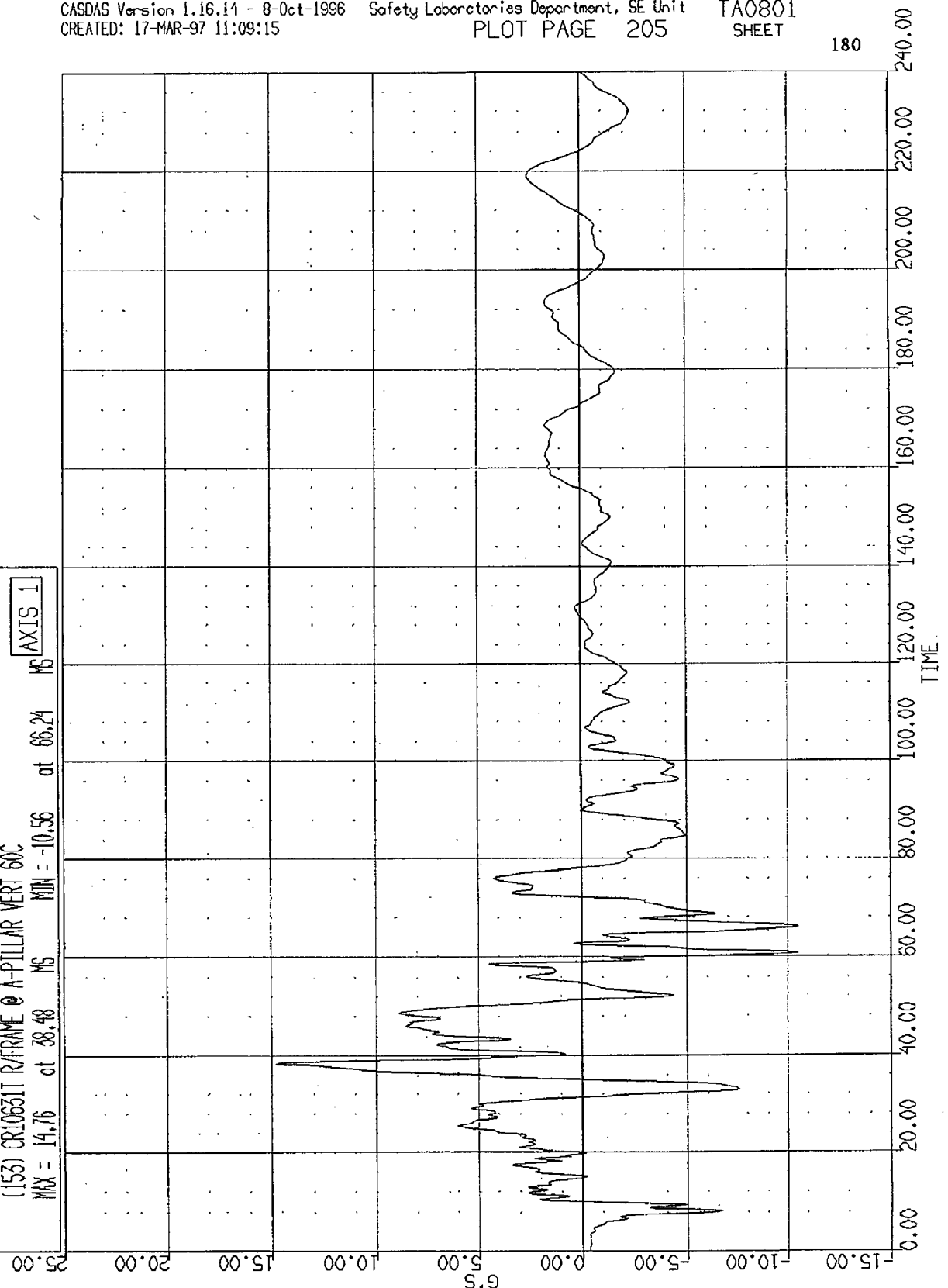
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(153) CR10631T R/FRAME @ A-PILLAR VERT 60C
 MAX = 14.76 at 38.48 MS MIN = -10.56 at 66.24 MS
 AXIS 1

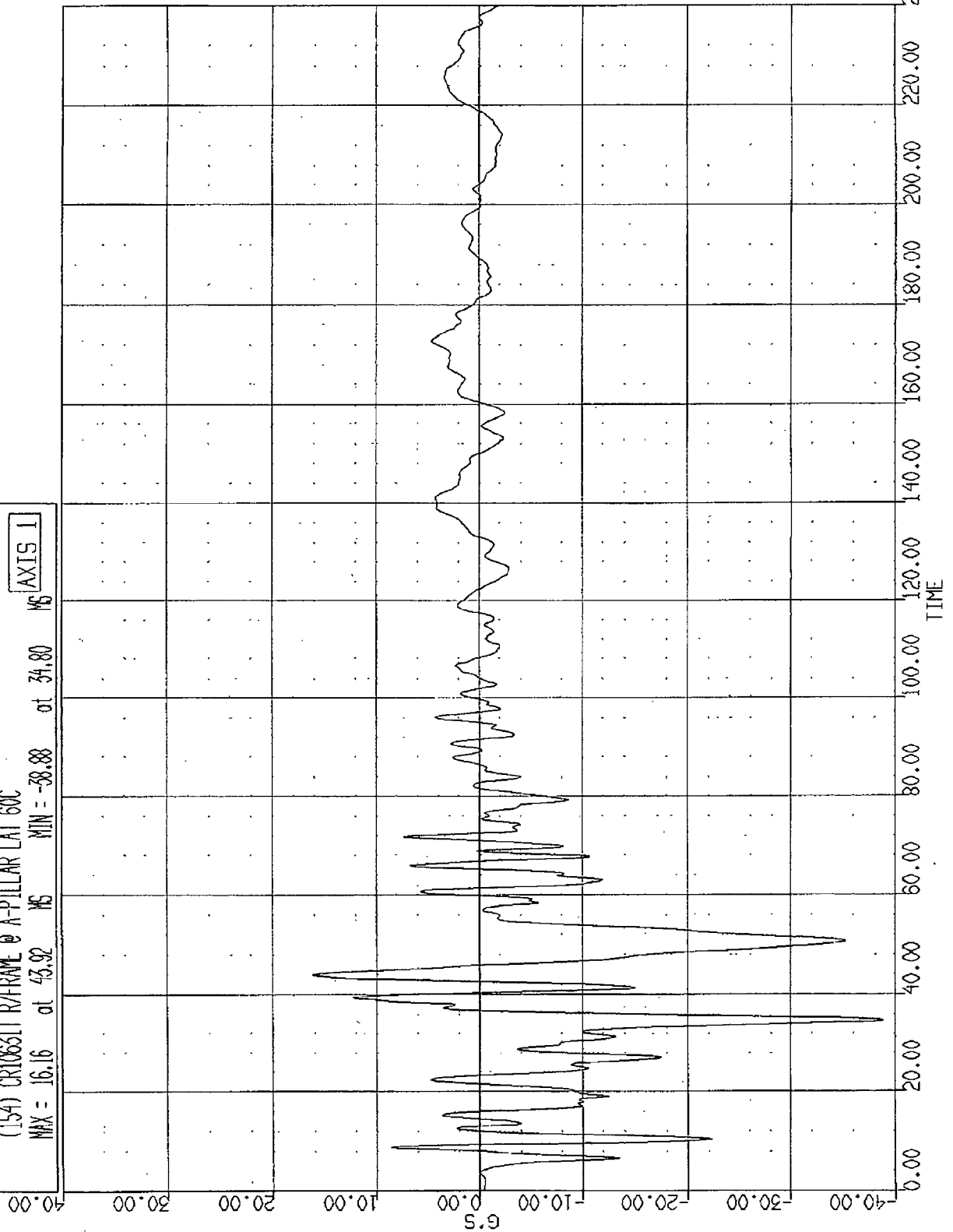


CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(154) CR10631T R/FRAVE @ A-PILLAR LAT 60C

MAX = 16.16 at 43.92 MS MIN = -38.88 at 34.80 MS

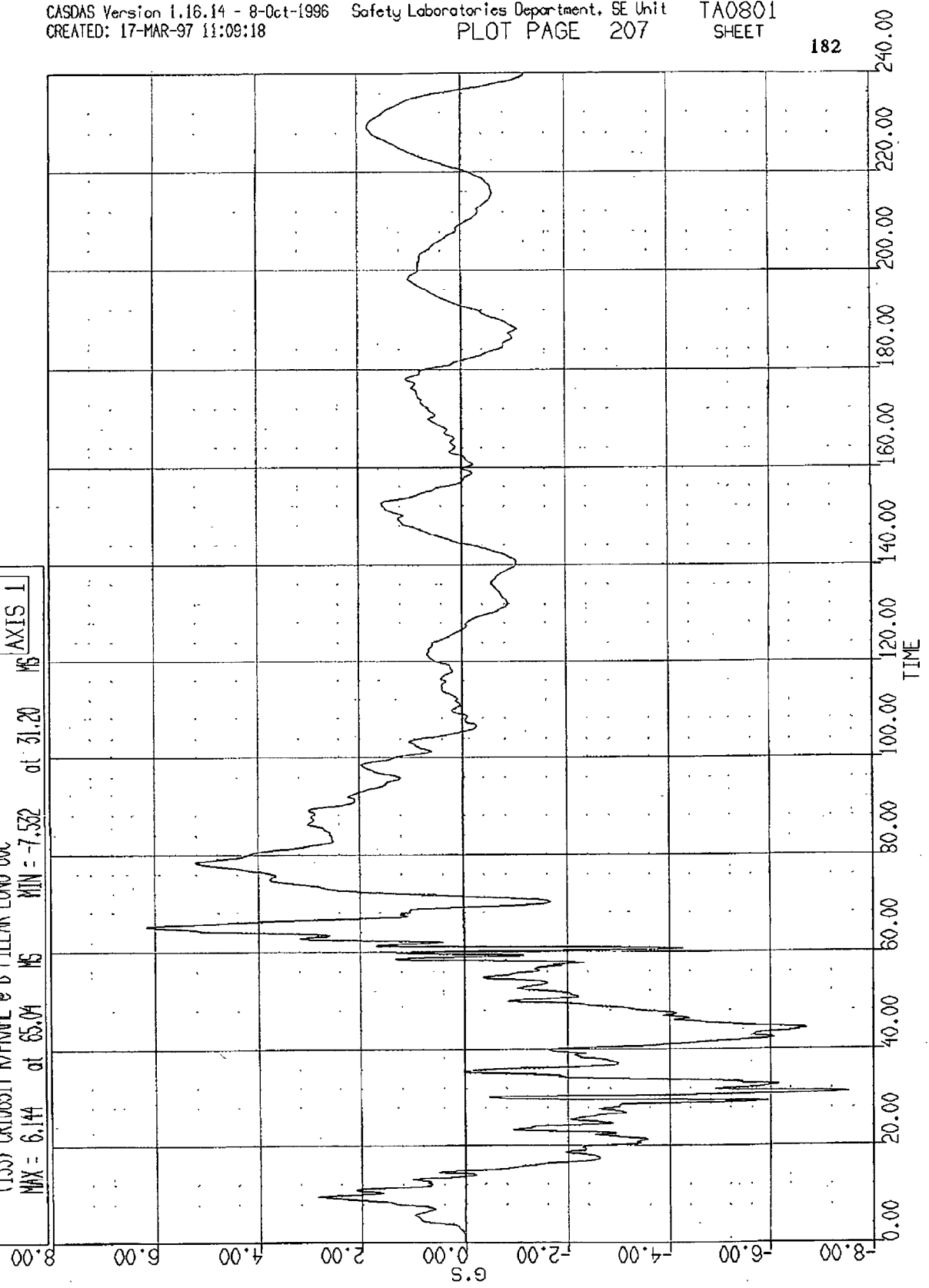
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(155) CR10631T R/FRAVE @ B-PILLAR LONG 60C
 MAX = 6.144 at 65.04 MS MIN = -7.532 at 31.20 MS
 AXIS 1



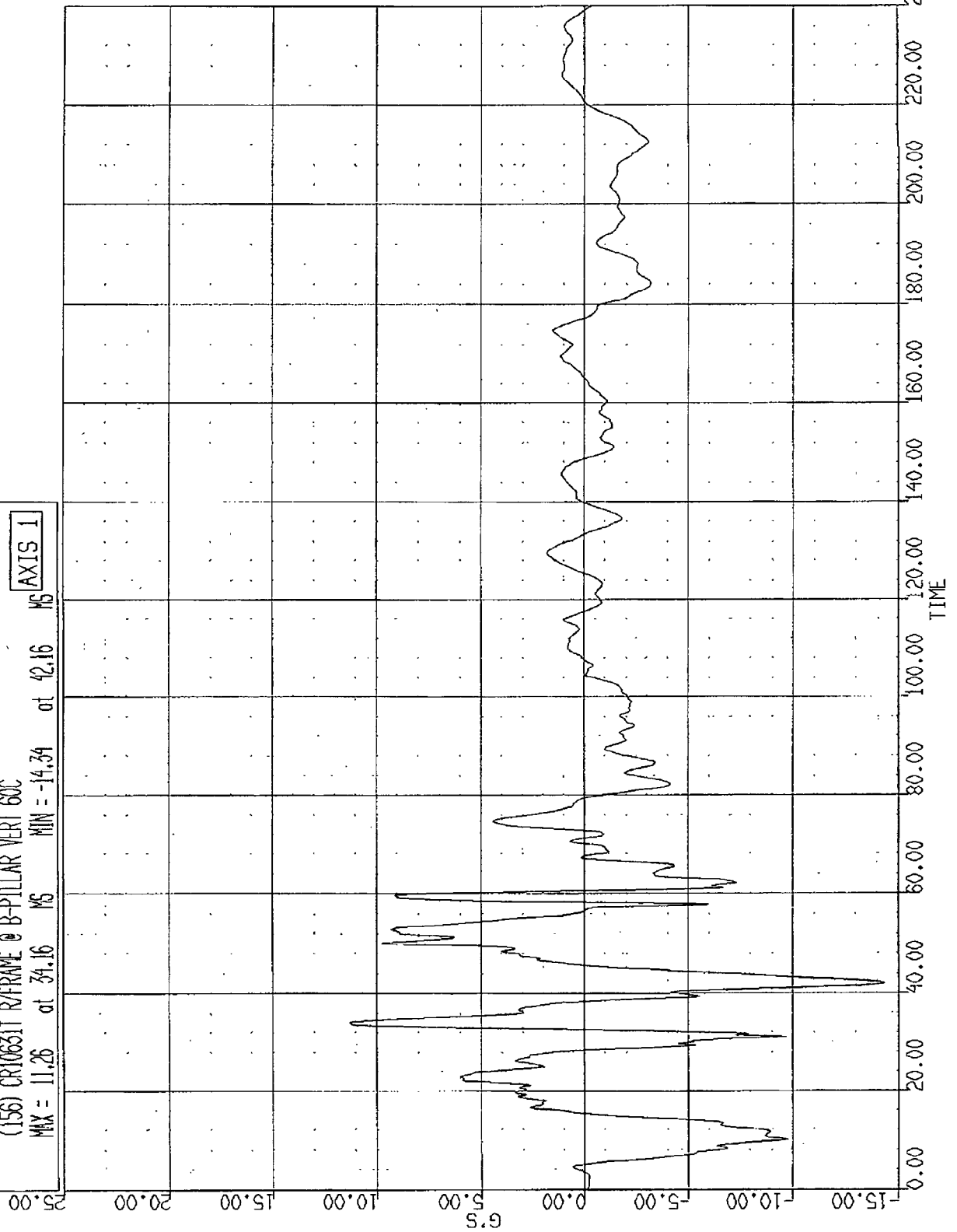
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(156) CR10631T R/FRAME 0 B-PILLAR VERT 60C

MAX = 11.26 at 34.16 MS MIN = -14.34 at 42.16 MS

AXIS 1



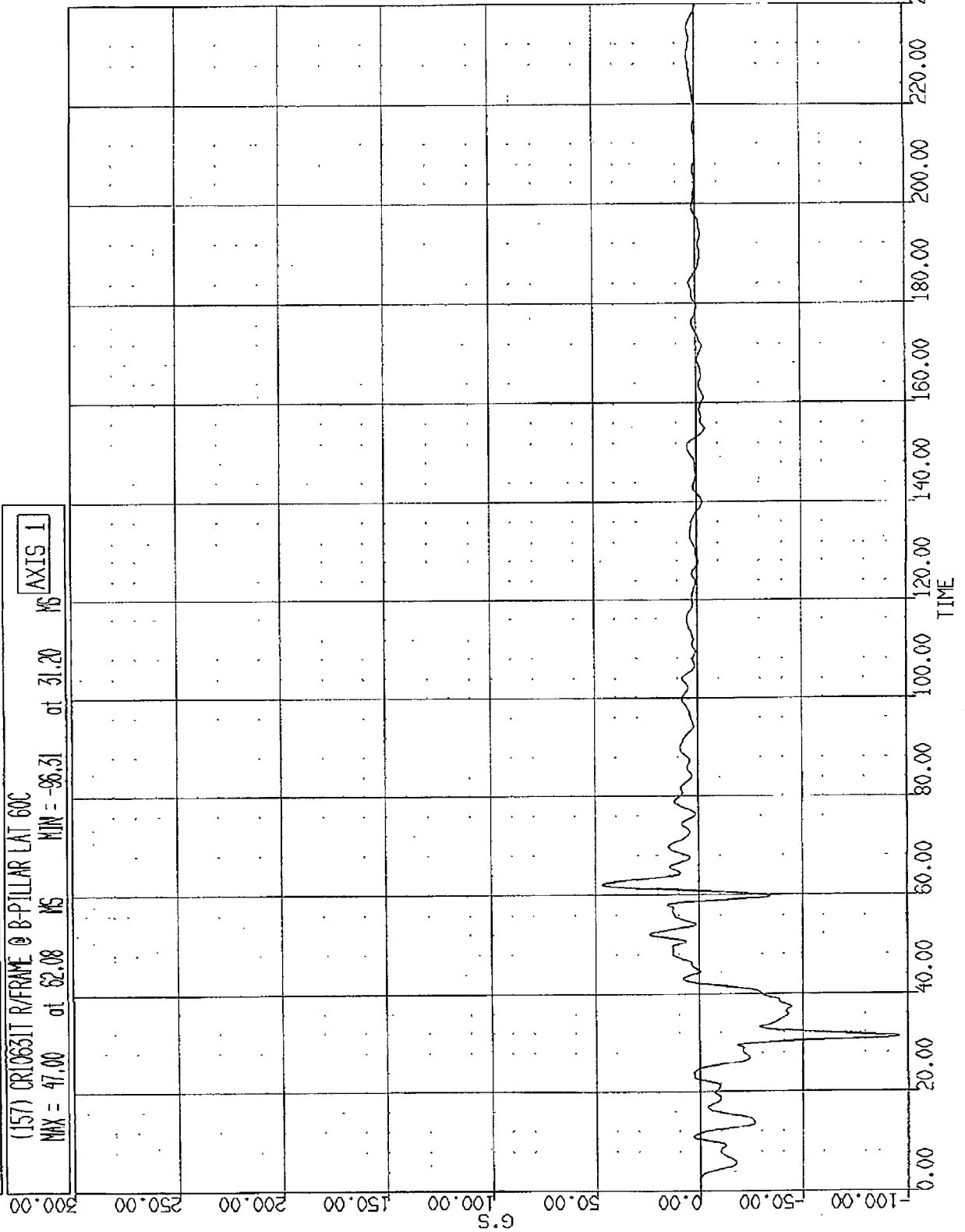
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(157) CR10631T R/FRAME 0 B-PILLAR LAT 60C

MAX = 47.00 at 62.08 MS MIN = -96.31 at 31.20 MS

AXIS 1

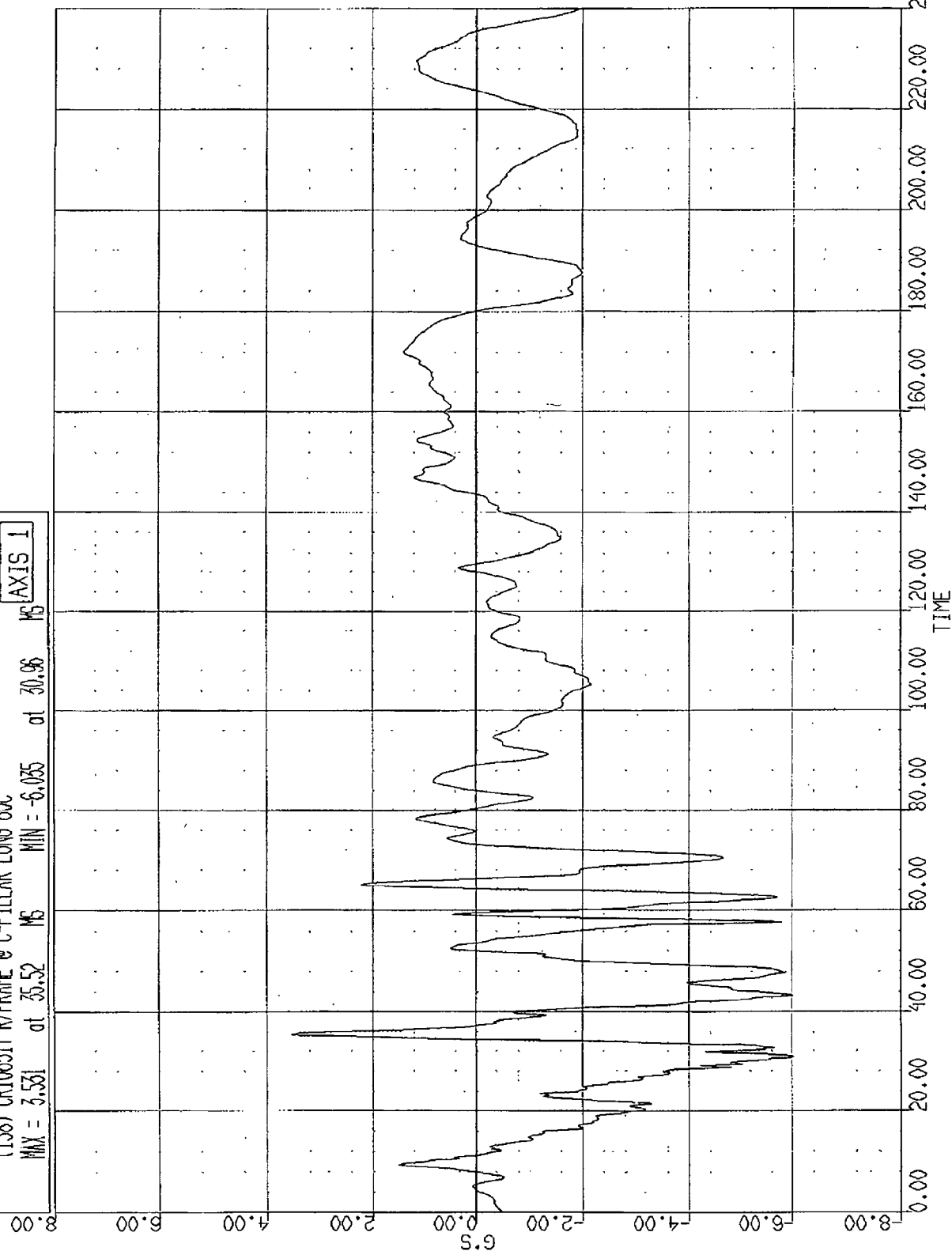


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(158) CR10631T R/FRAME @ C-PILLAR LONG 60C
 MAX = 3.531 at 35.52 MS MIN = -6.035 at 30.96 MS

AXIS 1

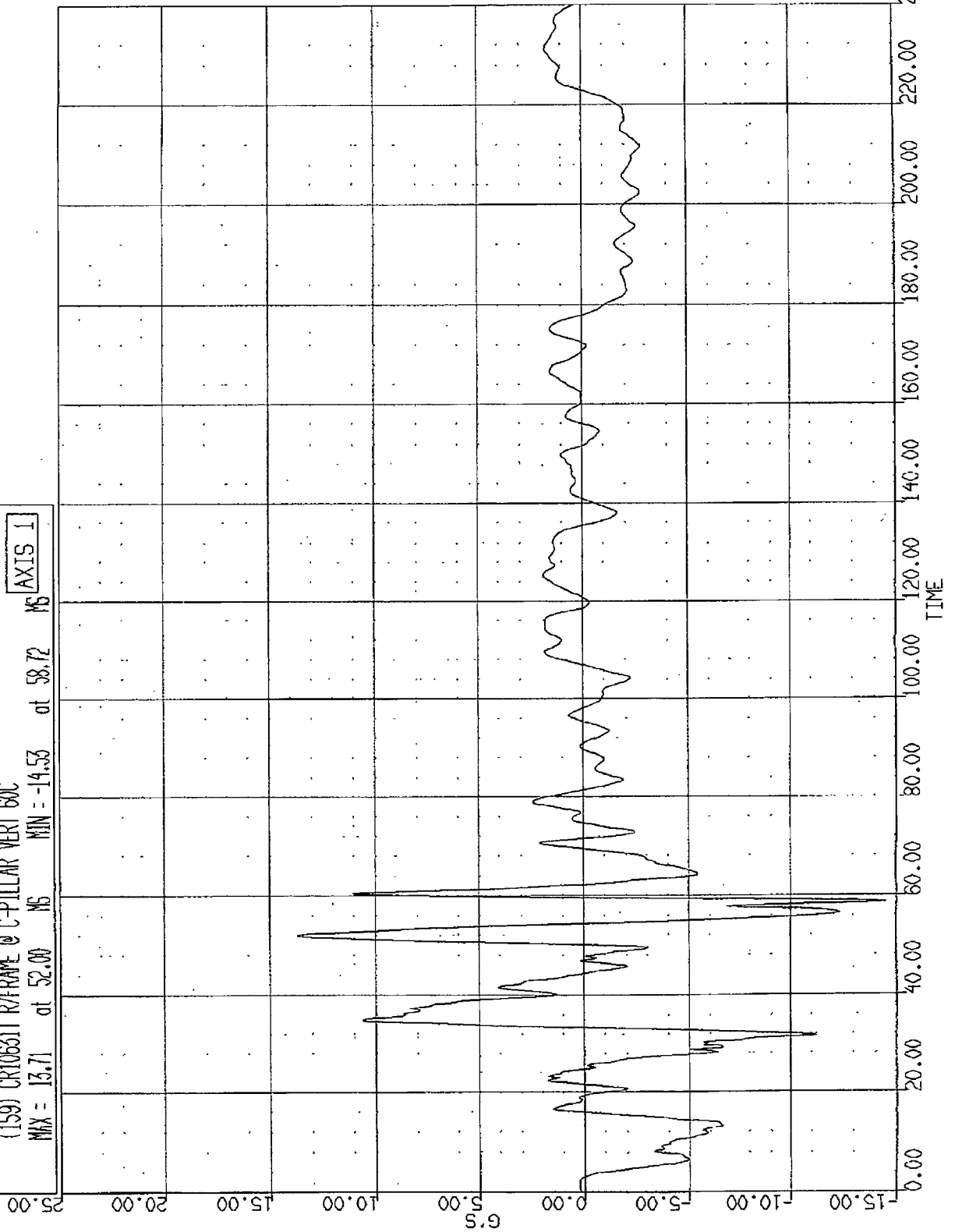


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(159) CR10631T R/FRAME @ C-PILLAR VERT 60C
MAX = 13.71 at 52.00 MS MIN = -14.53 at 58.72 MS

AXIS 1

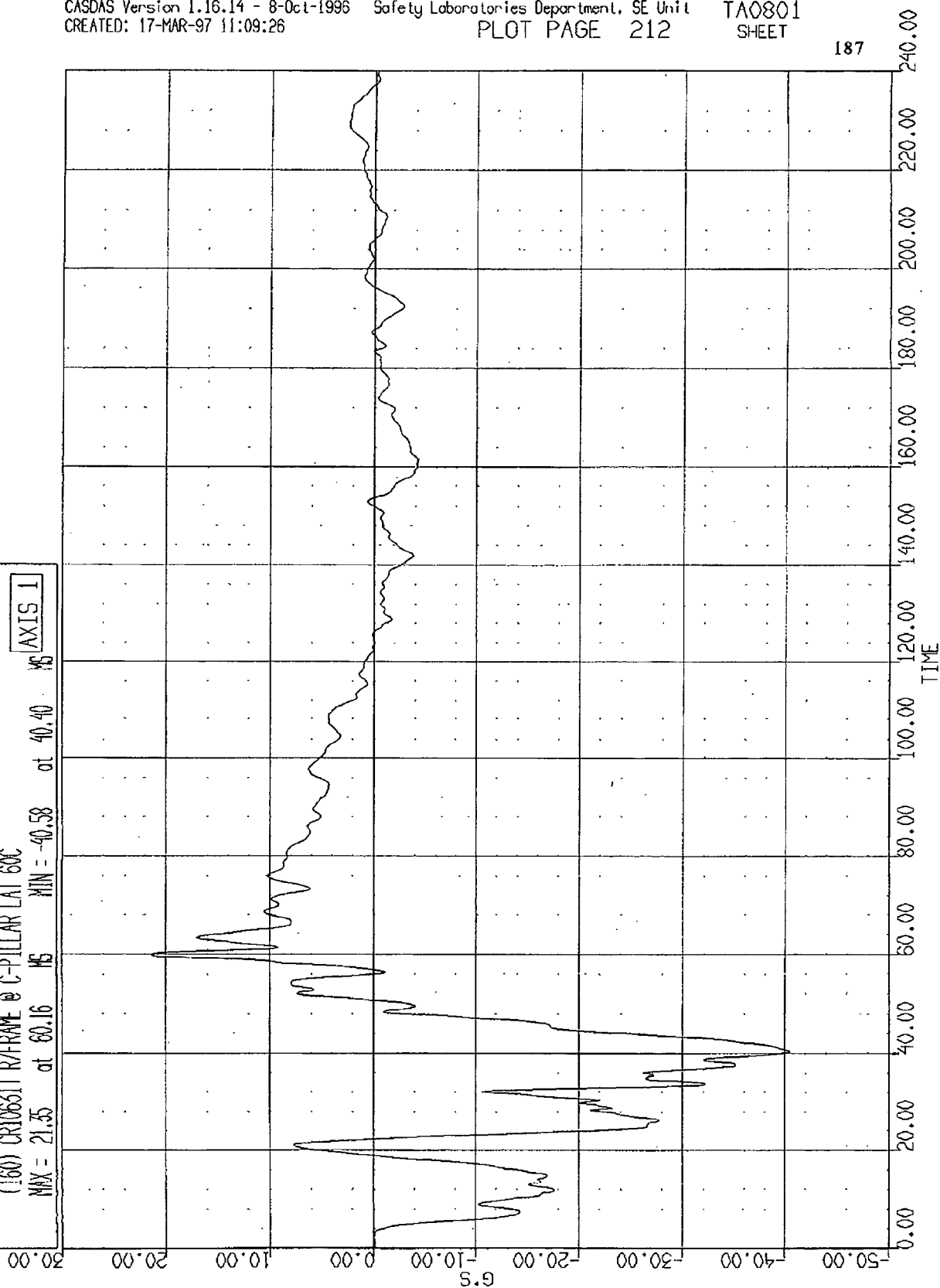


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(160) CR10631T R/FRAME @ C-PILLAR LAT 60C
MAX = 21.35 at 60.16 MS MIN = -40.58 at 40.40 MS

AXIS 1

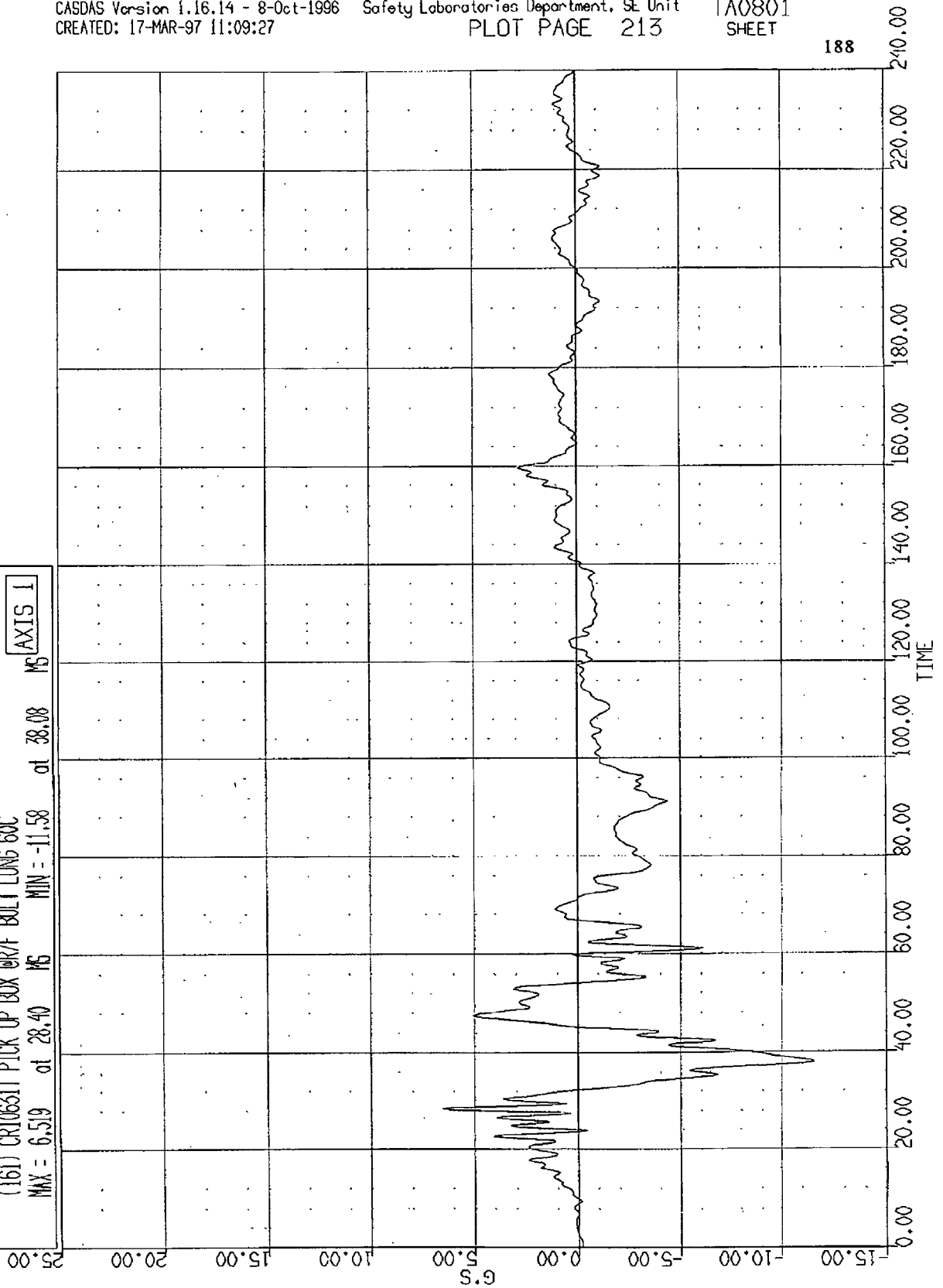


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(161) CR10631T PICK UP BOX OR/F BOLT LONG 60C
 MAX = 6.519 at 28.40 MS MIN = -11.58 at 38.08 MS

AXIS 1

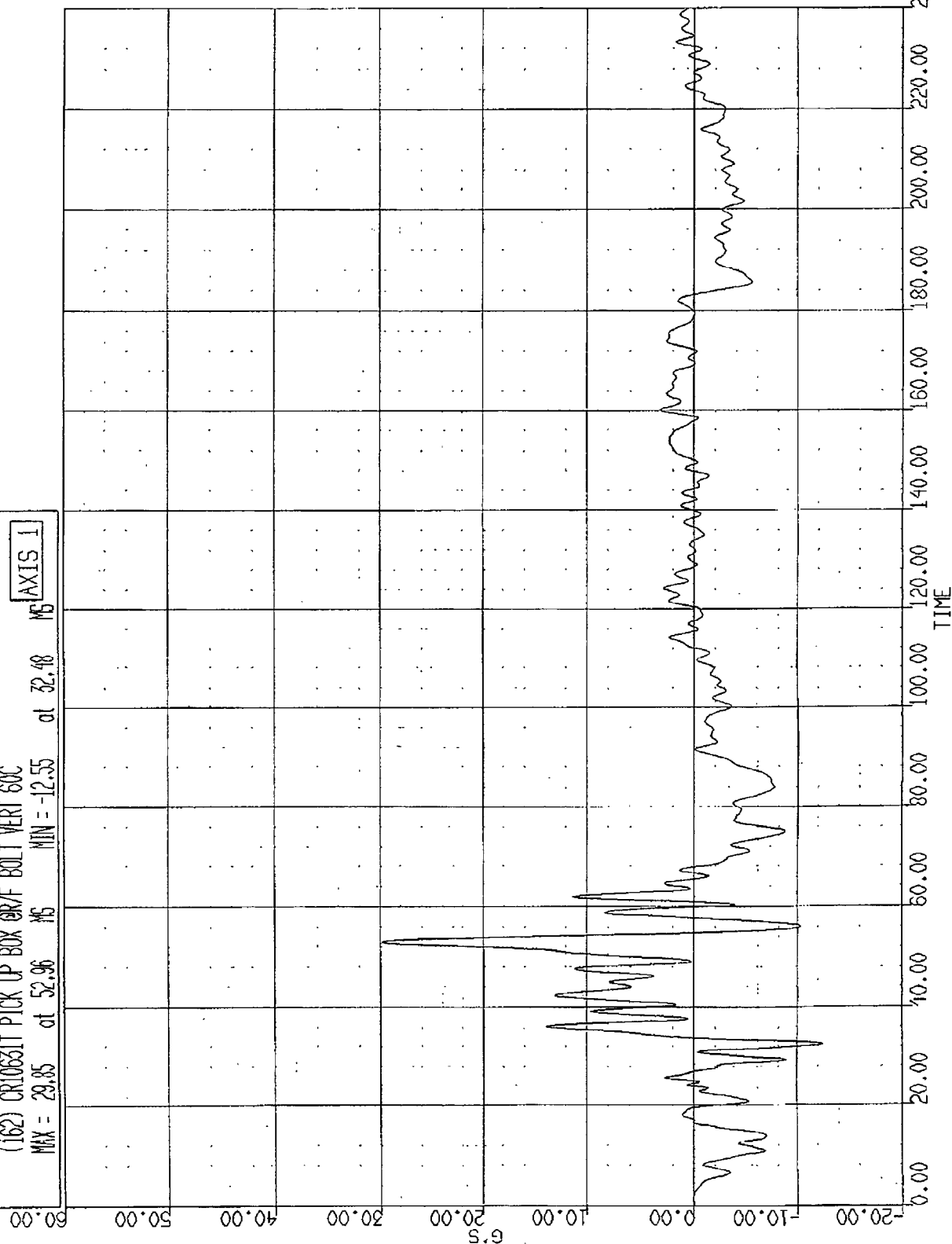


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(162) CR10631T PICK UP BOX OR/F BOLT VERT 60C
MAX = 29.85 at 52.96 MS MIN = -12.55 at 32.48 MS

AXIS 1

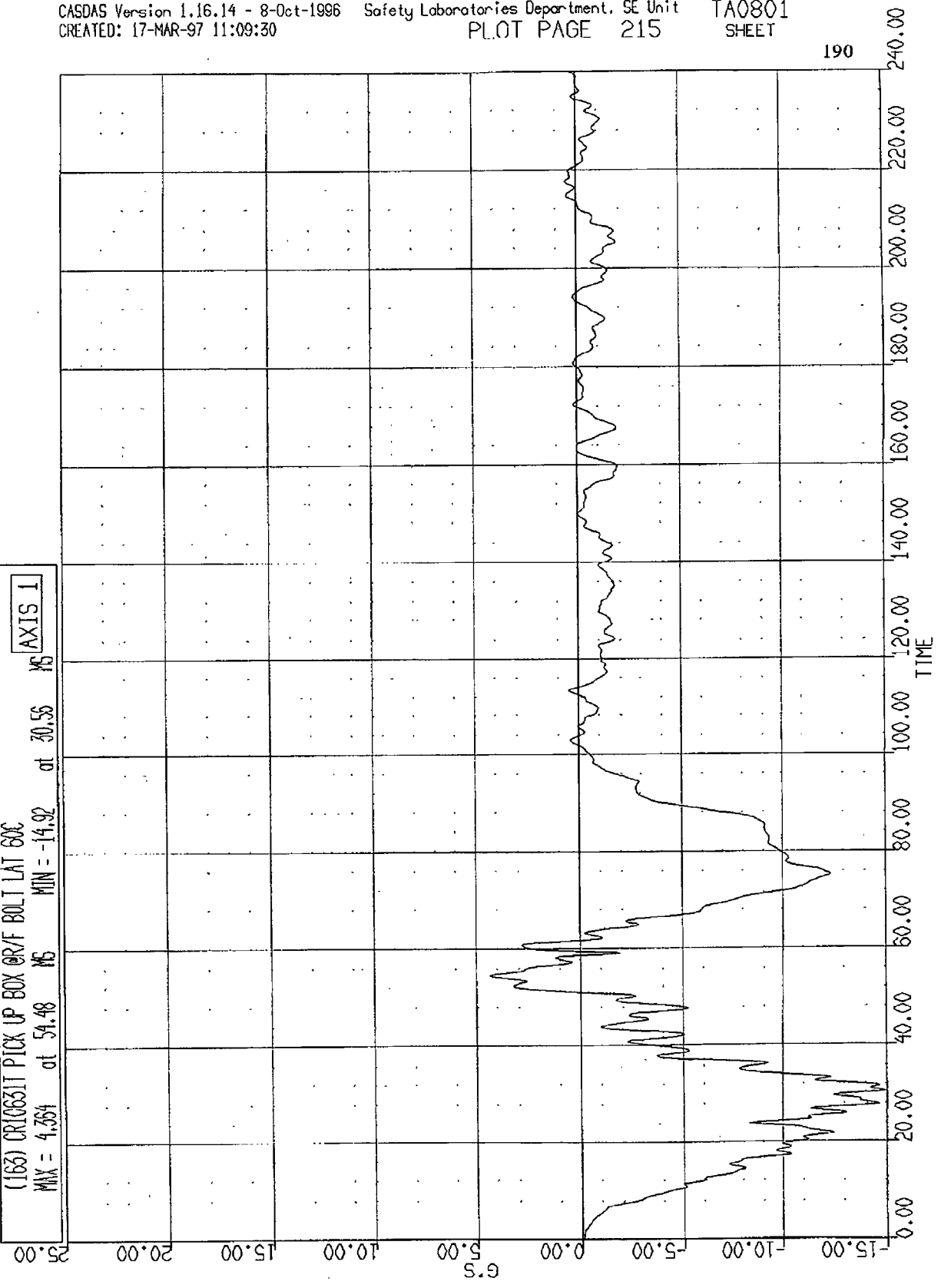


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(163) CR10631 PICK UP BOX @/F BOLT LAT 60C
MAX = 4.354 at 54.48 MS MIN = -14.92 at 30.55 MS

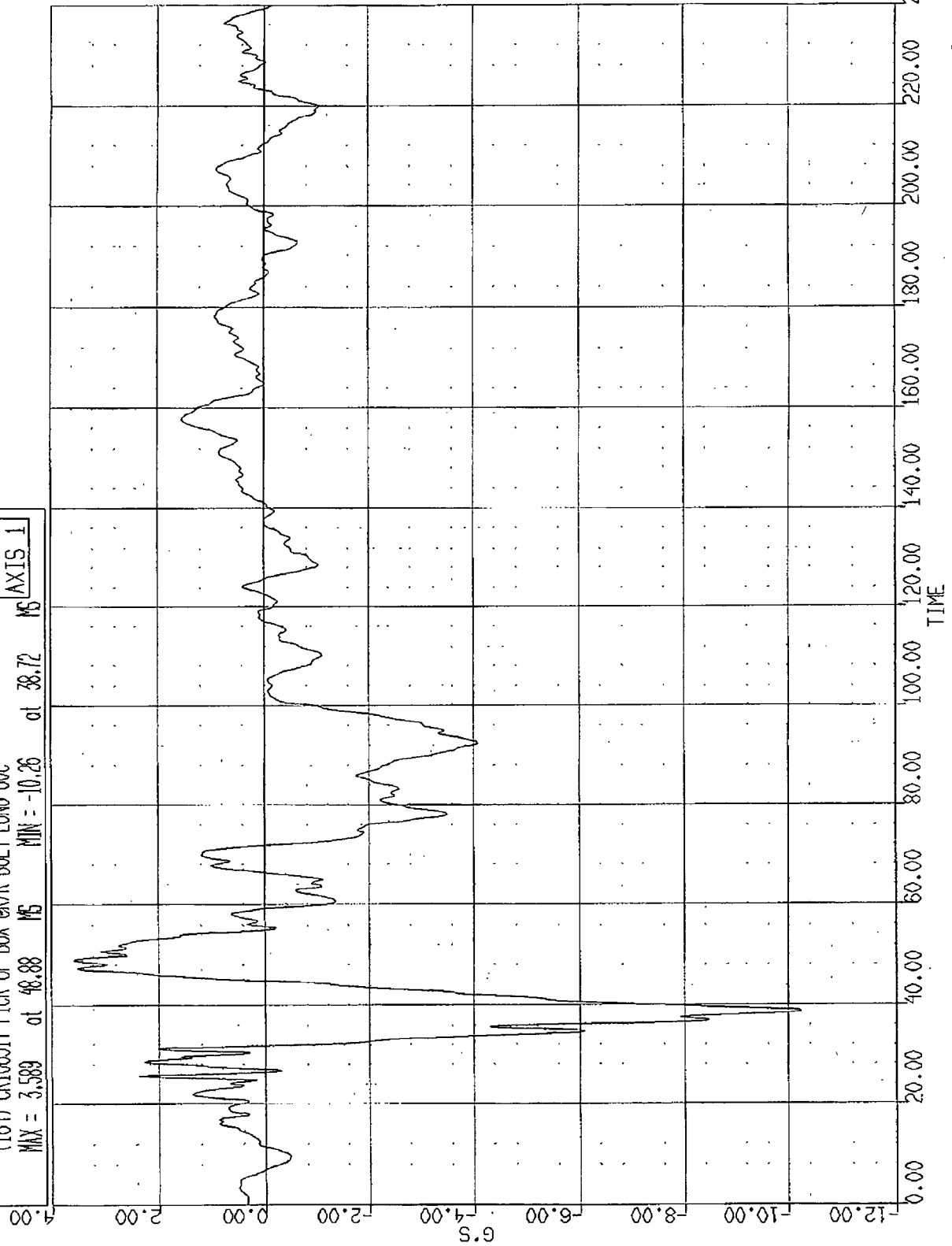
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(164) CR10631T PICK UP BOX OR/R BOLT LONG 60C
MAX = 3.589 at 48.88 MS MIN = -10.26 at 38.72 MS
AXIS 1

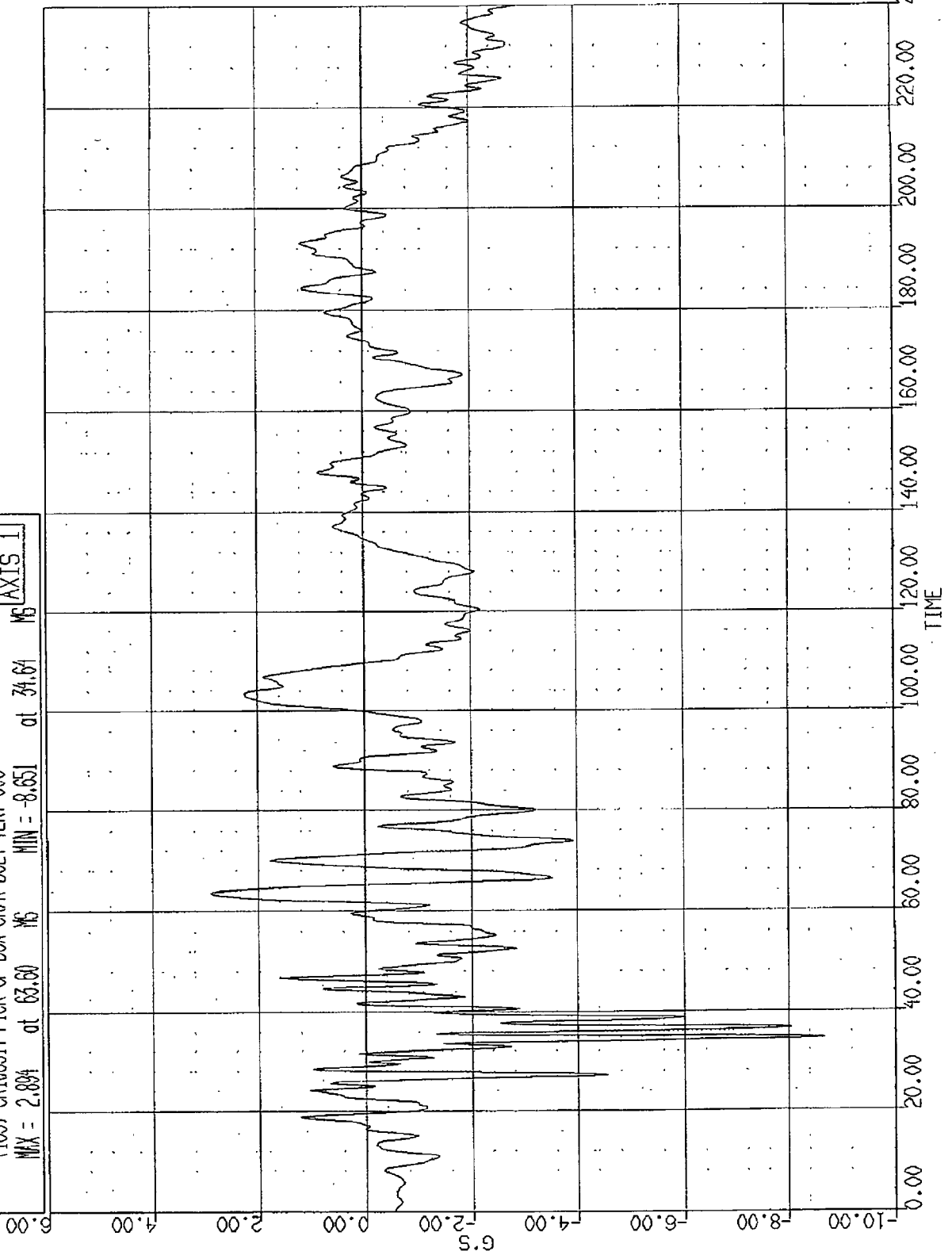


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(165) CR10631T PICK UP BOX OR/R BOLT VERT 60C
 MAX = 2.894 at 63.60 MS MIN = -8.651 at 34.64 MS

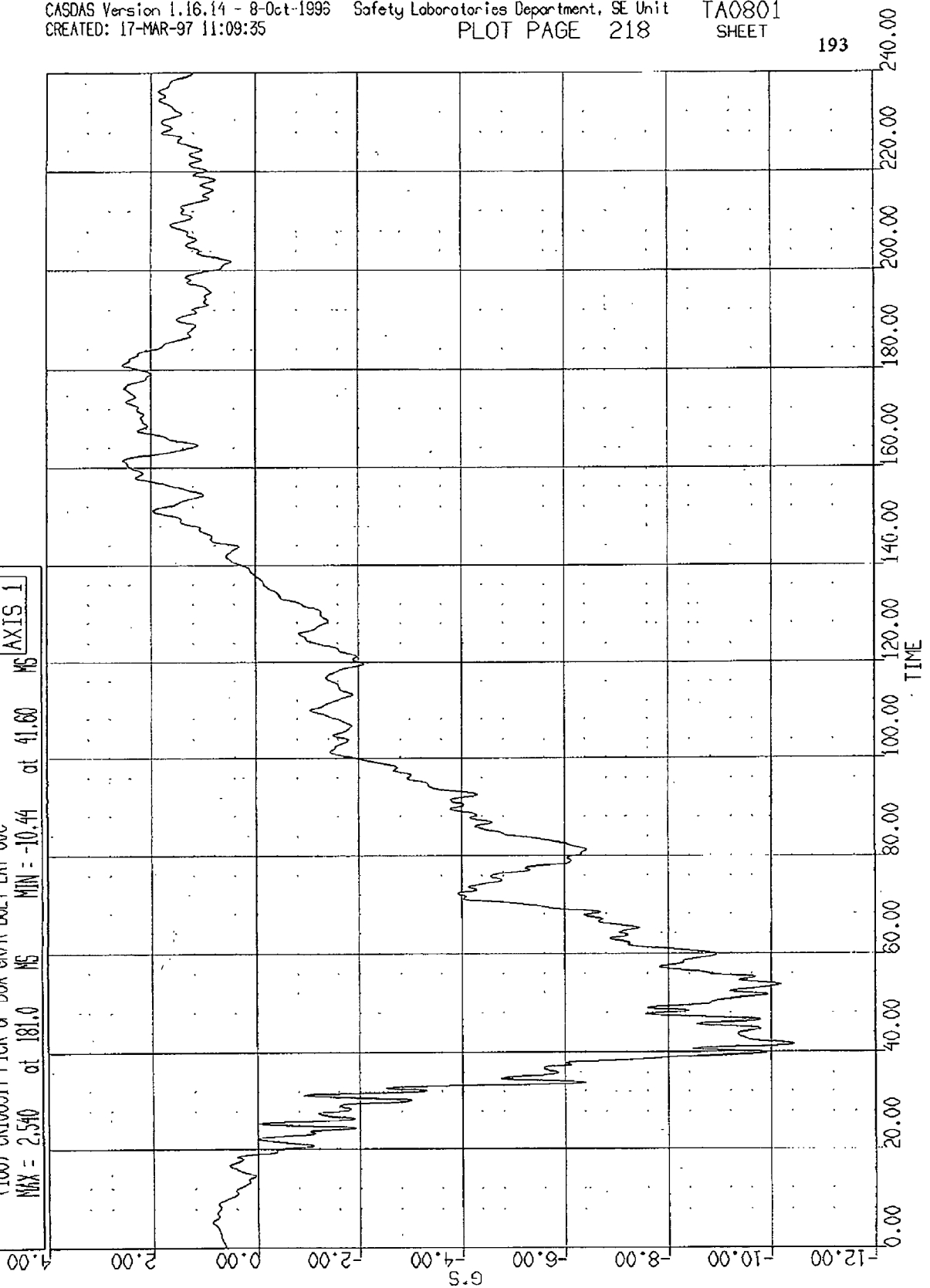
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(166) CR10631T PICK UP BOX OR/R BOLT LAT 60C
MAX = 2.540 at 181.0 MS MIN = -10.44 at 41.60 MS
AXIS 1



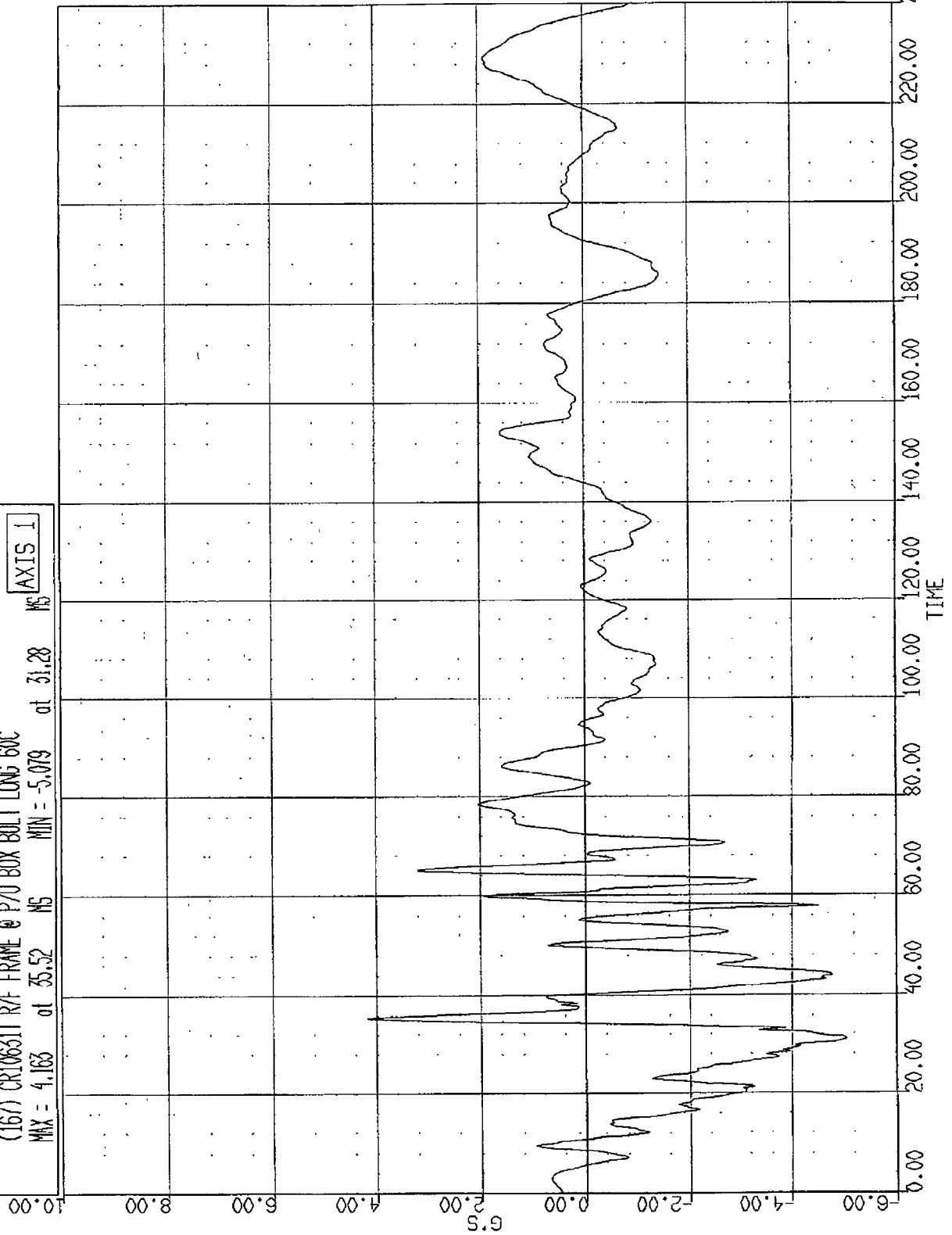
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(167) CR10631T R/F FRAME @ P/U BOX BOLT LONG 60C

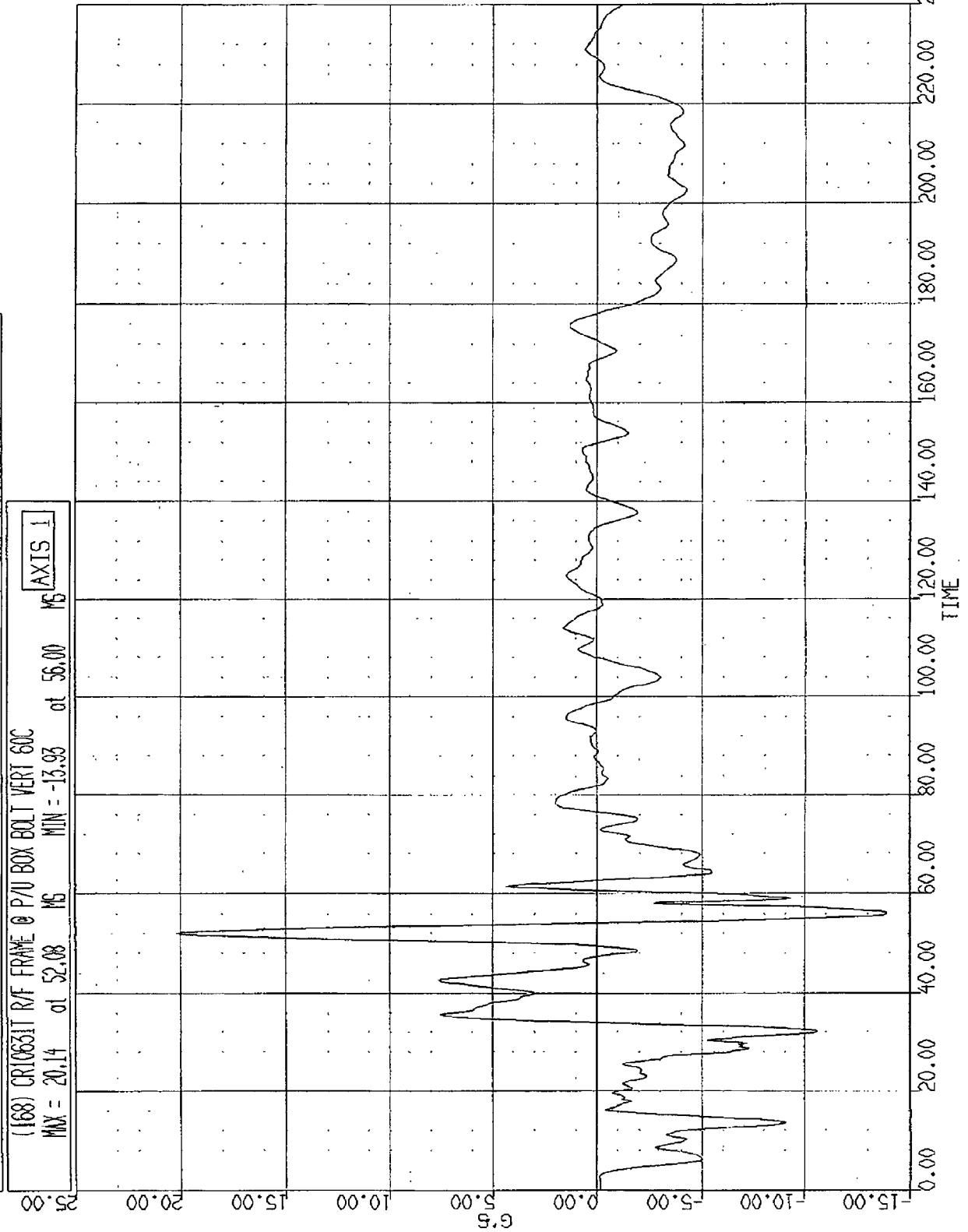
MAX = 4.163 at 35.52 MS MIN = -5.079 at 31.28 MS

AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

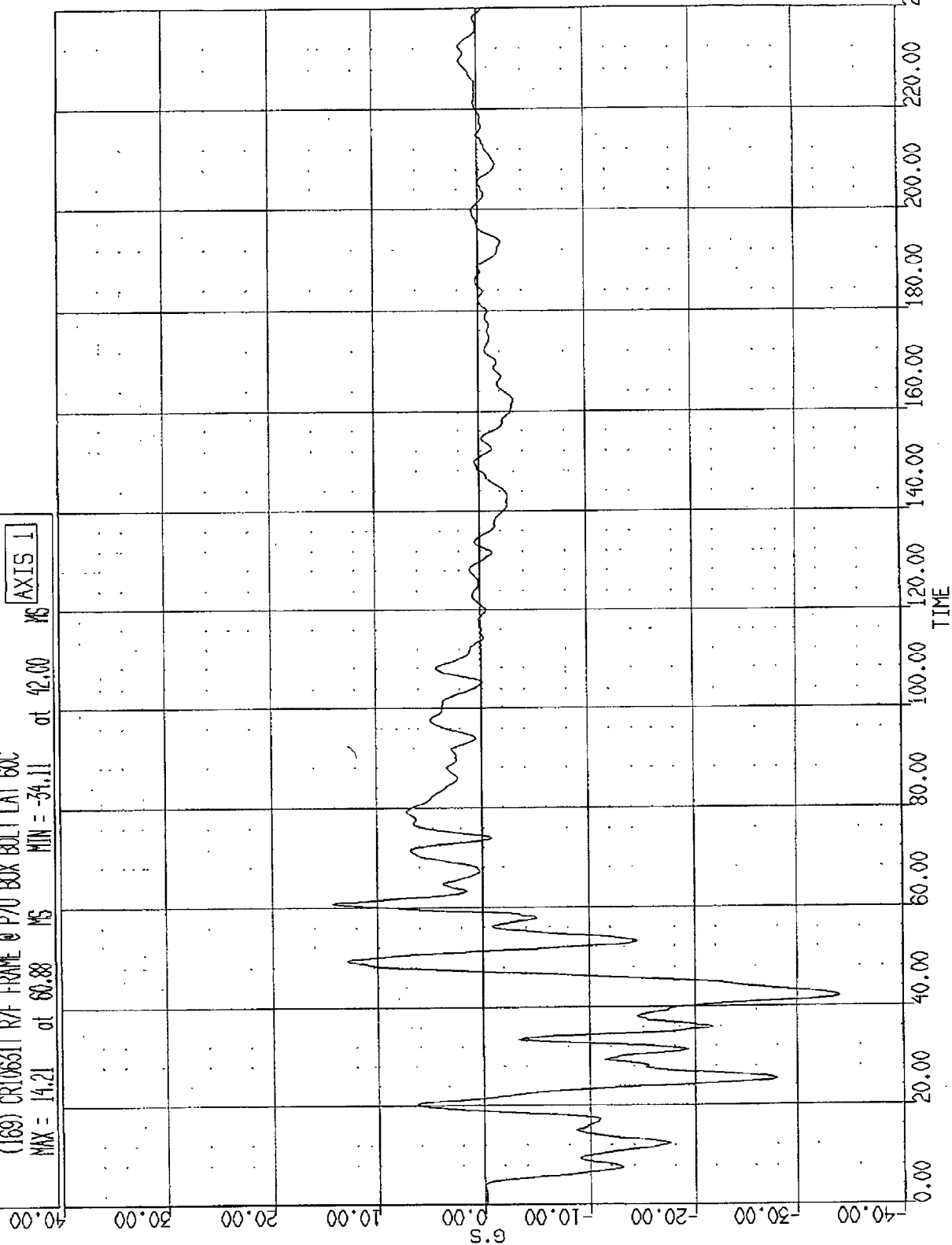


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(169) CR10631T R/F FRAME 0 P/U BOX 801 LAT 60C
 MAX = 14.21 at 60.88 MS MIN = -34.11 at 42.00 MS

AXIS 1



CRTS 0010631

TIME

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(170) CR10631 FUEL SHUT OFF (INERTIA) SW 4000C
MAX = 0.9570 at -.7629E-05 MS MIN = -.4395E-01 at 2.800 MS

AXIS 1

7.00

6.00

5.00

4.00

3.00

2.00

1.00

0.00

-1.00

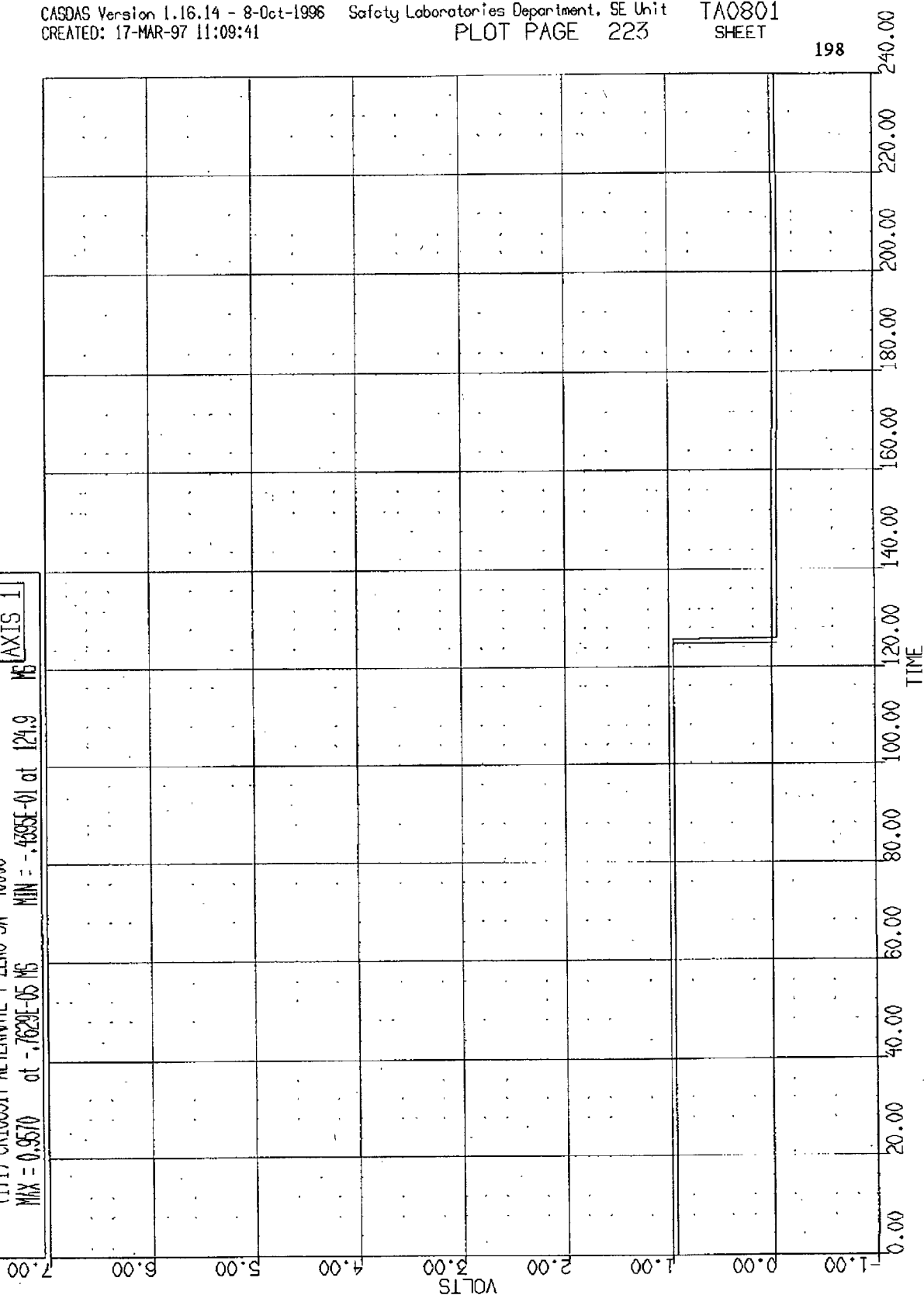
VOLTS

CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(171) CR10631T ALTERNATE T-ZERO SW 4000C
 MAX = 0.9570 at -.7629E-05 MS MIN = -.4395E-01 at 124.9 MS

AXIS 1



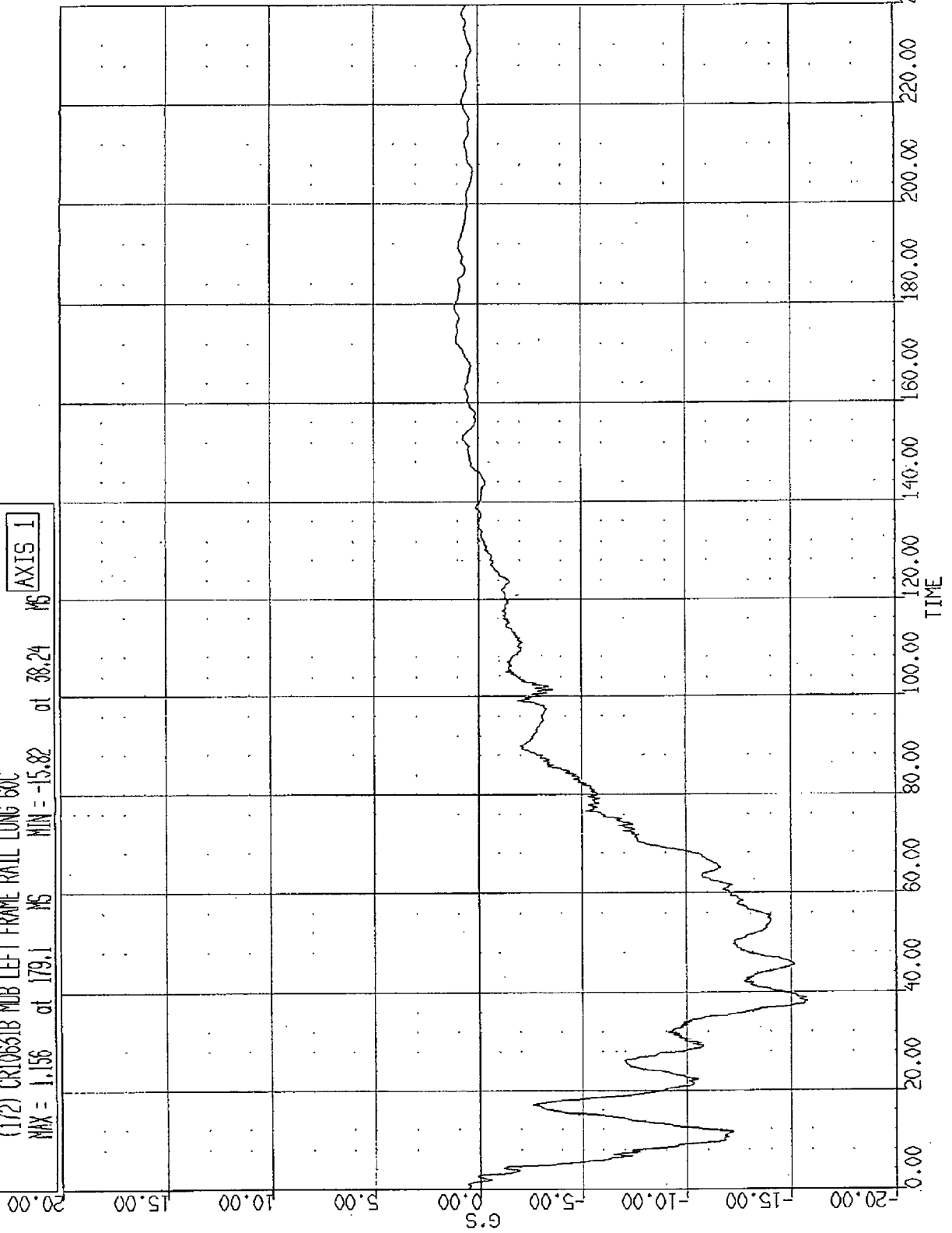
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(172) CR10631B MOB LEFT FRAME RAIL LONG 60C

MAX = 1.156 at 179.1 MS MIN = -15.82 at 38.24 MS

AXIS 1

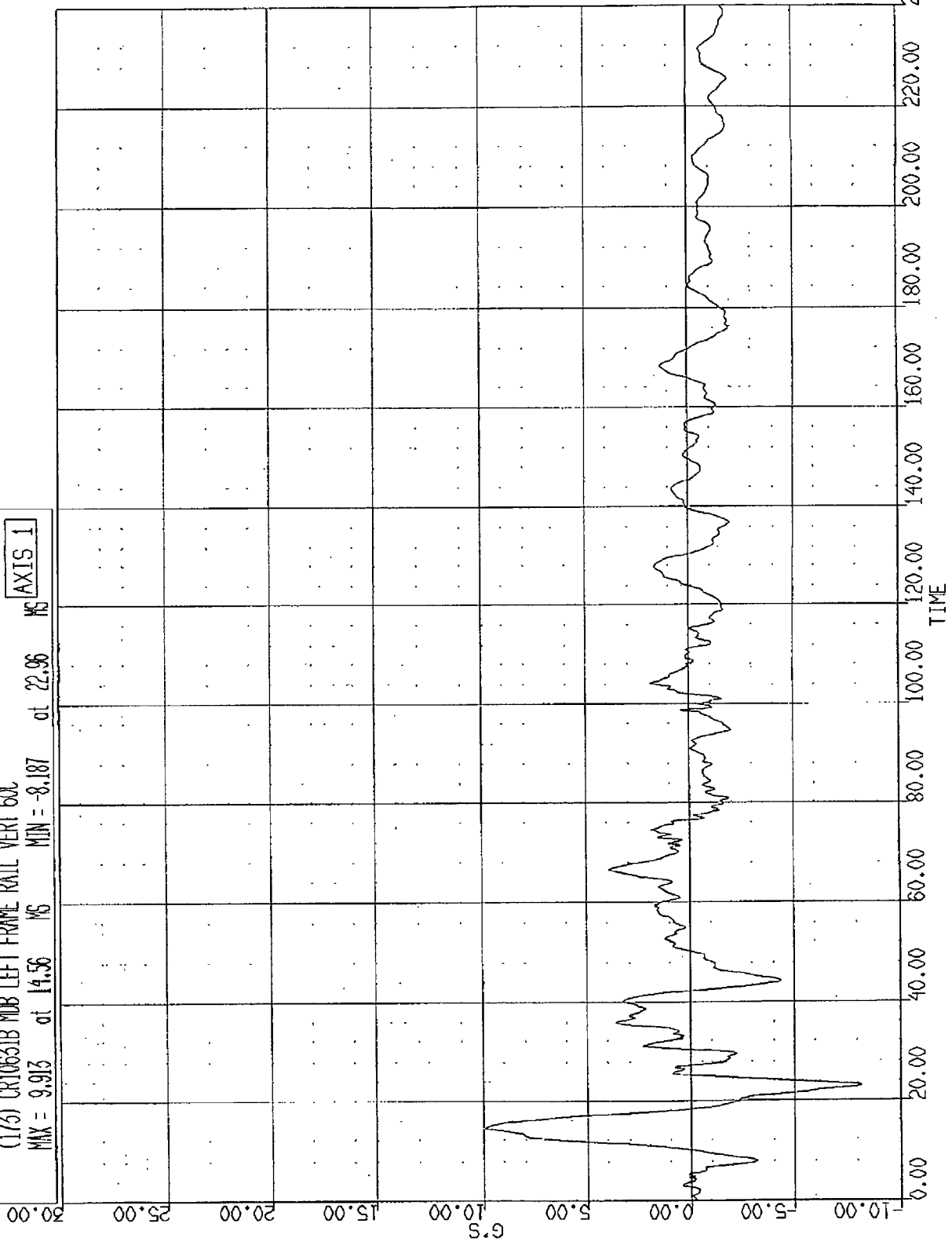


CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(173) CR10631B MDB LEFT FRAME RAIL VERT 60C
 MAX = 9.913 at 14.56 MS MIN = -8.187 at 22.96 MS

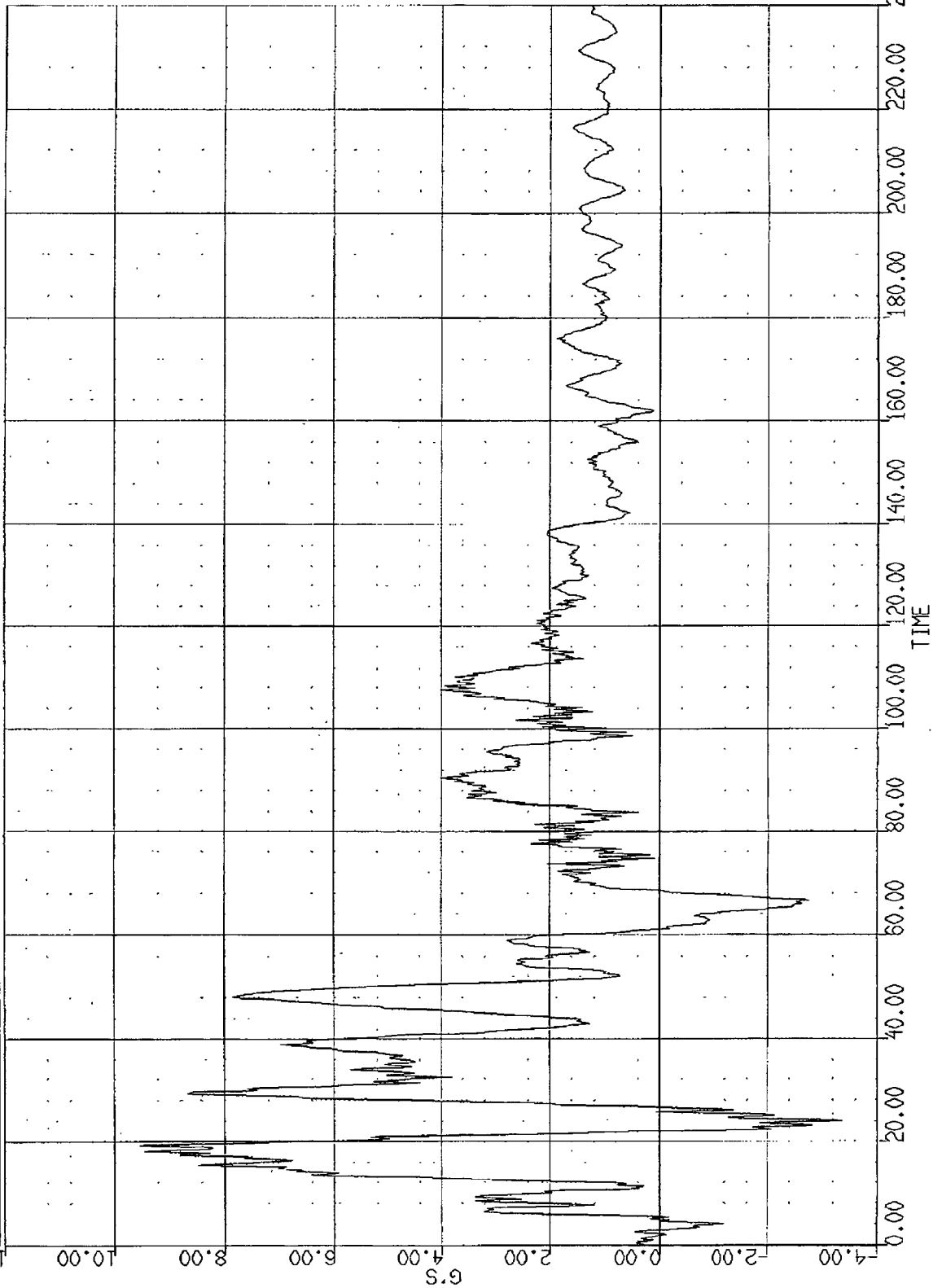
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(174) CR10631B M08 LEFT FRAME RAIL LAT 60C
MAX = 9.526 at 19.36 MS MIN = -3.356 at 24.08 MS
AXIS 1



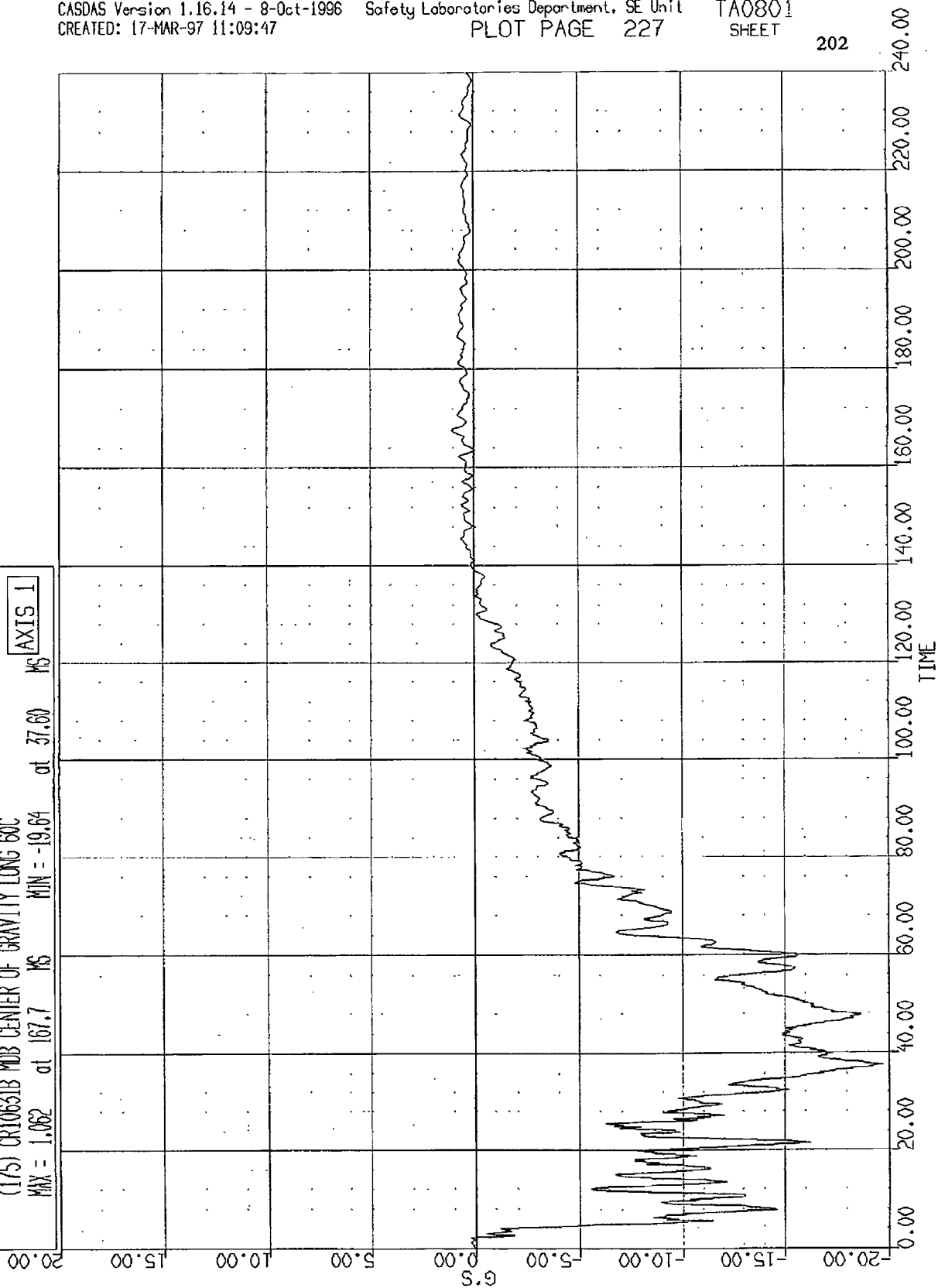
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(175) CR10631B MOB CENTER OF GRAVITY LONG 60C

MAX = 1.062 at 167.7 MS MIN = -19.64 at 37.60 MS

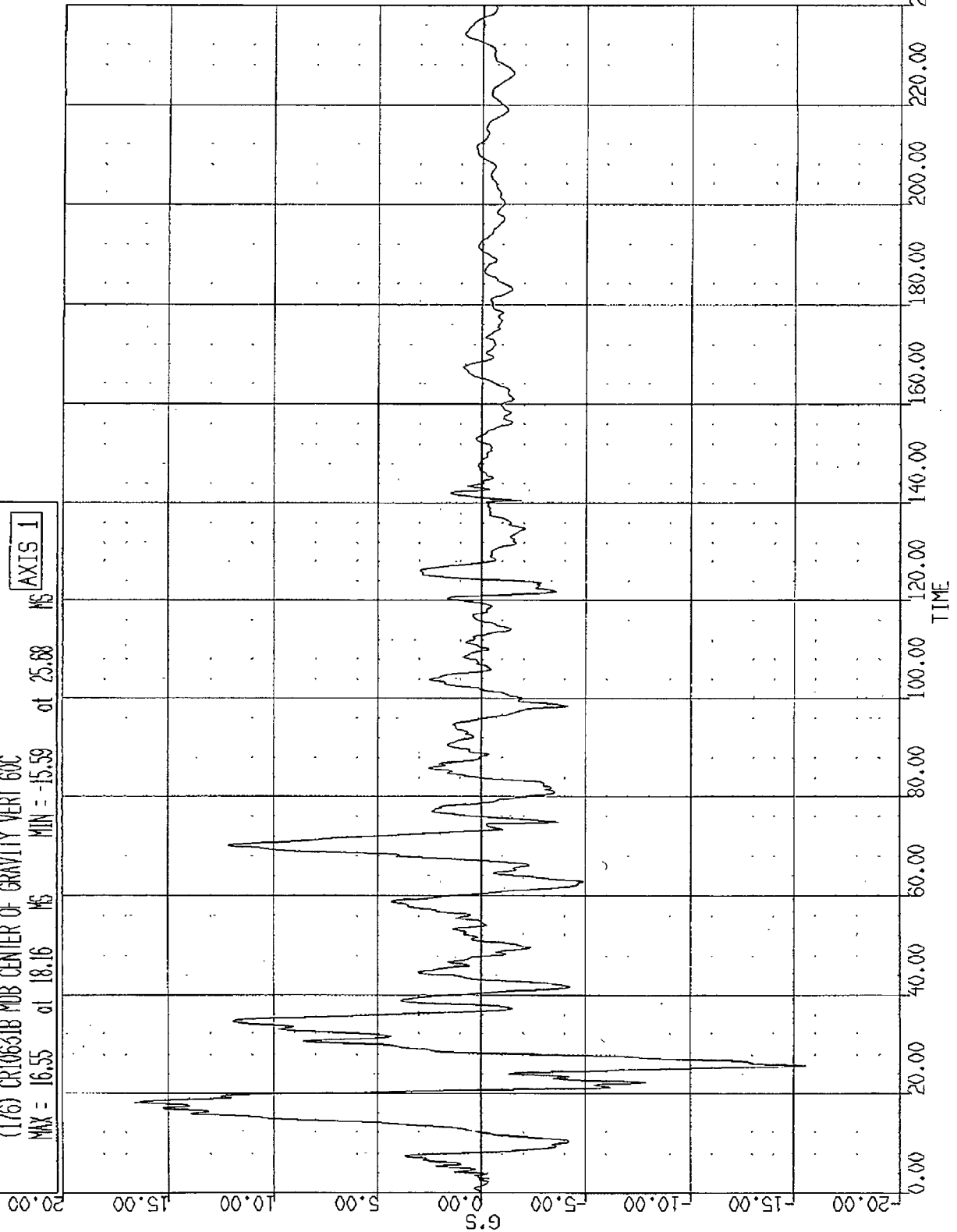
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(176) CR10631B MOB CENTER OF GRAVITY VERT 60C
MAX = 16.55 at 18.16 MS MIN = -15.59 at 25.68 MS
AXIS 1



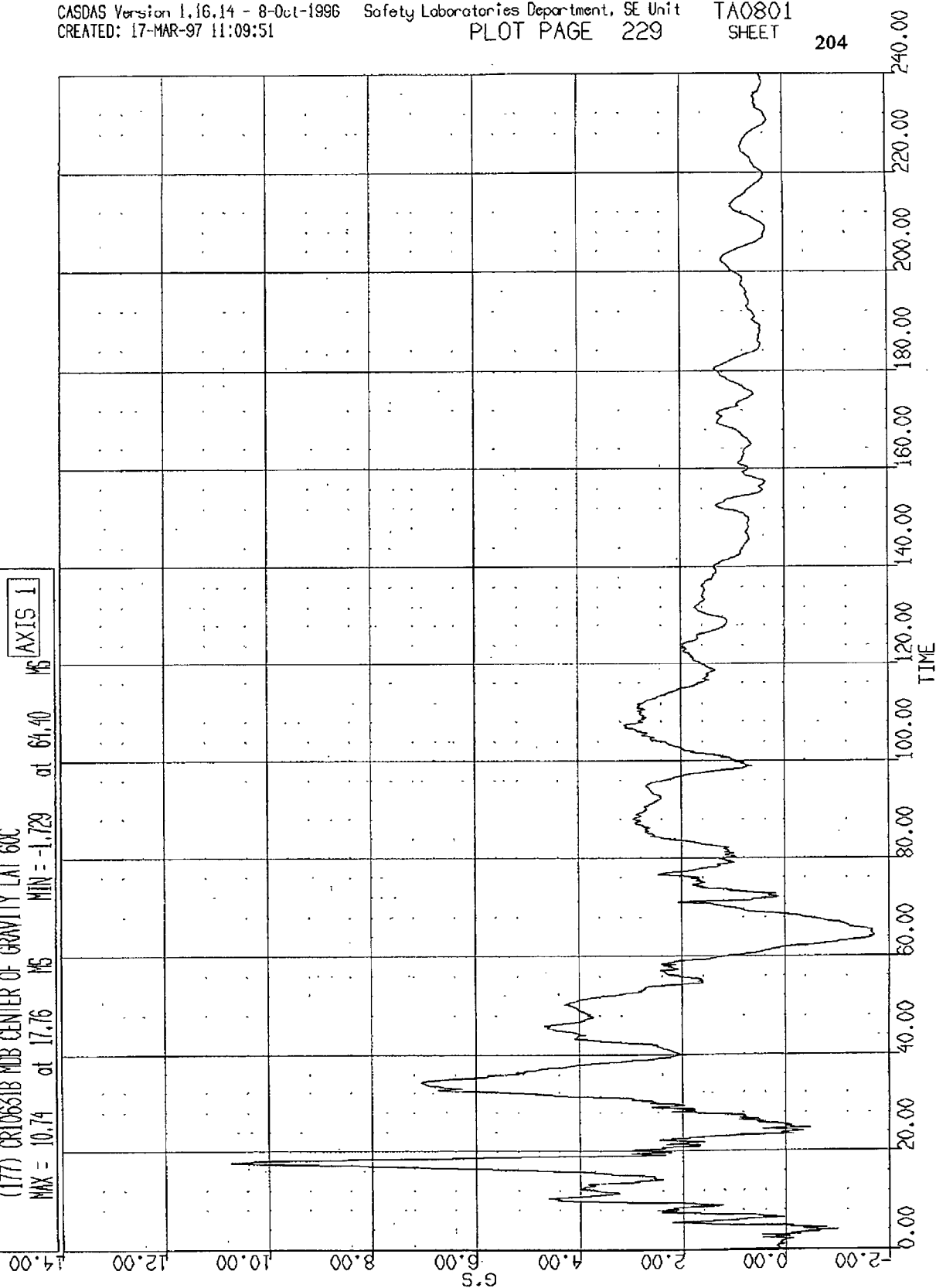
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(177) CR10631B MIB CENTER OF GRAVITY LAT 60C

MAX = 10.74 at 17.76 MS MIN = -1.729 at 64.40 MS

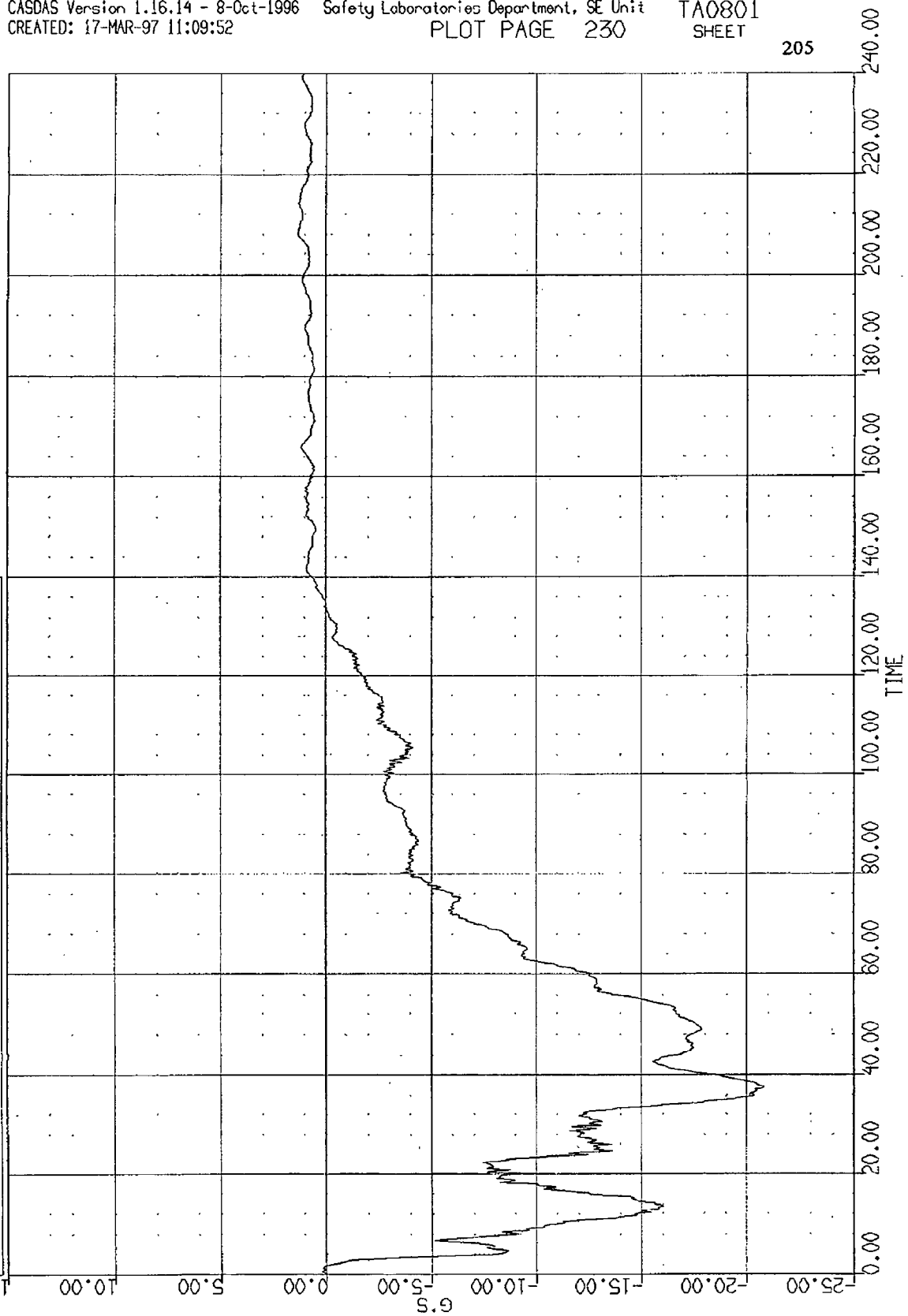
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(178) CR10631B MDB RIGHT FRAME RAIL LONG 60C
MAX = 1.741 at 208.0 MS MIN = -20.85 at 37.60 MS
AXIS 1



CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(179) CR10631B MOB RIGHT FRAME RAIL VERT 60C

MAX = 21.76 at 17.92 MS MIN = -13.17 at 23.12 MS

AXIS 1

25.00

20.00

15.00

10.00

5.00

0.00

-5.00

-10.00

-15.00

6.9

0.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

TIME

CRTS 0010631

0756

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(180) CR10631B MOB RIGHT FRAME RAIL LAT SOC

MAX = 11.50 at 17.76 MS MIN = 4.252 at 24.72 MS

AXIS 1

25.00

30.00

25.00

20.00

15.00

10.00

5.00

0.00

-5.00

G.S.

TIME

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00

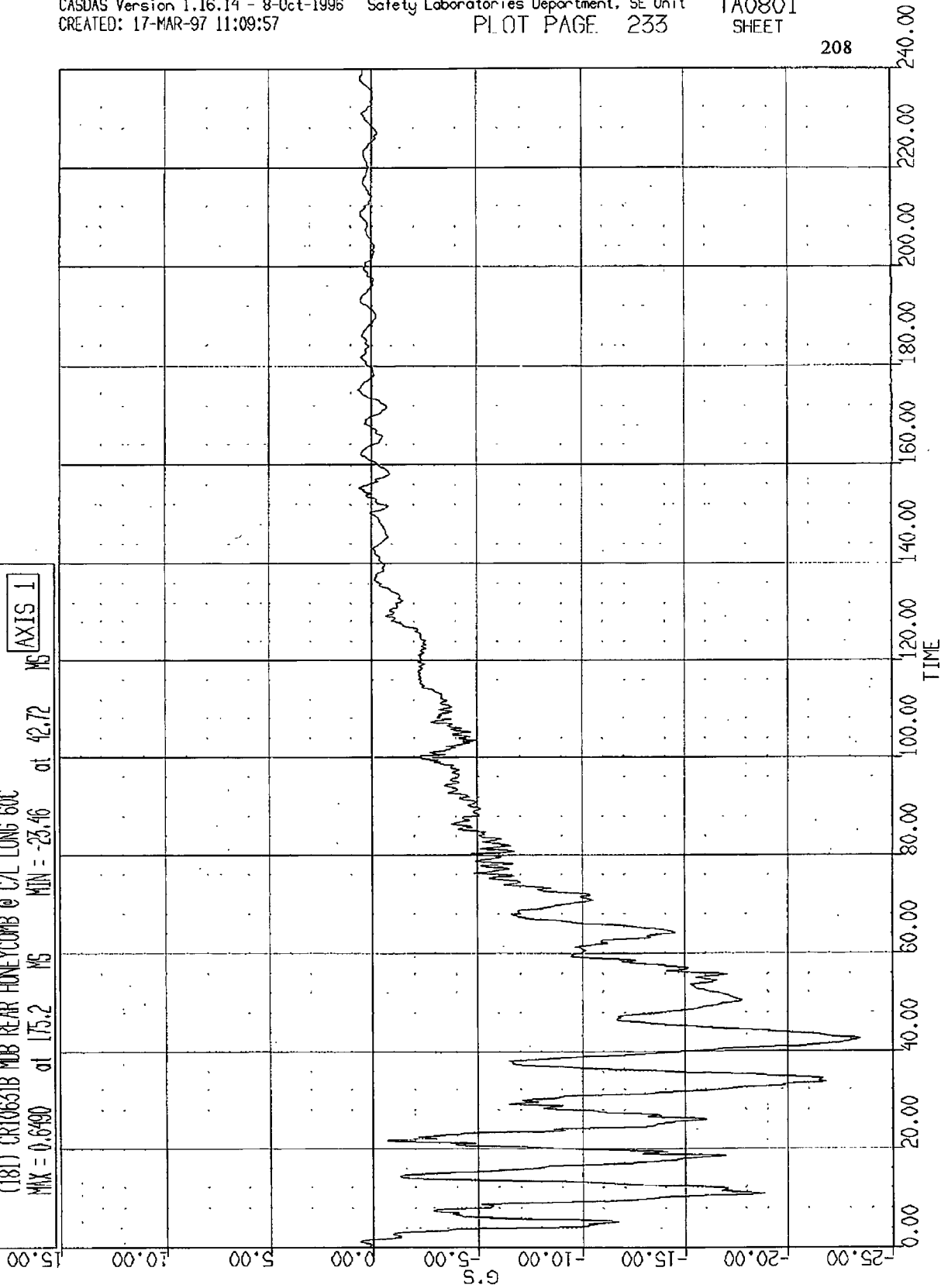
CRTS 0010631

0757

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(181) CR10631B M08 REAR HONEYCOMB @ C/L LONG 60C
MAX = 0.6490 at 175.2 MS MIN = -23.46 at 42.72 MS

AXIS 1



CRTS 0010631

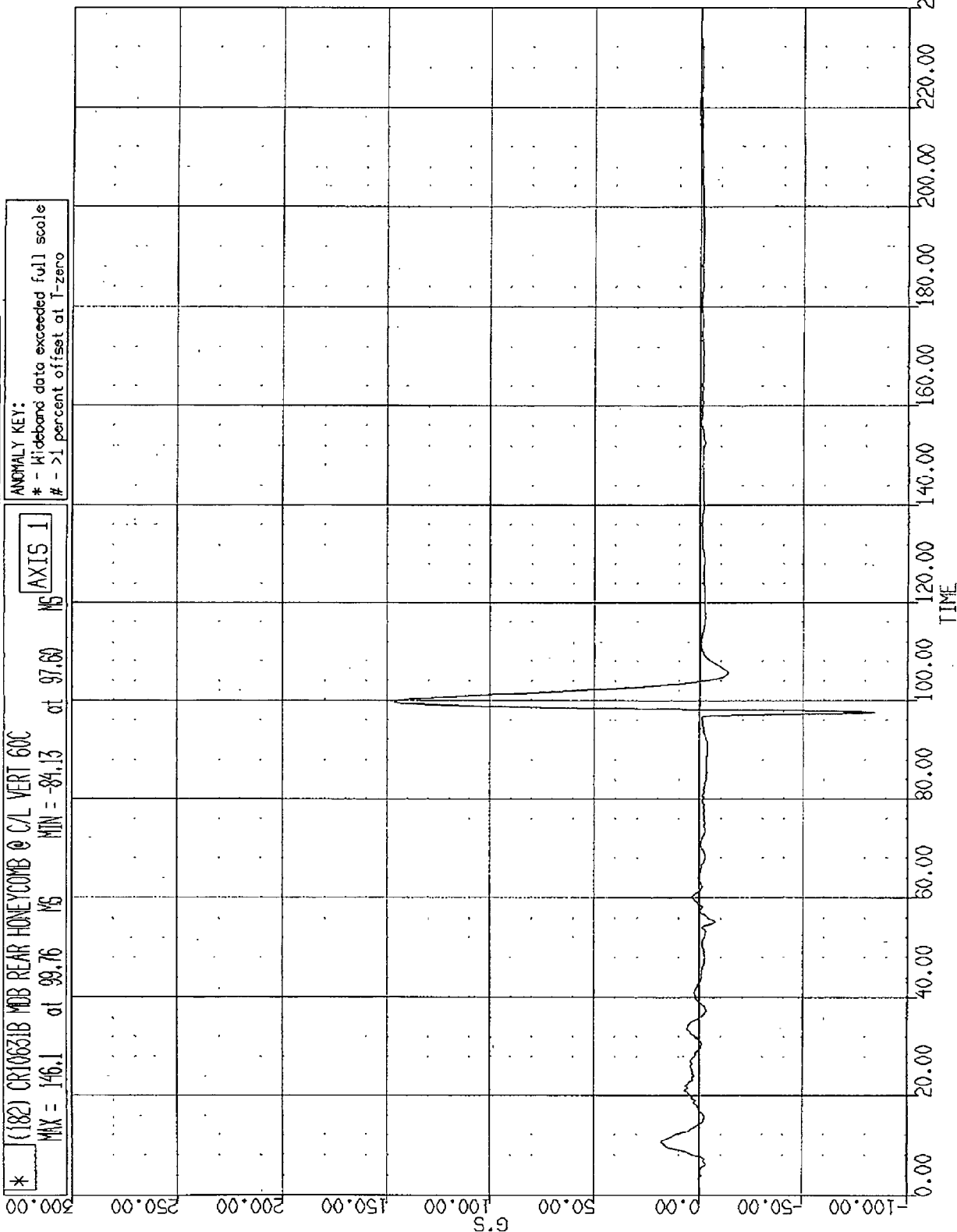
W/E DATA EXCEEDED FS.

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

ANOMALY KEY:
 * - Wideband data exceeded full scale
 # - >1 percent offset at 1-zero

AXIS 1

* (182) CR10631B M03 REAR HONEYCOMB @ C/L VERT 60C
 MAX = 146.1 at 99.76 MS MIN = -84.13 at 97.60 MS



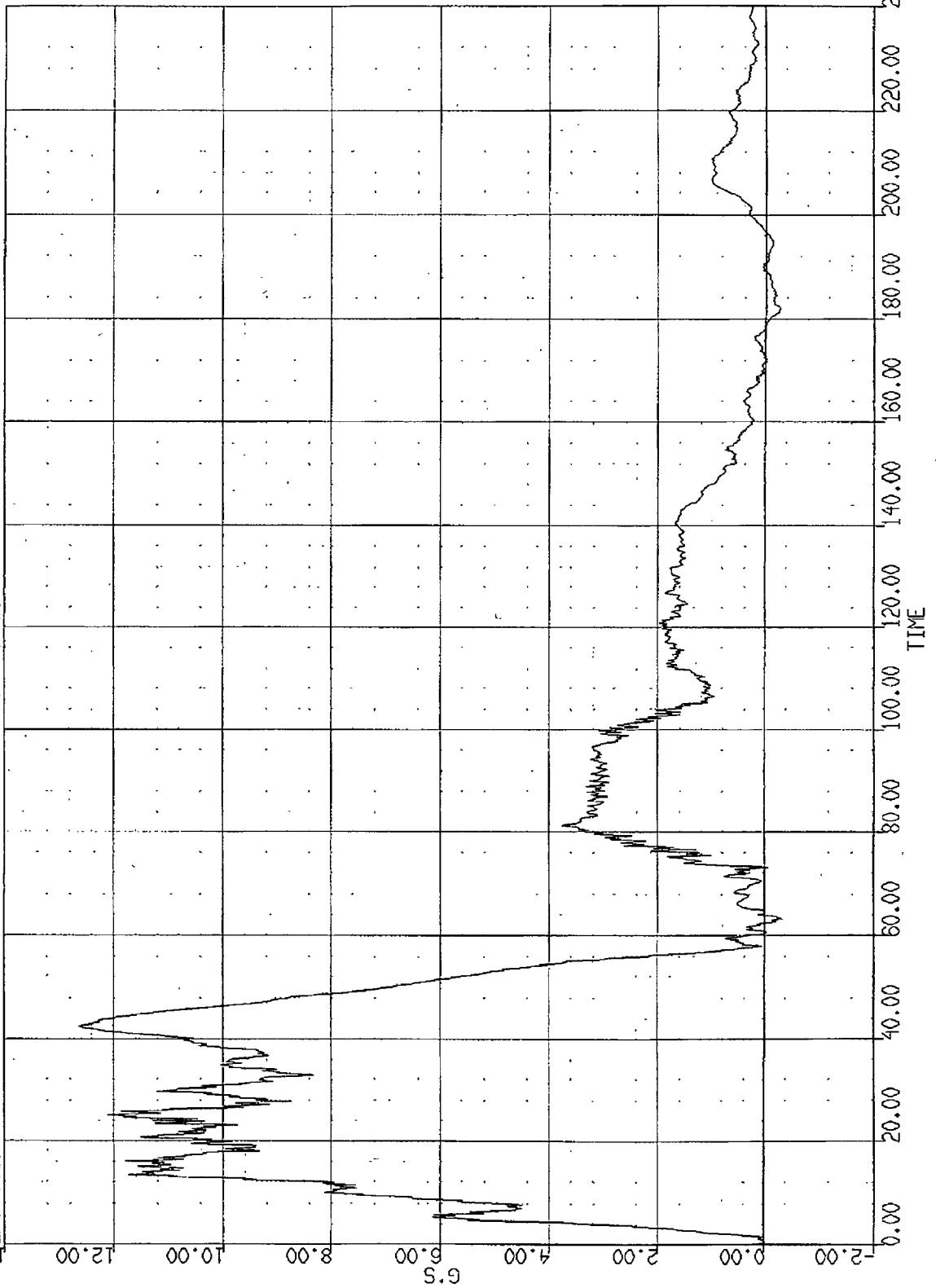
CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(183) CR10631B MOB REAR HONEYCOMB @ C/L LAT 60C
MAX = 12.62 at 42.48 MS MIN = -.3550 at 63.20 MS

AXIS 1

14.00



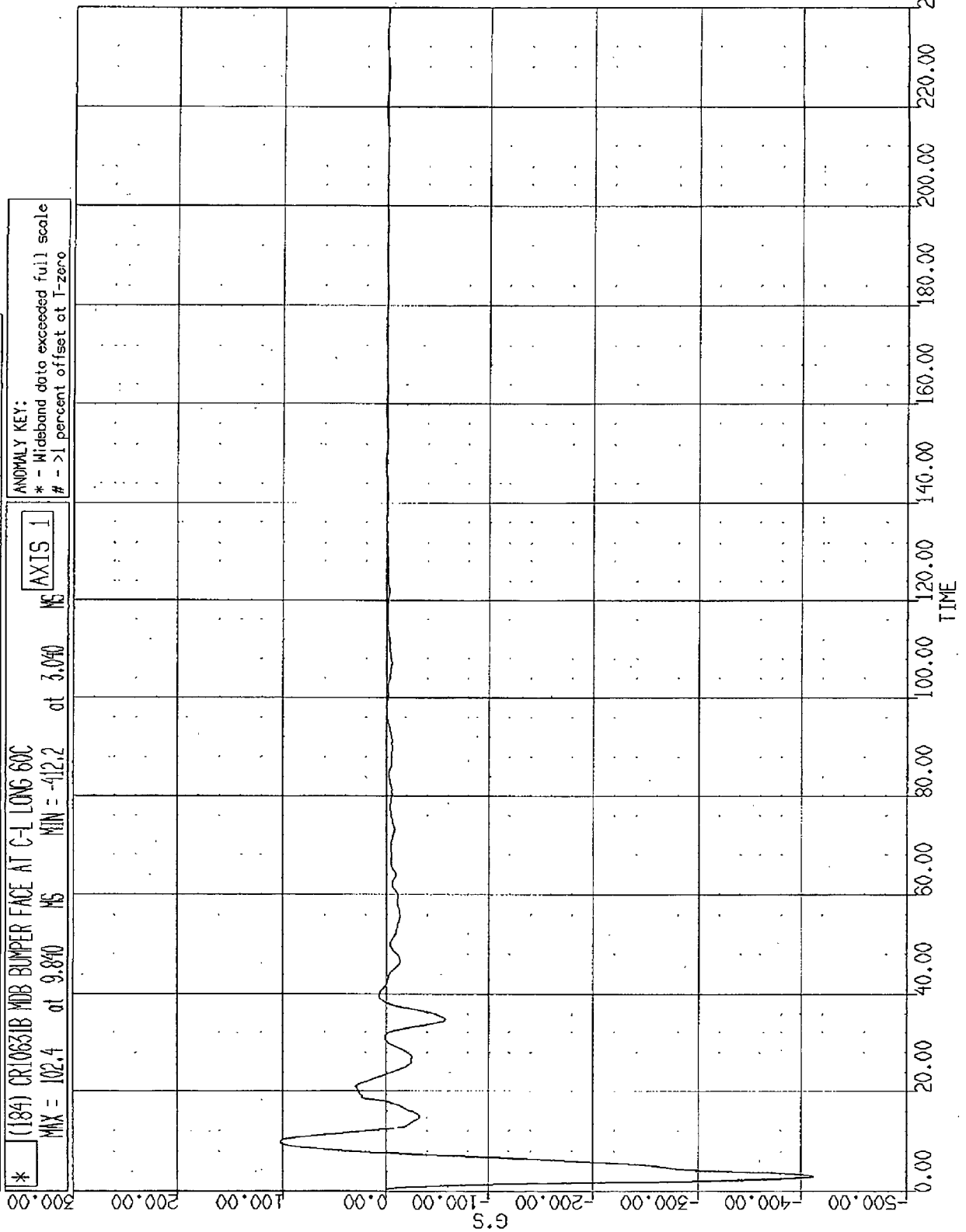
CRTS 0010631

W/B DATA EXCEEDED F.S.

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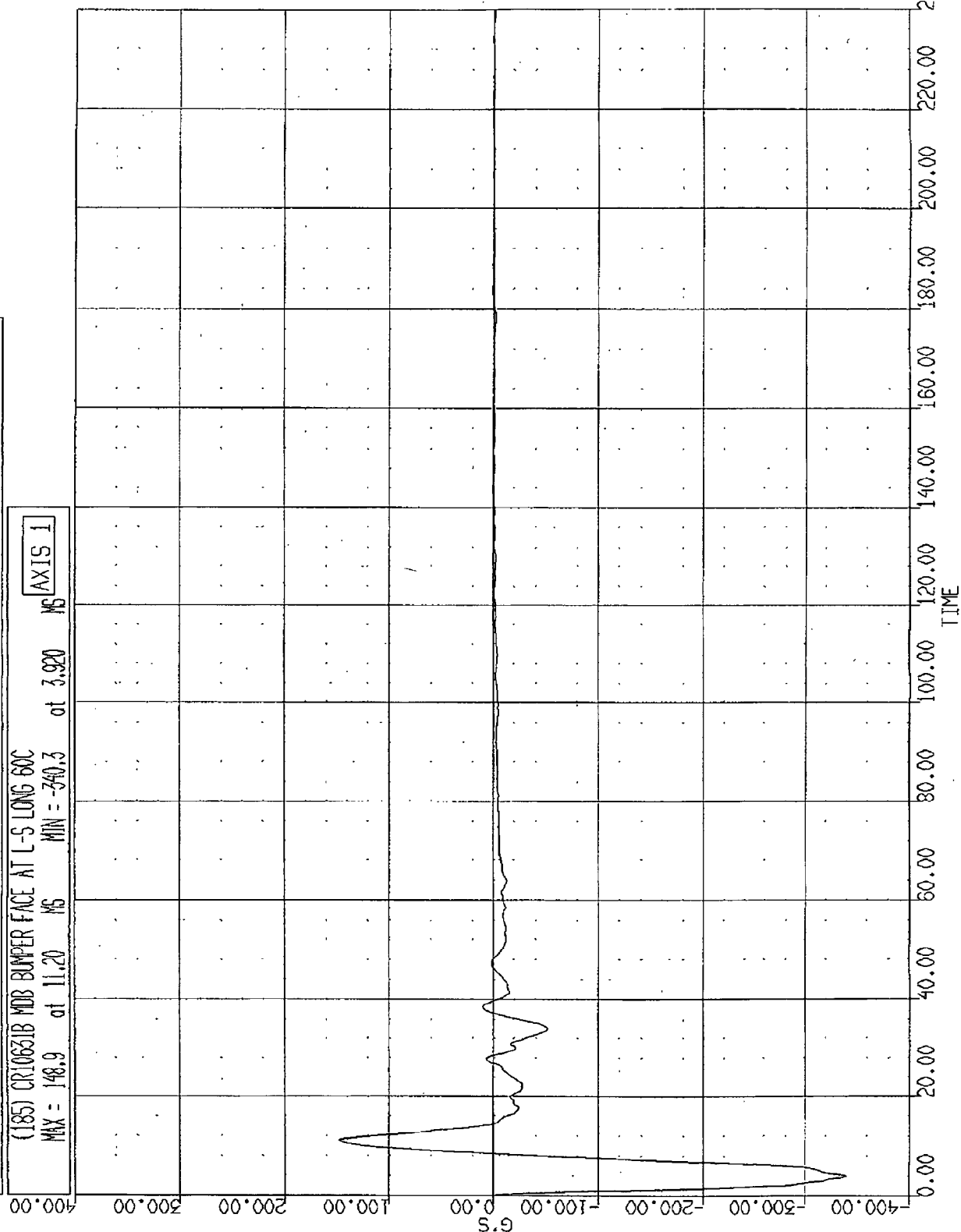
CRTS 0010631

0761

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

(185) CR10631B MOB BUMPER FACE AT L-S LONG 60C
 MAX = 148.9 at 11.20 MS MIN = -340.3 at 3.920 MS

AXIS 1



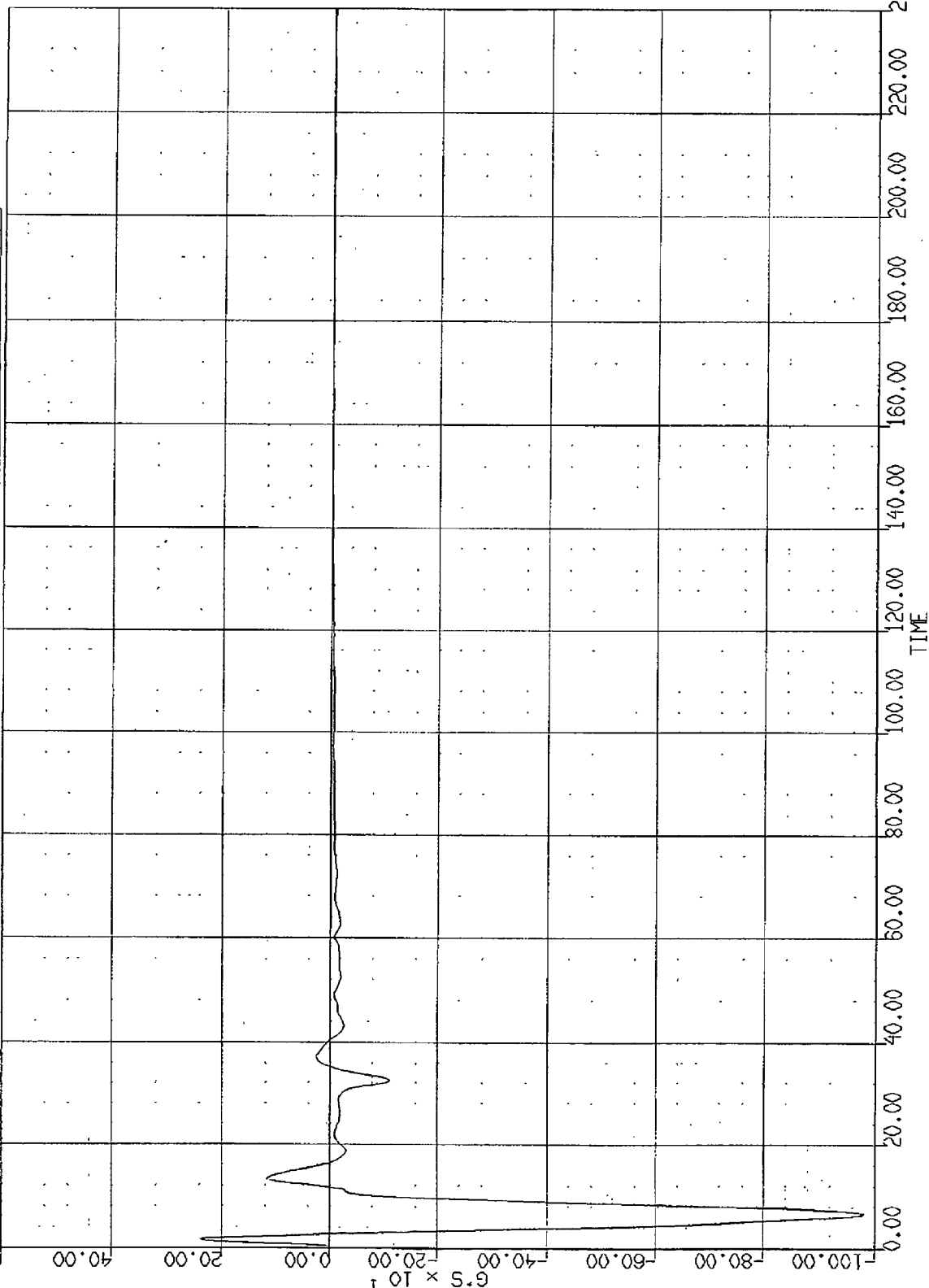
CRTS 0010631

W/B DATA EXCEEDED F.S.

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
 1999 PN-96 1999 MOVING DEFORMABLE BA

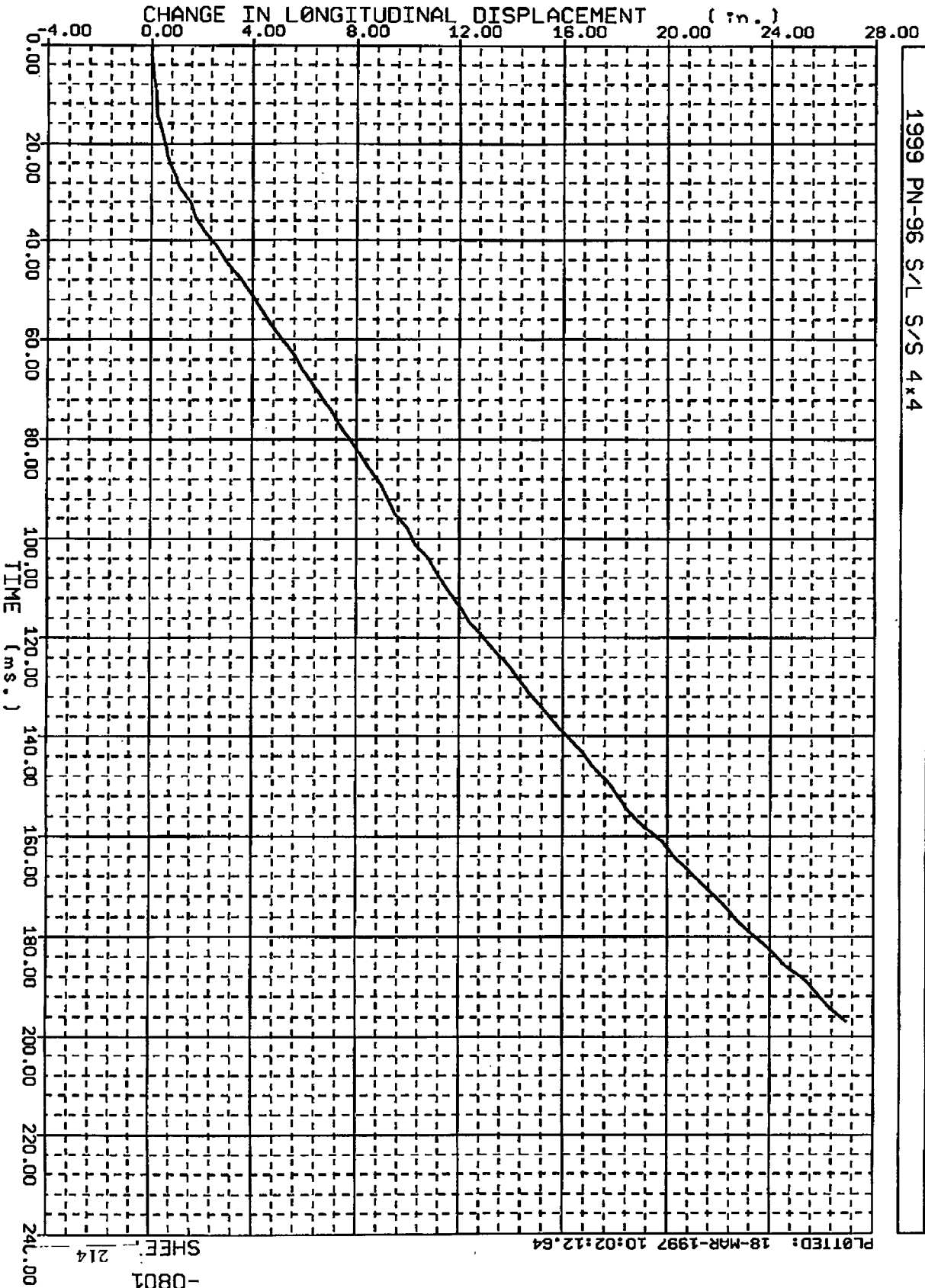
ANOMALY KEY:
 * ~ Wideband data exceeded full scale
 # ~ >1 percent offset at T-zero

* (186) CR10631B MOB BUMPER FACE AT R-S LONG 60C
 MAX = 237.4 at 1.600 MS MIN = -981.5 at 6.560 MS
 AXIS 1



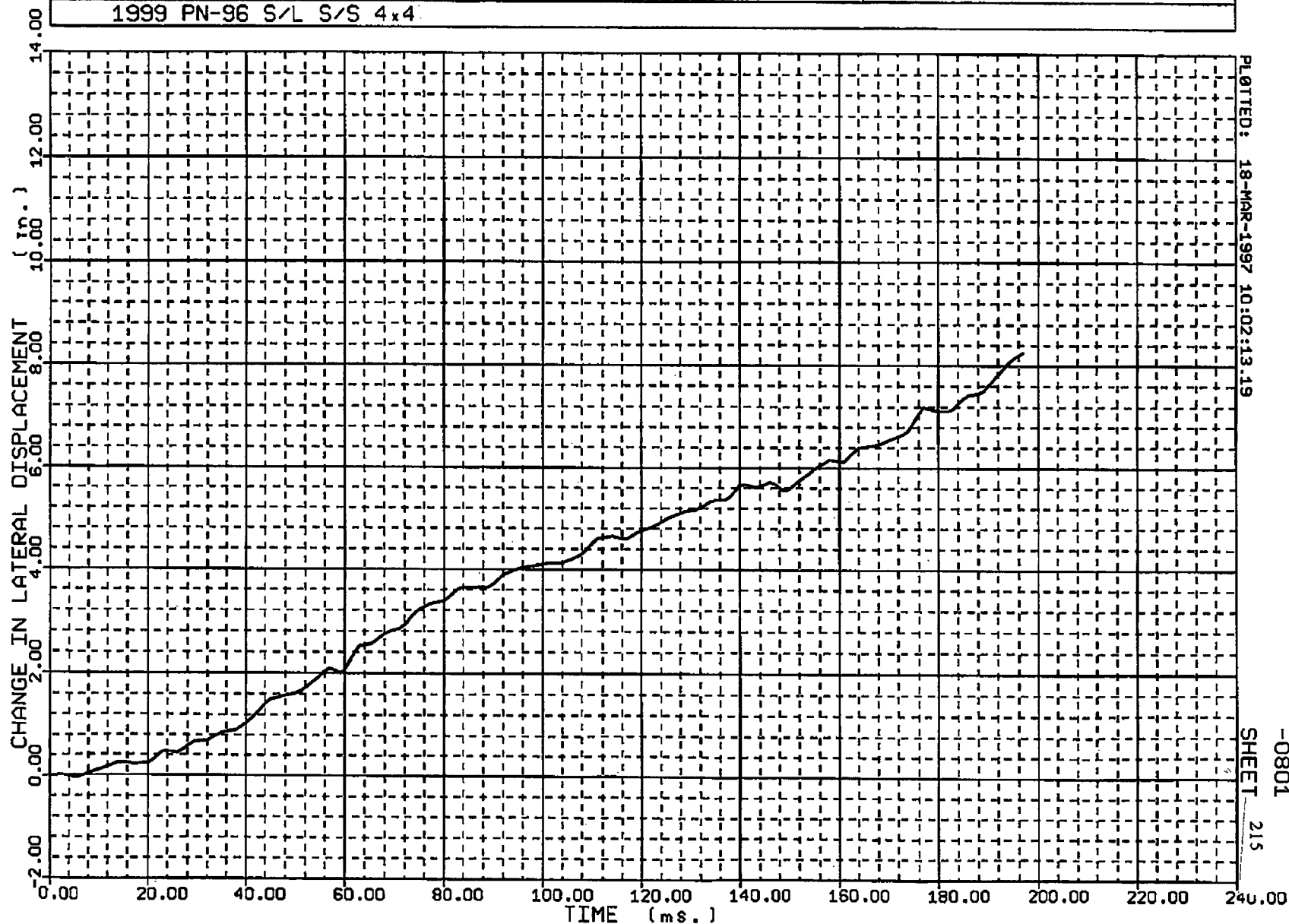
CRTS 0010631

Y - AXIS: L/S ROOF AT B-PILLAR WRT GROUND REFERENCE		MAX = 26.98	at 197.00	MIN = -.6992E-02 at 1.00
RUN NO.	FACILITY	TEST ORDER NO.	FILM ANALYSIS METHOD	PITCH CORRECTION
10631	BARRIER	-0801	SCALE	NOT APPLIED
1999 PN-96 S/L S/S 4x4				



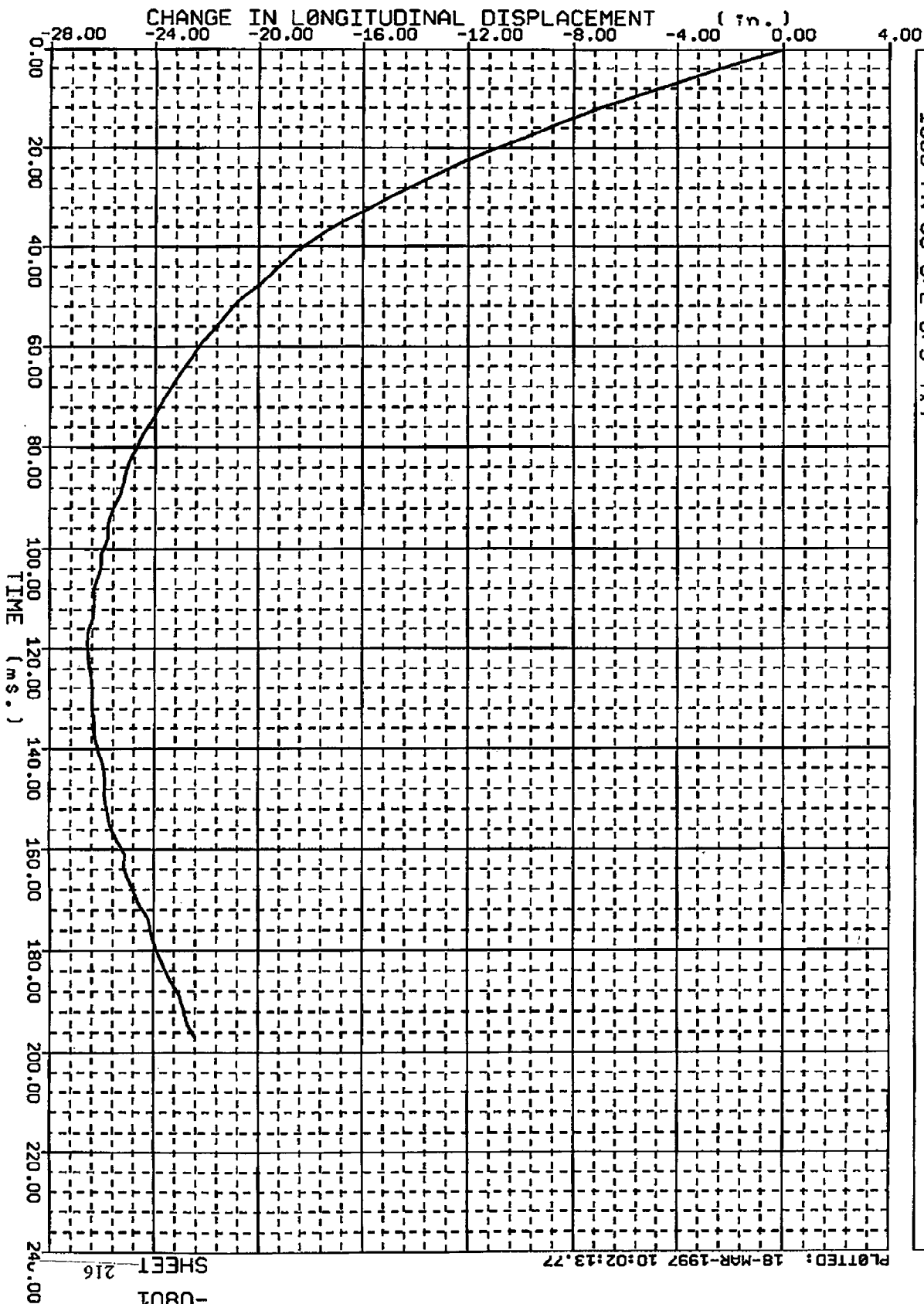
CRTS 0010631

Y - AXIS: L/S R00F AT B-PILLAR WRT GROUND REFERENCE					MAX = 8.271	at 197.00	MIN = -.4550E-01	at 5.00
RUN NO.	FACILITY	TEST ORDER NO.	FILM ANALYSIS METHOD		PITCH CORRECTION			
10631	BARRIER	-0801	SCALE		NOT APPLIED			
1999 PN-96 S/L S/S 4x4								

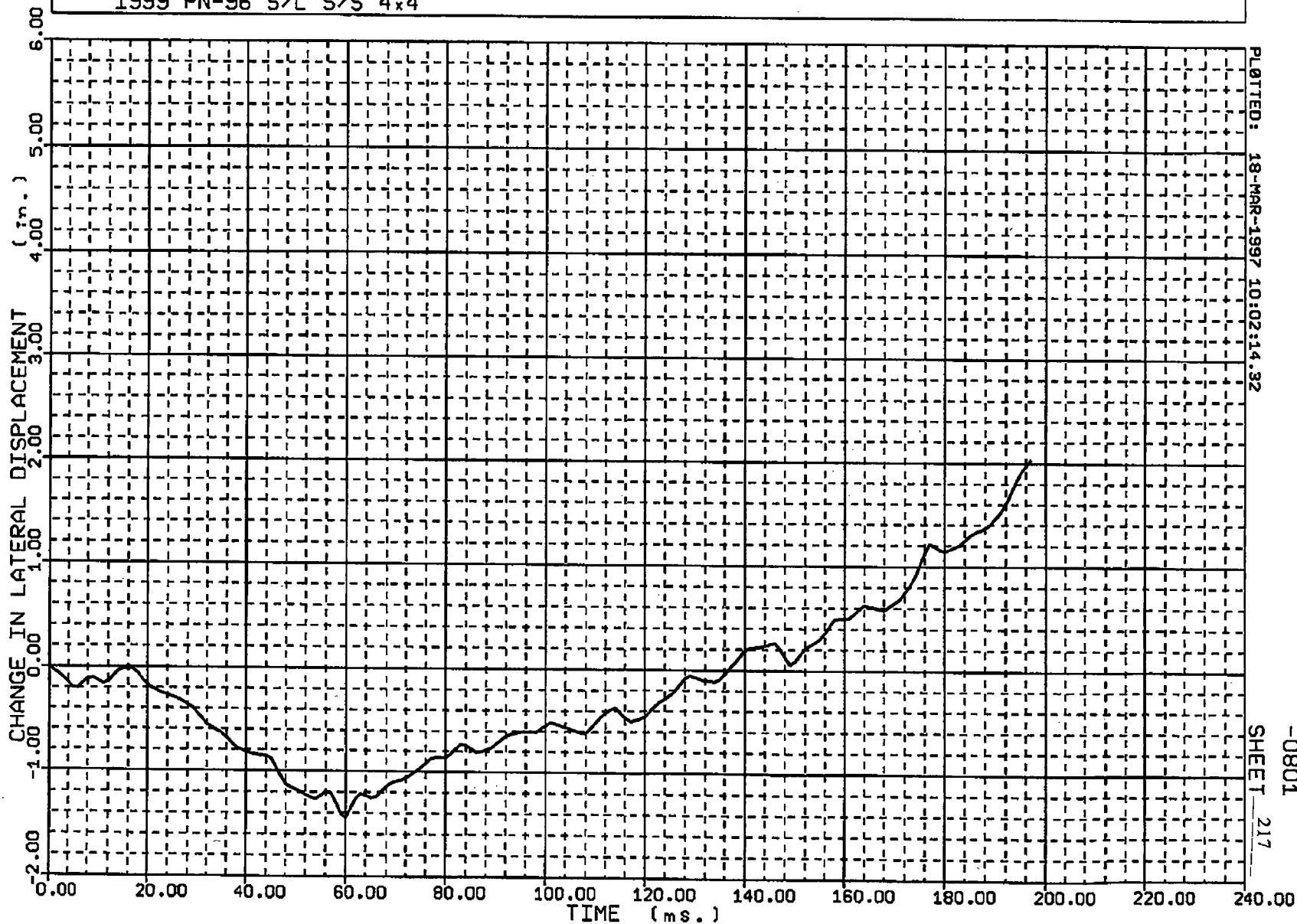


CRTS 0010631

Y - AXIS:		L/S R00F AT B-PILLAR WRT TOP OF BARRIER		MAX = 0.0000E+00 at 0.00		MIN = -26.56 at 119.00	
RUN NO.	FACILITY	TEST ORDER NO.	FILM ANALYSIS METHOD	PITCH CORRECTION			
10631	BARRIER	-0801	SCALE	NOT APPLIED			
1999 PN-96 S/L S/S 4x4							

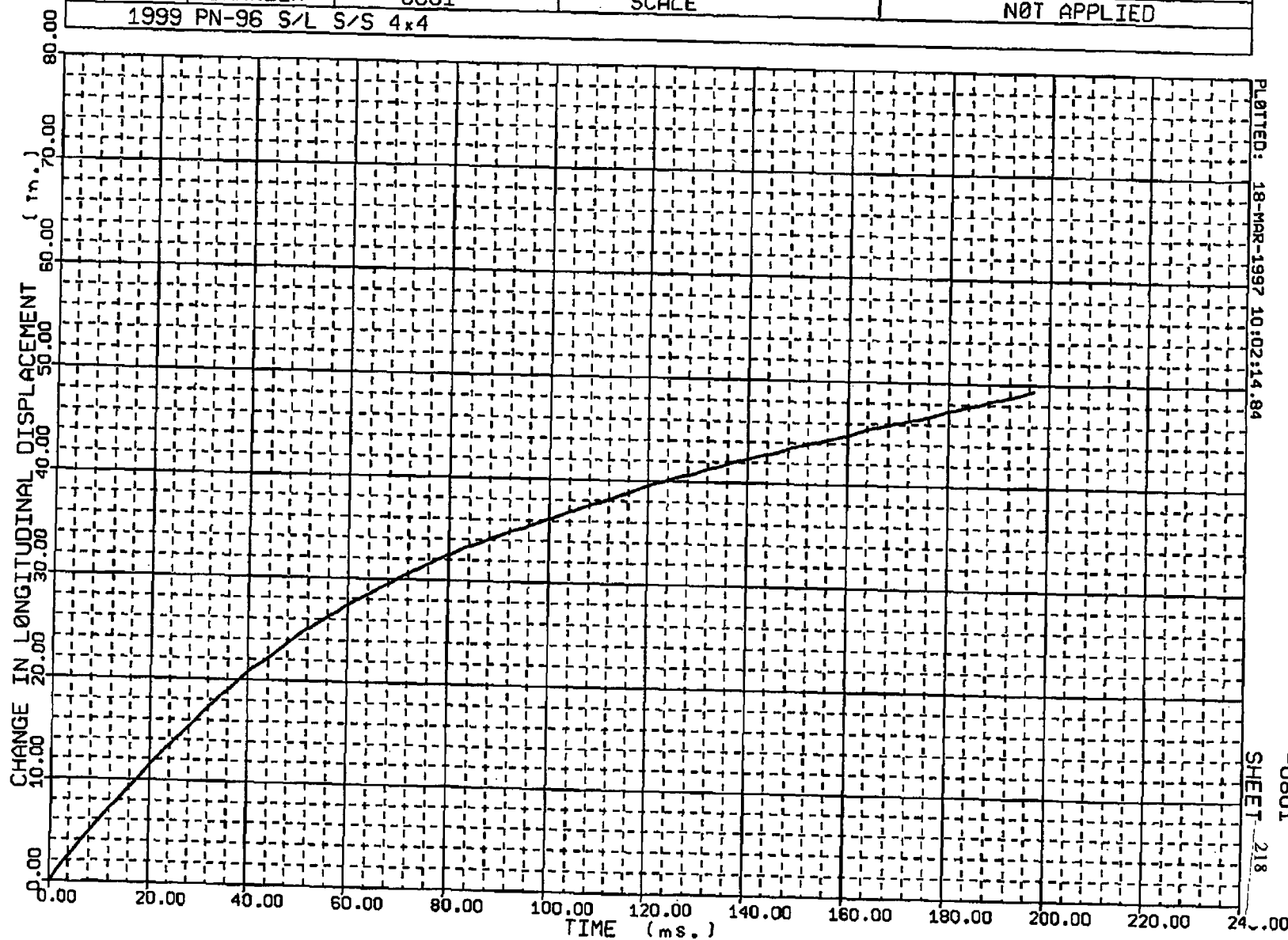


Y - AXIS: L/S R00F AT B-PILLAR WRT TOP OF BARRIER							MAX = 2.037	at 197.00	MIN = -1.440	at 60.00
RUN NO.	FACILITY	TEST ORDER NO.	FILM ANALYSIS METHOD				PITCH CORRECTION			
10631	BARRIER	-0801	SCALE				NOT APPLIED			
1999 PN-96 S/L S/S 4x4										



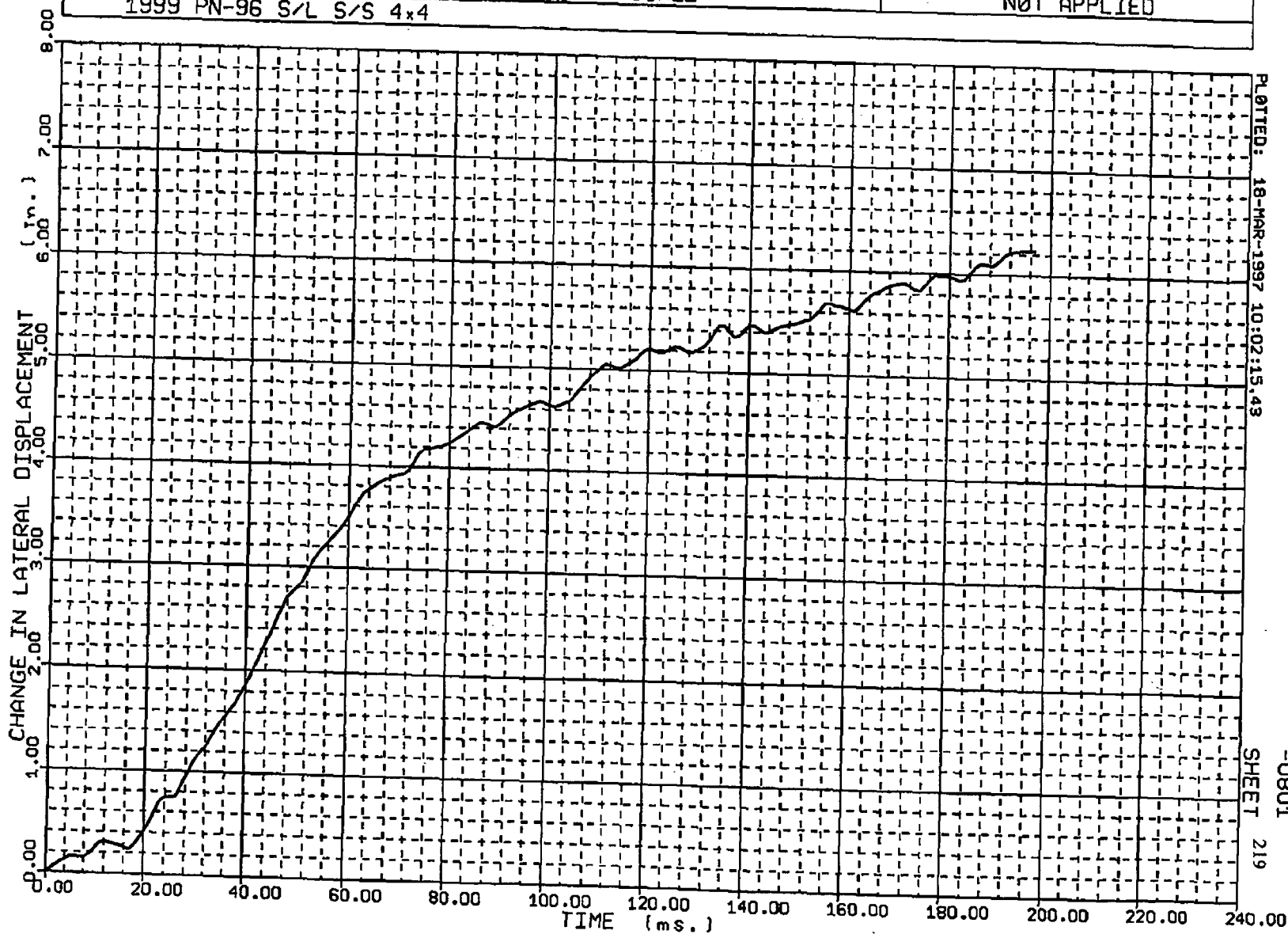
CRTS 0010631

Y - AXIS:		TOP OF BARRIER WRT GROUND REFERENCE		MAX = 49.37	at 197.00	MIN = 0.0000E+00	at 0.00
RUN NO.	FACILITY	TEST ORDER NO.	FILM ANALYSIS METHOD		PITCH CORRECTION		
10631	BARRIER	-0801	SCALE		NOT APPLIED		
1999 PN-96 S/L S/S 4x4							



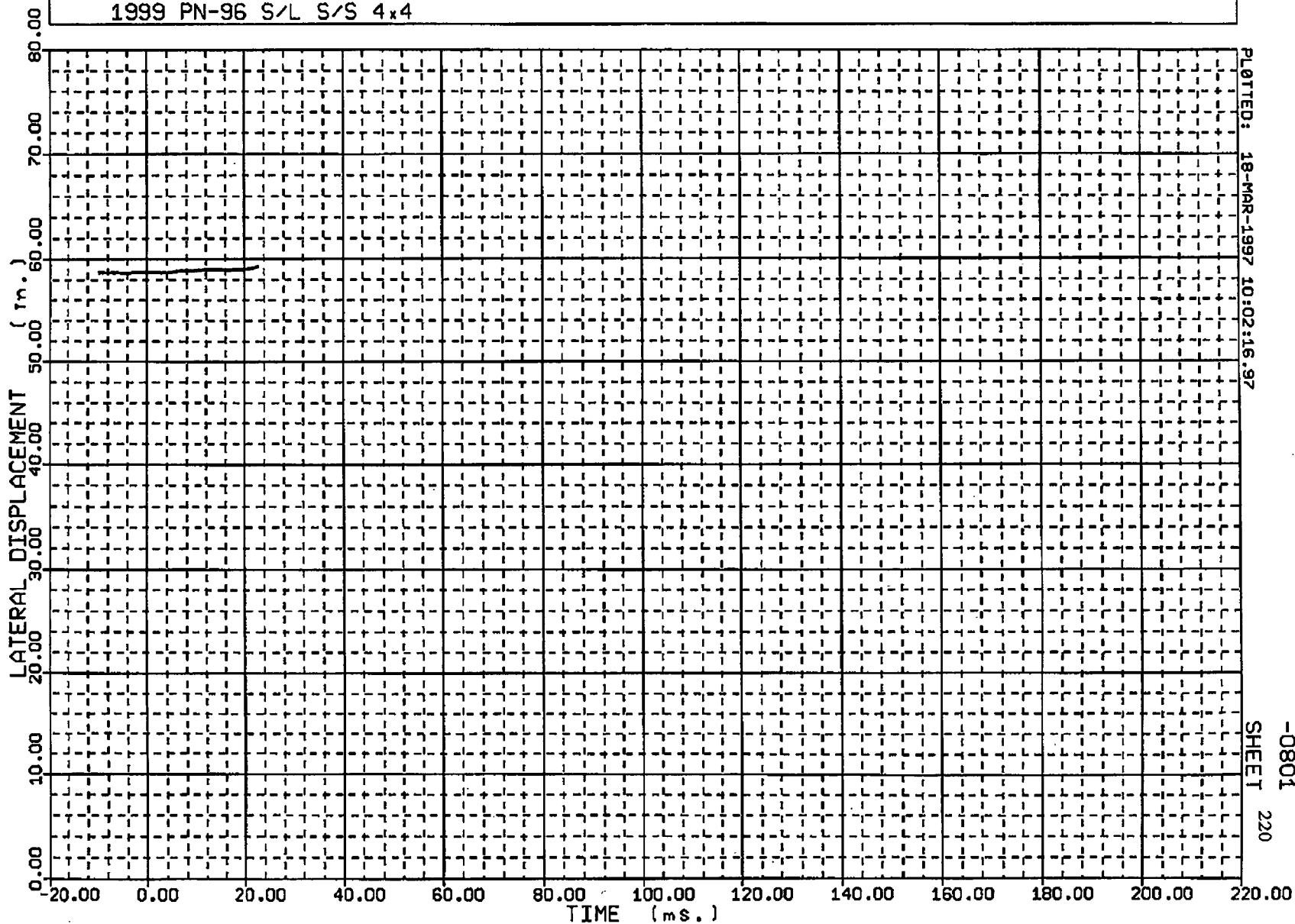
CRTS 0010631

Y - AXIS:		TOP OF BARRIER WRT GROUND REFERENCE		MAX = 6.234	at 197.00	MIN = 0.0000E+00	at 0.00
RUN NO.	FACILITY	TEST ORDER NO.	FILM ANALYSIS METHOD		PITCH CORRECTION		
10631	BARRIER	-0801	SCALE		NOT APPLIED		
1999 PN-96 S/L S/S 4x4							



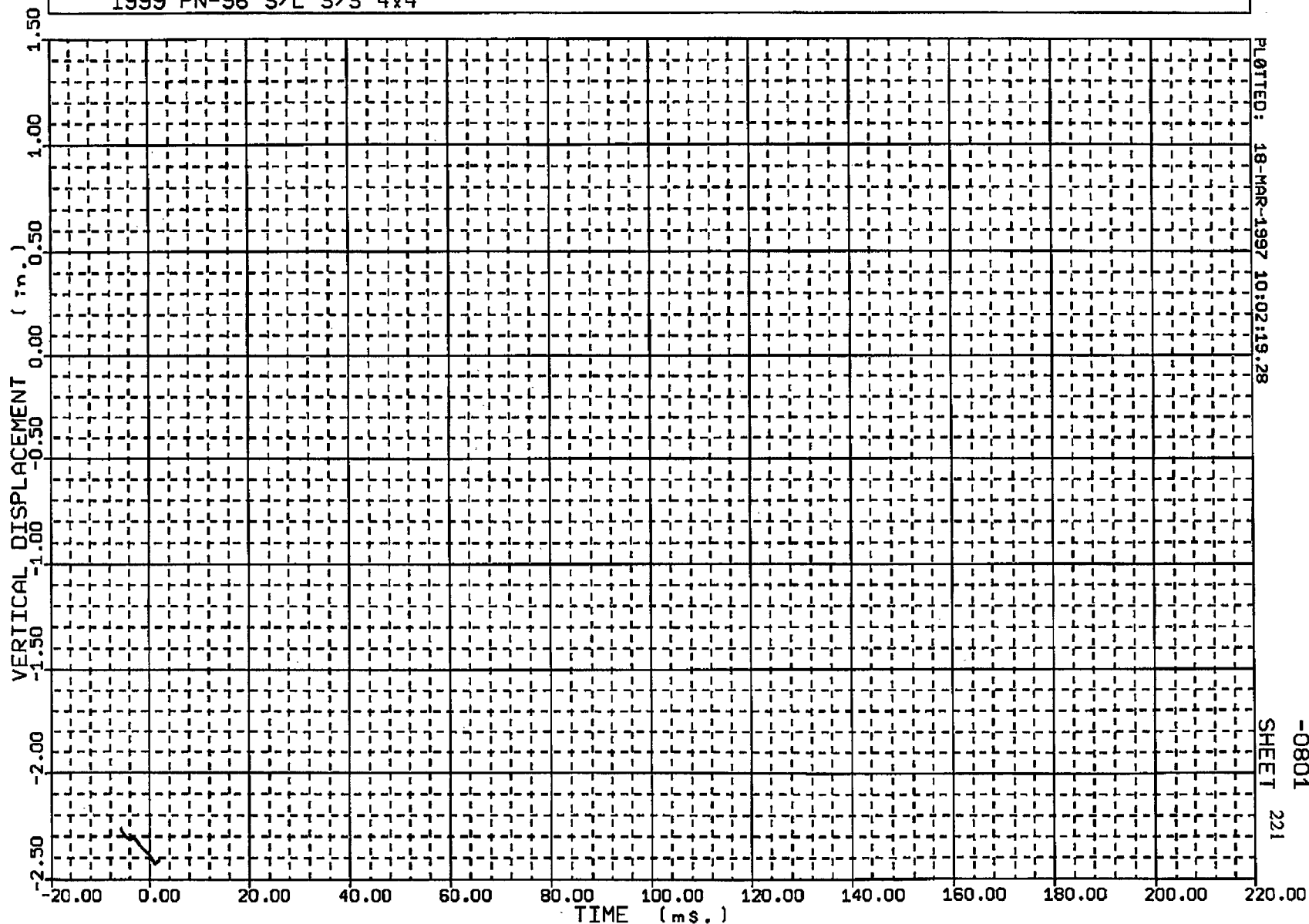
CRTS 0010631

Y - AXIS:		TOP OF BARRIER WRT GROUND REFERENCE.		MAX = 59.28		at 23.00		MIN = 58.64		at -4.00	
RUN NO.		FACILITY		TEST ORDER NO.		FILM ANALYSIS METHOD		PITCH CORRECTION			
10631		BARRIER		-0801		SCALE		NOT APPLIED			
1999 PN-96 S/L S/S 4x4											



CRTS 0010631

Y - AXIS:		R/FRONT FENDER WRT R/MOVING BARRIER		MAX = -2.263	at -6.00	MIN = -2.427	at 1.00
RUN NO.	FACILITY	TEST ORDER NO.	FILM ANALYSIS METHOD		PITCH CORRECTION		
10631	BARRIER	-0801	SCALE		NOT APPLIED		
1999 PN-96 S/L S/S 4x4							



CRTS 0010631

ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

1. ADMINISTRATIVE INFORMATION

IDENTIFICATION

Title of Test: 33.5 MPH 27 DEGREE RH CRABBED SIDE IMP
Vehicle Program Year: 1999.
Vehicle Model: PN96 SP Car/Truck: T
Vehicle ID Number: 294W881
Certification Vehicle Code: DV
Requestor Name: PAT CULKEEN
Test Engineer Name: INGRID JACKSON

TIME STAMPS

Time Test Request Built:	2/4/97	Time Test First Received:	14-FEB-1997 13:06
Time Test Request Opened:	14-FEB-1997 13:06	Time Test Last Received:	14-FEB-1997 13:06
Time Request Closed:	20-MAR-1997 12:51	Time Last Transmitted:	20-MAR-1997 12:51

PRE-CRASH

Data Complete: 12-MAR-1997 10:09
Measurement Technician: DEWAYNE L. BURLESON
Administrative Approver: DEWAYNE L. BURLESON
Approval Date: 12-MAR-1997 10:09

POST-CRASH

Data Complete: 20-MAR-1997 12:51
Measurement Technician: DEWAYNE L. BURLESON
Administrative Approver: DEWAYNE L. BURLESON
Approval Date: 20-MAR-1997 12:51

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CRIS 0010631

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T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

1. ADMINISTRATIVE INFORMATION

TEST ENGINEER'S COMMENTS

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CRTS 0010631

0773

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T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

1. ADMINISTRATIVE INFORMATION

TEST DESCRIPTION

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T-A0801

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CRTS 0010631

0774

ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

2. MISCELLANEOUS DATA

ANGLES

	Before:	After:	Difference:
Steering Column			
Rocker Angle	Left: *** 0.0 deg.		Right: *** 0.0 deg.
Seat Back Angles			
Front:	Left: ***	Ctr:	Right: *** 21.2 deg.
Rear:	Left:	Ctr:	Right:

THICKNESSES

	Left	Right
Frame Thicknesses		
1:		1:
2:		2:
3: ***		3: ***
4: ***		4: ***
5:		5:
6:		6:
Bumper Thicknesses		
Before:	Left:	Right:
After:	Left:	Right:

ROCKER SILL SET-UP POINTS

Before				After			
Left Front:	***	18.00 in.	Right Front:	***	18.00 in.	Right Front:	*** 18.80 in.
Left Rear:	***	18.00 in.	Right Rear:	***	18.00 in.	Right Rear:	*** 20.35 in.

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CRIS 0010631

0775

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T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

DAI #:

Crash #: 10631

3. MANIKIN DATA

TEST SET-UP

*** Manikin type: Hybrid-3
Crash position: 2 (Mech. Mid)
Other Description: Mech. Mid
*** Sill Position: 3 (Level)

DESIGN POSITION

Plotting Zero:	Unit: 071	Side: L	Point: 07
Design Steering Wheel Location from Plotting Zero:	X:	Y:	Z:
Seat Movement to Design from Rearmost Position:			
Driver fwd:		Driver act:	
Passenger fwd:		Passenger act:	3.52 in.
H-Point Design from Plotting Zero in Rearmost Position:			
Left:	X:	Y:	Z:
Center:	X:	Y:	Z:
Right:	X:	Y:	Z:
H-Point Design from Plotting Zero in Crash Position:			
Left:	X:	Y:	Z:
Center:	X:	Y:	Z:
Right:	X: 119.49 in.	Y:	Z: 42.17 in.

MANIKIN BACK ANGLES

Front:	Left:	Ctr:	Right:	21.0 deg.
Rear:	Left:	Ctr:	Right:	12.0 deg.

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T-A0801

CRTS 0010631

0776

ASC TO #: TA0801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

DAI #:

Crash #: 10631

				4. POINT COORDINATES								INCHES CHANGED			
UNT		PNT	SFX		Long	Lat	Vert	NOTES					X	Y	Z
NO	SIDE	NO	LET	DESCRIPTION	X	Y	Z	1	2	3	4	5		D	
070				pt #3 SEE COMMENT SHEET											
		01		The REF. Zero for this vehicle is on the FRAME	BEF										
					AFT										
		03		FOR AUTOMATICALLY GENERATED INSTRUCTIONS	BEF										
					AFT										
		61		[SEATS] Driver is POWER Passenger is MANUAL	BEF								T W		
					AFT								T W		
		75		PUCK "Z" HEIGHT for DIMENSIONAL REF. ONLY	BEF		-4.77			O F					0.00
					AFT		-4.77			O F					
071	L			MISCELLANEOUS / SIDED											
		07		CONTROL NOTCH/HOLE C/L Set DR/side meas./Pass.	BEF	119.69	-33.12	27.43							
					AFT										
074				CMM POSITIONING REF.											
		41		CMM Front door A Pillar @ROOF @side of impact	BEF	112.69	26.15	74.41			P				
					AFT						P				
		42		CMM Front door A Pillar @BELT @side of impact	BEF	89.20	32.83	54.00			P				
					AFT						P				
		43		CMM Front door A Pillar @ROCKER @side of impact	BEF	97.03	33.71	26.42			P				
					AFT						P				

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CRIS 0010631

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I-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

DAI #:

Crash #: 10631

4. POINT COORDINATES																	
UNT NO	SIDE	PNT NO	SFX LET	DESCRIPTION		INCHES		Vert Z	NOTES					X	INCHES CHANGED		Z
						Long X	Lat Y		1	2	3	4	5		Y D		
		44		CMM Front door ROCKER @B PILLAR @side of imp.	BEF AFT	118.48	34.10	26.39	P P								
		46		CMM Rear door B Pillar @ROOF @side of impact	BEF AFT	155.55	26.86	73.64	P P								
		47		CMM Rear door B Pillar @BELT @side of impact	BEF AFT	157.15	33.15	56.58	P P								
		48		CMM Rear door B pillar @ROCKER @side of impact	BEF AFT	150.00	34.27	28.51	P P								
		49		Cmm Rear door ROCKER @C PILLAR @side of imp.	BEF AFT	131.66	34.43	26.37	P P								
411				TOP (BODY) NON SIDED													
		09		ALIGNMENT & SET UP PT. (left foremost frame)	BEF AFT			30.20 30.35								0.15	
		17		ALIGNMENT & SET UP PT. (right foremost frame)	BEF AFT			30.30 30.30								0.00	
		26		"H" POINT LOCATION on outer frt/occupant door	BEF AFT	119.49	38.55	42.17	P P								
		27		"H" POINT LOCATION on inner frt/occupant door	BEF AFT				P D P								
		36		"H" POINT LOCATION on outer rear/ocupant door	BEF AFT	150.94	38.31	42.76	P P								

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CRTS 0010631

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ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

4. POINT COORDINATES													
UNT NO	SIDE	PNT NO	SFX LET	DESCRIPTION		INCHES		Vert Z	NOTES 1 2 3 4 5	X	INCHES CHANGED		Z
						Long X	Lat Y				Y D		
		37		"H" POINT LOCATION on inner rear/ocupant door	BEF AFT	150.94	32.34	42.76	P P				
		38		TOP OF ROCKER SILL in line w/front "H" pt.	BEF AFT	119.49	34.71	26.39	P P				
		39		TOP OF ROCKER SILL in line w/rear "H" pt. 4dr	BEF AFT	150.94	34.31	29.94	P P				
		57		FRONT OCCUPANT SEAT C/L (width)	BEF AFT		17.02		J P J P				
		67		REAR OCCUPANT SEAT C/L (width)	BEF AFT		17.70		J P J P				
		72		ALIGNMENT & SET UP PT. (left rearmost frame)	BEF AFT			34.60 34.73					0.13
		82		ALIGNMENT & SET UP PT. (right rearmost frame)	BEF AFT			34.65 36.60					1.95
		84		"W.R.T." on Rocker side opposite of impact	BEF AFT	134.87 134.87	-37.02 -37.02	23.76 23.68		0.00	0.00 0.08		-0.08
412	L			TOP (BODY) SIDED POINTS									
		09		END OF FRONT SPINDLE @ CENTERLINE(wheelbase)	BEF AFT	62.51 63.08	-33.12 -28.12	16.37 16.84		0.57	5.00 5.05		0.47
		10		FRONT FENDER LIP(bottom side) @ axle c/line	BEF AFT	62.51 62.78	-37.61 -32.70	44.87 44.97		0.27	4.91 4.92		0.10

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Crash #: 10631

4. POINT COORDINATES												
UNT NO	SIDE	PNT NO	SFX LET	DESCRIPTION		INCHES		Vert Z	NOTES 1 2 3 4 5	INCHES CHANGED		
						Long X	Lat Y			X	Y D	Z
		16		LATCH/STRIKER bolt @C/L or U-BOLT@top @B pillar	BEF AFT	133.87 134.14	-33.94 -34.00	43.40 43.38		0.27	-0.06 0.28	-0.02
		86		REAR FENDER LIP (bottom side) @ axle c/line	BEF AFT	219.19 220.23	-39.42 -36.18	43.60 42.92		1.04	3.24 3.47	-0.68
		89		END OF REAR SPINDLE @ CENTERLINE(wheelbase)	BEF AFT	219.19 220.97	-32.90 -28.48	14.10 17.46		1.78	4.42 5.83	3.36
412	R			TOP (BODY) SIDED POINTS								
		09		END OF FRONT SPINDLE @ CENTERLINE(wheelbase)	BEF AFT	62.48 66.32	33.39 38.61	16.55 17.34		3.84	5.22 6.53	0.79
		10		FRONT FENDER LIP(bottom side) @ axle c/line	BEF AFT	62.48 68.60	37.87 40.78	44.66 42.90		6.12	2.91 7.00	-1.76
		16		LATCH/STRIKER bolt @C/L or U-BOLT@top @B pillar	BEF AFT	133.90 138.41	34.23 27.01	43.25 43.69		4.51	-7.22 8.52	0.44
		86		REAR FENDER LIP (bottom side) @ axle c/line	BEF AFT	219.10 221.41	39.33 41.61	43.51 46.02		2.31	2.28 4.10	2.51
		89		END OF REAR SPINDLE @ CENTERLINE(wheelbase)	BEF AFT	219.10 222.11	32.84 35.90	14.04 17.85		3.01	3.06 5.74	3.81
418				NHTSA BARRIER FACE								
		01		** SECTIONAL PROFILE ** TOP OF STACK Z=32" (S1)	BEF AFT				Q Q			

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Crash #: 10631

4. POINT COORDINATES																	
UNT NO	SIDE	PNT NO	SFX LET	DESCRIPTION	Long X	INCHES		Vert Z	NOTES					X	INCHES CHANGED		Z
						Lat Y			1	2	3	4	5		Y D		
		02		** SECTIONAL PROFILE ** MID-STACK Z=22" (S2)	BEF AFT							Q Q					
		03		** SECTIONAL PROFILE ** BUMPER Z=17" (S3)	BEF AFT							Q Q					
423				BELTLINE EXTERIOR SECT													
		01		** SECTIONAL PROFILE ** @ BELTLINE EXT (S1,2)	BEF AFT							O O					
425				MIDLINE EXTERIOR SECT													
		01		** SECTIONAL PROFILE ** @ MIDLINE EXT (S1,2)	BEF AFT							O O					
427				CHARACTER LINE EXT SECT													
		01		** SECTIONAL PROFILE ** @ CHARACTER LINE (S1,2)	BEF AFT							O O					
429				BOTTOM OF DOOR EXT SECT													
		01		** SECTIONAL PROFILE ** @ DOOR BOTTOM EXT(S1,2)	BEF AFT												
431				ROCKER PANEL EXT SECT													

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				4. POINT COORDINATES									INCHES CHANGED		
UNT NO	SIDE	PNT NO	SFX LET	DESCRIPTION	Long X	Lat Y	Vert Z	NOTES					X	Y D	Z
								1	2	3	4	5			
		01		** SECTIONAL PROFILE ** @ ROCKER EXTERIOR (S1,2)	BEF AFT										
433				ROOF LINE INTERIOR SECT											
		01		** SECTIONAL PROFILE ** @ ROOF LINE INT (S1,2)	BEF AFT										
435				BELT LINE INTERIOR SECT											
		01		** SECTIONAL PROFILE ** @ BELT LINE INT (S1,2)	BEF AFT										
437				HIP INTERIOR SECTION											
		01		** SECTIONAL PROFILE ** @ HIP LINE INT (S1,2)	BEF AFT										
438				1ST 50mmFWD/HINGE PLANE											
		01		Vert/Sect @1st 50mm fwd /Hinge plane ext, [s1]	BEF AFT										
439				SECT @2500mm BODY LINE											
		01		Vert/sect. @2500 body line exterior int[s1,2]	BEF AFT										

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4. POINT COORDINATES															
INCHES															
UNT		PNT	SFX			Long	Lat	Vert	NOTES		X		Y		Z
NO	SIDE	NO	LET	DESCRIPTION		X	Y	Z	1 2 3 4 5				D		
440				V/SECT @FRT "H" POINT											
		01		Vert/Sect @front "h" pt	BEF										
				exterior,interior[s1,2]	AFT										
441				1ST 50mm RWD/STRIKER PL											
		01		Vert/Sect @1st 50mm rwd	BEF										
				Striker plane ex/in 1,2	AFT										
442				V/SECT @REAR "H" POINT											
		01		Vert/sect @rear "H" pt.	BEF										
				exterior,interior[s1,2]	AFT										
650				BLANK UNIT POINTS											
		01	1	See comments page	BEF	91.39	31.68	37.45							
					AFT										
		02	2	See comments page	BEF	102.18	32.49	43.27							
					AFT										
		03	3	See comments page	BEF	114.51	32.57	52.81							
					AFT										
		04	4	See comments page	BEF	113.75	33.14	49.29							
					AFT										

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4. POINT COORDINATES																	
UNT NO	SIDE	PNT NO	SFX LET	DESCRIPTION		INCHES		Vert Z	NOTES					X	INCHES CHANGED		Z
						Long X	Lat Y		1	2	3	4	5		Y D		
		05	5	See comments page	BEF AFT	129.30	32.55	43.08									
		06	6	See comments page	BEF AFT	112.37	27.20	30.53									
		07	7	See comments page	BEF AFT	121.30	27.64	29.05									
		08	8	See comments page	BEF AFT	135.54	26.99	70.35									
		09	9	See comments page	BEF AFT	135.78	32.16	54.88									
		10	10	See comments page	BEF AFT	135.24	32.20	36.15									
		11	11	See comments page	BEF AFT	133.10	31.58	62.04									
		12	12	See comments page	BEF AFT	85.46	32.44	24.40									
		13	13	See comments page	BEF AFT	130.64	32.78	23.67									
		14	14	See comments page	BEF AFT	157.97	31.96	28.02									
		15	15	See comments page	BEF AFT	91.31	-31.39	37.97									

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Crash #: 10631

4. POINT COORDINATES																	
UNT NO	SIDE	PNT NO	SPX LET	DESCRIPTION		INCHES		Vert Z	NOTES					X	INCHES CHANGED		Z
						Long X	Lat Y		1	2	3	4	5		Y D		
		16		See comments page	BEF AFT	111.93	-27.43	30.60									
		17		See comments page	BEF AFT	124.33	-27.31	29.10									
		18		See comments page	BEF AFT	111.86	-0.33	31.98									
		19		See comments page	BEF AFT	146.04	32.19	53.12									
804				F-SERIES													
		01		PT. GENERATES VEHICLE SPECIFIC INFORMATION	BEF AFT							S S					
999				utility unit 999													
		98		Utility point needs no response	BEF AFT							S S					
		99		Utility point needs no response	BEF AFT							S S					

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5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
418	S1		A		32.0" ABOVE GROUND PRE-CRASH									
418	S1		A		32.0" ABOVE GROUND POST-CRASH									
418	S2		A		22.0" ABOVE GROUND PRE-CRASH									
418	S2		A		22.0" ABOVE GROUND POST-CRASH									
418	S3		A		17.0" ABOVE GROUND PRE-CRASH									
418	S3		A		17.0" ABOVE GROUND POST-CRASH									
423	S1		A		BELTLINE EXT. SECT. PRE-CRASH									
				01	BEFORE						70.28	34.94		53.20
				02	BEFORE						80.90	35.60		53.20
				03	BEFORE						86.38	35.83		53.21
				04	BEFORE						86.91	35.84		53.20
				05	BEFORE						100.48	36.24		53.18
				06	BEFORE						120.36	36.73		53.14
				07	BEFORE						137.05	36.80		53.11
				08	BEFORE						137.75	36.80		53.12
				09	BEFORE						158.40	36.63		53.07

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5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				10	BEFORE						159.83	36.57		53.07
				11	BEFORE						177.42	36.87		53.08
				12	BEFORE						196.66	37.17		53.06
				13	BEFORE						217.42	37.15		53.07
423	S1		A		BELTLINE EXT. SECT. POST-CRASH									
				01	AFTER						76.22	38.99		51.95
				02	AFTER						86.80	38.49		51.82
				03	AFTER						92.34	38.05		51.76
				04	AFTER						92.80	38.70		50.88
				05	AFTER						97.41	37.53		51.14
				06	AFTER						98.04	37.42		51.16
				07	AFTER						109.76	37.23		51.33
				08	AFTER						125.30	36.15		51.74
				09	AFTER						133.88	35.24		51.96
				10	AFTER						136.20	35.18		52.02
				11	AFTER						142.81	35.23		52.14

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Crash #: 10631

5. SECTIONALS

UNT NO	SCFN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES 1 2 3 4 5	X	INCHES Y	Z
				12	AFTER		141.00	31.51	52.18
				13	AFTER		151.04	34.17	52.05
				14	AFTER		155.71	35.19	51.97
				15	AFTER		157.64	35.55	51.97
				16	AFTER		161.11	35.57	51.87
				17	AFTER		161.87	39.22	54.27
				18	AFTER		179.08	39.30	54.63
				19	AFTER		198.49	39.23	55.02
				20	AFTER		200.02	39.20	55.04
				21	AFTER		219.56	38.87	55.34
423	S2		A		BELTLINE EXT. CONT. PRE-CRASH				
423	S2		A		BELTLINE EXT. CONT. POST-CRASH				
425	S1		A		MIDLINE EXT. SECT. PRE-CRASH				
				01	BEFORE		67.27	36.82	47.32
				02	BEFORE		72.41	36.91	47.32
				03	BEFORE		85.96	37.48	47.31

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5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				04	BEFORE						86.40	37.49		47.28
				05	BEFORE						99.54	37.76		47.28
				06	BEFORE						120.62	38.03		47.23
				07	BEFORE						136.89	38.23		47.21
				08	BEFORE						137.43	38.17		47.21
				09	BEFORE						158.25	37.92		47.16
				10	BEFORE						159.42	37.82		47.20
				11	BEFORE						175.78	38.04		47.14
				12	BEFORE						197.11	38.30		47.17
				13	BEFORE						218.50	38.38		47.19
425	S1		A		MIDLINE EXT. SECT. POST-CRASH									
				01	AFTER						73.39	39.81		45.73
				02	AFTER						83.25	38.86		45.74
				03	AFTER						91.93	38.51		45.63
				04	AFTER						92.77	37.93		44.77
				05	AFTER						94.29	37.58		44.99

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5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				06	AFTER						96.06	37.06		45.11
				07	AFTER						98.63	36.95		45.08
				08	AFTER						102.09	36.35		45.23
				09	AFTER						104.09	35.80		45.33
				10	AFTER						106.67	35.93		45.38
				11	AFTER						114.06	35.57		45.46
				12	AFTER						119.42	34.89		45.78
				13	AFTER						126.37	34.57		45.90
				14	AFTER						130.34	34.88		45.87
				15	AFTER						131.47	34.82		45.92
				16	AFTER						131.73	35.00		45.91
				17	AFTER						133.00	35.21		45.80
				18	AFTER						138.44	35.41		45.87
				19	AFTER						139.89	35.38		45.87
				20	AFTER						140.64	34.86		46.03
				21	AFTER						142.65	34.78		46.07

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5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				22	AFTER						141.99	30.94		46.42
				23	AFTER						142.83	29.83		46.75
				24	AFTER						144.02	30.71		46.37
				25	AFTER						148.05	32.08		46.23
				26	AFTER						149.74	32.48		46.26
				27	AFTER						151.72	33.44		46.07
				28	AFTER						155.07	34.02		46.07
				29	AFTER						157.47	35.14		45.94
				30	AFTER						158.72	35.54		45.89
				31	AFTER						160.78	35.37		45.95
				32	AFTER						161.74	40.54		48.37
				33	AFTER						178.18	40.66		48.74
				34	AFTER						199.53	40.67		49.19
				35	AFTER						204.96	40.63		49.31
				36	AFTER						210.57	40.57		49.39
				37	AFTER						220.75	40.49		49.58

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5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES	
						1	2	3	4	5		Y	Z
425	S2		A		MIDLINE CONT.								
					PRE-CRASH								
425	S2		A		MIDLINE CONT.								
					POST-CRASH								
427	S1		A		CHARACTER LINE EXT SEC								
					PRE-CRASH								
				01	BEFORE						77.52	38.38	39.43
				02	BEFORE						81.47	38.00	39.43
				03	BEFORE						86.34	38.02	39.41
				04	BEFORE						87.06	38.02	39.43
				05	BEFORE						100.36	38.23	39.40
				06	BEFORE						121.47	38.40	39.37
				07	BEFORE						136.10	38.52	39.34
				08	BEFORE						136.72	38.49	39.32
				09	BEFORE						157.51	38.17	39.30
				10	BEFORE						158.74	38.07	39.36
				11	BEFORE						183.36	38.24	39.33
				12	BEFORE						201.29	38.50	39.35
				13	BEFORE						202.36	38.57	39.30

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Crash #: 10631

5. SECTIONALS

UNT NO	SCIN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				14	BEFORE						206.04	38.99		39.33
427	S1		A		CHARACTER LINE EXT SEC POST-CRASH									
				01	AFTER						83.46	37.73		37.83
				02	AFTER						92.30	36.83		37.93
				03	AFTER						93.45	36.45		37.11
				04	AFTER						95.41	35.94		37.29
				05	AFTER						98.37	34.47		37.71
				06	AFTER						100.68	33.92		37.87
				07	AFTER						104.44	33.54		37.95
				08	AFTER						106.55	33.39		37.95
				09	AFTER						115.28	32.76		38.22
				10	AFTER						118.41	32.56		38.26
				11	AFTER						119.30	32.48		38.32
				12	AFTER						120.35	32.40		38.36
				13	AFTER						125.38	32.12		38.55
				14	AFTER						128.37	31.99		38.54

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5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				15	AFTER						137.29	31.71		38.86
				16	AFTER						142.08	31.88		38.86
				17	AFTER						142.09	29.44		38.73
				18	AFTER						143.27	28.09		39.16
				19	AFTER						145.59	27.54		39.49
				20	AFTER						147.77	27.95		39.47
				21	AFTER						149.56	28.85		39.33
				22	AFTER						151.01	29.59		39.18
				23	AFTER						154.32	31.18		38.95
				24	AFTER						156.57	32.91		38.62
				25	AFTER						157.41	34.24		38.21
				26	AFTER						157.85	34.33		38.22
				27	AFTER						159.65	34.32		38.08
				28	AFTER						161.27	40.42		40.54
				29	AFTER						171.76	41.05		40.80
				30	AFTER						189.15	41.18		41.14

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5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES	
						1	2	3	4	5		Y	Z
				31	AFTER						200.09	41.20	41.35
				32	AFTER						203.76	41.24	41.50
				33	AFTER						204.83	41.31	41.42
				34	AFTER						208.48	41.70	41.52
427	S2		A		CHARACTER LINE CONT. PRE-CRASH								
427	S2		A		CHARACTER LINE CONT. POST-CRASH								
429	S1		A		BOTTOM OF DOOR EXT SECT PRE-CRASH								
				01	BEFORE						89.49	37.00	23.53
				02	BEFORE						119.66	37.08	23.50
				03	BEFORE						133.45	37.04	23.46
				04	BEFORE						134.06	37.02	23.51
				05	BEFORE						154.88	36.96	23.41
429	S1		A		BOTTOM OF DOOR EXT SECT POST-CRASH								
				01	AFTER						96.10	32.62	21.86
				02	AFTER						108.30	30.89	22.52
				03	AFTER						126.95	28.92	23.53

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0795

245

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

DAI #:

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES 1 2 3 4 5	X	INCHES Y	Z
				04	AFTER		137.28	27.35	24.12
				05	AFTER		139.68	27.13	24.25
				06	AFTER		139.60	23.95	23.97
				07	AFTER		148.70	23.60	24.58
				08	AFTER		155.42	24.76	24.53
				09	AFTER		160.02	27.13	24.57
429	S2		A		BOT. OF DOOR CONT. PRE-CRASH				
429	S2		A		BOT. OF DOOR CONT. POST-CRASH				
431	S1		A		ROCKER EXT. SECTION PRE-CRASH				
				01	BEFORE		89.81	36.59	23.31
				02	BEFORE		115.81	36.67	23.27
				03	BEFORE		137.63	36.55	23.21
				04	BEFORE		152.08	36.35	23.20
431	S1		A		ROCKER EXT. SECTION POST-CRASH				
				01	AFTER		94.63	28.02	23.55
				02	AFTER		112.16	25.58	23.67

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0796

246

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

DAI #:

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				03	AFTER						120.32	24.80		23.83
				04	AFTER						137.07	23.30		24.33
				05	AFTER						142.14	23.20		24.19
				06	AFTER						153.82	23.24		24.23
				07	AFTER						155.01	23.87		24.10
				08	AFTER						156.10	24.34		24.03
433	S1		A		ROOF LINE INTERIOR SEC PRE-CRASH									
				01	BEFORE						91.21	30.15		57.07
				02	BEFORE						110.94	24.55		72.93
				03	BEFORE						113.01	24.69		73.97
				04	BEFORE						117.97	24.51		74.92
				05	BEFORE						132.63	24.14		75.30
				06	BEFORE						153.81	23.90		74.84
433	S1		A		ROOF LINE INTERIOR SEC POST-CRASH									
				01	AFTER						96.05	32.45		57.12
				02	AFTER						114.12	26.17		73.02

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0797

247

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				03	AFTER						121.47	25.89		75.62
				04	AFTER						136.45	24.62		75.70
				05	AFTER						148.05	24.48		75.11
				06	AFTER						157.02	23.05		74.35
				07	AFTER						162.69	22.13		73.31
433	S2		A		ROOF LINE CONT. PRE-CRASH									
433	S2		A		ROOF LINE CONT. POST-CRASH									
435	S1		A		BELT LINE INTERIOR SECT PRE-CRASH									
				01	BEFORE						93.93	32.78		53.46
				02	BEFORE						102.58	32.81		53.31
				03	BEFORE						113.14	32.75		53.66
				04	BEFORE						126.58	32.75		53.50
				05	BEFORE						131.54	32.79		54.08
				06	BEFORE						132.32	33.35		53.93
				07	BEFORE						133.15	33.34		53.92
				08	BEFORE						133.39	32.66		54.28

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0798

248

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				09	BEFORE						134.09	32.68		54.18
				10	BEFORE						134.67	32.42		54.19
				11	BEFORE						140.65	32.44		54.26
				12	BEFORE						151.14	32.45		53.25
				13	BEFORE						154.76	33.25		53.12
				14	BEFORE						155.48	32.51		53.10
				15	BEFORE						156.08	32.07		52.95
435	S1		A		BELT LINE INTERIOR SECT									
					POST-CRASH									
				01	AFTER						99.42	35.27		53.18
				02	AFTER						108.02	34.48		53.41
				03	AFTER						118.50	33.33		53.76
				04	AFTER						131.90	31.94		54.40
				05	AFTER						136.84	31.64		55.04
				06	AFTER						137.65	31.98		54.63
				07	AFTER						138.31	31.98		54.80
				08	AFTER						138.07	27.85		54.22

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CRIS 0010631

0799

ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				09	AFTER						138.39	27.59		54.22
				10	AFTER						144.06	28.66		54.13
				11	AFTER						151.57	30.15		53.64
				12	AFTER						154.68	30.57		53.17
				13	AFTER						157.15	31.13		53.08
				14	AFTER						158.89	30.56		52.41
435	S2		A		BELT LINE CONT. PRE-CRASH									
435	S2		A		BELT LINE CONT. POST-CRASH									
437	S1		A		HIP LINE INTERIOR SECT. PRE-CRASH									
				01	BEFORE						94.46	32.71		42.15
				02	BEFORE						104.02	32.62		42.15
				03	BEFORE						110.13	32.80		42.15
				04	BEFORE						113.09	32.50		42.14
				05	BEFORE						115.30	33.17		42.03
				06	BEFORE						127.15	32.91		42.16
				07	BEFORE						131.47	32.73		42.18

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CRTS 0010631

250

T-A0801

ASC TO #: TAC801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

DAI #:

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				08	BEFORE						133.03	32.79		42.17
				09	BEFORE						133.91	32.47		42.21
				10	BEFORE						138.11	32.45		42.29
				11	BEFORE						139.22	32.76		42.14
				12	BEFORE						140.93	33.01		42.14
				13	BEFORE						147.53	32.96		42.15
				14	BEFORE						148.71	32.45		42.14
				15	BEFORE						150.68	32.43		42.13
				16	BEFORE						153.92	32.38		42.17
437	S1		A		HIP LINE INTERIOR SECT. POST-CRASH									
				01	AFTER						99.52	30.93		42.49
				02	AFTER						106.46	29.79		42.20
				03	AFTER						109.37	29.82		42.90
				04	AFTER						116.82	30.41		43.45
				05	AFTER						118.00	29.67		43.32
				06	AFTER						119.28	29.65		42.92

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0801

251

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				07	AFTER						120.35	30.11		43.03
				08	AFTER						123.13	29.98		43.38
				09	AFTER						129.41	30.32		43.32
				10	AFTER						132.33	30.03		43.24
				11	AFTER						136.38	28.27		43.55
				12	AFTER						137.59	25.33		42.27
				13	AFTER						138.02	25.05		42.27
				14	AFTER						138.98	25.05		42.43
				15	AFTER						144.09	26.10		42.39
				16	AFTER						145.39	26.31		42.13
				17	AFTER						151.85	27.20		42.28
				18	AFTER						152.62	27.01		42.60
				19	AFTER						155.27	27.99		42.33
				20	AFTER						156.74	28.78		41.67
437	S2		A		HIP LINE CONTINUED PRE-CRASH									
437	S2		A		HIP LINE CONTINUED POST-CRASH									

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CRTS 0010631

0802

252

T-A0801

ASC TO #: TAO801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

DAI #:

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
438	S1	A			1st50mm fwd/hinge plane									
					PRE-CRASH									
				01	BEFORE						86.68	37.39		24.36
				02	BEFORE						86.66	37.65		32.88
				03	BEFORE						86.67	37.77		33.84
				04	BEFORE						86.67	37.96		37.19
				05	BEFORE						86.65	38.02		40.70
438	S1	A		06	BEFORE						86.64	37.45		47.37
				07	BEFORE						86.65	35.95		52.82
					1st50mm fwd/hinge plane									
					POST-CRASH									
				01	AFTER						91.94	30.20		24.39
				02	AFTER						92.01	31.36		27.03
				03	AFTER						92.21	32.17		27.96
438	S1	A		04	AFTER						92.35	32.94		29.07
				05	AFTER						92.55	34.69		32.36
				06	AFTER						92.62	36.04		35.77
				07	AFTER						93.37	36.49		37.28

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0803

253

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

DAI #:

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				08	AFTER						93.17	36.90		40.50
				09	AFTER						92.98	37.89		45.04
				10	AFTER						92.84	38.63		50.25
439	S1		A		Sect. @2500mm body line									
					PRE-CRASH									
				01	BEFORE						98.45	37.40		24.37
				02	BEFORE						98.45	37.27		26.33
				03	BEFORE						98.47	37.12		29.03
				04	BEFORE						98.48	37.22		31.61
				05	BEFORE						98.49	37.32		32.60
				06	BEFORE						98.48	37.79		33.50
				07	BEFORE						98.42	38.05		36.54
				08	BEFORE						98.44	37.90		46.03
				09	BEFORE						98.41	36.26		52.93
439	S1		A		Sect. @2500mm body line									
					POST-CRASH									
				01	AFTER						104.84	31.23		22.83
				02	AFTER						104.75	31.05		24.72

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CRTS 0010631

0804

ASC TO #: TA0801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

DAI #:

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				03	AFTER						104.74	31.45		25.74
				04	AFTER						104.57	31.73		31.04
				05	AFTER						104.51	31.95		32.07
				06	AFTER						104.60	31.95		32.53
				07	AFTER						104.39	32.38		35.19
				08	AFTER						104.44	33.36		37.72
				09	AFTER						104.46	33.67		38.17
				10	AFTER						104.47	34.26		39.86
				11	AFTER						104.48	35.45		42.08
				12	AFTER						104.48	35.66		43.00
				13	AFTER						104.37	35.82		45.44
				14	AFTER						104.28	36.83		49.03
				15	AFTER						104.26	37.39		51.08
439	S2		A		Sect. @2500mm continued PRE-CRASH									
				01	BEFORE						98.40	32.64		29.32
				02	BEFORE						98.38	32.66		34.49

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CRTS 0010631

255

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				03	BEFORE						98.44	33.03		35.99
				04	BEFORE						98.46	33.05		44.30
				05	BEFORE						98.43	32.62		48.66
				06	BEFORE						98.47	32.79		49.44
				07	BEFORE						98.44	32.84		53.10
439	S2		A		Sect. @2500mm continued POST-CRASH									
				01	AFTER						104.25	27.44		30.39
				02	AFTER						103.95	28.41		35.33
				03	AFTER						104.01	29.10		36.50
				04	AFTER						103.91	31.45		44.69
				05	AFTER						104.00	31.36		45.30
				06	AFTER						103.81	32.74		48.71
				07	AFTER						103.79	33.40		49.65
				08	AFTER						103.82	34.80		52.76
440	S1		A		Front "H" sectional PRE-CRASH									
				01	BEFORE						119.43	37.40		24.10

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0806

256

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578
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DAI #:

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				02	BEFORE						119.41	37.27		26.73
				03	BEFORE						119.39	37.04		29.15
				04	BEFORE						119.44	37.27		31.83
				05	BEFORE						119.48	37.47		32.71
				06	BEFORE						119.43	37.88		33.24
				07	BEFORE						119.43	38.22		36.36
				08	BEFORE						119.45	38.30		44.80
				09	BEFORE						119.43	37.15		51.46
				10	BEFORE						119.46	36.26		54.16
				11	BEFORE						119.43	35.81		54.69
				12	BEFORE						119.44	27.25		75.50
				13	BEFORE						119.46	25.44		76.94
				14	BEFORE						119.40	21.31		77.79
440	S1		A		Front "H" sectional POST-CRASH									
				01	AFTER						125.67	29.11		23.91
				02	AFTER						125.62	29.07		25.64

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CRTS 0010631

0807

257

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				03	AFTER						125.58	29.39		26.18
				04	AFTER						125.61	30.07		26.67
				05	AFTER						125.60	30.19		26.83
				06	AFTER						125.52	30.81		30.39
				07	AFTER						125.50	30.73		32.10
				08	AFTER						125.57	30.81		32.84
				09	AFTER						125.56	30.67		33.23
				10	AFTER						125.46	30.70		35.88
				11	AFTER						125.40	30.90		36.93
				12	AFTER						125.42	32.19		38.65
				13	AFTER						125.41	33.03		40.09
				14	AFTER						125.32	34.30		45.09
				15	AFTER						125.27	35.71		48.98
				16	AFTER						125.25	36.32		52.80
				17	AFTER						124.65	39.74		75.46
				18	AFTER						124.37	39.47		77.12

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0808

258

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

5. SECTIONALS

UNT NO	SCIN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				19	AFTER						123.10	26.70		77.57
440	S2		A		Front "H" continued									
				01	PRE-CRASH						119.45	32.68		29.19
				02	BEFORE						119.45	32.73		31.44
				03	BEFORE						119.43	33.06		32.74
				04	BEFORE						119.41	33.07		37.03
				05	BEFORE						119.43	32.69		38.01
				06	BEFORE						119.42	32.82		48.92
				07	BEFORE						119.41	32.80		53.82
440	S2		A		Front "H" continued									
				01	POST-CRASH						124.95	29.41		30.05
				02	AFTER						124.86	29.32		33.53
				03	AFTER						124.75	29.59		37.93
				04	AFTER						124.82	29.29		39.03
				05	AFTER						124.86	32.03		52.57
				06	AFTER						124.90	32.61		54.12

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0809

259

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

DAI #:

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		
						1	2	3	4	5		Y	Z	
441	S1		A		Striker sectional PRE-CRASH									
				01	BEFORE						135.65	37.54	24.35	
				02	BEFORE						135.79	37.51	24.69	
				03	BEFORE						135.80	37.14	27.78	
				04	BEFORE						135.76	37.03	29.82	
				05	BEFORE						135.80	37.41	32.52	
				06	BEFORE						135.79	38.21	36.62	
				07	BEFORE						135.83	38.45	43.26	
				08	BEFORE						135.83	37.91	48.51	
				09	BEFORE						135.81	36.08	55.10	
				10	BEFORE						135.77	33.17	63.54	
				11	BEFORE						135.82	28.97	72.99	
				12	BEFORE						135.77	26.97	76.17	
				13	BEFORE						135.81	26.04	76.99	
				14	BEFORE						135.81	25.14	77.53	
				15	BEFORE						135.82	23.44	78.06	

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0810

260

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

5. SECTIONALS

UNT NO	SCIN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				16	BEFORE						135.86	19.98		78.50
441	S1		A		Striker sectional									
					POST-CRASH									
				01	AFTER						141.39	24.22		24.56
				02	AFTER						141.30	25.81		26.65
				03	AFTER						141.33	26.00		26.82
				04	AFTER						141.30	26.24		27.23
				05	AFTER						141.17	26.97		30.34
				06	AFTER						141.19	27.76		32.10
				07	AFTER						141.25	28.21		32.68
				08	AFTER						141.29	28.21		33.12
				09	AFTER						141.63	30.89		35.82
				10	AFTER						141.69	32.68		40.58
				11	AFTER						141.65	34.76		45.87
				12	AFTER						141.62	35.20		51.01
				13	AFTER						141.54	35.34		55.77
				14	AFTER						141.32	36.56		63.68

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T-A0801

261

CRTS 0010631

0811

ASC TO #: TA0801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

DAI #:

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				15	AFTER						141.02	37.95		73.89
				16	AFTER						140.86	38.02		76.85
				17	AFTER						140.86	37.78		77.91
				18	AFTER						139.41	25.55		77.83
				19	AFTER						139.25	23.83		78.36
				20	AFTER						139.43	20.87		78.71
				21	AFTER						139.26	19.21		78.78
441	S2		A		Striker continued PRE-CRASH									
				01	BEFORE						135.72	32.46		31.81
				02	BEFORE						135.78	32.44		40.72
				03	BEFORE						135.78	32.43		48.63
				04	BEFORE						135.84	32.29		56.30
				05	BEFORE						135.79	29.53		66.21
				06	BEFORE						135.84	26.13		72.55
441	S2		A		Striker continued POST-CRASH									
				01	AFTER						140.19	23.79		31.58

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CRTS 0010631

0812

262

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

DAI #:

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				02	AFTER						140.17	24.80		40.77
				03	AFTER						139.95	26.30		48.63
				04	AFTER						139.71	28.06		56.29
				05	AFTER						139.72	28.27		58.13
				06	AFTER						139.74	28.25		63.22
				07	AFTER						139.62	27.86		66.79
				08	AFTER						139.95	26.15		73.42
				09	AFTER						139.70	24.38		74.79
442	S1		A		Rear "H" sectional PRE-CRASH									
				01	BEFORE						150.50	37.49		24.16
				02	BEFORE						150.53	37.33		26.82
				03	BEFORE						150.51	37.01		29.27
				04	BEFORE						150.52	37.13		31.21
				05	BEFORE						150.56	37.40		32.62
				06	BEFORE						150.51	37.79		33.25
				07	BEFORE						150.53	38.08		36.22

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CRTS 0010631

0813

263

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES	
						1	2	3	4	5		Y	Z
				08	BEFORE						150.57	38.30	43.39
				09	BEFORE						150.54	37.38	50.68
				10	BEFORE						150.55	36.37	54.30
				11	BEFORE						150.49	27.45	75.37
				12	BEFORE						150.54	26.01	76.89
				13	BEFORE						150.48	25.34	77.32
				14	BEFORE						150.51	20.17	78.35
442	S1		A		Rear "H" sectional POST-CRASH								
				01	AFTER						155.93	25.38	25.23
				02	AFTER						155.29	27.38	28.37
				03	AFTER						155.25	27.45	28.75
				04	AFTER						155.28	27.46	29.11
				05	AFTER						155.14	27.97	30.79
				06	AFTER						154.64	29.01	32.62
				07	AFTER						154.36	29.37	33.03
				08	AFTER						154.39	29.40	33.41

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CRTS 0010631

0814

264

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

DAI #:

Crash #: 10631

5. SECTIONALS

UNT NO	SCTN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES 1 2 3 4 5	X	INCHES Y	Z
				09	AFTER		154.38	30.11	35.98
				10	AFTER		154.30	30.94	38.68
				11	AFTER		153.46	32.97	41.48
				12	AFTER		153.47	33.10	41.95
				13	AFTER		153.47	33.19	43.47
				14	AFTER		153.35	34.04	47.48
				15	AFTER		153.28	34.60	53.10
				16	AFTER		154.07	30.60	75.83
				17	AFTER		154.18	29.69	77.46
				18	AFTER		153.98	24.68	77.11
				19	AFTER		153.84	19.40	78.16
442	S2		A		Rear "H" continued PRE-CRASH BEFORE		150.47	32.41	37.77
				01	BEFORE		150.48	32.40	51.67
				02	BEFORE		150.53	32.95	54.33
				03	BEFORE				
442	S2		A		Rear "H" continued POST-CRASH				

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CRTS 0010631

0815

265

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

5. SECTIONALS

UNT NO	SCIN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES	
						1	2	3	4	5		Y	Z
				01	AFTER						154.39	26.35	37.23
				02	AFTER						154.51	27.59	41.70
				03	AFTER						154.22	30.09	51.71
				04	AFTER						154.16	31.29	54.07

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CRTS 0010631

0816

266

T-A0801

6. COMMENTS

ANY AUTOMATICALLY GENERATED COMMENTS APPEAR IN THIS BOX:

THIS VEHICLE IS SET UP TO DESIGN ATTITUDE AND WHILE REPORTED IN
ENGLISH UNITS, USES A METRIC PRINT ZERO. SUSPENSION COMPONENTS
ARE NOT IN DESIGN POSITION. COORDINATES CAN BE CONVERTED TO DESIGN
PRINT VALUES BY USING THE FOLLOWING: asking for a metric print-out or
TO CONVERT TO METRIC DESIGN PRINT VALUES: MULTIPLY BY 25.4.
TO CONVERT TO ENGLISH DESIGN PRINT VALUES: (for most DOMESTIC VEHICLES)
SUBTRACT 78.74 (2000 MM) FROM THE X VALUE AND SUBTRACT 19.69 (500 MM)
FROM THE Z VALUE.

*** THIS DIMENSION SYSTEM UTILIZES THE RIGHT HAND RULE ***
from Front of Vehicle FACING REARWARD
+ = Rearward, Up, & Left (AMERICAN PASSENGER SIDE)
[Lateral Zero is Centerline of Vehicle]

%%% THE " D " DIMENSION UNDER " INCHES CHANGED X Y Z " %%%
%% IS THE SCALAR (TRUE VALUE) DISTANCE CHANGE OF THE POINT %%

REMINDER::: Paint a C/L stripe on tunnel from front seat to and
including rear seat where applicable.

*** If this is a POLE IMPACT TEST, do NOT scribe cart edges. ***

ON SIDE IMPACTS FOR VEHICLES WITH A WHEELBASE OF 114 inches or less
SCRIBE (4) VERTICAL LINES on side of impact from ROCKER TO BELT LINE @:
(1) WHEELBASE C/L (2) 37" FORWARD OF WHEELBASE C/L
(3) 4" FORWARD OF WHEELBASE C/L (4) 29" REARWARD OF WHEELBASE C/L

ON SIDE IMPACTS FOR VEHICLES WITH A WHEEL BASE GREATER THAN 114 INCHES
SCRIBE (4) VERTICAL LINES on side of impact from ROCKER TO BELT LINE @:
(1) 20" (2) 53" (3) 86" REARWARD OF FRONT AXLE CENTER LINE
(4) @ WHEELBASE CENTER LINE

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CRTS 0010631

0817

267

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

6. COMMENTS

BELT LINE (EXTERIOR SECTION) LOCATED @ 1st INCREMENTED 50mm BODY
LINE BELOW GLASS/WEATHERSTRIP

MID LINE (EXTERIOR SECTION) LOCATED @ _____ mm BODY LINE

CHARACTER LINE (EXTERIOR SECTION) LOCATED @ _____ mm BODY LINE

ROCKER LINE (EXTERIOR SECTION) LOCATED @
1ST INCREMENTED 10mm BODY LINE BELOW DOOR OPENING

SCRIBE A LONGITUDINAL C/L ALONG THE ENTIRE EXTERNAL BODY
(USE TAPE OR PAINT ON THE WINDSHIELD & BACKLIGHT)

SCRIBE A LONGITUDINAL C/L IN THE INTERIOR ON THE ROOF, TUNNEL/CONSOLE
AND OR SEATS

MARK A LONGITUDINAL C/L ON THE OCCUPANT FRONT & REAR SEATS

SCRIBE A VERTICAL LINE ON THE RIGHT & LEFT FRONT ROCKER SILL TARGETS
IN LINE WITH THE LEFT FRONT OUTBOARD SEAT BOLT HOLE AT SHEET METAL
SURFACE. SCRIBE A HORIZONTAL LINE NEAR THE CENTER OF THE TARGETS AN
EVEN NUMBER OF INCHES ABOVE THE SURFACE PLATE.

SCRIBE A VERTICAL LINE ON THE LEFT & RIGHT ROOF TARGETS IN LINE WITH
THE LEFT FRONT OUTBOARD SEAT BOLT HOLE AT SHEET METAL SURFACE. SCRIBE
A HORIZONTAL LINE NEAR THE CENTER OF THE TARGETS AN EVEN NUMBER OF
INCHES ABOVE THE SILL TARGETS.

ANY COMMENTS ENTERED BY OPERATORS APPEAR BELOW THIS LINE:

.....:THE FOLLOWING POINTS ARE ALL IN UNIT 650:.....
(ALL ACCELS)

01.R/S A-PILLAR INT.

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T-A0801

268

CRTS 0010631

0818

ASC TO #: TA0801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

6. COMMENTS

02.R/S FRT. DOOR
03.R/S FRT. DOOR
04.R/S FRT. DOOR
05.R/S FRT. DOOR
06.R/S FLOOR O/B OF FRT. SEAT FWD.
07.R/S FLOOR O/B OF FRT. SEAT REAR
08.R/S B-PILLAR UPPER
09.R/S B-PILLAR MID
10.R/S B-PILLAR ROCKER
11.R/S FRONT DOOR UPPER MID
12.R/S ROCKER FRT.
13.R/S ROCKER MID
14.R/S ROCKER REAR
15.L/S A-PILLAR INT.
16.L/S FLOOR O/B OF FRT. SEAT FWD.
17.L/S FLOOR O/B OF FRT. SEAT REAR
18.TUNNEL C/L
19.R/S REAR DOOR MID @ BELT

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CRTS 0010631

0819

269

T-A0801

ASC TO #: TAO801-T ver. 00

Control #: 02578 DAI #:
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

7. NOTE LEGEND

- A. SEE SKETCH ON BACK OF THIS WORK SHEET
- B. POST CRASH SUFFIX POINT for GRAPHS
- C. SEE COMMENTS SECTION
- D. UNABLE TO MEASURE
- E. ESTIMATED
- F. MANUALLY ENTER "Z" VALUE ONLY
- G. MANUALLY ENTER "X" VALUE ONLY
- H. HOLE CENTERLINE
- I. NO "Y" VALUE REQUIRED
- J. "Y" VALUE ONLY REQUIRED
- K. PRE-CRASH SECTIONAL IS COMPLETE
- L. POST CRASH SECTIONAL IS COMPLETE
- M. MANUAL ENTRY ONLY
- N. N/A
- O. SEE AUTOMATICALLY GENERATED COMMENTS
- P. NO POST CRASH D.A. REQUIRED FOR THIS POINT
- Q. NO PRE CRASH D.A. REQUIRED FOR THIS POINT (post only)
- R. REMOVED POST CRASH
- S. NEEDS NO RESPONSE (point necessary for a system function)
- T. NEEDS TO BE ADDRESSED BUT NOT MEASURED
- U. COLLECT POINT ON PRE-CRASH IF NON FORD VEHICLE OR 40% OFFSET
- V. INPUT COORDINATES IN VECTORON & USE "DST" COMMAND FOR THIS VALUE
- W. DA TECHS. TO DELETE inappropriate DESCRIPTIONS
- X.
- Y.
- Z. MANUALLY ENTER "Z" VALUE (measured relative to ground)

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CRTS 0010631

0820

270

T-A0801

CONTROL POINTS (SIDE IMPACT TRUCK) REQUEST 405

UNIT 70 POINT 75

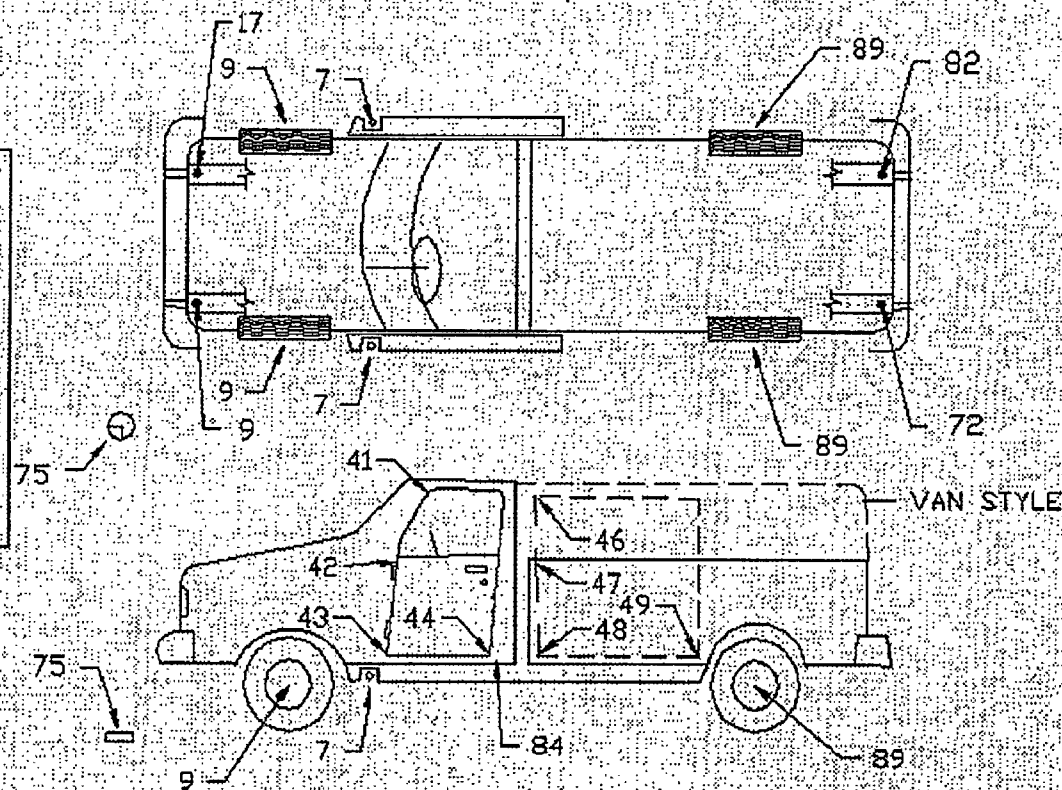
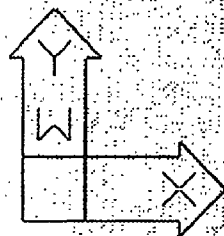
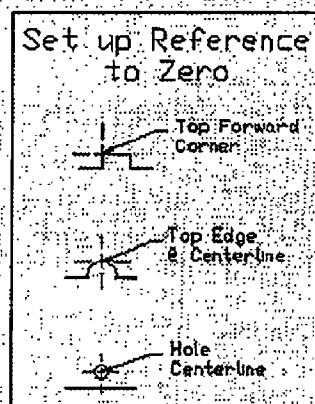
UNIT 71 POINTS 7 LEFT & RIGHT

UNIT 74 POINTS 41-44, 46-49 ON SIDE OF IMPACT

UNIT 74 POINTS 53, 54 ON SIDE OPPOSITE OF IMPACT

UNIT 411 POINTS 9,17,72,82,84

UNIT 412 POINTS 9,89 LEFT & RIGHT



REQUEST 405 UPIC 961 12/96

DBEDWEL1

CRIS 0010631

1 of 1

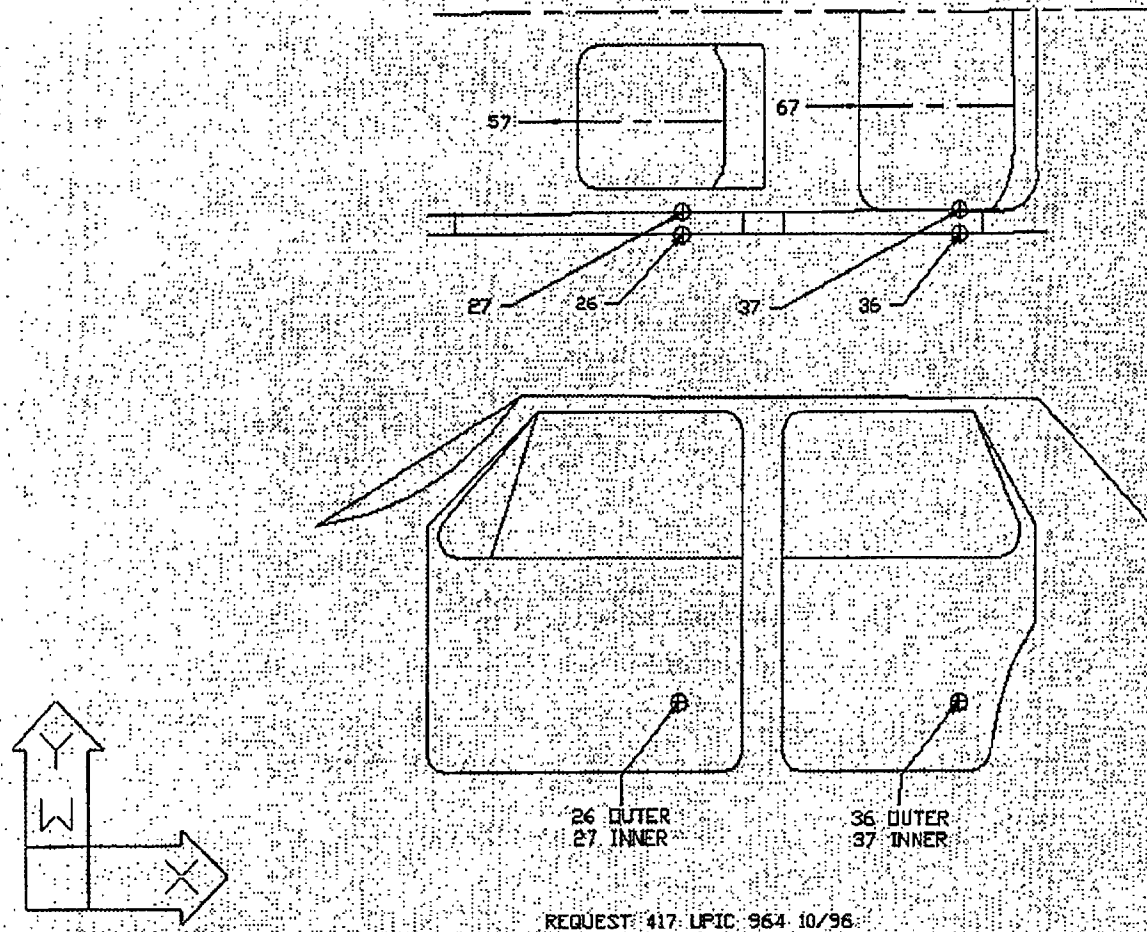
0821

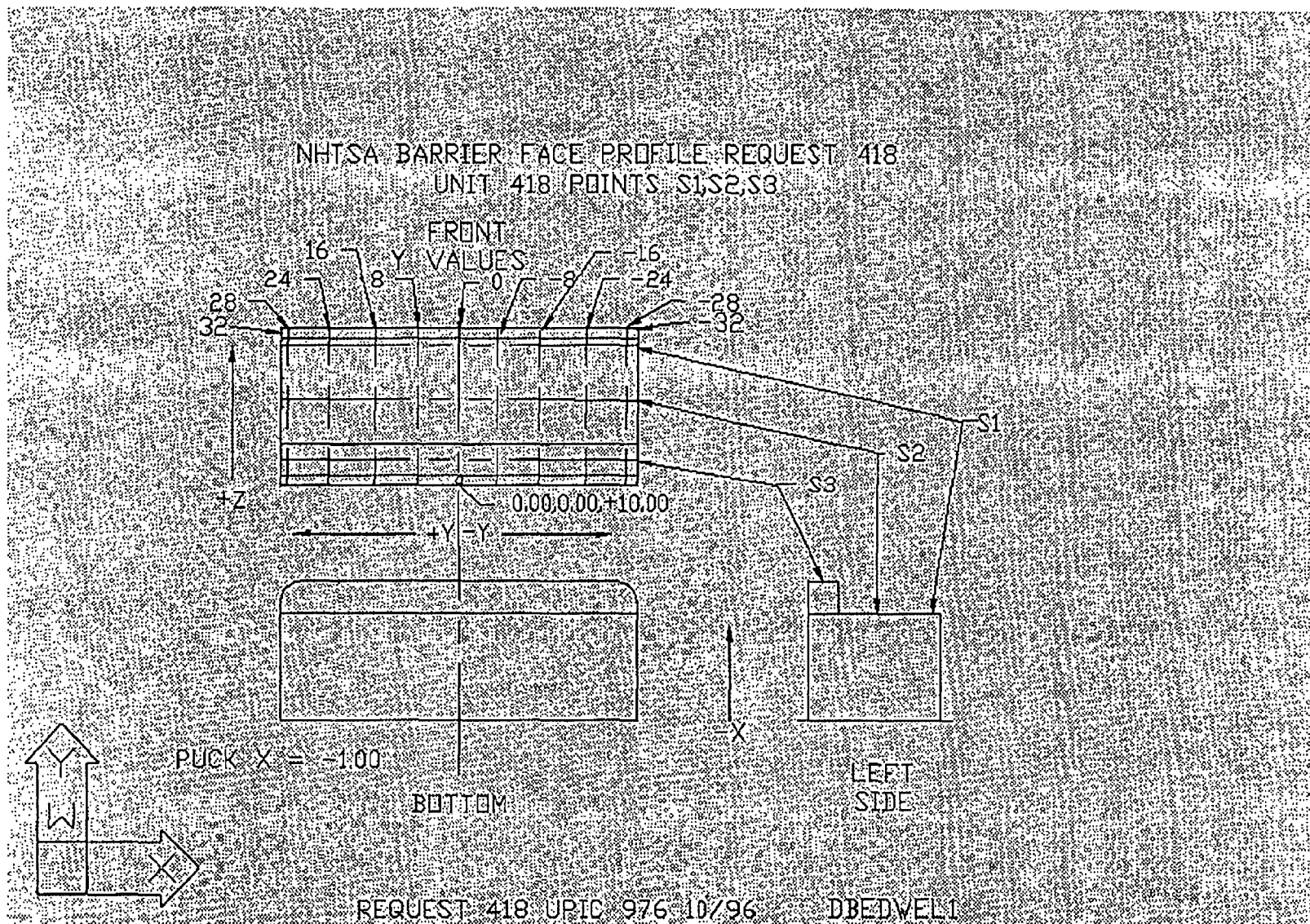
271

T-A0801

04/29/97 14:01:3

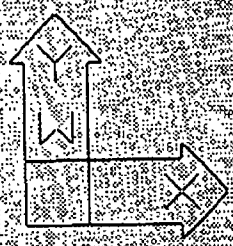
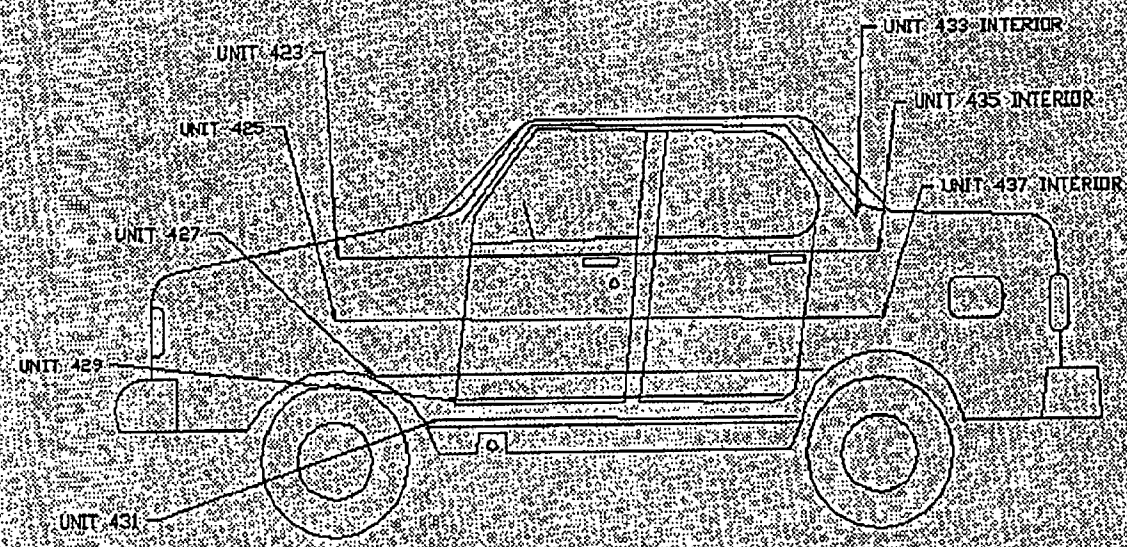
PRE-CRASH LATERAL C/L'S "H" POINTS + REQUEST 417
UNIT 411 POINTS 26,27,36,37,57,67





11 000000 000000 000000

EXTERIOR & INTERIOR HORIZ. SECTIONALS SIDE IMPACT
REQUEST 423,425,427,429,431,433,435,437



REQUEST 423,425,427,429,431,433,435,437 UPIC 977 10/96

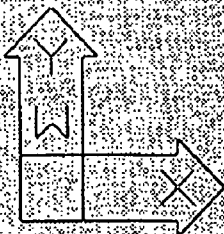
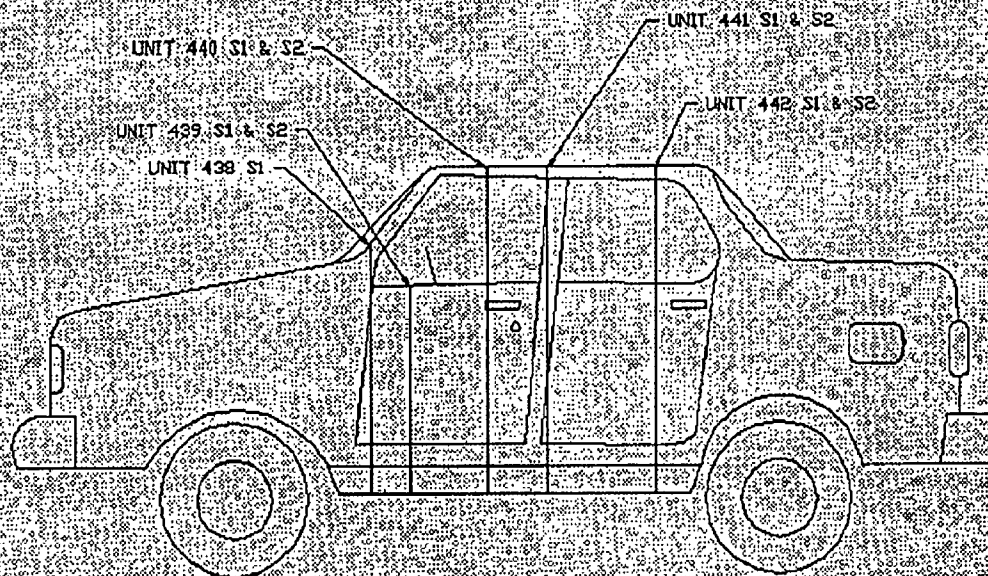
DREDWELL

CRTS 0010631

0824

275

REQUEST 438 - 442 VERT. SECTIONS SIDE IMPACT
 UNITS 438 S1, 439 - 442 S1 & S2
 S1 SECTIONS ARE EXTERIOR, S2 SECTIONS ARE INTERIOR



REQUEST 438 - 442 UPIC 979 10/96

DBEDWELL

CRTS 0010631

0825

TEST AUTHORIZATION				TEST ORDER NUMBER: TA0801 PMC					
TO: G. TOMAI CC: M. Tokarsky				REQUEST DATE: 2/4/97	REQUESTED COMPLETION DATE: 2/21 ASAP				
				REQUEST NUMBER: 16-R11-3842	PROBLEM NUMBER: n/a				
				REQUESTING ACTIVITY: Vehicle Safety & CAE Technology					
TITLE OF TEST: (speed) (test description) 1999 PN96 33.5 27 degree RH Crabbed Side Impact (11 inch clearance)				PARTS DUE DATE: n/a					
TYPE OF TEST: ☒ VEHICLE ☐ BENCH ☐ LABORATORY ☐ OTHER		VIN # or IDENTIFICATION F59244 -- 294W881 1FTDX1861VNA64120		VEHICLE MODEL & YEAR: 1999 PN96		PROD. OR ENG. LETTER: n/a			
ENGINE NO. DISPL. CARB: 5.4L V8 EFI		TRANSMISSION: E4OD		AXLE RATIO: n/a		DISPOSITION OF PARTS: n/a			
TYPE OF FUEL: Water		CONVERTER: n/a		IGNITION TIMING n/a		PROCUREMENT REQ ? ☐ YES ☒ NO			
CRANKCASE OIL AND CAPACITY (L): n/a		TIRE SIZE AND PLY RATING: P235/70R-16 OWL A-T		GOV. REGULATIONS: Yes X No		IF YES, GIVE CODE			
VEHICLE TEST WEIGHT: FRONT 3466 REAR 2644 TOTAL 6110		TIRE PRESSURE (psi): FRONT 35 REAR 35		REPORT CATEGORIES: ☒ ENGINEERING ☒ DATA ☒ RAWDATA		MAIL REPORT TO: BLDG: PMC PDC MAIL DROP: 241 158 ADDRESS:			
1. OBJECT OF TEST 2. TEST PROCEDURE 3. ITEMS TO BE TESTED (NAME, NUMBER, QUANTITY)									
1) Conduct: (speed) 33.5 (year) 1999 (vehicle) PN96 (level) SP (mode) 27 degree RH Crabbed Side Impact (11 inch clearance) 2) Velocity At Impact: 33.5 Remote Fire Time: N/A Positioning procedure: ST-15 3) Vehicle Year: 1999 Vehicle Line: PN96 Vehicle Level: SP									
Additional Contacts: (name) P. Culkeen (phone) 59-44792 (pager number) 313/660-0792 F. Naglich (phone) 33-78735 (pager number) 313/705-9943 Estimated test cost = \$30,000.00									
Test Dev. Engineer I. Jackson (phone) 39-08063 (pager number) 313/257-6835									
REQUESTING SECT. NO: T-265	WORK ORDER/ WORK TASK: R11	ISSUED/ REQUESTED BY: P. Culkeen	PHONE: 59-44792	APPROVAL: M. Tokarsky 59-42626	TEST TYPE: n/a	RISK: n/a	SIGN OFF DATE: n/a		
REQUESTER: DO NOT WRITE BELOW THIS LINE									
WORK STANDARDS NUMBER:		TEST DESCRIPTION:							
MANDATORY				OPTIONAL					
TEST ORDER NO:	CATEGORY	RESP. SECTION:	EST. COMP. DATE:	PEO	TEST ENG. INITIALS:	UNIT CODE:	TEST ORDER DATE:	USER CODE:	PROD. CODE:
PERFORMING SECTION	HOURS	MATERIAL COST	COMP. COST	PARTS DUE DATE	EST. START DATE	EST. COMP DATE	STATUS	PERCENT COMPLETE	
		\$	\$						
TOTAL		\$							

General Request Information

Test Mode

33.5 mph
27 degree RH Crabbed Side Impact (11 inch clearance)

Test Objectives: Cert (C) Verif (V) Dev (D) Audit (A) Safety Guideline (SG)

	FMVSS 204 - Steering Wheel Displacement
	FMVSS 208 - Frontal Occupant Protection
	FMVSS 212 - Wind Shield Retention
D	FMVSS 214 - Side Impact Protection
	FMVSS 219 - Windshield Zone Intrusion
	Film Analysis
	Template
	FMVSS 301 - Fuel Ssystem Integrity
	Rollover
	Pressure Check
	FMVSS 303 - NGV Fuel System Integrity
D	Sensor Development
D	Door Openability
	ECE 32 Occupant Survival Space - Rear Impact
	ECE 33 Occupant Survival Space - Frontal Impact
	ECE 34 Fuel System Integrity
	ECE 94 Step II - Frontal Offset
	ECE / M / 133 STEP II - 300mm Barrier Side Impact

Primary Test Vehicle Information

Use (Target/Bullet):	Target
Model Year:	1999
Vehicle Program:	PN96
Vehicle Name:	F-150
Body Style:	S/L S/S (4X4)
Build Number:	F59244
Tag Number:	294W881
VIN Number:	1FTDX1861VNA64120
Fuel System Rated Capacity:	30
Prototype Level:	SP
Drive Side:	Left Hand Drive

<<< <<< END OF SHEET >>> >>>

General Specifications Secondary Vehicle or Cart

Hardware (Vehicle or Cart)

Use (Target/Bullet):	Bullet
Type (Vehicle/Cart):	NHTSA Side (Crab Cart)
Model Year:	
Vehicle Line:	
Model:	
Tag Number:	
VIN Number:	
Prototype Level:	
Drive Side:	Other

Occupants

	Occupant 1	Occupant 2
Type	~~Other~~	~~Other~~
In-Vehicle Location	~~RE~~	~~RE~~
Verify: Seat Position Long	~~Mid-Track~~	~~Mid-Track~~
Seat Position Vert	~~Full Down~~	~~As Delivered~~
Seat Back Angle	~~21 Degree~~	~~21 Degree~~
Occupant Belted	*	*

Handwritten notes:
 Occupant 1: *25g*, *N/A 2/26/97*
 Occupant 2: *25g*, *N/A 2/26/97*

Target Conditions

Weight	Target	Acceptable Variance (+)	Acceptable Variance (-)
Front		13 lbs	0 lbs
Rear		13 lbs	0 lbs
Total	#VALUE!	25 lbs	0 lbs

Ride Height @ Test Weight	Measured
Front: 	From:
Rear: 	To:

Special Instructions

Special Prep/Build Instructions Primary Vehicle

Special Build Instructions

☐ Remove Side View Mirrors
☐ Remove Headrests
☐ Remove Hood
☐ Remove Arm rest
☐ Remove Bottom of Bumper Cover
☐ Cut Off Brake & Clutch Pedal
☐ Color Contrast Under Hood Components

Other, Specify:

☐
☐

Pryo Restraints Usage

☐ Left Front Air Bag
☐ Right Front Air Bag
☐ Left Side Air Bag
☐ Right Side Air Bag
☐ Left Pyro Retractor
☐ Left Pyro Buckle
☐ Right Pyro Retractor
☐ Right Pyro Buckle

Other, Specify:

☐
☐

PMU N/A Remote Fire Time:
JFK (No fire time listed if sensor fired OR if no pyro restraints are used)

Special Pre-Test Preparation

Other, Specify:

☐
☐

<<< <<< END OF SHEET >>> >>>

Occupant / ATD Request Primary Vehicle

	Occupant 1	Occupant 2
Type	<u>SID</u>	<u>SID</u>
Instrumentation Level*	<u>Development</u>	<u>Development</u>
In-Vehicle Location	<u>RF</u>	<u>RR</u>
Verify: Seat Position Long	<u>mid track travel</u>	<u>mid track travel</u>
Seat Position Vert	<u>full down</u>	<u>as delivered</u>
Seat Back Angle	<u>21.0 degrees</u>	<u>21.0 degrees</u>
Positioning Procedure	<u>ST-15</u>	<u>ST-15</u>
Use Foot Rest	<u></u>	<u></u>
Take Seat Track Video	<u>X</u>	<u>X</u>
Special Positioning Instructions		
 Dummy Adjustment (arm angle)	<u></u>	<u></u>
Occupant Belted	<u>YES</u>	<u>YES</u>

*See Instrumentation request for detailed instrumentation information.

<<< <<< END OF SHEET >>> >>>

Dimensional Analysis Request Primary Vehicle

Side Impacts

	404	Control Points (CAR)	Exterior
X	405	Control Points (TRUCK)	Exterior
X	409	Body Targets & Orientation Points (Wheel Lips)	Exterior
X	411	A.B.C. Pillars	Interior
X	417	Pre-Crash Lateral Seat CL's, H-Pts, etc	Exterior/Interior
X	418	NHTSA Barrier face Profiles (Mid-Bumper; Mid-Stack; Top of Barrier)	Exterior
	419	European Barrier face Profiles (Mid-Bumper; Mid-Stack; Top of Barrier)	Exterior
X	421	Roof line exterior section	Exterior
X	423	Beltline exterior section (1st 50mm Body line below glass/weather strip)	Exterior
X	425	Mid-line exterior section (plan view @ 800 mm Body line)	Exterior
X	427	Character line exterior section (plan view @ 600 mm Body line)	Exterior
X	429	Bottom of door exterior section	Exterior
X	431	Rocker line exterior section (1st 10 mm Body line below door opening)	Exterior
X	433	Roof line interior section	Interior
X	435	Beltline interior section	Interior
X	437	Hip line interior section	Interior
X	438	Hinge Pillar exterior section (1st 50mm Body line forward of Hinge plane)	Exterior
X	439	2500 mm Body line interior and exterior sections	Exterior/Interior
X	440	Front H-Point Mid -Seat Location interior and exterior sections (per package)	Exterior/Interior
X	441	B-Pillar interior and exterior sections (1st 50mm Body line rearward of striker pl	Exterior/Interior
X	442	Rear H-Point Location interior and exterior sections (per package)	Exterior/Interior
		0	
		0	

<<< <<< END OF SHEET >>> >>>

Film Analysis & Photographic Services Request

Side Impact Film Analysis

☒ Impact Speed
☒ Impact Angle
☒ Dummy Head wrt Vehicle Lateral
☒ Dummy Head wrt Vehicle Vertical
☒ Dummy Head wrt Vehicle Resultant
☒ Cart wrt Vehicle Impact Point
☒ Dummy Chest wrt Vehicle
☒ Cart wrt Vehicle Intrusion (overhead)
☐ Vehicle wrt Pole Intrusion (overhead)
☐ Dummy Head wrt Pole

Other, Specify:

Still Photography

____ Copies of Still Photo Proof Sheets Required
____ Copies of Still Photos (4X5) Required
____ Pre Test Documentation Photographs
____ Post Test Documentation Photographs

High Speed Photographic Requirements

☐ 2 Copies of High Speed Film Required
☐ 1 Copies of High Speed Film Required in VHS Format
____ Digitization of Driver/ Passenger Kinematics
____ Format

High Speed Cameras for Side Impact

On-Board Vehicle

☒ Front Dummy from Vehicle Hood
☒ Front Dummy from Opposite Window Opening
☒ Rear Dummy from Opposite Window Opening
☒ Rear Dummy from Vehicle Trunk
☒ View of Front Seat to Show Dummy Interaction with Trim from Front (Fiber Optic)
____ View of Front Seat to Show Dummy Interaction with Trim from Rear

Secondary Vehicle Coverage

 X ON BOARD CART, Cart Centerline - View of Impact

Floor Coverage

 X Full Left View of Impact
 X Full Right View of Impact
 X Front 3/4 View of Impact
 X Rear 3/4 View of Impact
 X View of Cart for Velocity determination

Pit Coverage

 X Cart contact - view of impacted side of vehicle with cart contact
 X Cart contact - overlap view of impacted side of vehicle with cart contact

Overhead Coverage

 X Overall view of impacted vehicle side including cart
 X view of impacted vehicle side focus on front door opening area

All Other High Speed Photography

<<< <<< END OF SHEET >>> >>>

Instrumentation and Data Processing Request

Primary Vehicle Structural Instrumentation - Side Impact

ACCELEROMETERS:

	Long	Vert	Lat
___ L/ A-PILLAR_INSIDE @_ ROCKER	___	___	___
___ L/ A-PILLAR_INSIDE @_ HINGE	___	___	___
___ R/ A-PILLAR_INSIDE @_ HINGE	___	___	___
___ L/ F_DOOR @_ BELTLINE_MID	___	___	___
___ L/ F_DOOR_OVER_ARMREST	___	___	___
___ L/ F_DOOR_REAR_OF_SEAT_H-PT	___	___	___
___ L/ F_DOOR_SPEAKER_HOLE	___	___	___
___ L/ B-PILLAR_INSIDE @_ ROOF	___	___	___
___ L/ B-PILLAR_INSIDE @_ BELTLINE	___	___	___
___ L/ B-PILLAR_INSIDE @_ ROCKER	___	___	___
___ L/ R_DOOR @_ BELTLINE_MID	___	___	___
___ L/ R_DOOR_OVER_ARMREST	___	___	___
___ L/ ROCKER @_ FRONT_SEAT_MID	___	___	___
___ L/ ROCKER @_ REAR_SEAT_MID	___	___	___
___ R/ ROCKER @_ FRONT_SEAT_MID	___	___	___
___ R/ ROCKER @_ REAR_SEAT_MID	___	___	___
___ FRONT_FLOOR_PAN @_ C/L	___	___	___
___ FLOOR_XMBR @_ L/F_SEAT_C/L	___	___	___
___ FLOOR_XMBR @_ R/F_SEAT_C/L	___	___	___
___ C/L_TUNNEL @_ FRONT_SEAT	___	___	___
___ REAR_FLOOR_PAN_ABOVE_AXLE	___	___	___

OTHER STRUCTURAL ACCELS:

	Long	Vert	Lat
~~Delete PNC~~ ~~2/24~~ ~~X R/ A-PILLAR_INSIDE_LOWER~~	___	___	~~X~~
~~X R/ F_DOOR @_ BELTLINE_MID~~	___	___	~~X~~
~~X R/ F_DOOR_OVER_ARMREST~~	___	___	~~X~~
~~X R/ F_DOOR_REAR_OF_SEAT_H-PT~~	___	___	~~X~~
~~X R/ F_DOOR_SPEAKER_HOLE~~	___	___	~~X~~
~~X R/ B-PILLAR_INSIDE_UPPER~~	___	___	~~X~~
~~X R/ B-PILLAR_INSIDE_LOWER~~	___	___	~~X~~
~~PNC 2/24~~ ~~Delete~~ ~~X R/ ROCKER @_ FRONT_SEAT_MID~~	___	___	~~X~~
~~X R/ B-PILLAR_INSIDE_LOWER~~	___	___	~~X~~
~~X R/ F_DOOR @_ C/L_HEAD~~	___	___	~~X~~
~~X R/ F_ROOF_RAIL @_ C/L_HEAD~~	___	___	~~X~~
~~X R/ R_ROOF_RAIL @_ C/L_HEAD~~	___	___	~~X~~
~~X R/ FRT_SEAT_CUSHION @_ C/L~~	___	___	~~X~~
~~X R/ FLOOR_UNDER_F_SEAT~~	___	___	~~X~~
~~X R/ ROCKER @_ A-PLR~~	___	~~X~~	~~X~~
~~X R/ ROCKER @_ B-PLR~~	___	~~X~~	~~X~~
~~X R/ ROCKER @_ C-PLR~~	___	~~X~~	~~X~~
~~X R/ FRAME @_ A-PLR~~	~~X~~	~~X~~	~~X~~
~~X R/ FRAME @_ B-PLR~~	~~X~~	~~X~~	~~X~~
~~X R/ FRAME @_ C-PLR~~	~~X~~	~~X~~	~~X~~
~~X P/U_BOX_FLOOR @_ R/ F_BOLT~~	~~X~~	~~X~~	~~X~~
~~X P/U_BOX_FLOOR @_ R/ R_BOLT~~	~~X~~	~~X~~	~~X~~
~~X R/ FRAME @_ F/P/U_BOX_BOLT~~	~~X~~	~~X~~	~~X~~
~~X R/ R_DOOR @_ BELTLINE_MID~~	___	___	~~X~~
~~X R/ R_DOOR_OVER_ARMREST~~	___	___	~~X~~

	Long	Vert	Lat
PMC { R/_ ROCKER _ @ H-PT			X
9/24 { R/_ F. DOOR _ @ _ SHOULDER			X
ENG/TRANS TOP	X	X	X
ENG/TRANS BOTTOM	X	X	X

Secondary Vehicle Structural Instrumentation

ACCELS:

		Long	Vert	Lat
<u>X</u>	MDB_CENTER_OF_GRAVITY	<u>X</u>	<u>X</u>	<u>X</u>
<u>X</u>	MDB_LEFT_FRAME_RAIL	<u>X</u>	<u>X</u>	<u>X</u>
<u>X</u>	MDB_RIGHT_FRAME_RAIL	<u>X</u>	<u>X</u>	<u>X</u>
<u>X</u>	MDB_REAR_HONEYCOMB @_ C-L	<u>X</u>	<u>X</u>	<u>X</u>
<u>X</u>	MDB BUMPER_FACE @_ C-L	<u>X</u>	<u>X</u>	<u>X</u>
<u>X</u>	MDB BUMPER_FACE @_ L-S	<u>X</u>	<u>X</u>	<u>X</u>
<u>X</u>	MDB BUMPER_FACE @_ R-S	<u>X</u>	<u>X</u>	<u>X</u>

	Long	Vert	Lat
<u>Left Rocker Panel at "A" Pillar</u>	<u> </u>	<u> </u>	<u> </u>
<u>Right Rocker Panel at "A" Pillar</u>	<u> </u>	<u> </u>	<u> </u>
<u>Left Rocker Panel at "B" Pillar</u>	<u> </u>	<u> </u>	<u> </u>
<u>Right Rocker Panel at "B" Pillar</u>	<u> </u>	<u> </u>	<u> </u>

OTHER SECONDARY VEHICLE ACCELS:

	Long	Vert	Lat
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

Primary Vehicle Systems Instrumentation

SENSOR ACCELS:

 X SEE SENSOR MAP

Long

 X

Vert

 X

Lat

 X

FUEL SYSTEM:

 X Inertia Fuel System Cut-Off Switch

ANGULAR MOTION SENSORS

VEHICLE STRING POTS

OTHER VEHICLE SYSTEM INSTRUMENTATION

Requestor/Originator: P. Cu'keen
Printed: 2/21/97 Facility: Barrier
Destroy Prev. Copies

Request #: 16-R11-3842
Instrumentation Attachment
Page 5 of 9

Auto TA
Ver: 2.0ad Issued: Sept 13, 1996
Authors: Olsen/Ng/Pingston/Oda

CRTS 0010631

0838

Requestor/Originator: P. Culkeen
Printed: 2/21/97 Facility: Barrier
Destroy Prev. Copies

Request #: 16-R11-3842
Instrumentation Attachment
Page 6 of 9

Auto TA
Ver: 2.0ad Issued: Sept 13, 1996
Authors: Olsen/Ng/Pangston/Oda

CRTS 0010631

0839

Dummy Instrumentation - Internal

SID

R/F PMC

2/21

ACCELS: PMC 2/21

X R/F DUMMY_HEAD_C.G.
X R/F DUMMY_T1
X R/F DUMMY_T1/
X R/F DUMMY_T12
X R/F DUMMY_T12/
X R/F DUMMY_PELVIS
X R/F DUMMY_PELVIS/
X R/F DUMMY_THORAX/RIB/UP/
R/F DUMMY_THORAX/RIB/C/
X R/F DUMMY_THORAX/RIB/LO/

X Long X Vert X Lat
X Long X Vert NA 259 2/25/97
X Lat - L Lat - R
X Long X Vert NA 259 2/25/97
X Lat - FRT Lat - REAR
X Long X Vert
X Lat - L X Lat - REAR
X Lat - FRT X Lat - REAR
Lat - FRT Lat - REAR
X Lat - FRT X Lat - REAR

LOAD CELLS:

___ L/F DUMMY ABDOMEN_LOAD_FRONT (EURO)
___ L/F DUMMY ABDOMEN_LOAD_MID (EURO)
___ L/F DUMMY ABDOMEN_LOAD_REAR (EURO)
___ L/F DUMMY THORACIC_SPINE_LOAD
___ L/F DUMMY THORACIC_SPINE_LOAD
___ L/F DUMMY LUMBAR_SPINE_LOAD
___ L/F DUMMY LUMBAR_SPINE_LOAD
___ L/F DUMMY PUBIC_LOAD (EURO)

___ Fy
___ Fy
___ Fy
___ Fx ___ Fy ___ Fz
___ Mx ___ My
___ Fx ___ Fy ___ Fz
___ Mx ___ My
___ Fy

POTENTIOMETERS: PMC 2/21

X R/F DUMMY_CHEST_DEFLECTION (SID)
___ L/F DUMMY_THORAX/RIB/UP/DISP (EURO)
___ L/F DUMMY_THORAX/RIB/C/DISP (EURO)
___ L/F DUMMY_THORAX/RIB/LO/DISP (EURO)

X Disp
___ Disp
___ Disp
___ Disp

OTHER INTERNAL DUMMY INSTRUMENTATION:

Dummy Instrumentation - External

CONTACT SWITCHES: PMC 2/21

X R/F DUMMY_HEAD_SW
___ L/F DUMMY_ARM_SW
X R/F DUMMY_THORAX_SW
X R/F DUMMY ABDOMEN_SW
X R/F DUMMY_H-POINT_SW
X R/F DUMMY_THIGH_SW

OTHER EXTERNAL DUMMY INSTRUMENTATION:

SID

R E/R

Dummy Instrumentation - Internal

ACCELS: PMC 2/21

☒ R/LR DUMMY_HEAD_C.G.
☒ R/LR DUMMY_T1
☒ R/LR DUMMY_T1/
☒ R/LR DUMMY_T12
☒ R/LR DUMMY_T12/
☒ R/LR DUMMY_PELVIS
☒ R/LR DUMMY_PELVIS/
☒ R/LR DUMMY_THORAX/RIB/UP/
☒ R/LR DUMMY_THORAX/RIB/C/
☒ R/LR DUMMY_THORAX/RIB/LO/

☒ Long ☒ Vert ☒ Lat
☒ Long ☒ Vert ☒ Lat - R
☒ Lat - L ☒ Lat - REAR
☒ Long ☒ Vert ☒ Lat - REAR
☒ Lat - FRT ☒ Lat - REAR
☒ Long ☒ Vert ☒ Lat - REAR
☒ Lat - L ☒ Lat - REAR
☒ Lat - FRT ☒ Lat - REAR
☒ Lat - FRT ☒ Lat - REAR
☒ Lat - FRT ☒ Lat - REAR

N/A 259 2/25/97

N/A 259 2/25/97

LOAD CELLS:

☐ L/R DUMMY ABDOMEN_LOAD_FRONT (EURO)
☐ L/R DUMMY ABDOMEN_LOAD_MID (EURO)
☐ L/R DUMMY ABDOMEN_LOAD_REAR (EURO)
☐ L/R DUMMY_THORACIC_SPINE_LOAD
☐ L/R DUMMY_THORACIC_SPINE_LOAD
☐ L/R DUMMY_LUMBAR_SPINE_LOAD
☐ L/R DUMMY_LUMBAR_SPINE_LOAD
☐ L/R DUMMY_PUBIC_LOAD (EURO)

☐ Fy
☐ Fy
☐ Fy
☐ Fx ☐ Fy ☐ Fz
☐ Mx ☐ My
☐ Fx ☐ Fy ☐ Fz
☐ Mx ☐ My
☐ Fy

POTENTIOMETERS: PMC 2/21

☒ R/LR DUMMY_CHEST_DEFLECTION (SID)
☐ L/R DUMMY_THORAX/RIB/UP/DISP (EURO)
☐ L/R DUMMY_THORAX/RIB/C/DISP (EURO)
☐ L/R DUMMY_THORAX/RIB/LO/DISP (EURO)

☒ Disp
☐ Disp
☐ Disp
☐ Disp

OTHER INTERNAL DUMMY INSTRUMENTATION:

☐
☐

Dummy Instrumentation - External

CONTACT SWITCHES: PMC 2/21

☒ R/LR DUMMY_HEAD_SW
☐ L/R DUMMY_ARM_SW
☒ R/LR DUMMY_THORAX_SW
☒ R/LR DUMMY ABDOMEN_SW
☒ R/LR DUMMY_H-POINT_SW
☒ R/LR DUMMY_THIGH_SW

OTHER EXTERNAL DUMMY INSTRUMENTATION:

☐
☐

CRTS 0010631

0841

<<< <<< END OF SHEET >>> >>>

Requestor/Originator: P. Culkean
Printed: 2/21/97 Facility: Barrier
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Request #: 16-R11-3842
Instrumentation Attachment
Page 9 of 9

Auto TA
Ver: 2.0ad Issued: Sept 13, 1996
Authors: Olsen/Ng/Pingston/Oda

CRTS 0010631

0842

Barrier Load Cell

00000	02000	04000		06000		08000		10000		12000	14000
00020	02020	04020	05020	06020	07020	08020	09020	10020	11020	12020	14020
00030	02030	04030	05030	06030	07030	08030	09030	10030	11030	12030	14030
00040	02040	04040	05040	06040	07040	08040	09040	10040	11040	12040	14040
		04050						10050	11050		

Notes:

Blank indicates cell not required

"L" indicates data required in longitudinal direction only

"T" indicates data required on all three axes

<<< <<< END OF SHEET >>> >>>

0843

CRTS 0010631

Requestor/Originator: P. Culkeen
 Printed: 2/21/97 Facility: Barrier
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Request #: 18-R11-3842
 Barrier Load Cell Attachment
 Page 1 of 1

Auto TA
 Ver: 2.0ad Issued: Sept 13, 1996
 Authors: Olsen/Ng/Pingston/Oda

Test Conditions - Final Prep

T.O. #: TA0801

Final Prep Contacts

ONE of these MUST be present during weigh-up & final prep

	Test Engineer	Request Engineer	Build Coordinator
Name:	<u>I. Jackson</u>	<u>P. Culkeen</u>	<u>F. Naglich</u>
Phone:	<u>39-08063</u>	<u>59-44792</u>	<u>33-78735</u>
Pager:	<u>313/257-6835</u>	<u>313/660-0792</u>	<u>313/705-9943</u>

Tire Pressure

Front: 35. psi

Rear: 35. psi

Fuel System

Fuel Tank & System to Contain: Water

<u>28.5 gallons</u>	=	<u>95%</u>	x	<u>30.0 gallons</u>
<u>Fill Level</u>	=	<u>%</u>	x	<u>Capacity</u>

Weight Targets

If required weight distribution is UNACHIEVABLE, please note allowable variances.

	Curb Weight	Requested Test Weight	Acceptable Test Weight Variance		Actual Test Weight
			High (+)	Low (-)	
Front:	<u>3,254 lbs</u>	<u>3,466 lbs</u>	Front: <u>13 lbs</u>	0 lbs	Front: <u>3489</u>
Rear:	<u>2,216 lbs</u>	<u>2,644 lbs</u>	Rear: <u>13 lbs</u>	0 lbs	Rear: <u>2633</u>
Total:	<u>5,470 lbs</u>	<u>6,110 lbs</u>	Total: <u>25 lbs</u>	0 lbs	Total: <u>6122 (12)</u>

Rated Luggage Load: 300 lbs

Simulate/Verify at Weigh-Up

Dummy Weight

On Board Camera Count

Weight Addition (Restrictions)

Do NOT place any weight in the following locations:

☐ Air Cleaner	☐ Engine	☐ Doors
☐ Battery	☐ Fan Box/Shroud	☐ Foot Wells - Front
☐ Bottle - Coolant	☐ Headlamp Opngs	☐ Foot Wells - Rear
☐ Bottle - Washer	☐ Radiator	☐ Quarter Panels
Other: _____		☐ Trunk Floor

Ride Heights

Measure @ Test Weight

Front: N/A

Rear: N/A

Measure

From: N/A

To: N/A

Additional Remarks

No more than 50lbs of shot in the engine.

<<< <<< END OF SHEET >>> >>>

SENSOR MAP

IL-XL1F-012005-SM

Program: PN96
Vehicle ID: F59244
Build Level: 1999 SP
Test Mode: SIDE IMPACT RHS

Instructions: 1.) Delete sensors that don't apply, 2)
Enter serial numbers in far right column, 3) Deliver
Sensor map and sensors to Crash Test Engineer

ACD Engr: Eric Kesler (810) 807-1152
Siemens Engr: Vicki Davis (810) 312-7916
Breed Engr: Matt Villemure (800) 553-0625
Takata Engr: Jeff Bennett (810) 361-1166

For exact sensor locations, see XL1F-012005-SM Revision C
Available from Crash Test Engineer Pat Culkeen or Paul Culbertson

ID	Location Name	Type	Output	Nominal (+/-)	Max/Min	Serial No.	Rev
5	L/RAD UP FRT BRKT	Accel	Triax				
6	C/RAD UP REAR BRKT	Accel	Triax				
7	R/RAD UP FRT BRKT	Accel	Tnax				
8	L/GOR BRKT LWR BRKT	Accel	Tnax				
9	R/GOR BRKT LWR BRKT	Accel	Triax				
12	C/RAD LWR FRT BRKT	Accel	Triax				
13	L/GOR BRKT UPR BRKT	Accel	Triax				
14	R/GOR BRKT UPR BRKT	Accel	Triax				
15	UND L/F SEAT BTWN L/BOLTS BRKT	Accel	Triax				
16	UND R/F SEAT BTWN R/BOLTS BRKT	Accel	Tnax				
17	UND L/F SEAT @ L/F BOLT BRKT	Accel	Triax				
18	UND L/F SEAT @ L/R BOLT BRKT	Accel	Triax				
19	UND R/F SEAT @ R/F BOLT BRKT	Accel	Triax				
20	UND R/F SEAT @ R/R BOLT BRKT	Accel	Tnax				
21	C/L TNL BETWEEN F/SEATS BRKT	Accel	Triax				
22	C/L TNL @ DASH ACD1	ACD RCM INT2	volts	2.0(0.6)	5	RCM-INT2-136	
22a	C/L TNL @ DASH ACD2	ACD RCM INT2	volts	2.0(0.6)	5	"	
22b	C/L TNL @ DASH ACD3	ACD RCM INT2	volts	2.5(0.6)	5	"	
22c	C/L TNL @ DASH ACD4	ACD RCM INT2	volts	2.5(0.6)	5	"	
22d	C/L TNL @ DASH ACD5	ACD RCM INT2	volts	2.0(0.6)	5	"	
22e	C/L TNL @ DASH ACD6	ACD RCM INT2	volts	2.0(0.6)	5	"	
22f	C/L TNL @ DASH ACD7	ACD RCM INT2	volts	3.3(0.6)	5	"	
22g	C/L TNL @ DASH ACD8	ACD RCM INT2	volts	5.0(0.6)	5	"	
23	R/A-PLR IN ABOVE HINGE ACD1	ACD RCM INT2	volts	2.0(0.6)	5	RCM-INT2-153	
23a	R/A-PLR IN ABOVE HINGE ACD2	ACD RCM INT2	volts	2.0(0.6)	5	"	
23b	R/A-PLR IN ABOVE HINGE ACD3	ACD RCM INT2	volts	2.5(0.6)	5	"	
23c	R/A-PLR IN ABOVE HINGE ACD4	ACD RCM INT2	volts	2.5(0.6)	5	"	
23d	R/A-PLR IN ABOVE HINGE ACD5	ACD RCM INT2	volts	2.0(0.6)	5	"	
23e	R/A-PLR IN ABOVE HINGE ACD6	ACD RCM INT2	volts	2.0(0.6)	5	"	
23f	R/A-PLR IN ABOVE HINGE ACD7	ACD RCM INT2	volts	3.3(0.6)	5	"	
23g	R/A-PLR IN ABOVE HINGE ACD8	ACD RCM INT2	volts	5.0(0.6)	5	"	
24	C/L TNL @ DASH SENSOR	Accel	Tnax				
25	R/A-PLR IN ABOVE HINGE SENSOR	Accel	Triax				
26	C/L TNL @ DASH BRKT	Accel	Triax				
27	R/A-PLR REINF ABOVE HINGE BRKT	Accel	Triax				
28	L/A-PLR REINF ABOVE HINGE BRKT	Accel	Triax				
29	C/L TNL @ DASH TAKATA1	Takata ECS	volts	1.18	10	A2	C
29a	C/L TNL @ DASH TAKATA2	Takata ECS	volts	1.18	10	"	C
30	C/L TNL @ DASH BREED	Breed ECS	volts	5.0(0.6)	5	FRD-366-305	

Eric Kesler x36541
Ford ACD

Filename: F59244.XLS

Side Impact Barrier Test Data Sheet

T.O. TA0801

Crash Number 10631 Test Date 3/17/97 MDB Tire Pressure
 Impact Velocity 33.5 MPH Barrier Lot # _____

Vehicle Weight
 LF RF
 LR RR
 Total

Occupant/Vehicle Data

	Front	Rear
Dummy Serial Number	161	162
Seatback Angle - Barrier Measurement/(DA)	21.6	
Dummy to Interior/door H-point (+/- 0.5 inch required)		
Above/Forward (+) Below/Rearward (-)	Vertical -0.2 Longitudinal -1.3	Vertical .8 Longitudinal .3
1. H-Point to Door Striker	Vertical -1.2 Longitudinal 14.1	Vertical 15.9 Longitudinal 12.5
2. H-Point to Ground (vertical)	36.3	37.9
3. Pelvic Angle		
4. Nose to Upper Steering/ Headrest (shortest)	27.8	14.1
5. Abdomen to lower steering/seatback (horizontal)	19.6	14.7
6. Pelvis centerline to Vehicle centerline (lateral)	18.2	18.4
7. Chest centerline to Vehicle centerline (lateral)	18.1	18.2
Seat centerline to Vehicle centerline (lateral) (DA)	18.2	18.2
8. Chest to Beltline (lateral, shortest)	4.7	4.2
9. Pelvis to H-Point (lateral)	6.4	8.1
10. Pelvis to nearest inboard hard point (lateral)	N/A	
Left Wheel lip height (vertical to ground)		
Right Wheel lip height (vertical to ground)		
11. Vehicle centerline to barrier face (lateral)	42.5	
12. Barrier Top to Ground @ Pullback (Vertical)		
Impact Mark relative to Target	+ above/fwd - below/rear	

