

THE STATE OF SOUTH CAROLINA
In the Court of Appeals

APPEAL FROM BAMBERG COUNTY
Court Of Common Pleas

The Honorable Doyet A. Early III, Circuit Court Judge

Case No: 2008-CP-05-235

MAR 29 2013

SC Court of Appeals

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

v.

Ford Motor Company Appellant.

RECORD ON APPEAL – VOLUME II

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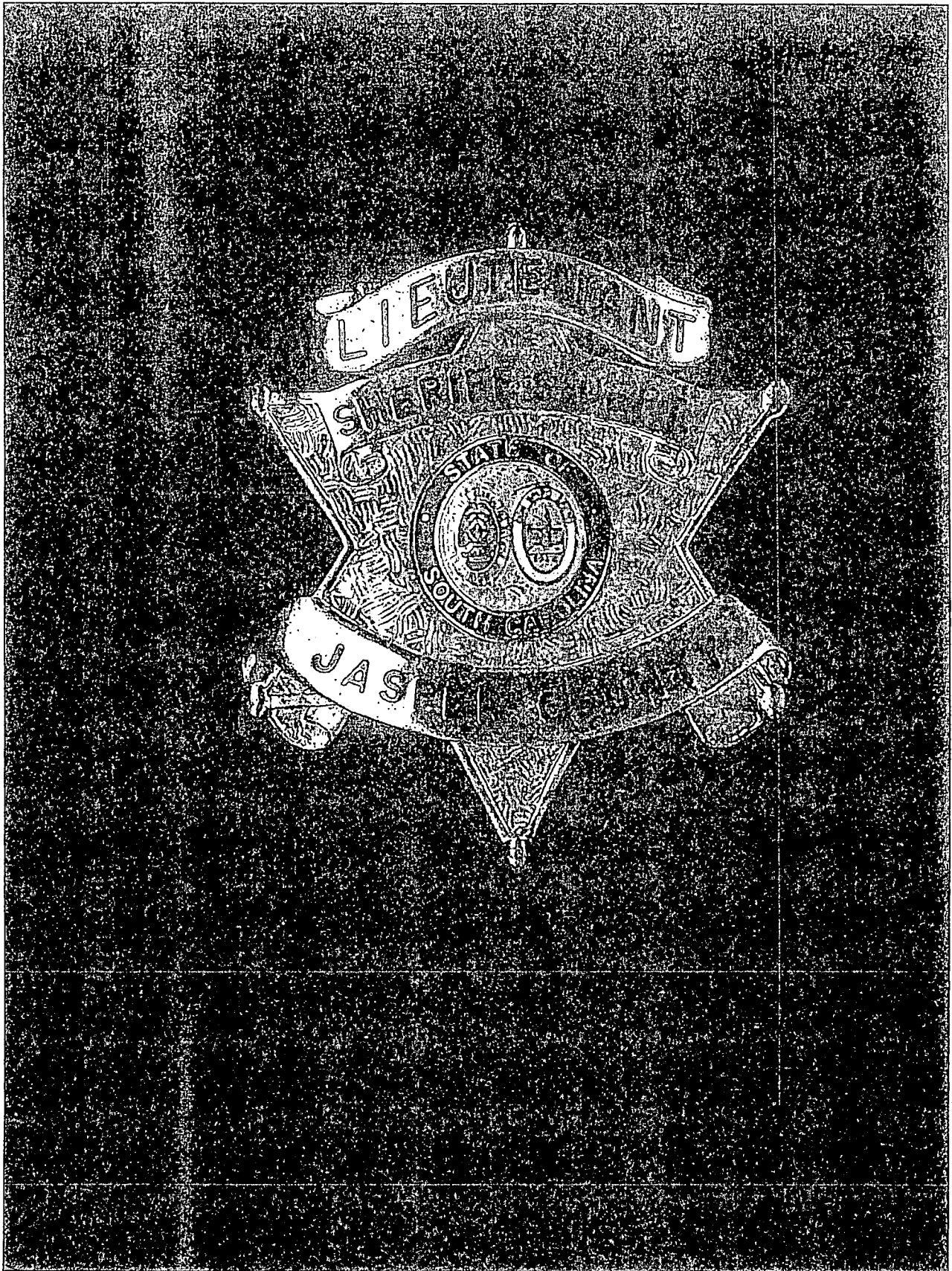
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JASPER COUNTY SHERIFF

Whose signature and photograph appears hereon as Deputy Sheriff and member of the Jasper County Sheriff's Department, and is authorized to enforce the laws of the State of South Carolina.

[Signature]

BEN RILEY

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 4th

day of January

in the year of our Lord 2005



Sheriff



[Signature]

Governor

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
whosoever 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]

Benjamin Riley
Sheriff

Governor

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

DEACON

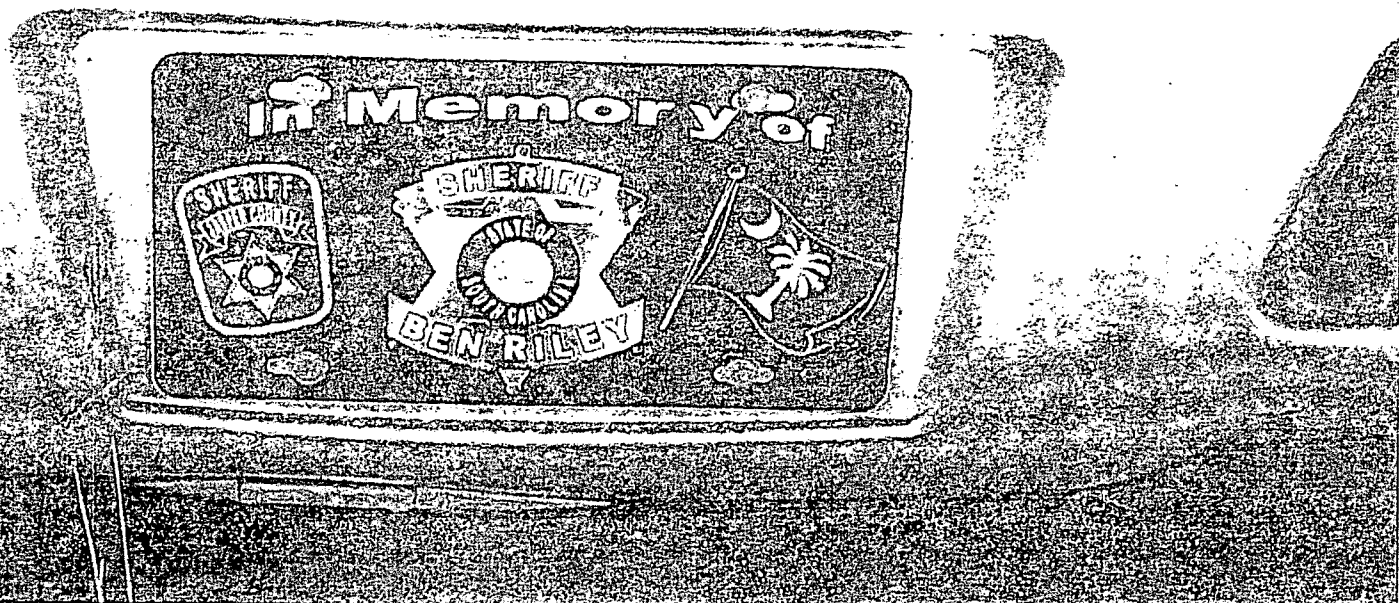
by The St. Paul Baptist Church
at Cambridge, South Carolina
on the 4th Sunday day of November, 1975

Samuel Riley
Clerk

Rev. Harry Alberger
Pastor



0490





US005431462A

United States Patent [19]

Lignell

[11] Patent Number: 5,431,462

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

[54] SECURE DOOR LATCH FOR A VEHICLE

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[73] Assignee: Ford Motor Company, Dearborn, Mich.

[21] Appl. No.: 254,859

[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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Primary Examiner—Peter M. Cuomo

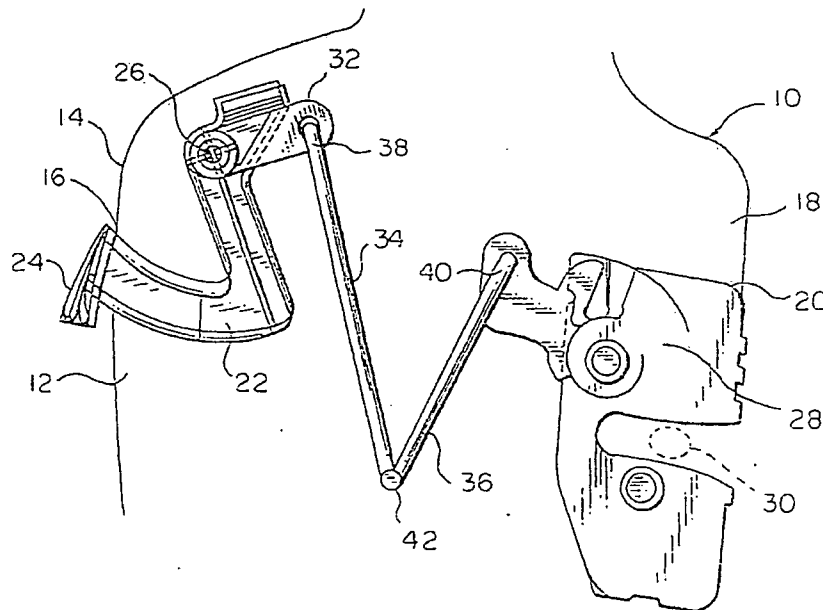
Assistant Examiner—Monica E. Millner

Attorney, Agent, or Firm—Daniel M. Stock, Roger L. May

[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



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FIG. 1

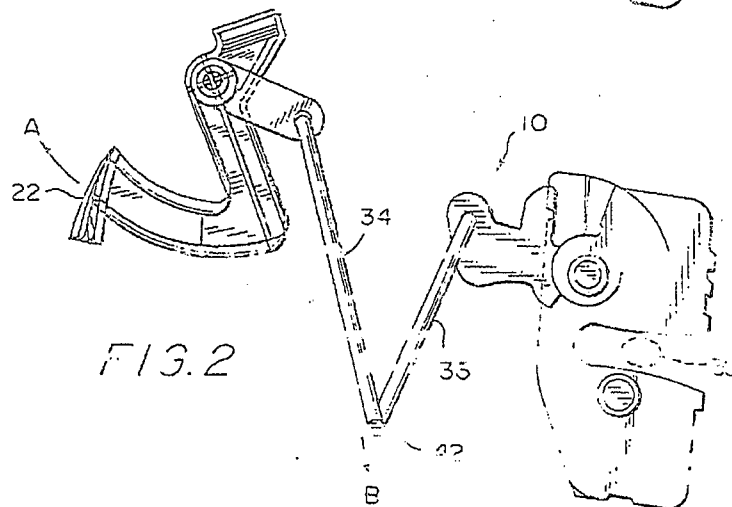
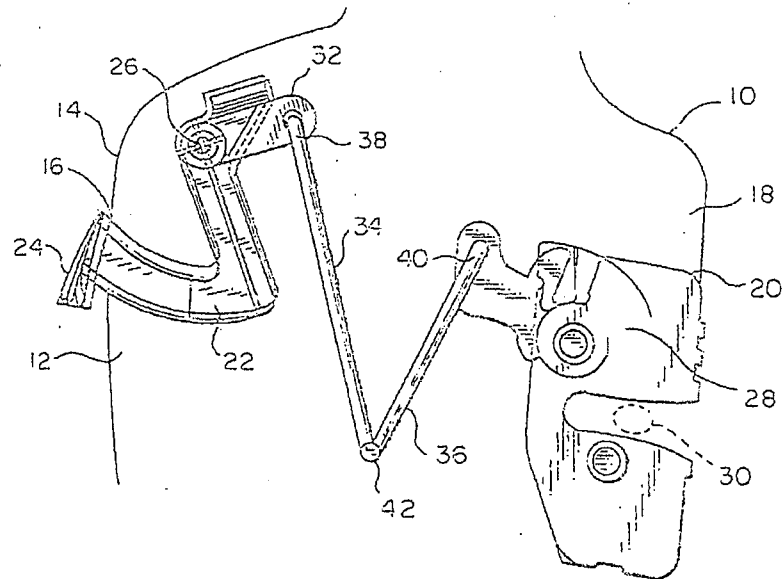


FIG. 2

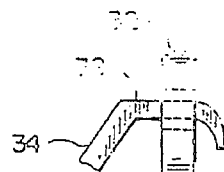


FIG. 3

FIG. 4

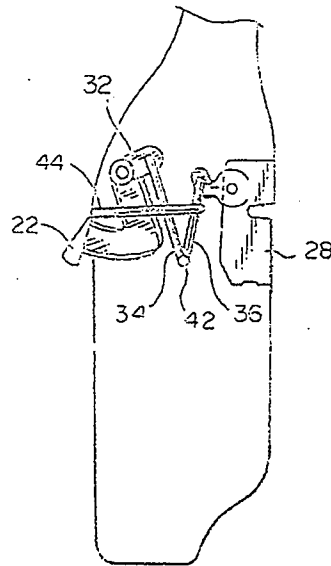


FIG. 5

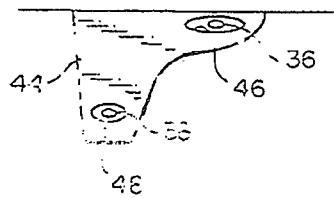


FIG. 6

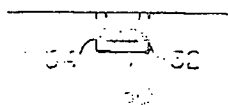
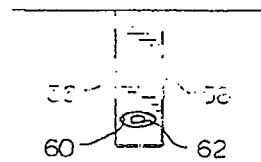


FIG. 7



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 force, 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 force, 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

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, 35 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 32. The bracket 50 is a U-shaped bracket that restrains the second link 32 between the bracket and door panel. The bracket 50 has an opening or slot 54 through which the second link 32 extends. FIG. 7 illustrates a bracket 56 which includes a stand off or extension 58 with an opening 60 for holding the first link 32 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

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
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

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

01.14.00 HANDLES, LOCKS, LATCHES, AND MECHANISMS SUBSYSTEMS

01.14.04 Body Side Doors - Handles, Latches, and Mechanisms

LH & RH Front Door (R/C & S/C) - (PROFS: CHEMPER, PROHE:)

EXTERIOR

Latch - Modified PH63 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 VINUS.
2. Integrate lock set bezel into door handle bezel.

INTERIOR

Use carryover corporate handle (VINUS, PH63, 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 "3rd" door).
2. Integrate manual/power door switch / night latch with door handle i.l.o Probe style.

01.14.05 Rear Doors, Deck Lid, Liftgate and Tailgate - Handles, Latches, and Mechanisms

Tailgate - (PROFS: CHEMPER, PROHE:)

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

- integral overlam 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.

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

EXTERIOR

Latch - Modified PH63 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.

Keyless Entry Key pda

Tailgate

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

- integral overlam 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

Vehicles VN108 (C1A-), Escort (CAF-), Ford CT120 (CAJF), Mercury CT120 (CAJM), Tracer (CAN-), Fiesta Facelift (CCD-), Taurus (CDCF), Sable (CDCW),
Lines 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-), SW154 (CZN-), Aerostar (TA1), Windstar (TA3), UN53 (TB3), UN173 (TB4), Villager (TD1), Quest (TD2), VN127 Econoline (TE4-), PN95/PN102 (TF5), PHN131 (250HD, 350, S.D) (TF7-), PN150/151 Ranger (TR3), UX168 (TR6), Transil (TT4), Explorer/Mountaineer (TU3-), PH131 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 DeDeppo (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. Ameel	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: GEH00478
 Status Date: 1995/05/17
 Status: Approved
 Priority: Action Release



Program Direction Letter
 (Confidential)

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

FAC SIDE DOOR LATCH & ACTUATOR COMPLEXITY REDUCTION
 PRESENT PLAN

	1995	1996	1997	1998	1999	2000	2001	2002 Plus
HAAS LATCH \ ACTUATOR	6	6	6	6	4	4		
								DEM
EAO LATCH \ ACTUATOR	6	6	5	3	3	3		
Total FAC	12	12	12	9	7	7		1

DRIVERS OF COMPLEXITY

Code "Package" 1,2 Options - e.g. illum. entry/dr ajar/central lock 1,2
 Front vs rear door opens - e.g. override/child lock 1 EAO vs HAAS latch eqnns/double lock/central locking
 Actuation - cable/rod 1 Int. or override/remote 1,2
 C/W change over 1,2
 1- Latch 2-Actuator

COMPETITIVE BENCHMARKING

North American Latches \ Actuators Families

	1995	
Ford	6 \ 3	(Kramer, maxi, mini, B11, C6027 U.S. and Villager)
Chrysler	3 \ 4	(2Families similar to axxi/mini and 1 new latch family)
GM	4 \ 3	(Truck, 2 old latch families for carn and mini-wedge latch)
Toyota	1 \ 2	(all relatively new latches)

STRATEGY PROPOSAL

Rationalize present car and truck latches \ Actuators to achieve a 50% reduction by 2000
 harmonize latch and actuator design between N.A. and Europe.
 Eventual reduction to a single latch and actuator family.

SUMMARY OF RECOMMENDED ACTIONS

1996 Adjunct actuator for PER121, PER126, PER101. -1 Actuator

1998 (Commonrail UN93), PER99 and PER121 front and rear door inside handle cable system. -2 latches

1999 Adjunct actuator for PER74, PER10, PER95, PER127, PER126, PER105, UN93. -1 Actuator

1999 Replace the C6027 (US) latch with the DEM latch assembly -2 latches.

2000 Plus side frame use the DEM latch family.

Future latch assumptions is to use one latch assembly with two alternatives (high / low content)

PROPOSED LEVEL

	1995	1996	1997	1998	1999	2000	2001	2002 Plus
Present Plan	12	12	12	9	7	7		
Proposed Plan	12	11	9	3	6	4		1
Net Improvement		1	3	6	1	3		1

50%Reduc. 50%Reduc

FINANCIAL SAVINGS

	1995	1996	1997	1998	1999	2000	2001	2002 Plus
Average FAC Veh. Save Latch	0	0	0	20.27	750	750		
Average FAC Veh. Save Actuator	0	0	0	10.15	10.39	10.63		
Total Save	0	0	0	30.42	760	760		

PN96 PROGRAM SUMMARY

Vehicle Definition

PN96 is a "ground up" full-sized pick-up truck for the under \$500# 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 \$500#) replacement and the UN93 is the Bronco replacement. These vehicles are planned to launch in 1993 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 (57 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 point revision has been requested to move launch of PN96 to 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 85000 GVM only)

ASSEMBLY PLANT		1995		1996		1997		1998		1999		2000	
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					PN93					
Kansas City	F-150	Carryover					X	PN96					
	F-250	Carryover					X	PN102					
Ontario Truck	F-150						X	Drop					
	F-250						X	Drop					
o/85000 GVM only													
F-Series													
Twin Cities													
Range													
F-Series Drop													

DAAM 0333

CONTROL MODEL #2 VERSUS PROPOSED TARGETS*

	Variable Cost (03/U 1995 F-150)		
	Prelim. Target	Assess. Assess.	Assess. B/(U) 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/BAO Provisions	(\$104)	(\$119)	(\$15)
Total Vehicle Actions	\$31	(\$127)	(\$158) ✓
Total Program Actions	(\$204)	(\$530)	(\$326)
Total Control Model	(\$1,119)	(\$1,522)	(\$403)
Notes: 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)
	BAO (Mils)	All Other (Mils)	Total (Mils)			
Original Cycle Plan	\$1,050	\$1,050	\$2,100	\$115	\$115	\$2,330
Add: Fireside Pgm (Net)	20	30	50	5	17	72
4.6L/4.6L HO Engines	0	41	41	4	6	51
Subtotal - Before Efficiencies	\$1,070	\$421	\$1,491	\$154	\$428	\$2,073
Less: Investment Efficiencies	-216	-64	-290	N/A	N/A	-298
Notes: X	20.0%	20.0%	20.0%			
Total PWG Pgm	\$854	\$337	\$1,193	\$154	\$428	\$1,775
- After Invest. Efficiencies						

* 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 4x2 Reg. Cab 138.5 LB 4.2 L R-2 Base Veh.	2 4x2 Reg. Cab 138.5 LB 4.6 L AODE-W 33% Option	3 4x4 Sup. Cab 138.5 LB 4.6 L R-2 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	3,300 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.	4,439 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 3886	2 4041 lbs.	3 TBD
♦ 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

DRAM 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

Produced by Ford Subject to Protective Order

0504

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 EEC 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
- GEM-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

Produced by Ford Subject to Protective Order

0505

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

PMT NUMBER	PMT NAME	TEAM LEADER	ATP TEAM SUPPORT RESOURCE		
			PLANNING	FINANCIALS	COST ESTIMATING
1	BOOYSHELL/WINDSHIELD	L. MALTBY x-75779	TBD	M. SENESKI x-07748	J. SMITH x-51529
2	DOORS/GLASS/LOCKS & MECHS/AMPERS	T. SIEDLECKI x-25397	TBD	M. SENESKI x-07748	J. GUOTANA x-78515
3A	EXTERIOR ORNAMENTATION/ EXTERIOR LIGHTING	B. STRASSER x-07232	TBD	M. SENESKI x-07748	J. LACROSS x-52744
3B	BUMPERS/PAINT	B. STRASSER x-07232	TBD	M. SENESKI x-07748	J. LACROSS x-52744
4	UNDERBODY/FRONT END/PICKUP BOX/TAILOGATE	P. JENSEN x-08508	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-31258
6	INTERIOR TRIM & LIGHTING/DOOR TRIM/CONSOLE/AUDIO	G. CRAWFORD x-73154	Y. VANDER-LUGT x-07888	M. LEWIS x-07911	M. BOUFFORD x-52743
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-07857	K. TYBURSKI x-07891	D. ALLEN x-07913	P. RAGHONI x-24588
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-53468/ D. MARSEE x-78584
11	POWERTRAIN CONTROLS/DRIVELINE COMPONENTS Clutch, Trans, Case, Frt. Axle, Accel. Controls, FEAB, ENGINE/COOLING, Exhaust	D. HUDDLESTON x-01834	J. DUNHAM x-07907	J. HUNLEY x-07844	K. CAIRNS x-41950/ M. WYNGARD x-78097
12	ENGINE/AUTO TRANS.	P. DEWEY x-44772	J. DUNHAM x-07907	S. AGRAWAL x-08508	J. MALEY x-78582

NOTE: ALL PMTS

PURCHASING REP	L. ZIS	x-32394
MARKETING REP	A. SARKISIAN	x-15733
QUALITY REP	J. SAEG	x-07921
WEIGHT CONTROL	L. ANDARY	x-06608
WEIGHT CERTIFICATION	D. VOLKER	x-73228

PMT CONTACT LIST
12/15/91

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

DAAM 0338

PN96 Pickup Program
PMT Meeting Schedule

<u>PMT NUMBER</u>	<u>PMT NAME</u>	<u>TEAM LEADER</u>	<u>PHONE</u>	<u>MEETING DAY</u>	<u>MEETING TIME</u>	<u>FREQUENCY</u>	<u>MEETING PLACE</u>
1	BODY SHELL/WINDSHIELD	L. MALTBY	x-75779	WED	7:30	WEEKLY	1050
2	DOORS/GLASS/LOCKS & MECHS/WIPERS	T. SIEDLECKI	x-25397	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 LGATE	P. JENSEN	x-08508	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-81398	TUES	10:00	WEEKLY	STUDIO 2000X Des. Ctr.
8	ELECTRICAL DISTRIBUTION WIRING & MODULES	F. MCNULTY	x-07887	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: 12/10/81

DAAM 0339

300 chpt

***** 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

3007 • 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

Produced by Ford Subject to Protective Order

0508

***** 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 FIA.
- 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 Manakian X - 07646
PA1915 Body Proj mgr.

• Front Doors:

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

7
DAM 0342

***** 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.

300 - Brackets / Reinforcements - Steel

01.04.00 Second Unit Body Subsystems

01.04.01 Pickup Box Body

- Two lengths 6-1/2 ft. and 8 ft.
- Styleside Inner 4x2 and 4x4 - New - Steel
- 300² - Flareside Inner 4x2 and 4x4 - New - HSC
- Styleside Outer 4x2 - Steel with modified "anti-smile" rail.
- 300⁷ - 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.

3507.

• 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 2 • 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, 4X6 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, 4X6 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 WIN33.
- 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 of 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 - AASC issue - back a few mgmt went built up 300 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

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DAAM 0346

***** 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 PASC issue - PTPD work it!

- Grained, color keyed, non-painted HCPP 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 - PASC.

- 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

Greg

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

Larry
Tony

300

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

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DRAAM 0347

***** 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

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

01.14.07 Power Lock Solenoids and Motors

- 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

- 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

- Wiper Arm & Blade - Similar to C/O except 30% larger

- 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

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

01.16.03 Windshield/Backlite Washers

- Dual Fluidic System similar to C/O 92F

01.16.05 Wiper Motor

- 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 Subsystems

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 air dam. 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 *****

500 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 UEN105 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 dependent upon B&C 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

24

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***** 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

Bundy

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

(high volume wheel)
- New 16x7.5JJ high styled aluminum

321
Tires

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

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

Spare Wheel - Same as base HSLA steel wheel

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

100
04.05.00 Suspension Load Leveling Control Subsystem

- 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 yoke 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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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-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 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.

DAAM 0357

- 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.

DARM 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.

DAAM 0359

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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

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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 0361

Attachment VI

COMPONENT/PART NAME: Front Door Handle % ENGINEER'S NAME: Greg Claire SOURCE REQUIRED DATE/(HBJ#1): 92/8
COMPARATOR PART BASE NUMBER: _____ ENGINEER'S PHONE NUMBER: 56225 PNT NUMBER: 2

DATA 0362

PN96 EARLY SOURCING WORKSHEET

COMPONENT/PART NAME: Front Door Handle-1/5 ENGINEER'S NAME: Enrique Delannoy SOURCE REQUIRED DATE/(HAJ#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>Penally Corp.</u>
BUYER'S NAME/CODE: <u>Penally Corp 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: _____ Economic Level: _____ Contract Terms: _____	Tooling Cost: _____ Proposed Supplier: _____ Proposed Sourcing Method: _____

DAAM 0363

PN96 EARLY SOURCING WORKSHEET

...achment V

COMPONENT/PART NAME: Tailgate Handle 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) PART NUMBER: <u>E2TB-99431B82-A</u> CURRENT SUPPLIER: <u>Nelson Metal</u> BUYER'S NAME/CODE: <u>R. Thelgen 327</u>	NEW PART PART NUMBER (if known): <u>E65B-99431B82-A</u> TEAM PROPOSED SUPPLIER(S): <u>Midway Prod. *</u> TEAM PROPOSED SOURCING METHOD: <u>Grey Box</u>
~~U-1000000~~	* 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: 1991 Price Cont. Tooling Cost: Economic Level Proposed Supplier(s): Contract Terms Proposed Sourcing Method:	

DRAM 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 LPP Builds

DAAM 0365

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

PAGE.001

To: Ron Thiesen
From: Conrad
Hempel

ENGINEERING STATEMENT OF WORK
1996 PN96 DOOR AND TAILGATE HANDLES

1.1 Overview

Commodity Plan/Program Timing

General Responsibilities

- 1.2 Competitive Analysis/Benchmarking
- 1.3 Concern Resolution/Drawing Transmittal
- 1.4 Installation Manuals
- 1.4 Assembly Process Manuals
- 1.5 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 Engineering Responsibilities

7.0 Continuing Responsibilities

*Purchase agreement
should be done*

DAAM 0366

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

Date 92/09/04
Revised _____

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: GECA-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.

DARM 0367

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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.

DAAM 0368

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)
- 8D'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:

DAAM 0369

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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 0370

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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.

DAAM 0371

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5.12 Dimensional Control Plan

The supplier shall provide a dimensional control datum schema 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.

DAAM 0372

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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).

DAAM 0373

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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.

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DAAM 0374

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PAGE.010

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

DARM 0375

Produced by Ford Subject to Protective Order

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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-TVFl

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-TVFl

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 0376

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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 FN96 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.

DAAM 0377

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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
- FDGS 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 0378

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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 FIST 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

SEP 14 '92 12:19 FROM PN 96 DESIGN CENTER

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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 0380

Produced by Ford Subject to Protective Order

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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 FIRST 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 0381

-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.
- 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 0382

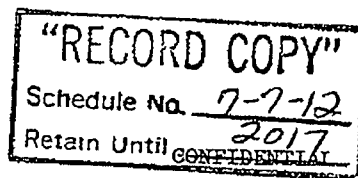
** TOTAL PAGE.017 **

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

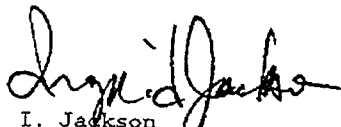
REQUESTED BY: Vehicle Safety and CAE Department, Advanced Vehicle
Technology - P. Culkeen

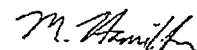
OBJECT: To obtain development data relative to FMVSS 214 and safety
design guideline door openability.

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

VEHICLE DATA: (TARGET)

Make and Model 1999 FN-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.

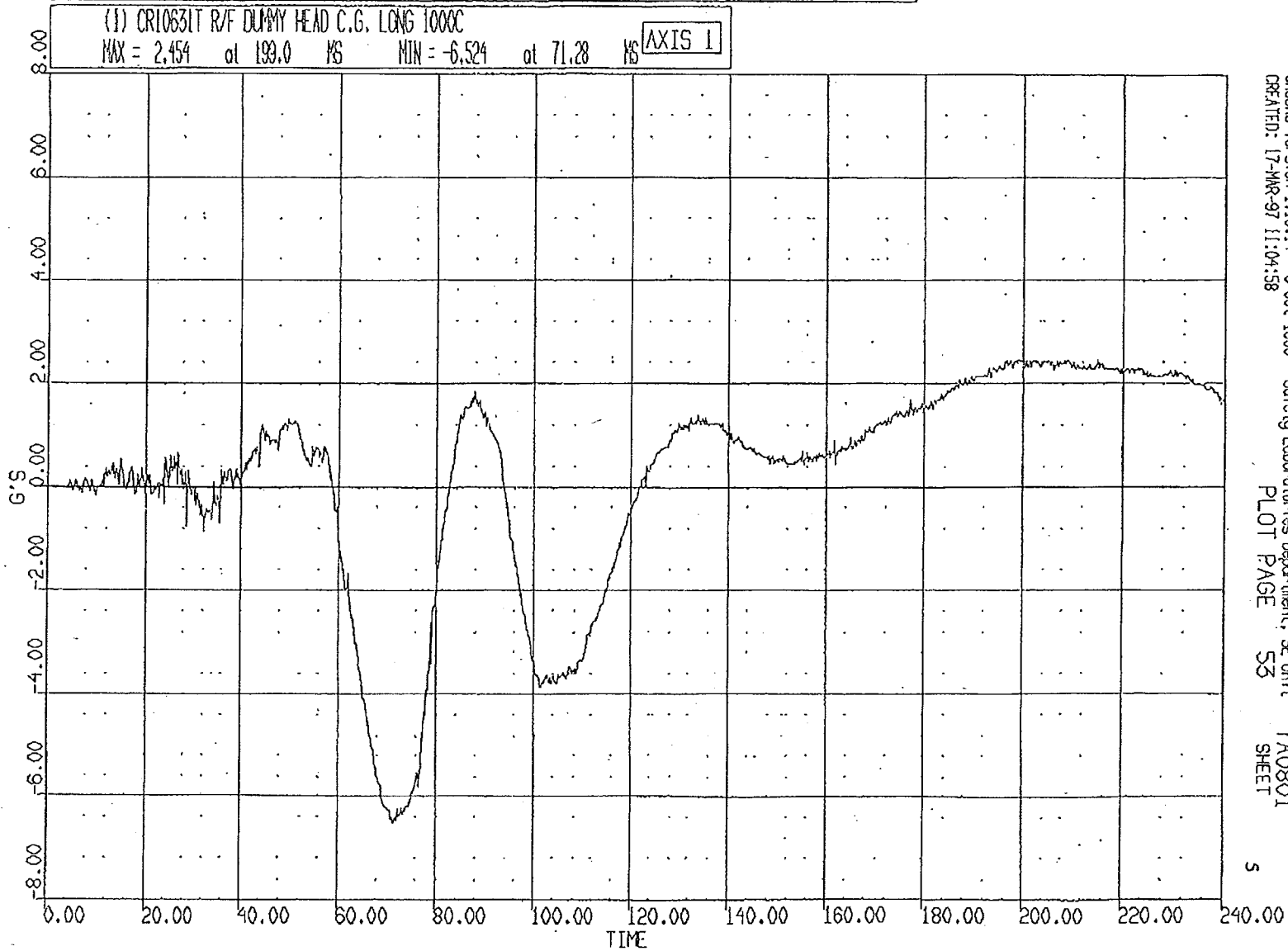
Time histories of vehicle dynamic displacements obtained from Film Analysis are included in this report.

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



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CREATED: 17-MAR-97 11:04:58

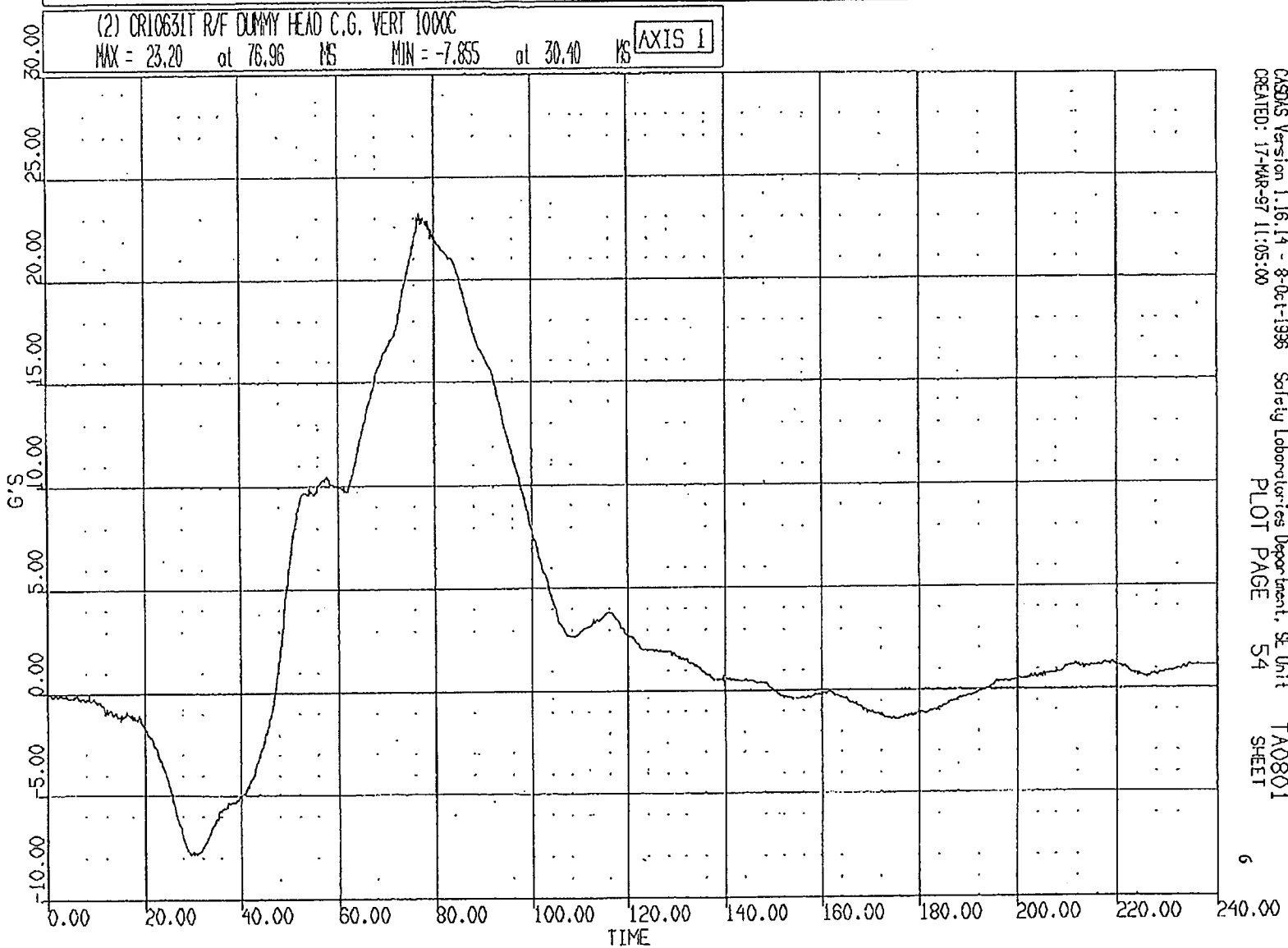
Safety Laboratories Department, SE Unit
PLOT PAGE 53
TA0801
SHEET

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CRTS 0010631

0555

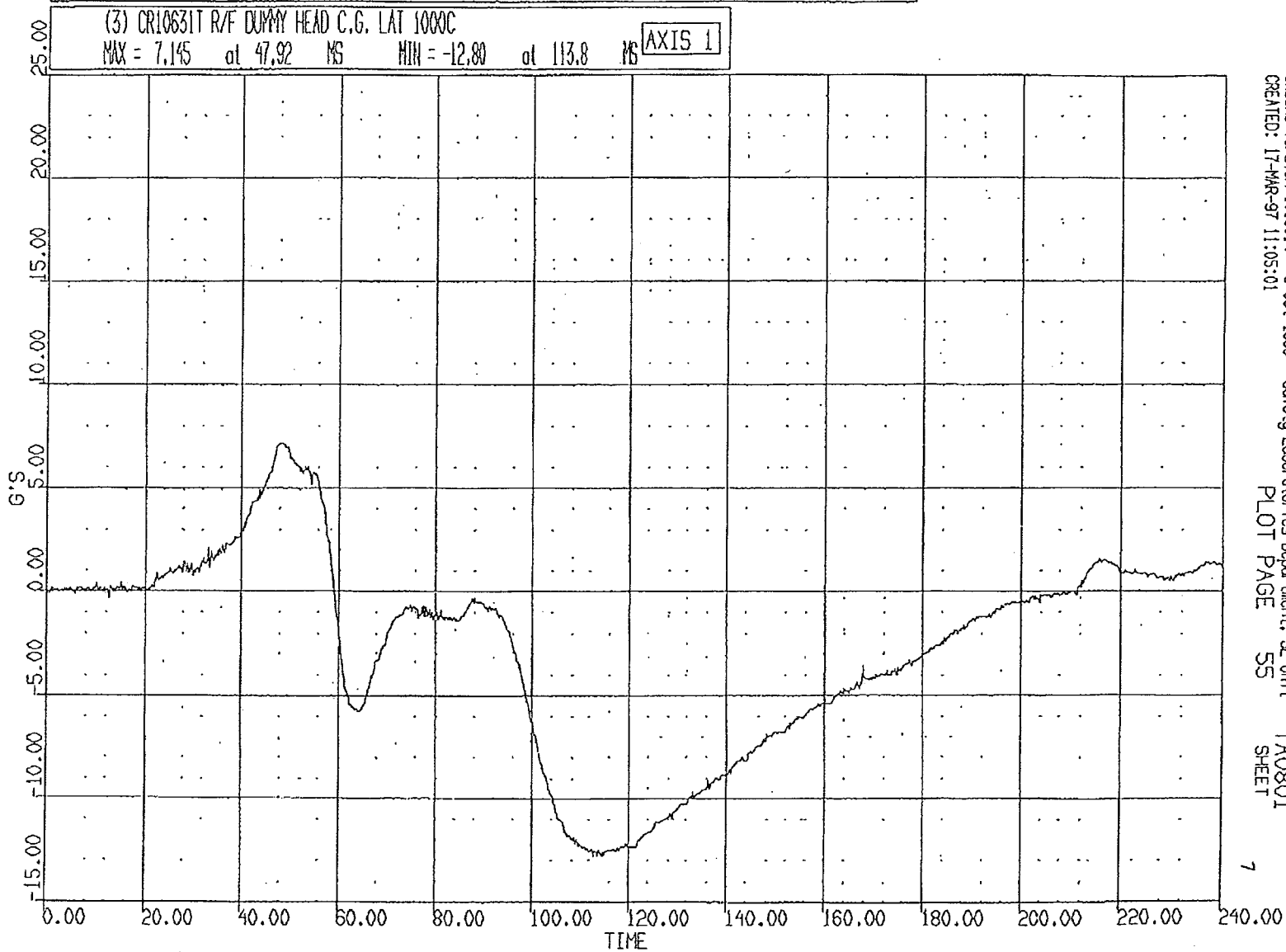
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1999 PN-96 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:05:00 PLOT PAGE 54 TA0801
SHEET

CRTS 0010631

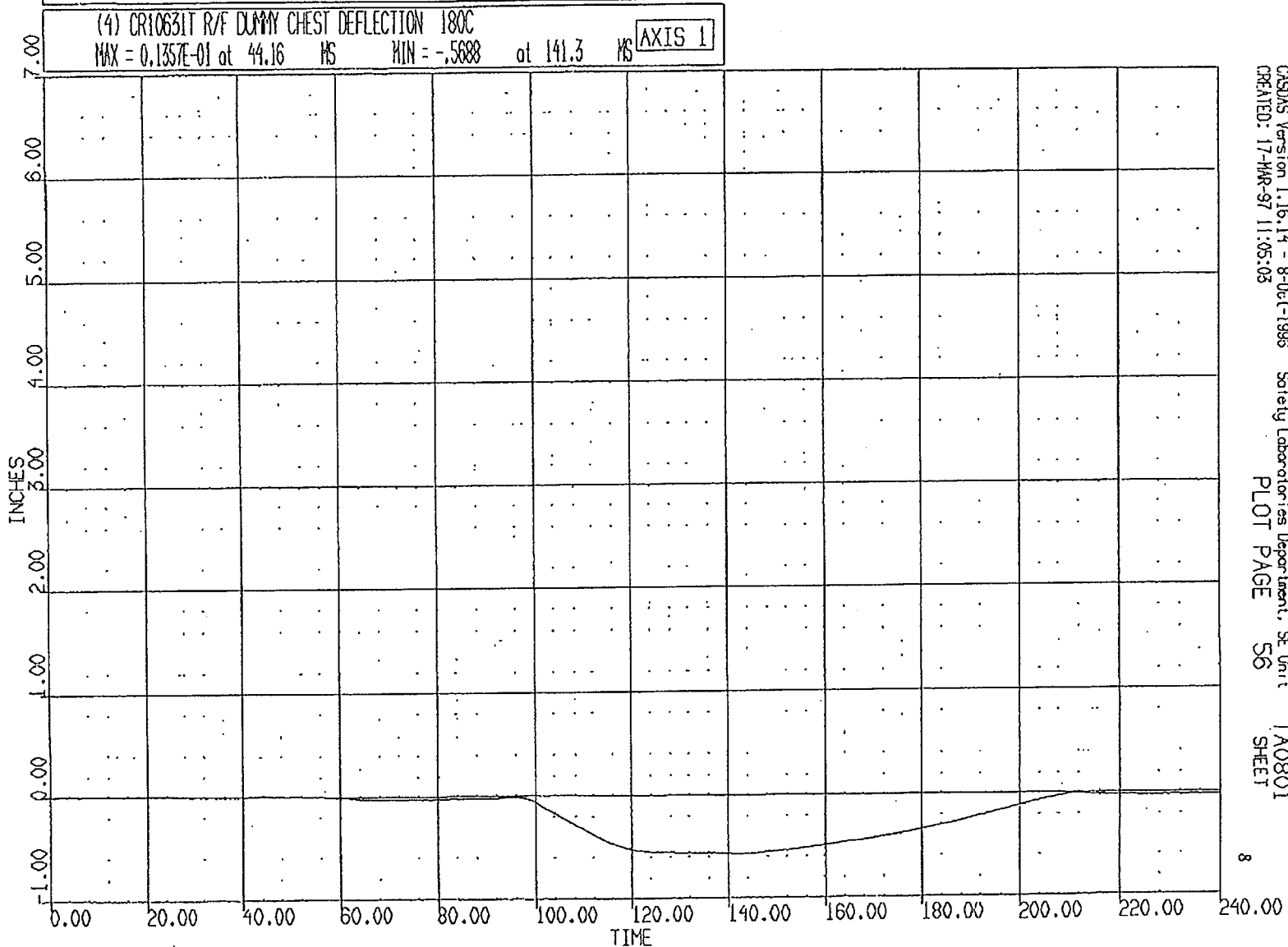
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1999 PN-96 1999 MOVING DEFORMABLE BA



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PLOT PAGE 55
TA0801
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CRTS 0010631

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1999 PN-96 1999 MOVING DEFORMABLE BA



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Safety Laboratories Department, SE Unit
PLOT PAGE 56

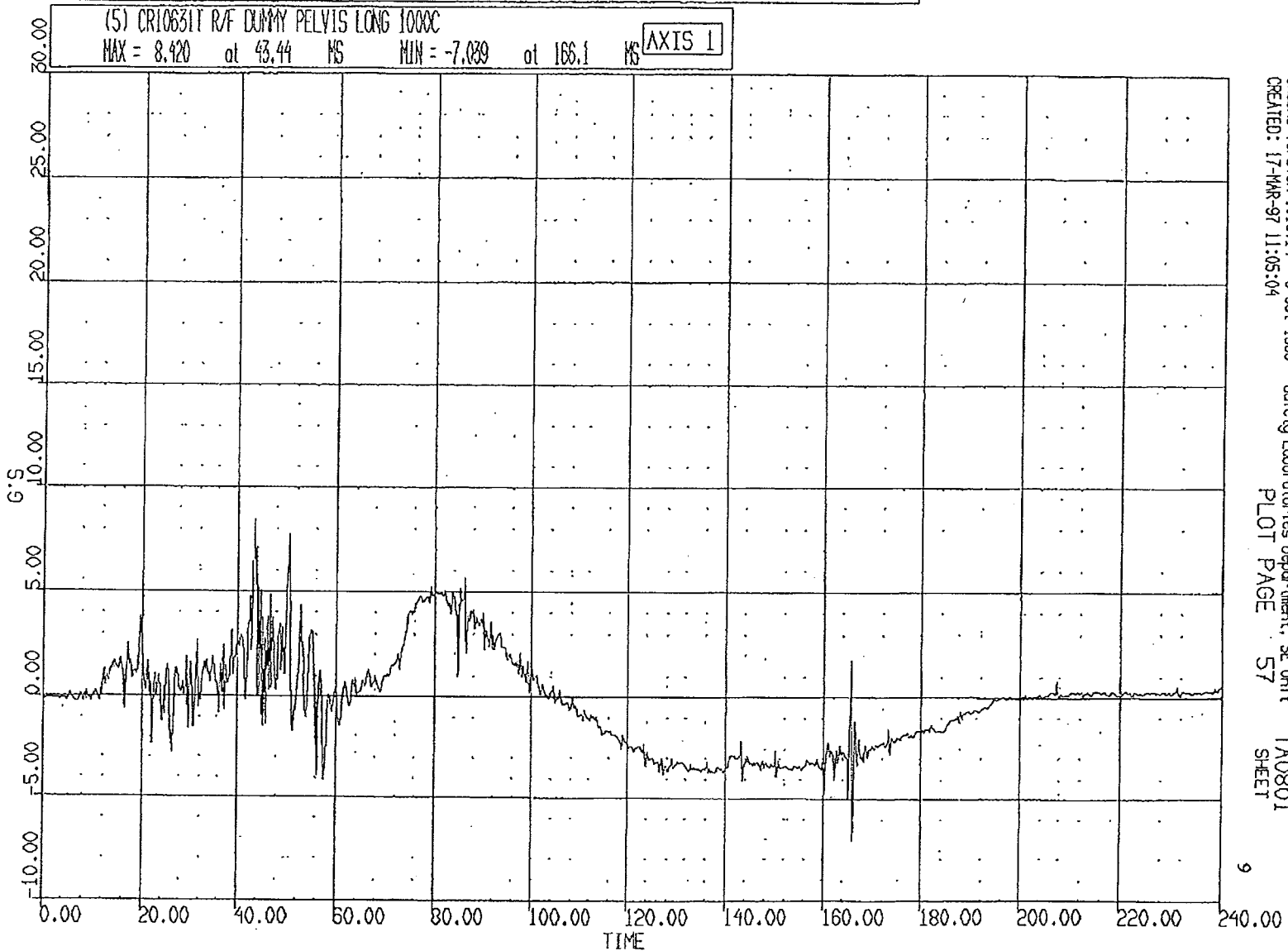
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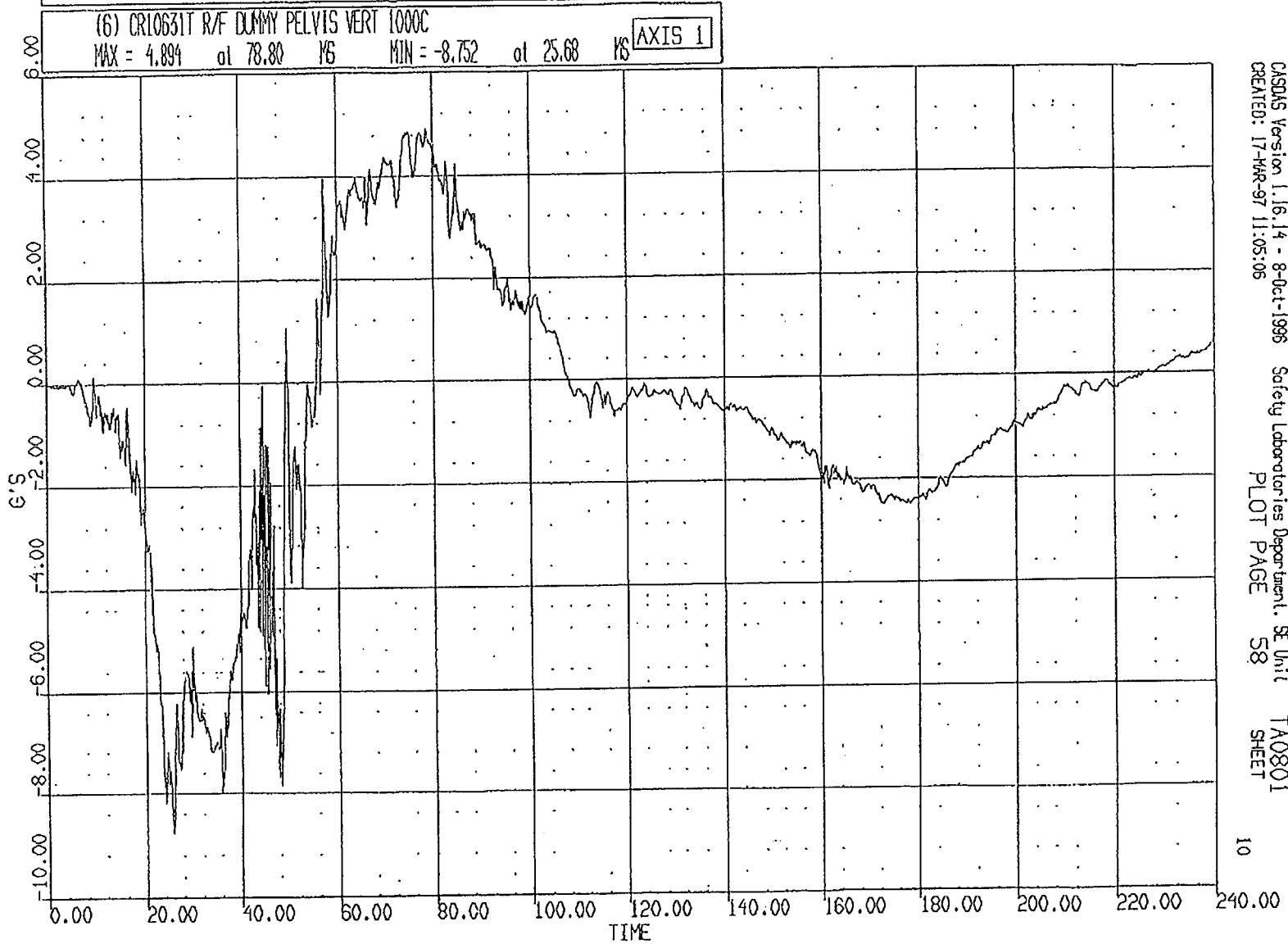


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CRTS 0010631

0559

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1999 PN-96 1999 MOVING DEFORMABLE BA



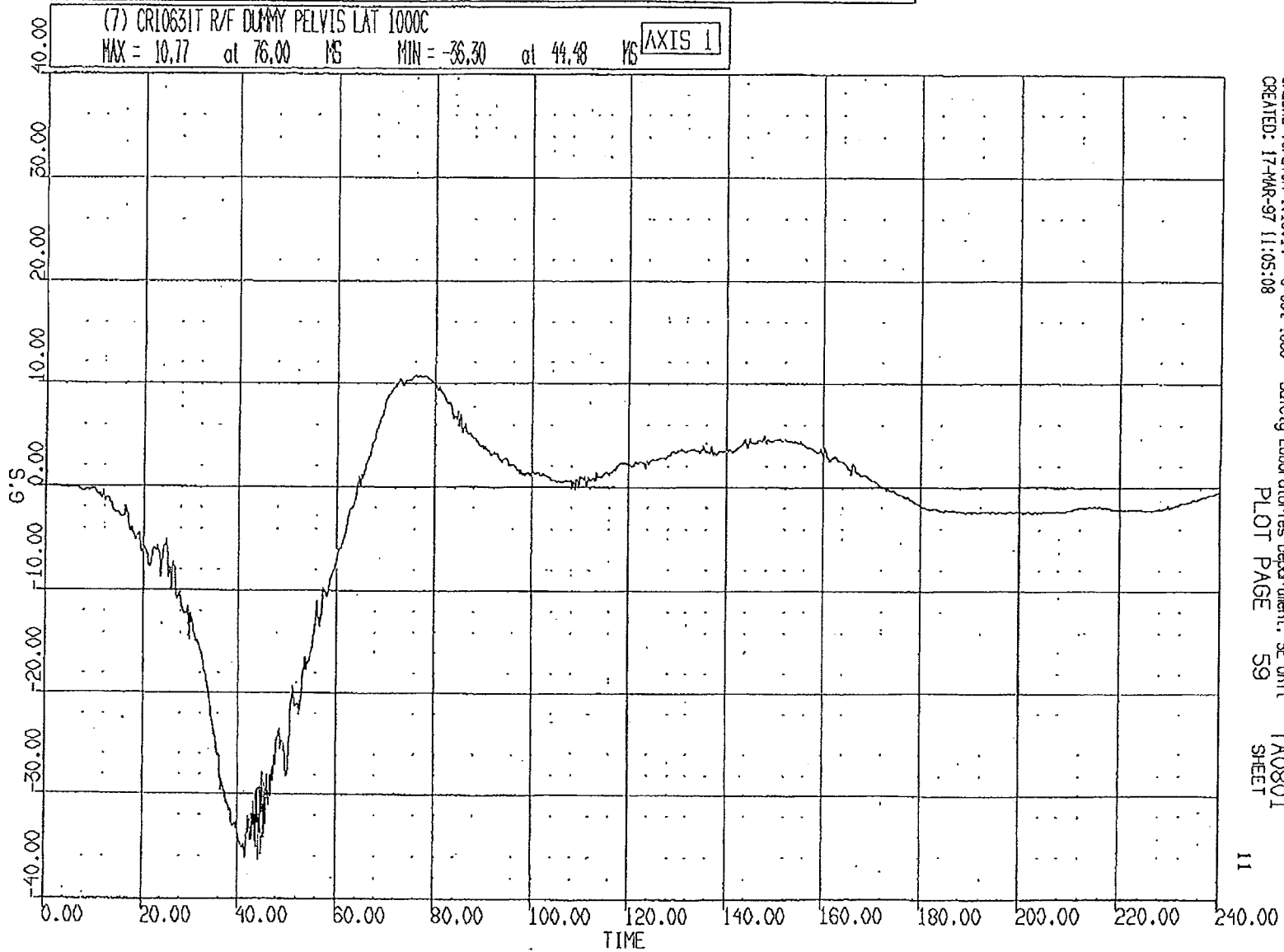
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CRTS 0010631

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1999 PN-96 1999 MOVING DEFORMABLE BA



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PLOT PAGE 59
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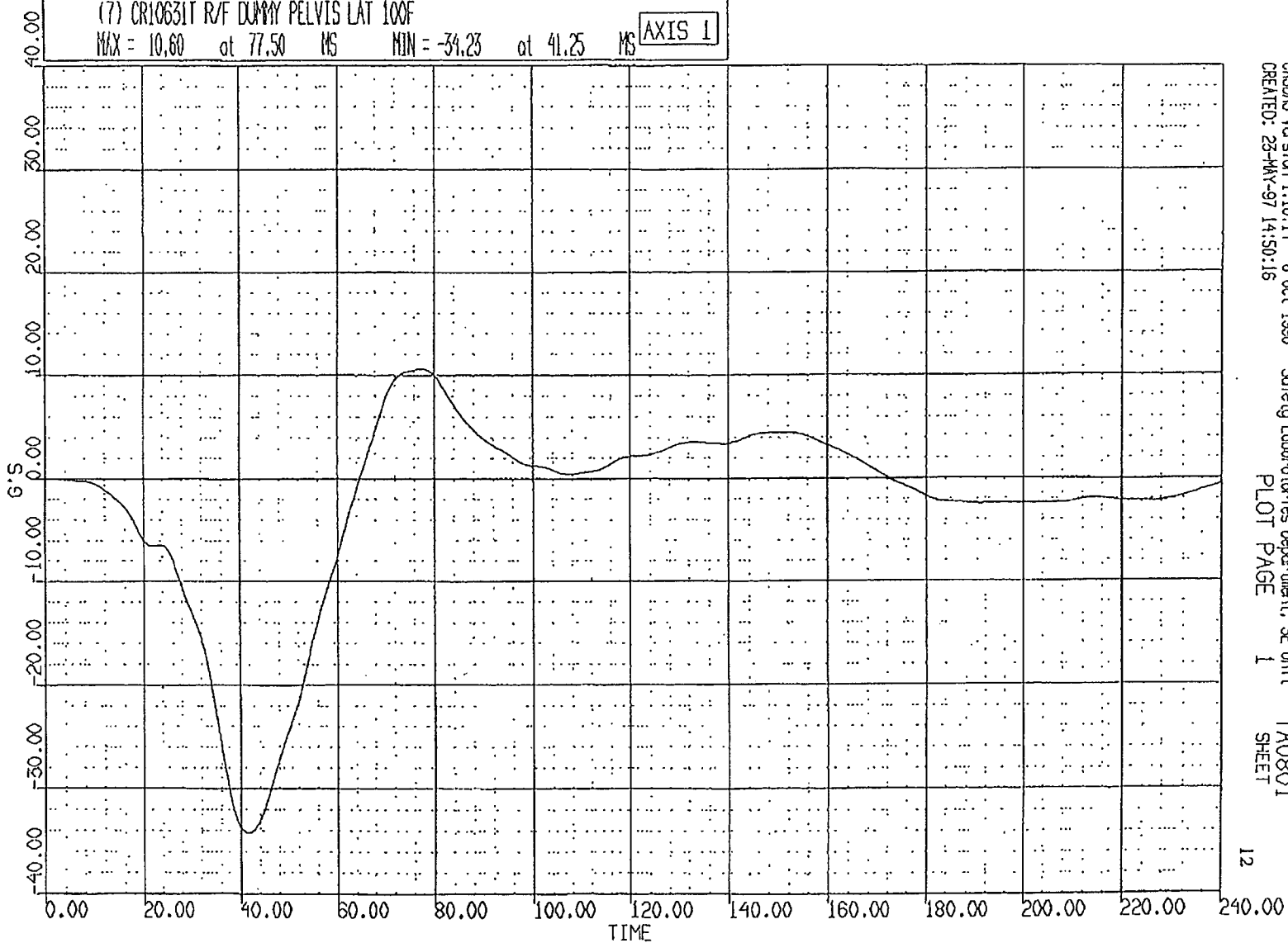
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1999 FN-96 1999 MOVING DEFORMABLE BA

(7) CR10631T R/F DUMMY PELVIS LAT 100F

MAX = 10.60 at 77.50 MS MIN = -34.23 at 41.25 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 23-MAY-97 14:50:16

Safety Laboratories Department, SE Unit
PLOT PAGE 1

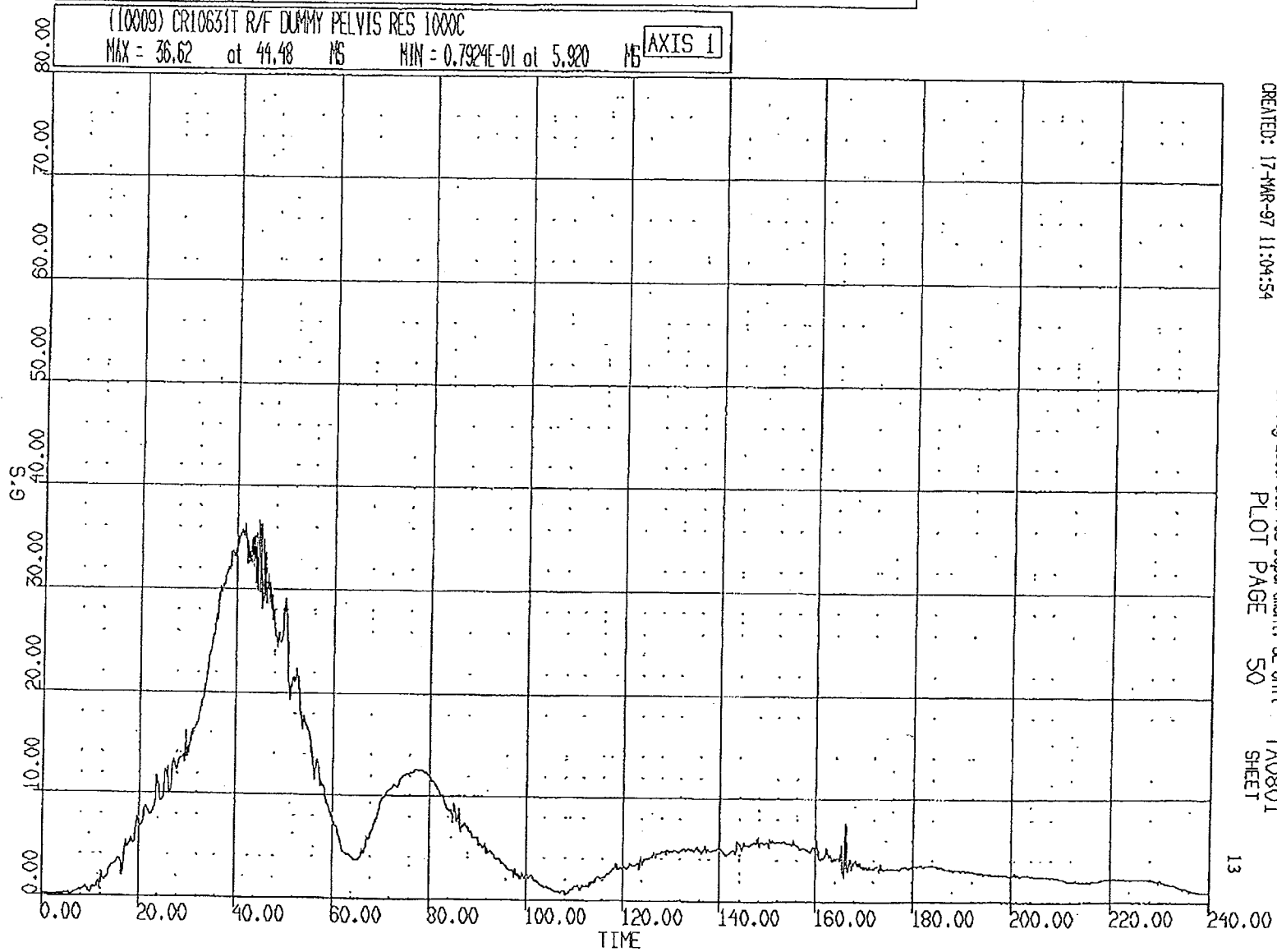
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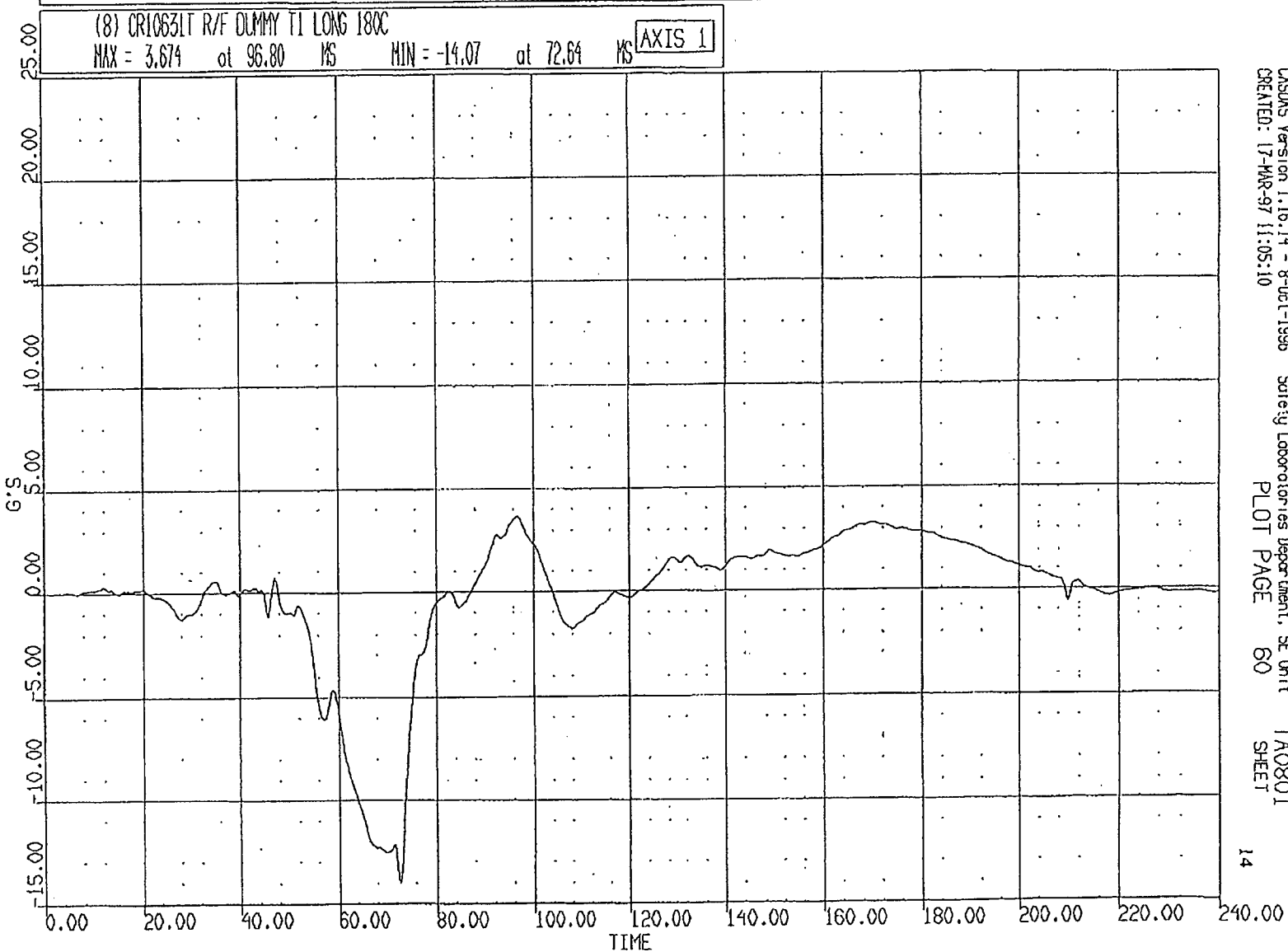


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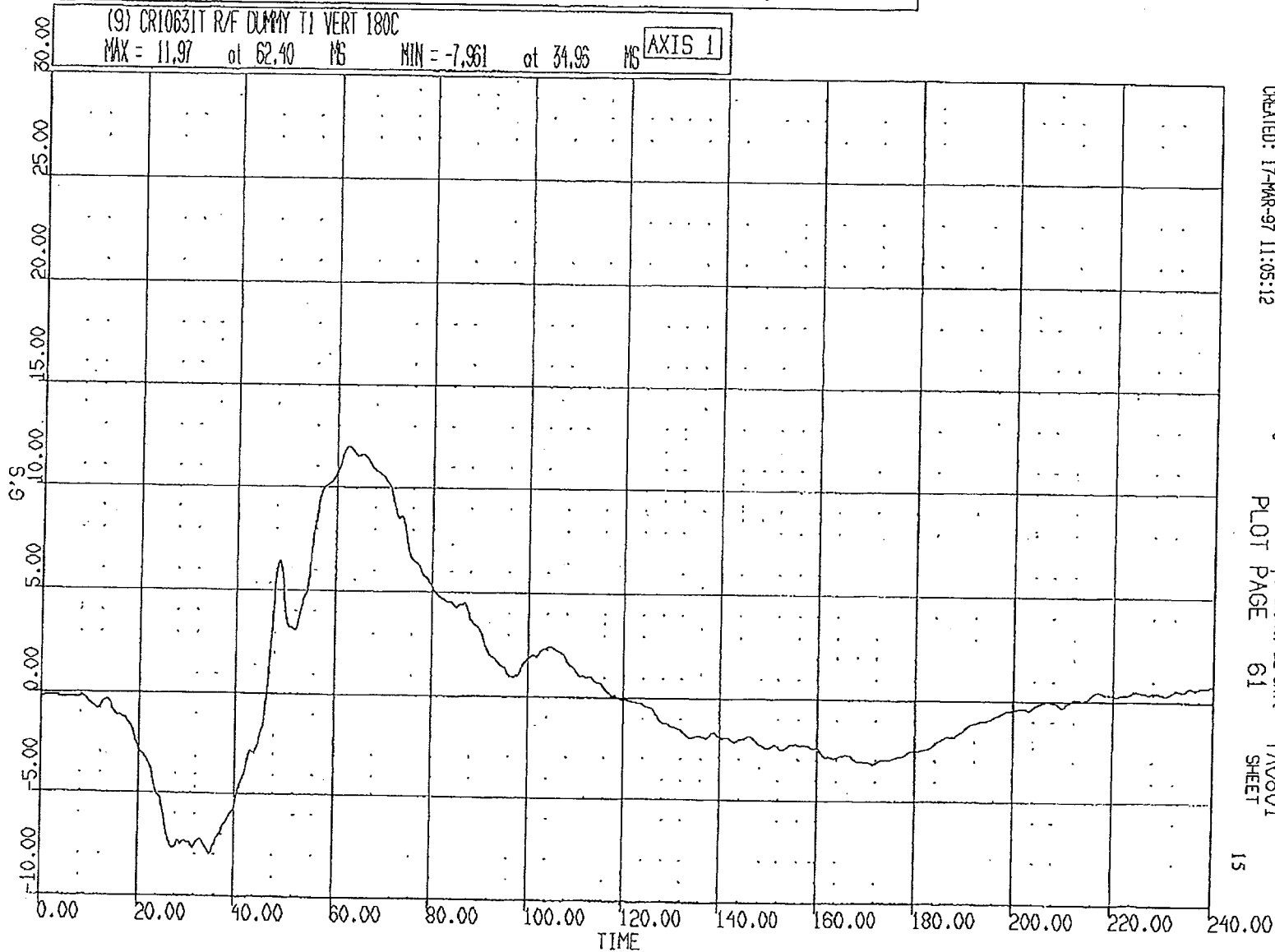
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CRIS 0010631

0564

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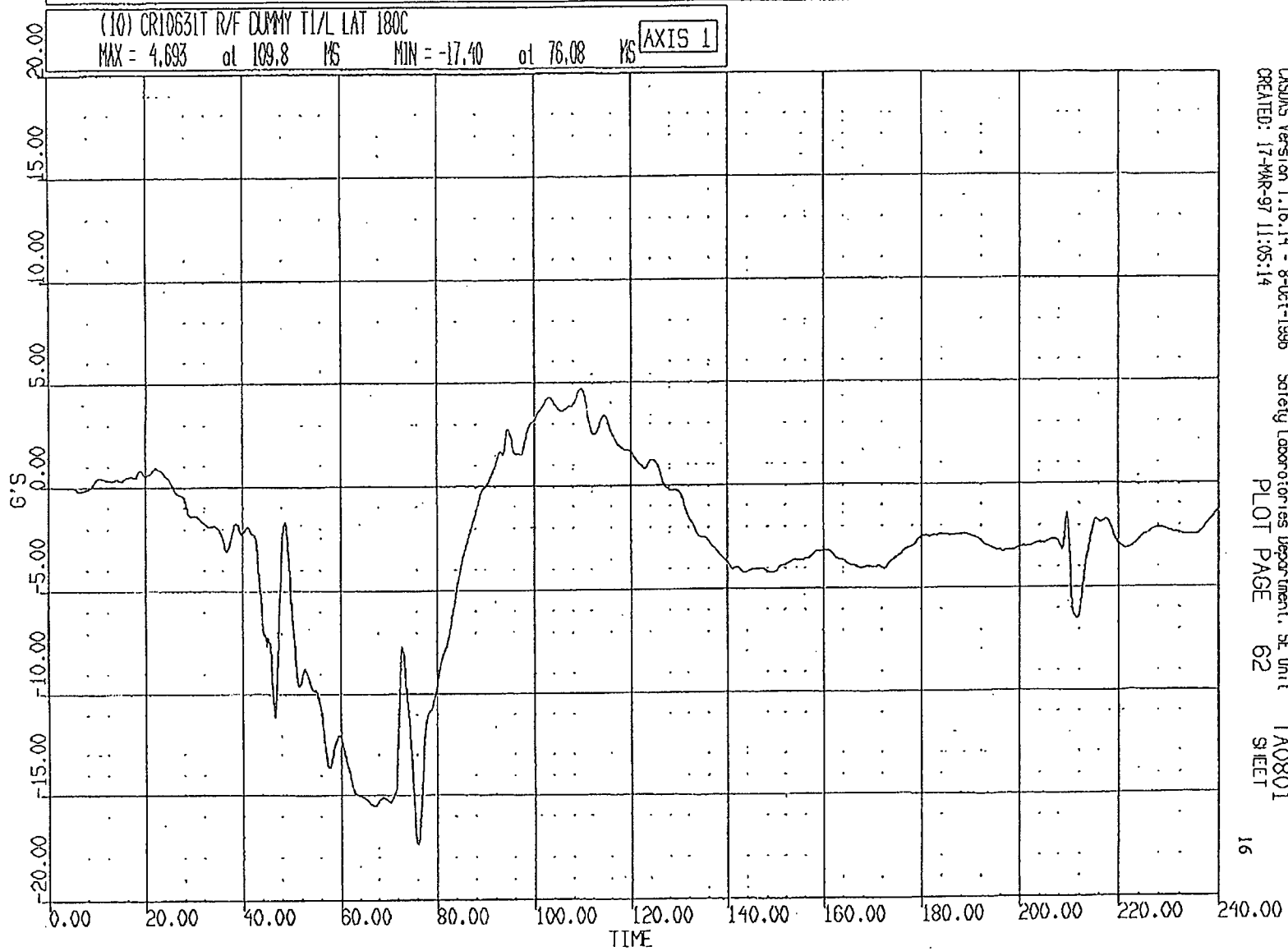
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1999 PN-96 1999 MOVING DEFORMABLE BA



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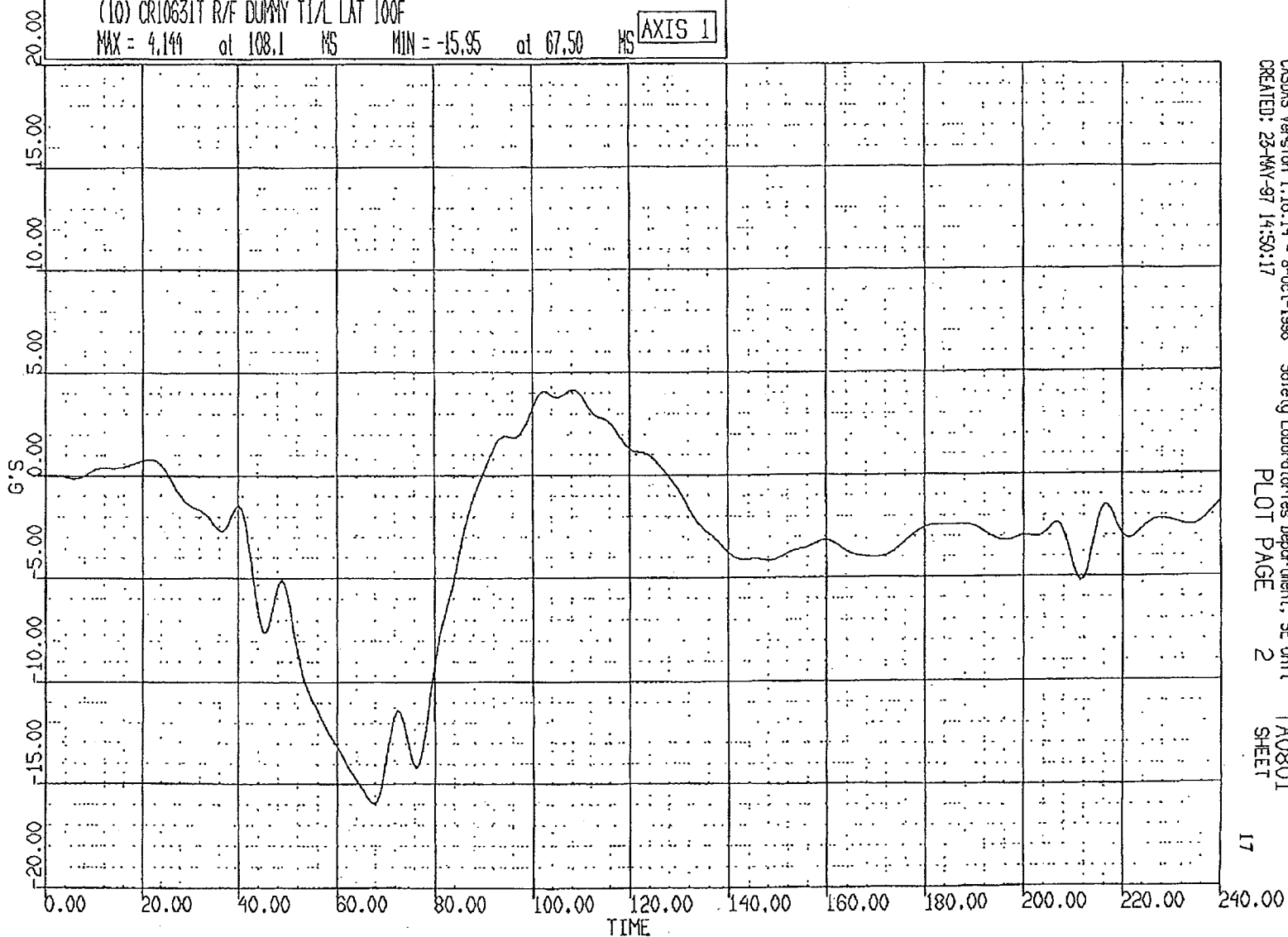
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1999 PN-96 1999 MOVING DEFORMABLE BA

(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



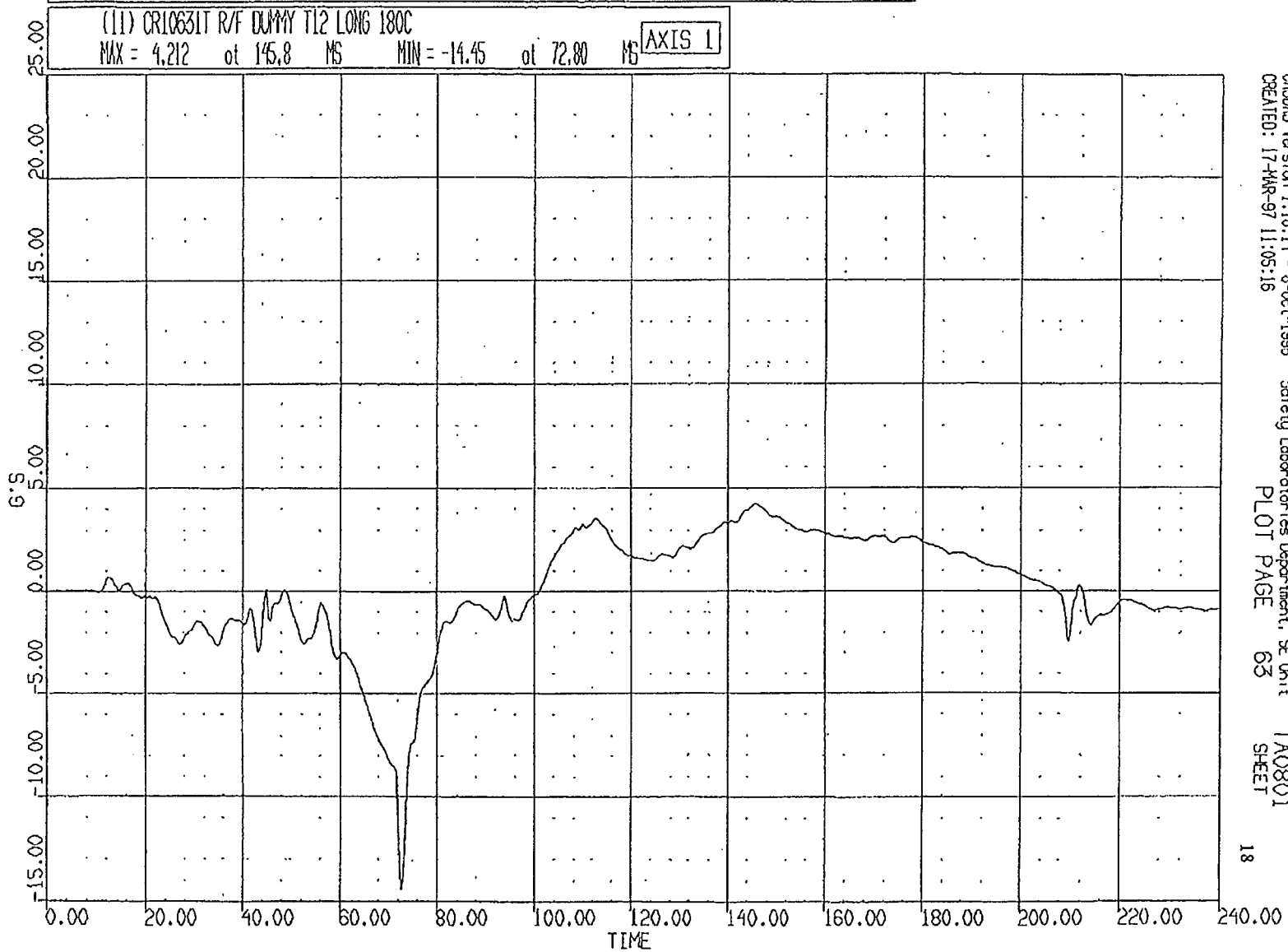
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17

CRTS 0010631

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1999 PN-96 1999 MOVING DEFORMABLE BA



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PLOT PAGE 63

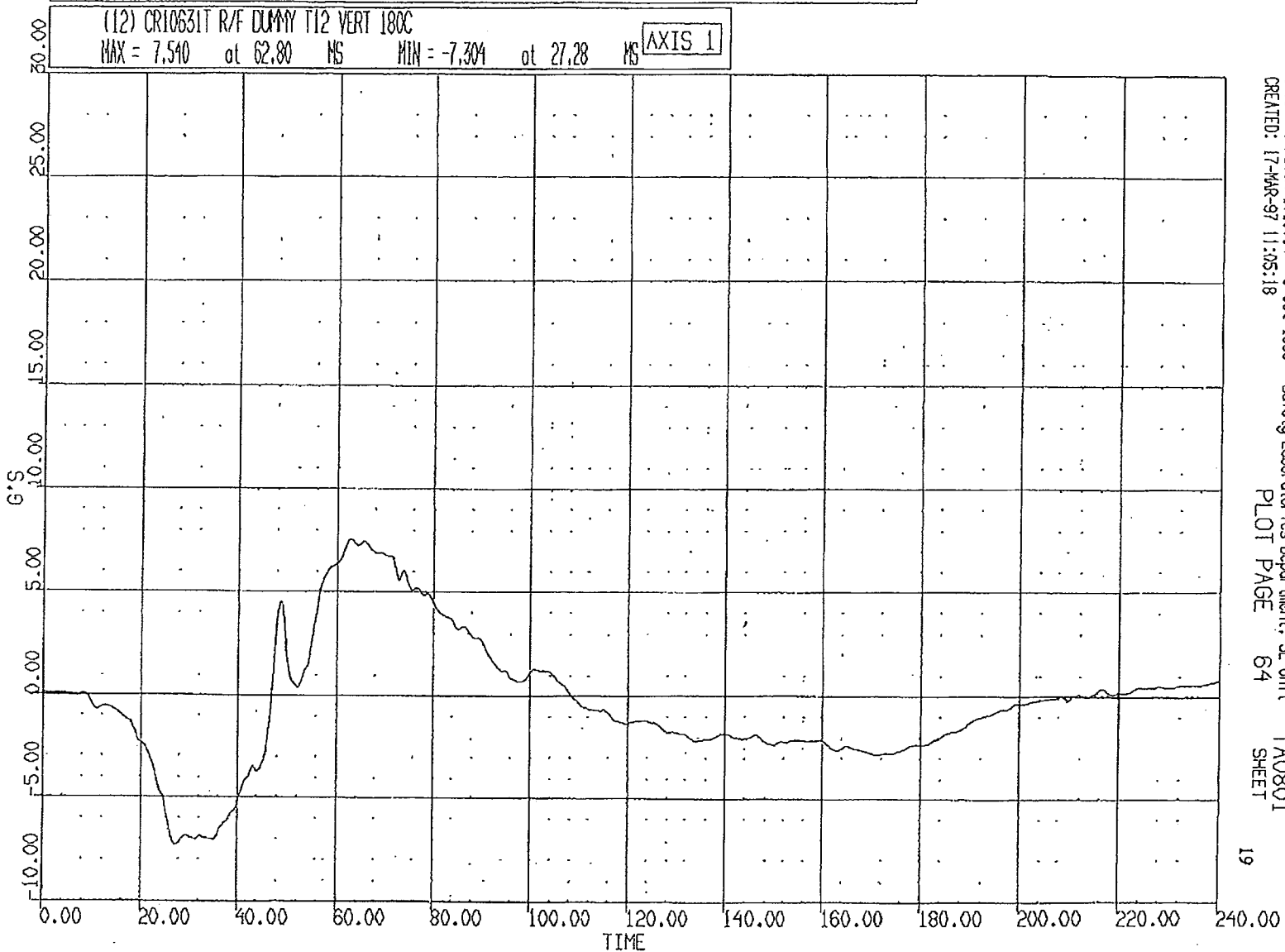
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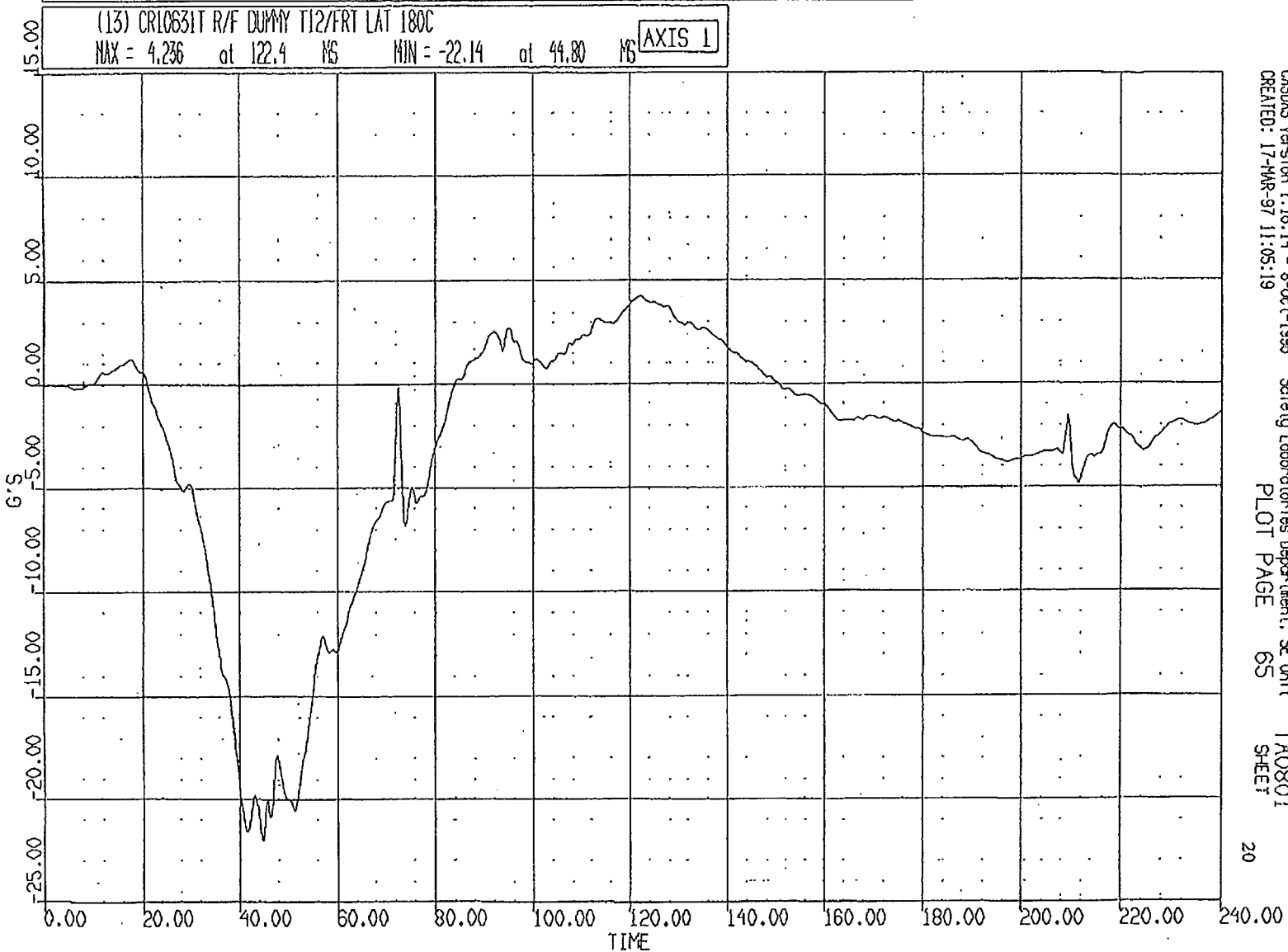
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1999 PN-96 1999 MOVING DEFORMABLE 8A



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Safety Laboratories Department, SE Unit
PLOT PAGE 65

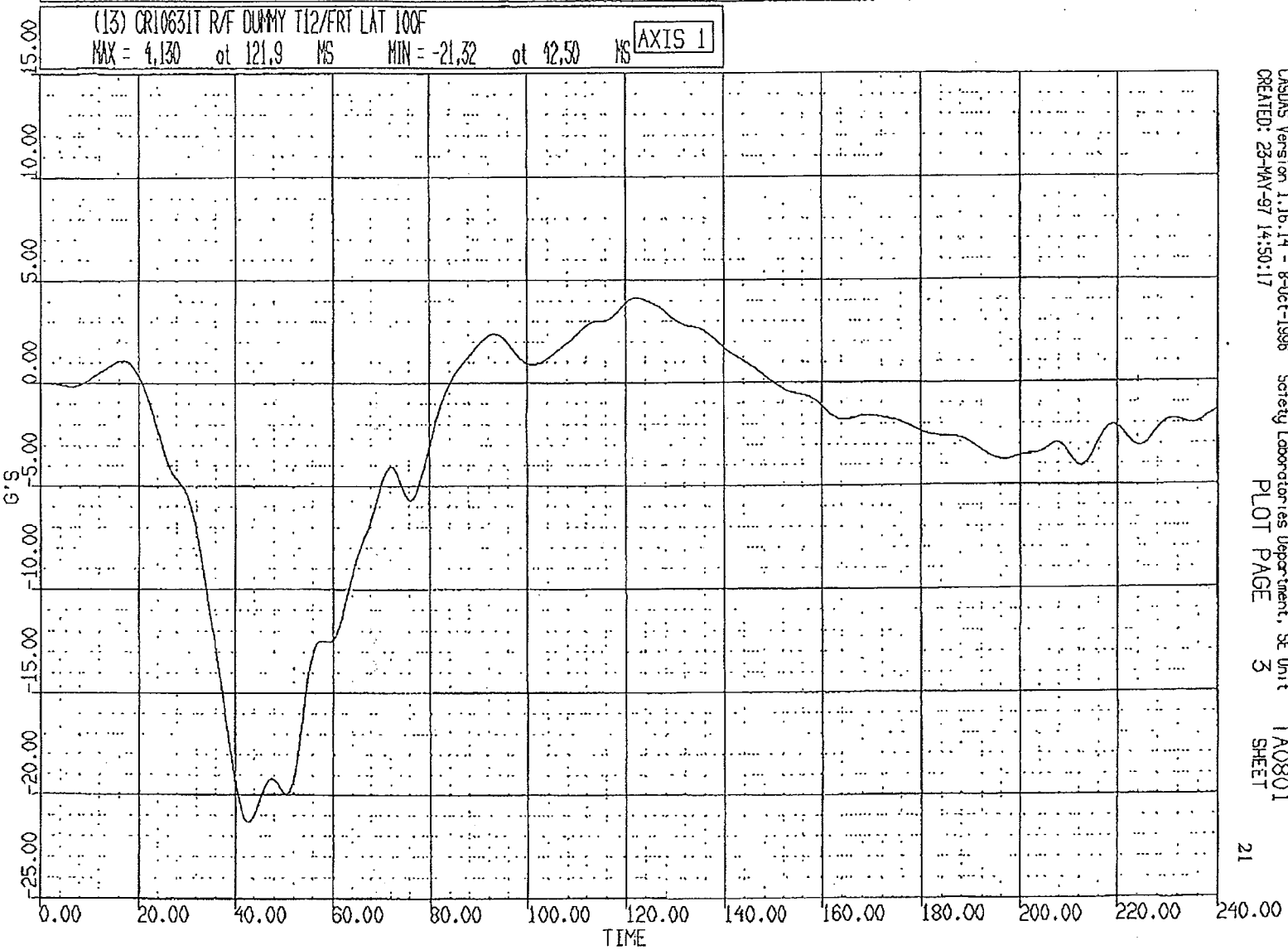
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Safety Laboratories Department, SE Unit
PLOT PAGE 3
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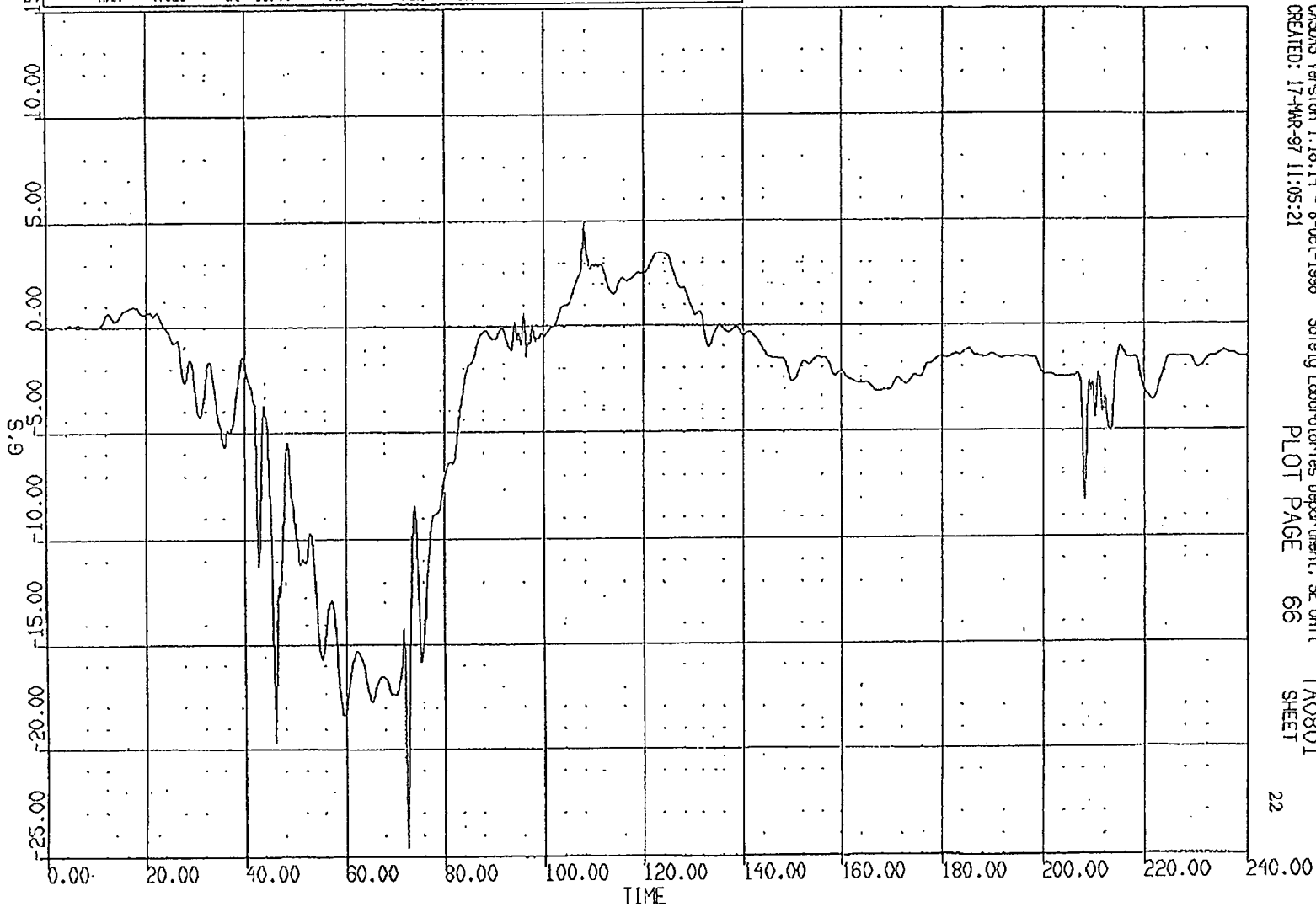
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(14) CR10631T R/F DUMMY THORAX/RIB/UP/FRT LAT 180C
MAX = 4.828 at 107.9 MS MIN = -24.64 at 72.64 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:05:21

Safety Laboratories Department, SE Unit
PLOT PAGE 66

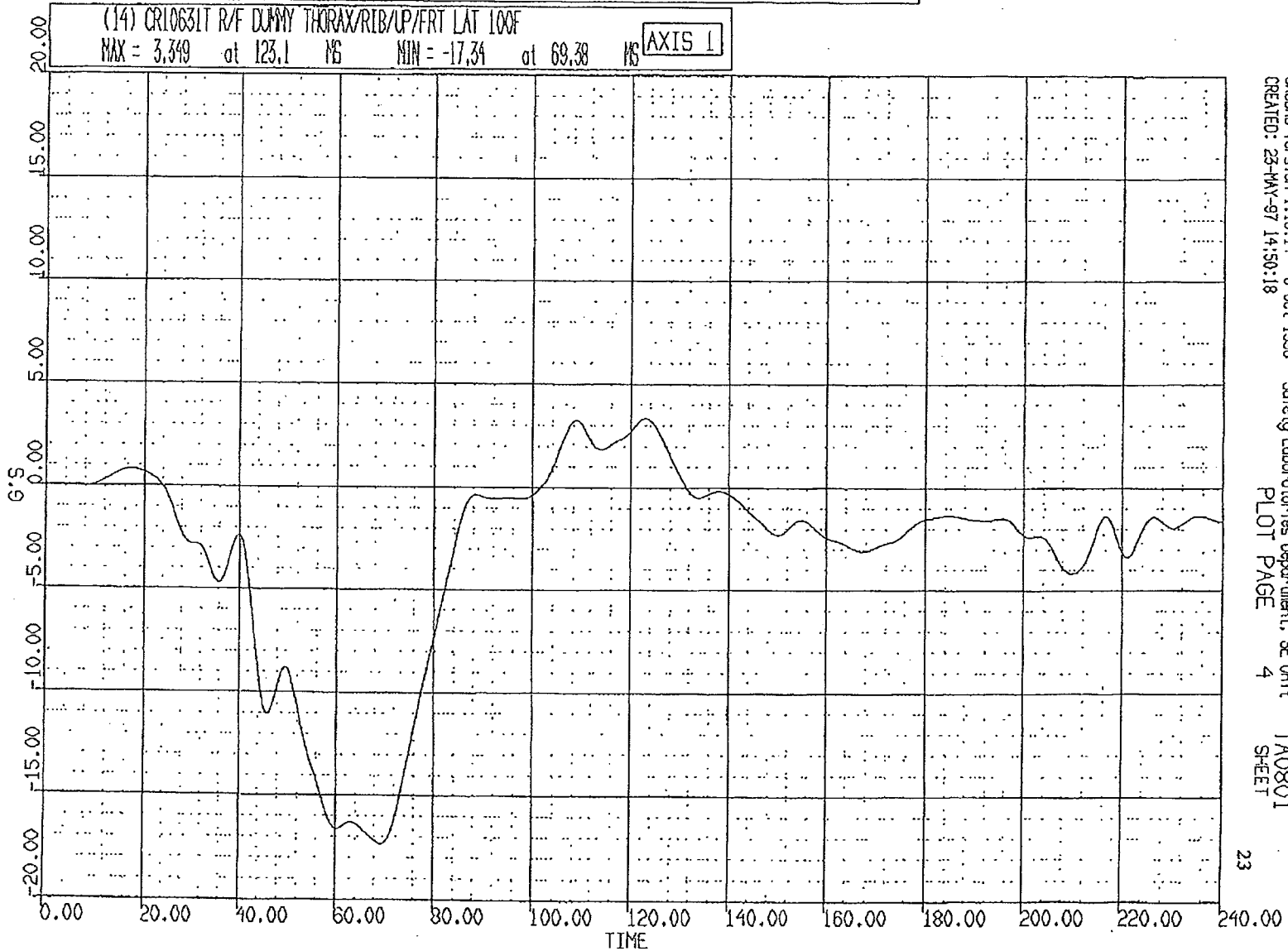
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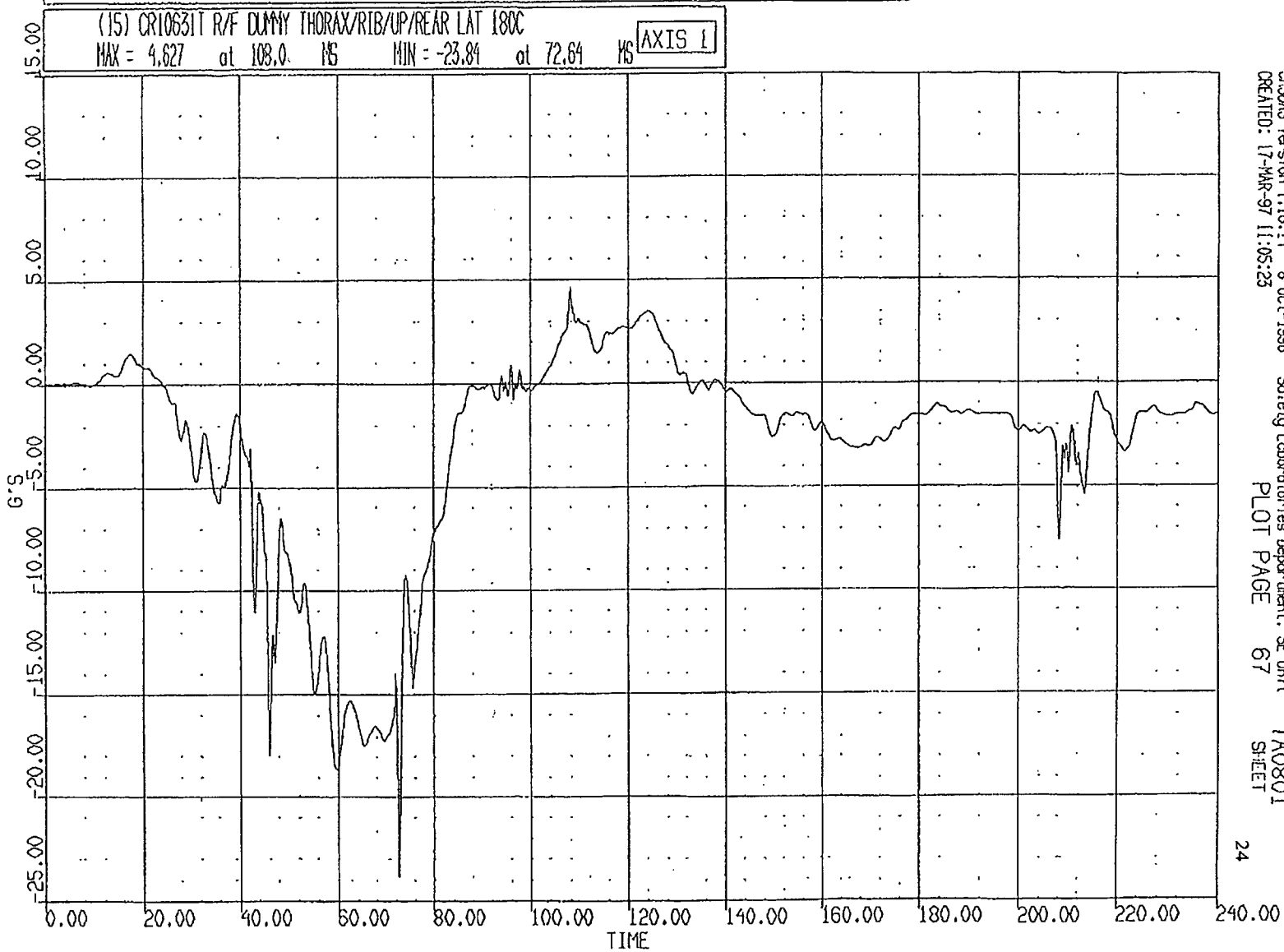
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PLOT PAGE 4
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23

CRIS 0010631

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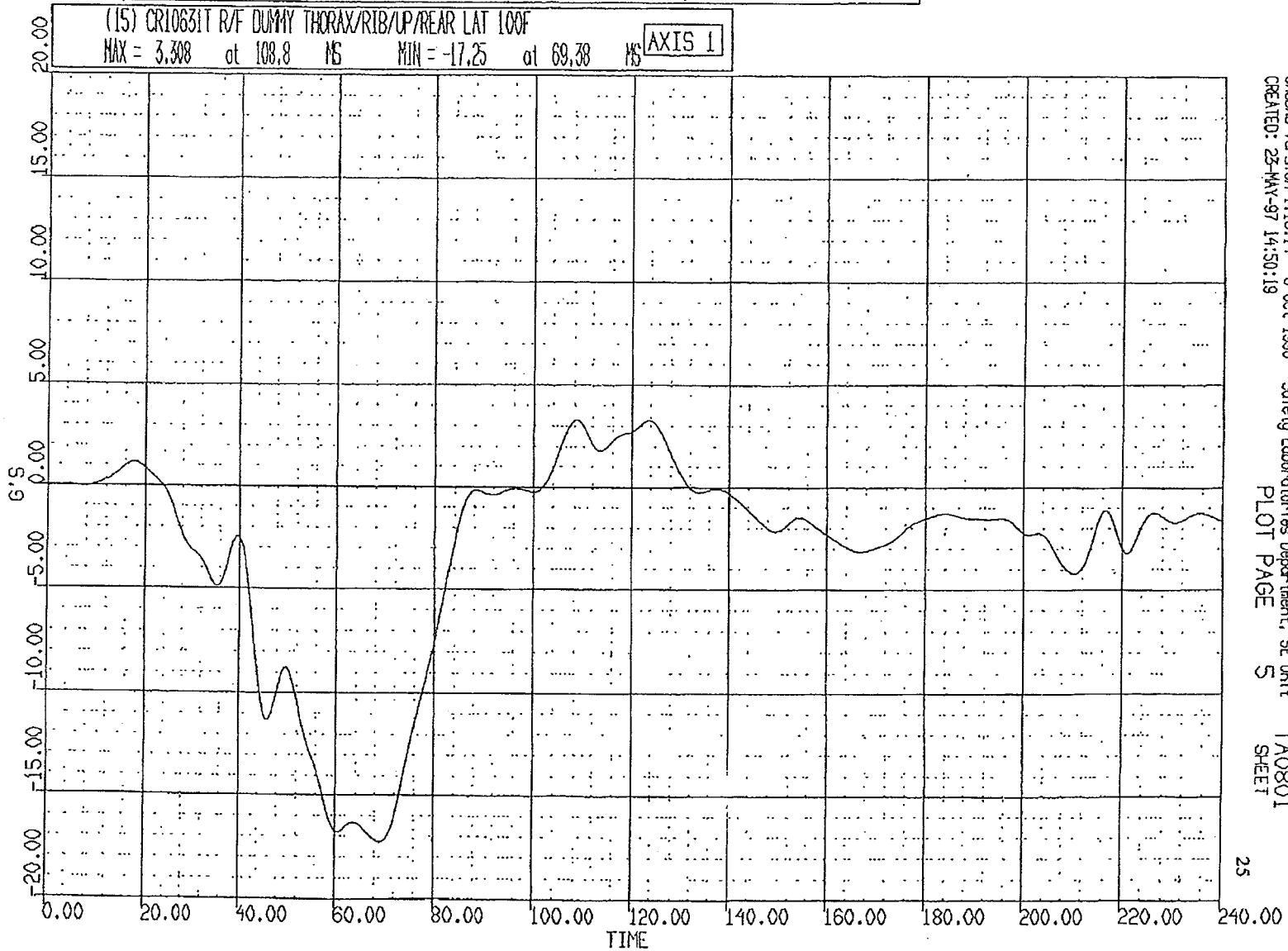
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1999 PN-96 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
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PLOT PAGE 67
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CRIS 0010631

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1999 PN-96 1999 MOVING DEFORMABLE BA



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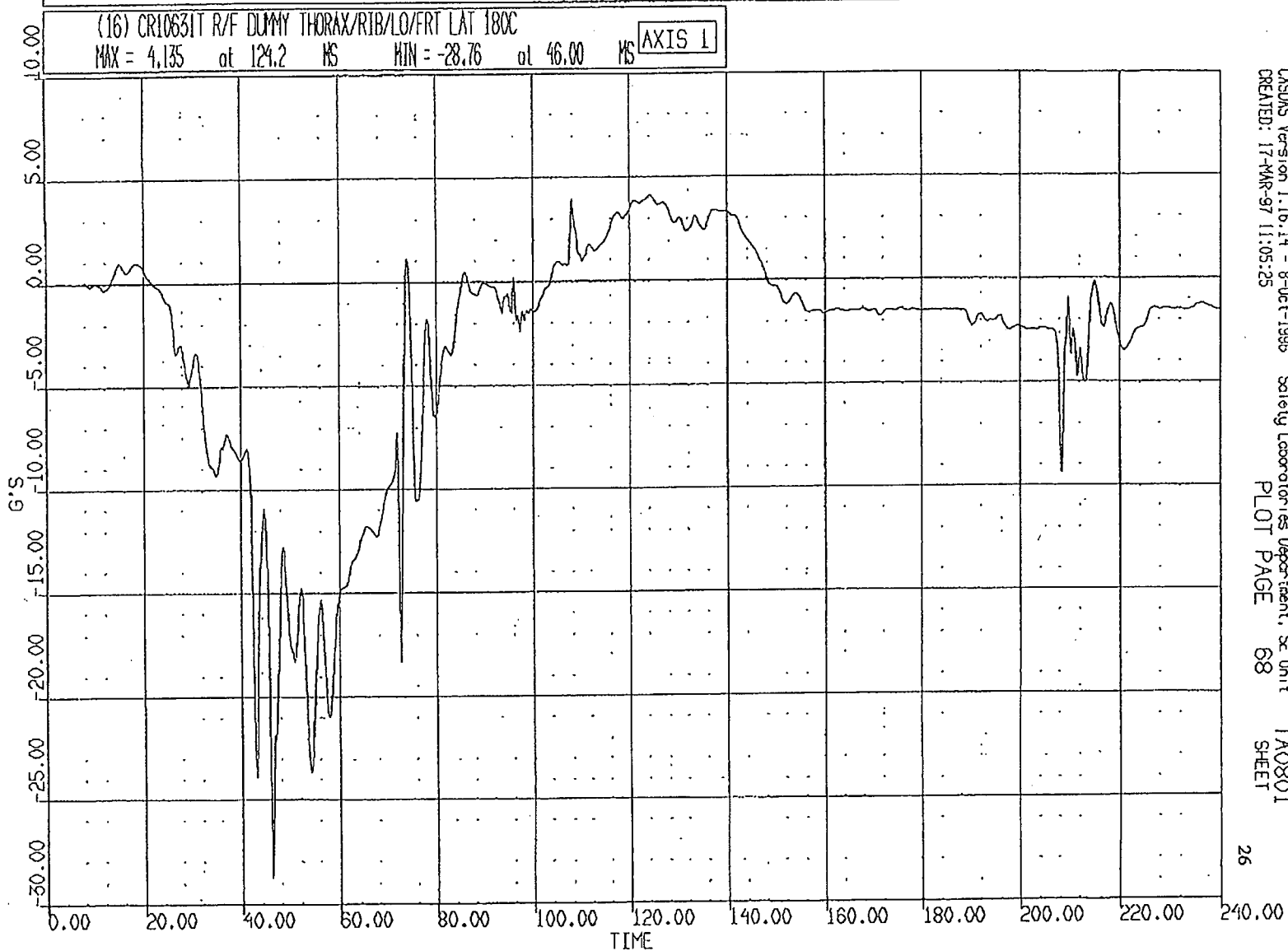
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CRTS 0010631

0575

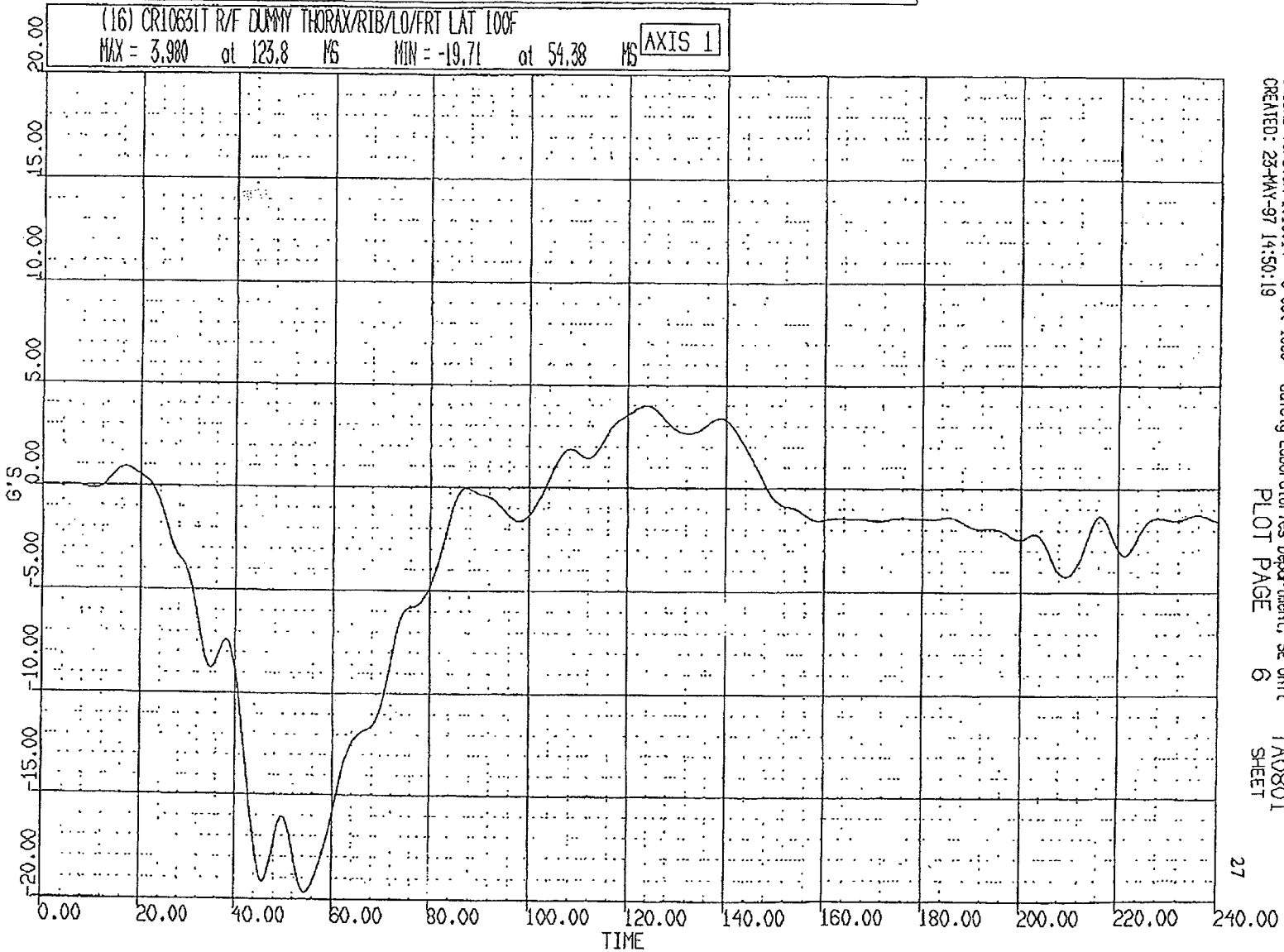
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1999 PN-96 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:05:25
PLOT PAGE 68
TA0801
SHEET

CRIS 0010631

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1999 PN-96 1999 MOVING DEFORMABLE BA

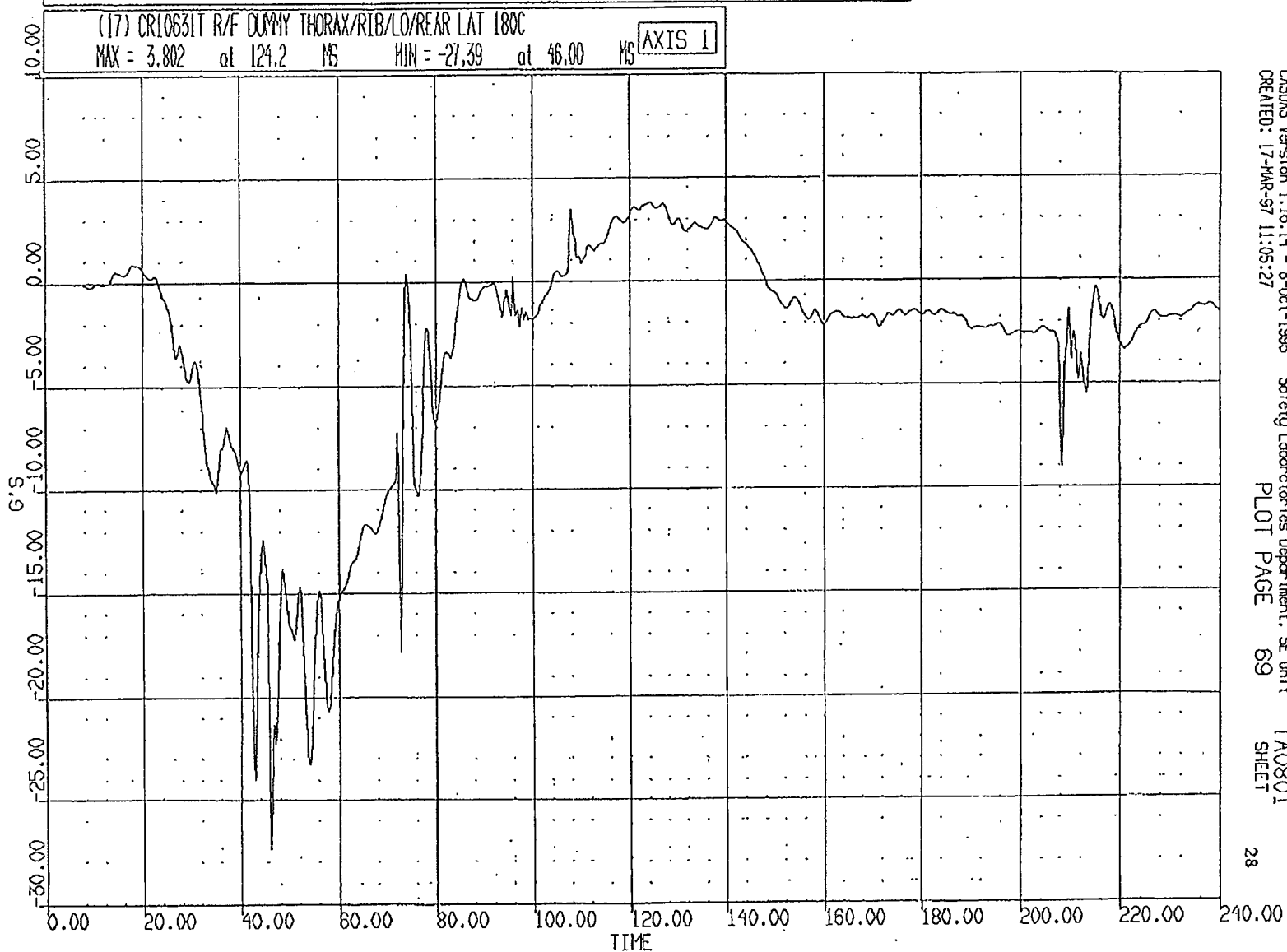


CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit TA0801
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CRTS 0010631

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1999 PN-96 1999 MOVING DEFORMABLE BA



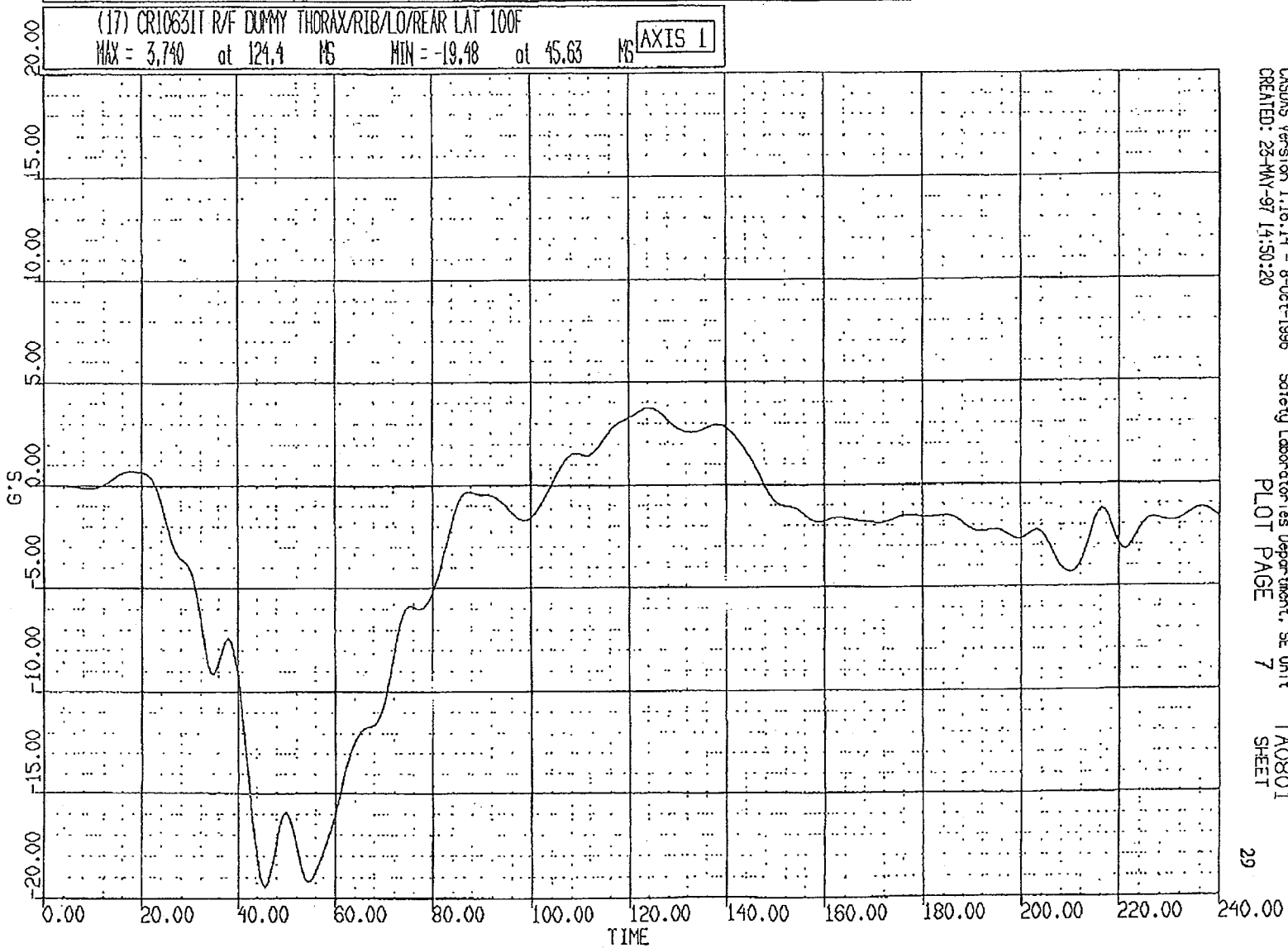
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PLOT PAGE 69 TA0801
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CRTS 0010631

0578

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1999 PN-96 1999 MOVING DEFORMABLE BA



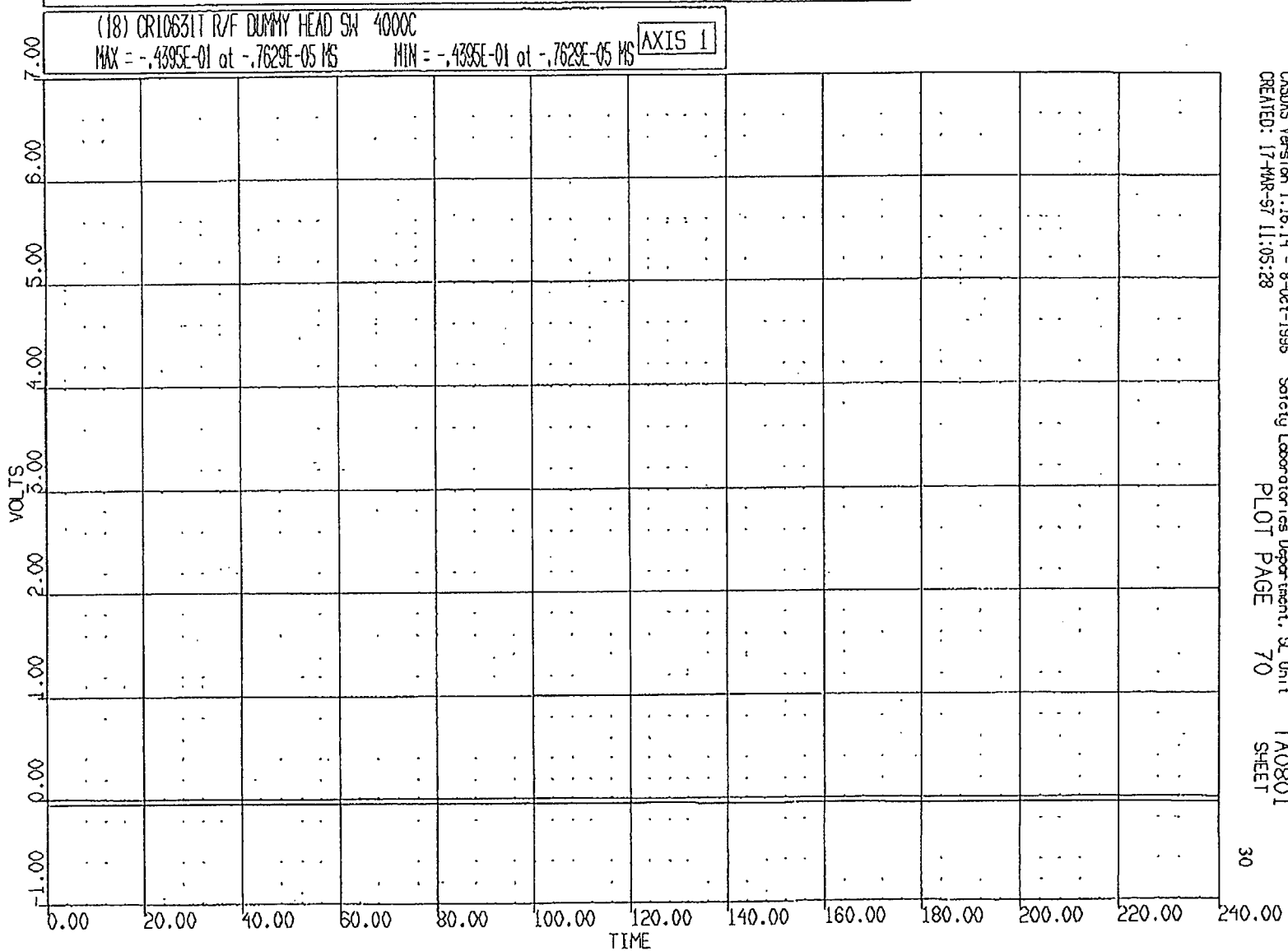
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CRTS 0010631

0579

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1999 PN-96 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1995 Safety Laboratories Department, SF Unit
CREATED: 17-MAR-97 11:05:28 PLOT PAGE 70 TA0801
SHEET

CRIS 0010631

0580

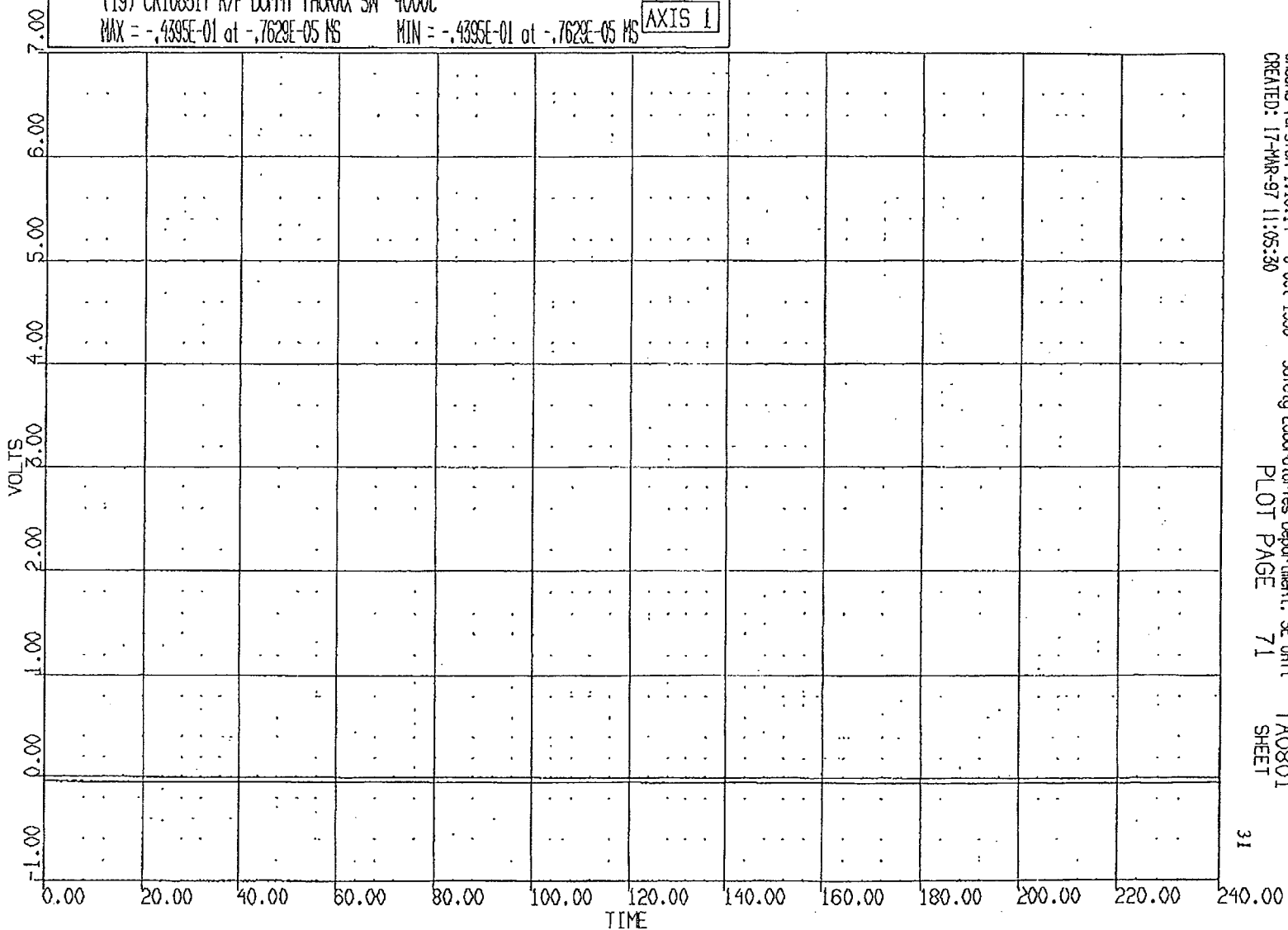
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1999 PN-96 1999 MOVING DEFORMABLE BA

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AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
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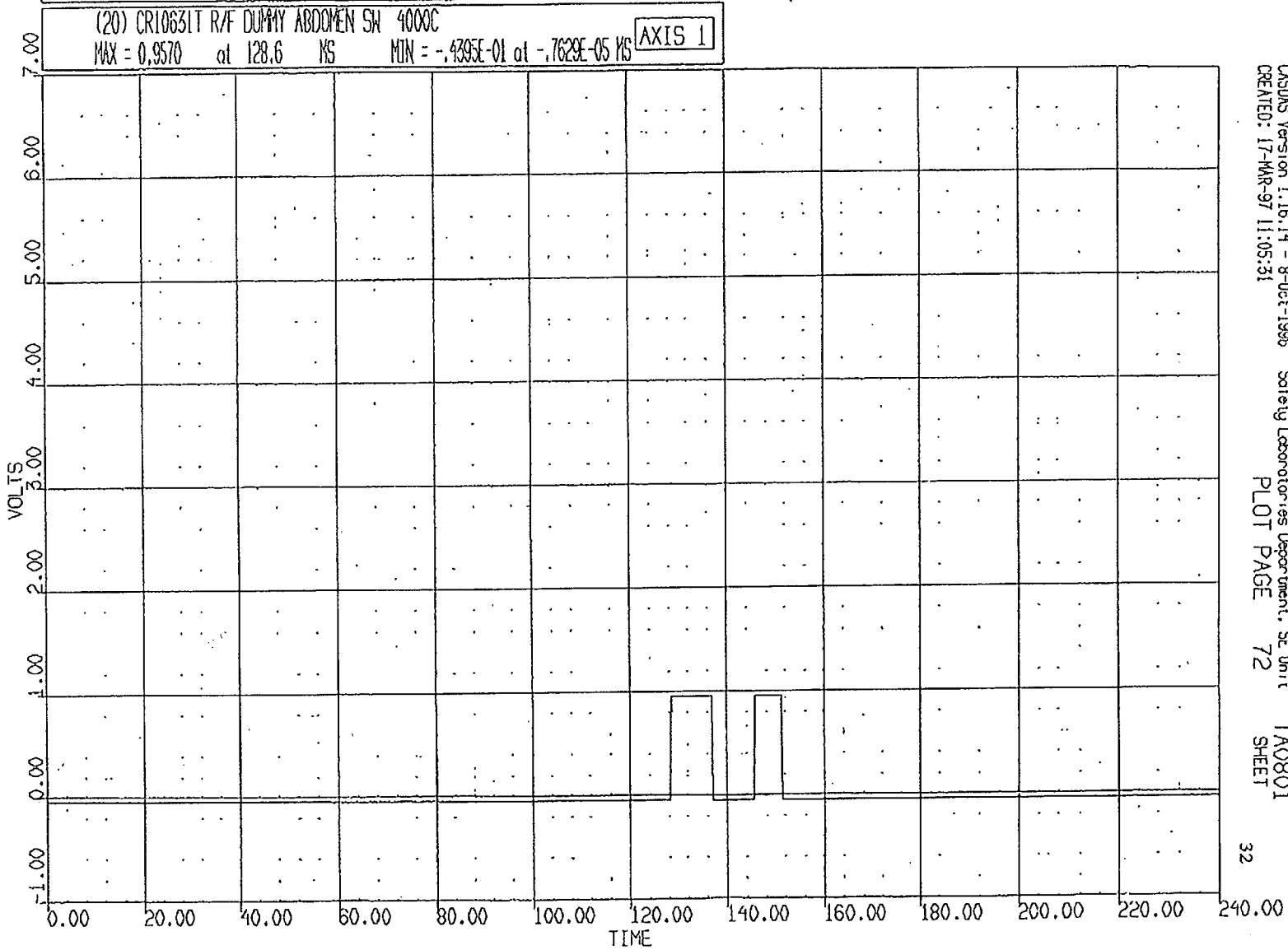
Safety Laboratories Department, SE Unit
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CRTS 0010631

0581

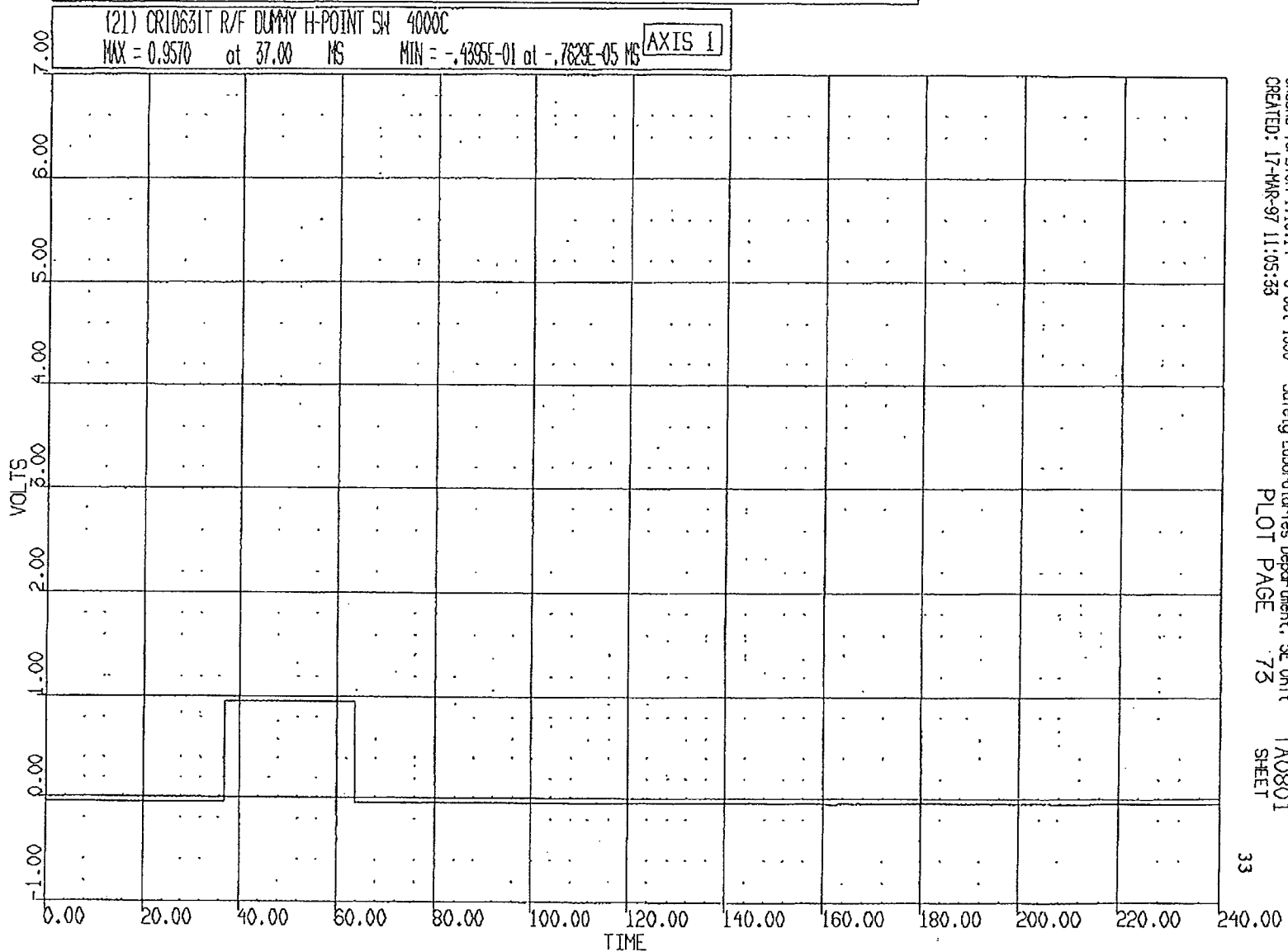
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1999 PN-98 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:05:31 PLOT PAGE 72 TA0801 SHEET

CRTS 0010631

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



CASDAS Version 1.16.14 - 8-Oct-1996
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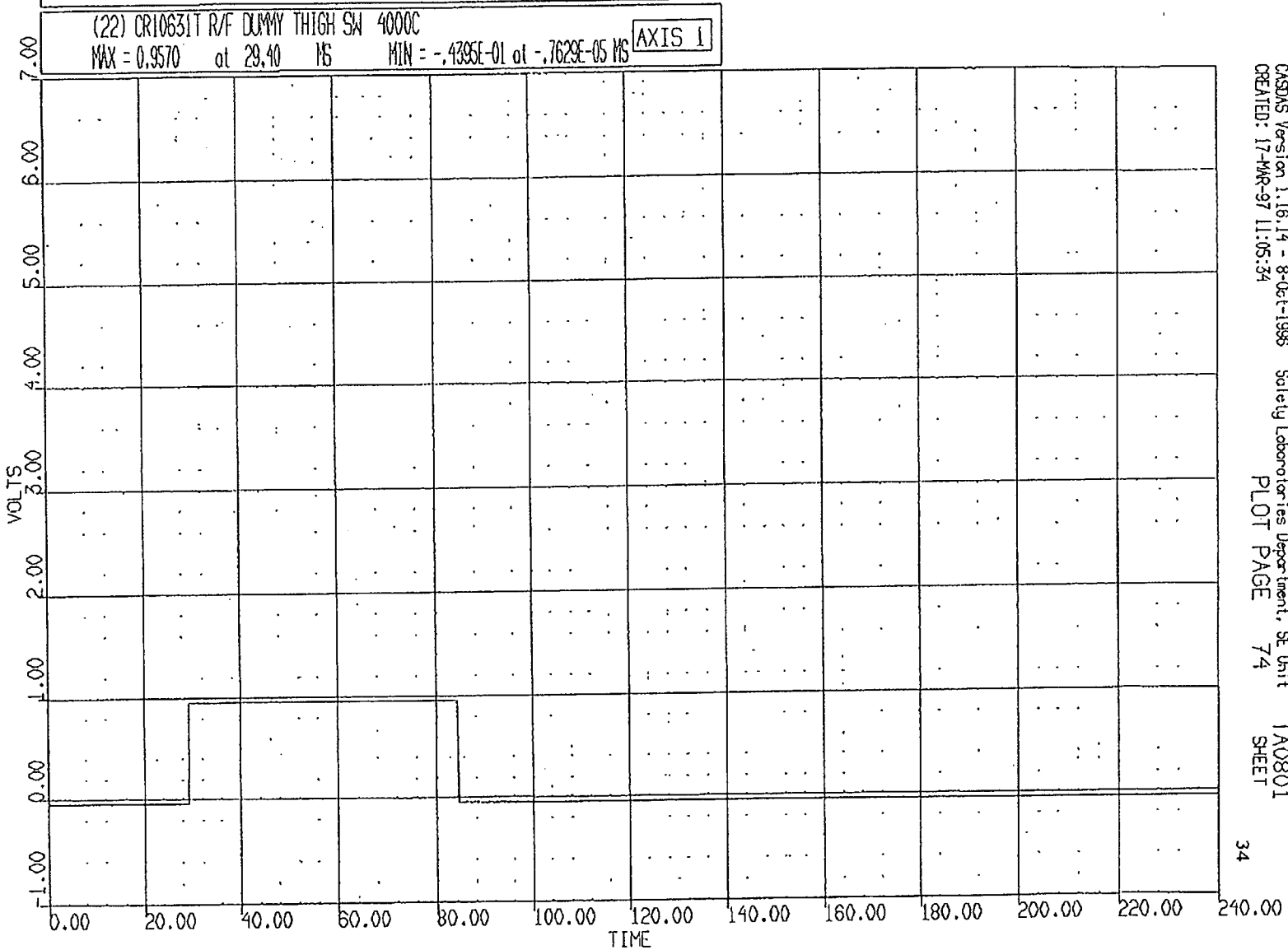
Safety Laboratories Department, SE Unit
PLOT PAGE 73
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CRTS 0010631

0583

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



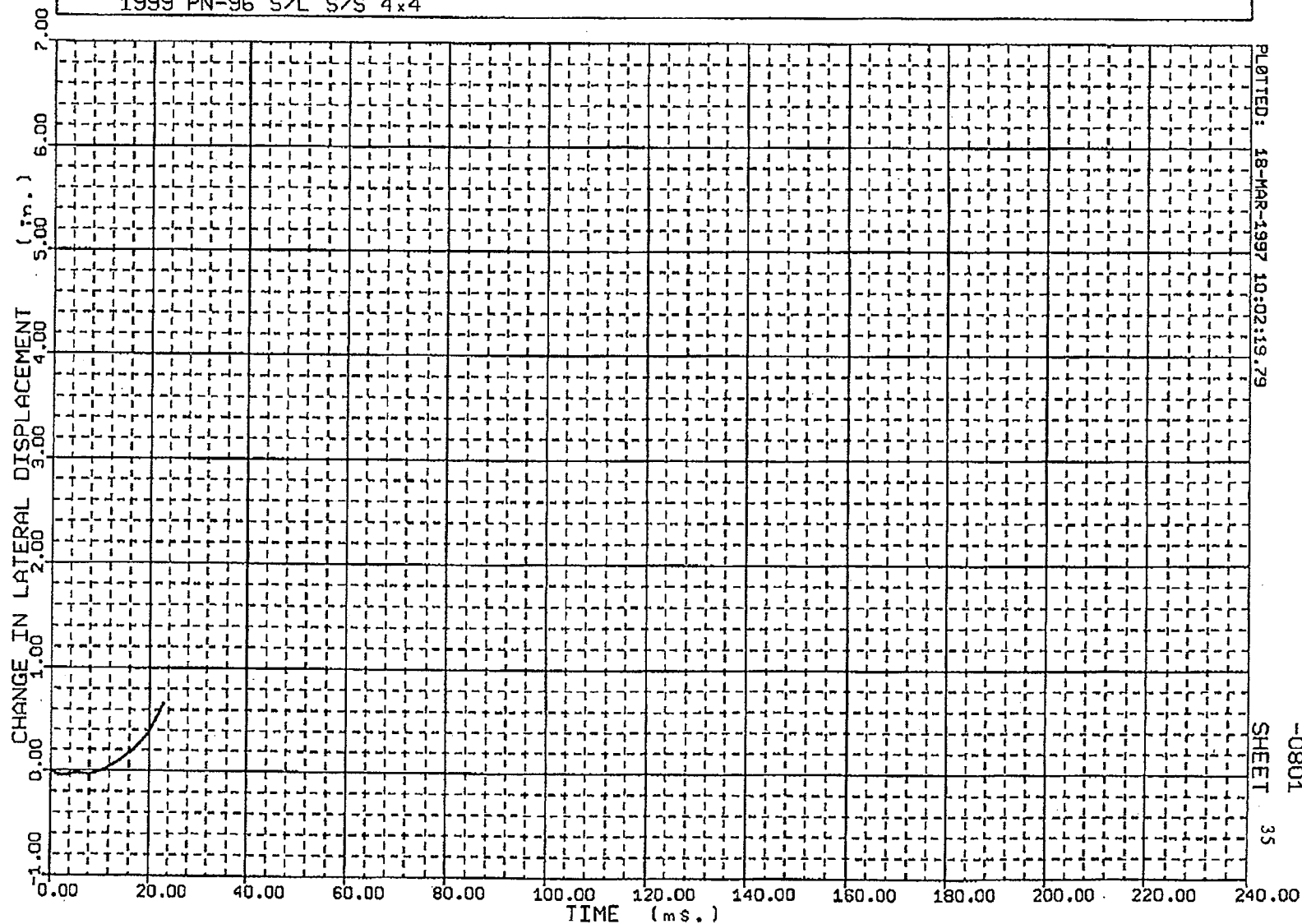
CASDIS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:05:34
Safety Laboratories Department, SE Unit
PLOT PAGE 74
TA0801
SHEET

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CRIS 0010631

0584

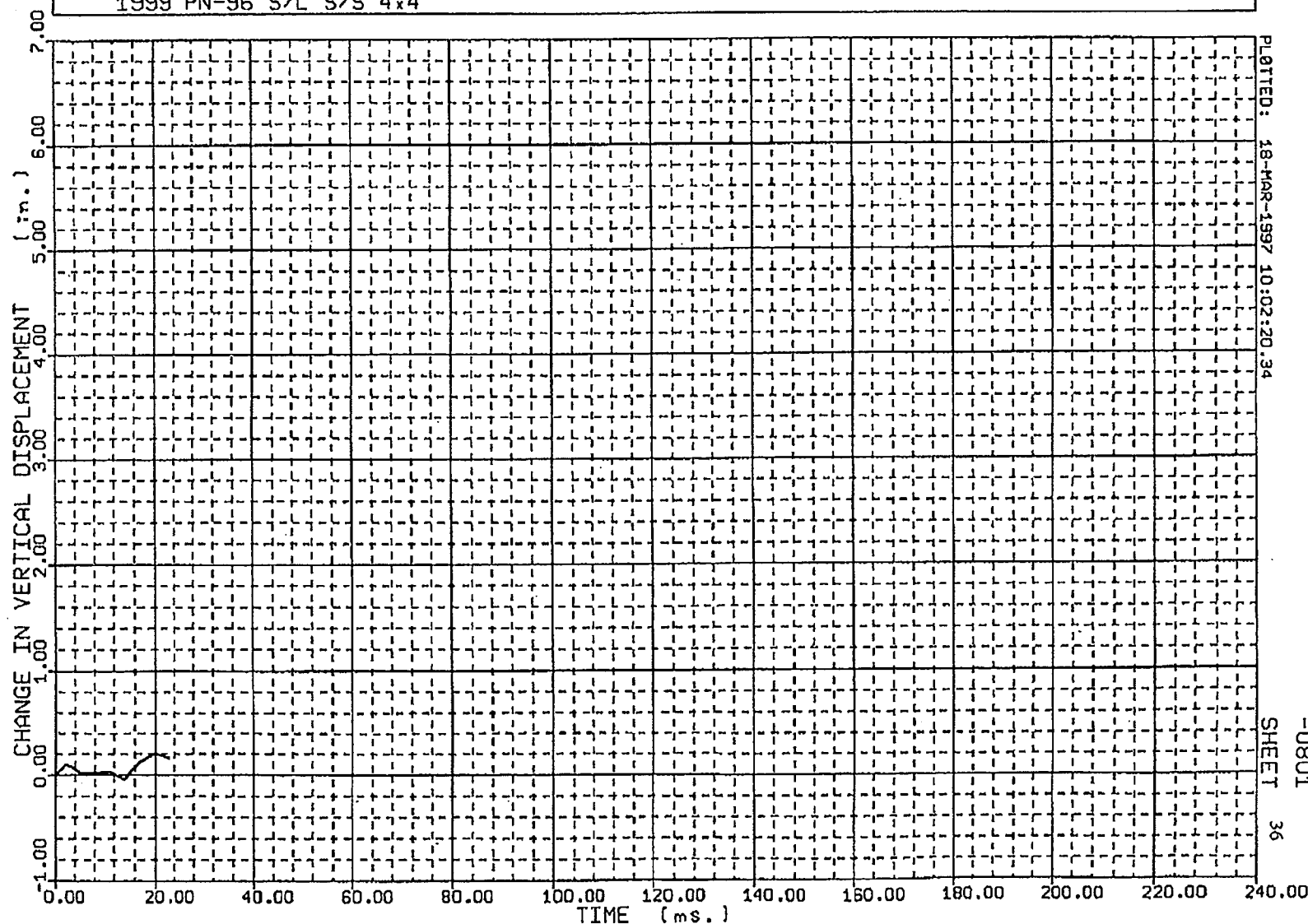
Y - AXIS: PASSENGER HEAD WRT ROOF C/L AT A-PILLAR					MAX = 0.6671	at 23.00	MIN = -.4540E-01	at 2.00
RUN NO.	FACILITY	TEST ORDER NO.	FILM ANALYSIS METHOD		PITCH CORRECTION			
10631	BARRIER	-0801	SCALE		NOT APPLIED			
1999 PN-96 S/L S/S 4x4								



CRTS 0010631

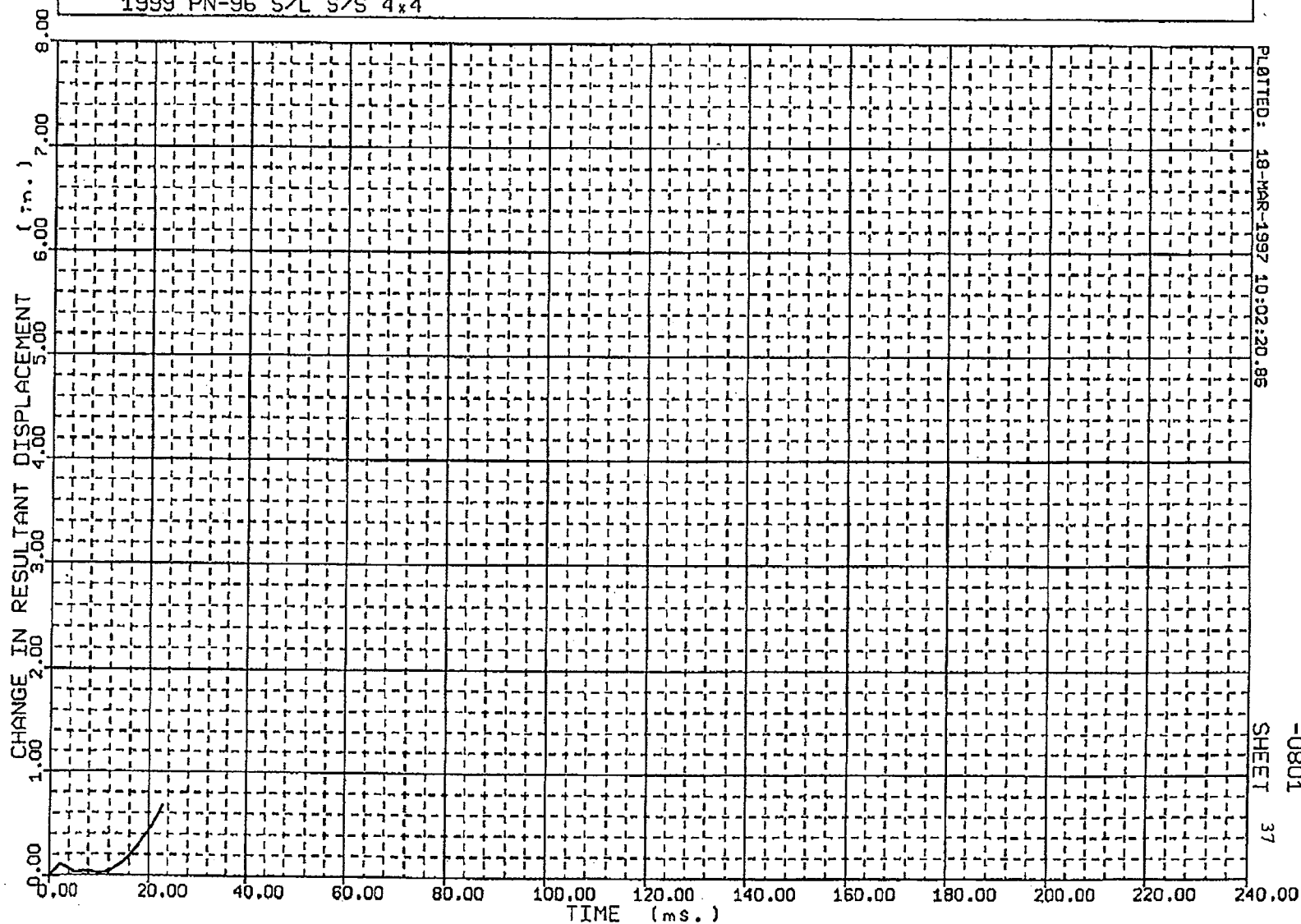
0585

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			PITCH CORRECTION		
10631	BARRIER	-0801	SCALE			NOT APPLIED		
1999 PN-96 S/L S/S 4x4								



CRTS 0010631

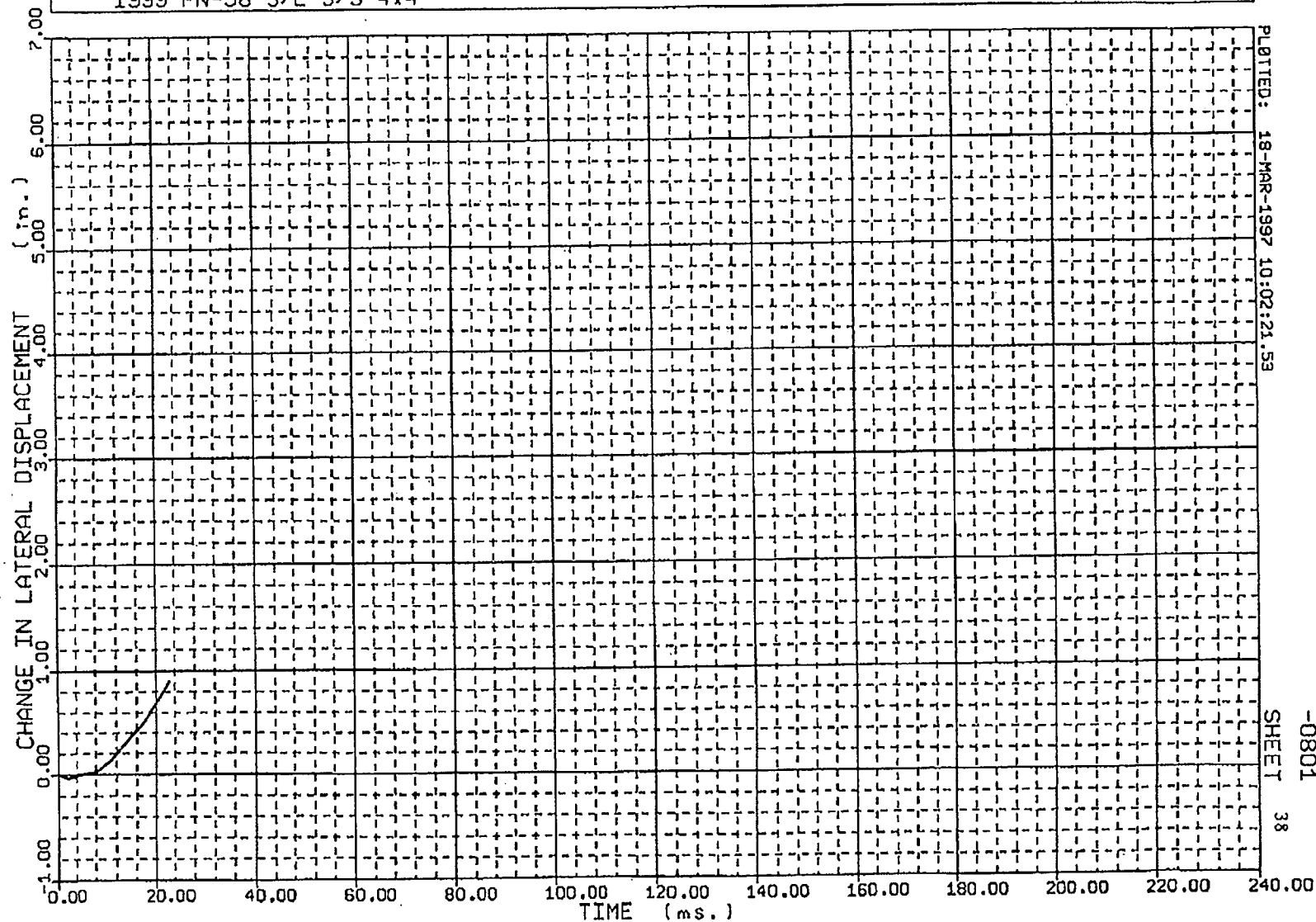
Y - AXIS: PASSENGER HEAD WRT R00F C/L AT A-PILLAR					MAX = 0.6850	at 23.00	MIN = 0.0000E+00	at 0.00
RUN N0.	FACILITY	TEST 0RDER N0.	FILM ANALYSIS METH0D		PITCH C0RRECTION			
10631	BARRIER	-0801	SCALE		N0T APPLIED			
1999 PN-96 S/L S/S 4x4								



CRTS 0010631

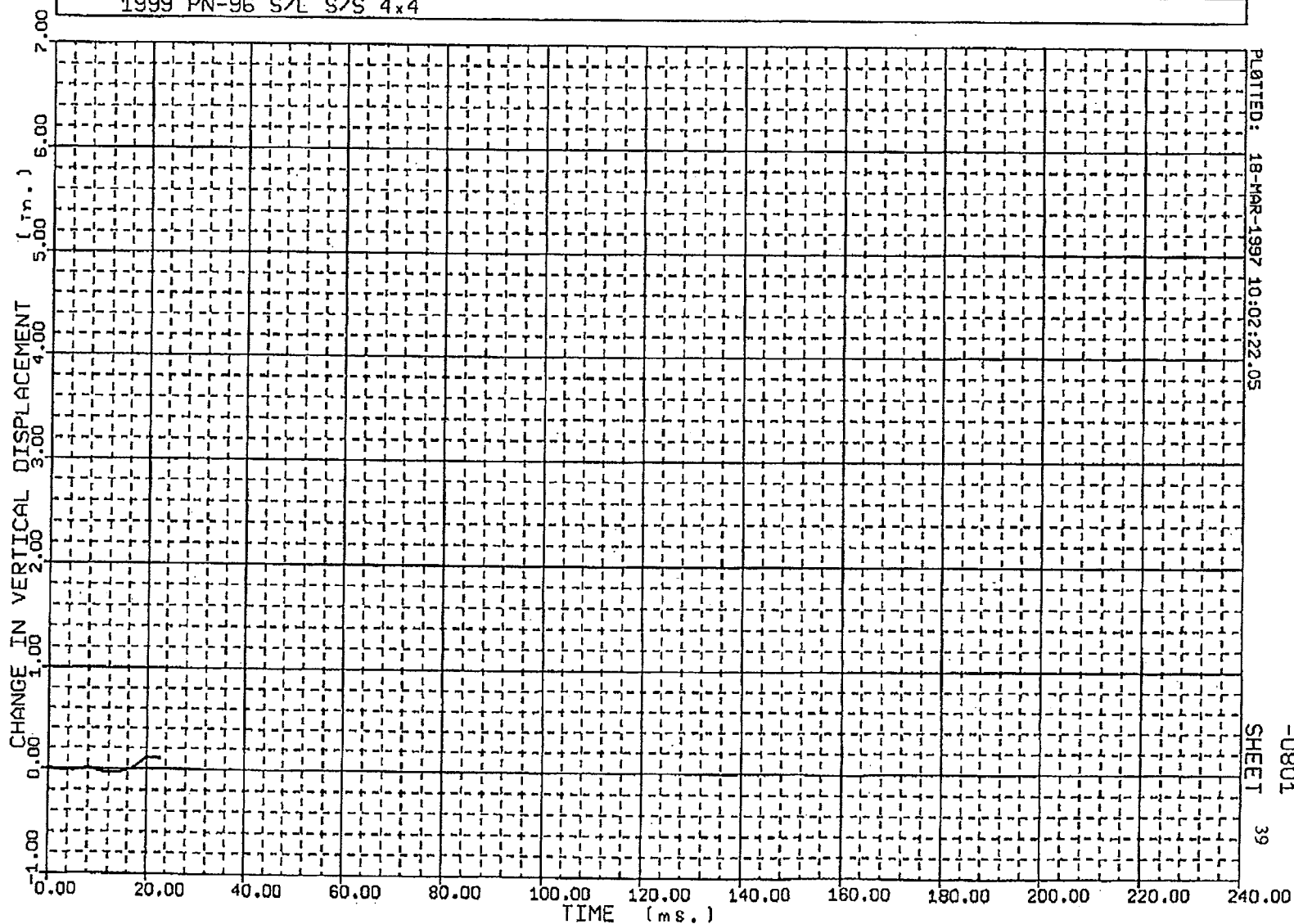
0587

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							



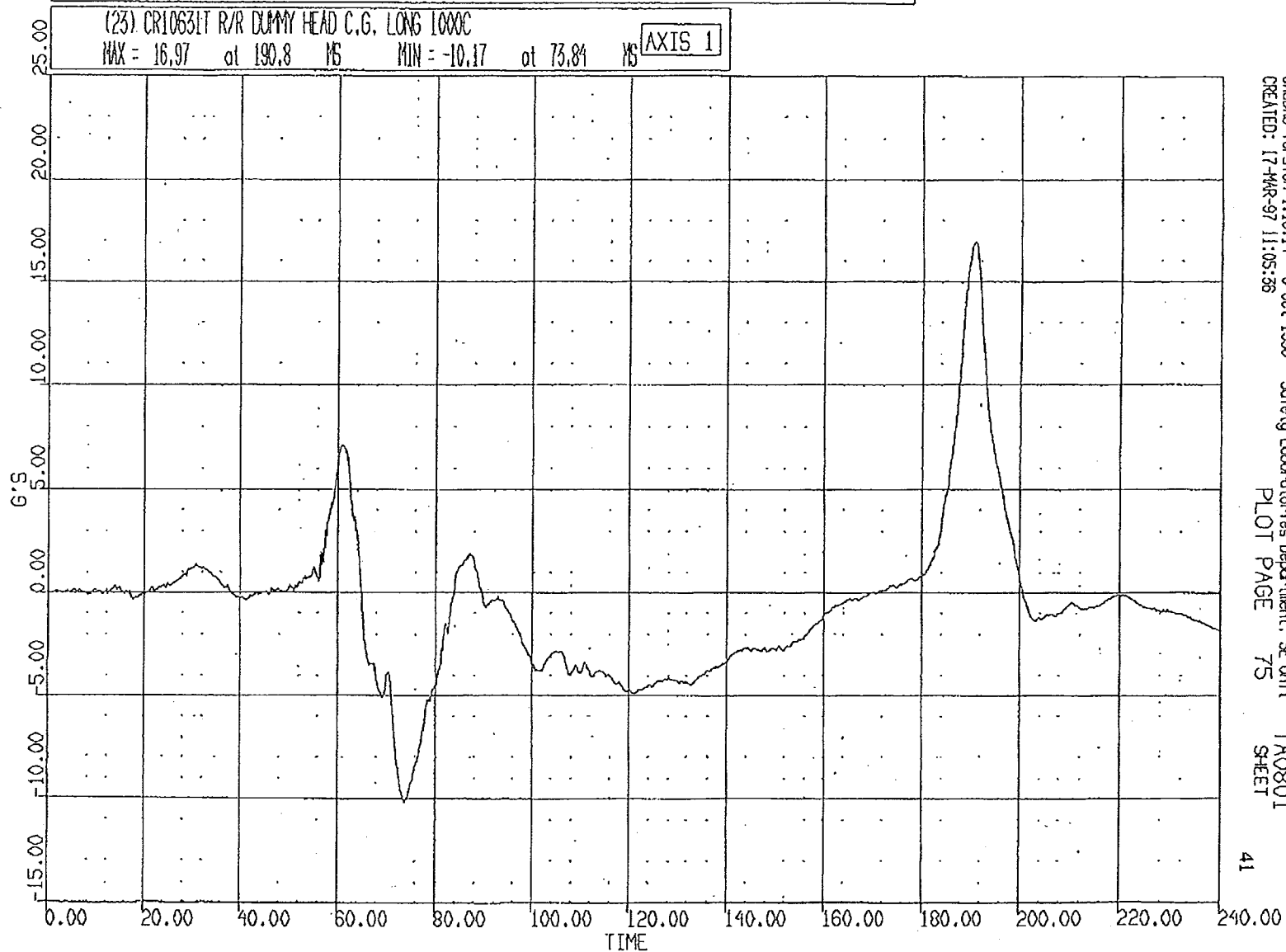
CRTS 0010631

Y - AXIS: PASSENGER CHEST WRT R00F C/L AT A-PILLAR					MAX = 0.1112	at 20.00	MIN = -.3494E-01	at 12.00
RUN 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

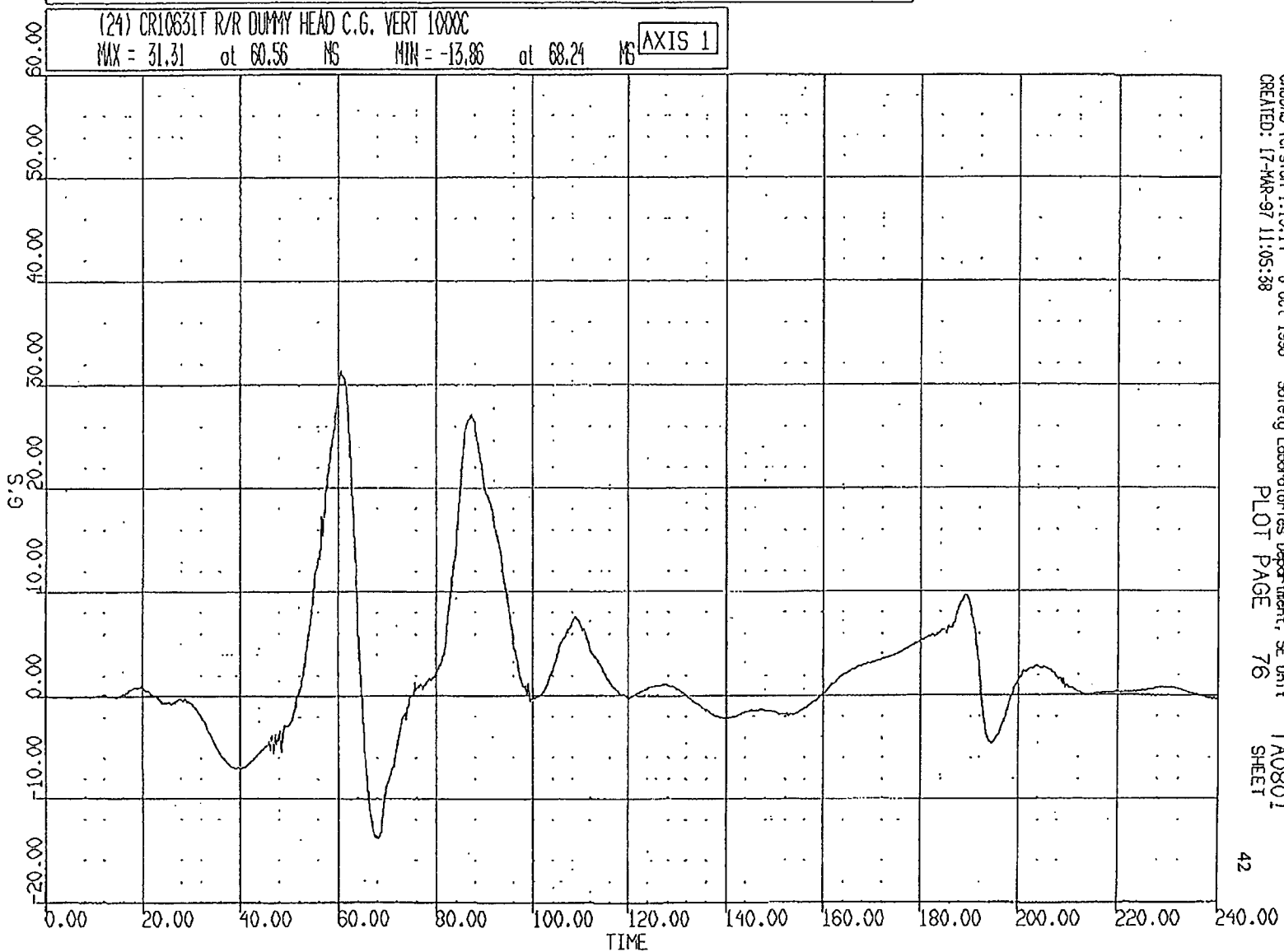
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:05:36 PLOT PAGE 75 TA0801
SHEET

CRTS 0010631

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-66 1999 MOVING DEFORMABLE BA



CASDAS Version 1.13.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:05:38

Safety Laboratories Department, SE Unit
PLOT PAGE 76

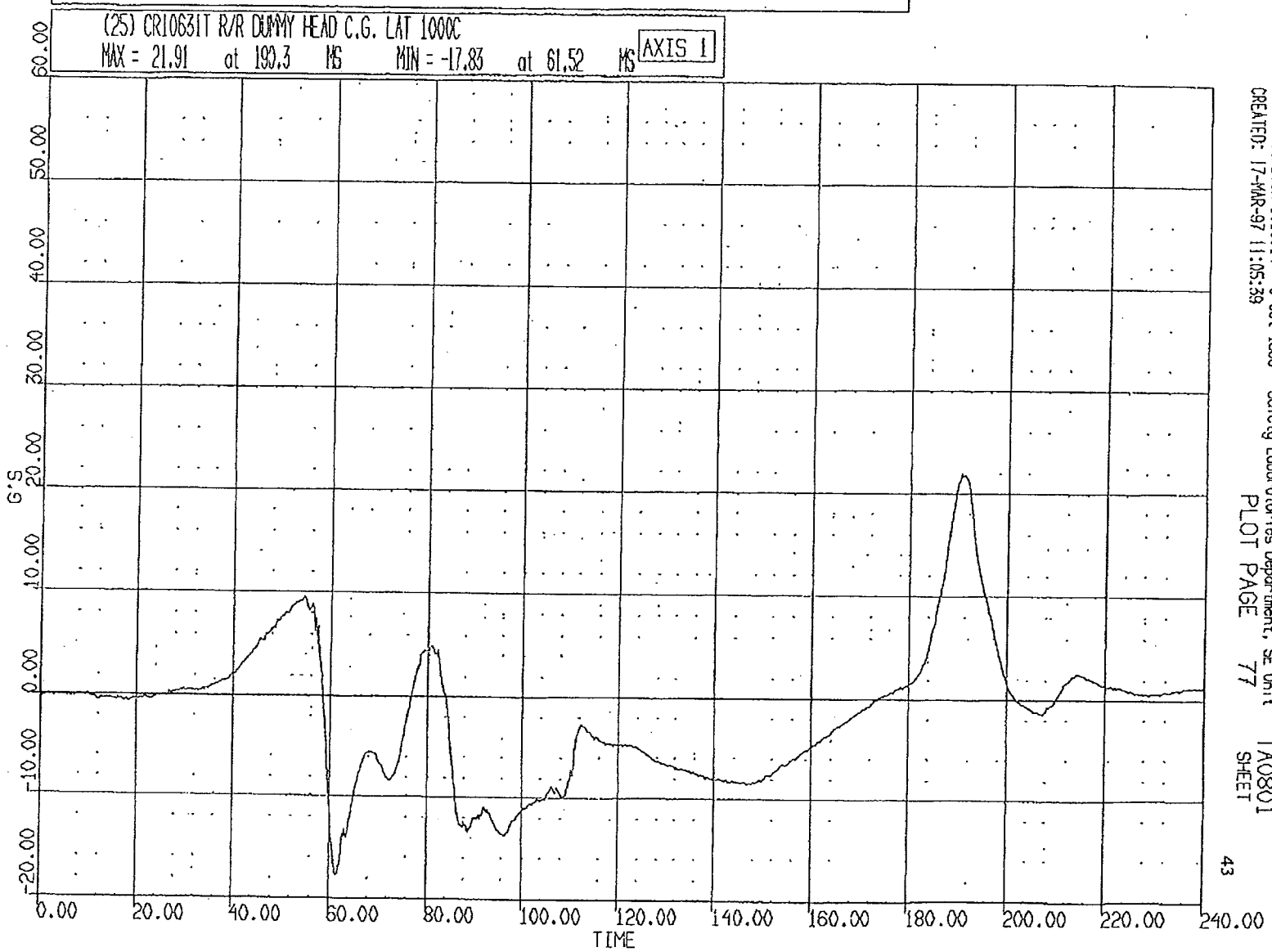
TA0801
SHEET

42

CRIS 0010631

0592

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

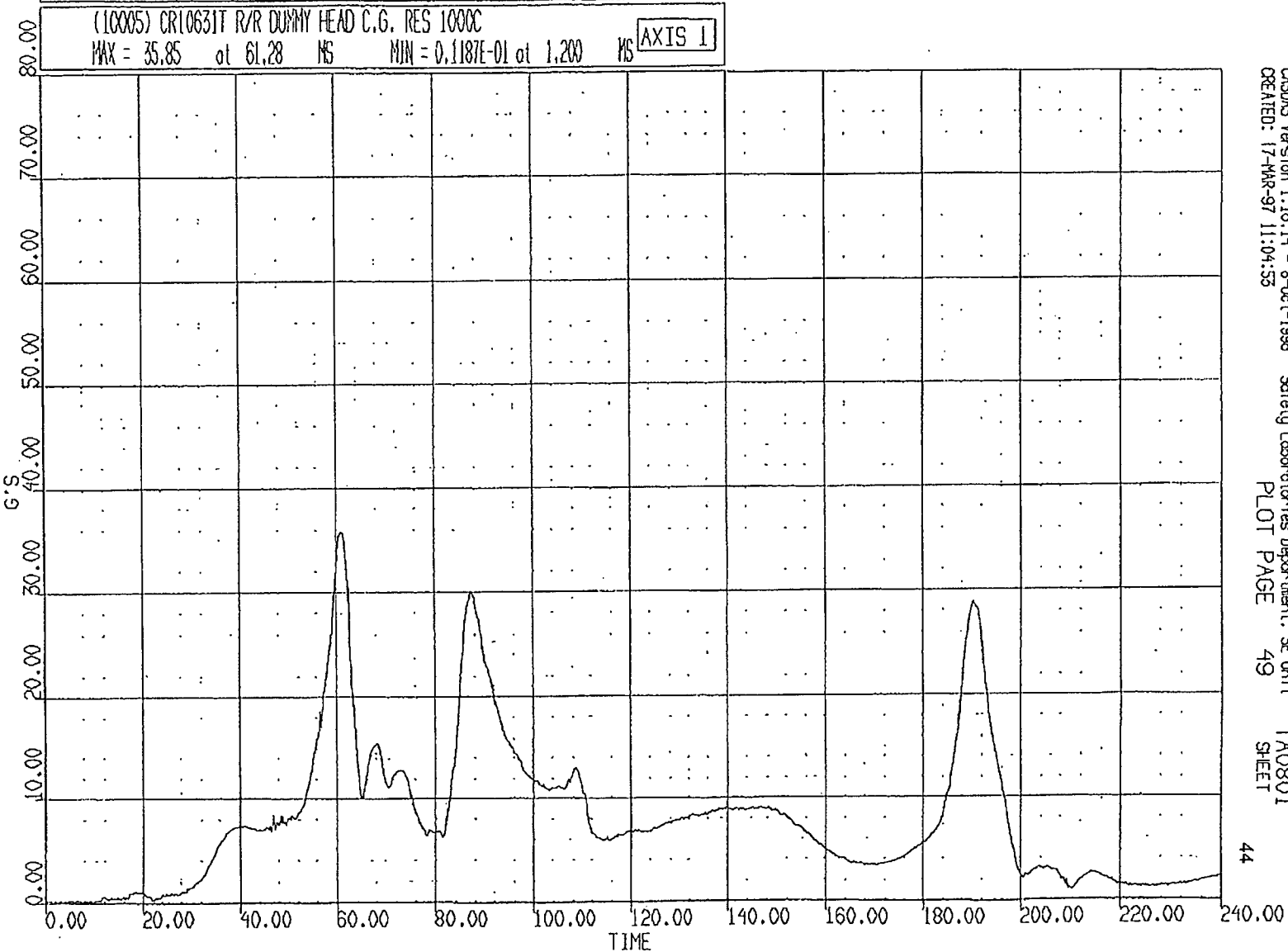


CASAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit TA0801
CREATED: 17-MAR-97 11:05:39 PLOT PAGE 77 SHEET 43

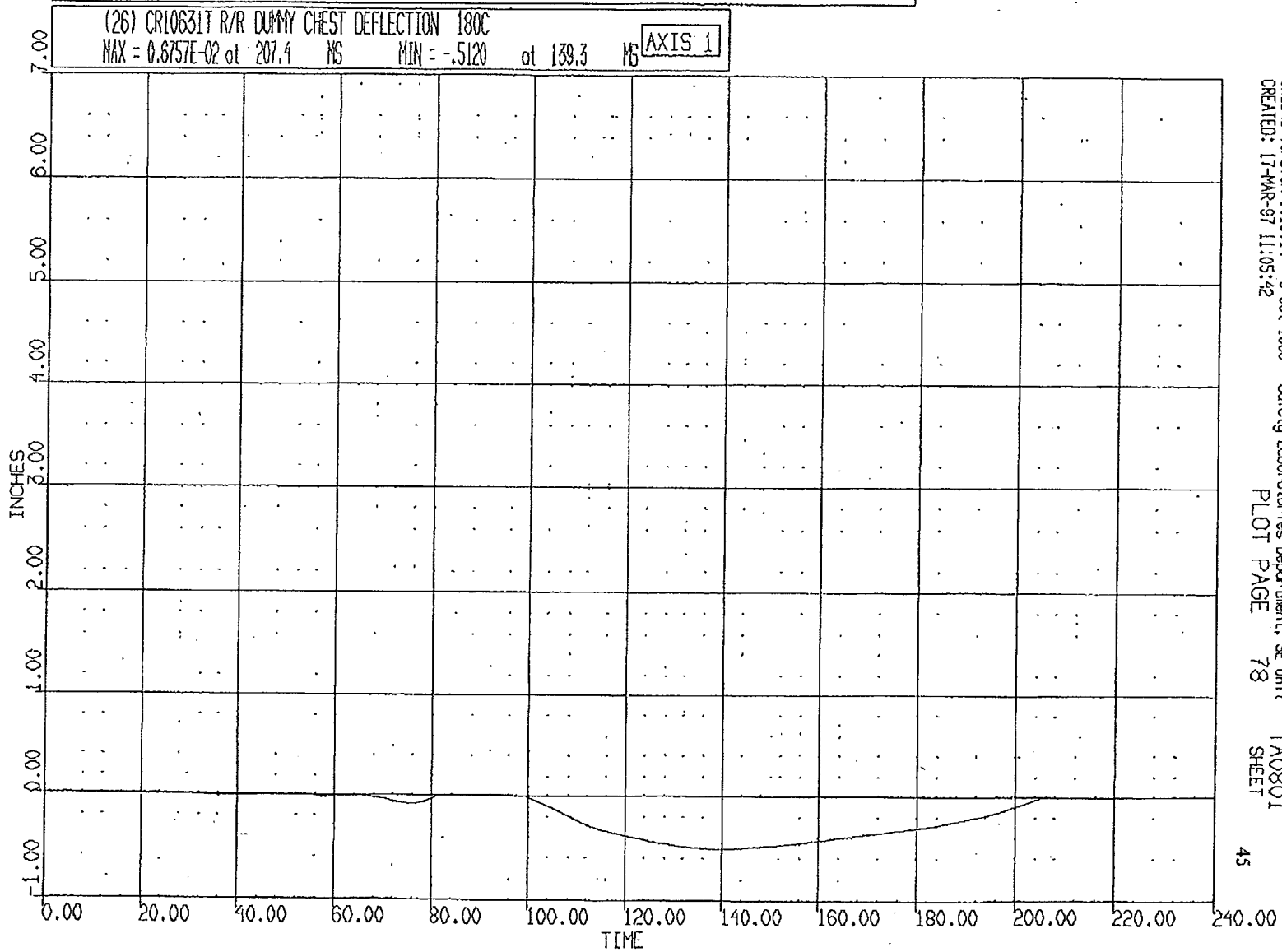
CRIS 0010631

0593

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1999	PZ	10831	1999	MOVING	DEFORMABLE	BA	
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HH00	:	244.0	DUR	:	36.0	T1/T2:	57.0
HH00	:	248.0	DUR	:	15.0	T1/T2:	83.5



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



CASAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:05:42

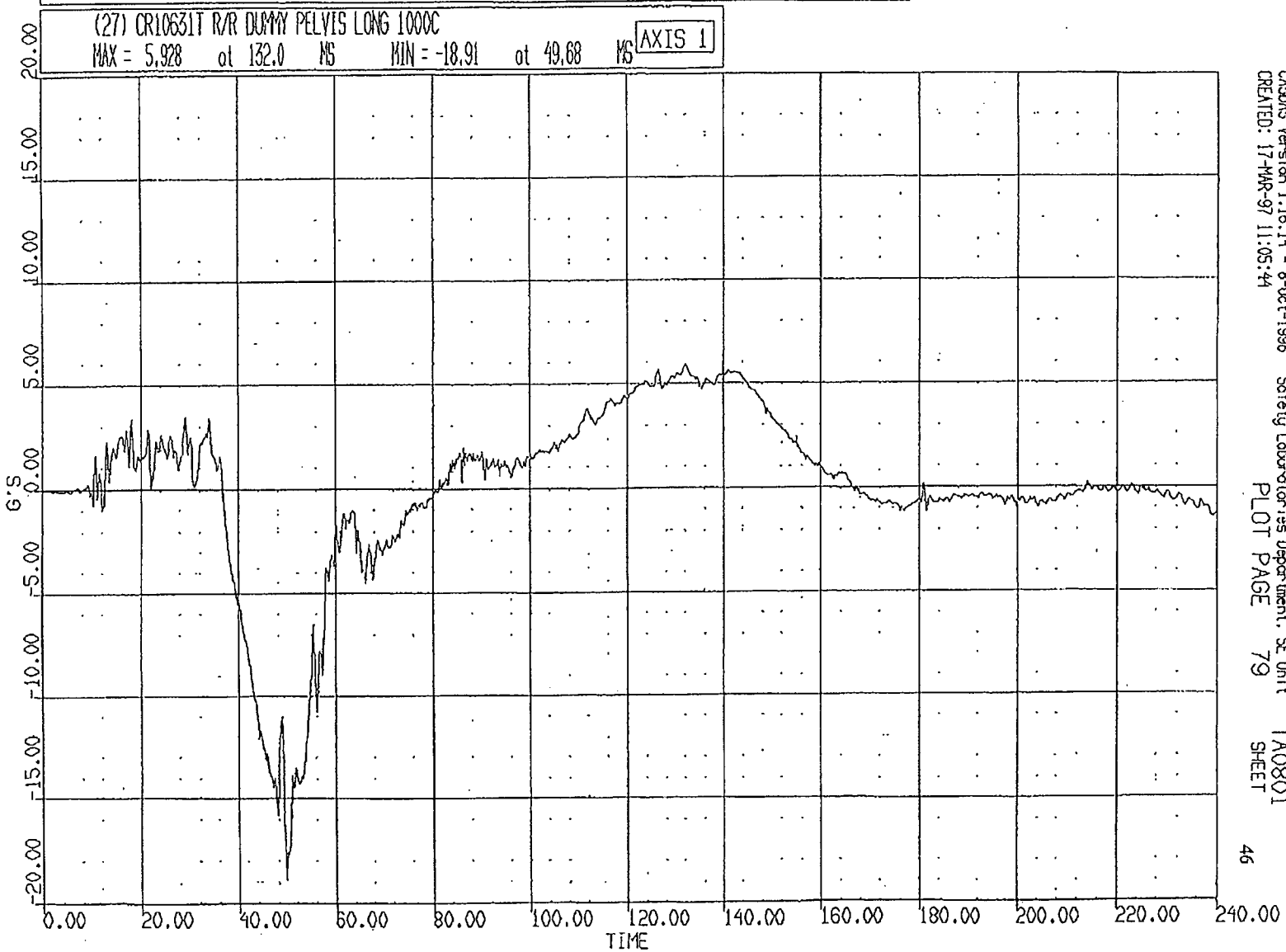
Safety Laboratories Department, SE Unit
PLOT PAGE 78
TA0801
SHEET

45

CRIS 0010631

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1999 PN-96 1999 MOVING DEFORMABLE BA



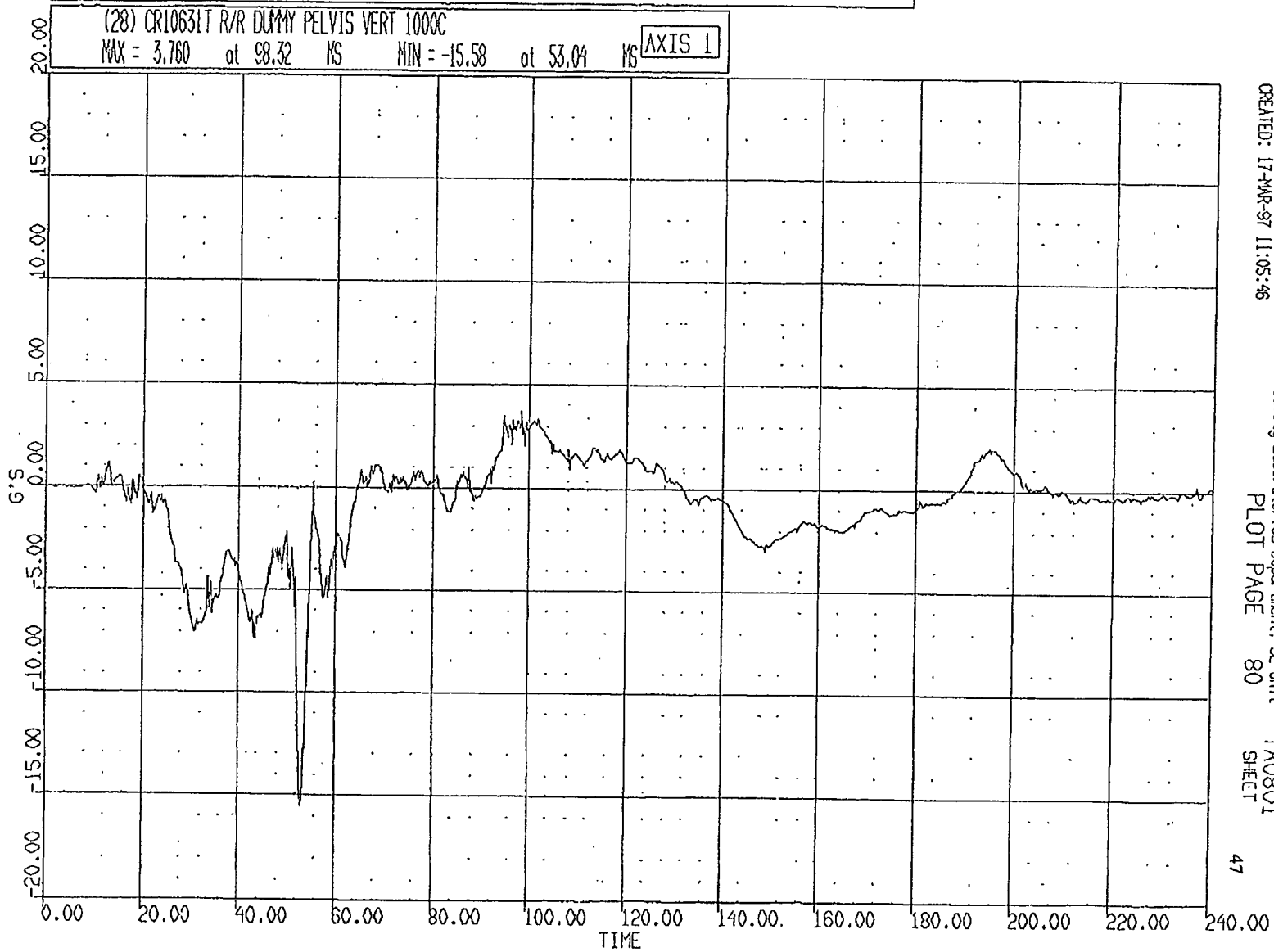
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CREATED: 17-MAR-97 11:05:44
PLOT PAGE 79
TA0801
SHEET

46

CRIS 0010631

0596

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:05:46

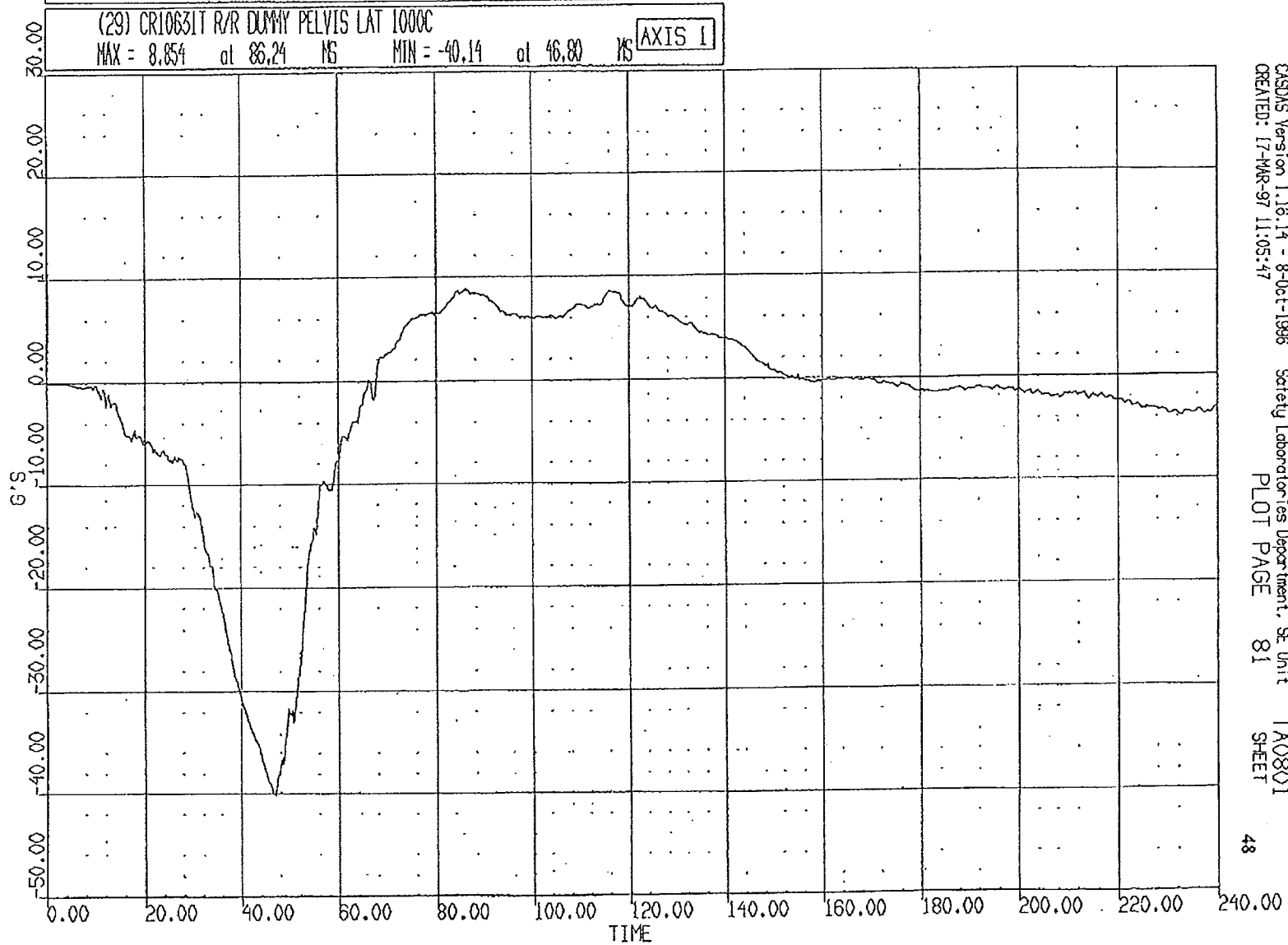
Safety Laboratories Department, SE Unit
PLOT PAGE 80
TA0801
SHEET

47

CRIS 0010631

0597

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:05:47

Safety Laboratories Department, SE Unit
PLOT PAGE 81

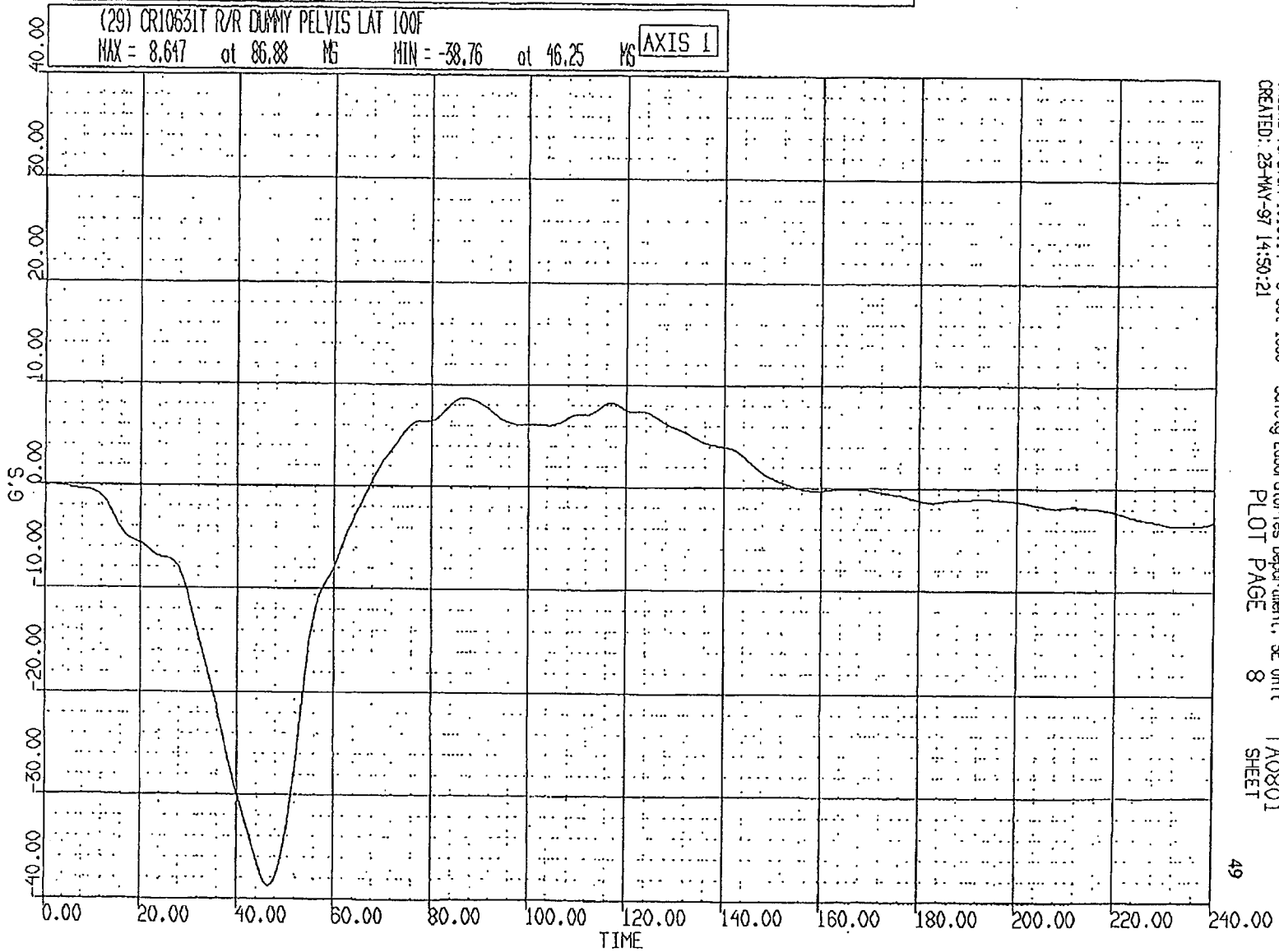
TA0801
SHEET

48

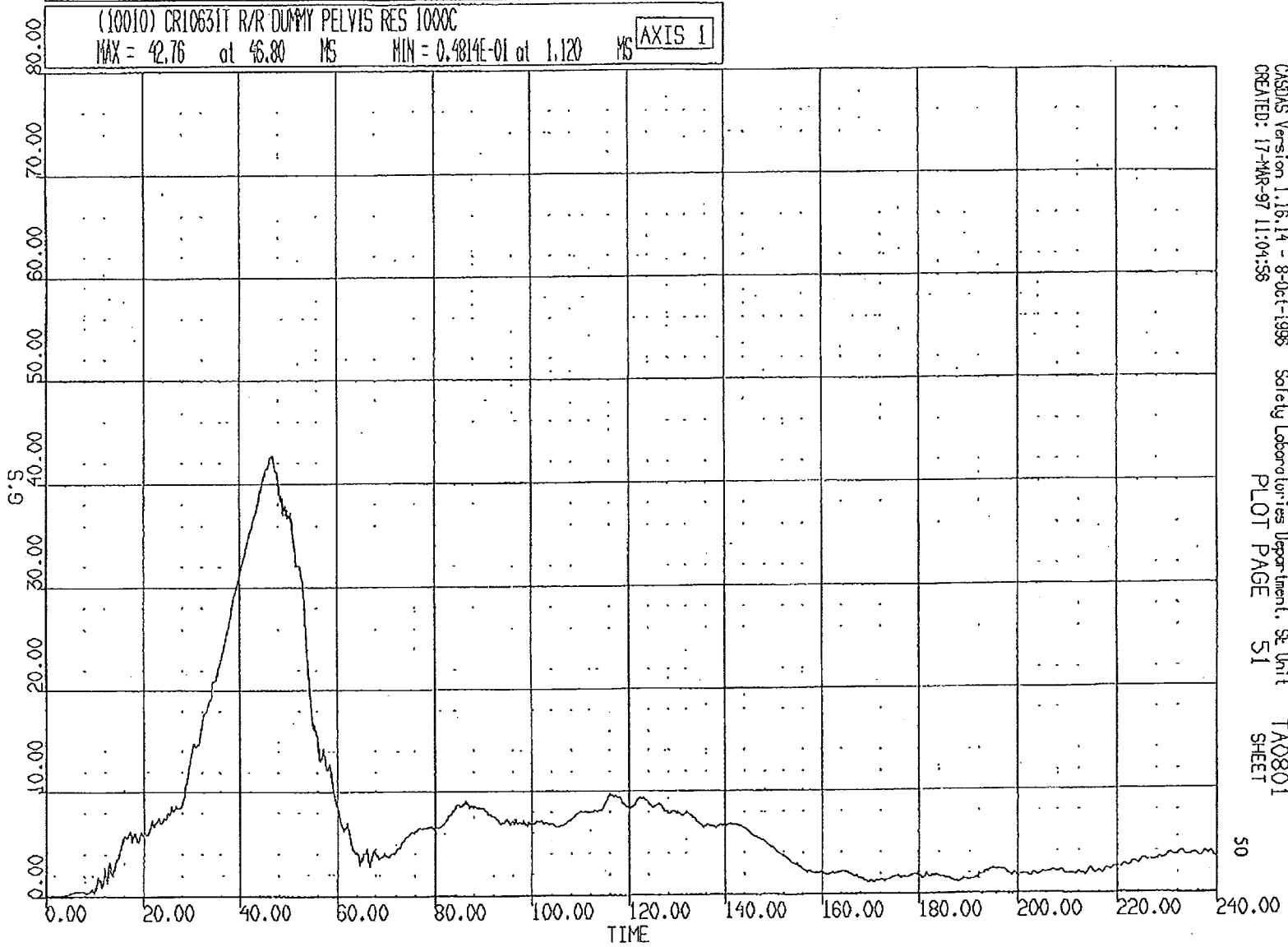
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1999 PN-98 1999 MOVING DEFORMABLE BA



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1999 PN-98 1999 MOVING DEFORMABLE BA

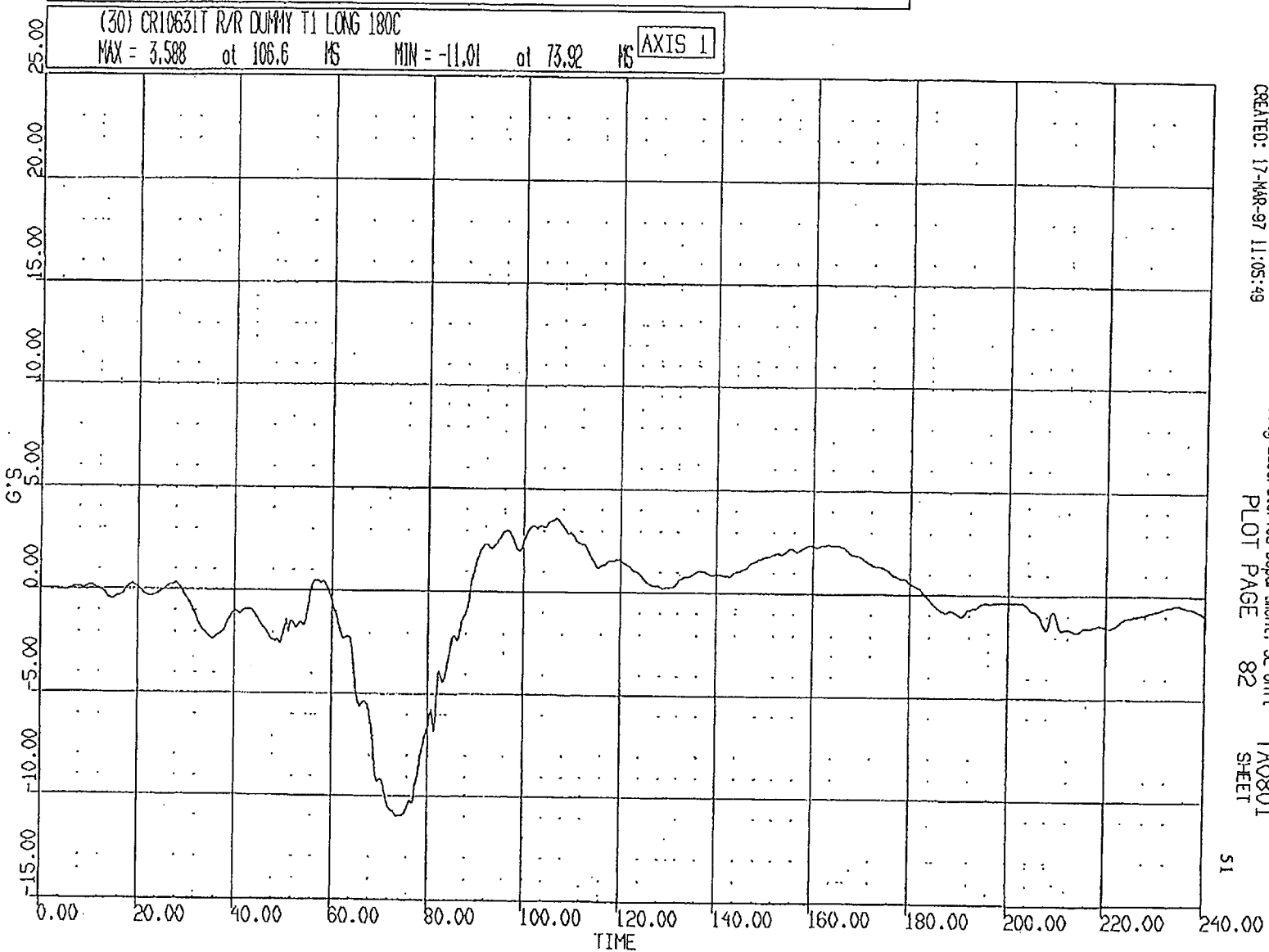


CASDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:04:56
PLOT PAGE 51
TA0801
SHEET

CRTS 0010631

0600

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:05:49

Safety Laboratories Department, SE Unit
PLOT PAGE 82

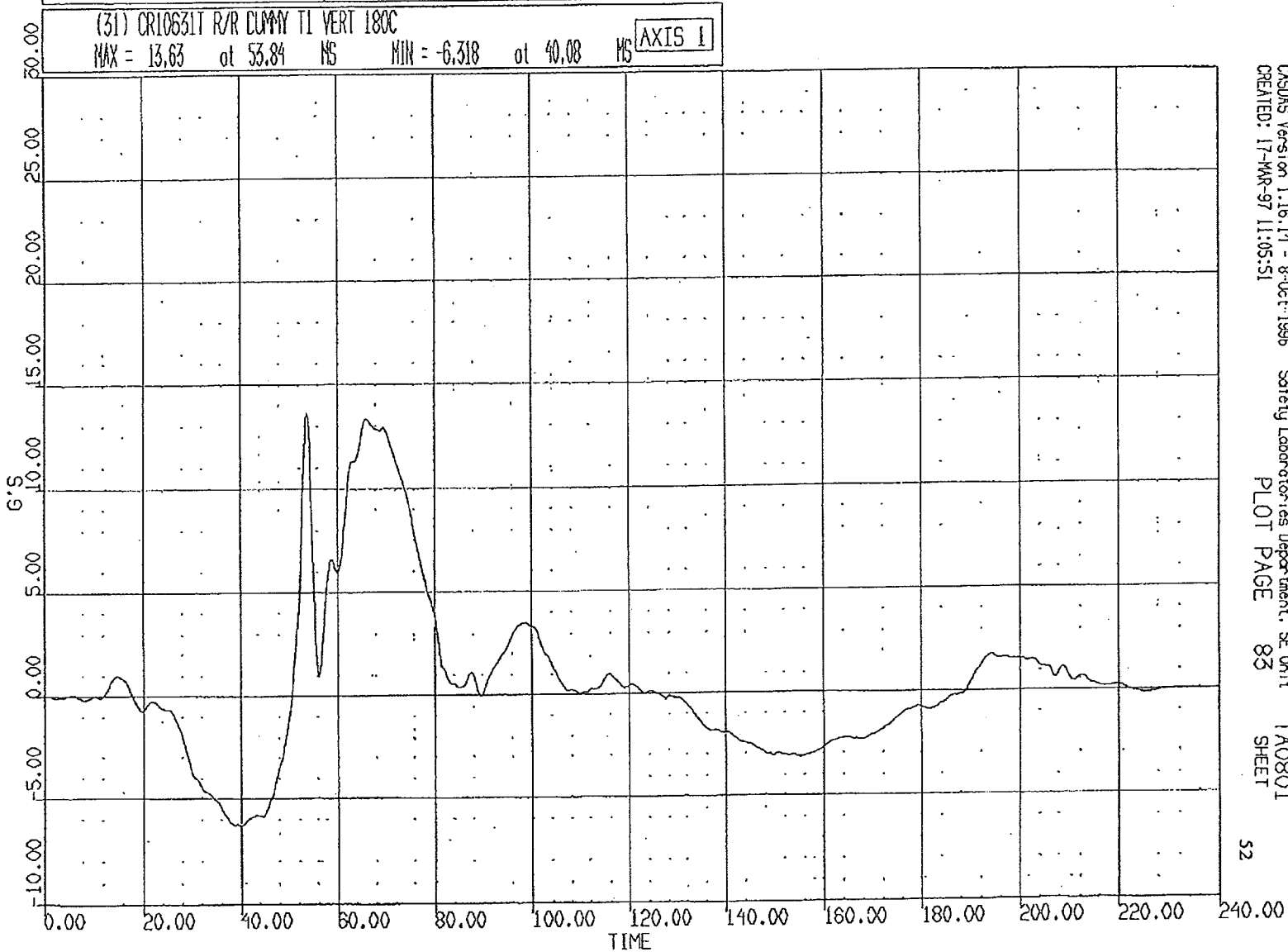
TA0801
SHEET

51

CRTS 0010631

0601

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:05:51

Safety Laboratories Department, SE Unit
PLOT PAGE 83

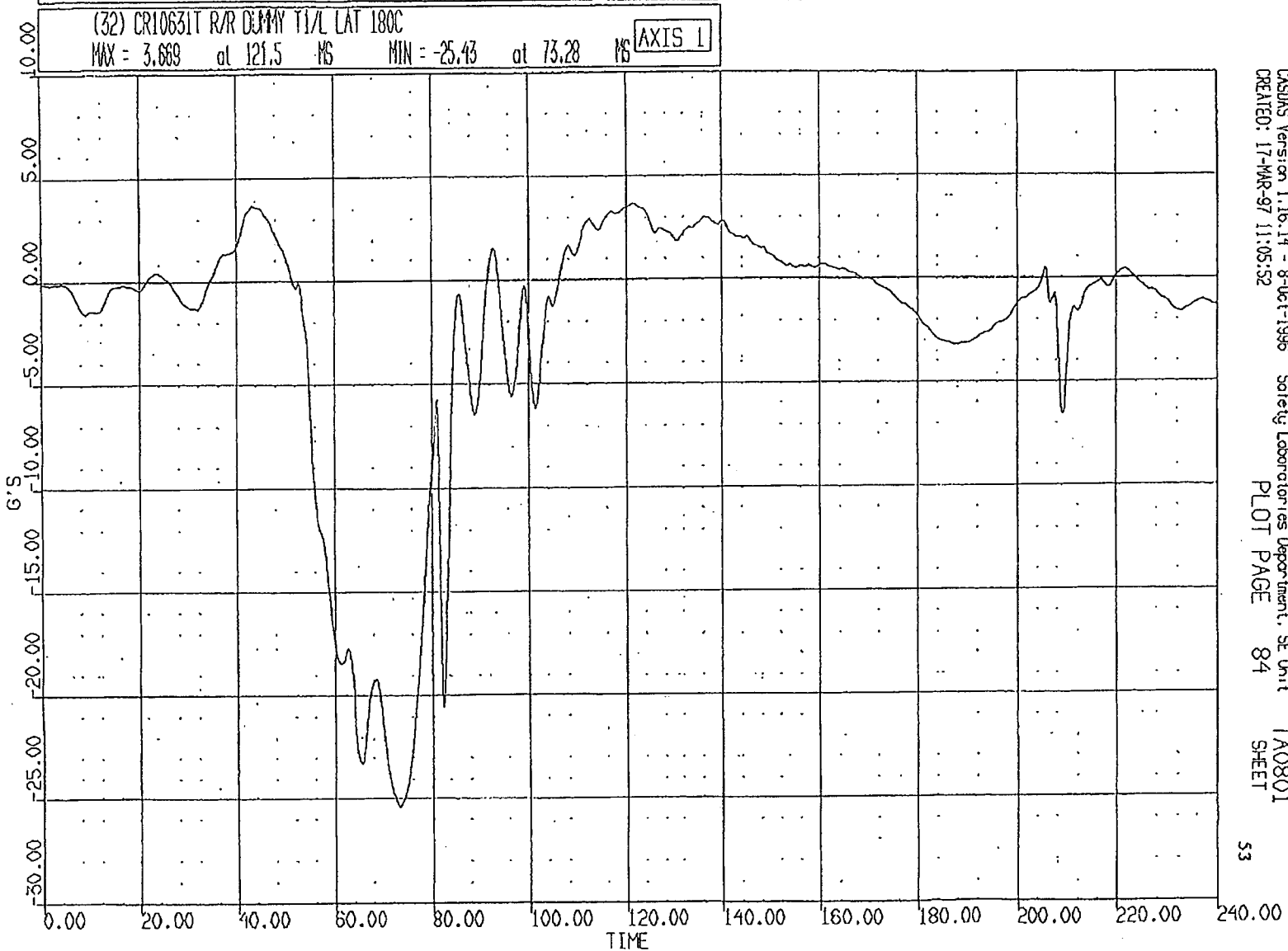
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SHEET

52

CRTS 0010631

0602

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:05:52

Safety Laboratories Department, SE Unit
PLOT PAGE 84

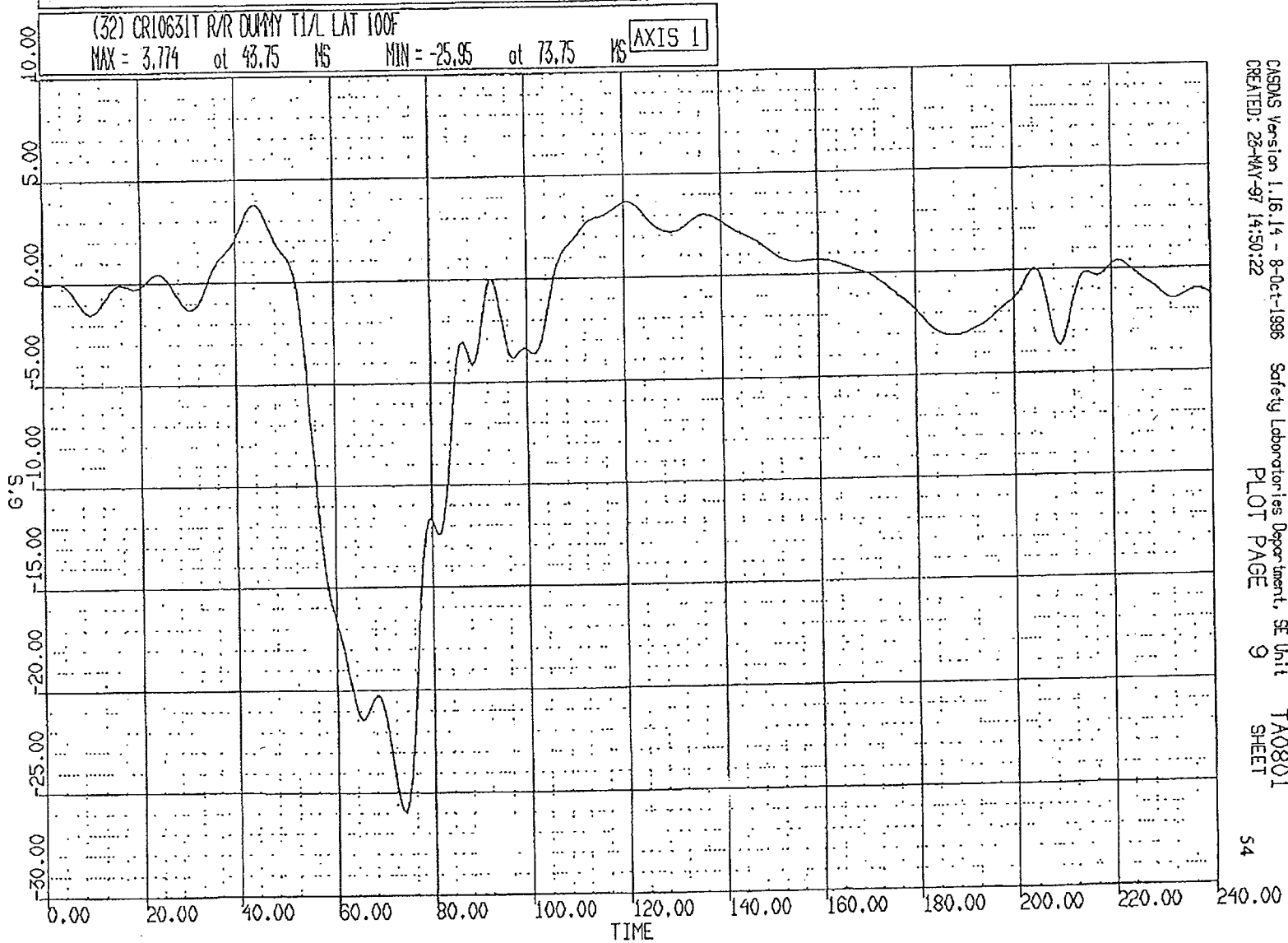
TA0801
SHEET

53

CRIS 0010631

0603

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



CASAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 23-MAY-97 14:50:22 PLOT PAGE 9 TA0801
54 SHEET

CRTS 0010631

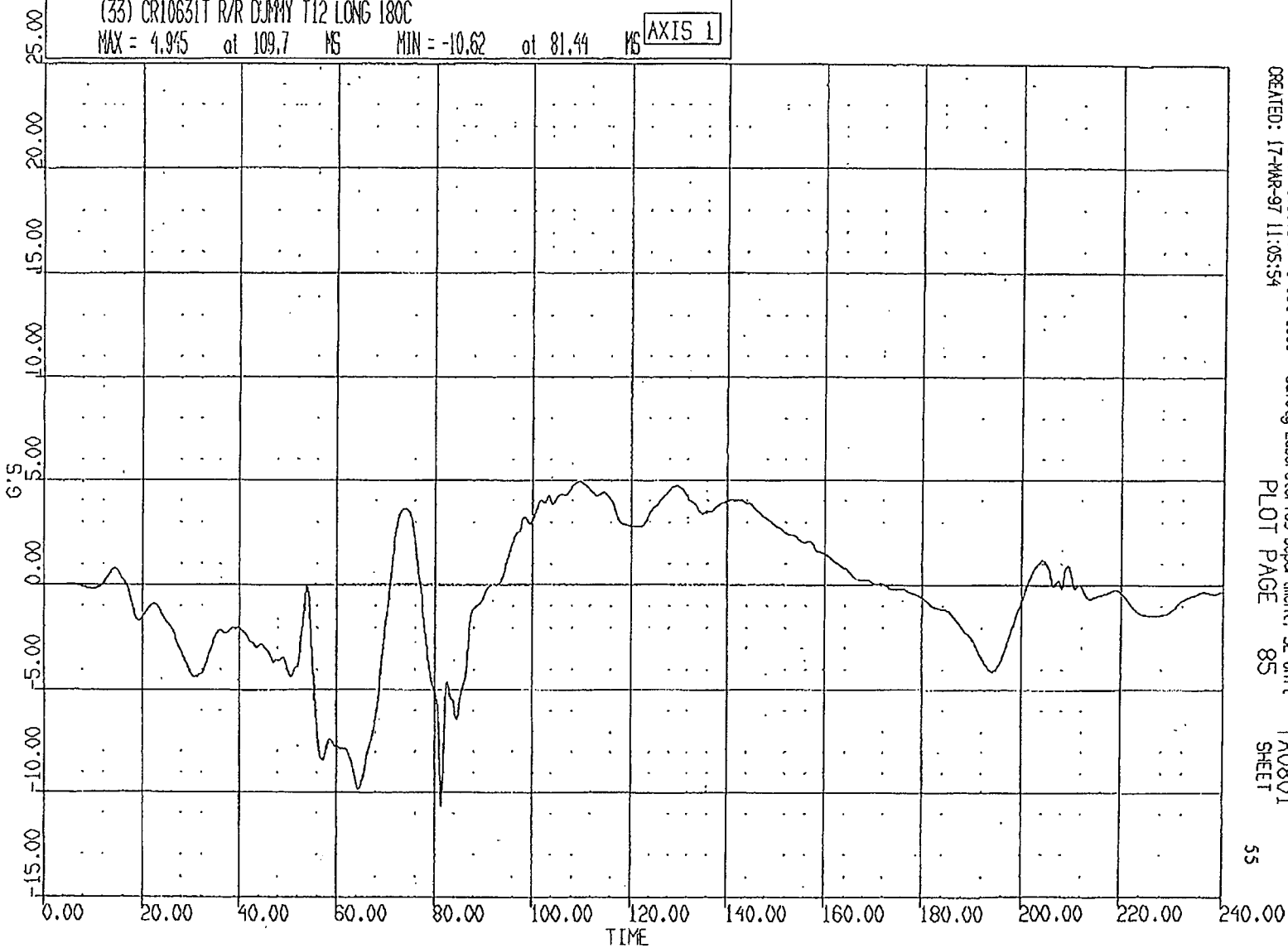
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CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

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

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

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:05:54

Safety Laboratories Department, SE Unit
PLOT PAGE 85

TA0801
SHEET

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CRIS 0010631

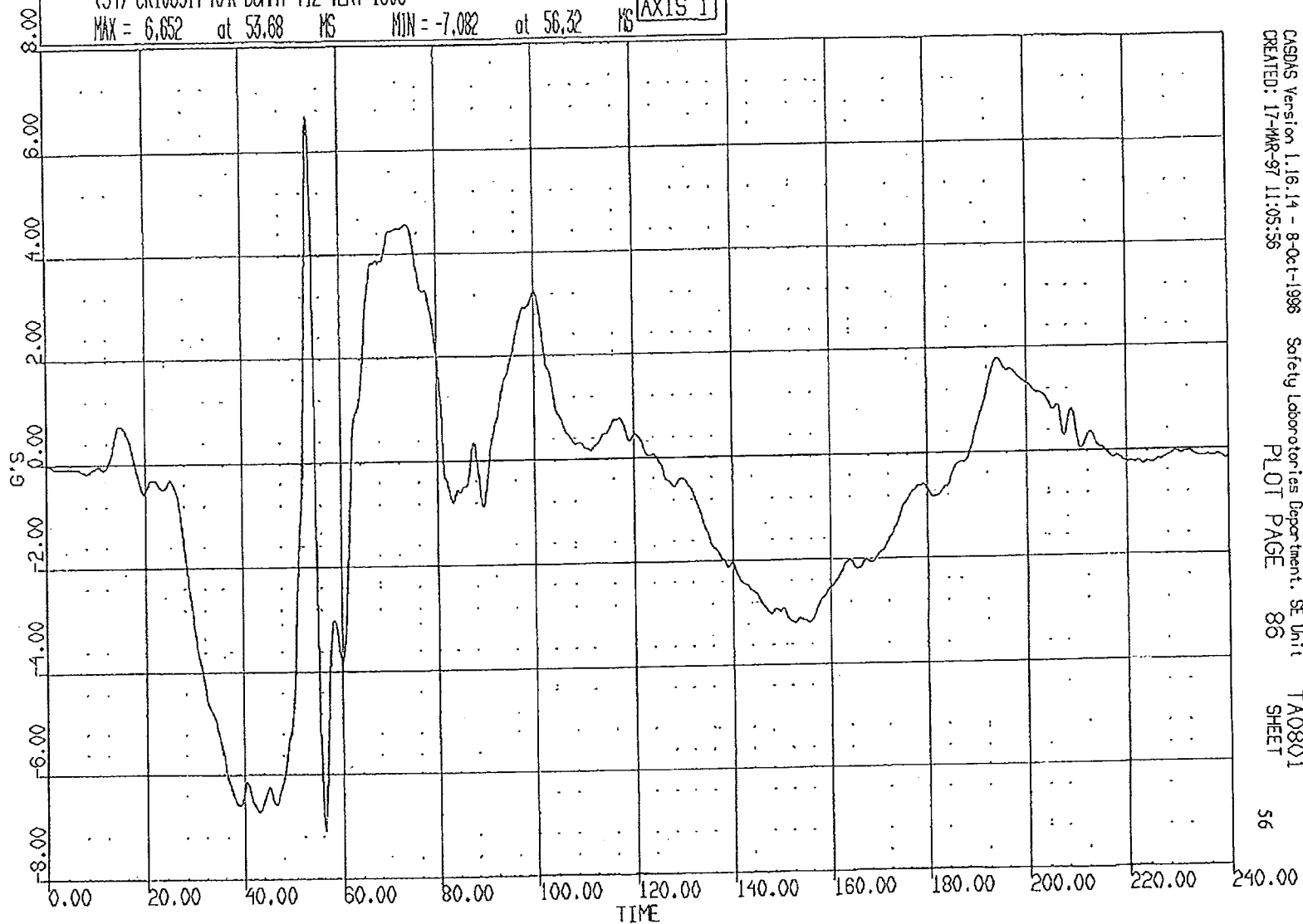
0605

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:05:56

Safety Laboratories Department, SE Unit
PLOT PAGE 86

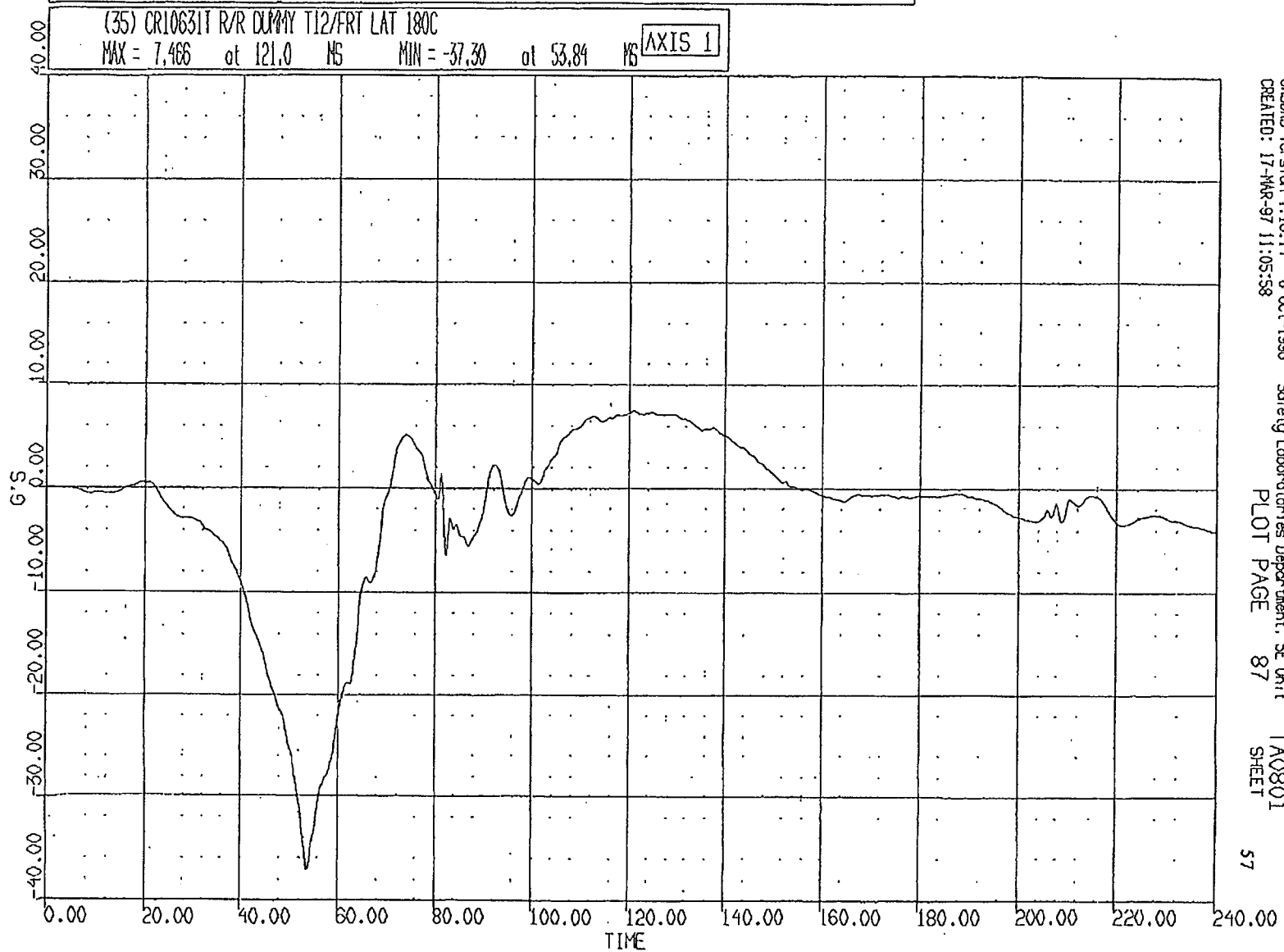
TA0801
SHEET

56

CRTS 0010631

0606

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



CASRAHS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:05:58

Safety Laboratories Department, SE Unit
PLOT PAGE 87

TA0801
SHEET

57

CRTS 0010631

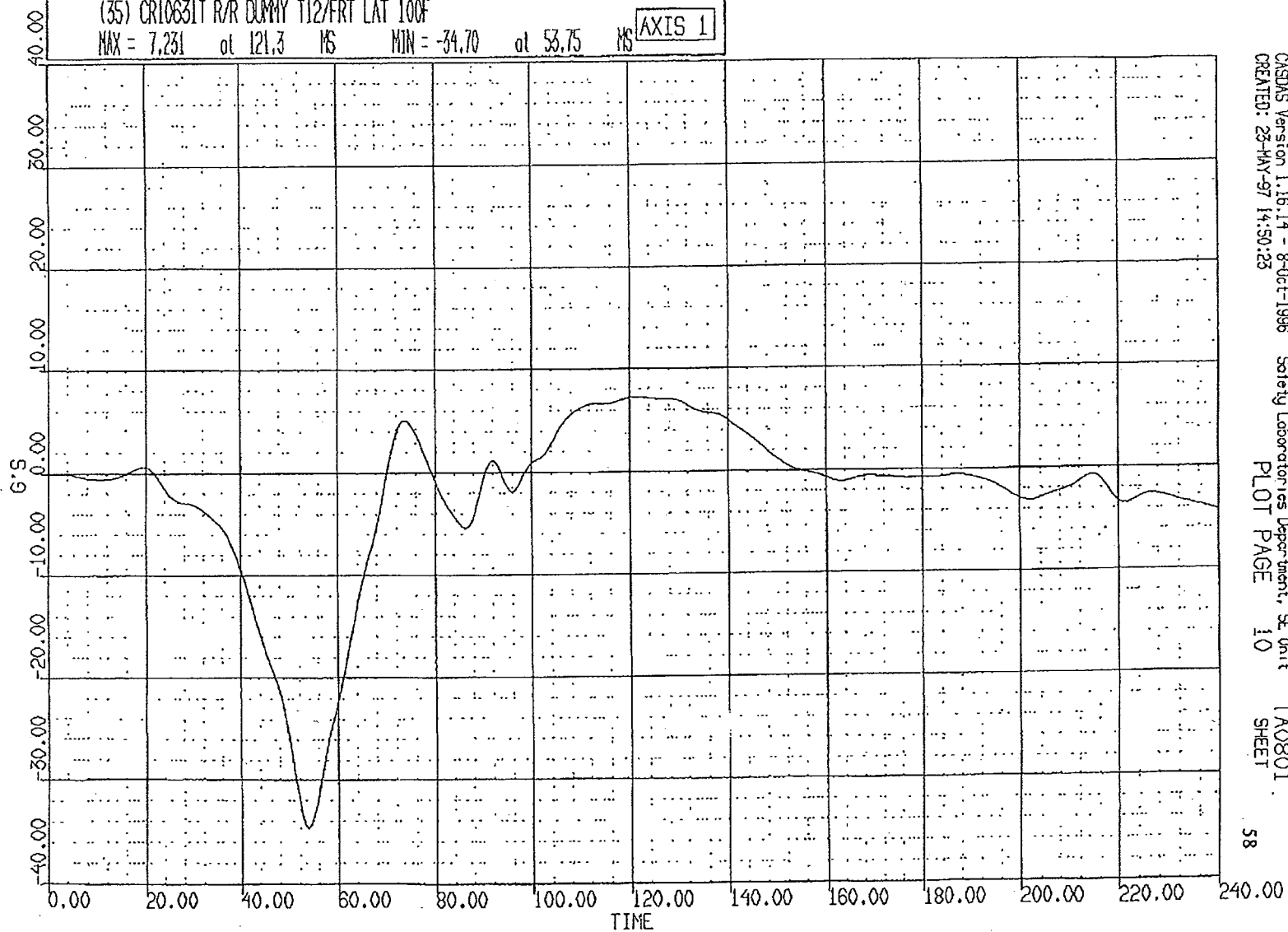
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CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

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

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

AXIS 1



CASAS Version 1.16.14 - 8-Oct-1996
CREATED: 23-MAY-97 14:50:23

Safety Laboratories Department, SE Unit
PLOT PAGE 10

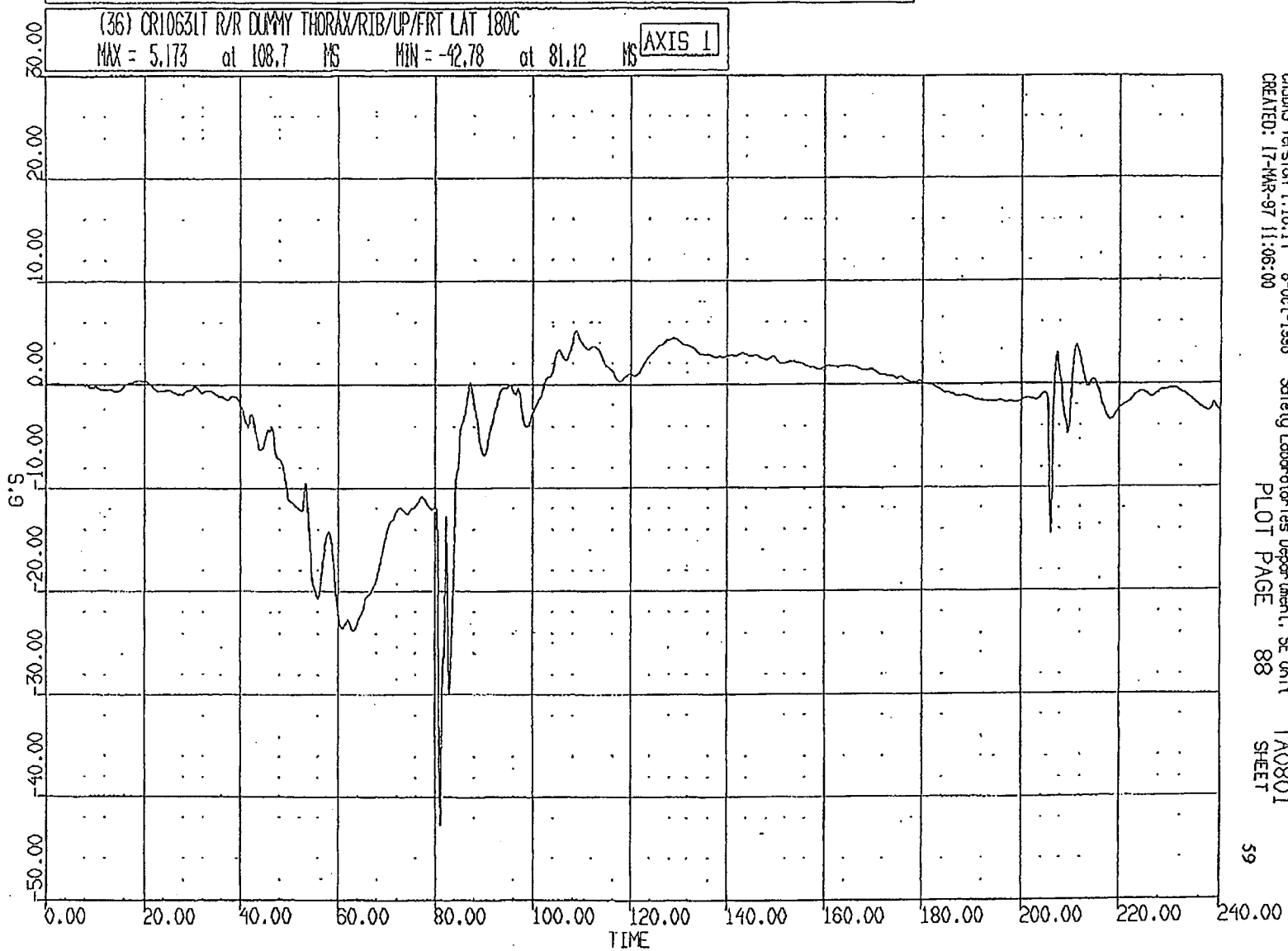
TA0801
SHEET

58

CRTS 0010631

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:06:00

Safety Laboratories Department, SE Unit
PLOT PAGE 88

TA0801
SHEET

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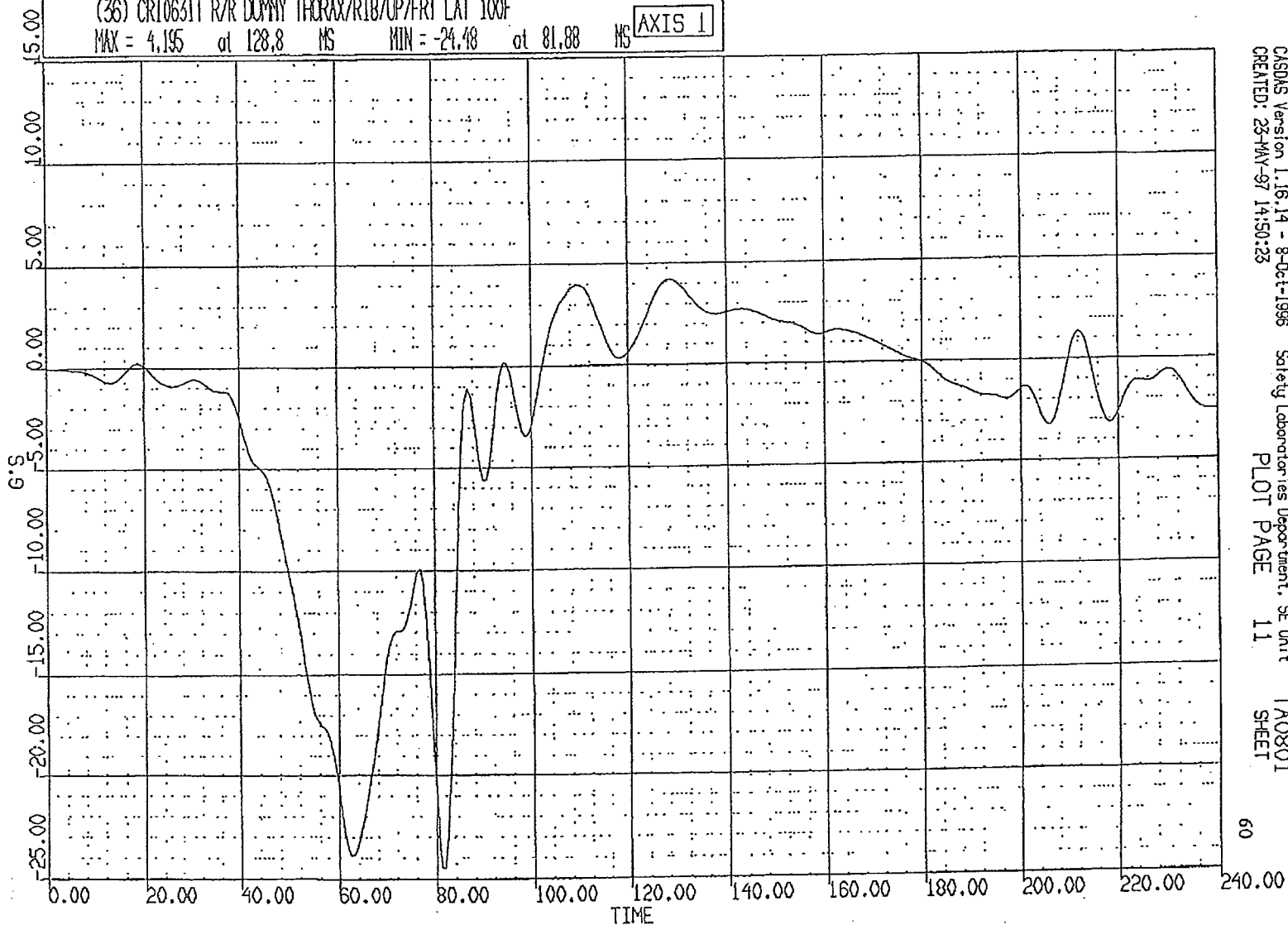
CRTS 0010631

0609

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/FRT LAT 100F
MAX = 4.195 at 128.8 MS MIN = -24.48 at 81.88 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 23-MAY-97 14:50:23

Safety Laboratories Department, SE Unit
PLOT PAGE 11

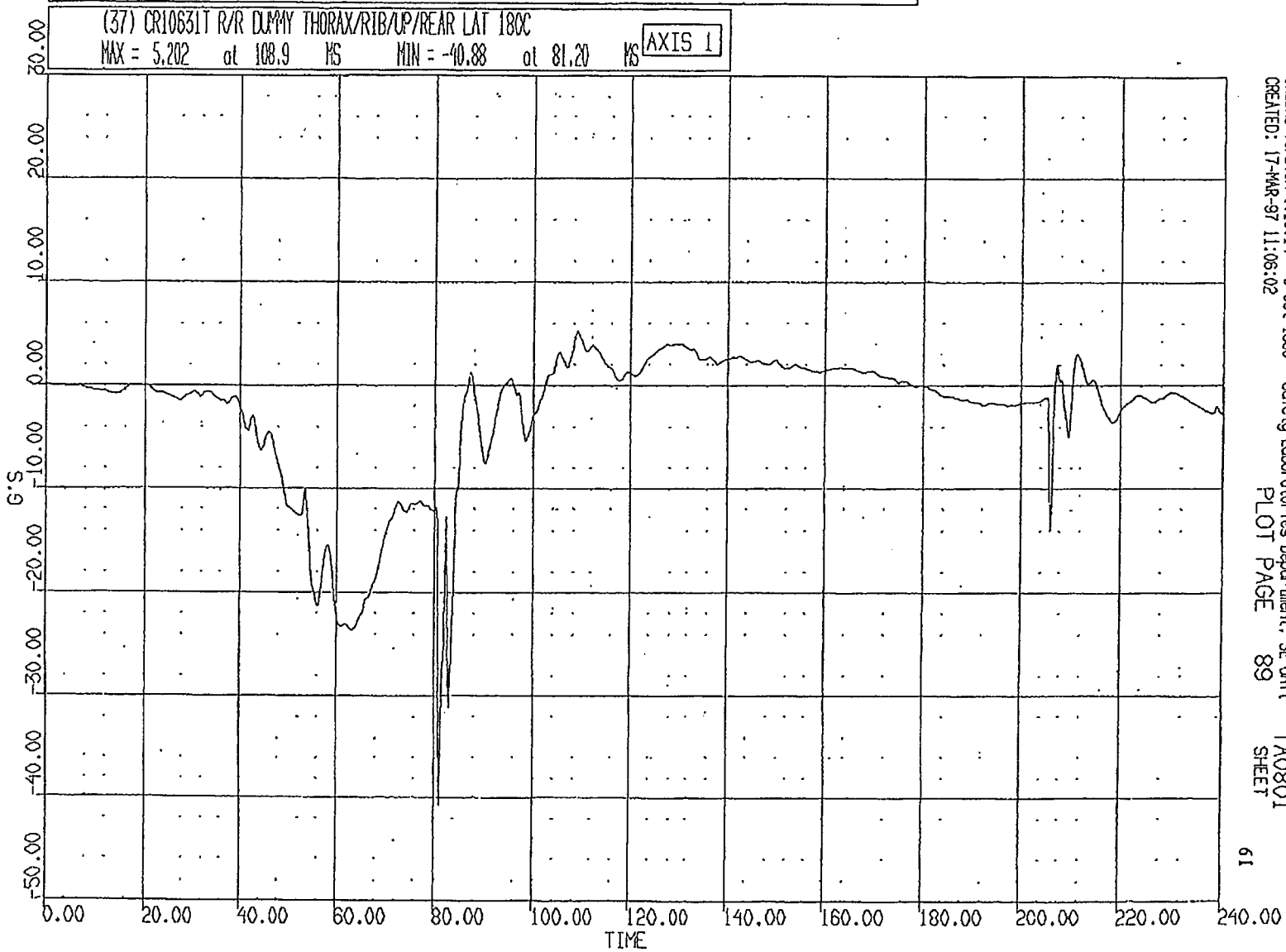
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SHEET

60

CRIS 0010631

0610

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:06:02

Safety Laboratories Department, SE Unit
PLOT PAGE 89

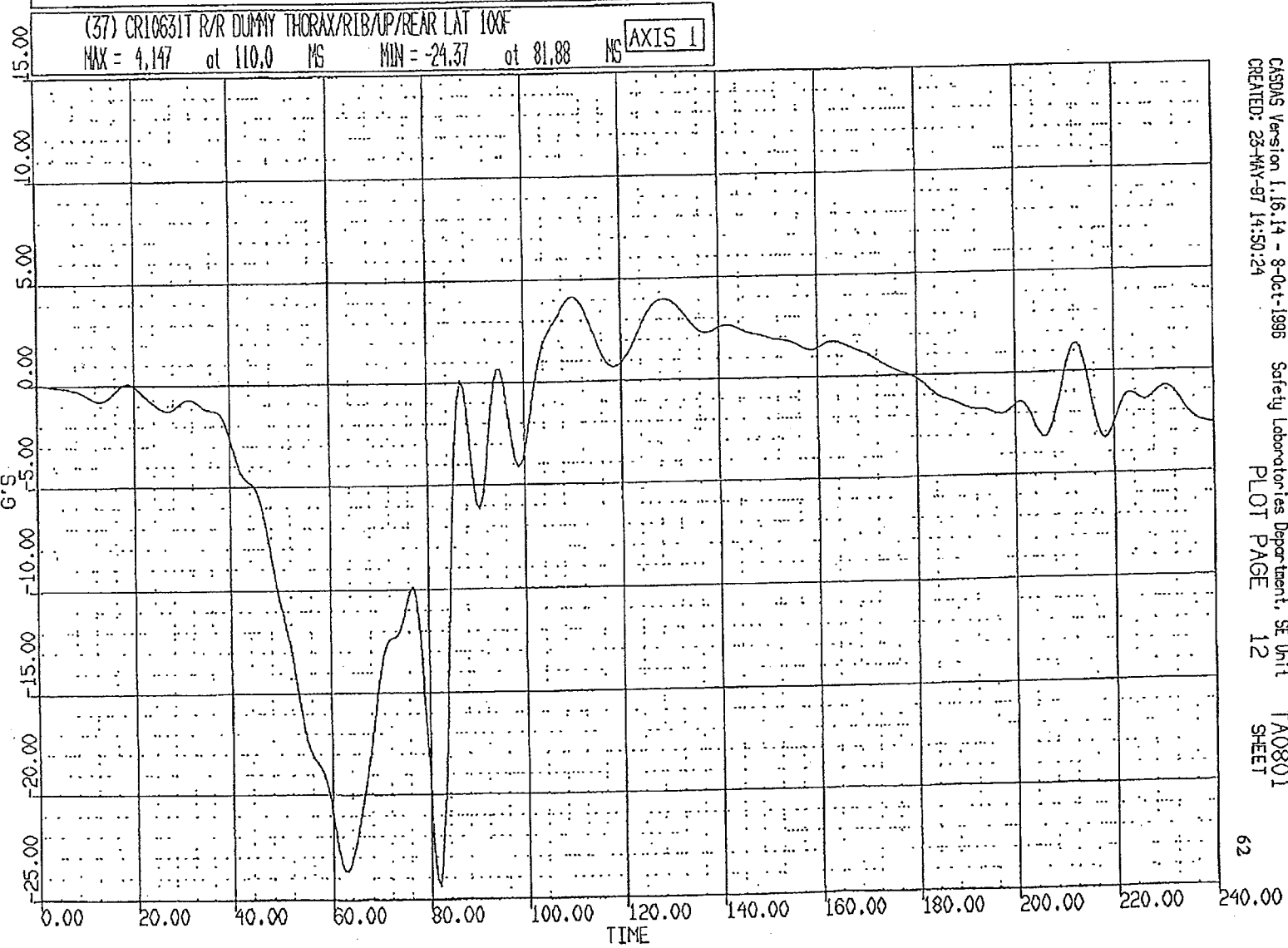
TA0801
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61

CRIS 0010631

0611

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



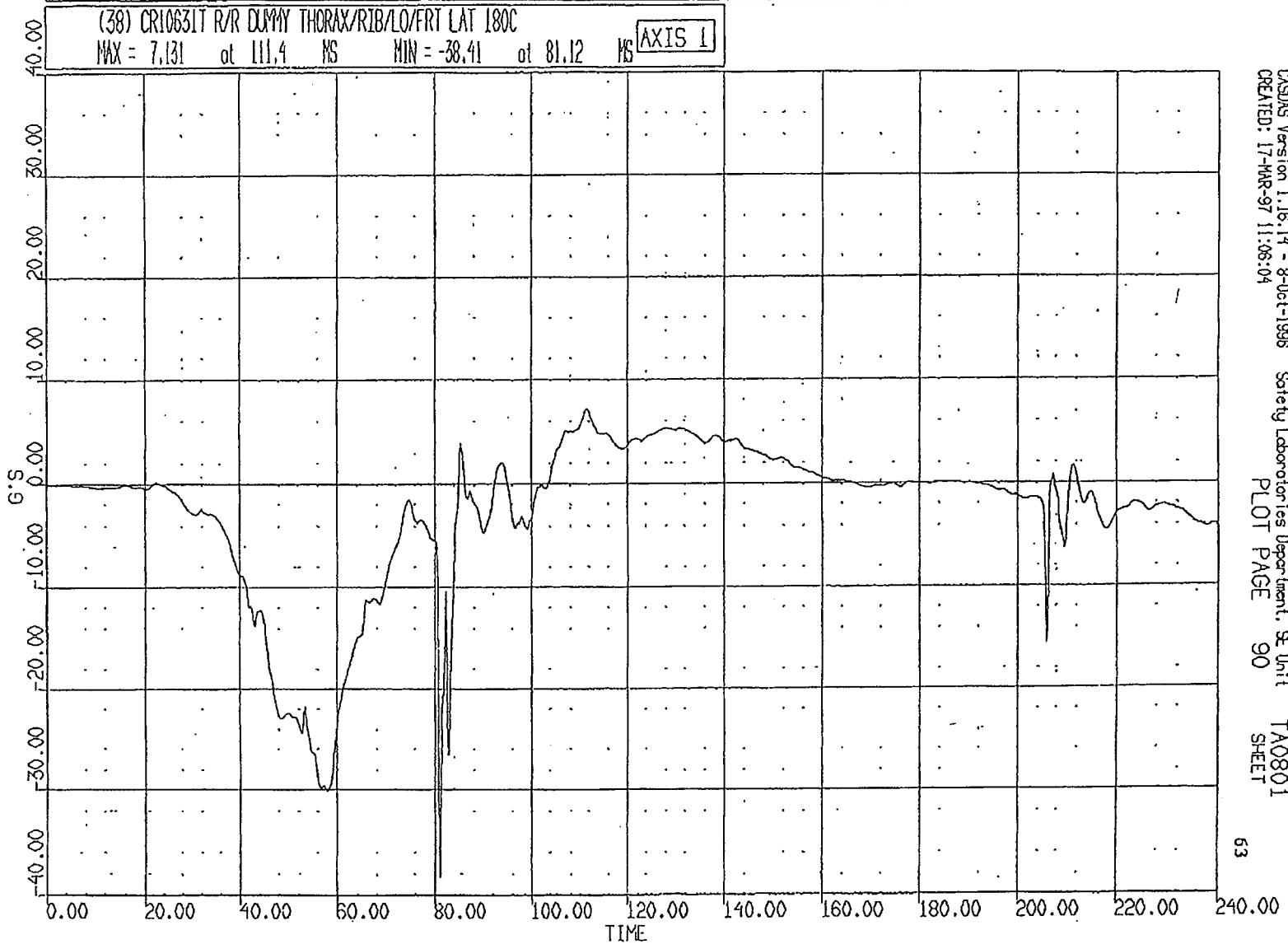
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CREATED: 23-MAY-97 14:50:24 PLOT PAGE 12 TA0801
SHEET

62

CRTS 0010631

0612

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:06:04

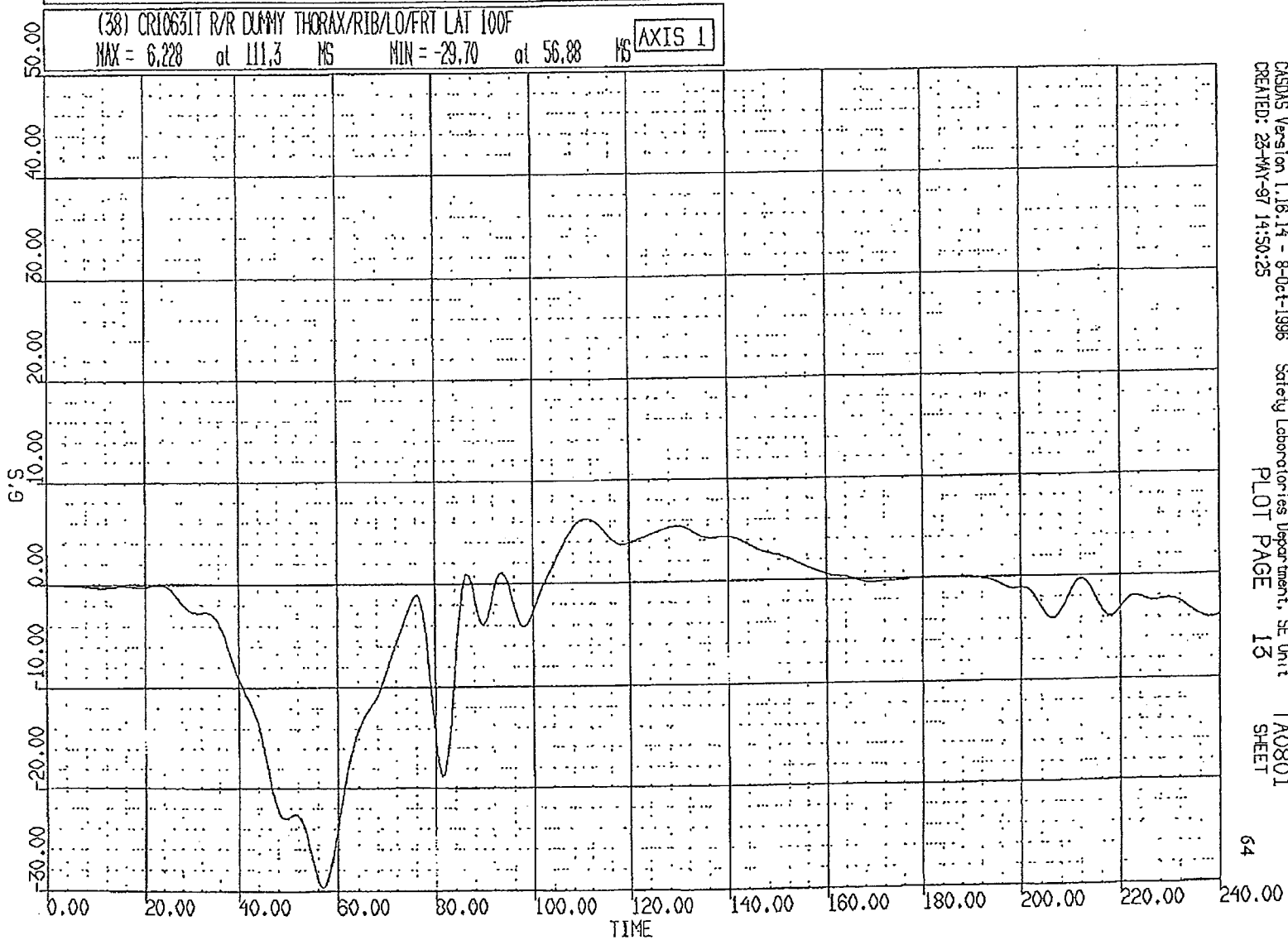
Safety Laboratories Department, SE Unit
PLOT PAGE 90

TA0801
SHEET

CRTS 0010631

0613

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 23-MAY-97 14:50:25

Safety Laboratories Department, SE Unit
PLOT PAGE 13

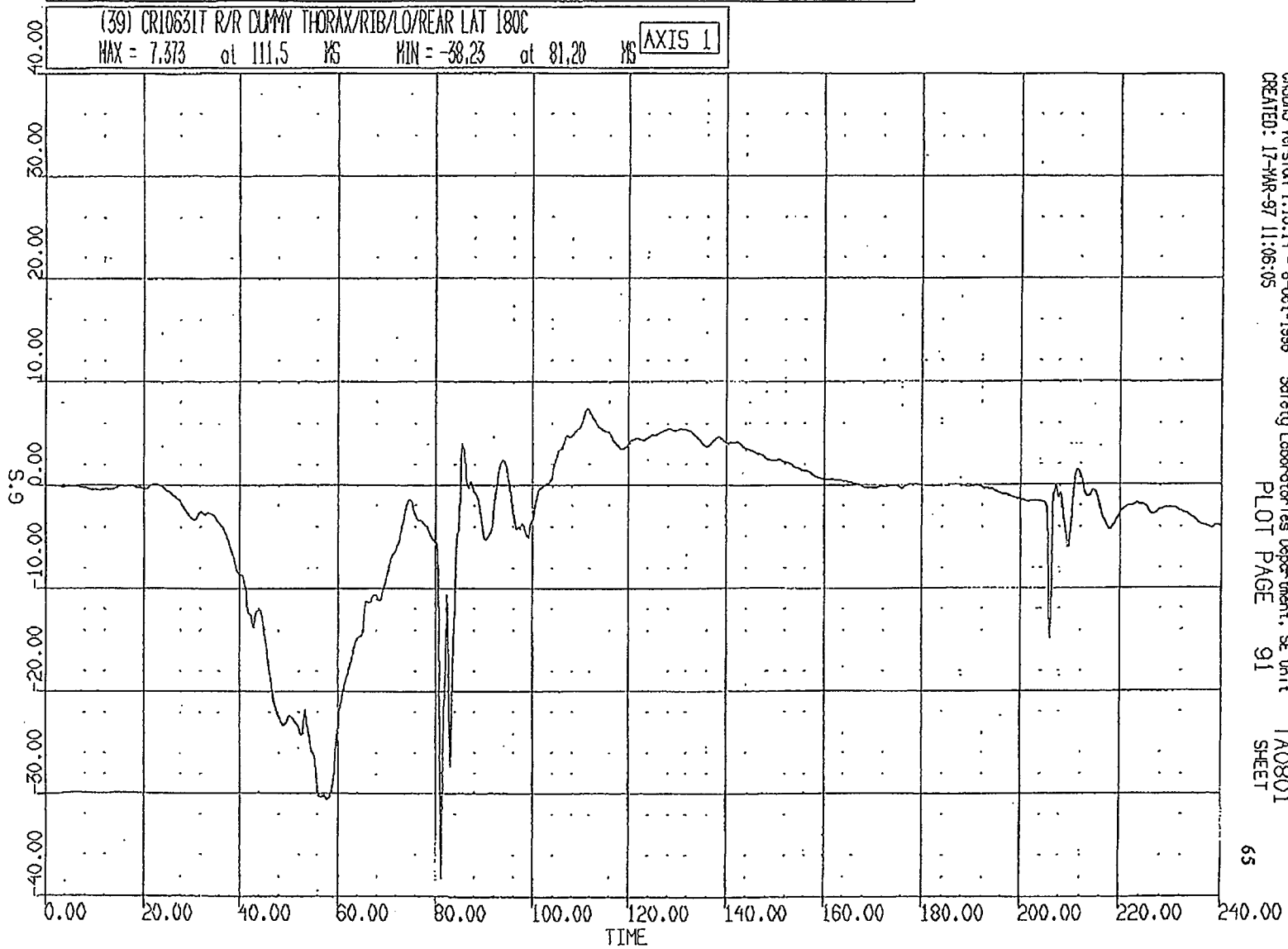
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64

CRTS 0010631

0614

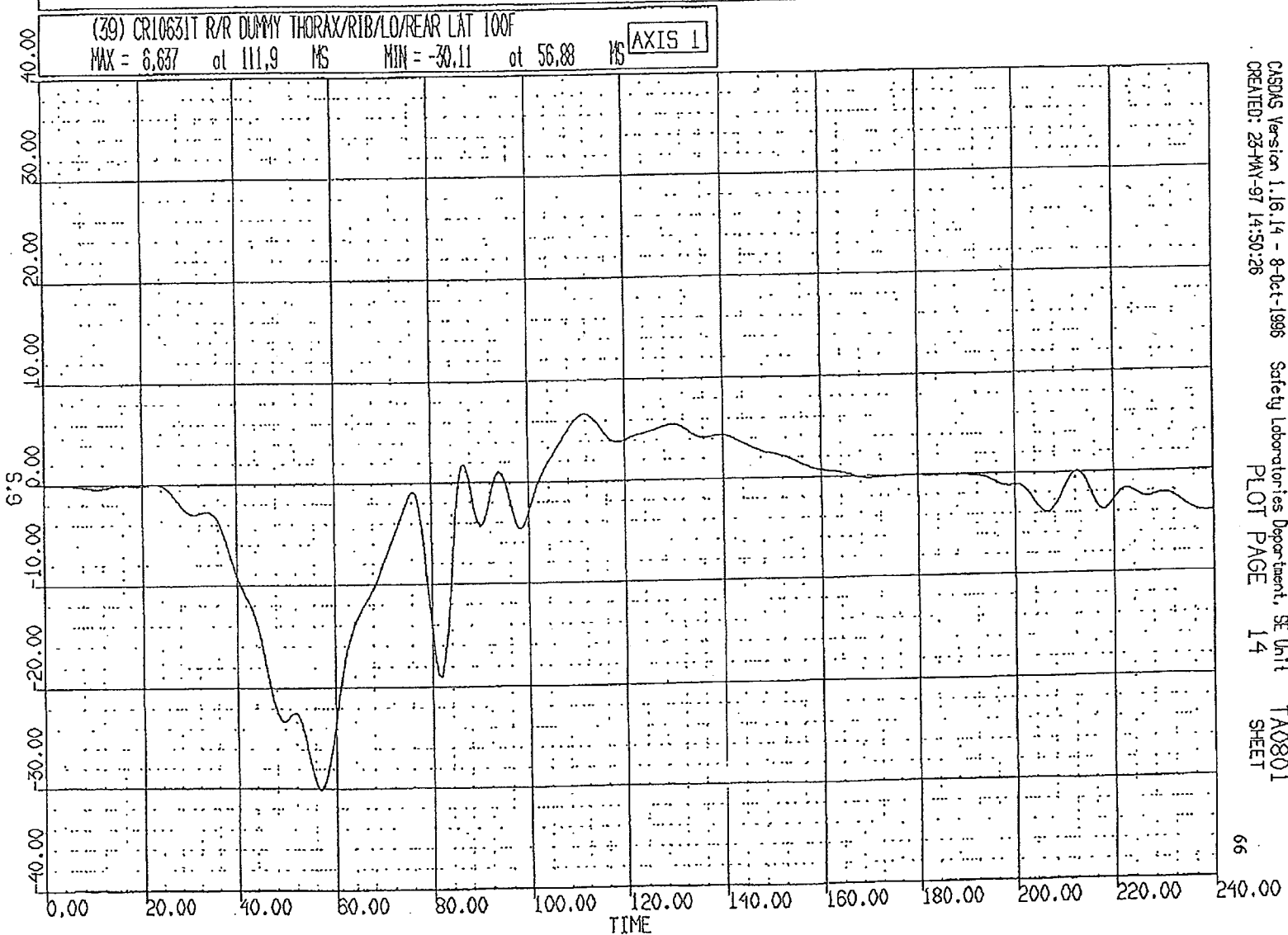
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1999 PN-96 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:06:05
PLOT PAGE 91 TA0801
SHEET

CRTS 0010631

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 23-MAY-97 14:50:26

Safety Laboratories Department, SE Unit
PLOT PAGE 14

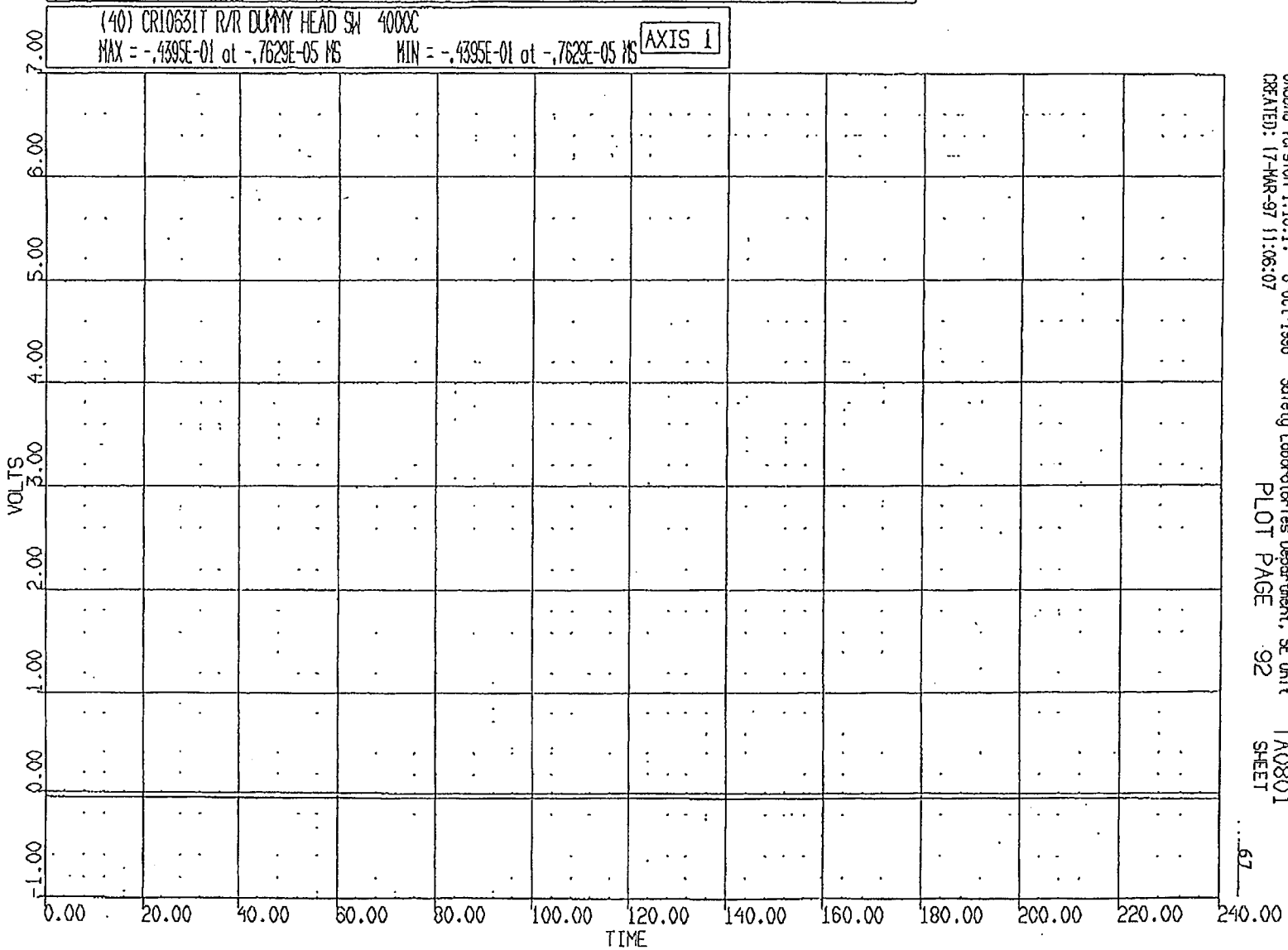
TA0801
SHEET

66

CRTS 0010631

0616

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



CASDIS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:06:07

Safety Laboratories Department, SE Unit
PLOT PAGE 92

TAO801
SHEET

...67

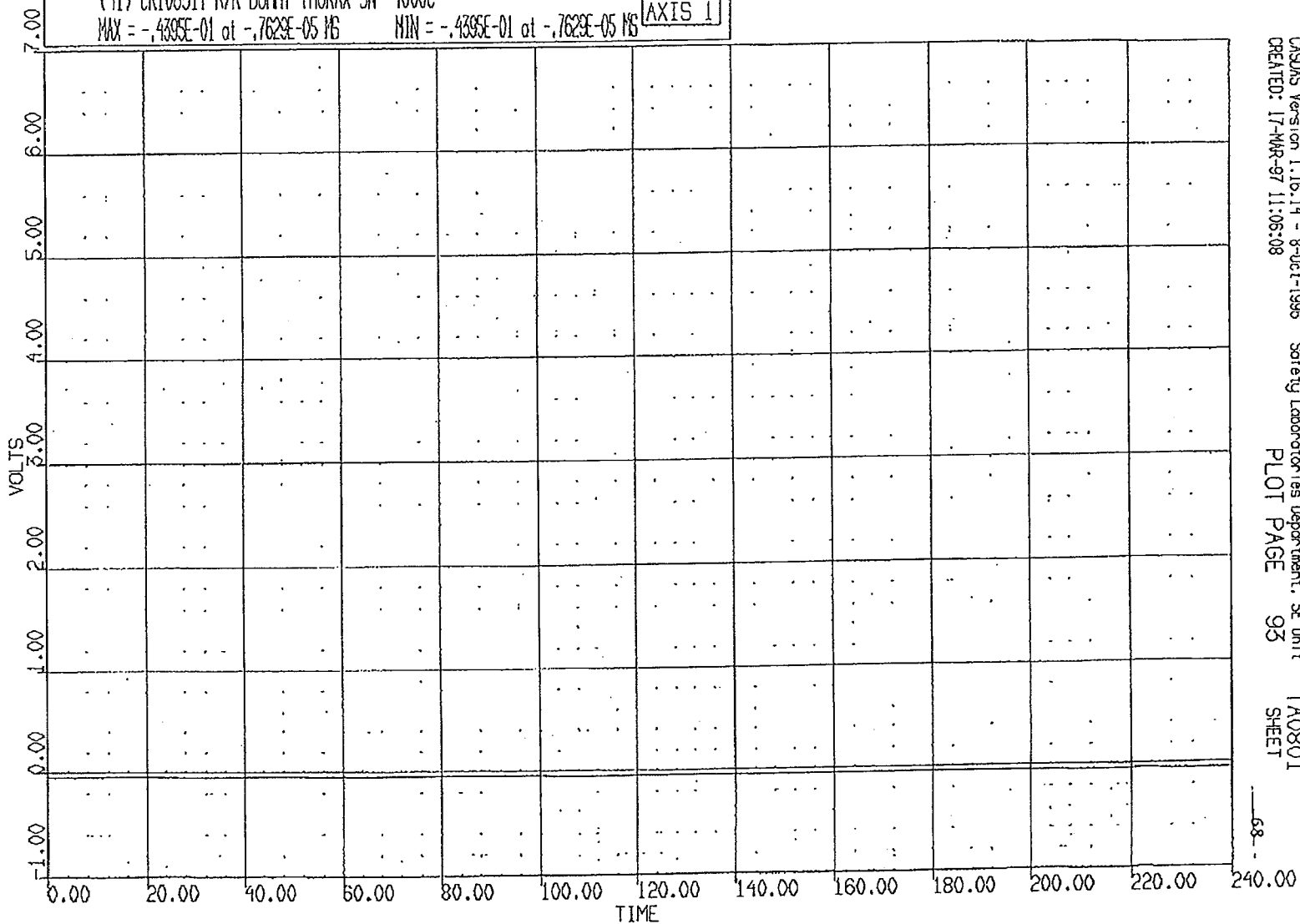
CRTS 0010631

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

(41) CR10631T R/R DUMMY THORAX SH 4000C
MAX = -.4395E-01 at -.7629E-05 MS MIN = -.4395E-01 at -.7629E-05 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:06:08

Safety Laboratories Department, SE Unit
PLOT PAGE 93

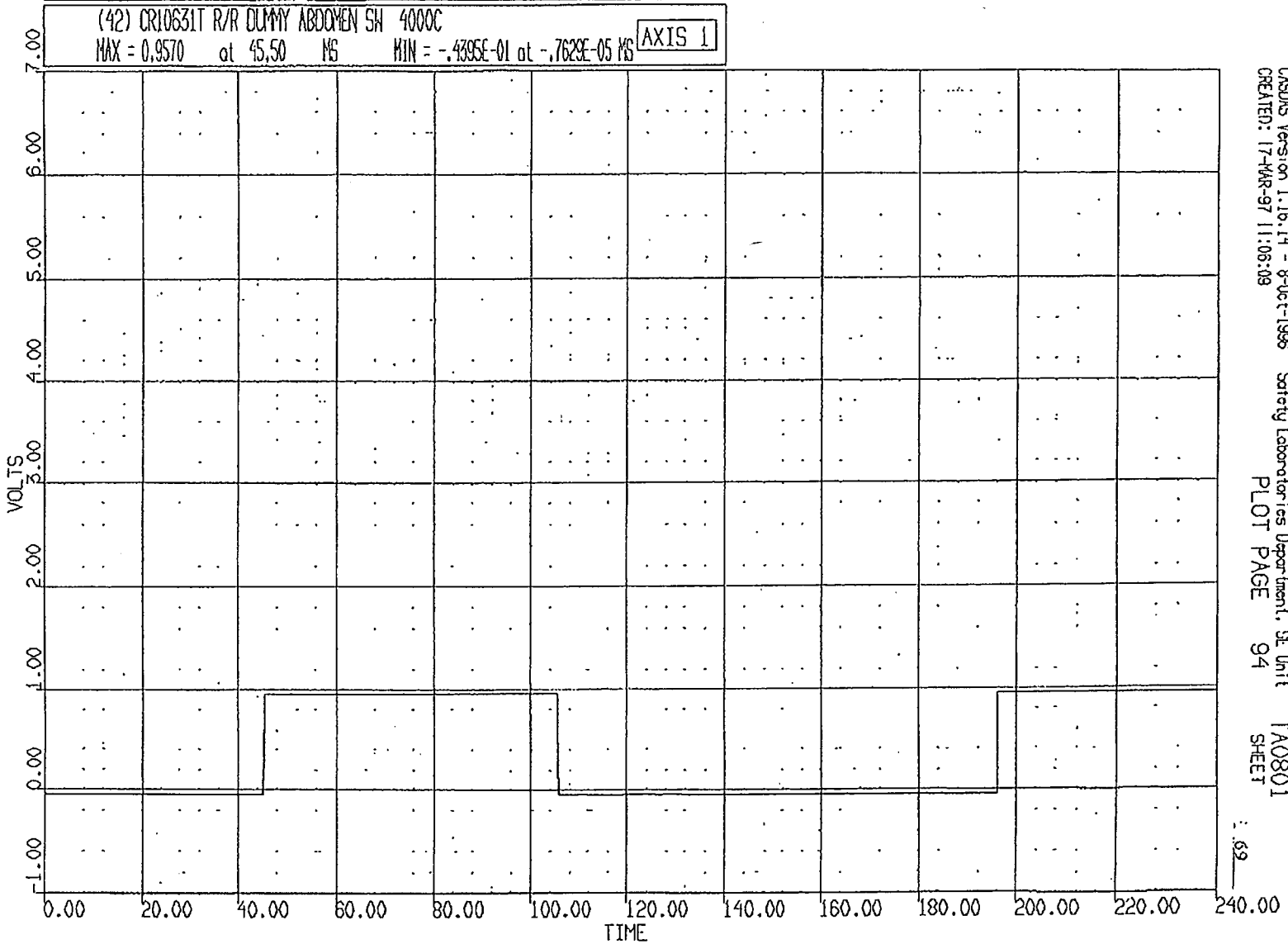
TA0801
SHEET

68

CRTS 0010631

0618

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:06:09

Safety Laboratories Department, SE Unit
PLOT PAGE 94

TA0801
SHEET

1.69

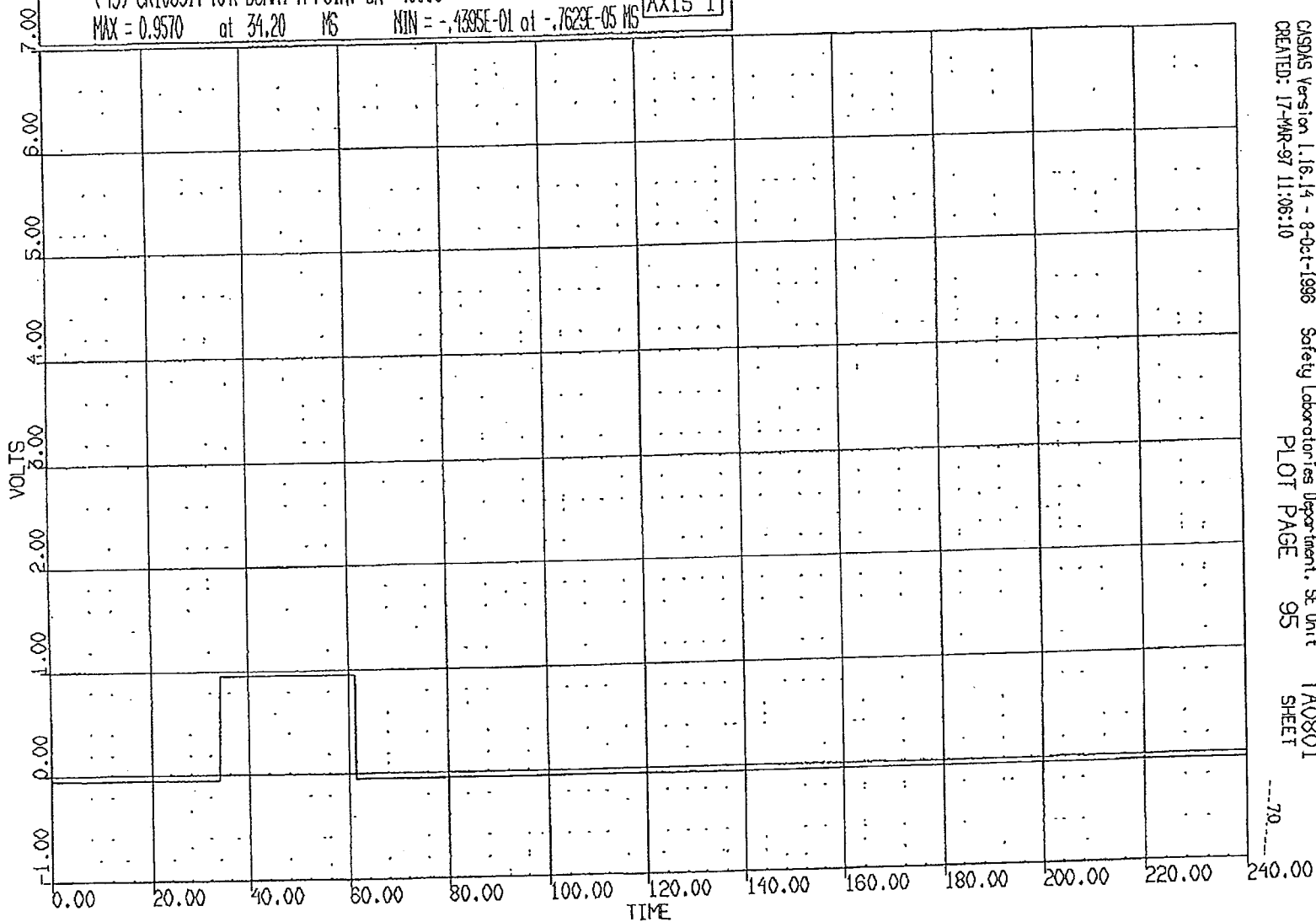
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0619

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 -.7623E-05 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:06:10

Safety Laboratories Department, SE Unit
PLOT PAGE 95

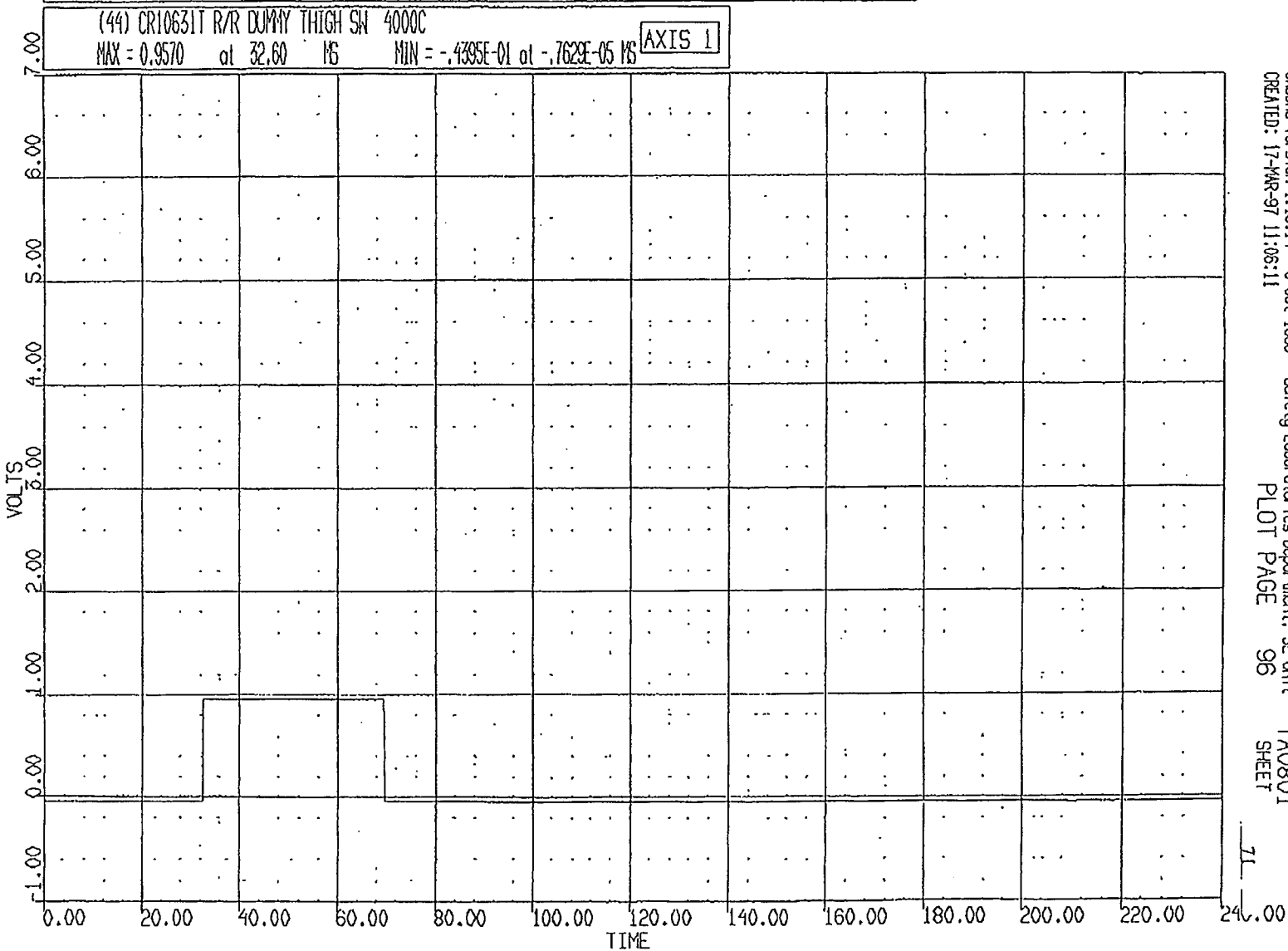
TA0801
SHEET

70

CRIS 0010631

0620

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 1999 PN-96 1999 MOVING DEFORMABLE BA



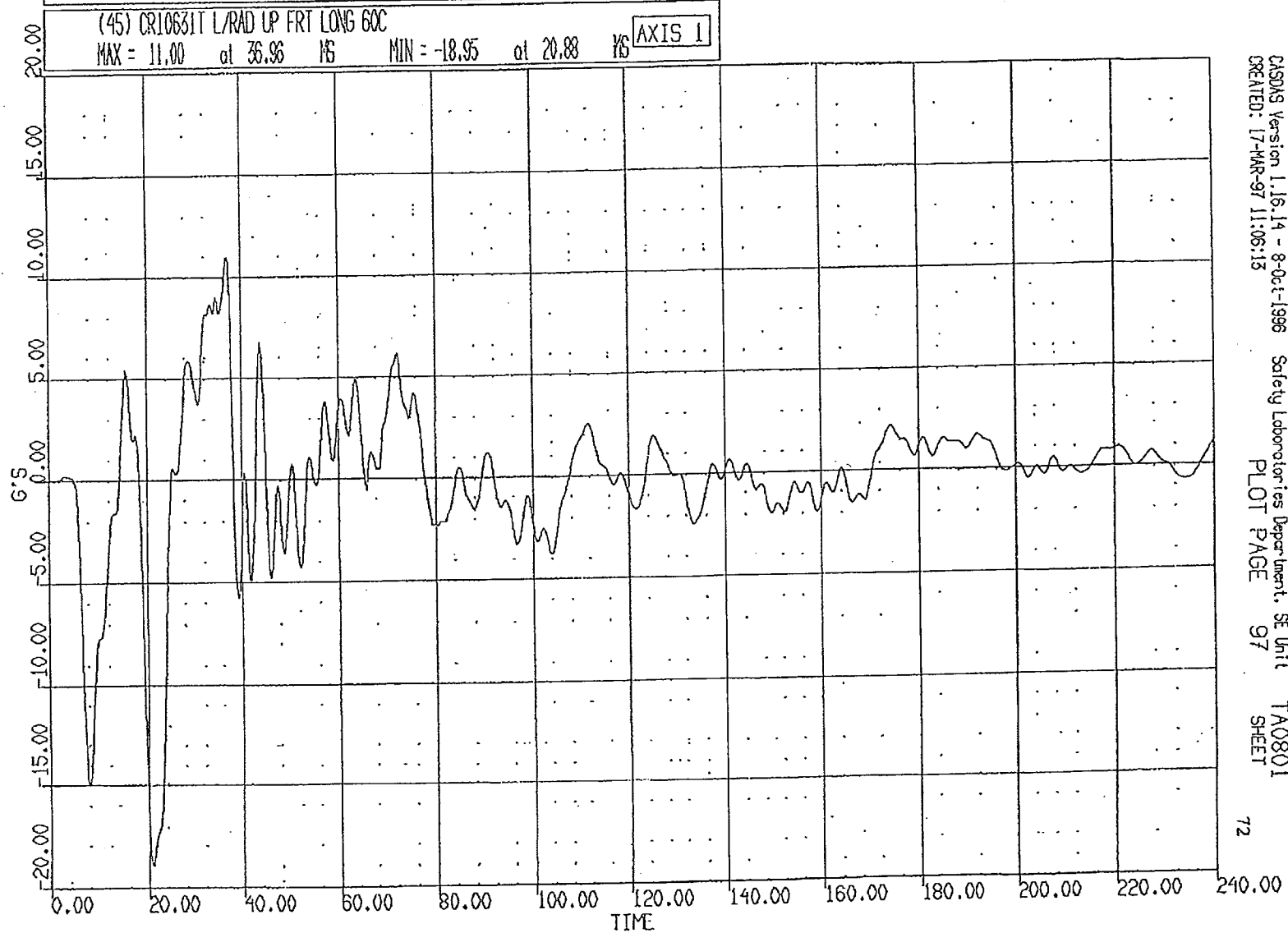
CASDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
 CREATED: 17-MAR-97 11:06:11 PLOT PAGE 96 TA0801
 SHEET

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CRIS 0010631

0621

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



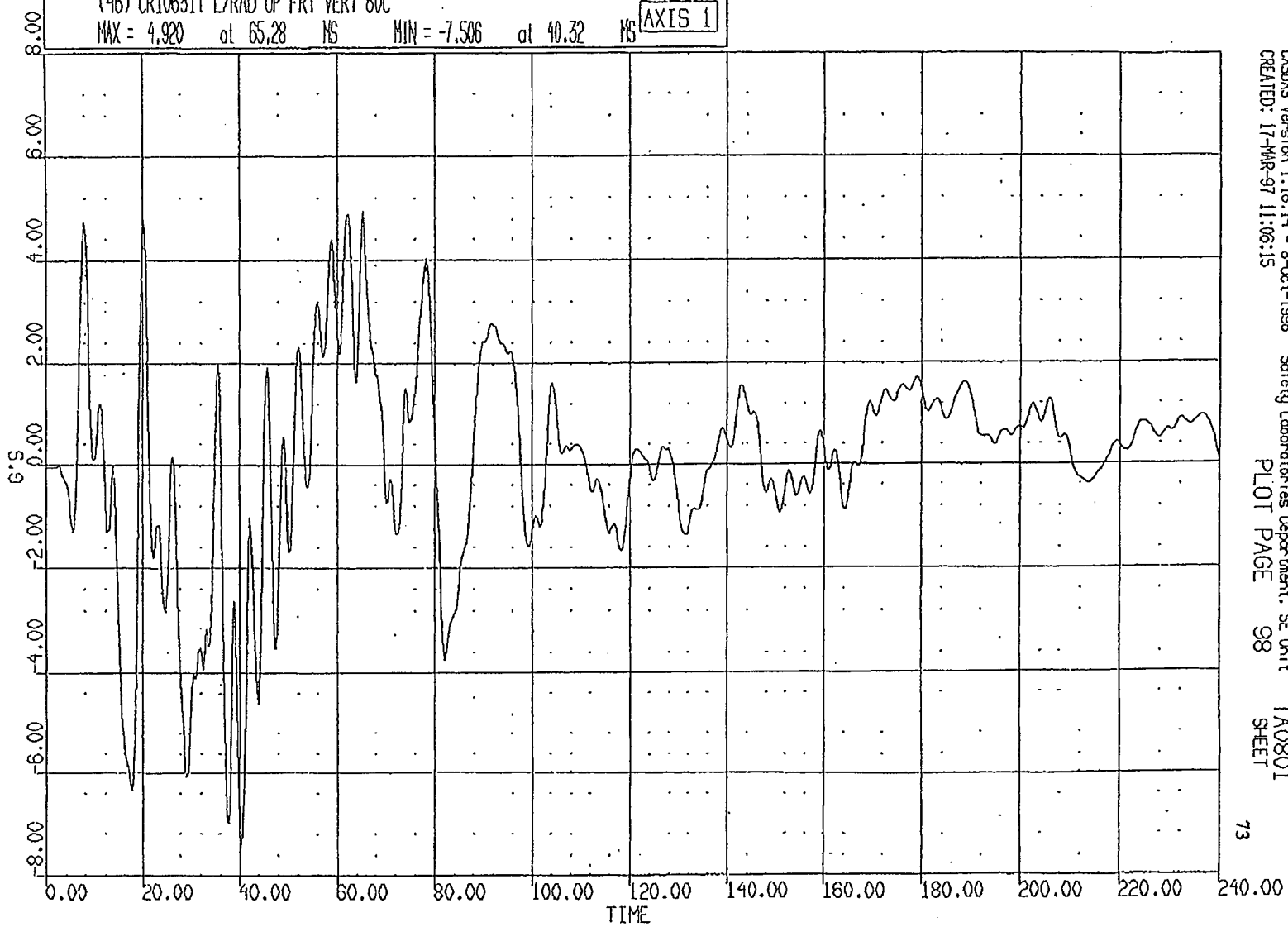
CASMS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:06:13 PLOT PAGE 97 TA0801 SHEET

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

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

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

AXIS 1



CASMAS Version 1.6.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:06:15

Safety Laboratories Department, SE Unit
PLOT PAGE 98

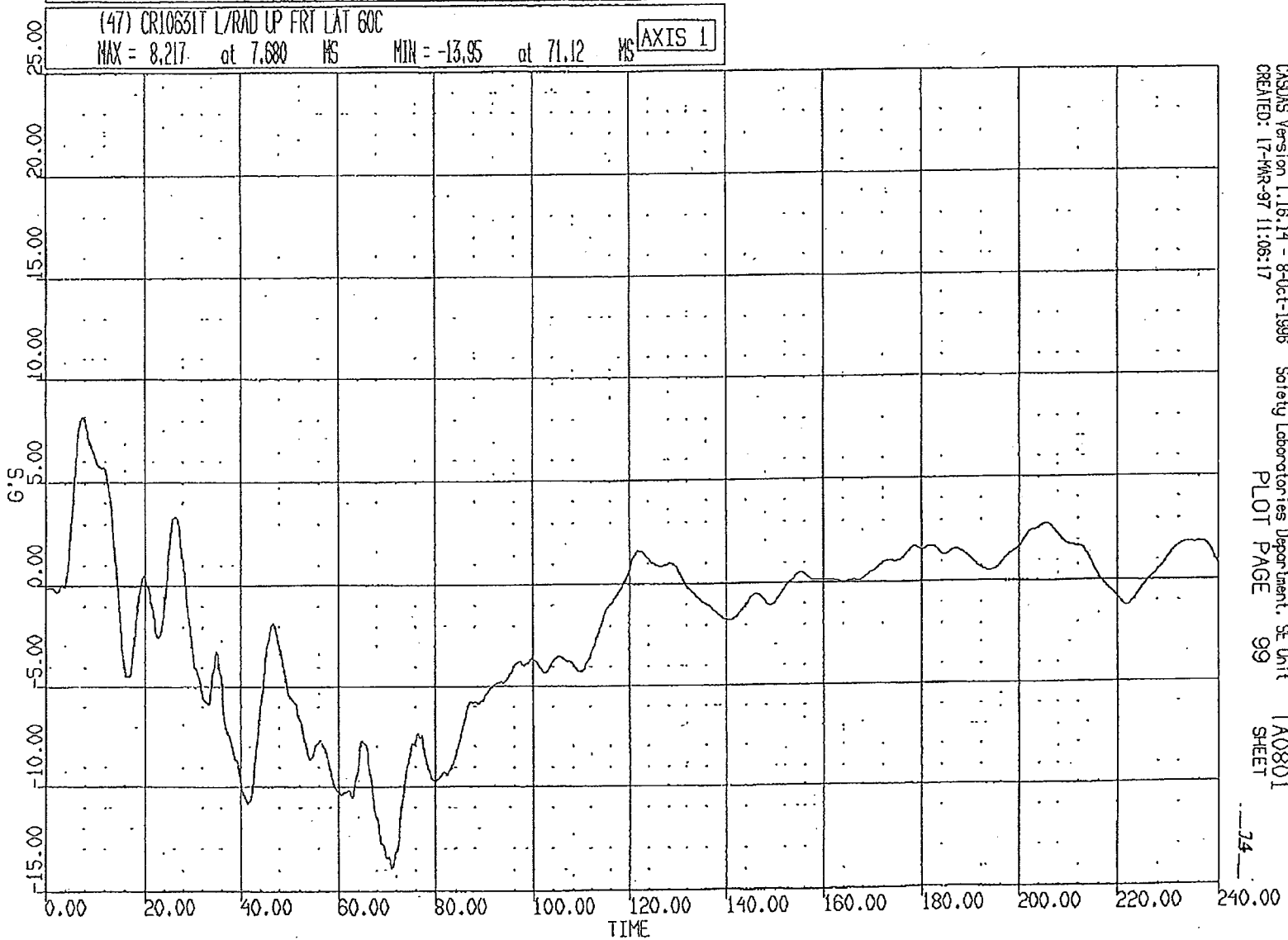
TA0801
SHEET

73

CRTS 0010631

0623

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1999 PN-96 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:06:17

Safety Laboratories Department, SE Unit
PLOT PAGE 99

TA0801
SHEET

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CRIS 0010631

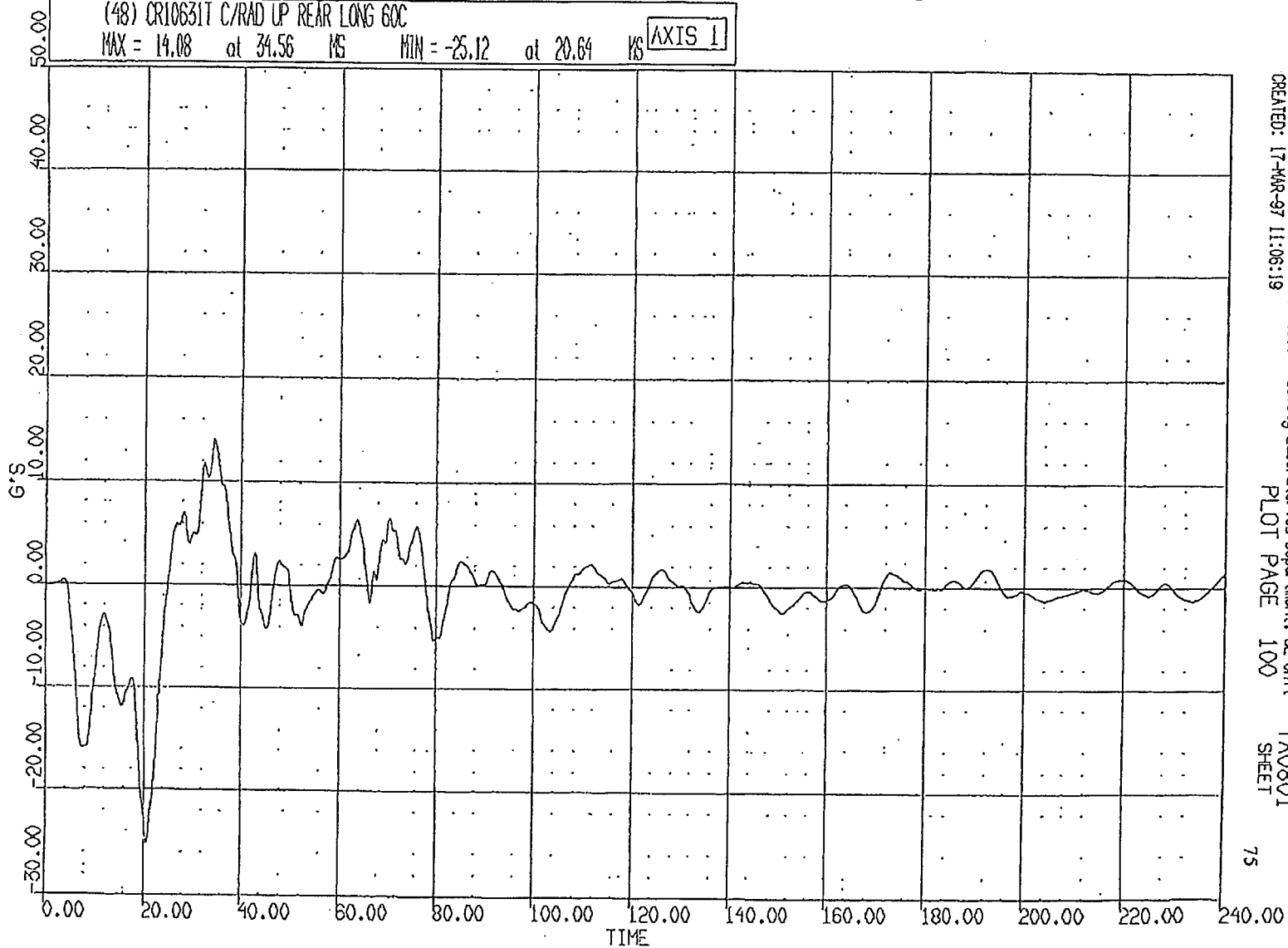
0624

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

(48) CR10631T C/RAD UP REAR LONG 60C

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

AXIS 1



CASINS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:06:19

Safety Laboratories Department, SE Unit
PLOT PAGE 100

TA0801
SHEET

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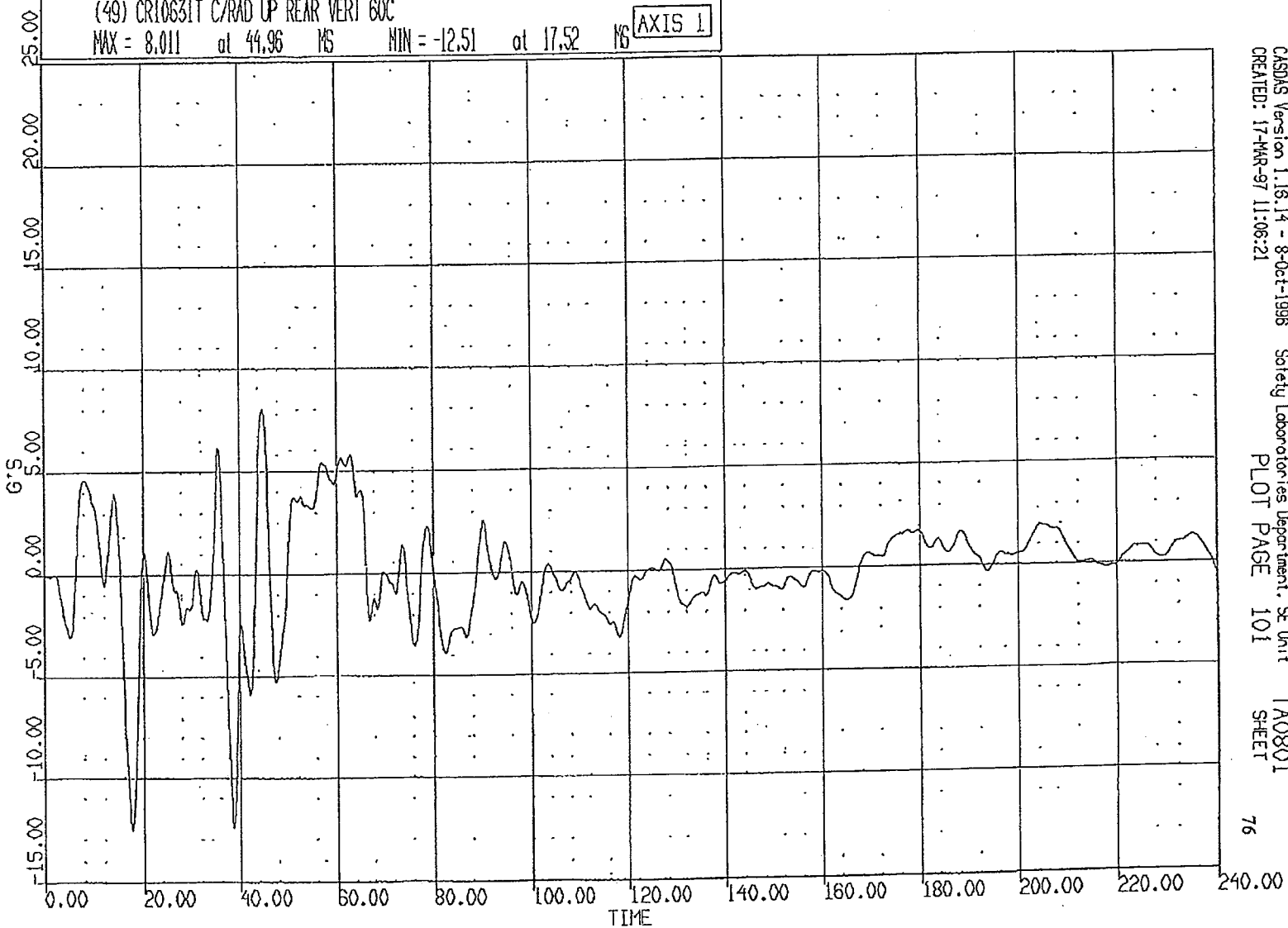
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CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(49) CR10631T C/RAD UP REAR VERT GOC

MAX = 8.011 at 44.96 MS MIN = -12.51 at 17.52 MS AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:06:21

Safety Laboratories Department, SE Unit
PLOT PAGE 101

TA0801
SHEET

76

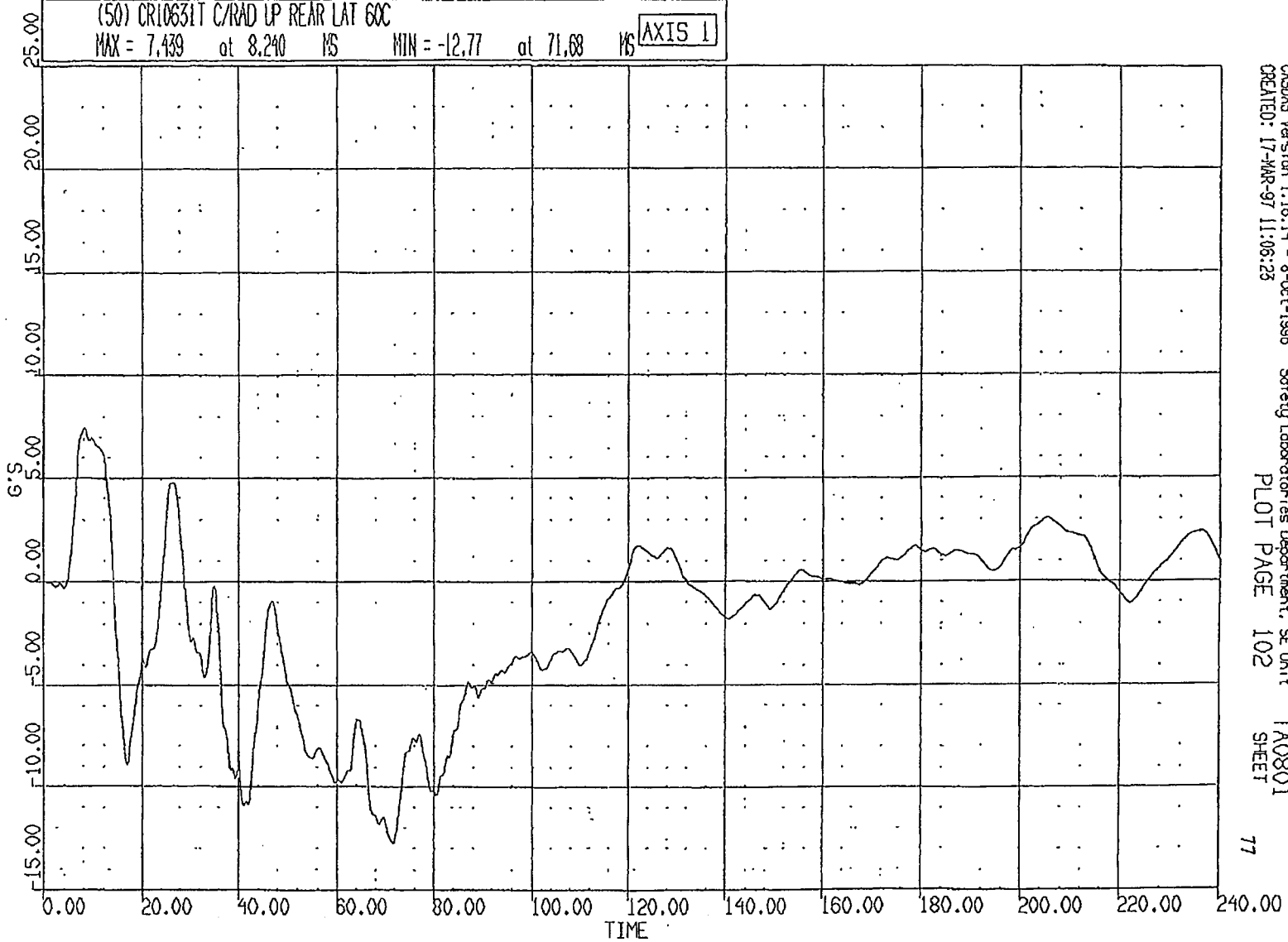
CRIS 0010631

0626

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

(50) CR10631T C/RAD LP REAR LAT 60C

MAX = 7.439 at 8.240 MS MIN = -12.77 at 71.68 MS **AXIS 1**



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:06:23

Safety Laboratories Department, SE Unit
PLOT PAGE 102

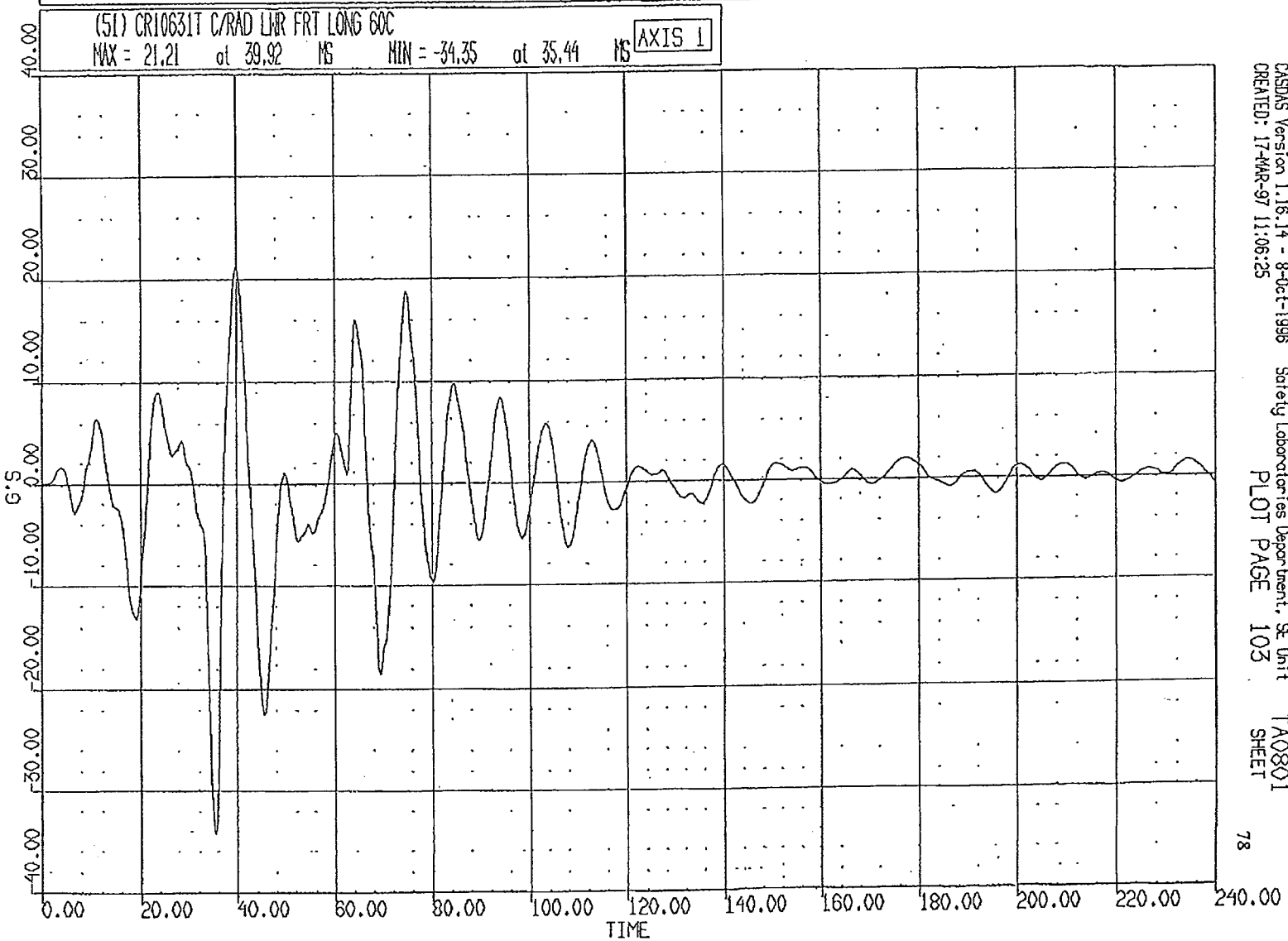
TA0801
SHEET

77

CRTS 0010631

0627

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:06:25

Safety Laboratories Department, SE Unit
PLOT PAGE 103

TA0801
SHEET

78

CRTS 0010631

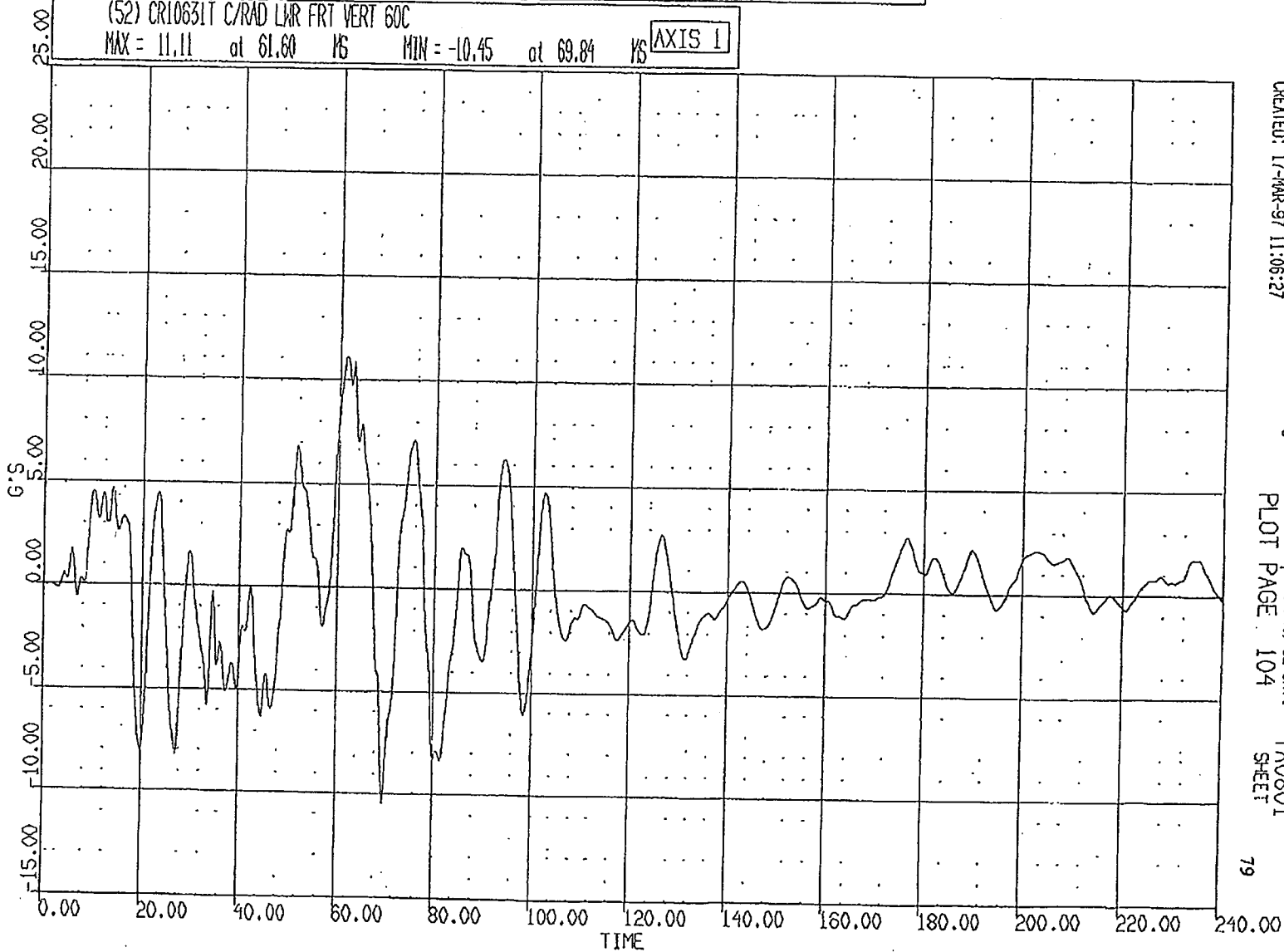
0628

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PZ-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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:06:27

Safety Laboratories Department, SE Unit
PLOT PAGE 104

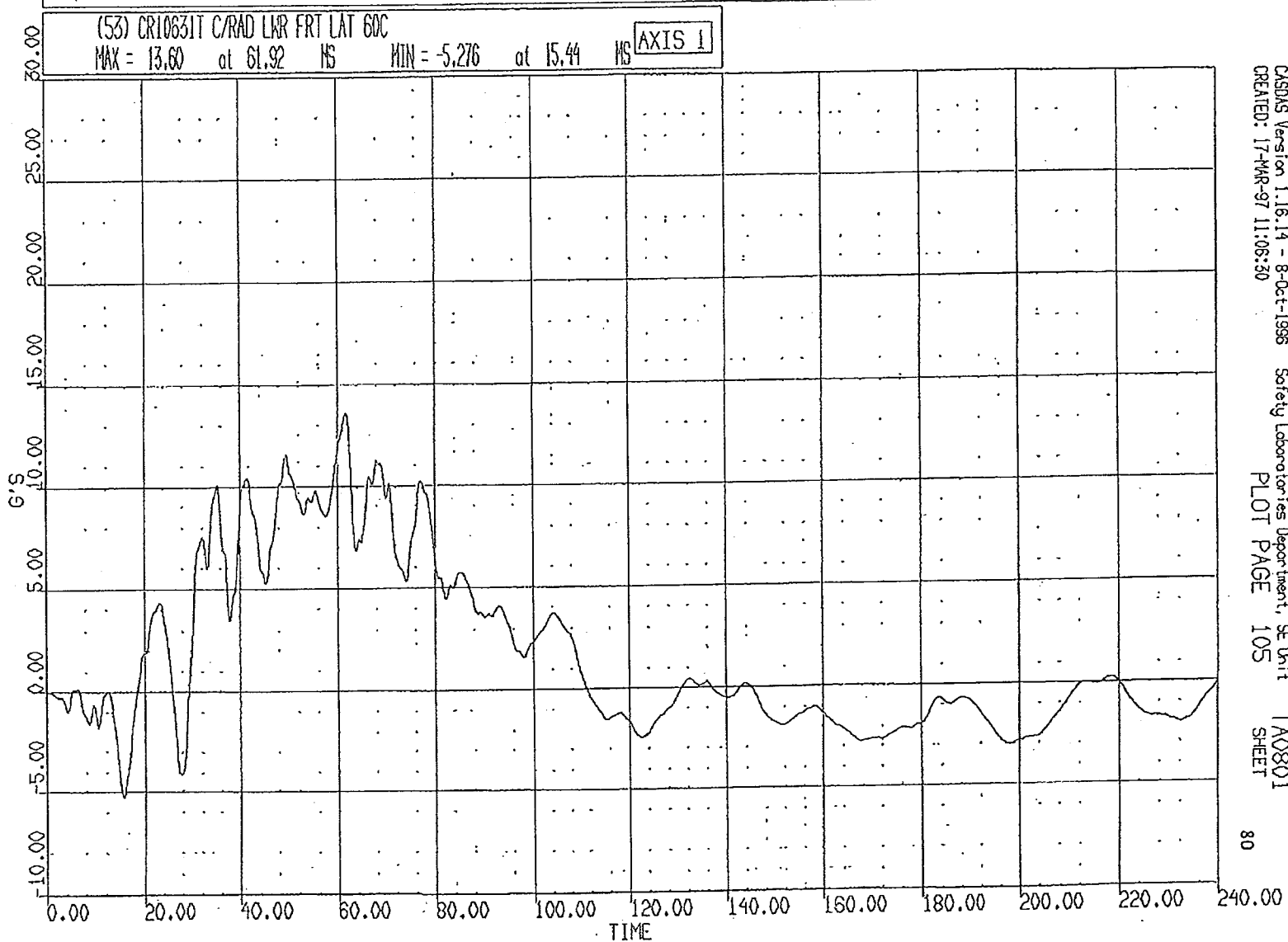
TA0801
SHEET

79

CRTS 0010631

0629

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:30

Safety Laboratories Department, SE Unit
PLOT PAGE 105

TA0801
SHEET

80

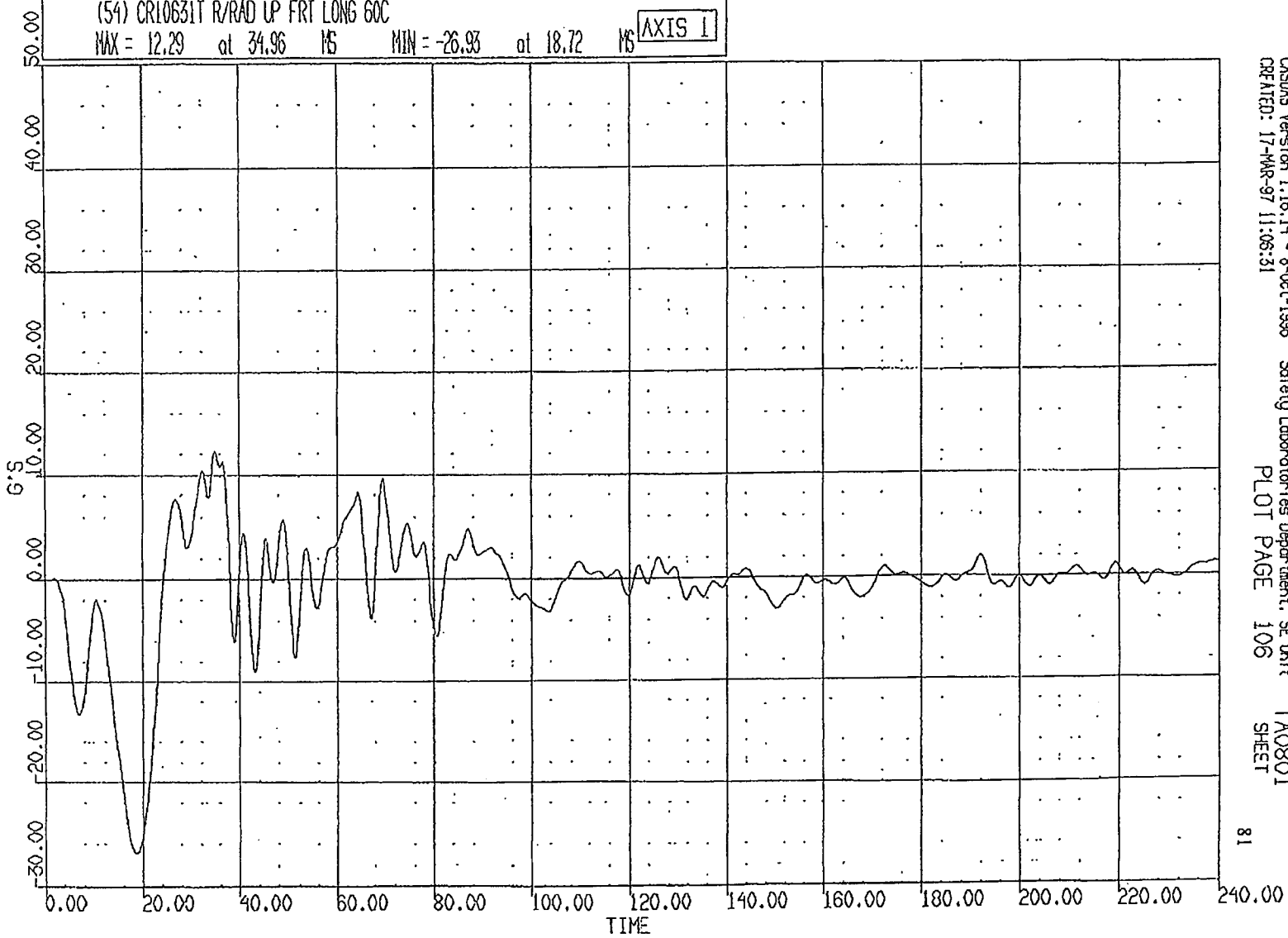
CRIS 0010631

0630

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

(54) CR10631T R/RAD UP FRT LONG 60C
MAX = 12.29 at 34.96 MS MIN = -26.93 at 18.72 MS AXIS 1

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



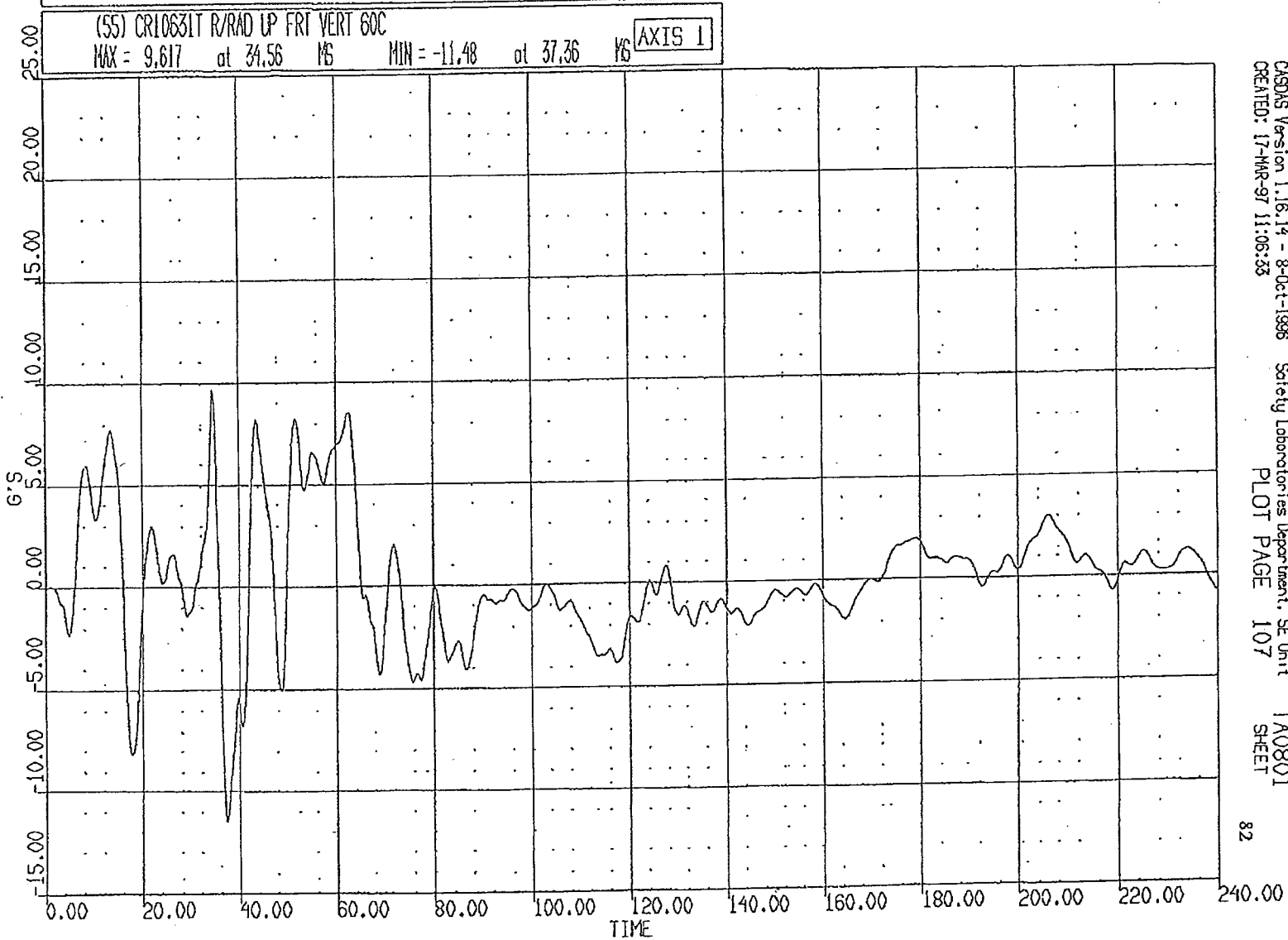
CASDAS Version 1.16.14 ~ 8-Oct-1996
 SAFETY LABORATORIES DEPARTMENT, SE Unit
 CREATED: 17-MAR-97 11:06:31
 PLOT PAGE 106
 TA0801 SHEET

81

CRTS 0010631

0631

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:06:33

Safety Laboratories Department, SE Unit
PLOT PAGE 107

TA0801
SHEET

82

CRTS 0010631

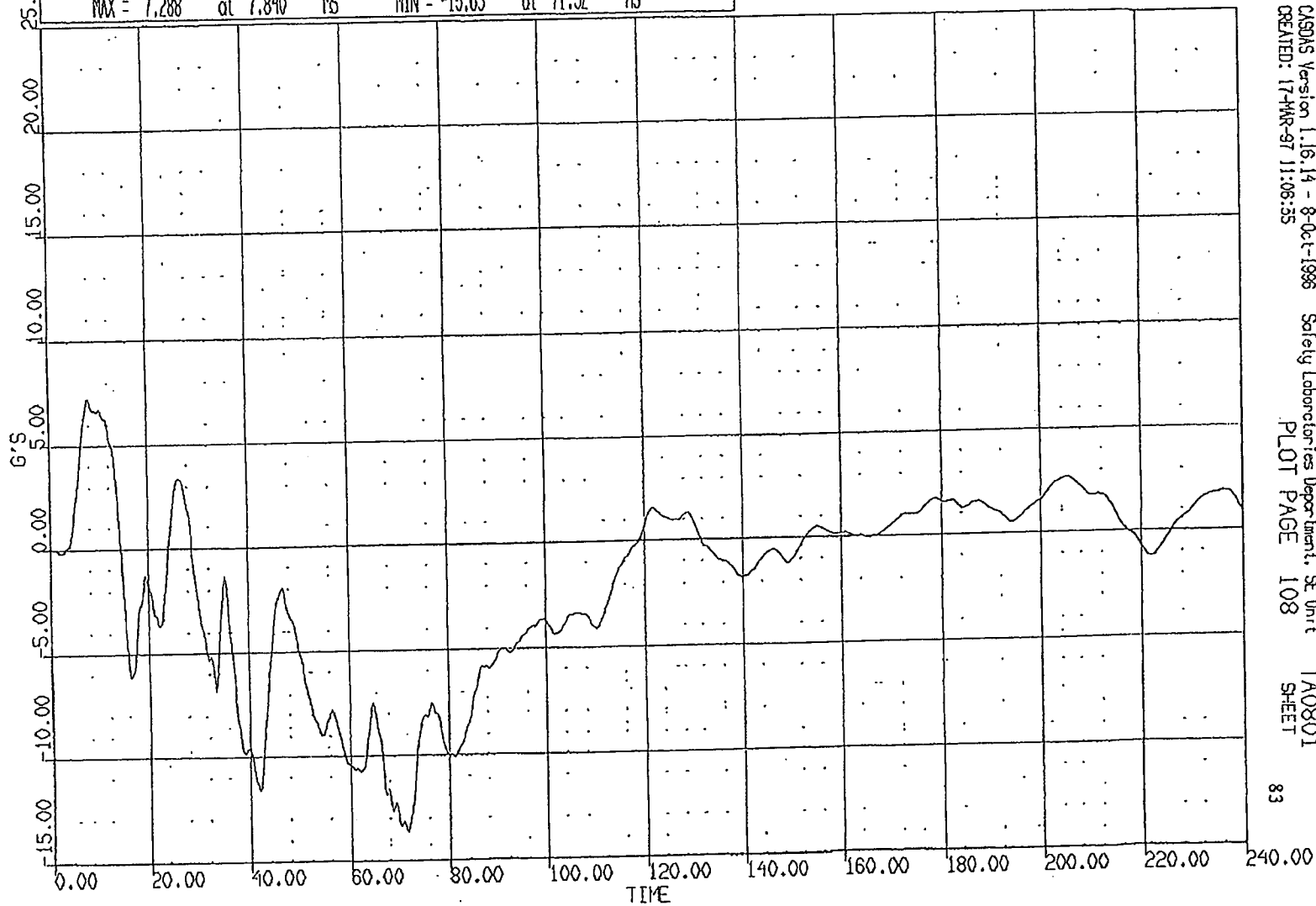
0632

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

(56) CR10631T R/RAD UP FRT LAT 60C

MAX = 7.288 at 7.840 MS MIN = -13.65 at 71.52 MS

AXIS 1

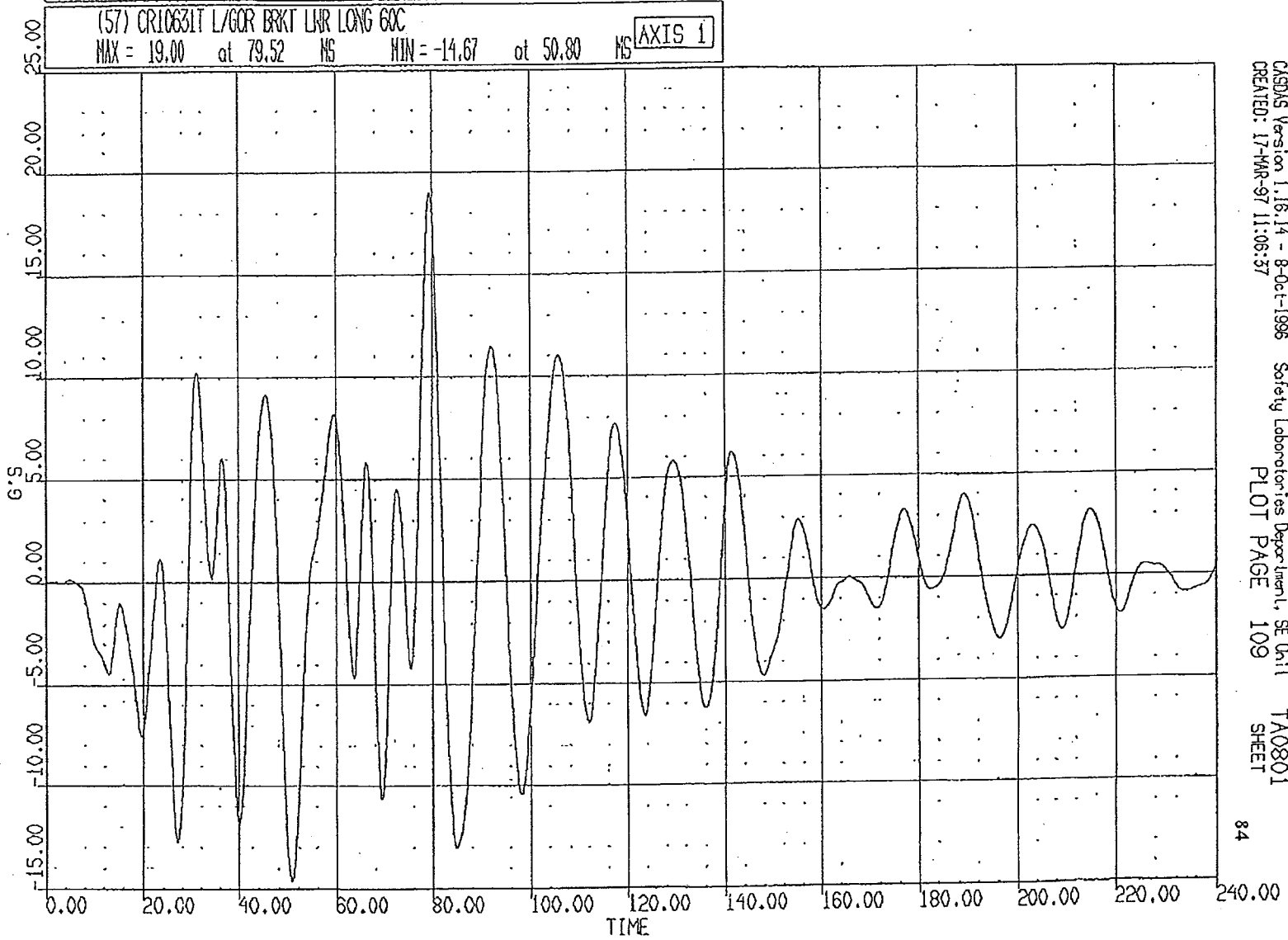


CASINS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:08:55
PLOT PAGE 108
TA0801
SHEET
83

CRTS 0010631

0633

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



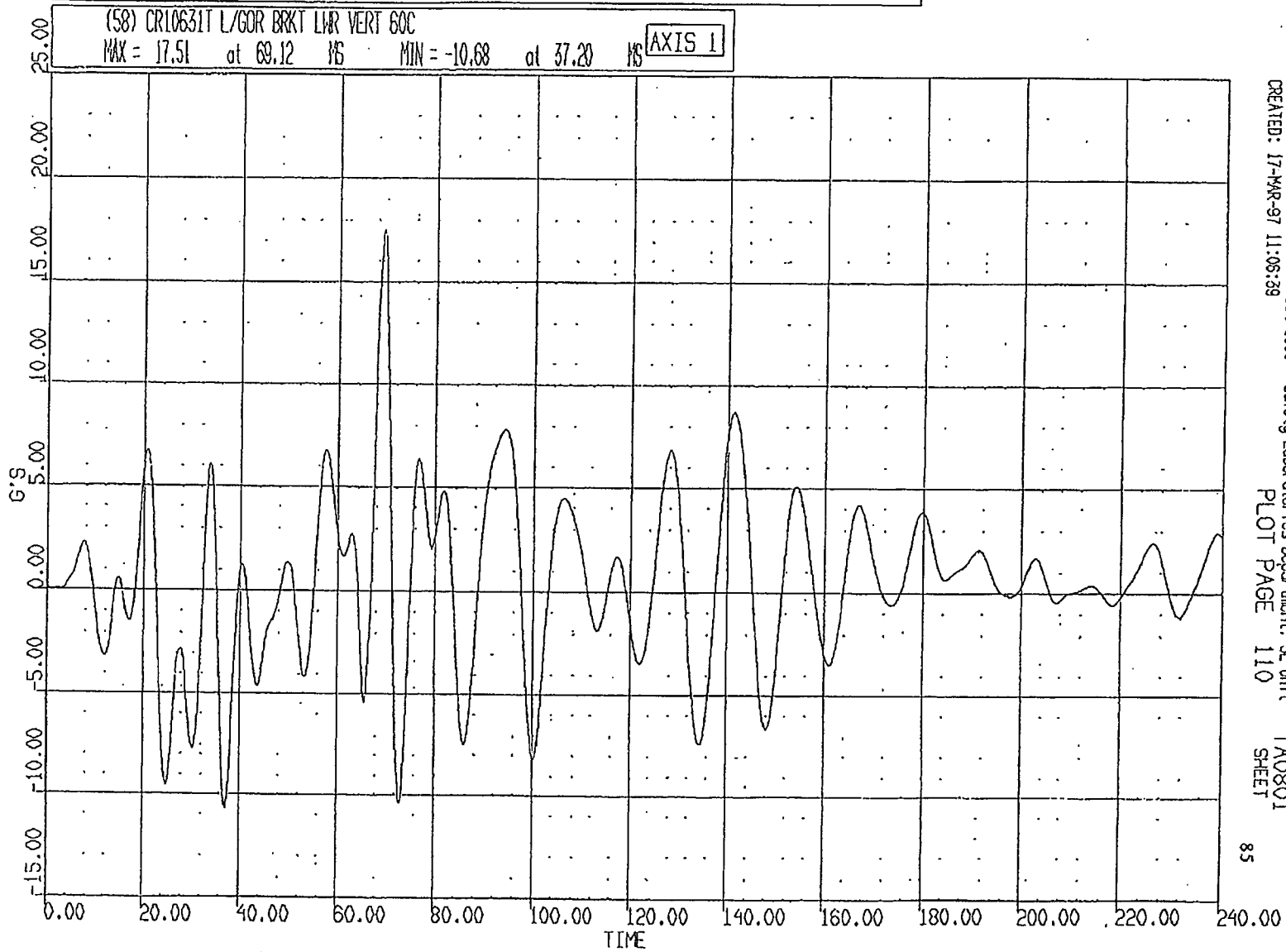
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CREATED: 17-MAR-97 11:06:37

Safety Laboratories Department, SE Unit
PLOT PAGE 109

TA0801
SHEET

CRTS 0010631

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



CASAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:06:39

Safety Laboratories Department, SE Unit
PLOT PAGE 110

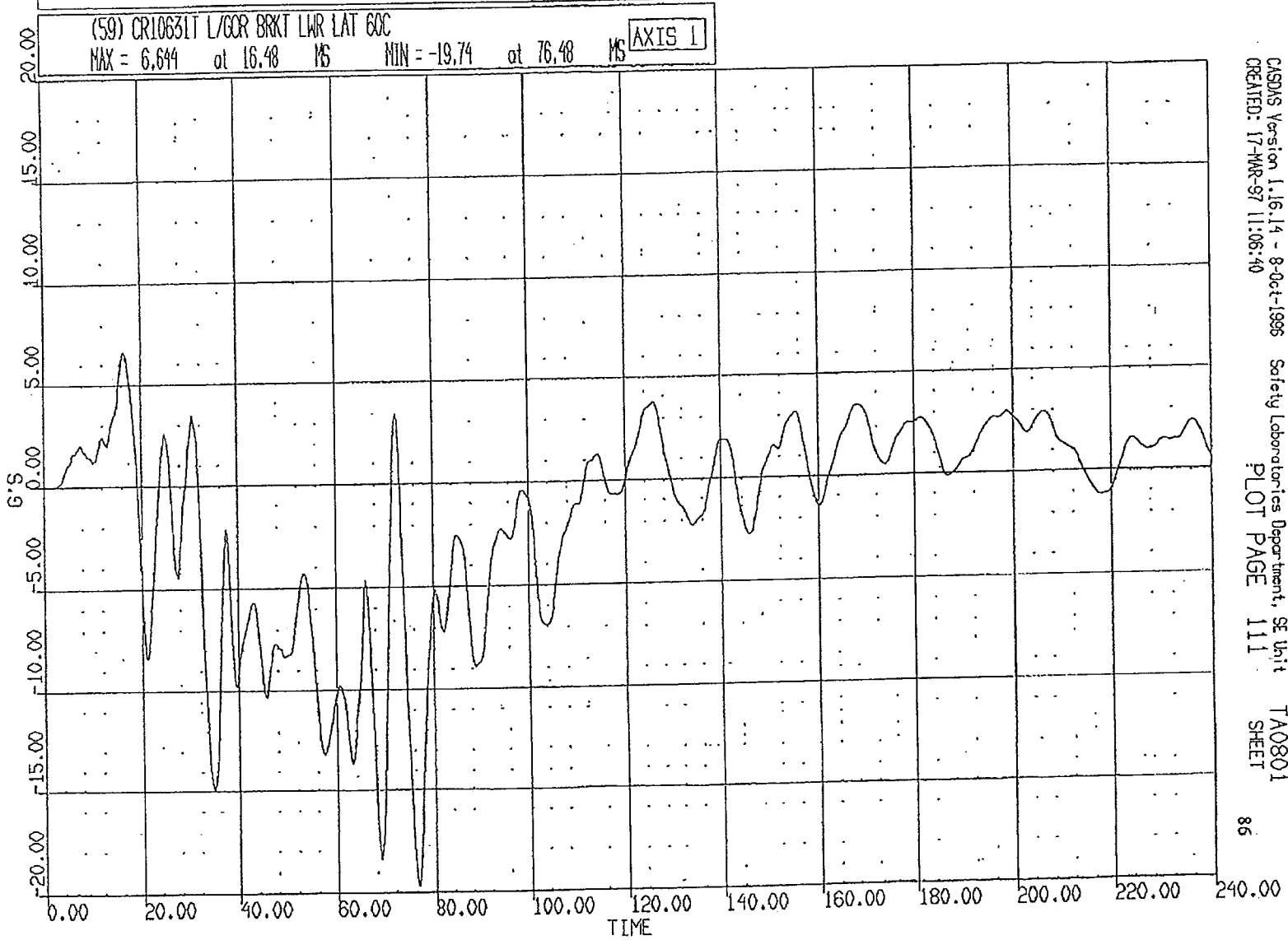
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SHEET

85

CRIS 0010631

0635

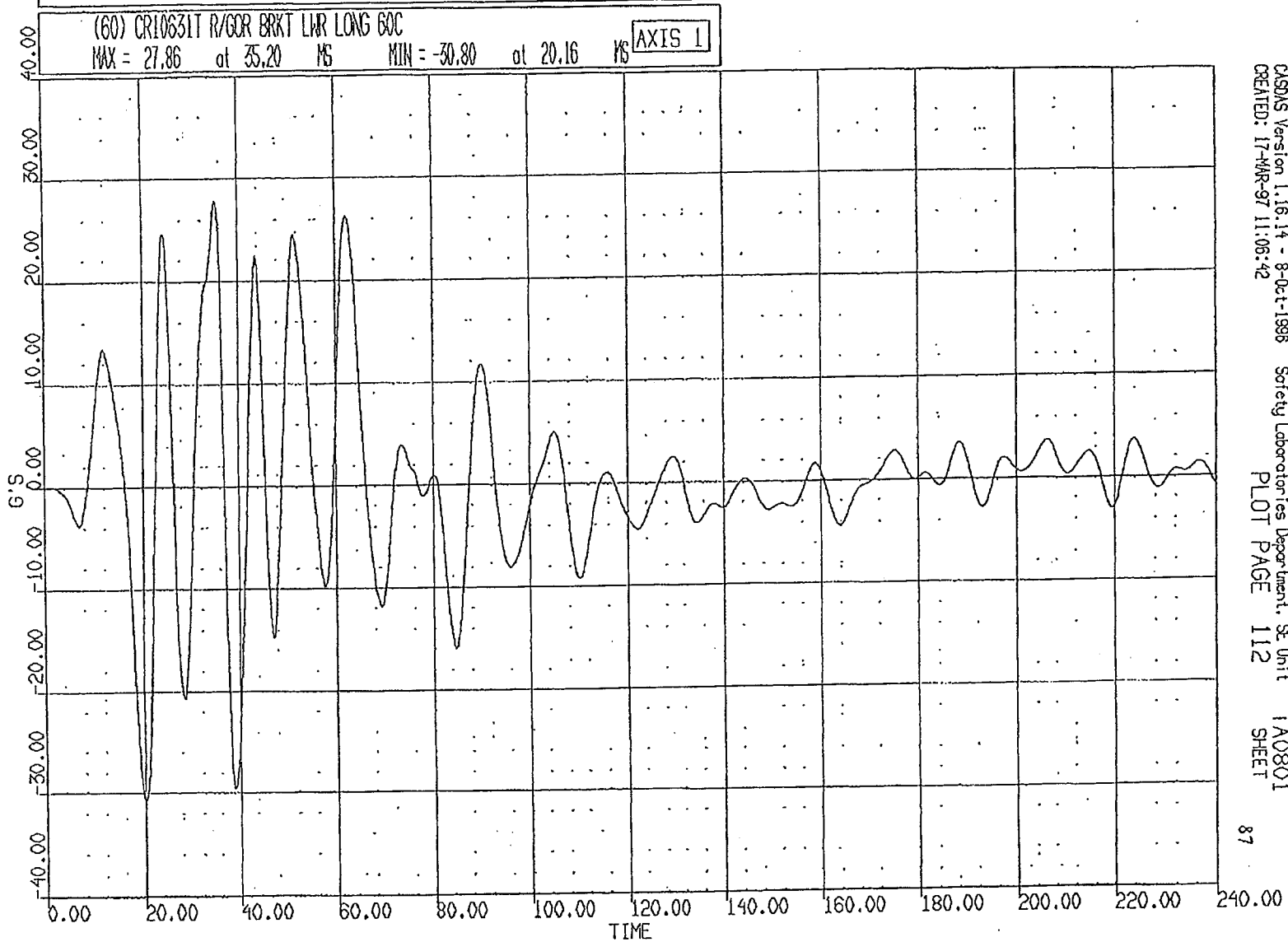
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1999 PN-96 1999 MOVING DEFORMABLE BA



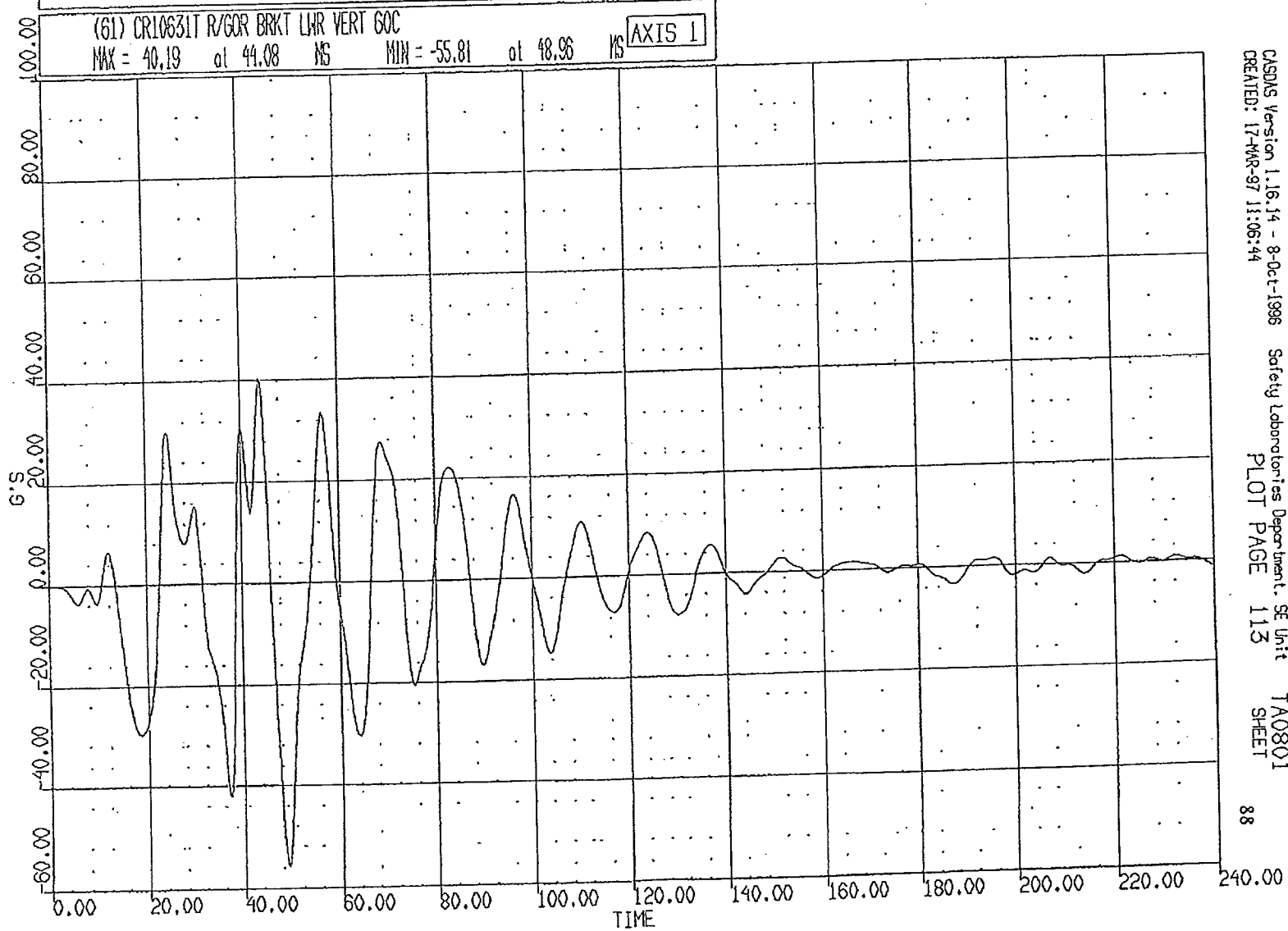
CASDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:06:40
PLOT PAGE 111 TA0801
SHEET

CRTS 0010631

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



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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:06:44

Safety Laboratories Department, SE Unit
PLOT PAGE 113

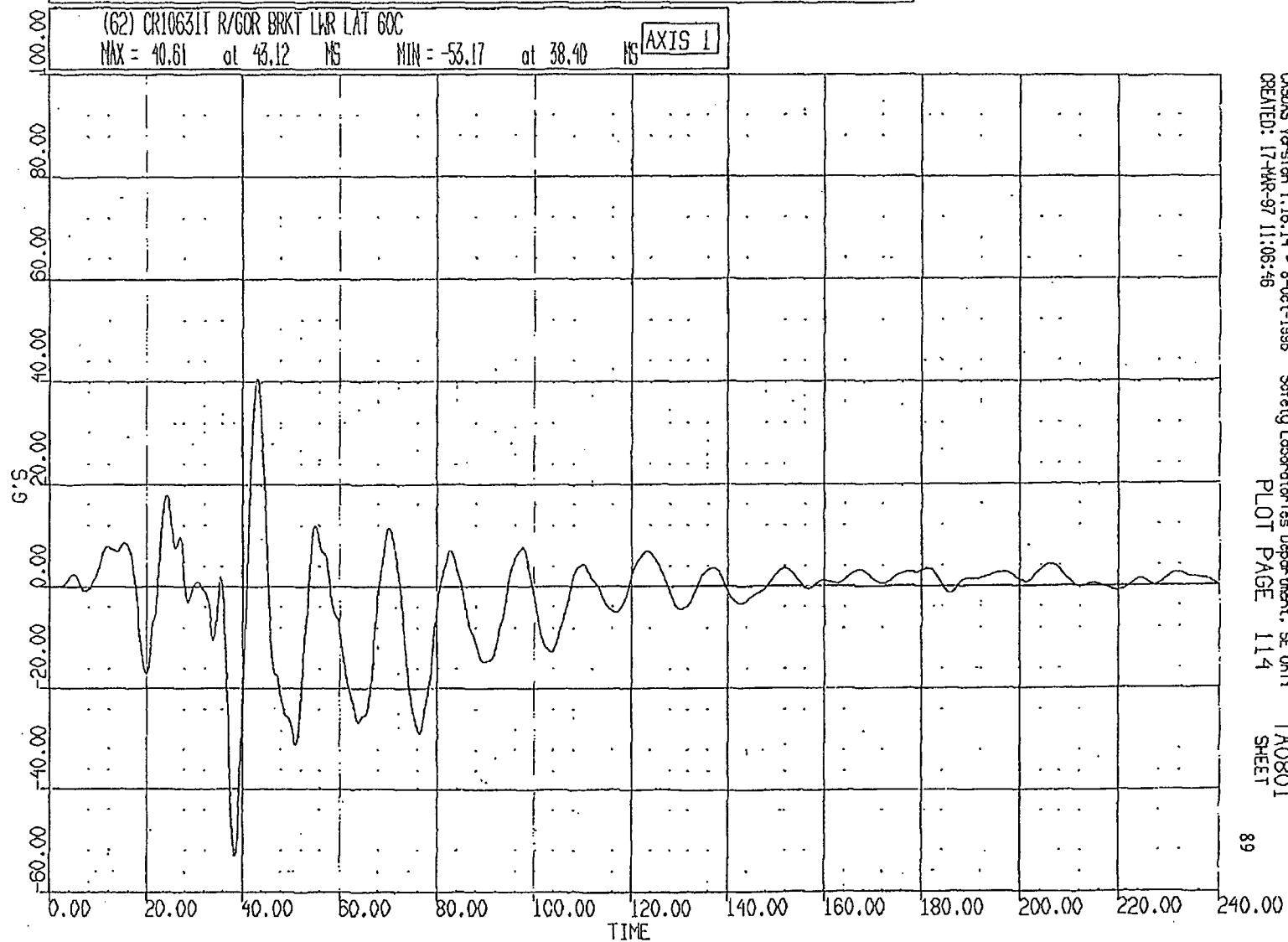
TA0801
SHEET

88

CRTS 0010631

0638

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

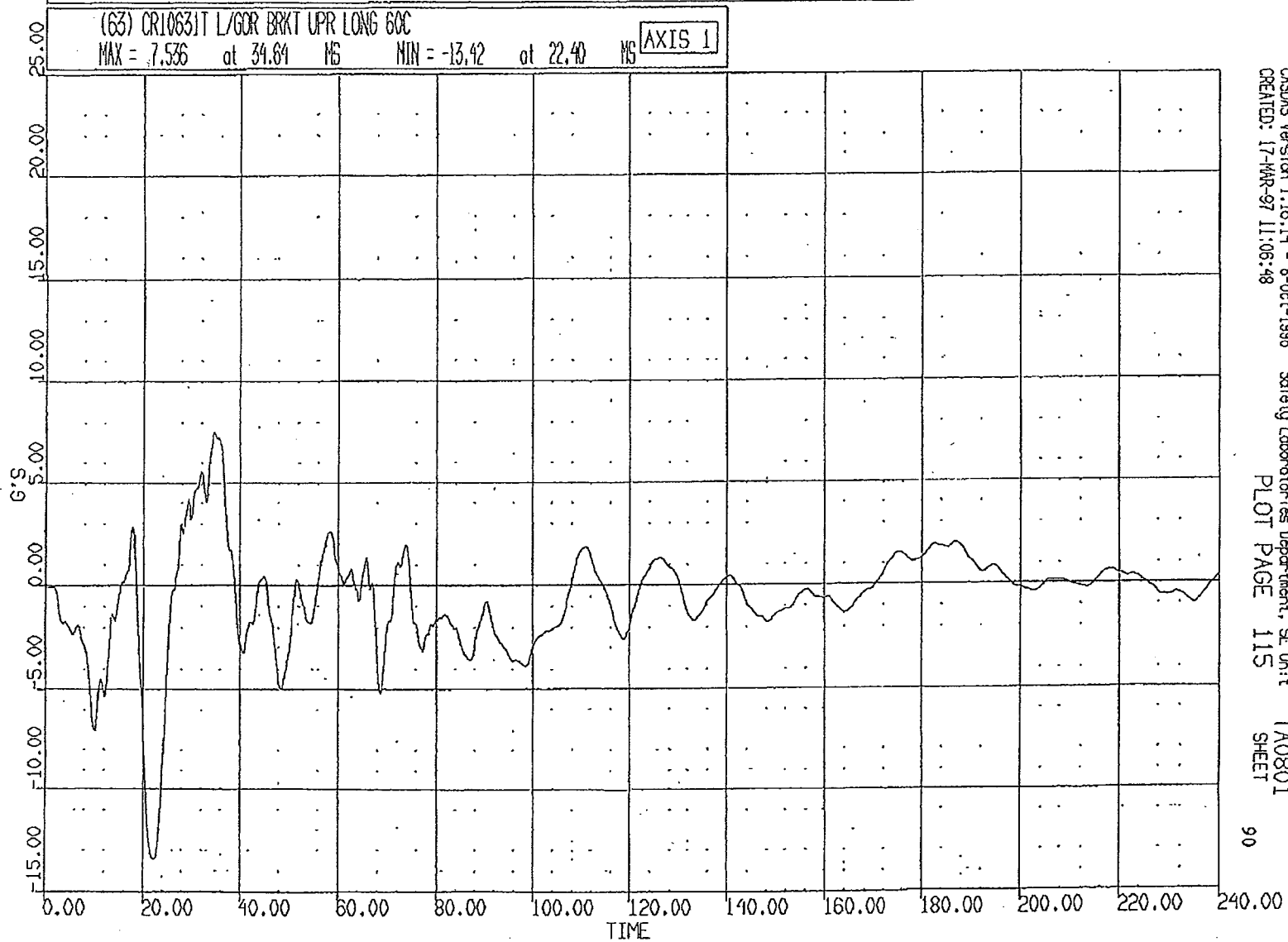


CASDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:06:46
PLOT PAGE 114
TA0801
SHEET

CRIS 0010631

0639

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:06:48

Safety Laboratories Department, SE Unit
PLOT PAGE 115

TA0801
SHEET

90

CRIS 0010631

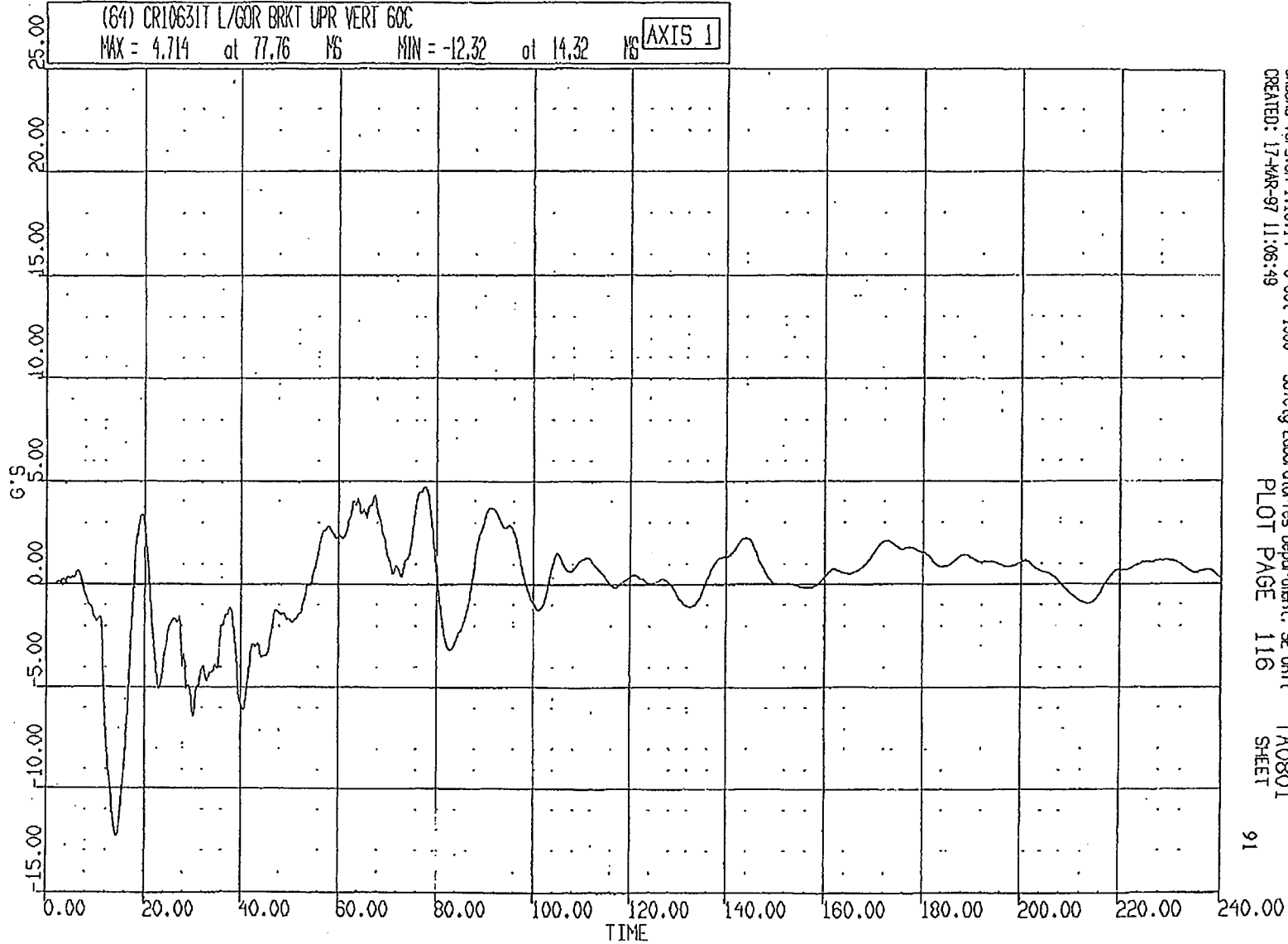
0640

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:06:49

Safety Laboratories Department, SE Unit
PLOT PAGE 116

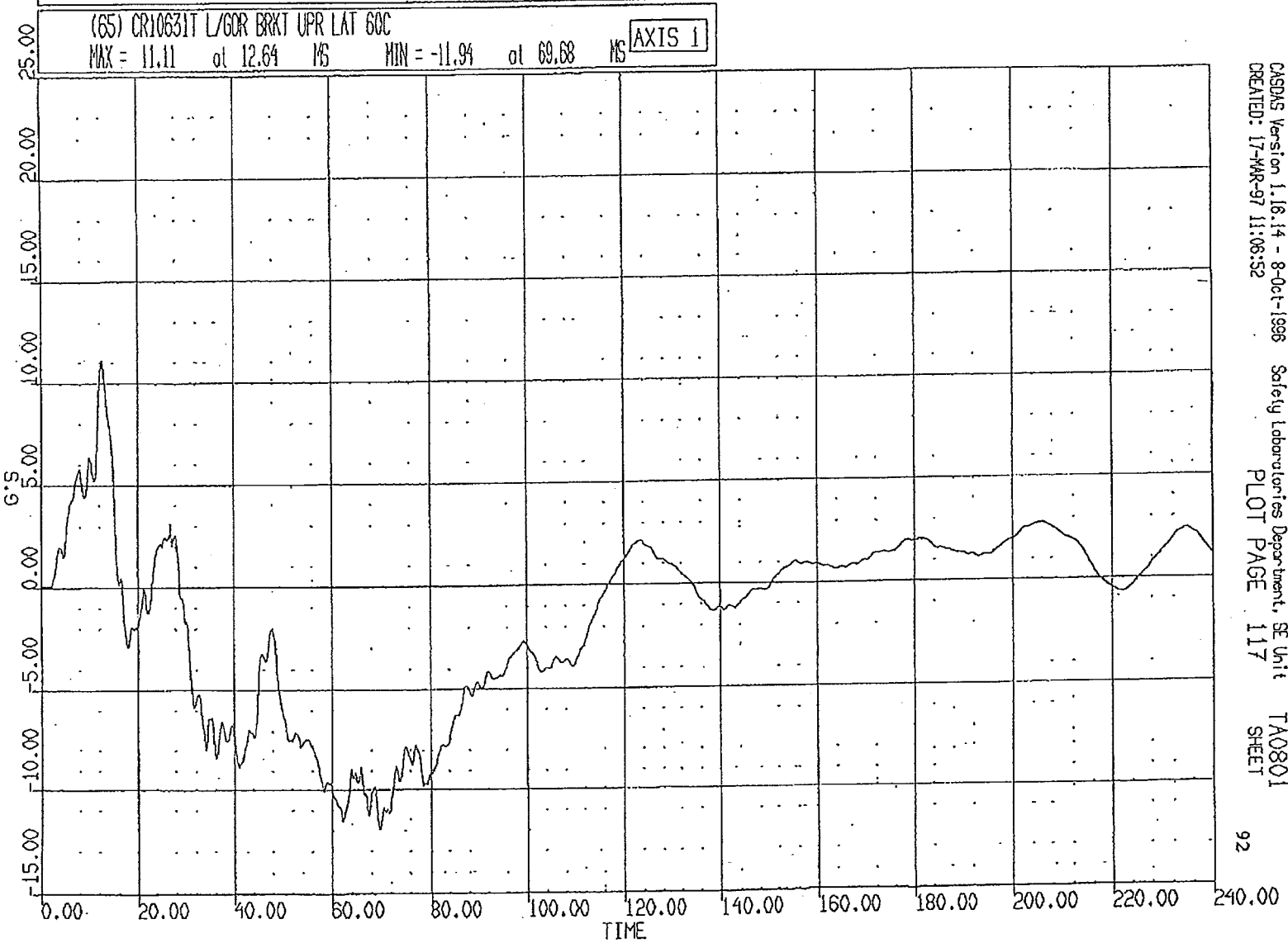
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SHEET

91

CRIS 0010631

0641

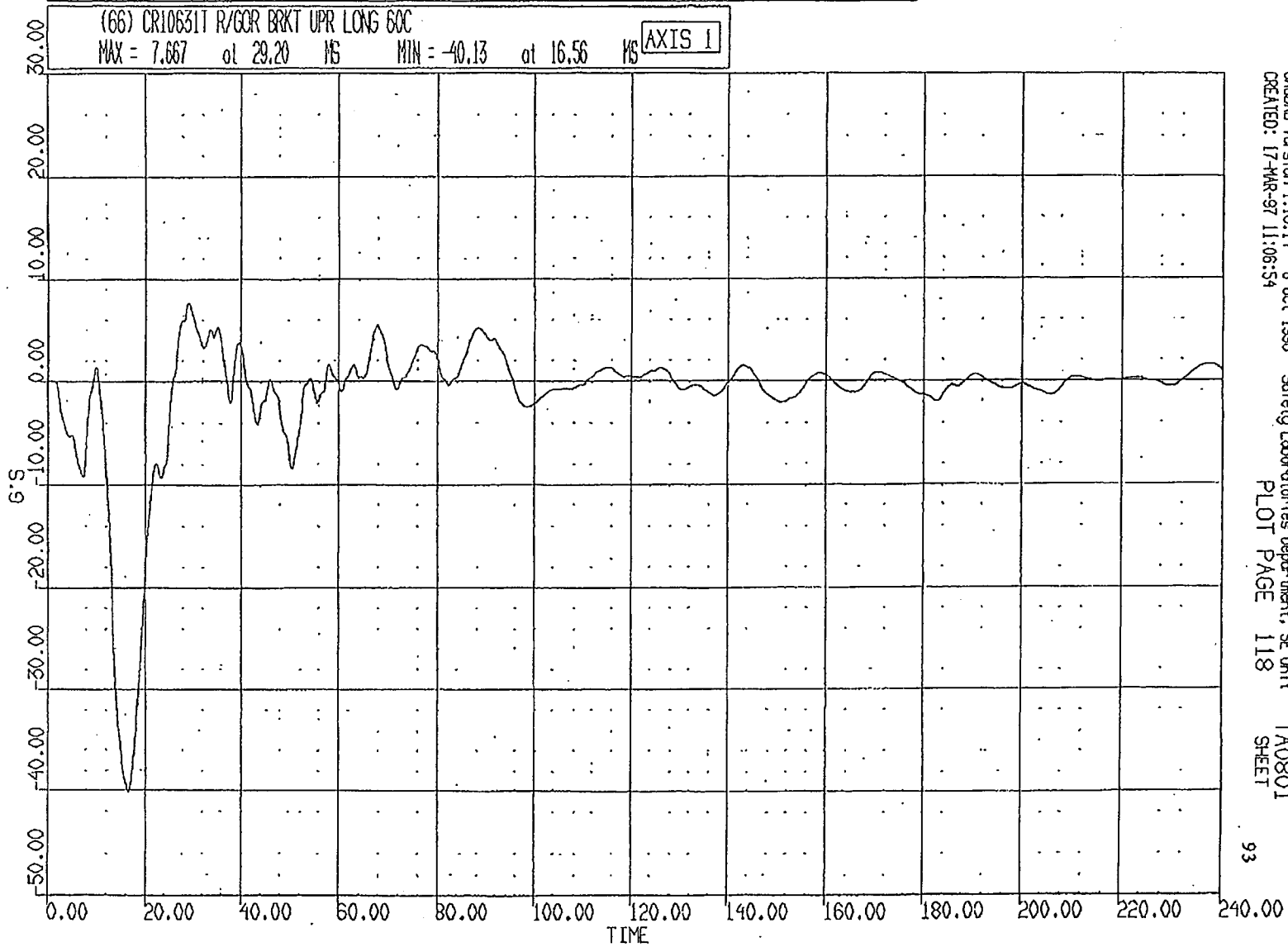
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE SA



CADDS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:06:52 PLOT PAGE 117 TA0801
SHEET

CRTS 0010631

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



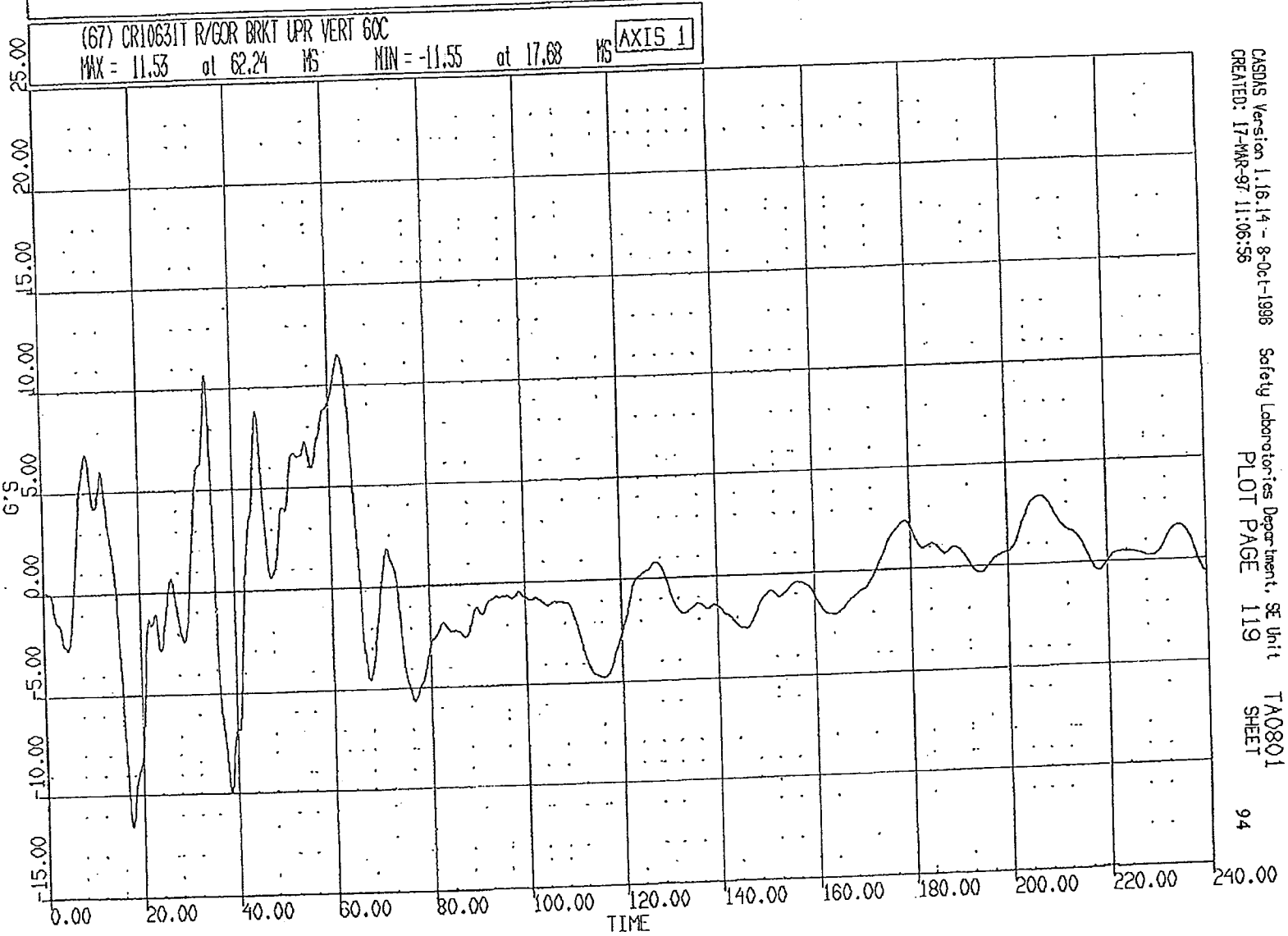
CASDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:06:54
PLOT PAGE 118 TA0801
SHEET

93

CRIS 0010631

0643

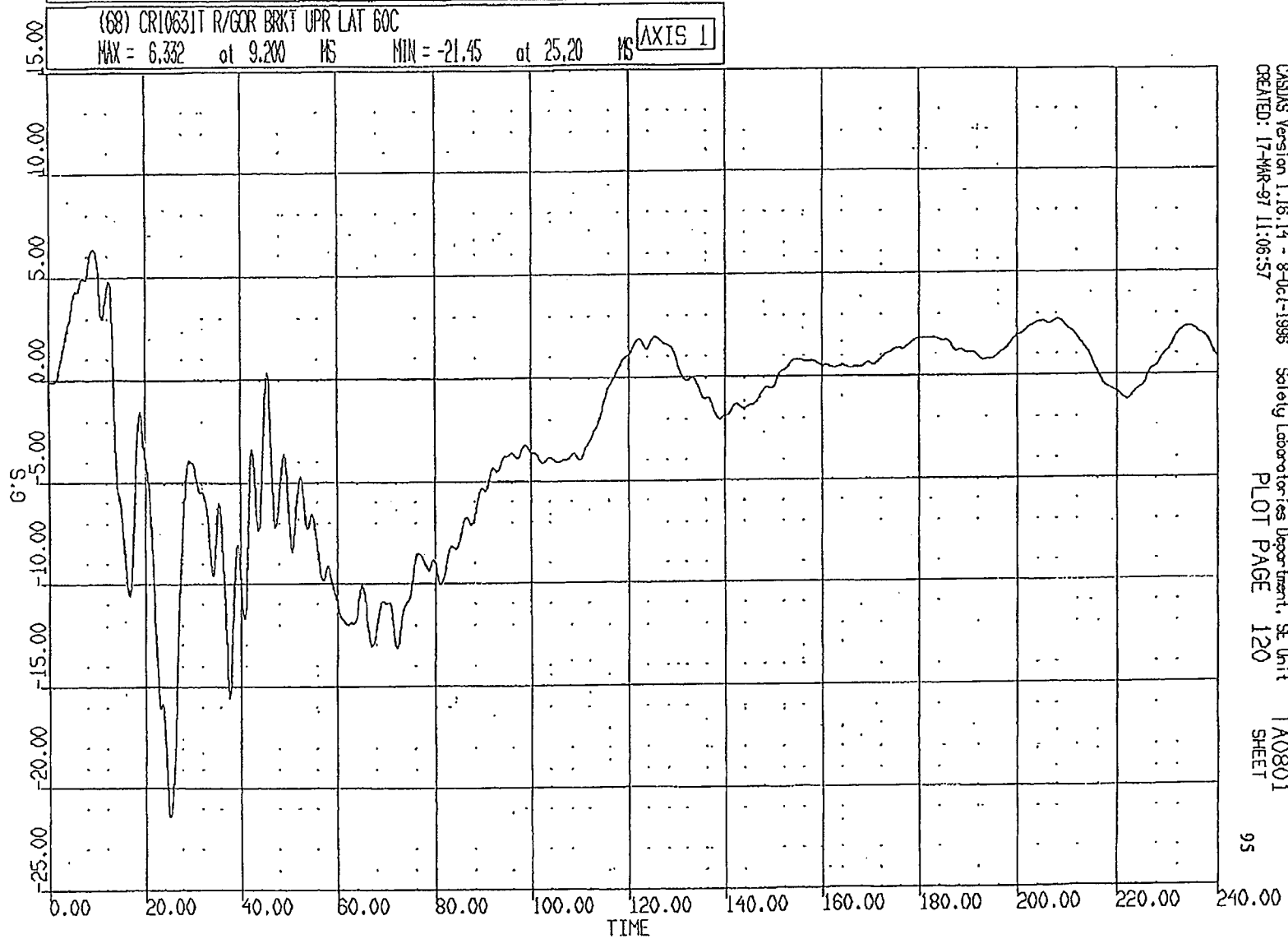
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:06:56 PLOT PAGE 119 TA0801 SHEET 94

CRTS 0010631

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



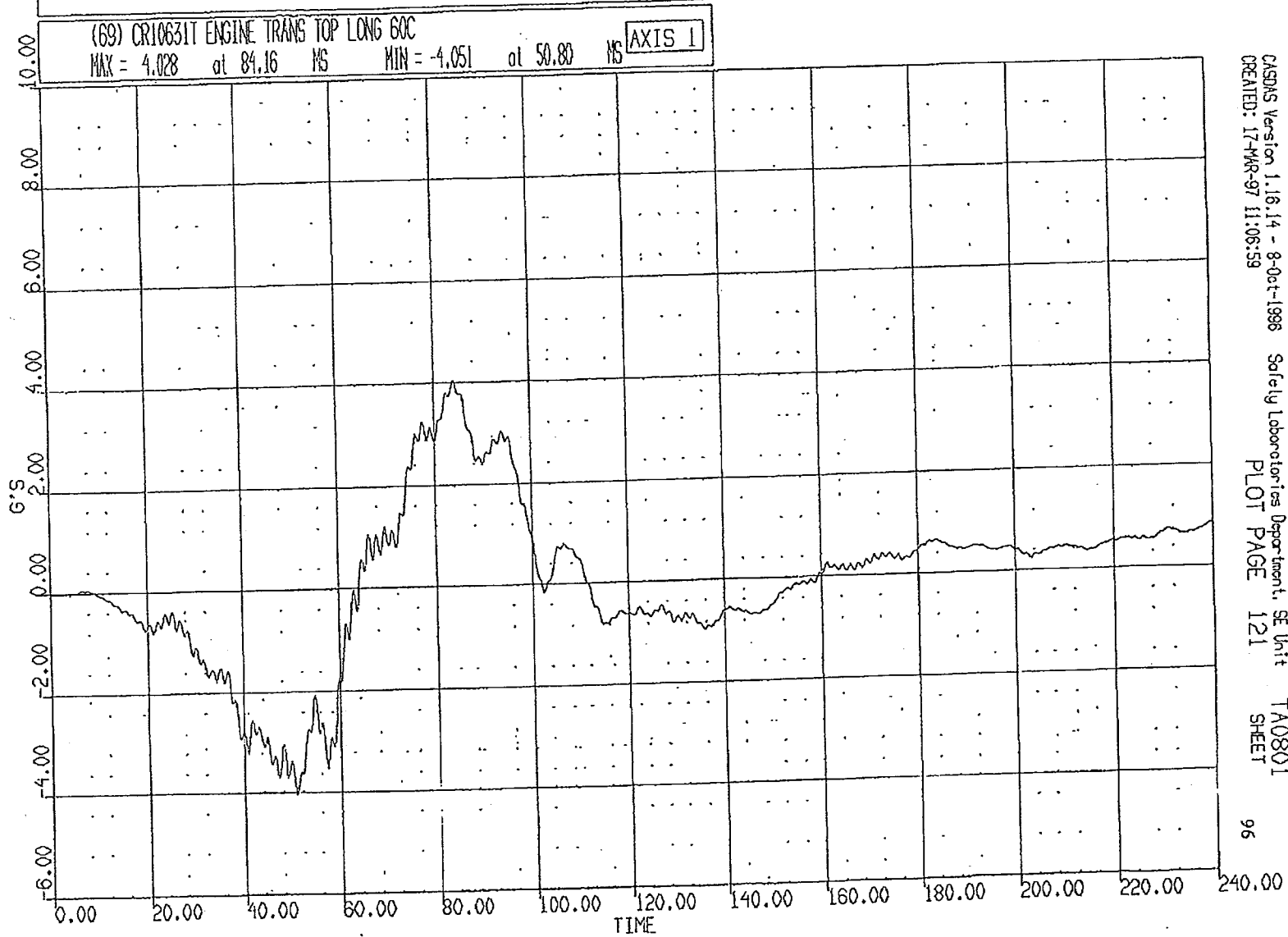
CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:06:57
PLOT PAGE 120
TA0801
SHEET

95

CRIS 0010631

0645

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



CASINS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:06:59
PLOT PAGE 121
TA0801
SHEET
96

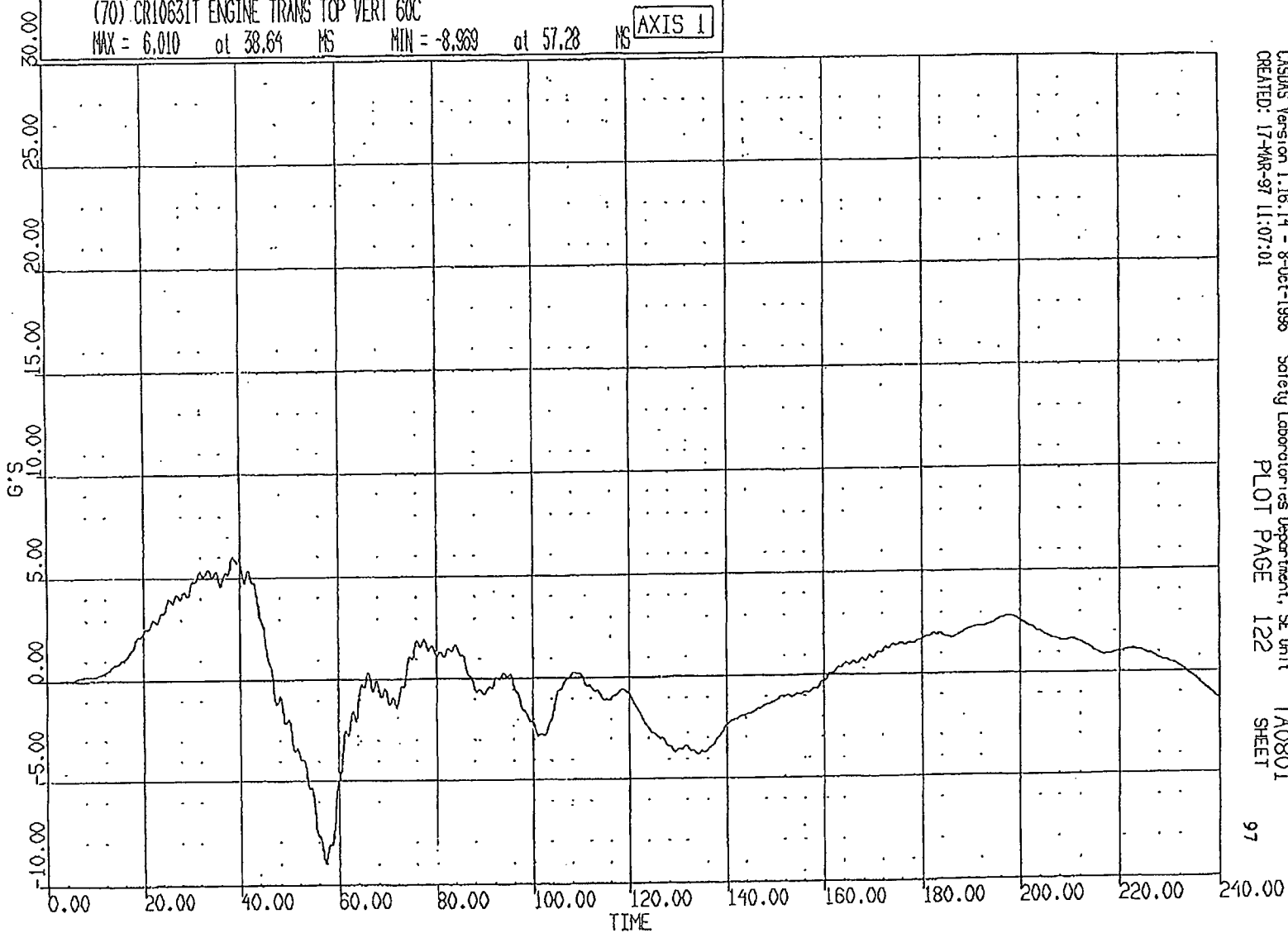
CRTS 0010631

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

(70) CR10631T ENGINE TRANS TOP VERT GOC

MAX = 6.010 at 38.64 MS MIN = -8.969 at 57.28 MS

AXIS 1



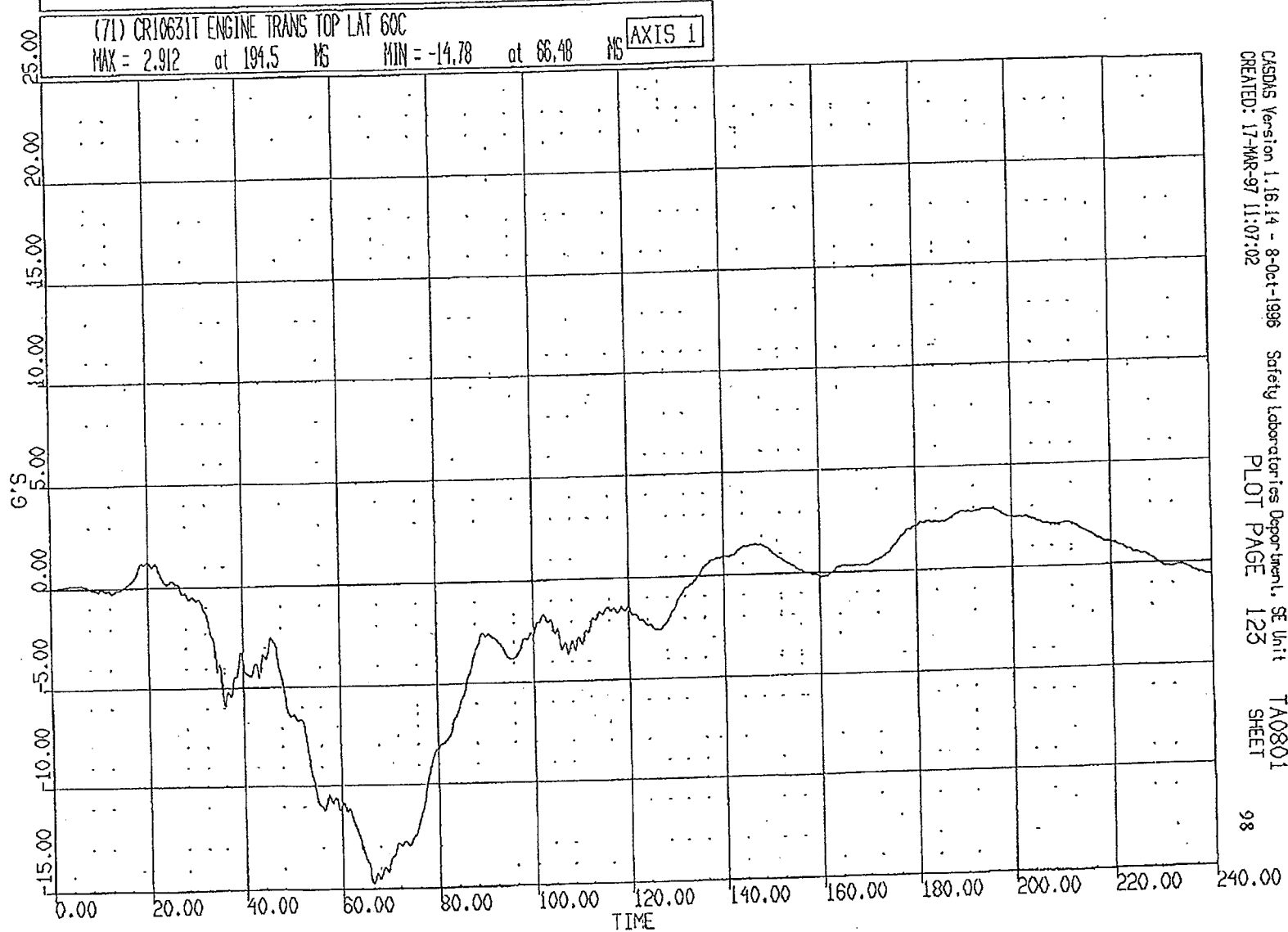
CASDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:07:01 PLOT PAGE 122 TA0801
SHEET

97

CRIS 0010631

0647

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



CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:07:02 PLOT PAGE 123 TA0801
SHEET 98

CRTS 0010631

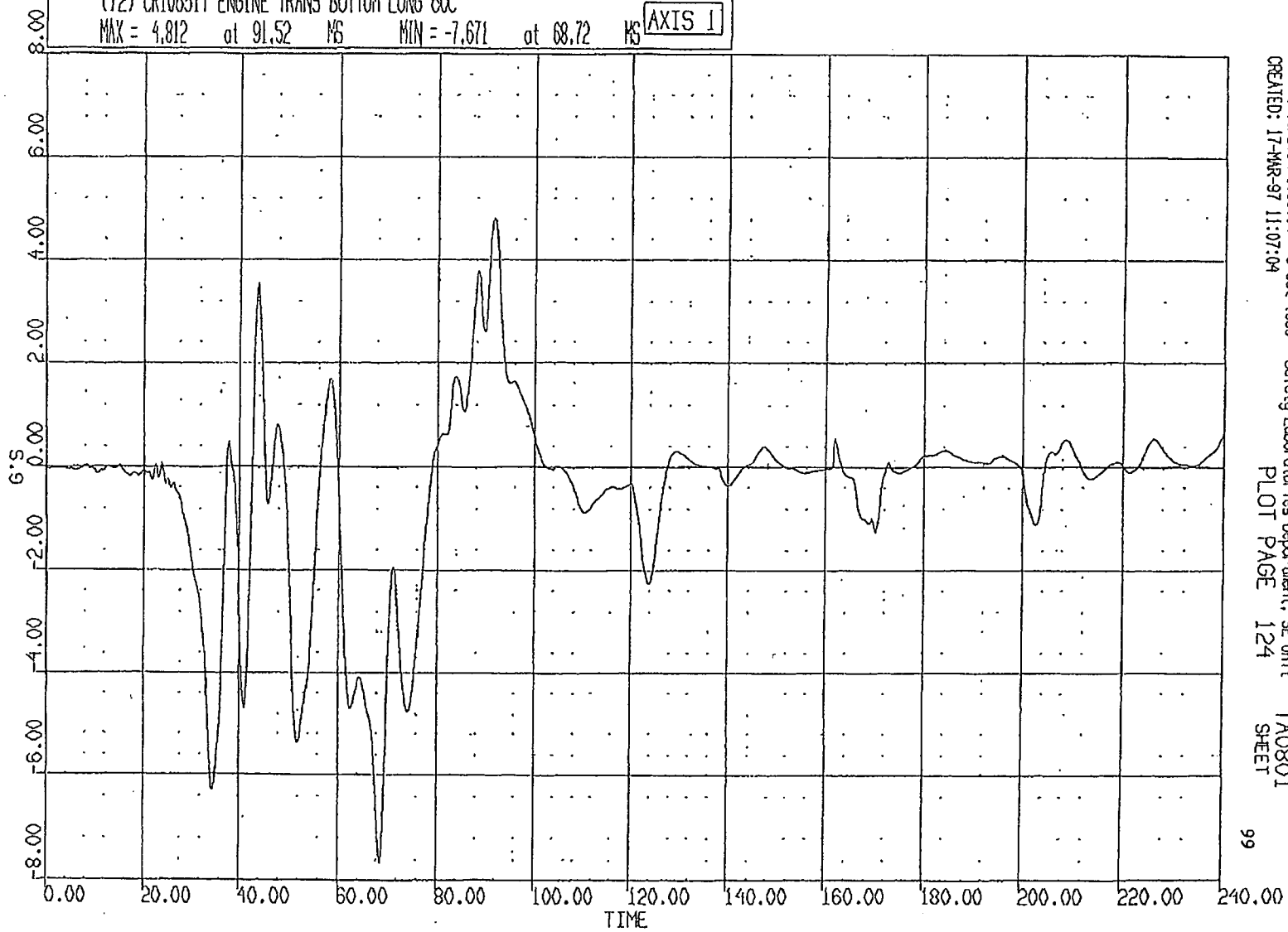
0648

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 68.72 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:07:04

Safety Laboratories Department, SE Unit
PLOT PAGE 124

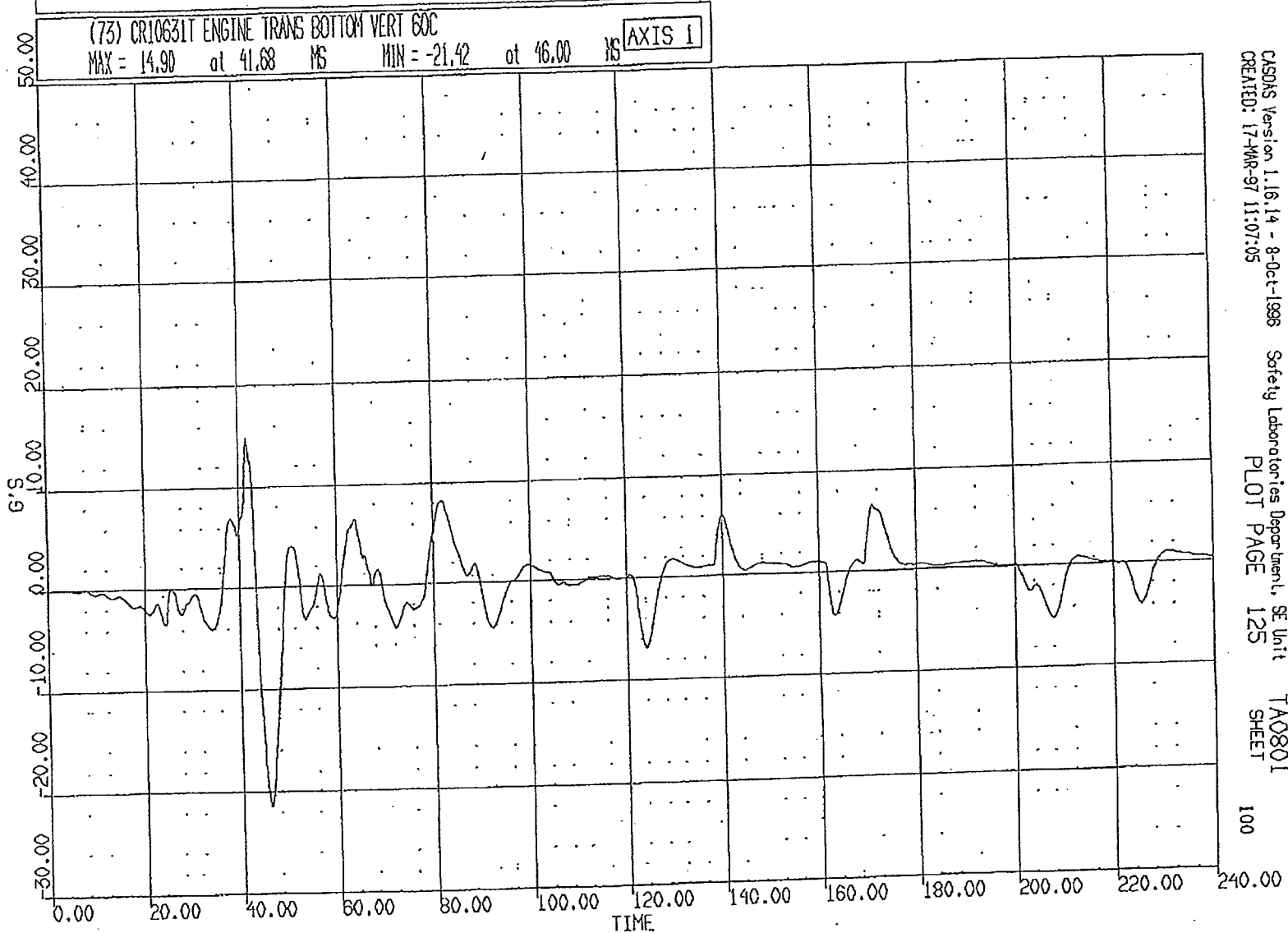
TA0801
SHEET

99

CRIS 0010631

0649

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:07:05

Safety Laboratories Department, SE Unit
PLOT PAGE 125

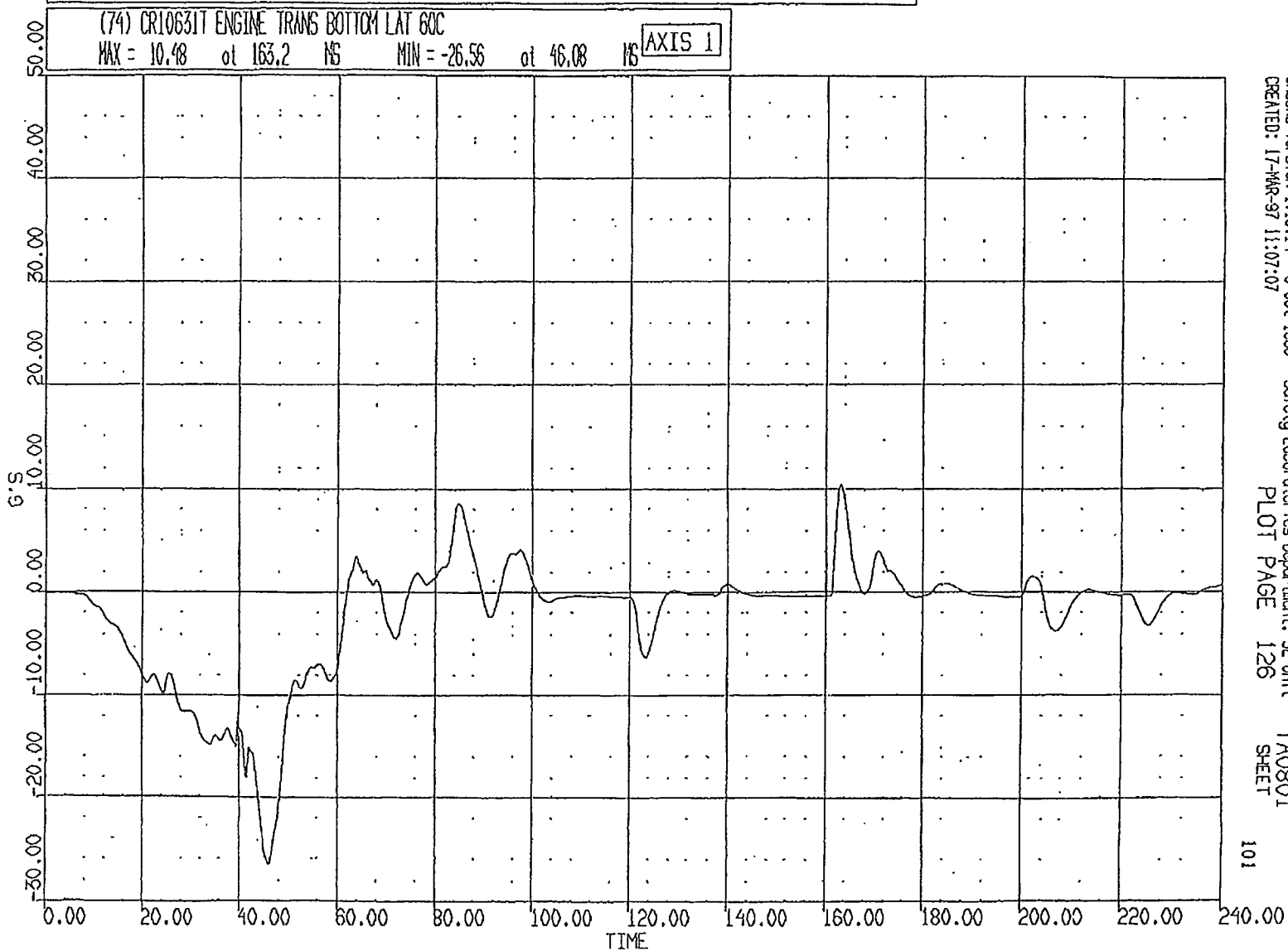
TA0801
SHEET

100

CRTS 0010631

0650

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



CASDAS Version 1.16-14 - 8-Oct-1999
CREATED: 17-MAR-97 11:07:07

Safety Laboratories Department, SE Unit
PLOT PAGE 126

TA0801
SHEET

101

CRTS 0010631

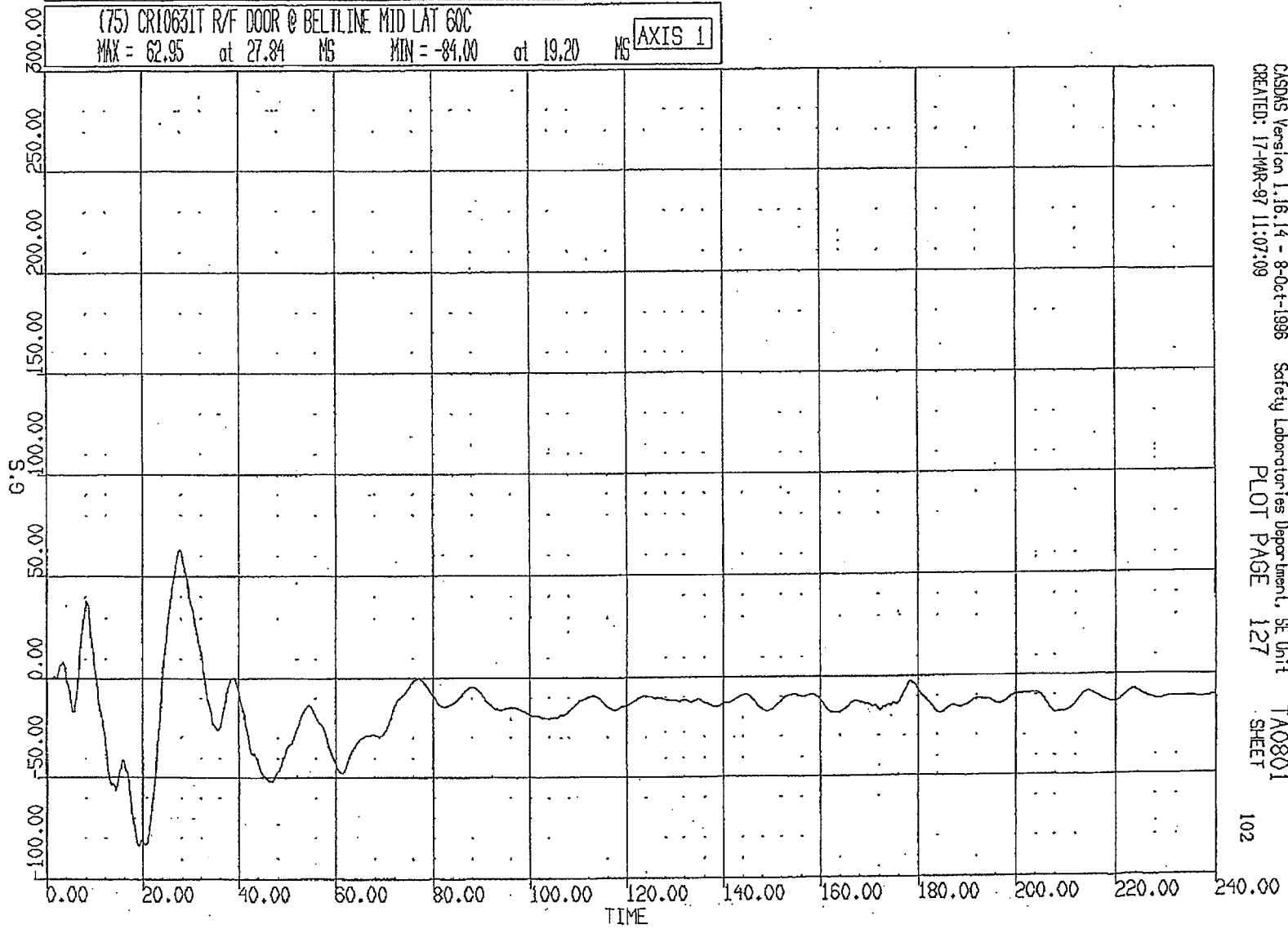
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CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

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

MAX = 62.95 at 27.84 MS MIN = -84.00 at 19.20 MS

AXIS 1



CASINS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:07:09

Safety Laboratories Department, SE Unit
PLOT PAGE 127

TA0801
SHEET

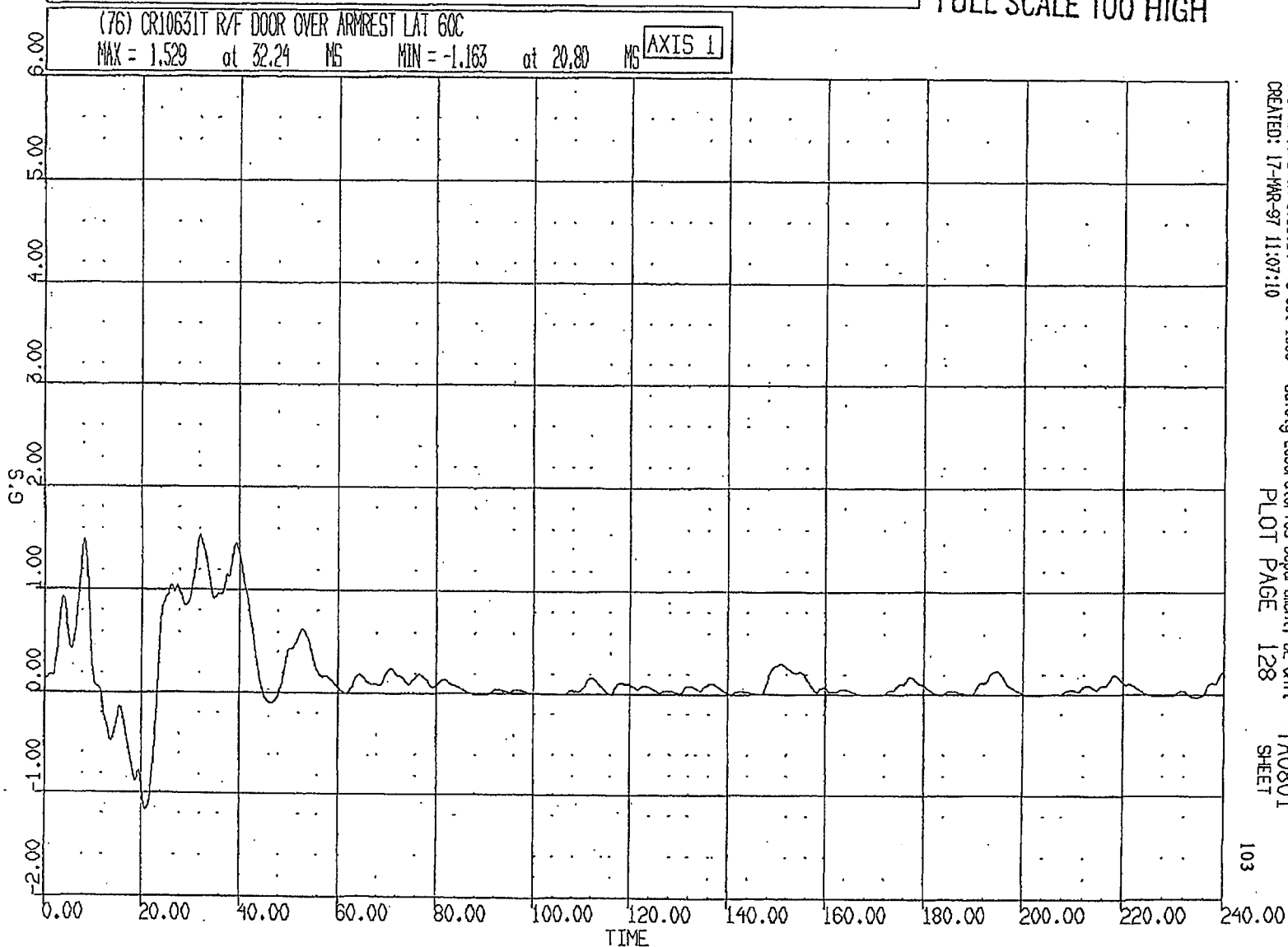
102

CRIS 0010631

0652

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

FULL SCALE TOO HIGH

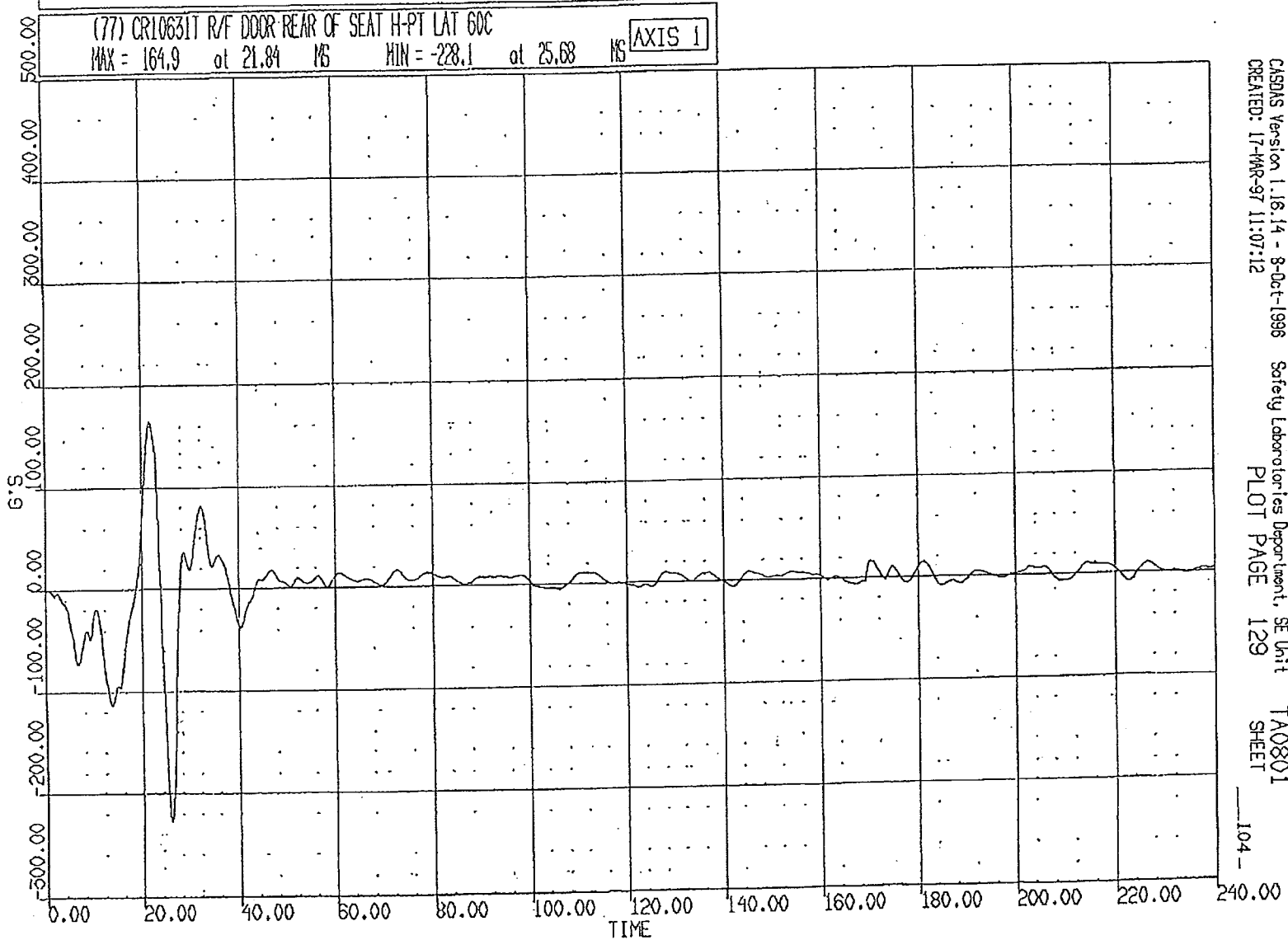


CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit TA0801
CREATED: 17-MAR-97 11:07:10 PLOT PAGE 128 SHEET

CRIS 0010631

0653

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:07:12

Safety Laboratories Department, SE Unit
PLOT PAGE 129

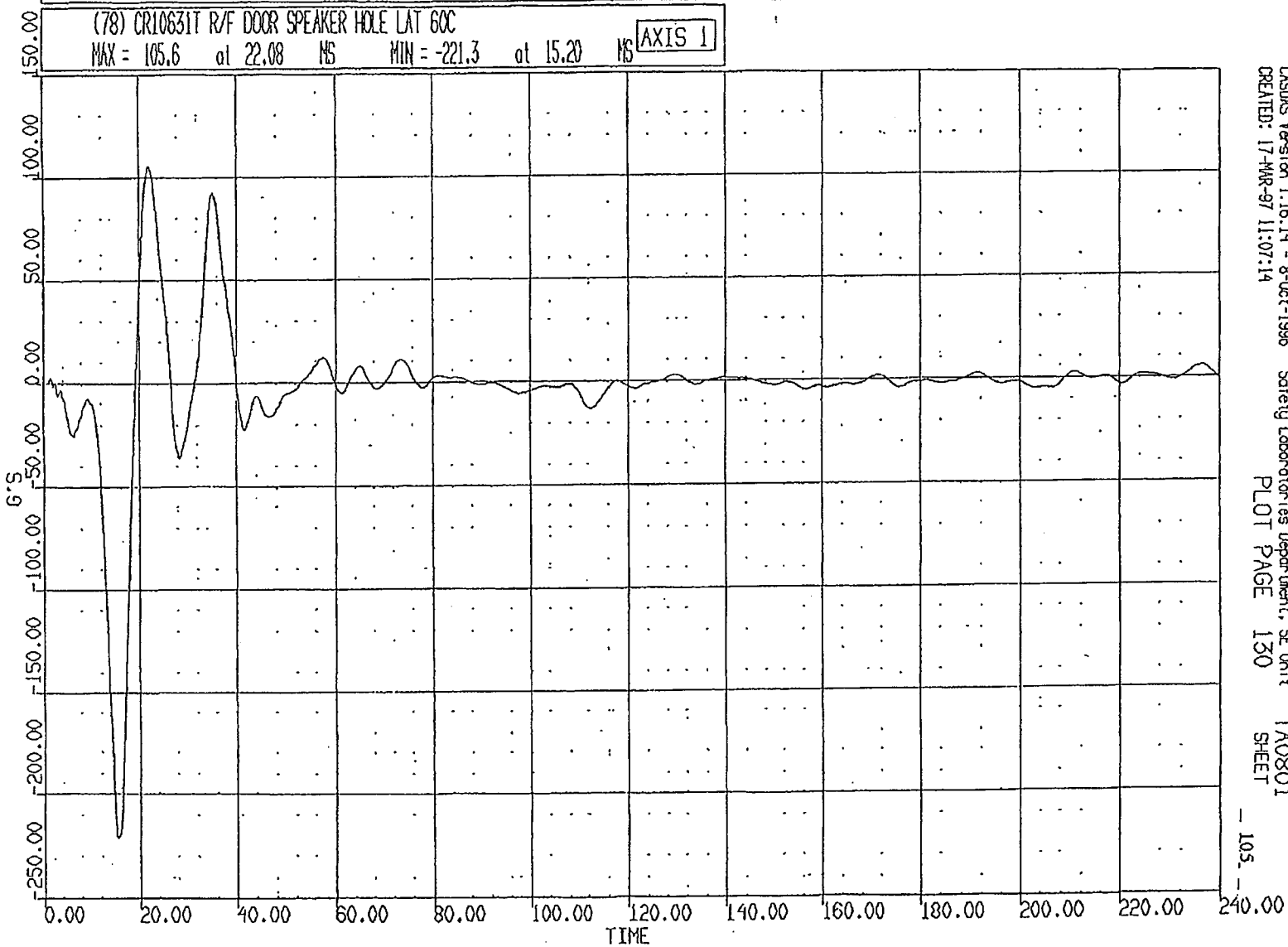
TA0801
SHEET

104

CRTS 0010631

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



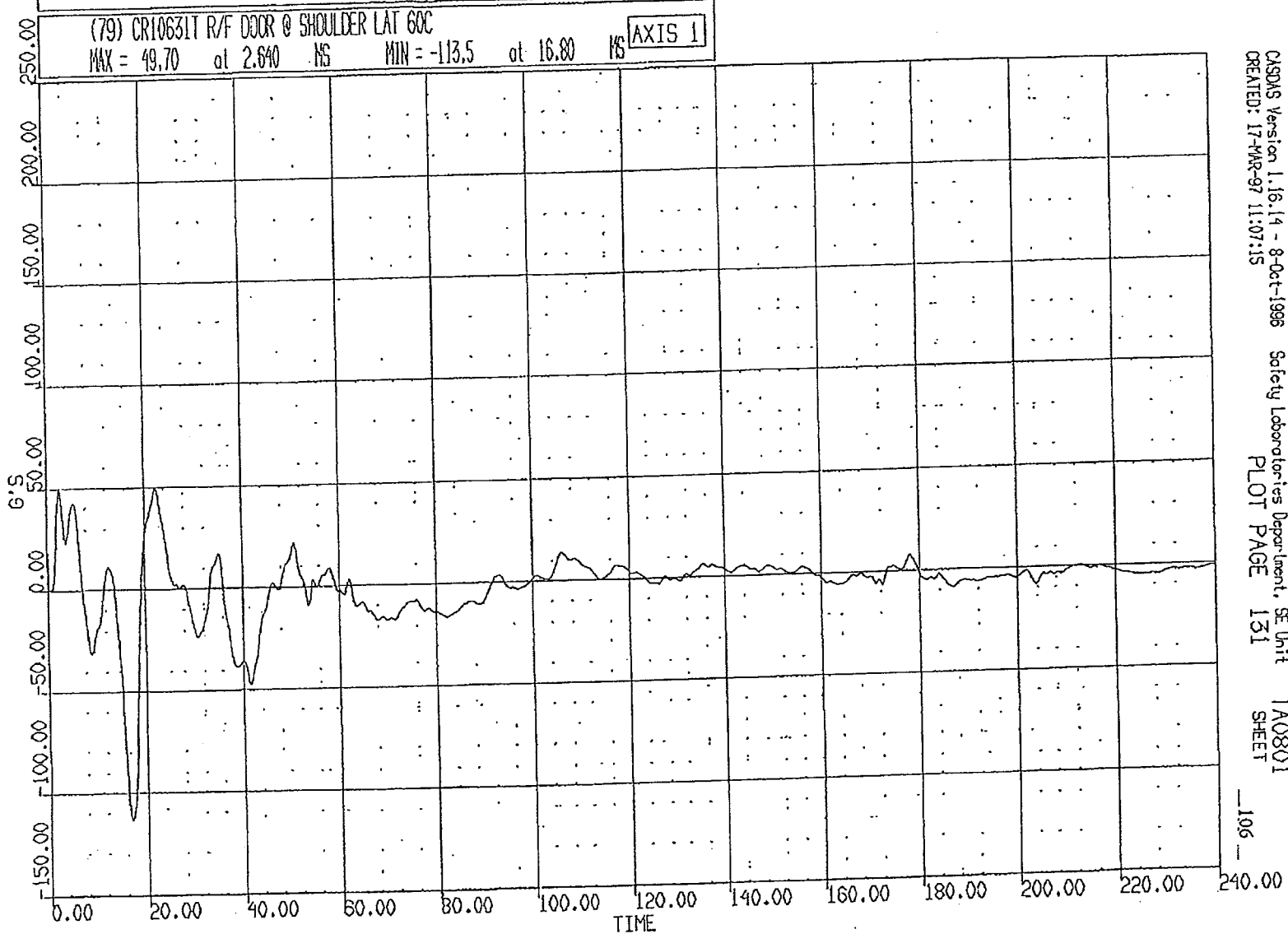
CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:07:14
PLOT PAGE 130 TA0801
SHEET

- 105.00

CRIS 0010631

0655

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



CASDMS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:07:15

Safety Laboratories Department, SE Unit
PLOT PAGE 131

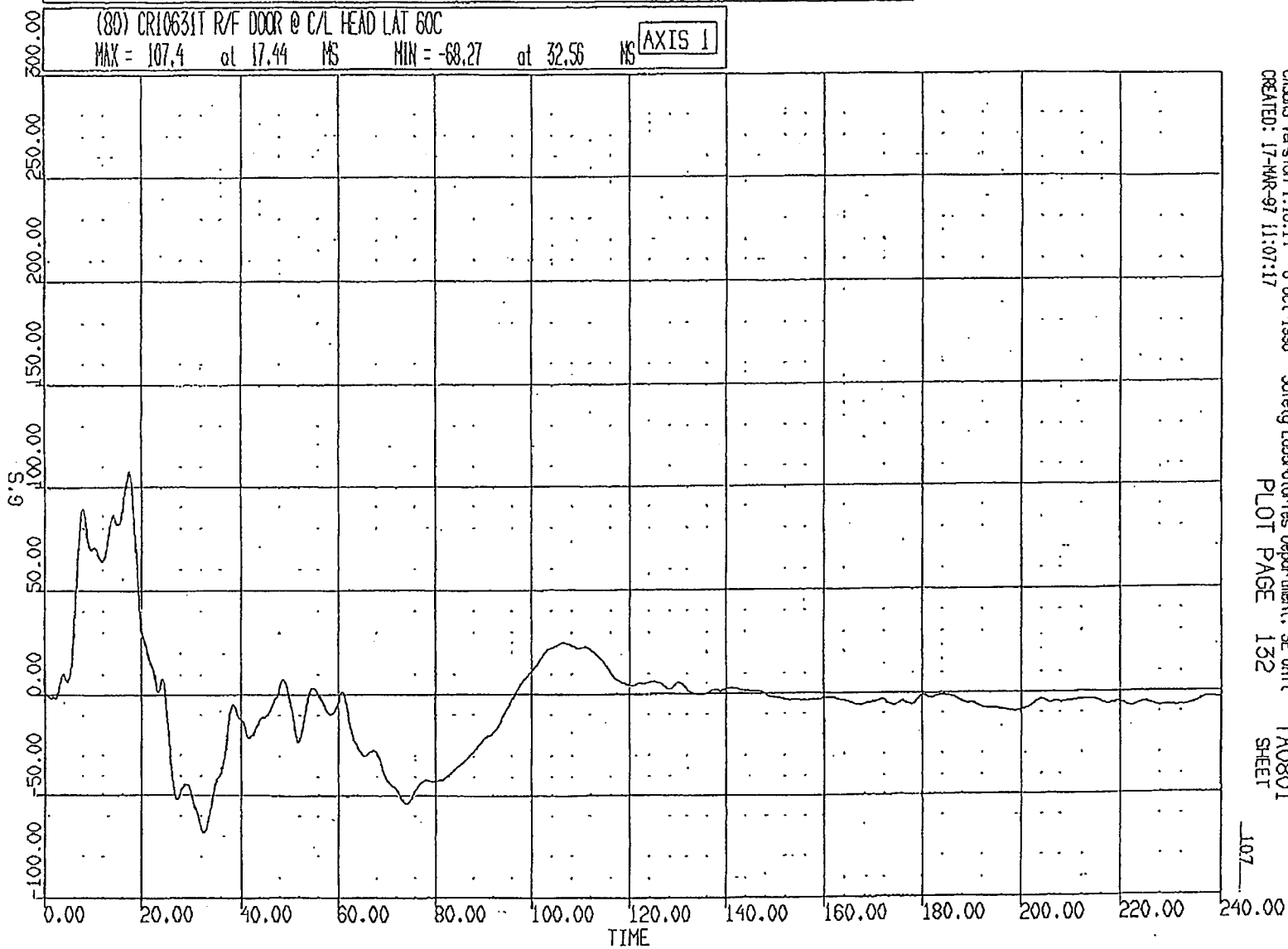
TA0801
SHEET

106

CRTS 0010631

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1999 PN-96 1999 MOVING DEFORMABLE BA



CASUS Version 1.16.14 - 8-Oct-1996
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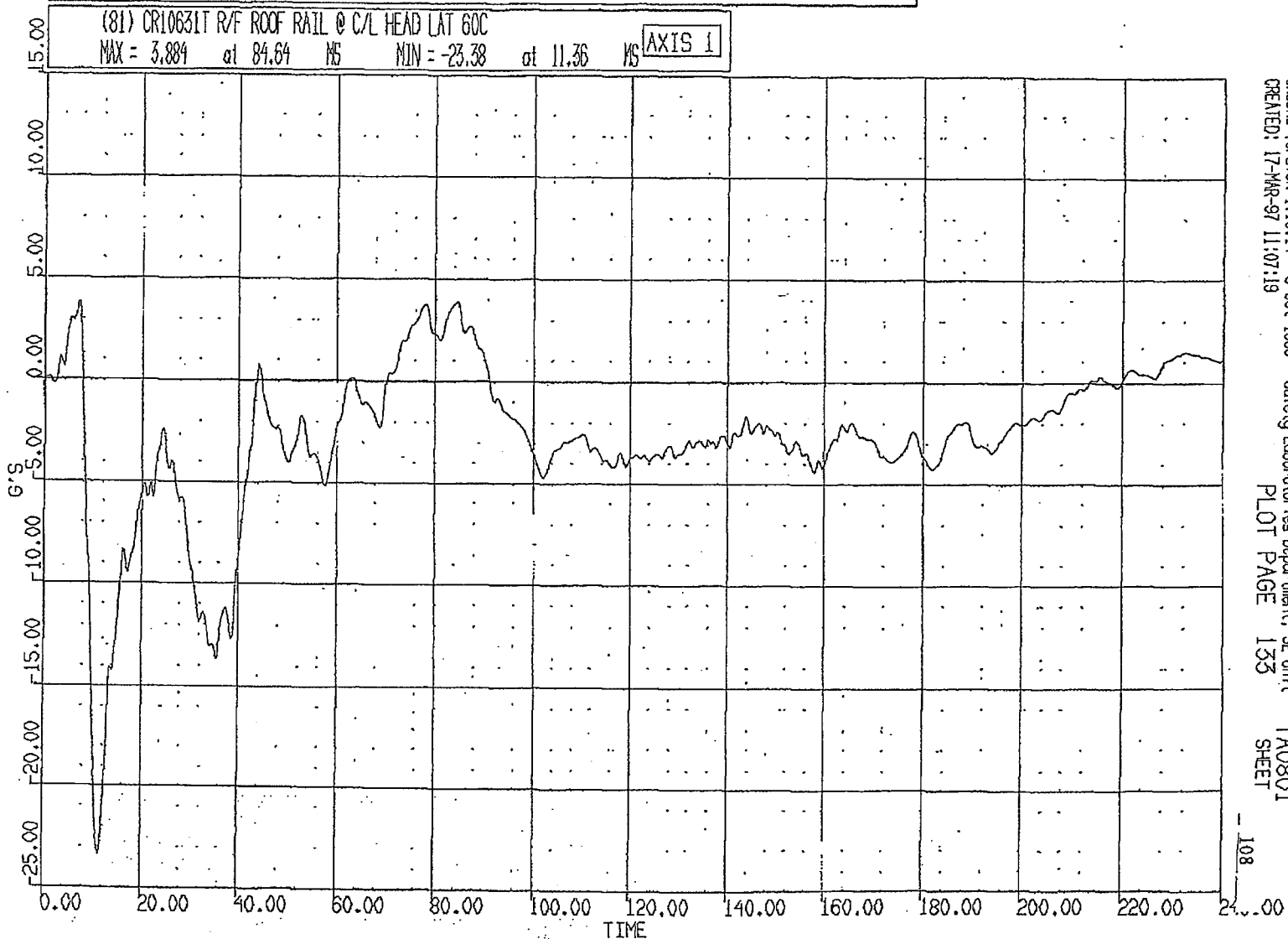
Safety Laboratories Department, SE Unit
PLOT PAGE 132

TA0801
SHEET

CRTS 0010631

0657

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:07:19

Safety Laboratories Department, SE Unit
PLOT PAGE 133

TA0801
SHEET

- 108

CRTS 0010631

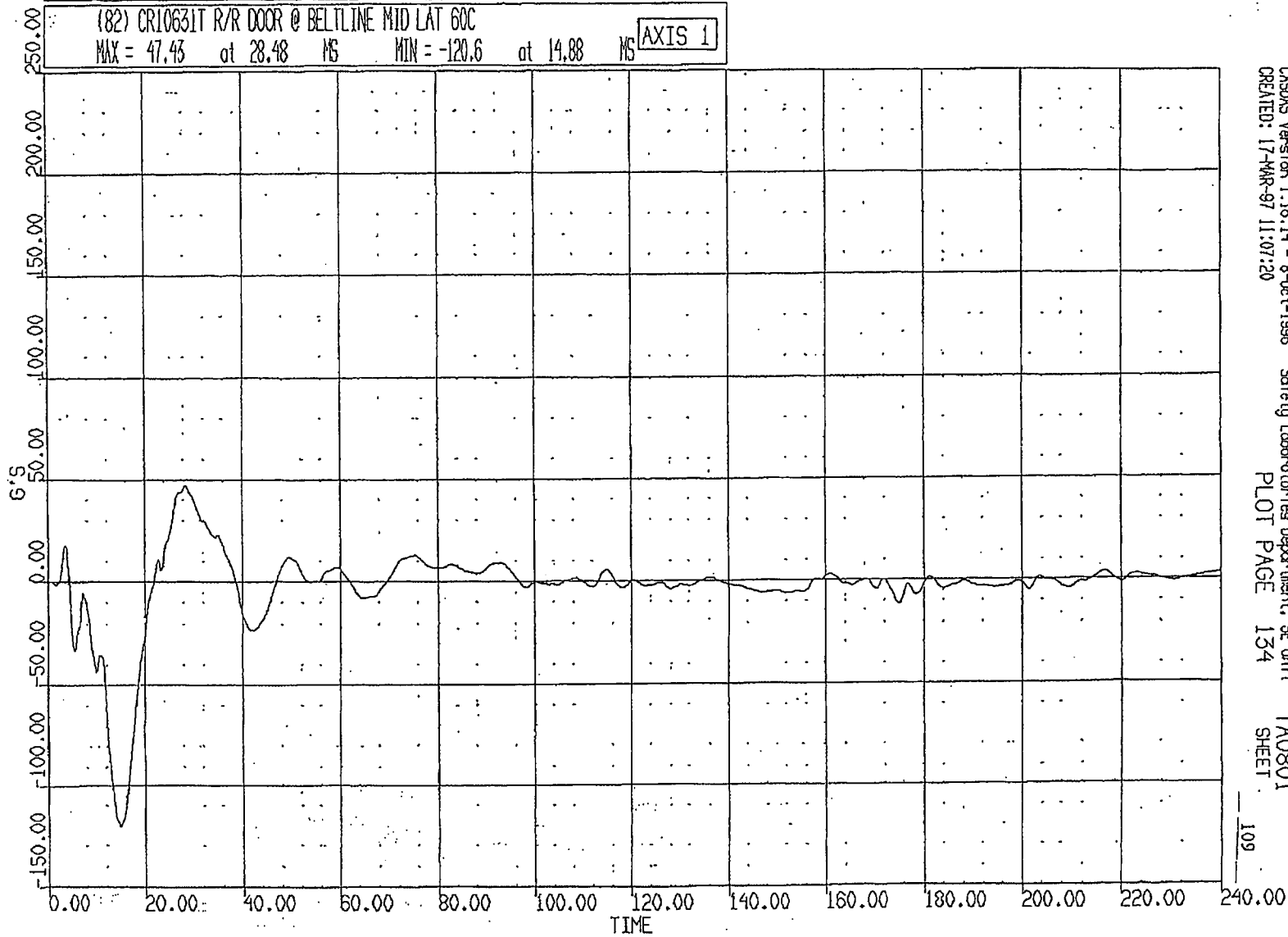
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CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PZ-96 1999 MOVING DEFORMABLE BA

(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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:07:20

Safety Laboratories Department, SE Unit
PLOT PAGE 134

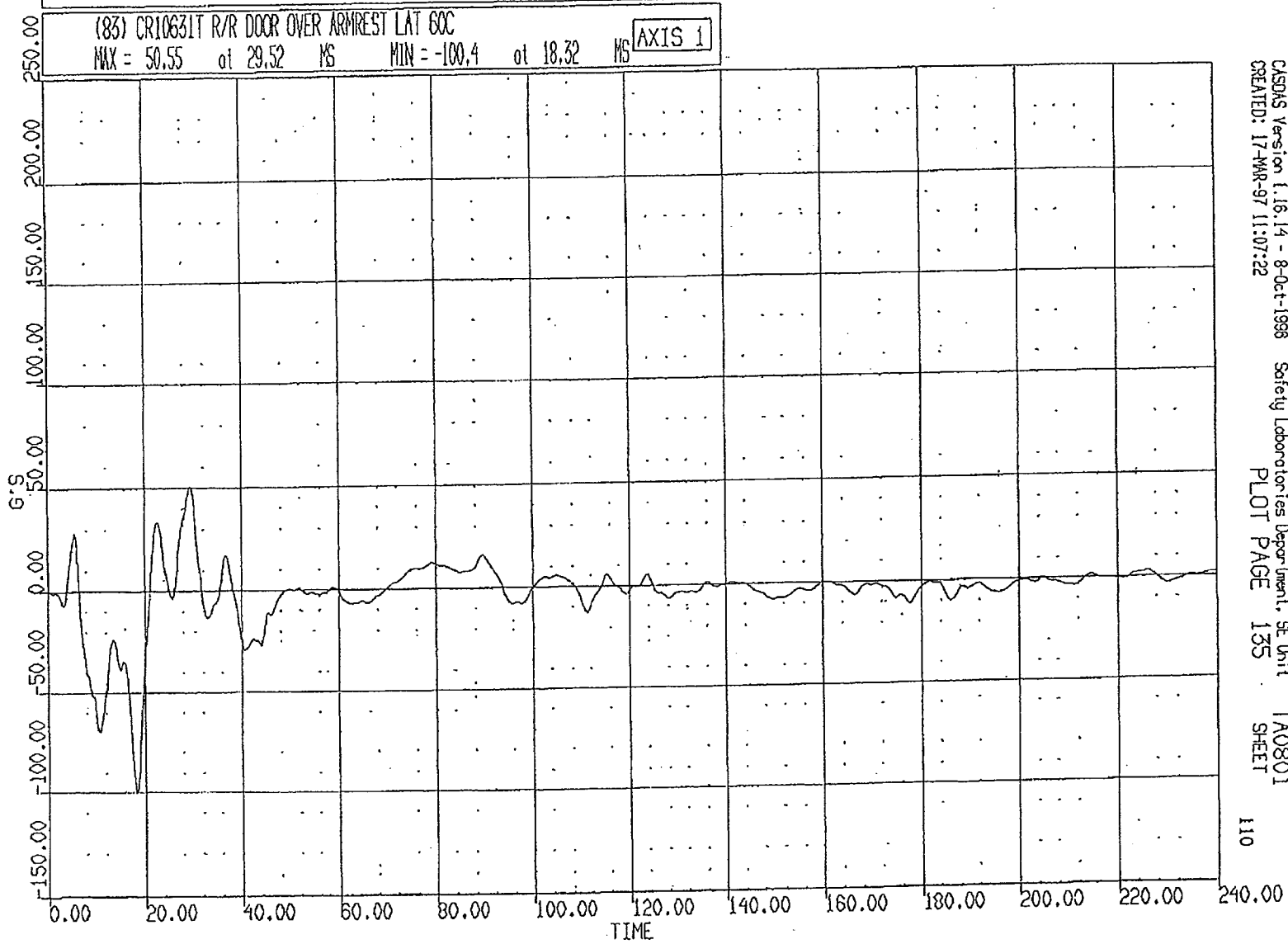
TA0801
SHEET

109

CRTS 0010631

0659

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



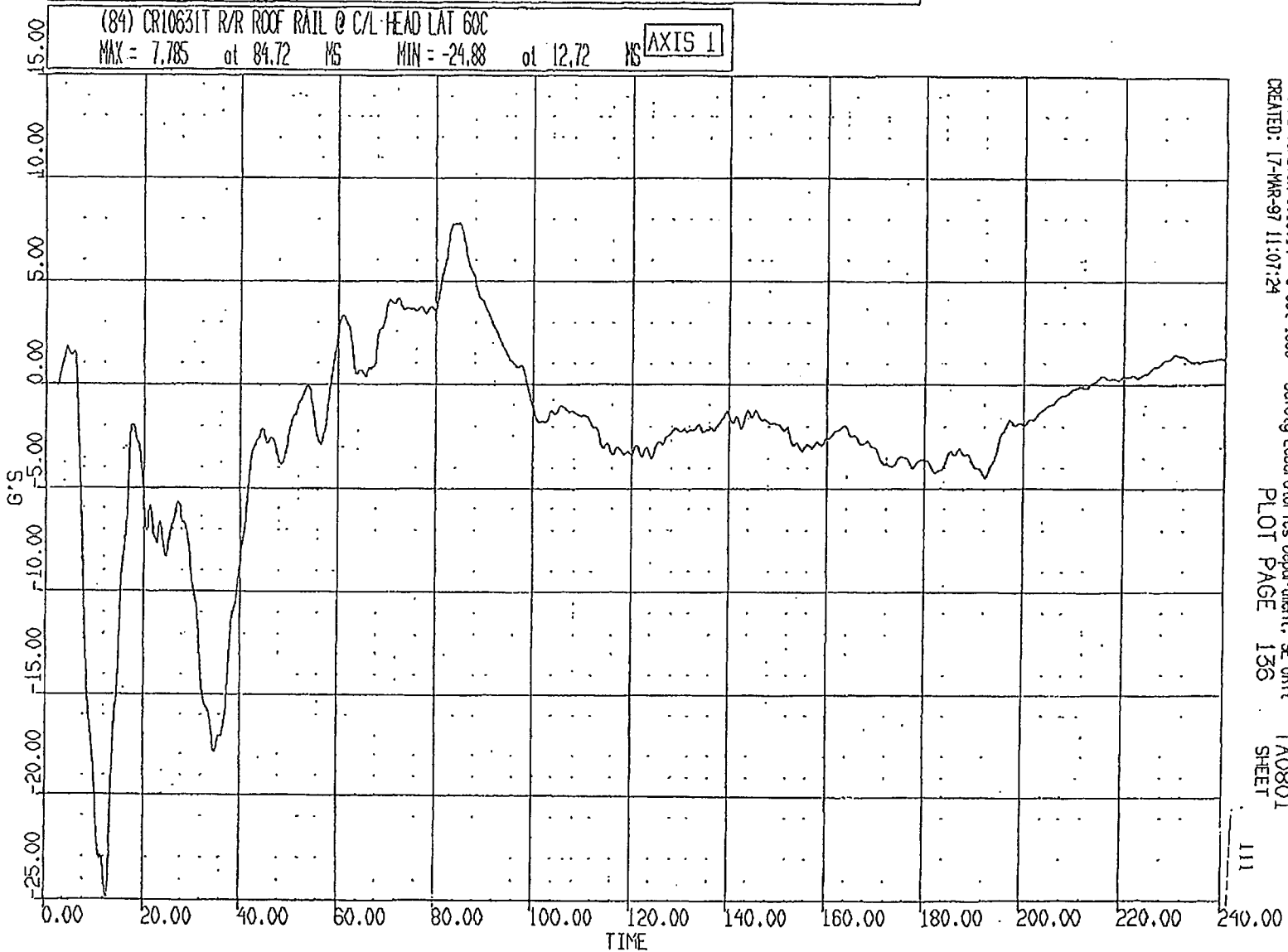
CASAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:07:22

Safety Laboratories Depart. Unit, SE Unit
PLOT PAGE 135
TA0801
SHEET

CRTS 0010631

0660

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



CASMAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:07:24

Safety Laboratories Department, SE Unit
PLOT PAGE 136
TA0801
SHEET

111

CRIS 0010631

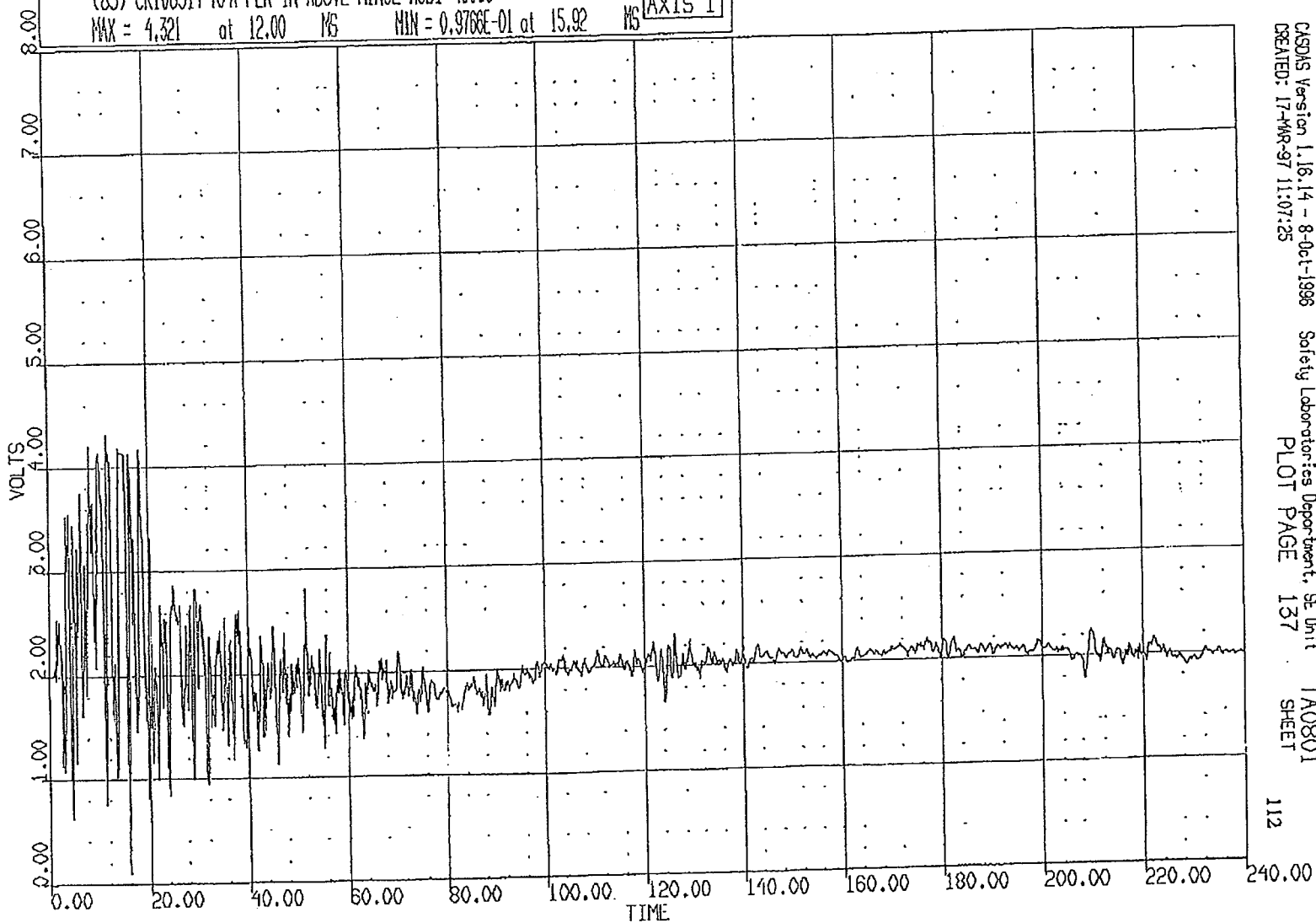
0661

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 ACD1 4000C

MAX = 4.321 at 12.00 MS MIN = 0.9766E-01 at 15.92 MS

AXIS 1



CSIAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:07:25

Safety Laboratories Department, SE Unit
PLOT PAGE 137

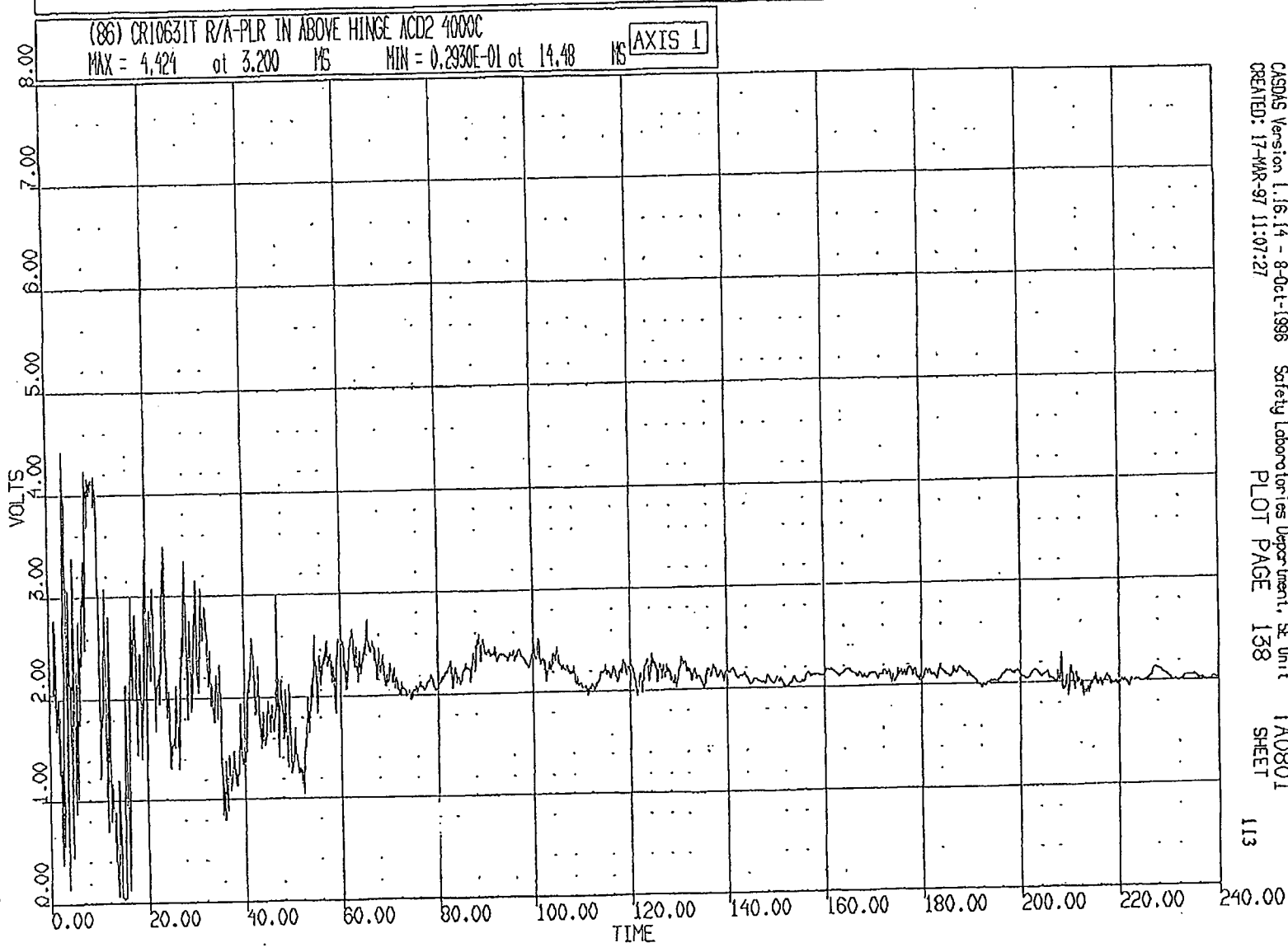
TA0801
SHEET

112

CRIS 0010631

0662

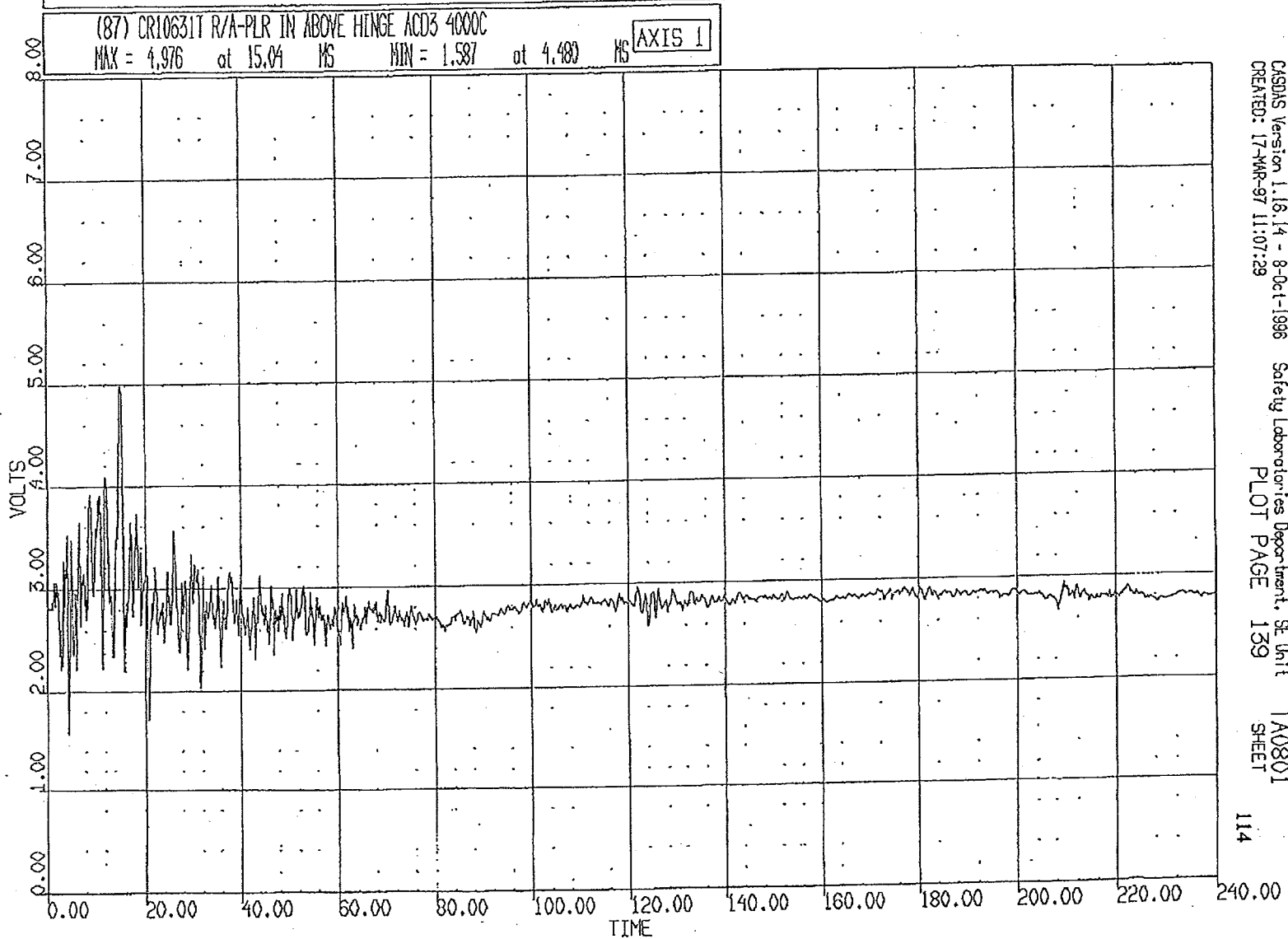
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:07:27 PLOT PAGE 138 TA0801
SHEET 113

CRTS 0010631

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:07:29

Safety Laboratories Department, SE Unit
PLOT PAGE 139

TA0801
SHEET

114

CRTS 0010631

0664

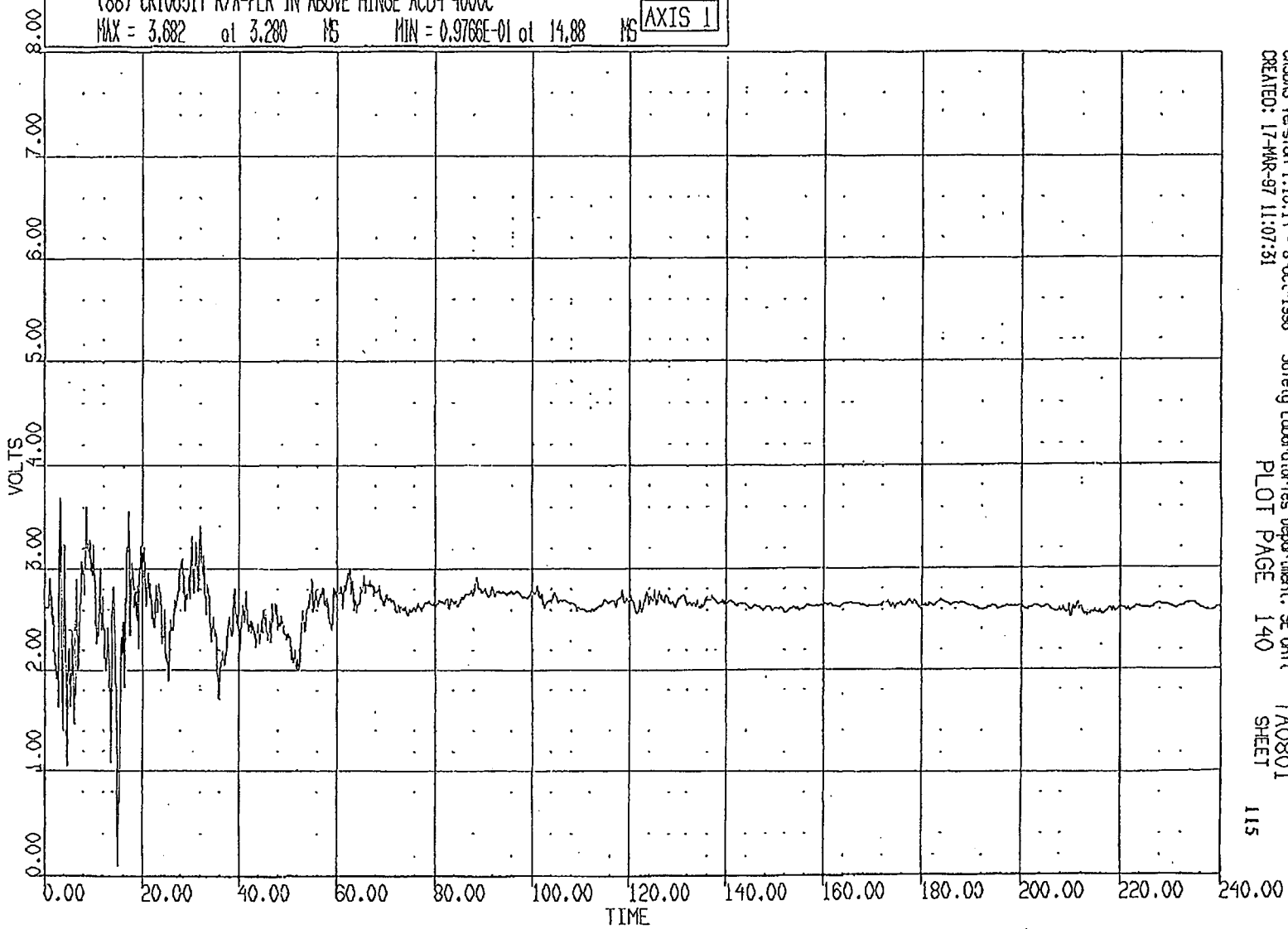
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(88) CR10631T R/A-PLR IN ABOVE HINGE ACD4 4000C

MAX = 3.682 at 3.280 MS

MIN = 0.9766E-01 at 14.88 MS

AXIS 1



CASUS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:07:31

Safety Laboratories Department, SE Unit
PLOT PAGE 140

TA0801
SHEET

115

CRTS 0010631

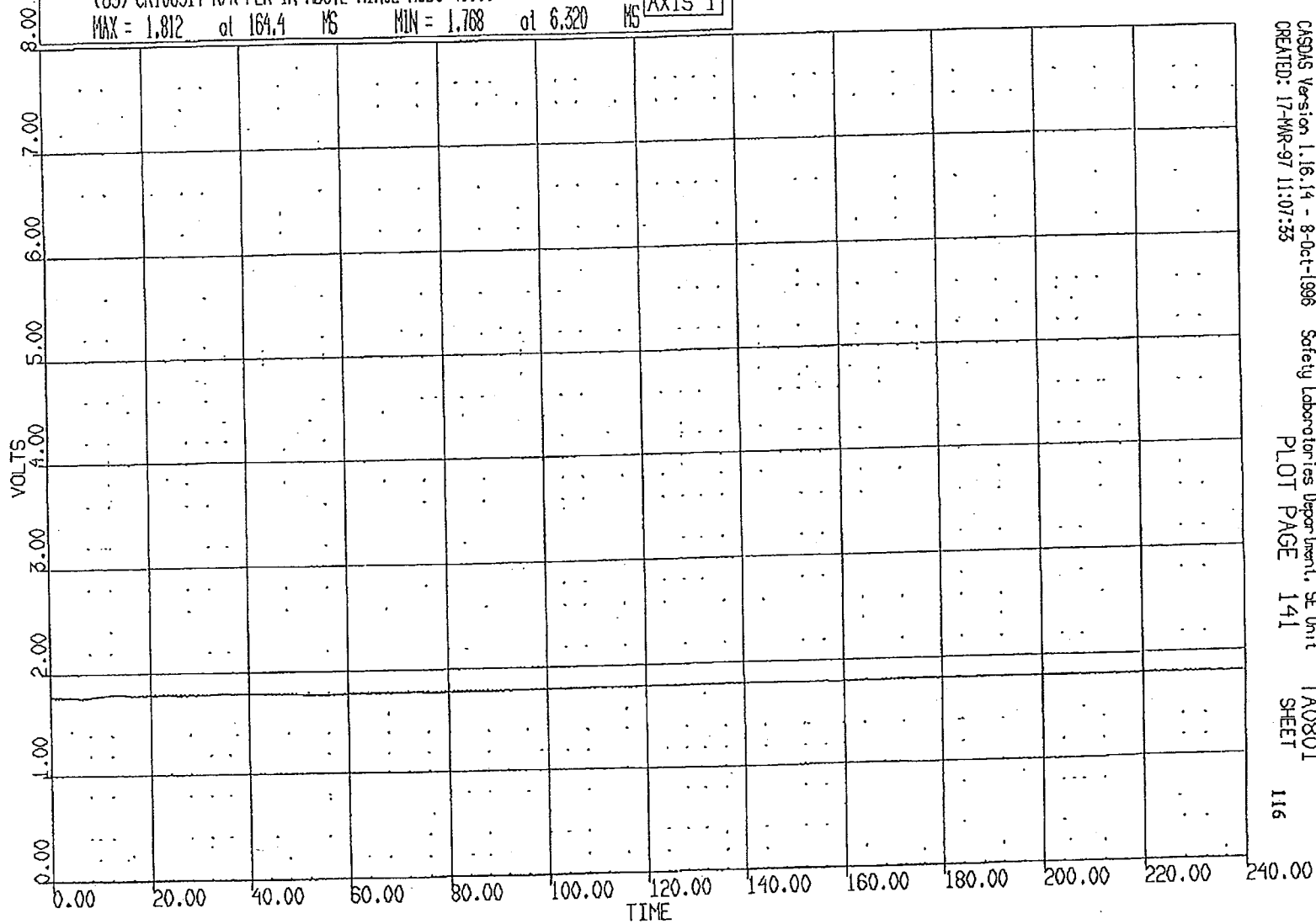
0665

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 ACOS 4000C

MAX = 1.812 at 164.4 MS MIN = 1.768 at 6.320 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:07:33

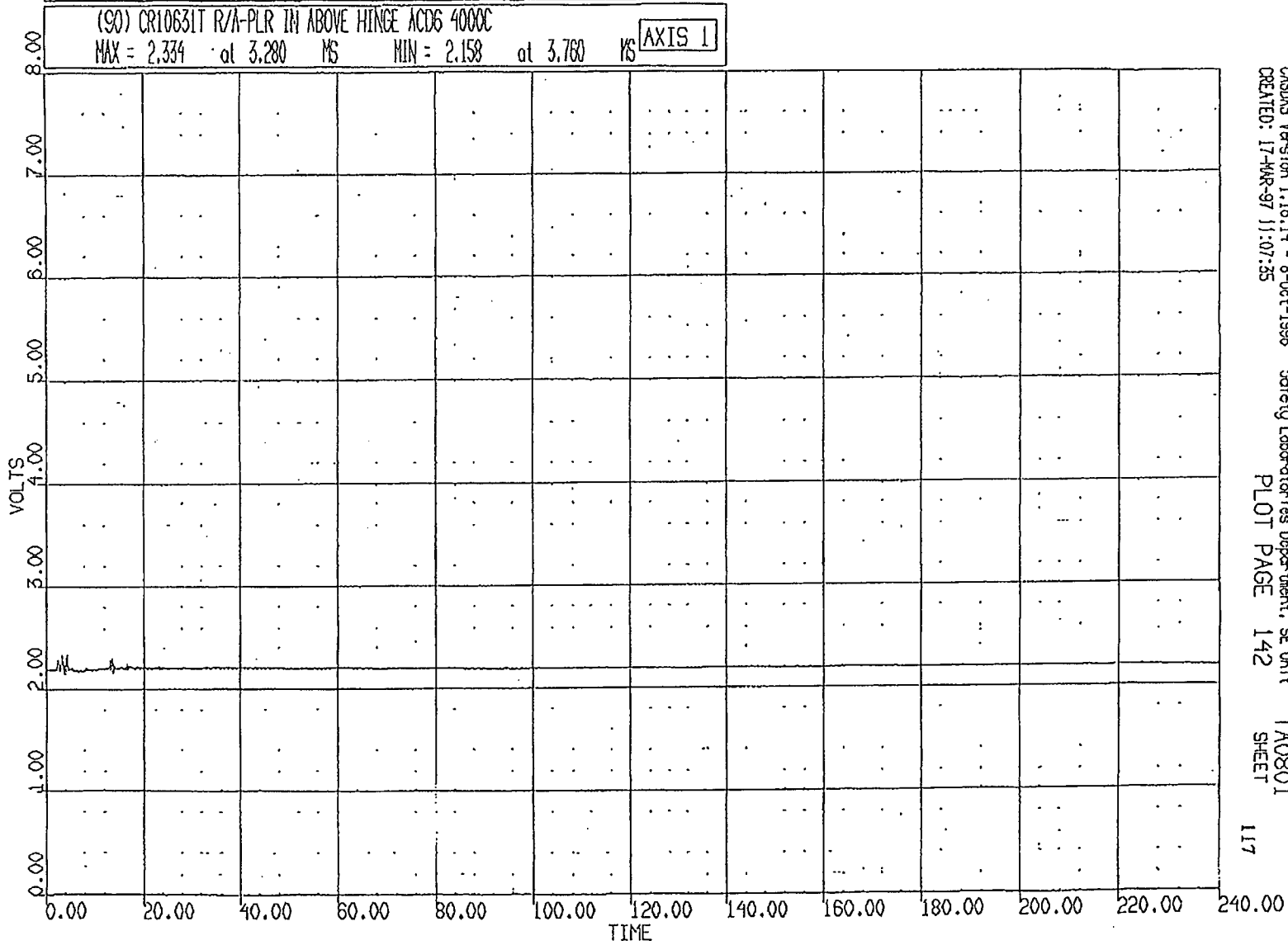
Safety Laboratories Department, SE Unit
PLOT PAGE 141

TA0801
SHEET 116

CRTS 0010631

0666

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:07:35

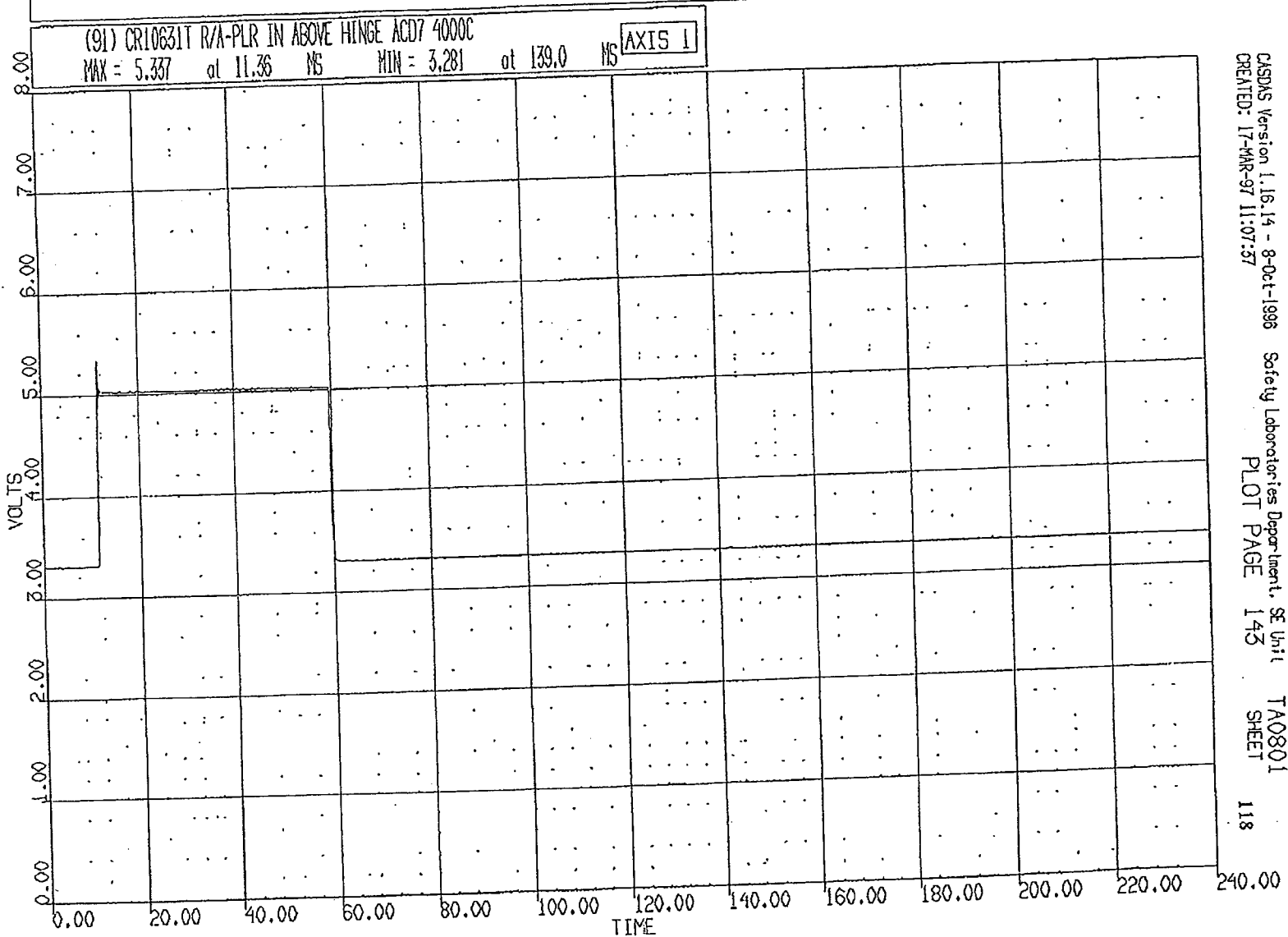
Safety Laboratories Department, SE Unit
PLOT PAGE 142

TA0801
SHEET 117

CRIS 0010631

0667

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

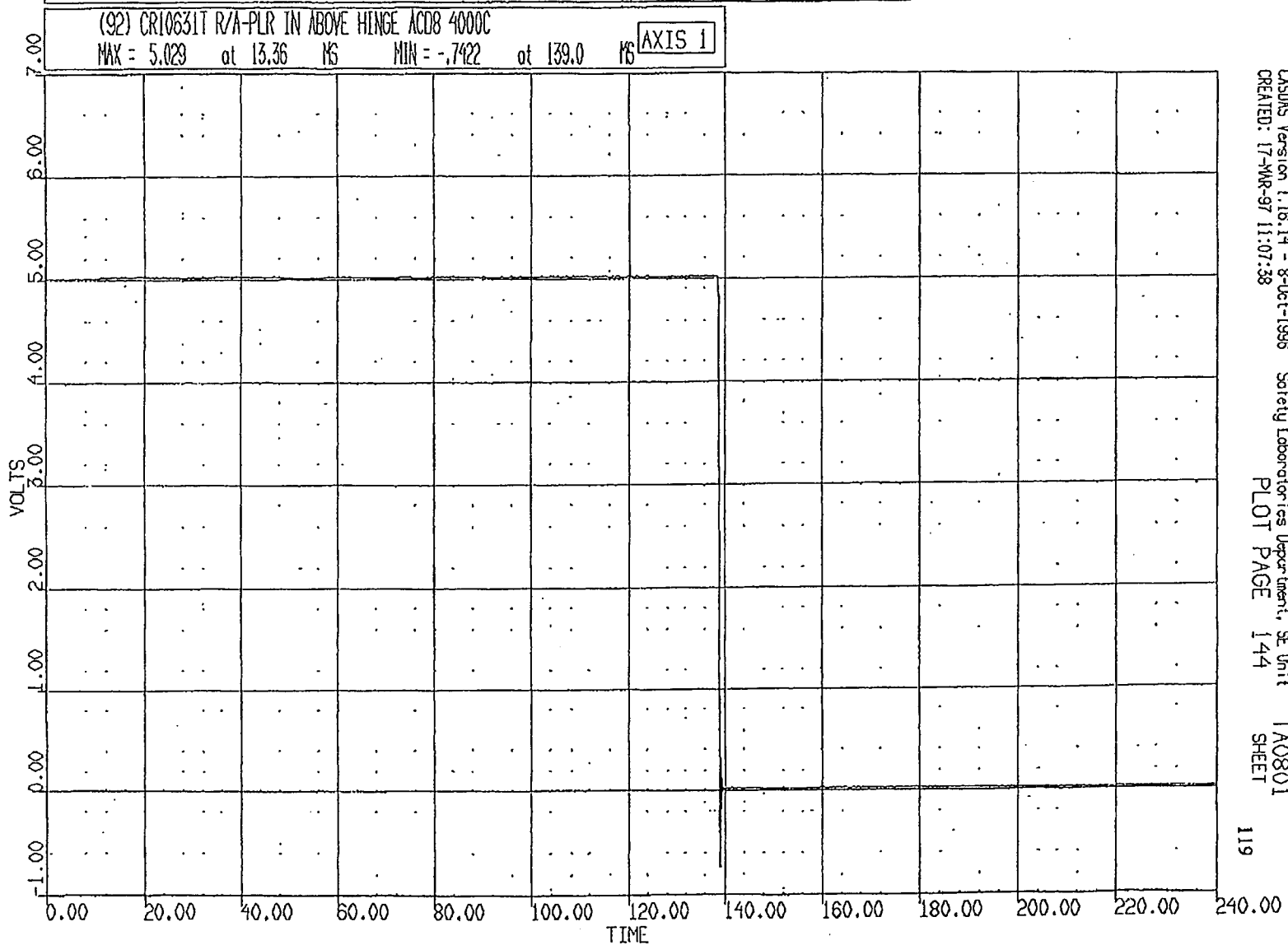


CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit TA0801
CREATED: 17-MAR-97 11:07:37 PLOT PAGE 143 SHEET 118

CRTS 0010631

0668

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:07:38

Safety Laboratories Department, SE Unit
PLOT PAGE 144

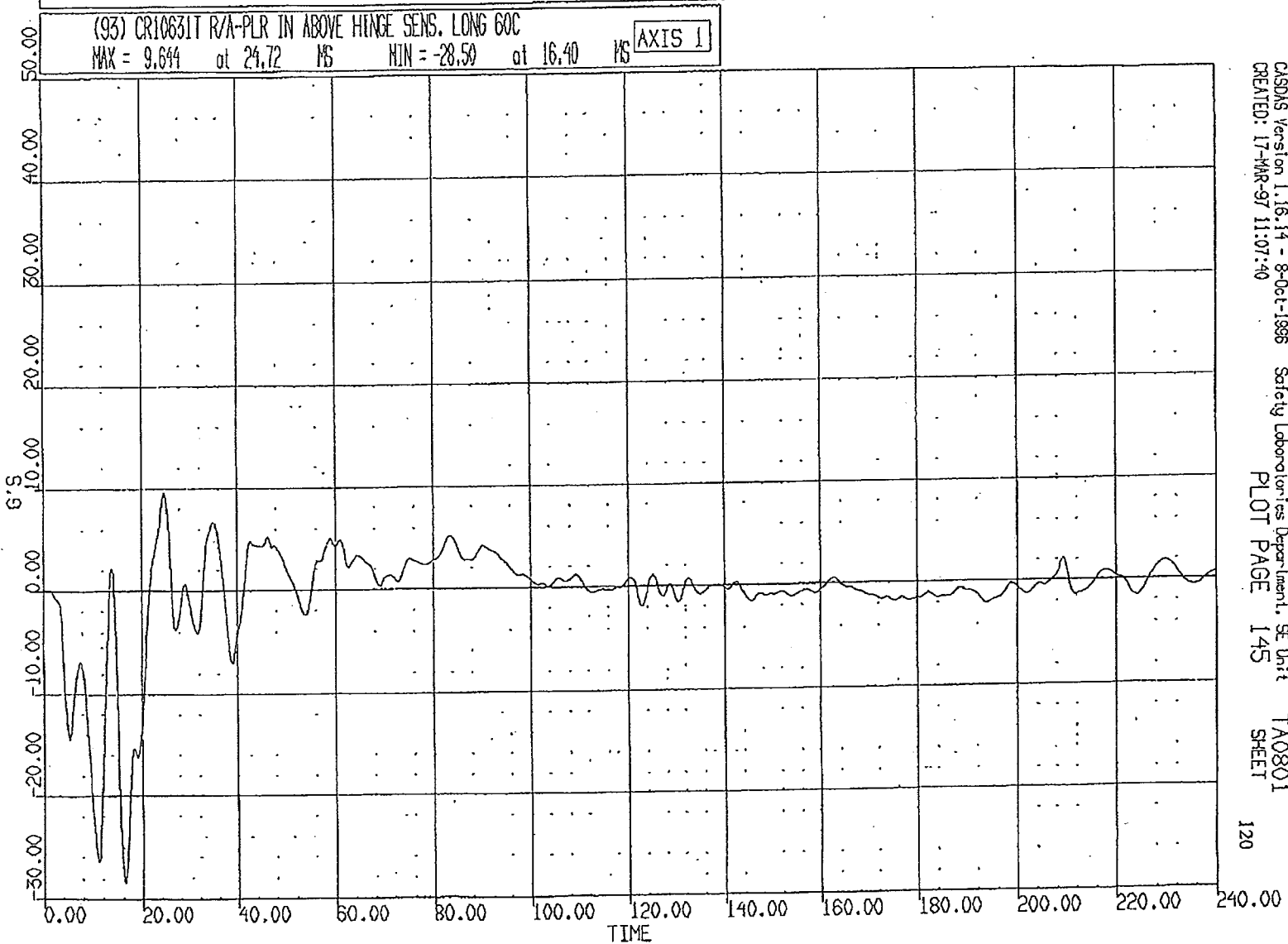
TA0801
SHEET

119

CRIS 0010631

0669

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:07:40

Safety Laboratories Department, SE Unit
PLOT PAGE 145

TA0801
SHEET

120

CRTS 0010631

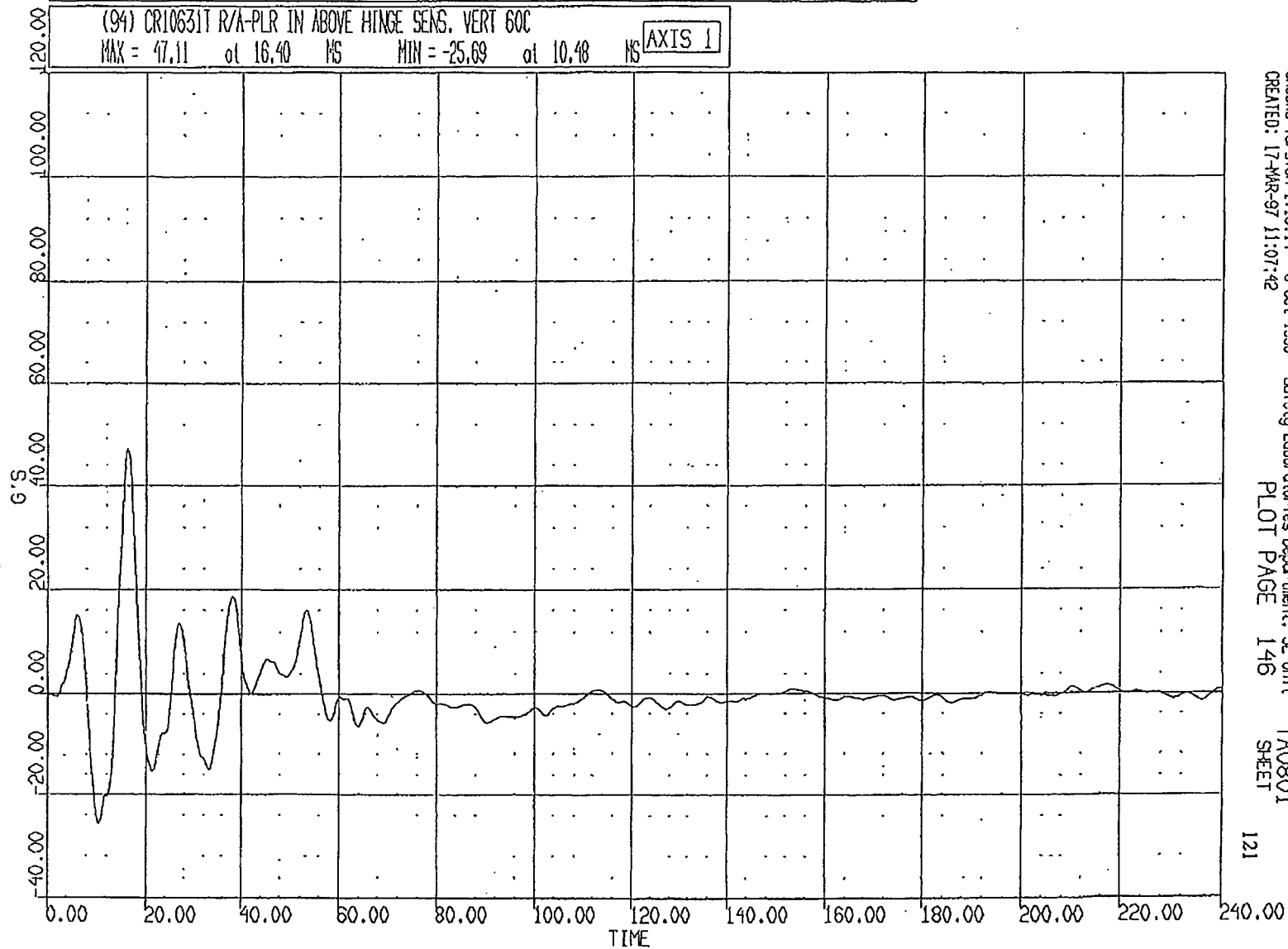
0670

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

(94) CR10631T R/A-PLR IN ABOVE HINGE SENS. VERT 60C

MAX = 47.11 at 16.40 MS MIN = -25.69 at 10.48 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:07:42

Safety Laboratories Department, SE Unit
PLOT PAGE 146

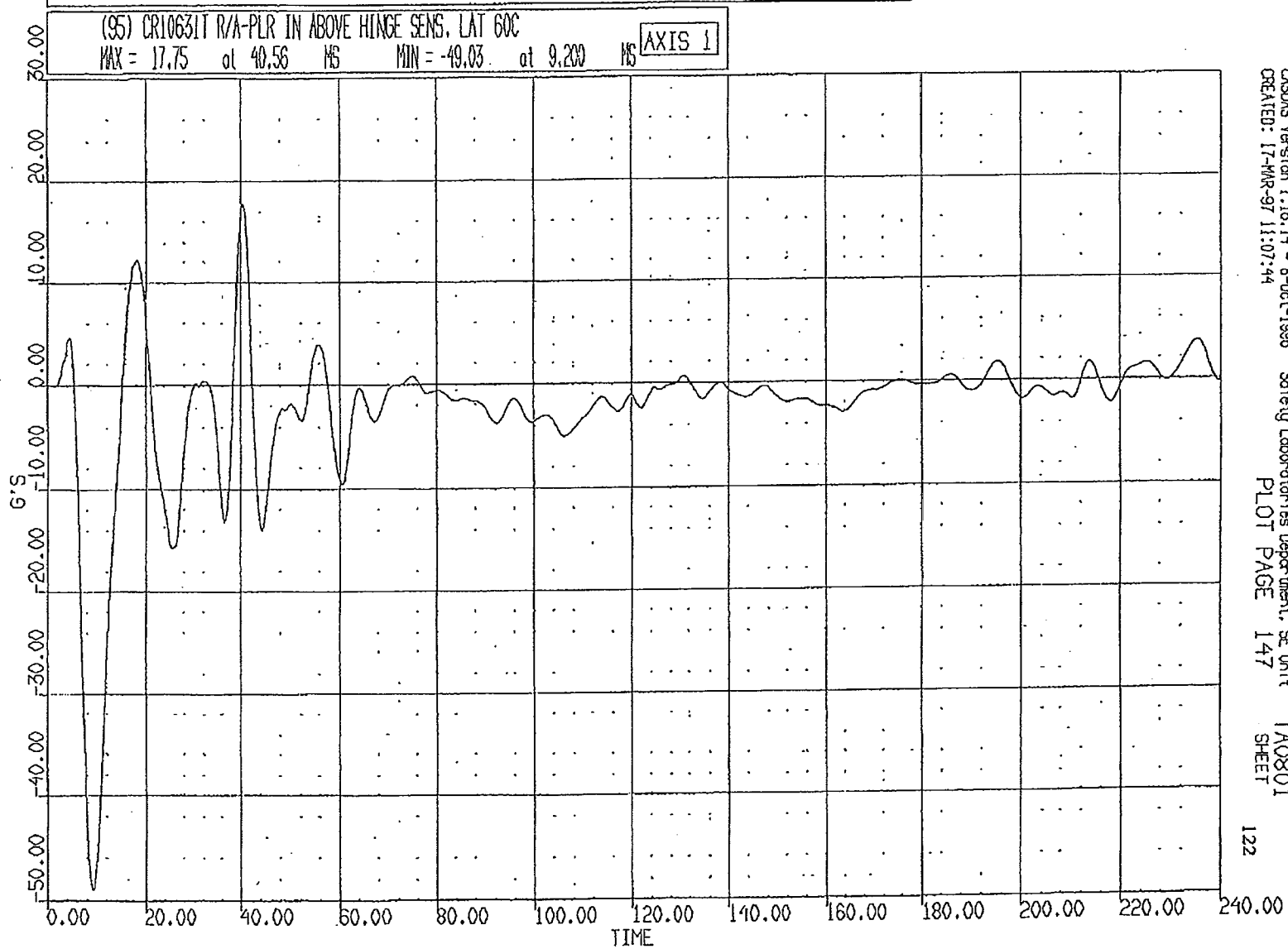
TA0801
SHEET

121

CRTS 0010631

0671

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:07:44

Safety Laboratories Department, SE Unit
PLOT PAGE 147

TA0801
SHEET

122

CRIS 0010631

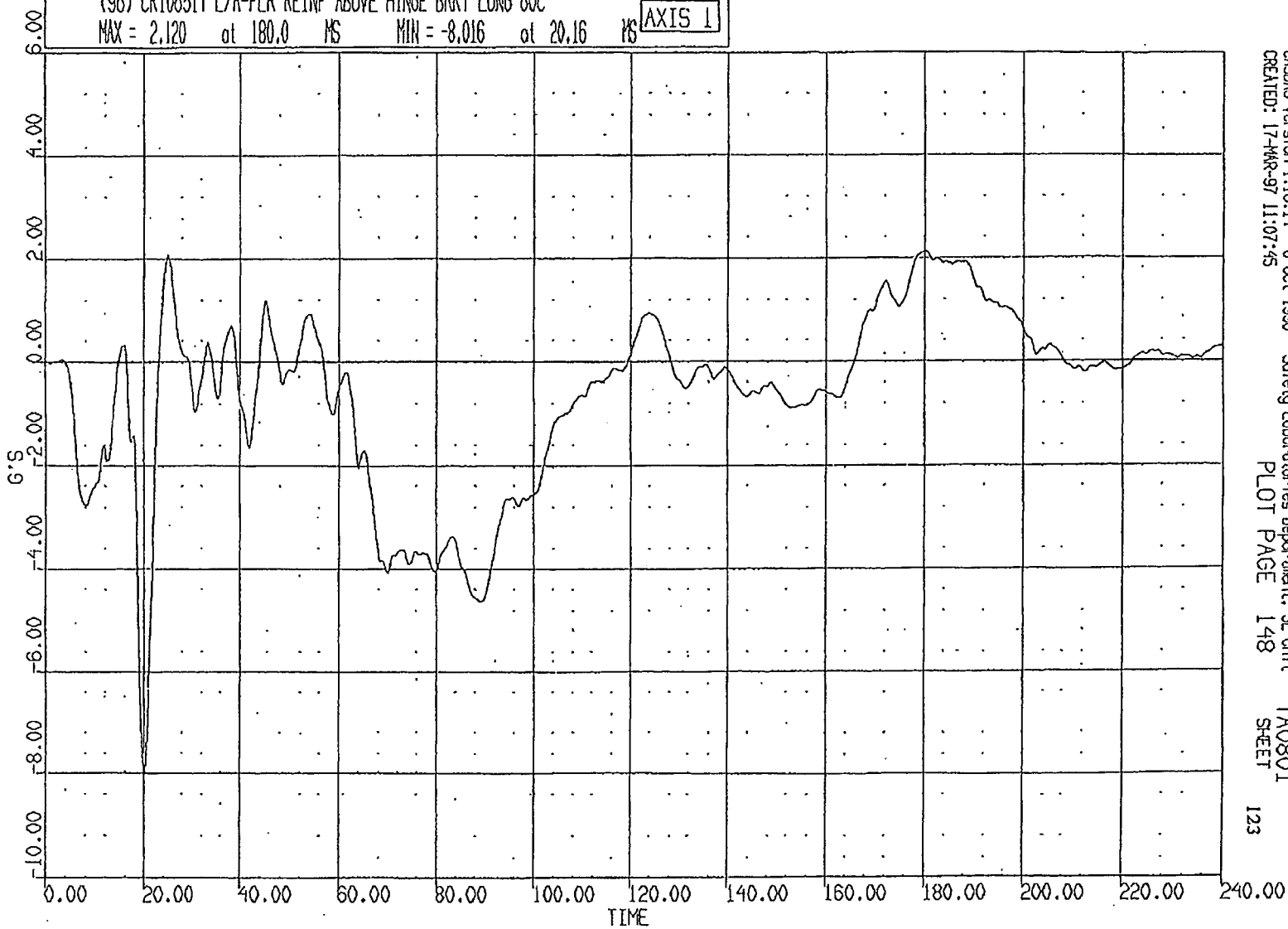
0672

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

(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

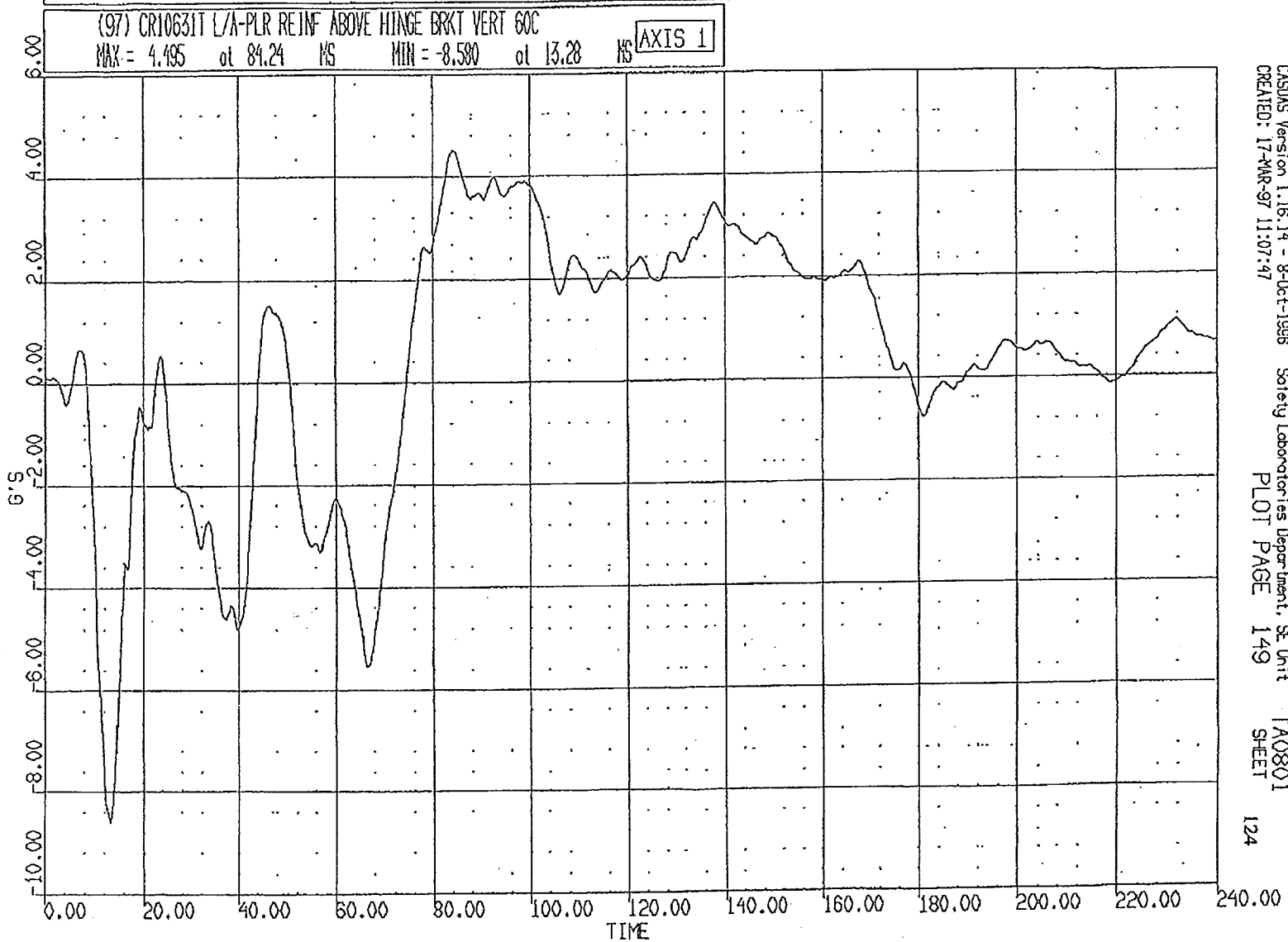


CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:07:45 PLOT PAGE 148 TA0801
SHEET 123

CRIS 0010631

0673

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:07:47

Safety Laboratories Department, SE Unit
PLOT PAGE 149

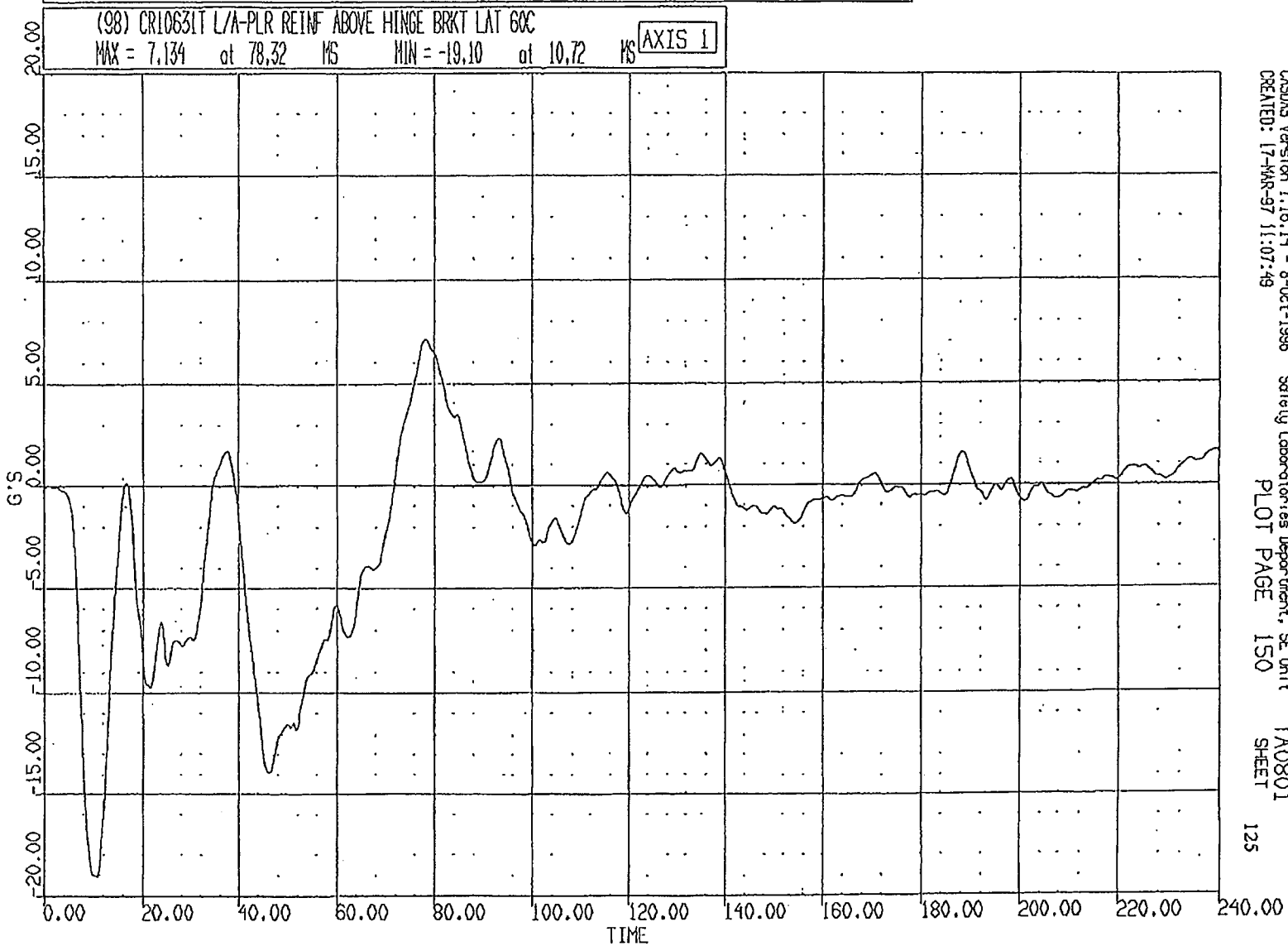
TA0801
SHEET

124

CRTS 0010631

0674

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



CASAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:07:49

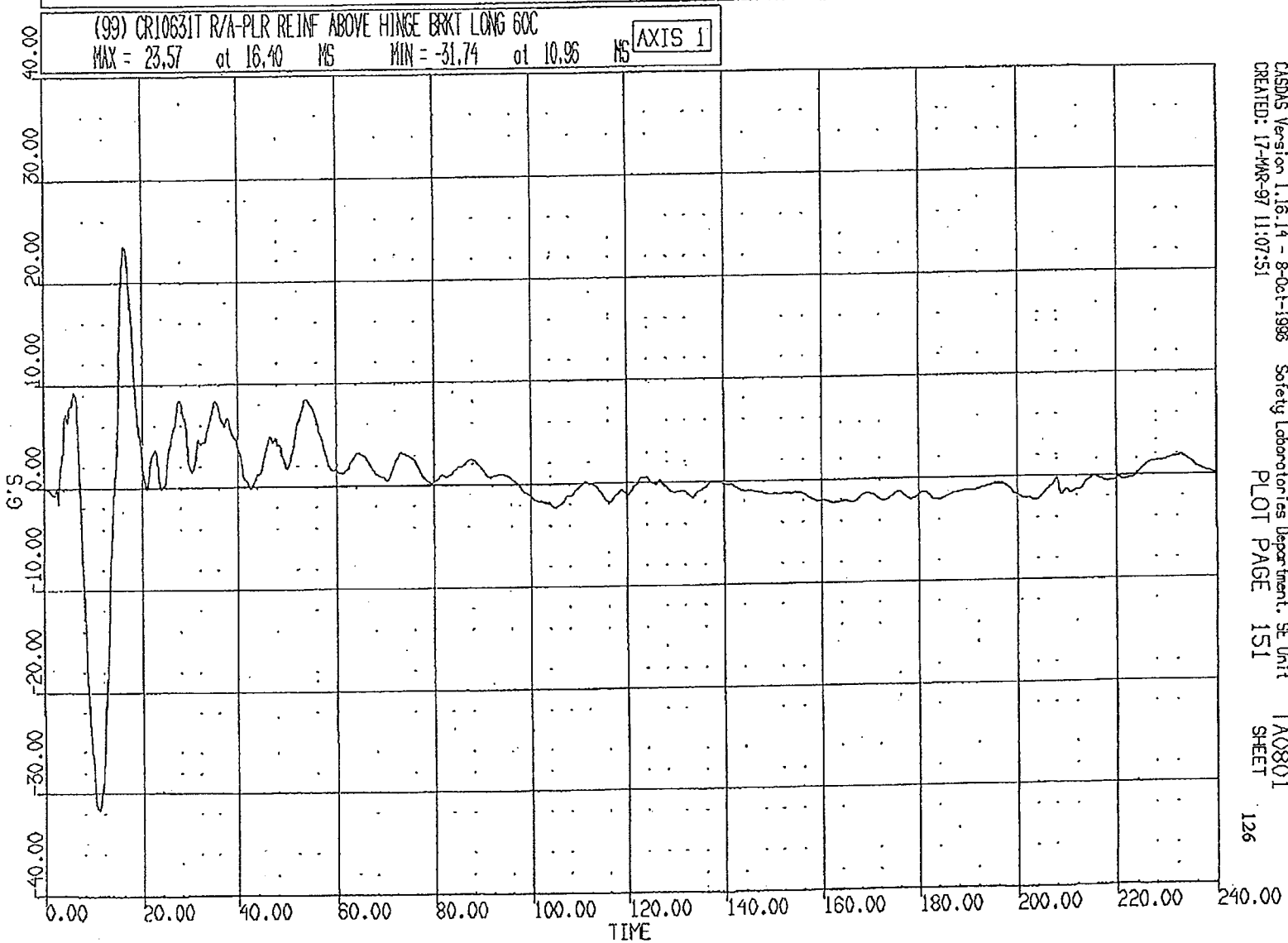
Safety Laboratories Department, SE Unit
PLOT PAGE 150

TA0801
SHEET 125

CRTS 0010631

0675

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:07:51

Safety Laboratories Department, SE Unit
PLOT PAGE 151

TA0801
SHEET 126

CRTS 0010631

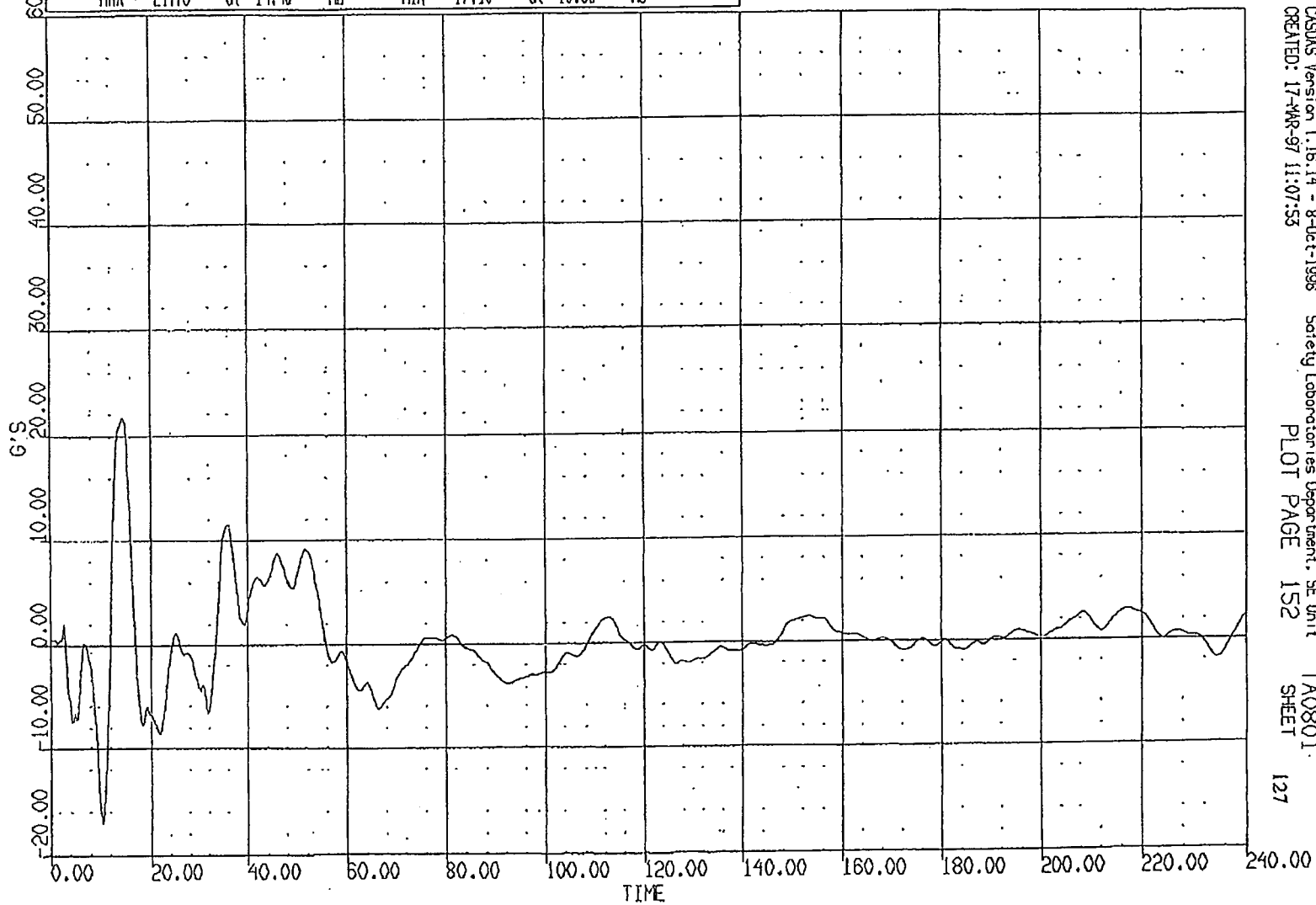
0676

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

(100) CR10631T R/A-PLR REINF ABOVE HINGE BRKT VERT GOC

MAX = 21.73 at 14.40 MS MIN = -17.10 at 10.56 MS

AXIS 1



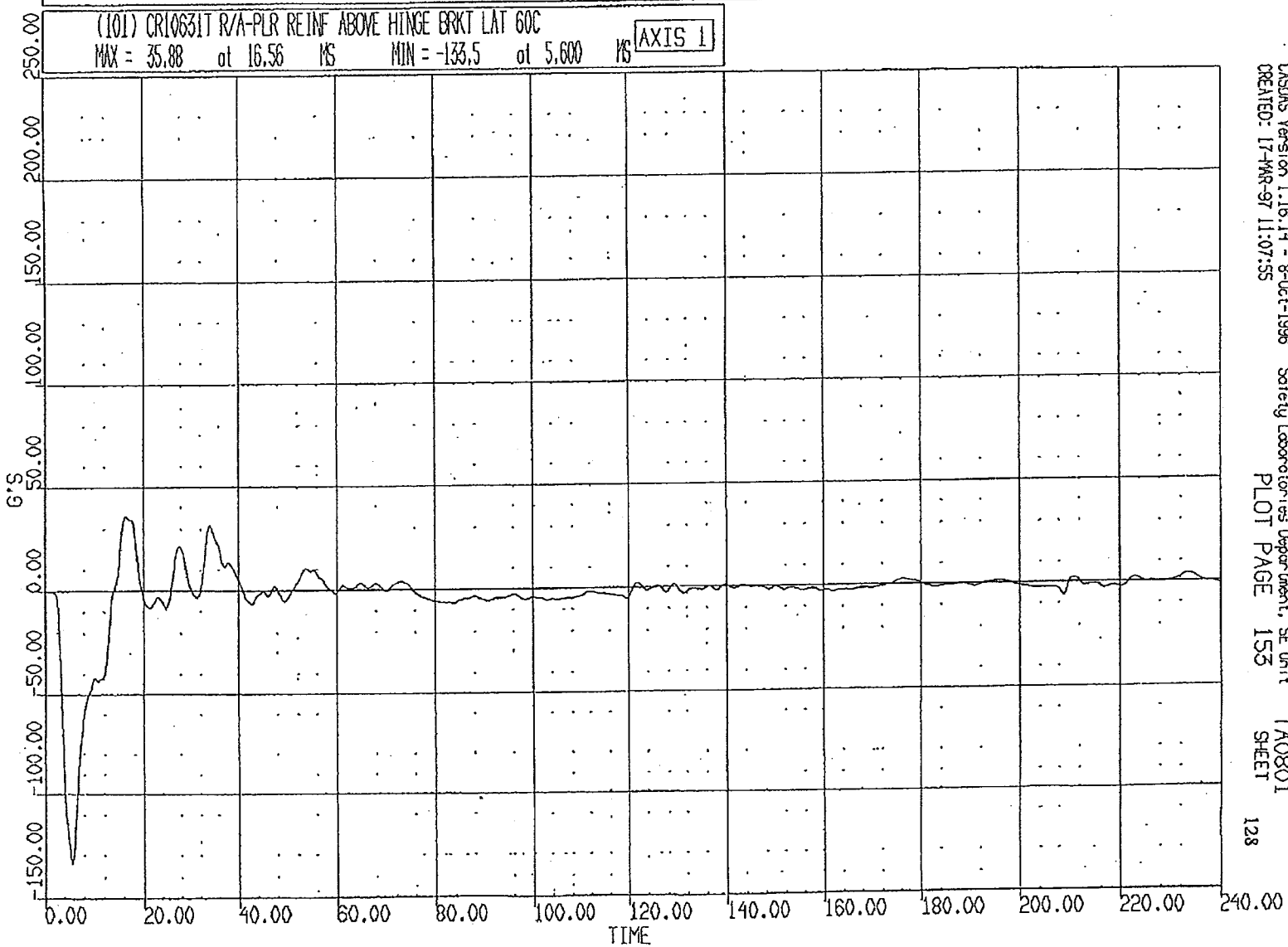
CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:07:53

Safety Laboratories Department, SE Unit
PLOT PAGE 152

TA0801
SHEET 127

CRIS 0010631

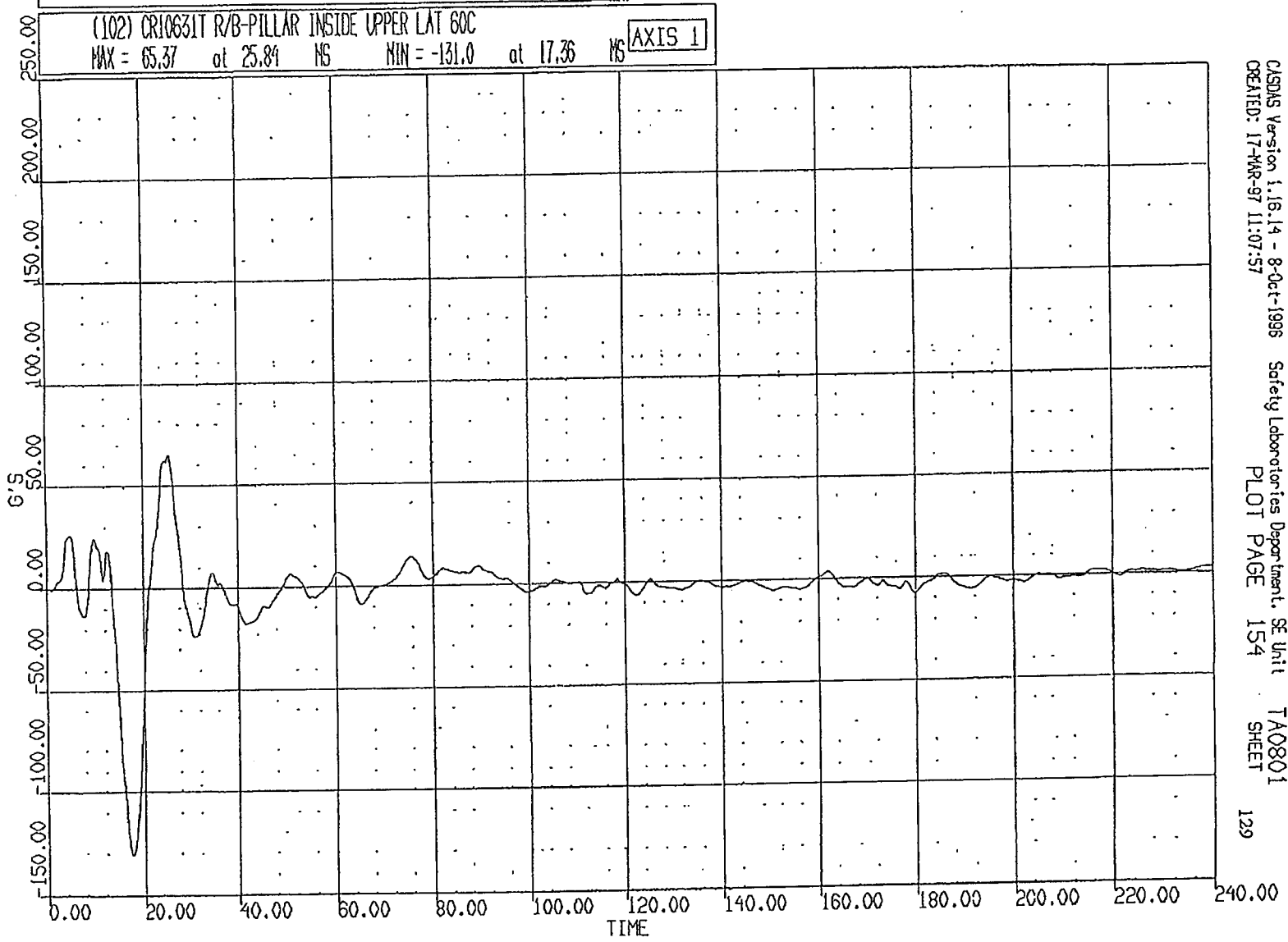
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:07:55 PLOT PAGE 153 TA0801 SHEET 128

CRIS 0010631

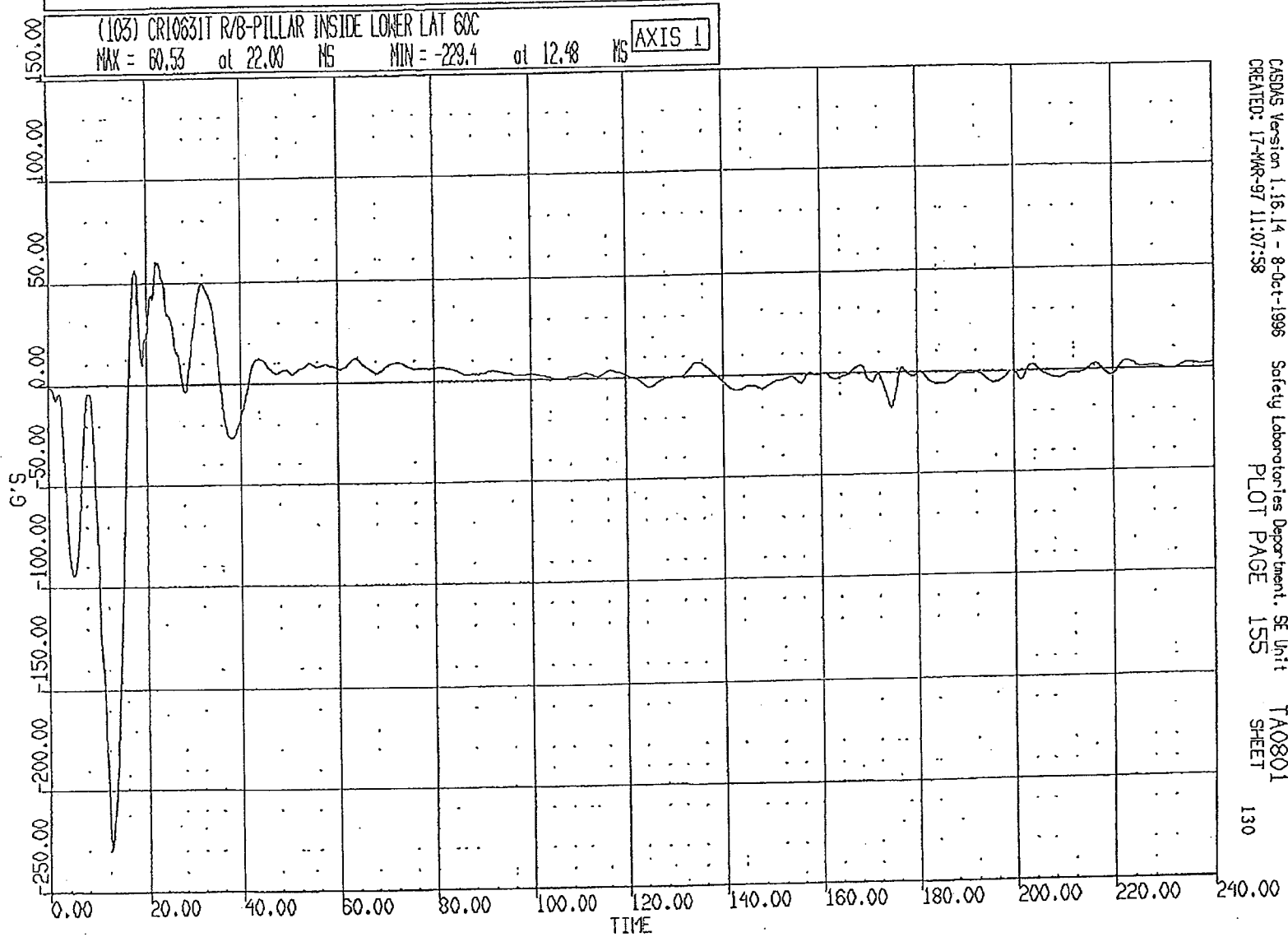
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA



CISDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:07:57
TA0801
PLOT PAGE 154
SHEET 129

CRIS 0010631

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



CASDMS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:07:58

Safety Laboratories Department, SE Unit
PLOT PAGE 155

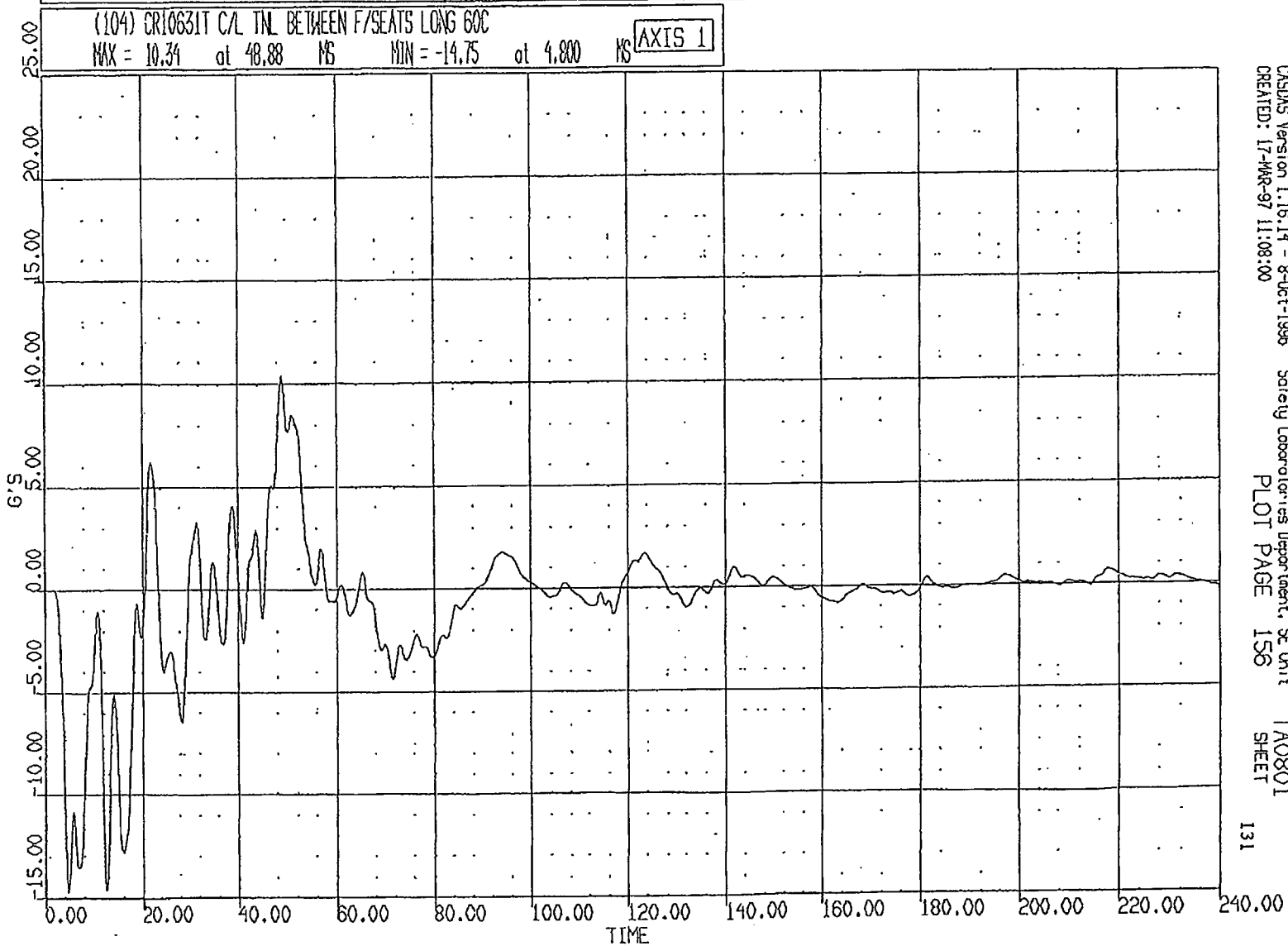
TA0801
SHEET

130

CRTS 0010631

0680

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



CASIMS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:08:00

Safety Laboratories Department, SE Unit
PLOT PAGE 156

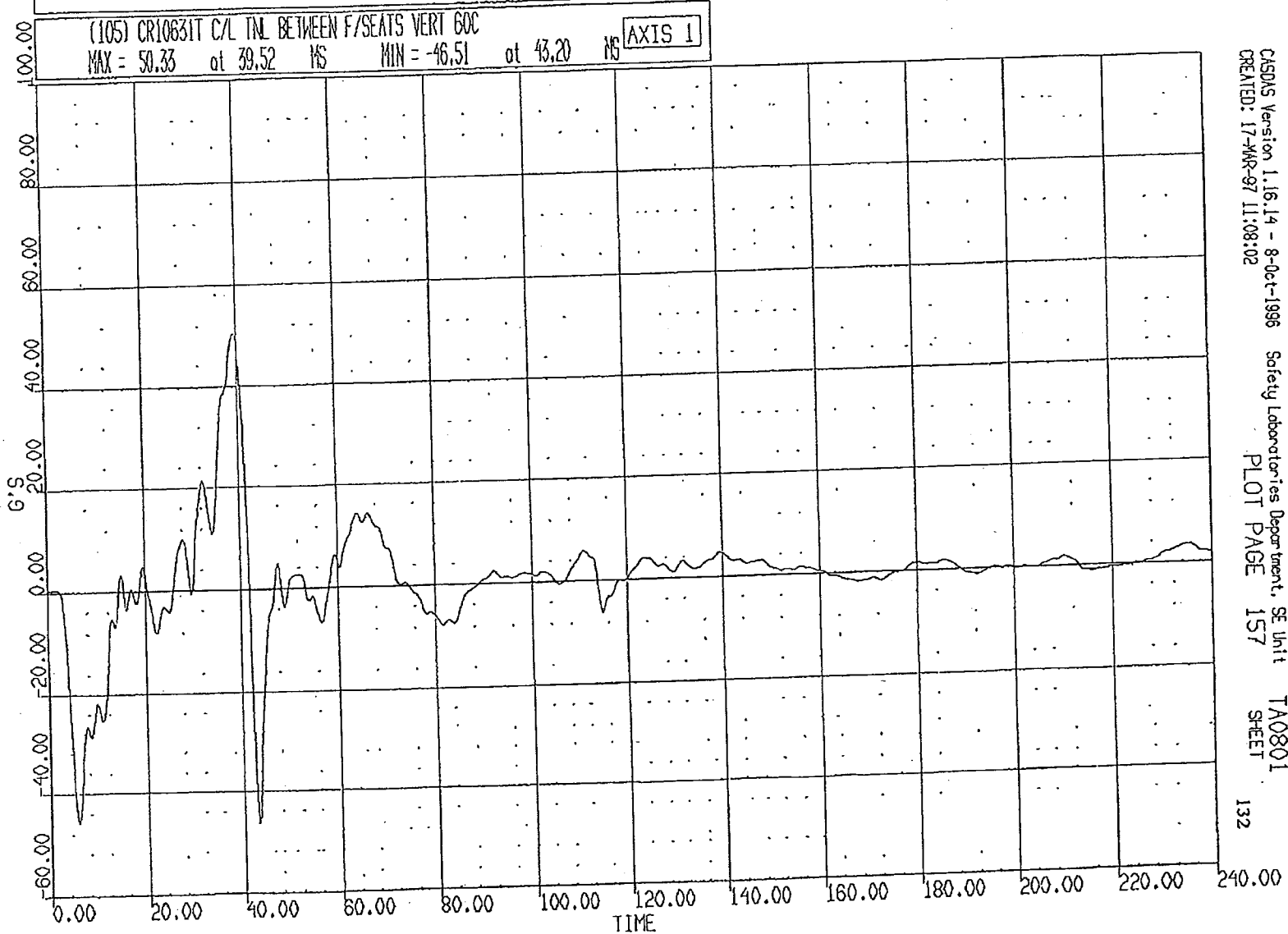
TA0801
SHEET

131

CRIS 0010631

0681

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:02

Safety Laboratories Department, SE Unit
PLOT PAGE 157

TA0801
SHEET

132

CRTS 0010631

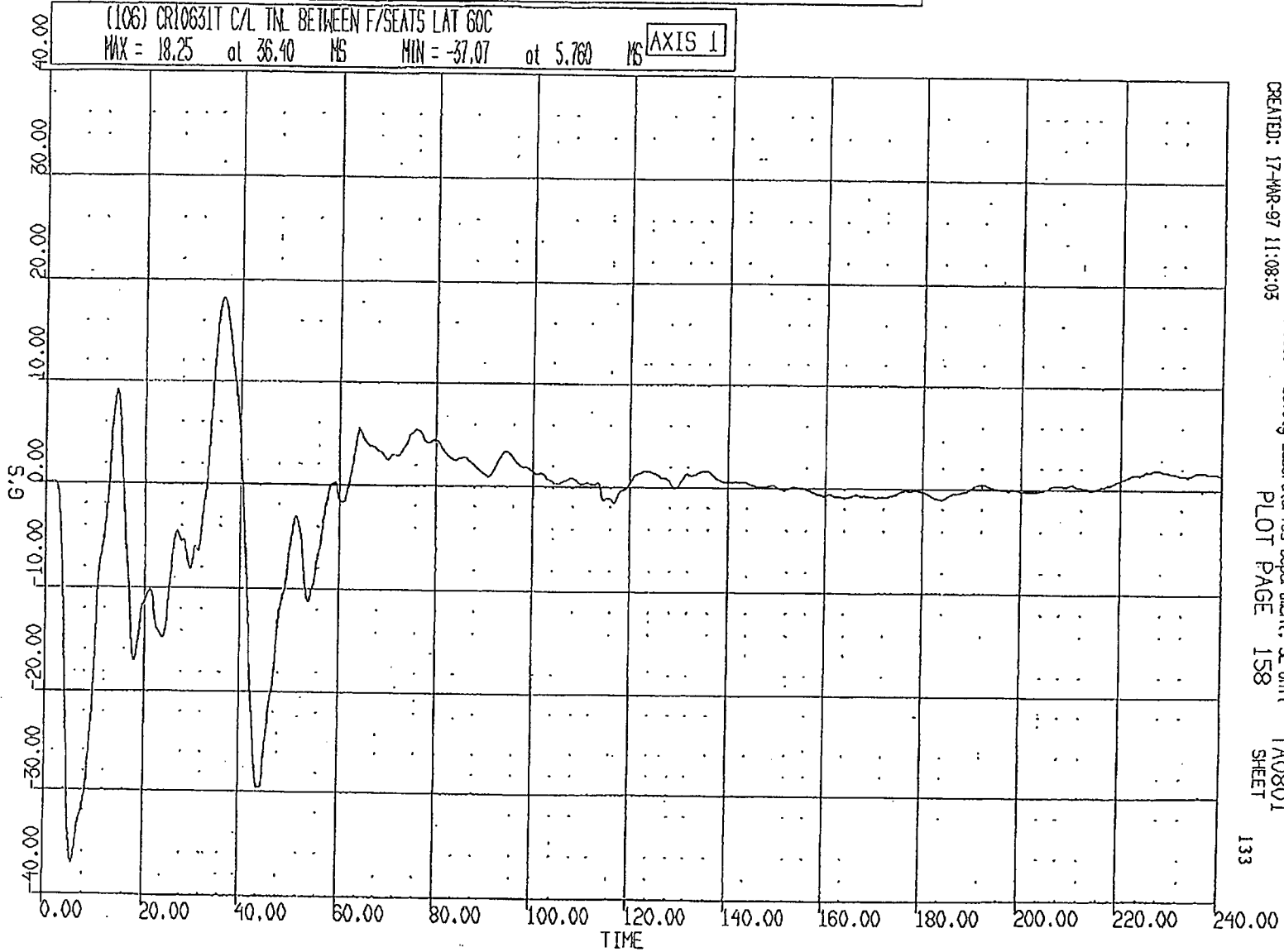
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CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA

(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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:08:03

Safety Laboratories Department, SE Unit
PLOT PAGE 158

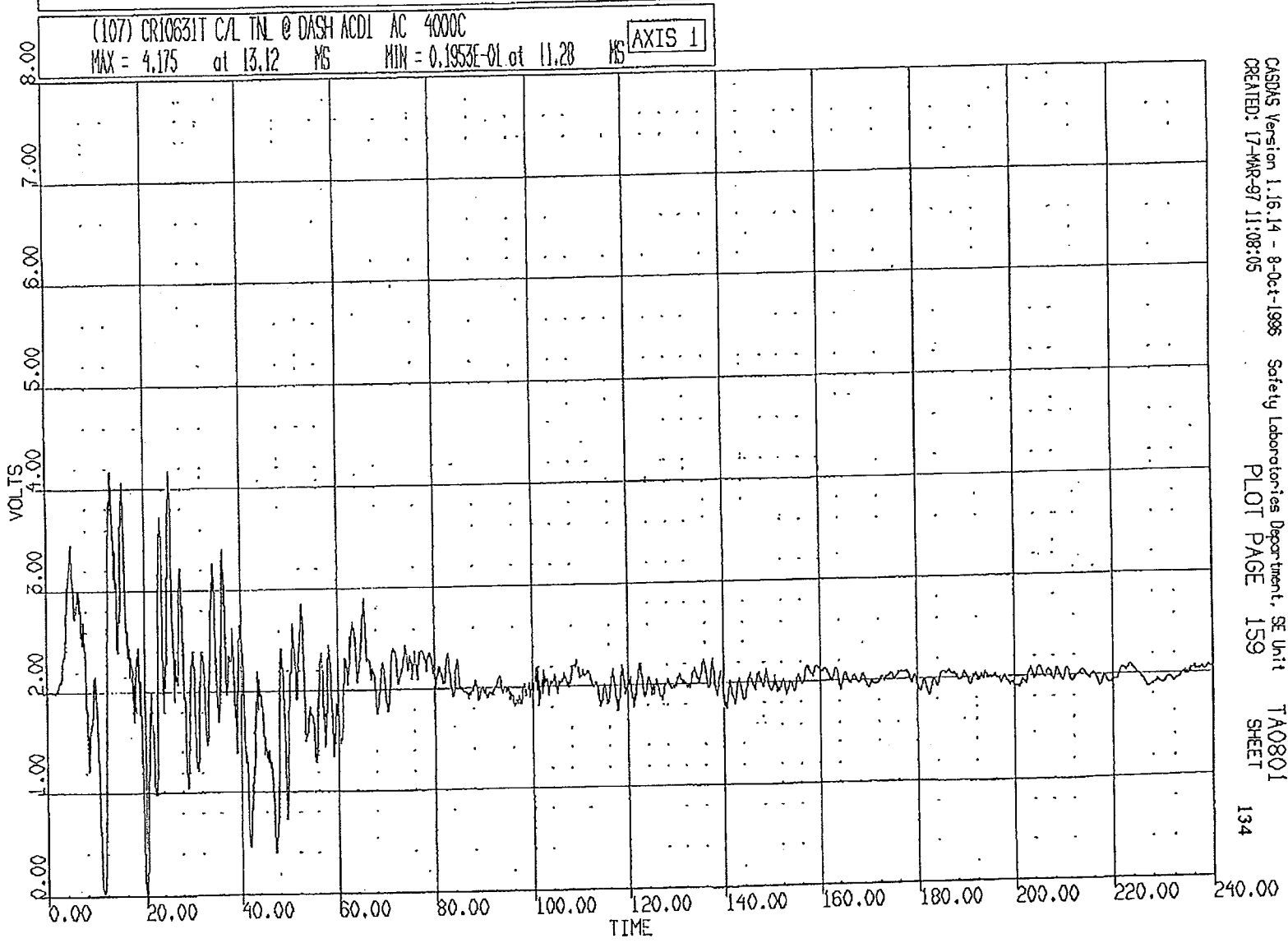
TA0801
SHEET

133

CRIS 0010631

0683

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



CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit TA0801
CREATED: 17-MAR-97 11:08:05 PLOT PAGE 159 SHEET 134

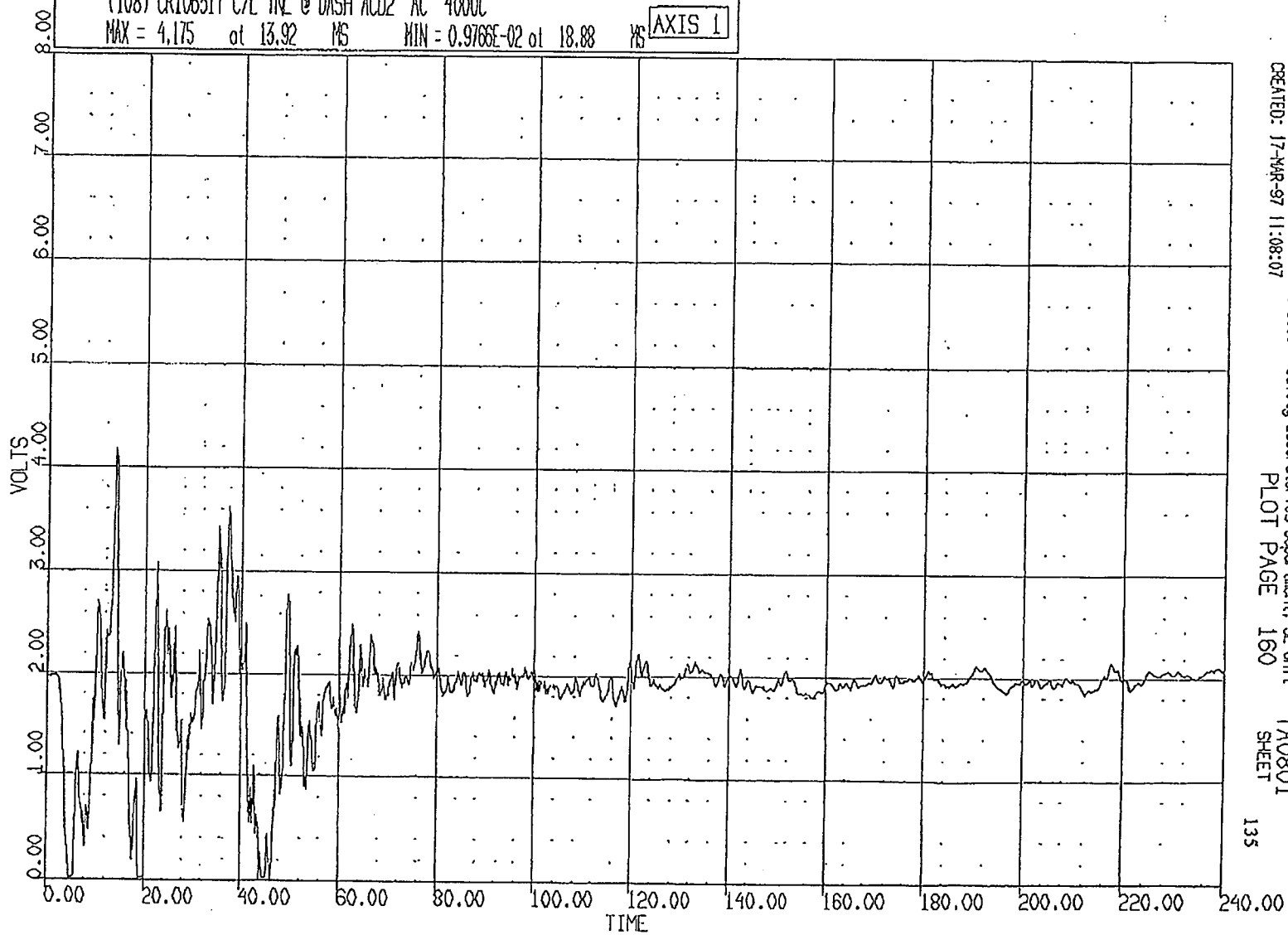
CRIS 0010631

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

(108) CR10631T C/L TN @ DASH AC02 AC 4000C

MAX = 4.175 at 13.92 MS MIN = 0.9766E-02 at 18.88 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:07

Safety Laboratories Department, SE Unit
PLOT PAGE 160

TA0801
SHEET

135

CRIS 0010631

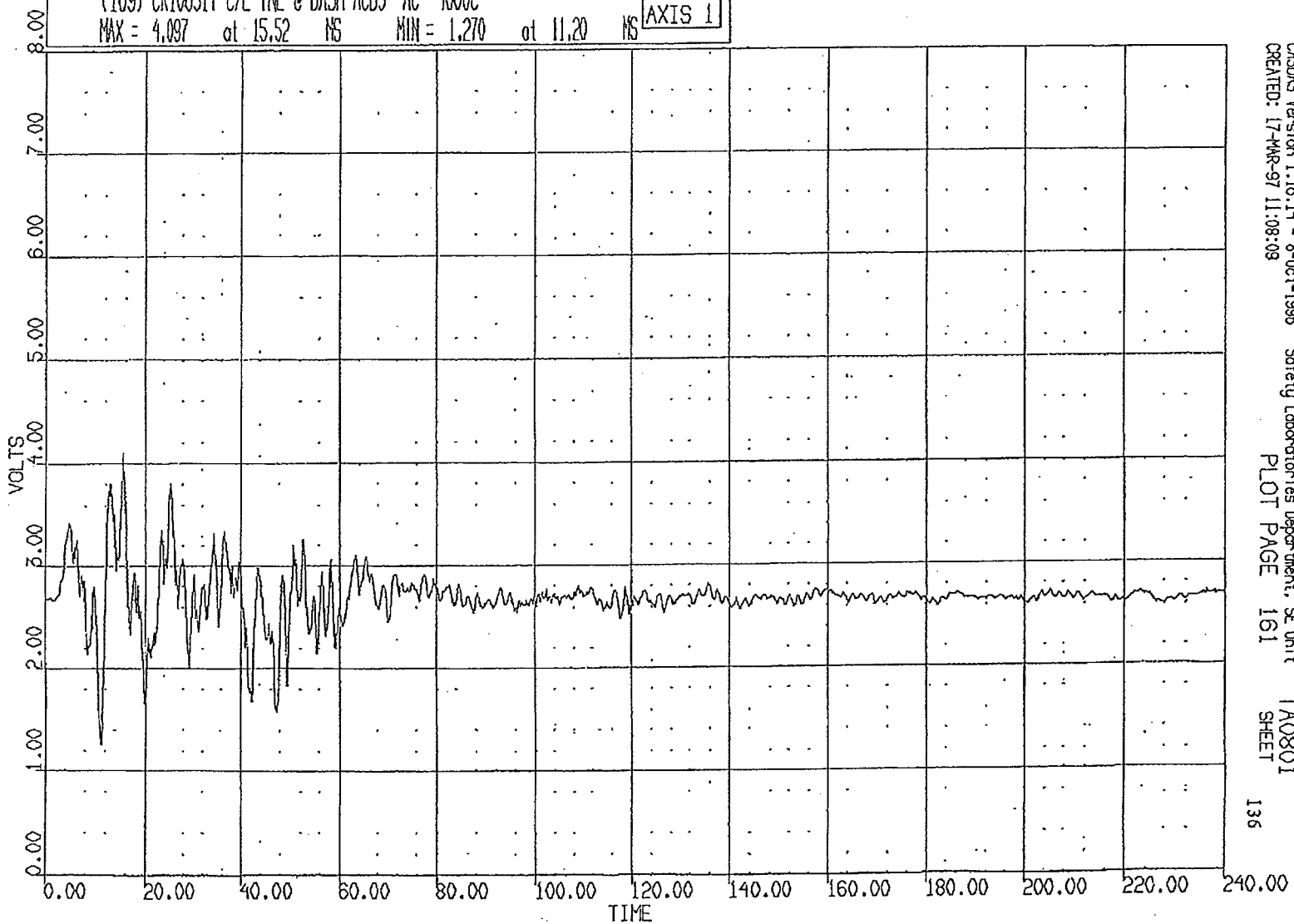
0685

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

(109) CR10631T C/L TML @ DASH ACD3 AC 4000C

MAX = 4.097 at 15.52 NS MIN = 1.270 at 11.20 NS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:09

Safety Laboratories Department, SE Unit
PLOT PAGE 161

TA0801
SHEET

136

CRTS 0010631

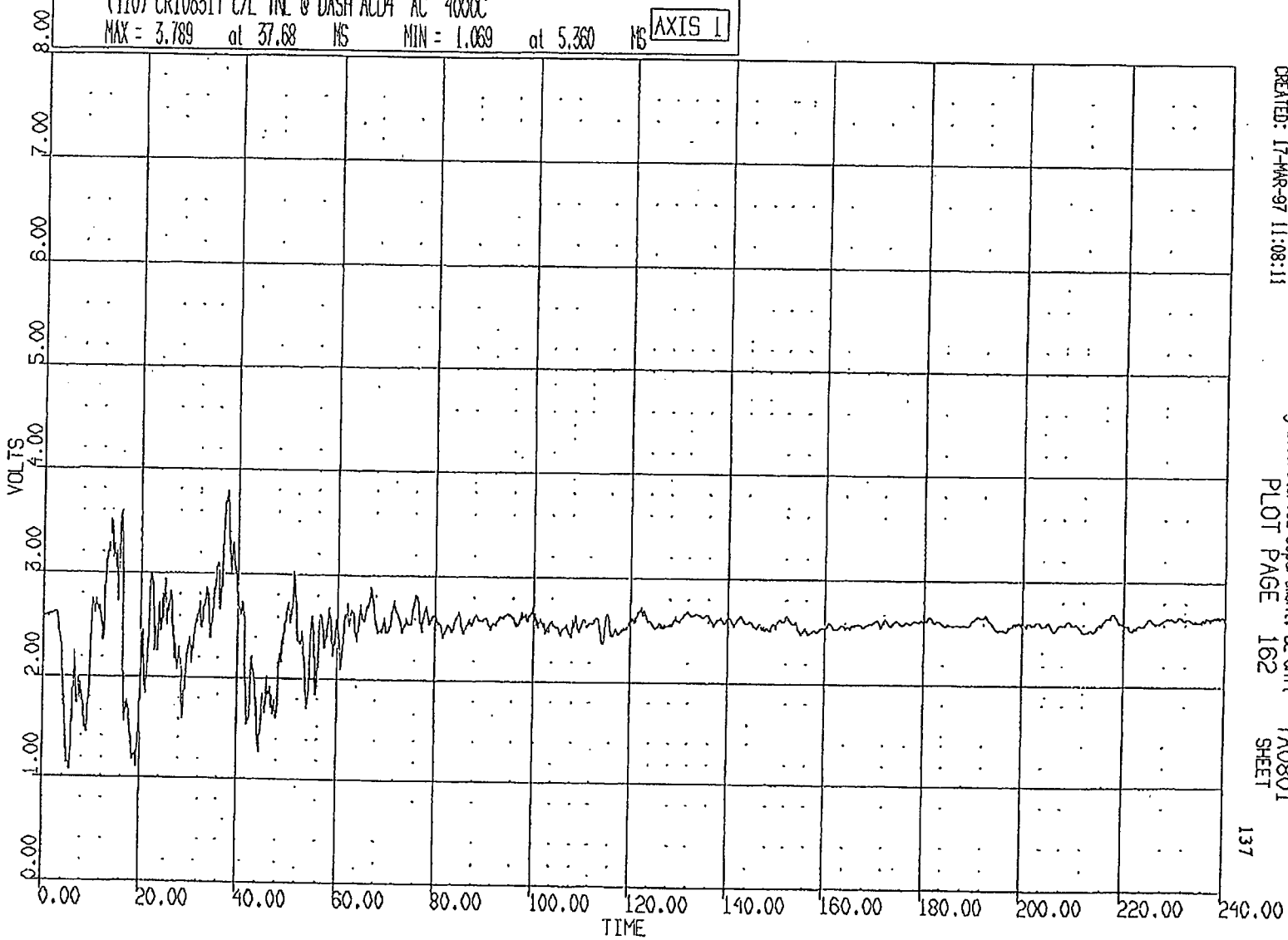
0686

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

(110) CR10631T C/L TNL @ DASH ACD4 AC 4000C

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

AXIS 1



CASAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:11

Safety Laboratories Department, SE Unit
PLOT PAGE 162
TA0801
SHEET

137

CRIS 0010631

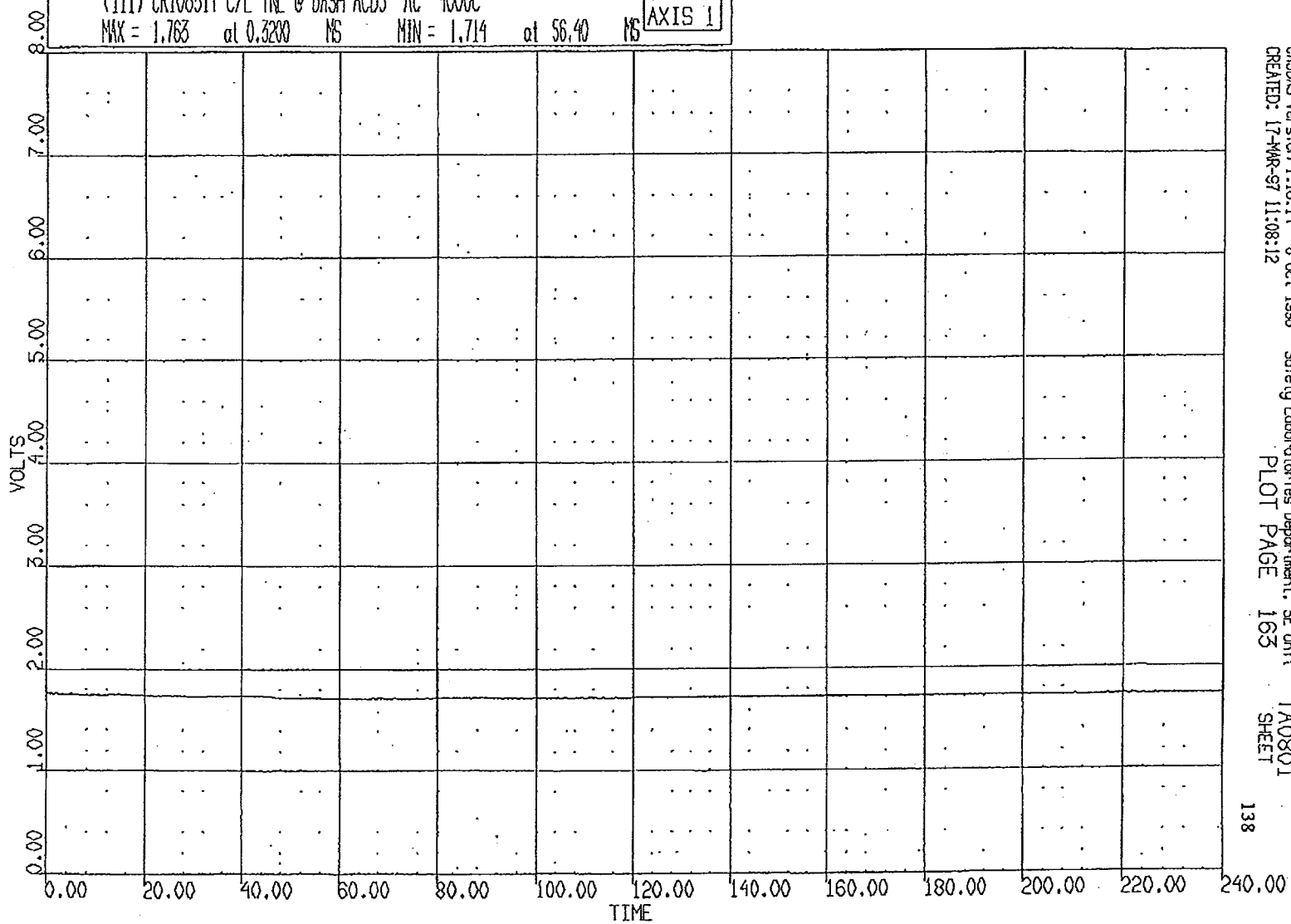
0687

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

(111) CR10631T C/L TNL @ DASH ACD5 AC 4000C

MAX = 1.763 at 0.3200 MS MIN = 1.714 at 56.40 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:12

Safety Laboratories Department, SE Unit
PLOT PAGE 163
TA0801
SHEET

138

CRTS 0010631

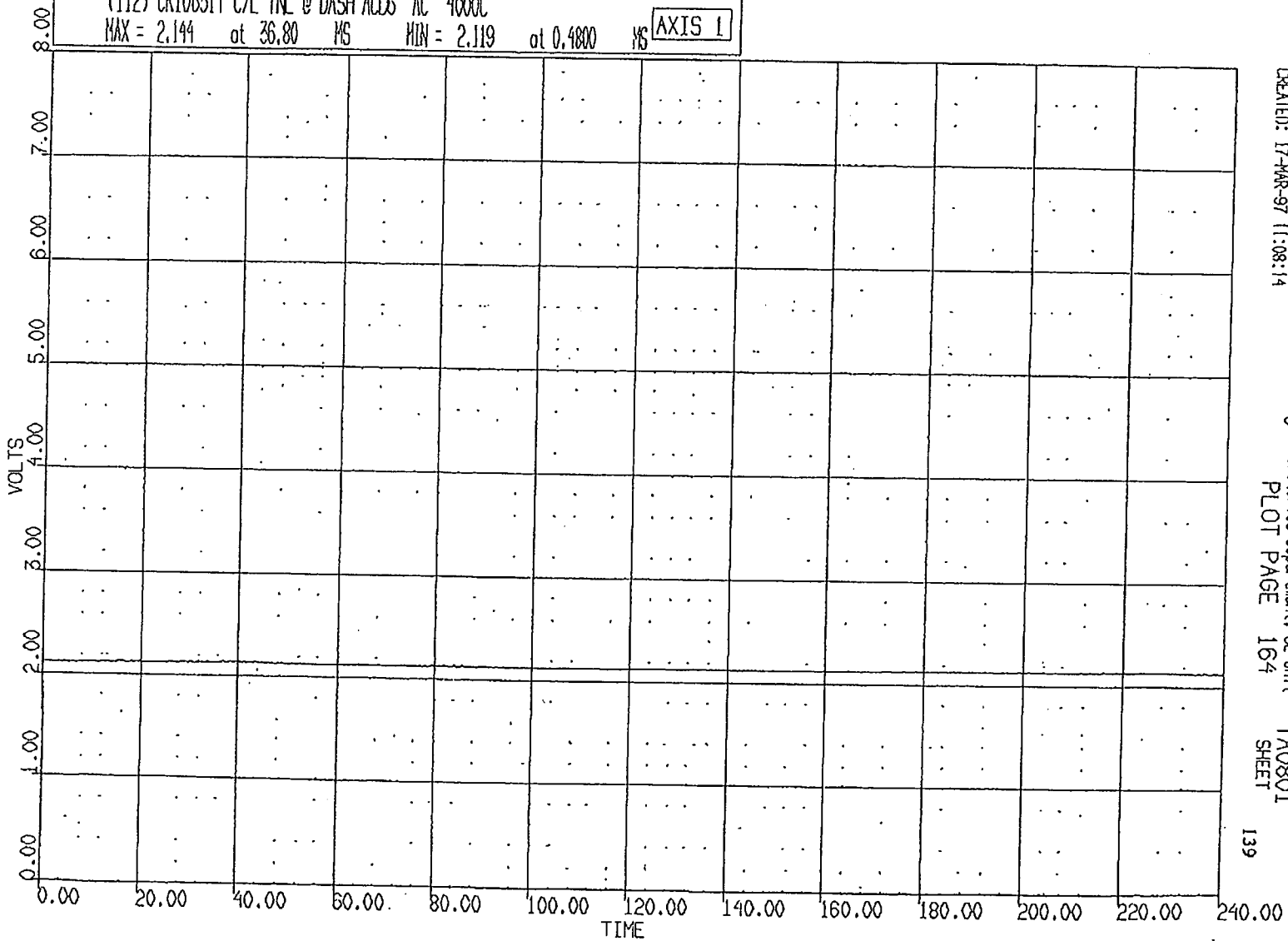
0688

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

(112) CR10631T C/L TNL @ DASH ACDS AC 4000C

MAX = 2.144 at 36.80 MS MIN = 2.119 at 0.4800 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:14

Safety Laboratories Department, SE Unit
PLOT PAGE 164

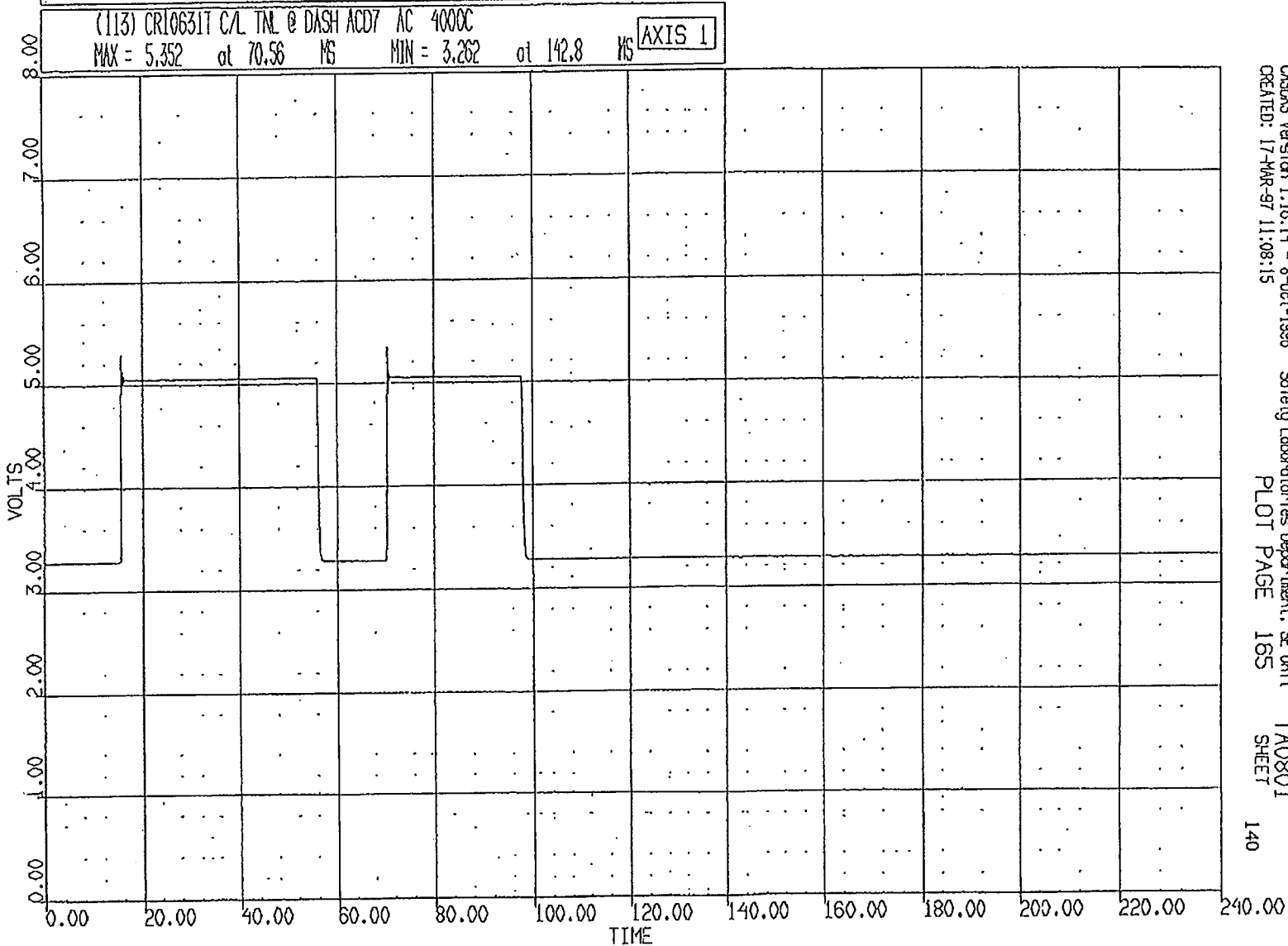
TA0801
SHEET

139

CRIS 0010631

0689

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



CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:08:15 PLOT PAGE 165 TA0801
SHEET 140

CRIS 0010631

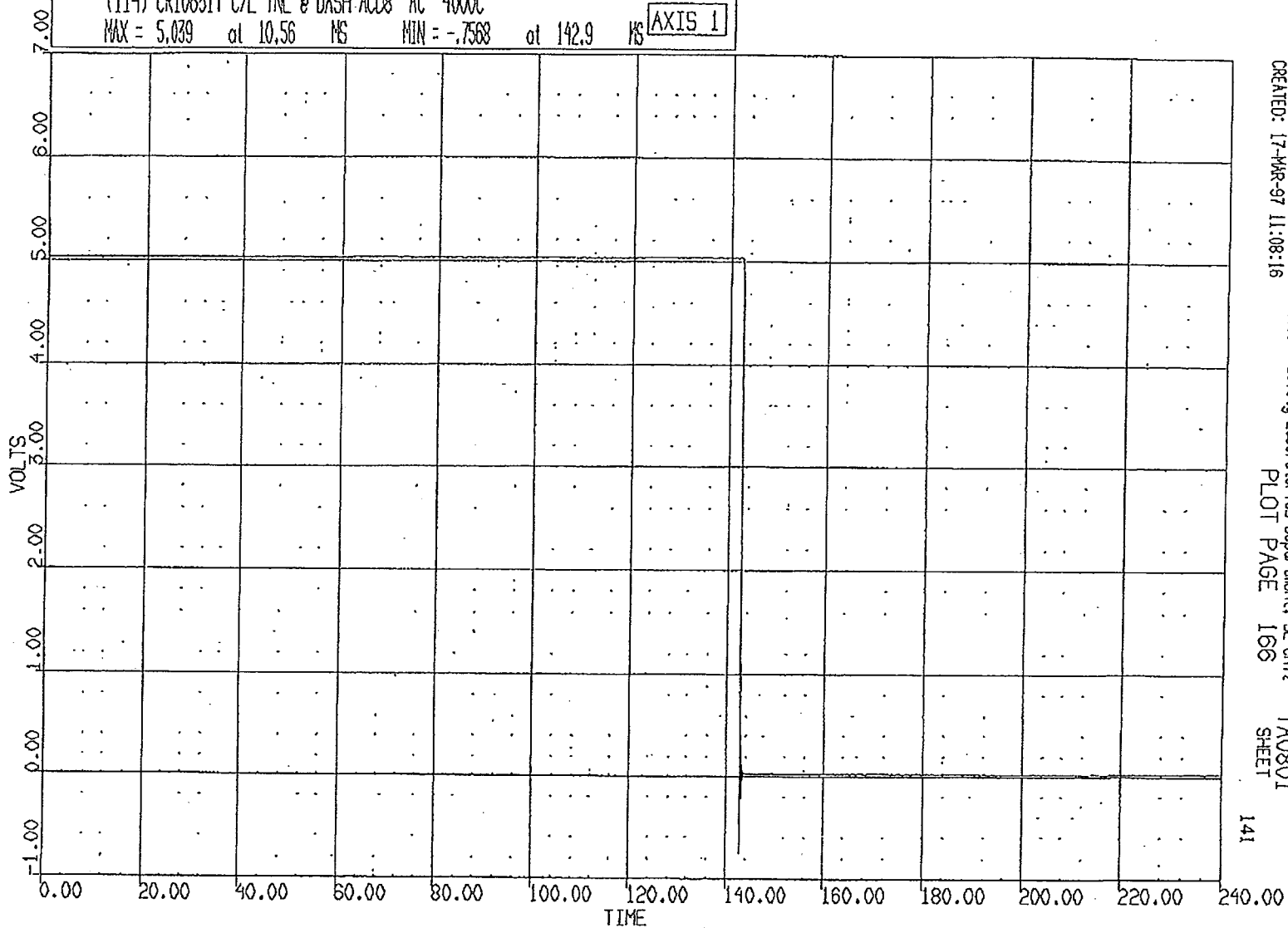
0690

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

(114) CR10631T C/L TNL @ DASH AC08 AC 4000C

MAX = 5.039 at 10.56 MS MIN = -.7568 at 142.9 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:16

Safety Laboratories Department, SE Unit
PLOT PAGE 166

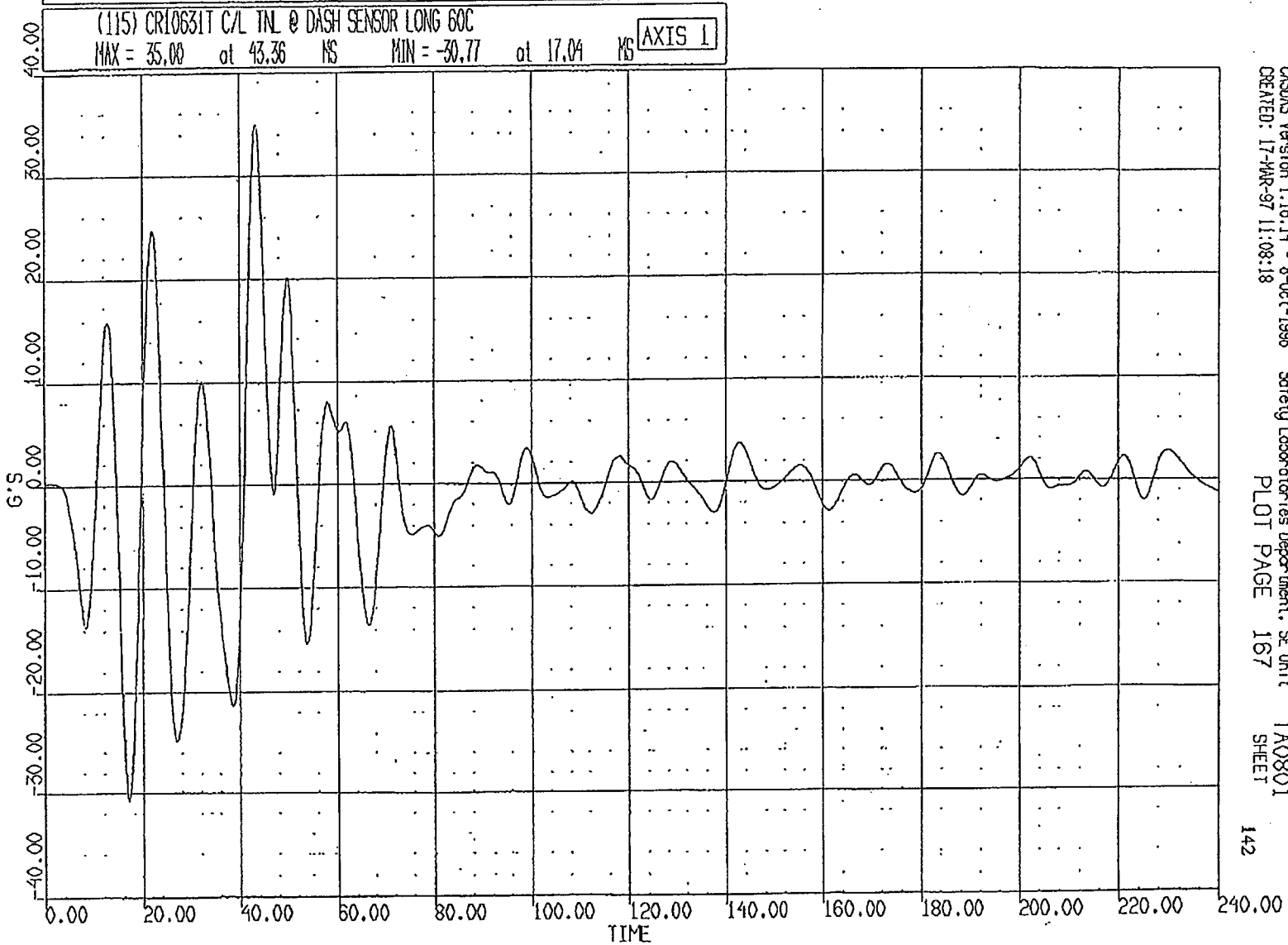
TA0801
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141

CRTS 0010631

0691

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



CASONS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:18

Safety Laboratories Department, SE Unit
PLOT PAGE 167

TA0801
SHEET

142

CRTS 0010631

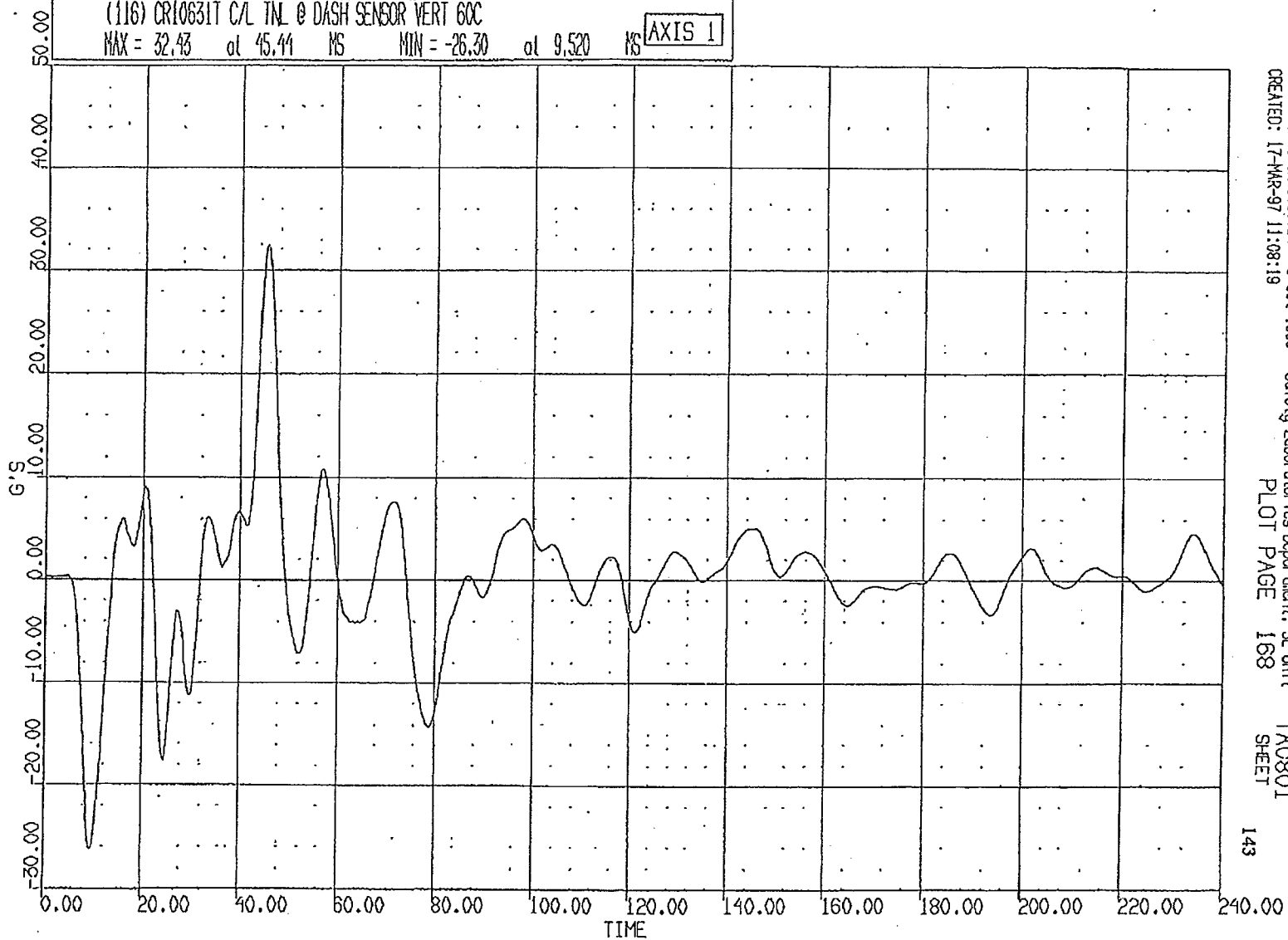
0692

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PZ-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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:19

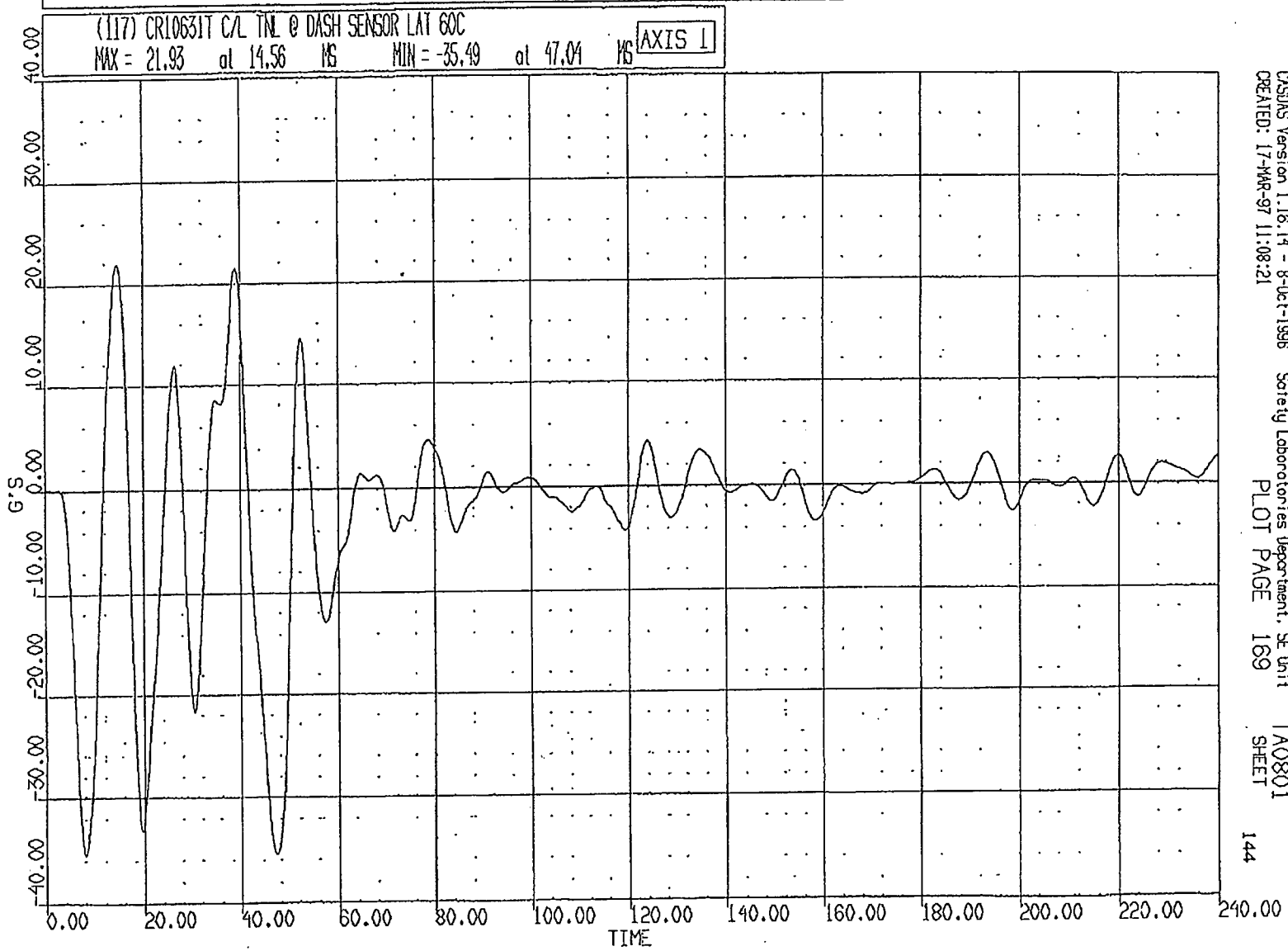
Safety Laboratories Department, SE Unit
PLOT PAGE 168
TA0801
SHEET

143

CRTS 0010631

0693

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:21

Safety Laboratories Department, SE Unit
PLOT PAGE 169

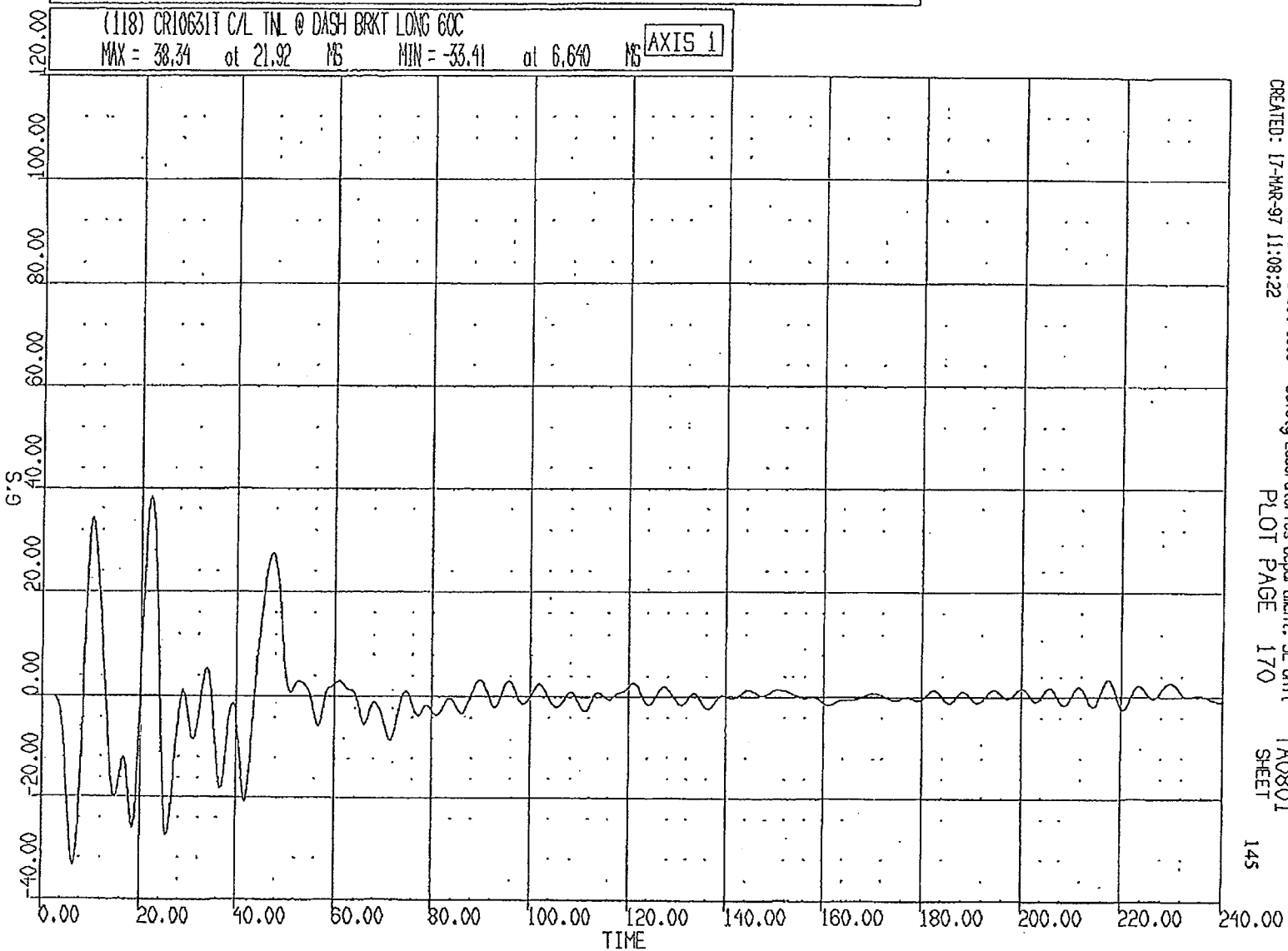
TA0801
SHEET

144

CRTS 0010631

0694

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:22

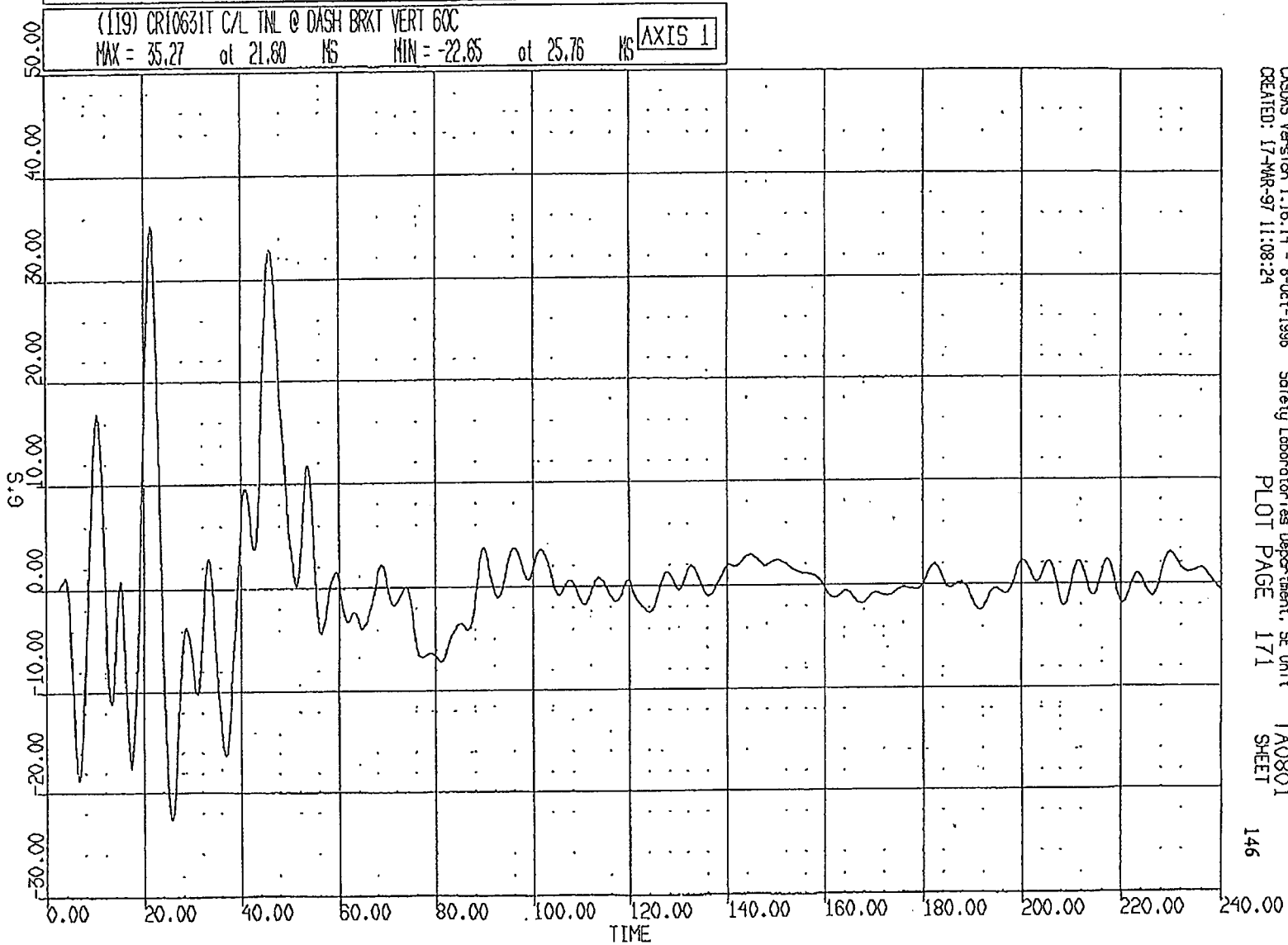
Safety Laboratories Department, SE Unit
PLOT PAGE 170
TA0801
SHEET

145

CRIS 0010631

0695

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE 9A



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:08:24

Safety Laboratories Department, SE Unit
PLOT PAGE 171

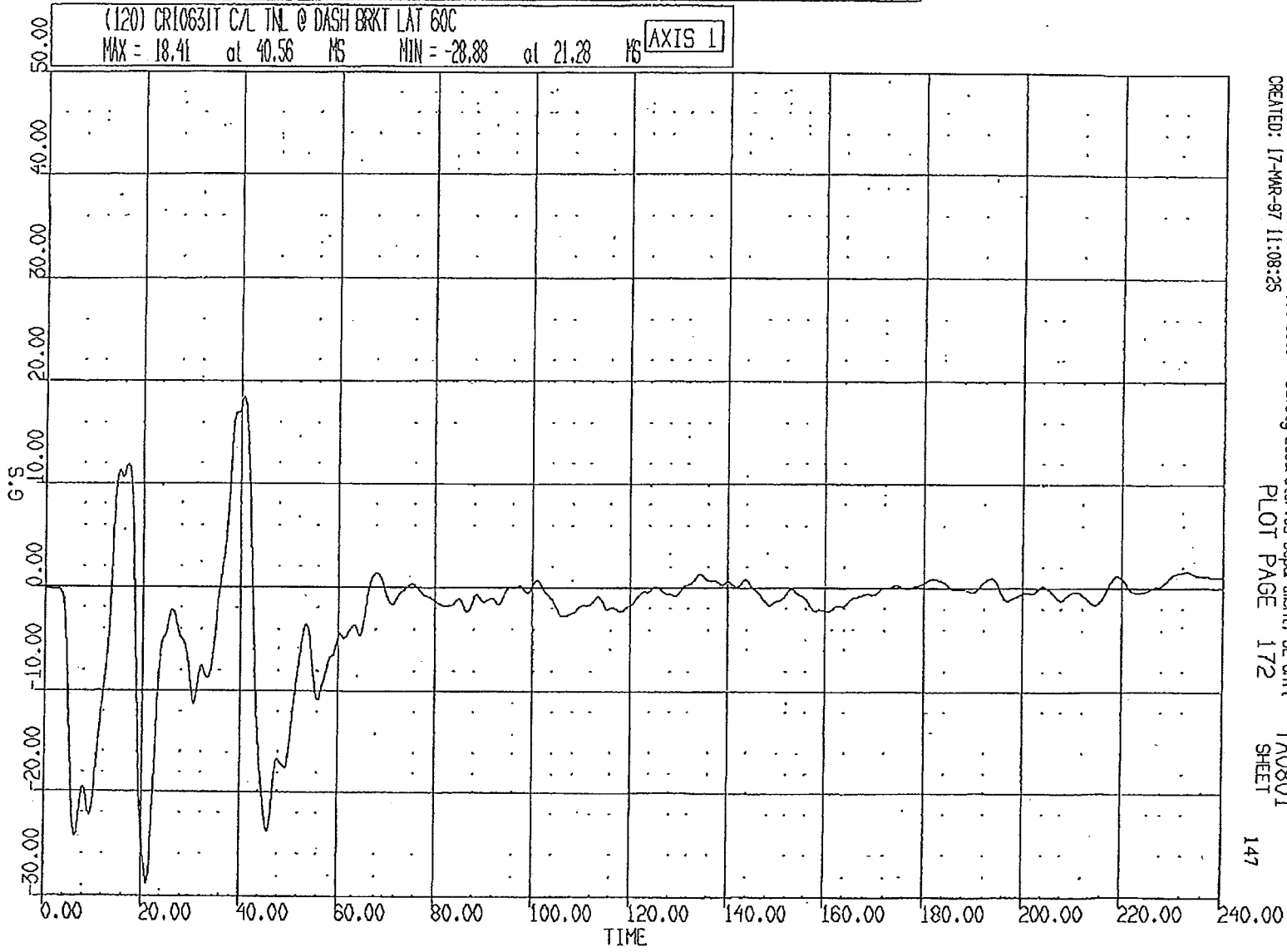
TA0801
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146

CRTS 0010631

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

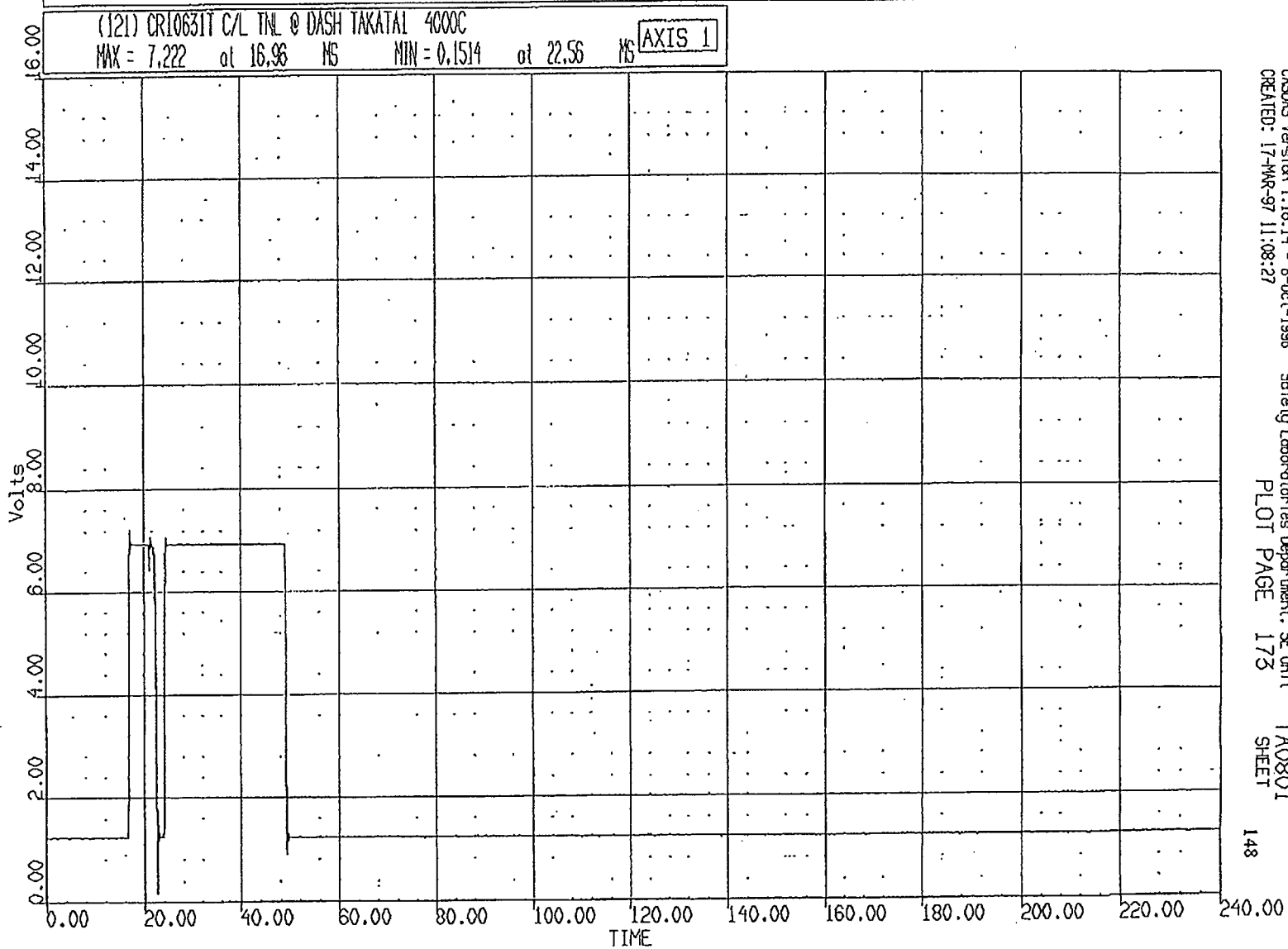


CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:08:25 PLOT PAGE 172 TA0801 SHEET 147

CRTS 0010631

0697

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:27

Safety Laboratories Department, SE Unit
PLOT PAGE 173

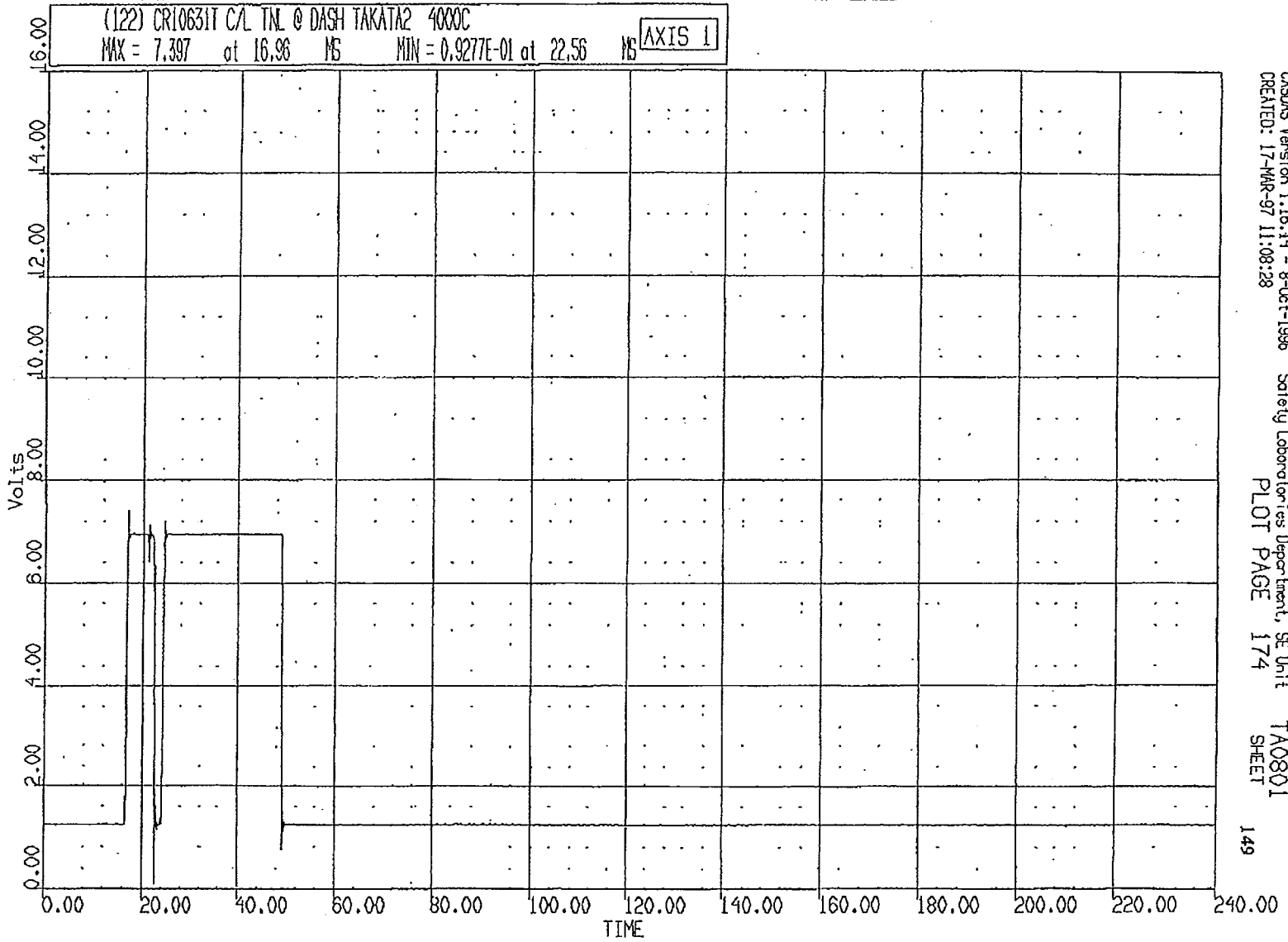
TA0801
SHEET

148

CRIS 0010631

0698

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



CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:08:28 PLOT PAGE 174 TA0801
SHEET 149

CRIS 0010631

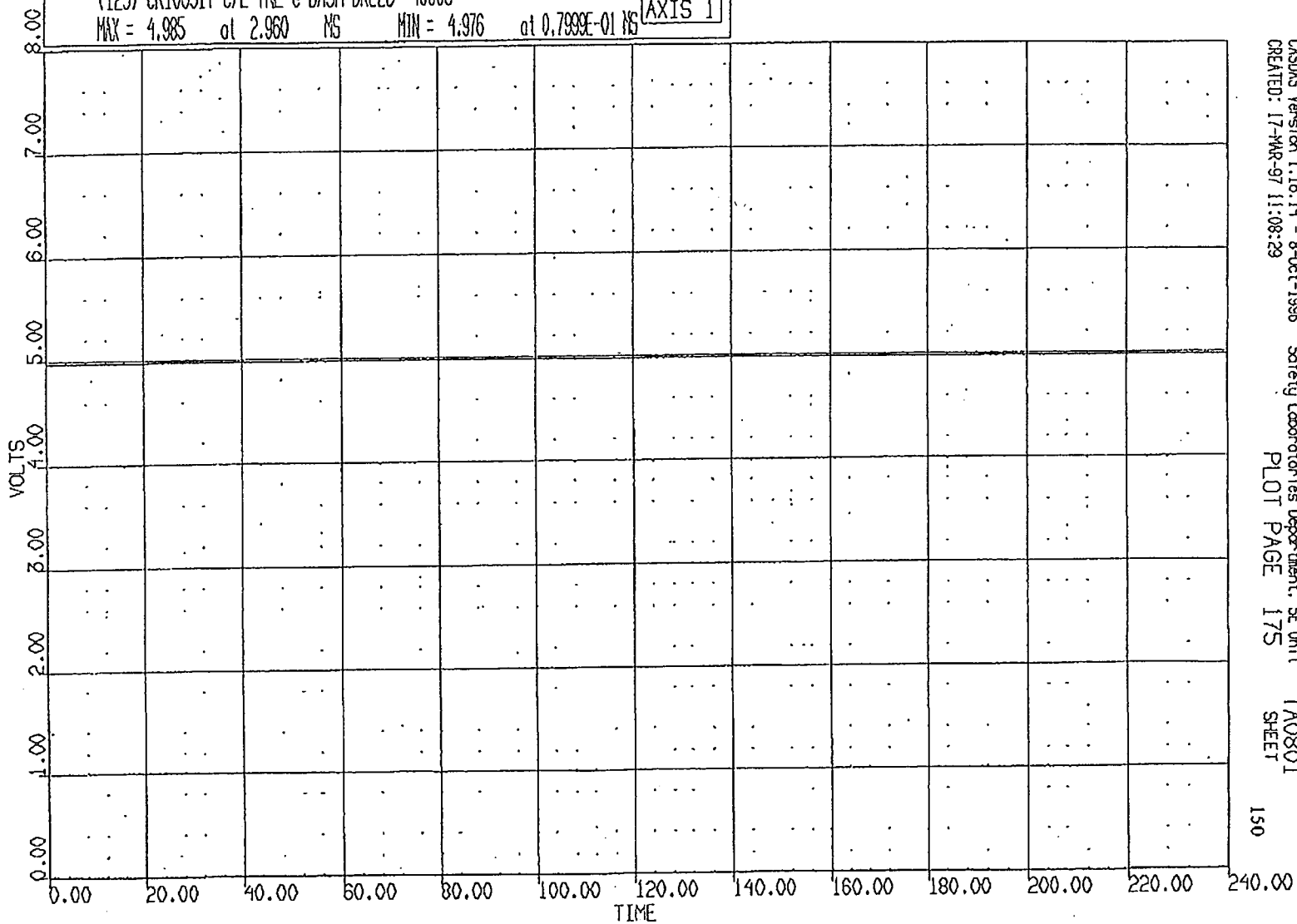
0699

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

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

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:08:29

Safety Laboratories Department, SE Unit
PLOT PAGE 175

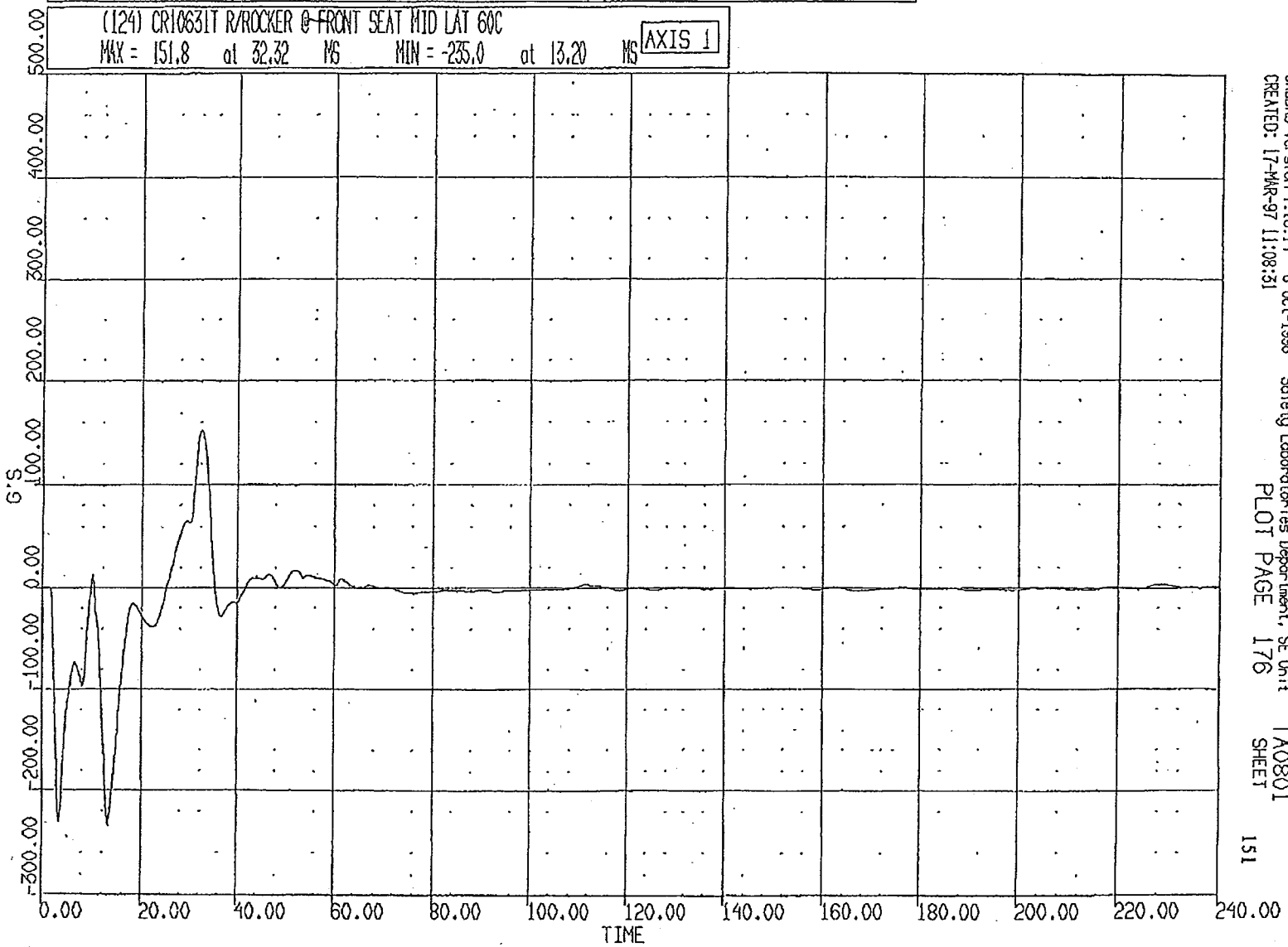
TA0801
SHEET

150

CRTS 0010631

0700

CR R: 10631 TO: TA0801 DATE: 970817 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:31

Safety Laboratories Department, SE Unit
PLOT PAGE 176

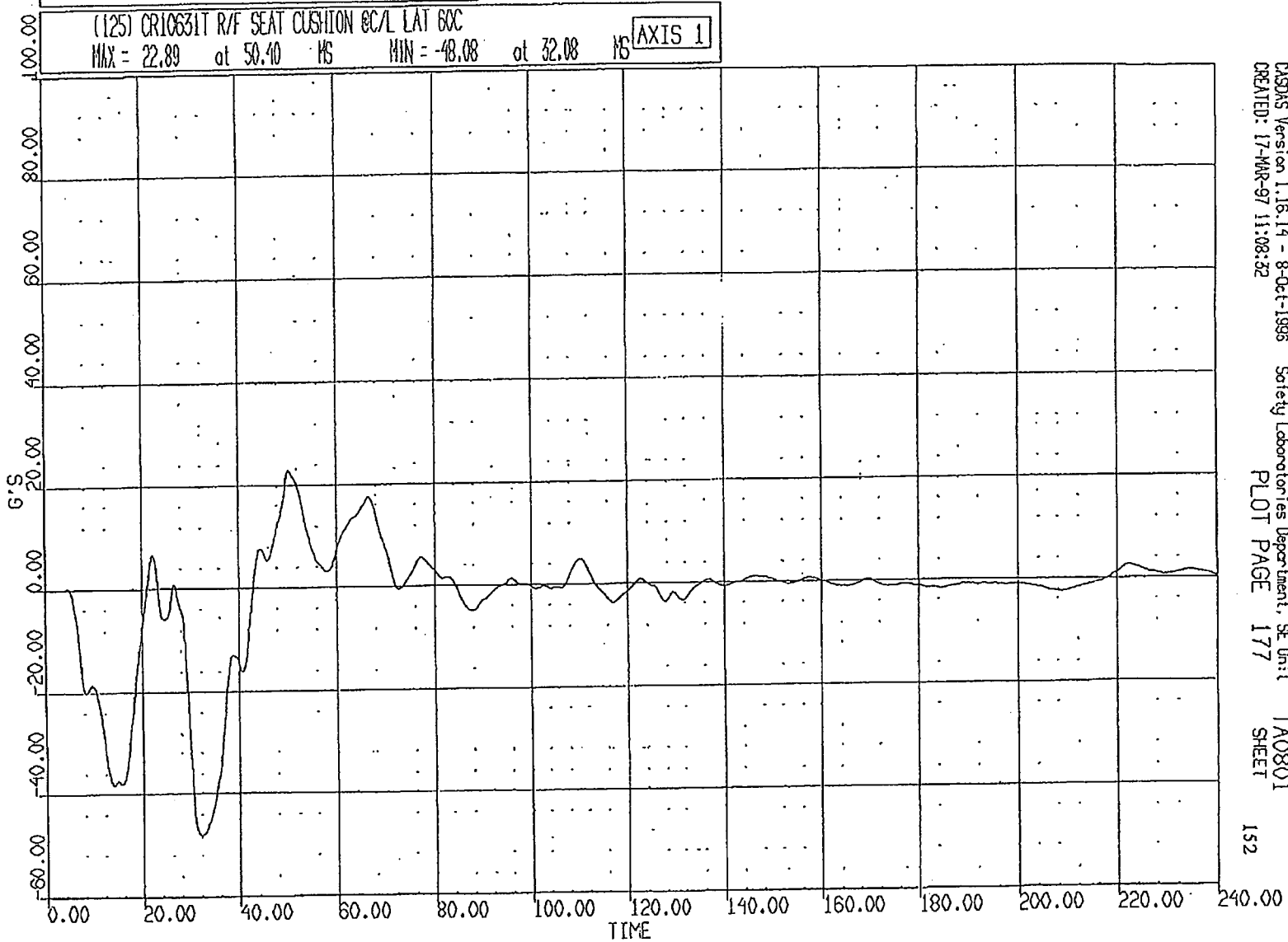
TA0801
SHEET

151

CRIS 0010631

0701

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:32

Safety Laboratories Department, SE Unit
PLOT PAGE 177

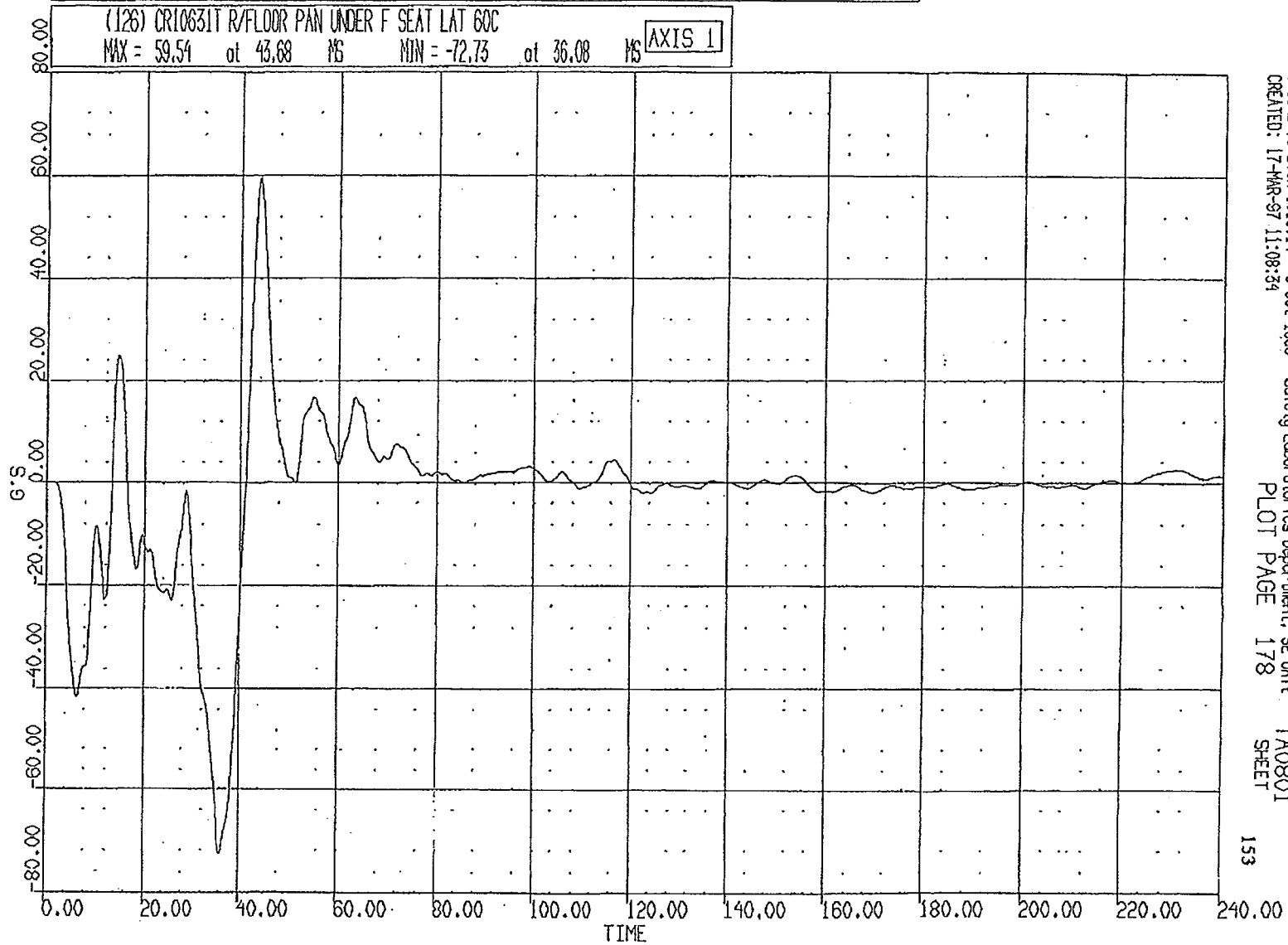
TA0801
SHEET

152

CRTS 0010631

0702

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:34

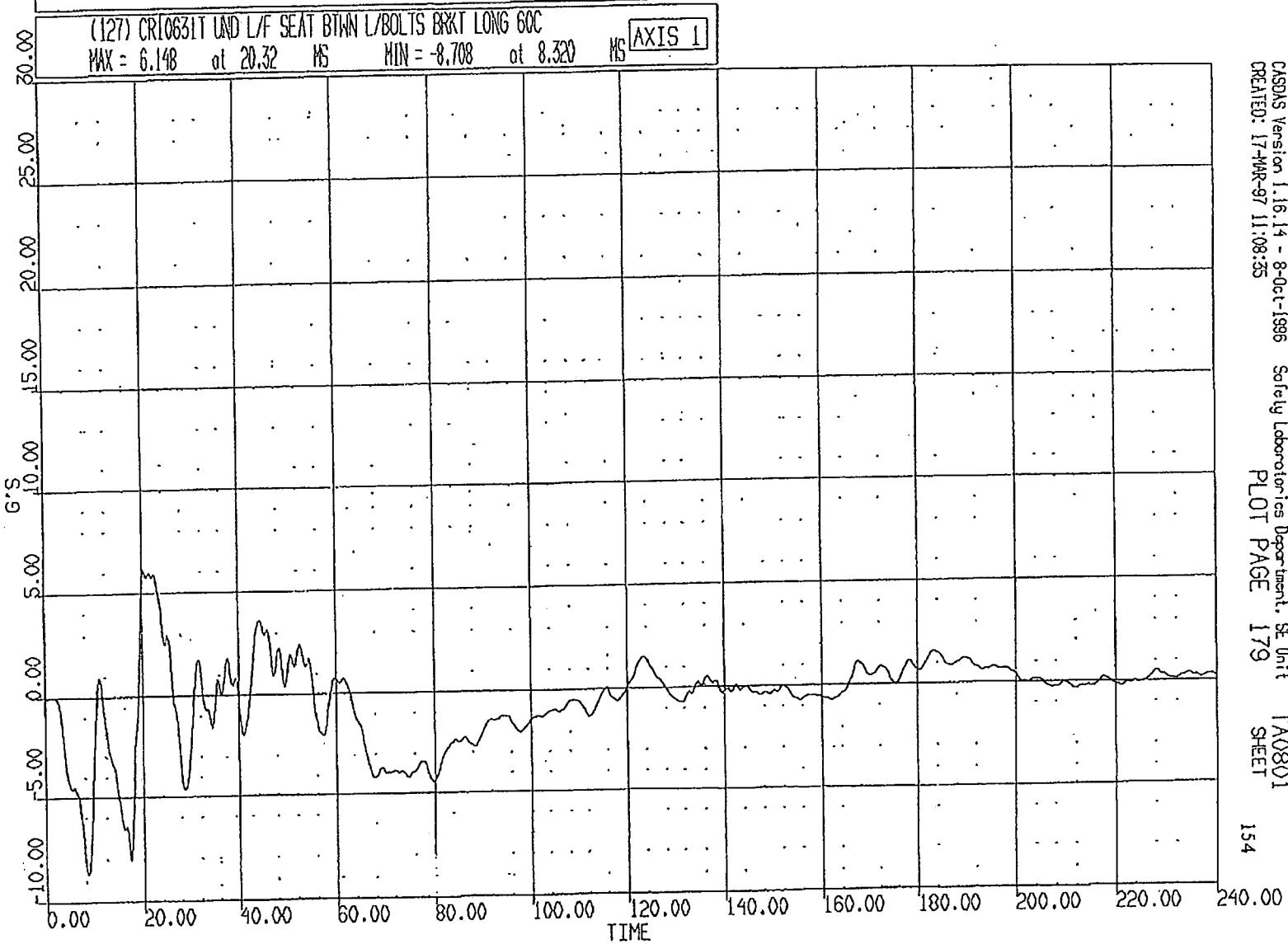
Safety Laboratories Department, SE Unit
PLOT PAGE 178 TA0801
SHEET

153

CRTS 0010631

0703

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

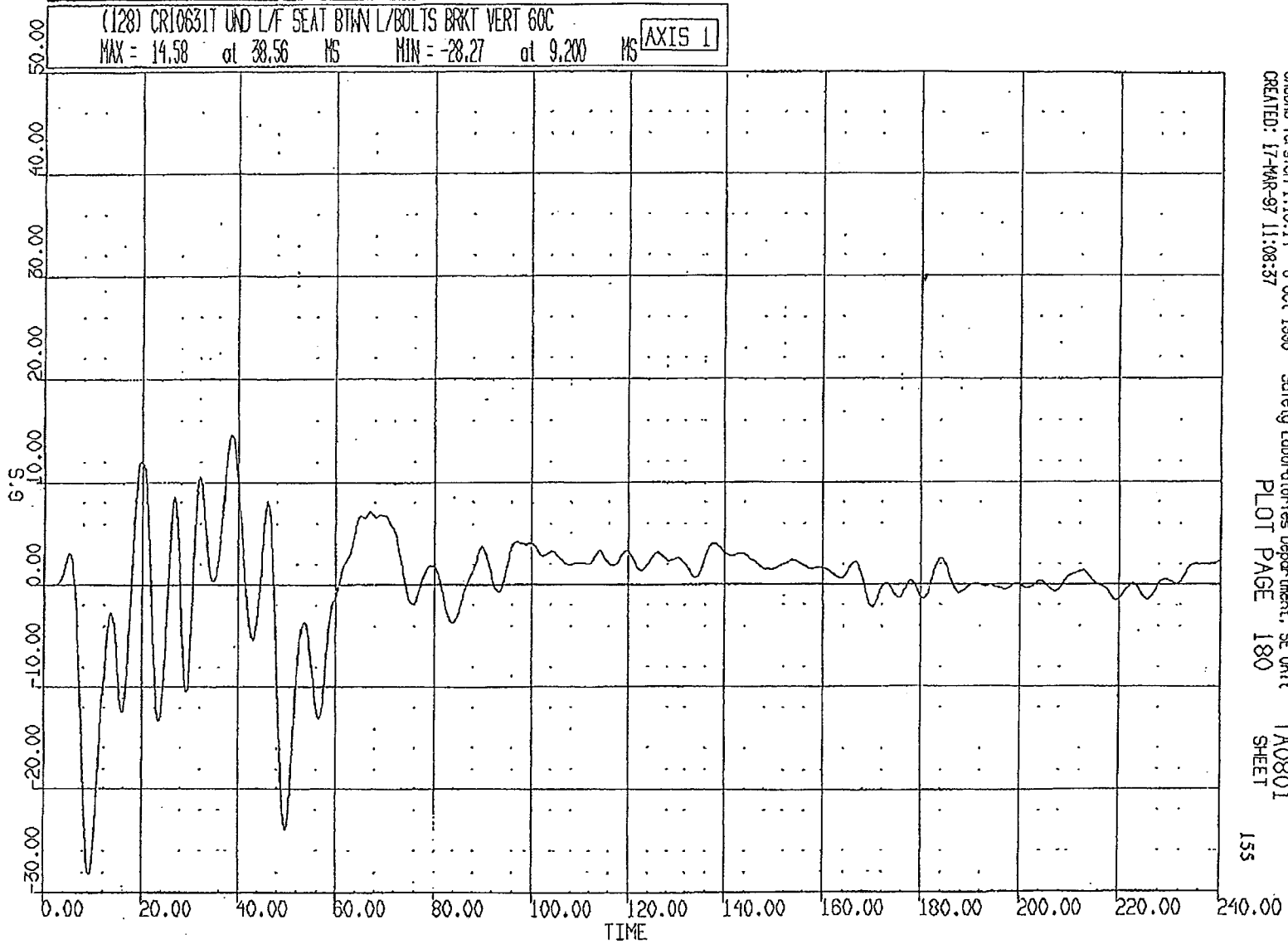


CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:08:35 PLOT PAGE 179 TA0801
SHEET 154

CRIS 0010631

0704

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

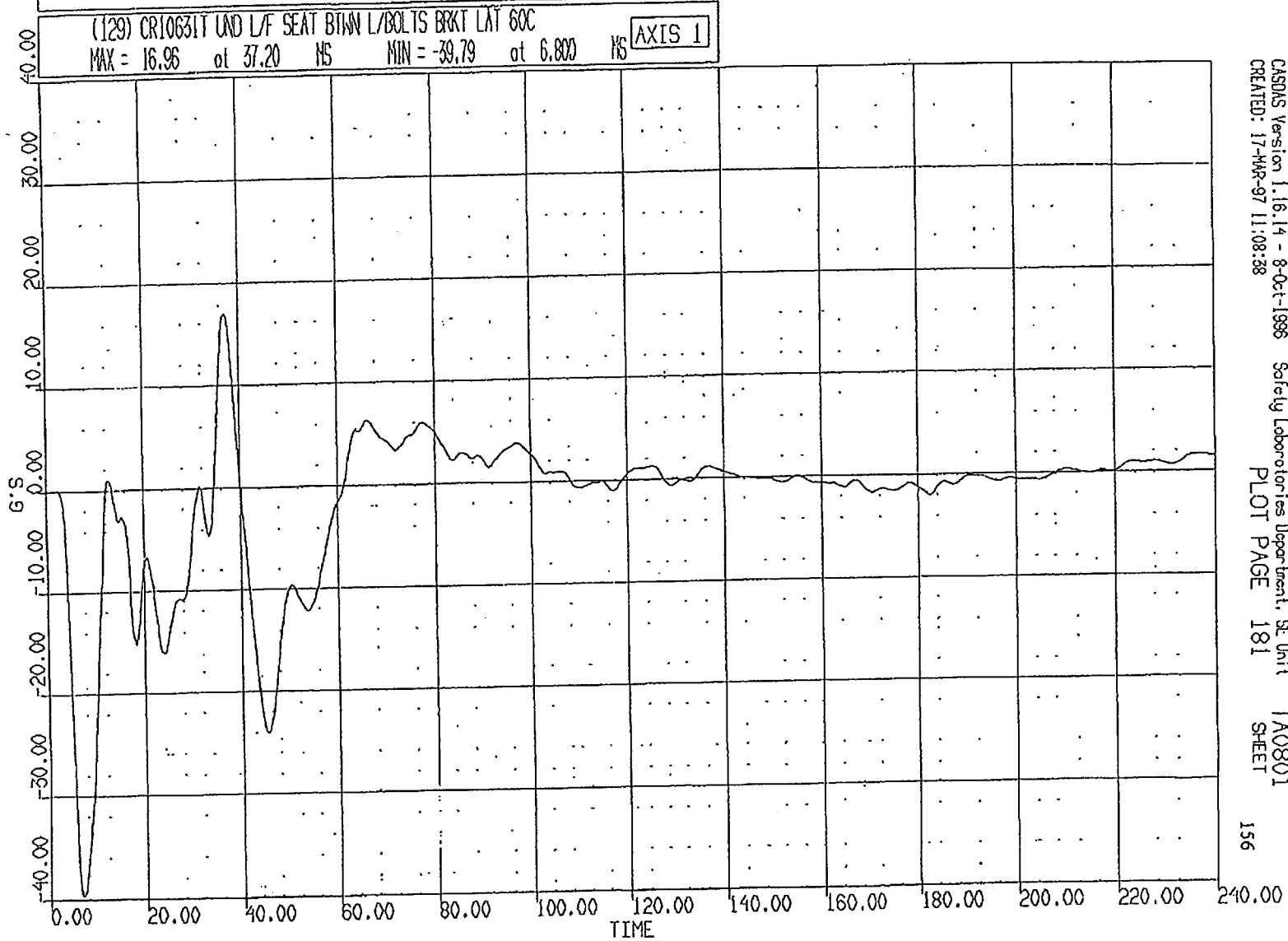


CASDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit TA0801
CREATED: 17-MAR-97 11:08:37 PLOT PAGE 180 SHEET 155

CRIS 0010631

0705

CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-196 1999 MOVING DEFORMABLE SA



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:28

Safety Laboratories Department, SE Unit
PLOT PAGE 181

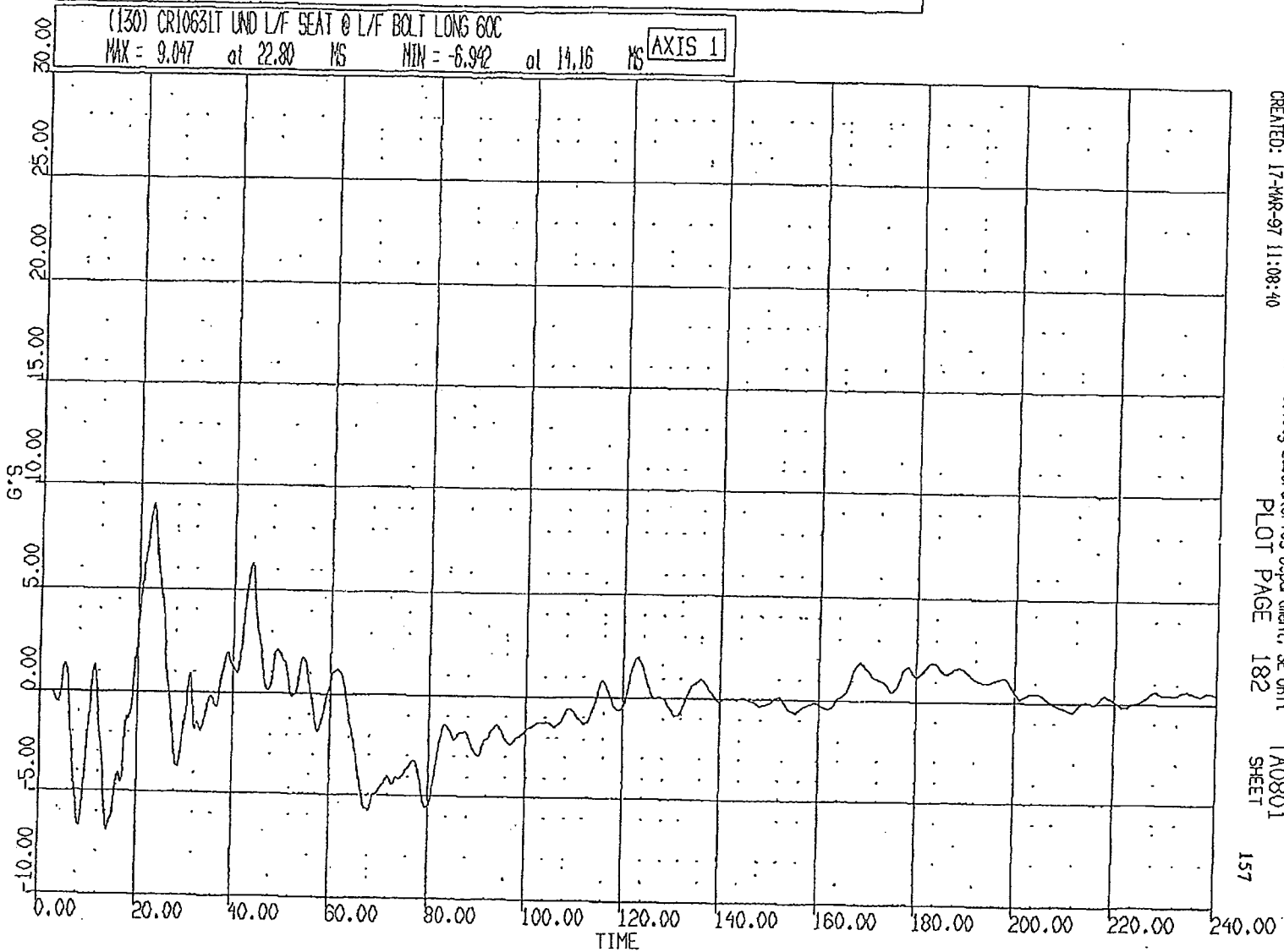
TA0801
SHEET

156

CRIS 0010631

0706

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:40

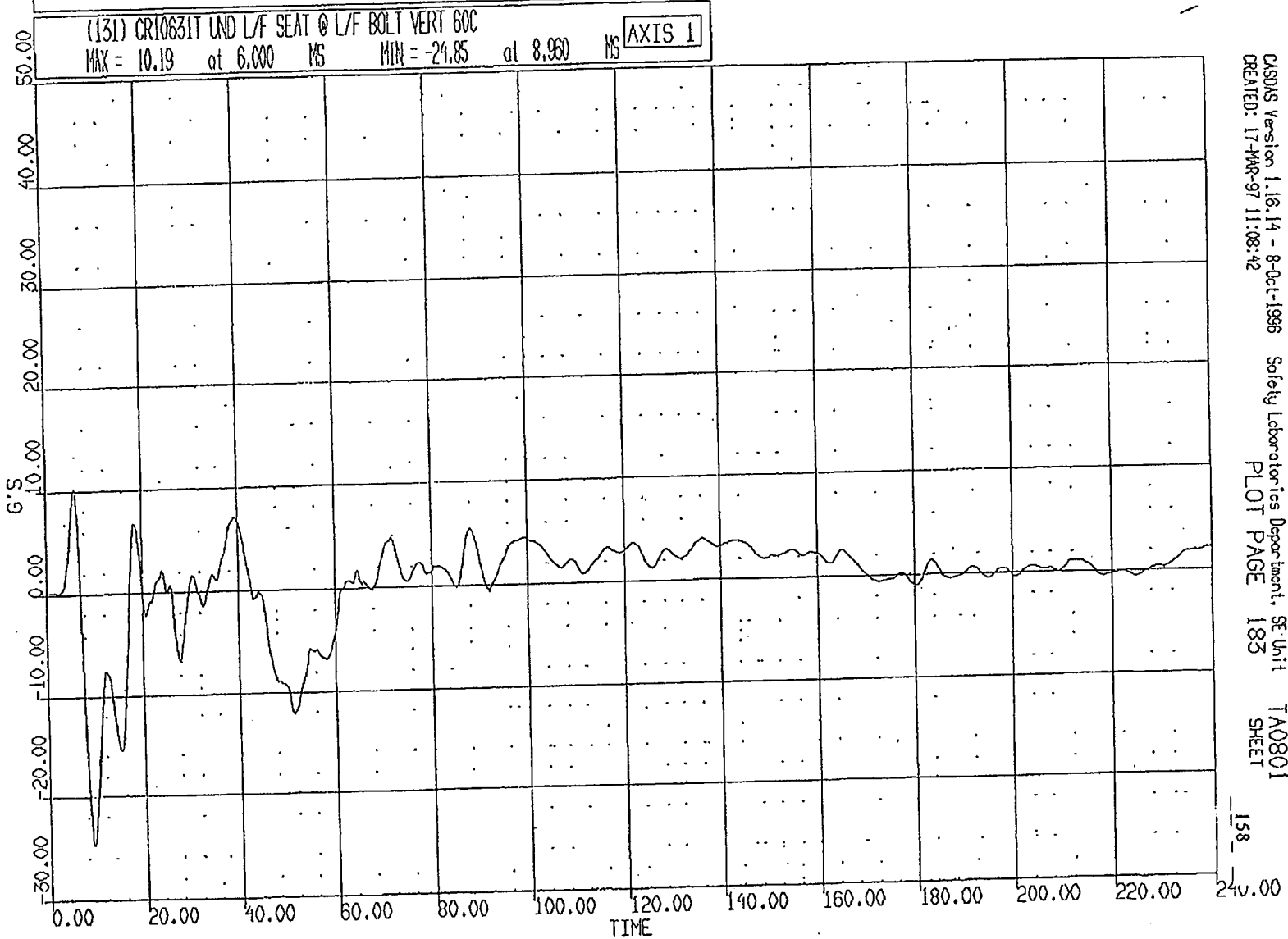
Safety Laboratories Department, SE Unit
PLOT PAGE 182
TA0801
SHEET

157

CRTS 0010631

0707

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



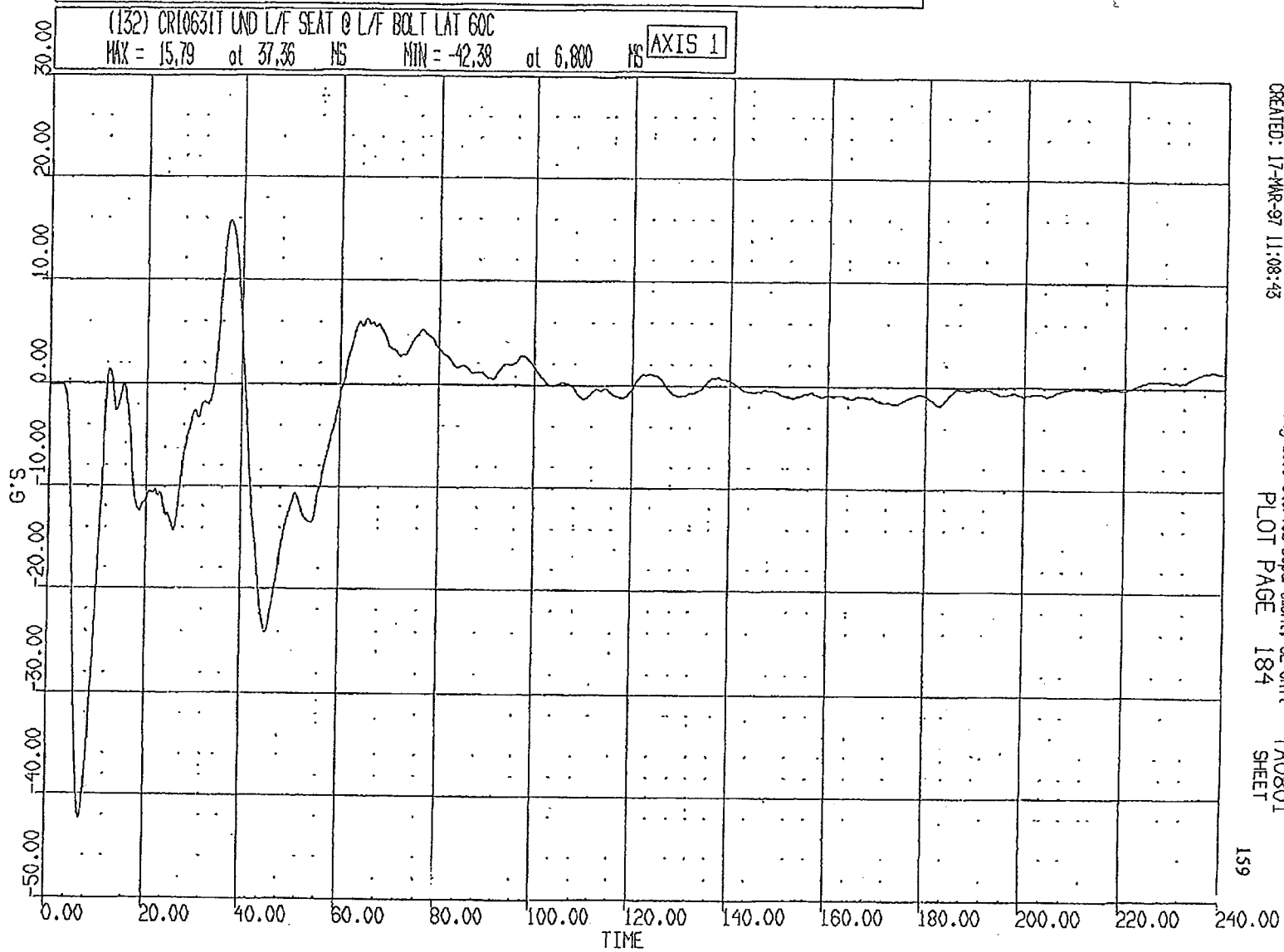
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CREATED: 17-MAR-97 11:08:42
PLOT PAGE 183
TA0801
SHEET

158

CRTS 0010631

0708

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:43

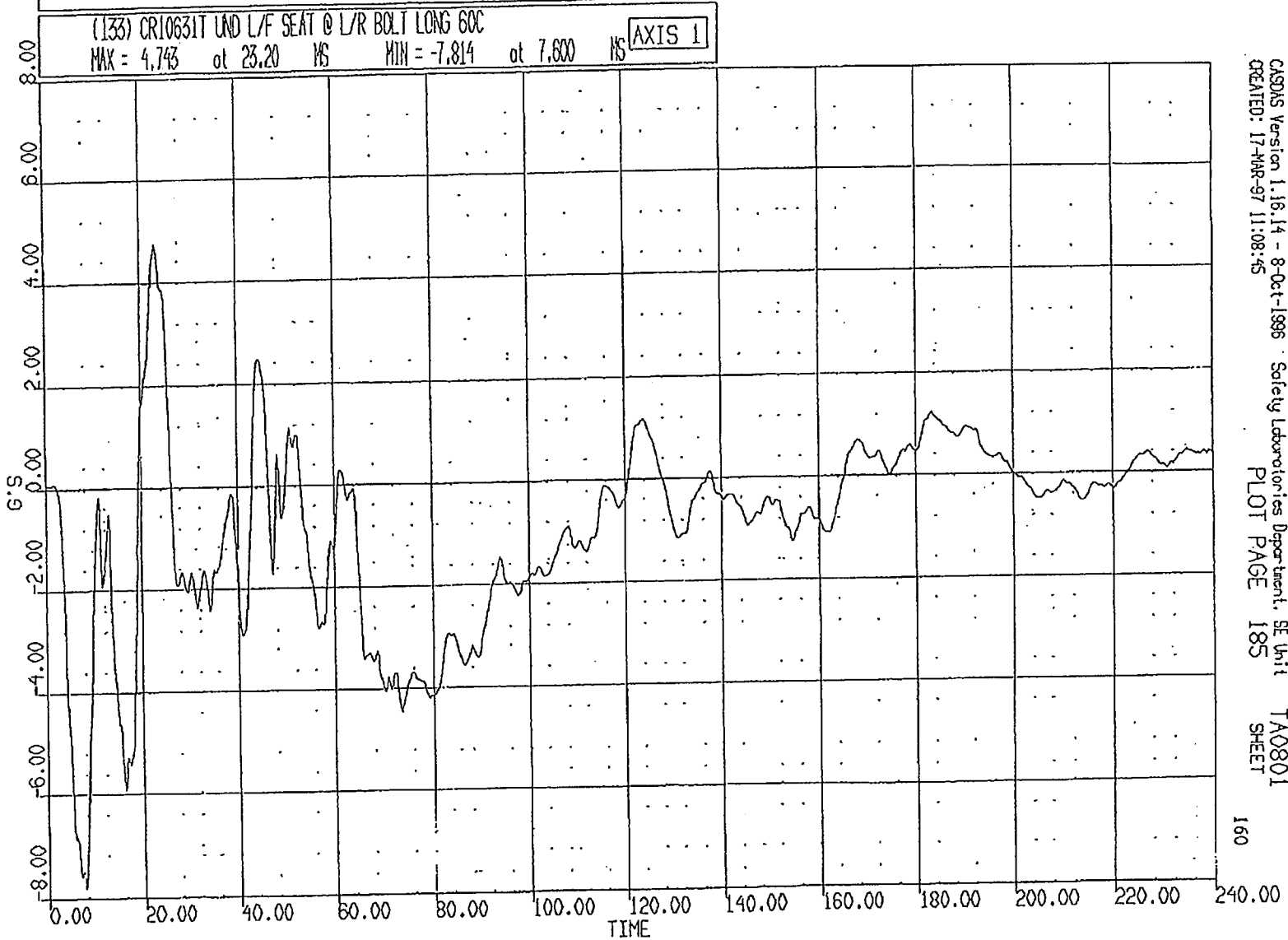
Safety Laboratories Department, SE Unit
PLOT PAGE 184
TA0801
SHEET

159

CRIS 0010631

0709

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:45

Safety Laboratories Department, SE Unit
PLOT PAGE 185

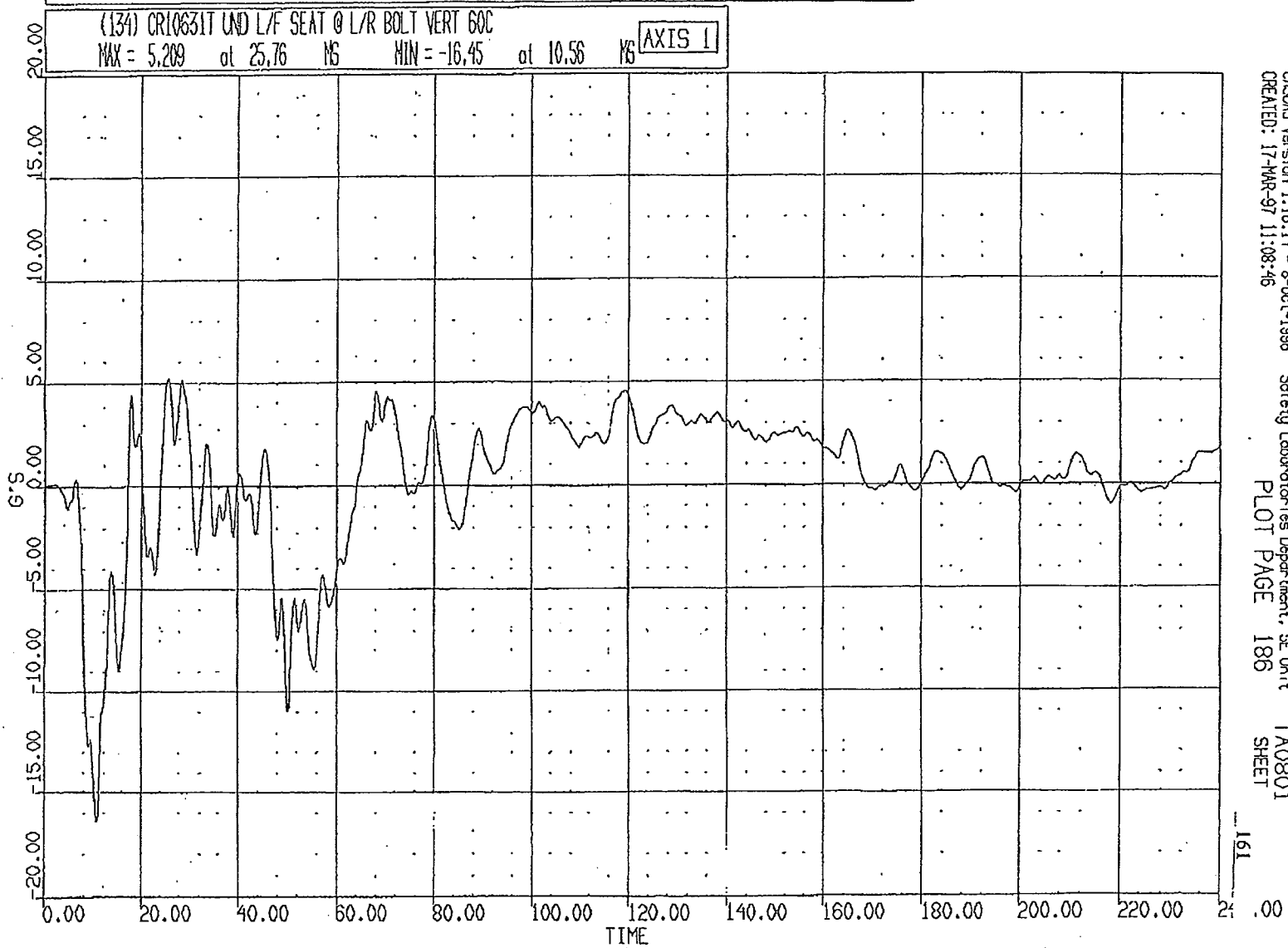
TA0801
SHEET

160

CRTS 0010631

0710

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:46

Safety Laboratories Department, SE Unit
PLOT PAGE 186

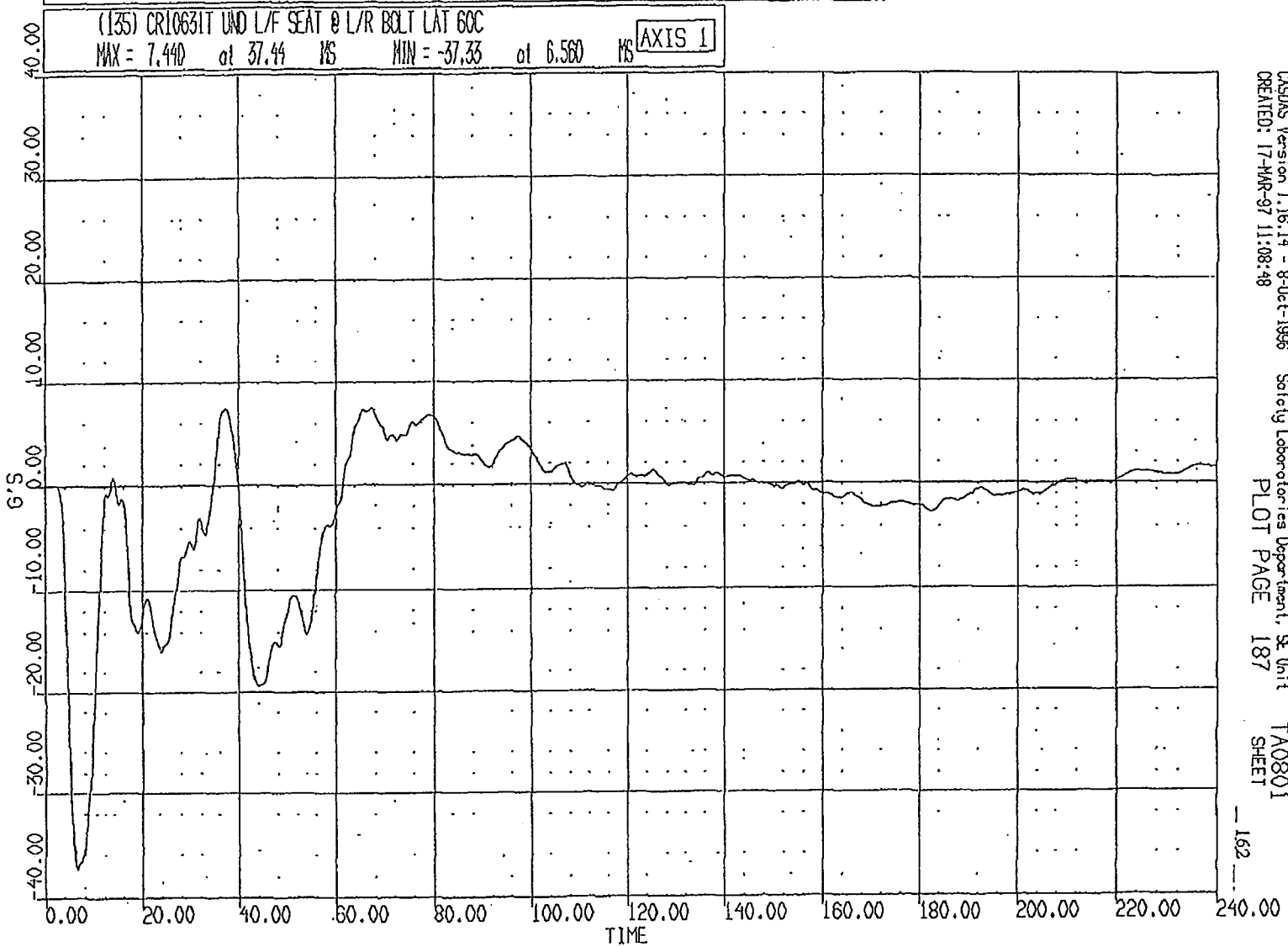
TA0801
SHEET

161

CRIS 0010631

0711

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:48

Safety Laboratories Department, SE Unit
PLOT PAGE 187

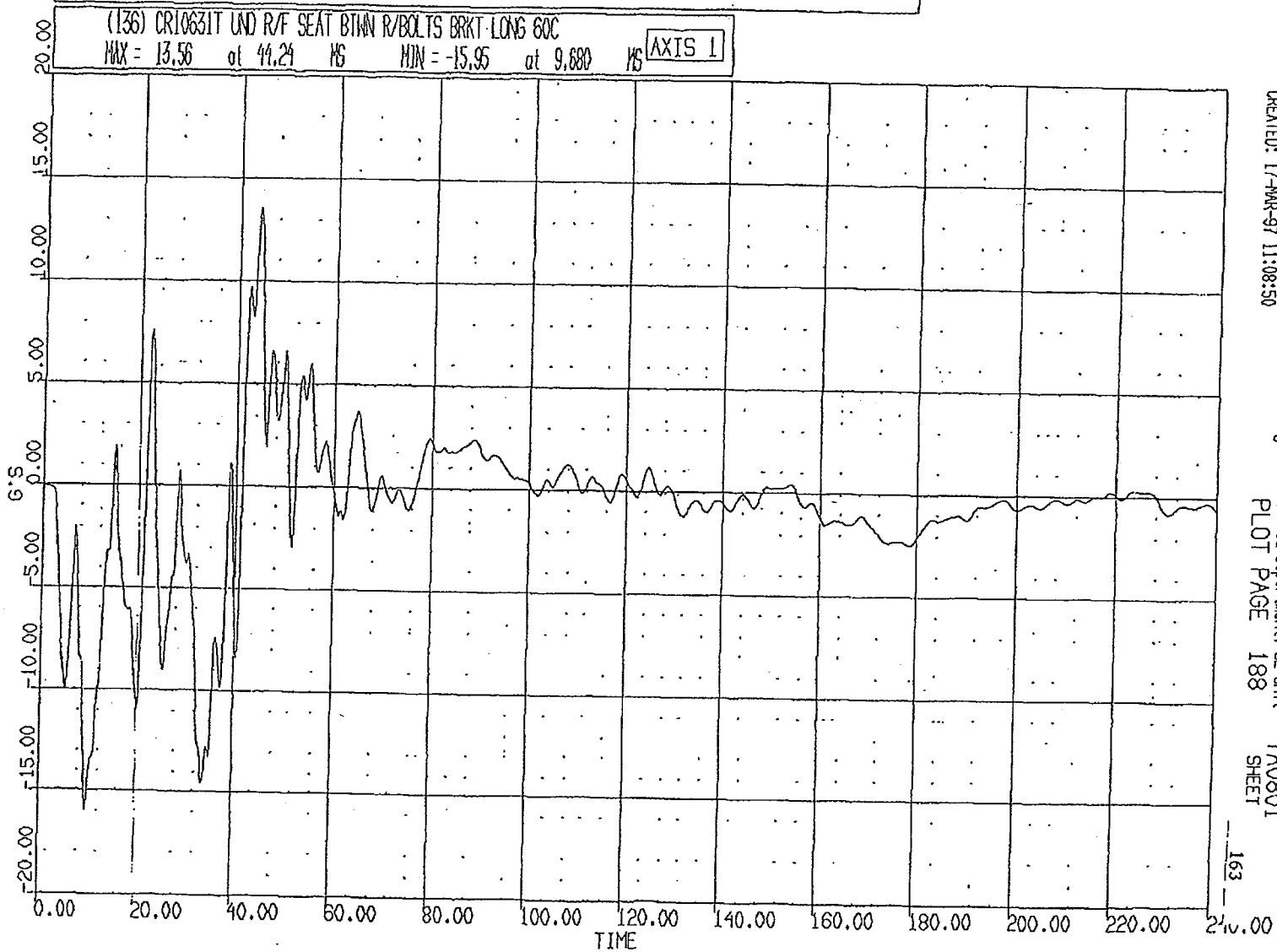
TA0801
SHEET

162

CRIS 0010631

0712

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



CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:08:50
PLOT PAGE 188 TA0801
SHEET

163

CRTS 0010631

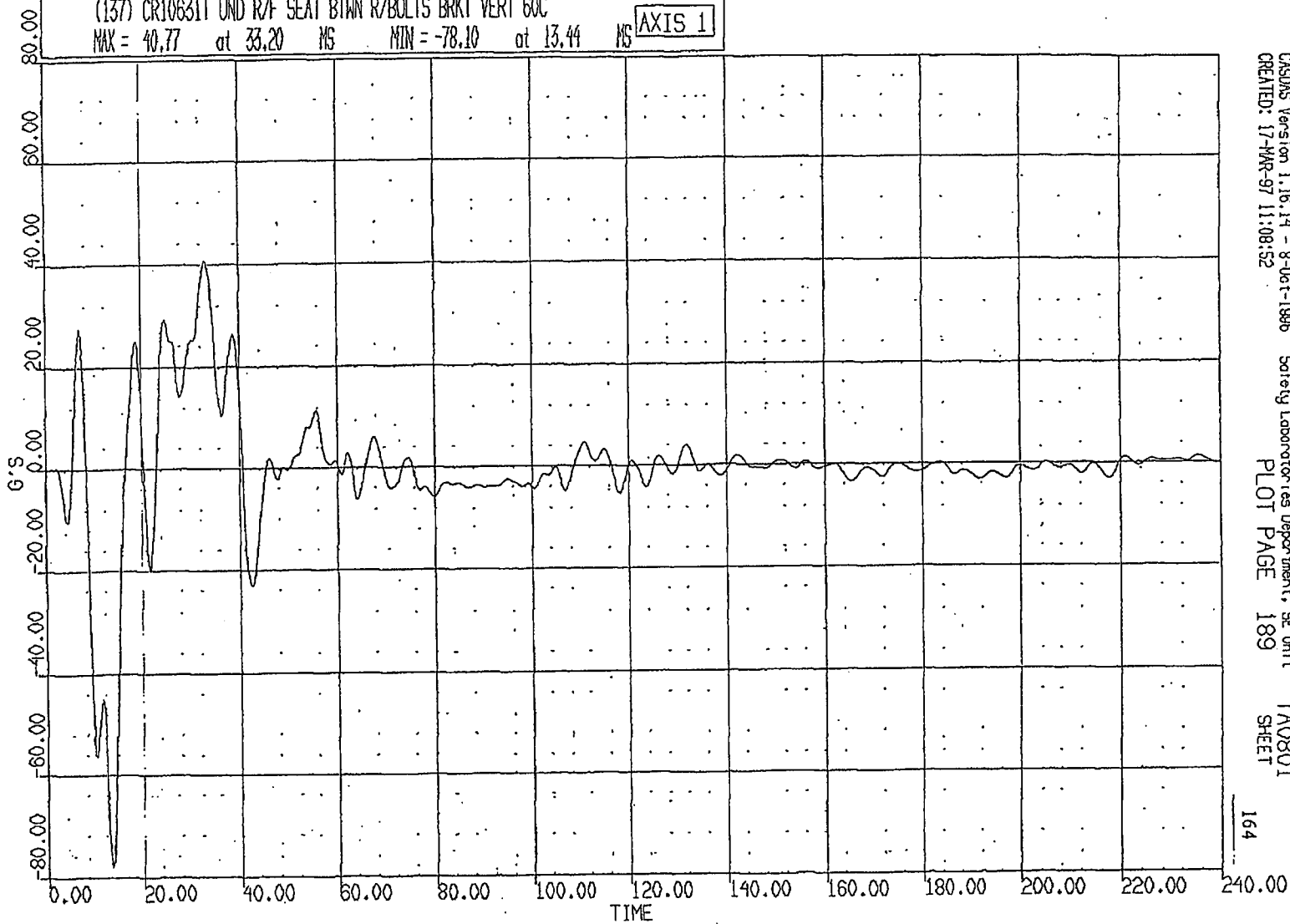
0713

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

(137) CR10631T 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



CASDMS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:52

Safety Laboratories Department, SE Unit
PLOT PAGE 189

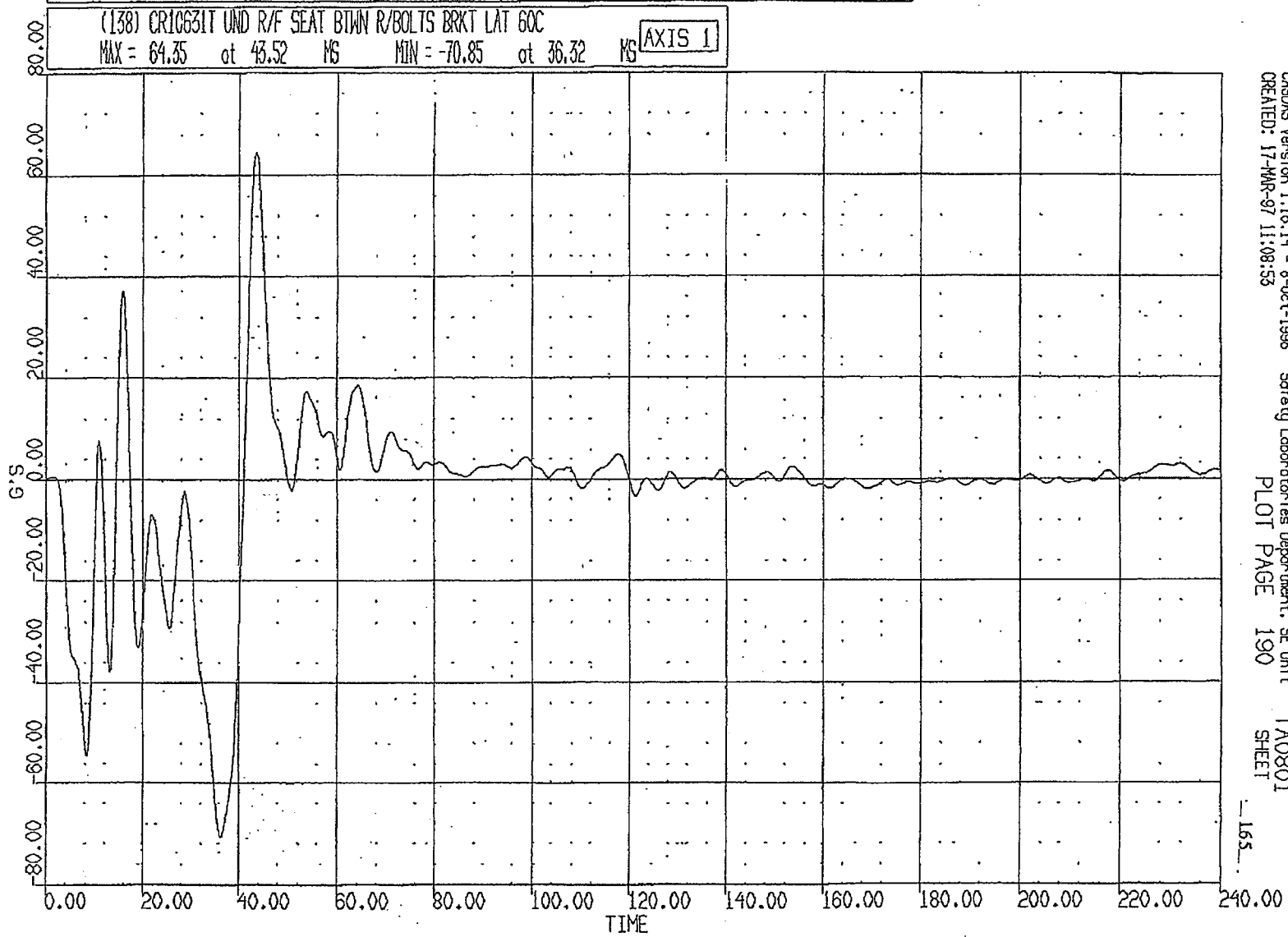
TA0801
SHEET

164

CRTS 0010631

0714

CR R: 10831 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA



CASAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:53

Safety Laboratories Department, SE Unit
PLOT PAGE 190

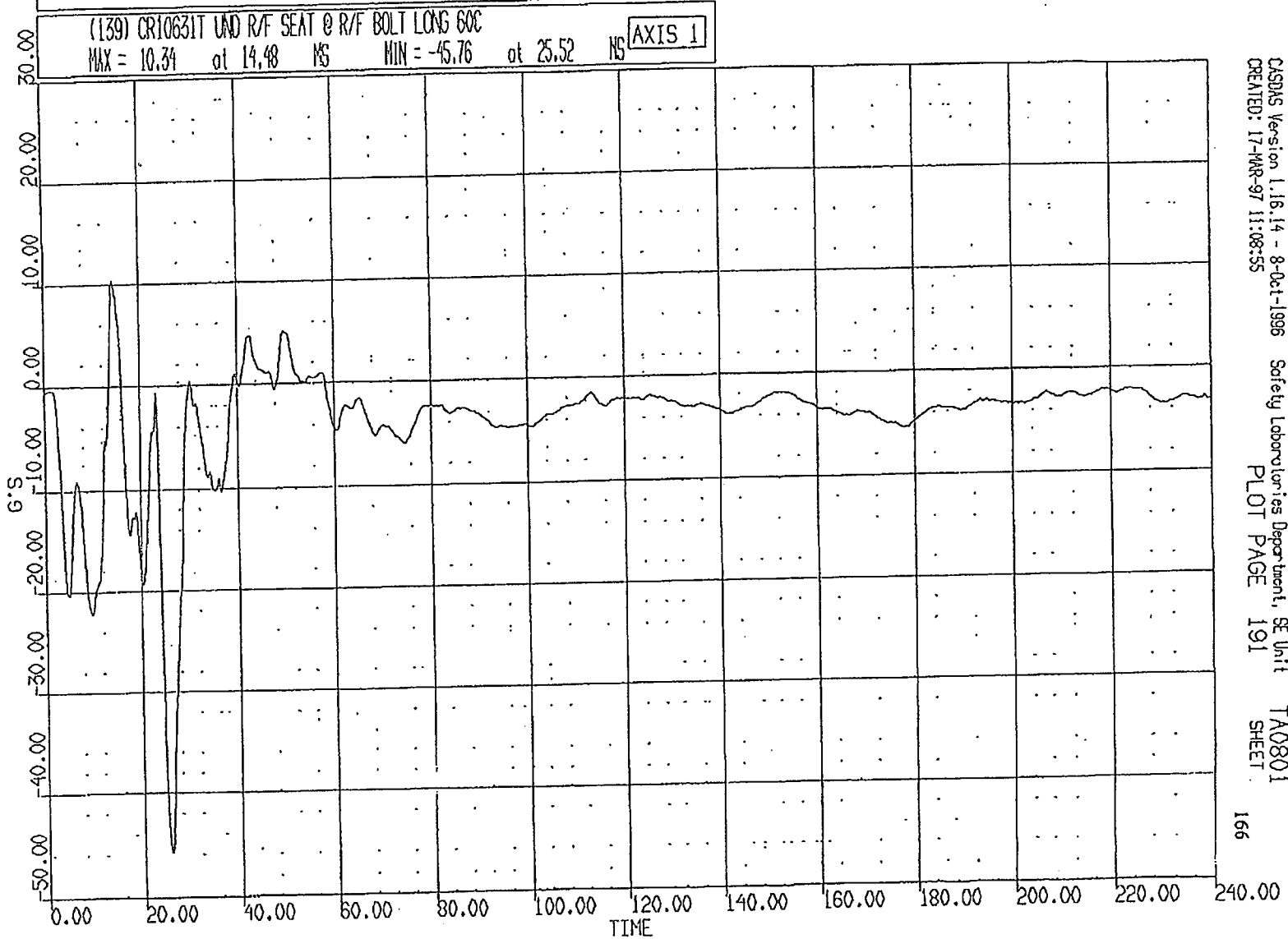
TA0801
SHEET

--165--

CRIS 0010631

0715

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1999 PN-96 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:55

Safety Laboratories Department, SE Unit
PLOT PAGE 191

TA0801
SHEET

166

CRTS 0010631

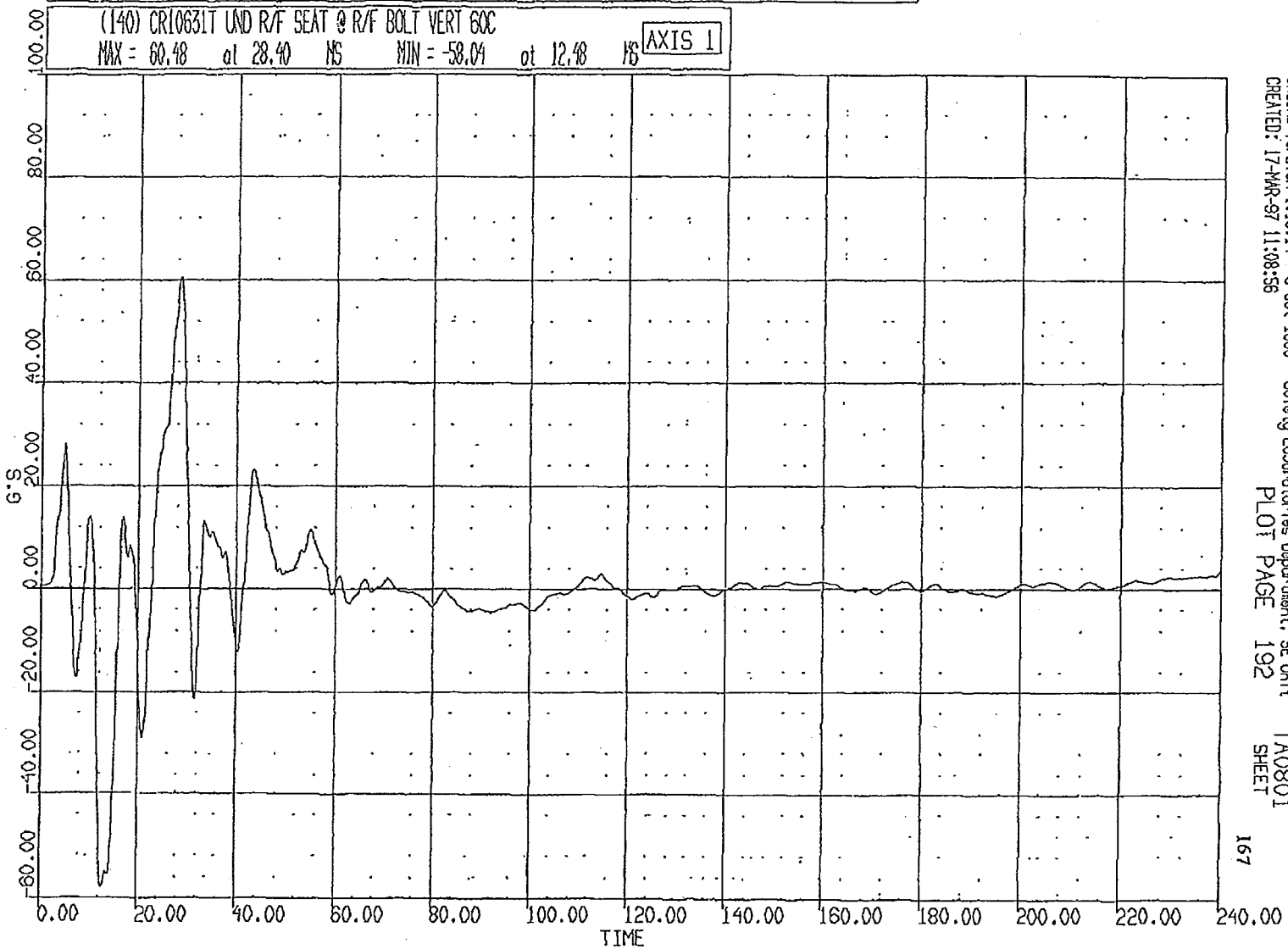
0716

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 NS MIN = -58.04 at 12.48 NS

AXIS 1



CASAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:08:56

Safety Laboratories Department, SE Unit
PLOT PAGE 192

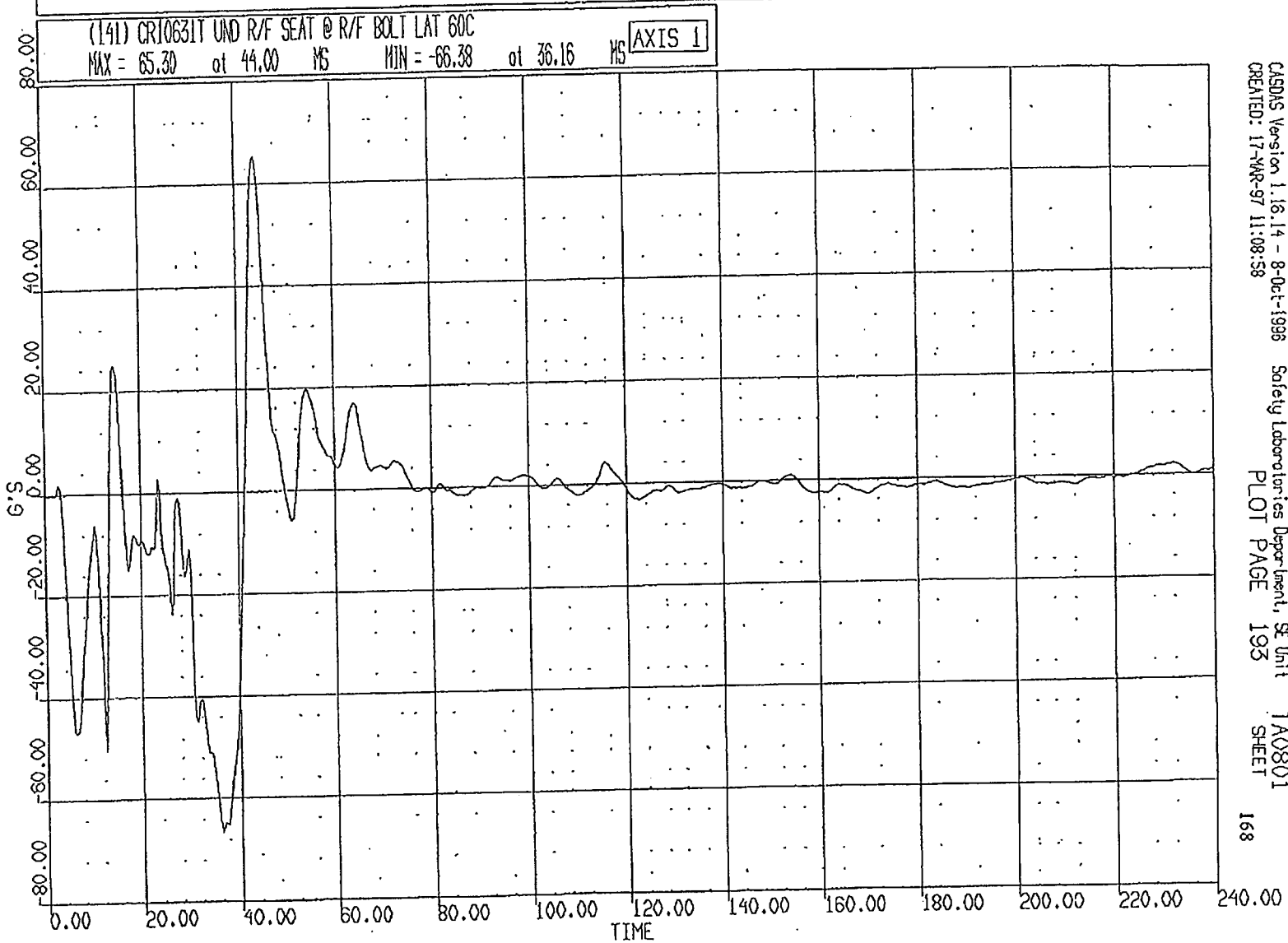
TA0801
SHEET

167

CRIS 0010631

0717

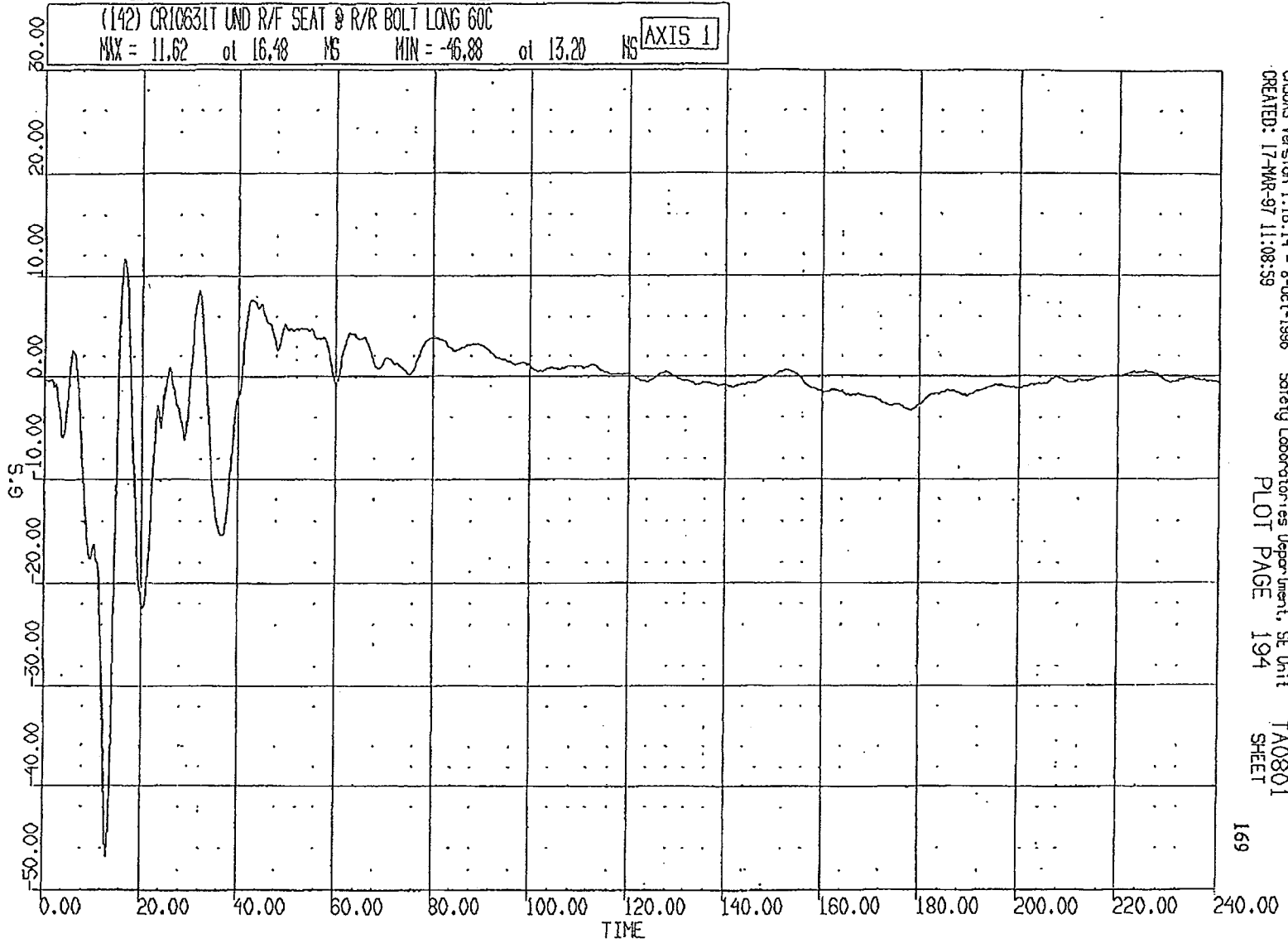
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit TA0801
CREATED: 17-MAR-97 11:08:58 PLOT PAGE 195 SHEET 168

CRIS 0010631

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



CASAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:08:59

Safety Laboratories Department, SE Unit

PLOT PAGE 194

TA0801
SHEET

169

CRIS 0010631

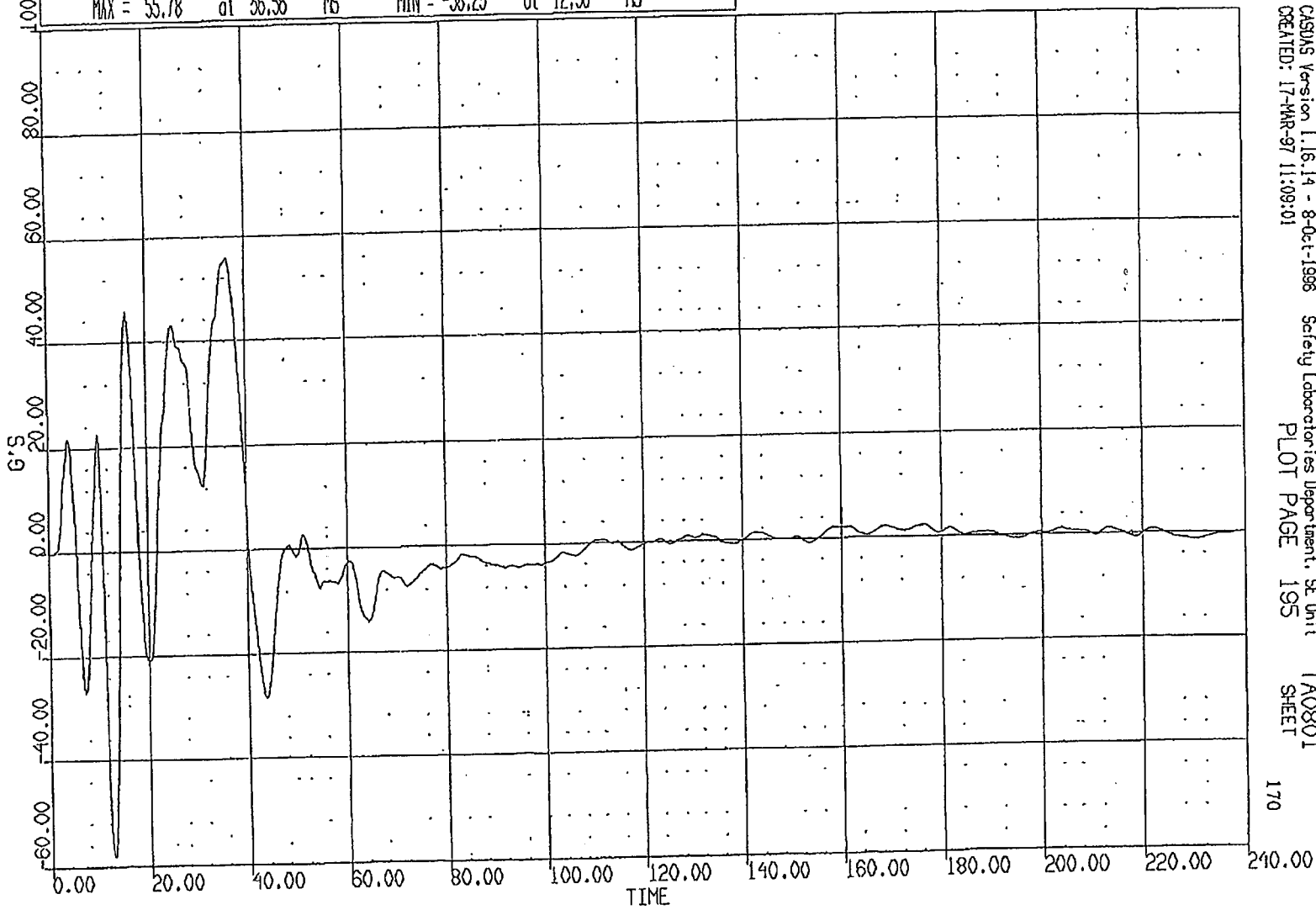
0719

CR R: 10831 TO: TAO801 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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:09:01

Safety Laboratories Department, SE Unit
PLOT PAGE 195

TA0801
SHEET

170

CRTS 0010631

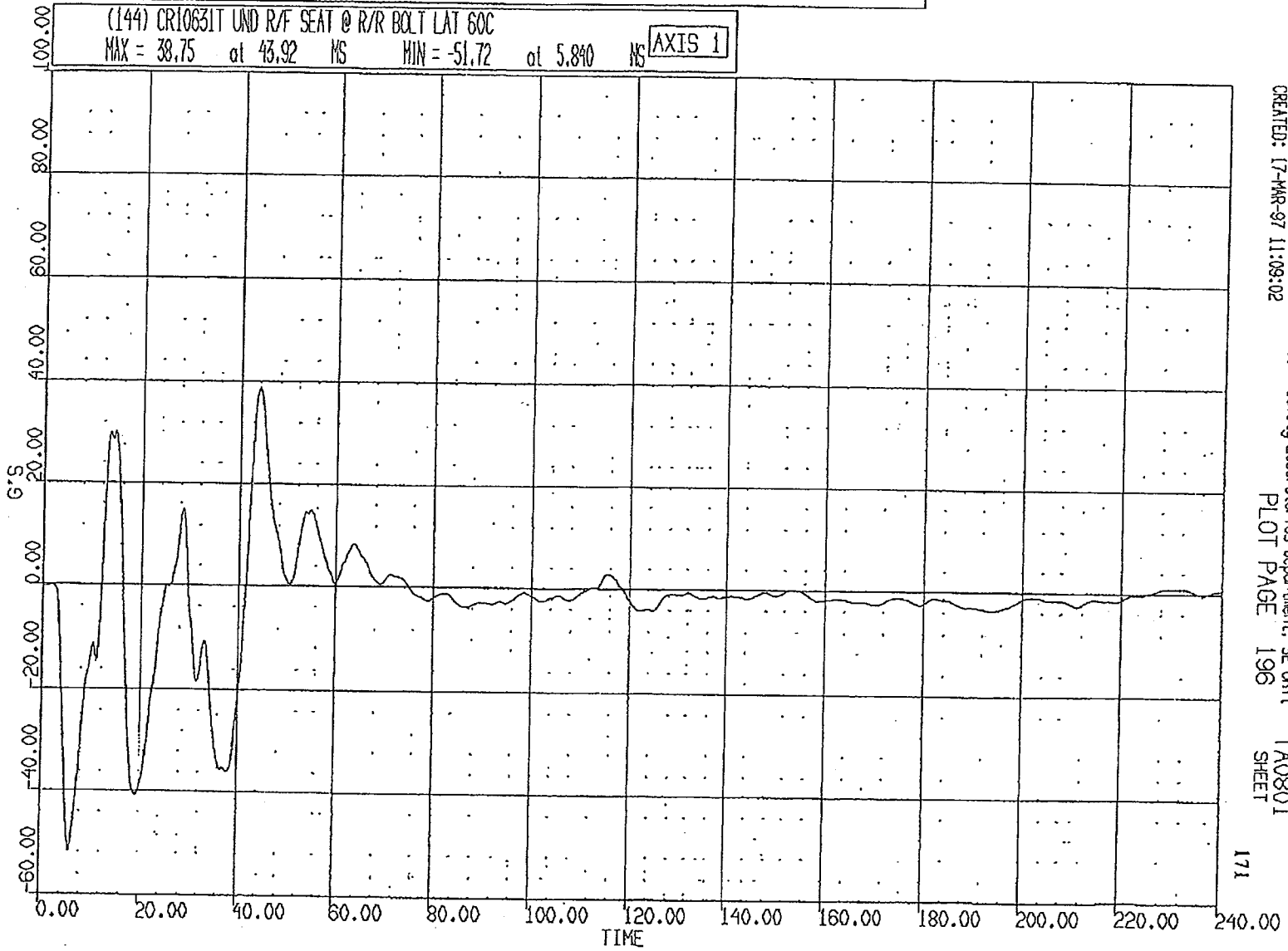
0720

CR R: 10631 TD: 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 5.890 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:09:02

Safety Laboratories Department, SE Unit
PLOT PAGE 196
TA0801
SHEET

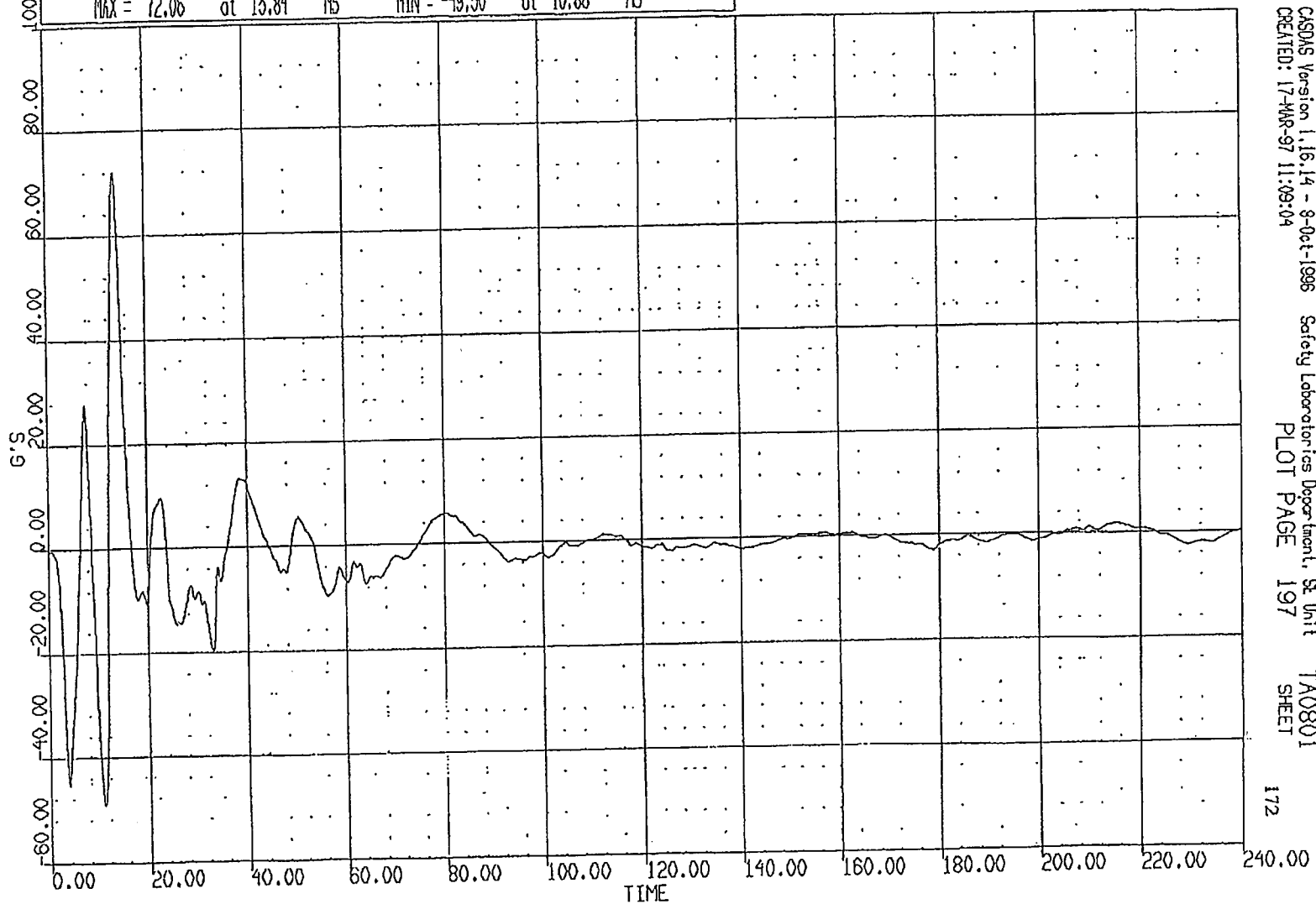
171

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**



CASAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:09:04

Safety Laboratories Department, SE Unit
PLOT PAGE 197

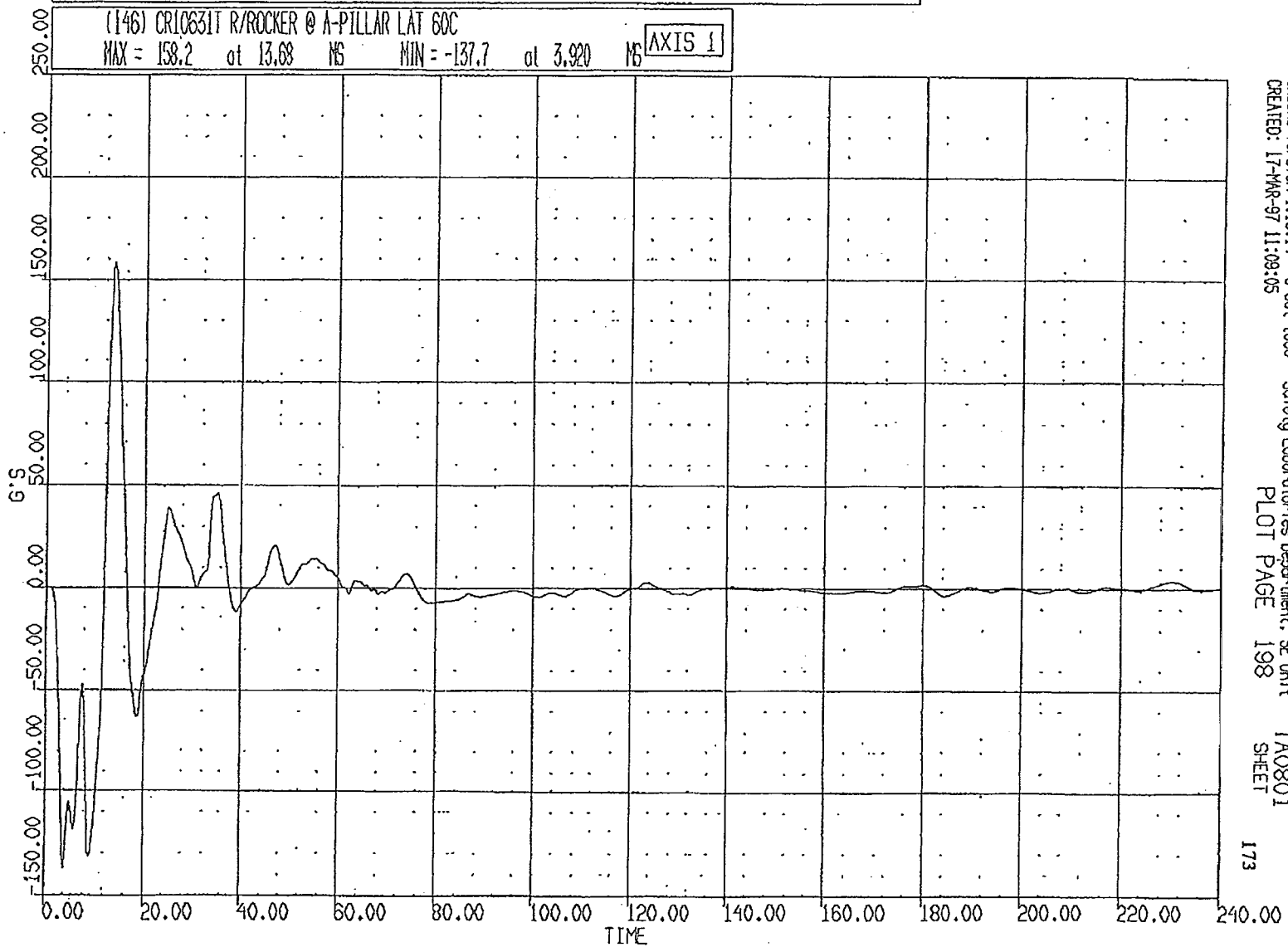
TA0801
SHEET

172

CRIS 0010631

0722

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

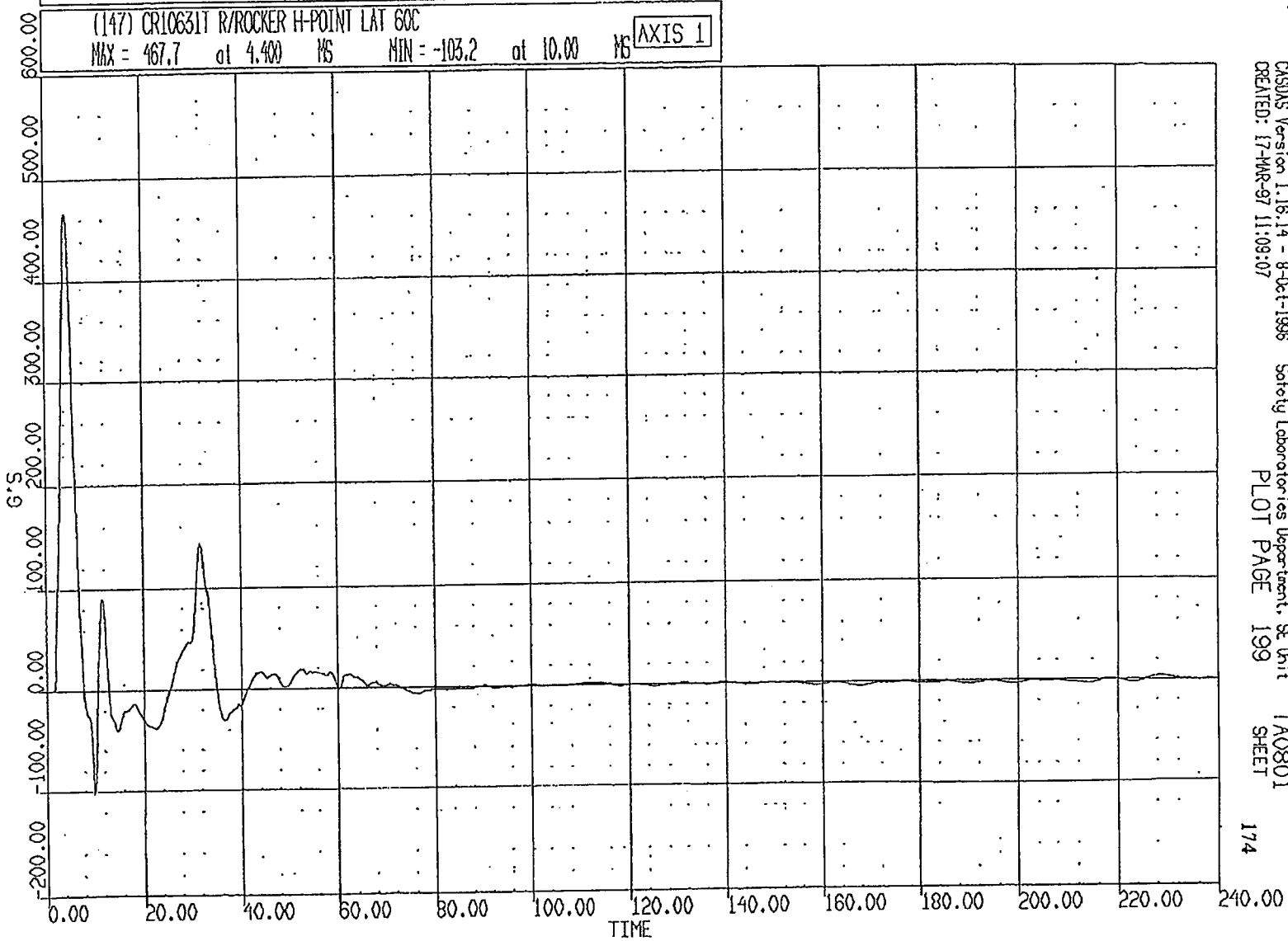


CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:09:05 TA0801
PLOT PAGE 198 SHEET 173

CRTS 0010631

0723

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:09:07

Safety Laboratories Department, SE Unit
PLOT PAGE 139

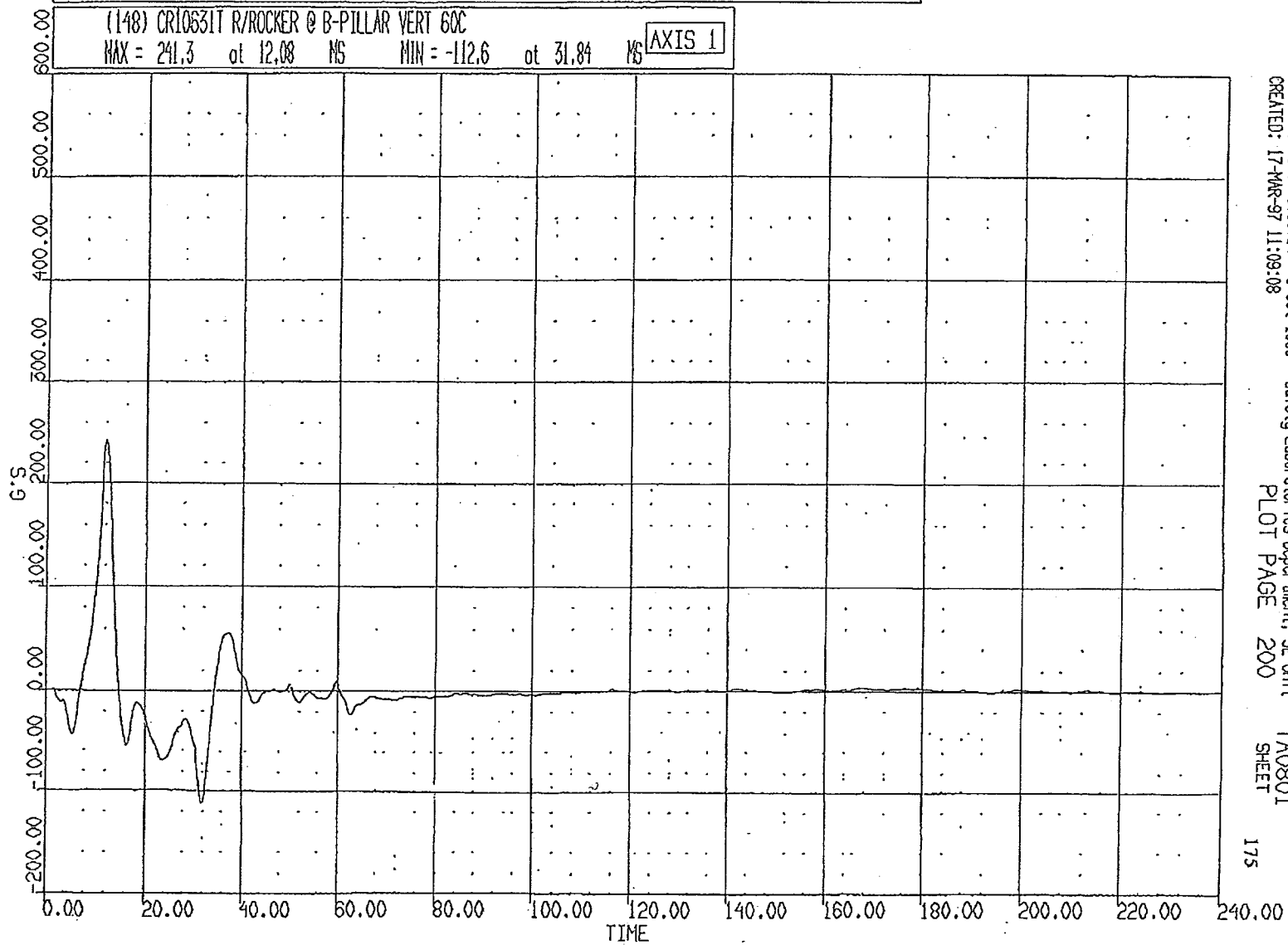
TA0801
SHEET

174

CRTS 0010631

0724

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:09:08

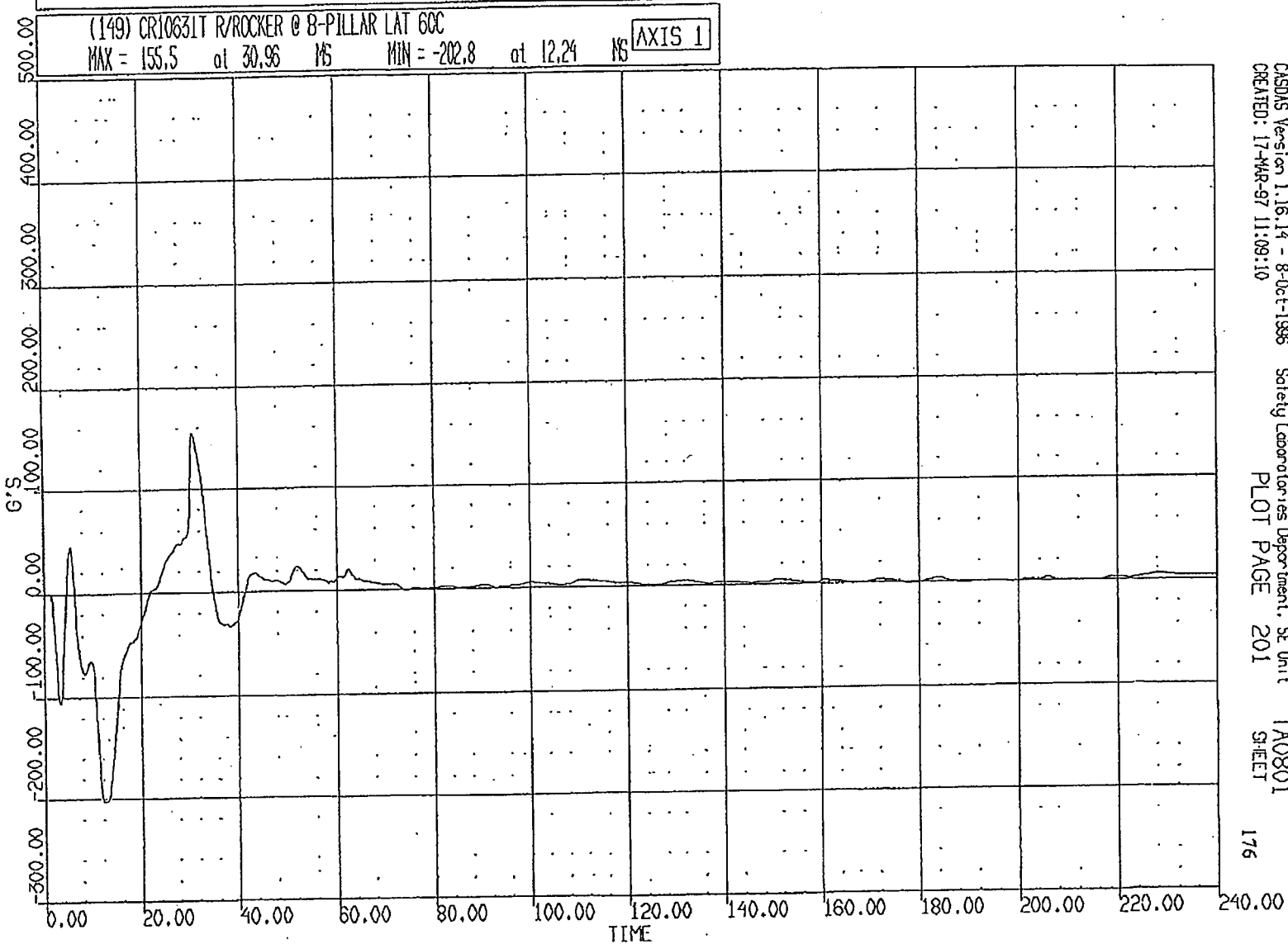
Safety Laboratories Department, SE Unit
PLOT PAGE 200
TA0801
SHEET

175

CRTS 0010631

0725

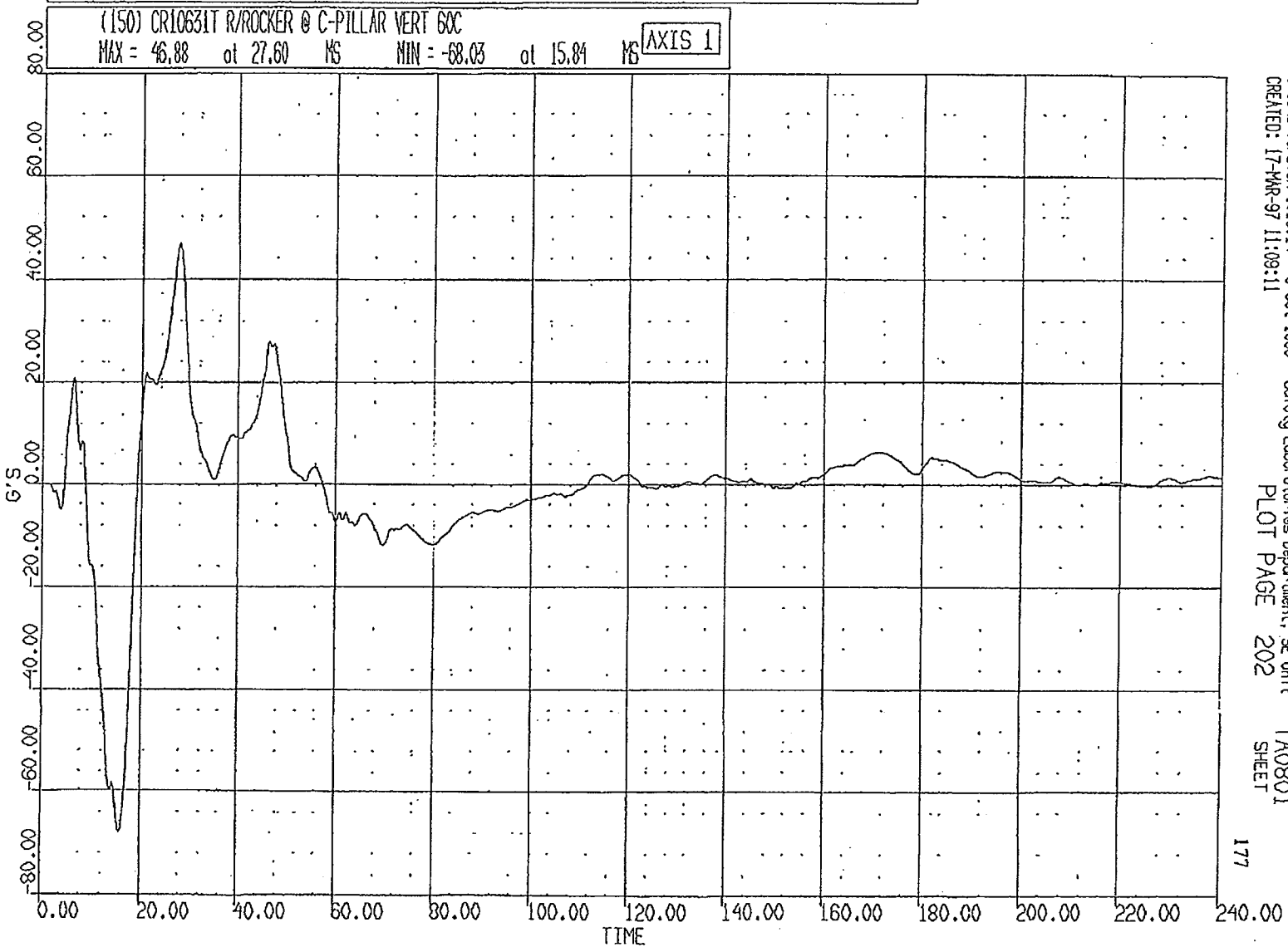
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:09:10 PLOT PAGE 201 TA0801
SHEET 176

CRTS 0010631

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:08:11

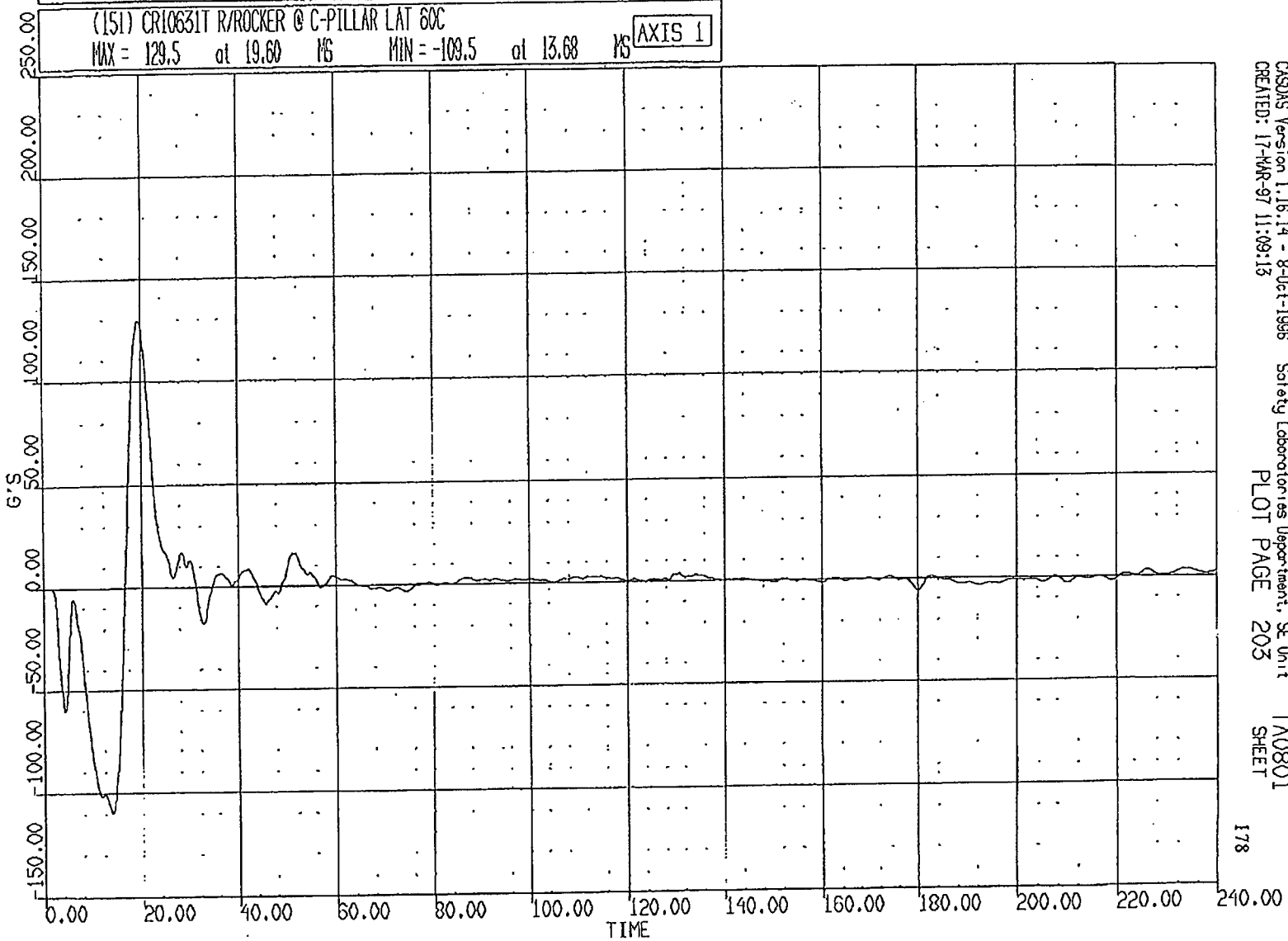
Safety Laboratories Department, SE Unit
PLOT PAGE 202
TA0801
SHEET

177

CRTS 0010631

0727

CR R: 10831 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA



CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:09:13 PLOT PAGE 203 TA0801
SHEET 178

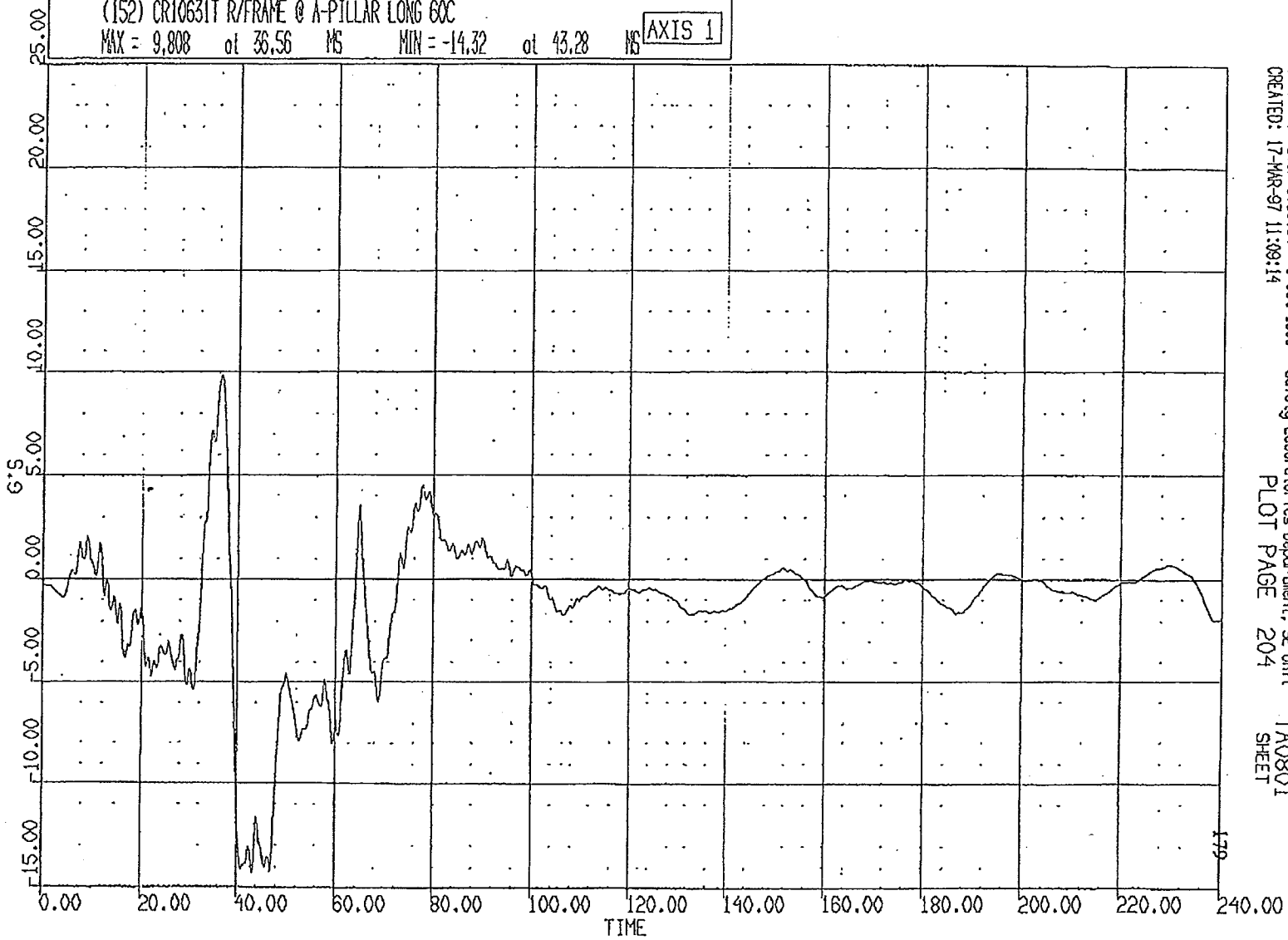
CRTS 0010631

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



CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:09:14
PLOT PAGE 204
TA0801
SHEET

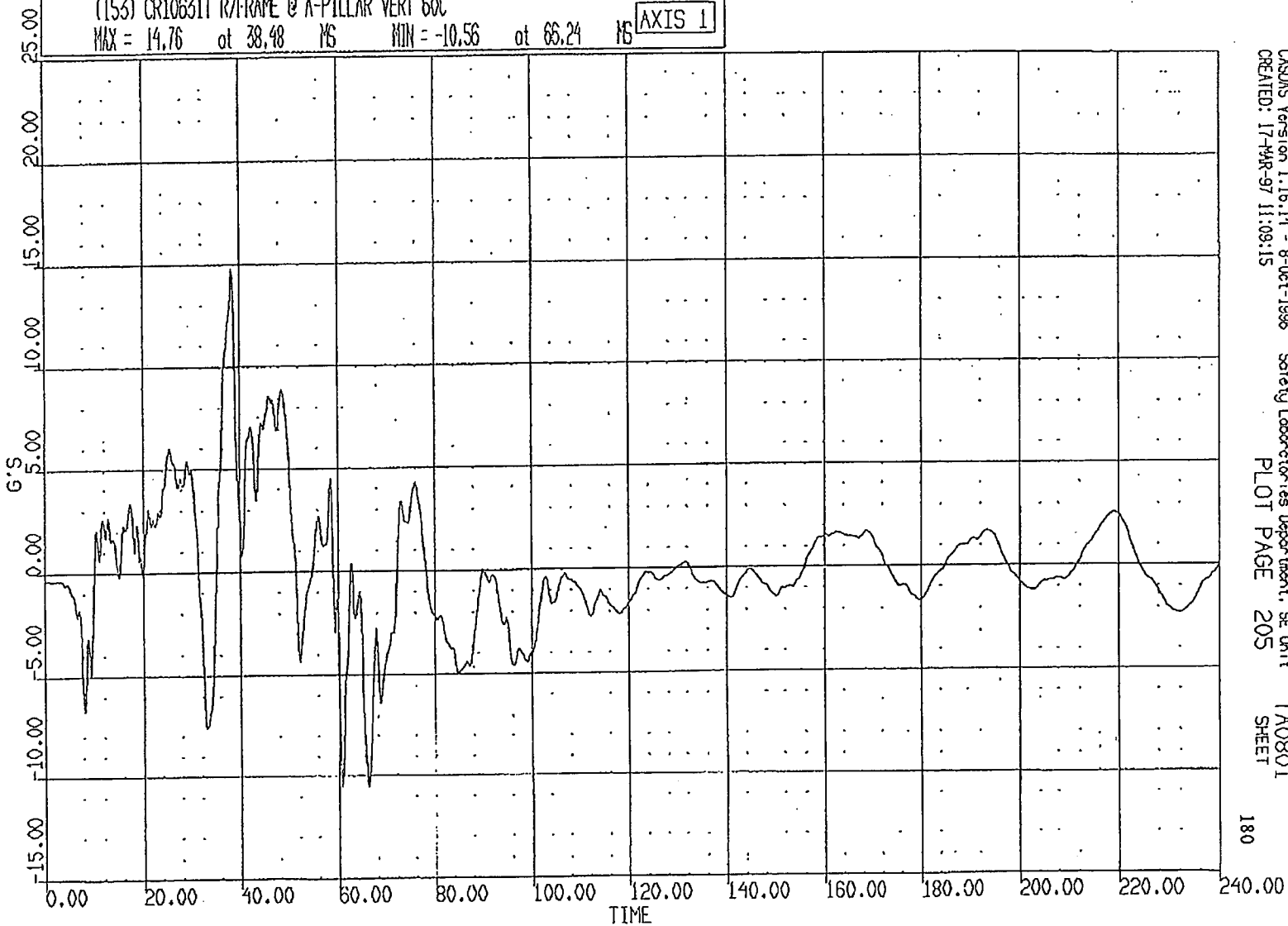
CRTS 0010631

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 65.24 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:09:15

Safety Laboratories Department, SE Unit
PLOT PAGE 205

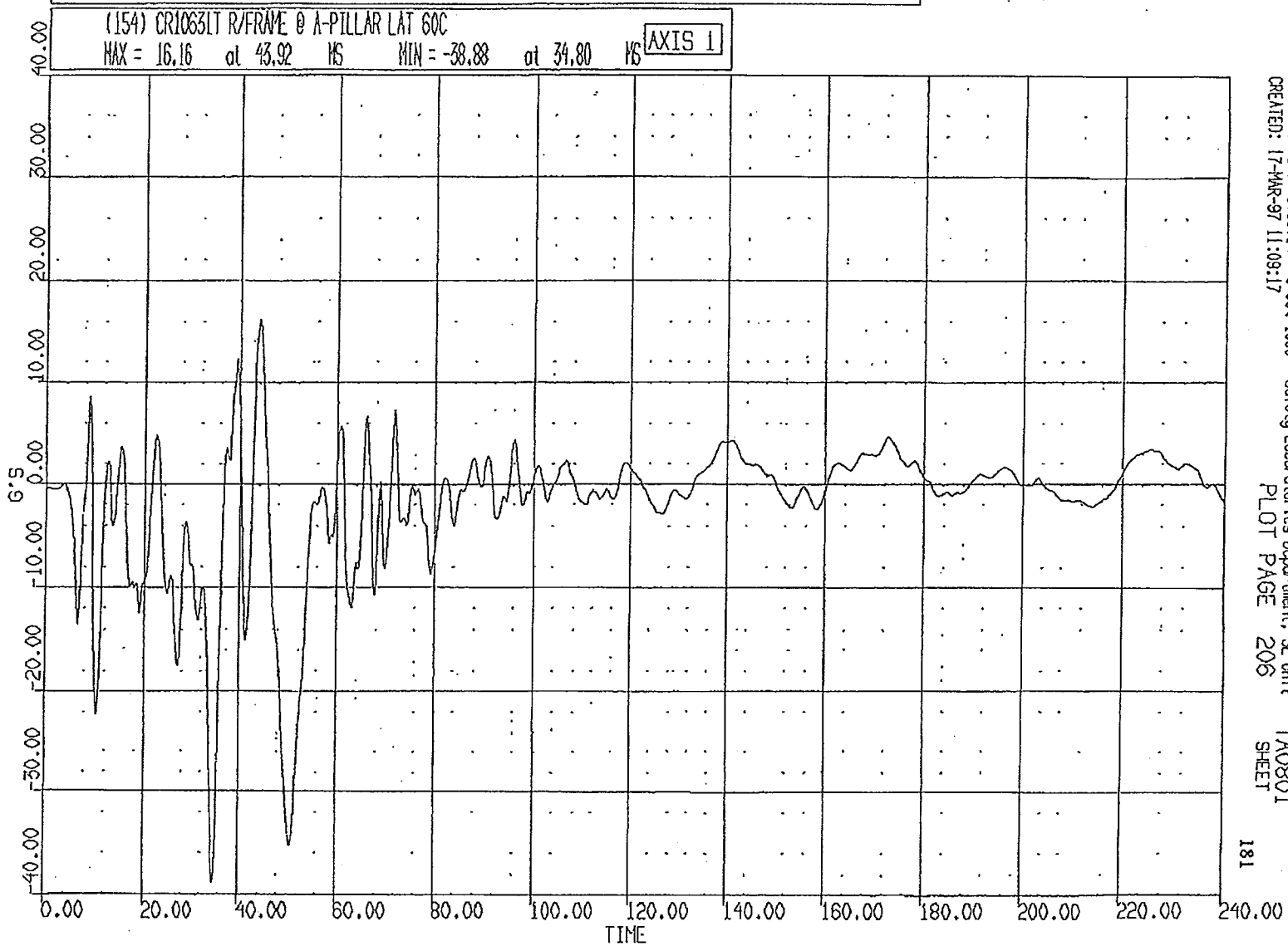
TA0801
SHEET

180

CRIS 0010631

0730

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:09:17

Safety Laboratories Department, SE Unit
PLOT PAGE 206
TA0801
SHEET

181

CRTS 0010631

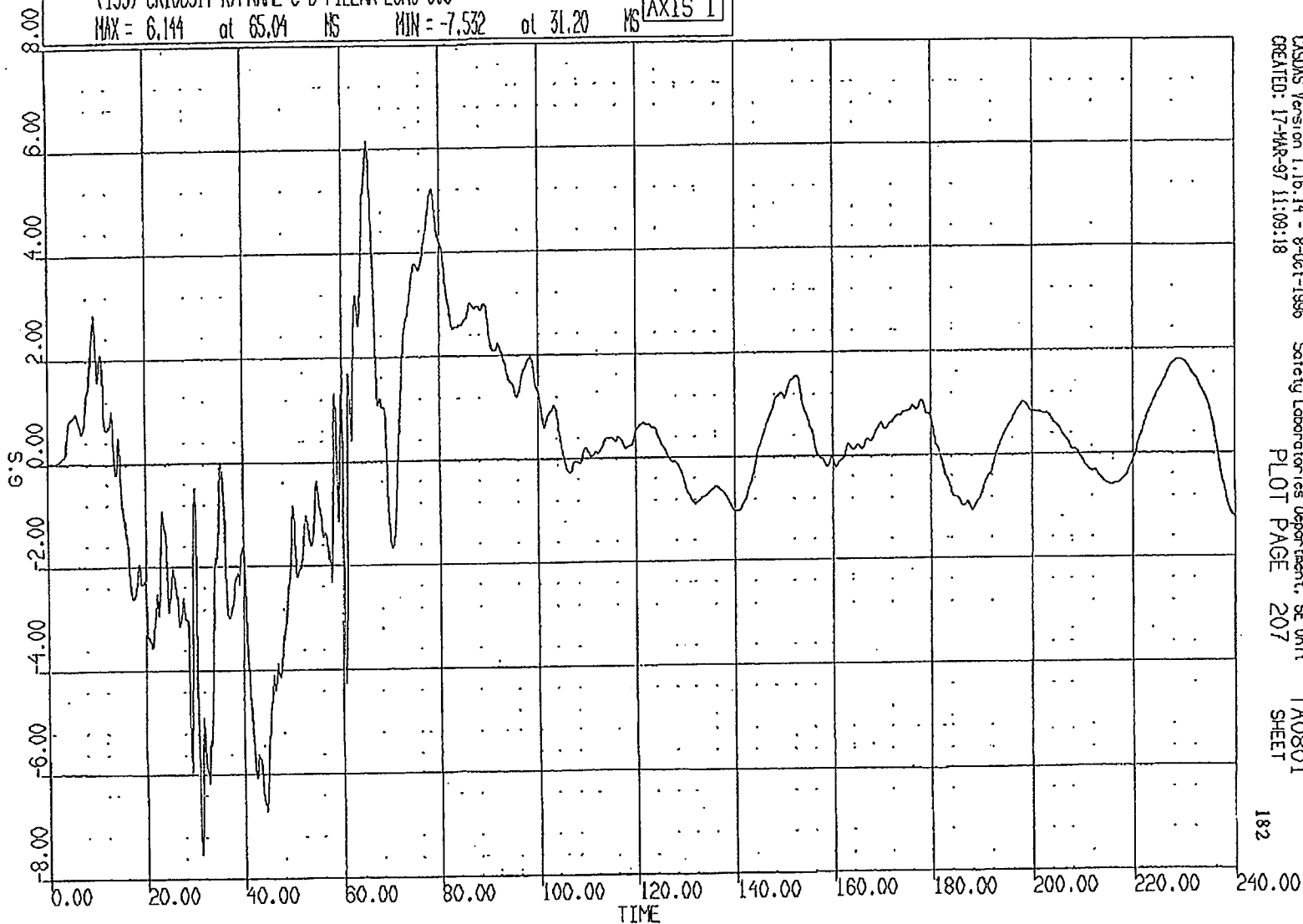
0731

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

(155) CR10631T R/FRAE @ B-PILLAR LONG 60C

MAX = 6.144 at 65.04 MS MIN = -7.532 at 31.20 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit TA0801
CREATED: 17-MAR-97 11:09:18 PLOT PAGE 207 SHEET 182

CRTS 0010631

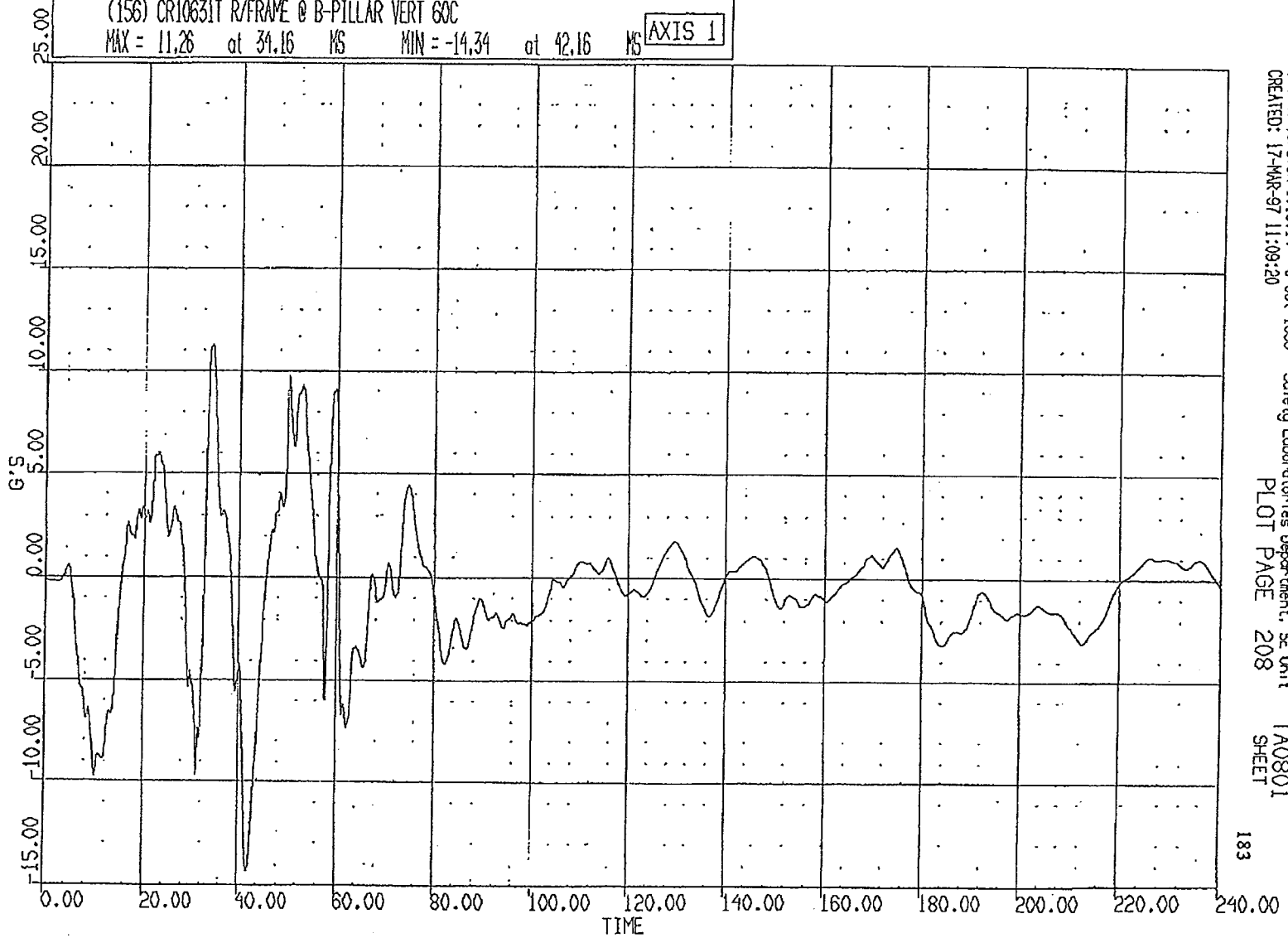
0732

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

(156) CR10631T R/FRAME @ B-PILLAR VERT 60C

MAX = 11.26 at 34.16 MS MIN = -14.34 at 42.16 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:09:20

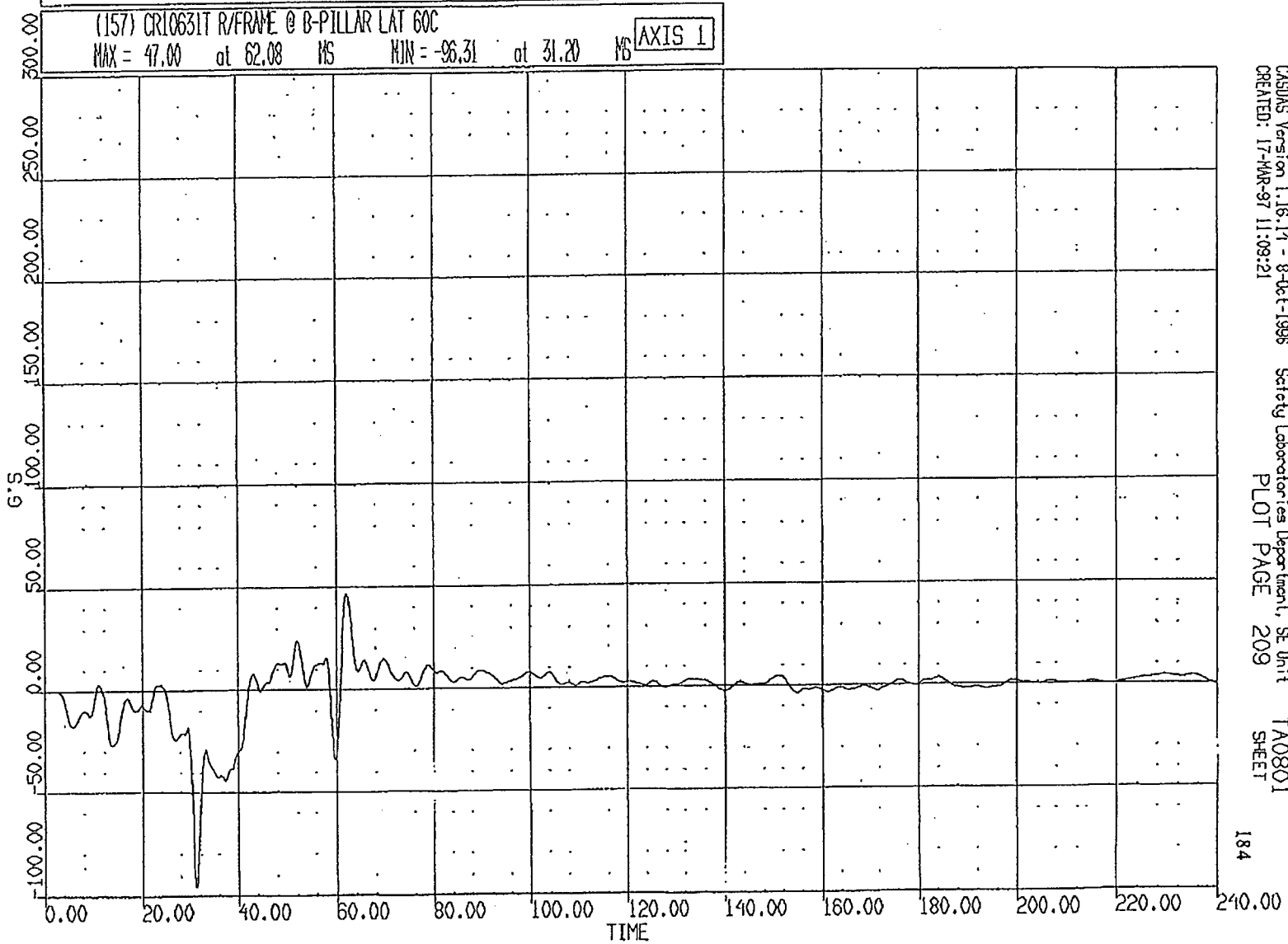
Safety Laboratories Department, SE Unit
PLOT PAGE 208
TA0801
SHEET

183

CRTS 0010631

0733

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



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:09:21

Safety Laboratories Department, SE Unit
PLOT PAGE 209

TA0801
SHEET

184

CRTS 0010631

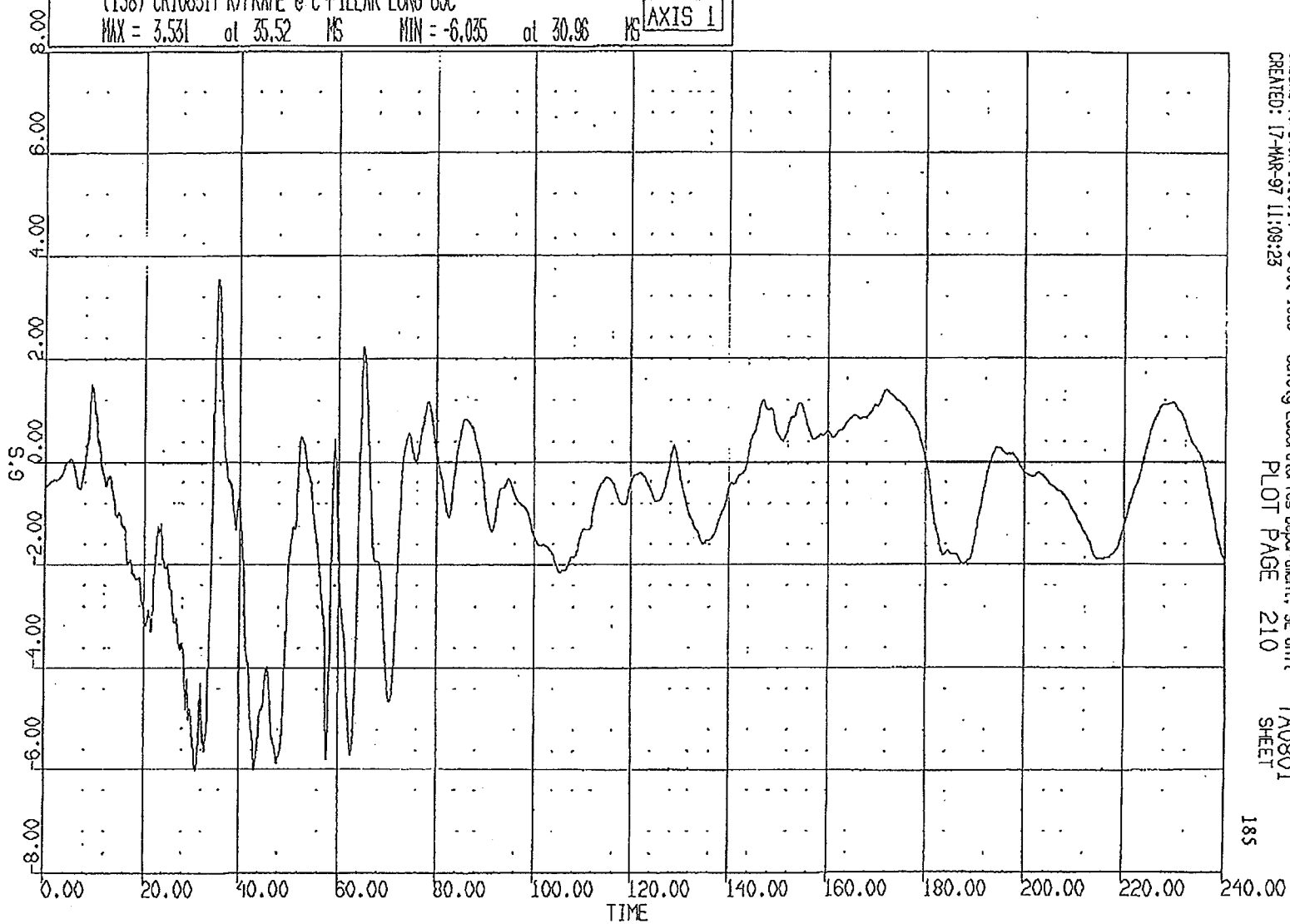
0734

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

(158) CR10631T R/FRAME @ C-PILLAR LONG GOC

MAX = 3.531 at 35.52 MS MIN = -6.035 at 30.96 MS

AXIS 1



CASDAS Version 1.16.14 - 8-04-1996
CREATED: 17-MAR-97 11:09:23

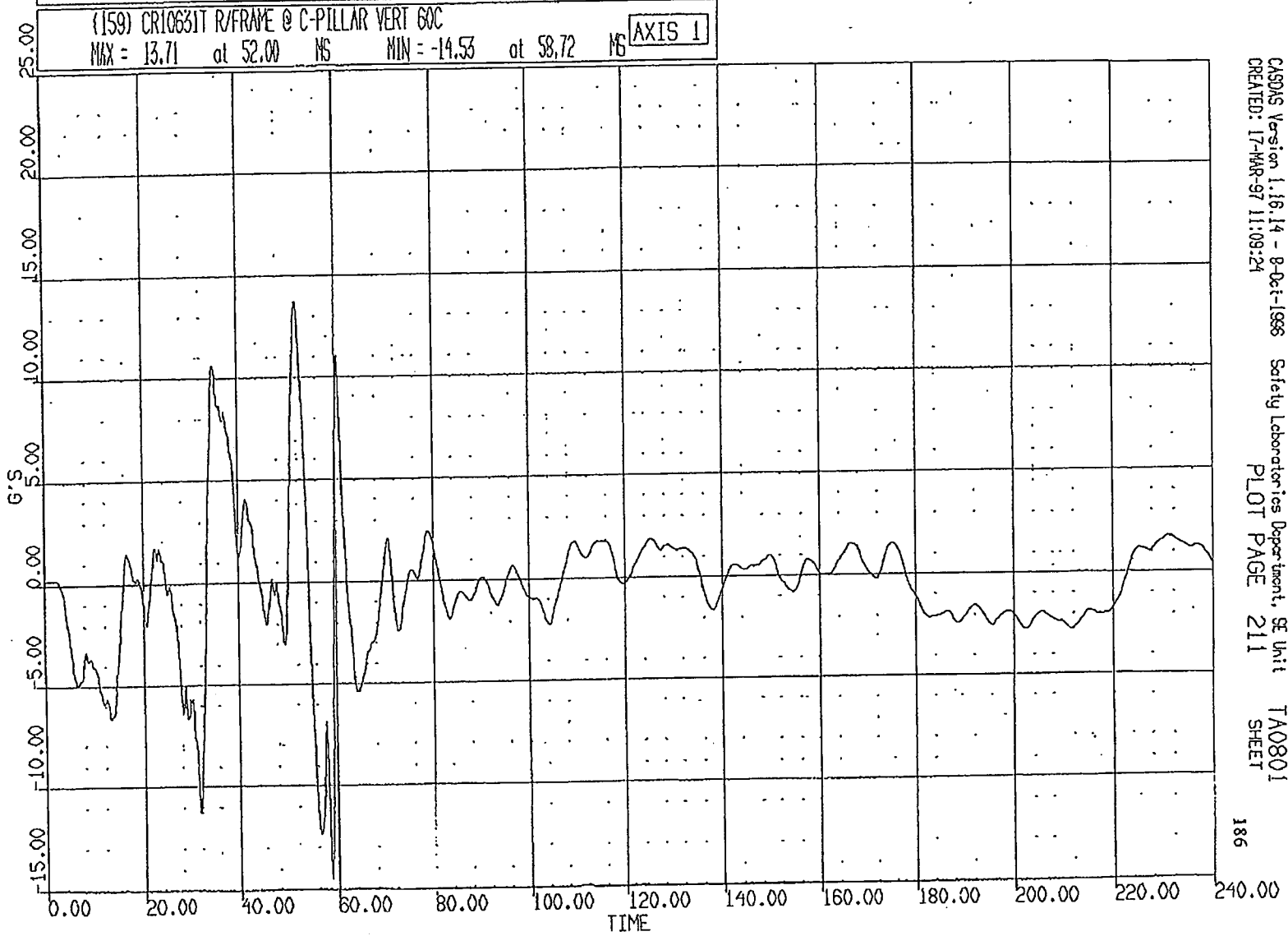
Safety Laboratories Department, SE Unit
PLOT PAGE 210
TA0801
SHEET

185

CRTS 0010631

0735

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



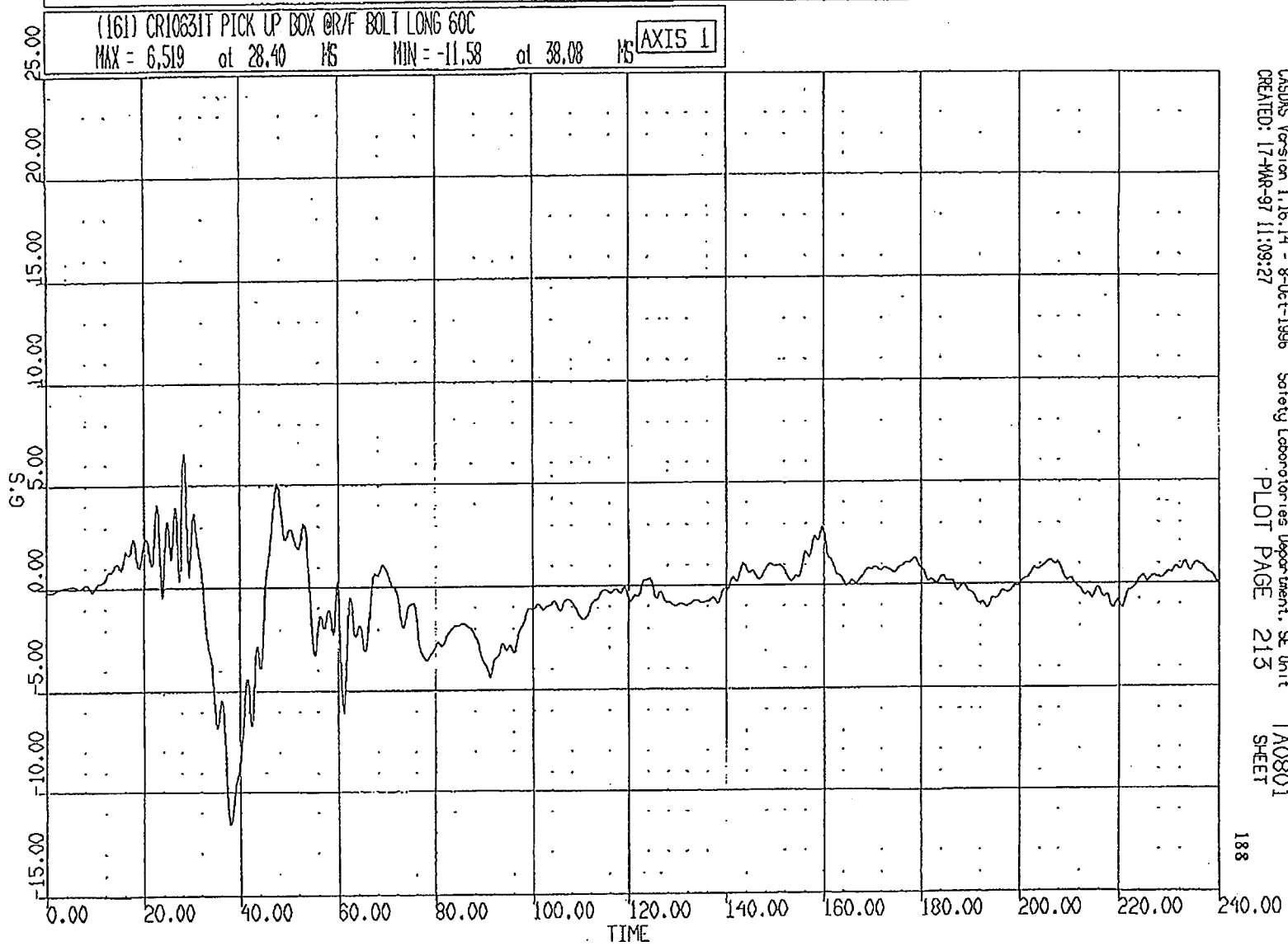
CASDAS Version 1.18.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:09:24
PLOT PAGE 211
TA0801
SHEET

186

CRTS 0010631

0736

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



CASDAS Version 1.16.14 - 8-Oct-1996 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:09:27 PLOT PAGE 213 TA0801
SHEET

188

CRIS 0010631

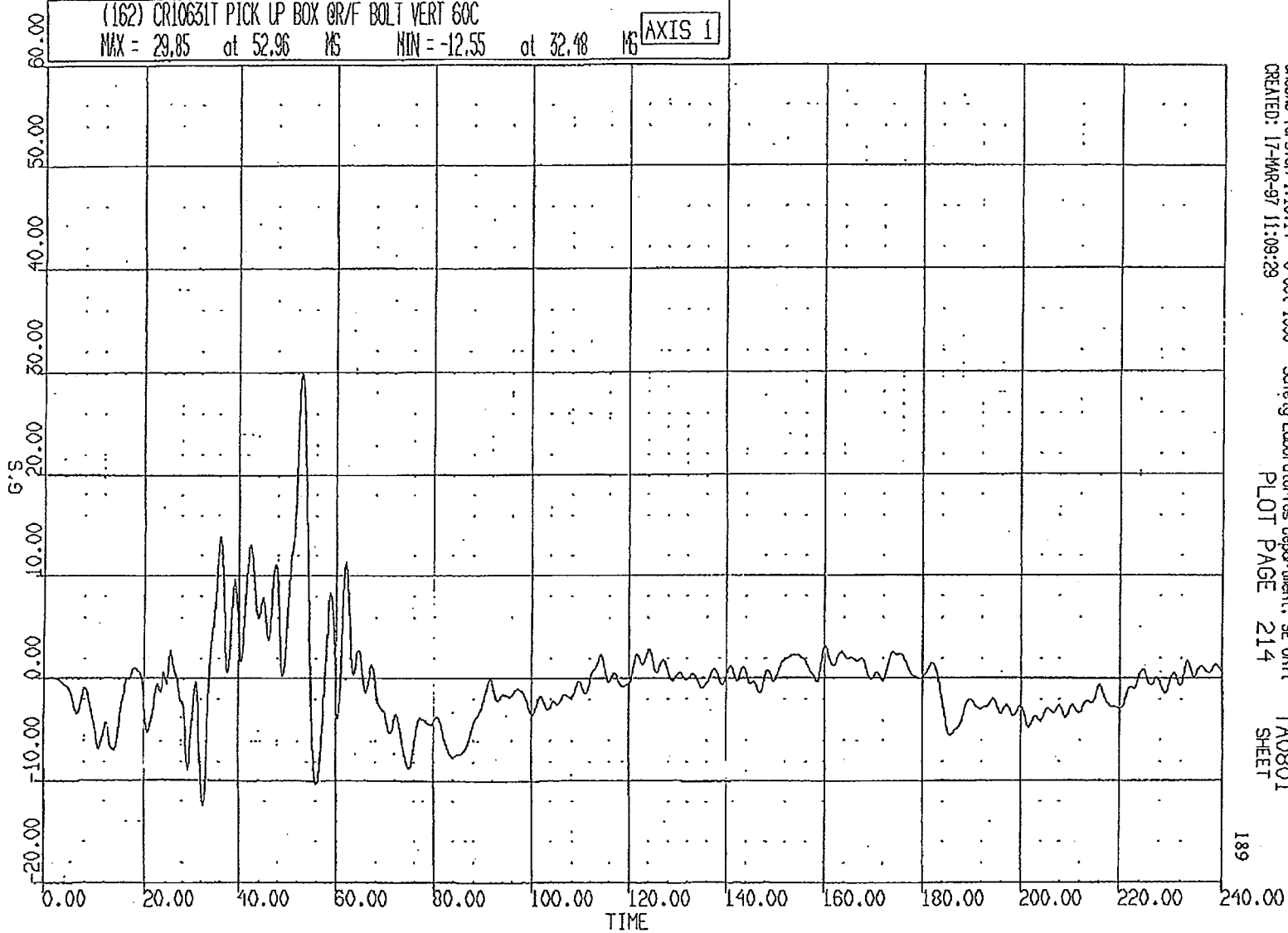
0738

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

(162) CR10631T PICK UP BOX @/F BOLT VERT 60C

MAX = 29.85 at 52.96 MS MIN = -12.55 at 32.48 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:09:28

Safety Laboratories Department, SE Unit
PLOT PAGE 214

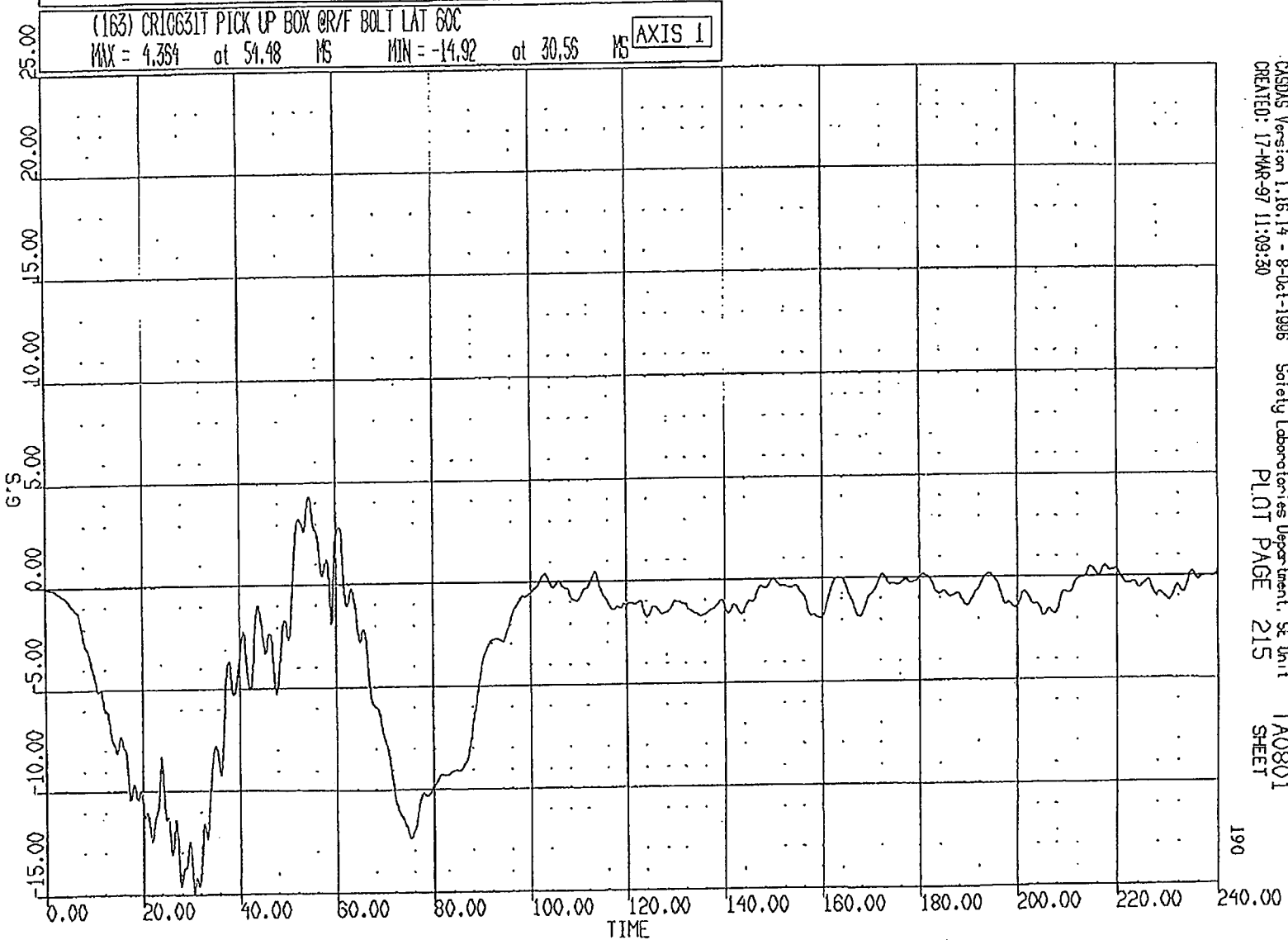
TA0801
SHEET

189

CRIS 0010631

0739

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



CASAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:09:30

Safety Laboratories Department, SE Unit
PLOT PAGE 215

TA0801
SHEET

190

CRTS 0010631

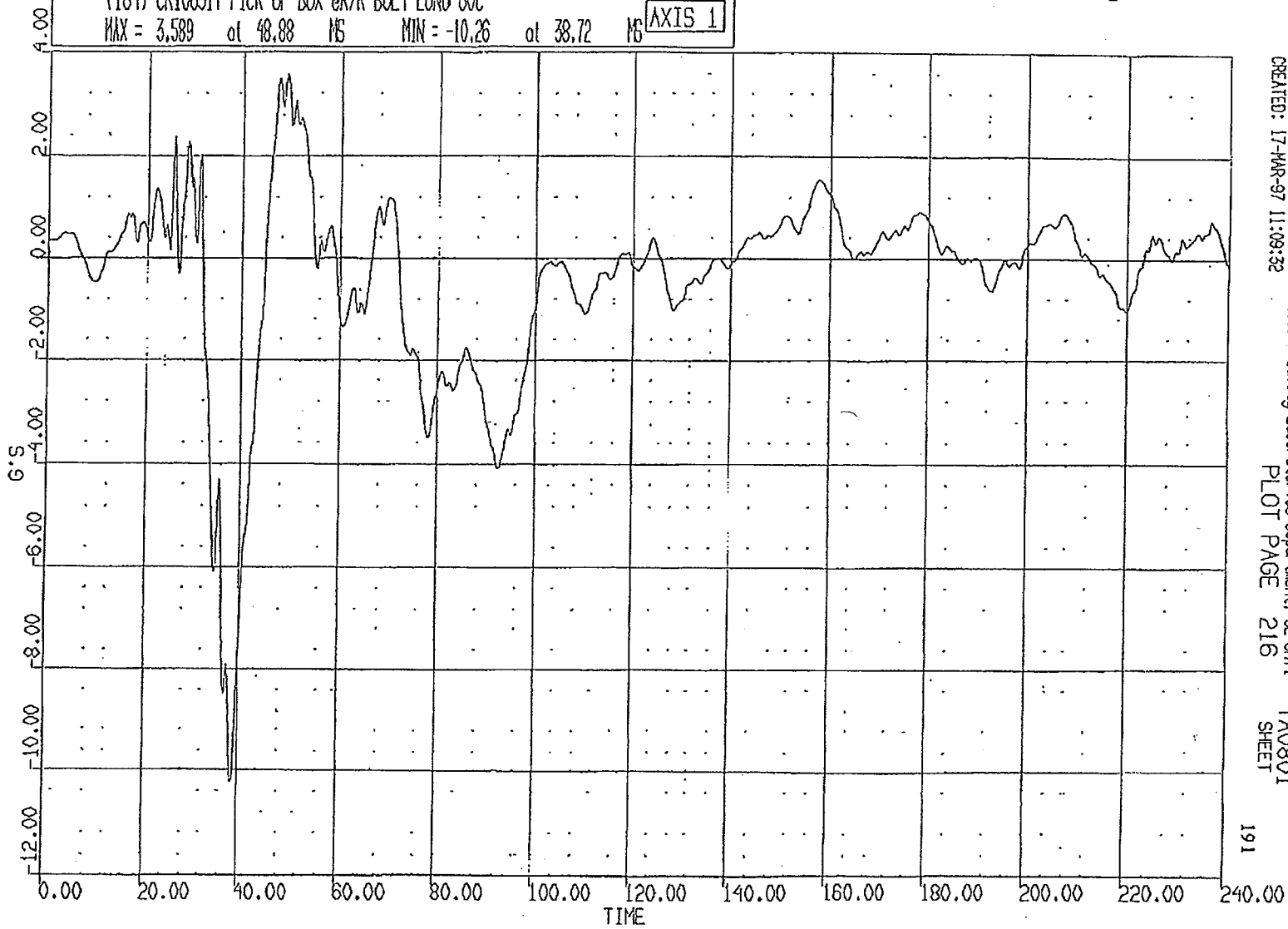
0740

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

(164) CR10631T PICK UP BOX @R/R BOLT LONG 60C

MAX = 3.589 at 48.88 MS MIN = -10.26 at 38.72 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:09:32

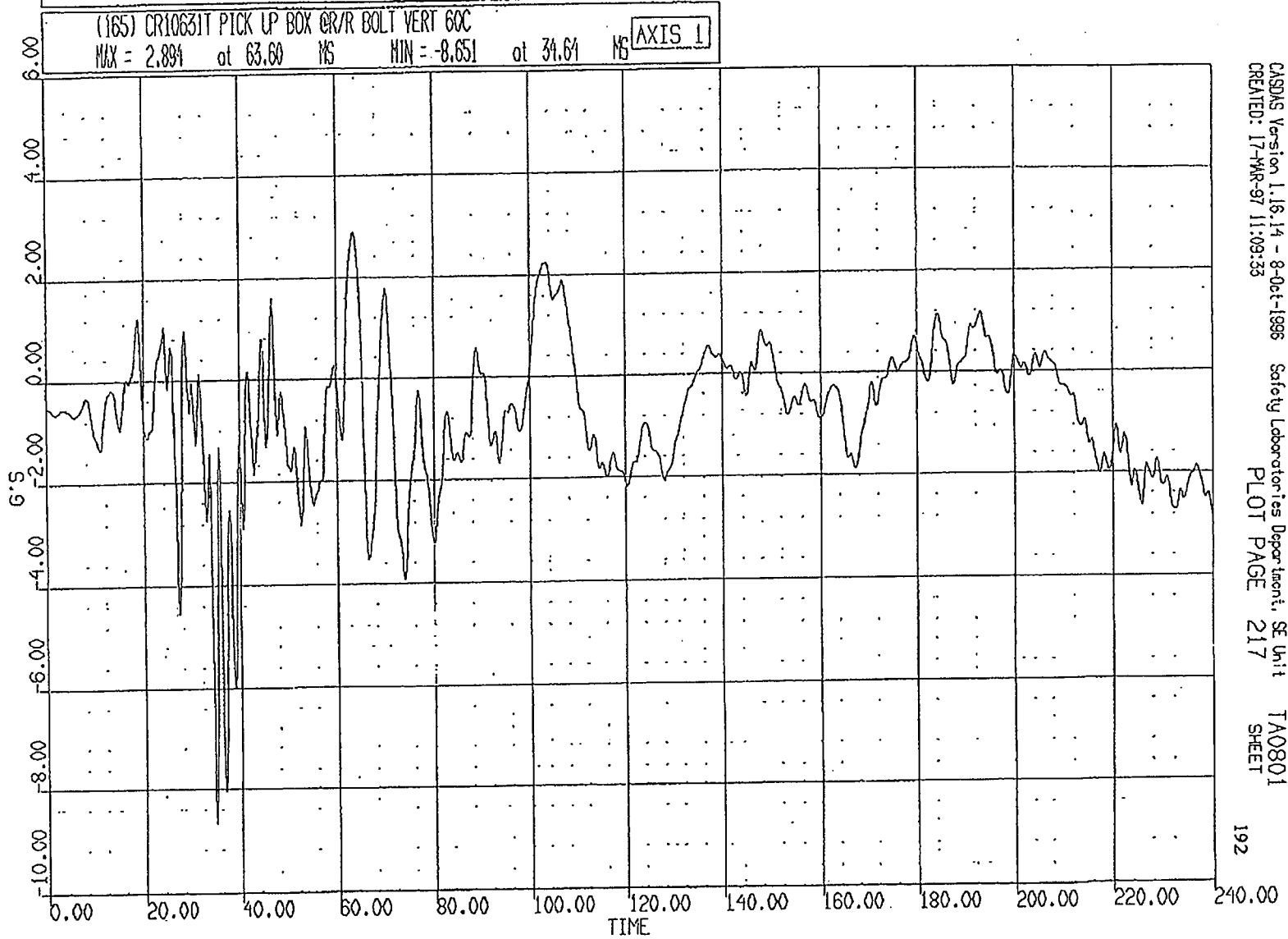
Safety Laboratories Department, SE Unit
PLOT PAGE 216
TA0801
SHEET

191

CRIS 0010631

0741

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:09:33

Safety Laboratories Department, SE Unit
PLOT PAGE 217

TA0801
SHEET

192

CRTS 0010631

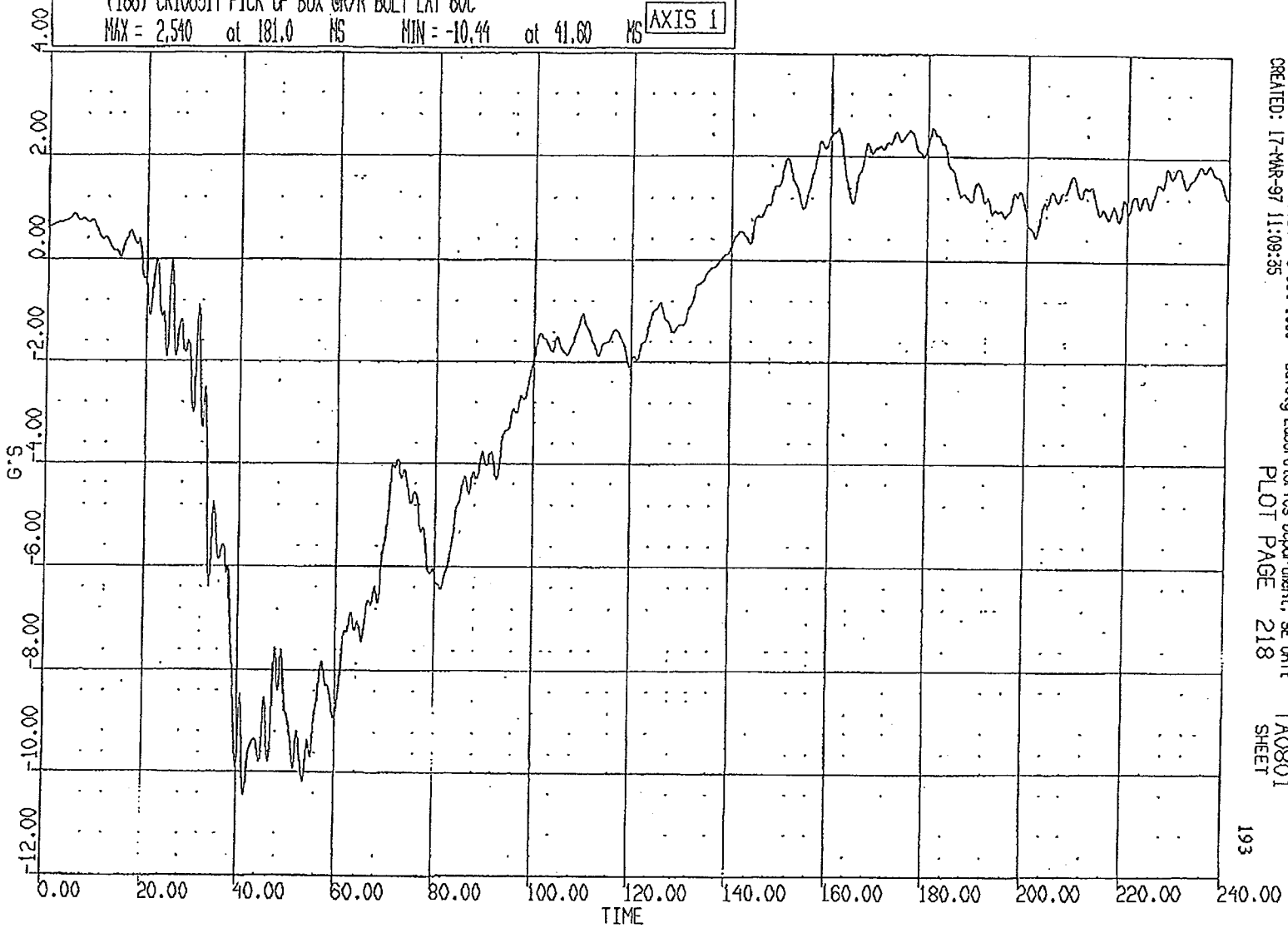
0742

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



CASDAS Version 1.16.14 - 8-Oct-1995
CREATED: 17-MAR-97 11:09:35

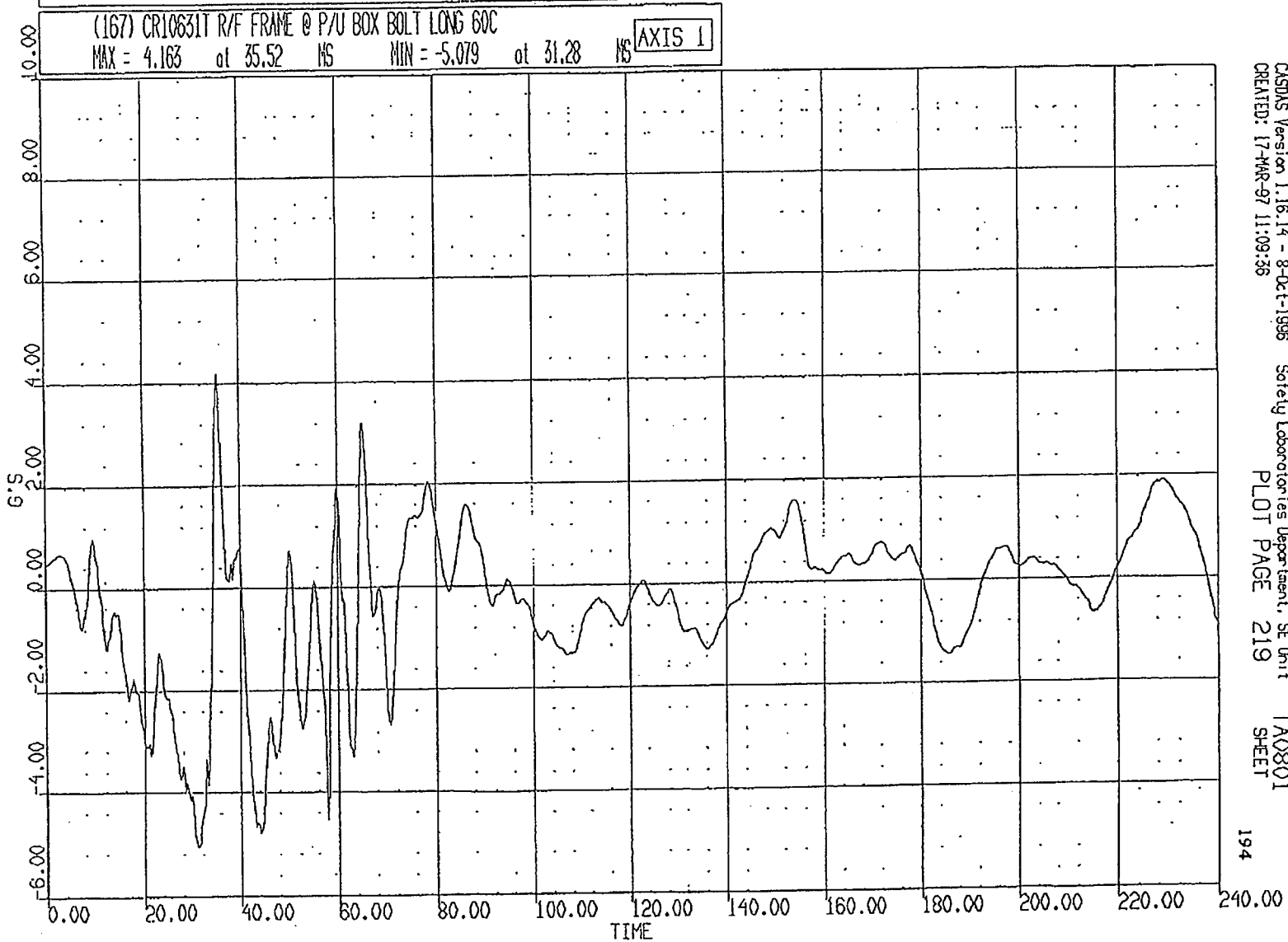
Safety Laboratories Department, SE Unit
PLOT PAGE 218
TA0801
SHEET

193

CRIS 0010631

0743

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:09:36

Safety Laboratories Department, SE Unit
PLOT PAGE 219

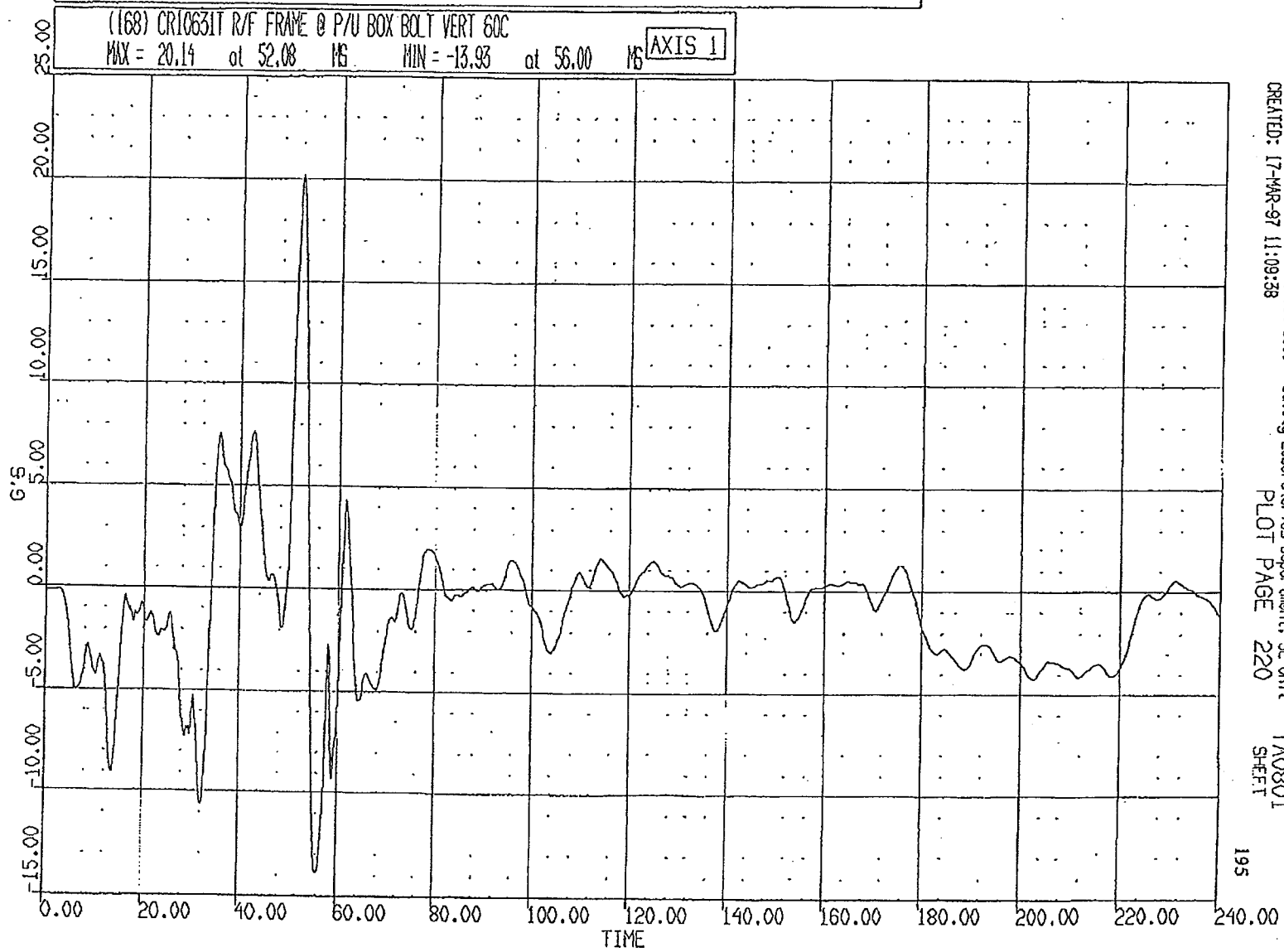
TA0801
SHEET

194

CRTS 0010631

0744

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:09:38

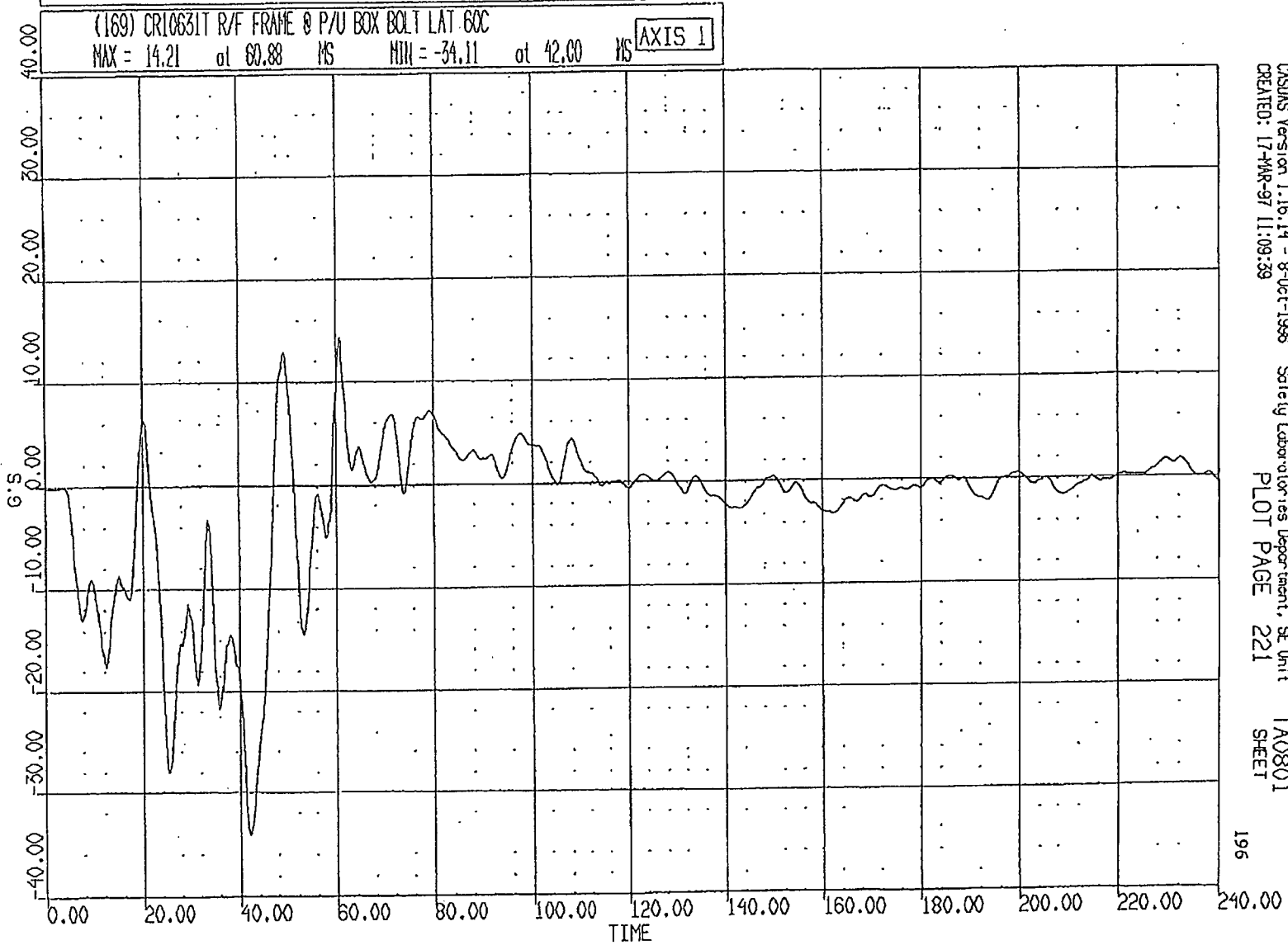
Safety Laboratories Department, SE Unit
PLOT PAGE 220
TA0801
SHEET

195

CRIS 0010631

0745

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



CSDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:09:39

Safety Laboratories Department, SE Unit
PLOT PAGE 221

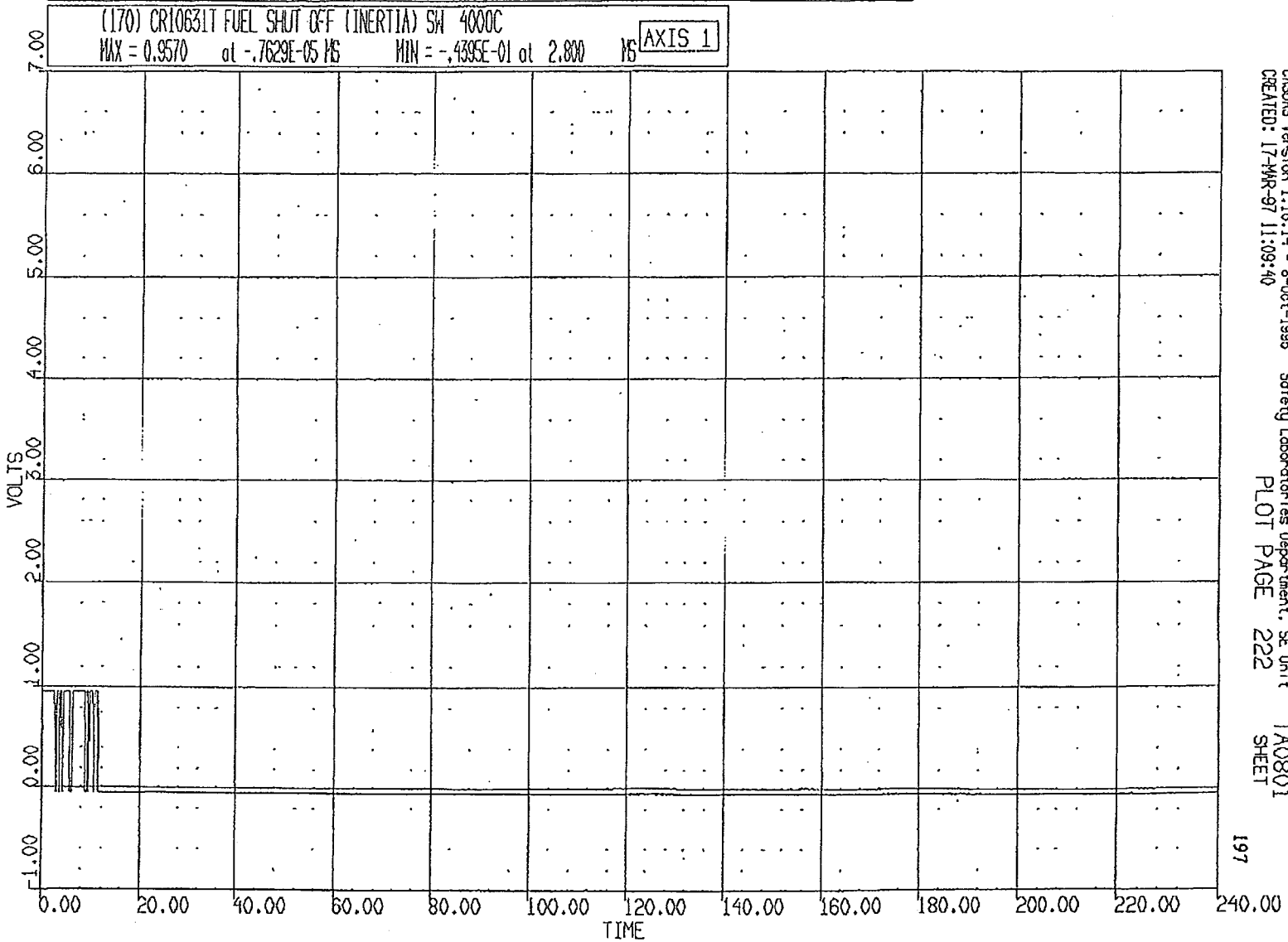
TA0801
SHEET

196

CRIS 0010631

0746

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

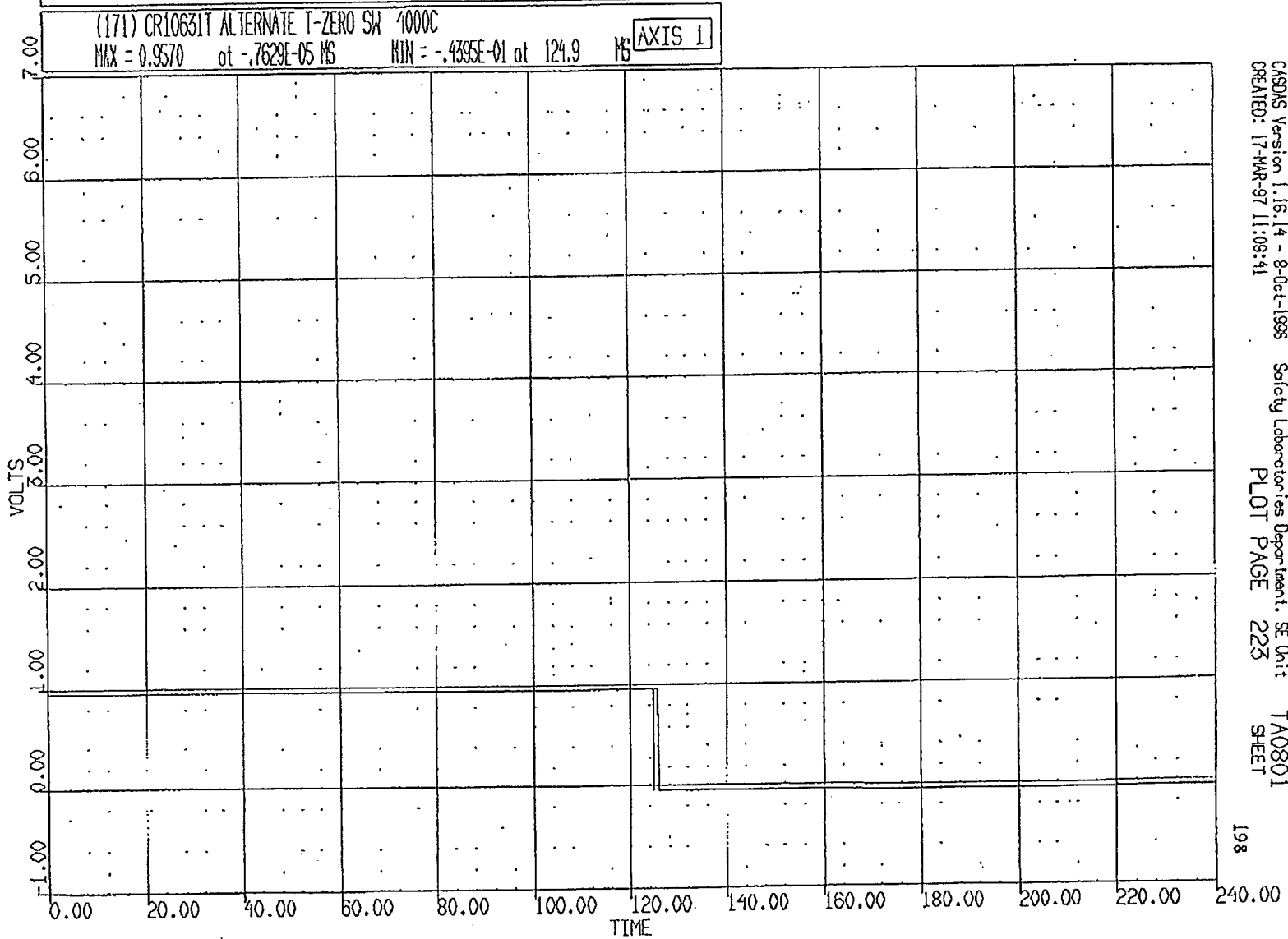


CASDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:09:40 PLOT PAGE 222 TA0801
SHEET

CRIS 0010631

0747

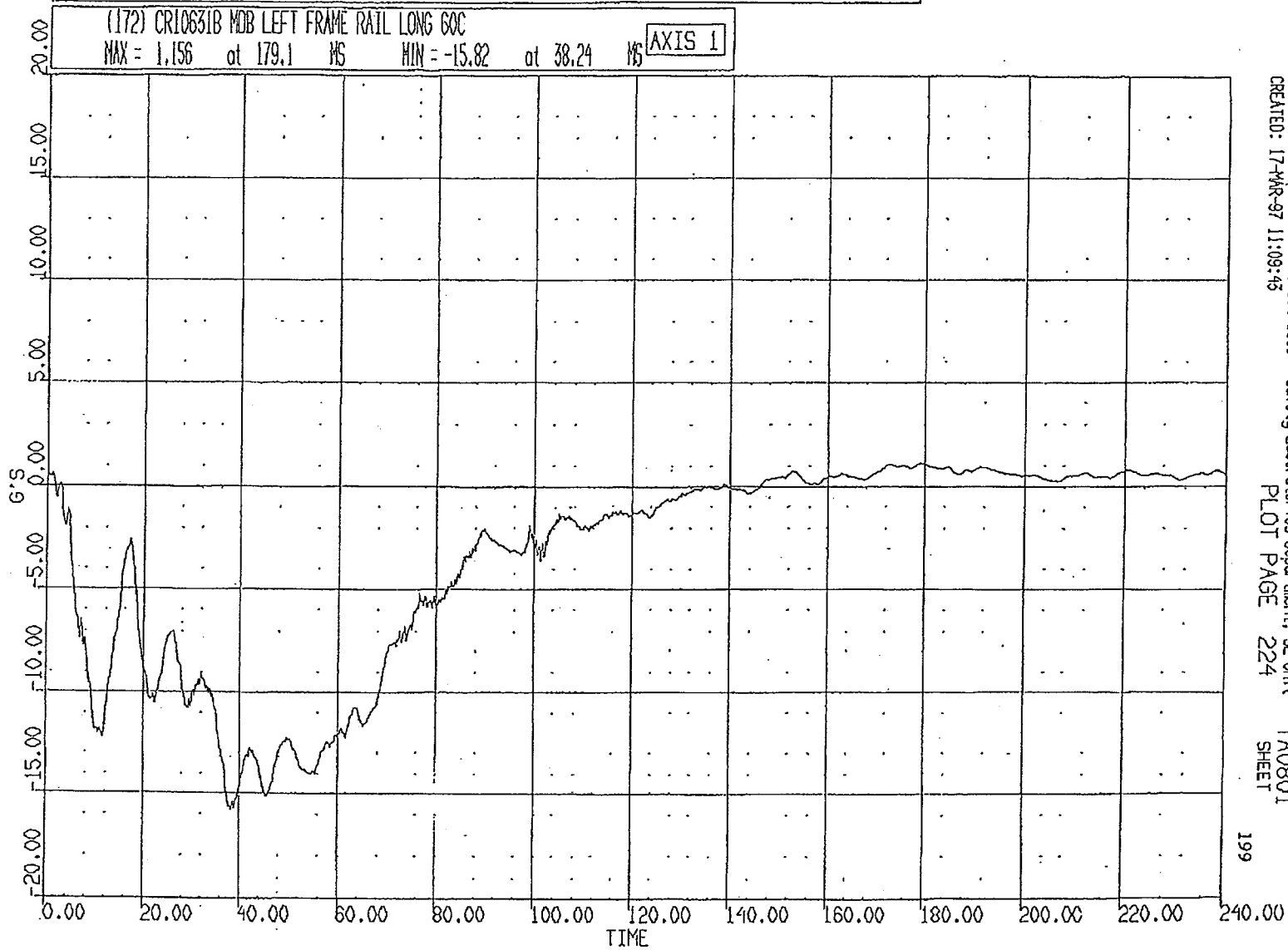
CR R: 10631 TO: TA0801 DATE: 970317 09:52:04
1999 PN-96 1999 MOVING DEFORMABLE BA



CASINS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:09:41 PLOT PAGE 223 TA0801
SHEET

CRIS 0010631

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:09:45

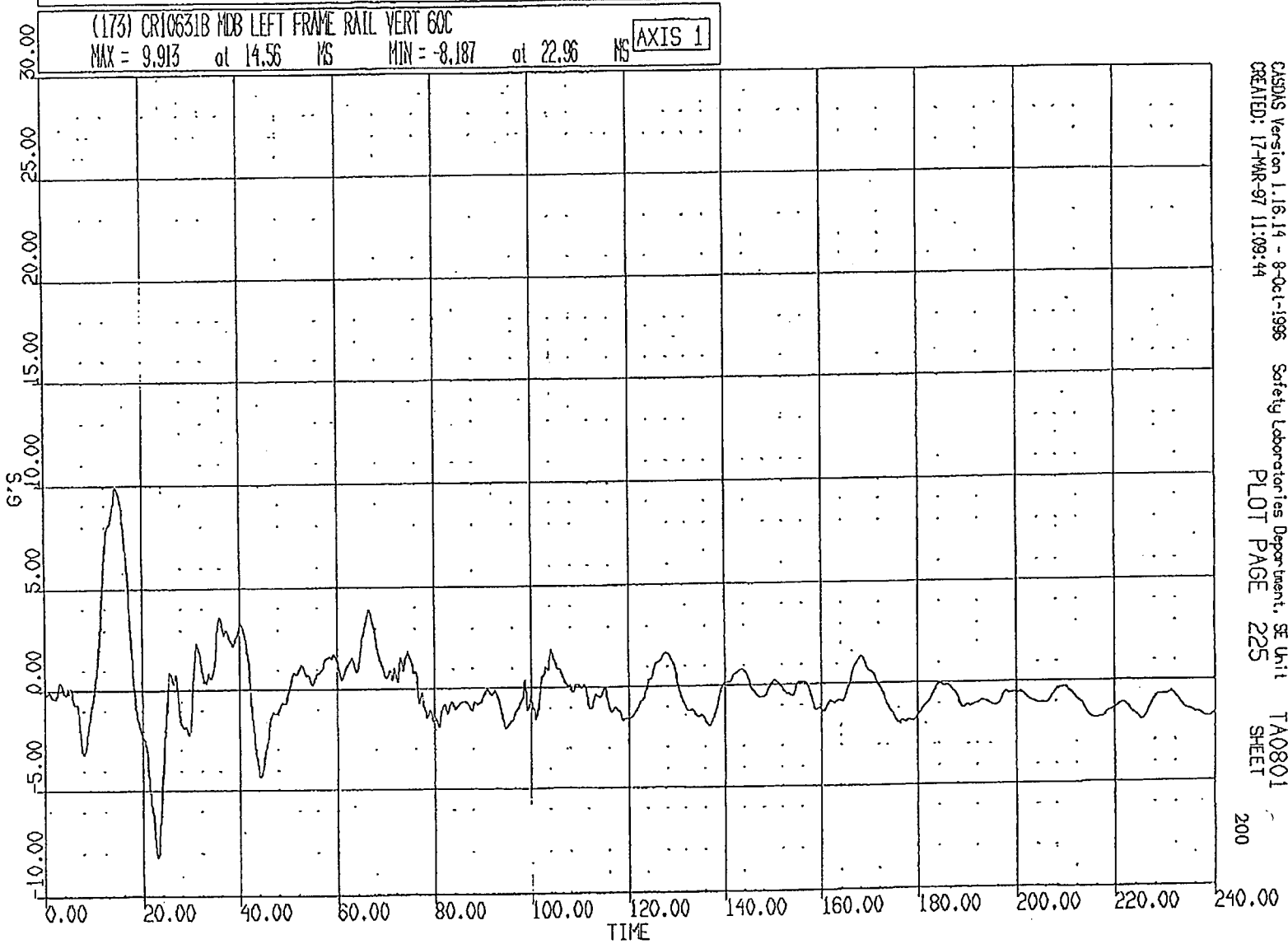
Safety Laboratories Department, SE Unit
PLOT PAGE 224
TA0801
SHEET

199

CRIS 0010631

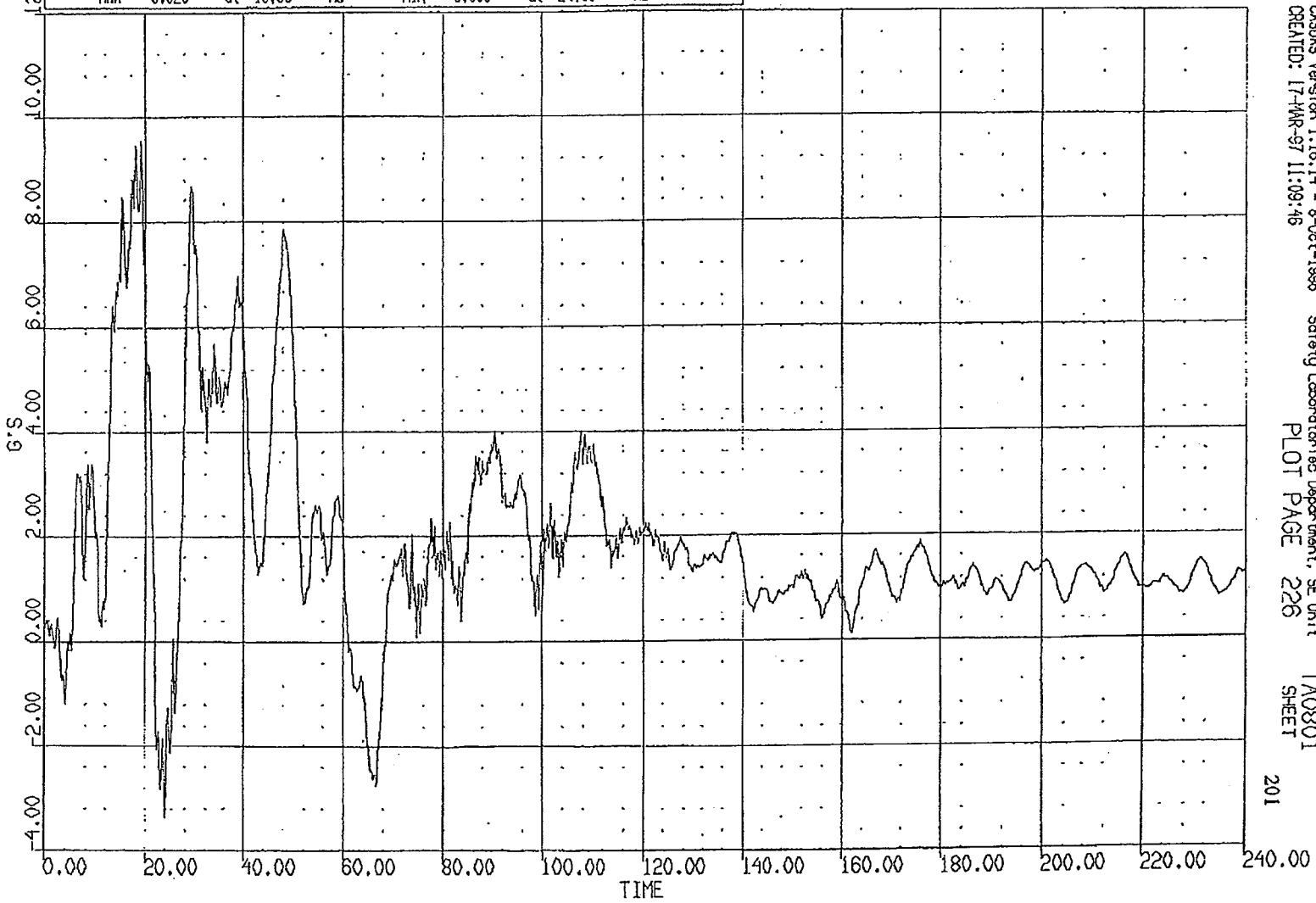
0749

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



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

(174) CR10631B MDB LEFT FRAME RAIL LAT 60C
MAX = 9.526 at 19.36 VS MIN = -3.356 at 24.08 VS **AXIS 1**



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:09:46

Safety Laboratories Department, SE Unit
PLOT PAGE 226

TA0801
SHEET

201

CRTS 0010631

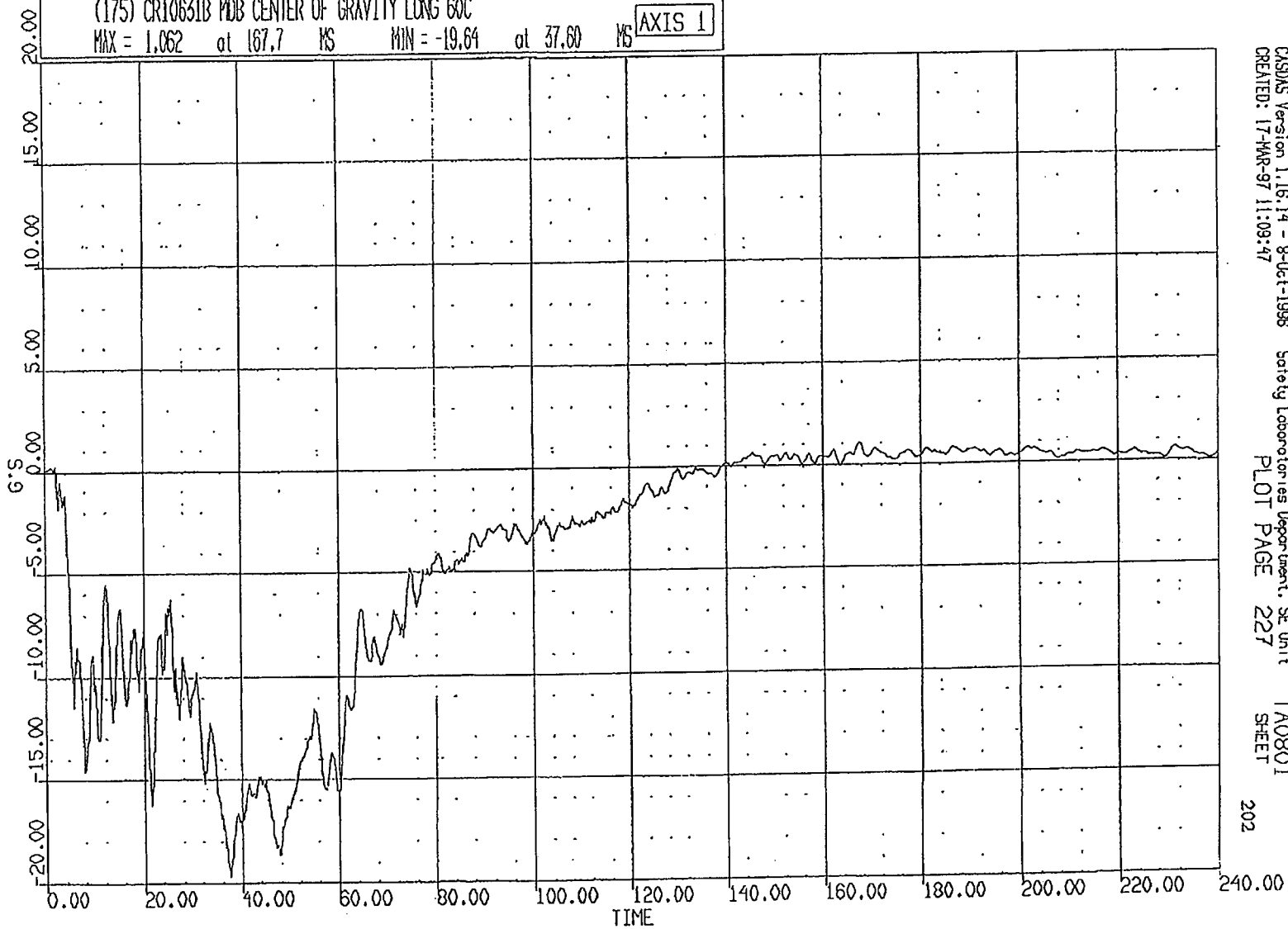
0751

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

(175) CR10631B YDB CENTER OF GRAVITY LONG 60C

MAX = 1.062 at 167.7 MS MIN = -19.64 at 37.60 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
 CREATED: 17-MAR-97 11:09:47

Safety Laboratories Department, SE Unit
PLOT PAGE 227

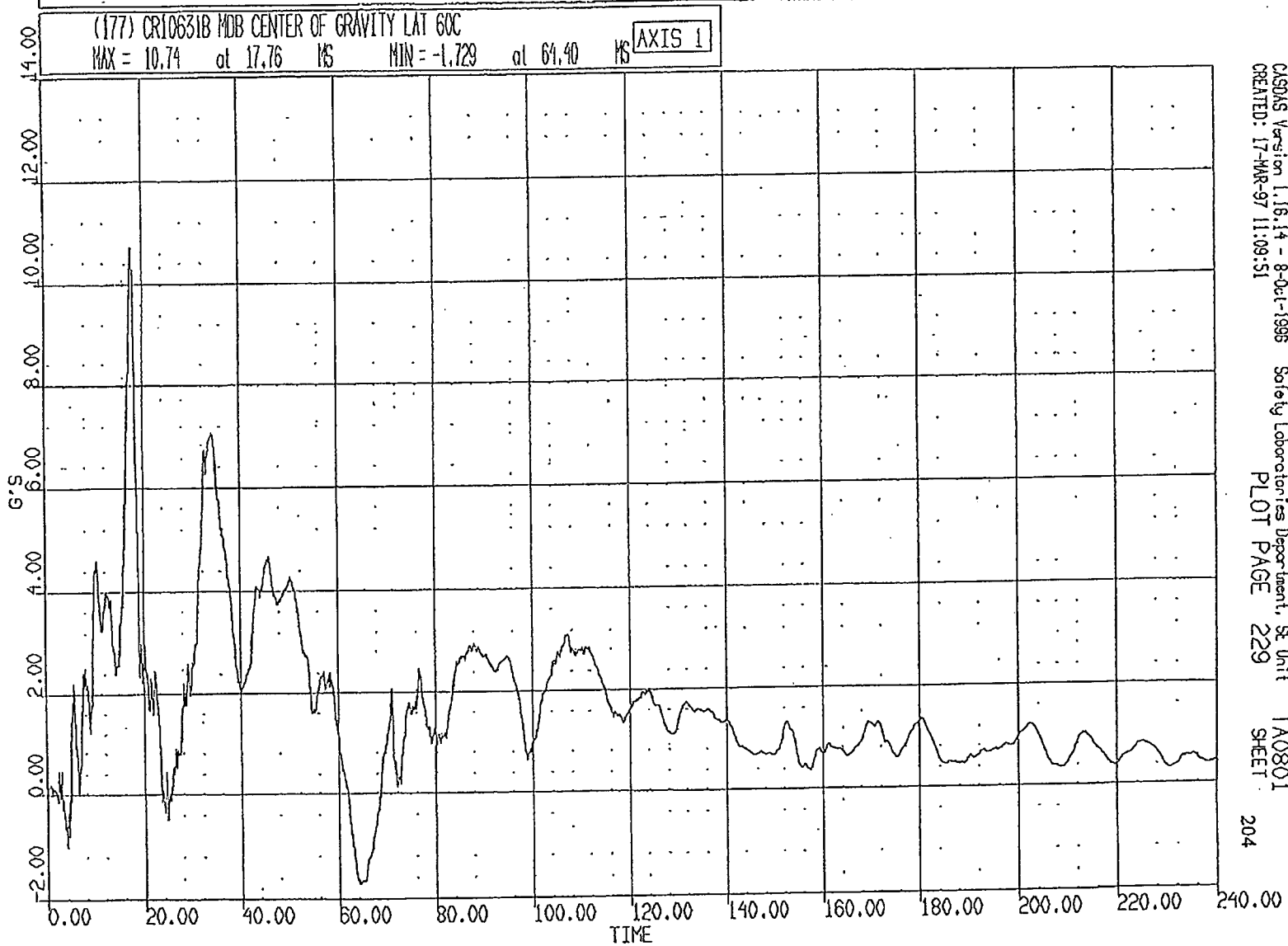
TA0801
SHEET

202

CRTS 0010631

0752

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

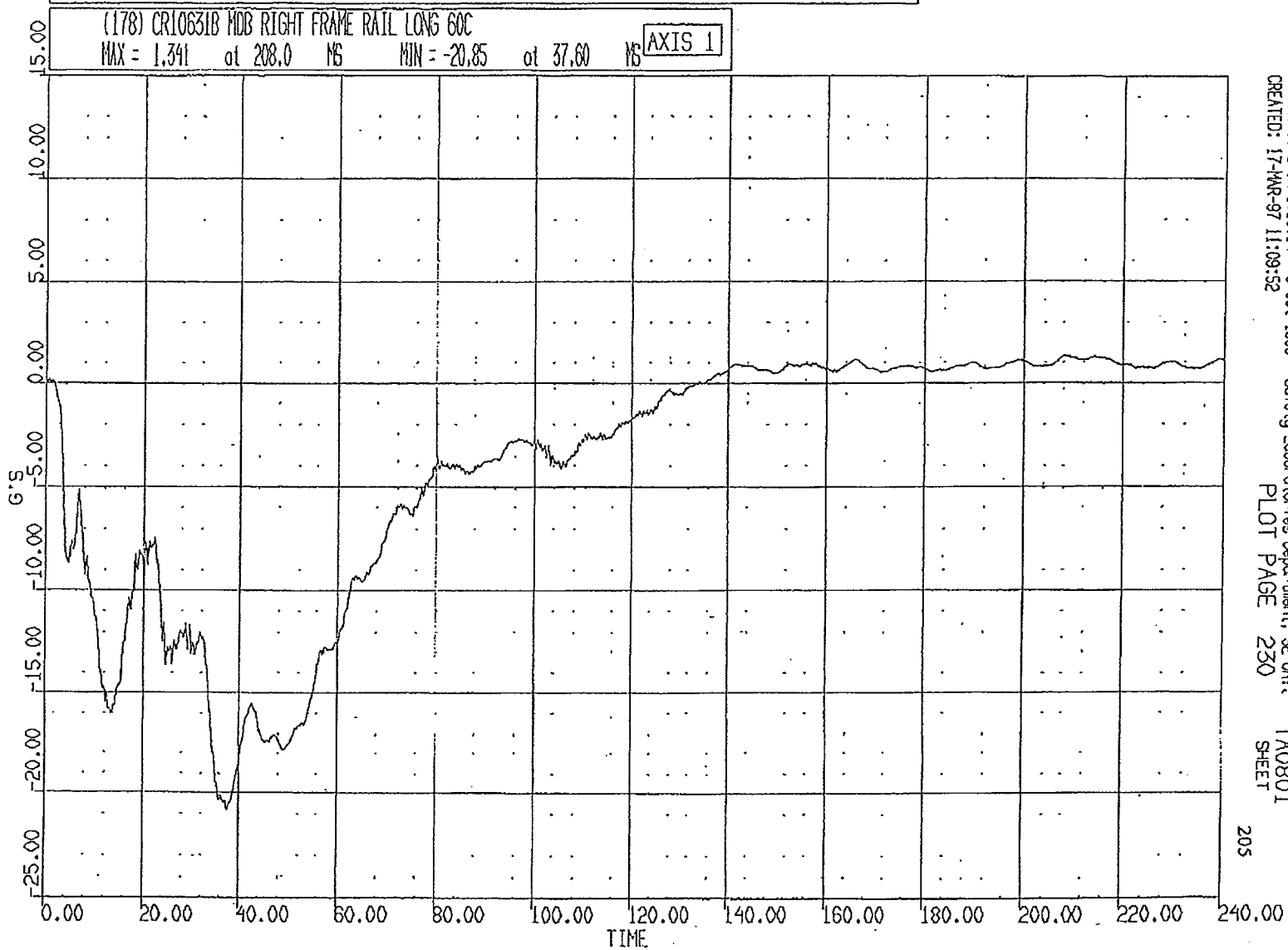


CASDAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:09:51 PLOT PAGE 229 TA0801
SHEET 204

CRTS 0010631

0754

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:09:52

Safety Laboratories Department, SE Unit
TA0801
PLOT PAGE 230
SHEET

205

CRIS 0010631

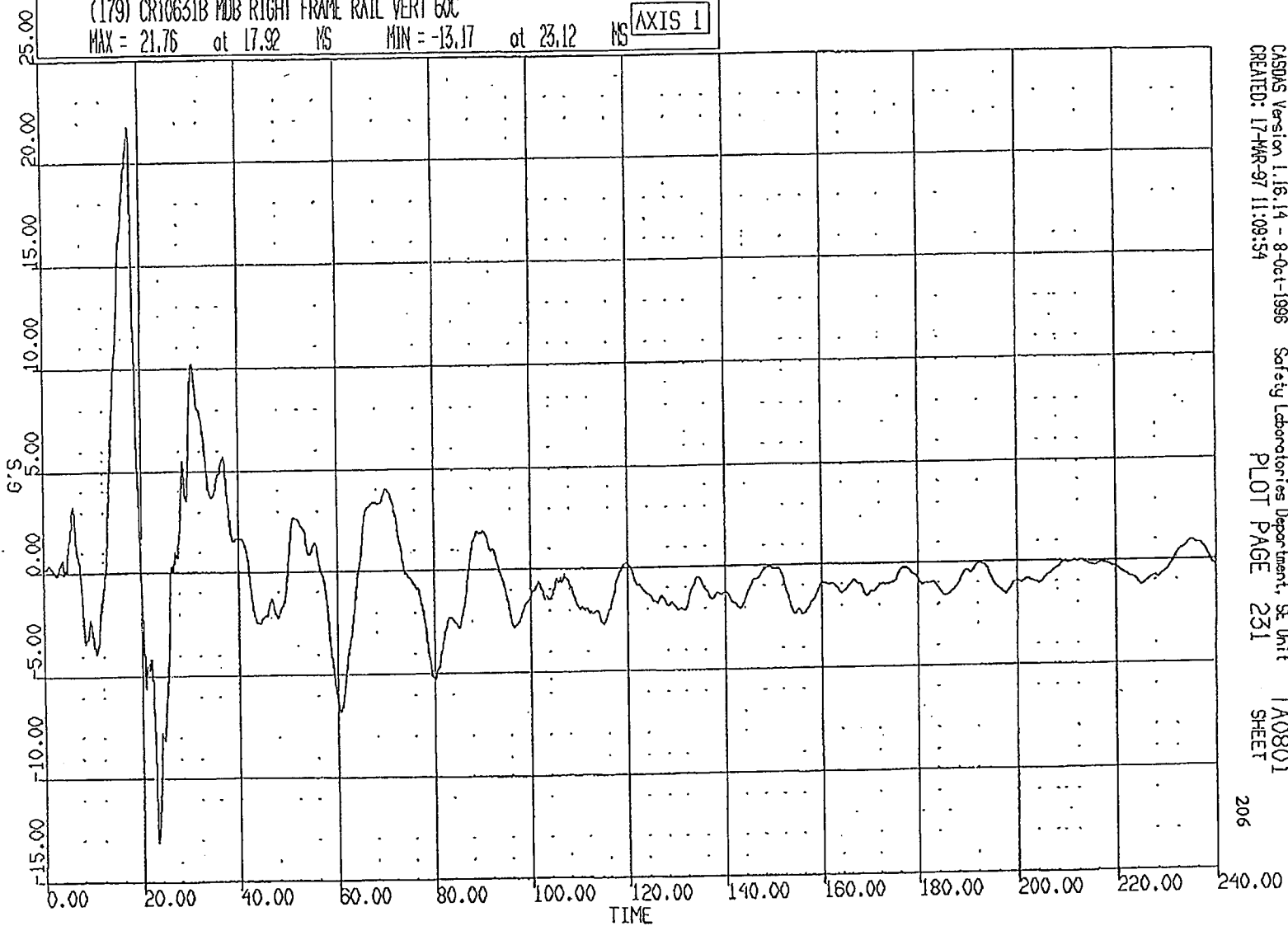
0755

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

(179) CR10631B MDB RIGHT FRAME RAIL VERT 60C

MAX = 21.76 at 17.92 MS MIN = -13.17 at 23.12 MS

AXIS 1



CASMAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:09:54

Safety Laboratories Department, SE Unit
PLOT PAGE 231

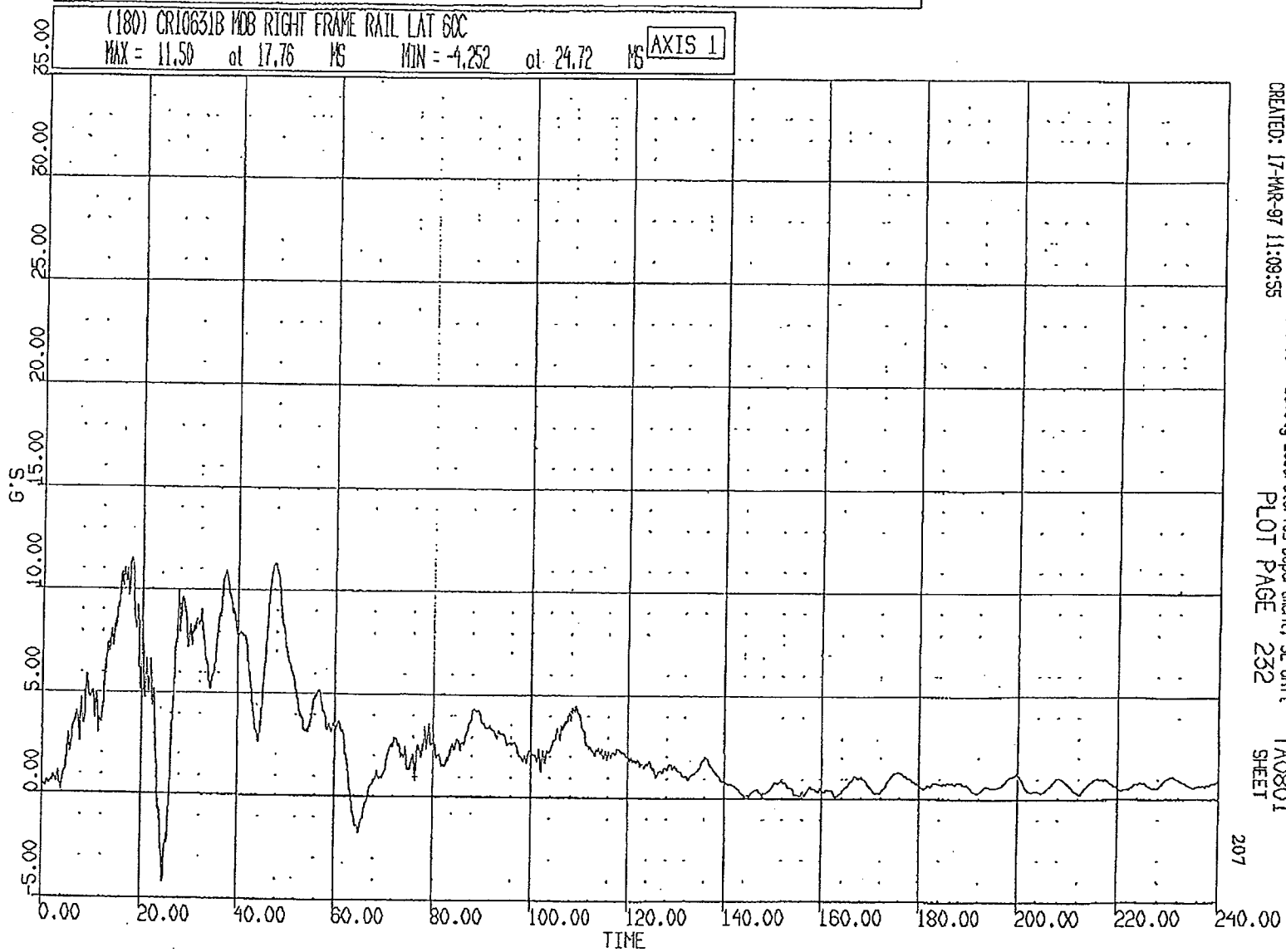
TA0801
SHEET

206

CRIS 0010631

0756

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



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:09:55

Safety Laboratories Department, SE Unit
PLOT PAGE 232

TA0801
SHEET

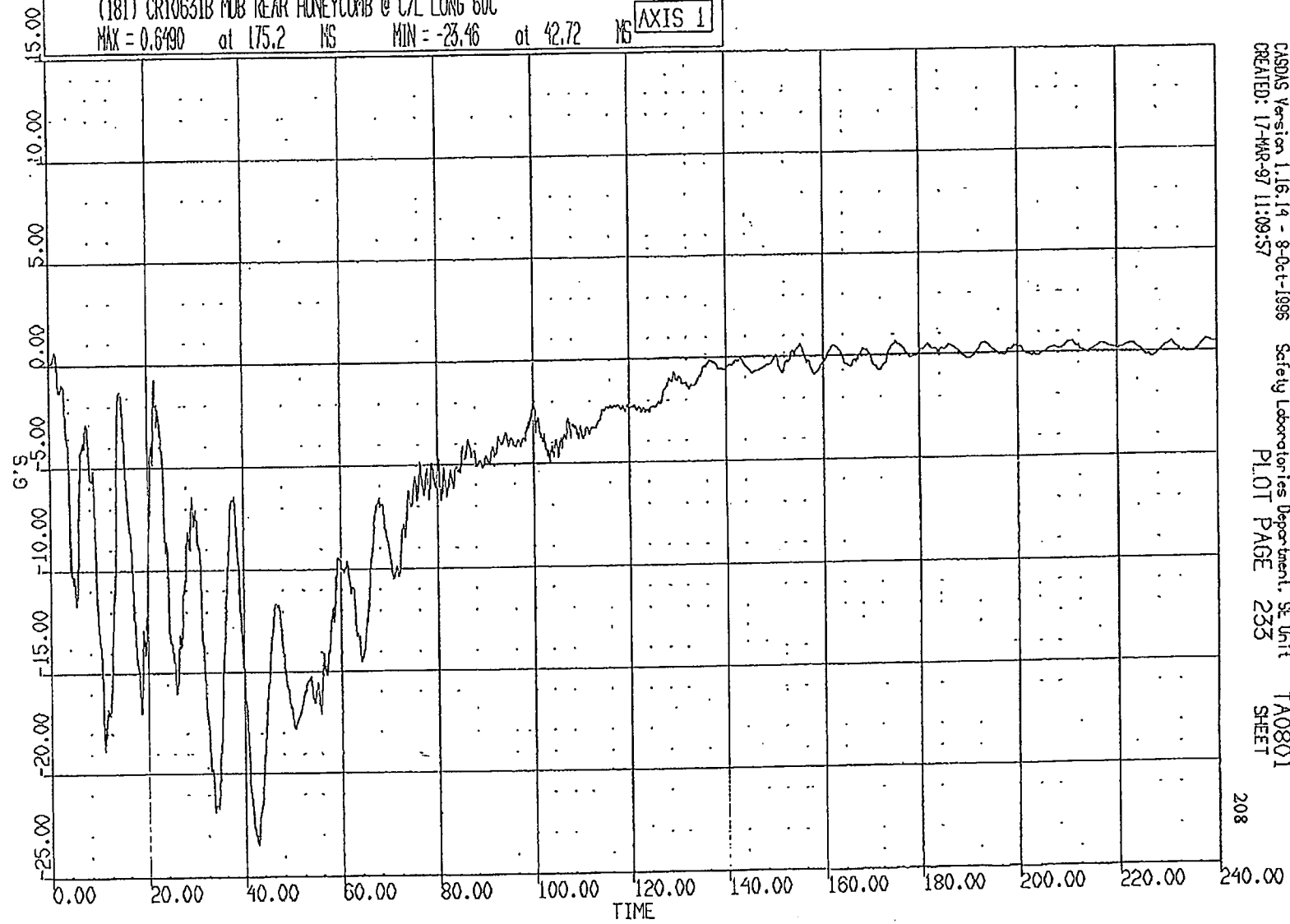
CRTS 0010631

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

(181) CR10631B MOB REAR HONEYCOMB @ C/L LONG 60C

MAX = 0.6490 at 175.2 MS MIN = -23.46 at 42.72 MS

AXIS 1



CASAS Version 1.16.14 - 8-Oct-1998 Safety Laboratories Department, SE Unit
CREATED: 17-MAR-97 11:09:57
PLOT PAGE 235
TA0801
SHEET

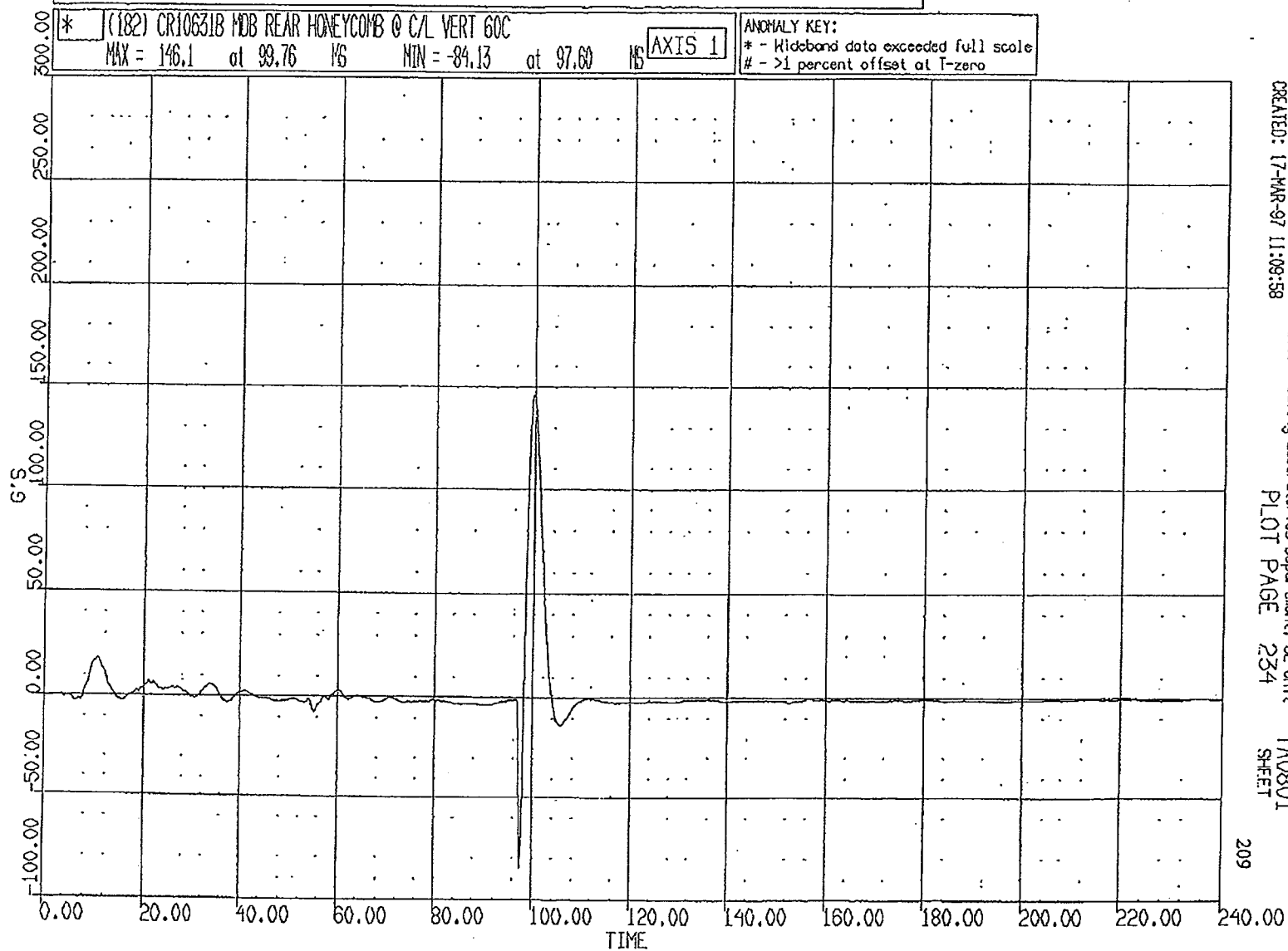
208

CRTS 0010631

0758

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

W/E DATA EXCEEDED F.S.



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:08:58

Safety Laboratories Department, SE Unit
PLOT PAGE 234
TA0801
SHEET

209

CRIS 0010631

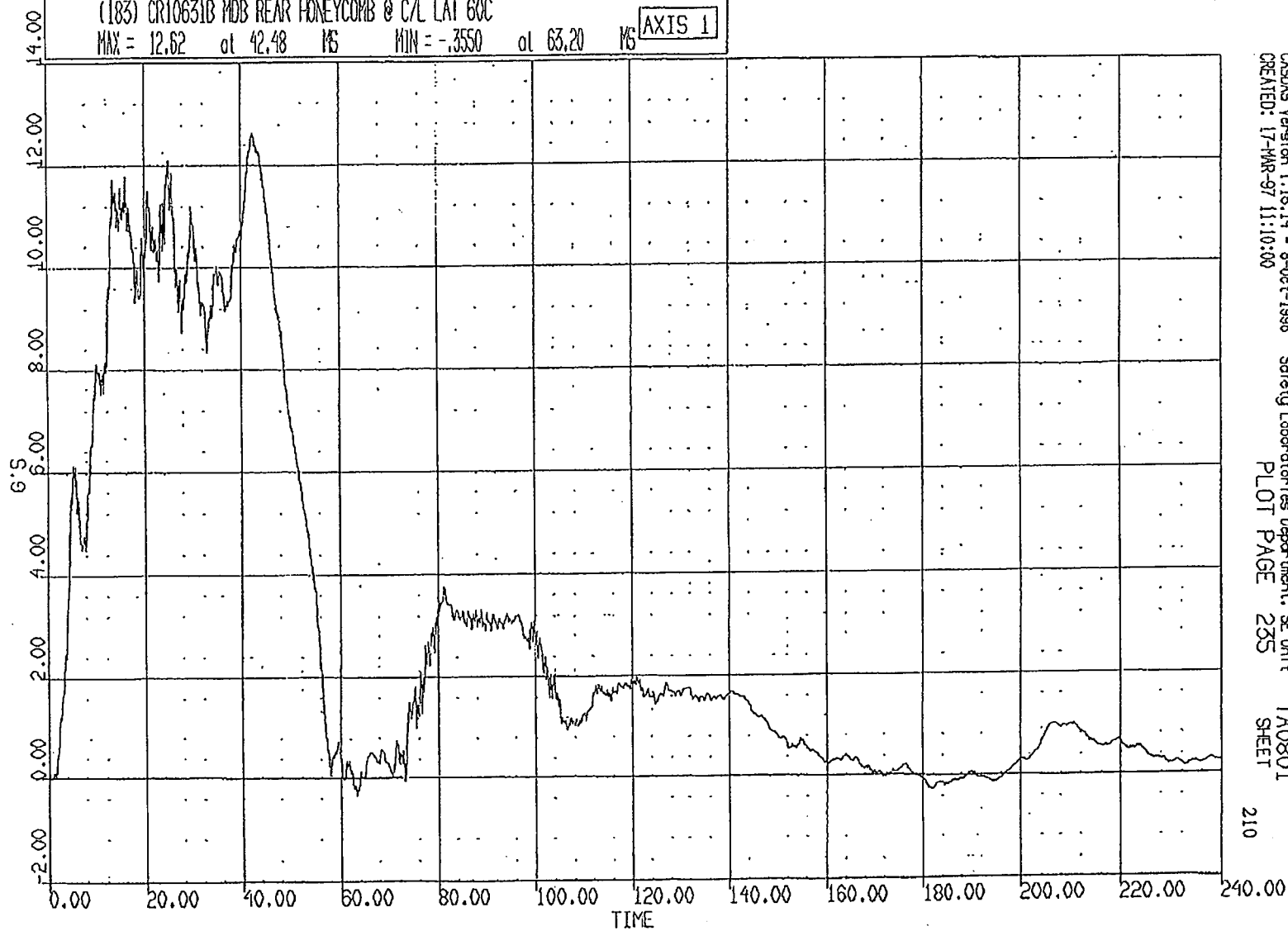
0759

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

(183) CR10631B MDB REAR HONEYCOMB @ C/L LAT 60C

MAX = 12.62 at 42.48 MS MIN = -.3550 at 63.20 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:10:00

Safety Laboratories Department, SE Unit
PLOT PAGE 235

TA0801
SHEET

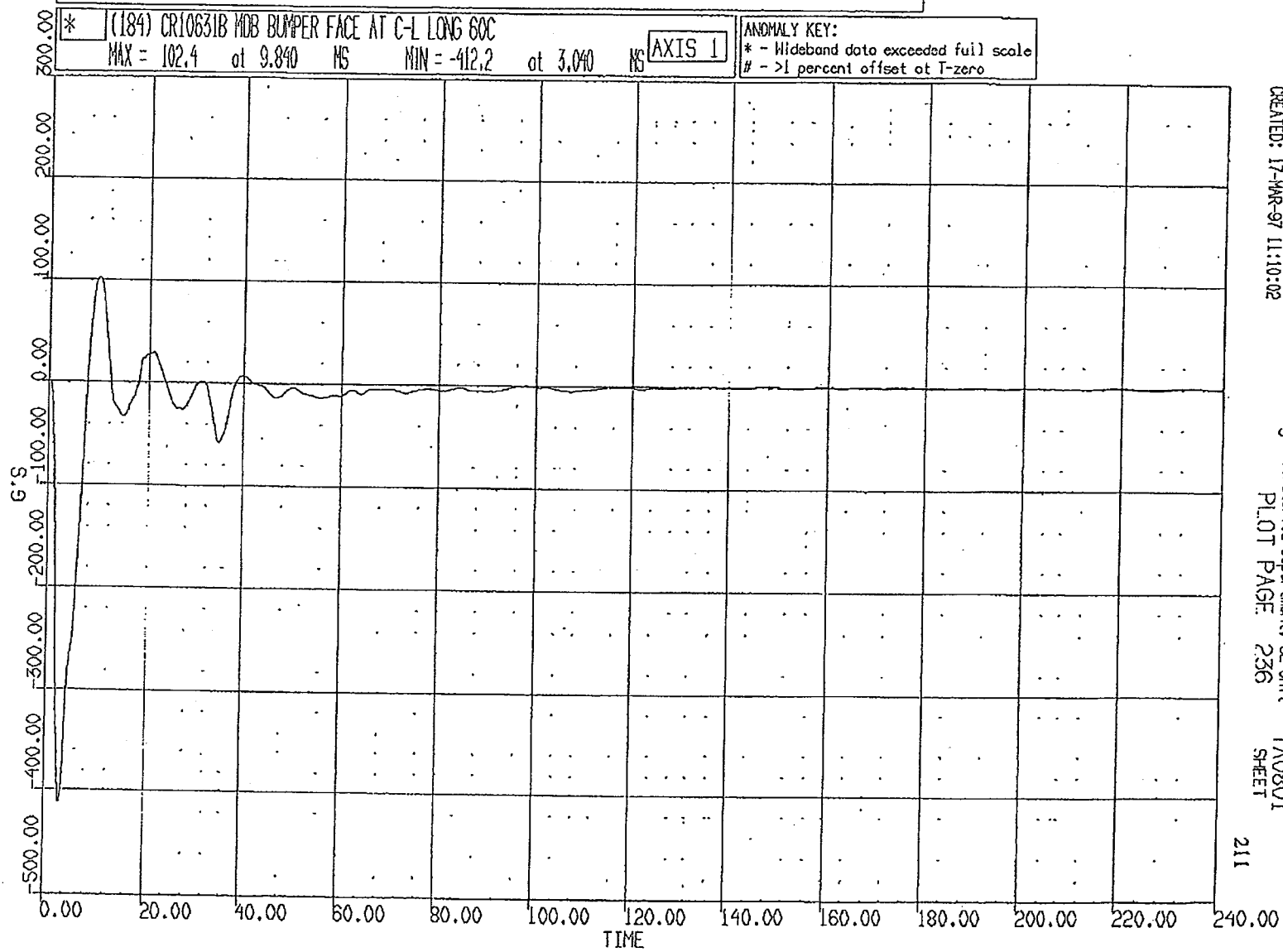
210

CR10631

0760

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

W/B DATA EXCEEDED F.S.



CASDAS Version 1.16.14 - 8-Oct-1998
CREATED: 17-MAR-97 11:10:02

Safety Laboratories Department, SE Unit
PLOT PAGE 236

TA0801
SHEET

211

CRIS 0010631

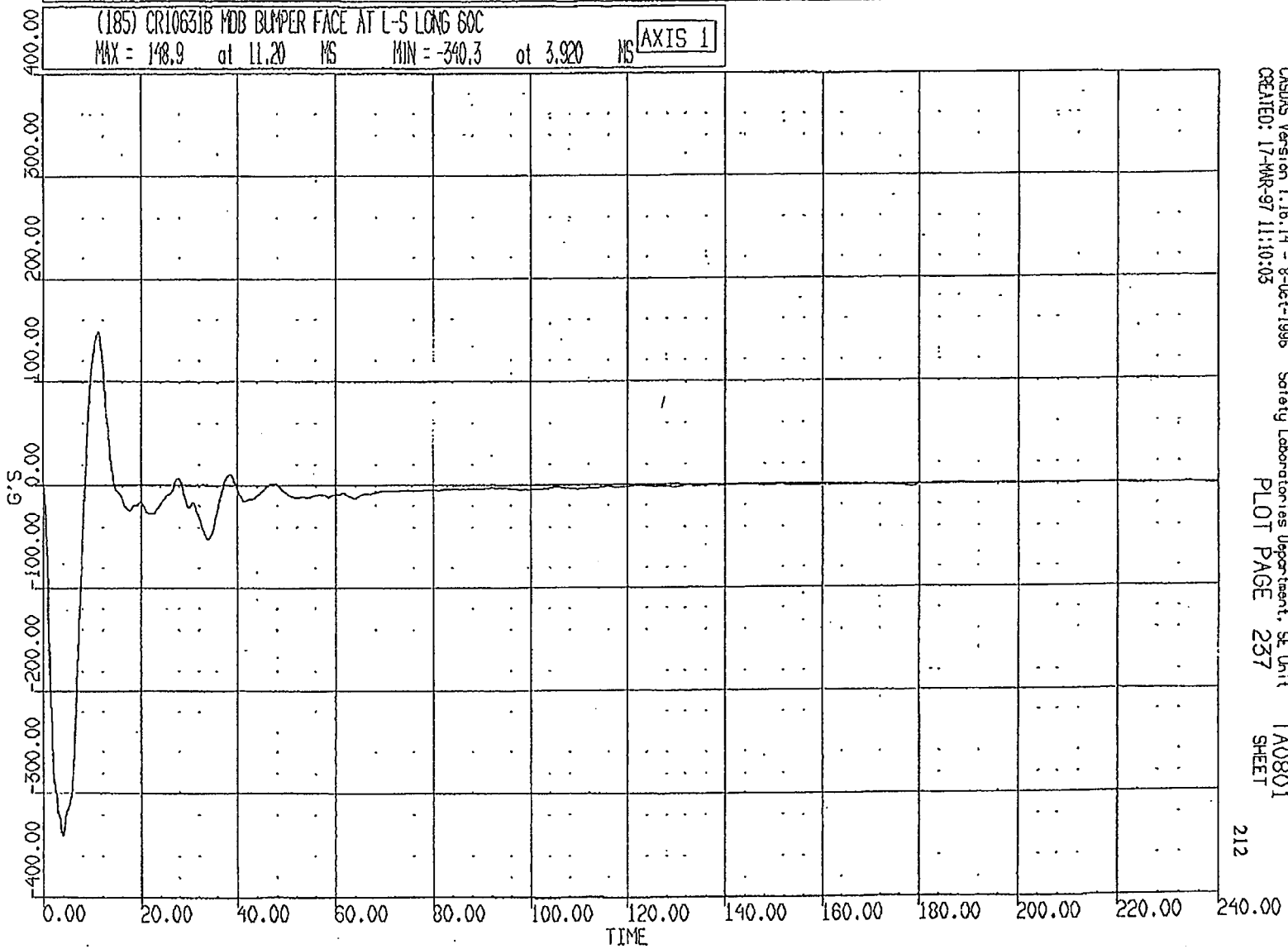
0761

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

(185) CR106318 MDB BUMPER FACE AT L-S LONG 60C

MAX = 148.9 at 11.20 MS MIN = -340.3 at 3.920 MS

AXIS 1



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:10:05

Safety Laboratories Department, SE Unit
PLOT PAGE 237

TA0801
SHEET

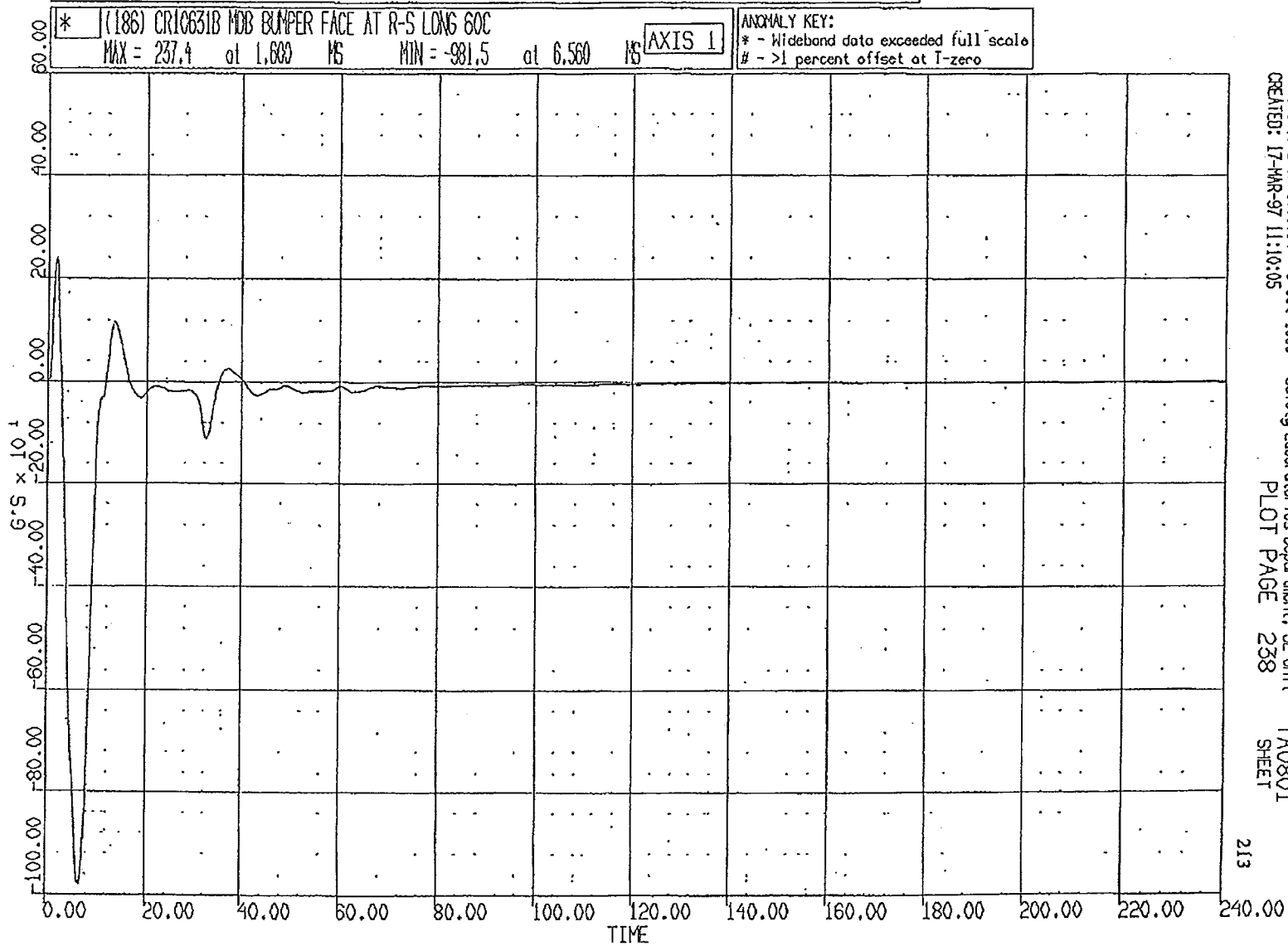
212

CRTS 0010631

0762

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

W/B DATA EXCEEDED F.S.



CASDAS Version 1.16.14 - 8-Oct-1996
CREATED: 17-MAR-97 11:10:05

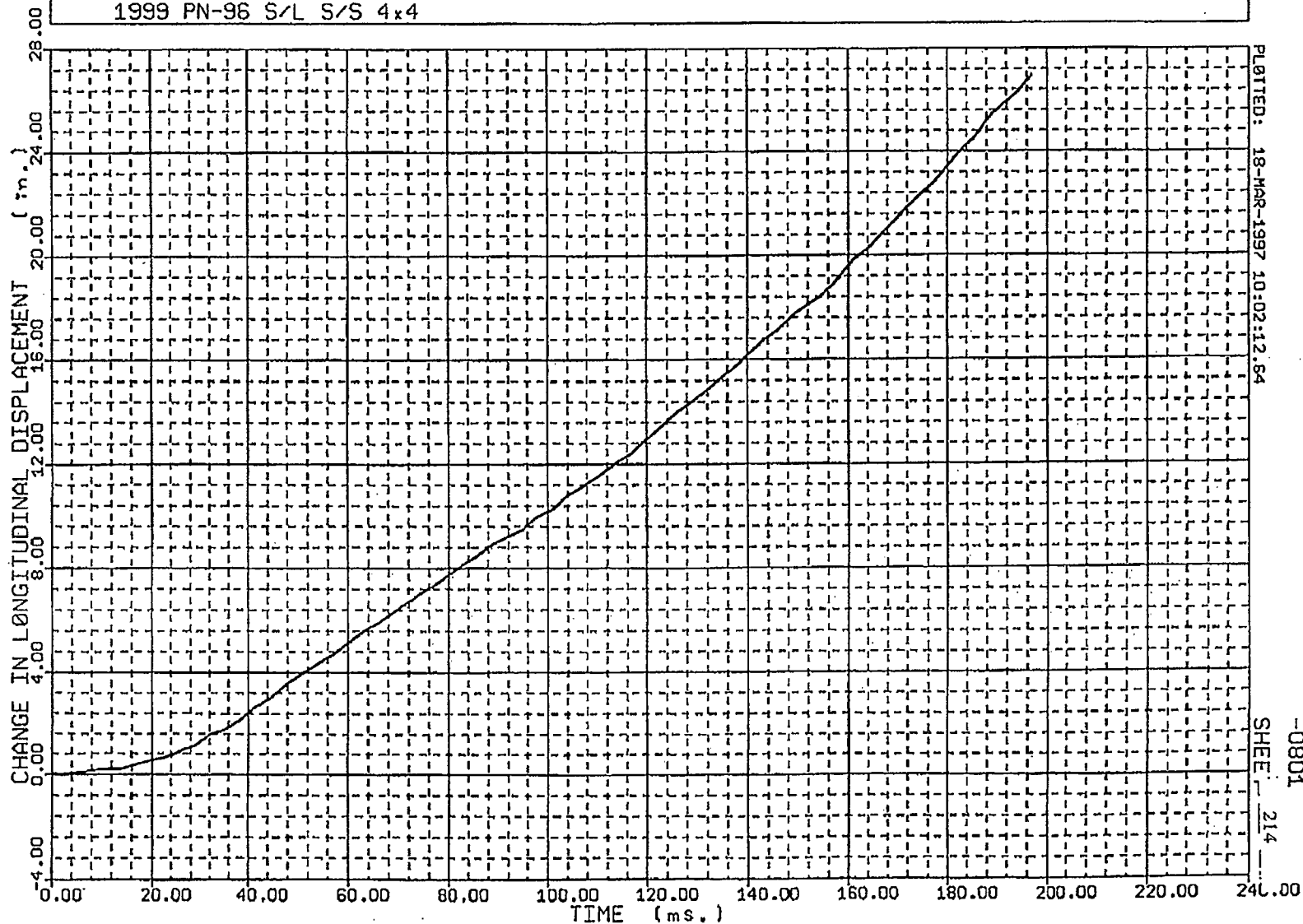
Safety Laboratories Department, SE Unit
PLOT PAGE 238
TA0801
SHEET

213

CRIS 0010631

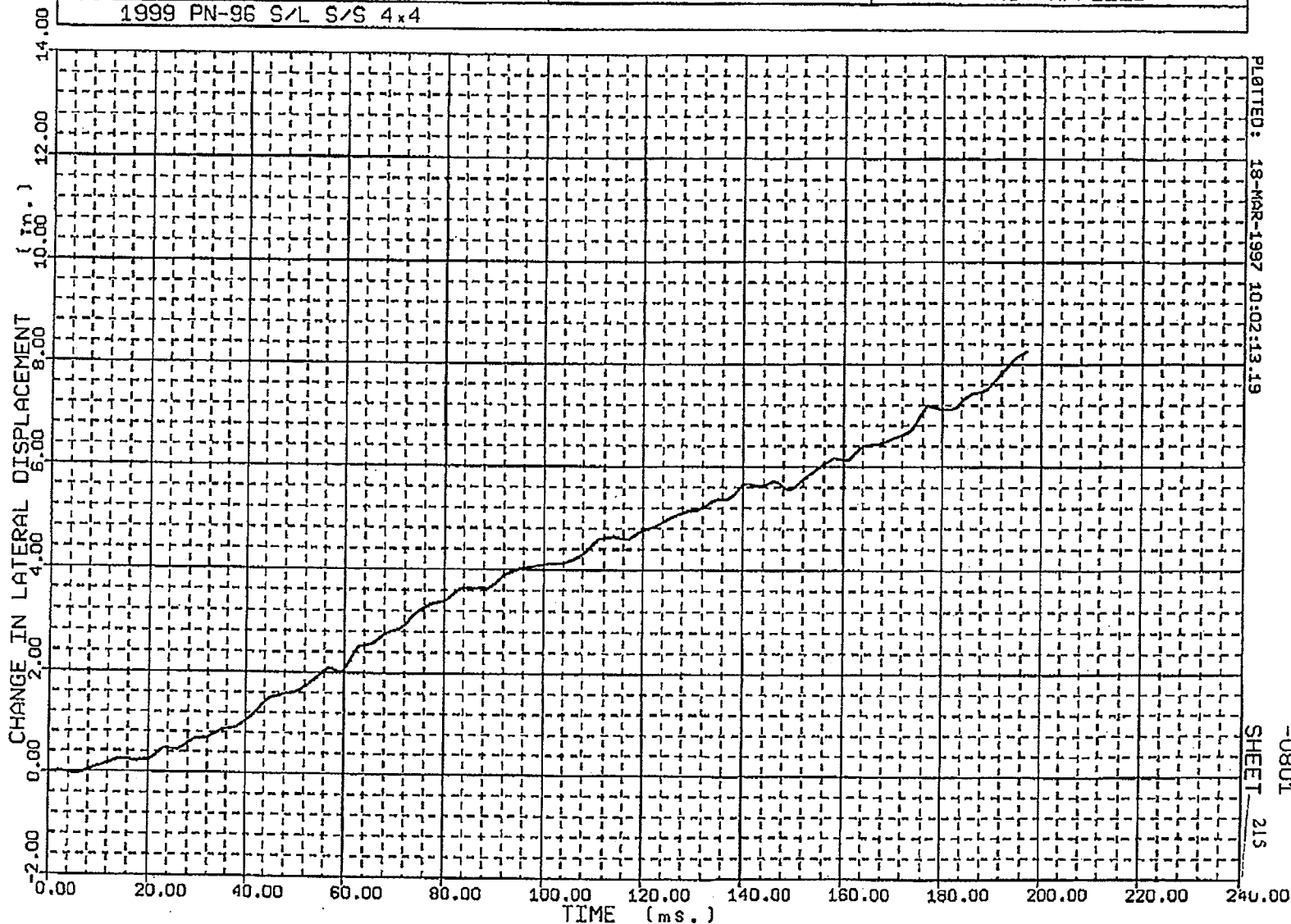
0763

Y - AXIS: L/S R00F 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								



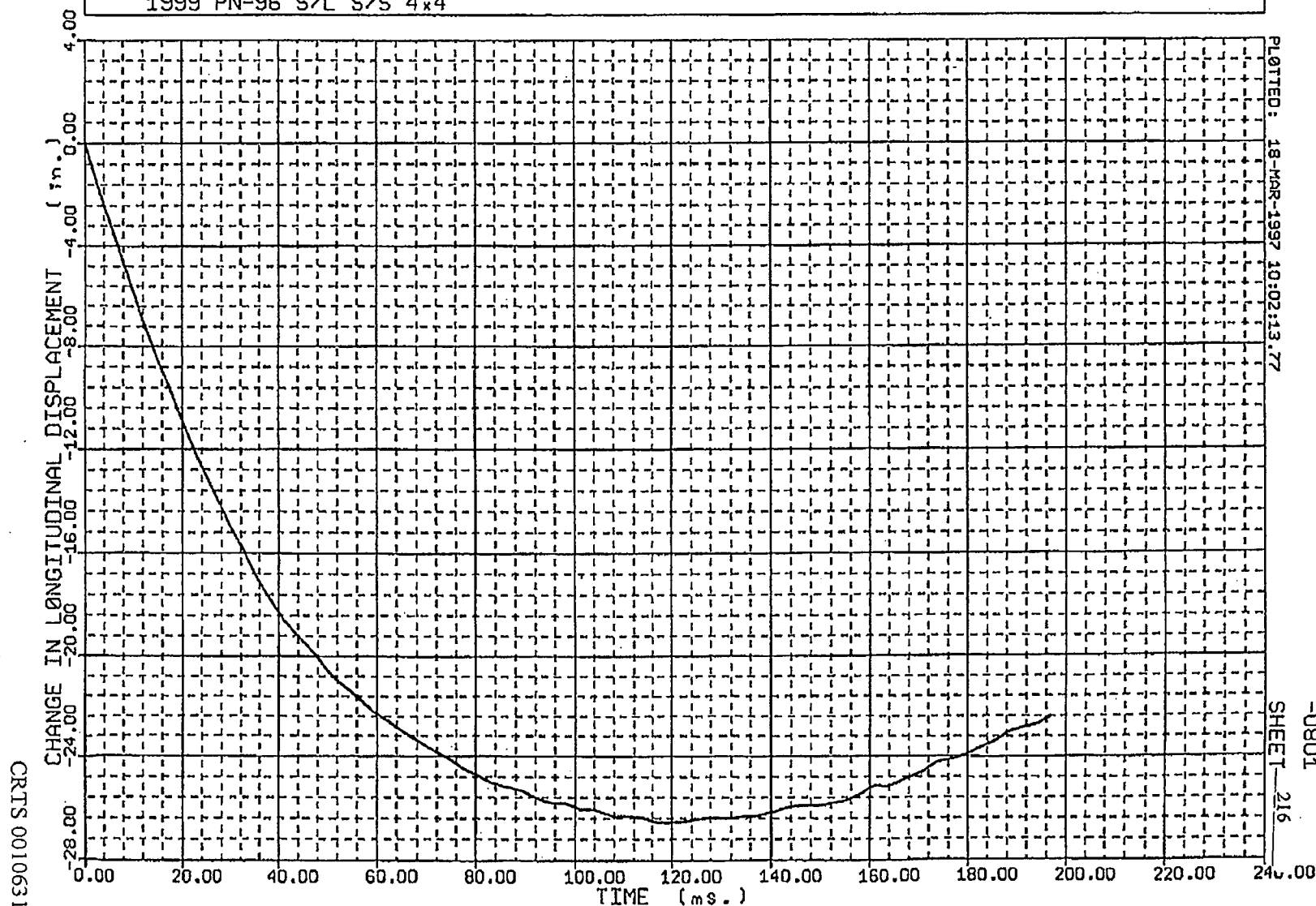
CRIS 0010631

Y - AXIS: L/S R00F AT B-PILLAR WRT GROUND REFERENCE					MAX = 8.271	at 197.00	MIN = -.4550E-01	at 5.00
RUN NØ.	FACILITY	TEST ØRDER NØ.	FILM ANALYSIS METHØD		PITCH CORRECTION			
10631	BARRIER	-0801	SCALE		NØT APPLIED			
1999 PN-96 S/L S/S 4x4								

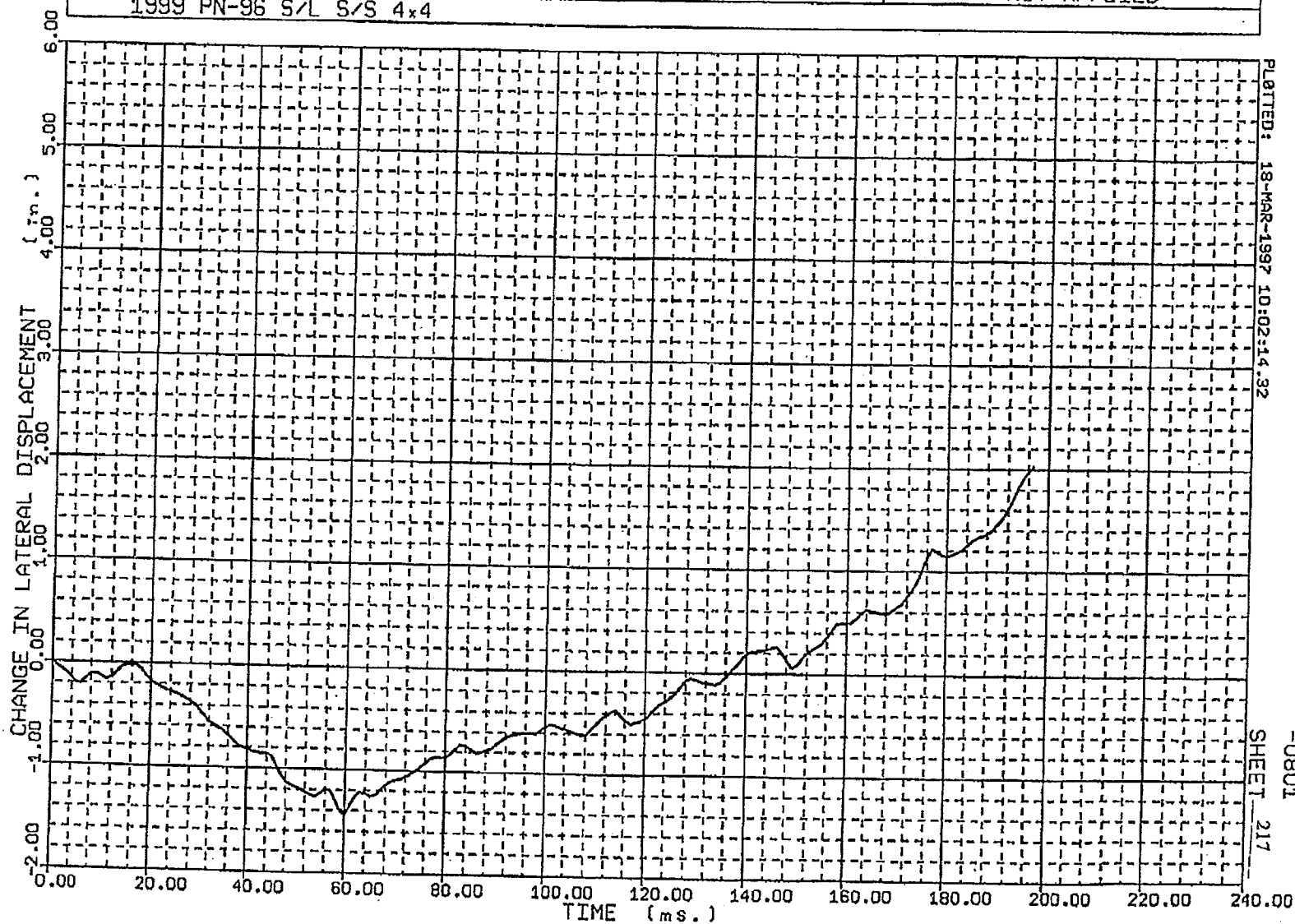


CRIS 0010631

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 ROOF 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								

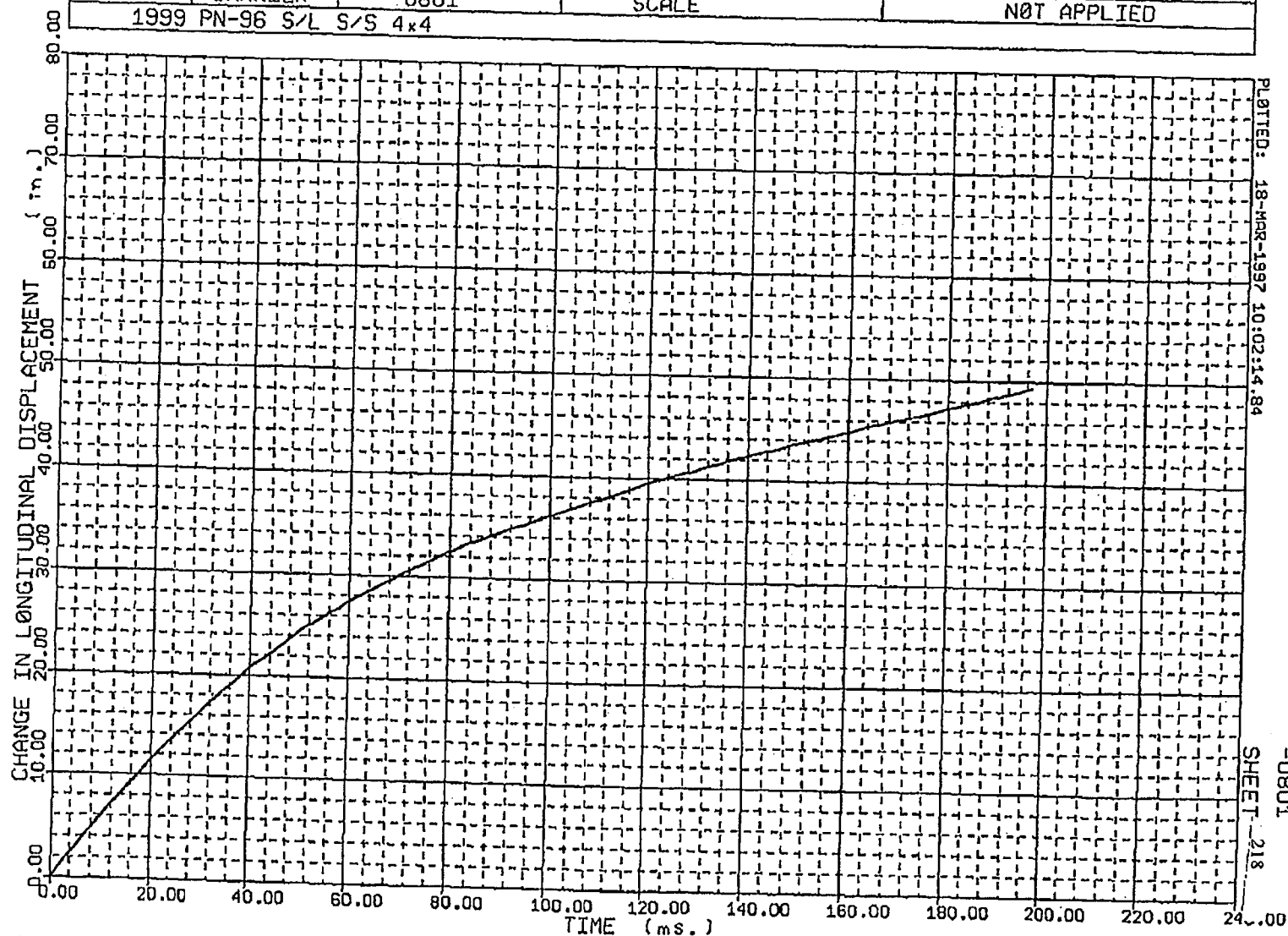


-0801

CRIS 0010631

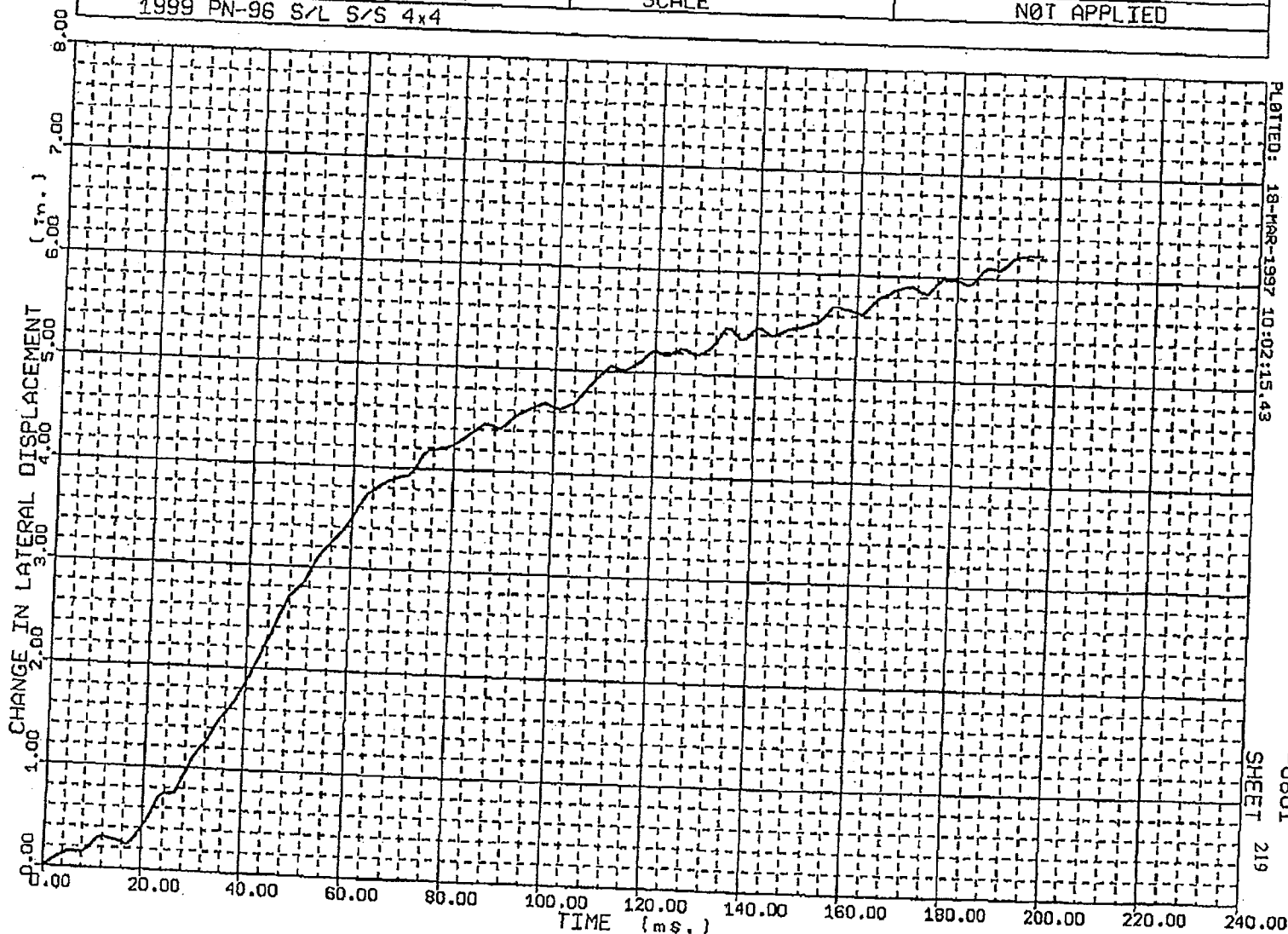
0767

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				



CRIS 0010631

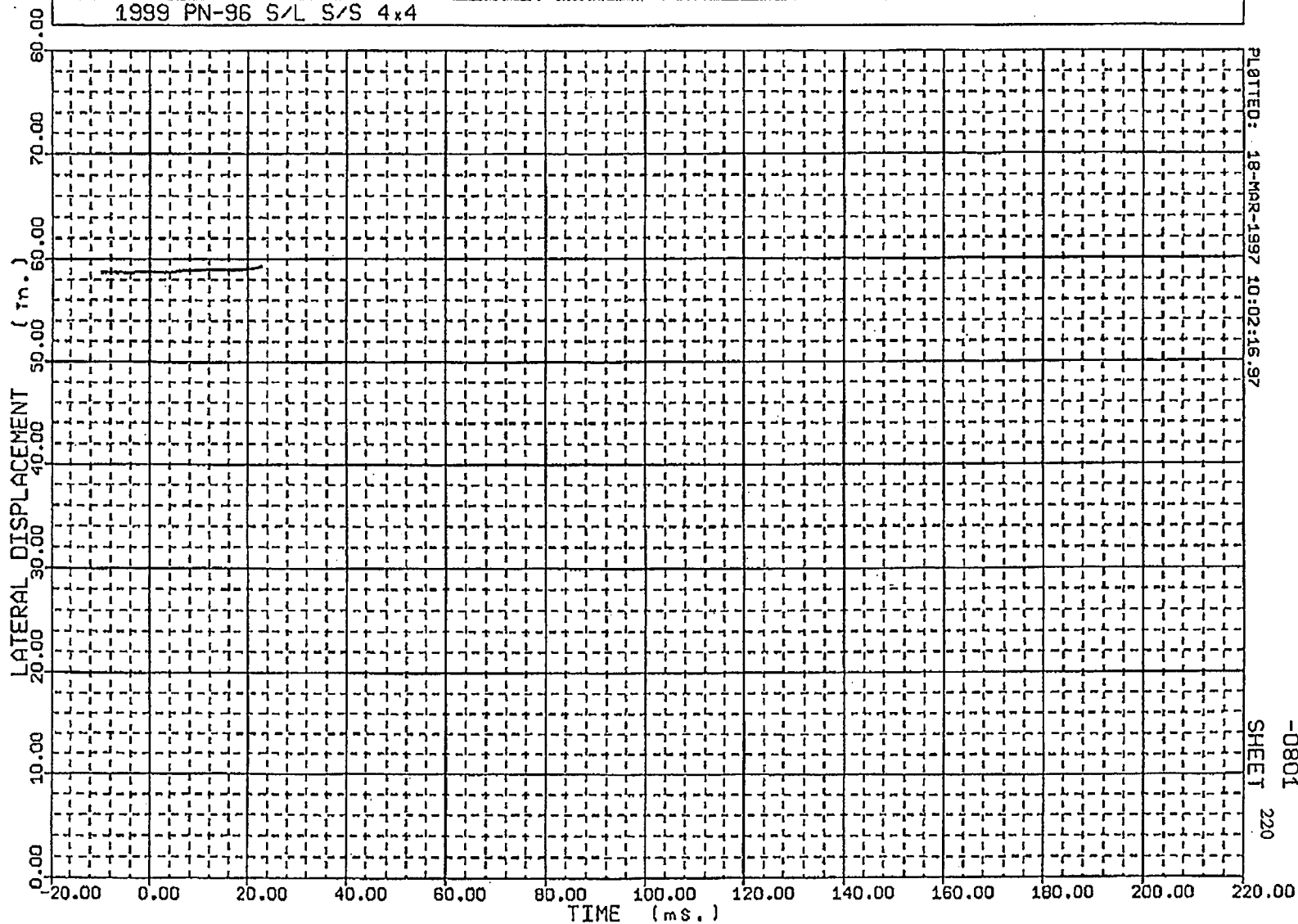
Y - AXIS:		TOP OF BARRIER WRT GROUND REFERENCE		MAX = 6.234	at 197.00	MIN = 0.0000E+00	at 0.00
RUN NO.	FACILITY	TEST ORDER NO.	FILM ANALYSIS METHOD		PITCH CORRECTION		
10631	BARRIER	-0801	SCALE		NOT APPLIED		
1999 PN-96 S/L S/S 4x4							



CRIS 0010631

0769

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												



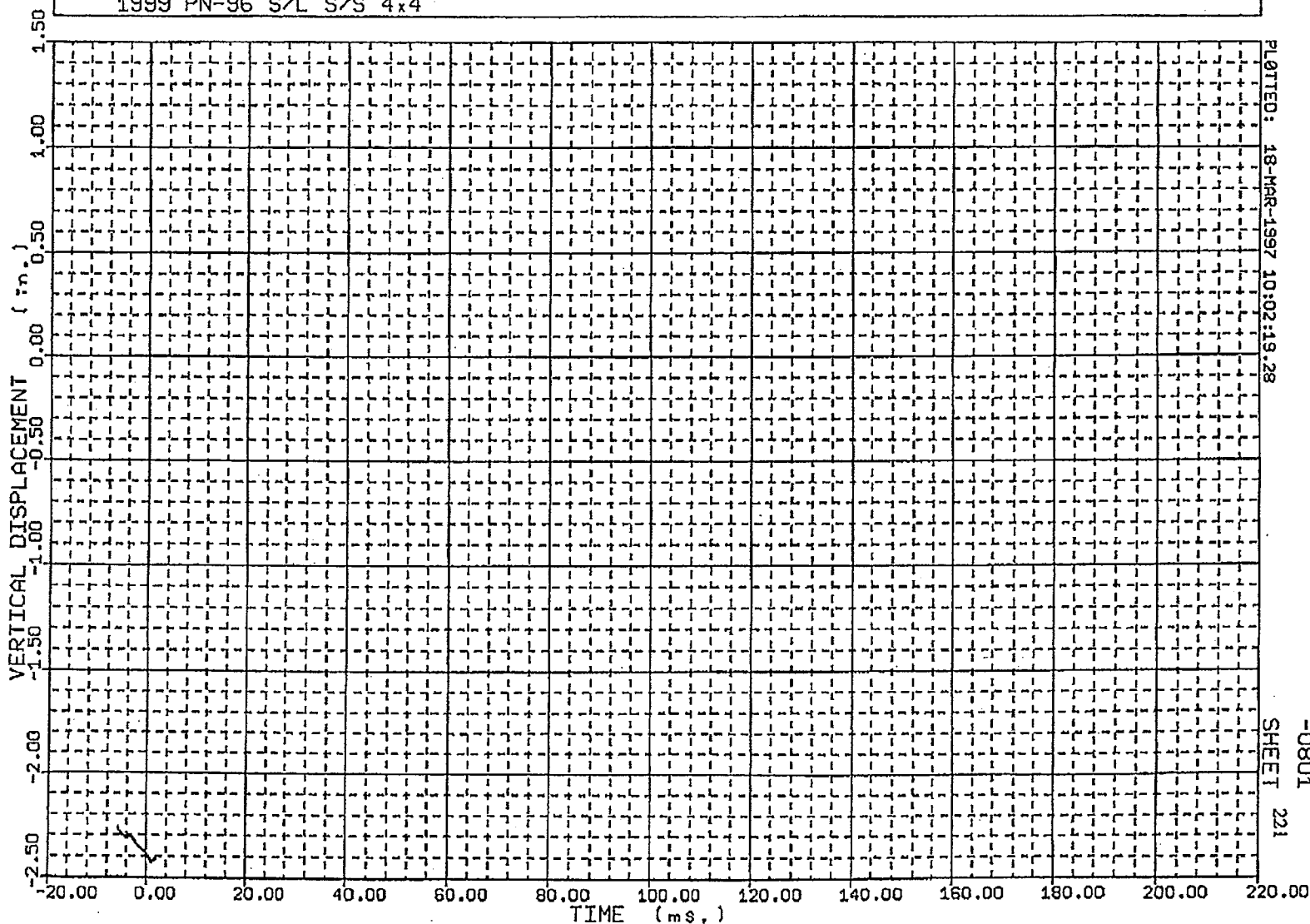
PLOTTED: 18-MAR-1997 10:02:16.97

-0801
SHEET 220

CRTS 0010631

0770

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

0771

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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CRTS 0010631

0772

222

F-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

223

F-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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CRIS 0010631

0774

224

F-A0801

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

Frame Thicknesses	Left	Right
1:		1:
2:		2:
3: ***		3: ***
4: ***		4: ***
5:		5:
6:		6:

Bumper Thicknesses	Left:	Ctr:	Right:
Before:	Left:	Ctr:	Right:
After:	Left:	Ctr:	Right:

ROCKER SILL SET-UP POINTS

Before				After			
Left Front: ***	18.00 in.	Right Front: ***	18.00 in.	Left Front: ***	18.00 in.	Right Front: ***	18.80 in.
Left Rear: ***	18.00 in.	Right Rear: ***	18.00 in.	Left Rear: ***	18.00 in.	Right Rear: ***	20.35 in.

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CRTS 0010631

0775

225

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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CRTS 0010631

0776

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T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

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		
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

0777

227

F-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

4. POINT COORDINATES																	
UNT NO	SIDE	PNT NO	SPX LET	DESCRIPTION		INCHES			NOTES	X	INCHES CHANGED			Z			
						Long X	Lat Y	Vert Z			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 P	D							
		36		"H" POINT LOCATION on outer rear/ocupant door	BEF AFT	150.94	38.31	42.76	P P								

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CRIS 0010631

0778

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T-A0801

ASC TO #: TR0801-T ver. 00

Control #: 02578
Time and Date of Report: 20-MAR-1997 12:53

Crash #: 10631

UNT NO	SIDE	PNT NO	SPX LET	DESCRIPTION		4. POINT COORDINATES			NOTES 1 2 3 4 5	X	INCHES CHANGED		Z
						INCHES					Y	D	
						Long X	Lat Y	Vert Z					
		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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F-A0801

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
412	R	16		LATCH/STRIKER bolt @C/L	BEF	133.87	-33.94	43.40		0.27	-0.06	-0.02
			or U-BOLT@top @B pillar	AFT	134.14	-34.00	43.38		0.28			
		86		REAR FENDER LIP (bottom	BEF	219.19	-39.42	43.60	1.04	3.24	-0.68	
			side) @ axle c/line	AFT	220.23	-36.18	42.92		3.47			
		89		END OF REAR SPINDLE	BEF	219.19	-32.90	14.10	1.78	4.42	3.36	
			@ CENTERLINE(wheelbase)	AFT	220.97	-28.48	17.46		5.83			
		TOP (BODY) SIDED POINTS										
		09		END OF FRONT SPINDLE	BEF	62.48	33.39	16.55	3.84	5.22	0.79	
			@ CENTERLINE(wheelbase)	AFT	66.32	38.61	17.34		6.53			
		10		FRONT FENDER LIP(bottom	BEF	62.48	37.87	44.66	6.12	2.91	-1.76	
			side) @ axle c/line	AFT	68.60	40.78	42.90		7.00			
		16		LATCH/STRIKER bolt @C/L	BEF	133.90	34.23	43.25	4.51	-7.22	0.44	
or U-BOLT@top @B pillar	AFT		138.41	27.01	43.69		8.52					
86		REAR FENDER LIP (bottom	BEF	219.10	39.33	43.51	2.31	2.28	2.51			
	side) @ axle c/line	AFT	221.41	41.61	46.02		4.10					
89		END OF REAR SPINDLE	BEF	219.10	32.84	14.04	3.01	3.06	3.81			
	@ CENTERLINE(wheelbase)	AFT	222.11	35.90	17.85		5.74					
418		NHTSA BARRIER FACE										
	01		** SECTIONAL PROFILE **	BEF								
		TOP OF STACK Z=32" (S1)	AFT									

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4. POINT COORDINATES												
UNT NO	SIDE	PNT NO	SFX LET	DESCRIPTION	INCHES			NOTES 1 2 3 4 5	X	INCHES CHANGED		Z
					Long X	Lat Y	Vert Z			Y D	Z	
		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			Q Q				
425				MIDLINE EXTERIOR SECT								
		01		** SECTIONAL PROFILE ** @ MIDLINE EXT (S1,2)	BEF AFT			Q Q				
427				CHARACTER LINE EXT SECT								
		01		** SECTIONAL PROFILE ** @ CHARACTER LINE (S1,2)	BEF AFT			Q Q				
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 1 2 3 4 5					X	Y D	Z
		01		** SECTIONAL PROFILE ** @ ROCKER EXTERIOR (S1,2)	BEF AFT							0 0			
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												
UNT NO	SIDE	PNT NO	SFX LET	DESCRIPTION	INCHES			NOTES 1 2 3 4 5	X	INCHES CHANGED		Z
					Long X	Lat Y	Vert Z			Y D		
440				V/SECT @FRT "H" POINT								
		01		Vert/Sect @front "h" pt exterior,interior[s1,2]	BEF AFT							
441				1ST 50mm RWD/STRIKER PL								
		01		Vert/Sect @1st 50mm rwd Striker plane ex/in 1,2	BEF AFT							
442				V/SECT @REAR "H" POINT								
		01		Vert/sect @rear "H" pt. exterior,interior[s1,2]	BEF AFT							
650				BLANK UNIT POINTS								
		01	1	See comments page	BEF AFT	91.39	31.68	37.45				
		02	2	See comments page	BEF AFT	102.18	32.49	43.27				
		03	3	See comments page	BEF AFT	114.51	32.57	52.81				
		04	4	See comments page	BEF AFT	113.75	33.14	49.29				

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UNT NO	SIDE	PNT NO	SEF LET	DESCRIPTION	4.	POINT COORDINATES INCHES			NOTES 1 2 3 4 5	X	INCHES CHANGED		
						Long X	Lat Y	Vert Z			Y D	Z	
		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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4. POINT COORDINATES									
UNT NO	SIDE	PNT NO	SRX LET	DESCRIPTION		INCHES		Vert Z	NOTES 1 2 3 4 5
						Long X	Lat Y		
		16	16	See comments page	BEF AFT	111.93	-27.43	30.60	
		17	17	See comments page	BEF AFT	124.33	-27.31	29.10	
		18	18	See comments page	BEF AFT	111.86	-0.33	31.98	
		19	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		
						1	2	3	4	5		Y	Z	
				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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5. SECTIONALS

UNT NO	SCIN NO	SIDE	TYPE	SRQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES		Z
						1	2	3	4	5		Y		
				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		
						1	2	3	4	5		Y	Z	
				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		
						1	2	3	4	5		Y	Z	
				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	
						1	2	3	4	5		Y	Z
				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		Z
						1	2	3	4	5		Y		
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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5. SECTIONALS

UNIT NO	SCIN NO	SIDE	TYPE	SEQ NO	NAME AND CRASH STATUS	NOTES					X	INCHES	
						1	2	3	4	5		Y	Z
				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 1 2 3 4 5	X	INCHES 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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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	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

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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

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	ARTER						137.07	23.30	24.33	
				05	AFTER						142.14	23.20	24.19	
				06	ARTER						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

F-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578
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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		
				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
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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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0799

249

T-A0801

ASC TO #: TA0801-T ver. 00

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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
				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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0800

250

T-A0801

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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		
				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

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S. 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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0802

252

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		
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	
				06	BEFORE						86.64	37.45	47.37	
438	S1		A	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	
				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
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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									
				01	PRE-CRASH 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									
				01	POST-CRASH AFTER						104.84	31.23		22.83
				02	AFTER						104.75	31.05		24.72

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0804

254

T-A0801

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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						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									
				01	PRE-CRASH BEFORE						98.40	32.64		29.32
				02	BEFORE						98.38	32.66		34.49

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0805

255

T-A0801

ASC TO #: TA0801-T ver. 00

Control #: 02578
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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									
				01	POST-CRASH						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									
				01	PRE-CRASH						119.43	37.40		24.10
					BEFORE									

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0806

256

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		
				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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0807

257

F-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	SRQ 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
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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	
				19	AFTER						123.10	26.70	77.57	
440	S2		A		Front "H" continued PRE-CRASH									
				01	BEFORE						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 POST-CRASH									
				01	AFTER						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

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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
441	S1		A		Striker sectional								
				01	PRE-CRASH 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
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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		16	BEFORE						135.86	19.98	78.50
					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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0811

261

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

UNIT 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 BEFORE						135.72	32.46		31.81
				01							135.78	32.44		40.72
				02	BEFORE						135.78	32.43		48.63
				03	BEFORE						135.84	32.29		56.30
				04	BEFORE						135.79	29.53		66.21
				05	BEFORE						135.84	26.13		72.55
				06	BEFORE									
441	S2		A		Striker continued POST-CRASH AFTER						140.19	23.79		31.58
				01										

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0812

262

F-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 1 2 3 4 5	X	INCHES Y	Z
				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 BEFORE				
				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
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						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 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
				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								
				01	BEFORE						150.47	32.41	37.77
				02	BEFORE						150.48	32.40	51.67
				03	BEFORE						150.53	32.95	54.33
442	S2		A		Rear "H" continued POST-CRASH								

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CRIS 0010631

0815

265

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
				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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CRIS 0010631

0816

266

T-20801

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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CRIS 0010631

0817

267

T-A0801

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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CRIS 0010631

0818

268

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

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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CRIS 0010631

0819

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T-A0801

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)

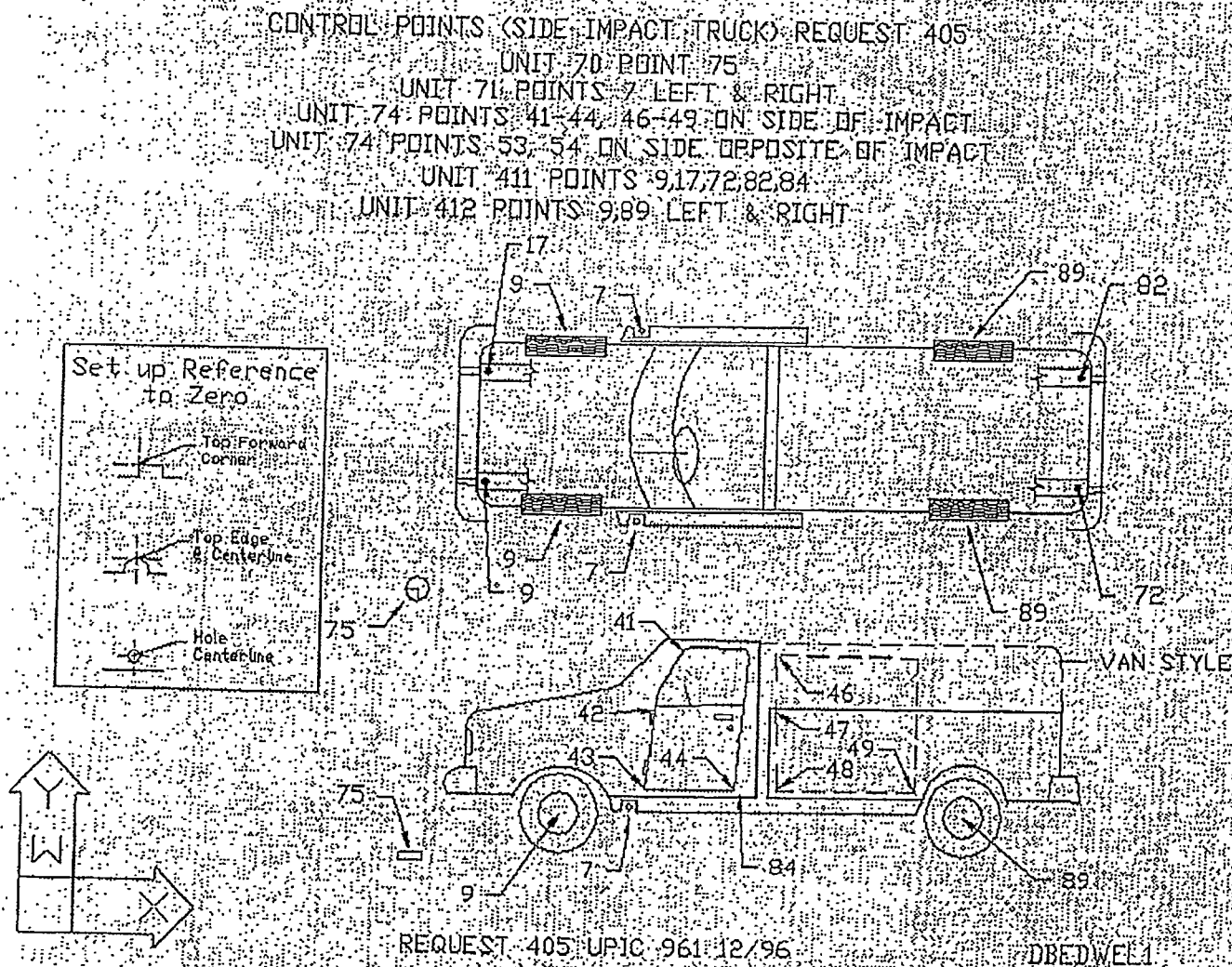
Master Report, Section 7 of 7, Page 1 of 1

CRTS 0010631

0820

270

F-A0801



CRTS 0010631

1 of 1

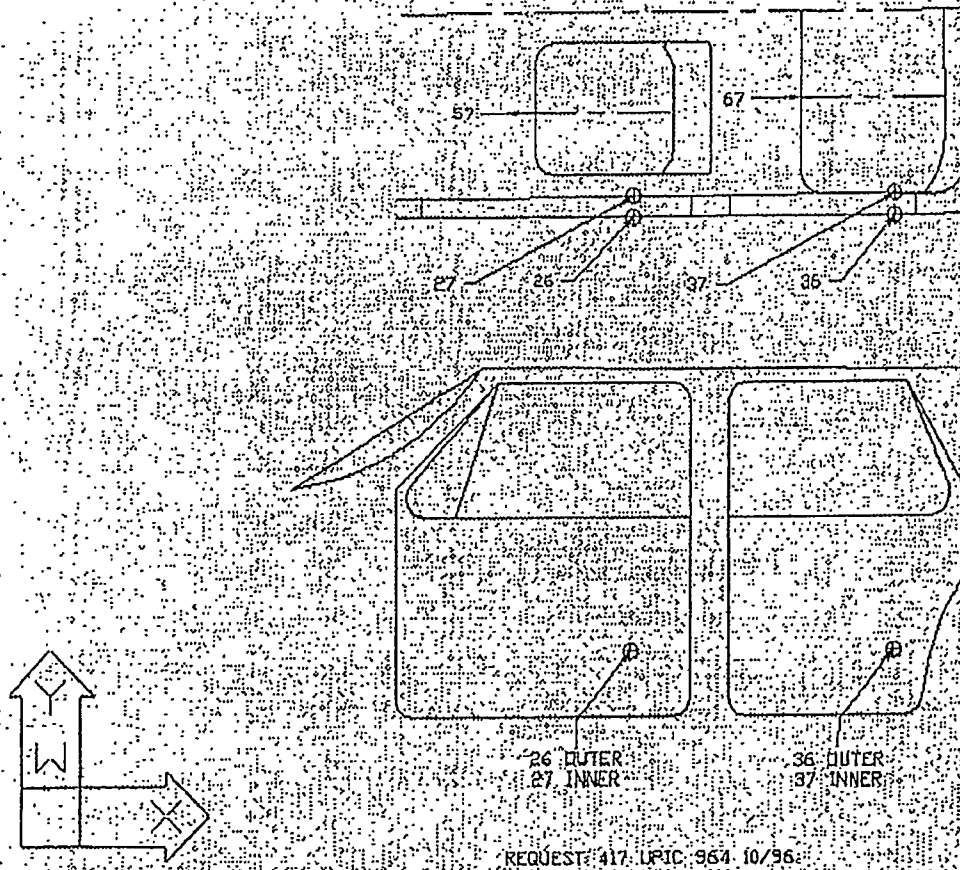
0821

271

F-A0801

04/29/97 14:01:5

PRE-CRASH LATERAL C/L'S 14 POINTS REQUEST 417
UNIT 411 POINTS 26,27,36,37,57,67



CRTS 0010631

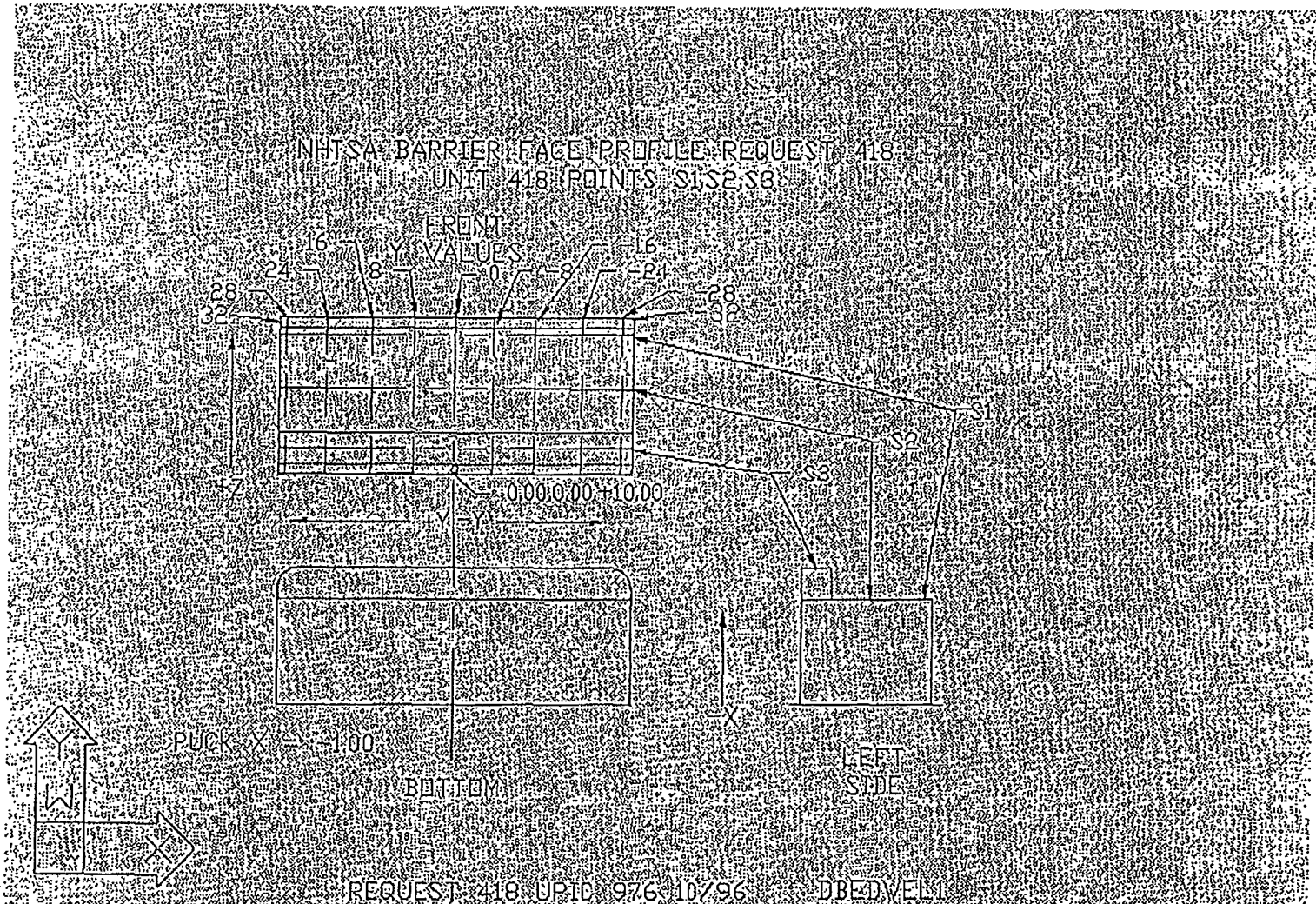
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0822

272

F-A0801

04/20/97 14:03:1



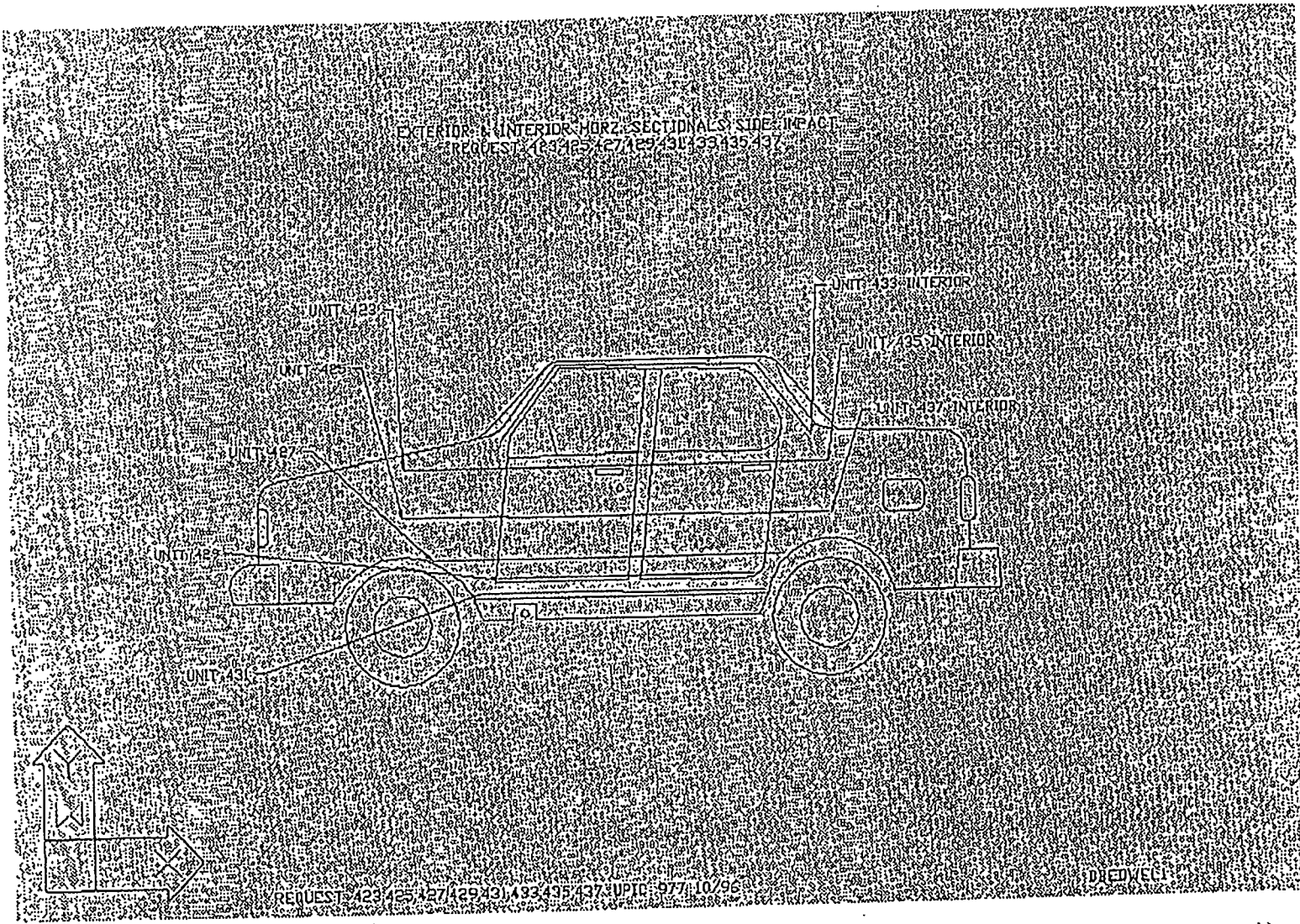
CRTS 0010631

0823

273

F-A0801

05/01/97 11:17:



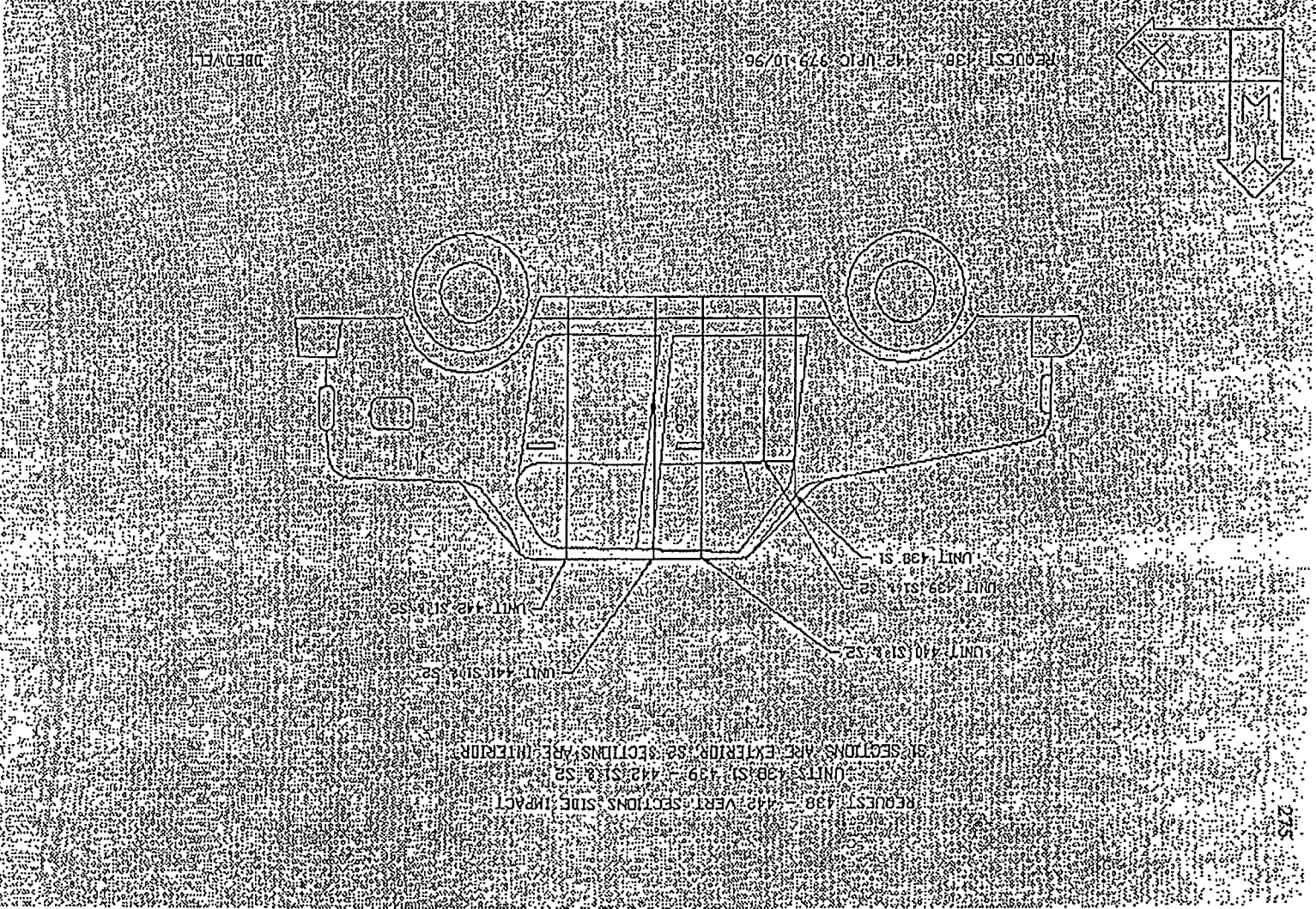
CRTS 0010631

0824

274

T-A0801

04/20/97 14:05:11



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: *Q58*, *N/A 2/24/97*
 Occupant 2: *Q58*, *N/A 2/24/97*

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:

Pyro 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:

PMs N/A Remote Fire Time:
a/b (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**

	<i>Occupant 1</i>	<i>Occupant 2</i>
Type	SID	SID
Instrumentation Level*	Development	Development
In-Vehicle Location	RF	RR
Verify: <i>Seat Position Long</i>	mid track travel	mid track travel
<i>Seat Position Vert</i>	full down	as delivered
<i>Seat Back Angle</i>	21.0 degrees	21.0 degrees
Positioning Procedure	ST-15	ST-15
<i>Use Foot Rest</i>		
<i>Take Seat Track Video</i>	X	X
<i>Special Positioning Instructions</i>		
 Dummy Adjustment (arm angle)		
Occupant Belted	YES	YES

*See Instrumentation request for detailed instrumentation information.

<<< <<< END OF SHEET >>> >>>

Dimensional Analysis Request **Primary Vehicle**

Side Impacts

	404	Control Points (CAR)	
X	405	Control Points (TRUCK)	Exterior
X	409	Body Targets & Orientation Points (Wheel Lips)	Exterior
X	411	A.B.C. Pillars	Exterior
X	417	Pre-Crash Lateral Seat CL's, H-Pts, etc	Interior
X	418	NHTSA Barrier face Profiles (Mid-Bumper; Mid-Stack; Top of Barrier)	Exterior/Interior
	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
U/ A-PILLAR_INSIDE @_ROCKER			
U/ A-PILLAR_INSIDE @_HINGE			
R/ A-PILLAR_INSIDE @_HINGE			
U/ F_DOOR @_BELTLINE_MID			
U/ F_DOOR_OVER_ARMREST			
U/ F_DOOR_REAR_OF_SEAT_H-PT			
U/ F_DOOR_SPEAKER_HOLE			
U/ B-PILLAR_INSIDE @_ROOF			
U/ B-PILLAR_INSIDE @_BELTLINE			
U/ B-PILLAR_INSIDE @_ROCKER			
U/ R_DOOR @_BELTLINE_MID			
U/ R_DOOR_OVER_ARMREST			
U/ ROCKER @_FRONT_SEAT_MID			
U/ 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 X R/ ROCKER @_FRONT_SEAT_MID			X
Delete 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
EMC { 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> </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>

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. CuKeen
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/No/Pingston/Oda

CRTS 0010631

0838

Requestor/Originator: P. Culkeen
Printed: 2/21/97 Facility: Barter
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Request #: 16-R11-3842
Instrumentation Attachment
Page 6 of 9

Auto TA
Ver: 2.0ad Issued: Sept 13, 1996
Authors: Green/Ng/Pingston/Oda

CRTS 0010631

0839

Dummy Instrumentation - Internal

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/
X R/F DUMMY_THORAX/RIB/G/
X R/F DUMMY_THORAX/RIB/LO/

SID

R/F PMC

2/21

X Long X Vert X Lat
X Long X Vert N/A 259 2/25/97
X Lat - L Lat - R
X Long X Vert N/A 259 2/25/97
X Lat - FRT Lat - REAR
X Long X Vert
X Lat - L Lat - REAR
X Lat - FRT Lat - REAR
X Lat - FRT Lat - REAR
X Lat - FRT 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
____ 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/G/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/
☒ L/R DUMMY_THORAX/RIB/C/
☒ R/LR DUMMY_THORAX/RIB/LO/

☒ Long	☒ Vert	☒ Lat
☒ Long	☒ Vert	☒ Lat - L
☒ Lat - L	☒ Vert	☒ Lat - R
☒ Long	☒ Vert	☒ Lat - FRT
☒ Lat - FRT	☒ Vert	☒ Lat - REAR
☒ Long	☒ Vert	☒ Lat - REAR
☒ Lat - L	☒ Lat - REAR	☒ Lat - REAR
☒ Lat - FRT	☒ Lat - REAR	☒ Lat - REAR
☒ Lat - FRT	☒ Lat - REAR	☒ 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)

☐ Fx	☐ Fy	☐ Fz
☐ Mx	☐ My	☐ Fz
☐ 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. Culkeon
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Instrumentation Attachment
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Auto TA
Ver: 2.0ad Issued: Sept 13, 1998
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 >>> >>>

CRTS 0010631

Requestor/Originator: P. Cullen
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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
Author: Olsen/Ng/Pingston/Oda

0843

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>	Name: <u>P. Culkeen</u>	Name: <u>F. Naglich</u>
Phone: <u>39-08063</u>	Phone: <u>59-44792</u>	Phone: <u>33-78735</u>
Pager: <u>313/257-6835</u>	Pager: <u>313/660-0792</u>	Pager: <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>
Fill Level	=	%	x	Capacity

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>	<u>0 lbs</u>	Front: <u>3489</u>
Rear: <u>2,216 lbs</u>	<u>2,644 lbs</u>	Rear: <u>13 lbs</u>	<u>0 lbs</u>	Rear: <u>2653</u>
Total: <u>5,470 lbs</u>	<u>6,110 lbs</u>	Total: <u>25 lbs</u>	<u>0 lbs</u>	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 ☐ Battery ☐ Bottle - Coolant ☐ Bottle - Washer Other: _____ _____ _____	☐ Engine ☐ Fan Box/Shroud ☐ Headlamp Opngs ☐ Radiator	☐ Doors ☐ Foot Wells - Front ☐ Foot Wells - Rear ☐ Quarter Panels ☐ 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 Kester (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 Cuberton

ID	Location Name	Type	Output	Nominal (+/-)	Max/Min	Serial No.	Rev
5	L/RAD UP FRT BRKT	Accel	Tmax				
6	C/RAD UP REAR BRKT	Accel	Tmax				
7	R/RAD UP FRT BRKT	Accel	Tmax				
8	L/GOR BRKT LWR BRKT	Accel	Tmax				
9	R/GOR BRKT LWR BRKT	Accel	Tmax				
12	C/RAD LWR FRT BRKT	Accel	Tmax				
13	L/GOR BRKT UPR BRKT	Accel	Tmax				
14	R/GOR BRKT UPR BRKT	Accel	Tmax				
15	UND L/F SEAT BTWN L/BOLTS BRKT	Accel	Tmax				
16	UND R/F SEAT BTWN R/BOLTS BRKT	Accel	Tmax				
17	UND L/F SEAT @ L/F BOLT BRKT	Accel	Tmax				
18	UND L/F SEAT @ L/R BOLT BRKT	Accel	Tmax				
19	UND R/F SEAT @ R/F BOLT BRKT	Accel	Tmax				
20	UND R/F SEAT @ R/R BOLT BRKT	Accel	Tmax				
21	C/L TNL BETWEEN F/SEATS BRKT	Accel	Tmax				
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	Tmax				
25	R/A-PLR IN ABOVE HINGE SENSOR	Accel	Tmax				
26	C/L TNL @ DASH BRKT	Accel	Tmax				
27	R/A-PLR REINF ABOVE HINGE BRKT	Accel	Tmax				
28	L/A-PLR REINF ABOVE HINGE BRKT	Accel	Tmax				
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-368-305	

Eric Kester 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

Vehicle Weight

Impact Velocity 33.5 MPH

Barrier Lot #

LF RF
LR RR

LF RF
LR RR
Total

3.7 5.9 1.2
Front Rear

Occupant/Vehicle Data

Dummy Serial Number		151	160
Seatback Angle - Barrier Measurement/(DA)		21.6	
Dummy to Interior/door H-point (+/- 0.5 inch required)	Vertical	-0.2	.8
Above/Forward (+) Below/Rearward (-)	Longitudinal	-0.3	.3
1. H-Point to Door Striker	Vertical	-1.2	15.9
Above/Forward (+) Below/Rearward (-)	Longitudinal	14.1	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)		13.2	18.4
7. Chest centerline to Vehicle centerline (lateral)		18.1	18.3
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		

