DOT/396

CALSPAN ADVANCED TECHNOLOGY CENTER

[redacted]

technical report

A DIVISION OF CALSPAN CORPORATION
AN ARVIN COMPANY — PO BOX 400 — BUFFALO NEW YORK 14225

CALSPAN ADVANCED TECHNOLOGY CENTER

IMPROVED LIGHTWEIGHT SUBCOMPACT
SIDE STRUCTURE TEST REPORT

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Calspan Report No. 6225-V-6

Prepared For:
THE BUDD COMPANY
TECHNICAL CENTER
FORT WASHINGTON, PA. 19034

PURCHASE ORDER NO. TC-14436

TEST:	TEST NO. 5
TYPE OF TEST:	CAR-TO-CAR FRONT TO SIDE OBLIQUE
TEST DATE:	17 MAY 1978

A DIVISION OF CALSPAN CORPORATION
AN ARVIN COMPANY PO. BOX 400 BUFFALO, NEW YORK 14225

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TEST OBJECTIVE

The test objective was to obtain performance data on the low weight (10 lb) modification that was done to the side structure on a 1978 VW Rabbit by the Budd Company. The test, a 30 mph car-to-car front-to-side oblique impact, involved a 1978 Chevrolet Impala striking the side of the VW Rabbit. This test program is part of the National Highway Traffic Safety Administration (NHTSA) Contract DOT-HS-7-01588 to improve subcompact side structures.

PRESENTATION RESULTS

This test report presents all the test results obtained from this car-to-car, front-to-side impact. Included in this document are still photographs, all vehicle and dummy response data in plotted form, vehicle interior and exterior damage sketches, figures of pre- and post-test vehicle side intrusion measurements and instrumentation identification. High-speed motion pictures and color slides of pre- and post-test conditions were obtained and have been submitted to the sponsor. Included in the vehicle response data, in plotted form, are dynamic intrusion measurements which were obtained by a Calspan designed linear displacement transducer.

Calspan Report No. ZP-6144-V-1, Baseline Crash Test No. 1, of the Improved Lighweight Subcompact Side Structure Contract, Appendix A contains information on the crash test facility and supporting equipment at Calspan.

TABLE 1
CRASH TEST SUMMARY

TEST NO. 5 **PROJECT** ~~Improved Lighweight Subcompact~~ Side Structure

DATE 5/17/78 **TIME** 11:15 **TEMP.** 57°F

TEST CONDITION Car-to-Car, 60° Side Oblique

BULLET **VEHICLE NO. 1** 1978 Chevrolet Impala (4-door Sedan)

TARGET **VEHICLE NO. 2** 1976 Volkswagen Rabbit

	VEH. NO. 1	VEH. NO. 2
TEST WEIGHT (lbs)	Curb Weight + 2 Dummies	Curb Weight + 2 Dummies
IMPACT ANGLE (deg)*	60	0
IMPACT VELOCITY (mph)**	30.85	0
MAX. CRUSH (in)	4.5	13***
MAX. INTRUSION (in)	0	20.4

DUMMIES	VEH. NO. 1	VEH. NO. 2
TYPE	Hybrid II Part 572	Hybrid II Part 572
LOCATION	LF (1), RF (2)	LF (1)1, RF (2)
RESTRAINT	Production 3-point System	Unrestrained Dummies

NUMBER OF DATA CHANNELS 71
NUMBER OF HIGH SPEED CAMERAS 11

*WITH RESPECT TO TOW TRACK CENTERLINE
**SPEED TRAP MEASUREMENT (±0.5% ACCURACY)
***WITH RESPECT TO DOOR BEAM

OBSERVATIONS (VEHICLE NO. 1) 1978 CHEVROLET IMPALA

GLAZING UNDAMAGED

DOORS UNDAMAGED

SEAT ANCHORAGES INTACT

RESTRAINTS INTACT

OBSERVATIONS (VEHICLE NO. 2) 1976 VOLKSWAGEN RABBIT

GLAZING WINDSHIELD WAS CRACKED, DRIVER'S DOOR AND REAR SIDE WINDOWS WERE BROKEN

DOORS PASSENGER DOOR WAS OPERABLE

SEAT ANCHORAGES DRIVER'S SEAT WAS CRUSHED

RESTRAINTS ----------

GENERAL COMMENTS

- ALL CAMERAS OPERATED
- ON CAR NO. 2 "ON" CHANNEL OF DATA WAS LOST DUE TO CUT WIRE ON DRIVER DUMMY (HEAD Z)
- ON CAR NO. 1 ENGINE X ACCELERATION IS EXTREMELY LOW; THE ACCELEROMETER WAS FOUND TO BE DEFECTIVE.

TABLE 2

VEHICLE TEST WEIGHT

CAR 1 - BULLET VEHICLE - 1978 CHEVROLET IMPALA

Left Front	1100 lbs.	Left Rear	750 lbs.
Right Front	930 lbs.	Right Rear	750 lbs.
Total Front	2030 lbs.	Total Rear	1500 lbs.

Total Weight = 2030 lbs. + 1500 lbs. = 3530 lbs.

Wheel Base 126.5 in.

$$Cg_{FW} = \frac{1500 \text{ lbs.}}{3530 \text{ lbs.}} \cdot 126.5 \text{ in.} = 53.75 \text{ in.}$$

CAR 2 - TARGET VEHICLE - 1976 VOLKSWAGEN RABBIT

Left Front	700 lbs.	Left Rear	440 lbs.
Right Front	680 lbs.	Right Rear	490 lbs.
Total Front	1380 lbs.	Total Rear	930 lbs.

Total Weight = 1380 lbs. + 930 lbs. = 2310 lbs.

Wheel Base 95.5 in.

$$Cg_{FW} = \frac{930 \text{ lbs.}}{2310 \text{ lbs.}} \cdot 95.5 \text{ in.} = 38.04 \text{ in.}$$

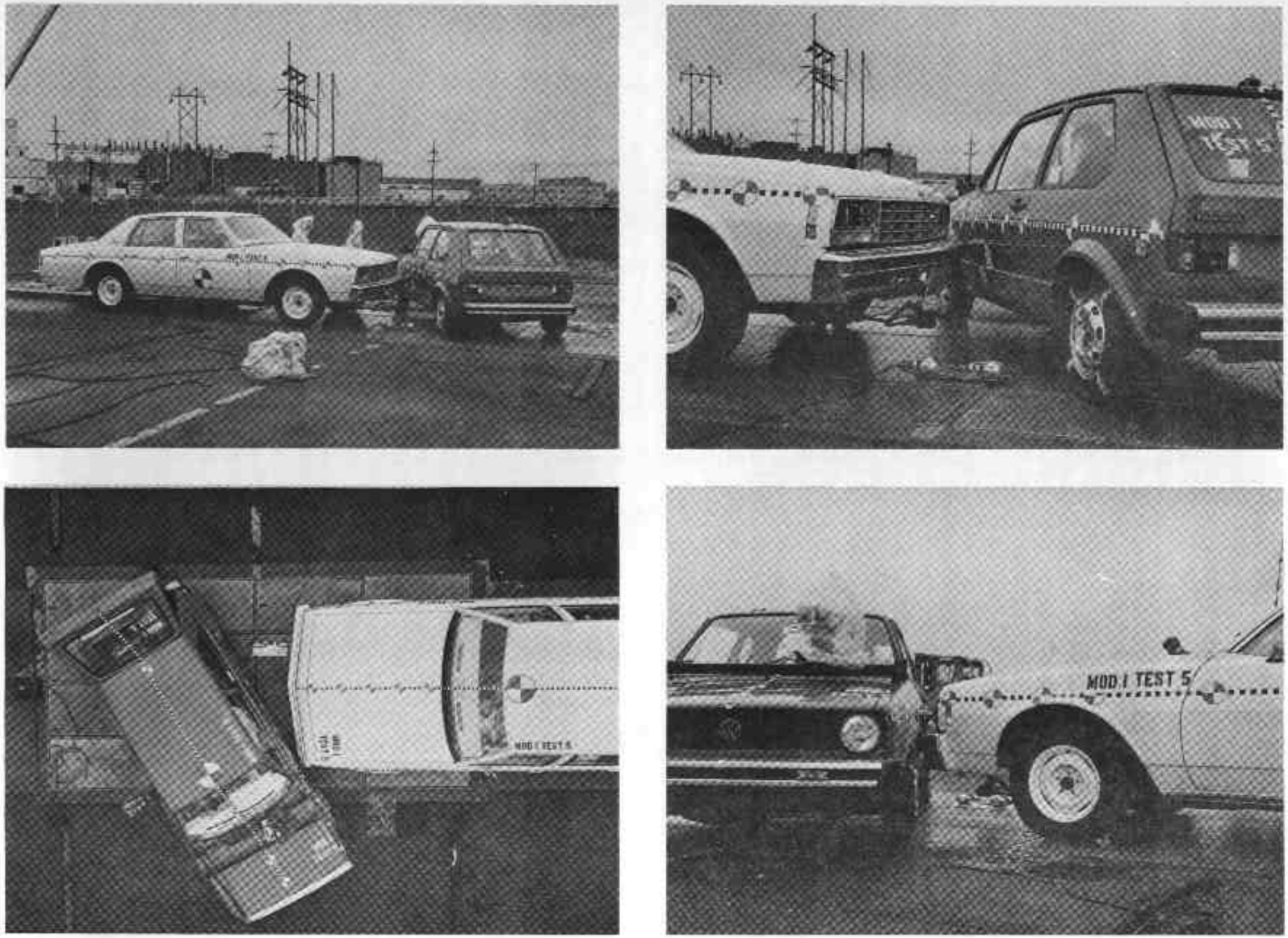

Figure 1 PRE-TEST NO. 5 – VEHICLE IMPACT CONFIGURATION

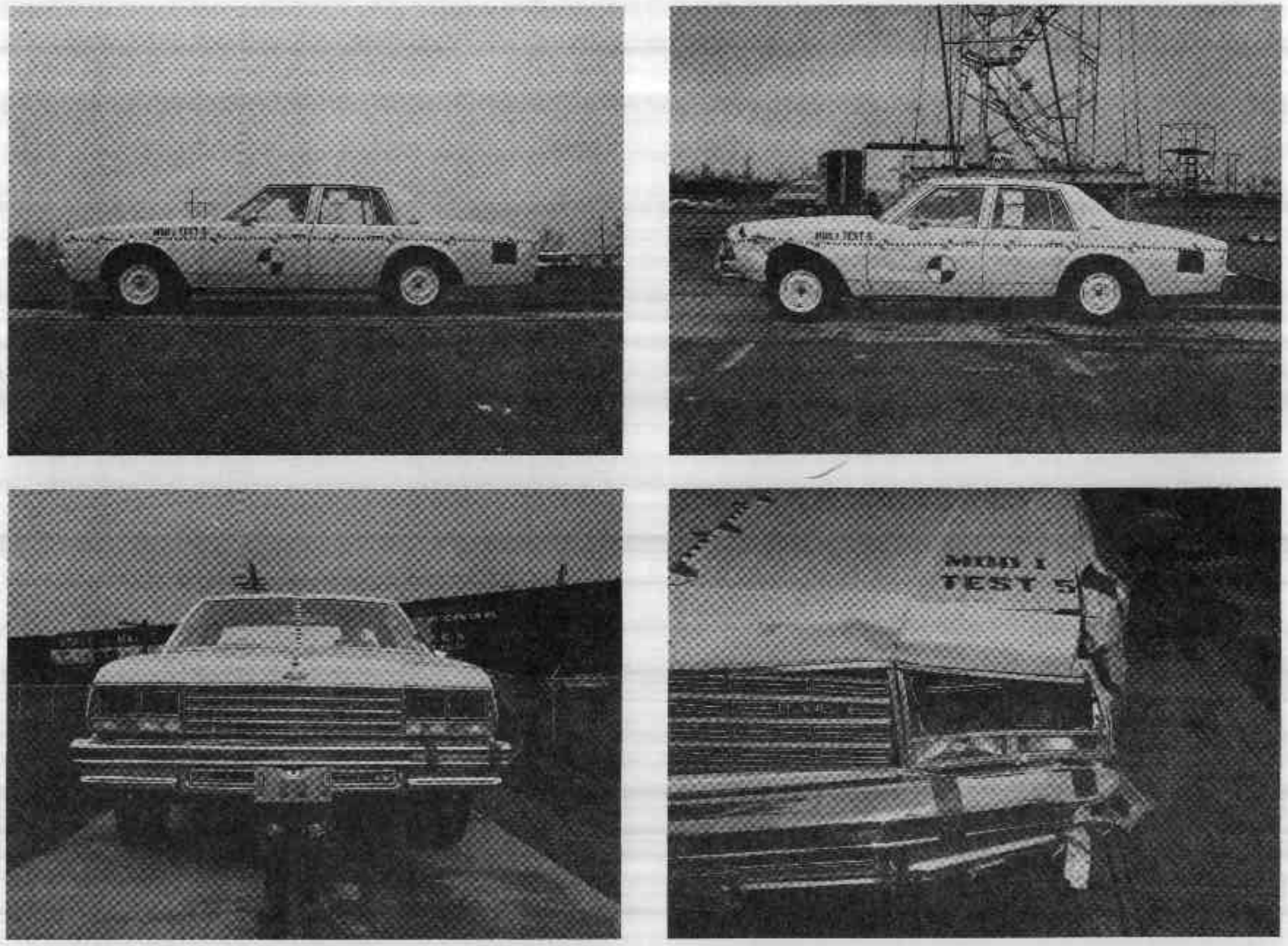

Figure 2 PRE- AND POST-TEST NO. 4 CAR 1, 1978 CHEVROLET IMPALA

Figure 3 PRE- AND POST-TEST NO. 5 – CAR 2, 1976 V.W. RABBIT

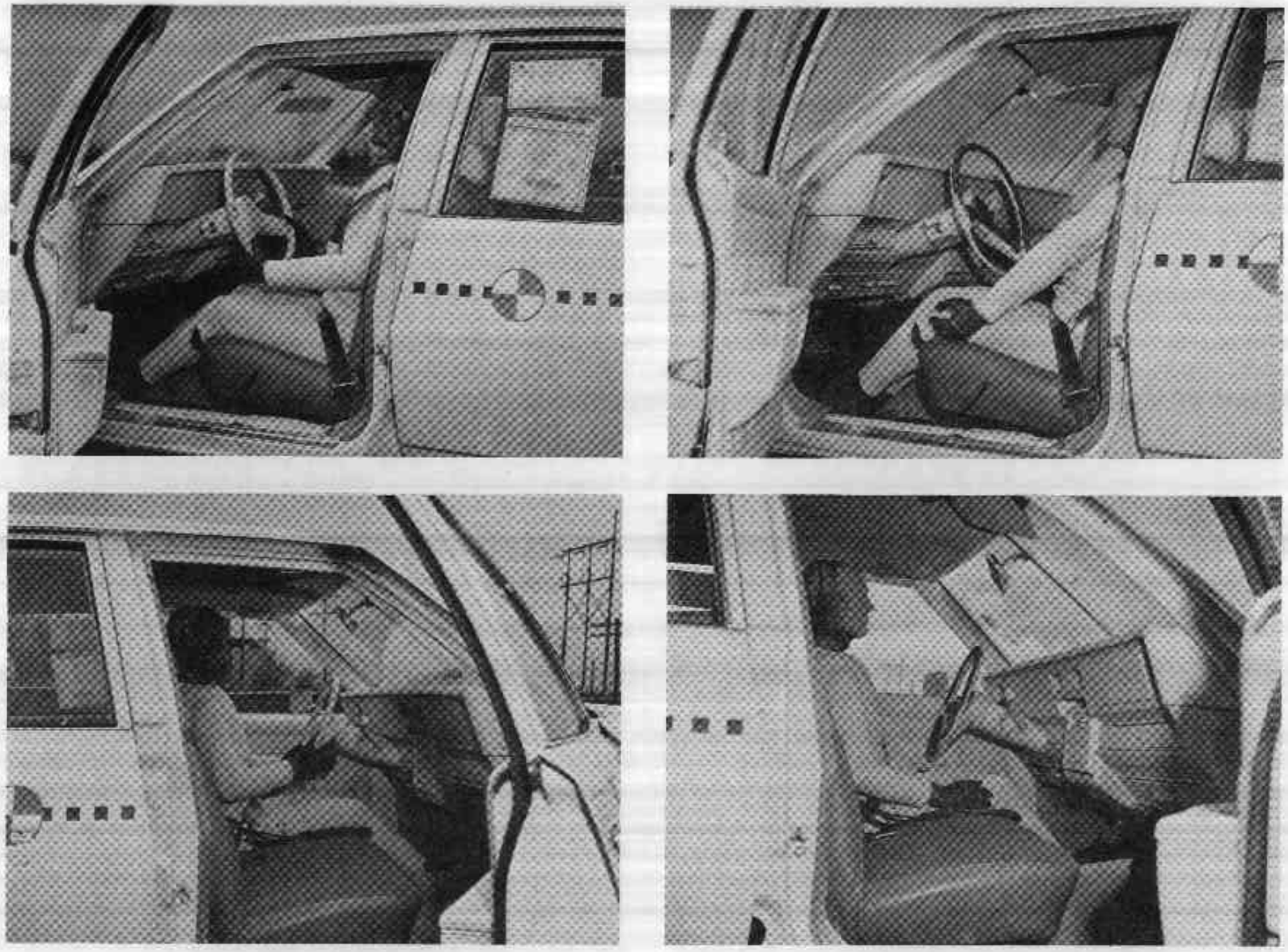

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Figure 4 PRE- AND POST TEST NO. 5 – CAR 1, 1978 CHEVROLET IMPALA INTERIOR

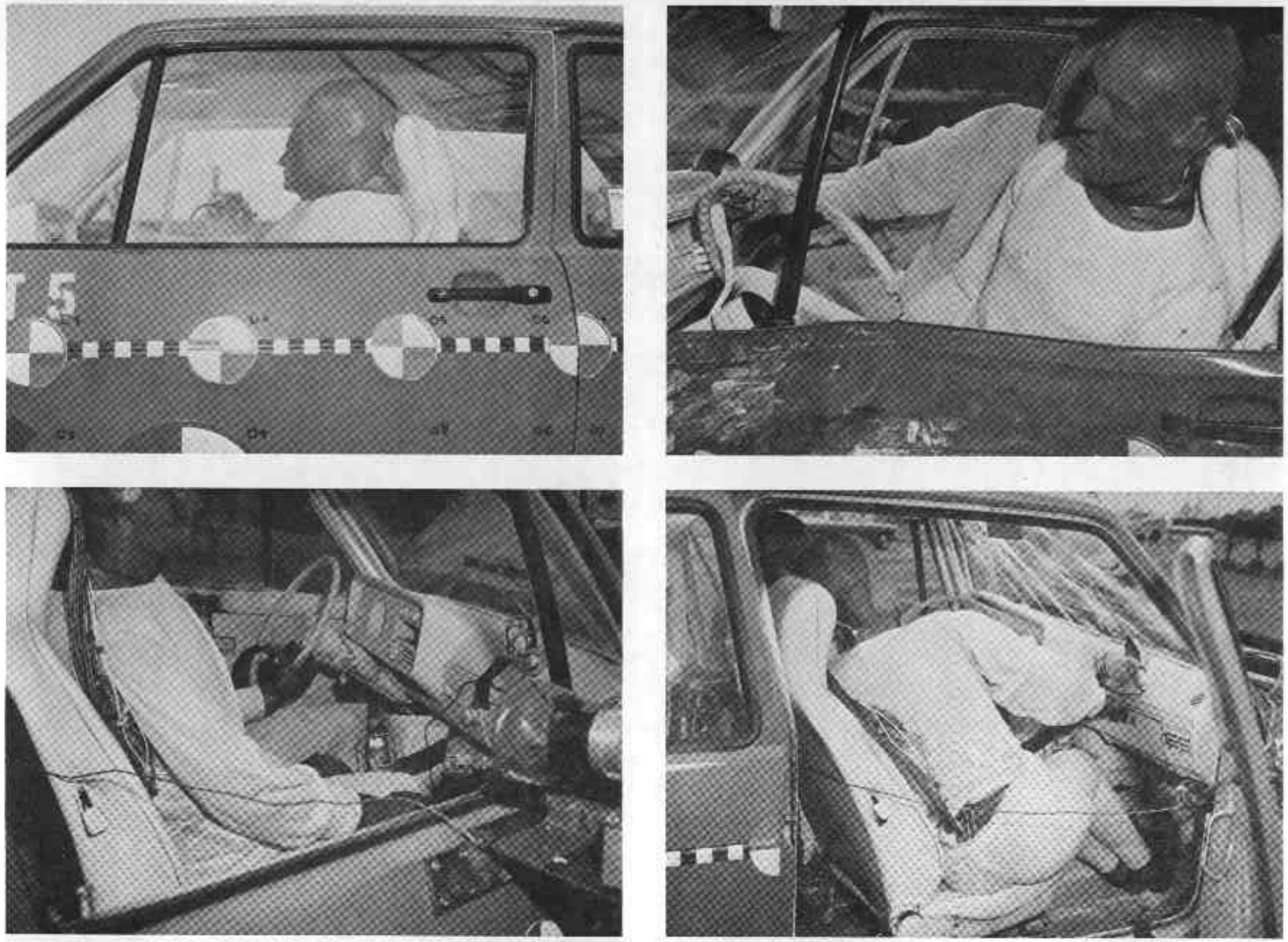

Figure 5 PRE- AND POST-TEST NO. 4 – CAR 2, 1976 V.W. RABBIT INTERIOR

CRASH EVENT

SIDE DAMAGE ON V.W. RABBIT

Figure 6 IMPACT AND POST IMPACT OF V.W. RABBIT

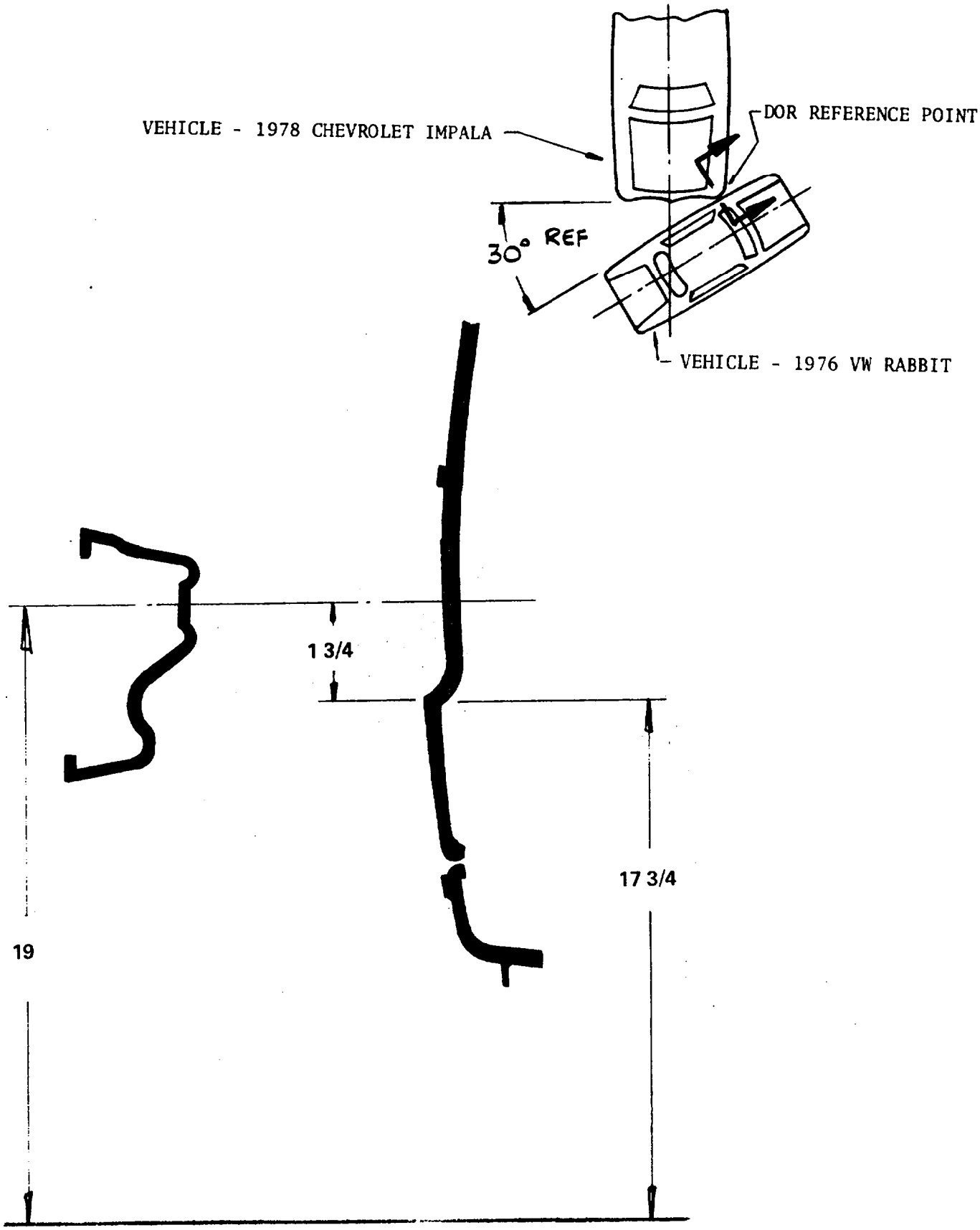

Figure 7 VEHICLE CRASH ATTITUDE

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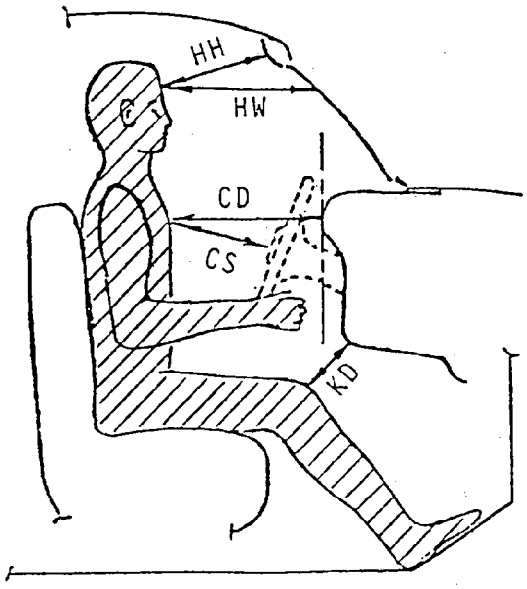
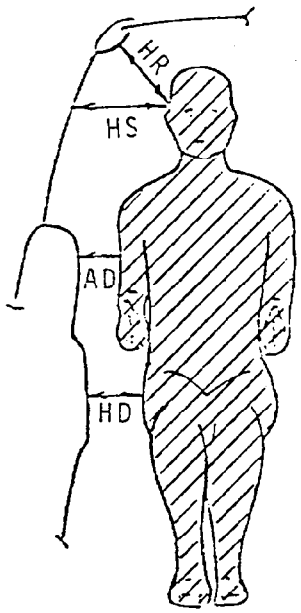
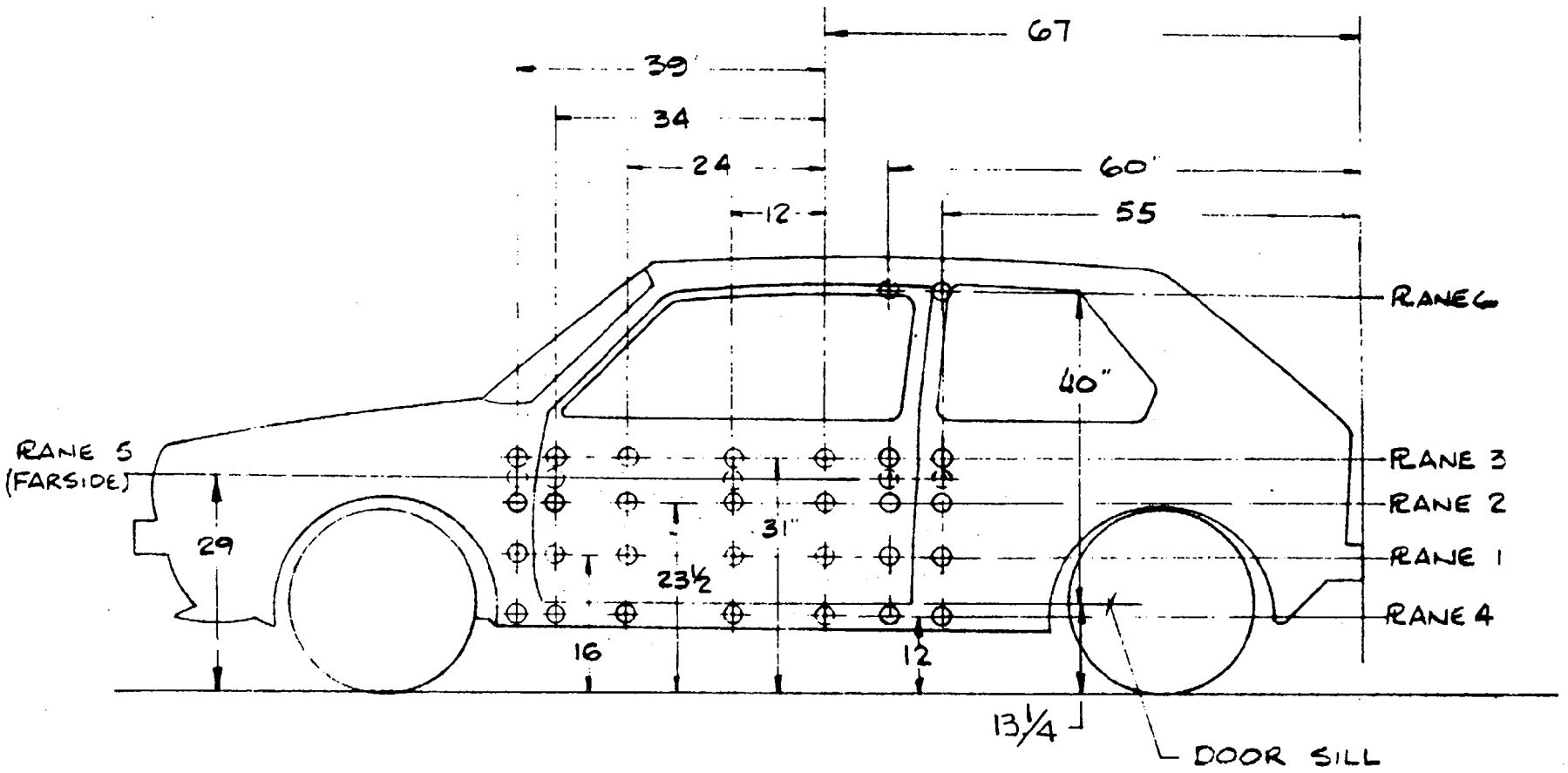


HH 15.5"
HW 22.0"
CD 21.0"
CS 12.0"
KD 7.25"



HR 5.0"
HS 7.5"
AD 3.5"
HD 6.0"

Figure 8 OCCUPANT CLEARANCE DIMENSIONS



1976 V.W. RABBIT PRE-TEST LOCATION MEASUREMENTS

Figure 9 SIDE INTRUSION MEASUREMENTS (SEE TABLE NO. 2)

Table 3

SIDE INTRUSION MEASUREMENTS

DIMENSIONS LISTED BELOW ARE FROM POINTS SHOWN ON FIGURE 9 TO REFERENCE PLANES LOCATED PARALLEL TO AND OUTBOARD FROM OF VEHICLE (L. SIDE 42.6 - R. SIDE 38.2)

PLANE NO.		DIMENSIONS (INCHES) ROW						
		1	2	3	4	5	6	7
1	PRE-	13.4	13.4	13.2	13.4	13.5	13.6	13.7
	POST	15.9	20.0	23.3	24.7	24.9	24.4	23.4
	DIFF.	2.5	6.6	10.1	11.3	11.4	10.8	9.7
2	PRE-	12.6	12.6	12.5	12.5	12.6	12.6	12.7
	POST	16.6	22.5	28.0	29.5	28.9	27.6	27.8
	DIFF.	4.0	9.9	15.5	17.0	16.3	15.0	15.1
3	PRE-	12.9	12.9	12.6	12.6	12.6	12.6	12.9
	POST	16.0	21.0	27.9	33.0	29.7	27.8	25.8
	DIFF.	3.1	8.1	15.3	20.4	17.1	15.2	12.9
4	PRE-	14.5	14.4	14.4	14.4	14.5	14.9	14.9
	POST	16.9	19.6	21.0	21.5	22.6	22.0	20.4
	DIFF.	2.4	5.2	7.4	7.1	8.1	7.1	5.5
5	PRE-	8	8		7.9		8	8.1
	POST	5.7	5.7	----	5.9	----	6.2	6.4
	DIFF.	2.3	2.3		2.0		1.8	1.7
6	PRE-						19.9	20.2
	POST	----	----	----	----	----	23.5	24.0
	DIFF.						3.6	3.8
7	PRE-							
	POST	----	----	----	----	----	----	----
	DIFF.							

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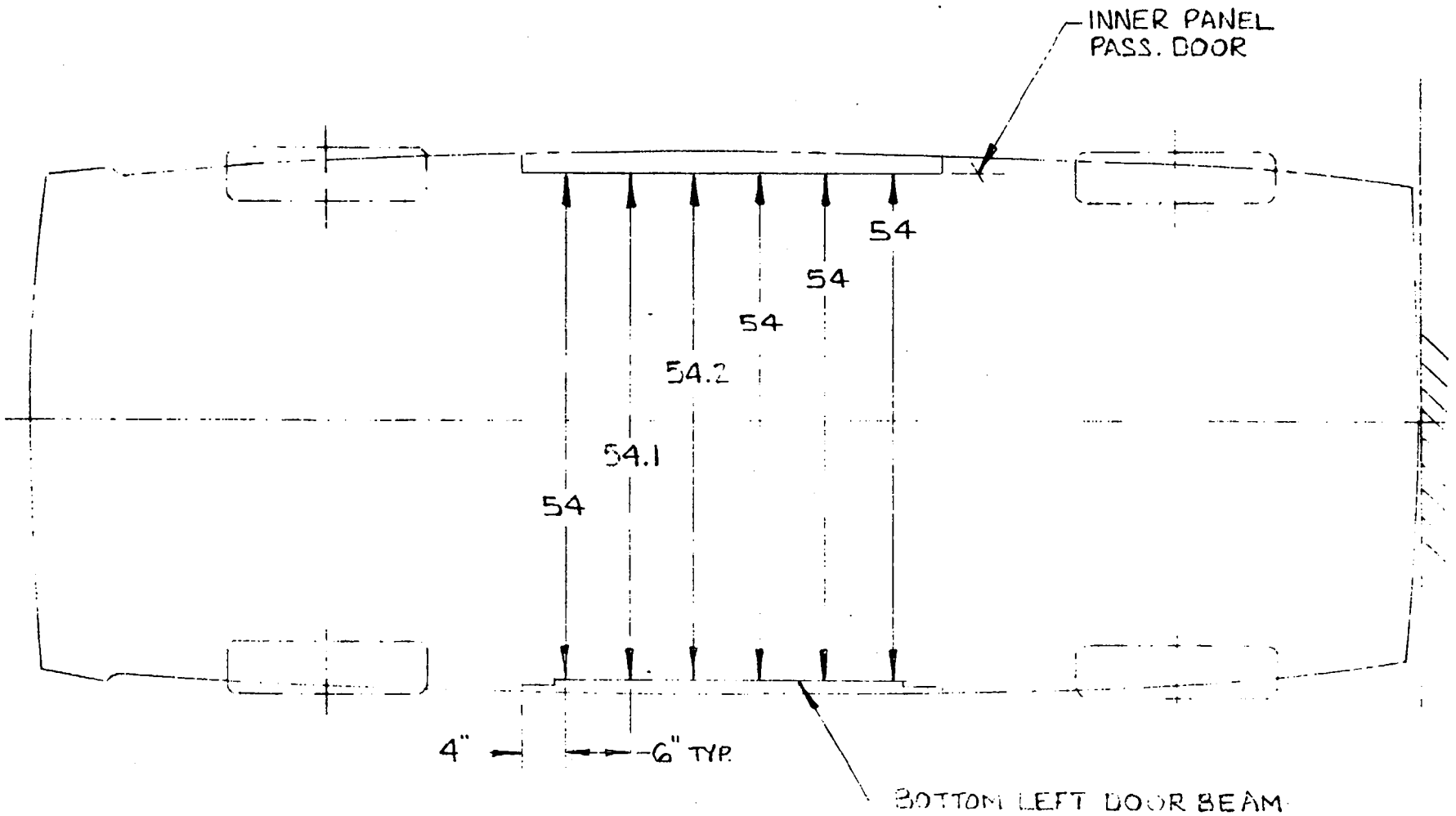


Figure 10-1 PRE-TEST DOOR BEAM INTRUSION MEASUREMENTS

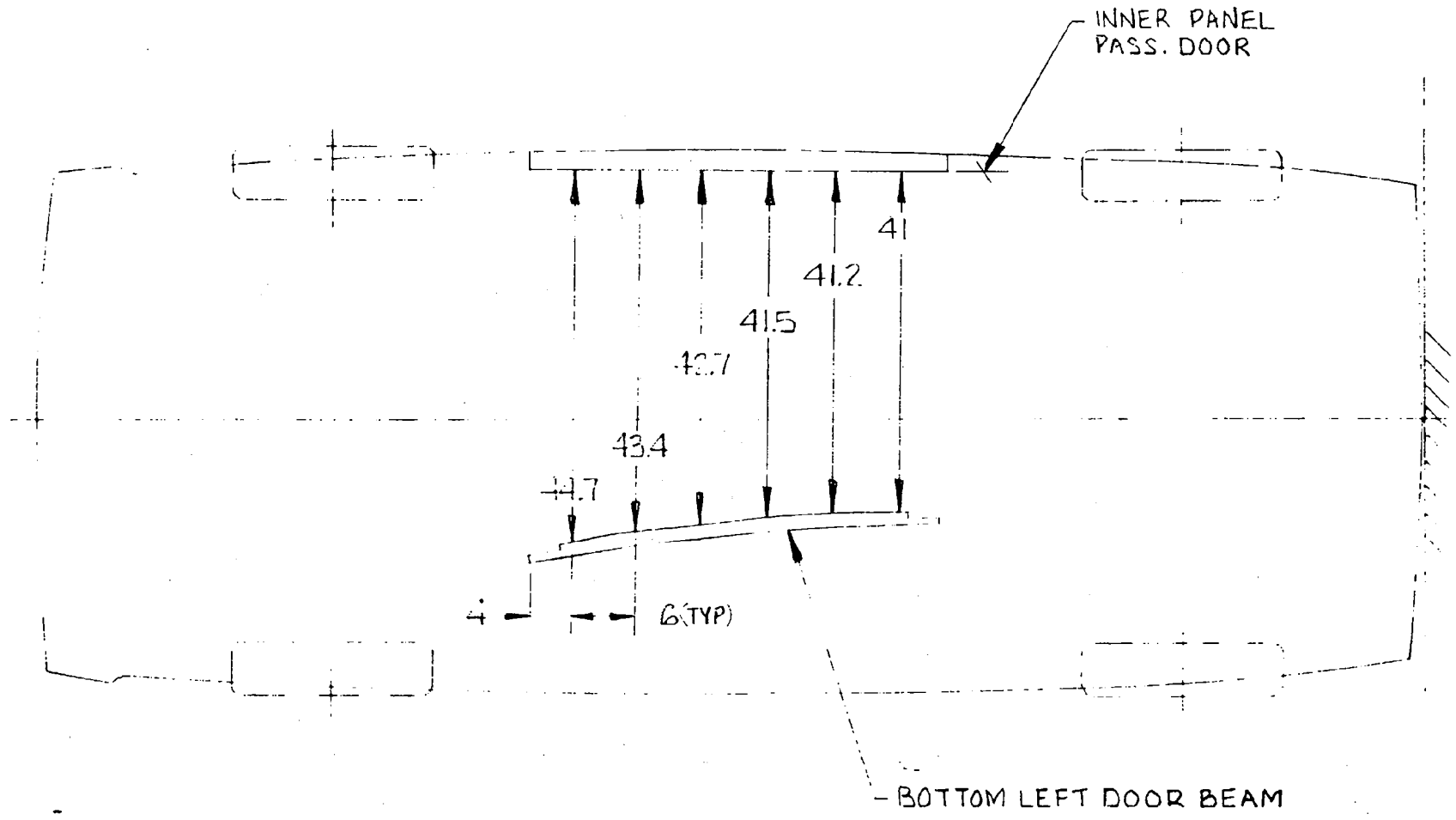


Figure 10-2. POST-TEST DOOR BEAM INTRUSION MEASUREMENTS

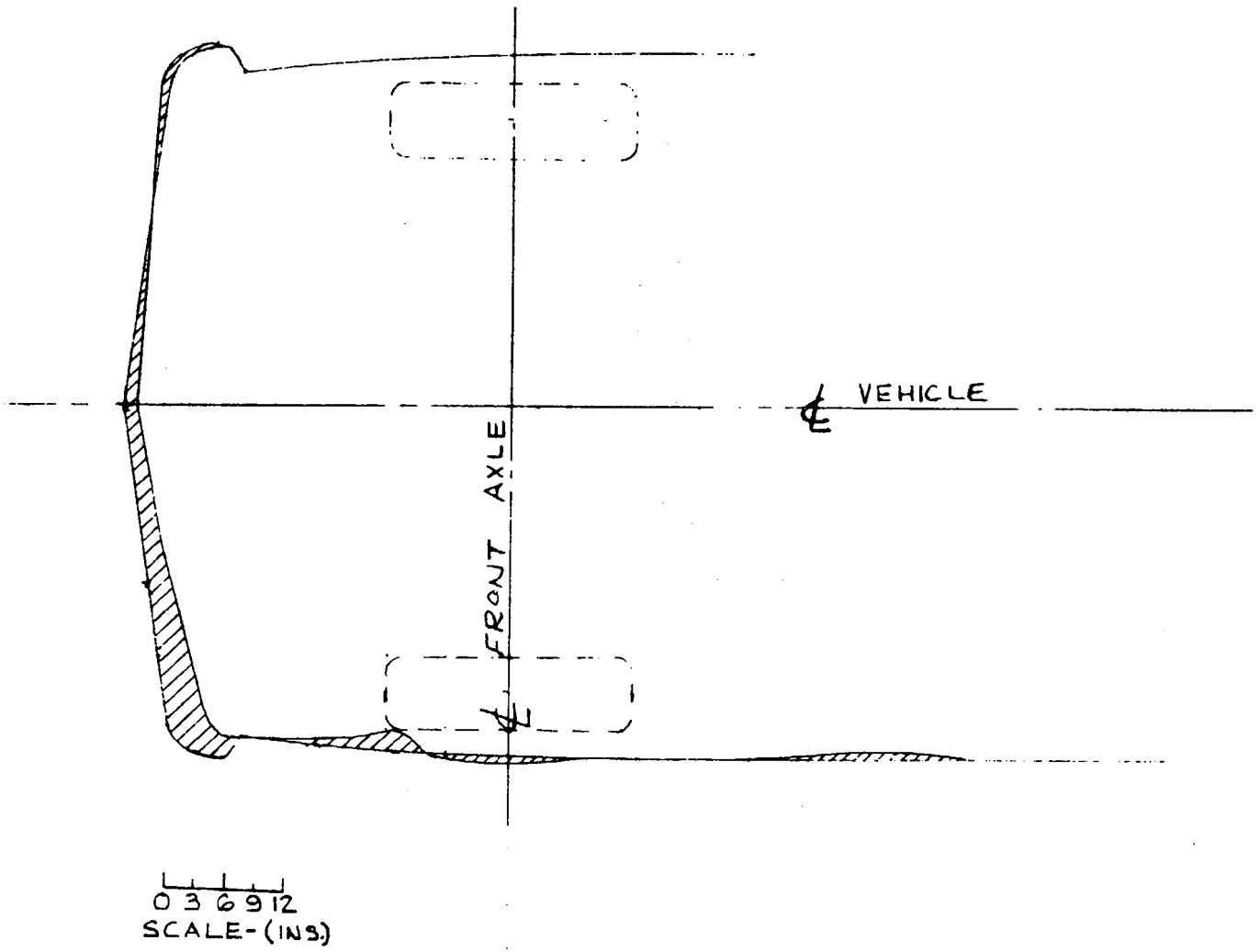


Figure 11 PRE- AND POST-TEST DEFORMATION – CAR 1, 1978 CHEVROLET IMPALA

Table 4

ELECTRONIC INSTRUMENTATION TEST Baseline No. 5

Car 1 - Bullet Vehicle - 1978 Chevrolet Impala

TRANSDUCER DESCRIPTION OR ACCELEROMETER LOCATION *	DIRECTION OF PARAMETER BEING MEASURED	LOCATION ON VEHICLE	DESCRIPTION LISTED ON DATA PLOTS
VEHICLE ACCELEROMETER			
1	X	Left Sill next to Rear Seat	Right Compartment
2	X	Right Sill next to Rear Seat	Right Compartment
3	X,Y,Z	Deck over Rear Axel	Rear Deck
4	X,Y,Z	Firewall	Firewall
5	X	Rear Compartment	Left Rear Compartment-Angular X
6	X,Y,Z	Top of Engine, Carbureter	Engine
7	X	Front Crossmember	Front Crossmember
9	X	Rear Compartment	Right Rear Compartment-Angular X
D U M M Y			
LF Head (Dummy(1))	X,Y,Z	Left Front Seat	Dummy (LF) Head
LF Chest "	X,Y,Z	Left Front Seat	Dummy (LF) Chest
LF Femurs "	R,L**	Left Front Seat	Dummy (LF) Femurs
LF Belts "	U,R,L***	Left Front Seat	Self-explanatory
MISCELLANEOUS			
10	Yaw Rate	Centerline behind Front Seats	Tunnel Yaw Rate
12	X-Accel.	Bumper (rear face)	Bumper

*See Accelerometer Layout Diagram Figure 12 **Right & Left Forces ***Upper,Lower Belt Forces

Table 5

ELECTRONIC INSTRUMENTATION TEST Baseline No. 5

Car 2 - Target Vehicle - 1976 Volkswagen Rabbit

TRANSDUCER DESCRIPTION OR ACCELEROMETER LOCATION *	DIRECTION OF PARAMETER BEING MEASURED	LOCATION ON VEHICLE	DESCRIPTION LISTED ON DATA PLOTS
VEHICLE ACCELEROMETER			
1	X,Y,Z	Right Sill next to Front Seat	Right Front Compartment
2	X,Y,Z	Right Sill next to Rear Seat	Right Rear Compartment
3	X,Y,Z	Deck over Rear Axle	Rear Deck
6	Y	Lower Left Door Centerline	Lower Door Center
7	X	Rear Compartment	Left Compartment-Angular X
8	X	Rear Compartment	Right Compartment-AngularX
9	Y	Mid-rear of Left Door	Mid-aft of Door
10	Y	Upper Left Door Centerline	Upper Door Center
11	Y	Mid-Front of Left Door	Mid-front of Door
D U M M Y			
LF Head (Dummy (1))	X,Y,Z	Left Front Seat	Dummy (LF) Head
LF Chest (Dummy (1))	X,Y,Z	Left Front Seat	Dummy (LF) Chest
LF Pelvis (Dummy (1))	X,Y	Left Front Seat	Dummy (LF) Pelvis
RF Head (Dummy (2))	X,Y,Z	Right Front Seat	Dummy (RF) Head
RF Chest (Dummy (2))	X,Y,Z	Right Front Seat	Dummy (RF) Chest
RF Pelvis (Dummy (2))	X,Y	Right Front Seat	Dummy (RF) Pelvis
MISCELLANEOUS			
12	Yaw Rate	Centerline behind Front Seats	Tunnel Yaw Rate
13 - 16	Side Intrusion	Side Intrusion (Driver Side)	Side Intrusion

*See Accelerometer Layout Diagram Figure 13

Car 1 - Bullet Vehicle - 1978 Chevrolet Impala

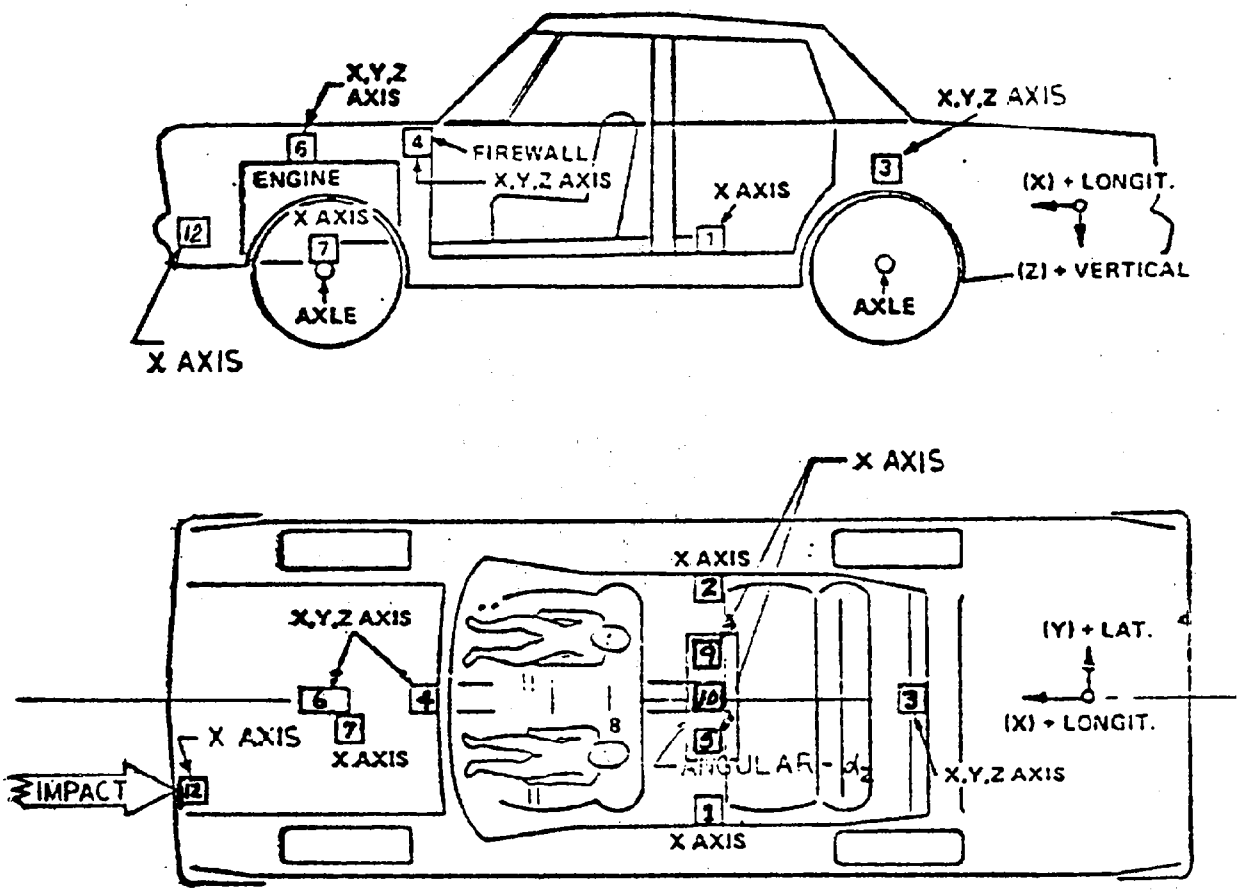


Figure 12 VEHICLE ACCELEROMETER LOCATIONS

Car 2 - Target Vehicle - 1976 Volkswagen Rabbit

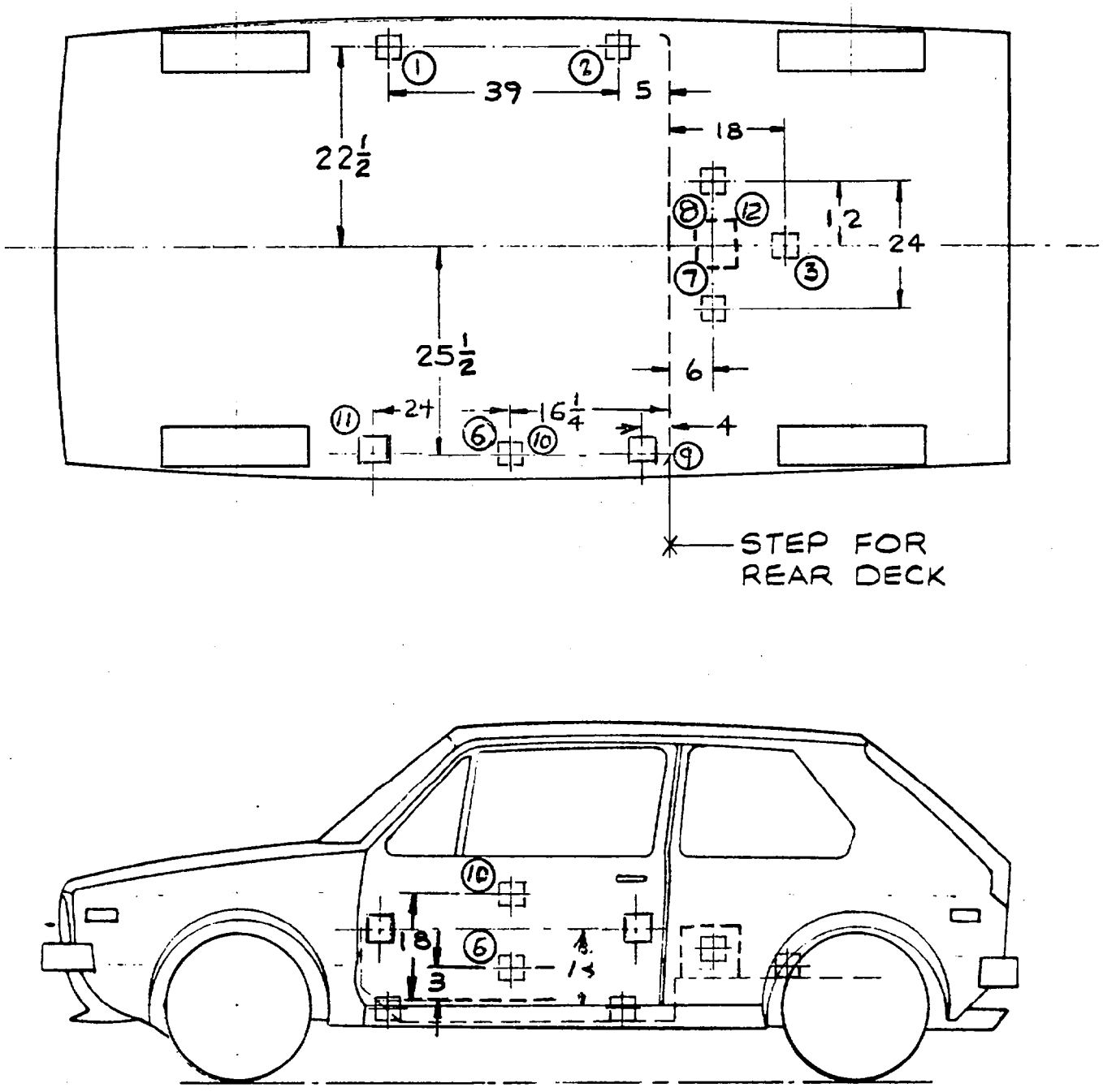
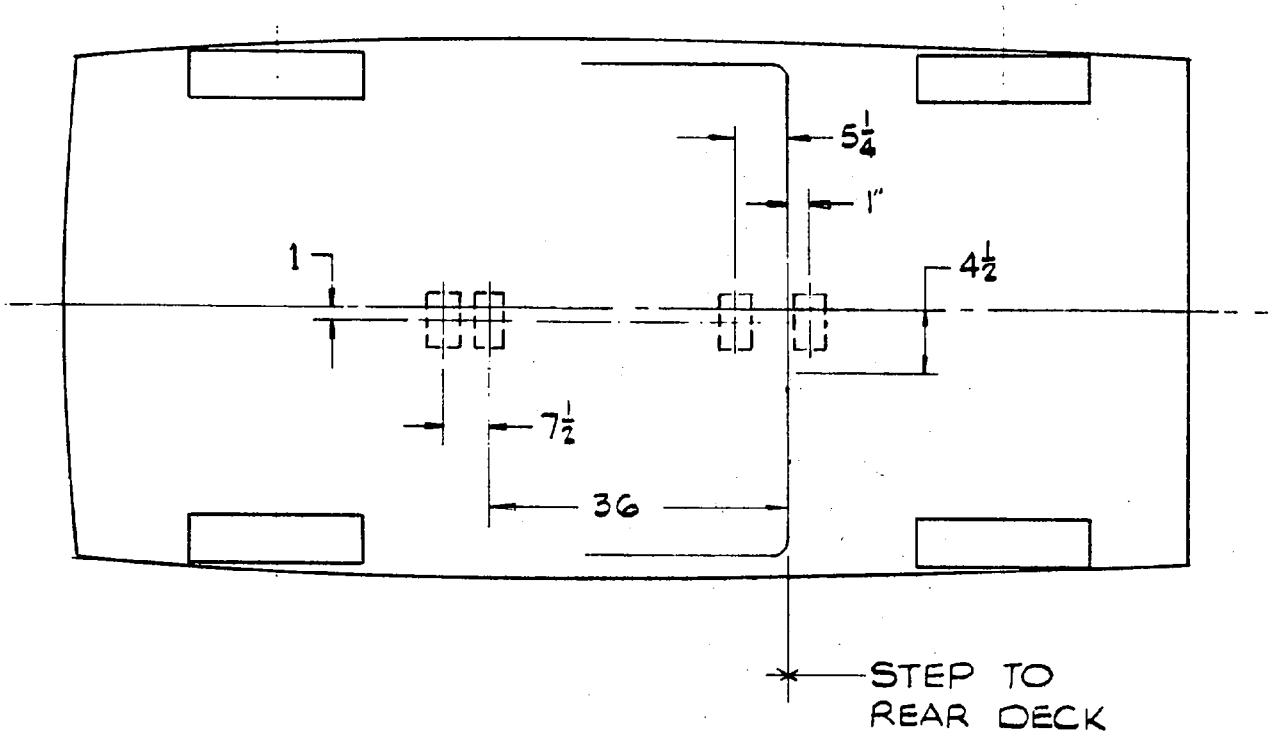


Figure 13 VEHICLE ACCELEROMETER LOCATIONS

Car 2 - Target Vehicle - 1976 Volkswagen Rabbit



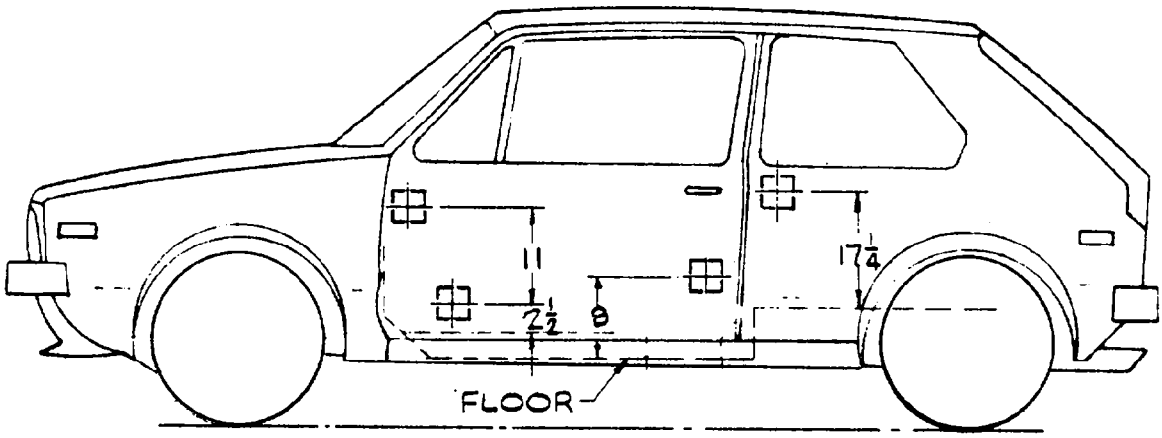


Figure 14 VEHICLE POTENTIOMETER LOCATIONS

TABLE 6

HIGH SPEED CAMERA INFORMATION (TEST No. 5)

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)
1) South Wide	A = 23 Ft. B = 2 Ft. 10 in.	Photosonics	13	700
2) South Low	C = 24 Ft. 6 in. D = 1 Ft. 4 in.	Photosonics	25	700
3) North Wide	E = 26 Ft. F = 14 Ft.	Photosonics	13	700
4) North Close	G = 26 Ft. 8 in. H = 19 Ft.	Photosonics	25	800
5) Tower 45°	J = 21 Ft. 7 in K = 11 Ft.	Photosonics	13	400
6) Tower	31 Ft. 6 in.	Photosonics	13	425
7) Hood	On-board	Stalex	8	850
8) Passenger Door	On-board	Stalex	8	850
9) Rear	On-board	Stalex	8	1100
10) Pan		Photosonics	35	350

NOTE: CAMERAS ARE NUMBERED ACCORDING TO SPLICING SEQUENCE OF FILM.

(24 fps) REAL TIME MOVIE FILM COVERAGE OF PRE-CRASH, POST-CRASH AND CRASH EVENT SPLICED AT START AND END OF FILM.

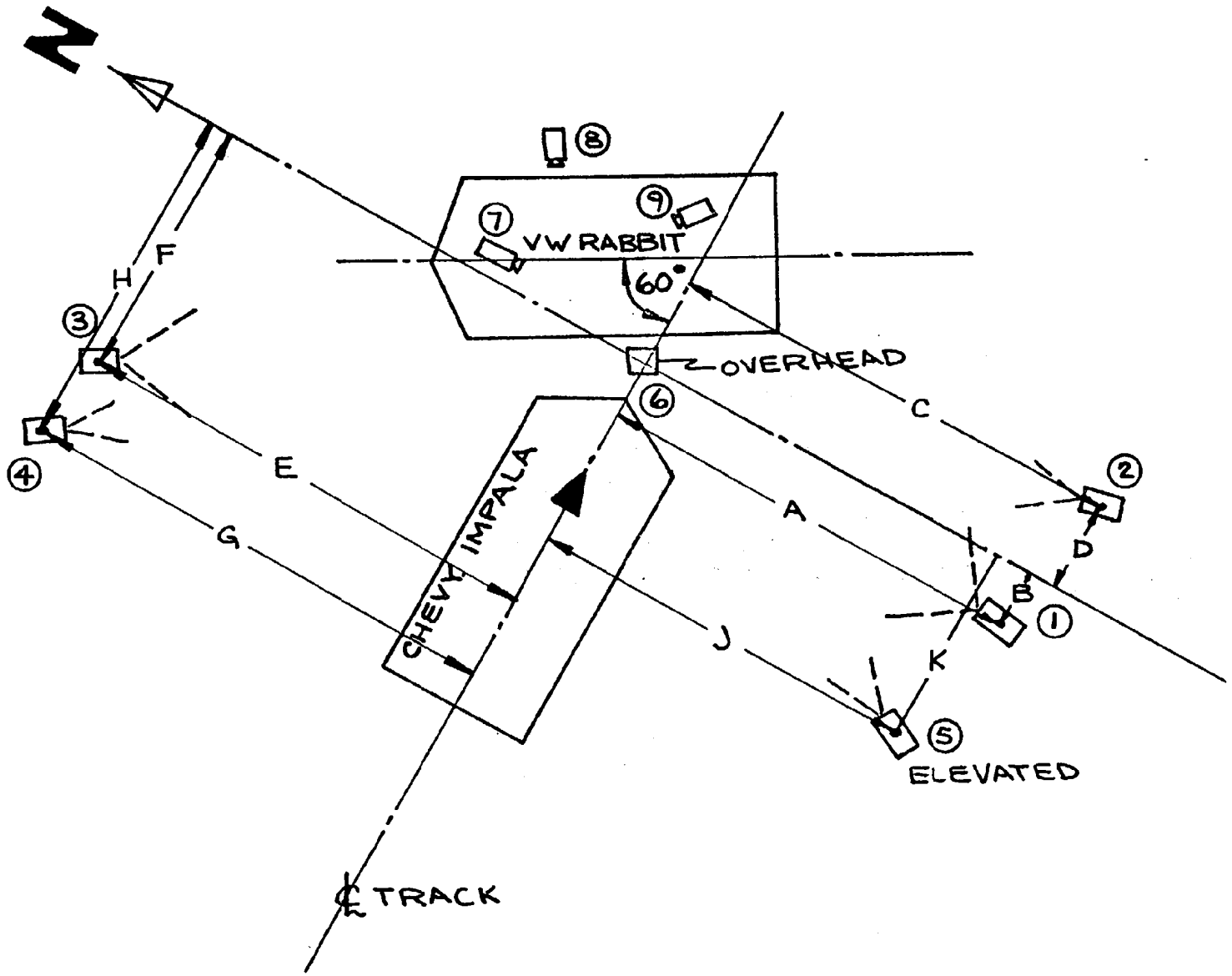


Figure 15 HIGH SPEED CAMERA LOCATIONS

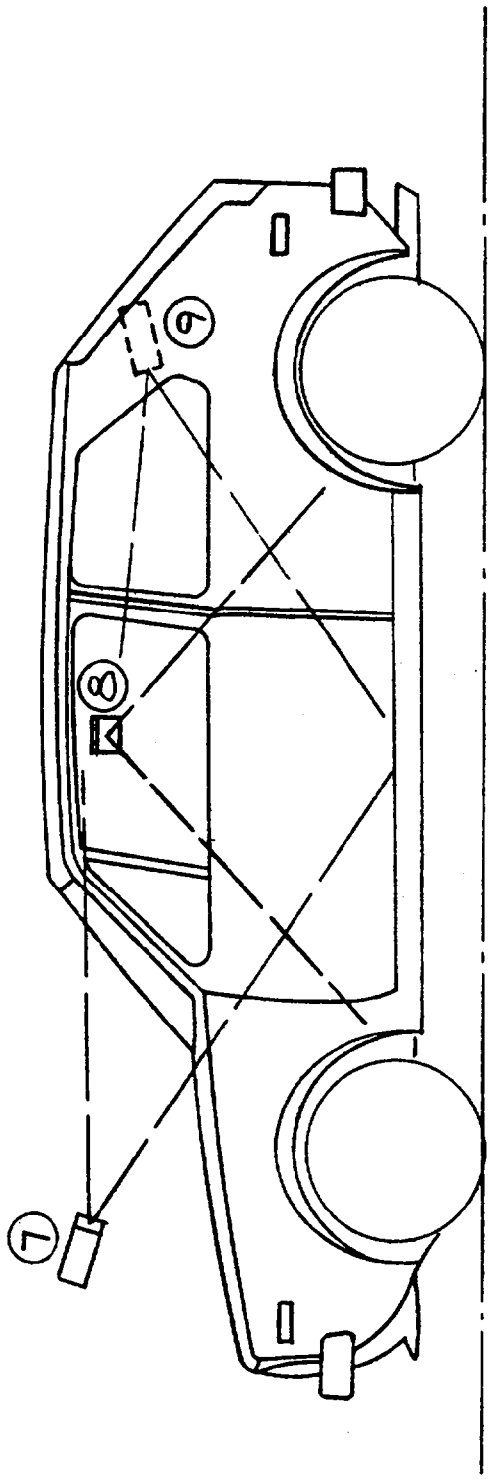


Figure 16 ON-BOARD HIGH SPEED CAMERA LOCATIONS

TABLE 7

DUMMY INJURY CRITERIA VALUES

CAR 1 - STRIKING VEHICLE

1978 CHEVROLET IMPALA

	MAXIMUM ACCELERATION ("G")*											
	HEAD				CHEST				PELVIS			
	X	Y	Z	R	X	Y	Z	R	X	Y	Z	R
DUMMY (1)	-12.2	-2	8.5	15	-13	-1.6	-2.2	13.9				
DUMMY (2)												
DUMMY (3)												
DUMMY (4)												

	MAXIMUM FORCE-FEMUR LOAD (LBS)	
	RIGHT FEMUR	LEFT FEMUR
DUMMY (1)	50	100
DUMMY (2)		
DUMMY (3)		
DUMMY (4)		

	MAXIMUM FORCE-SEAT BELTS LOADS (LBS)		
	SHOULDER STRAP UPPER BELT LOAD	LAP STRAP RIGHT BELT LOAD	LAP STRAP LEFT BELT LOAD
DUMMY (1)	470	600	166
DUMMY (2)			
DUMMY (3)			
DUMMY (4)			

	HEAD INJURY CRITERIA**				SEVERITY INDEX	
	HIC	t_1 (SEC)	t_2 (SEC)	AVE. ACC. (g) t_1 TO t_2	HEAD	CHEST
DUMMY (1)	30.8	.0953	.1608	11.7	36.2	19
DUMMY (2)						
DUMMY (3)						
DUMMY (4)						

*DEFINED AS EXCEEDING 0.003 SEC. DURATION

**AS DEFINED IN FMVSS NO. 208

TABLE V

DUMMY INJURY CRITERIA VALUES

CAR 2 - STRUCK VEHICLE
1976 VW RABBIT

	MAXIMUM ACCELERATION ("G") *											
	HEAD				CHEST				PELVIS			
	X	Y	Z	R	X	Y	Z	R	X	Y	Z	R
DUMMY (1)	-50	49	***	**** 90	-20	52	-8	52.2	-26	115		
DUMMY (2)	7.5	21	27	33	23	45	-14.5	48	-3.5	57		
DUMMY (3)												
DUMMY (4)												

	MAXIMUM FORCE-FEMUR LOAD (LBS)	
	RIGHT FEMUR	LEFT FEMUR
DUMMY (1)		
DUMMY (2)		
DUMMY (3)		
DUMMY (4)		

	MAXIMUM FORCE-SEAT BELTS LOADS (LBS)		
	SHOULDER STRAP UPPER BELT LOAD	LAP STRAP RIGHT BELT LOAD	LAP STRAP LEFT BELT LOAD
DUMMY (1)			
DUMMY (2)			
DUMMY (3)			
DUMMY (4)			

	HEAD INJURY CRITERIA**				SEVERITY INDEX	
	HIC	t_1 (SEC)	t_2 (SEC)	AVE. ACC. (g) t_1 TO t_2	HEAD	CHEST
DUMMY (1)	248.7 ****	.0845	.0930	61.34	360	440
DUMMY (2)	91.23	.0769	.1355	18.92	154	240
DUMMY (3)						
DUMMY (4)						

*DEFINED AS EXCEEDING 0.003 SEC. DURATION

**AS DEFINED IN FMVSS NO. 208

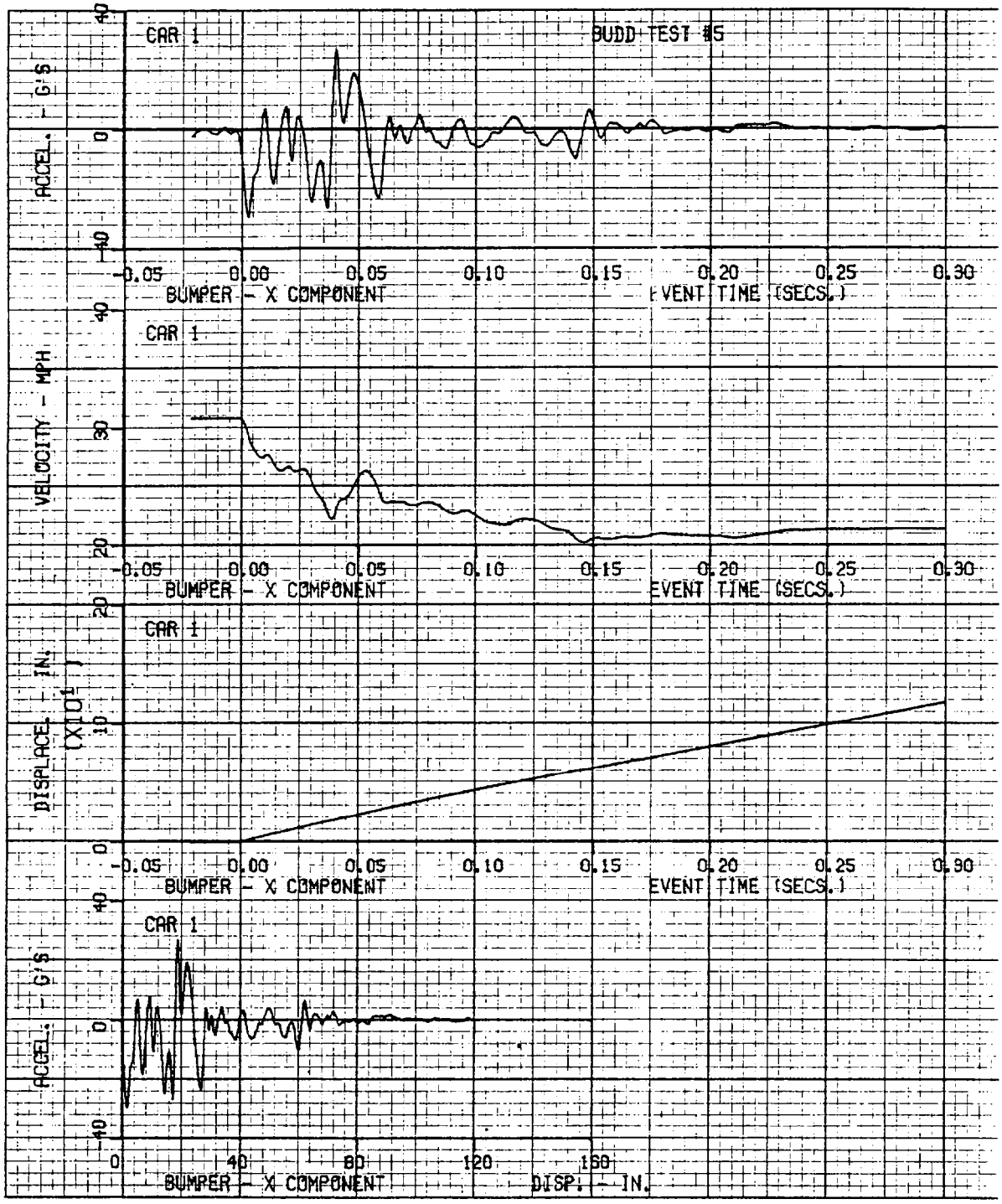
*** DATA LOST AFTER 70 MILLISECONDS

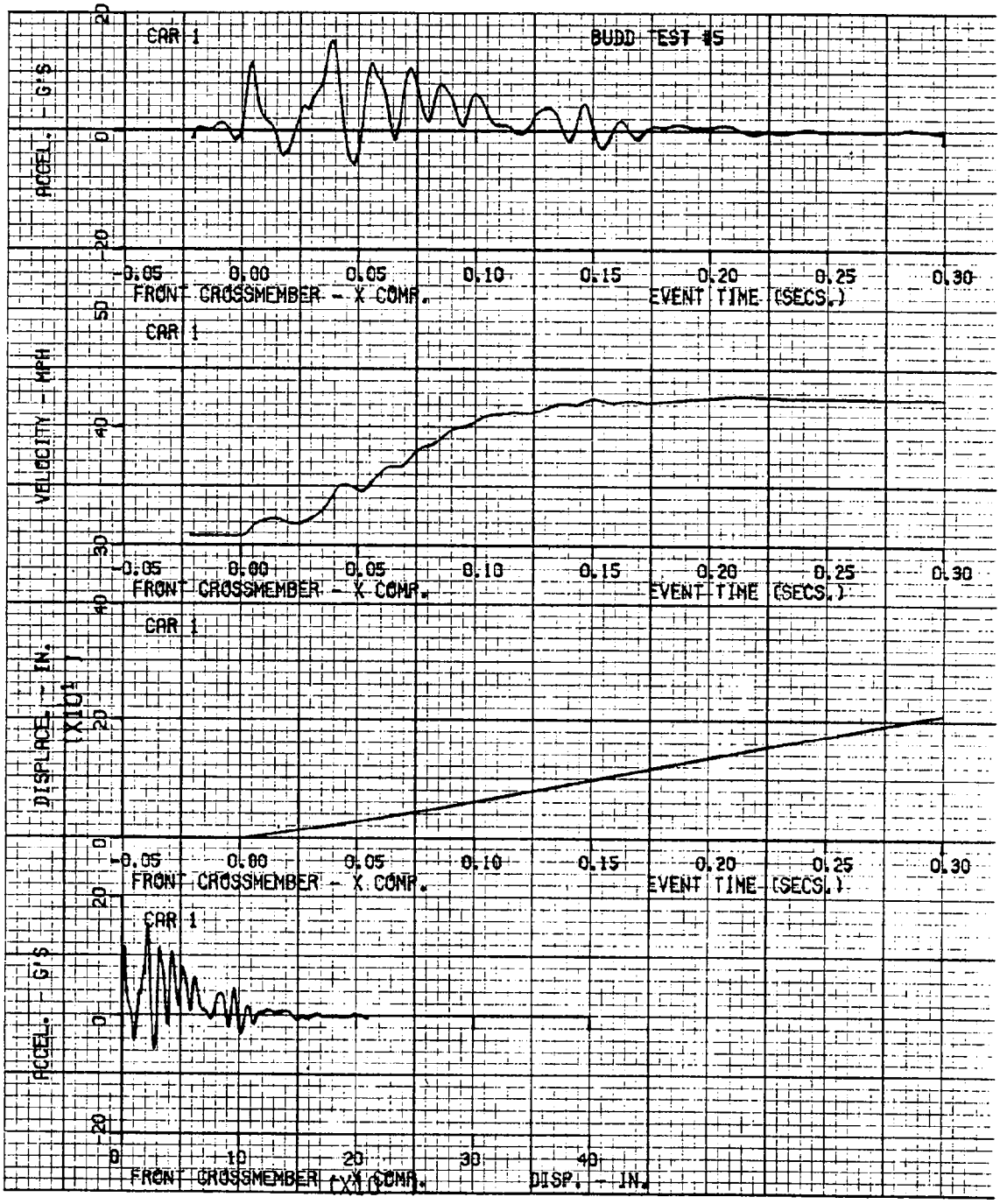
**** COMPUTED USING X AND Y ACCELERATION ONLY.

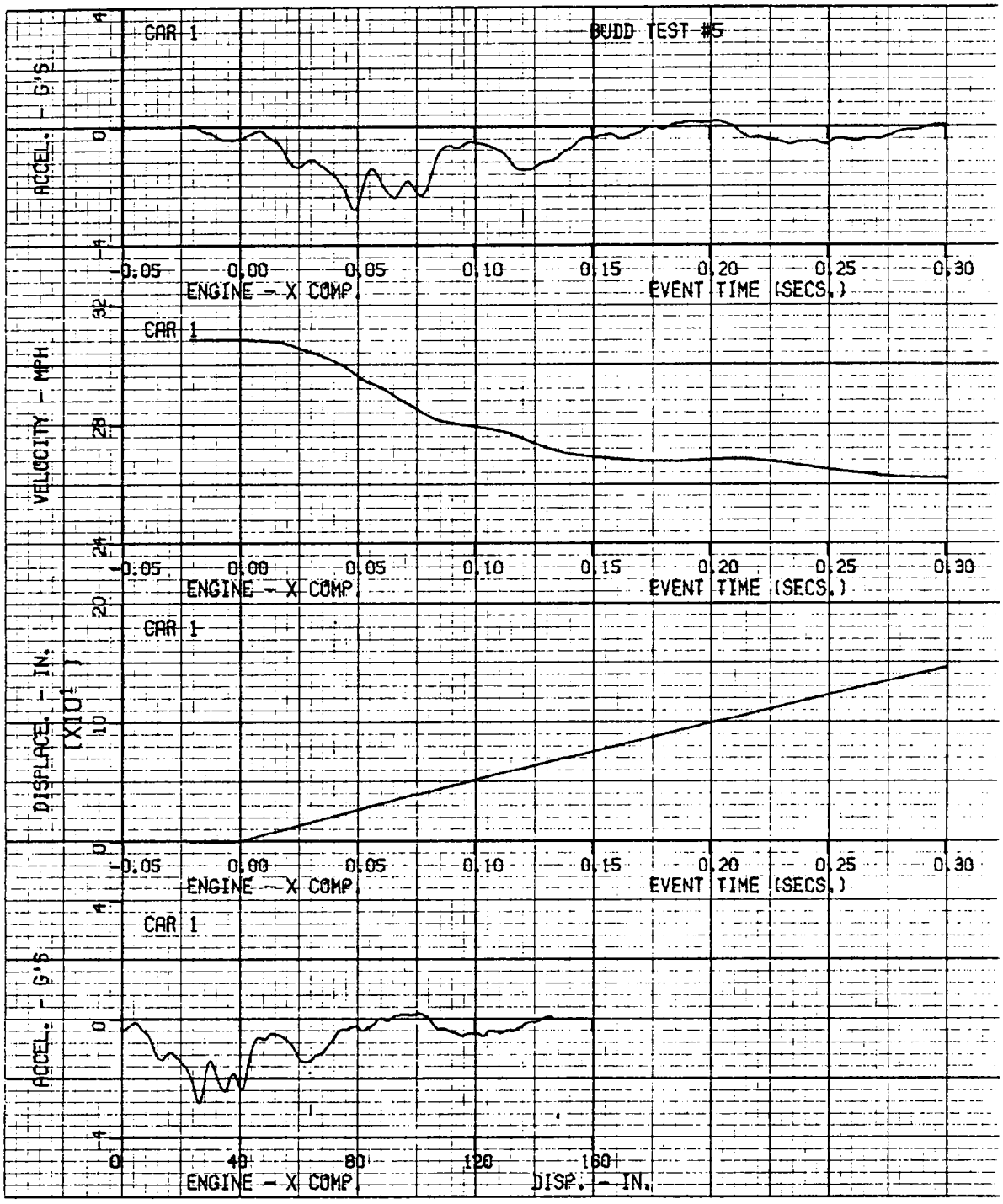
TEST NO. 5

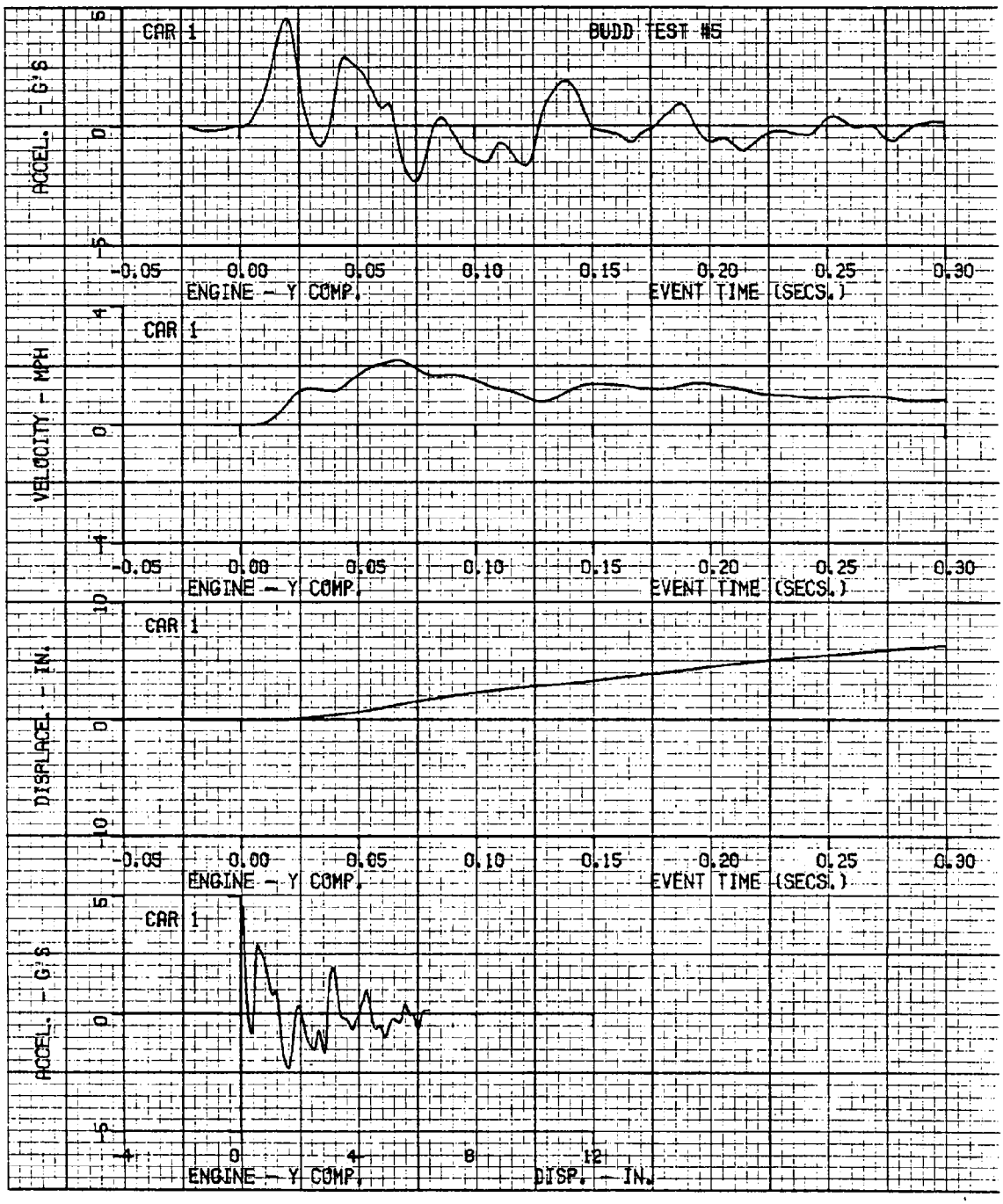
CAR 1 - 1978 CHEVROLET IMPALA

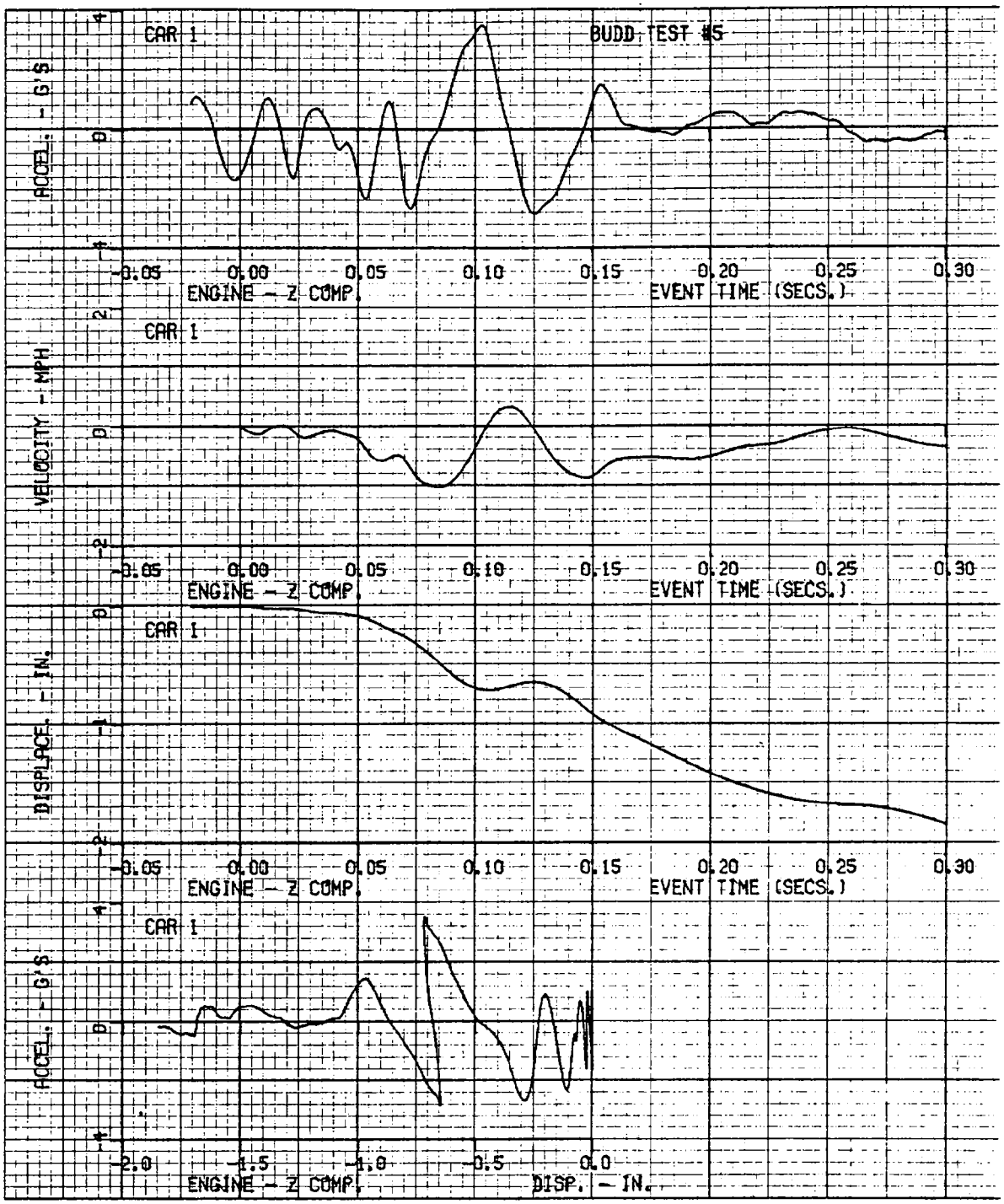
VEHICLE DATA, 60 HZ FILTER

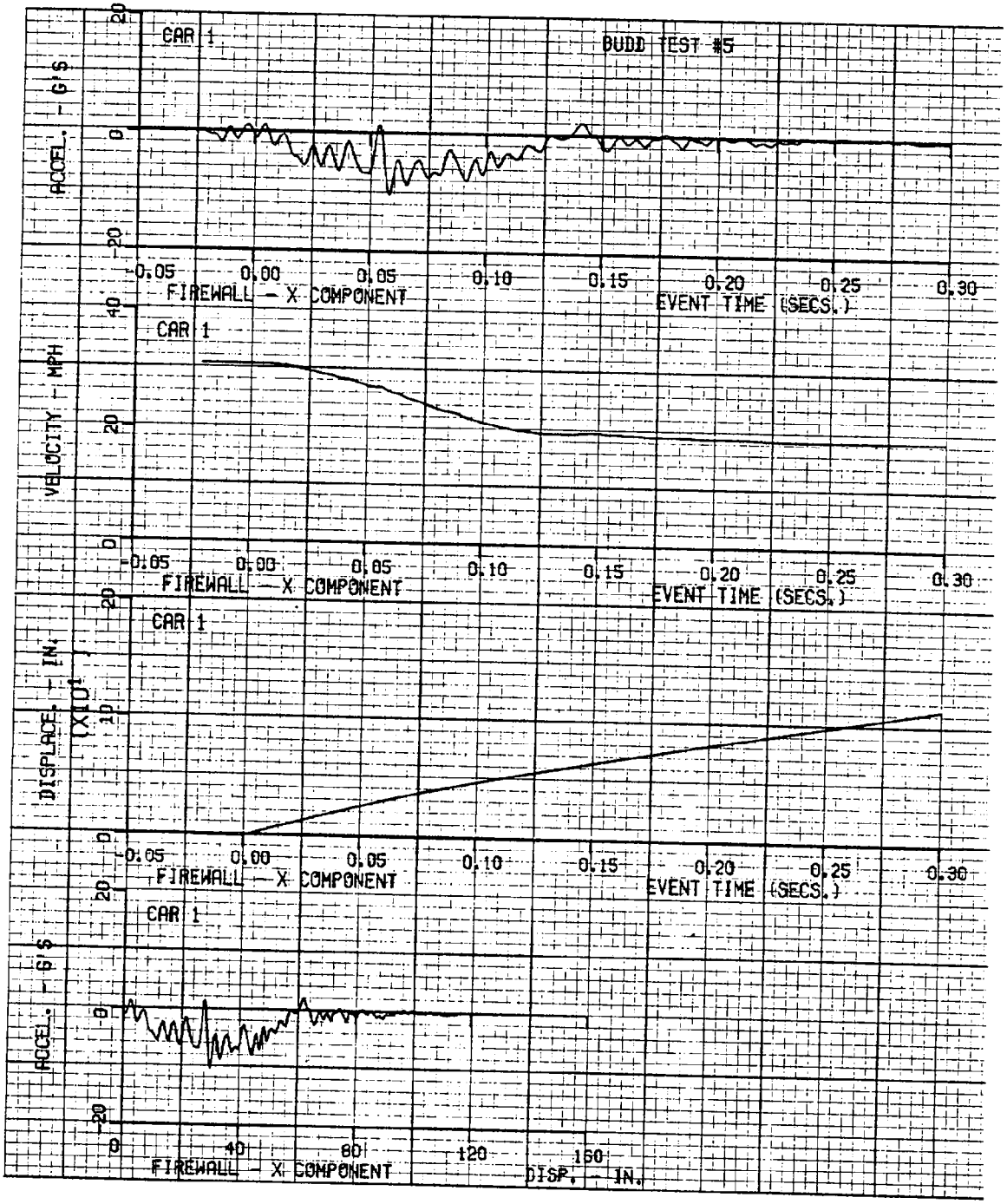

CAR 1
BUDD TEST #5
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
30
20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN. (X10¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
0
40
80
120
160
BUMPER - X COMPONENT
DISP. - IN.

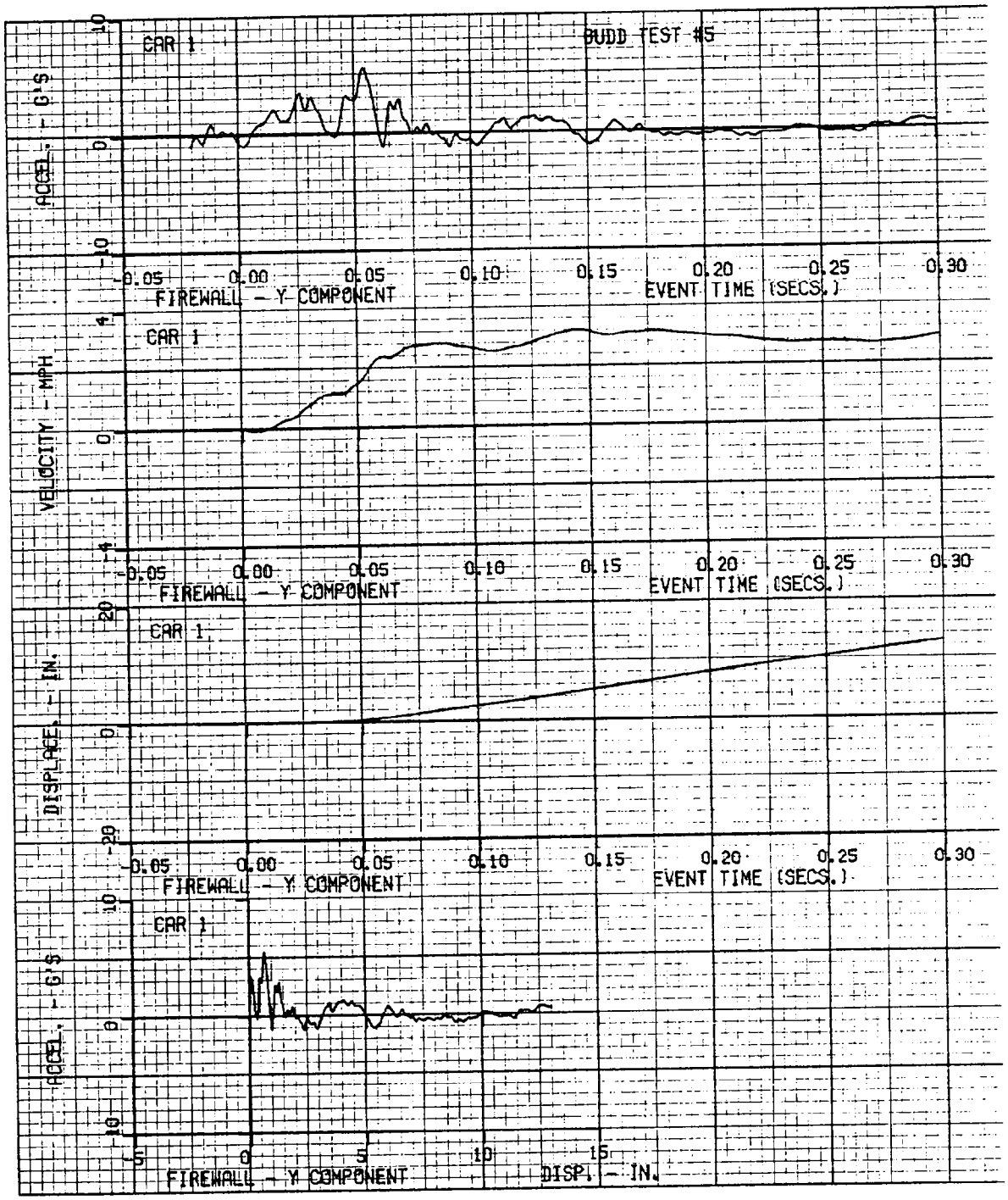

CAR 1
BUDD TEST #5
ACCEL. - G'S
20
0
20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FRONT CROSSMEMBER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
50
40
30
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FRONT CROSSMEMBER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE - IN. (X10)
40
30
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FRONT CROSSMEMBER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
20
0
10
20
30
40
FRONT CROSSMEMBER (X10) - X COMP.
DISP. - IN.

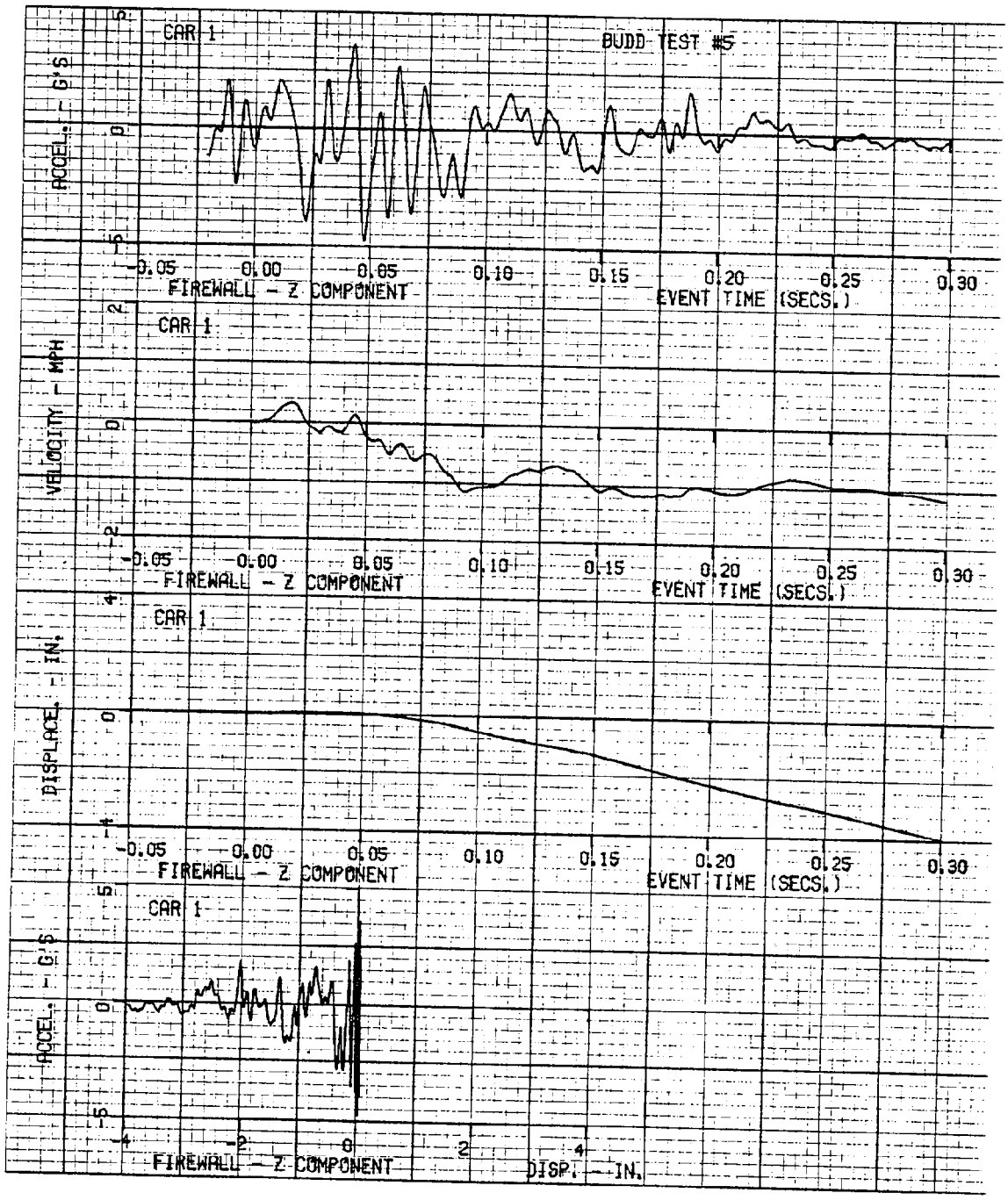

CAR 1
BUDD TEST #5
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
ENGINE - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
32
28
24
20
ENGINE - X COMP
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X10¹)
16
12
8
0
ENGINE - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
0
40
80
120
160
ENGINE - X COMP.
DISP. - IN.

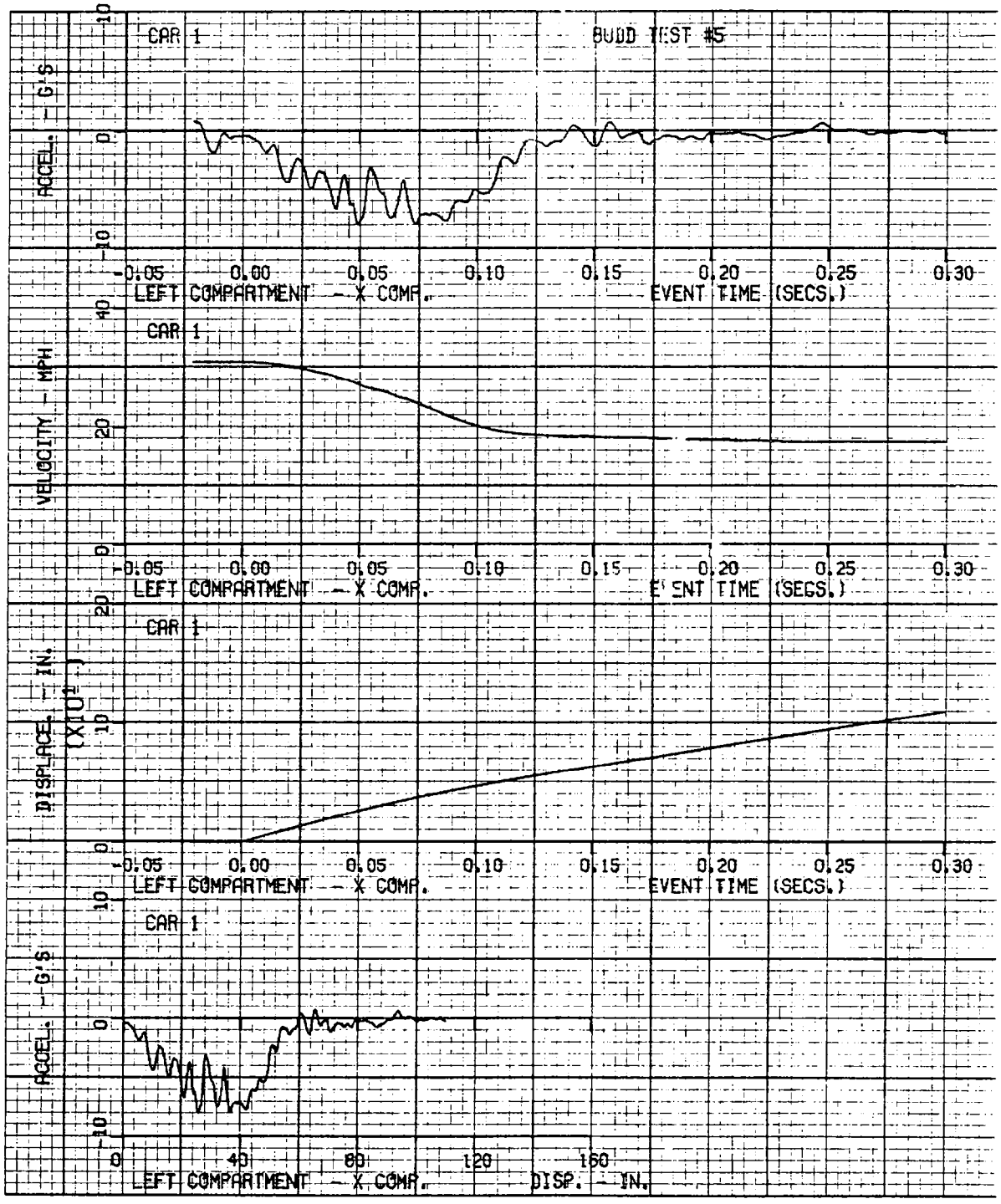

CAR 1
BUDD TEST #5
ACCEL. - G'S
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
ENGINE - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
ENGINE - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
ENGINE - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
5
0
-5
-4
0
4
8
12
ENGINE - Y COMP.
DISP. - IN.

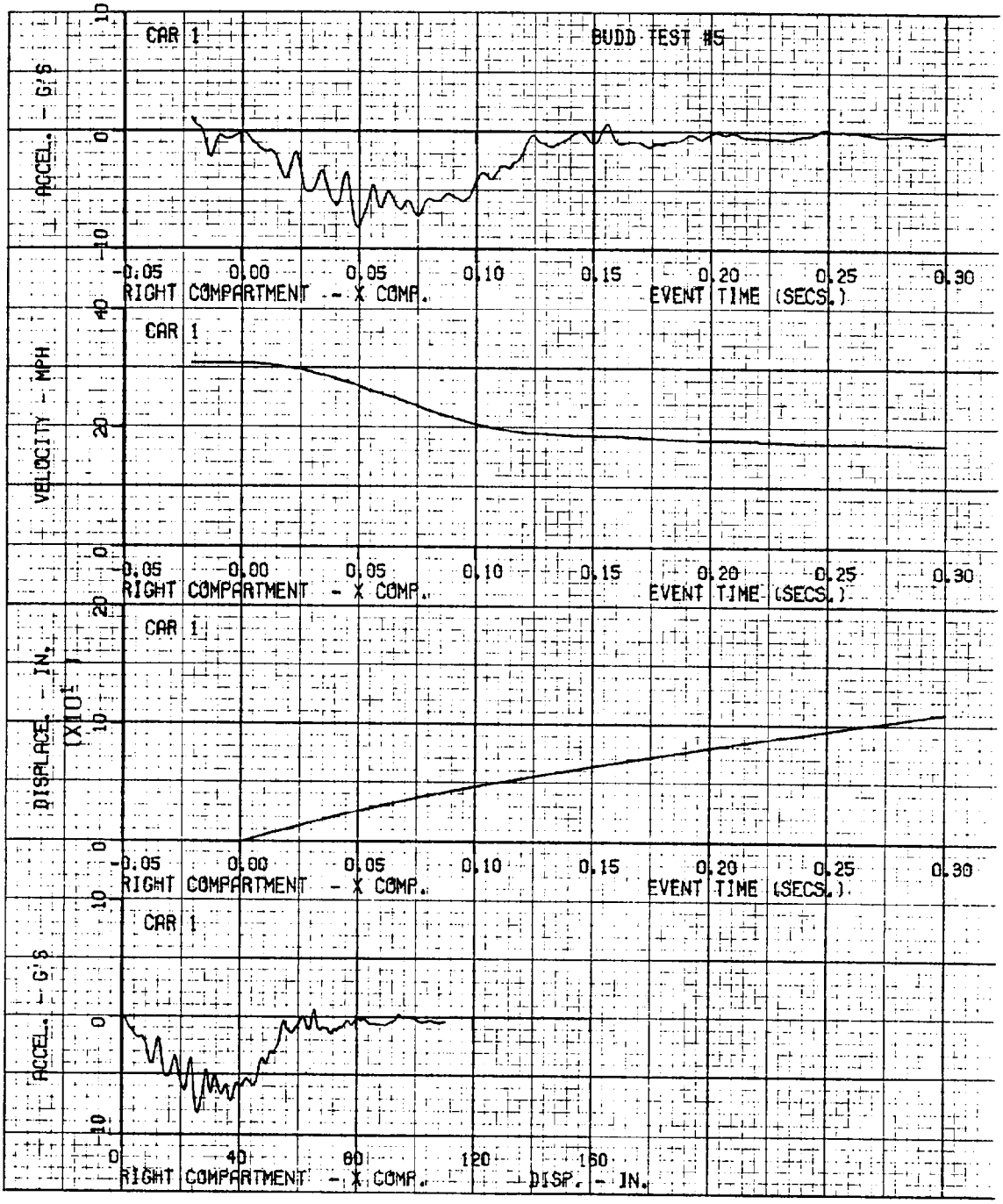

CAR 1
BUDD TEST #5
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
ENGINE - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
ENGINE - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
0
-1
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
ENGINE - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
-2.0
-1.5
-1.0
-0.5
0.0
ENGINE - Z COMP.
DISP. - IN.

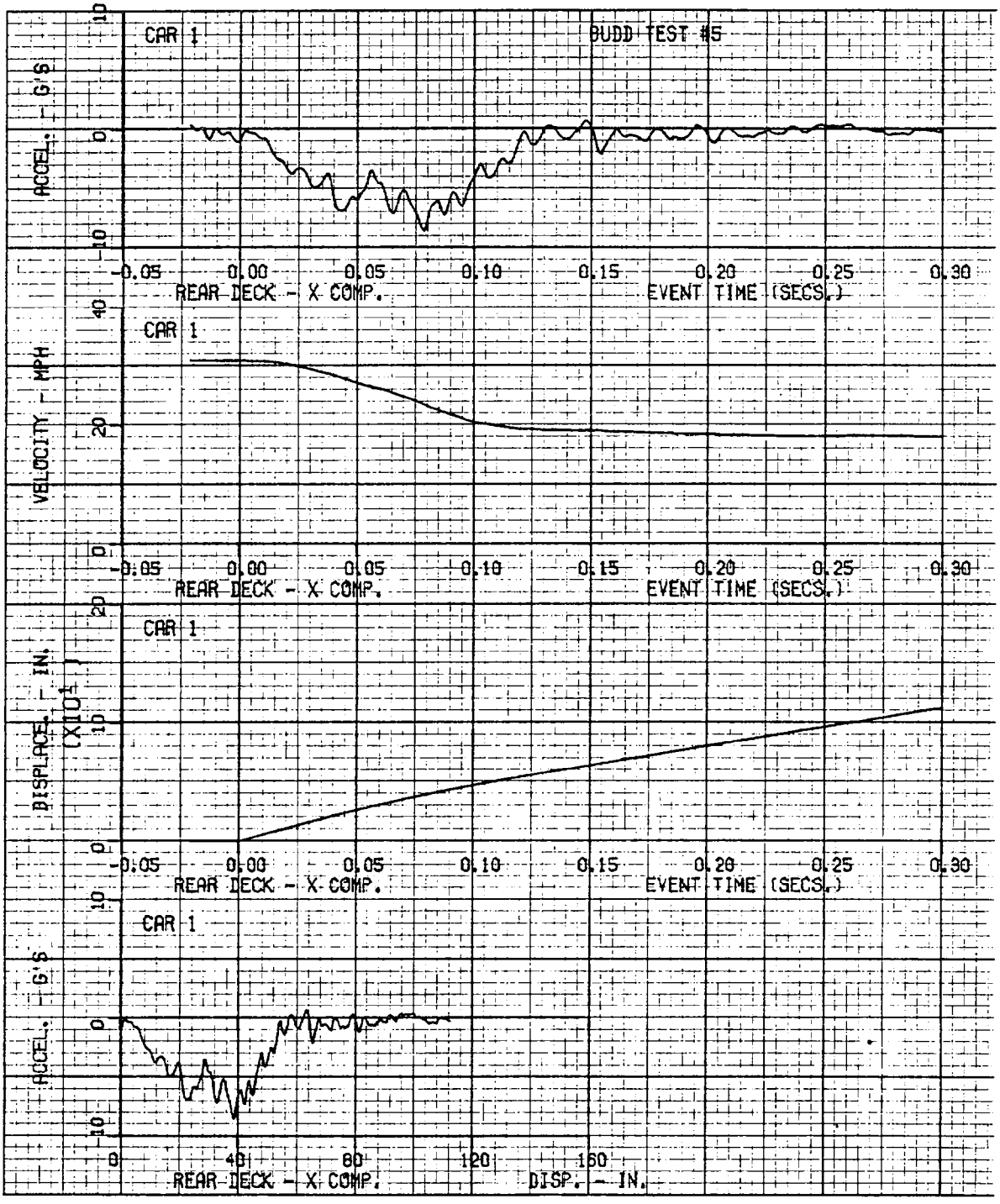

CAR 1
BUDD TEST #5
ACCEL. - G'S
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
80
120
160
FIREWALL - X COMPONENT
DISP. - IN.

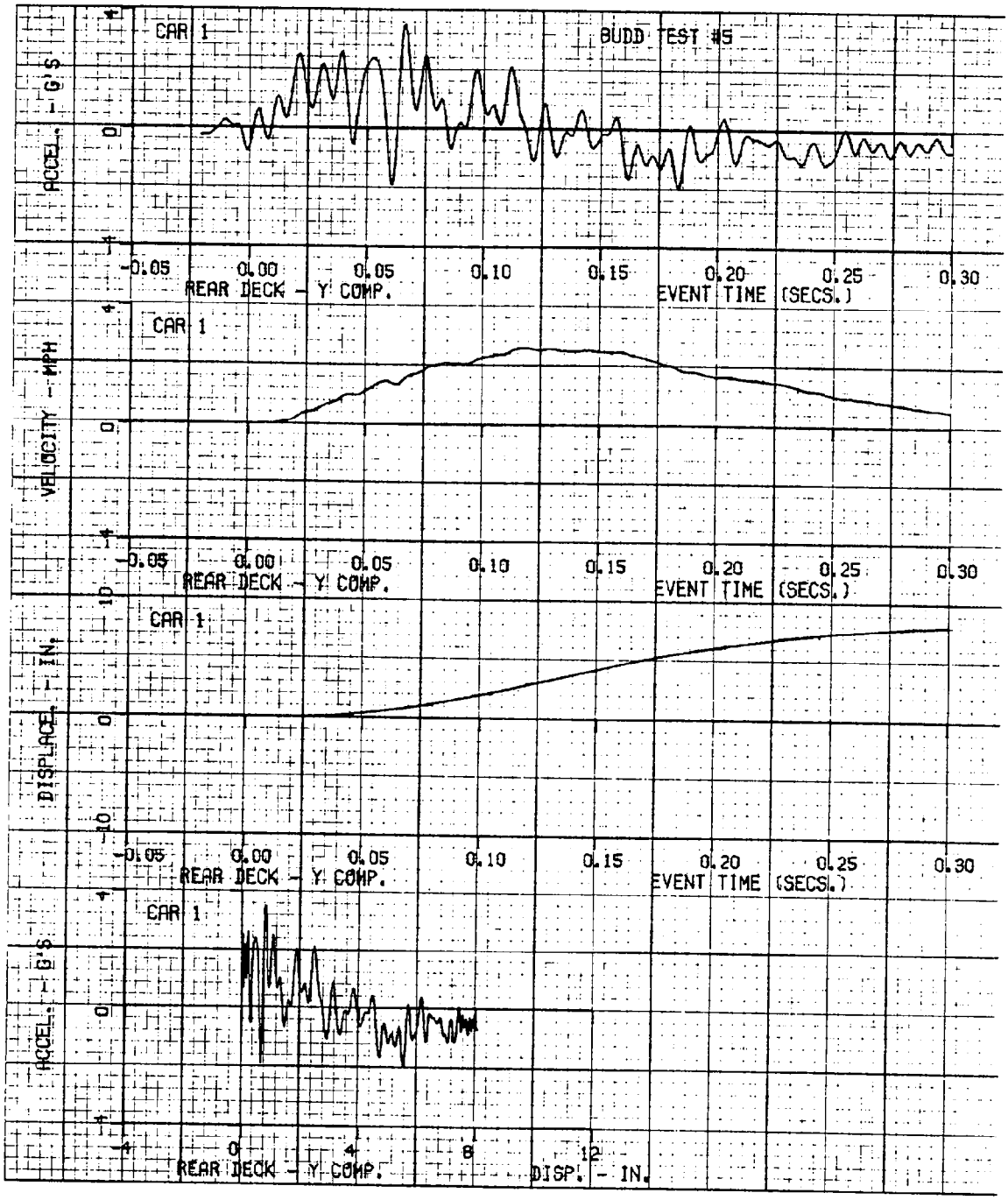

BUDD TEST #5
CAR 1
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
0
-40
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
20
0
-20
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
-5
0
5
10
15
FIREWALL - Y COMPONENT
DISP. - IN.

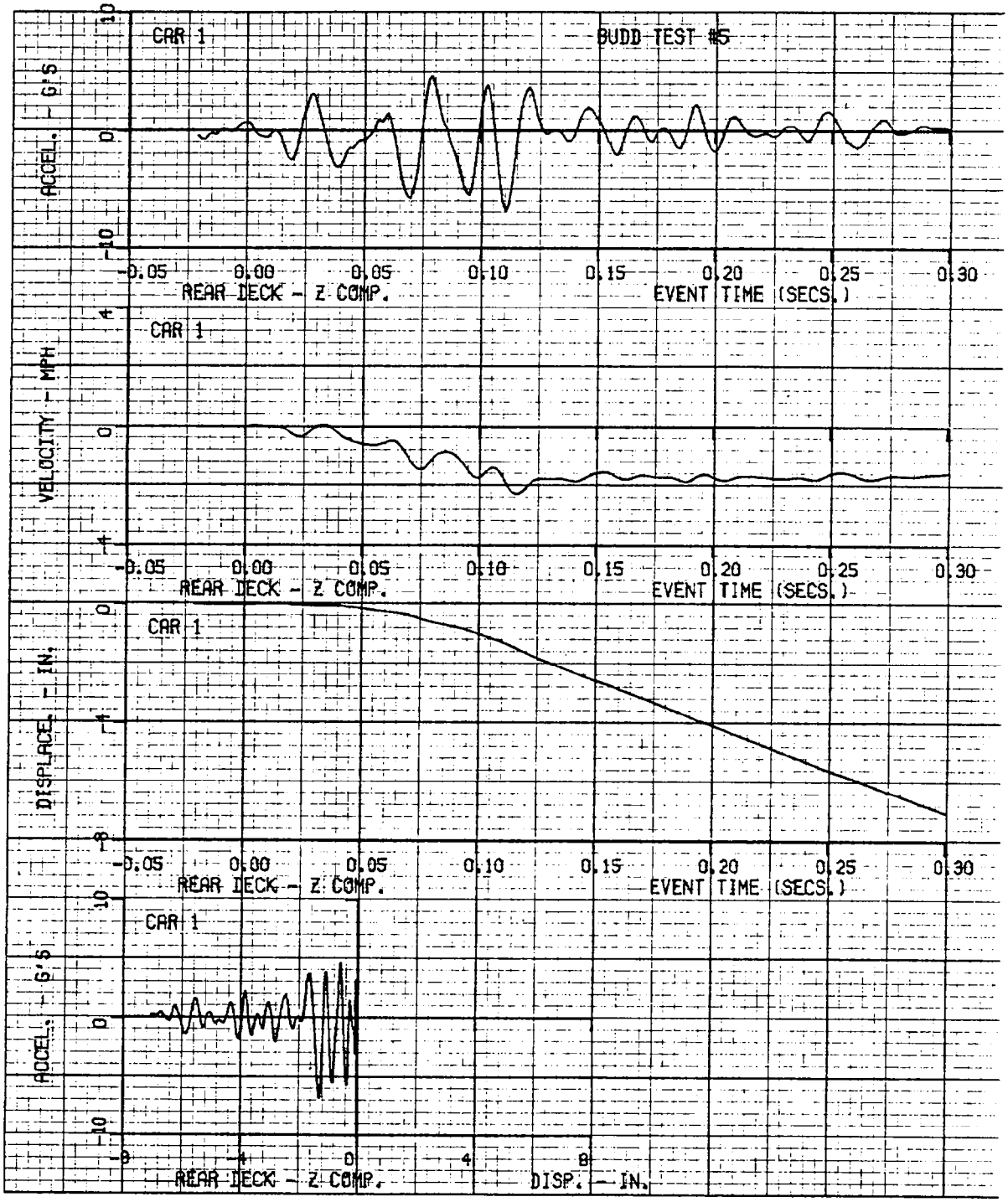

CAR 1
BUDD TEST #5
ACCEL. - G'S
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
5
0
-5
-4
-2
0
2
4
FIREWALL - Z COMPONENT
DISP. - IN.

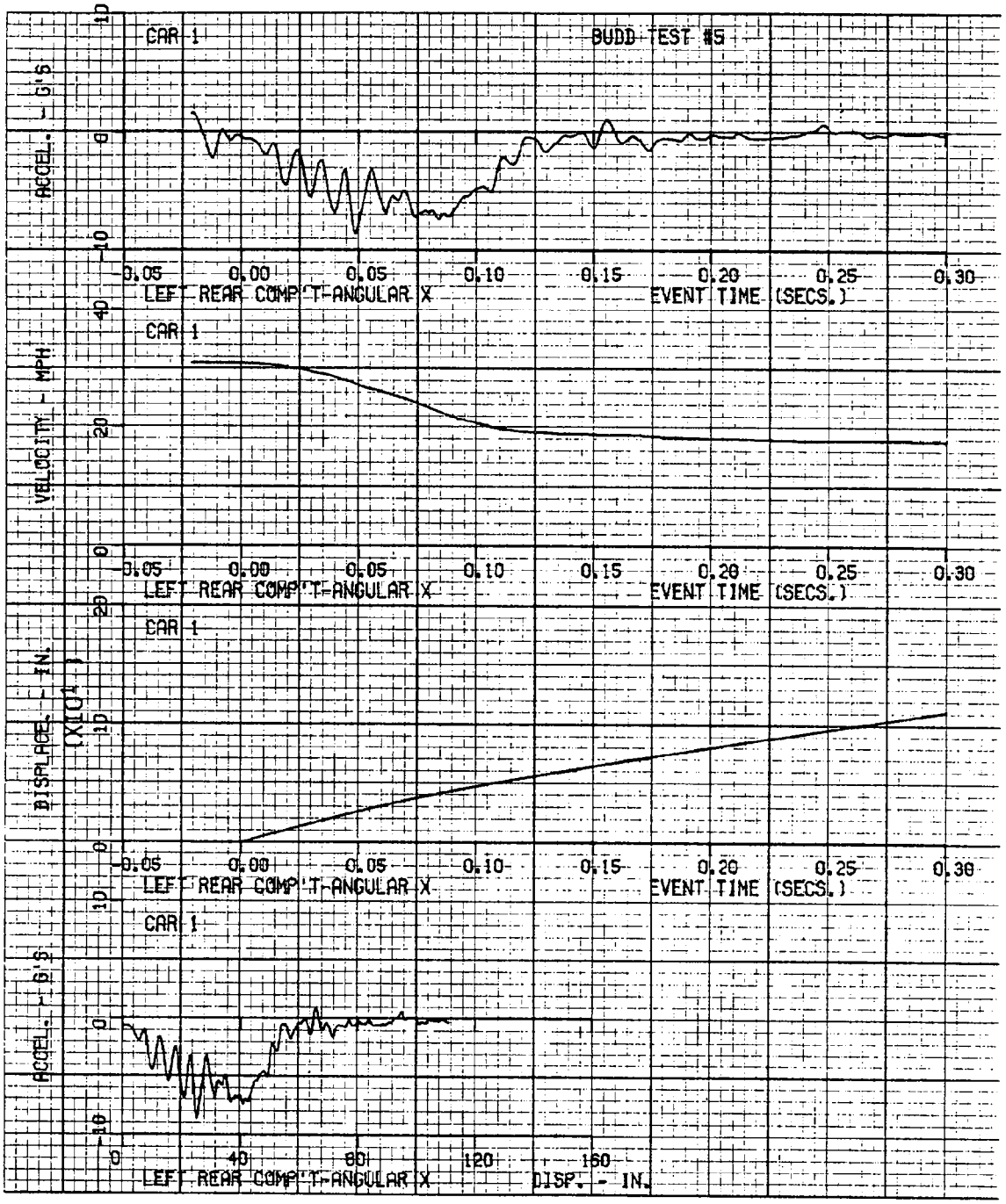

CAR 1
BUDD TEST #5
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT COMPARTMENT - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT COMPARTMENT - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(XIU1.)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT COMPARTMENT - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT COMPARTMENT - X COMP.
DISP. - IN.

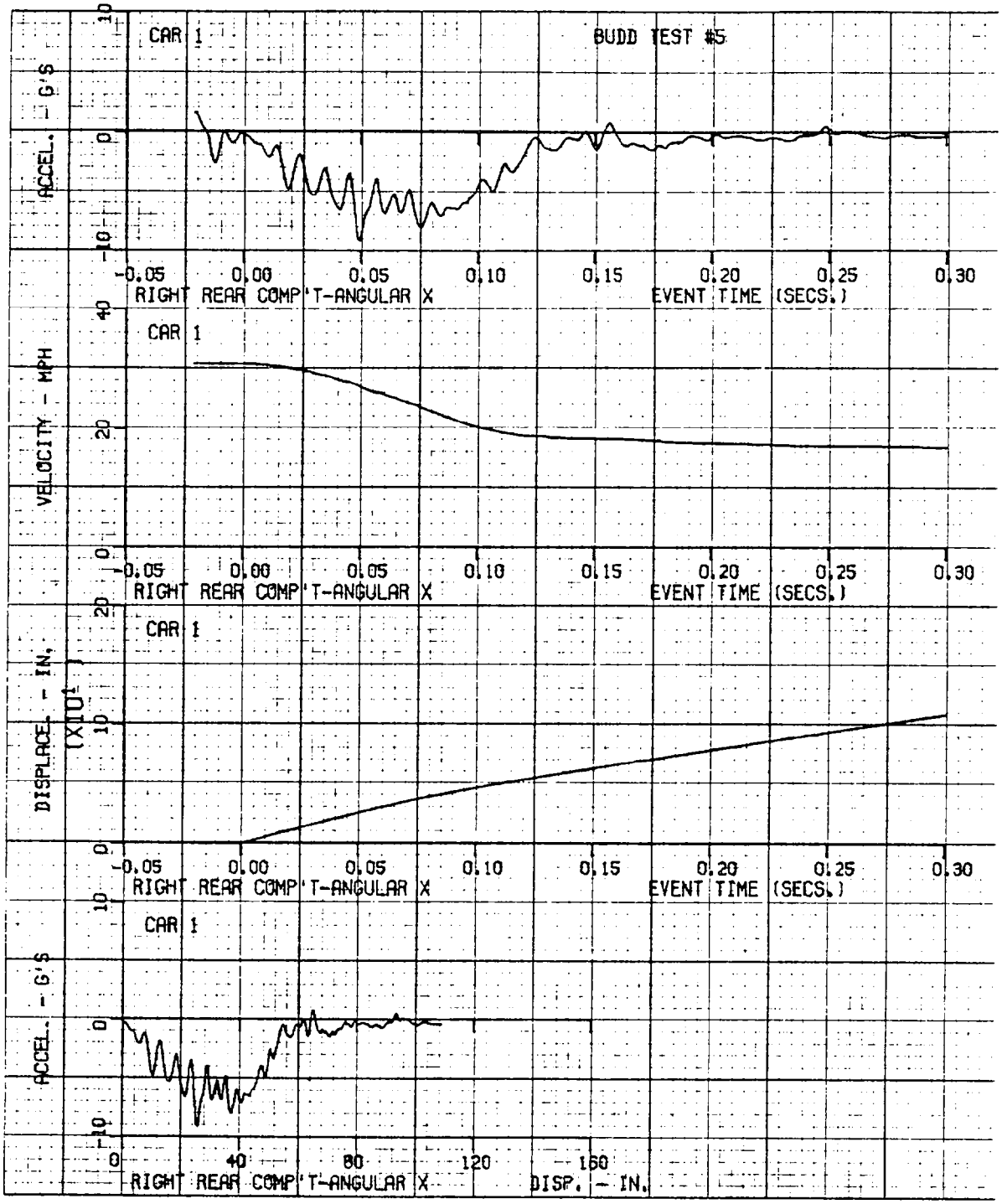

CAR 1
BUDD TEST #5
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT COMPARTMENT - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT COMPARTMENT - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X10¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT COMPARTMENT - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
40
80
120
160
RIGHT COMPARTMENT - X COMP.
DISP. - IN.

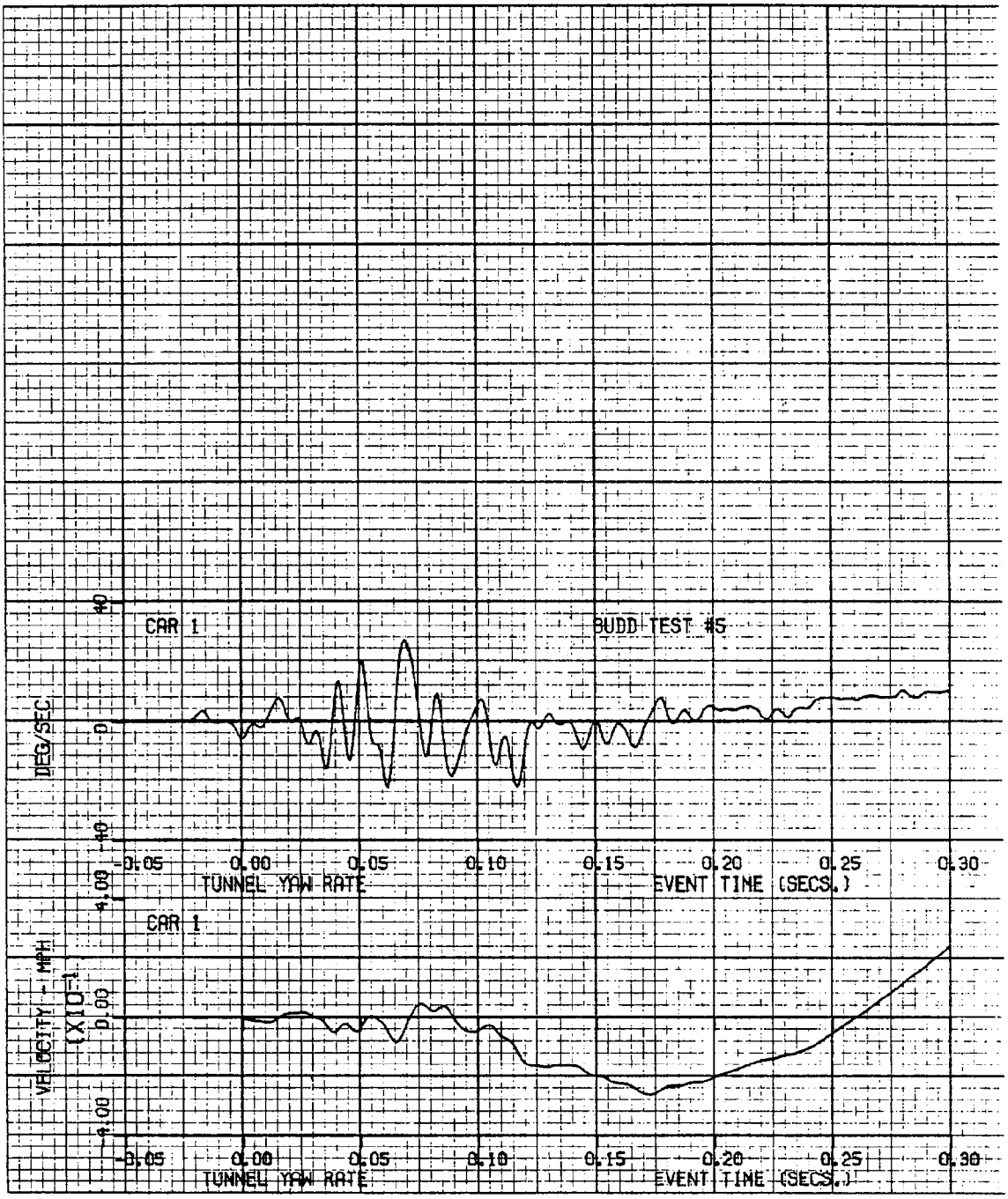

CAR 1
BUDD TEST #5
ACCEL. - G'S
10
0
10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X10⁴)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
0
10
0
40
80
120
160
REAR DECK - X COMP.
DISP. - IN.


CAR 1
BUDD TEST #5
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
0
-40
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
10
0
-10
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
0
4
8
12
REAR DECK - Y COMP.
DISP. - IN.


CAR 1
BUDD TEST #5
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
0
-4
-8
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
-8
-4
0
4
8
REAR DECK - Z COMP.
DISP. - IN.


CAR 1
BUDD TEST #5
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN. (X10')
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT REAR COMP'T-ANGULAR X
DISP. - IN.

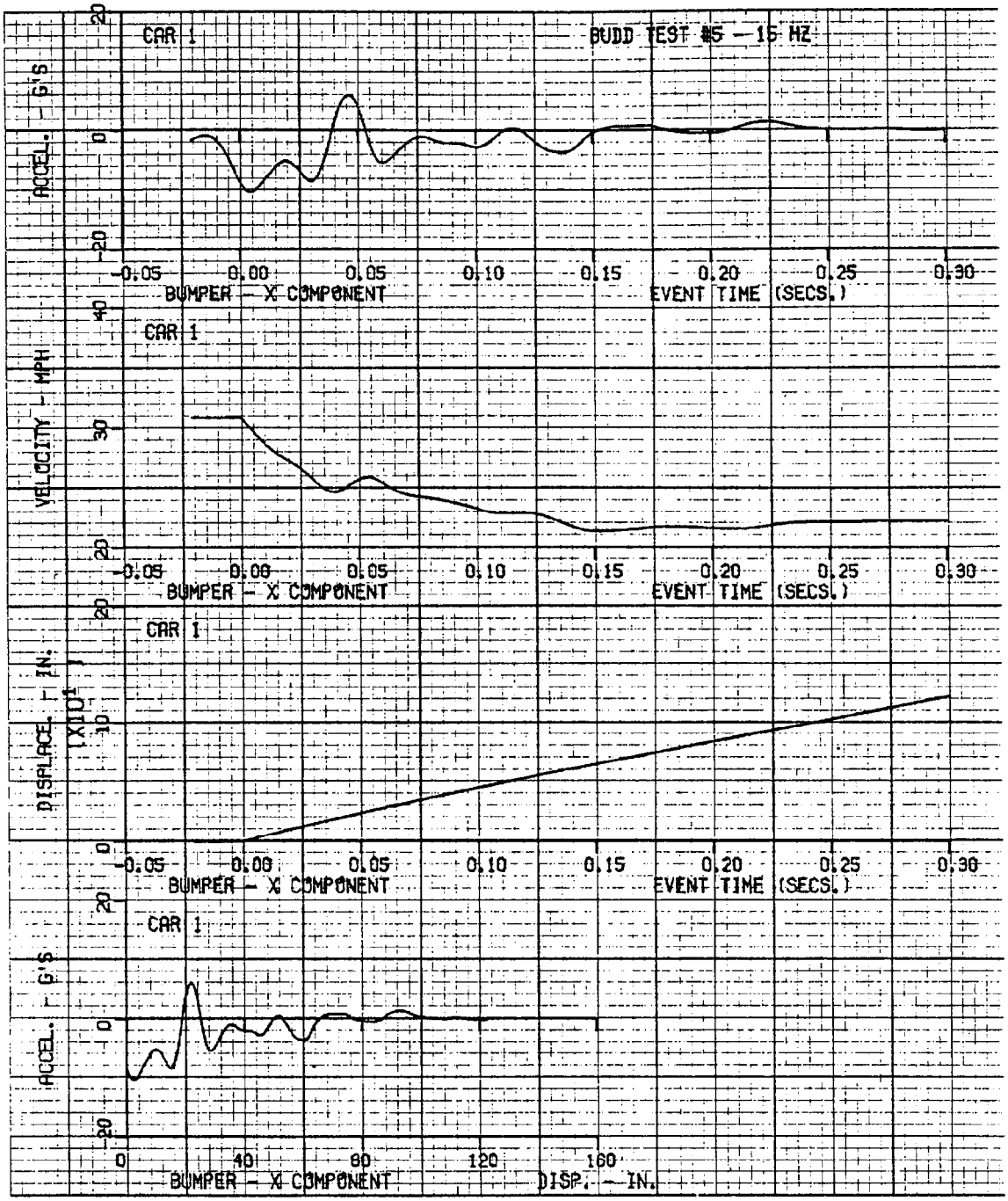

CAR 1
BUDD TEST #5
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
RIGHT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 1
DISPLACE - IN.
(X10¹)
20
10
0
RIGHT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
40
80
120
160
RIGHT REAR COMP'T-ANGULAR X
DISP. - IN.

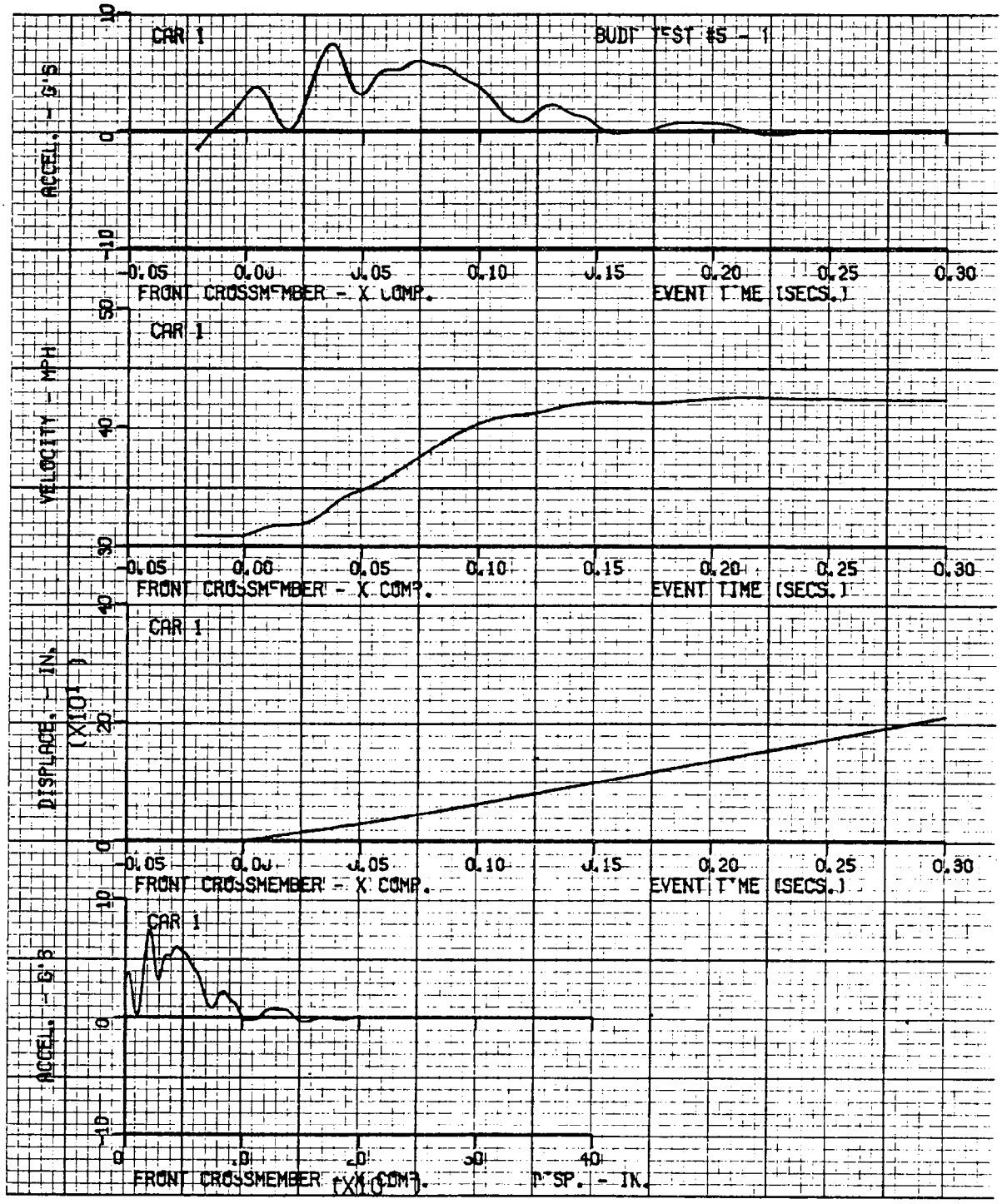

CAR 1
BUDD TEST #5
DEG/SEC
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
TUNNEL YAW RATE
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
(X10-1)
4.00
0.00
-4.00
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
TUNNEL YAW RATE
EVENT TIME (SECS.)

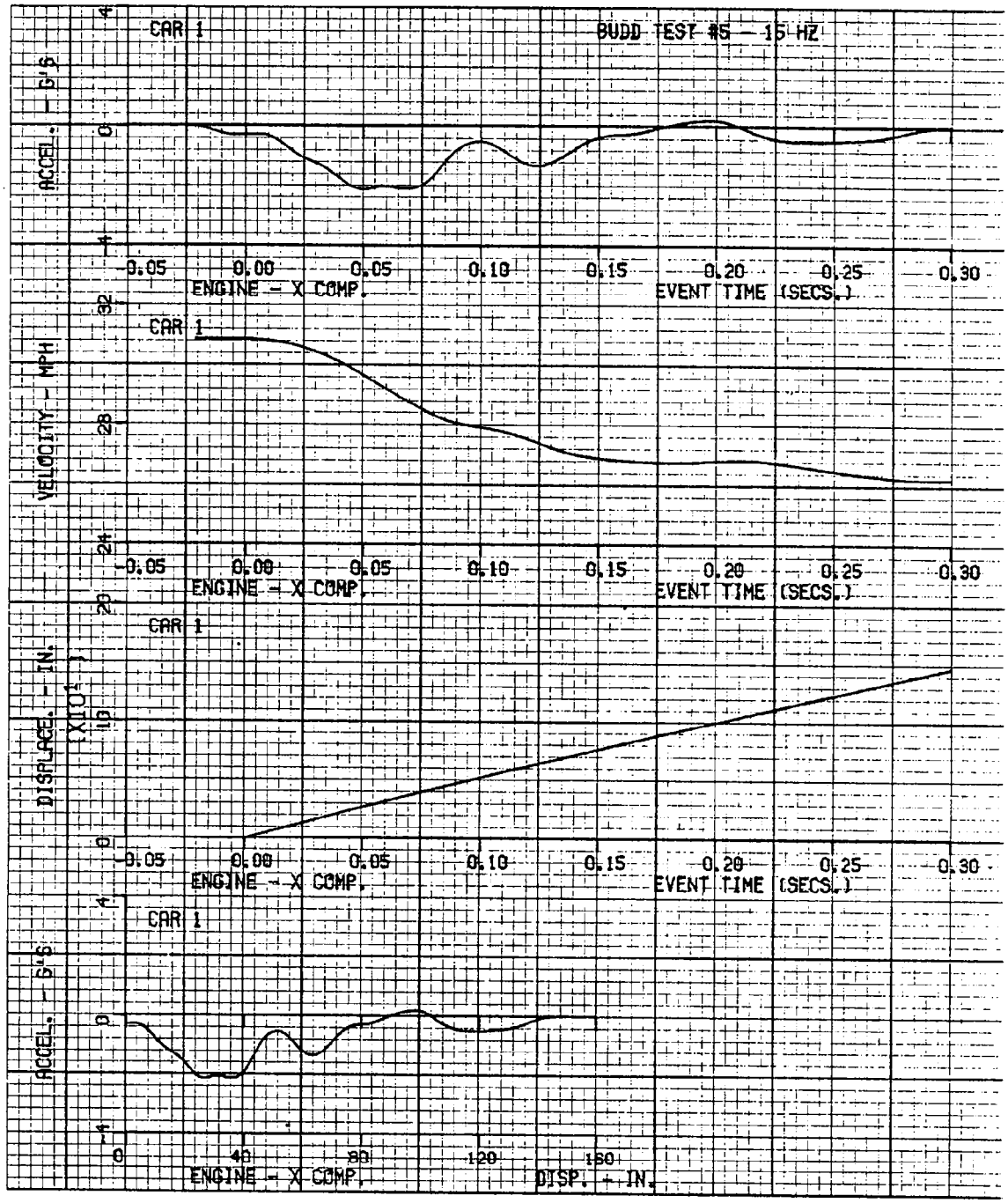
TEST NO. 5

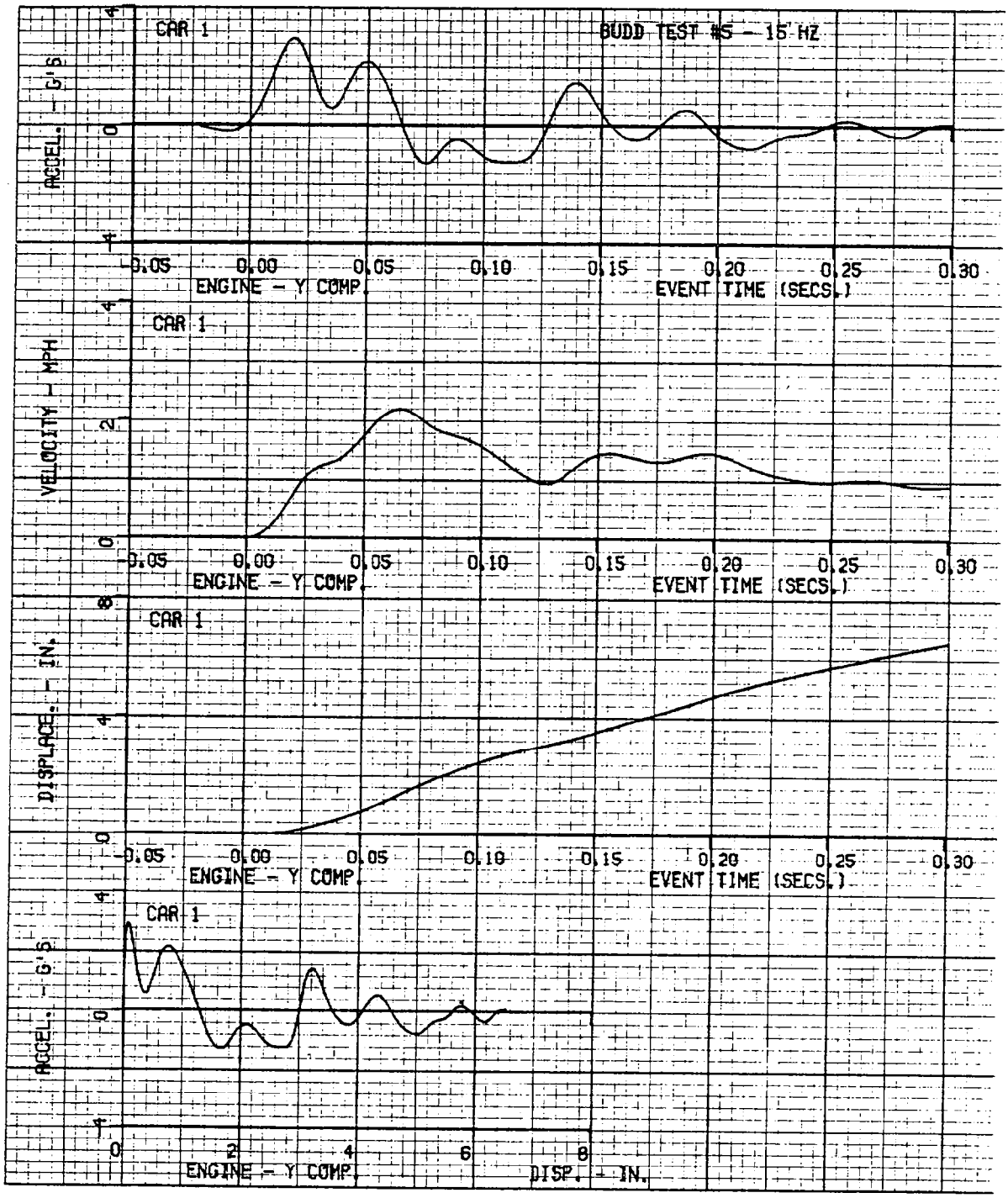
CAR 1 - 1978 CHEVROLET IMPALA

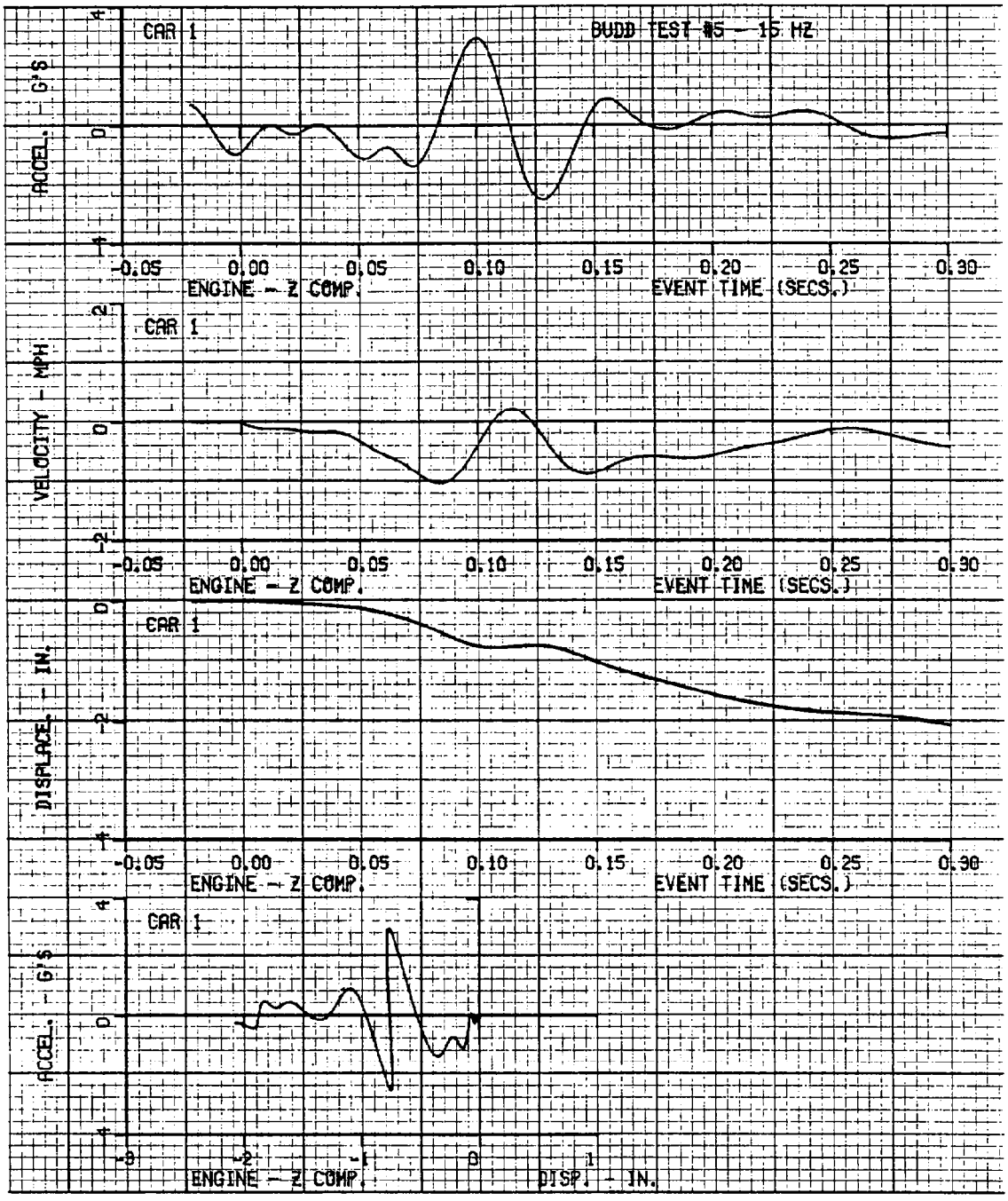
VEHICLE DATA, 15 HZ FILTER

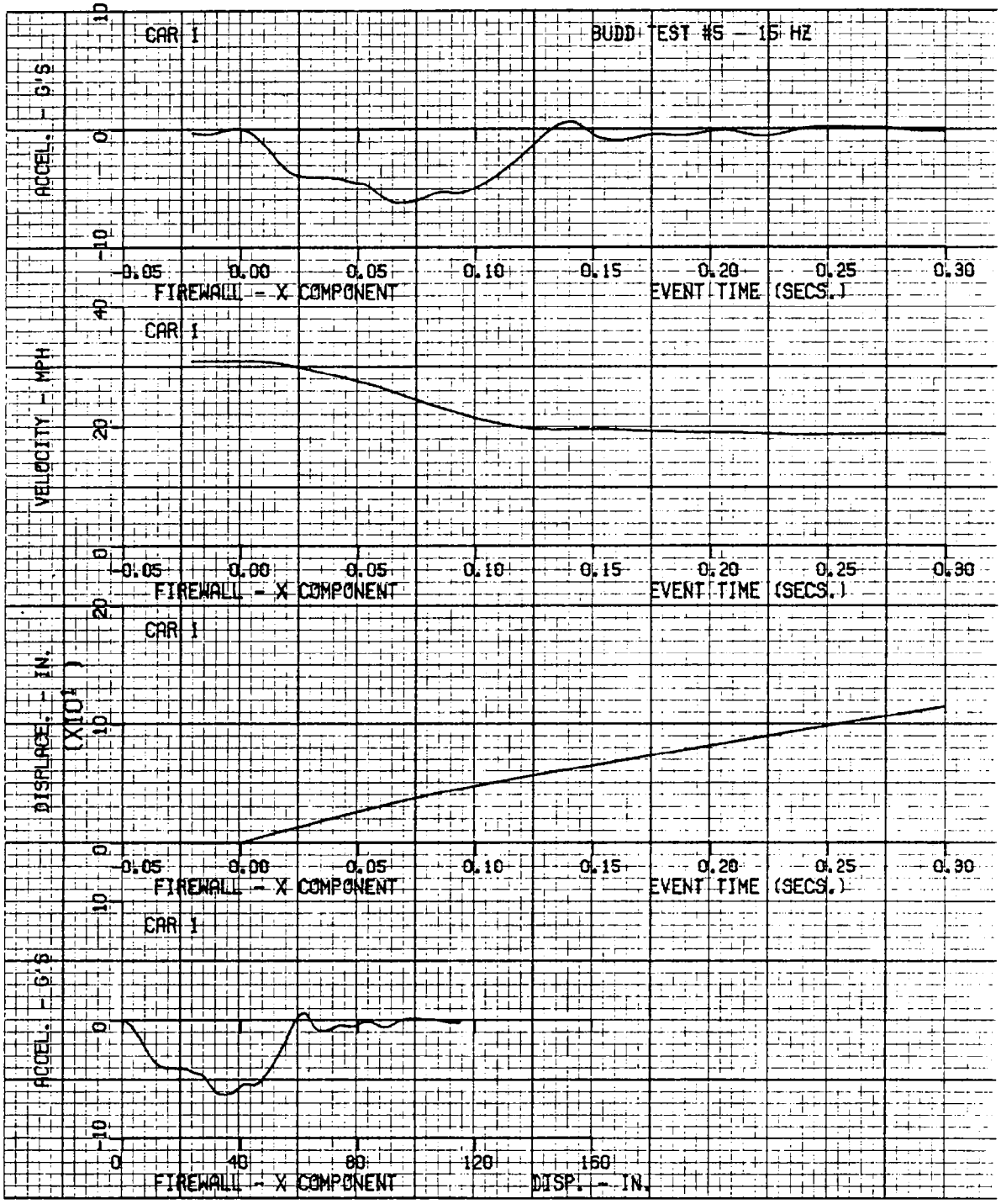

CAR 1
BUDD TEST #5 - 15 HZ
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
30
20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X10¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
40
80
120
160
BUMPER - X COMPONENT
DISP. - IN.

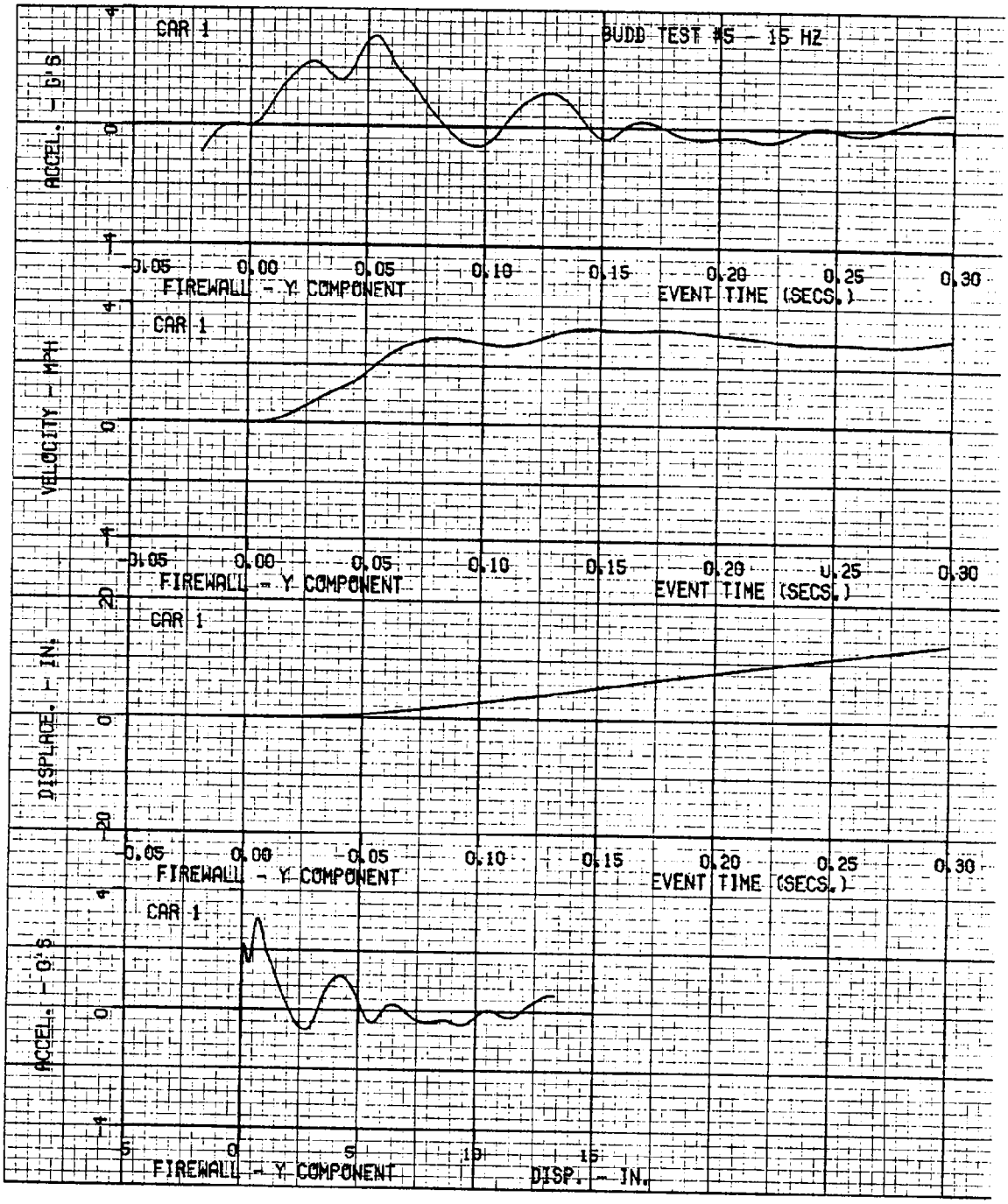

CAR 1
BUDI TEST #5 - 1
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FRONT CROSSMEMBER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
50
40
30
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FRONT CROSSMEMBER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN. (X10)
40
30
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FRONT CROSSMEMBER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
10
20
30
40
FRONT CROSSMEMBER (X10) - X COMP.
DISP. - IN.

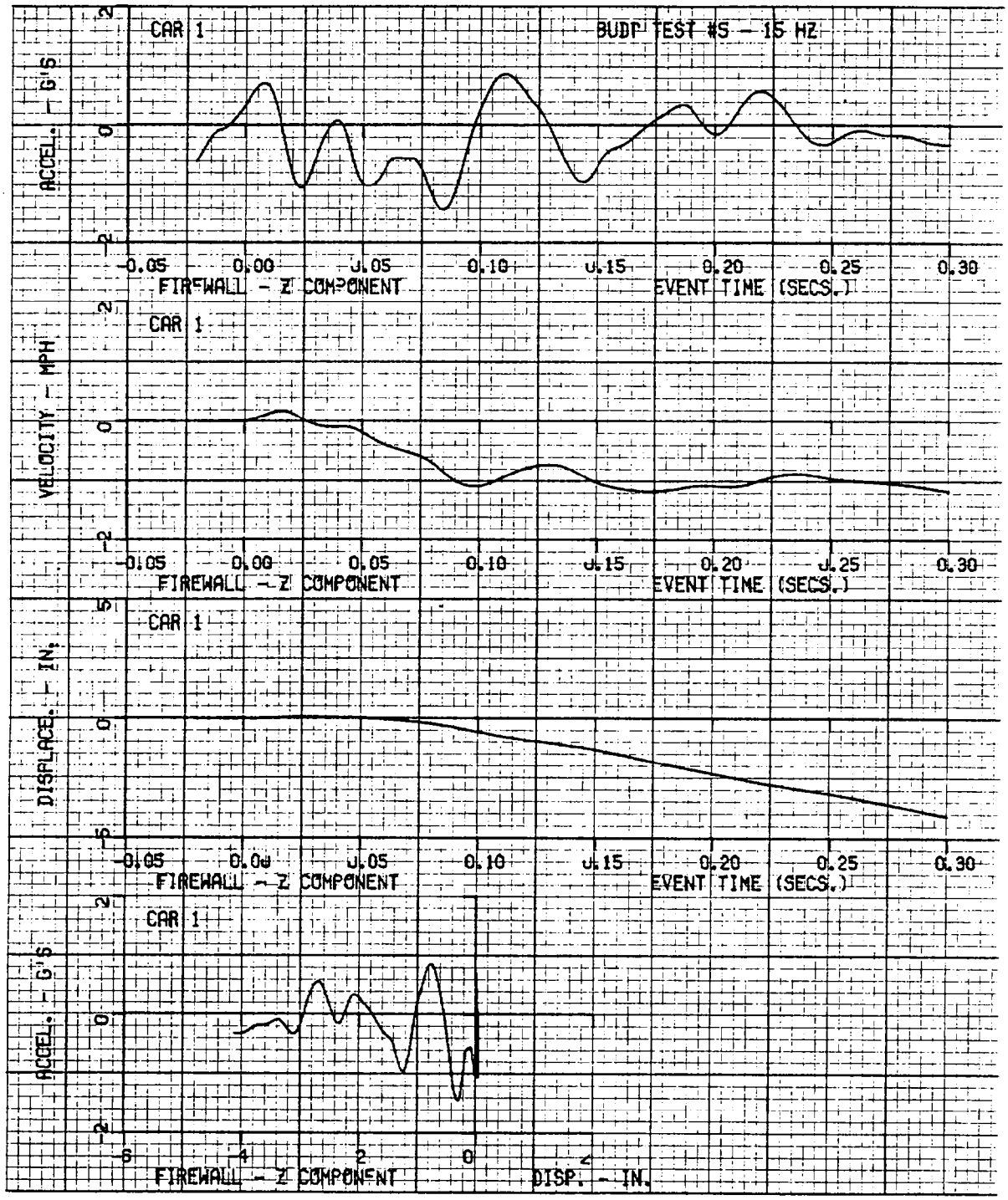

CAR 1
BUDD TEST #5 - 15 HZ
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
ENGINE - X COMP.
EVENT TIME (SECS.)
VELOCITY - MPH
32
28
24
20
DISPLACE. - IN. (X10⁻¹)
16
12
8
4
0
ACCEL. - G'S
-4
0
40
80
120
160
DISP. - IN.

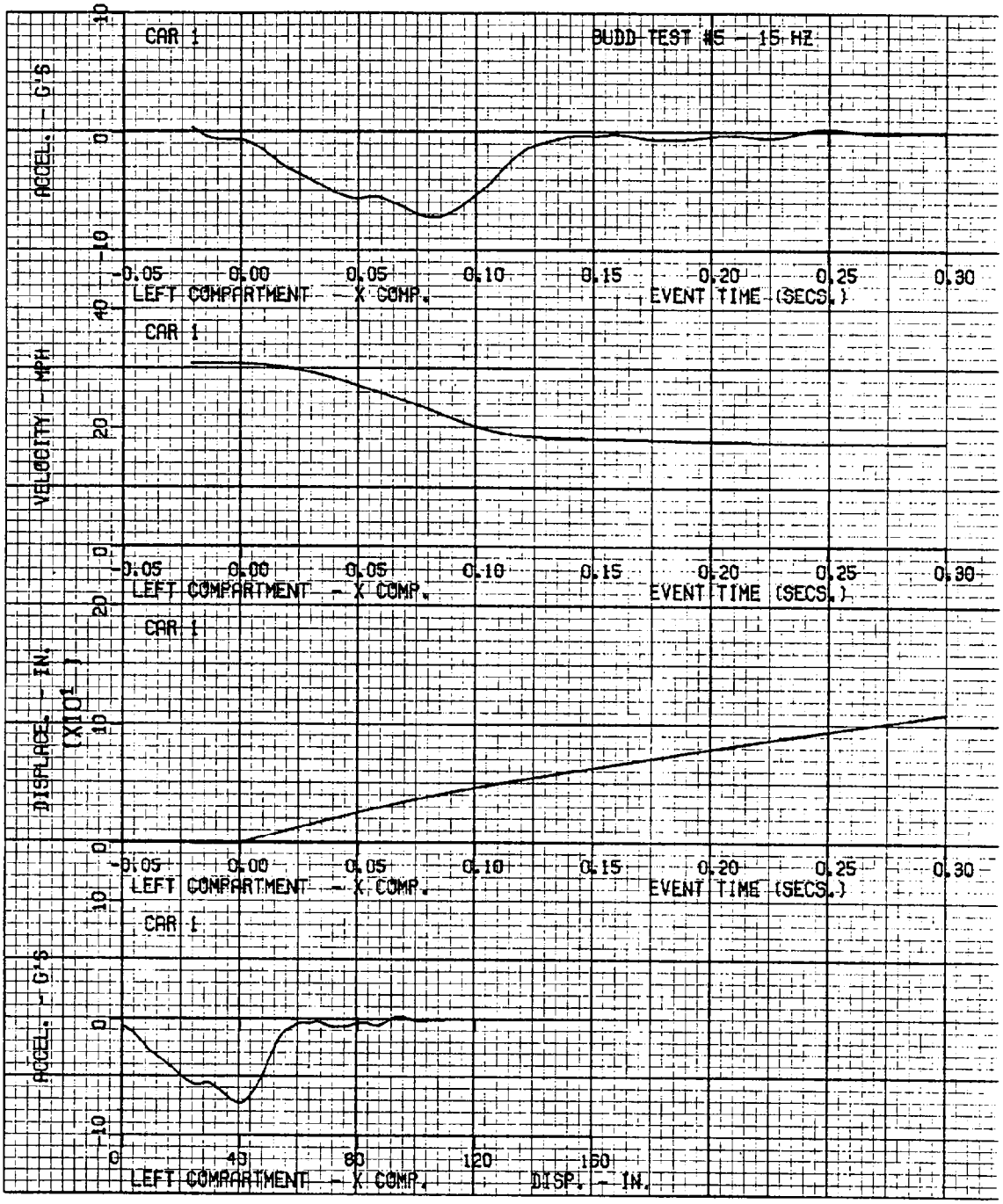

CAR 1
BUDD TEST #5 - 15 MZ
ACCEL. - G'S
4
0
4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
ENGINE - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
2
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
ENGINE - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
8
4
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
ENGINE - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
4
0
2
4
6
8
ENGINE - Y COMP.
DISP. - IN.

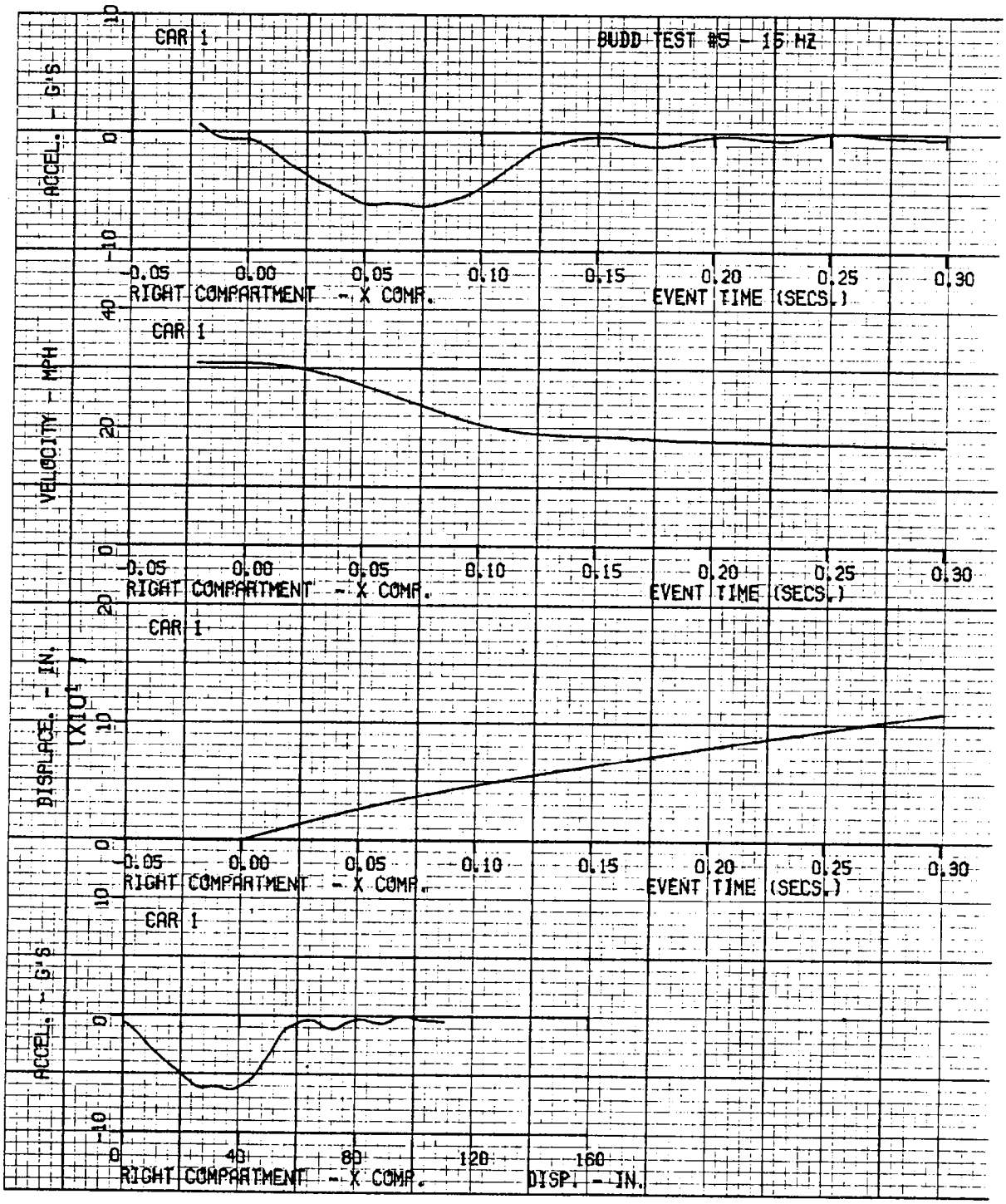

BUDD TEST #5 - 15 MZ
CAR 1
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
ENGINE - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
ENGINE - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
0
-2
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
ENGINE - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
-3
-2
-1
0
1
ENGINE - Z COMP.
DISP. - IN.

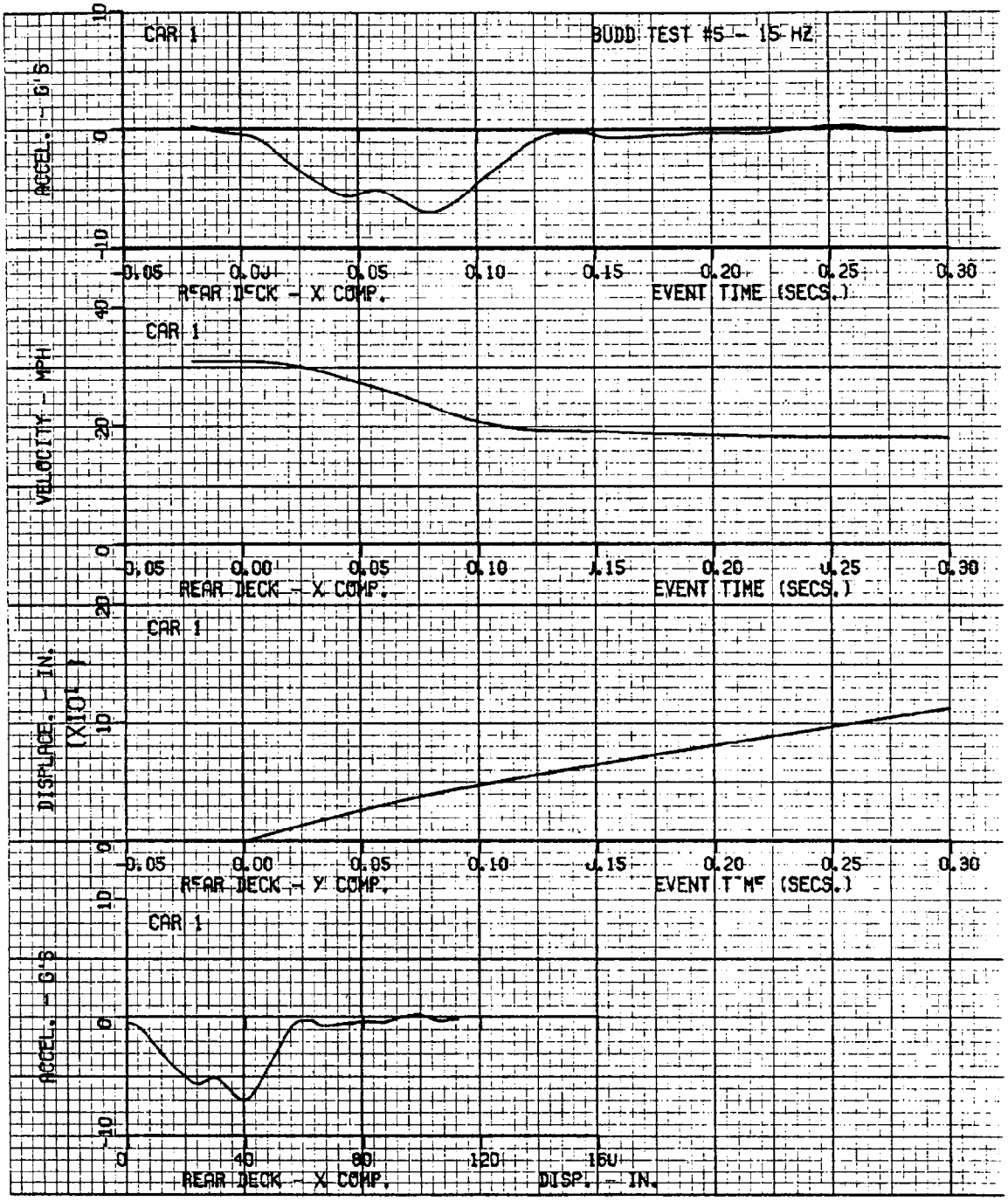

CAR 1
BUDD TEST #5 — 15 HZ
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X10¹)
20
10
0
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
40
80
120
160
FIREWALL - X COMPONENT
DISP. - IN.

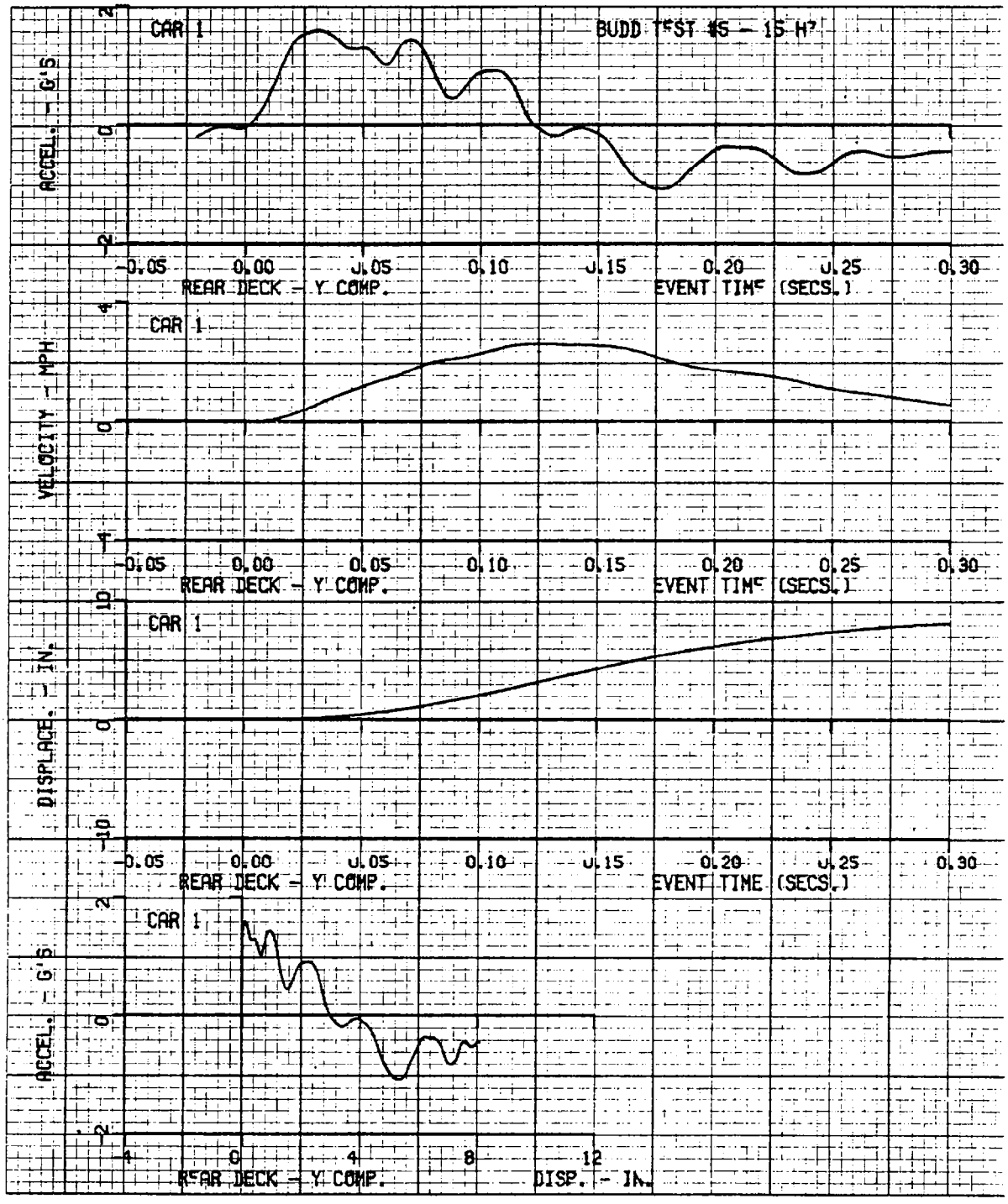

CAR 1
BUDD TEST #5 - 15 HZ
ACCEL. - G'S
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
FIREWALL - Y COMPONENT
DISP. - IN.

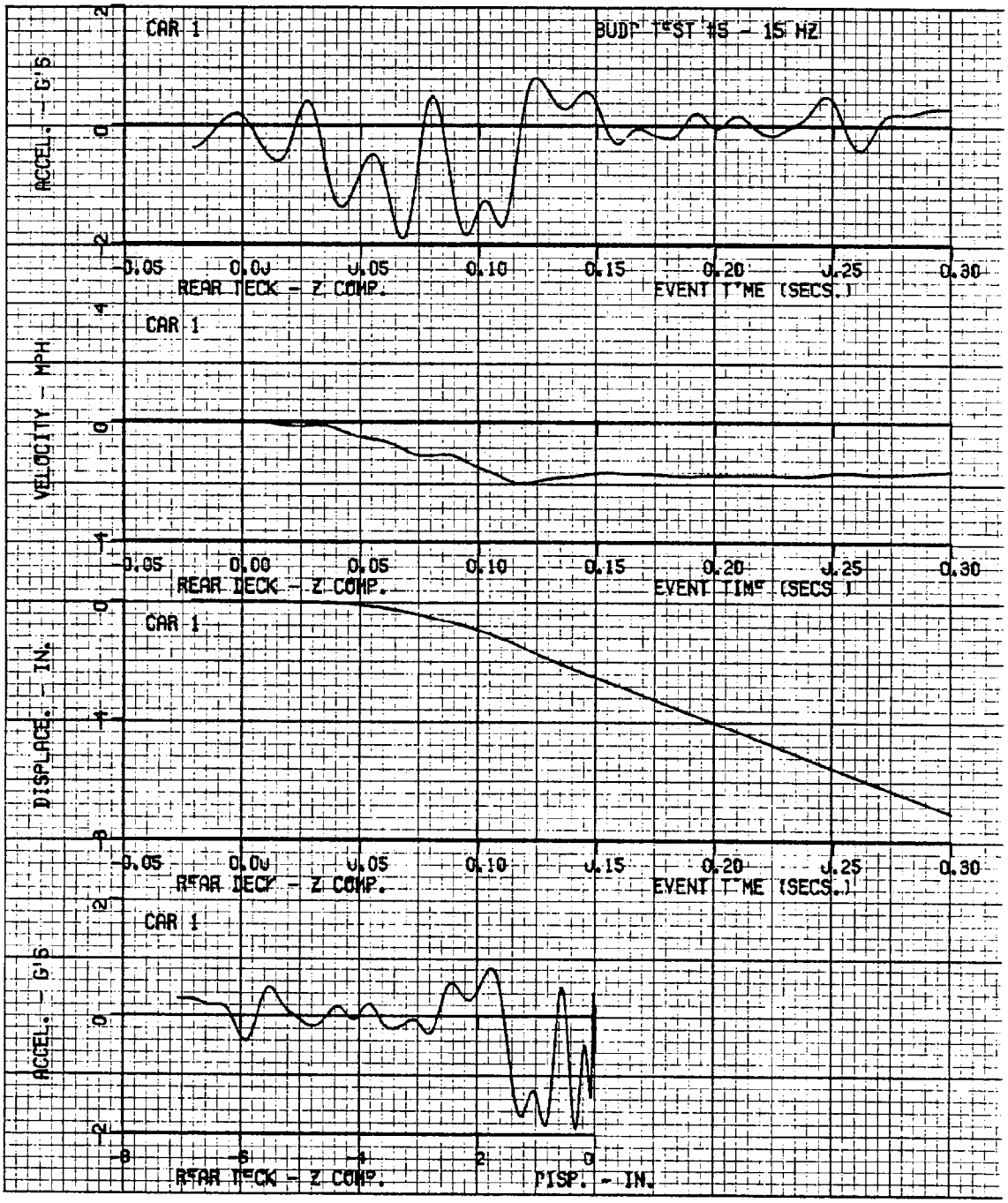

CAR 1
BUDP TEST #S - 15 MZ
ACCEL. - G'S
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
FIREWALL - Z COMPONENT
DISP. - IN.

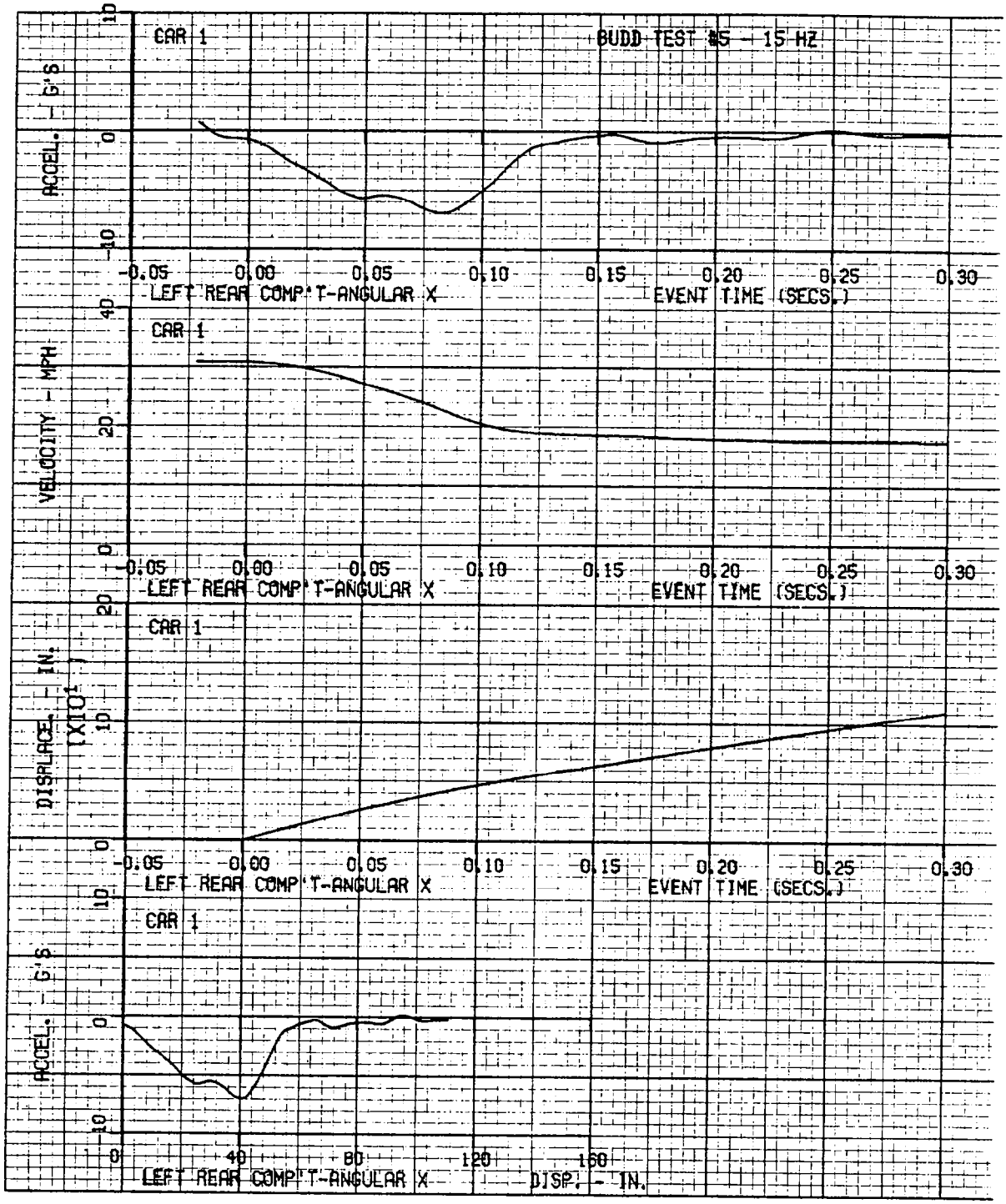

CAR 1
BUDD TEST #5 - 15 MZ
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT COMPARTMENT - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
LEFT COMPARTMENT - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X101)
20
10
0
LEFT COMPARTMENT - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT COMPARTMENT - X COMP.
DISP. - IN.

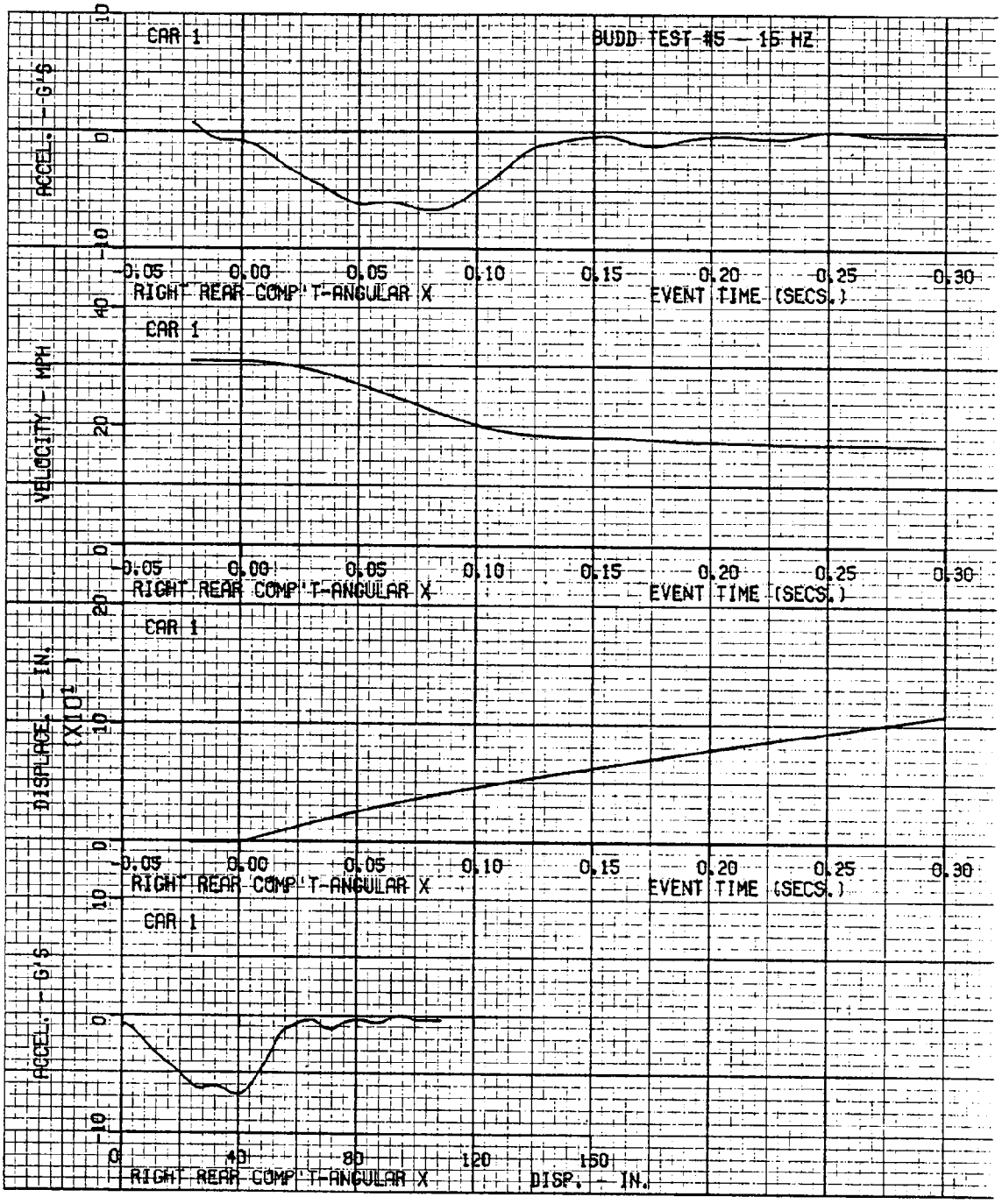

BUDD TEST #5 - 15 HZ
CAR 1
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT COMPARTMENT - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
RIGHT COMPARTMENT - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(XIOUT)
20
10
0
RIGHT COMPARTMENT - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
40
80
120
160
RIGHT COMPARTMENT - X COMP.
DISP. - IN.

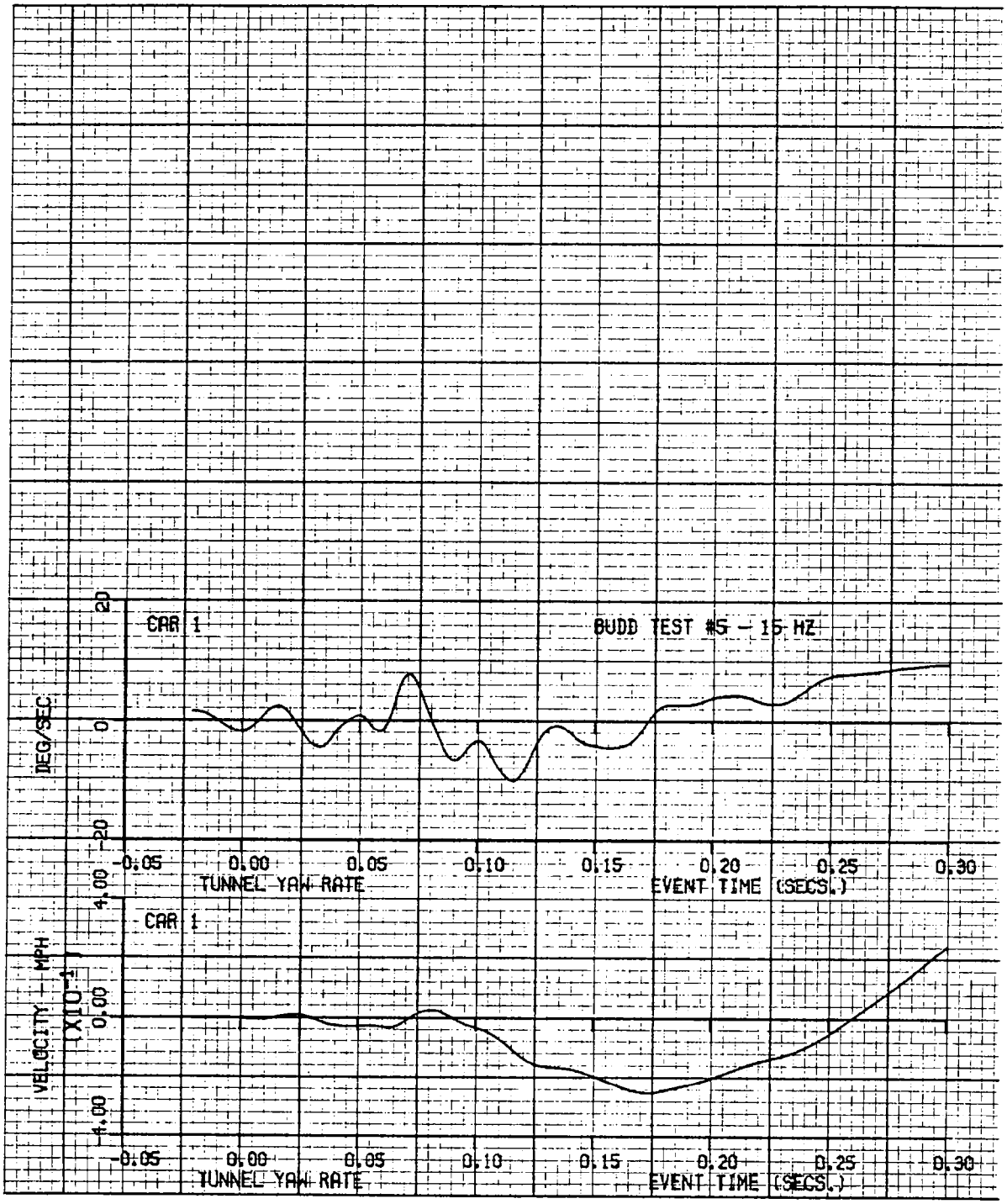

CAR 1
BUDD TEST #S - 15 HZ
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X10)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
40
80
120
160
REAR DECK - X COMP.
DISP. - IN.


CAR 1
BUDD TEST #5 - 15 MPH
ACCEL. - G'S
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
2
0
-2
-4
0
4
8
12
REAR DECK - Y COMP.
DISP. - IN.


CAR 1
BUDD TEST #5 - 15 MPH
ACCEL. - G'S
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
REAR DECK - Z COMP.
DISP. - IN.


CAR 1
BUDD TEST #5 - 15 HZ
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN. (X10⁻¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT REAR COMP'T-ANGULAR X
DISP. - IN.


CAR 1
BUDD TEST #5 — 15 MHZ
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
RIGHT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X10¹)
20
10
0
RIGHT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
40
80
120
150
RIGHT REAR COMP'T-ANGULAR X
DISP. - IN.

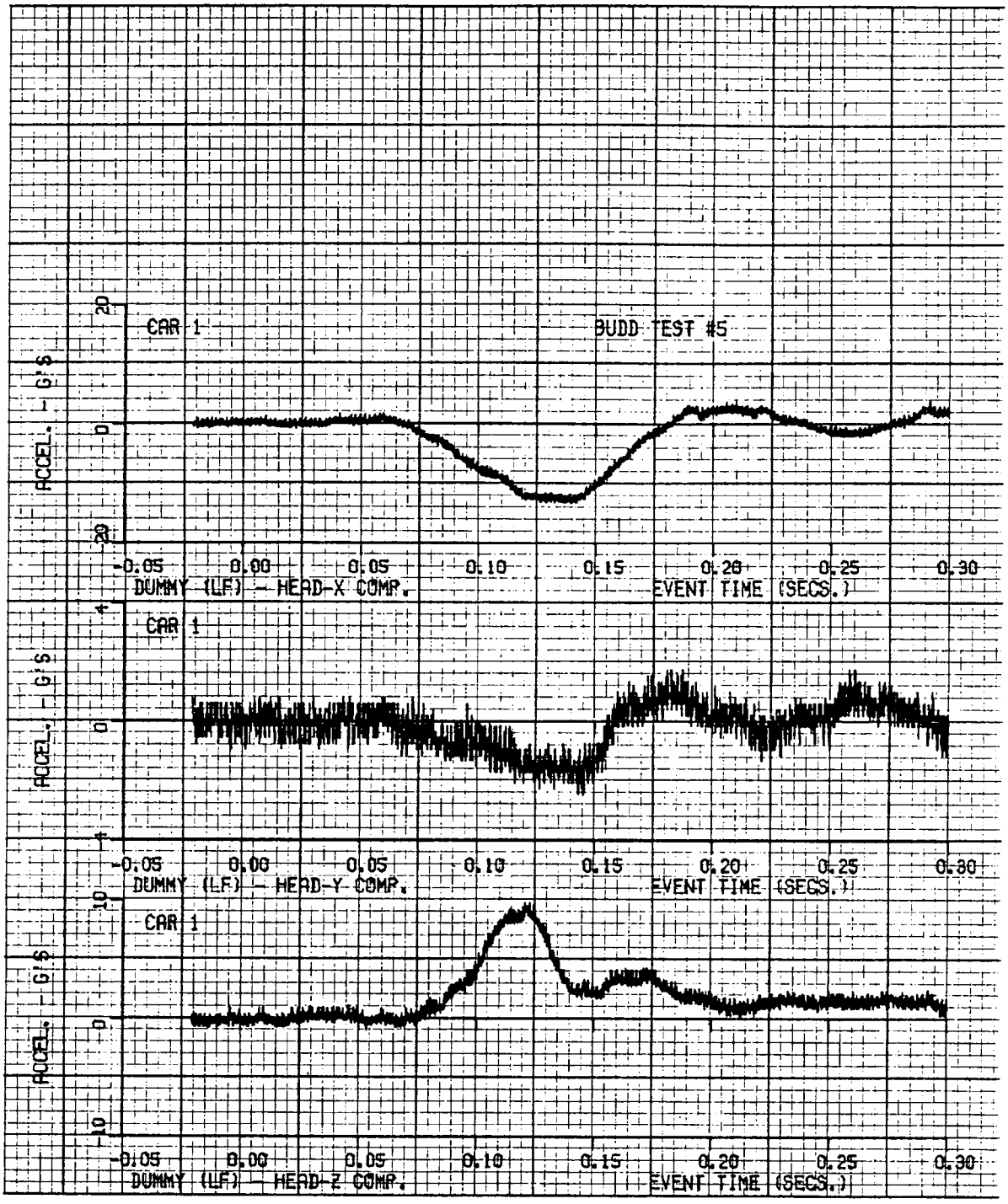

CAR 1
BUDD TEST #5 – 15 HZ
DEG/SEC
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
TUNNEL YAW RATE
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
(X10-1)
4.00
0.00
-4.00
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
TUNNEL YAW RATE
EVENT TIME (SECS.)

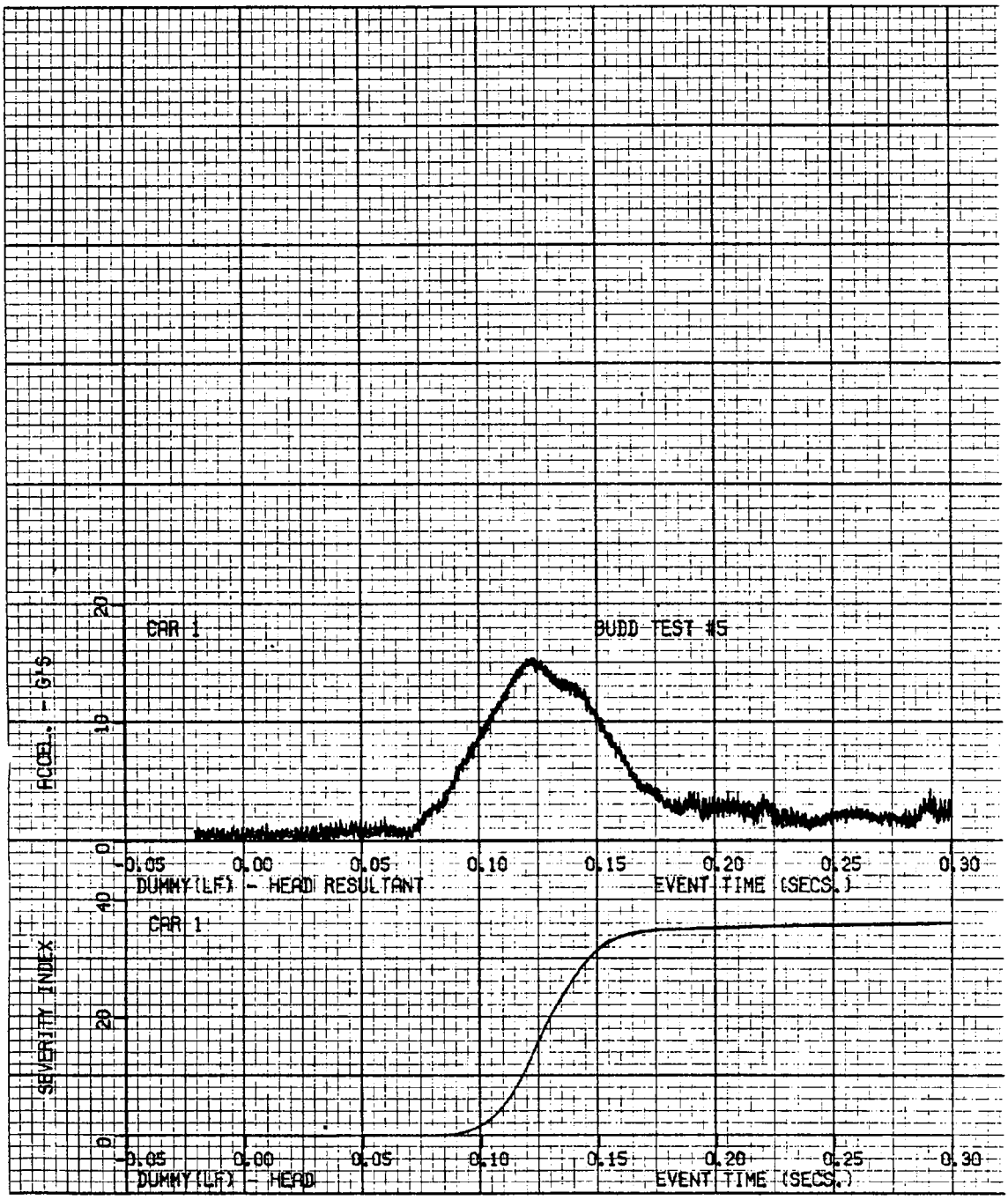
TEST NO. 5

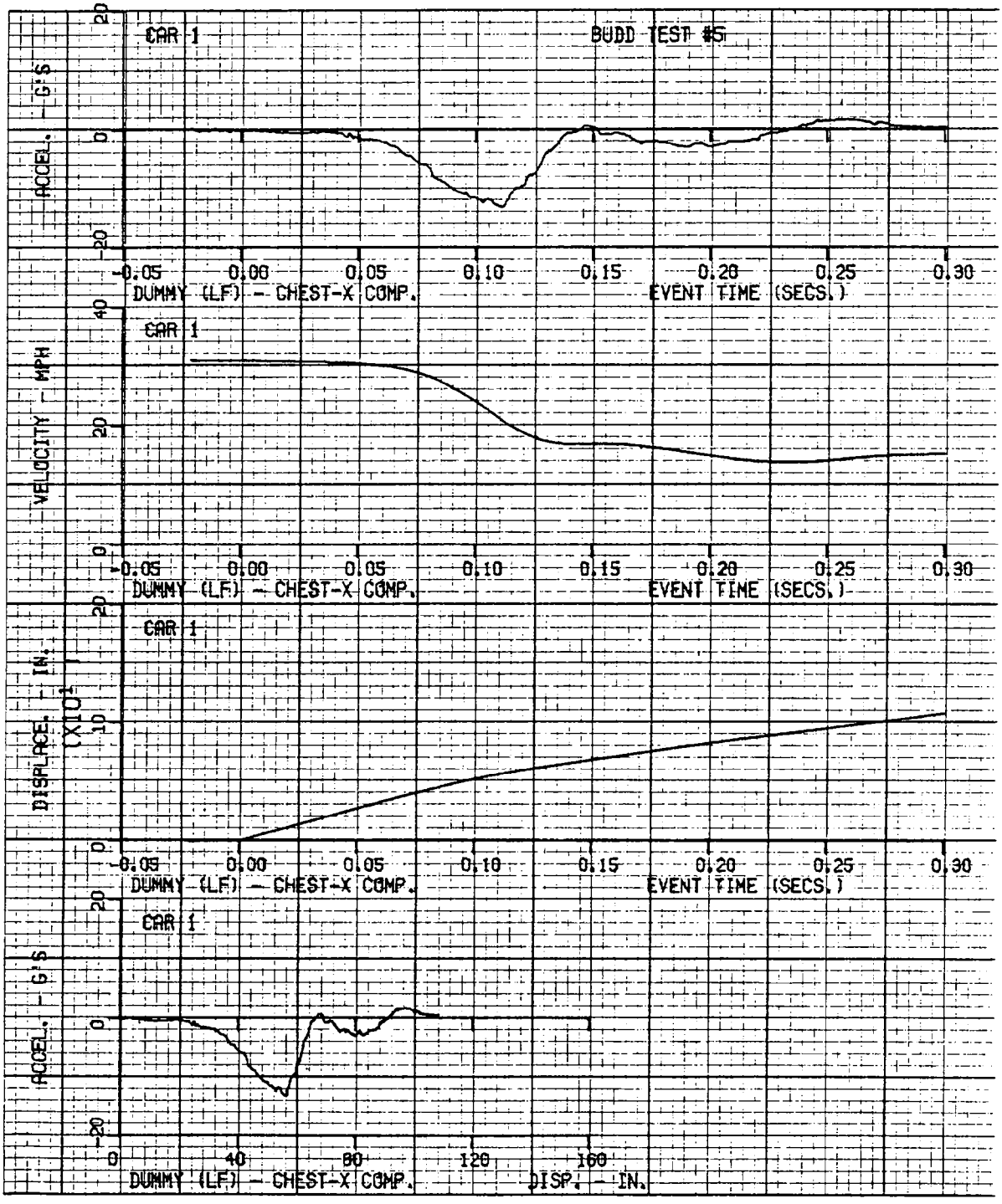
CAR 1 - 1978 CHEVROLET IMPALA

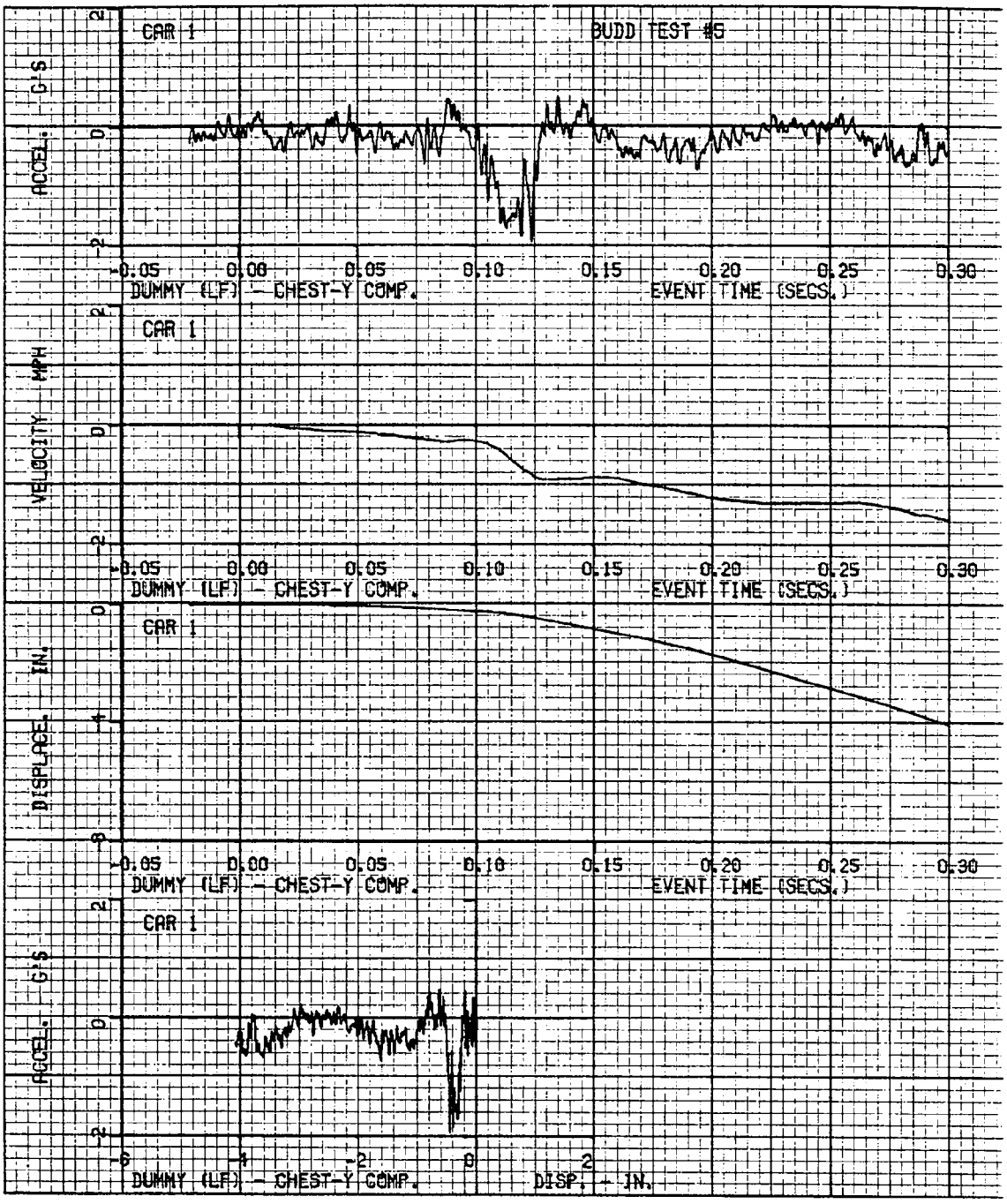
DUMMY DATA

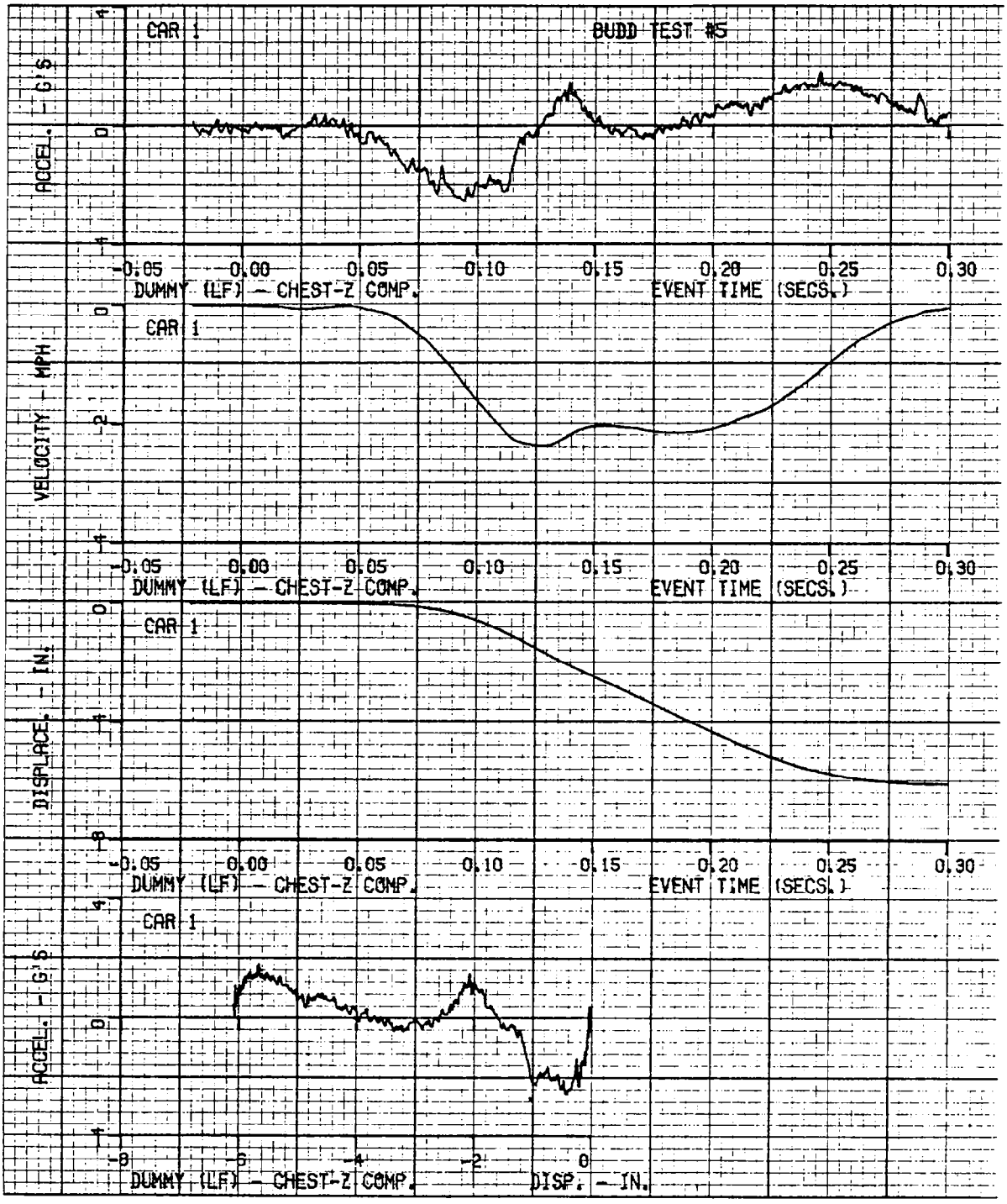
	FILTER CHANNEL CLASS
Head Acceleration	1000
Chest Acceleration	180
Femur Forces	600
Belt Loads	60

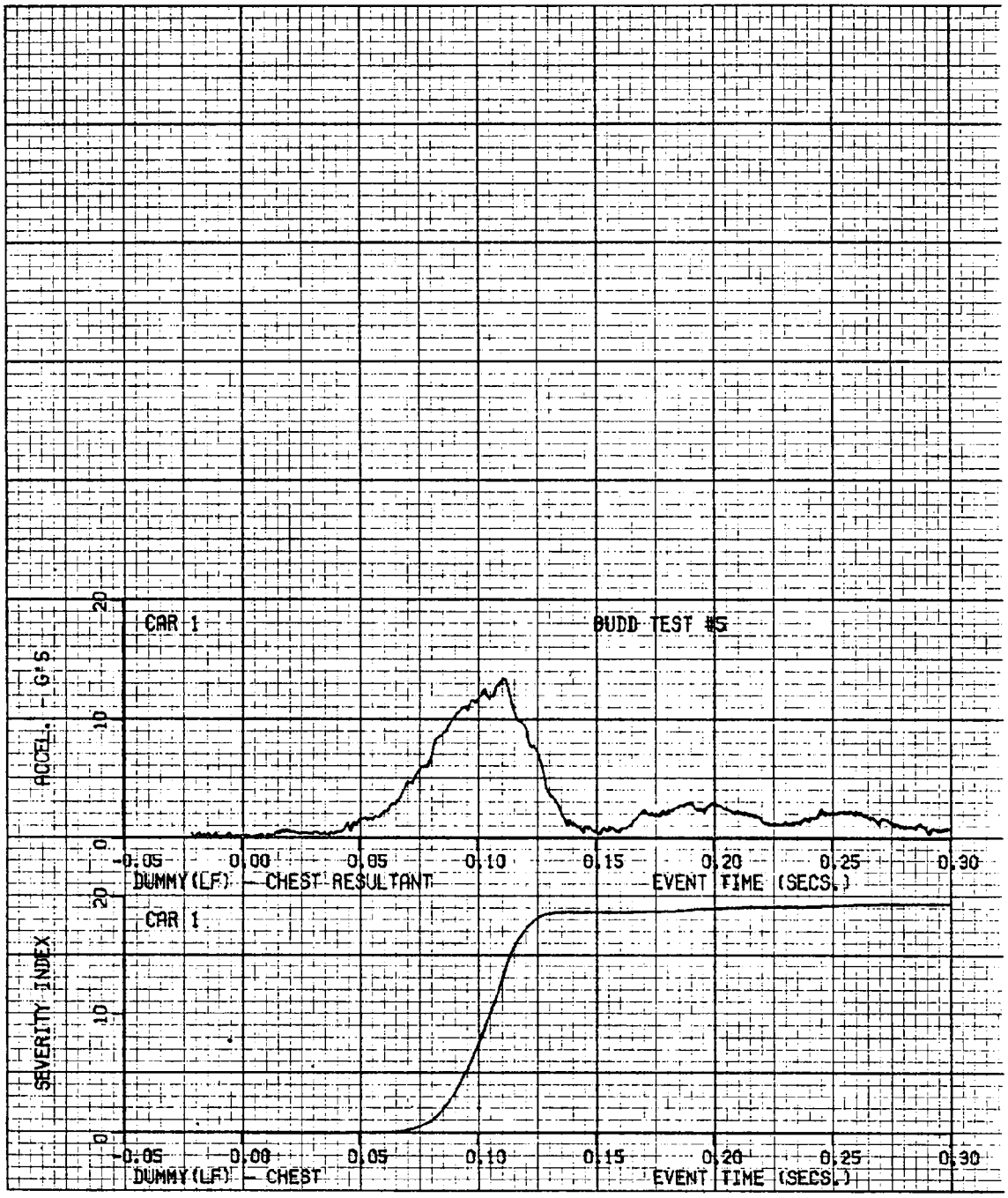

CAR 1
BUDD TEST #5
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD-Z COMP.
EVENT TIME (SECS.)

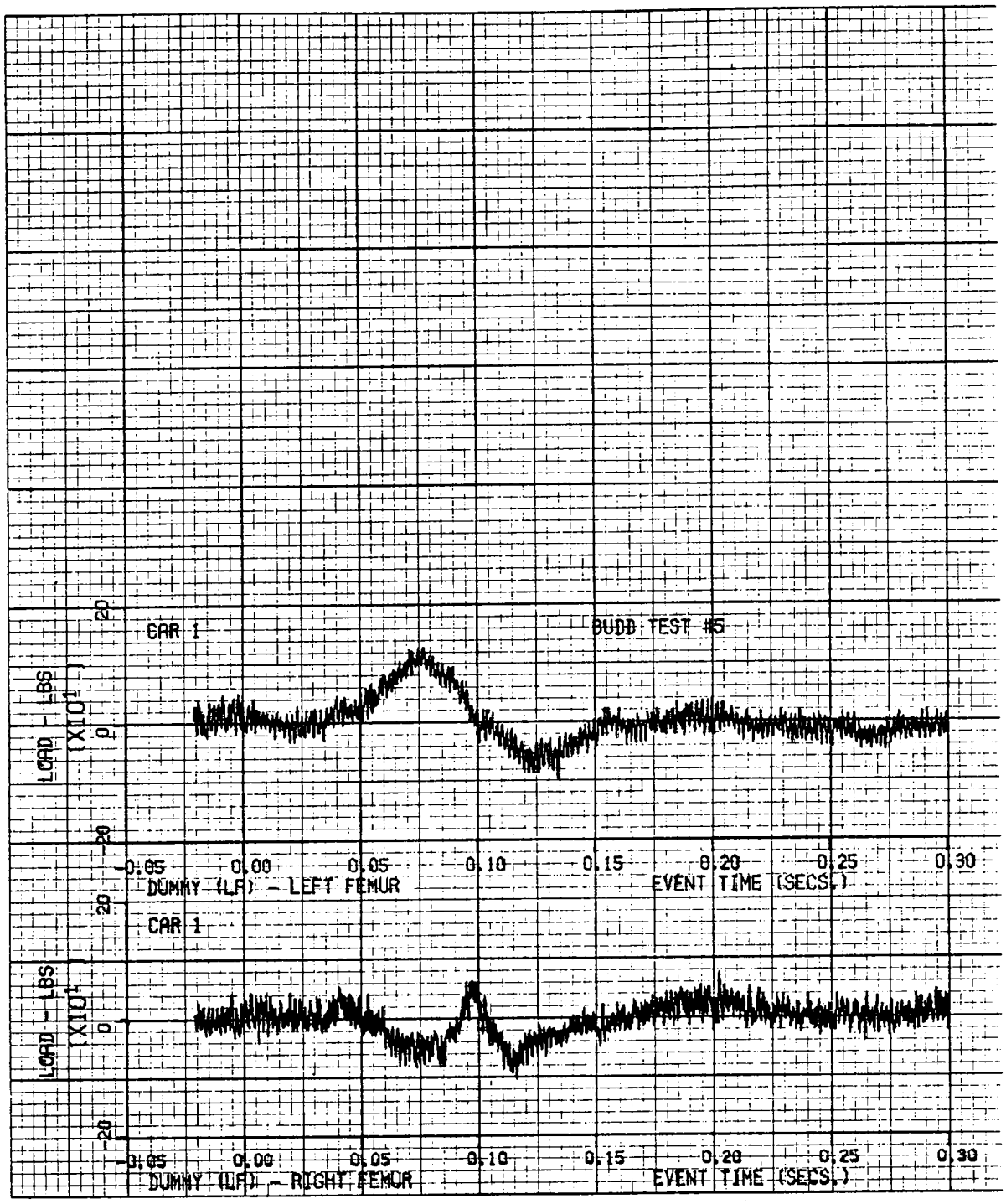

CAR 1
BUDD TEST #5
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY(LF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 1
SEVERITY INDEX
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY(LF) - HEAD
EVENT TIME (SECS.)

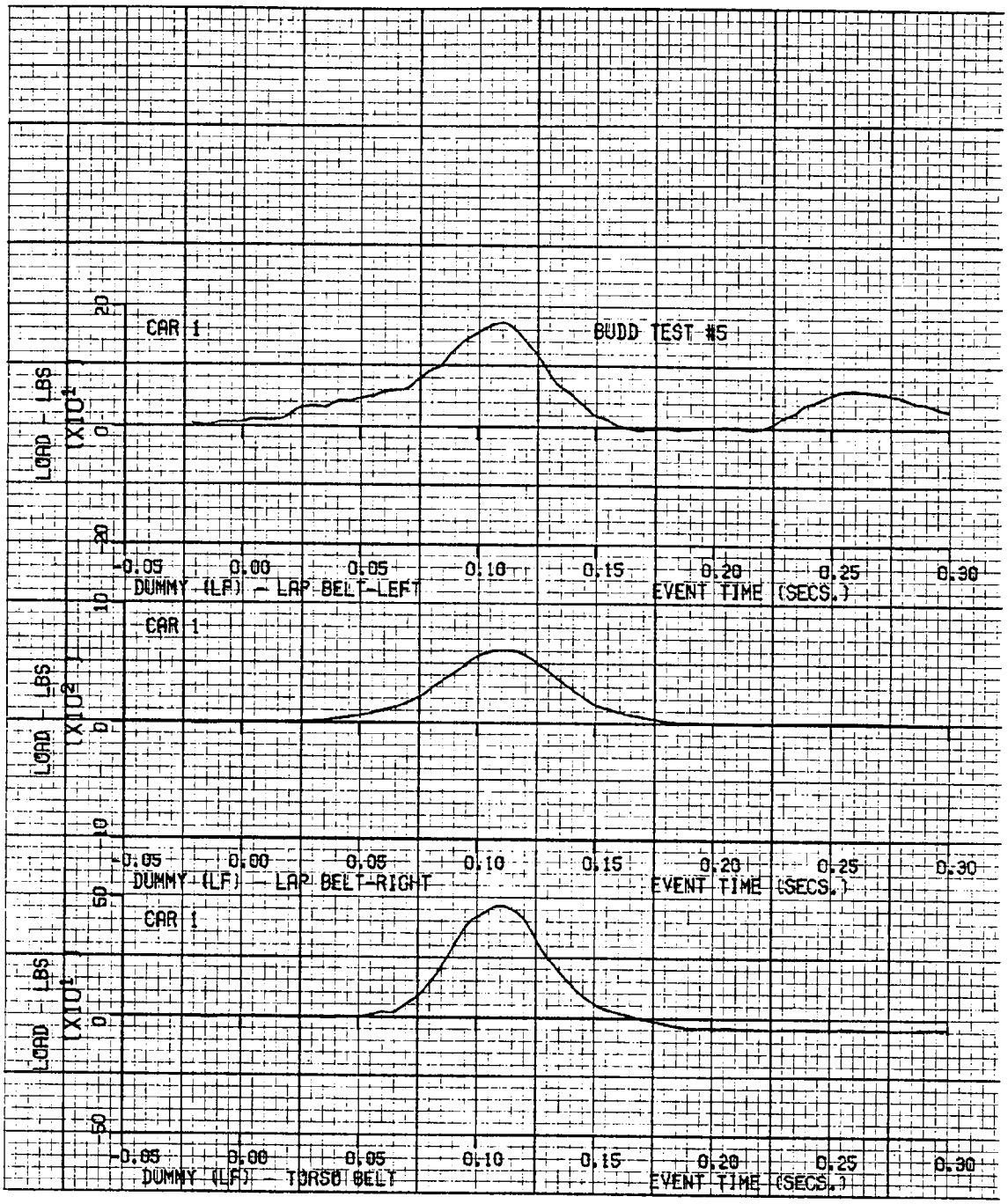

CAR 1
BUDD TEST #5
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X10)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
40
80
120
160
DUMMY (LF) - CHEST-X COMP.
DISP. - IN.


CAR 1
BUDD TEST #5
ACCEL. G'S
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY MPH
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. IN.
0
-1
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. G'S
2
0
-2
-5
-4
-2
0
2
DUMMY (LF) - CHEST-Y COMP.
DISP. - IN.


CAR 1
BUDD TEST #5
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
VELOCITY - MPH
0
-2
-4
DISPLACE. - IN.
-8
-4
0
-8
-6
-4
-2
0
DISP. - IN.


CAR 1
BUDD TEST #5
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY(LF) - CHEST RESULTANT
EVENT TIME (SECS.)
CAR 1
SEVERITY INDEX
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY(LF) - CHEST
EVENT TIME (SECS.)

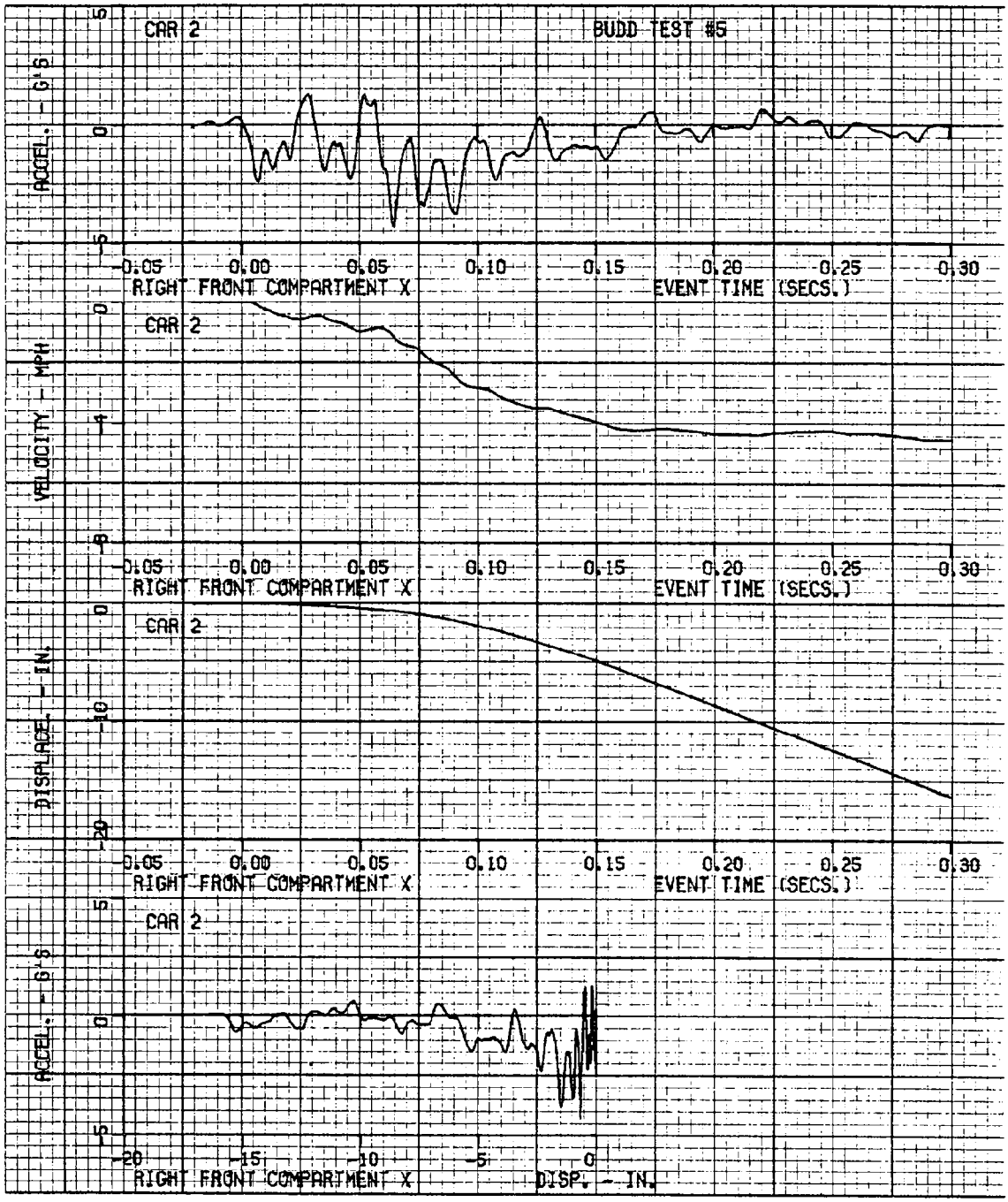

CAR 1
BUDD TEST #5
LOAD - LBS (X10¹)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - LEFT FEMUR
EVENT TIME (SECS.)
CAR 1
LOAD - LBS (X10¹)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - RIGHT FEMUR
EVENT TIME (SECS.)

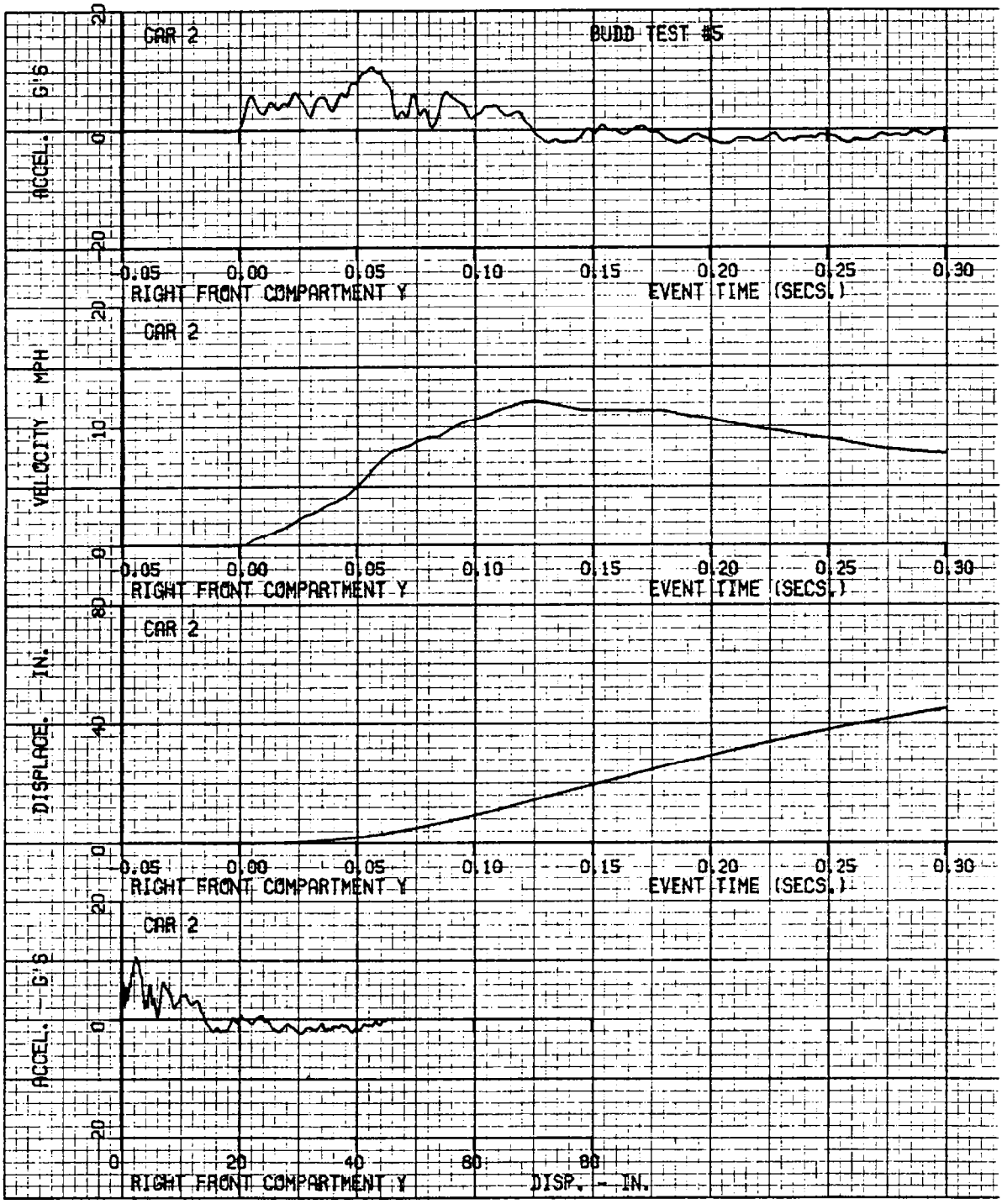

CAR 1
BUDD TEST #5
LOAD LBS (X10⁴)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) — LAP BELT-LEFT
EVENT TIME (SECS.)
CAR 1
LOAD LBS (X10³)
10
0
-10
DUMMY (LF) — LAP BELT-RIGHT
EVENT TIME (SECS.)
CAR 1
LOAD LBS (X10³)
50
0
-50
DUMMY (LF) — TORSO BELT
EVENT TIME (SECS.)

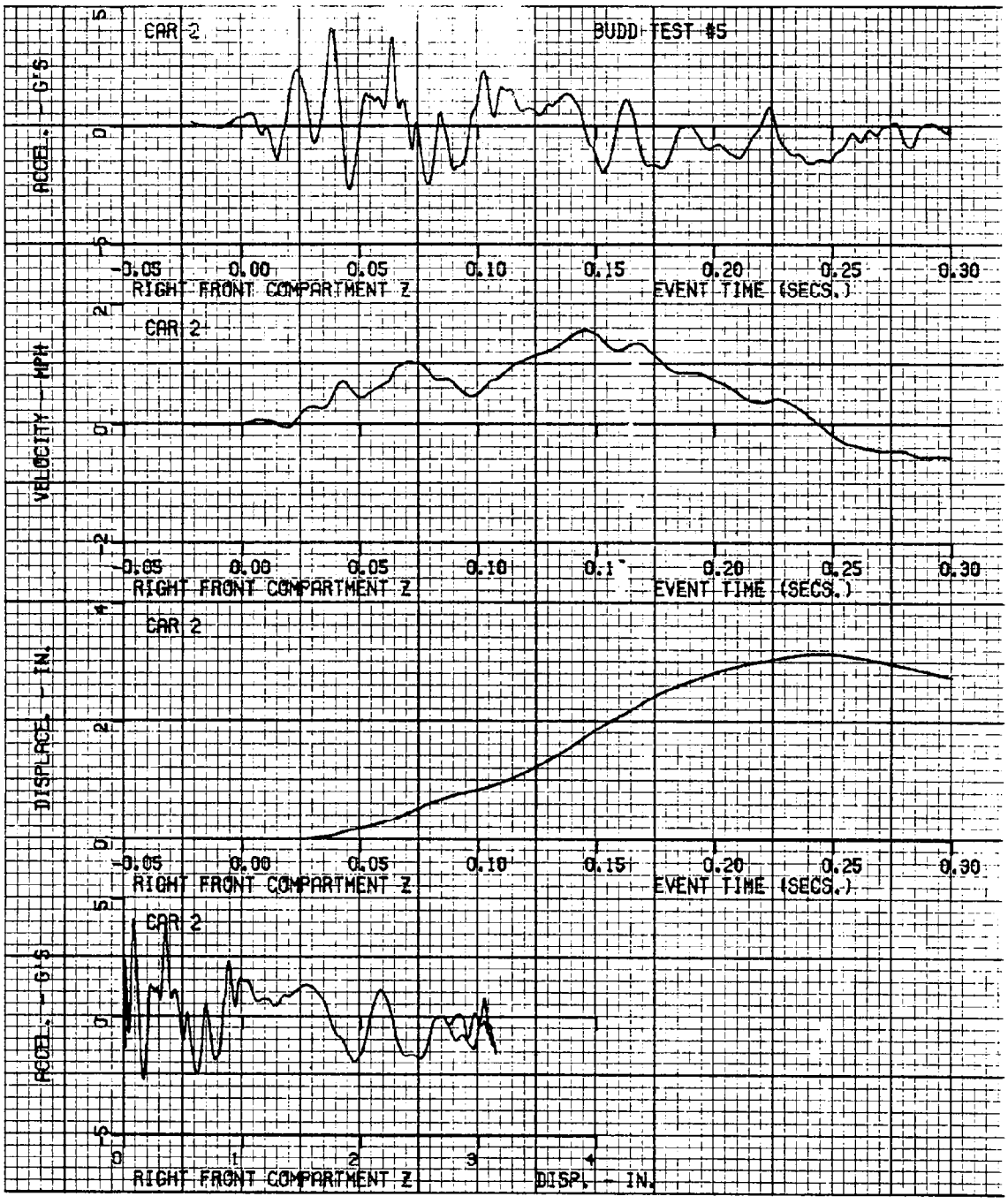
TEST NO. 5

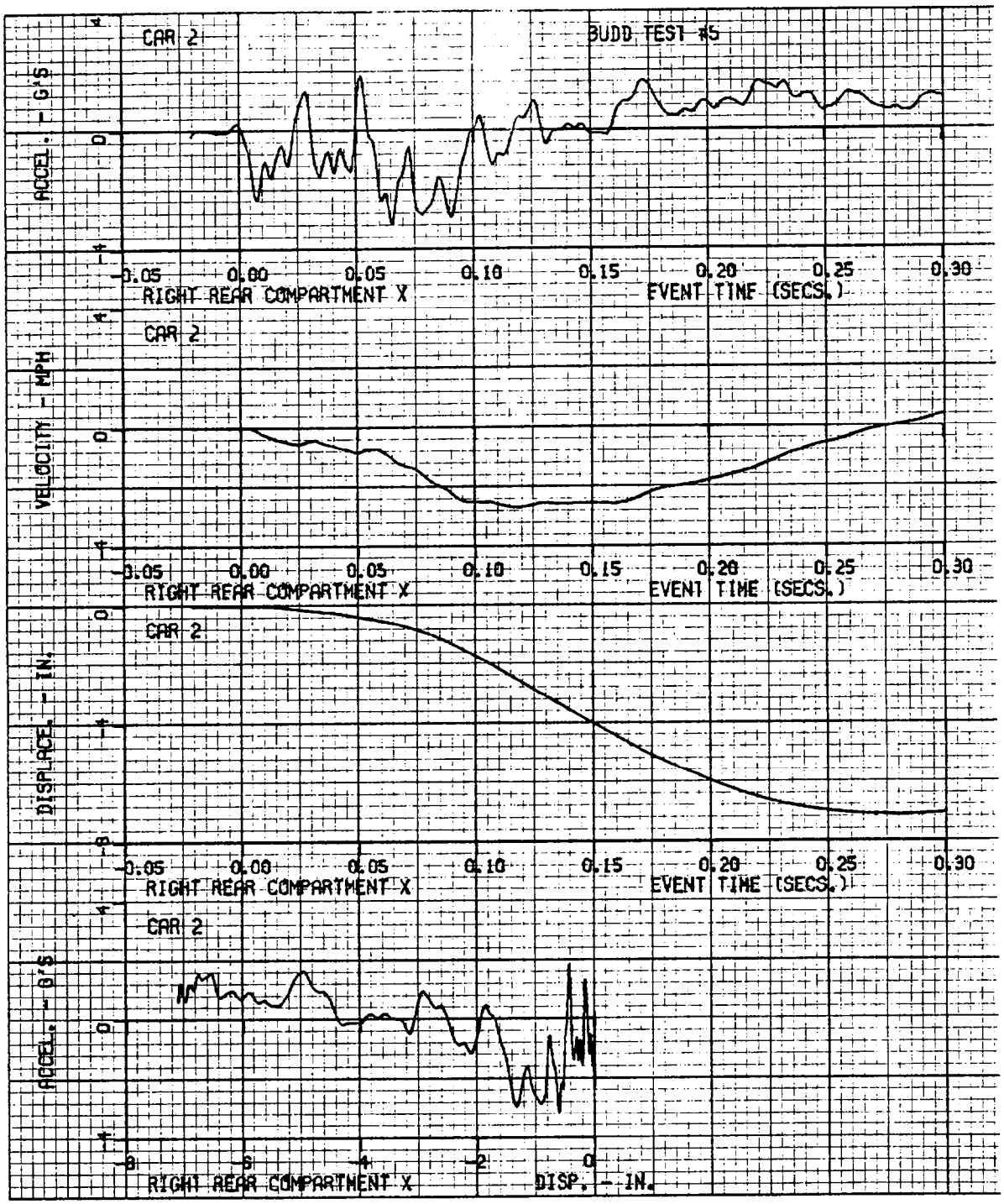
CAR 2 - 1976 VOLKSWAGEN RABBIT

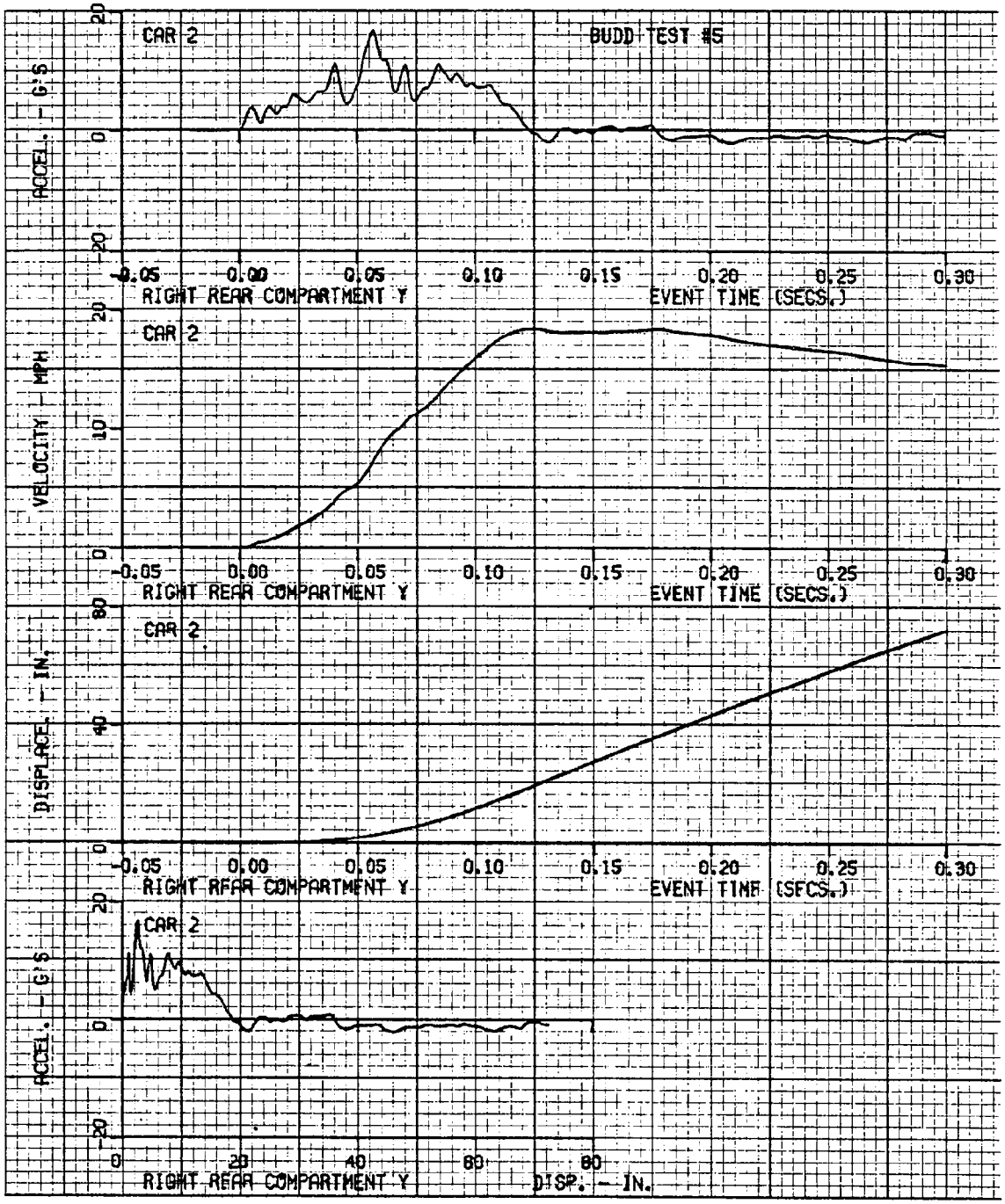
VEHICLE DATA	60 HZ FILTER
SIDE INTRUSION DATA	60 HZ FILTER

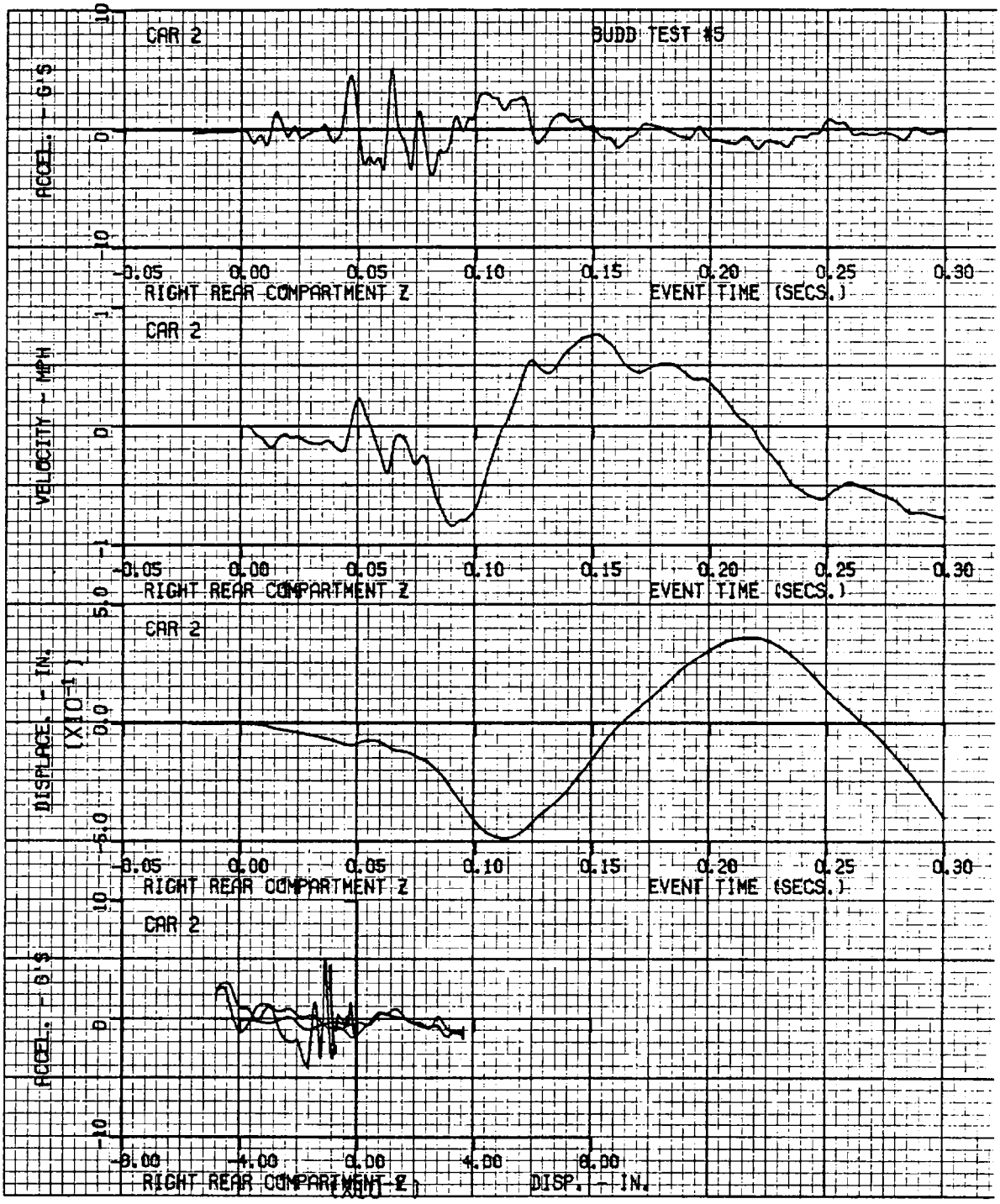

CAR 2
BUDD TEST #5
ACCEL. - G'S
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT FRONT COMPARTMENT X
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-4
-8
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT FRONT COMPARTMENT X
EVENT TIME (SECS.)
CAR 2
DISPLACEMENT - IN.
0
-10
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT FRONT COMPARTMENT X
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
5
0
-5
-20
-15
-10
-5
0
RIGHT FRONT COMPARTMENT X
DISP. - IN.

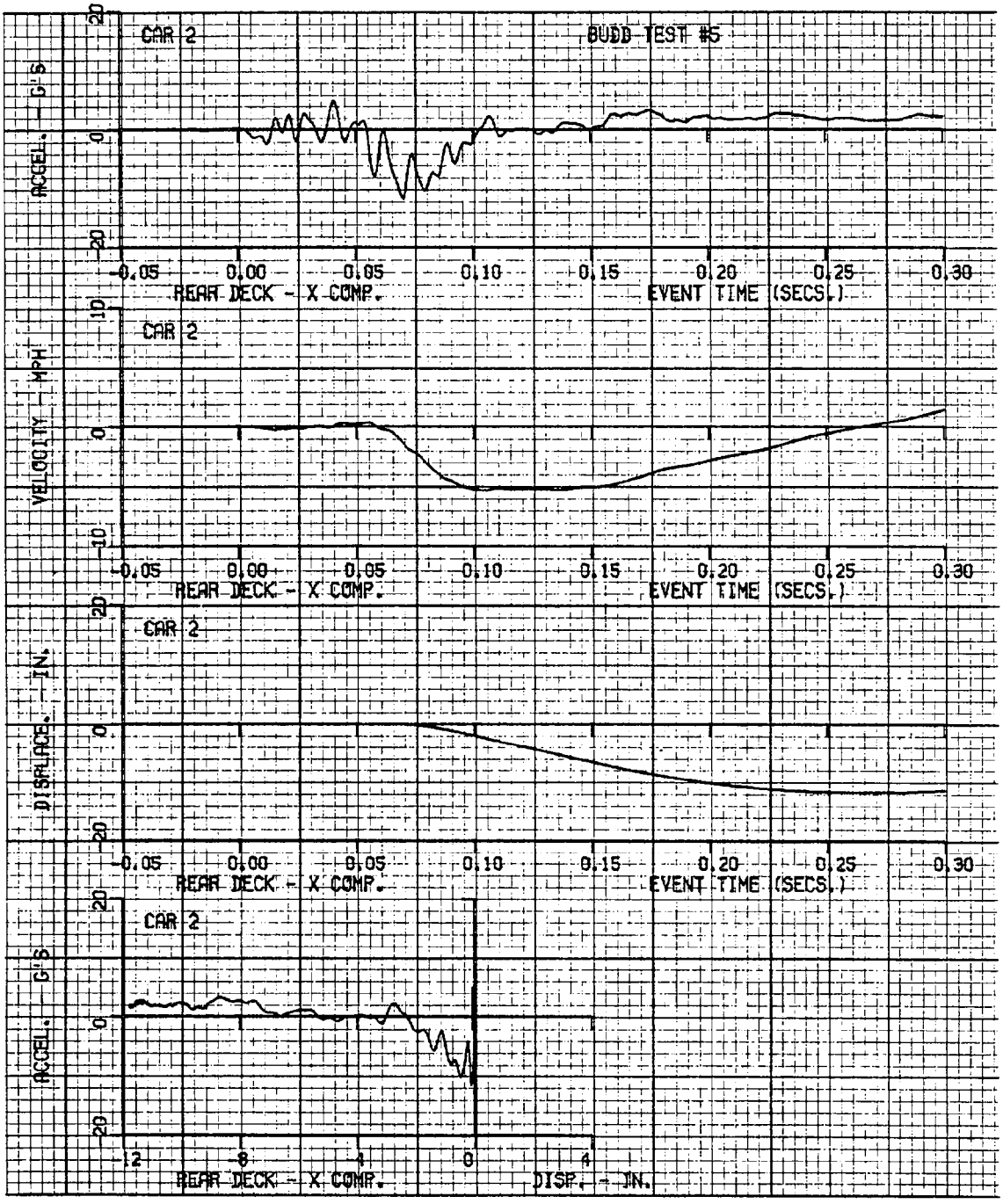

CAR 2
BUDD TEST #5
ACCEL. - G'S
20
0
20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT FRONT COMPARTMENT Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT FRONT COMPARTMENT Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT FRONT COMPARTMENT Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
20
0
20
40
60
80
RIGHT FRONT COMPARTMENT Y
DISP. - IN.

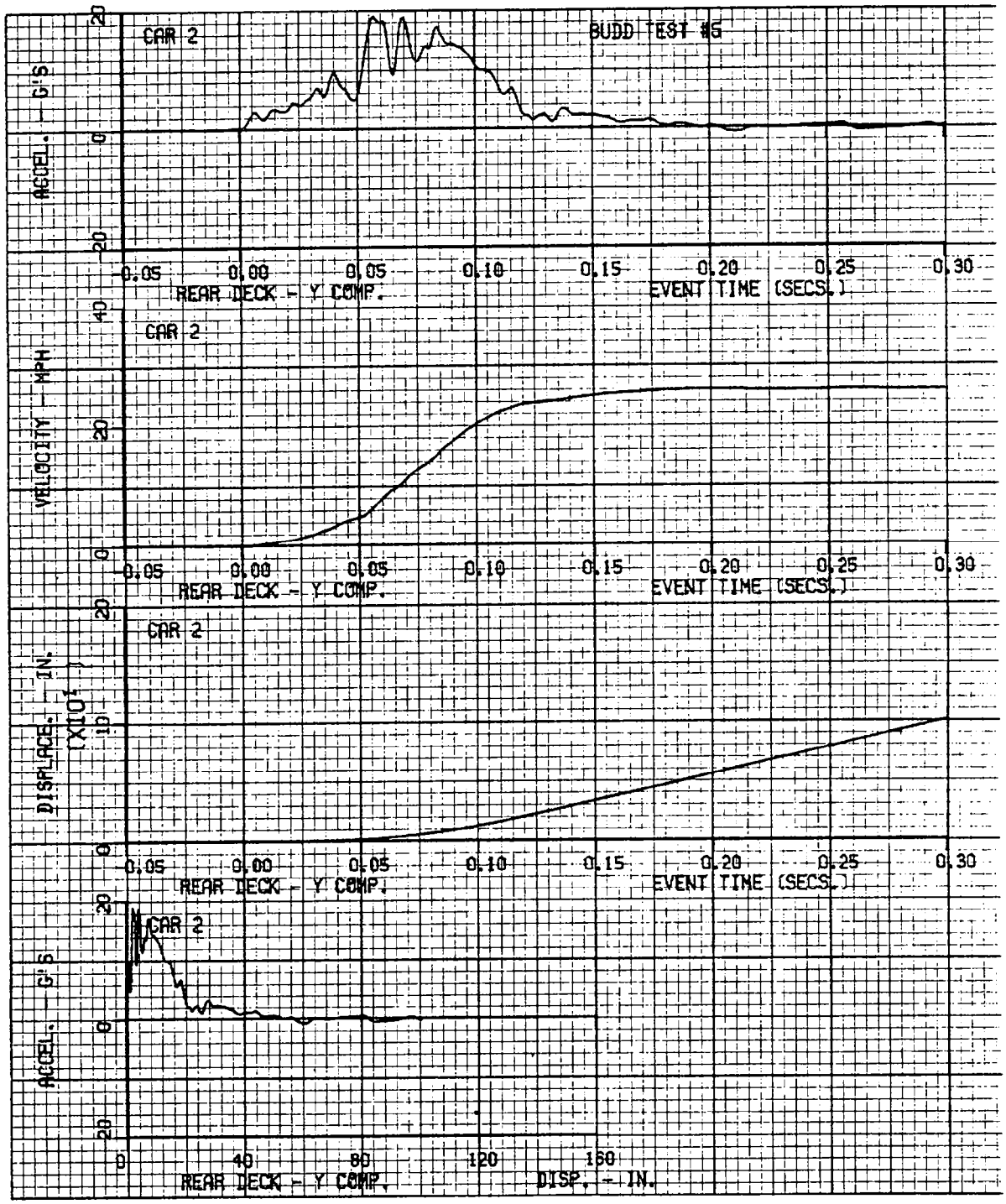

CAR 2
BUDD TEST #5
ACCEL. - G'S
RIGHT FRONT COMPARTMENT Z
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
RIGHT FRONT COMPARTMENT Z
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
RIGHT FRONT COMPARTMENT Z
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
RIGHT FRONT COMPARTMENT Z
DISP. - IN.

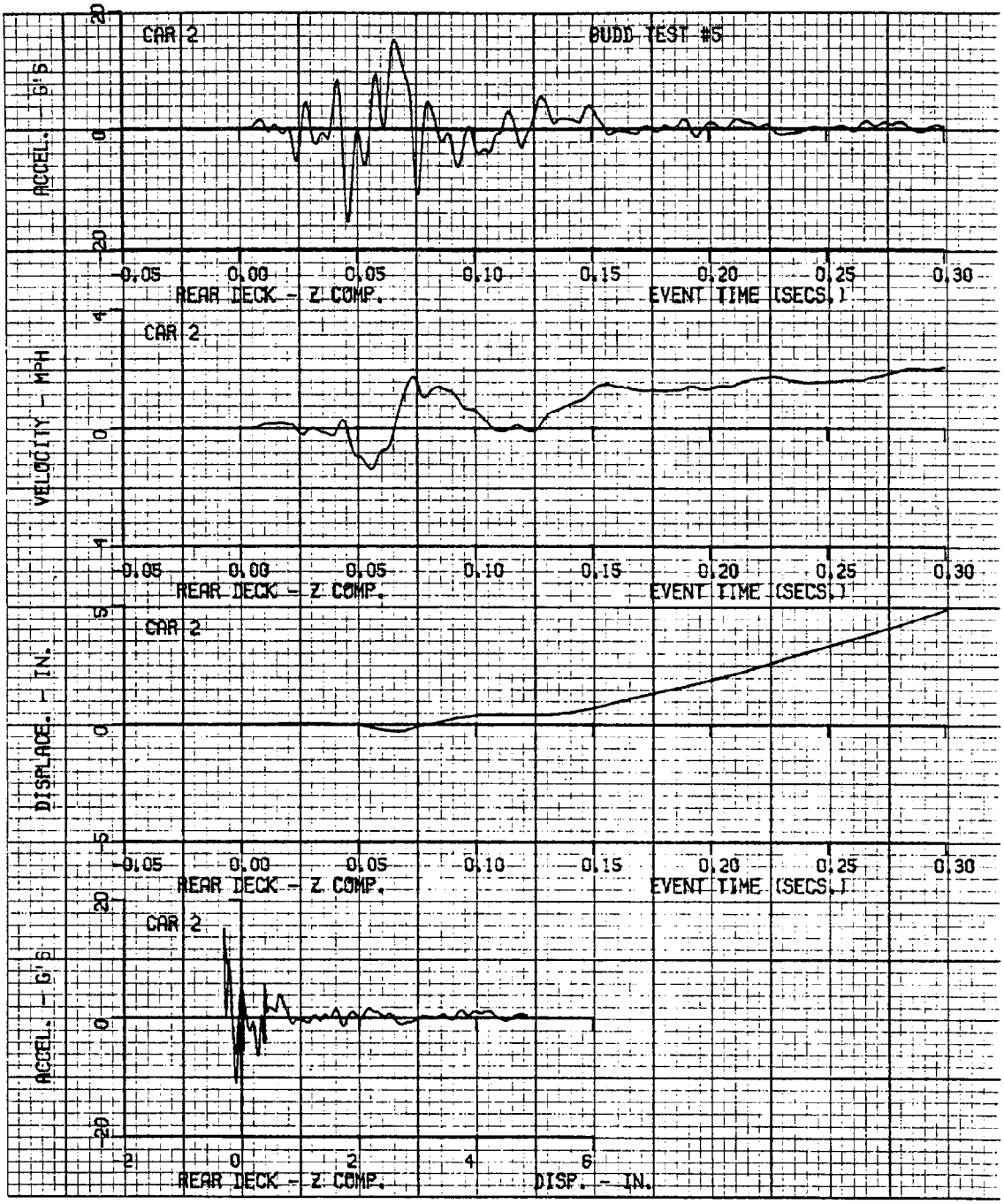

CAR 2
BUDD TEST #5
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR COMPARTMENT X
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR COMPARTMENT X
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-4
-8
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR COMPARTMENT X
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
4
0
-4
-8
-8
-6
-4
-2
0
RIGHT REAR COMPARTMENT X
DISP. - IN.

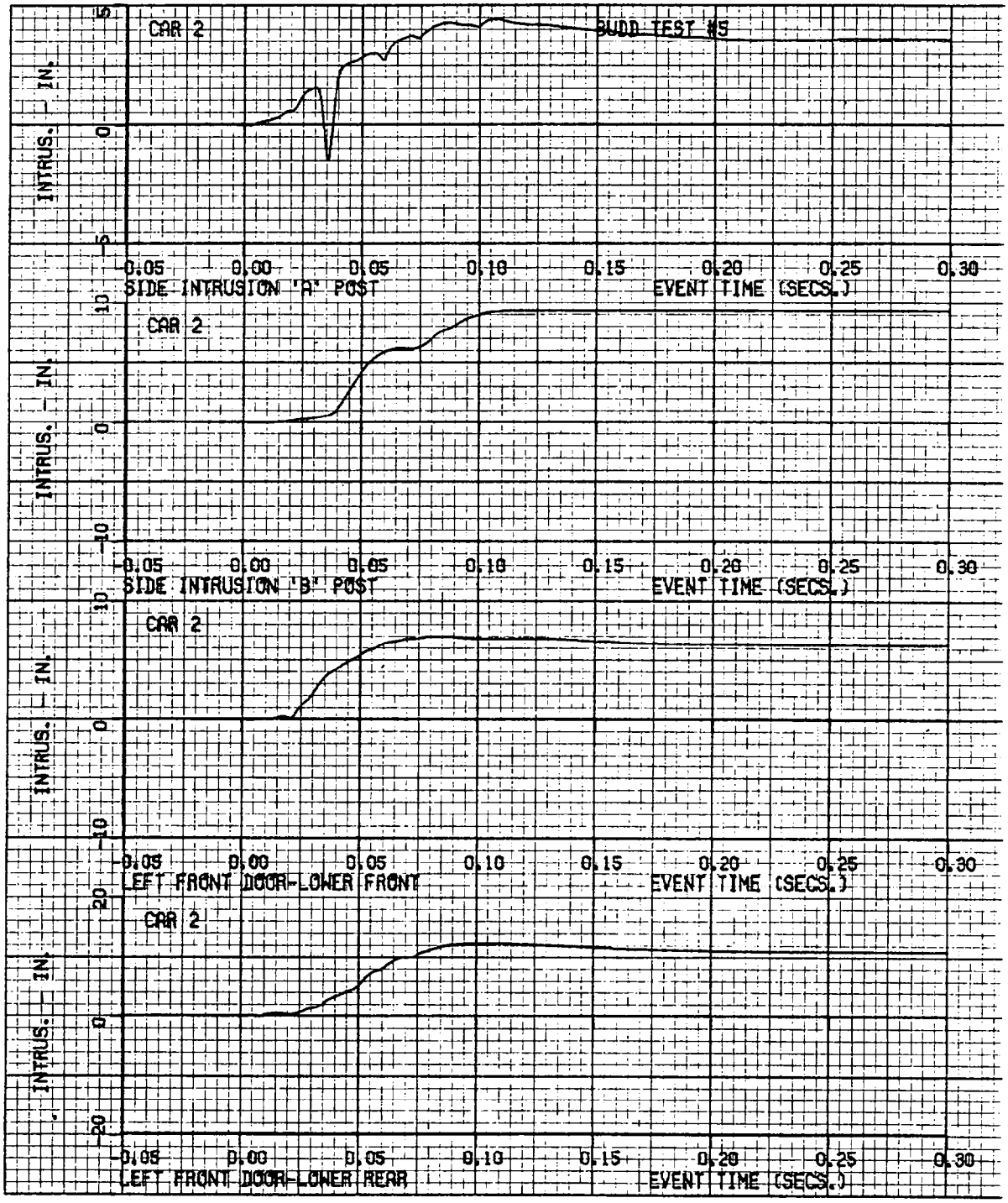

CAR 2
BUDD TEST #5
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR COMPARTMENT Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
10
0
RIGHT REAR COMPARTMENT Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
80
40
0
RIGHT REAR COMPARTMENT Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
0
20
40
60
80
RIGHT REAR COMPARTMENT Y
DISP. - IN.

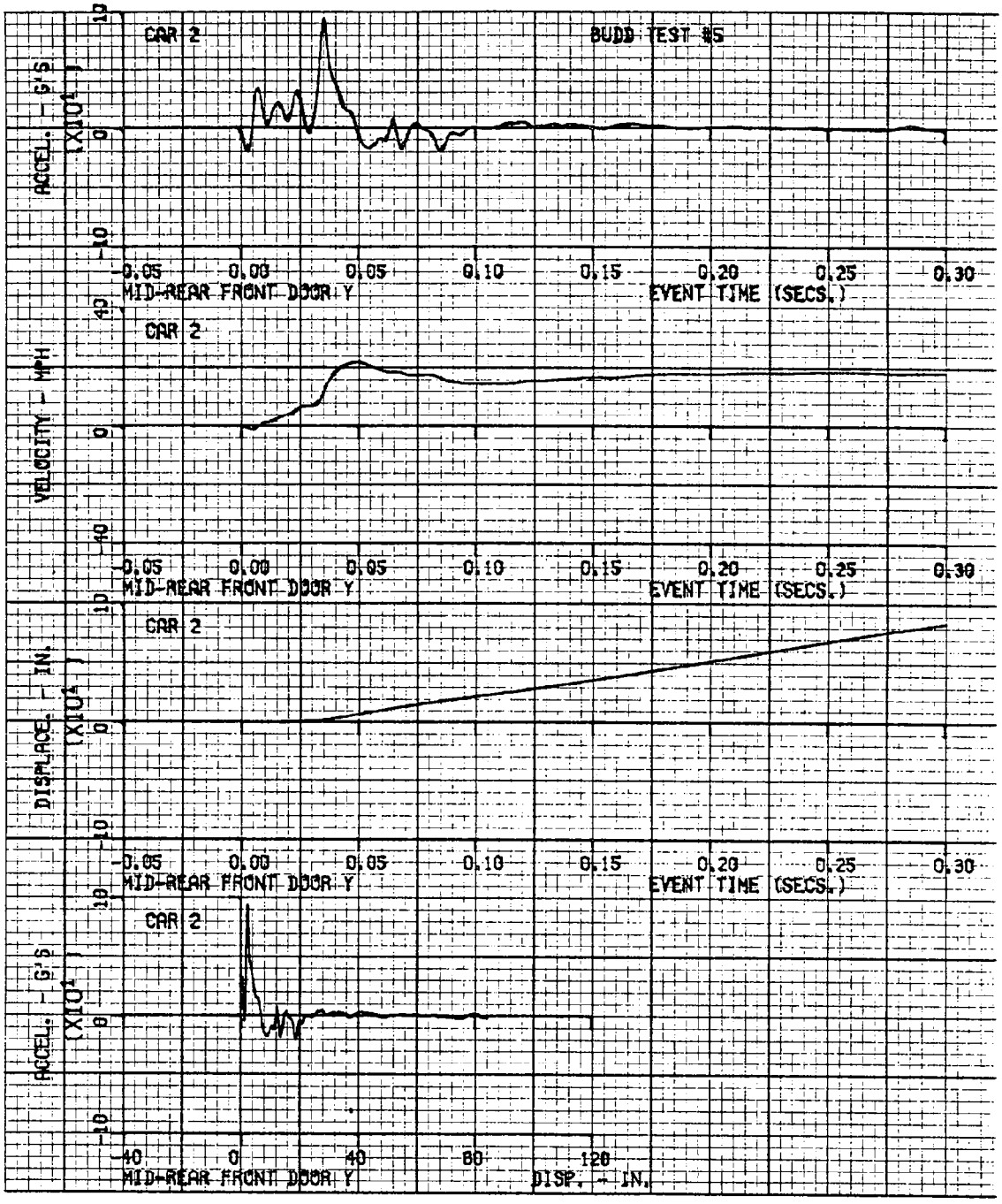

CAR 2
BUDD TEST #5
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR COMPARTMENT Z
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
1
0
-1
RIGHT REAR COMPARTMENT Z
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
(X10-1)
5.0
0.0
-5.0
RIGHT REAR COMPARTMENT Z
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-8.00
-4.00
0.00
4.00
8.00
RIGHT REAR COMPARTMENT Z
DISP. - IN.

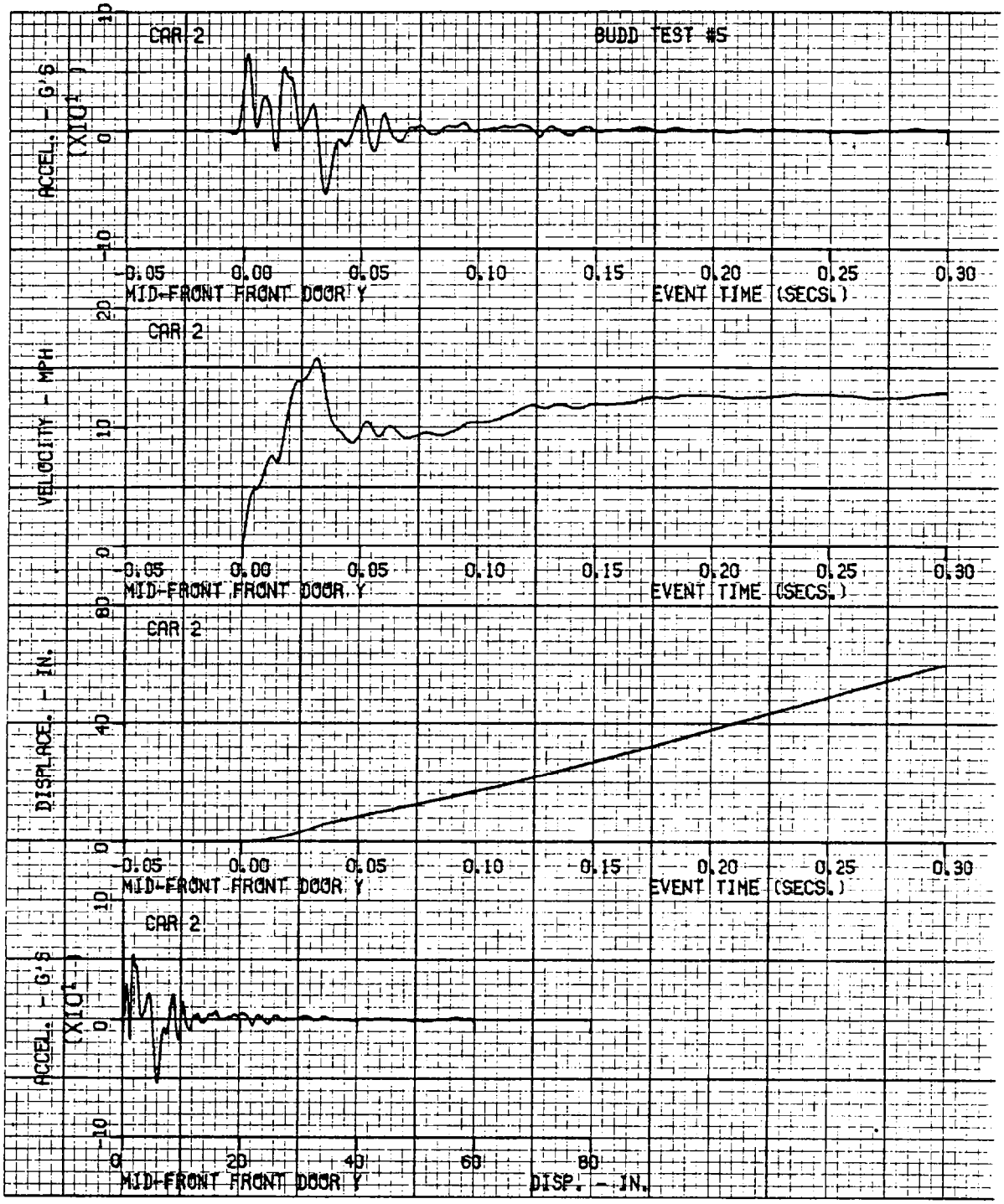

BUDD TEST #5
CAR 2
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-12
-8
-4
0
4
REAR DECK - X COMP.
DISP. - IN.

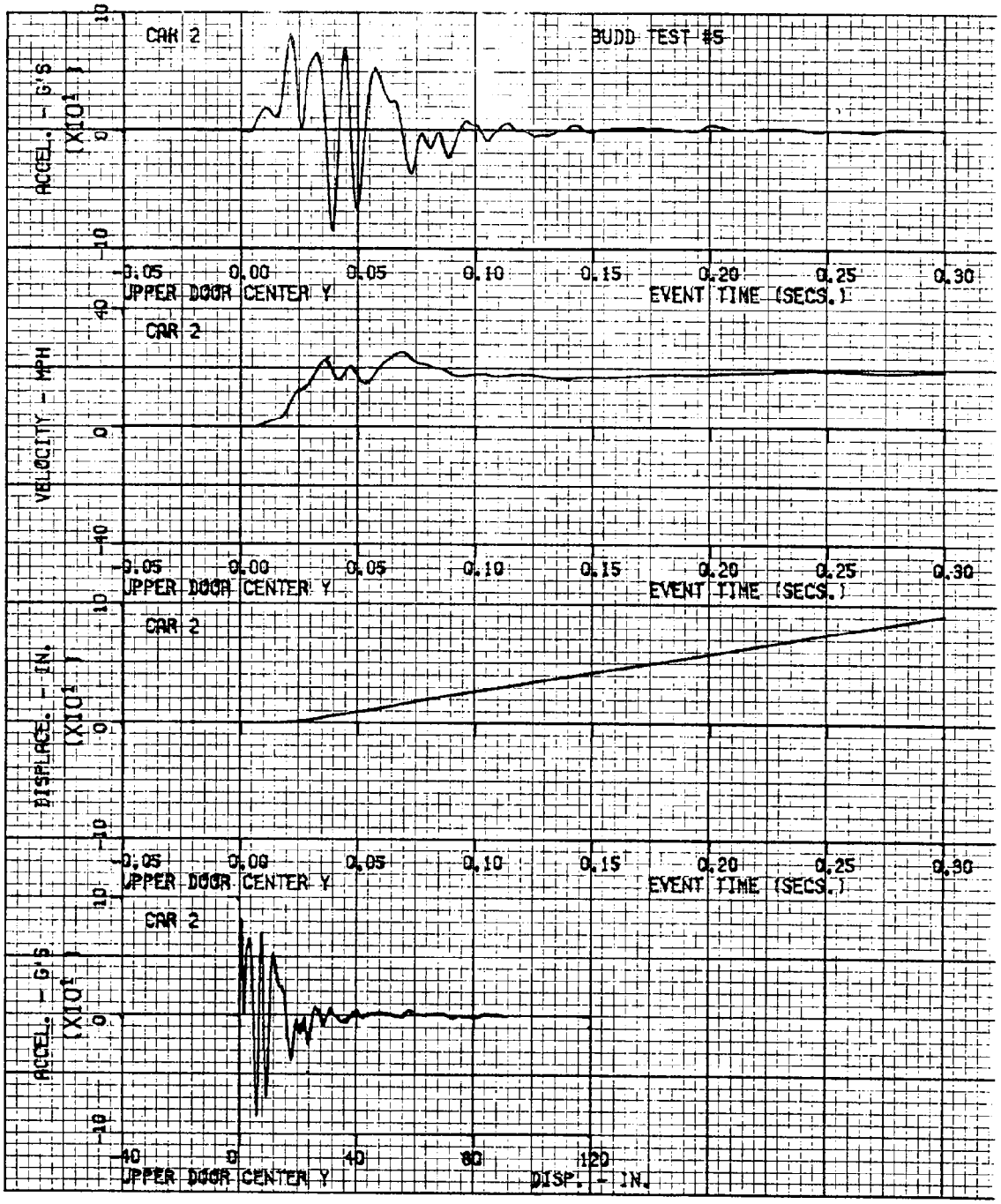

CAR 2
BUDD TEST #6
ACCEL. - G'S
REAR DECK - Y COMP.
EVENT TIME (SECS.)
VELOCITY - MPH
DISPLACE. - IN. (X10)
DISP. - IN.

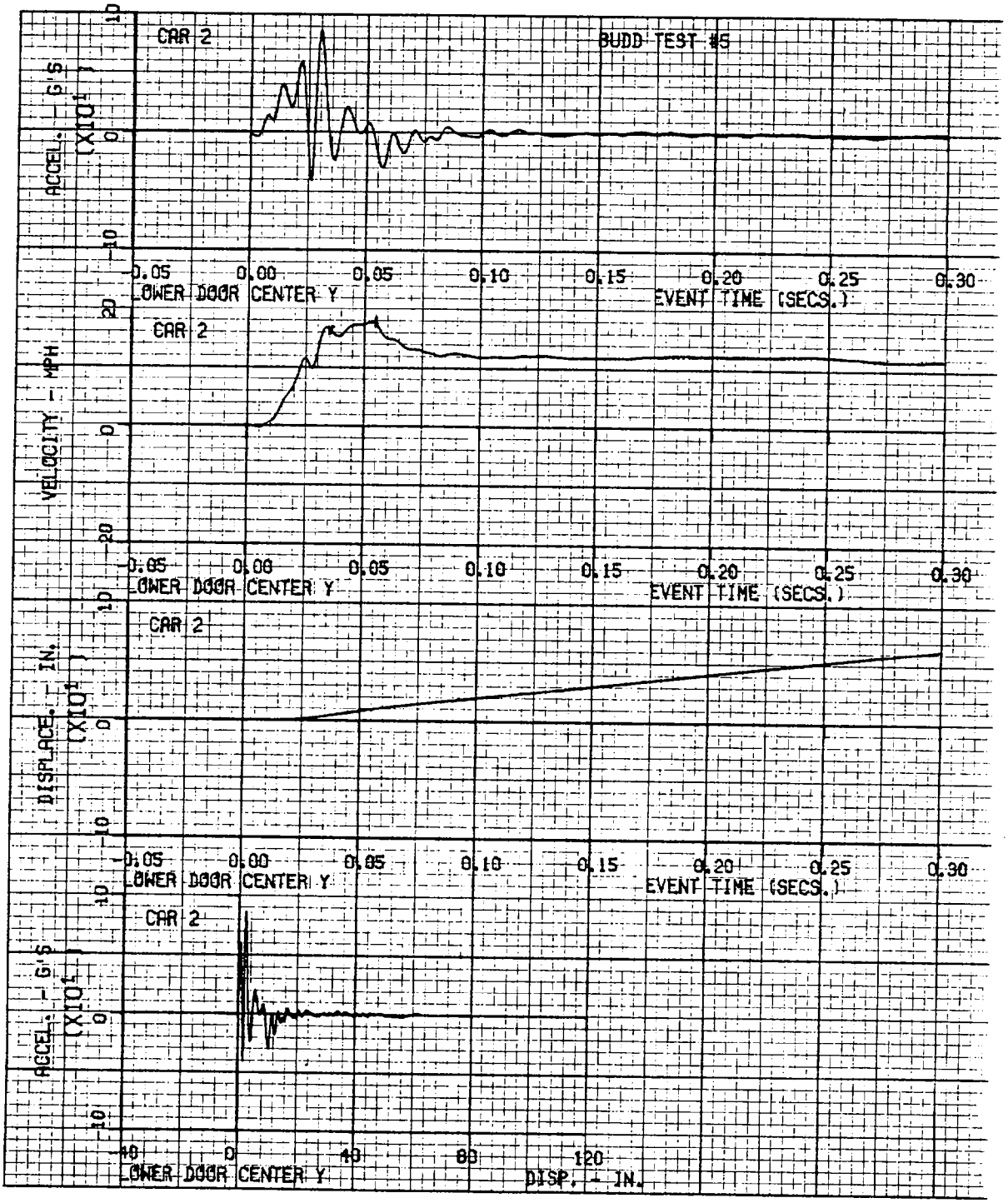

CAR 2
BUDD TEST #5
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
5
0
-5
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-2
0
2
4
6
REAR DECK - Z COMP.
DISP. - IN.

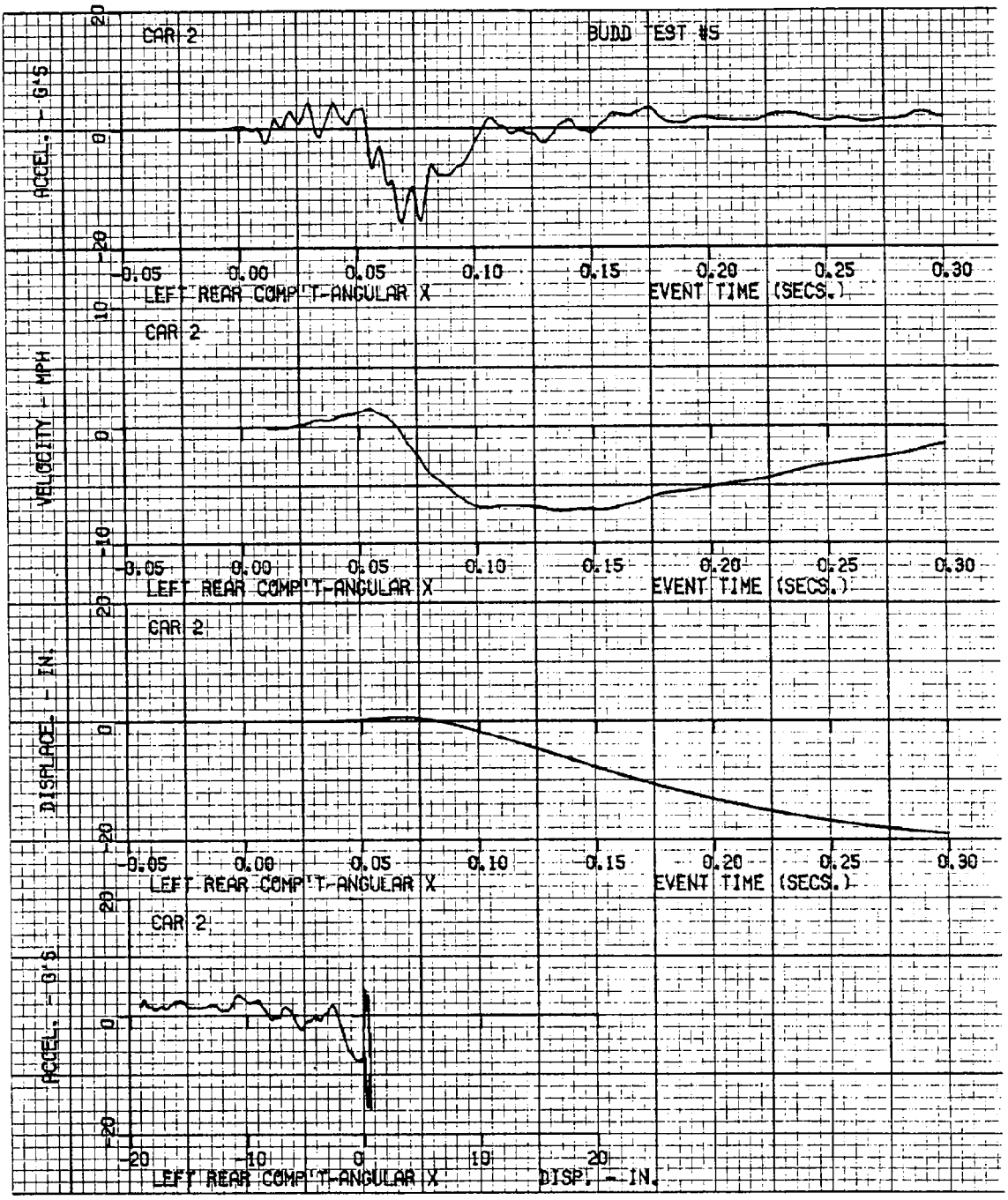

CAR 2
BUDD TEST #5
INTRUS. — IN.
15
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
SIDE INTRUSION 'A' POST
EVENT TIME (SECS.)
CAR 2
INTRUS. — IN.
10
0
-10
SIDE INTRUSION 'B' POST
EVENT TIME (SECS.)
CAR 2
INTRUS. — IN.
10
0
-10
LEFT FRONT DOOR-LOWER FRONT
EVENT TIME (SECS.)
CAR 2
INTRUS. — IN.
20
0
-20
LEFT FRONT DOOR-LOWER REAR
EVENT TIME (SECS.)

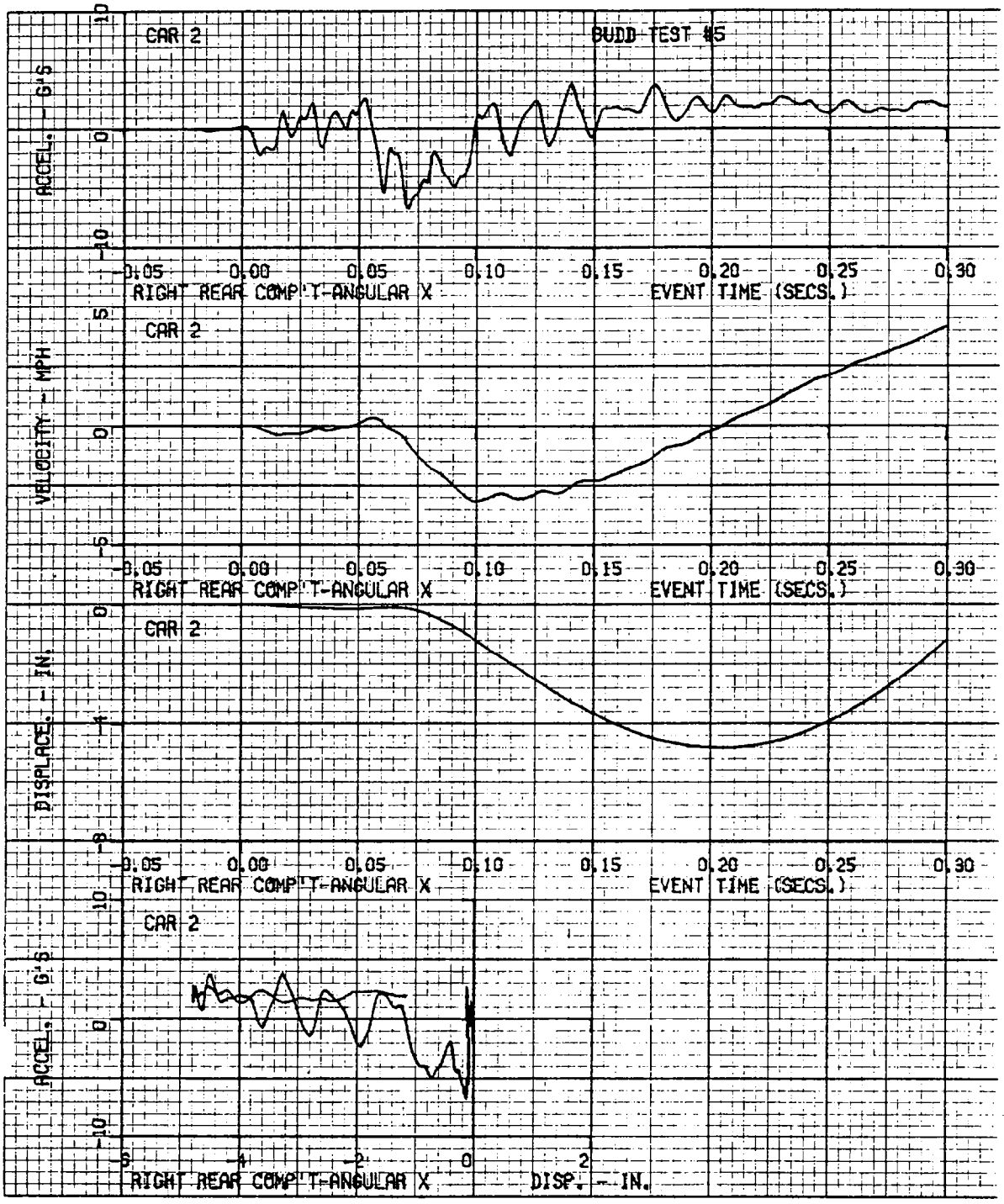

CAR 2
BUDD TEST #5
ACCEL. - G'S
(X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
MID-REAR FRONT DOOR Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
MID-REAR FRONT DOOR Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
(X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
MID-REAR FRONT DOOR Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
(X10¹)
10
0
-10
-40
0
40
80
120
MID-REAR FRONT DOOR Y
DISP. - IN.

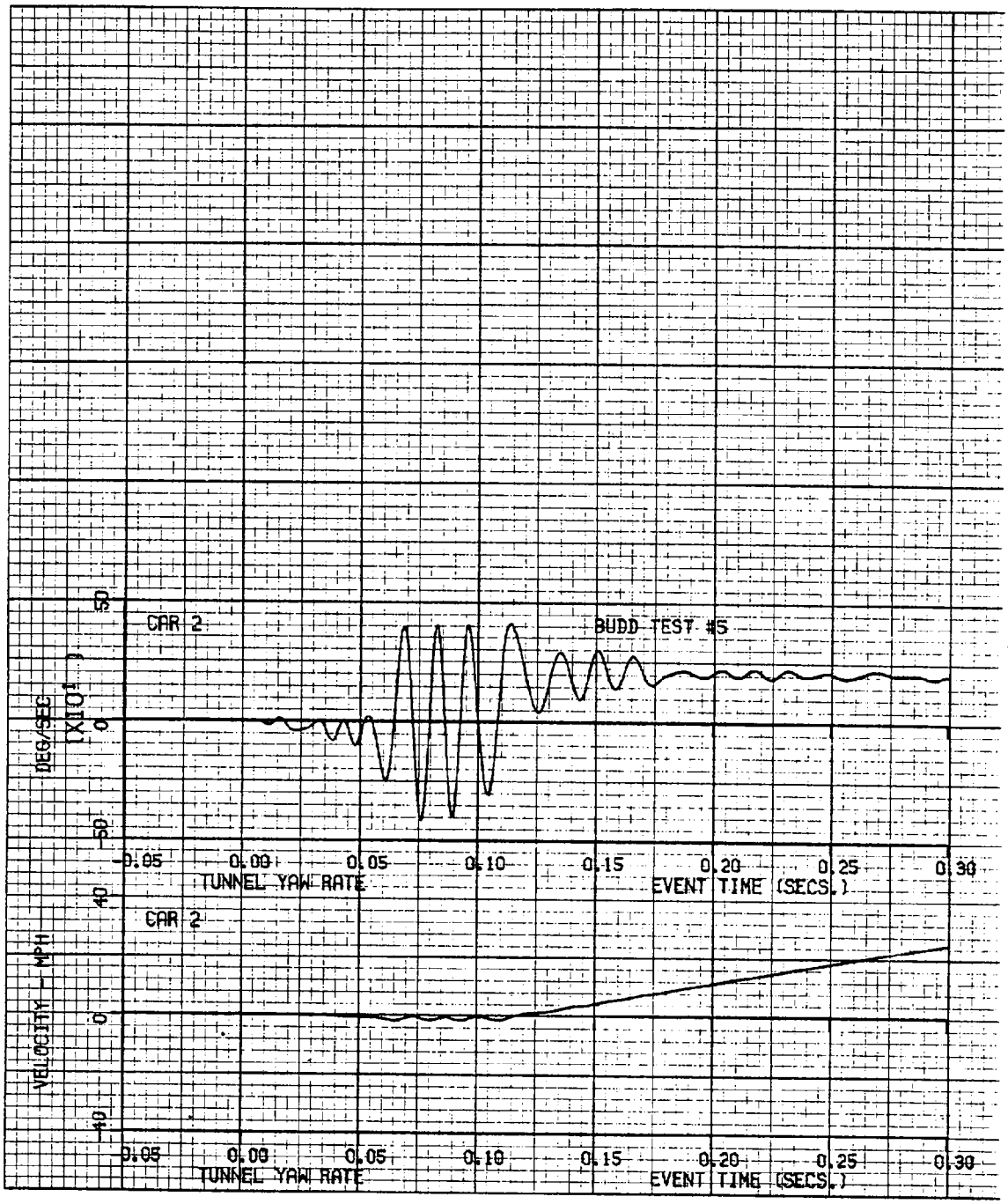

CAR 2
BUDD TEST #5
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
MID-FRONT FRONT DOOR Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
MID-FRONT FRONT DOOR Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
MID-FRONT FRONT DOOR Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
0
20
40
60
80
MID-FRONT FRONT DOOR Y
DISP. - IN.


CAR 2
BUDD TEST #5
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
UPPER DOOR CENTER Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
UPPER DOOR CENTER Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
UPPER DOOR CENTER Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
-40
0
40
80
120
UPPER DOOR CENTER Y
DISP. - IN.


CAR 2
BUDD TEST #5
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER DOOR CENTER Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER DOOR CENTER Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER DOOR CENTER Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
-40
0
40
80
120
LOWER DOOR CENTER Y
DISP. - IN.


CAR 2
BUDD TEST #5
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-20
-10
0
10
20
LEFT REAR COMP'T-ANGULAR X
DISP. - IN.

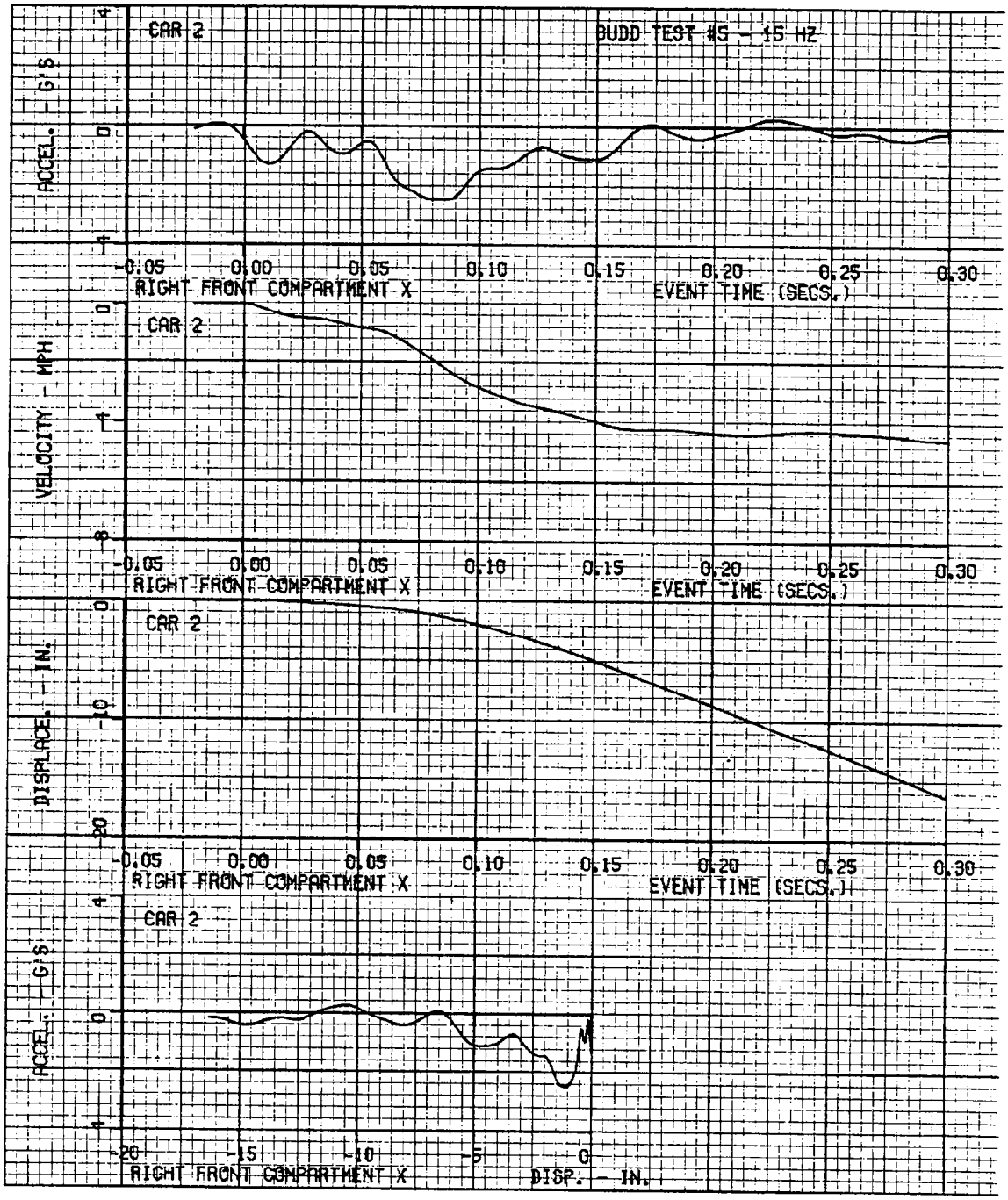

CAR 2
BUDD TEST #5
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-4
-8
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-6
-4
-2
0
2
RIGHT REAR COMP'T-ANGULAR X
DISP. - IN.

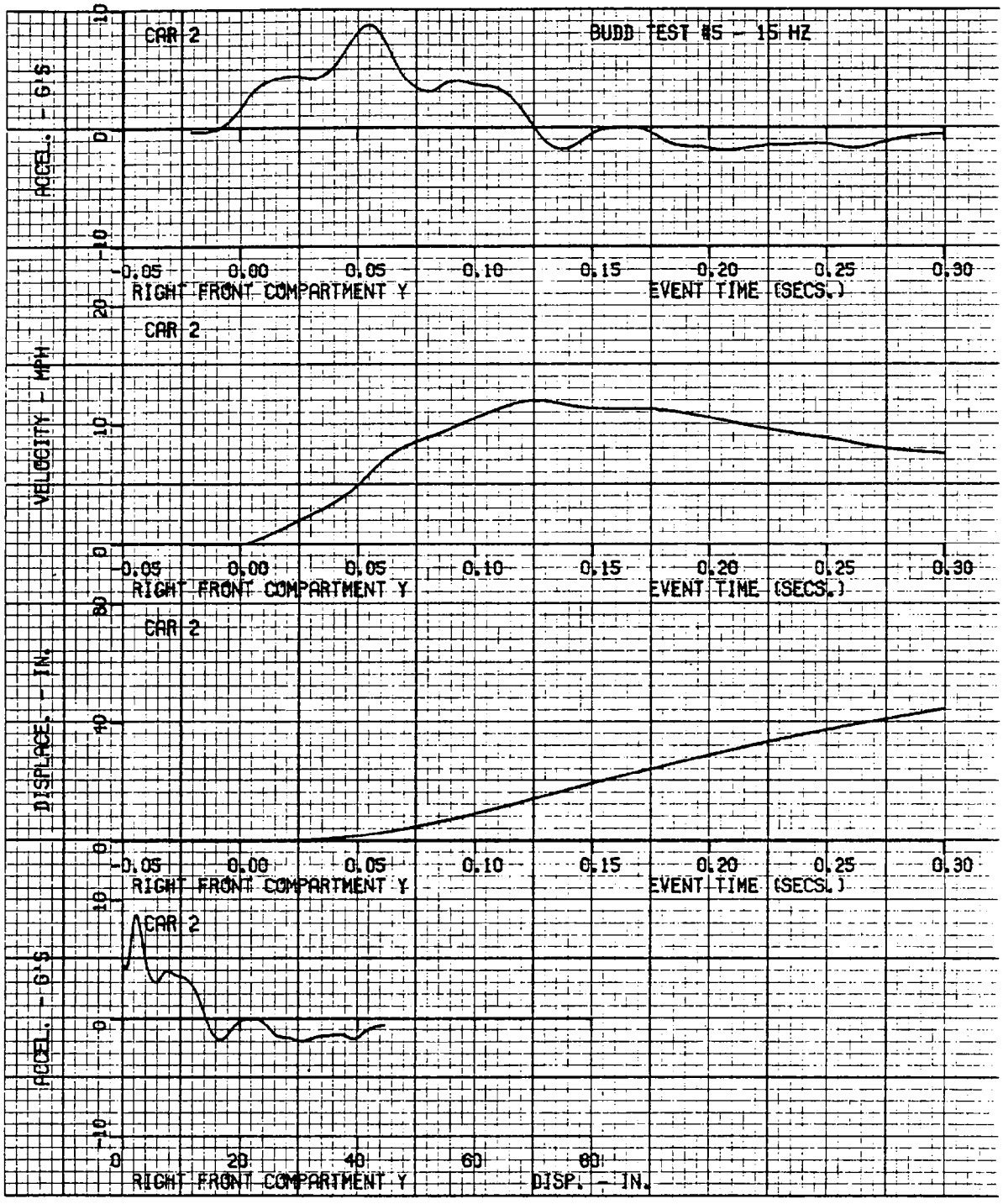

CAR 2
BUDD TEST #5
DEG/SEC (X10)
50
0
-50
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
TUNNEL YAW RATE
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
TUNNEL YAW RATE
EVENT TIME (SECS.)

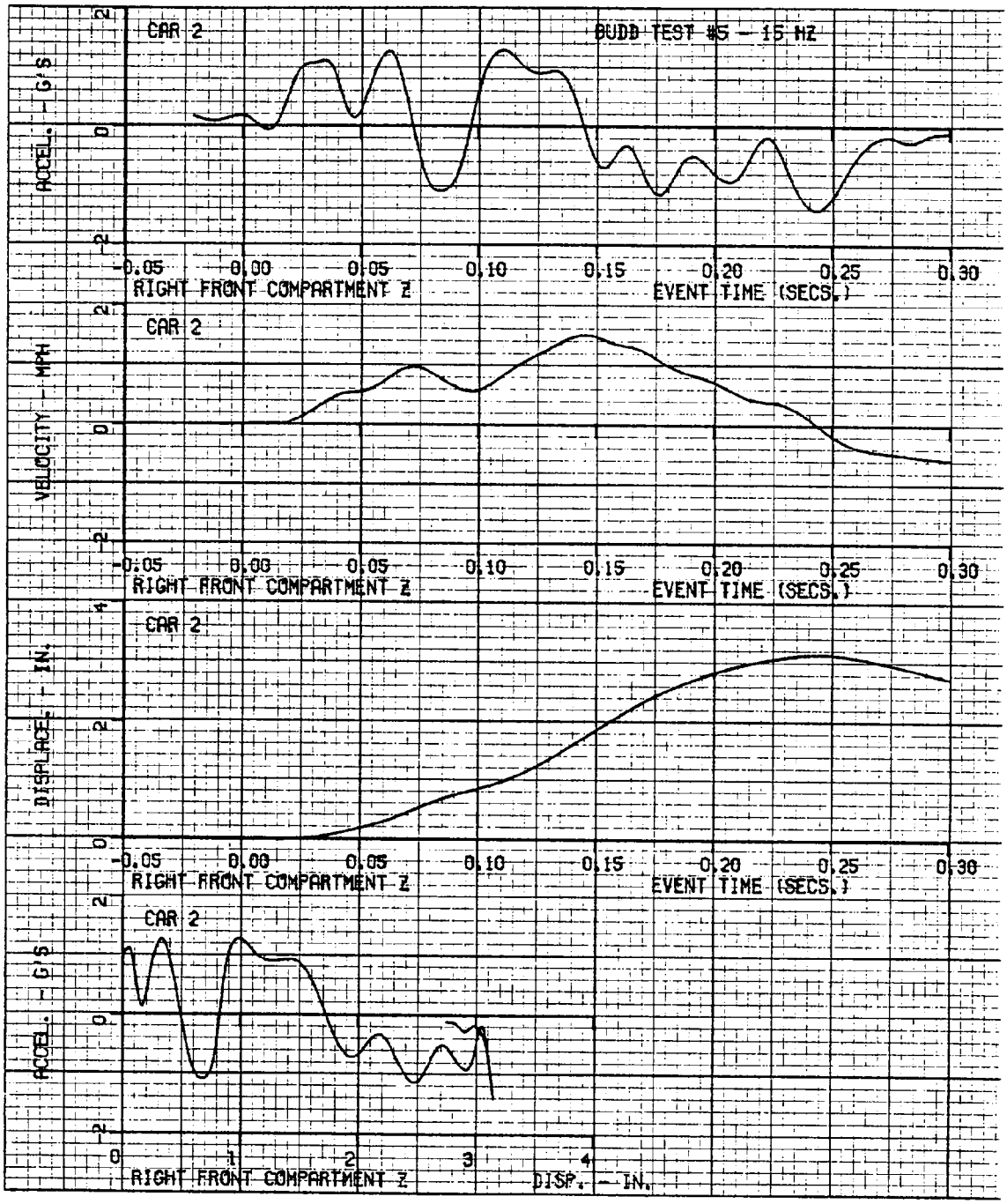
TEST NO. 5

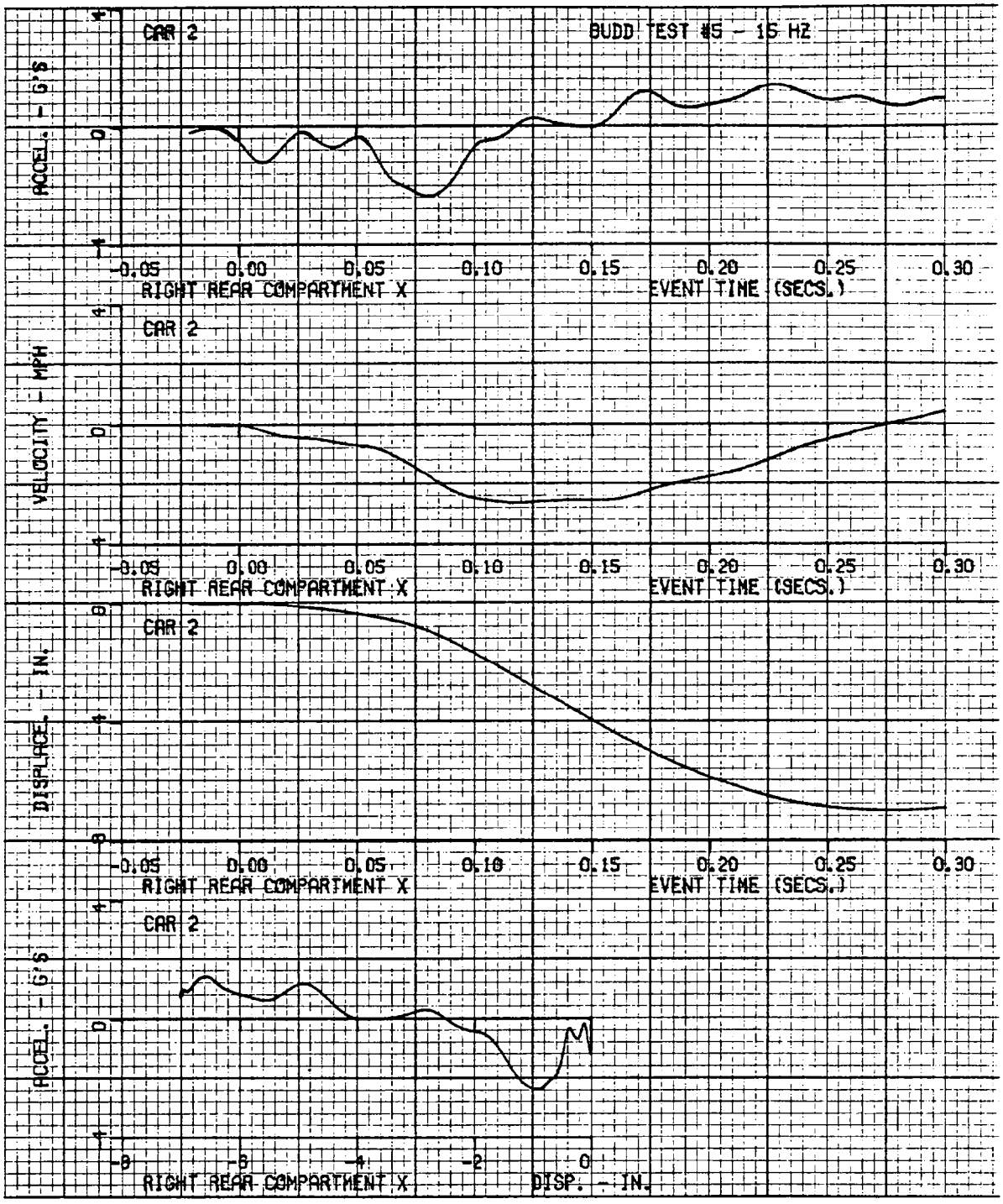
CAR 2 - 1976 VOLKSWAGEN RABBIT

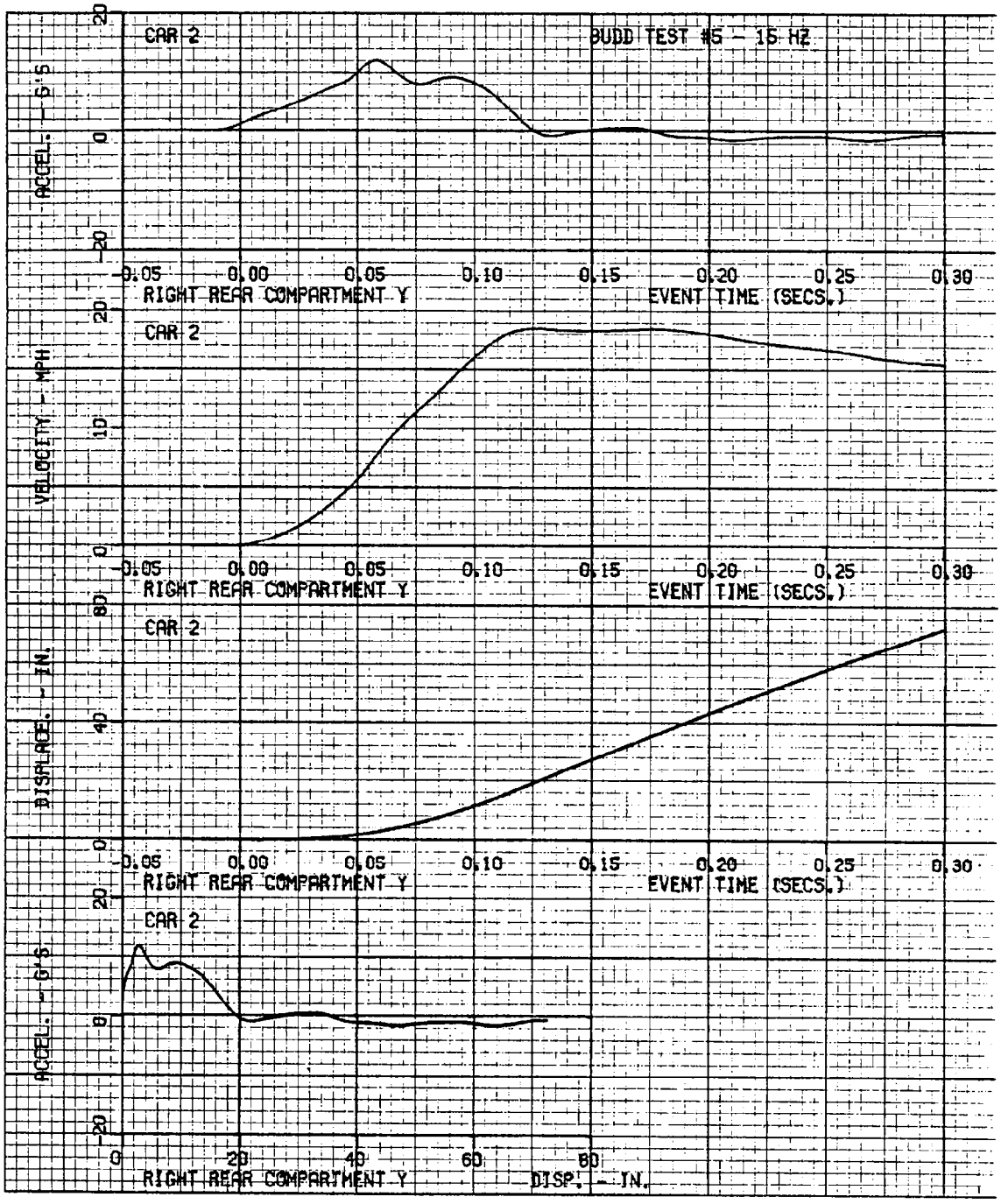
VEHICLE DATA	15 HZ FILTER
SIDE INTRUSION DATA	15 HZ FILTER

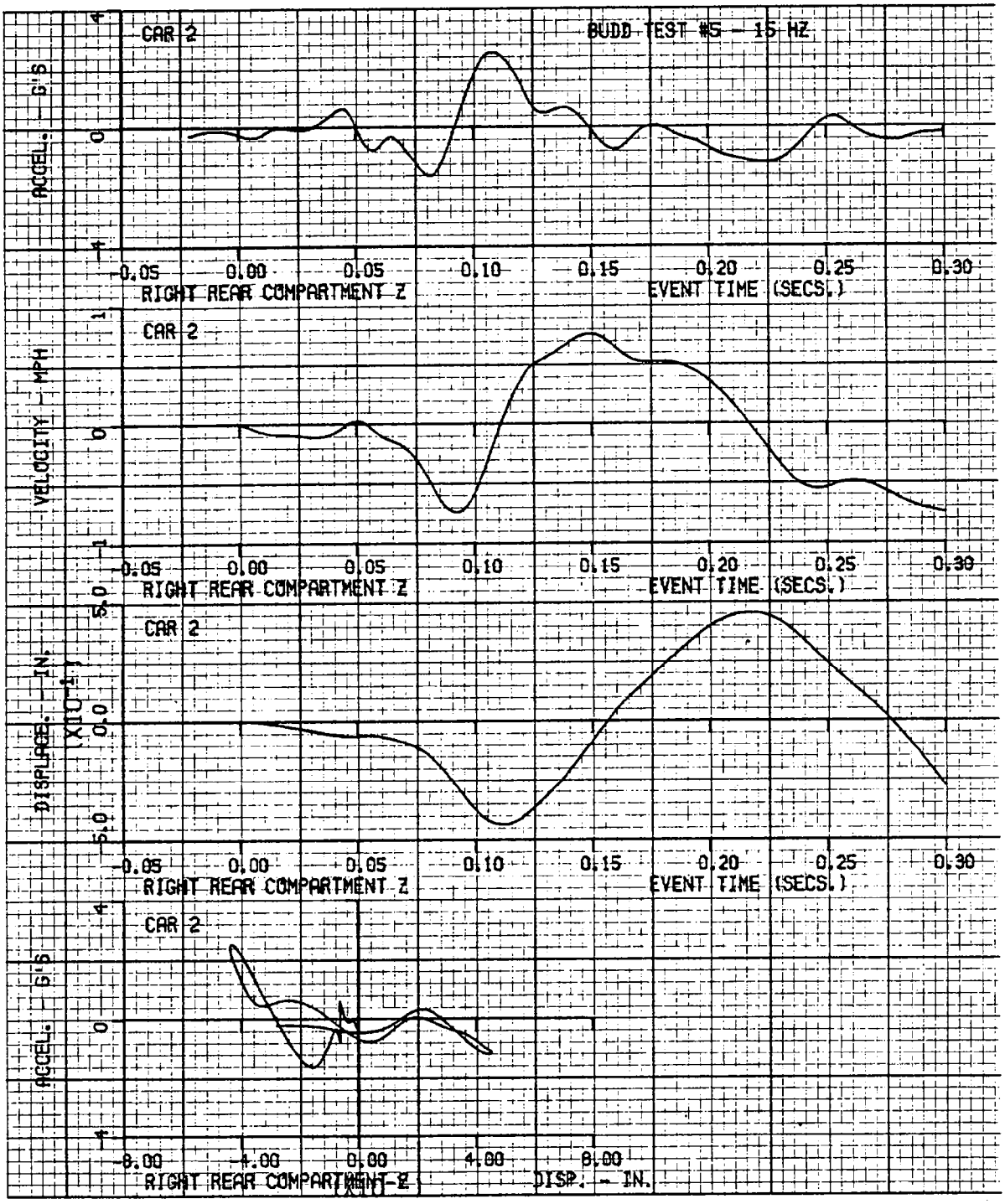

CAR 2
BUDD TEST #5 - 15 HZ
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT FRONT COMPARTMENT X
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
8
4
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT FRONT COMPARTMENT X
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-10
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT FRONT COMPARTMENT X
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
4
0
-4
-20
-15
-10
-5
0
RIGHT FRONT COMPARTMENT X
DISP. - IN.

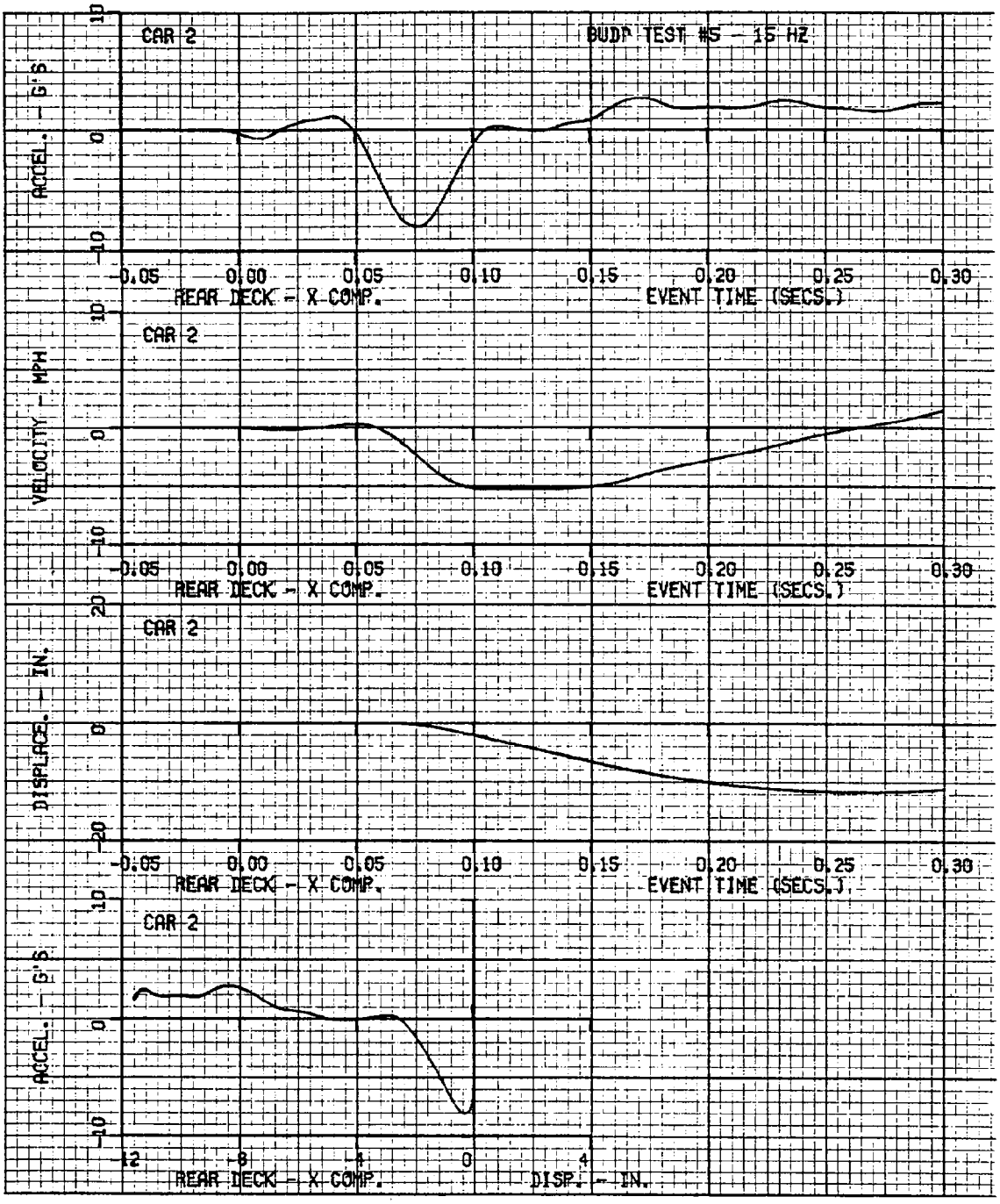

CAR 2
BUDD TEST #5 - 15 MZ
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT FRONT COMPARTMENT Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
10
0
RIGHT FRONT COMPARTMENT Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
80
40
0
RIGHT FRONT COMPARTMENT Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
20
40
60
80
RIGHT FRONT COMPARTMENT Y
DISP. - IN.

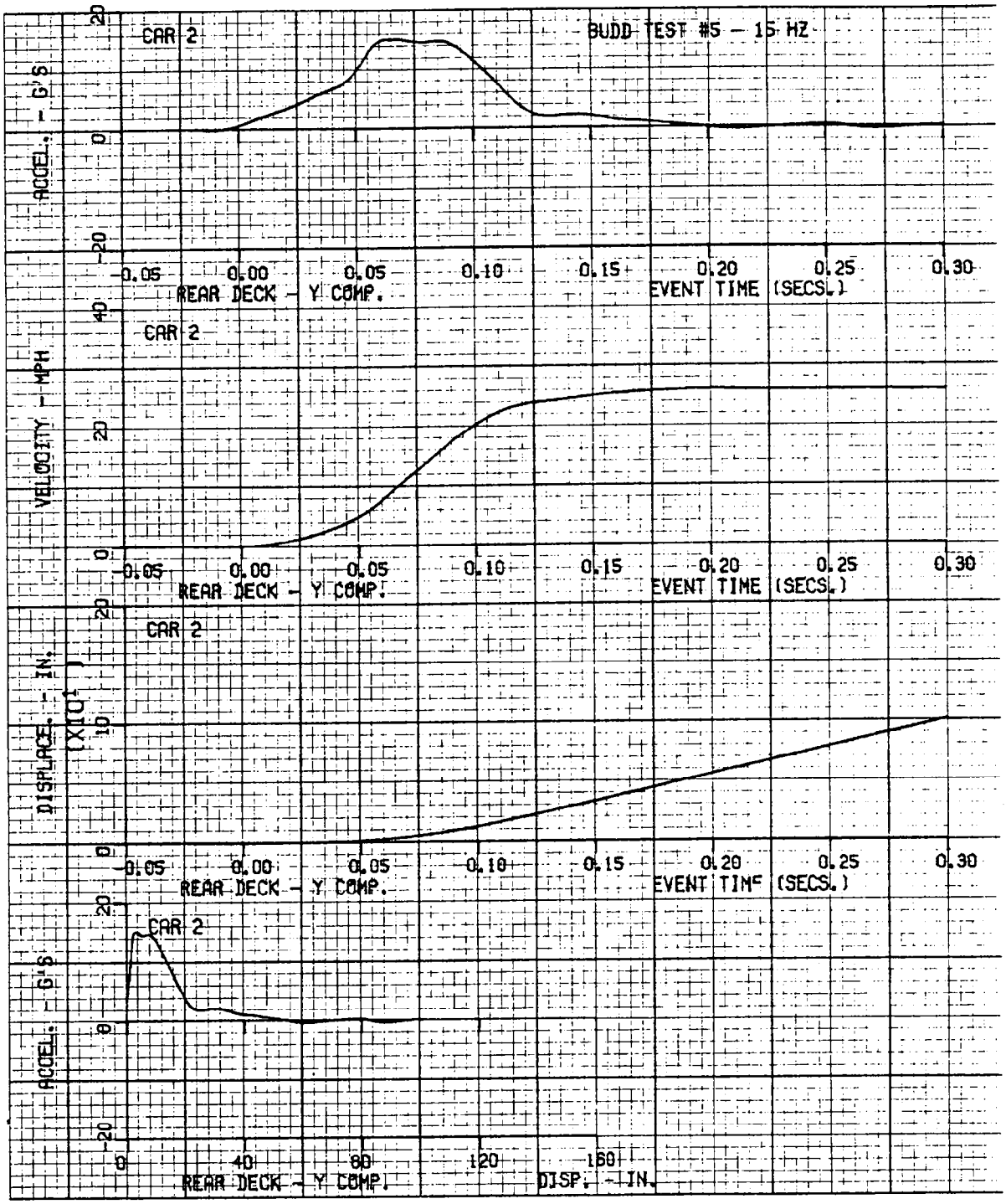

CAR 2
BUDD TEST #5 - 15 MZ
ACCEL. - G'S
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT FRONT COMPARTMENT Z
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT FRONT COMPARTMENT Z
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
4
2
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT FRONT COMPARTMENT Z
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
2
0
-2
0
1
2
3
4
RIGHT FRONT COMPARTMENT Z
DISP. - IN.

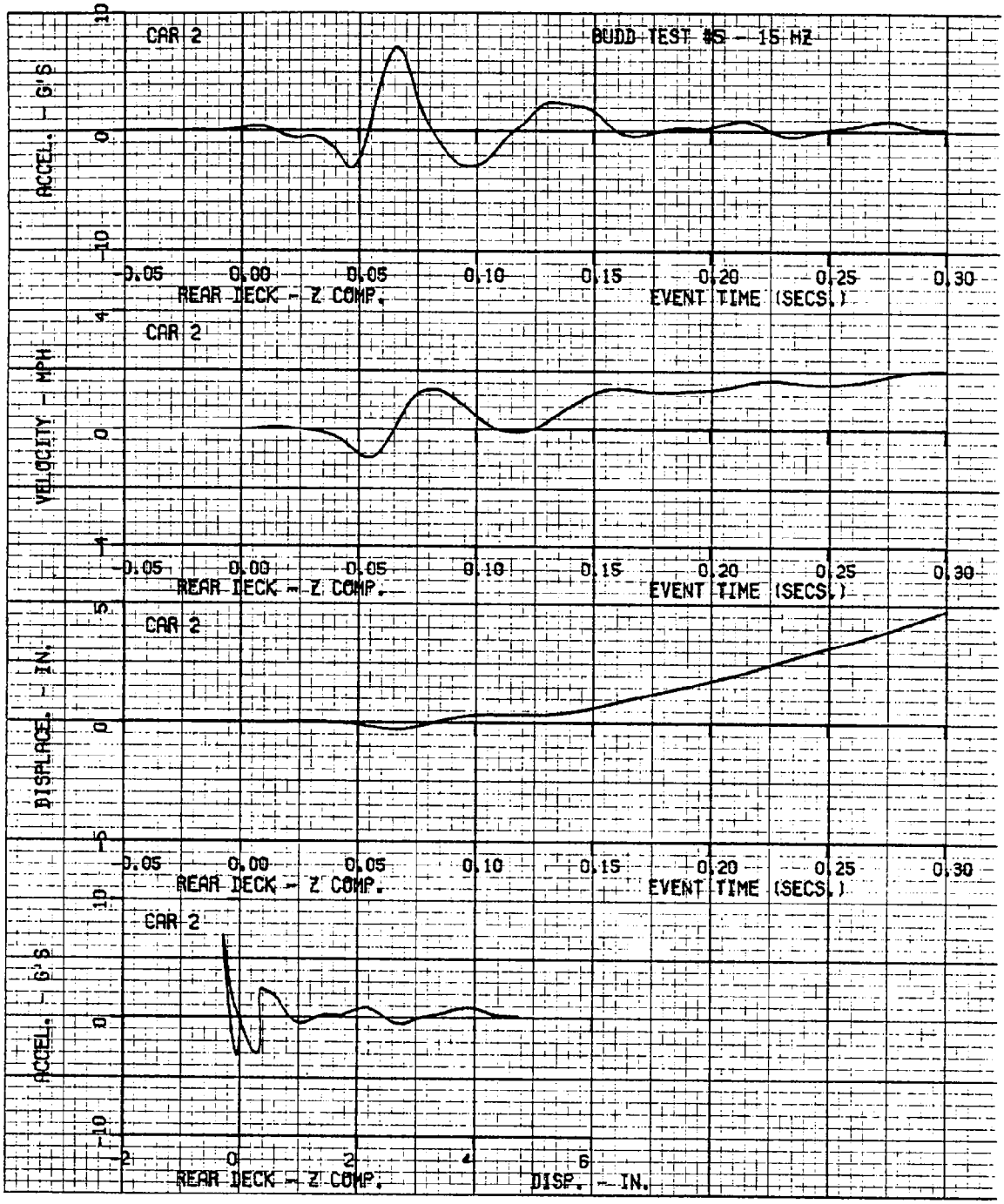

CAR 2
BUDD TEST #5 - 15 HZ
ACCEL. - G'S
+4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR COMPARTMENT X
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
+4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR COMPARTMENT X
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR COMPARTMENT X
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
+4
0
-4
-8
-6
-4
-2
0
RIGHT REAR COMPARTMENT X
DISP. - IN.

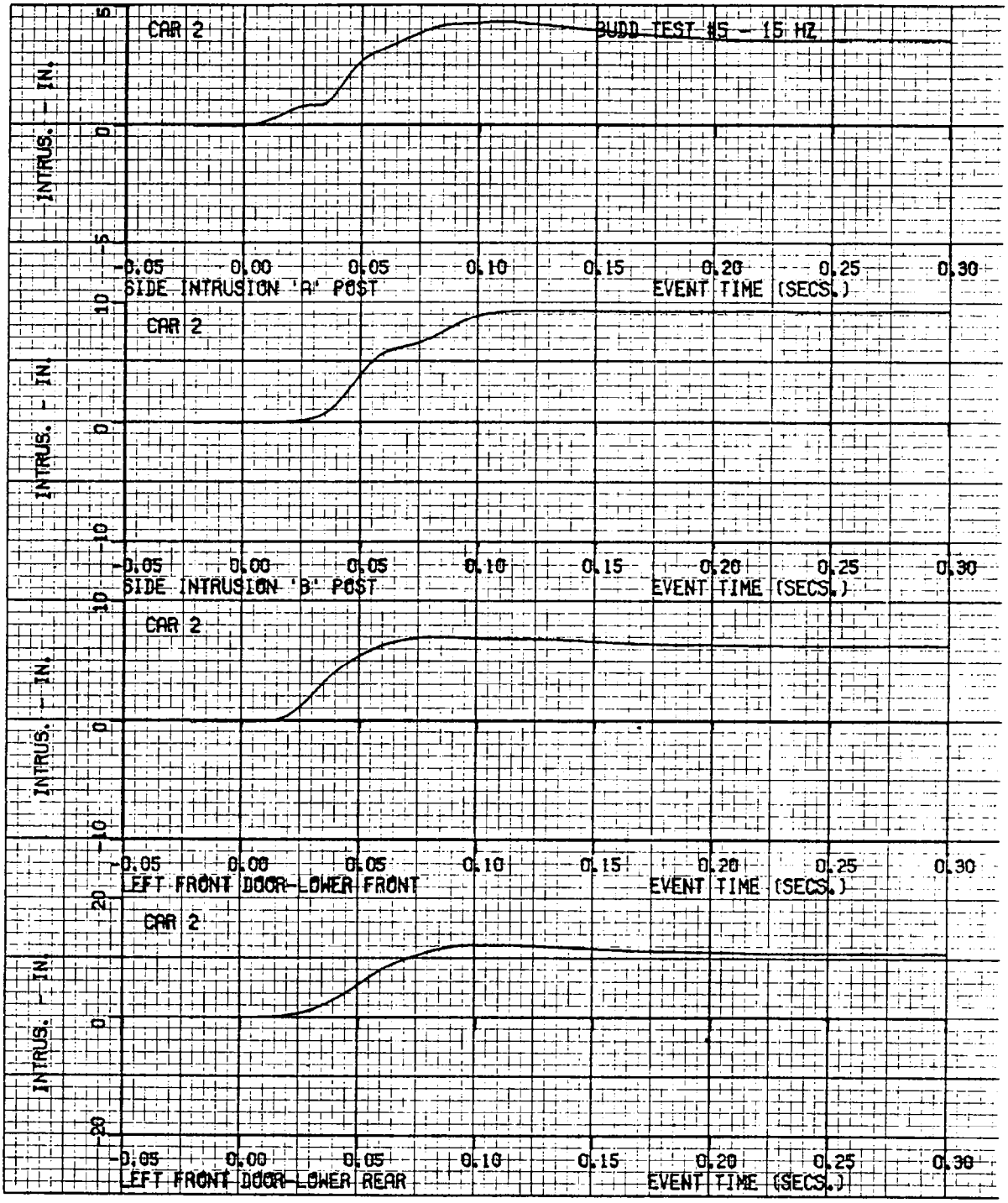

CAR 2
BUDD TEST #5 - 15 MZ
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR COMPARTMENT Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
20
0
RIGHT REAR COMPARTMENT Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
80
40
0
RIGHT REAR COMPARTMENT Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
0
20
40
60
80
RIGHT REAR COMPARTMENT Y
DISP. - IN.

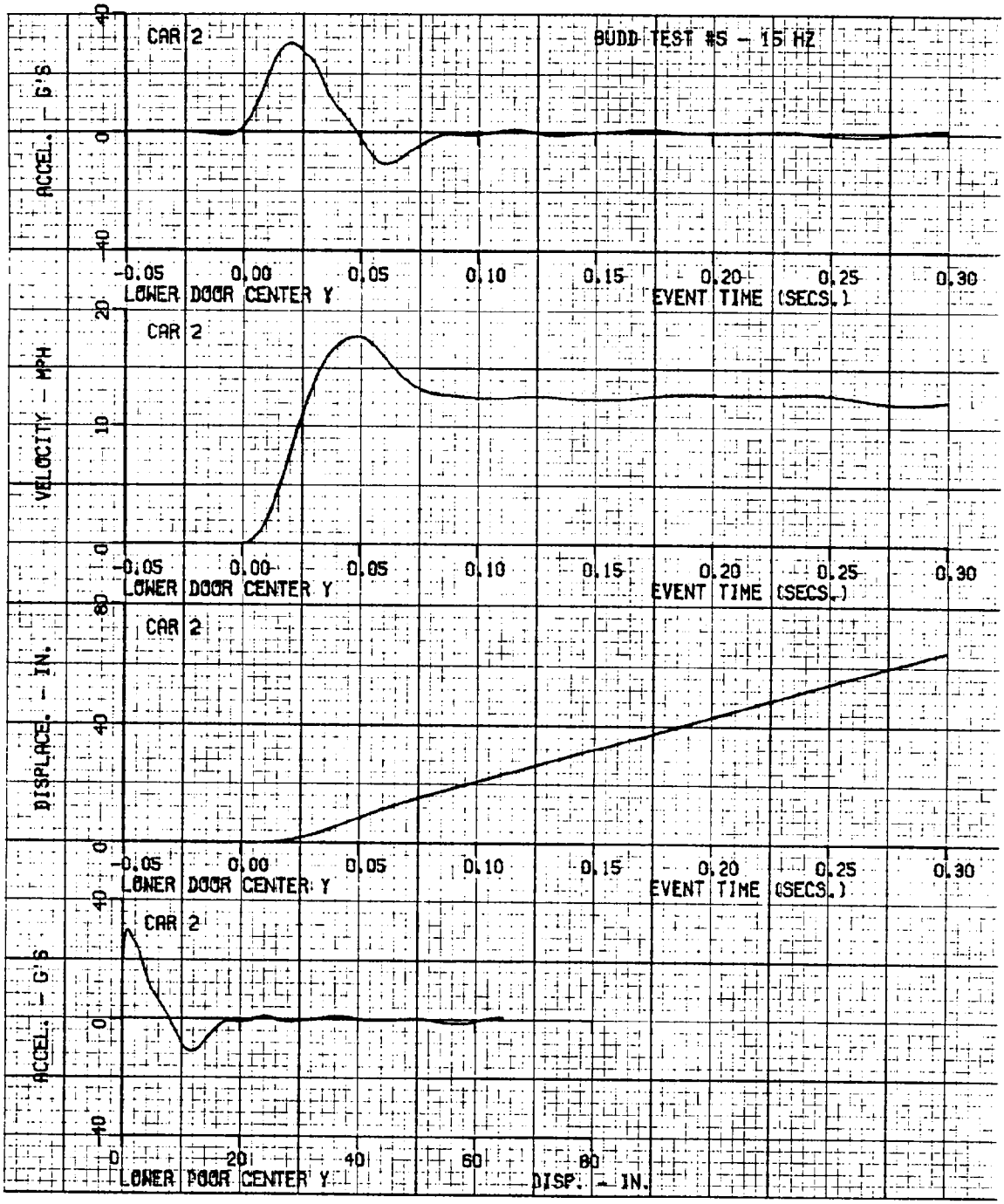

CAR 2
BUDD TEST #5 - 15 HZ
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR COMPARTMENT Z
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
RIGHT REAR COMPARTMENT Z
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
(X10-1)
5.0
0.0
-5.0
RIGHT REAR COMPARTMENT Z
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
4
0
-4
-8.00
-4.00
0.00
4.00
8.00
RIGHT REAR COMPARTMENT Z
DISP. - IN.

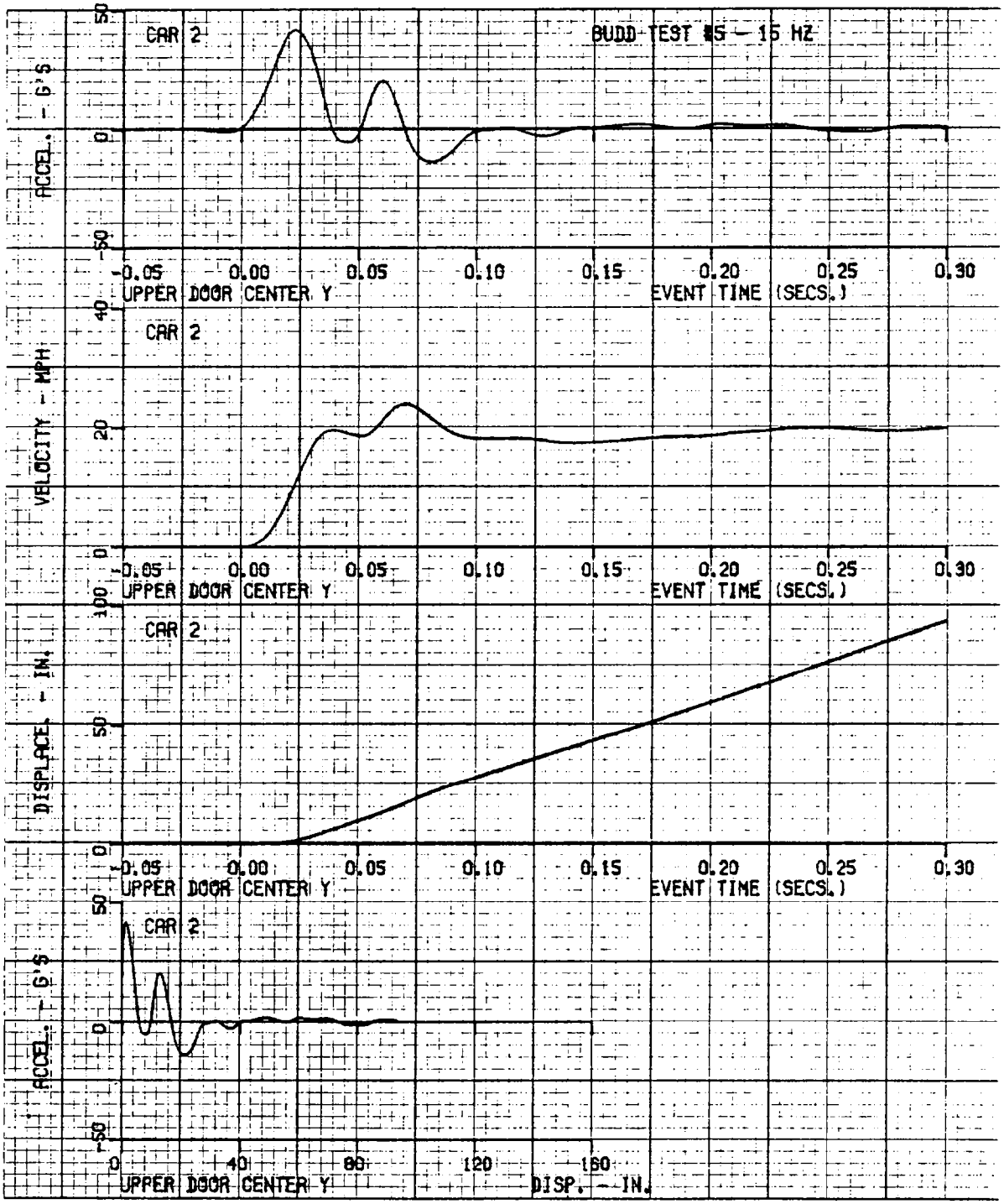

CAR 2
BUDP TEST #5 - 15 HZ
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-12
-8
-4
0
4
REAR DECK - X COMP.
DISP. - IN.

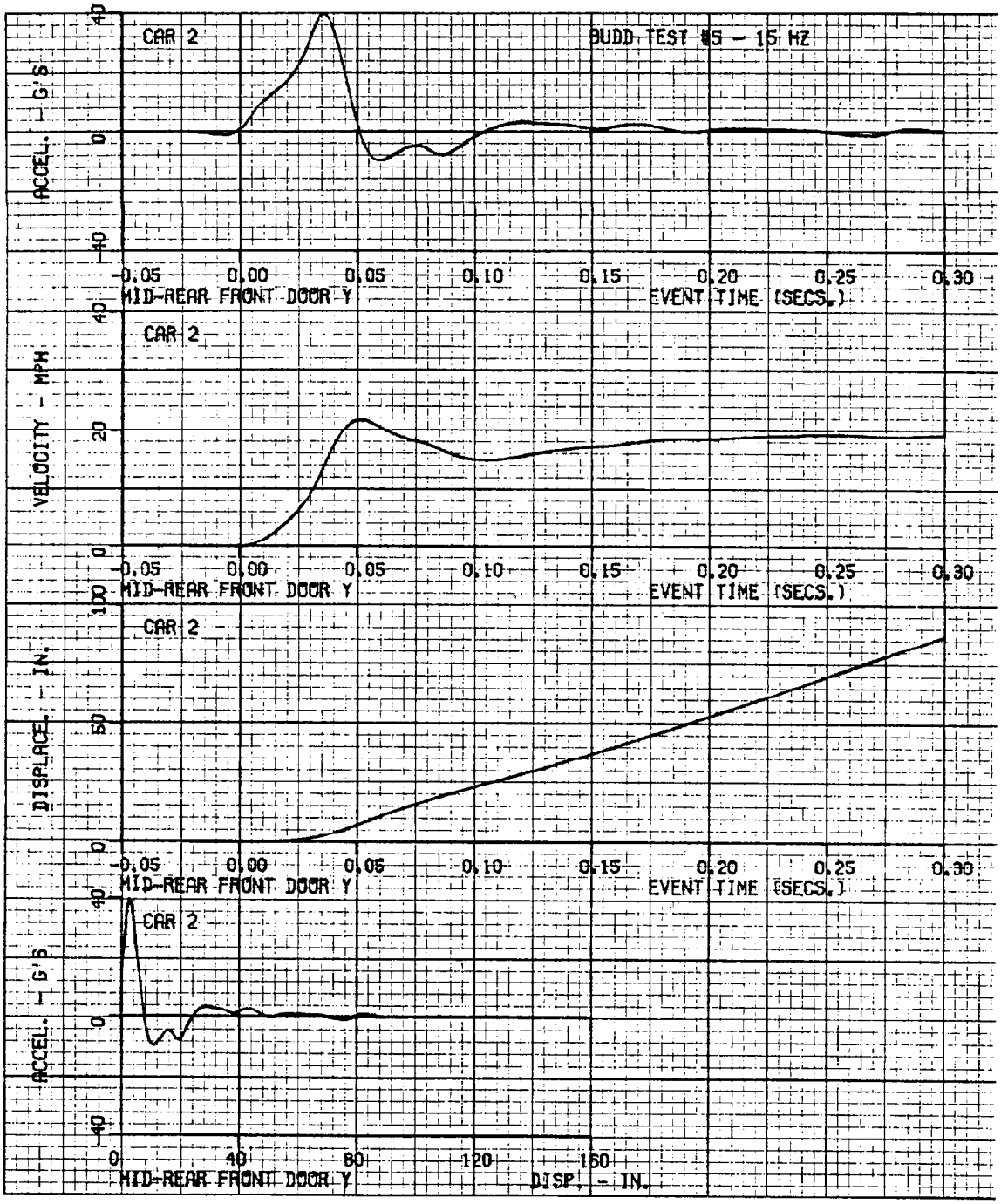

BUDD TEST #5 – 15 HZ
CAR 2
ACCEL. - G'S
REAR DECK – Y COMP.
EVENT TIME (SECS.)
VELOCITY - MPH
DISPLACE. - IN. (X10¹)
DISP. - IN.

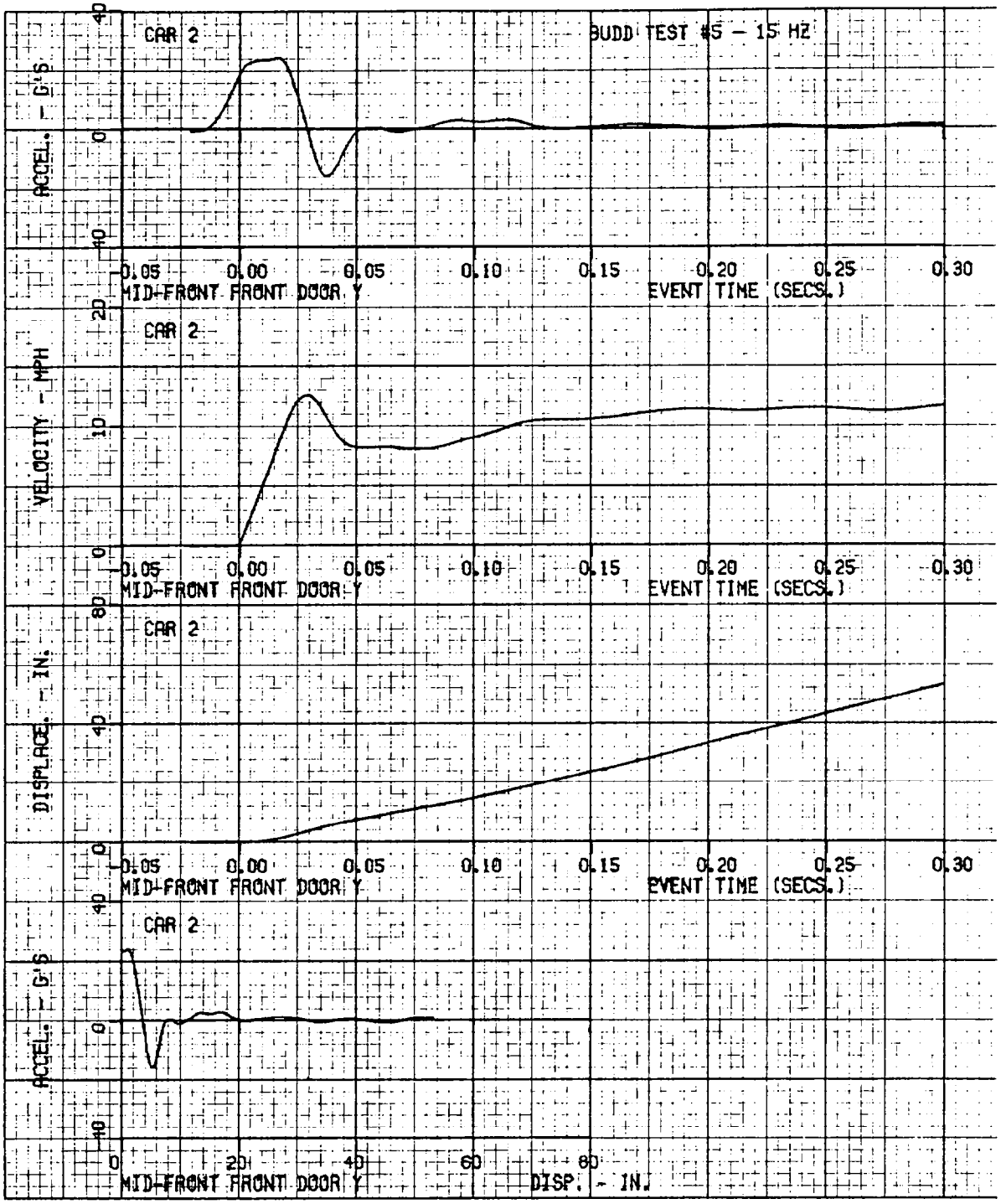

CAR 2
BUDD TEST #5 — 15 MZ
ACCEL. — G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK — Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY — MPH
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK — Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. — IN.
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK — Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. — G'S
10
0
-10
-2
0
2
4
6
REAR DECK — Z COMP.
DISP. — IN.

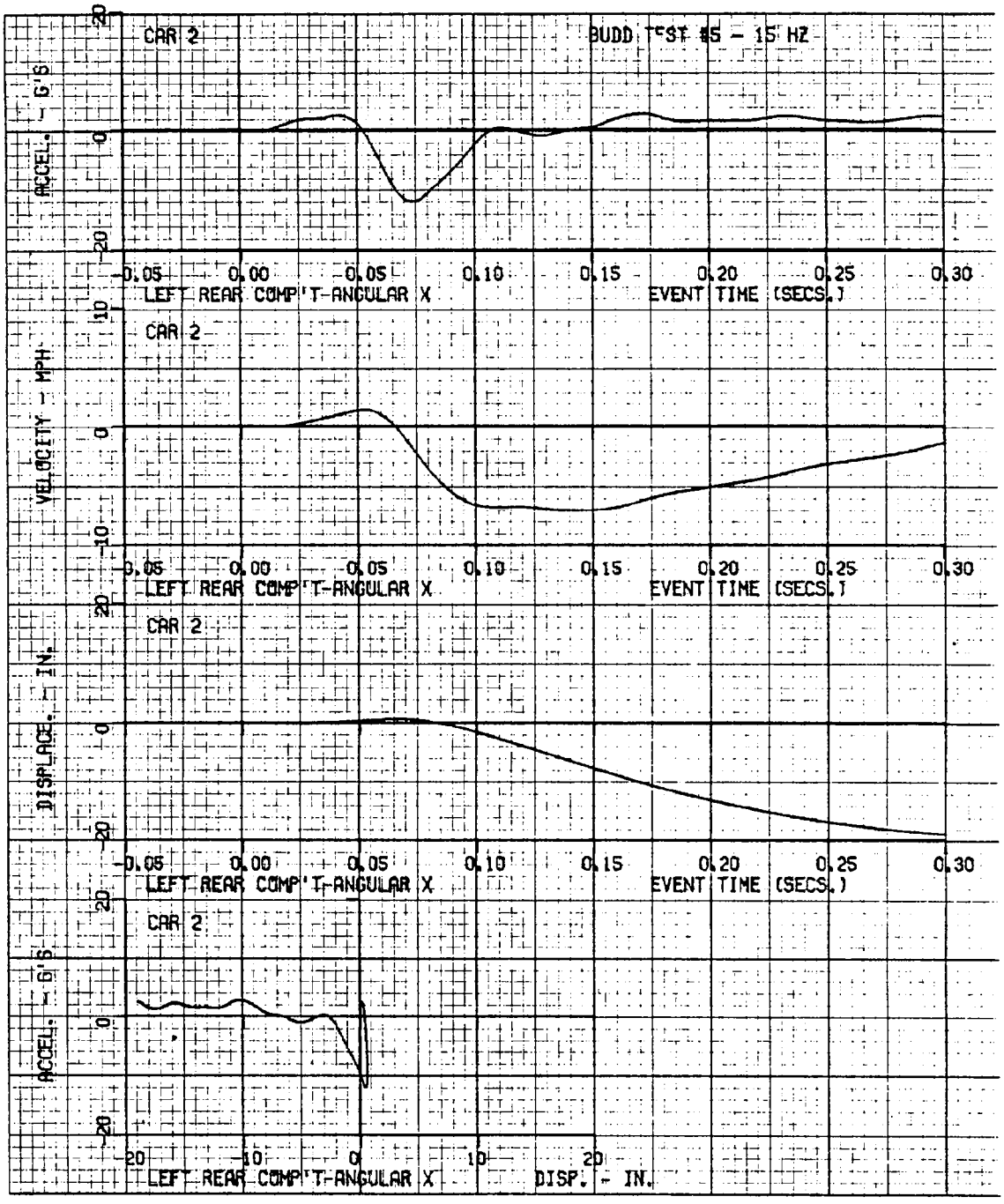

CAR 2
BUDD TEST #5 - 15 MZ
INTRUS. - IN.
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
SIDE INTRUSION 'A' POST
EVENT TIME (SECS.)
CAR 2
INTRUS. - IN.
10
0
-10
SIDE INTRUSION 'B' POST
CAR 2
INTRUS. - IN.
10
0
-10
LEFT FRONT DOOR-LOWER FRONT
CAR 2
INTRUS. - IN.
20
0
-20
LEFT FRONT DOOR-LOWER REAR

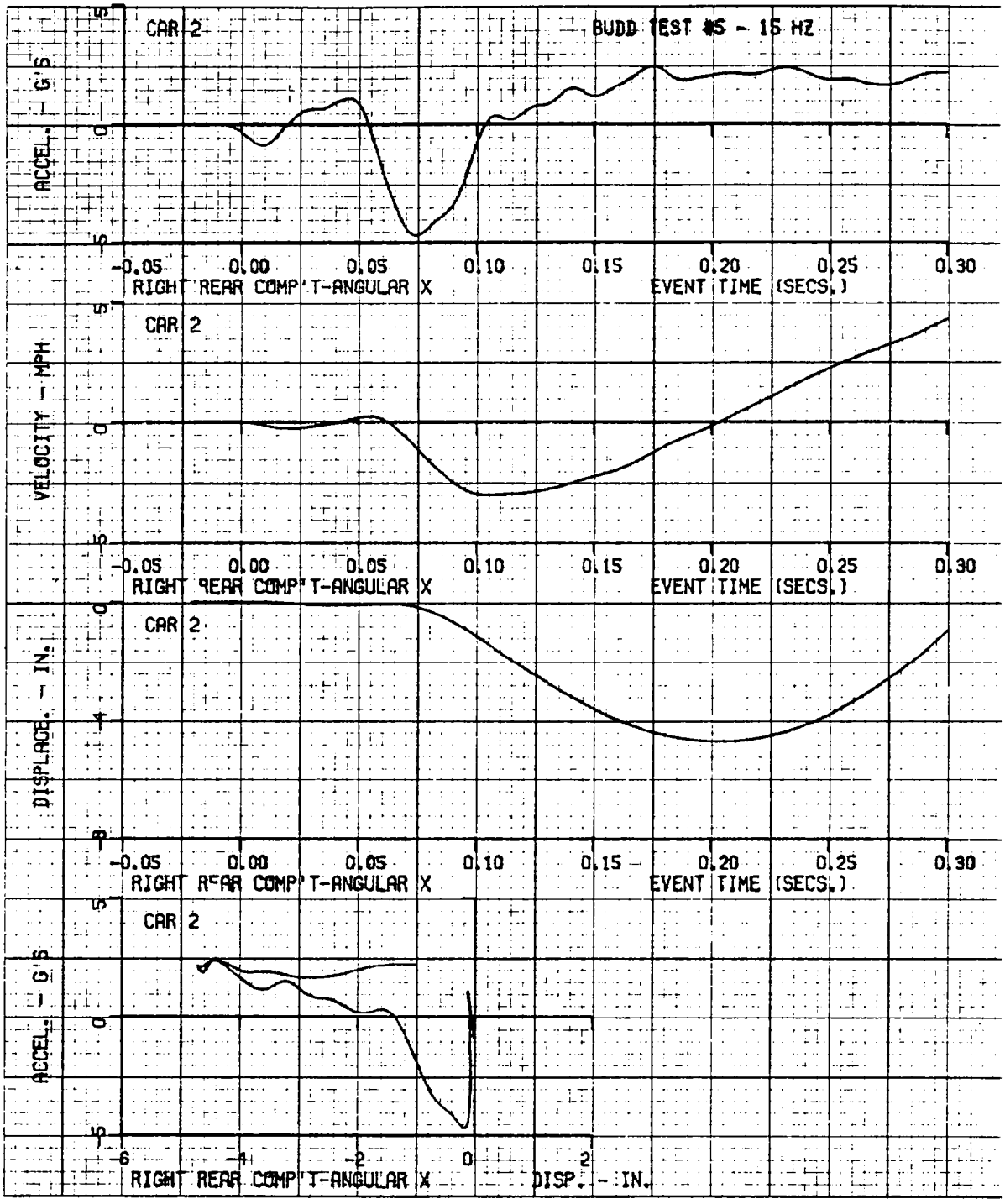

BUDD TEST #5 - 15 HZ
CAR 2
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER DOOR CENTER Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER DOOR CENTER Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER DOOR CENTER Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
0
20
40
60
80
LOWER DOOR CENTER Y
DISP. - IN.

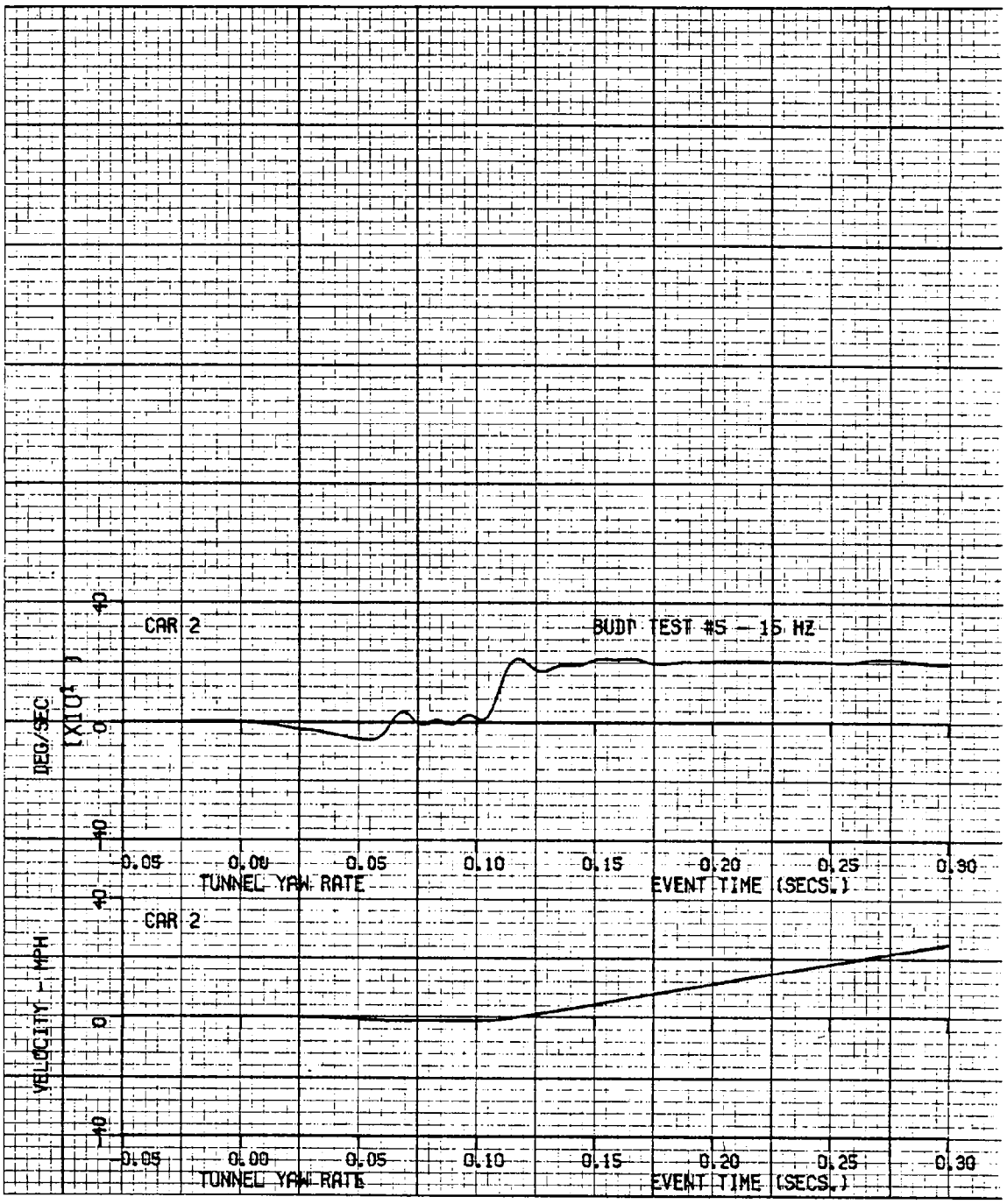

CAR 2
BUDD TEST #5 – 15 HZ
ACCEL. – G'S
50
0
-50
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
UPPER DOOR CENTER Y
EVENT TIME (SECS.)
CAR 2
VELOCITY – MPH
40
20
0
UPPER DOOR CENTER Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. – IN.
100
50
0
UPPER DOOR CENTER Y
EVENT TIME (SECS.)
CAR 2
ACCEL. – G'S
50
0
-50
0
40
80
120
160
UPPER DOOR CENTER Y
DISP. – IN.


BUDD TEST 6S – 15 MZ
CAR 2
ACCEL. – G'S
40
0
40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
MID-REAR FRONT DOOR Y
EVENT TIME (SECS.)
CAR 2
VELOCITY – MPH
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
MID-REAR FRONT DOOR Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. – IN.
100
50
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
MID-REAR FRONT DOOR Y
EVENT TIME (SECS.)
CAR 2
ACCEL. – G'S
40
0
40
0
40
80
120
160
MID-REAR FRONT DOOR Y
DISP. – IN.


CAR 2
BUDD TEST #5 - 15 HZ
ACCEL. - G'S
40
0
40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
MID-FRONT FRONT DOOR Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
MID-FRONT FRONT DOOR Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
MID-FRONT FRONT DOOR Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
40
0
20
40
60
80
MID-FRONT FRONT DOOR Y
DISP. - IN.


CAR 2
BUDD TEST #5 - 15 MPH
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-20
-10
0
10
20
LEFT REAR COMP'T-ANGULAR X
DISP. - IN.


CAR 2
BUDD TEST #5 - 15 HZ
ACCEL. - G'S
RIGHT REAR COMP'T-ANGULAR X
EVENT TIME (SECS.)
VELOCITY - MPH
DISPLACE. - IN.
DISP. - IN.

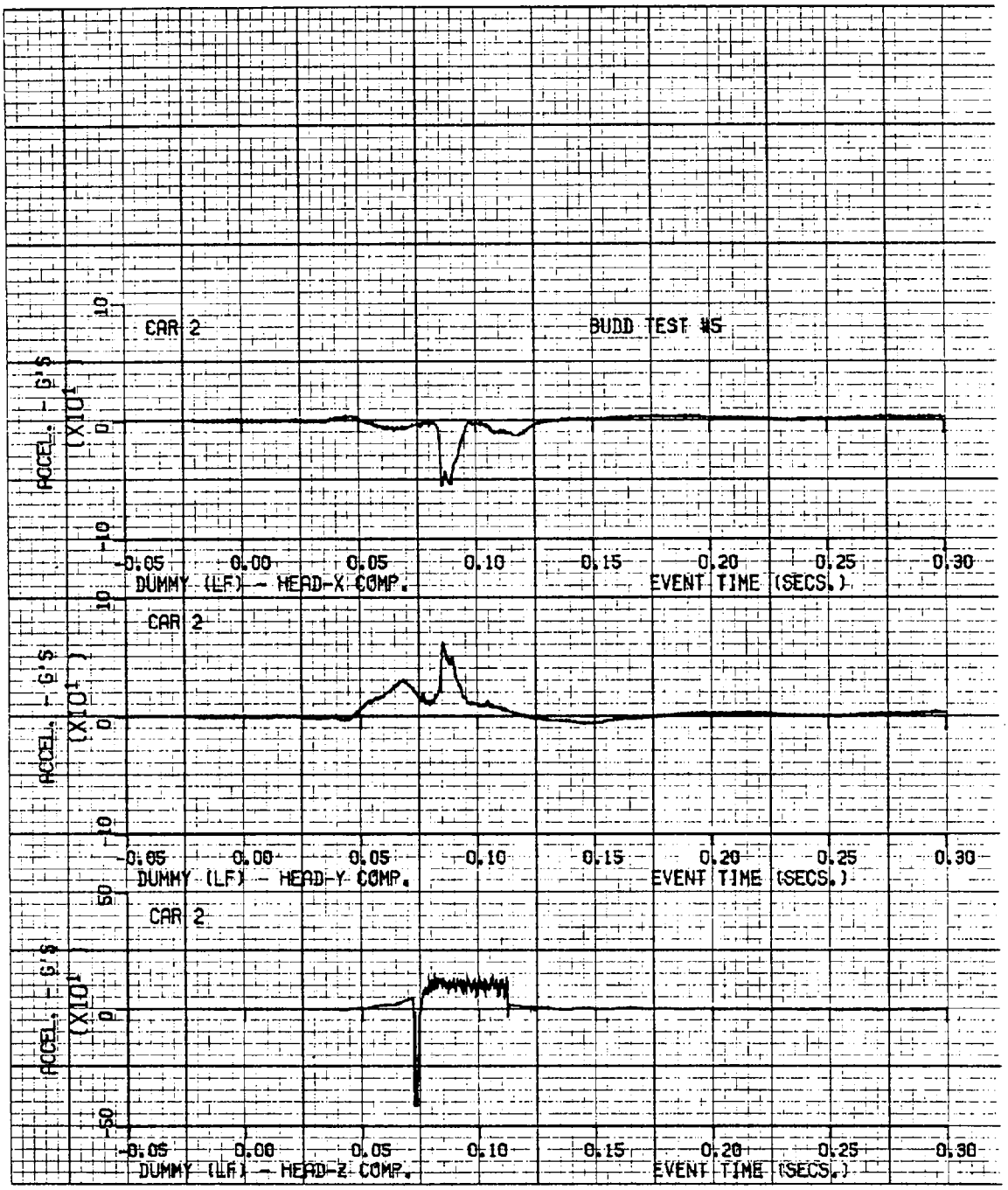

CAR 2
BUDT TEST #5 — 15 HZ
DEG/SEC (X10)
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
TUNNEL YAW RATE
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
TUNNEL YAW RATE
EVENT TIME (SECS.)

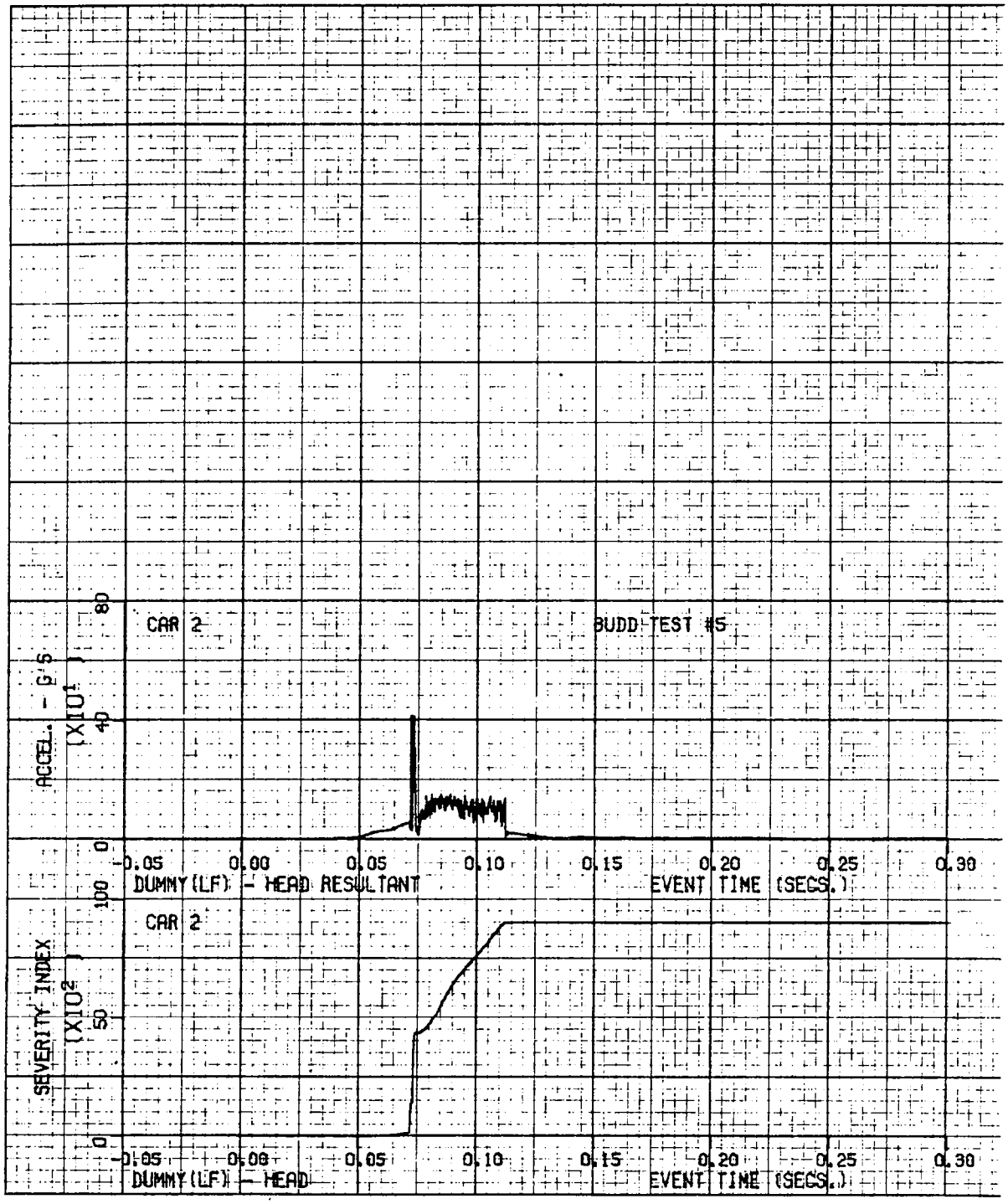
TEST NO. 5

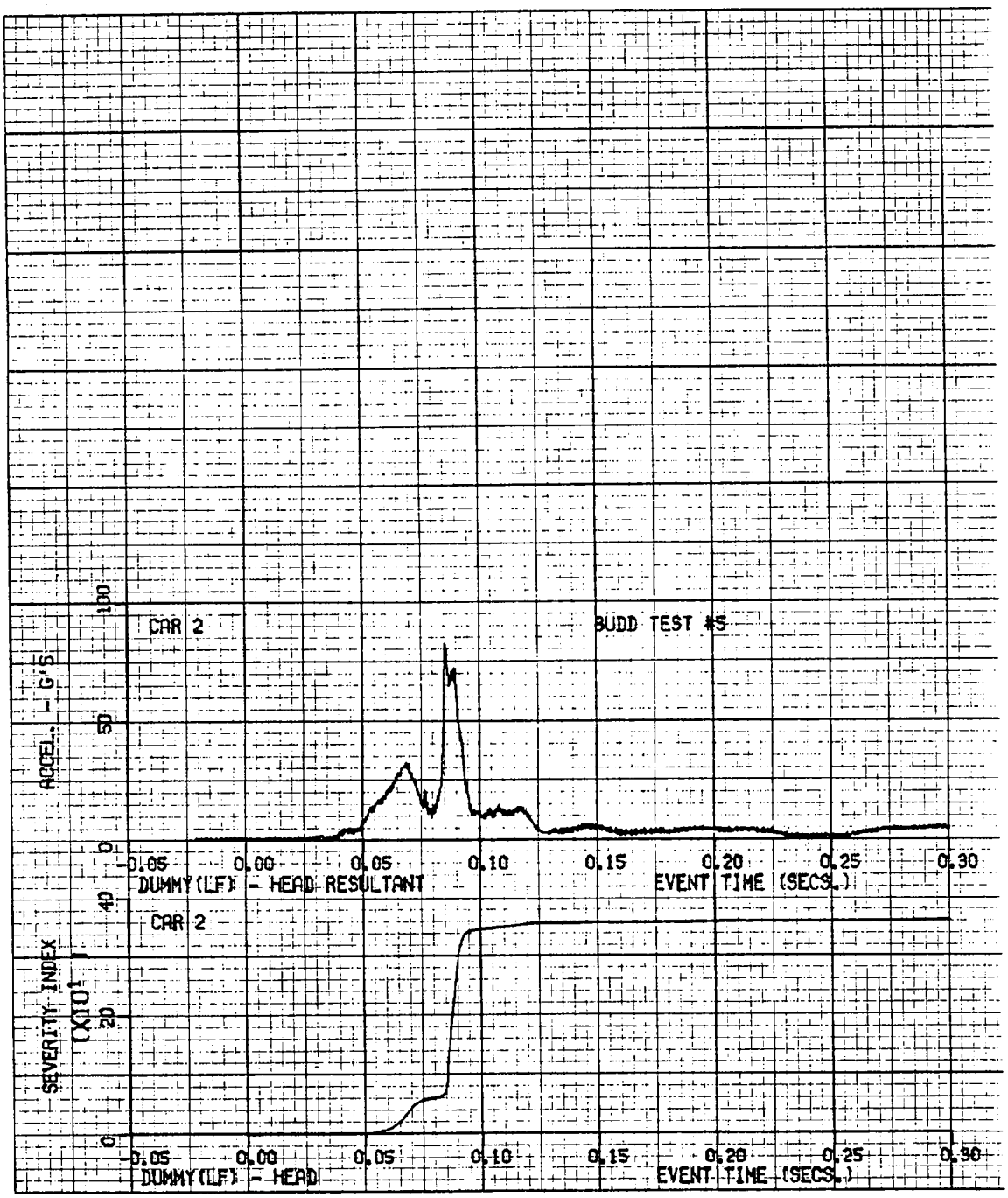
CAR 2 - 1976 VOLKSWAGEN RABBIT

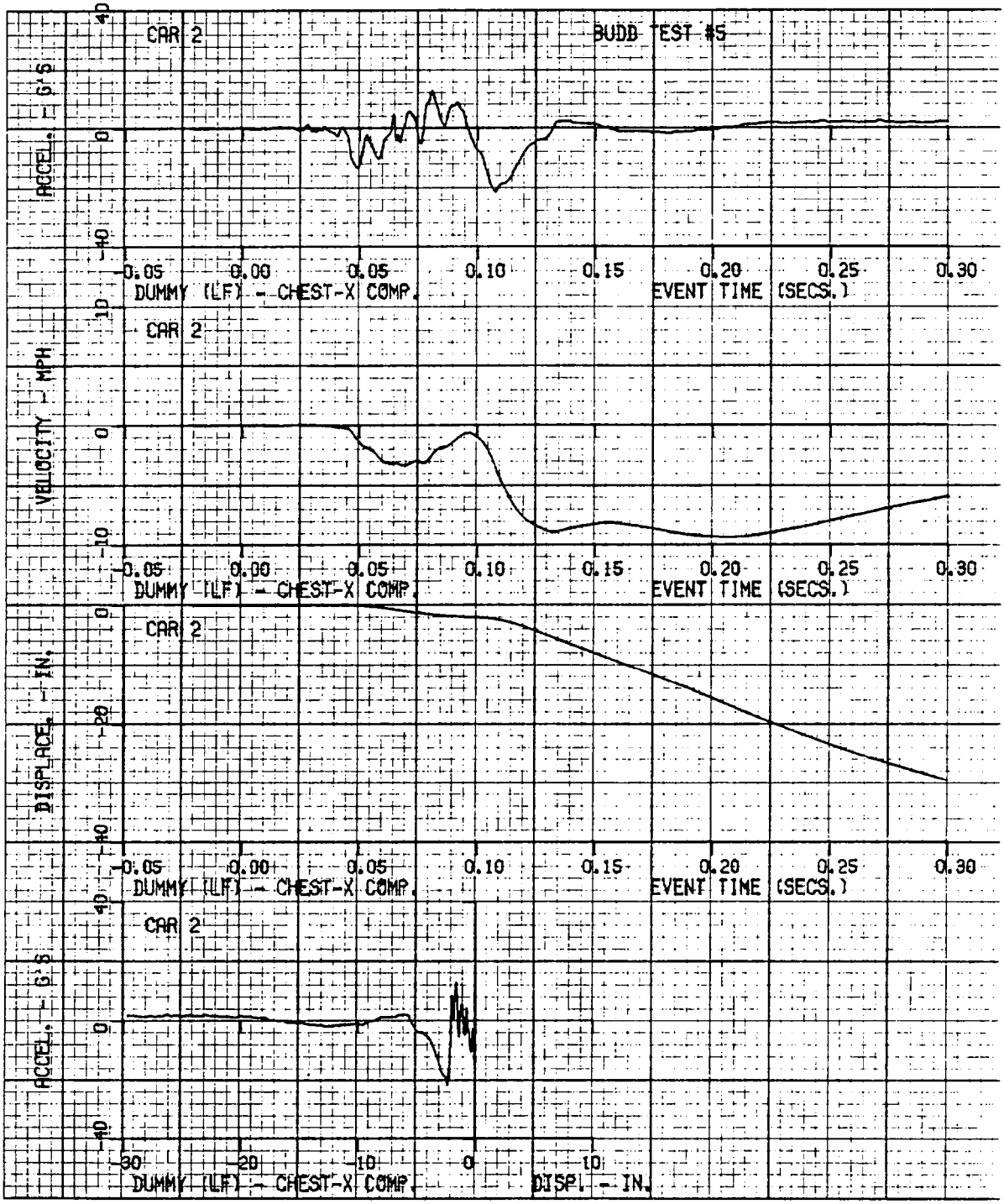
DUMMY DATA

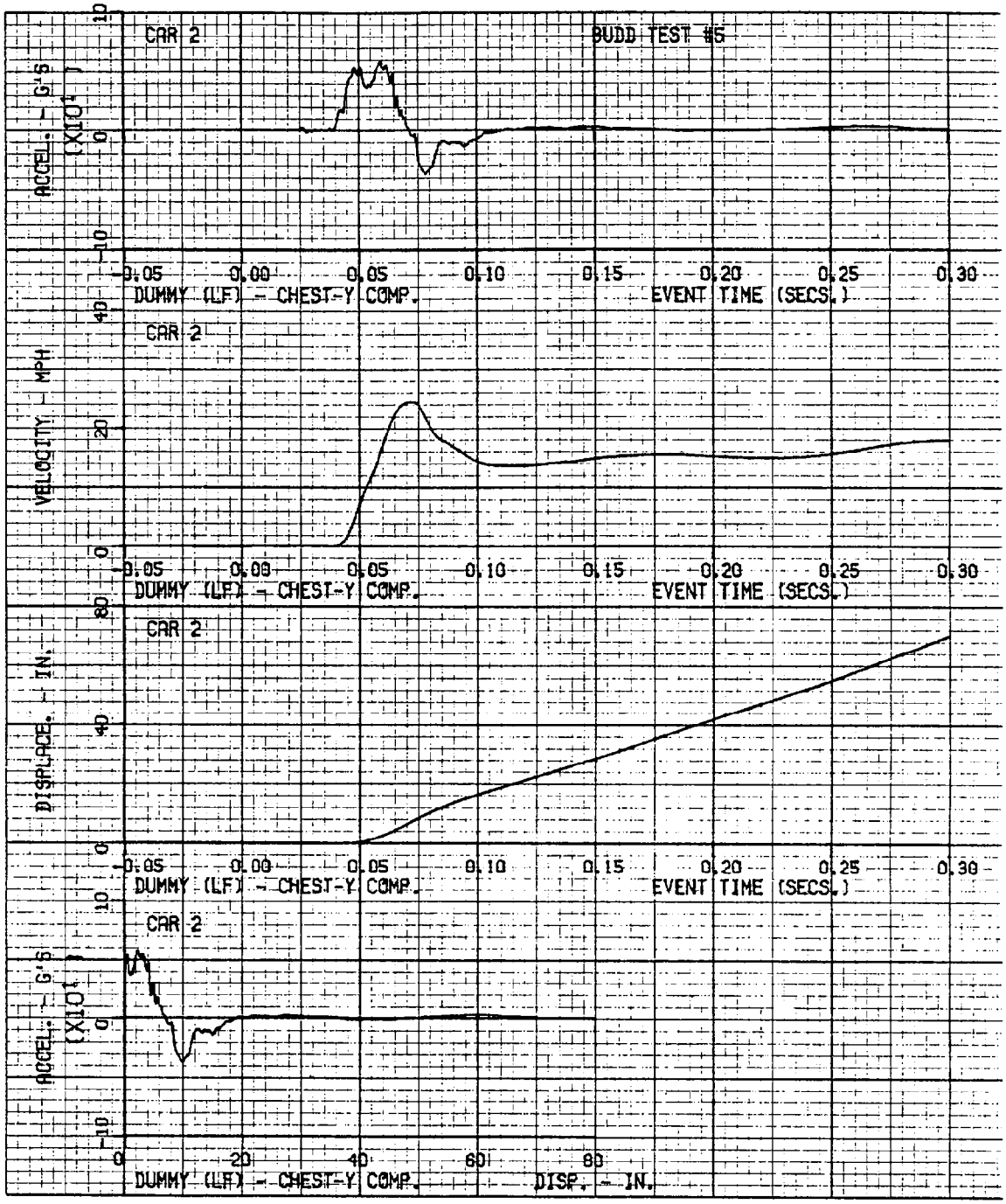
	FILTER CHANNEL CLASS
Head Acceleration	1000 HZ
Chest Acceleration	180 HZ

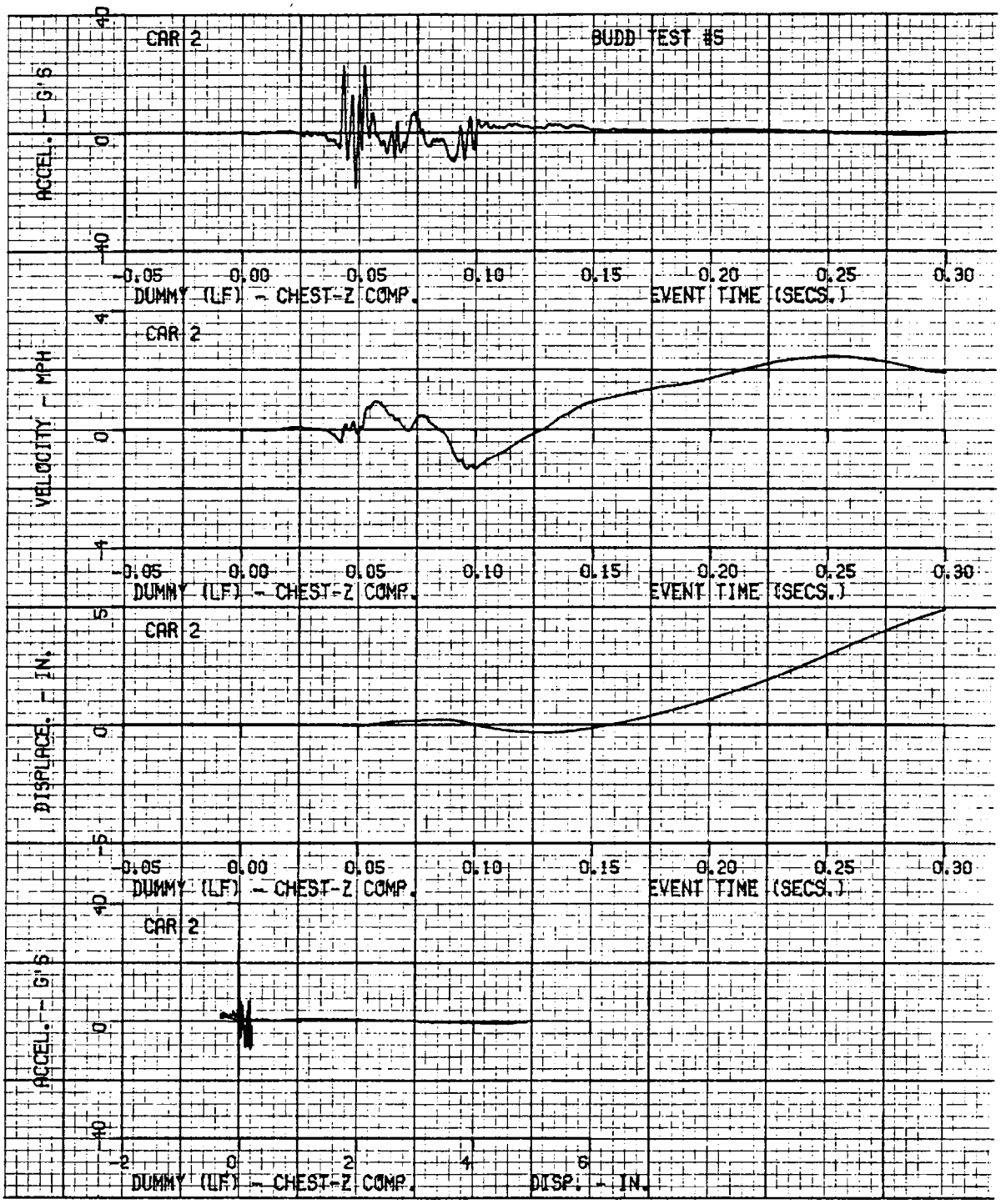

CAR 2
BUDD TEST #5
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
DUMMY (LF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
50
0
-50
DUMMY (LF) - HEAD-Z COMP.
EVENT TIME (SECS.)

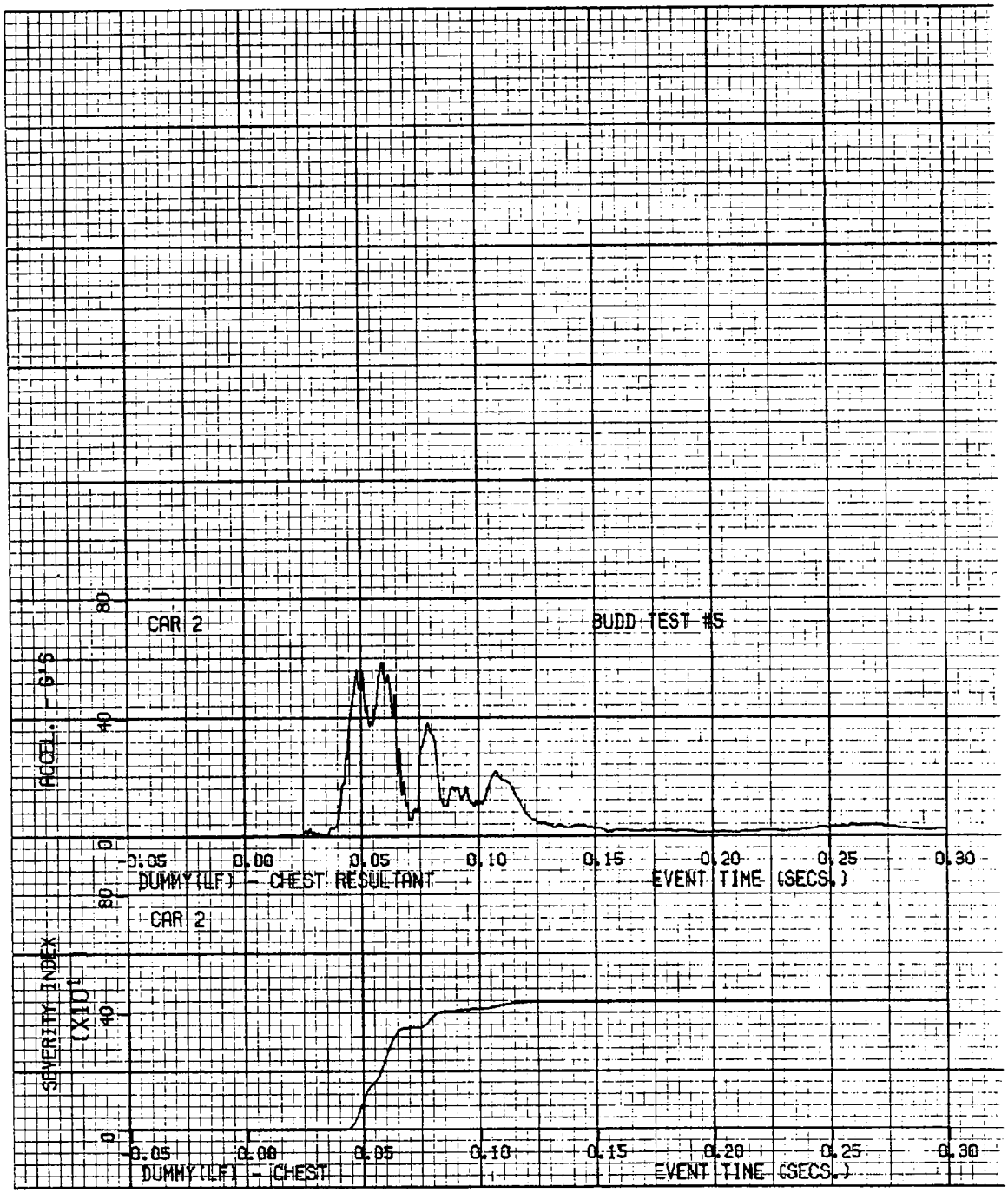

CAR 2
BUDD TEST #5
ACCEL. - G'S (X10¹)
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10²)
100
50
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD
EVENT TIME (SECS.)

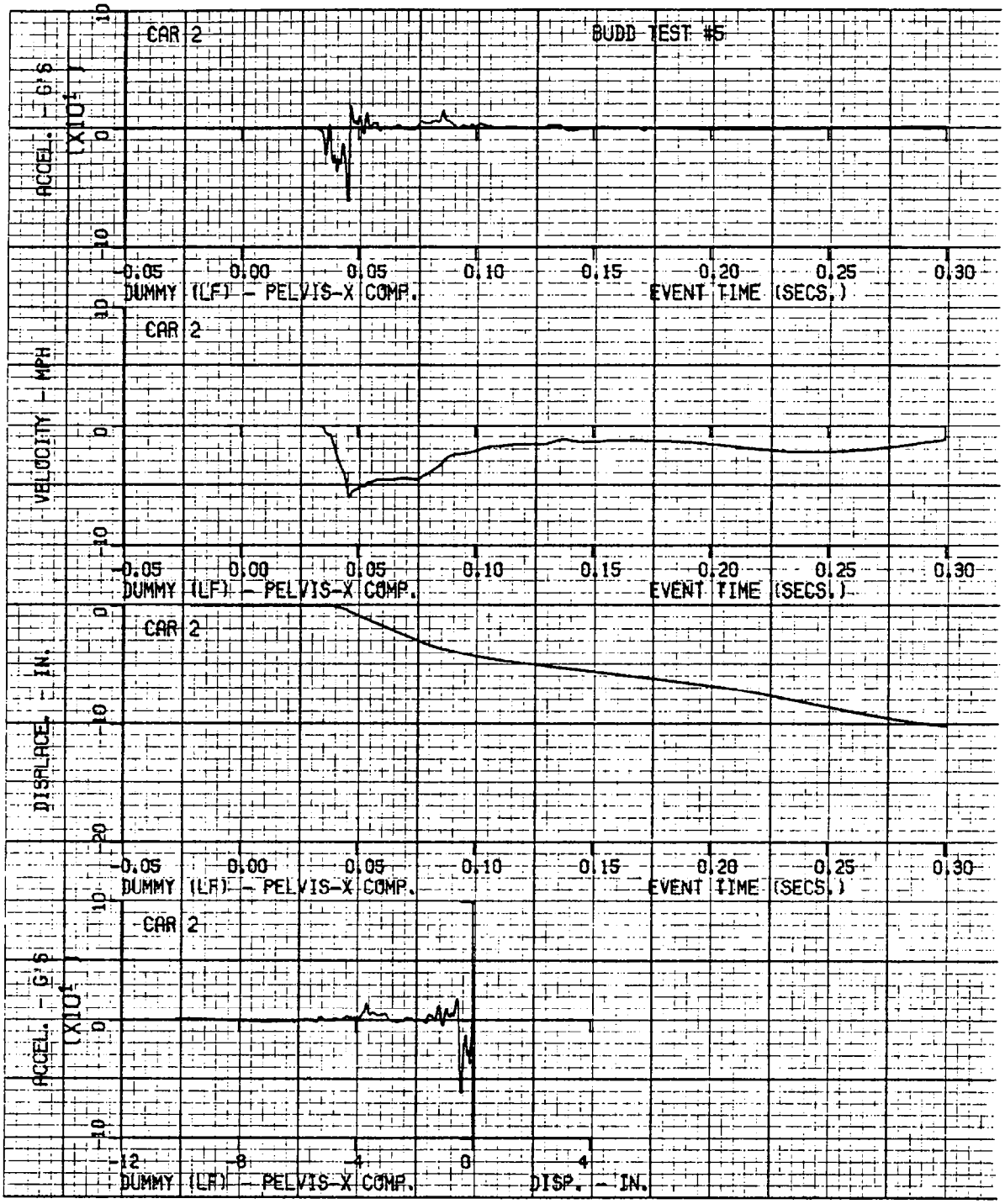

CAR 2
BUDD TEST #5
ACCEL. - G'S
100
50
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY(LF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10)
40
20
0
DUMMY(LF) - HEAD
EVENT TIME (SECS.)

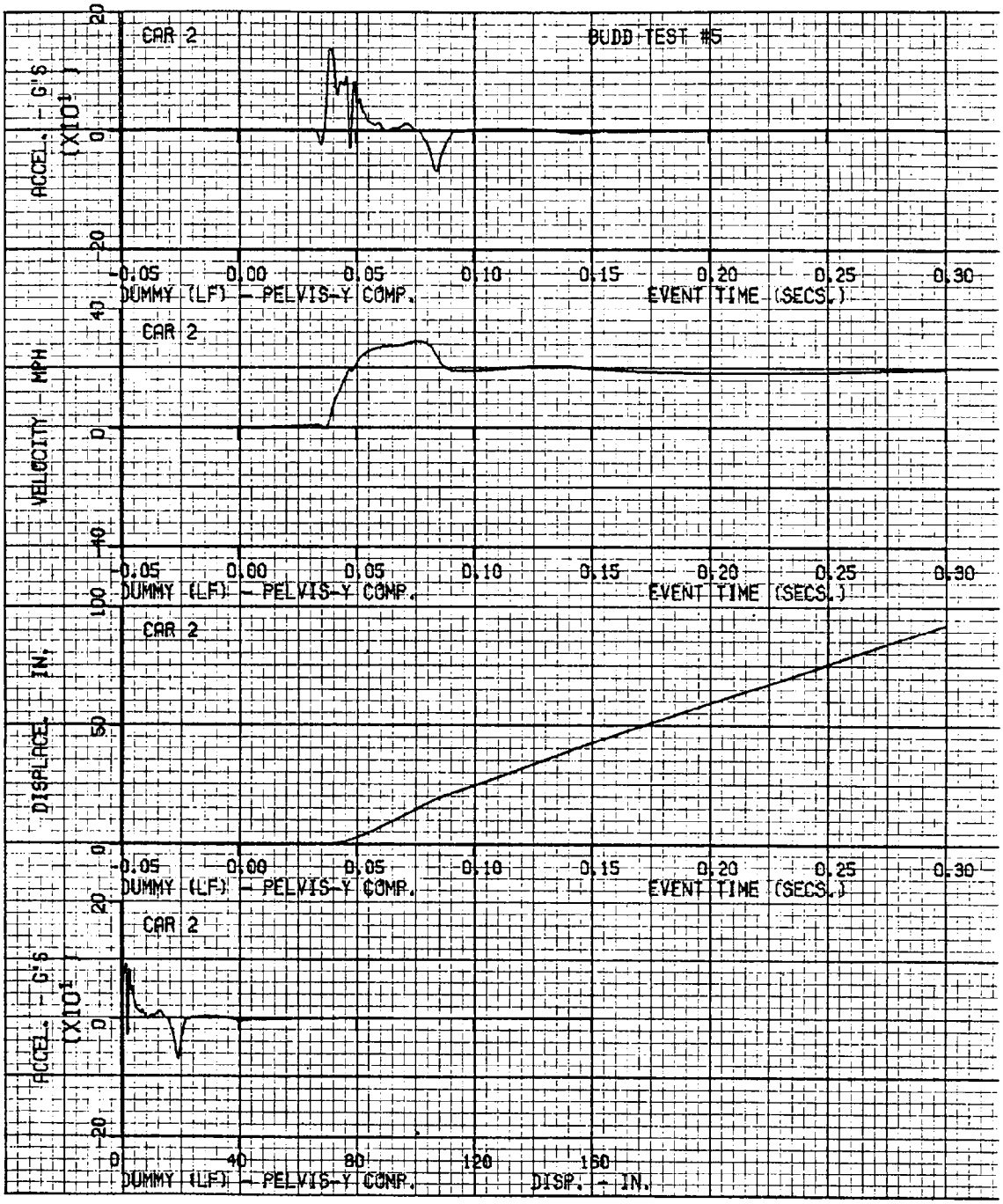

CAR 2
BUDD TEST #5
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-30
-20
-10
0
10
DUMMY (LF) - CHEST-X COMP.
DISPL. - IN.

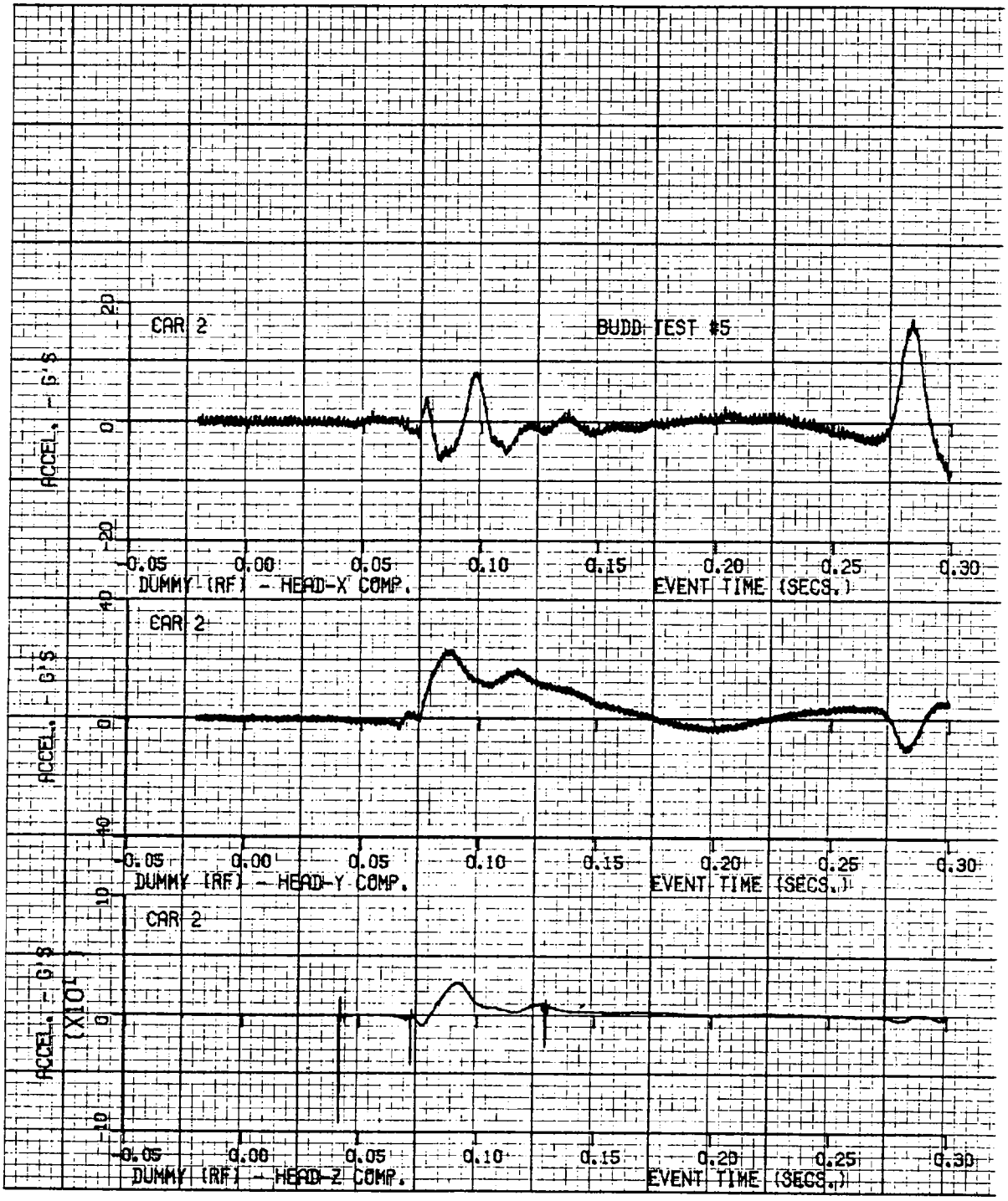

CAR 2
BUDD TEST #5
ACCEL. - G'S (X10)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10)
10
0
-10
0
20
40
60
80
DUMMY (LF) - CHEST-Y COMP.
DISP. - IN.

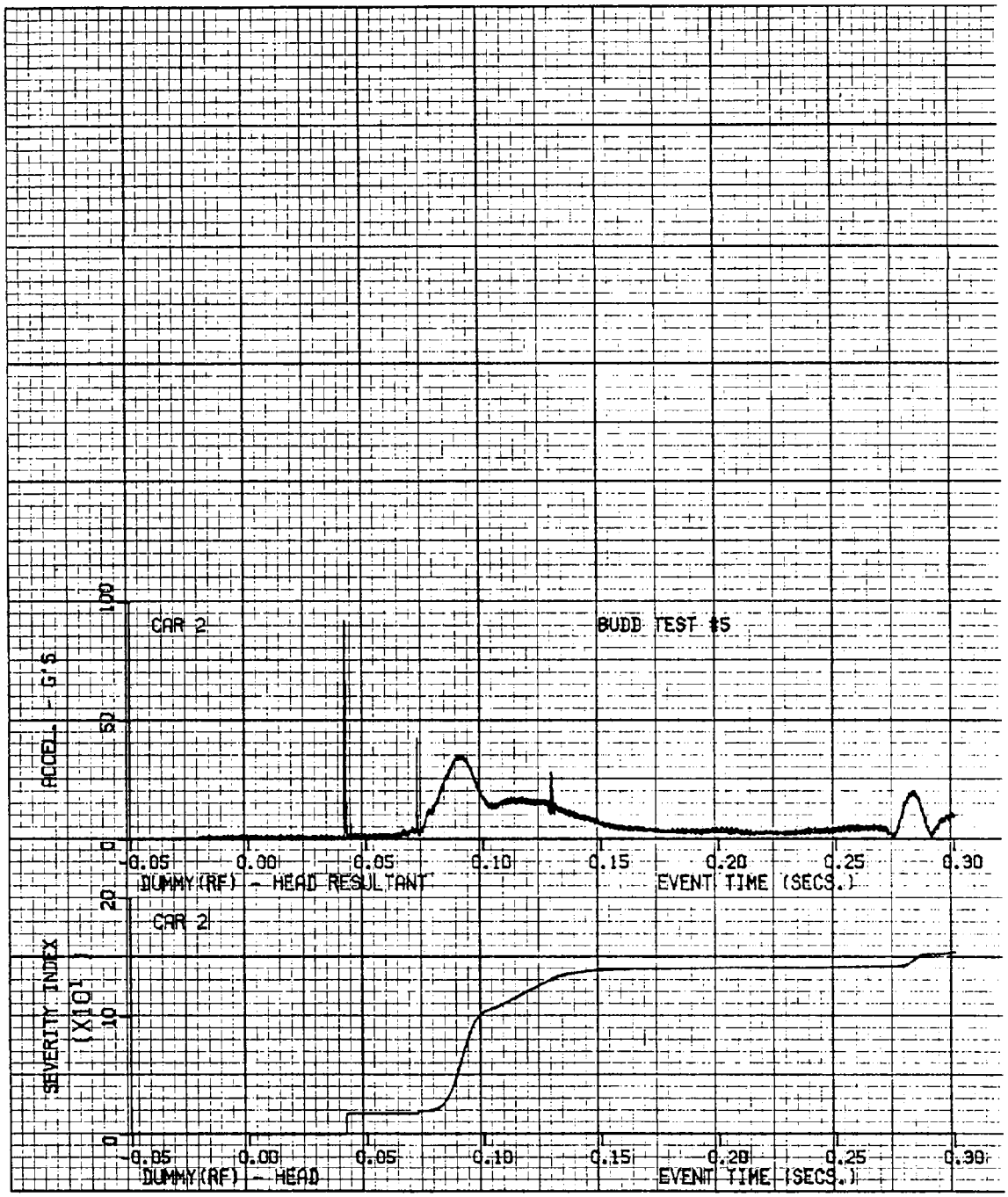

BUDD TEST #5
CAR 2
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
5
0
-5
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-2
0
2
4
6
DUMMY (LF) - CHEST-Z COMP.
DISP. - IN.

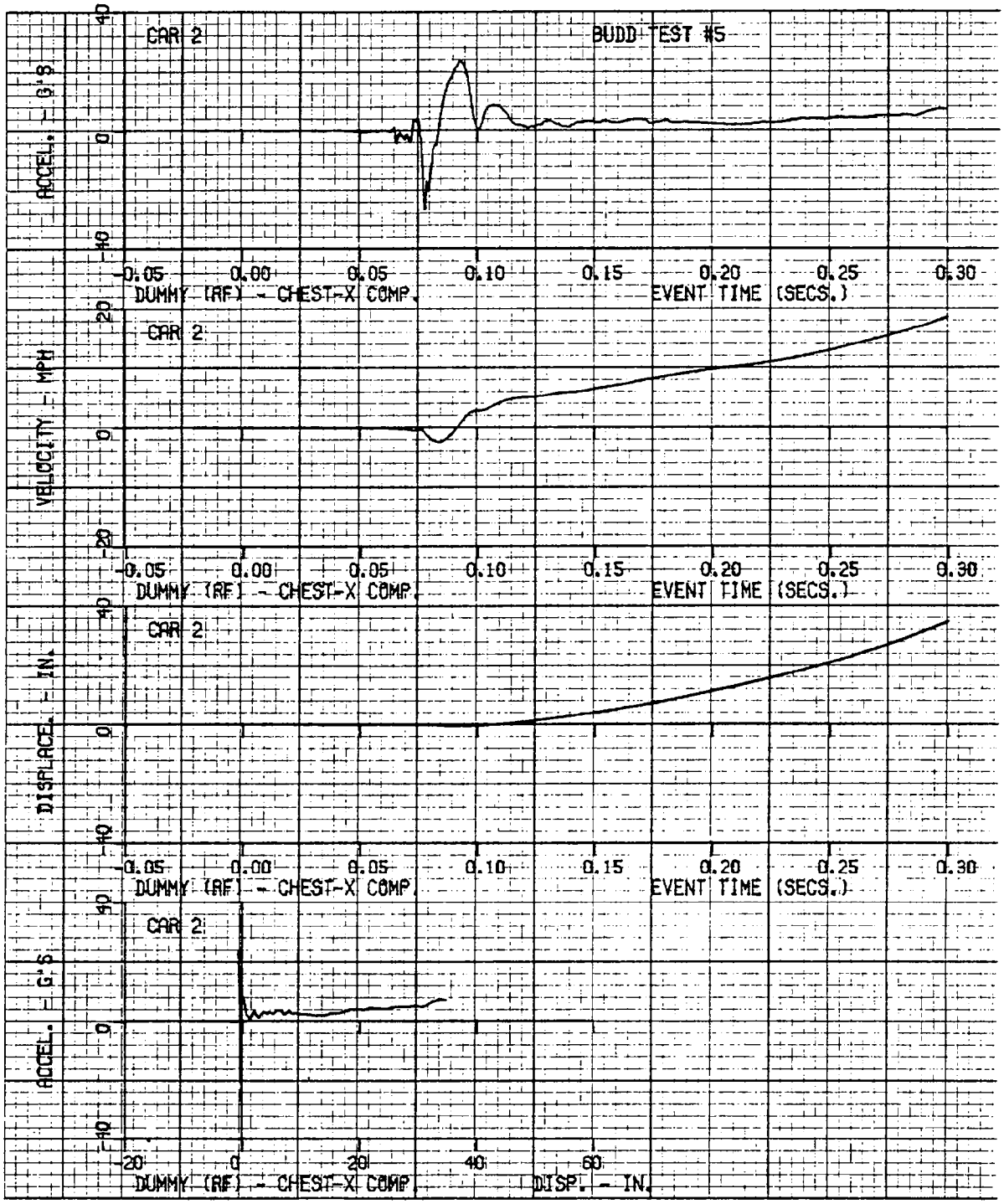

CAR 2
BUDD TEST #5
ACCEL. - G'S
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY(LF) - CHEST RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10)
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY(LF) - CHEST
EVENT TIME (SECS.)

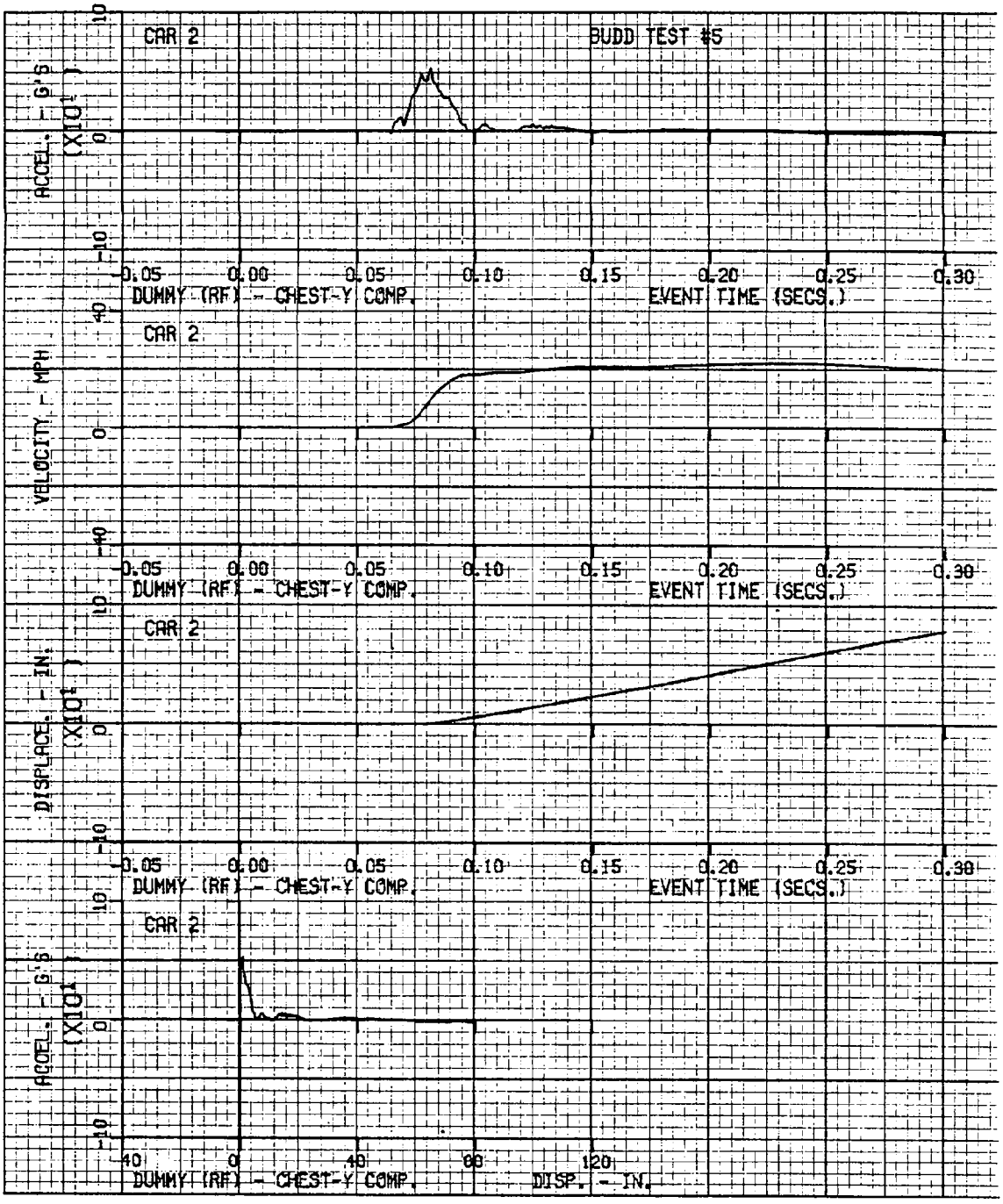

CAR 2
BUDD TEST #5
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-10
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
-12
-8
-4
0
4
DUMMY (LF) - PELVIS-X COMP.
DISP. - IN.

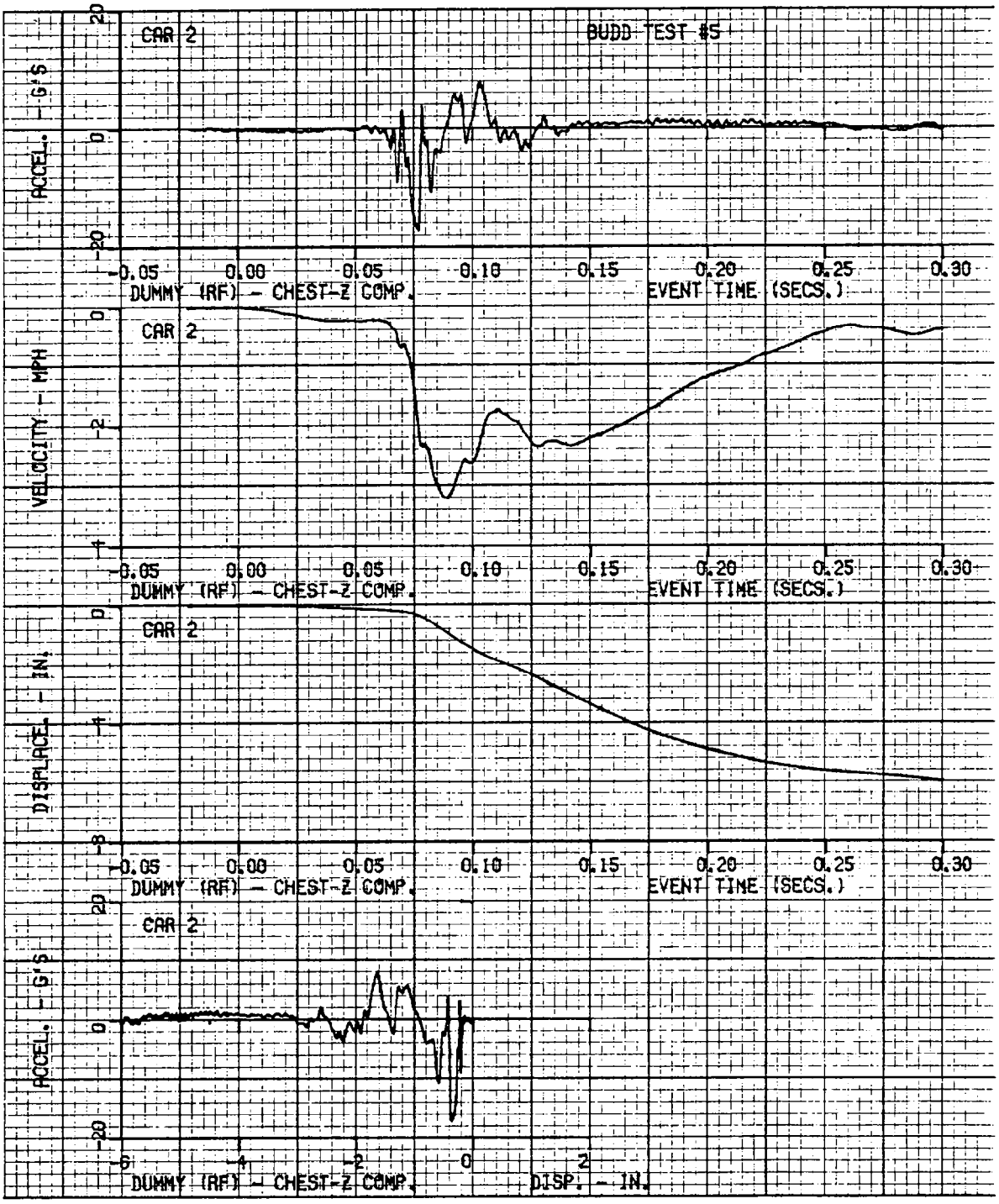

CAR 2
BUDD TEST #5
ACCEL. - G'S (X10¹)
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
VELOCITY - MPH
DISPLACE. - IN.
DISP. - IN.

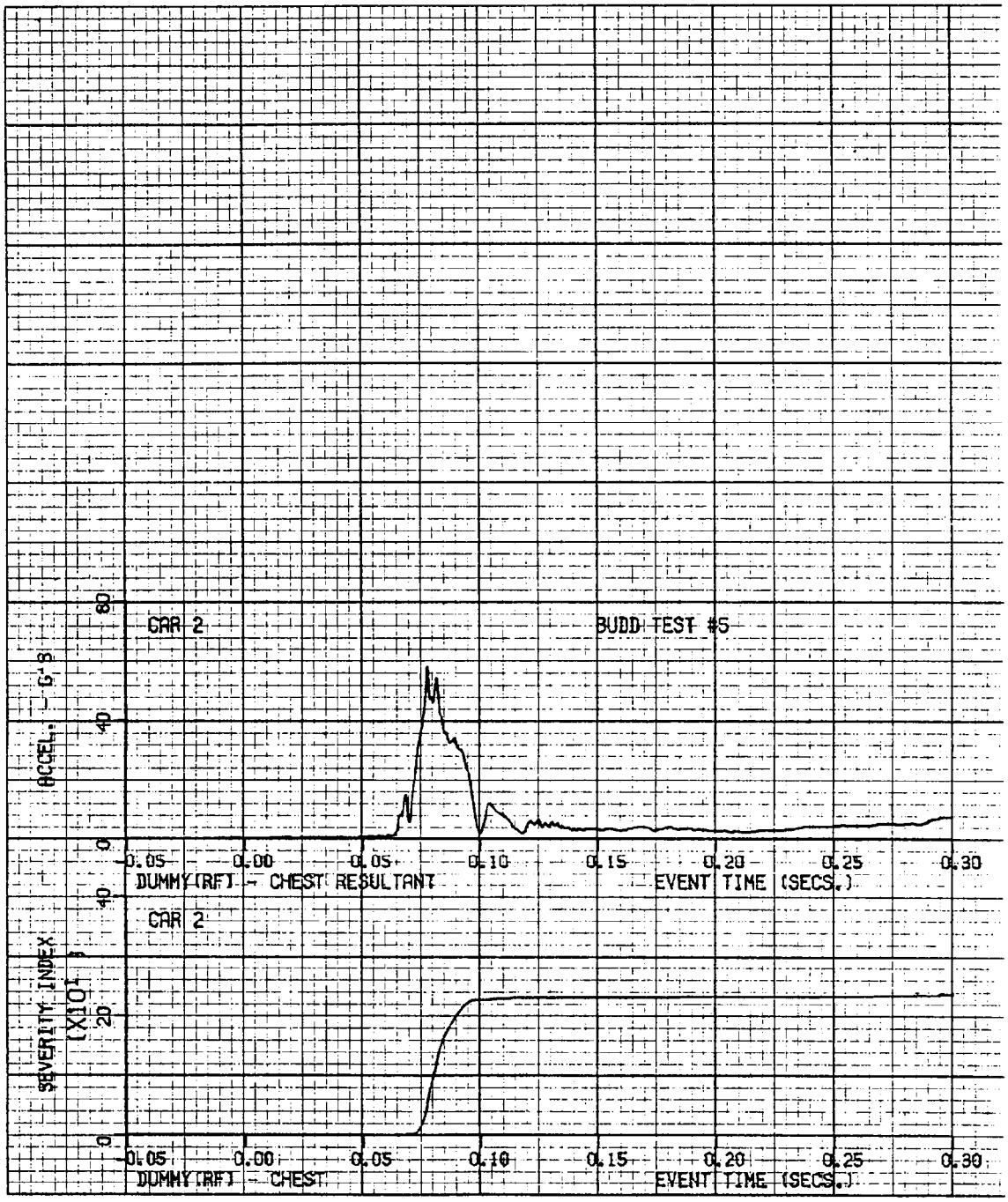

CAR 2
BUDD TEST #5
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD-Z COMP.
EVENT TIME (SECS.)

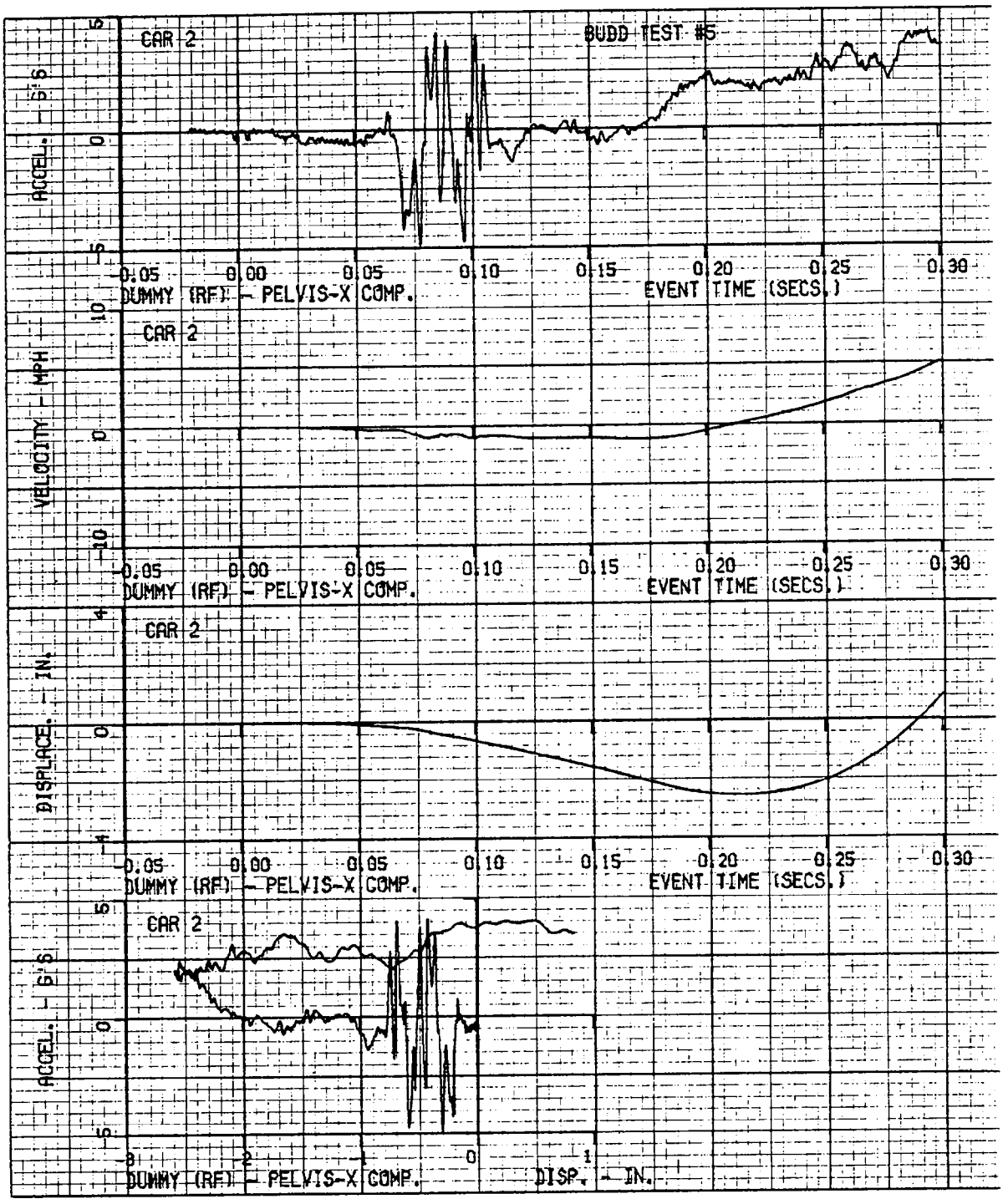

CAR 2
BUDD TEST #5
ACCEL. G'S
100
50
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY(RF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10)
20
10
0
DUMMY(RF) - HEAD
EVENT TIME (SECS.)

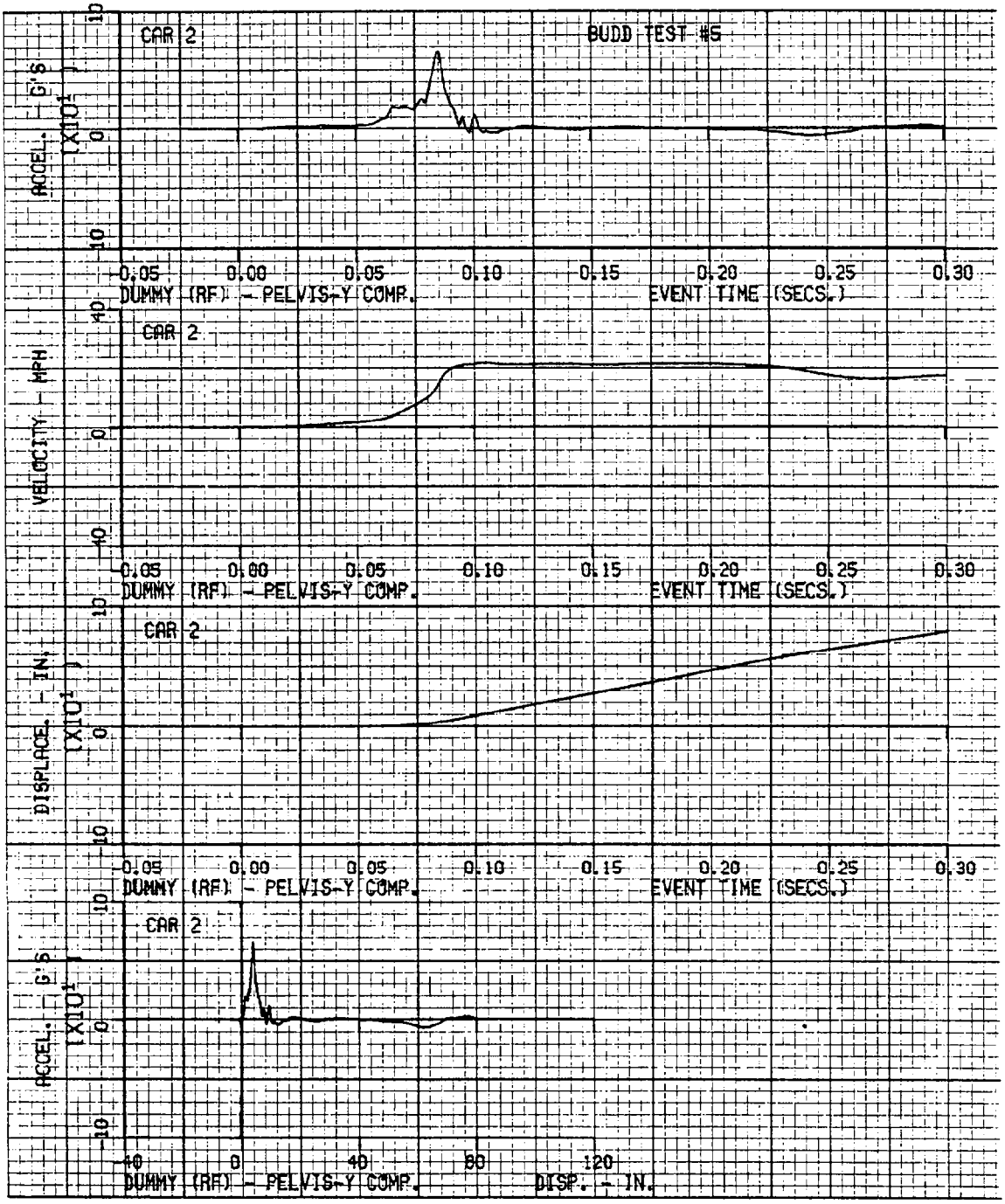

CAR 2
BUDD TEST #5
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
0
-20
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
40
0
-40
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-20
0
20
40
60
DUMMY (RF) - CHEST-X COMP.
DISP. - IN.


CAR 2
BUDD TEST #5
ACCEL. - G'S (X10)
10
0
-10
0.05 0.00 0.05 0.10 0.15 0.20 0.25 0.30
DUMMY (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
0
-40
0.05 0.00 0.05 0.10 0.15 0.20 0.25 0.30
DUMMY (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10)
10
0
-10
0.05 0.00 0.05 0.10 0.15 0.20 0.25 0.30
DUMMY (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10)
10
0
-10
40 0 40 80 120
DUMMY (RF) - CHEST-Y COMP.
DISP. - IN.


BUDD TEST #5
CAR 2
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-2
-4
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-4
-8
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-6
-4
-2
0
2
DUMMY (RF) - CHEST-Z COMP.
DISP. - IN.


CAR 2
BUDD TEST #5
ACCEL. - G'S
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY(RF) - CHEST RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10)
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY(RF) - CHEST
EVENT TIME (SECS.)


CAR 2
BUDD TEST #5
ACCEL. - G'S
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - PELVIS-X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - PELVIS-X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - PELVIS-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
5
0
-5
-3
-2
-1
0
1
DUMMY (RF) - PELVIS-X COMP.
DISP. - IN.


CAR 2
BUDD TEST #5
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
0
-40
DUMMY (RF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10¹)
10
0
-10
DUMMY (RF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
-40
0
40
80
120
DUMMY (RF) - PELVIS-Y COMP.
DISP. - IN.