RESEARCH INPUT FOR COMPUTER SIMULATION OF AUTOMOBILE COLLISIONS
VOLUME III
STAGED COLLISION TESTS NO. 6 THRU 12

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16. Abstract

Volumes II and III of this document summarize the Phase II research results of the measured experimental data generated to document twelve full-scale staged collisions. Volume III presents results for staged collisions Nos. 6 through 12. The objective of the staged collisions was to develop a library of experimental data which could be used to validate accident reconstruction techniques such as SMAC and CRASH.

The test matrix focused on data gaps identified in Phase I (Volume I) involving intermediate and subcompact size vehicles. Collision configurations included frontal, side and rear impacts with both cars moving at velocities up to 40 mph. The vehicle measured parameters included vehicle compartment acceleration (X,Y,Z components) angular yaw velocity, compartment pitch, roll and yaw angle, wheel angular velocities, steer angle and vehicle trajectory. Each collision was photographically covered with ten high speed 16 mm data cameras. Occupant injury criteria data were obtained on the driver and front seat passenger in the target vehicle (V2), according to FMVSS 208 requirements.

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CRASH TEST SUMMARY

VEHICLE RESPONSES - CAR NO. 1 CHEVELLE - DATA PLOTS

VEHICLE RESPONSES - CAR NO. 2 - VW RABBIT - DATA PLOTS

DUMMY INJURY CRITERIA VALUES

DUMMY DATA - CAR NO. 2 - VW RABBIT

THE ABOVE LIST OF FIGURES IS TYPICAL OF THE TEST DATA REPORTED IN THIS VOLUME - (TESTS NOS. 6 THROUGH 12).

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THE ABOVE TABLES ARE TYPICAL OF THE TEST DATA REPORTED IN THIS VOLUME - (TESTS NOS. 6 THROUGH 12).

INTRODUCTION TO VOLUME III

This volume contains the research results of the measured experimental data obtained for staged collisions No. 6 through No. 12. The test matrix for the 12 staged collisions and impact configurations for the respective collisions are presented on the following pages. The data for staged collisions No. 1 through No. 5 are presented in Volume II of this document. A description of the instrumentation and vehicle preparation are also presented in Volume II.

The following information and data for each staged collision is presented in this document.

- Test Description
- Accident Scene Schematic
- Test Data Summary
- Car No. 1 - Vehicle Data
- Car No. 1 - Vehicle Crush Data
- Car No. 1 - Occupant Contact Data
- Car No. 2 - Vehicle Data
- Car No. 2 - Vehicle Crush Data
- Car No. 2 - Occupant Contact Data
- Photographs - Pre- and Post Vehicle Exterior
- Photographs - Pre- and Post Vehicle Interior
- Car No. 1 - Vehicle Instrumentation Layout
- Car No. 2 - Vehicle Instrumentation Layout
- Vehicle Test Weights - Car No. 1 and Car No. 2
- Camera Site Location
- Camera Data Log

- Vehicle Wheel Response Data - Car No. 1 and Car No. 2
- Vehicle Attitude Data - Car No. 1 and Car No. 2
- Car No. 1 - Response Time Histories
  - Left Front Corner
  - Right Rear Corner
  - Firewall
  - Rear Deck
  - Front Bumper (X)
  - Acceleration XYZ Components
  - Velocity XYZ Components
  - Displacement XYZ Components
  - Acceleration Resultant
- Car No. 2 - Response Time Histories
  - Left Front Corner
  - Left Rear Corner
  - Firewall
  - Rear Deck
  - Right Front Door (Side Impact Only)
  - Left Front Door (Side Impact Only)
  - Acceleration XYZ Components
  - Velocity XYZ Components
  - Displacement XYZ Components
  - Acceleration Resultant

- Dummy Injury Criteria Values - Driver and Front Passenger
- Dummy Response Time Histories - Driver and Front Passenger

  Head Acceleration XYZ Components

  Head Resultant

  Head Severity Index

  Chest Acceleration XYZ Components

  Chest Resultant

  Chest Velocity XYZ Components

  Chest Displacement XYZ Components

  Chest Severity Index

  Femur Loads Left and Right

  Pelvic Acceleration Y Component (Side Impact Only)

  Pelvic Velocity

  Pelvic Displacement

RICSAC-STAGED COLLISION

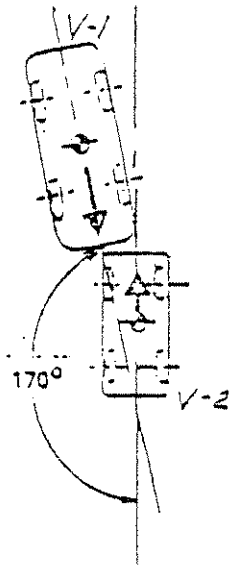
TEST MATRIX

TEST NO.	DATE 1977-78	VEHICLE MODEL		IMPACT VELOCITY MPH	IMPACT CONFIGURATION (1)	CONTACT AREA (1)
		V1 (BULLET	V2 (TARGET)			
1	11/3	Chevelle	Pinto	19.8	D-Front/Side	Forward of c.g.
2	11/18	Chevelle	Pinto	31.5	Oblique-Offset	
3	4/18	Torino	Pinto	21.2	B-Front/Rear	50% Offset
4	4/25	Torino	Pinto	38.7	Oblique-Offset	
5	5/10	Torino	Honda	39.7		
6	5/22	Chevelle	Rabbit	21.5	E-Front/Side	Aft of c.g.
7	5/31	Chevelle	Rabbit	29.1	Oblique-Offset	
8	6/15	Chevelle	Chevelle	20.7	C-Front/Side	Forward of c.g.
9	6/20	Honda	Torino	21.2	Perpendicular	
10	6/23	Honda	Torino	33.3		
11	7/7	Vega	Torino	20.4	A-Front/Front Oblique-Offset	50% Offset
12	7/12	Vega	Torino	31.5		

Note: (1) For Impact Configuration and Contact Area see following Figure.

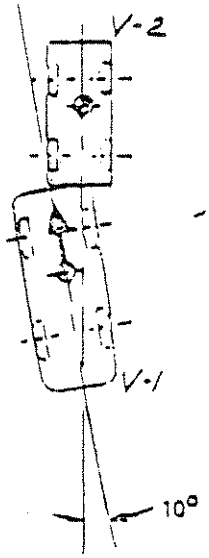
CONFIGURATION A

FRONTAL
OBLIQUE-OFFSET



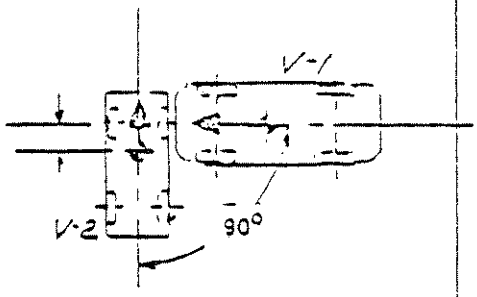
CONFIGURATION B

REAR
OBLIQUE-OFFSET



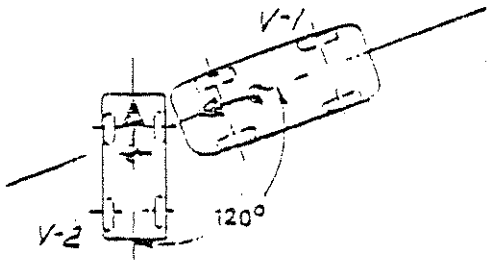
CONFIGURATION C

SIDE
PERPENDICULAR-OFFSET

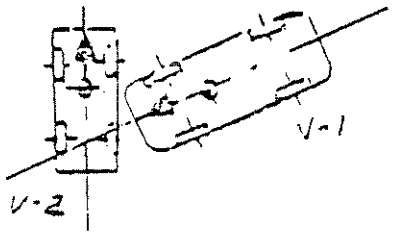


CONFIGURATION D

SIDE
OBLIQUE-OFFSET



CONFIGURATION E



CAR-TO-CAR COLLISION CONFIGURATIONS

TEST NO. 6

RICSAC STAGED COLLISION

FRONT-TO-SIDE
OBLIQUE - OFFSET

CHEVELLE/PINTO

VELOCITY 21.5 MPH

12.0 RICSAC STAGED COLLISION - TEST NO. 6

EXPERIMENTAL RESULTS

Test Description

This collision involved a 1974 Chevrolet Chevelle Malibu (V-1) striking a 1975 VW Rabbit (V-2) on the right side near the "A" pillar at an oblique angle of 60 degrees as shown in Figure 12-1. The impact velocity of both vehicles was 21.5 mph. The vehicle test weights were 4310 and 2640 pounds for the Chevelle and VW, respectively. Each vehicle had two Part 572 test dummies (50 percentile) seated in the front seat. The dummies in the VW were instrumented according to FMVSS 208 and were unrestrained. In the Chevelle the dummies were uninstrumented and were restrained with seat belts.

The Chevelle was equipped with automatic transmission, power steering and standard brakes. The VW had manual transmission, steering and standard brakes. The accident was staged with both transmissions in drive position, brakes off and the engines not running. During the collision no steering control inputs or vehicle braking was applied. The roadway was dry with skid resistance value of 87.

Approximately one car length before impact the vehicle tow cable was released and the vehicle guide rail was terminated. At this point in time and during the collision both vehicles are free bodies with no constraints except the normal collision forces and reactions encountered in this type of car-to-car collision. During the collision event no observed tow cable or instrumentation cable interference with the moving vehicles was noted.

ACCIDENT SCHEMATIC

VEHICLES:

No. 1 - 1974 CHEVROLET MALIBU CLASSIC
No. 2 - 1975 VOLKSWAGEN RABBIT

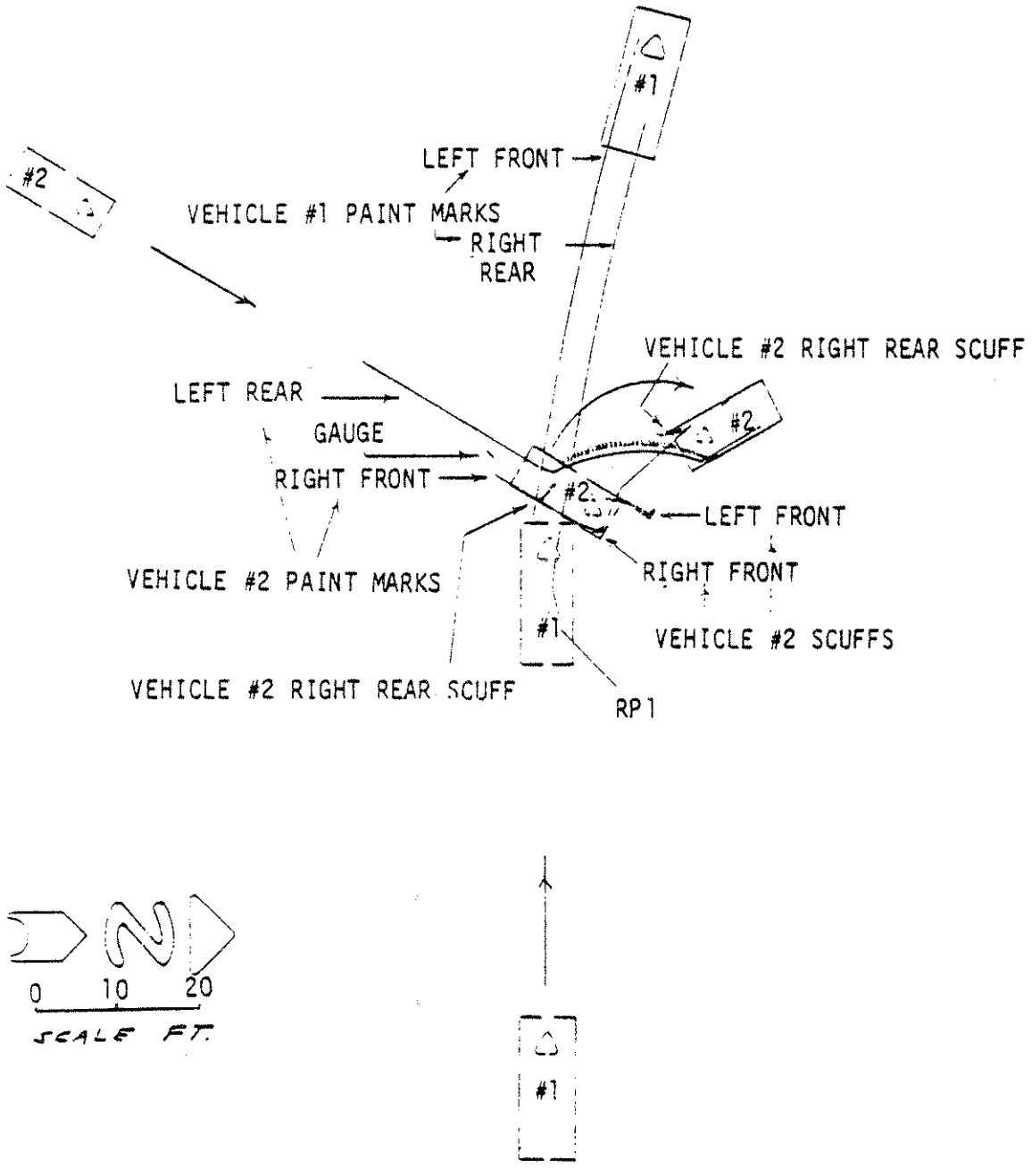


Figure 12-1 TEST NO. 6 - RICSAC ACCIDENT SCHEMATIC

CRASH TEST SUMMARY

TEST NO. 6 PROJECT RICSAC

DATE 5-22-78 TIME 15:10 TEMP. 68°F

TEST CONDITION

VEHICLE NO. 1 1974 Chevrolet Chevelle

VEHICLE NO. 2 1975 VW Rabbit

	VEH. NO. 1	VEH. NO. 2
TEST WEIGHT (lbs)	4310	2640
IMPACT ANGLE (deg)*	60°	0
IMPACT VELOCITY (mph)**	21.47	21.47
MAX. CRUSH (in)		
MAX. INTRUSION (in)		

DUMMIES	VEH. NO. 1	VEH. NO. 2
TYPE	Part 572	Part 572
LOCATION	Driver (L.F.), Passenger (R.F.)	Driver (L.F.), Passenger (R.F.)
RESTRAINT	3-Point Restraint	Unrestrained
	Uninstrumented	Instrumented

NUMBER OF DATA CHANNELS 64
NUMBER OF HIGH SPEED CAMERAS 11

*WITH RESPECT TO TOW TRACK CENTERLINE

**SPEED TRAP MEASUREMENT (±0.5% ACCURACY)

Figure 12-1

VEHICLE CRUSH SCHEMATIC

TEST NO. 6 - CAR NO. 1

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

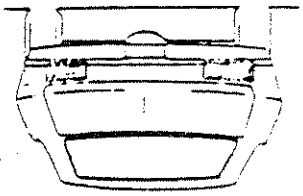
RF 2

LF 2

RR 2

LR 2

1 Yes, 2 No, 3 NA, 9 Unk.



WHEEL STEER ANGLES*

(For locked front wheels or displaced rear axles only)

RF = N A

LF = N A

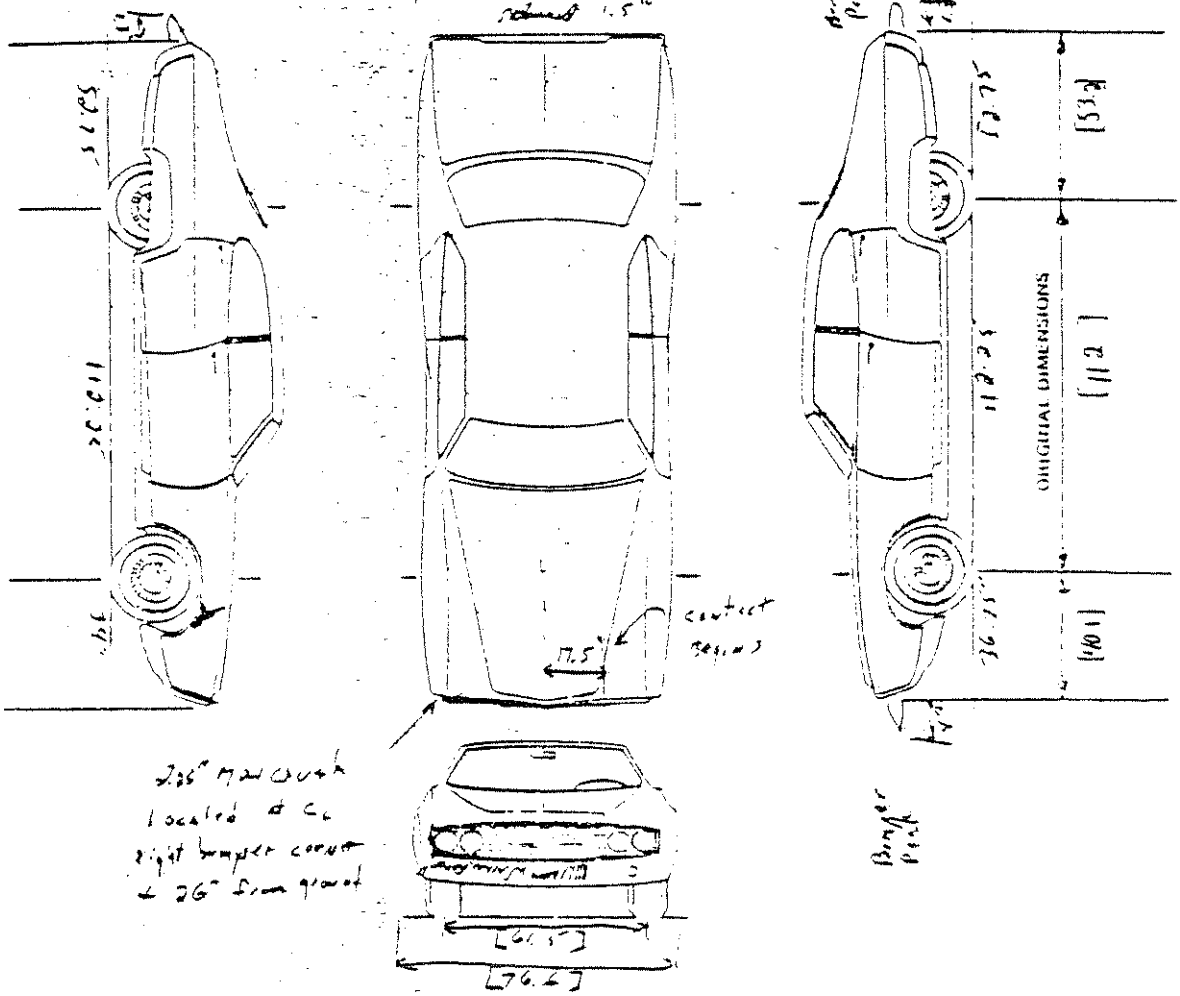
RR = N A

LR = N A

Within ± 5°

Left front bumper EAD - depressed backward 2.2"

Right front bumper EAD - depressed backward 1.5"



Impact Number	L	C_1	C_2	C_3	C_4	C_5	C_6	D
1	59.5	0.5	0.5	1.25	1.5	1.75	2.25	+9.75
2								
3								
4								

NOTE: MEASURE C_1 TO C_6 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS; REAR TO FRONT IN SIDE IMPACTS

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TABLE 12-1
TEST NO. 6 - CAR NO. 1

VEHICLE DATA

TEAM	YEAR	MONTH	DAY	SEQUENCE
1	8	0 5	2 2	

Vehicle data not collected. Reason? _____

Vehicle No. 1 — 14-15 No. of VIN Characters 1 3

16-22 VIN (Left Justify, Omit Production Numbers) ID 3 7 H 4 1 4 6 7 2 3 1

23-27 Make/Model (CPIR Code) CHEVROLET - MALIBU CLASSIC - 2 Dr. 1 1 3 0 1

28-32 Mileage (Odometer Reading) 99998 = 99998 mi. or more; 99999 = Unknown — — — — —.

33-34 Model Year 7 4

35-36 BODY STYLE

Automobiles		Trucks		Other	
Passenger Car	(01)	Van - Passenger	05	School Bus	11
Stationwagon	02	- Cargo	06	Other Bus	12
Convertible	03	Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04	Pickup	08	Other Body Style	98
		Straight Truck	09	Unknown	99
		Tractor-Trailer	10		

VEHICLE WEIGHT

37-39 Curb 3,600

40-42 Occupant and Cargo Only 0 0

43 TOWING ANOTHER VEHICLE: Yes 1; No (2); Unknown 9

VEHICLE DAMAGE

	Object Contacted	CDC	Veh. No.	Impact No.
44-54 (1)	0 1	1 1 F 2 E W 1	2	1
55-65 (2)				
(3)				
(4)				

(1) = Highest Severity (Estimated ΔV)

66 VEHICLE TOWED FROM SCENE: FORK LIFT — Yes 1; No (2); Unknown 9

67 SOURCE OF VEHICLE DATA

- Inspection at Repair or Tow Facility (1)
- Inspection at Person's Home 2
- Inspection at Scene 3
- Not Inspected (Photos or Repair Data) 4
- Not Inspected. Reason. _____ 5
- Unknown 9

68 VEHICLE INSPECTION

- Not Inspected 0
- Inspected on First Visit (1)
- Actual Number of Locations Visited (Including Follow-Ups to Same Location): 2, 3, 4, 5, 6, 7
- 8 or More 8
- Unknown 9

69 APPLICABLE VEHICLE: Yes (1); No 2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED ON THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

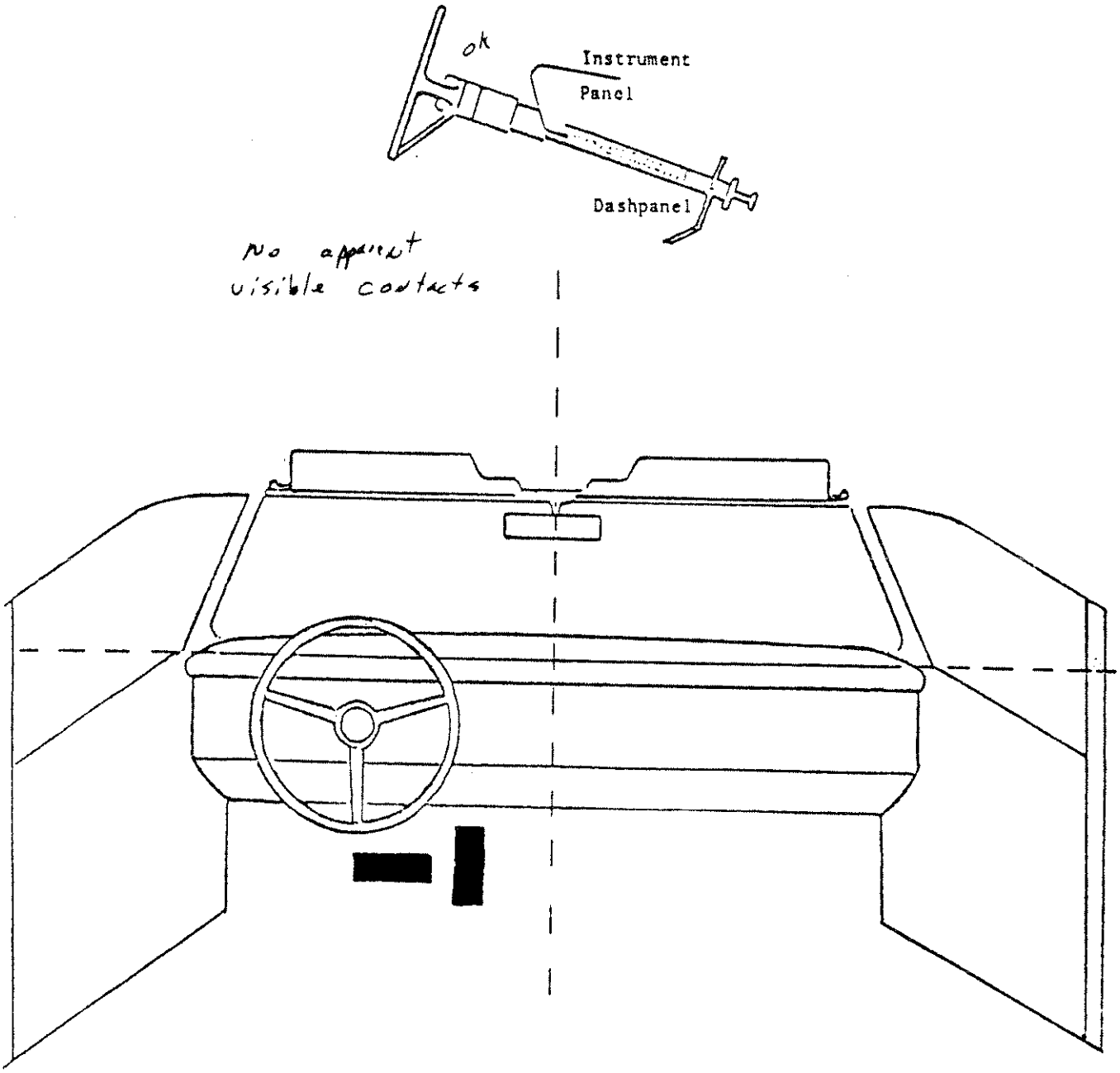
Figure 12-3

OCCUPANT CONTACT DATA

TEST NO. 6 - CAR NO. 1

VEHICLE INTERIOR

Occupant Contacts



Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and code on next two pages. Dash lines indicate center of instrument panel-windshield area and top of panel for measurement purposes.

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TABLE 12-2

TEST NO. 6 - CAR NO. 2

TEAM	YEAR	MONTH	DAY	SEQUENCE
1	8	0 5	2 2	

VEHICLE DATA

Vehicle data not collected. Reason? _____

Vehicle No. 2

14-15 No. of VIN Characters 1 0

16-22 VIN (Left Justify, Omit Production Numbers) 1 7 5 3 2 1 0 4 5 6

23-27 Make/Model (CPIR Code) VOLKSWAGEN RABBIT 6 6 1 0 9

28-32 Mileage (Odometer Reading) 99998 = 99998 mi. or more; 99999 = Unknown ____,

33-34 Model Year 7 5

35-36 BODY STYLE

Automobiles		Trucks		Other	
Passenger Car	01	Van - Passenger	05	School Bus	11
Stationwagon	02	- Cargo	06	Other Bus	12
Convertible	03	Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04	Pickup	08	Other Body Style	98
		Straight Truck	09	Unknown	99
		Tractor-Trailer	10		

37-39 VEHICLE WEIGHT Curb 1 8, 0 0

40-42 Occupant and Cargo Only ___, 0 0

43 TOWING ANOTHER VEHICLE: Yes 1; No (2); Unknown 9

VEHICLE DAMAGE

	Object Contacted	CDC	Veh. No.	Impact No.
44-54 (1)	0 3	0 2 R D E W 3	1	1
55-65 (2)				
(3)				
(4)				

(1) = Highest Severity (Estimated ΔV)

66 VEHICLE TOWED FROM SCENE FORK LIFTED: Yes (1); No 2; Unknown 9

67 SOURCE OF VEHICLE DATA

- Inspection at Repair or Tow Facility (1)
- Inspection at Person's Home 2
- Inspection at Scene 3
- Not Inspected (Photos or Repair Data) 4
- Not Inspected. Reason. _____ 5
- Unknown 9

68 VEHICLE INSPECTION

- Not Inspected 0
- Inspected on First Visit (1)
- Actual Number of Locations Visited (Including Follow-Ups to Same Location): 2, 3, 4, 5, 6, 7
- 8 or More 8
- Unknown 9

69 APPLICABLE VEHICLE: Yes (1); No 2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED ON THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

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Figure 12-4
VEHICLE CRUSH SCHEMATIC
TEST NO. 6 - CAR NO. 2

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

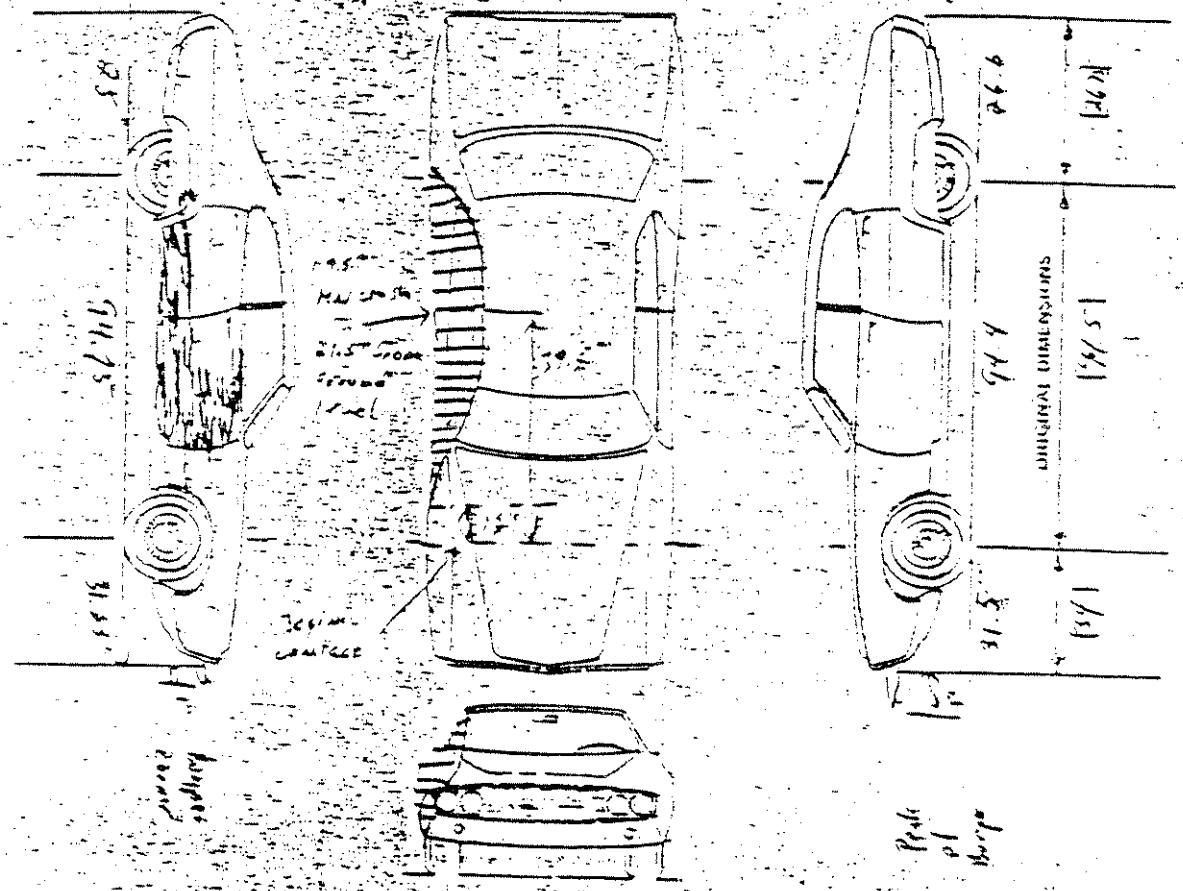
1 Yes, 2 No, 3 NA, * Est.

WHEEL STEER ANGLES*

(For locked front wheels or displaced rear axles only)

RF
LF
RR
LR

Within ± 5°



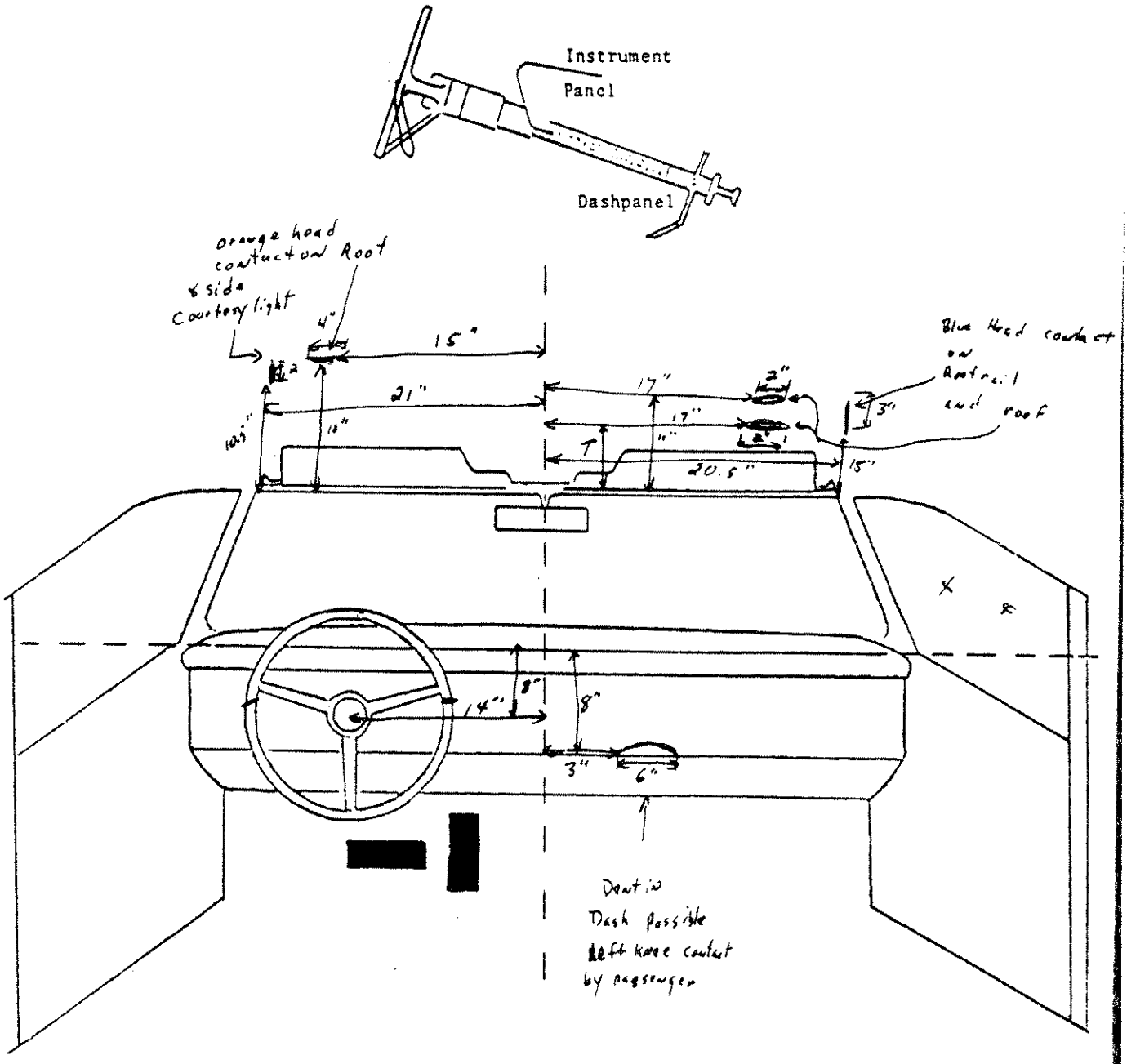
Impact Number	L	C_1	C_2	C_3	C_4	C_5	C_6	D_1
1	77	40	3	17.9	19.2	17	8.2	-3.2
2								
3								
4								

NOTE: MEASURE D_1 TO D_3 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS; REAR TO FRONT IN SIDE IMPACTS

Figure 12-5
OCCUPANT CONTACT DATA
TEST NO. 6 - CAR NO. 2

VEHICLE INTERIOR

Occupant Contacts



Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and code on next two pages. Dash lines indicate center of instrument panel-windshield area and top of panel for measurement purposes.

2/77

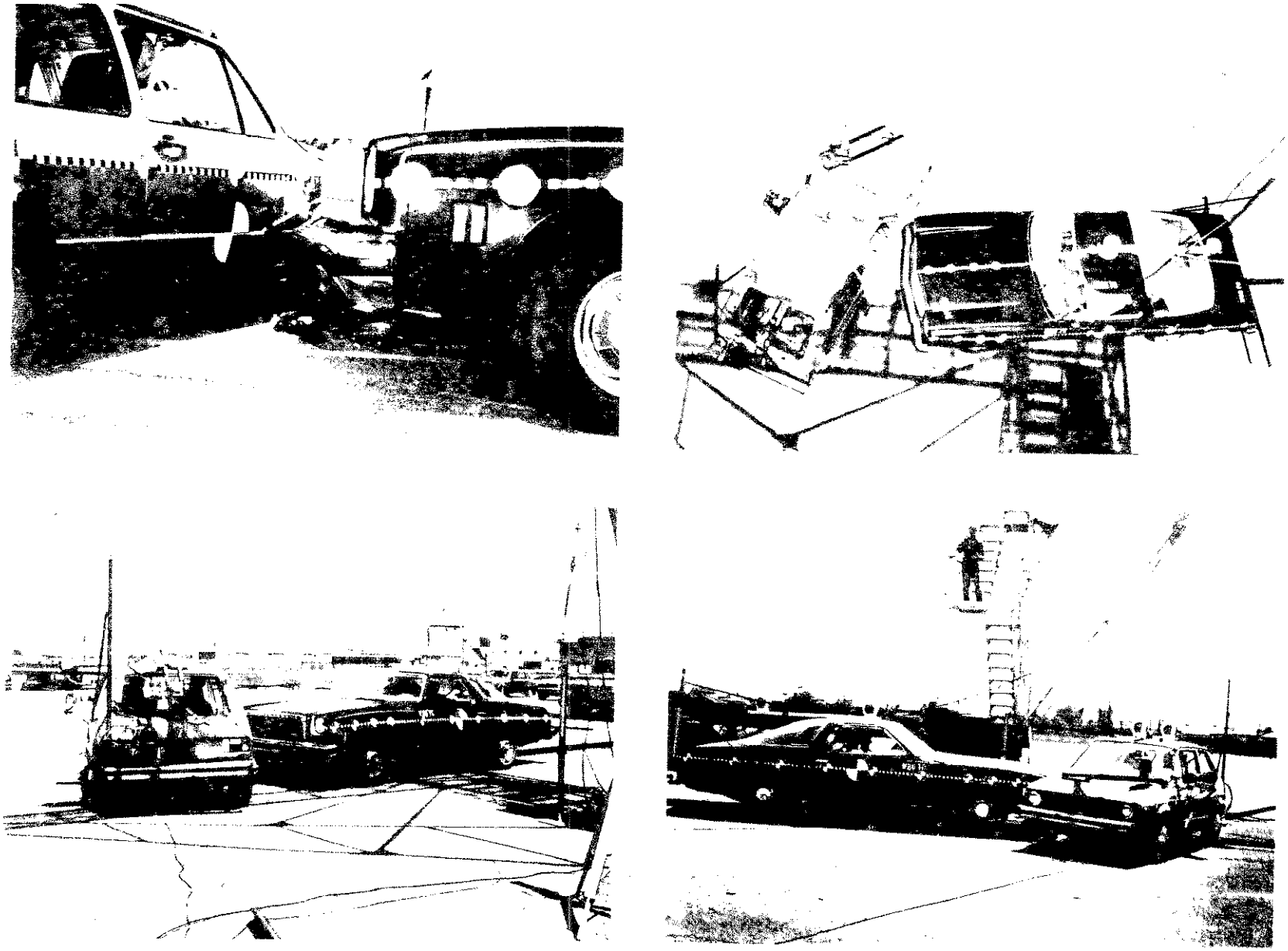


Figure 12-6 TEST NO. 6 – PRE TEST COLLISION CONFIGURATION

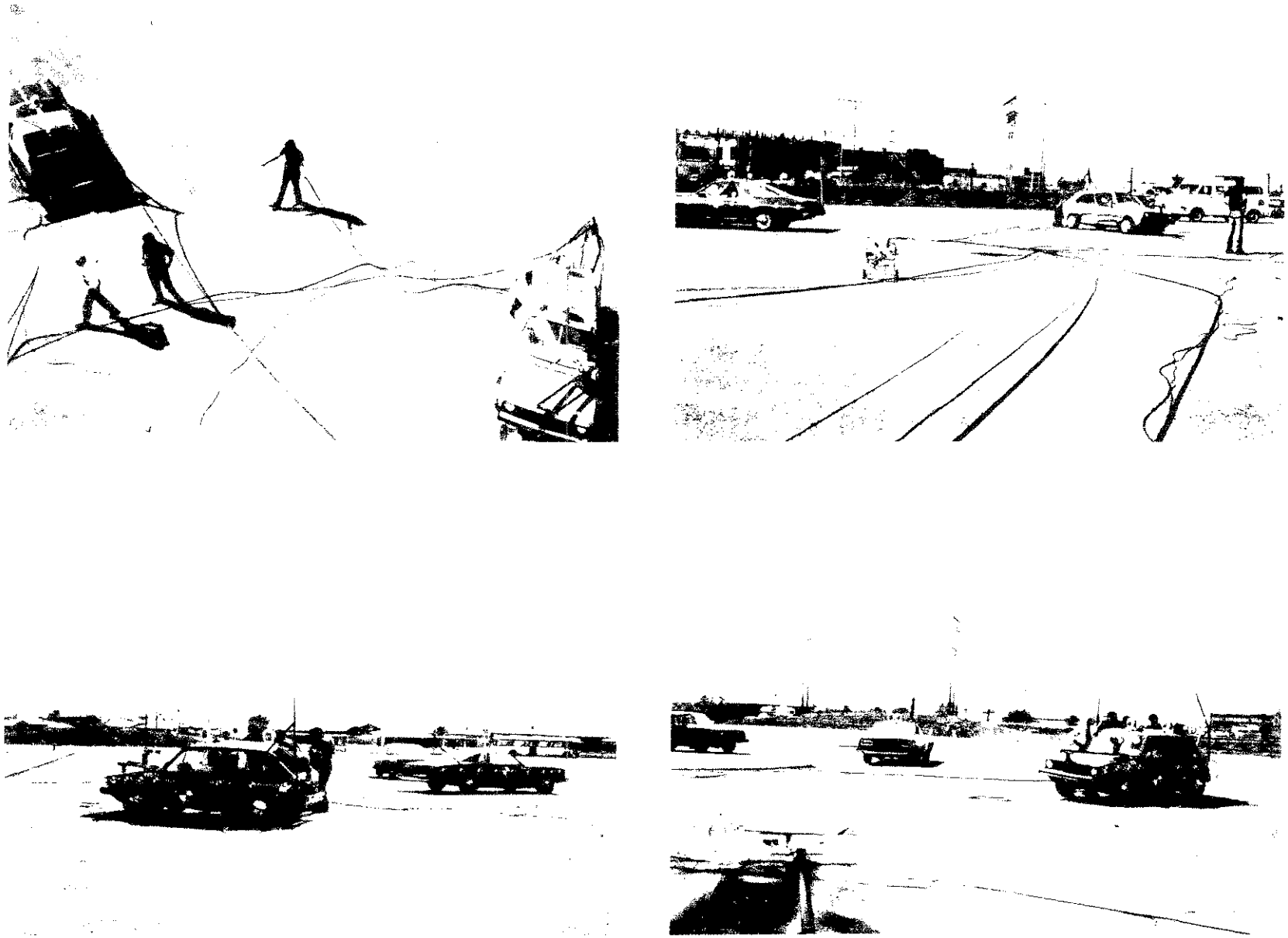


Figure 12-7 TEST NO. 6 – POST TEST COLLISION SCENE

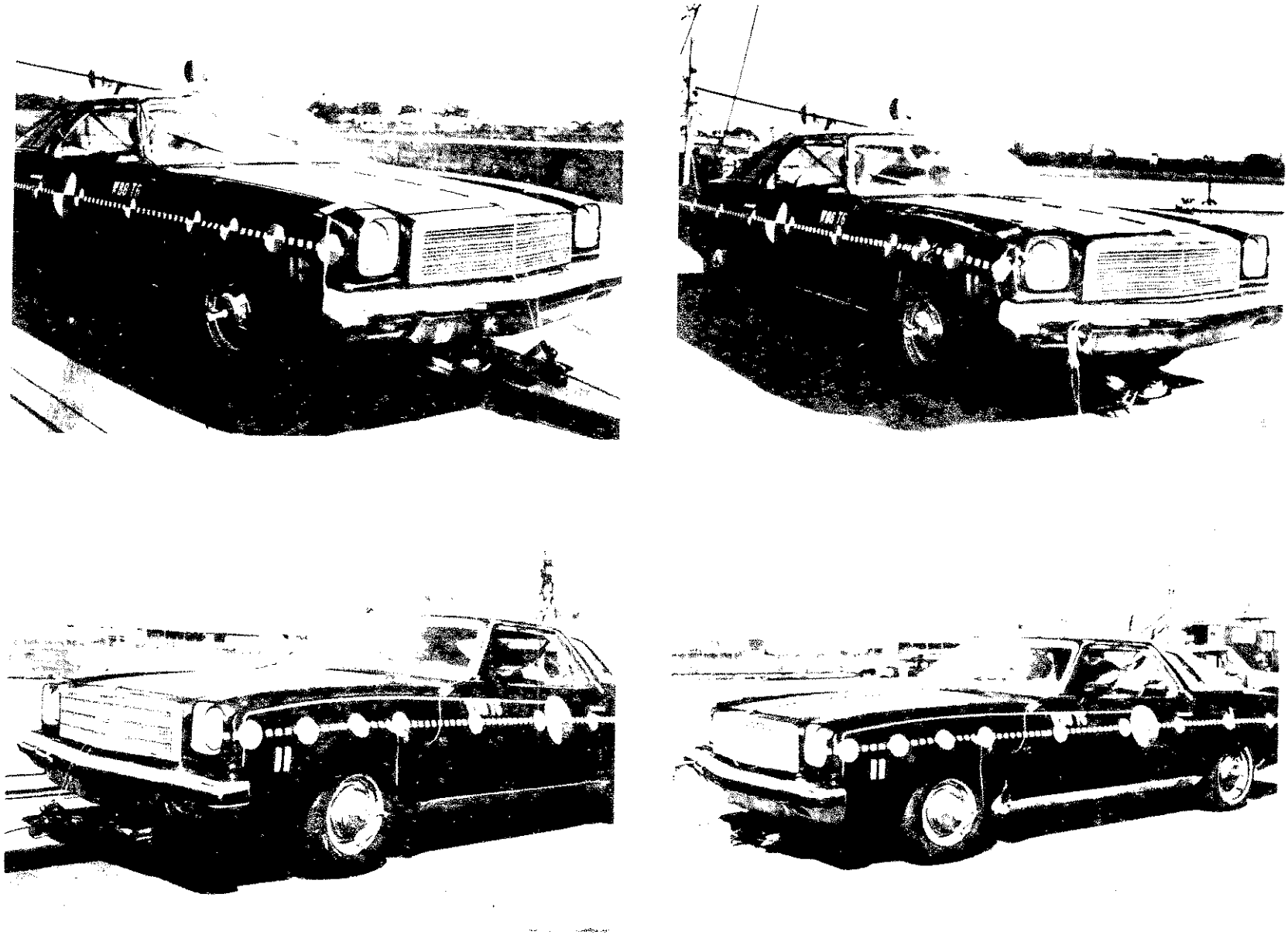


Figure 12-8 TEST NO. 6 -- PRE AND POST EXTERIOR VIEWS, CAR NO. 1 - CHEVELLE

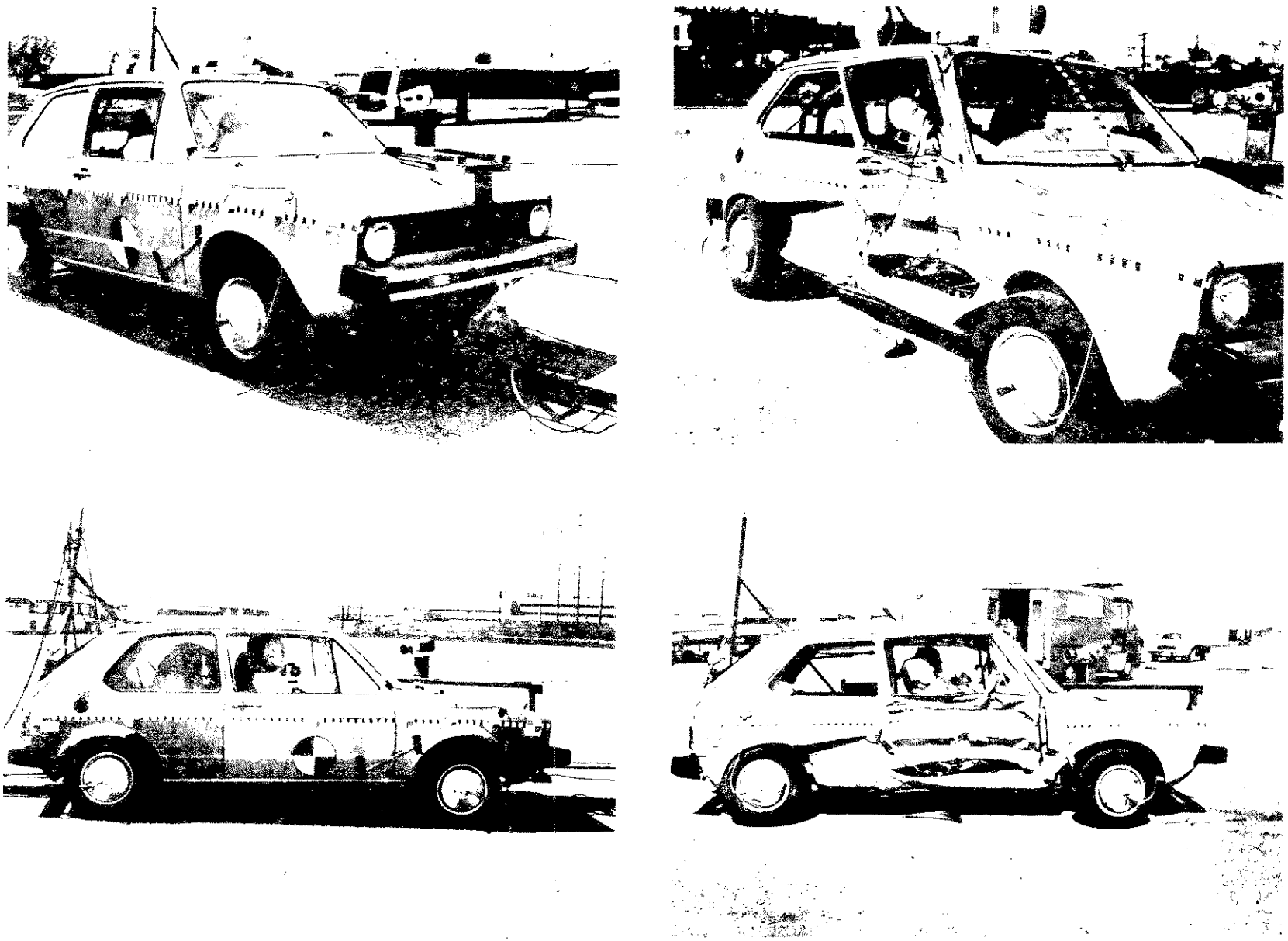


Figure 12-9 TEST NO. 6 – PRE AND POST EXTERIOR VIEWS, CAR NO. 2 - VW RABBIT

Figure 12-10 TEST NO. 6 – PRE AND POST INTERIOR VIEWS, CAR NO. 1 - CHEVELLE

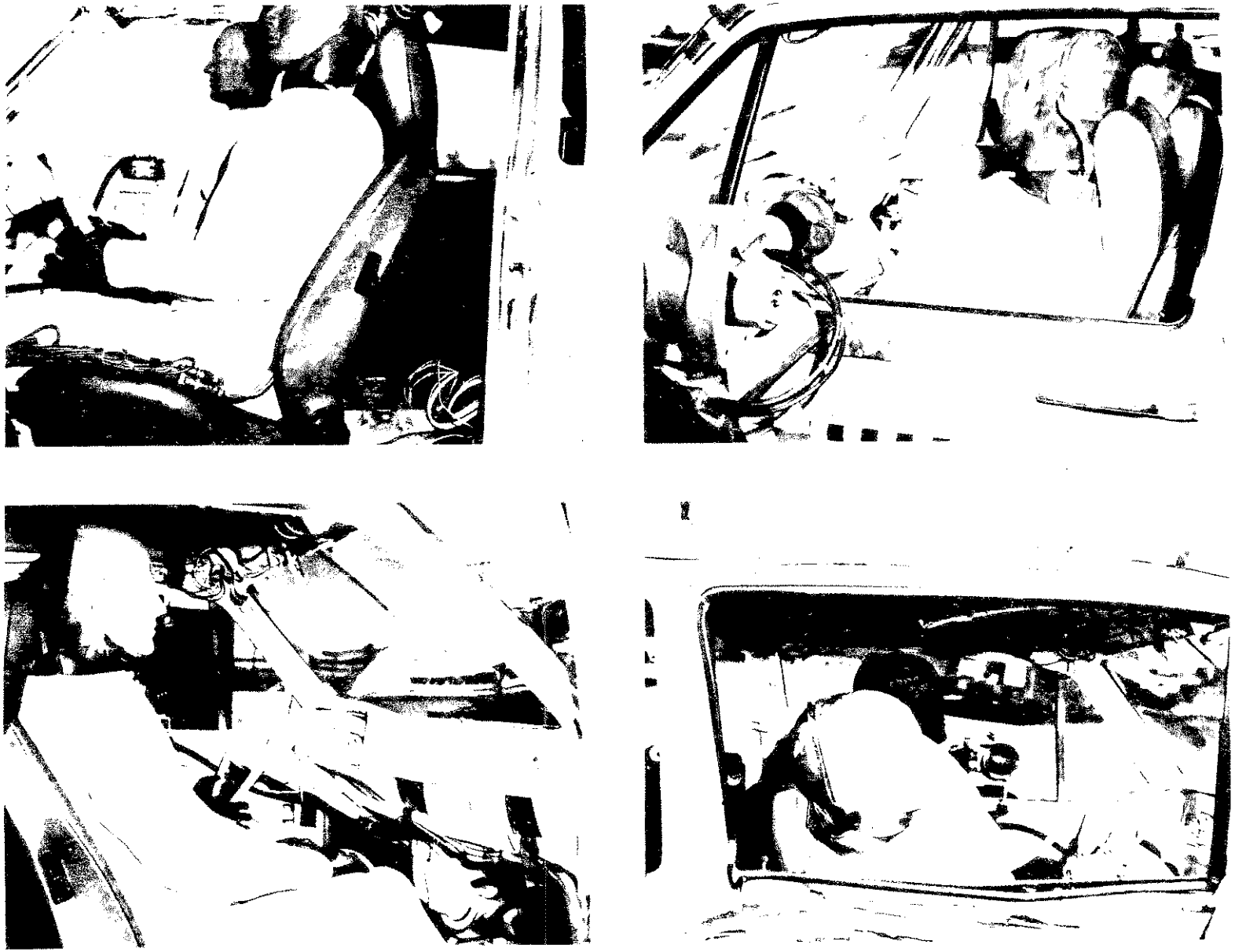


Figure 12-11 TEST NO. 6 – PRE AND POST INTERIOR VIEWS, CAR NO. 2 - VW RABBIT

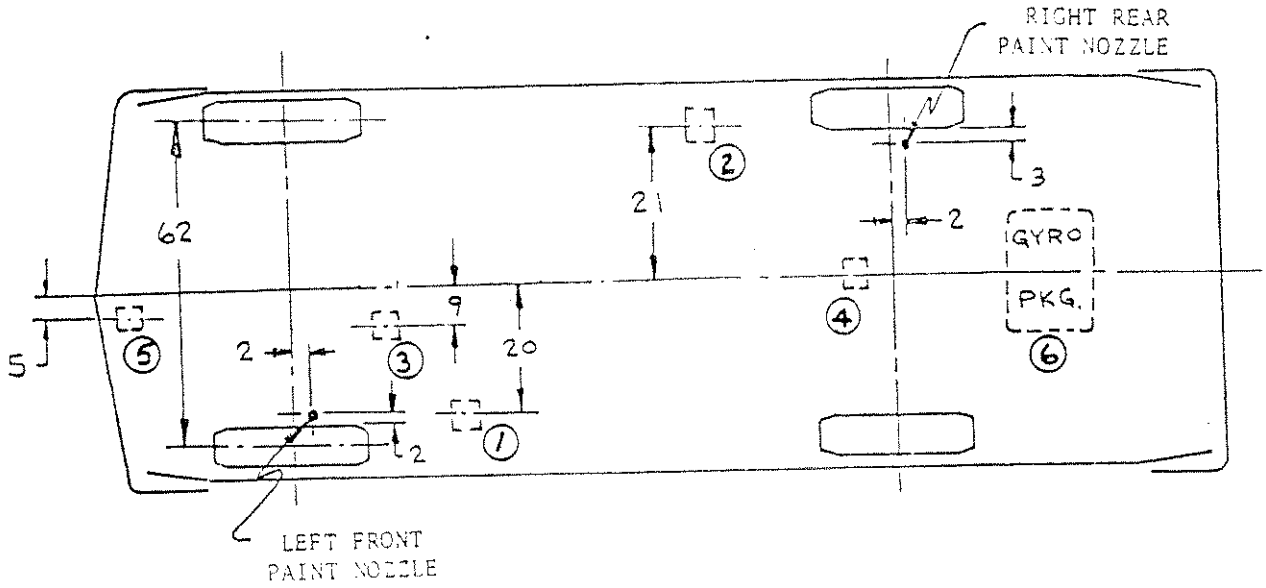
TABLE 12-3

ELECTRONIC INSTRUMENTATION TEST No. 6

BULLET VEHICLE - CAR 1 - 1974 Chevelle

TRANSDUCER DESCRIPTION OR ACCELEROMETER LOCATION *	DIRECTION OF PARAMETER BEING MEASURED	LOCATION ON VEHICLE	DESCRIPTION LISTED ON DATA PLOTS
VEHICLE ACCELEROMETER			
1	X,Y,Z	Floorpan L.F. Corner	Left Front Corner
2	X,Y,Z	Floorpan R.R. Corner	Right Rear Corner
3	X,Y,Z	Firewall	Firewall
4	X,Y,Z	Rear Deck	Rear Deck
5	X	Bumper	Bumper
VEHICLE ATTITUDE			
Pitch Angle - 6		Gyro Package	Vehicle Pitch Angle
Roll Angle - 6		Gyro Package	Vehicle Roll Angle
Yaw Angle - 6		Gyro Package	Vehicle Yaw Angle
Yaw Rate Angle - 6		Gyro Package	Vehicle Yaw Rate
Steer Angle		Front Wheels	Steer Angle - Front Wheels
R.F. Wheel Velocity		R.F. Wheel Axle	R.F. Wheel Velocity
L.F. Wheel Velocity		L.F. Wheel Axle	L.F. Wheel Velocity
R.R. Wheel Velocity		R.R. Wheel Axle	R.R. Wheel Velocity
L.R. Wheel Velocity		L.R. Wheel Axle	L.R. Wheel Velocity

*SEE FIGURE 12-12 VEHICLE INSTRUMENTATION LOCATIONS



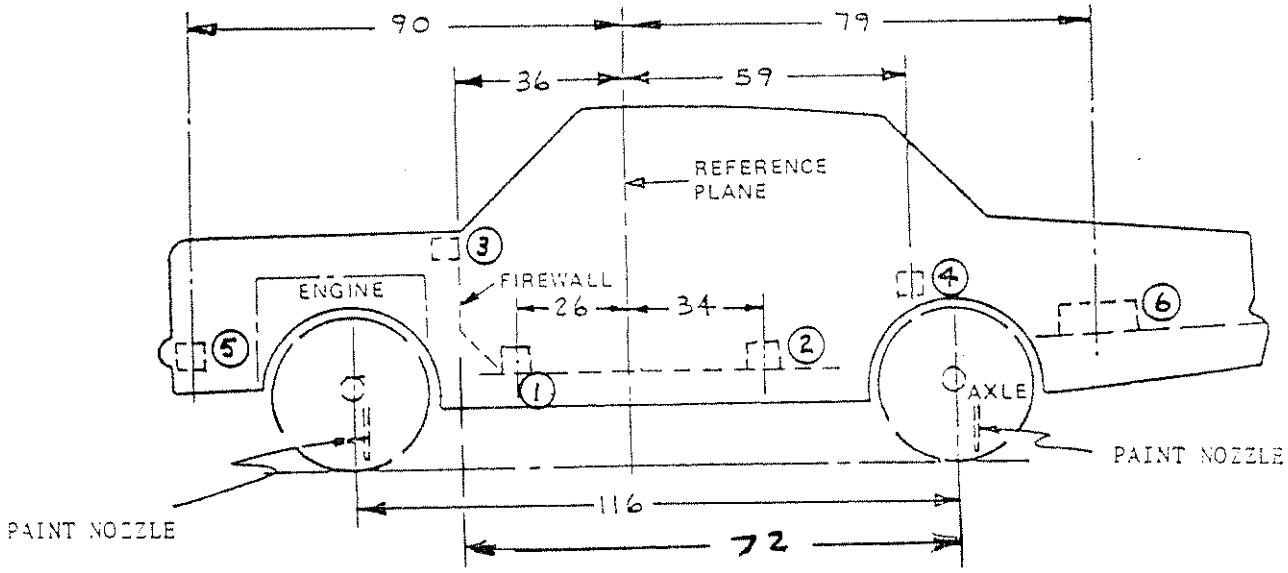


Figure 12-12 VEHICLE INSTRUMENTATION LOCATIONS

CAR NO. 1 - 1974 CHEVELLE - TEST NO. 6

TABLE 12-4

ELECTRONIC INSTRUMENTATION TEST No. 6

TARGET VEHICLE - CAR 2 - 1975 VW 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	Floorpan L.F. Corner	L.F. Corner
2	X,Y,Z	Floorpan L.R. Corner	L.R. Corner
3	X,Y,Z	Firewall	Firewall
4	X,Y,Z	Rear Deck	Rear Deck
5	Y	Left Front Door	Left Front Door
6	Y	Upper Right Front Door	Upper Right Front Door
7	Y	Lower Right Front Door	Lower Right Front Door
VEHICLE ATTITUDE			
Pitch Angle - θ		Gyro Package	Vehicle Pitch Angle
Roll Angle - θ		Gyro Package	Vehicle Roll Angle
Yaw Angle - θ		Gyro Package	Vehicle Yaw Angle
Yaw Rate Angle - θ		Gyro Package	Vehicle Yaw Rate
Steer Angle		Front Wheels	Steer Angle - Front Wheels
R.F. Wheel Velocity		R.F. Wheel Axle	R.F. Wheel Velocity
L.F. Wheel Velocity		L.F. Wheel Axle	L.F. Wheel Velocity
R.R. Wheel Velocity		R.R. Wheel Axle	R.R. Wheel Velocity
L.F. Wheel Velocity		L.R. Wheel Axle	L.R. Wheel Velocity
DUMMY			
L.F. Head	X,Y,Z	L.F. Seat	Dummy L.F. Head
L.F. Chest	X,Y,Z	L.F. Seat	Dummy L.F. Chest
L.F. Femurs	R,L**	L.F. Seat	Dummy L.F. Femur
L.F. Pelvic	Y	L.F. Seat	Dummy L.F. Pelvic
R.F. Head	X,Y,Z	R.F. Seat	Dummy R.F. Head
R.F. Chest	X,Y,Z	R.F. Seat	Dummy R.F. Chest
R.F. Femurs	R,L**	R.F. Seat	Dummy R.F. Femur
R.F. Pelvic	Y	R.F. Seat	Dummy R.F. Pelvic

* SEE FIGURE 12-13 VEHICLE INSTRUMENTATION LOCATIONS

** RIGHT AND LEFT FORCES

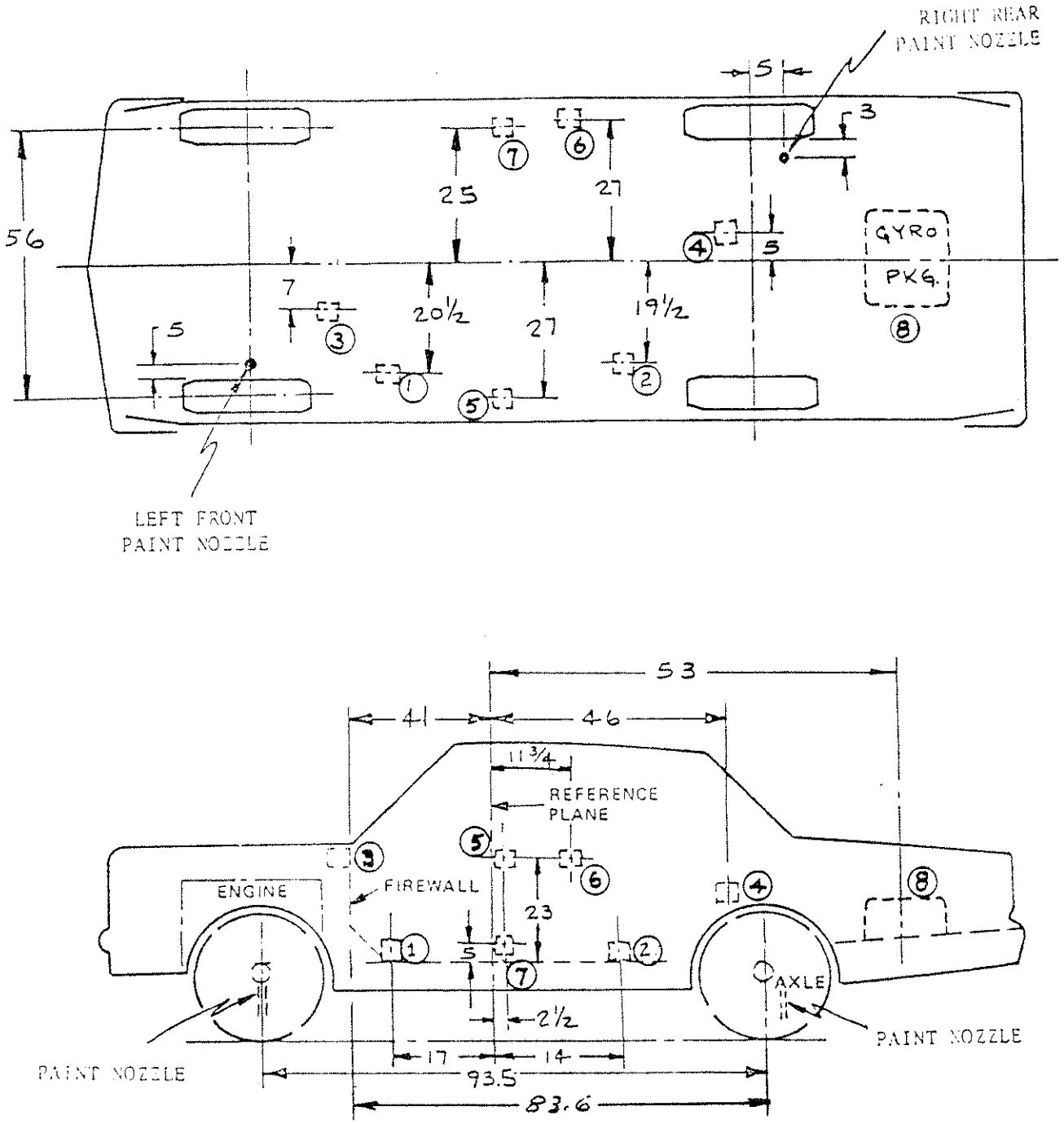


Figure 12-13 VEHICLE INSTRUMENTATION LOCATIONS

CAR 2 - 1975 VW RABBIT - TEST NO. 6

TABLE 12-5

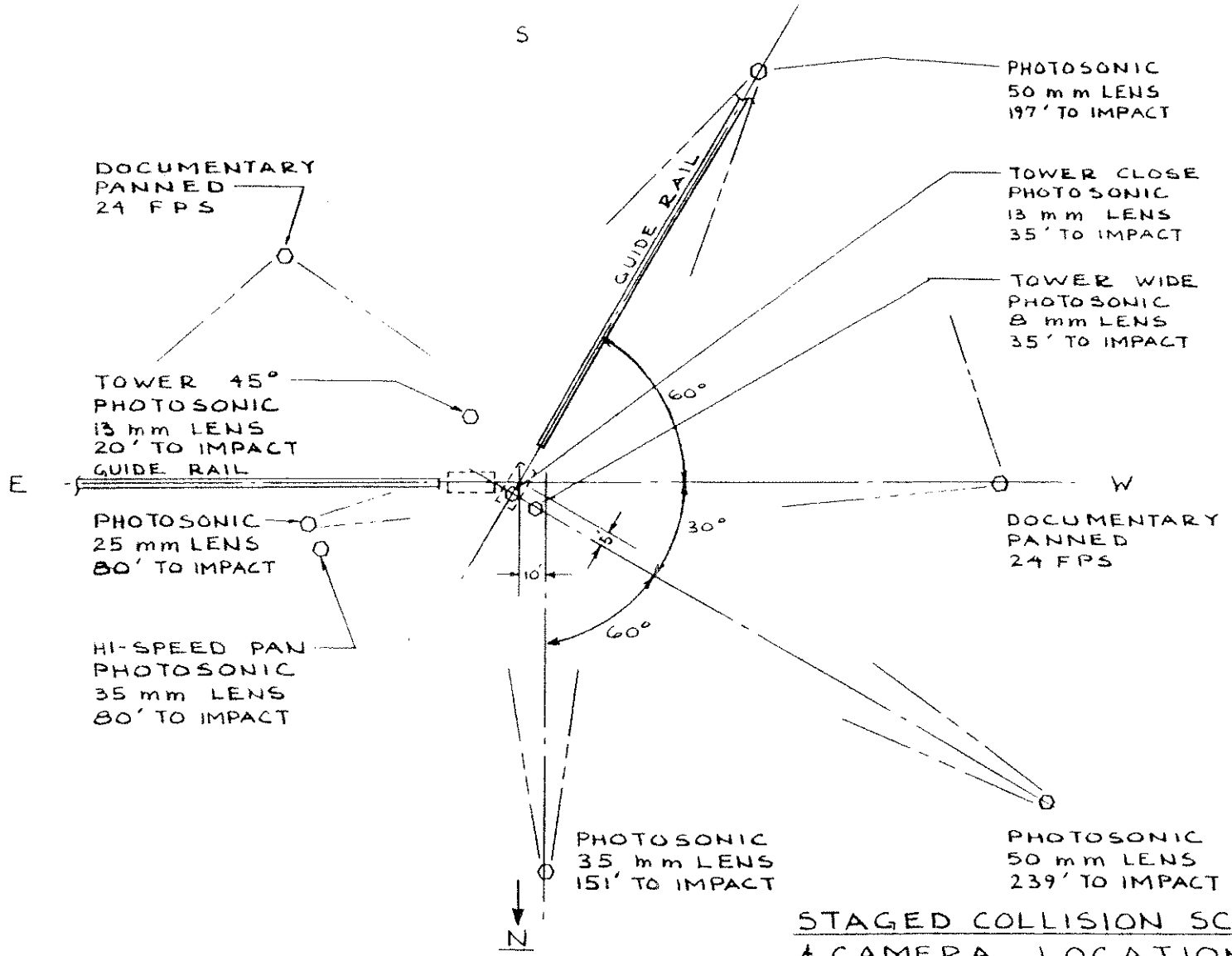
VEHICLE TEST WEIGHTS - TEST NO. 6

CAR 1 - 1974 Chevrolet Chevelle

Left Front	1160 lbs.		Left Rear	980 lbs.	
Right Front	1190 lbs.		Right Rear	980 lbs.	
Total Front	2350 lbs.		Total Rear	1960 lbs.	
Total Weight =	2350 lbs.	+	1960 lbs.	=	4310 lbs.
Wheel Base	111 in.				
Cg_{FW} =	1960 lbs. / 4310 lbs.	111 in.		=	50.48 in.

CAR 2 - 1975 VW Rabbit

Left Front	820 lbs.		Left Rear	620 lbs.	
Right Front	700 lbs.		Right Rear	500 lbs.	
Total Front	1520 lbs.		Total Rear	1120 lbs.	
Total Weight =	1520 lbs.	+	1120 lbs.	=	2640 lbs.
Wheel Base	95 in.				
Cg_{FW} =	1120 lbs. / 2640 lbs.	95 in.		=	40.30 in.



STAGED COLLISION SCENE
& CAMERA LOCATIONS
TESTS 6 & 7

Figure 12-14

TABLE 12-6

HIGH SPEED CAMERA INFORMATION (TEST No. 6)

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)
1	HIGH SPEED PAN	PHOTOSONIC	35 MM	450
2	NORTHEAST	PHOTOSONIC	25 MM	550
3	NORTH	PHOTOSONIC	35 MM	800
4	SOUTH	PHOTOSONIC	50 MM	800
5	NORTHWEST	PHOTOSONIC	50 MM	750
6	TOWER 45	PHOTOSONIC	13 MM	500
7	TOWER CLOSE	PHOTOSONIC	13 MM	300
8	TOWER WIDE	PHOTOSONIC	8 MM	300
9	O.B. DRIVER	STALEX	8 MM	600
10	O.B. HOOD	STALEX	8 MM	800
11	O.B. REAR	STALEX	8 MM	900

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.

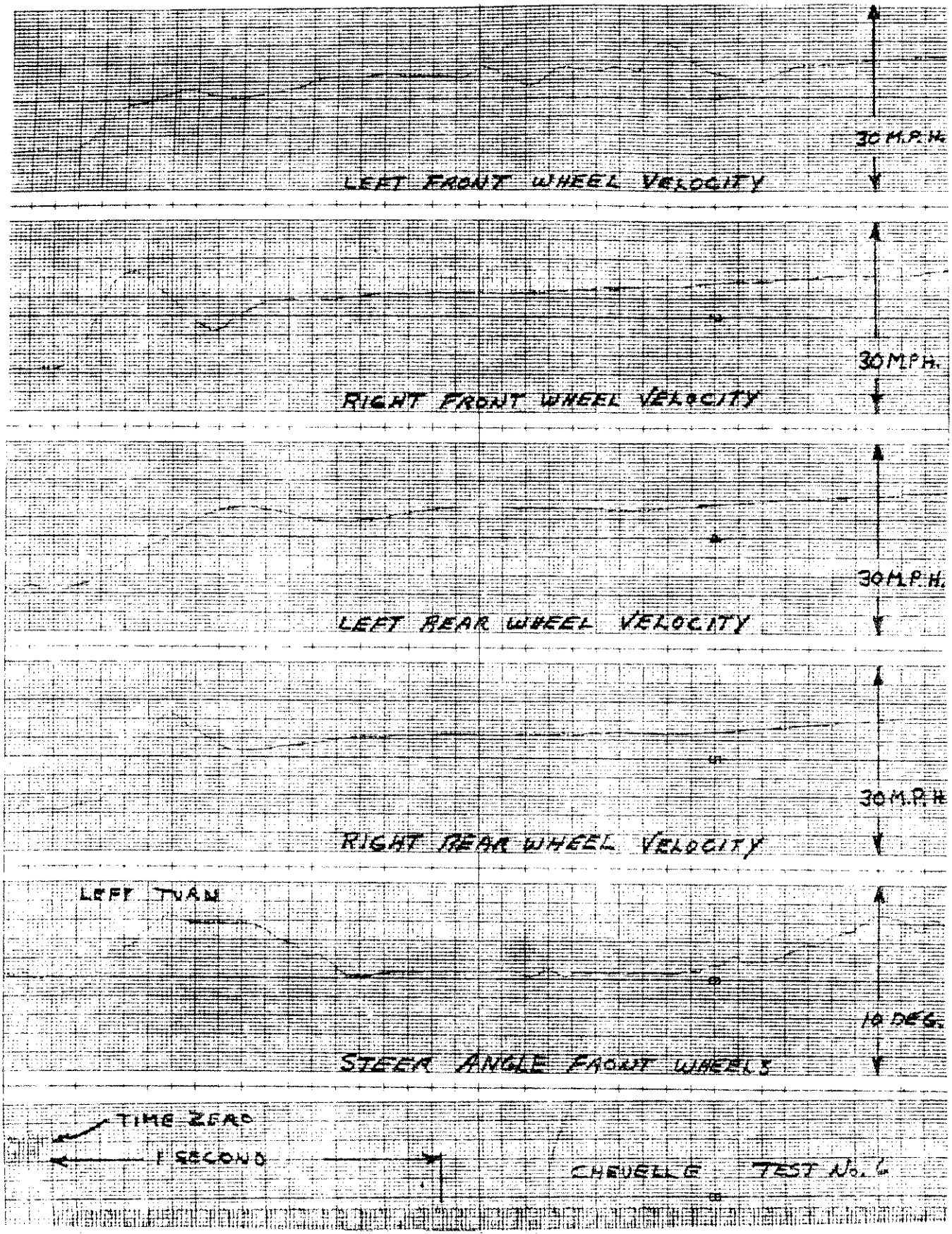


Figure 12-15 TEST NO. 6
CAR NO. 1 WHEEL RESPONSES

ZQ-6057-V-3

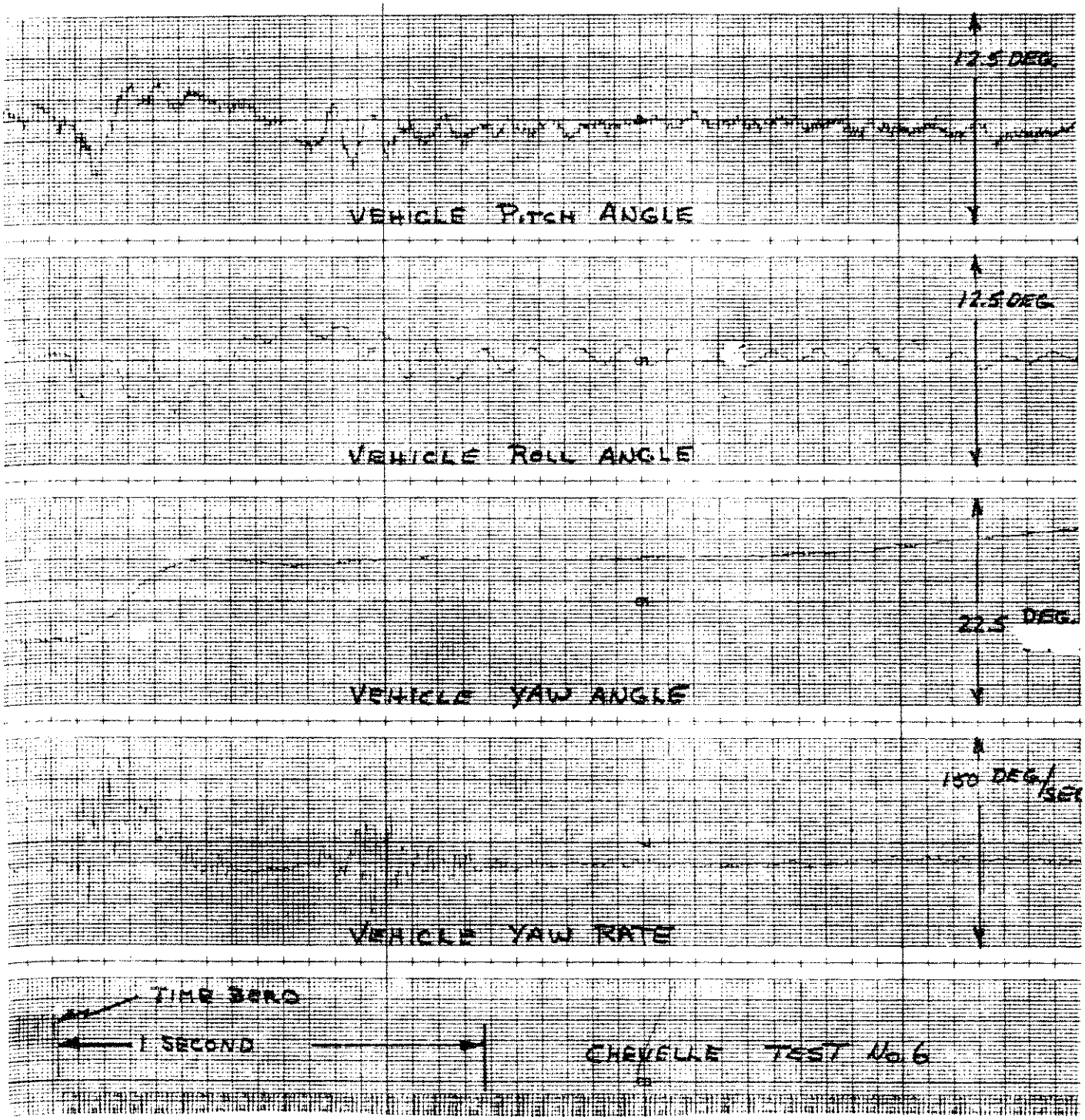


Figure 12-16 TEST NO. 6
CAR NO. 1 VEHICLE ATTITUDE

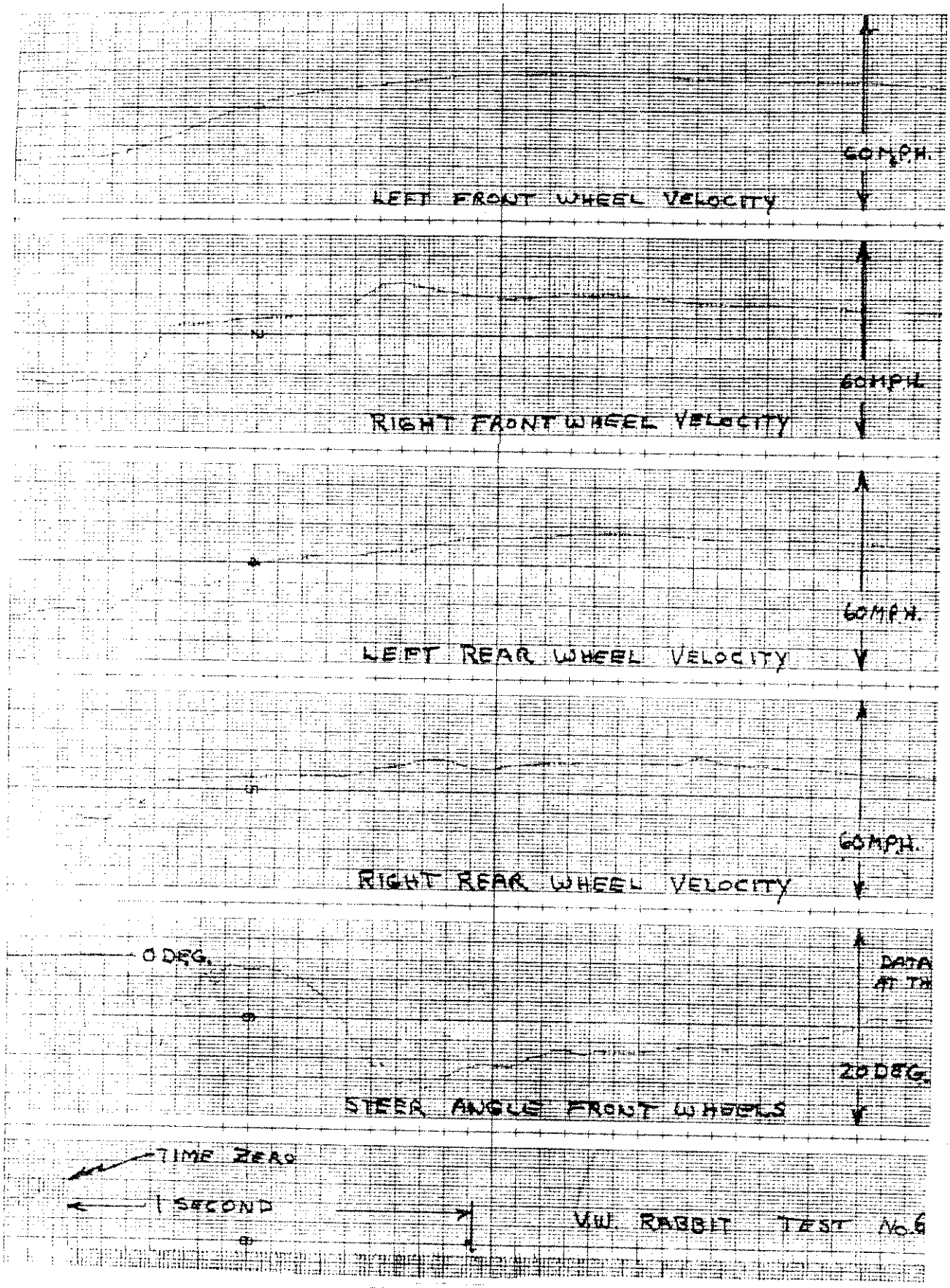


Figure 12-17 TEST NO. 6
CAR NO. 2 WHEEL RESPONSES

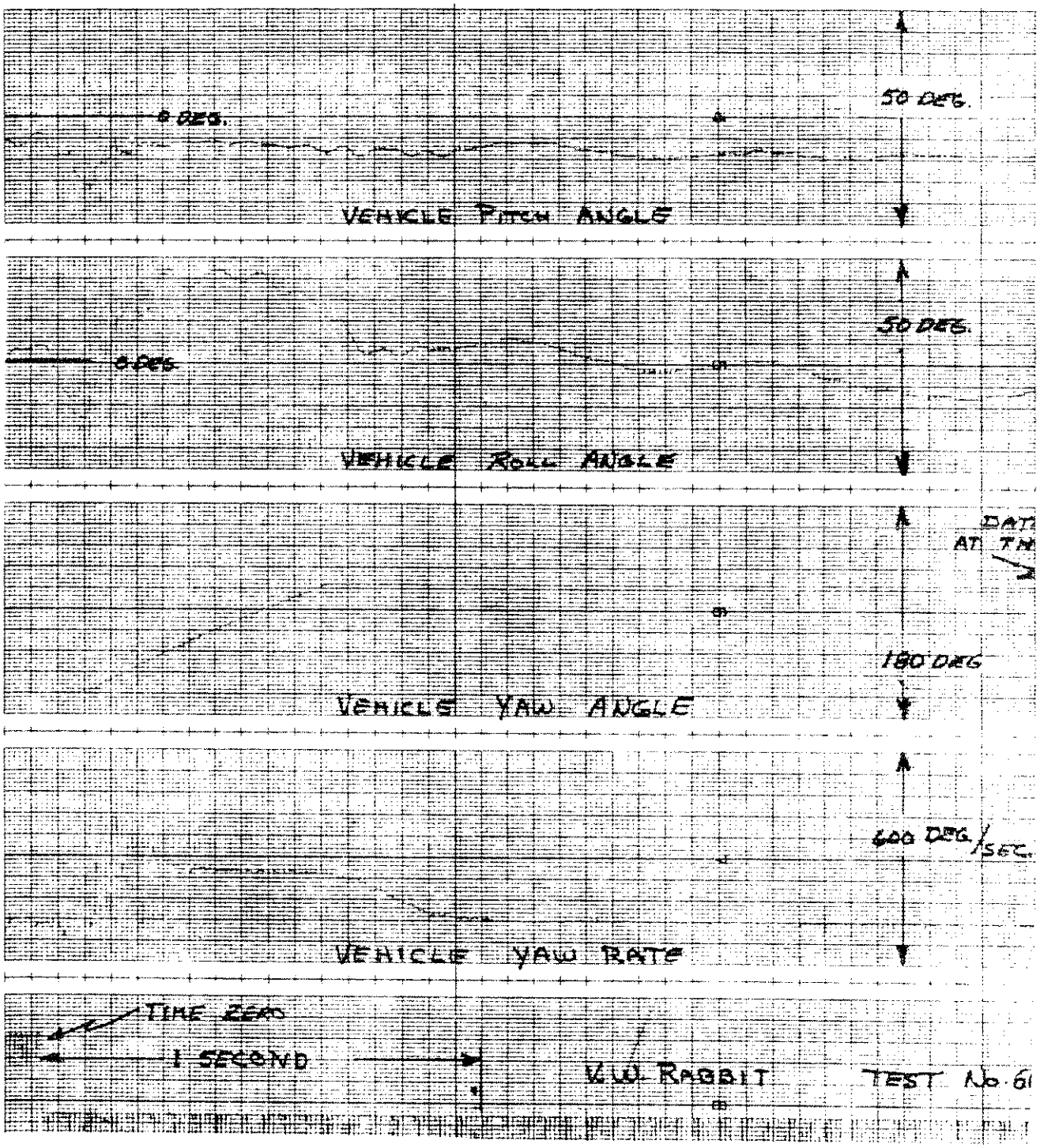


Figure 12-18 TEST NO. 6 - CAR NO. 2
VEHICLE ATTITUDE

RICSAC TEST NO. 6

VEHICLE RESPONSES

CAR NO. 1 CHEVELLE

DATA PLOTS

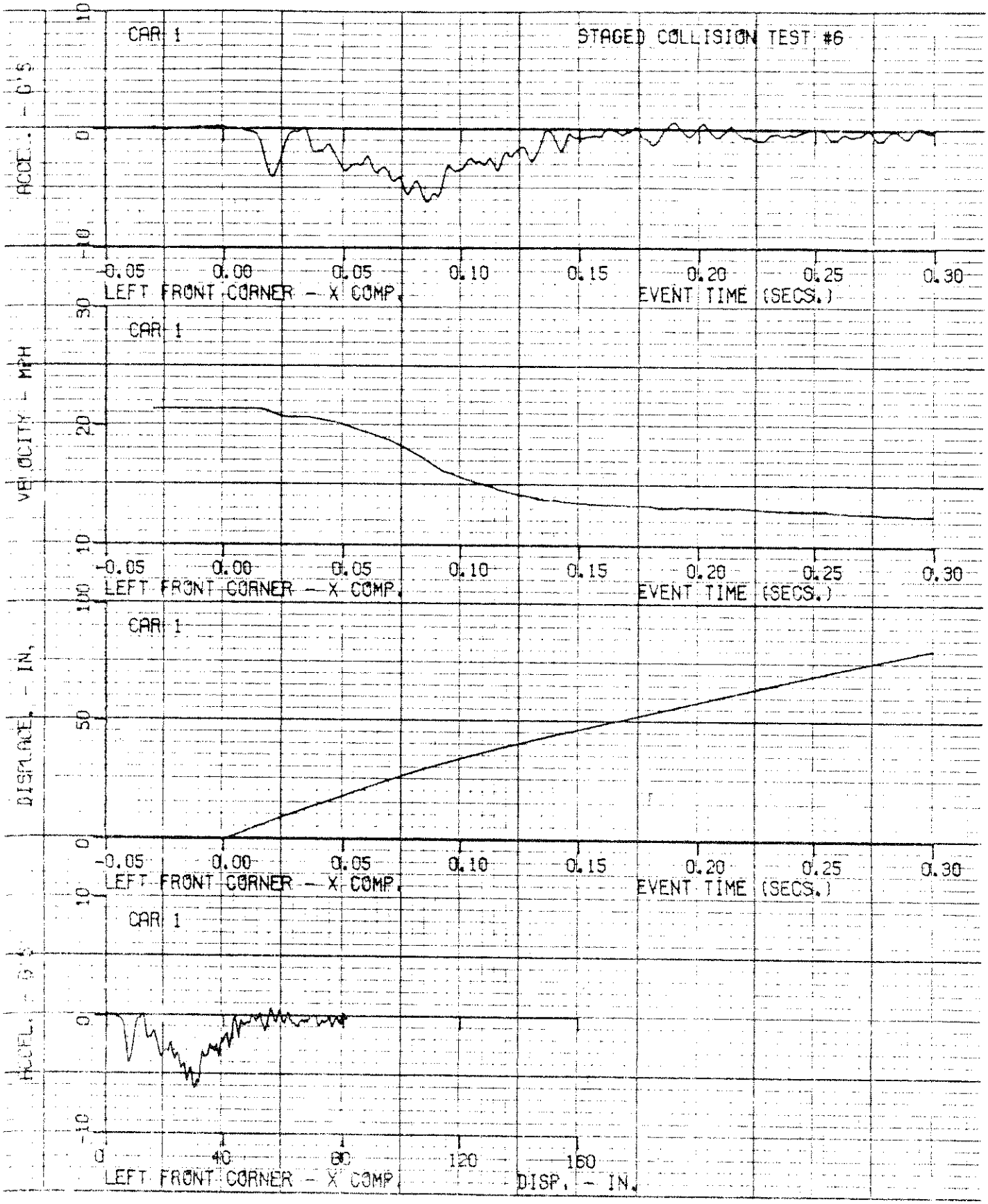
ACCELERATION TIME HISTORIES

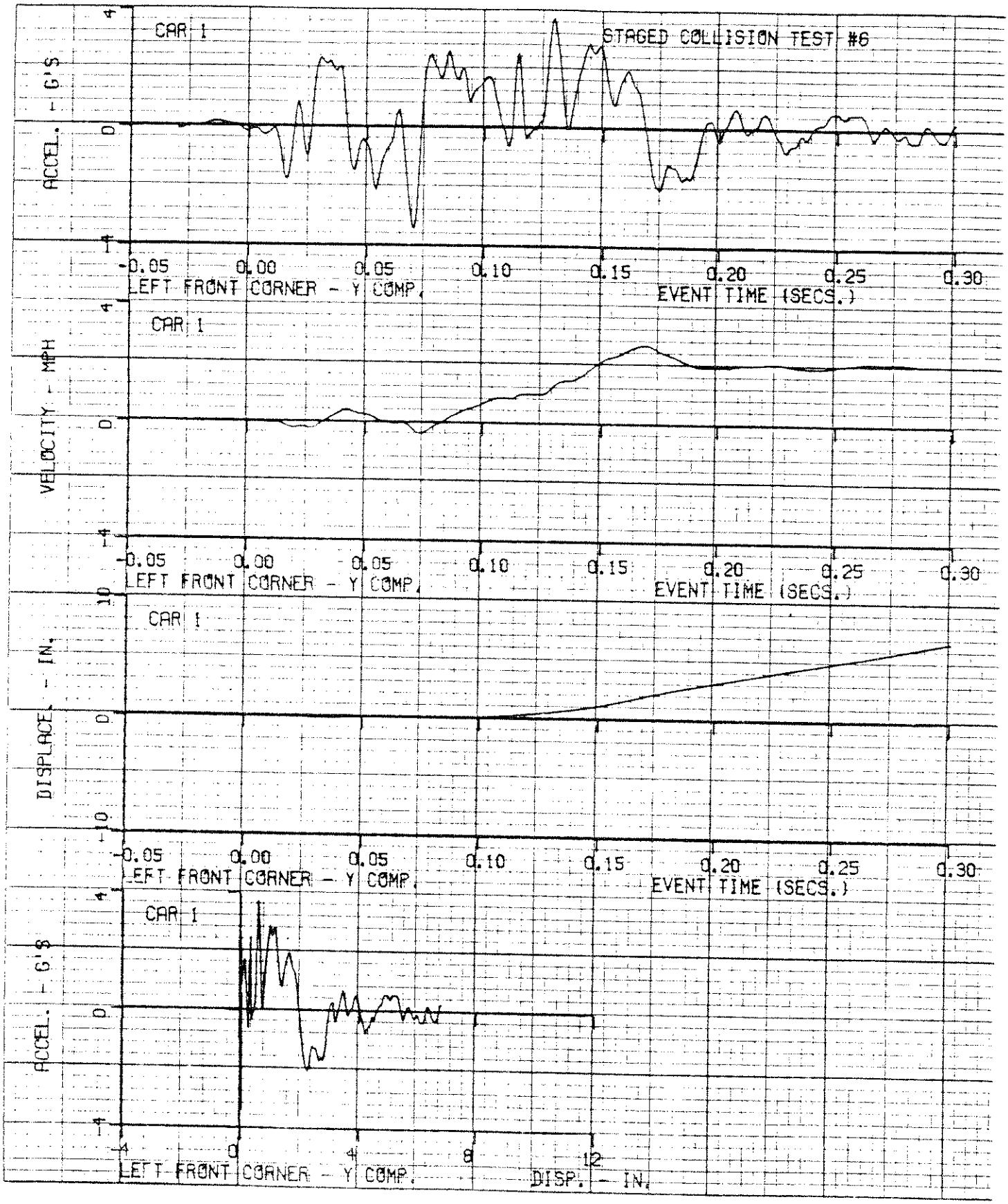
VELOCITY TIME HISTORIES

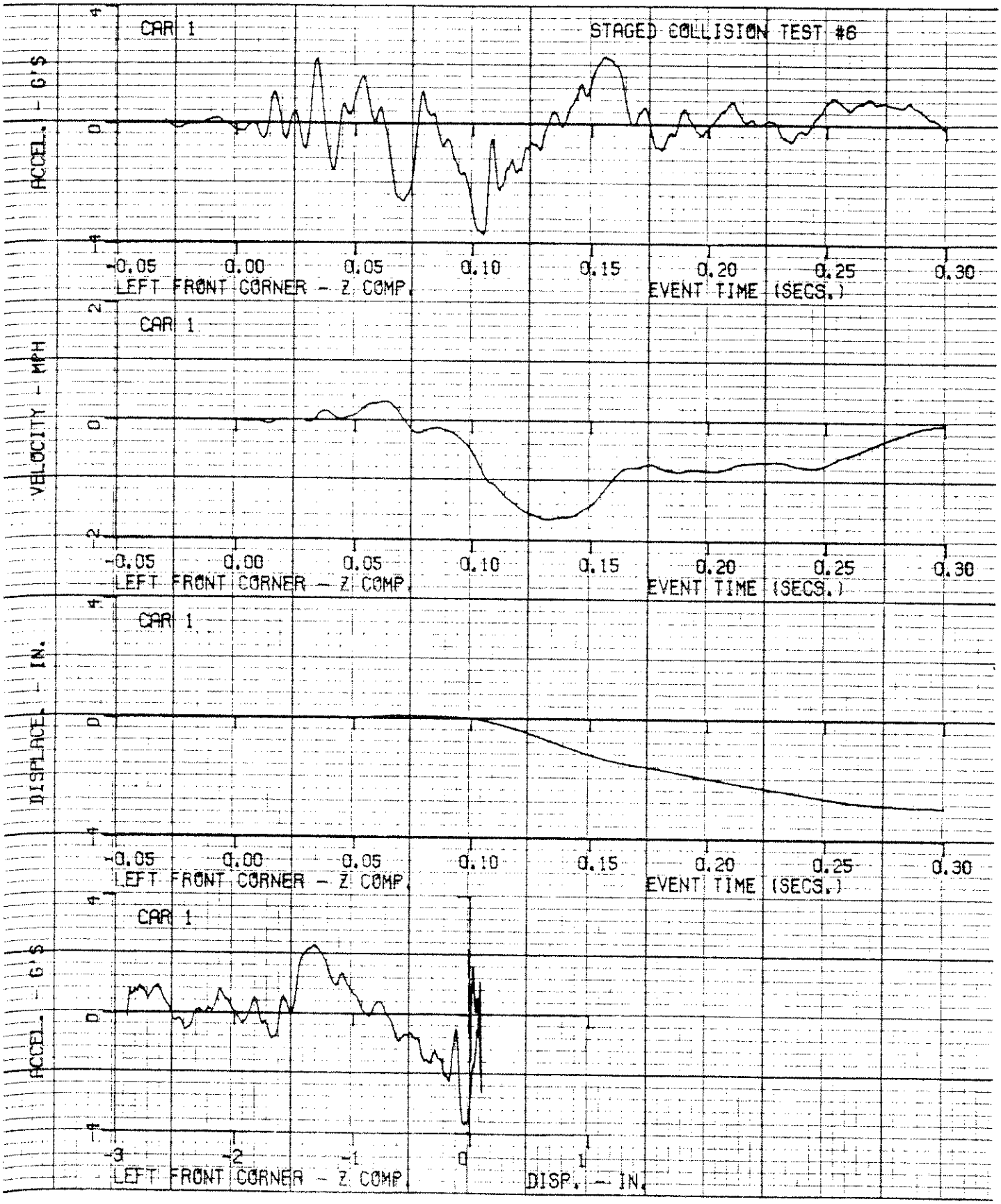
DISPLACEMENT TIME HISTORIES

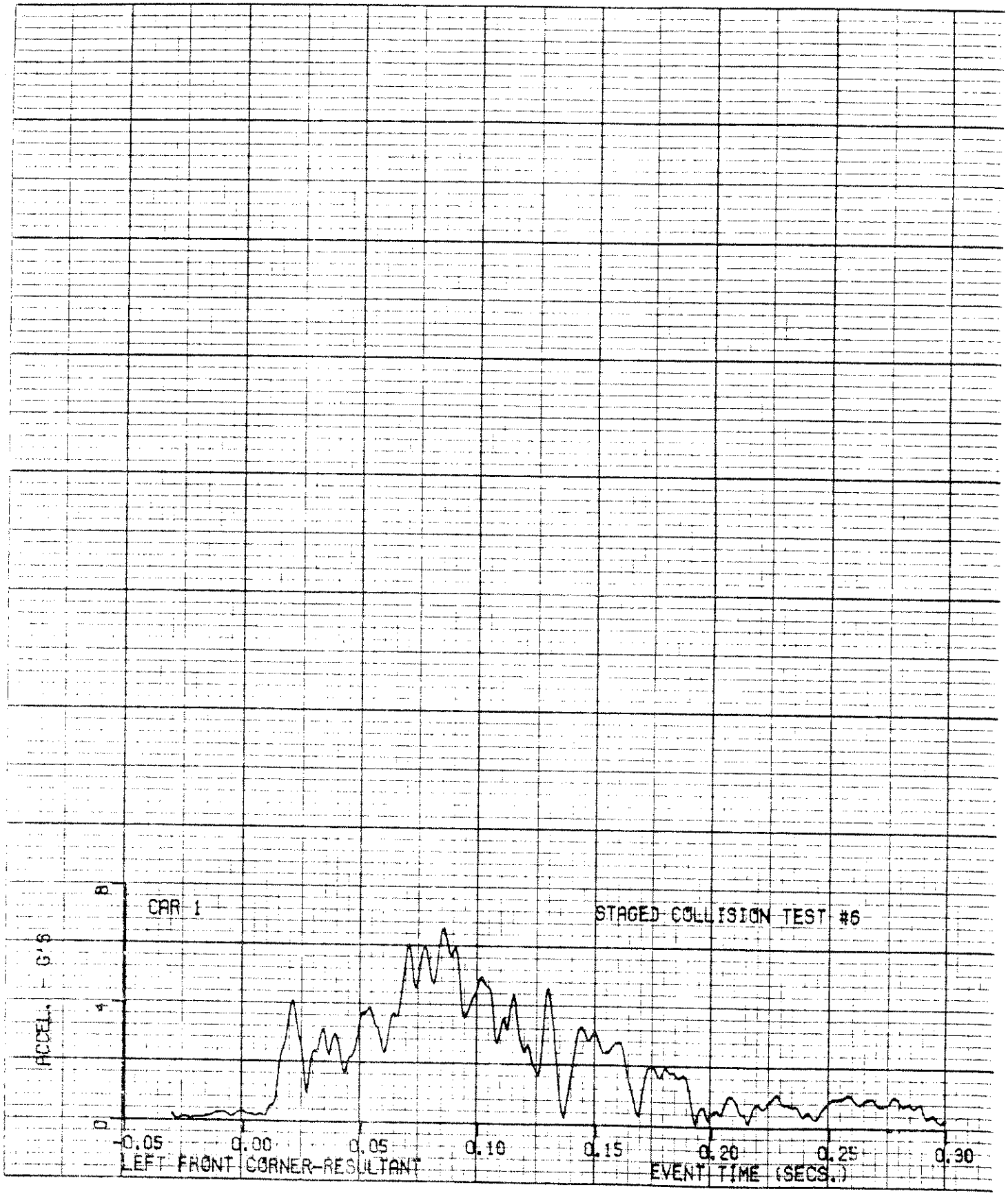
ACCELERATION VS DISPLACEMENT

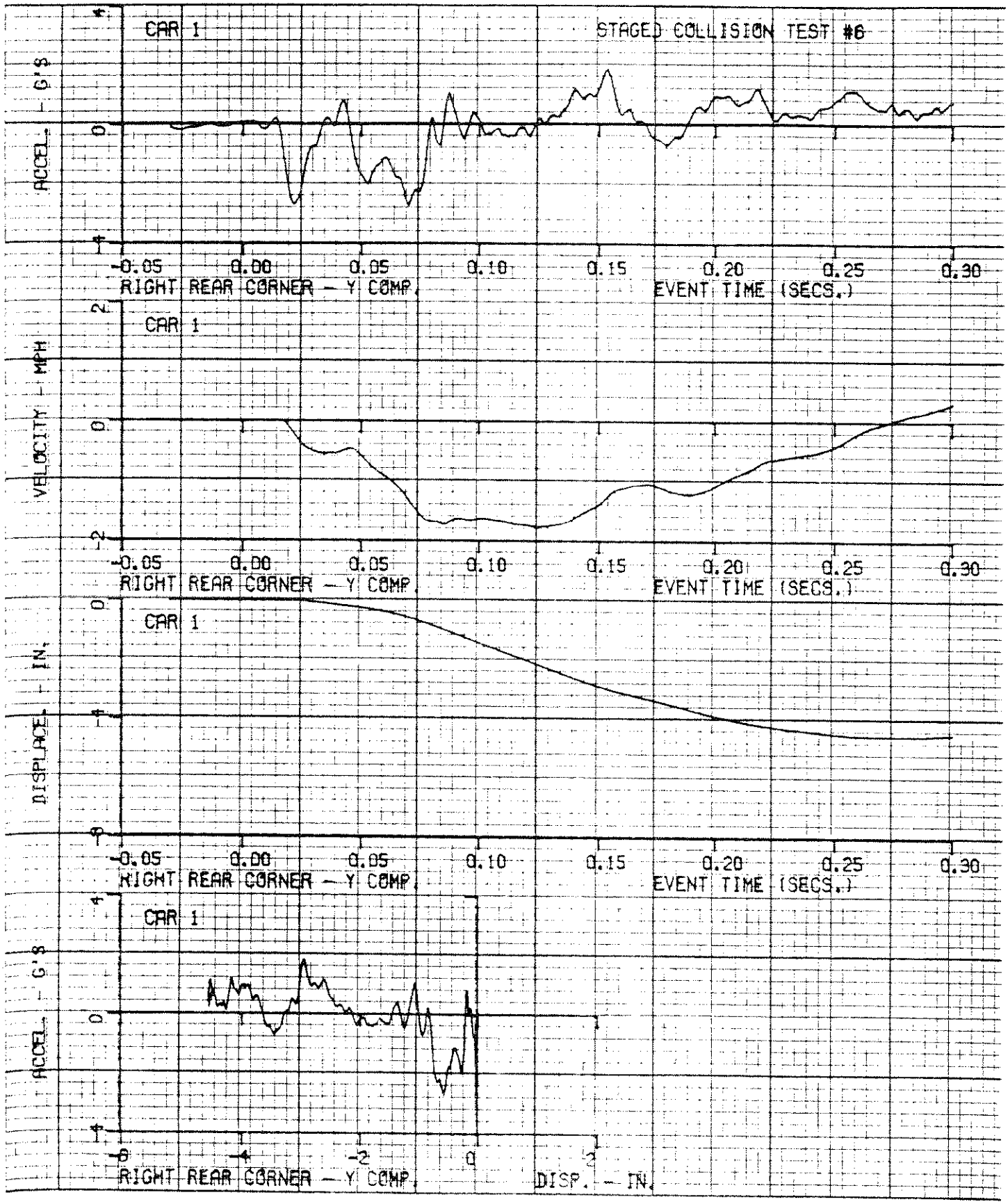
FILTER CLASS 60

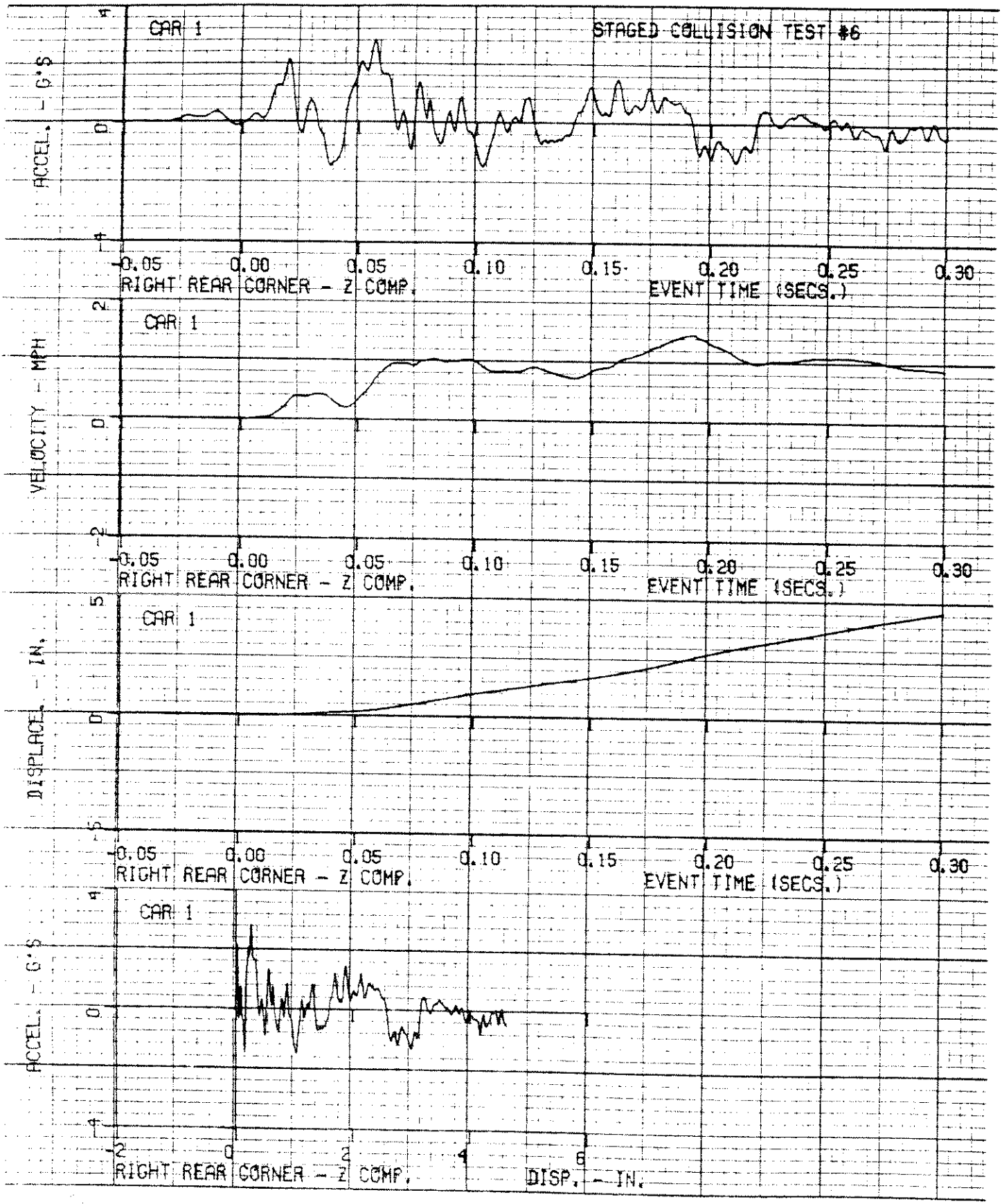

CAR 1
STAGED COLLISION TEST #6
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
30
20
10
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACEMENT - IN.
100
50
0
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT FRONT CORNER - X COMP.
DISP. - IN.

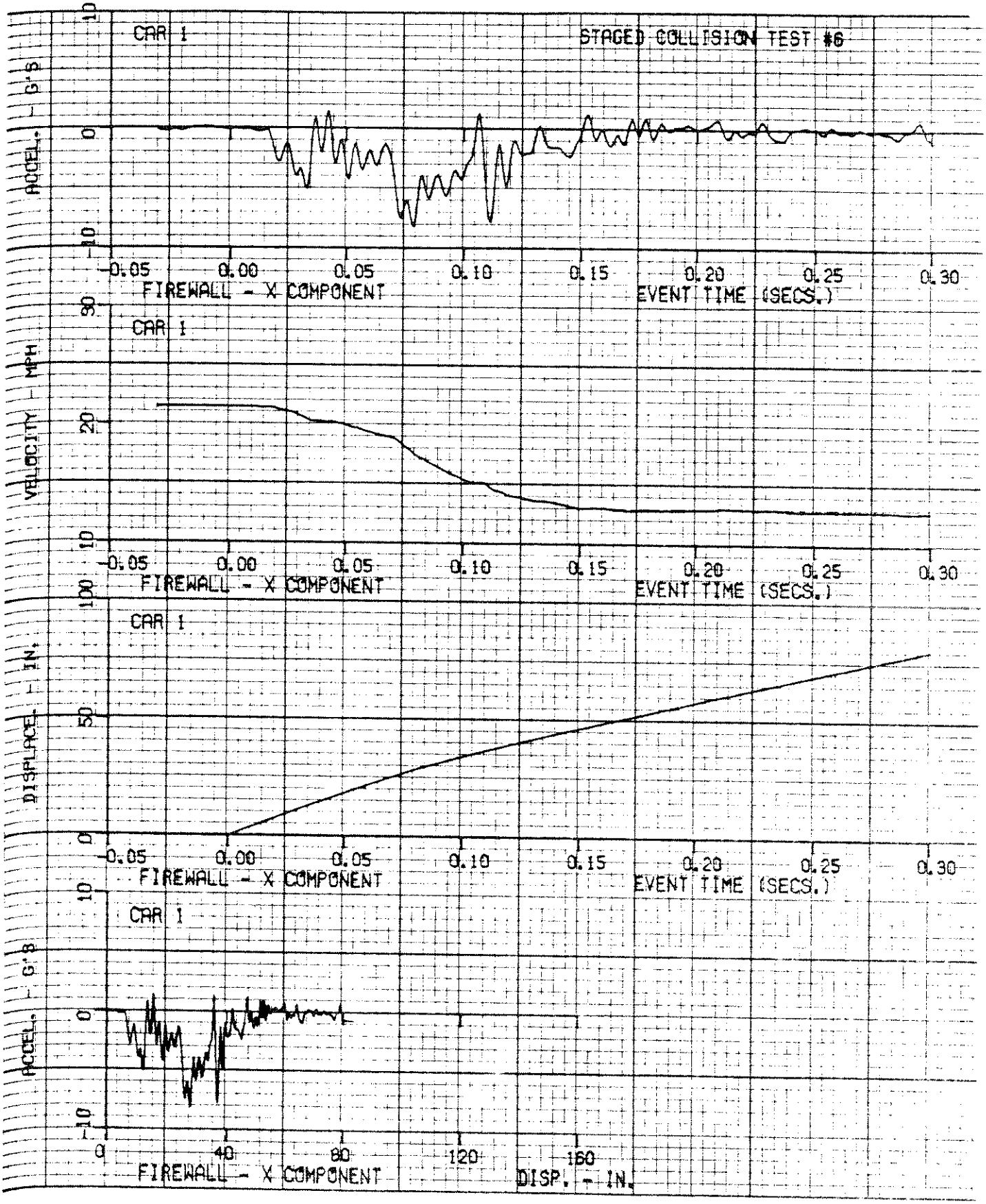

CAR 1
STAGED COLLISION TEST #6
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
-4
0
4
8
12
LEFT FRONT CORNER - Y COMP.
DISP. - IN.

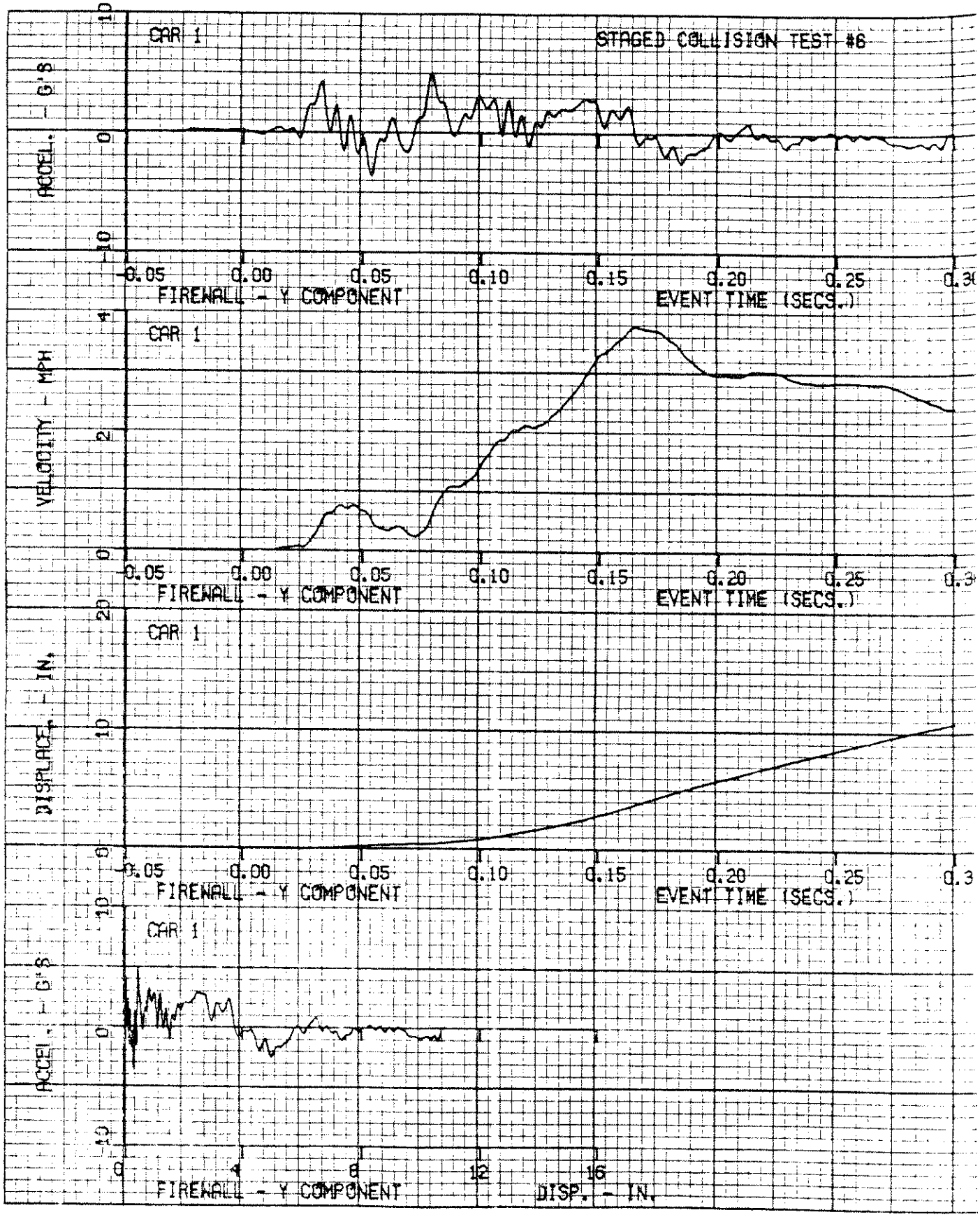

CAR 1
STAGED COLLISION TEST #6
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
-3
-2
-1
0
1
LEFT FRONT CORNER - Z COMP.
DISP. - IN.

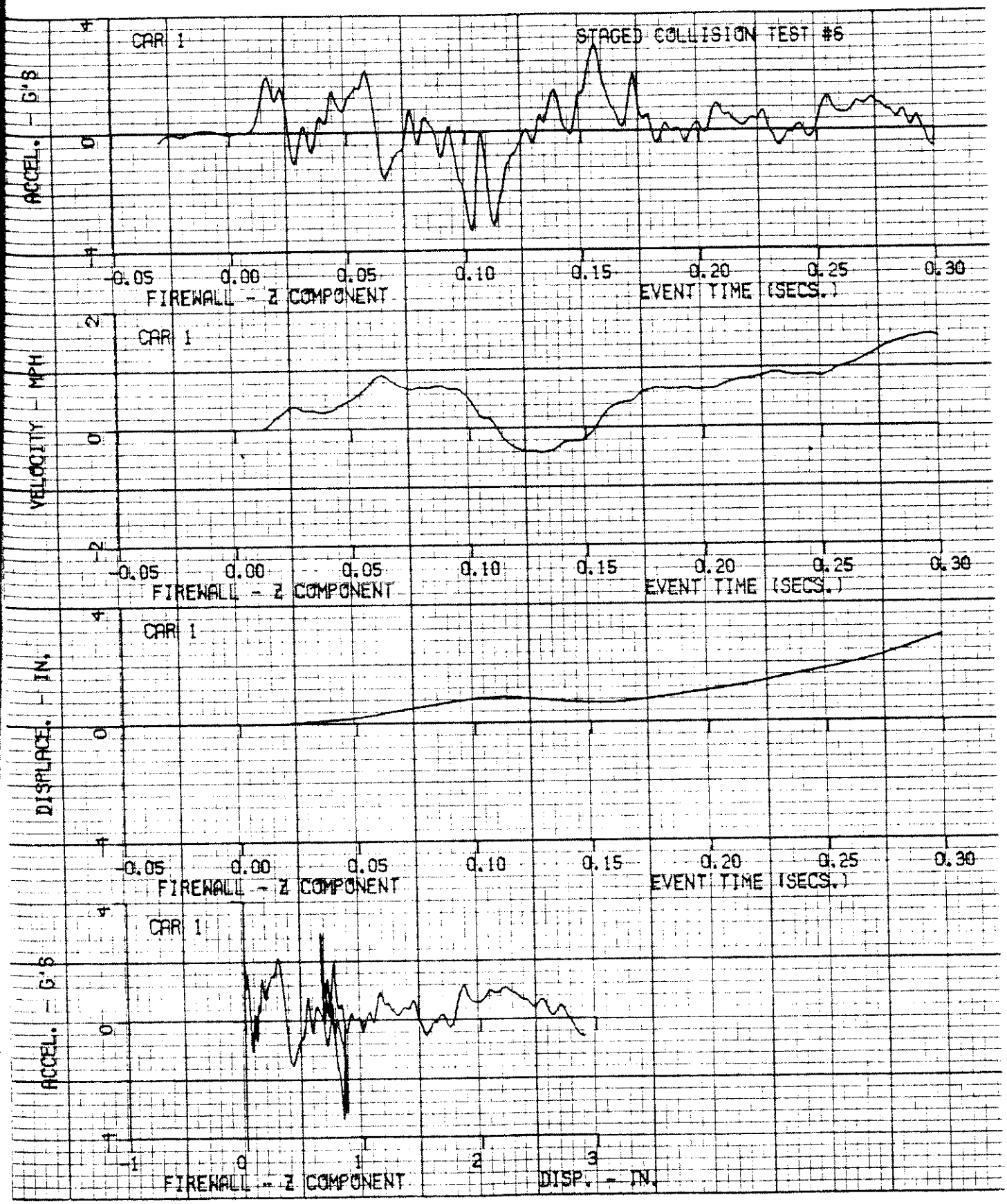

CAR 1
STAGED COLLISION TEST #6
ACCEL. - G'S
8
4
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)

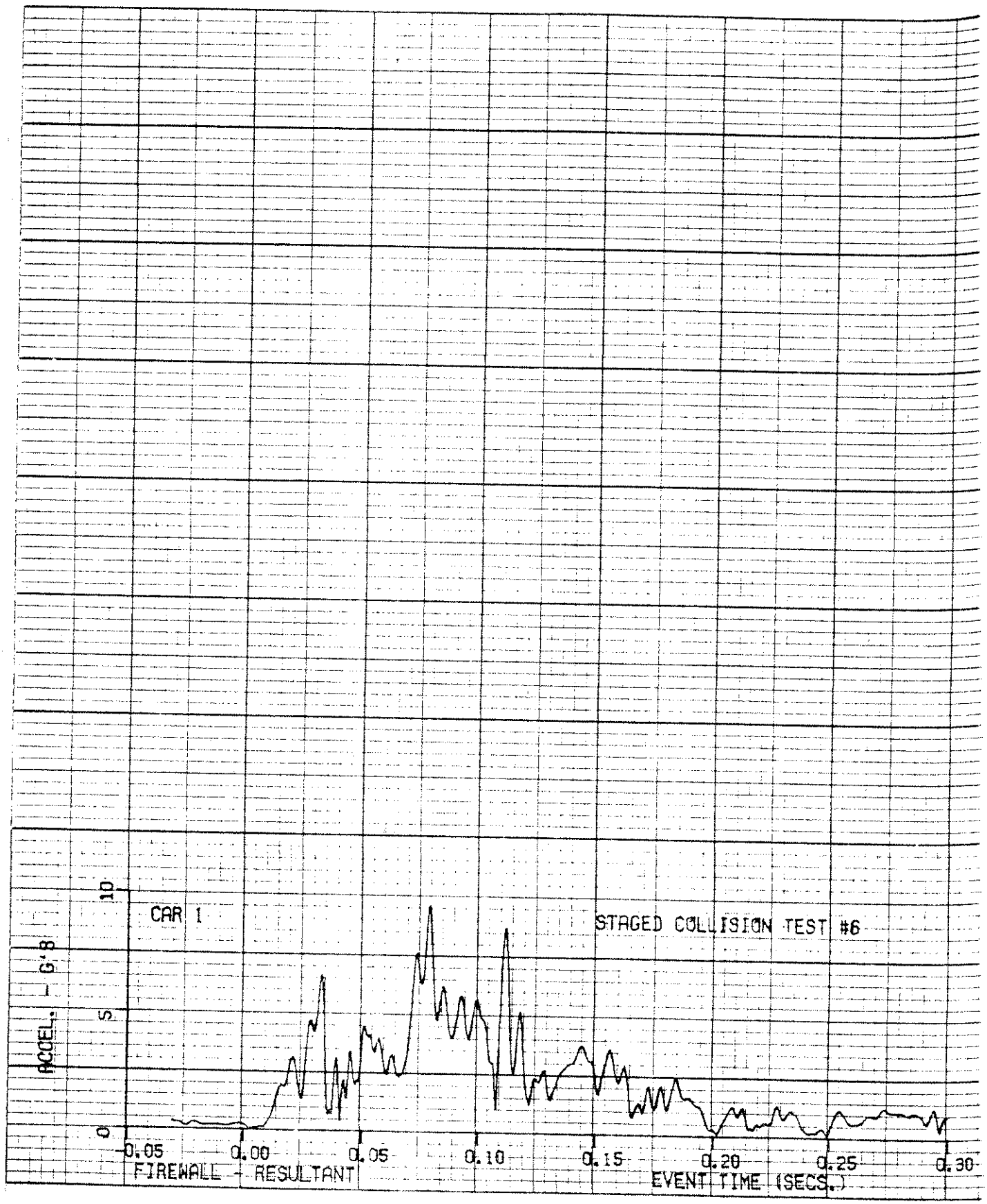

CAR 1
STAGED COLLISION TEST #6
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER — Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER — Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
0
-4
-8
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER — Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
-6
-4
-2
0
2
RIGHT REAR CORNER — Y COMP.
DISP. - IN.

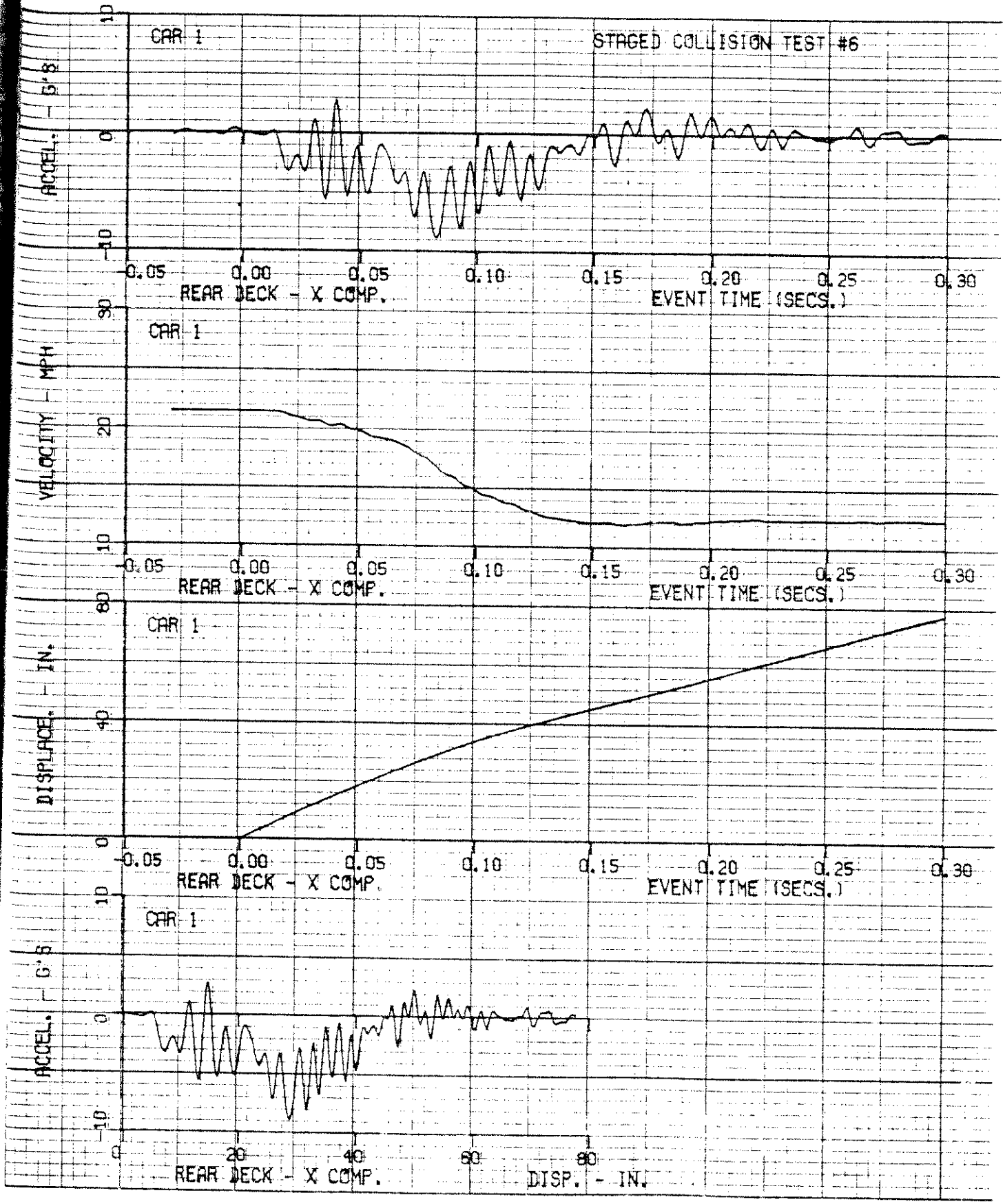

CAR 1
STAGED COLLISION TEST #6
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
-2
0
2
4
6
RIGHT REAR CORNER - Z COMP.
DISP. - IN.

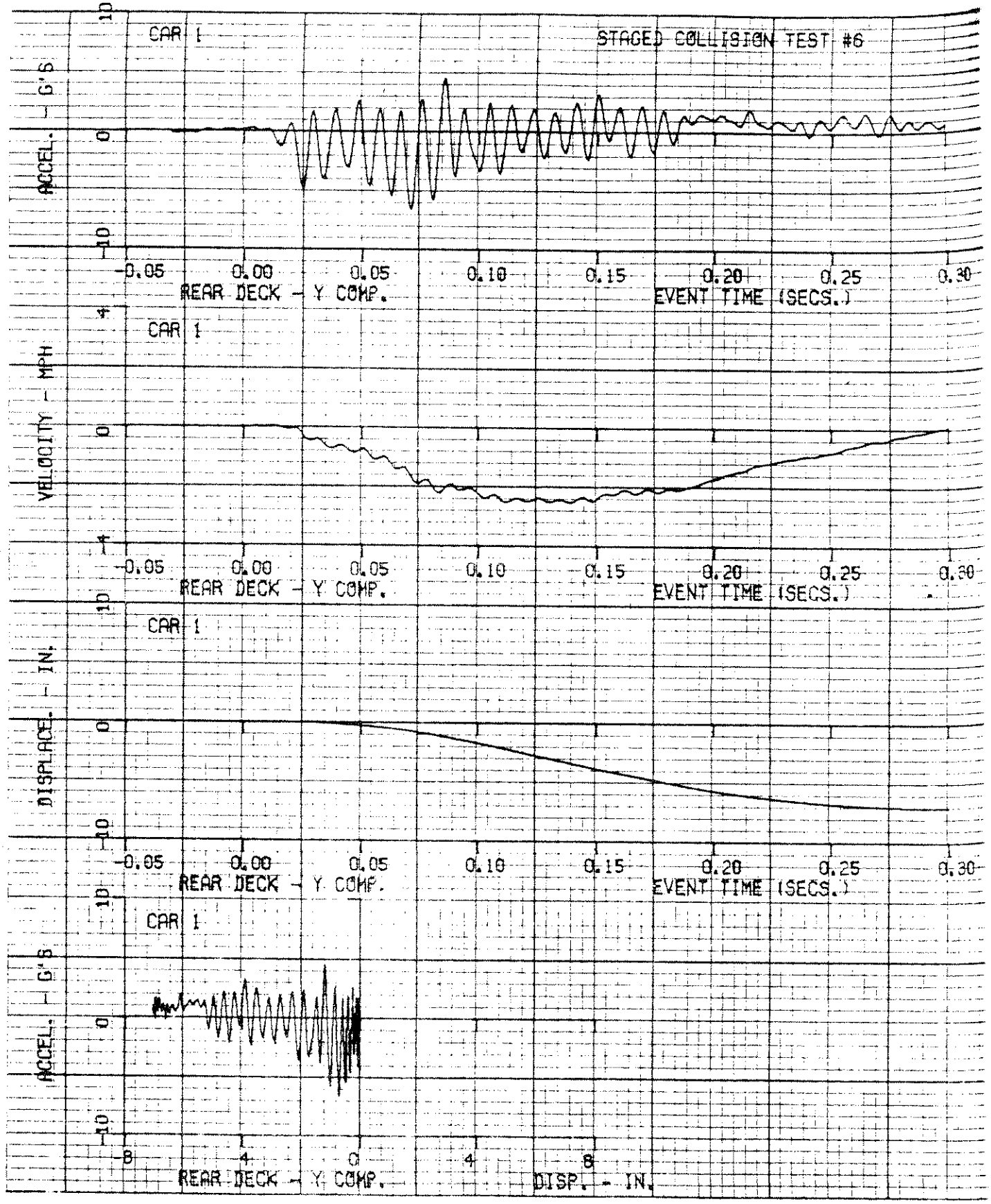

CAR 1
STAGED COLLISION TEST #6
ACCEL. - G'S
10
0
10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
30
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
100
50
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
10
0
40
80
120
160
FIREWALL - X COMPONENT
DISP. - IN.

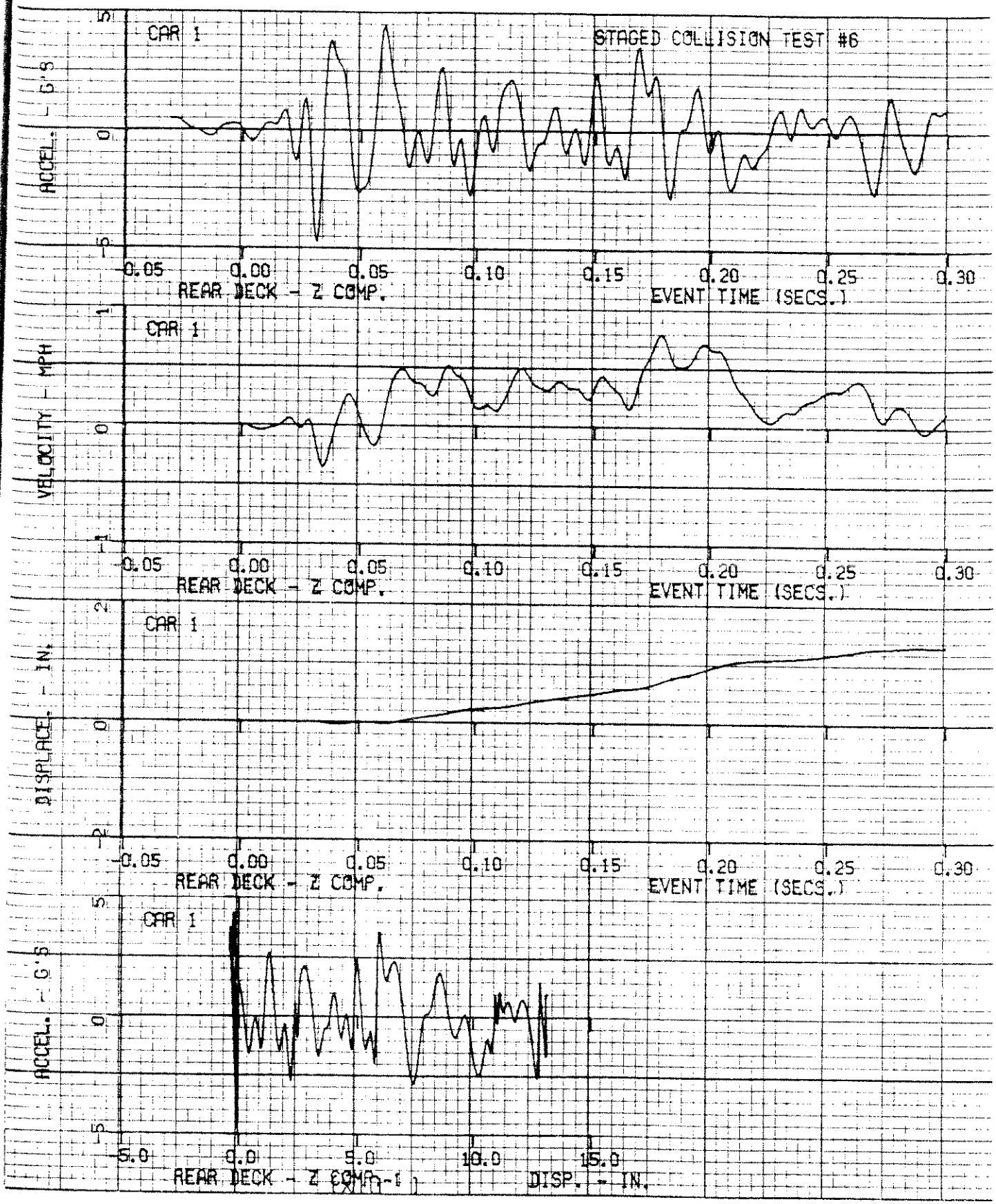

CAR 1
STAGED COLLISION TEST #6
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
2
0
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
20
10
0
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
4
8
12
16
FIREWALL - Y COMPONENT
DISP. - IN.

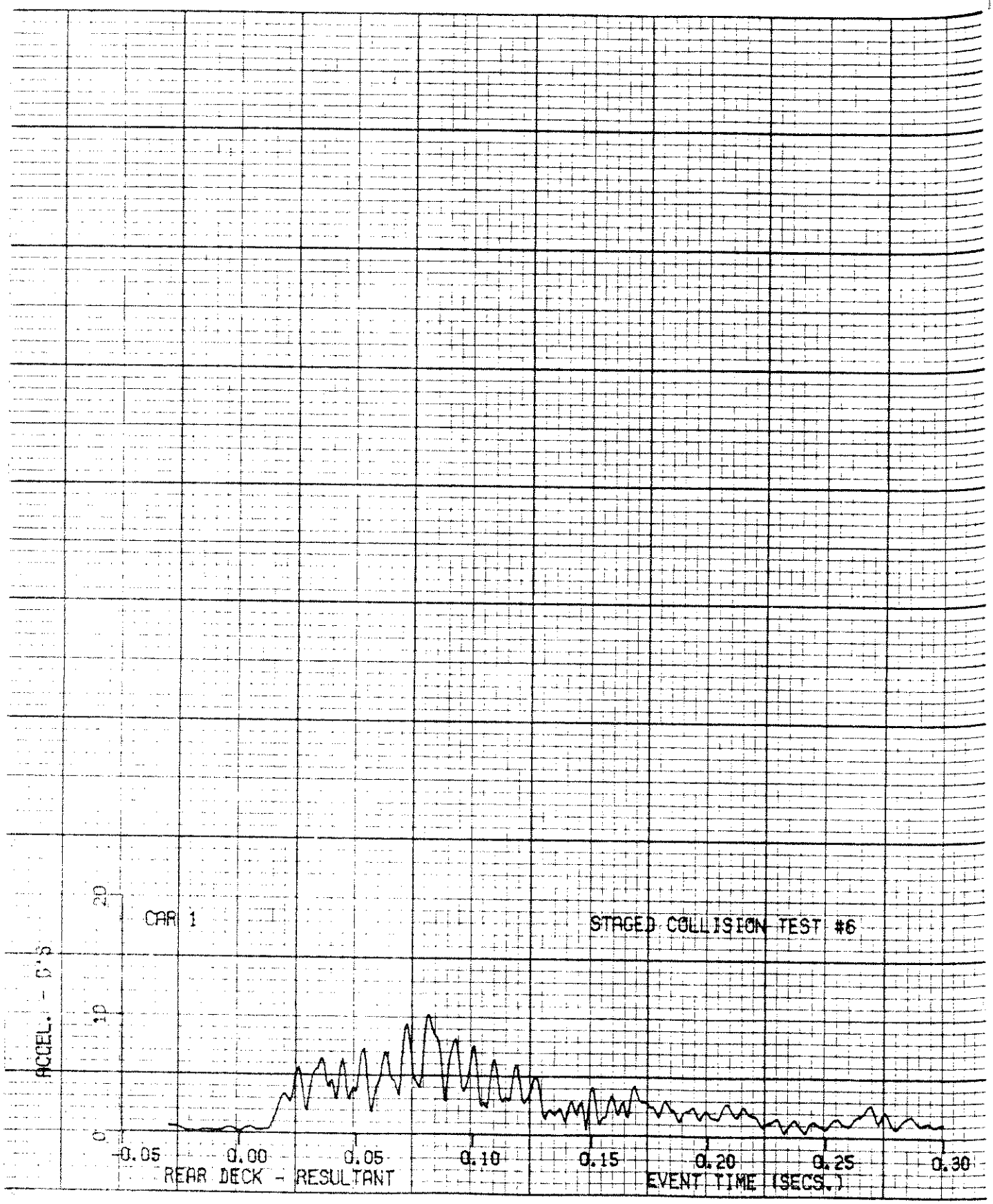

STAGED COLLISION TEST #6
CAR 1
ACCEL. - G'S
4
0
4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
4
0
4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
4
-1
0
1
2
3
FIREWALL - Z COMPONENT
DISP. - IN.

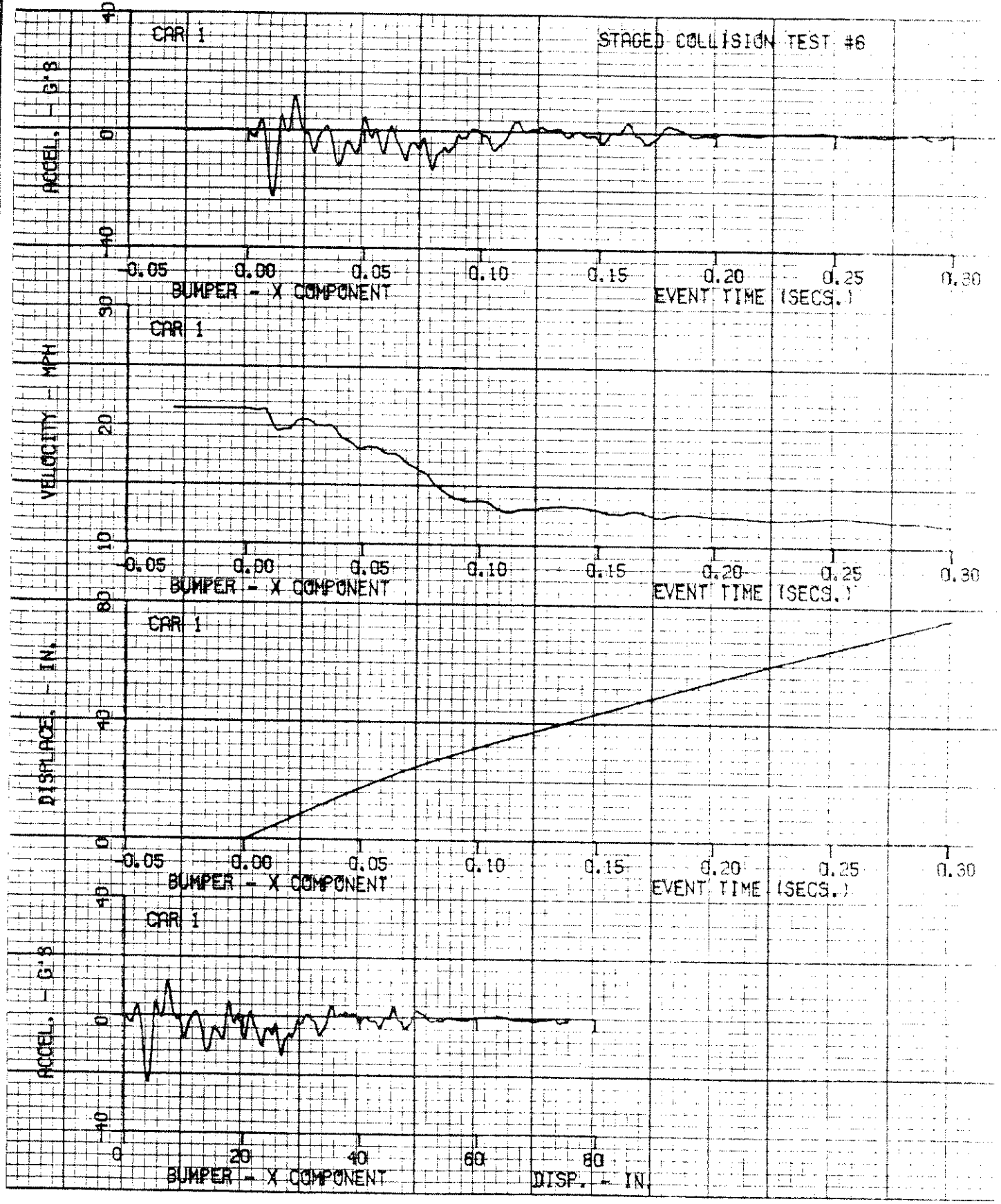

CAR 1
STAGED COLLISION TEST #6
ACCEL. - G'S
10
5
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - RESULTANT
EVENT TIME (SECS.)


CAR 1
STAGED COLLISION TEST #6
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
30
20
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
DISPLACE. - IN.
60
40
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
10
0
-10
0
20
40
60
80
REAR DECK - X COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #6
ACCEL. - G'S
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
VELOCITY - MPH
4
0
-4
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
10
0
-10
-8
-4
0
4
8
REAR DECK - Y COMP.
DISP. - IN.


STAGED COLLISION TEST #6
CAR 1
ACCEL. - G'S
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 1
VELOCITY - MPH
1
0
-1
-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
DISPLACE. - IN.
2
0
-2
-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
ACCEL. - G'S
5
0
-5
-5.0
0.0
5.0
10.0
15.0
REAR DECK - Z COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #6
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - RESULTANT
EVENT TIME (SECS.)


CAR 1
STAGED COLLISION TEST #6
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
30
20
10
-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.
80
40
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
20
40
60
80
BUMPER - X COMPONENT
DISP. - IN.

RICSAC TEST NO. 6

VEHICLE RESPONSES

CAR NO. 2 VW RABBIT

DATA PLOTS

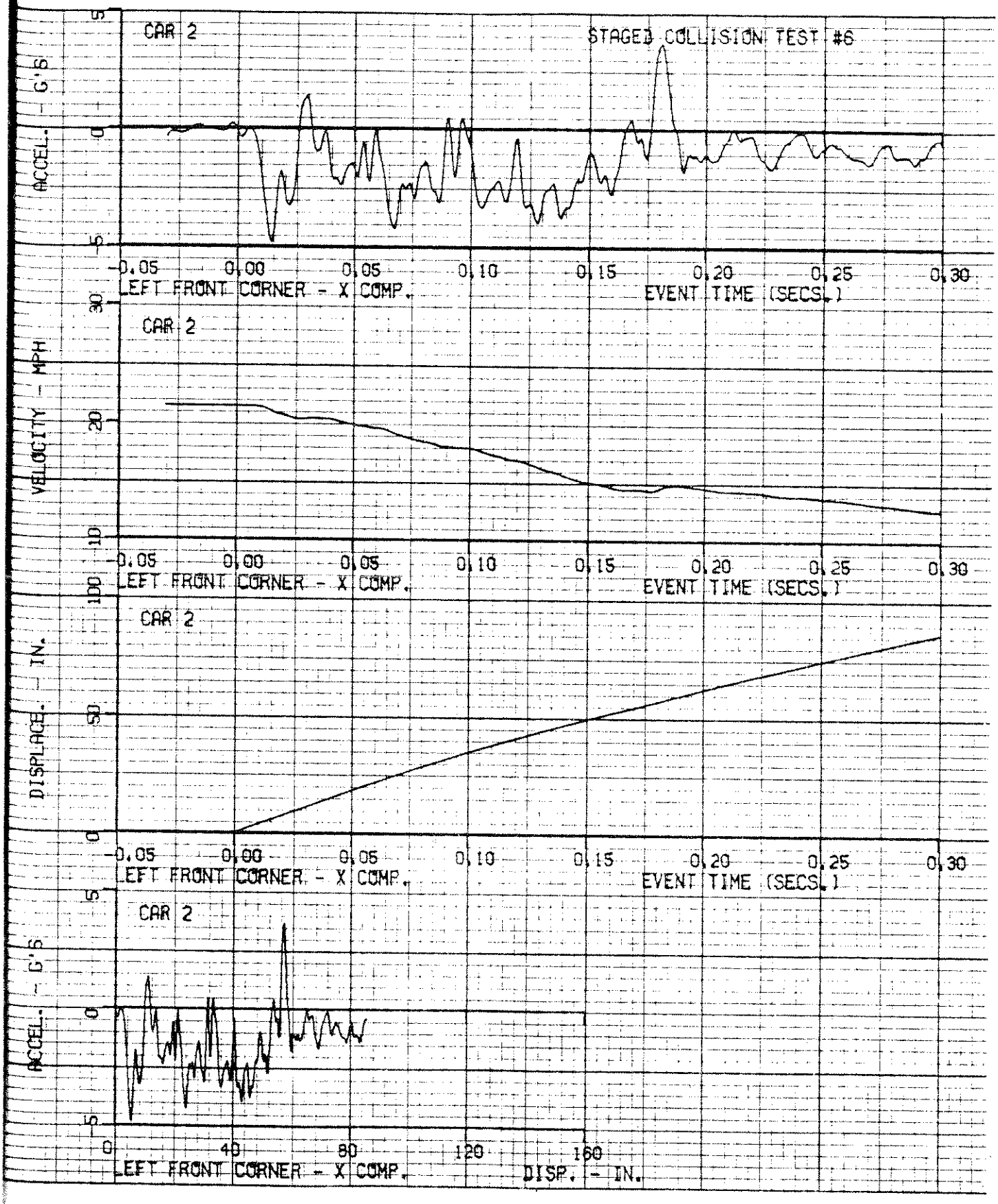
ACCELERATION TIME HISTORIES

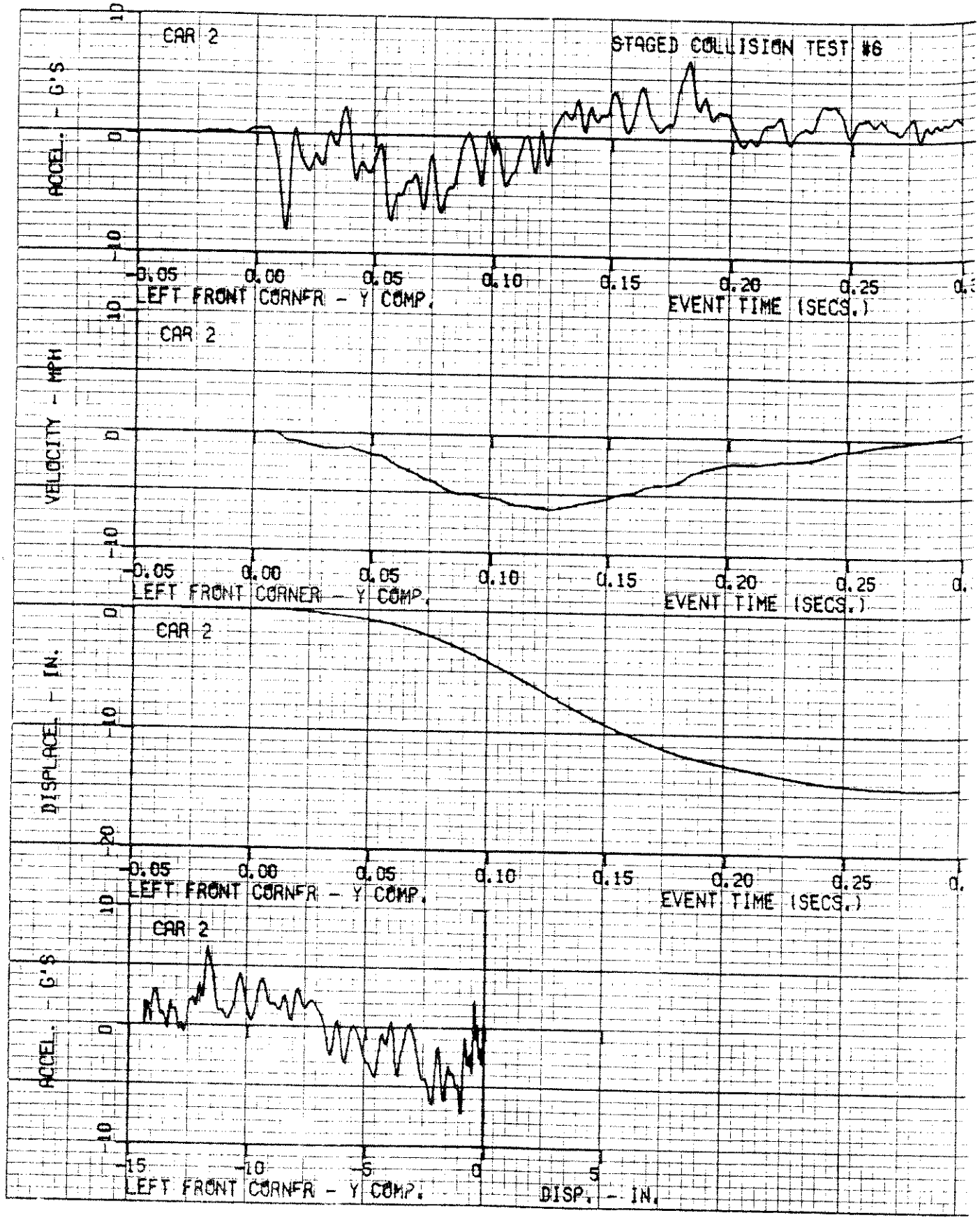
VELOCITY TIME HISTORIES

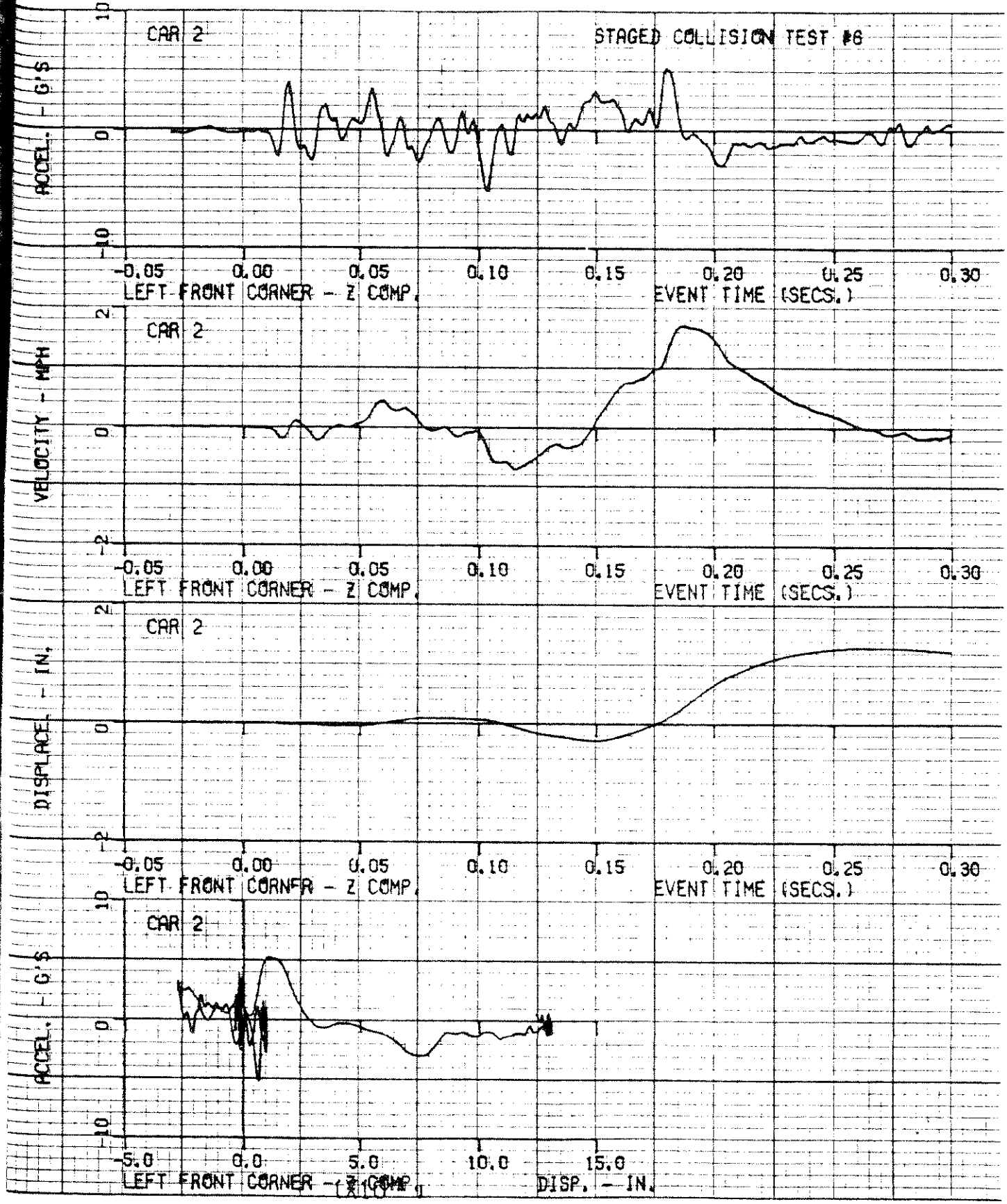
DISPLACEMENT TIME HISTORIES

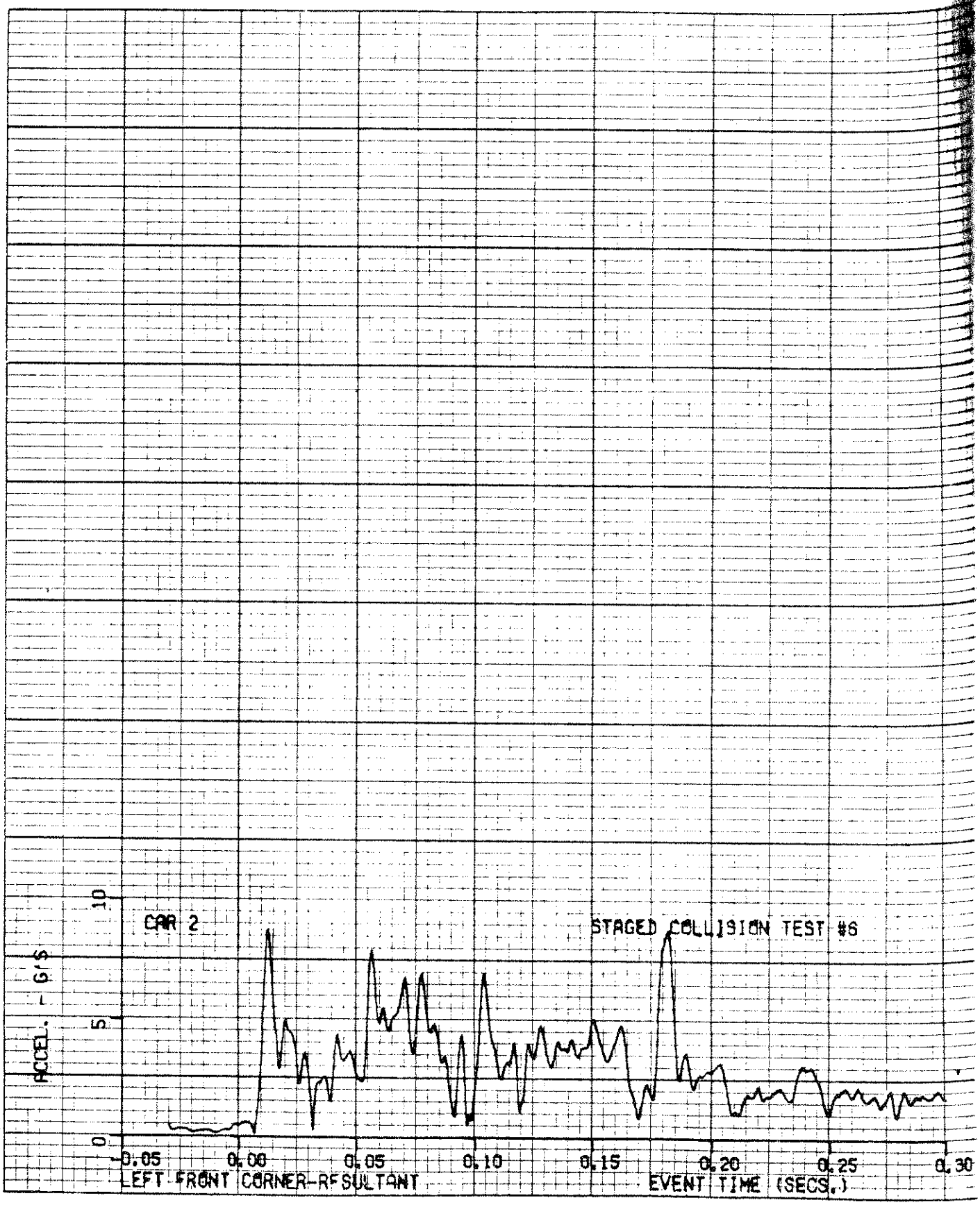
ACCELERATION VS DISPLACEMENT

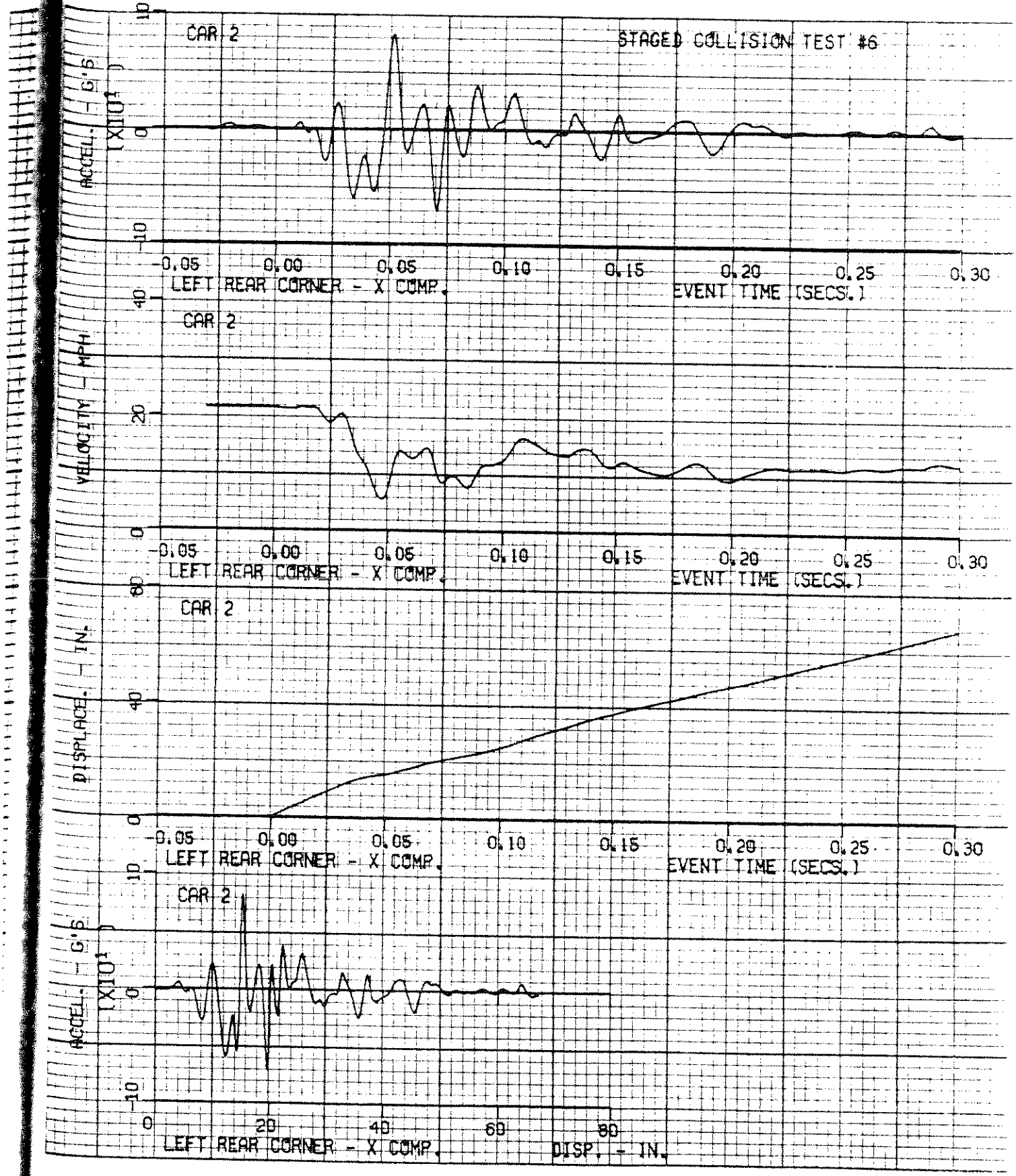
FILTER CLASS 60

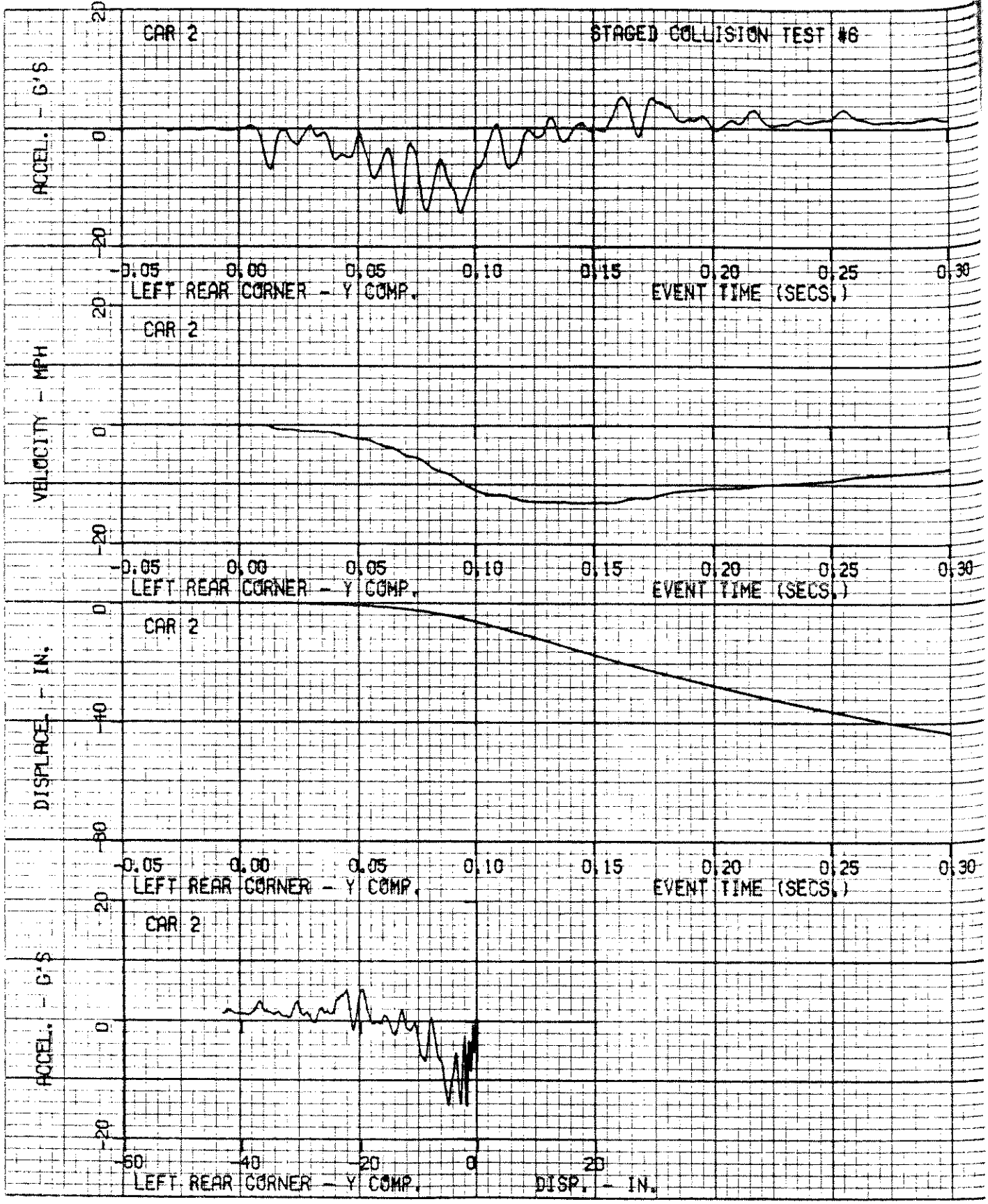

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
30
20
10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
100
50
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
5
0
-5
0
40
80
120
160
LEFT FRONT CORNER - X COMP.
DISP. - IN.

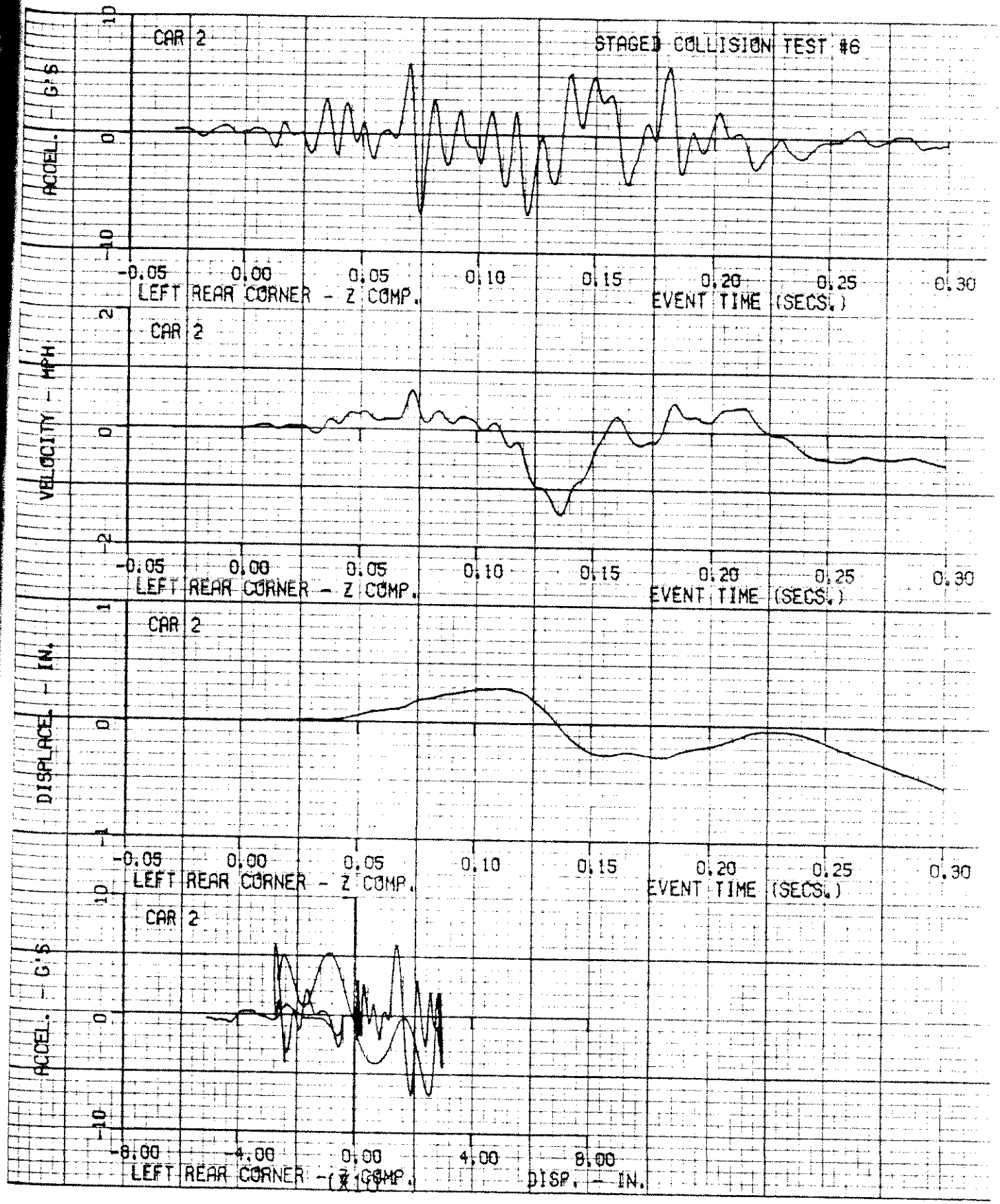

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACEMENT - IN.
0
-10
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-15
-10
-5
0
5
LEFT FRONT CORNER - Y COMP.
DISP. - IN.

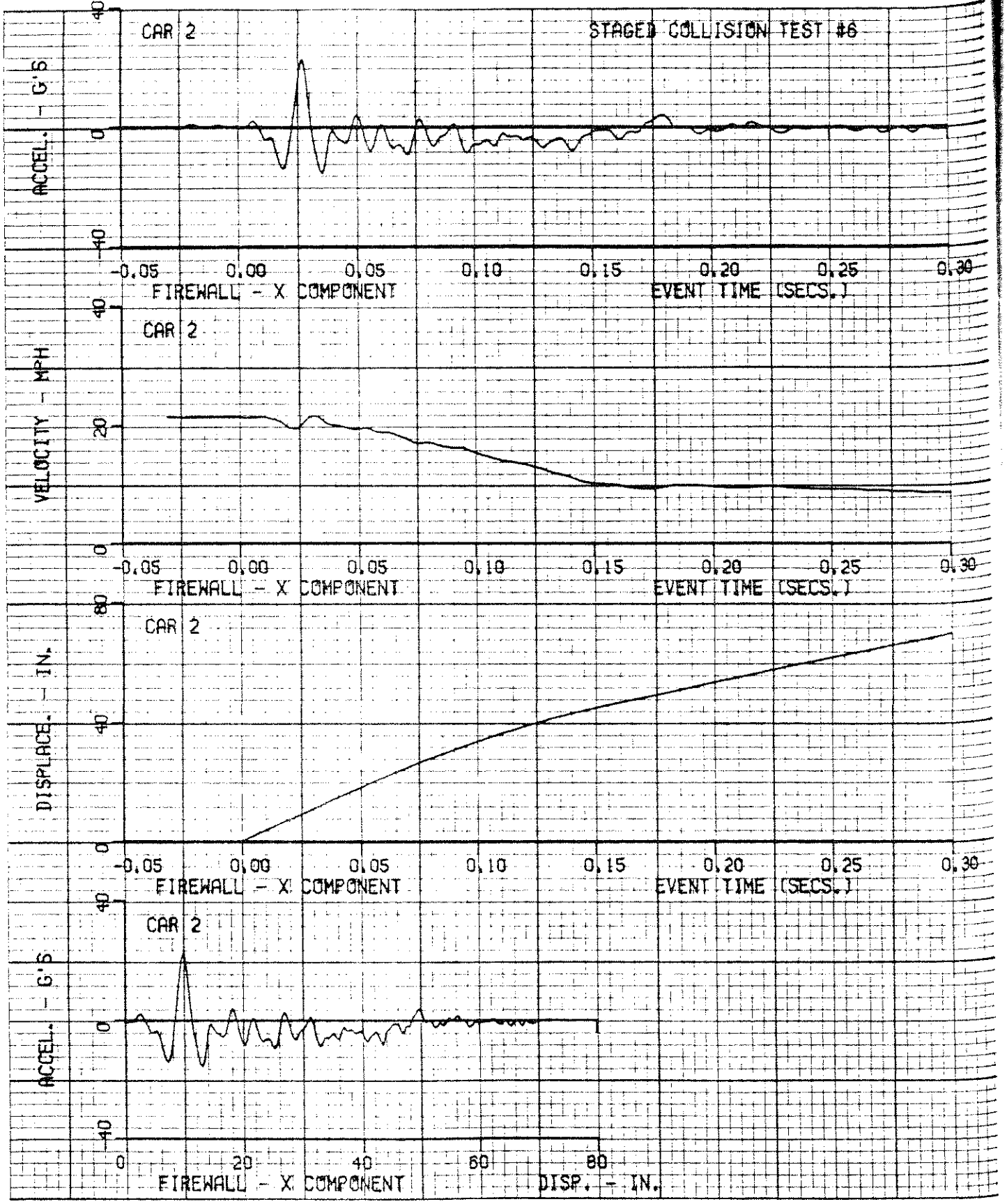

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
2
0
-2
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
2
0
-2
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-5.0
0.0
5.0
10.0
15.0
LEFT FRONT CORNER - Z COMP.
DISP. - IN.

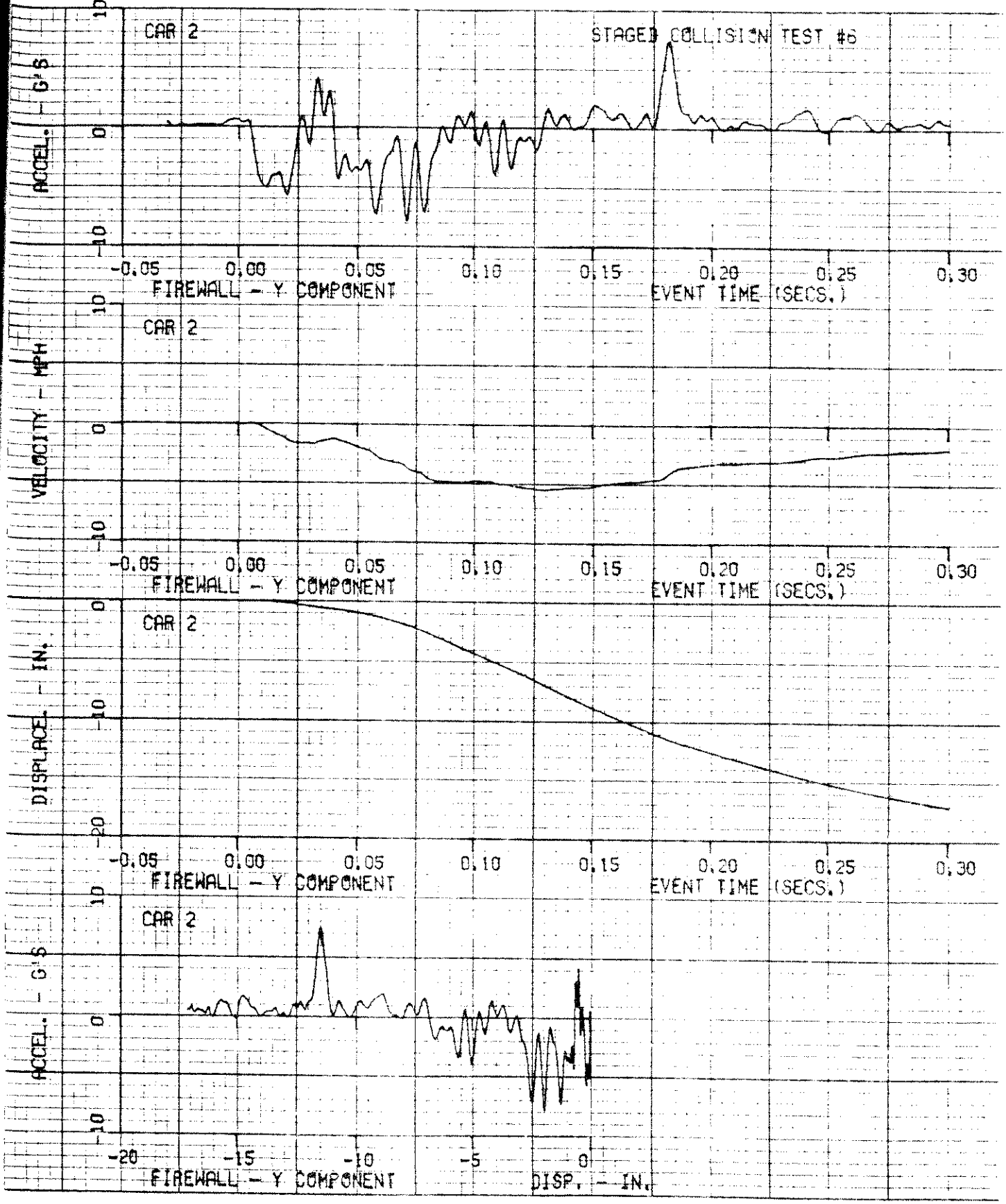

CAR 2
STAGED COLLISION TEST #6
ACCEL. G'S
10
5
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)

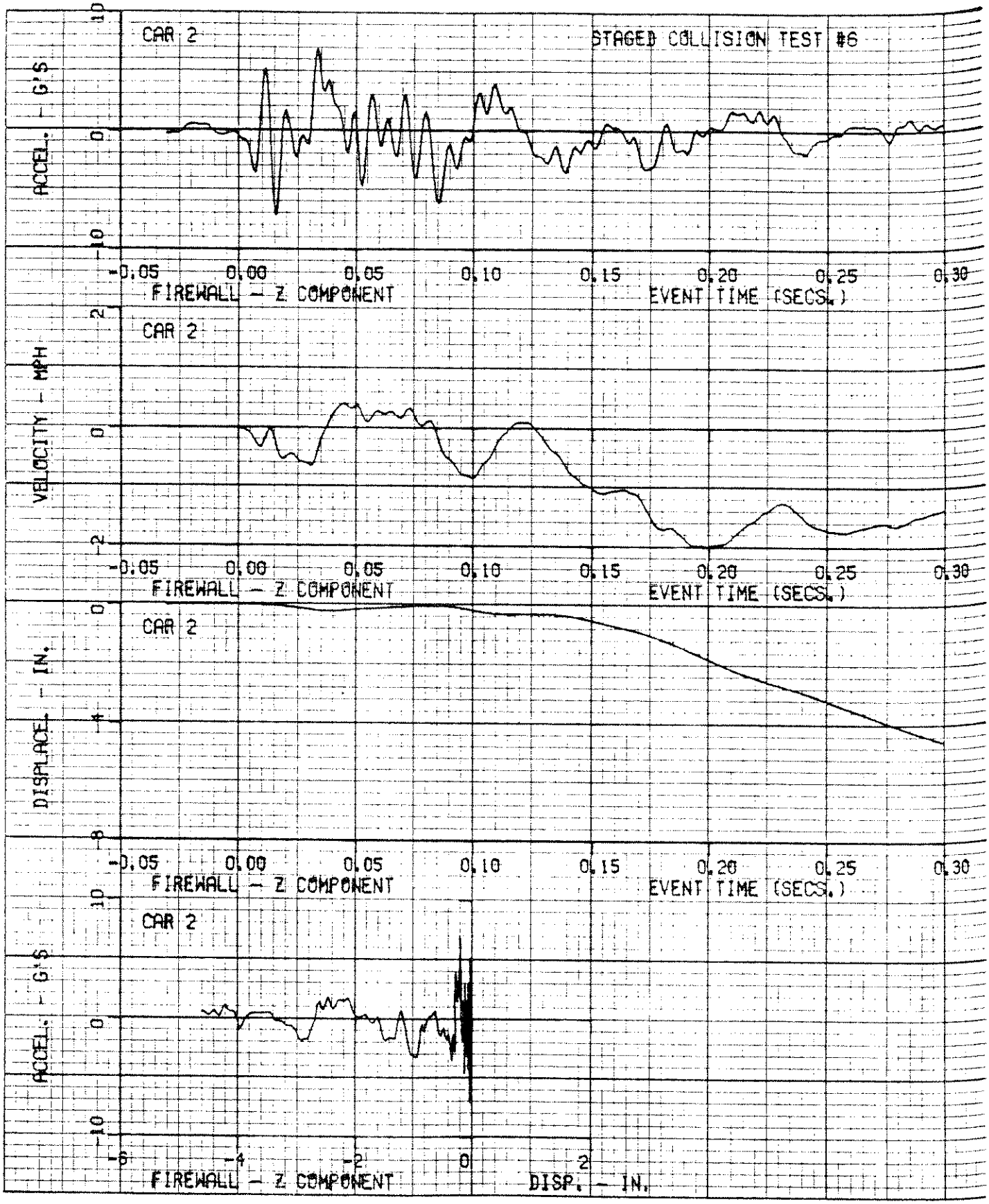

STAGED COLLISION TEST #6
CAR 2
ACCEL. - G'S
(X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
20
0
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
80
40
0
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
(X10¹)
10
0
-10
0
20
40
60
80
LEFT REAR CORNER - X COMP.
DISP. - IN.

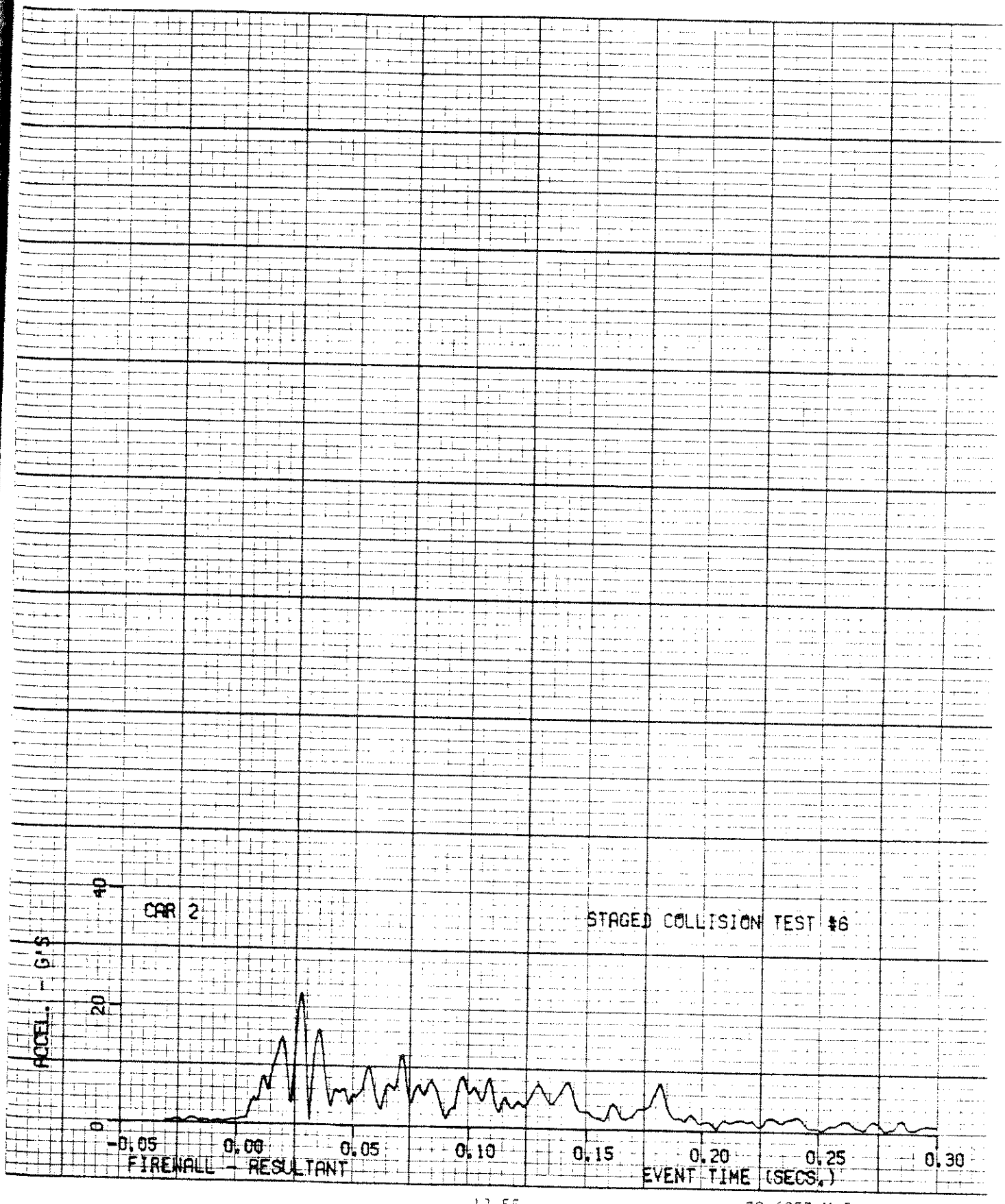

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE - IN.
0
-40
-80
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-60
-40
-20
0
20
LEFT REAR CORNER - Y COMP.
DISP. - IN.

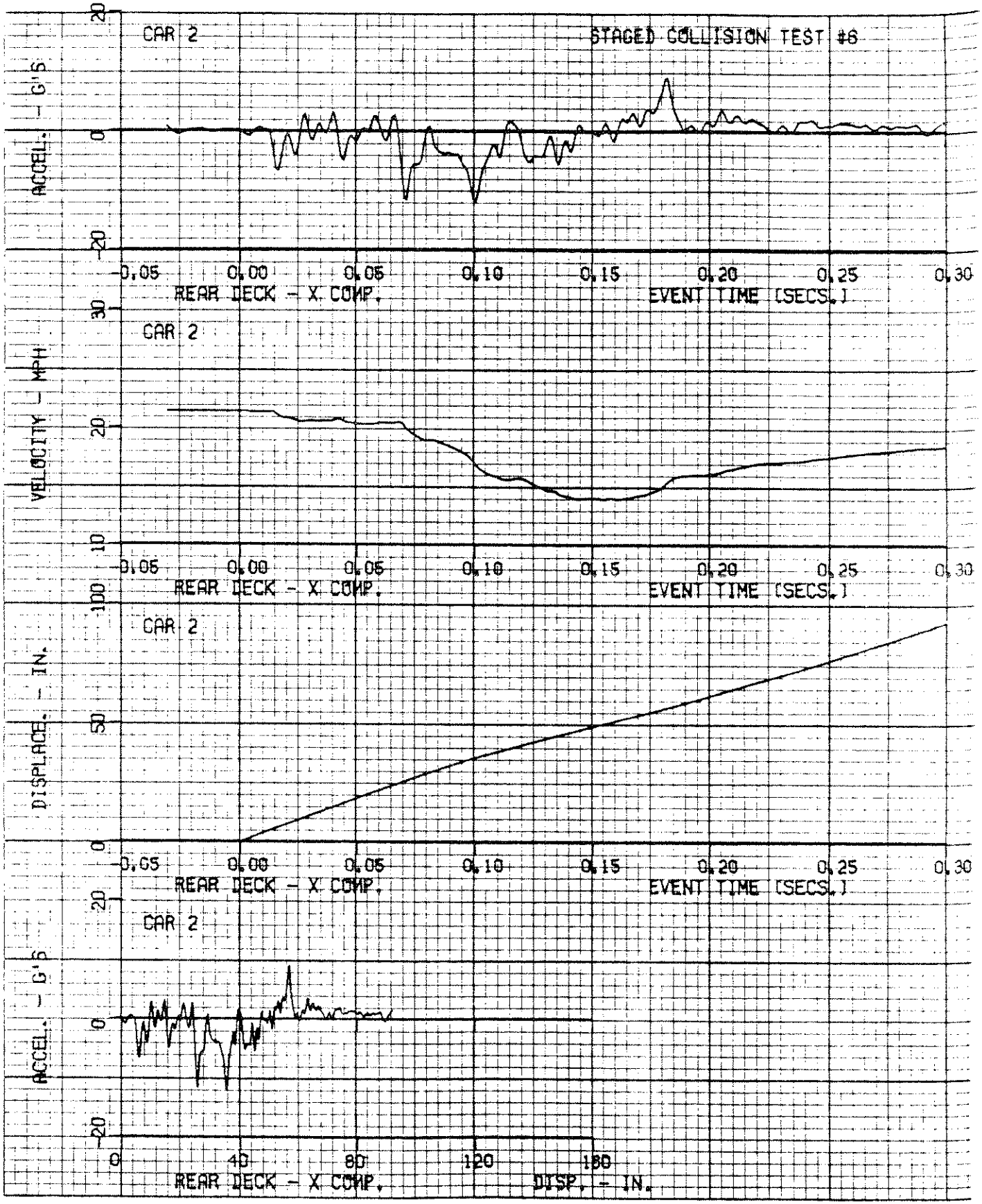

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
2
0
-2
LEFT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACEL - IN.
1
0
-1
LEFT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-8.00
-4.00
0.00
4.00
8.00
LEFT REAR CORNER - Z COMP.
DISP. - IN.

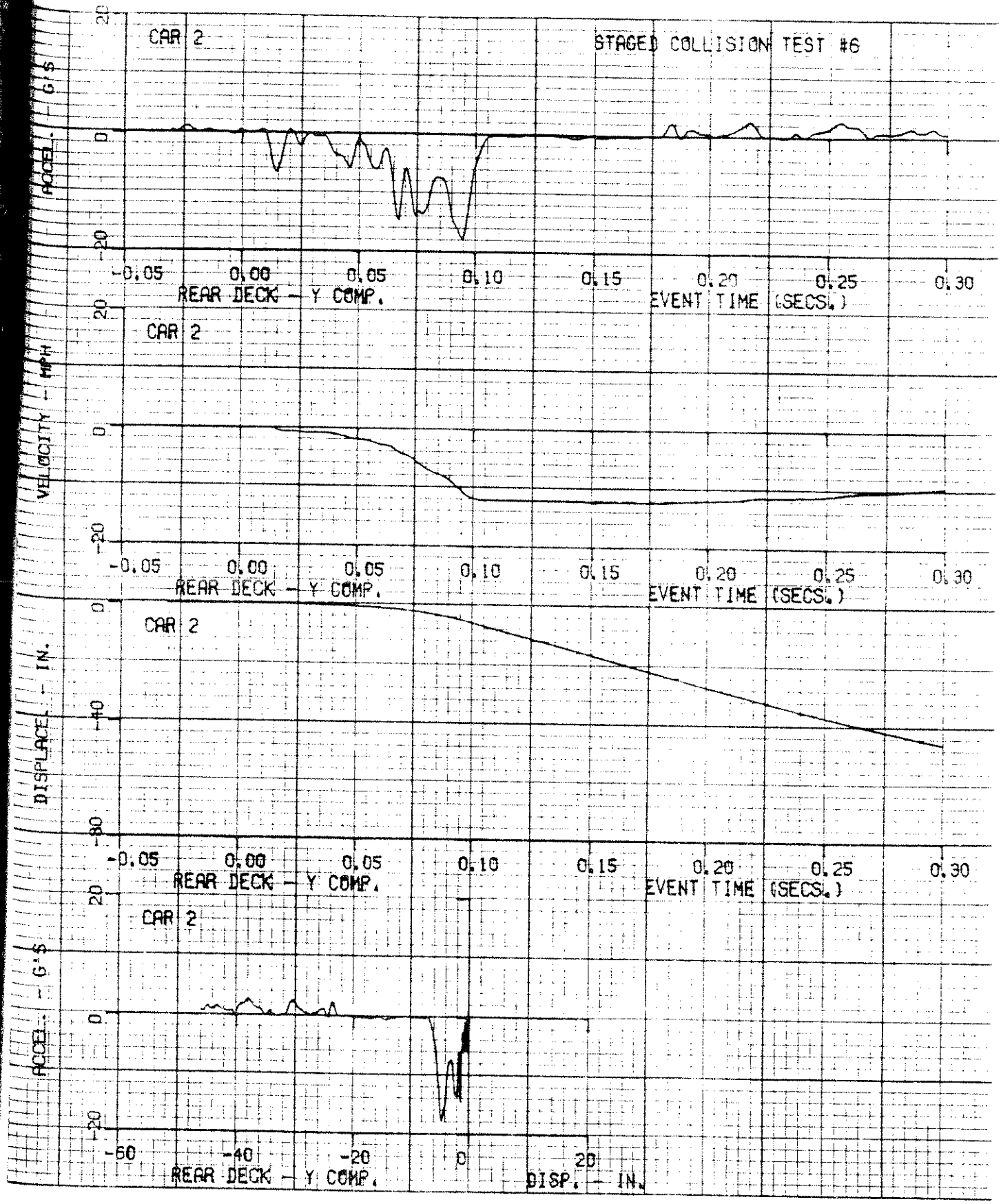

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
20
0
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
80
40
0
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
0
20
40
60
80
FIREWALL - X COMPONENT
DISP. - IN.

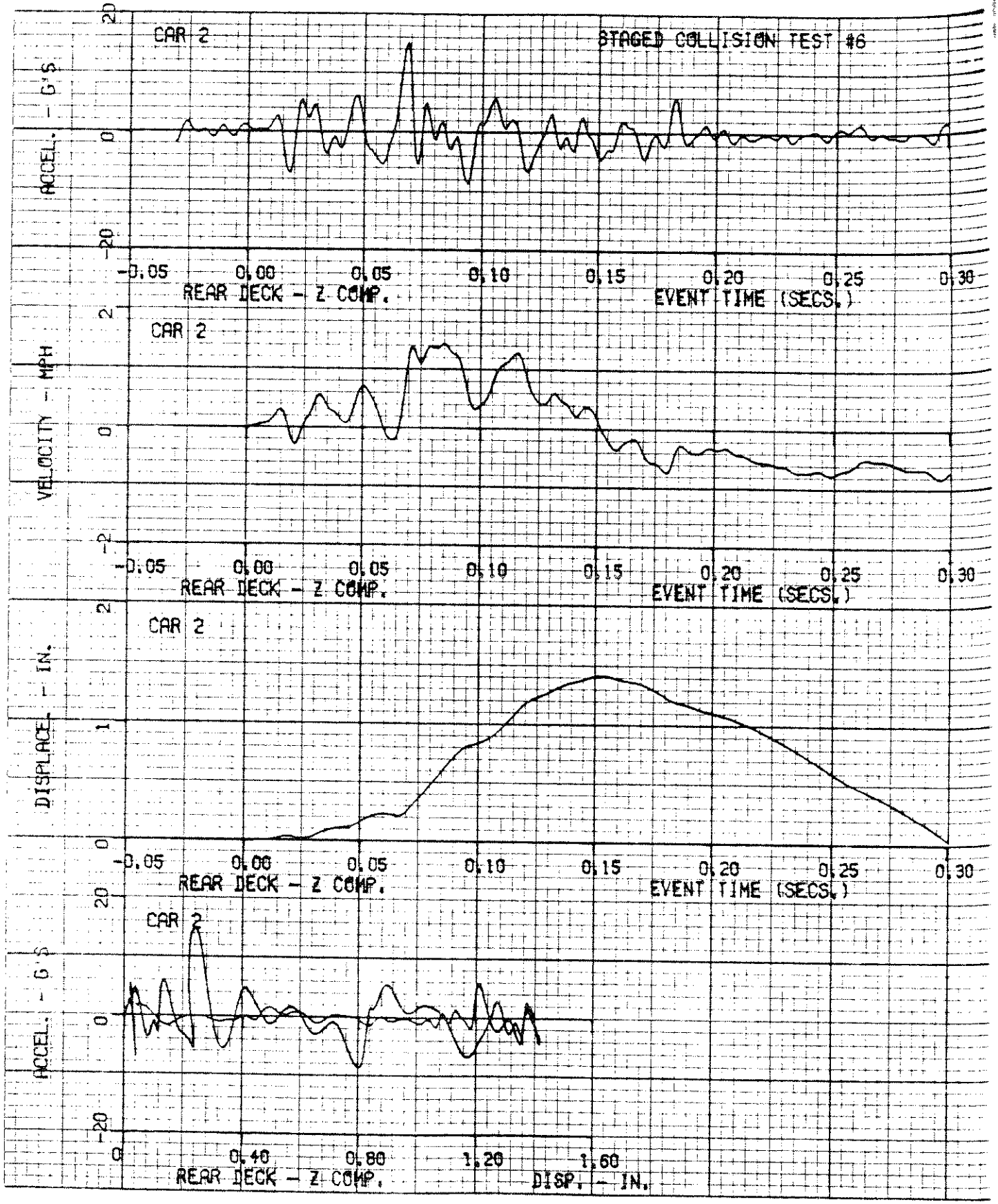

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-10
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-20
-15
-10
-5
0
FIREWALL - Y COMPONENT
DISP. - IN.

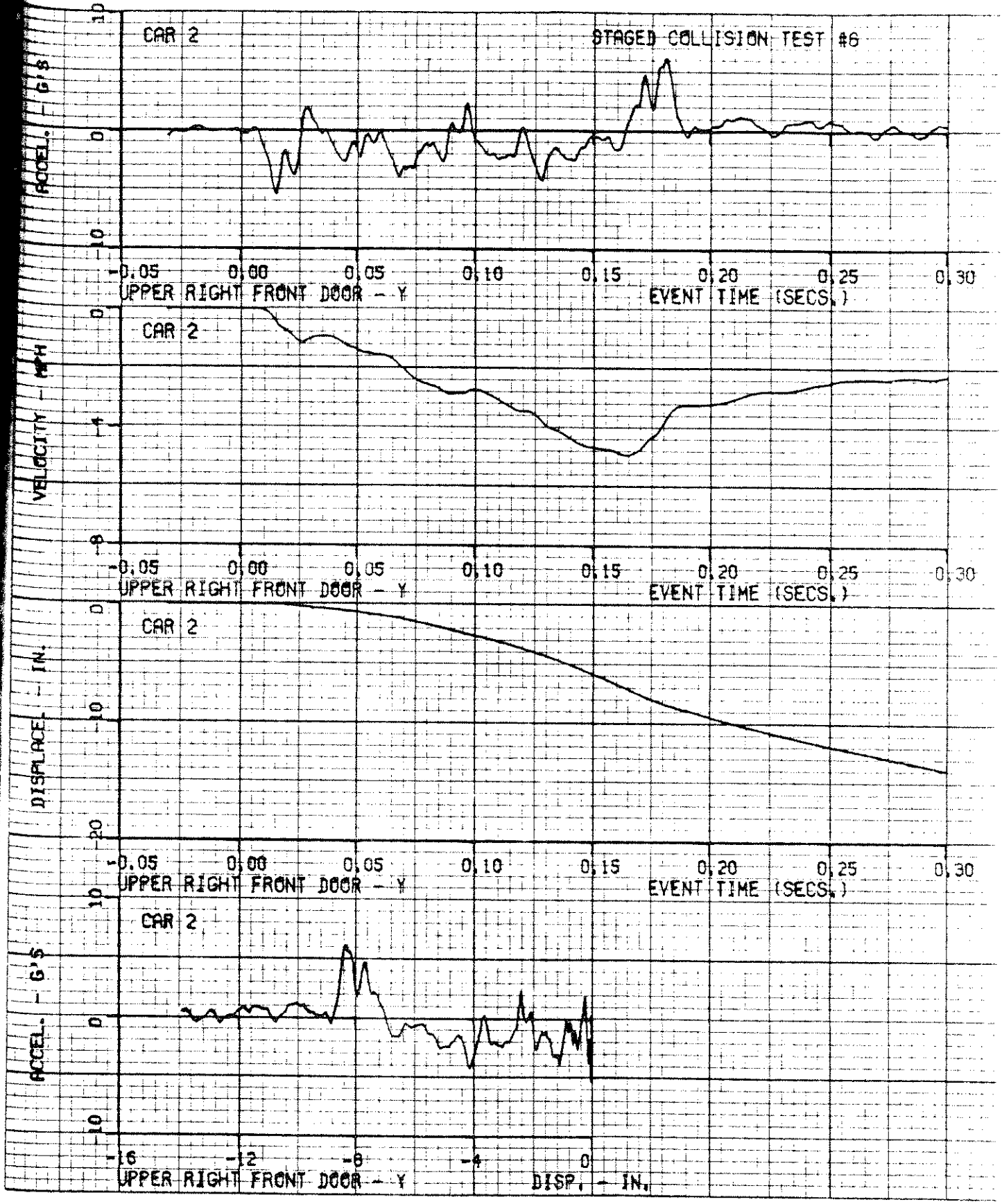

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-4
-8
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-6
-4
-2
0
2
FIREWALL - Z COMPONENT
DISP. - IN.

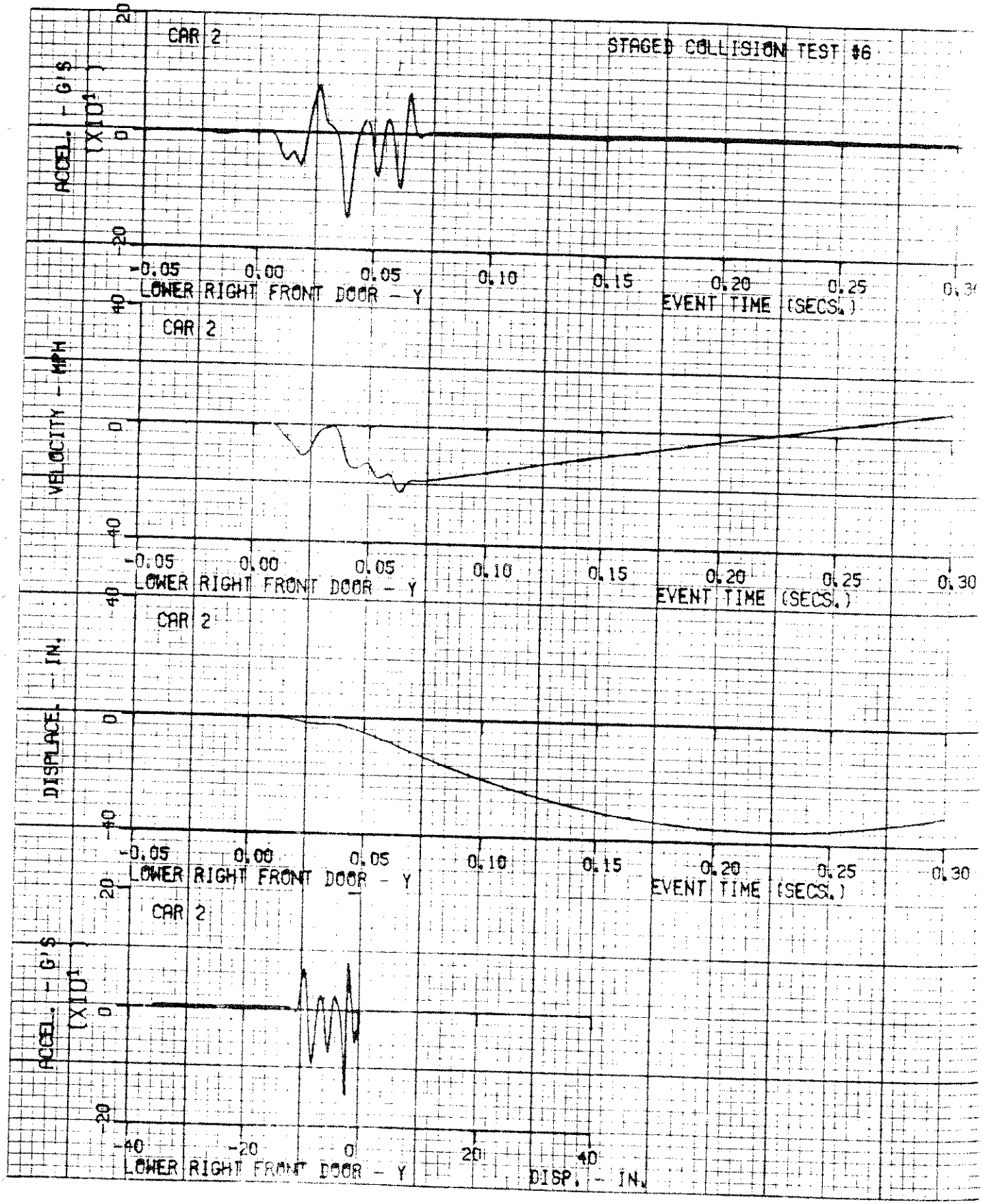

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - RESULTANT
EVENT TIME (SECS.)


CAR 2
STAGED COLLISION TEST #6
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
30
20
10
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
100
50
0
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
0
40
80
120
160
REAR DECK - X COMP.
DISP. - IN.


STAGED COLLISION TEST #6
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 - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
0
-20
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-60
-40
-20
0
20
REAR DECK - Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #6
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
2
0
-2
-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.
2
1
0
-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
20
0
-20
0
0.40
0.80
1.20
1.60
REAR DECK - Z COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
UPPER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-8
-16
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
UPPER RIGHT FRONT DOOR - Y
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
UPPER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-16
-12
-8
-4
0
UPPER RIGHT FRONT DOOR - Y
DISP. - IN.


CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S (X10)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER RIGHT 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
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10)
20
0
-20
-40
-20
0
20
40
LOWER RIGHT FRONT DOOR - Y
DISP. - IN.

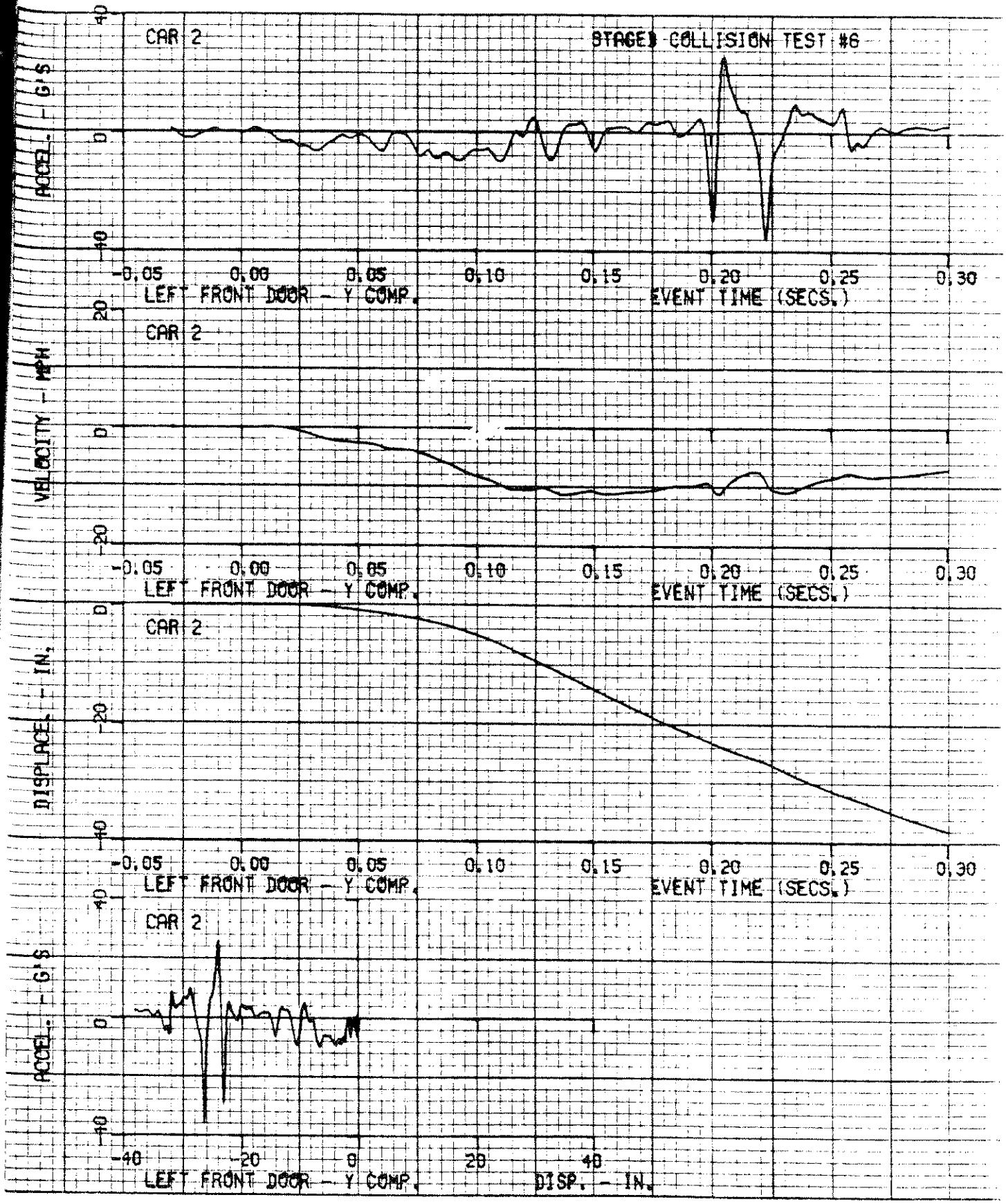

CAR 2
STAGE I COLLISION TEST #6
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT DOOR - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
0
-20
LEFT FRONT DOOR - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
LEFT FRONT DOOR - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-40
-20
0
20
40
LEFT FRONT DOOR - Y COMP.
DISP. - IN.

TABLE 12-7

DUMMY INJURY CRITERIA VALUES

CAR 2 - STRUCK VEHICLE

	MAXIMUM ACCELERATION ("G") *											
	HEAD				CHEST				PELVIS			
	X	Y	Z	R	X	Y	Z	R	X	Y	Z	R
DUMMY (1)	-10	17	23	24.5	***	***	***	***		-14		
DUMMY (2)	20	50	30	52	-14	-40	-17	42		-80		
DUMMY (3)												
DUMMY (4)												

	MAXIMUM FORCE-FEMUR LOAD (LBS)	
	RIGHT FEMUR	LEFT FEMUR
DUMMY (1)	-300	-240
DUMMY (2)	200	250
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)	90.4	.096	.214	14.3	114.4	***
DUMMY (2)	109.8	.147	.152	53.8	272.1	260
DUMMY (3)						
DUMMY (4)						

*DEFINED AS EXCEEDING 0.003 SEC. DURATION

**AS DEFINED IN FMVSS NO. 208

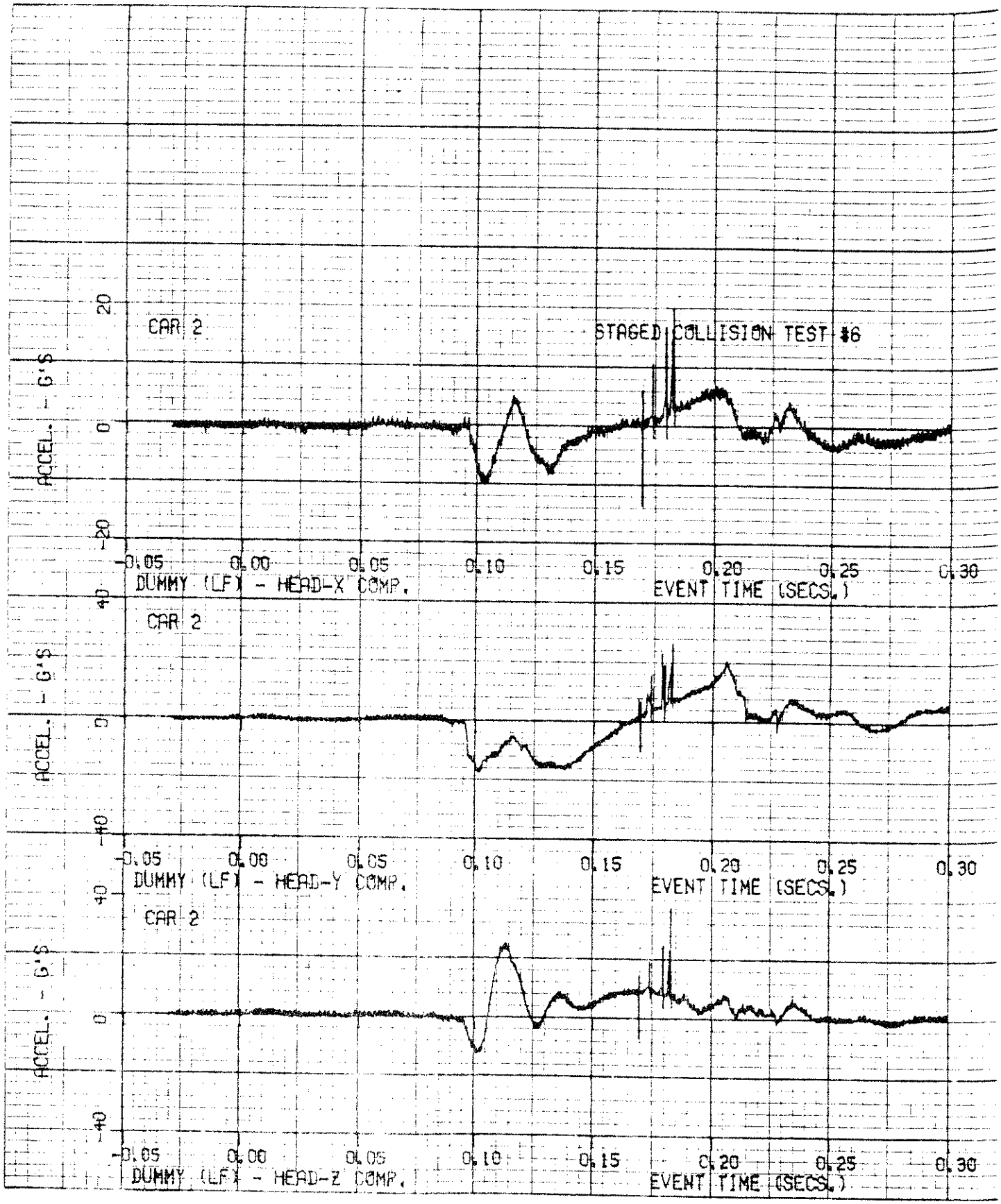
***DATA LOST DUE TO BAD TAPE CHANNELS.

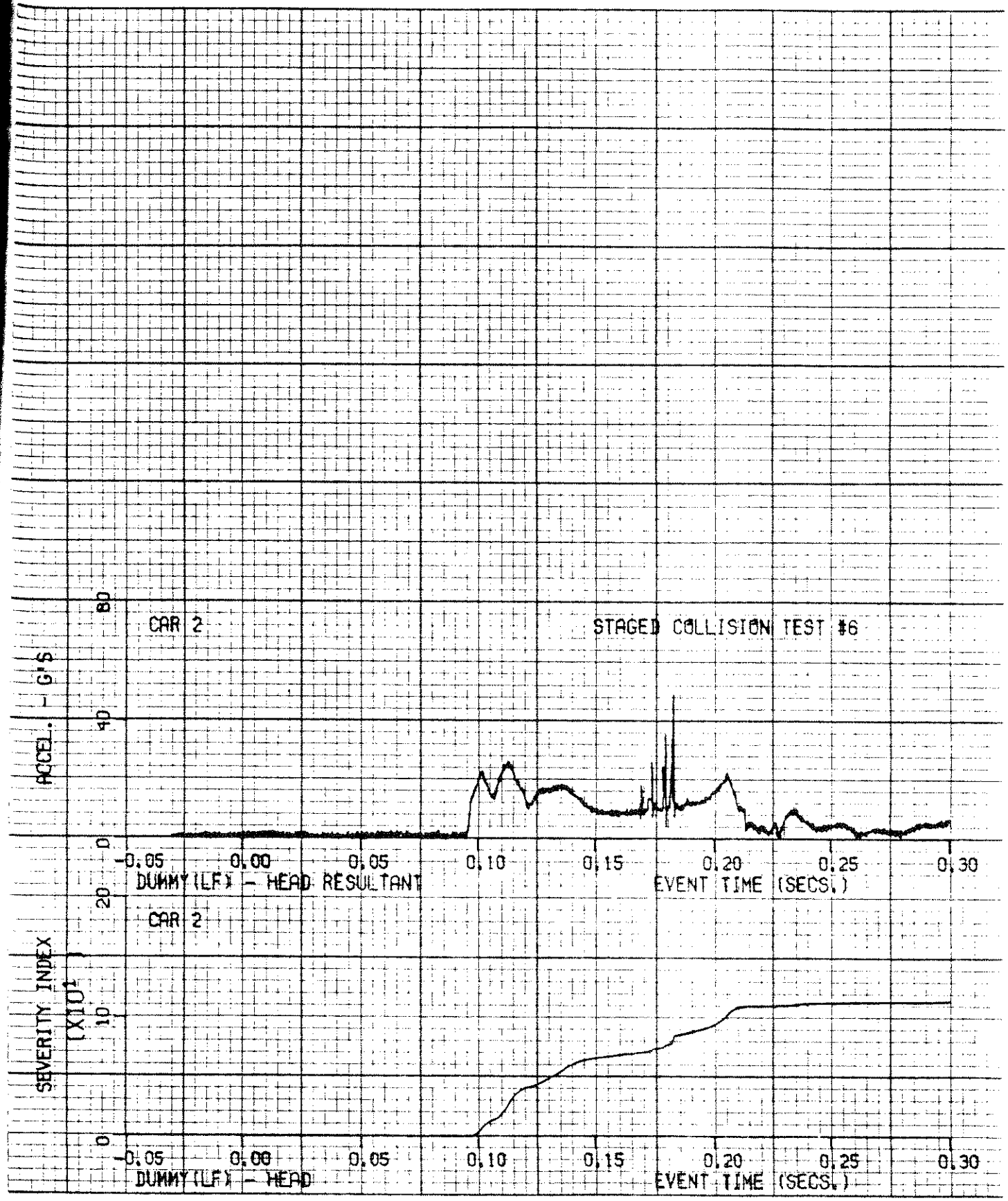
RICSAC TEST NO. 6

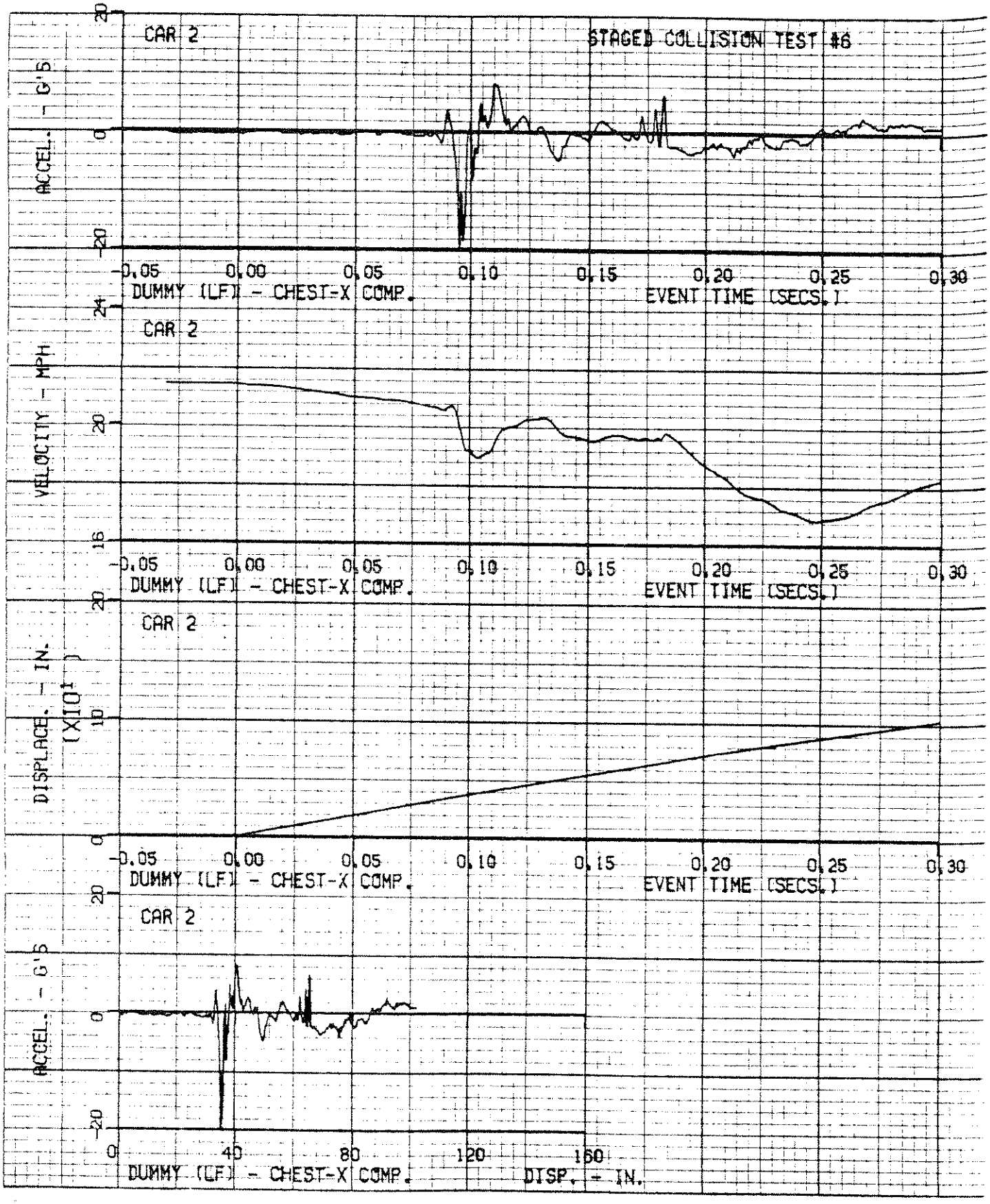
DUMMY DATA

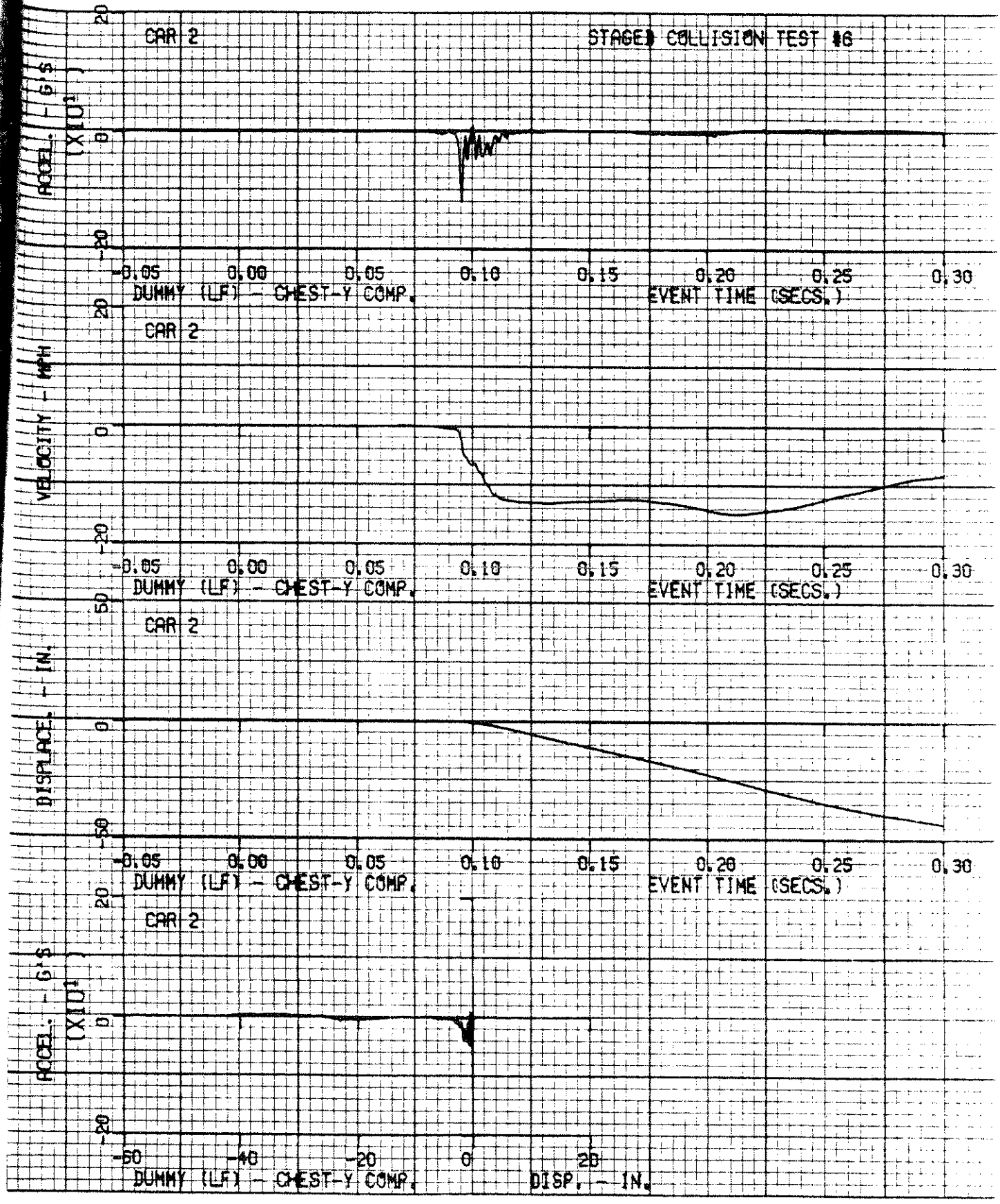
CAR NO. 2 VW RABBIT

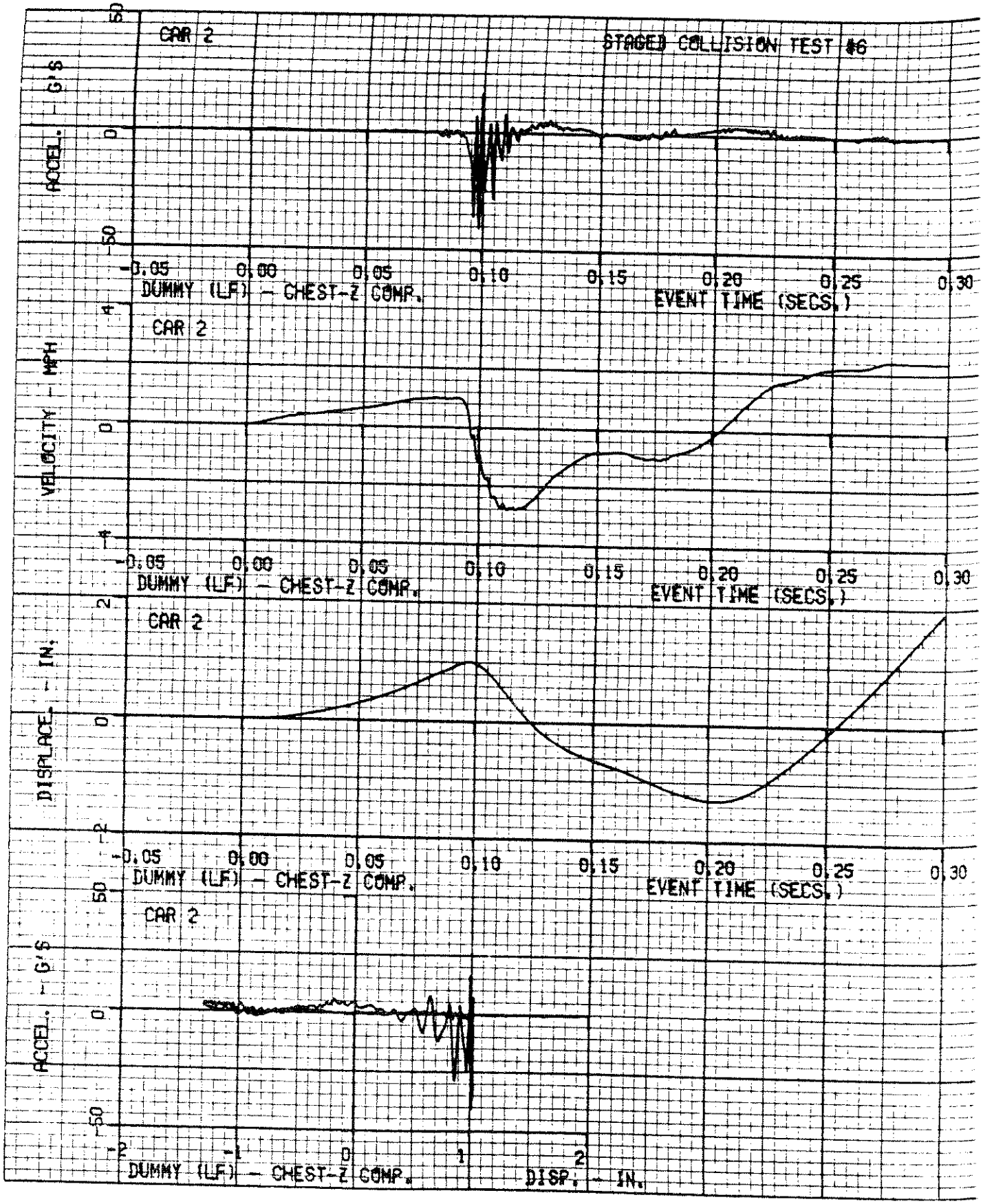
DATA PLOTS		FILTER CLASS
HEAD ACCELERATION	X,Y,X	1000
HEAD RESULTANT		
HEAD SEVERITY INDEX		
CHEST ACCELERATION	X,Y,Z	180
CHEST RESULTANT		
CHEST VELOCITY	X,Y,Z	
CHEST DISPLACEMENT	X,Y,Z	
CHEST SEVERITY INDEX		
PELVIC ACCELERATION	X	180
PELVIC VELOCITY	X	
PELVIC DISPLACEMENT	X	
FEMUR LOADS	L & R	600

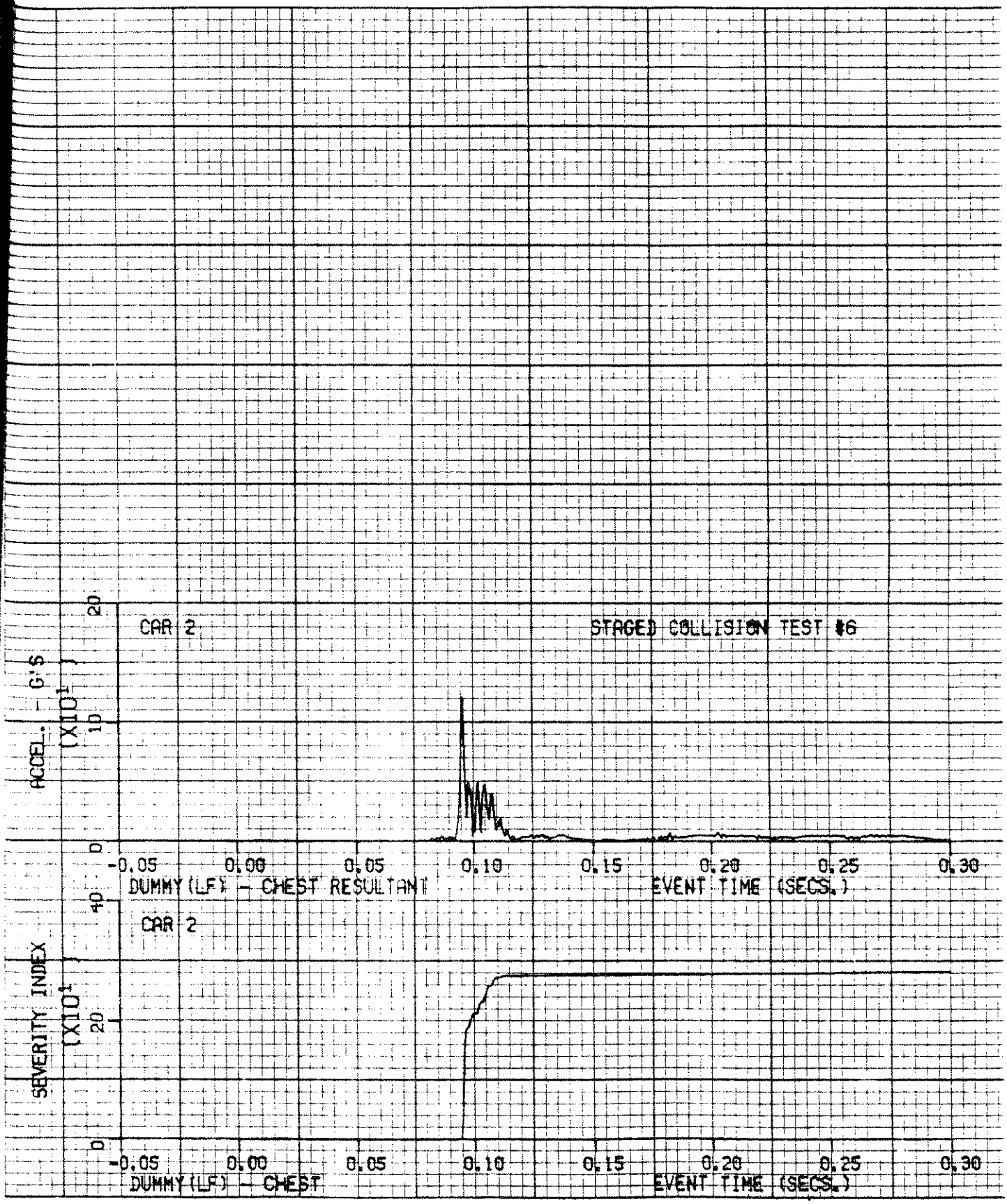

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
DUMMY (LF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
DUMMY (LF) - HEAD-Z COMP.
EVENT TIME (SECS.)

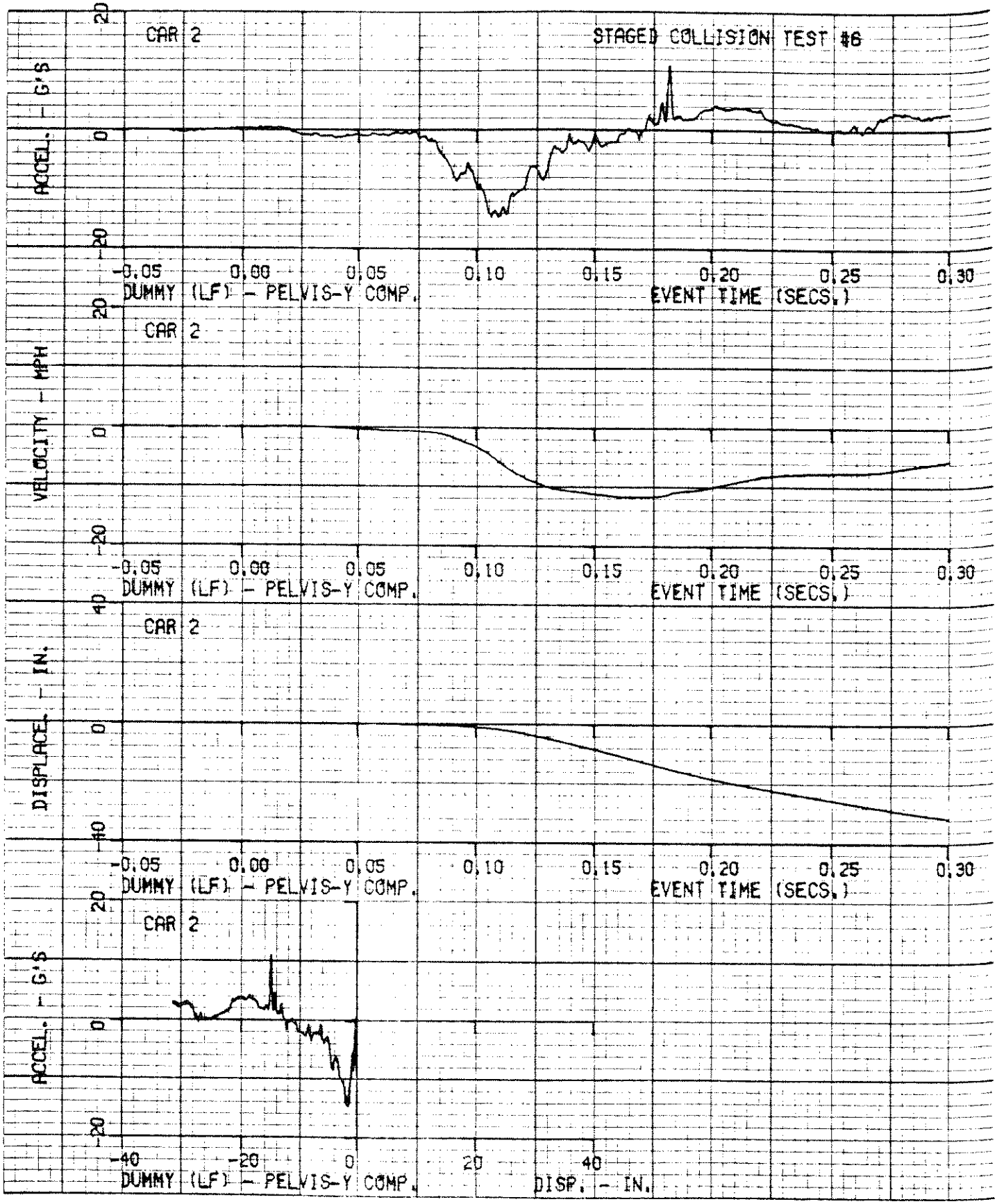

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10²)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD
EVENT TIME (SECS.)

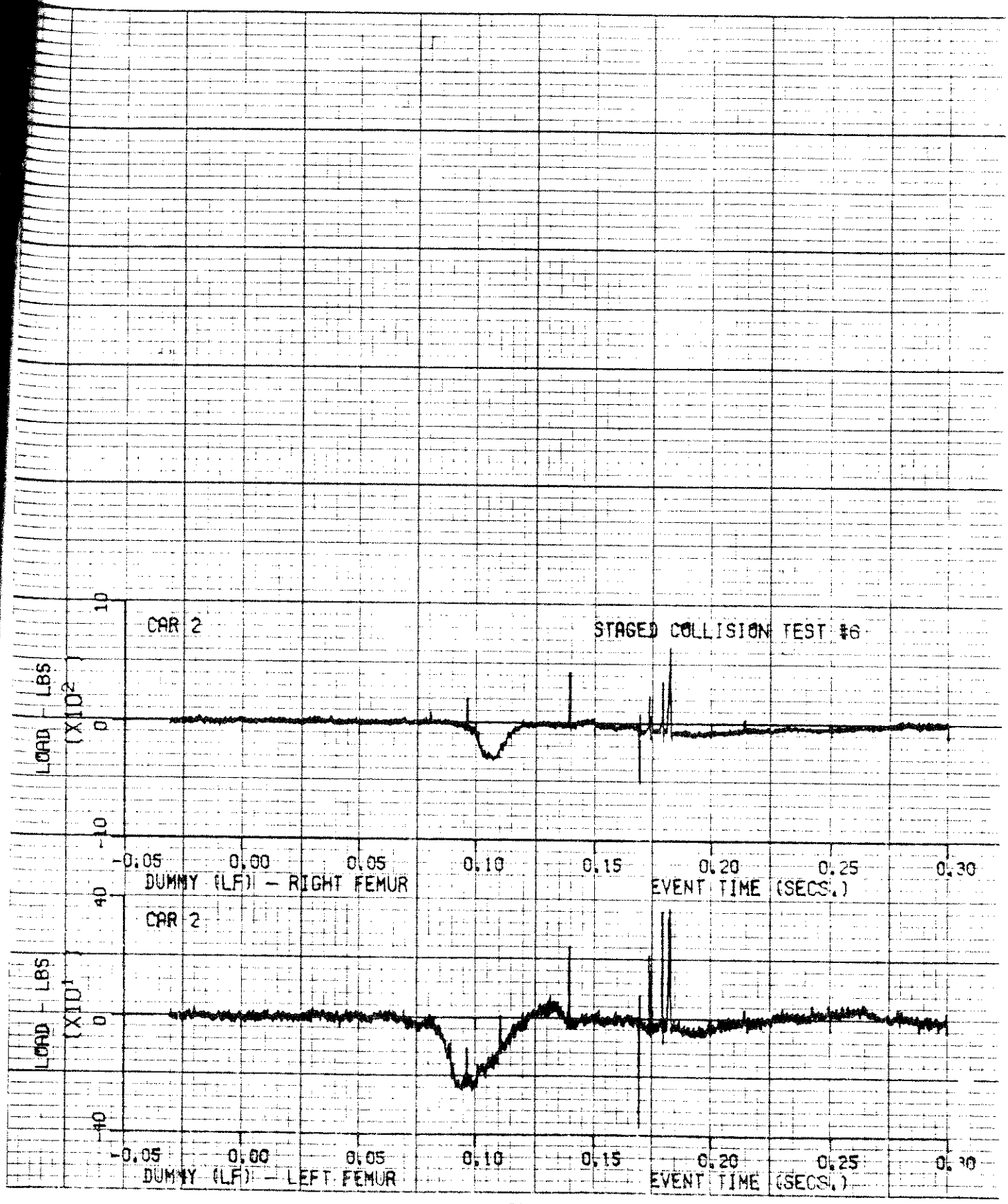

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
24
20
16
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10¹)
20
10
0
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
0
40
80
120
160
DUMMY (LF) - CHEST-X COMP.
DISP. - IN.

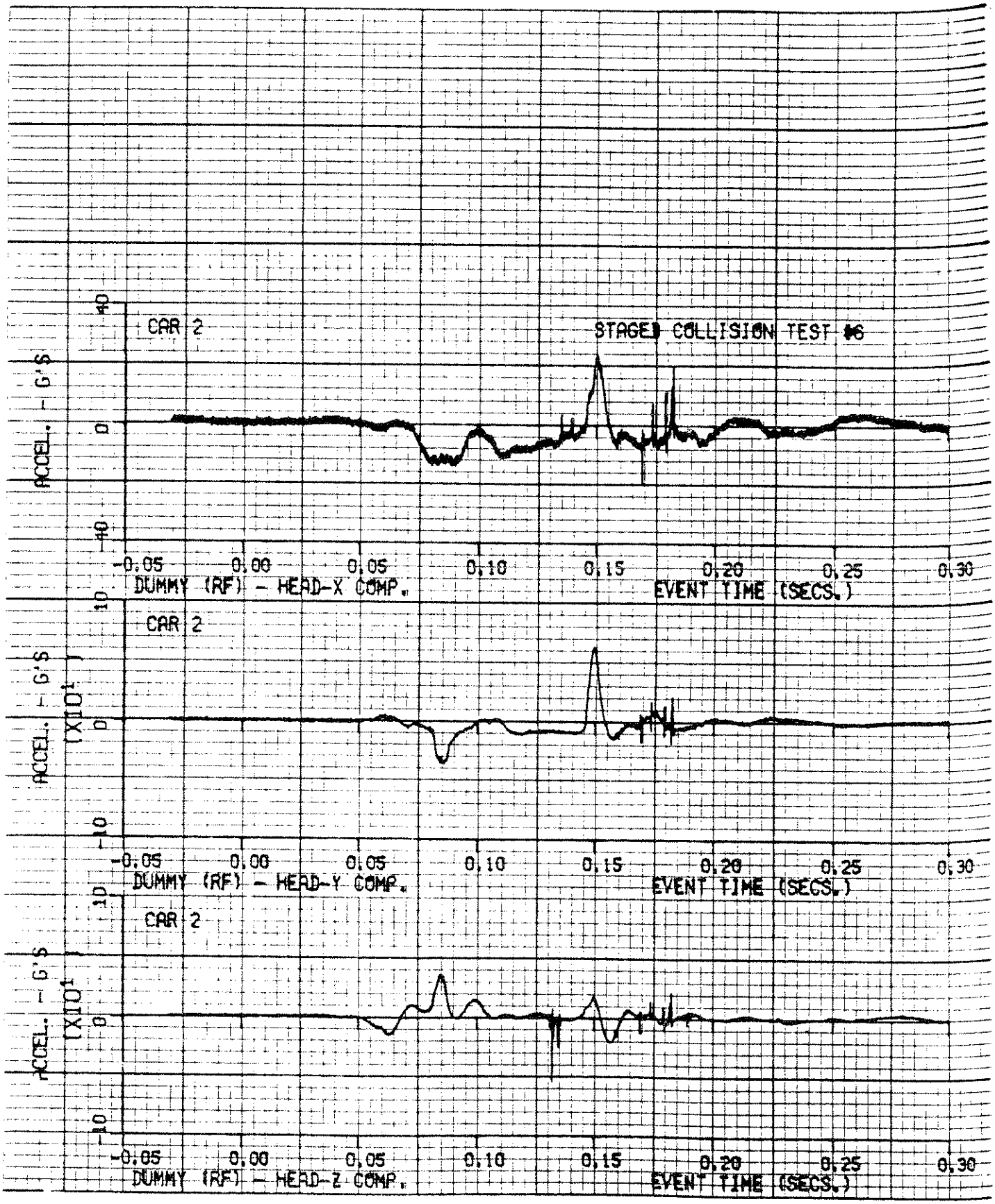

CAR 2
STAGE 1 COLLISION TEST #6
ACCEL. - G'S (X10¹)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-20
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-50
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
20
0
-20
-60
-40
-20
0
20
DUMMY (LF) - CHEST-Y COMP.
DISP. - IN.

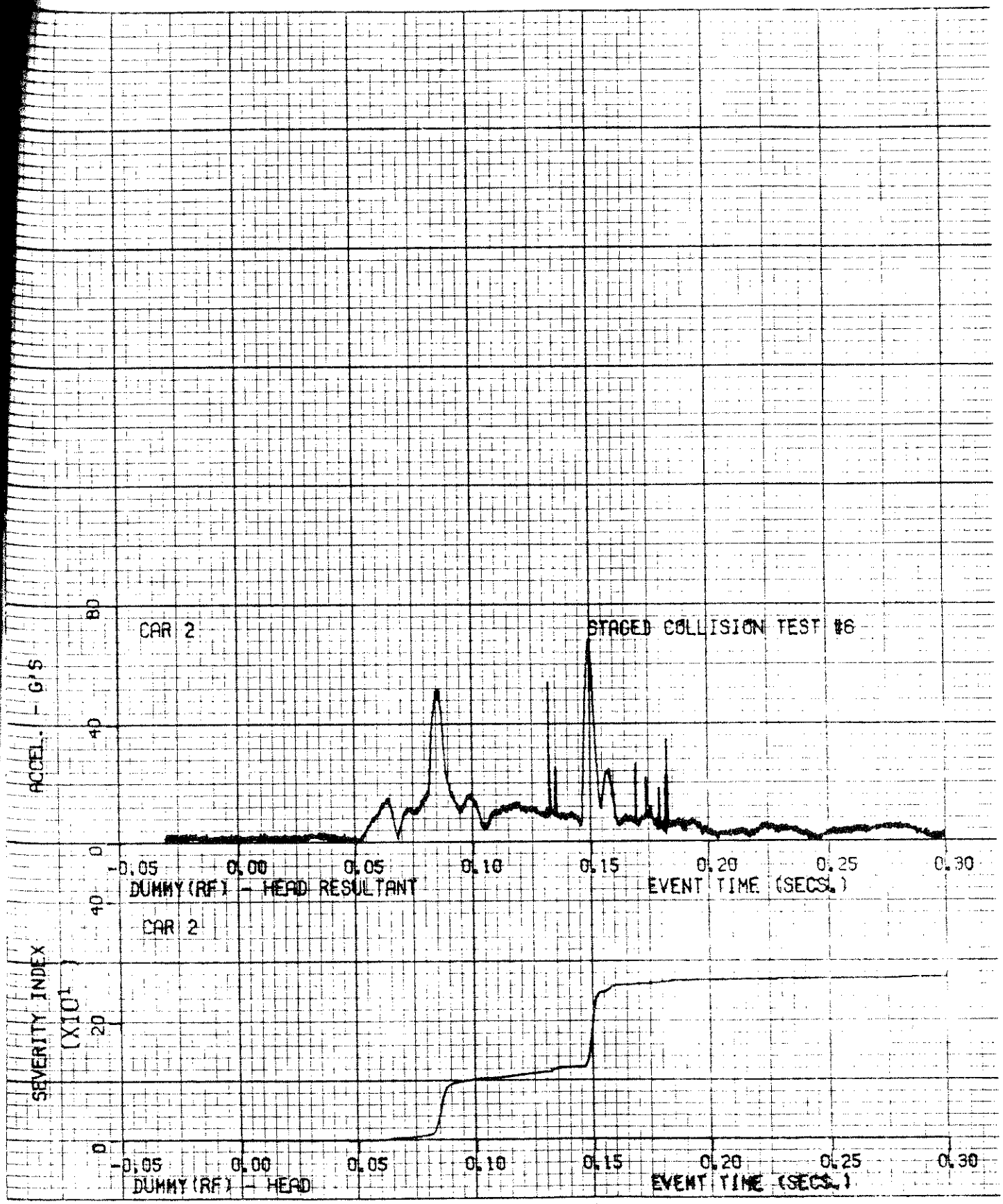

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
50
0
-50
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
2
0
-2
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
50
0
-50
-2
-1
0
1
2
DUMMY (LF) - CHEST-Z COMP.
DISP. - IN.

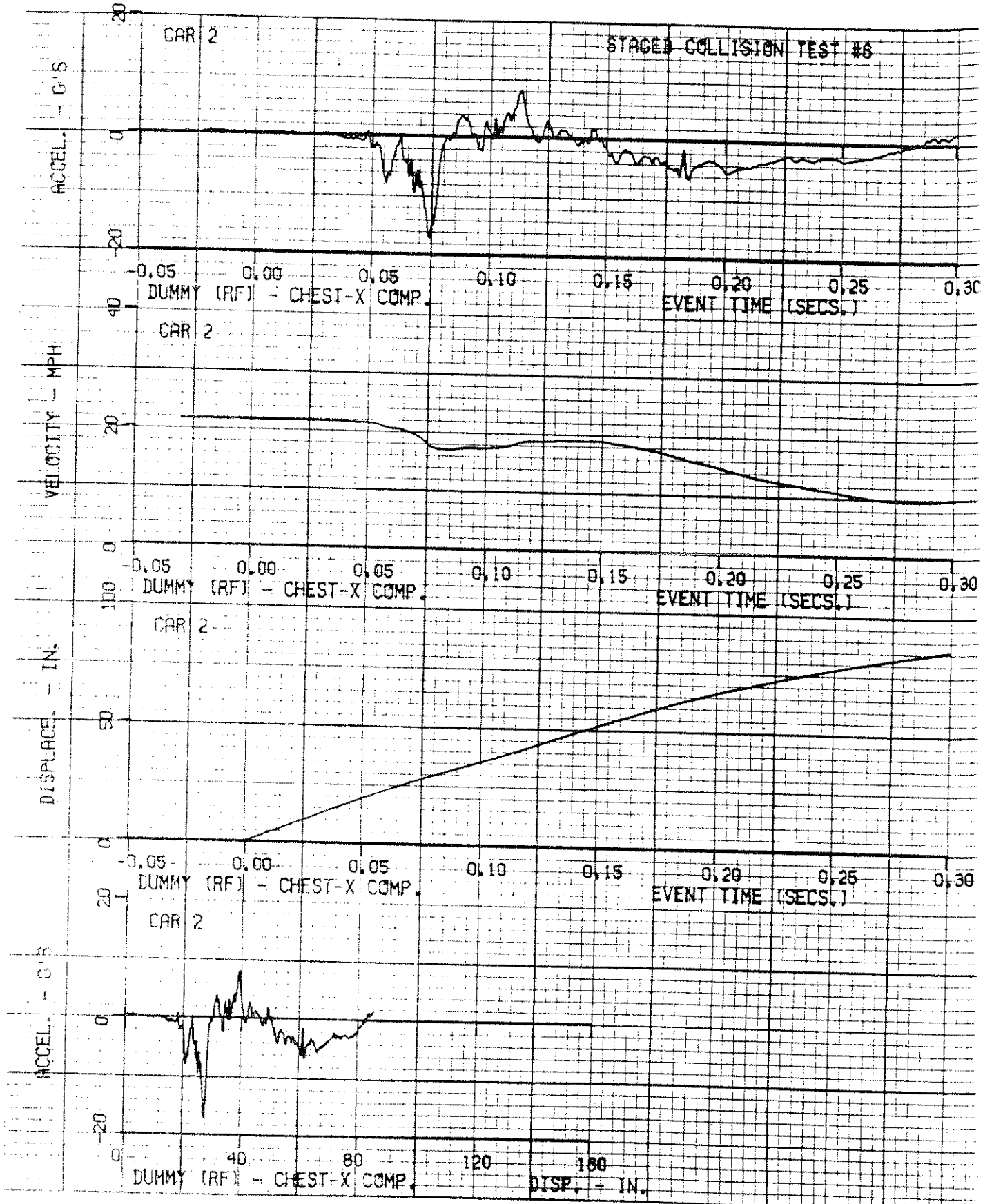

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S (X10¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10⁴)
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST
EVENT TIME (SECS.)


CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-Y COMP.
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
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-40
-20
0
20
40
DUMMY (LF) - PELVIS-Y COMP.
DISP. - IN.

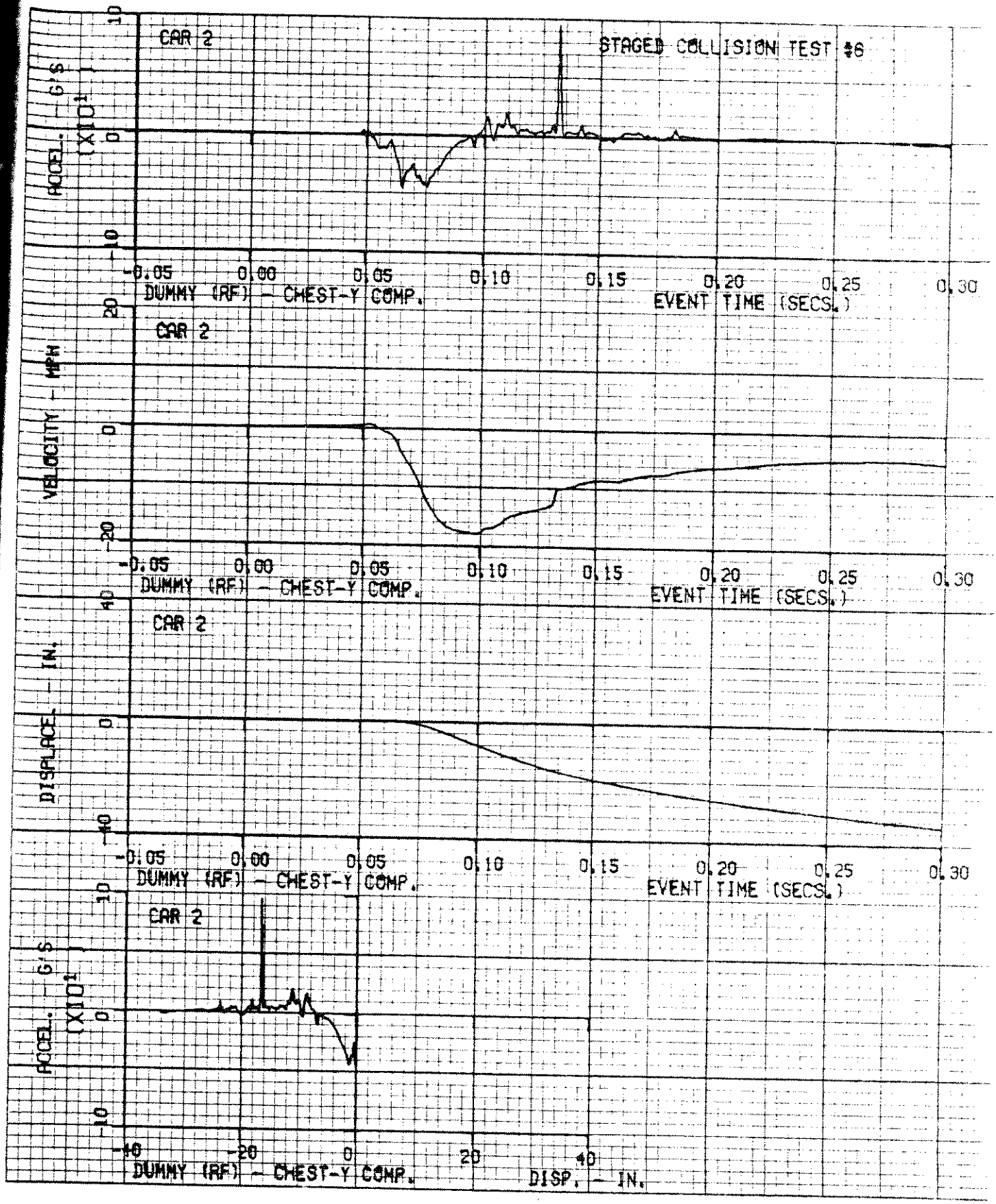

CAR 2
STAGED COLLISION TEST #6
LOAD - LBS (X10²)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 2
LOAD - LBS (X10¹)
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - LEFT FEMUR
EVENT TIME (SECS.)

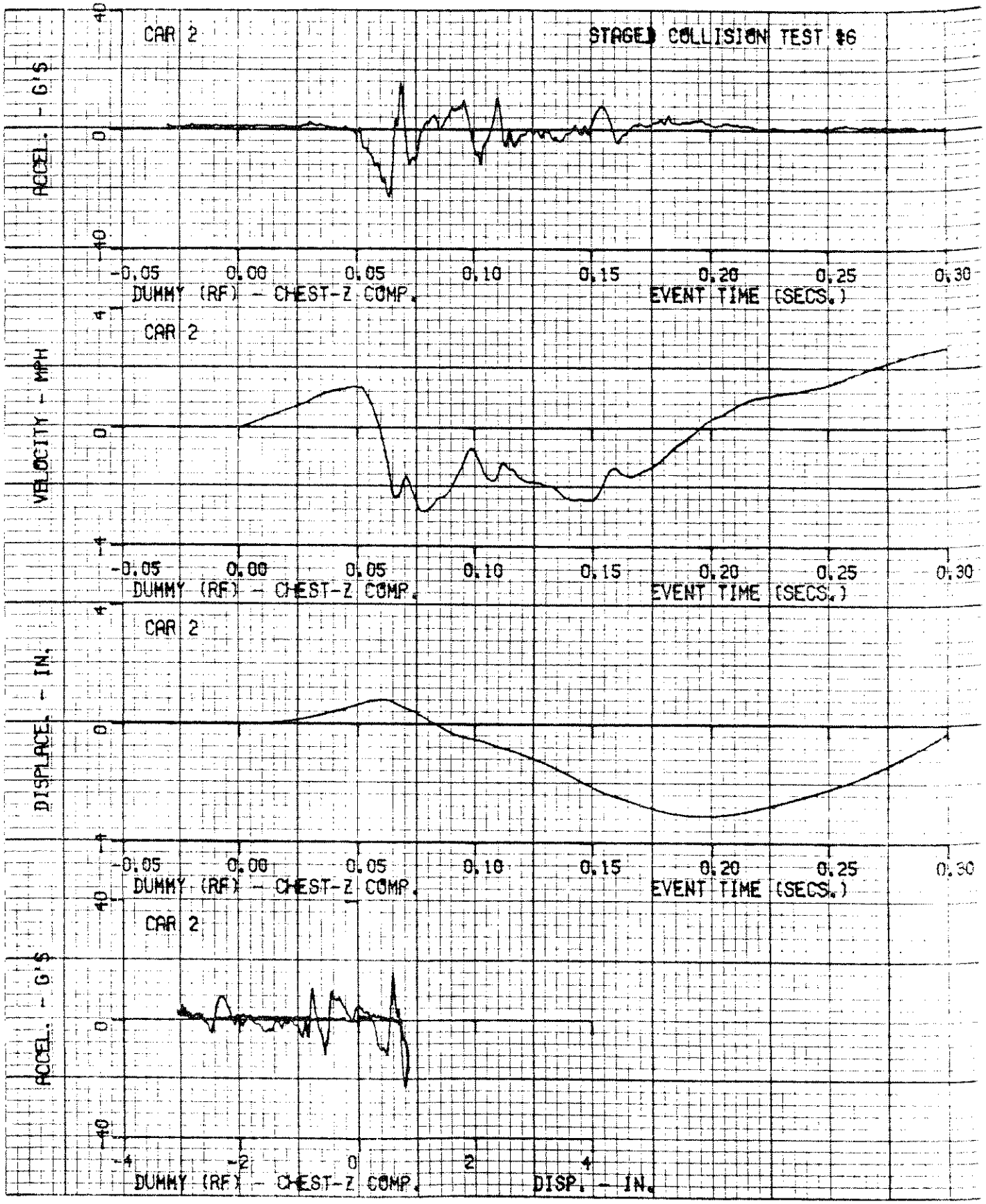

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
DUMMY (RF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
DUMMY (RF) - HEAD-Z COMP.
EVENT TIME (SECS.)

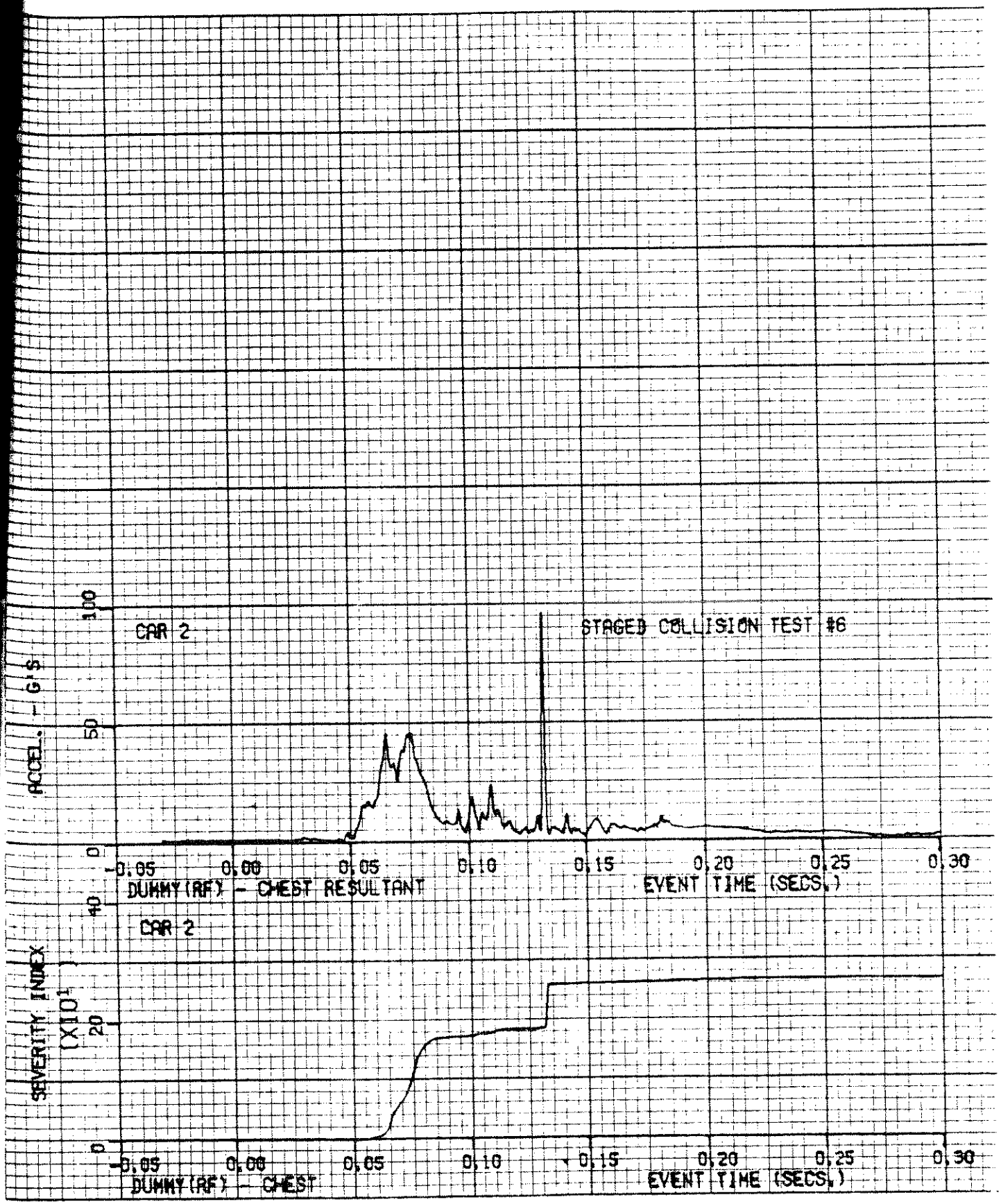

CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10¹)
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD
EVENT TIME (SECS.)

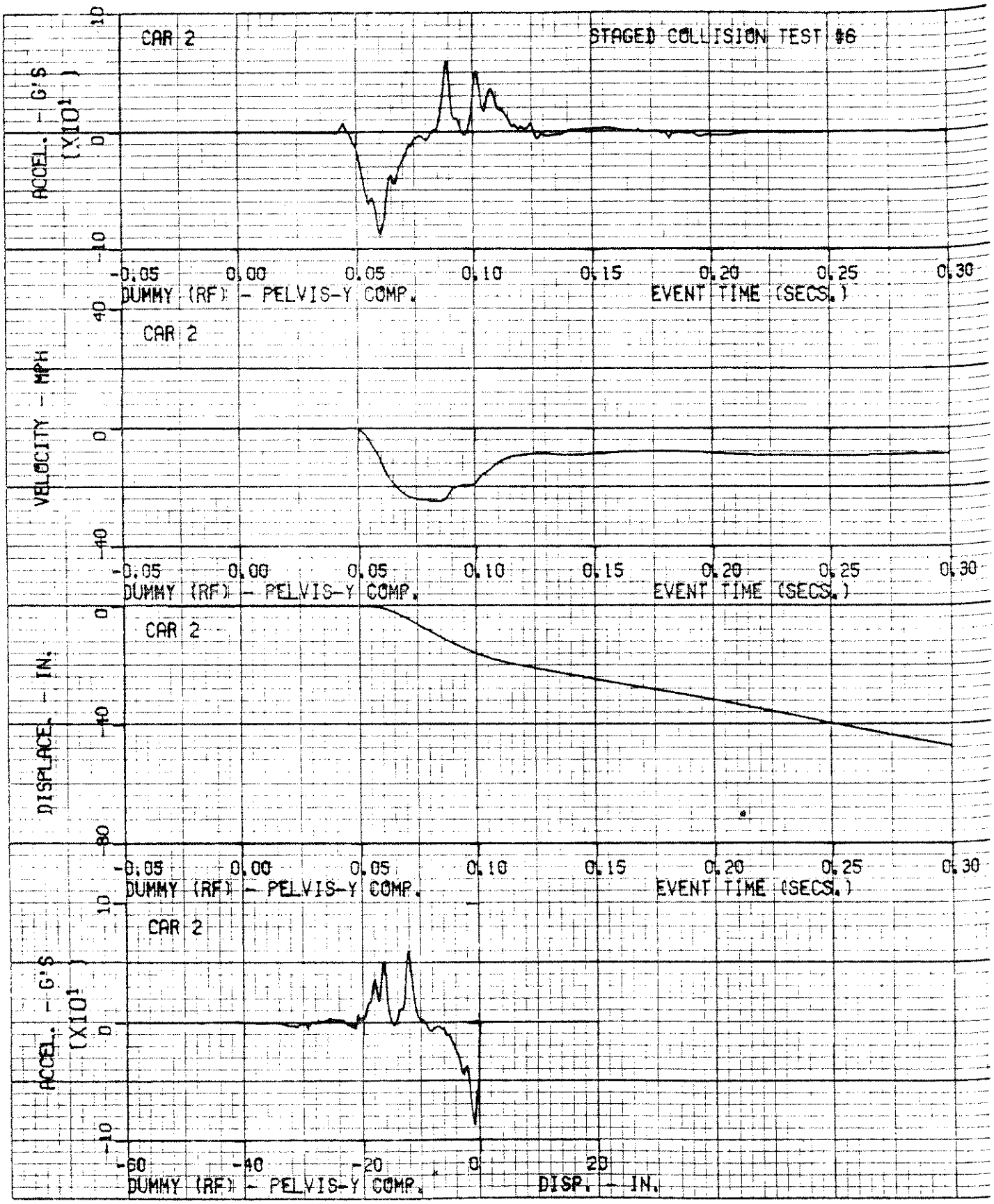

STAGED COLLISION TEST #6
CAR 2
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
20
0
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
100
50
0
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
0
40
80
120
160
DUMMY (RF) - CHEST-X COMP.
DISP. - IN.

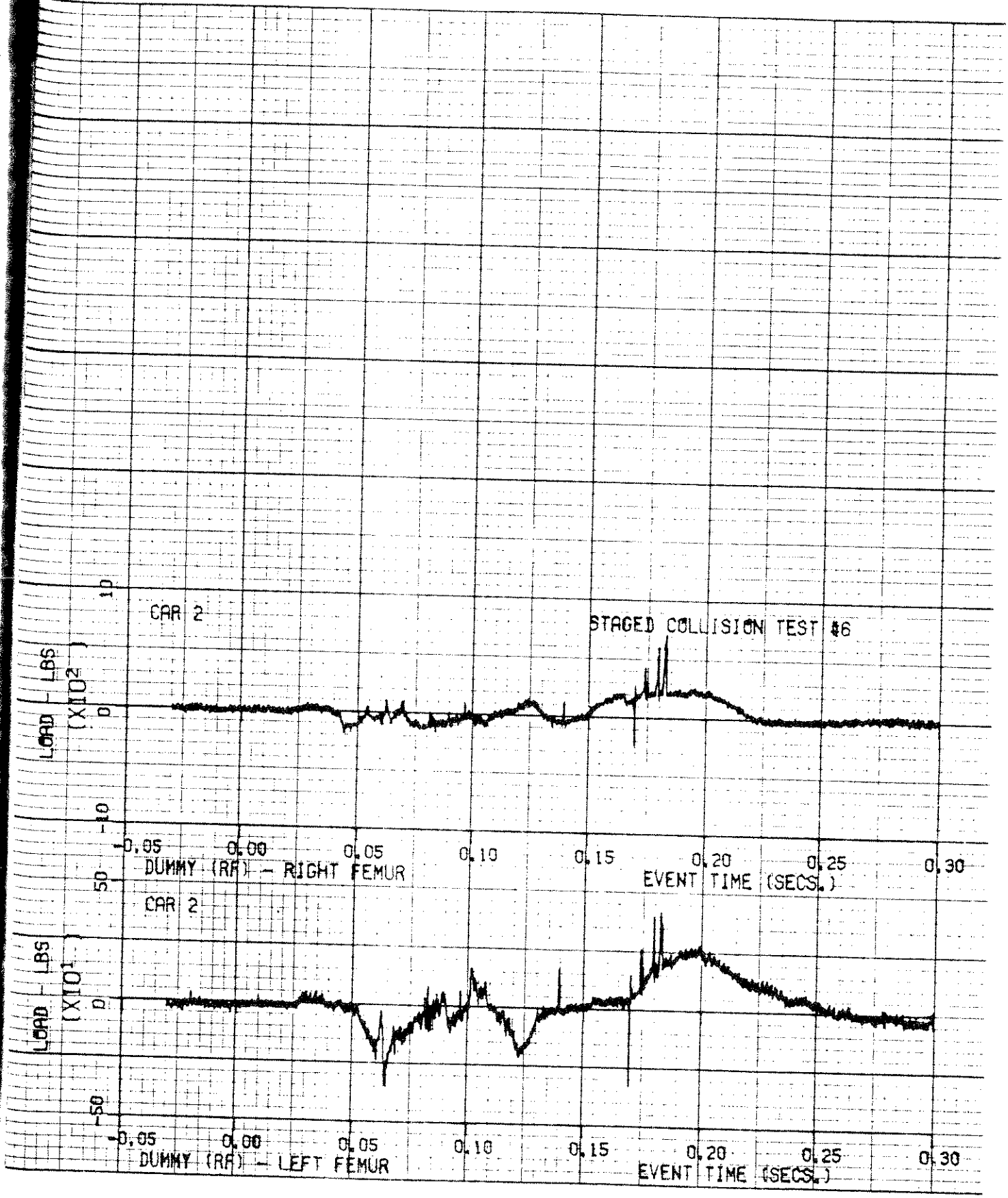
ZQ-6057-V-5


CAR 2
STAGED COLLISION TEST #6
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
20
0
-20
DUMMY (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
40
0
-40
DUMMY (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10)
10
0
-10
-40
-20
0
20
40
DUMMY (RF) - CHEST-Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #6
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-Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
4
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
4
0
4
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
40
-4
-2
0
2
4
DUMMY (RF) - CHEST-Z COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #6
ACCEL. - G'S
100
50
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 (X10¹)
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
STAGED COLLISION TEST #6
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.
0
-40
-80
DUMMY (RF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
-60
-40
-20
0
20
DUMMY (RF) - PELVIS-Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #6
LOAD - LBS (X10²)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 2
LOAD - LBS (X10¹)
50
0
-50
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - LEFT FEMUR
EVENT TIME (SECS.)

TEST NO. 7

RICSAC STAGED COLLISION

FRONT-TO-SIDE
OBLIQUE - OFFSET

CHEVELLE/VOLKSWAGEN RABBIT

VELOCITY 29.1 MPH

13.0 RICSAC STAGED COLLISION - TEST NO. 7

EXPERIMENTAL RESULTS

Test Description

This collision involved a 1974 Chevrolet Chevelle Malibu (V-1) striking a 1975 VW Rabbit (V-2) on the right side near "A" pillar at an oblique angle of 60 degrees as shown in Figure 13-1.The impact velocity of both vehicles was 29.1 mph. The vehicle test weights were 3310 and 2610 pounds for the Chevelle and VW, respectively. Each vehicle had two Part 572 test dummies (50 percentile) seated in the front seat. The dummies in the VW were instrumented according to FMVSS 208 and were unrestrained. In the Chevelle the dummies were uninstrumented and were restrained with seat belts.

The Chevelle was equipped with automatic transmission, power steering and power brakes. The VW had manual transmission, steering and standard brakes. The accident was staged with both transmissions in drive position, brakes off and the engines not running. During the collision no steering control inputs or vehicle braking was applied. The roadway was dry with skid resistance value of 87.

Approximately one car length before impact the vehicle tow cable was released and the vehicle guide rail was terminated. At this point in time and during the collision both vehicles are free bodies with no constraints except the normal collision forces and reactions encountered in this type of car-to-car collision. During the collision event no observed tow cable or instrumentation cable interference with the mounting vehicles was noted.

ACCIDENT SCHEMATIC

VEHICLES:

No. 1 - 1974 CHEVROLET MALIBU
No. 2 - 1975 VOLKSWAGEN RABBIT

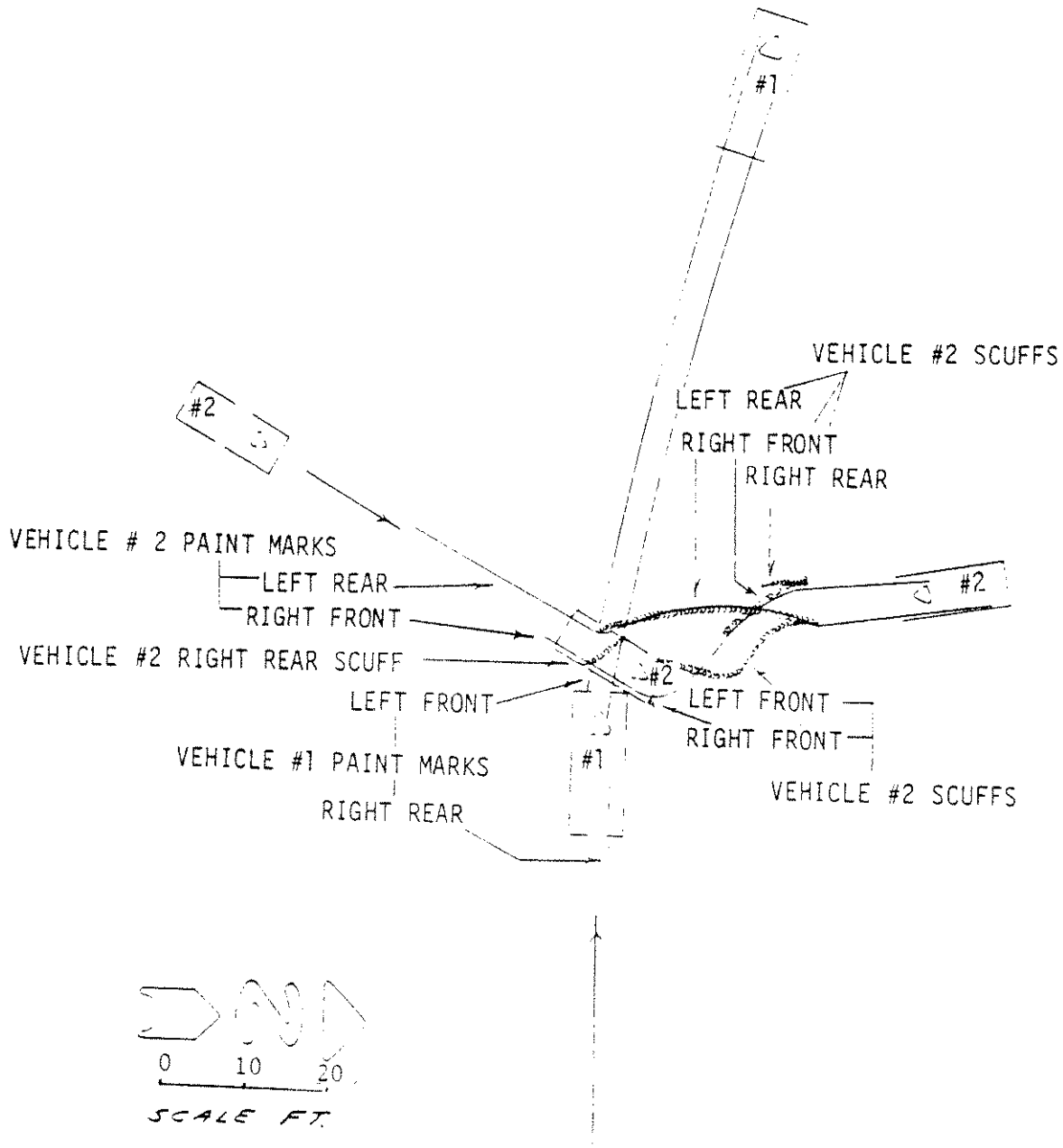


Figure 13-1 TEST NO. 7 - RICSAC ACCIDENT SCHEMATIC

CRASH TEST SUMMARY

TEST NO. 7 PROJECT RICSAC

DATE 5/31/78 TIME 12:25 TEMP. 74°F

TEST CONDITION Side Oblique Offset

VEHICLE NO. 1 1974 Chevrolet Chevelle

VEHICLE NO. 2 1975 VW Rabbit

	VEH. NO. 1	VEH. NO. 2
TEST WEIGHT (lbs)	3310	2610
IMPACT ANGLE (deg)*	60°	0
IMPACT VELOCITY (mph)**	29.07	29.07
MAX. CRUSH (in)		
MAX. INTRUSION (in)		

DUMMIES	VEH. NO. 1	VEH. NO. 2
TYPE	Part 572	Part 572
LOCATION	Driver (LF), Passenger (RF)	Driver (LF), Passenger (RF)
RESTRAINT	3-Point Restraint	Unrestrained
	Uninstrumented	Instrumented

NUMBER OF DATA CHANNELS 64
NUMBER OF HIGH SPEED CAMERAS 11

*WITH RESPECT TO TOW TRACK CENTERLINE

**SPEED TRAP MEASUREMENT (±0.5% ACCURACY)

TABLE 13-1
TEST NO. 7 - CAR NO. 1
VEHICLE DATA

TEAM	YEAR	MONTH	DAY	SEQUENCE
	8	0 5	3	1

Vehicle data not collected. Reason? _____

Vehicle No. 1

14-15 No. of VIN Characters 1 3

16-22 VIN (Left Justify, Omit Production Numbers) 1 0 3 7 H 4 1

23-27 Make/Model (CPIR Code) CHEVROLET - MALIBU 1 1 3 0 1

28-32 Mileage (Odometer Reading) 99998 = 99998 mi. or more 99999 = Unknown 9 9 9 9 9

33-34 Model Year 7 4

35-36 BODY STYLE

Automobiles		Trucks		Other	
Passenger Car	(01)	Van - Passenger	05	School Bus	11
Stationwagon	02	- Cargo	06	Other Bus	12
Convertible	03	Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04	Pickup	08	Other Body Style	98
		Straight Truck	09	Unknown	99
		Tractor-Trailer	10		

VEHICLE WEIGHT

37-39 Curb 0 3 , 7 0 0

40-42 Occupant and Cargo Only ___ ___ , ___ 0 0

43 TOWING ANOTHER VEHICLE

Yes	1
No	(2)
Unknown	9

VEHICLE DAMAGE

	Object Contacted	CDC	Veh. No.	Impact No.
44-54 (1)	0 1	1 1 F D E W 1	2	1
55-65 (2)				
(3)				
(4)				

(1) = Highest Severity (Estimated ΔV)

66 VEHICLE TOWED FROM SCENE

Yes	1
No	2
Unknown	9

67 SOURCE OF VEHICLE DATA

Inspection at Repair or Tow Facility	1
Inspection at Person's Home	2
Inspection at Scene	3
Not Inspected (Photos or Repair Data)	4
Not Inspected. Reason. _____	5
Unknown	9

68 VEHICLE INSPECTION

Not Inspected	0
Inspected on First Visit	1
Actual Number of Locations Visited (Including Follow-Ups to Same Location)	2 3 4 5 6 7
8 or More	8
Unknown	9

69 APPLICABLE VEHICLE

Yes	1
No	2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED ON THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

Figure 13-2

VEHICLE CRUSH SCHEMATIC
TEST NO. 7 - CAR NO. 1

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

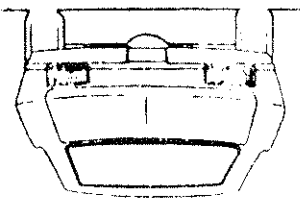
RF 2

LF 2

RR 2

LR 2

1 Yes, 2 No, 8 NA, 9 Unk.



WHEEL STEER ANGLES*

(For locked front wheels or displaced rear axles only)

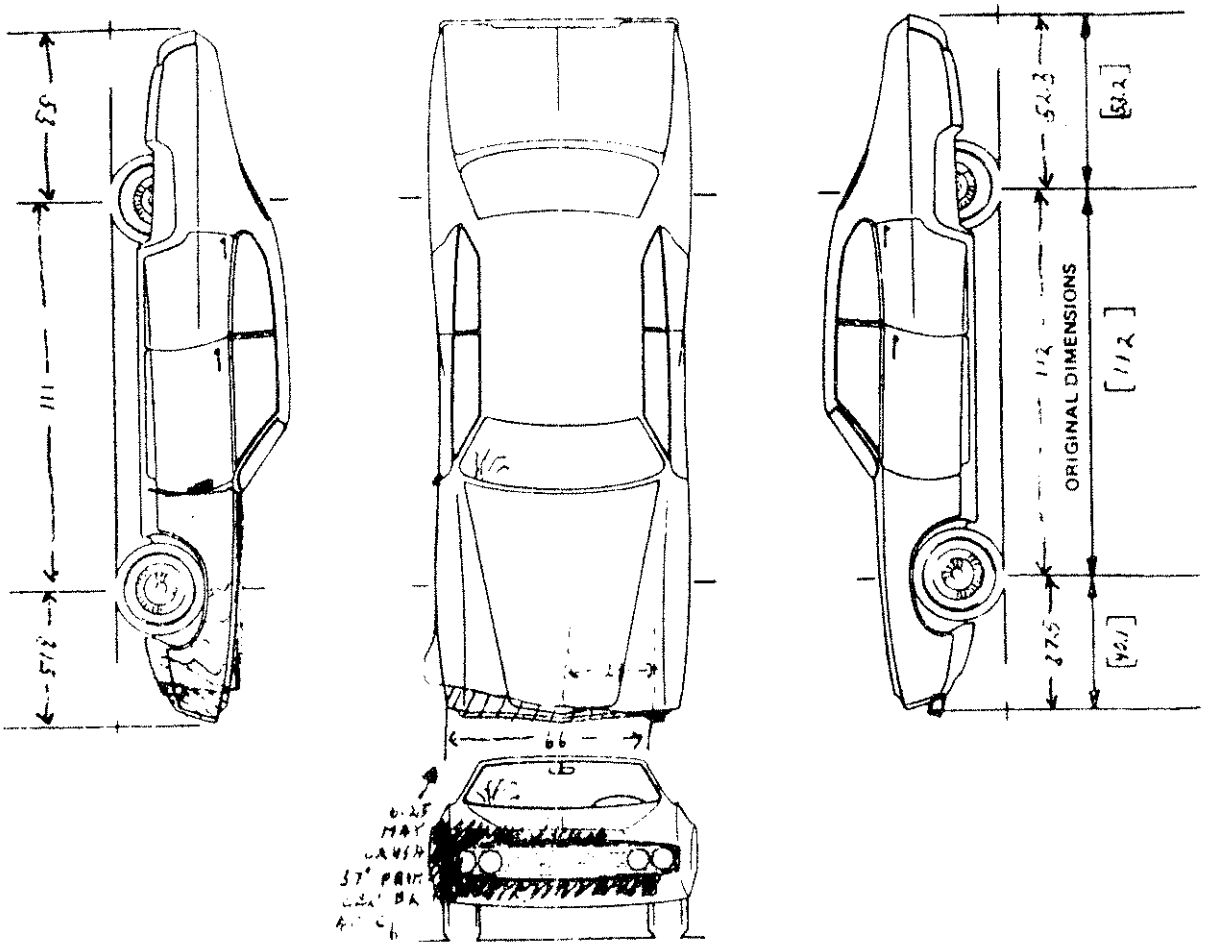
RF + -

LF + -

RR + -

LR + -

Within ± 5°



Impact Number	L	C_1	C_2	C_3	C_4	C_5	C_6	D±
1	66	0	1.25	2	3.75	5	6.25	+4
2								
3								
4								

NOTE: MEASURE C_1 TO C_6 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS: REAR TO FRONT IN SIDE IMPACTS

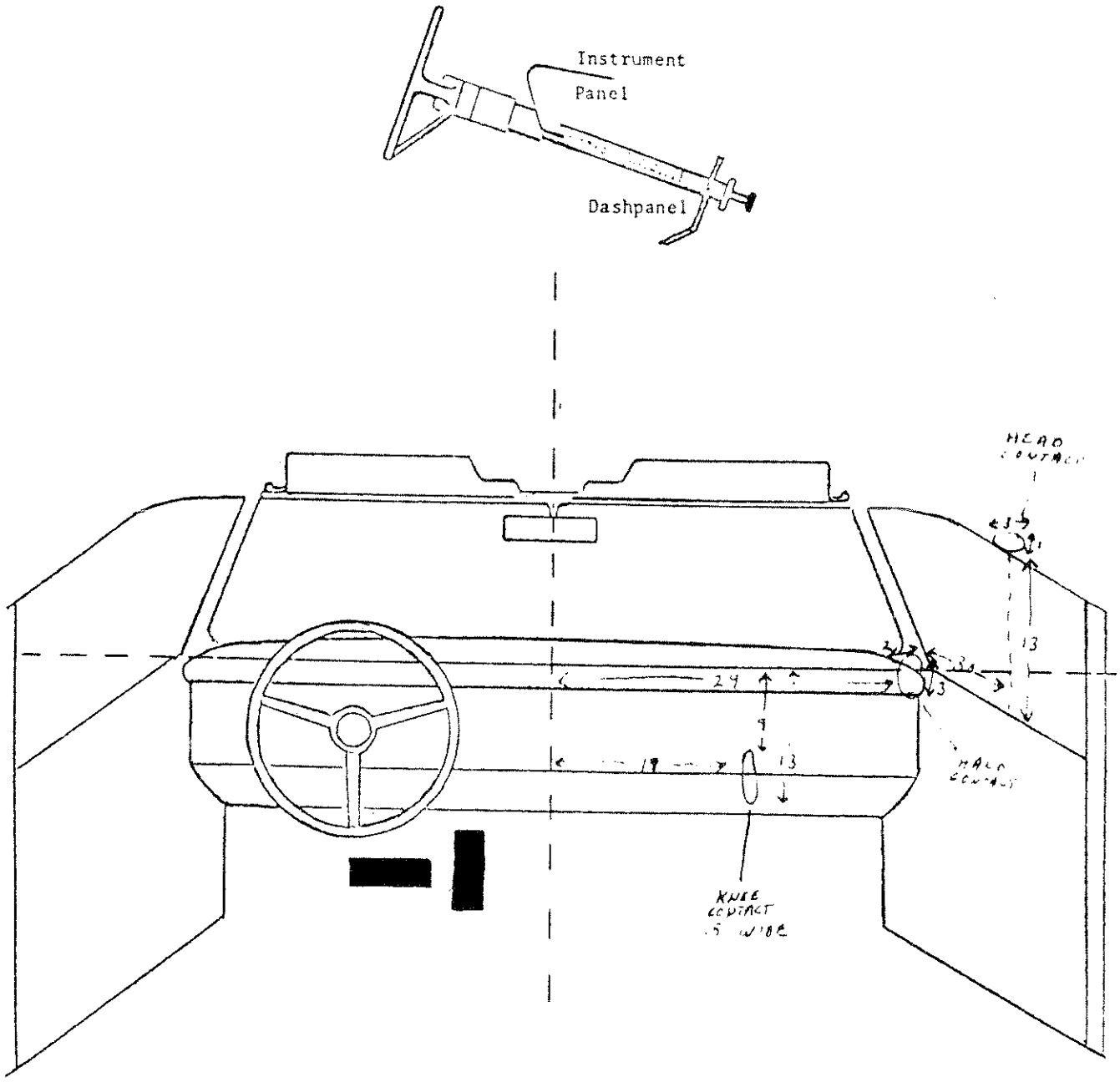
Figure 13-3

OCCUPANT CONTACT DATA

TEST NO. 7 - CAR NO. 1

VEHICLE INTERIOR

Occupant Contacts



Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and code on next two pages. Dash lines indicate center of instrument panel-windshield area and top of panel for measurement purposes.

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TABLE 13-2

TEST NO.	YEAR	MONTH	DAY	SEQUENCE
	80	05	31	

TEST NO. 7 - CAR NO. 2

VEHICLE DATA

Vehicle data not collected. Reason? _____

Vehicle No. 2 — 14-15 No. of VIN Characters 10

16-22 VIN (Left Justify, Omit Production Numbers) 1 / 5 3 2 8 1

23-27 Make/Model (CPIR Code) VOLKSWAGEN - RABBIT — 66109

28-32 Mileage (Odometer Reading) 99998 = 99998 mi. or more; 99999 = Unknown — 56061.

33-34 Model Year — 75

35-36 BODY STYLE

Automobiles		Trucks		Other	
Passenger Car	(01)	Van - Passenger	05	School Bus	11
Stationwagon	02	- Cargo	06	Other Bus	12
Convertible	03	Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04	Pickup	08	Other Body Style	98
		Straight Truck	09	Unknown	99
		Tractor-Trailer	10		

VEHICLE WEIGHT

37-39 Curb — 0 1 7 0 0

40-42 Occupant and Cargo Only — 0 0

43 TOWING ANOTHER VEHICLE

Yes	1
No	(2)
Unknown	9

VEHICLE DAMAGE

	Object Contacted	CDC	Veh. No.	Impact No.	
44-54 (1)	03	02 REDEW4	1	1	(1) = Highest Severity (Estimated ΔV)
55-65 (2)					
(3)					
(4)					

66 VEHICLE TOWED FROM SCENE

Yes	1
No	2
Unknown	9

67 SOURCE OF VEHICLE DATA

Inspection at Repair or Tow Facility	1
Inspection at Person's Home	2
Inspection at Scene	3
Not Inspected (Photos or Repair Data)	4
Not Inspected. Reason. _____	5
Unknown	9

68 VEHICLE INSPECTION

Not Inspected	0
Inspected on First Visit	1
Actual Number of Locations Visited (Including Follow-Ups to Same Location)	2 3 4 5 6 7
8 or More	8
Unknown	9

69 APPLICABLE VEHICLE

Yes	1
No	2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED ON THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

Figure 13-4

VEHICLE CRUSH SCHEMATIC

TEST NO. 7 - CAR NO. 2

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

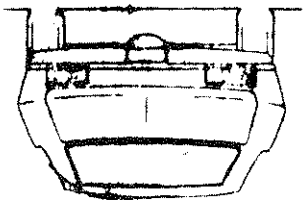
RF 2

LF 2

RR 1

LR 2

1 Yes, 2 No, 8 NA, 9 Unk.



WHEEL STEER ANGLES*

(For locked front wheels or displaced rear axles only)

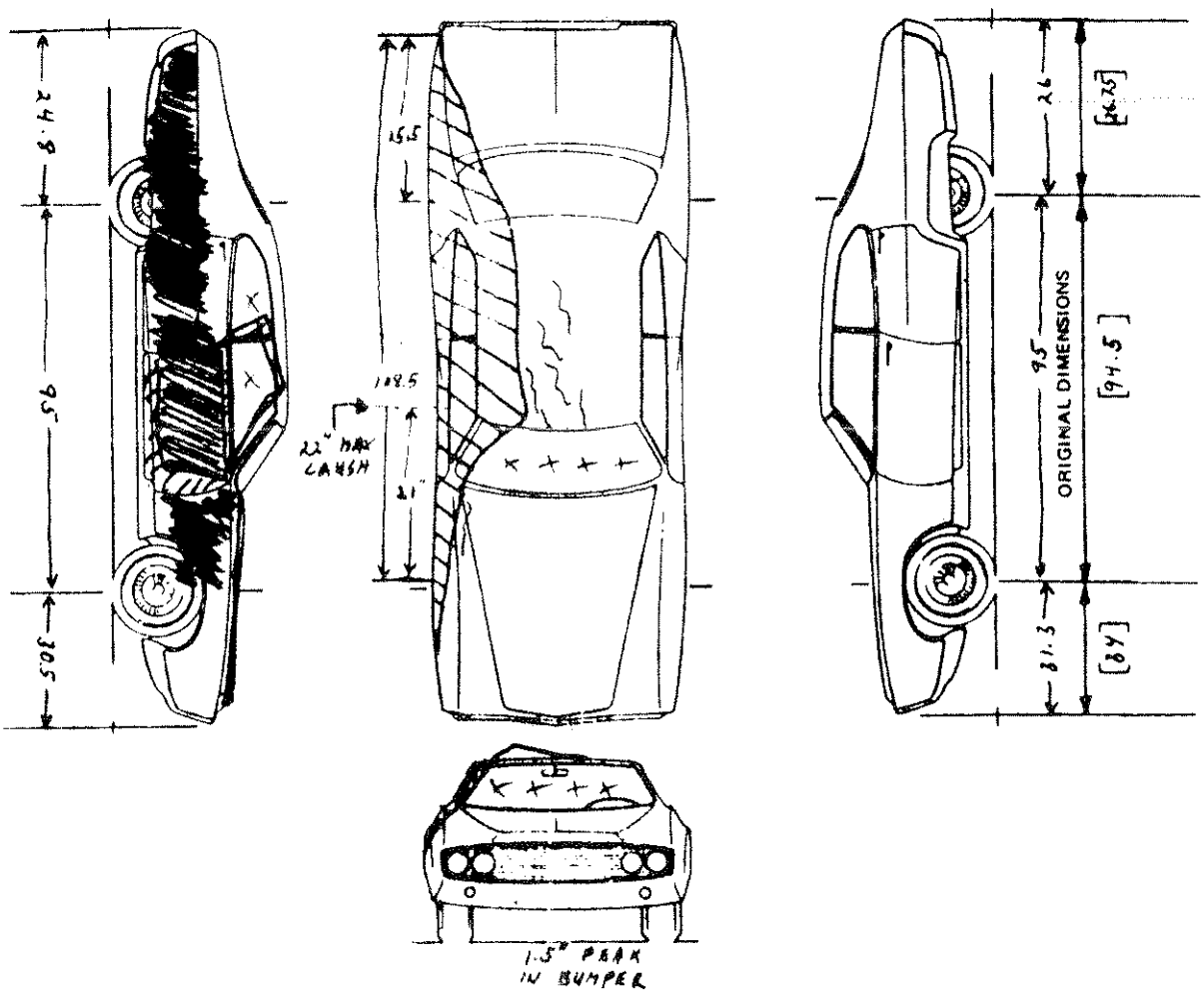
RF ± N A

LF ± N A

RR ± 0 3

LR ± 0 2

Within ± 5°



Impact Number	L	C_1	C_2	C_3	C_4	C_5	C_6	D±
1	108.5	.5	11	17.75	21	22.5	7.25	-8.5
2								
3								
4								

NOTE: MEASURE C_1 TO C_6 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS: REAR TO FRONT IN SIDE IMPACTS

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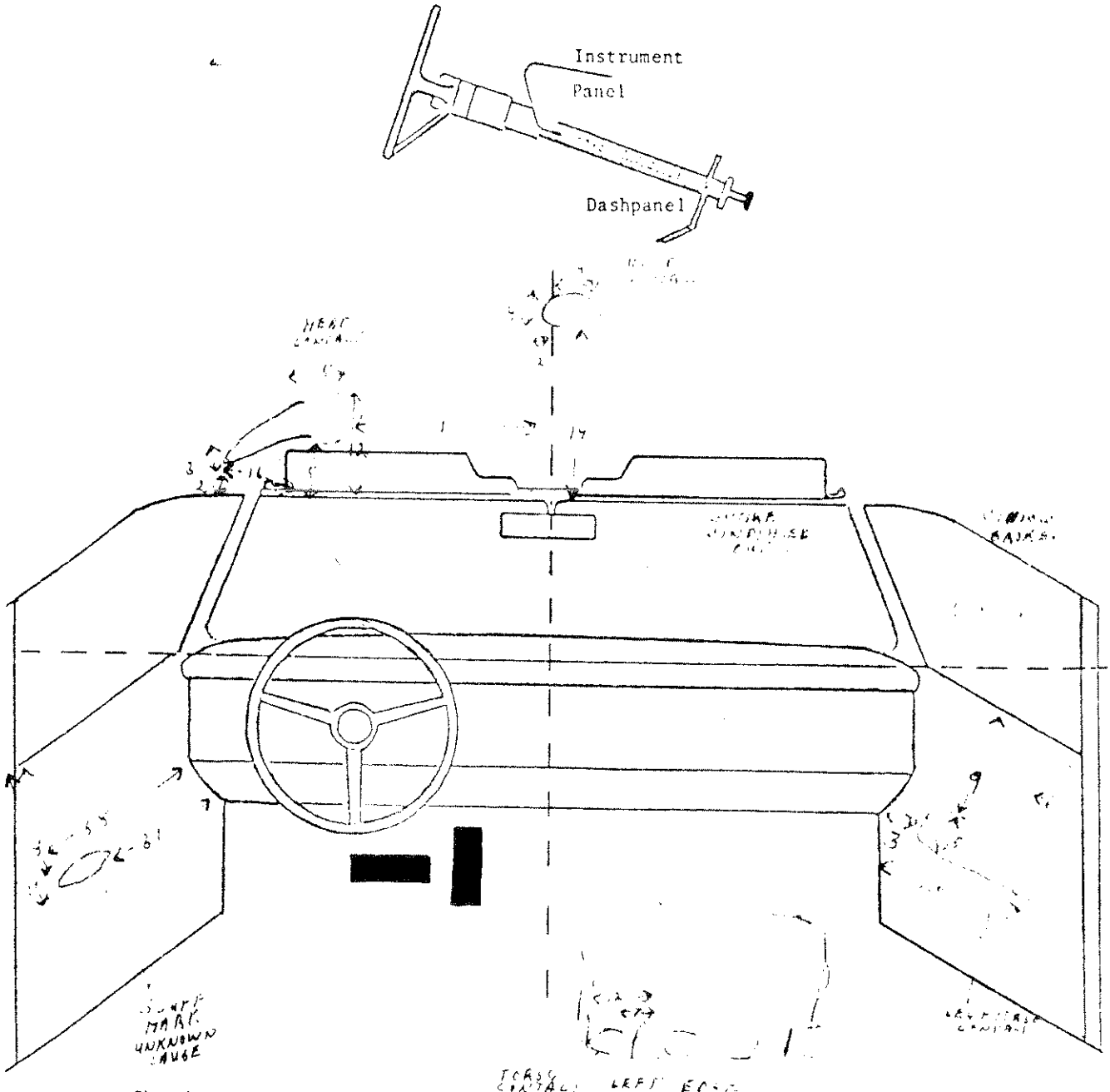
Figure 13-5
OCCUPANT CONTACT DATA

TEST NO. 7 - CAR NO. 2

VEHICLE INTERIOR

Occupant Contacts



Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and code on next two pages. Dash lines indicate center of instrument panel-windshield area and top of panel for measurement purposes.

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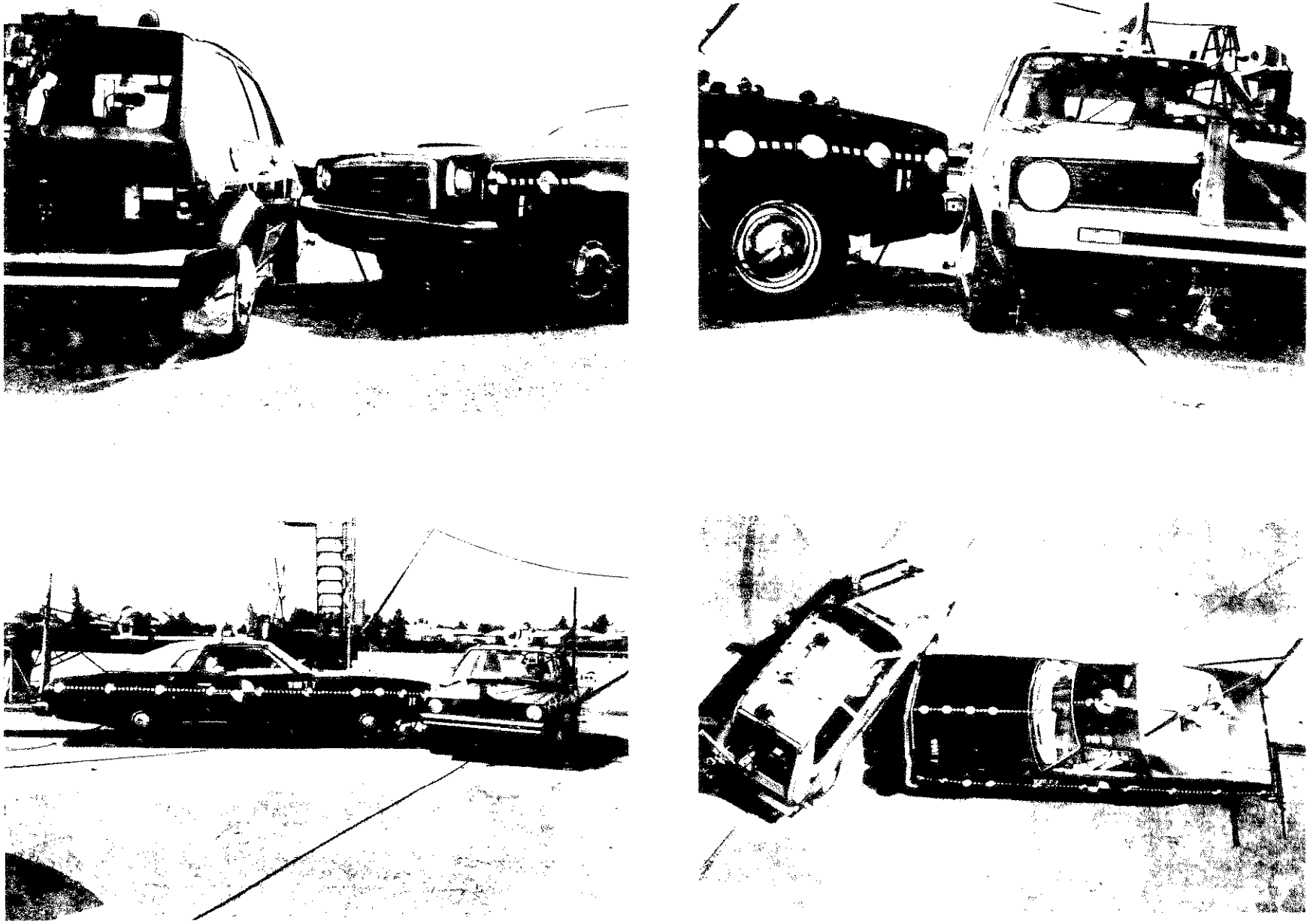


Figure 13-6 TEST NO. 7 – PRE TEST COLLISION CONFIGURATION

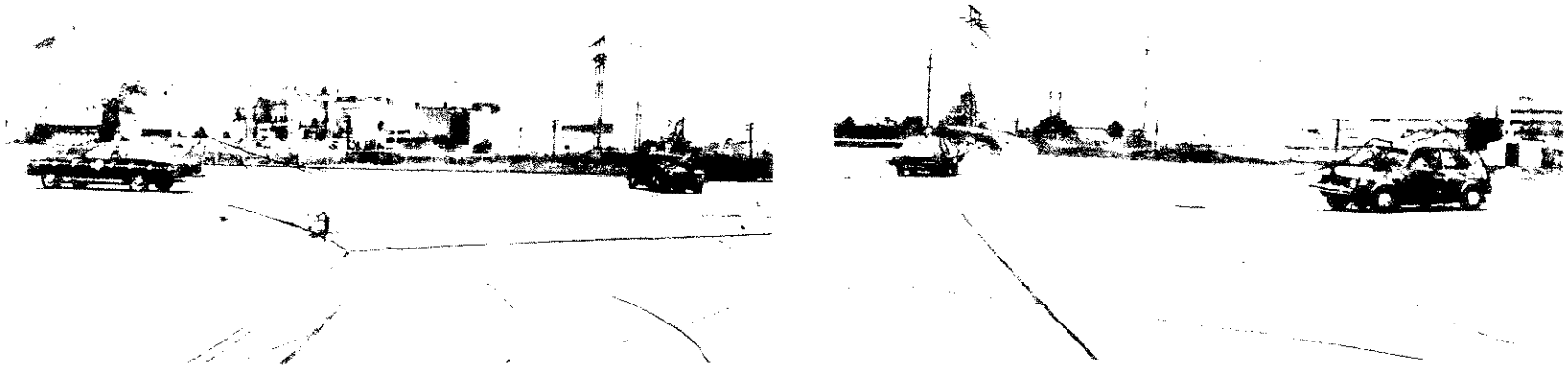


Figure 13-7 TEST NO. 7 – POST TEST COLLISION SCENE

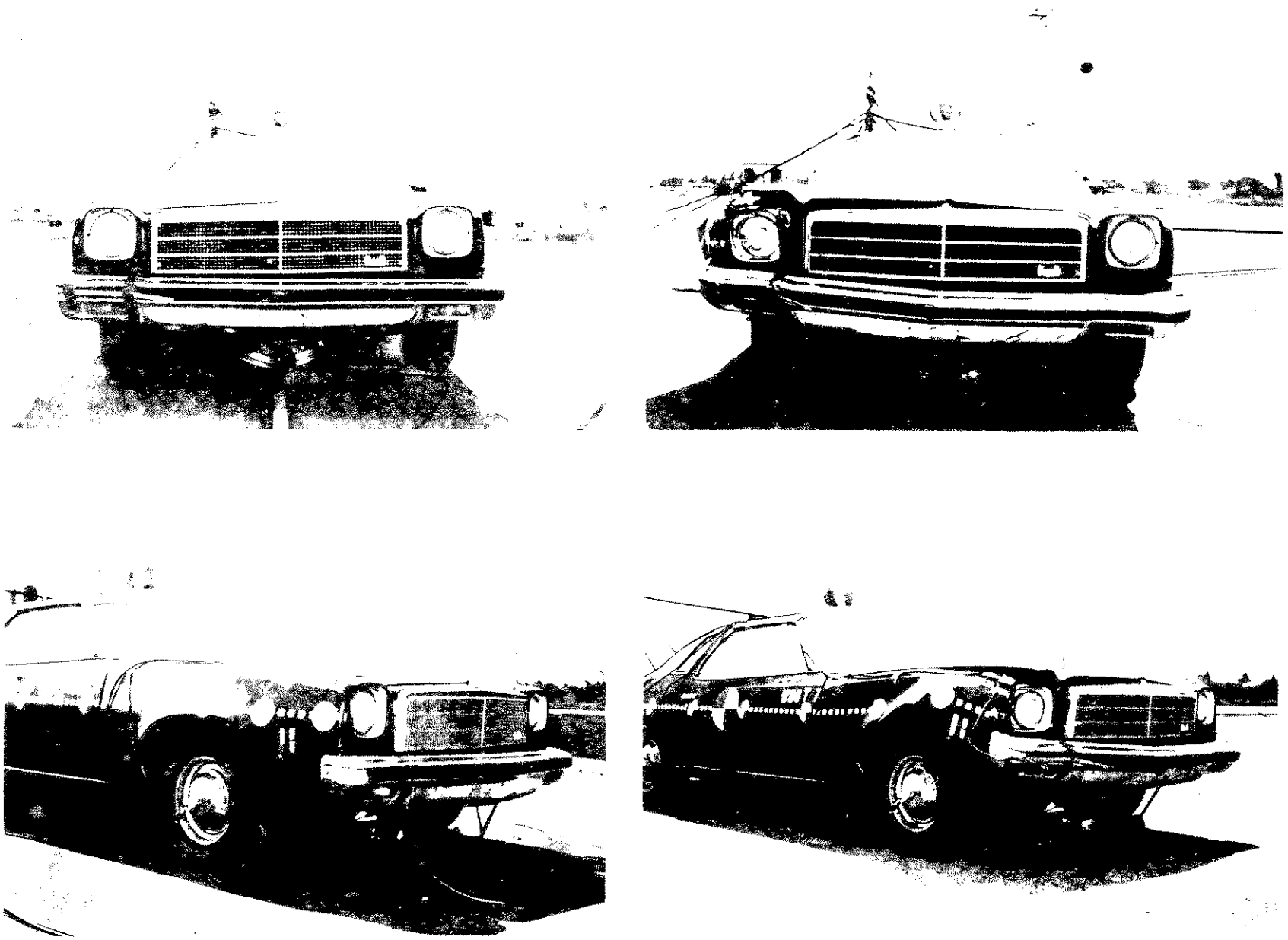


Figure 13-8 TEST NO. 7 – PRE & POST EXTERIOR VIEWS, CAR NO. 1 – CHEVELLE

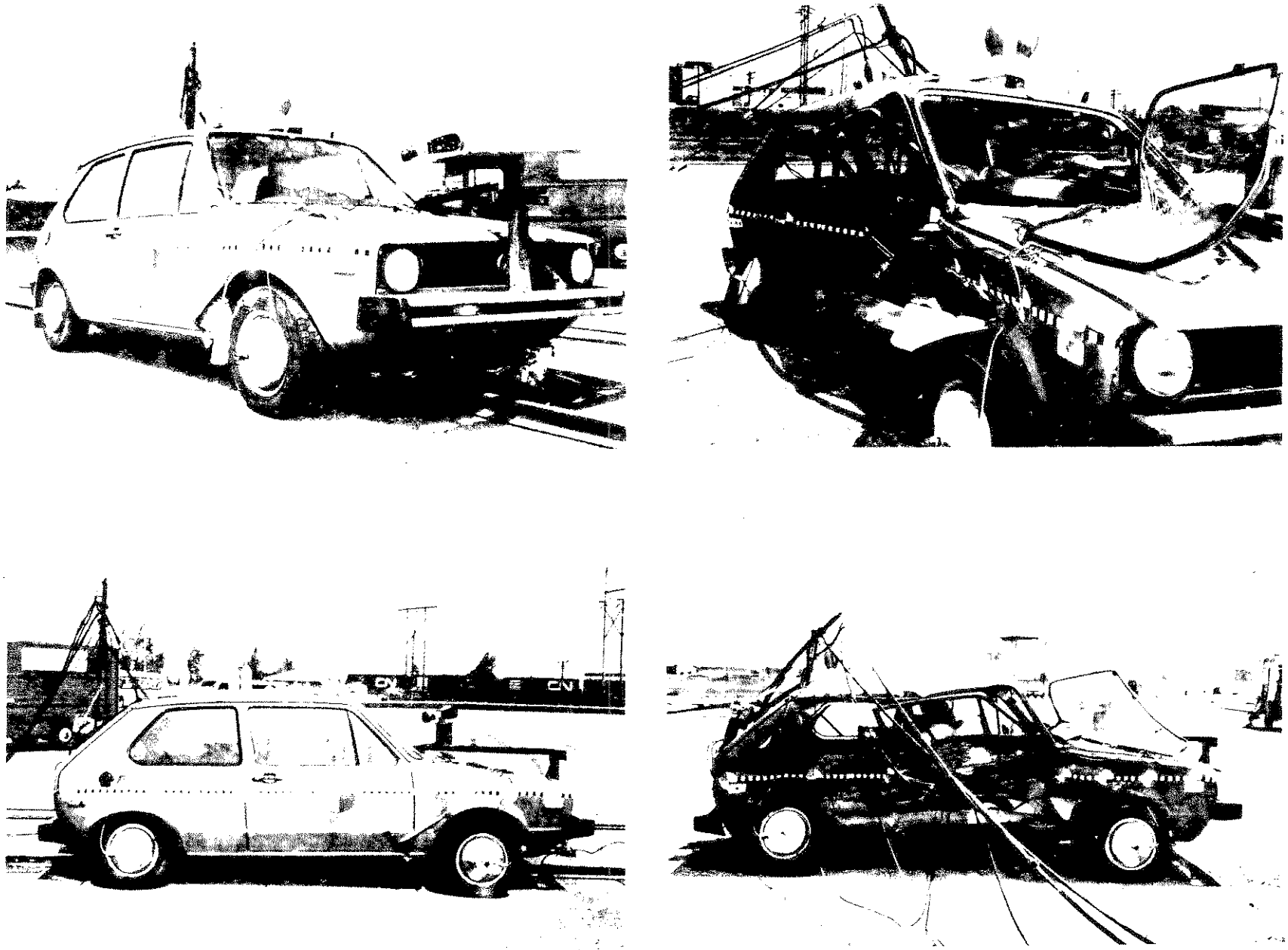


Figure 13-9 TEST NO. 7 – PRE & POST EXTERIOR VIEWS, CAR NO. 2 – VW RABBIT

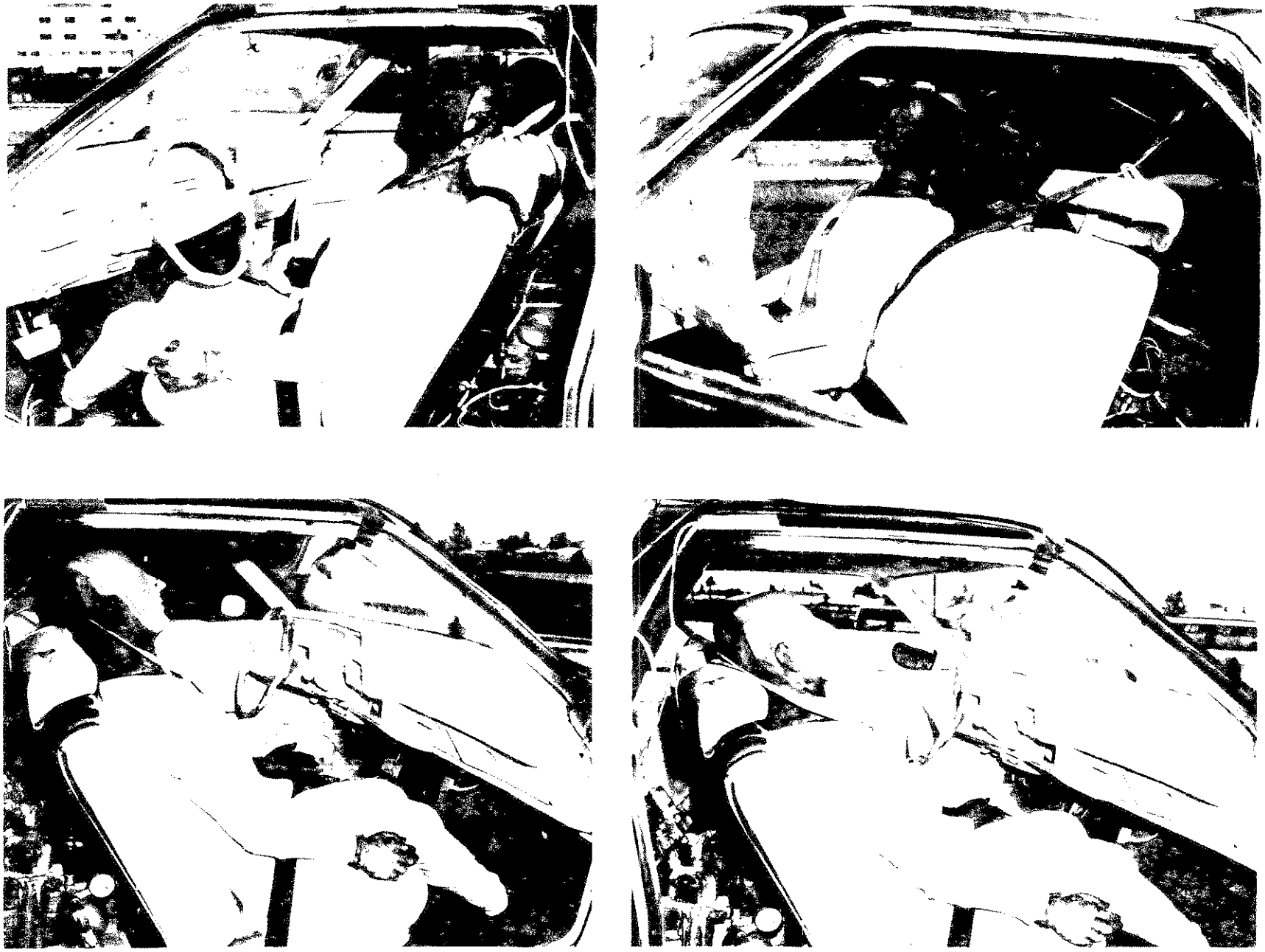


Figure 13-10 TEST NO. 7 – PRE & POST INTERIOR VIEWS, CAR NO. 1 – CHEVELLE

Figure 13-11 TEST NO. 7 — PRE & POST INTERIOR VIEWS, CAR NO. 2 — VW RABBIT

TABLE 13-3

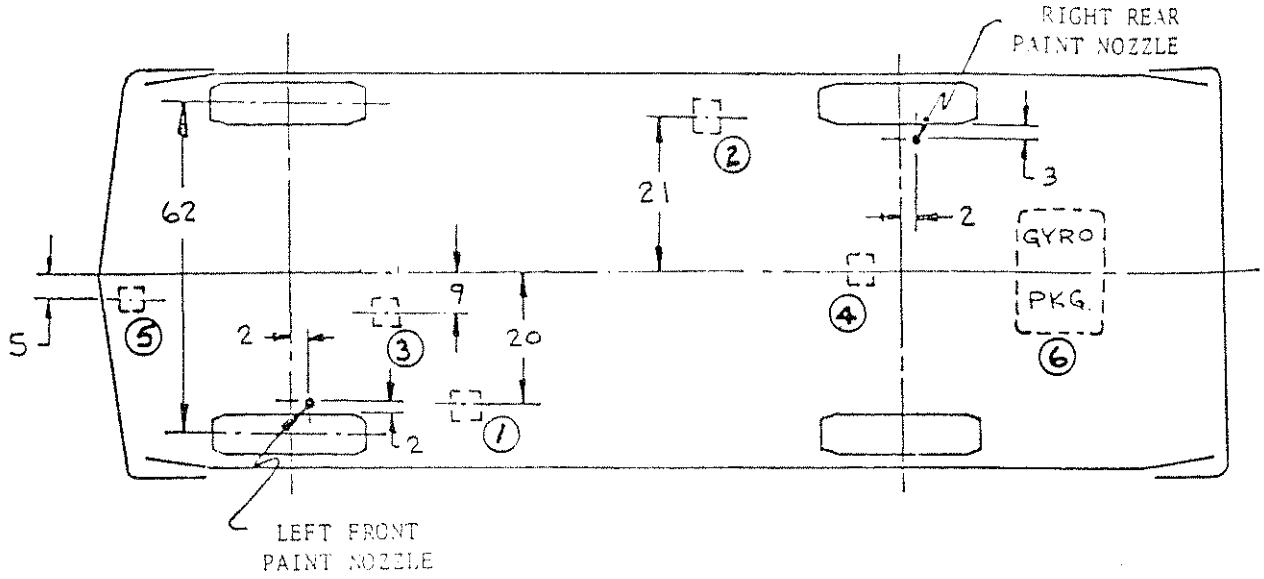
ELECTRONIC INSTRUMENTATION TEST NO. 7

CAR NO. 1 - 1974 CHEVELLE

TRANSDUCER DESCRIPTION OR ACCELEROMETER LOCATION *	DIRECTION OF PARAMETER BEING MEASURED	LOCATION ON VEHICLE	DESCRIPTION LISTED ON DATA PLOTS
VEHICLE ACCELEROMETER			
1	X,Y,Z	Left Sill Next to Front Seat	L.F. Corner
2	X,Y,Z	Right Sill Next to Rear Seat	R.R. Corner
3	X,Y,Z	Deck Over Rear Axle	Rear Deck
4	X,Y,Z	Firewall	Firewall
5	X	Front Bumper	Bumper
VEHICLE GYROS			
Pitch Angle - 6	Q	On Centerline of Trunk Comp.	Pitch Angle
Roll Angle - 6	P	On Centerline of Trunk Comp.	Roll Angle
Yaw Angle - 6	R	On Centerline of Trunk Comp.	Yaw Angle
Yaw Rate - 6	$\dot{R}$	On Centerline of Trunk Comp.	Yaw Rate
MISCELLANEOUS			
L.F. Wheel Velocity	$\dot{X}$	L.F. Wheel	L.F. Wheel Velocity
R.R. Wheel Velocity	$\dot{X}$	R.R. Wheel	R.R. Wheel Velocity
L.R. Wheel Velocity	$\dot{X}$	L.R. Wheel	L.R. Wheel Velocity
Steer Angle	ϑ	Front Wheel Steering Linkage	Steer Angle

*See Accelerometer Layout Diagram Figure 13-12

**RIGHT



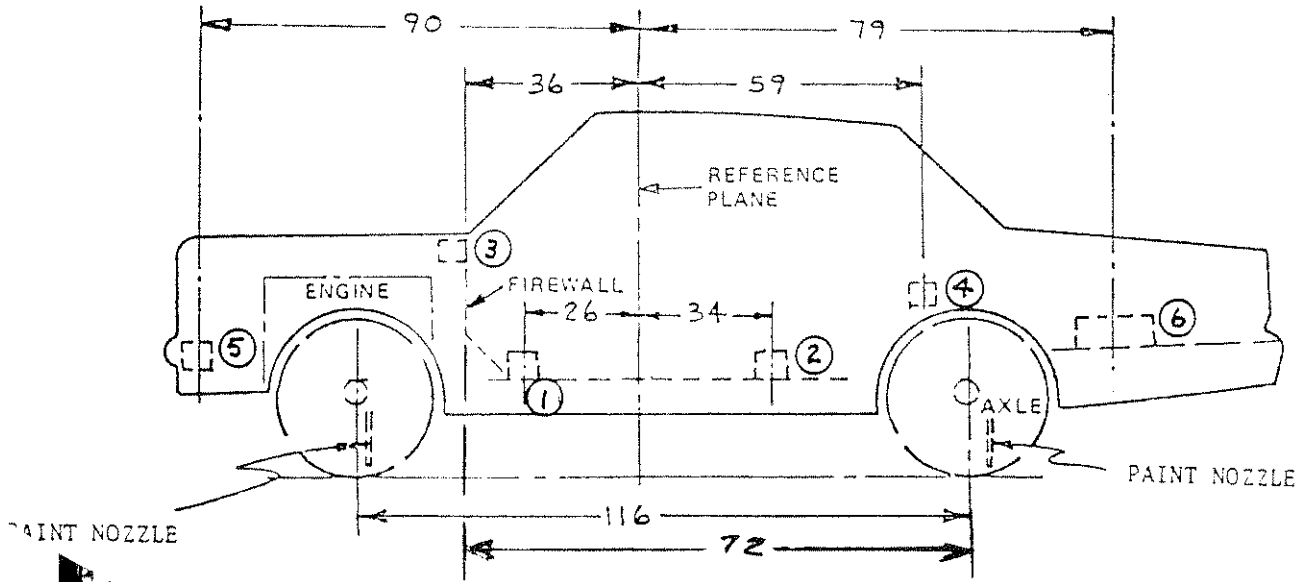


Figure 13-12 VEHICLE INSTRUMENTATION LOCATIONS

CAR NO. 1 - 1974 CHEVELLE - TEST NO. 7

TABLE 13-4

ELECTRONIC INSTRUMENTATION TEST NO. 7

CAR NO. 2 - 1975 VW 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	Floorpan L.F. Corner	L.F. Corner
2	X,Y,Z	Floorpan L.R. Corner	L.R. Corner
3	X,Y,Z	Firewall	Firewall
4	X,Y,Z	Rear Deck	Rear Deck
5	Y	Left Front Door	Left Front Door
6	Y	Upper Right Front Door	Upper Right Front Door
7	Y	Lower Right Front Door	Lower Right Front Door
VEHICLE ATTITUDE			
Pitch Angle - 8		Gyro Package	Vehicle Pitch Angle
Roll Angle - 8		Gyro Package	Vehicle Roll Angle
Yaw Angle - 8		Gyro Package	Vehicle Yaw Angle
Yaw Rate Angle - 8		Gyro Package	Vehicle Yaw Rate
Steer Angle		Front Wheels	Steer Angle - Front Wheels
R.F. Wheel Velocity		R.F. Wheel Axle	R.F. Wheel Velocity
L.F. Wheel Velocity		L.F. Wheel Axle	L.F. Wheel Velocity
R.R. Wheel Velocity		R.R. Wheel Axle	R.R. Wheel Velocity
L.F. Wheel Velocity		L.R. Wheel Axle	L.R. Wheel Velocity
DUMMY			
L.F. Head	X,Y,Z	L.F. Seat	Dummy L.F. Head
L.F. Chest	X,Y,Z	L.F. Seat	Dummy L.F. Chest
L.F. Femurs	R,L**	L.F. Seat	Dummy L.F. Femur
L.F. Pelvic	Y	L.F. Seat	Dummy L.F. Pelvic
R.F. Head	X,Y,Z	R.F. Seat	Dummy R.F. Head
R.F. Chest	X,Y,Z	R.F. Seat	Dummy R.F. Chest
R.F. Femurs	R,L**	R.F. Seat	Dummy R.F. Femur
R.F. Pelvic	Y	R.F. Seat	Dummy R.F. Pelvic

*See Accelerometer Layout Diagram Figure 13-13

**RIGHT AND LEFT FORCES

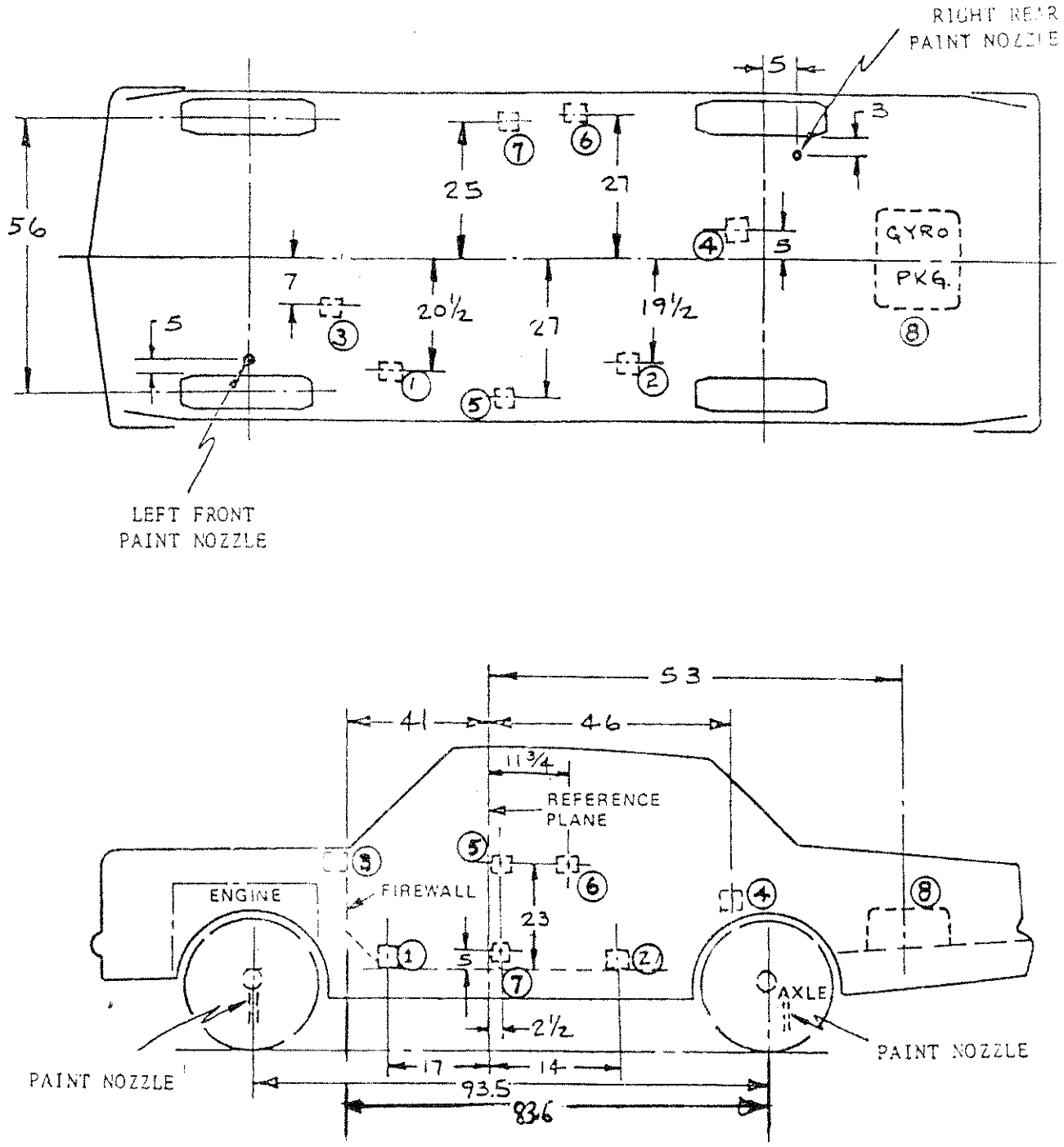


Figure 13-13 VEHICLE INSTRUMENTATION LOCATIONS

CAR NO. 2 - 1975 VW RABBIT - TEST NO. 7

TABLE 13-15

VEHICLE TEST WEIGHTS - TEST NO. 7

BULLET VEHICLE

CAR 1 - 1974 CHEVROLET CHEVELLE

Left Front	1160 lbs.	Left Rear	980 lbs.
Right Front	1190 lbs.	Right Rear	980 lbs.
Total Front	2350 lbs.	Total Rear	1960 lbs.

Total Weight = 2350 lbs. + 1960 lbs. = 4310 lbs.

Wheel Base 111 in.

Cg_{FW} = $\frac{1960 \text{ lbs.}}{4310 \text{ lbs.}}$ 111 in. = 50.48 in.

TARGET VEHICLE

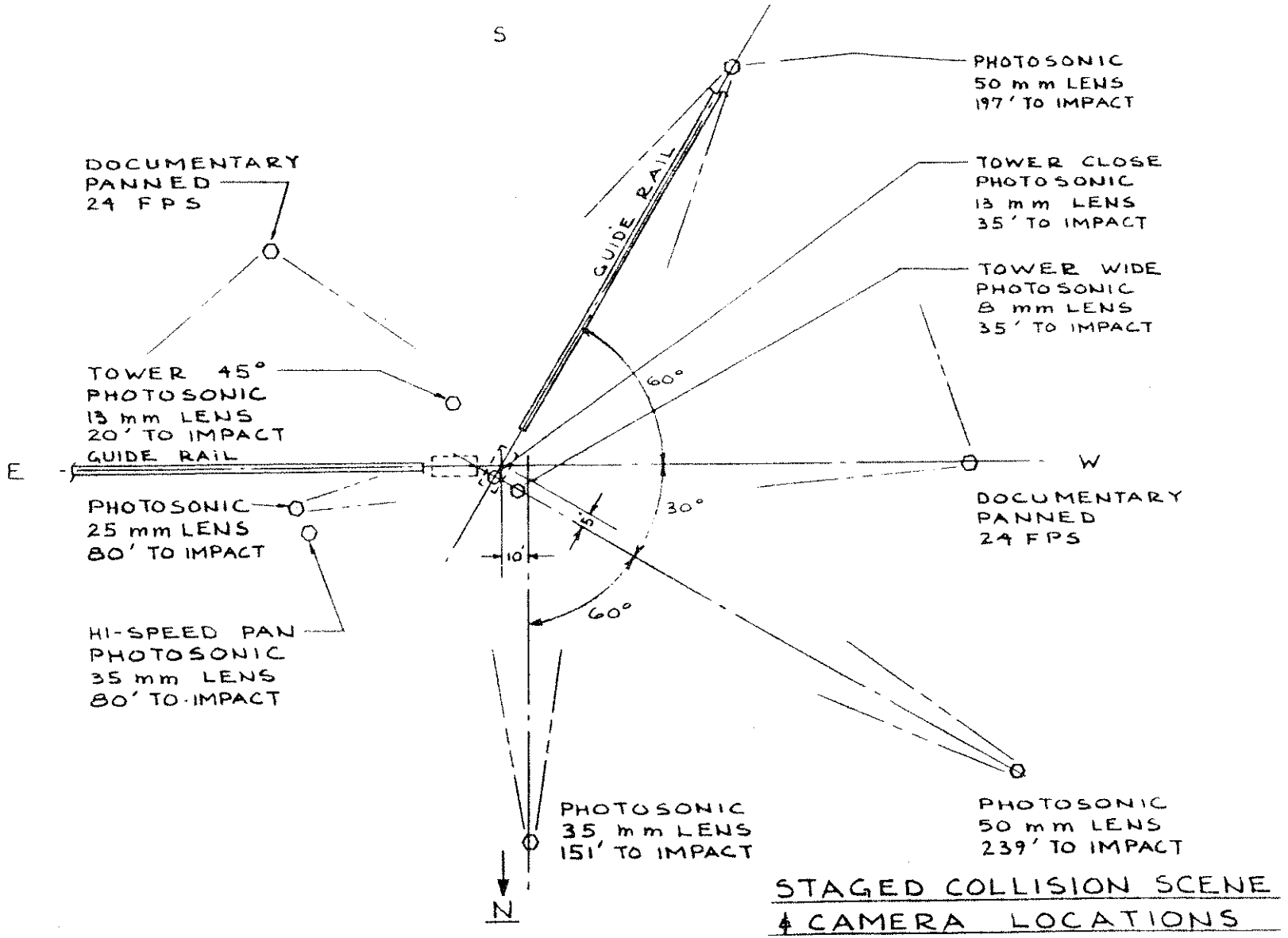
CAR 2 - 1975 VW RABBIT

Left Front	810 lbs.	Left Rear	610 lbs.
Right Front	710 lbs.	Right Rear	480 lbs.
Total Front	1520 lbs.	Total Rear	1090 lbs.

Total Weight = 1520 lbs. + 1090 lbs. = 2610 lbs.

Wheel Base 95 in.

Cg_{FW} = $\frac{1090 \text{ lbs.}}{2610 \text{ lbs.}}$ 95 in. = 39.67 in.



STAGED COLLISION SCENE
& CAMERA LOCATIONS
TESTS 6 & 7

Figure 13-14

TABLE 13-6

DATA CAMERA LOG

PROJECT - RICSAC

TEST NO. 7
DATE: 5-31-78

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)
1	HIGH SPEED PAN	PHOTOSONIC	35 MM	425
2	NORTHEAST	PHOTOSONIC	25 MM	500
3	NORTH	PHOTOSONIC	35 MM	700
4	SOUTH	PHOTOSONIC	50 MM	750
5	NORTHWEST	PHOTOSONIC	50 MM	750
6	TOWER 45	PHOTOSONIC	13 MM	500
7	TOWER CLOSE	PHOTOSONIC	13 MM	350
8	TOWER WIDE	PHOTOSONIC	8 MM	350
9	O. B. DRIVER	STALEX	8 MM	800
10	O. B. HOOD	STALEX	8 MM	1000
11	O. B. REAR	STALEX	8 MM	850

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.

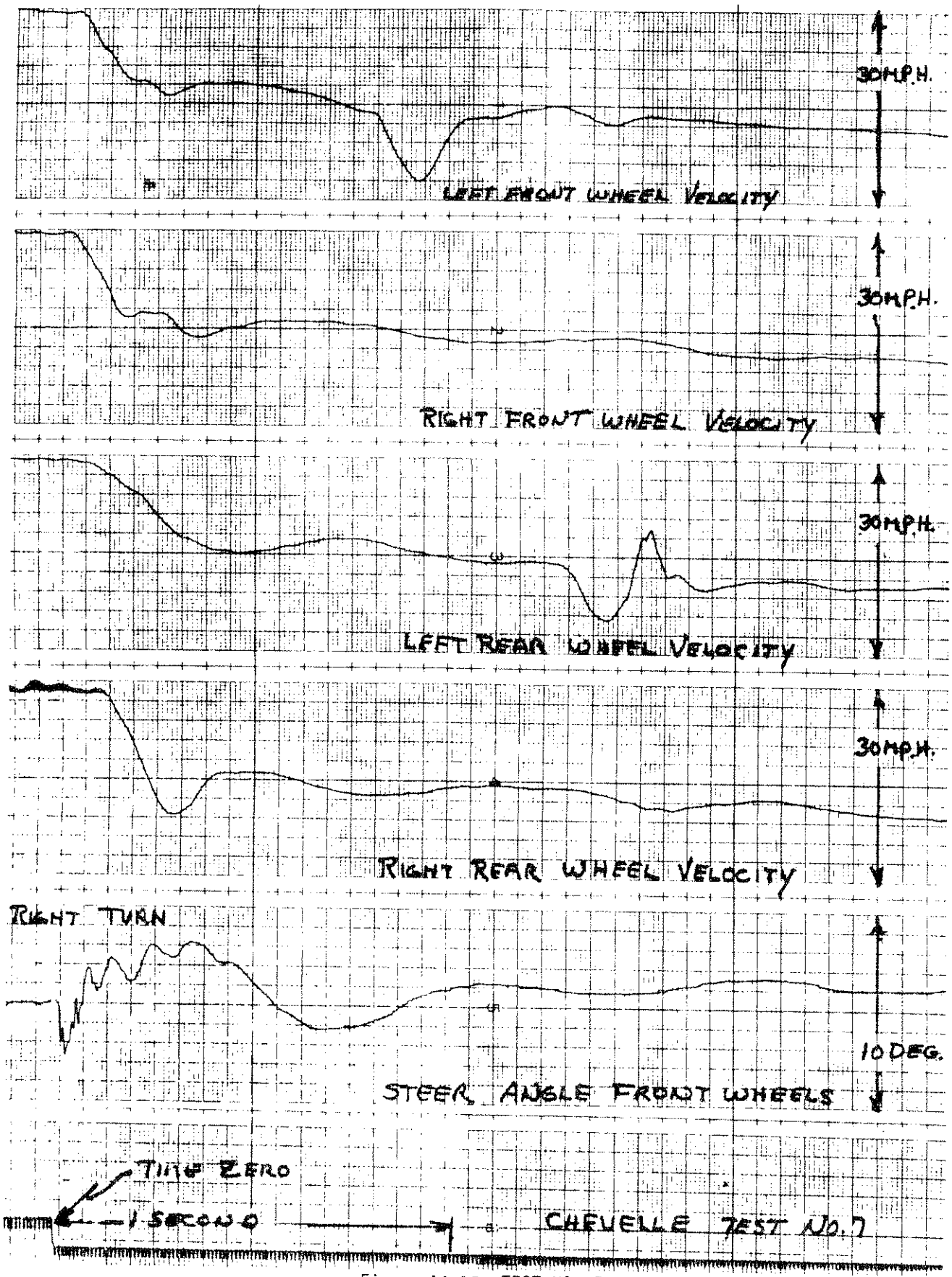


Figure 13-15 TEST NO. 7
CAR NO. 1 WHEEL RESPONSES

ZQ-6057-V-5

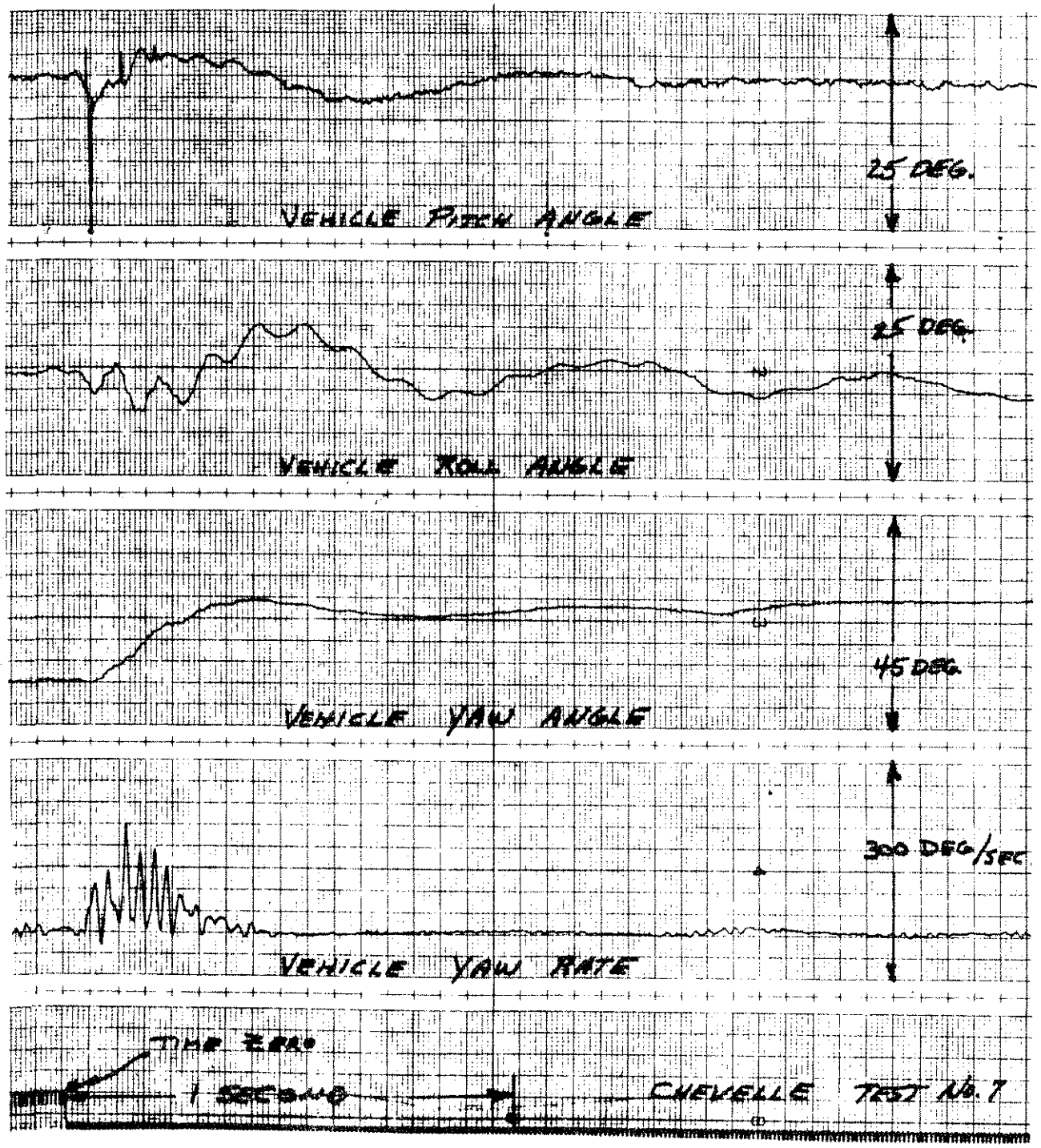


Figure 13-16 TEST NO. 7
CAR NO. 1 VEHICLE ATTITUDE

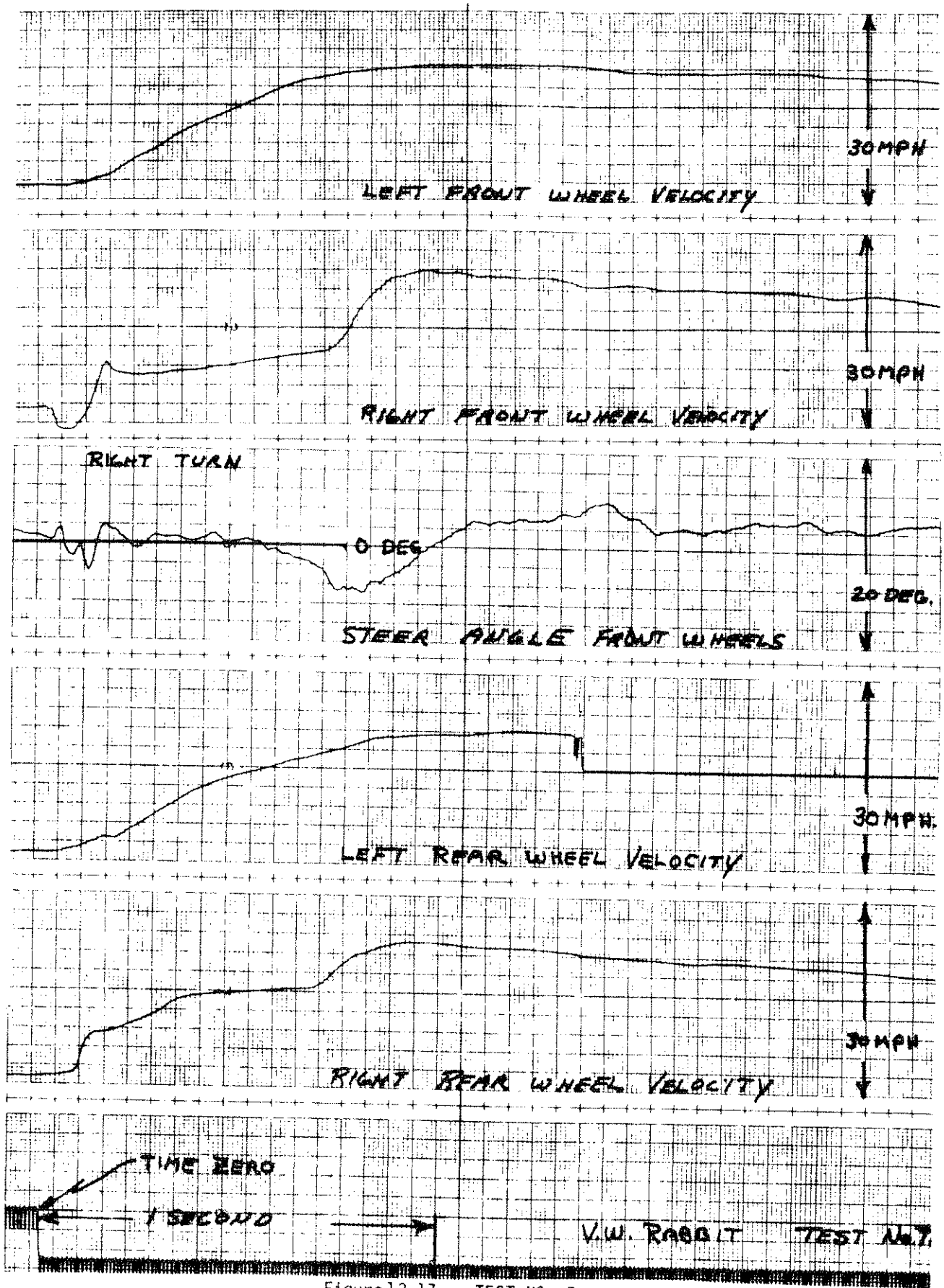


Figure 13-17 TEST NO. 7
CAR NO. 2 WHEEL RESPONSES

ZQ-6057-V-5

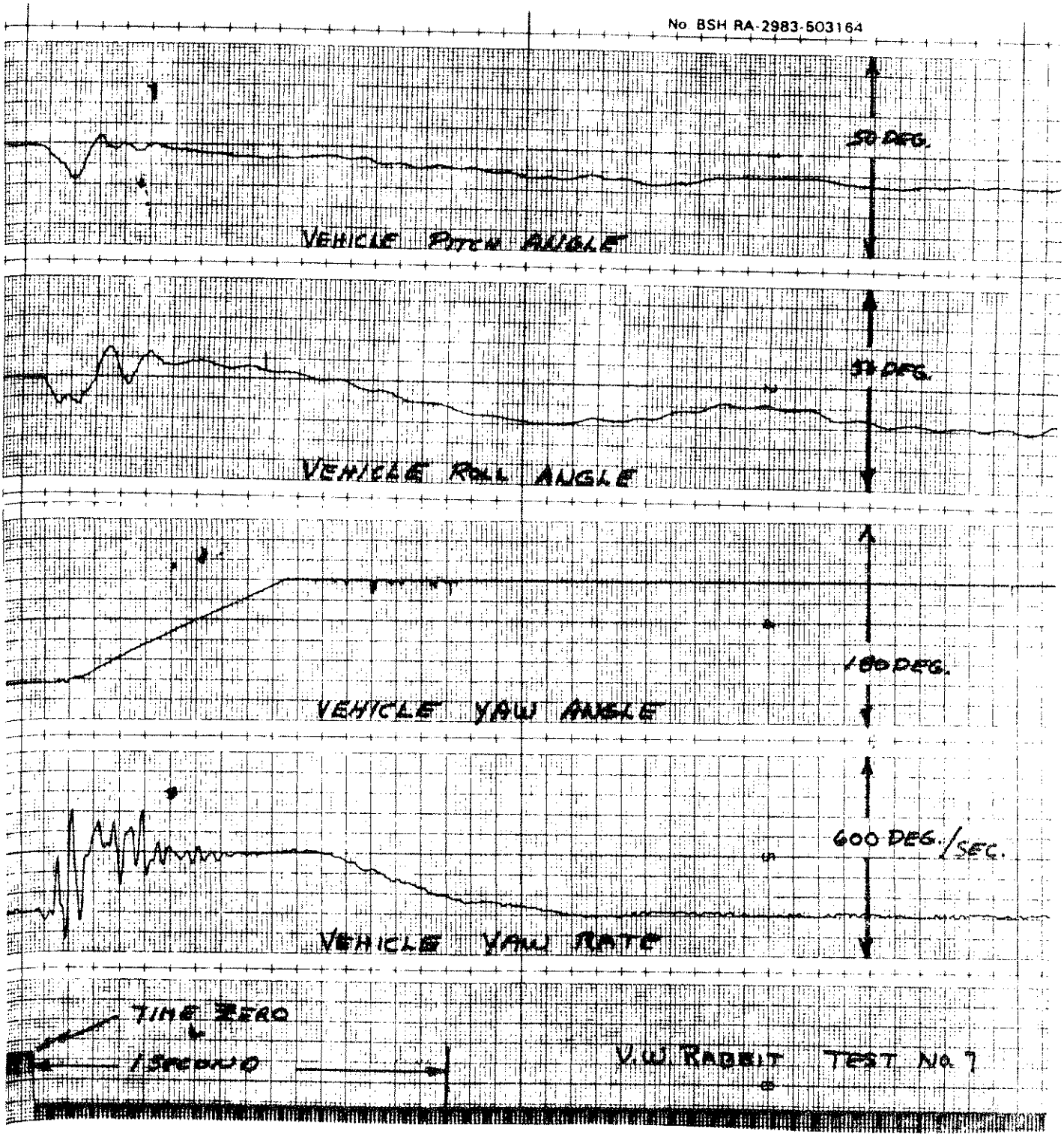


Figure 13-18 TEST NO. 7
CAR NO. 2 VEHICLE ATTITUDE

RICSAC TEST NO. 7

VEHICLE RESPONSES

CAR NO. 1 CHEVELLE

DATA PLOTS

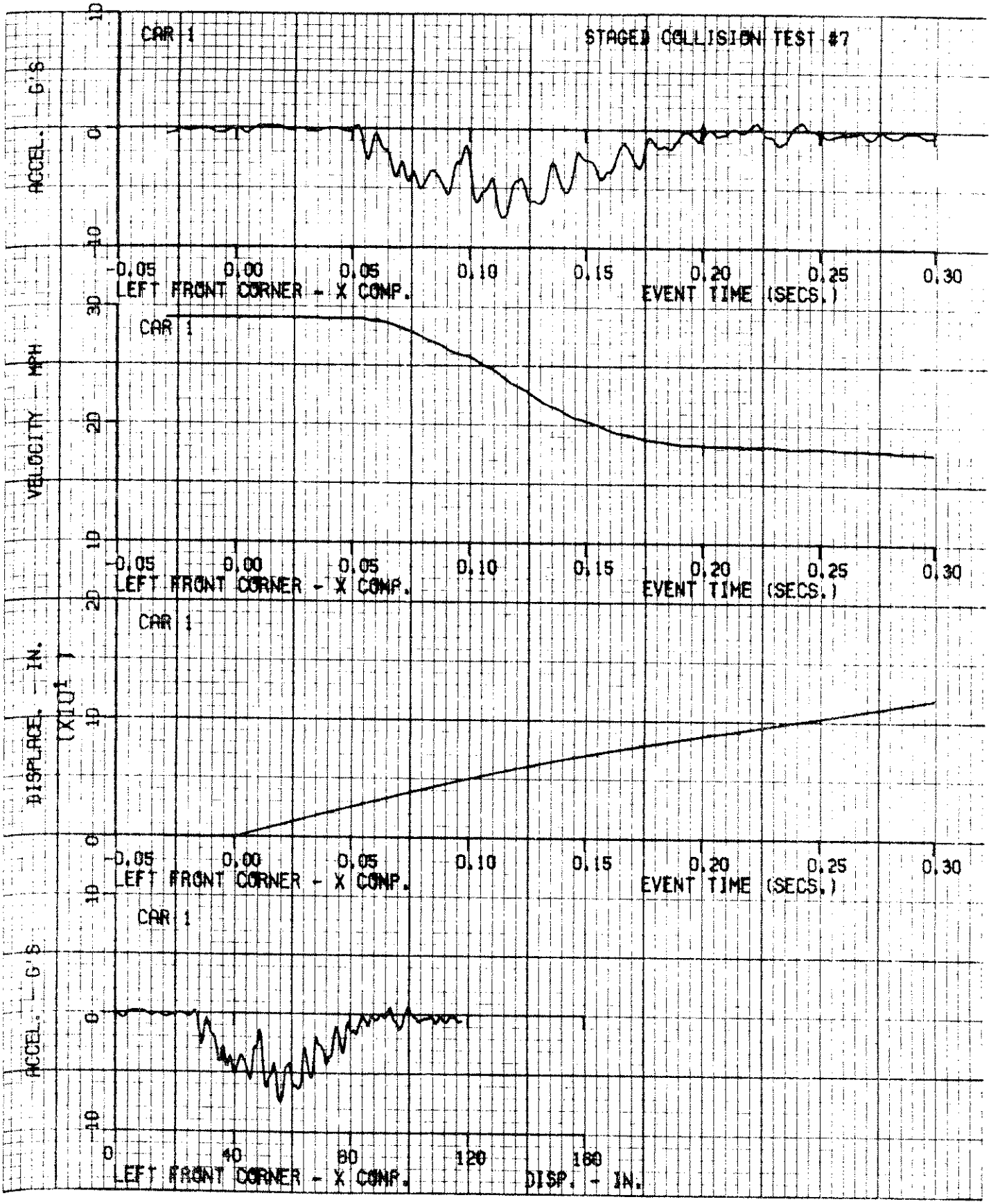
ACCELERATION TIME HISTORIES

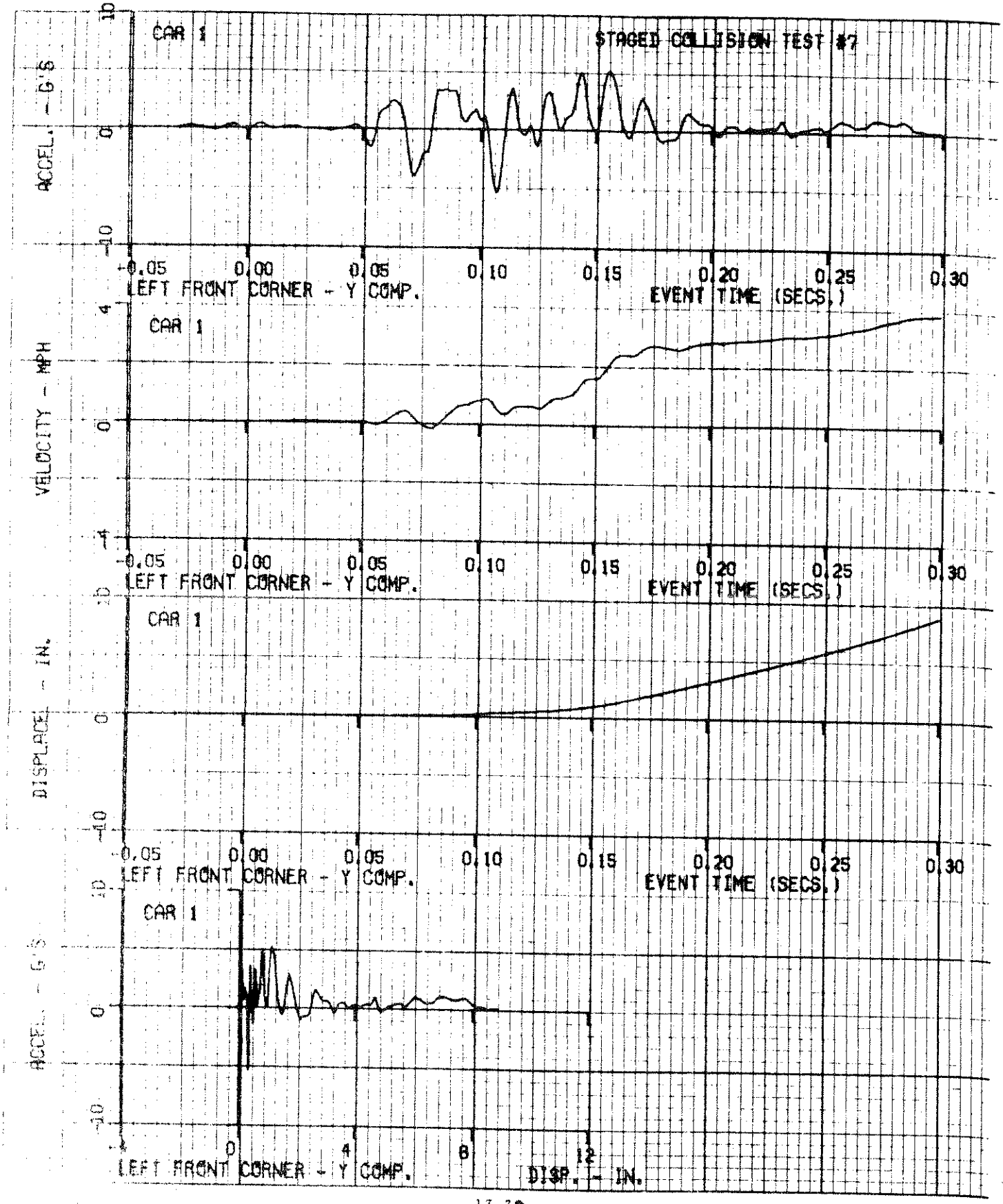
VELOCITY TIME HISTORIES

DISPLACEMENT TIME HISTORIES

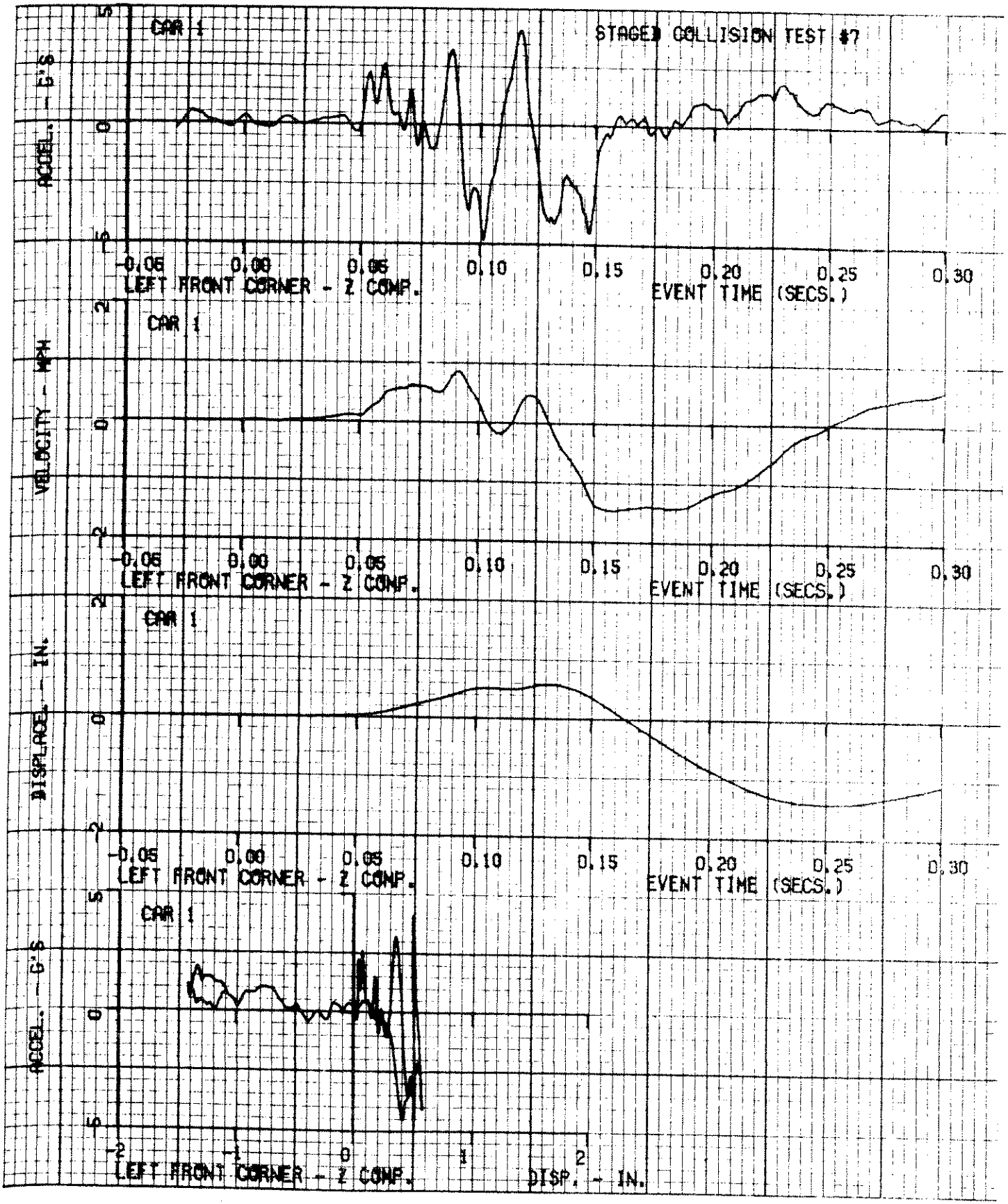
ACCELERATION VS DISPLACEMENT

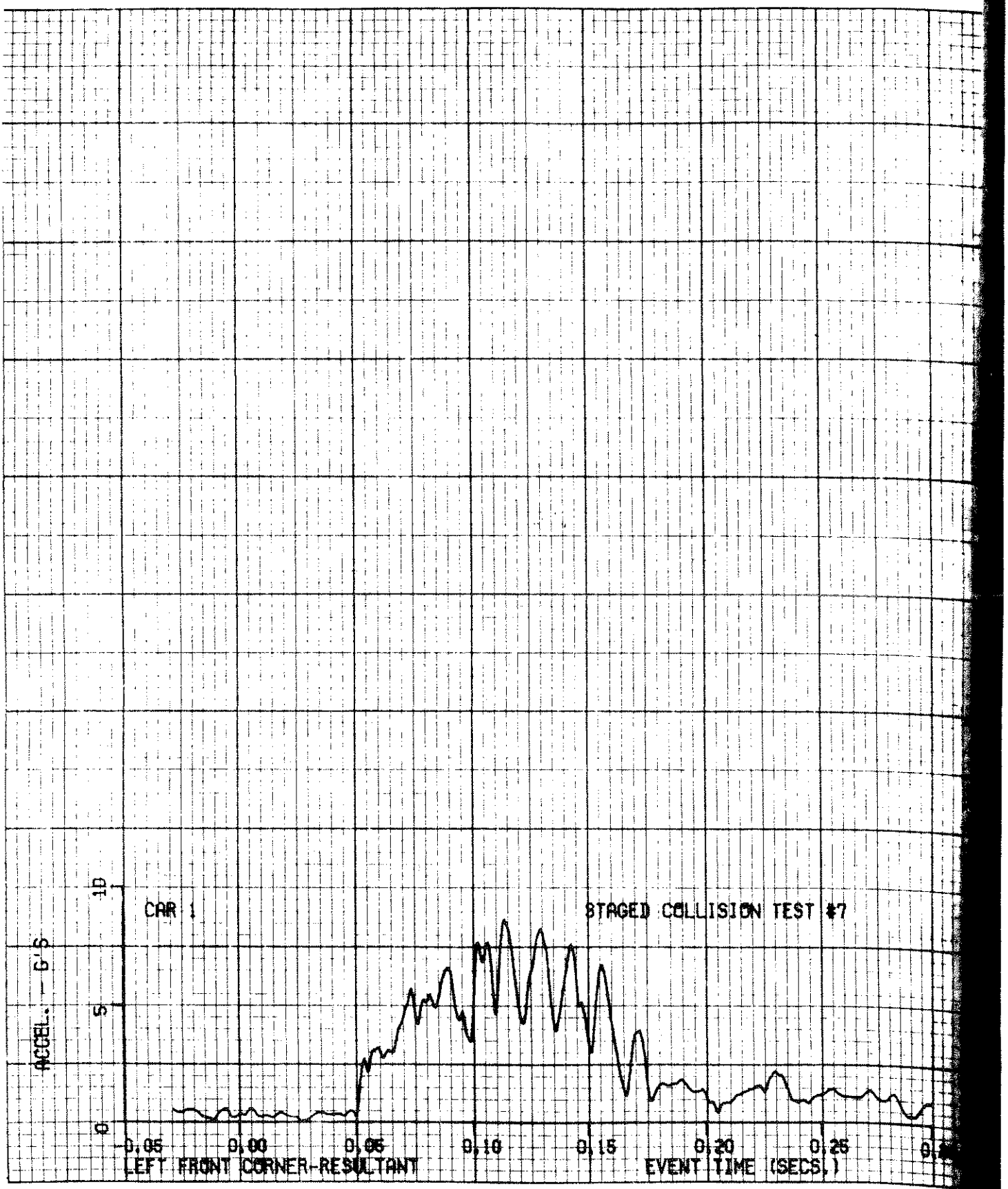
FILTER CLASS 60

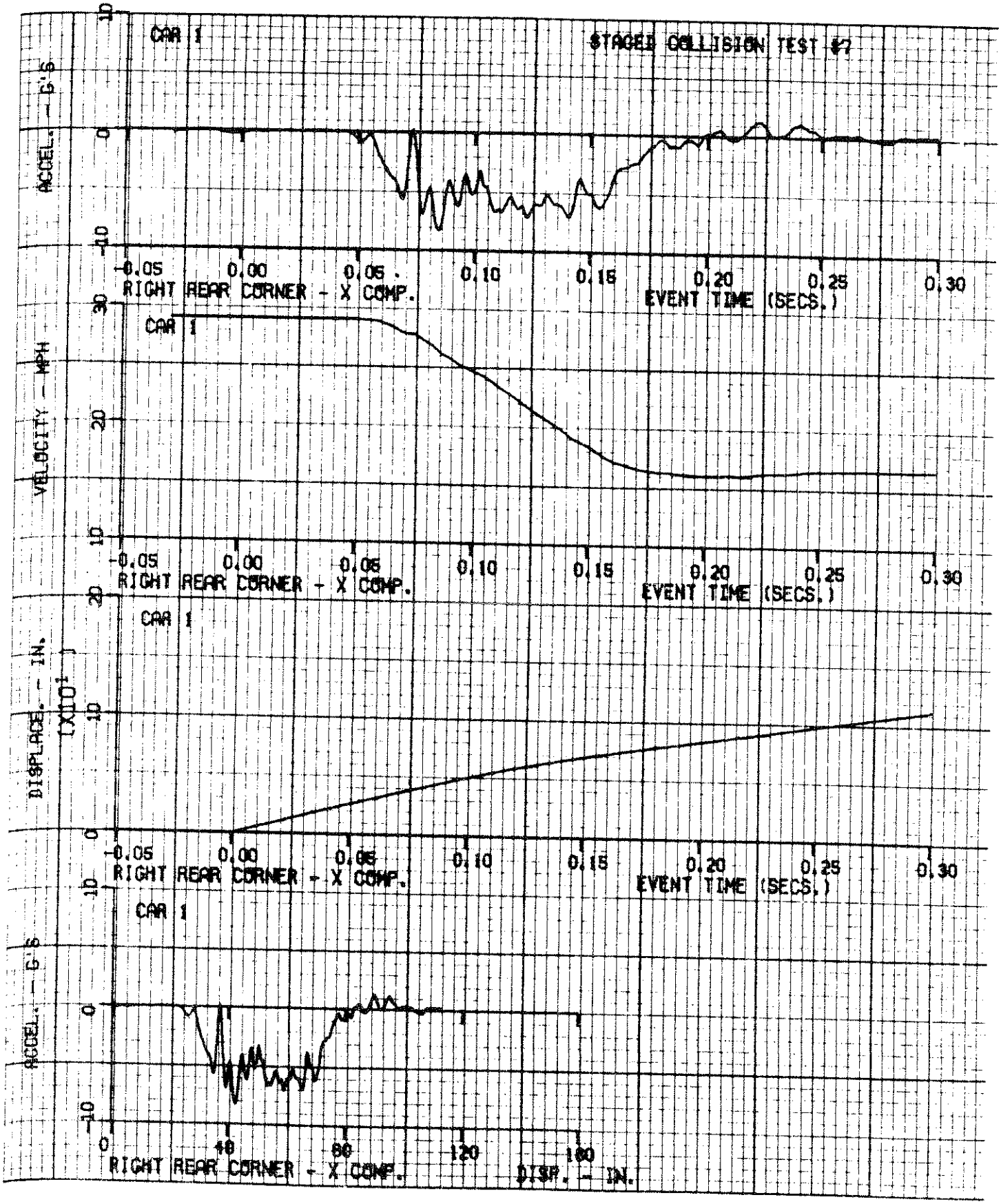

CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
30
20
10
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN. (X10¹)
20
10
0
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT FRONT CORNER - X COMP.
DISP. - IN.

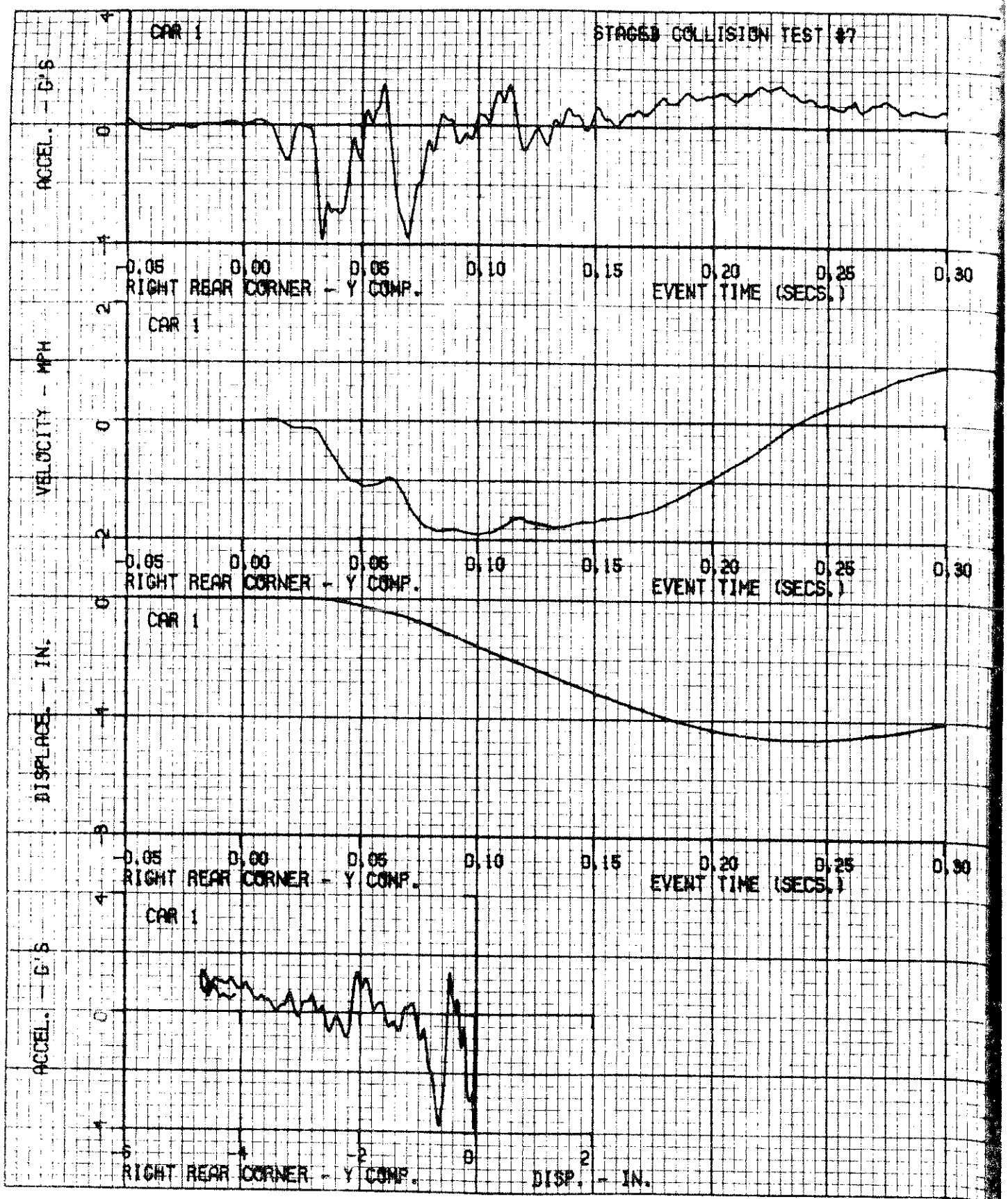

CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE - IN.
10
0
-10
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
4
8
12
LEFT FRONT CORNER - Y COMP.
DISP. - IN.

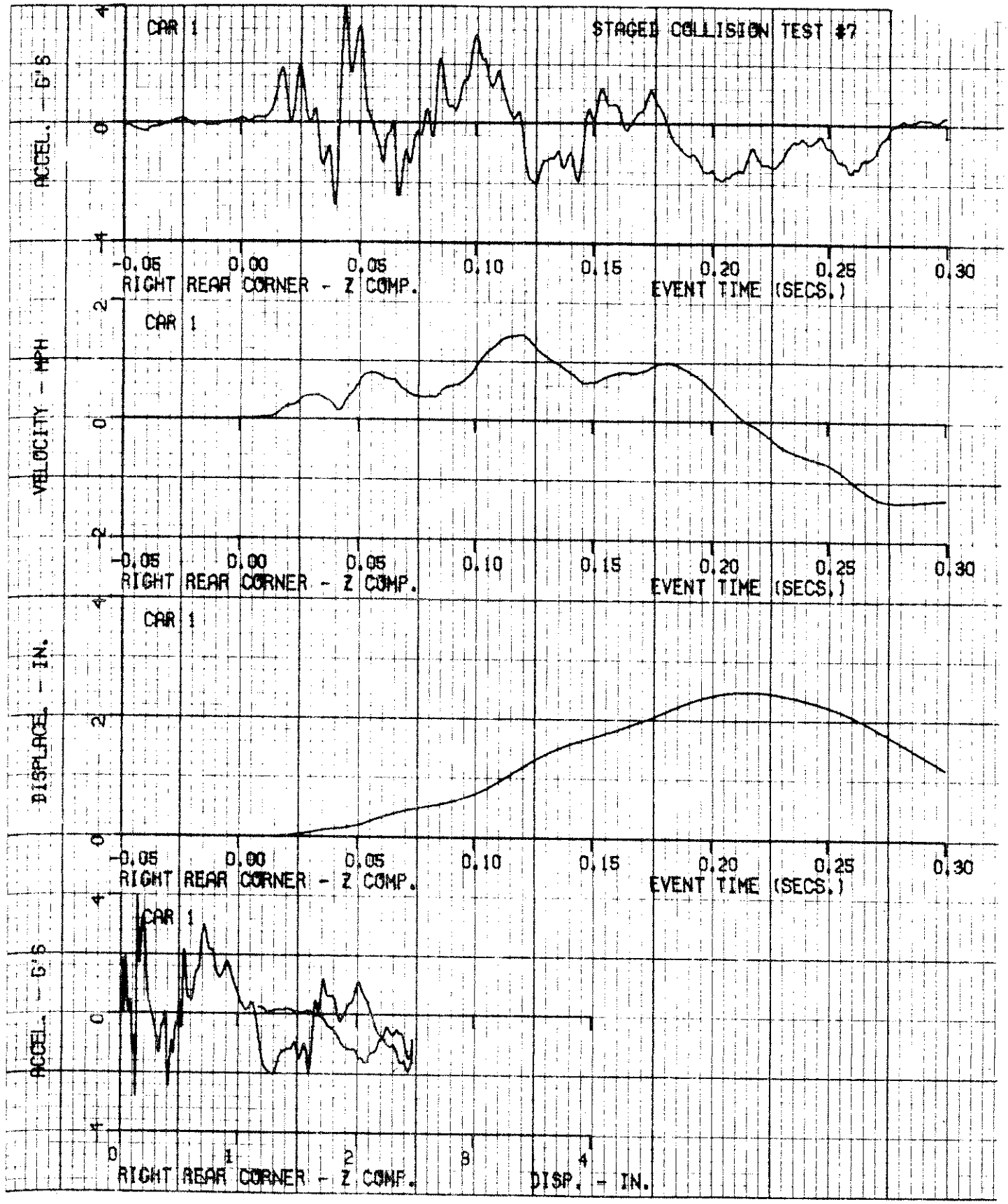
ZQ-6057-V-5

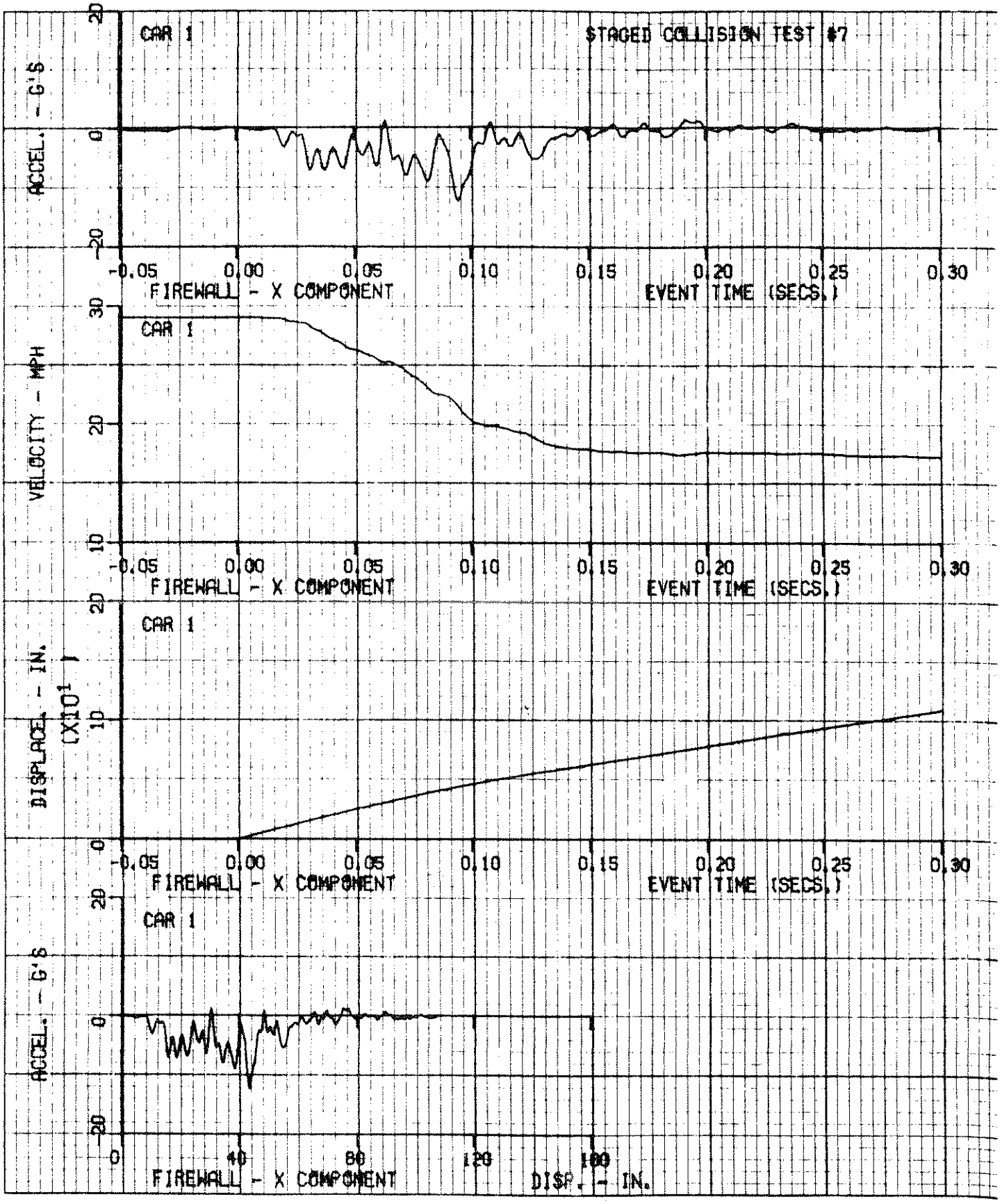

STAGED COLLISION TEST #7
CAR 1
ACCEL. - G'S
5
0
5
-0.06
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
2
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
2
0
2
-0.05
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
5
0
5
-2
-1
0
1
2
LEFT FRONT CORNER - Z COMP.
DISP. - IN.

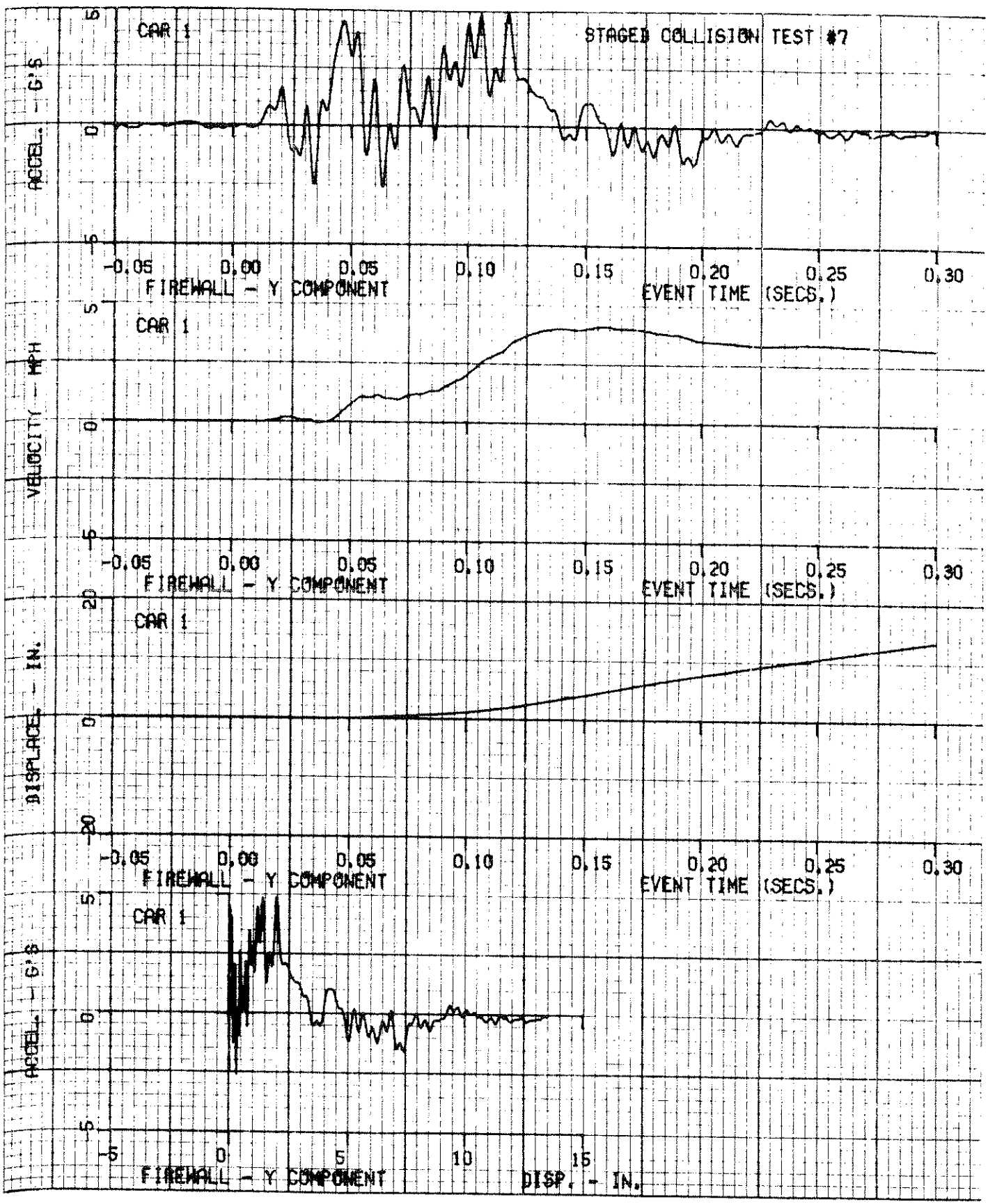

CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
10
5
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)

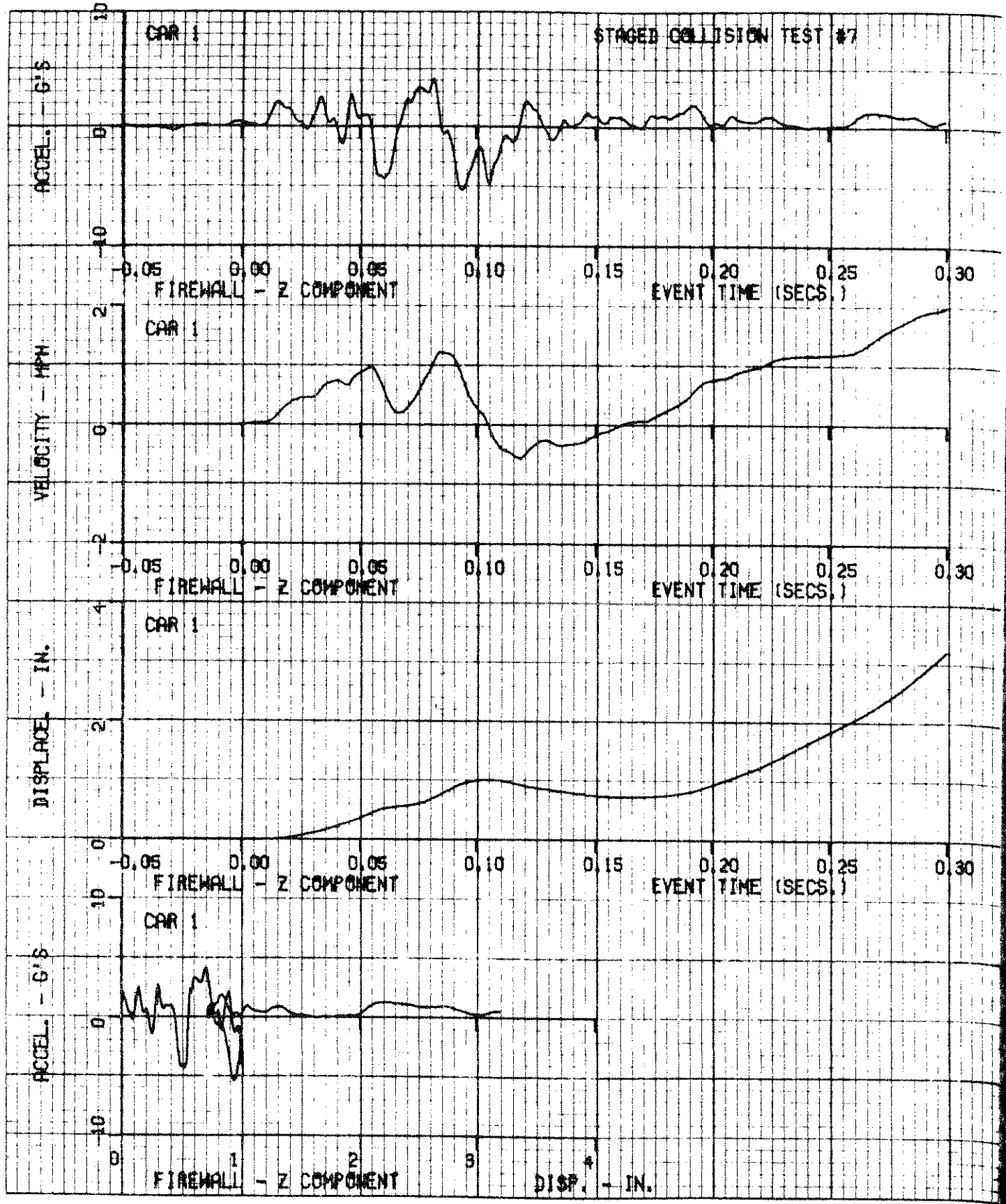

STAGED COLLISION TEST #7
CAR 1
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
30
20
10
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN. (X10¹)
20
10
0
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
40
80
120
160
RIGHT REAR CORNER - X COMP.
DISP. - IN.

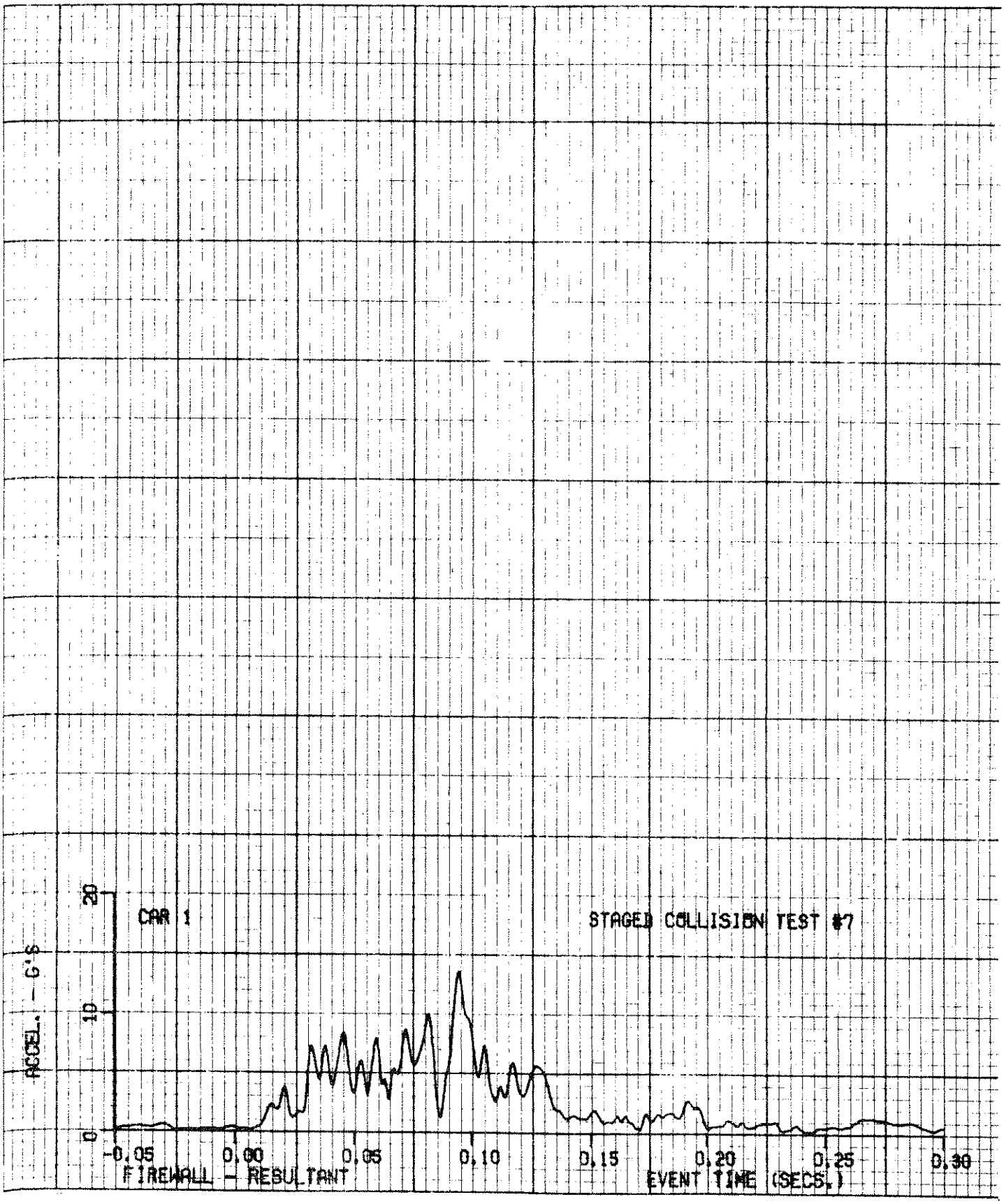

STAGGB COLLISION TEST #7
CAR 1
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
0
-4
-8
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
-6
-4
-2
0
2
RIGHT REAR CORNER - Y COMP.
DISP. - IN.

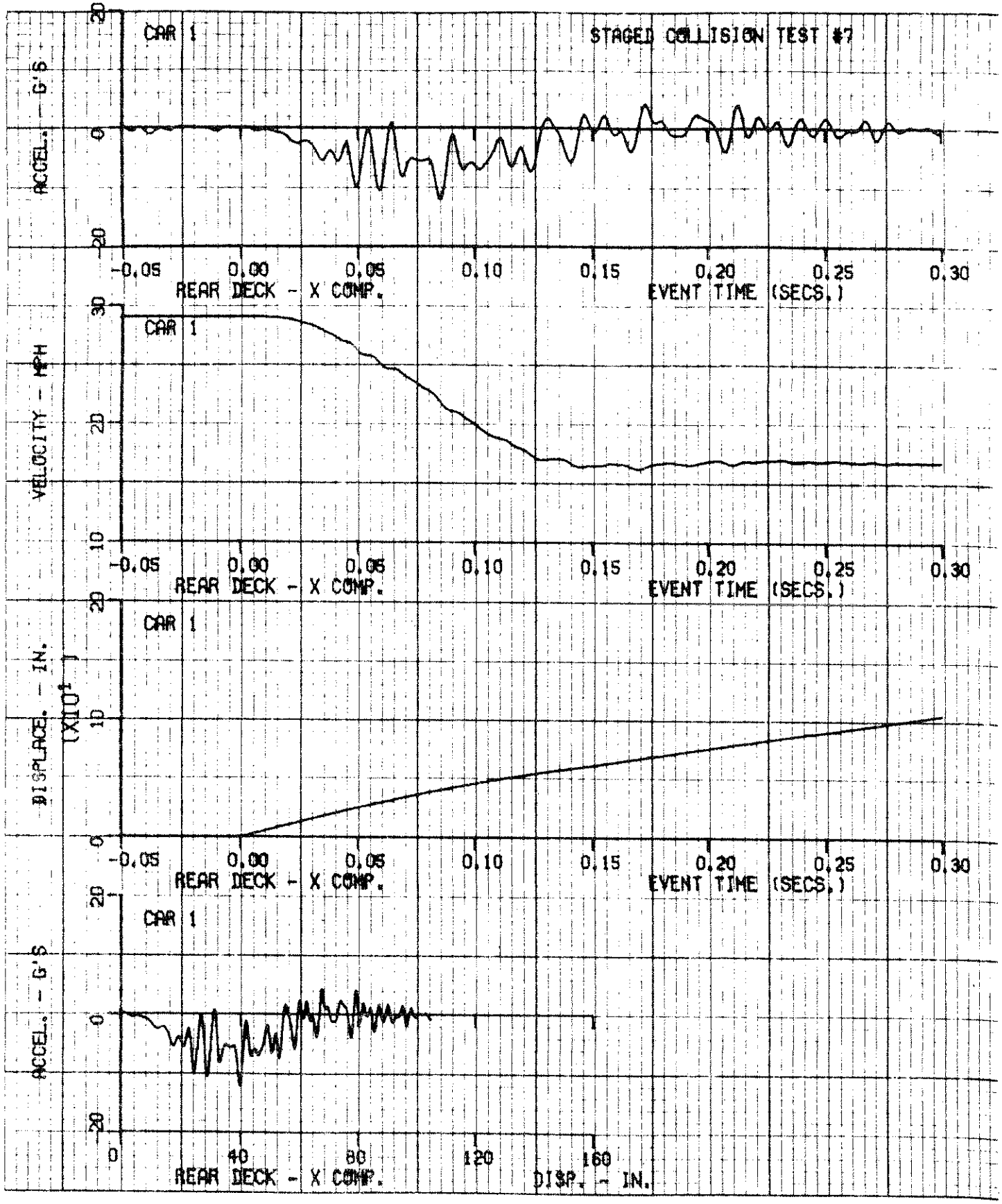

CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
4
2
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
0
1
2
3
4
RIGHT REAR CORNER - Z COMP.
DISP. - IN.

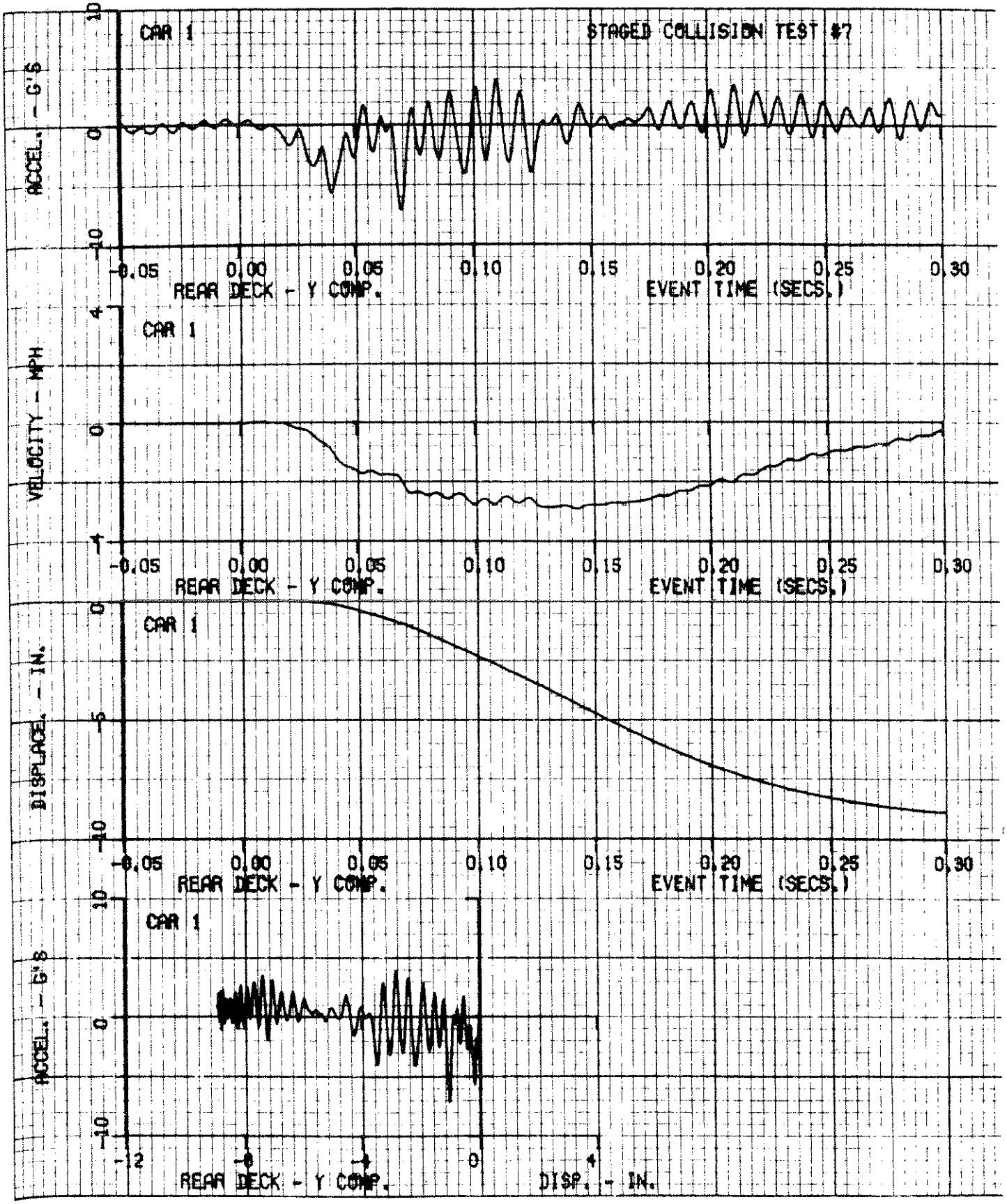

CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
30
20
10
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X10¹)
20
10
0
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
40
80
120
160
FIREWALL - X COMPONENT
DISP. - IN.

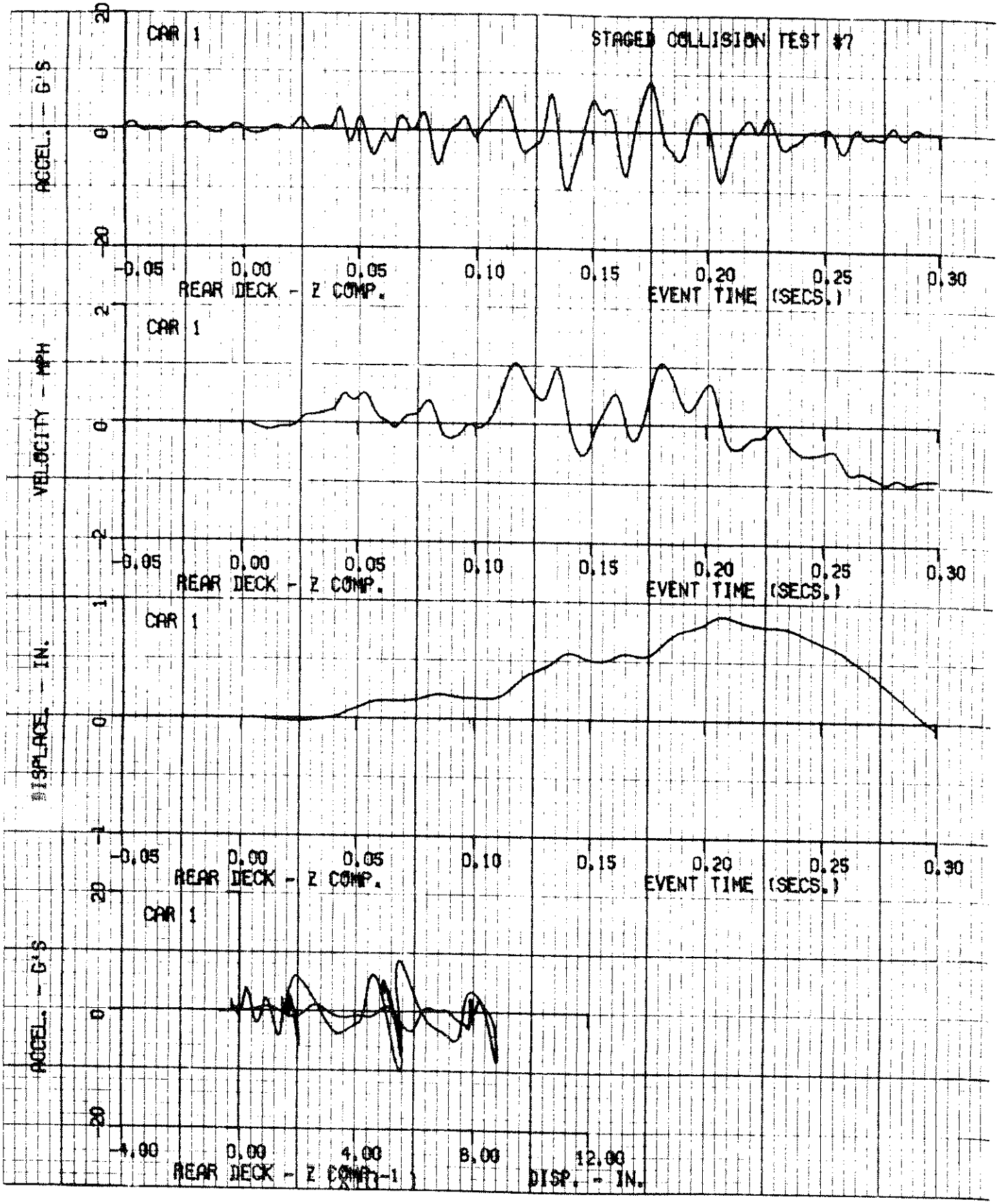

CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
5
0
-5
-5
0
5
10
15
FIREWALL - Y COMPONENT
DISP. - IN.

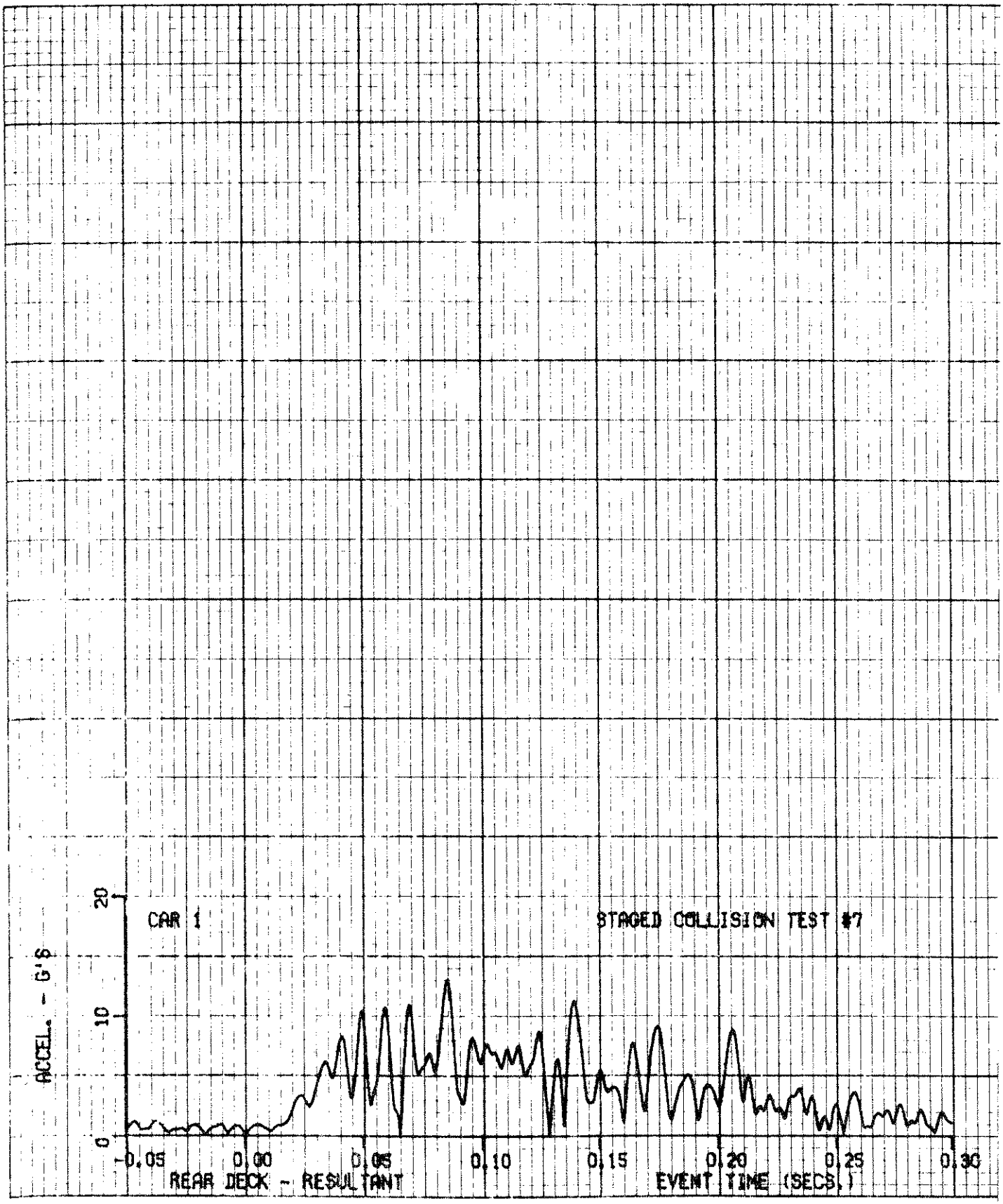

CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
4
2
0
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
1
2
3
4
FIREWALL - Z COMPONENT
DISP. - IN.

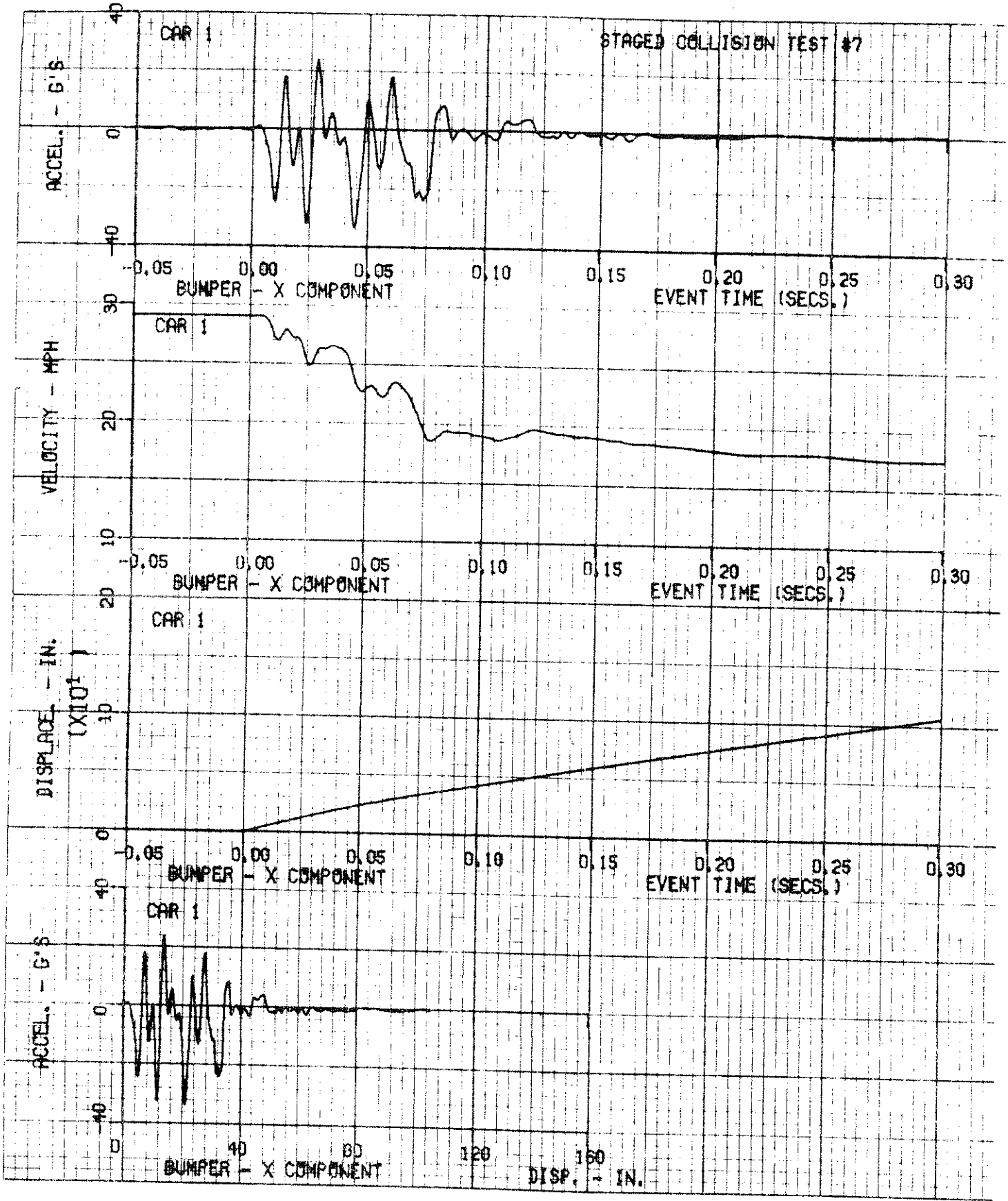

CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
0
10
20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - RESULTANT
EVENT TIME (SECS.)


CAR 1
STAGED COLLISION TEST #7
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 1
VELOCITY - MPH
30
20
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
DISPLACE. - IN.
(X10¹)
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
20
0
-20
0
40
80
120
160
REAR DECK - X COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
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
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.
0
-5
-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
10
0
-10
-12
-8
-4
0
4
REAR DECK - Y COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #7
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 1
VELOCITY - MPH
2
0
-2
-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
#19PLACE - IN.
1
0
-1
-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
ACCEL. - G'S
20
0
-20
-4.00
0.00
4.00
8.00
12.00
REAR DECK - Z COMP.-1
DISP. - IN.


CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
0
10
20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - RESULTANT
EVENT TIME (SECS.)


STAGED COLLISION TEST #7
CAR 1
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
30
20
10
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN. (X10¹)
20
10
0
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
0
40
80
120
160
BUMPER - X COMPONENT
DISP. - IN.

RICSAC TEST NO. 7

VEHICLE RESPONSES

CAR NO. 2 VW RABBIT

DATA PLOTS

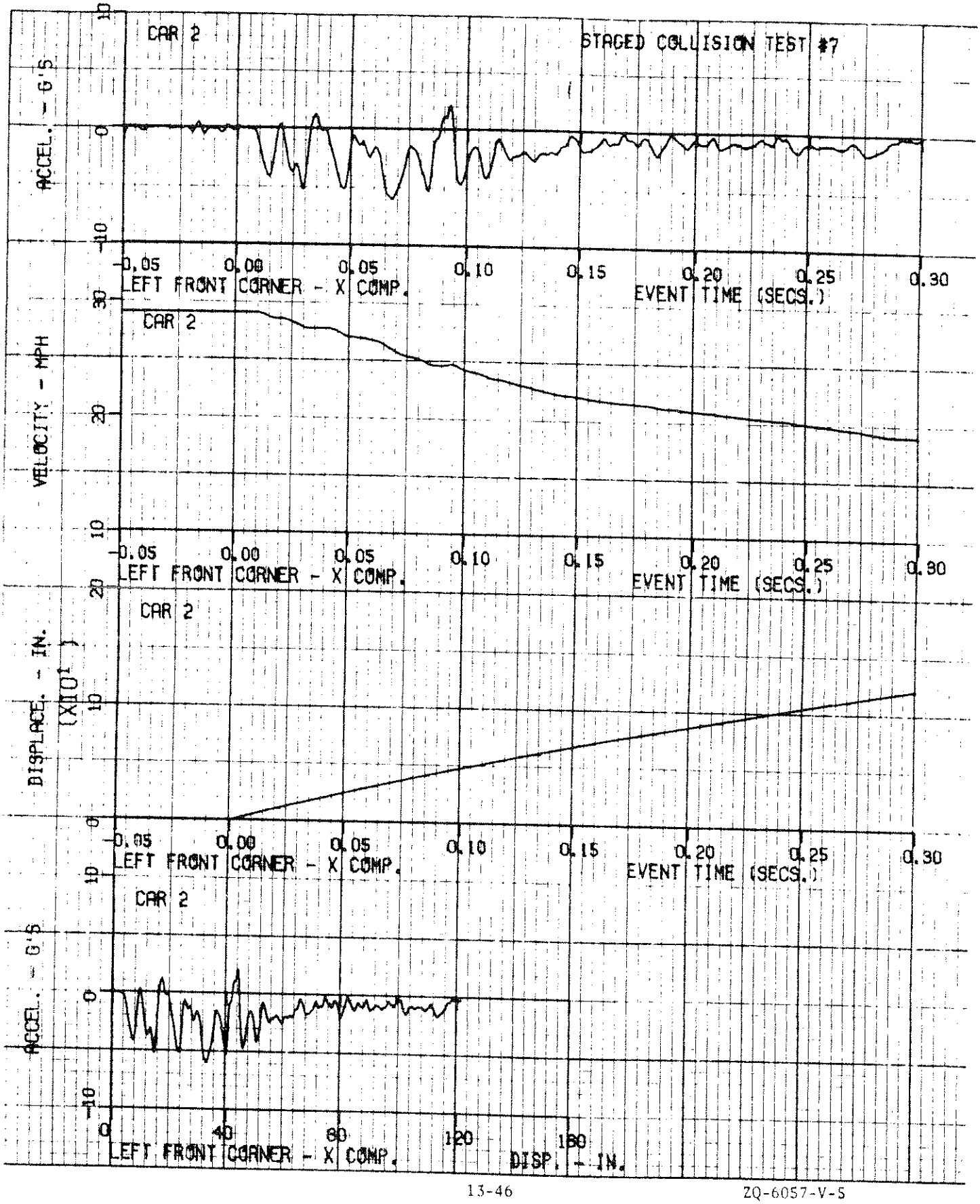
ACCELERATION TIME HISTORIES

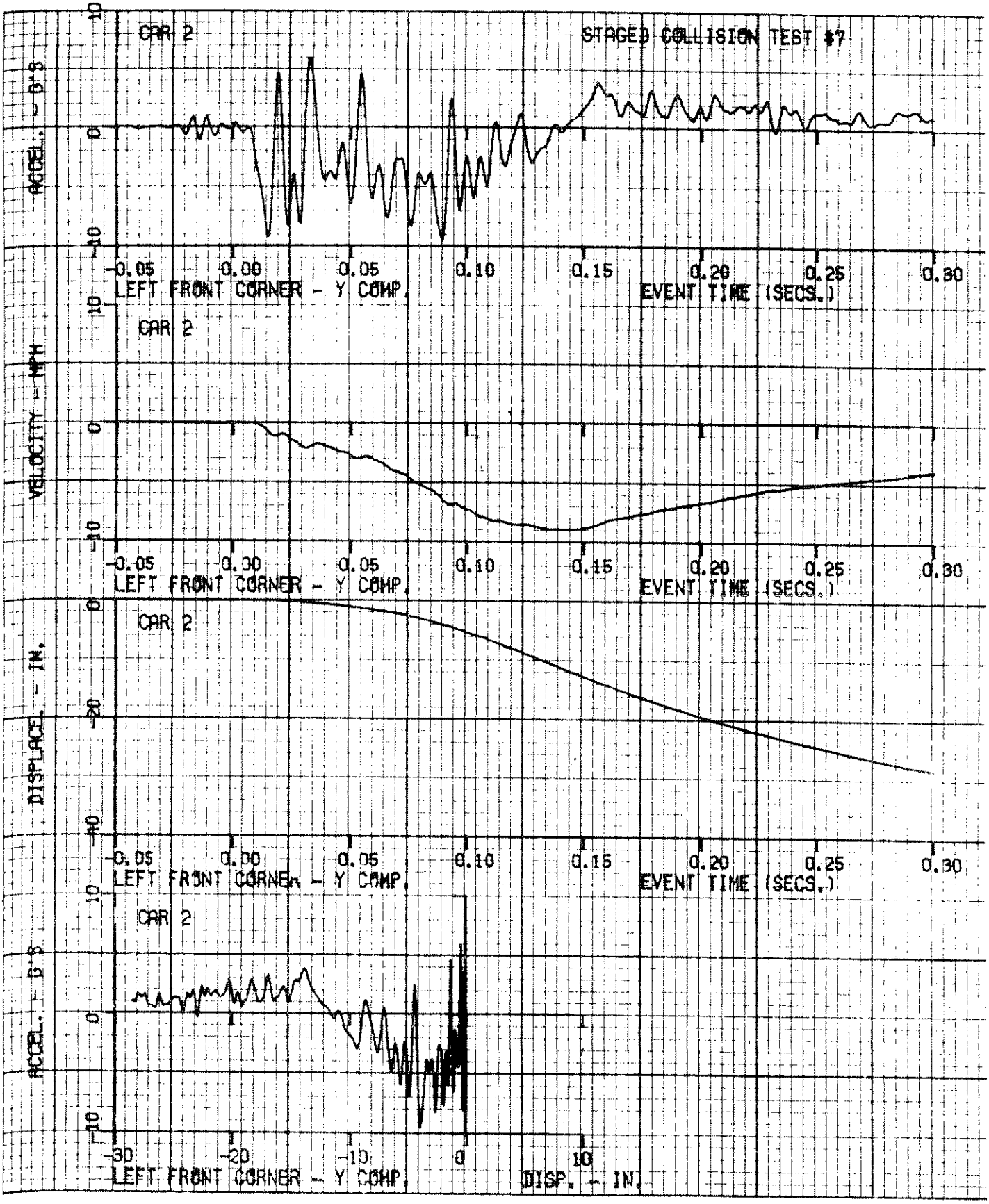
VELOCITY TIME HISTORIES

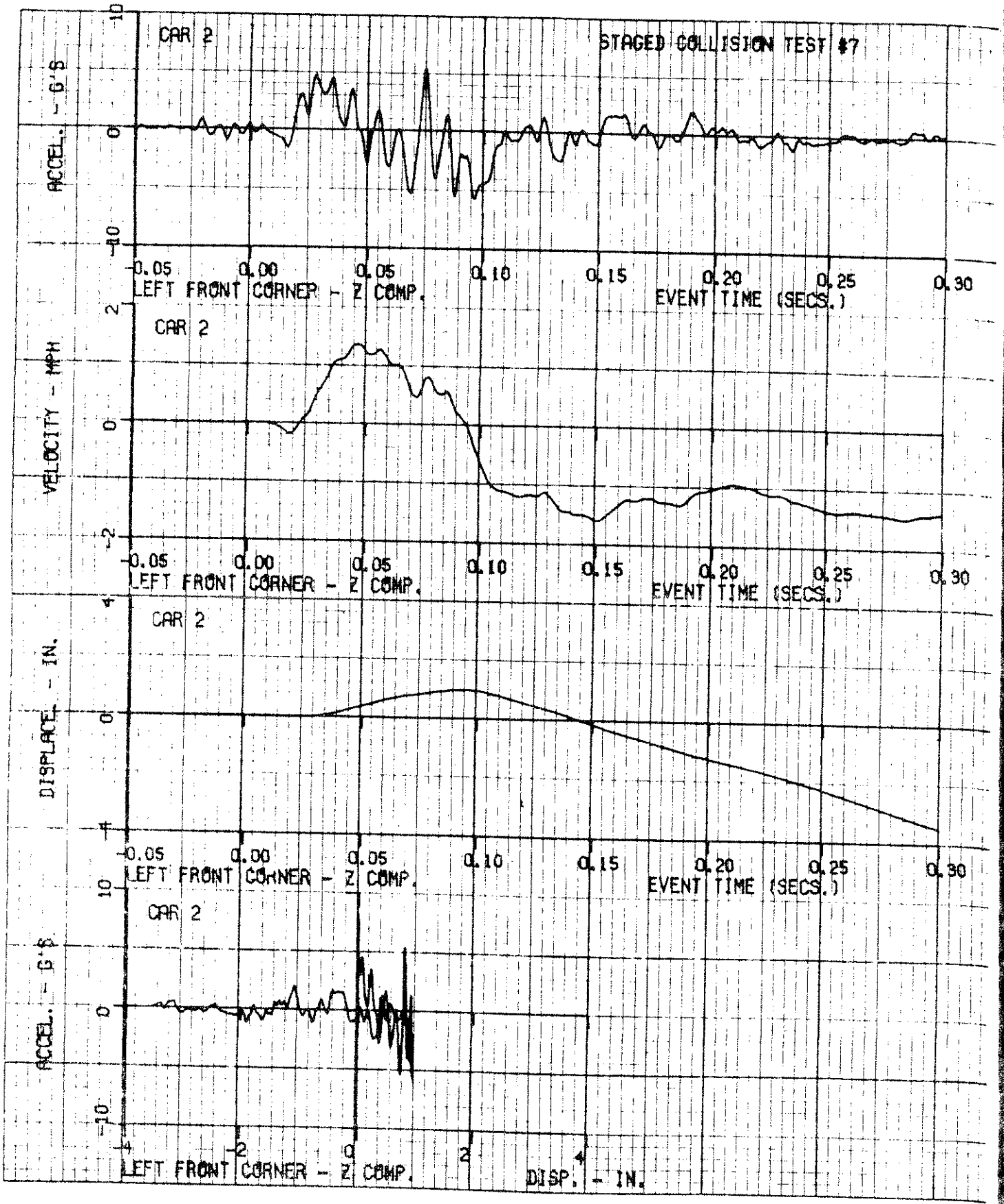
DISPLACEMENT TIME HISTORIES

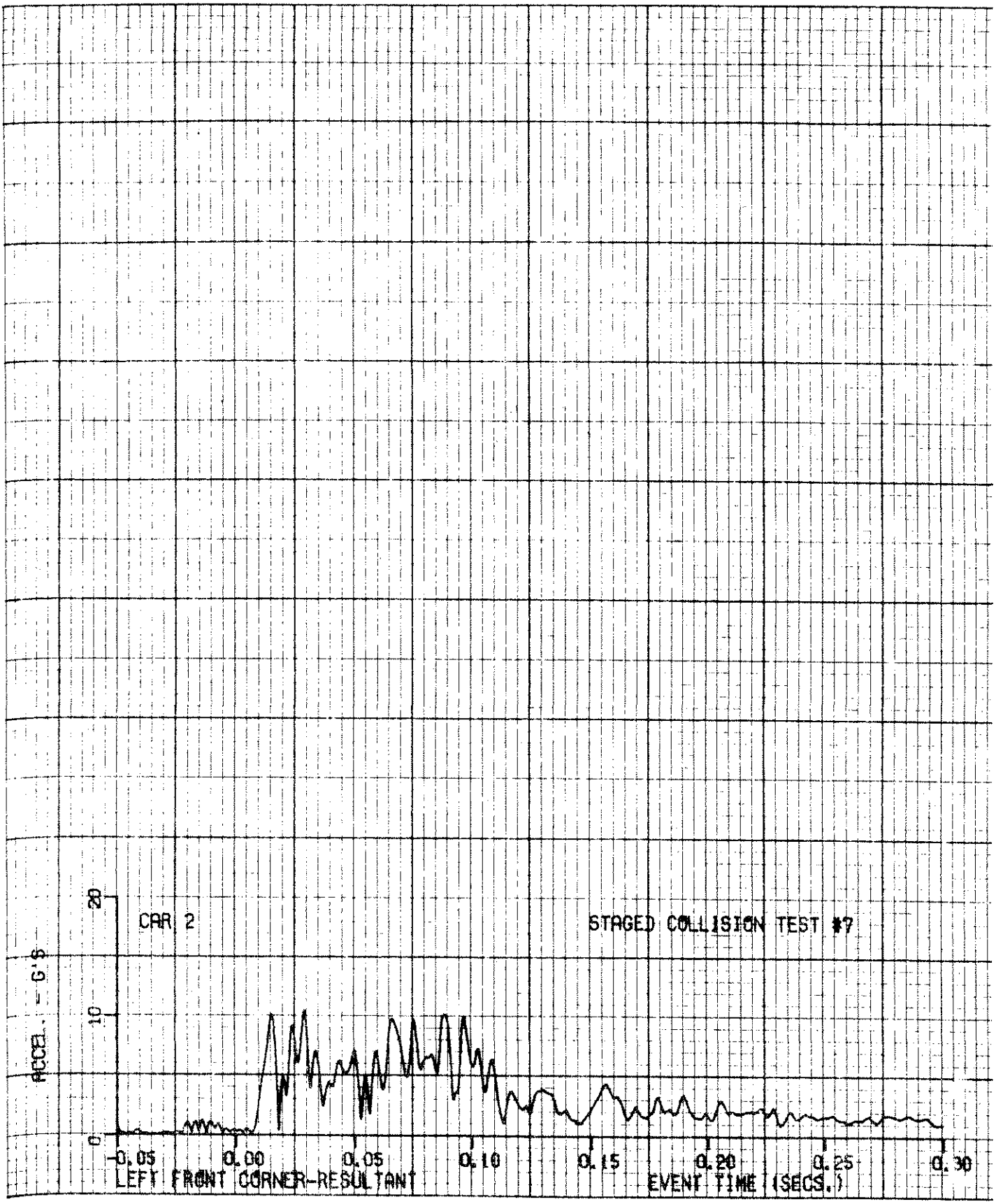
ACCELERATION VS DISPLACEMENT

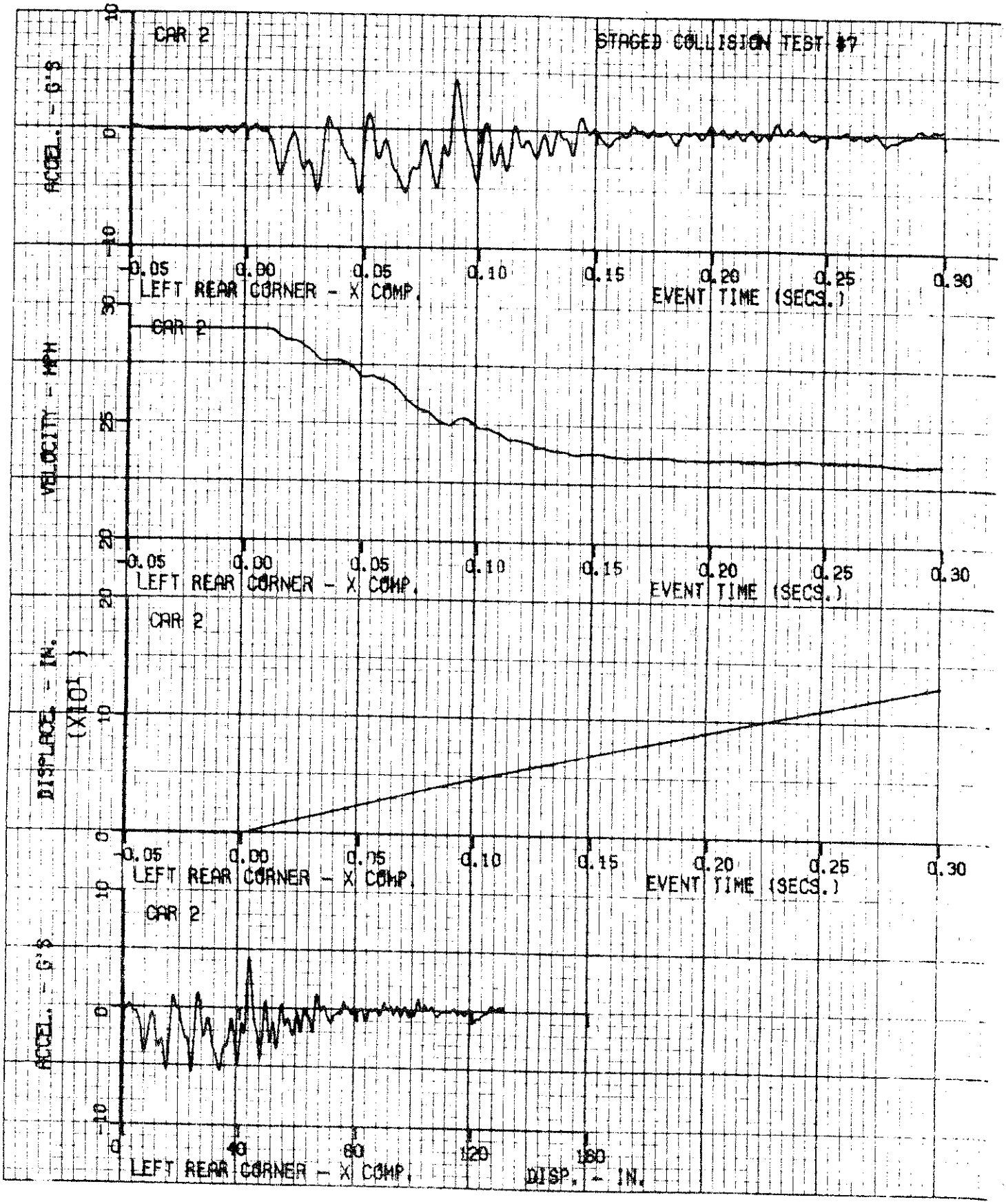
FILTER CLASS 60

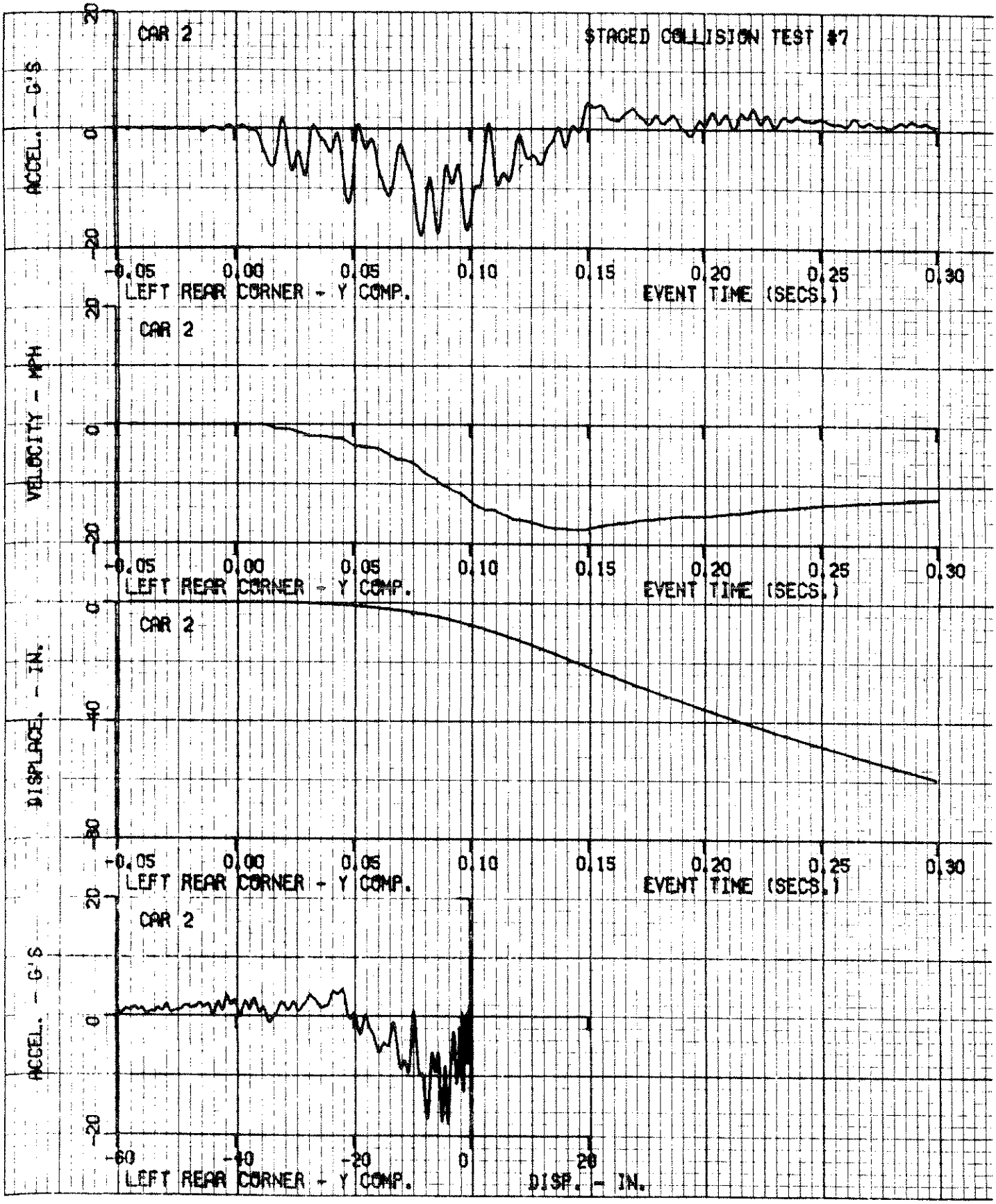

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
30
20
10
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10¹)
20
10
0
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT FRONT CORNER - X COMP.
DISP. - IN.

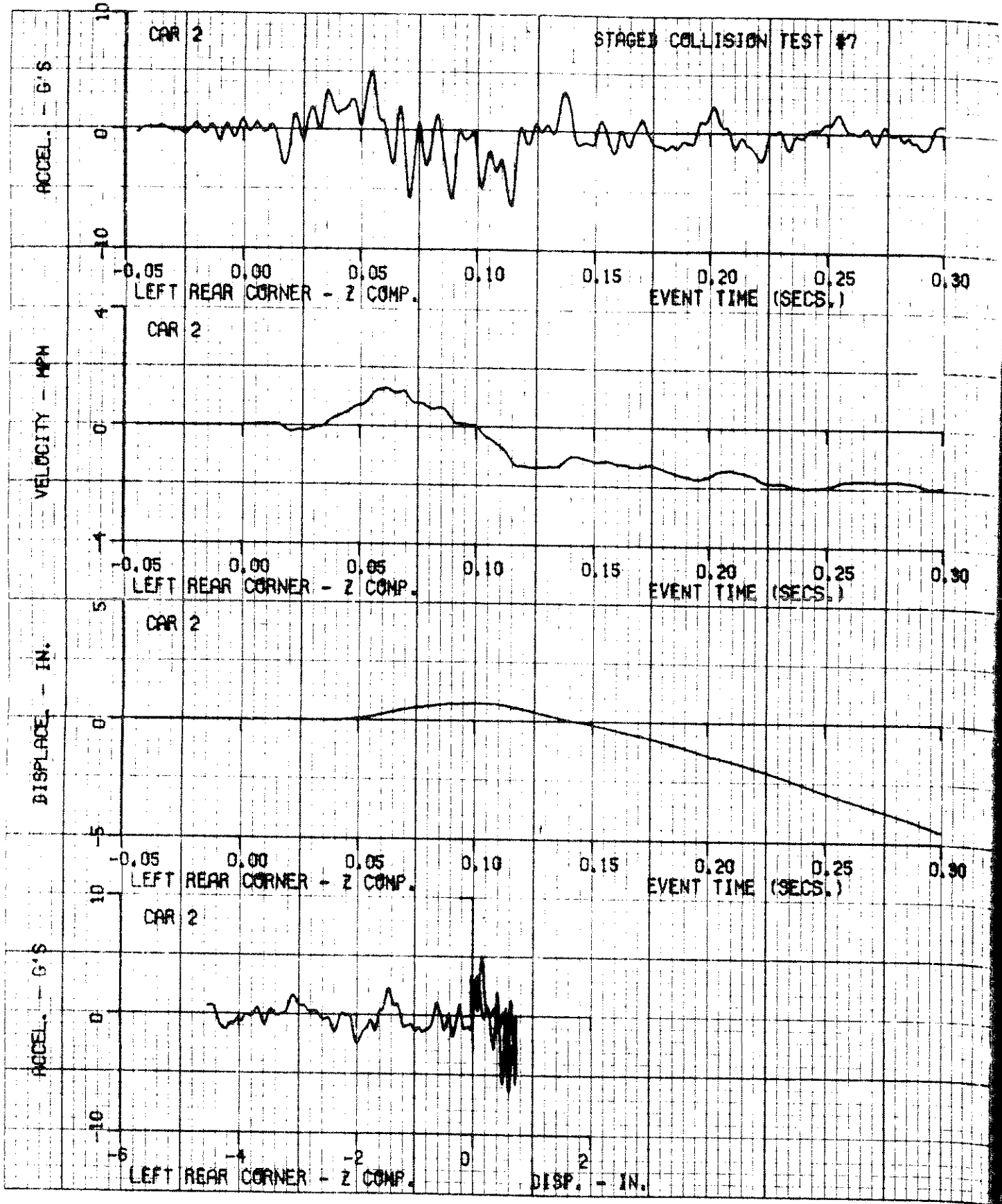

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-30
-20
-10
0
10
LEFT FRONT CORNER - Y COMP.
DISP. - IN.

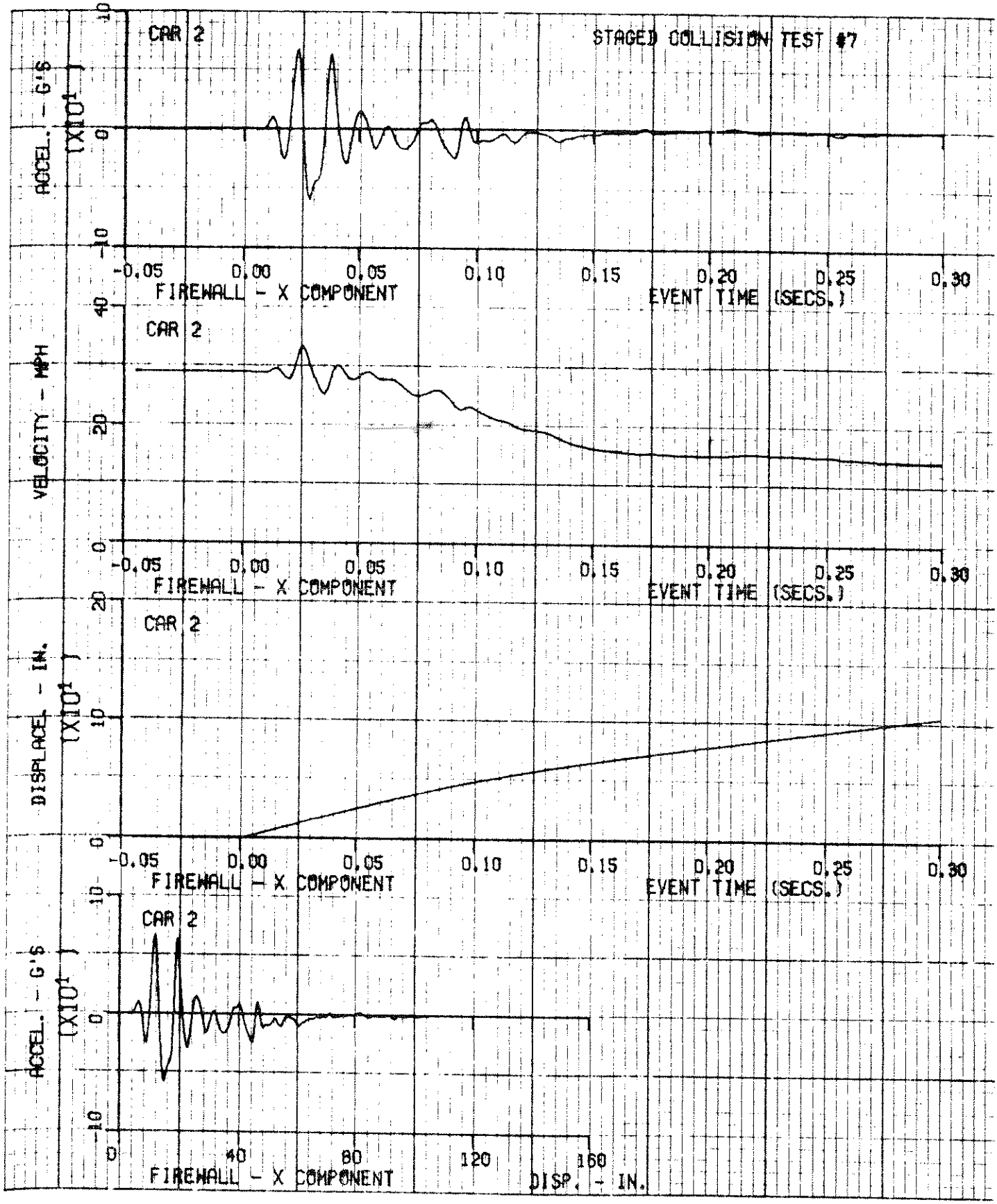

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-4
-2
0
2
4
LEFT FRONT CORNER - Z COMP.
DISP. - IN.

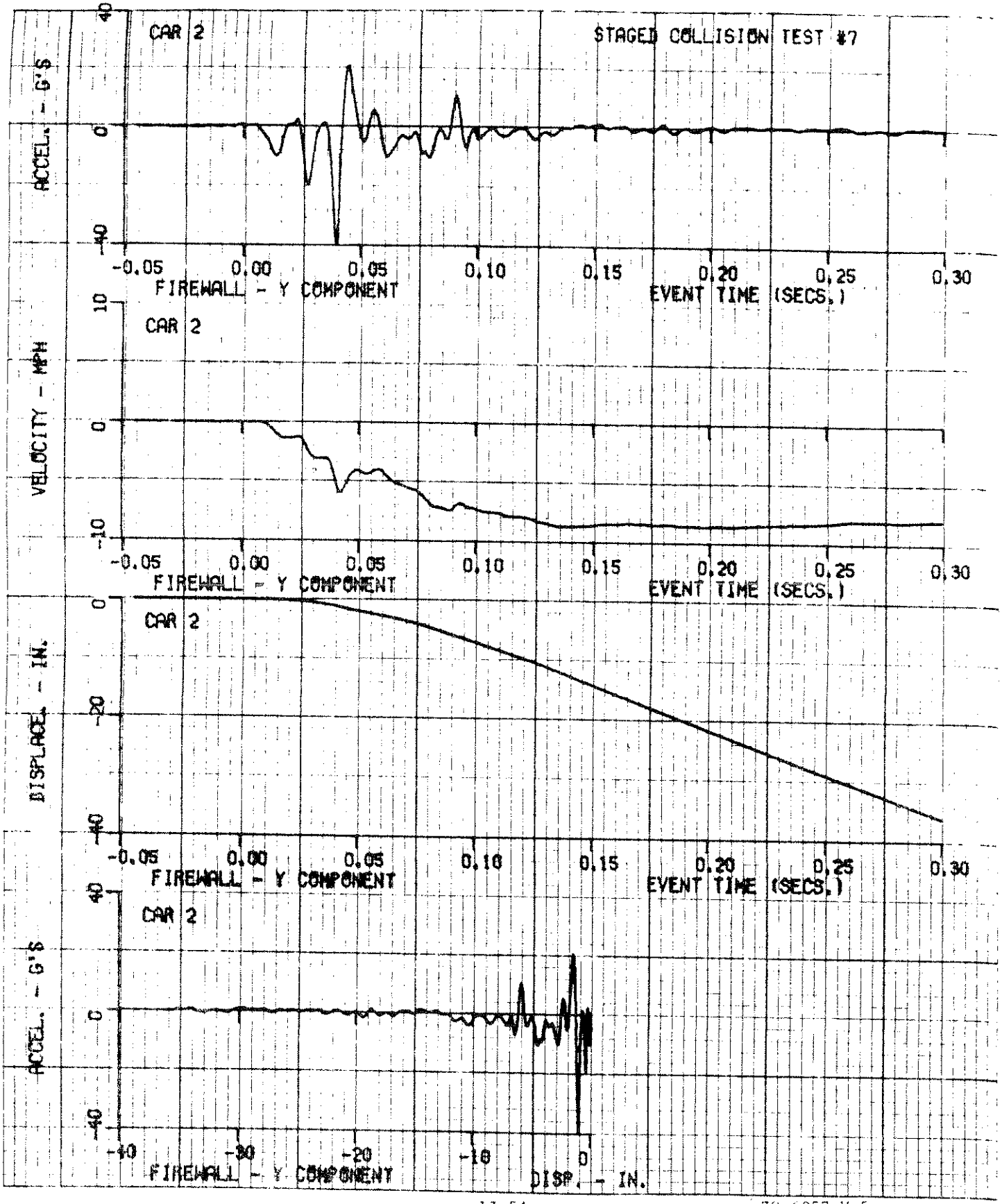

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)

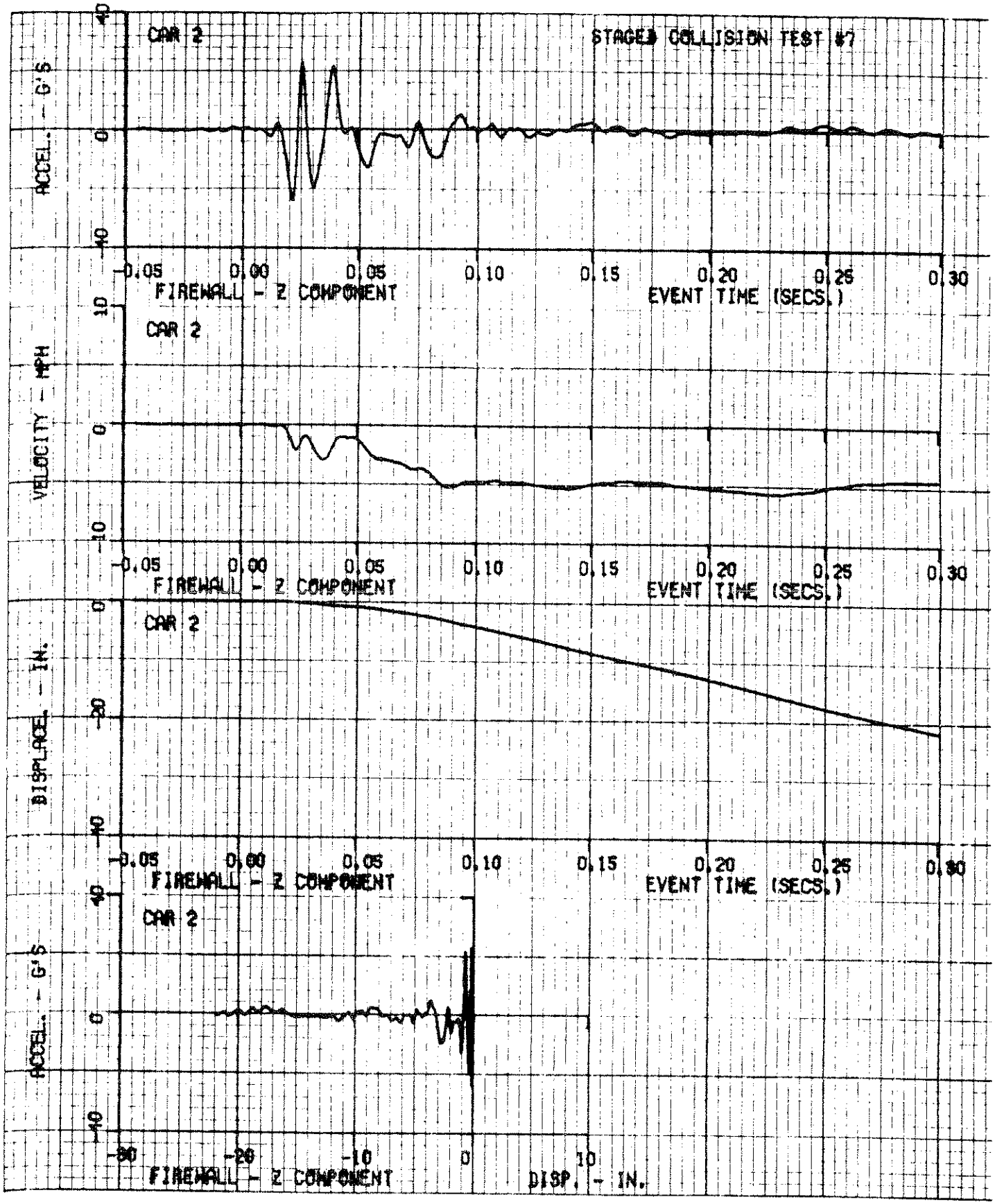

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
30
25
20
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
(X10)
20
10
0
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
40
60
120
180
LEFT REAR CORNER - X COMP.
DISP. - IN.

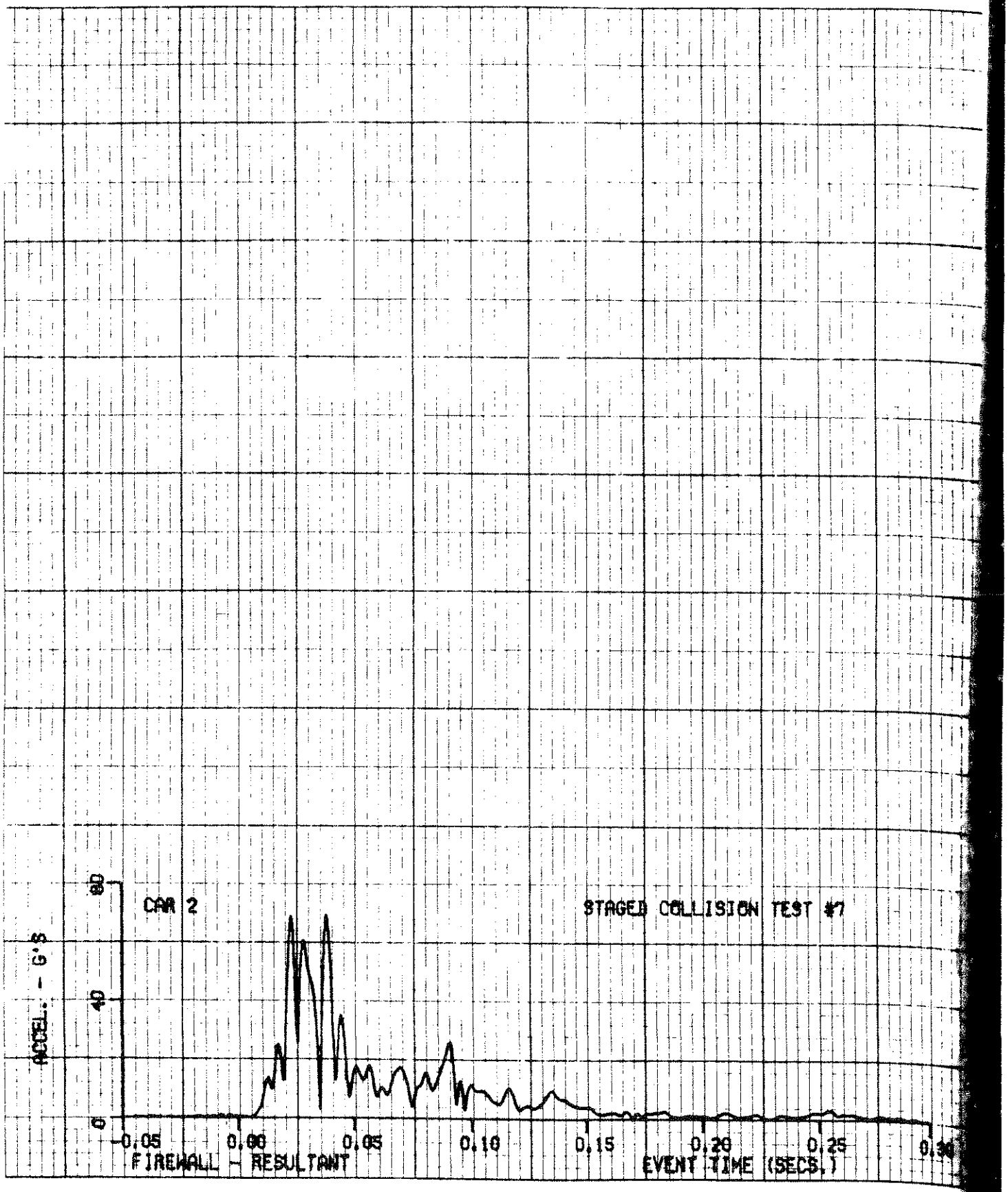

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-60
-40
-20
0
20
LEFT REAR CORNER - Y COMP.
DISP. - IN.

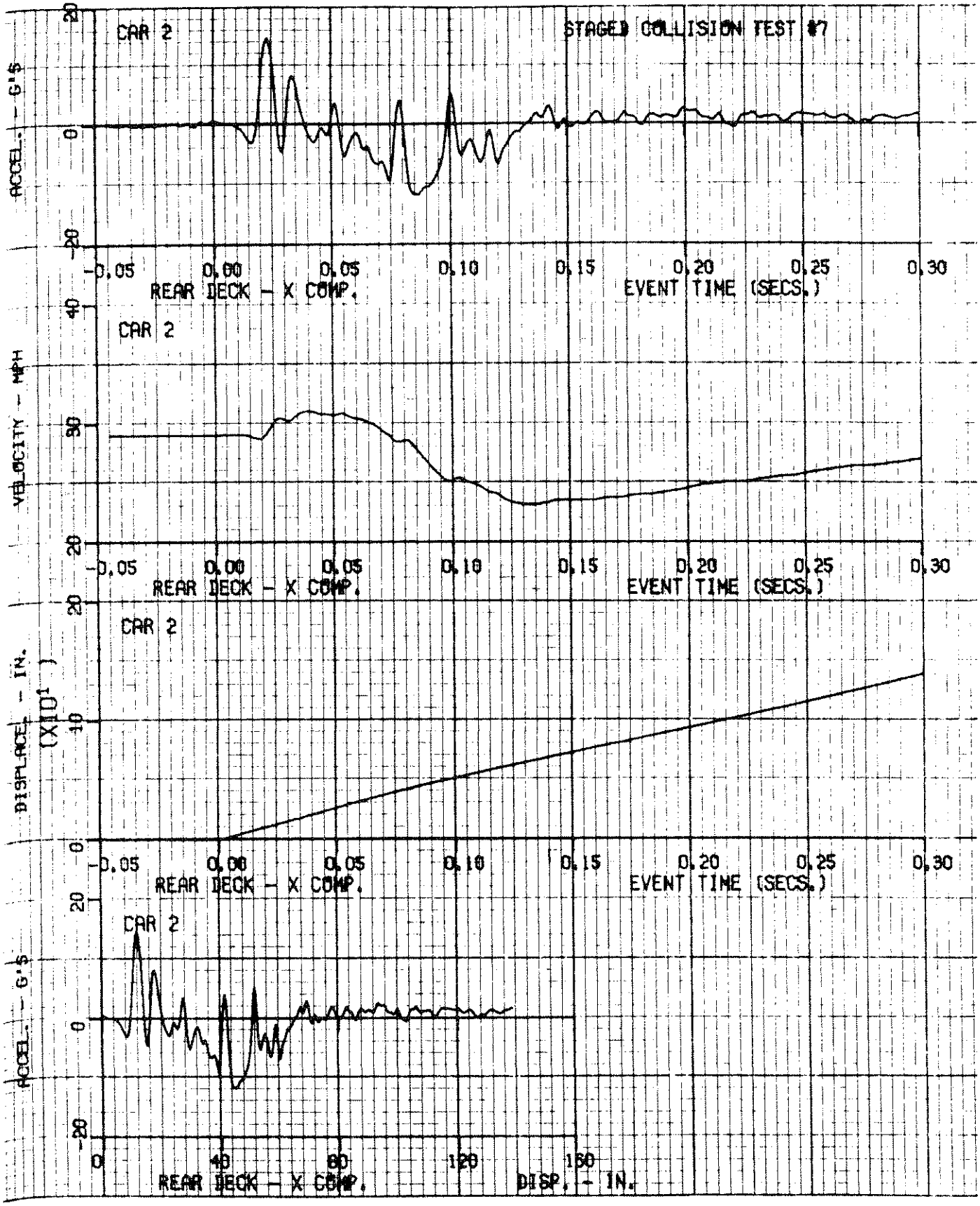

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
LEFT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
5
0
-5
LEFT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-6
-4
-2
0
2
LEFT REAR CORNER - Z COMP.
DISP. - IN.

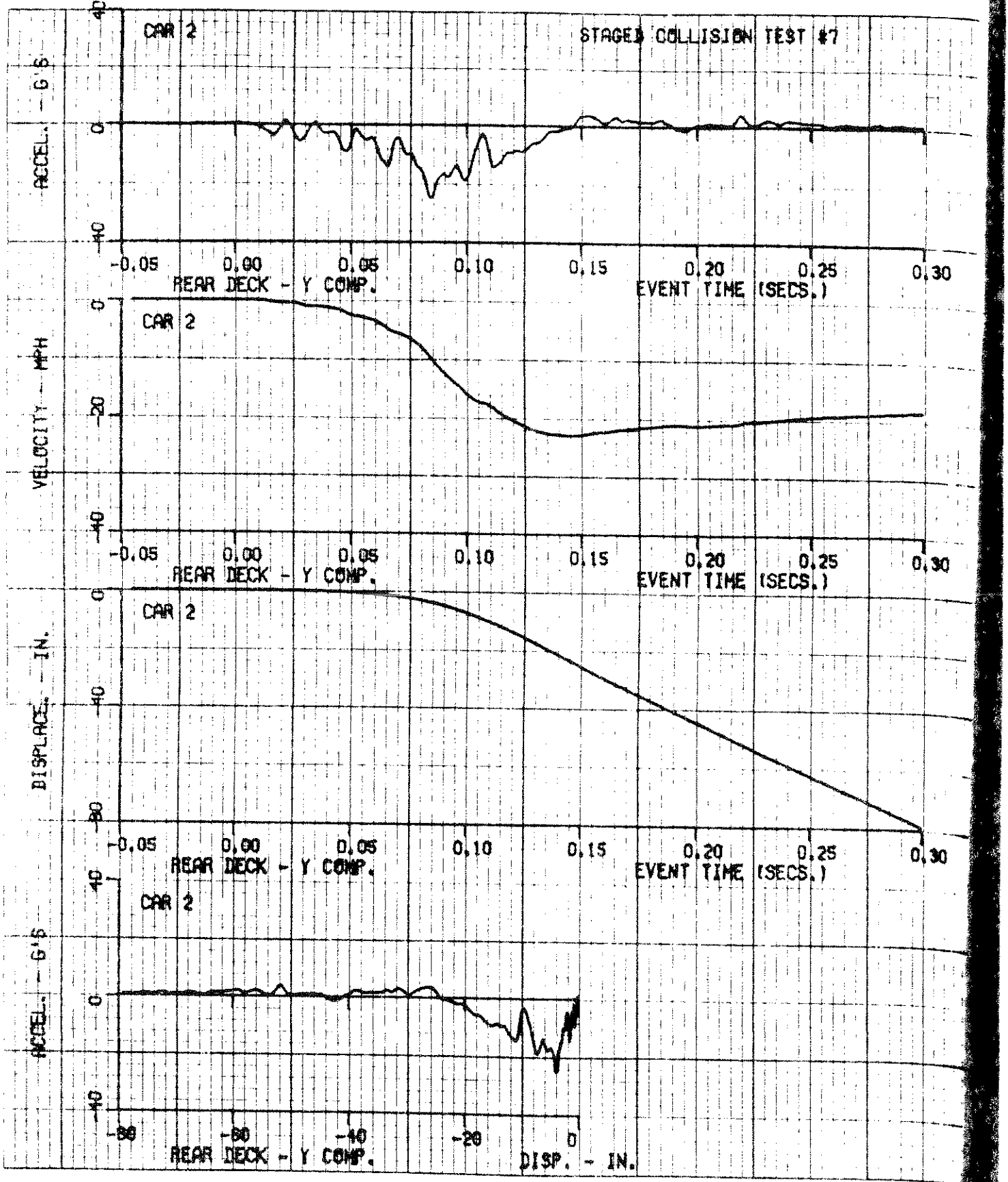

STAGED COLLISION TEST #7
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
20
0
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10¹)
20
10
0
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
0
40
80
120
160
FIREWALL - X COMPONENT
DISP. - IN.

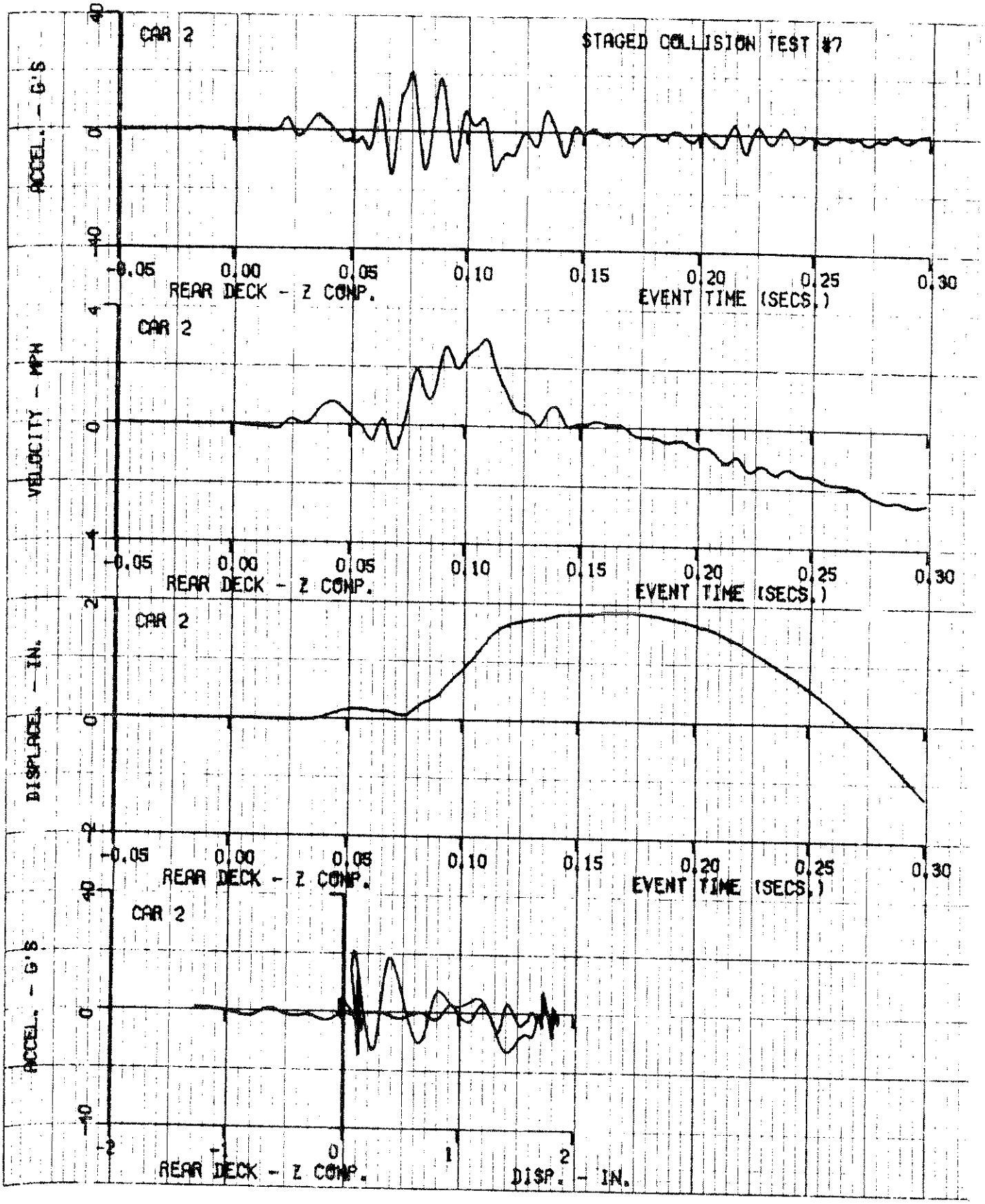

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-40
-30
-20
-10
0
FIREWALL - Y COMPONENT
DISP. - IN.

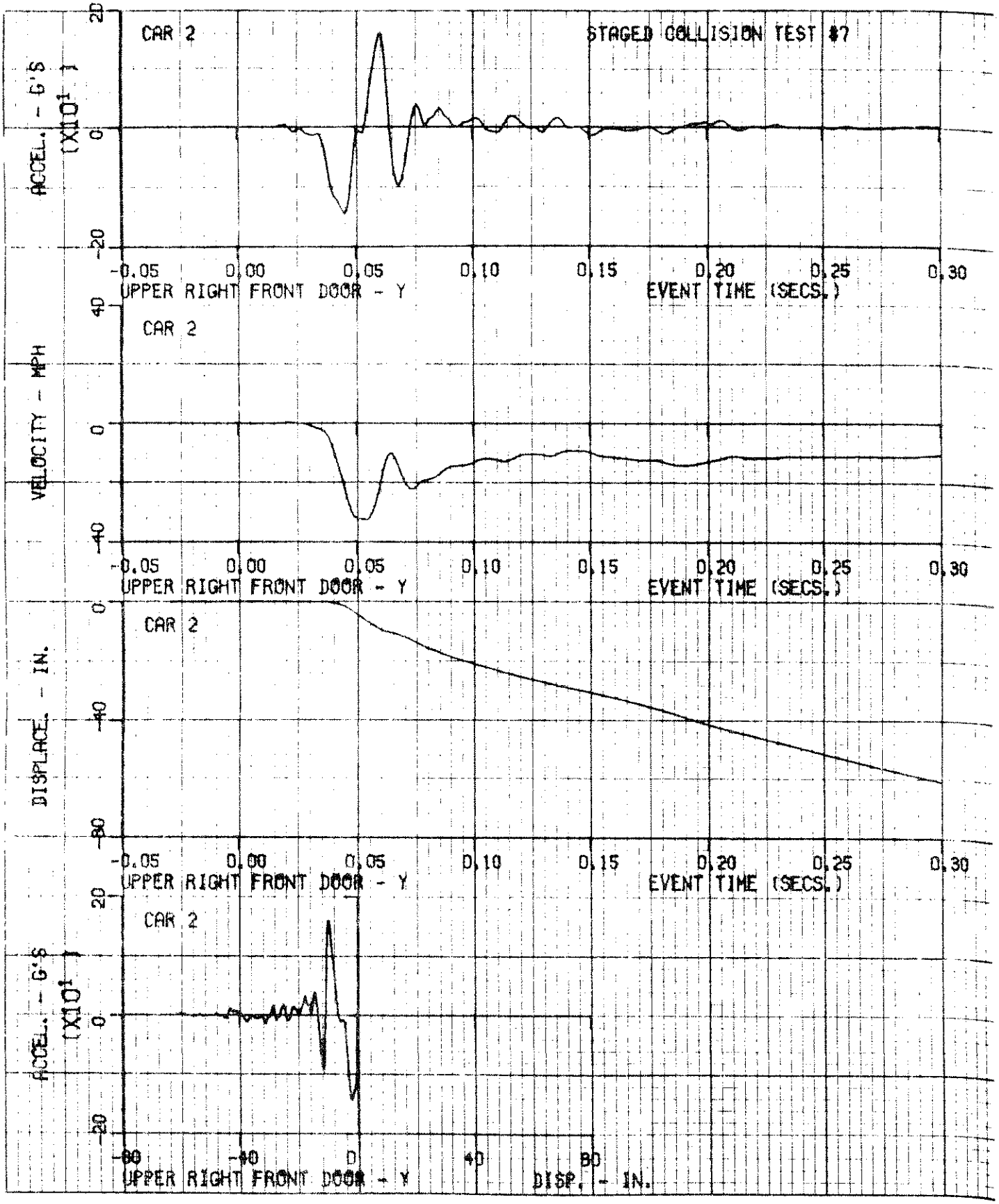

CAR 2
STAGE 3 COLLISION TEST #7
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACEL - IN.
0
-20
-40
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-30
-20
-10
0
10
FIREWALL - Z COMPONENT
DISP. - IN.

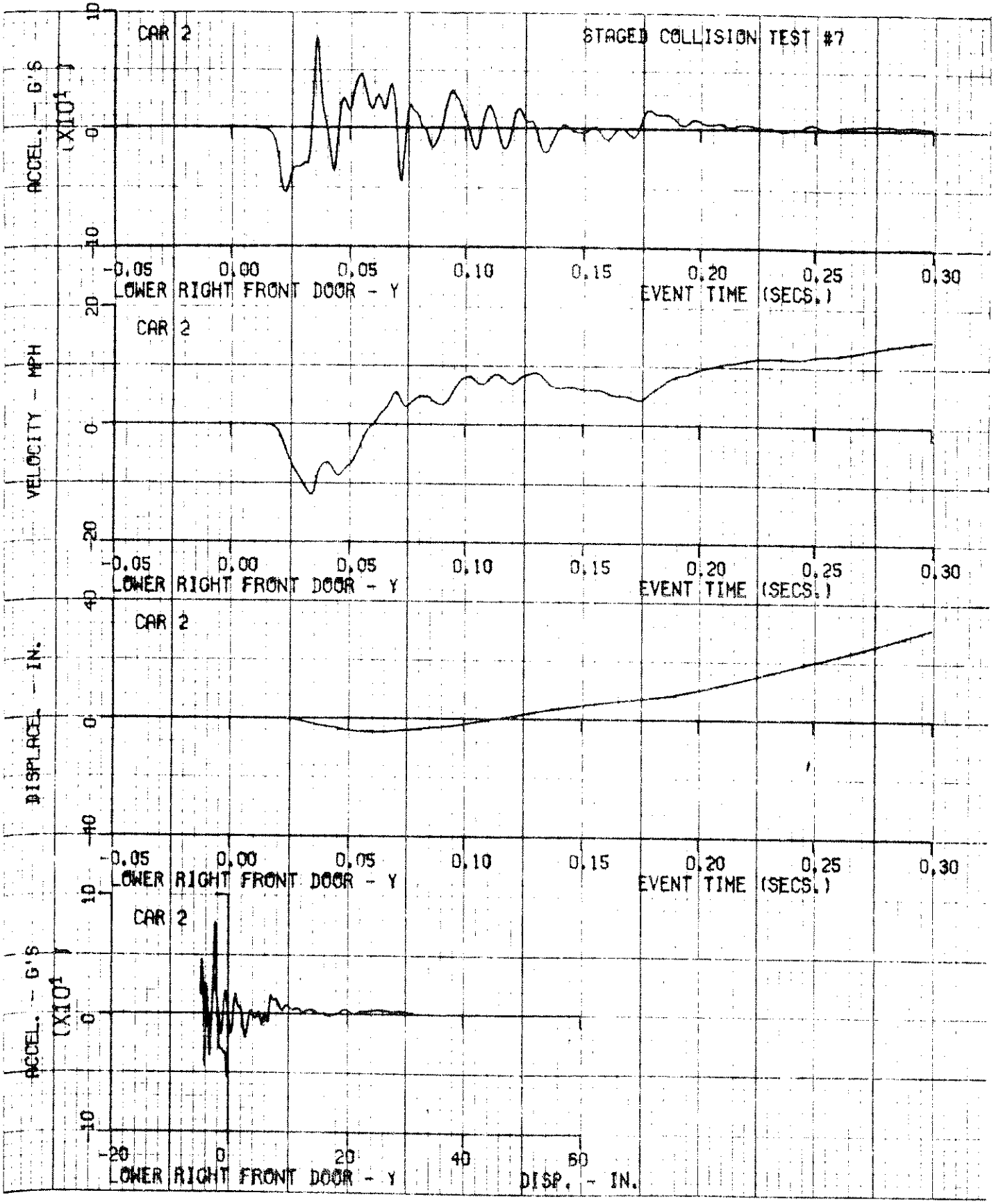

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - RESULTANT
EVENT TIME (SECS.)

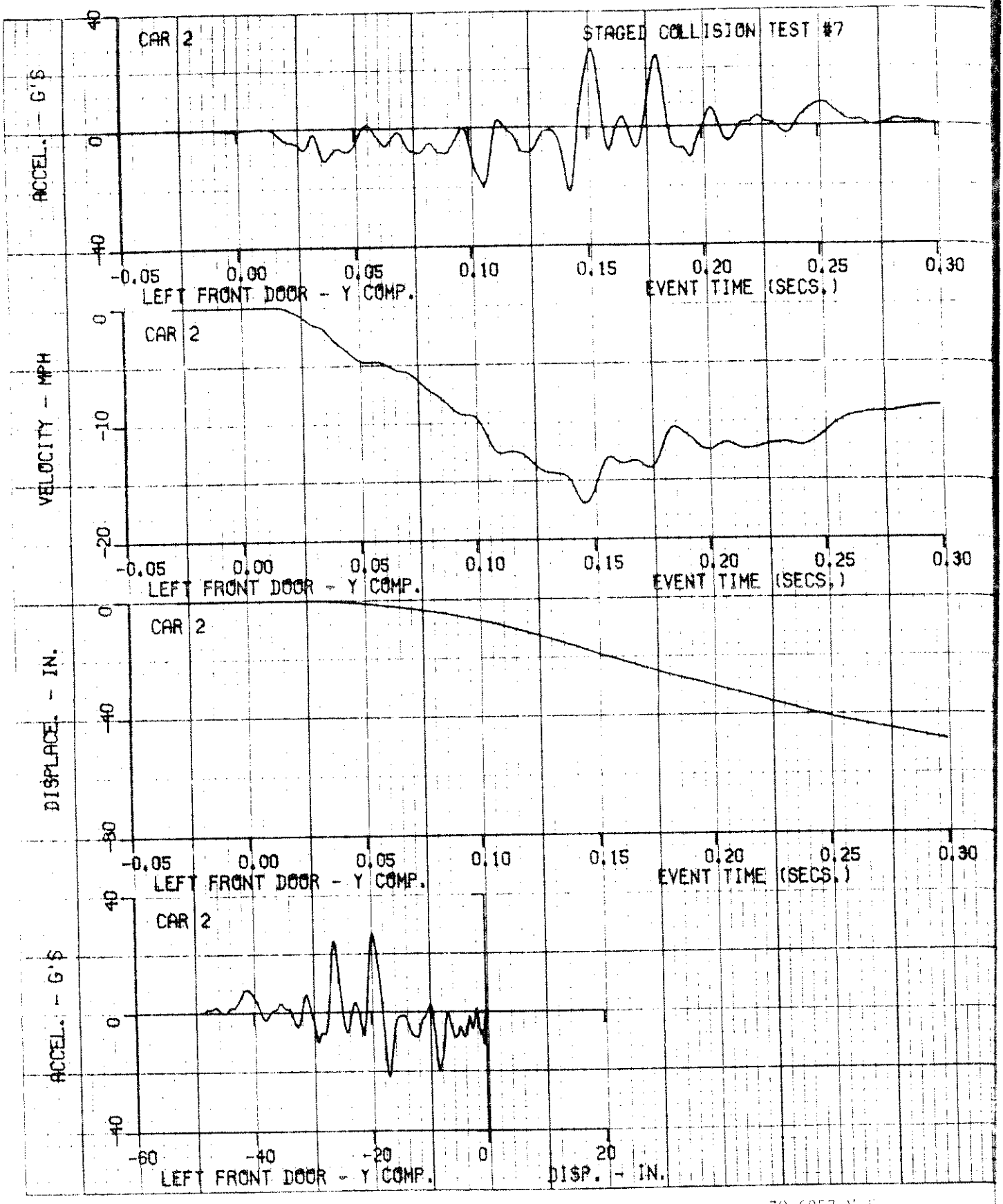

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10¹)
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
REAR DECK - X COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-80
-60
-40
-20
0
REAR DECK - Y COMP.
DISP. - IN.


STAGED COLLISION TEST #7
CAR 2
ACCEL. - G'S
40
0
-40
-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.
2
0
-2
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-2
-1
0
1
2
REAR DECK - Z COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S (X10¹)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
UPPER RIGHT 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
UPPER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
UPPER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
20
0
-20
-80
-40
0
40
80
UPPER RIGHT FRONT DOOR - Y
DISP. - IN.


STAGED COLLISION TEST #7
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
0
-20
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
40
0
-40
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
-20
0
20
40
60
LOWER RIGHT FRONT DOOR - Y
DISP. - IN.


STAGED COLLISION TEST #7
CAR 2
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
EVENT TIME (SECS.)
LEFT FRONT DOOR - Y COMP.
VELOCITY - MPH
0
-10
-20
DISPLACE. - IN.
-60
-40
-20
0
20
DISP. - IN.

DUMMY INJURY CRITERIA VALUES

CAR 2 - STRUCK VEHICLE

	MAXIMUM ACCELERATION ("G") *											
	HEAD				CHEST				PELVIS			
	X	Y	Z	R	X	Y	Z	R	X	Y	Z	R
DUMMY (1)	-33	-50	55	58	12	-62	-10	70	-	-95	-	-
DUMMY (2)	- 54	35	50	60	-37	-120	-18	135	-	-100	-	-
DUMMY (3)												
DUMMY (4)												

	MAXIMUM FORCE-FEMUR LOAD (LBS)	
	RIGHT FEMUR	LEFT FEMUR
DUMMY (1)	-70	-100
DUMMY (2)	1350	900
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)	744.5	.104	.106	163.2	1350	378
DUMMY (2)	511.2	.065	.127	36.8	720	1620
DUMMY (3)						
DUMMY (4)						

*DEFINED AS EXCEEDING 0.003 SEC. DURATION

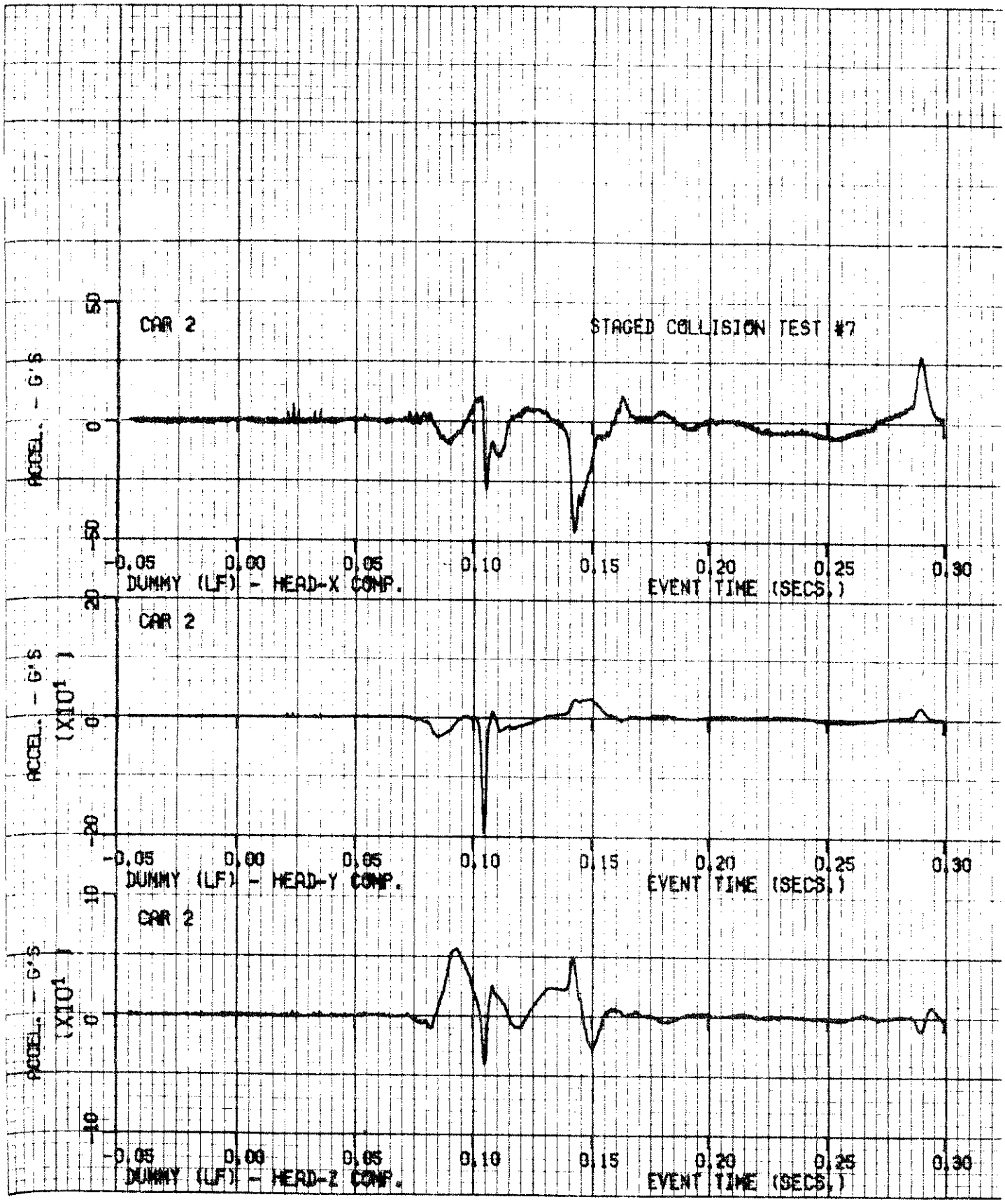
**AS DEFINED IN FMVSS NO. 208

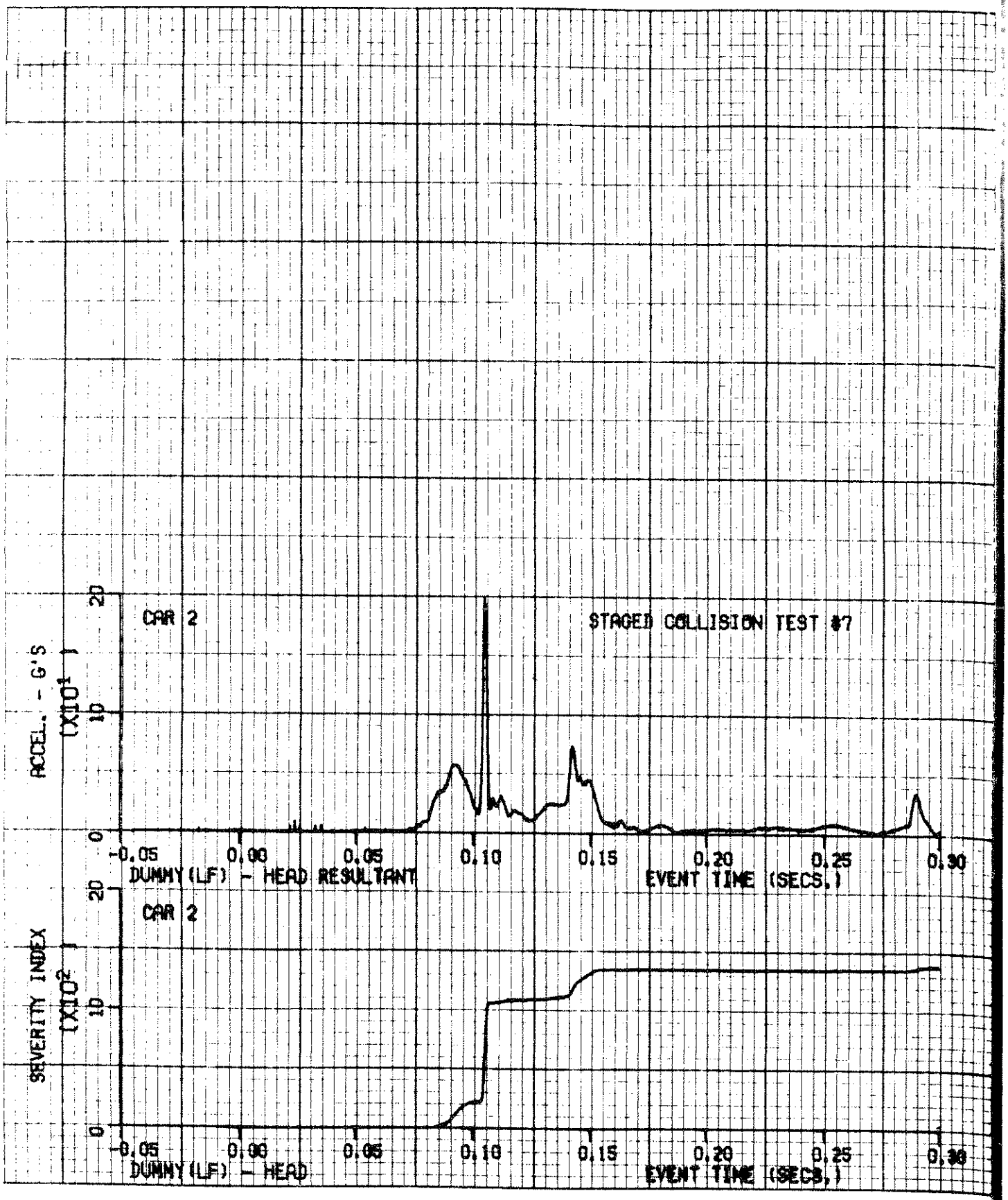
RICSAC TEST NO. 7

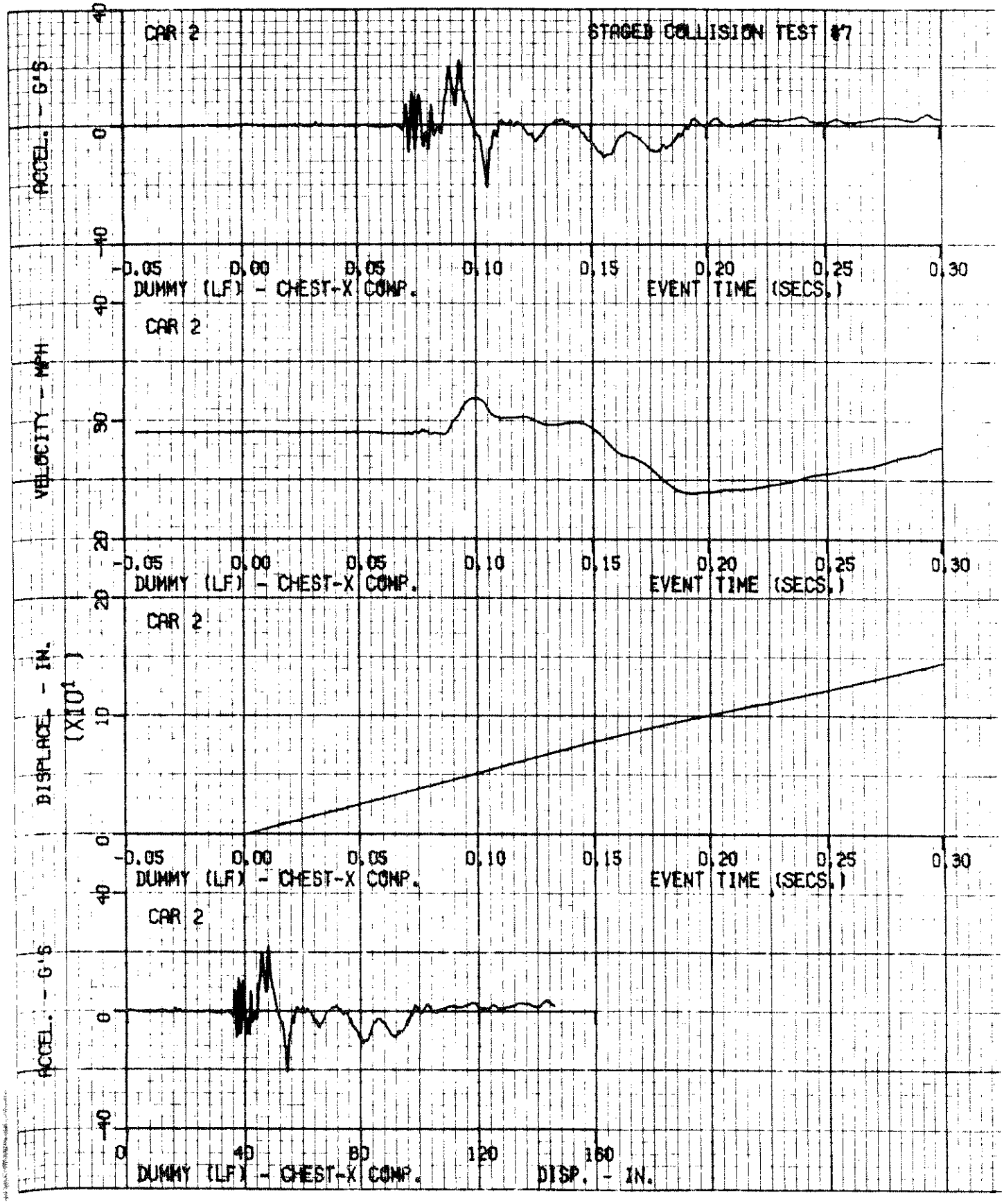
DUMMY DATA

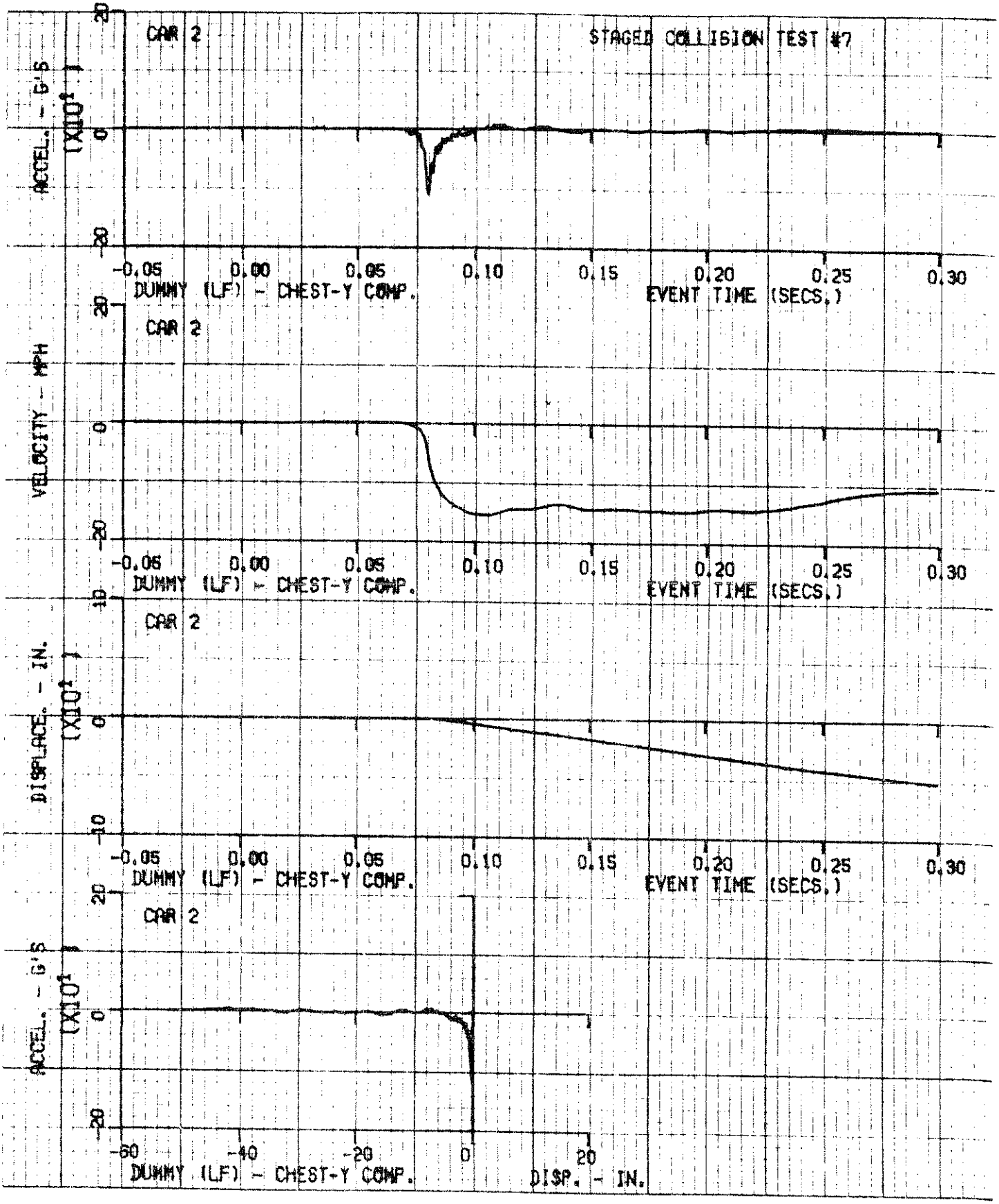
CAR NO. 2 VW RABBIT

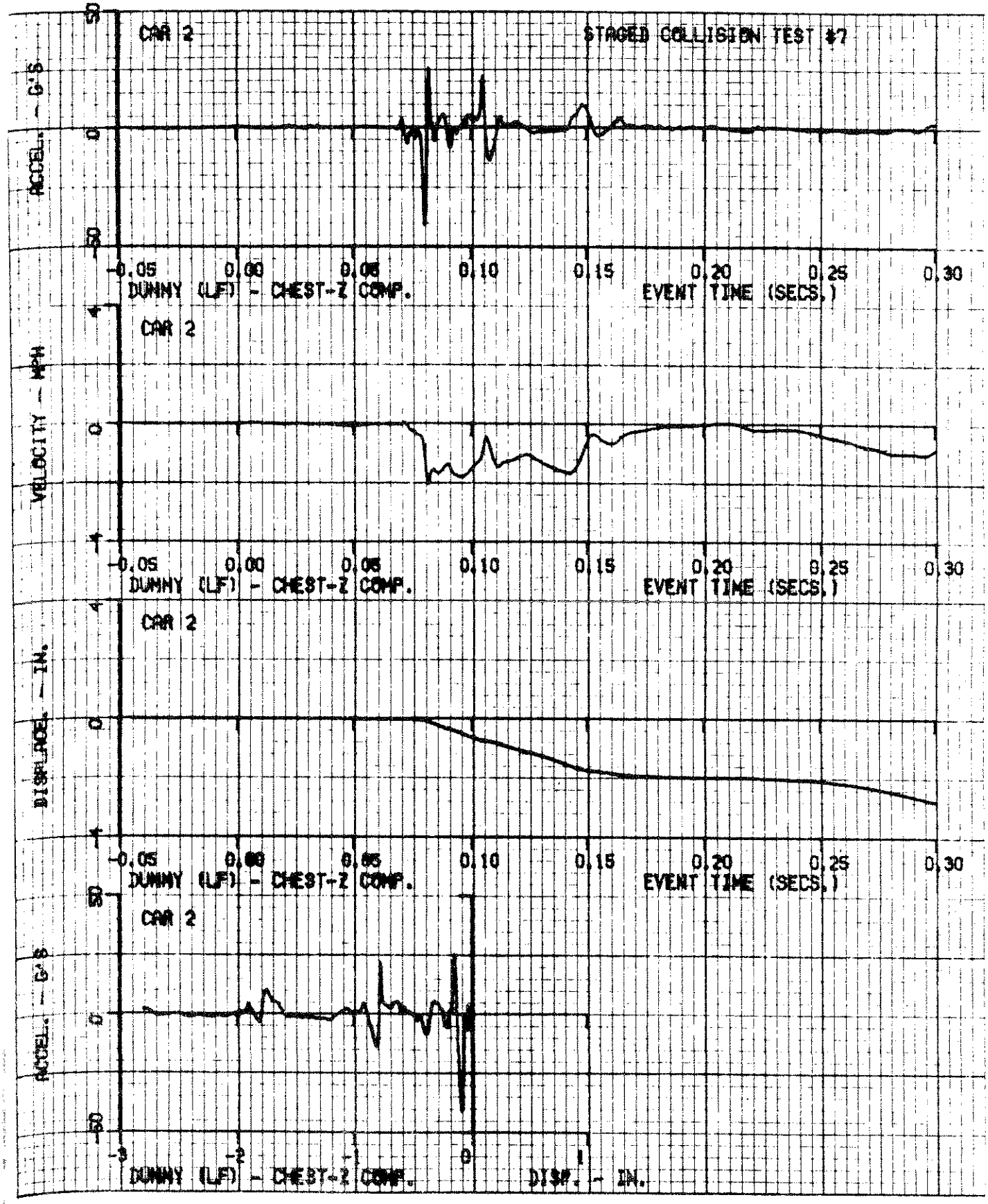
DATA PLOTS		FILTER CLASS
HEAD ACCELERATION	X,Y,X	1000
HEAD RESULTANT		
HEAD SEVERITY INDEX		
CHEST ACCELERATION	X,Y,Z	180
CHEST RESULTANT		
CHEST VELOCITY	X,Y,Z	
CHEST DISPLACEMENT	X,Y,Z	
CHEST SEVERITY INDEX		
PELVIC ACCELERATION	X	180
PELVIC VELOCITY	X	
PELVIC DISPLACEMENT	X	
FEMUR LOADS	L & R	600

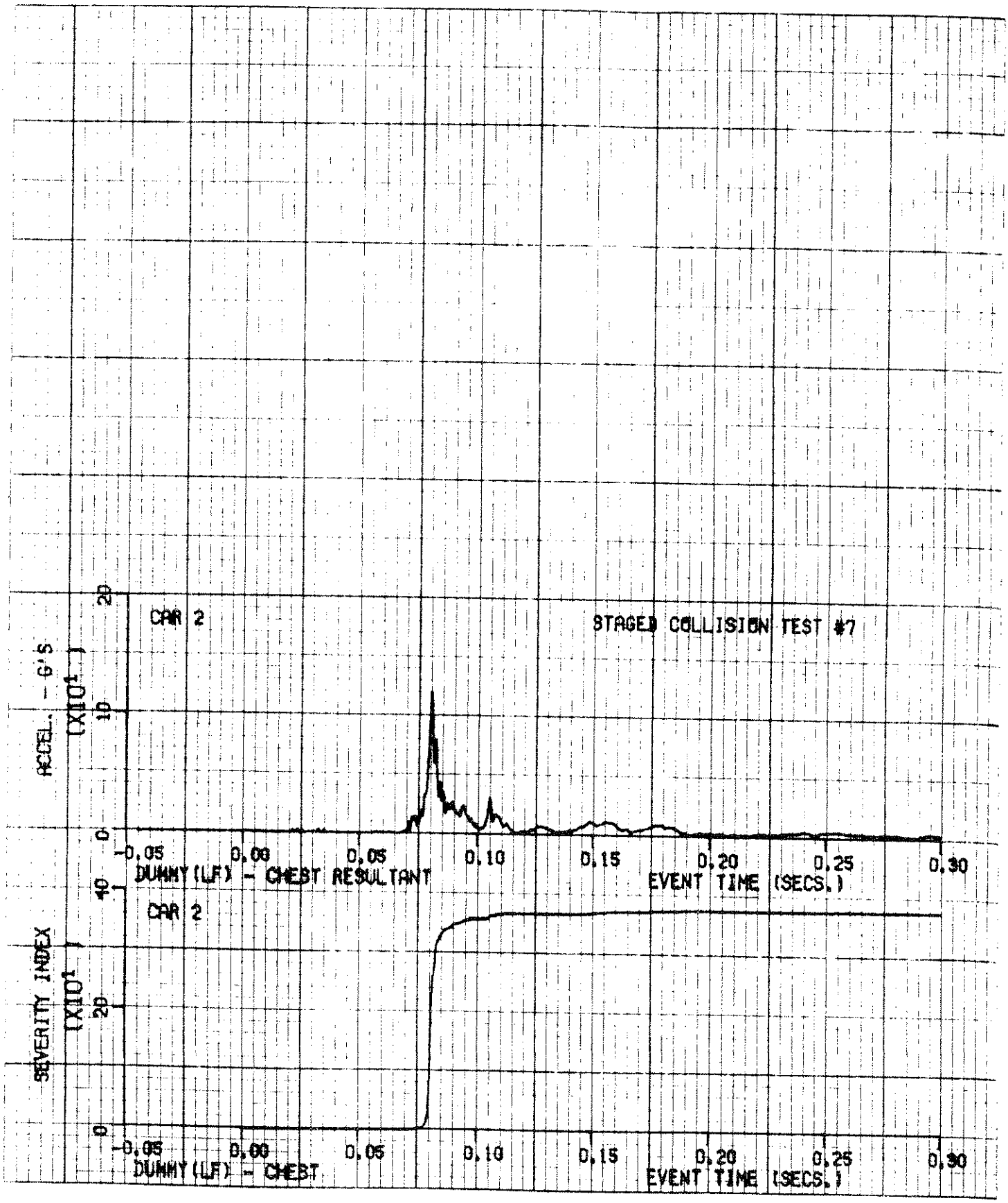

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
50
0
-50
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
20
0
-20
DUMMY (LF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
DUMMY (LF) - HEAD-Z COMP.
EVENT TIME (SECS.)

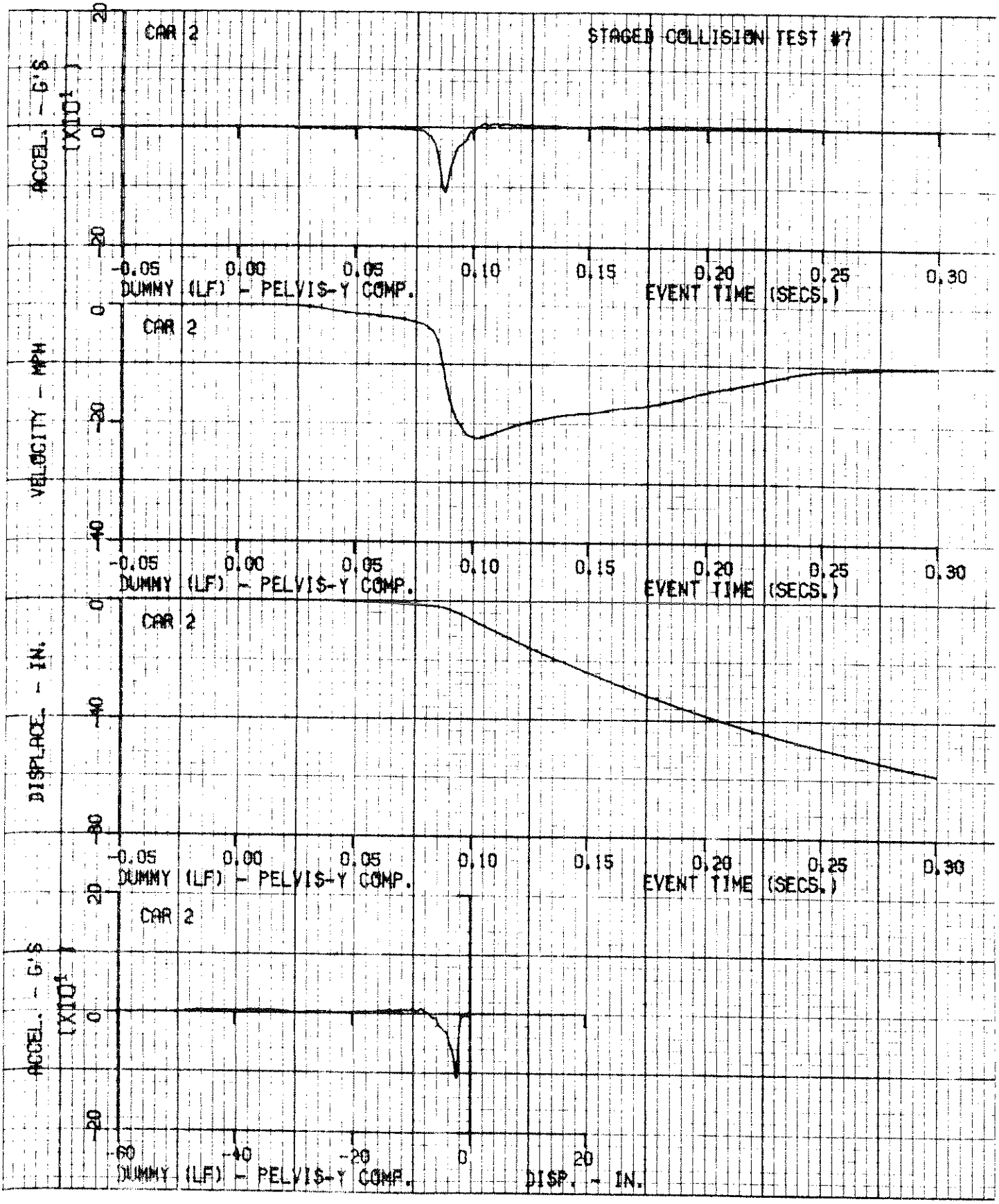

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S (X10¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10²)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD
EVENT TIME (SECS.)

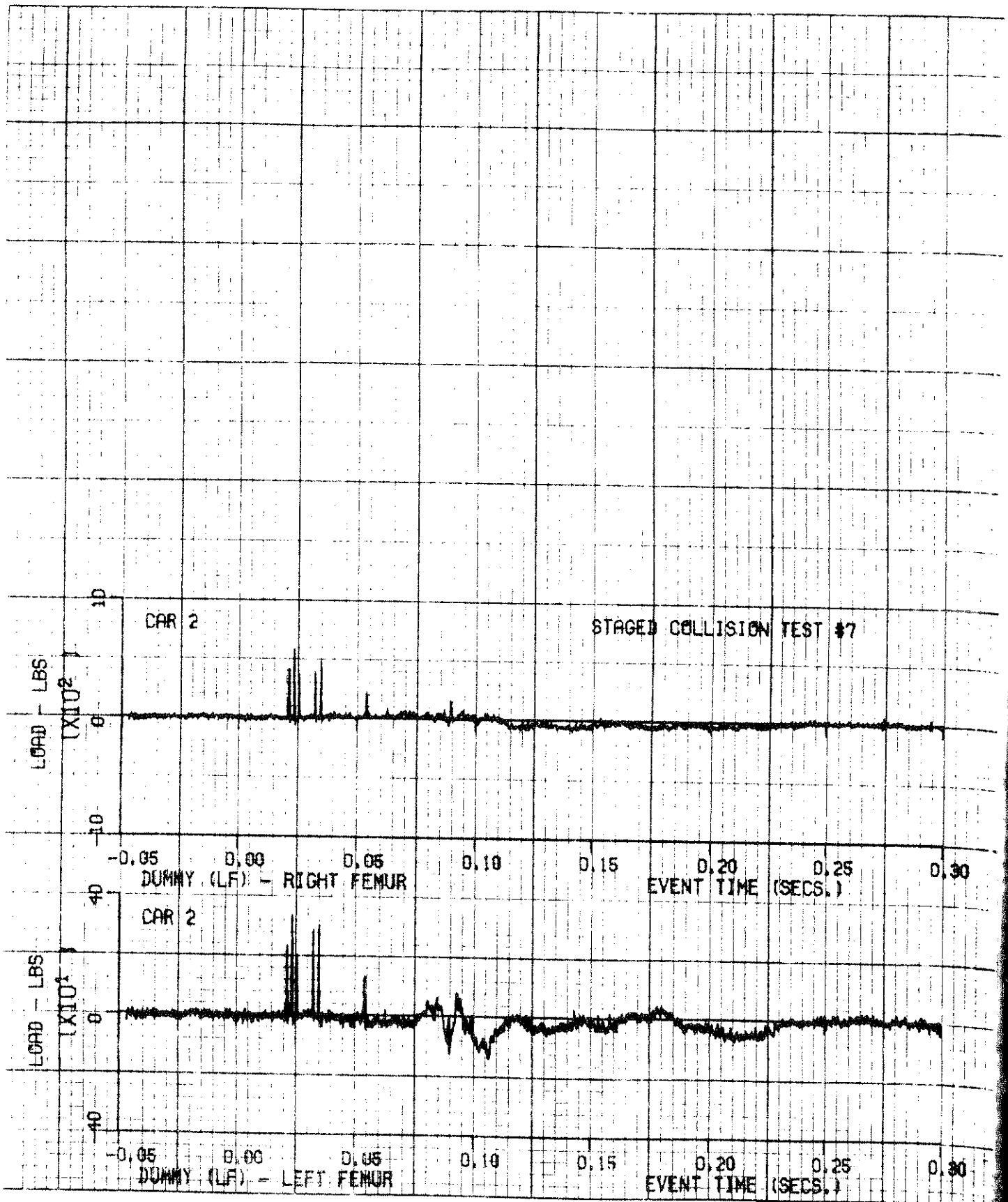

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
30
20
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE - IN. (X10¹)
20
10
0
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
0
40
80
120
160
DUMMY (LF) - CHEST-X COMP.
DISP. - IN.

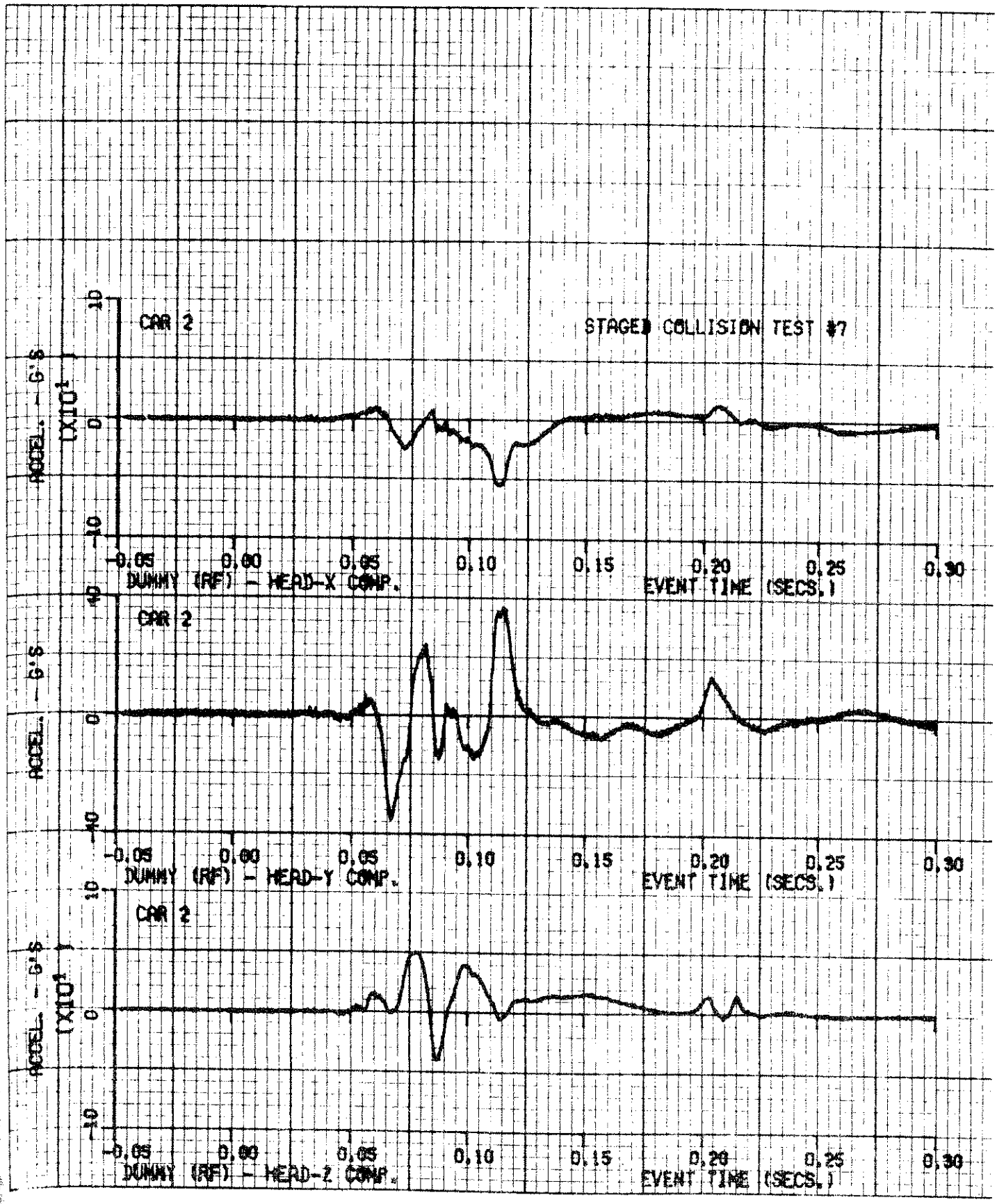

STAGED COLLISION TEST #7
CAR 2
ACCEL. - G'S (X10¹)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10¹)
10
0
-10
-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
ACCEL. - G'S (X10¹)
20
0
-20
-60
-40
-20
0
20
DUMMY (LF) - CHEST-Y COMP.
DISP. - IN.

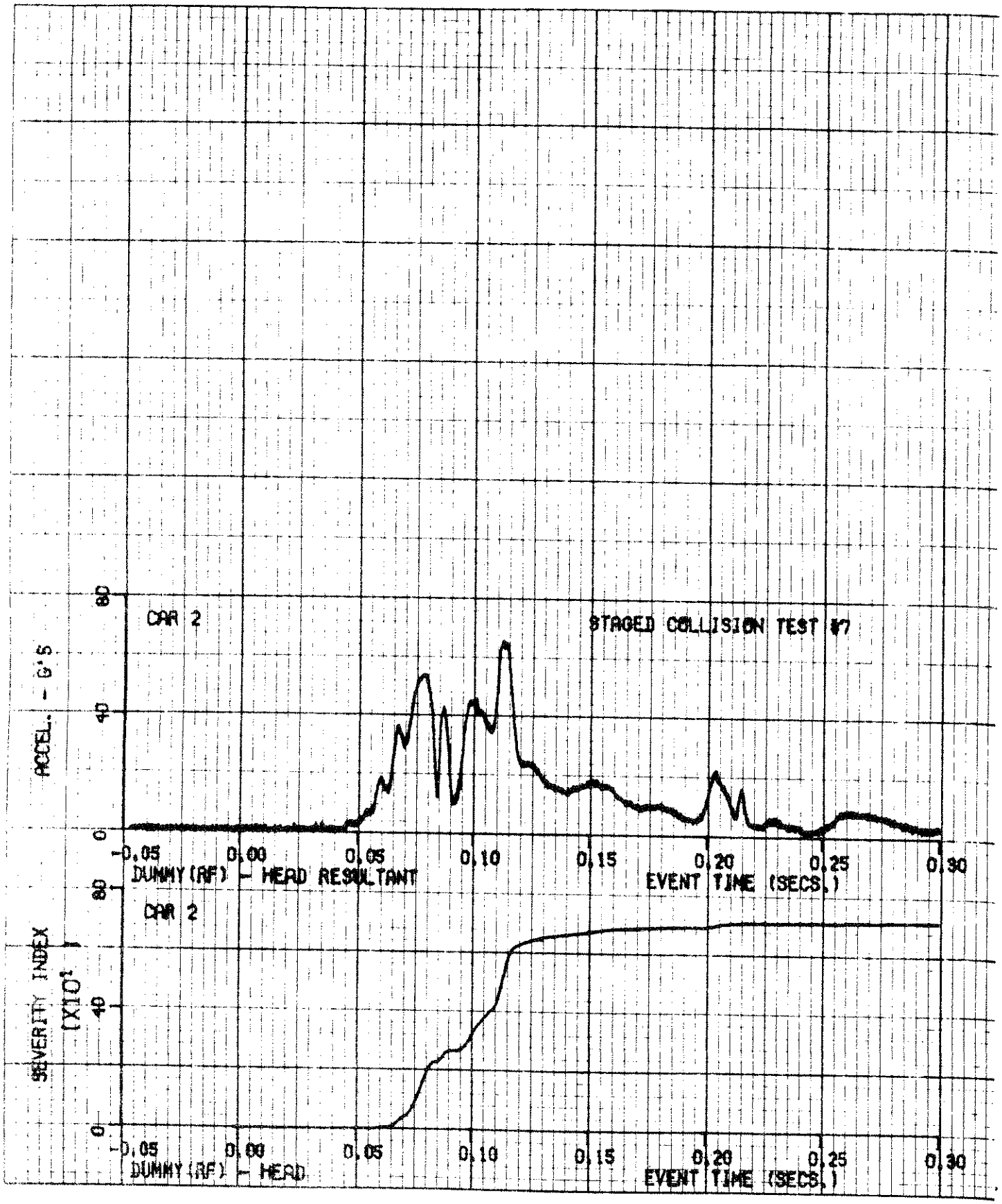

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
50
0
-50
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
4
0
-4
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
50
0
-50
-3
-2
-1
0
1
DUMMY (LF) - CHEST-Z COMP.
DISP. - IN.

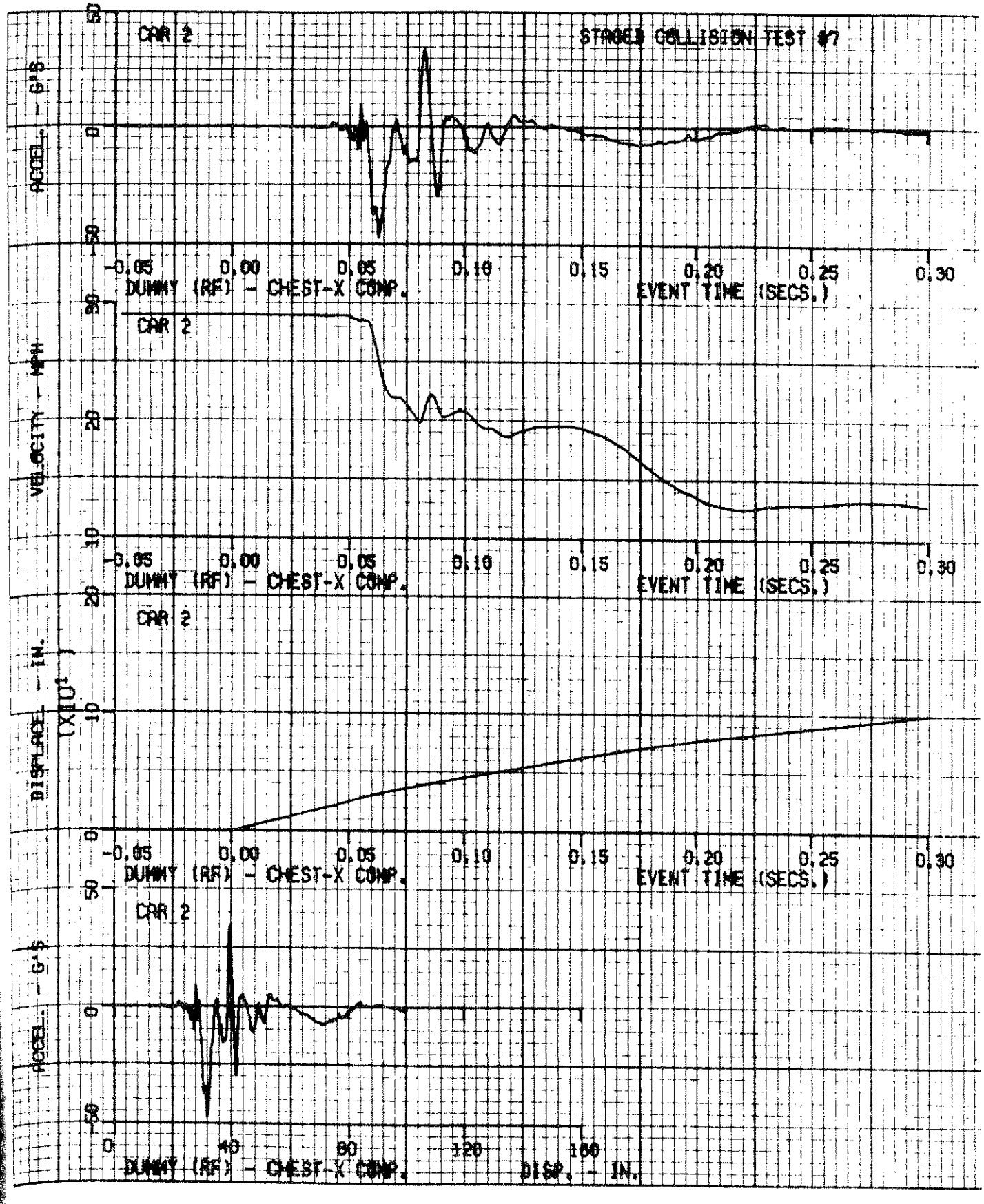

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G's (X10¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10¹)
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST
EVENT TIME (SECS.)

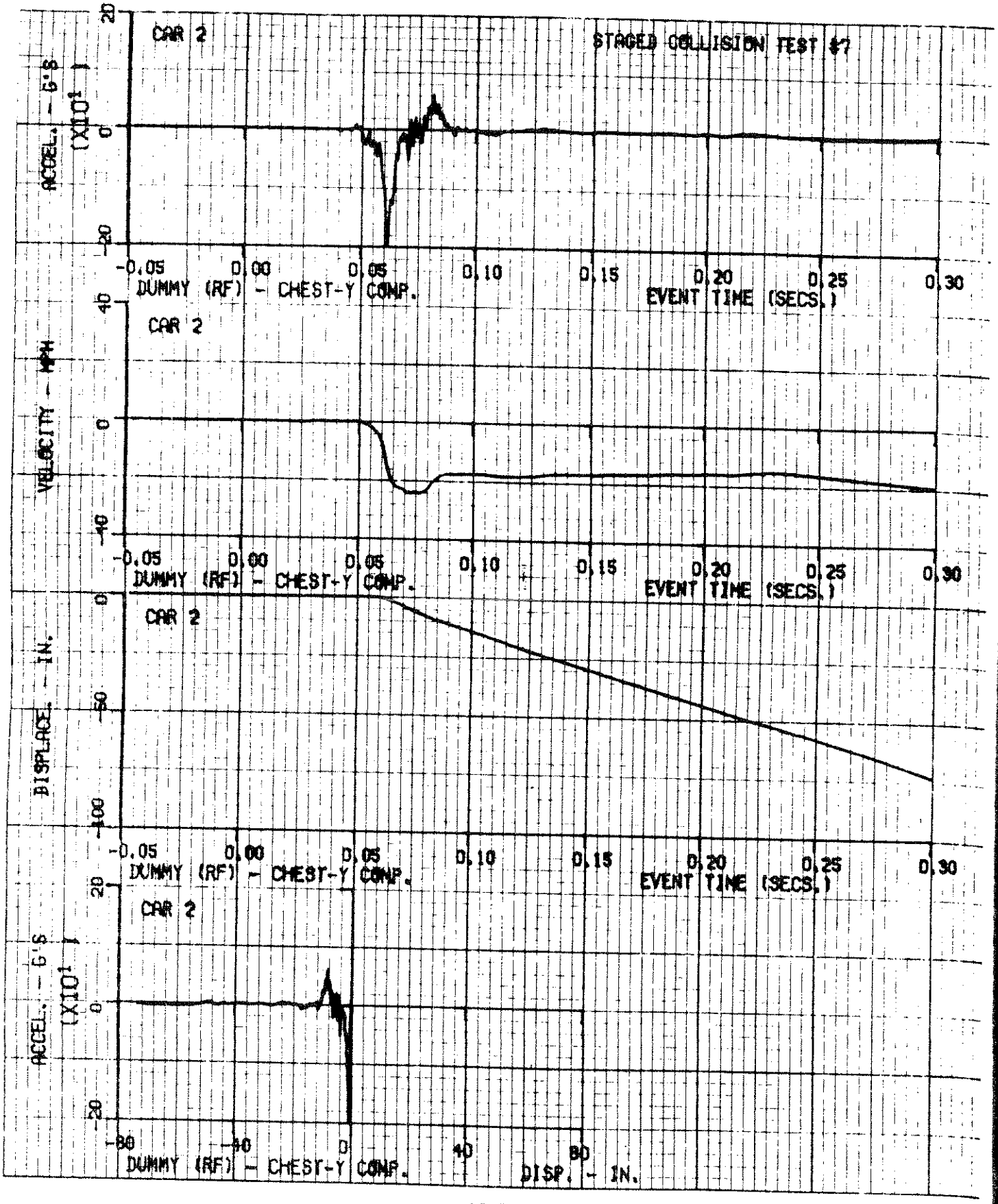

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S (X10¹)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
20
0
-20
-60
-40
-20
0
20
DUMMY (LF) - PELVIS-Y COMP.
DISP. - IN.

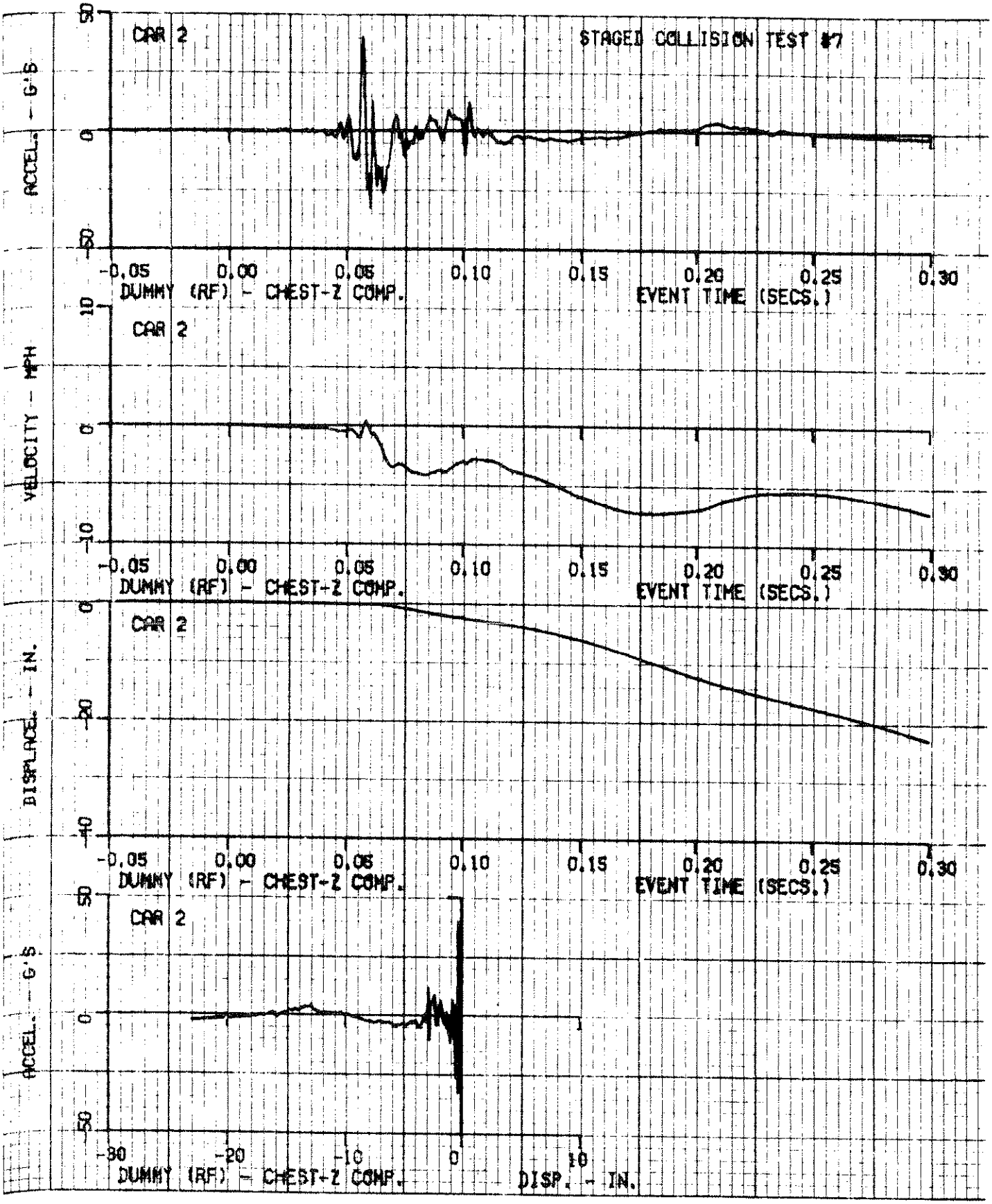

CAR 2
STAGED COLLISION TEST #7
LOAD - LBS (X10²)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 2
LOAD - LBS (X10¹)
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - LEFT FEMUR
EVENT TIME (SECS.)

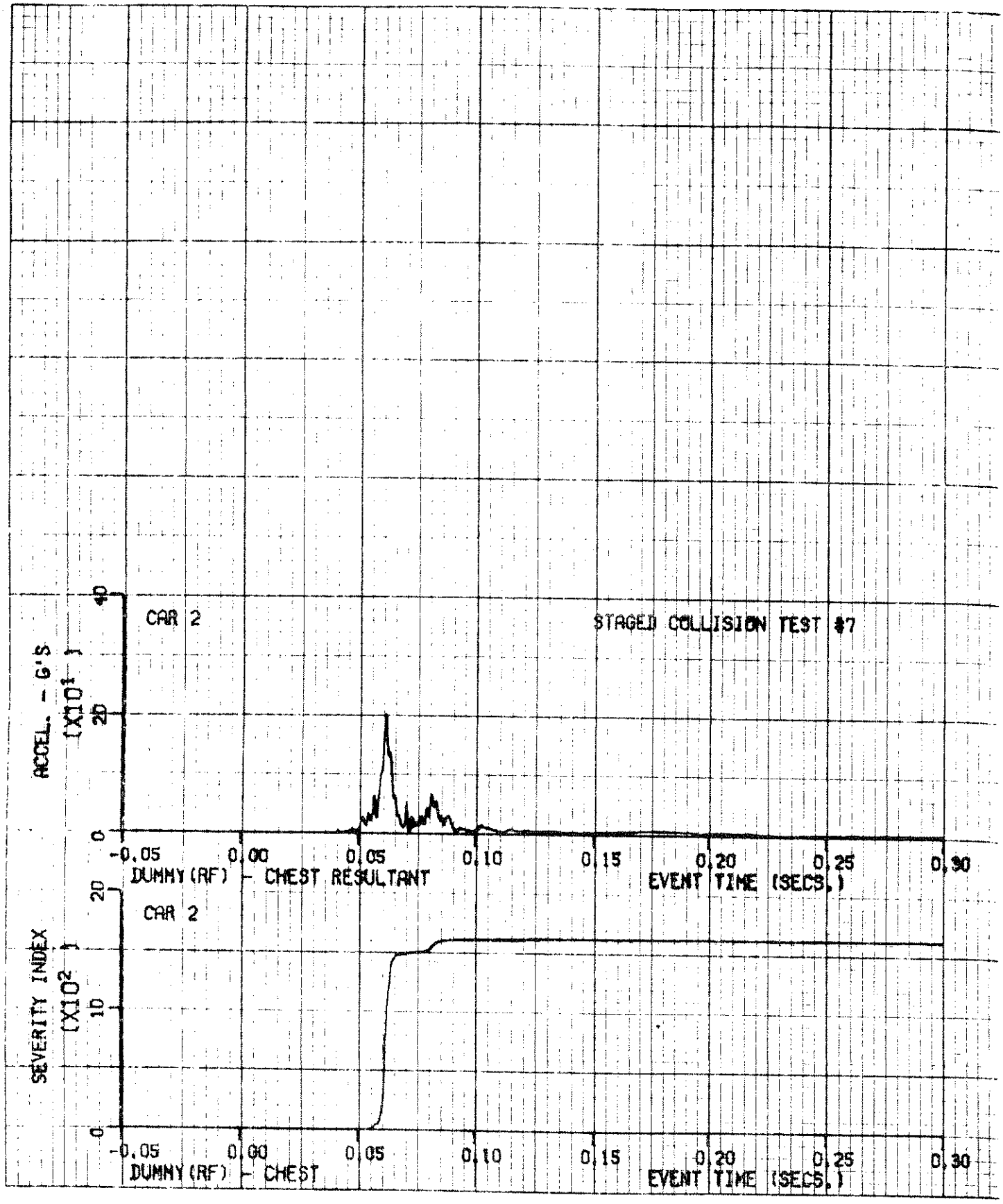

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
DUMMY (RF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
DUMMY (RF) - HEAD-Z COMP.
EVENT TIME (SECS.)

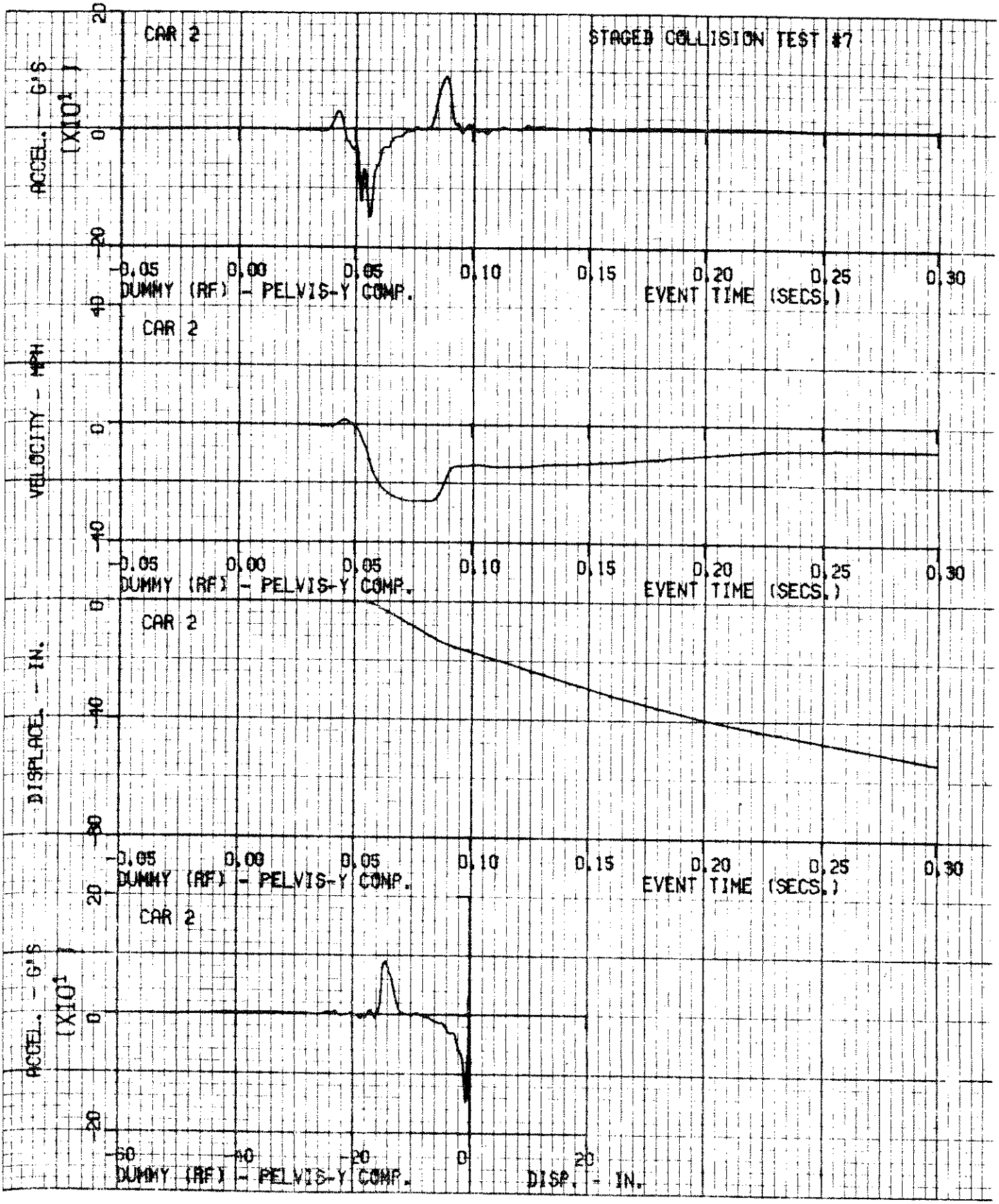

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10¹)
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD
EVENT TIME (SECS.)

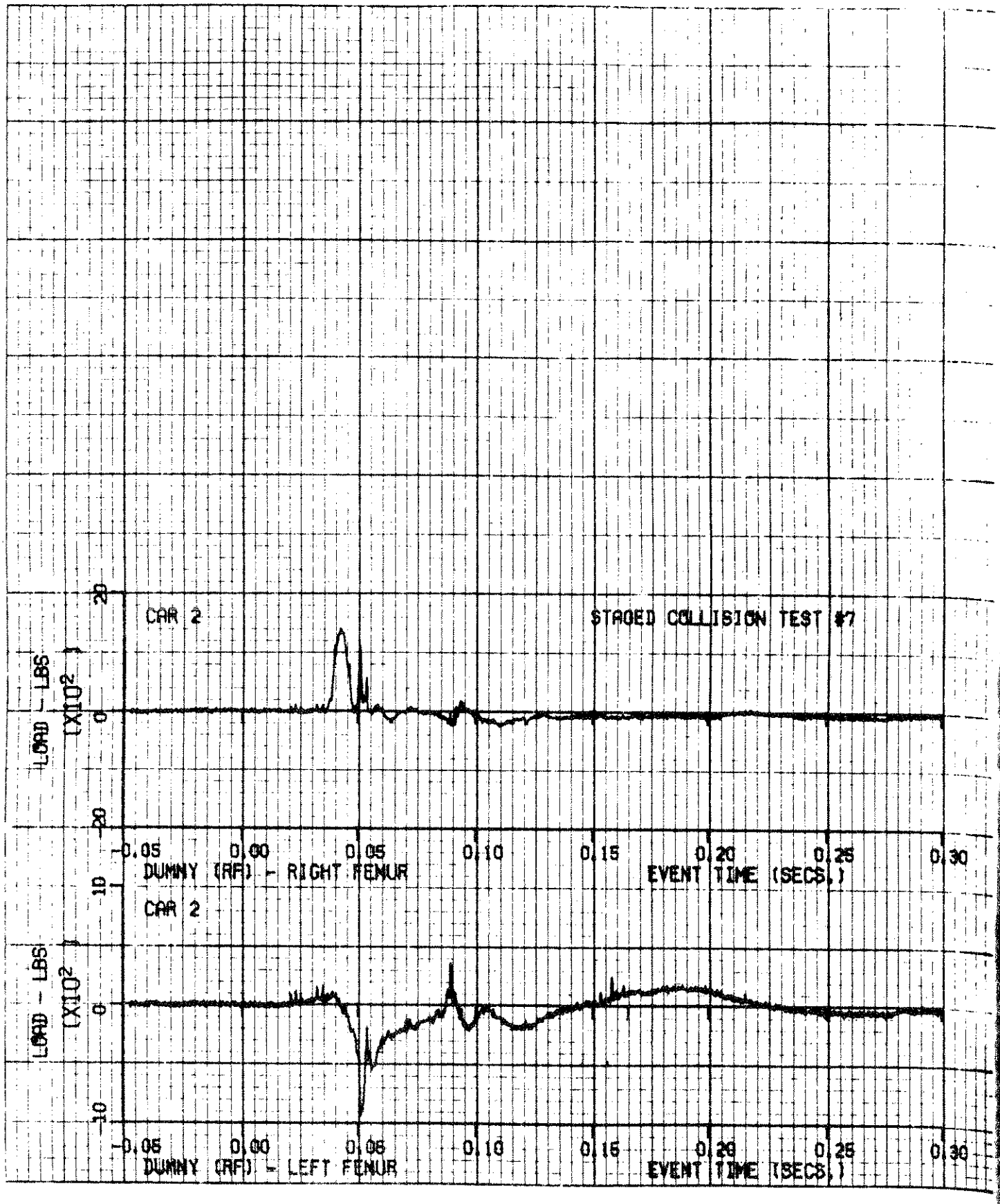

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
50
0
-50
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
30
20
10
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
(X10¹)
20
10
0
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
50
0
-50
0
40
80
120
160
DUMMY (RF) - CHEST-X COMP.
DISP. - IN.


STAGED COLLISION TEST #7
CAR 2
ACCEL. - G'S (X10¹)
20
0
-20
-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
DUMMY (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-50
-100
DUMMY (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
20
0
-20
-80
-40
0
40
80
DUMMY (RF) - CHEST-Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
50
0
-50
-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
10
0
-10
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
50
0
-50
-30
-20
-10
0
10
DUMMY (RF) - CHEST-Z COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
(X10¹)
40
20
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
(X10²)
20
10
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
STAGED COLLISION TEST #7
ACCEL. - G'S (X10¹)
DUMMY (RF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
DUMMY (RF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACEL - IN.
DUMMY (RF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
DUMMY (RF) - PELVIS-Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #7
LOAD - LBS (X10²)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 2
LOAD - LBS (X10²)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - LEFT FEMUR
EVENT TIME (SECS.)

TEST NO. 8

RICSAC STAGED COLLISION

FRONT-TO-SIDE
PERPENDICULAR

CHEVELLE/CHEVELLE

VELOCITY 20.7 MPH

14.0 RICSAC STAGED COLLISION - TEST NO. 8

EXPERIMENTAL RESULTS

Test Description

The staged collision involved two 1974 Chevrolet Chevelle Malibu vehicles. The bullet vehicle (V-1) struck the right side (front section) of the target vehicle (V-2) at a 90 degree impact angle as shown in Figure 14-1. The impact velocity of both vehicles was 20.7 mph. The vehicle test weights were 4480 and 4710 pounds for the bullet and target vehicles, respectively. Each vehicle had two Part 572 test dummies (50 percentile) seated in the front seat. The dummies in the Target (V-2) vehicle were instrumented according to FMVSS 208 and were unrestrained. In the Bullet (V-1) vehicle the dummies were uninstrumented and were restrained with seat belts.

The Bullet vehicle was equipped with standard transmission, power steering and power brakes. The Target vehicle had automatic transmission, power steering and power brakes. The accident was staged with both transmissions in drive position, brakes off and the engines not running. During the collision no steering control inputs or vehicle braking was applied. The roadway was dry with skid resistance value of 87.

Approximately one car length before impact the vehicle tow cable was released and the vehicle guide rail was terminated. At this point in time and during the collision both vehicles are free bodies with no constraints except the normal collision forces and reactions encountered in this type of car-to-car collision. During the collision event no observed tow cable or instrumentation cable interference with the moving vehicles was noted.

ACCIDENT SCHEMATIC

VEHICLES:

No. 1 - 1974 CHEVROLET CHEVELLE
No. 2 - 1974 CHEVROLET CHEVELLE

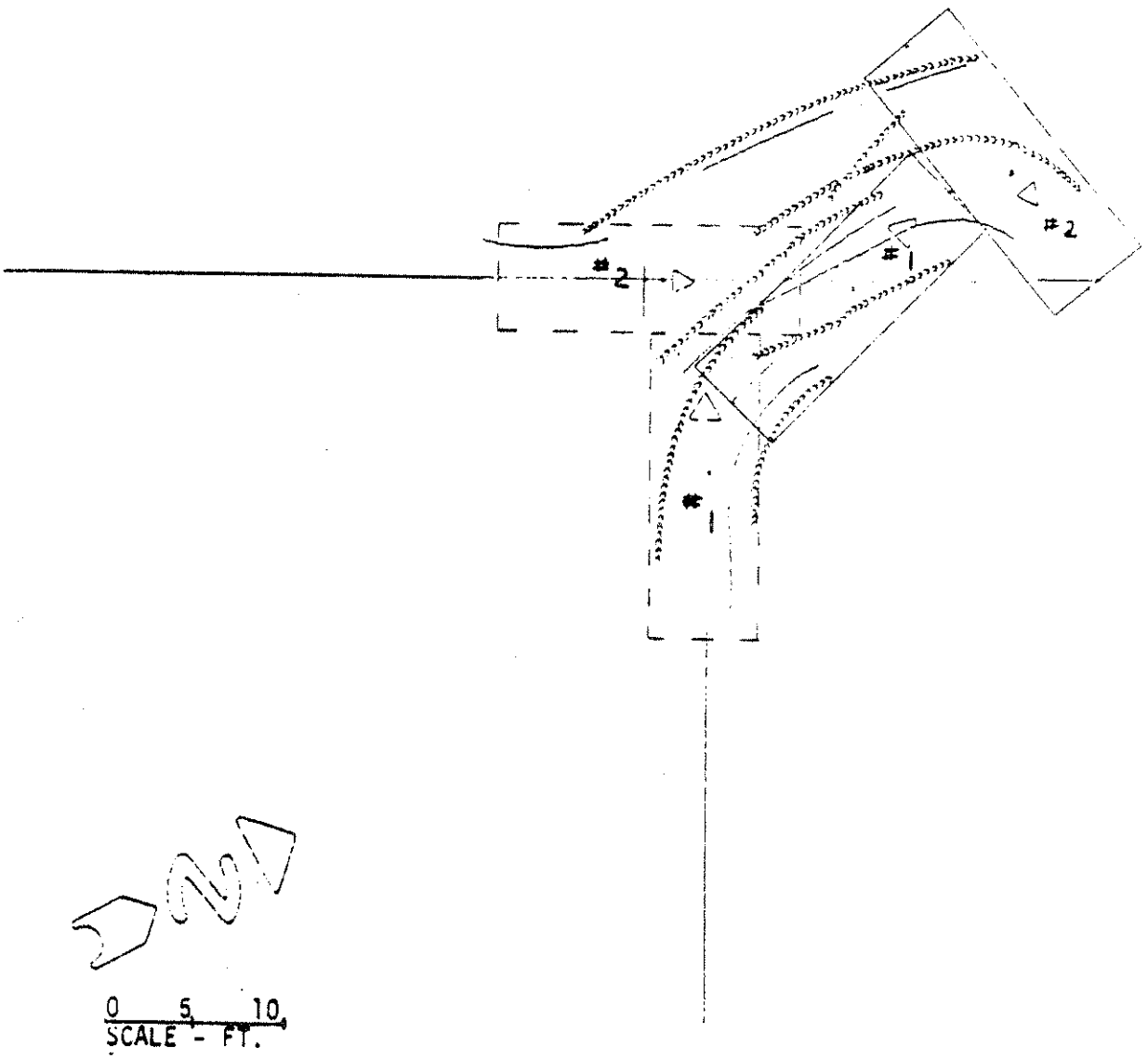


Figure 14-1 TEST NO. 8 - RICSAC ACCIDENT SCHEMATIC

CRASH TEST SUMMARY

TEST NO. 8 PROJECT RICSAC

DATE 6-15-78 TIME 14:05 TEMP. 70°F

TEST CONDITION Side Offset Perpendicular - 90 Degree

VEHICLE NO. 1 1974 Chevelle

VEHICLE NO. 2 1974 Chevelle

	VEH. NO. 1	VEH. NO. 2
TEST WEIGHT (lbs)	4480	4710
IMPACT ANGLE (deg)*	90	0
IMPACT VELOCITY (mph)**	20.75	20.75
MAX. CRUSH (in)		
MAX. INTRUSION (in)		

DUMMIES	VEH. NO. 1	VEH. NO. 2
TYPE	Part 572	Part 572
LOCATION	Driver (L.F.), Passenger (R.F.)	Driver (L.F.), Passenger (R.F.)
RESTRAINT	3-Point Restraint	Unrestrained
	Uninstrumented	Instrumented

NUMBER OF DATA CHANNELS 63
NUMBER OF HIGH SPEED CAMERAS 11

*WITH RESPECT TO TOW TRACK CENTERLINE

**SPEED TRAP MEASUREMENT (±0.5% ACCURACY)

TEAM	YEAR	MONTH	DAY	SEQUENCE
	8	06	15	

TABLE 14-1

TEST NO. 8 - CAR NO. 1

VEHICLE DATA

Vehicle data not collected. Reason? _____

Vehicle No. 1 — 14-15 No. of VIN Characters ___

16-22 VIN (Left Justify, Omit Production Numbers) 1D29 ___

23-27 Make/Model (CPIR Code) CHEVROLET MALIBU CLASSIC ___

28-32 Mileage (Odometer Reading) 99998 = 99998 mi. or more; 99999 = Unknown ___

33-34 Model Year 74

35-36 BODY STYLE

Automobiles			Trucks		Other	
Passenger Car	(01)	4 Dr.	Van - Passenger	05	School Bus	11
Stationwagon	02		- Cargo	06	Other Bus	12
Convertible	03		Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04		Pickup	08	Other Body Style	98
			Straight Truck	09	Unknown	99
			Tractor-Trailer	10		

VEHICLE WEIGHT

37-39 Curb 03,805

40-42 Occupant and Cargo Only ___,___,00

43 TOWING ANOTHER VEHICLE: Yes 1; No 2; Unknown 9

VEHICLE DAMAGE

	Object Contacted	CDC	Veh. No.	Impact No.
44-54 (1)	03	12FDEW1	1	2
55-65 (2)				
(3)				
(4)				

(1) = Highest Severity (Estimated ΔV)

66 VEHICLE TOWED FROM SCENE: Yes 1; No 2; Unknown 9

67 SOURCE OF VEHICLE DATA

- Inspection at Repair or Tow Facility 1
- Inspection at Person's Home 2
- Inspection at Scene 3
- Not Inspected (Photos or Repair Data) 4
- Not Inspected. Reason. _____ 5
- Unknown 9

68 VEHICLE INSPECTION

- Not Inspected 0
- Inspected on First Visit 1
- Actual Number of Locations Visited (Including Follow-Ups to Same Location) 2 3 4 5 6 7
- 8 or More 8
- Unknown 9

69 APPLICABLE VEHICLE: Yes 1; No 2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED ON THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

Figure 14e.

VEHICLE CRUSH SCHEMATIC

TEST NO. 8 - CAR NO. 1

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

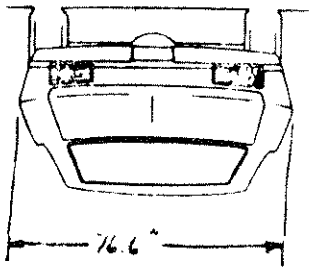
RF ___

LF ___

RR ___

LR ___

1 Yes, 2 No, 8 NA, 9 Unk.



WHEEL STEER ANGLES*

(For locked front wheels or displaced rear axles only)

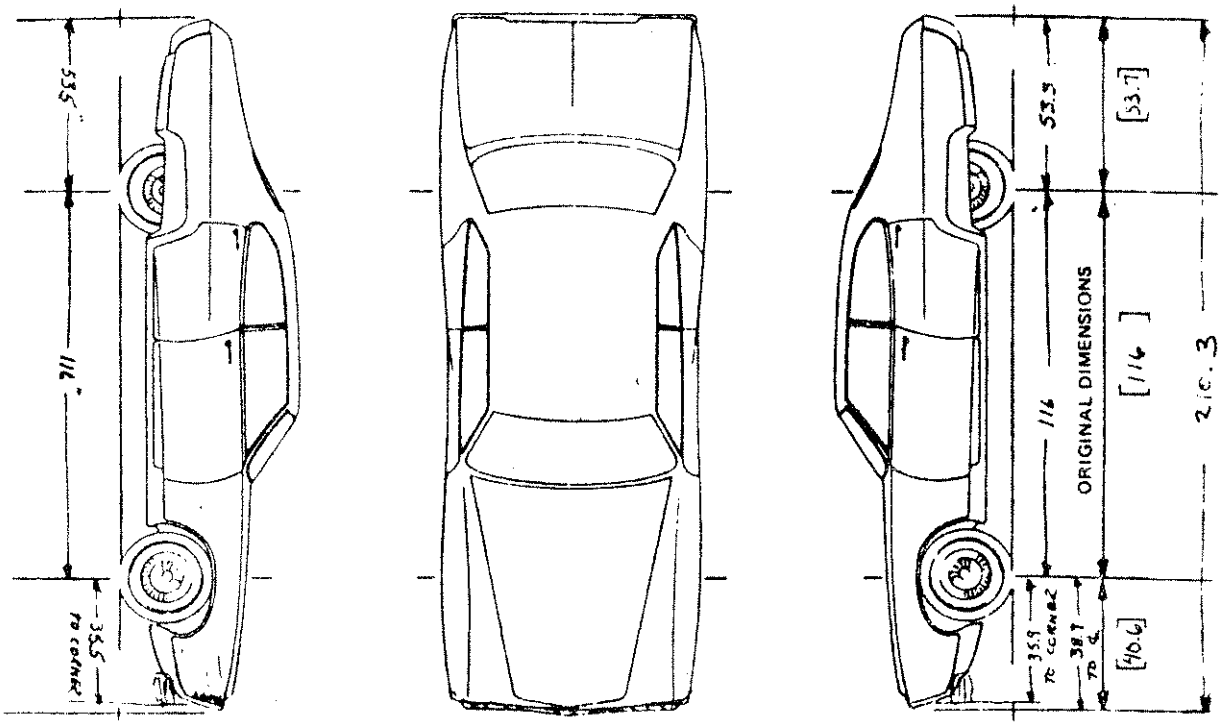
RF + ___ ___

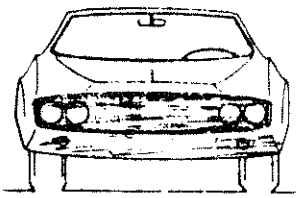
LF + ___ ___

RR + ___ ___

LR + ___ ___

Within ± 5°





Impact Number	L	C_1	C_2	C_3	C_4	C_5	C_6	D±
1	73	2.7	3.6	-	-	-	-	0
2 1	73	0.4	0.8	-	-	-	-	0
3								
4								

INCLUDES BUMPER. COMPRESSION [illegible] MEASUREMENTS

NOTE: MEASURE C_1 TO C_6 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS: REAR TO FRONT IN SIDE IMPACTS

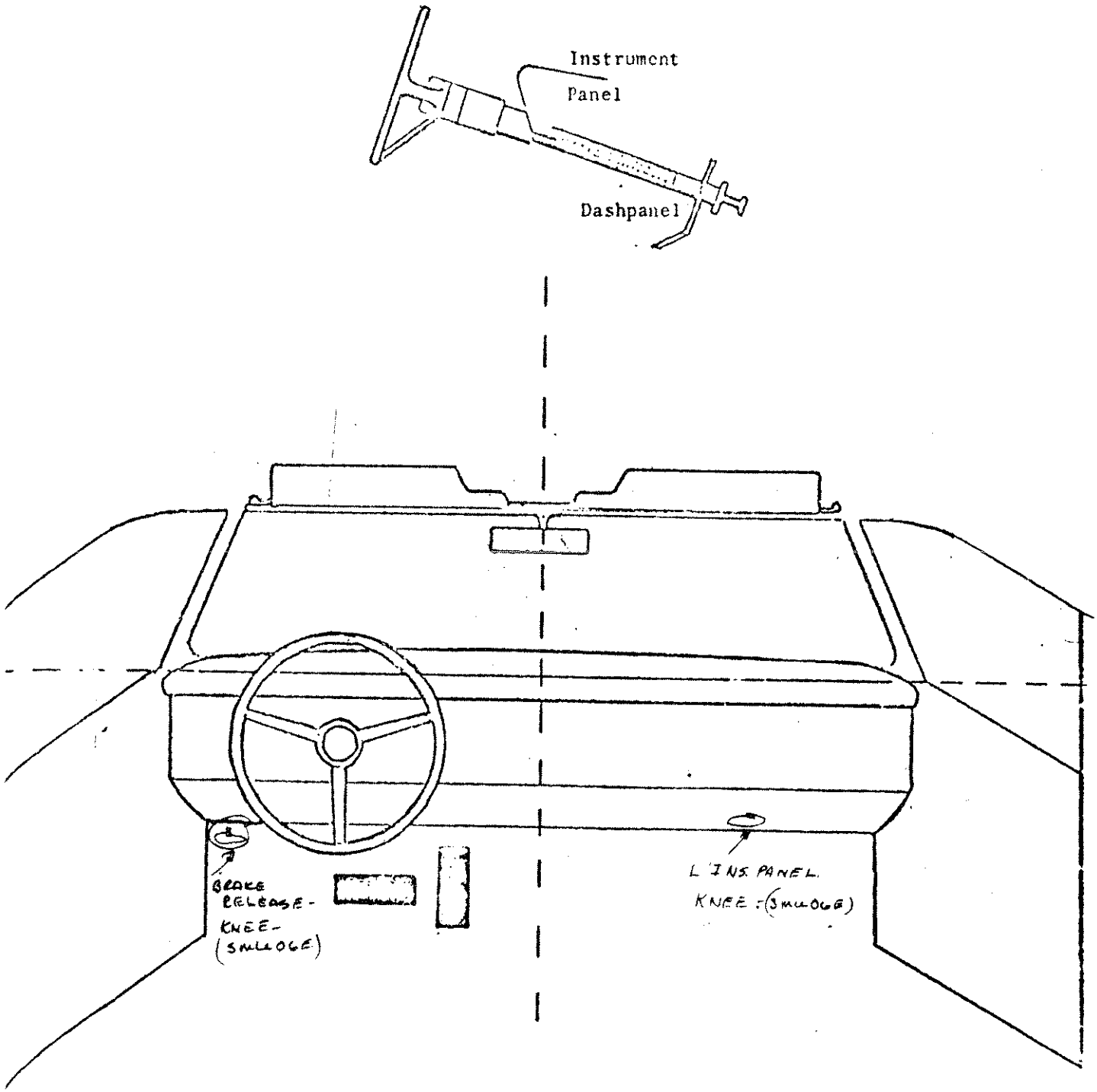
2/77

ZQ-6057-V-5

Figure 14-3
OCCUPANT CONTACT DATA
TEST NO. 8 - CAR NO. 1

VEHICLE INTERIOR

Occupant Contacts



Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and code on next two pages. Dash lines indicate center of instrument panel-windshield area and top of panel for measurement purposes.

TEAM	YEAR	MONTH	DAY	SEQUENCE
	8	0 6	1 5	

TABLE 14-2

TEST NO. 8 - CAR NO. 2

VEHICLE DATA

Vehicle data not collected. Reason? _____

Vehicle No. 2 — 14-15 No. of VIN Characters __ __

16-22 VIN (Left Justify, Omit Production Numbers) 1 D 3 7 H 4 1 4 1 2 2 1

23-27 Make/Model (CPIR Code) CHEVROLET MALIBU CLASSIC — __ __ __ __ __

28-32 Mileage (Odometer Reading) 99998 = 99998 mi. or more; 99999 = Unknown — __ __ __ __ __

33-34 Model Year — 7 4

35-36 BODY STYLE

Automobiles		Trucks		Other	
Passenger Car	(01) 2 DR.	Van - Passenger	05	School Bus	11
Stationwagon	02	- Cargo	06	Other Bus	12
Convertible	0_	Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04	Pickup	08	Other Body Style	98
		Straight Truck	09	Unknown	99
		Tractor-Trailer	10		

VEHICLE WEIGHT

37-39 Curb — 0 3 7 1 9

40-42 Occupant and Cargo Only — __ __ __ 0 0

43 TOWING ANOTHER VEHICLE

Yes	1
No	2
Unknown	9

VEHICLE DAMAGE

	Object Contacted	CDC	Veh. No.	Impact No.
44-54 (1)	0 3	0 3 R Y E W 2	1	1
55-65 (2)	__ __	__ __ __ __ __ __ __	__	__
(3)	__ __	__ __ __ __ __ __ __	__	__
(4)	__ __	__ __ __ __ __ __ __	__	__

(1) = Highest Severity (Estimated ΔV)

66 VEHICLE TOWED FROM SCENE

Yes	1
No	2
Unknown	9

67 SOURCE OF VEHICLE DATA

Inspection at Repair or Tow Facility	1
Inspection at Person's Home	2
Inspection at Scene	3
Not Inspected (Photos or Repair Data)	4
Not Inspected. Reason. _____	5
Unknown	9

68 VEHICLE INSPECTION

Not Inspected	0
Inspected on First Visit	1
Actual Number of Locations Visited (Including Follow-Ups to Same Location)	2 3 4 5 6 7
8 or More	8
Unknown	9

69 APPLICABLE VEHICLE

Yes	1
No	2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED ON THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

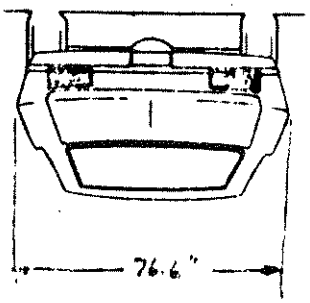
Figure 14-4
VEHICLE CRUSH SCHEMATIC
TEST NO. 8 - CAR NO. 2

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

RF ____
LF ____
RR ____
LR ____

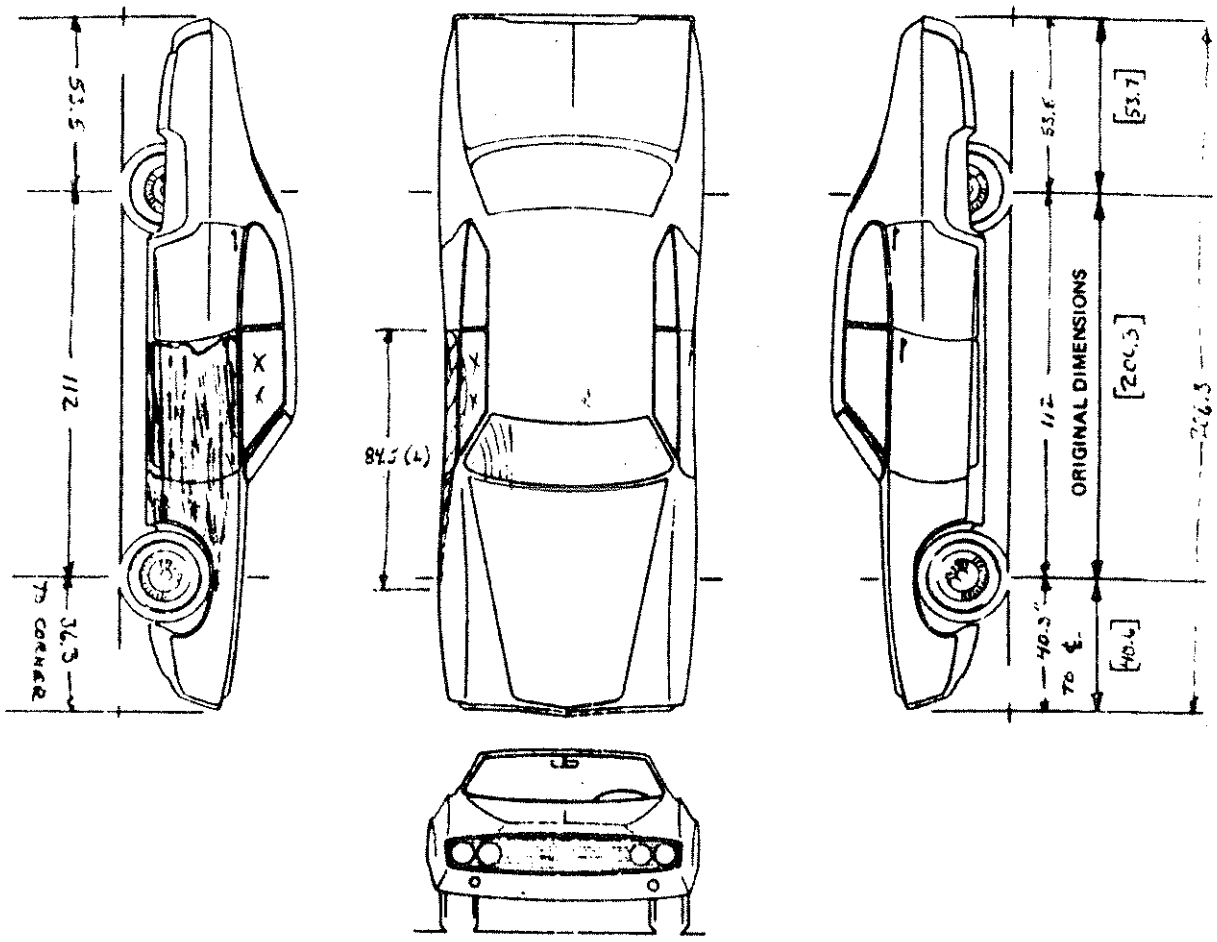
1 Yes, 2 No, 8 NA, 9 Unk.



WHEEL STEER ANGLES*
(For locked front wheels or displaced rear axles only)

RF + - ____ ____
LF + - ____ ____
RR + - ____ ____
LR + - ____ ____

Within ± 5°



Impact Number	L	C_1	C_2	C_3	C_4	C_5	C_6	D±
1	84.5"	6.2	8.3	7.[illegible]	5.[illegible]	4.4	0.8	±1"
2								
3								
4								

NOTE: MEASURE C_1 TO C_6 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS: REAR TO FRONT IN SIDE IMPACTS

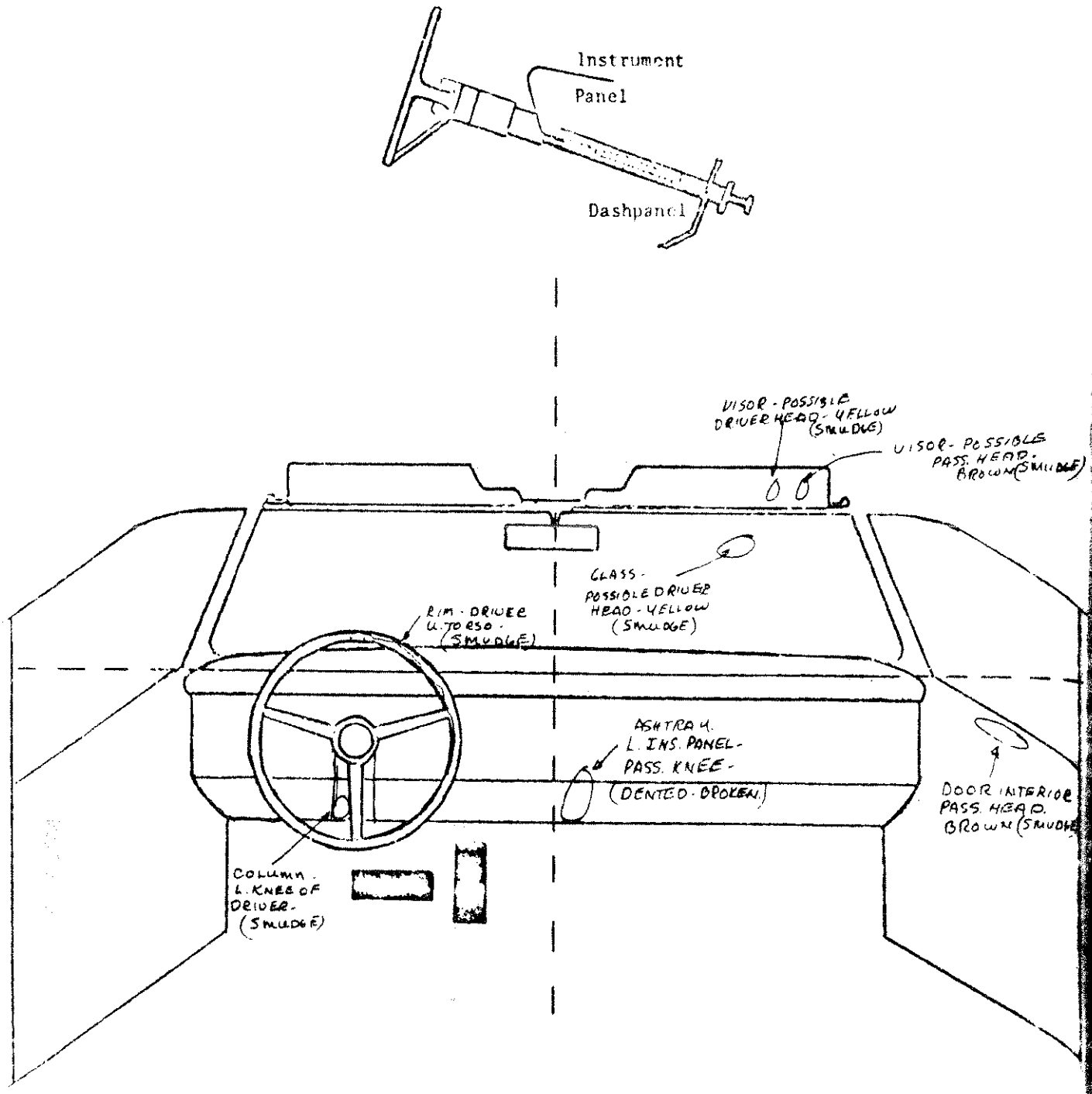
2/77

ZQ-6057-V-5

Figure 14-5
OCCUPANT CONTACT DATA
TEST NO. 8 - CAR NO. 2

VEHICLE INTERIOR

Occupant Contacts



Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and code on next two pages. Dash lines indicate center of instrument panel-windshield area and top of panel for measurement purposes.

ZQ-6057-V-5

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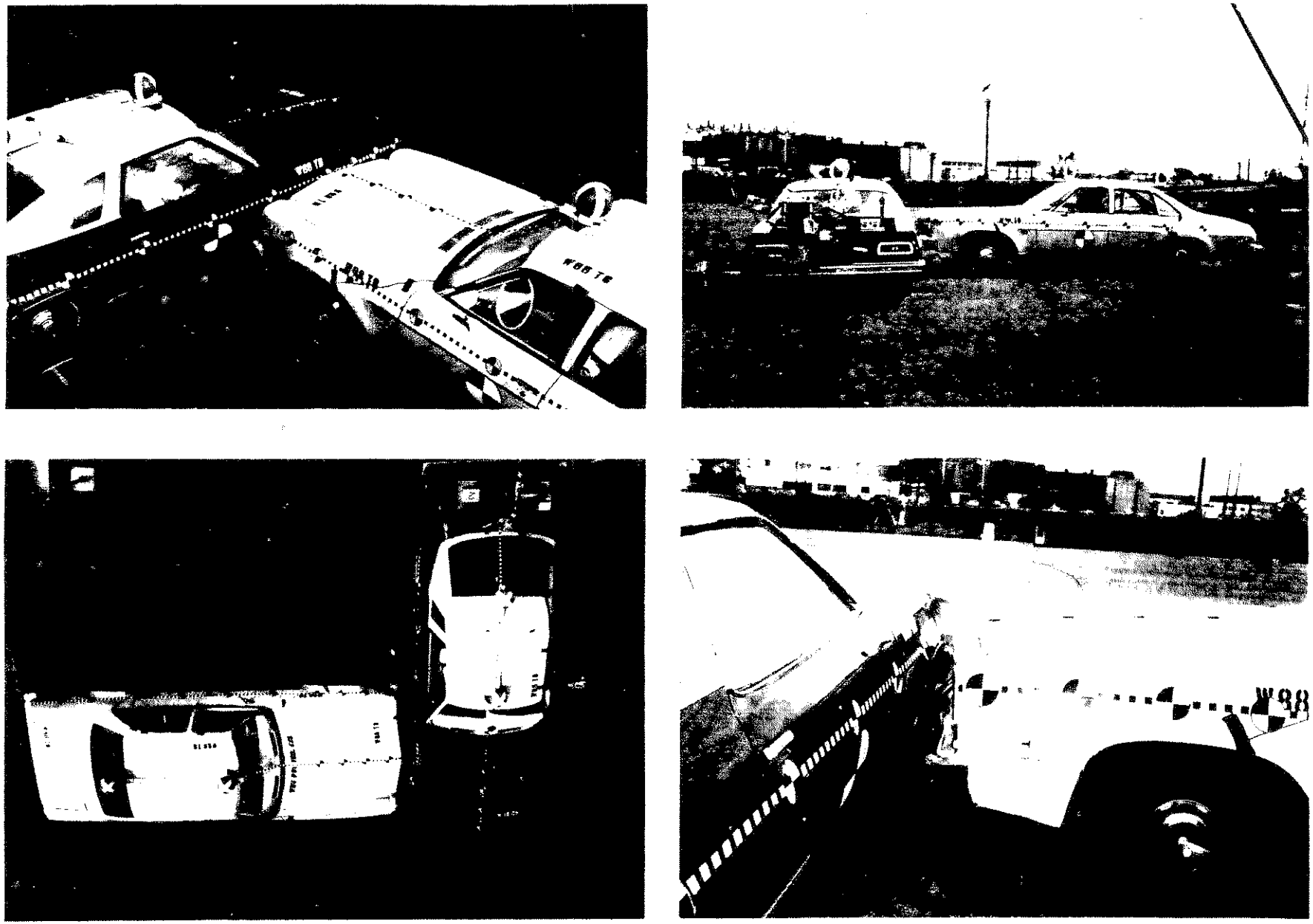


Figure 14-6 TEST NO. 8 – PRE TEST COLLISION CONFIGURATION

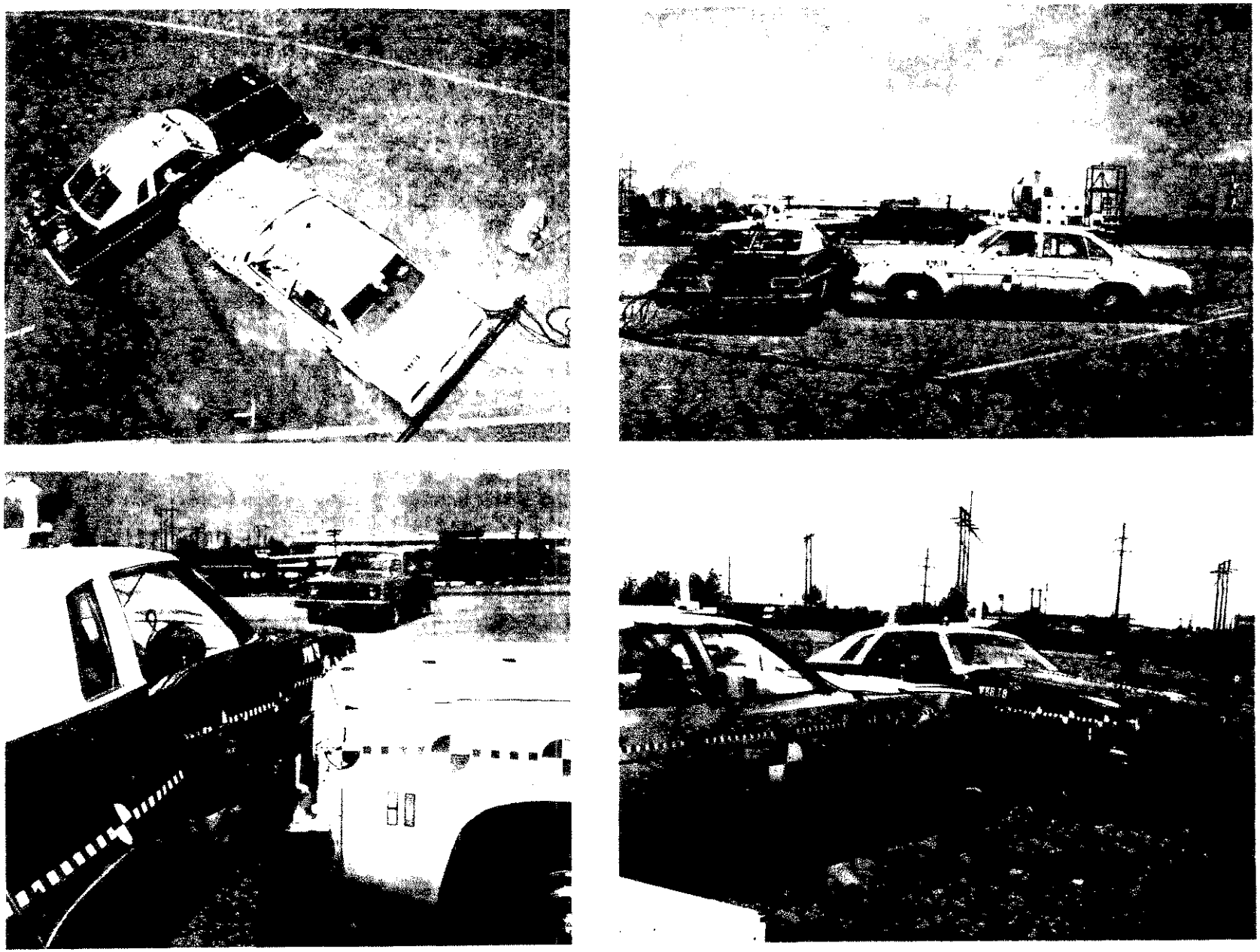


Figure 14-7 TEST NO. 8 — POST TEST COLLISION SCENE

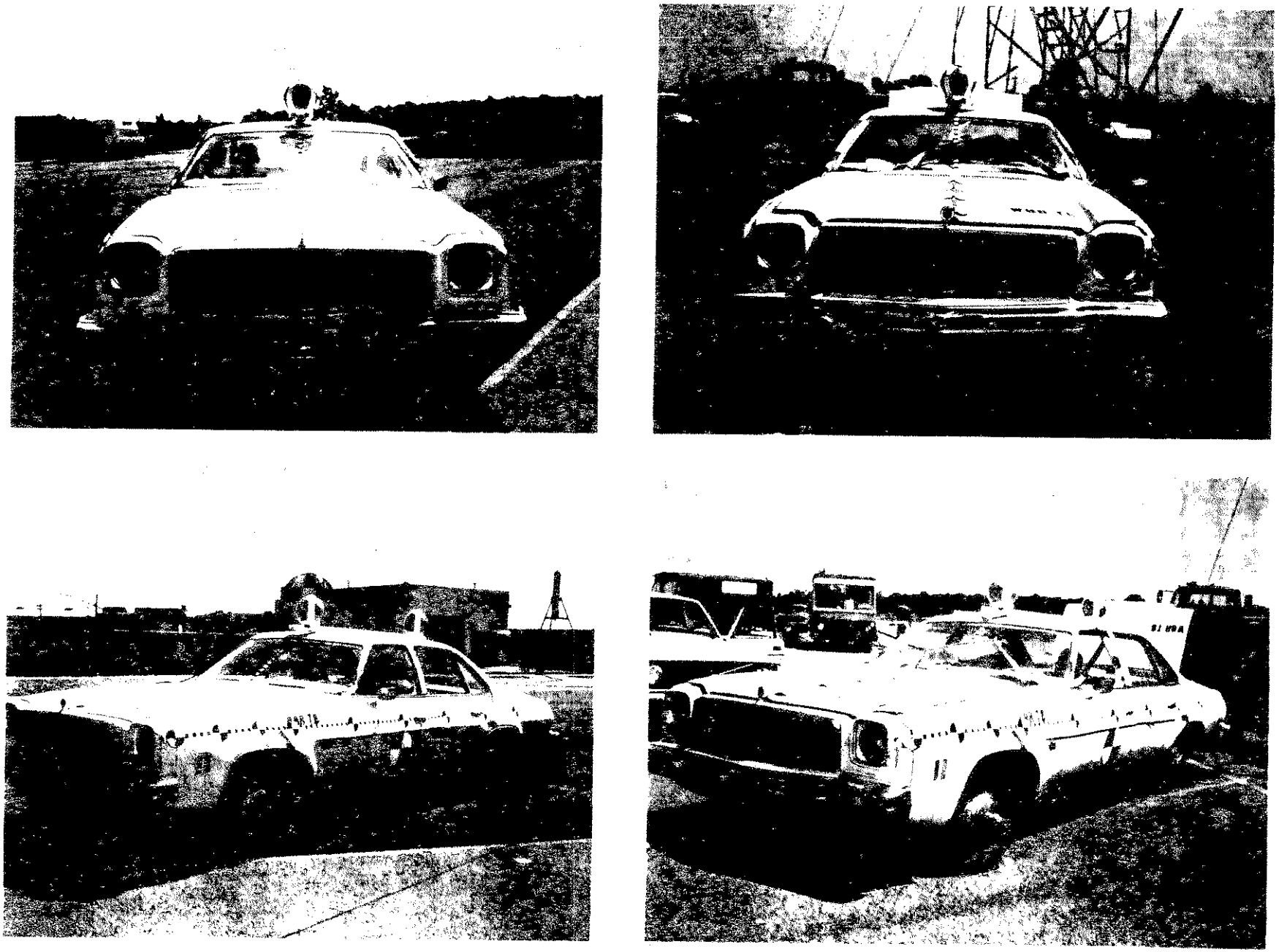


Figure 14-8 TEST NO. 8 – PRE & POST EXTERIOR VIEWS, CAR NO. 1 – CHEVELLE

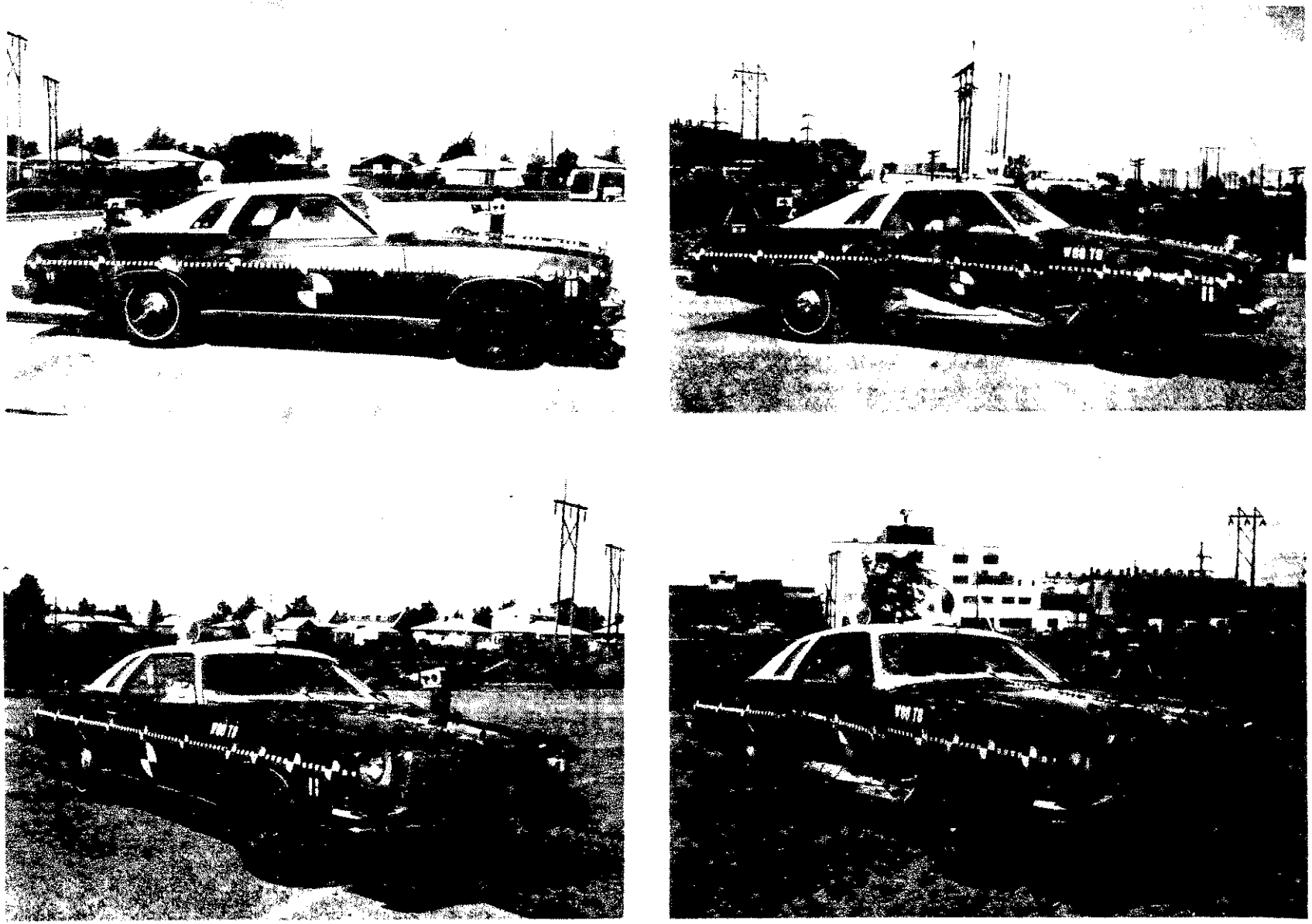


Figure 14-9 TEST NO. 8 – PRE & POST EXTERIOR VIEWS, CAR NO. 2 – CHEVELLE

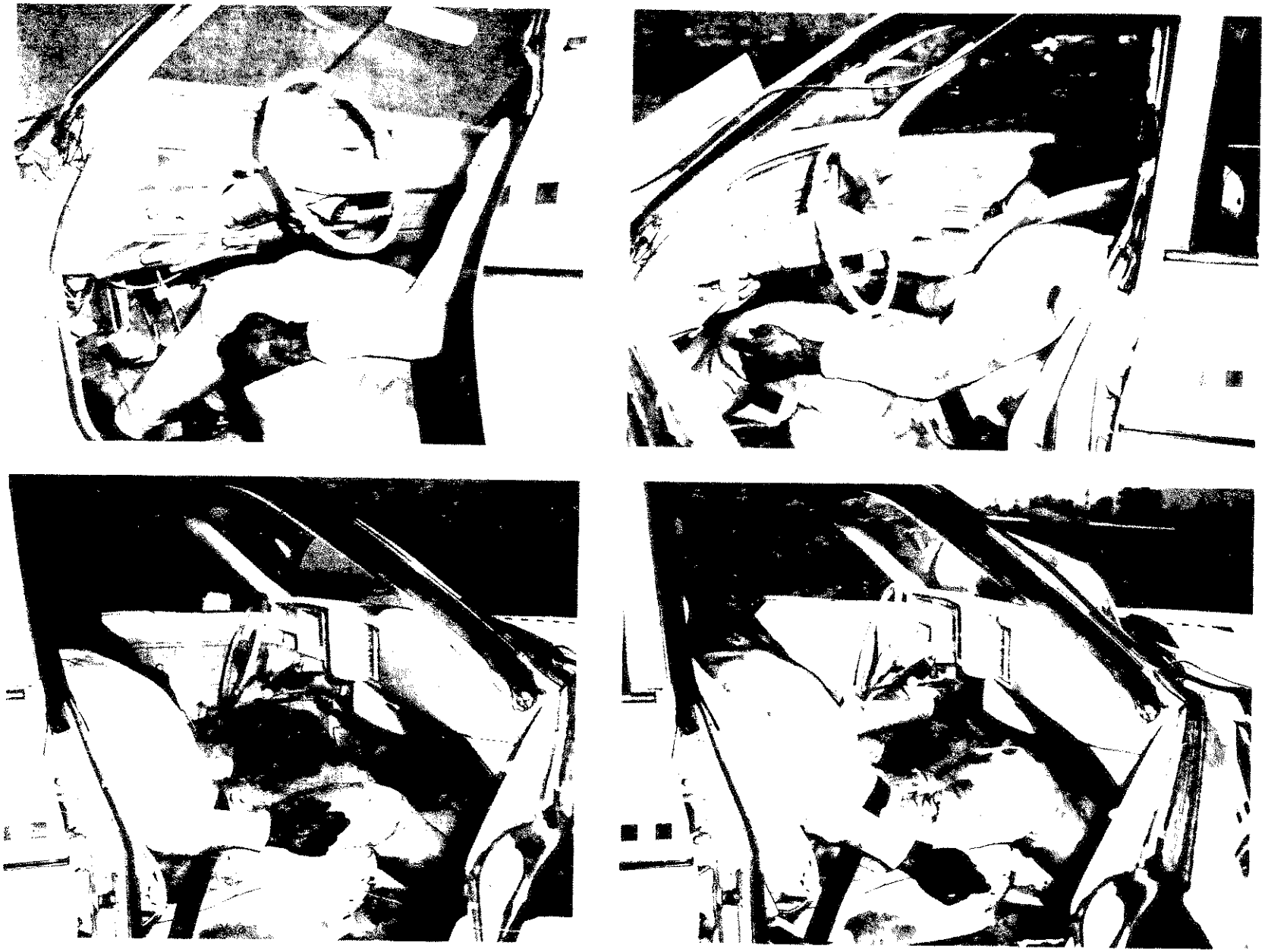


Figure 14-10 TEST NO. 8 – PRE & POST INTERIOR VIEWS, CAR NO. 1 – CHEVELLE

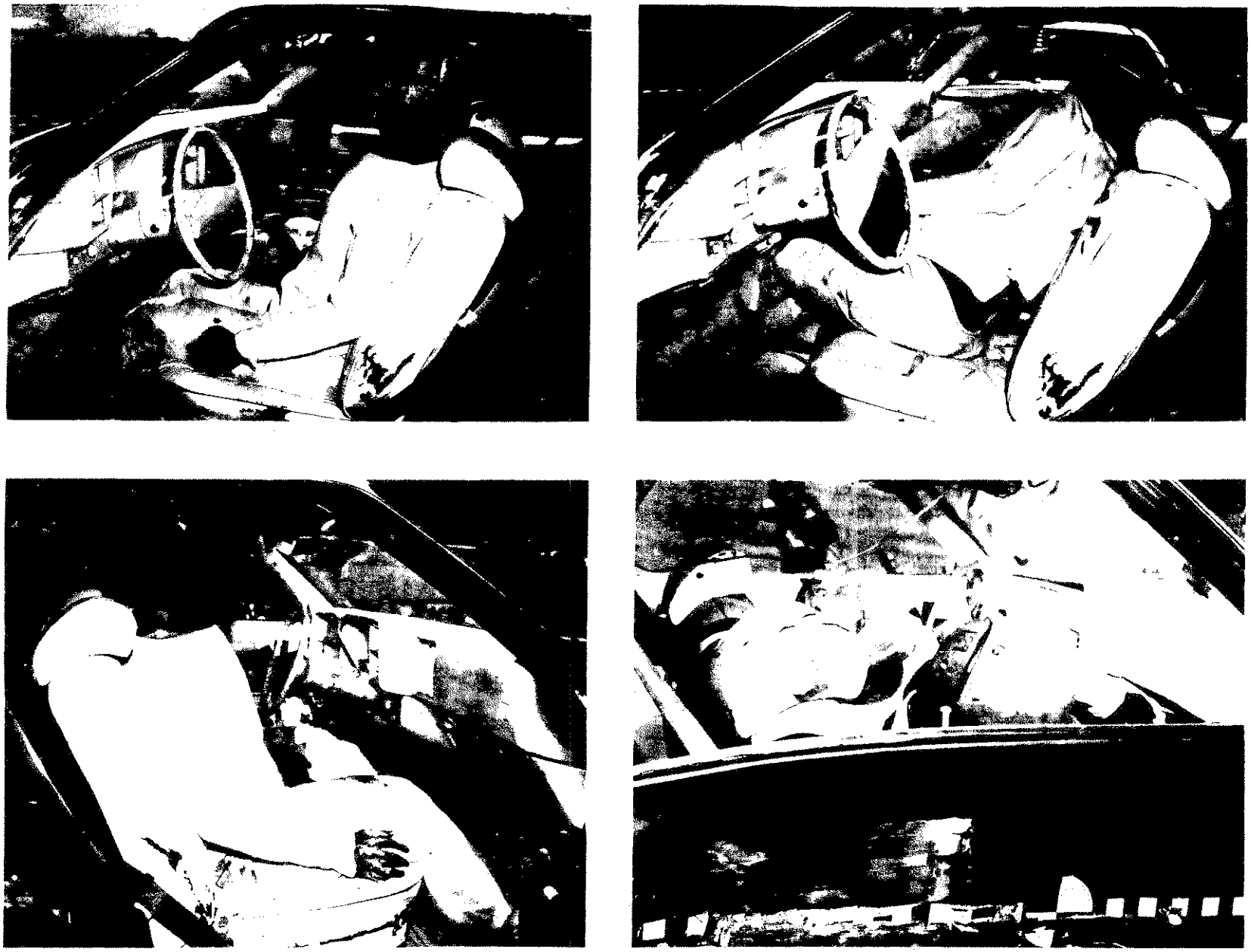


Figure 14-11 TEST NO. 8 – PRE & POST INTERIOR VIEWS, CAR NO. 2 – CHEVELLE

TABLE 14-3

ELECTRONIC INSTRUMENTATION TEST No. 8

BULLET VEHICLE - CAR 1 - 1974 CHEVELLE

TRANSDUCER DESCRIPTION OR ACCELEROMETER LOCATION *	DIRECTION OF PARAMETER BEING MEASURED	LOCATION ON VEHICLE	DESCRIPTION LISTED ON DATA PLOTS
VEHICLE ACCELEROMETER			
1	X,Y,Z	Floorpan L.F. Corner	Left Front Corner
2	X,Y,Z	Floorpan R.R. Corner	Right Rear Corner
3	X,Y,Z	Firewall	Firewall
4	X,Y,Z	Rear Deck	Rear Deck
5	X	Bumper	Bumper
VEHICLE ATTITUDE			
Pitch Angle - 6		Gyro Package	Vehicle Pitch Angle
Roll Angle - 6		Gyro Package	Vehicle Roll Angle
Yaw Angle - 6		Gyro Package	Vehicle Yaw Angle
Yaw Rate Angle - 6		Gyro Package	Vehicle Yaw Rate
Steer Angle		Front Wheels	Steer Angle-Front Wheels
R.F. Wheel Velocity		R.F. Wheel Axle	R.F. Wheel Velocity
L.F. Wheel Velocity		L.F. Wheel Axle	L.F. Wheel Velocity
R.R. Wheel Velocity		R.R. Wheel Axle	R.R. Wheel Velocity
L.R. Wheel Velocity		L.R. Wheel Axle	L.R. Wheel Velocity

*SEE FIGURE 14-12 VEHICLE INSTRUMENTATION LOCATIONS

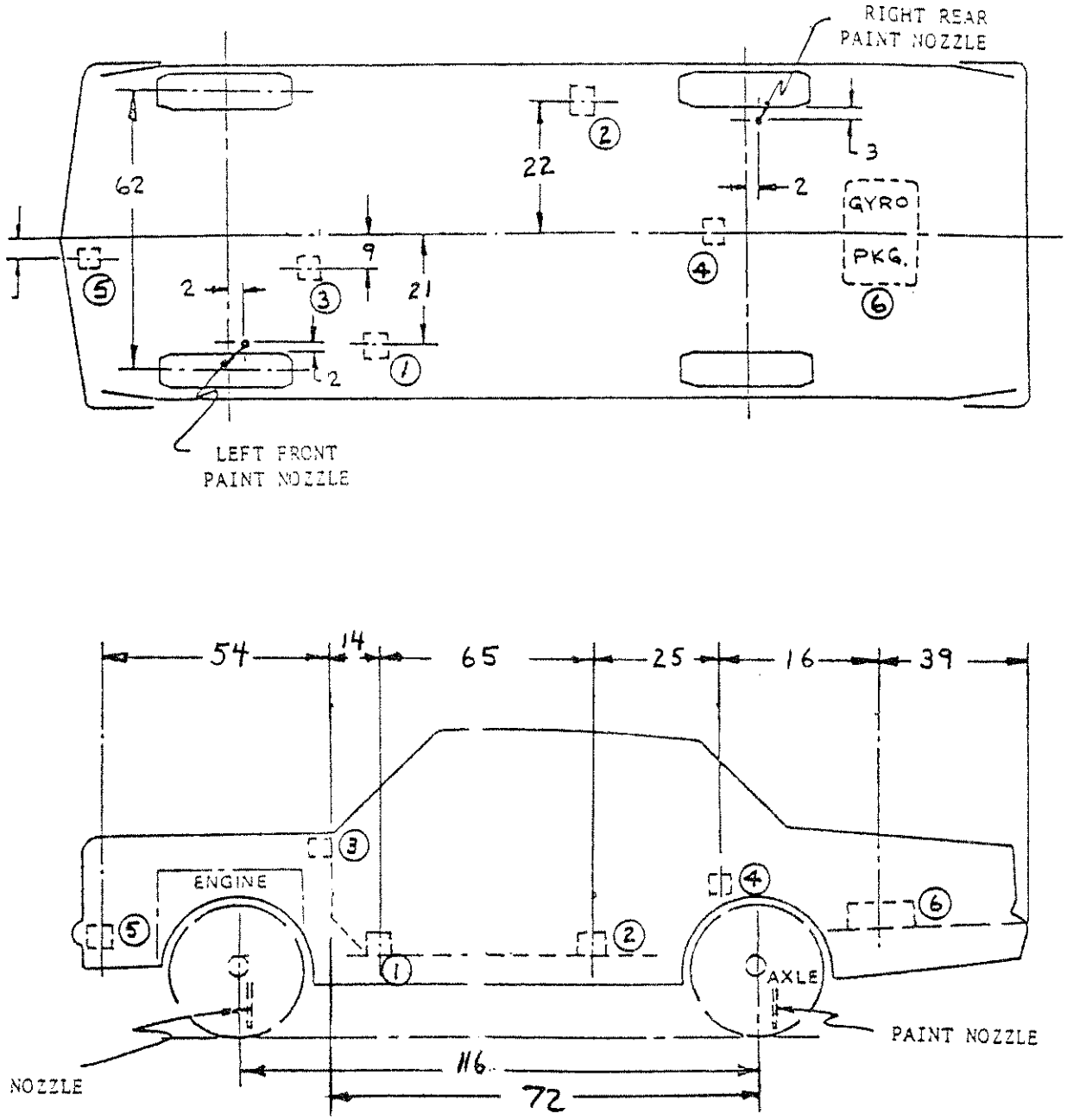


Figure 14-12 VEHICLE INSTRUMENTATION LOCATIONS

CAR 1 - 1974 CHEVELLE - TEST NO. 8

TABLE 14-4

ELECTRONIC INSTRUMENTATION TEST No. 8

TARGET VEHICLE - CAR 2 - 1974 CHEVELLE

TRANSDUCER DESCRIPTION OR ACCELEROMETER LOCATION *	DIRECTION OF PARAMETER BEING MEASURED	LOCATION ON VEHICLE	DESCRIPTION LISTED ON DATA PLOTS
VEHICLE ACCELEROMETER			
1	X,Y,Z	Floorpan L.F. Corner	L.F. Corner
2	X,Y,Z	Floorpan L.R. Corner	L.R. Corner
3	X,Y,Z	Firewall	Firewall
4	X,Y,Z	Rear Deck	Rear Deck
5	Y	Left Front Door	Left Front Door
6	Y	Upper Right Front Door	Upper Right Front Door
7	Y	Lower Right Front Door	Lower Right Front Door
VEHICLE ATTITUDE			
Pitch Angle - 8		Gyro Package	Vehicle Pitch Angle
Roll Angle - 8		Gyro Package	Vehicle Roll Angle
Yaw Angle - 8		Gyro Package	Vehicle Yaw Angle
Yaw Rate Angle - 8		Gyro Package	Vehicle Yaw Rate
Steer Angle		Front Wheels	Steer Angle - Front Wheels
R.F. Wheel Velocity		R.F. Wheel Axle	R.F. Wheel Velocity
L.F. Wheel Velocity		L.F. Wheel Axle	L.F. Wheel Velocity
R.R. Wheel Velocity		R.R. Wheel Axle	R.R. Wheel Velocity
L.F. Wheel Velocity		L.R. Wheel Axle	L.R. Wheel Velocity
DUMMY			
L.F. Head	X,Y,Z	L.F. Seat	Dummy L.F. Head
L.F. Chest	X,Y,Z	L.F. Seat	Dummy L.F. Chest
L.F. Femurs	R,L**	L.F. Seat	Dummy L.F. Femur
L.F. Pelvic	Y	L.F. Seat	Dummy L.F. Pelvic
R.F. Head	X,Y,Z	R.F. Seat	Dummy R.F. Head
R.F. Chest	X,Y,Z	R.F. Seat	Dummy R.F. Chest
R.F. Femurs	R,L**	R.F. Seat	Dummy R.F. Femur
R.F. Pelvic	Y	R.F. Seat	Dummy R.F. Pelvic

*SEE FIGURE 14-13 VEHICLE INSTRUMENTATION LOCATIONS

**RIGHT AND LEFT FORCES

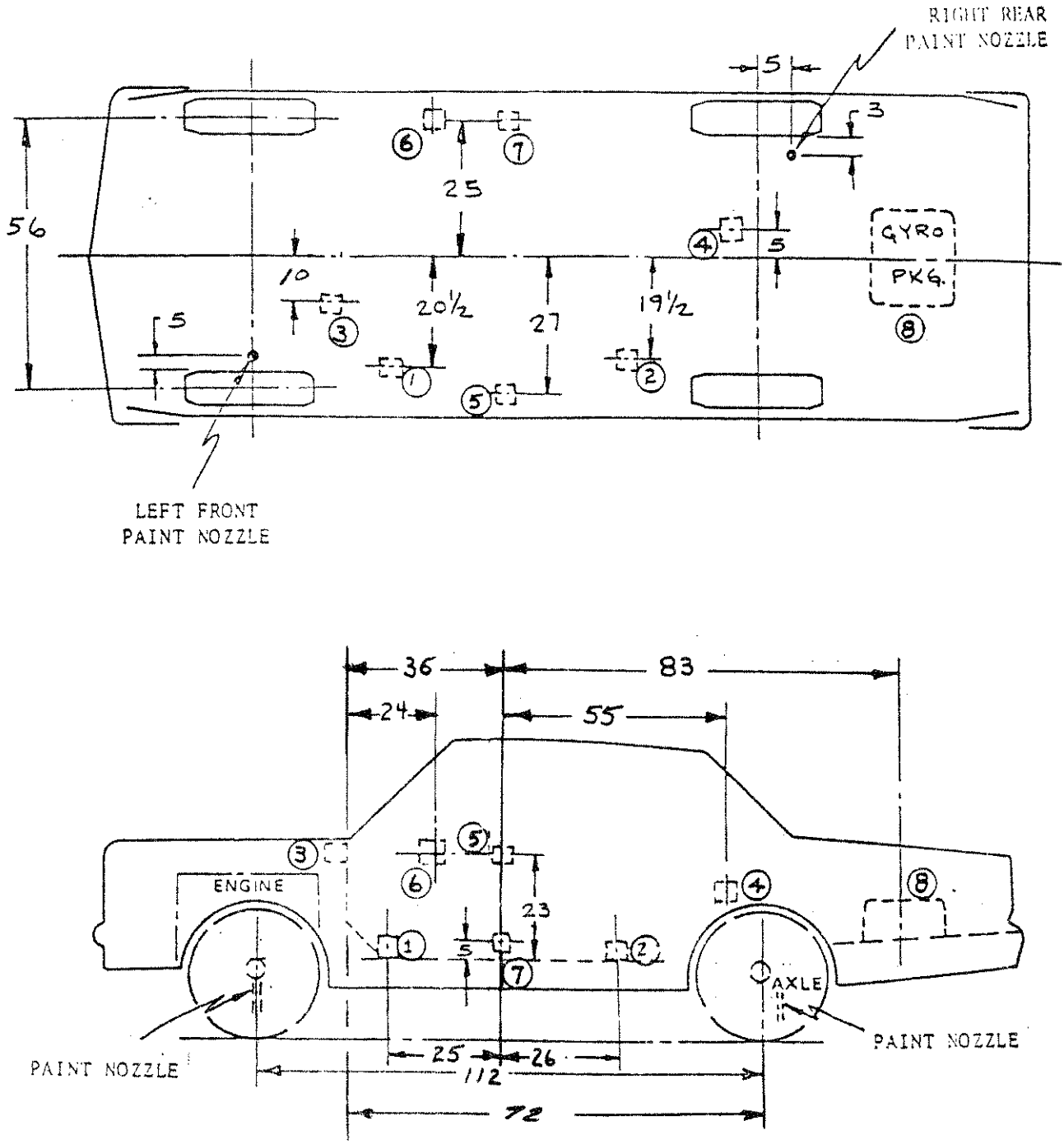


Figure 14-13 VEHICLE INSTRUMENTATION LOCATIONS

CAR 2 - 1974 CHEVELLE - TEST NO. 8

TABLE 14-5

VEHICLE TEST WEIGHTS - TEST NO. 8

CAR 1 - Target - 1974 Chevelle

Left Front	1170 lbs.	Left Rear	1070 lbs.
Right Front	1170 lbs.	Right Rear	1070 lbs.
Total Front	2340 lbs.	Total Rear	2140 lbs.

Total Weight = 2340 lbs. + 2140 lbs = 4480 lbs.

Wheel Base 116 in.

Cg_{FW} = $\frac{2140 \text{ lbs.}}{4480 \text{ lbs.}}$ 116 in. _____ - 55.41 in.

CAR 2 - Bullet - 1974 Chevelle

Left Front	1270 lbs.	Left Rear	1180 lbs.
Right Front	1120 lbs.	Right Rear	1140 lbs.
Total Front	2390 lbs.	Total Rear	2320 lbs.

Total Weight = 2390 lbs. + 2320 lbs. = 4710 lbs.

Wheel Base 112 in.

Cg_{FW} = $\frac{2320 \text{ lbs.}}{4710 \text{ lbs.}}$ 112 in. _____ - 55.16 in.

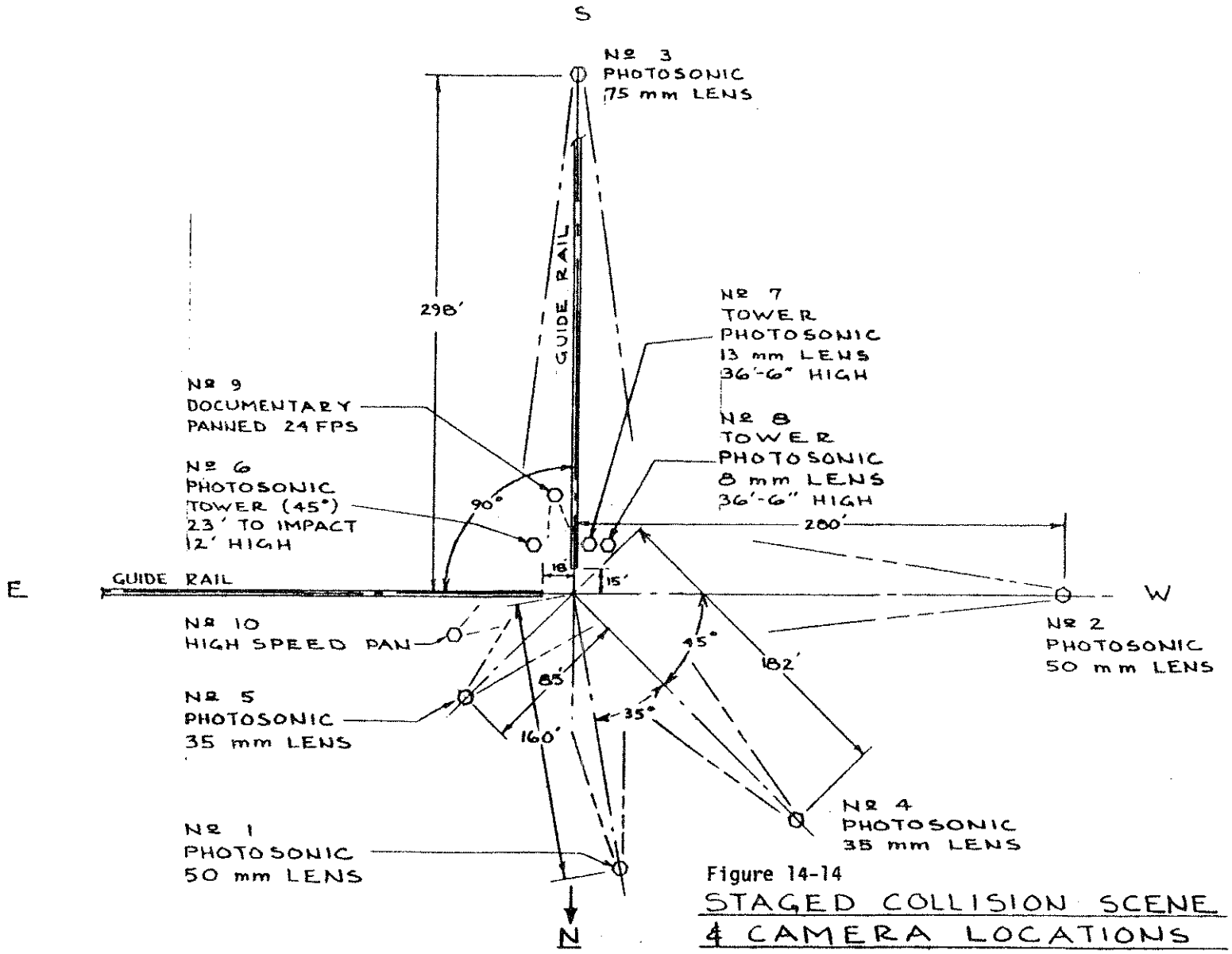


Figure 14-14
STAGED COLLISION SCENE & CAMERA LOCATIONS TESTS 8, 9 & 10

TABLE 14-6

HIGH SPEED CAMERA INFORMATION (TEST No. 8)

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)
10	HIGH SPEED PAN	PHOTOSONIC	25 MM	700
3	SOUTH	PHOTOSONIC	75 MM	800
2	WEST	PHOTOSONIC	50 MM	750
4	NORTHWEST	PHOTOSONIC	35 MM	700
1	NORTH	PHOTOSONIC	50 MM	700
6	TOWER 45	PHOTOSONIC	13 MM	700
7	TOWER CLOSE	PHOTOSONIC	13 MM	450
8	TOWER WIDE	PHOTOSONIC	8 MM	500
9	O.B. DRIVER	STALEX	8 MM	350
10	O.B. HOOD	STALEX	8 MM	700
11	O.B. REAR	STALEX	8 MM	670

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.

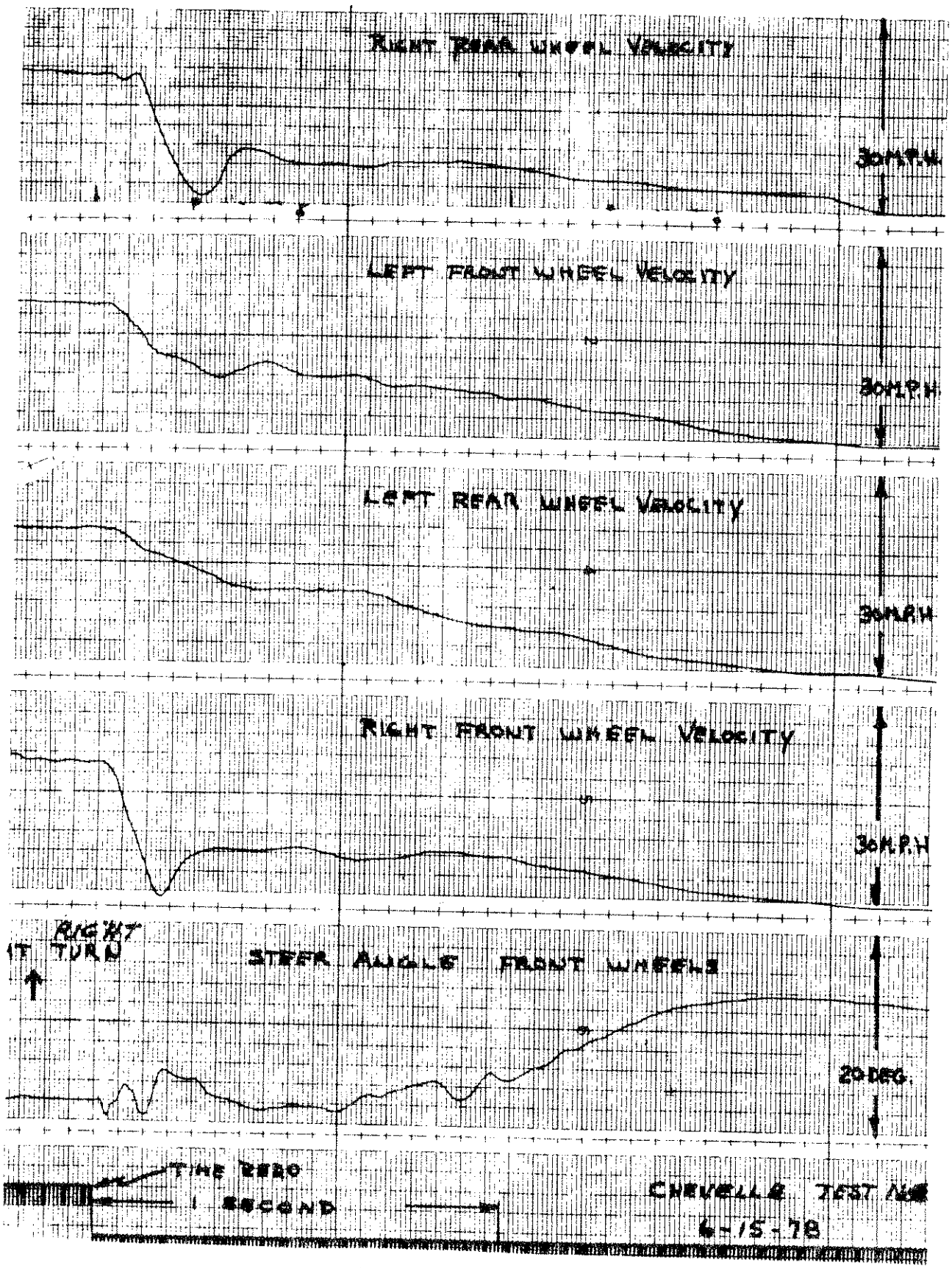


Figure 14-15 TEST NO. 8
CAR NO. 1 WHEEL RESPONSES

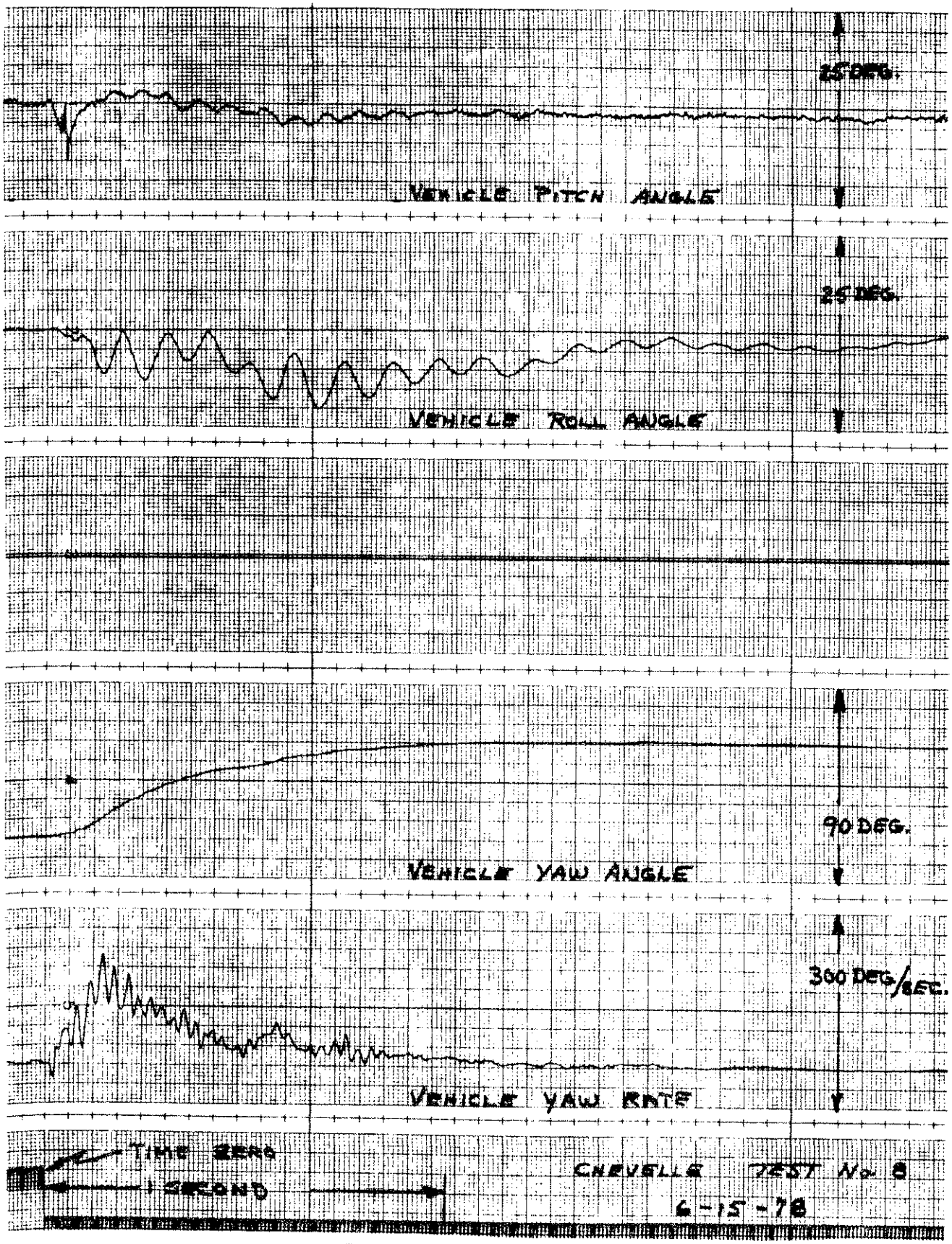


Figure 14-16 TEST NO. 8
CAR NO. 1 VEHICLE ATTITUDE

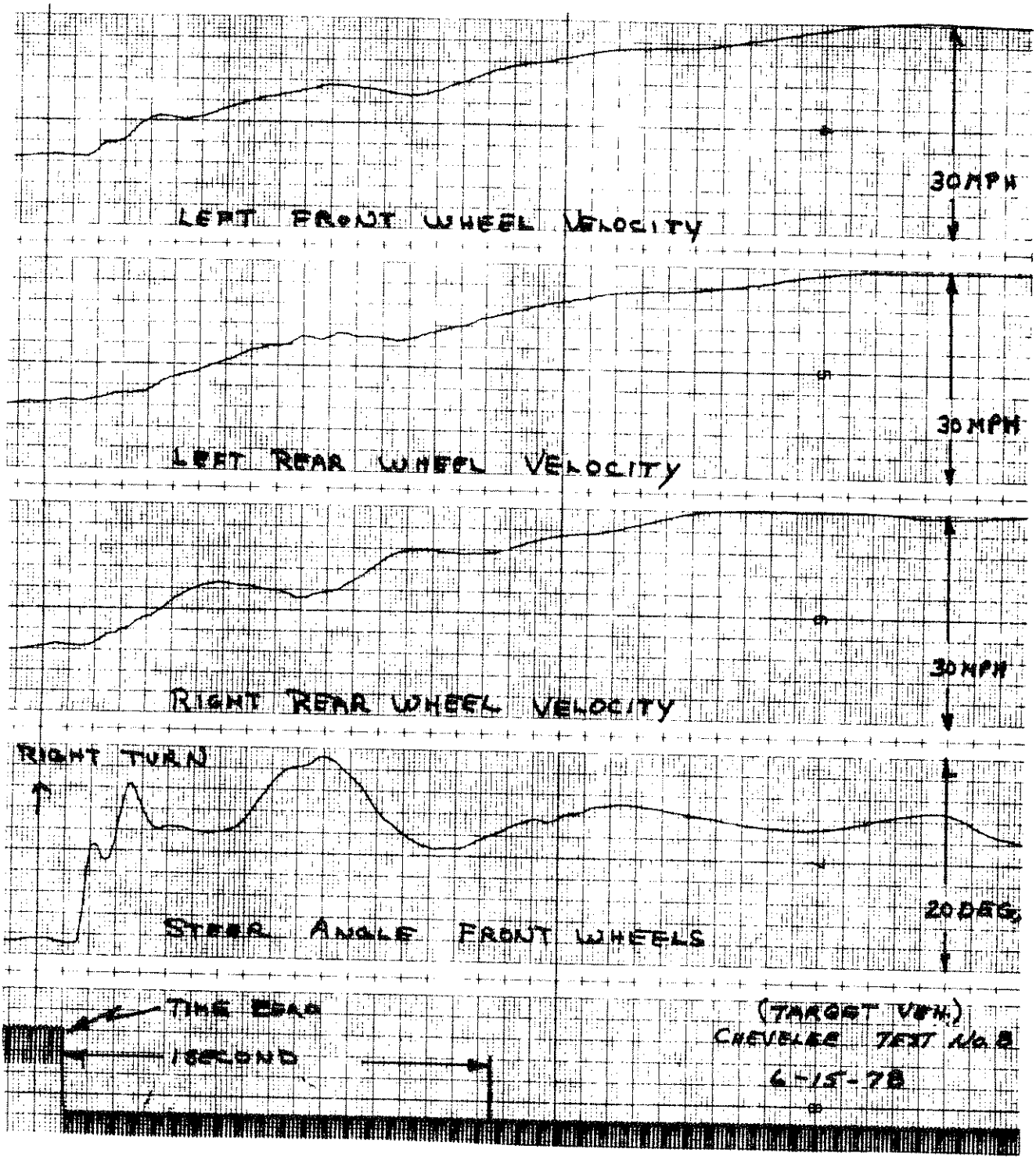


Figure 14-17 TEST NO. 8
CAR NO. 2 WHEEL RESPONSES

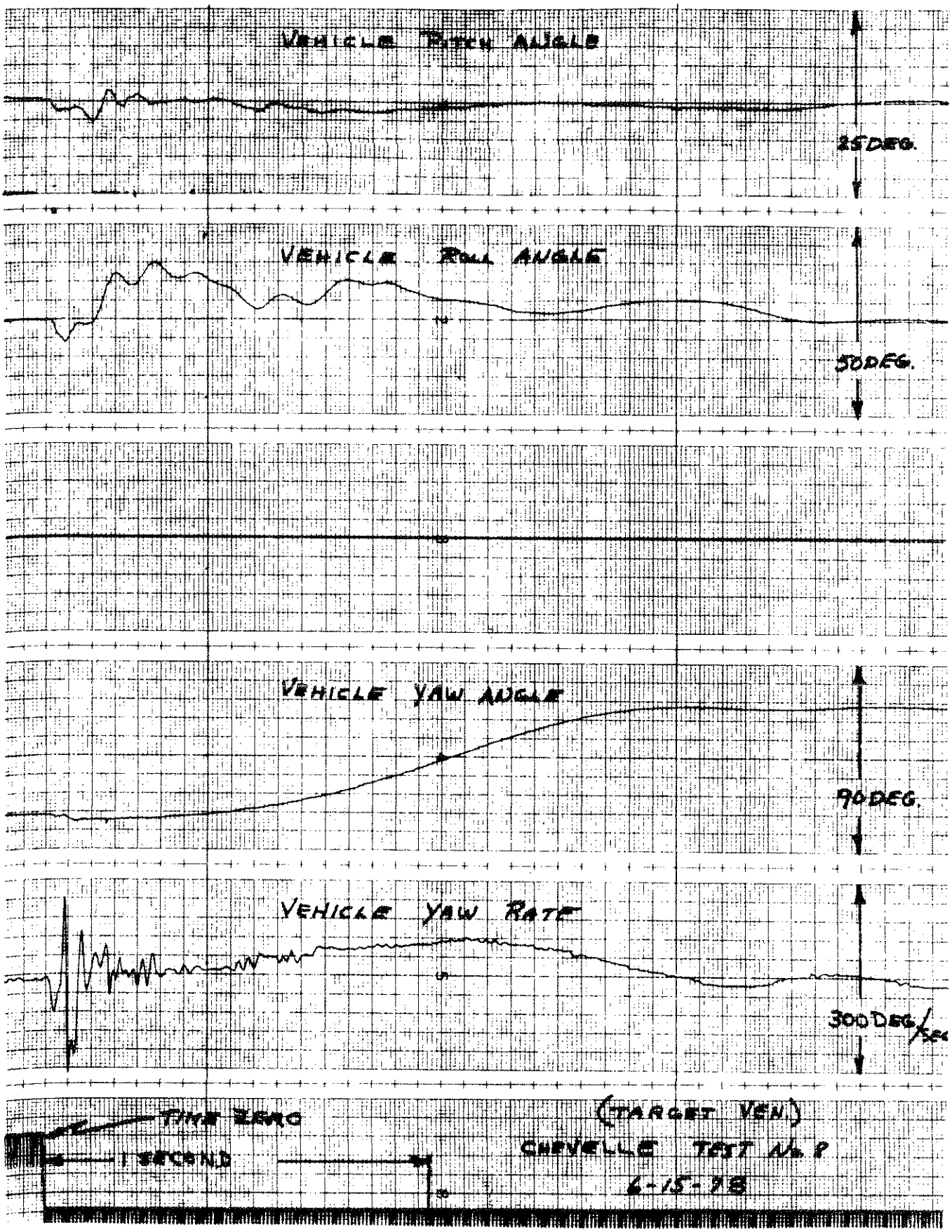


Figure 14-18 TEST NO. 8 - CAR NO. 2
VEHICLE ATTITUDE

RICSAC TEST NO. 8

VEHICLE RESPONSES

CAR NO. 1 CHEVELLE

DATA PLOTS

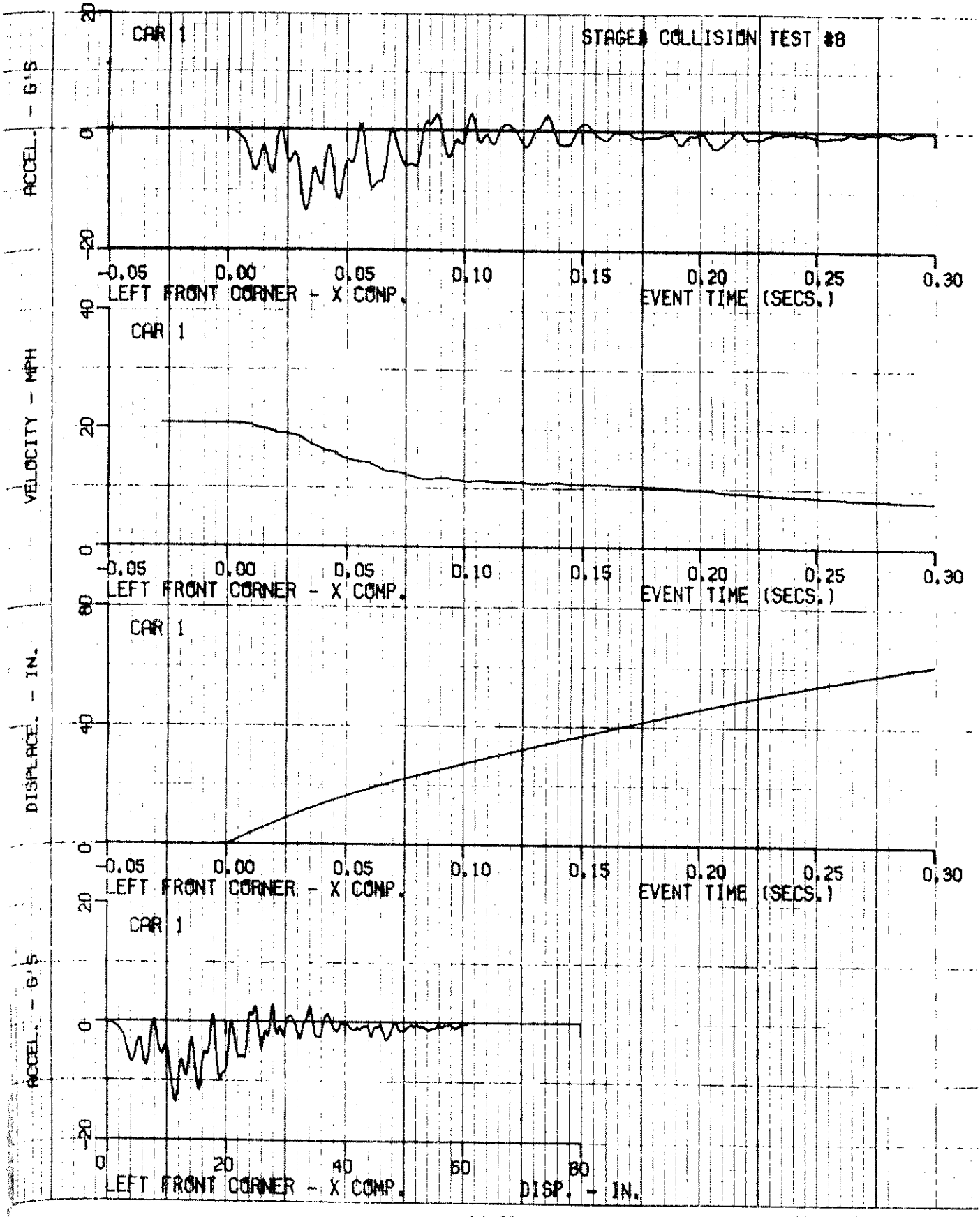
ACCELERATION TIME HISTORIES

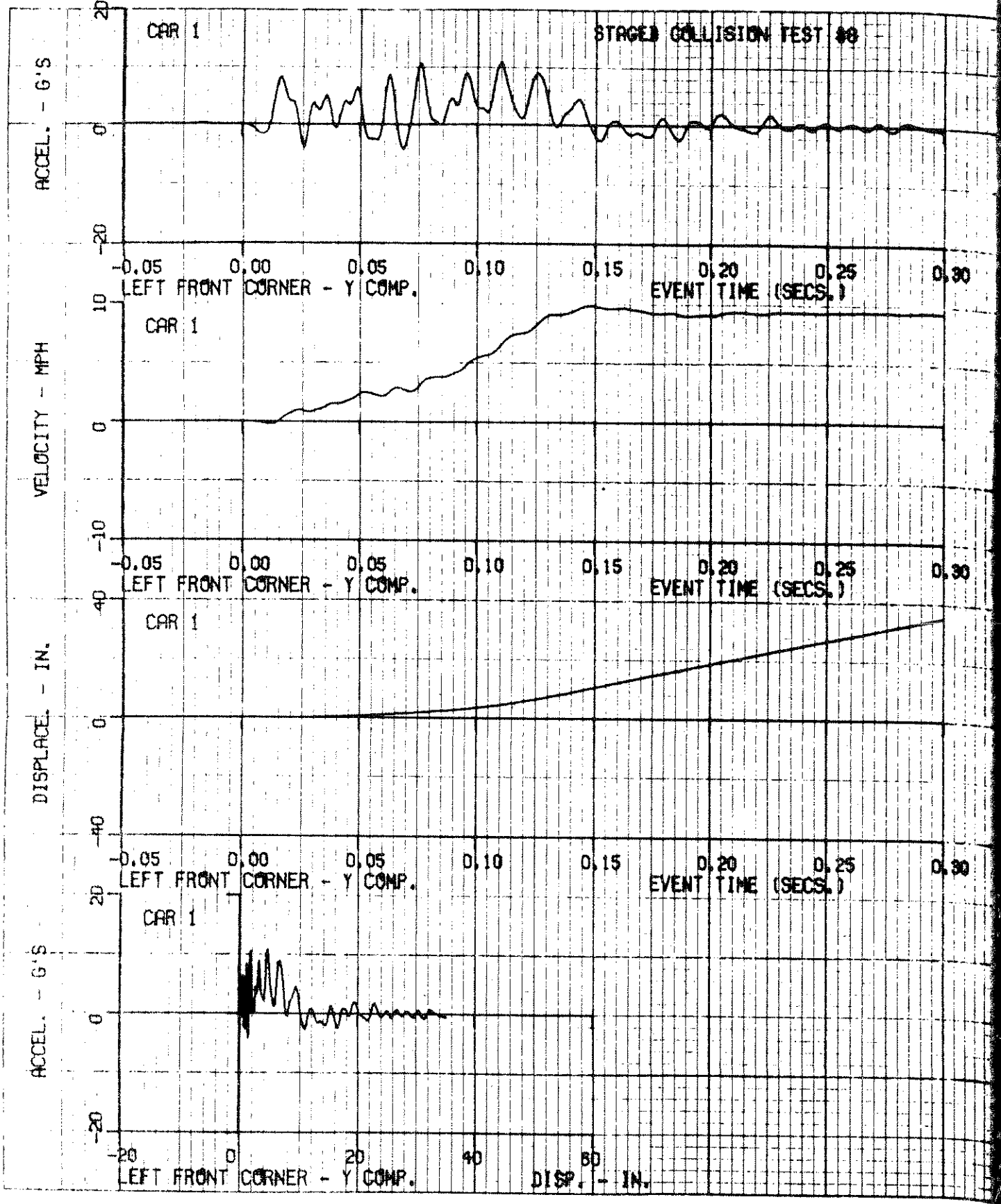
VELOCITY TIME HISTORIES

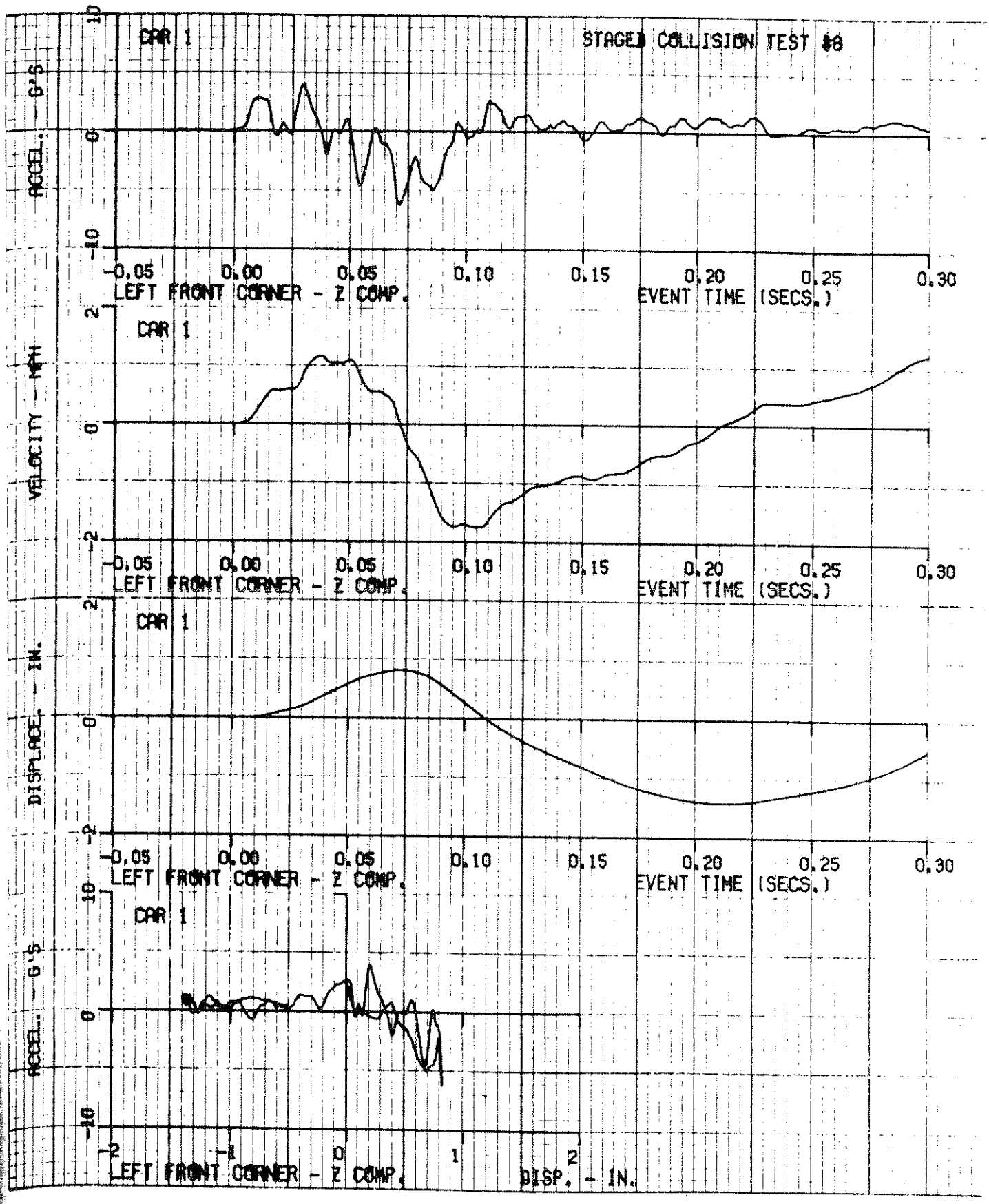
DISPLACEMENT TIME HISTORIES

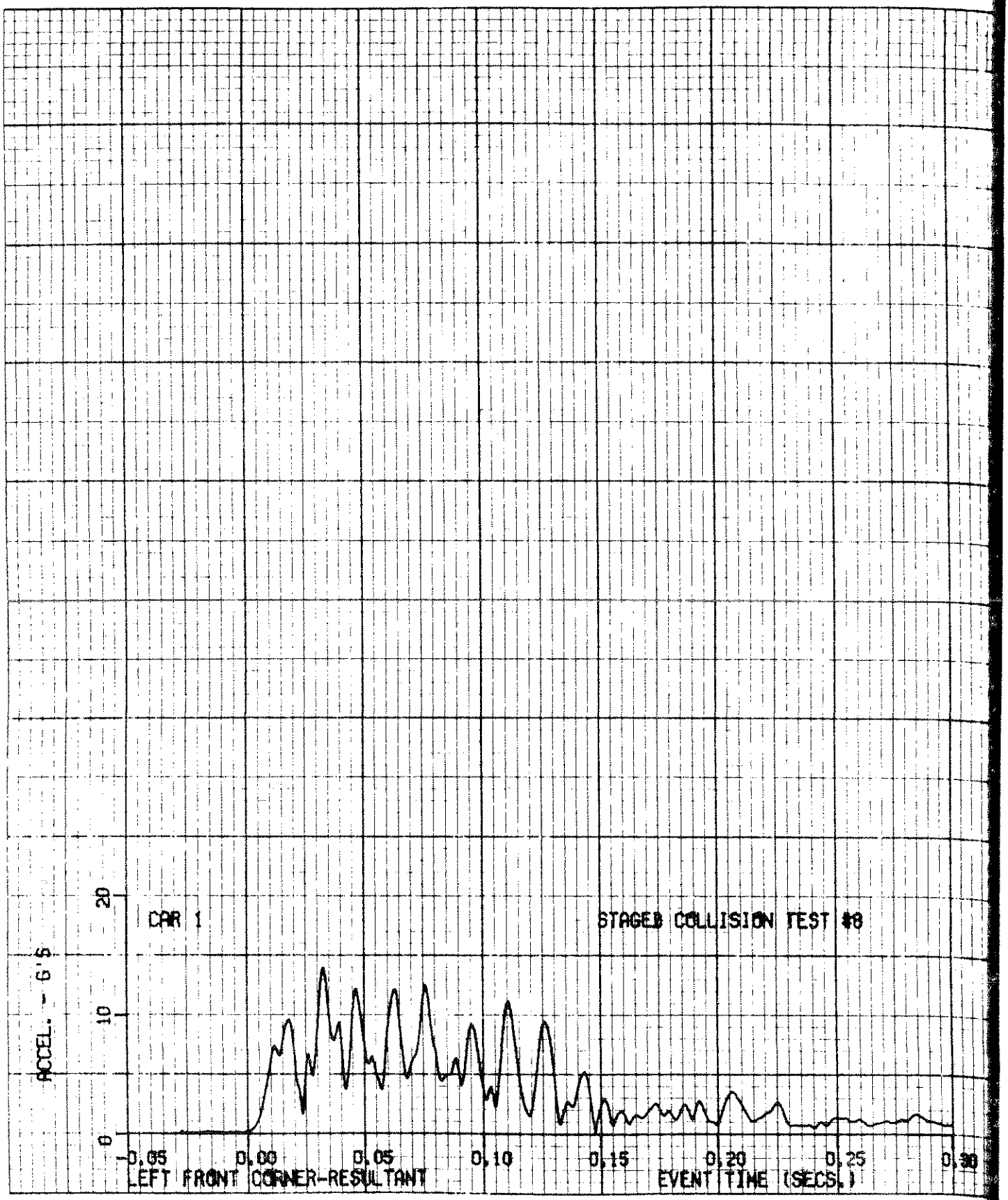
ACCELERATION VS DISPLACEMENT

FILTER CLASS 60


CAR 1
STAGED COLLISION TEST #8
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
80
40
0
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
20
40
60
80
LEFT FRONT CORNER - X COMP.
DISP. - IN.


STAGED COLLISION TEST #8
CAR 1
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
10
0
-10
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
40
0
-40
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
-20
0
20
40
60
LEFT FRONT CORNER - Y COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #8
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
-2
-1
1
2
LEFT FRONT CORNER - Z COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #8
ACCEL. - G'S
0
10
20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)

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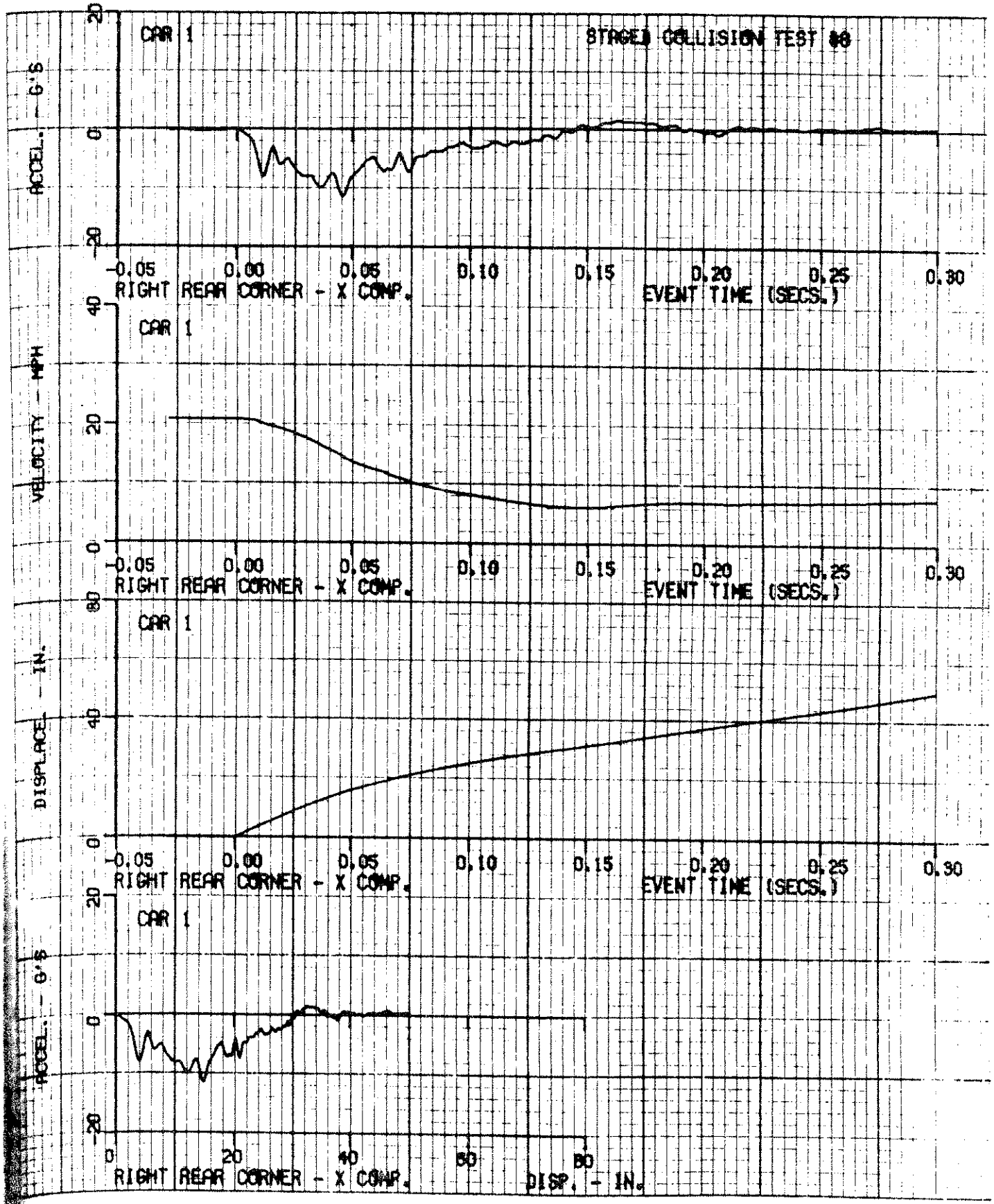
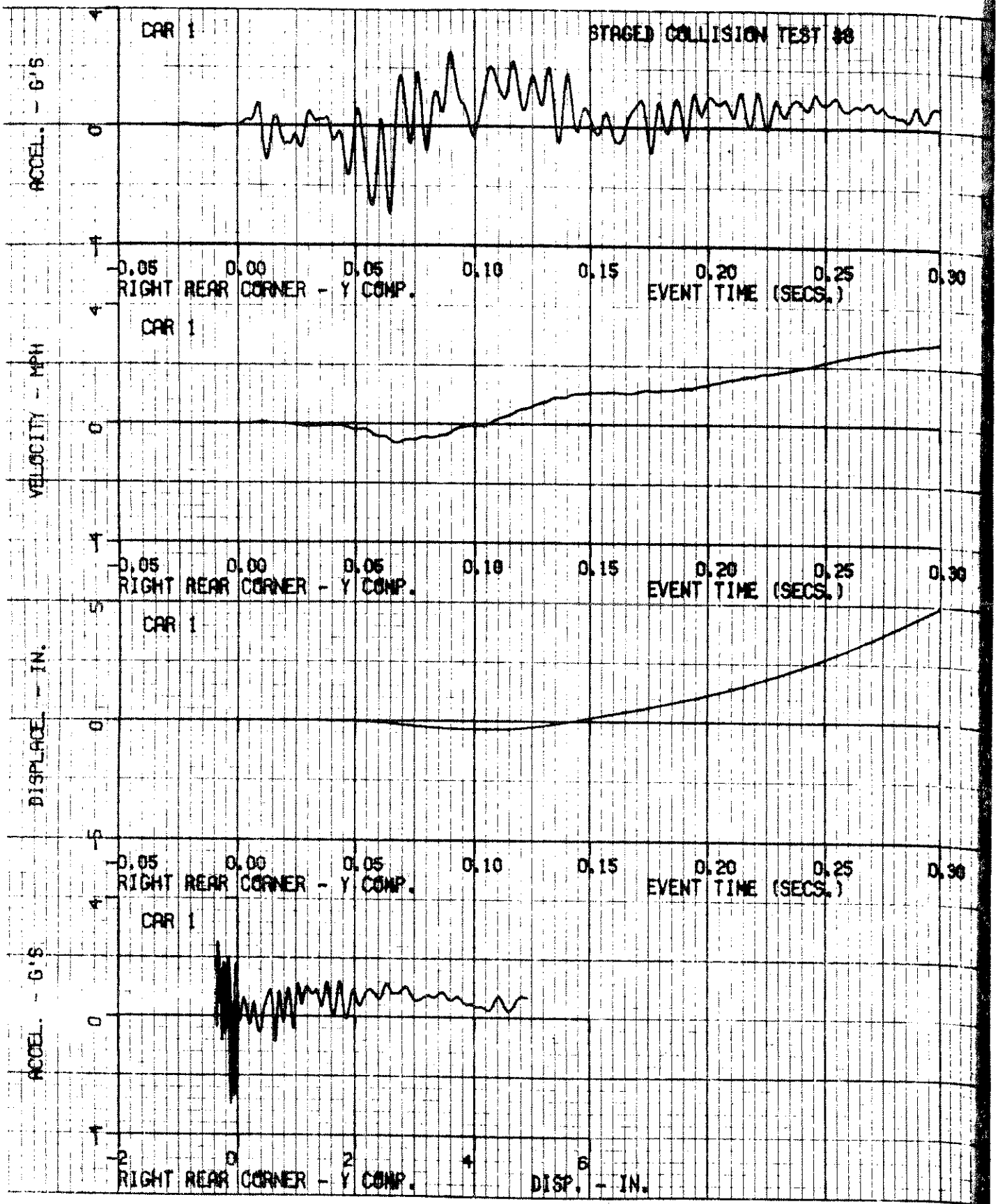
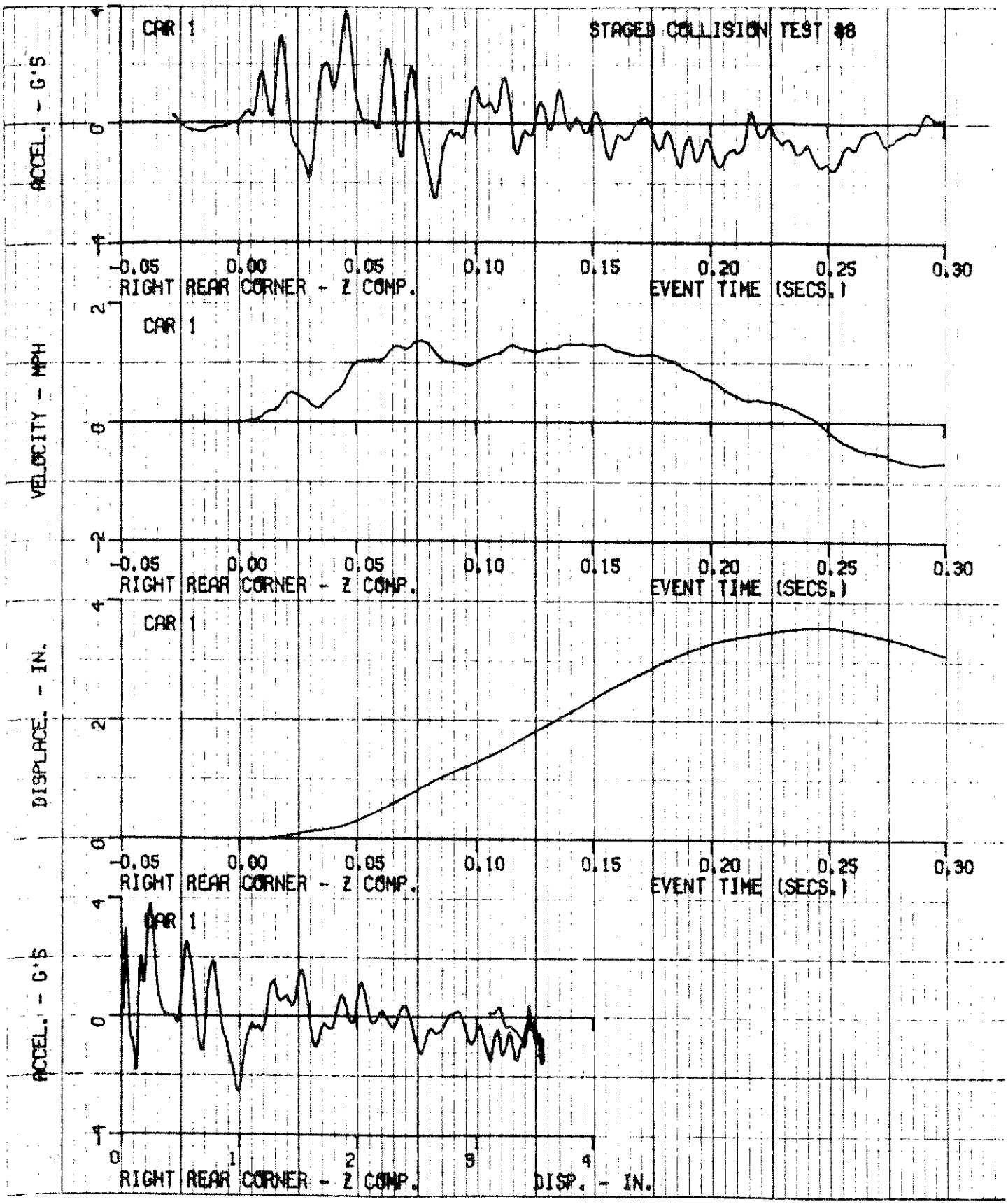
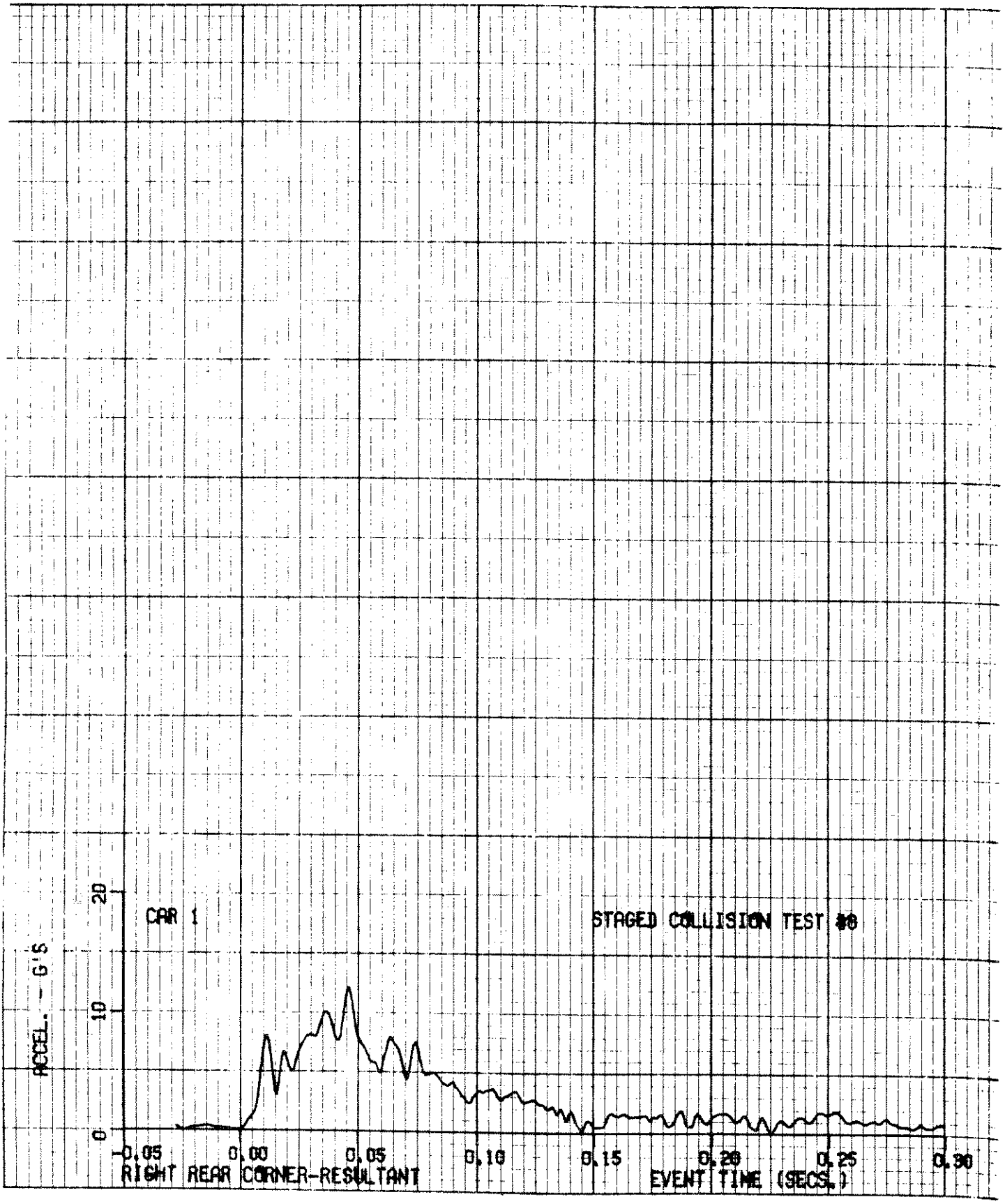
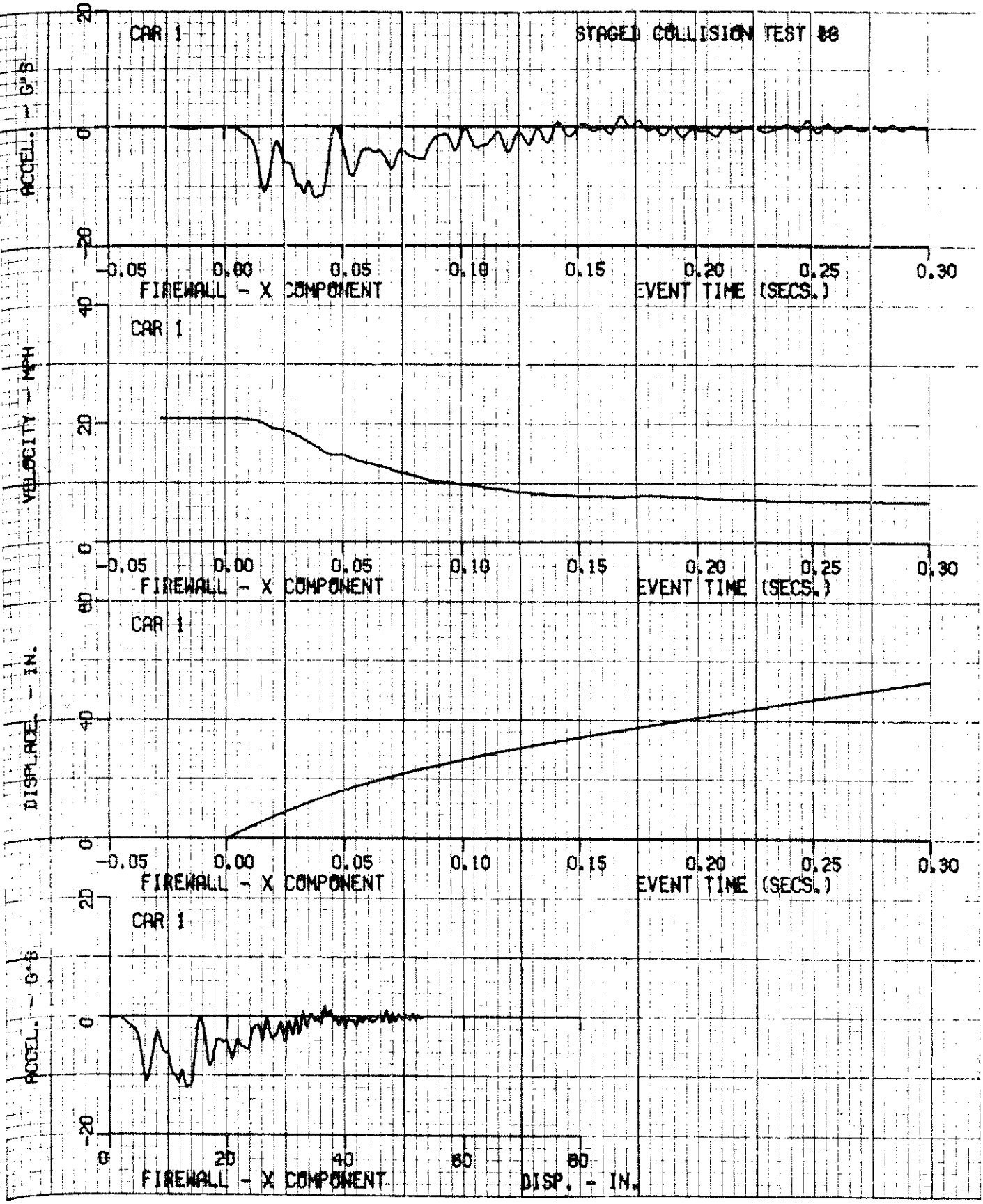
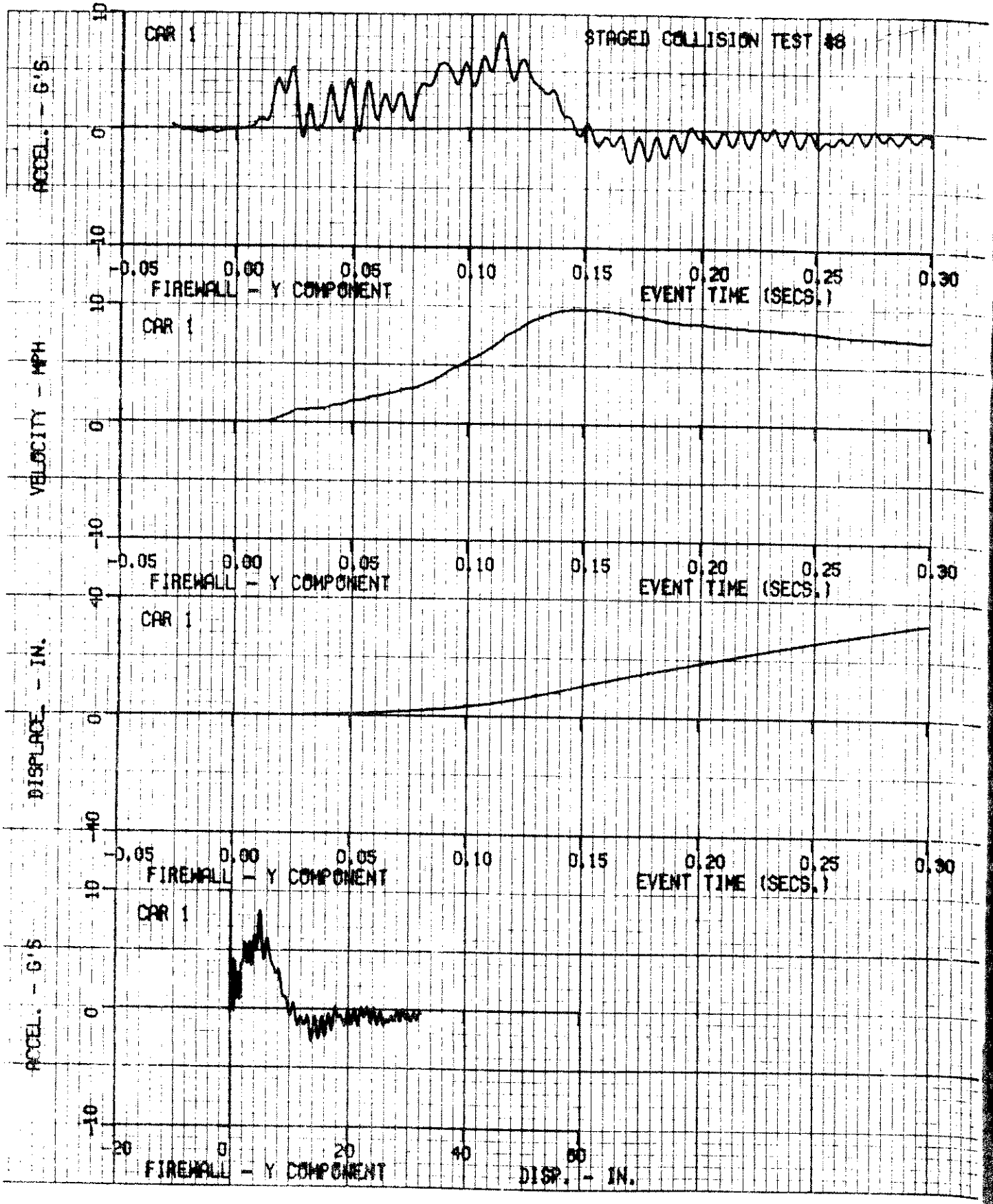

CAR 1
STAGED COLLISION TEST #8
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACEL - IN.
60
40
20
0
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
20
40
60
80
RIGHT REAR CORNER - X COMP.
DISP. - IN.

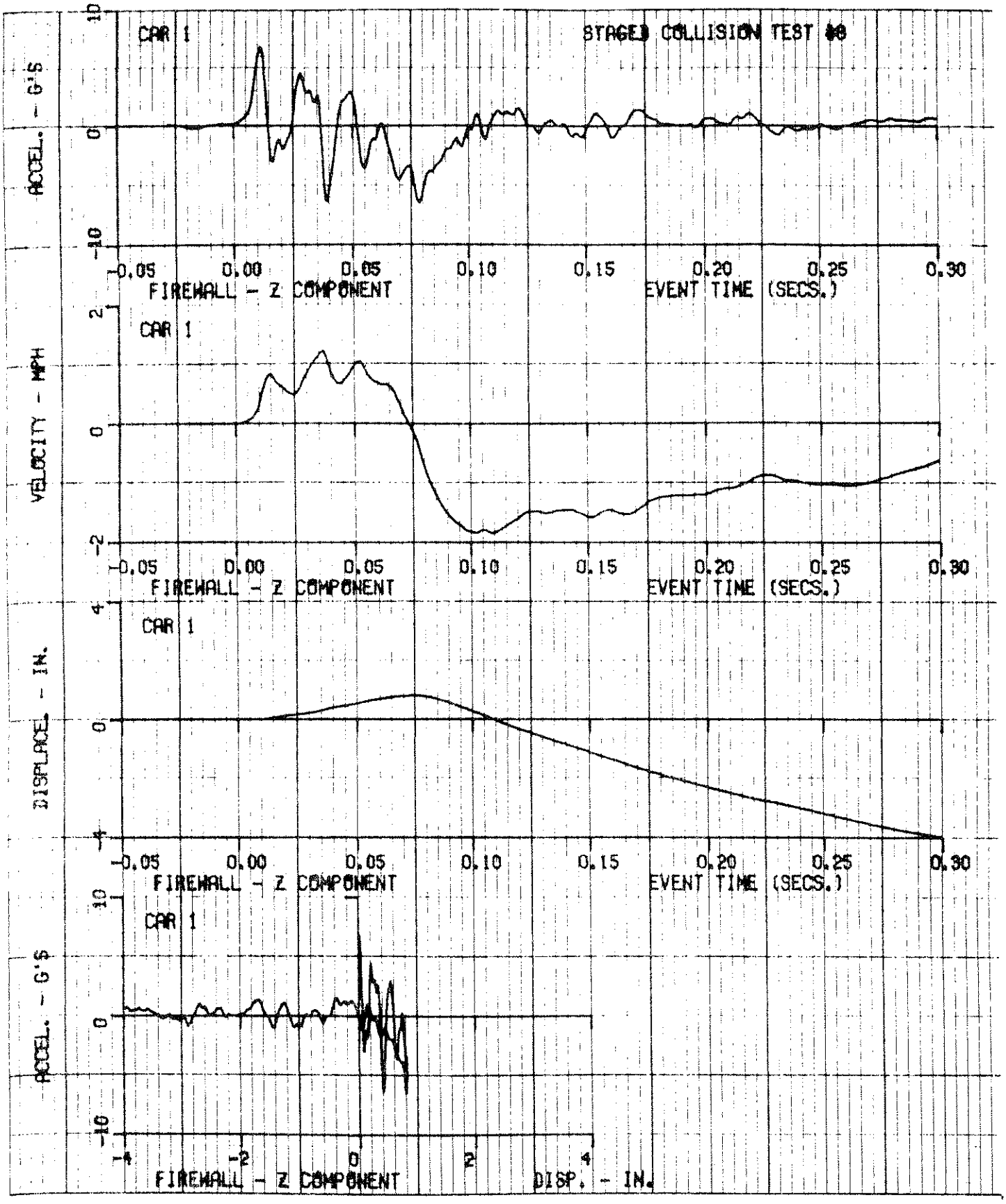

CAR 1
STAGED COLLISION TEST #8
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE - IN.
5
0
-5
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
-2
0
2
4
6
RIGHT REAR CORNER - Y COMP.
DISP. - IN.

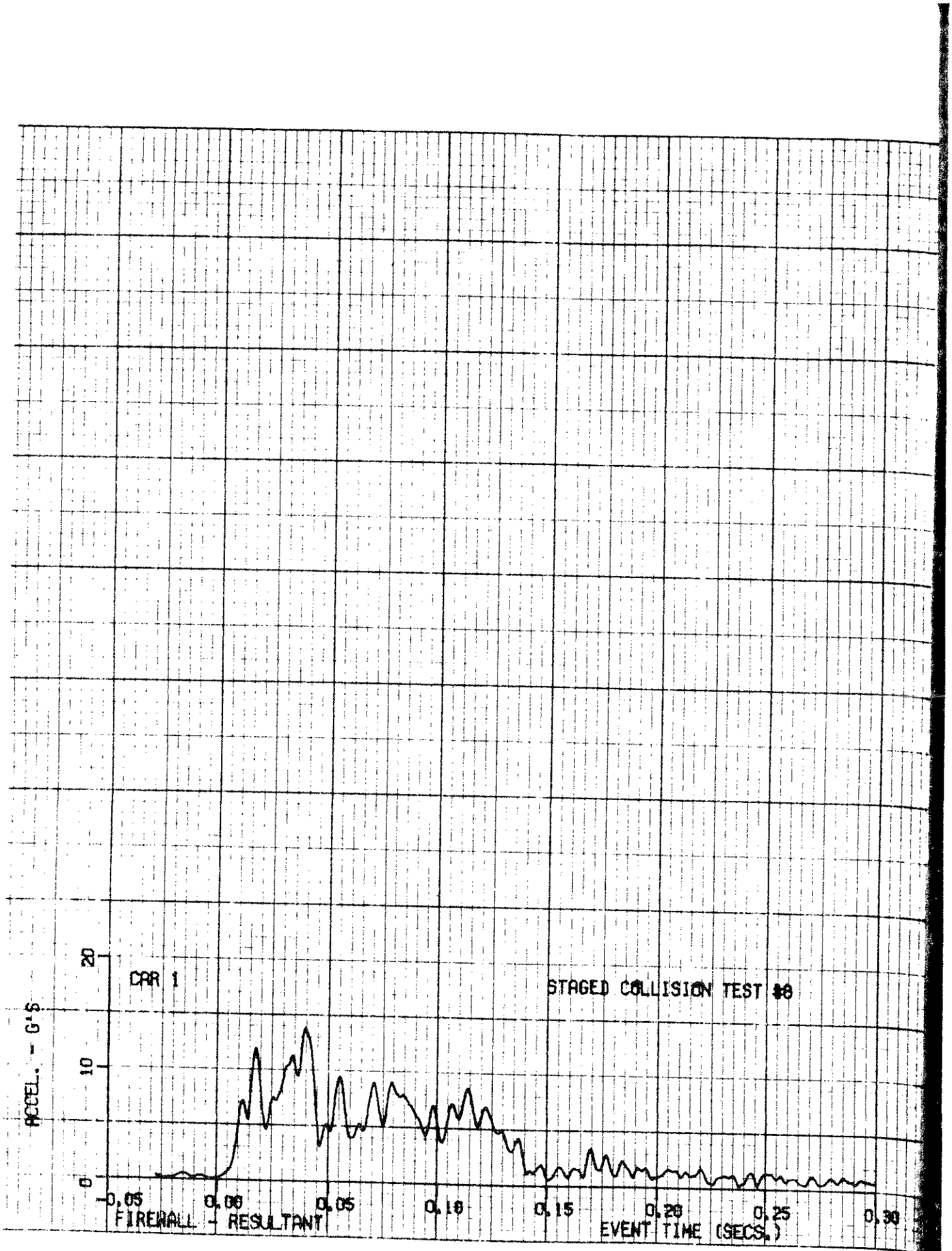

CAR 1
STAGED COLLISION TEST #8
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
4
2
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
0
1
2
3
4
RIGHT REAR CORNER - Z COMP.
DISP. - IN.

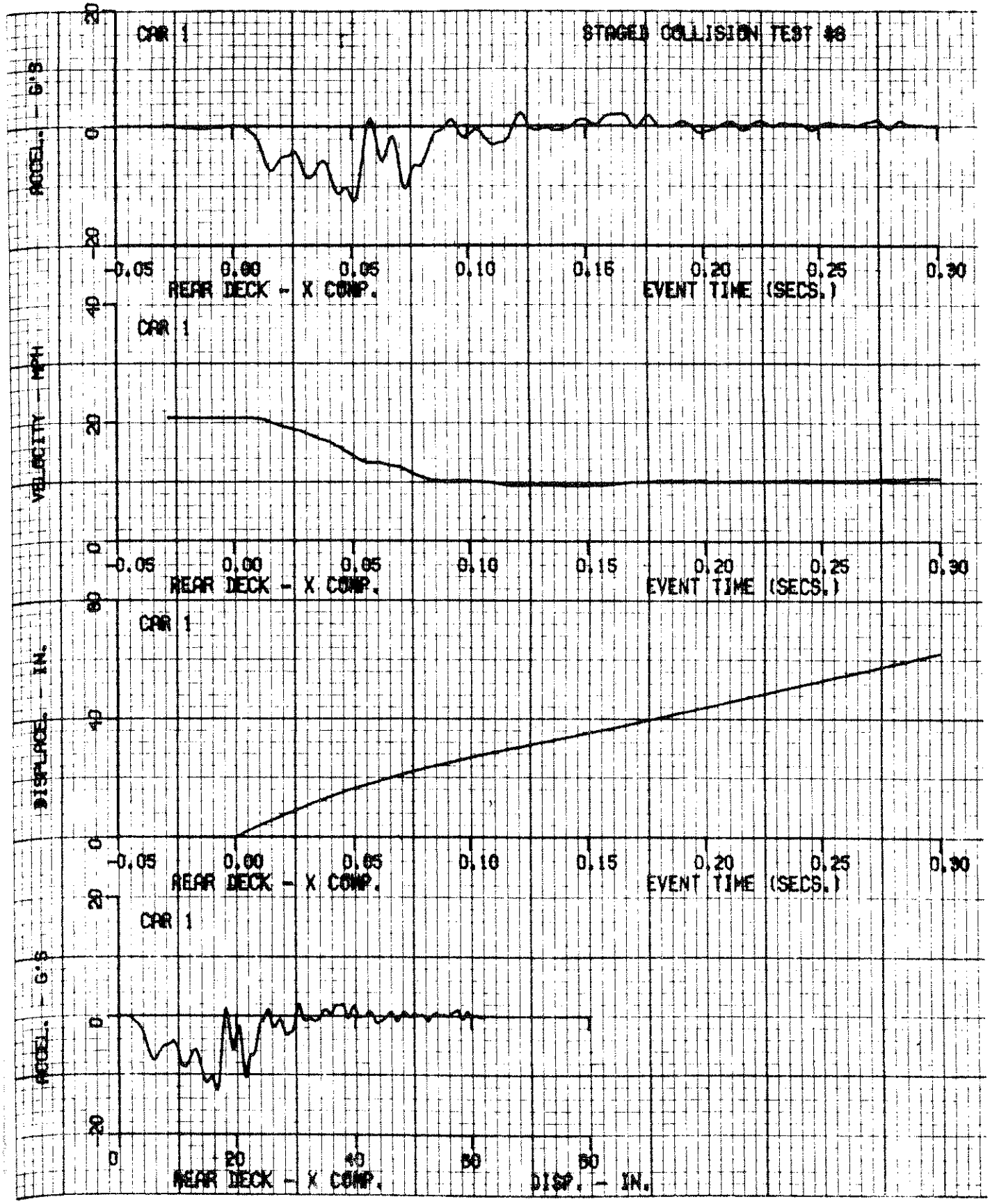

CAR 1
STAGED COLLISION TEST #8
ACCEL. - G'S
0
10
20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER-RESULTANT
EVENT TIME (SECS.)


CAR 1
STAGED COLLISION TEST
ACCEL. - G'S
20
0
-20
-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.
60
40
0
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
20
40
60
80
FIREWALL - X COMPONENT
DISP. - IN.


CAR 1
STAGED COLLISION TEST #8
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
10
0
-10
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
40
0
-40
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
-20
0
20
40
60
FIREWALL - Y COMPONENT
DISP. - IN.


CAR 1
STAGED COLLISION TEST #8
ACCEL. - G'S
10
0
-10
-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
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE - IN.
4
0
-4
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
-4
-2
0
2
4
FIREWALL - Z COMPONENT
DISP. - IN.


CAR 1
STAGED COLLISION TEST #8
ACCEL. - G'S
20
10
0
0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - RESULTANT
EVENT TIME (SECS.)


CAR 1
STAGED COLLISION TEST #8
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 1
VELOCITY - MPH
40
20
0
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
60
40
0
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
20
40
50
60
REAR DECK - X COMP.
DISP. - IN.

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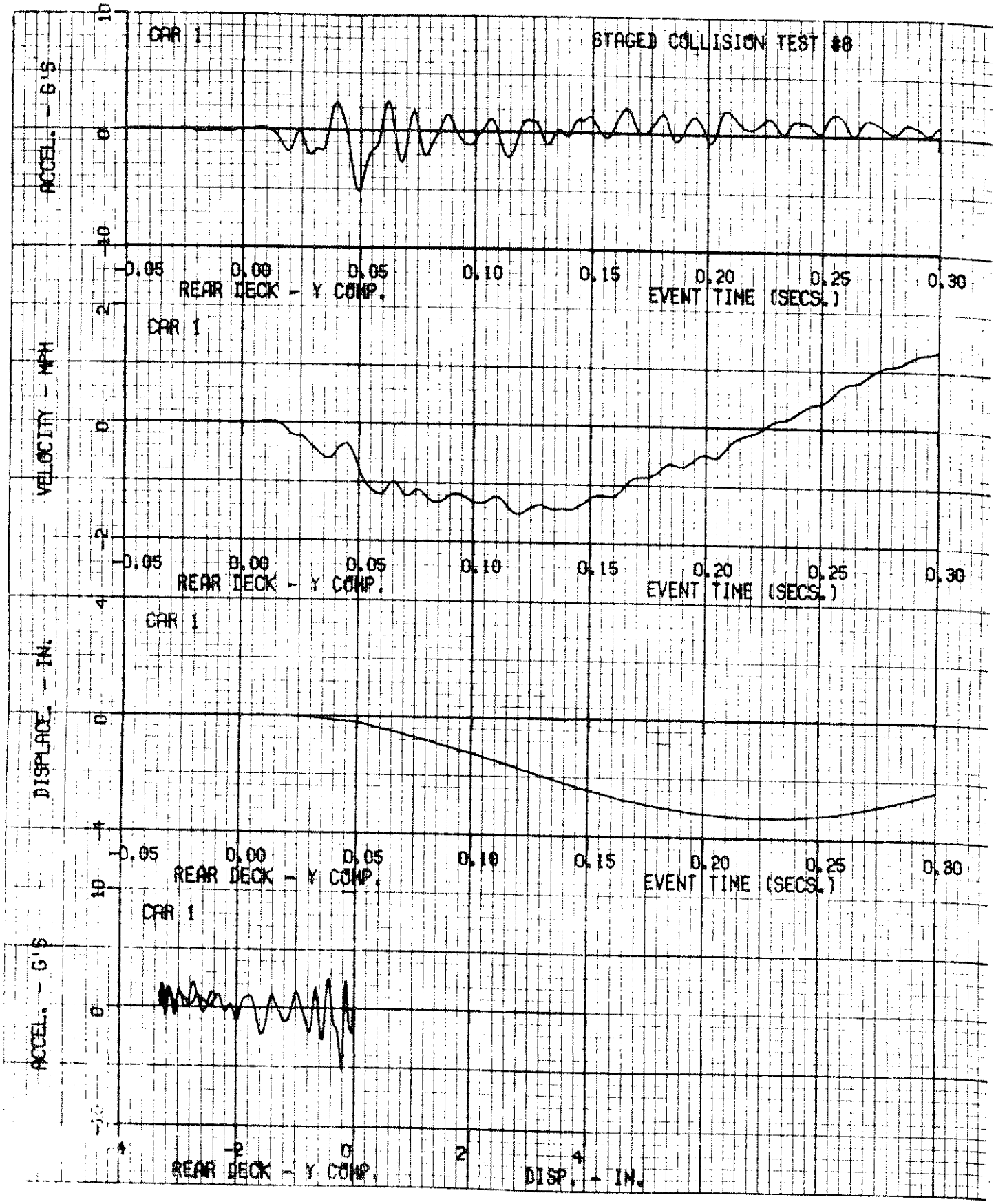
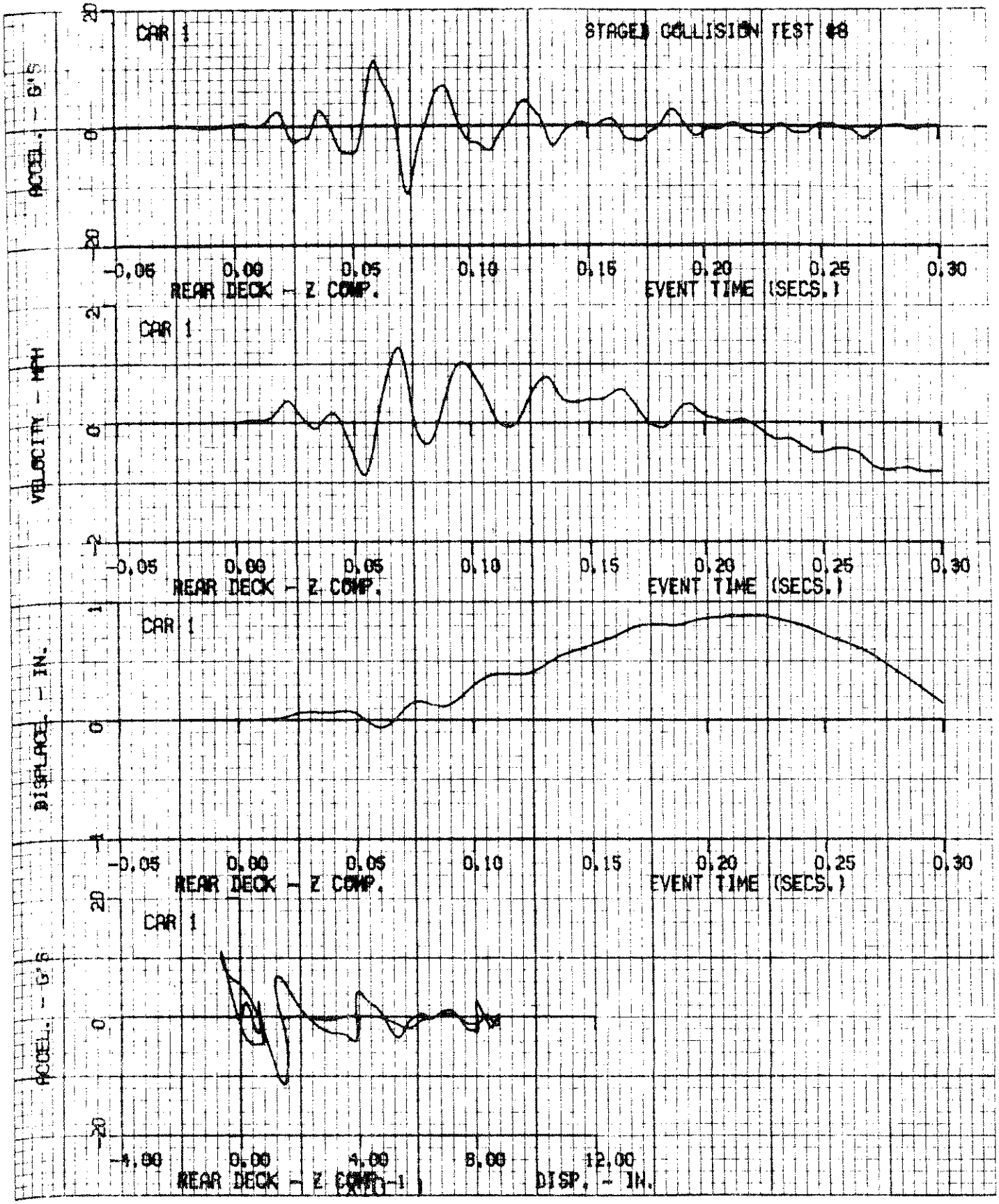
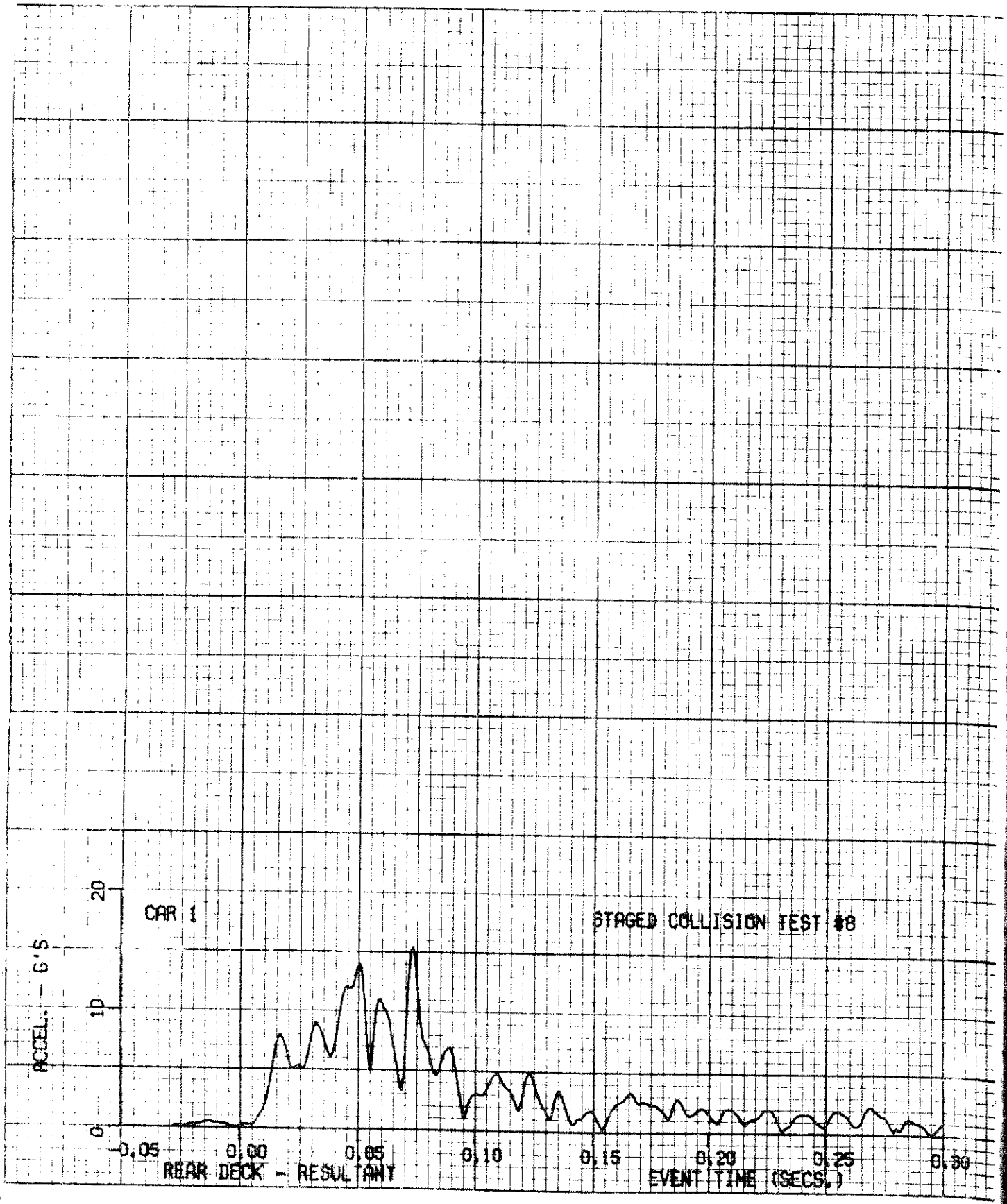
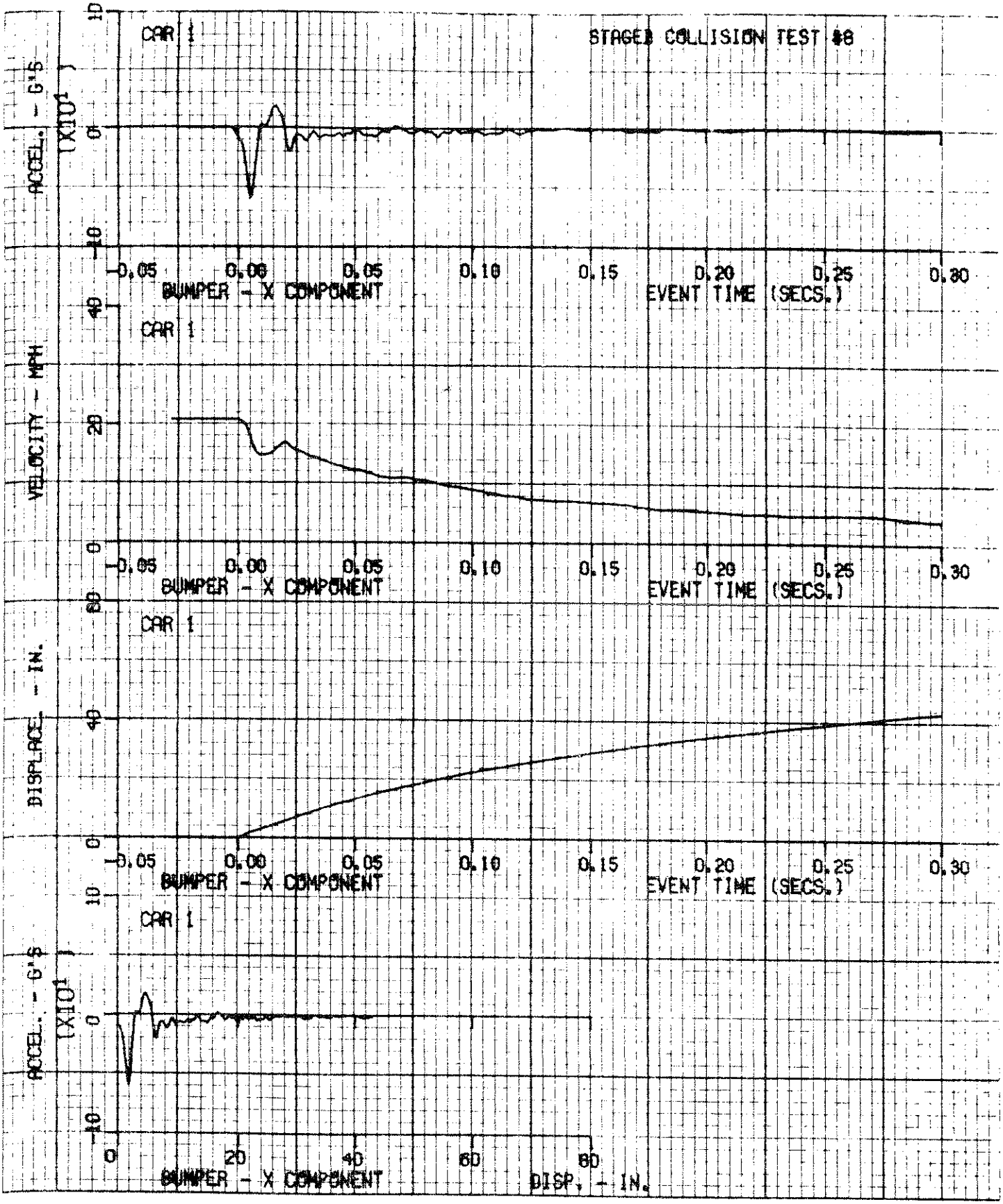

CAR 1
STAGED COLLISION TEST #8
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20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


CAR 1
STAGED COLLISION TEST #8
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 1
VELOCITY - MPH
2
0
-2
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
1
0
-1
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
-4.00
0.00
4.00
8.00
12.00
REAR DECK - Z COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #8
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - RESULTANT
EVENT TIME (SECS.)


STAGED COLLISION TEST #8
CAR 1
ACCEL. - G'S (X10¹)
10
0
-10
-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
20
0
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
60
40
0
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S (X10¹)
10
0
-10
0
20
40
60
80
BUMPER - X COMPONENT
DISP. - IN.

RICSAC TEST NO. 8

VEHICLE RESPONSES

CAR NO. 2 CHEVELLE

DATA PLOTS

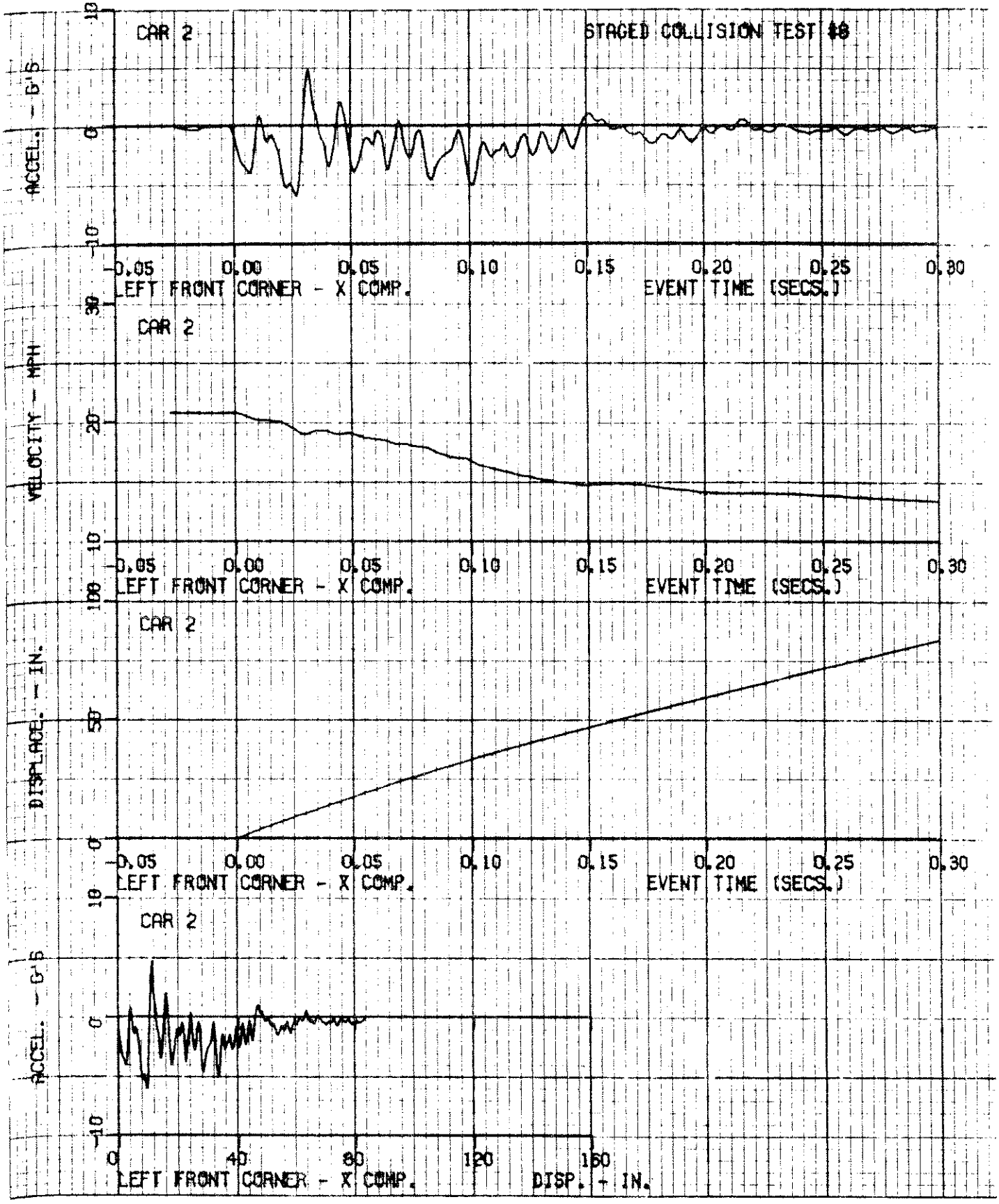
ACCELERATION TIME HISTORIES

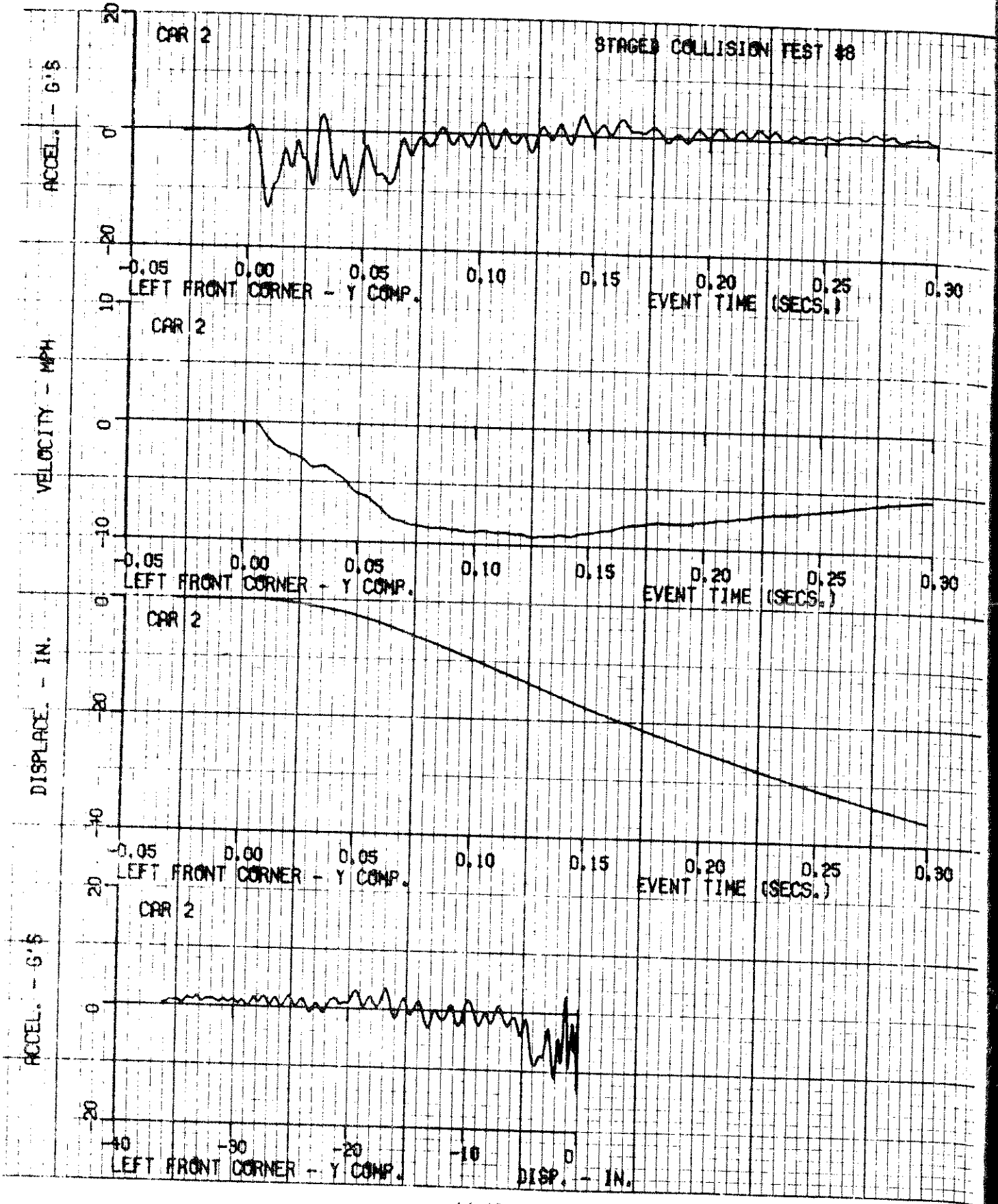
VELOCITY TIME HISTORIES

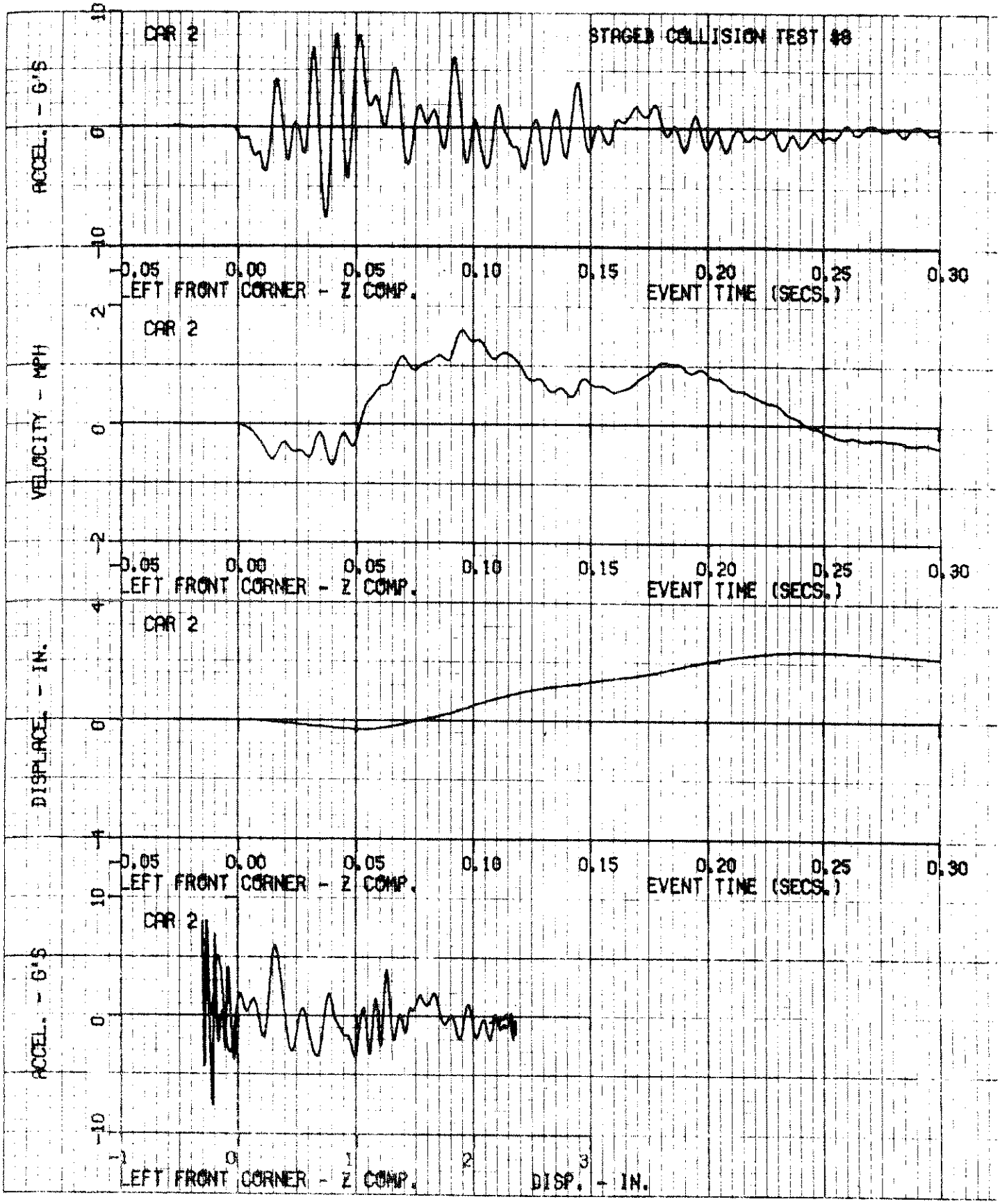
DISPLACEMENT TIME HISTORIES

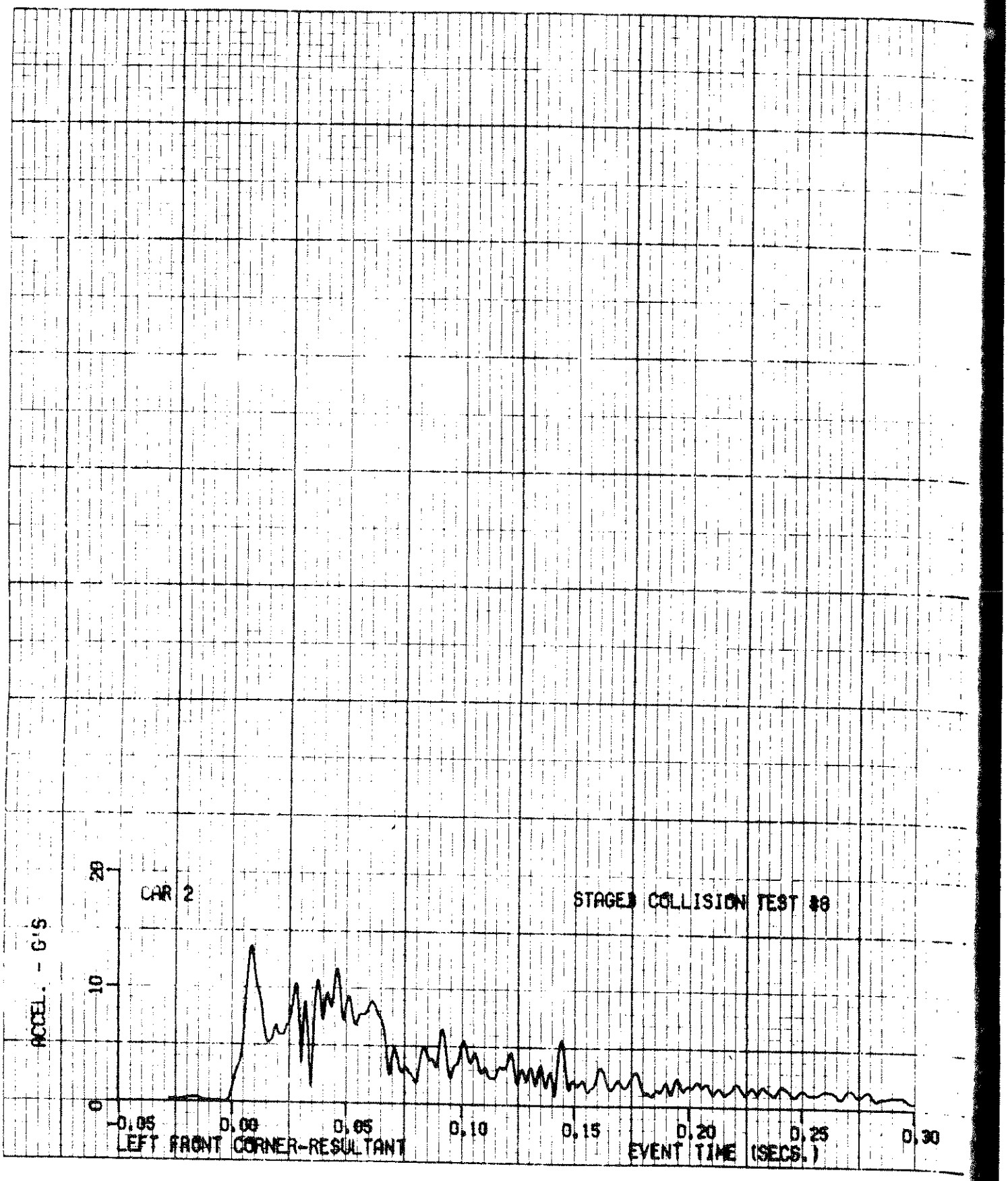
ACCELERATION VS DISPLACEMENT

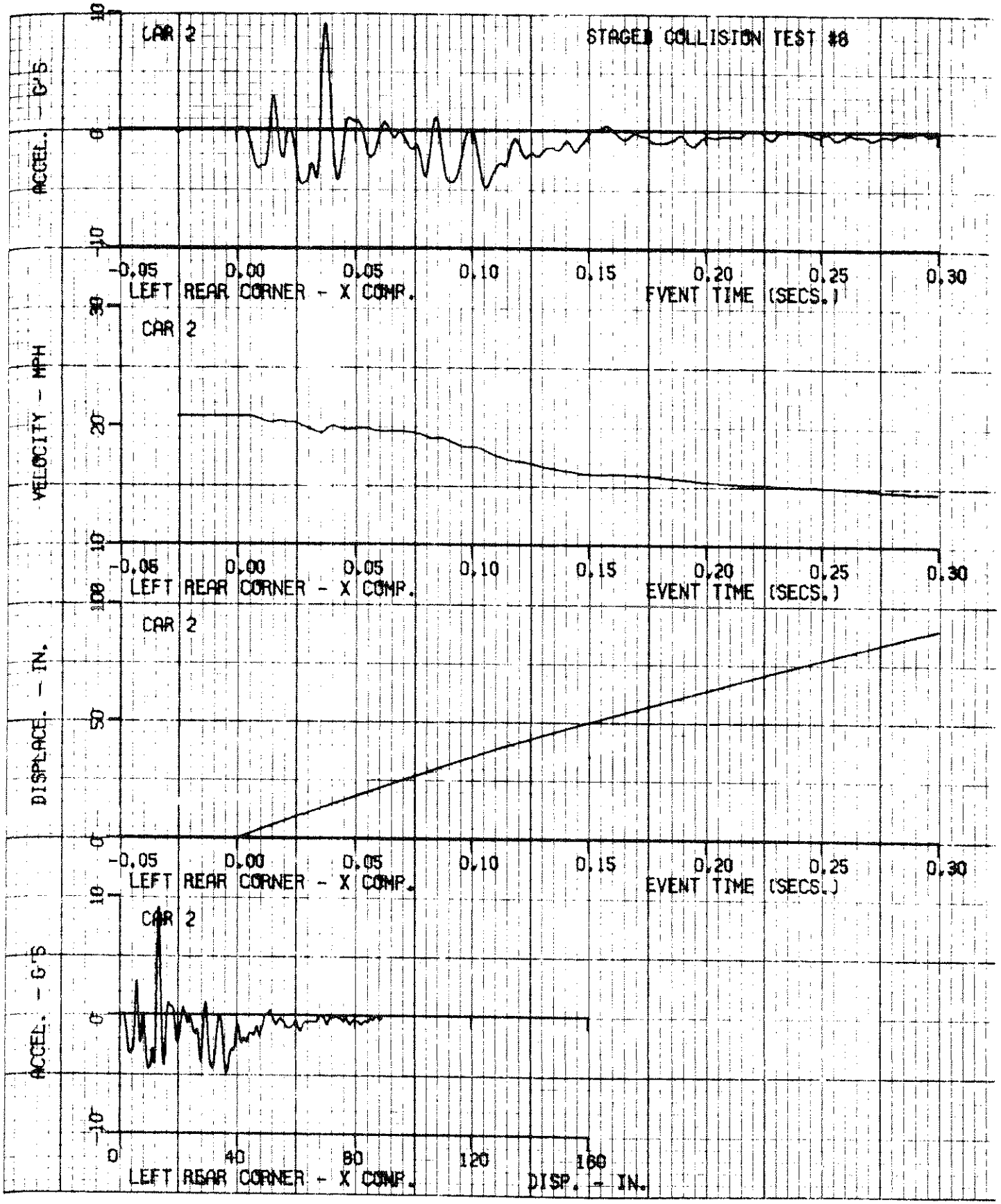
FILTER CLASS 60

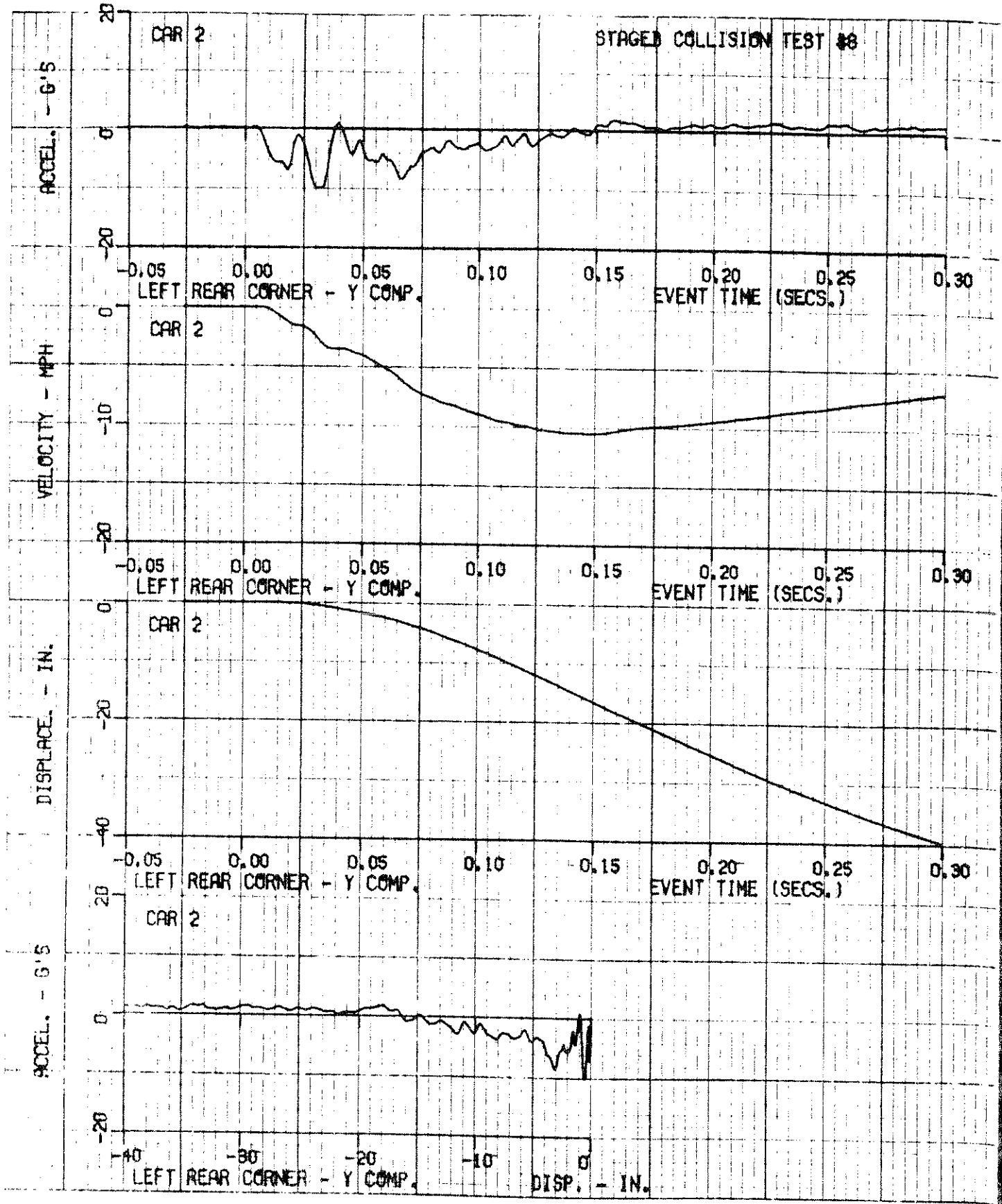

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
30
20
10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
100
50
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT FRONT CORNER - X COMP.
DISP. - IN.

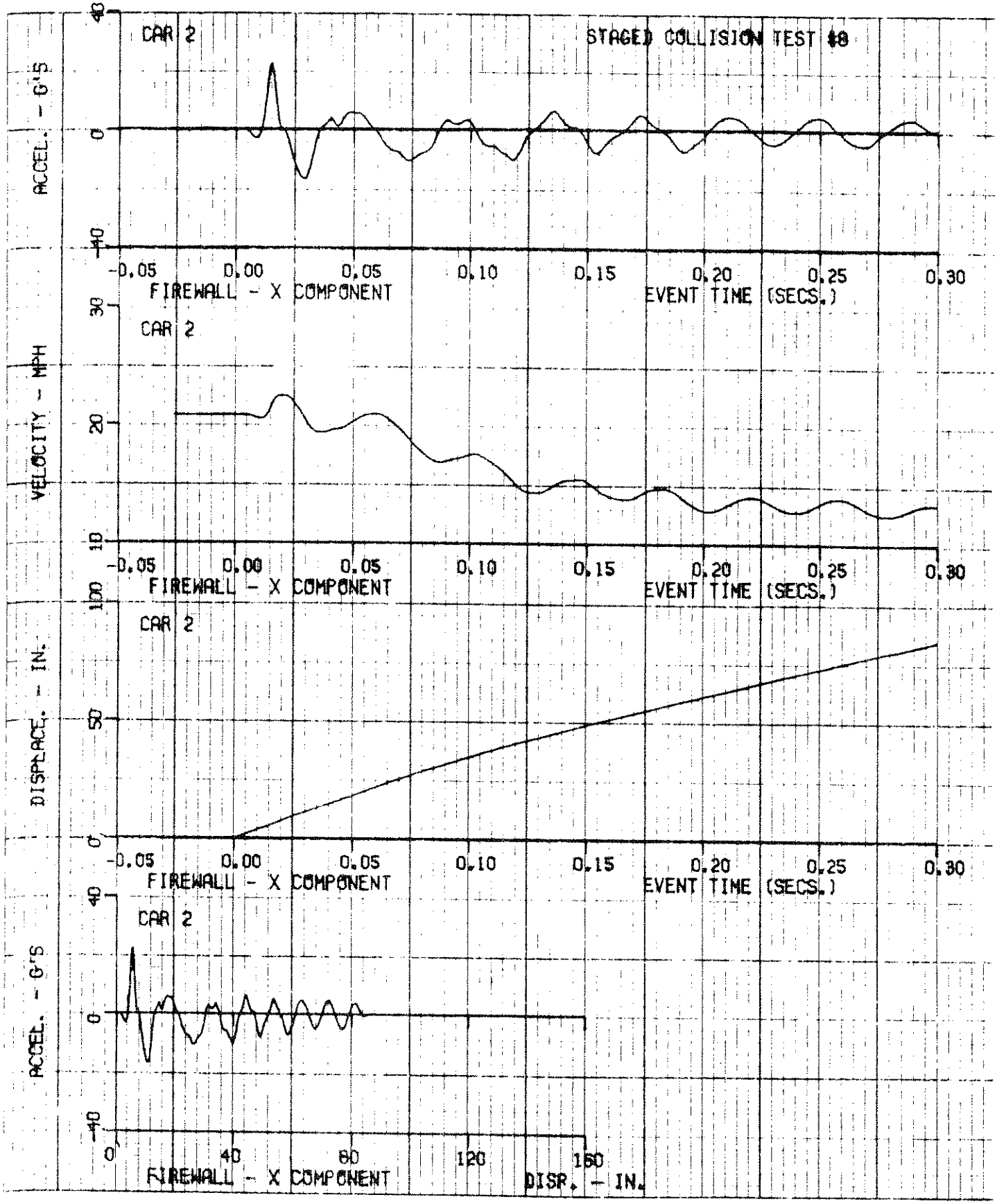

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-40
-30
-20
-10
0
LEFT FRONT CORNER - Y COMP.
DISP. - IN.

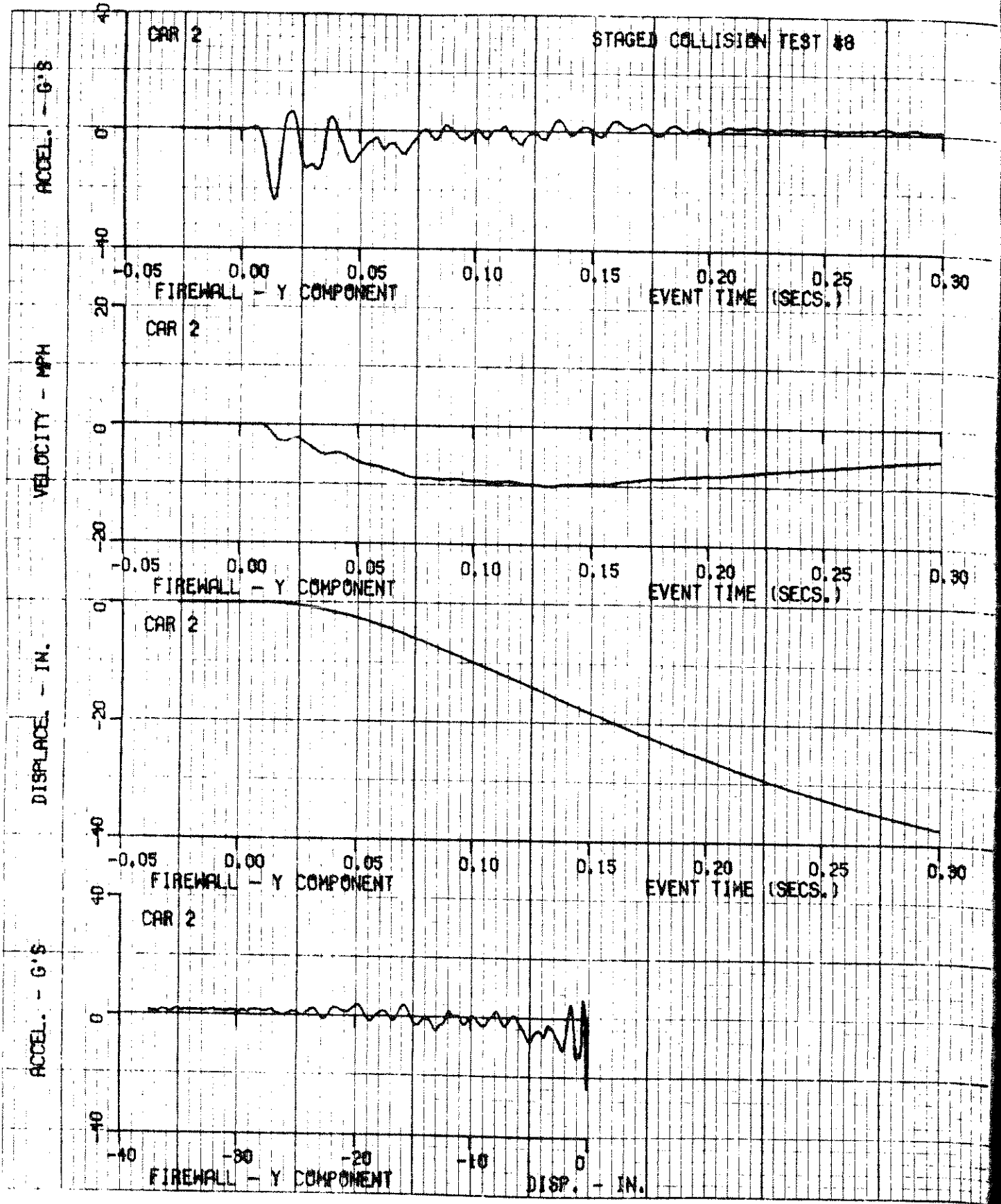

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
2
0
-2
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
4
0
-4
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-1
0
1
2
3
LEFT FRONT CORNER - Z COMP.
DISP. - IN.

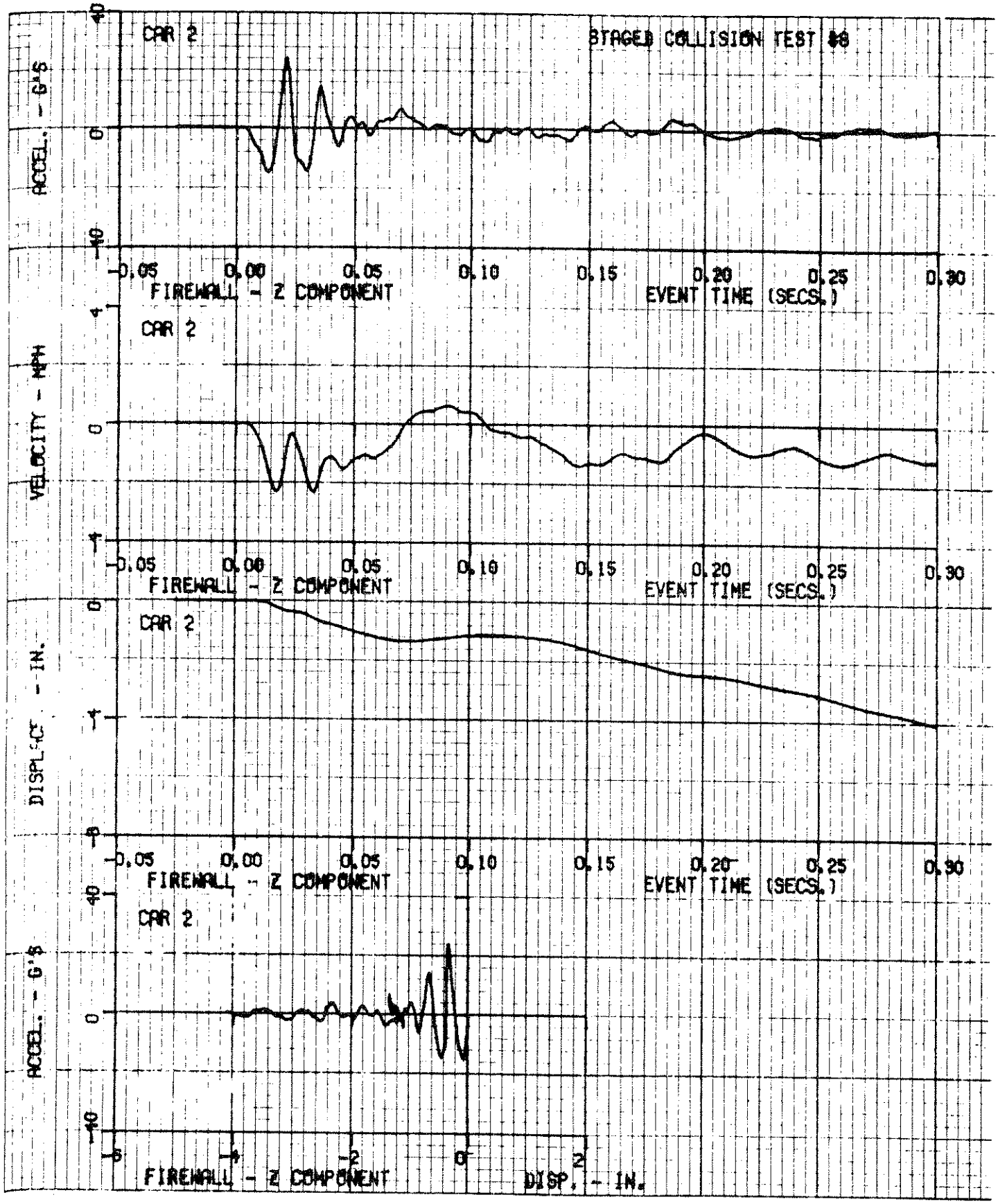

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
20
10
0
0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)

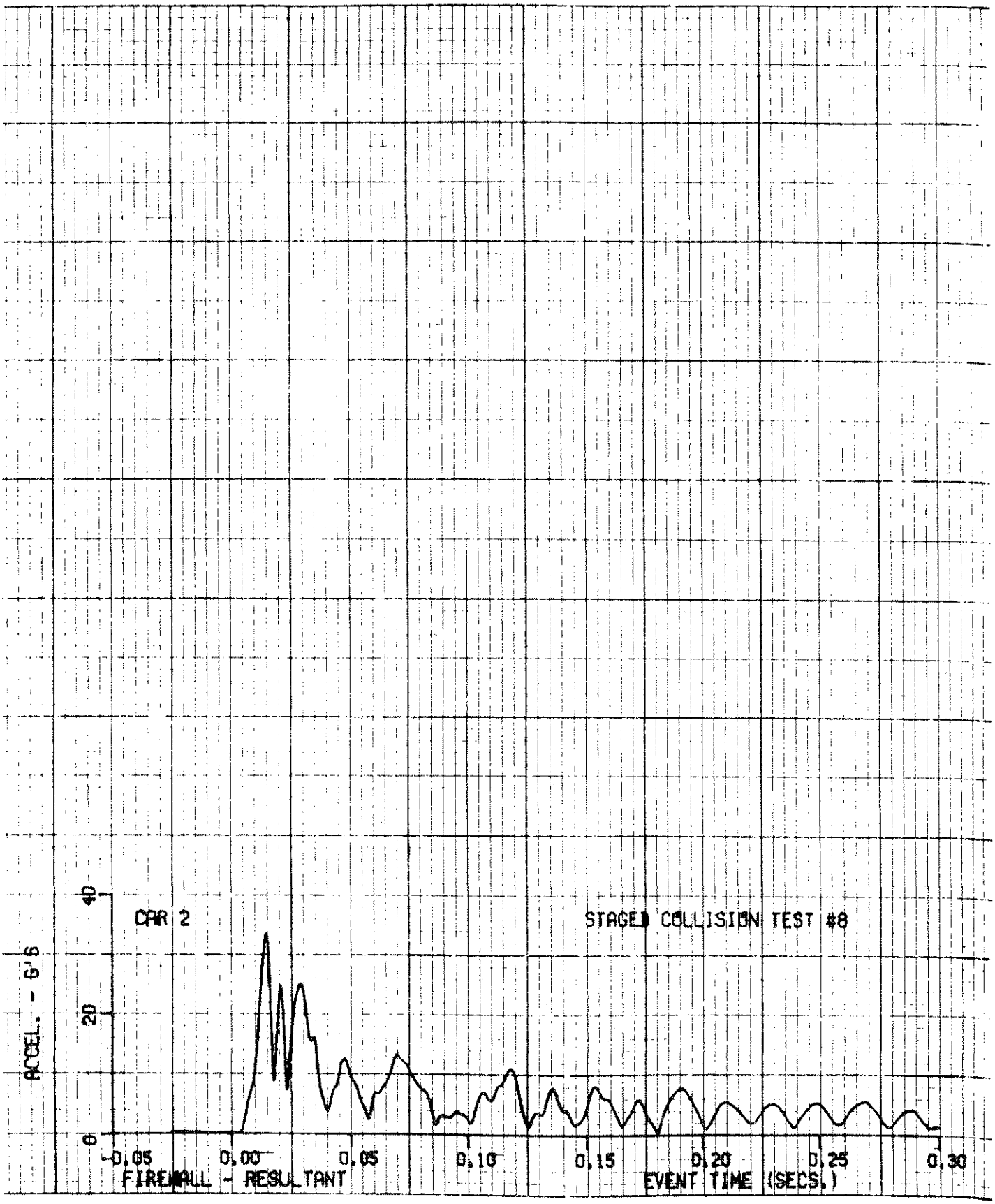

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
30
20
10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
100
50
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT REAR CORNER - X COMP.
DISP. - IN.

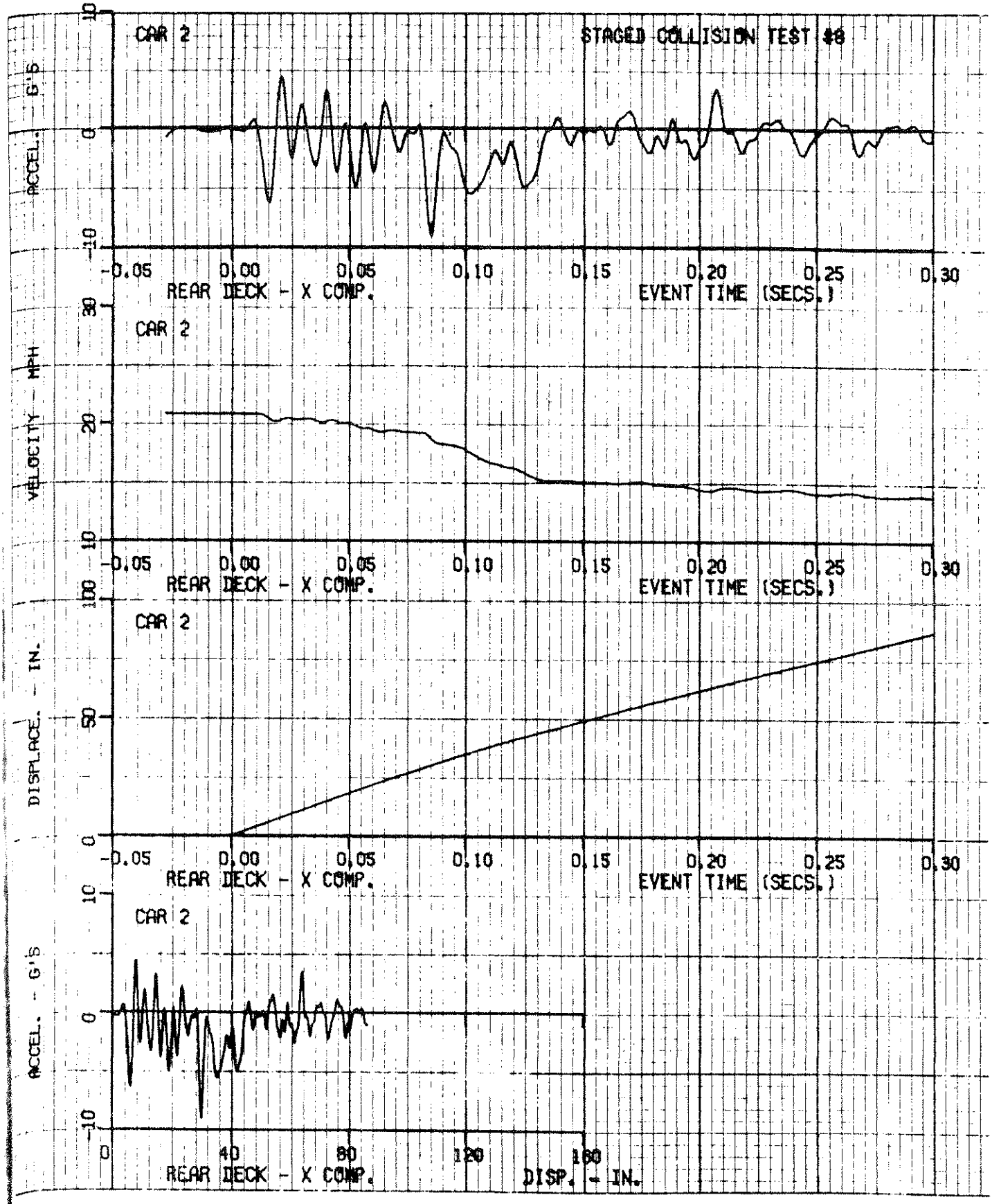

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-10
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-40
-30
-20
-10
0
LEFT REAR CORNER - Y COMP.
DISP. - IN.

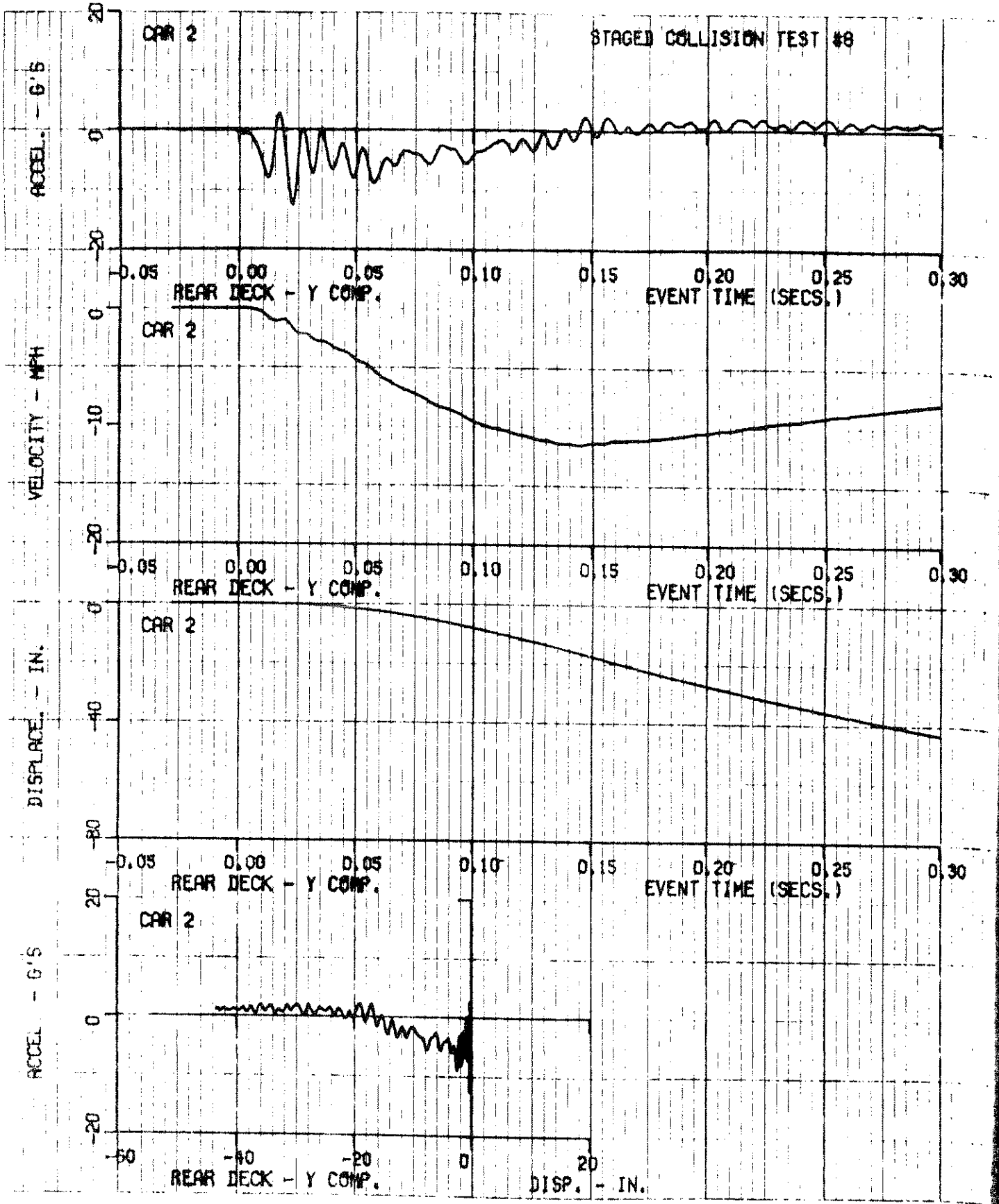

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
30
20
10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
100
50
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
0
40
80
120
160
FIREWALL - X COMPONENT
DISP. - IN.

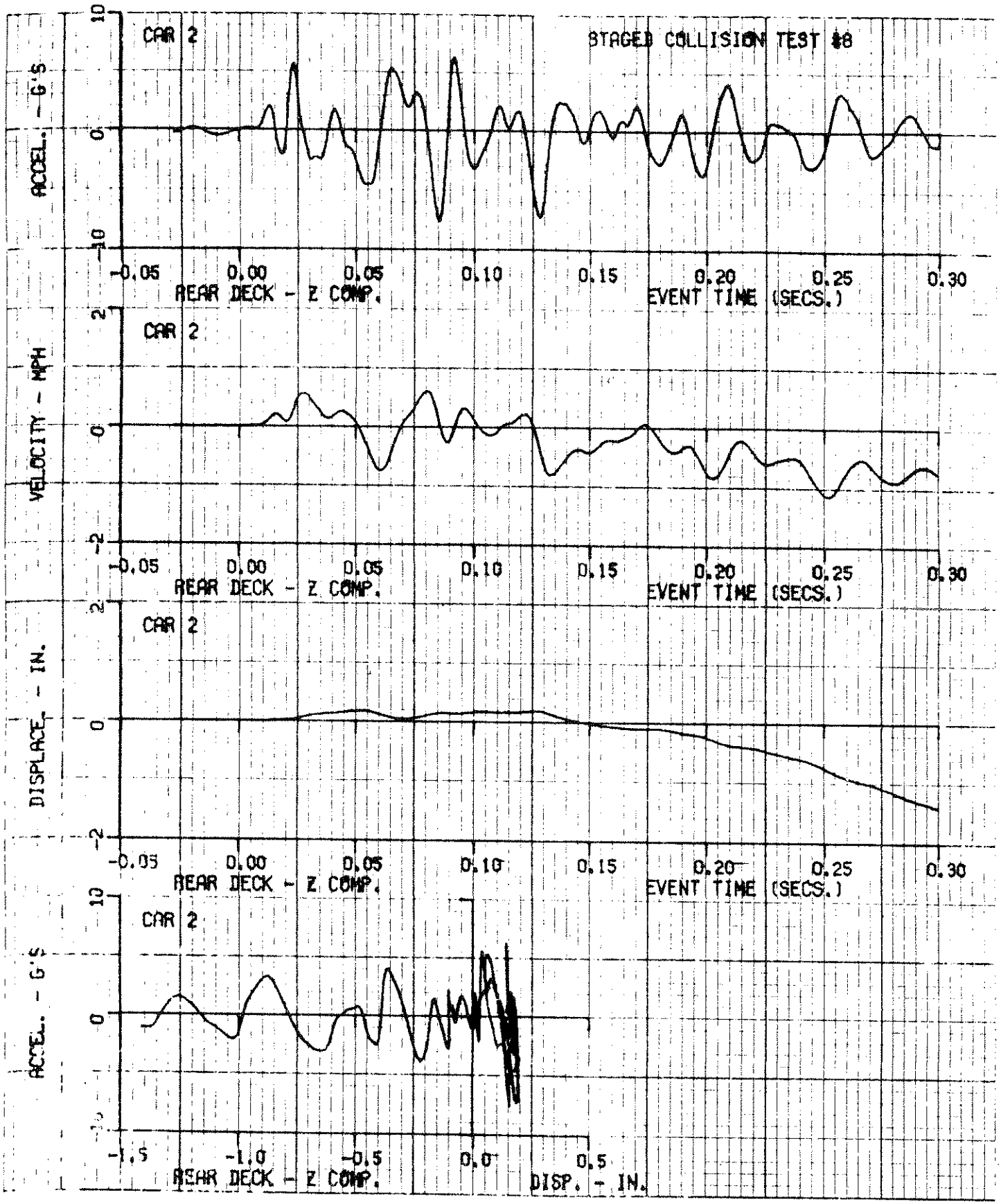

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
0
-20
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-40
-30
-20
-10
0
FIREWALL - Y COMPONENT
DISP. - IN.

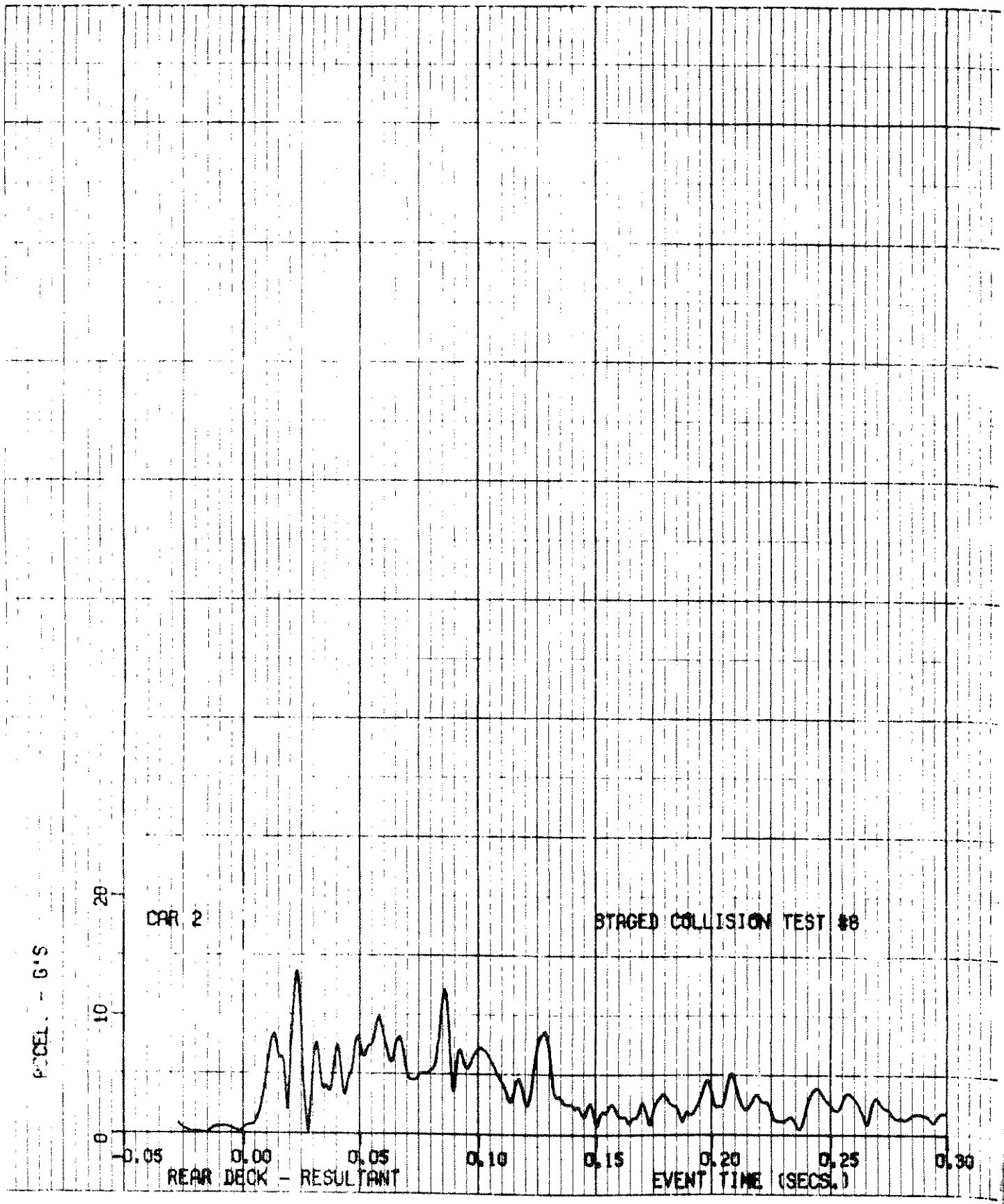

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE - IN.
0
-4
-8
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-6
-4
-2
0
2
FIREWALL - Z COMPONENT
DISP. - IN.

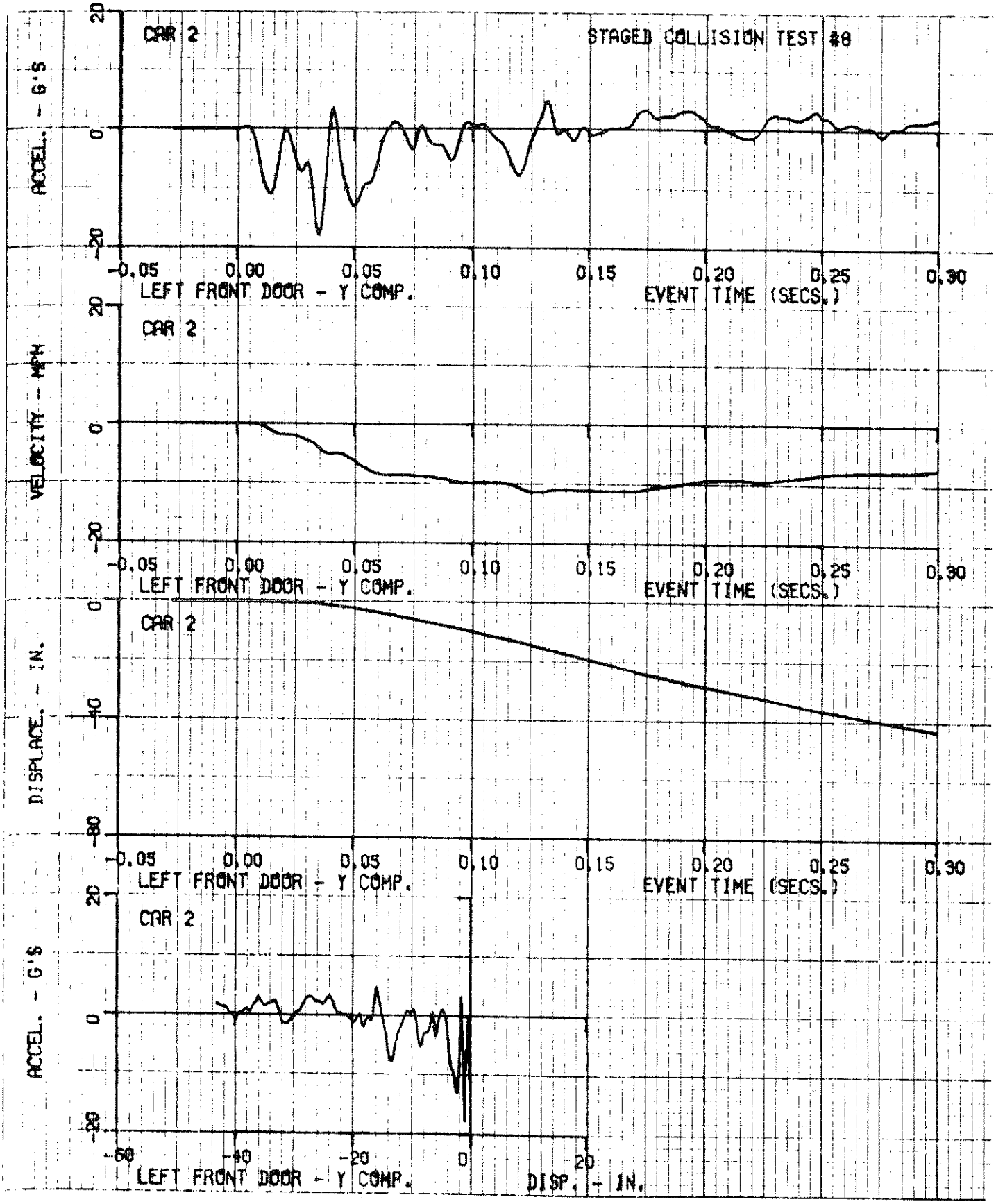

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - RESULTANT
EVENT TIME (SECS.)

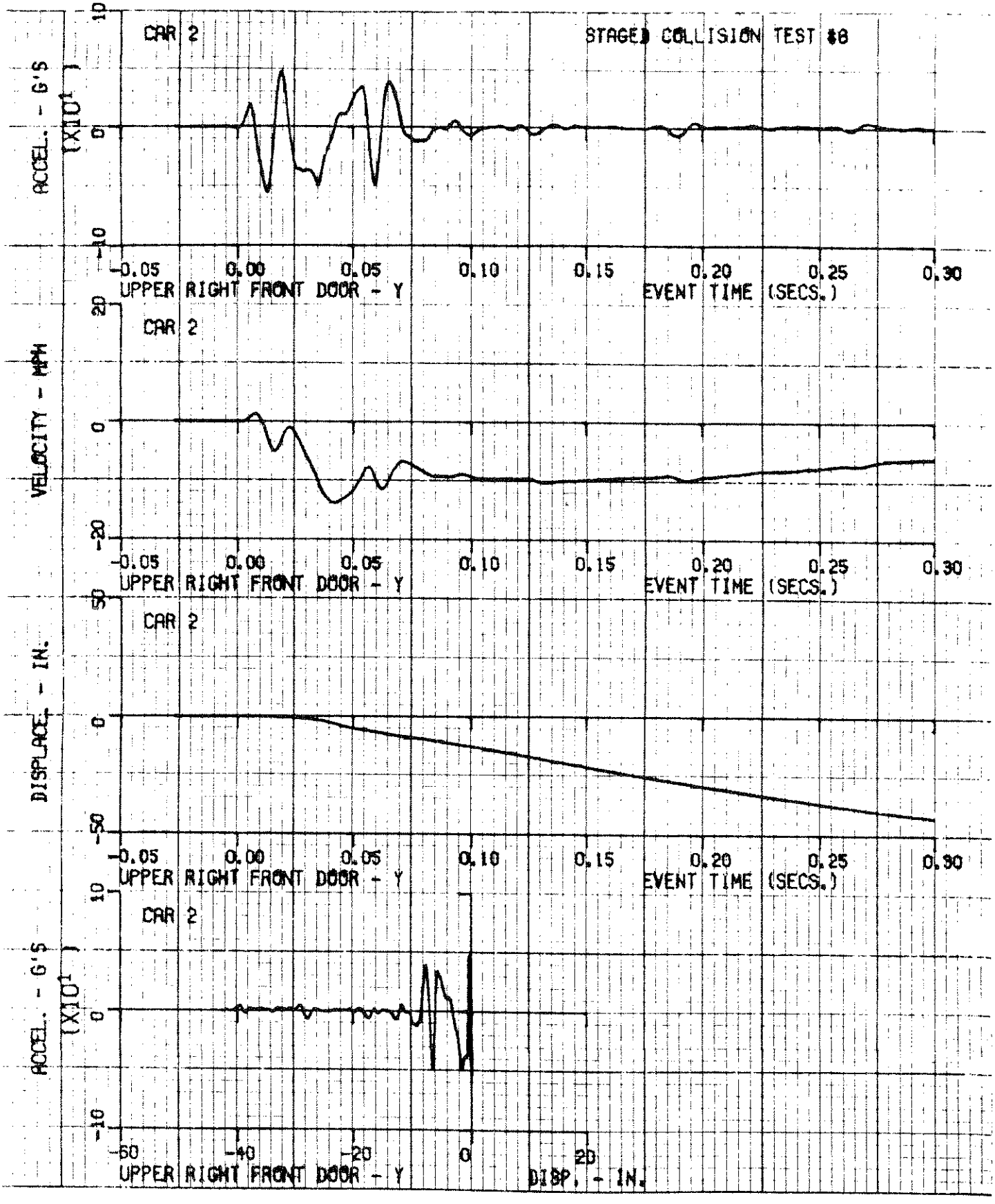

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
30
20
10
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
100
50
0
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
40
80
120
160
REAR DECK - X COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-10
-20
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-60
-40
-20
0
20
REAR DECK - Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #8
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
2
0
-2
-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.
2
0
-2
-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
-1.5
-1.0
-0.5
0.0
0.5
REAR DECK - Z COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
0
10
20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - RESULTANT
EVENT TIME (SECS.)


CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT DOOR - Y COMP.
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
LEFT FRONT DOOR - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT DOOR - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-60
-40
-20
0
20
LEFT FRONT DOOR - Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
UPPER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
0
-20
UPPER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
50
0
-50
UPPER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
-60
-40
-20
0
20
UPPER RIGHT FRONT DOOR - Y
DISP. - IN.

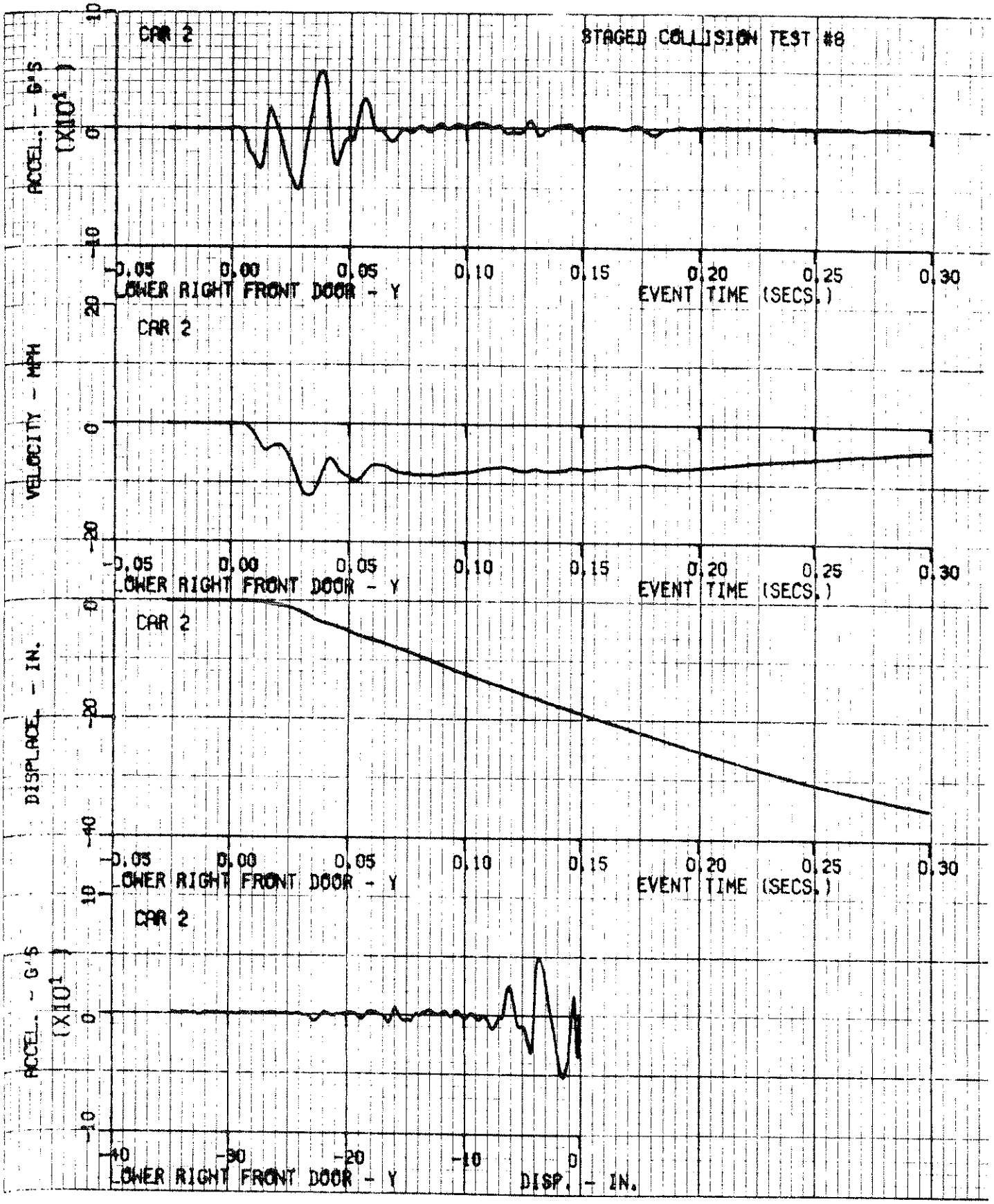

STAGED COLLISION TEST #8
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
-40
-30
-20
-10
0
LOWER RIGHT FRONT DOOR - Y
DISP. - IN.

TABLE 14-7

DUMMY INJURY CRITERIA VALUES

CAR 2 - STRUCK VEHICLE - TEST No. 8

	MAXIMUM ACCELERATION ("G") *											
	HEAD				CHEST				PELVIS			
	X	Y	Z	R	X	Y	Z	R	X	Y	Z	R
DUMMY (1)	-5.5	-9	9	11	-6	-16	-3.4	17		-10		
DUMMY (2)	-17	22	9	25	-4.8	-38	-11	39		-21		
DUMMY (3)												
DUMMY (4)												

	MAXIMUM FORCE-FEMUR LOAD (LBS)	
	RIGHT FEMUR	LEFT FEMUR
DUMMY (1)	30	30
DUMMY (2)	80	100
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)	9.7	.148	.213	7.4	13.5	13.7
DUMMY (2)	23.8	.064	.284	6.5	63.6	90.0
DUMMY (3)						
DUMMY (4)						

*DEFINED AS EXCEEDING 0.003 SEC. DURATION

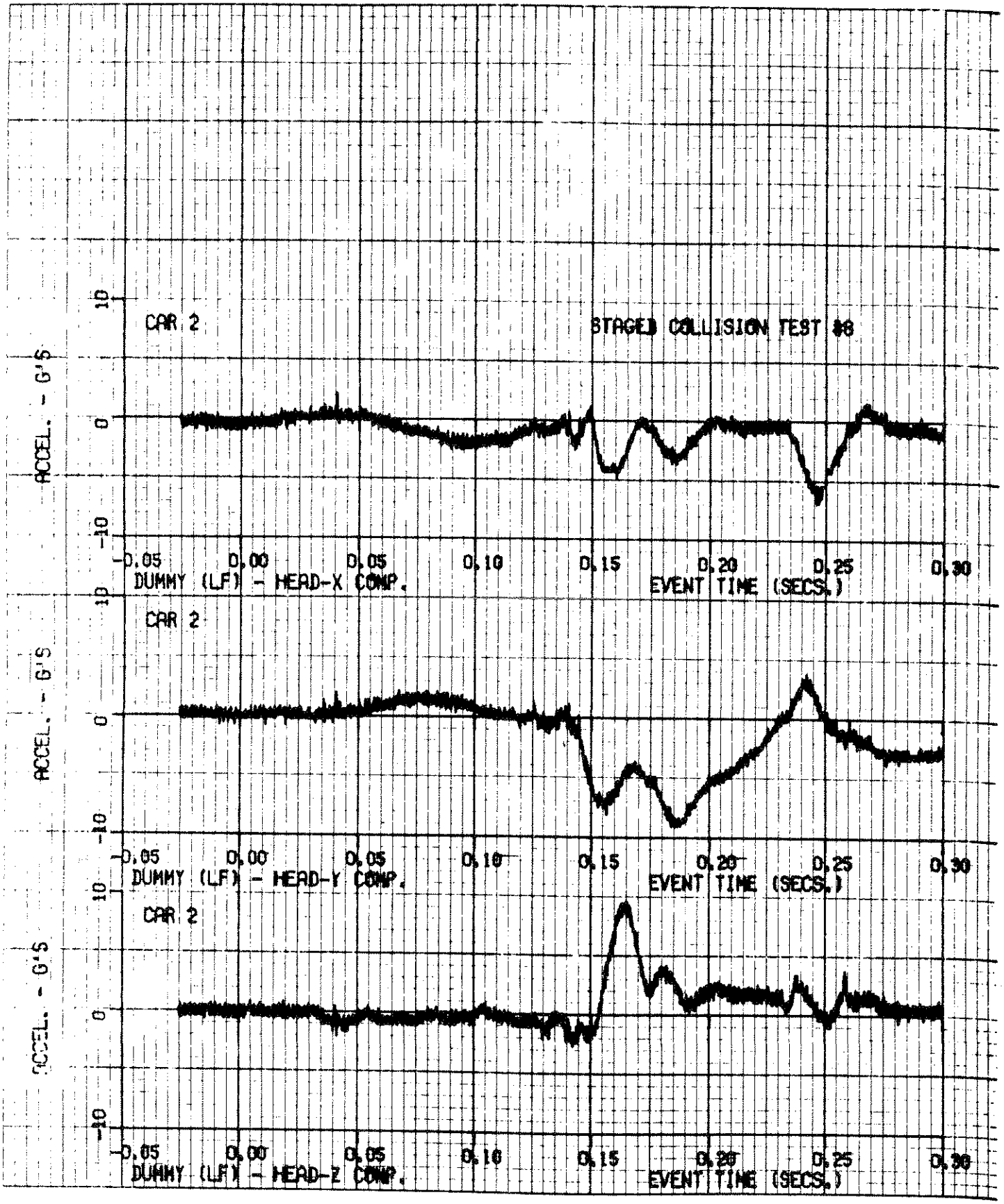
**AS DEFINED IN FMVSS NO. 208

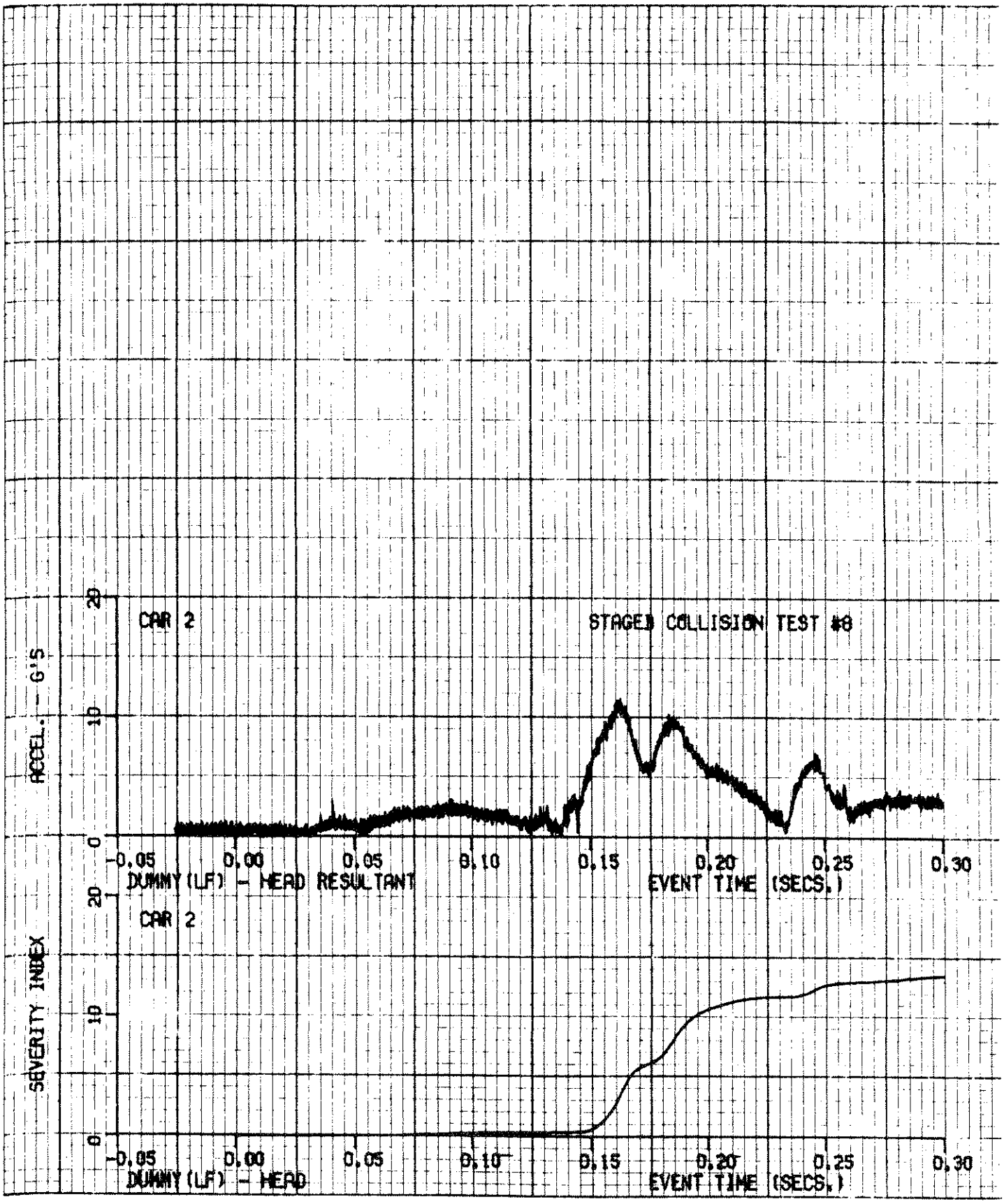
RICSAC TEST NO. 8

DUMMY DATA

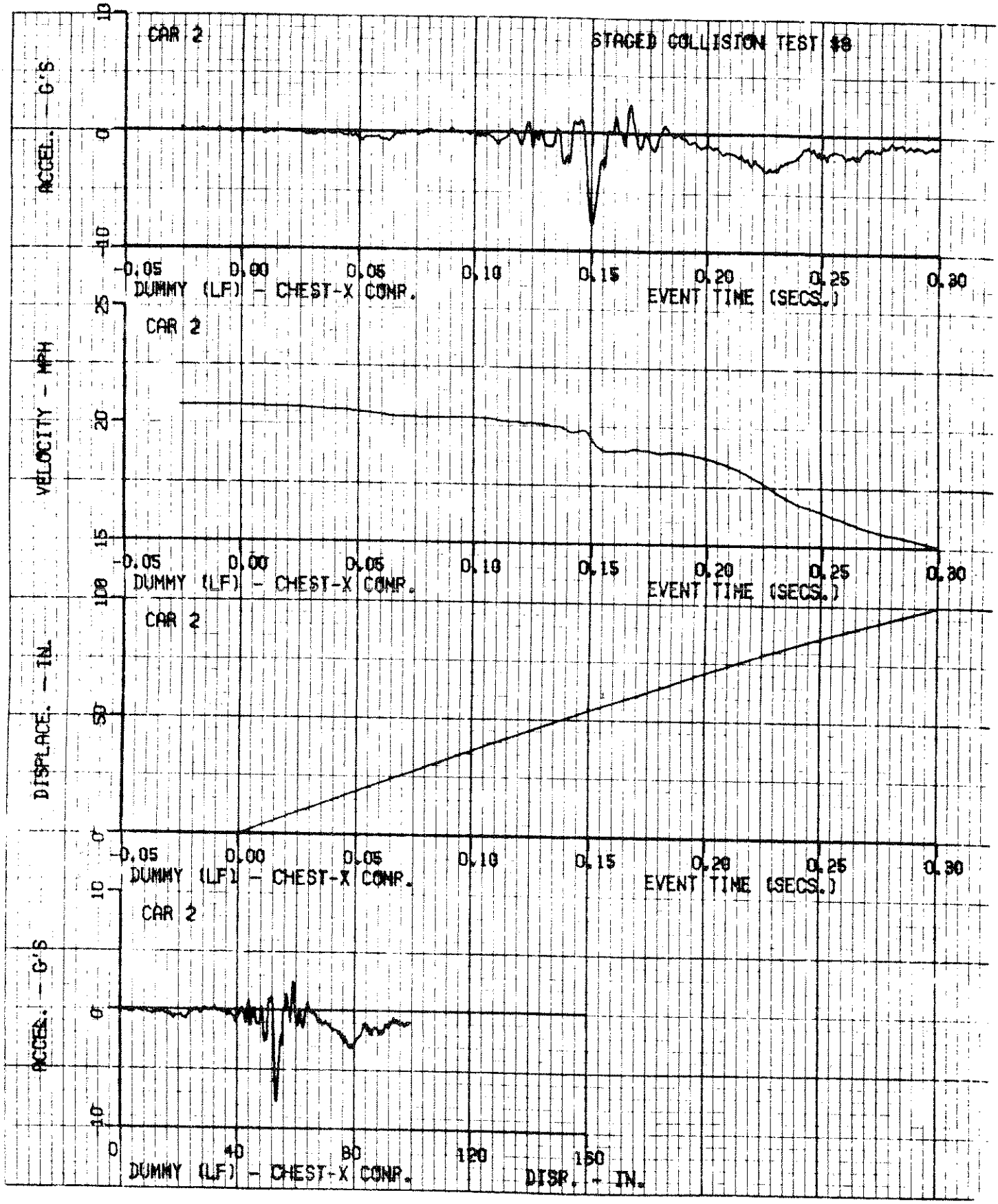
CAR NO. 2 CHEVELLE

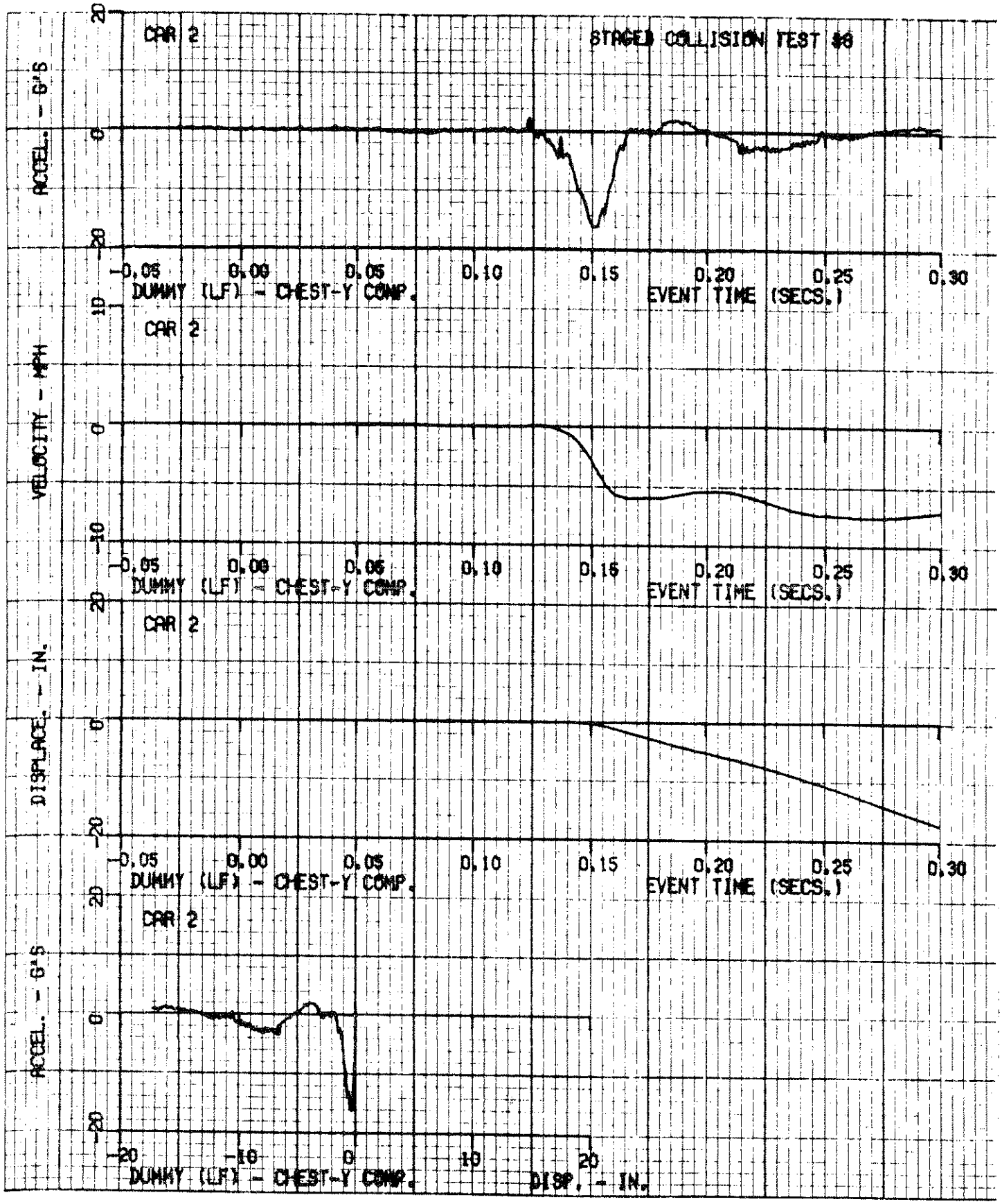
DATA PLOTS		FILTER CLASS
HEAD ACCELERATION	X,Y,X	1000
HEAD RESULTANT		
HEAD SEVERITY INDEX		
CHEST ACCELERATION	X,Y,Z	180
CHEST RESULTANT		
CHEST VELOCITY	X,Y,Z	
CHEST DISPLACEMENT	X,Y,Z	
CHEST SEVERITY INDEX		
PELVIC ACCELERATION	X	180
PELVIC VELOCITY	X	
PELVIC DISPLACEMENT	X	
FEMUR LOADS	L & R	600

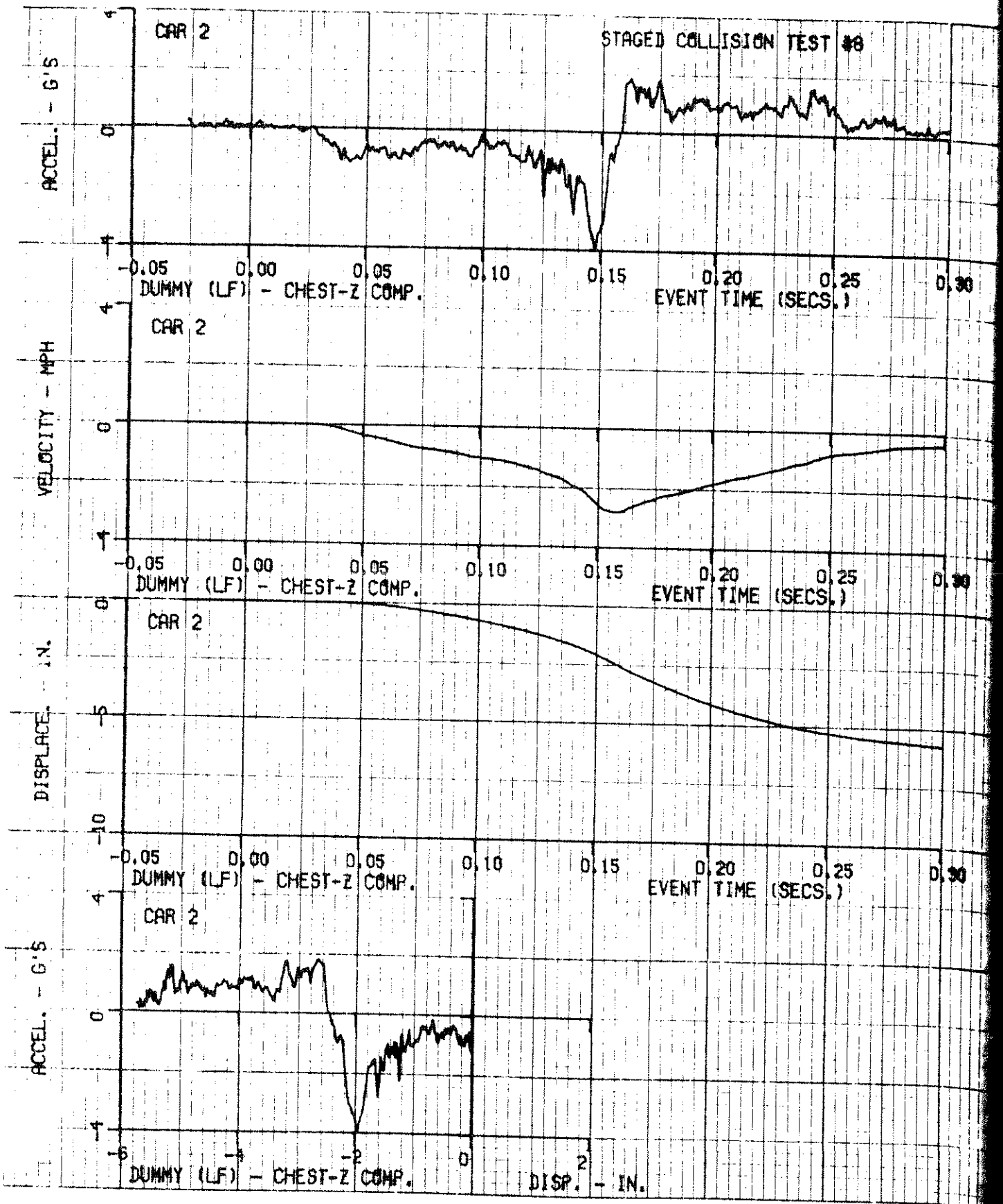

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
DUMMY (LF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
DUMMY (LF) - HEAD-Z COMP.
EVENT TIME (SECS.)

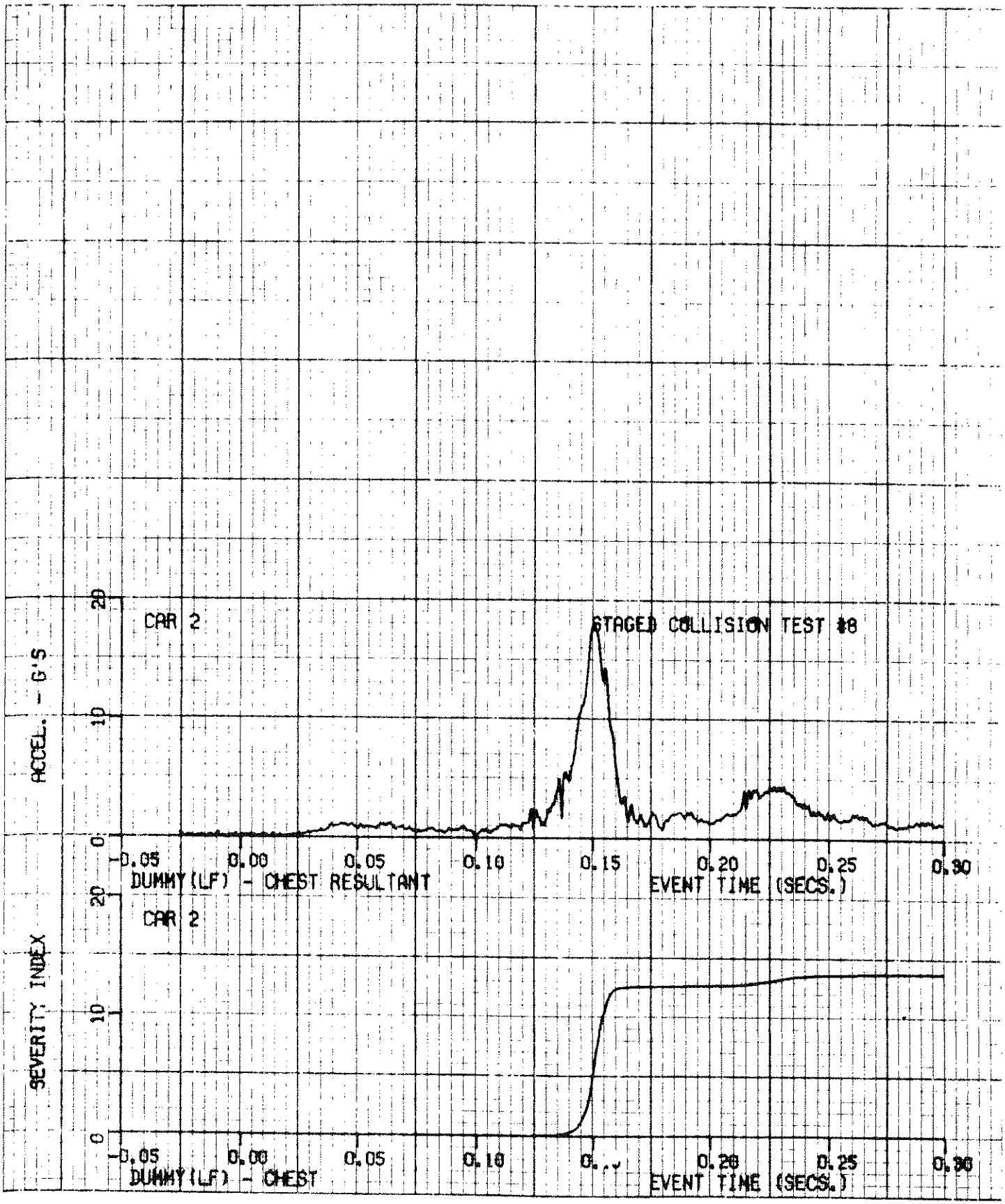

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD
EVENT TIME (SECS.)

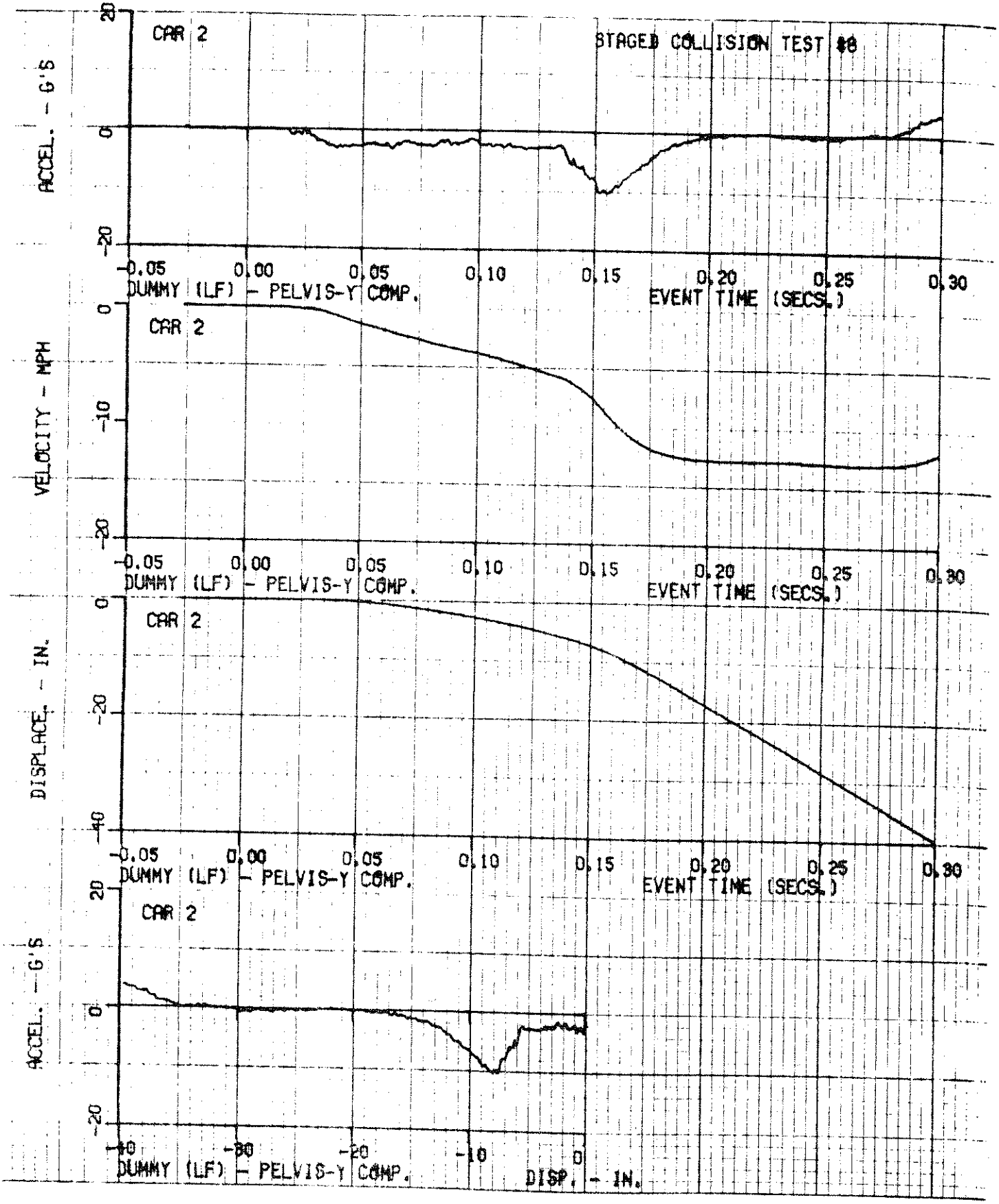
ZQ-6057-V-5

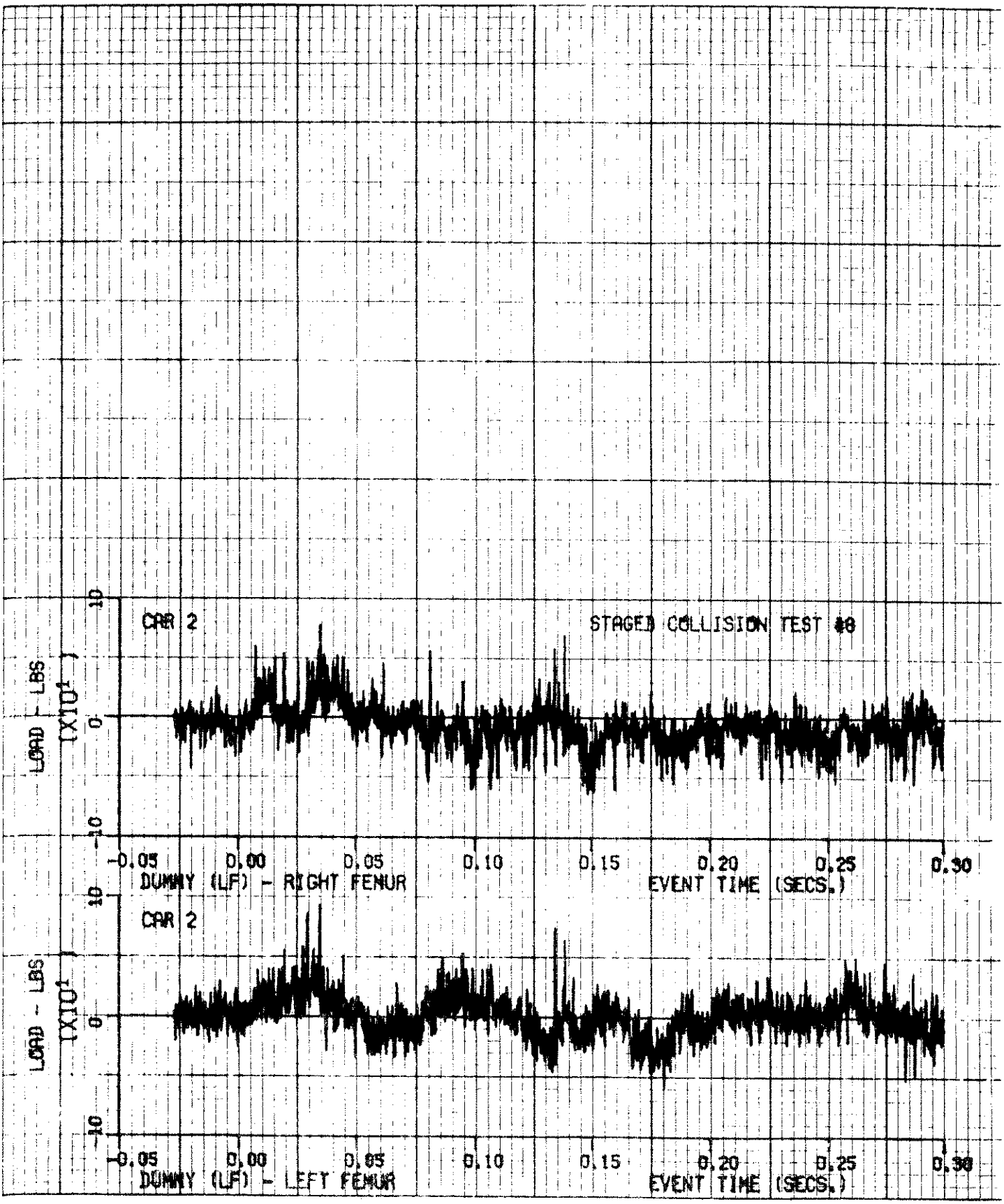

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X CONR.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
25
20
15
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X CONR.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
100
50
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X CONR.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
40
80
120
160
DUMMY (LF) - CHEST-X CONR.
DISP. - IN.

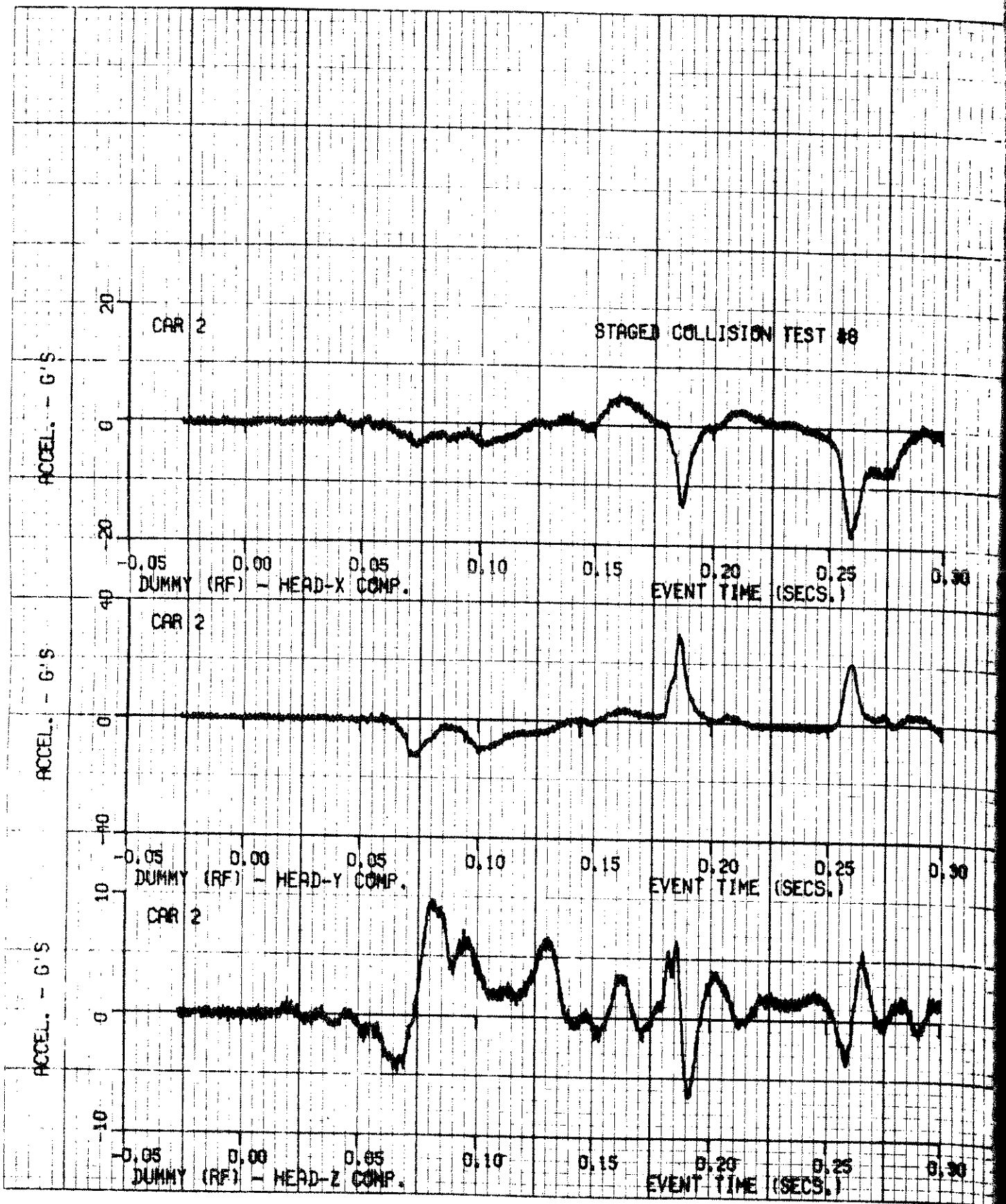

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-20
-10
0
10
20
DUMMY (LF) - CHEST-Y COMP.
DISP. - IN.

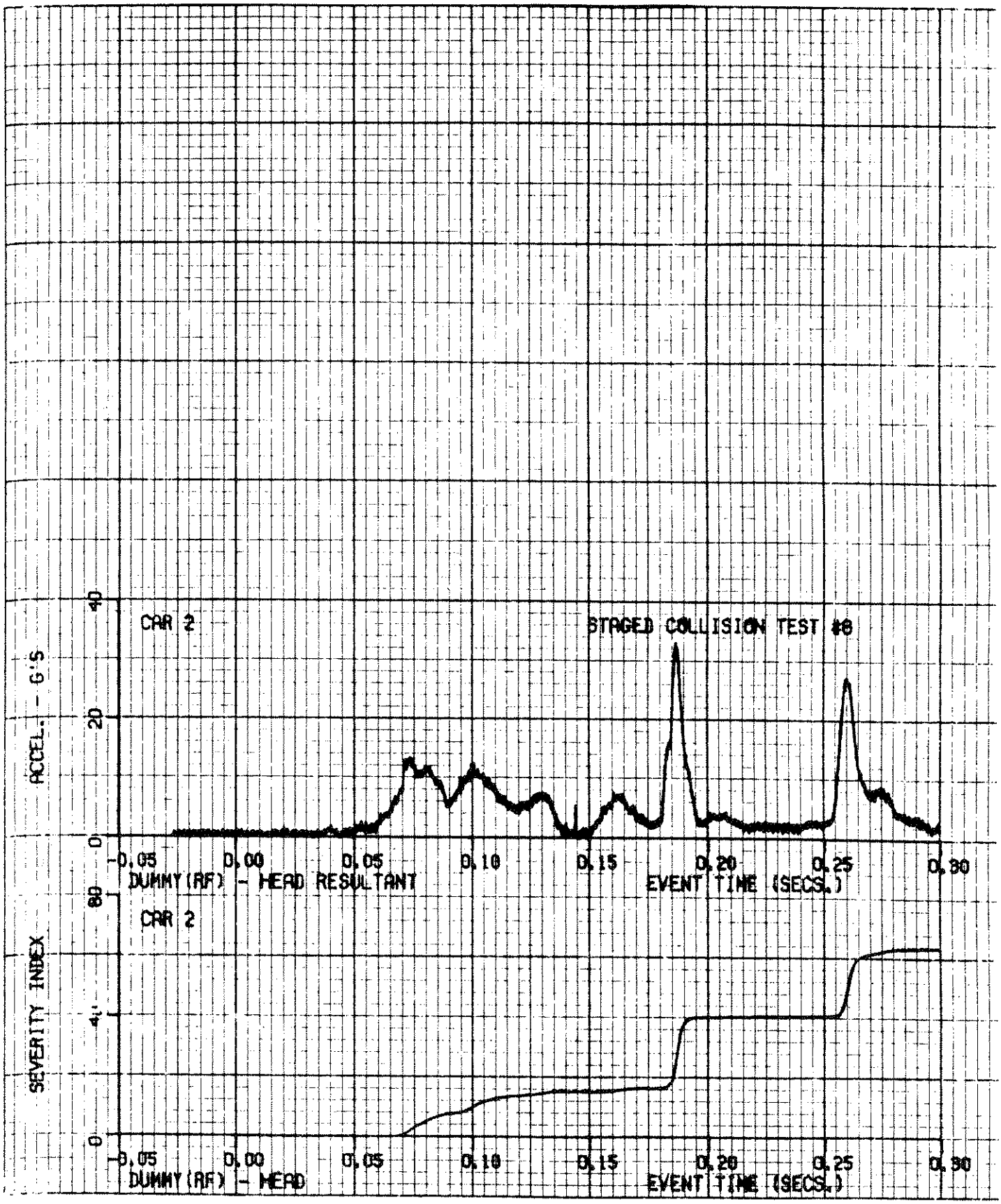

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-5
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
4
0
-4
-6
-4
-2
0
2
DUMMY (LF) - CHEST-Z COMP.
DISP. - IN.

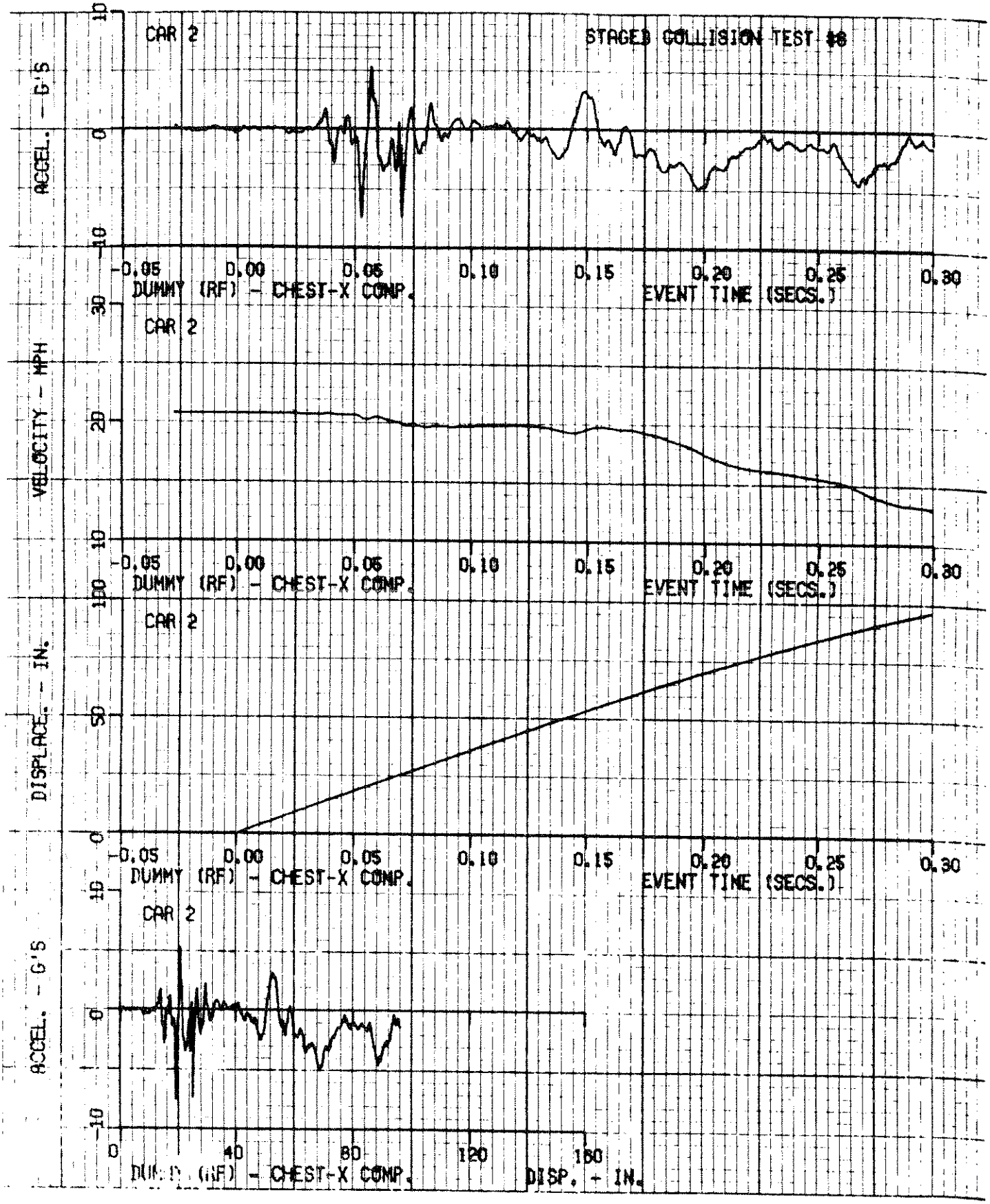

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX
20
10
0
-0.05
0.00
0.05
0.10
0.20
0.25
0.30
DUMMY (LF) - CHEST
EVENT TIME (SECS.)

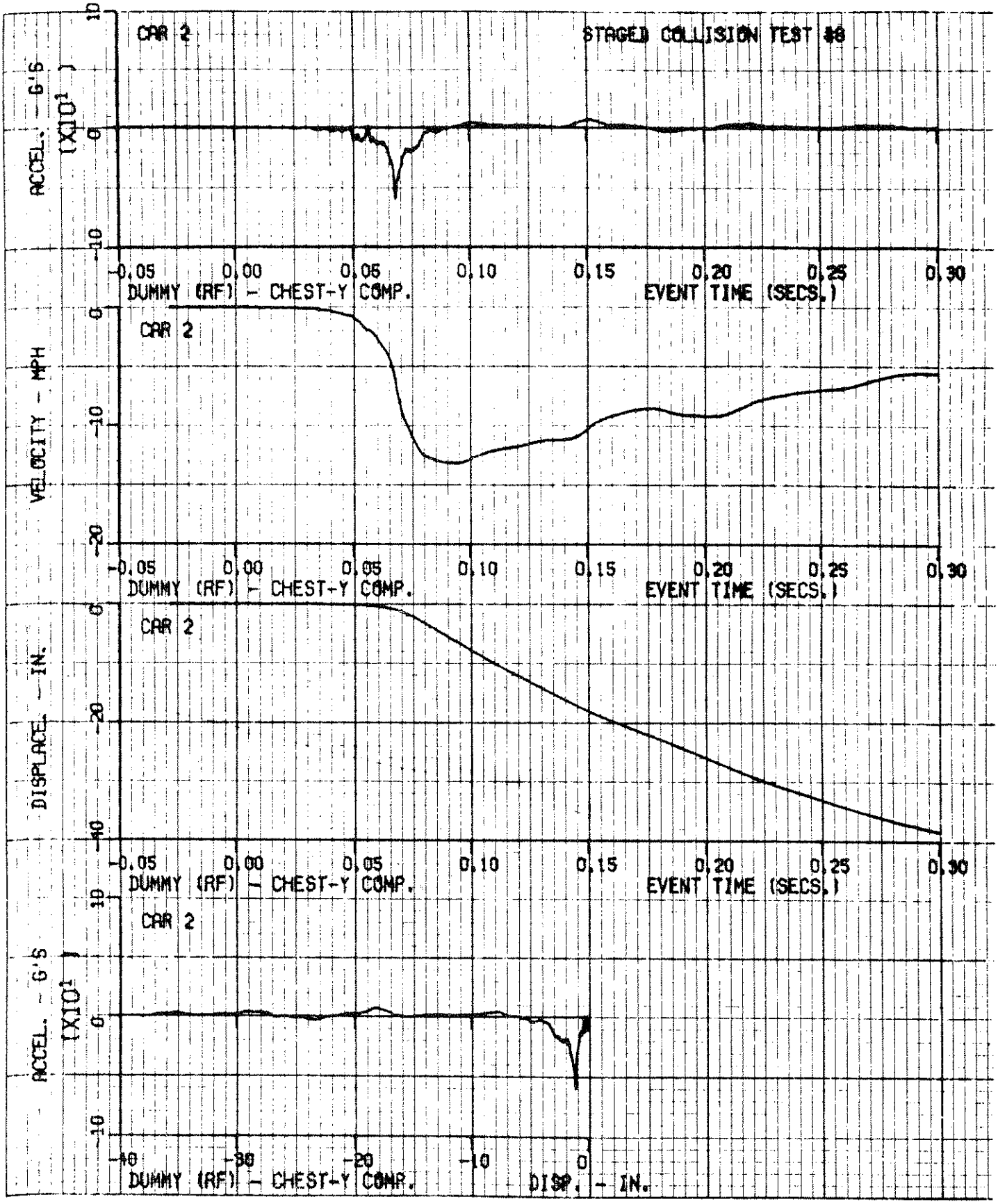

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-10
-20
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-40
-30
-20
-10
0
DUMMY (LF) - PELVIS-Y COMP.
DISP. - IN.

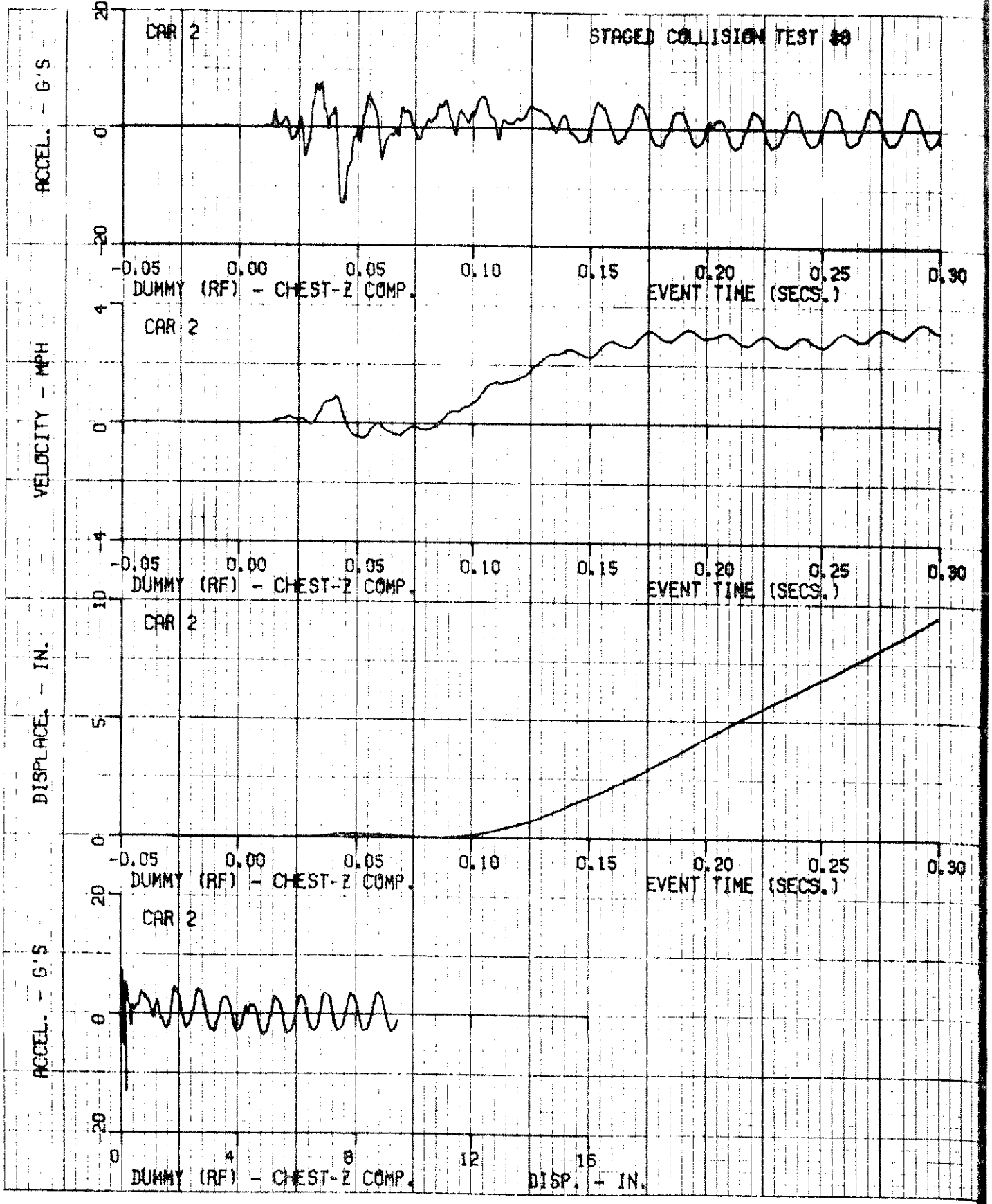

CAR 2
STAGED COLLISION TEST #8
LOAD - LBS (X10⁴)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 2
LOAD - LBS (X10⁴)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - LEFT FEMUR
EVENT TIME (SECS.)

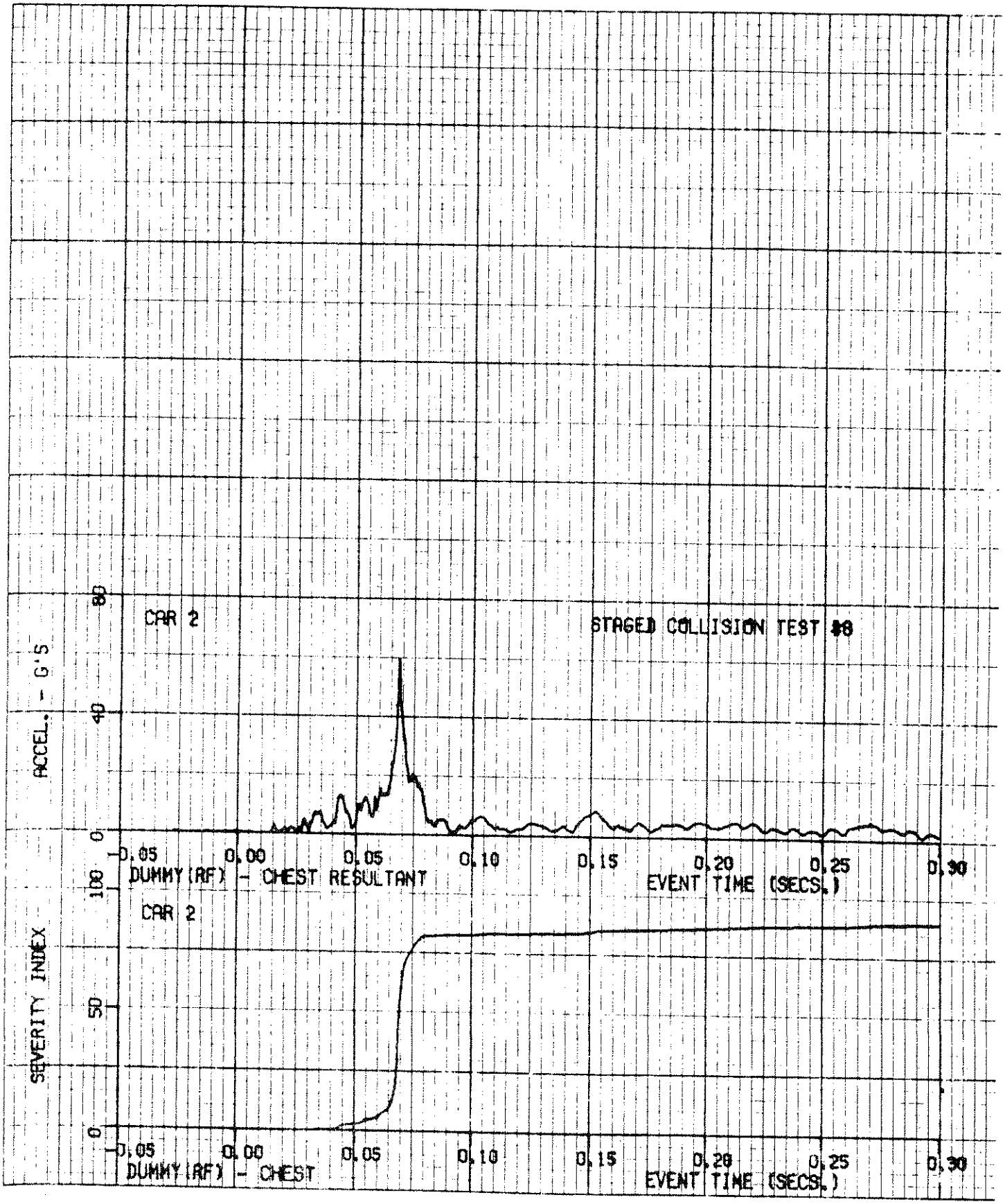

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
DUMMY (RF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
DUMMY (RF) - HEAD-Z COMP.
EVENT TIME (SECS.)

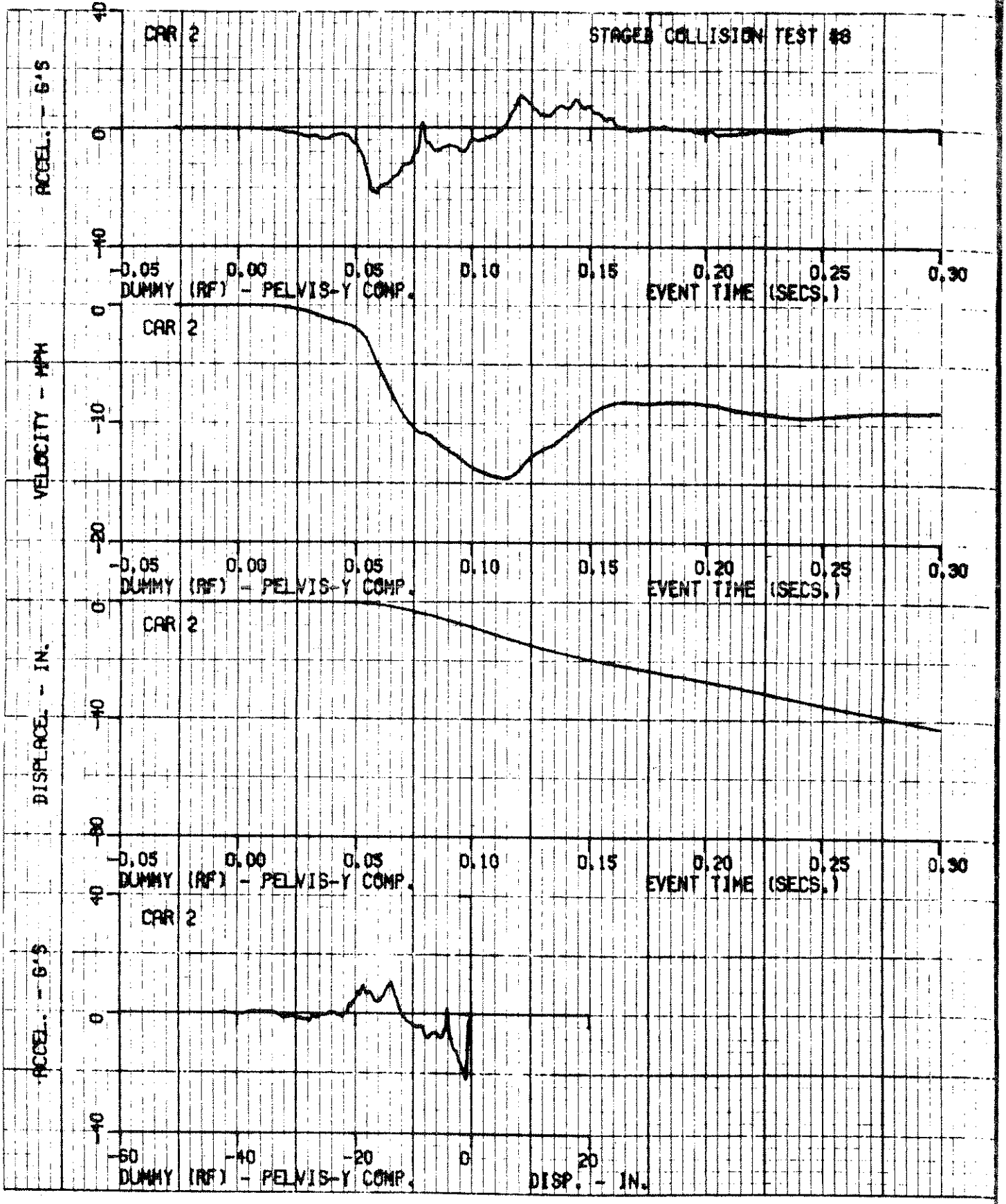

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD
EVENT TIME (SECS.)

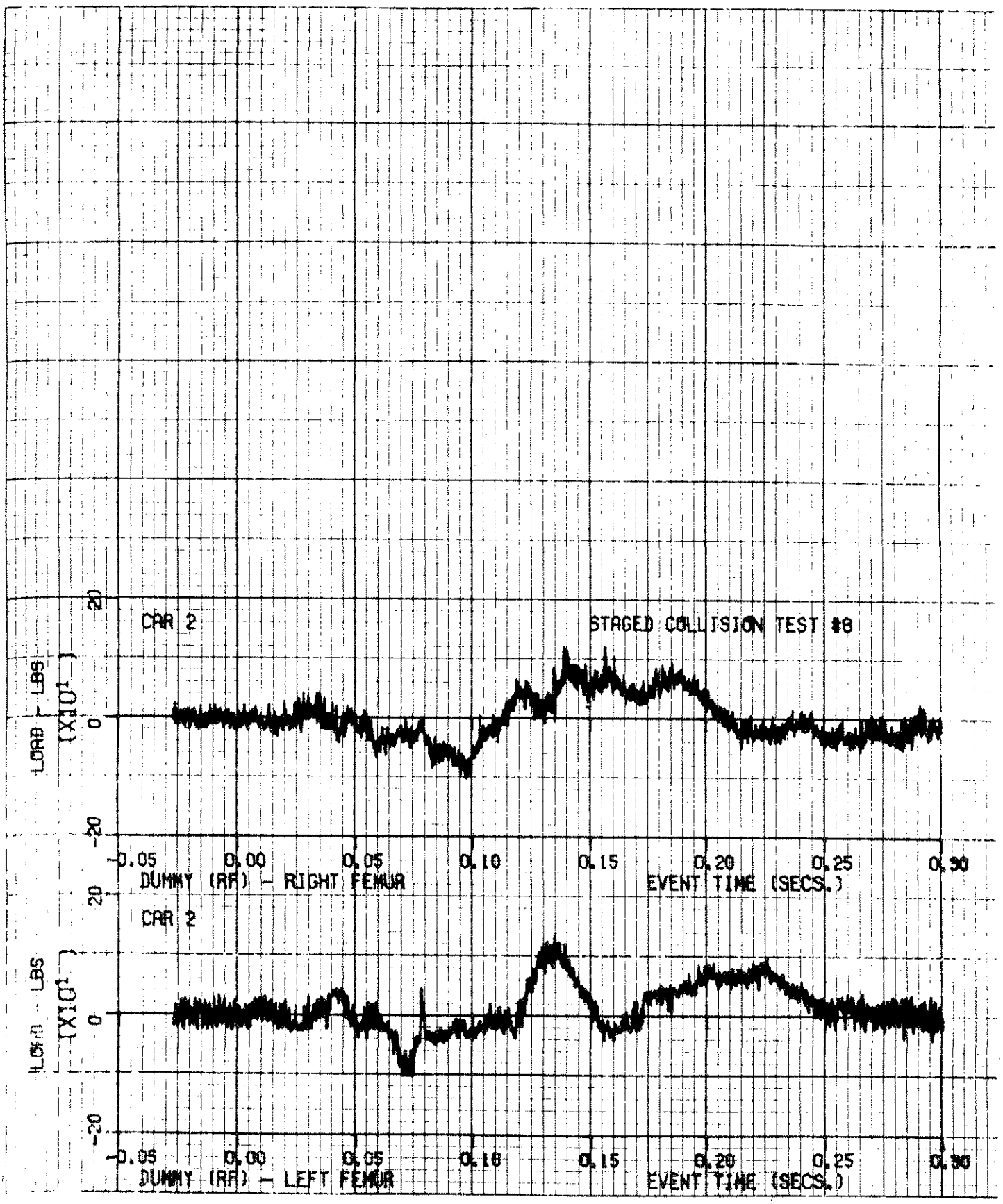

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
30
20
10
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
100
50
0
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
40
80
120
160
DUMMY (RF) - CHEST-X COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #8
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) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-10
-20
DUMMY (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
DUMMY (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
-40
-30
-20
-10
0
DUMMY (RF) - CHEST-Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST
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
4
0
-4
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
10
5
0
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
0
4
8
12
16
DUMMY (RF) - CHEST-Z COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #8
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
100
50
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
STAGED COLLISION TEST #8
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
VELOCITY - MPH
0
-10
-20
DISPLACE. - IN.
-80
-60
-40
-20
20
DISP. - IN.


CAR 2
STAGED COLLISION TEST #8
LOAD - LBS (X10¹)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 2
LOAD - LBS (X10¹)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - LEFT FEMUR
EVENT TIME (SECS.)

TEST NO. 9

RICSAC STAGED COLLISION

FRONT-TO-SIDE
PERPENDICULAR

HONDA/TORINO

VELOCITY 21.2 MPH

TEST NO. 7

RICSAC STAGED COLLISION

FRONT-TO-SIDE
OBLIQUE - OFFSET

CHEVELLE/VOLKSWAGEN RABBIT

VELOCITY 29.1 MPH

13.0 RICSAC STAGED COLLISION - TEST NO. 7

EXPERIMENTAL RESULTS

Test Description

This collision involved a 1974 Chevrolet Chevelle Malibu (V-1) striking a 1975 VW Rabbit (V-2) on the right side near "A" pillar at an oblique angle of 60 degrees as shown in Figure 13-1.The impact velocity of both vehicles was 29.1 mph. The vehicle test weights were 3310 and 2610 pounds for the Chevelle and VW, respectively. Each vehicle had two Part 572 test dummies (50 percentile) seated in the front seat. The dummies in the VW were instrumented according to FMVSS 208 and were unrestrained. In the Chevelle the dummies were uninstrumented and were restrained with seat belts.

The Chevelle was equipped with automatic transmission, power steering and power brakes. The VW had manual transmission, steering and standard brakes. The accident was staged with both transmissions in drive position, brakes off and the engines not running. During the collision no steering control inputs or vehicle braking was applied. The roadway was dry with skid resistance value of 87.

Approximately one car length before impact the vehicle tow cable was released and the vehicle guide rail was terminated. At this point in time and during the collision both vehicles are free bodies with no constraints except the normal collision forces and reactions encountered in this type of car-to-car collision. During the collision event no observed tow cable or instrumentation cable interference with the mounting vehicles was noted.

ACCIDENT SCHEMATIC

VEHICLES:

No. 1 - 1974 CHEVROLET MALIBU
No. 2 - 1975 VOLKSWAGEN RABBIT

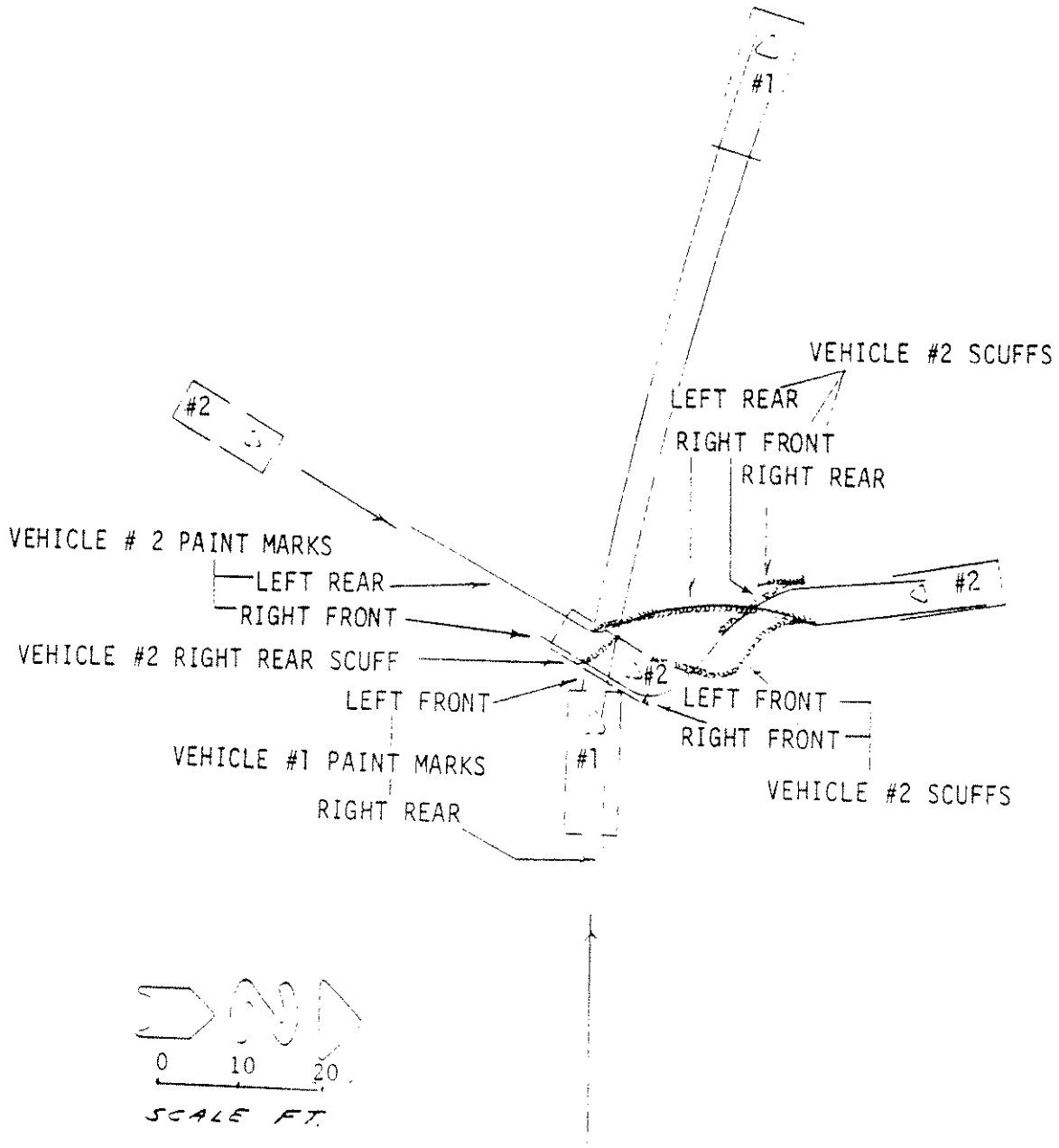


Figure 13-1 TEST NO. 7 - RICSAC ACCIDENT SCHEMATIC

CRASH TEST SUMMARY

TEST NO. 7 PROJECT RICSAC

DATE 5/31/78 TIME 12:25 TEMP. 74°F

TEST CONDITION Side Oblique Offset

VEHICLE NO. 1 1974 Chevrolet Chevelle

VEHICLE NO. 2 1975 VW Rabbit

	VEH. NO. 1	VEH. NO. 2
TEST WEIGHT (lbs)	3310	2610
IMPACT ANGLE (deg)*	60°	0
IMPACT VELOCITY (mph)**	29.07	29.07
MAX. CRUSH (in)		
MAX. INTRUSION (in)		

DUMMIES	VEH. NO. 1	VEH. NO. 2
TYPE	Part 572	Part 572
LOCATION	Driver (LF), Passenger (RF)	Driver (LF), Passenger (RF)
RESTRAINT	3-Point Restraint	Unrestrained
	Uninstrumented	Instrumented

NUMBER OF DATA CHANNELS 64
NUMBER OF HIGH SPEED CAMERAS 11

*WITH RESPECT TO TOW TRACK CENTERLINE

**SPEED TRAP MEASUREMENT (±0.5% ACCURACY)

TABLE 13-1
TEST NO. 7 - CAR NO. 1
VEHICLE DATA

TEAM	YEAR	MONTH	DAY	SEQUENCE
	8	0 5	3	1

Vehicle data not collected. Reason? _____

Vehicle No. 1

14-15 No. of VIN Characters 1 3

16-22 VIN (Left Justify, Omit Production Numbers) 1 0 3 7 H 4 1

23-27 Make/Model (CPIR Code) CHEVROLET - MALIBU 1 1 3 0 1

28-32 Mileage (Odometer Reading) 99998 = 99998 mi. or more 99999 = Unknown 9 9 9 9 9

33-34 Model Year 7 4

35-36 BODY STYLE

Automobiles		Trucks		Other	
Passenger Car	(01)	Van - Passenger	05	School Bus	11
Stationwagon	02	- Cargo	06	Other Bus	12
Convertible	03	Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04	Pickup	08	Other Body Style	98
		Straight Truck	09	Unknown	99
		Tractor-Trailer	10		

37-39 VEHICLE WEIGHT — Curb 0 3 , 7 0 0

40-42 Occupant and Cargo Only ___ , 0 0

43 TOWING ANOTHER VEHICLE

Yes	1
No	(2)
Unknown	9

VEHICLE DAMAGE

	Object Contacted	CDC	Veh. No.	Impact No.	
44-54 (1)	0 1	1 1 F D E W 1	2	1	(1) = Highest Severity (Estimated ΔV)
55-65 (2)					
(3)					
(4)					

66 VEHICLE TOWED FROM SCENE

Yes	1
No	2
Unknown	9

67 SOURCE OF VEHICLE DATA

Inspection at Repair or Tow Facility	1
Inspection at Person's Home	2
Inspection at Scene	3
Not Inspected (Photos or Repair Data)	4
Not Inspected. Reason. _____	5
Unknown	9

68 VEHICLE INSPECTION

Not Inspected	0
Inspected on First Visit	1
Actual Number of Locations Visited (Including Follow-Ups to Same Location)	2 3 4 5 6 7
8 or More	8
Unknown	9

69 APPLICABLE VEHICLE

Yes	1
No	2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED ON THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

Figure 13-2

VEHICLE CRUSH SCHEMATIC
TEST NO. 7 - CAR NO. 1

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

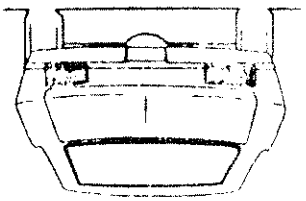
RF 2

LF 2

RR 2

LR 2

1 Yes, 2 No, 8 NA, 9 Unk.



WHEEL STEER ANGLES*

(For locked front wheels or displaced rear axles only)

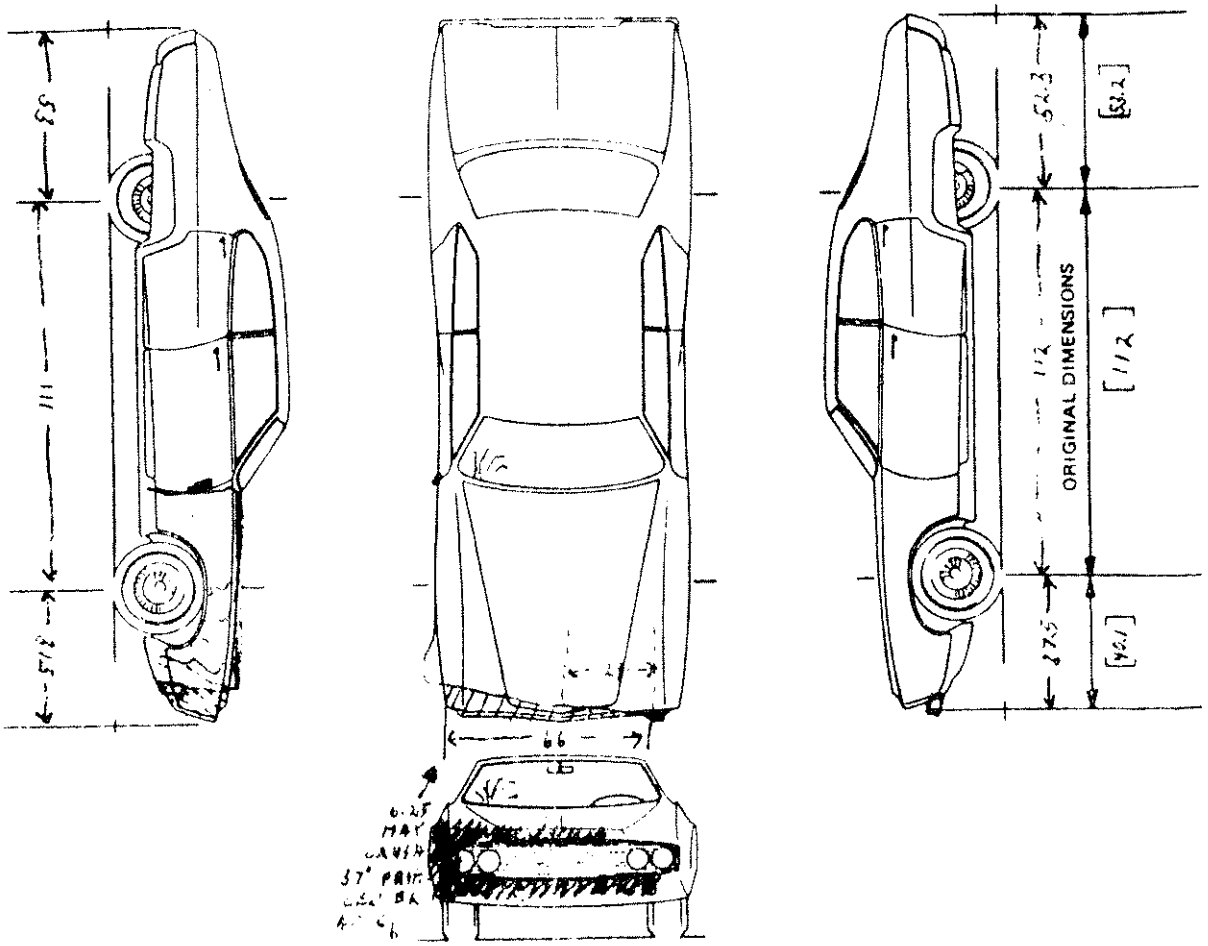
RF + -

LF + -

RR + -

LR + -

Within ± 5°



Impact Number	L	C_1	C_2	C_3	C_4	C_5	C_6	D±
1	66	0	1.25	2	3.75	5	6.25	±4
2								
3								
4								

NOTE: MEASURE C_1 TO C_6 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS: REAR TO FRONT IN SIDE IMPACTS

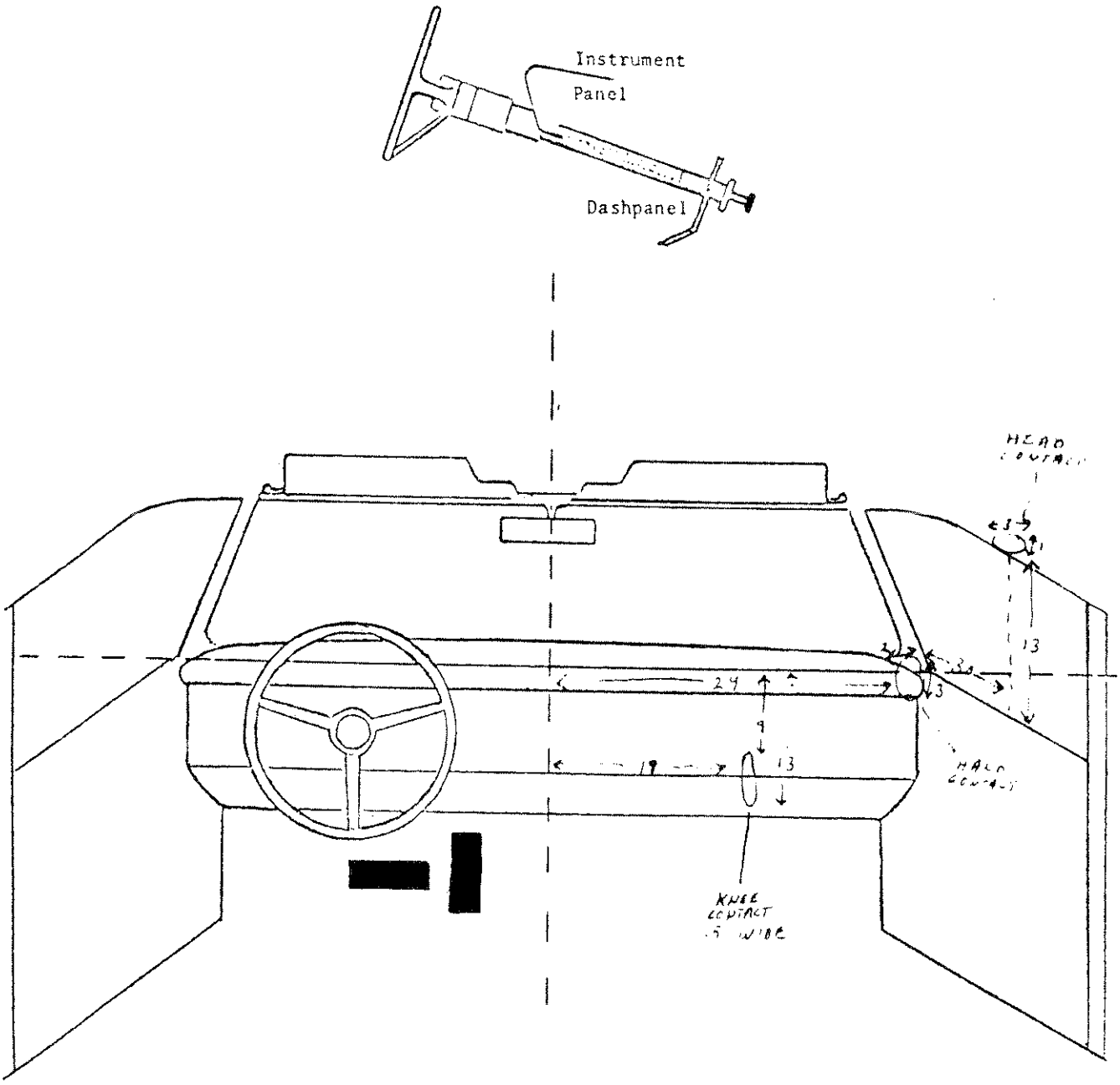
Figure 13-3

OCCUPANT CONTACT DATA

TEST NO. 7 - CAR NO. 1

VEHICLE INTERIOR

Occupant Contacts



Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and code on next two pages. Dash lines indicate center of instrument panel-windshield area and top of panel for measurement purposes.

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TABLE 13-2

TEAM	YEAR	MONTH	DAY	SEQUENCE
—	8	0 5	3 1	— —

TEST NO. 7 - CAR NO. 2

VEHICLE DATA

Vehicle data not collected. Reason? _____

Vehicle No. 2 — 14-15 No. of VIN Characters 1 0

16-22 VIN (Left Justify, Omit Production Numbers) 1 / 5 3 2 8 1

23-27 Make/Model (CPIR Code) VOLKSWAGEN - RABBIT 6 6 1 0 9

28-32 Mileage (Odometer Reading) 99998 = 99998 mi. or more; 99999 = Unknown 5 6 0 6 1.

33-34 Model Year 7 5

35-36 BODY STYLE

Automobiles		Trucks		Other	
Passenger Car	(01)	Van - Passenger	05	School Bus	11
Stationwagon	02	- Cargo	06	Other Bus	12
Convertible	03	Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04	Pickup	08	Other Body Style	98
		Straight Truck	09	Unknown	99
		Tractor-Trailer	10		

VEHICLE WEIGHT

37-39 Curb 0 1 2 0 0

40-42 Occupant and Cargo Only — — 0 0

43 TOWING ANOTHER VEHICLE

Yes	1
No	(2)
Unknown	9

VEHICLE DAMAGE

	Object Contacted	CDC	Veh. No.	Impact No.
44-54 (1)	0 3	0 2 R D E W 4	1	1
55-65 (2)	— —	— — — — — — —	—	—
(3)	— —	— — — — — — —	—	—
(4)	— —	— — — — — — —	—	—

(1) = Highest Severity (Estimated ΔV)

66 VEHICLE TOWED FROM SCENE

Yes	1
No	2
Unknown	9

67 SOURCE OF VEHICLE DATA

Inspection at Repair or Tow Facility	1
Inspection at Person's Home	2
Inspection at Scene	3
Not Inspected (Photos or Repair Data)	4
Not Inspected. Reason. _____	5
Unknown	9

68 VEHICLE INSPECTION

Not Inspected	0
Inspected on First Visit	1
Actual Number of Locations Visited (Including Follow-Ups to Same Location)	2 3 4 5 6 7
8 or More	8
Unknown	9

69 APPLICABLE VEHICLE

Yes	1
No	2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED ON THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

Figure 13-4

VEHICLE CRUSH SCHEMATIC

TEST NO. 7 - CAR NO. 2

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

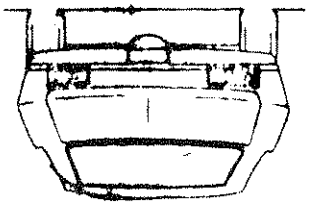
RF 3

LF 3

RR 1

LR 2

1 Yes, 2 No, 8 NA, 9 Unk.



WHEEL STEER ANGLES*

(For locked front wheels or displaced rear axles only)

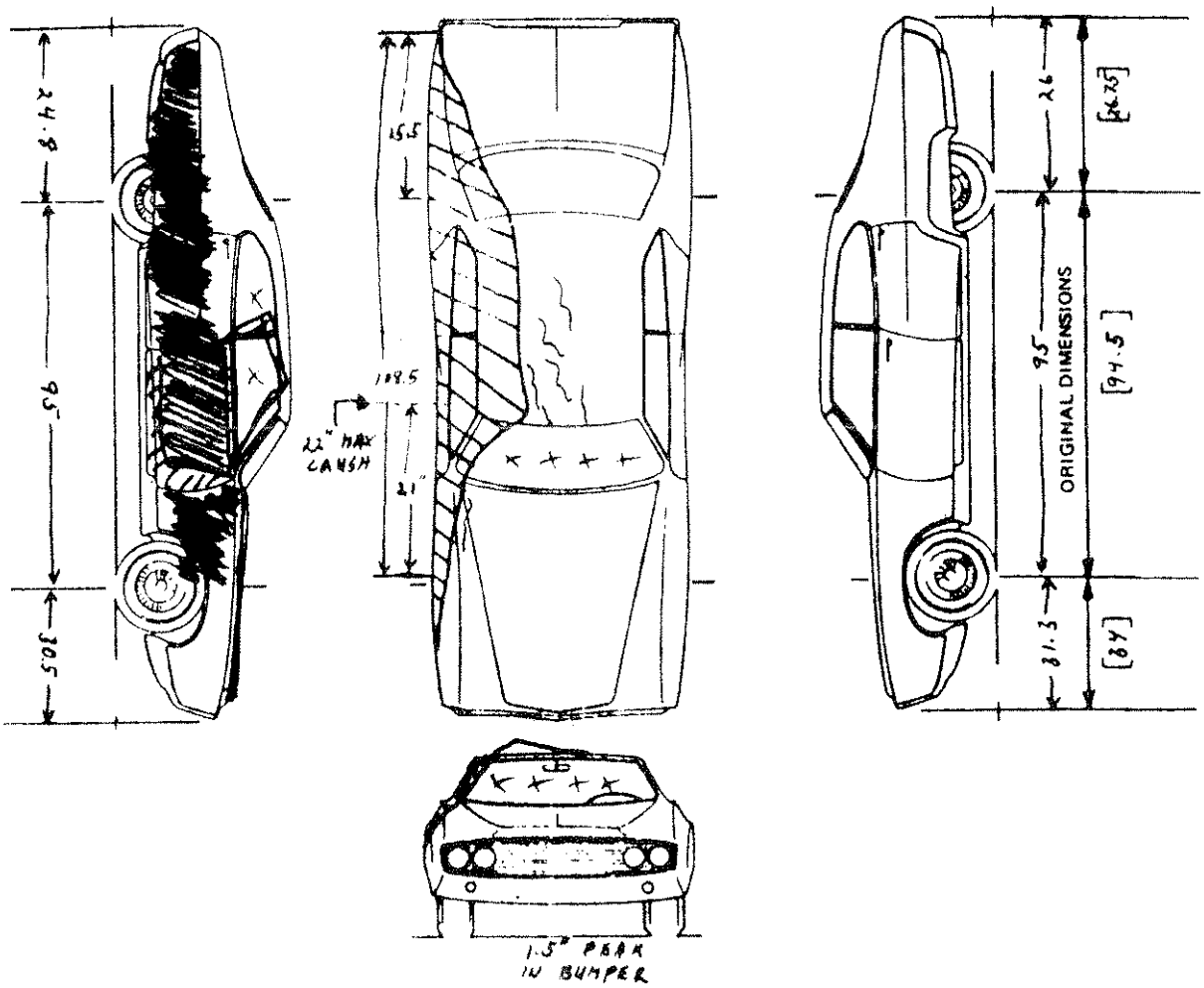
RF ± N A

LF ± N A

RR ± 0 3

LR ± 0 2

Within ± 5°



Impact Number	L	C_1	C_2	C_3	C_4	C_5	C_6	D±
1	108.5	.5	11	17.75	21	22.5	7.25	-8.5
2								
3								
4								

NOTE: MEASURE C_1 TO C_6 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS: REAR TO FRONT IN SIDE IMPACTS

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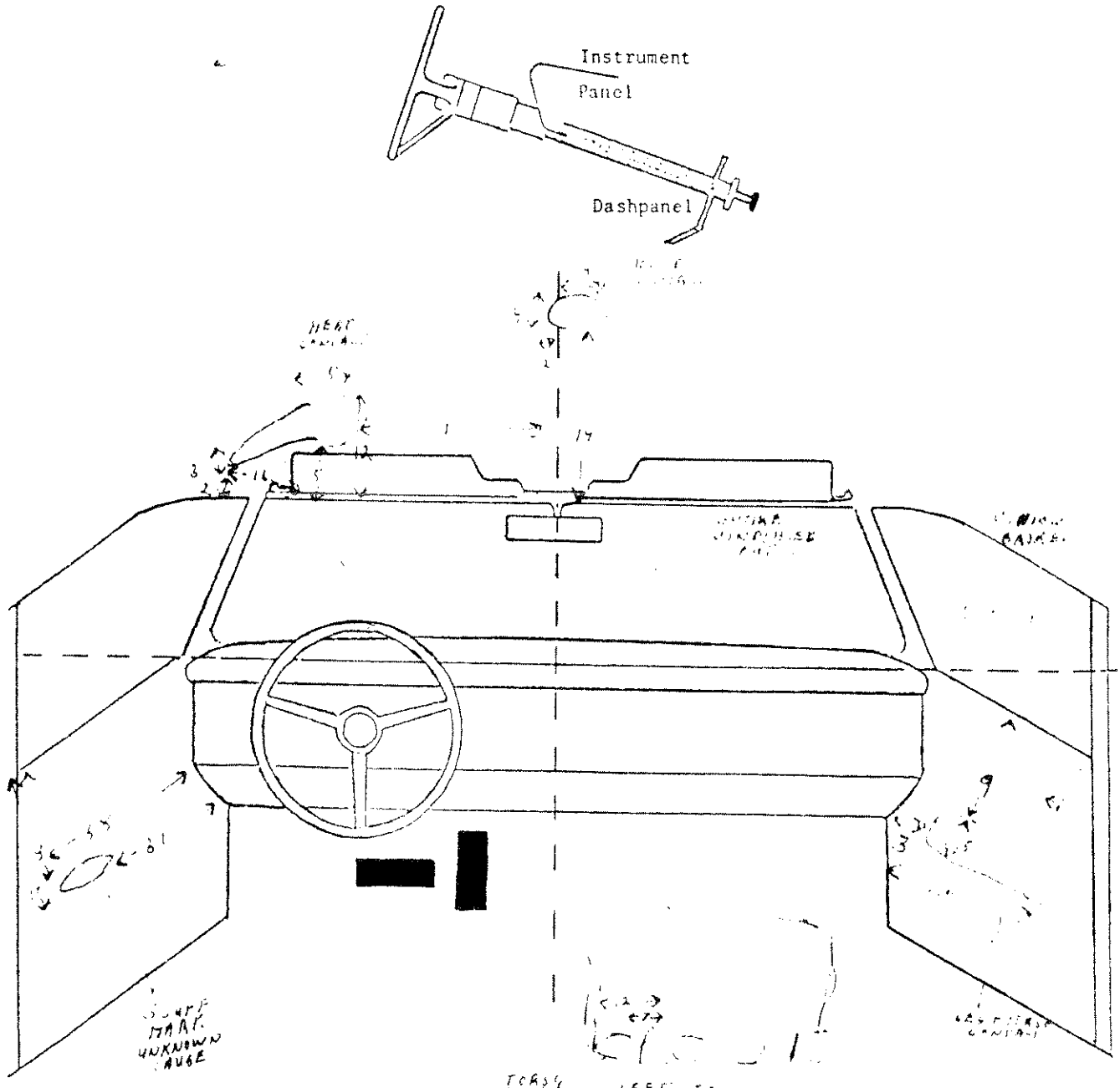
Figure 13-5
OCCUPANT CONTACT DATA

TEST NO. 7 - CAR NO. 2

VEHICLE INTERIOR

Occupant Contacts



Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and code on next two pages. Dash lines indicate center of instrument panel-windshield area and top of panel for measurement purposes.

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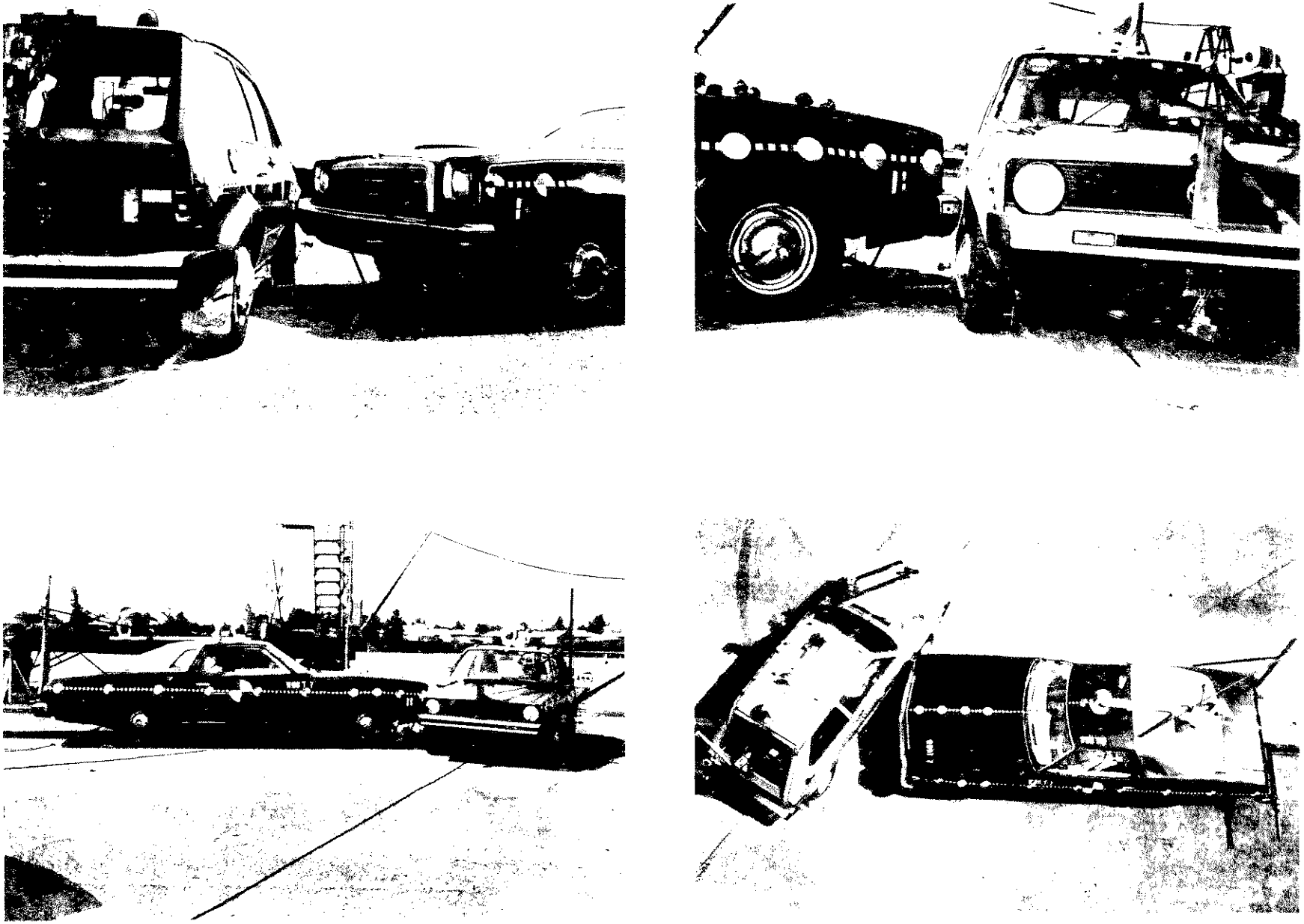


Figure 13-6 TEST NO. 7 – PRE TEST COLLISION CONFIGURATION

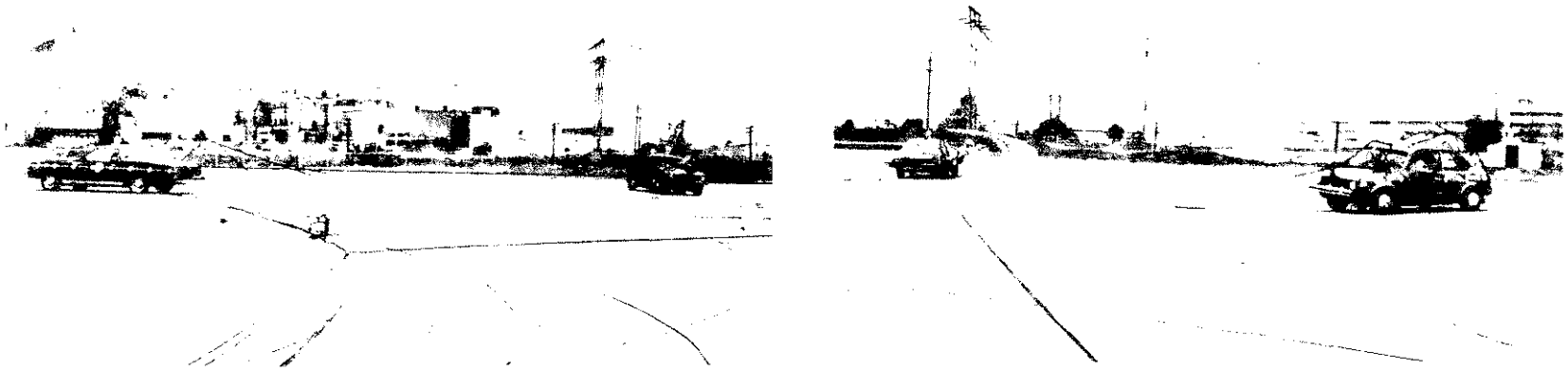


Figure 13-7 TEST NO. 7 – POST TEST COLLISION SCENE

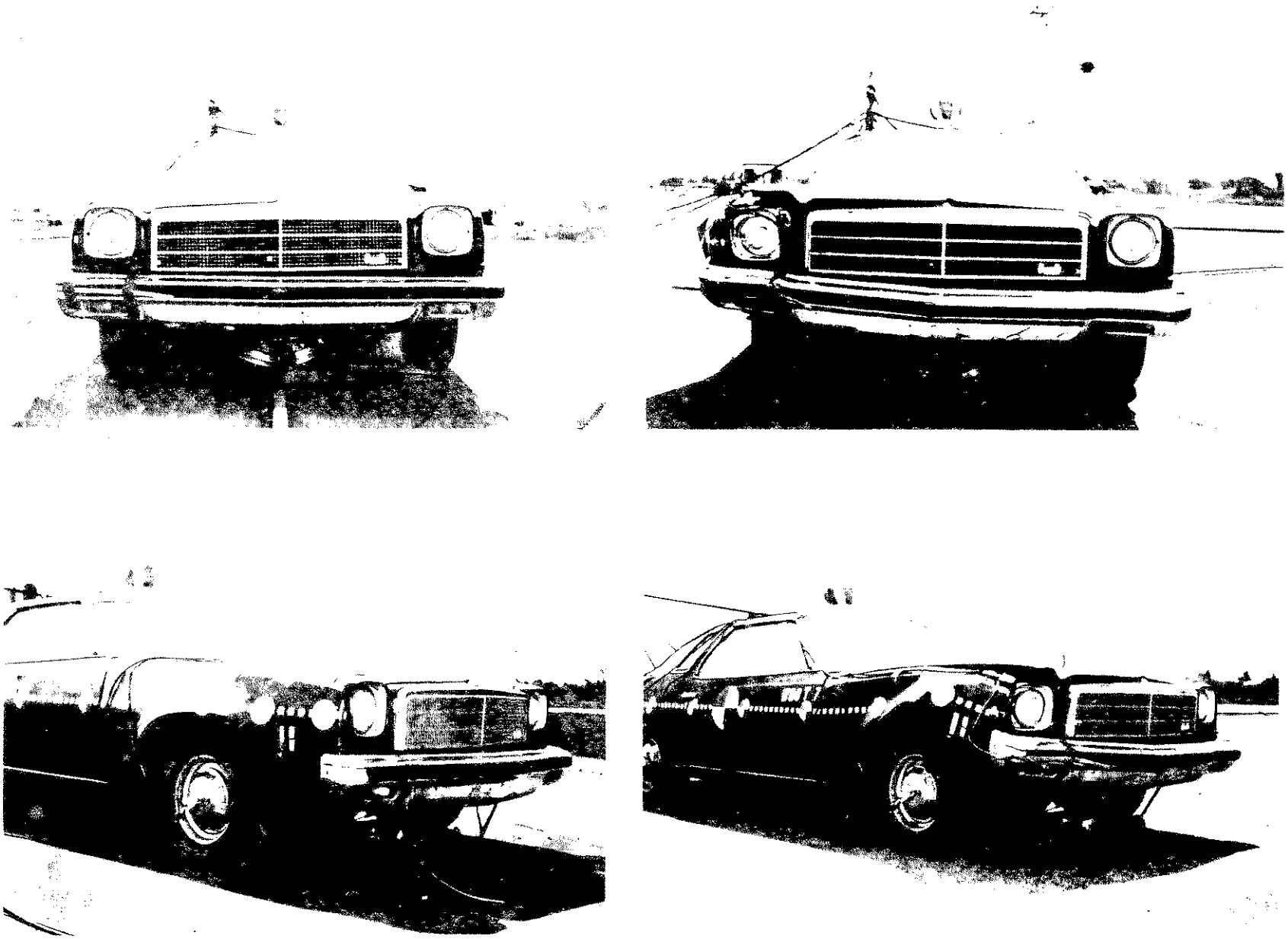


Figure 13-8 TEST NO. 7 – PRE & POST EXTERIOR VIEWS, CAR NO. 1 – CHEVELLE

Figure 13-9 TEST NO. 7 – PRE & POST EXTERIOR VIEWS, CAR NO. 2 – VW RABBIT

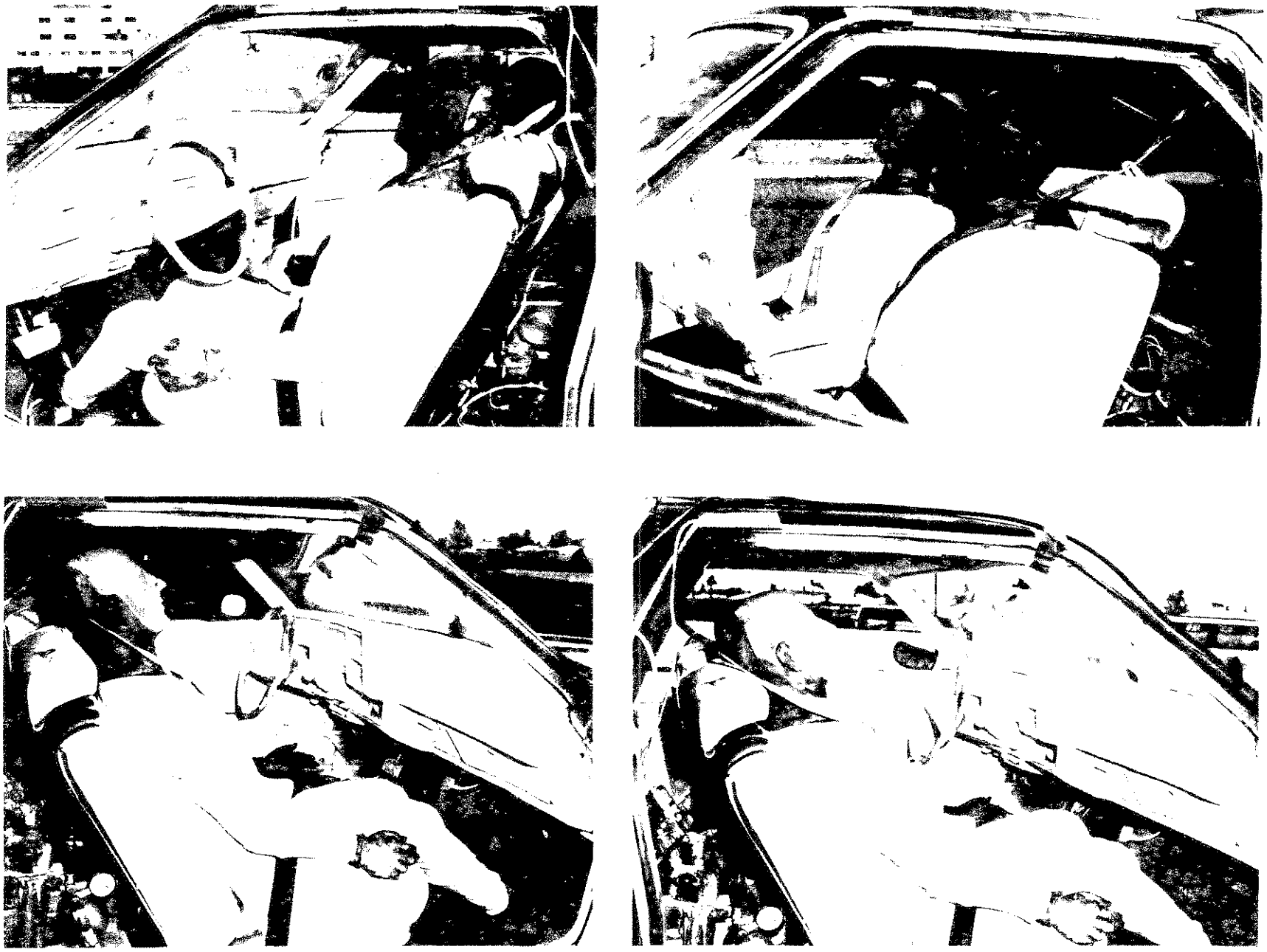


Figure 13-10 TEST NO. 7 - PRE & POST INTERIOR VIEWS, CAR NO. 1 - CHEVELLE

Figure 13-11 TEST NO. 7 – PRE & POST INTERIOR VIEWS, CAR NO. 2 – VW RABBIT

TABLE 13-3

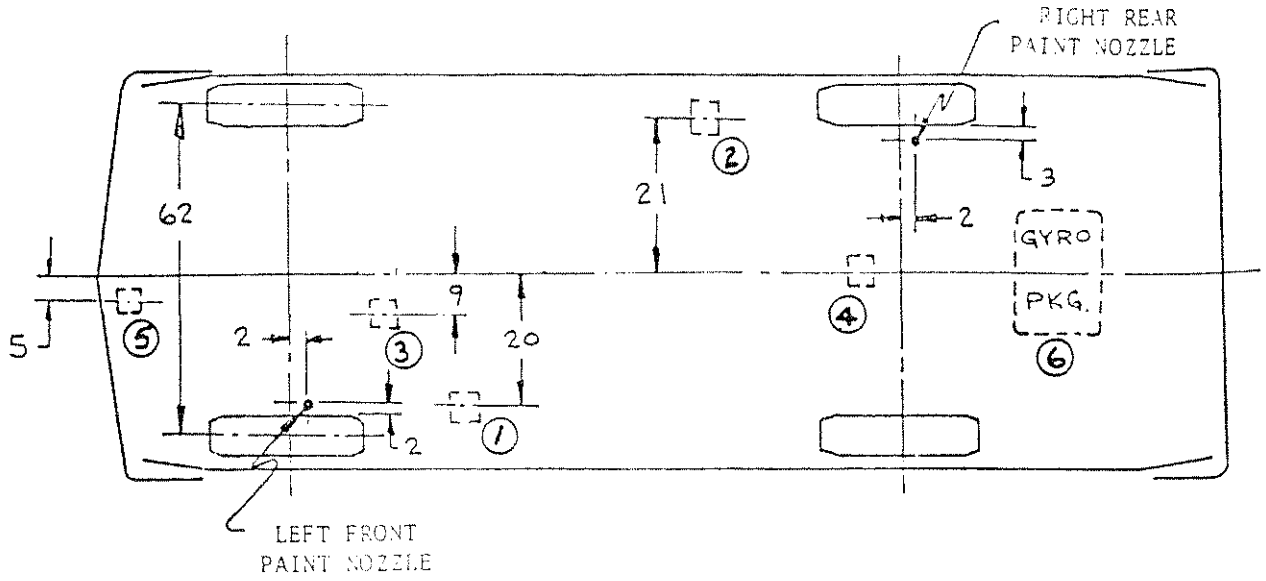
ELECTRONIC INSTRUMENTATION TEST NO. 7

CAR NO. 1 - 1974 CHEVELLE

TRANSDUCER DESCRIPTION OR ACCELEROMETER LOCATION *	DIRECTION OF PARAMETER BEING MEASURED	LOCATION ON VEHICLE	DESCRIPTION LISTED ON DATA PLOTS
VEHICLE ACCELEROMETER			
1	X,Y,Z	Left Sill Next to Front Seat	L.F. Corner
2	X,Y,Z	Right Sill Next to Rear Seat	R.R. Corner
3	X,Y,Z	Deck Over Rear Axle	Rear Deck
4	X,Y,Z	Firewall	Firewall
5	X	Front Bumper	Bumper
VEHICLE GYROS			
Pitch Angle - 6	Q	On Centerline of Trunk Comp.	Pitch Angle
Roll Angle - 6	P	On Centerline of Trunk Comp.	Roll Angle
Yaw Angle - 6	R	On Centerline of Trunk Comp.	Yaw Angle
Yaw Rate - 6	$\dot{R}$	On Centerline of Trunk Comp.	Yaw Rate
MISCELLANEOUS			
L.F. Wheel Velocity	$\dot{X}$	L.F. Wheel	L.F. Wheel Velocity
R.R. Wheel Velocity	$\dot{X}$	R.R. Wheel	R.R. Wheel Velocity
L.R. Wheel Velocity	$\dot{X}$	L.R. Wheel	L.R. Wheel Velocity
Steer Angle	9	Front Wheel Steering Linkage	Steer Angle

*See Accelerometer Layout Diagram Figure 13-12

**RIGHT



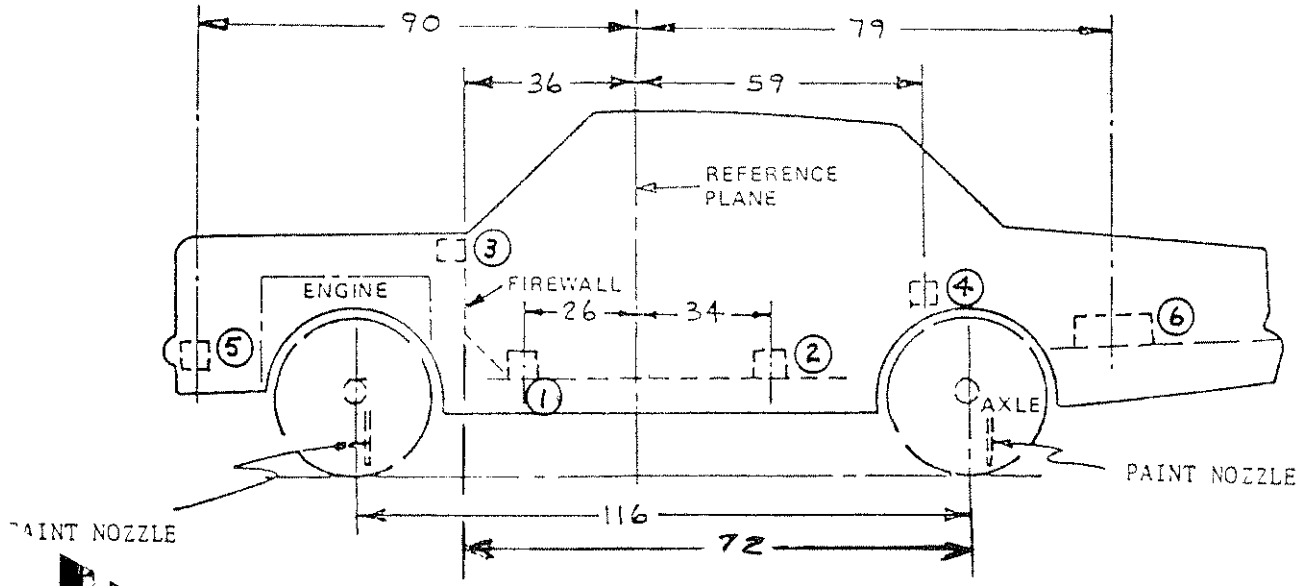


Figure 13-12 VEHICLE INSTRUMENTATION LOCATIONS

CAR NO. 1 - 1974 CHEVELLE - TEST NO. 7

TABLE 13-4

ELECTRONIC INSTRUMENTATION TEST NO. 7

CAR NO. 2 - 1975 VW 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	Floorpan L.F. Corner	L.F. Corner
2	X,Y,Z	Floorpan L.R. Corner	L.R. Corner
3	X,Y,Z	Firewall	Firewall
4	X,Y,Z	Rear Deck	Rear Deck
5	Y	Left Front Door	Left Front Door
6	Y	Upper Right Front Door	Upper Right Front Door
7	Y	Lower Right Front Door	Lower Right Front Door
VEHICLE ATTITUDE			
Pitch Angle - 8		Gyro Package	Vehicle Pitch Angle
Roll Angle - 8		Gyro Package	Vehicle Roll Angle
Yaw Angle - 8		Gyro Package	Vehicle Yaw Angle
Yaw Rate Angle - 8		Gyro Package	Vehicle Yaw Rate
Steer Angle		Front Wheels	Steer Angle - Front Wheels
R.F. Wheel Velocity		R.F. Wheel Axle	R.F. Wheel Velocity
L.F. Wheel Velocity		L.F. Wheel Axle	L.F. Wheel Velocity
R.R. Wheel Velocity		R.R. Wheel Axle	R.R. Wheel Velocity
L.F. Wheel Velocity		L.R. Wheel Axle	L.R. Wheel Velocity
DUMMY			
L.F. Head	X,Y,Z	L.F. Seat	Dummy L.F. Head
L.F. Chest	X,Y,Z	L.F. Seat	Dummy L.F. Chest
L.F. Femurs	R,L**	L.F. Seat	Dummy L.F. Femur
L.F. Pelvic	Y	L.F. Seat	Dummy L.F. Pelvic
R.F. Head	X,Y,Z	R.F. Seat	Dummy R.F. Head
R.F. Chest	X,Y,Z	R.F. Seat	Dummy R.F. Chest
R.F. Femurs	R,L**	R.F. Seat	Dummy R.F. Femur
R.F. Pelvic	Y	R.F. Seat	Dummy R.F. Pelvic

*See Accelerometer Layout Diagram Figure 13-13

**RIGHT AND LEFT FORCES

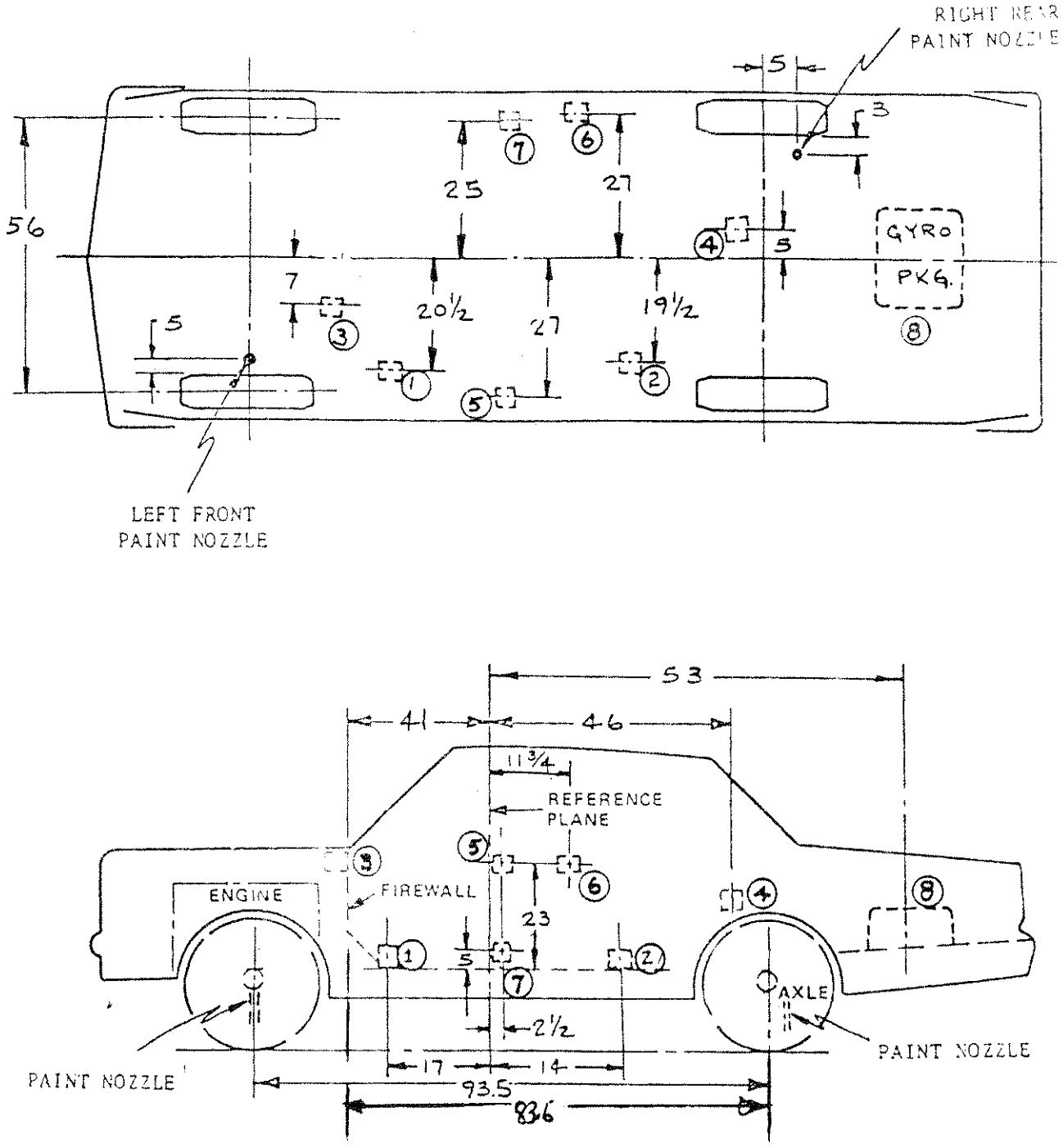


Figure 13-13 VEHICLE INSTRUMENTATION LOCATIONS

CAR NO. 2 - 1975 VW RABBIT - TEST NO. 7

TABLE 13-15

VEHICLE TEST WEIGHTS - TEST NO. 7

BULLET VEHICLE

CAR 1 - 1974 CHEVROLET CHEVELLE

Left Front	1160 lbs.		Left Rear	980 lbs.
Right Front	1190 lbs.		Right Rear	980 lbs.
Total Front	2350 lbs.		Total Rear	1960 lbs.

Total Weight = 2350 lbs. + 1960 lbs. = 4310 lbs.

Wheel Base 111 in.

Cg_{FW} = $\frac{1960 \text{ lbs.}}{4310 \text{ lbs.}}$ 111 in. = 50.48 in.

TARGET VEHICLE

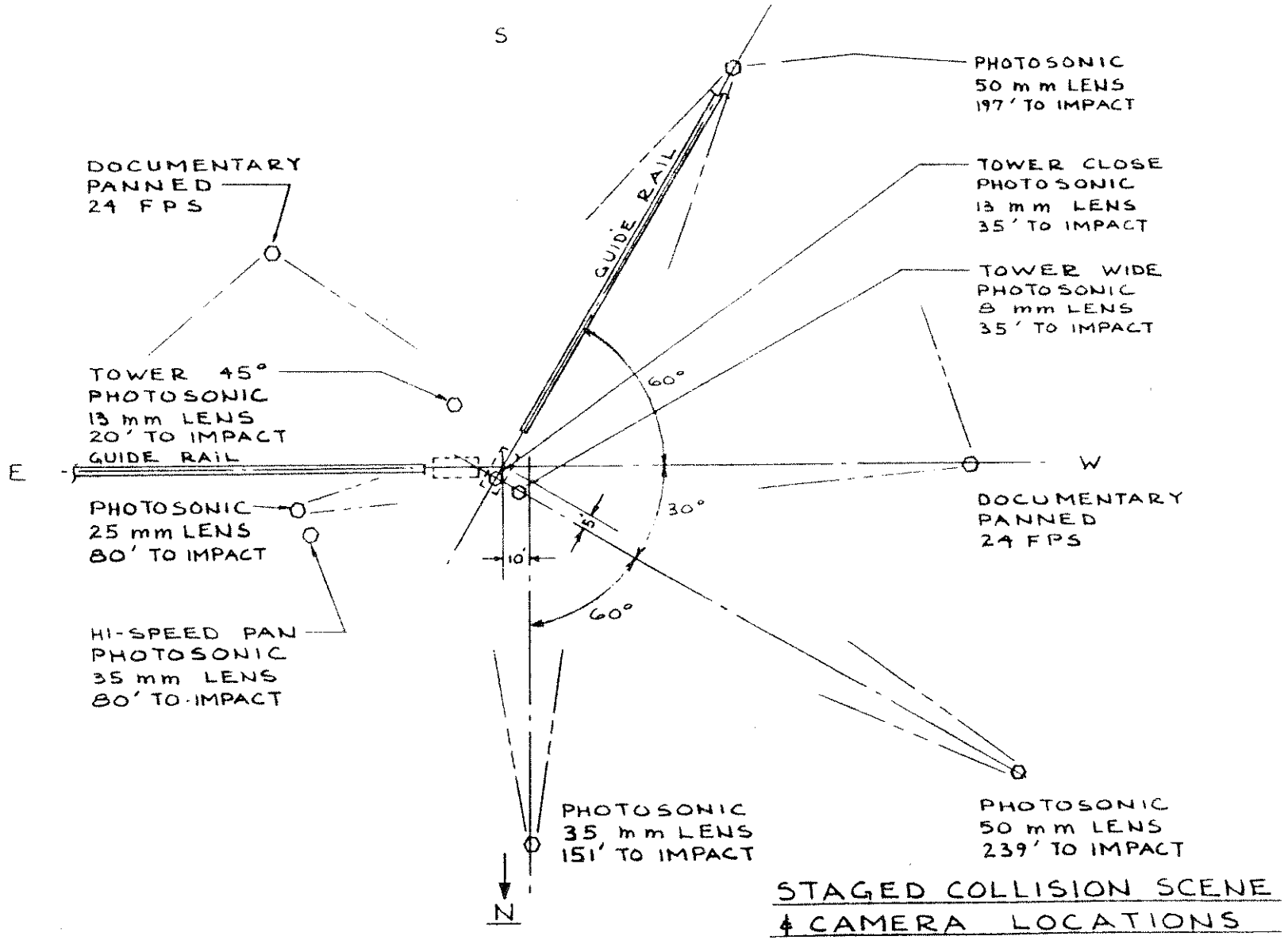
CAR 2 - 1975 VW RABBIT

Left Front	810 lbs.		Left Rear	610 lbs.
Right Front	710 lbs.		Right Rear	480 lbs.
Total Front	1520 lbs.		Total Rear	1090 lbs.

Total Weight = 1520 lbs. + 1090 lbs. = 2610 lbs.

Wheel Base 95 in.

Cg_{FW} = $\frac{1090 \text{ lbs.}}{2610 \text{ lbs.}}$ 95 in. = 39.67 in.



STAGED COLLISION SCENE
& CAMERA LOCATIONS
TESTS 6 & 7

Figure 13-14

TABLE 13-6

DATA CAMERA LOG

PROJECT - RICSAC

TEST NO. 7
DATE: 5-31-78

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)
1	HIGH SPEED PAN	PHOTOSONIC	35 MM	425
2	NORTHEAST	PHOTOSONIC	25 MM	500
3	NORTH	PHOTOSONIC	35 MM	700
4	SOUTH	PHOTOSONIC	50 MM	750
5	NORTHWEST	PHOTOSONIC	50 MM	750
6	TOWER 45	PHOTOSONIC	13 MM	500
7	TOWER CLOSE	PHOTOSONIC	13 MM	350
8	TOWER WIDE	PHOTOSONIC	8 MM	350
9	O. B. DRIVER	STALEX	8 MM	800
10	O. B. HOOD	STALEX	8 MM	1000
11	O. B. REAR	STALEX	8 MM	850

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.

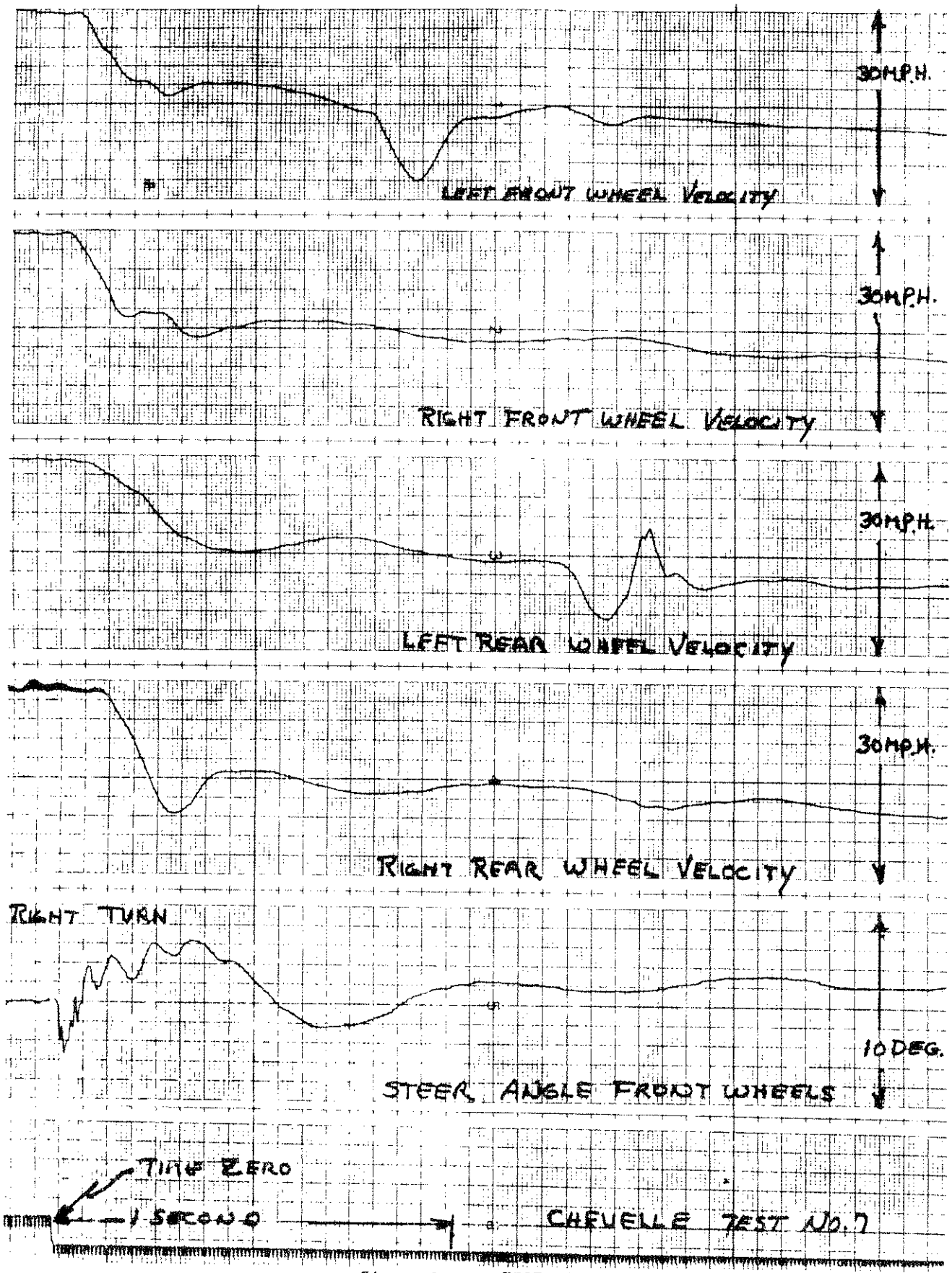


Figure 13-15 TEST NO. 7
CAR NO. 1 WHEEL RESPONSES

ZQ-6057-V-5

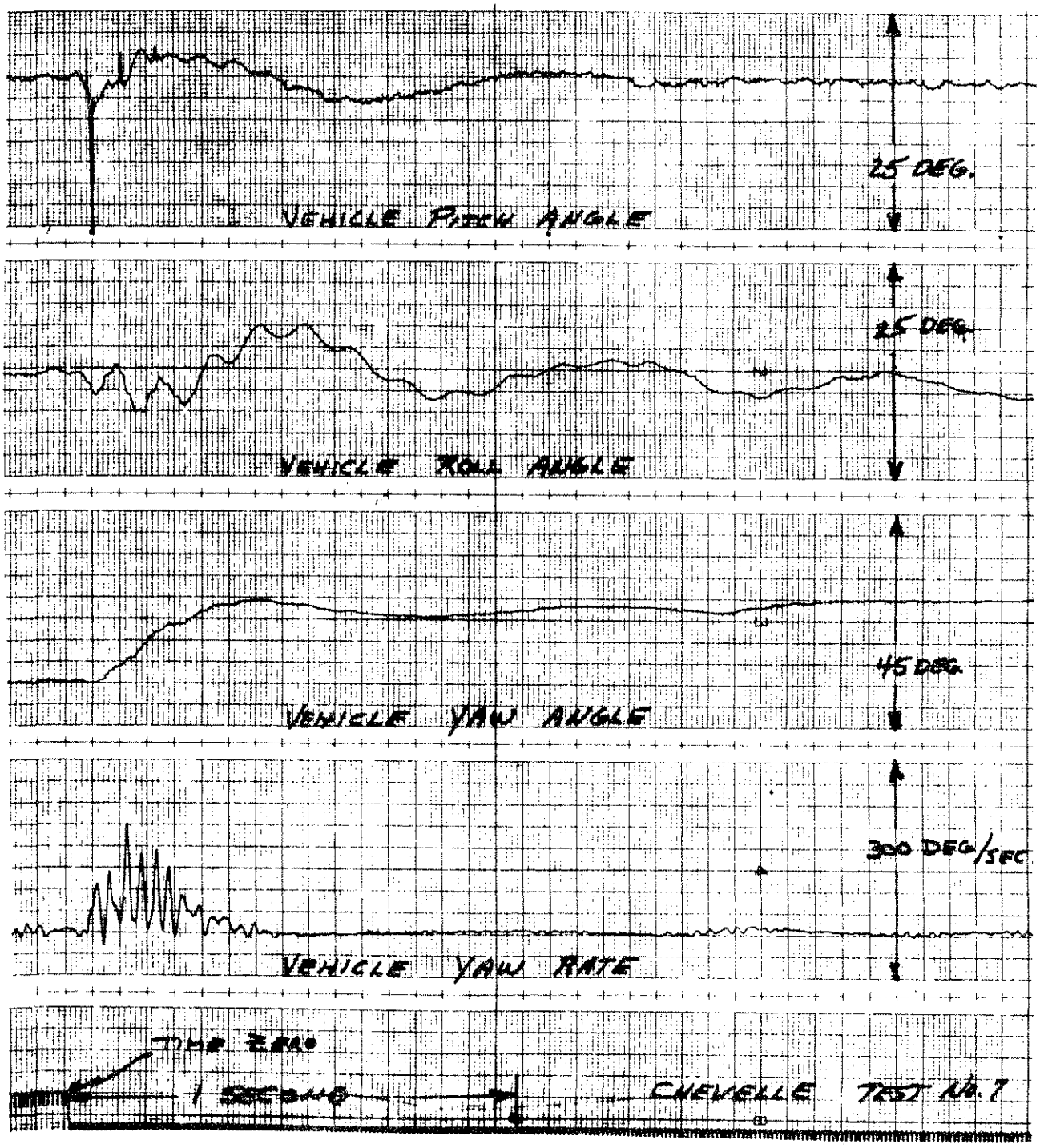


Figure 13-16 TEST NO. 7
CAR NO. 1 VEHICLE ATTITUDE

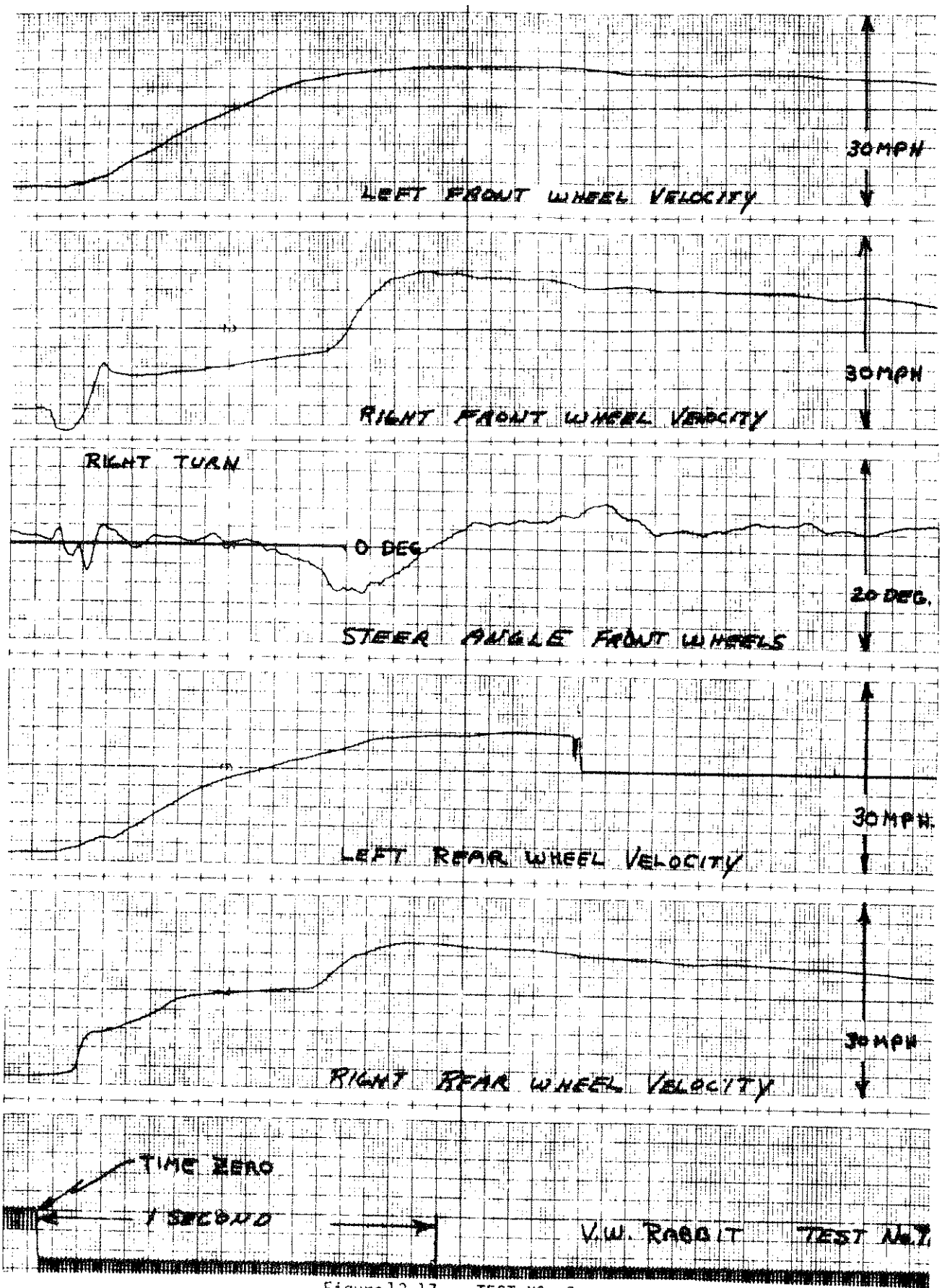


Figure13-17 TEST NO. 7
CAR NO. 2 WHEEL RESPONSES

ZQ-6057-V-5

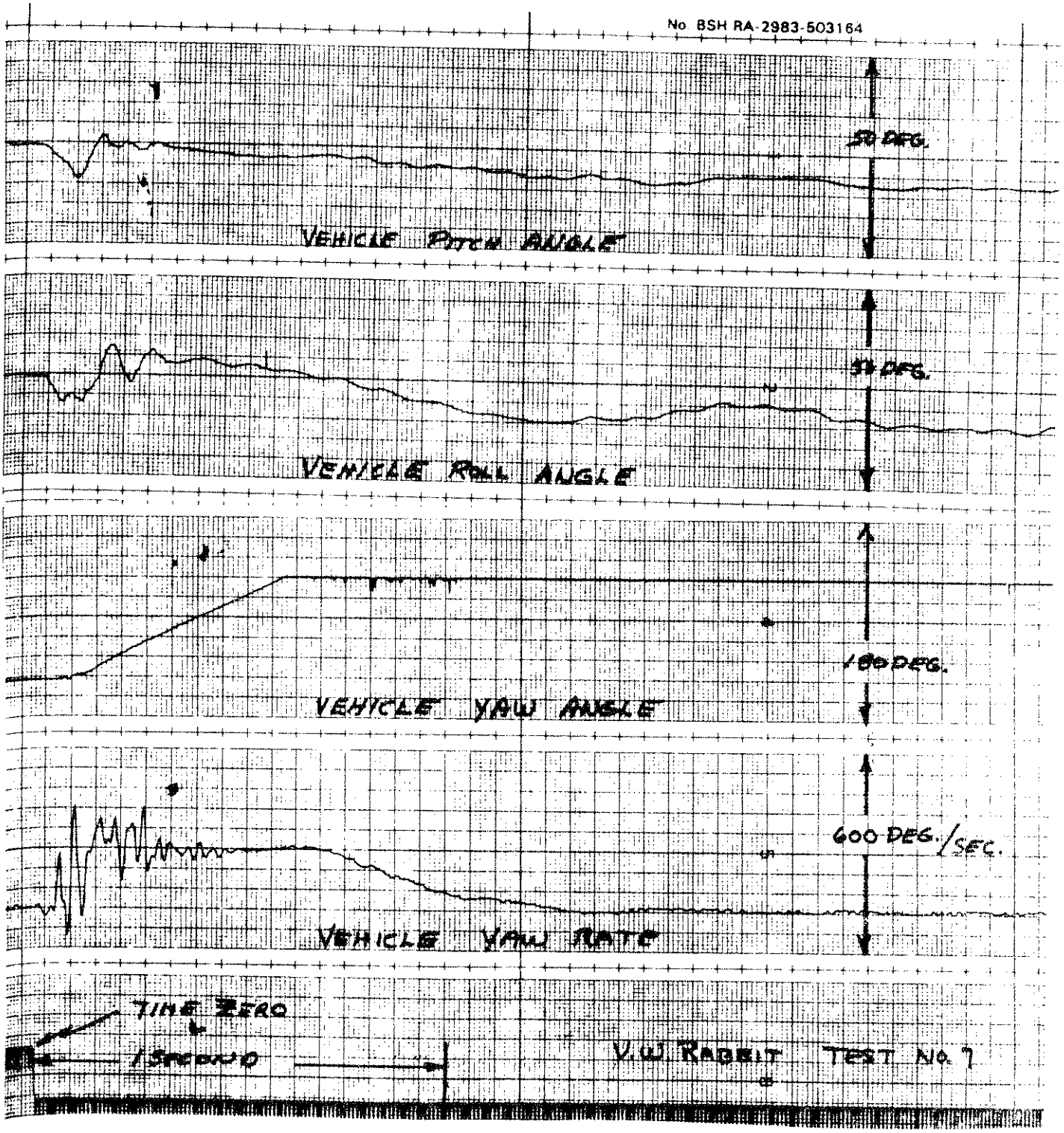


Figure 13-18 TEST NO. 7
CAR NO. 2 VEHICLE ATTITUDE

RICSAC TEST NO. 7

VEHICLE RESPONSES

CAR NO. 1 CHEVELLE

DATA PLOTS

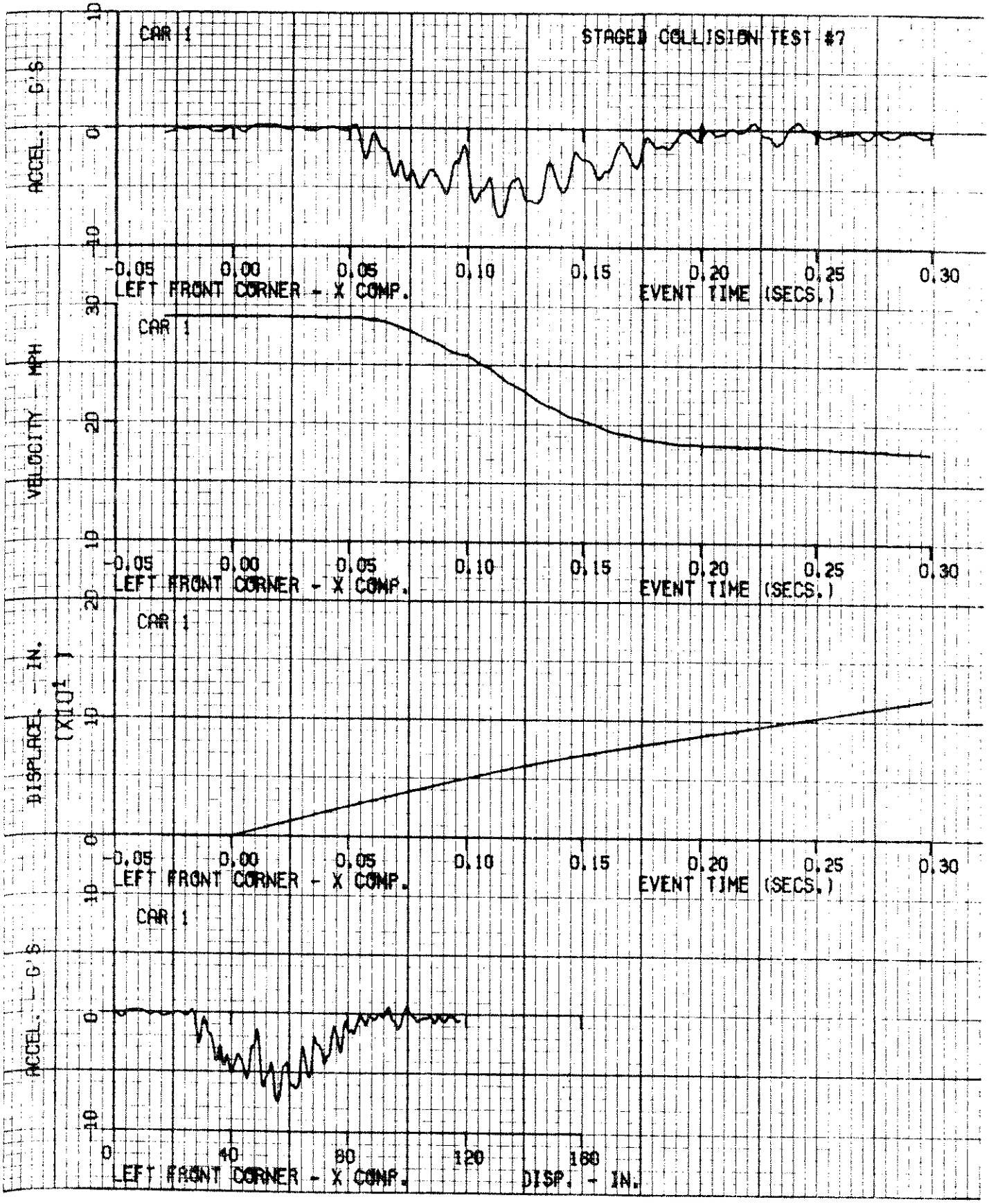
ACCELERATION TIME HISTORIES

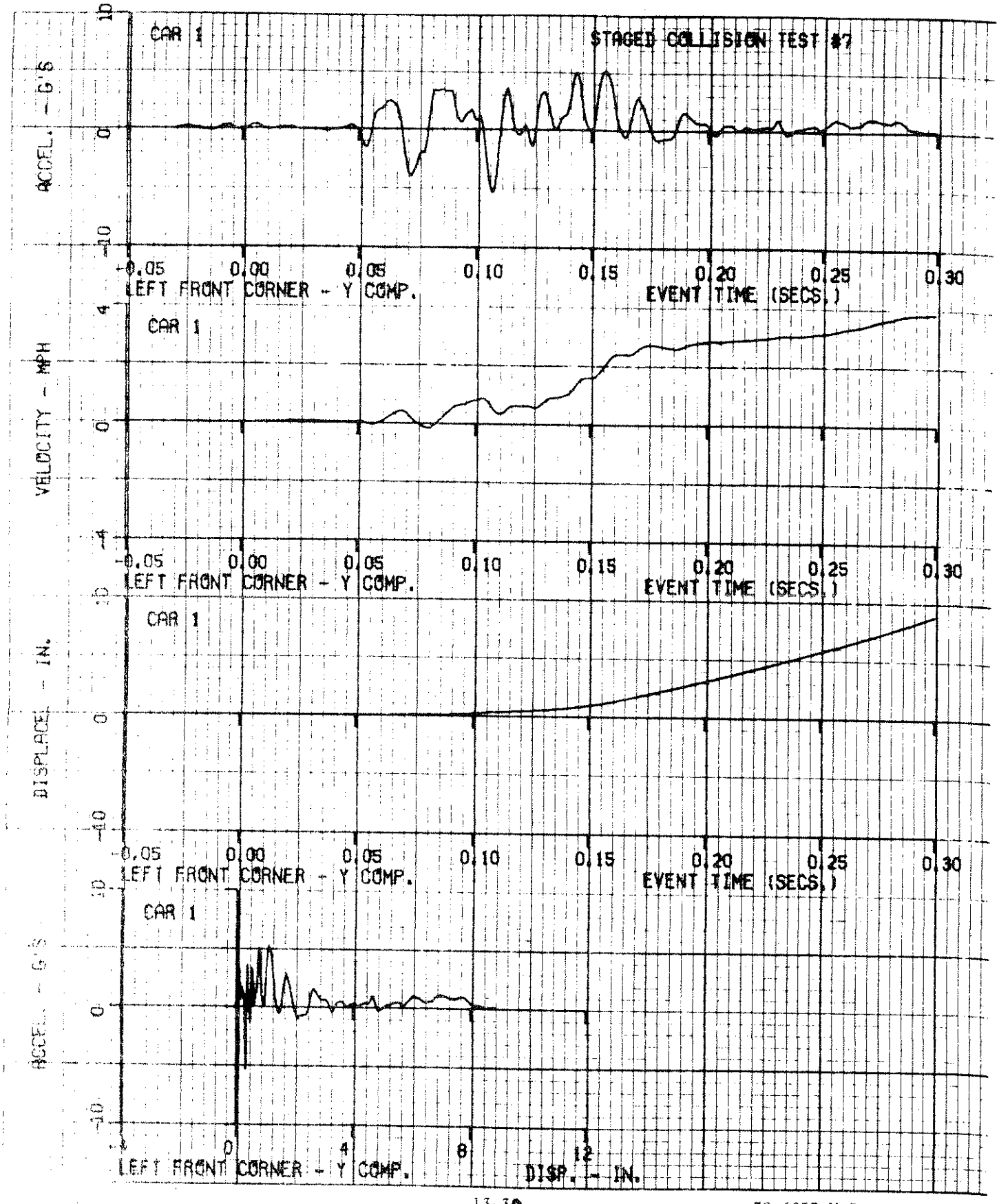
VELOCITY TIME HISTORIES

DISPLACEMENT TIME HISTORIES

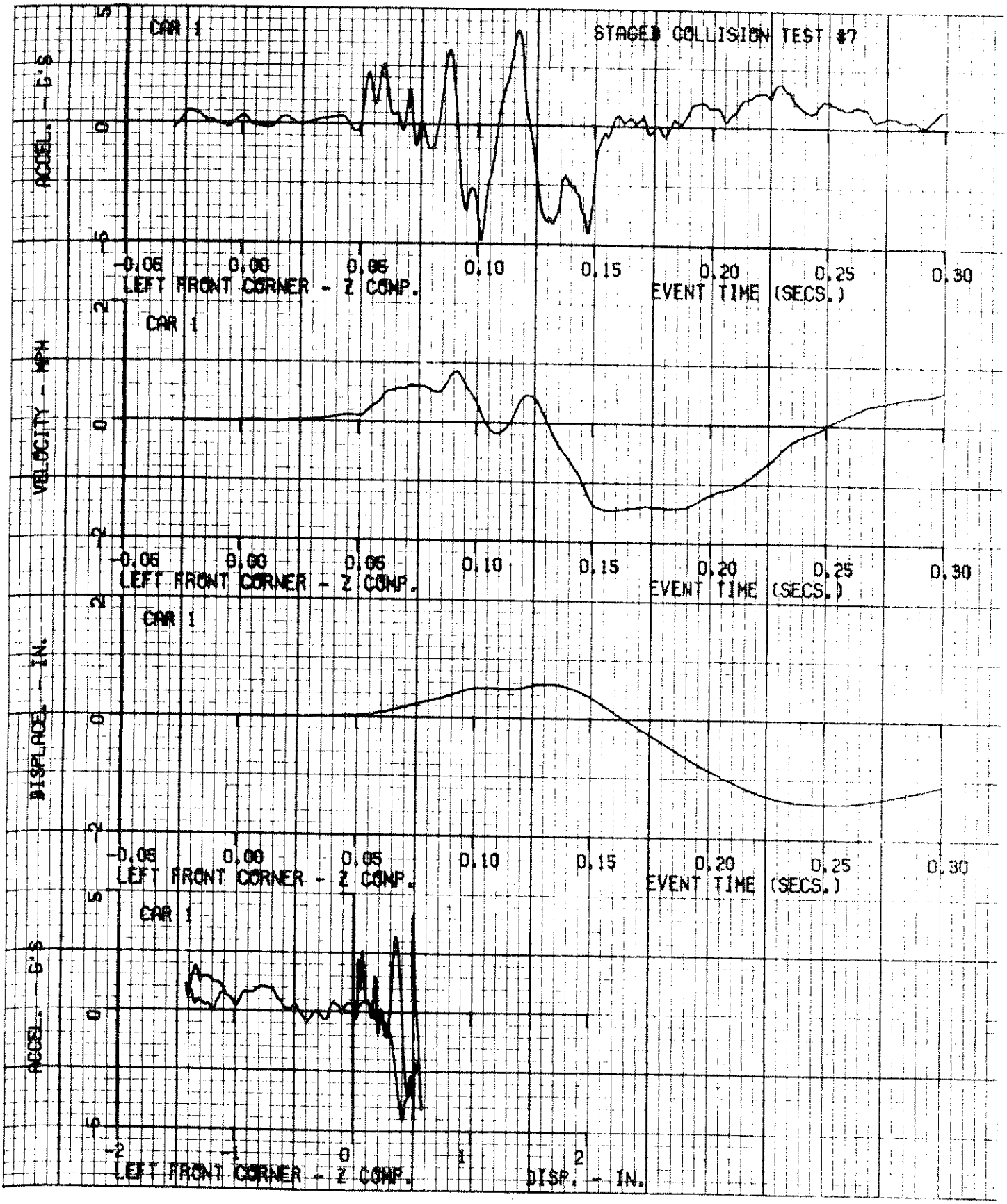
ACCELERATION VS DISPLACEMENT

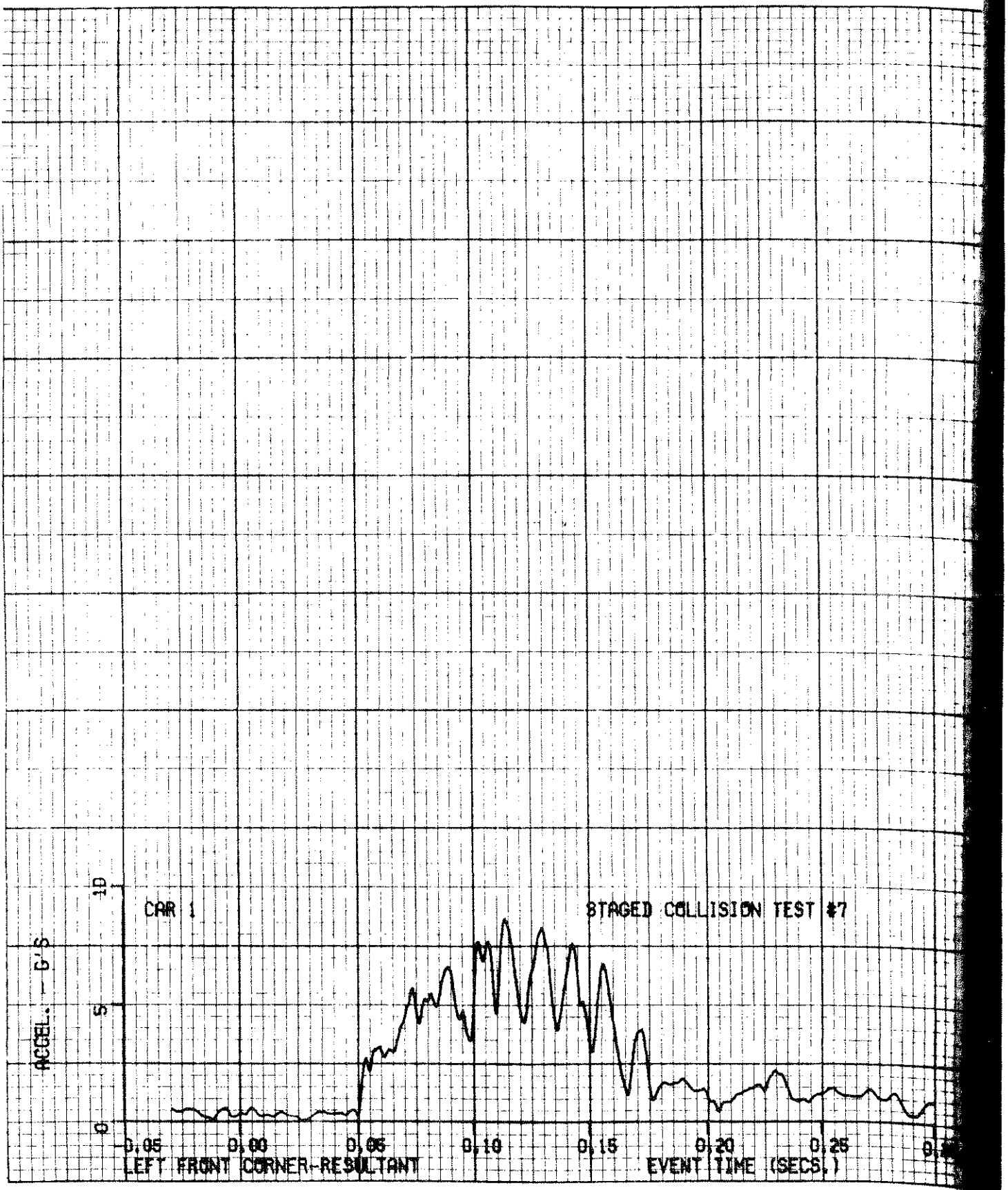
FILTER CLASS 60


CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
30
20
10
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN. (X10¹)
20
10
0
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT FRONT CORNER - X COMP.
DISP. - IN.

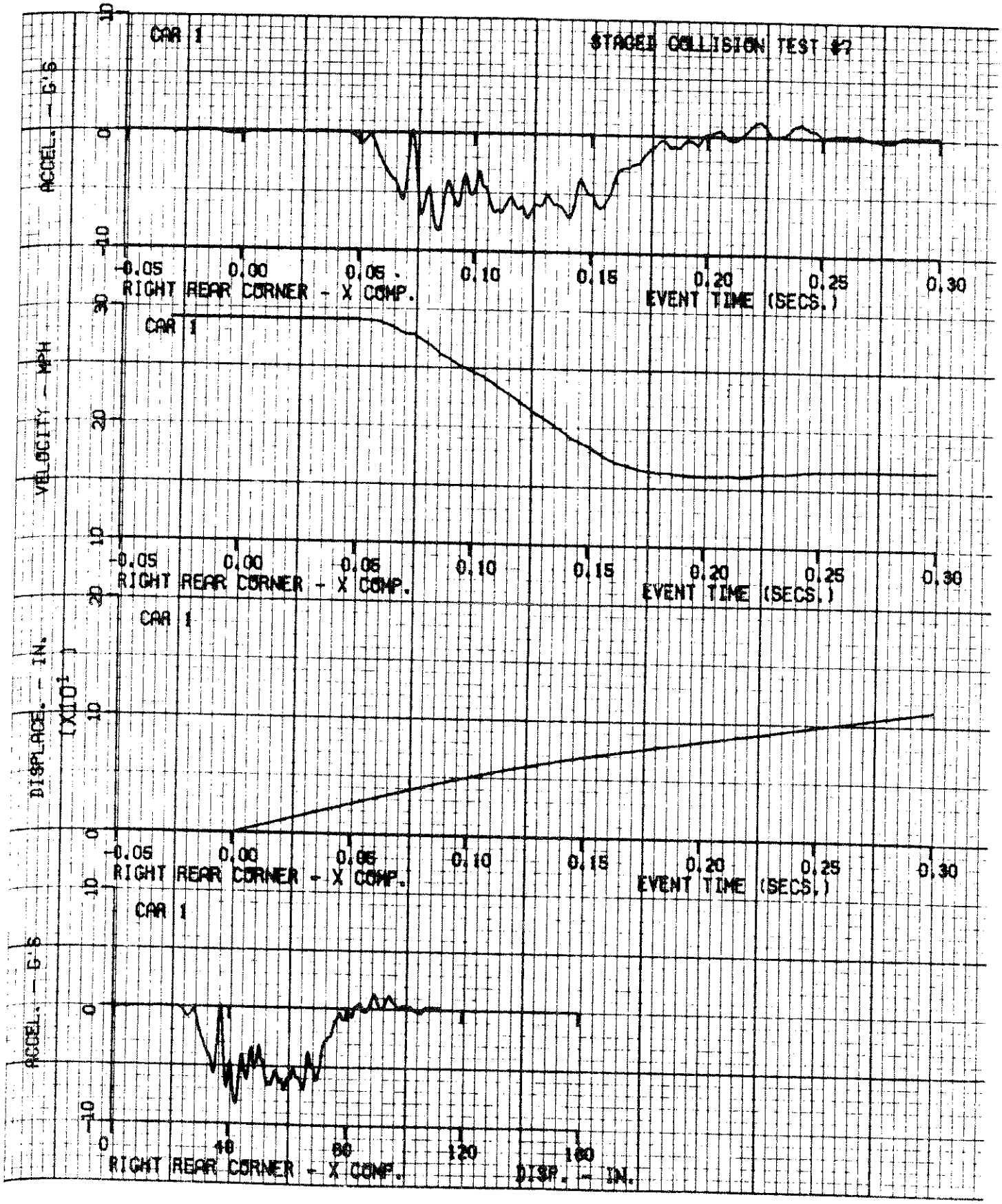

CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE - IN.
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
4
8
12
LEFT FRONT CORNER - Y COMP.
DISP. - IN.

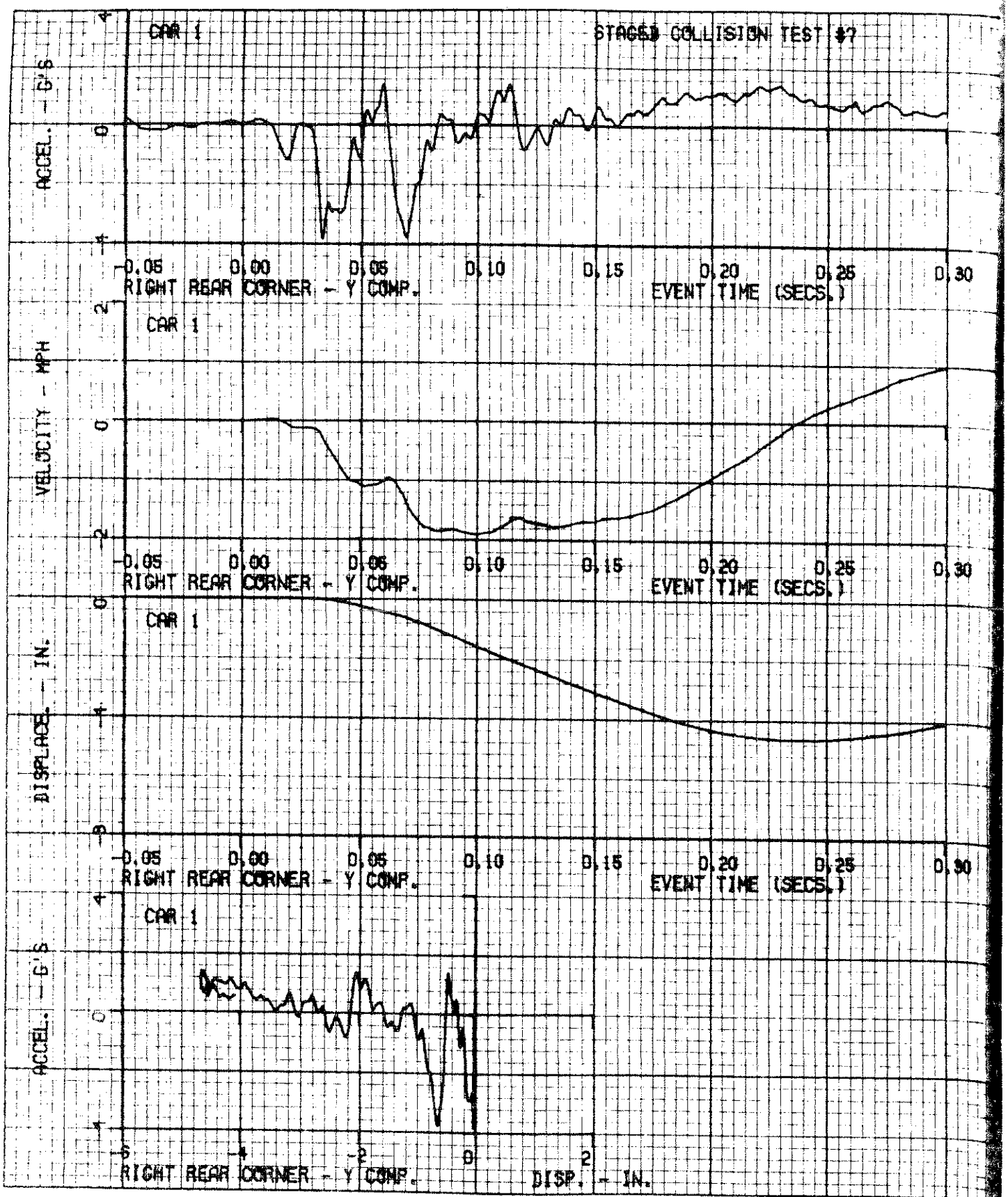
ZQ-6057-V-5

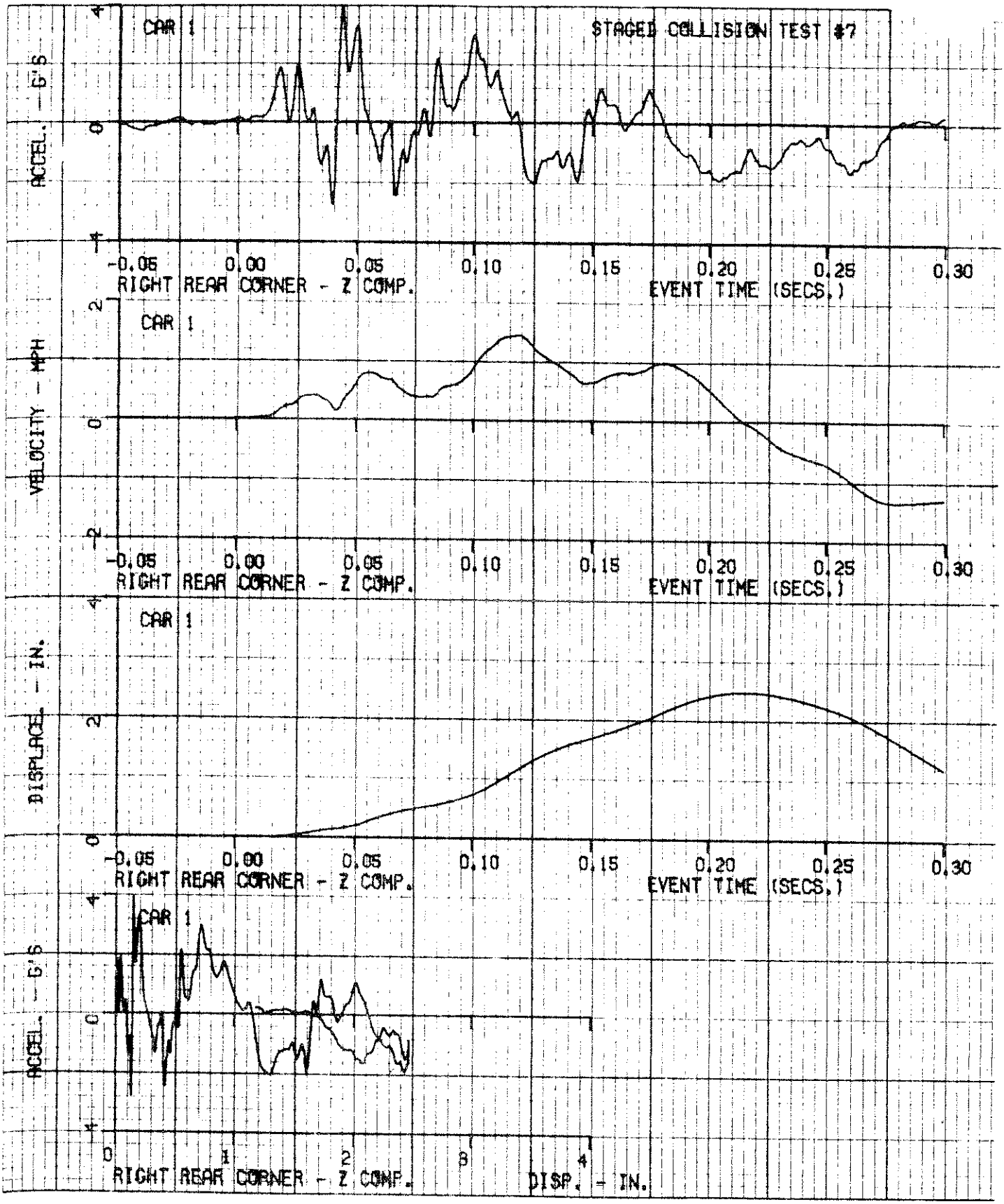

STAGED COLLISION TEST #7
CAR 1
ACCEL. - G'S
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
2
0
-2
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
5
0
-5
-2
-1
0
1
2
LEFT FRONT CORNER - Z COMP.
DISP. - IN.

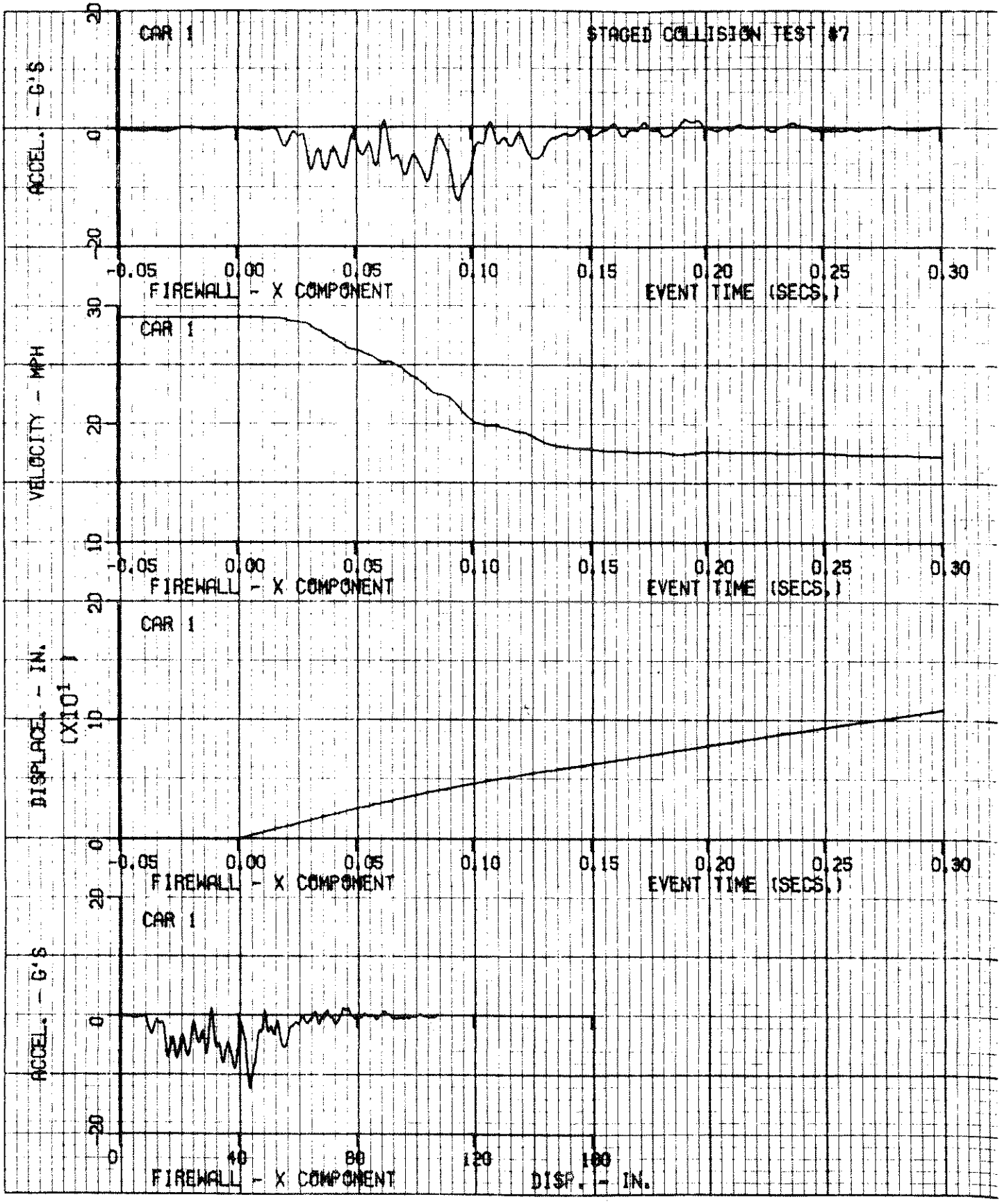

CAR 1
STAGED COLLISION TEST #7
ACCEL. — G'S
10
5
0
0.05
0.00
0.05
0.10
0.15
0.20
0.25
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)

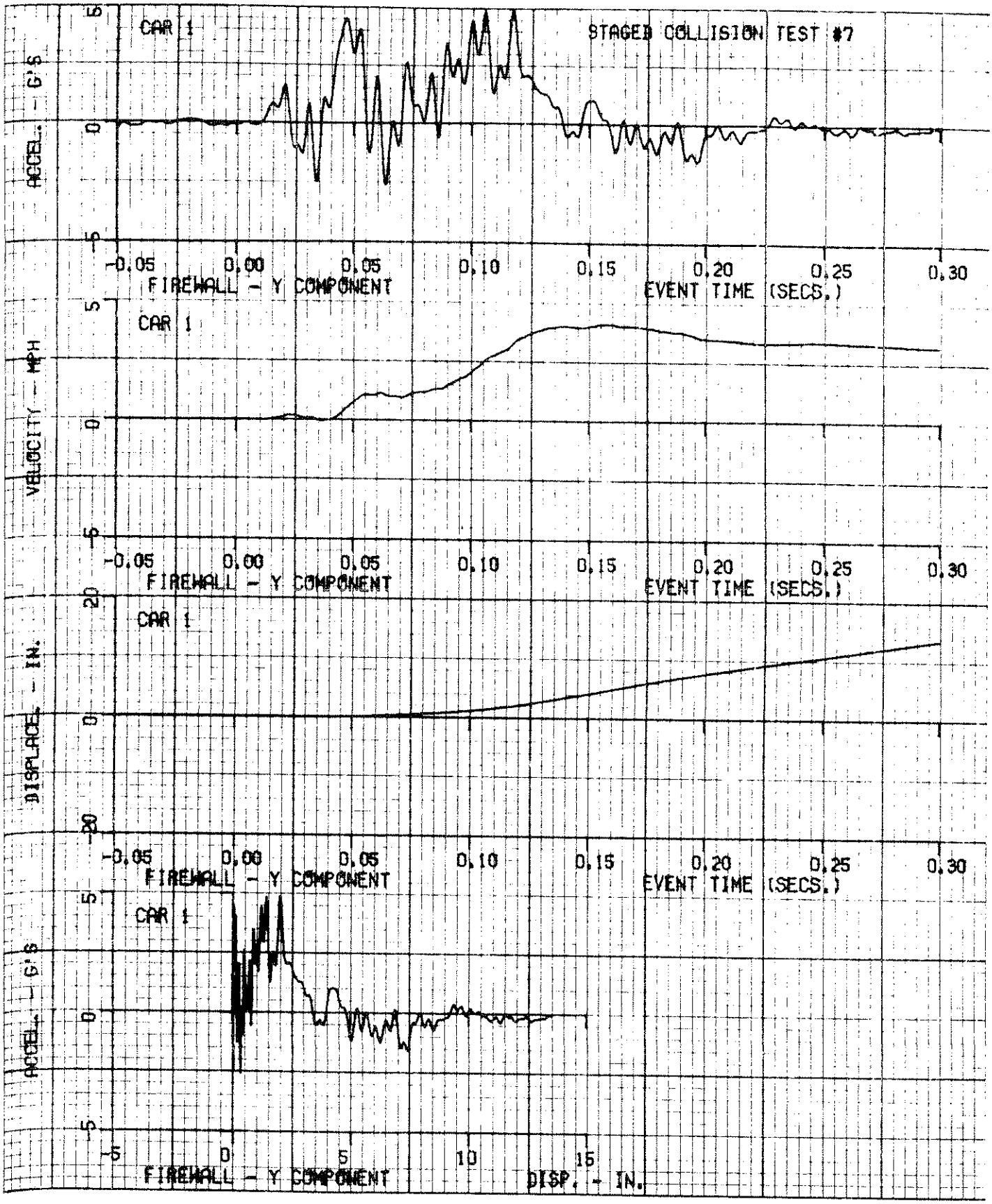
ZQ-6057-V-5

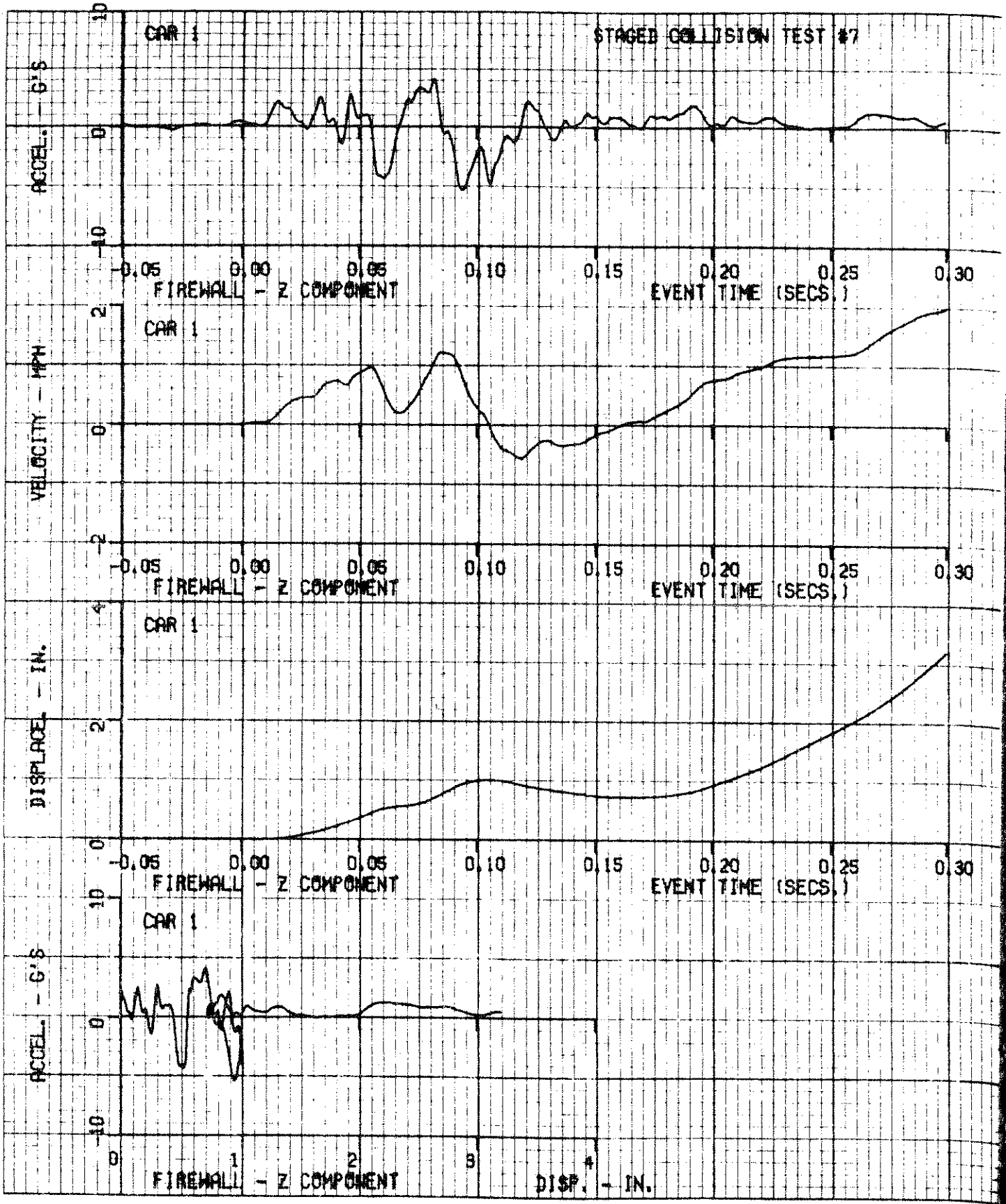

CAR 1
STAGE II COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
30
20
10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN. (X10¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
40
80
120
160
RIGHT REAR CORNER - X COMP.
DISP. - IN.

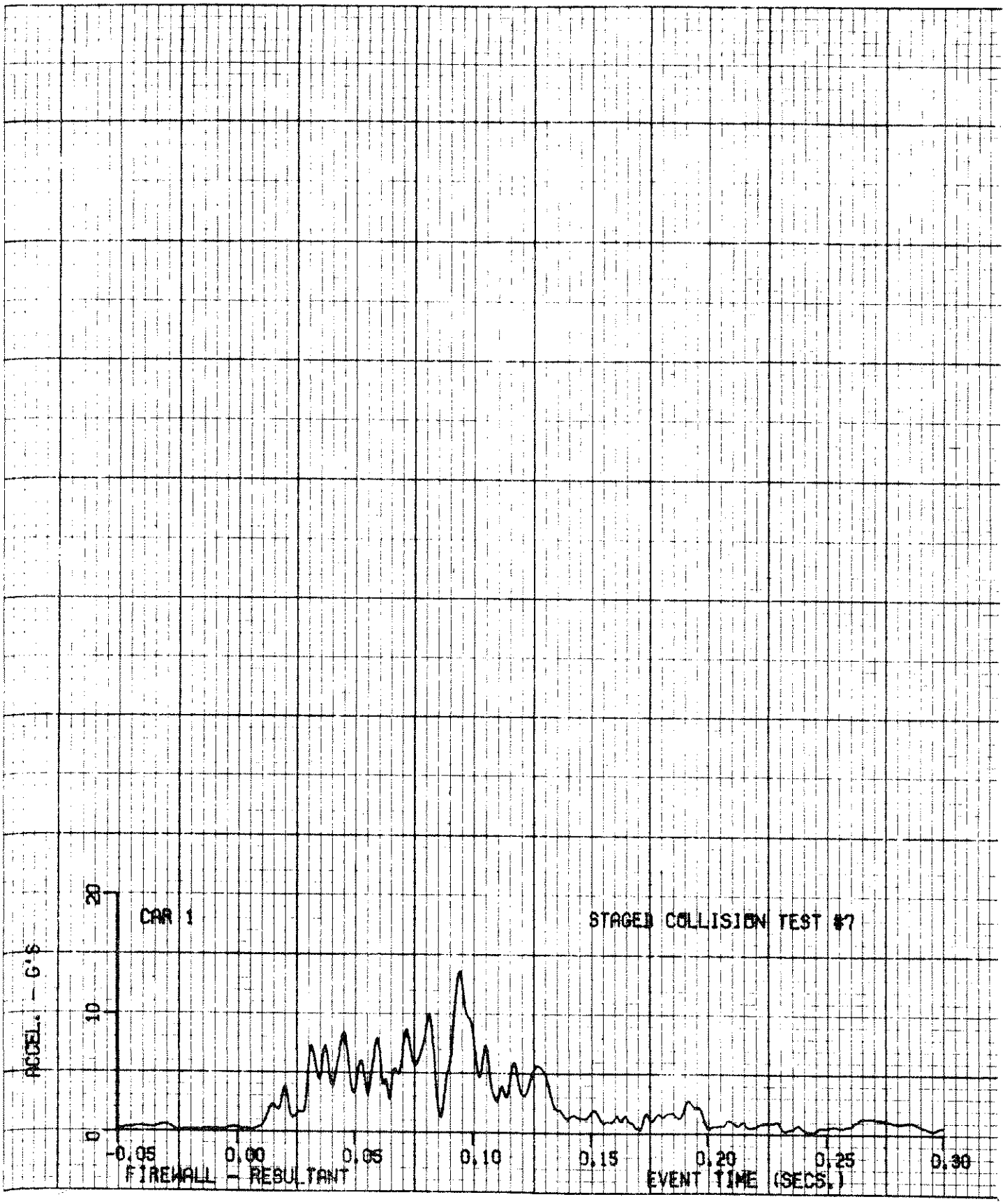

STAGED COLLISION TEST #7
CAR 1
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
0
-4
-8
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
-6
-4
-2
0
2
RIGHT REAR CORNER - Y COMP.
DISP. - IN.

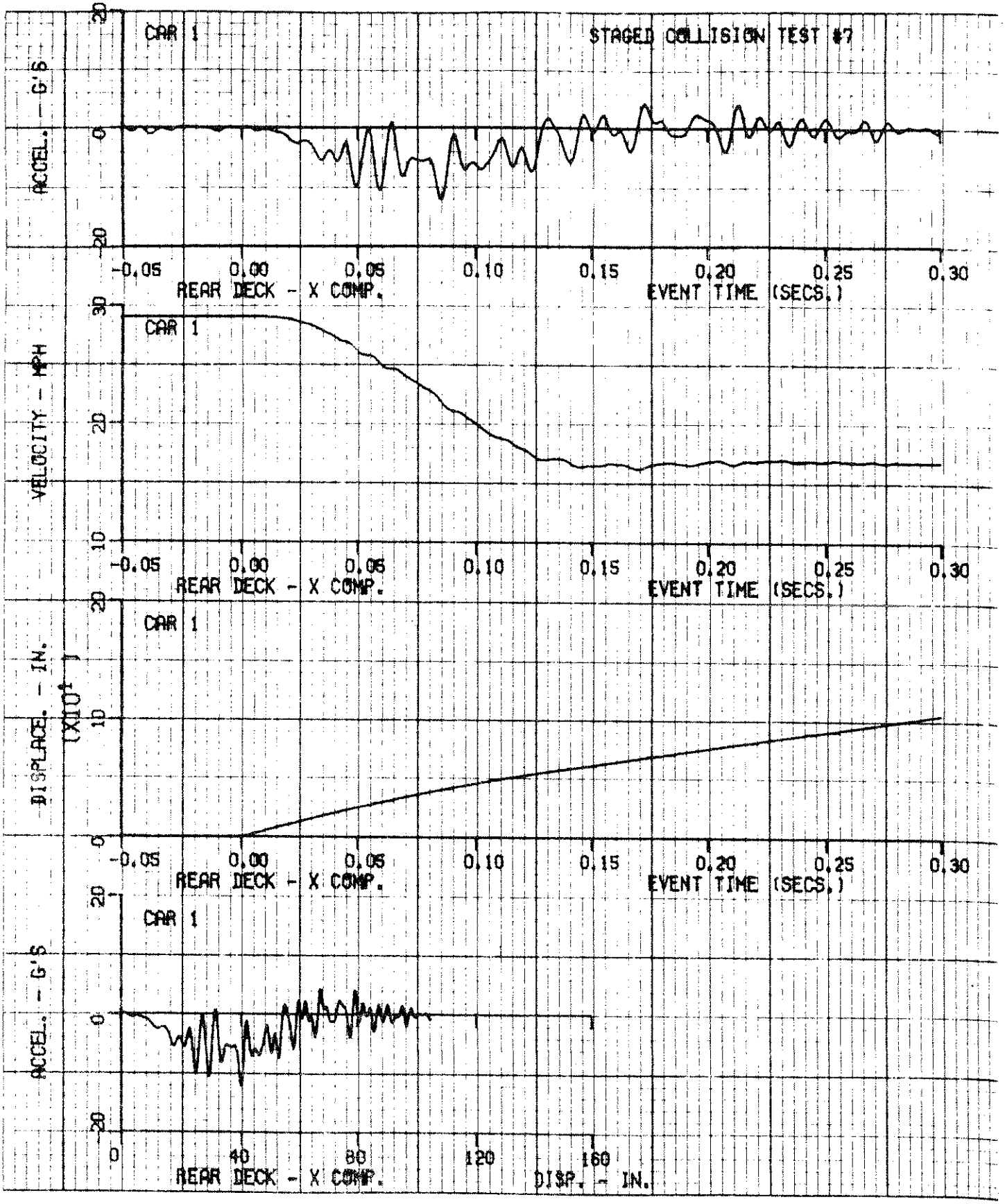

CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
4
2
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
0
1
2
3
4
RIGHT REAR CORNER - Z COMP.
DISP. - IN.

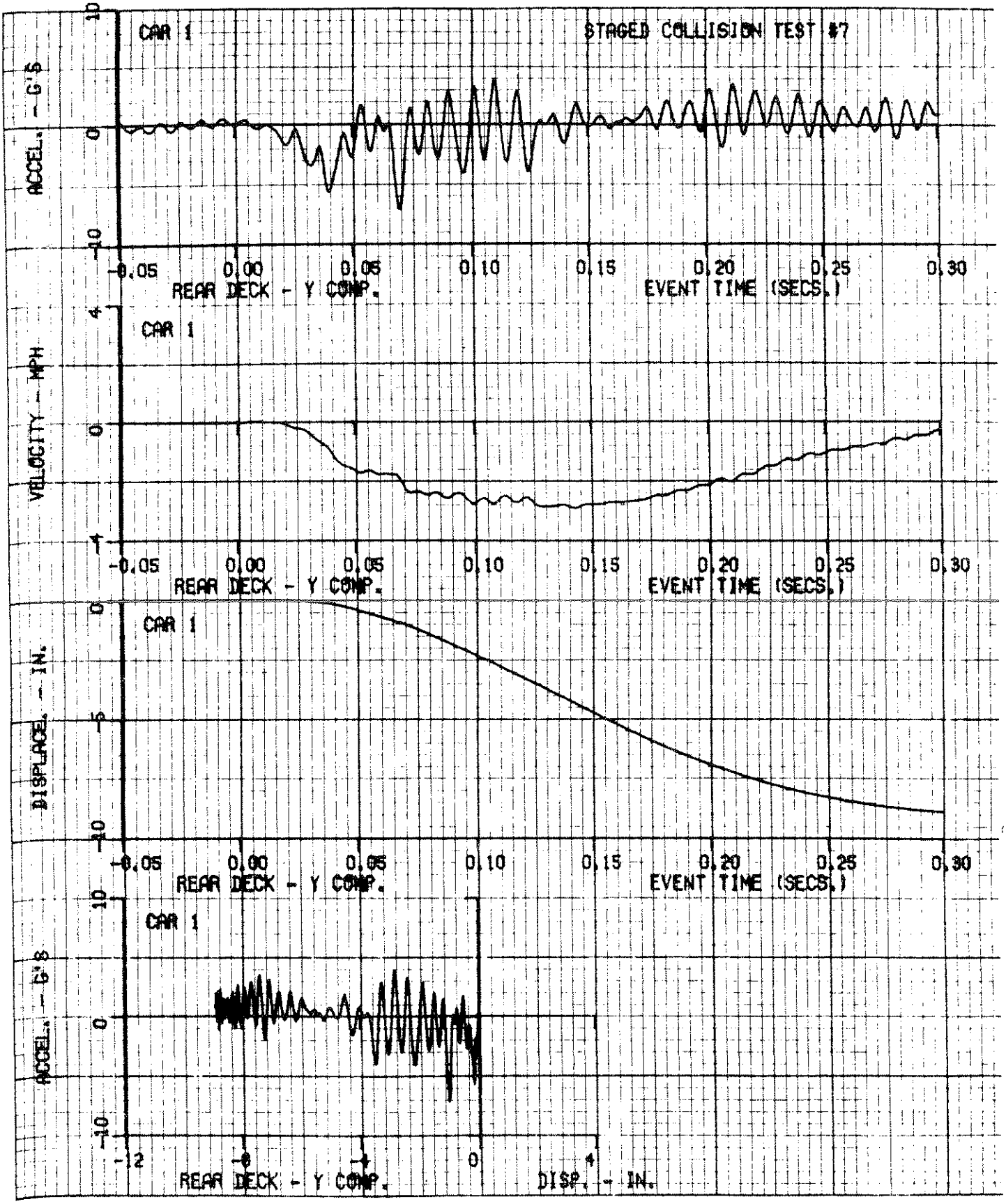

CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
30
20
10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X10¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
40
80
120
160
FIREWALL - X COMPONENT
DISP. - IN.

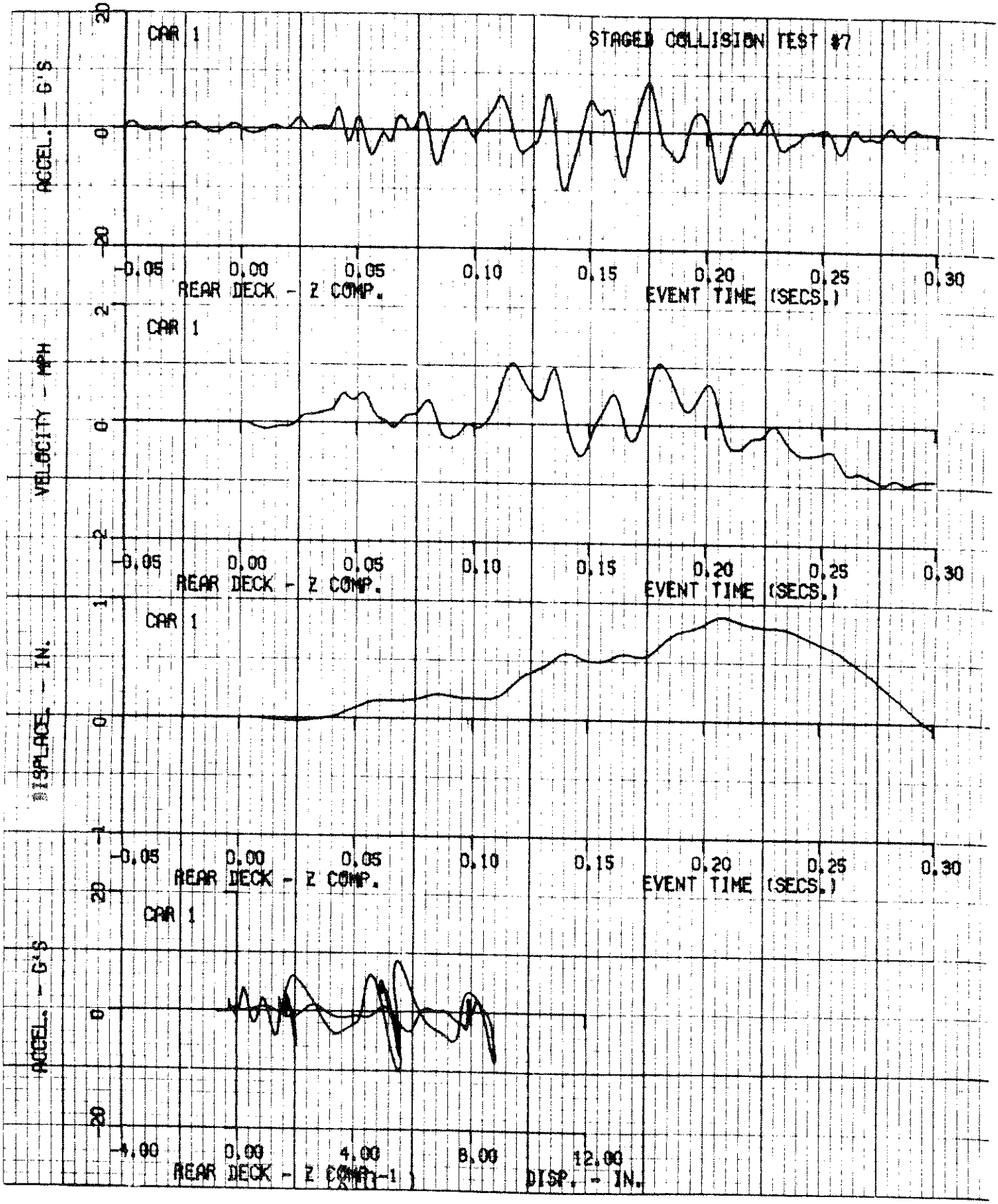

CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
5
0
-5
0
5
10
15
FIREWALL - Y COMPONENT
DISP. - IN.

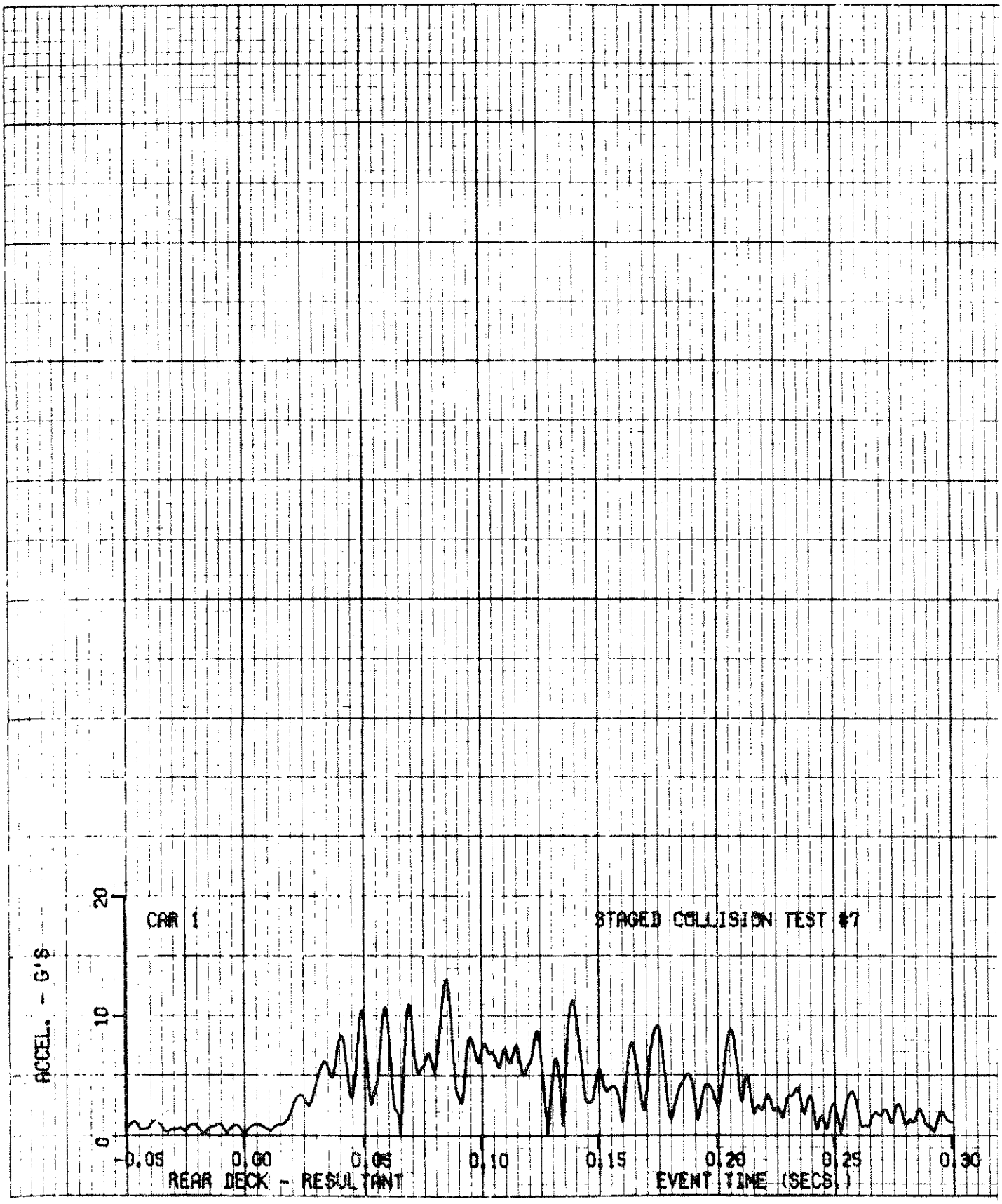

CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
4
2
0
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
1
2
3
4
FIREWALL - Z COMPONENT
DISP. - IN.


CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - RESULTANT
EVENT TIME (SECS.)

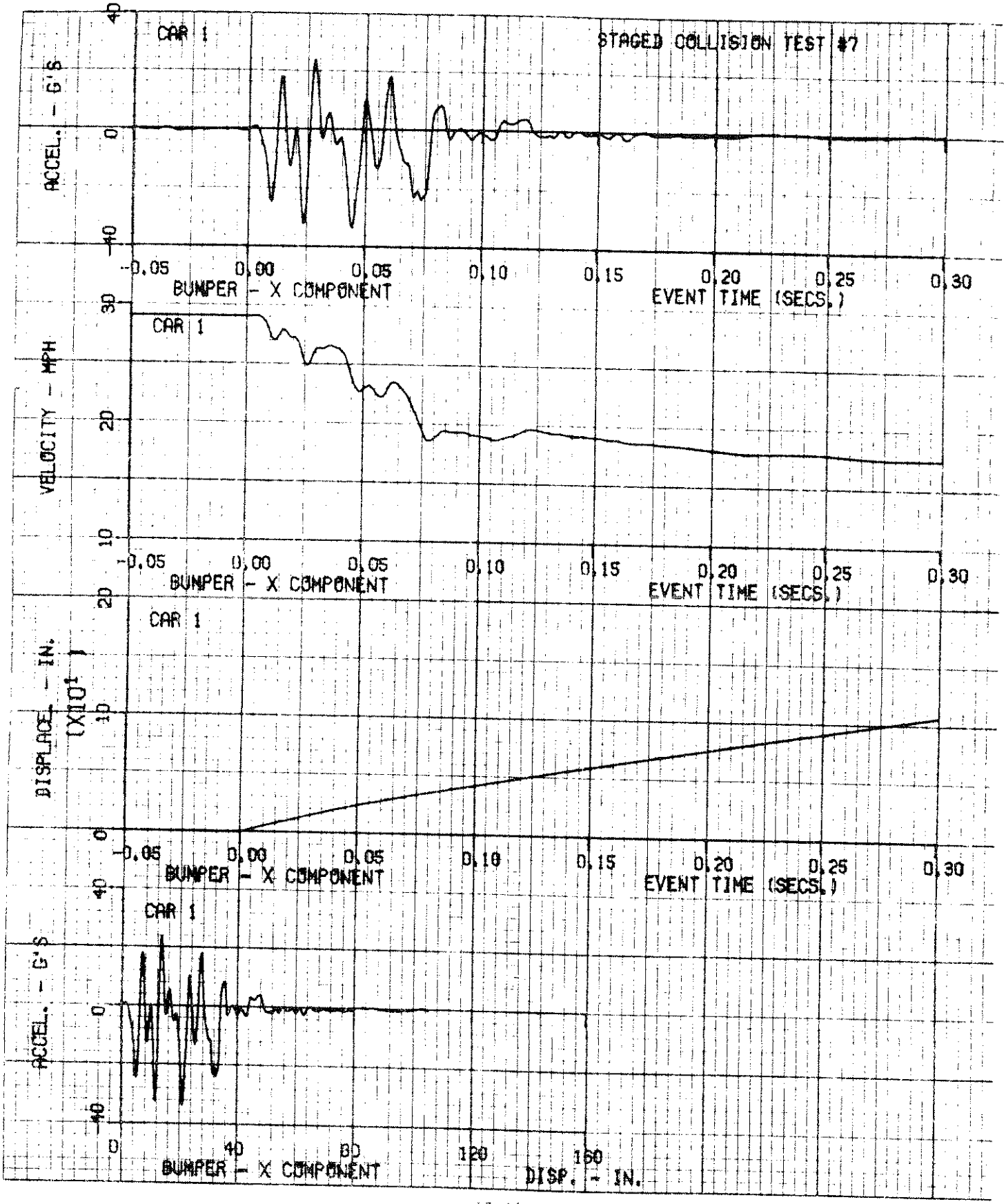

CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
30
20
10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X10⁴)
20
10
5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
40
80
120
160
REAR DECK - X COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
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
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.
0
-6
-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
10
0
-10
-12
-8
-4
0
4
REAR DECK - Y COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #7
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 1
VELOCITY - MPH
2
0
-2
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
1
0
-1
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
-4.00
0.00
4.00
8.00
12.00
REAR DECK - Z COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #7
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - RESULTANT
EVENT TIME (SECS.)

ZQ-6057-V-5


STAGED COLLISION TEST #7
CAR 1
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
30
20
10
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X10¹)
20
10
0
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
0
40
80
120
160
BUMPER - X COMPONENT
DISP. - IN.

RICSAC TEST NO. 7

VEHICLE RESPONSES

CAR NO. 2 VW RABBIT

DATA PLOTS

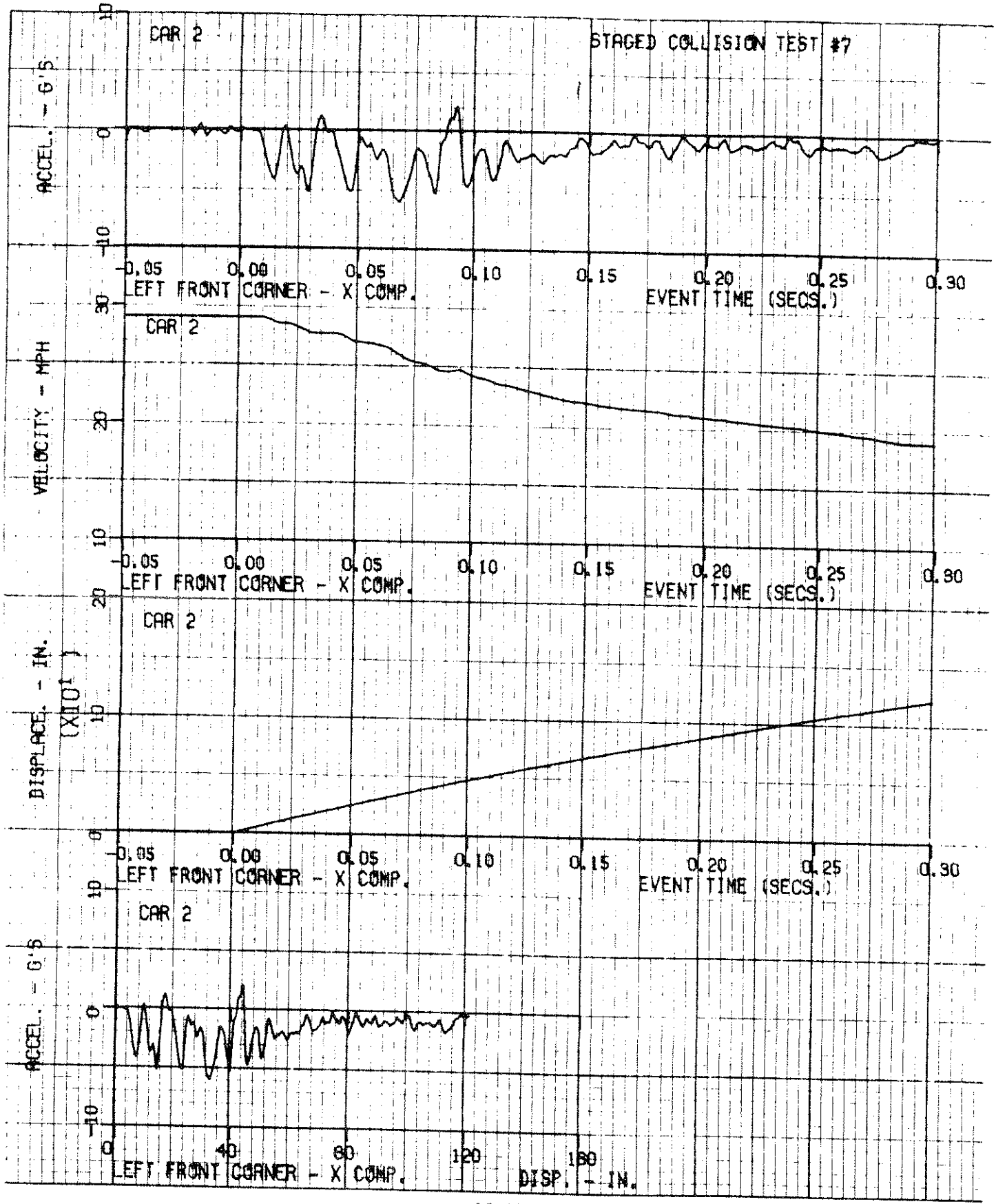
ACCELERATION TIME HISTORIES

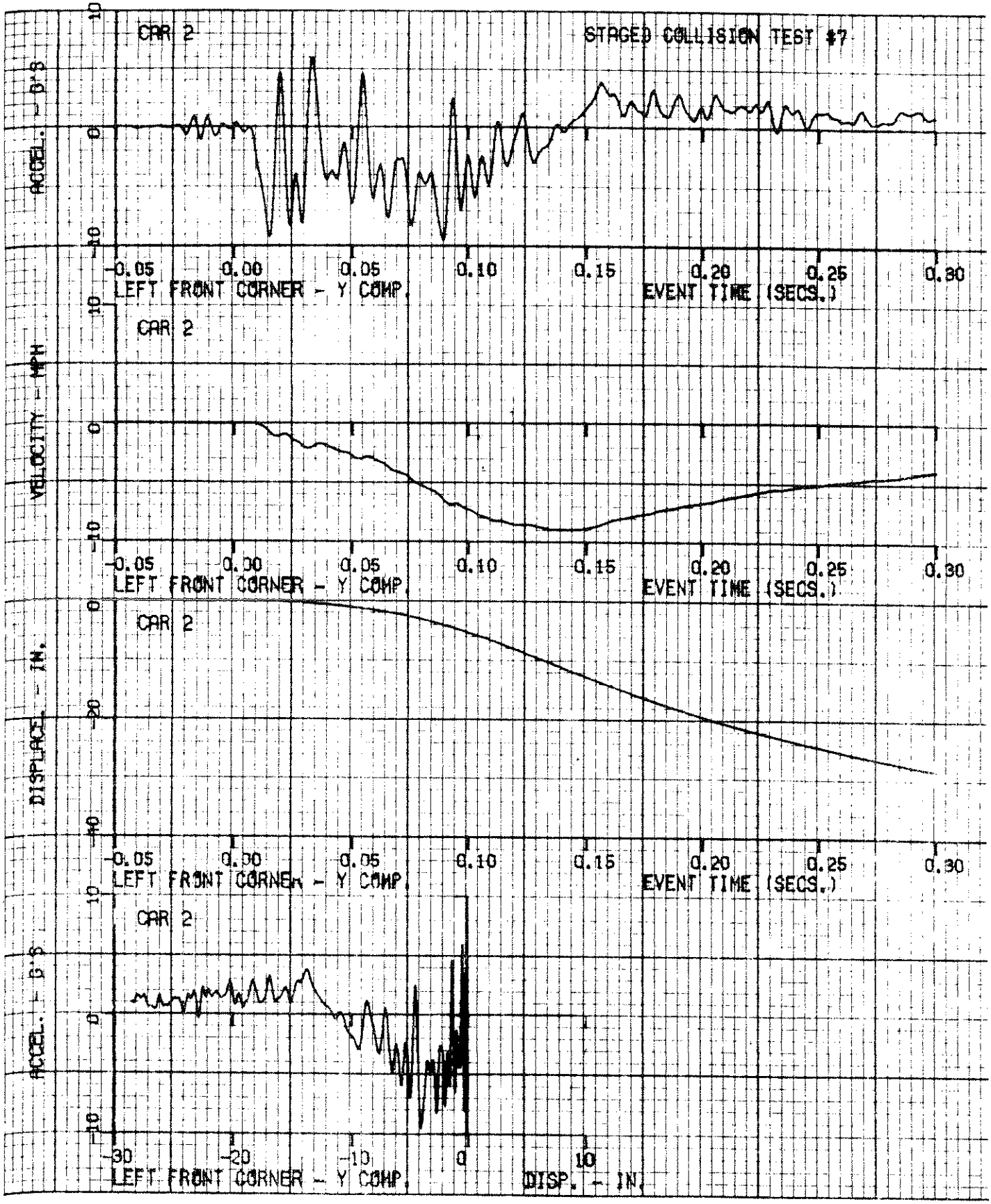
VELOCITY TIME HISTORIES

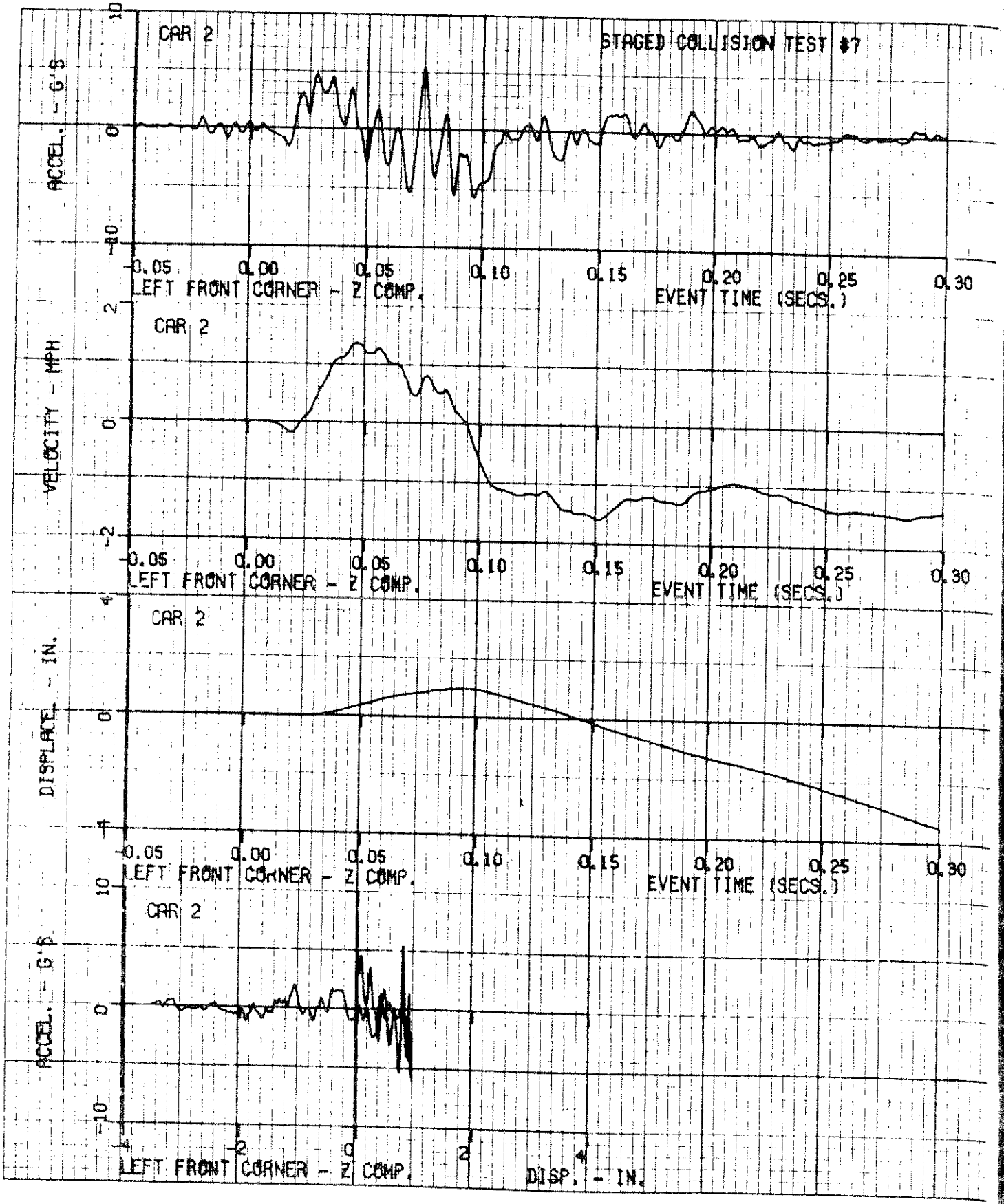
DISPLACEMENT TIME HISTORIES

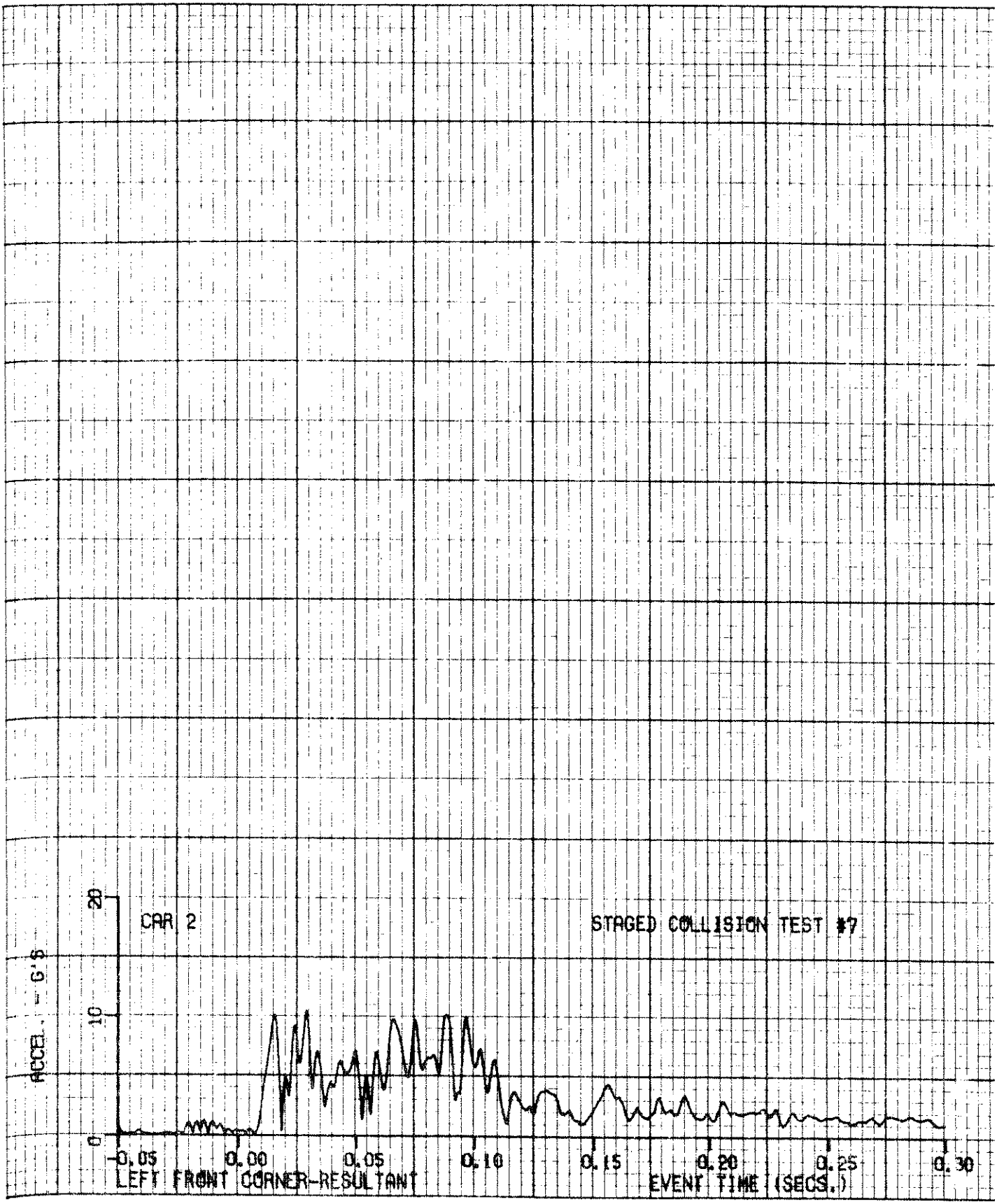
ACCELERATION VS DISPLACEMENT

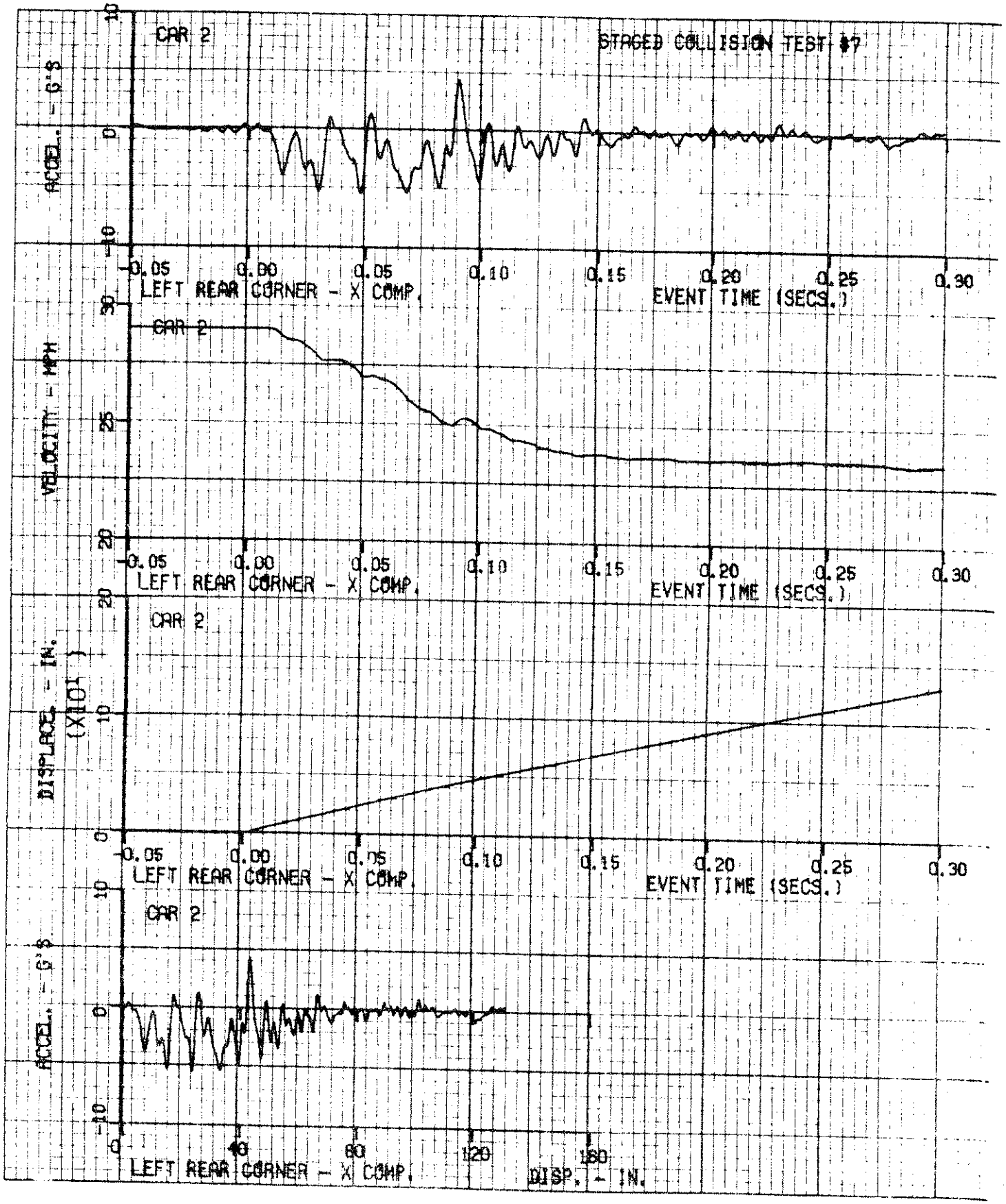
FILTER CLASS 60

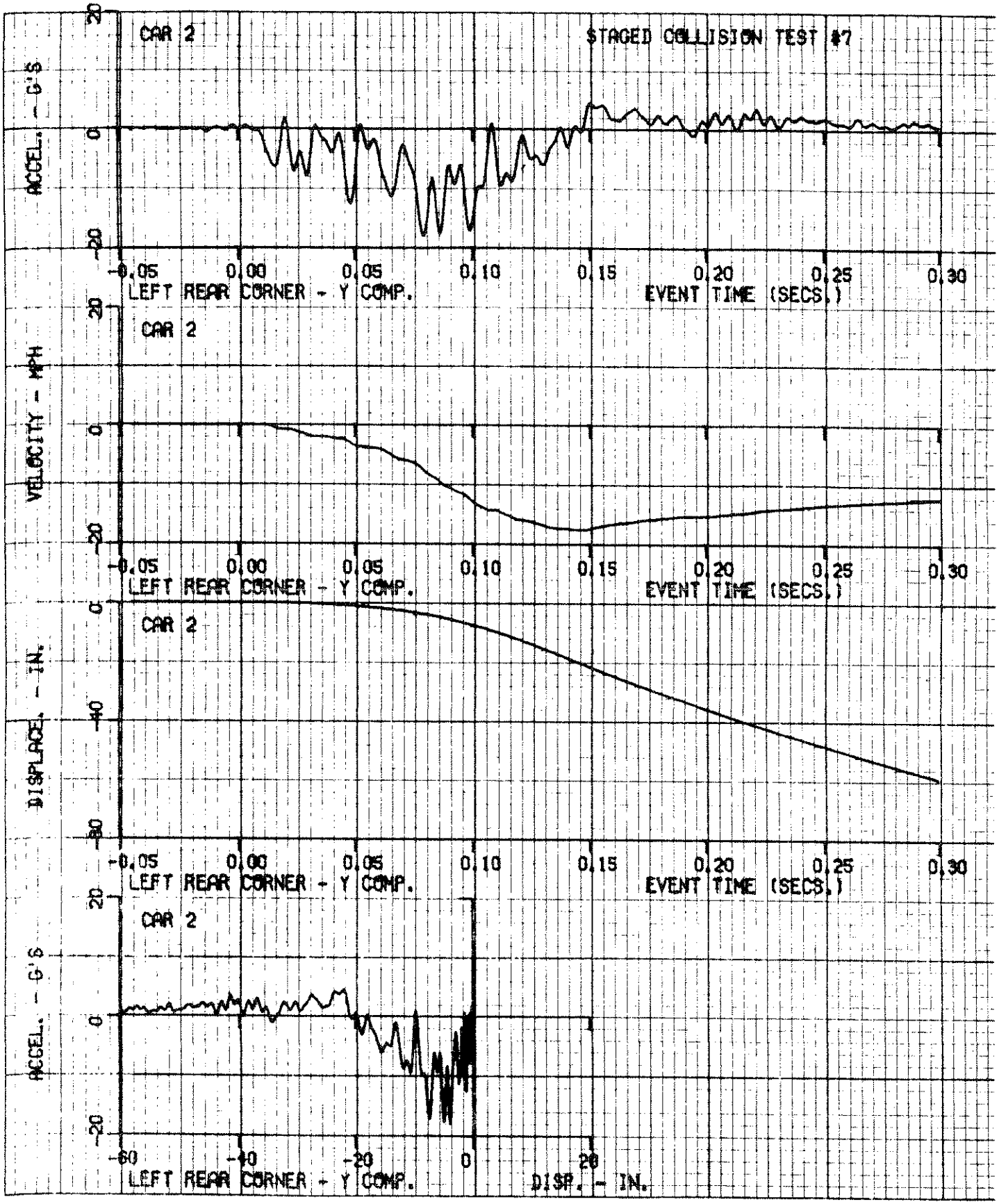

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
30
20
10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
(X10¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT FRONT CORNER - X COMP.
DISP. - IN.

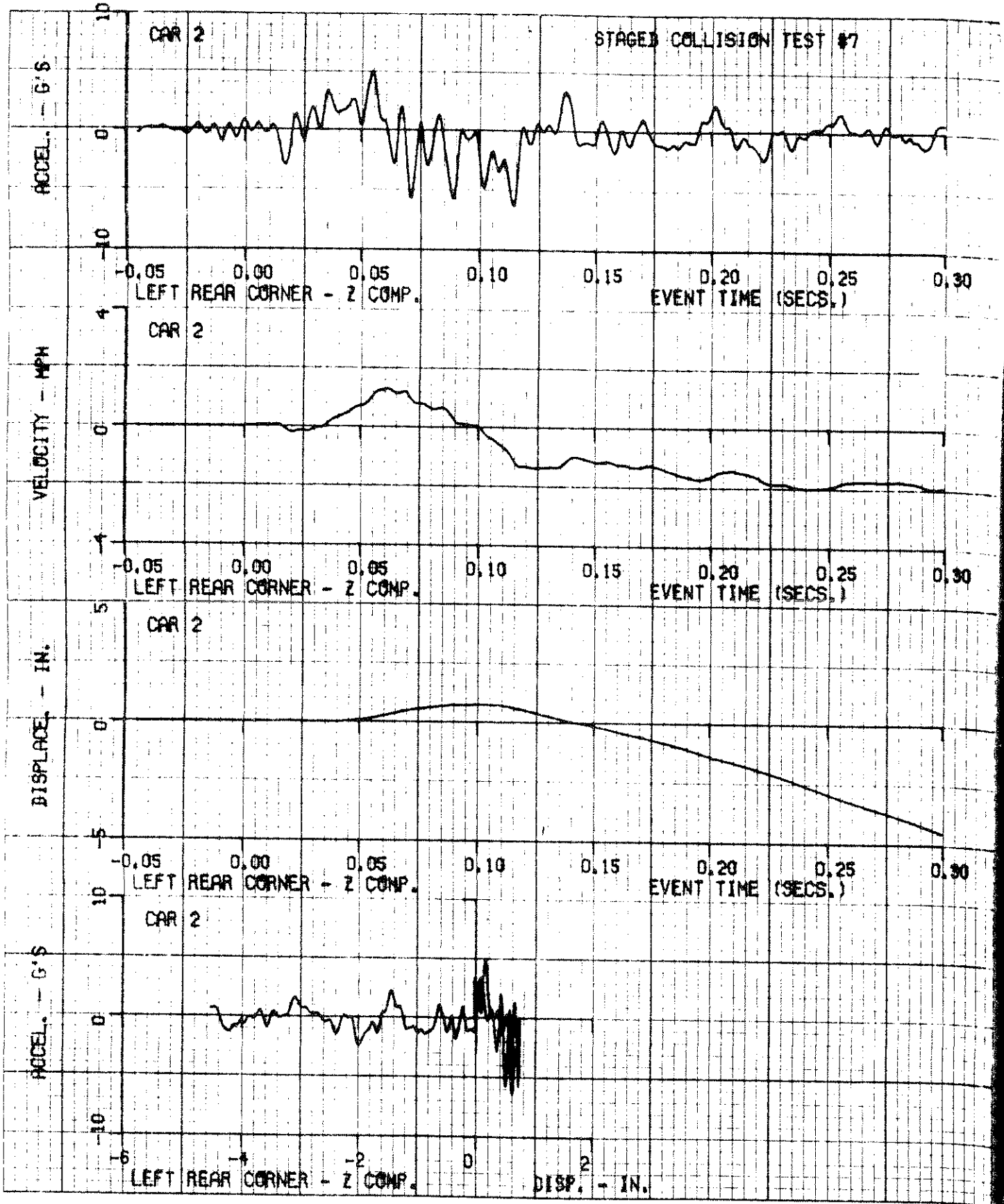

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-30
-20
-10
0
10
LEFT FRONT CORNER - Y COMP.
DISP. - IN.

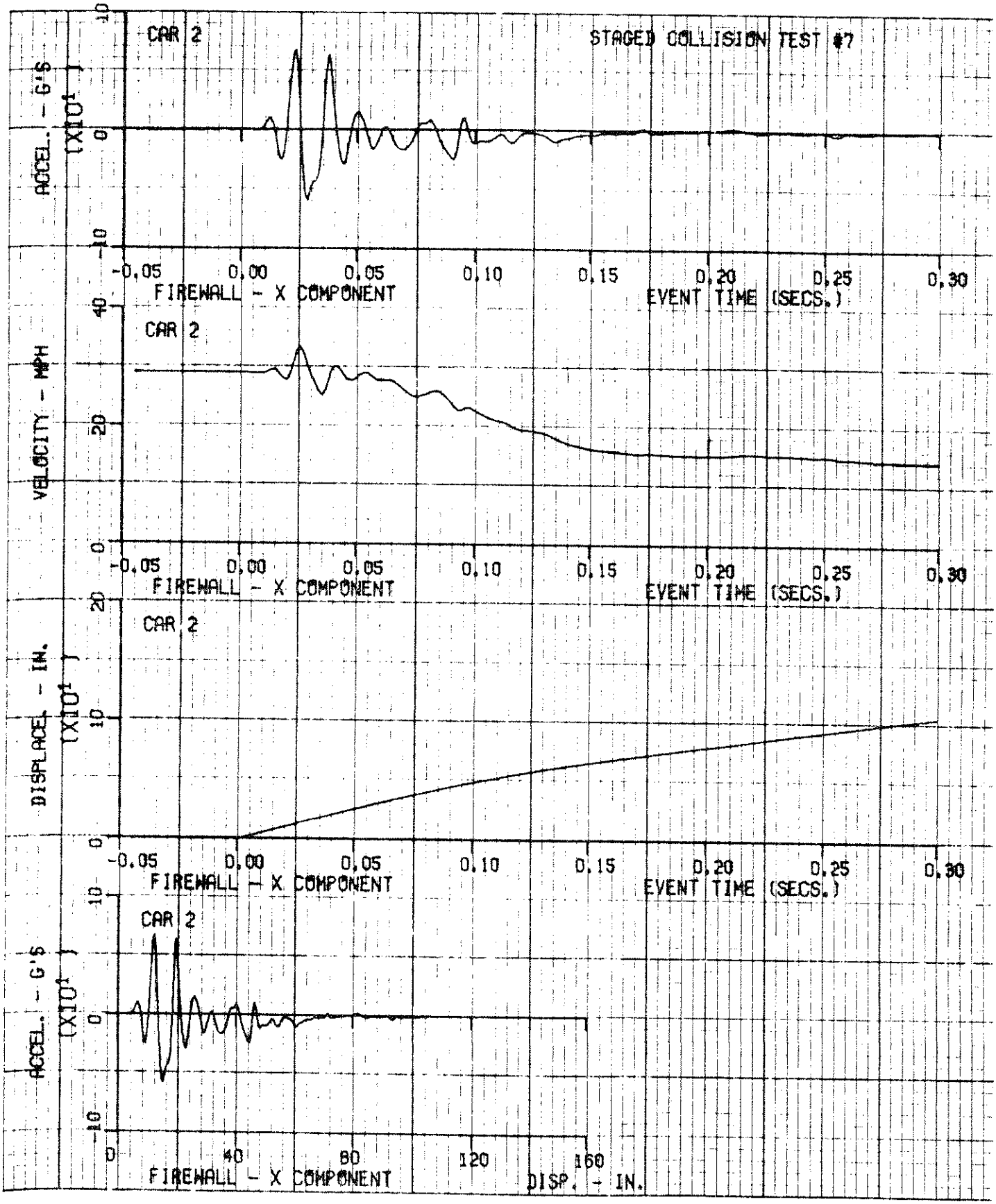

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
2
0
-2
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
4
0
-4
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-4
-2
0
2
4
LEFT FRONT CORNER - Z COMP.
DISP. - IN.

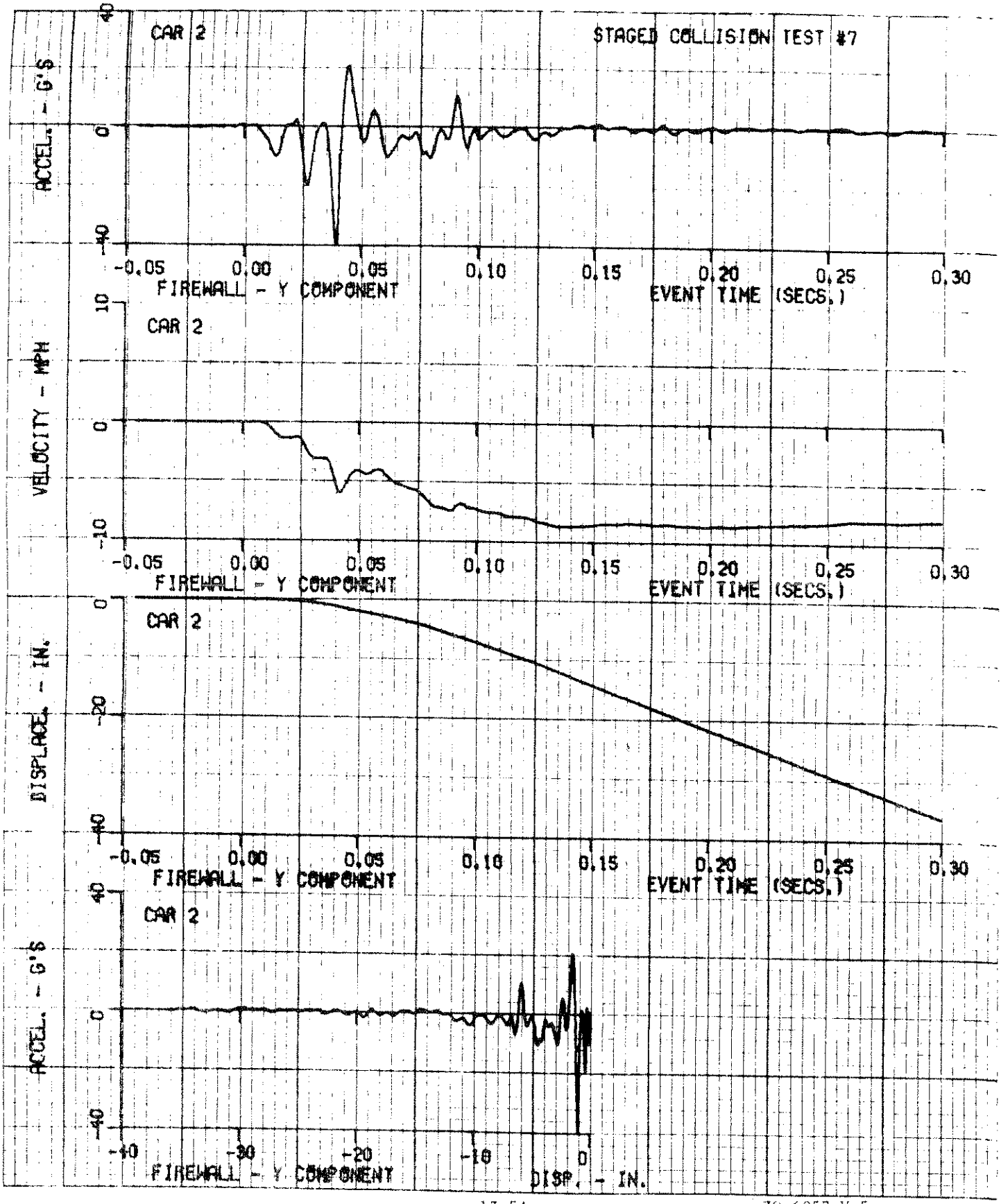

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)

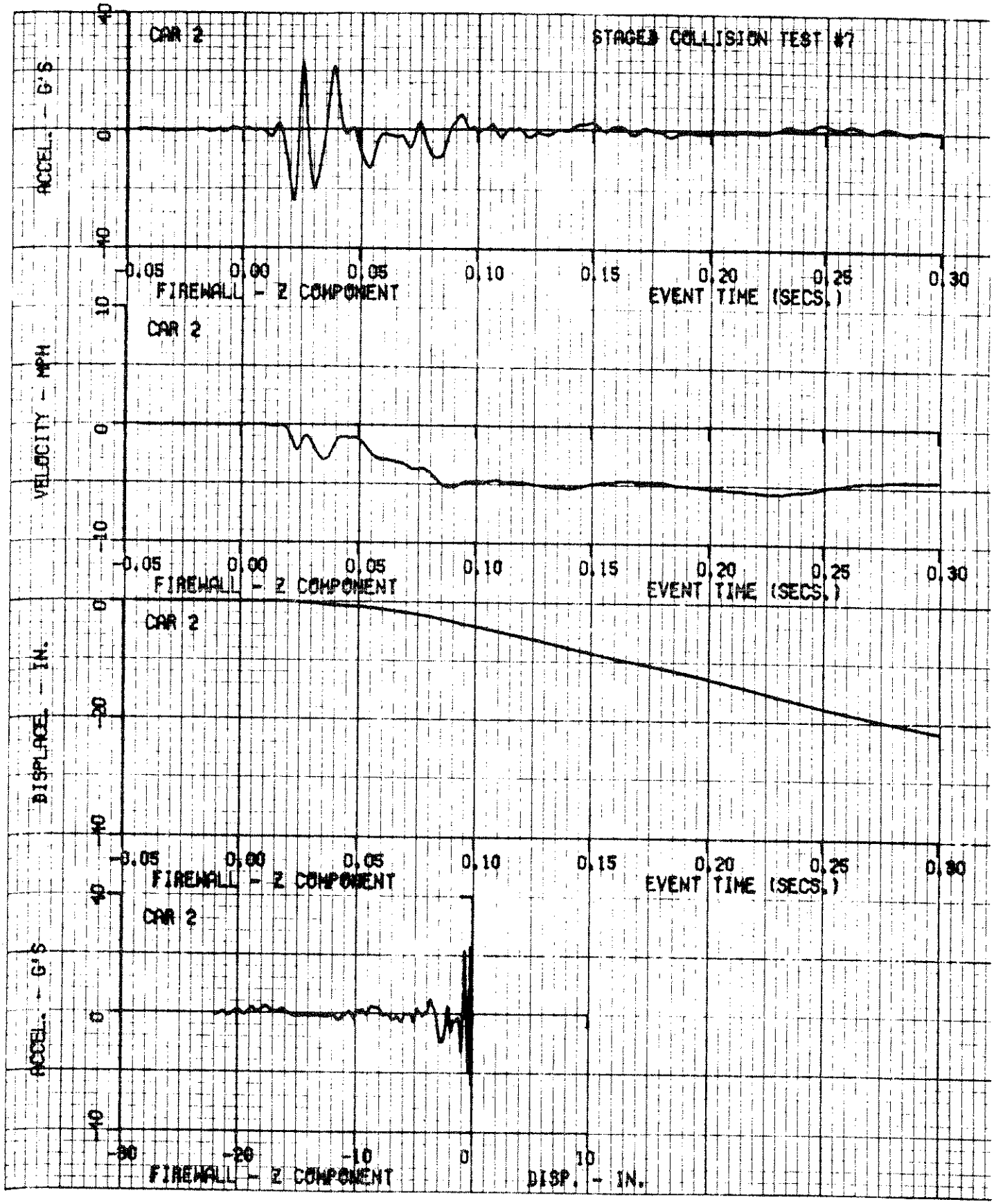

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
30
25
20
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
(X101)
20
10
0
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT REAR CORNER - X COMP.
DISP. - IN.

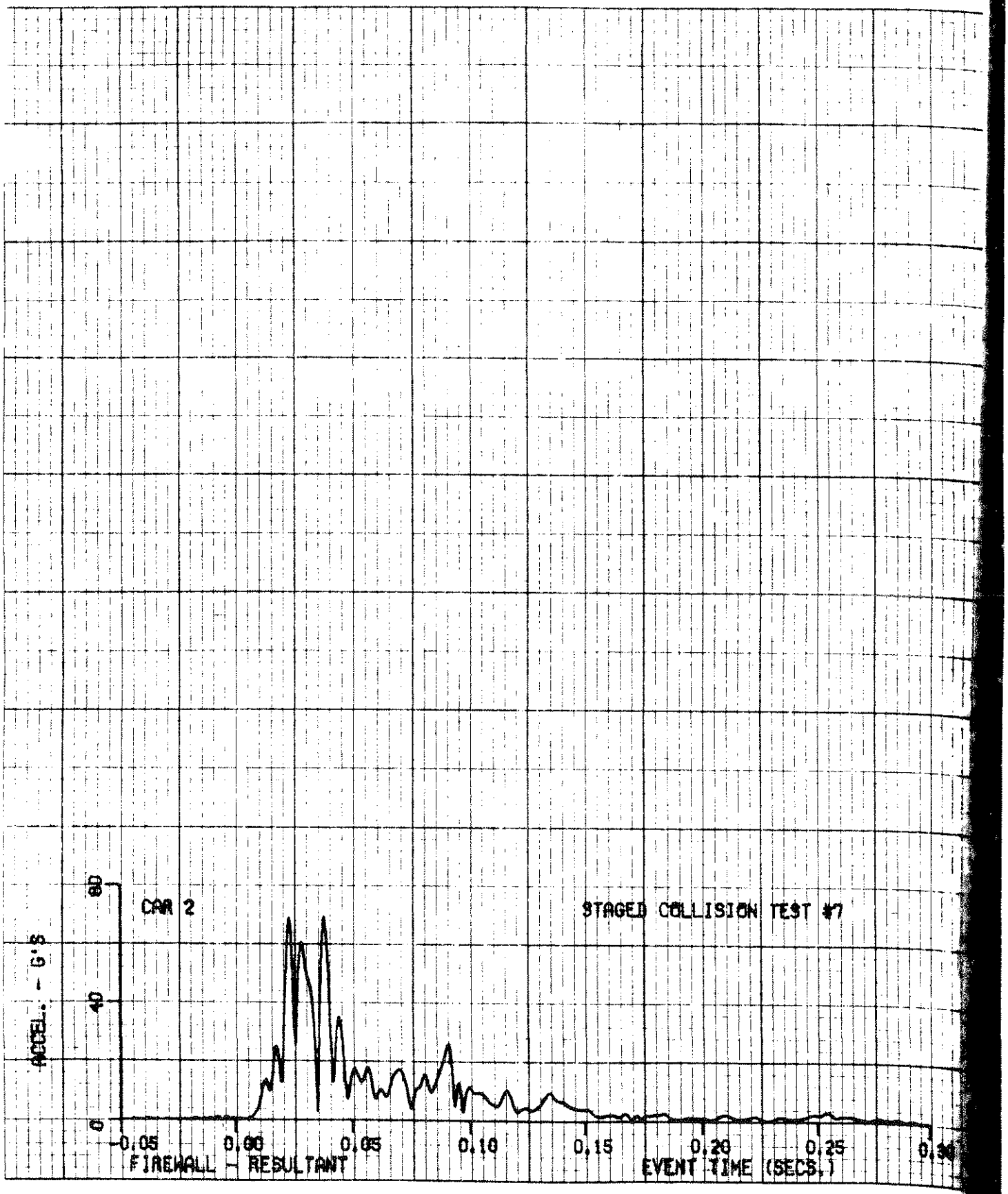

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-60
-40
-20
0
20
LEFT REAR CORNER - Y COMP.
DISP. - IN.

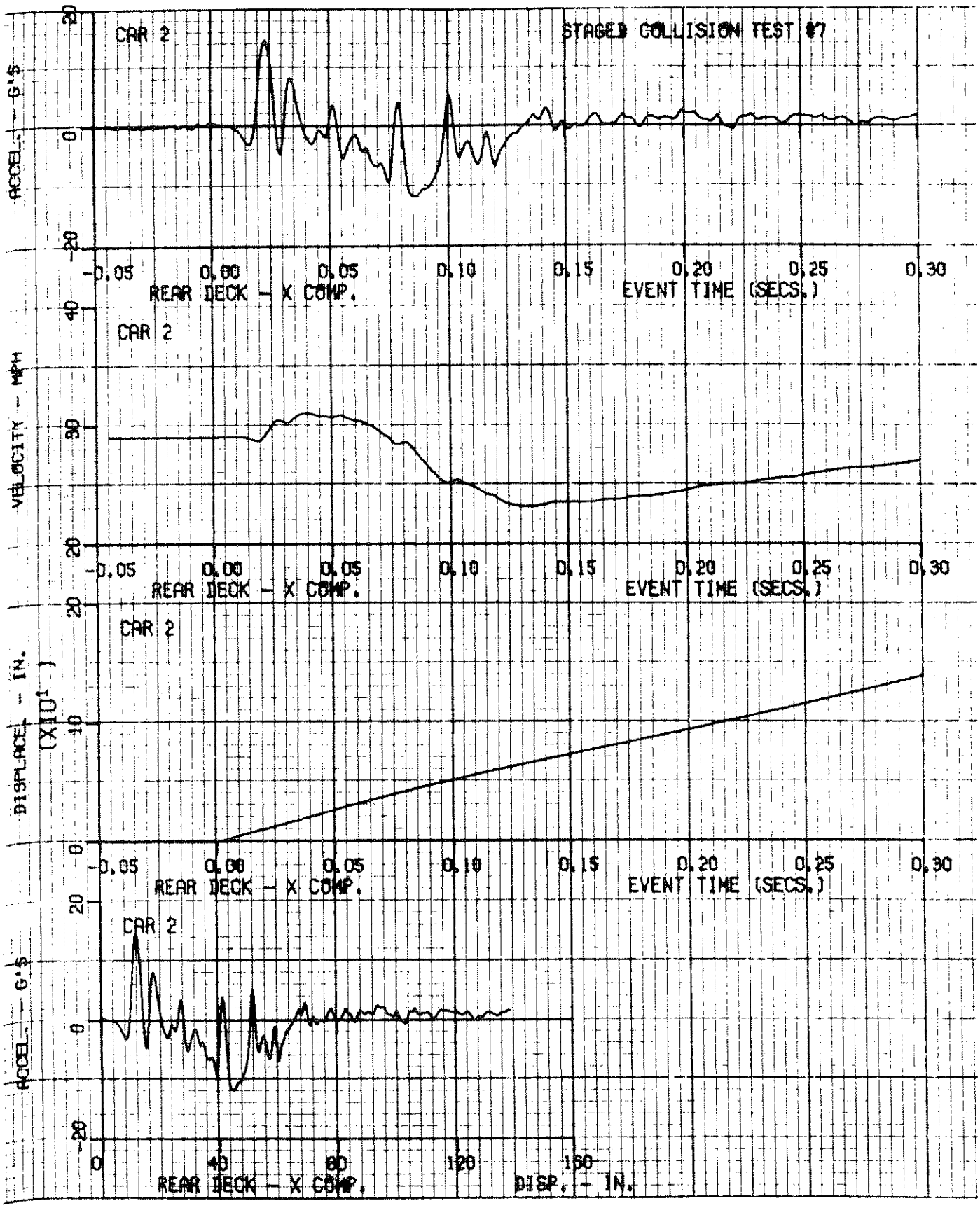

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
LEFT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
5
0
-5
LEFT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-6
-4
-2
0
2
LEFT REAR CORNER - Z COMP.
DISP. - IN.

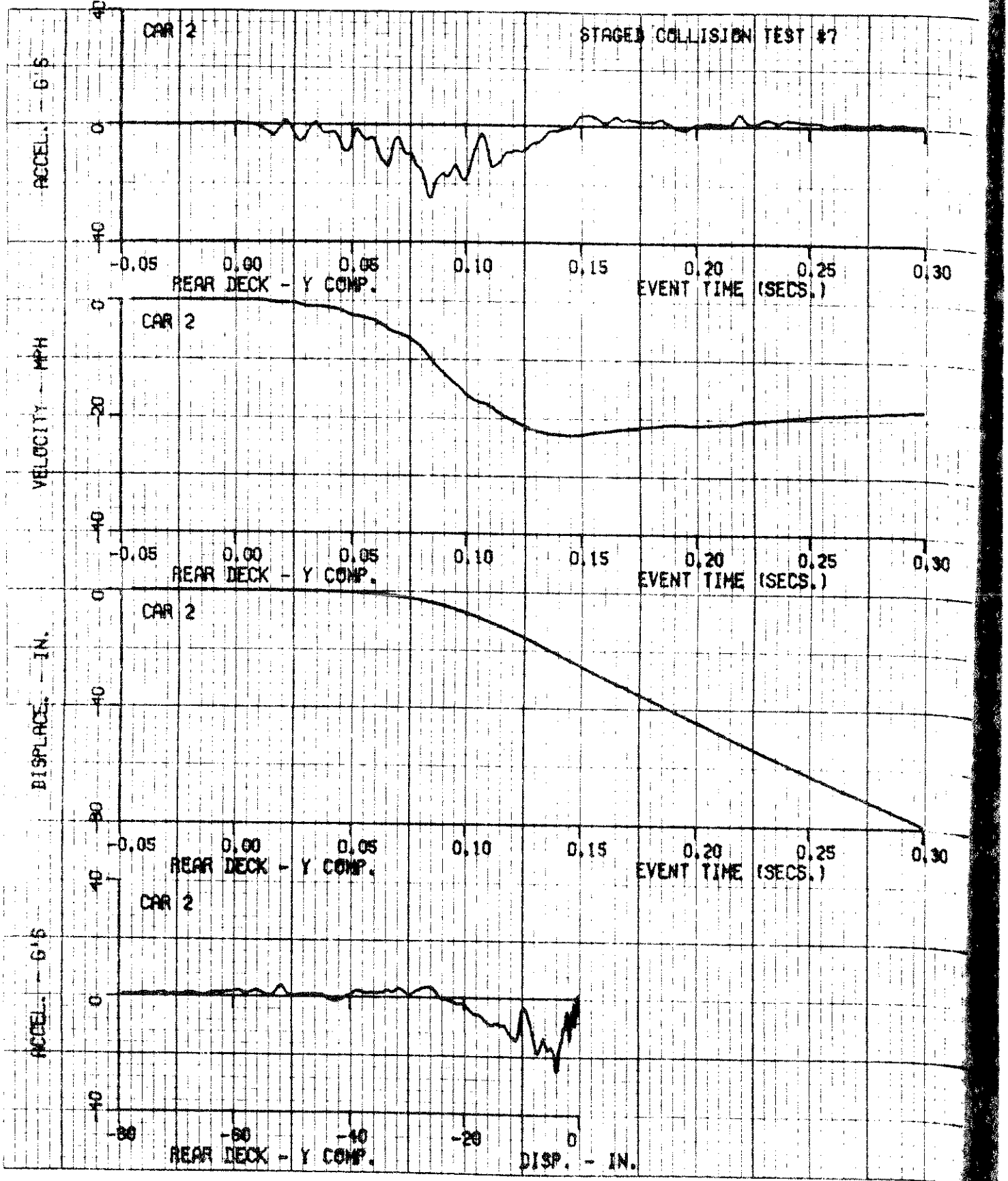

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
20
0
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10¹)
20
10
0
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
0
40
80
120
160
FIREWALL - X COMPONENT
DISP. - IN.

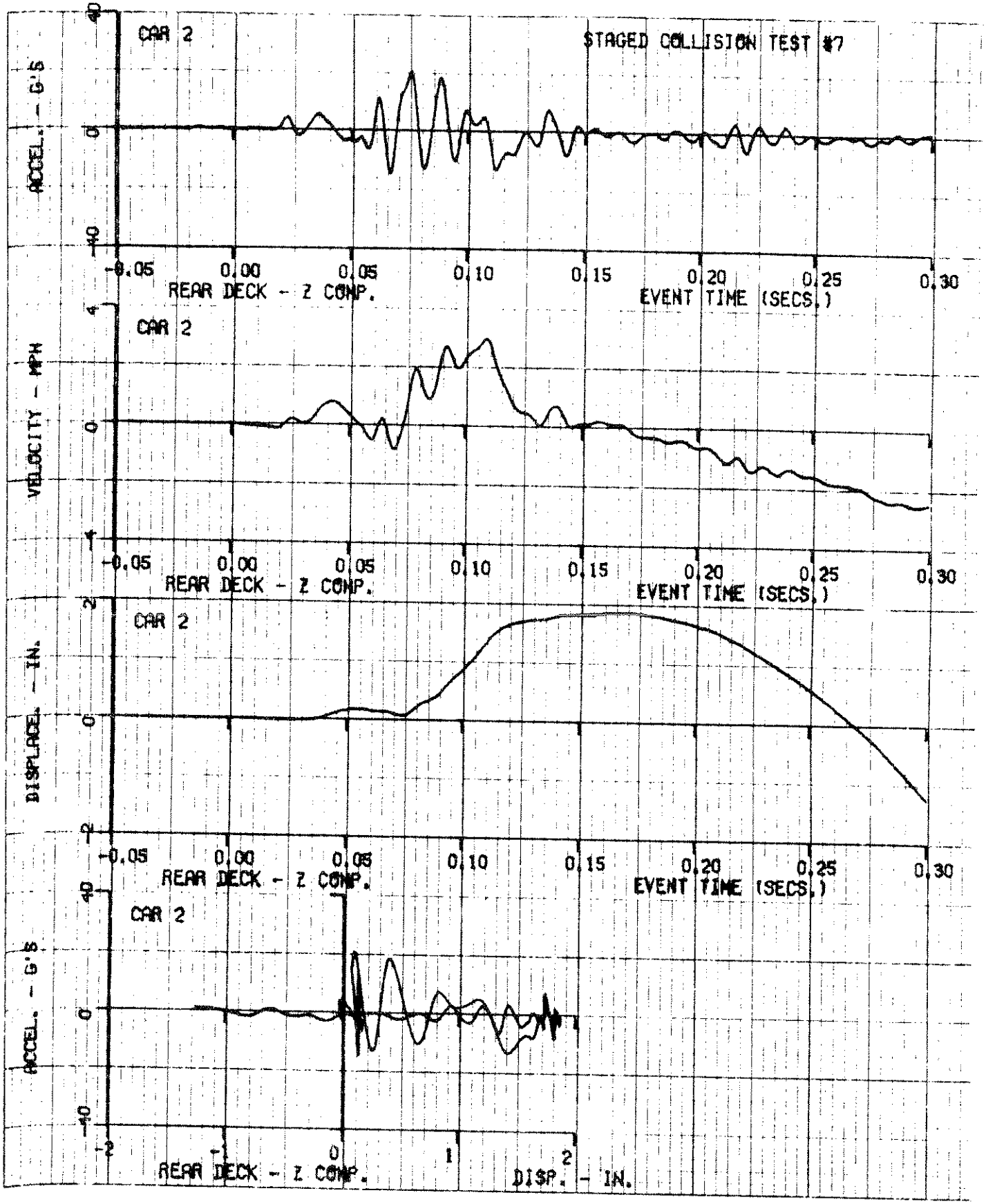

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-40
-30
-20
-10
0
FIREWALL - Y COMPONENT
DISP. - IN.

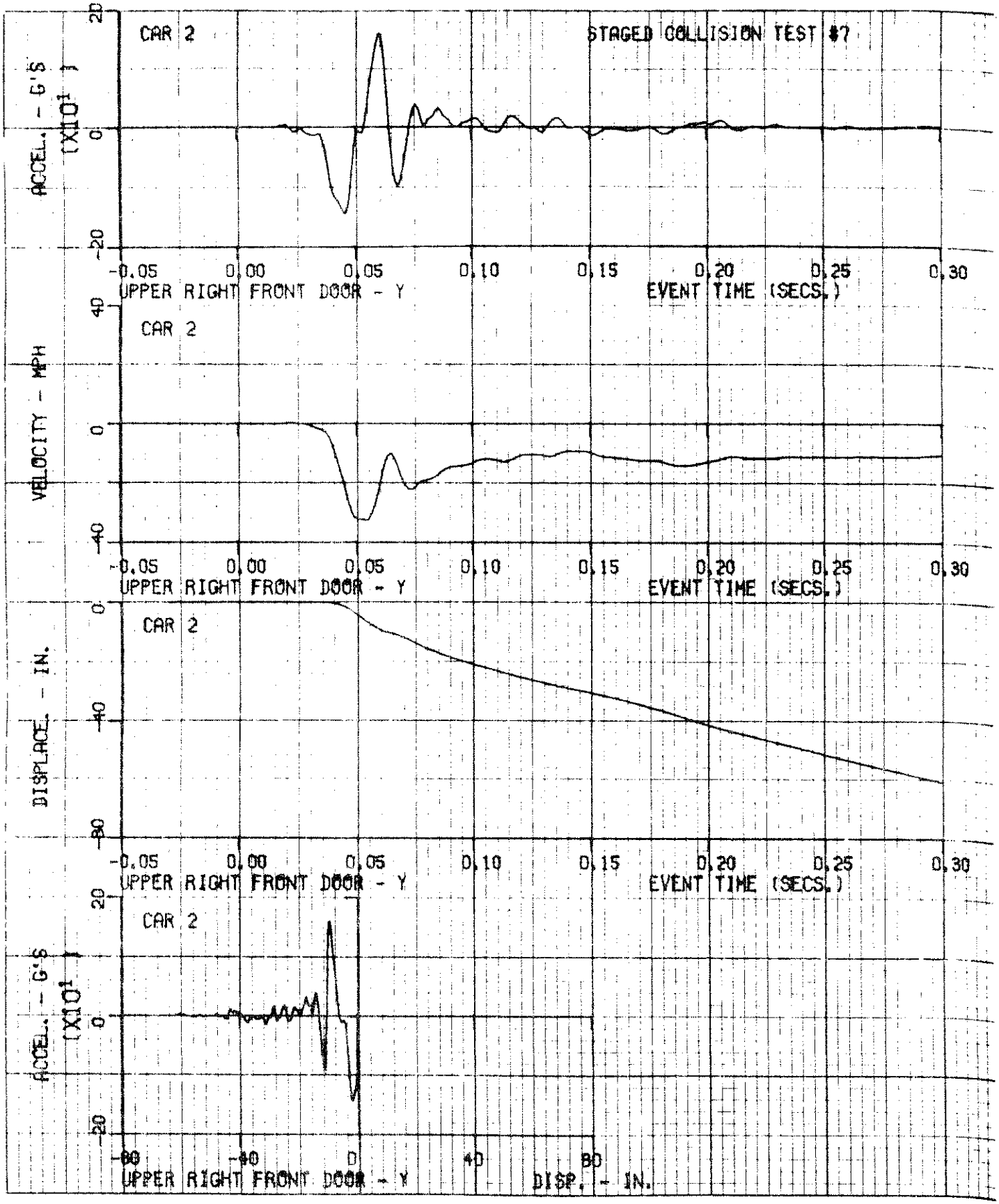

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-30
-20
-10
0
10
FIREWALL - Z COMPONENT
DISP. - IN.

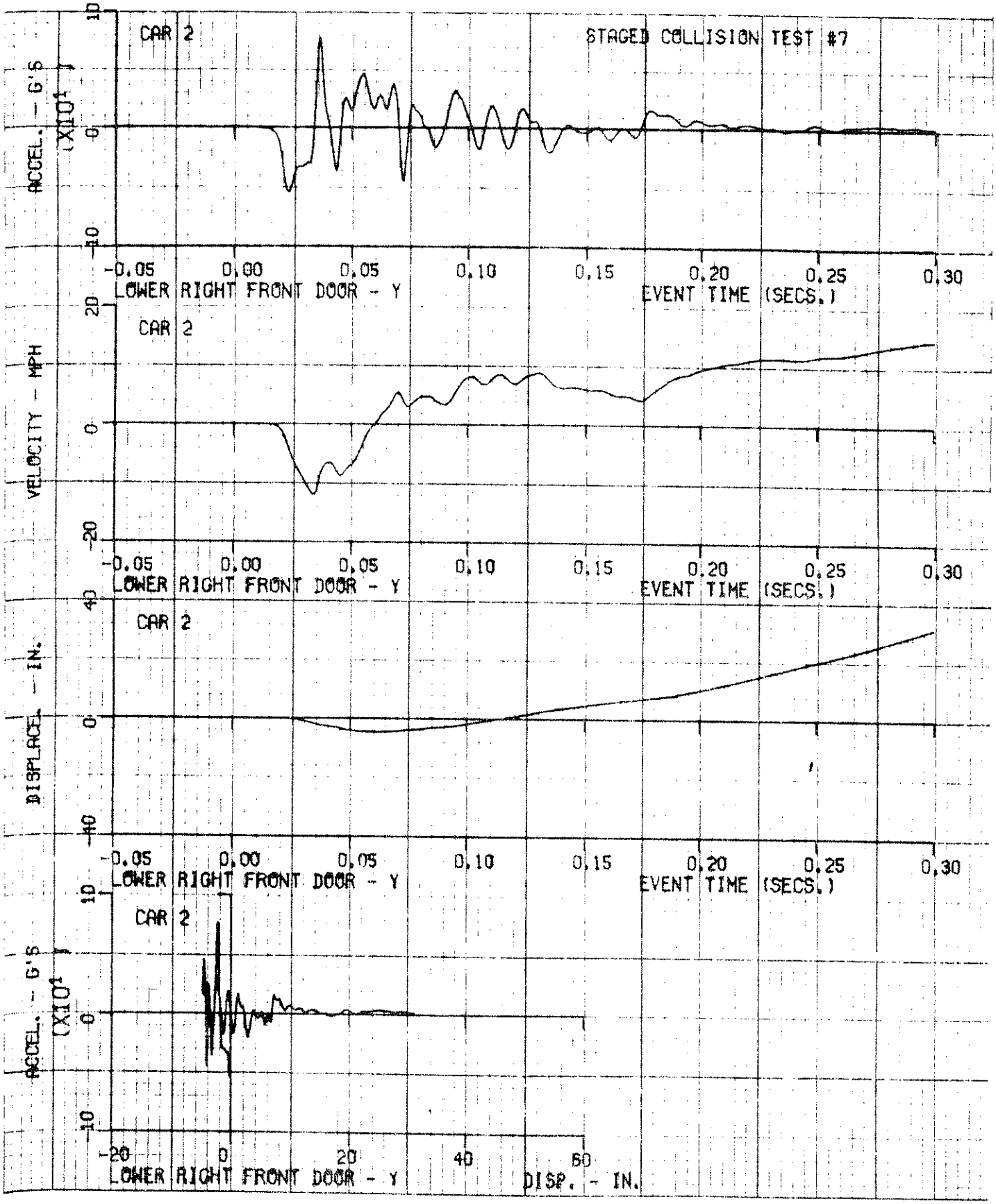

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
80
40
0
0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - RESULTANT
EVENT TIME (SECS.)

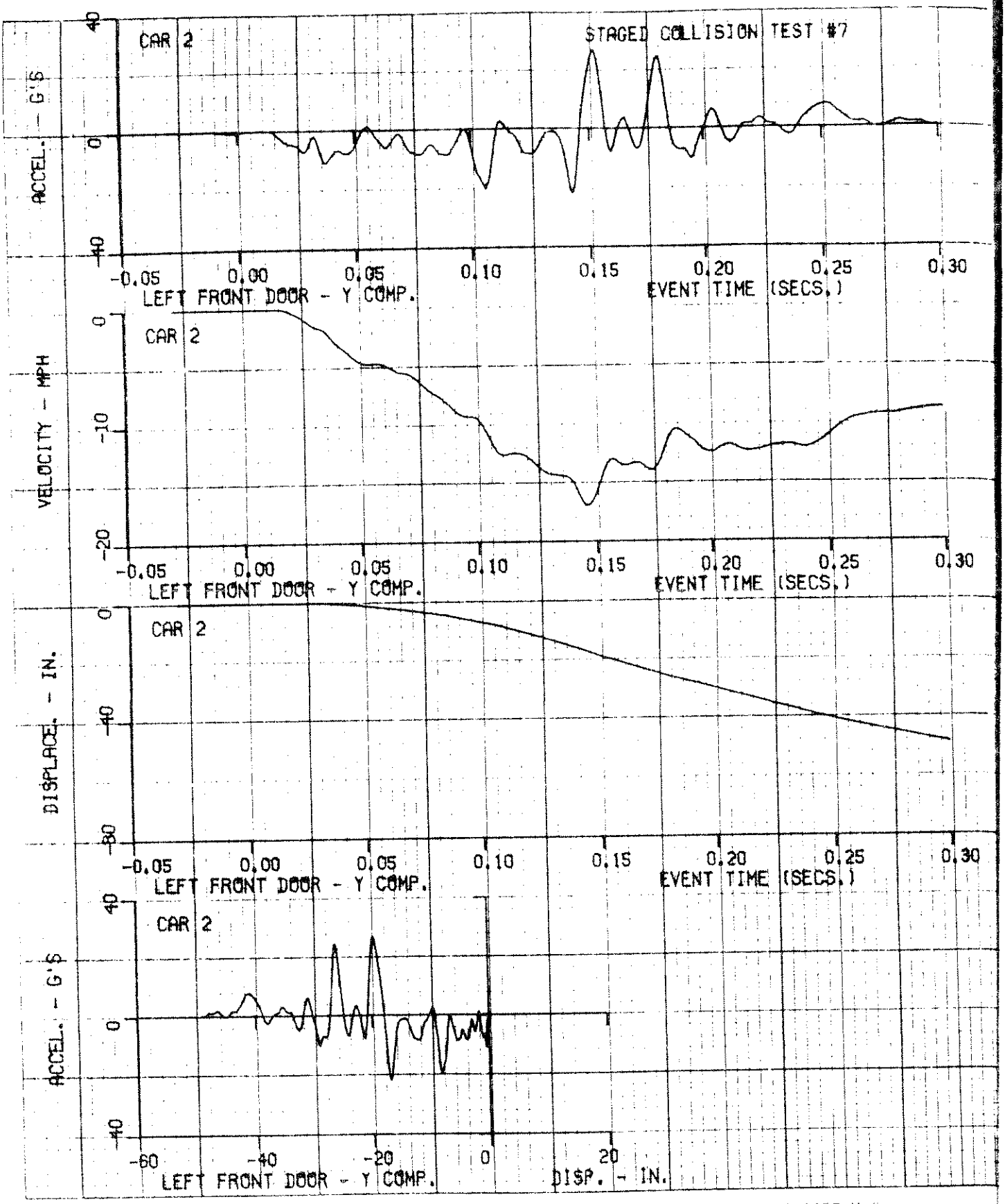

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10¹)
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
REAR DECK - X COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-80
-60
-40
-20
0
REAR DECK - Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
40
0
-40
-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
DISPLACEM. - IN.
2
0
-2
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-2
-1
0
1
2
REAR DECK - Z COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S (X10¹)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
UPPER RIGHT 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
UPPER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
UPPER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
20
0
-20
-80
-40
0
40
80
UPPER RIGHT FRONT DOOR - Y
DISP. - IN.


CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
0
-20
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
DISPLACEL - IN.
40
0
-40
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
-20
0
20
40
60
LOWER RIGHT FRONT DOOR - Y
DISP. - IN.


STAGED COLLISION TEST #7
CAR 2
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT DOOR - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-10
-20
LEFT FRONT DOOR - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
LEFT FRONT DOOR - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-60
-40
-20
0
20
LEFT FRONT DOOR - Y COMP.
DISP. - IN.

DUMMY INJURY CRITERIA VALUES

CAR 2 - STRUCK VEHICLE

	MAXIMUM ACCELERATION ("G") *											
	HEAD				CHEST				PELVIS			
	X	Y	Z	R	X	Y	Z	R	X	Y	Z	R
DUMMY (1)	-33	-50	55	58	12	-62	-10	70	-	-95	-	-
DUMMY (2)	- 54	35	50	60	-37	-120	-18	135	-	-100	-	-
DUMMY (3)												
DUMMY (4)												

	MAXIMUM FORCE-FEMUR LOAD (LBS)	
	RIGHT FEMUR	LEFT FEMUR
DUMMY (1)	-70	-100
DUMMY (2)	1350	900
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)	744.5	.104	.106	163.2	1350	378
DUMMY (2)	511.2	.065	.127	36.8	720	1620
DUMMY (3)						
DUMMY (4)						

*DEFINED AS EXCEEDING 0.003 SEC. DURATION

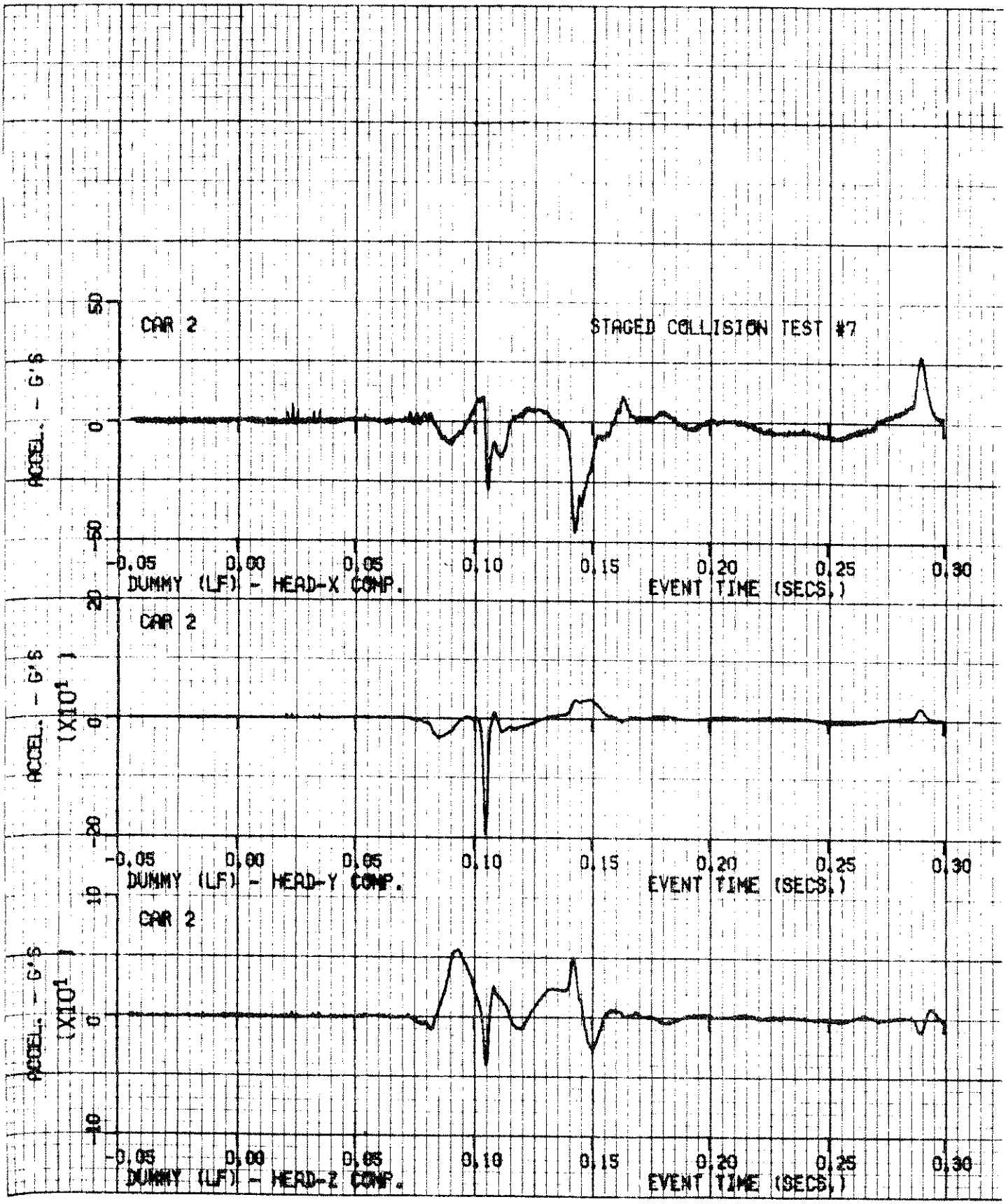
**AS DEFINED IN FMVSS NO. 208

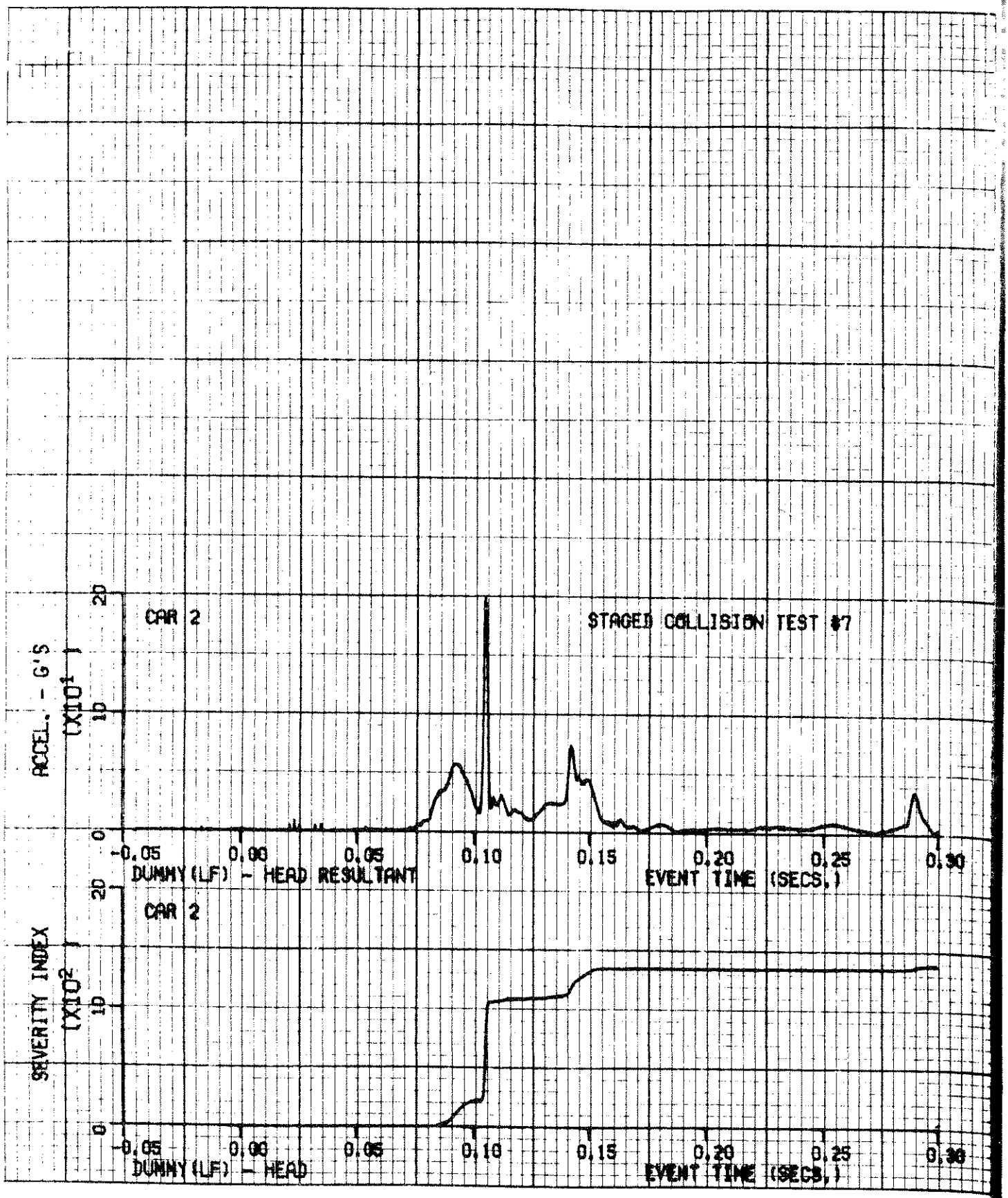
RICSAC TEST NO. 7

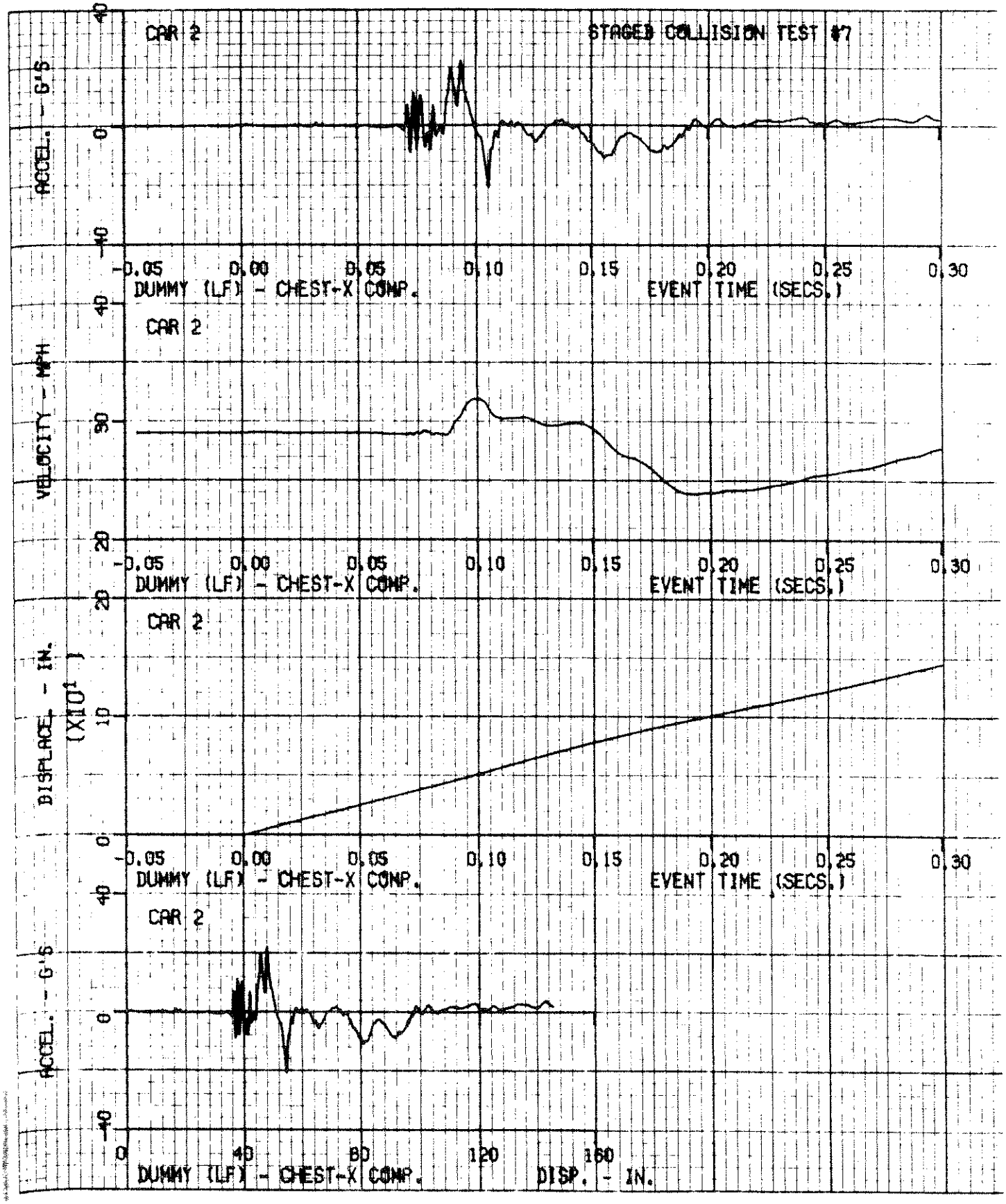
DUMMY DATA

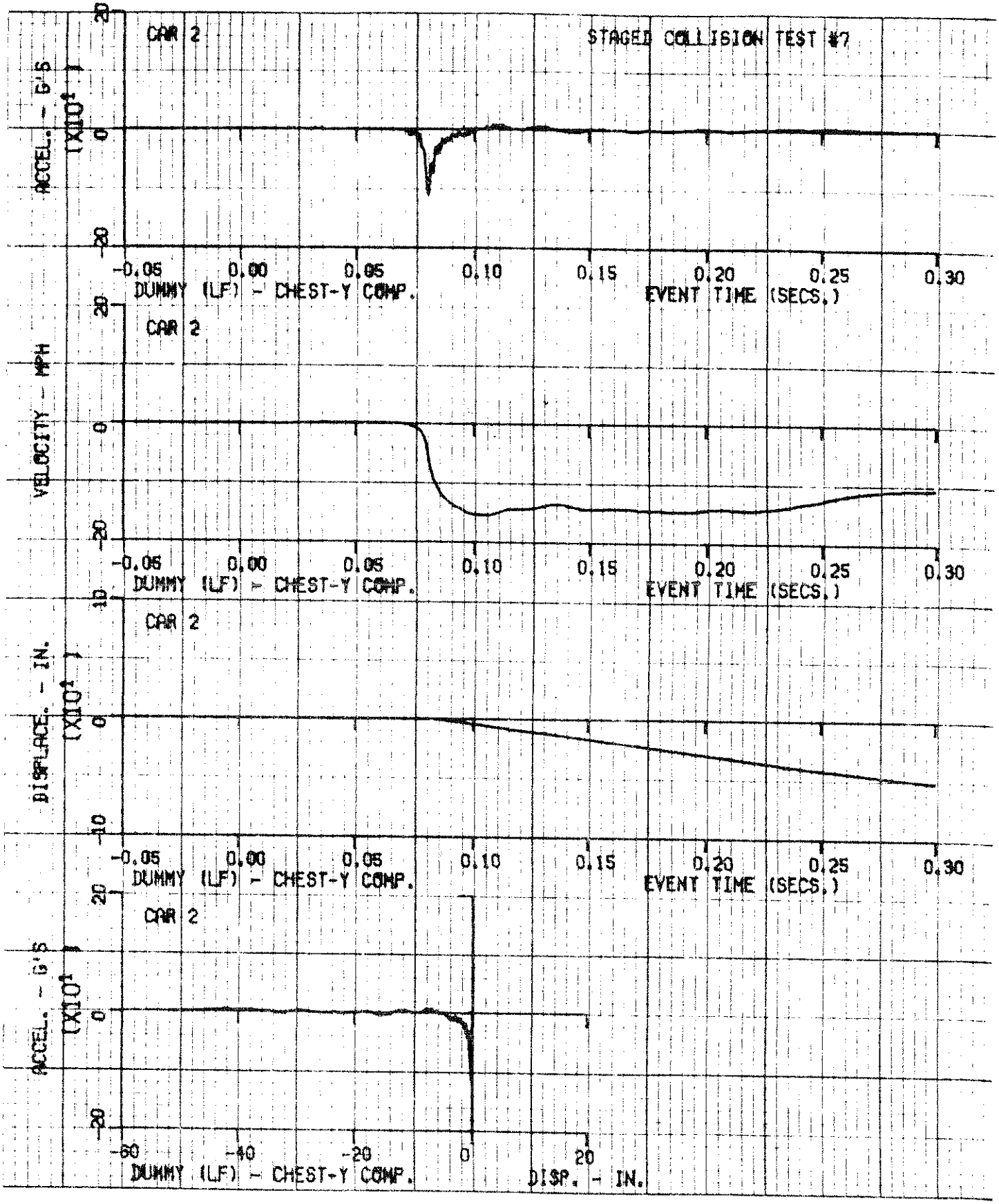
CAR NO. 2 VW RABBIT

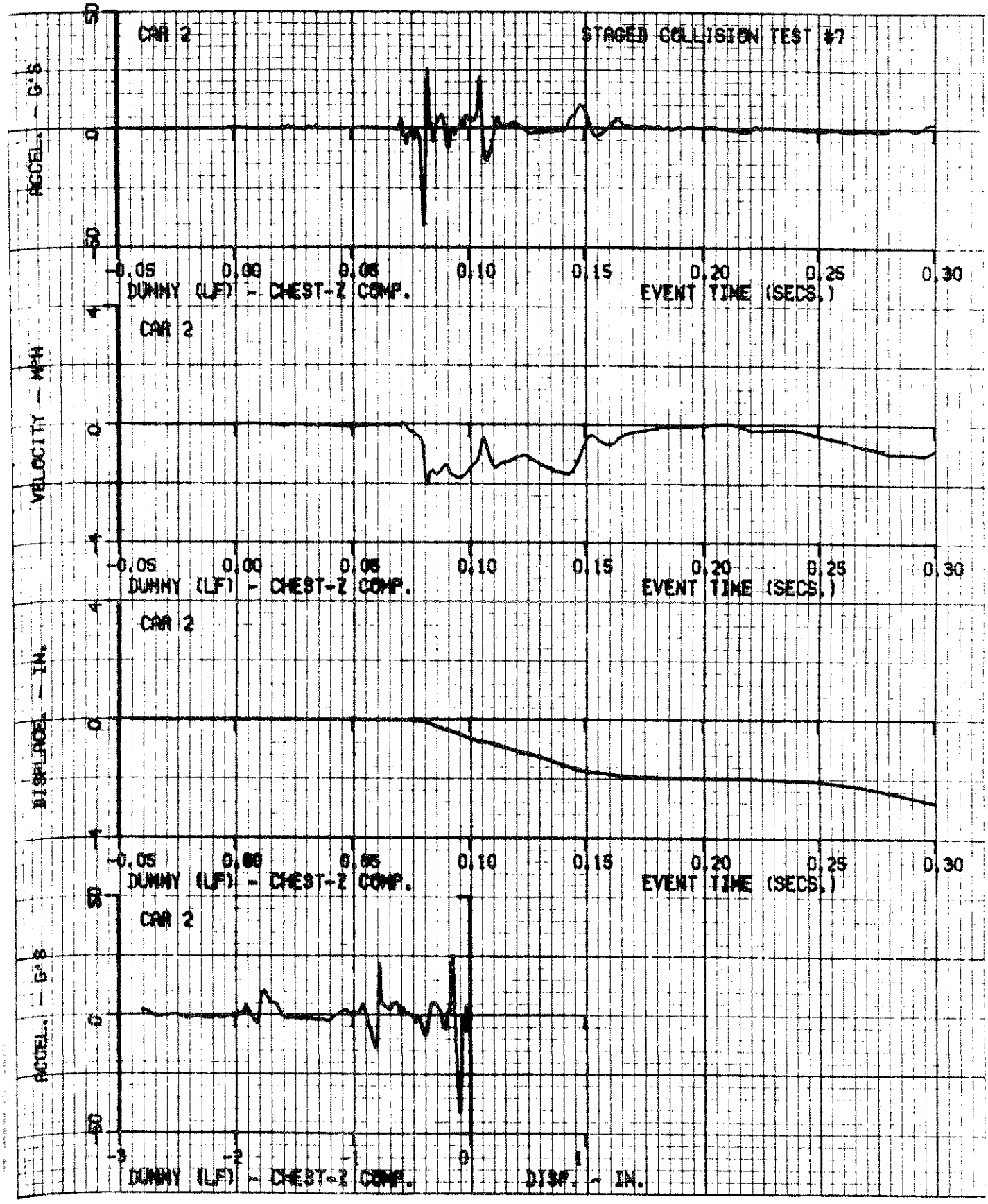
DATA PLOTS		FILTER CLASS
HEAD ACCELERATION	X,Y,X	1000
HEAD RESULTANT		
HEAD SEVERITY INDEX		
CHEST ACCELERATION	X,Y,Z	180
CHEST RESULTANT		
CHEST VELOCITY	X,Y,Z	
CHEST DISPLACEMENT	X,Y,Z	
CHEST SEVERITY INDEX		
PELVIC ACCELERATION	X	180
PELVIC VELOCITY	X	
PELVIC DISPLACEMENT	X	
FEMUR LOADS	L & R	600

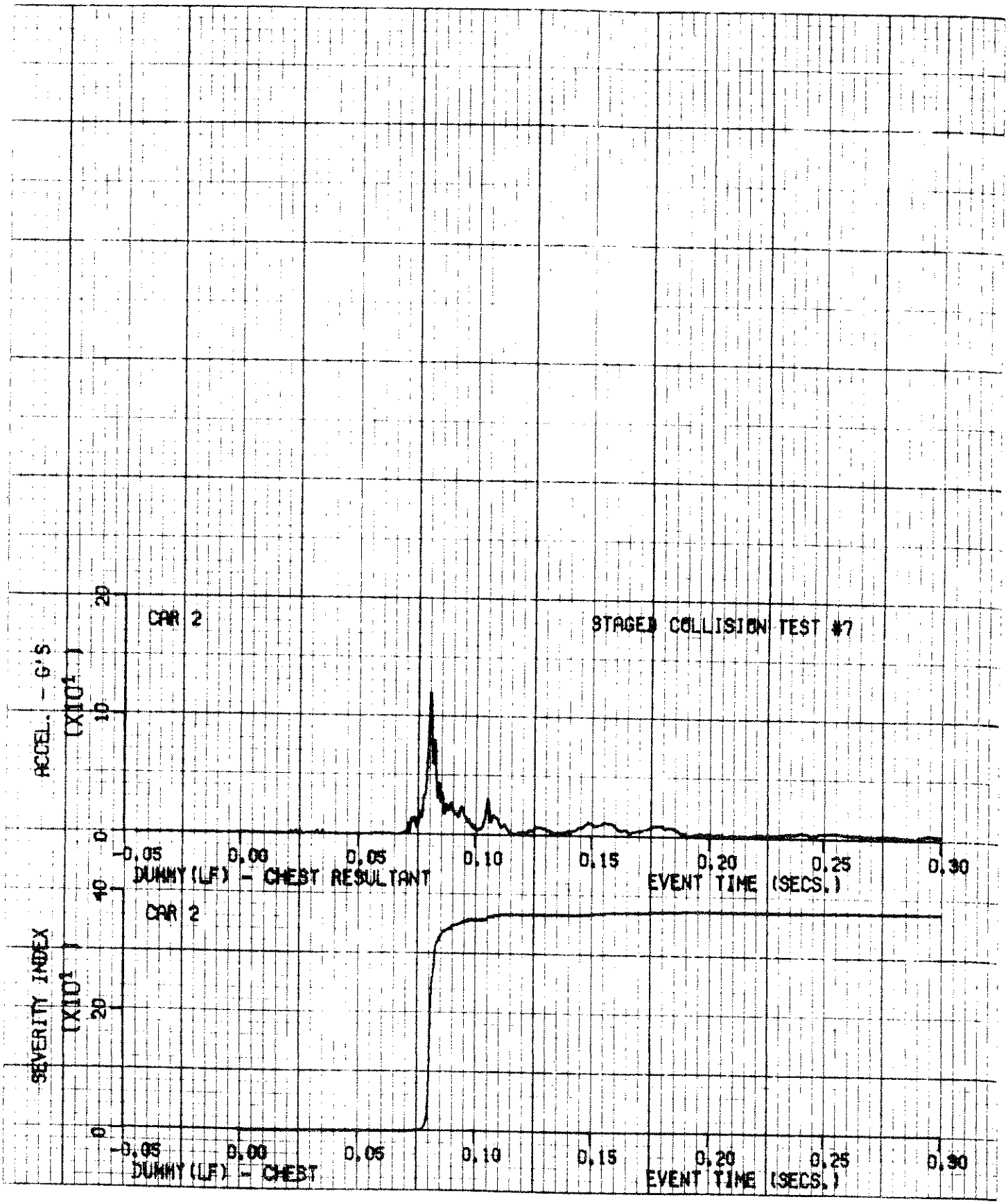

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
50
0
-50
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
20
0
-20
DUMMY (LF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
DUMMY (LF) - HEAD-Z COMP.
EVENT TIME (SECS.)

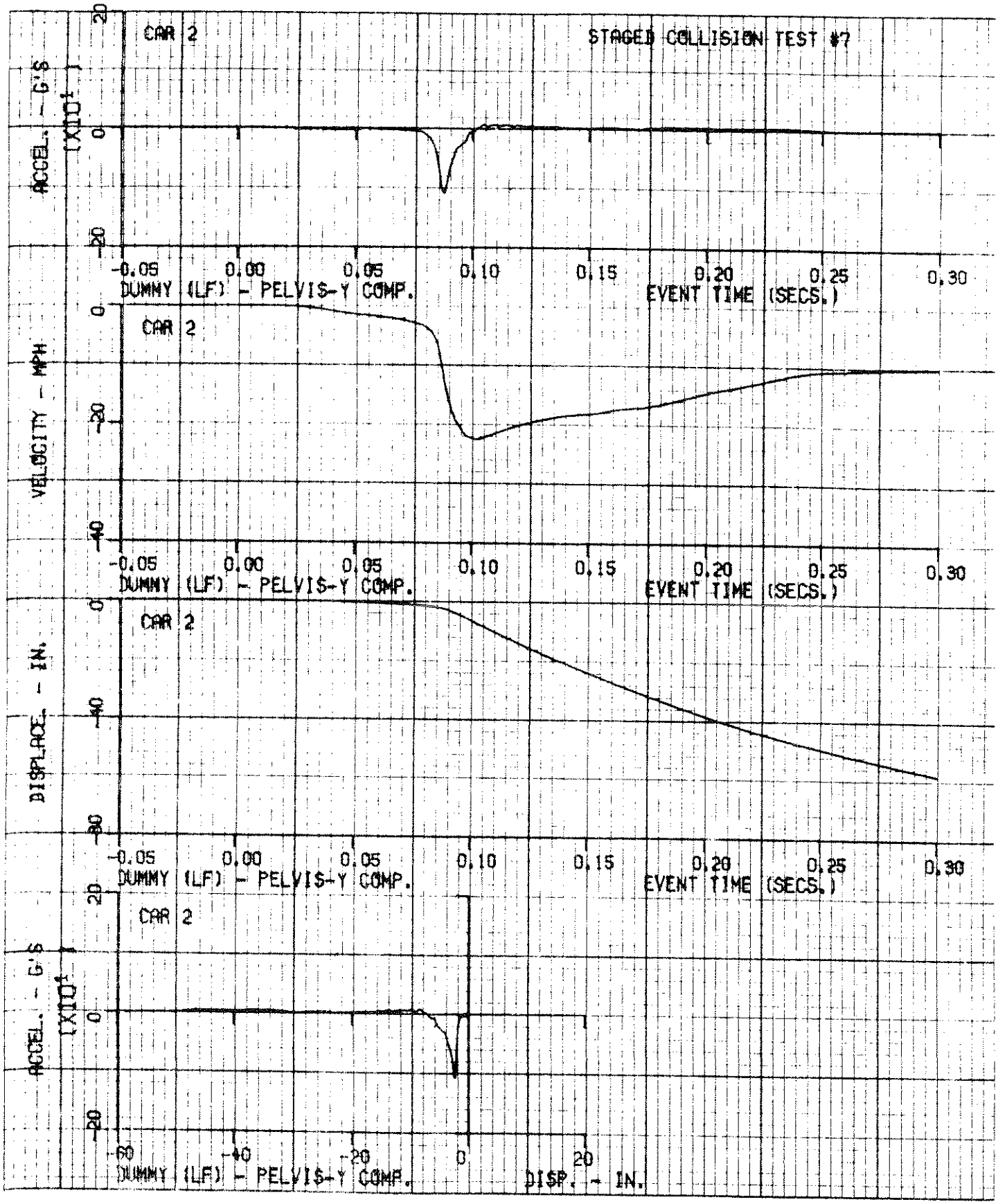

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S (X10¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10²)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD
EVENT TIME (SECS.)

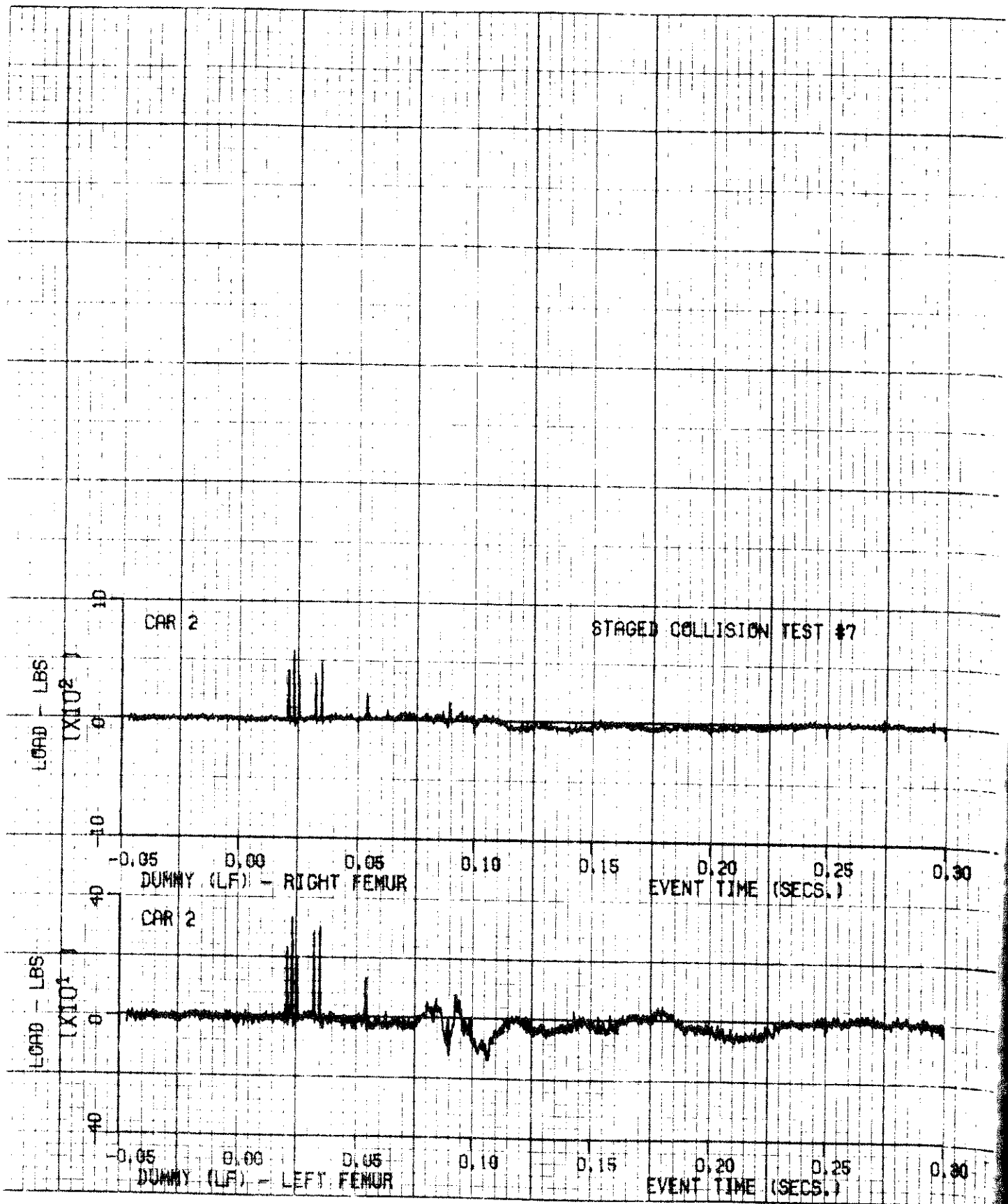

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
60
40
20
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10¹)
20
10
0
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
0
40
80
120
160
DUMMY (LF) - CHEST-X COMP.
DISP. - IN.

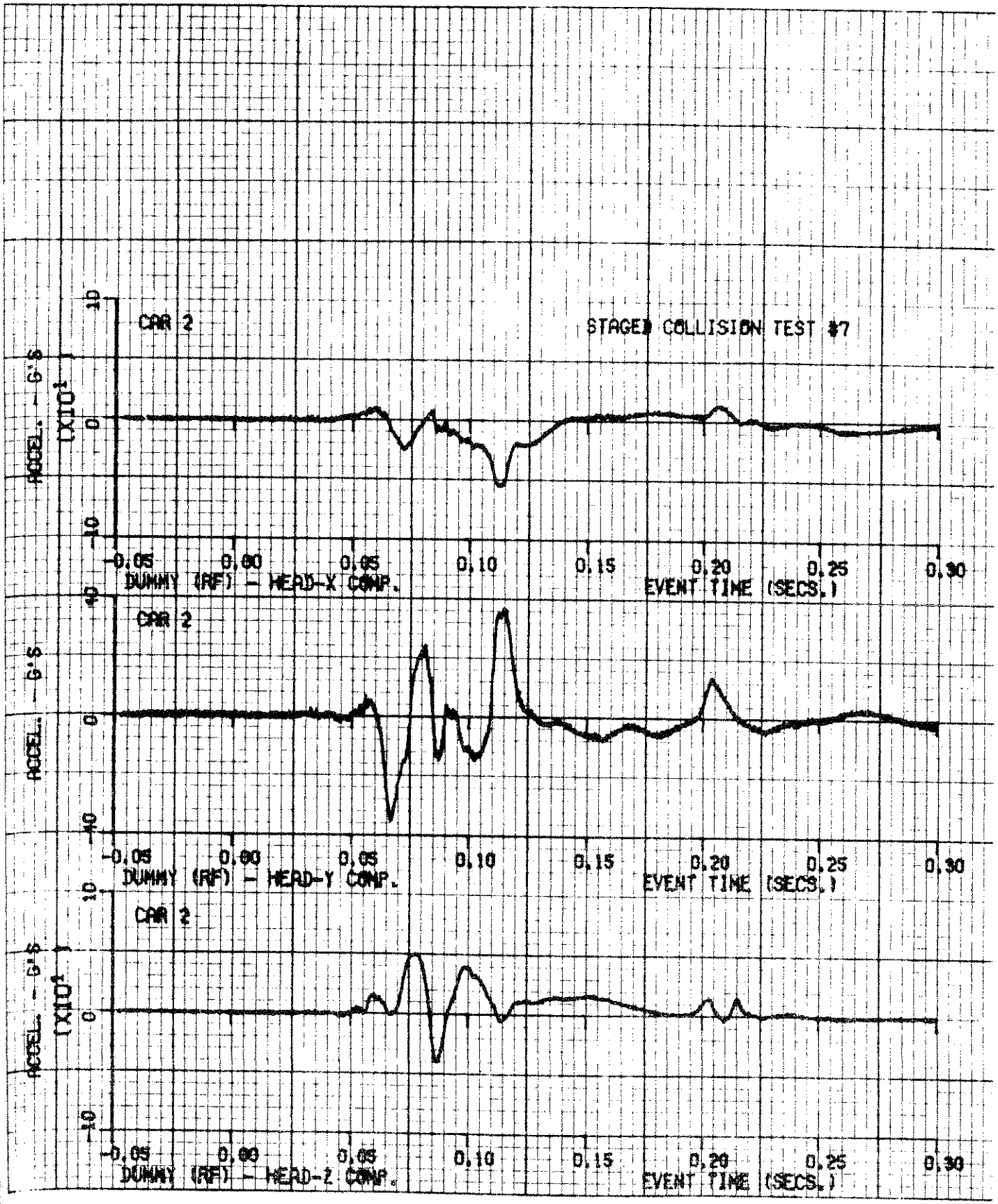

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
(X10¹)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
(X10¹)
10
0
-10
-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
ACCEL. - G'S
(X10¹)
20
0
-20
-60
-40
-20
0
20
DUMMY (LF) - CHEST-Y COMP.
DISP. - IN.

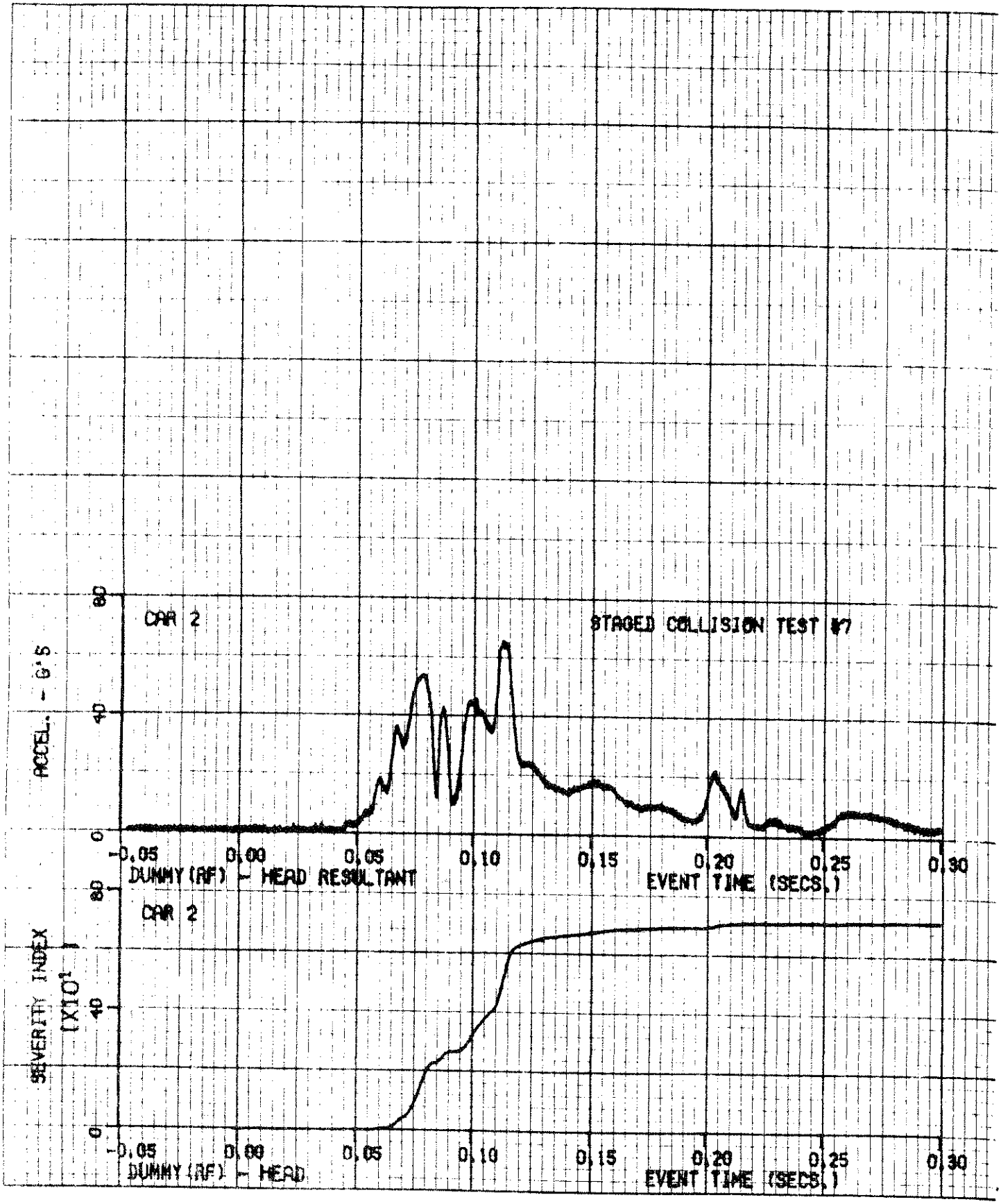

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
50
0
-50
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACEL - IN.
4
0
-4
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
50
0
-50
-3
-2
-1
0
1
DUMMY (LF) - CHEST-Z COMP.
DISP. - IN.

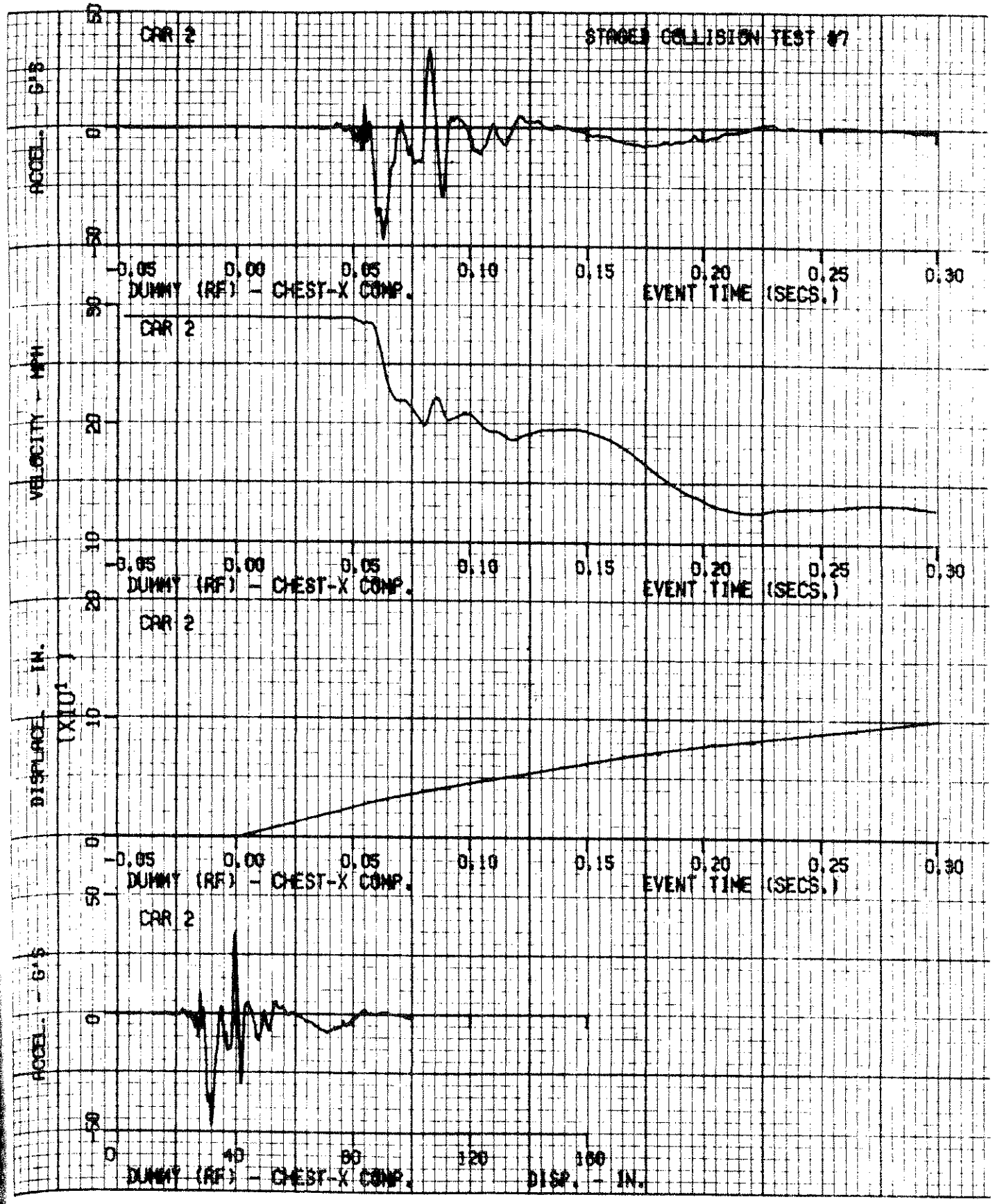

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S (X10¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10¹)
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST
EVENT TIME (SECS.)

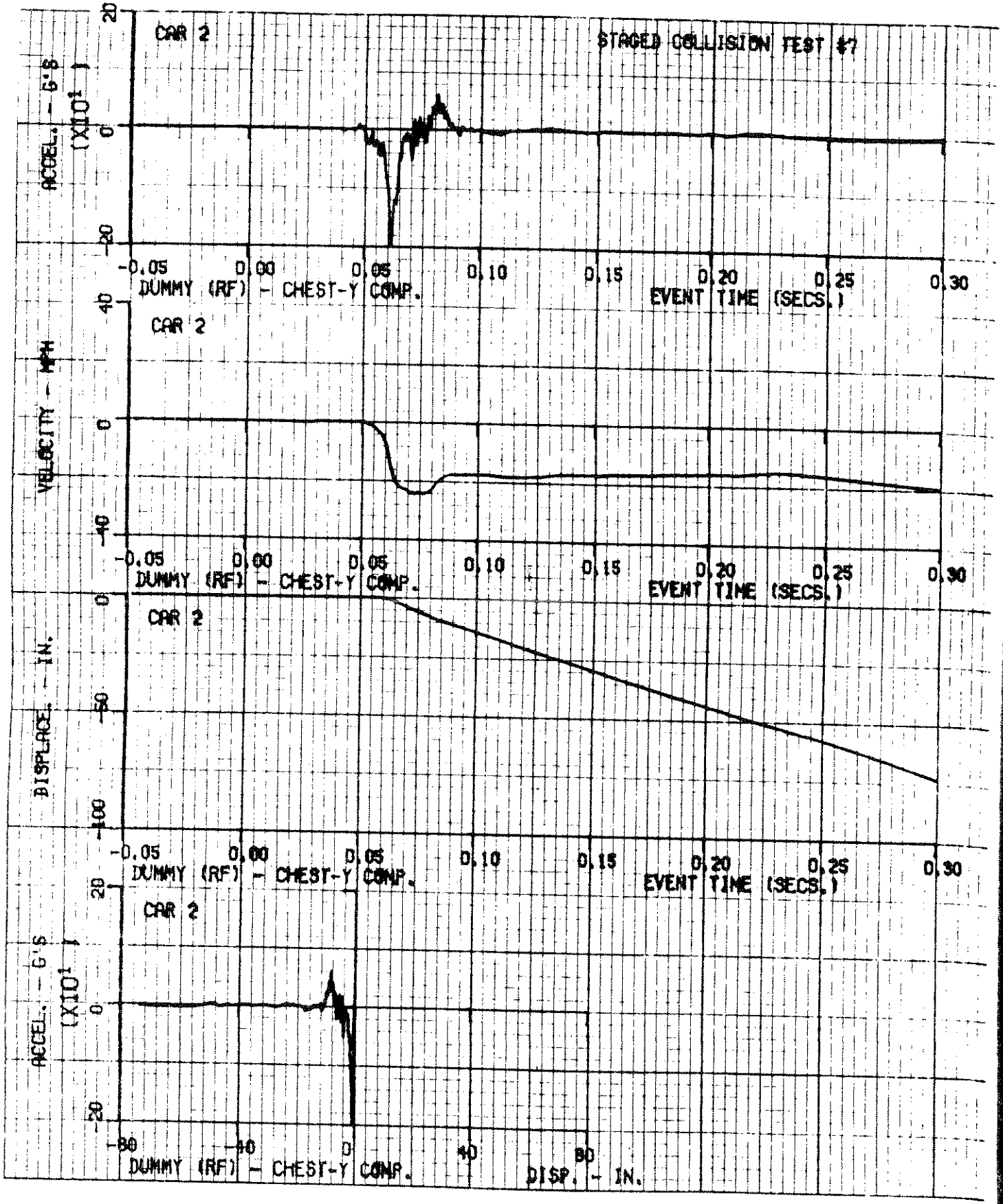

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S (X10¹)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
20
0
-20
-60
-40
-20
0
20
DUMMY (LF) - PELVIS-Y COMP.
DISP. - IN.

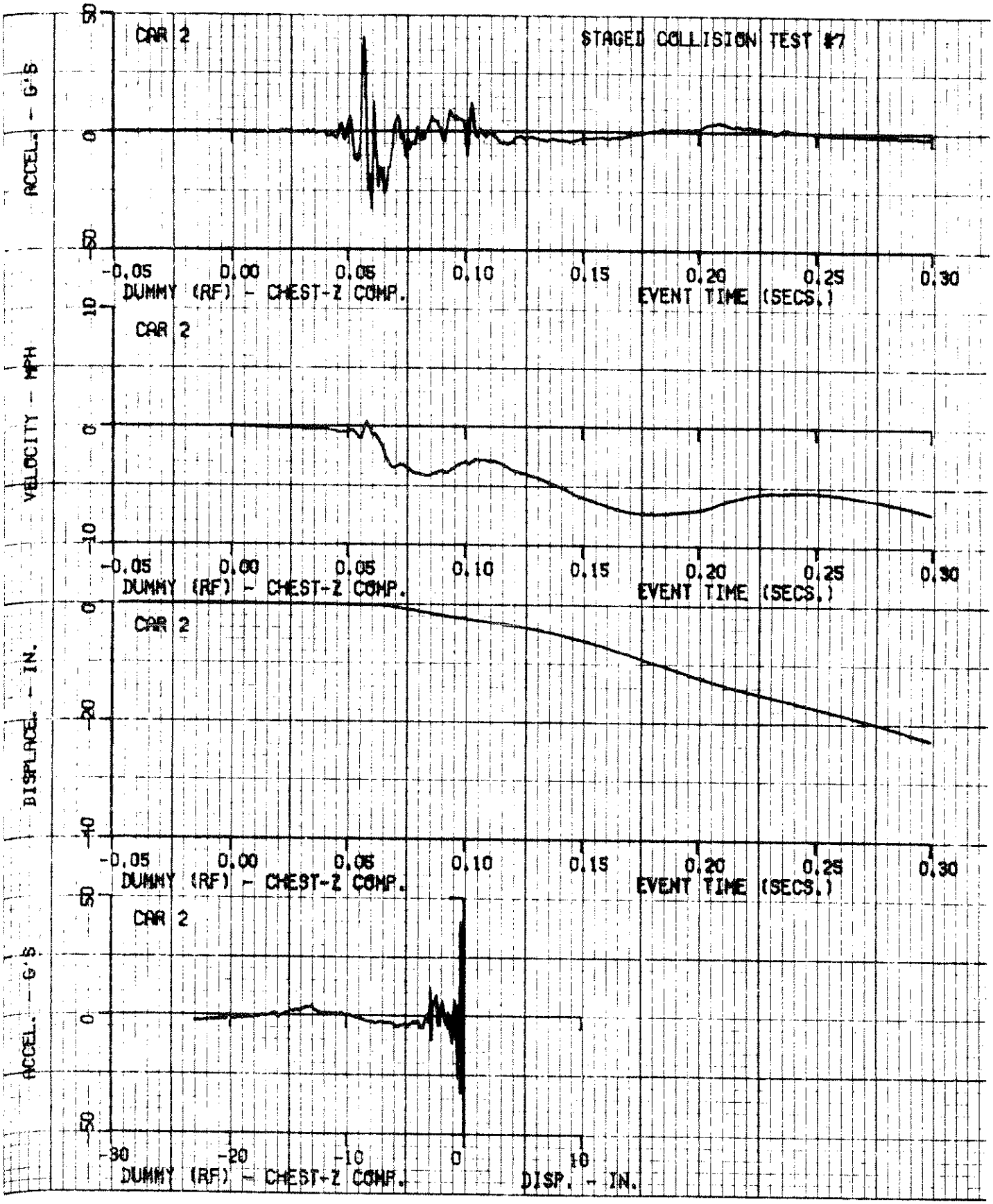

CAR 2
STAGED COLLISION TEST #7
LOAD - LBS
(X10²)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 2
LOAD - LBS
(X10¹)
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - LEFT FEMUR
EVENT TIME (SECS.)

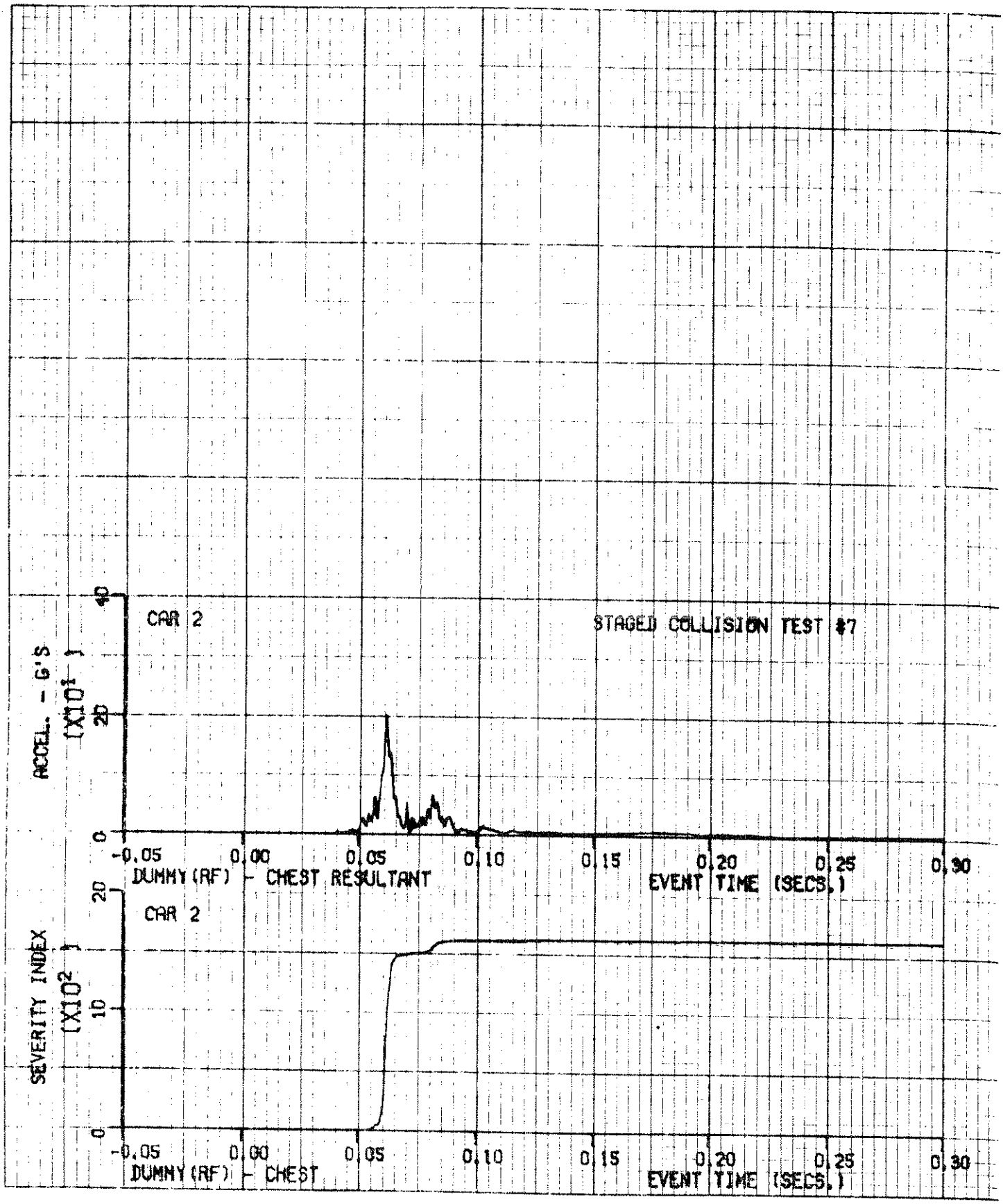

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
DUMMY (RF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
DUMMY (RF) - HEAD-Z COMP.
EVENT TIME (SECS.)

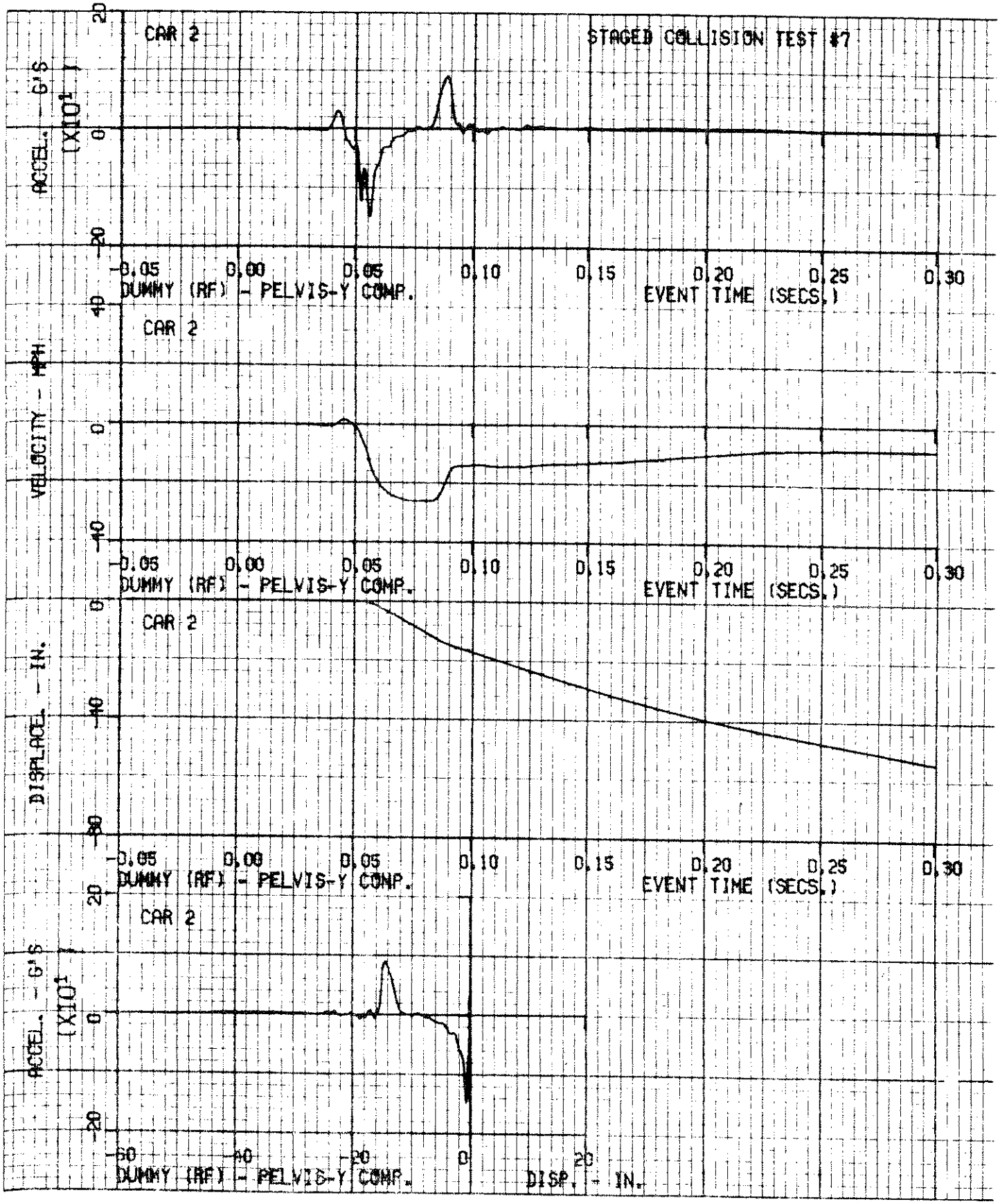

CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10¹)
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD
EVENT TIME (SECS.)

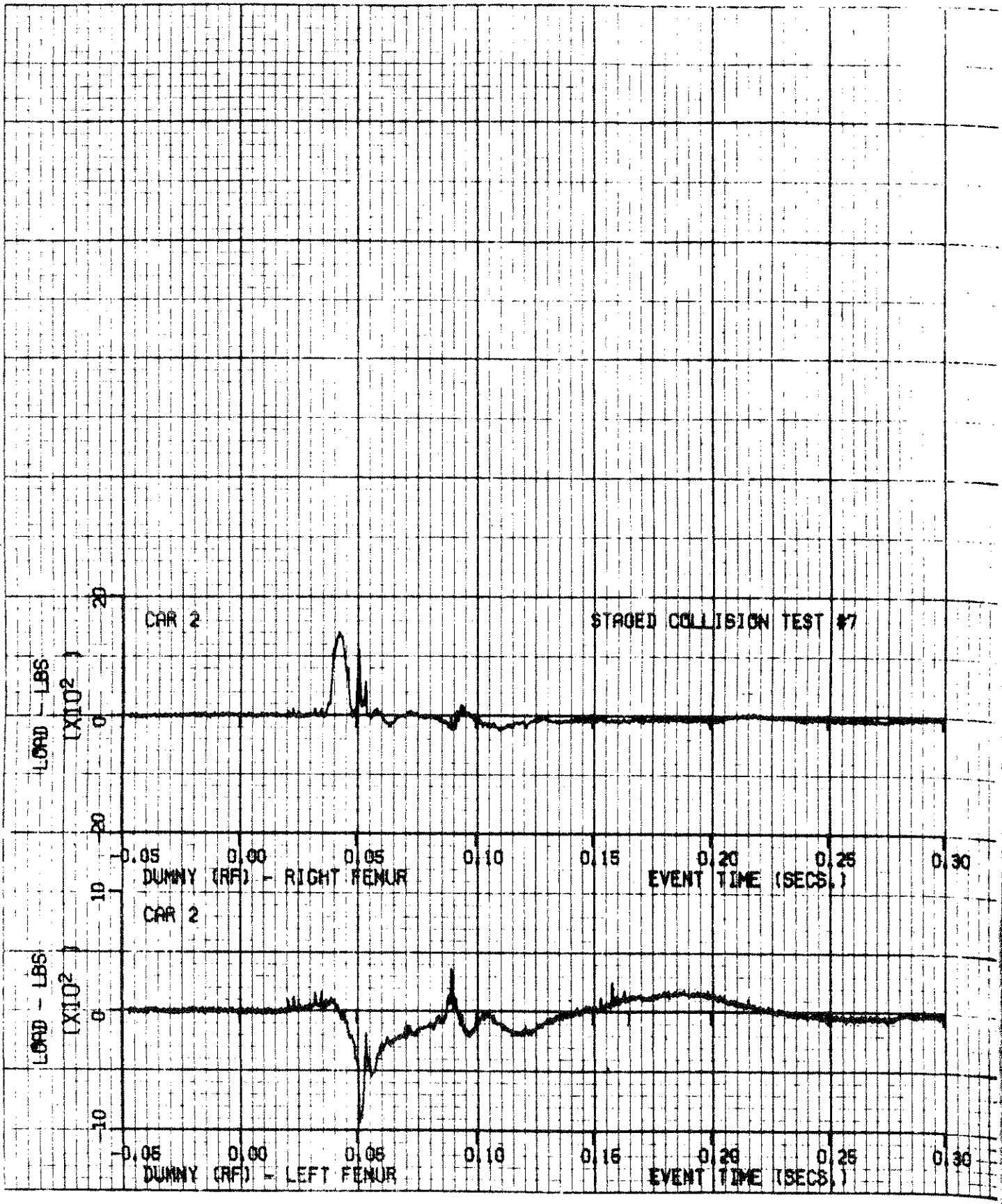

CAR 2
STAGE 3 COLLISION TEST #7
ACCEL. - G'S
50
0
-50
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
50
40
30
20
10
0
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
(X10¹)
20
10
0
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
50
0
-50
0
40
80
120
160
DUMMY (RF) - CHEST-X COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S (X10¹)
20
0
-20
-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
DUMMY (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-50
-100
DUMMY (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
20
0
-20
-80
-40
0
40
80
DUMMY (RF) - CHEST-Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
50
0
-50
-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
10
0
-10
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
50
0
-50
-30
-20
-10
0
10
DUMMY (RF) - CHEST-Z COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #7
ACCEL. - G'S
(X10¹)
40
20
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
(X10²)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - CHEST
EVENT TIME (SECS.)


STAGED COLLISION TEST #7
CAR 2
ACCEL. - G'S (X10¹)
20
0
-20
-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
-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
DISPLACE. - IN.
0
-40
-80
-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
ACCEL. - G'S (X10¹)
20
0
-20
-60
-40
-20
0
20
DUMMY (RF) - PELVIS-Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #7
LOAD - LBS (X10²)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 2
LOAD - LBS (X10²)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - LEFT FEMUR
EVENT TIME (SECS.)

15.0 RICSAC STAGED COLLISION - TEST NO. 9

EXPERIMENTAL RESULTS

Test Description

This accident involved a 1975 Honda (V-1) striking the right side (front section) of a 1974 Ford Torino (V-2) at a 90 degree impact angle as shown in Figure 15-1.The impact velocity of both vehicles was 21.2 mph. The vehicle test weights were 2270 and 4930 pounds for the Honda and Torino, respectively. Each vehicle had two Part 572 test dummies (50 percentile) seated in the front seat. The dummies in the Torino were instrumented according to FMVSS 208 and were unrestrained. In the Honda the dummies were uninstrumented and unrestrained.

The Torino was equipped with automatic transmission, power steering and power brakes. The Honda had manual transmission, steering and standard brakes. The accident was staged with both transmissions in drive position, brakes off and the engines not running. During the collision no steering control inputs or vehicle braking was applied. The roadway was dry and skid resistance value of 87.

Approximately one car length before impact the vehicle tow cable was released and the vehicle guide rail was terminated. At this point in time and during the collision both vehicles are free bodies with no constraints except the normal collision forces and reactions encountered in this type of car-to-car collision. During the collision event no observed tow cable or instrumentation cable interference with the moving vehicles was noted.

ACCIDENT SCHEMATIC

VEHICLES:

No. 1 - 1975 HONDA CIVIC
No. 2 - 1974 FORD TORINO

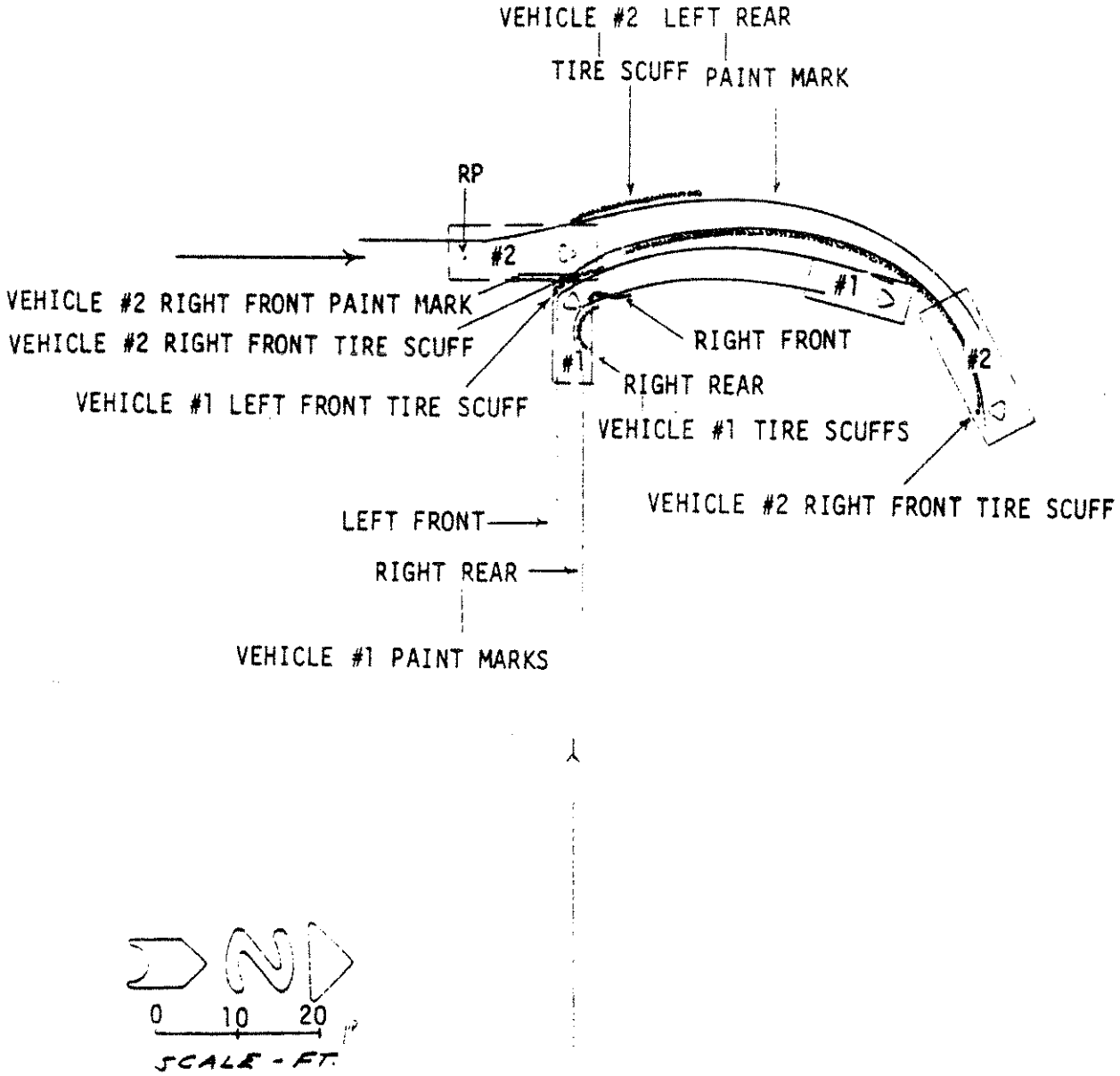


Figure 15-1 TEST NO. 9 - RICSAC ACCIDENT SCHEMATIC

CRASH TEST SUMMARY

TEST NO. 9 PROJECT RICSAC

DATE 6-20-78 TIME 14:35 TEMP. 86°F

TEST CONDITION Side Offset Perpendicular - 90 Degree

VEHICLE NO. 1 1975 Honda

VEHICLE NO. 2 1974 Ford Torino

	VEH. NO. 1	VEH. NO. 2
TEST WEIGHT (lbs)	2270	4930
IMPACT ANGLE (deg)*	90	0
IMPACT VELOCITY (mph)**	21.27	21.27
MAX. CRUSH (in)		
MAX. INTRUSION (in)		

DUMMIES	VEH. NO. 1	VEH. NO. 2
TYPE	Part 572	Part 572
LOCATION	Driver (L.F.), Passenger (R.F.)	Driver (L.F.), Passenger (R.F.)
RESTRAINT	3-Point Restraint	Unrestrained
	Uninstrumented	Instrumented

NUMBER OF DATA CHANNELS 64
NUMBER OF HIGH SPEED CAMERAS 11

*WITH RESPECT TO TOW TRACK CENTERLINE

**SPEED TRAP MEASUREMENT (±0.5% ACCURACY)

TABLE 15-1

TEST NO. 9 - CAR NO. 1

VEHICLE DATA

TEAM	YEAR	MONTH	DAY	SEQUENCE
—	1	8 0	6 2	0 0 0 9

Vehicle data not collected. Reason? _____

Vehicle No. 1 0 0 — 14-15 No. of VIN Characters 1 0

16-22 VIN (Left Justify, Omit Production Numbers) S G C 1 0 0 1

23-27 Make/Model (CPIR Code) HONDA - CIVIC 8 8 1 0 9

28-32 Mileage (Odometer Reading) 99998 = 99998 mi. or more; 99999 = Unknown 9 9 9 9 9

33-34 Model Year 7 5

35-36 BODY STYLE

Automobiles		Trucks		Other	
Passenger Car	(01)	Van - Passenger	05	School Bus	11
Stationwagon	02	- Cargo	06	Other Bus	12
Convertible	03	Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04	Pickup	08	Other Body Style	98
		Straight Truck	09	Unknown	99
		Tractor-Trailer	10		

37-39 VEHICLE WEIGHT — Curb 0 1 , 7 4 8

40-42 Occupant and Cargo Only — — — , — 0 0

43 TOWING ANOTHER VEHICLE: Yes 1; No (2); Unknown 9

VEHICLE DAMAGE

	Object Contacted	CDC	Veh. No.	Impact No.
44-54 (1)	0 3	1 1 F D E W 2	2	1
55-65 (2)	0 3	0 9 L F E W 2	2	2
(3)	— —	— — — — — — —	—	—
(4)	— —	— — — — — — —	—	—

(1) = Highest Severity (Estimated ΔV)

66 VEHICLE TOWED FROM SCENE: Yes 1; No 2; Unknown 9

67 SOURCE OF VEHICLE DATA

- Inspection at Repair or Tow Facility 1
- Inspection at Person's Home 2
- Inspection at Scene 3
- Not Inspected (Photos or Repair Data) 4
- Not Inspected. Reason. _____ 5
- Unknown 9

68 VEHICLE INSPECTION

- Not Inspected 0
- Inspected on First Visit 1
- Actual Number of Locations Visited (Including Follow-Ups to Same Location) 2, 3, 4, 5, 6, 7
- 8 or More 8
- Unknown 9

69 APPLICABLE VEHICLE: Yes 1; No 2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED ON THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

Figure 15-2

VEHICLE CRUSH SCHEMATIC

UPDATE	TEAM	YEAR	MONTH	DAY	SEQUENCE
_	1	8	0 6	2 0	0 0 9

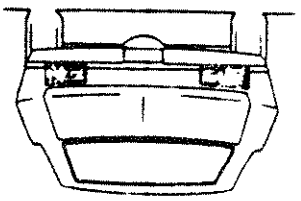
1-13 VEH. NO. 1 0 0 | TEST NO. 9 - CAR NO. 1

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

RF 1
LF 2
RR 2
LR 2

1 Yes, 2 No, 8 NA, 9 Unk.

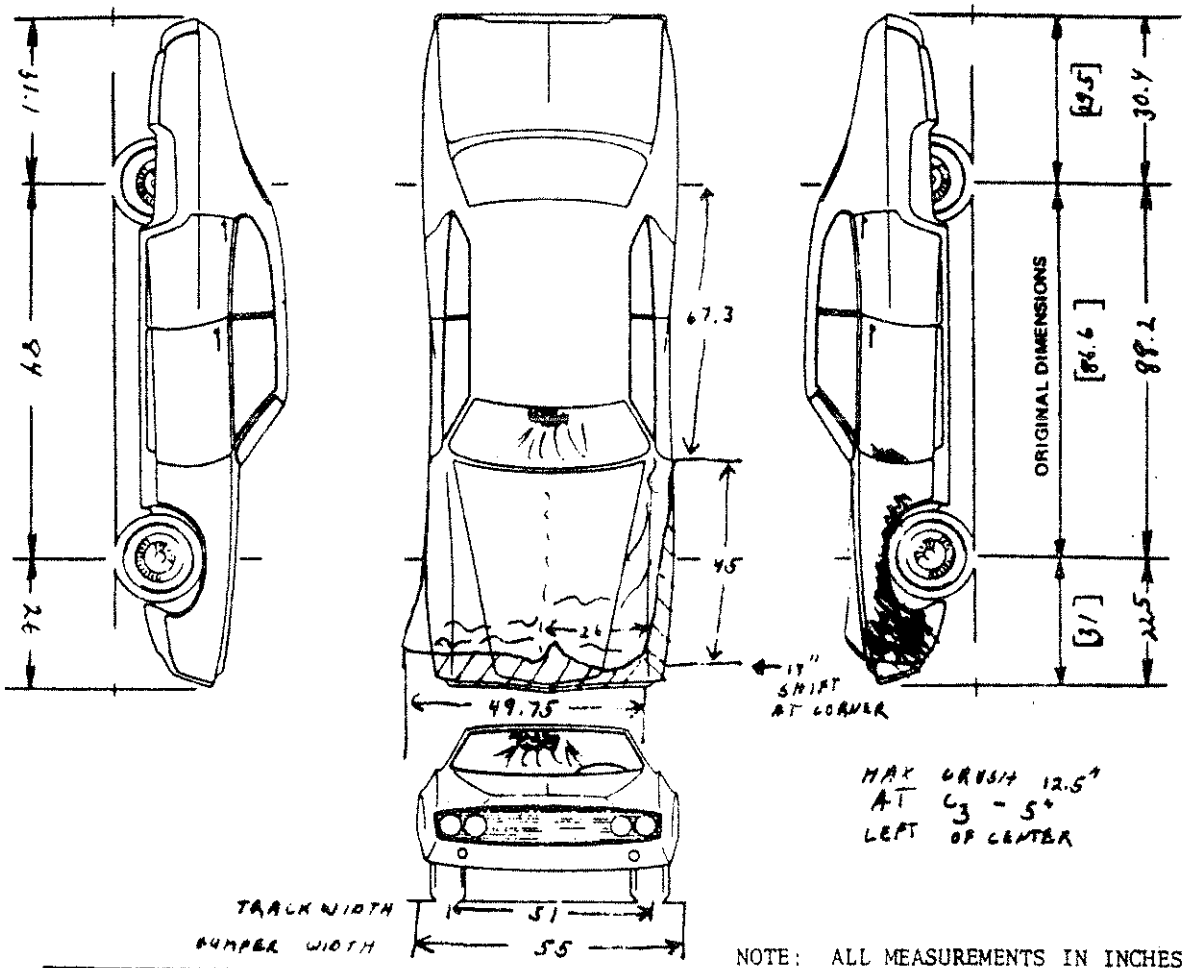


WHEEL STEER ANGLES*

(For locked front wheels or displaced rear axles only)

RF ± 0 4
LF ± 0 5
RR ± 0 0
LR ± 0 0

Within ± 5°



MAX CRUSH 12.5" AT C_3 - 5" LEFT OF CENTER

NOTE: ALL MEASUREMENTS IN INCHES

14-31

IMPACT #	L	C_1	C_2	C_3	C_4	C_5	C_6	D±
1	49.75	5	5.75	12.5	7.5	7.5	9.5	± 1.63
2	45	0.1	2.5	3.5	3.5	3.5	1	+46.45
3								
4								

NOTE: MEASURE C_1 to C_6 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS: REAR TO FRONT IN SIDE IMPACTS

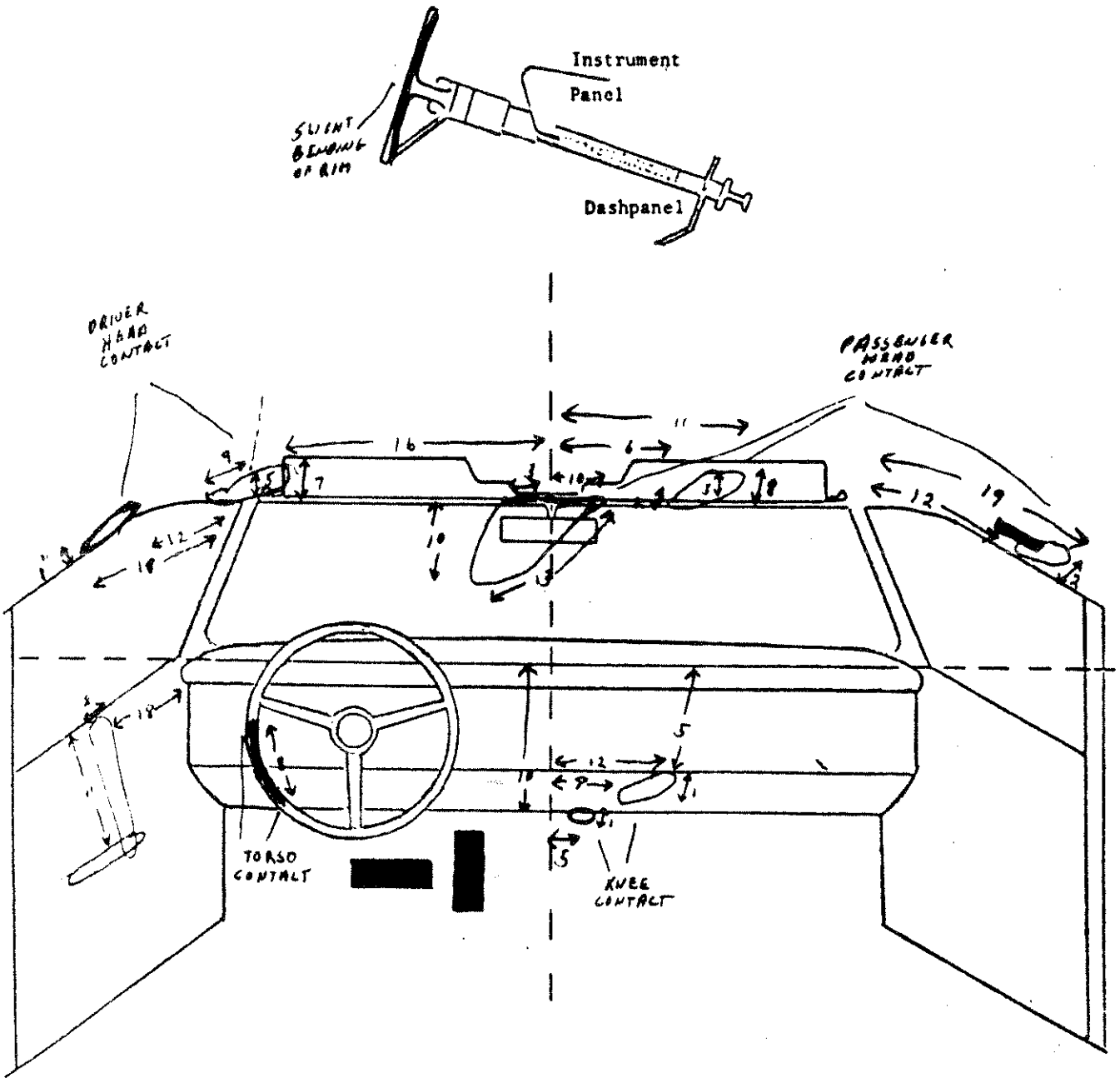
Figure 15-3

OCCUPANT CONTACT DATA

TEST NO. 9 - CAR NO. 1

VEHICLE INTERIOR

Occupant Contacts



Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and code on next two pages. Dash lines indicate center of instrument panel-windshield area and top of panel for measurement purposes.

2/77

TEAM	YEAR	MONTH	DAY	SEQUENCE
	1	80	62	0009

TABLE 15-2

TEST NO. 9 - CAR NO. 2

VEHICLE DATA

Vehicle data not collected. Reason? _____

Vehicle No. 200 14-15 No. of VIN Characters 11

16-22 VIN (Left Justify, Omit Production Numbers) 4B31H12

23-27 Make/Model (CPIR Code) FORD - TORINO 12101

28-32 Mileage (Odometer Reading) 99998 = 99998 mi. or more; 99999 = Unknown 99999

33-34 Model Year 74

35-36 BODY STYLE

Automobiles		Trucks		Other	
Passenger Car	(01)	Van - Passenger	05	School Bus	11
Stationwagon	02	- Cargo	06	Other Bus	12
Convertible	03	Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04	Pickup	08	Other Body Style	98
		Straight Truck	09	Unknown	99
		Tractor-Trailer	10		

VEHICLE WEIGHT

37-39 Curb 0,038

40-42 Occupant and Cargo Only ___,00

43 TOWING ANOTHER VEHICLE: Yes 1; No (2); Unknown 9

VEHICLE DAMAGE

		Object Contacted	CDC	Veh. No.	Impact No.
44-54	(1)	01	02REFEW2	1	1
55-65	(2)	01	03RPFEW1	1	2
	(3)				
	(4)				

(1) = Highest Severity (Estimated ΔV)

66 VEHICLE TOWED FROM SCENE: Yes 1; No 2; Unknown 9

67 SOURCE OF VEHICLE DATA

- Inspection at Repair or Tow Facility 1
- Inspection at Person's Home 2
- Inspection at Scene 3
- Not Inspected (Photos or Repair Data) 4
- Not Inspected. Reason. _____ 5
- Unknown 9

68 VEHICLE INSPECTION

- Not Inspected 0
- Inspected on First Visit 1
- Actual Number of Locations Visited (Including Follow-Ups to Same Location) 2 3 4 5 6 7
- 8 or More 8
- Unknown 9

69 APPLICABLE VEHICLE: Yes 1; No 2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED ON THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

Figure 15-4
VEHICLE CRUSH SCHEMATIC

UPDATE TEAM	YEAR	MONTH	DAY	SEQUENCE
—	1	8	06	20 609

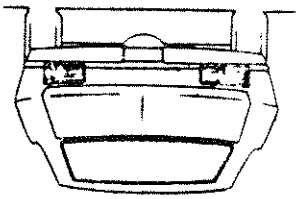
11-13 VEH. NO. 2 0 0 TEST CAR NO. 9 - CAR NO. 2

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

RF 1
LF 2
RR 2
LR 2

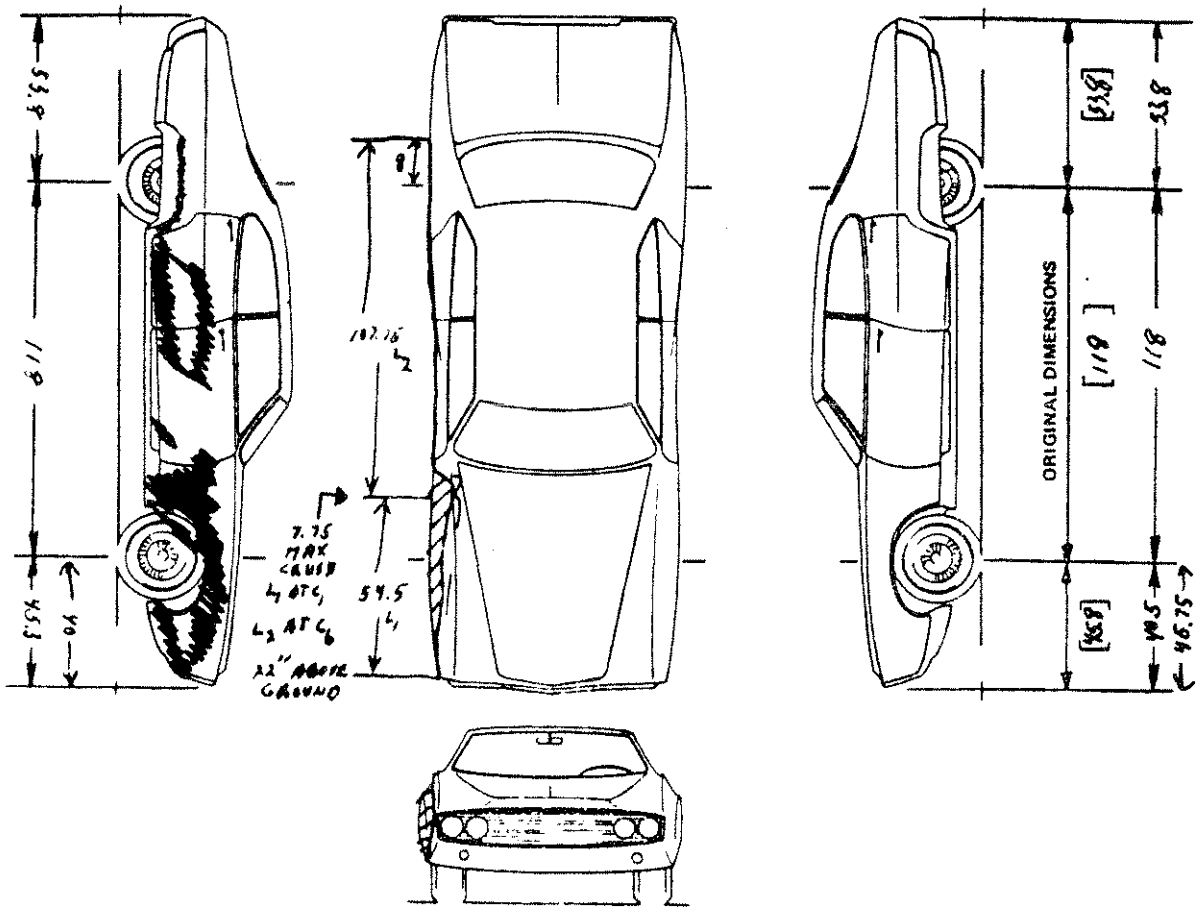
1 Yes, 2 No, 8 NA, 9 Unk.



WHEEL STEER ANGLES*
(For locked front wheels or displaced rear axles only)

RF + −
LF + −
RR + −
LR + −

Within ± 5°



NOTE: ALL MEASUREMENTS IN INCHES

IMPACT #	L	C_1	C_2	C_3	C_4	C_5	C_6	D ±
1	54.5	7.75	4.6	4.75	3.3	2.25	1.5	± 6.8
2	107.75	0.1	0	0.1	0.2	0	7.75	± 2.87
3								
4								

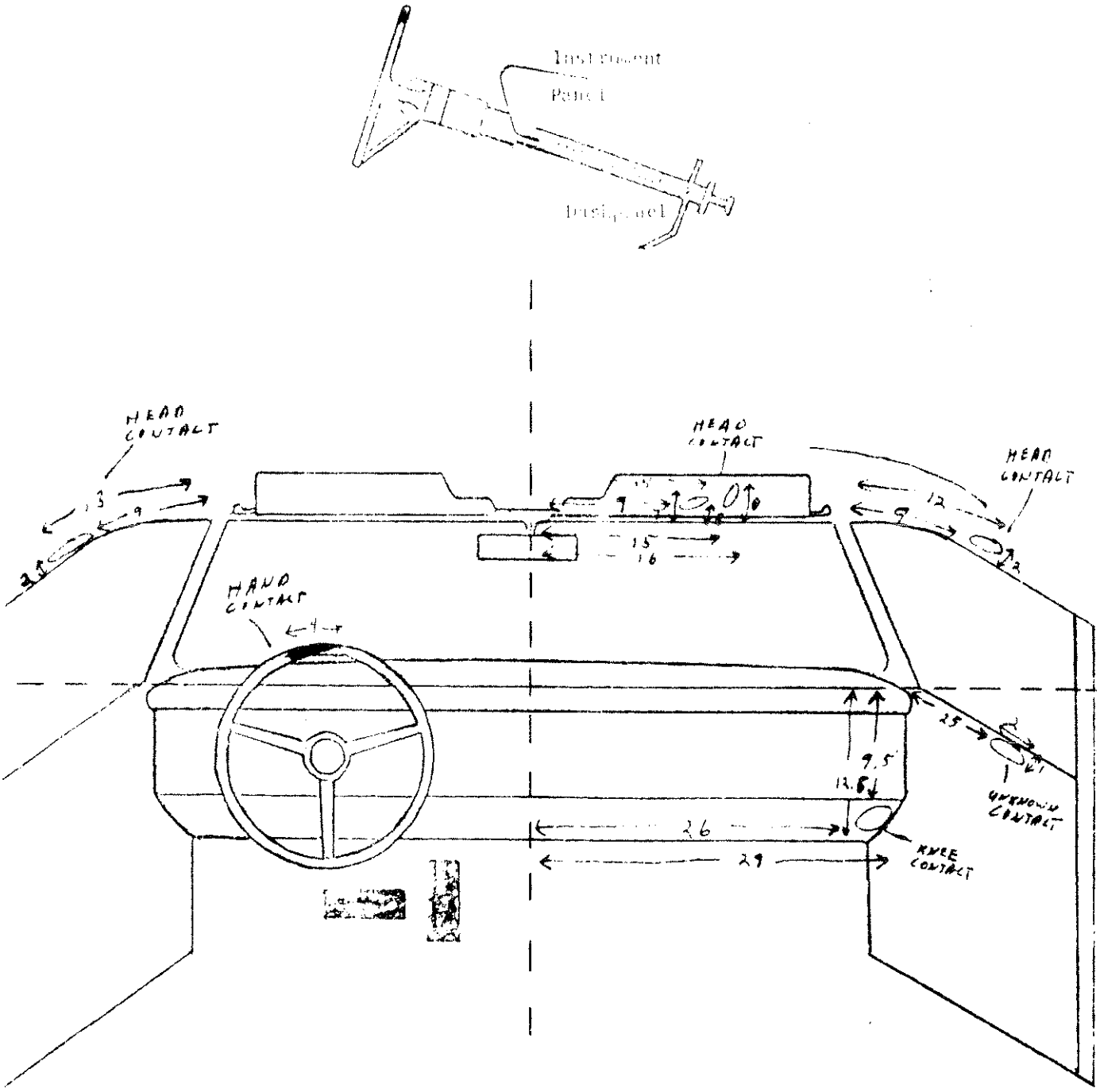
14-31

NOTE: MEASURE C_1 TO C_6 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS: REAR TO FRONT IN SIDE IMPACTS

Figure 15-5
OCCUPANT CONTACT DATA
TEST NO. 9 - CAR NO. 2

VEHICLE INTERIOR

Occupant Contacts



Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and code on next two pages. Dash lines indicate center of instrument panel-windshield area and top of panel for measurement purposes.

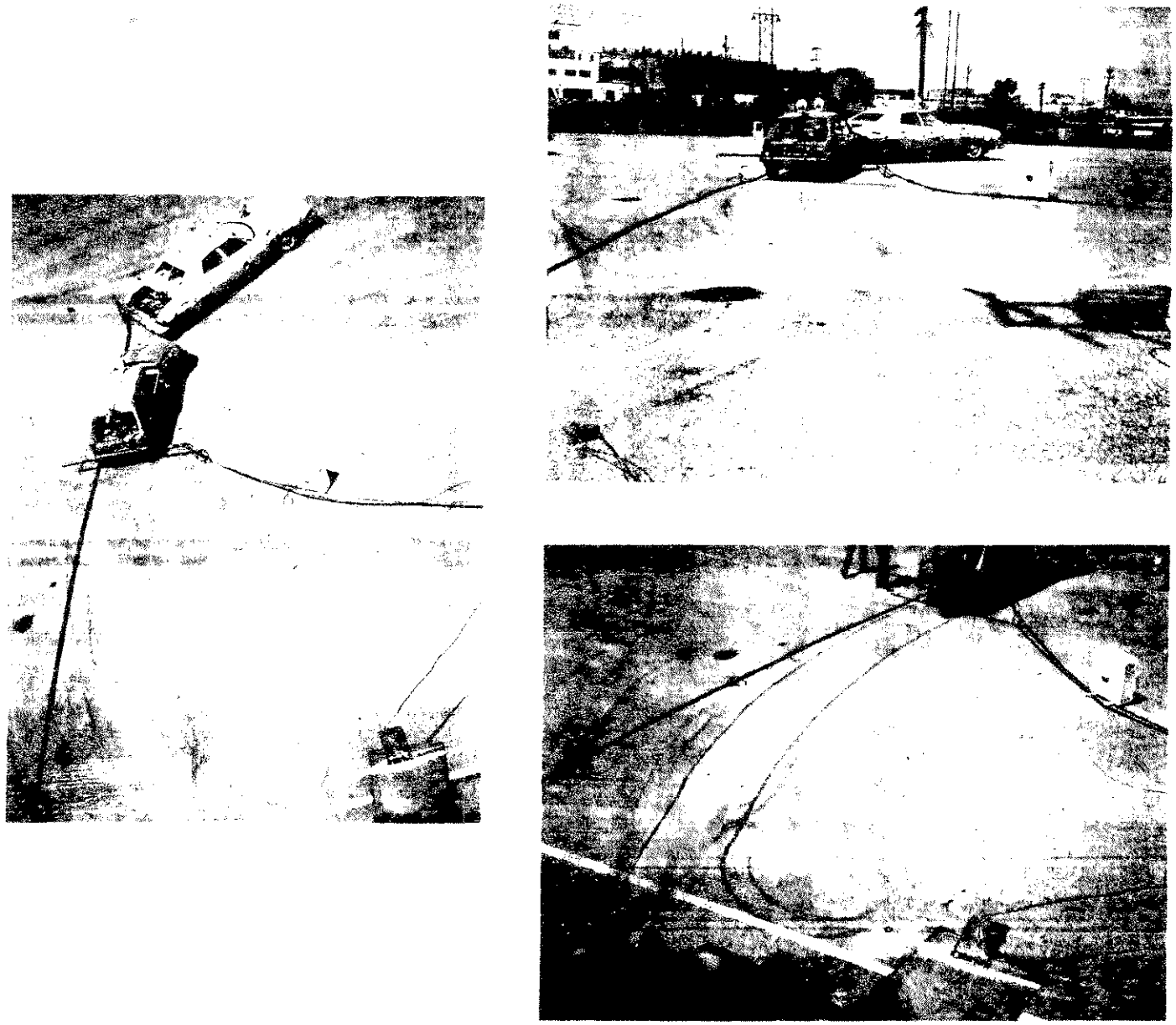


Figure 15-6 TEST NO. 9 – POST TEST COLLISION SCENE

Figure 15-7 TEST NO. 9 – PRE TEST COLLISION CONFIGURATION

S-A-7509-82

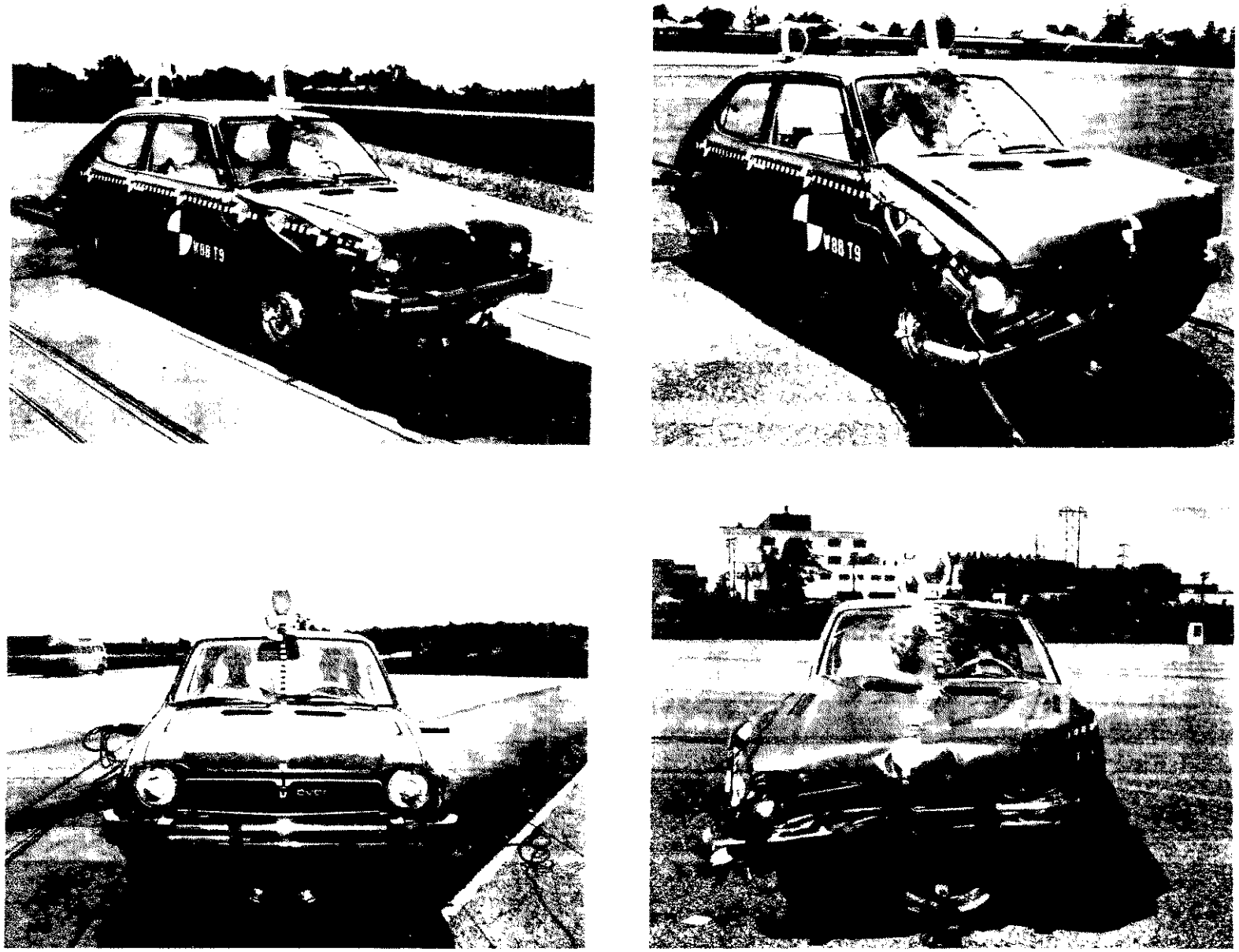


Figure 15-8 TEST NO. 9 — PRE AND POST EXTERIOR VIEWS, CAR NO. 1 - HONDA

Figure 15-9 TEST NO. 9 – PRE AND POST EXTERIOR VIEWS, CAR NO. 2 - TORINO

Figure 15-10 TEST NO. 9 – PRE AND POST INTERIOR VIEWS, CAR NO. 1 - HONDA

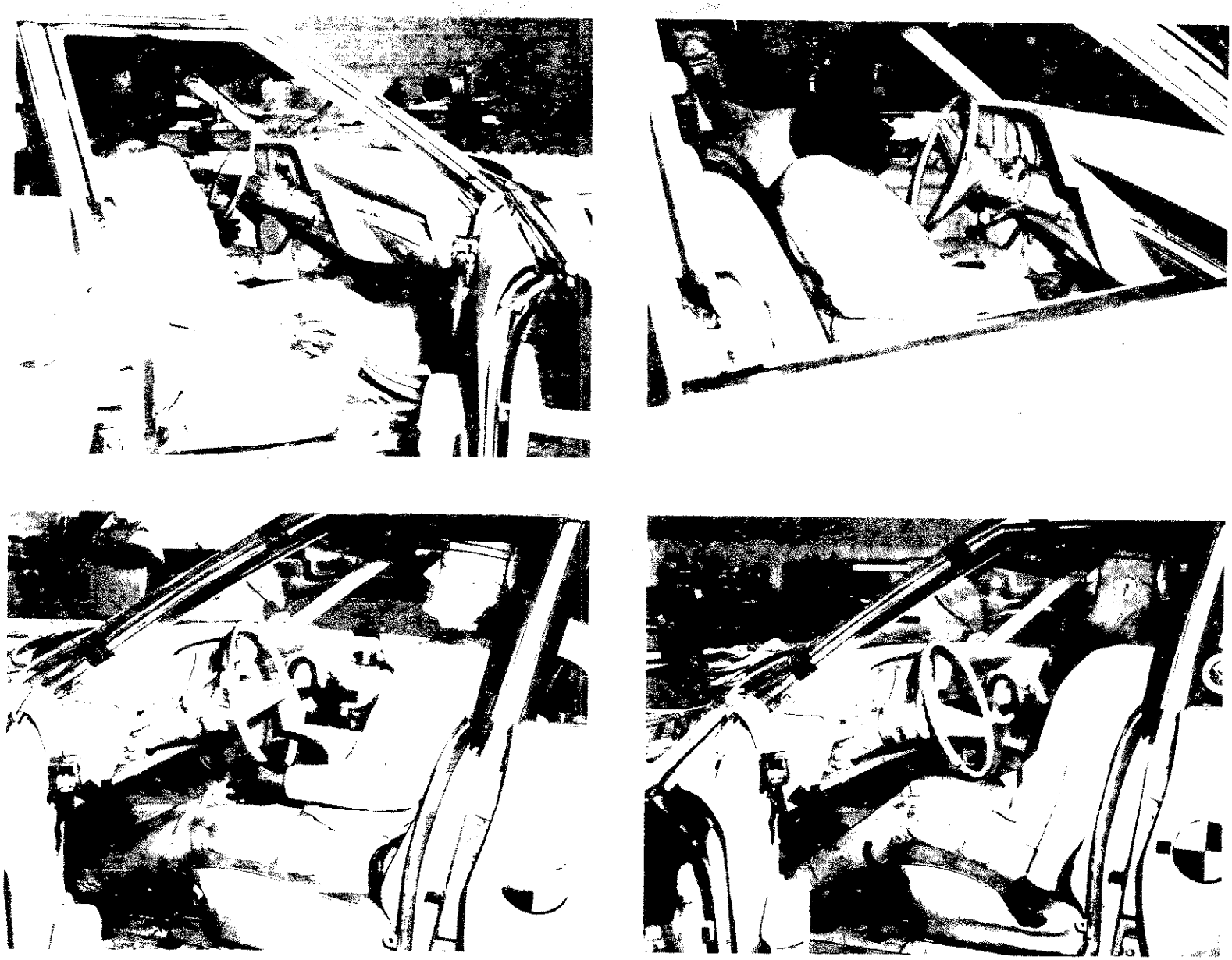


Figure 15-11 TEST NO. 9 – PRE AND POST INTERIOR VIEWS, CAR NO. 2 - TORINO

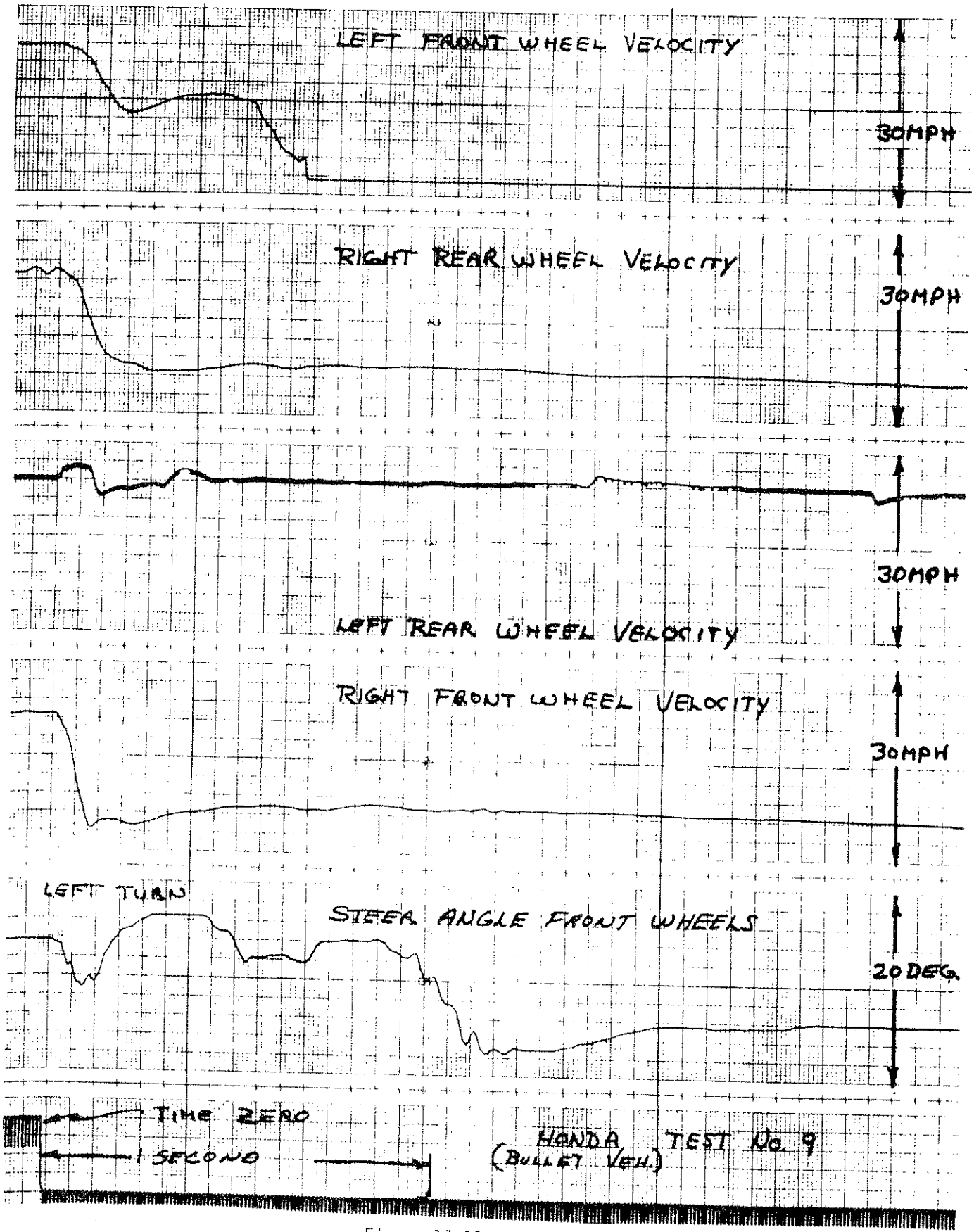


Figure 15-12 TEST NO. 9
CAR NO. 1 WHEEL RESPONSES

ZQ-6057-V-5

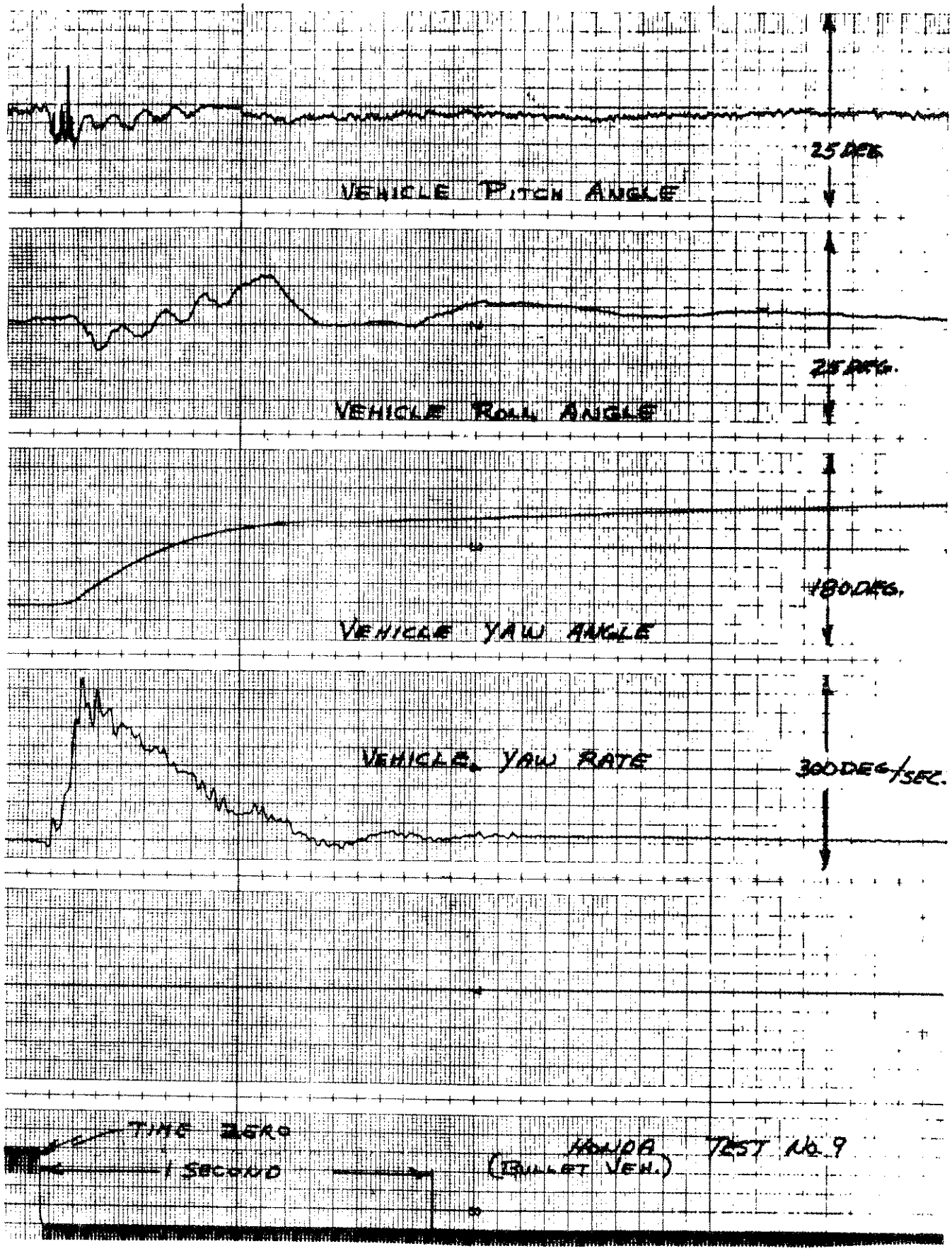


Figure 15-13 TEST NO. 9
CAR NO. 1 VEHICLE ATTITUDE

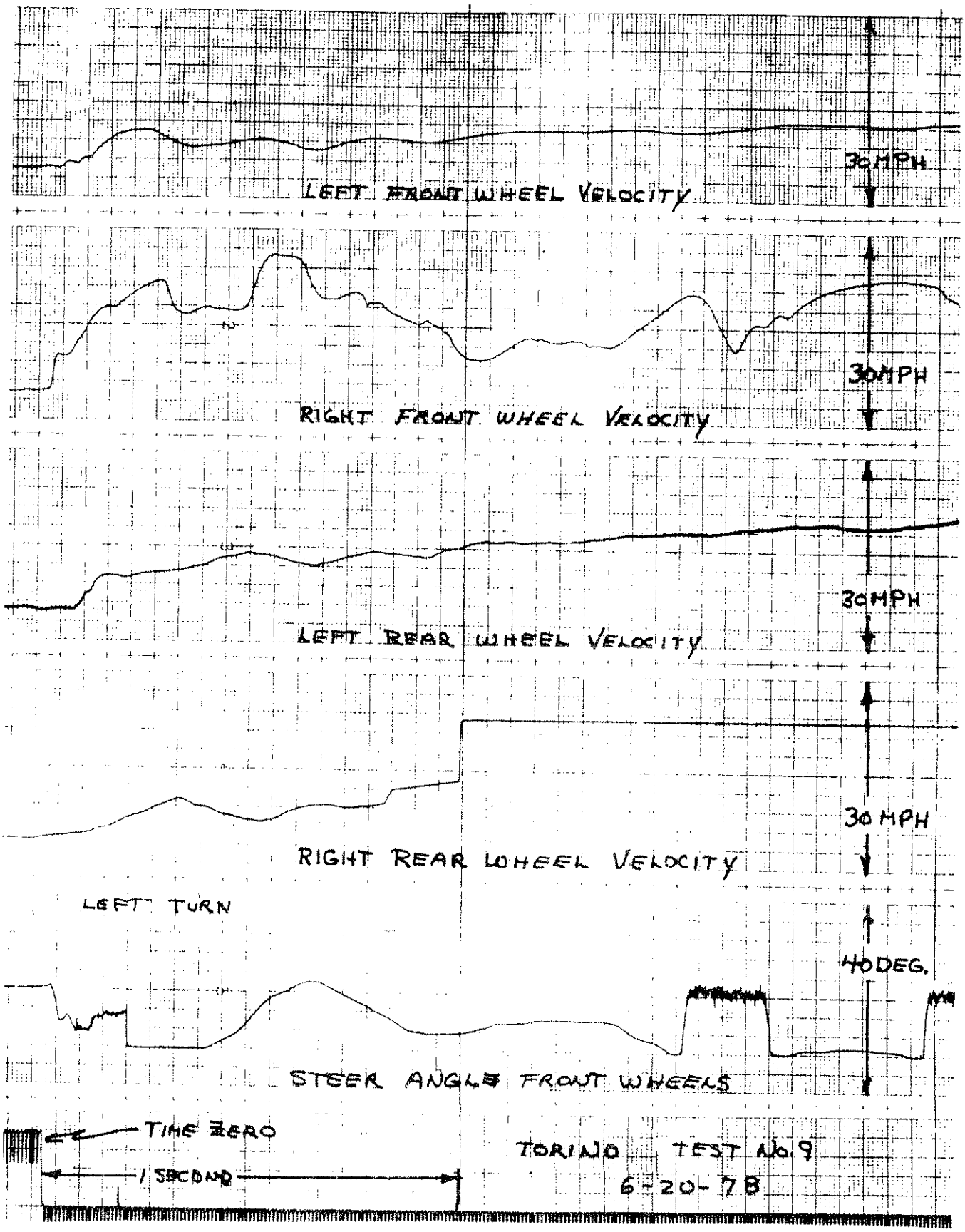


Figure 15-14 TEST NO. 9
CAR NO. 2 WHEEL RESPONSES

ZQ-6057-V-5

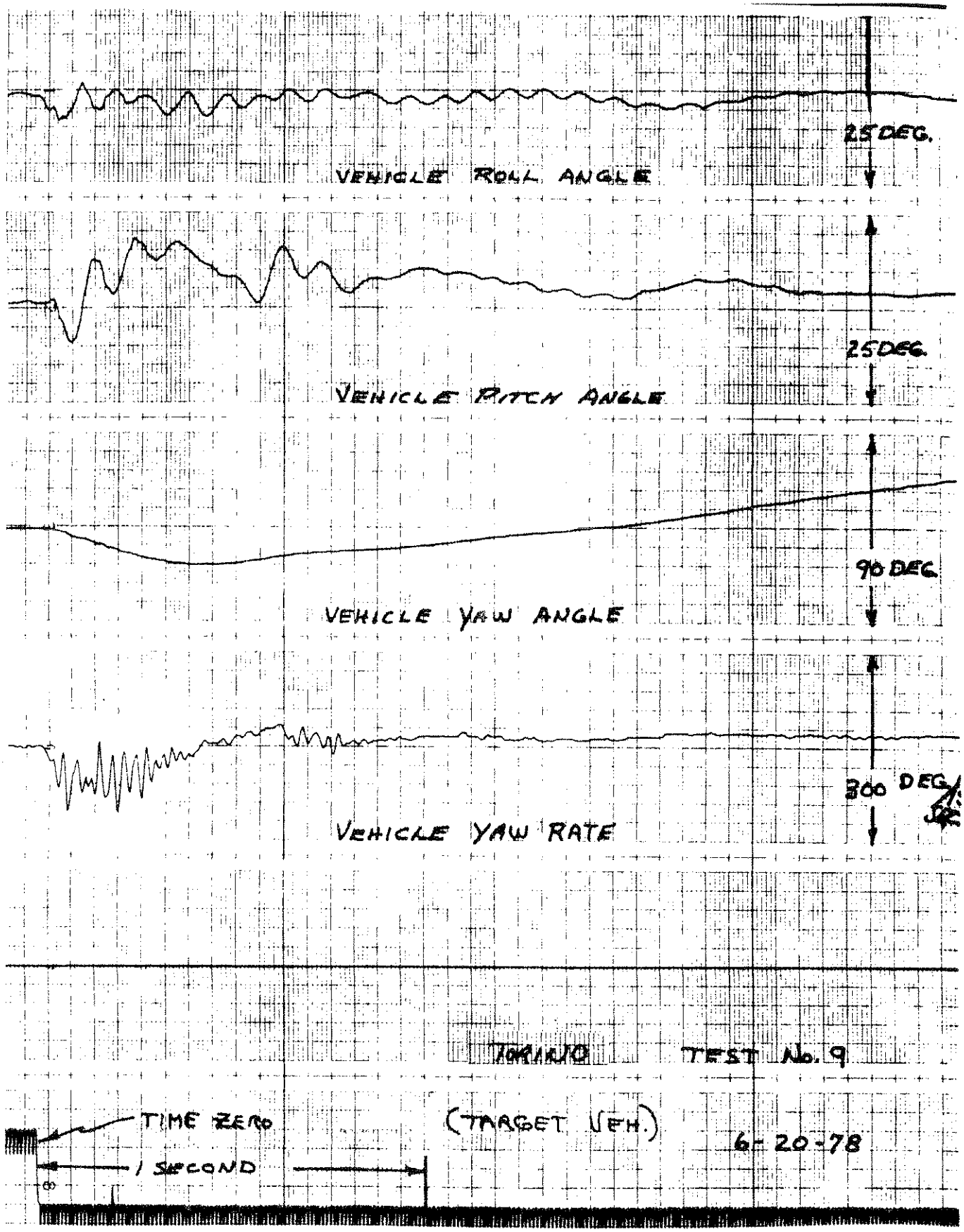


Figure 15-15 TEST NO. 9 - CAR NO. 2
VEHICLE ATTITUDE

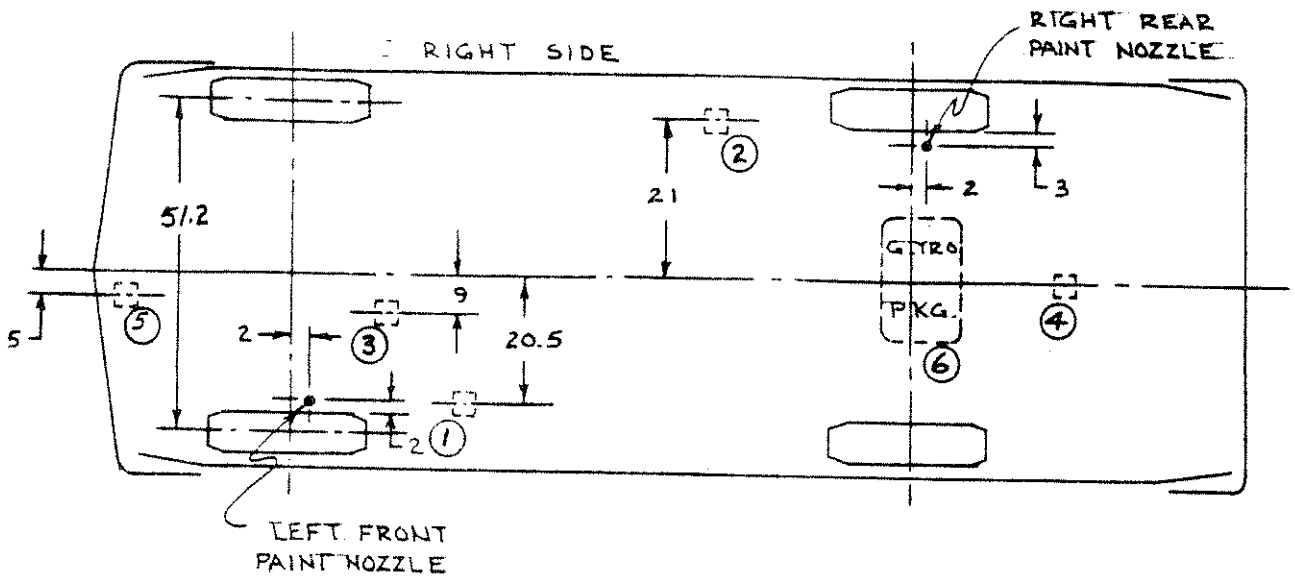
TABLE 15-3

ELECTRONIC INSTRUMENTATION TEST No. 9

BULLET VEHICLE - CAR 1 - 1975 HONDA

TRANSDUCER DESCRIPTION OR ACCELEROMETER LOCATION *	DIRECTION OF PARAMETER BEING MEASURED	LOCATION ON VEHICLE	DESCRIPTION LISTED ON DATA PLOTS
VEHICLE ACCELEROMETER			
1	X,Y,Z	Floorpan L.F. Corner	Left Front Corner
2	X,Y,Z	Floorpan R.R. Corner	Right Rear Corner
3	X,Y,Z	Firewall	Firewall
4	X,Y,Z	Rear Deck	Rear Deck
5	X	Bumper	Bumper
VEHICLE ATTITUDE			
Pitch Angle - 6		Gyro Package	Vehicle Pitch Angle
Roll Angle - 6		Gyro Package	Vehicle Roll Angle
Yaw Angle - 6		Gyro Package	Vehicle Yaw Angle
Yaw Rate Angle - 6		Gyro Package	Vehicle Yaw Rate
Steer Angle		Front Wheels	Steer Angle-Front Wheels
R.F. Wheel Velocity		R.F. Wheel Axle	R.F. Wheel Velocity
L.F. Wheel Velocity		L.F. Wheel Axle	L.F. Wheel Velocity
R.R. Wheel Velocity		R.R. Wheel Axle	R.R. Wheel Velocity
L.R. Wheel Velocity		L.R. Wheel Axle	L.R. Wheel Velocity

*SEE FIGURE 15-16 VEHICLE INSTRUMENTATION LOCATIONS



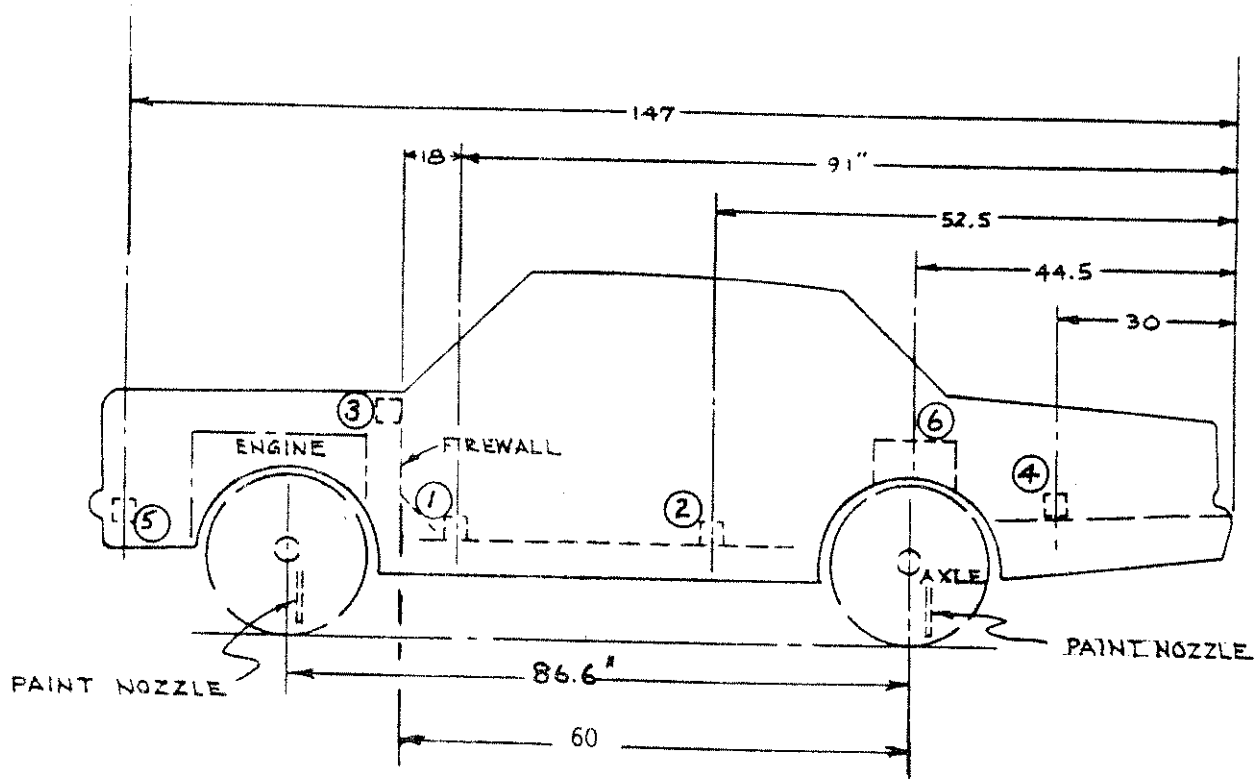


Figure 15-16 VEHICLE INSTRUMENTATION LOCATIONS

CAR 1 - 1975 HONDA - TEST NO. 9

TABLE 15-4

ELECTRONIC INSTRUMENTATION TEST No. 9

TARGET VEHICLE - CAR 2 - 1974 FORD TORINO

TRANSDUCER DESCRIPTION OR ACCELEROMETER LOCATION *	DIRECTION OF PARAMETER BEING MEASURED	LOCATION ON VEHICLE	DESCRIPTION LISTED ON DATA PLOTS
VEHICLE ACCELEROMETER			
1	X,Y,Z	Floorpan L.F. Corner	L.F. Corner
2	X,Y,Z	Floorpan L.R. Corner	L.R. Corner
3	X,Y,Z	Firewall	Firewall
4	X,Y,Z	Rear Deck	Rear Deck
5	Y	Left Front Door	Left Front Door
6	Y	Upper Right Front Door	Upper Right Front Door
7	Y	Lower Right Front Door	Lower Right Front Door
VEHICLE ATTITUDE			
Pitch Angle - 8		Gyro Package	Vehicle Pitch Angle
Roll Angle - 8		Gyro Package	Vehicle Roll Angle
Yaw Angle - 8		Gyro Package	Vehicle Yaw Angle
Yaw Rate Angle - 8		Gyro Package	Vehicle Yaw Rate
Steer Angle		Front Wheels	Steer Angle - Front Wheels
R.F. Wheel Velocity		R.F. Wheel Axle	R.F. Wheel Velocity
L.F. Wheel Velocity		L.F. Wheel Axle	L.F. Wheel Velocity
R.R. Wheel Velocity		R.R. Wheel Axle	R.R. Wheel Velocity
L.F. Wheel Velocity		L.R. Wheel Axle	L.R. Wheel Velocity
DUMMY			
L.F. Head	X,Y,Z	L.F. Seat	Dummy L.F. Head
L.F. Chest	X,Y,Z	L.F. Seat	Dummy L.F. Chest
L.F. Femurs	R,L**	L.F. Seat	Dummy L.F. Femur
L.F. Pelvic	Y	L.F. Seat	Dummy L.F. Pelvic
R.F. Head	X,Y,Z	R.F. Seat	Dummy R.F. Head
R.F. Chest	X,Y,Z	R.F. Seat	Dummy R.F. Chest
R.F. Femurs	R,L**	R.F. Seat	Dummy R.F. Femur
R.F. Pelvic	Y	R.F. Seat	Dummy R.F. Pelvic

*SEE FIGURE 15-17 VEHICLE INSTRUMENTATION LOCATIONS

**RIGHT AND LEFT FORCES

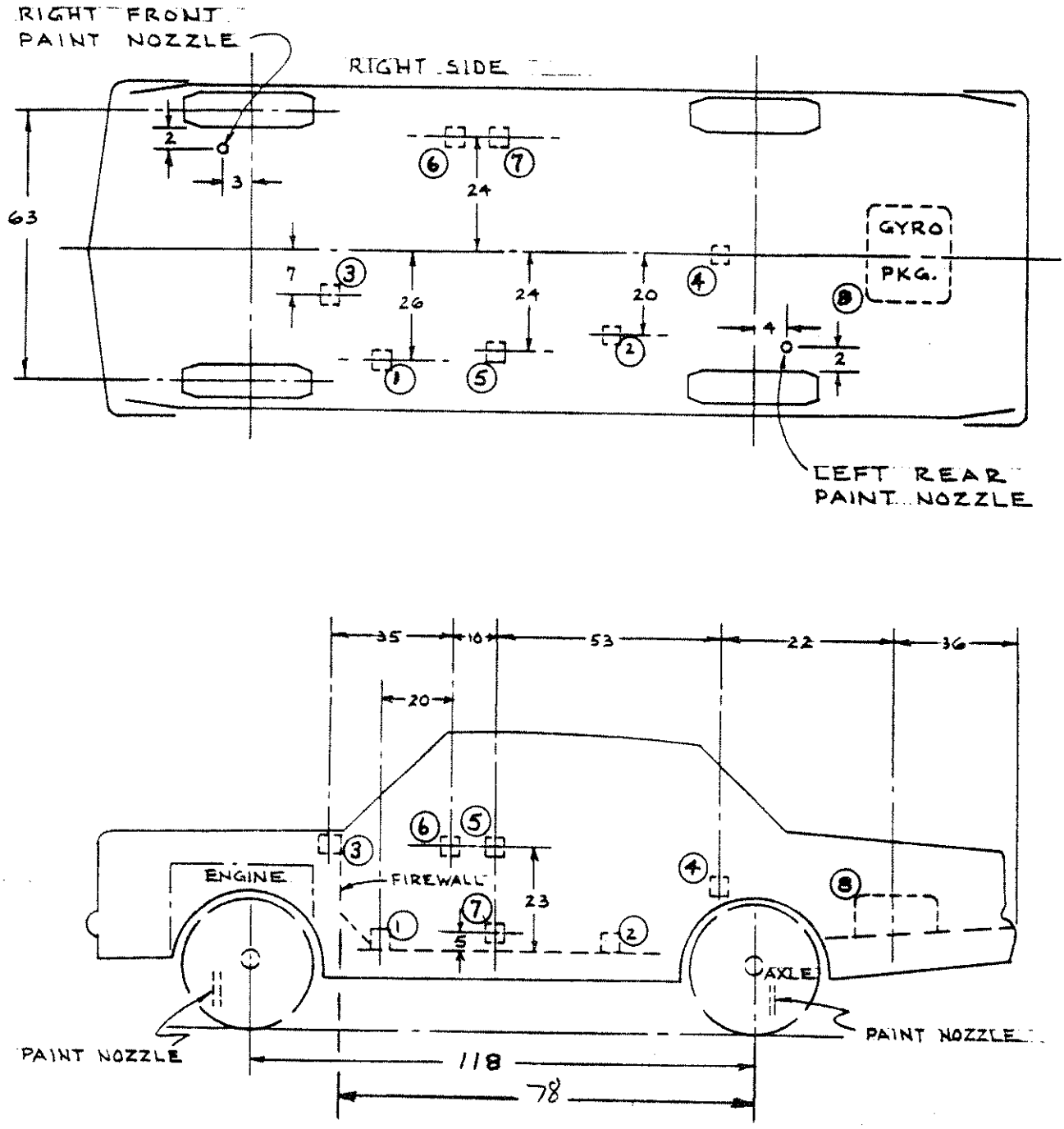


Figure 15-17 VEHICLE INSTRUMENTATION LOCATIONS

CAR 2 - 1974 FORD TORINO - TEST NO. 9

TABLE 15-5

VEHICLE TEST WEIGHTS - TEST NO. 9

CAR 1 - 1975 Honda

Left Front	650 lbs.	Left Rear	490 lbs.
Right Front	650 lbs.	Right Rear	480 lbs.
Total Front	1300 lbs.	Total Rear	970 lbs.

Total Weight = 1300 lbs. + 970 lbs = 2270 lbs.

Wheel Base 87 in.

Cg_{FW} = $\frac{970 \text{ lbs.}}{2270 \text{ lbs.}}$ 87 in. _____ - 37.17 in.

CAR 2 - 1974 Torino

Left Front	1360 lbs.	Left Rear	1130 lbs.
Right Front	1300 lbs.	Right Rear	1140 lbs.
Total Front	2660 lbs.	Total Rear	2270 lbs.

Total Weight = 2660 lbs. + 2270 lbs. = 4930 lbs.

Wheel Base 118.5 in.

Cg_{FW} = $\frac{2270 \text{ lbs.}}{4930}$ 118.5 in. _____ 54.56 in.

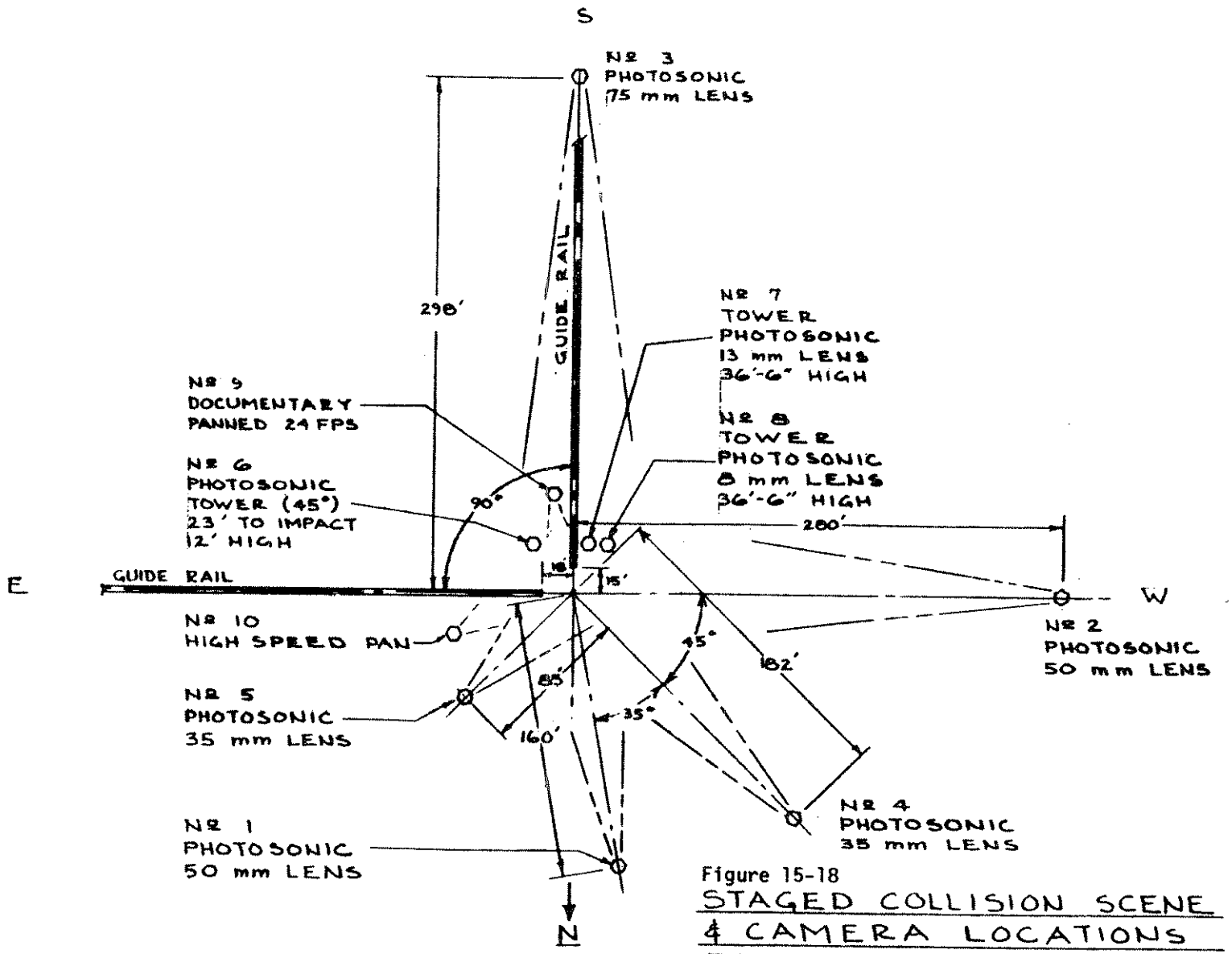


Figure 15-18
STAGED COLLISION SCENE & CAMERA LOCATIONS TESTS 8, 9 & 10

TABLE 15-6

HIGH SPEED CAMERA INFORMATION (TEST No. 9)

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)
10	HIGH SPEED PAN	PHOTOSONIC	25 MM	800
3	SOUTH	PHOTOSONIC	75 MM	700
2	WEST	PHOTOSONIC	50 MM	675
4	NORTHWEST	PHOTOSONIC	35 MM	750
1	NORTH	PHOTOSONIC	50 MM	700
6	TOWER 45	PHOTOSONIC	13 MM	650
7	TOWER CLOSE	PHOTOSONIC	13 MM	675
8	TOWER WIDE	PHOTOSONIC	8 MM	700
9	O.B. DRIVER	STALEX	8 MM	600
10	O.B. HOOD	STALEX	8 MM	700
11	O.B. REAR	STALEX	8 MM	700

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.

RICSAC TEST NO. 9

VEHICLE RESPONSES

CAR NO. 1 HONDA

DATA PLOTS

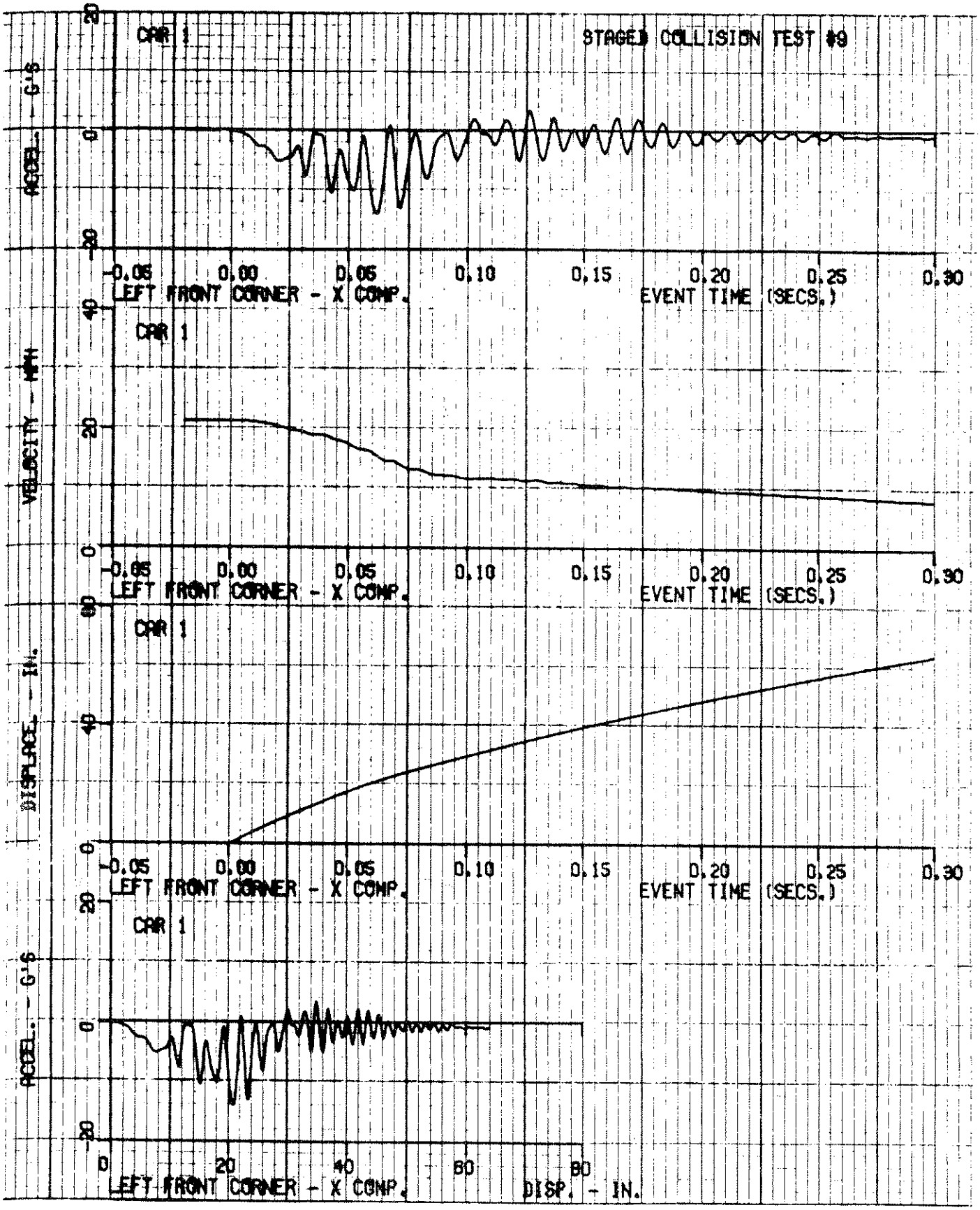
ACCELERATION TIME HISTORIES

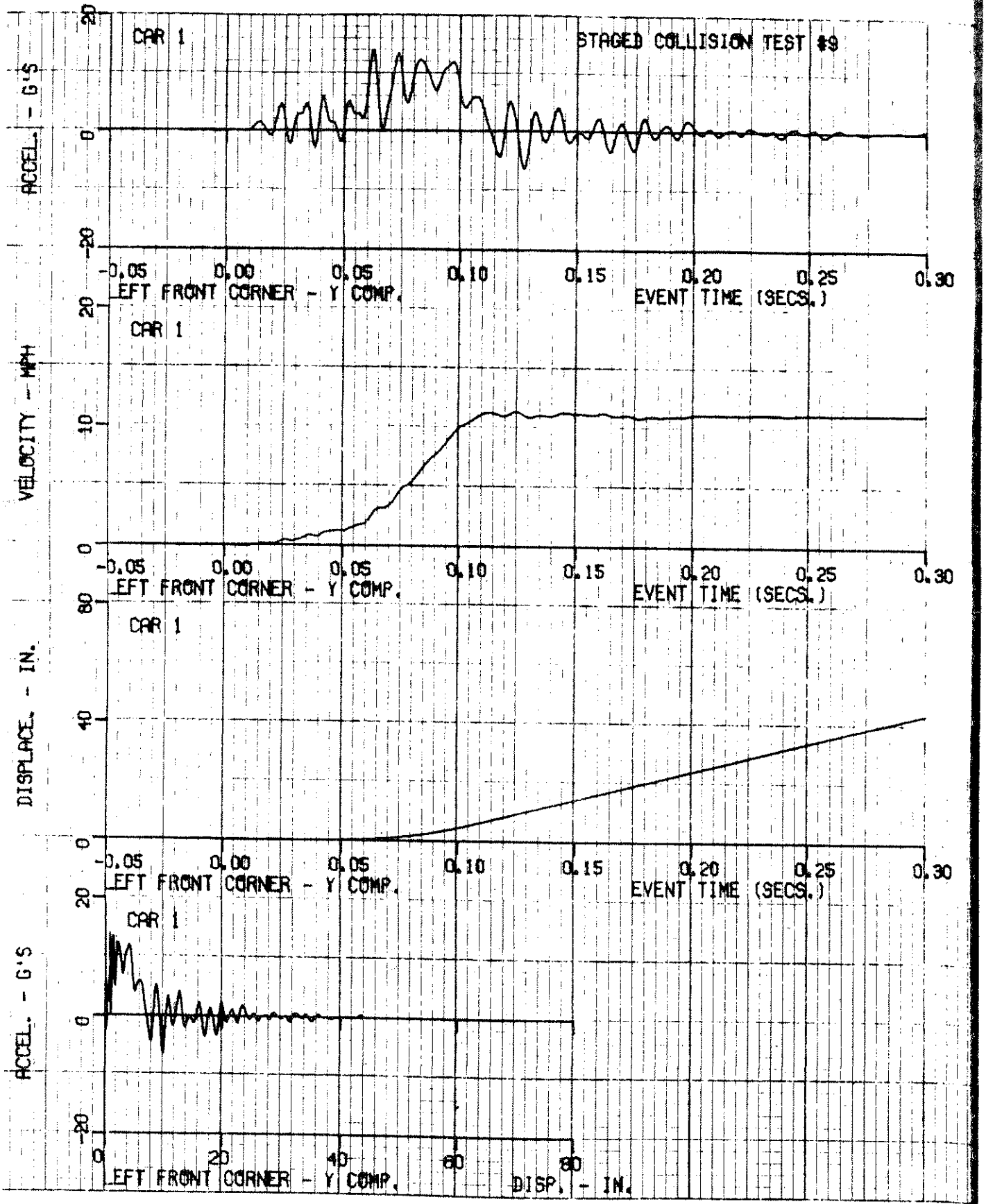
VELOCITY TIME HISTORIES

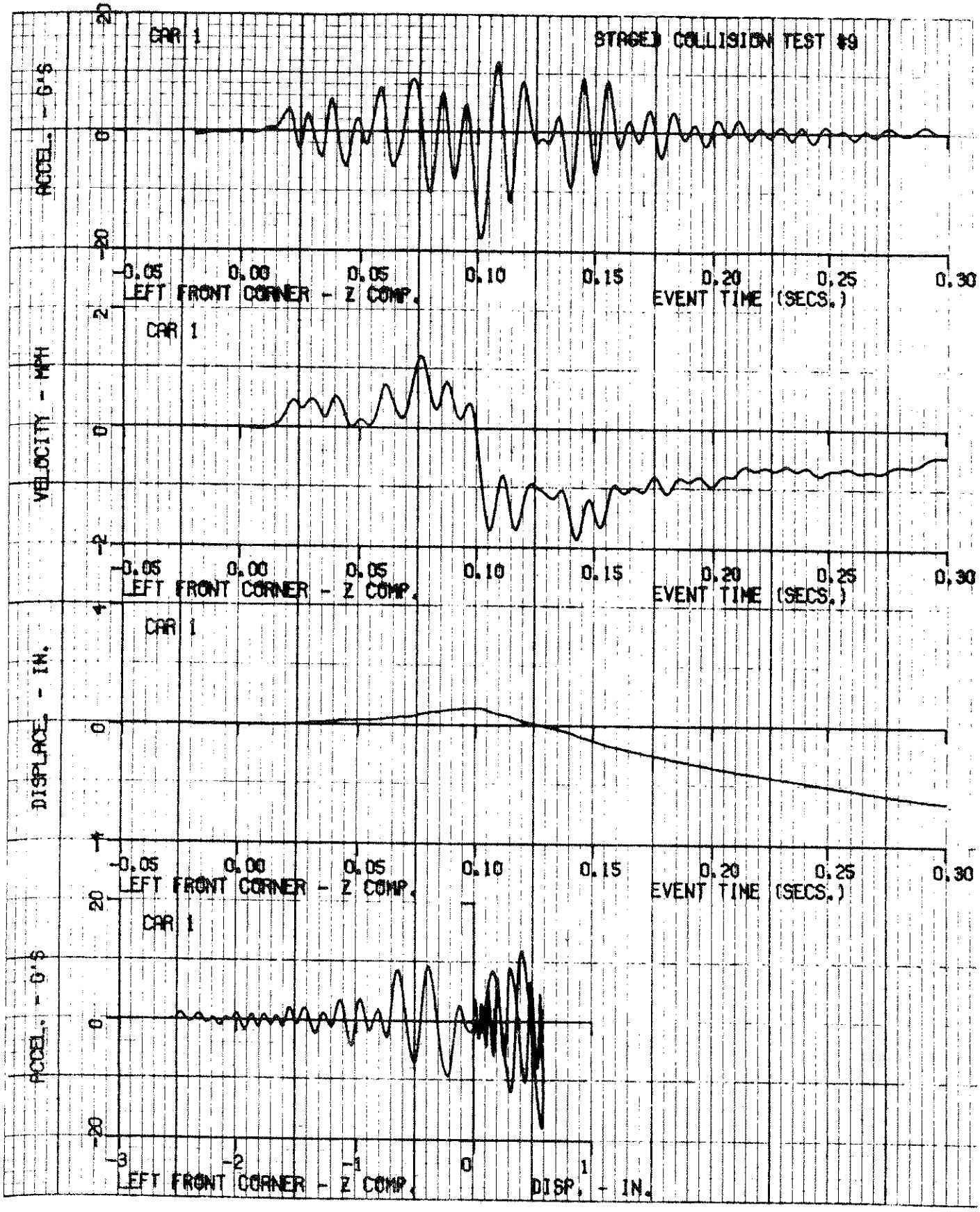
DISPLACEMENT TIME HISTORIES

ACCELERATION VS DISPLACEMENT

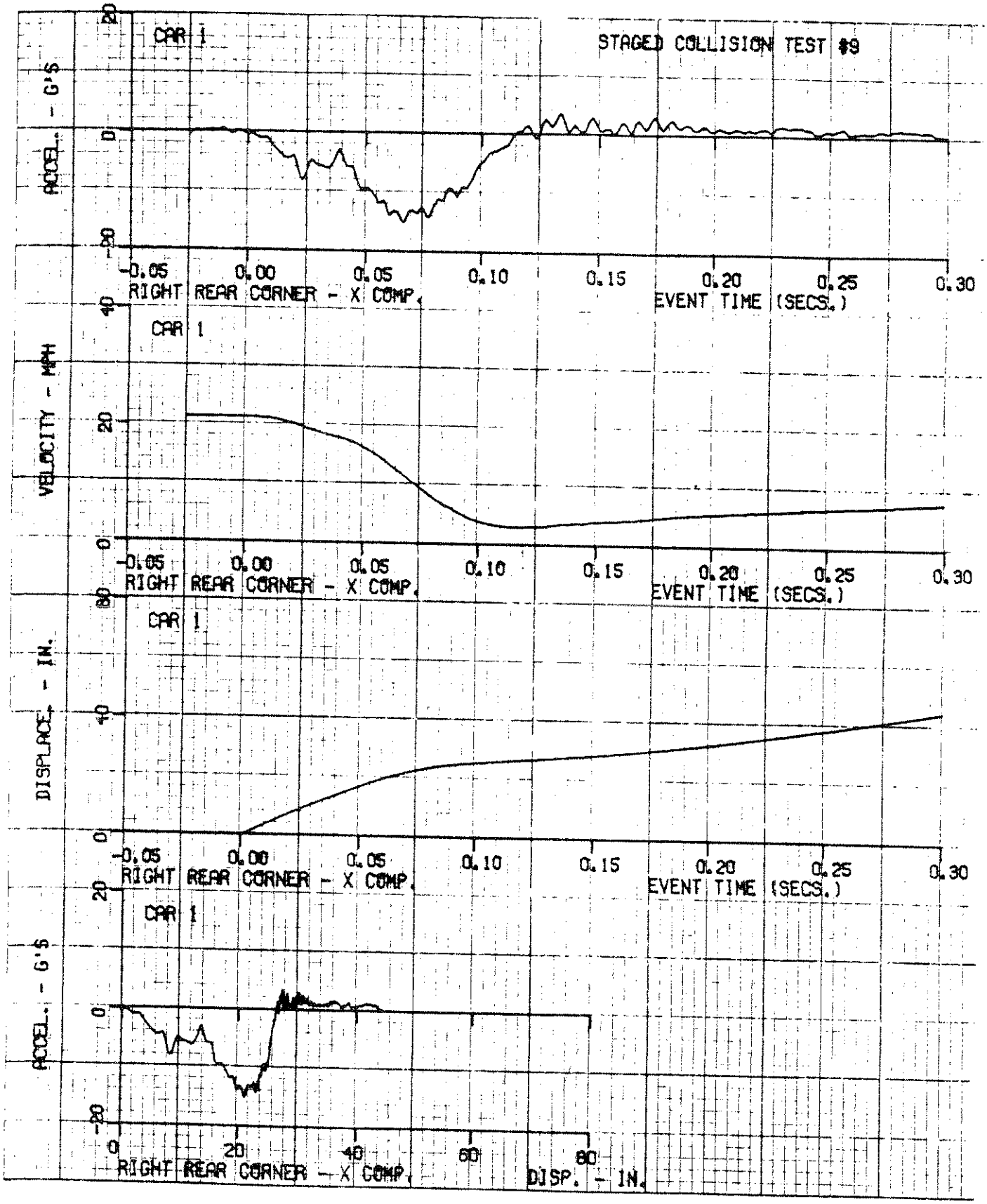
FILTER CLASS 60

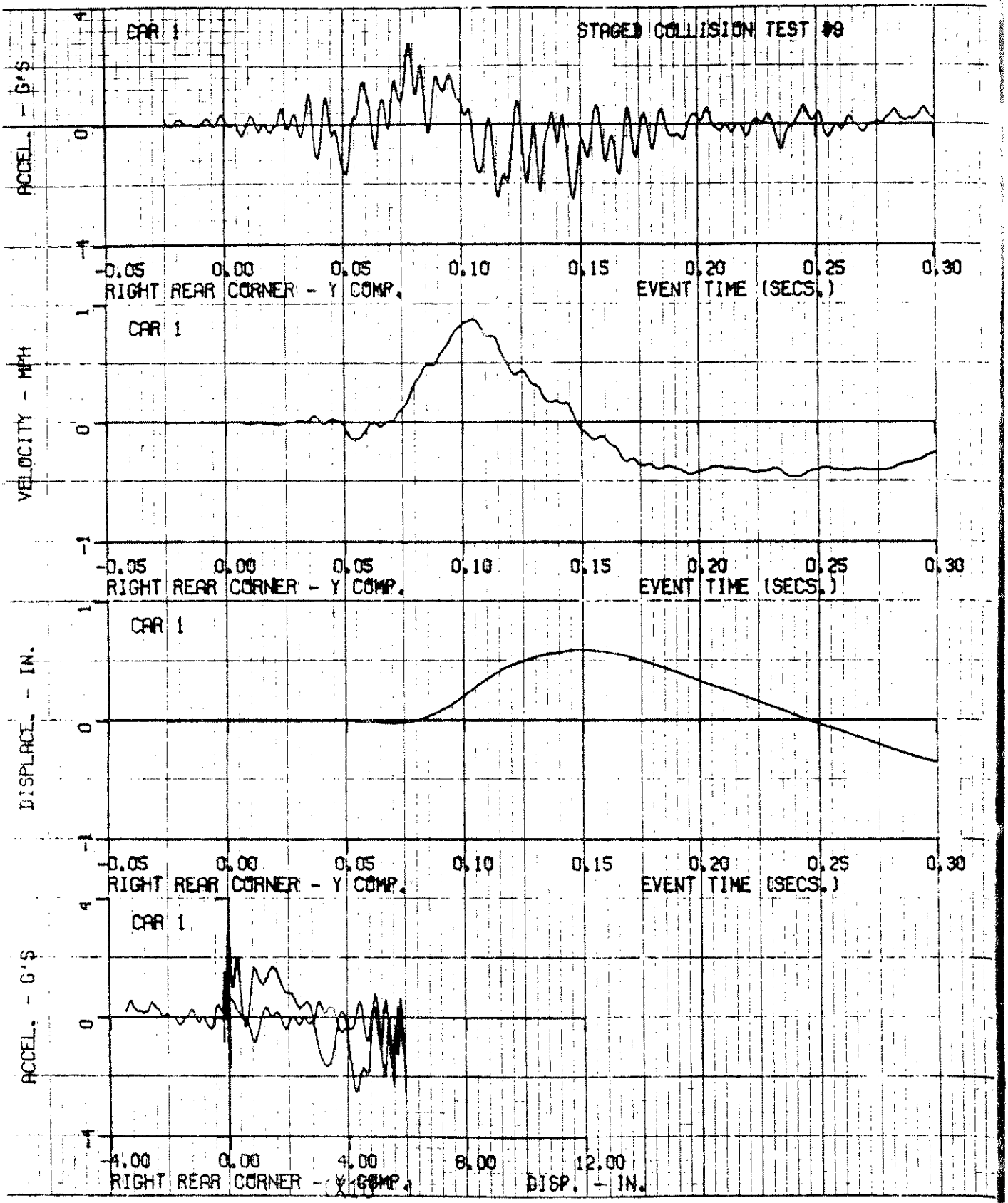

CAR 1
STAGED COLLISION TEST #9
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
80
40
0
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
20
40
60
80
LEFT FRONT CORNER - X COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #9
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
20
10
0
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
80
40
0
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
20
40
60
80
LEFT FRONT CORNER - Y COMP.
DISP. - IN.

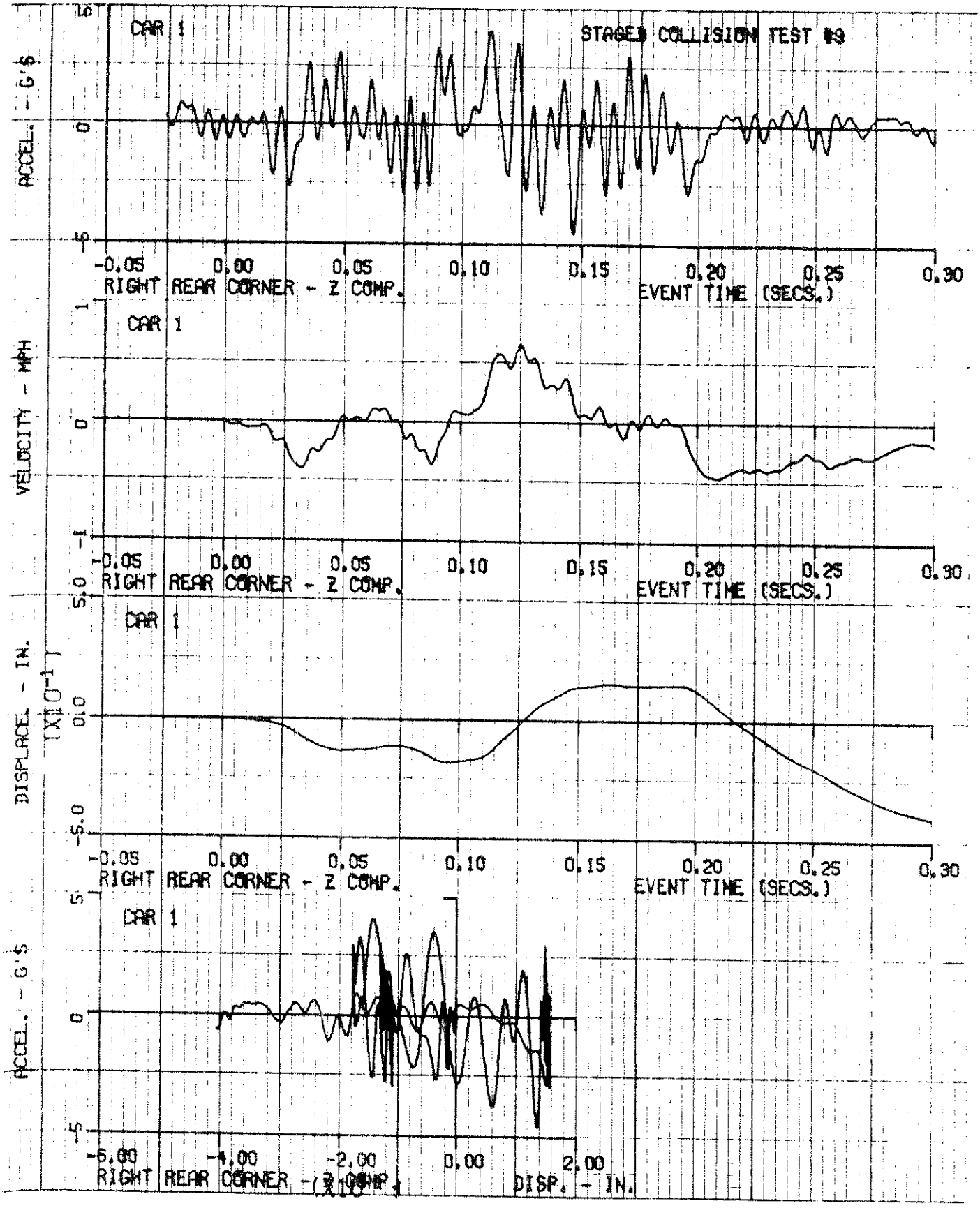

CAR 1
STAGED COLLISION TEST #9
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
2
0
-2
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
1
0
-1
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
-3
-2
-1
0
1
LEFT FRONT CORNER - Z COMP.
DISP. - IN.

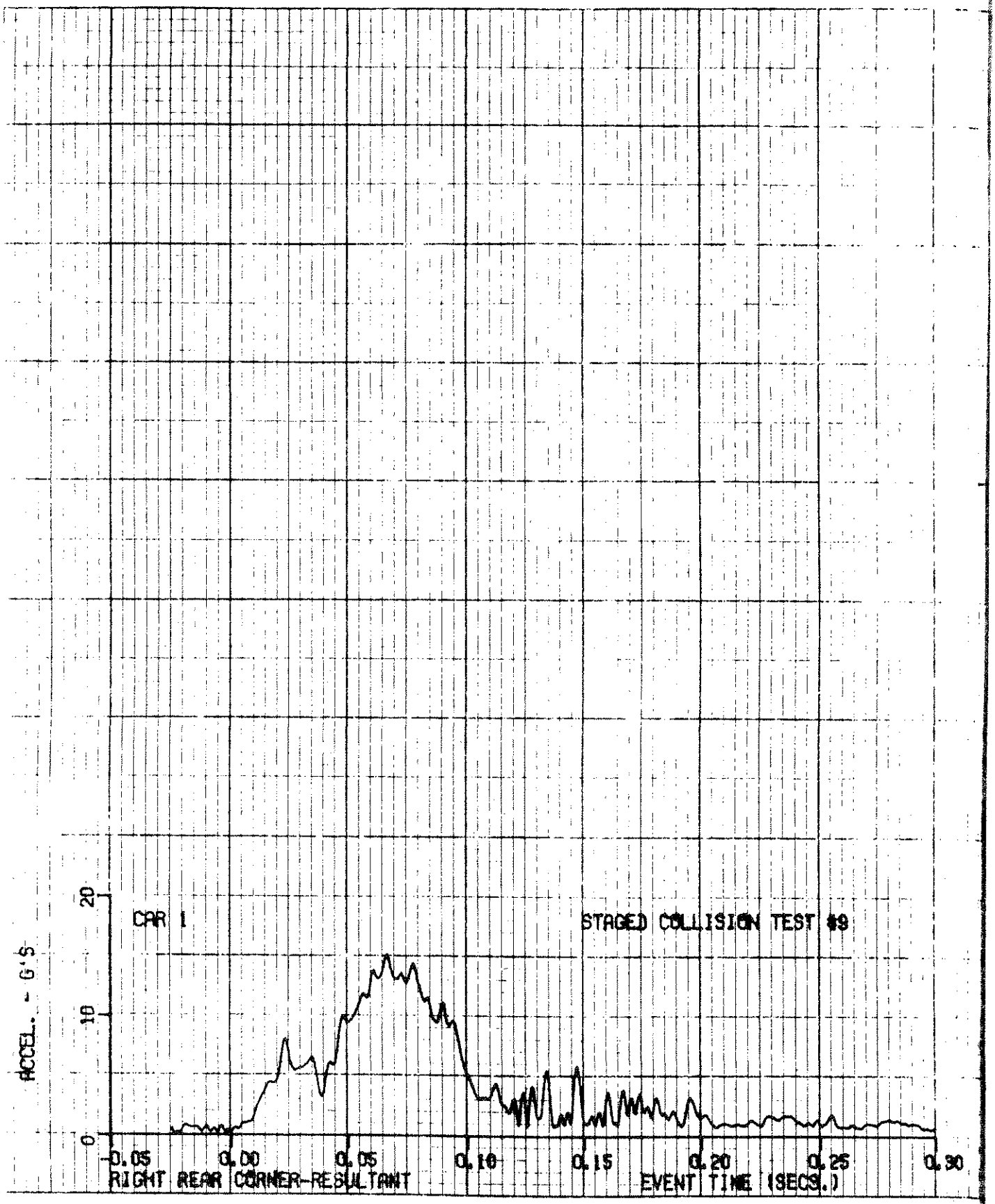
CAR 1
STAGED COLLISION TEST
ACCEL. - G'S
0
20
40
0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)

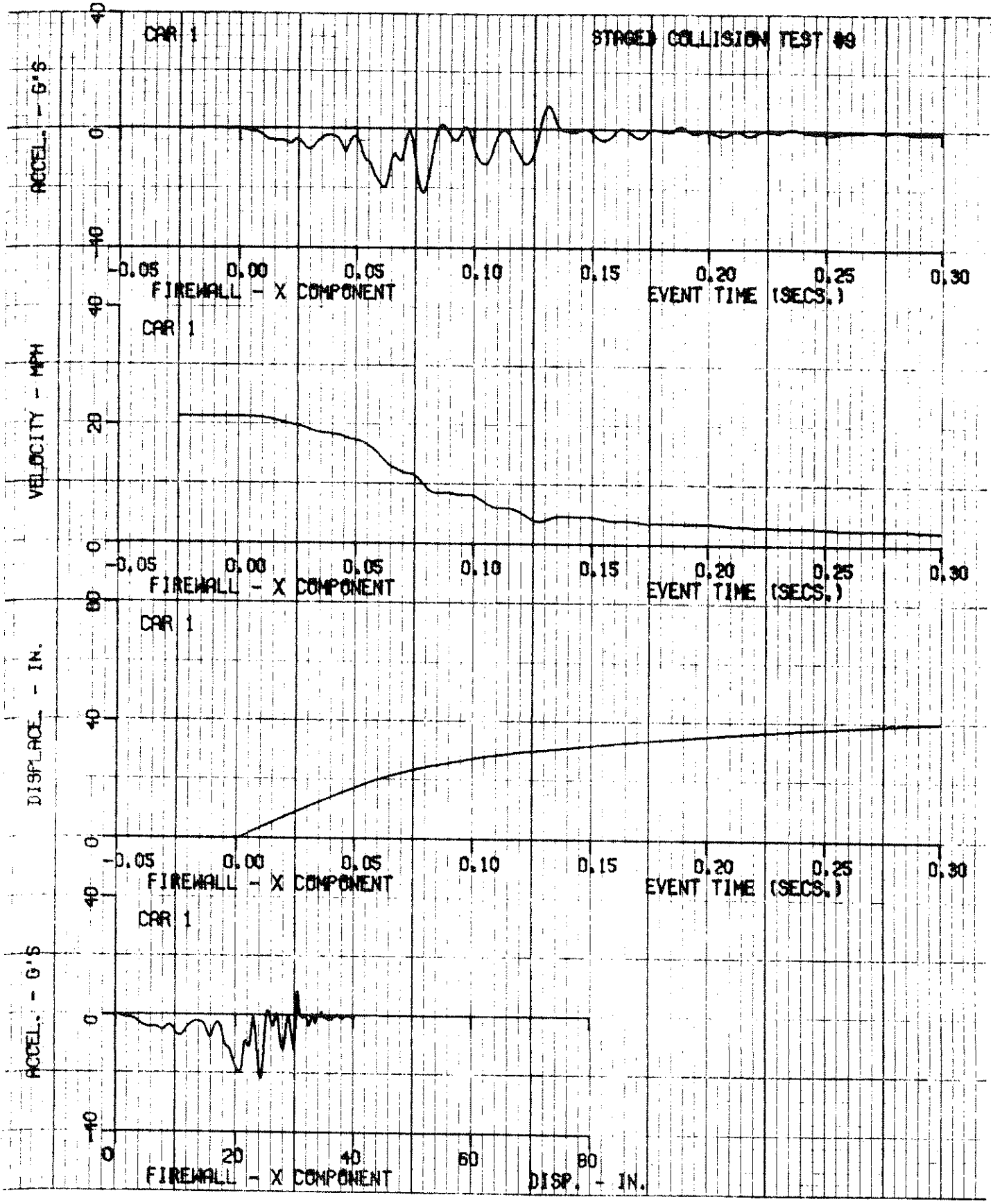

STAGED COLLISION TEST #9
CAR 1
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
80
40
0
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
20
40
60
80
RIGHT REAR CORNER - X COMP.
DISP. - IN.

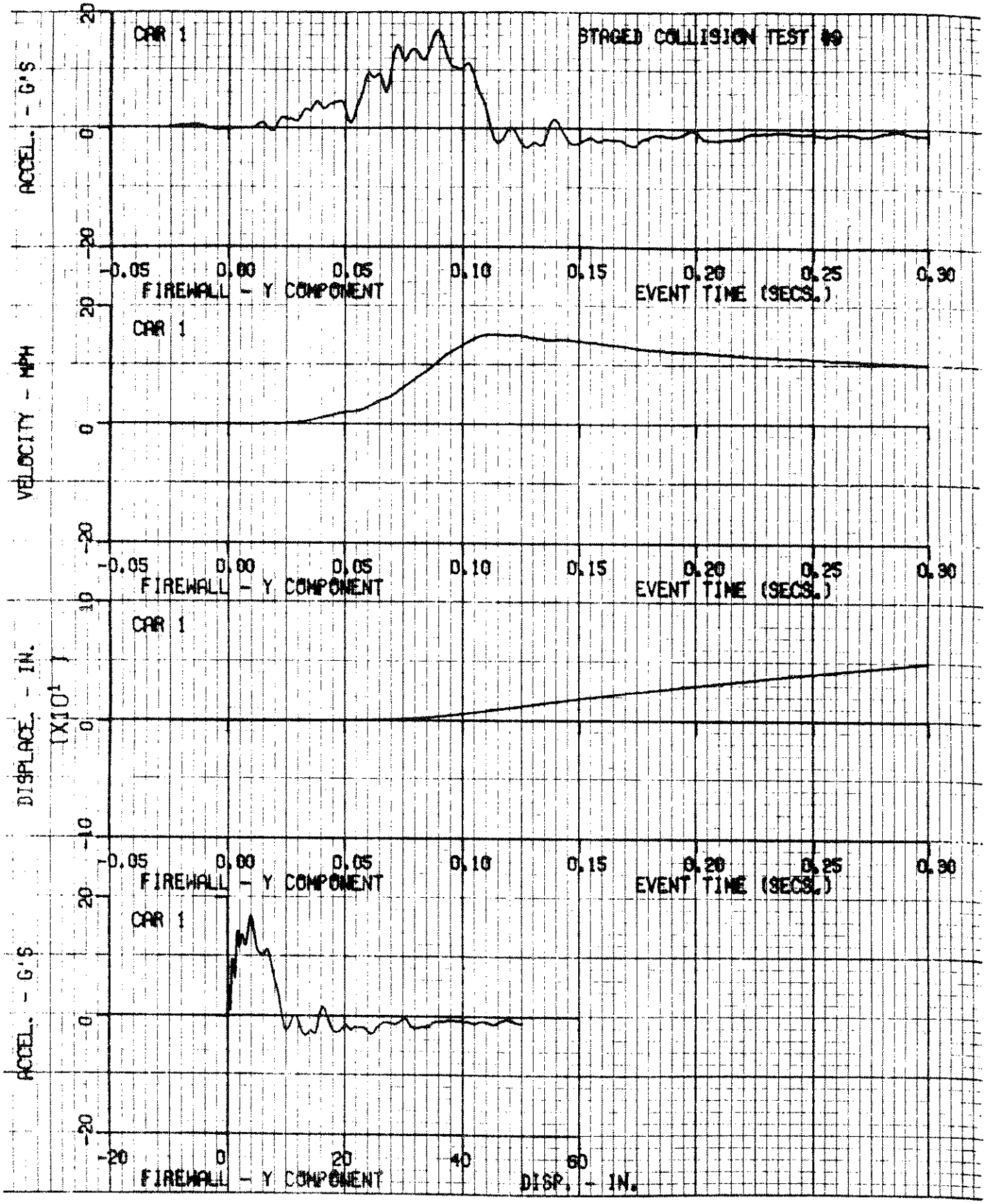

CAR 1
STAGED COLLISION TEST #9
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
1
0
-1
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
1
0
-1
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
-4.00
0.00
4.00
8.00
12.00
RIGHT REAR CORNER - Y COMP.
DISP. - IN.

ZQ-6057-V-5

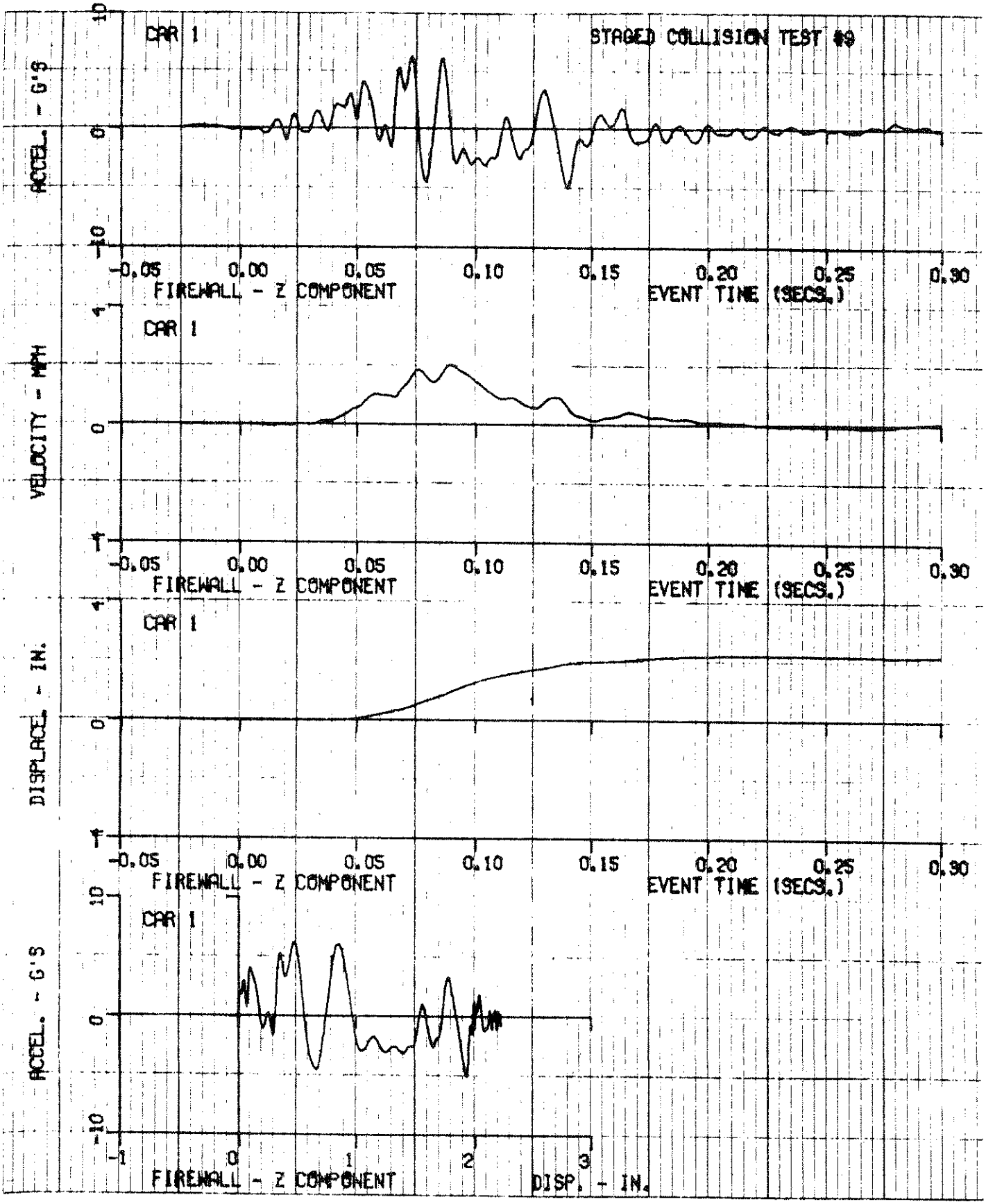

CAR 1
STAGED COLLISION TEST #9
ACCEL. - G'S
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
1
0
-1
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X10⁻¹)
5.0
0.0
-5.0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
5
0
-5
-6.00
-4.00
-2.00
0.00
2.00
RIGHT REAR CORNER - (X10) COMP.
DISP. - IN.

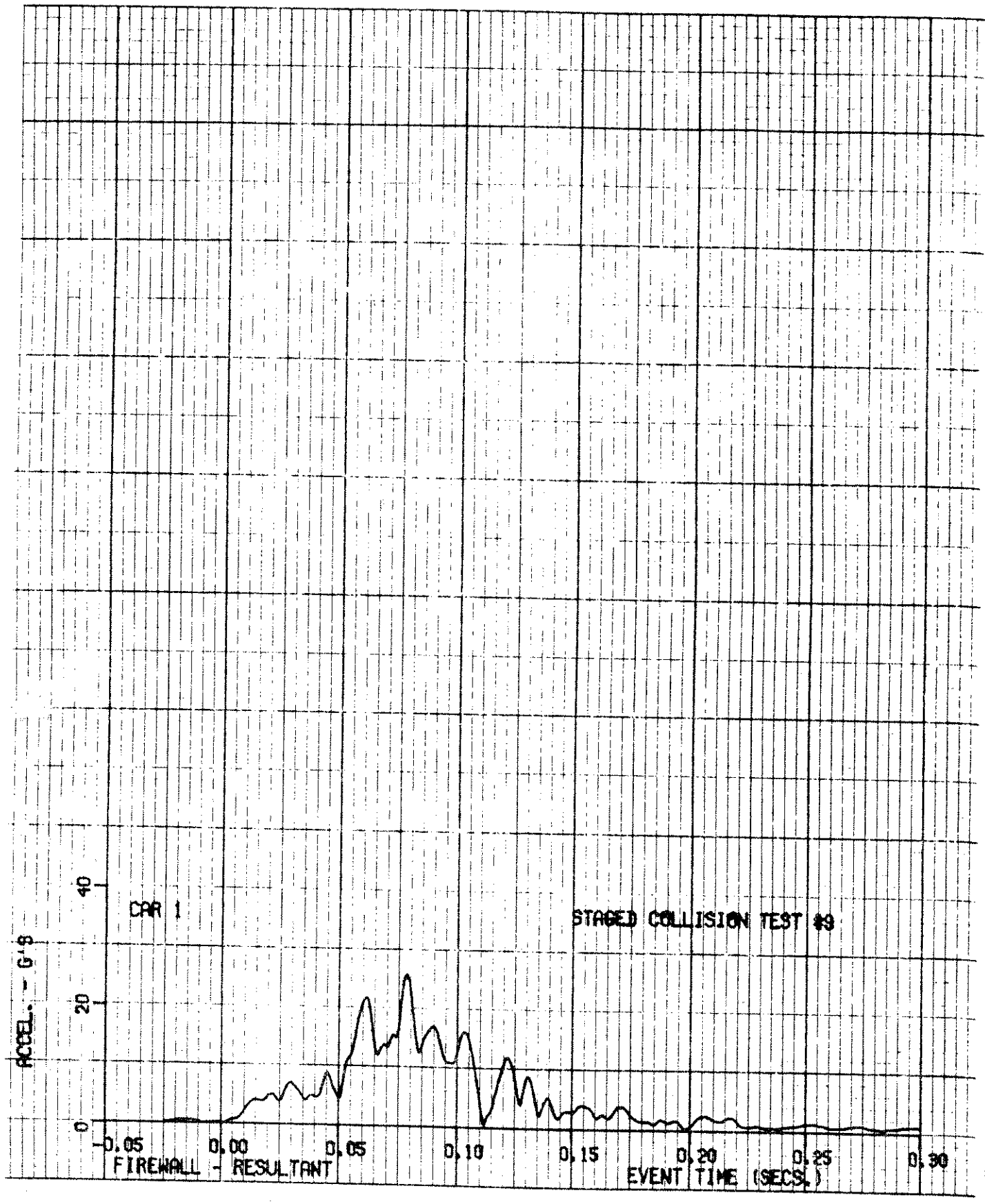

CAR 1
STAGED COLLISION TEST #9
ACCEL. - G'S
0
10
20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER-RESULTANT
EVENT TIME (SECS.)

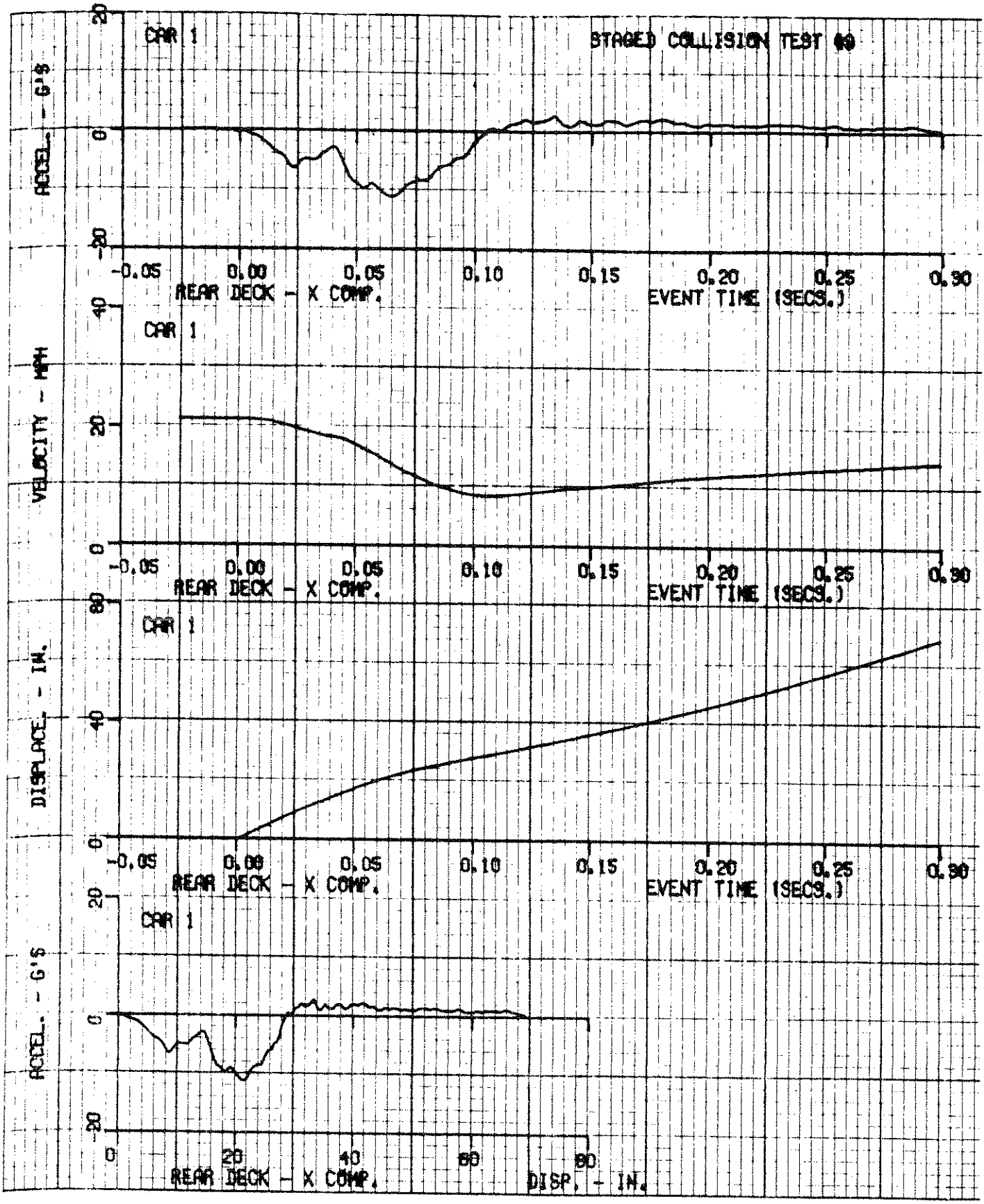

STAGED COLLISION TEST #9
CAR 1
ACCEL. - G'S
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
VELOCITY - MPH
DISPLACE - IN.
DISP. - IN.

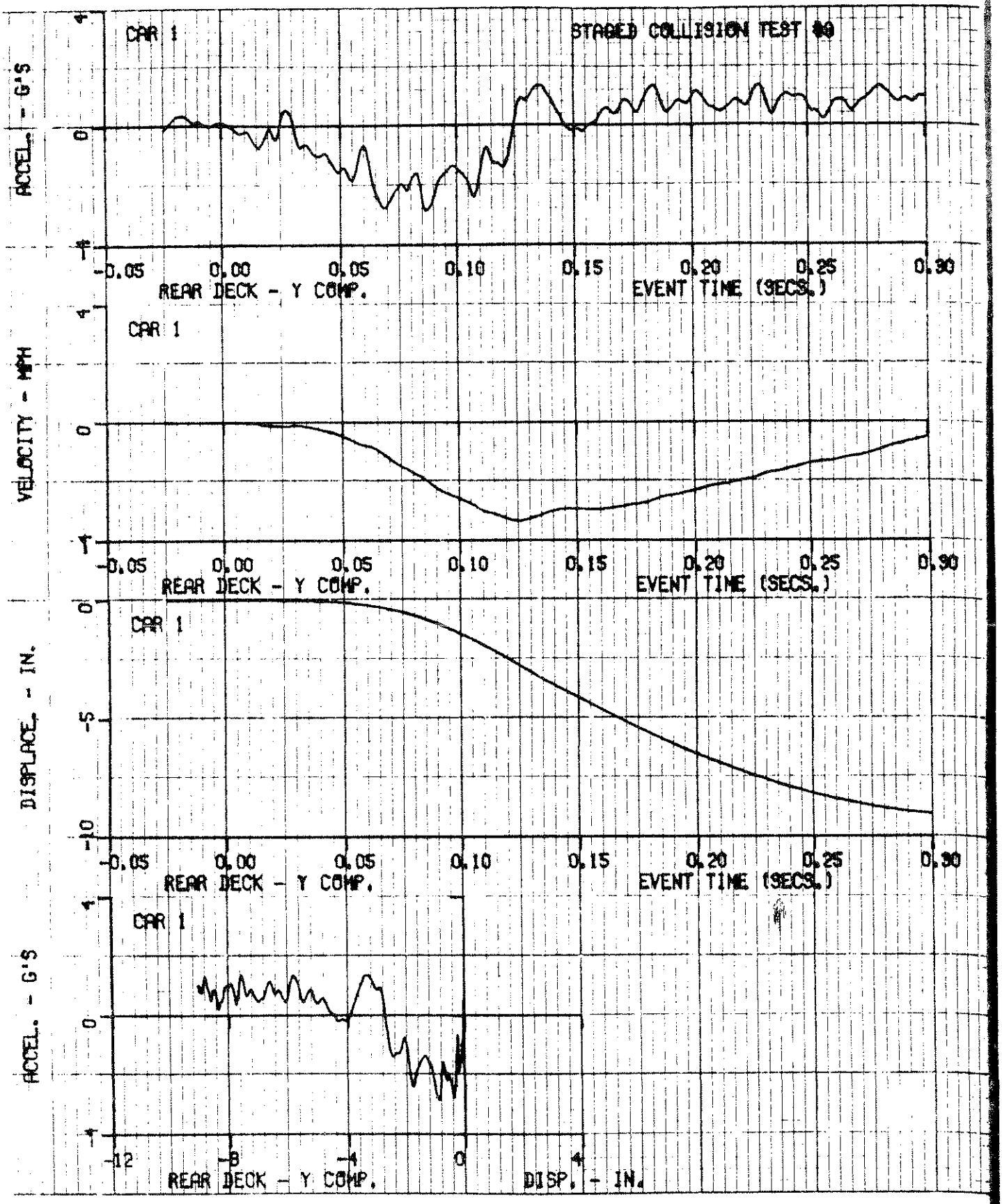

CAR 1
STAGED COLLISION TEST #9
ACCEL. - G'S
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
VELOCITY - MPH
DISPLACE. - IN.
(X10¹)
DISP. - IN.

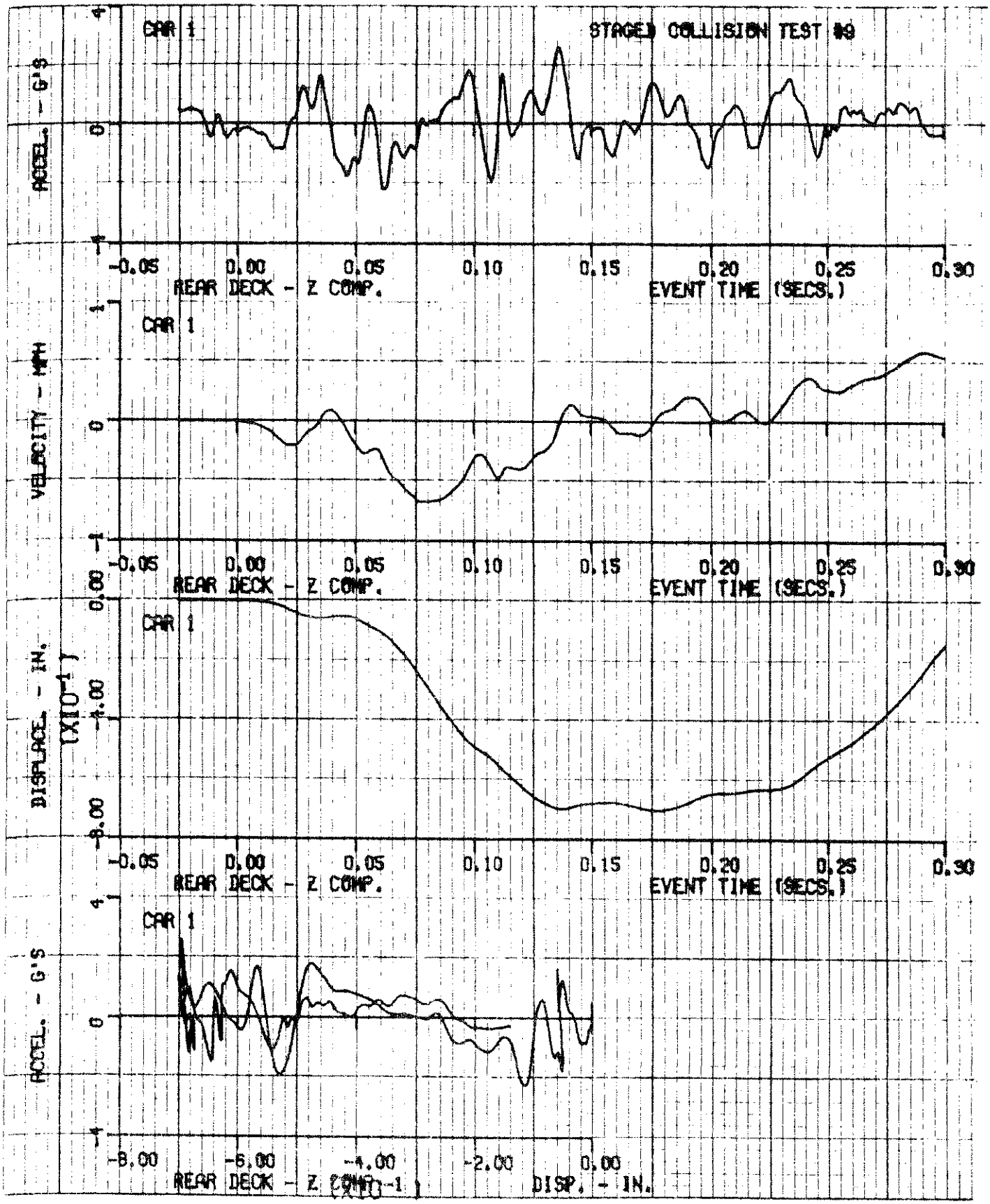
ZQ-6057-V-5

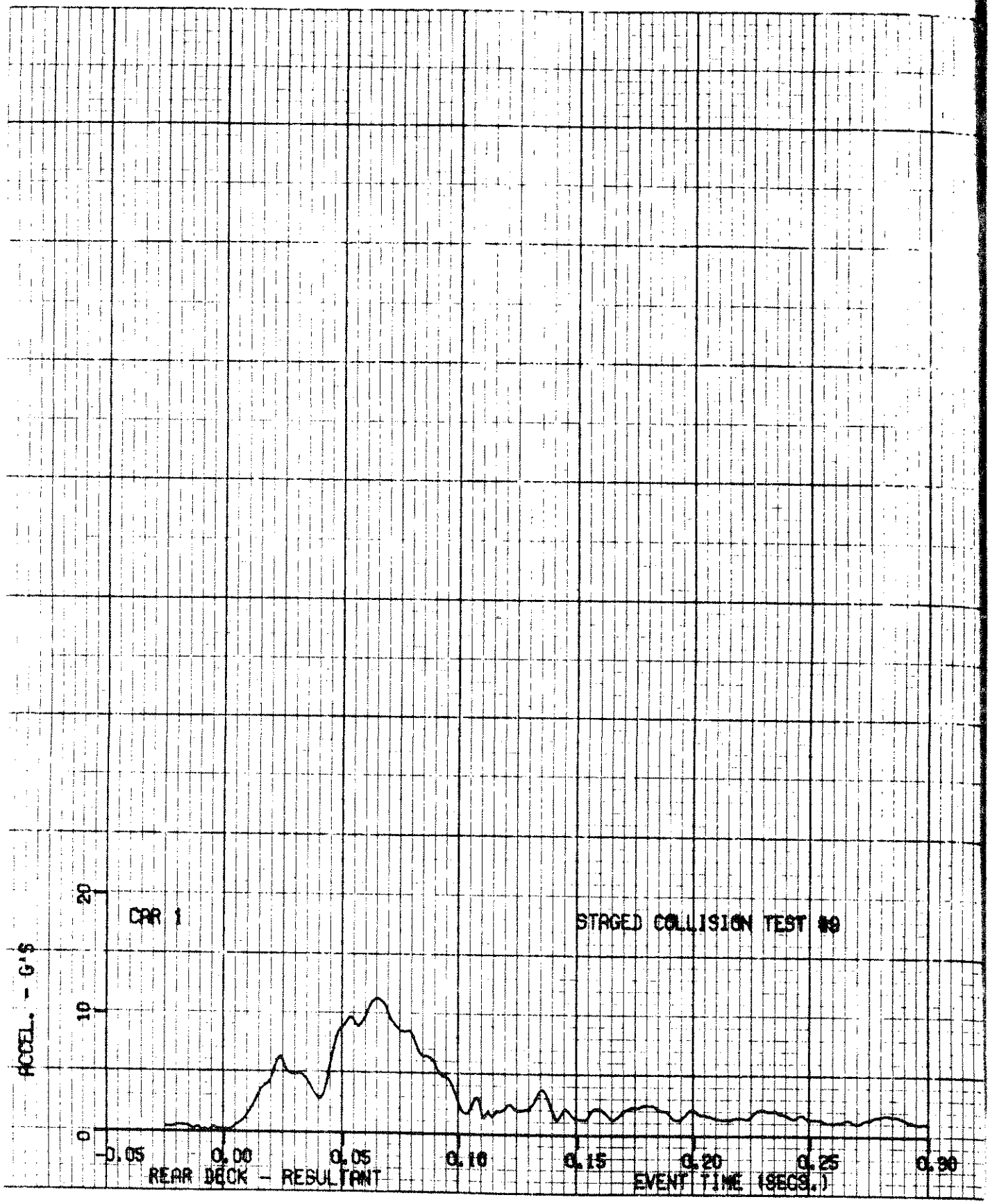

CAR 1
STAGED COLLISION TEST #9
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
4
0
-4
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
-1
0
1
2
3
FIREWALL - Z COMPONENT
DISP. - IN.

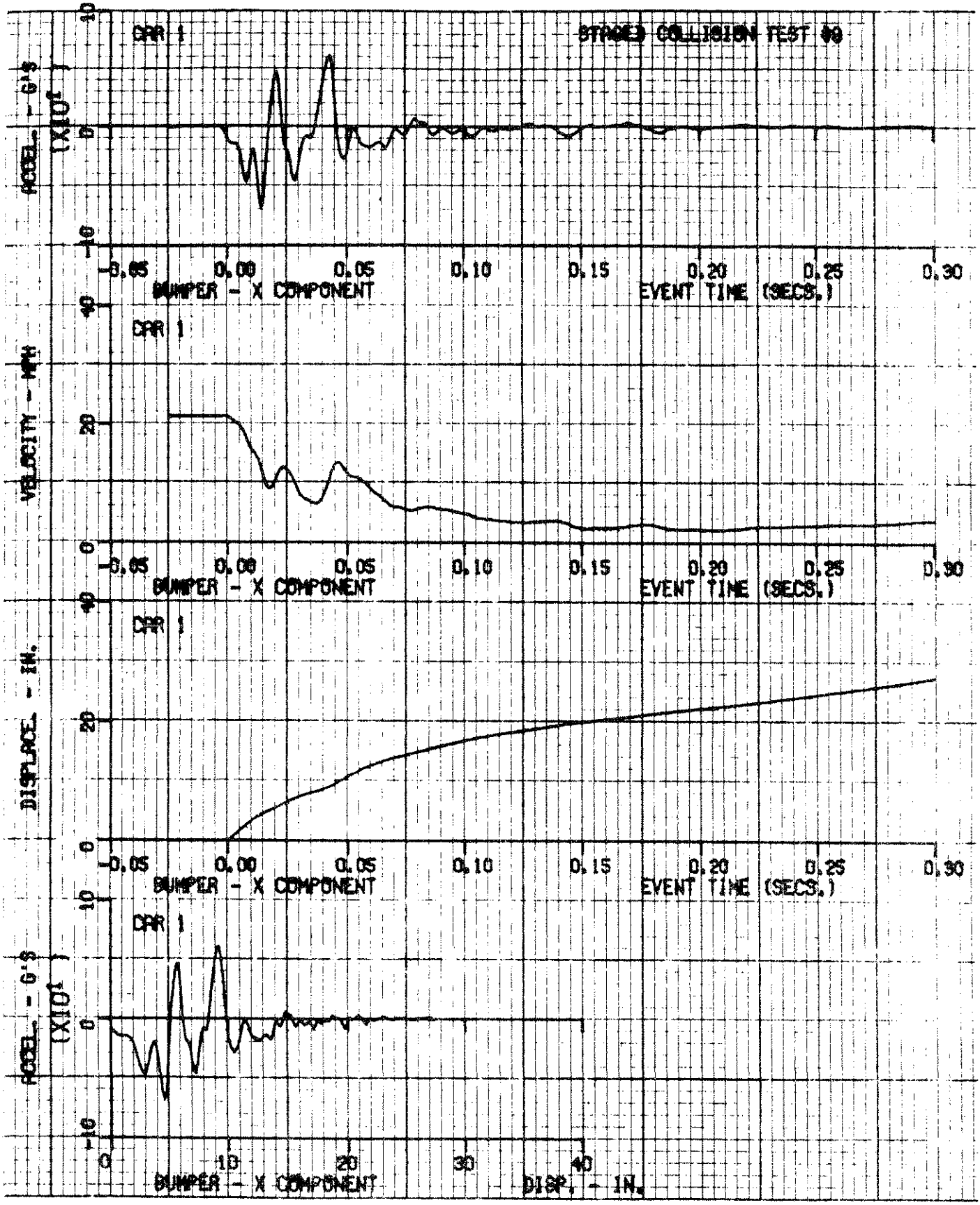

CAR 1
STAGED COLLISION TEST #9
ACCEL. - G'S
0
20
40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - RESULTANT
EVENT TIME (SECS.)


CAR 1
STAGED COLLISION TEST #9
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 1
VELOCITY - MPH
40
20
0
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
80
40
0
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
20
40
60
80
REAR DECK - X COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #0
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
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.
0
-5
-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
4
0
-4
-12
-8
-4
0
4
REAR DECK - Y COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #9
ACCEL. - G'S
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 1
VELOCITY - MPH
1
0
-1
-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
DISPLACE. - IN.
(X10-1)
0.00
-4.00
-8.00
-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
ACCEL. - G'S
4
0
-4
-8.00
-6.00
-4.00
-2.00
0.00
REAR DECK - Z COMP.
(X10-1)
DISP. - IN.


CAR 1
STAGED COLLISION TEST #9
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - RESULTANT
EVENT TIME (SECS.)


CAR 1
STAGED COLLISION TEST #9
ACCEL. - G's (X10²)
10
0
-10
-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
20
0
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
40
20
0
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G's (X10²)
10
0
-10
0
10
20
30
40
BUMPER - X COMPONENT
DISP. - IN.

RICSAC TEST NO. 9

VEHICLE RESPONSES

CAR NO. 2 TORINO

DATA PLOTS

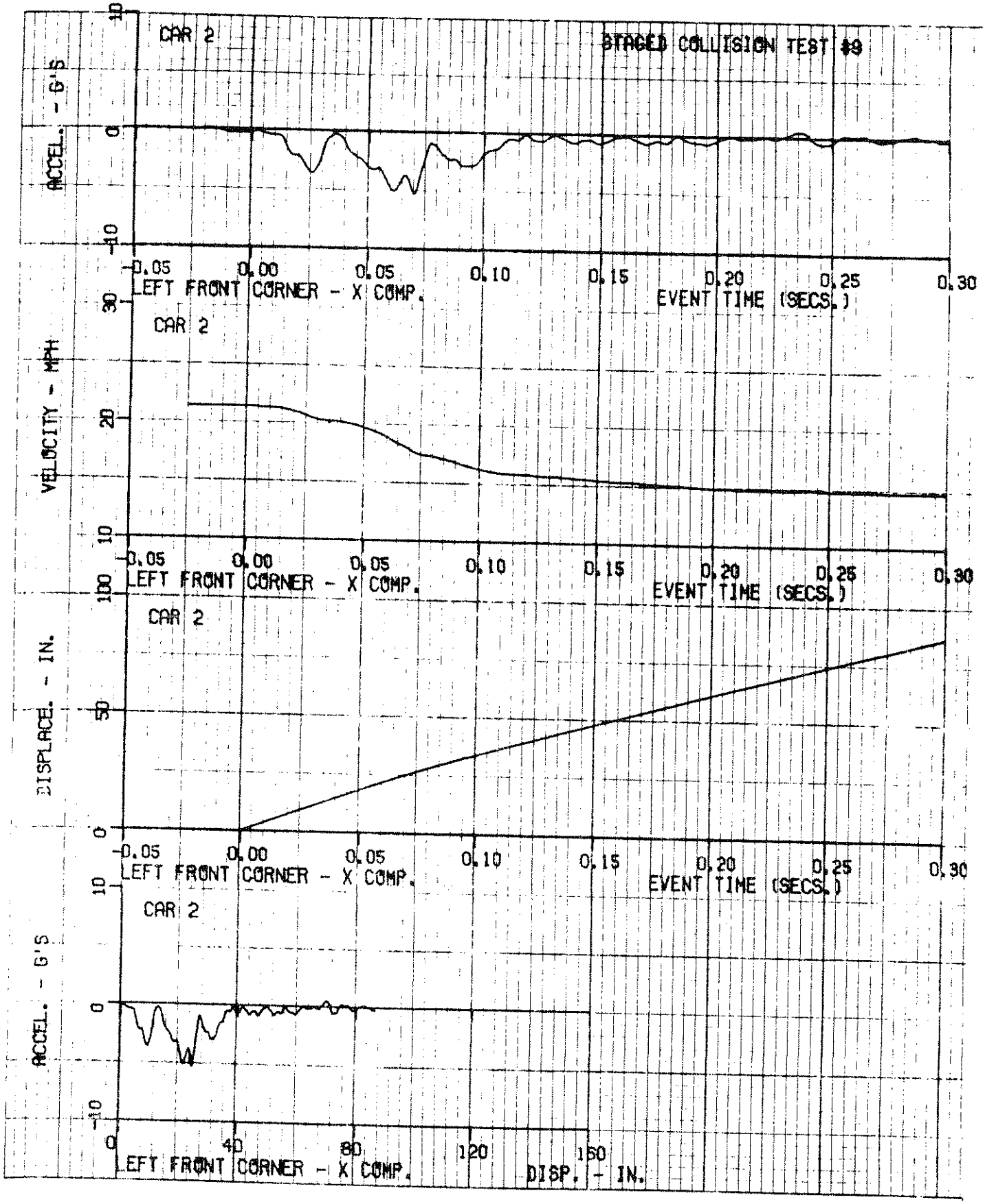
ACCELERATION TIME HISTORIES

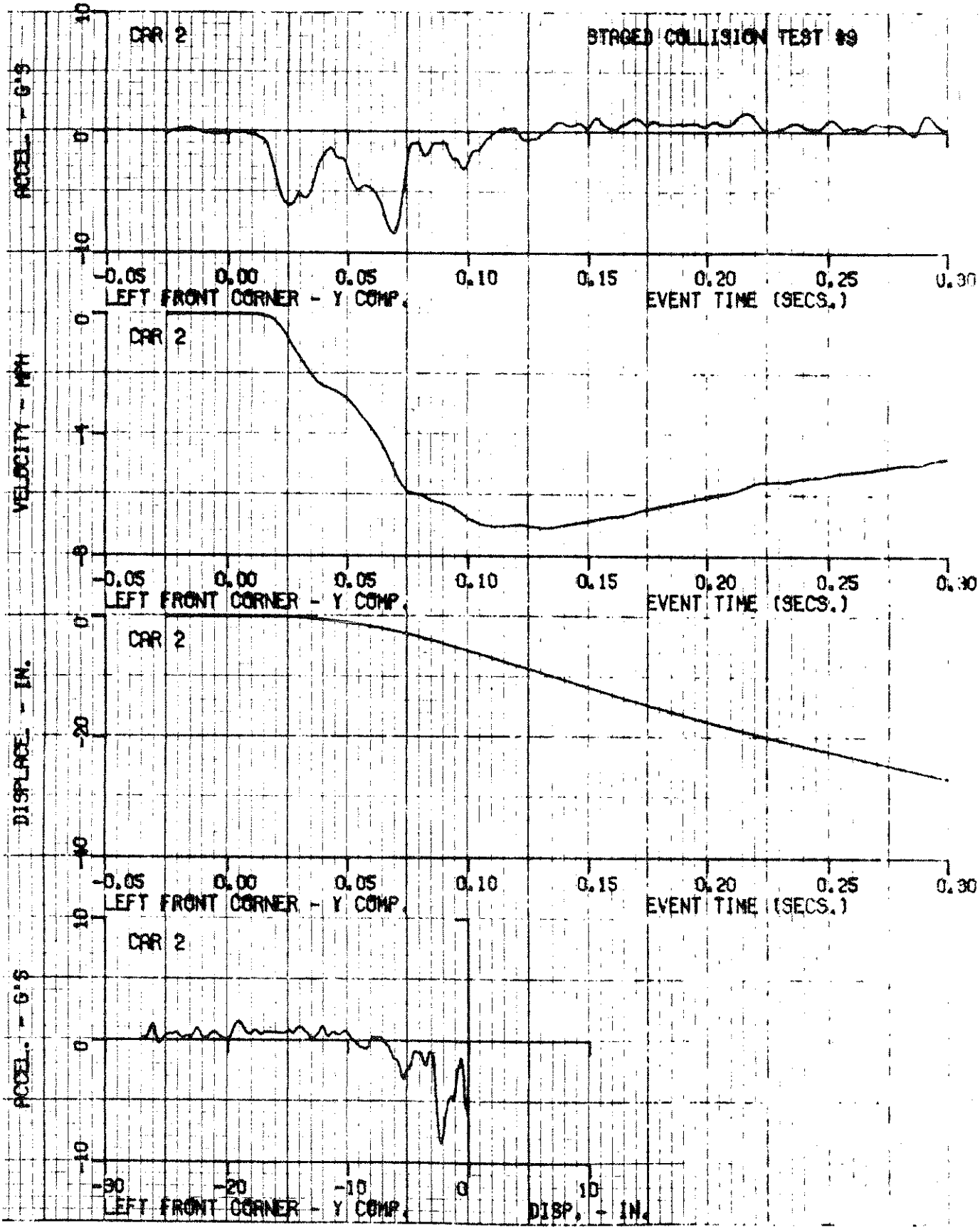
VELOCITY TIME HISTORIES

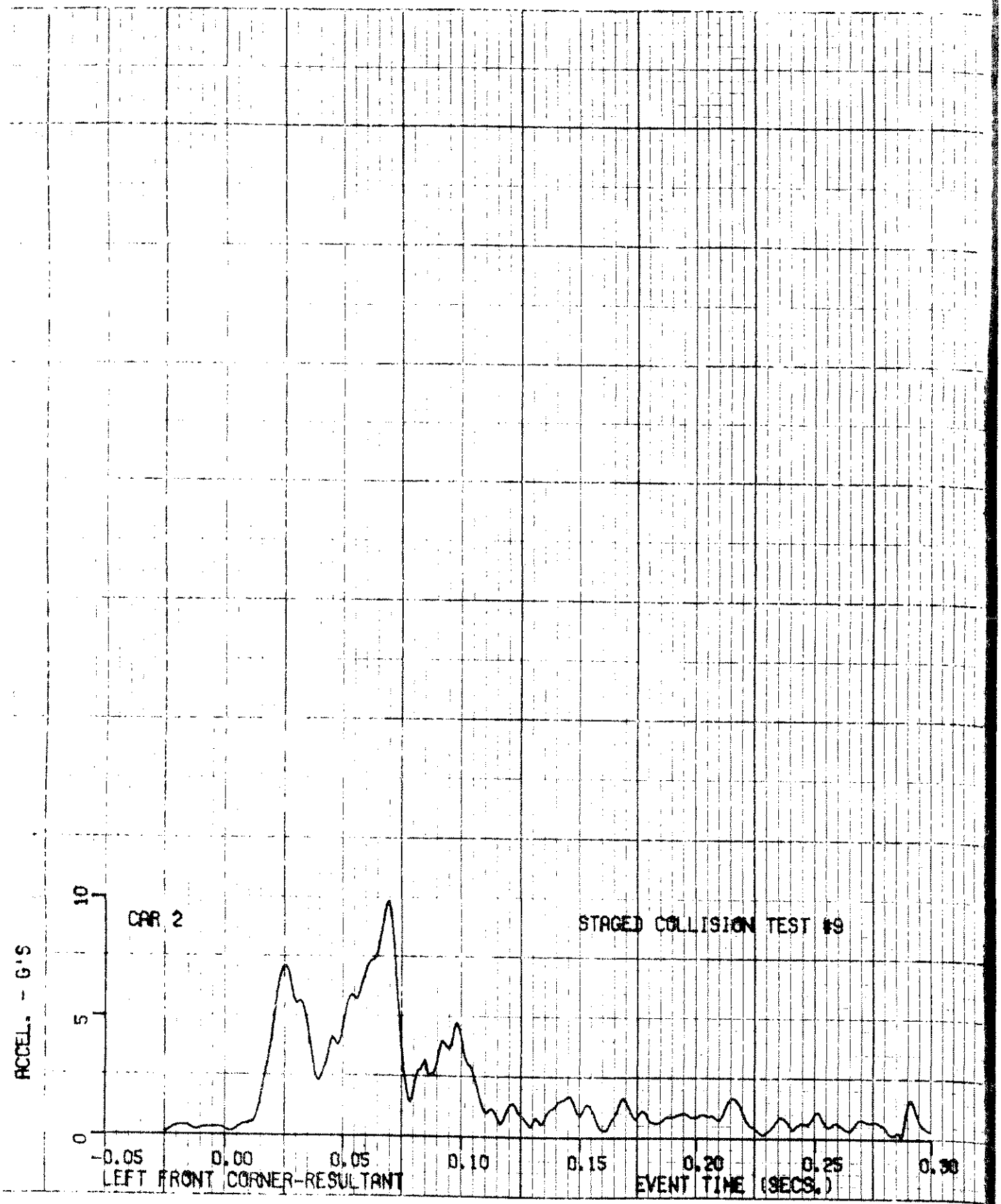
DISPLACEMENT TIME HISTORIES

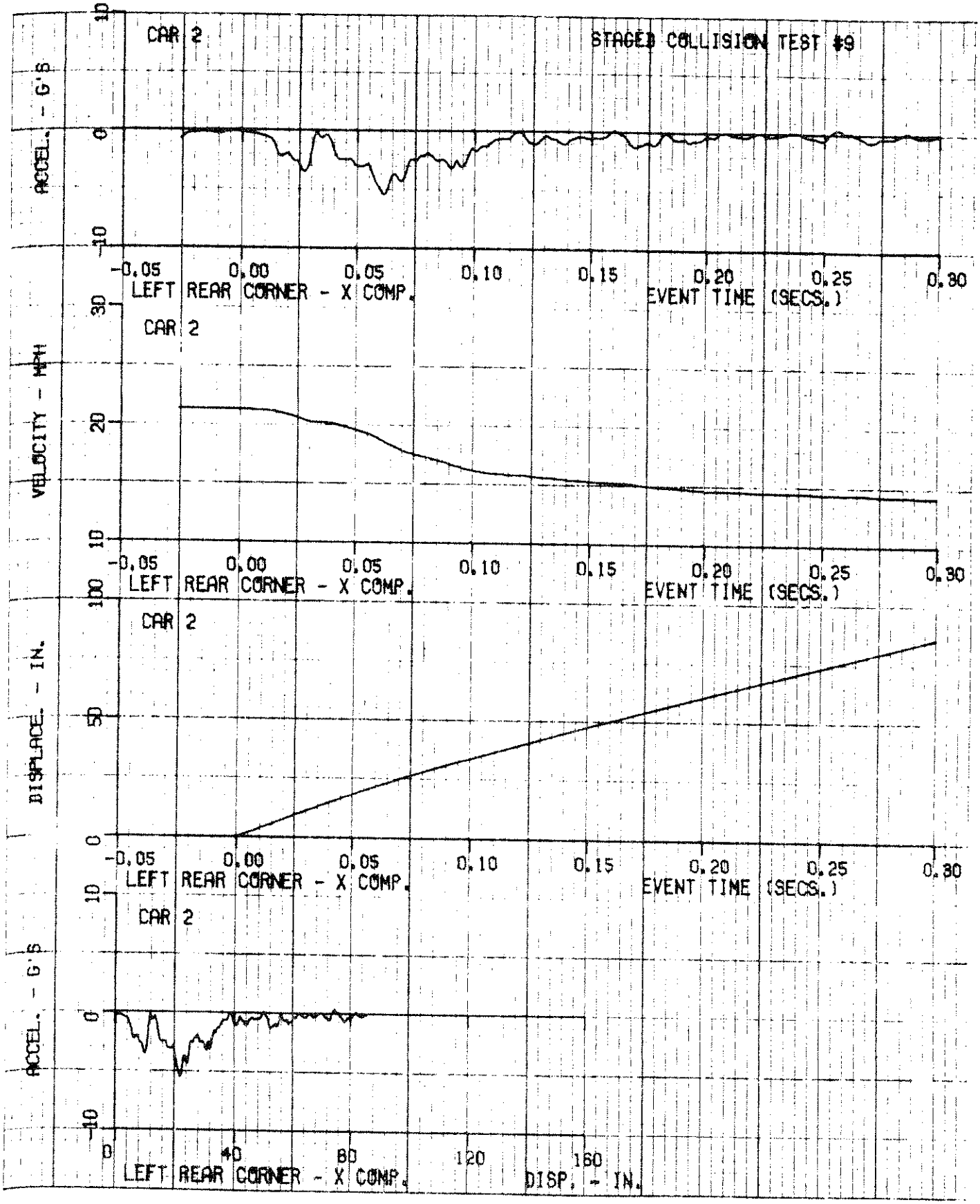
ACCELERATION VS DISPLACEMENT

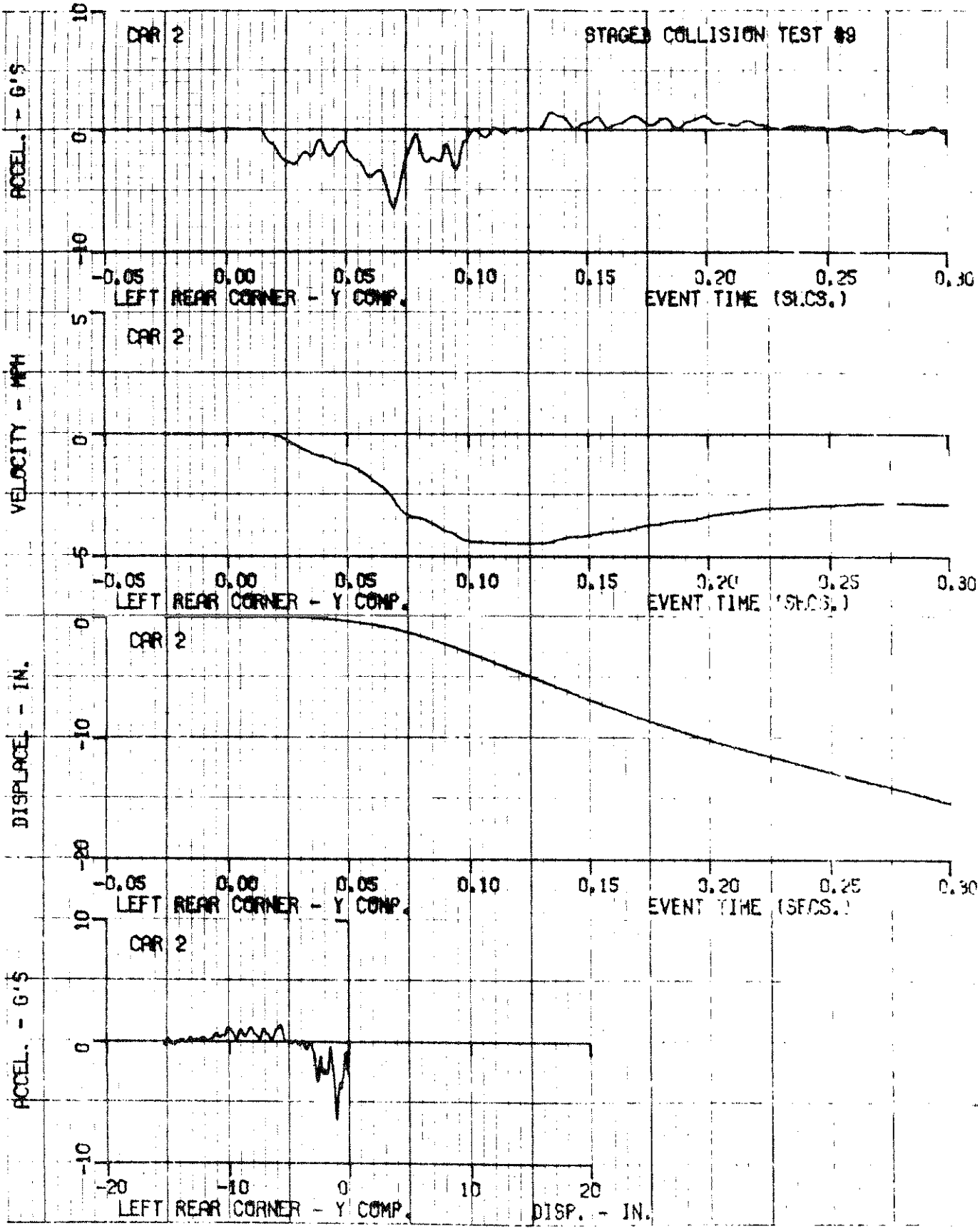
FILTER CLASS 60

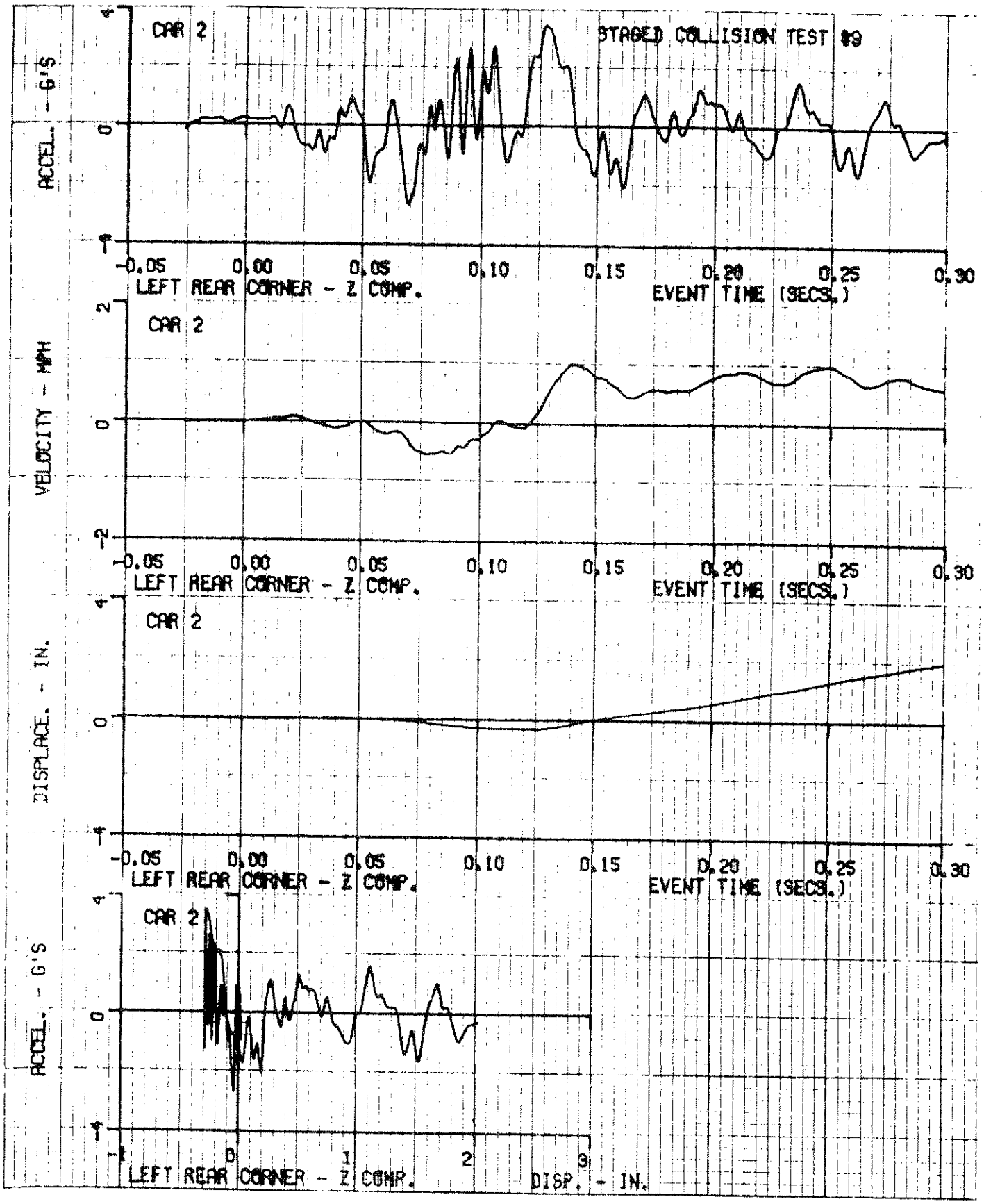

CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
30
20
10
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
100
50
0
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT FRONT CORNER - X COMP.
DISP. - IN.

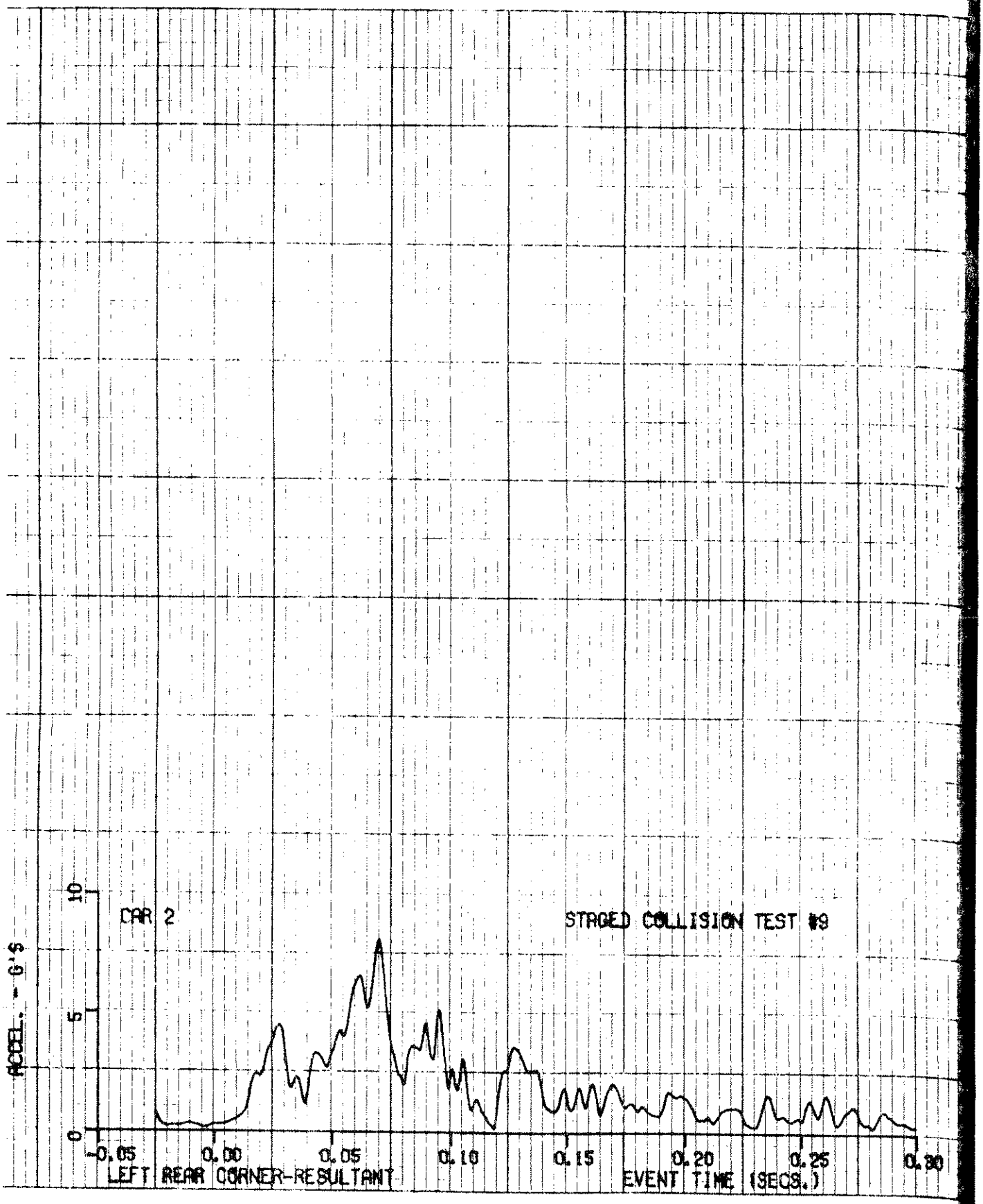

CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-1
-2
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-30
-20
-10
0
10
LEFT FRONT CORNER - Y COMP.
DISP. - IN.

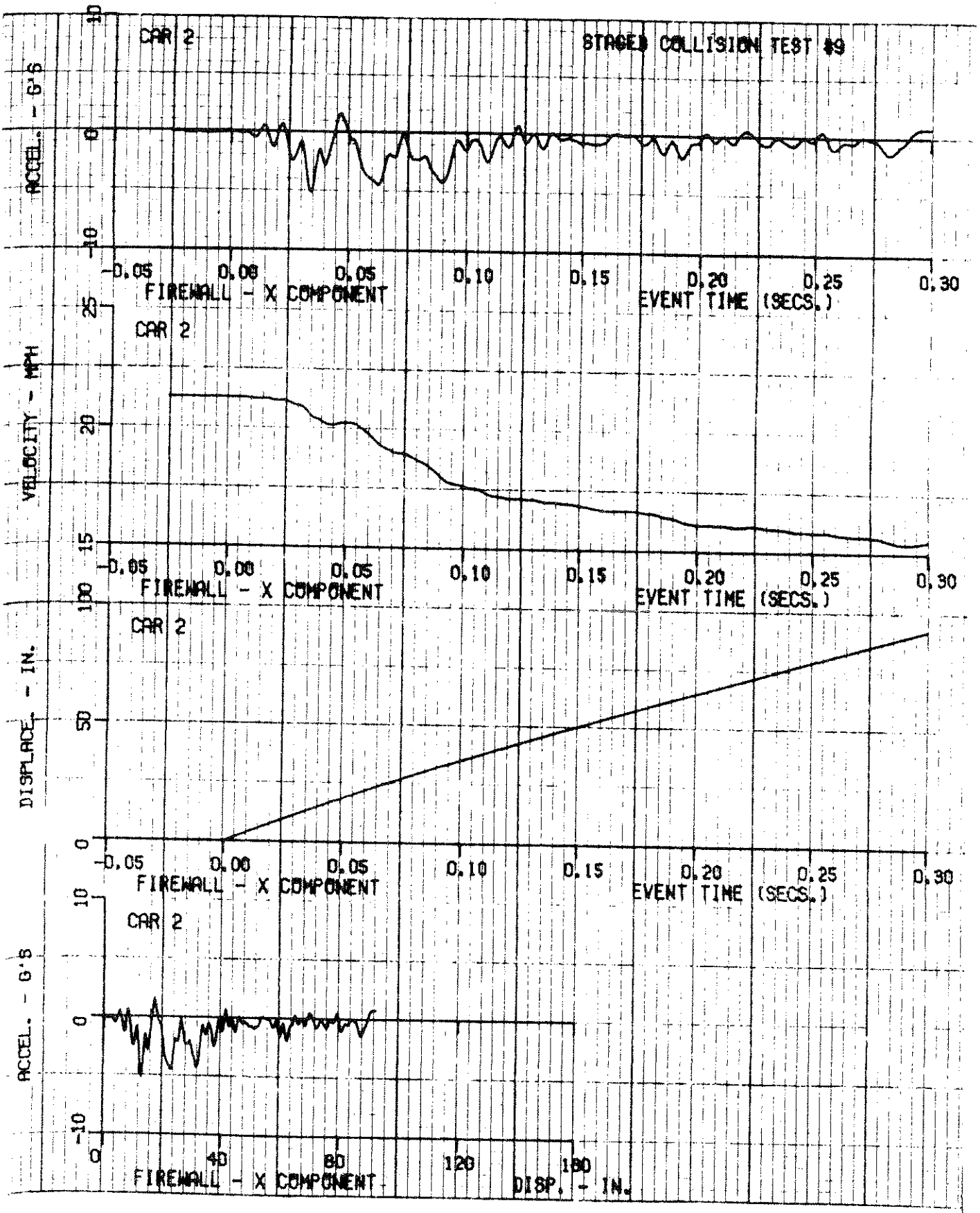

CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
0
5
10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)

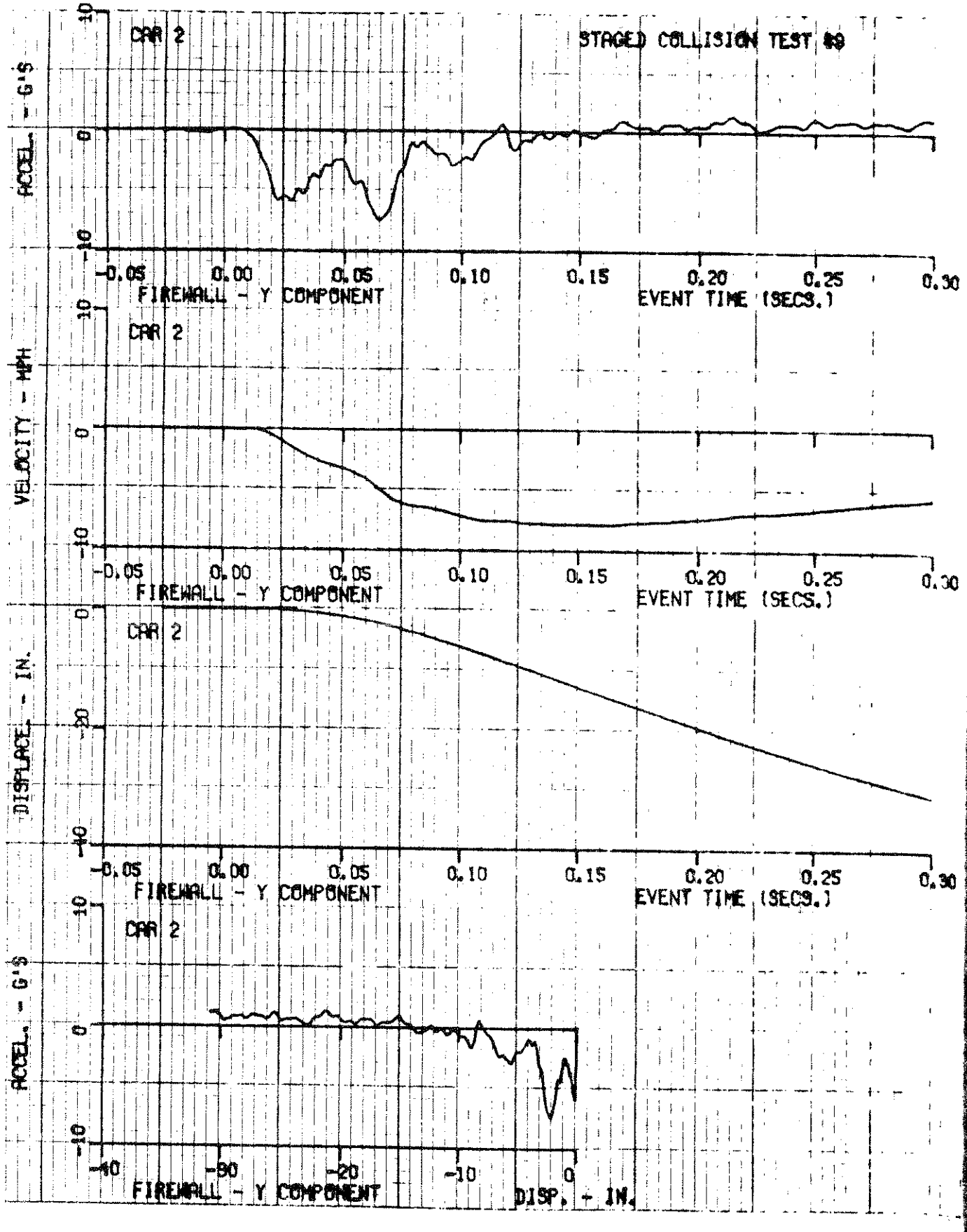

CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
30
20
10
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
100
50
0
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT REAR CORNER - X COMP.
DISP. - IN.

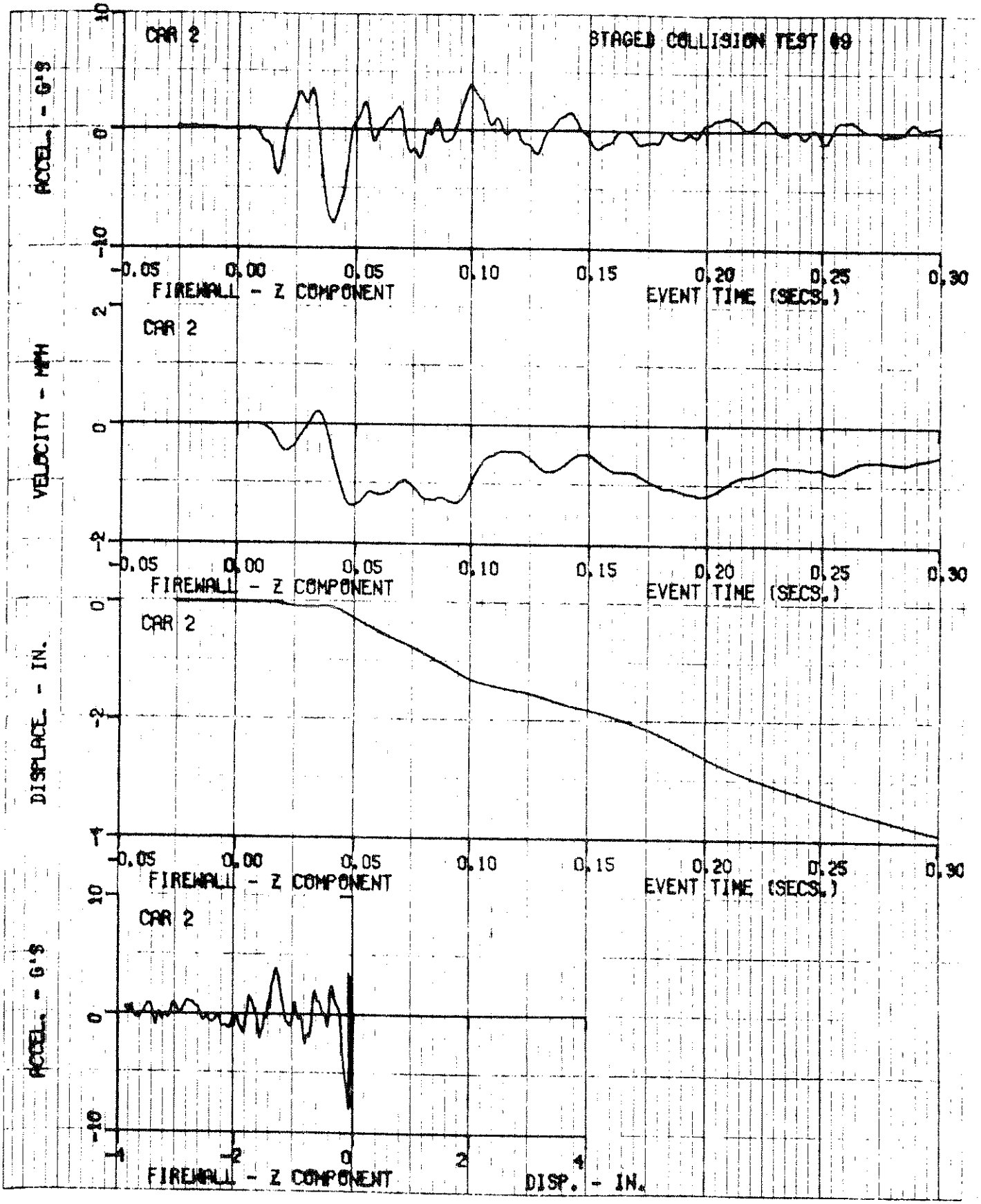

CAR 2
STAGE 3 COLLISION TEST #9
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACEL - IN.
0
-10
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-20
-10
0
10
20
LEFT REAR CORNER - Y COMP.
DISP. - IN.

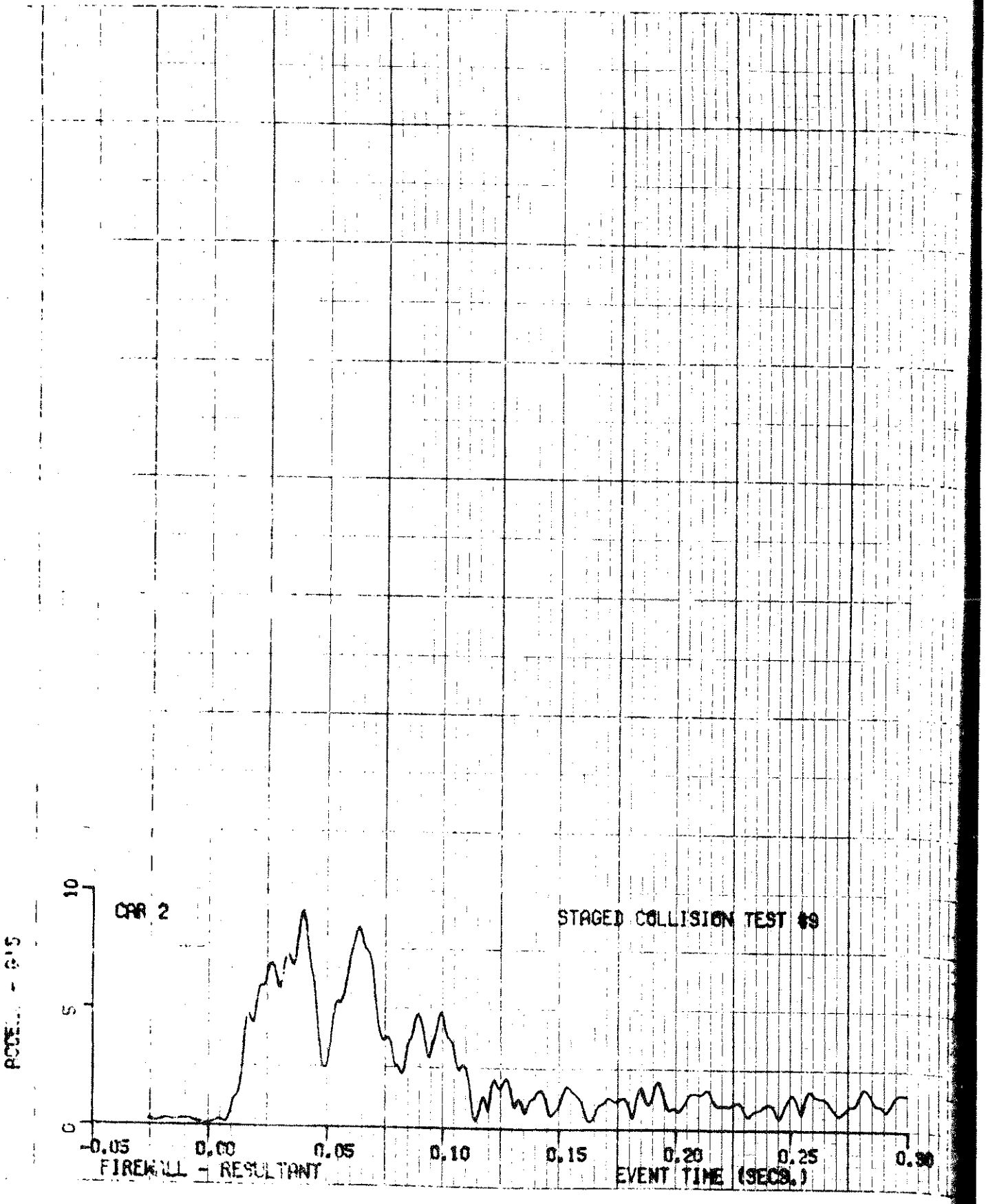

CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
2
0
-2
LEFT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
4
0
-4
LEFT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
4
0
-4
0
1
2
3
LEFT REAR CORNER - Z COMP.
DISP. - IN.

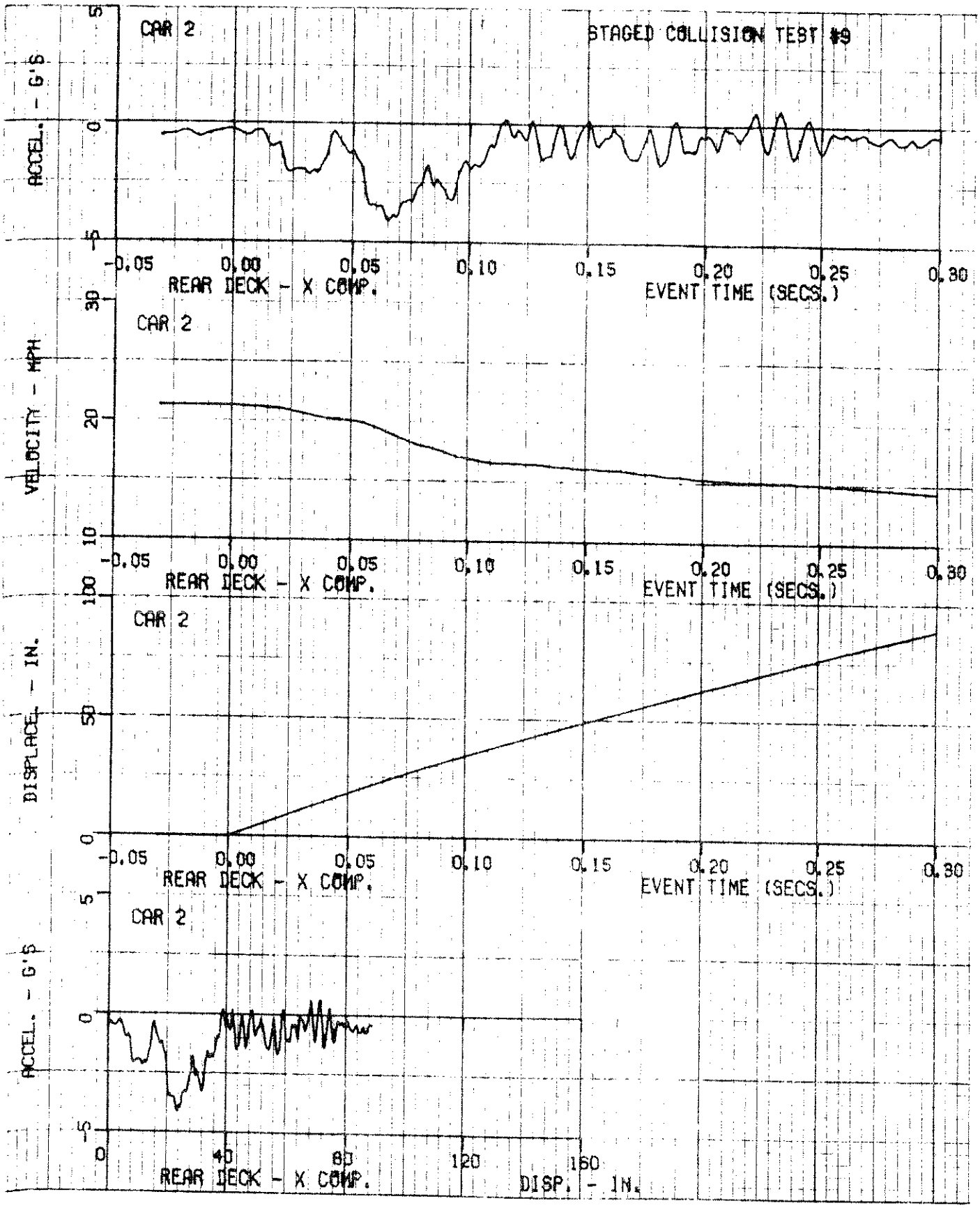

CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
10
5
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER-RESULTANT
EVENT TIME (SECS.)

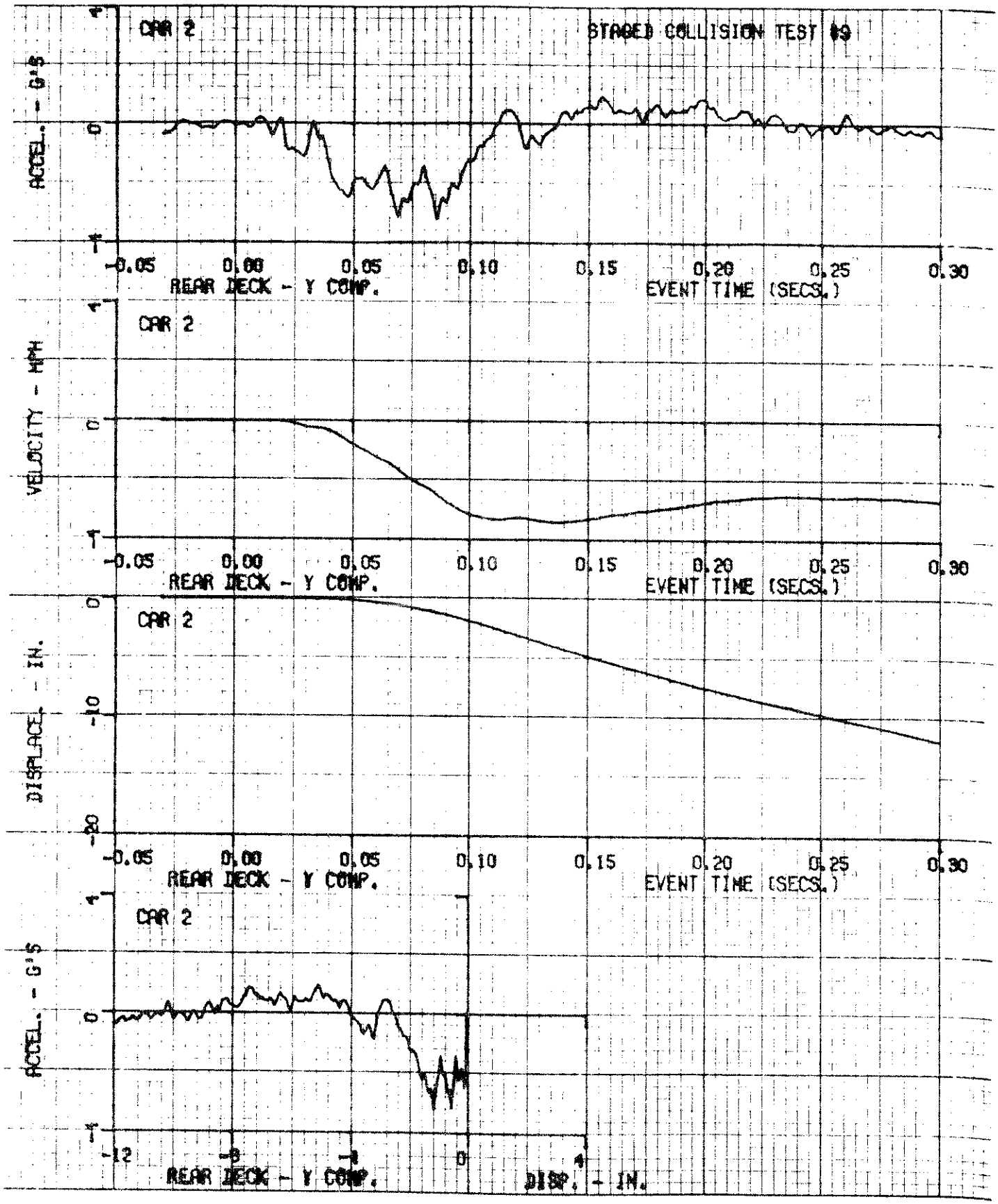

CAR 2
STAGE 8 COLLISION TEST #9
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
25
20
15
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
100
50
0
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
40
80
120
160
FIREWALL - X COMPONENT
DISP. - IN.

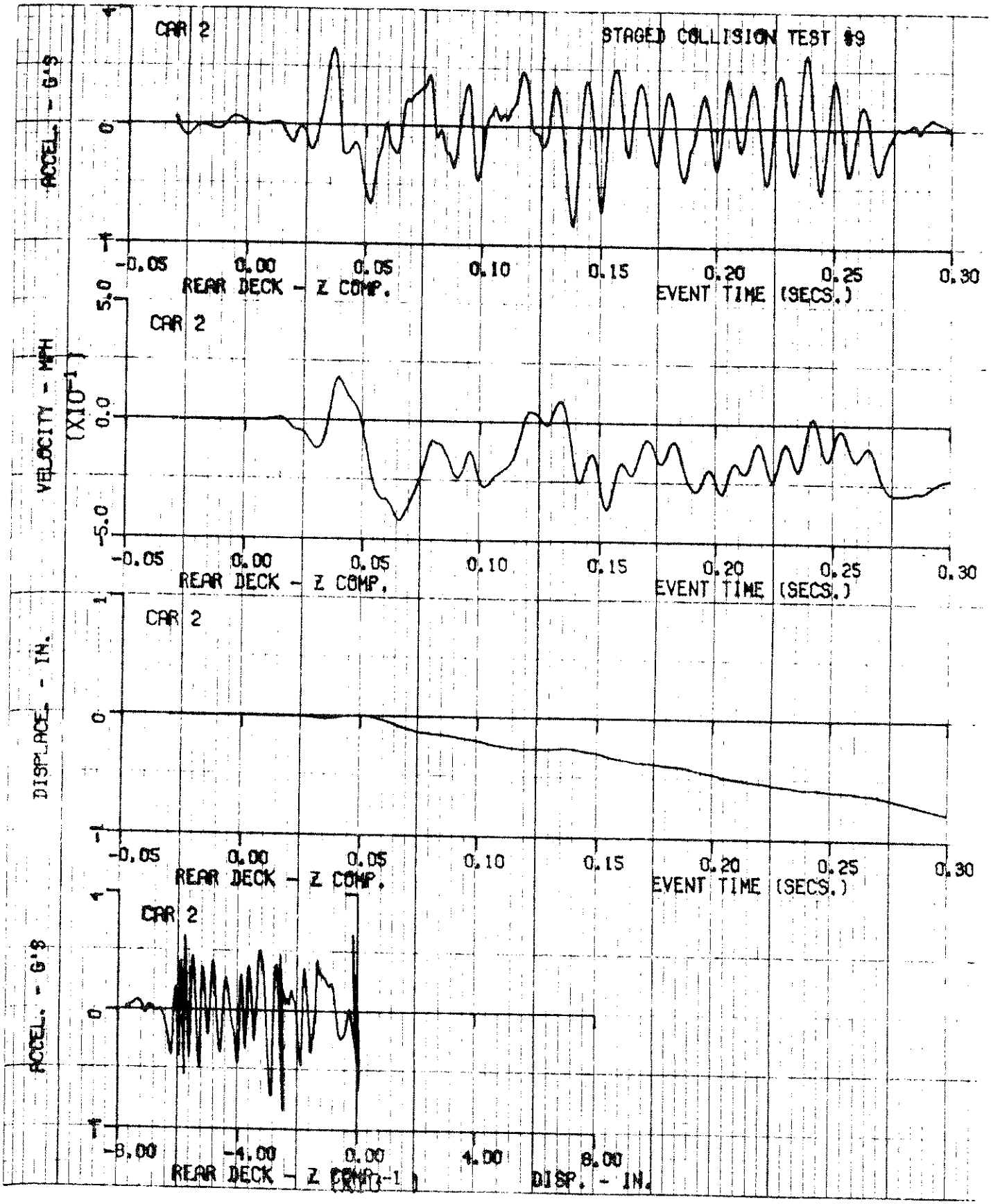

CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-40
-30
-20
-10
0
FIREWALL - Y COMPONENT
DISP. - IN.

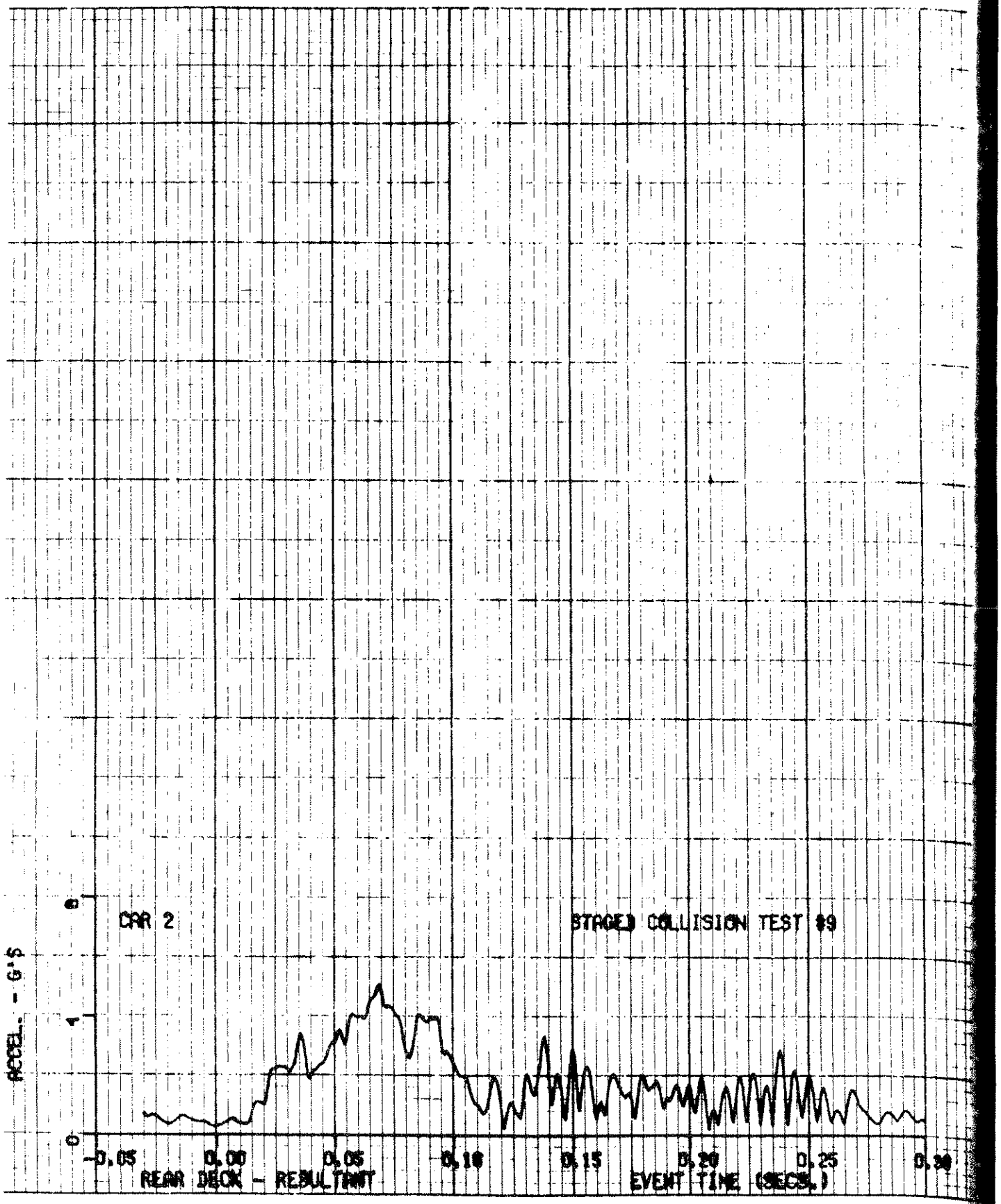

CAR 2
STAGED COLLISION TEST 69
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
2
0
-2
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-2
-4
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-4
-2
0
2
4
FIREWALL - Z COMPONENT
DISP. - IN.

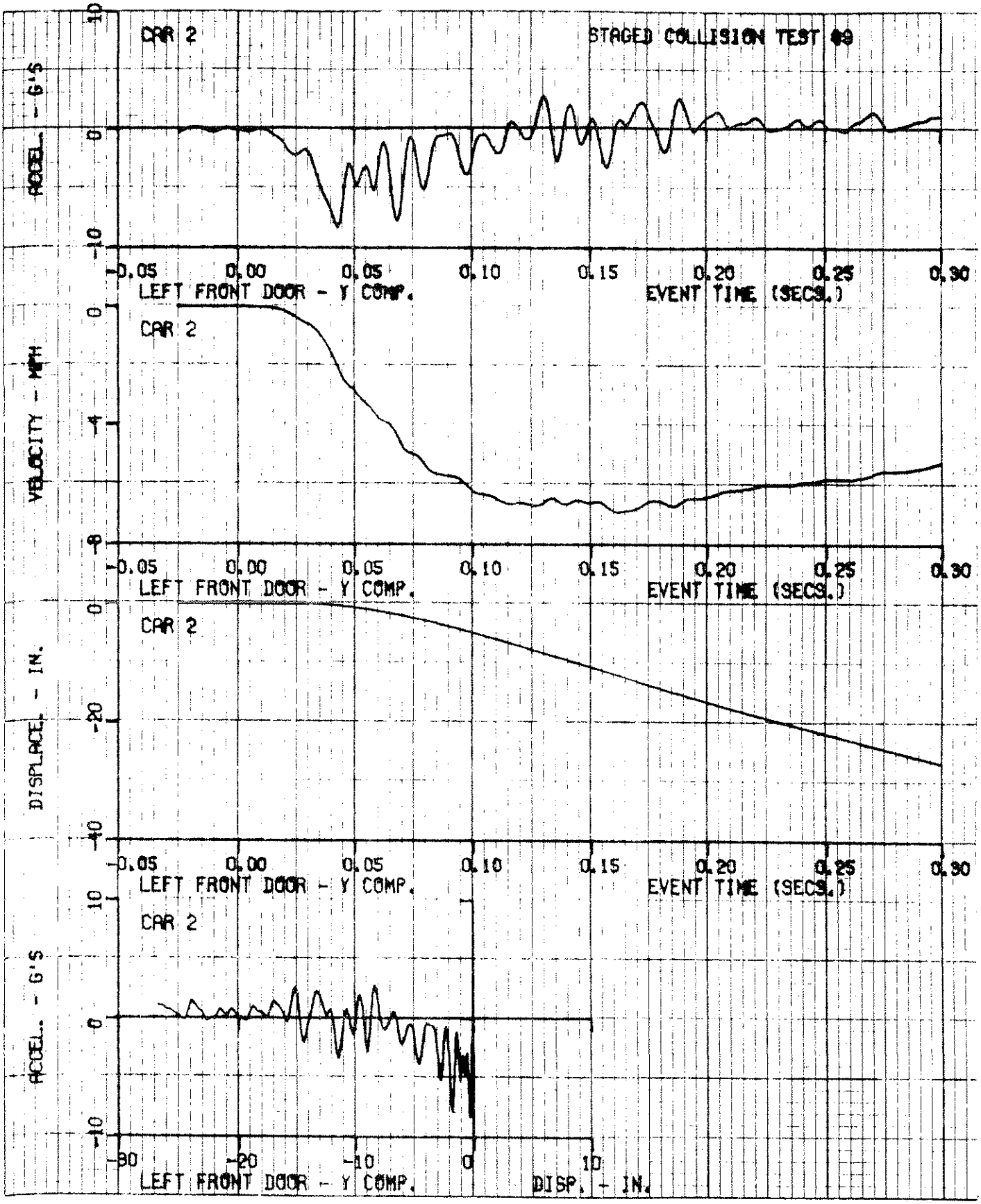

CAR 2
STAGED COLLISION TEST #9
10
5
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - RESULTANT
EVENT TIME (SECS.)

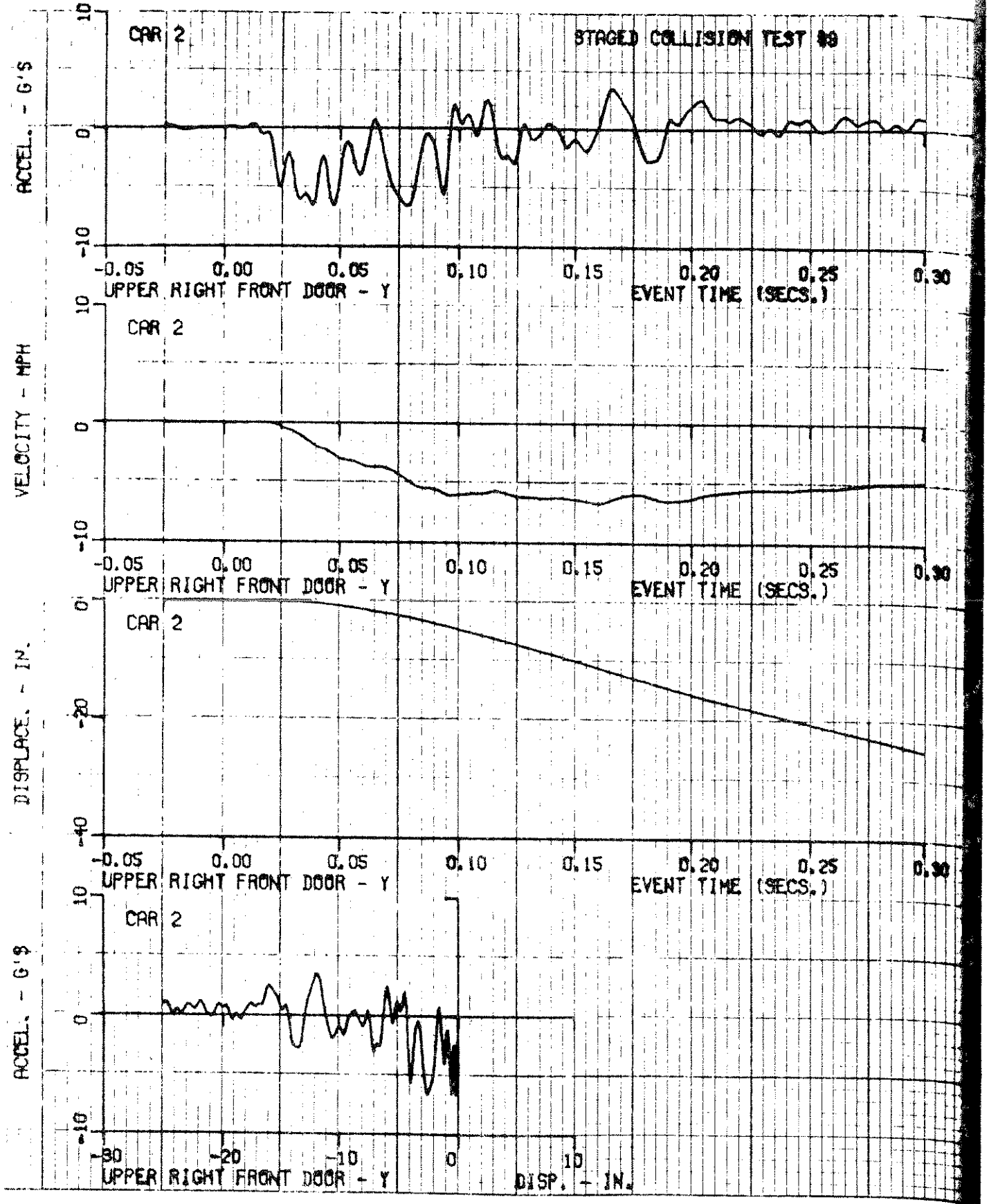

CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
30
20
10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
100
50
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
5
0
-5
0
40
80
120
160
REAR DECK - X COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #9
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 2
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 2
DISPLACE. - IN.
0
-10
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
4
0
-4
-12
-8
-4
0
4
REAR DECK - Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH (X10⁻¹)
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
REAR DECK - Z COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
6
4
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - RESULTANT
EVENT TIME (SECS.)


CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT DOOR - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-10
-20
-30
LEFT FRONT DOOR - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
LEFT FRONT DOOR - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-30
-20
-10
0
10
LEFT FRONT DOOR - Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
UPPER RIGHT FRONT DOOR - Y
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
UPPER RIGHT FRONT DOOR - Y
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
UPPER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-30
-20
-10
0
10
UPPER RIGHT FRONT DOOR - Y
DISP. - IN.

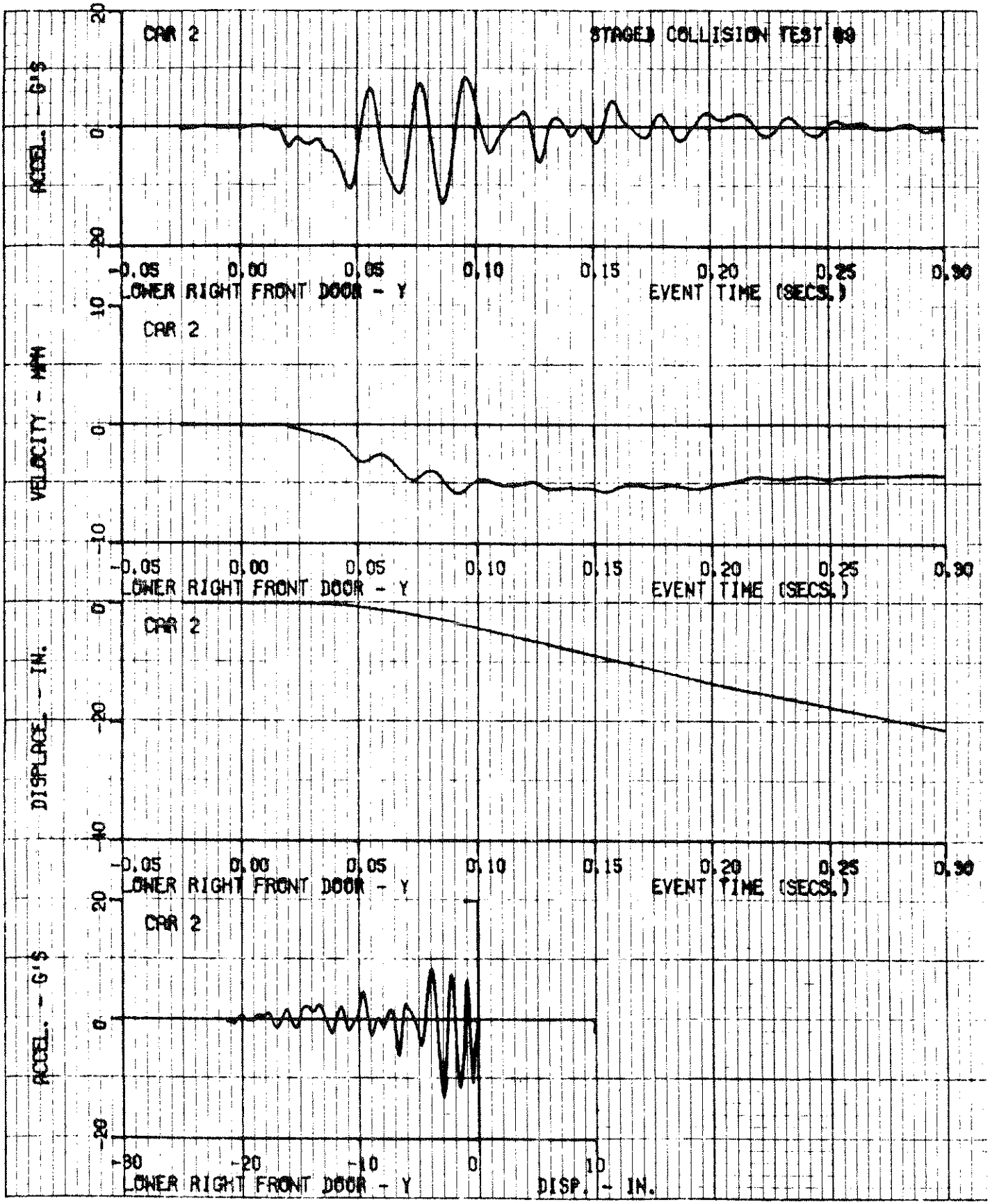

CAR 2
STAGED COLLISION TEST 89
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-30
-20
-10
0
10
LOWER RIGHT FRONT DOOR - Y
DISP. - IN.

TABLE 15-7

DUMMY INJURY CRITERIA VALUES

CAR 2 - STRUCK VEHICLE - TEST No. 9

	MAXIMUM ACCELERATION ("G") *											
	HEAD				CHEST				PELVIS			
	X	Y	Z	R	X	Y	Z	R	X	Y	Z	R
DUMMY (1)	1.2	6.5	5	7	-2.4	-4	3	5		- .		
DUMMY (2)	-12.5	*** -35	20	39	-5.5	-10	5	11.5		-3.6		
DUMMY (3)												
DUMMY (4)												

	MAXIMUM FORCE-FEMUR LOAD (LBS)	
	RIGHT FEMUR	LEFT FEMUR
DUMMY (1)	40	40
DUMMY (2)	10	40
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)	7.8	.143	.299	4.8	10	2.3
DUMMY (2)	NA	.087	.103	58.9	80****	11
DUMMY (3)						
DUMMY (4)						

*DEFINED AS EXCEEDING 0.003 SEC. DURATION

**AS DEFINED IN FMVSS NO. 208

***SIGNAL N.G. FROM .087 SEC. TO .103 SEC.

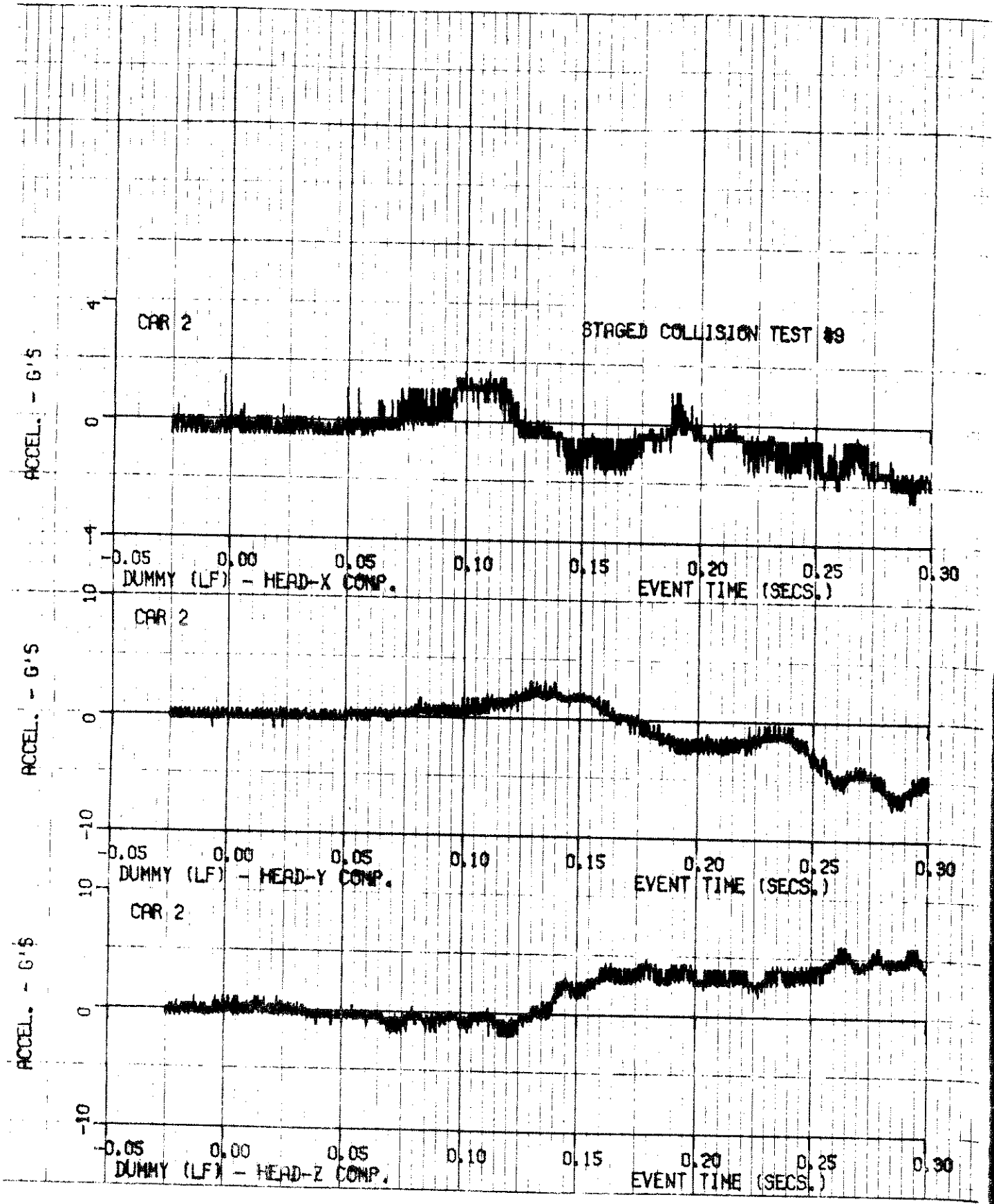
****NOT TAKING INTO ACCOUNT THE ZERO SHIFT

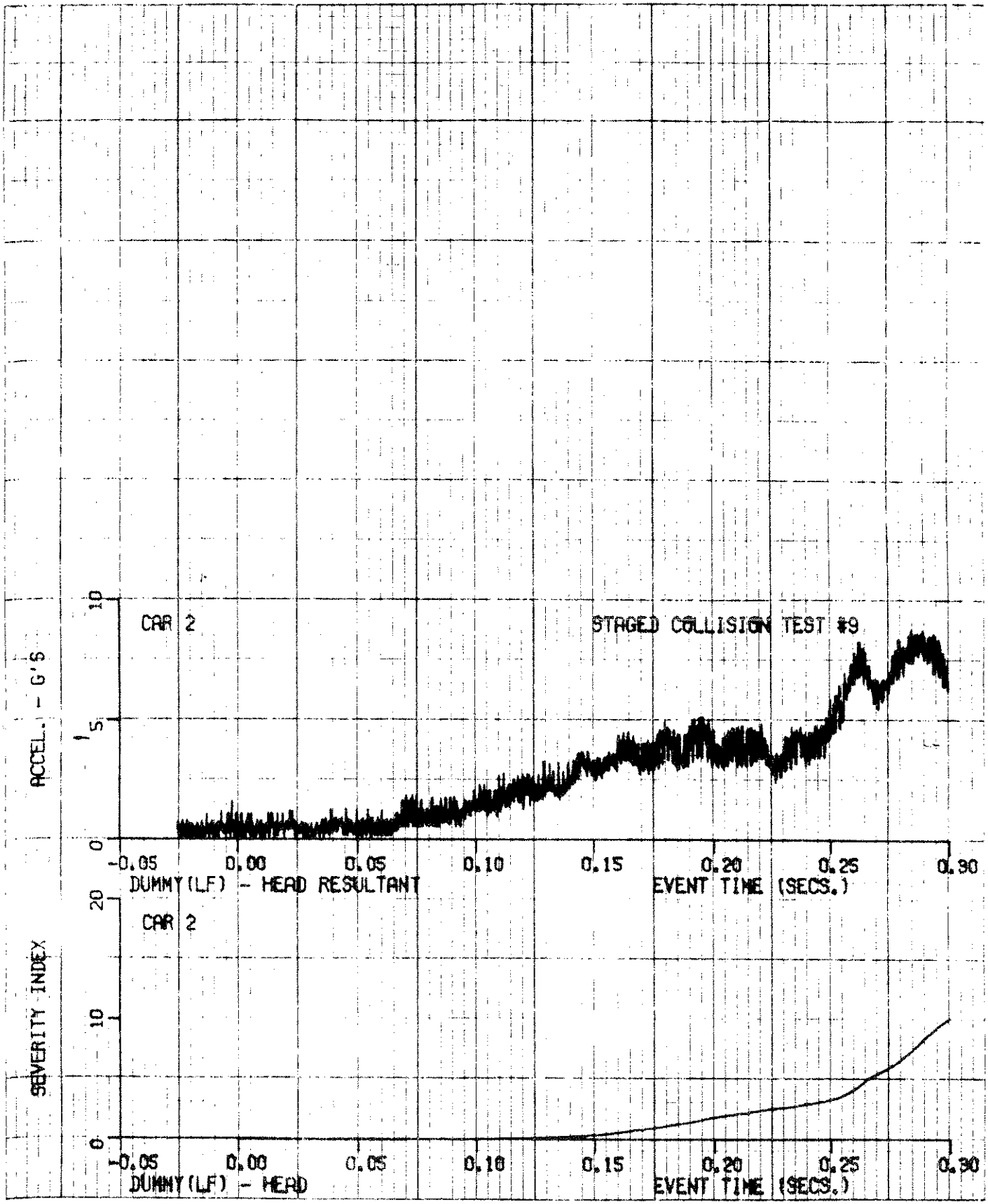
RICSAC TEST NO. 9

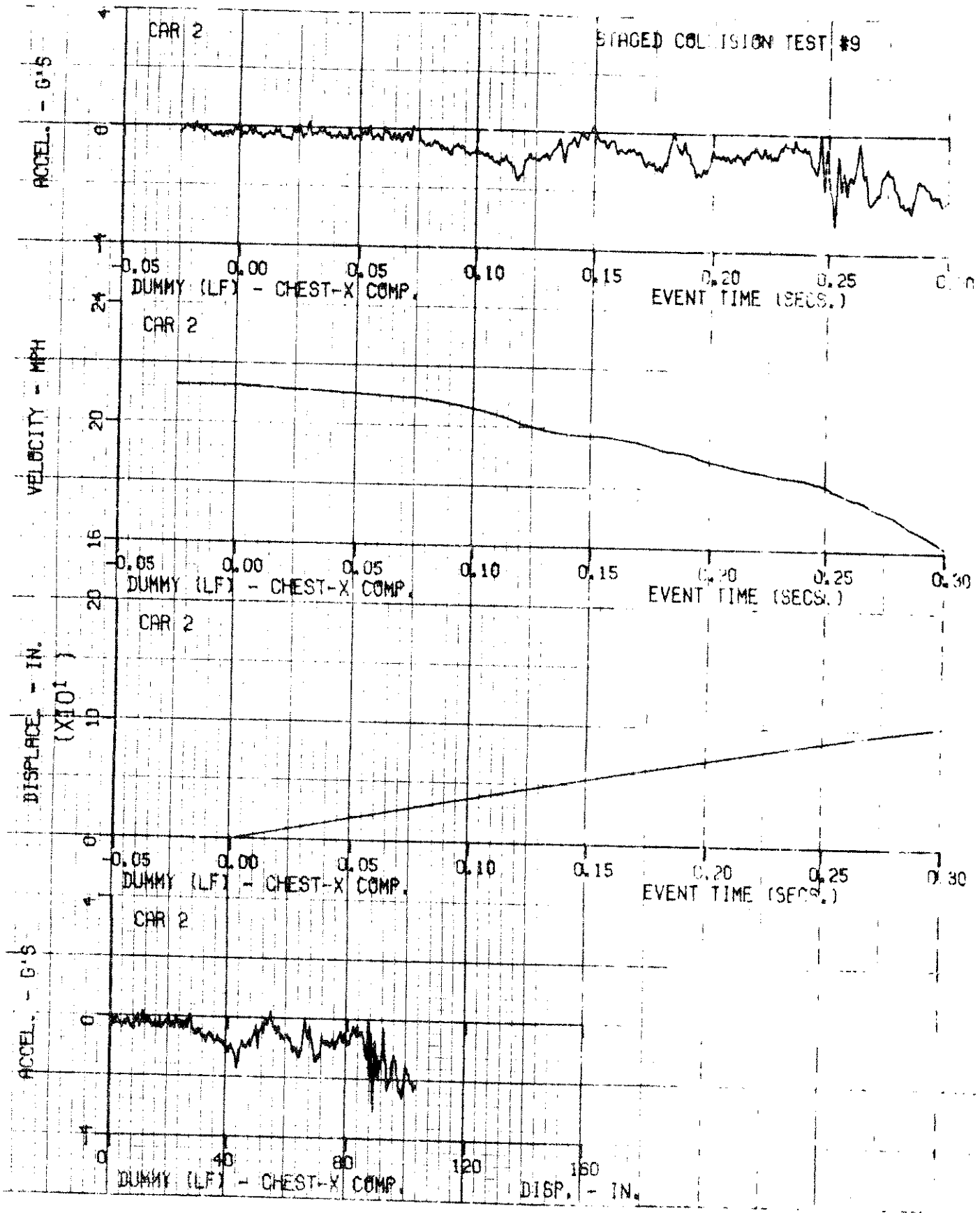
DUMMY DATA

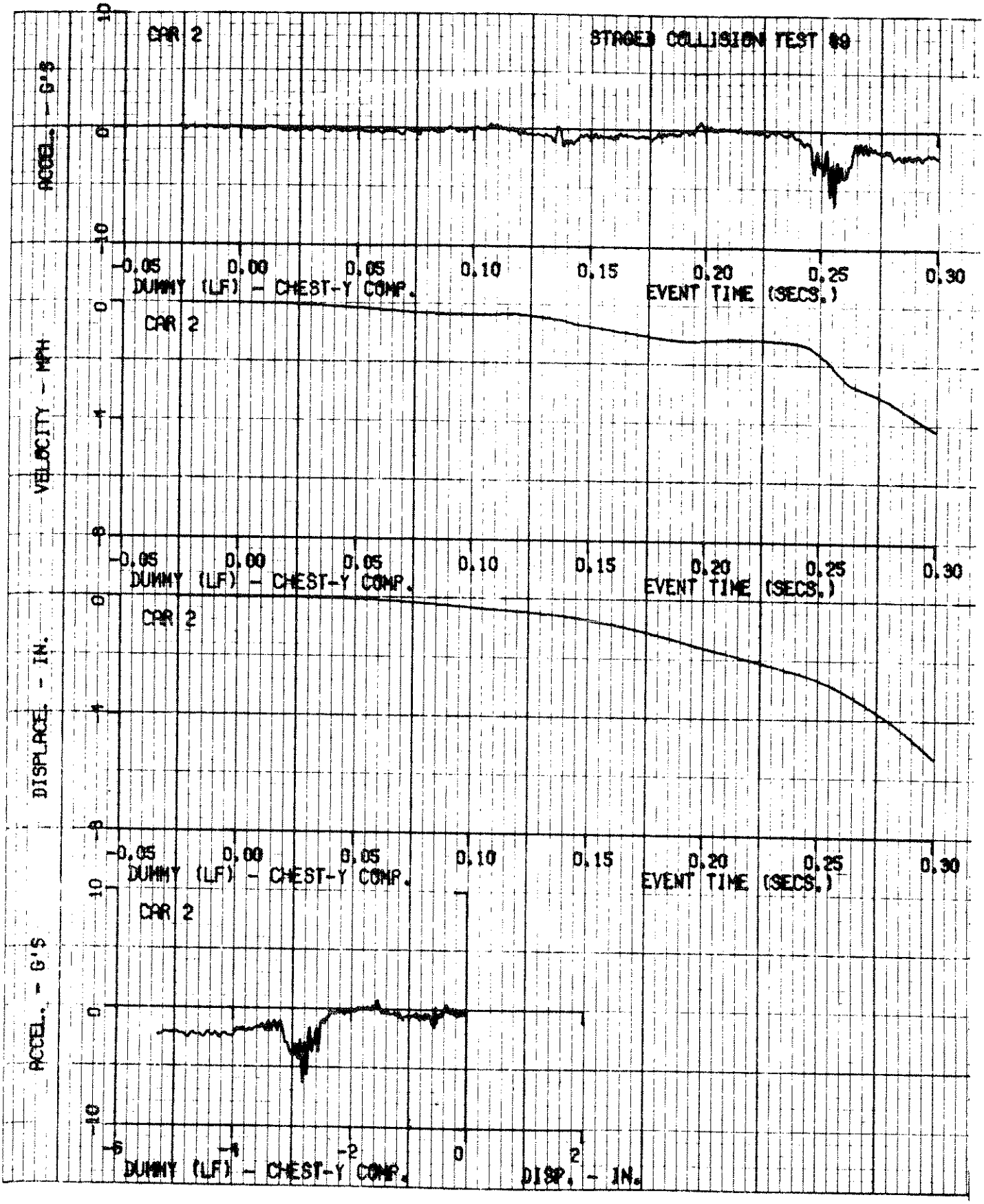
CAR NO. 2 TORINO

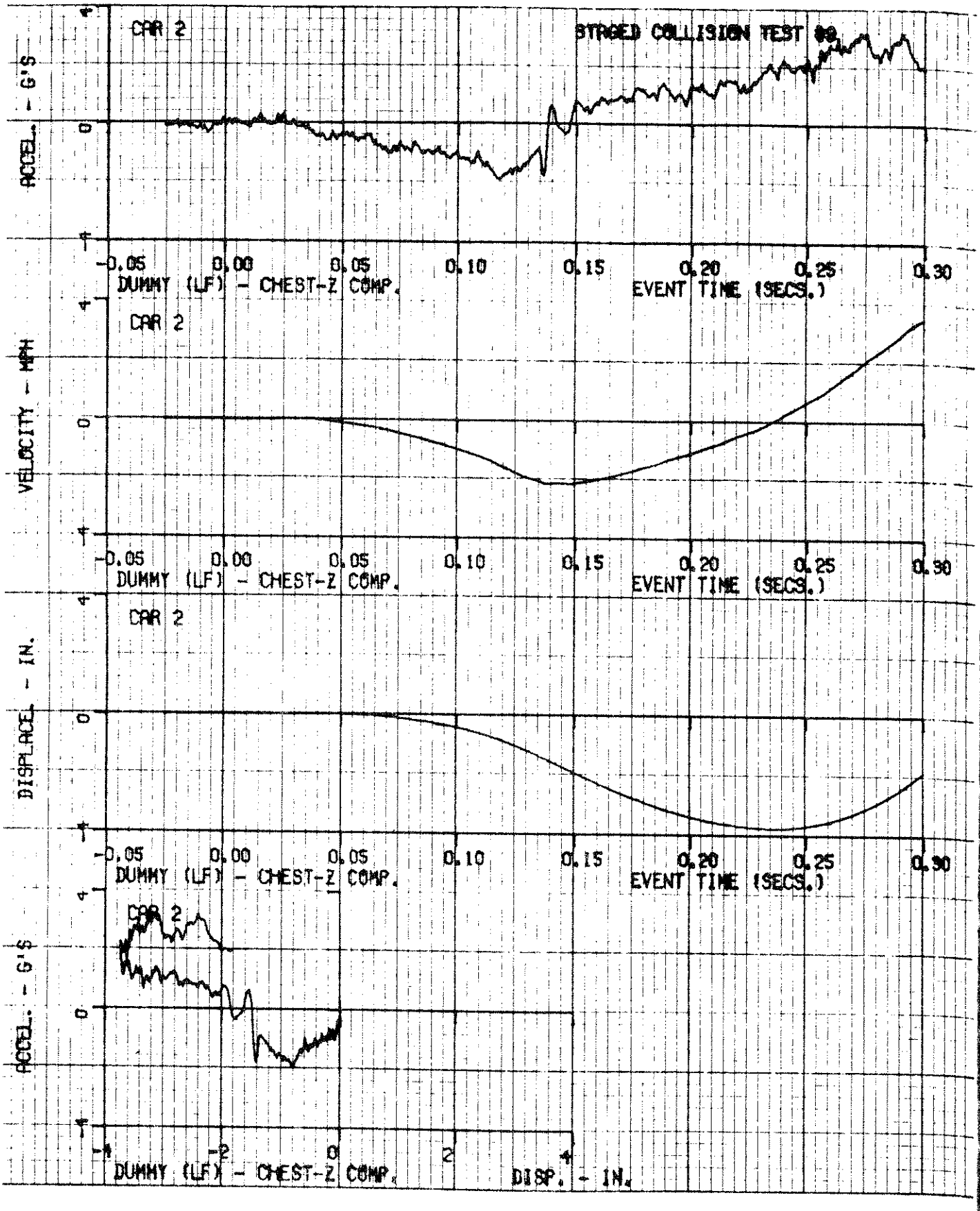
DATA PLOTS		FILTER CLASS
HEAD ACCELERATION	X,Y,X	1000
HEAD RESULTANT		
HEAD SEVERITY INDEX		
CHEST ACCELERATION	X,Y,Z	180
CHEST RESULTANT		
CHEST VELOCITY	X,Y,Z	
CHEST DISPLACEMENT	X,Y,Z	
CHEST SEVERITY INDEX		
PELVIC ACCELERATION	X	180
PELVIC VELOCITY	X	
PELVIC DISPLACEMENT	X	
FEMUR LOADS	L & R	600

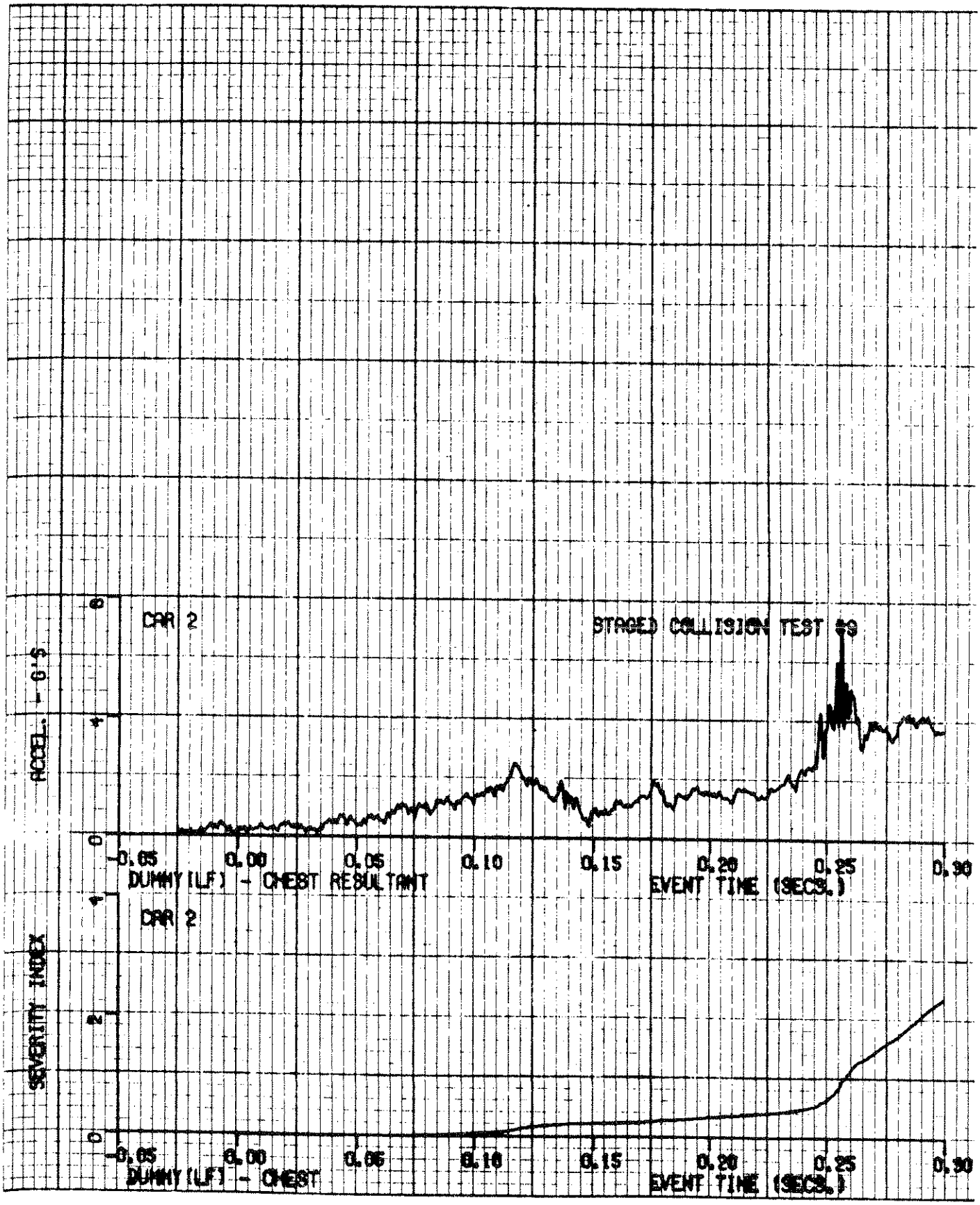

CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
DUMMY (LF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
DUMMY (LF) - HEAD-Z COMP.
EVENT TIME (SECS.)

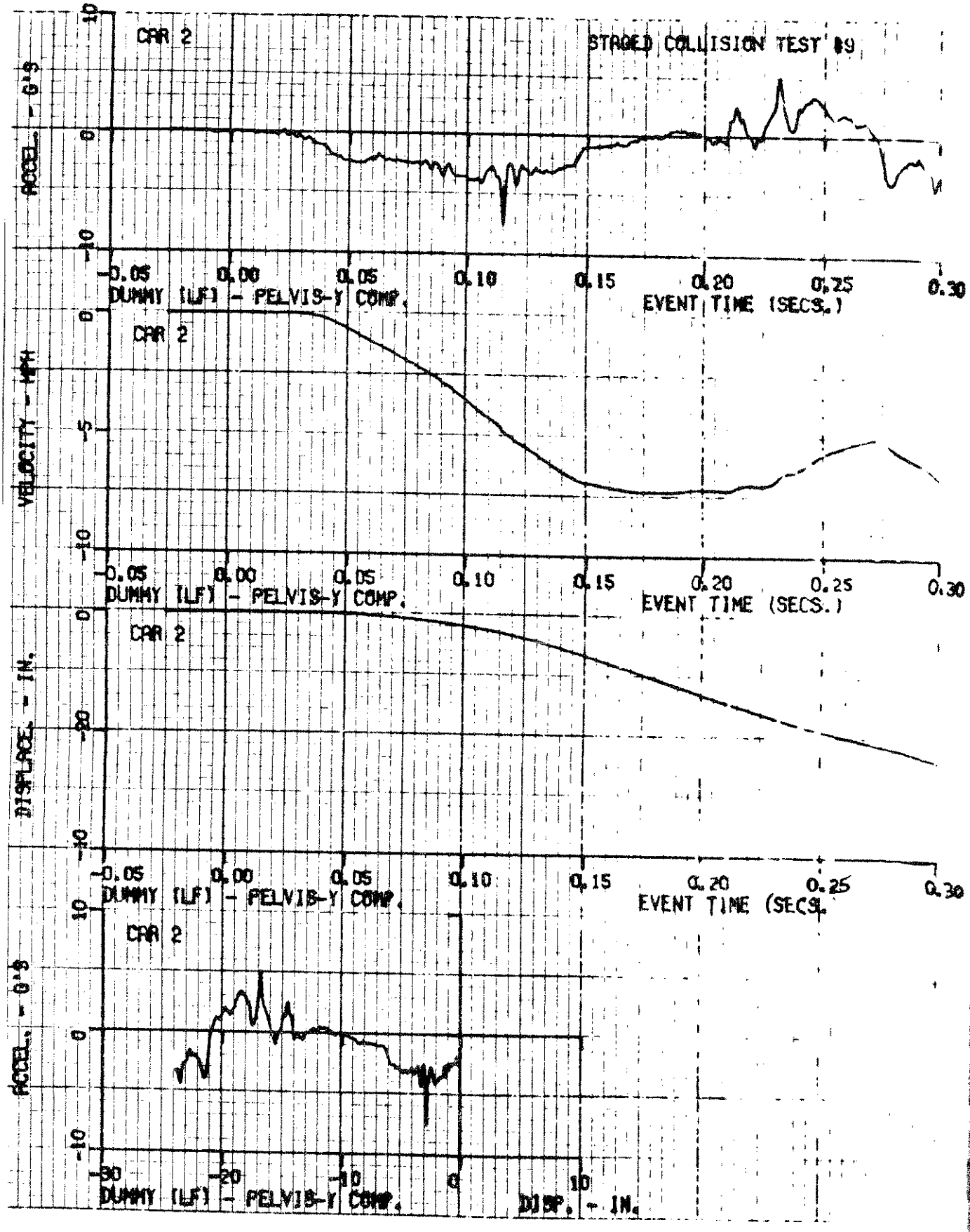

CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
10
5
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD
EVENT TIME (SECS.)

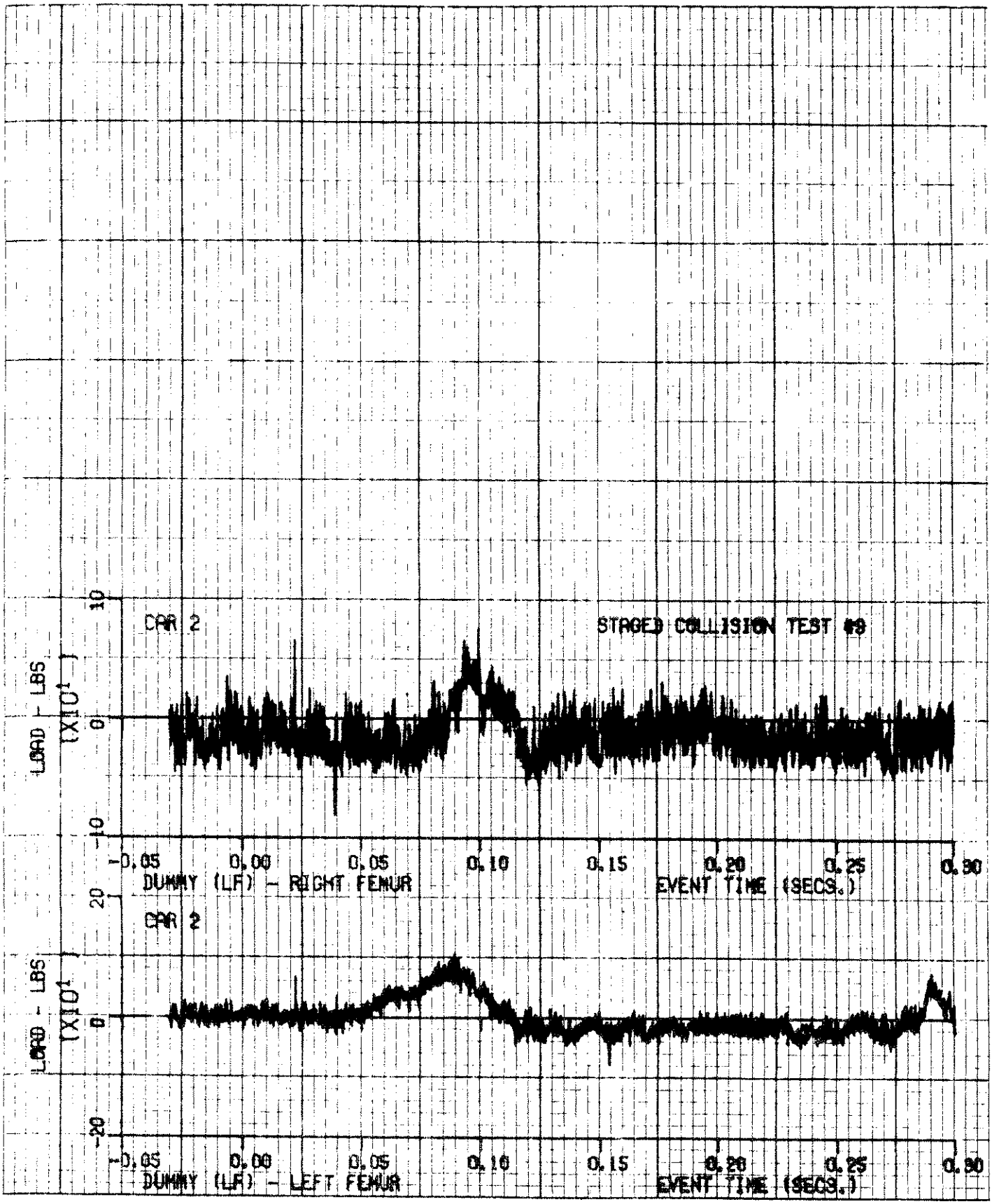

CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
24
20
16
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE - IN.
(X10¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
4
0
-4
0
40
80
120
160
DUMMY (LF) - CHEST-X COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
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
8
4
0
-4
-8
-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.
8
4
0
-4
-8
-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
10
0
-10
-6
-4
-2
0
2
DUMMY (LF) - CHEST-Y COMP.
DISP. - IN.

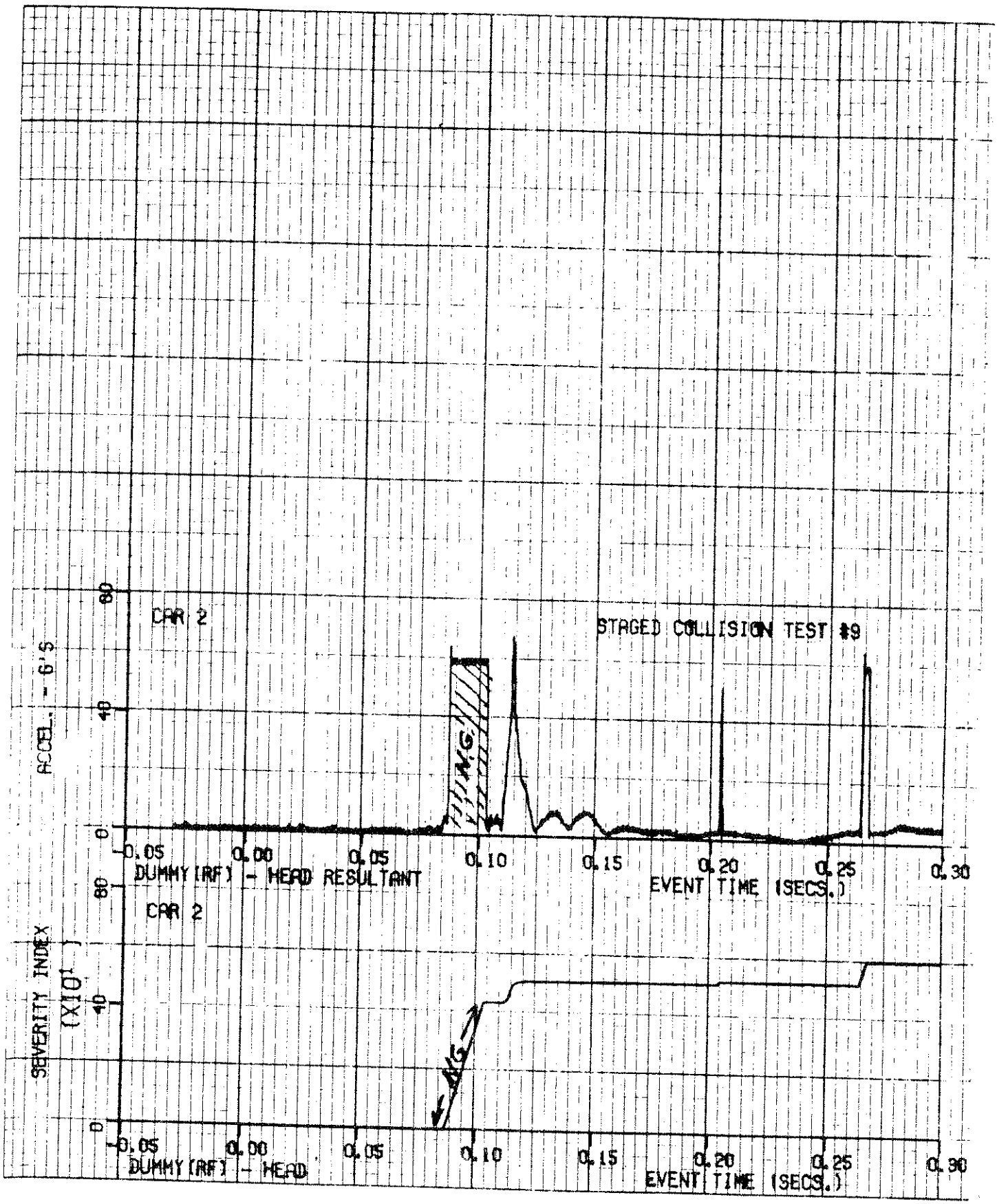

CAR 2
STAGED COLLISION TEST #8
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
4
0
-4
-0.05
0.00
0.05
0.10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

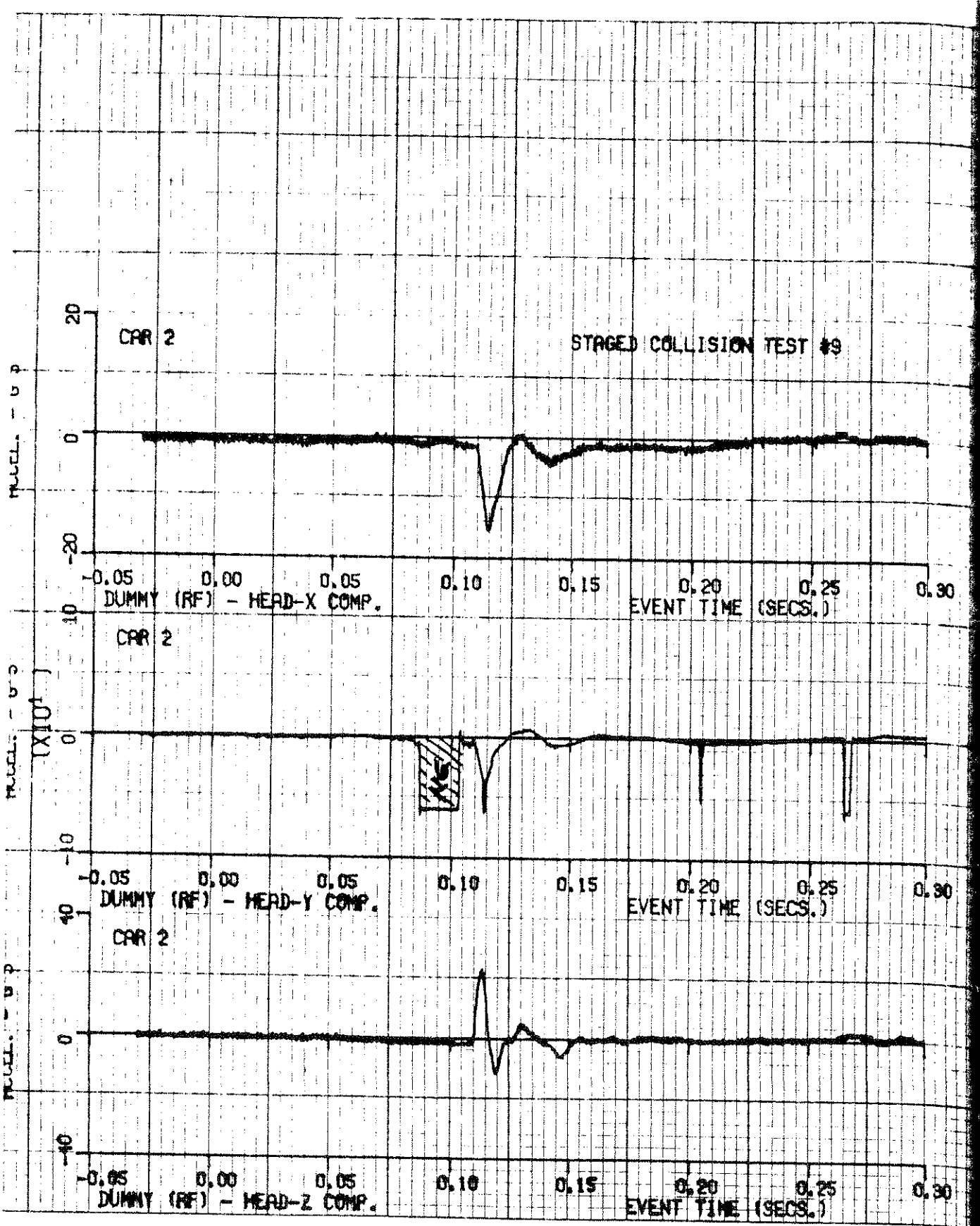

CAR 2
STAGED COLLISION TEST #3
ACCEL. - G's
6
4
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX
4
2
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST
EVENT TIME (SECS.)

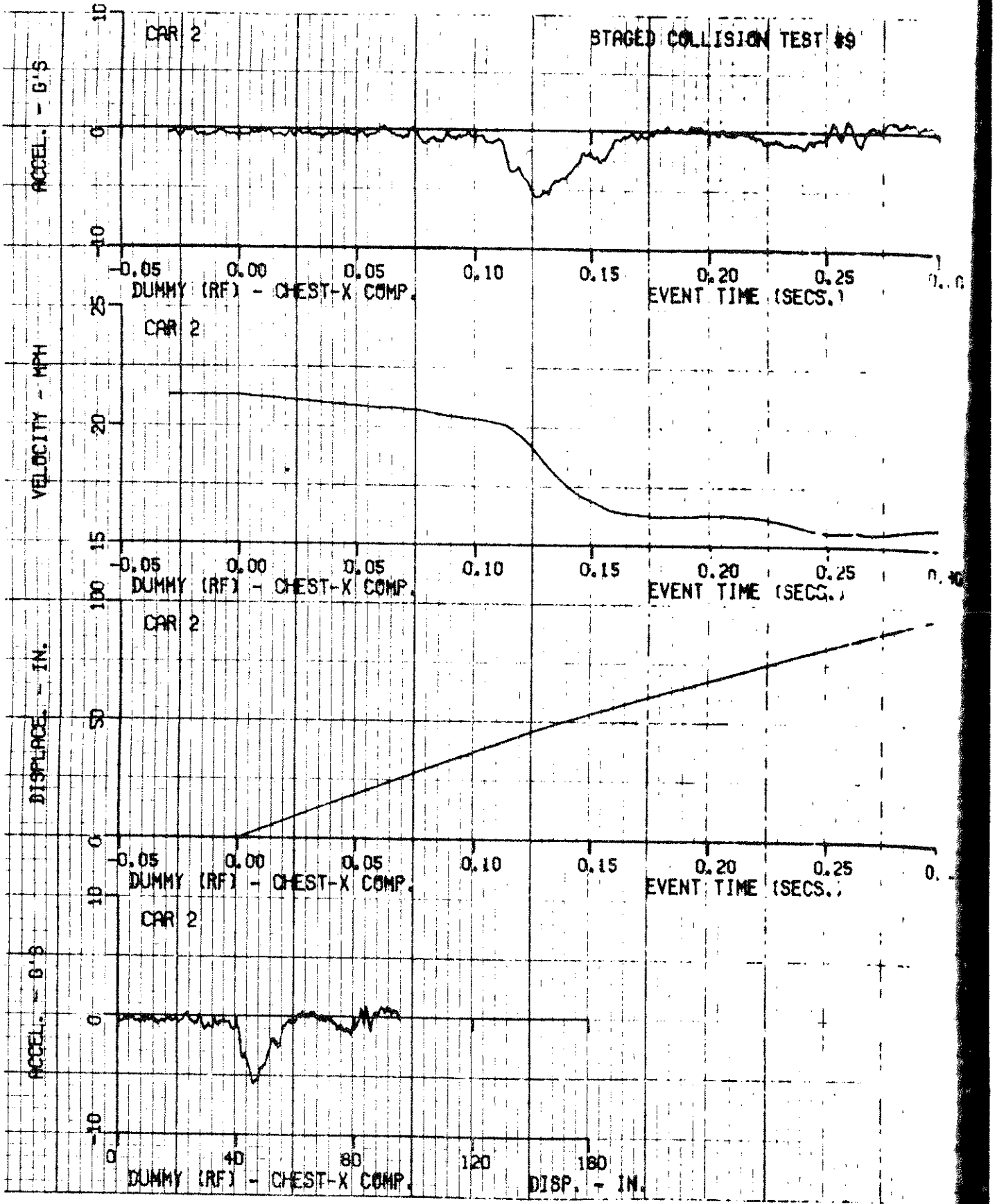

CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-5
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-30
-20
-10
0
10
DUMMY (LF) - PELVIS-Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #9
LOAD - LBS (X10⁴)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 2
LOAD - LBS (X10⁴)
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.)

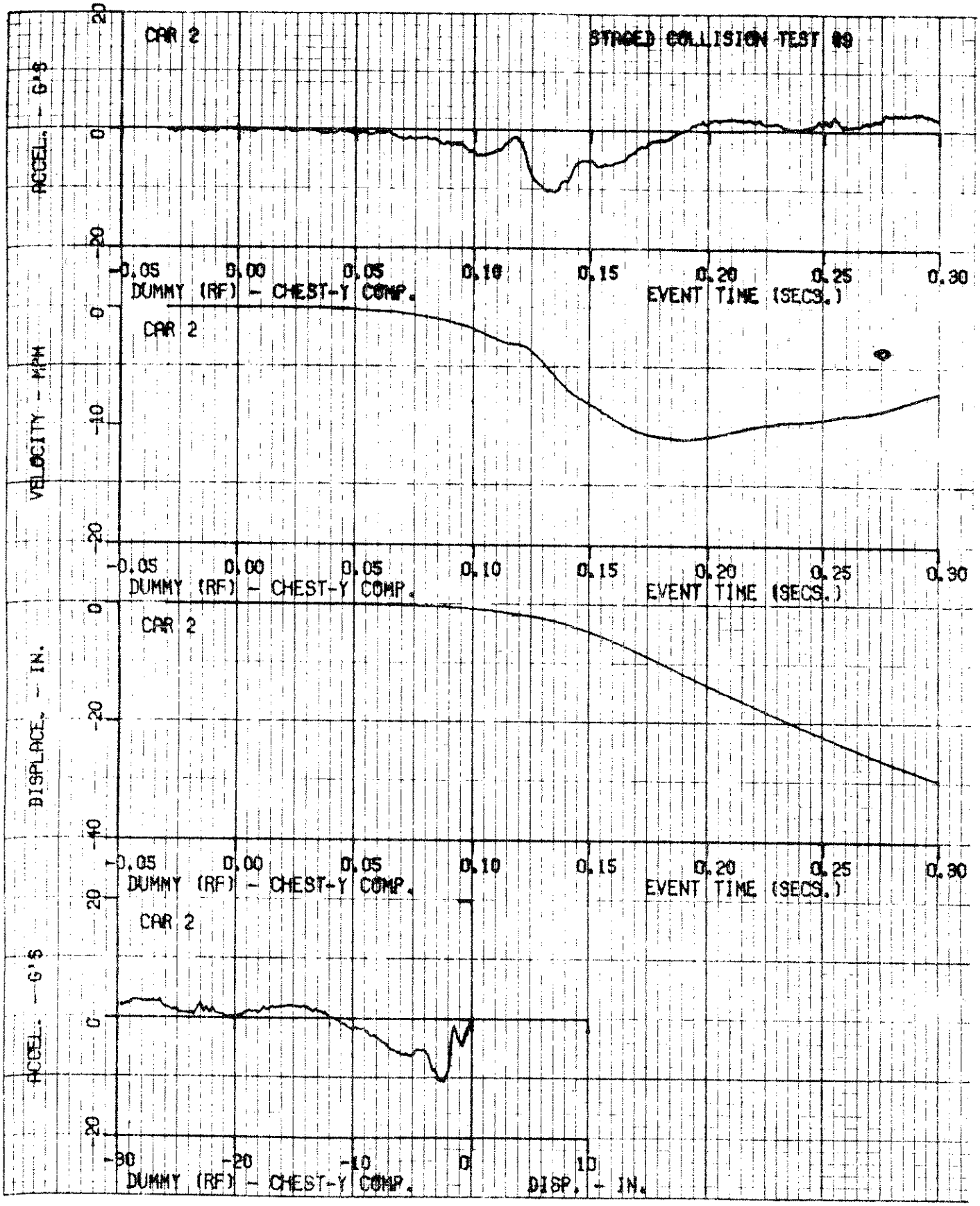
ZQ-6057-V-5

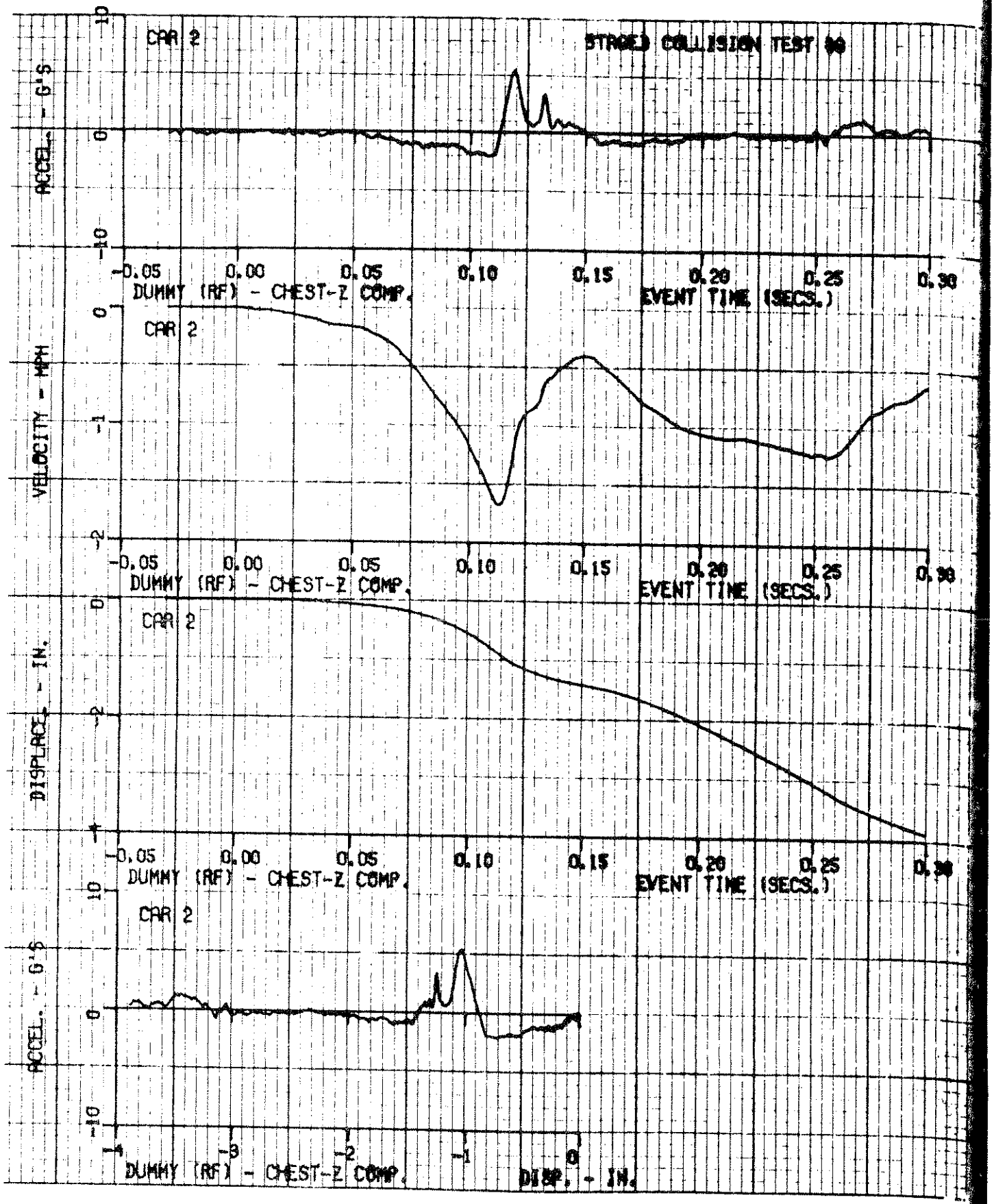

CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10¹)
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD
EVENT TIME (SECS.)

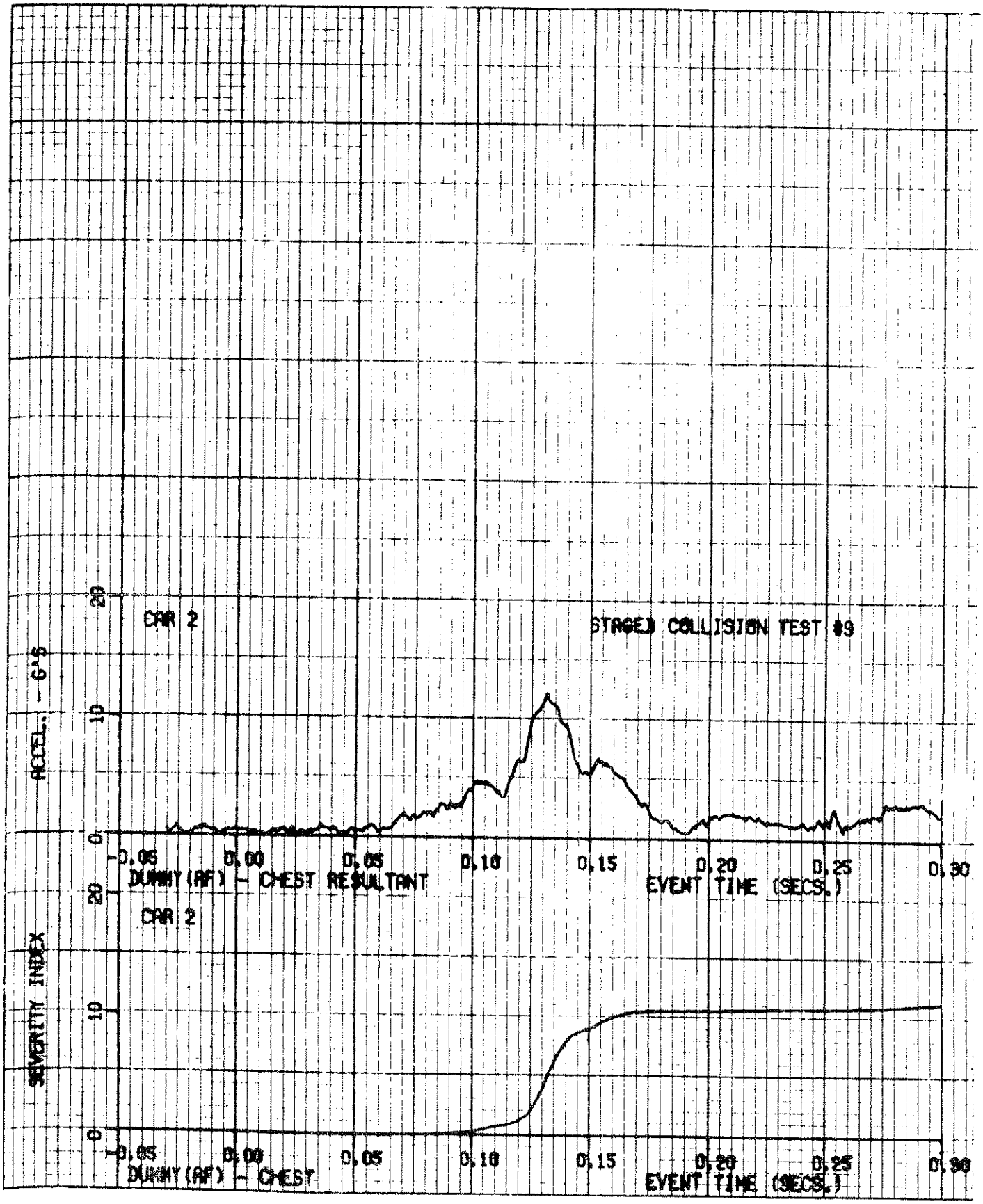

CAR 2
STAGED COLLISION TEST #9
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 2
10
0
-10
DUMMY (RF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 2
40
0
-40
DUMMY (RF) - HEAD-Z COMP.
EVENT TIME (SECS.)

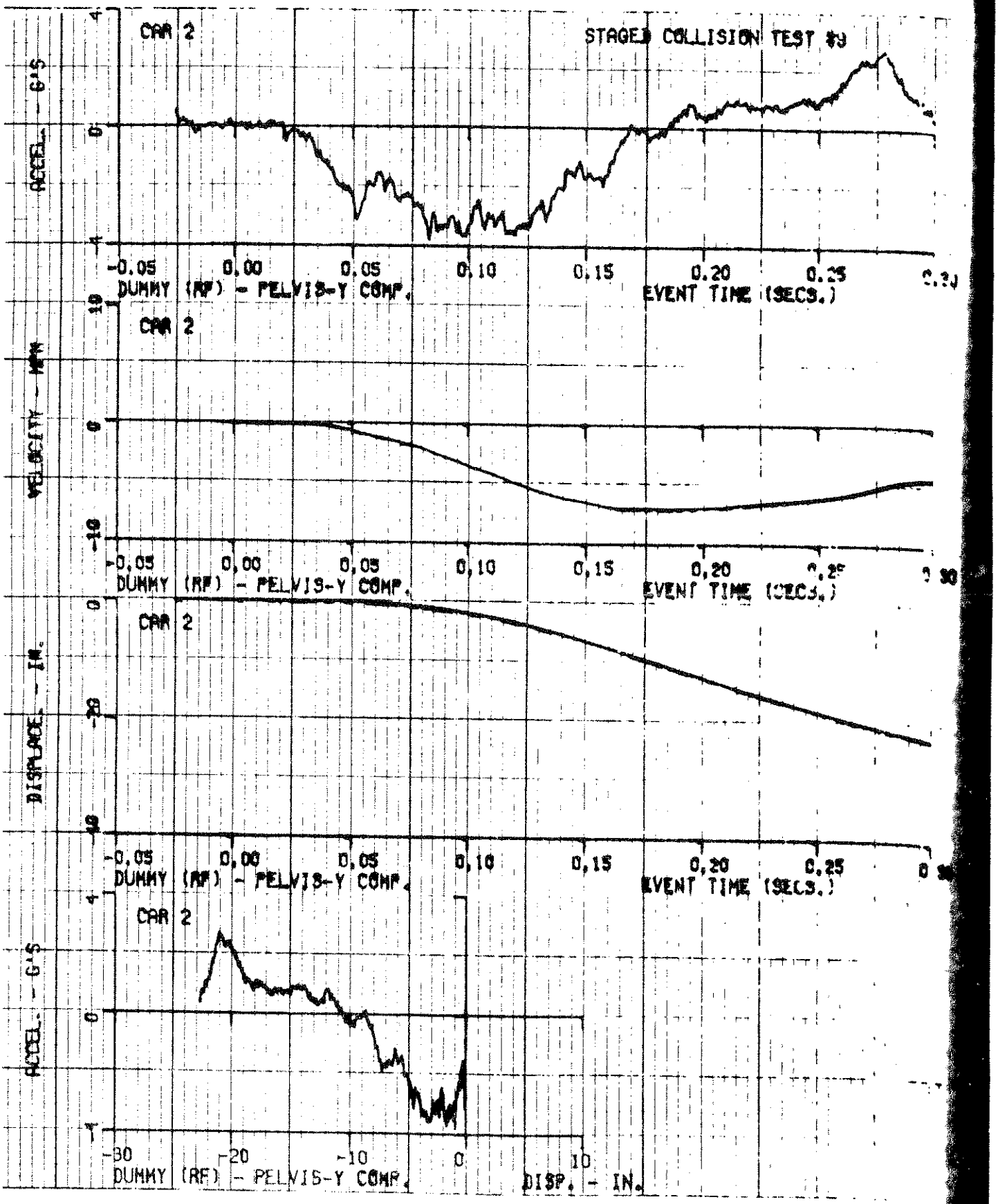

STAGED COLLISION TEST #9
CAR 2
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
25
20
15
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
100
50
0
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
40
80
120
160
DUMMY (RF) - CHEST-X COMP.
DISP. - IN.

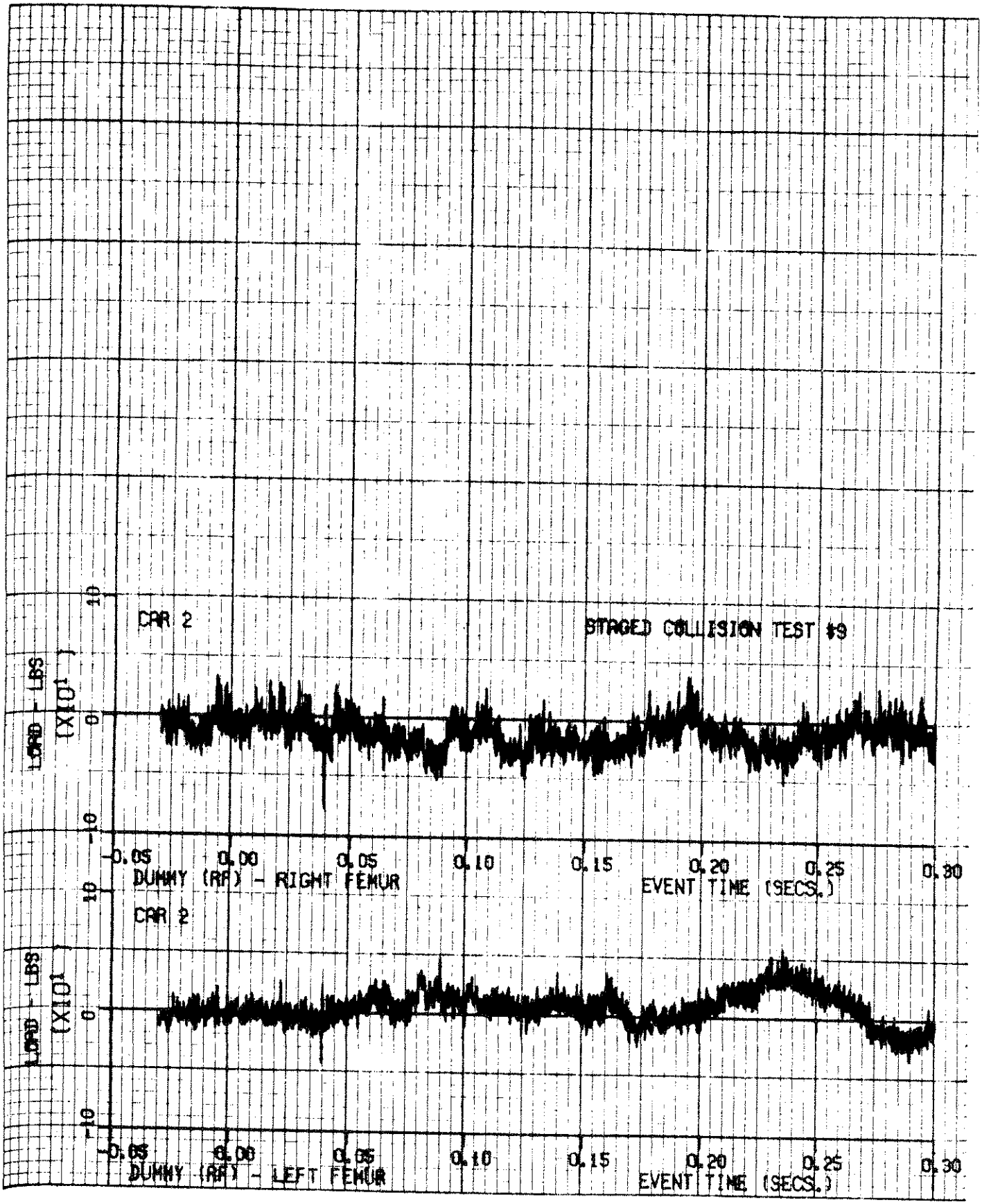
ZQ-6057-V-5


CAR 2
STAGED COLLISION TEST 89
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-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-10
-20
-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.
0
-20
-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
ACCEL. - G'S
20
0
-20
-30
-20
-10
0
10
DUMMY (RF) - CHEST-Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST
ACCEL. - G'S
10
0
-10
-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
-1
-2
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-2
-4
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-4
-3
-2
-1
0
DUMMY (RF) - CHEST-Z COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #9
ACCEL. - G'S
20
10
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
20
10
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
STAGED COLLISION TEST #3
ACCEL. - G'S
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
DUMMY (RF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
DUMMY (RF) - PELVIS-Y 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
DUMMY (RF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
4
0
-4
-30
-20
-10
0
10
DUMMY (RF) - PELVIS-Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #9
LOAD - LBS (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 2
LOAD - LBS (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - LEFT FEMUR
EVENT TIME (SECS.)

TEST NO. 10

RICSAC STAGED COLLISION

FRONT-TO-SIDE
PERPENDICULAR

HONDA/TORINO

VELOCITY 33.3 MPH

16.0 RICSAC STAGED COLLISION - TEST NO. 10

EXPERIMENTAL RESULTS

Test Description

This collision involved a 1975 Honda (V-1) striking the right side front section of a 1974 Ford Torino (V-2) at a 90 degree impact angle as shown in Figure 16-1.The impact velocity of both vehicles was 33.3 mph. The vehicle test weights were 2320 and 4750 pounds for the Honda and the Torino, respectively. Each vehicle had two Part 572 test dummies (50 percentile) seated in the front seat. The dummies in the Torino were instrumented according to FMVSS 208 and were restrained with seat belts.

The Torino was equipped with automatic transmission, power steering and power brakes. The Honda had manual transmission, steering and standard brakes. The accident was staged with both transmissions in drive position, brakes off and the engines not running. During the collision, no steering control inputs or vehicle braking was applied. The roadway was dry with skid resistance value of 87.

Approximately one car length before impact, the vehicle tow cable was released and the vehicle guide rail was terminated. At this point in time and during the collision, both vehicles were free bodies with no constraints except the normal collision forces and reactions encountered in this type of car-to-car collision. During the collision event, no observed tow cable or instrumentation cable interference with the moving vehicles was noted. However, the Torino's post-impact trajectory extended beyond the paved surface, onto a gravel shoulder, and finally a grass field. Near the point at which the Torino exited the pavement (approximately 100 feet from the point of impact), it contacted a metal lightpole transformer base. After this impact, the Torino's left front wheel mounted the transformer base, causing the vehicle to pitch and roll. Shortly thereafter, the instrumentation cable reached full extension and the Torino's motion was halted.

ACCIDENT SCHEMATIC

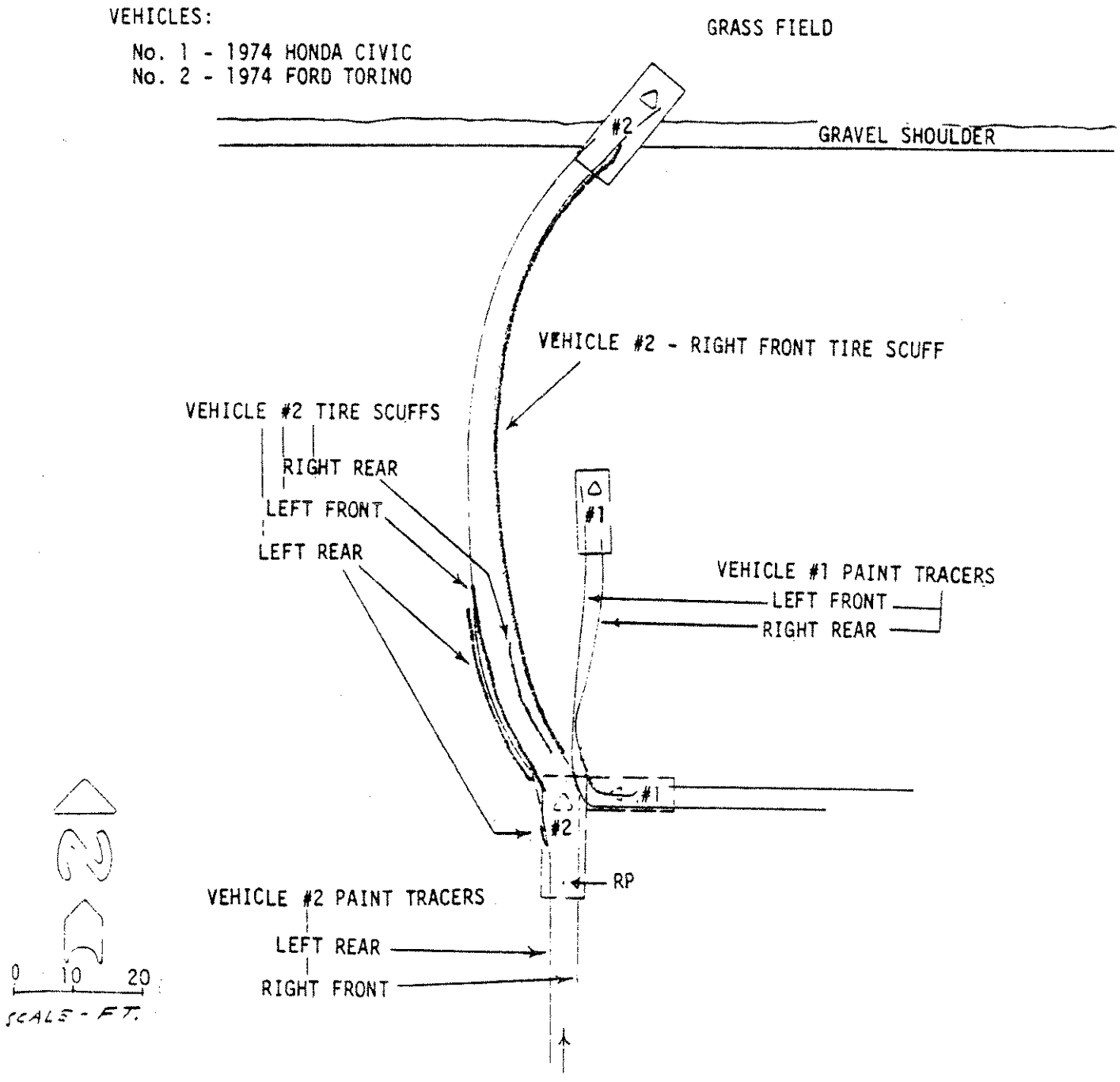


Figure 16-1 TEST NO. 10 - RICSAC ACCIDENT SCHEMATIC

CRASH TEST SUMMARY

TEST NO. 10 PROJECT RICSAC

DATE 6/23/78 TIME 11:20 TEMP. 72°F

TEST CONDITION Side Offset Perpendicular - 90 Degrees

VEHICLE NO. 1 1975 Honda

VEHICLE NO. 2 1974 Ford Torino

	VEH. NO. 1	VEH. NO. 2
TEST WEIGHT (lbs)	2320	4750
IMPACT ANGLE (deg)*	90	0
IMPACT VELOCITY (mph)**	33.35	33.35
MAX. CRUSH (in)		
MAX. INTRUSION (in)		

DUMMIES	VEH. NO. 1	VEH. NO. 2
TYPE	Part 572	Part 572
LOCATION	Driver (LF), Passenger (RF)	Driver (LF), Passenger (RF)
RESTRAINT	3-Point Restraint	Unrestrained
	Uninstrumented	Instrumented

NUMBER OF DATA CHANNELS 64
NUMBER OF HIGH SPEED CAMERAS 11

*WITH RESPECT TO TOW TRACK CENTERLINE

**SPEED TRAP MEASUREMENT (±0.5% ACCURACY)

TABLE 16-1
TEST NO. 10 - CAR NO. 1
VEHICLE DATA

TEAM	YEAR	MONTH	DAY	SEQUENCE
1	8	06	23	010

Vehicle data not collected. Reason: _____

Vehicle No. 1 — 14-15 No. of VIN Characters: 10

10-22	VIN (Left Justify, Omit Production Numbers)	SGC10147
23-27	Make/Model (CPIR Code)	HONDA - CIVIC — 88109
28-32	Mileage (Odometer Reading) 99998 = 99998 mi or more; 99999 = Unknown	99999
33-34	Model Year	74

35-36 BODY STYLE

Automobiles		Trucks		Other	
Passenger Car	(01)	Van - Passenger	05	School Bus	11
Stationwagon	02	- Cargo	06	Other Bus	12
Convertible	03	Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04	Pickup	08	Other Body Style	98
		Straight Truck	09	Unknown	99
		Tractor-Trailer	10		

37-39 VEHICLE WEIGHT — Curb: 0,174 lbs

40-42 Occupant and Cargo Only: ___,___,00 lbs

43 TOWING ANOTHER VEHICLE: Yes 1; No (2); Unknown 9

VEHICLE DAMAGE

	Object Contacted	CDC	Veh. No.	Impact No.	
44-54 (1)	03	10FDEW2	2	1	(1) = Highest Severity (Estimated ΔV)
55-65 (2)	03	09LDEW3	2	2	
(3)					
(4)					

66 VEHICLE TOWED FROM SCENE: Yes 1; No 2; Unknown 9

67 SOURCE OF VEHICLE DATA
- Inspection at Repair or Tow Facility: 1
- Inspection at Person's Home: 2
- Inspection at Scene: 3
- Not Inspected (Photos or Repair Data): 4
- Not Inspected. Reason: _____: 5
- Unknown: 9

68 VEHICLE INSPECTION
- Not Inspected: 0
- Inspected on First Visit: 1
- Actual Number of Locations Visited (Including Follow-Ups to Same Location): 2, 3, 4, 5, 6, 7
- 8 or More: 8
- Unknown: 9

69 APPLICABLE VEHICLE: Yes 1; No 2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED ON THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

2/77

Figure 16-2

VEHICLE CRUSH SCHEMATIC
TEST NO. 10 - CAR NO. 1

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

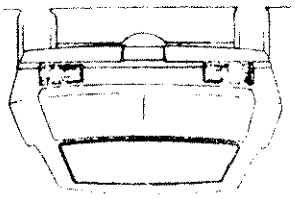
RF 1

LF 2

RR 2

LR 2

1 Yes, 2 No, 8 NA, 9 Unk.



WHEEL STEER ANGLES*

(For locked front wheels or displaced rear axles only)

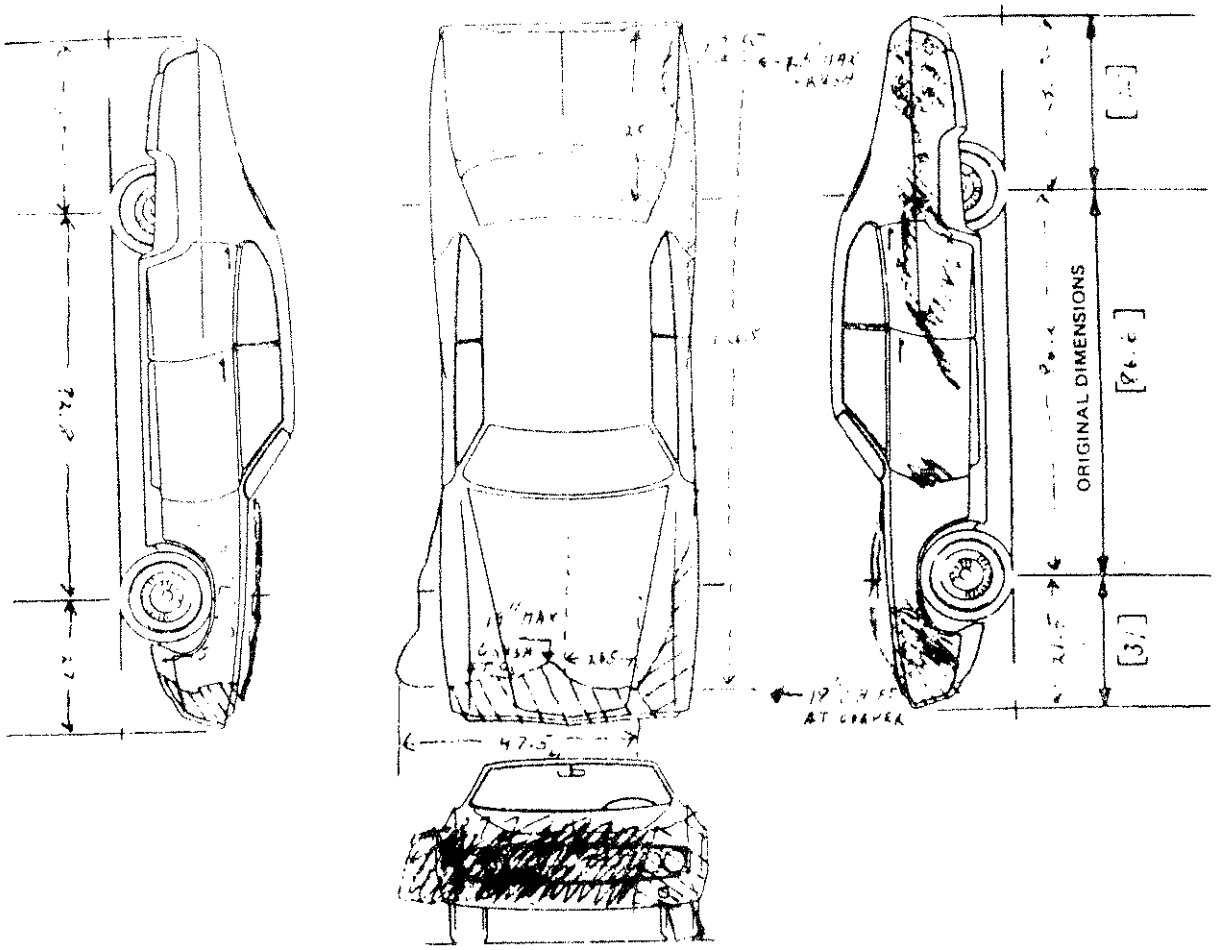
RF ± 1

LF ± 1

RR ± 1

LR ± 1

Within ± 5°



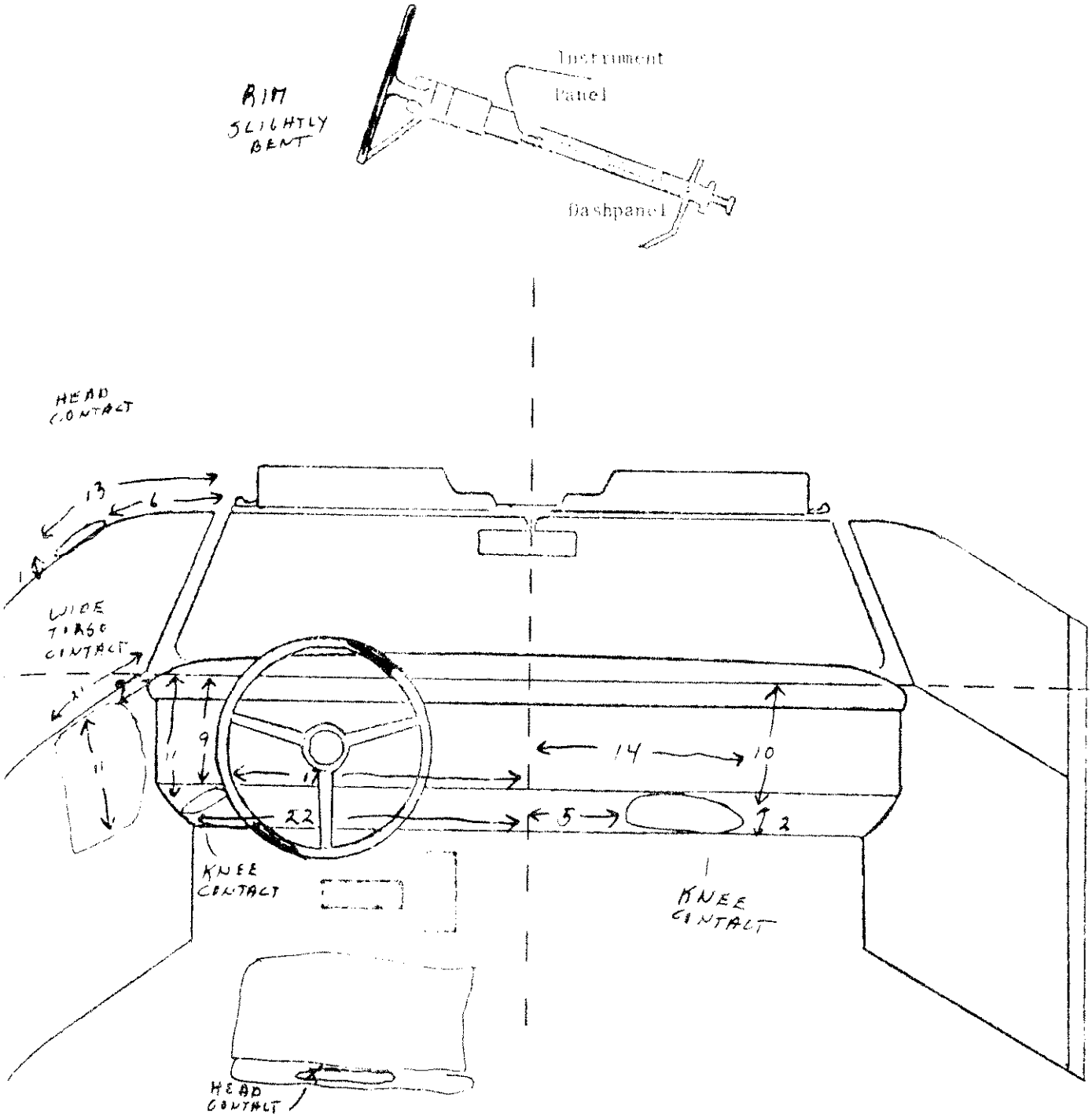
Impact Number	L	C_1	C_2	C_3	C_4	C_5	C_6	D±
1	41.5	1	10.2	17	6.5	7	9	-3.75
2	126.5	2	3.2	.1	1	1	1.5	-.05
3								
4								

NOTE: MEASURE C_1 TO C_6 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS; REAR TO FRONT IN SIDE IMPACTS

Figure 16-3
OCCUPANT CONTACT DATA
TEST NO. 10 - CAR NO. 1

VEHICLE INTERIOR

Occupant Contacts



Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and code on next two pages. Dash lines indicate center of instrument panel-windshield area and top of panel for measurement purposes.

TABLE 16-2

TEAM	YEAR	MONTH	DAY	SEQUENCE
1	80	06	23	010

TEST NO. 10 - CAR NO. 2

VEHICLE DATA

Vehicle data not collected. Reason: _____

Vehicle No. 2 — 14-15 No. of VIN Characters: 11

10-22 VIN (Left Justify, Omit Production Numbers): 4B31F19

23-27 Make/Model (CPIR Code): FORD - TORINO: 12101

28-32 Mileage (Odometer Reading) 99998 = 99998 mi. or more; 99999 = Unknown: 99999

33-34 Model Year: 74

35-36 BODY STYLE

Automobiles		Trucks		Other	
Passenger Car	(01)	Van - Passenger	05	School Bus	11
Stationwagon	02	- Cargo	06	Other Bus	12
Convertible	03	Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04	Pickup	08	Other Body Style	98
		Straight Truck	09	Unknown	99
		Tractor-Trailer	10		

37-39 VEHICLE WEIGHT — Curb: 040 38

40-42 Occupant and Cargo Only: ___ 00

43 TOWING ANOTHER VEHICLE: Yes 1; No (2); Unknown 9

VEHICLE DAMAGE

	Object Contacted	CDC	Veh. No.	Impact No.
44-54 (1)	01	01 RFEW2	1	1
55-65 (2)	01	03 RDEW2	1	2
(3)				
(4)				

(1) = Highest Severity (Estimated ΔV)

66 VEHICLE TOWED FROM SCENE: Yes 1; No 2; Unknown 9

67 SOURCE OF VEHICLE DATA: Inspection at Repair or Tow Facility 1; Inspection at Person's Home 2; Inspection at Scene 3; Not Inspected (Photos or Repair Data) 4; Not Inspected. Reason. _____ 5; Unknown 9

68 VEHICLE INSPECTION: Not Inspected 0; Inspected on First Visit 1; Actual Number of Locations Visited (Including Follow-Ups to Same Location) 2, 3, 4, 5, 6, 7; 8 or More 8; Unknown 9

69 APPLICABLE VEHICLE: Yes 1; No 2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED IN THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

Figure 16-4

VEHICLE CRUSH SCHEMATIC

TEST NO. 10 - CAR NO. 2

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

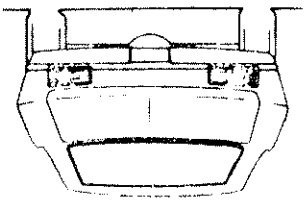
RF 2

LF 2

RR 2

LR 2

1 Yes, 2 No, 8 NA, 9 Unk.



WHEEL STEER ANGLES*

(For locked front wheels or displaced rear axles only)

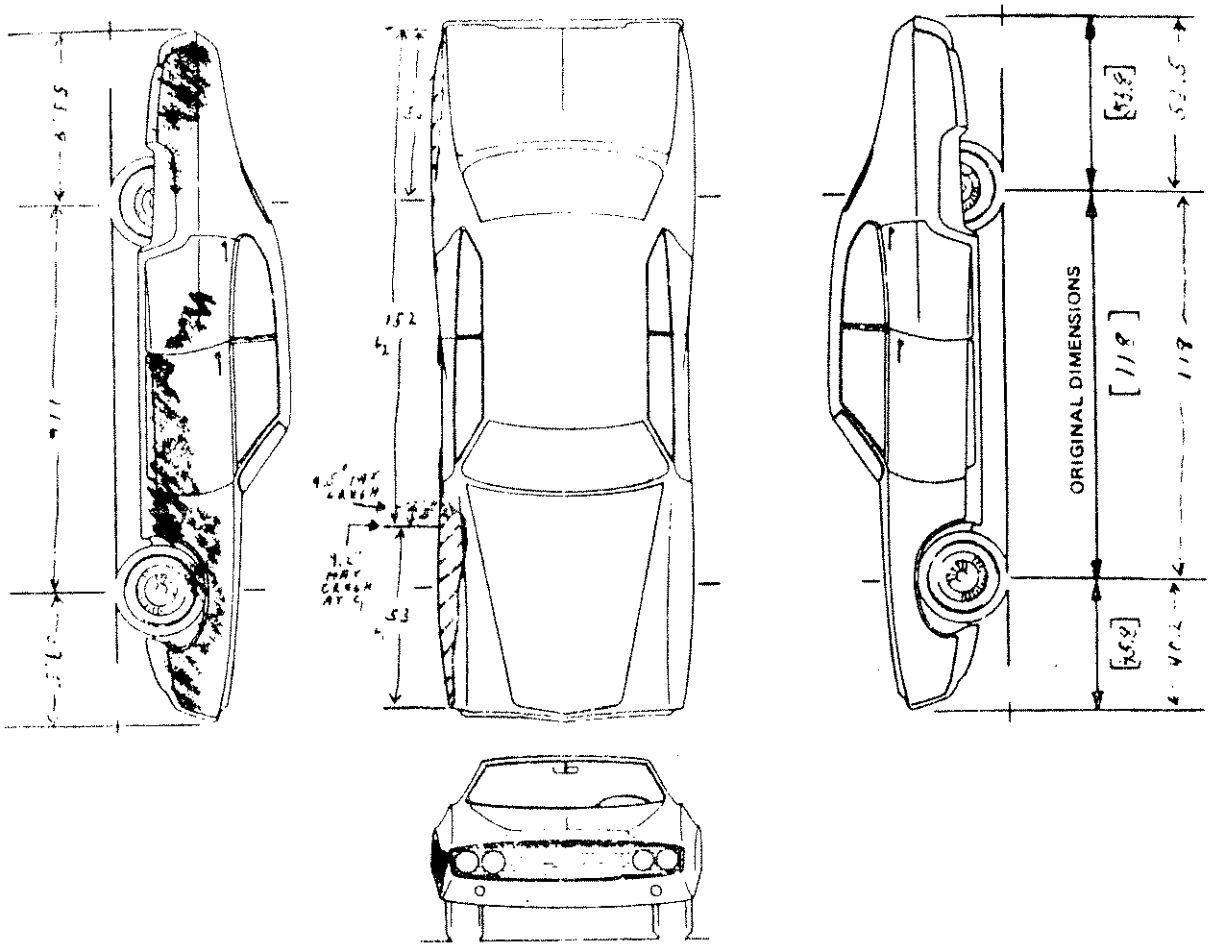
RF + -

LF + -

RR + -

LR + -

Within ± 5°



Impact Number	L	C_1	C_2	C_3	C_4	C_5	C_6	D±
1	50	1.2	4.5	6.1	5.3	7.5	.5	+66.5
2	.52	4	.5	.1	0	.6	9.2	+36
3								
4								

NOTE: MEASURE C_1 TO C_6 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS: REAR TO FRONT IN SIDE IMPACTS

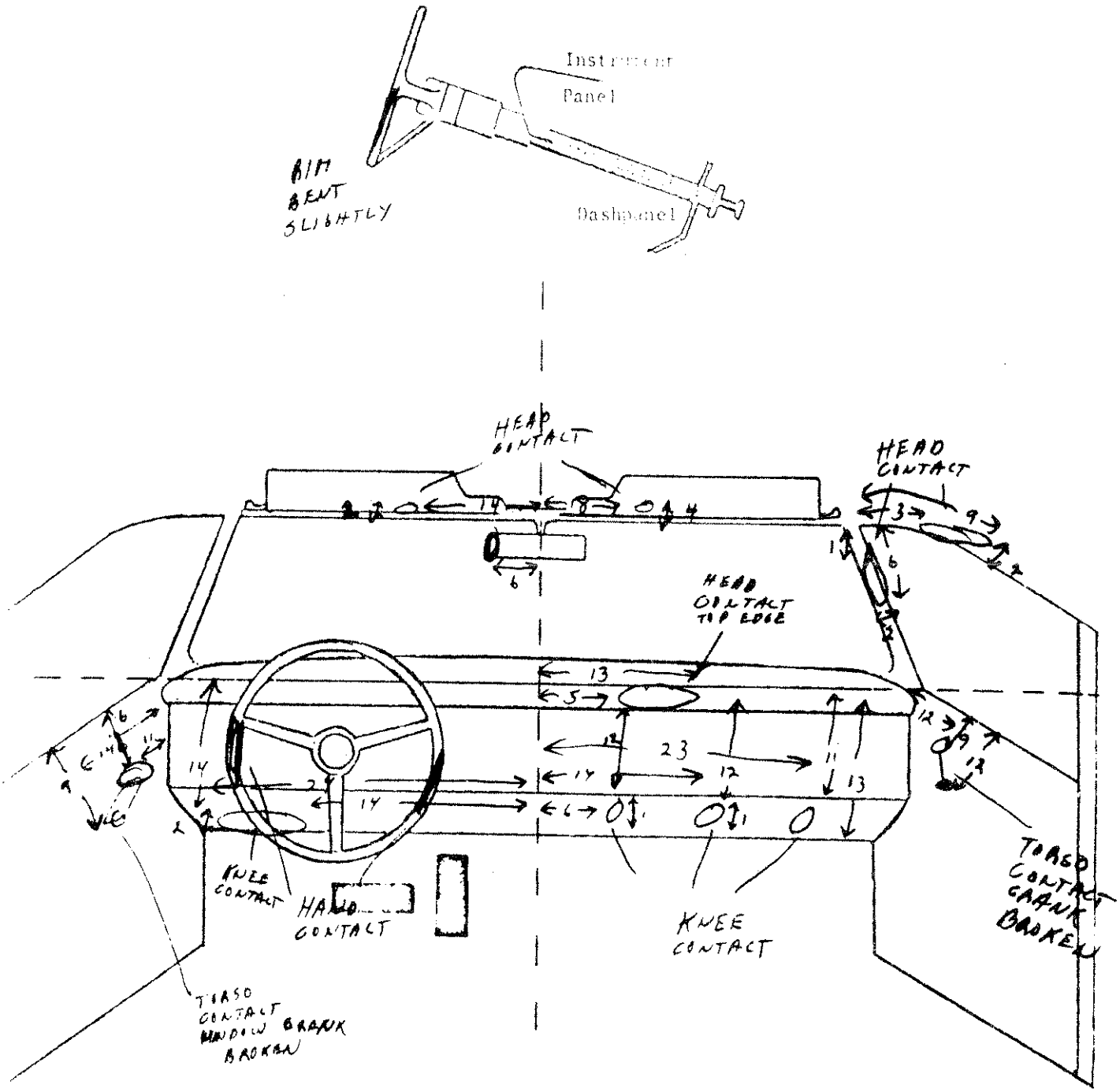
2/77

Figure 16-5

OCCUPANT CONTACT DATA-
TEST NO. 10 - CAR NO. 2

VEHICLE INTERIOR

Occupant Contacts



Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and code on next two pages. Dash lines indicate center of instrument panel-windshield area and top of panel for measurement purposes

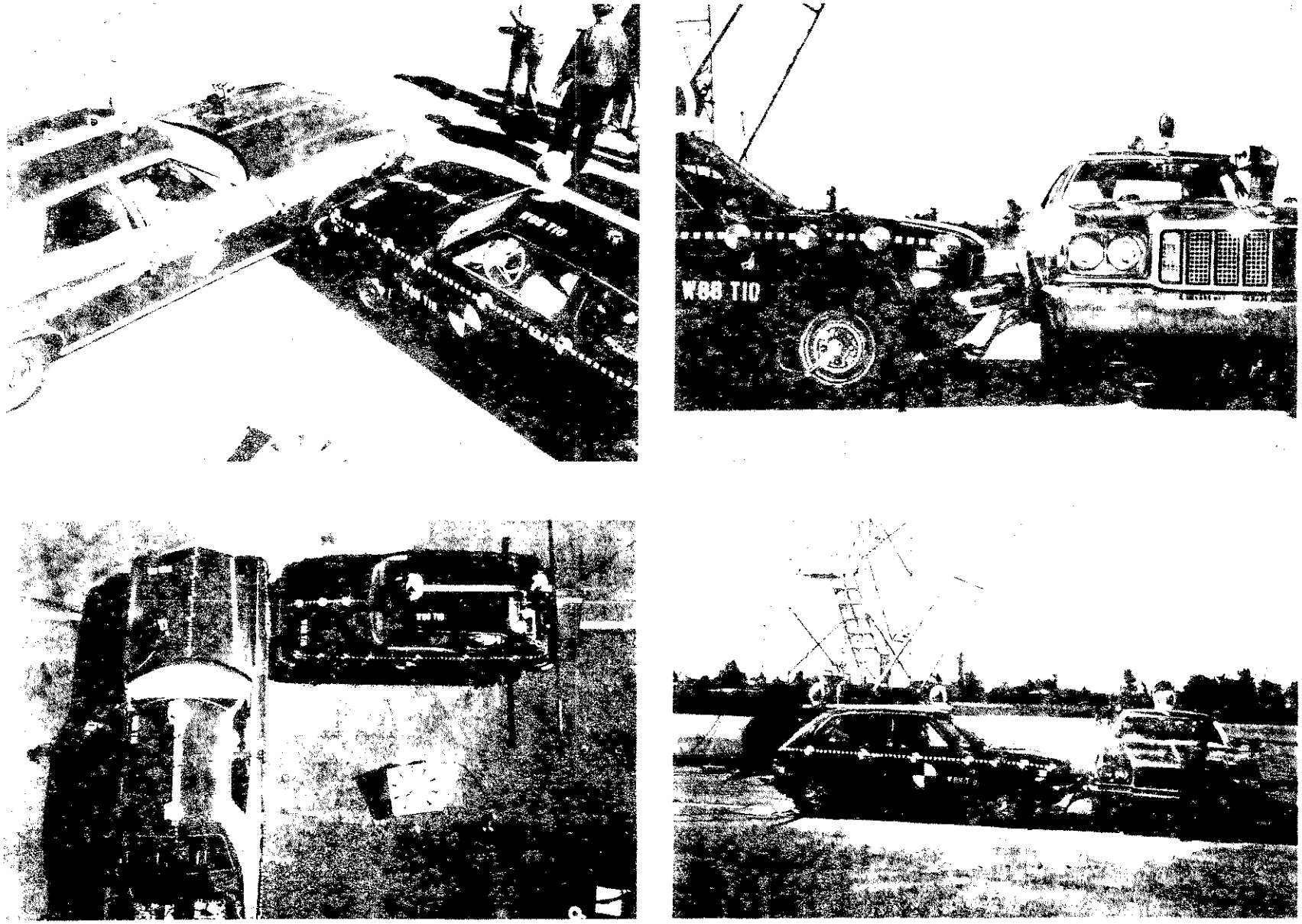


Figure 16-6 TEST NO. 10 – PRE TEST COLLISION CONFIGURATION

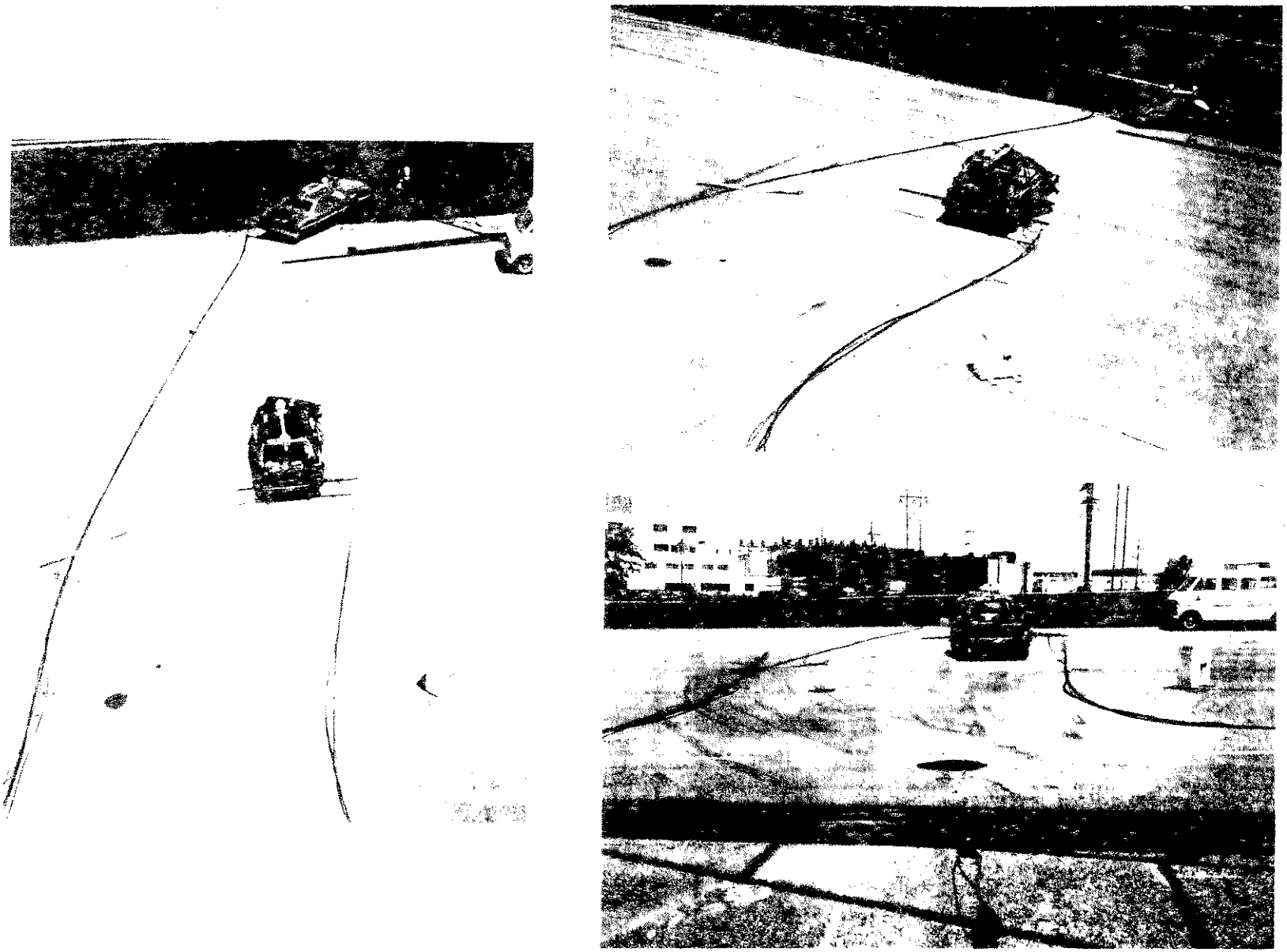


Figure 16-7 TEST NO. 10 – POST TEST COLLISION SCENE

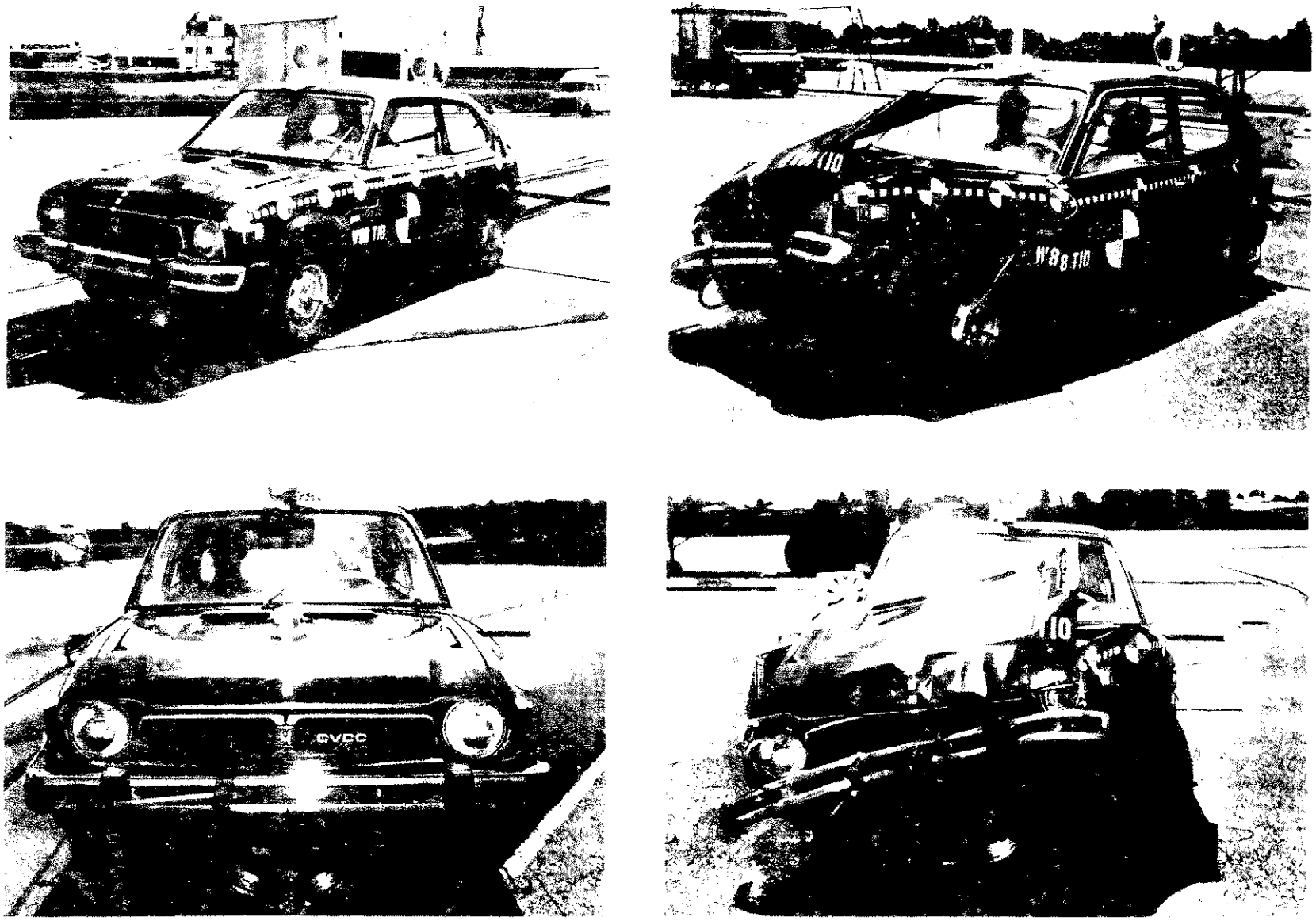


Figure 16-8 TEST NO. 10 – PRE AND POST INTERIOR VIEWS, CAR NO. 1 - HONDA

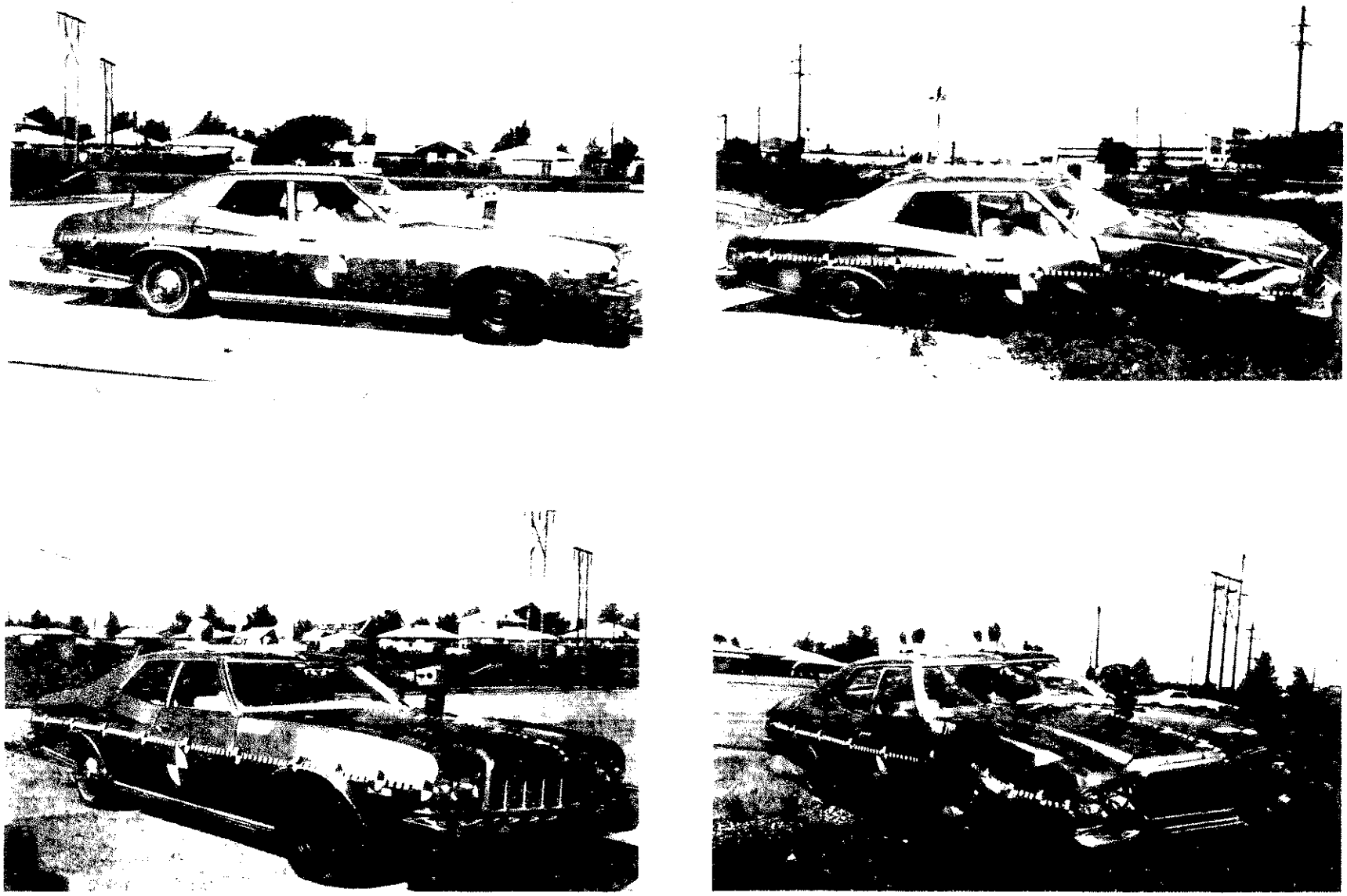


Figure 16-9 TEST NO. 10 – PRE AND POST EXTERIOR VIEWS, CAR NO. 2 - TORINO

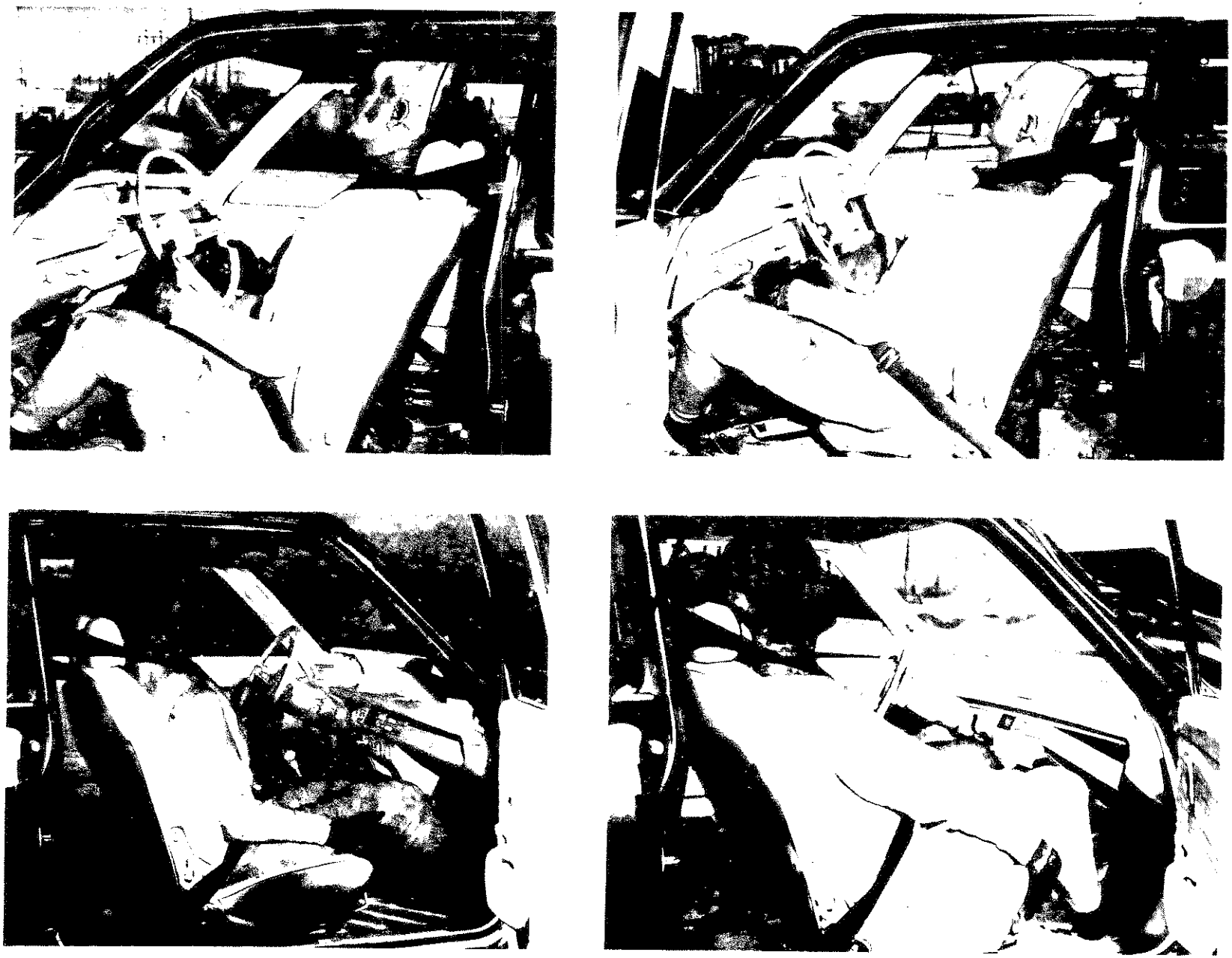


Figure16-10TEST NO. 10 – PRE AND POST INTERIOR VIEWS, CAR NO. 1 - HONDA

Figure 16-11 TEST NO. 10 — PRE AND POST INTERIOR VIEWS, CAR NO. 2 - TORINO

TABLE

ELECTRONIC INSTRUMENTATION TEST No. 10

CAR NO. 1 - 1975 HONDA

TRANSDUCER DESCRIPTION OR ACCELEROMETER LOCATION *	DIRECTION OF PARAMETER BEING MEASURED	LOCATION ON VEHICLE	DESCRIPTION LISTED ON DATA PLOTS
VEHICLE ACCELEROMETER			
1	X,Y,Z	Left Sill Next to Front Seat	L.F. Corner
2	X,Y,Z	Right Sill Next to Rear Seat	R.R. Corner
3	X,Y,Z	Deck Over Rear Axle	Rear Deck
4	X,Y,Z	Firewall	Firewall
5	X	Front Bumper	Bumper
VEHICLE GYROS			
Pitch Angle - 6	Q	On Centerline of Trunk Comp.	Pitch Angle
Roll Angle - 6	P	On Centerline of Trunk Comp.	Roll Angle
Yaw Angle - 6	R	On Centerline of Trunk Comp.	Yaw Angle
Yaw Rate - 6	$\dot{R}$	On Centerline of Trunk Comp.	Yaw Rate
MISCELLANEOUS			
L.F. Wheel Velocity	$\dot{X}$	L.F. Wheel	L.F. Wheel Velocity
R.R. Wheel Velocity	$\dot{X}$	R.R. Wheel	R.R. Wheel Velocity
L.R. Wheel Velocity	$\dot{X}$	L.R. Wheel	L.R. Wheel Velocity
Steer Angle	θ	Front Wheel Steering Linkage	Steer Angle

* See Accelerometer Layout Diagram Figure 16-12

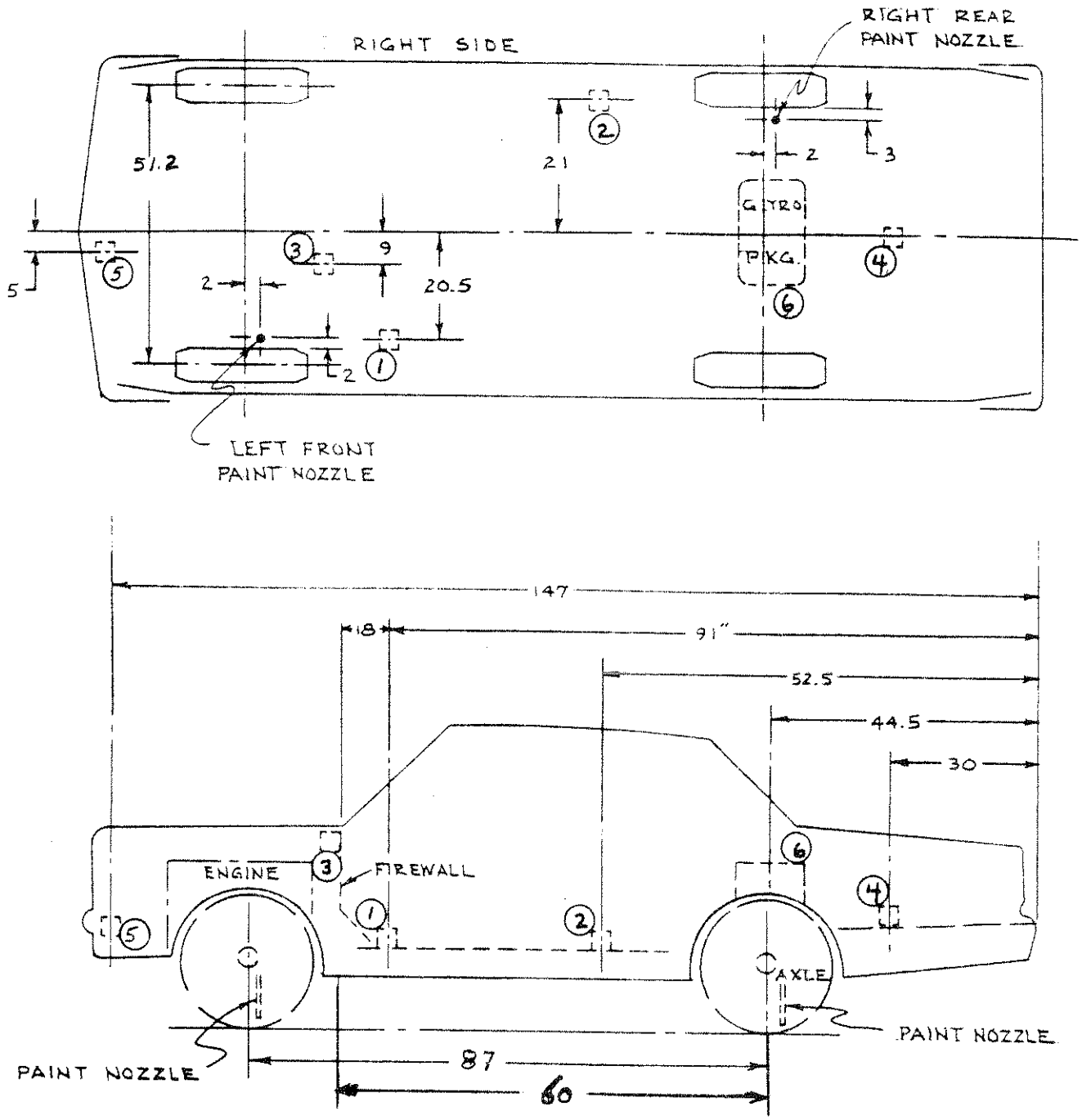


Figure 16-12 VEHICLE INSTRUMENTATION LOCATIONS

CAR NO. 1 - 1975 HONDA - TEST NO. 10
STRIKING VEHICLE

TABLE 16-4

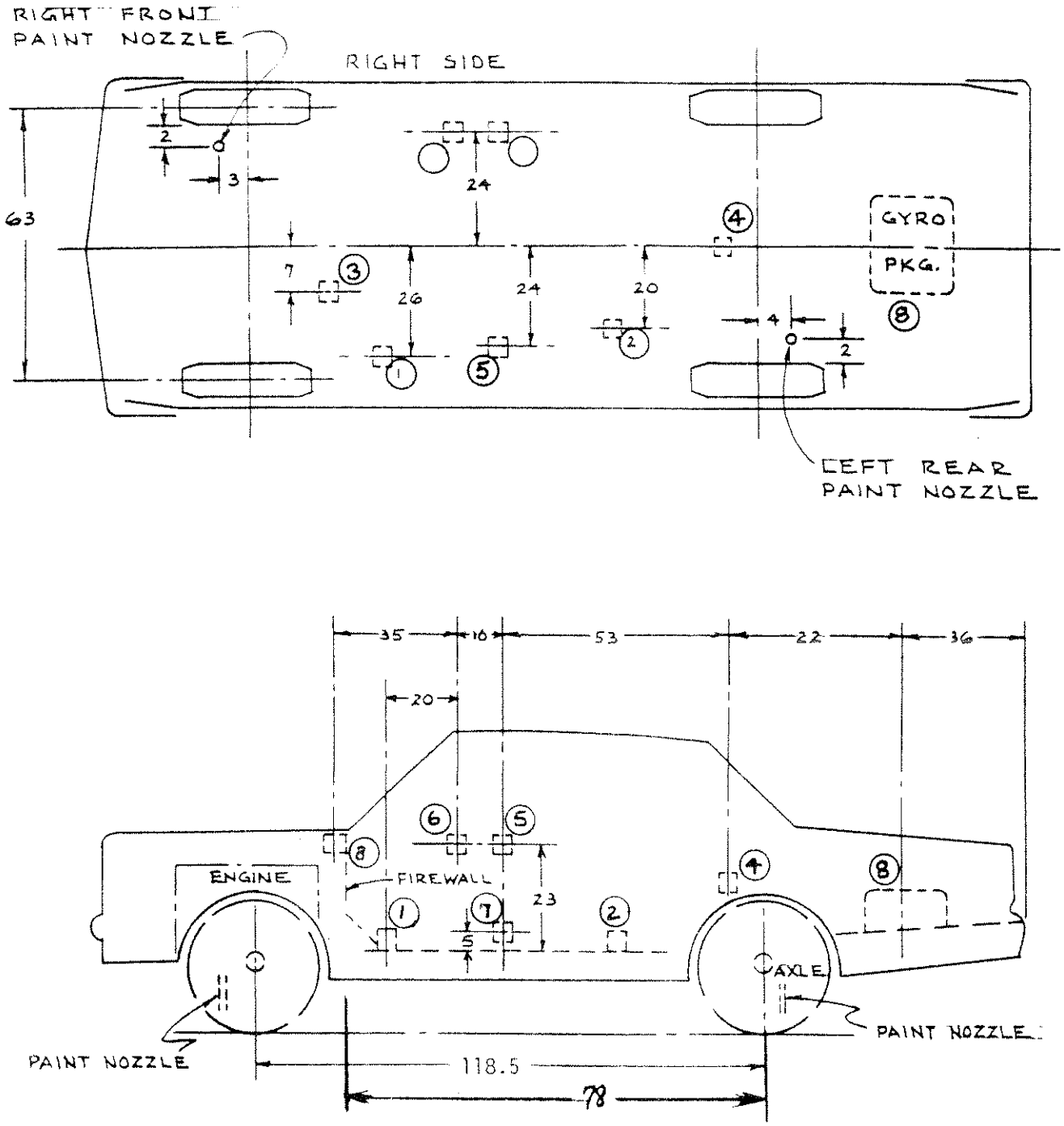
ELECTRONIC INSTRUMENTATION TEST No. 10

CAR NO. 2 - 1974 FORD TORINO

TRANSDUCER DESCRIPTION OR ACCELEROMETER LOCATION	DIRECTION OF PARAMETER BEING MEASURED	LOCATION ON VEHICLE	DESCRIPTION LISTED ON DATA PLOTS
VEHICLE ACCELEROMETER			
1	X,Y,Z	Left Sill Next to Front Seat	L.F. Corner
2	X,Y,Z	Left Sill Next to Rear Sear	L.R. Corner
3	Y	Left Front Door	L.F. Door
4	Y	Right Front Door (Upper)	Upper Right Front Door
5	Y	Right Front Door (lower)	Lower Right Front Door
6	X,Y,Z	Firewall	Firewall
7	X,Y,Z	Rear Deck Over Rear Axle	Rear Deck
VEHICLE GYRO			
Pitch Angle - 8	Q	On Centerline of Trunk Comp.	Pitch Angle
Roll Angle - 8	P	On Centerline of Trunk Comp.	Roll Angle
Yaw Angle - 8	R	On Centerline of Trunk Comp.	Yaw Angle
Yaw Rate - 8	$\dot{R}$	On Centerline of Trunk Comp.	Yaw Rate
MISCELLANEOUS			
L.F. Wheel Velocity	$\dot{X}$	L. F. Wheel	L.F. Wheel Velocity
R.R. Wheel Velocity	$\dot{X}$	R. R. Wheel	R.R. Wheel Velocity
L.R. Wheel Velocity	$\dot{X}$	L. R. Wheel	L.R. Wheel Velocity
Steer Angle	θ	Front Wheel Steering Linkage	Steer Angle
DUMMY			
L.F. Head	X,Y,Z	L.F. Seat	Dummy (LF) Head
L.F. Chest	X,Y,Z	L.F. Seat	Dummy (LF) Chest
L.F. Pelvic	Y	L.F. Seat	Dummy (LF) Pelvic
L.F. Femurs	R,L**	L.F. Seat	Dummy (LF) Femurs
R.F. Head	X,Y,Z	R.F. Seat	Dummy (RF) Head
R.F. Chest	X,Y,Z	R.F. Seat	Dummy (RF) Chest
R.F. Pelvic	Y**	R.F. Seat	Dummy (R.F.) Pelvic
R.F. Femurs	R,L	R.F. Seat	Dummy (RF) Femurs

*SEE ACCELEROMETER LAYOUT DIAGRAM FIG. 16-13

**RIGHT & LEFT FEMUR FORCES



VEHICLE INSTRUMENTATION LOCATIONS

Figure 16-13 VEHICLE INSTRUMENTATION LOCATIONS

CAR NO. 2 - 1974 FORD TORINO - TEST NO. 10

TABLE 16-5

VEHICLE TEST WEIGHTS - TEST NO. 10

CAR 1 - 1975 HONDA

Left Front	680 lbs.		Left Rear	500 lbs.	
Right Front	670 lbs.		Right Rear	470 lbs.	
Total Front	1350 lbs.		Total Rear	970 lbs.	
Total Weight =	1350 lbs.	+	970 lbs.	=	2320 lbs.
Wheel Base	87 in.				
Cg_{FW} =	970 lbs. / 2320 lbs.	87 in.		=	36.37 in.

CAR 2 - 1974 FORD TORINO

Left Front	1310 lbs.		Left Rear	1150 lbs.	
Right Front	1220 lbs.		Right Rear	1070 lbs.	
Total Front	2530 lbs.		Total Rear	2220 lbs.	
Total Weight =	2530 lbs.	+	2220 lbs.	=	4750 lbs.
Wheel Base	118.5 in.				
Cg_{FW} =	2220 lbs. / 4750 lbs.	118.5 in.		=	55.38 in.

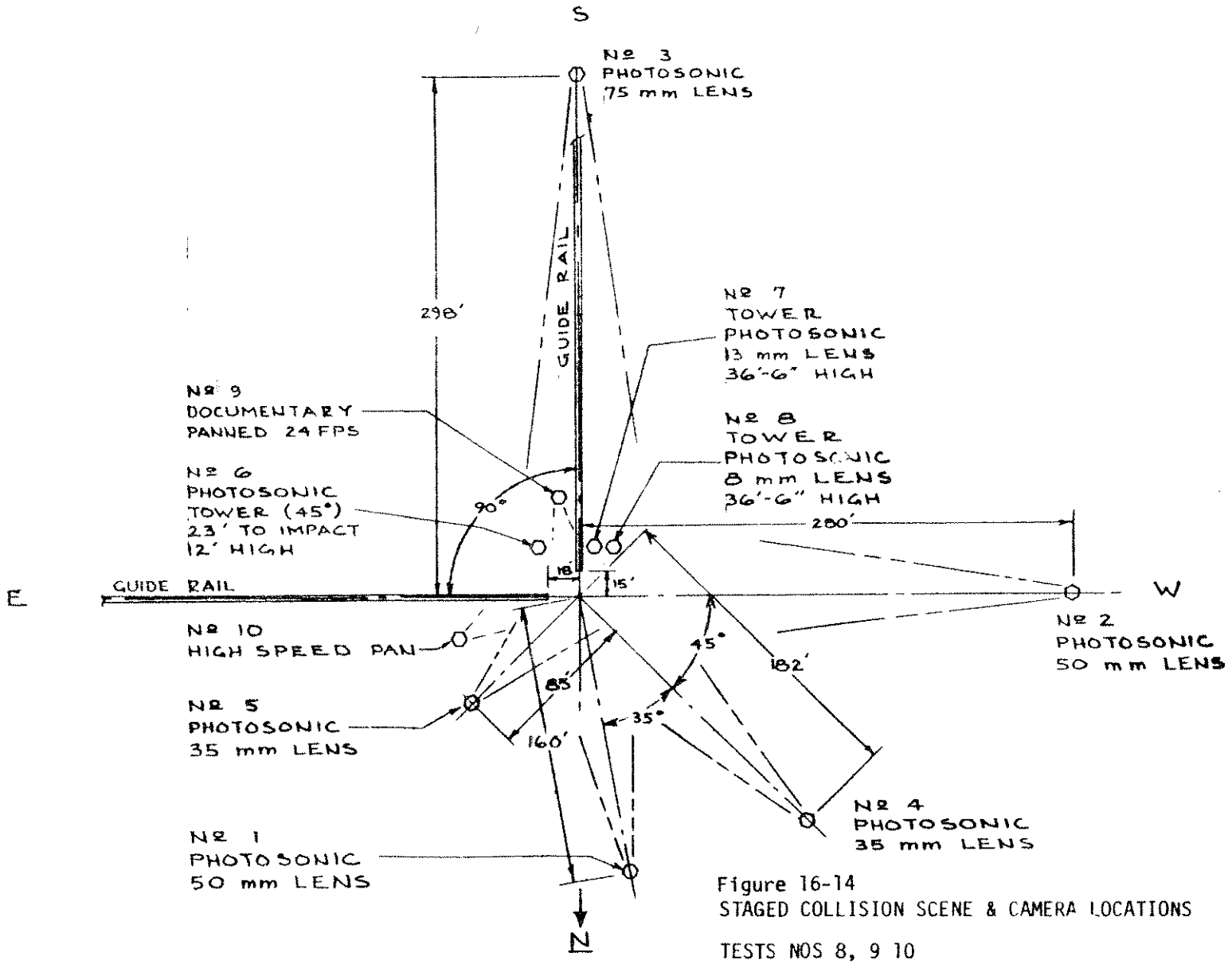


Figure 16-14
STAGED COLLISION SCENE & CAMERA LOCATIONS

TESTS NOS 8, 9 10

TABLE 16-6

DATA CAMERA LOG

PROJECT - RICSAC

TEST NO. 10
DATE: 6/23/78

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)
10	HIGH SPEED PAN	PHOTOSONIC	25 MM	700
3	SOUTH	PHOTOSONIC	75 MM	600
2	WEST	PHOTOSONIC	50 MM	NO PULSE
4	NORTHWEST	PHOTOSONIC	35 MM	700
1	NORTH	PHOTOSONIC	50 MM	700
6	TOWER 45	PHOTOSONIC	13 MM	650
7	TOWER CLOSE	PHOTOSONIC	13 MM	650
8	TOWER WIDE	PHOTOSONIC	8 MM	650
9	O. B. DRIVER	STALEX	8 MM	500
10	O. B. HOOD	STALEX	8 MM	850
11	O. B. REAR	STALEX	8 MM	750

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.

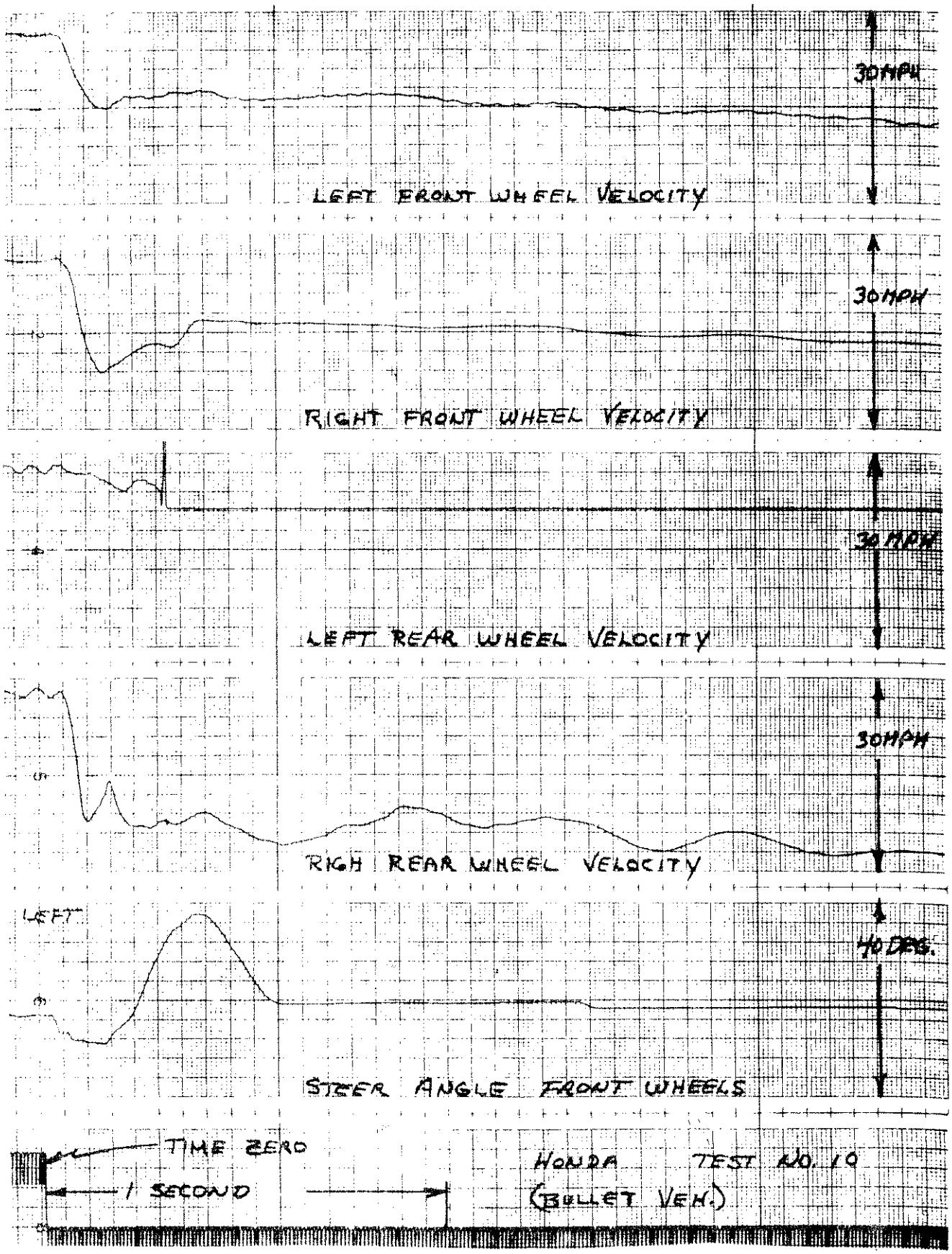


Figure 16-15 CAR NO. 1 WHEEL RESPONSES

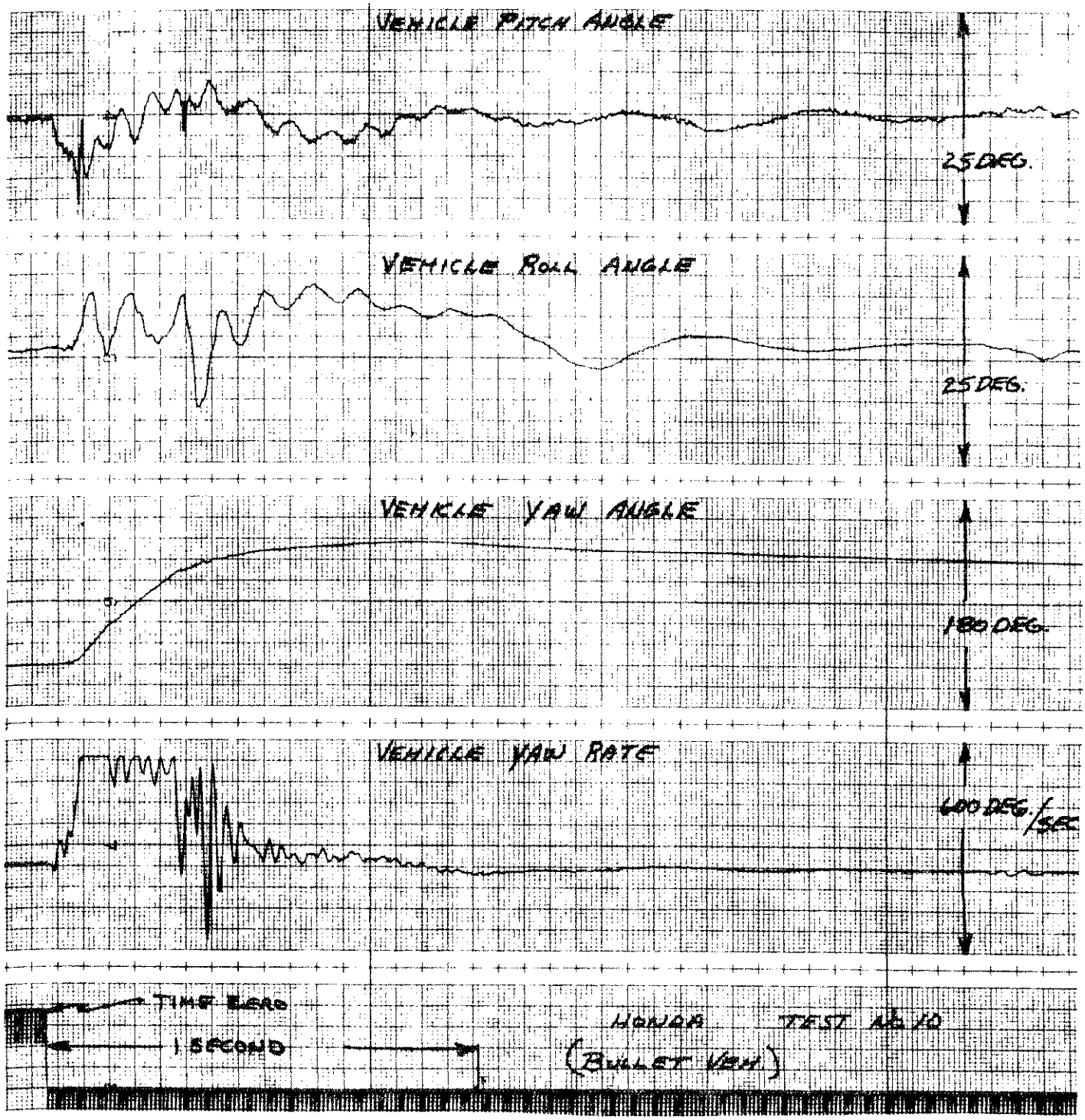


Figure 16-16 TEST NO. 10
CAR NO. 1 VEHICLE ATTITUDE

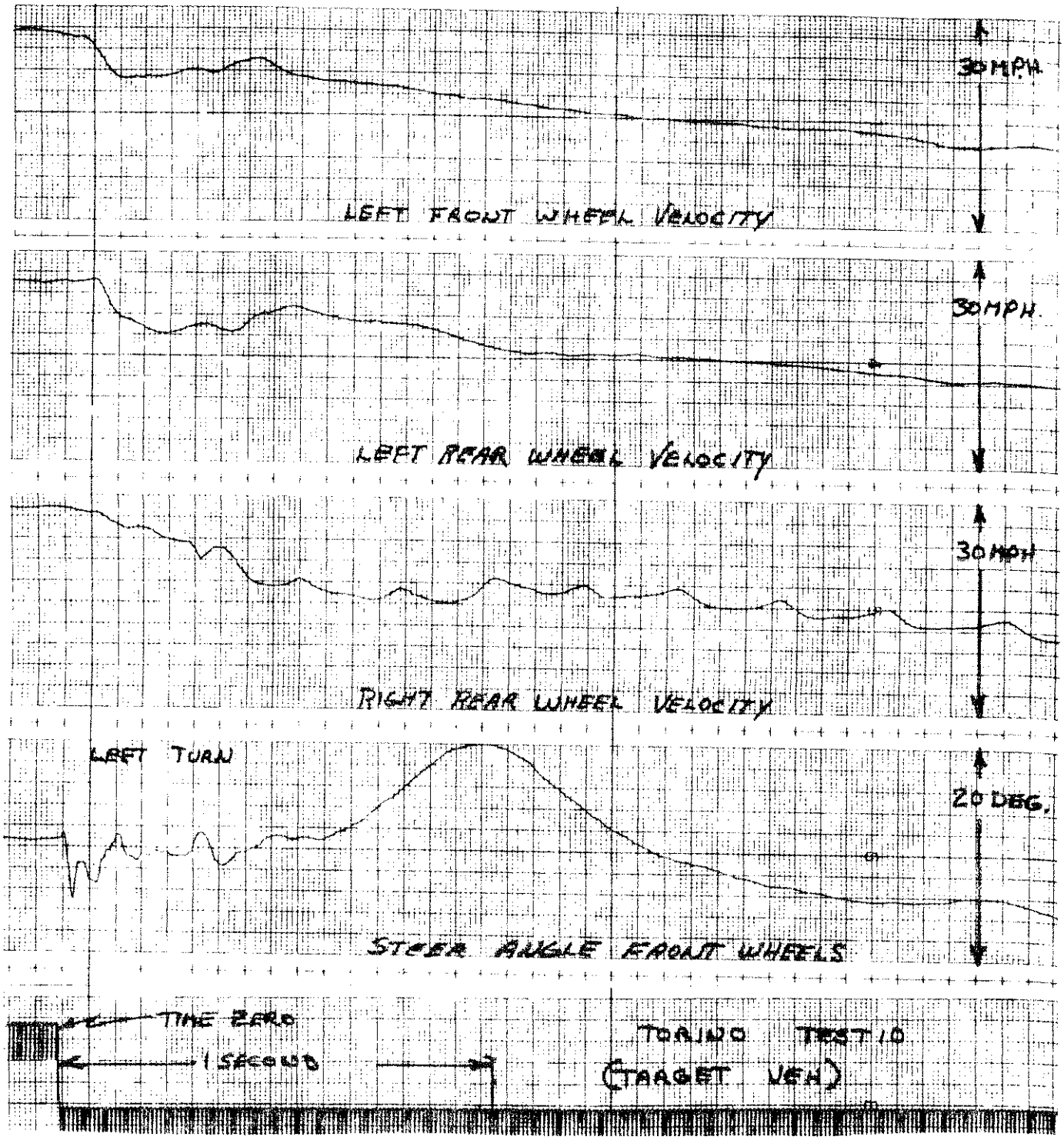


Figure 16-17 TEST NO. 10
CAR NO. 2 WHEEL RESPONSES

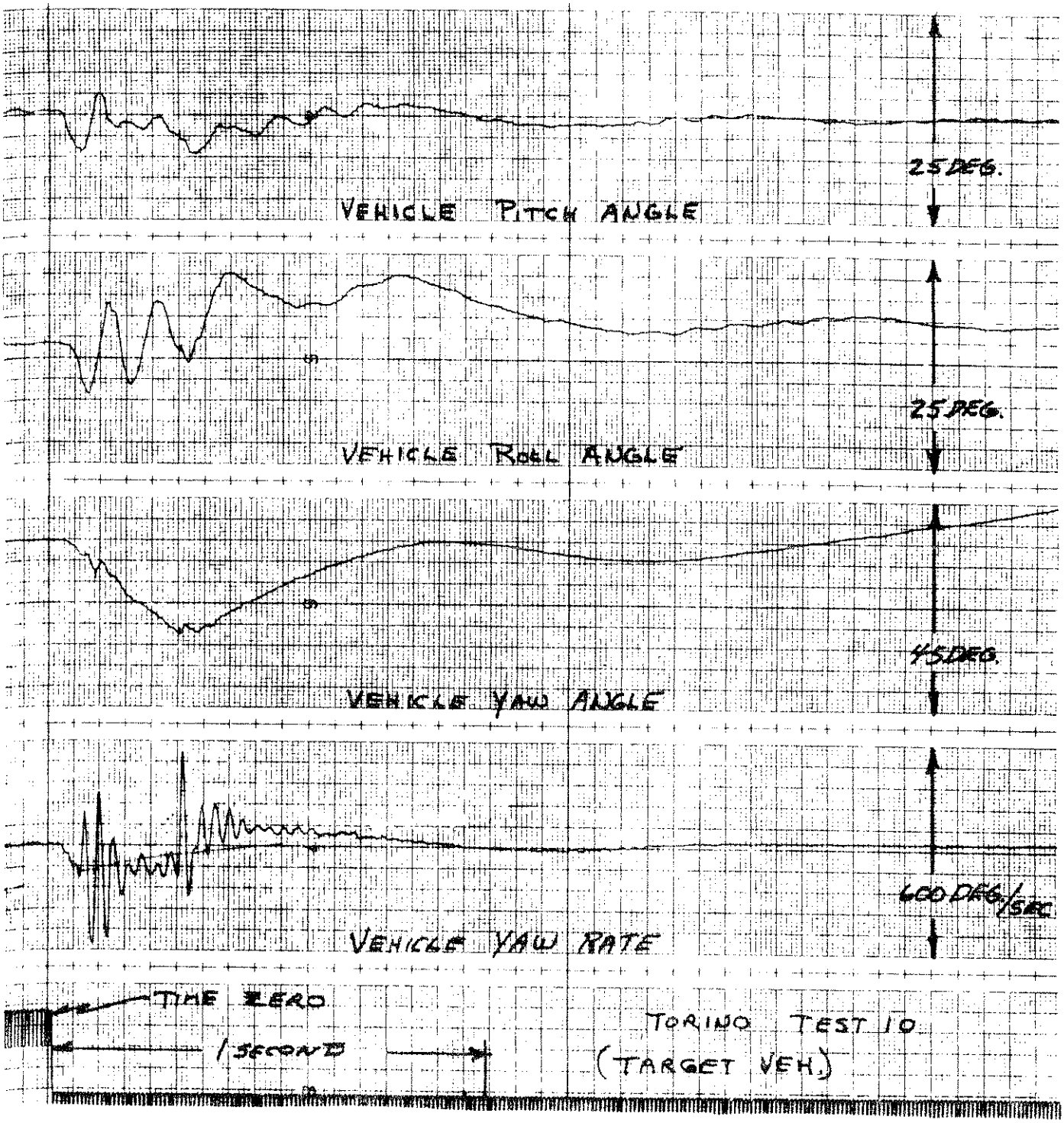


Figure 16-18 TEST NO. 10
CAR NO. 2 VEHICLE ATTITUDE

RICSAC TEST NO. 10

VEHICLE RESPONSES

CAR NO. 1 HONDA

DATA PLOTS

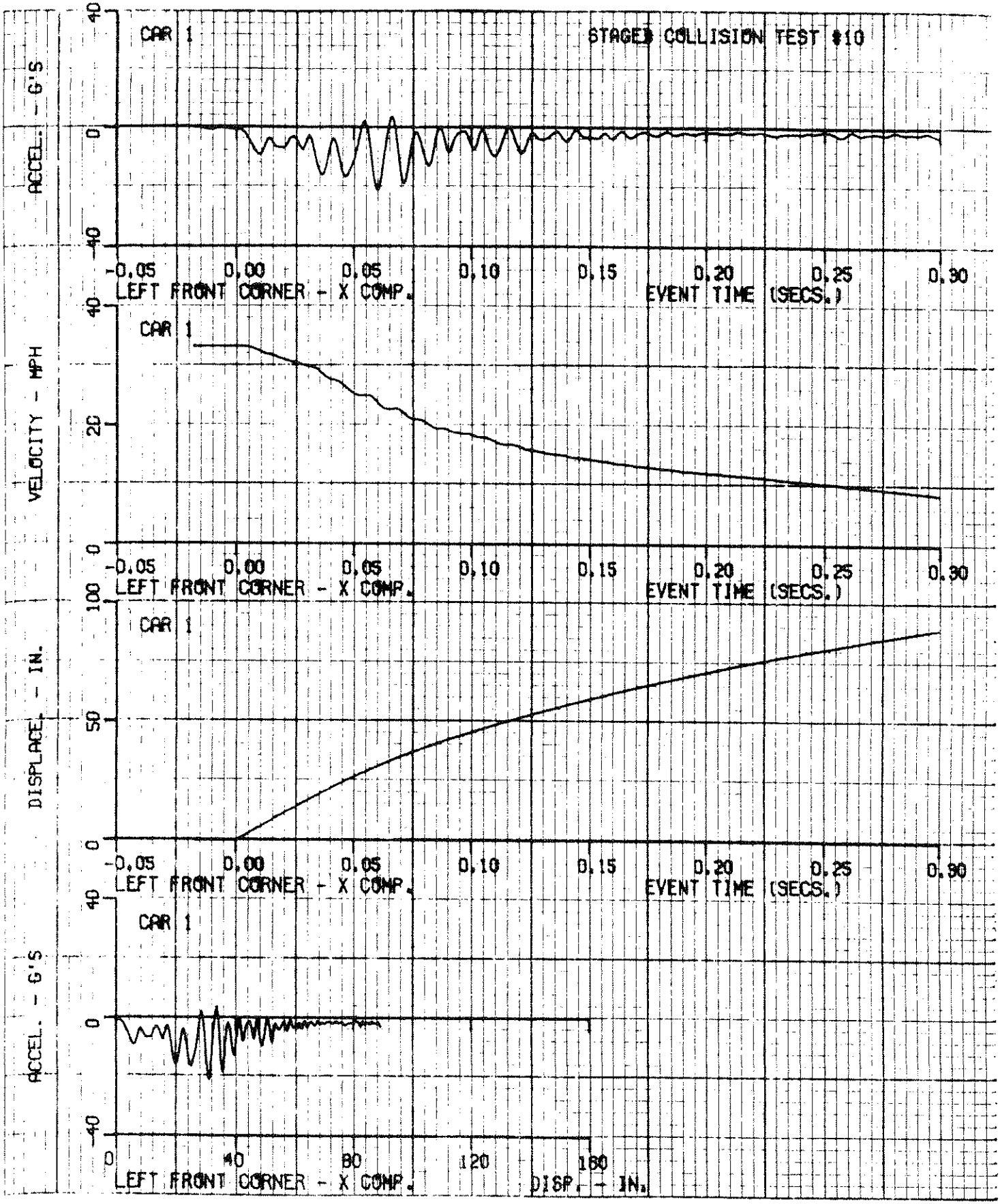
ACCELERATION TIME HISTORIES

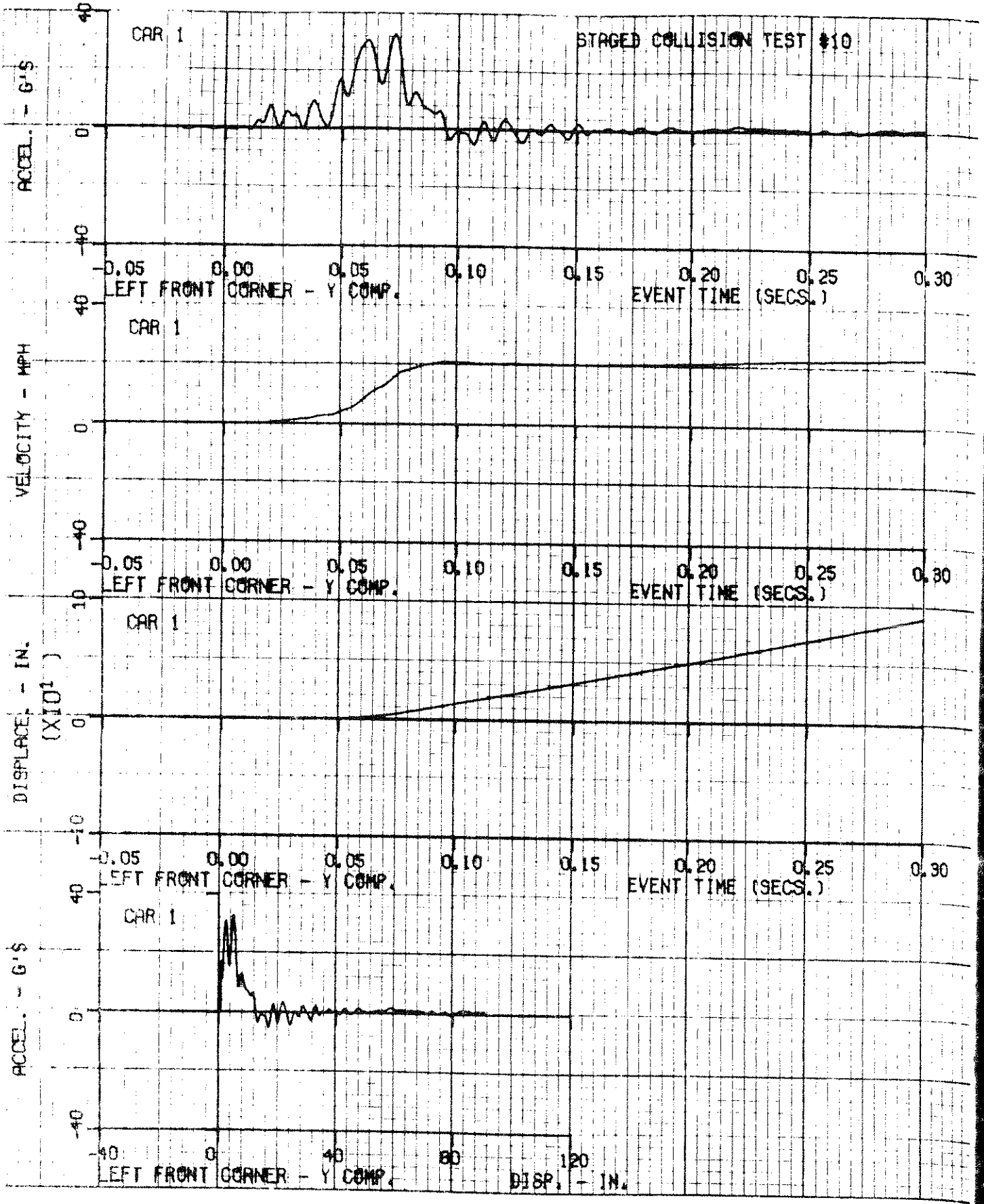
VELOCITY TIME HISTORIES

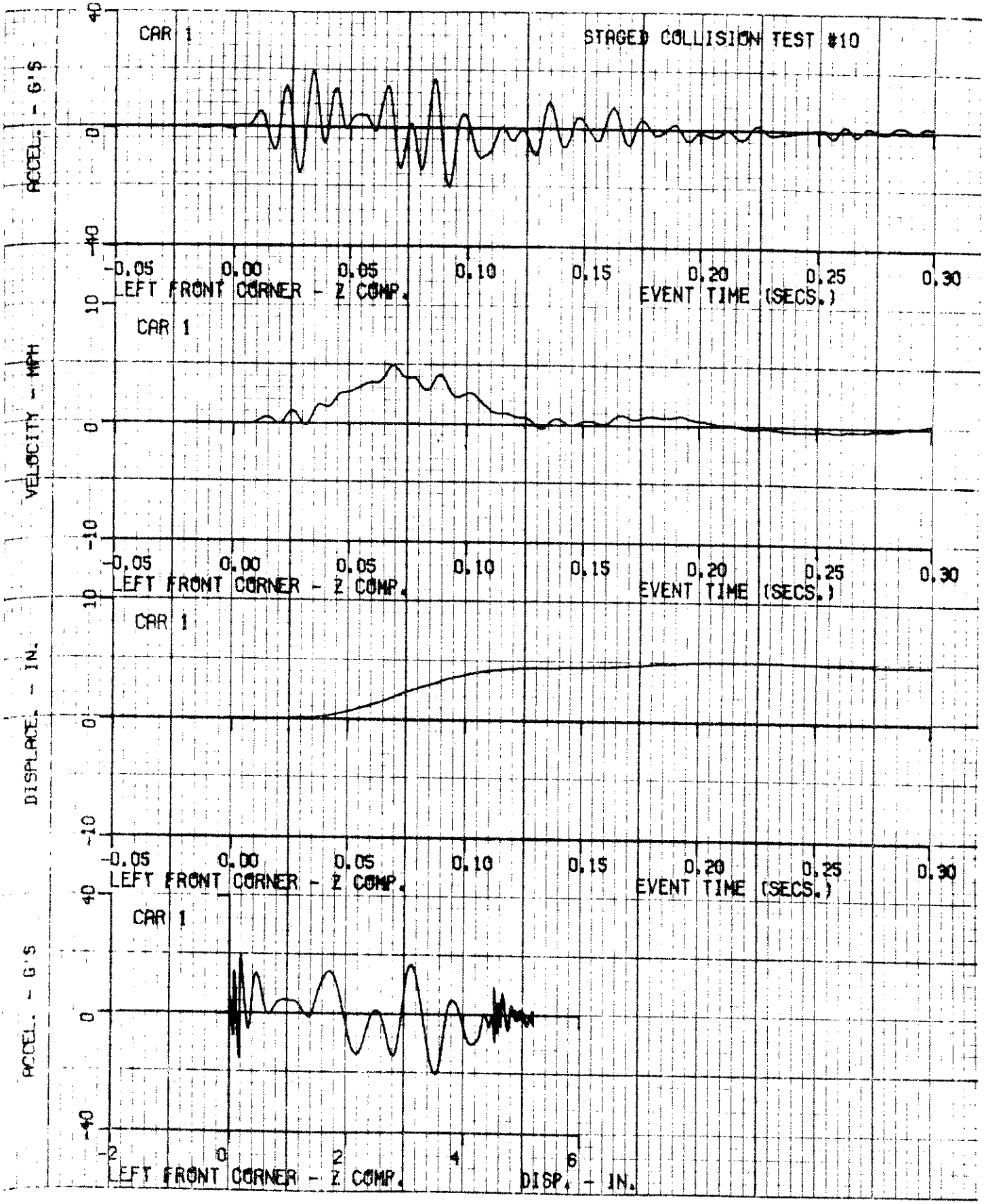
DISPLACEMENT TIME HISTORIES

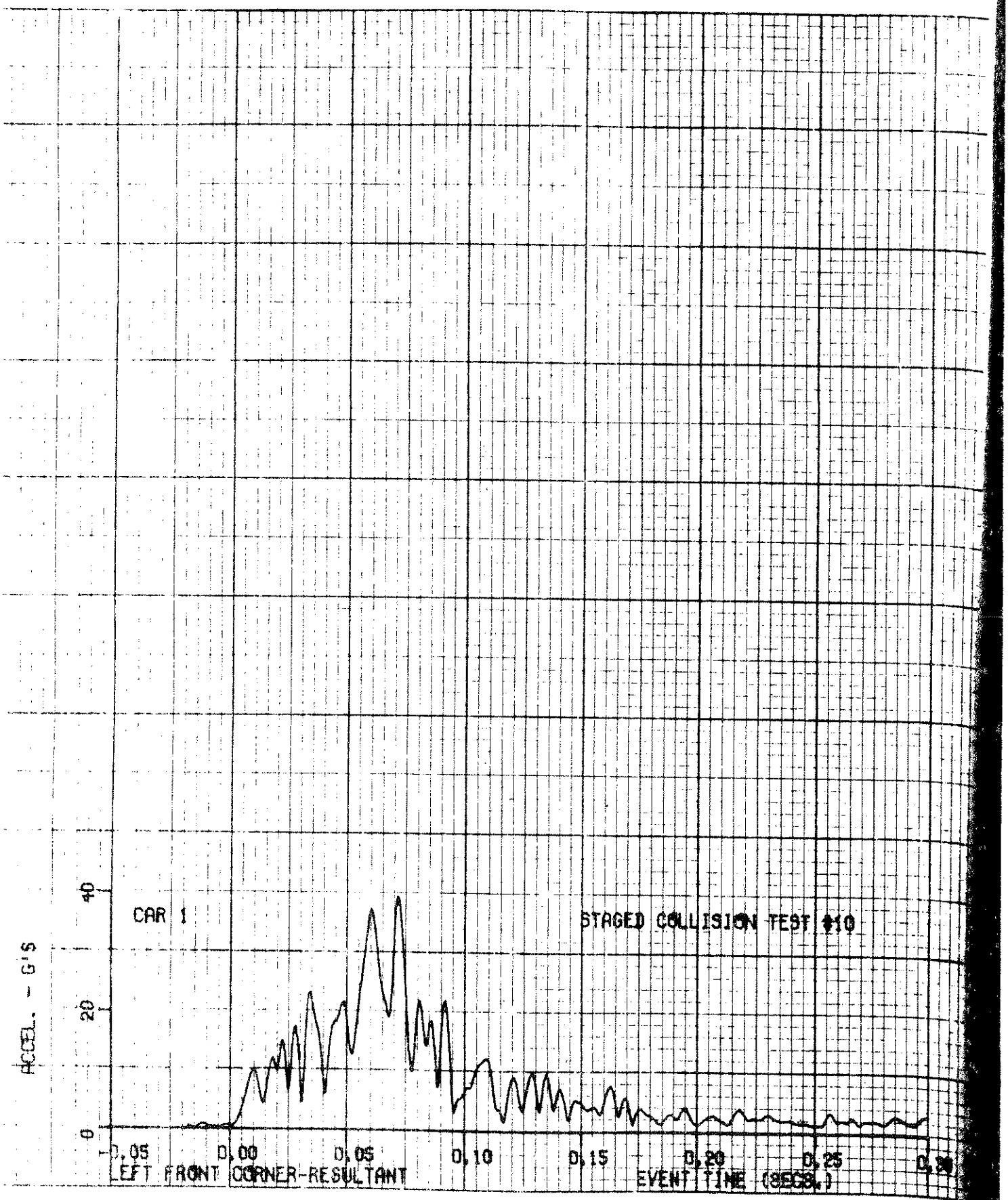
ACCELERATION VS DISPLACEMENT

FILTER CLASS 60

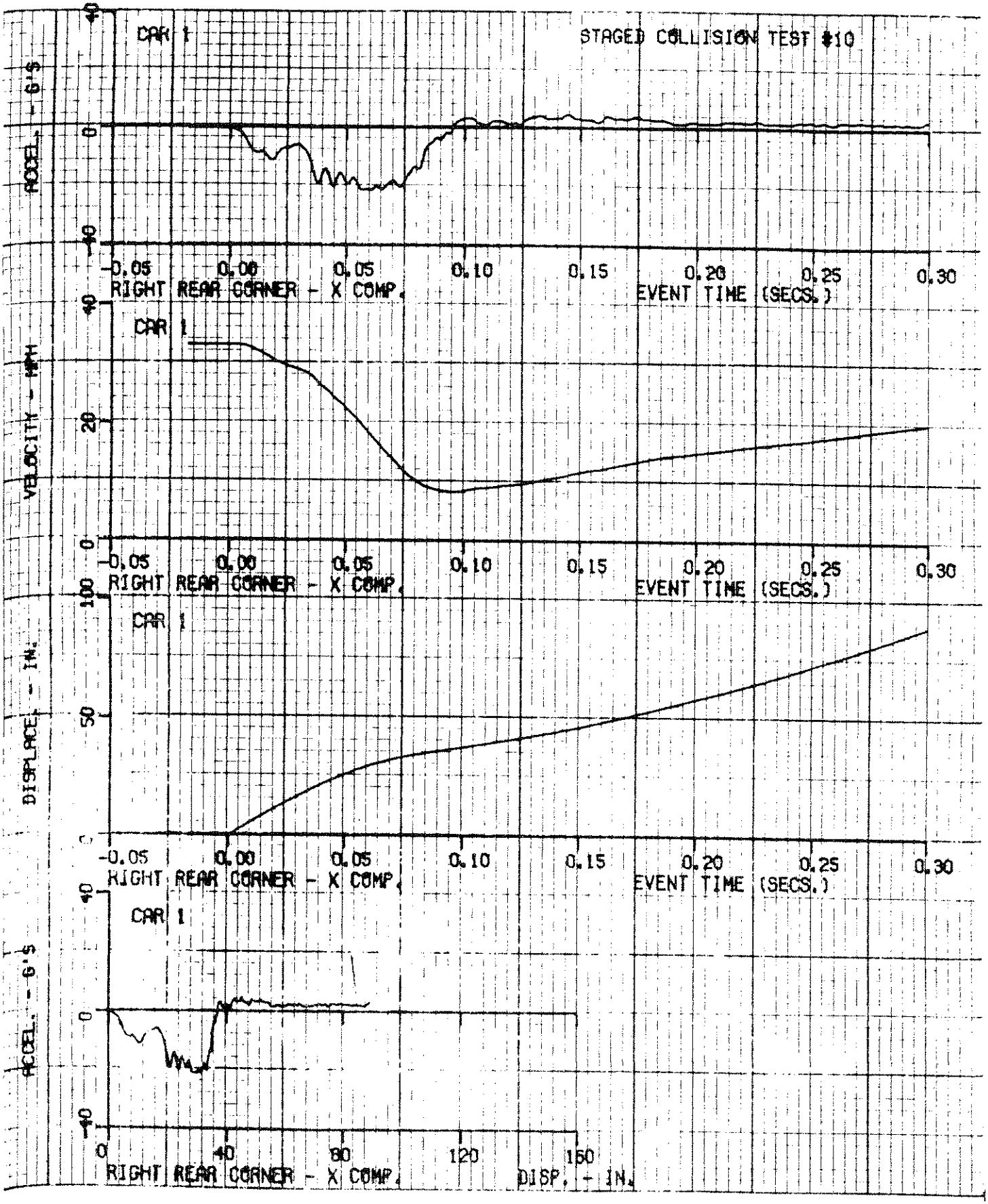

CAR 1
STAGED COLLISION TEST #10
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
100
50
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
0
40
80
120
160
LEFT FRONT CORNER - X COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #10
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
-40
0
40
80
120
LEFT FRONT CORNER - Y COMP.
DISP. - IN.

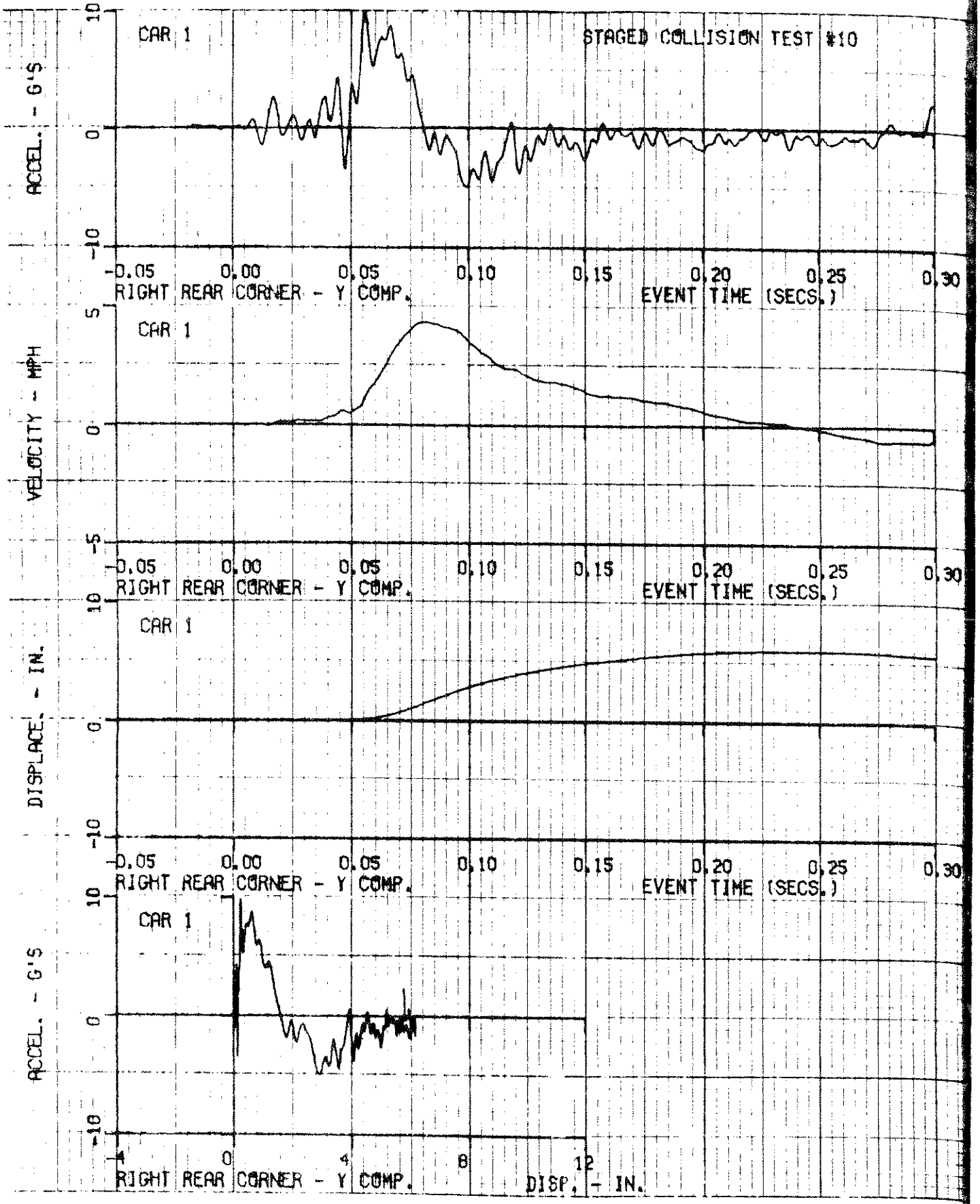

CAR 1
STAGED COLLISION TEST #10
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
10
0
-10
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
10
0
-10
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
-2
0
2
4
6
LEFT FRONT CORNER - Z COMP.
DISP. - IN.

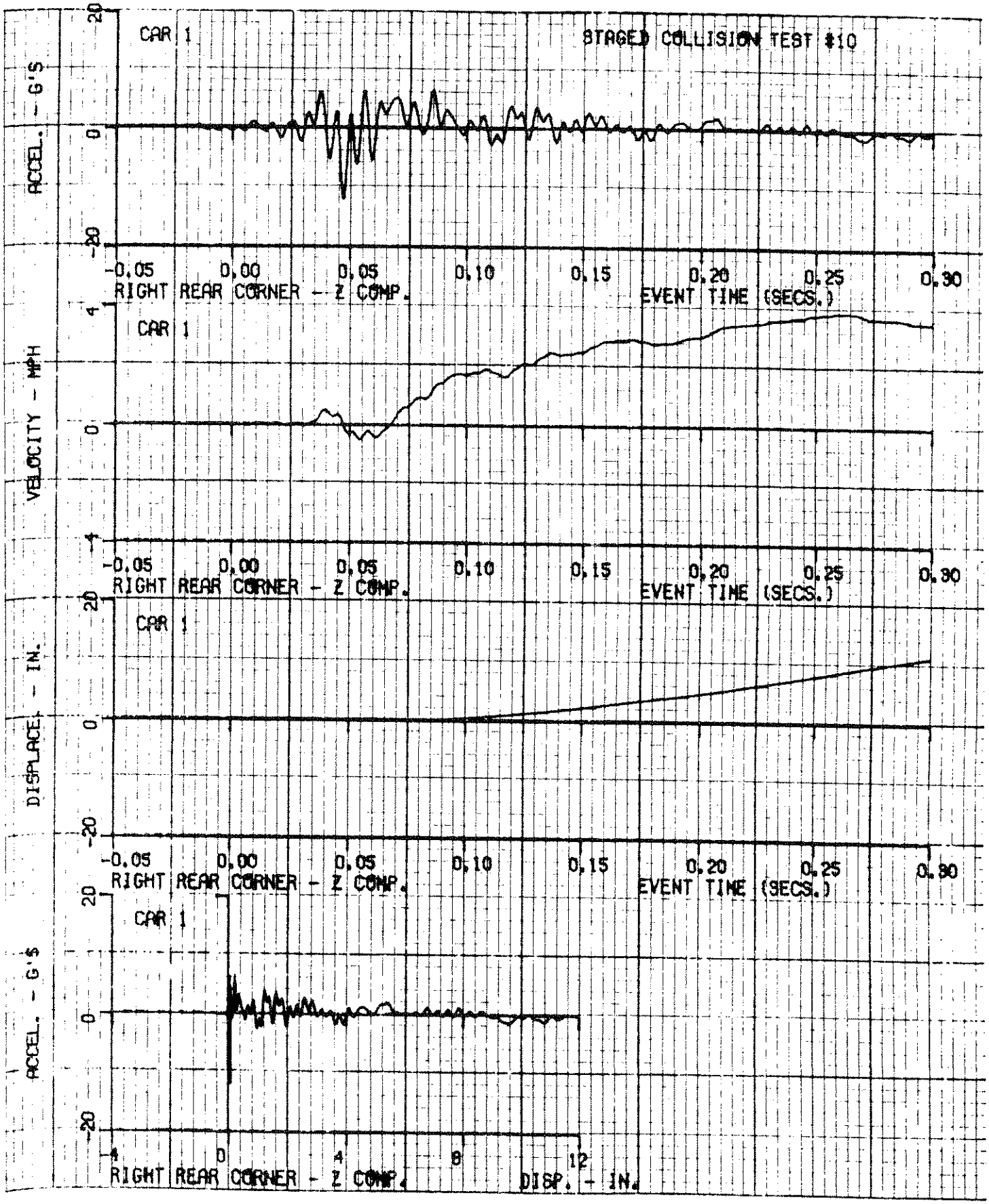

CAR 1
STAGED COLLISION TEST #10
ACCEL. - G'S
0
20
40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)

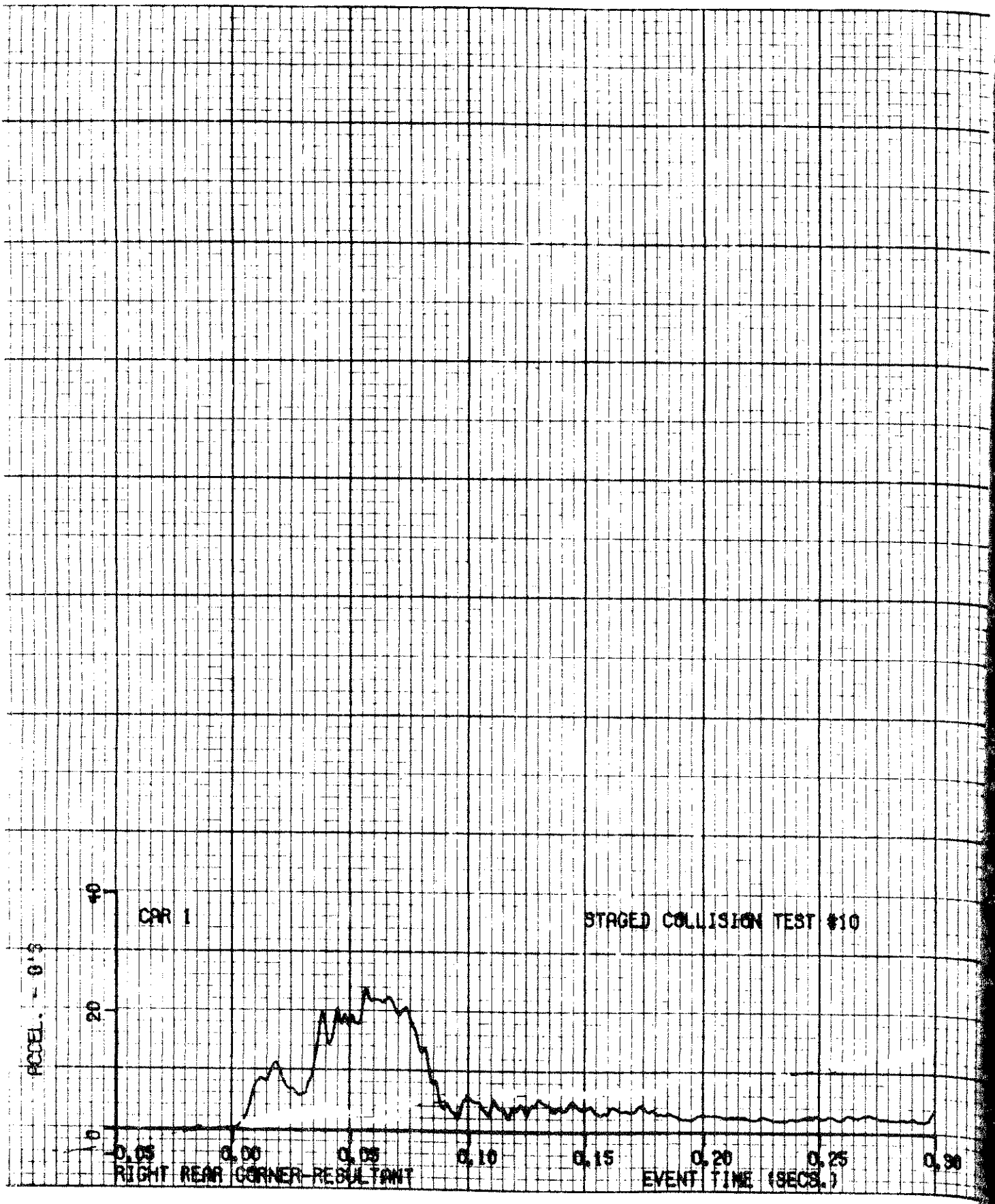
ZQ-6057-V-5

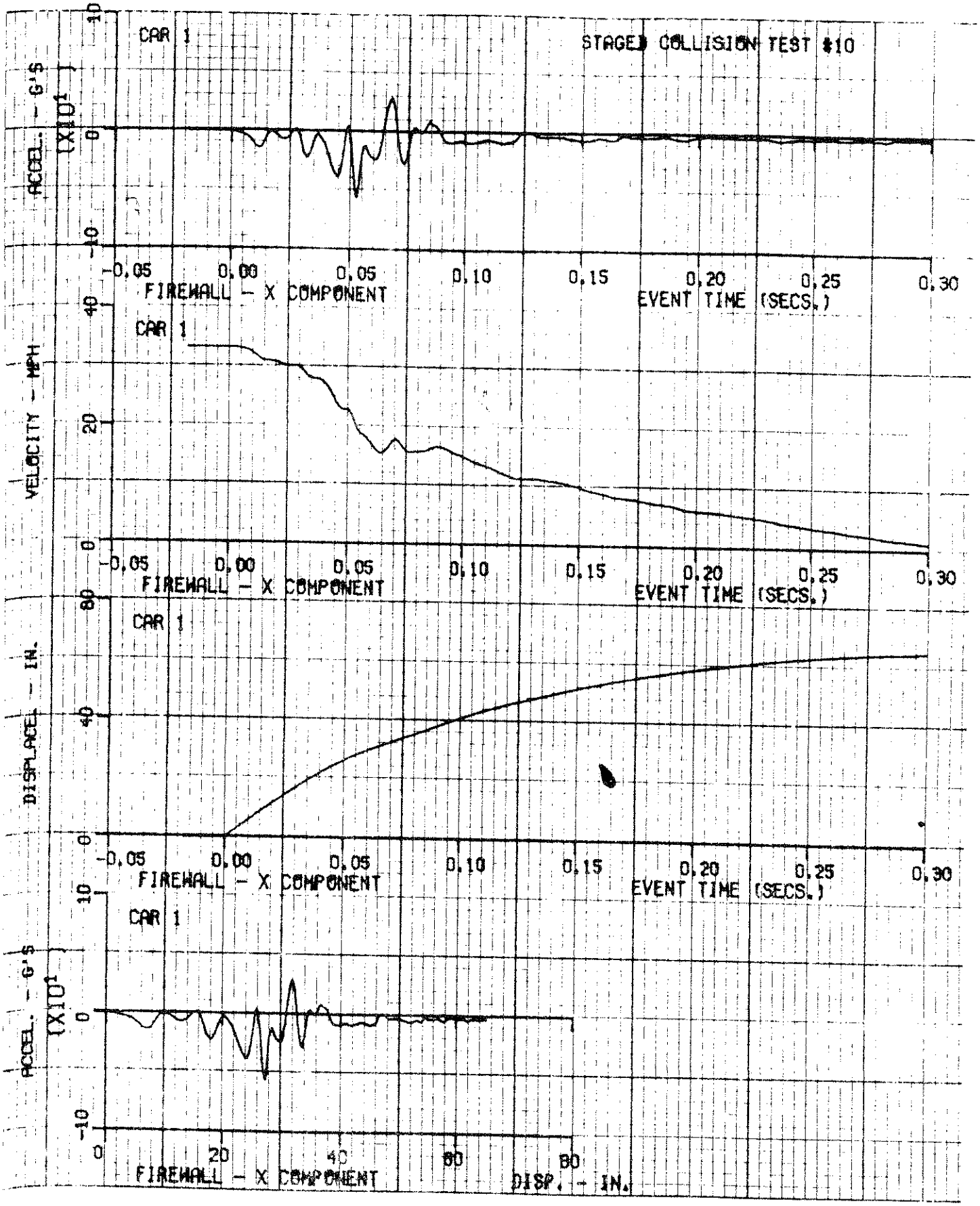

CAR 1
STAGED COLLISION TEST #10
ACCEL. - G'S
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
VELOCITY - MPH
DISPLACE. - IN.
DISP. - IN.

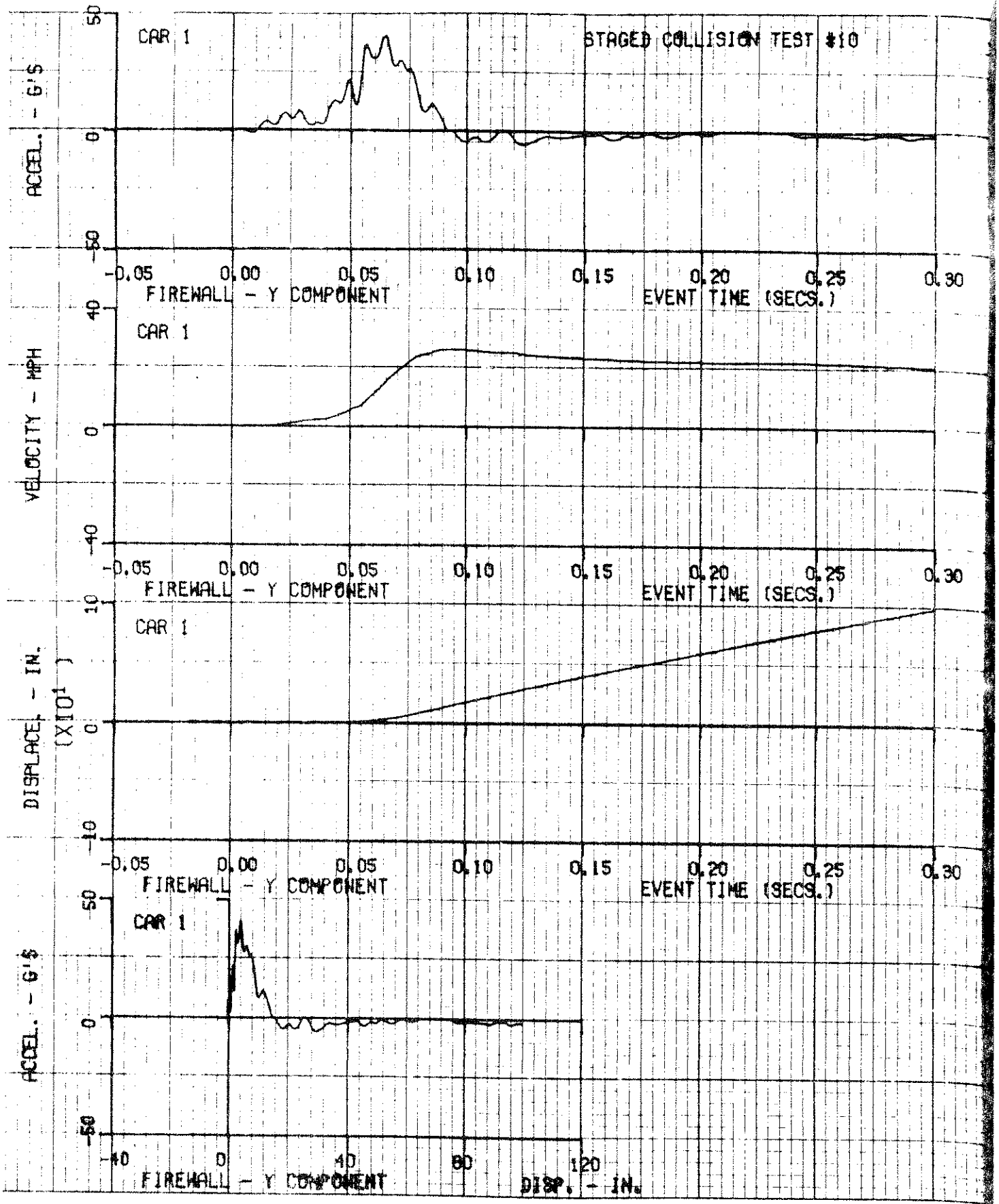
ZQ-6057-V-5

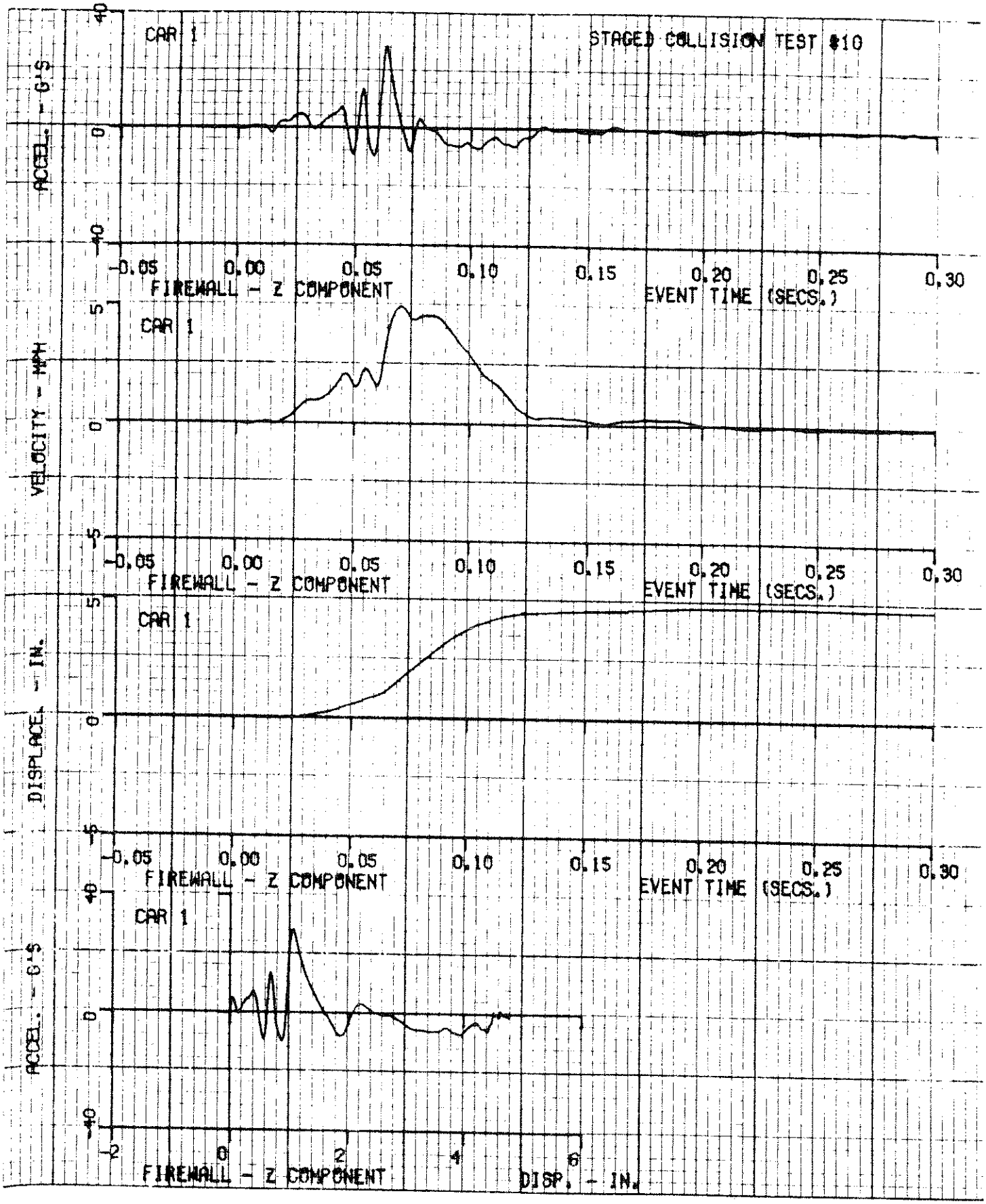

CAR 1
STAGED COLLISION TEST #10
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
10
0
-10
-0.05
0.00
0.05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

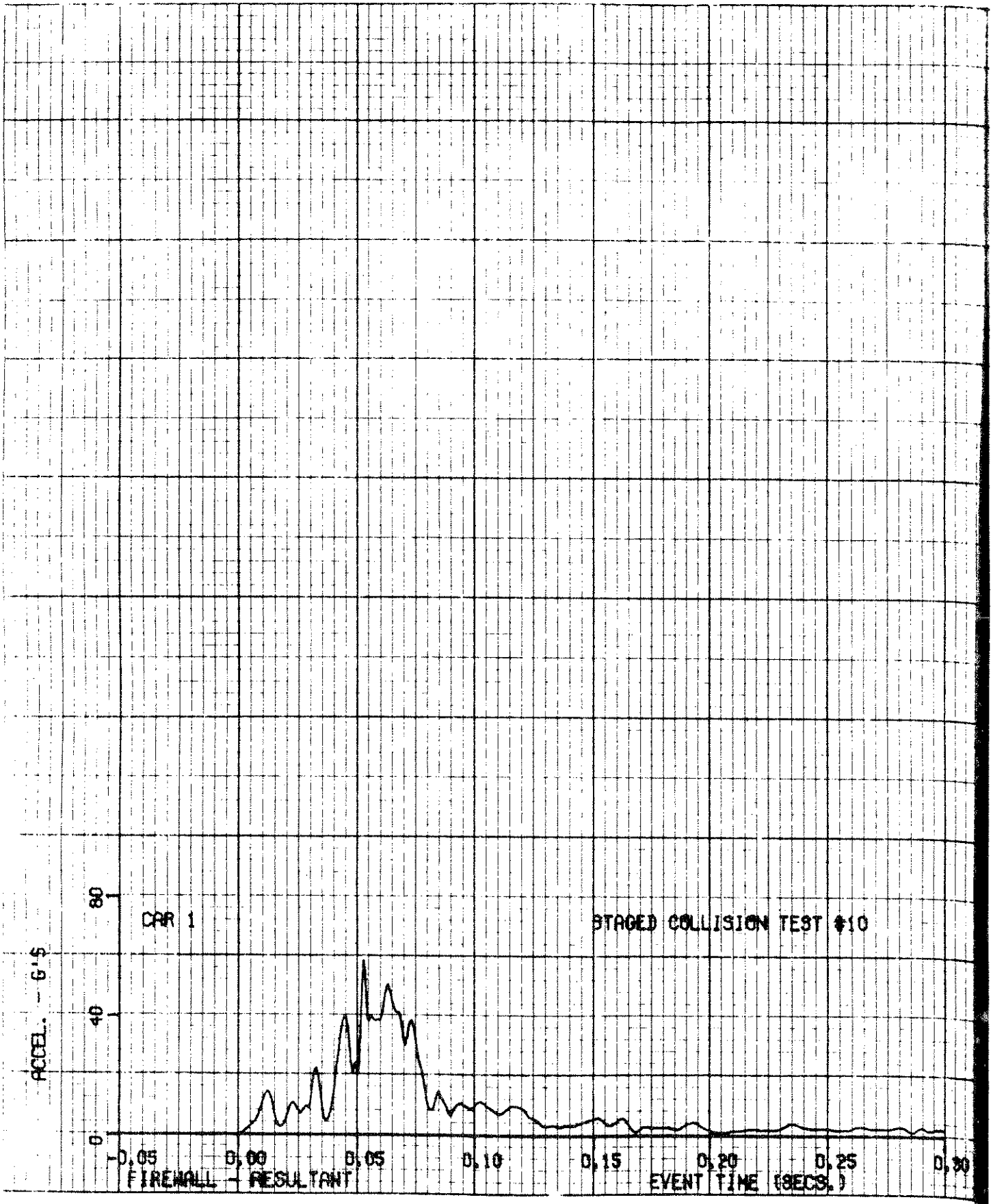

CAR 1
STAGED COLLISION TEST #10
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
-4
0
4
8
12
RIGHT REAR CORNER - Z COMP.
DISP. - IN.

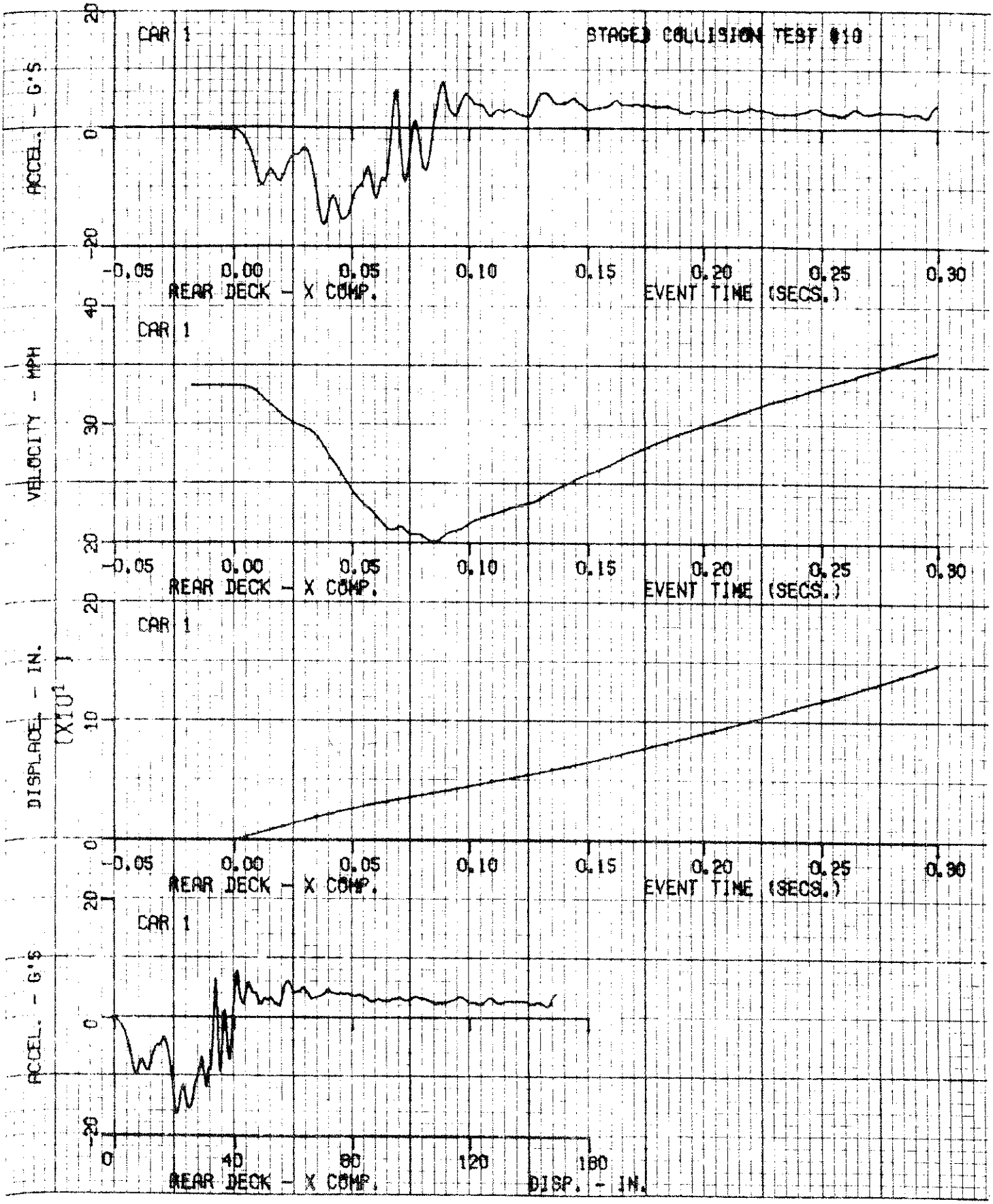

CAR 1
STAGED COLLISION TEST #10
ACCEL. - G'S
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER-RESULTANT
EVENT TIME (SECS.)

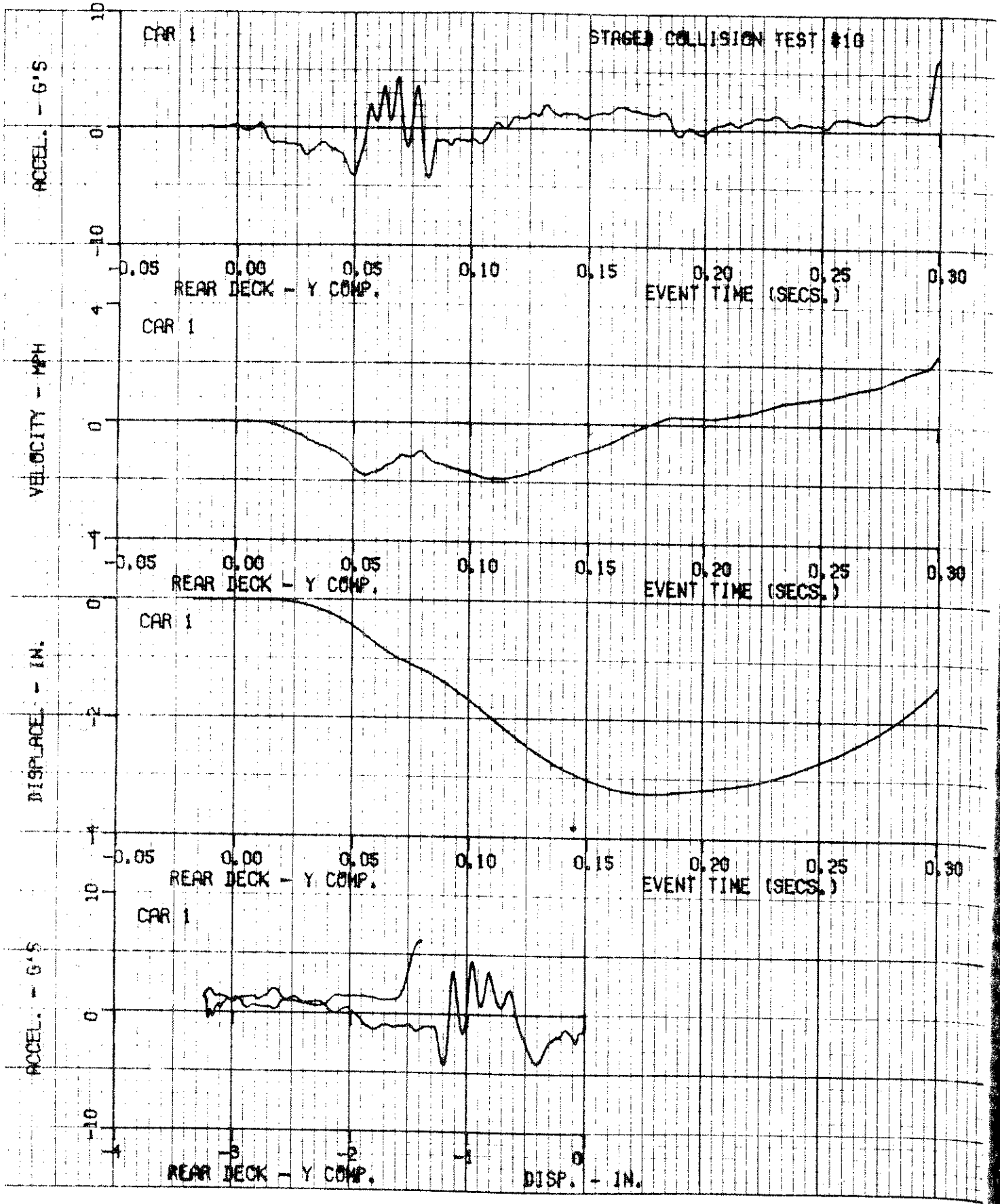

STAGED COLLISION TEST #10
CAR 1
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACEL - IN.
80
40
0
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S (X10¹)
10
0
-10
0
20
40
60
80
FIREWALL - X COMPONENT
DISP. - IN.

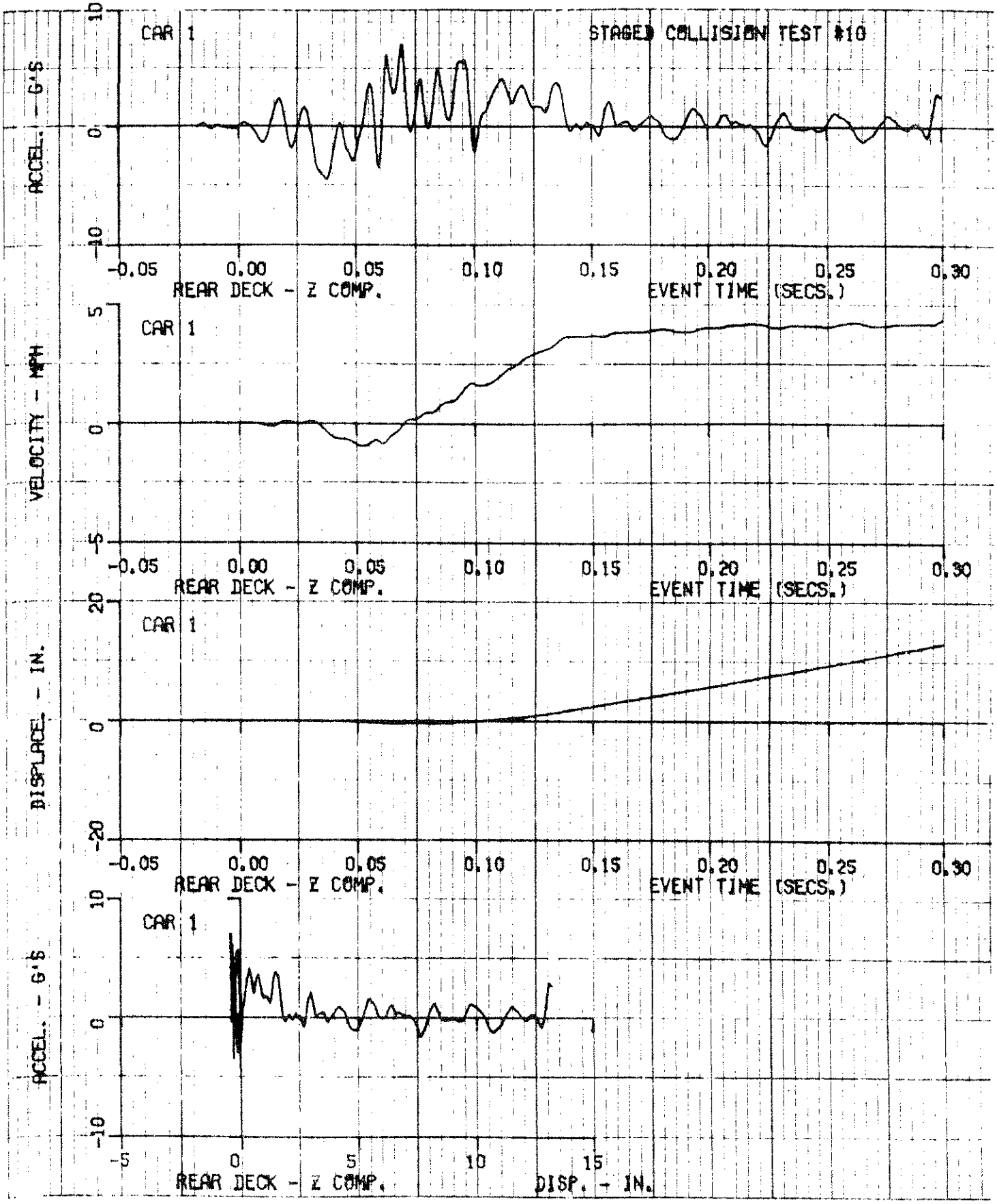

CAR 1
STAGED COLLISION TEST #10
ACCEL. - G'S
50
0
-50
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
0
-40
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN. (X10¹)
10
0
-10
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
50
0
-50
-40
0
40
80
120
FIREWALL - Y COMPONENT
DISP. - IN.

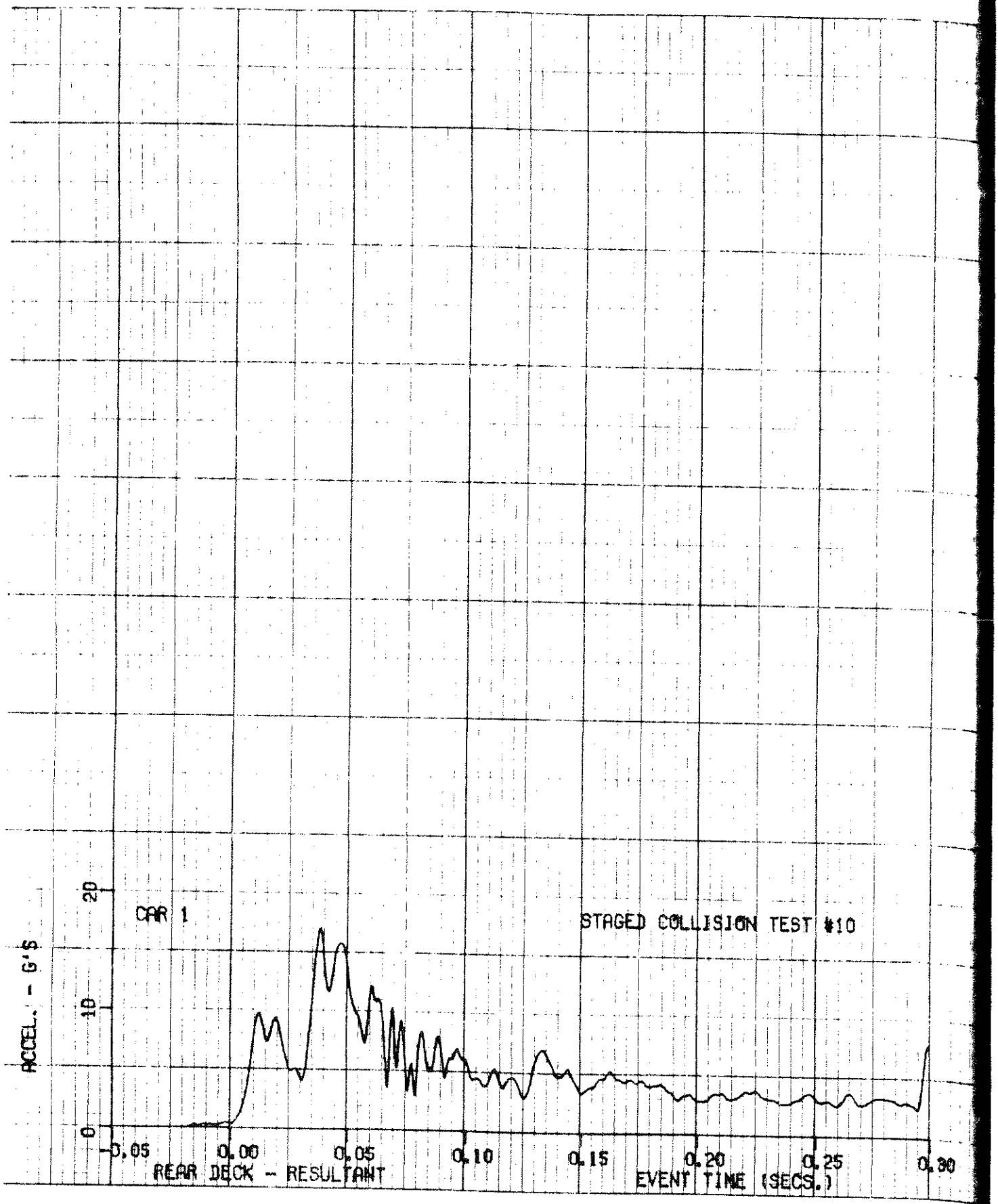

STAGED COLLISION TEST #10
CAR 1
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
5
0
-5
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
5
0
-5
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
-2
0
2
4
6
FIREWALL - Z COMPONENT
DISP. - IN.


CAR 1
STAGED COLLISION TEST #10
ACCEL. - G'S
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - RESULTANT
EVENT TIME (SECS.)

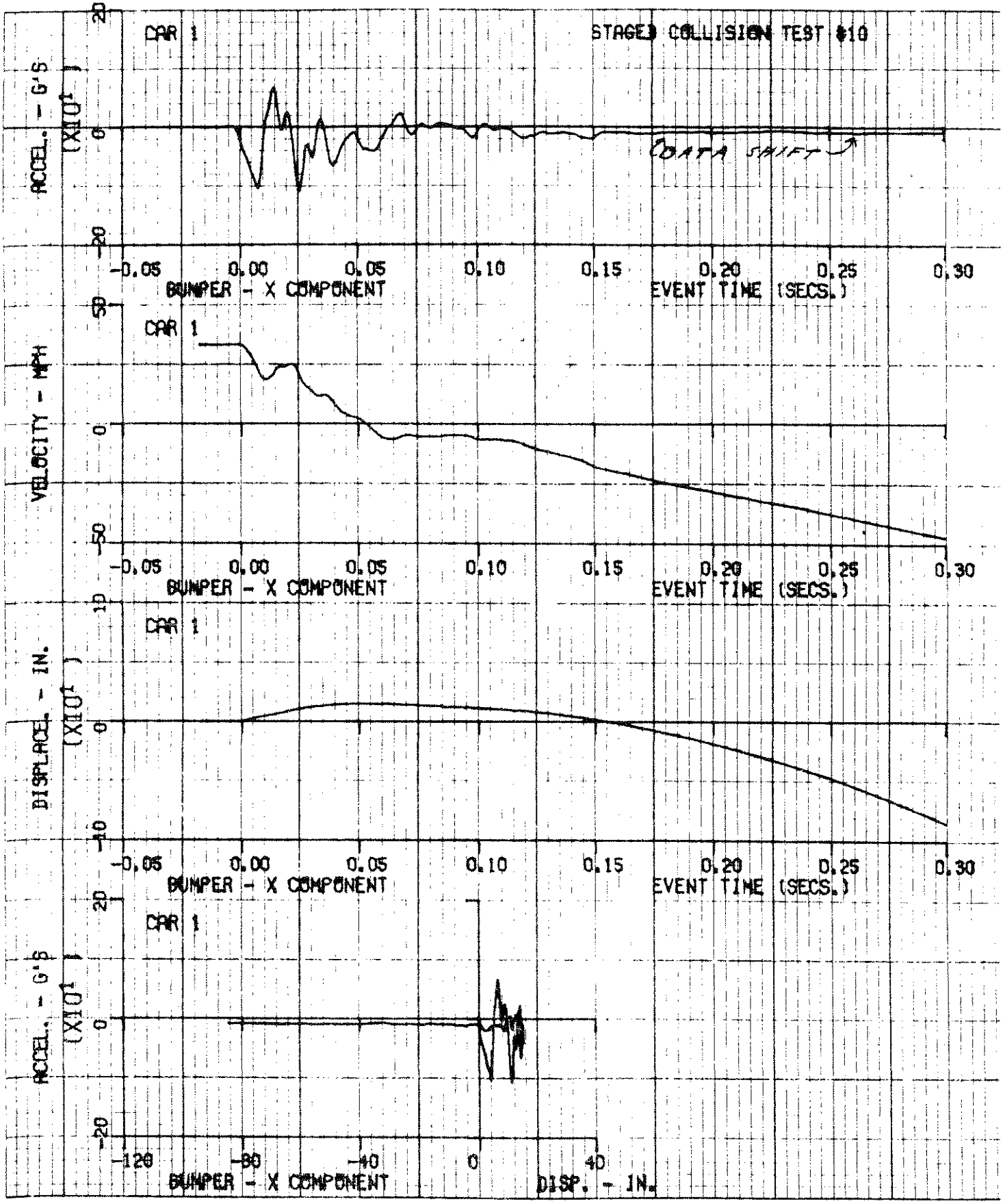

STAGED COLLISION TEST #10
CAR 1
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
30
20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
(X*10^1)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
40
80
120
160
REAR DECK - X COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #10
ACCEL. - G'S
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
VELOCITY - MPH
4
0
-4
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
0
-2
-4
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
-4
-3
-2
-1
0
REAR DECK - Y COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #10
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
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 1
DISPLACE - IN.
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 1
ACCEL. - G'S
10
0
-10
-5
0
5
10
15
REAR DECK - Z COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #10
ACCEL. - G'S
0
10
20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - RESULTANT
EVENT TIME (SECS.)

ZQ-6057-V-5


CAR 1
STAGED COLLISION TEST #10
ACCEL. - G'S (X10¹)
DATA SHIFT
BUMPER - X COMPONENT
EVENT TIME (SECS.)
VELOCITY - MPH
DISPLACE. - IN. (X10¹)
ACCEL. - G'S (X10¹)
DISP. - IN.

RICSAC TEST NO. 10

VEHICLE RESPONSES

CAR NO. 2 FORD TORINO

DATA PLOTS

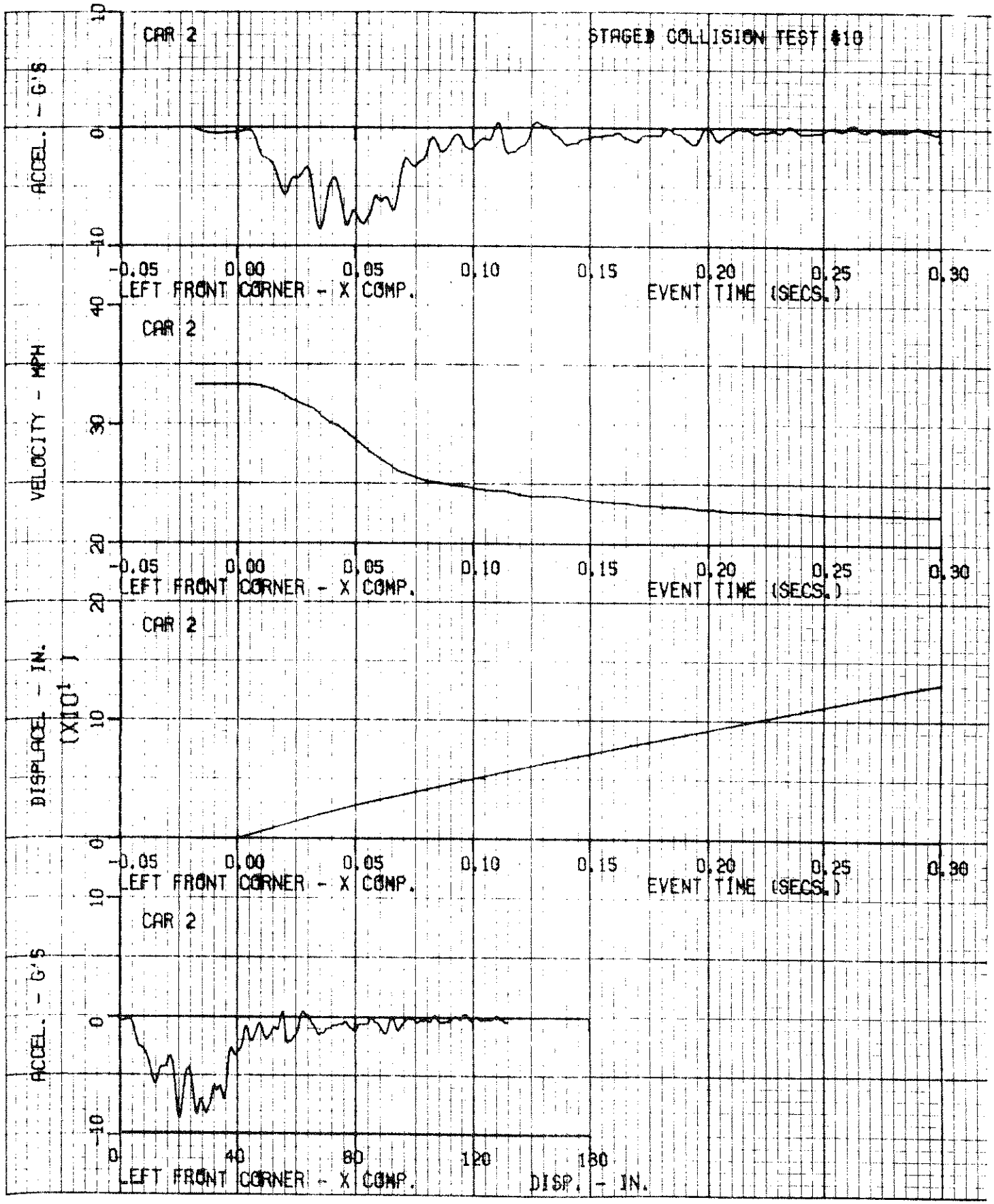
ACCELERATION TIME HISTORIES

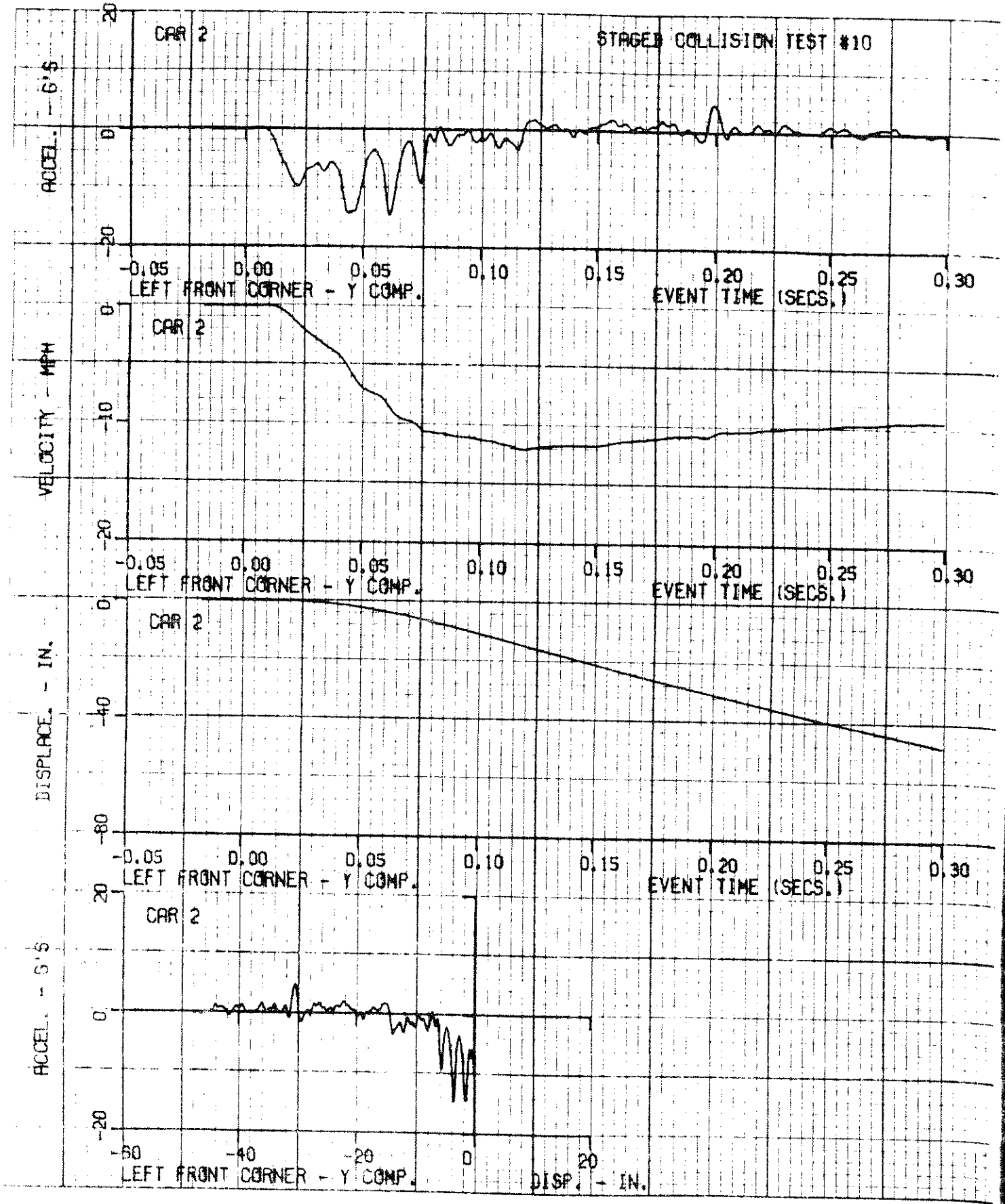
VELOCITY TIME HISTORIES

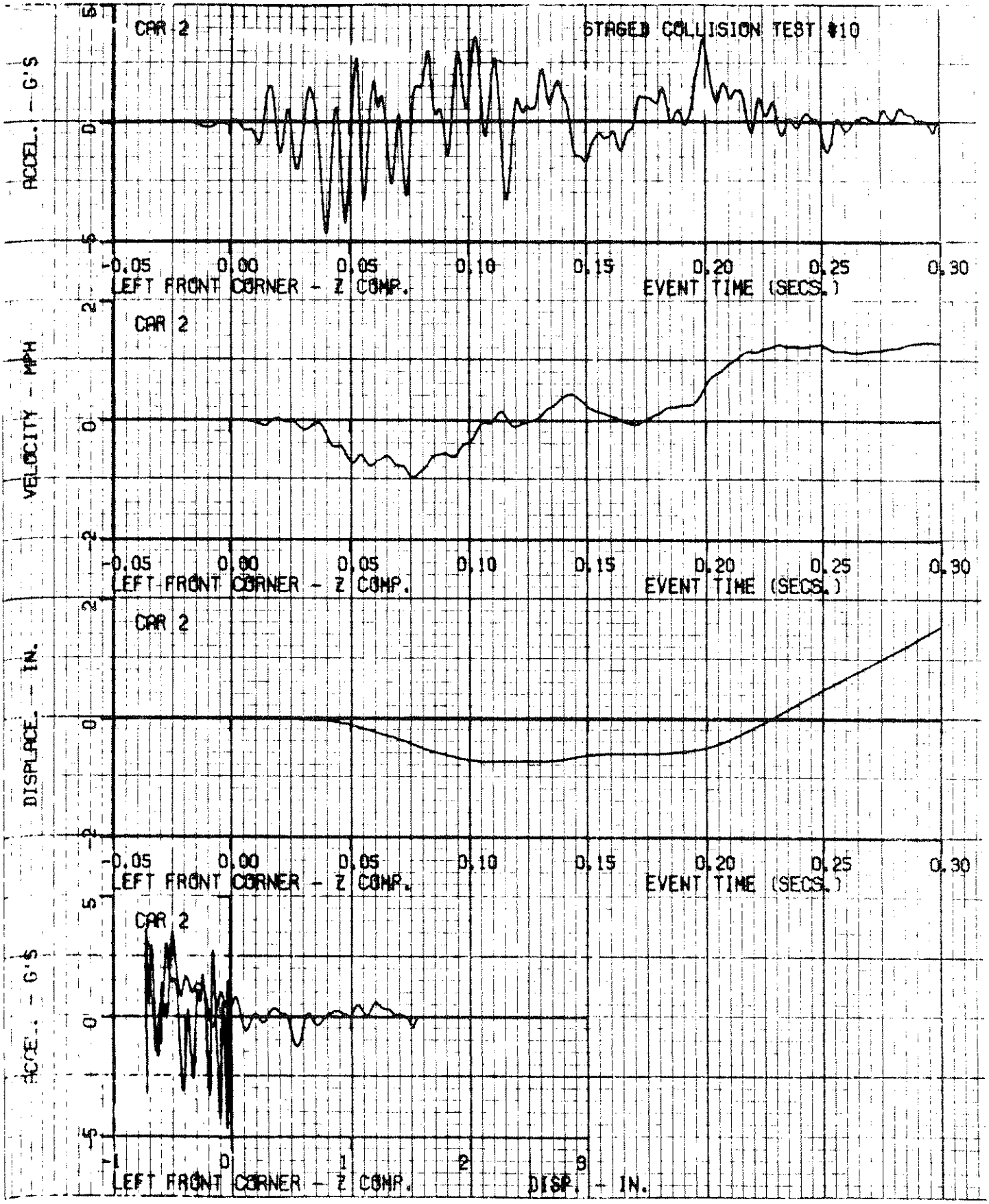
DISPLACEMENT TIME HISTORIES

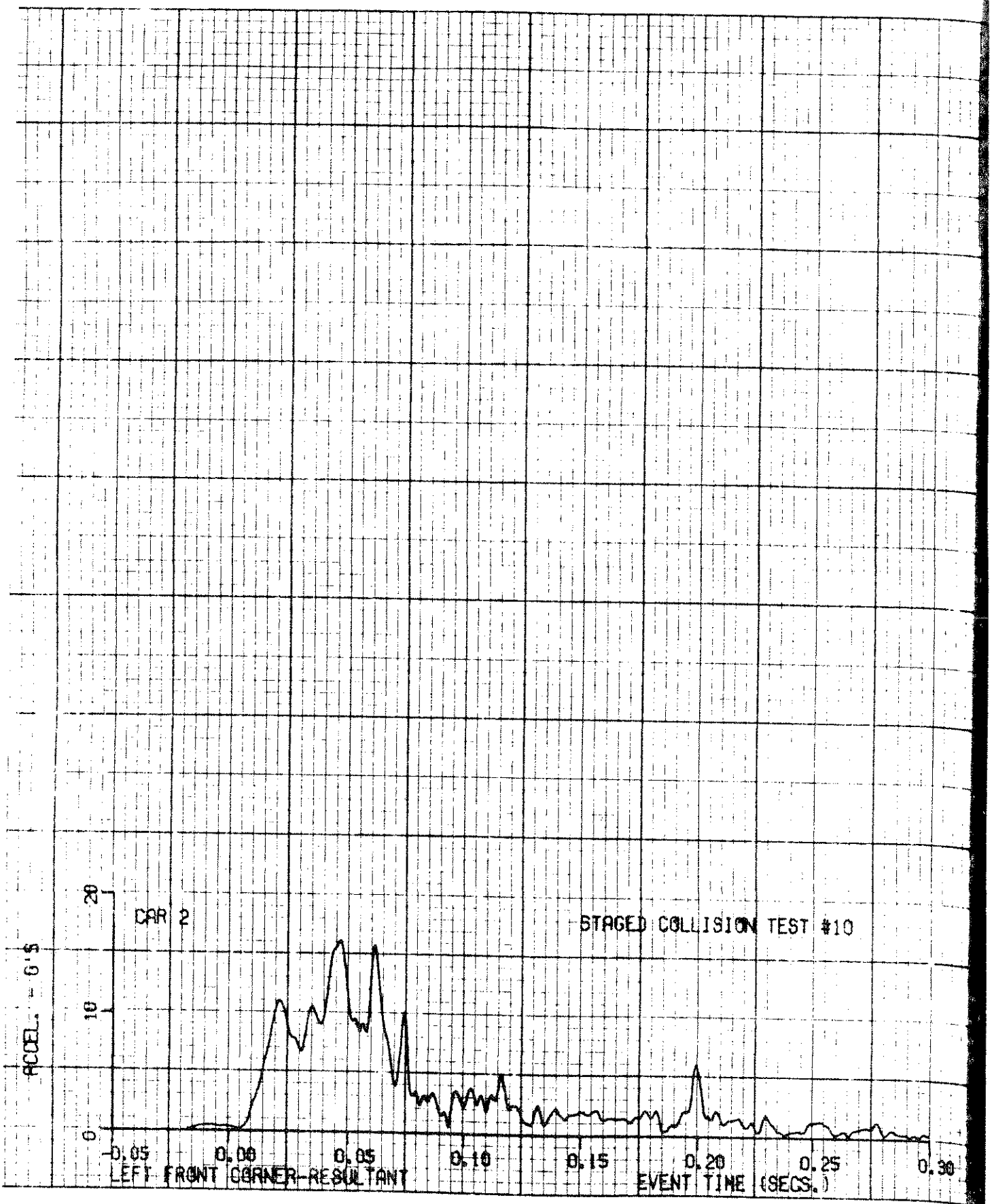
ACCELERATION VS DISPLACEMENT

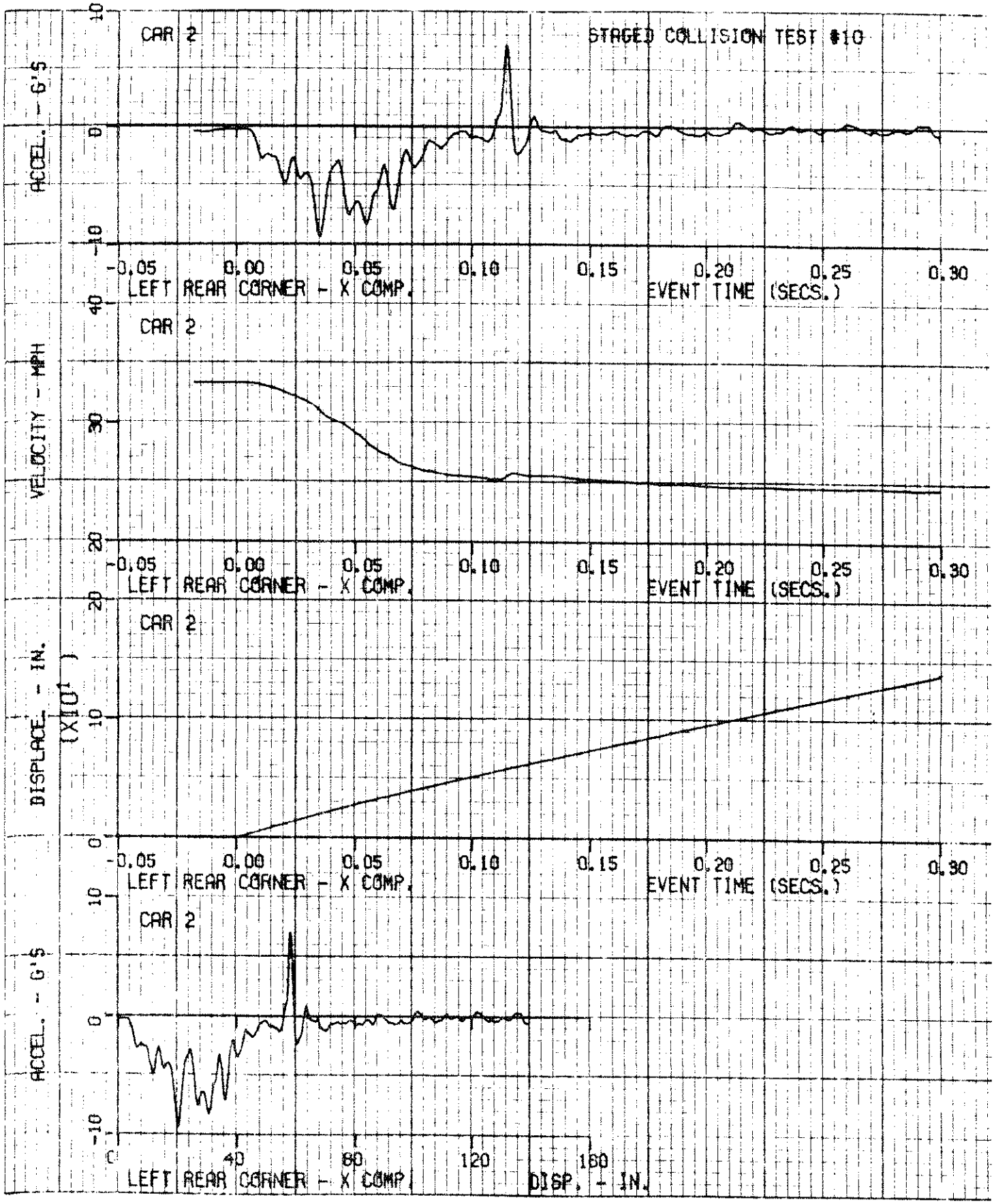
FILTER CLASS 60

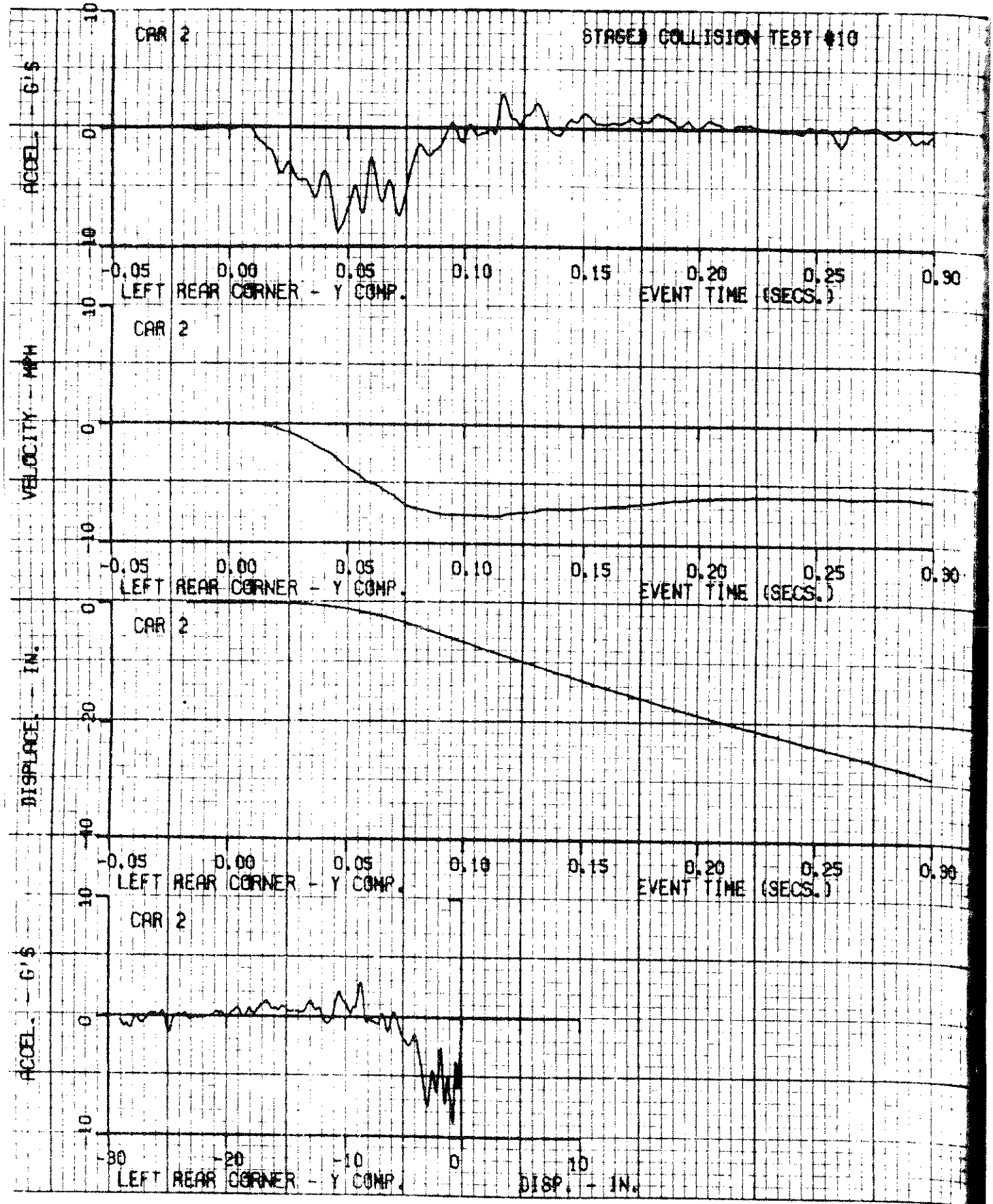

CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
30
20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
(X10¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT FRONT CORNER - X COMP.
DISP. - IN.

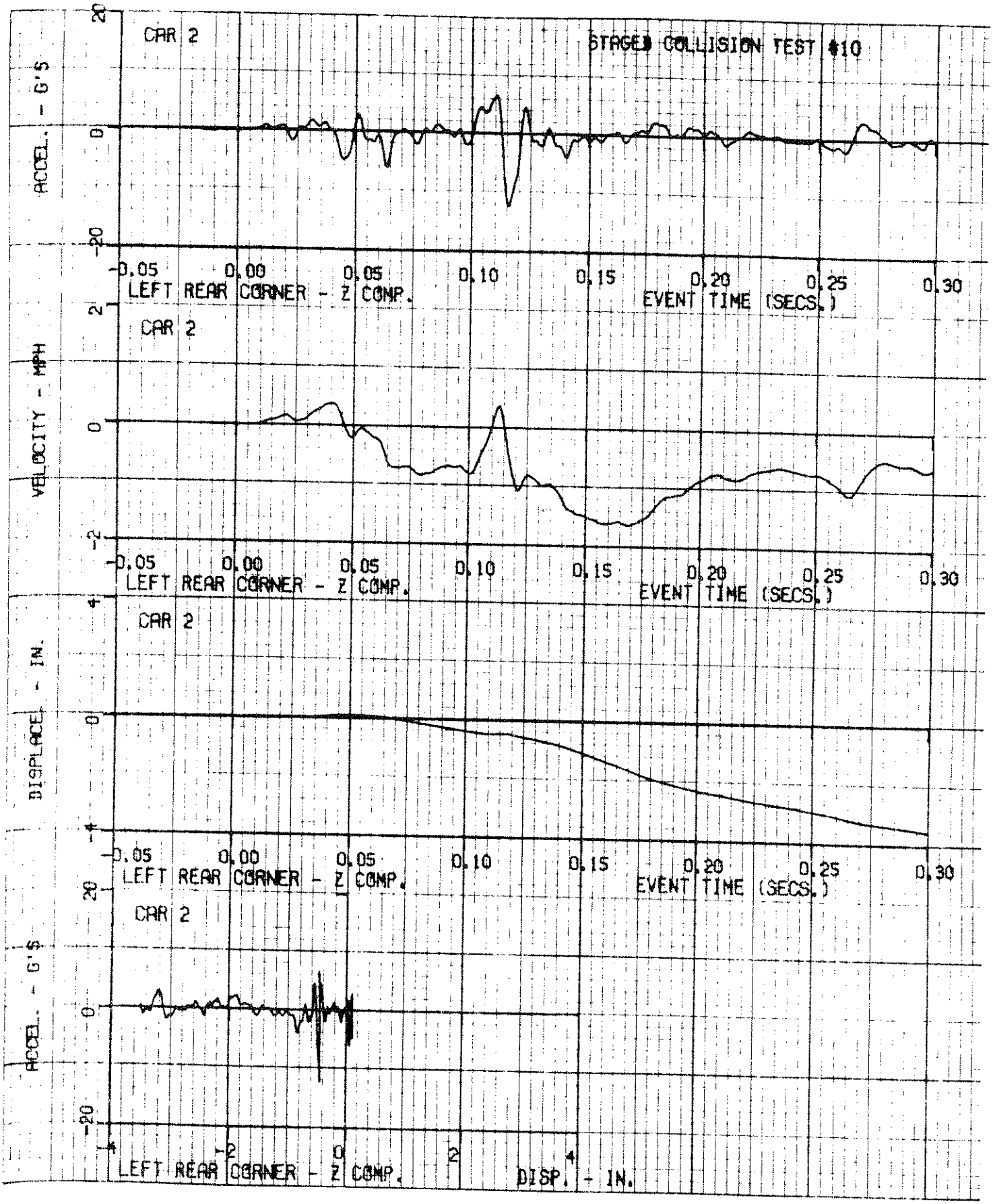

CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-10
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-60
-40
-20
0
20
LEFT FRONT CORNER - Y COMP.
DISP. - IN.

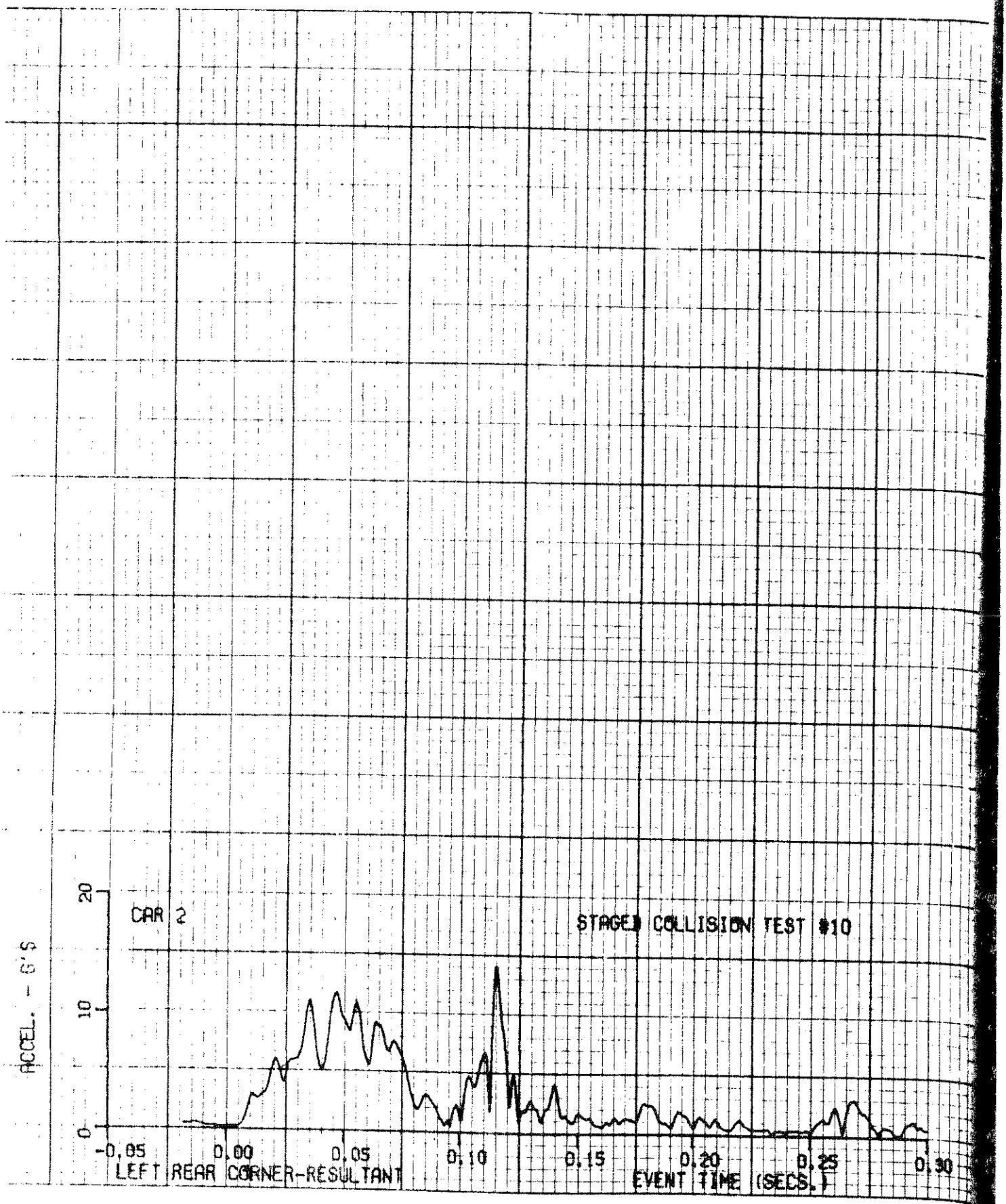

CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
2
0
-2
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
2
0
-2
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
5
0
-5
0
1
2
3
LEFT FRONT CORNER - Z COMP.
DISP. - IN.

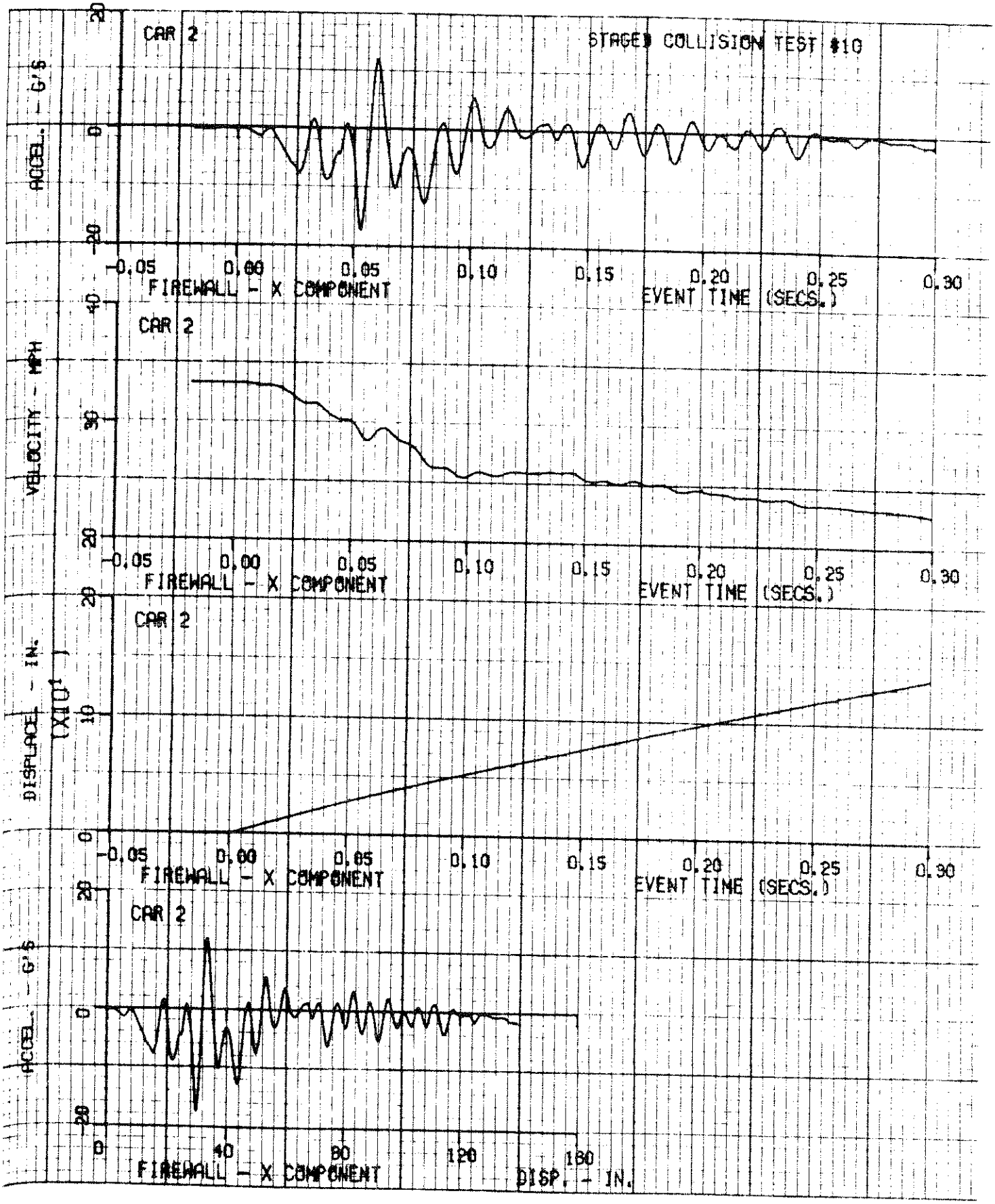

CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)

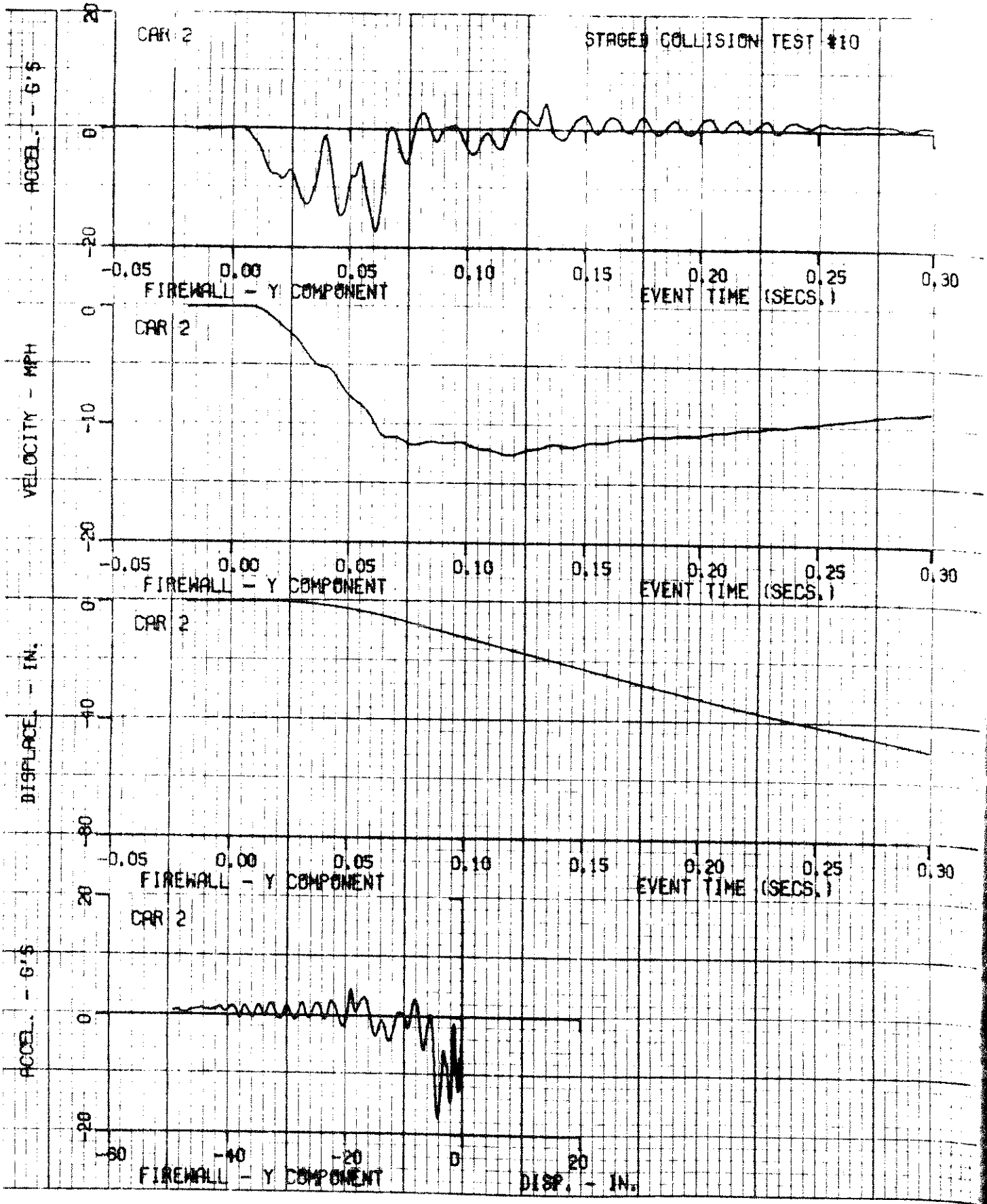

CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
30
20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
40
80
120
160
LEFT REAR CORNER - X COMP.
DISP. - IN.

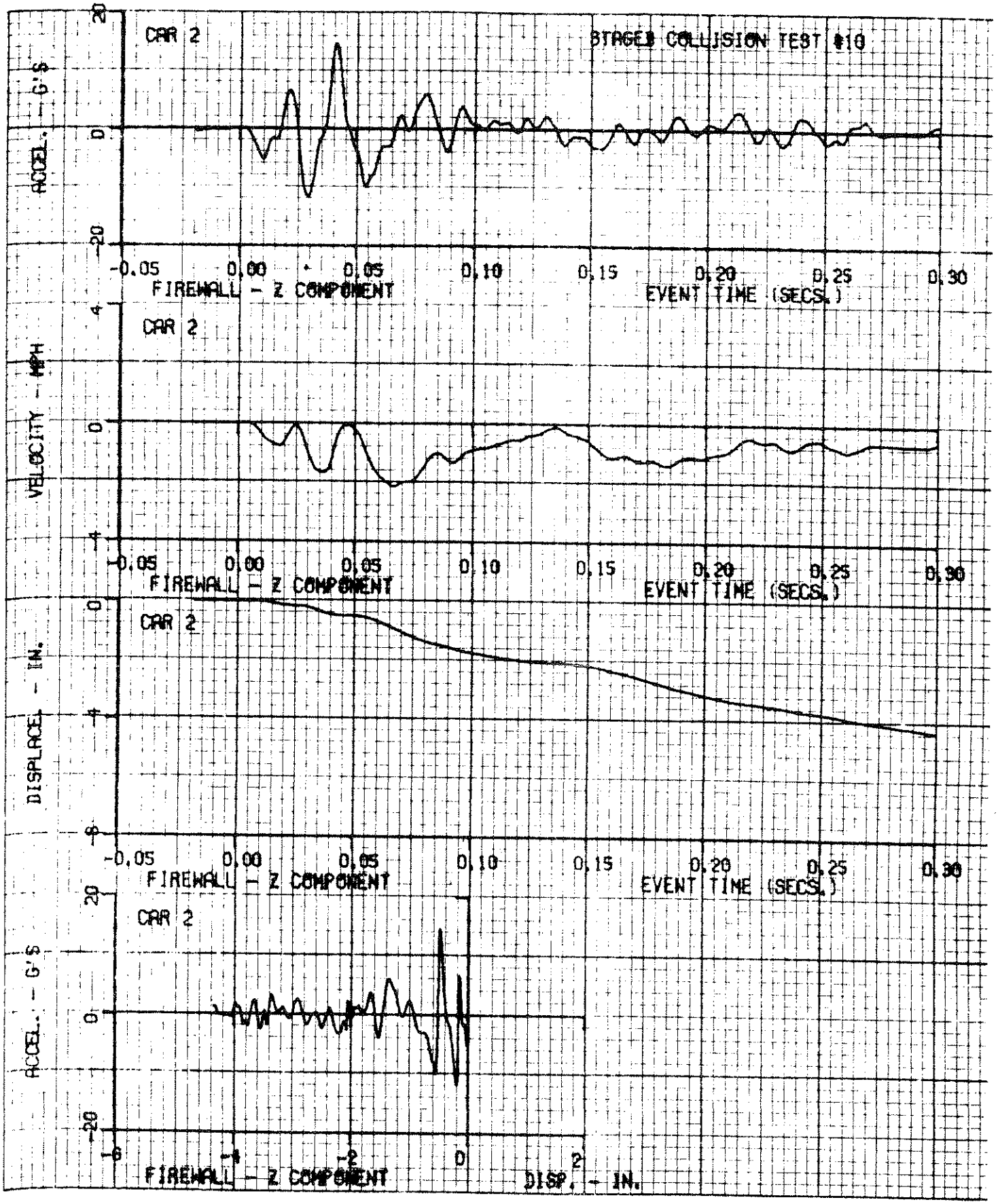

CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
-0.05 0.00 0.05 0.10 0.15 0.20 0.25 0.30
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
LEFT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
-30 -20 -10 0 10
LEFT REAR CORNER - Y COMP.
DISP. - IN.

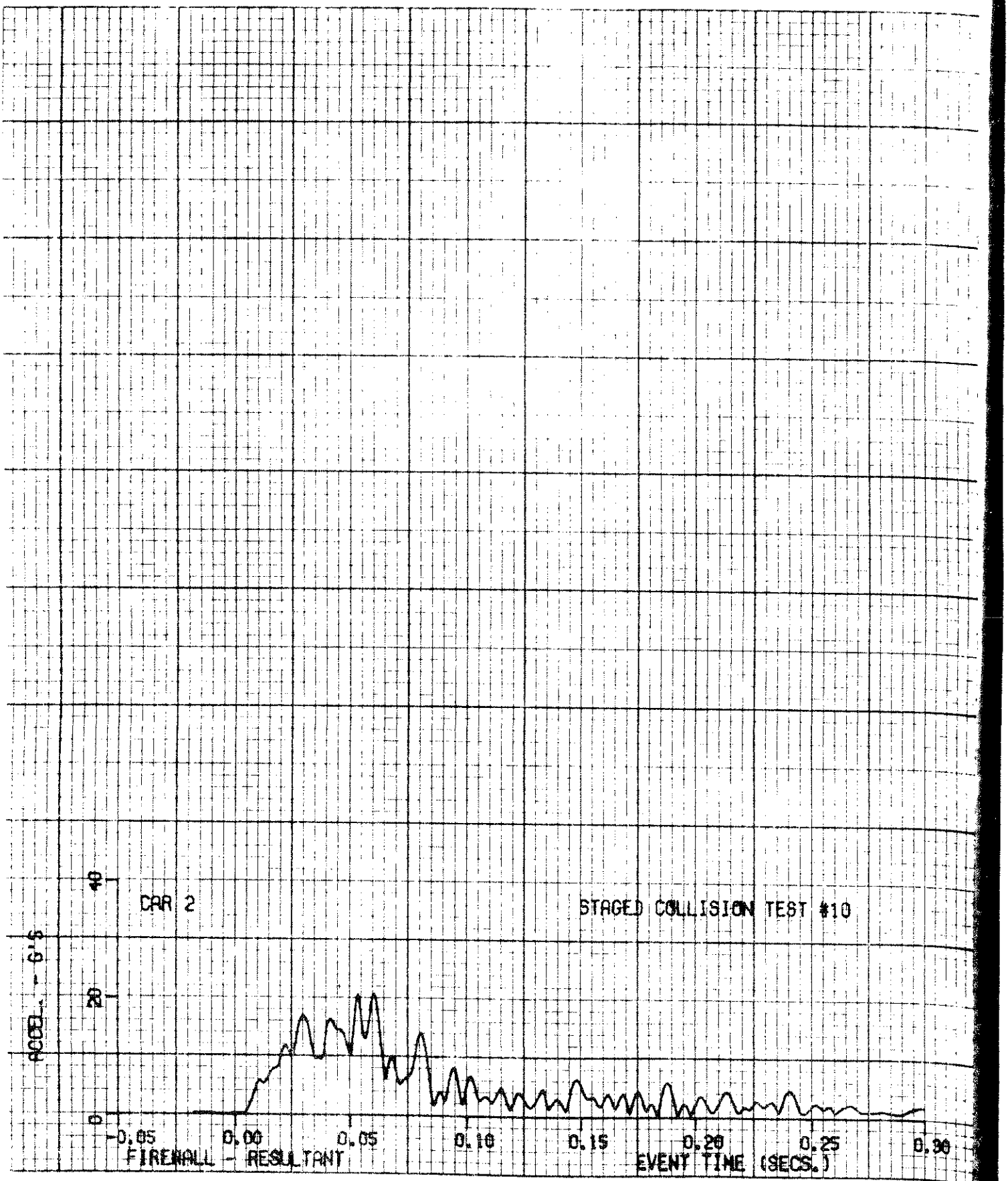

STAGE 3 COLLISION TEST #10
CAR 2
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
2
0
-2
LEFT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE - IN.
4
0
-4
LEFT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-4
-2
0
2
4
LEFT REAR CORNER - Z COMP.
DISP. - IN.

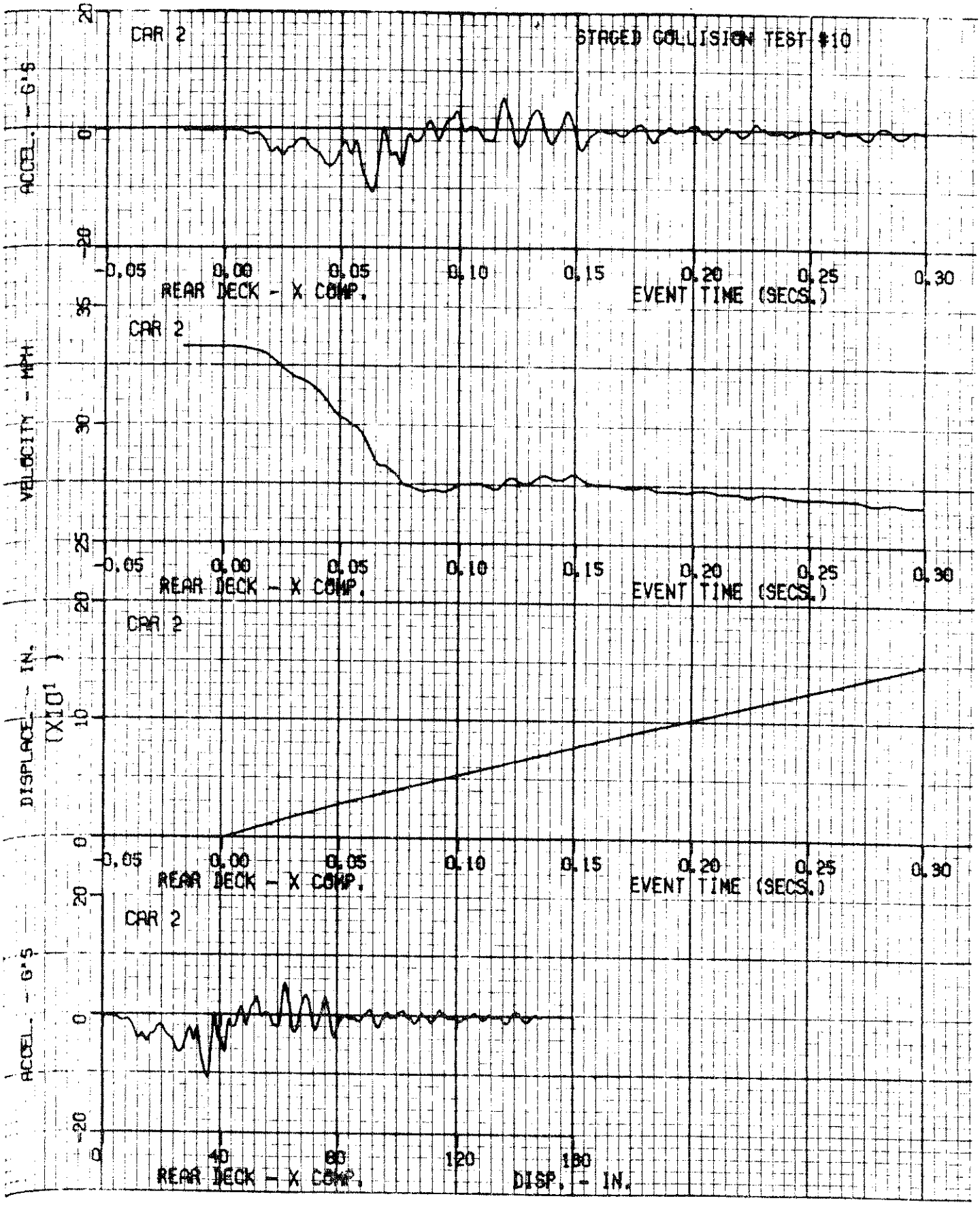

CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT REAR CORNER-RESULTANT
EVENT TIME (SECS.)

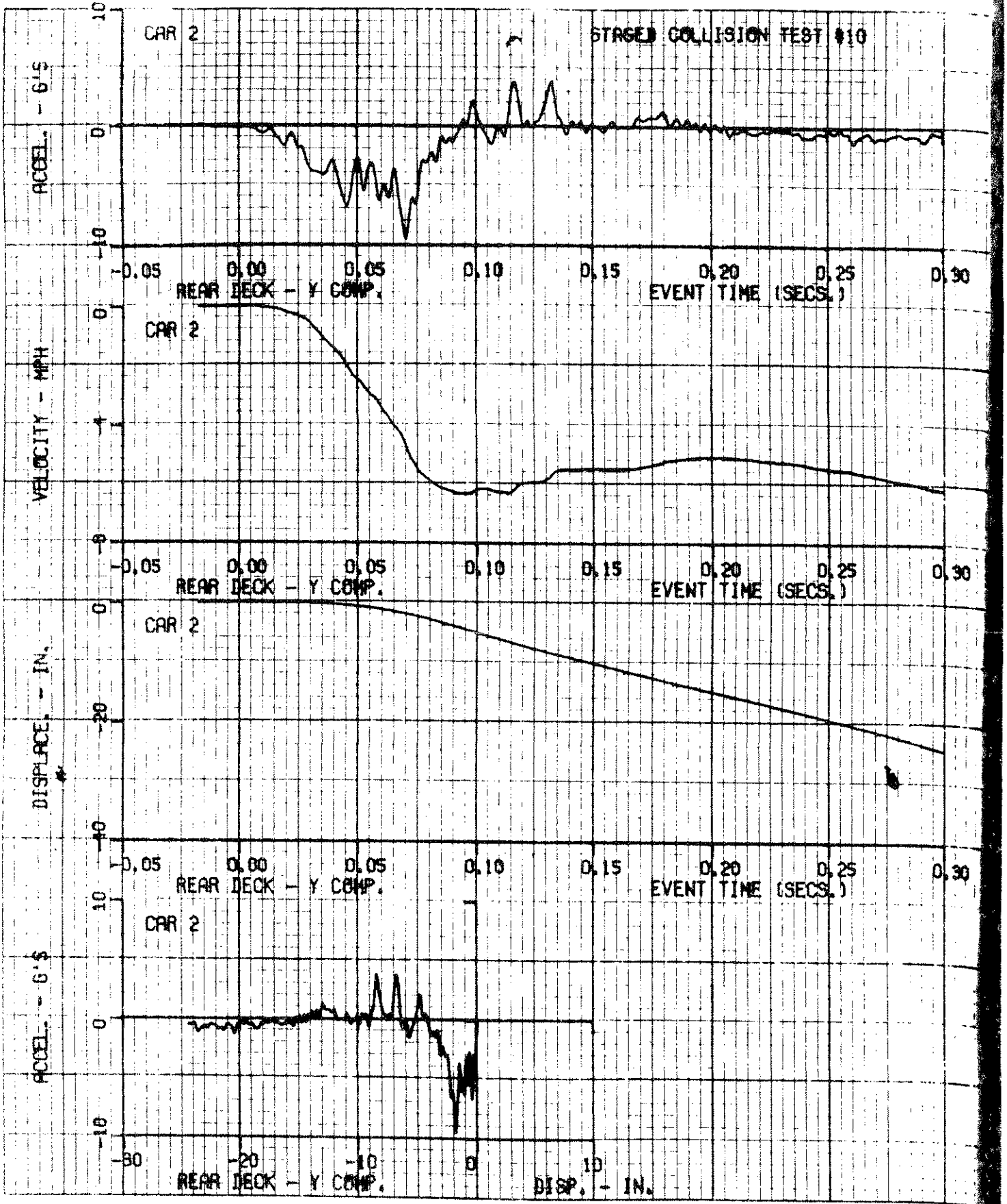

CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
30
20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
(X10¹)
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
40
80
120
160
FIREWALL - X COMPONENT
DISP. - IN.


CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-10
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-60
-40
-20
0
20
FIREWALL - Y COMPONENT
DISP. - IN.


CAR 2
8TAGE3 COLLISION TEST #10
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACEL - IN.
0
-4
-8
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-6
-4
-2
0
2
FIREWALL - Z COMPONENT
DISP. - IN.


CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - RESULTANT
EVENT TIME (SECS.)


CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10¹)
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
REAR DECK - X COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
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 2
VELOCITY - MPH
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 2
DISPLACE. - IN.
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-30
-20
-10
0
10
REAR DECK - Y COMP.
DISP. - IN.

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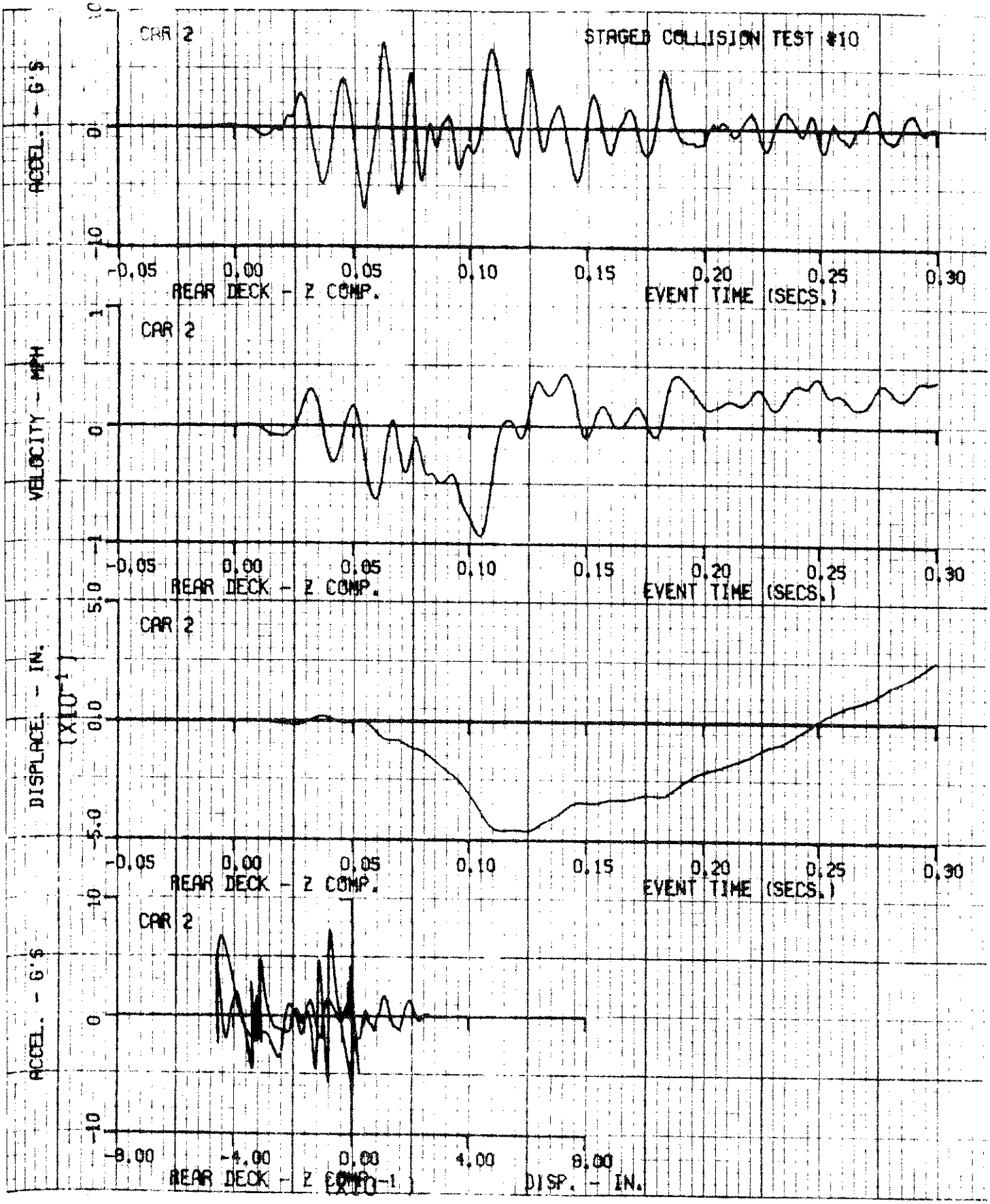
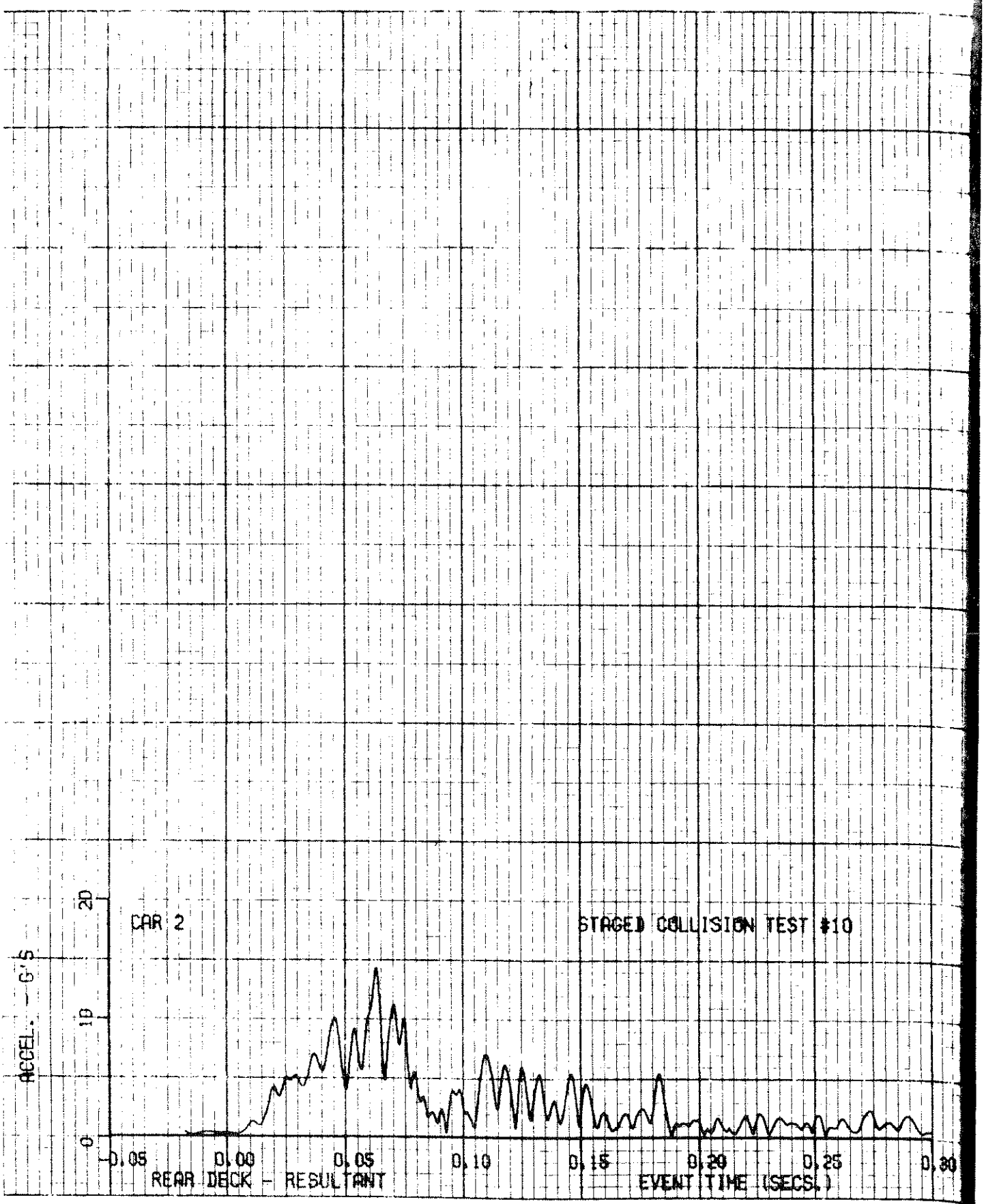
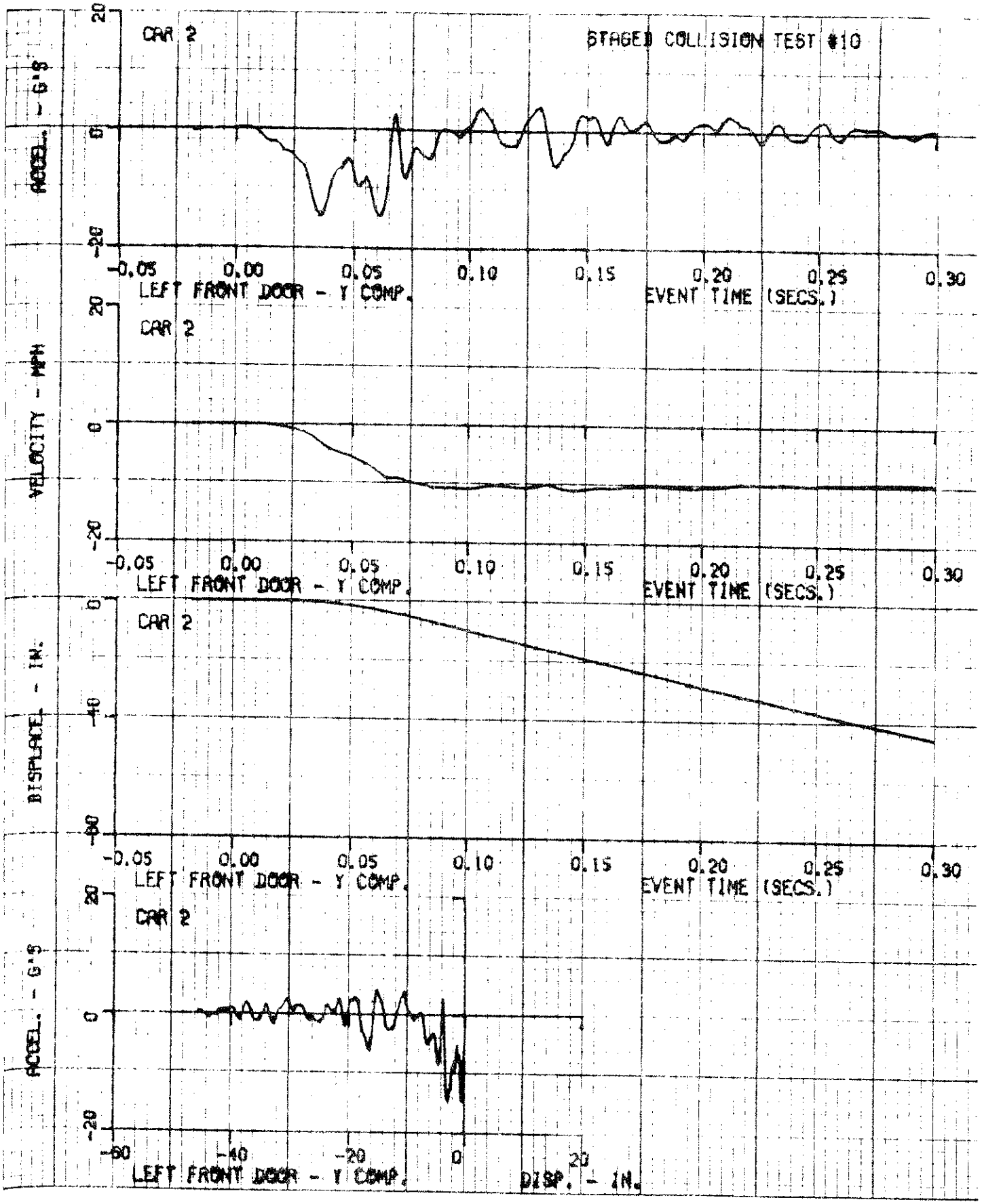
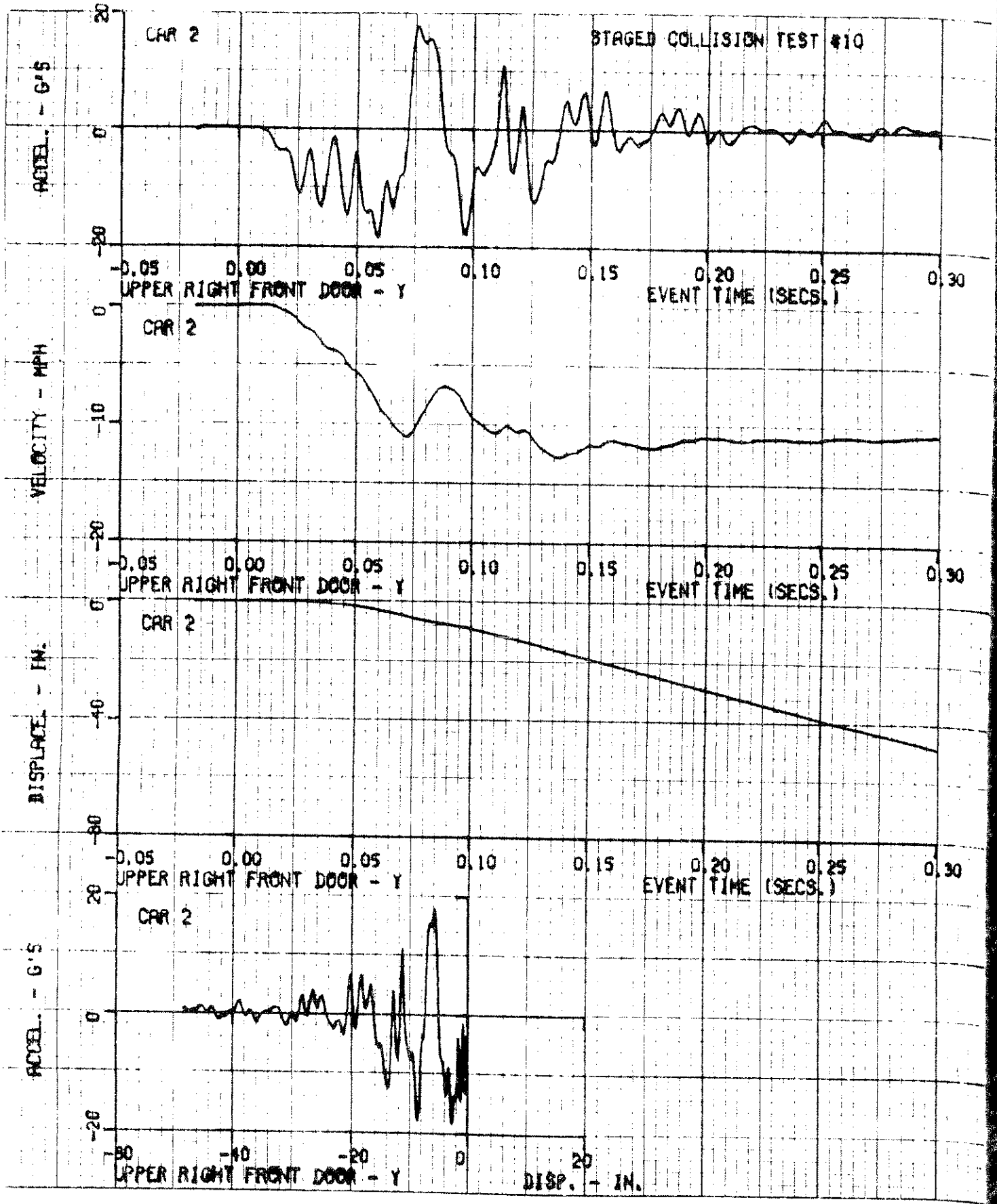

CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
1
0
-1
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
(X10⁻¹)
5.0
0.0
-5.0
-0.05
0.00
0.05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

ZQ-6057-V-5


CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - RESULTANT
EVENT TIME (SECS.)


CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT DOOR - Y COMP.
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
LEFT FRONT DOOR - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT DOOR - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-60
-40
-20
0
20
LEFT FRONT DOOR - Y COMP.
DISP. - IN.


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

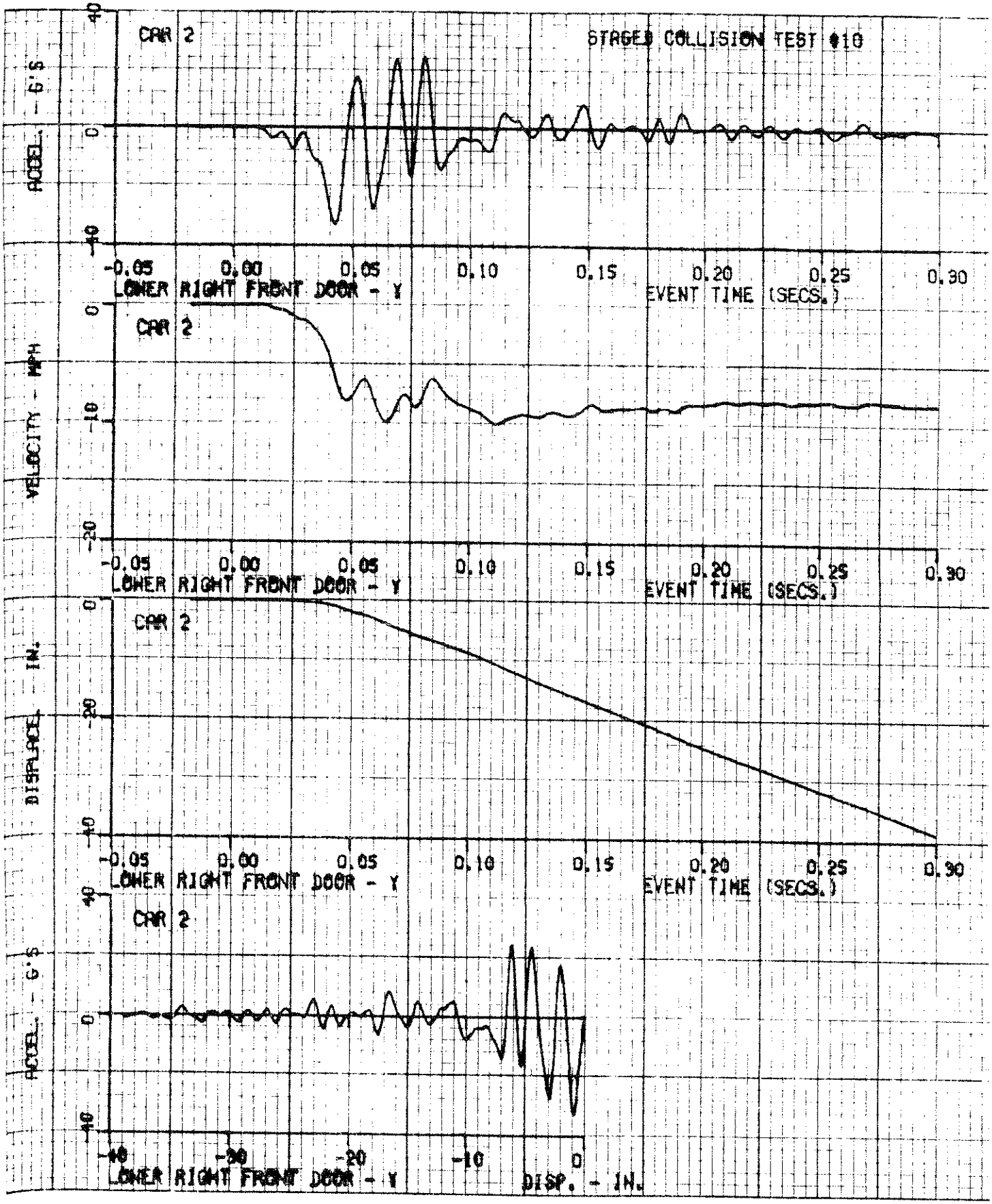

CAR 2
STRGED COLLISION TEST #10
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-10
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LOWER RIGHT FRONT DOOR - Y
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-40
-30
-20
-10
0
LOWER RIGHT FRONT DOOR - Y
DISP. - IN.

TABLE TG-7

DUMMY INJURY CRITERIA VALUES

CAR 2 - STRUCK VEHICLE - TEST NO. 10
1974 FORD TORINO

	MAXIMUM ACCELERATION ("G") *											
	HEAD				CHEST				PELVIS			
	X	Y	Z	R	X	Y	Z	R	X	Y	Z	R
DUMMY (1)	-5	-12	14.2	15.5	3.5	-7	4.5	7.2		-12		
DUMMY (2)	-24	*** -32	25	37	9.8	14.5	6	17.7		-11.5		
DUMMY (3)												
DUMMY (4)												

	MAXIMUM FORCE-FEMUR LOAD (LBS)		DUMMY LOCATION
	RIGHT FEMUR	LEFT FEMUR	
DUMMY (1)	200	100	Left Front Passenger
DUMMY (2)	150	100	Right Front Passenger
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)	42.4	.124	.275	9.5	56.2	
DUMMY (2)	**** 116.4	.093	.145	21.7	**** 289.3	28
DUMMY (3)						
DUMMY (4)						

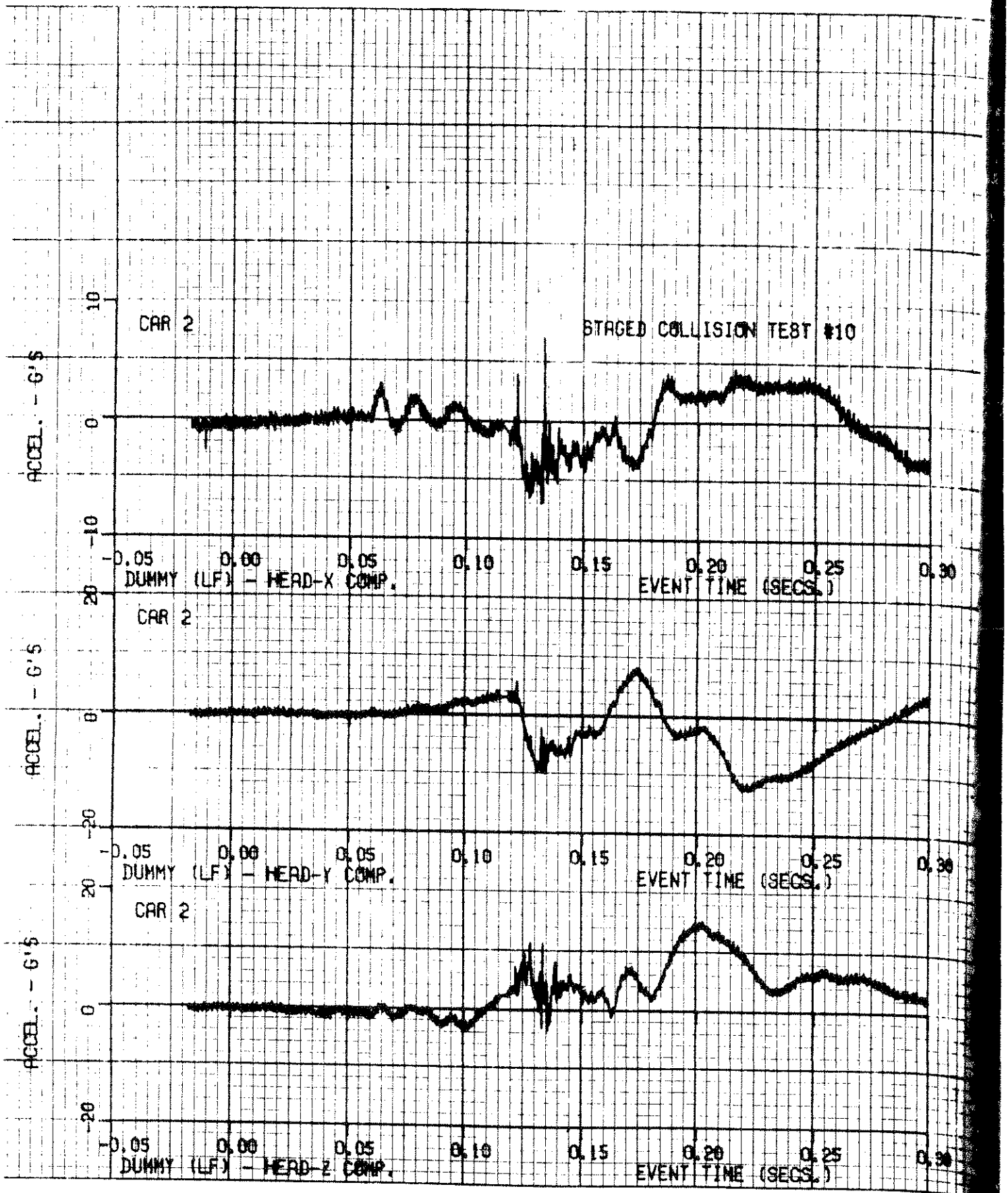
*DEFINED AS EXCEEDING 0.003 SEC. DURATION
**AS DEFINED IN FMVSS NO. 208
*** SIGNAL HAS ZERO SHIFTS
****FROM DATA WITH ZERO SHIFTS

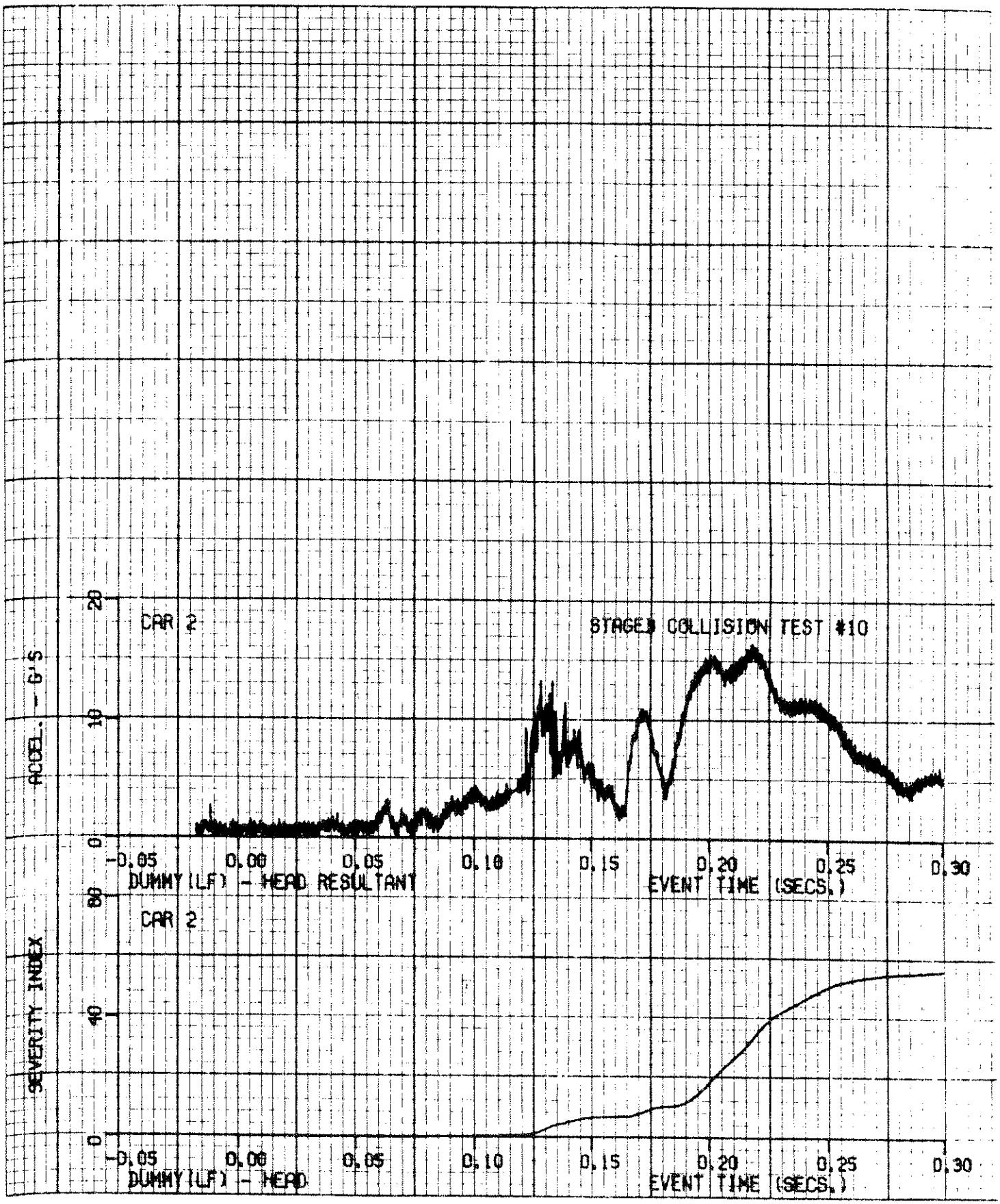
RICSAC TEST NO. 10

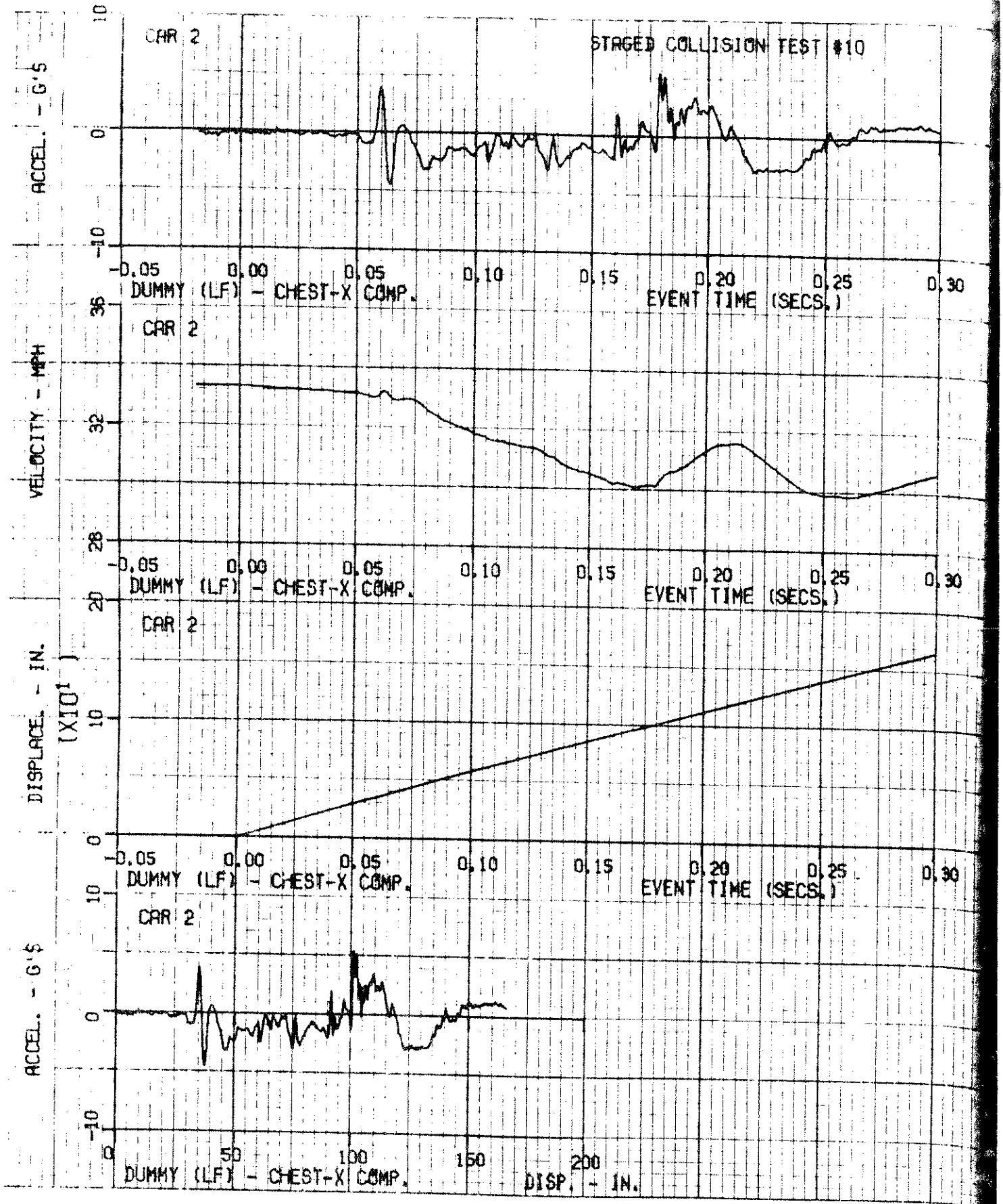
DUMMY DATA

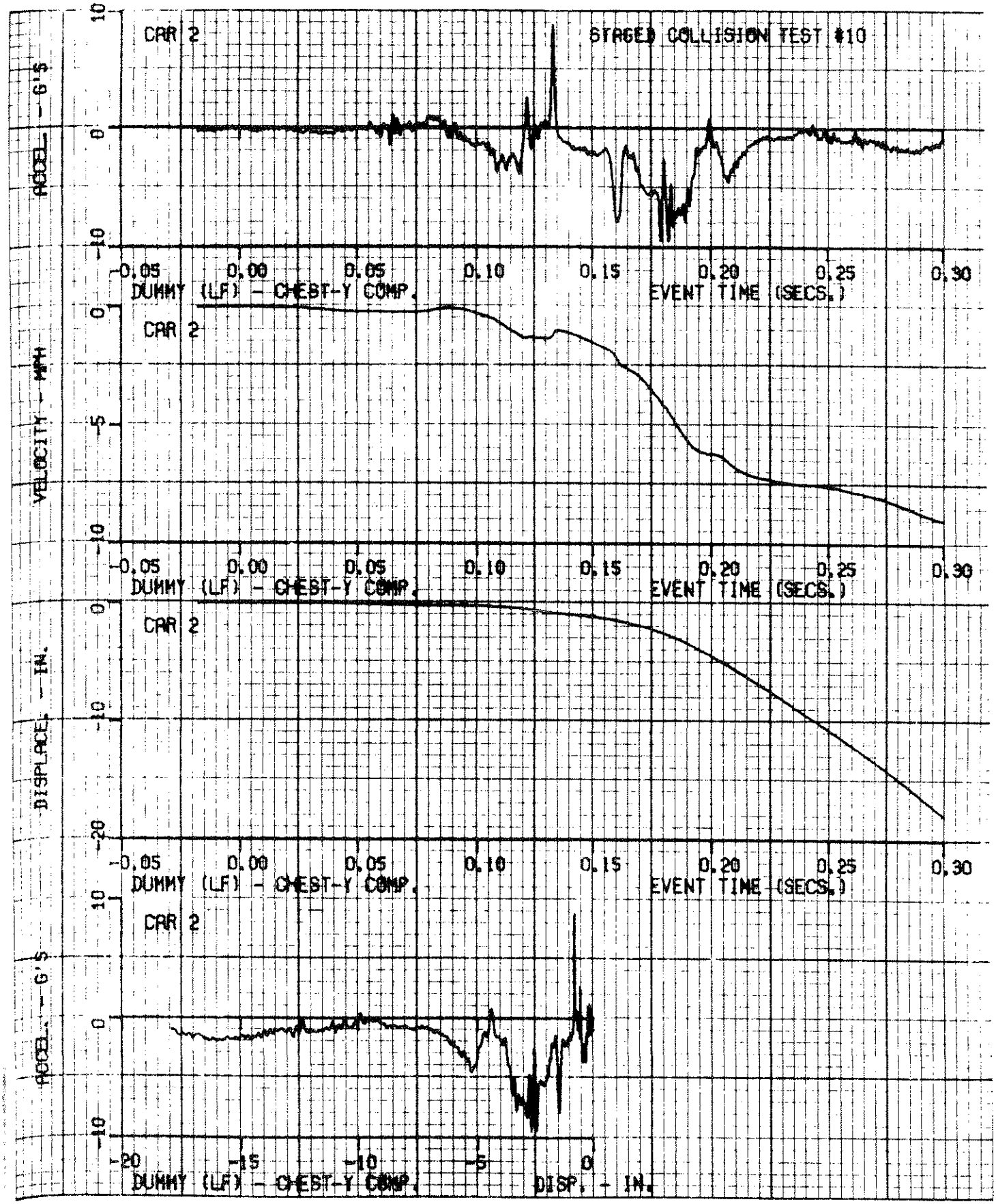
CAR NO. 2 FORD TORINO

DATA PLUTS		FILTER CLASS
HEAD ACCELERATION	X,Y,X	1000
HEAD RESULTANT		
HEAD SEVERITY INDEX		
CHEST ACCELERATION	X,Y,Z	180
CHEST RESULTANT		
CHEST VELOCITY	X,Y,Z	
CHEST DISPLACEMENT	X,Y,Z	
CHEST SEVERITY INDEX		
PELVIC ACCELERATION	X	180
PELVIC VELOCITY	X	
PELVIC DISPLACEMENT	X	
FEMUR LOADS	L & R	600


CAR 2
STAGED COLLISION TEST #10
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-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
DUMMY (LF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
DUMMY (LF) - HEAD-Z COMP.
EVENT TIME (SECS.)


CAR 2
STAGED COLLISION TEST #10
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 2
SEVERITY INDEX
80
40
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
STAGED COLLISION TEST #10
ACCEL. - G'S
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
VELOCITY - MPH
36
32
28
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10¹)
20
10
0
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
50
100
150
200
DUMMY (LF) - CHEST-X COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
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
0
-5
-10
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-10
-20
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-20
-15
-10
-5
0
DUMMY (LF) - CHEST-Y COMP.
DISP. - IN.

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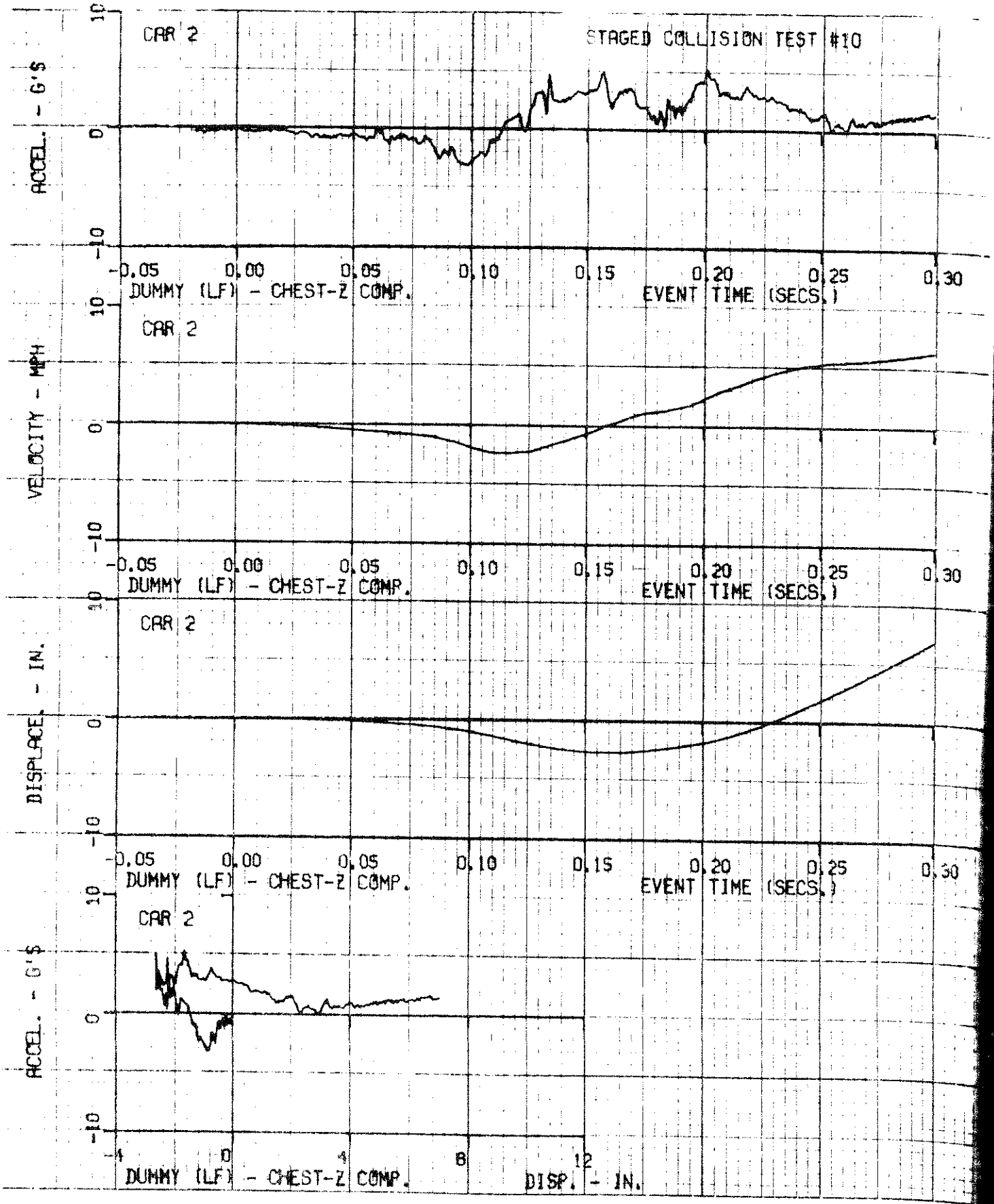
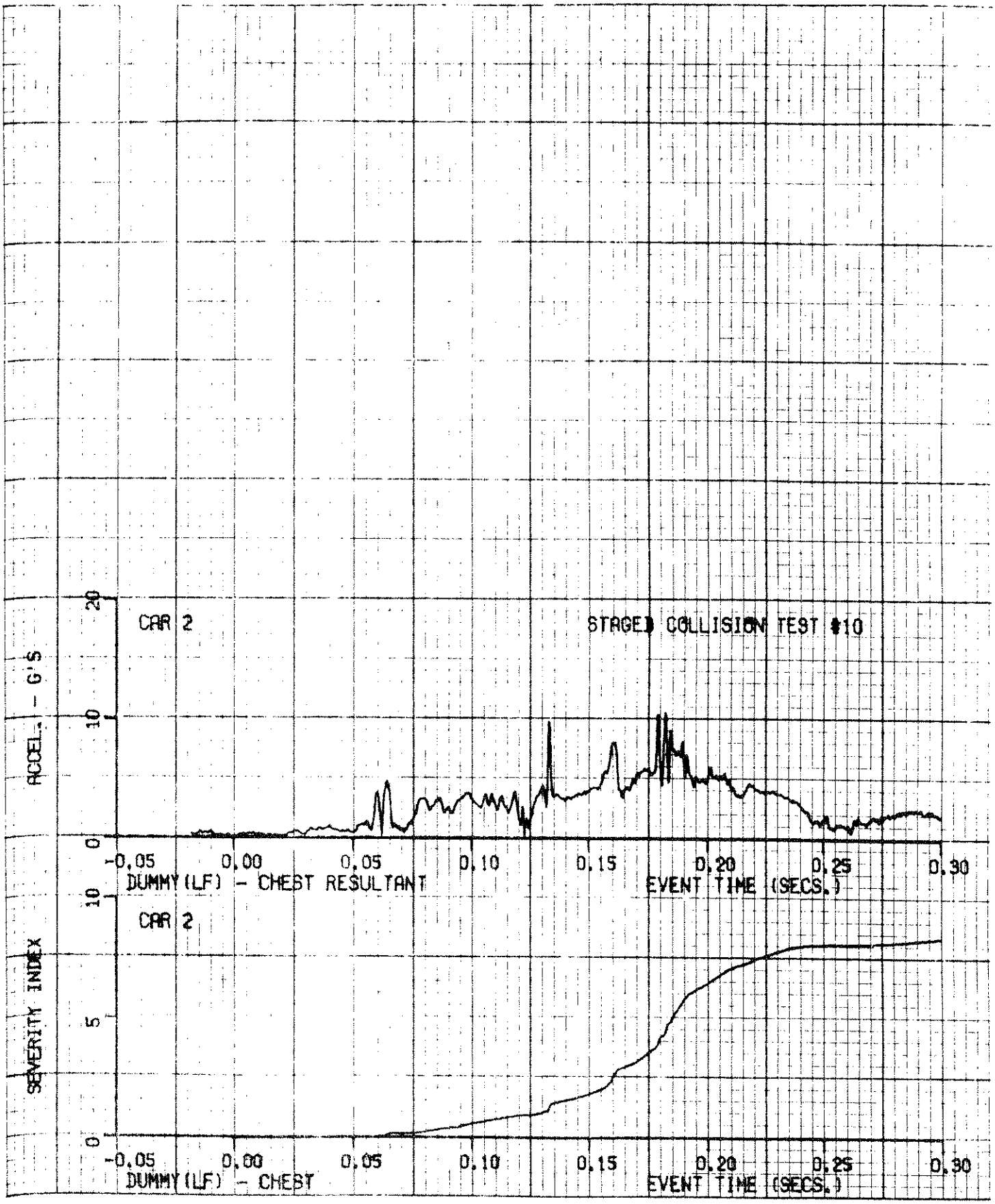
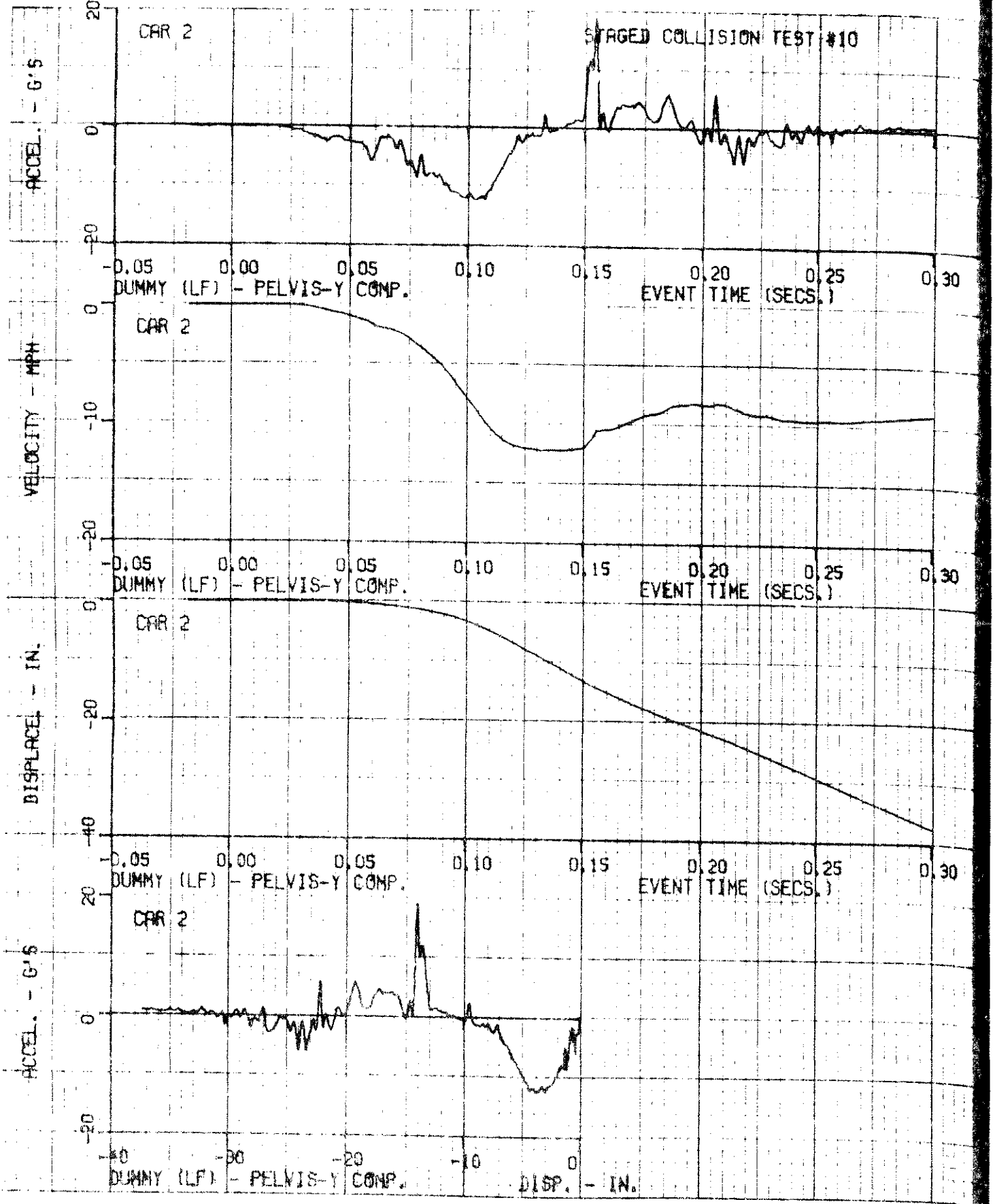
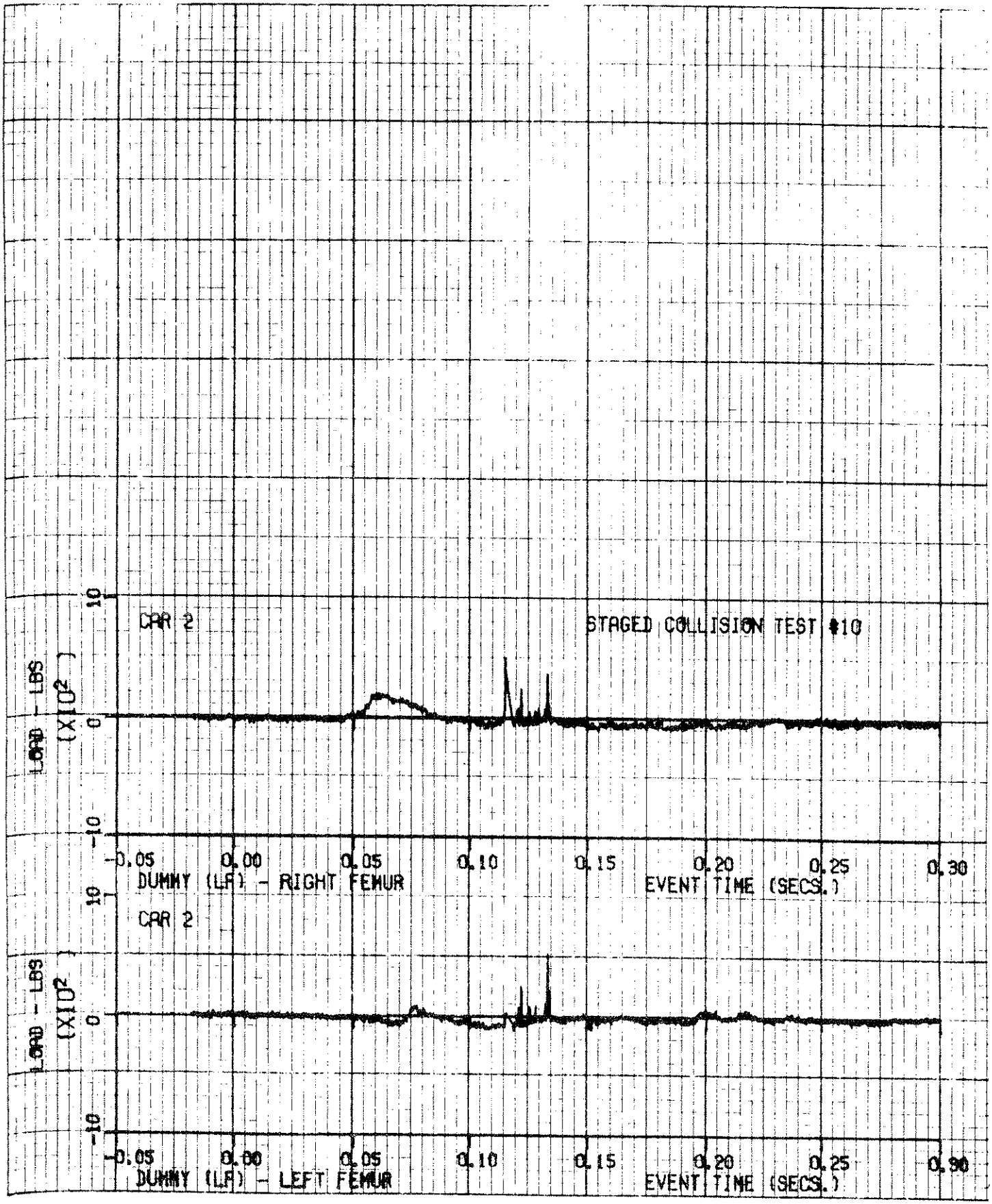
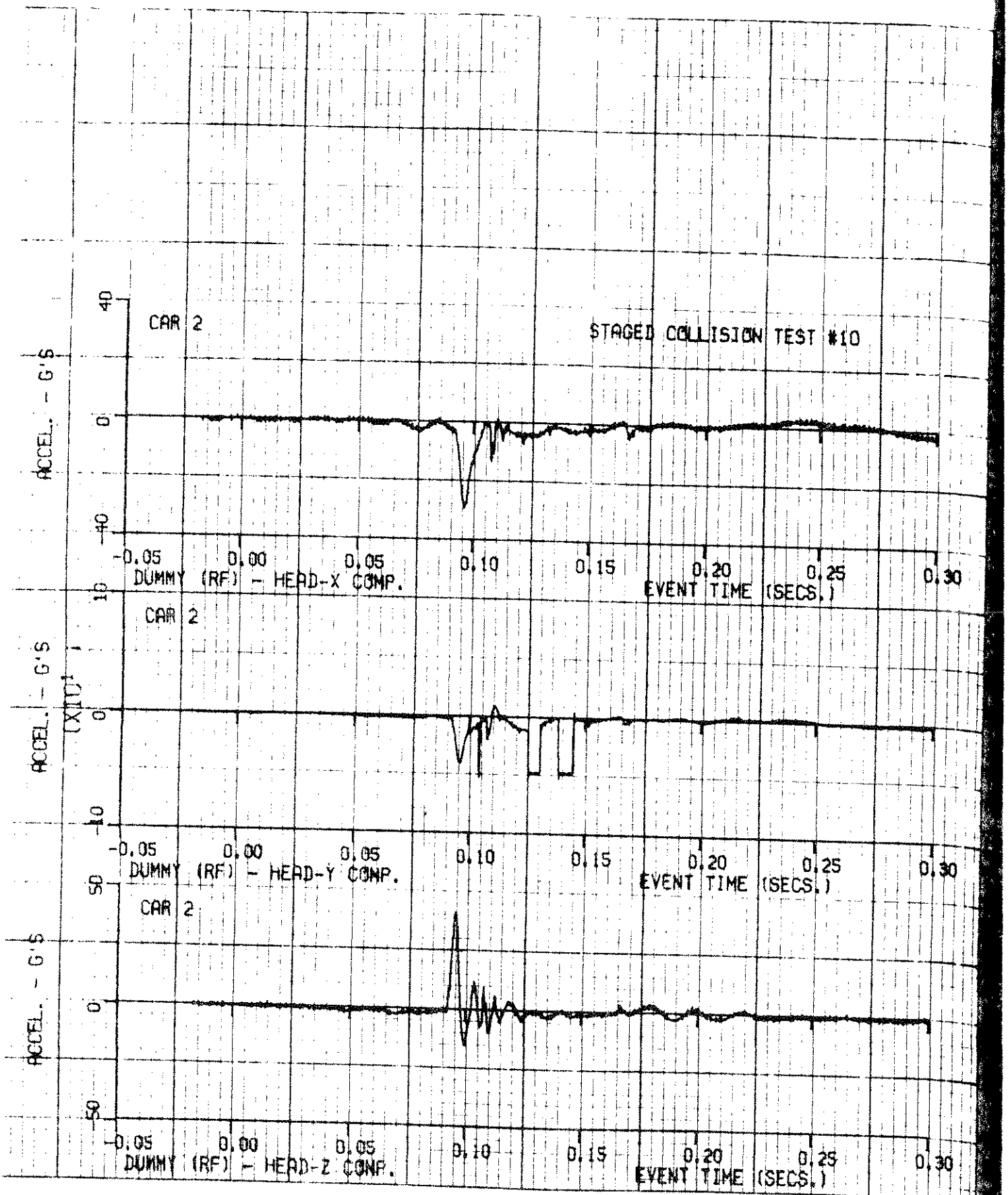
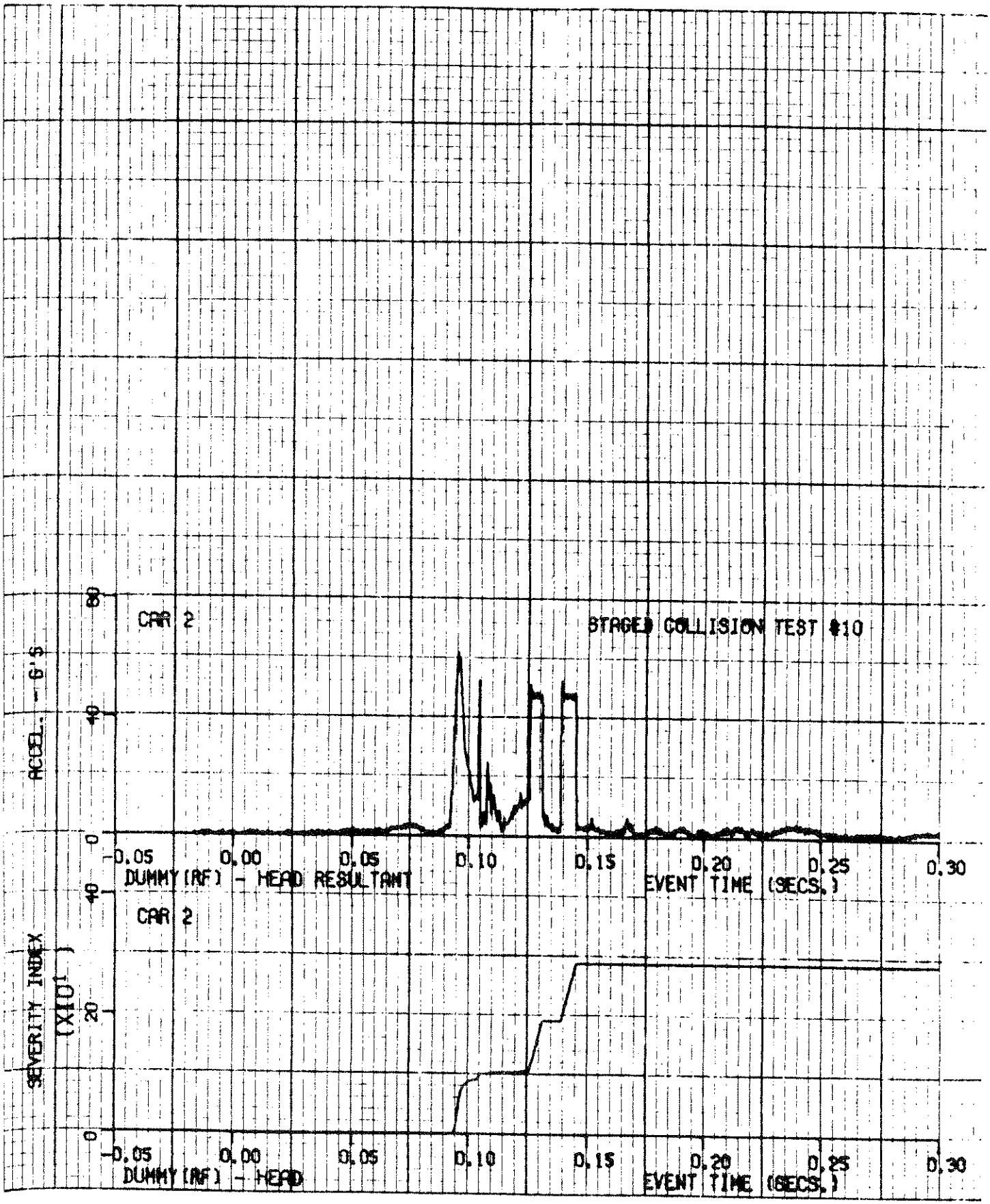

CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-4
0
4
8
12
DUMMY (LF) - CHEST-Z COMP.
DISP. - IN.

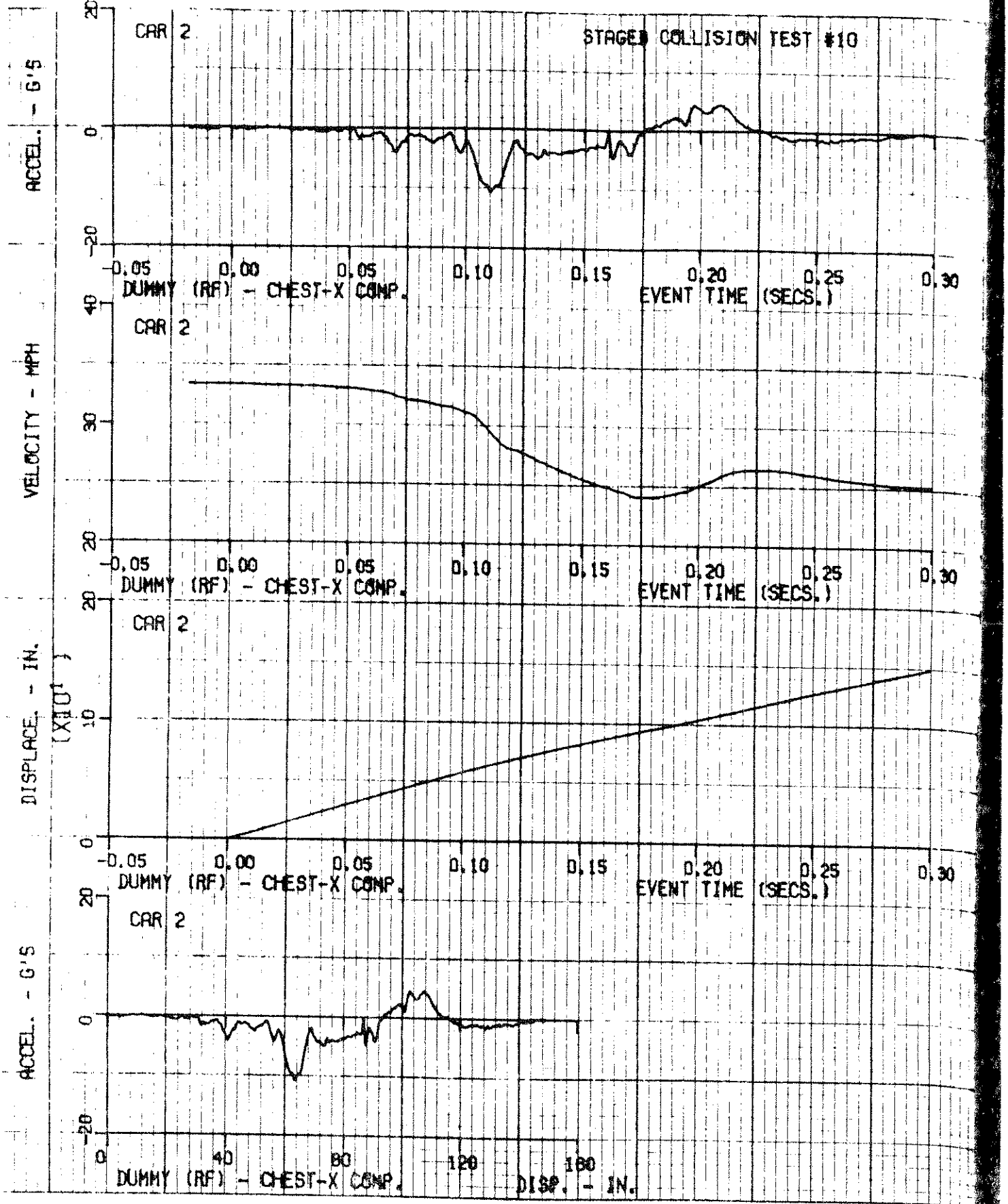

CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX
10
5
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST
EVENT TIME (SECS.)

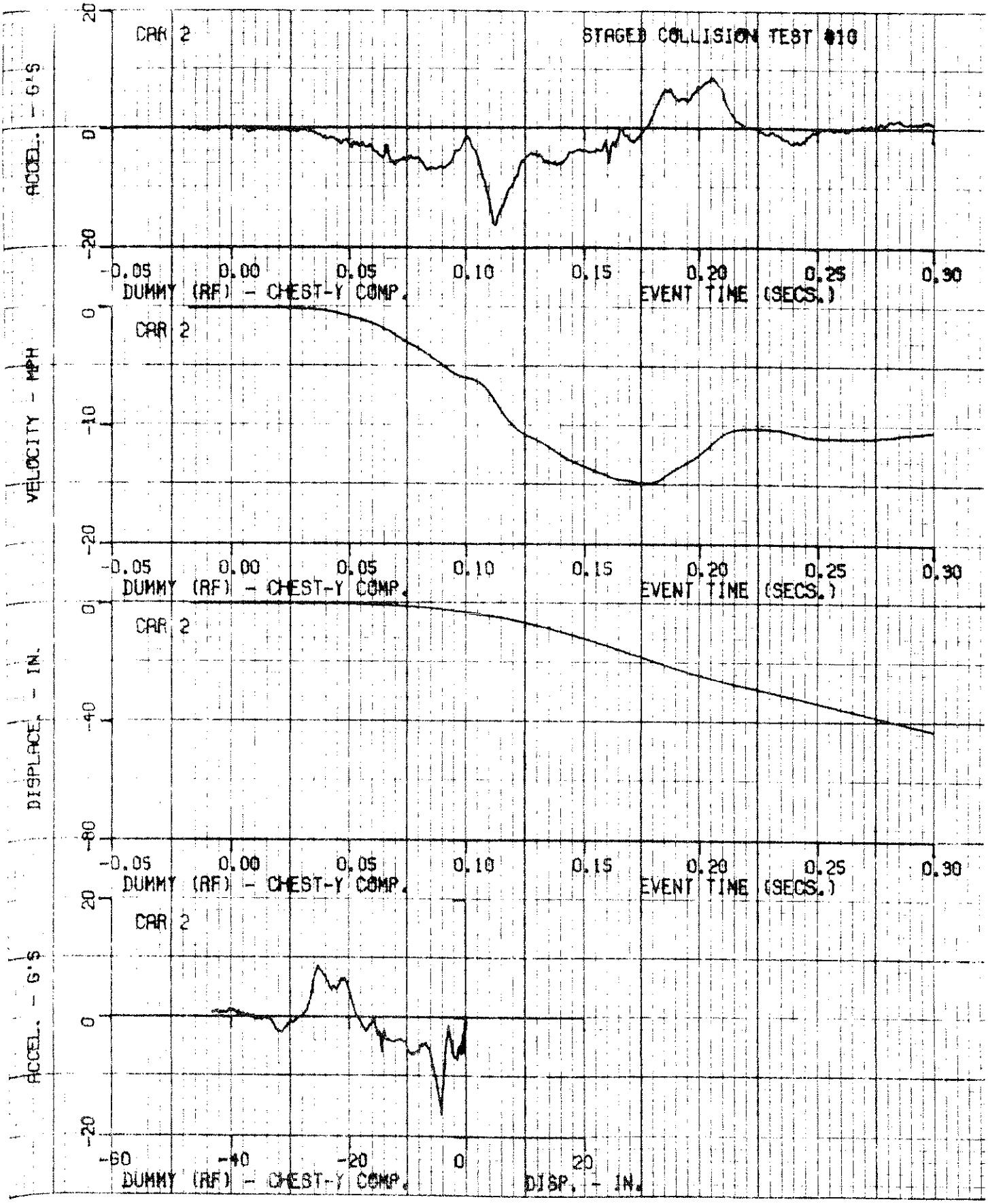

CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-10
-20
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-20
-40
DUMMY (LF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-40
-30
-20
-10
0
DUMMY (LF) - PELVIS-Y COMP.
DISP. - IN.

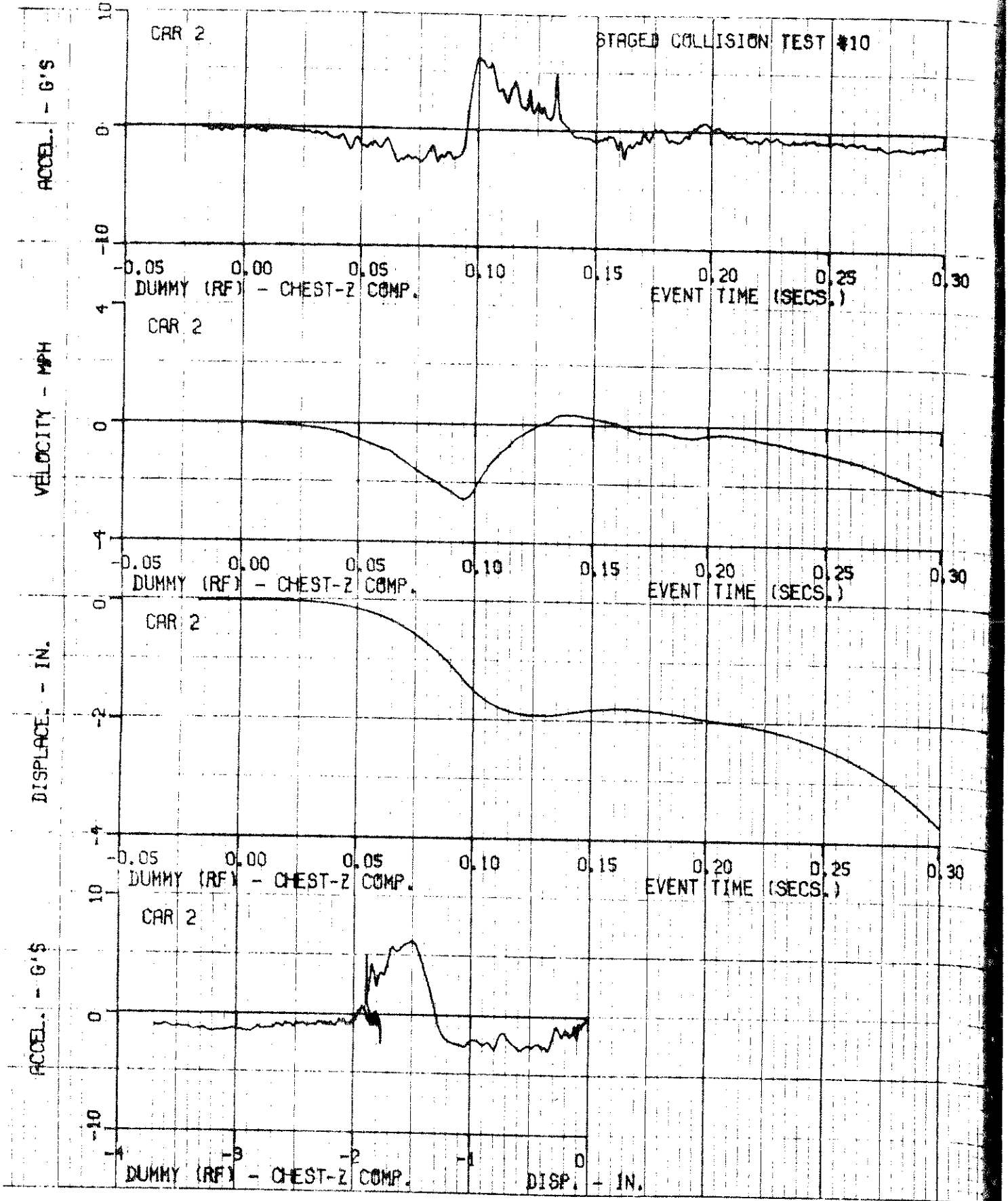

CAR 2
STAGED COLLISION TEST #10
LOAD - LBS (X10²)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 2
LOAD - LBS (X10²)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - LEFT FEMUR
EVENT TIME (SECS.)

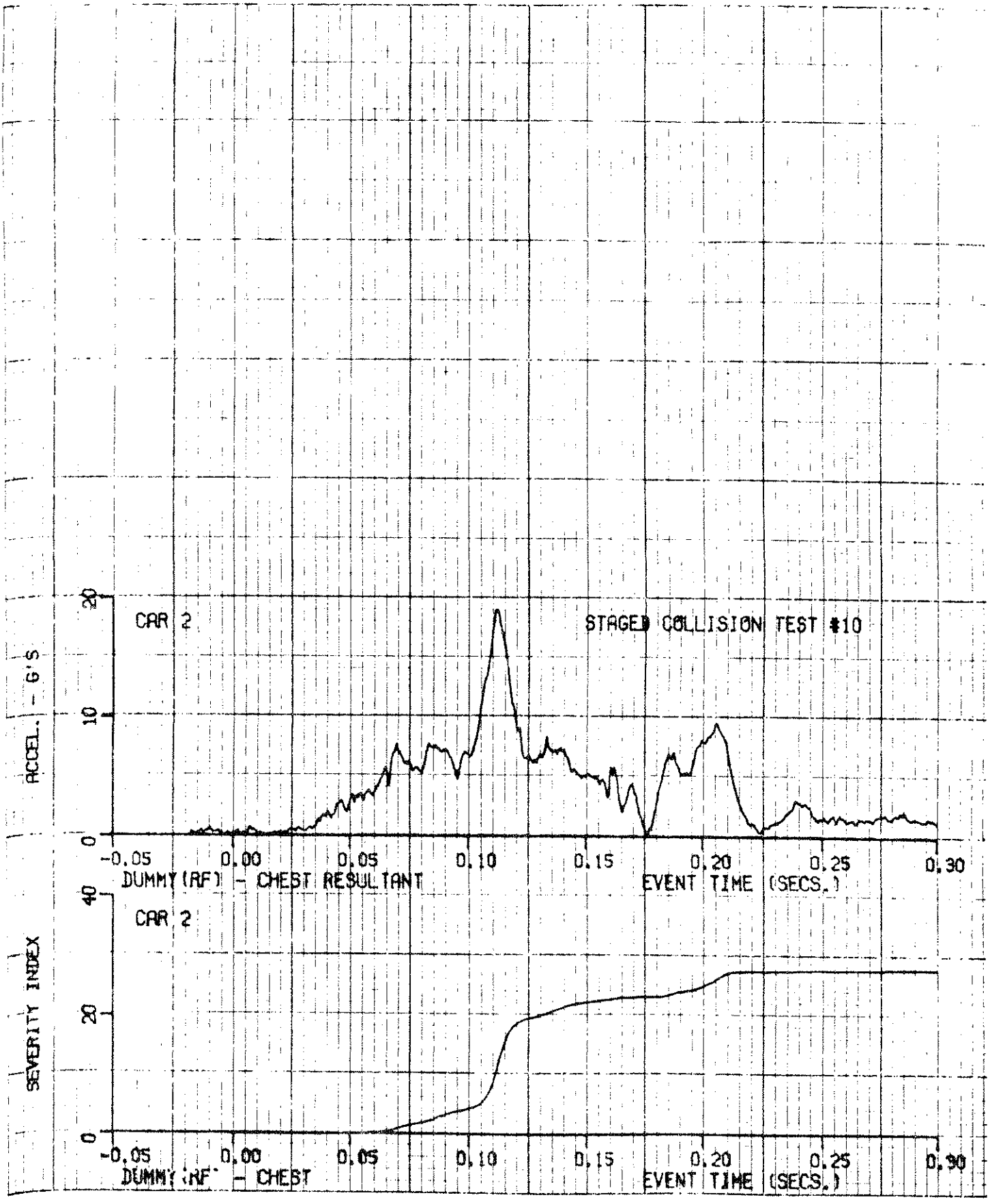

CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
(X10)
10
0
-10
DUMMY (RF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
50
0
-50
DUMMY (RF) - HEAD-Z COMP.
EVENT TIME (SECS.)

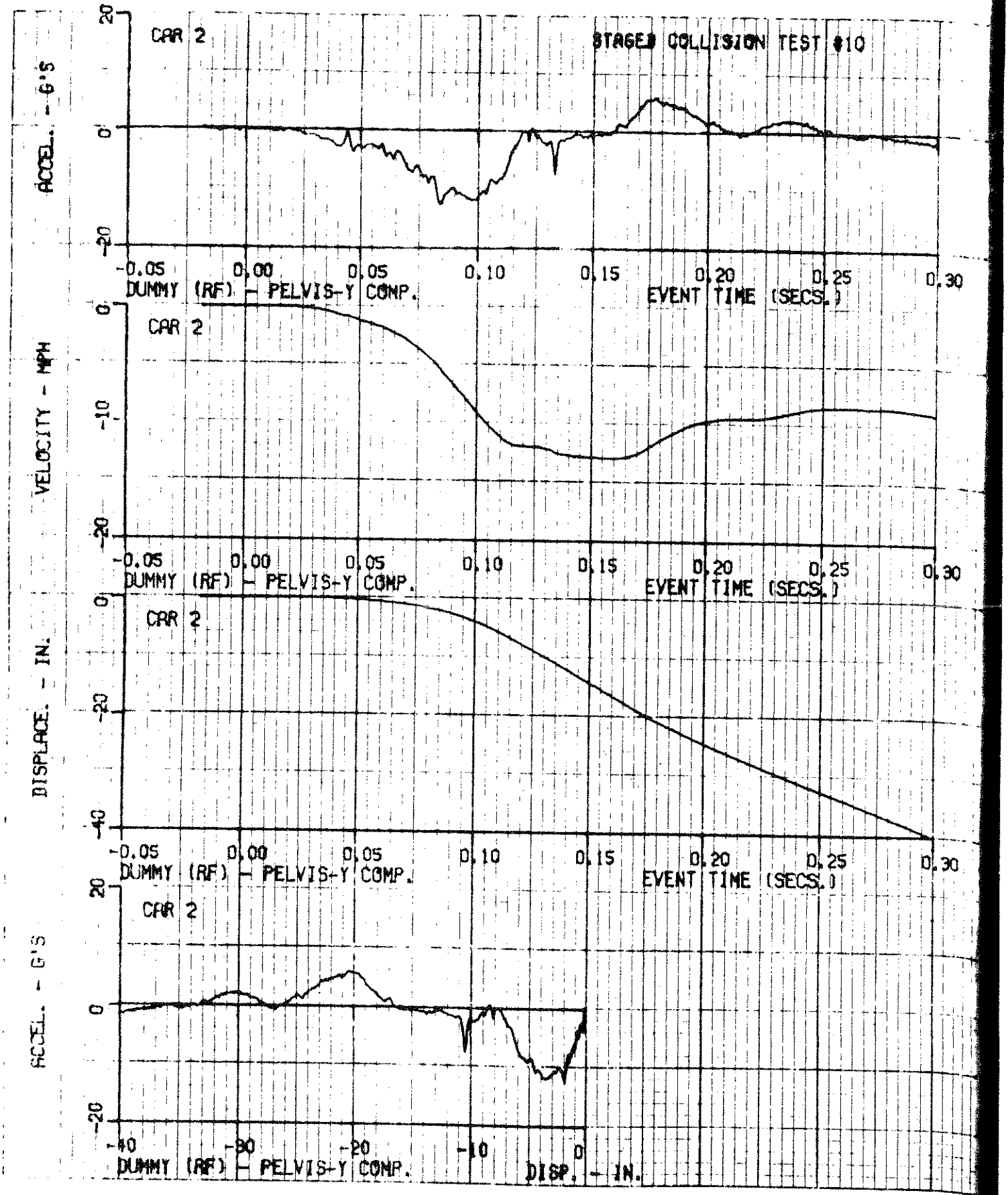

CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 2
SEVERITY INDEX (X10¹)
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD
EVENT TIME (SECS.)

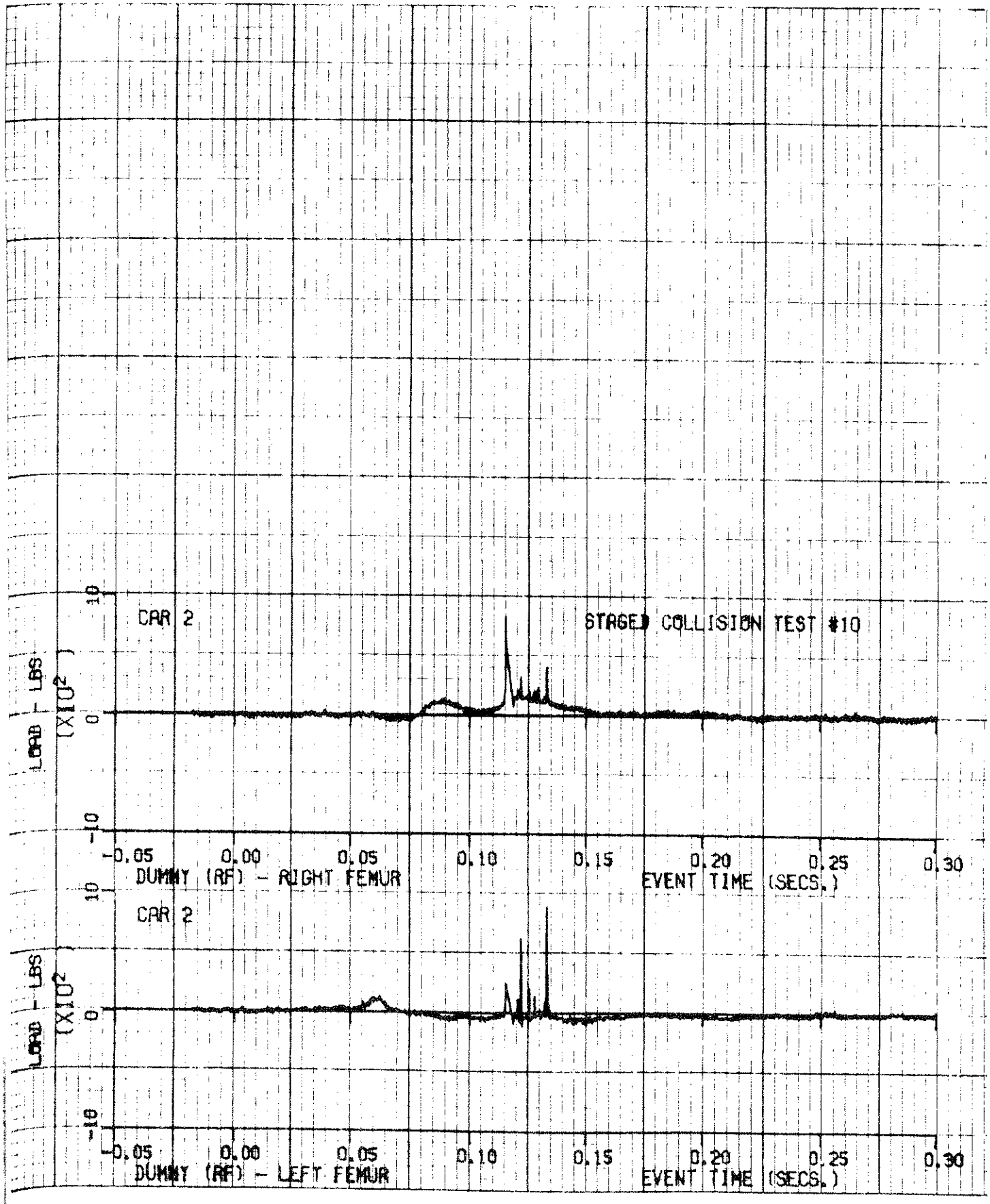

CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
30
20
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
[X10¹]
20
10
0
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
0
40
80
120
160
DUMMY (RF) - CHEST-X COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #10
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-Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
0
-10
-20
DUMMY (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-40
-80
DUMMY (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-60
-40
-20
0
20
DUMMY (RF) - CHEST-Y COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
10
0
-10
-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
4
0
-4
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
0
-2
-4
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-4
-3
-2
-1
0
DUMMY (RF) - CHEST-Z COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #10
ACCEL. - G'S
20
10
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
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
STAGED COLLISION TEST #10
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - PELVIS-Y COMP.
EVENT TIME (SECS.)
VELOCITY - MPH
0
-10
-20
DISPLACE. - IN.
-40
ACCEL. - G'S
-40
-30
-20
-10
0
DISP. - IN.


CAR 2
STAGED COLLISION TEST #10
LOAD - LBS (X10²)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 2
LOAD - LBS (X10²)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - LEFT FEMUR
EVENT TIME (SECS.)

TEST NO. 11

RICSAC STAGED COLLISION

FRONT-TO-FRONT

OBLIQUE - OFFSET

VEGA/TORINO

VELOCITY 20.4 MPH

17.0 RICSAC STAGED COLLISION - TEST NO. 11

EXPERIMENTAL RESULTS

Test Description

This staged collision involved a 1974 Chevrolet Vega (V-1) striking a 1974 Ford Torino (V-2) in a frontal offset impact at a 10 degree oblique angle as shown in Figure 17-1. The impact velocity of both vehicles was 20.4 mph. The vehicle test weights were 3060 and 4480 pounds for the Vega and Torino, respectively. Each vehicle had two Part 572 test dummies (50 percentile) seated in the front seat. The dummies in the Vega were instrumented according to FMVSS 208 and were restrained by belts. In the Torino the dummies were uninstrumented and were also restrained with seat belts.

The Torino was equipped with automatic transmission, power steering and power brakes. The Vega had automatic transmission, power steering and power brakes. The accident was staged with both transmissions in drive position, brakes off and the engines not running. During the collision no steering control inputs or vehicle braking was applied. The roadway was dry with skid resistance value of 87.

Approximately one car length before impact the vehicle tow cable was released and the vehicle guide rail was terminated. At this point in time and during the collision both vehicles are free bodies with no constraints except the normal collision forces and reactions encountered in this type of car-to-car collision. During the collision event no observed tow cable or instrumentation cable interference with the moving vehicles was noted.

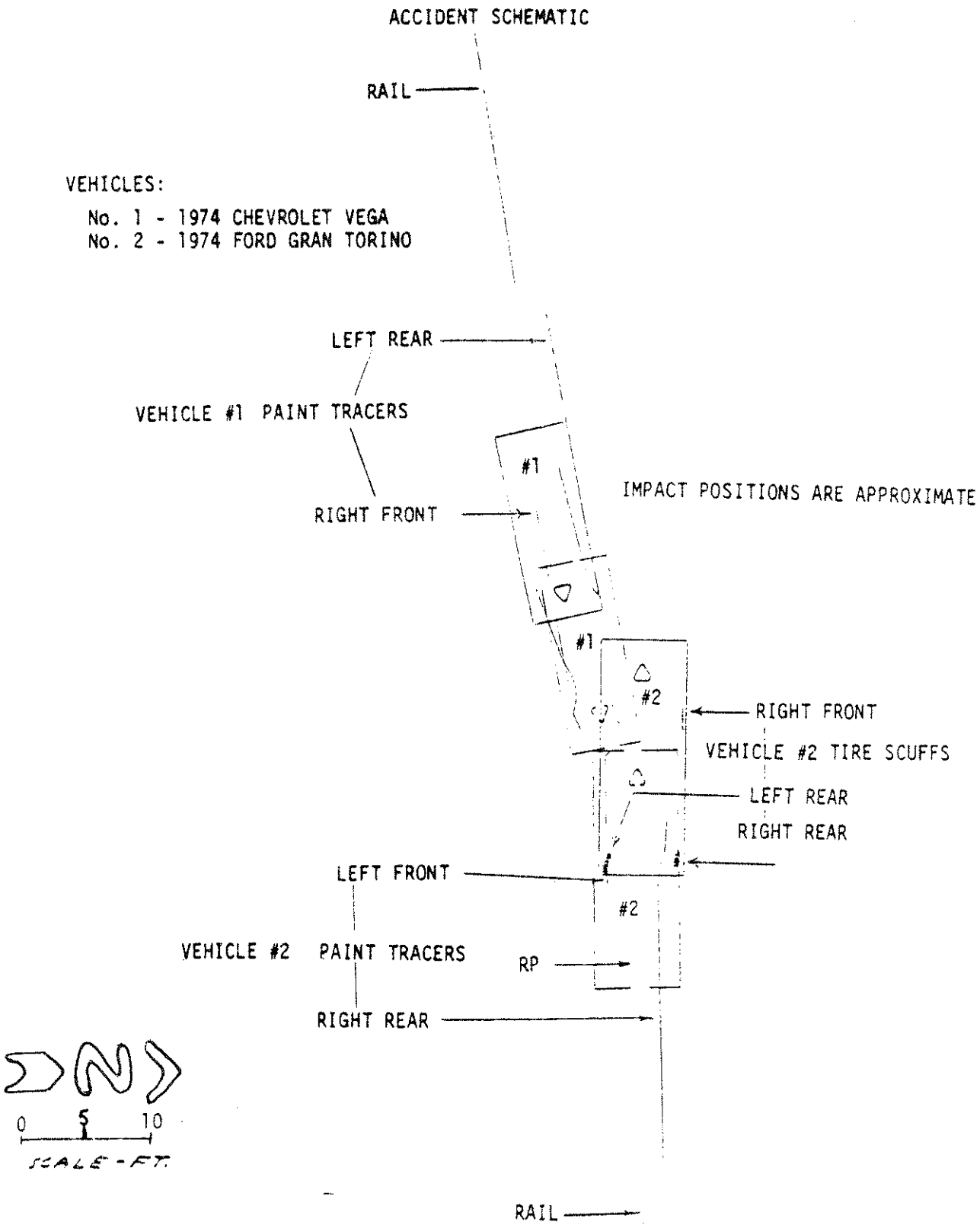


Figure 17-1 TEST NO. 11 - RICSAC ACCIDENT SCHEMATIC

CRASH TEST SUMMARY

TEST NO. 11 PROJECT RICSAC

DATE 7/7/78 TIME 14:20 TEMP. 94°F

TEST CONDITION Car-to-Car Frontal Offset - 10 Degrees

VEHICLE NO. 1 1974 Vega

VEHICLE NO. 2 1974 Torino

	VEH. NO. 1	VEH. NO. 2
TEST WEIGHT (lbs)	3060	4480
IMPACT ANGLE (deg)*	10	0
IMPACT VELOCITY (mph)**	20.37	20.37
MAX. CRUSH (in)		
MAX. INTRUSION (in)		

DUMMIES	VEH. NO. 1	VEH. NO. 2
TYPE	Part 572	Part 572
LOCATION	Driver (L.F.), Passenger (R.F.)	Driver (L.F.), Passenger (R.F.)
RESTRAINT	3-Point Restraint	3-Point Restraint
	~~Uninstrumented~~	Instrumented

NUMBER OF DATA CHANNELS 54

NUMBER OF HIGH SPEED CAMERAS 9

*WITH RESPECT TO TOW TRACK CENTERLINE

**SPEED TRAP MEASUREMENT (±0.5% ACCURACY)

TABLE 17-1

TEST NO. 11 - CAR NO. 1

TEAM	YEAR	MONTH	DAY	SEQUENCE
1	8	0 7	0 7	0 1 1

VEHICLE DATA

Vehicle data not collected. Reason? _____

Vehicle No. 1 — 14-15 No. of VIN Characters 1 3

16-22 VIN (Left Justify, Omit Production Numbers) 1 V 1 1 A 4 U

23-27 Make/Model (CPIR Code) CHEVROLET - VEGA 1 1 3 1 8

28-32 Mileage (Odometer Reading) 99998 = 99998 mi. or more; 99999 = Unknown 1 9 2 8 3

33-34 Model Year 7 4

35-36 BODY STYLE

Automobiles		Trucks		Other	
Passenger Car	01	Van - Passenger	05	School Bus	11
Stationwagon	02	- Cargo	06	Other Bus	12
Convertible	03	Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04	Pickup	08	Other Body Style	98
		Straight Truck	09	Unknown	99
		Tractor-Trailer	10		

37-39 VEHICLE WEIGHT — Curb 2,400

40-42 Occupant and Cargo Only ___,___00

43 TOWING ANOTHER VEHICLE — Yes 1; No 2; Unknown 9

VEHICLE DAMAGE

	Object Contacted	CDC	Veh. No.	Impact No.
44-54 (1)	0 3	1 2 F Y E W 3	2	1
55-65 (2)				
(3)				
(4)				

(1) = Highest Severity (Estimated ΔV)

66 VEHICLE TOWED FROM SCENE — Yes 1; No 2; Unknown 9

67 SOURCE OF VEHICLE DATA

- Inspection at Repair or Tow Facility 1
- Inspection at Person's Home 2
- Inspection at Scene 3
- Not Inspected (Photos or Repair Data) 4
- Not Inspected. Reason. _____ 5
- Unknown 9

68 VEHICLE INSPECTION

- Not Inspected 0
- Inspected on First Visit 1
- Actual Number of Locations Visited (Including Follow-Ups to Same Location) 2 3 4 5 6 7
- 8 or More 8
- Unknown 9

69 APPLICABLE VEHICLE — Yes 1; No 2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED ON THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

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Figure 17-2

VEHICLE CRUSH SCHEMATIC

TEST NO. 11 - CAR NO. 1

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

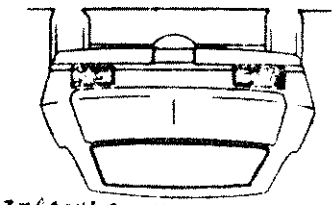
RF 2

LF 1

RR 2

LR 2

1 Yes, 2 No, 8 NA, 9 Unk.



INFLATED DEFLECTION OF FORCE -5"

WHEEL STEER ANGLES*

(For locked front wheels or displaced rear axles only)

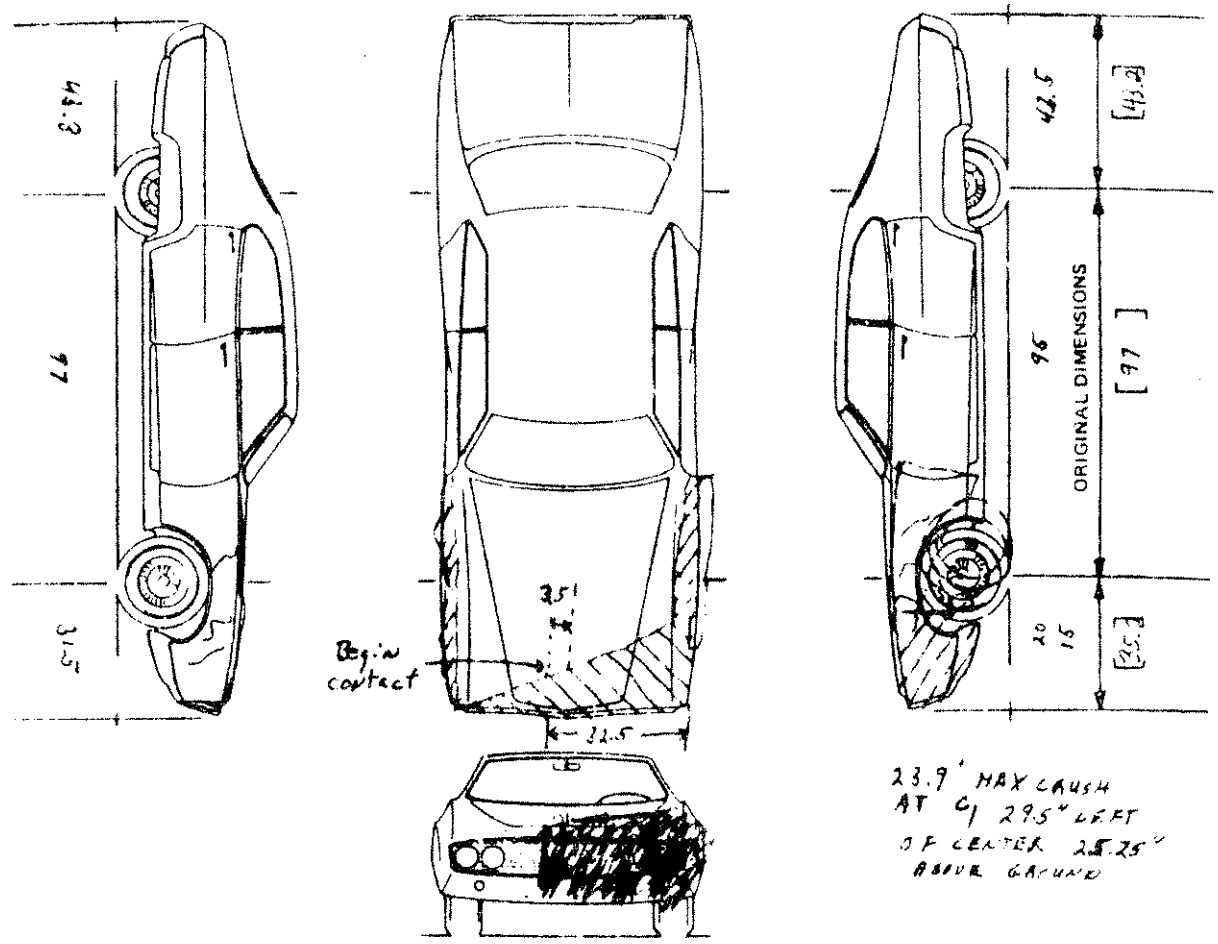
RF ⊖ + 1 9

LF ⊖ + 2 3

RR + − 0 0

LR + − 0 0

Within ± 5°



23.9" MAX CRUSH AT C_1 29.5" LEFT OF CENTER 25.25" ABOVE GROUND

Impact Number	L	C_1	C_2	C_3	C_4	C_5	C_6	D±
1	32.5	22	20.2	18.5	16.8	15	12.5	⊖ 12.75
2								
3								
4								

NOTE: MEASURE C_1 TO C_6 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS: REAR TO FRONT IN SIDE IMPACTS

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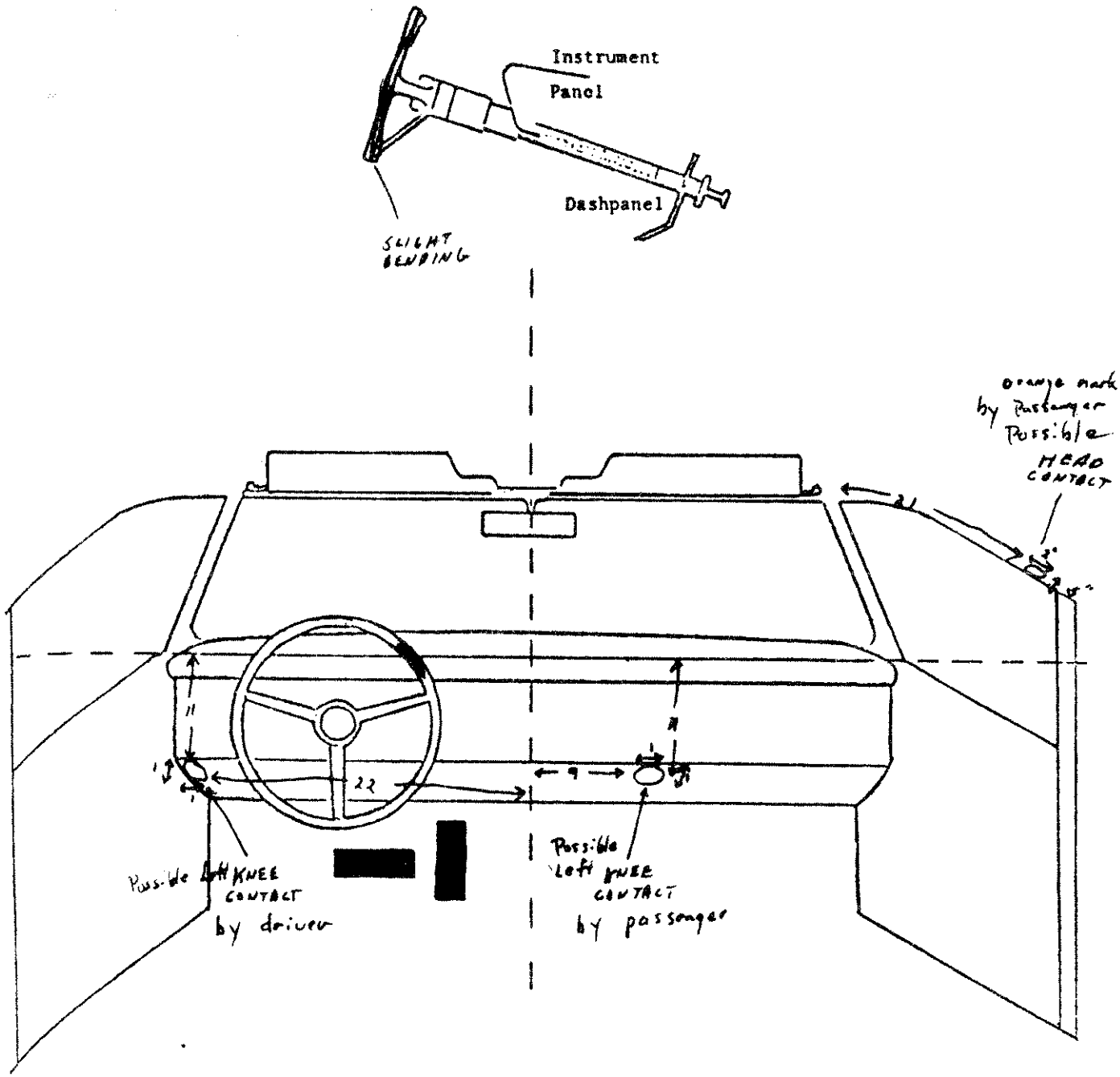
Figure 17-3

OCCUPANT CONTACT DATA

TEST NO. 11 - CAR NO. 1

VEHICLE INTERIOR

Occupant Contacts



Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and code on next two pages. Dash lines indicate center of instrument panel-windshield area and top of panel for measurement purposes.

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TABLE 17-2

TEST NO. 11 - CAR NO. 2

VEHICLE DATA

TEAM	YEAR	MONTH	DAY	SEQUENCE
1	8	07	07	011

Vehicle data not collected. Reason? _____

Vehicle No. 2 — 14-15 No. of VIN Characters: 11

16-22 VIN (Left Justify, Omit Production Numbers): 4B31H126783

23-27 Make/Model (CPIR Code): 4 DR. FORD GRAN TORINO -- Brown: 12101

28-32 Mileage (Odometer Reading): 99998 = 99998 mi. or more; 99999 = Unknown: 73994

33-34 Model Year: 74

35-36 BODY STYLE

Automobiles		Trucks		Other	
Passenger Car	(01)	Van - Passenger	05	School Bus	11
Stationwagon	02	- Cargo	06	Other Bus	12
Convertible	03	Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04	Pickup	08	Other Body Style	98
		Straight Truck	09	Unknown	99
		Tractor-Trailer	10		

37-39 VEHICLE WEIGHT — Curb: 4000

40-42 Occupant and Cargo Only: 00

43 TOWING ANOTHER VEHICLE: Yes / (No) / Unknown — 2

VEHICLE DAMAGE

	Object Contacted	CDC	Veh. No.	Impact No.
44-54 (1)	01	12 FYEW 3	1	1
55-65 (2)				
(3)				
(4)				

(1) = Highest Severity (Estimated ΔV)

66 VEHICLE TOWED FROM SCENE: FORK LIFTED — Yes / (No) / Unknown — 2

67 SOURCE OF VEHICLE DATA

- Inspection at Repair or Tow Facility — (1)
- Inspection at Person's Home — 2
- Inspection at Scene — 3
- Not Inspected (Photos or Repair Data) — 4
- Not Inspected. Reason. _____ — 5
- Unknown — 9

68 VEHICLE INSPECTION

- Not Inspected — 0
- Inspected on First Visit — (1)
- Actual Number of Locations Visited (Including Follow-Ups to Same Location): 2, 3, 4, 5, 6, 7
- 3 or More — 8
- Unknown — 9

69 APPLICABLE VEHICLE: Yes — (1) / No — 2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED ON THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

Figure 17-4

VEHICLE CRUSH SCHEMATIC

TEST NO. 11 - CAR NO. 2

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

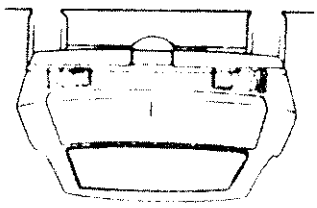
RF 2

LF 1

RR 2

LR 2

1 Yes, 2 No, 8 NA, 9 Unk.



WHEEL STEER ANGLES*

(For locked front wheels or displaced rear axles only)

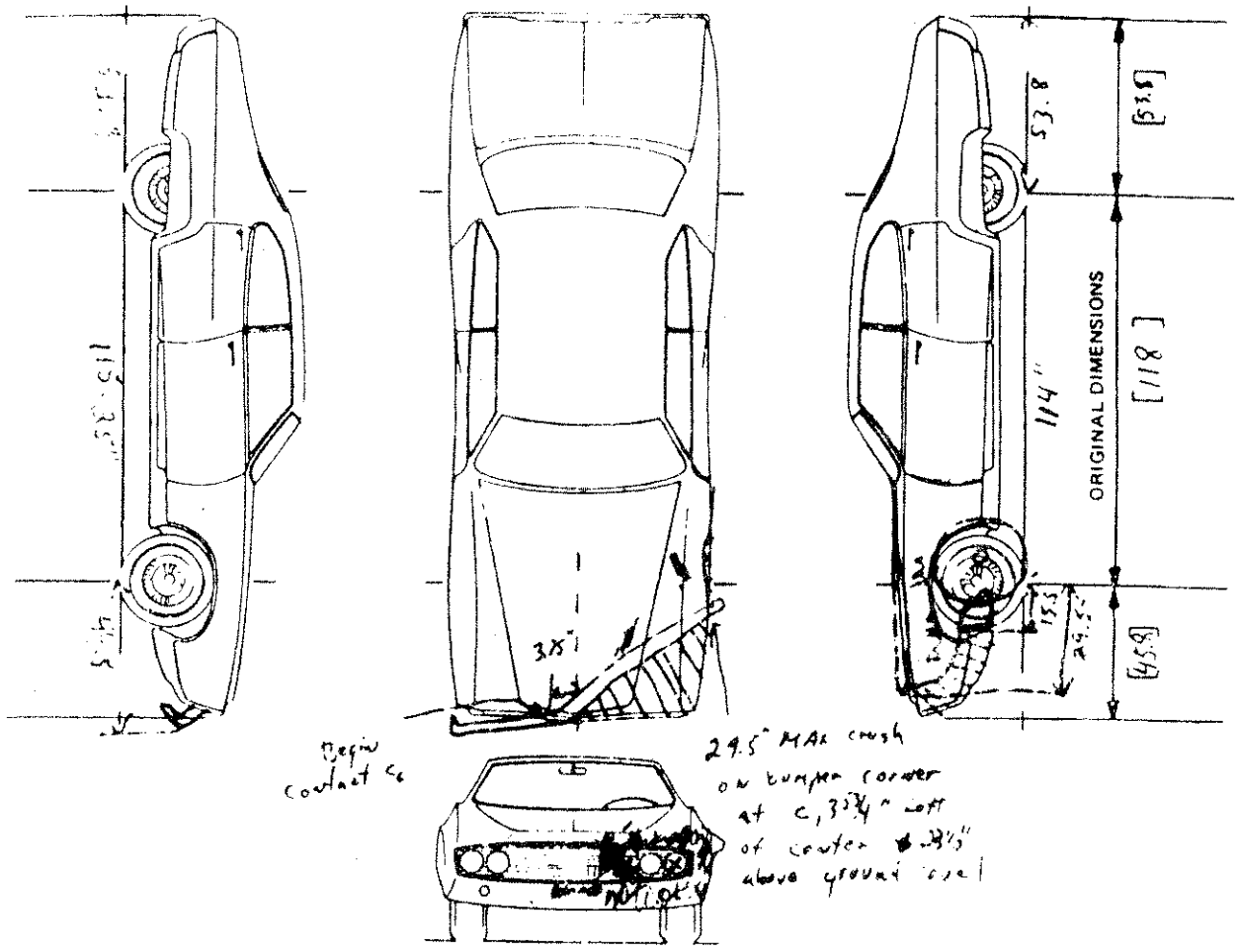
RF ± 21

LF ± 19

RR ± NA

LR ± NA

Within ± 5°



Impact Number	L	C_1	C_2	C_3	C_4	C_5	C_6	D±
1	33.25	29.5	26.25	23	18.7	14.2	11.0	12.4
2								
3								
4								

NOTE: MEASURE C_1 TO C_6 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS: REAR TO FRONT IN SIDE IMPACTS

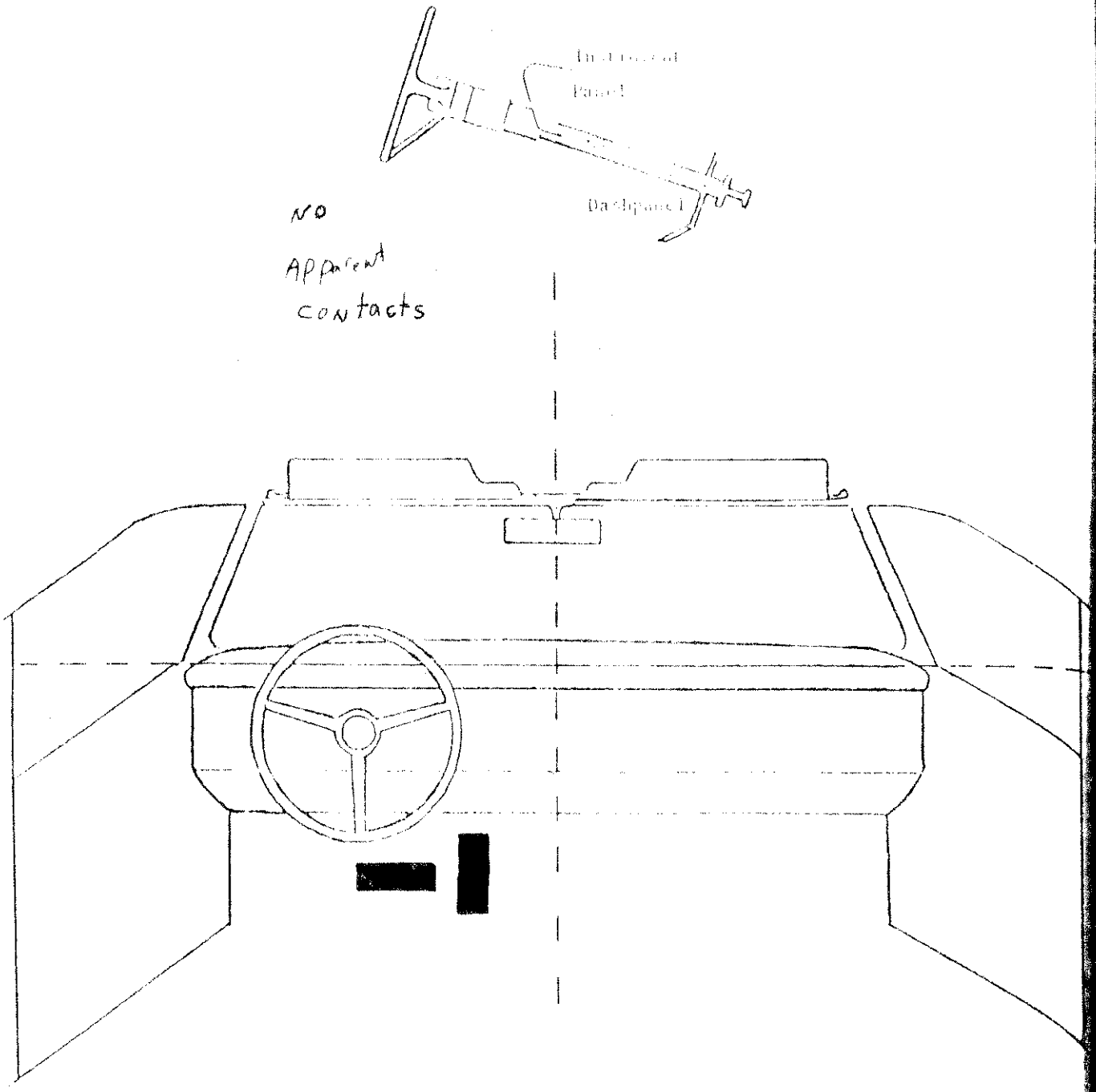
Figure 17-5

OCCUPANT CONTACT DATA

TEST NO. 11 - CAR NO. 2

VEHICLE INTERIOR

Occupant Contacts



Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and describe on next two pages. Dash lines indicate center of instrument panel, cushioned area and top of panel for measurement purposes.

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ZQ-6057-V-5

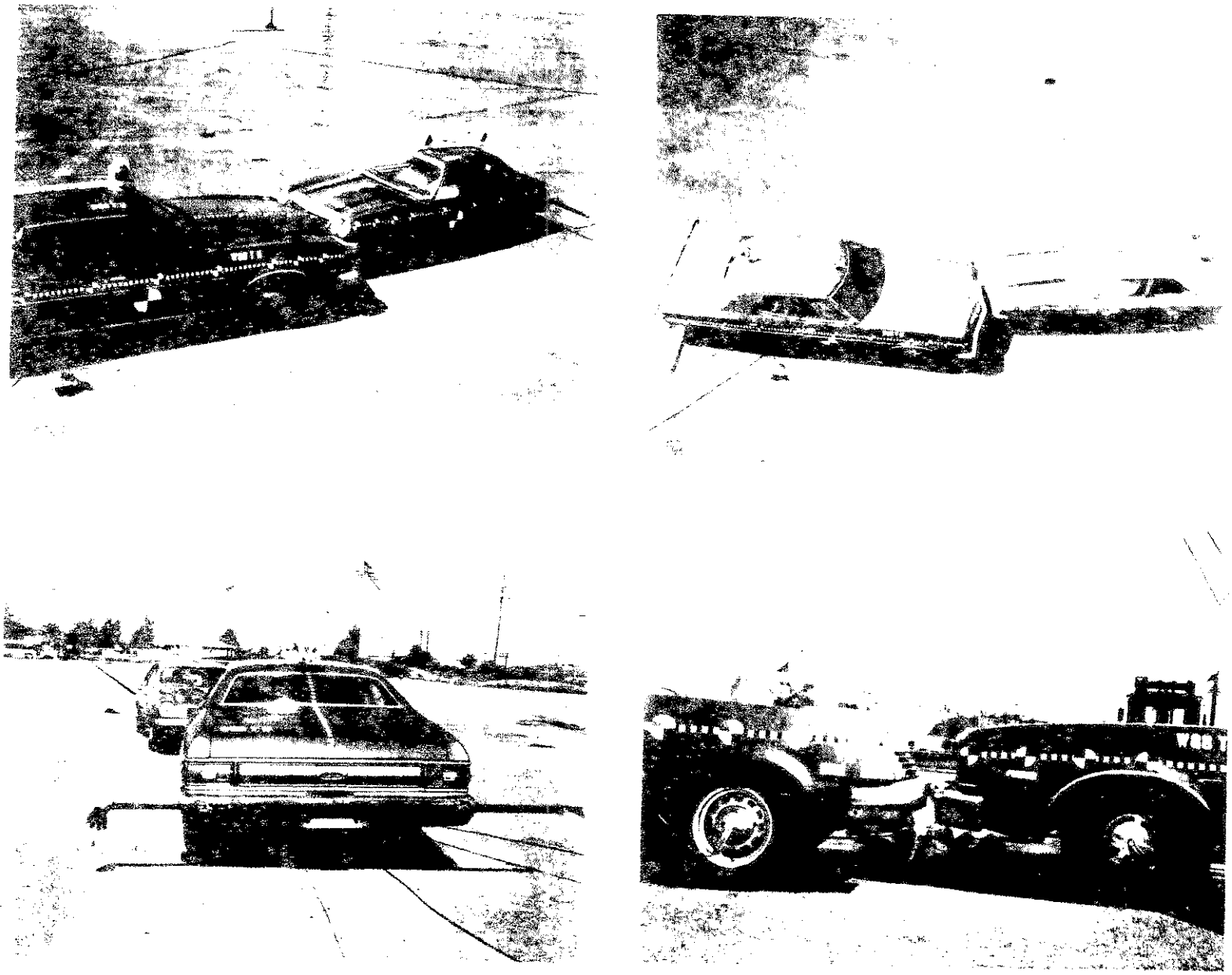


Figure 17-6 TEST NO. 11 — PRE TEST COLLISION CONFIGURATION

Figure 17-7 TEST NO. 11 – POST TEST COLLISION SCENE

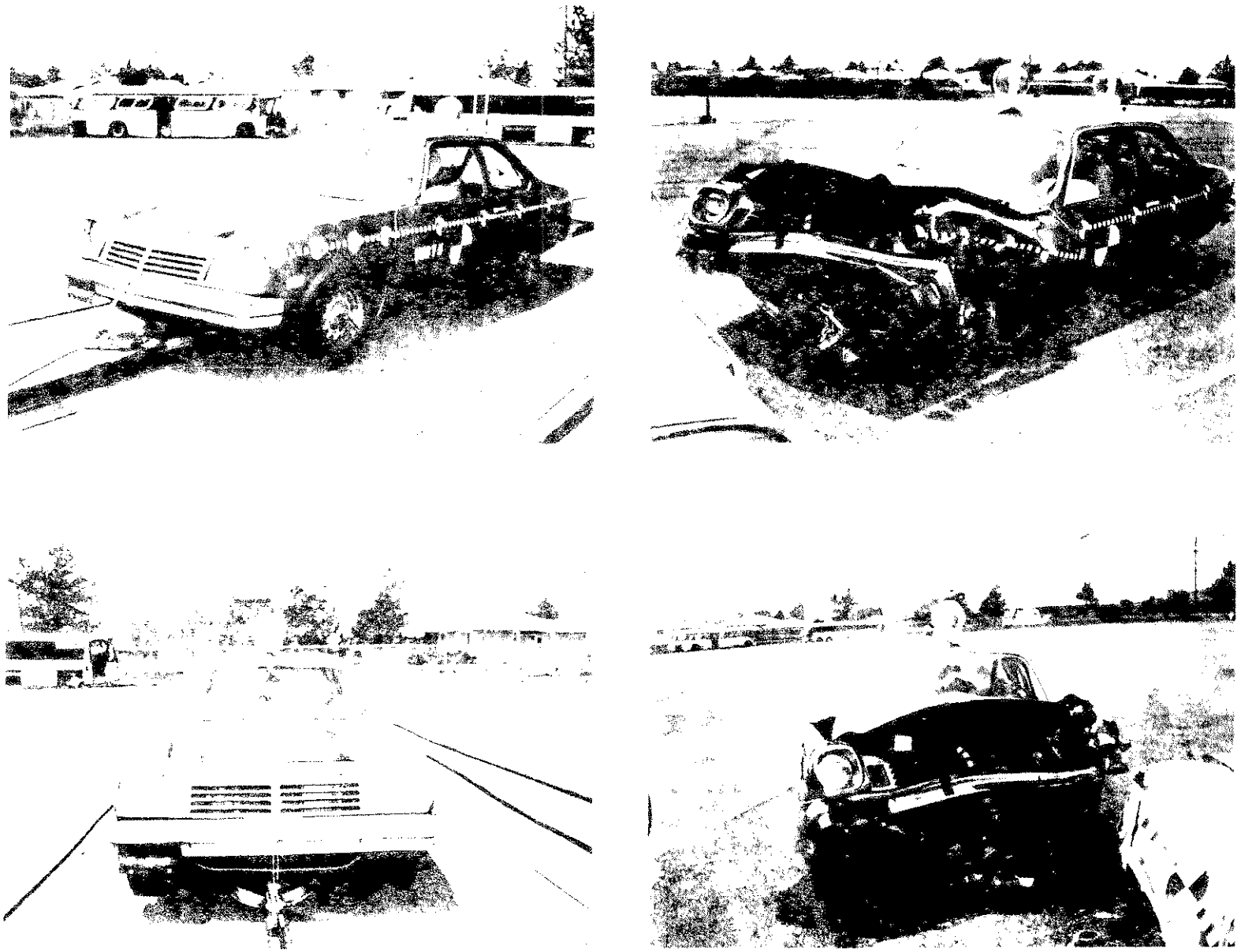


Figure 17-8 TEST NO. 11 – PRE AND POST EXTERIOR VIEWS, CAR NO. 1 - VEGA

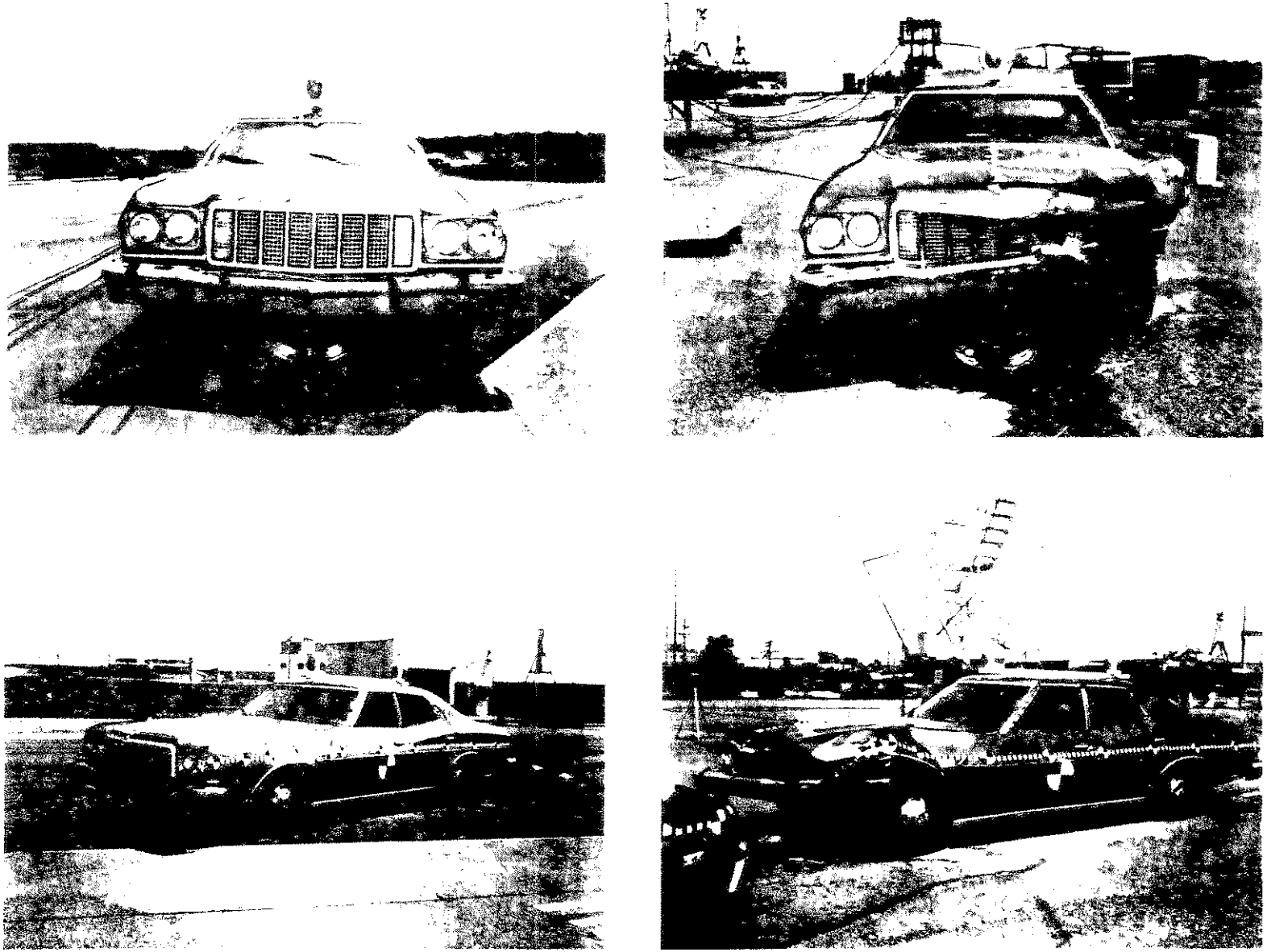


Figure 17-9 TEST NO. 11 – PRE AND POST EXTERIOR VIEWS, CAR NO. 2 - TORINO

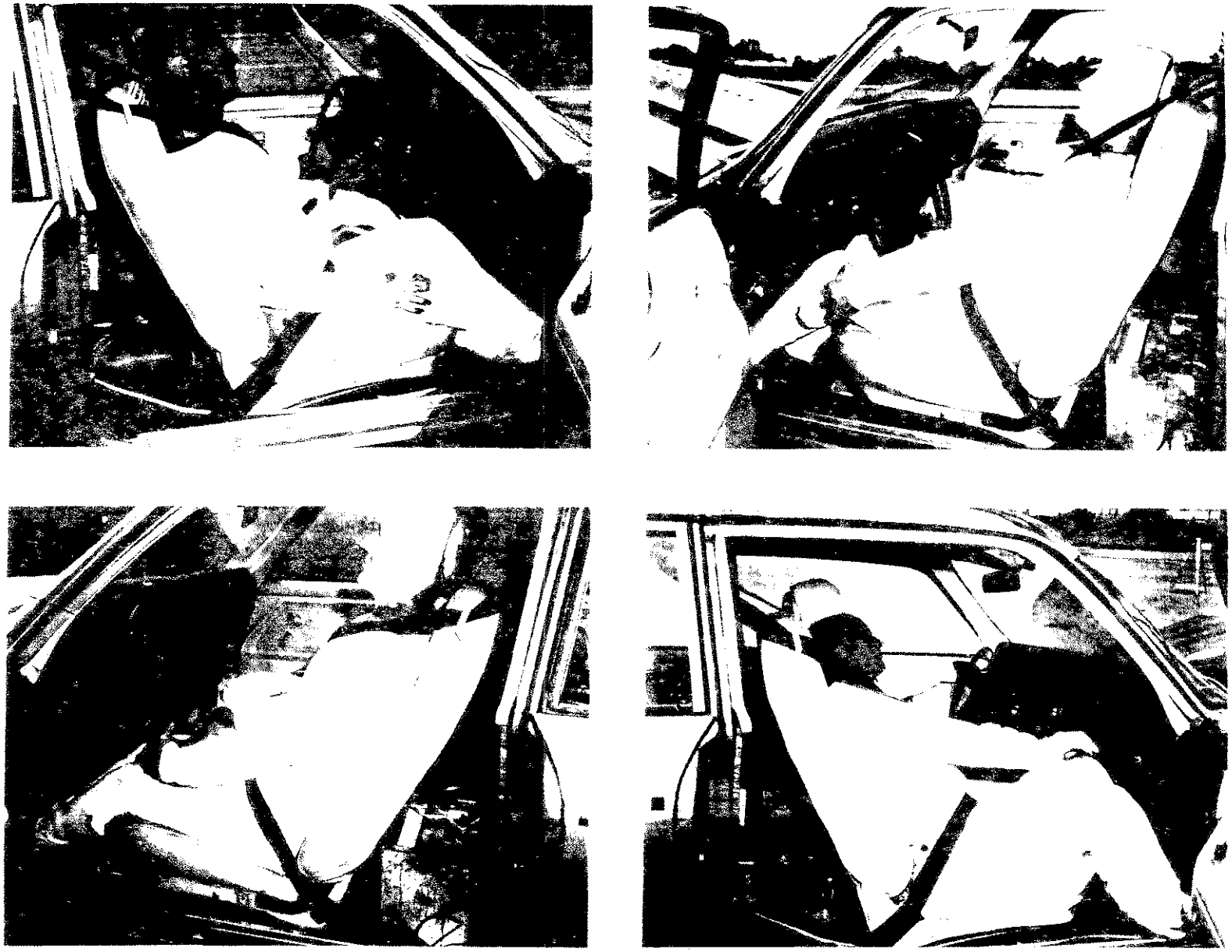
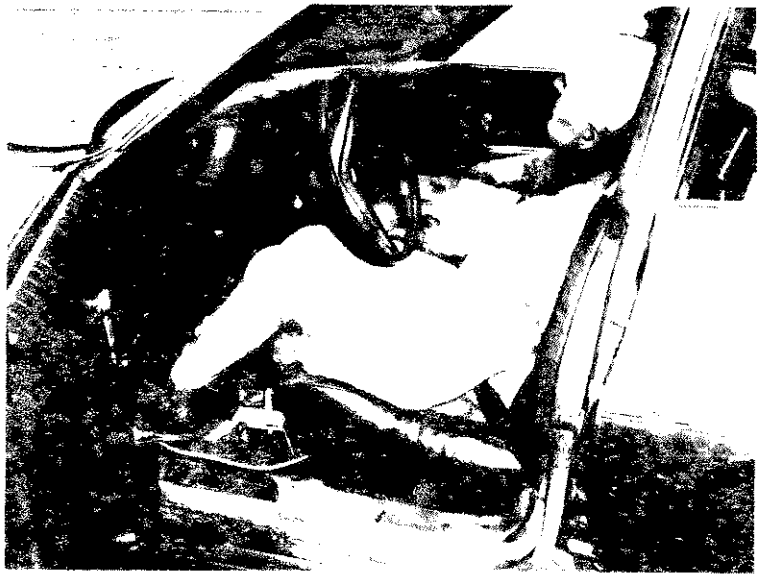


Figure 7-10 TEST NO. 11 – PRE AND POST INTERIOR VIEWS, CAR NO. 1 - VEGA



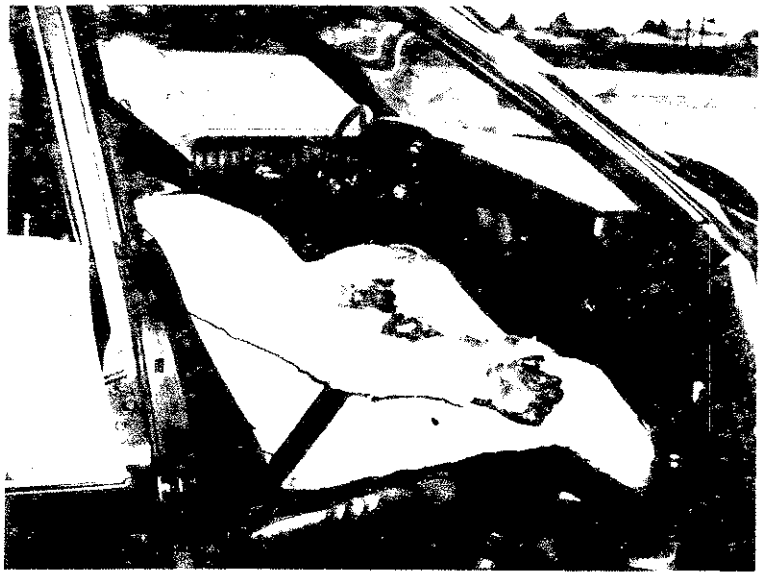


Figure 7-11 TEST NO. 11 – PRE AND POST INTERIOR VIEWS, CAR NO. 2 - TORINO

TABLE 17-3

ELECTRONIC INSTRUMENTATION TEST No. 11

BULLET VEHICLE - CAR 1 - 1974 CHEVROLET VEGA

TRANSDUCER DESCRIPTION OR ACCELEROMETER LOCATION *	DIRECTION OF PARAMETER BEING MEASURED	LOCATION ON VEHICLE	DESCRIPTION LISTED ON DATA PLOTS
VEHICLE ACCELEROMETER			
1	X,Y,Z	Floorpan L.F. Corner	Left Front Corner
2	X,Y,Z	Floorpan R.R. Corner	Right Rear Corner
3	X,Y,Z	Firewall	Firewall
4	X,Y,Z	Rear Deck	Rear Deck
5	X	Bumper	Bumper
VEHICLE ATTITUDE			
Pitch Angle - 6		Gyro Package	Vehicle Pitch Angle
Roll Angle - 6		Gyro Package	Vehicle Roll Angle
Yaw Angle - 6		Gyro Package	Vehicle Yaw Angle
Yaw Rate Angle - 6		Gyro Package	Vehicle Yaw Rate
Steer Angle		Front Wheels	Steer Angle-Front Wheels
R.F. Wheel Velocity		R.F. Wheel Axle	R.F. Wheel Velocity
L.F. Wheel Velocity		L.F. Wheel Axle	L.F. Wheel Velocity
R.R. Wheel Velocity		R.R. Wheel Axle	R.R. Wheel Velocity
L.R. Wheel Velocity		L.R. Wheel Axle	L.R. Wheel Velocity
DUMMY			
L.F. Head	X,Y,Z	L.F. Seat	Dummy L.F. Head
L.F. Chest	X,Y,Z	L.F. Seat	Dummy L.F. Chest
L.F. Femur	R,L**	L.F. Seat	Dummy L.F. Femur
L.F. Pelvic	X	L.F. Seat	Dummy L.F. Pelvic
R.F. Head	X,Y,Z	R.F. Seat	Dummy R.F. Head
R.F. Chest	X,Y,Z	R.F. Seat	Dummy R.F. Chest
R.F. Femur	R,L**	R.F. Seat	Dummy R.F. Femur
R.F. Pelvic	X	R.F. Seat	Dummy R.F. Pelvic

*SEE FIGURE 17-12 VEHICLE INSTRUMENTATION LOCATIONS

**RIGHT AND LEFT FORCES

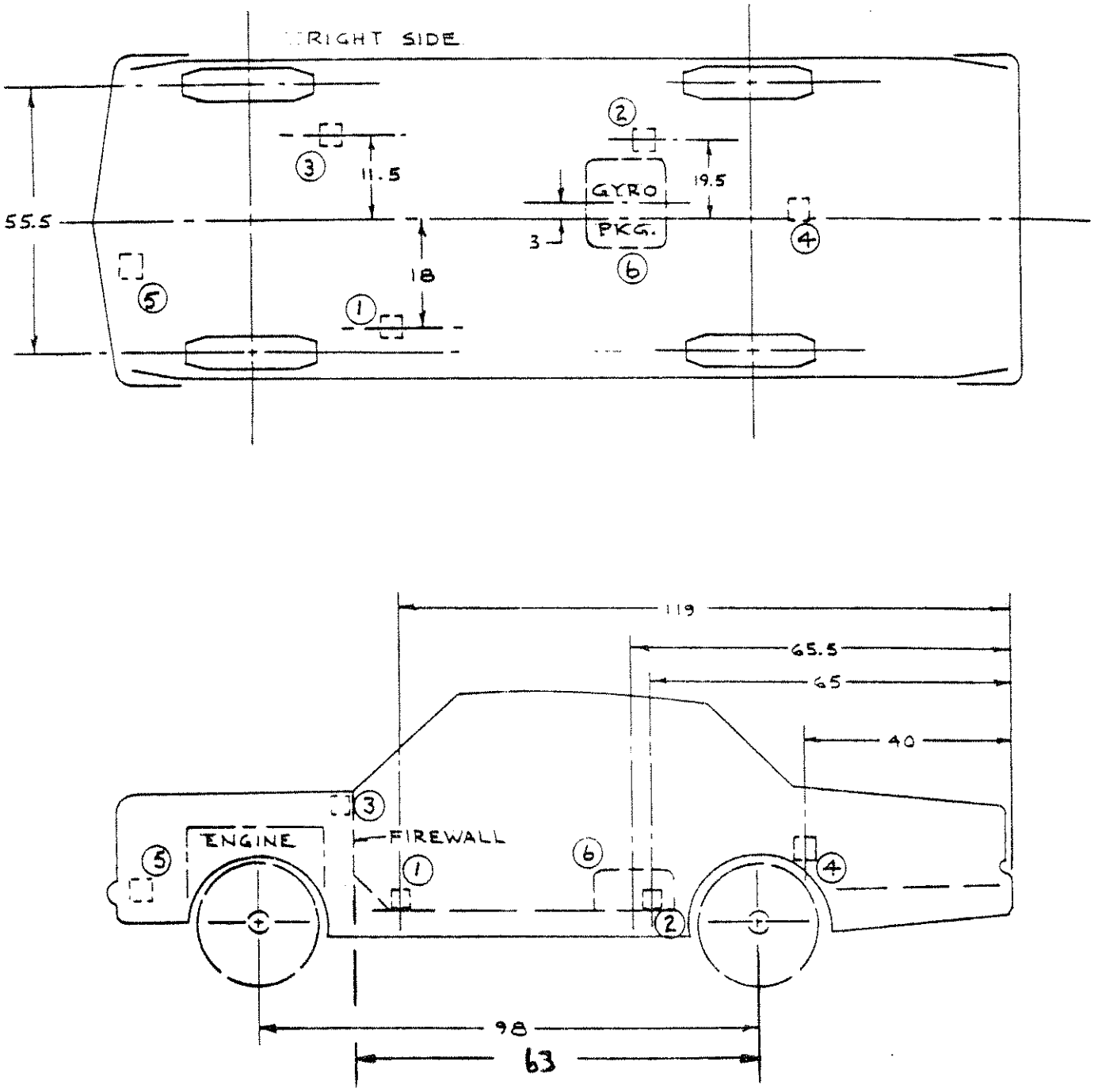


Figure 17-12 VEHICLE INSTRUMENTATION LOCATIONS

CAR 1 - 1974 VEGA - TEST NO. 11

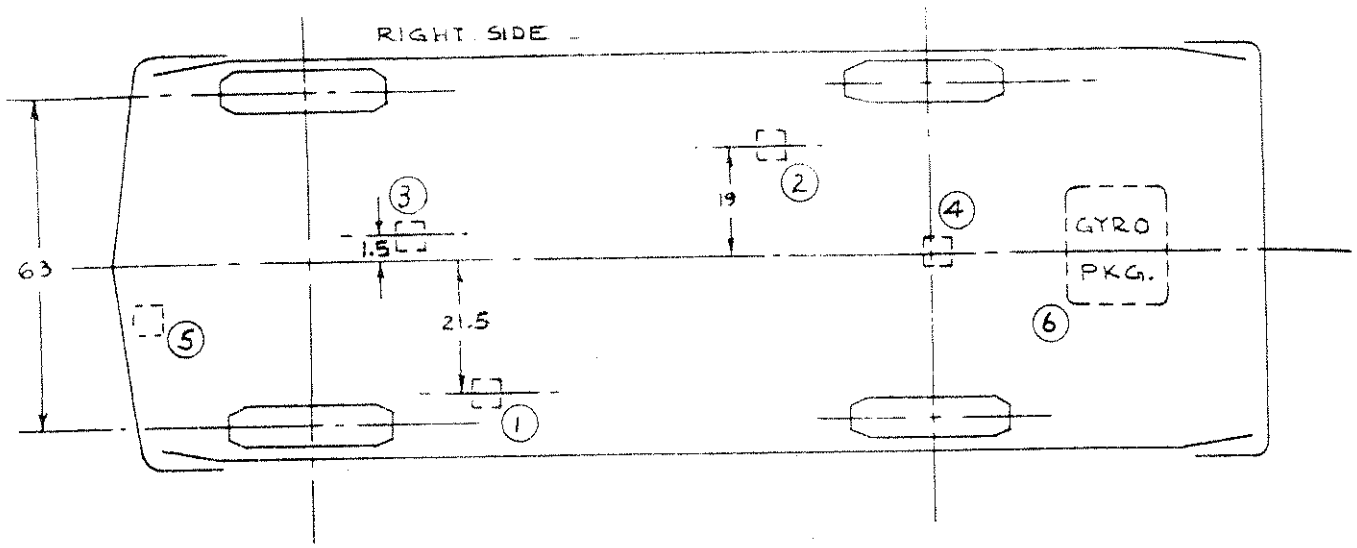
TABLE 17-4

ELECTRONIC INSTRUMENTATION TEST No. 11

TARGET VEHICLE - CAR 2 - 1974 FORD TORINO

TRANSDUCER DESCRIPTION OR ACCELEROMETER LOCATION *	DIRECTION OF PARAMETER BEING MEASURED	LOCATION ON VEHICLE	DESCRIPTION LISTED ON DATA PLOTS
VEHICLE ACCELEROMETER			
1	X,Y,Z	Floorpan L.F. Corner	Left Front Corner
2	X,Y,Z	Floorpan R.R. Corner	Right Rear Corner
3	X,Y,Z	Firewall	Firewall
4	X,Y,Z	Rear Deck	Rear Deck
5	X	Bumper	Bumper
VEHICLE ATTITUDE			
Pitch Angle - 6		Gyro Package	Vehicle Pitch Angle
Roll Angle - 6		Gyro Package	Vehicle Roll Angle
Yaw Angle - 6		Gyro Package	Vehicle Yaw Angle
Yaw Rate Angle - 6		Gyro Package	Vehicle Yaw Rate
Steer Angle		Front Wheels	Steer Angle-Front Wheels
R.F. Wheel Velocity		R.F. Wheel Axle	R.F. Wheel Velocity
L.F. Wheel Velocity		L.F. Wheel Axle	L.F. Wheel Velocity
R.R. Wheel Velocity		R.R. Wheel Axle	R.R. Wheel Velocity
L.R. Wheel Velocity		L.R. Wheel Axle	L.R. Wheel Velocity

*SEE FIGURE 17-13 VEHICLE INSTRUMENTATION LOCATIONS



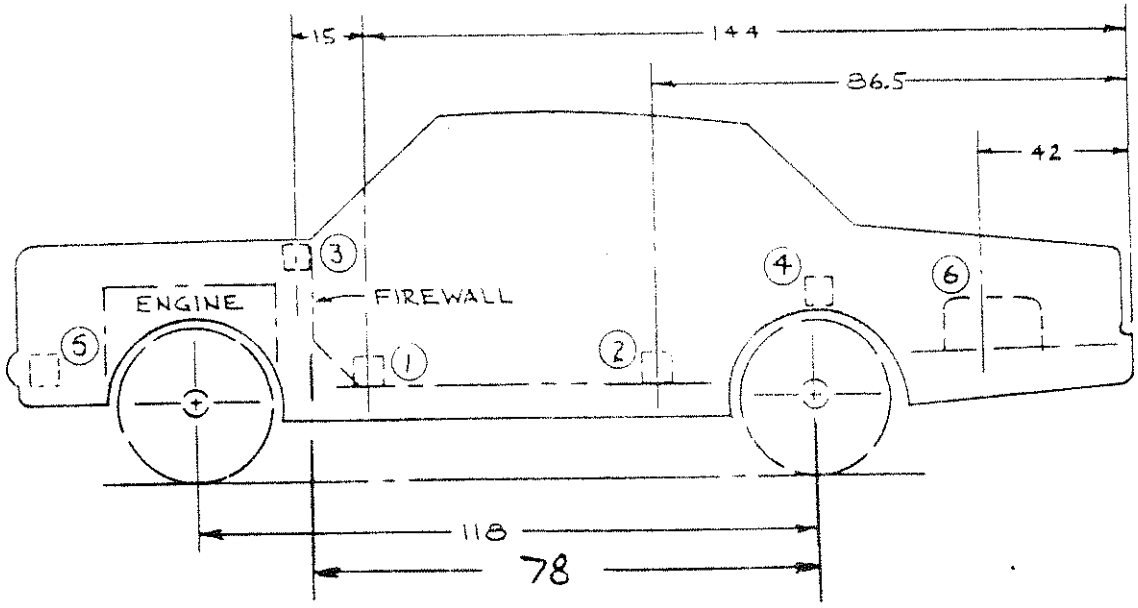


Figure 17-13 VEHICLE INSTRUMENTATION LOCATIONS

CAR 2 - 1974 FORD TORINO - TEST NO. 11

TABLE 17-5

VEHICLE TEST WEIGHTS - TEST NO. 11

CAR 1 - 1974 Chevrolet Vega

Left Front	790 lbs.		Left Rear	780	lbs.
Right Front	710 lbs.		Right Rear	780	lbs.
Total Front	1500 lbs.		Total Rear	1560	lbs.
Total Weight =	1500 lbs.	+	1560 lbs. =	3060	lbs.
Wheel Base	97 in.				
Cg_{FW} =	1560 lbs. / 3060 lbs.	97 in.	=	49.45	in.

CAR 2 - 1974 Torino

Left Front	1370 lbs.		Left Rear	1170	lbs.
Right Front	1260 lbs.		Right Rear	1080	lbs.
Total Front	2630 lbs.		Total Rear	2250	lbs.
Total Weight =	2630 lbs.	+	2250 lbs. =	4880	lbs.
Wheel Base	118 in.				
Cg_{FW} =	2250 lbs. / 4880 lbs.	118 in.	=	54.4	in.

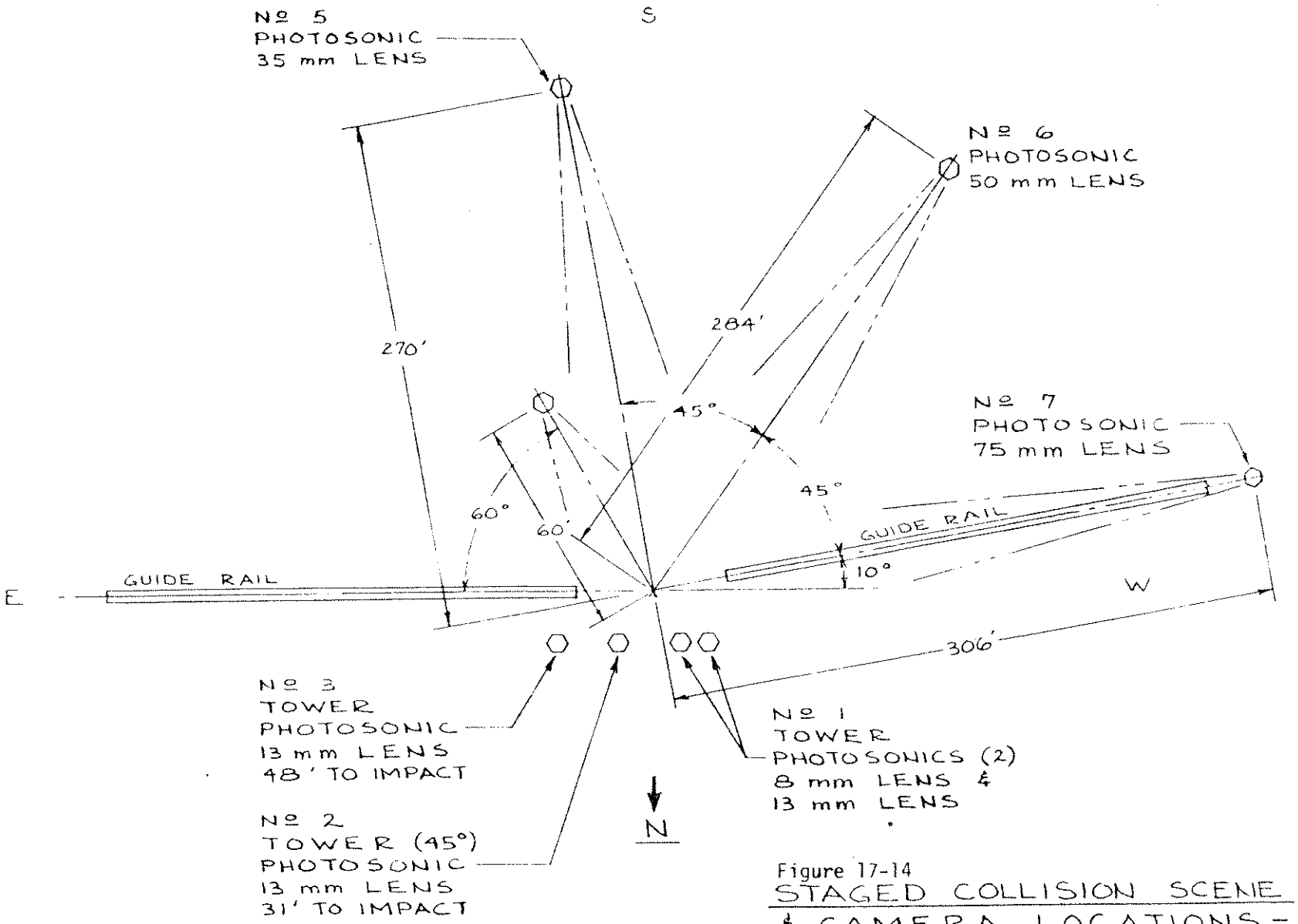


Figure 17-14
STAGED COLLISION SCENE & CAMERA LOCATIONS - TESTS 11 & 12

TABLE 17-5

HIGH SPEED CAMERA INFORMATION (TEST NO. 11)

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)
	SOUTH CLOSE	PHOTOSONIC	13 MM	725
5	SOUTH	PHOTOSONIC	35 MM	750
6	SOUTHWEST	PHOTOSONIC	50 MM	675
7	WEST	PHOTOSONIC	75 MM	700
3	TOWER EAST	PHOTOSONIC	13 MM	800
2	TOWER 45	PHOTOSONIC	13 MM	800
1	TOWER CLOSE	PHOTOSONIC	13 MM	600
1	TOWER WIDE	PHOTOSONIC	8 MM	675
	O.B. REAR	STALEX	8 MM	500

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.

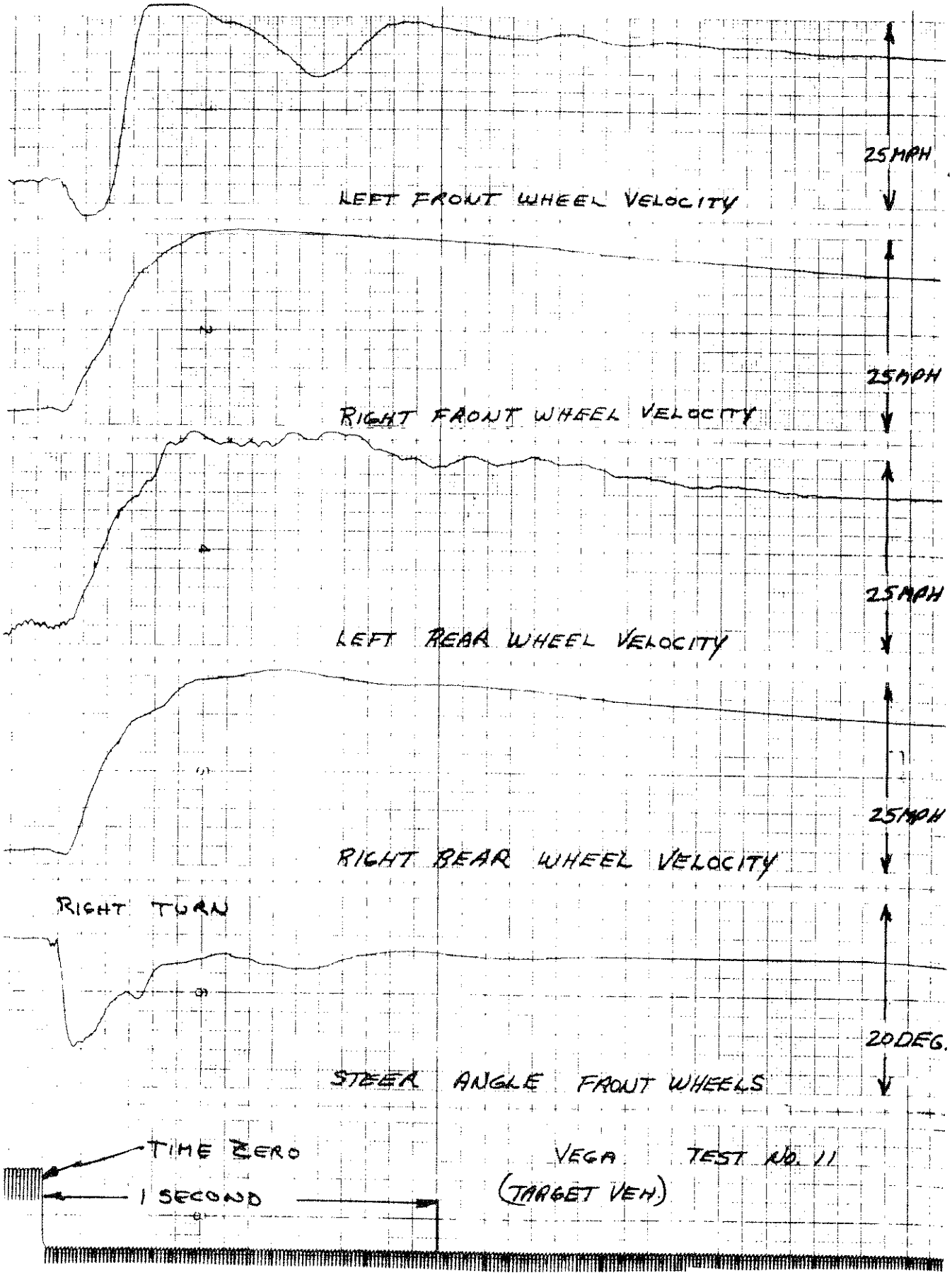


Figure 17-15 TEST NO. 11 17-24 ZQ-6057-V-5
CAR NO. 1 WHEEL RESPONSES

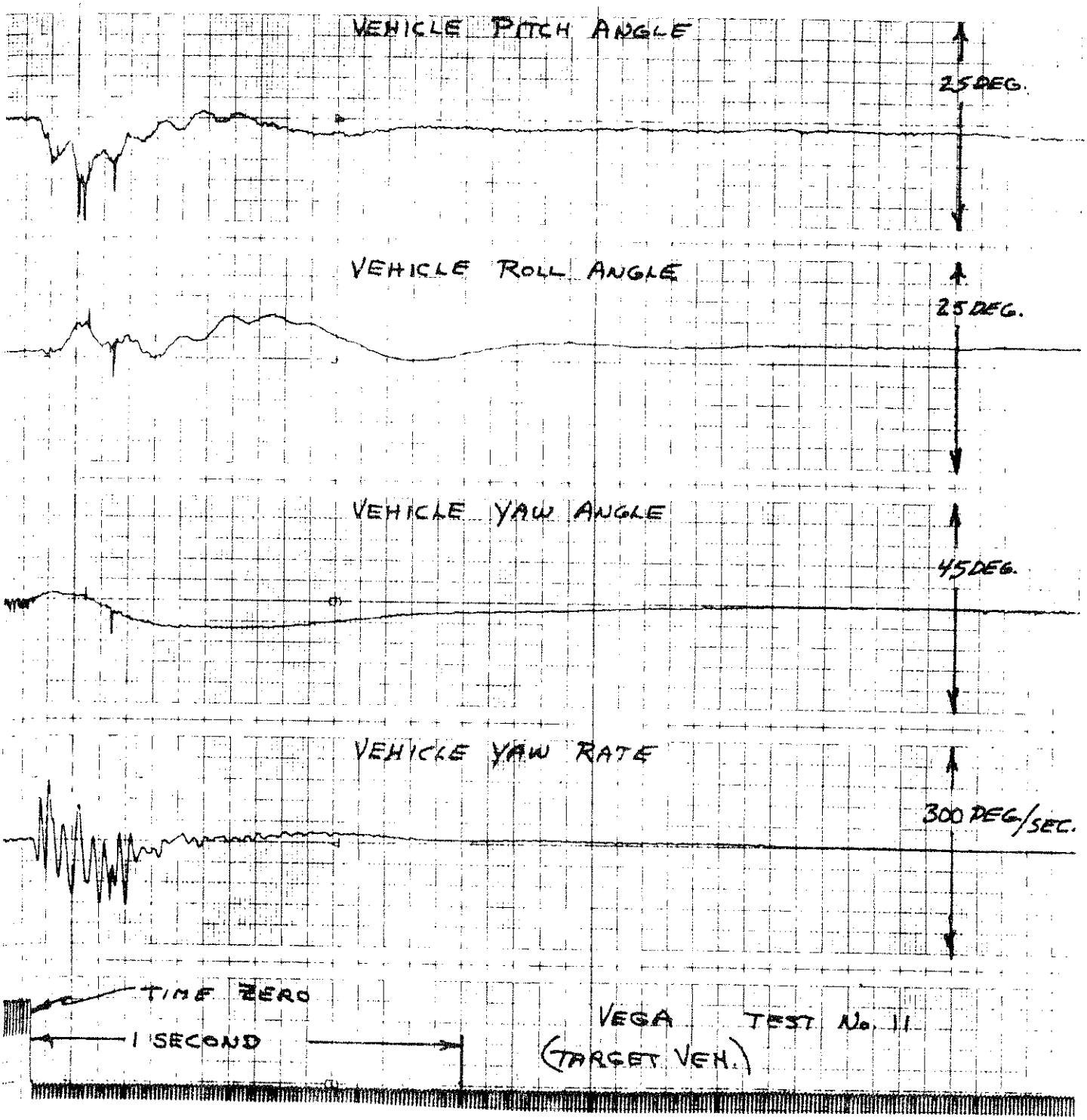


Figure 17-16 TEST NO. 11
CAR NO. 1 VEHICLE ATTITUDE

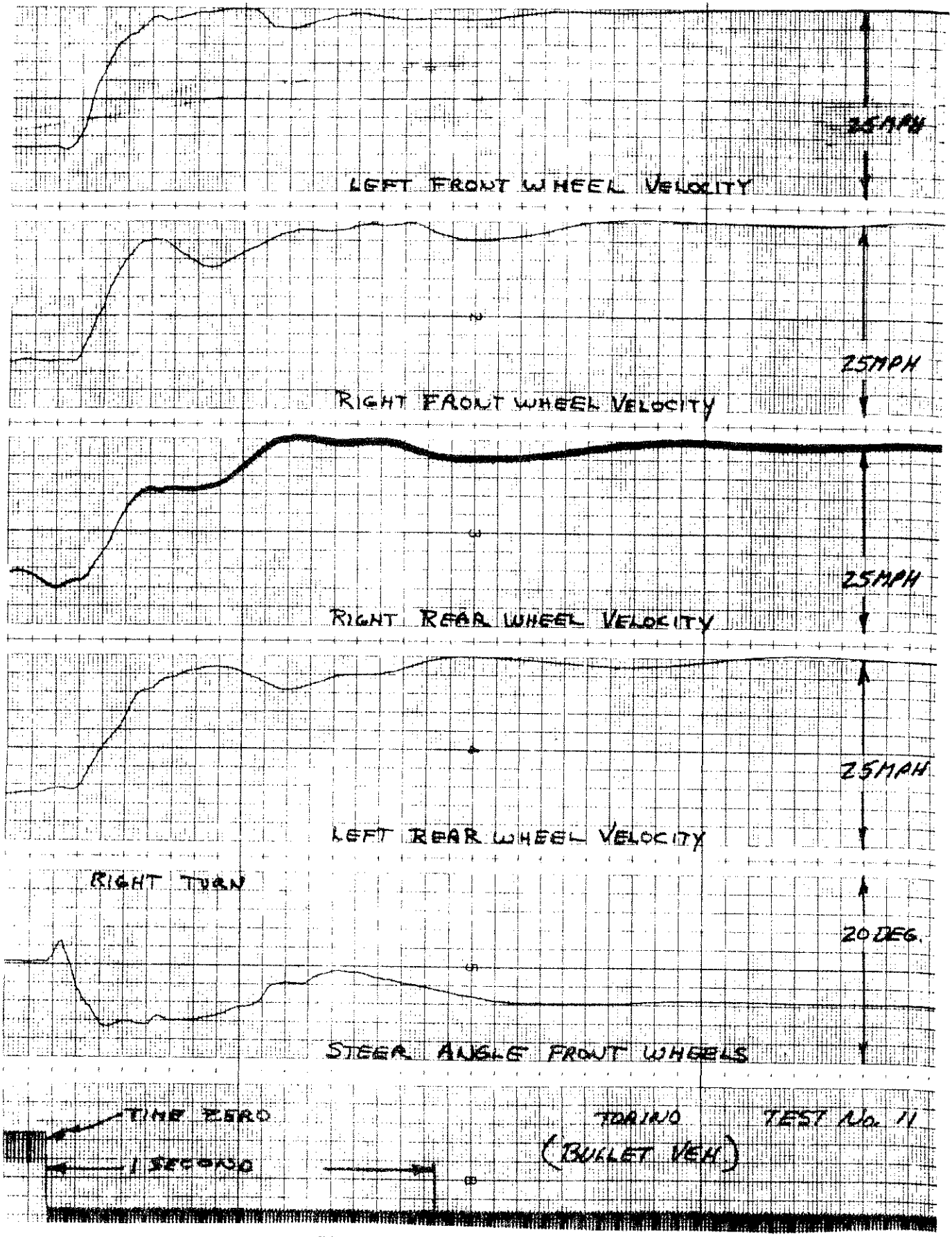


Figure 17-18 TEST NO. 11 - CAR NO. 2 ZQ-6057-V-5
VEHICLE ATTITUDE

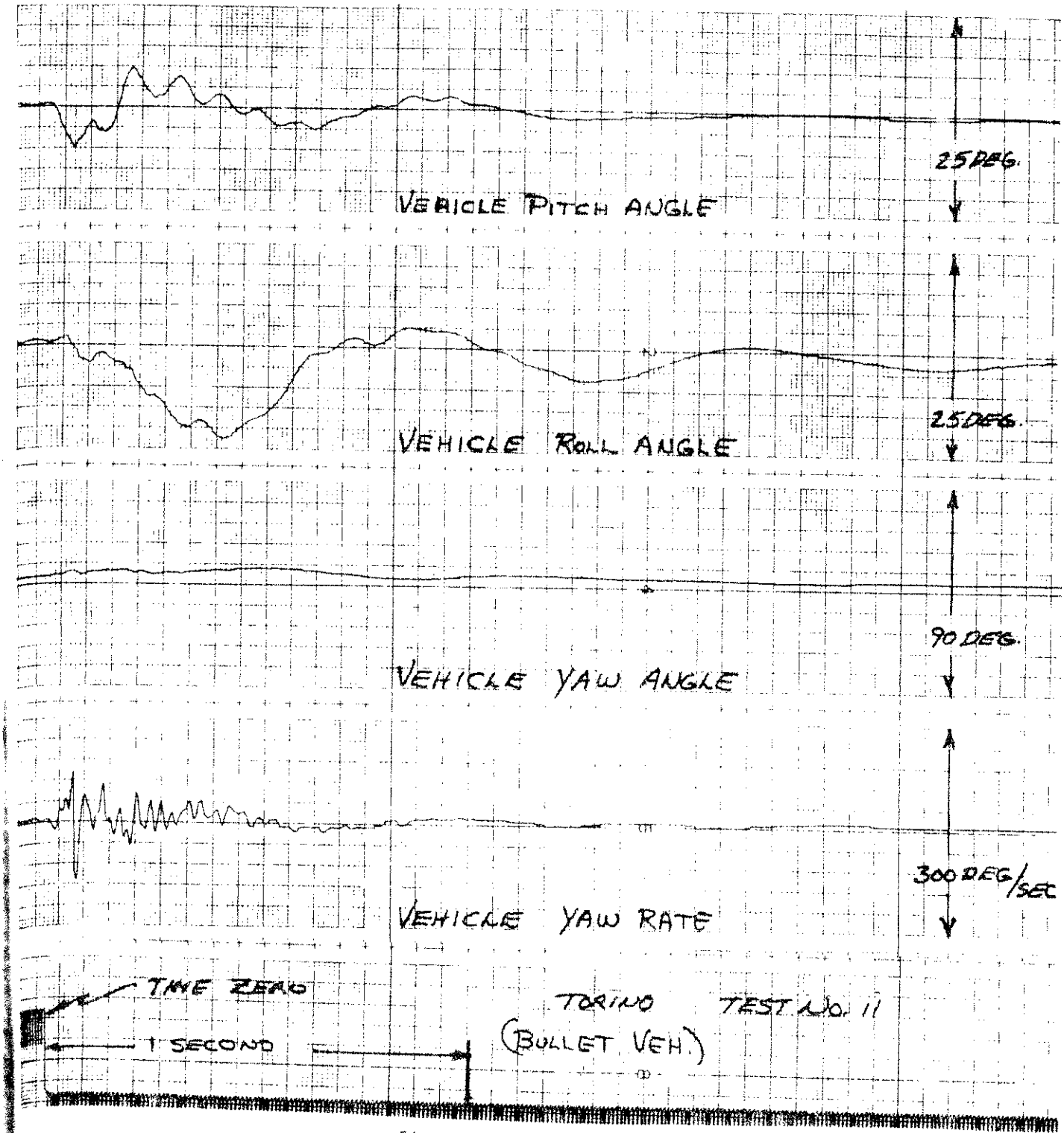


Figure 17-17 TEST NO. 11
CAR NO. 2 WHEEL RESPONSES

RICSAC TEST NO. 11

VEHICLE RESPONSES

CAR NO. 1 VEGA

DATA PLOTS

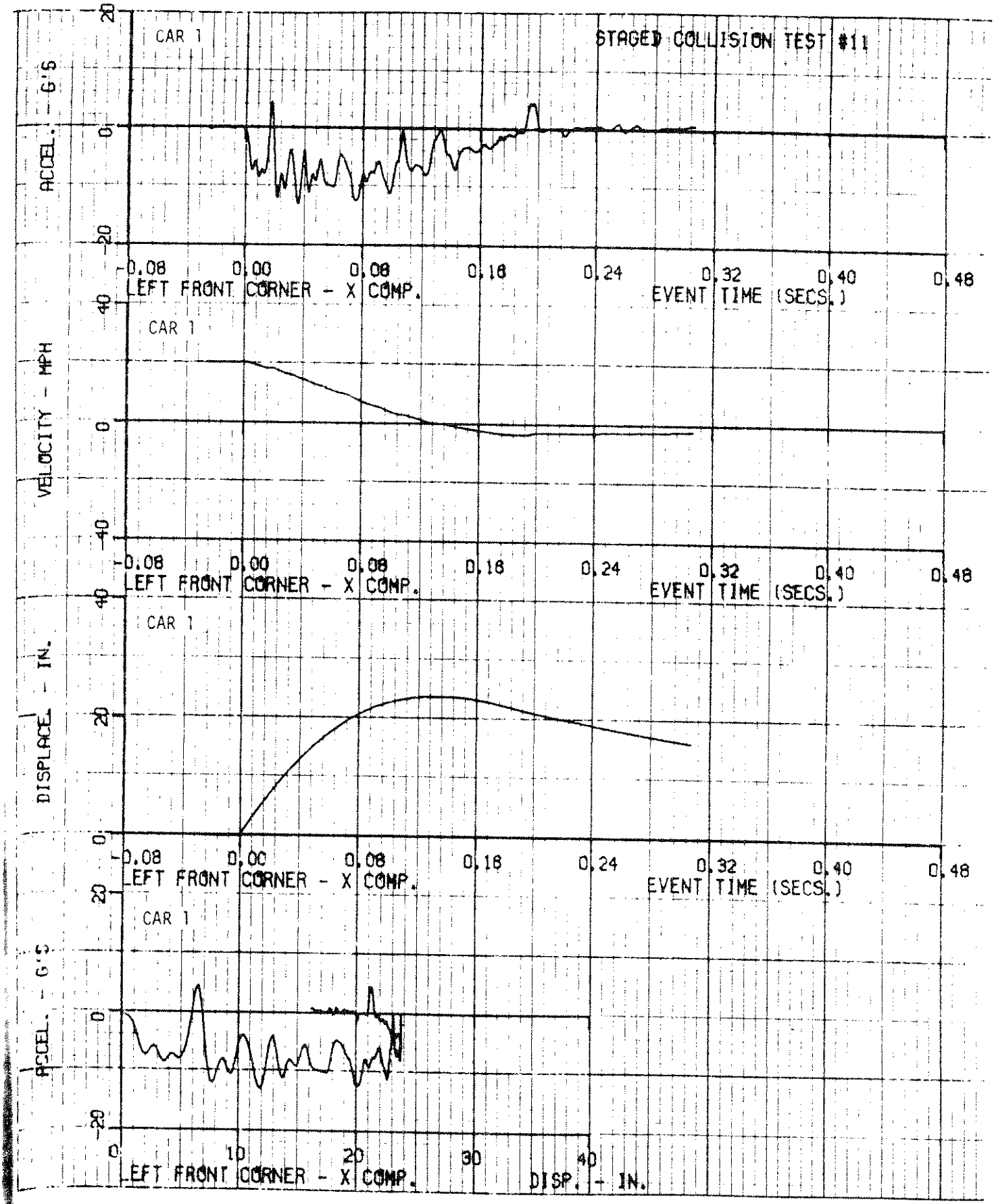
ACCELERATION TIME HISTORIES

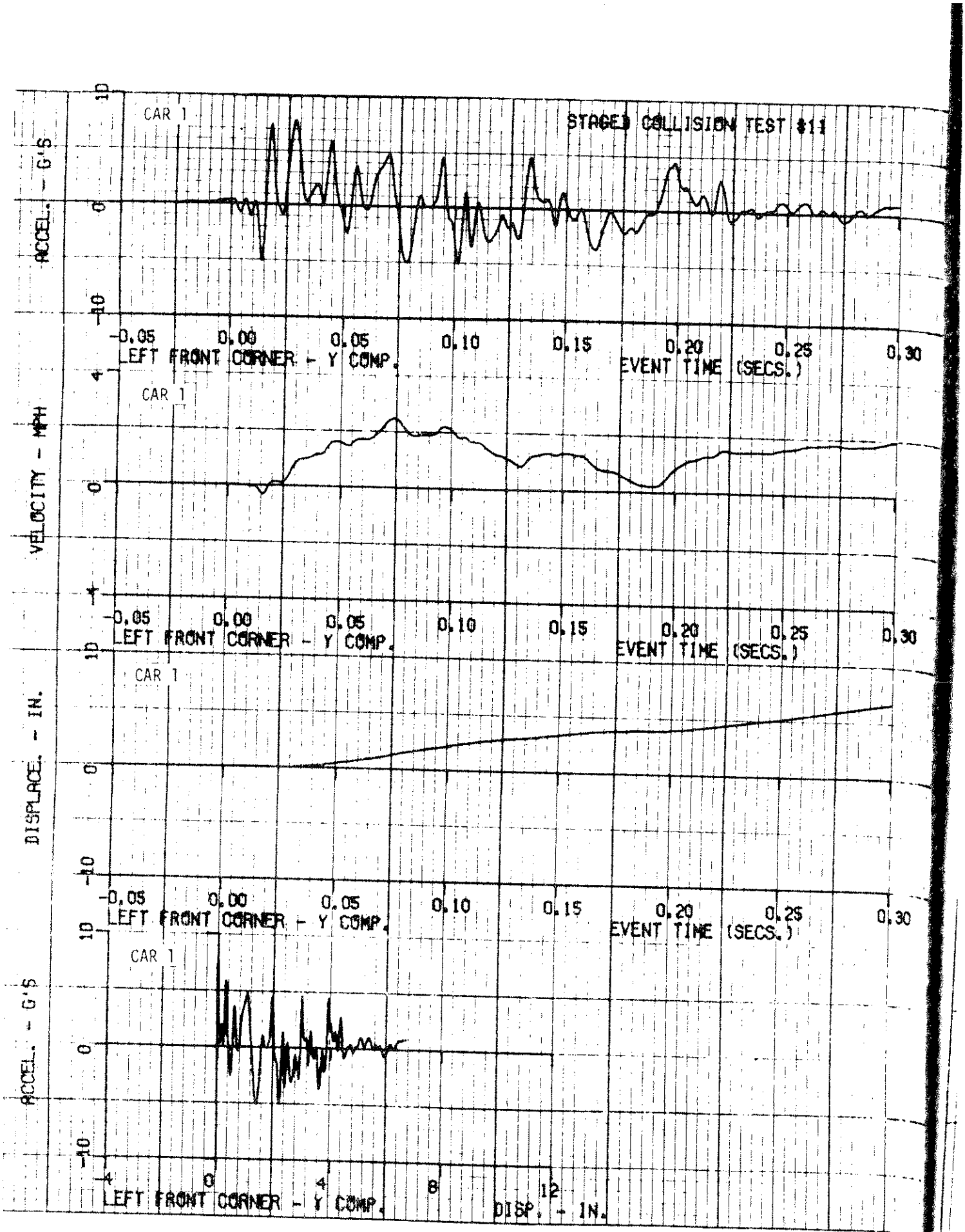
VELOCITY TIME HISTORIES

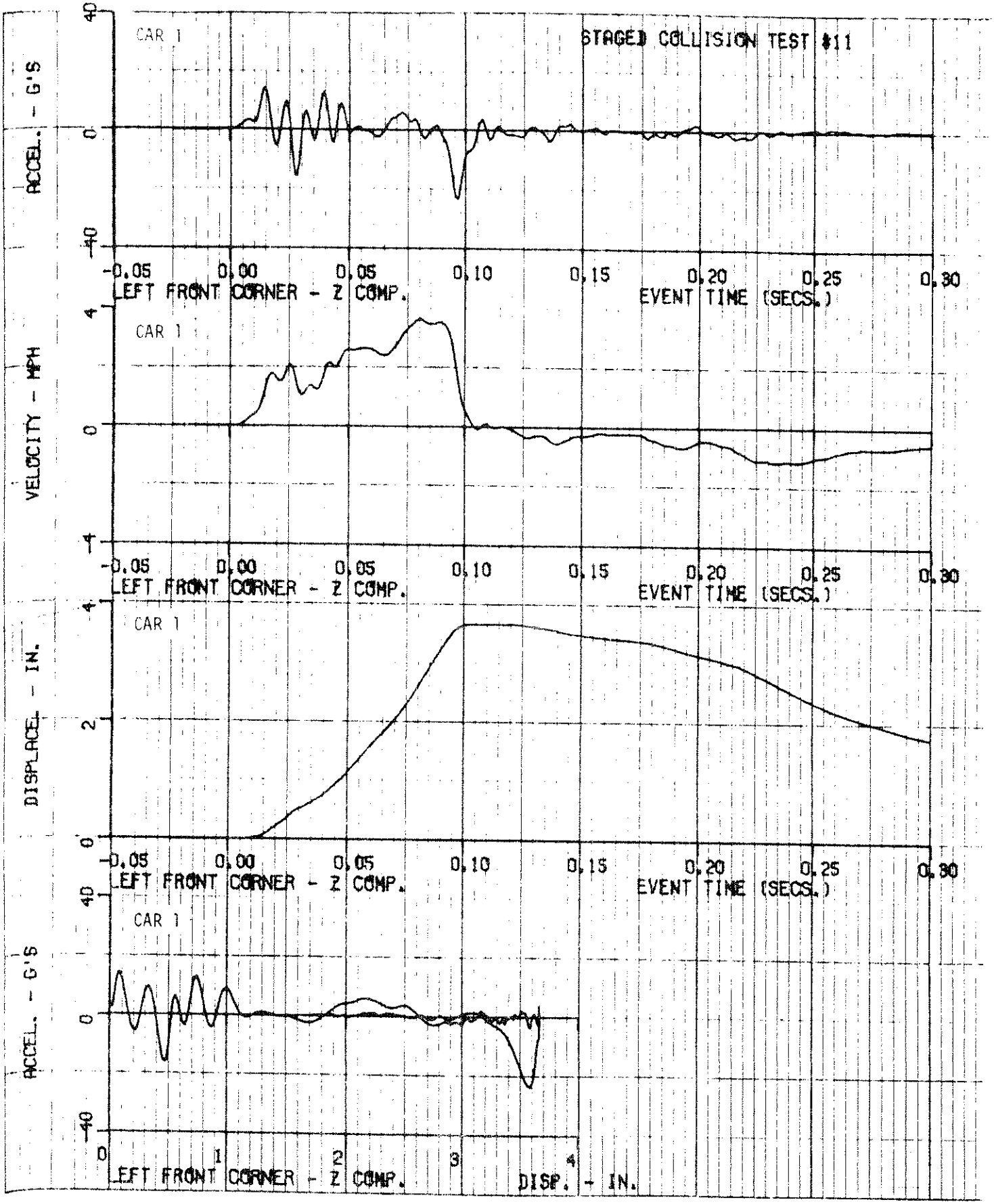
DISPLACEMENT TIME HISTORIES

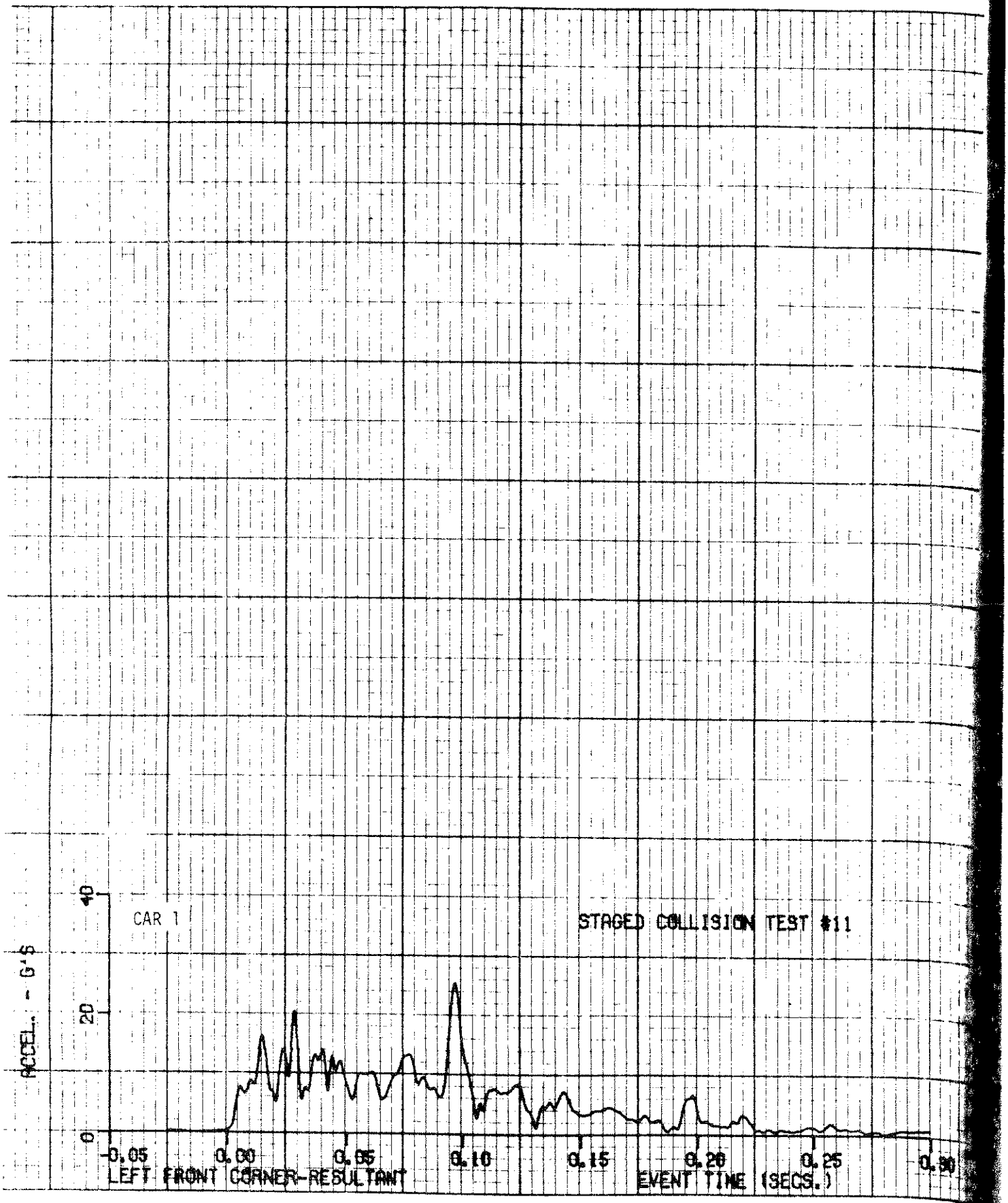
ACCELERATION VS DISPLACEMENT

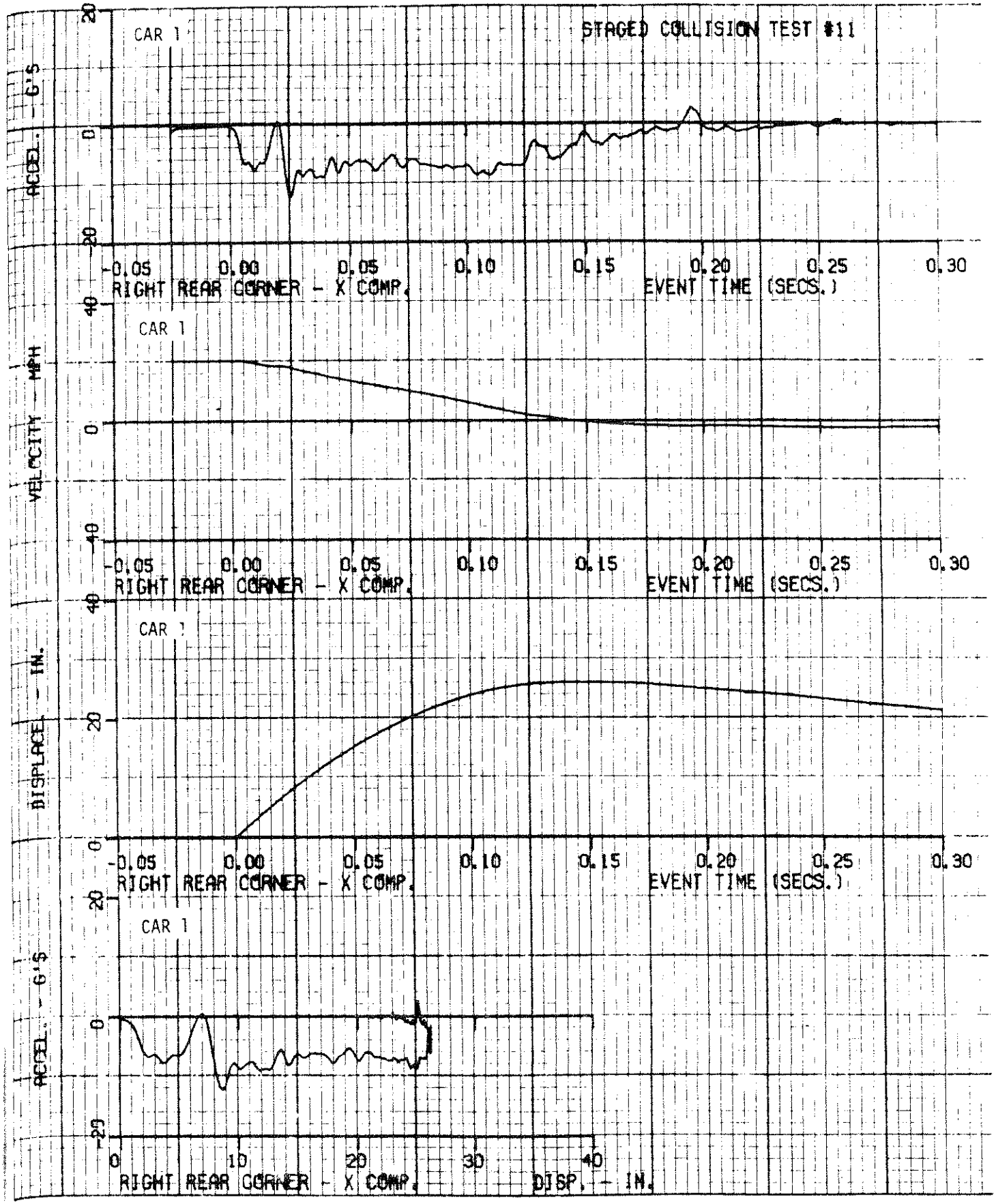
FILTER CLASS 60

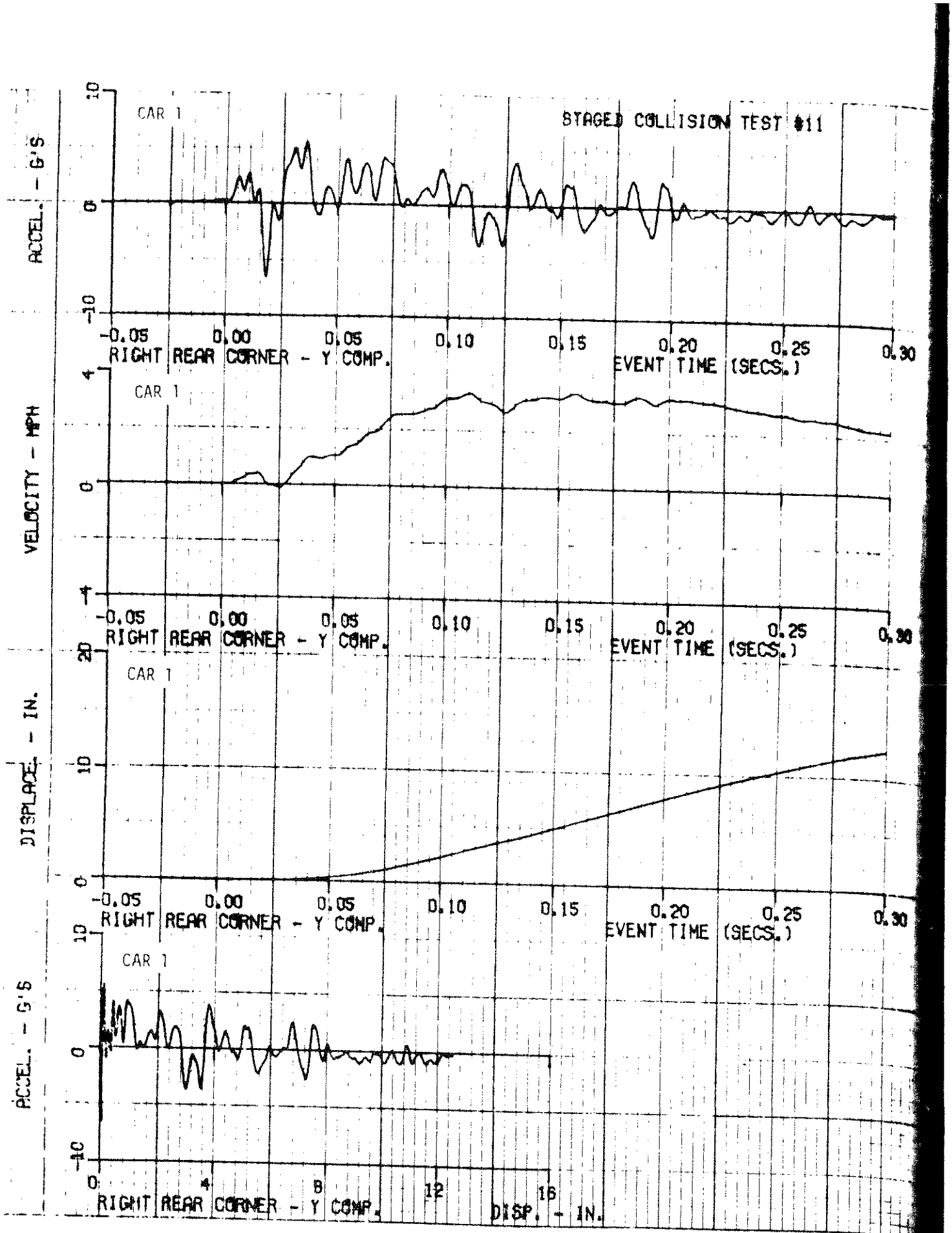

STAGED COLLISION TEST #11
CAR 1
ACCEL. - G'S
20
0
-20
-0.08
0.00
0.08
0.16
0.24
0.32
0.40
0.48
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
0
-40
-0.08
0.00
0.08
0.16
0.24
0.32
0.40
0.48
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
40
20
0
-0.08
0.00
0.08
0.16
0.24
0.32
0.40
0.48
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
10
20
30
40
LEFT FRONT CORNER - X COMP.
DISP. - IN.

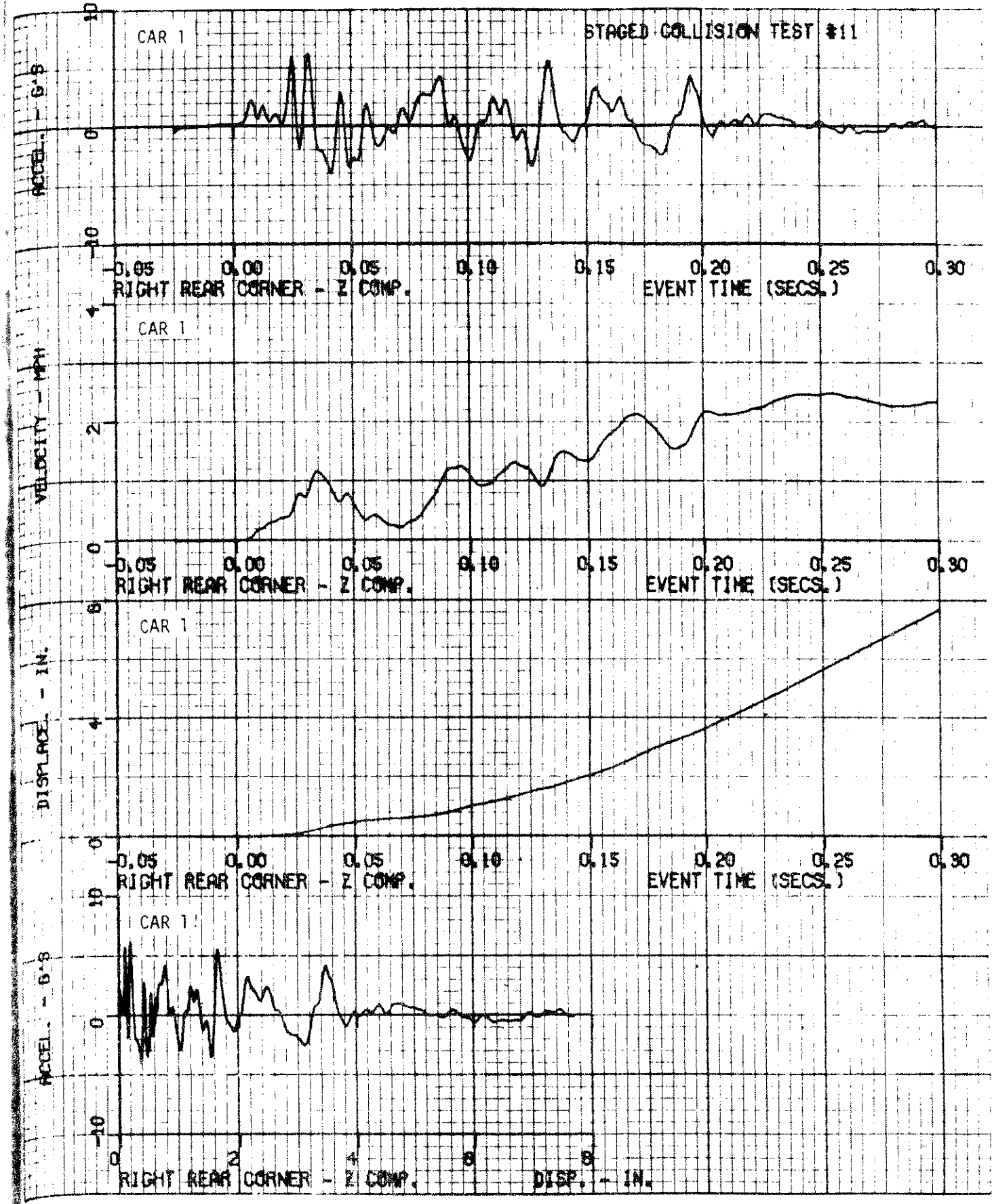

STAGE 3 COLLISION TEST #11
CAR 1
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
10
0
-10
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
-4
0
4
8
12
LEFT FRONT CORNER - Y COMP.
DISP. - IN.

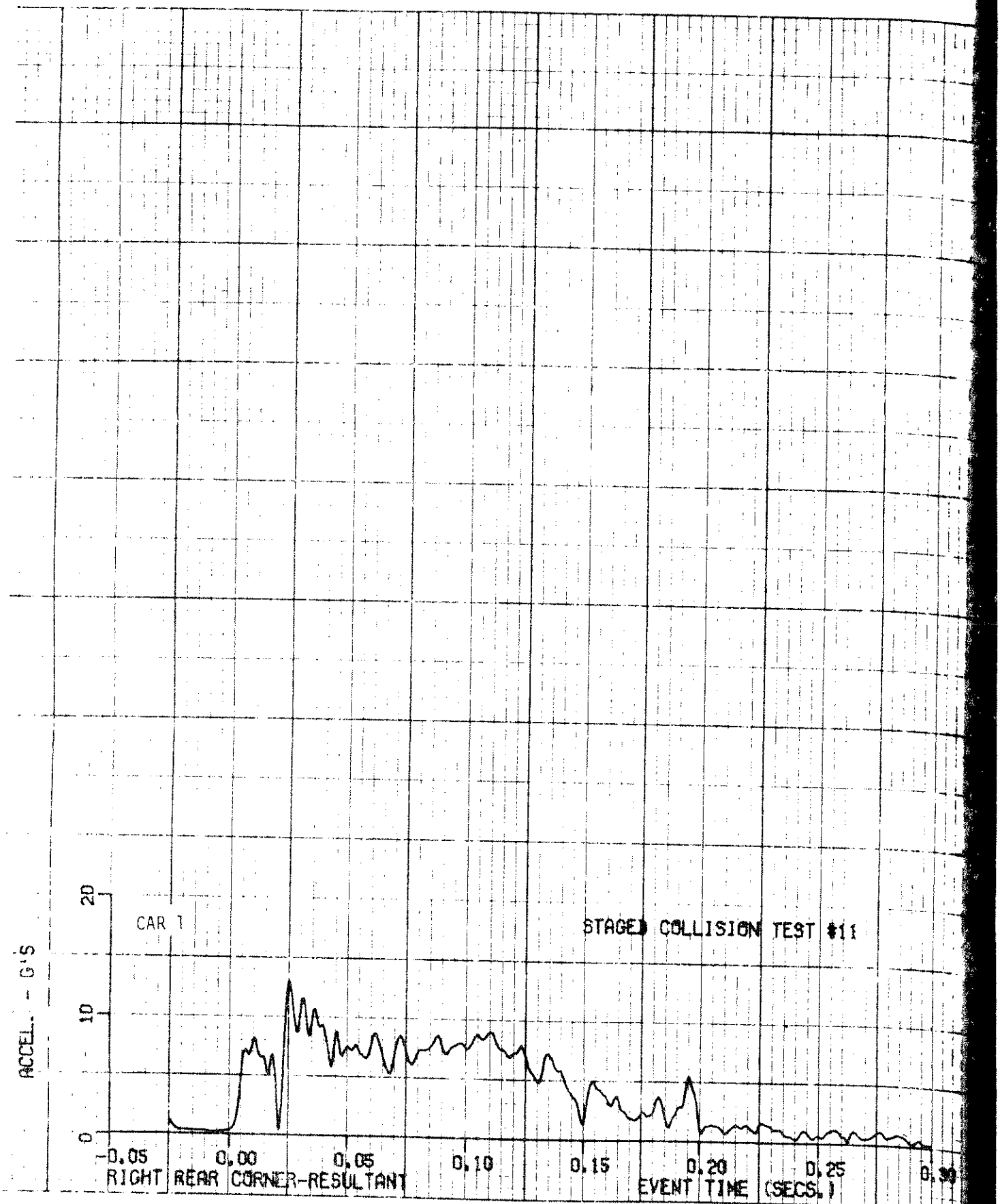

STAGED COLLISION TEST #11
CAR 1
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
4
2
0
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
0
1
2
3
4
LEFT FRONT CORNER - Z COMP.
DISP. - IN.

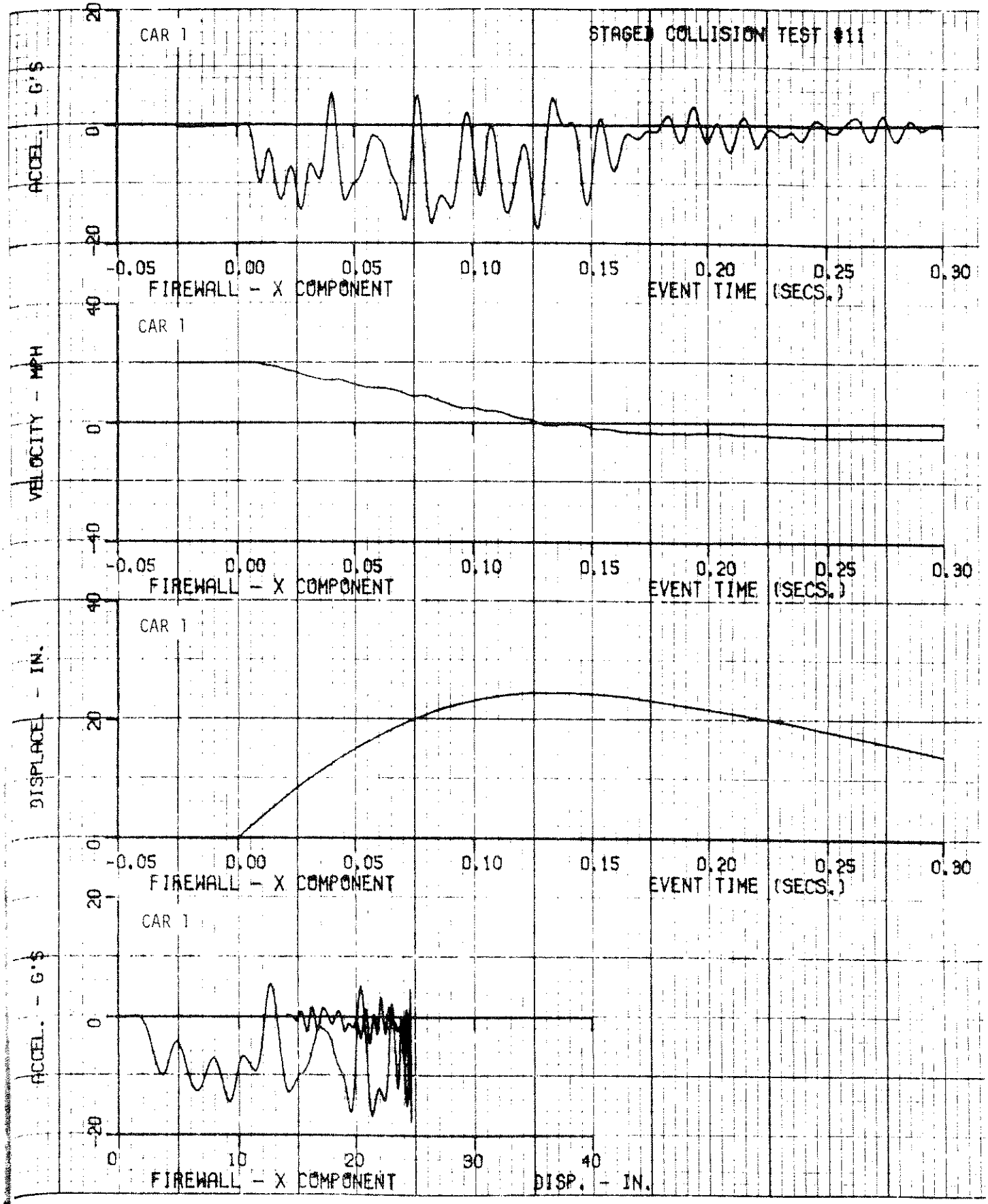

CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)


STAGED COLLISION TEST #11
CAR 1
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
0
-40
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
40
20
0
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
10
20
30
40
RIGHT REAR CORNER - X COMP.
DISP. - IN.

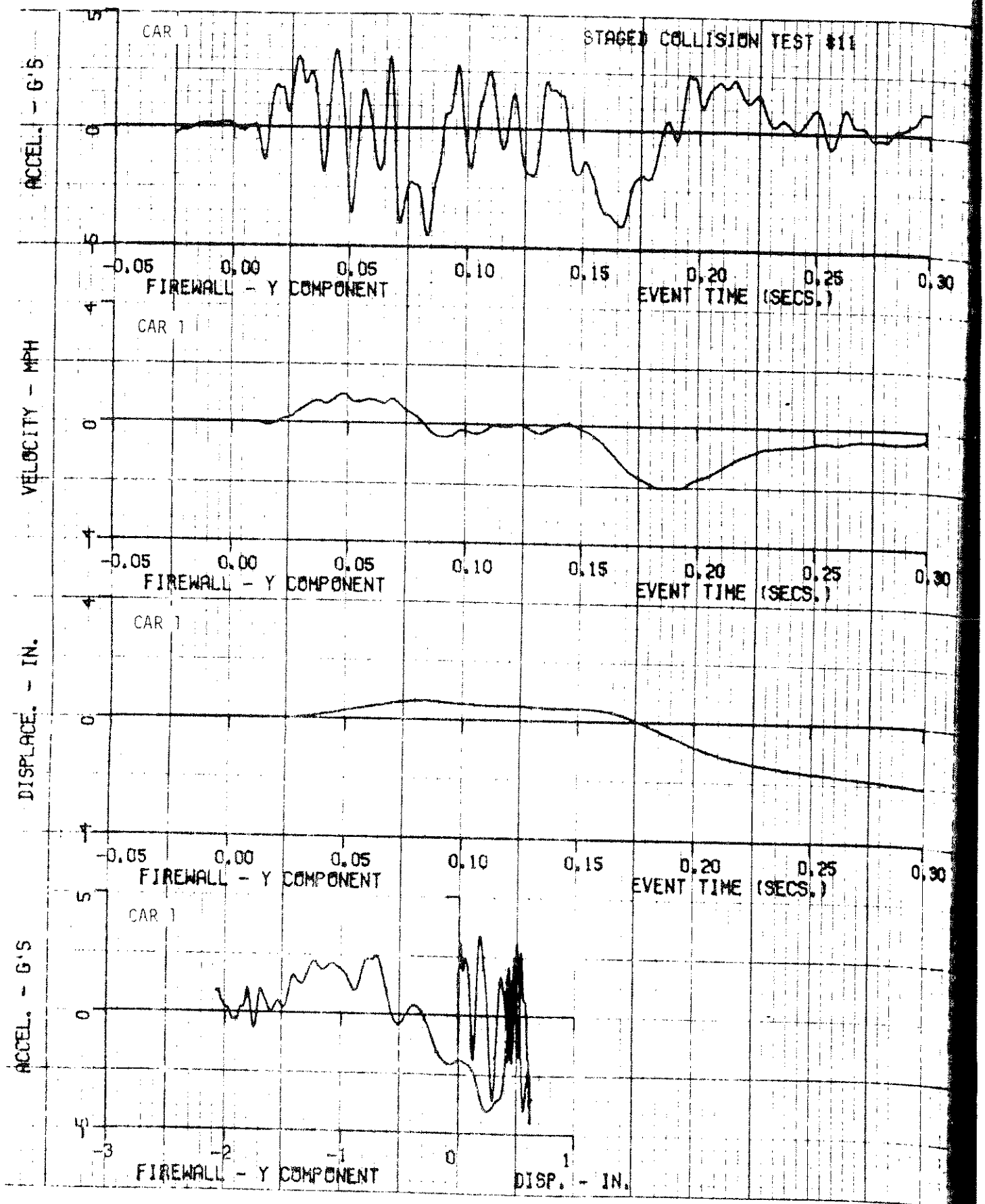

STAGED COLLISION TEST #11
CAR 1
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
20
10
0
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
4
8
12
16
RIGHT REAR CORNER - Y COMP.
DISP. - IN.

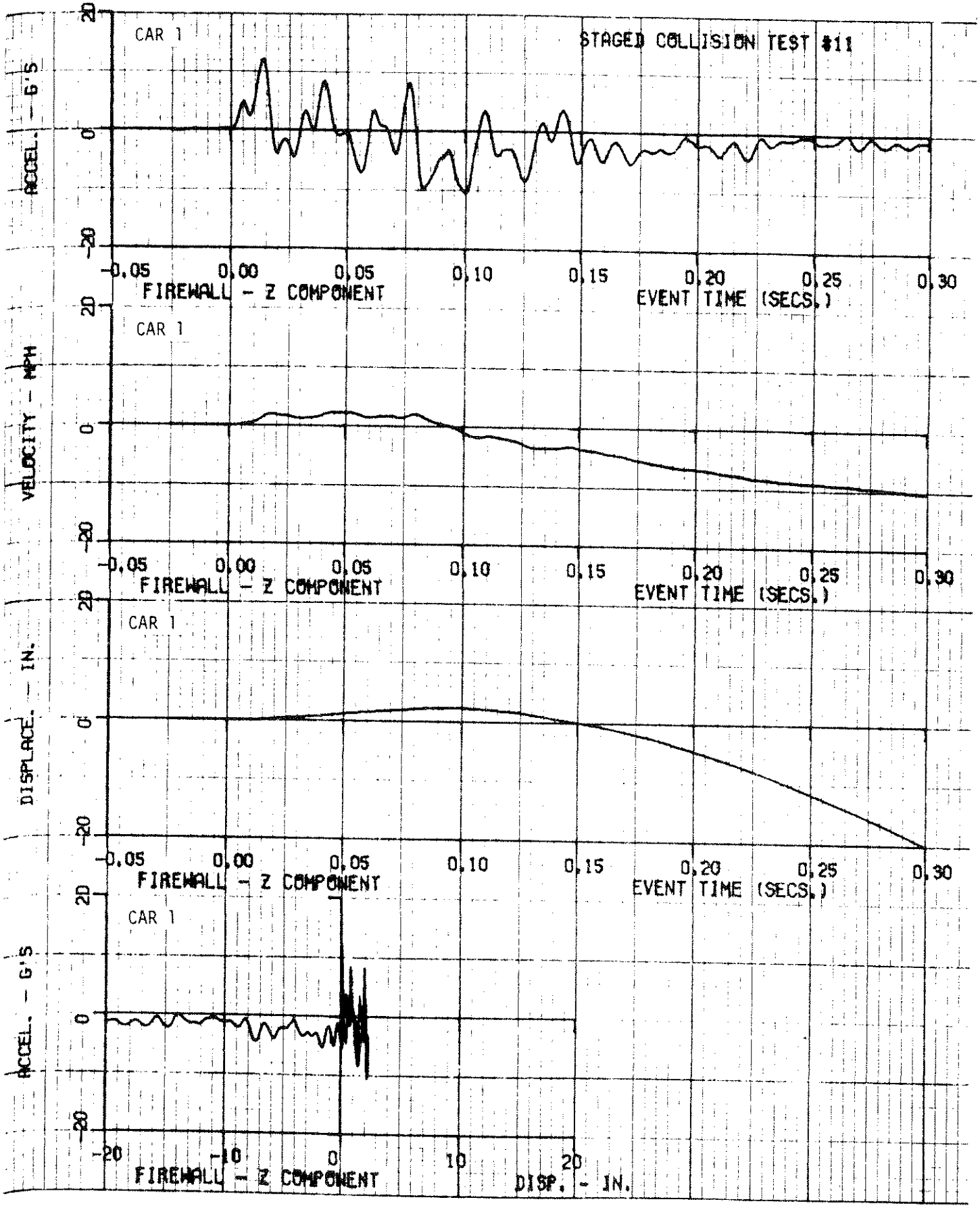

CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
2
0
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
6
4
2
0
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
0
2
4
6
8
RIGHT REAR CORNER - Z COMP.
DISP. - IN.

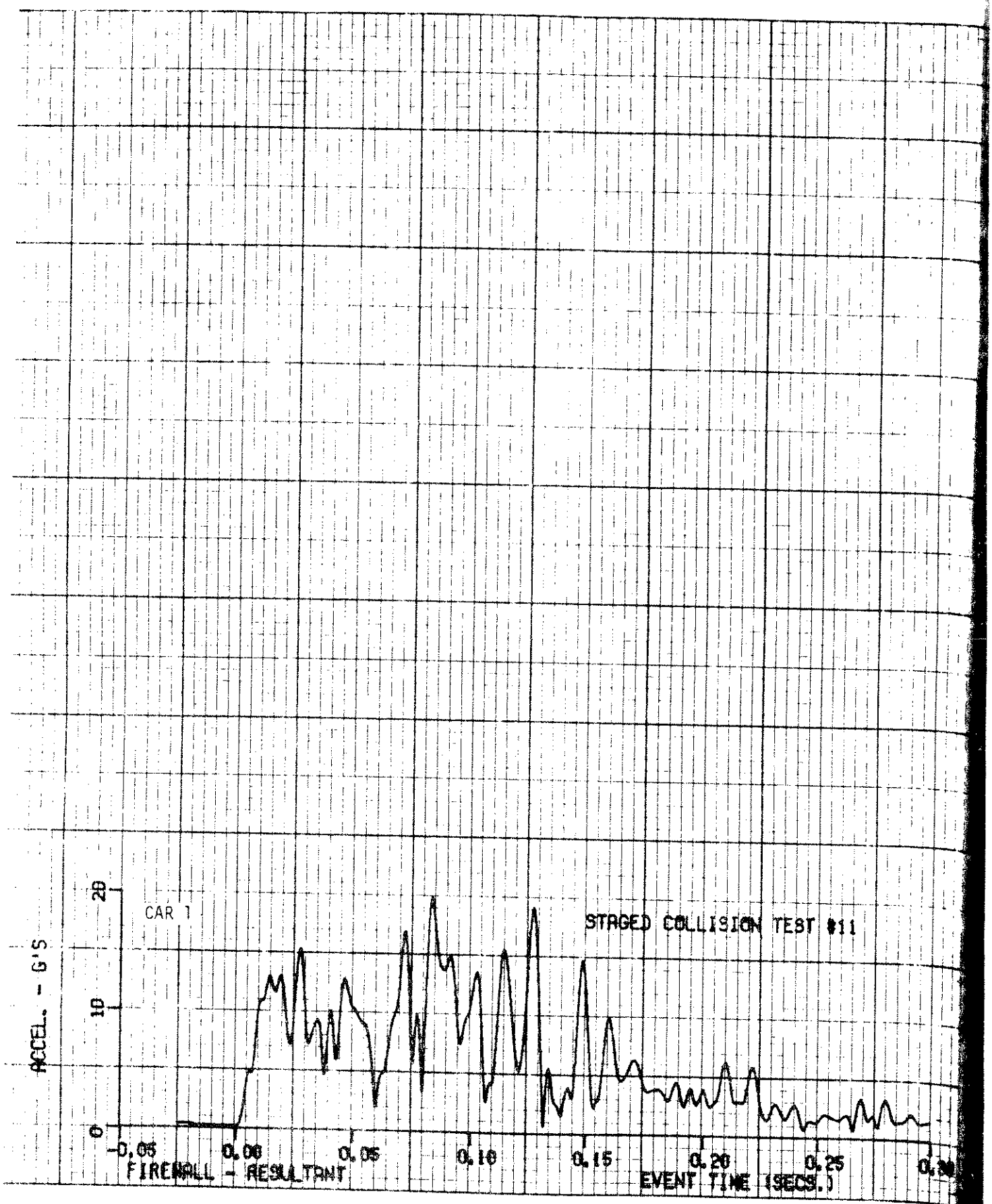

CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER-RESULTANT
EVENT TIME (SECS.)

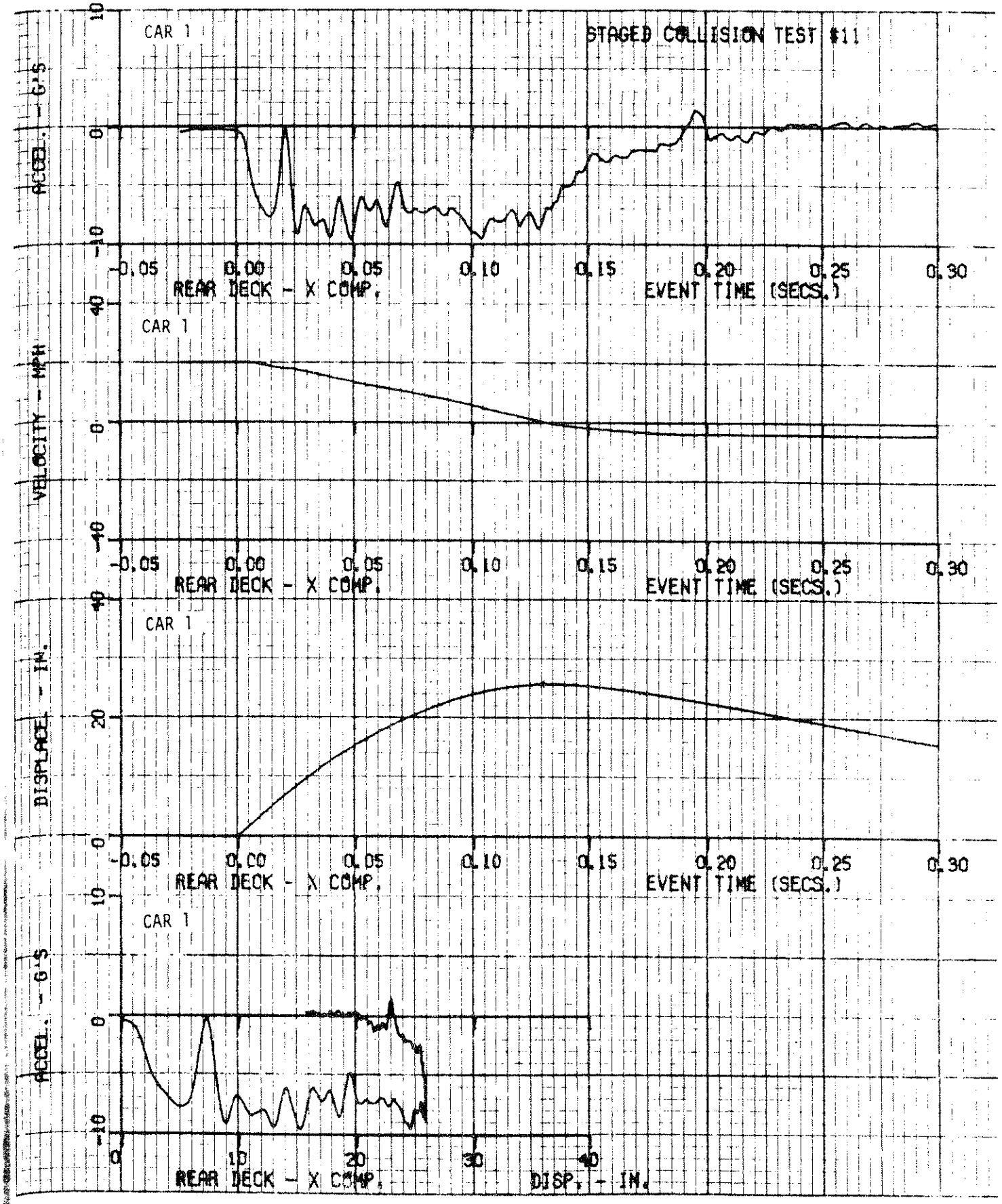

CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE - IN.
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
10
20
30
40
FIREWALL - X COMPONENT
DISP. - IN.

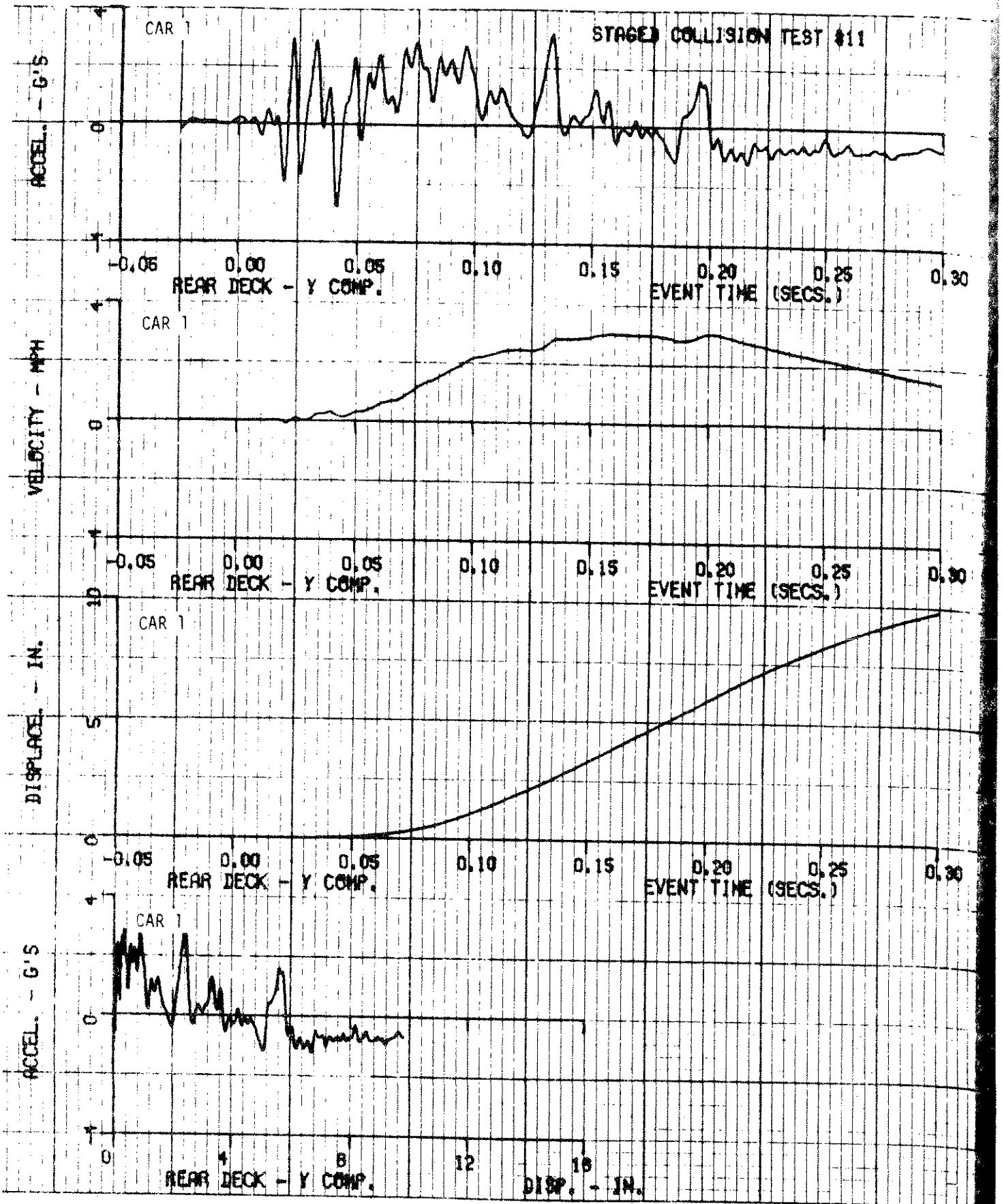
ZQ-6057-V-5

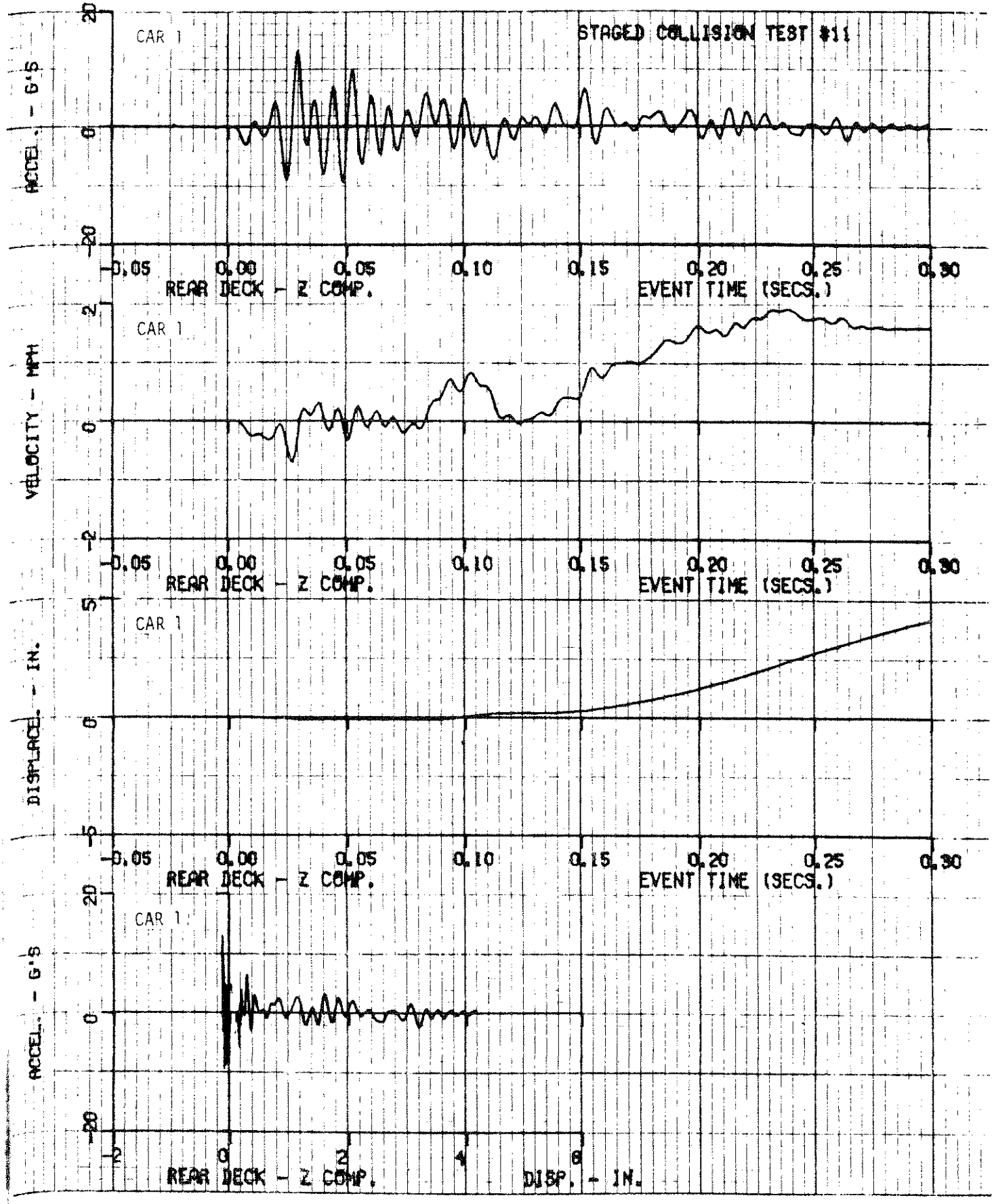

STAGED COLLISION TEST #11
CAR 1
ACCEL. - G'S
5
0
-5
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
4
0
-4
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
5
0
-5
-3
-2
-1
0
1
FIREWALL - Y COMPONENT
DISP. - IN.

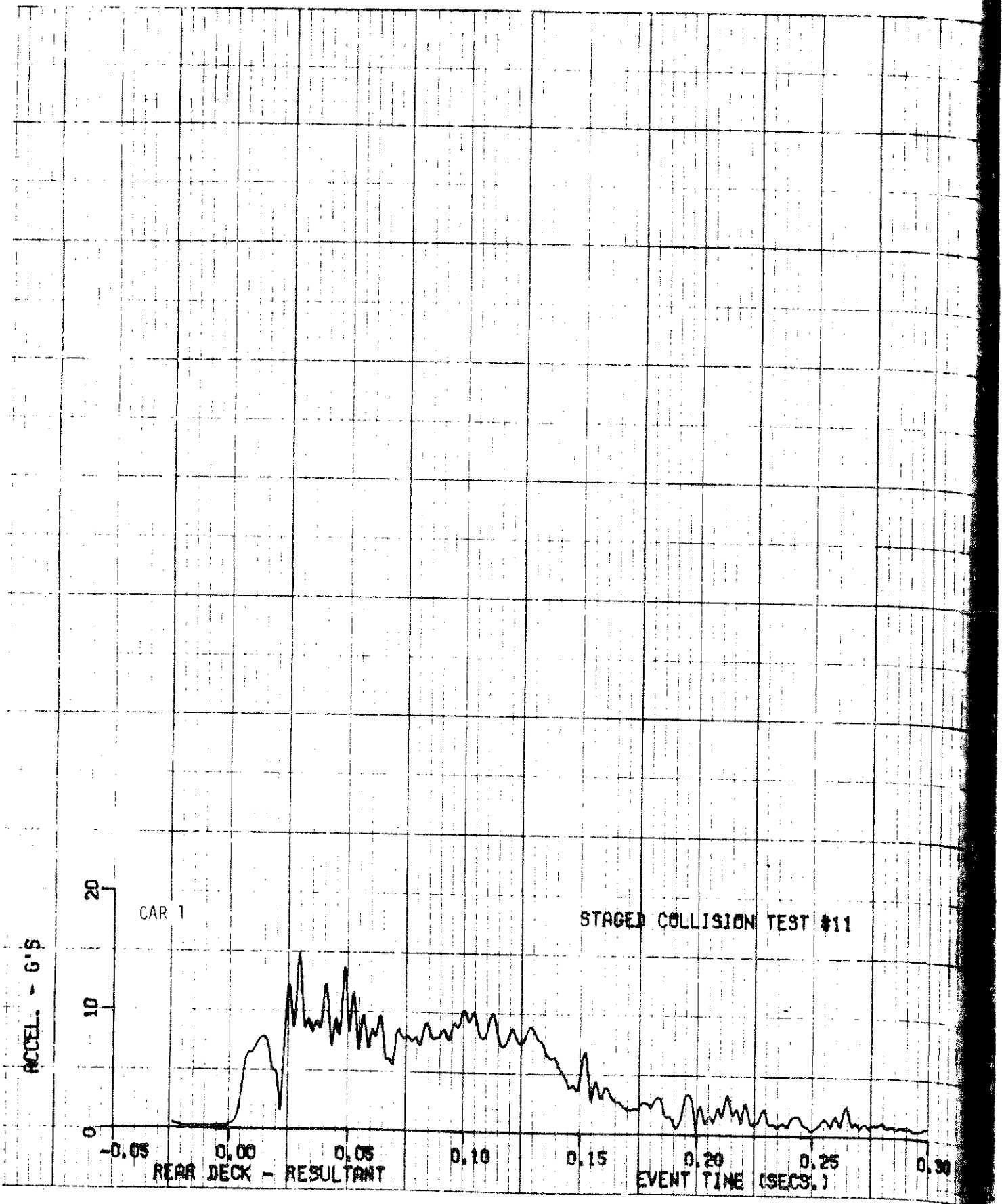

CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
-20
-10
0
10
20
FIREWALL - Z COMPONENT
DISP. - IN.

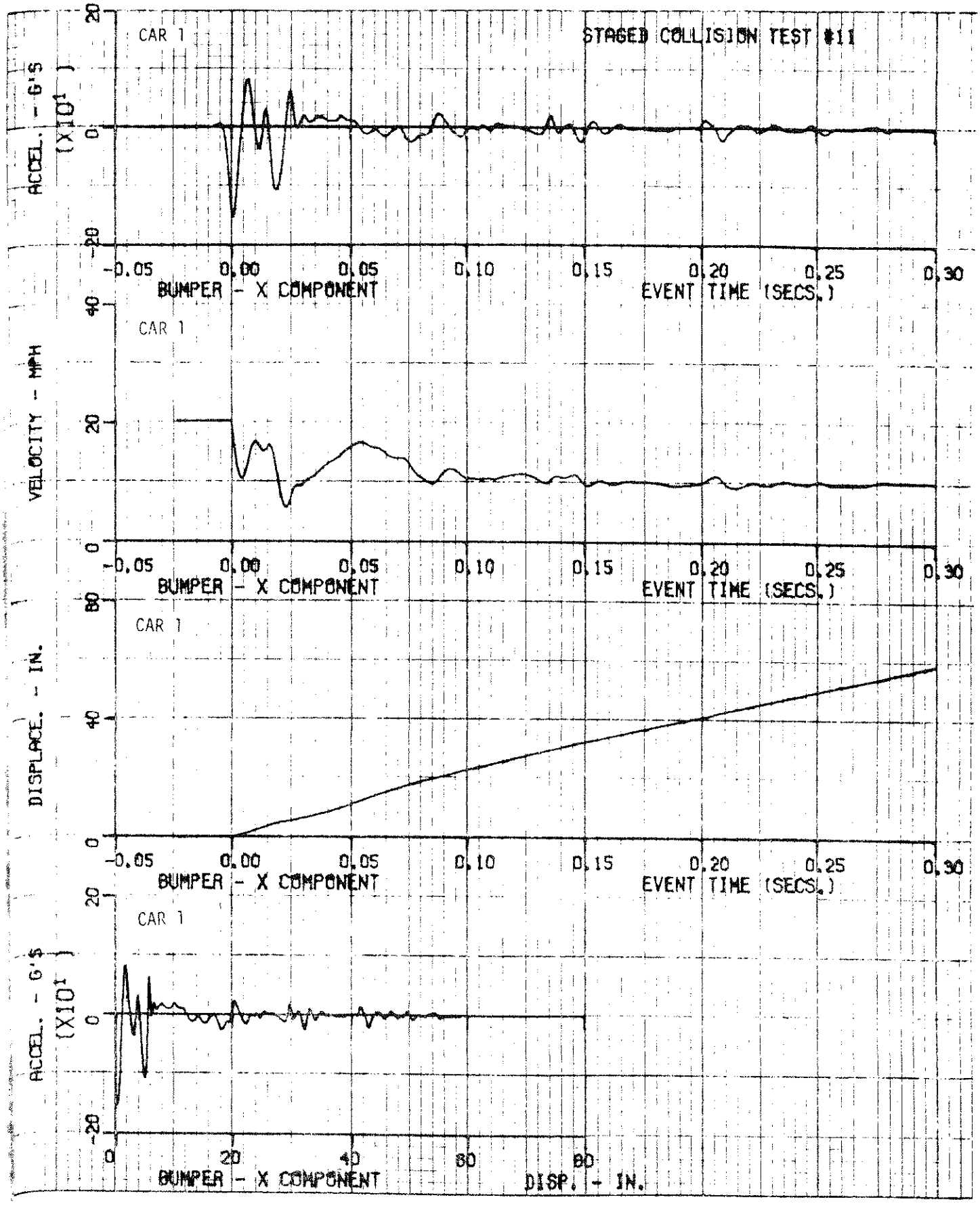

CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - RESULTANT
EVENT TIME (SECS.)


CAR 1
STAGED COLLISION TEST #11
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
0
-40
-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.
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
ACCEL. - G'S
10
0
-10
0
10
20
30
40
REAR DECK - X COMP.
DISP. - IN.


STAGED COLLISION TEST #11
CAR 1
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
5
0
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
4
0
-4
0
4
8
12
16
REAR DECK - Y COMP.
DISP. - IN.


STAGED COLLISION TEST #11
CAR 1
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 1
VELOCITY - MPH
2
0
-2
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
5
0
-5
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
-2
0
2
4
6
REAR DECK - Z COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - RESULTANT
EVENT TIME (SECS.)


STAGED COLLISION TEST #11
CAR 1
ACCEL. - G'S (X10¹)
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
20
0
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
60
40
0
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S (X10¹)
20
0
-20
0
20
40
60
80
BUMPER - X COMPONENT
DISP. - IN.

RICSAC TEST NO. 11

VEHICLE RESPONSES

VEHICLE NO. 2 TORINO

DATA PLOTS

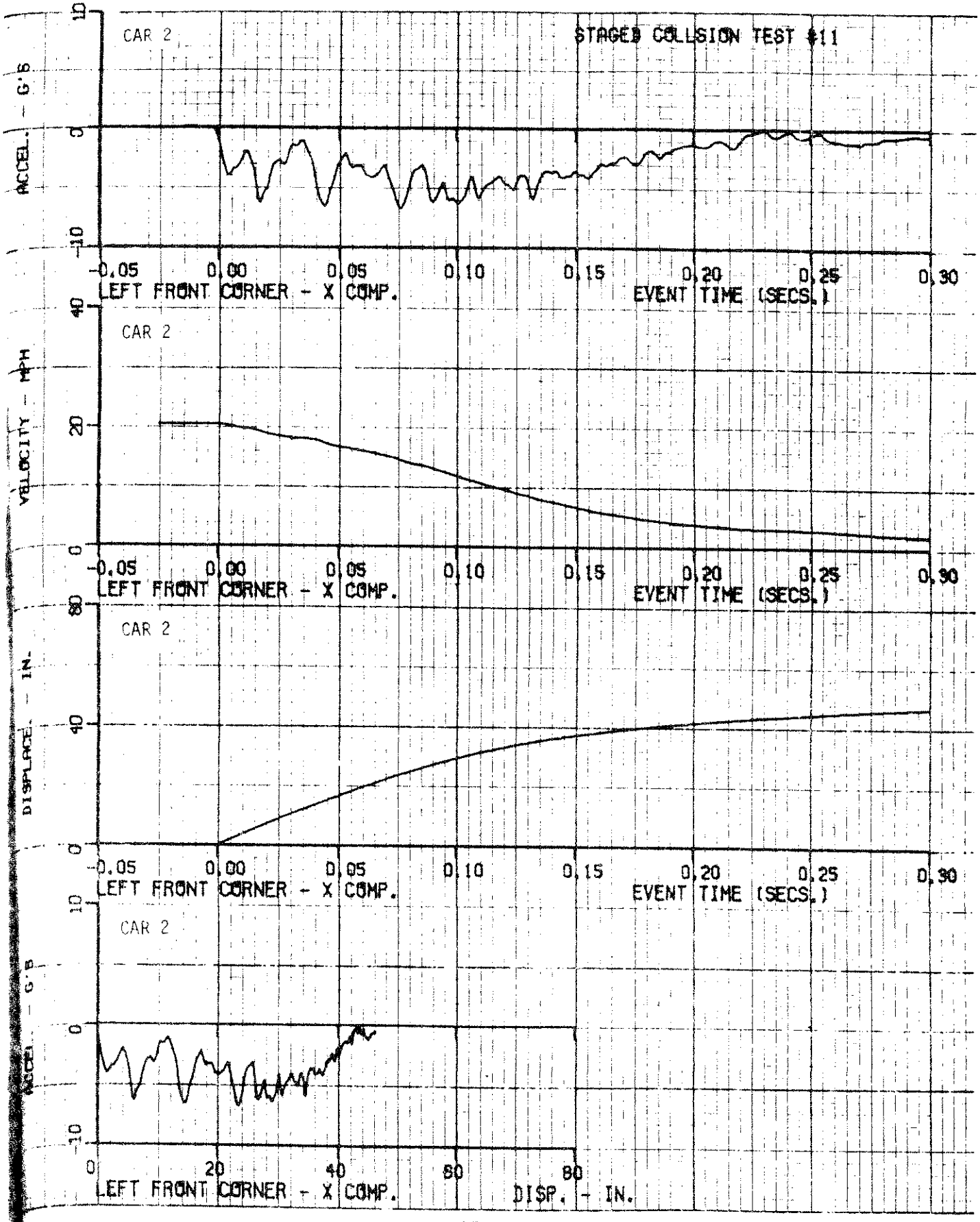
ACCELERATION TIME HISTORIES

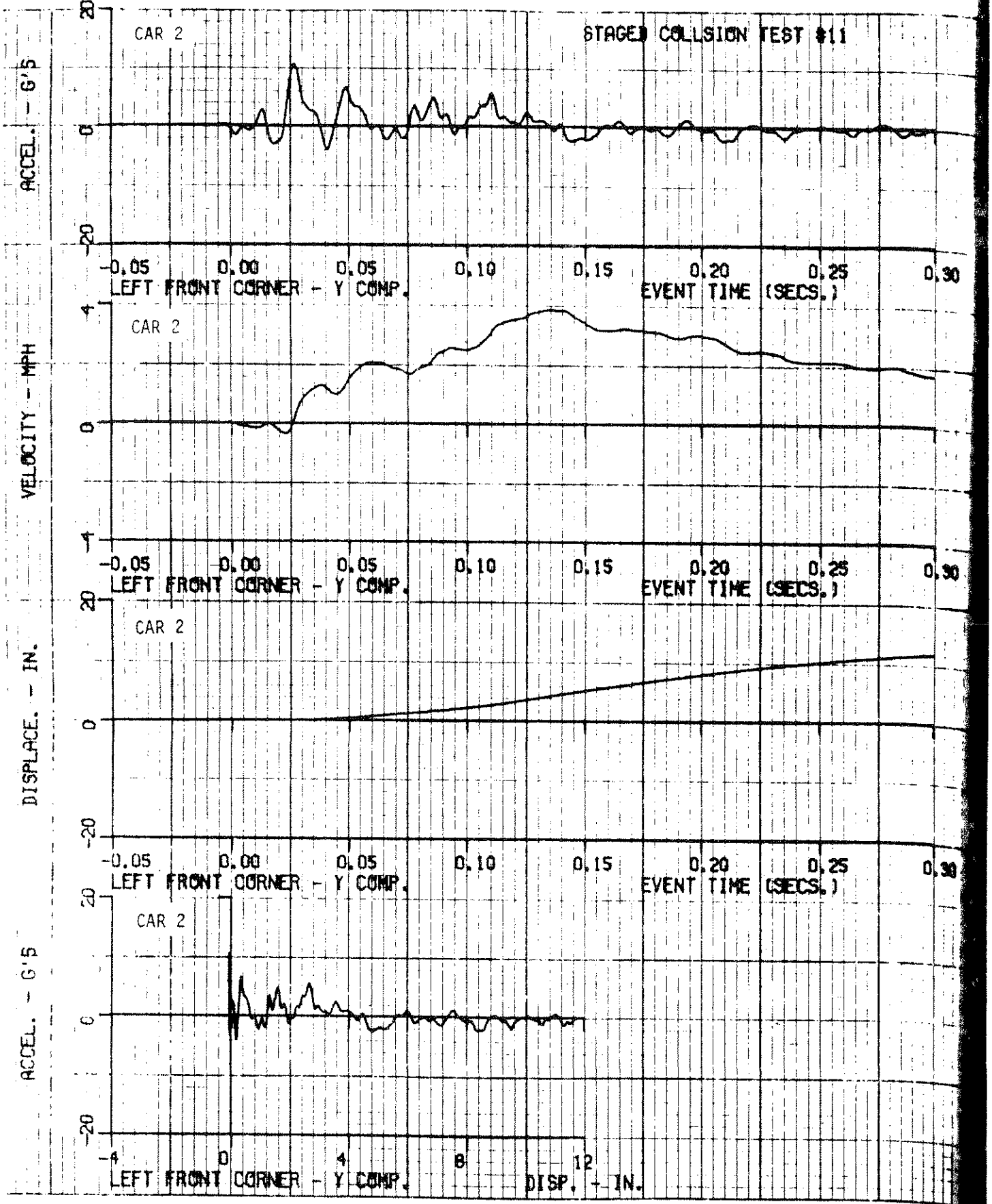
VELOCITY TIME HISTORIES

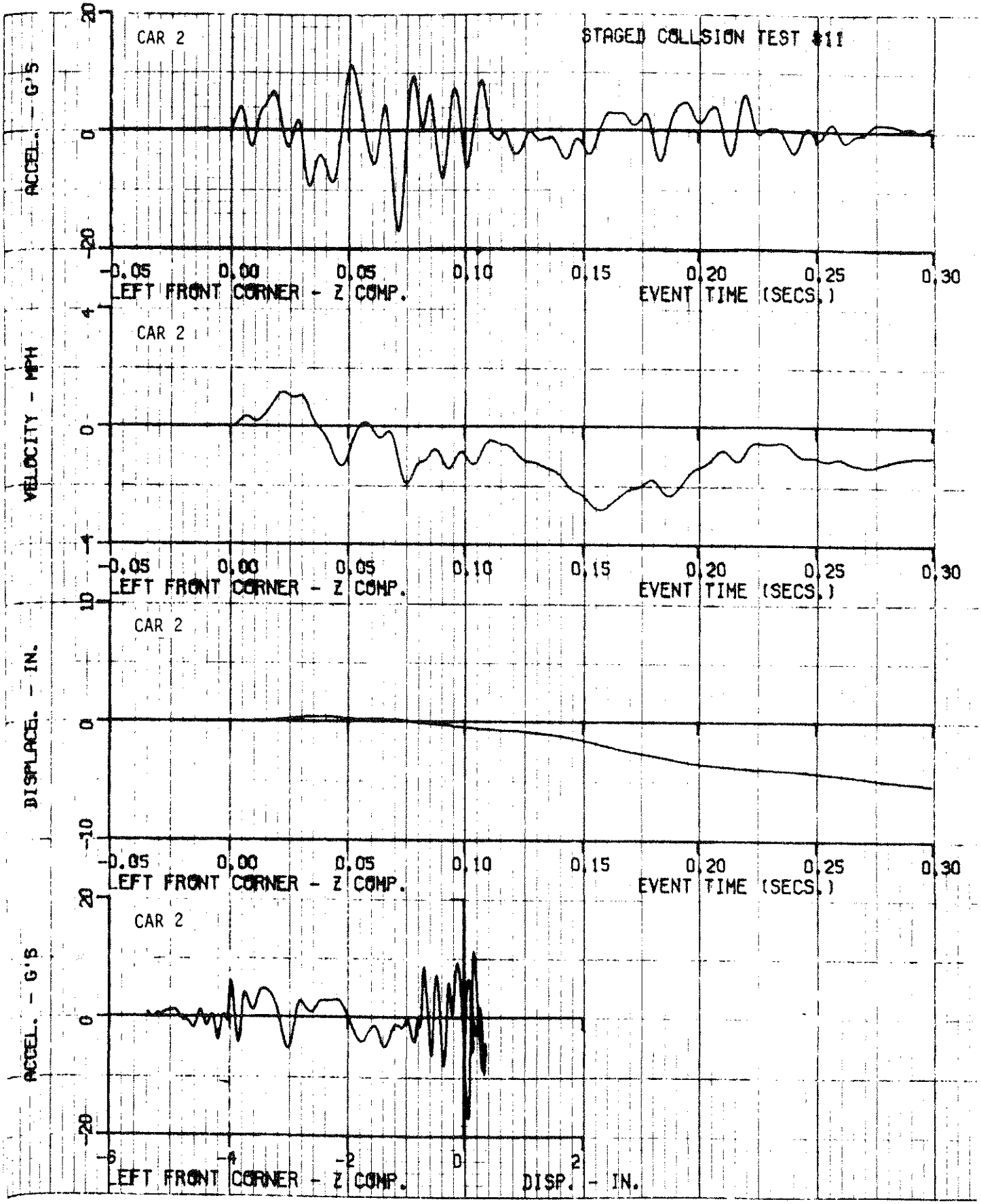
DISPLACEMENT TIME HISTORIES

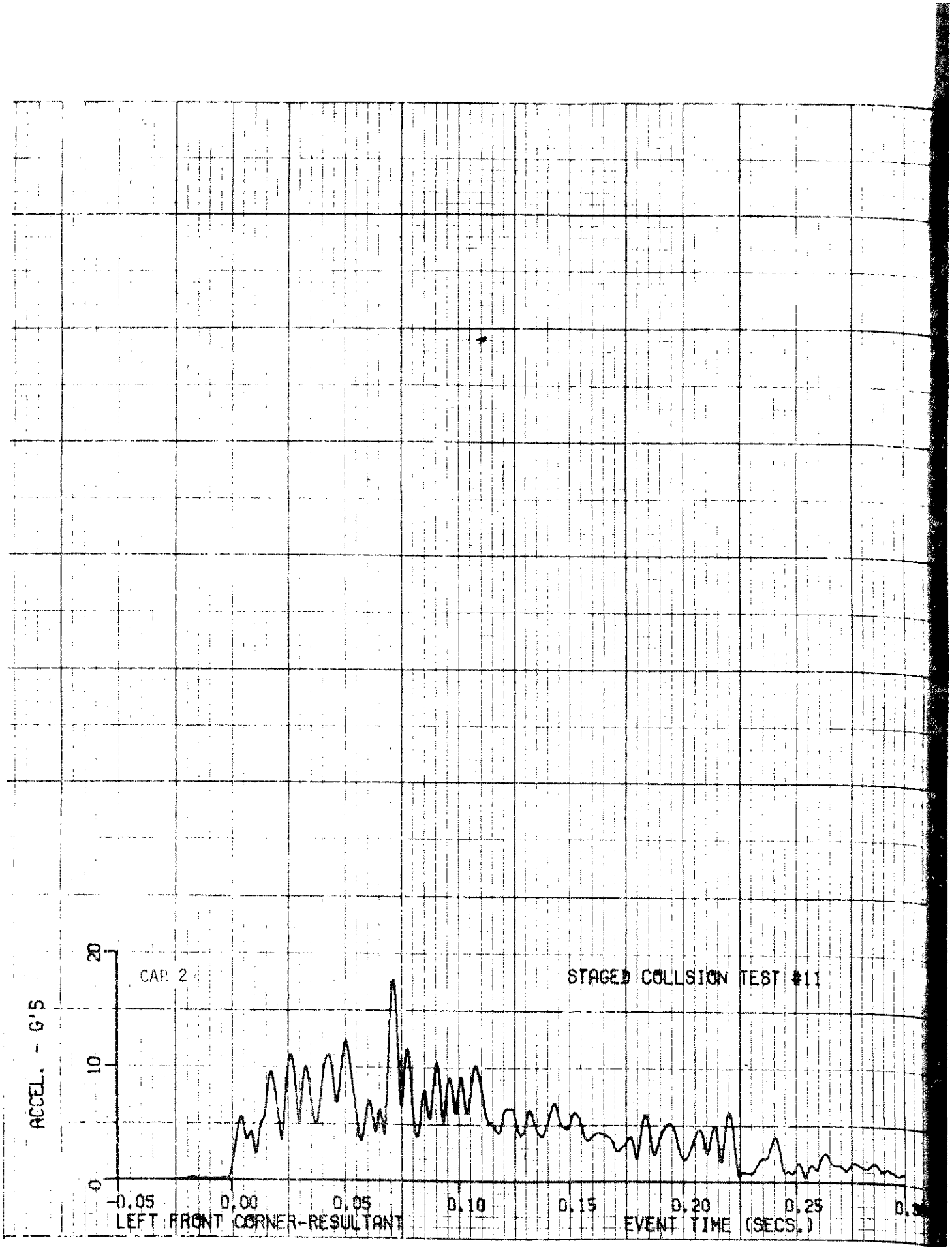
ACCELERATION VS DISPLACEMENT

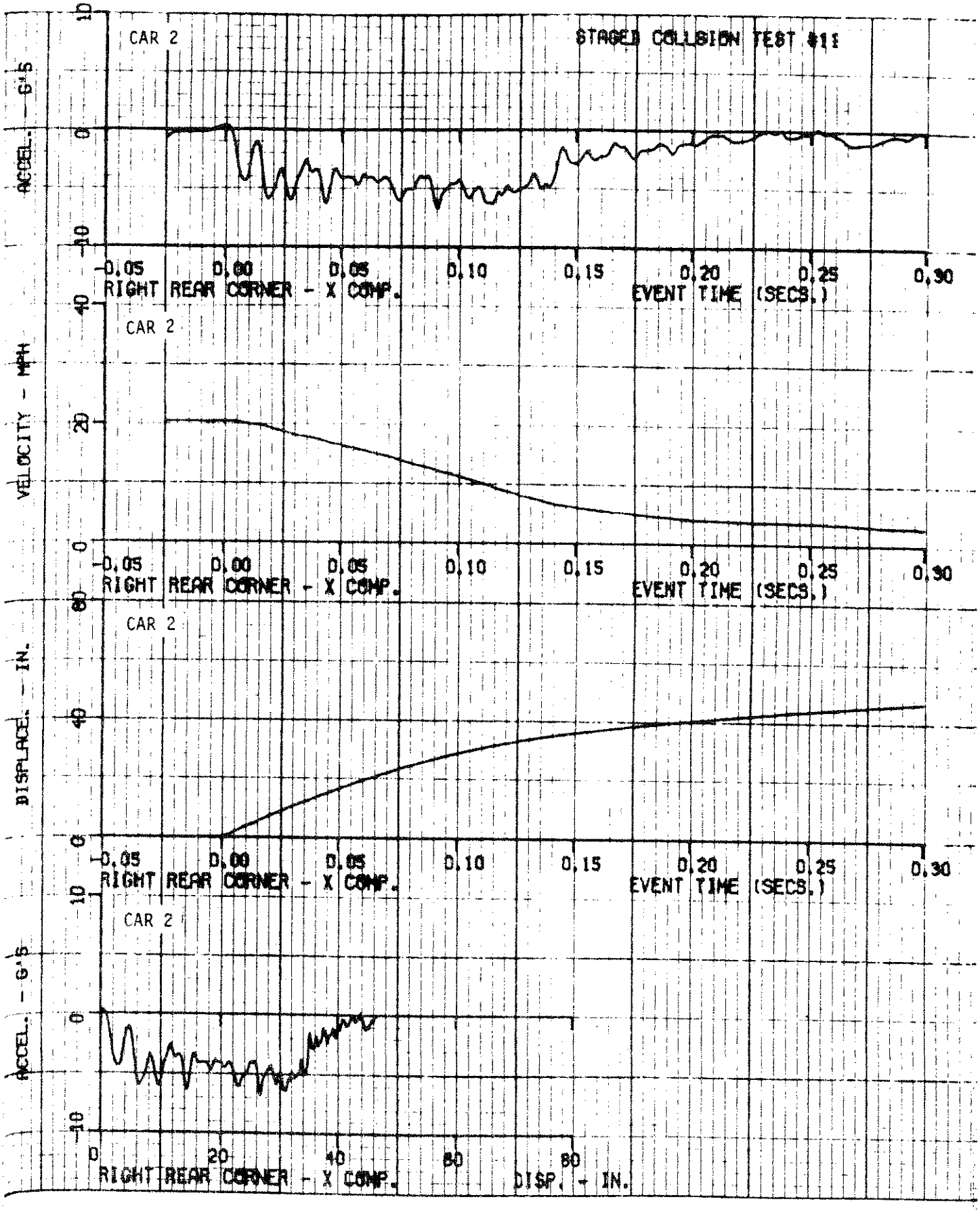
FILTER CLASS 60

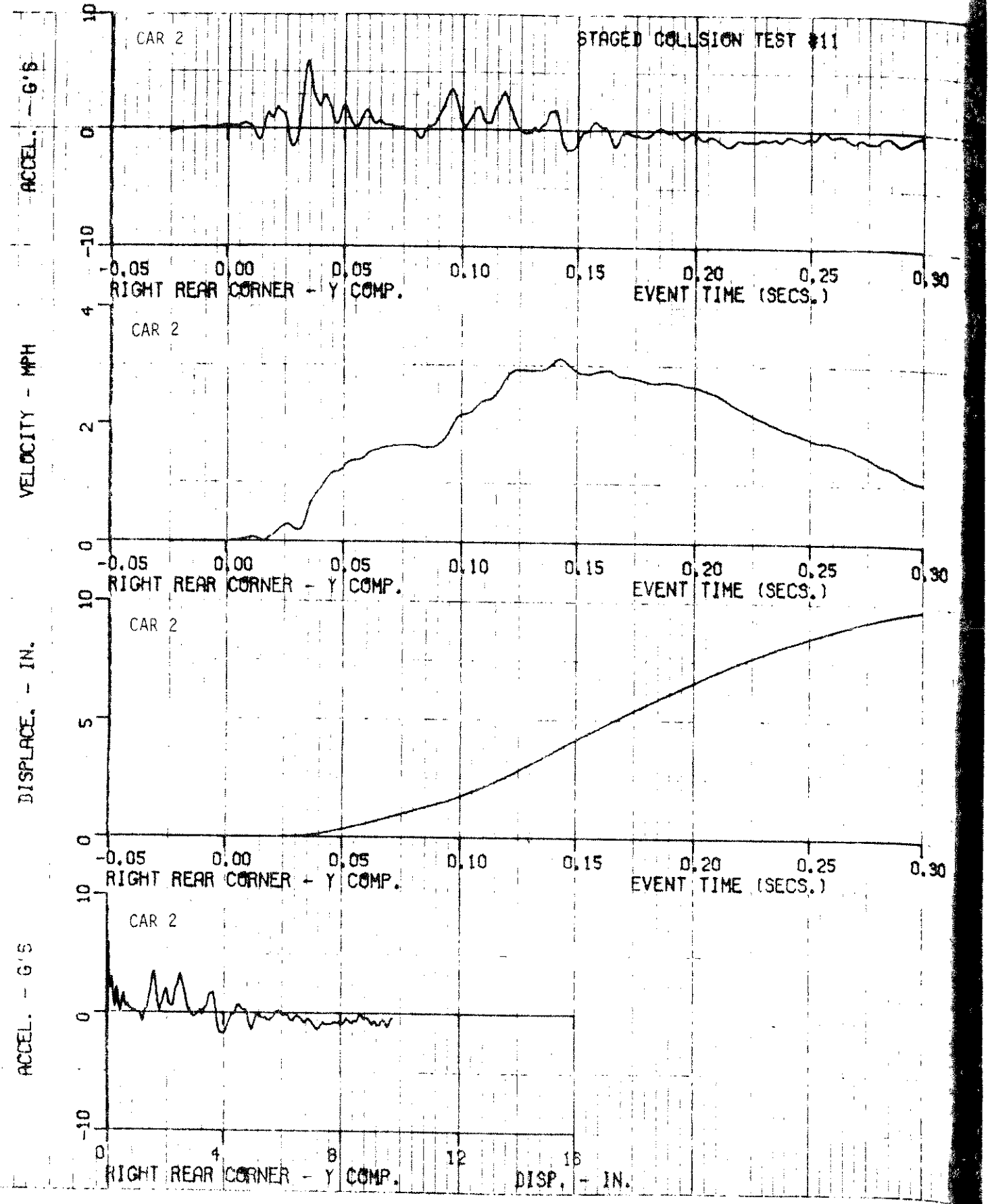

STAGED COLLSION TEST #11
CAR 2
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
20
0
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
80
40
0
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
20
40
60
80
LEFT FRONT CORNER - X COMP.
DISP. - IN.

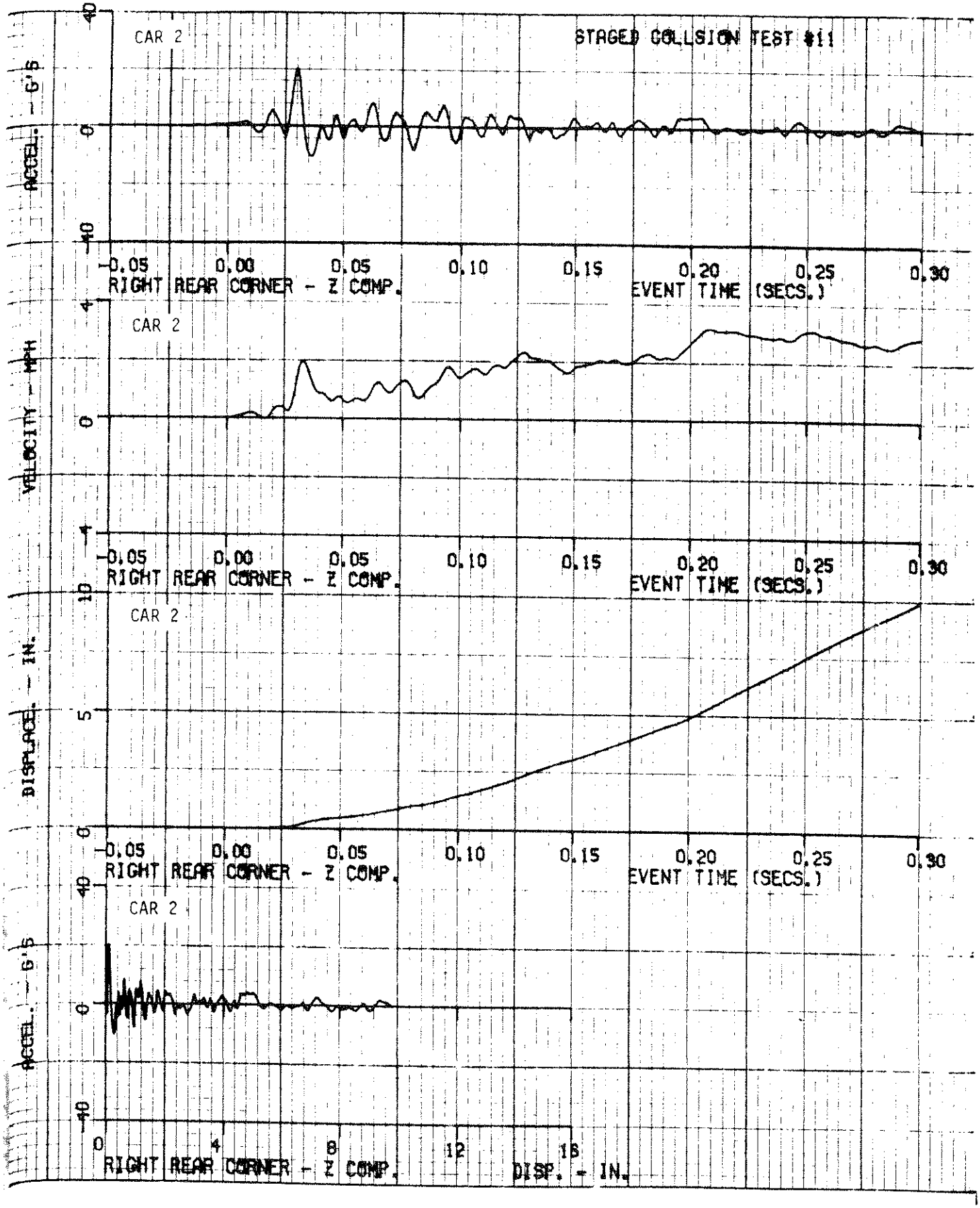

STAGED COLLSION TEST #11
CAR 2
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
20
0
-20
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-4
0
4
8
12
LEFT FRONT CORNER - Y COMP.
DISP. - IN.

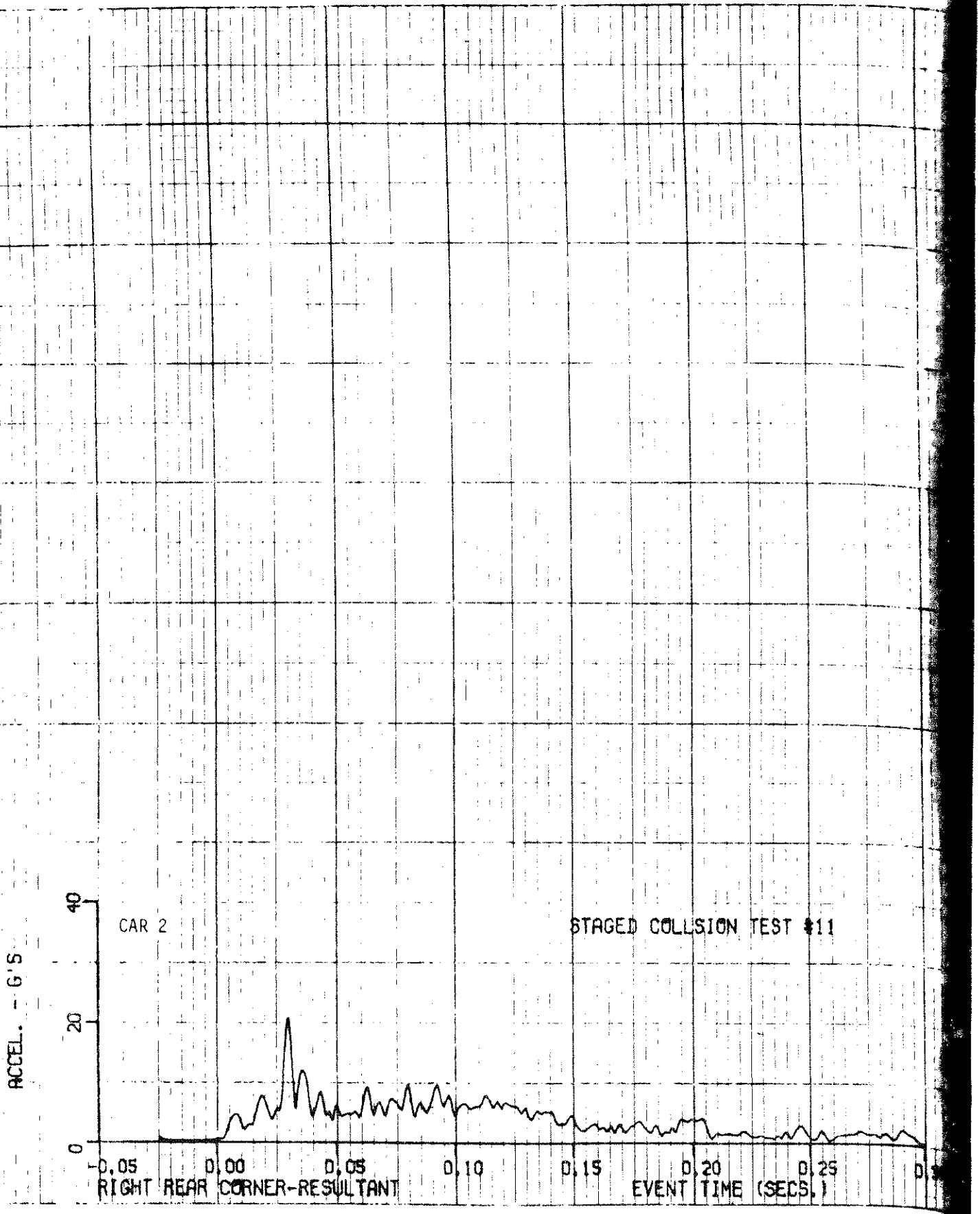

CAR 2
STAGED COLLISION TEST #11
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
10
0
-10
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-6
-4
-2
0
2
LEFT FRONT CORNER - Z COMP.
DISP. - IN.

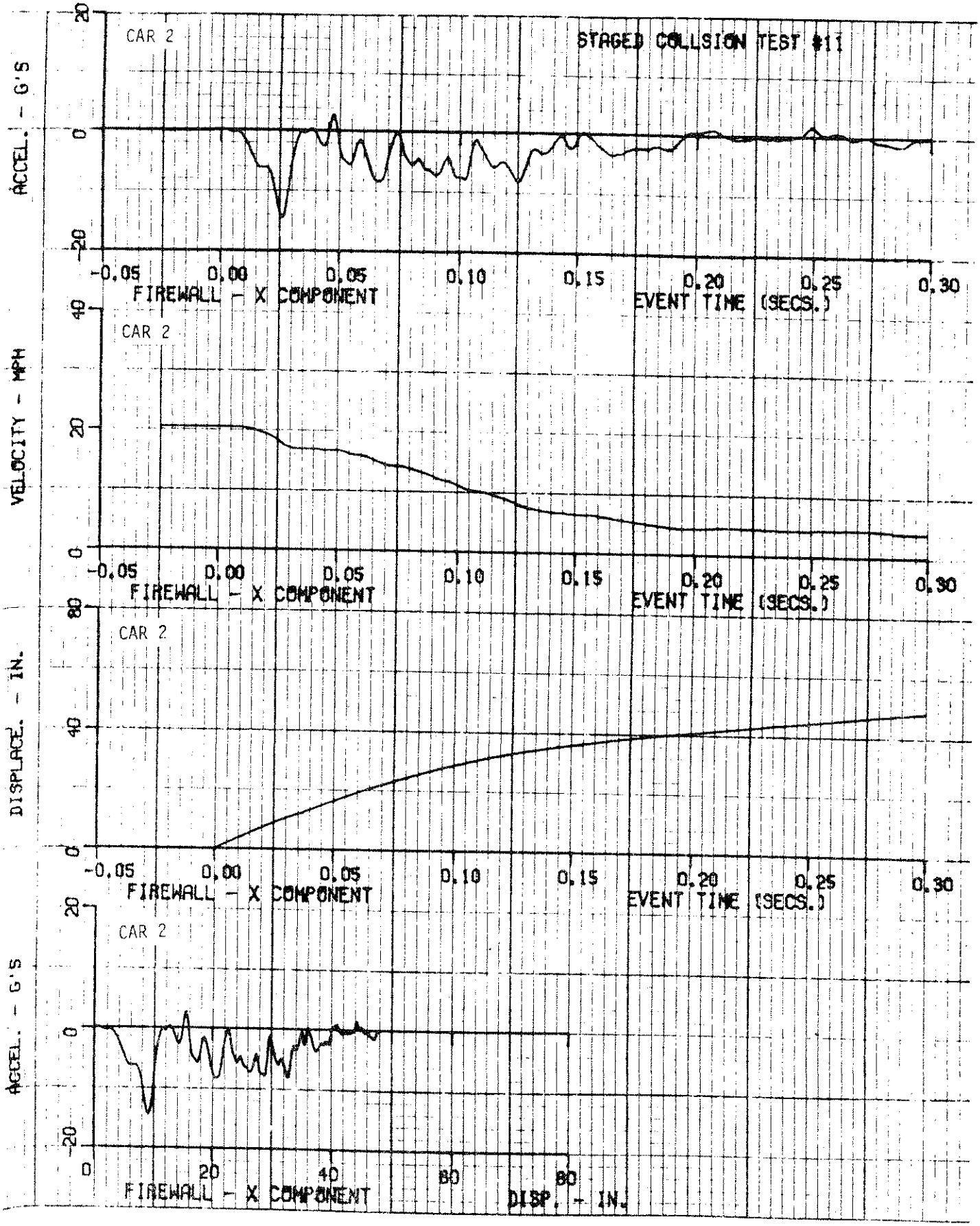

CAR 2
STAGED COLLSION TEST #11
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)

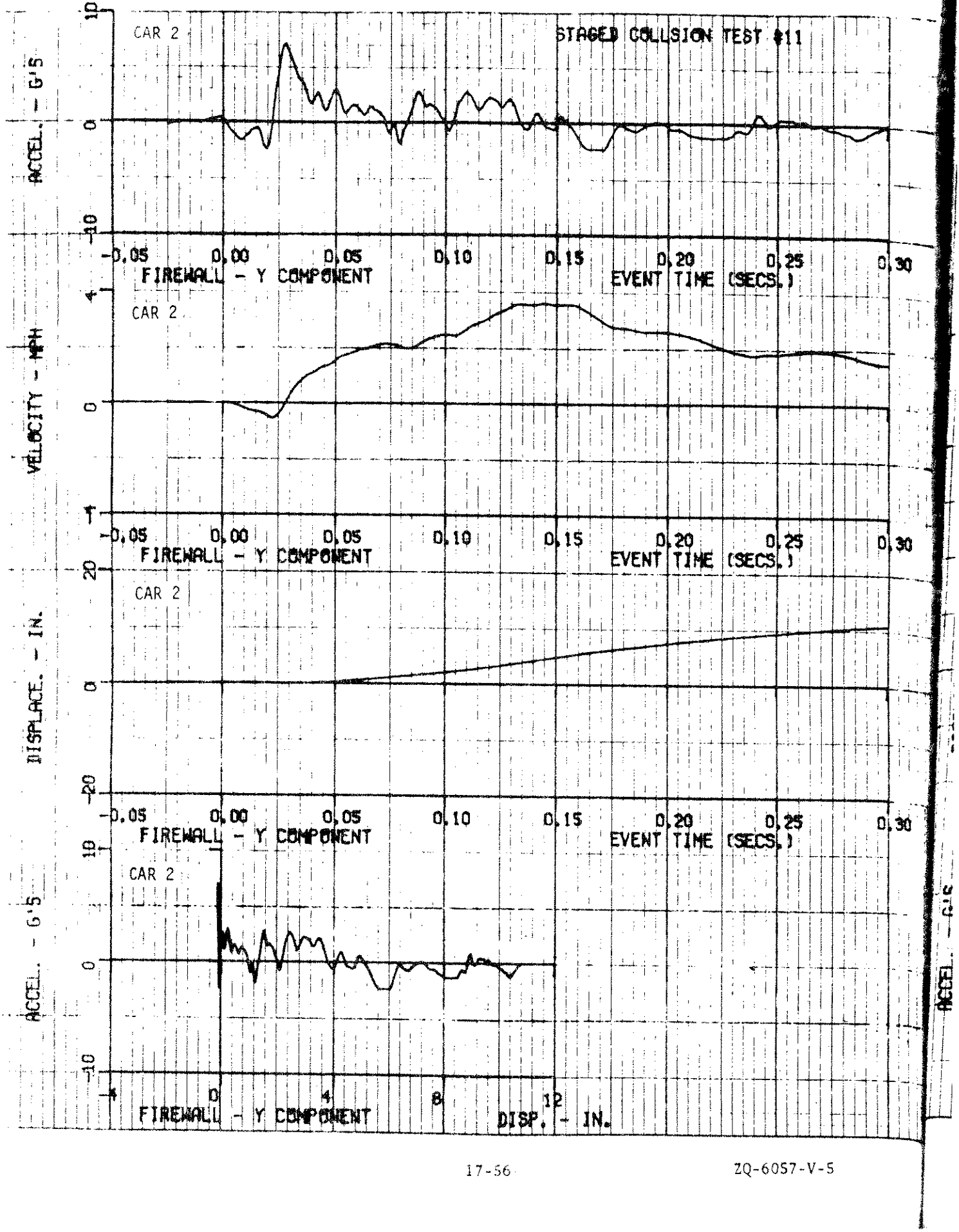

CAR 2
STAGED COLLISION TEST #11
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
20
0
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
80
40
0
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
20
40
60
80
RIGHT REAR CORNER - X COMP.
DISP. - IN.

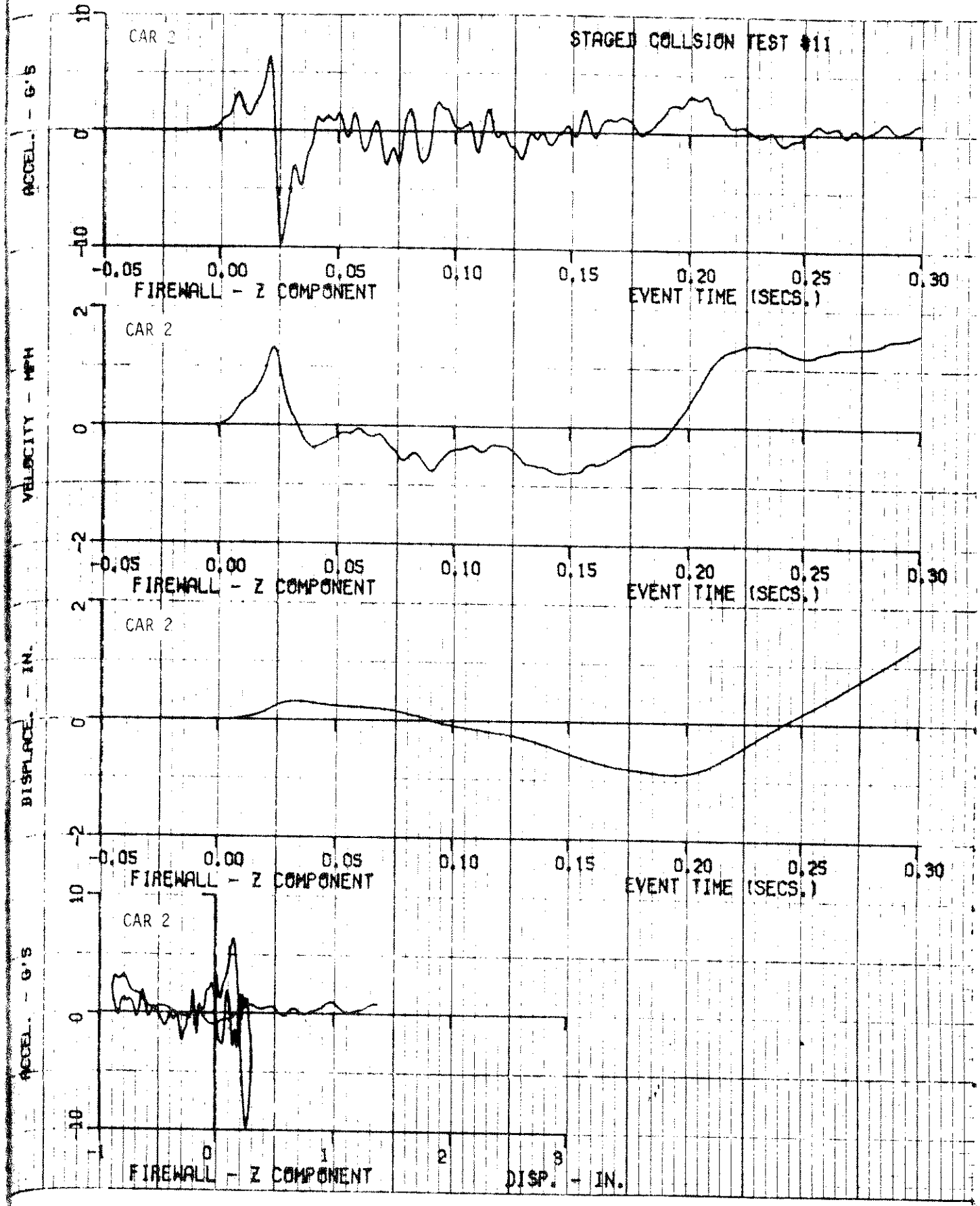

CAR 2
STAGED COLLSION TEST #11
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
2
0
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
10
5
0
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
4
8
12
16
RIGHT REAR CORNER - Y COMP.
DISP. - IN.

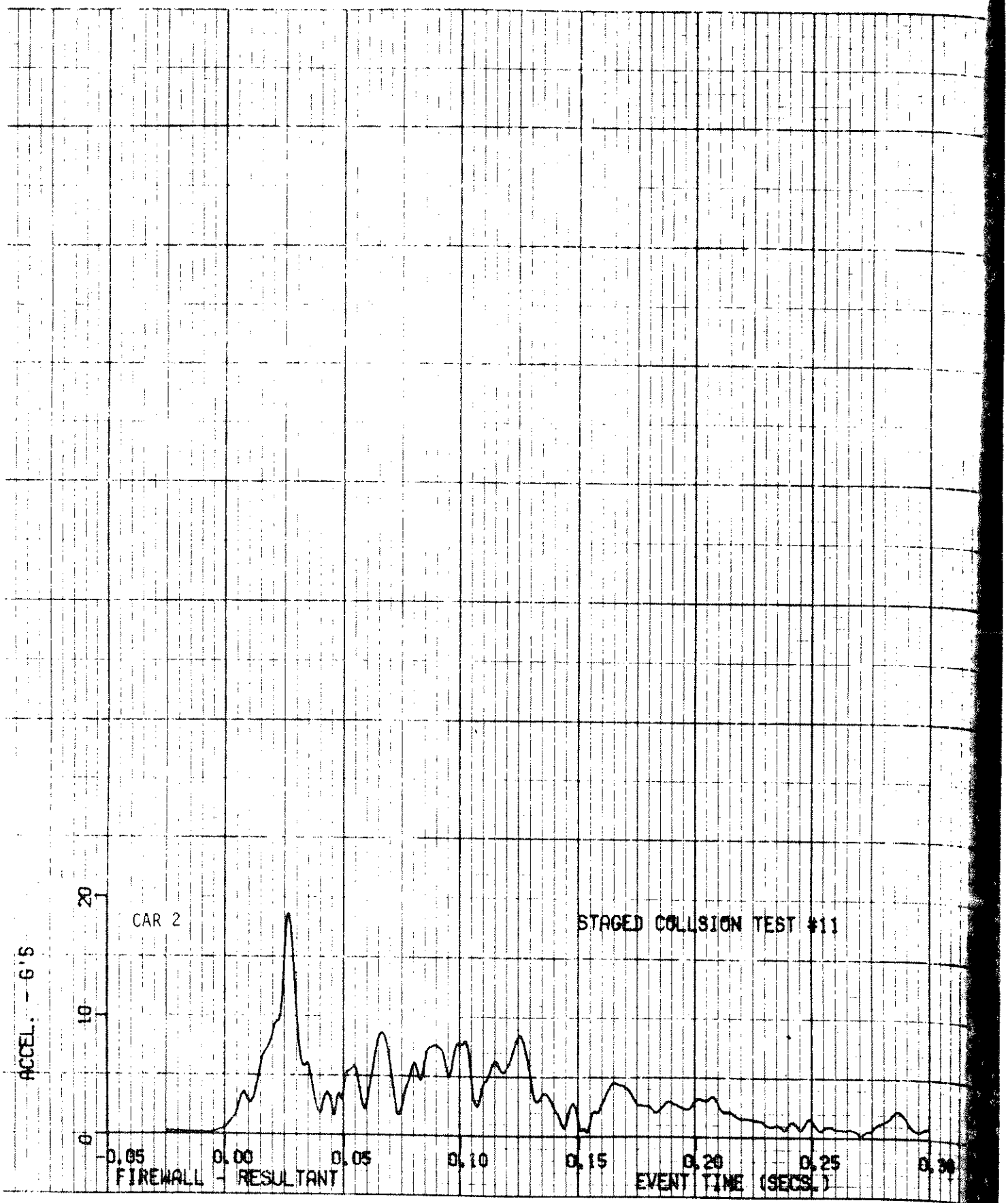

STAGED COLLSION TEST #11
CAR 2
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
10
5
0
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
0
4
8
12
16
RIGHT REAR CORNER - Z COMP.
DISP. - IN.

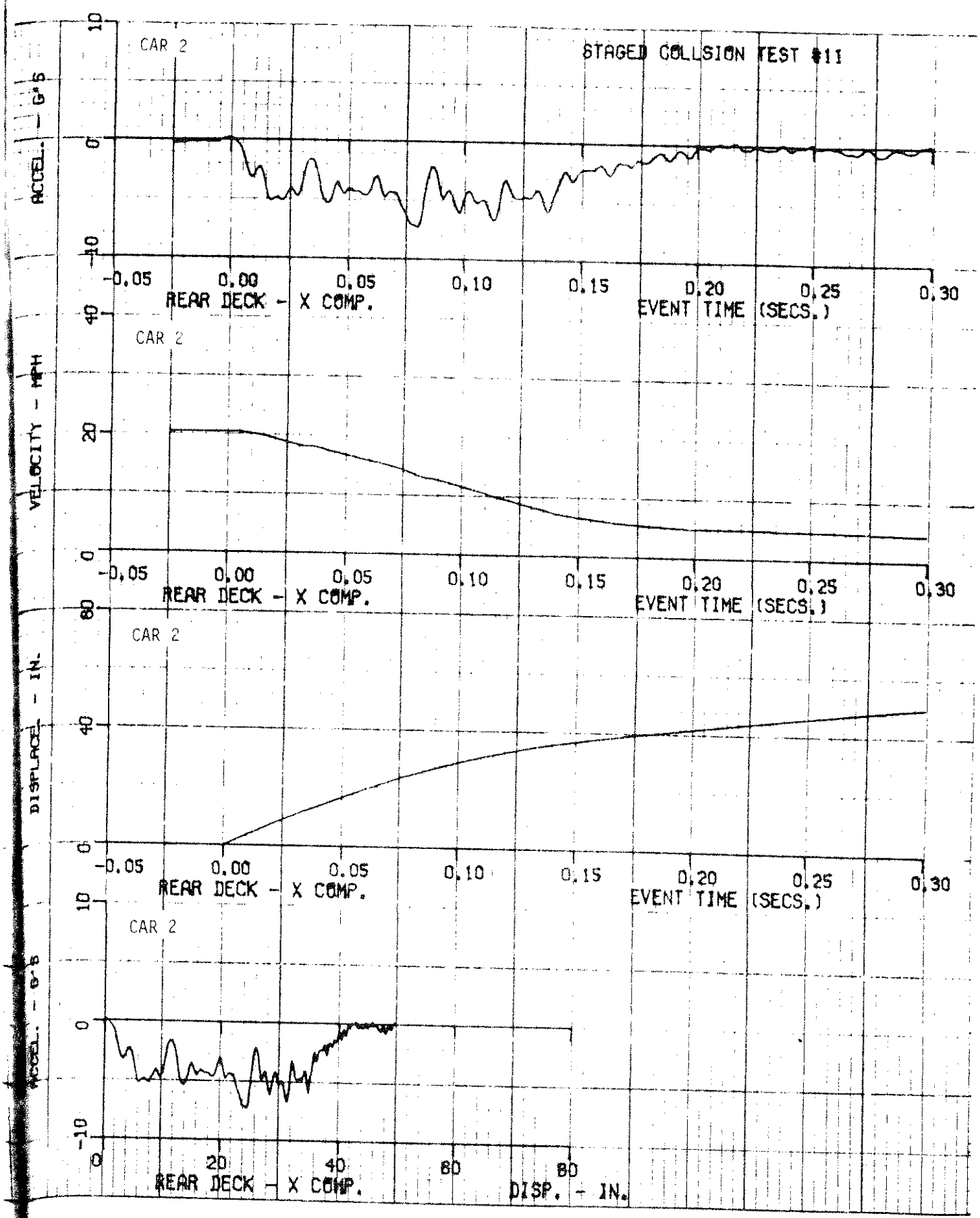

CAR 2
STAGED COLLSION TEST #11
ACCEL. - G'S
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
RIGHT REAR CORNER-RESULTANT
EVENT TIME (SECS.)

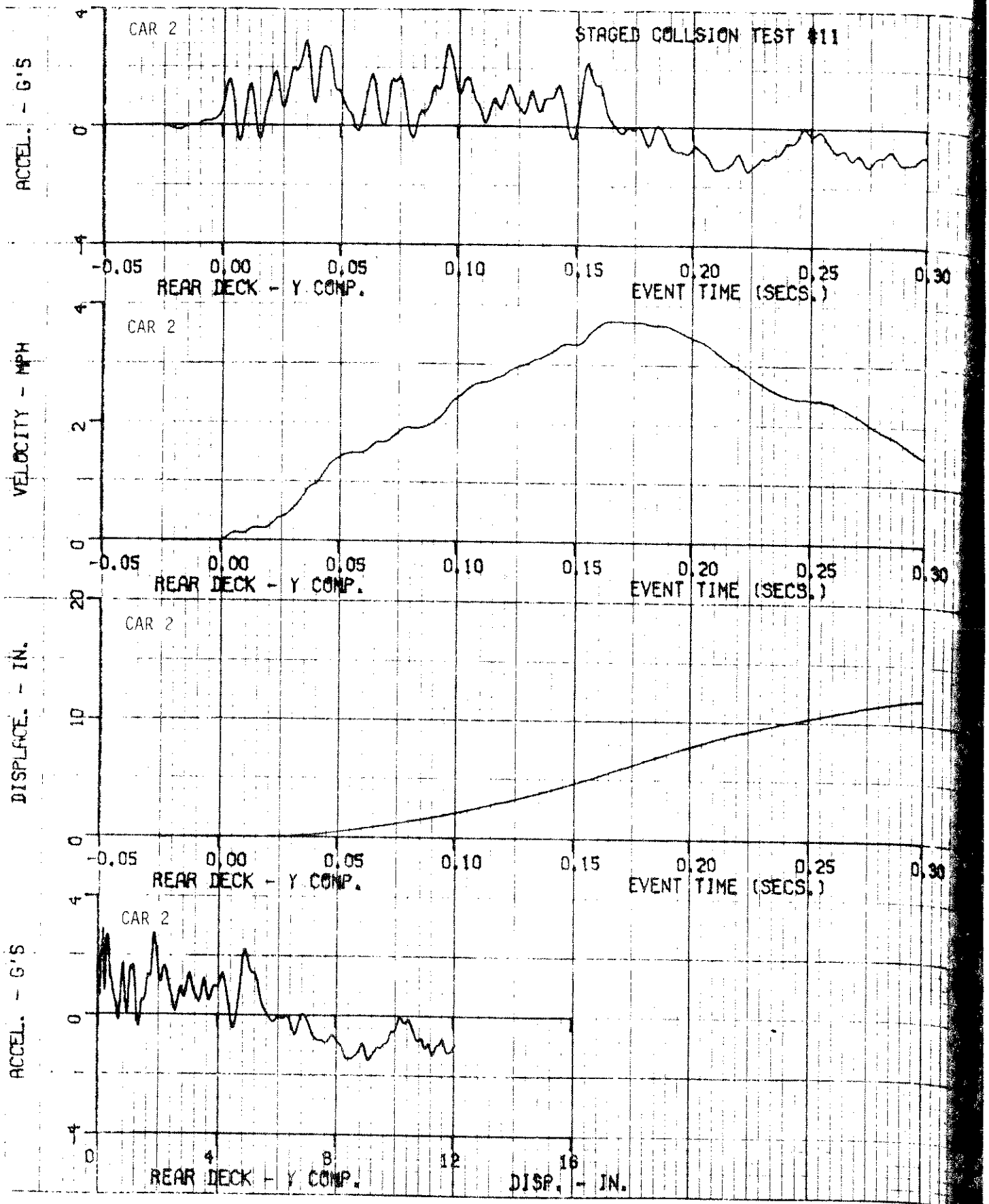

STAGED COLLSION TEST #11
CAR 2
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
20
0
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
80
40
0
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
0
20
40
60
80
FIREWALL - X COMPONENT
DISP. - IN.

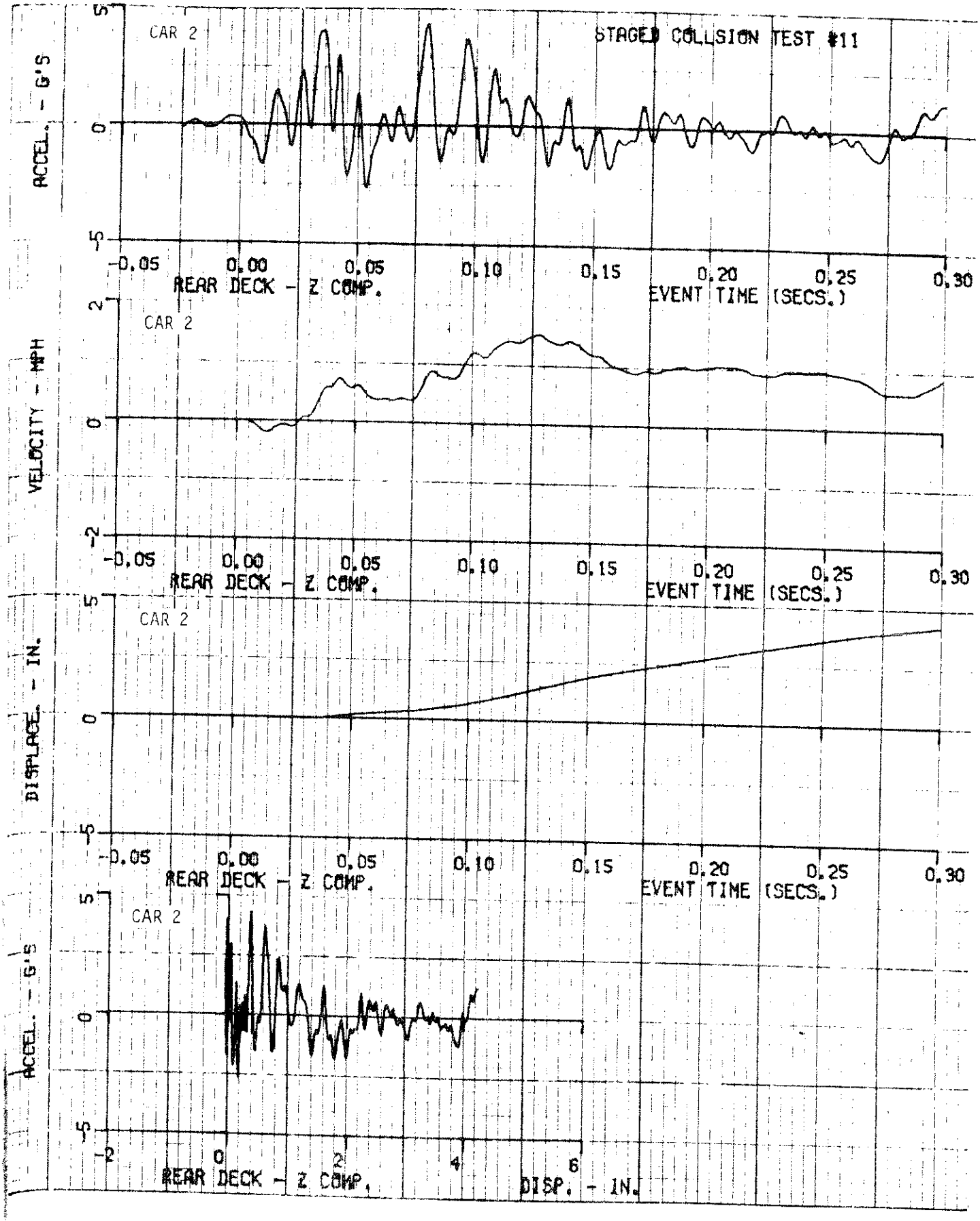

STAGED COLLISION TEST #11
CAR 2
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
VELOCITY - MPH
4
0
-4
DISPLACE. - IN.
20
0
-20
ACCEL. - G'S
0
4
8
12
DISP. - IN.

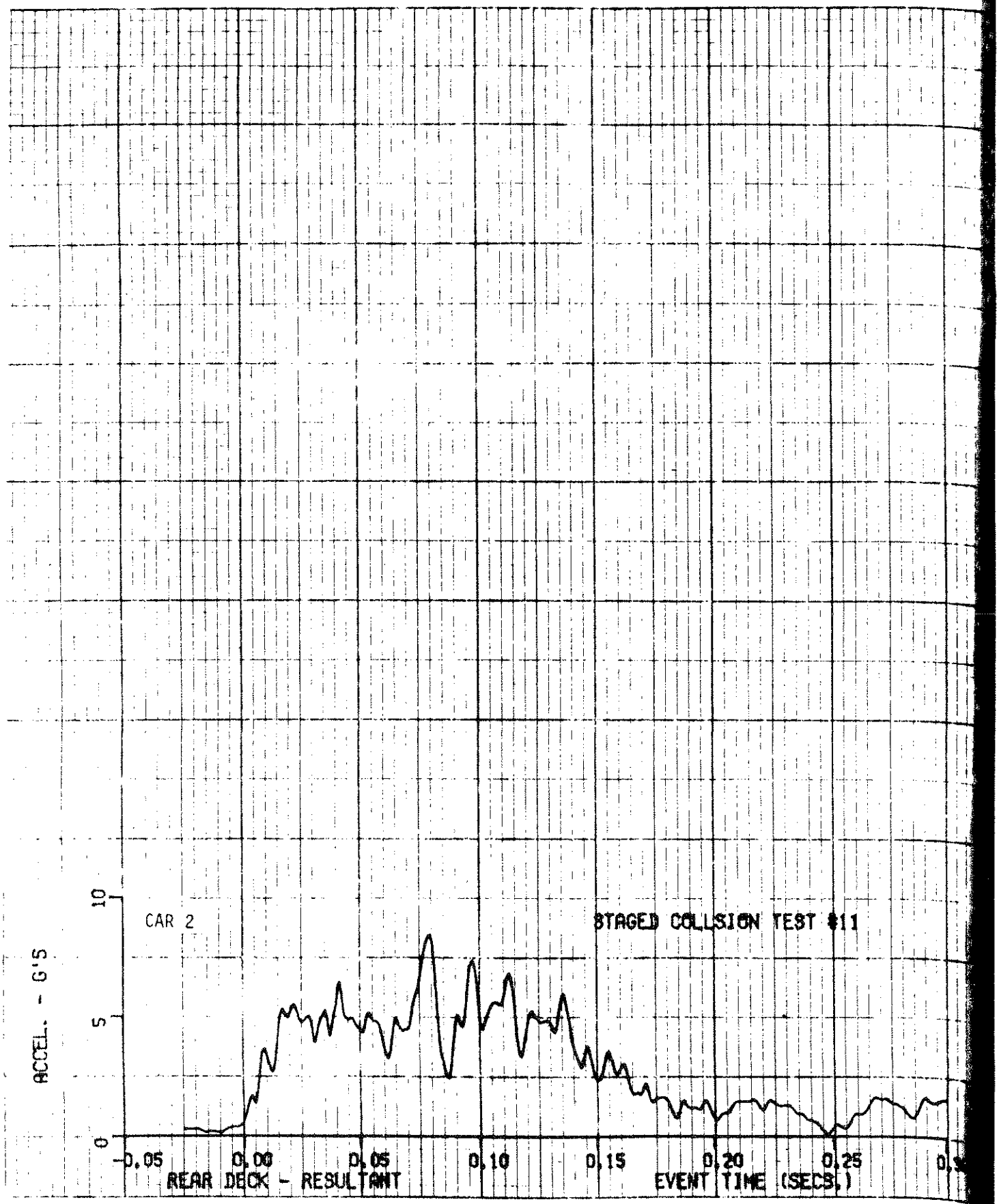

STAGED COLLSION TEST #11
CAR 2
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
2
0
-2
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
2
0
-2
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-1
0
1
2
3
FIREWALL - Z COMPONENT
DISP. - IN.


CAR 2
STAGED COLLISION TEST #11
ACCEL. - G'S
20
10
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - RESULTANT
EVENT TIME (SECS.)


STAGED COLLISION TEST #11
CAR 2
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
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 2
DISPLACE. - IN.
80
40
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 2
ACCEL. - G'S
10
0
-10
0
20
40
60
80
REAR DECK - X COMP.
DISP. - IN.


CAR 2
STAGED COLLSION TEST #11
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 2
VELOCITY - MPH
4
2
0
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
20
10
0
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
4
0
-4
0
4
8
12
16
REAR DECK - Y COMP.
DISP. - IN.


STAGED COLLSION TEST #11
CAR 2
ACCEL. - G'S
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
VELOCITY - MPH
2
0
-2
-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
5
0
-5
-2
0
2
4
6
REAR DECK - Z COMP.
DISP. - IN.


CAR 2
STAGED COLLSION TEST #11
ACCEL. - G'S
10
5
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
REAR DECK - RESULTANT
EVENT TIME (SECS.)

ZQ-6057-V-5

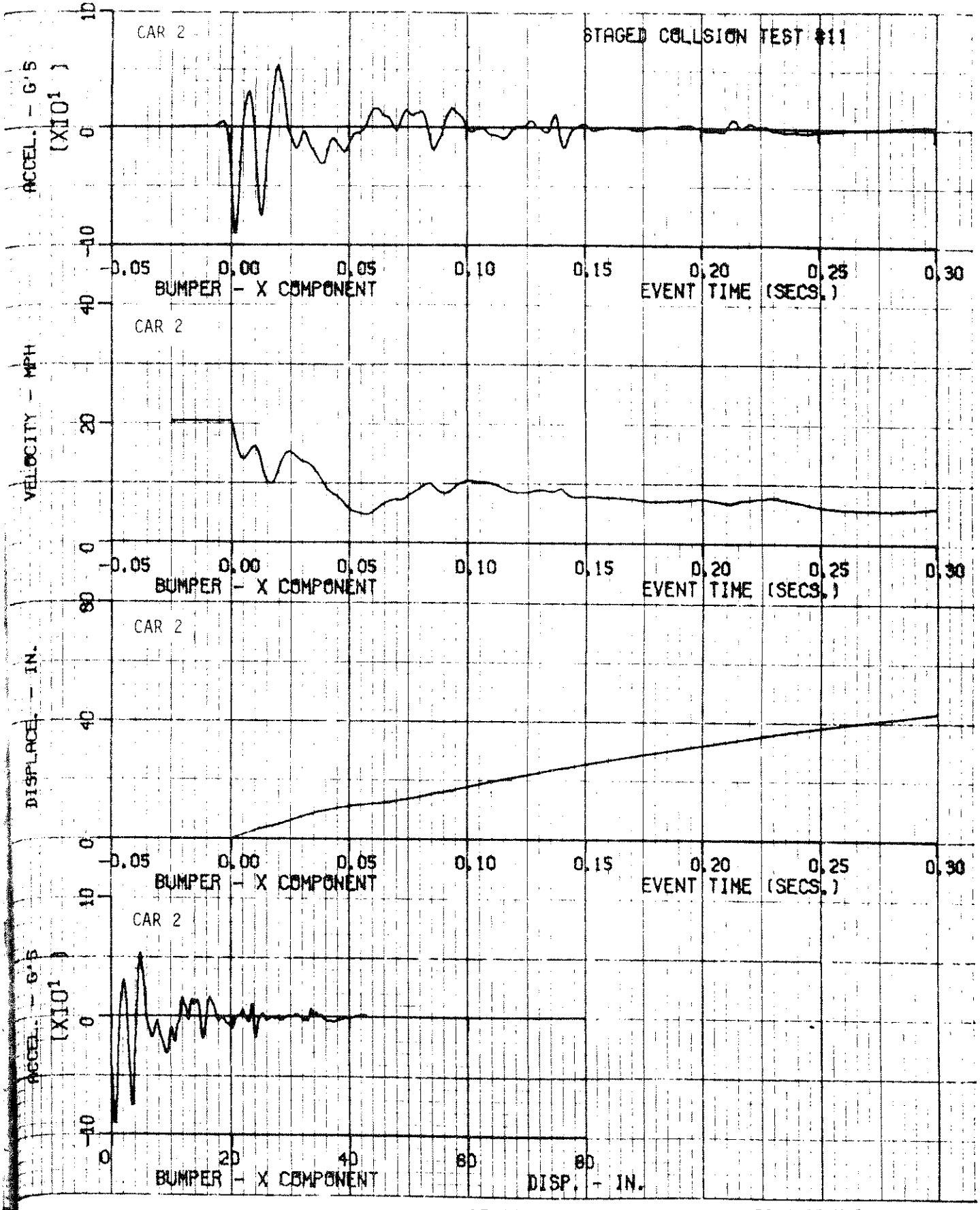

CAR 2
STAGED COLLSION TEST #11
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
20
0
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
80
40
0
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
10
0
-10
0
20
40
60
80
BUMPER - X COMPONENT
DISP. - IN.

TABLE 17-7

DUMMY INJURY CRITERIA VALUES

CAR 1 - BULLET VEHICLE - TEST NO. 11

	MAXIMUM ACCELERATION ("G") *											
	HEAD				CHEST				PELVIS			
	X	Y	Z	R	X	Y	Z	R	X	Y	Z	R
DUMMY (1)	-55	65	15	56	-17	5	-8.5	19	-18.5			
DUMMY (2)	-18	5	15	20	-13.5	3.6	-3	14	-23.5			
DUMMY (3)												
DUMMY (4)												

	MAXIMUM FORCE-FEMUR LOAD (LBS)		DUMMY LOCATION
	RIGHT FEMUR	LEFT FEMUR	
DUMMY (1)	100	100	Left Front Passenger
DUMMY (2)	100	350	Right Front Passenger
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)	235.3	.134	.149	47.5	336	68
DUMMY (2)	103.2	.096	.183	16.9	120	40
DUMMY (3)						
DUMMY (4)						

*DEFINED AS EXCEEDING 0.003 SEC. DURATION

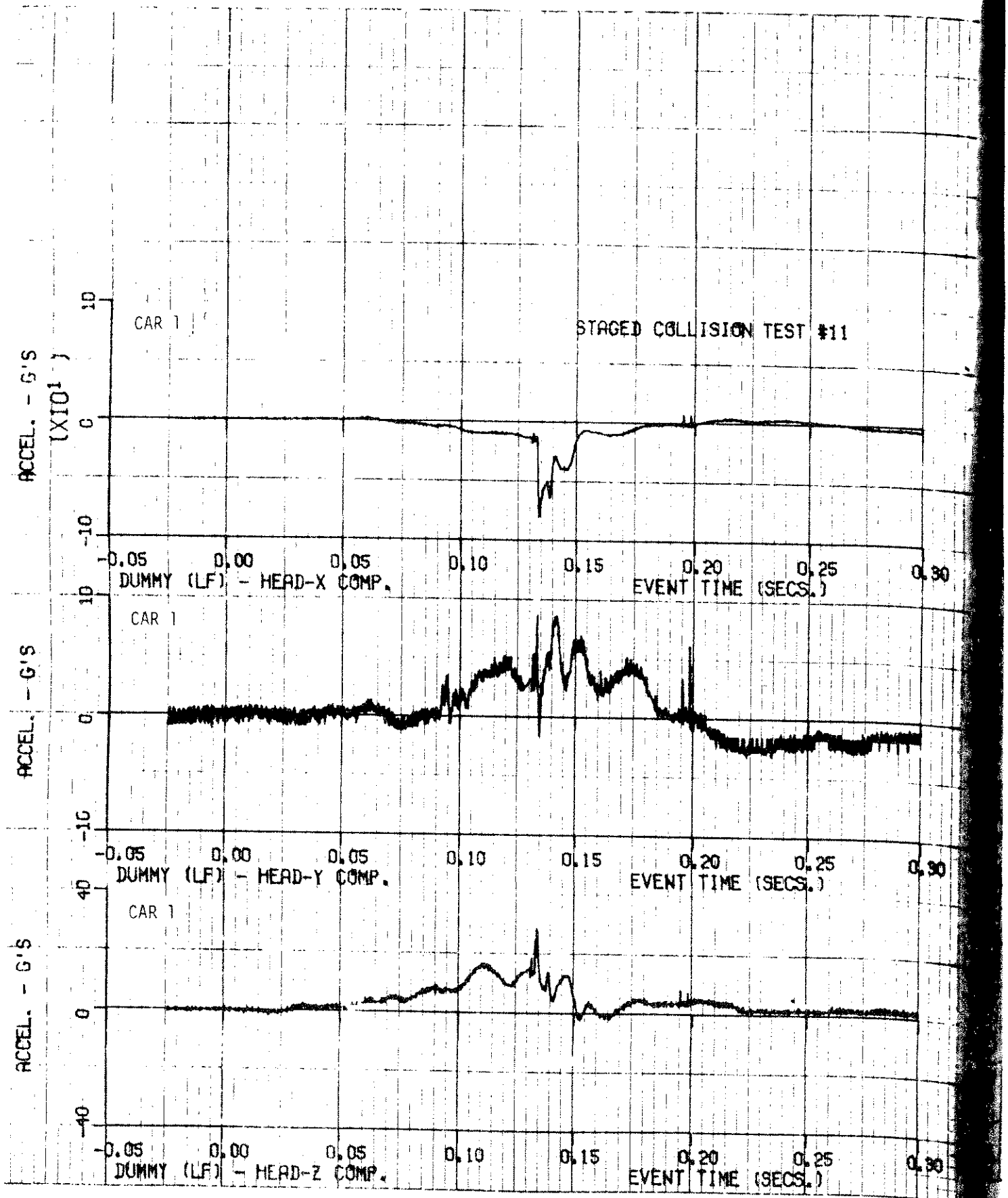
**AS DEFINED IN FMVSS NO. 208

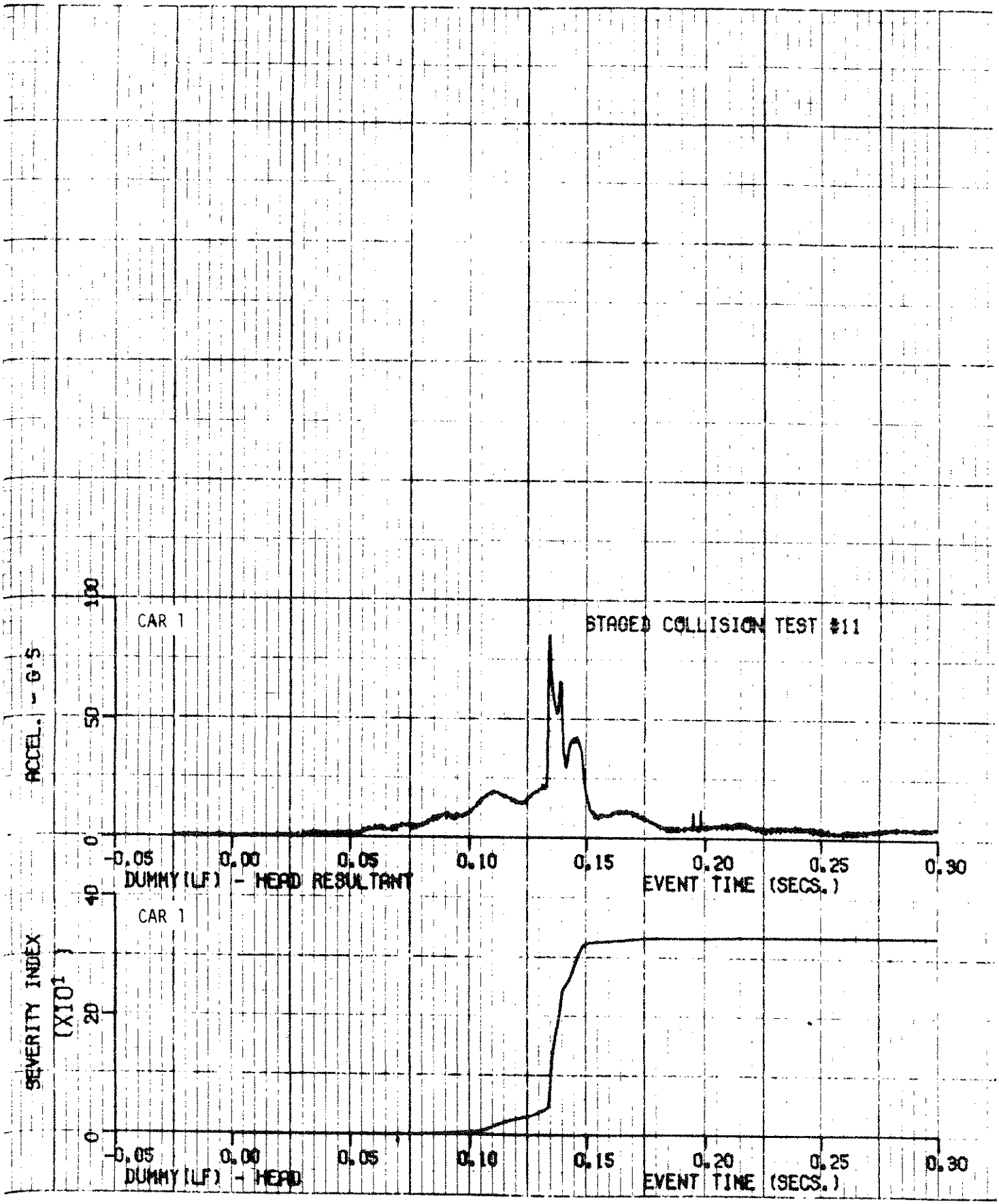
RICSAC TEST NO. 11

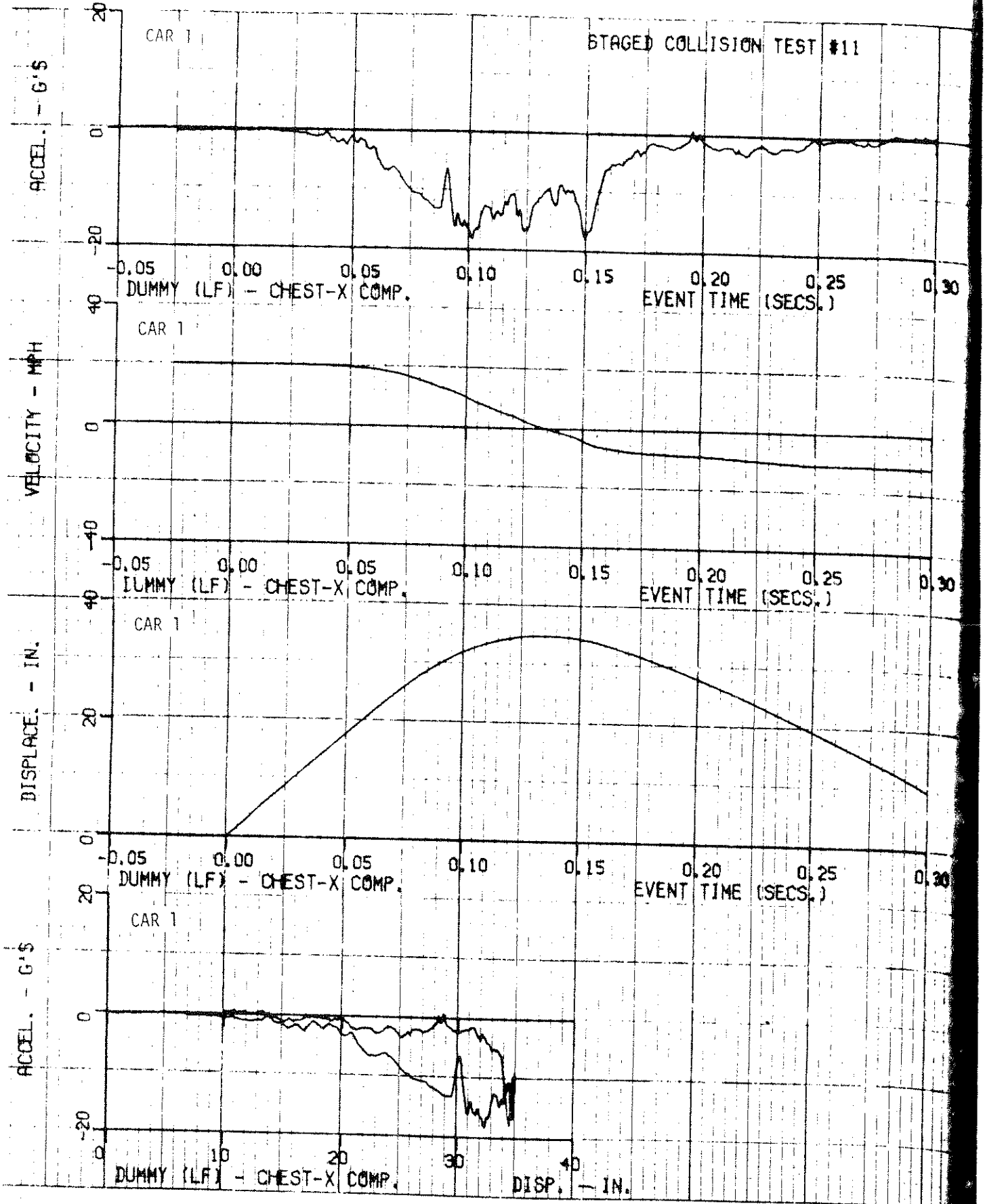
DUMMY DATA

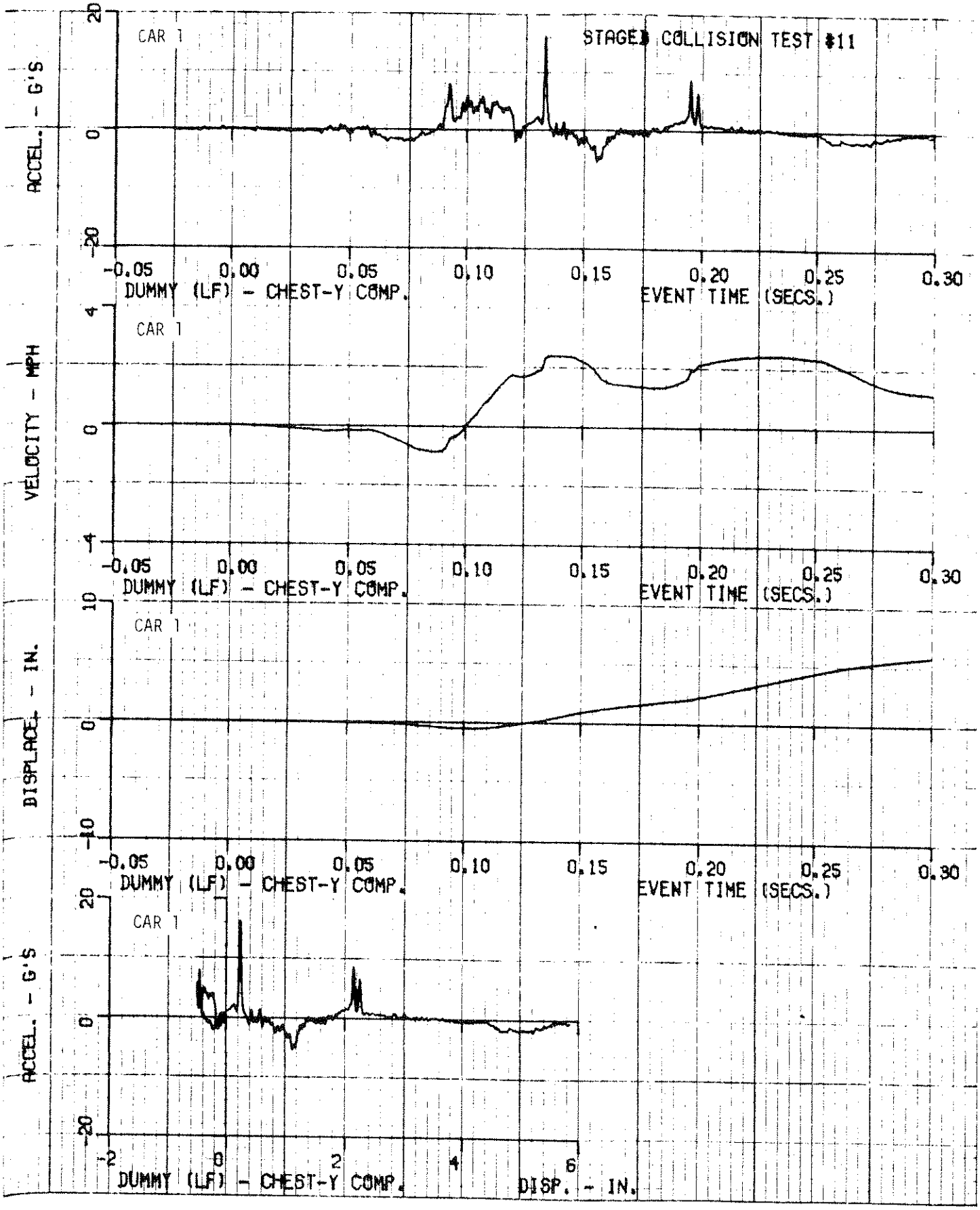
CAR NO. 1 VEGA

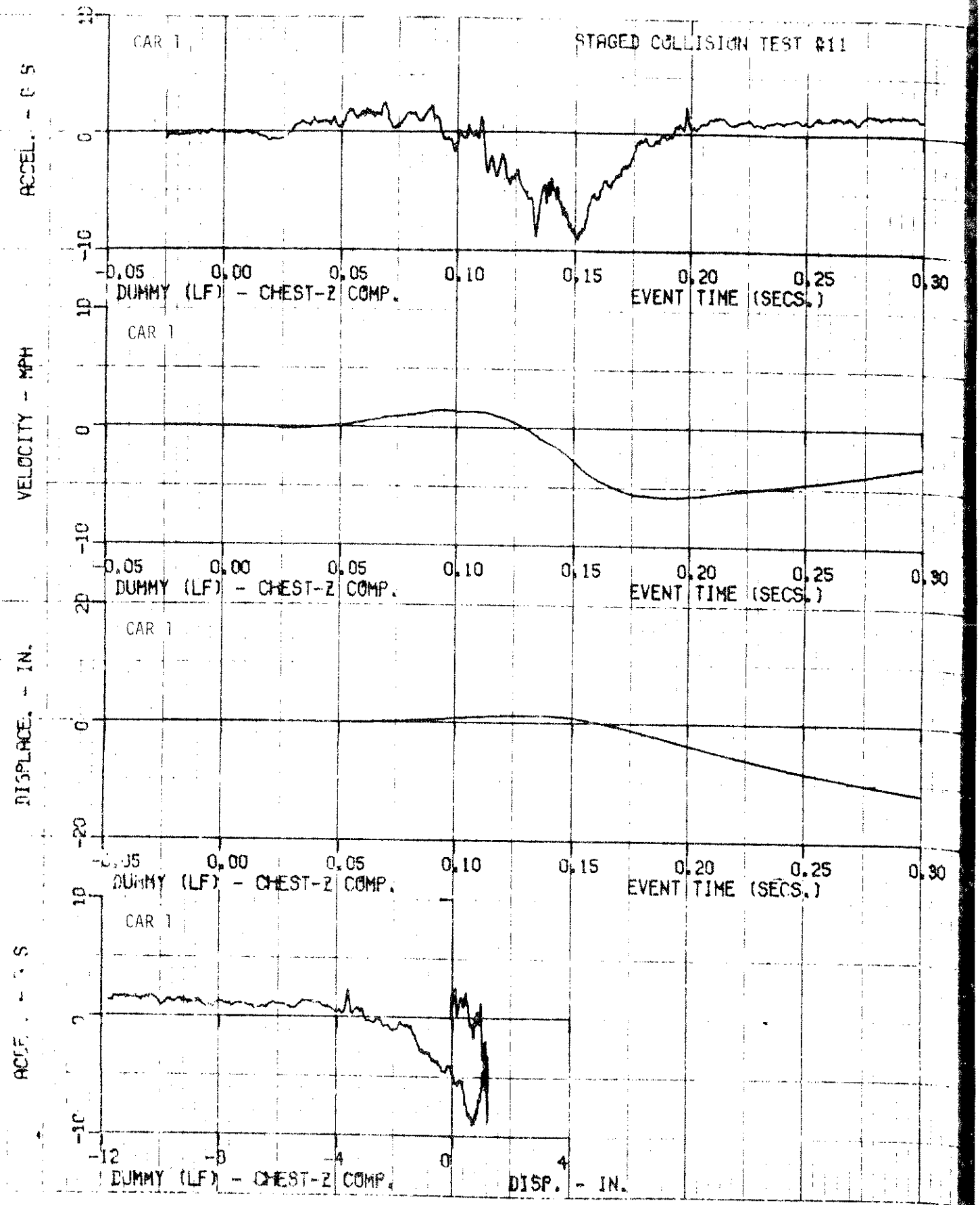
DATA PLOTS		FILTER CLASS
HEAD ACCELERATION	X,Y,X	1000
HEAD RESULTANT		
HEAD SEVERITY INDEX		
CHEST ACCELERATION	X,Y,Z	180
CHEST RESULTANT		
CHEST VELOCITY	X,Y,Z	
CHEST DISPLACEMENT	X,Y,Z	
CHEST SEVERITY INDEX		
PELVIC ACCELERATION	X	180
PELVIC VELOCITY	X	
PELVIC DISPLACEMENT	X	
FEMUR LOADS	L & R	600

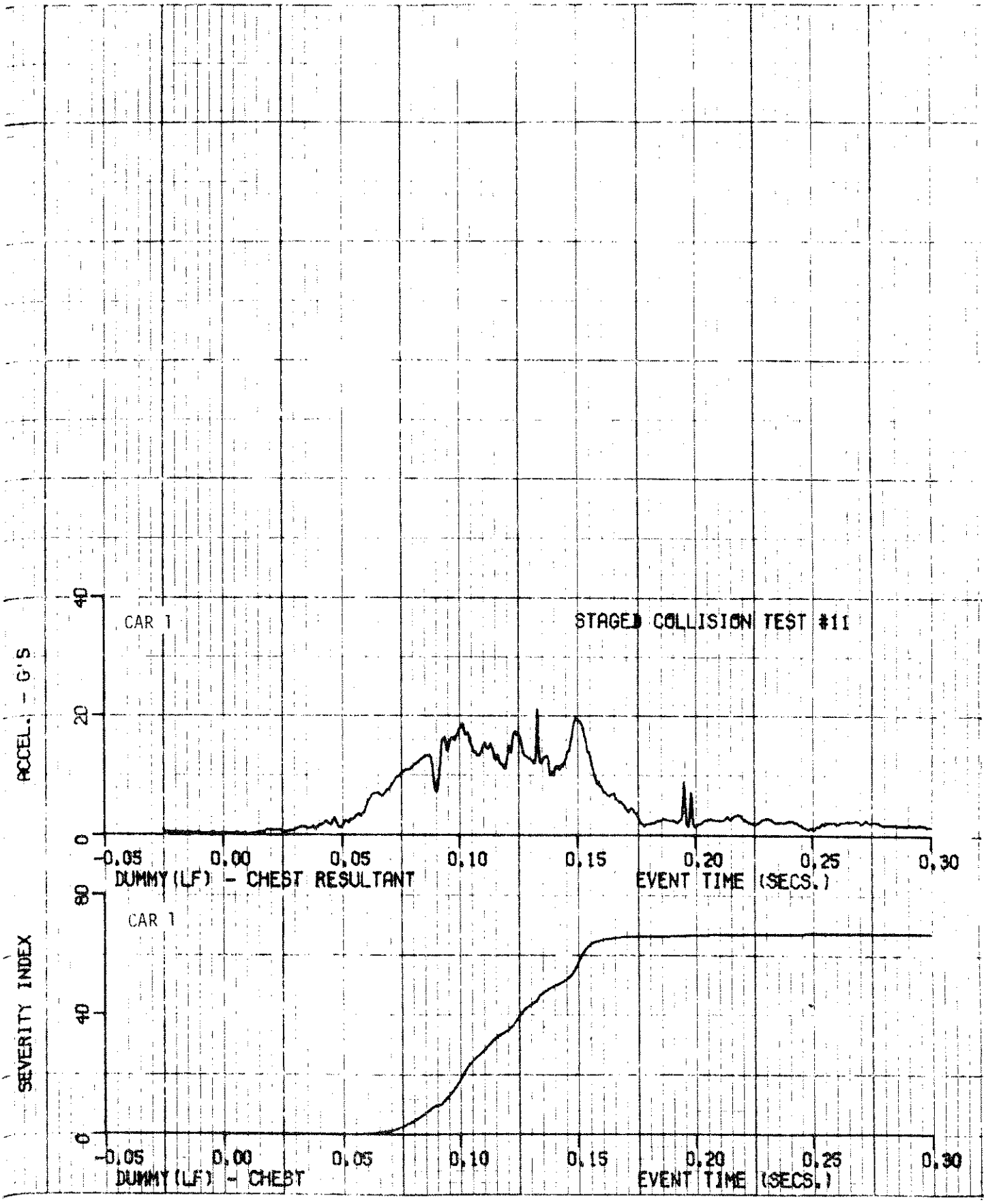

CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
DUMMY (LF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
DUMMY (LF) - HEAD-Z COMP.
EVENT TIME (SECS.)

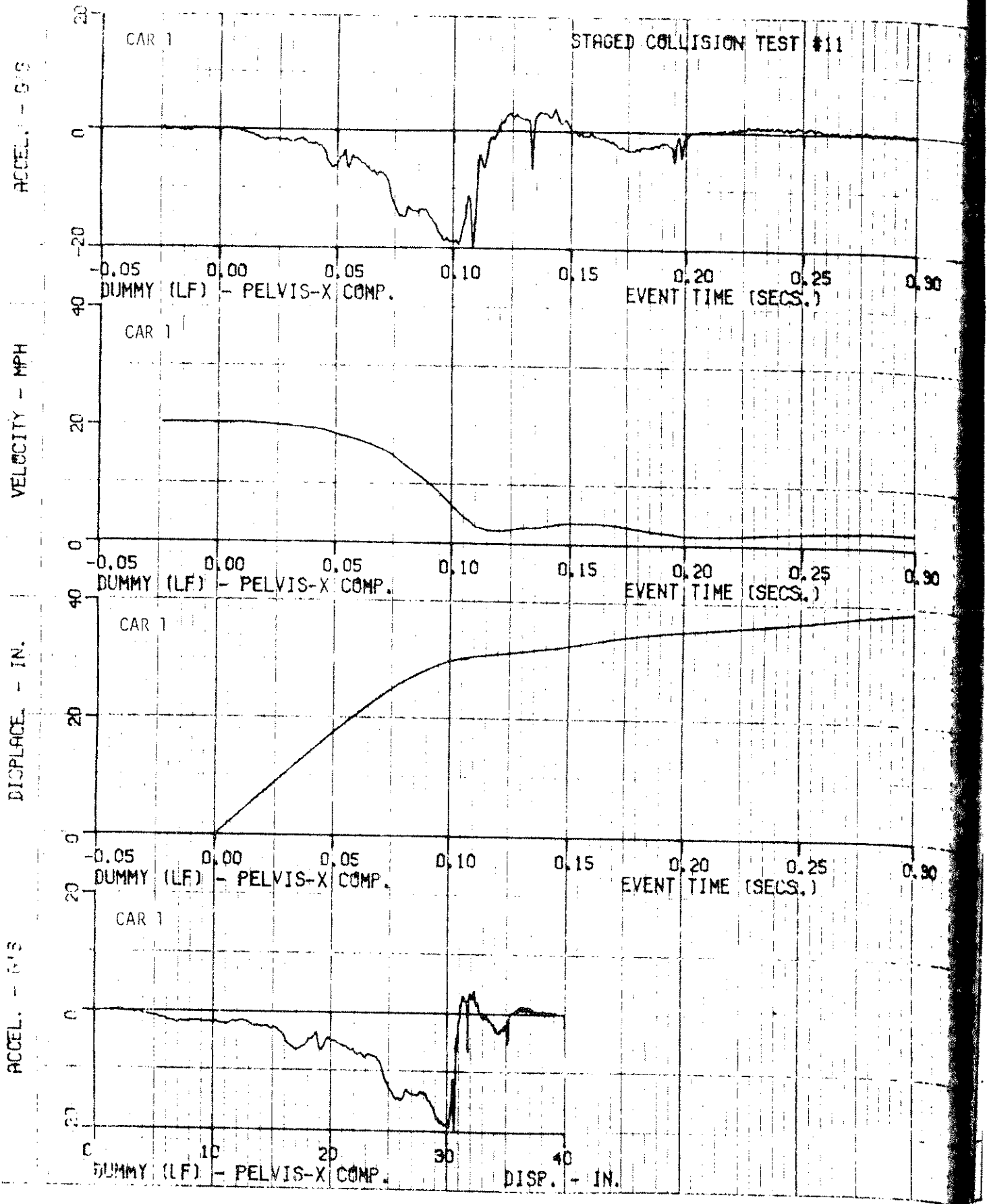

CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
100
50
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 1
SEVERITY INDEX (X10²)
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD
EVENT TIME (SECS.)

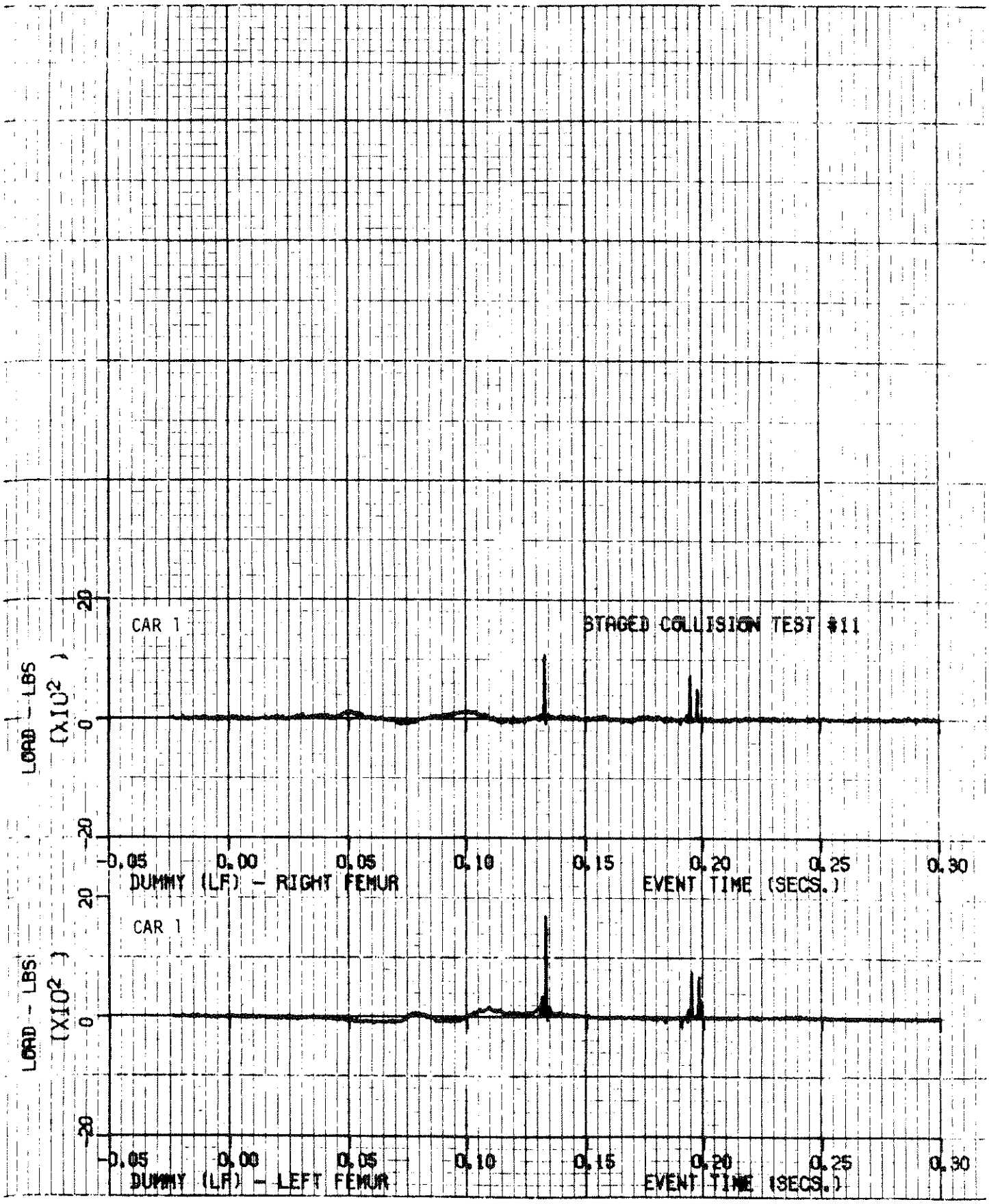

STAGED COLLISION TEST #11
CAR 1
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
10
20
30
40
DUMMY (LF) - CHEST-X COMP.
DISP. - IN.

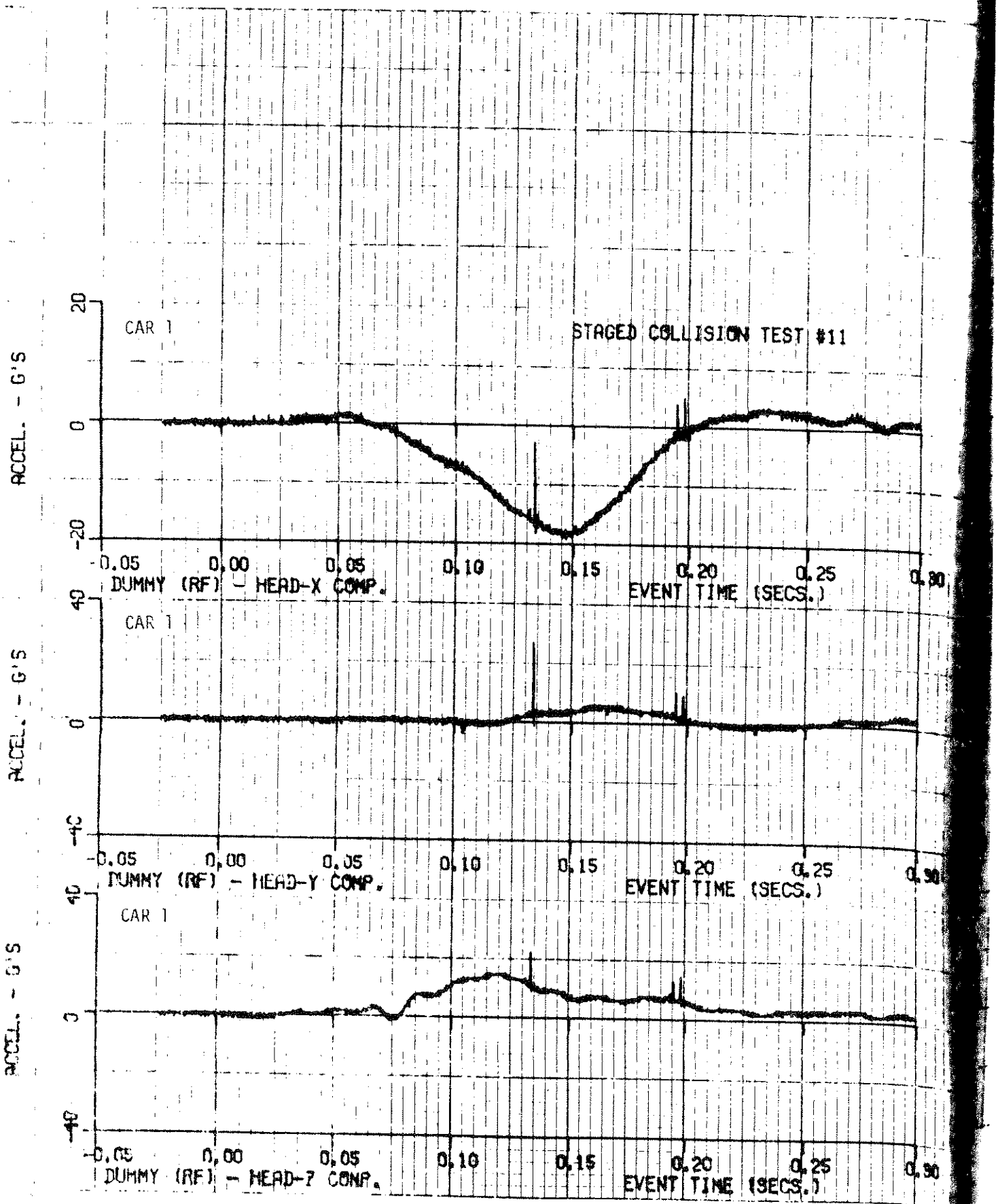

CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
10
0
-10
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
-2
0
2
4
6
DUMMY (LF) - CHEST-Y COMP.
DISP. - IN.

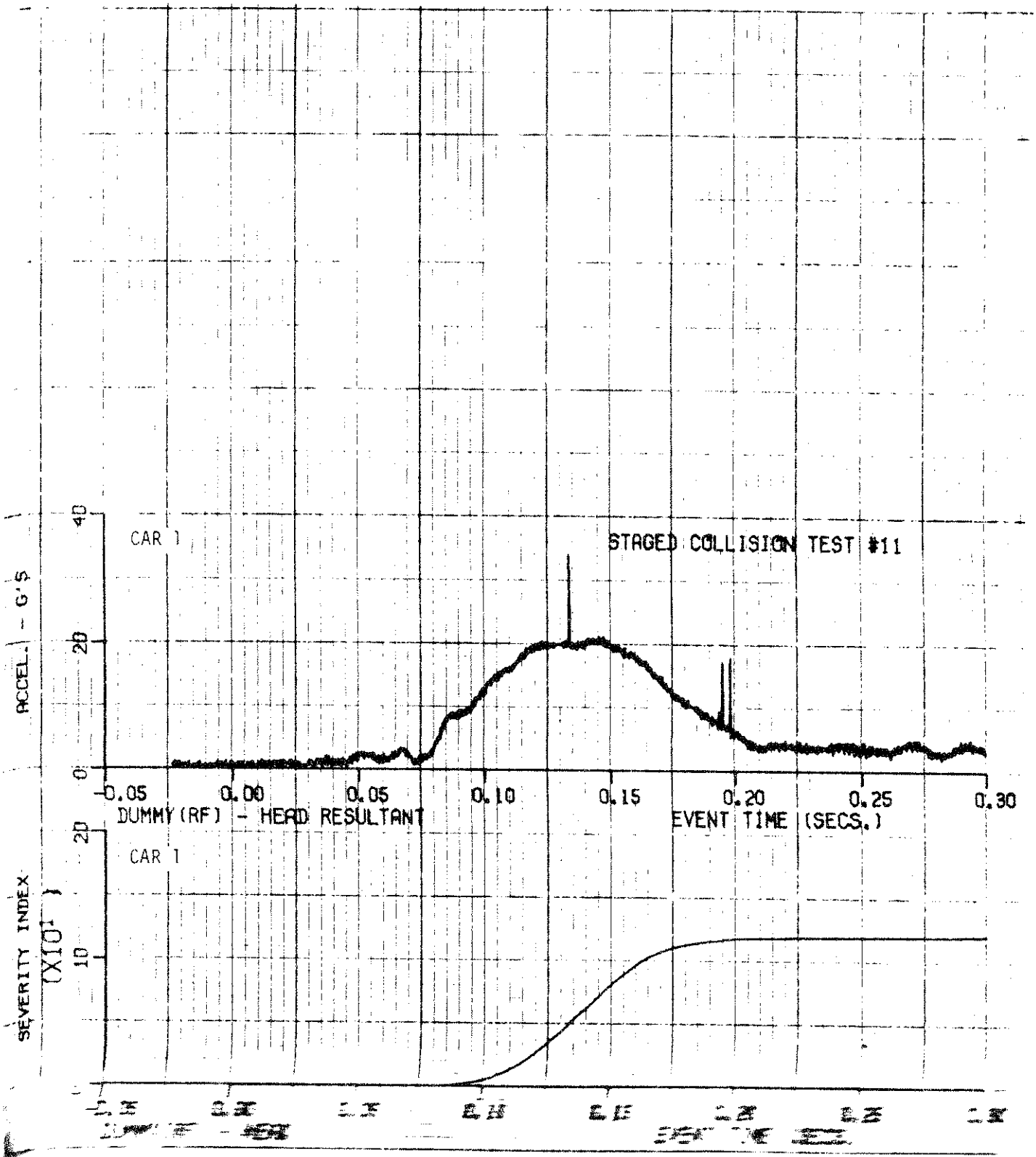

CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
20
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
10
0
-10
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
20
0
-20
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 1
10
0
-10
-12
-8
-4
0
4
DUMMY (LF) - CHEST-Z COMP.
DISP. - IN.

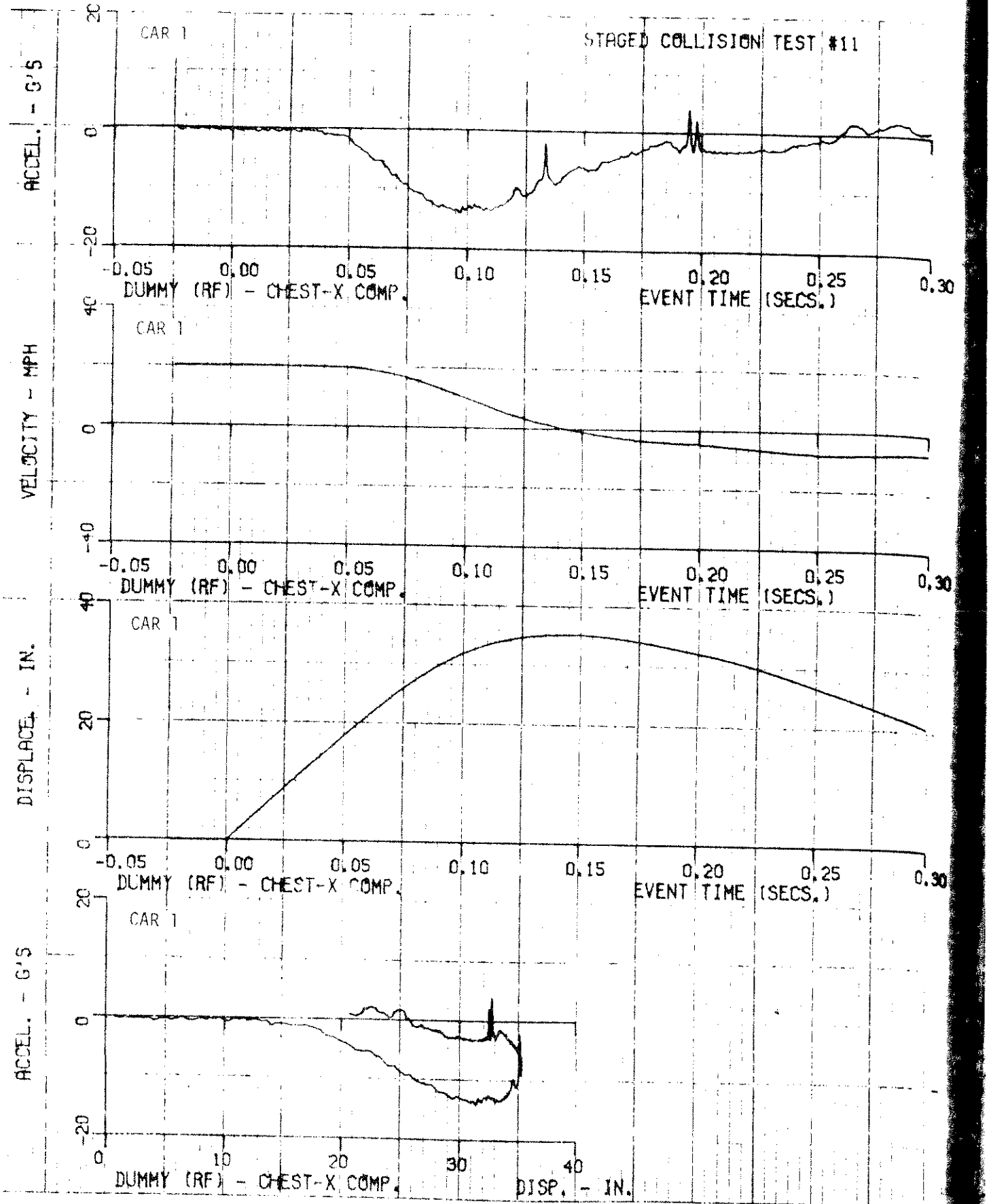

CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
0
20
40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST RESULTANT
EVENT TIME (SECS.)
CAR 1
SEVERITY INDEX
0
40
80
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST
EVENT TIME (SECS.)

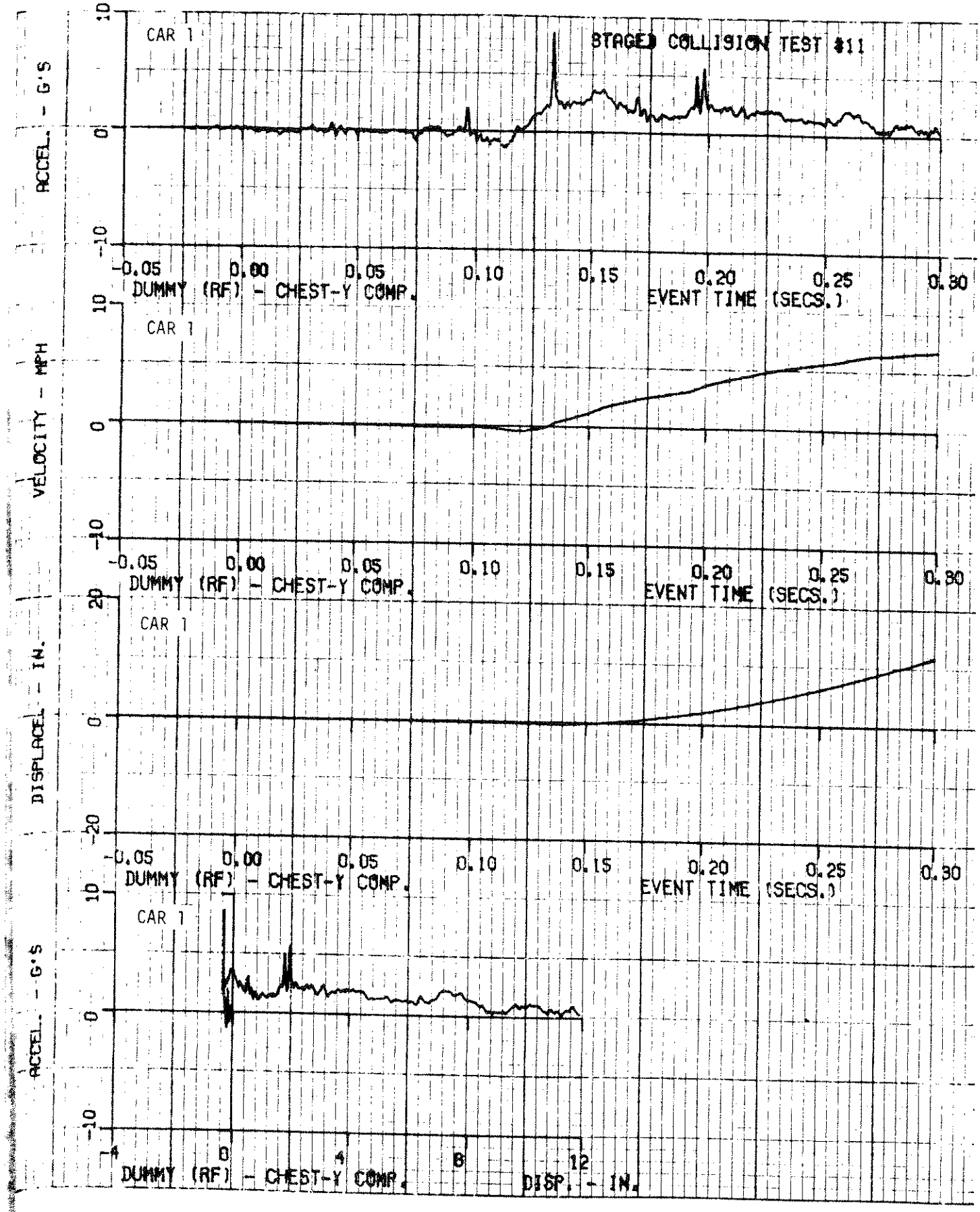

CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - PELVIS-X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
20
0
DUMMY (LF) - PELVIS-X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
40
20
0
DUMMY (LF) - PELVIS-X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
10
20
30
40
DUMMY (LF) - PELVIS-X COMP.
DISP. - IN.

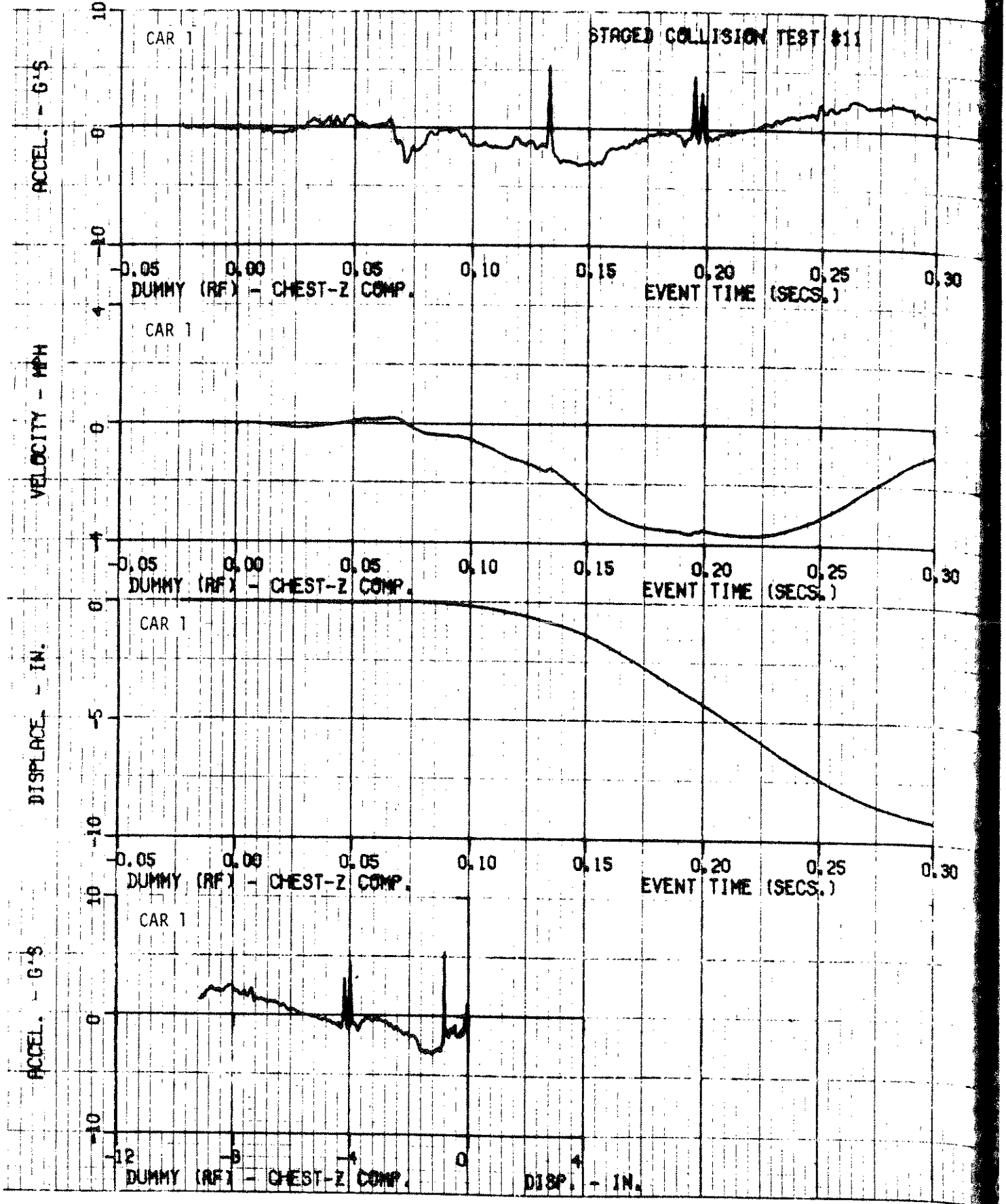

CAR 1
STAGED COLLISION TEST #11
LOAD - LBS (X10²)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 1
LOAD - LBS (X10²)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - LEFT FEMUR
EVENT TIME (SECS.)

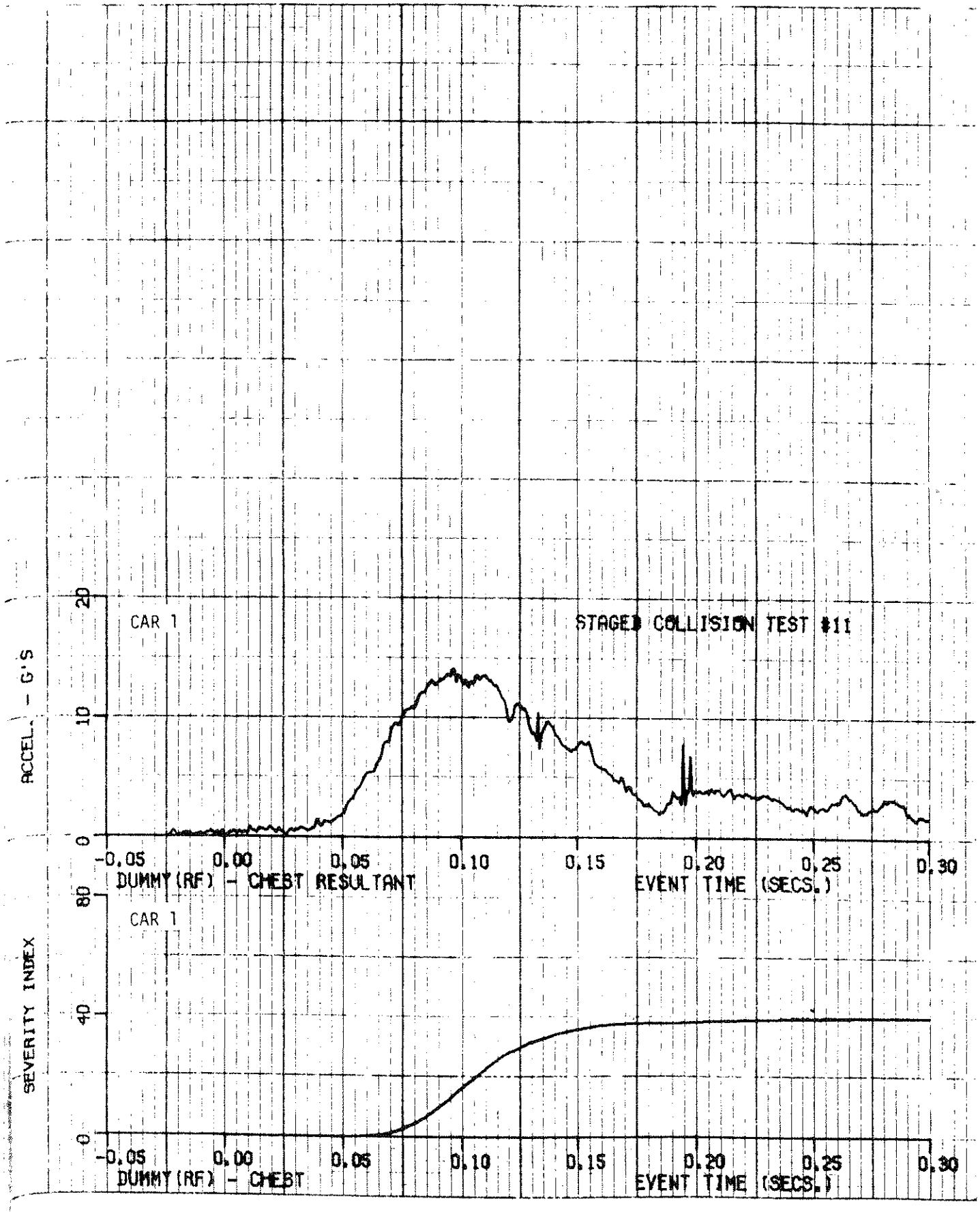

CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
DUMMY (RF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
DUMMY (RF) - HEAD-Z COMP.
EVENT TIME (SECS.)

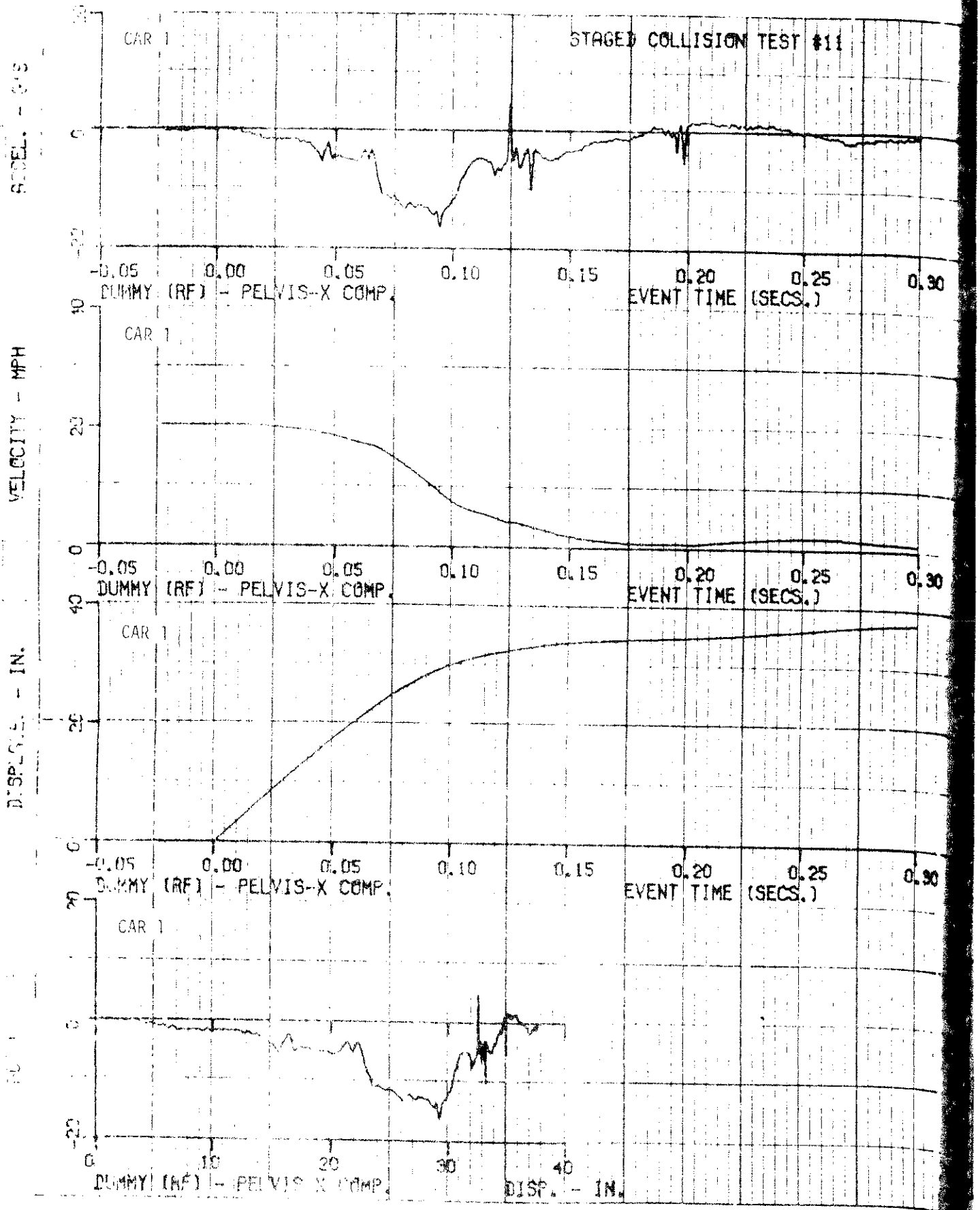

CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 1
SEVERITY INDEX (X10²)
20
10

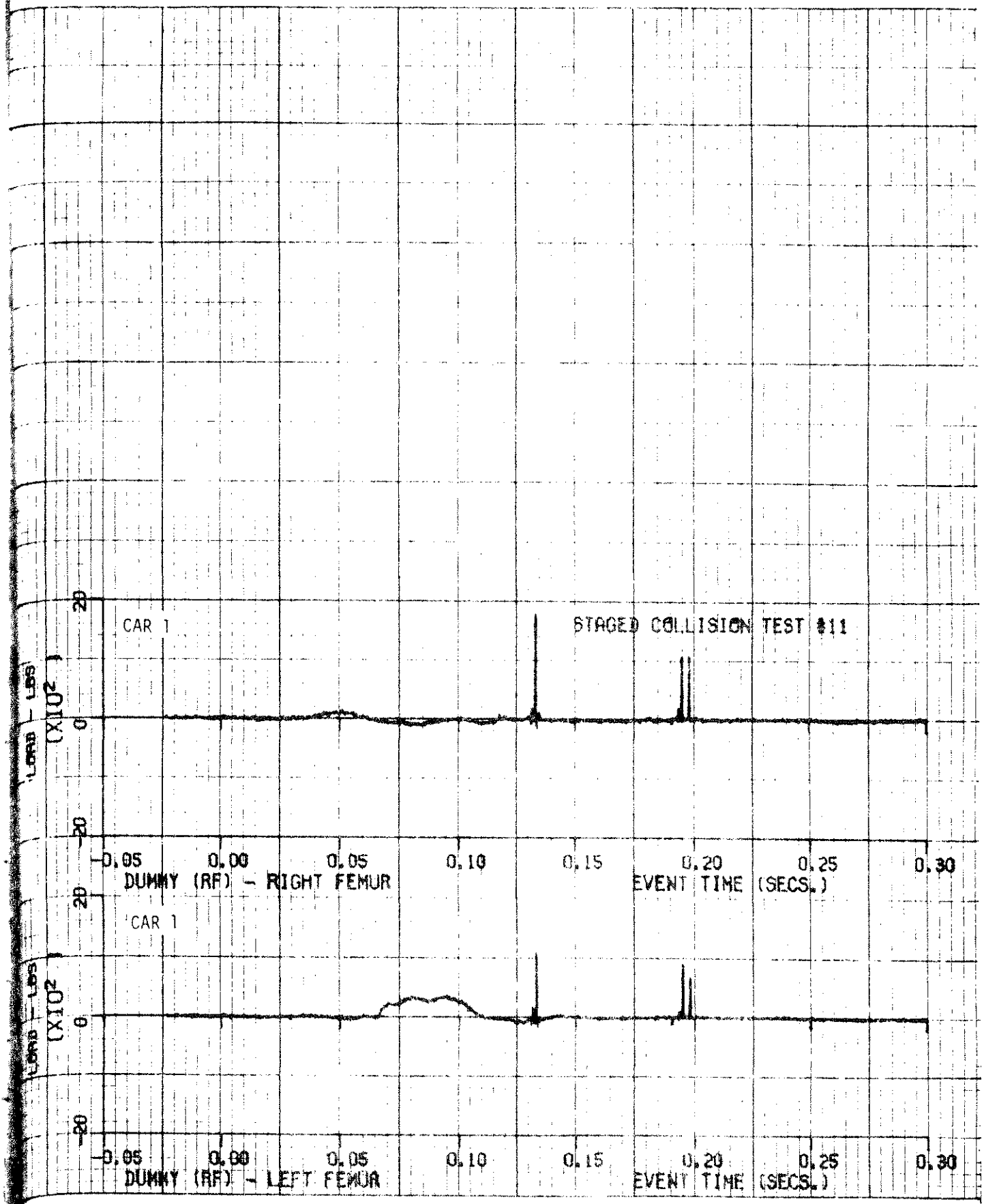

CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
0
-40
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
40
20
0
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
10
20
30
40
DUMMY (RF) - CHEST-X COMP.
DISP. - IN.


STAGED COLLISION TEST #11
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 (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
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 1
DISPLACE. - IN.
20
0
-20
-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 1
ACCEL. - G'S
10
0
-10
-4
0
4
8
12
DUMMY (RF) - CHEST-Y COMP.
DISP. - IN.


STAGED COLLISION TEST #11
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 (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
0
-5
-10
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
10
0
-10
-12
-8
-4
0
4
DUMMY (RF) - CHEST-Z COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #11
ACCEL. - G'S
20
10
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 1
SEVERITY INDEX
80
40
0
DUMMY (RF) - CHEST
EVENT TIME (SECS.)


STAGED COLLISION TEST #11
CAR 1
DUMMY (RF) - PELVIS-X COMP.
EVENT TIME (SECS.)
VELOCITY - MPH
DISP. - IN.
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
40
20
0
-20
0
10
20
30
40


CAR 1
STAGED COLLISION TEST #11
LOAD — LBS (X10²)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 1
LOAD — LBS (X10²)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - LEFT FEMUR
EVENT TIME (SECS.)

ZQ-6057-V-5

TEST NO. 12

RICSAC STAGED COLLISION

FRONT-TO-FRONT
OBLIQUE - OFFSET

VEGA/TORINO

VELOCITY 31.5 MPH

18.0 RICSAC STAGED COLLISION - TEST NO. 12

EXPERIMENTAL RESULTS

Test Description

This staged collision involved a 1974 Chevrolet Vega (V-1) striking a 1974 Ford Torino (V-2) in a frontal offset impact at a 10 degree oblique angle as shown in Figure 12-4.The impact velocity of both vehicles was 31.5 mph. The vehicle test weights were 3150 and 4540 pounds for the Vega and Torino, respectively. Each vehicle had two Part 572 test dummies (50 percentile) seated in the front seat. The dummies in the Vega were instrumented according to FMVSS 208 and were restrained by belts. In the Torino the dummies were uninstrumented and were also restrained with seat belts.

The Torino was equipped with automatic transmission, power steering and power brakes. The Vega had automatic transmission, power steering and power brakes. The accident was staged with both transmissions in drive position, brakes off and the engines not running. During the collision no steering control inputs or vehicle braking was applied. The roadway was dry with skid resistance value of 87.

Approximately one car length before impact the vehicle tow cable was released and the vehicle guide rail was terminated. At this point in time and during the collision event both vehicles are free bodies with no constraints except the normal collision forces and reactions encountered in this type of car-to-car collision. During the collision event no observed tow cable or instrumentation cable interference with the moving vehicles was noted.

ACCIDENT SCHEMATIC

VEHICLES:

No. 1 - 1974 CHEVROLET VEGA
No. 2 - 1974 FORD TORINO

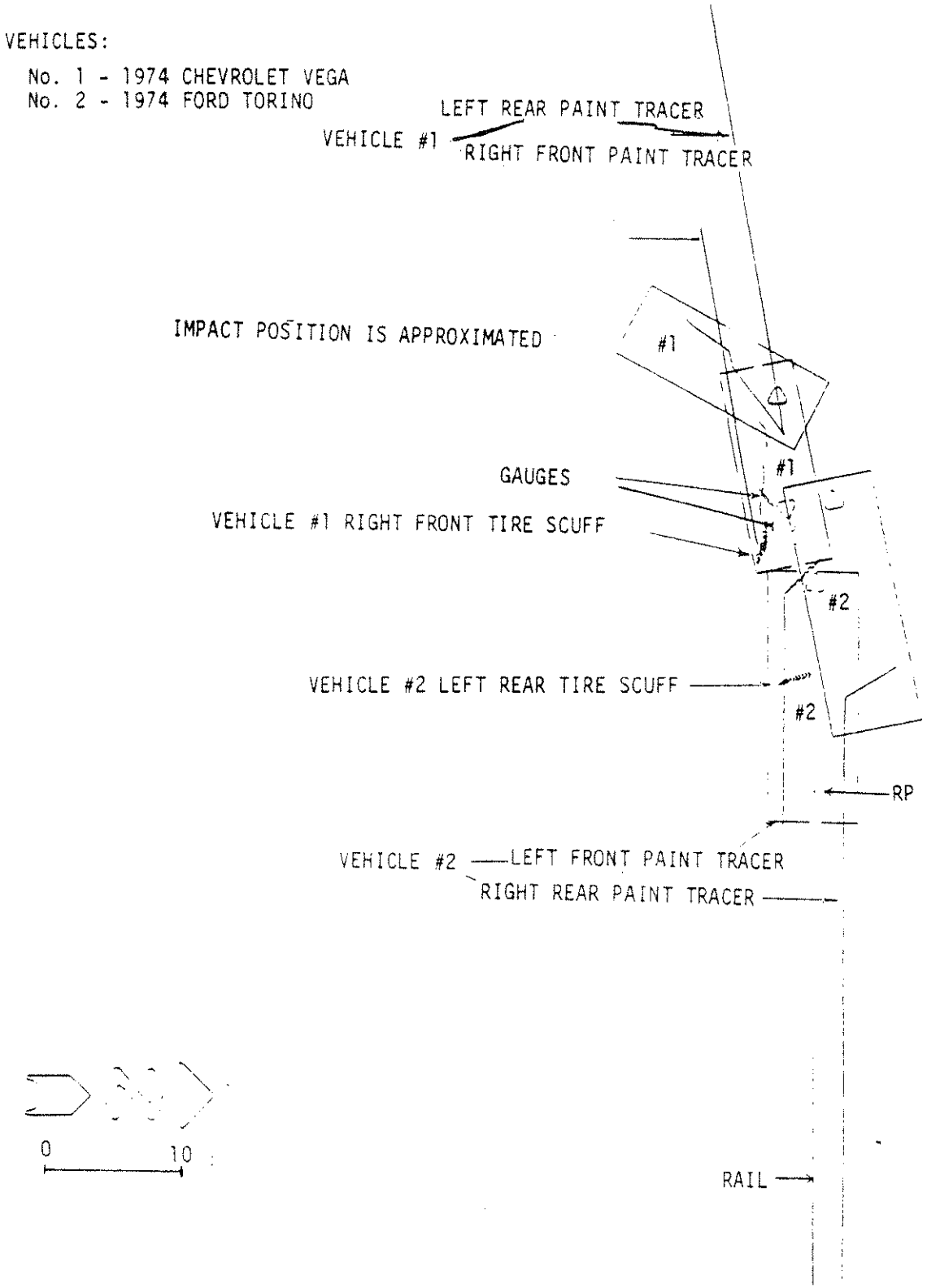


Figure 18-1 TEST NO. 12 - RICSAC ACCIDENT SCHEMATIC

CRASH TEST SUMMARY

TEST NO. 12 PROJECT RICSAC

DATE 7-12-78 TIME 11:55 TEMP. 80°F

TEST CONDITION Car-to-Car, Frontal Offset - 10 Degrees

VEHICLE NO. 1 1974 Vega

VEHICLE NO. 2 1974 Ford Torino

	VEH. NO. 1	VEH. NO. 2
TEST WEIGHT (lbs)	3150	4540
IMPACT ANGLE (deg)*	10	0
IMPACT VELOCITY (mph)**	31.53	31.53
MAX. CRUSH (in)		
MAX. INTRUSION (in)		

DUMMIES	VEH. NO. 1	VEH. NO. 2
TYPE	Part 572	Part 572
LOCATION	Driver (L.F.), Passenger (R.F.)	Driver (L.F.), Passenger (R.F.)
RESTRAINT	3-Point Restraint	3-Point Restraint
	Instrumented	Uninstrumented

NUMBER OF DATA CHANNELS 54
NUMBER OF HIGH SPEED CAMERAS 9

*WITH RESPECT TO TOW TRACK CENTERLINE

**SPEED TRAP MEASUREMENT (±0.5% ACCURACY)

TABLE 18-1

TEST NO. 12 - CAR NO. 1

VEHICLE DATA

TEAM	YEAR	MONTH	DAY	SEQUENCE
1	8	06	12	012

Vehicle data not collected. Reason? _____

Vehicle No. 1 — 14-15 No. of VIN Characters 13

16-22 VIN (Left Justify, Omit Production Numbers) 1V11A42 119134

23-27 Make/Model (CPIR Code) CHEVROLET VEGA 2 DR. GREEN 11318

28-32 Mileage (Odometer Reading) 99998 = 99998 mi. or more; 99999 = Unknown 99999.

33-34 Model Year 74

35-36 BODY STYLE

Automobiles		Trucks		Other	
Passenger Car	(01)	Van - Passenger	05	School Bus	11
Stationwagon	02	- Cargo	06	Other Bus	12
Convertible	03	Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04	Pickup	08	Other Body Style	98
		Straight Truck	09	Unknown	99
		Tractor-Trailer	10		

VEHICLE WEIGHT

37-39 Curb 02,400

40-42 Occupant and Cargo Only 0,00

43 TOWING ANOTHER VEHICLE: Yes 1; (No 2); Unknown 9

VEHICLE DAMAGE

	Object Contacted	CDC	Veh. No.	Impact No.
44-54 (1)	03	12 FDEW4	2	1
55-65 (2)				
(3)				
(4)				

(1) = Highest Severity (Estimated ΔV)

66 VEHICLE TOWED FROM SCENE: Yes (1); No 2; Unknown 9

67 SOURCE OF VEHICLE DATA

- Inspection at Repair or Tow Facility (1)
- Inspection at Person's Home 2
- Inspection at Scene 3
- Not Inspected (Photos or Repair Data) 4
- Not Inspected. Reason. _____ 5
- Unknown 9

68 VEHICLE INSPECTION

- Not Inspected 0
- Inspected on First Visit (1)
- Actual Number of Locations Visited (Including Follow-Ups to Same Location) 2 3 4 5 6 7
- 8 or More 8
- Unknown 9

69 APPLICABLE VEHICLE: Yes (1); No 2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED ON THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

Figure 18-2
VEHICLE CRUSH SCHEMATIC

TEST NO. 12 - CAR NO. 1

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

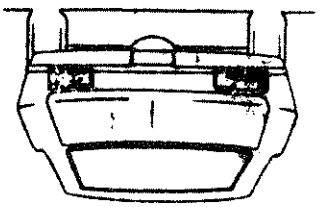
RF 2

LF 1

RR 2

LR 2

1 Yes, 2 No, 8 NA, 9 Unk.



WHEEL STEER ANGLES*

(For locked front wheels or displaced rear axles only)

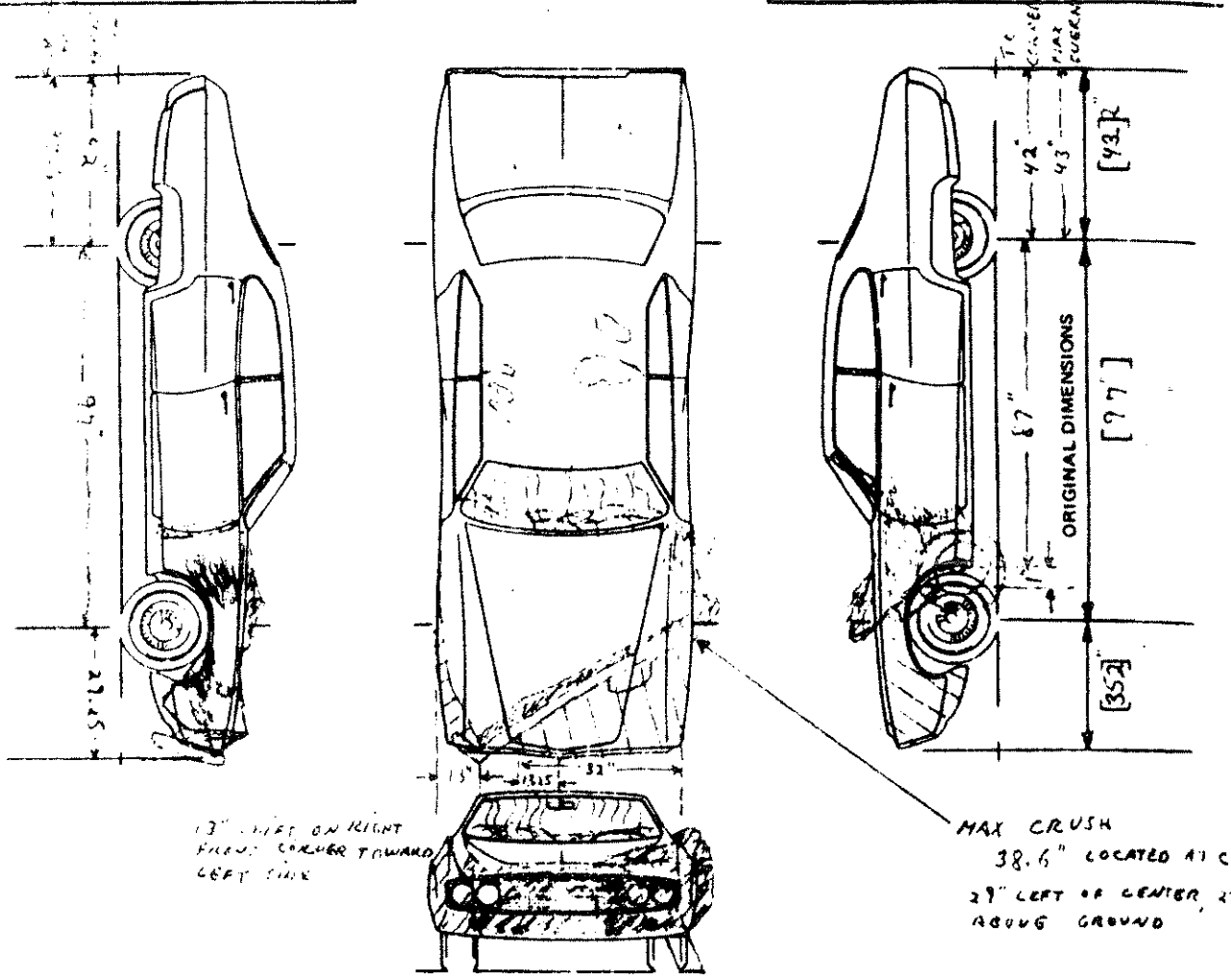
RF ± 0 3

LF ± 1 5°

RR ± N/A

LR ± N/A

Within ± 5°



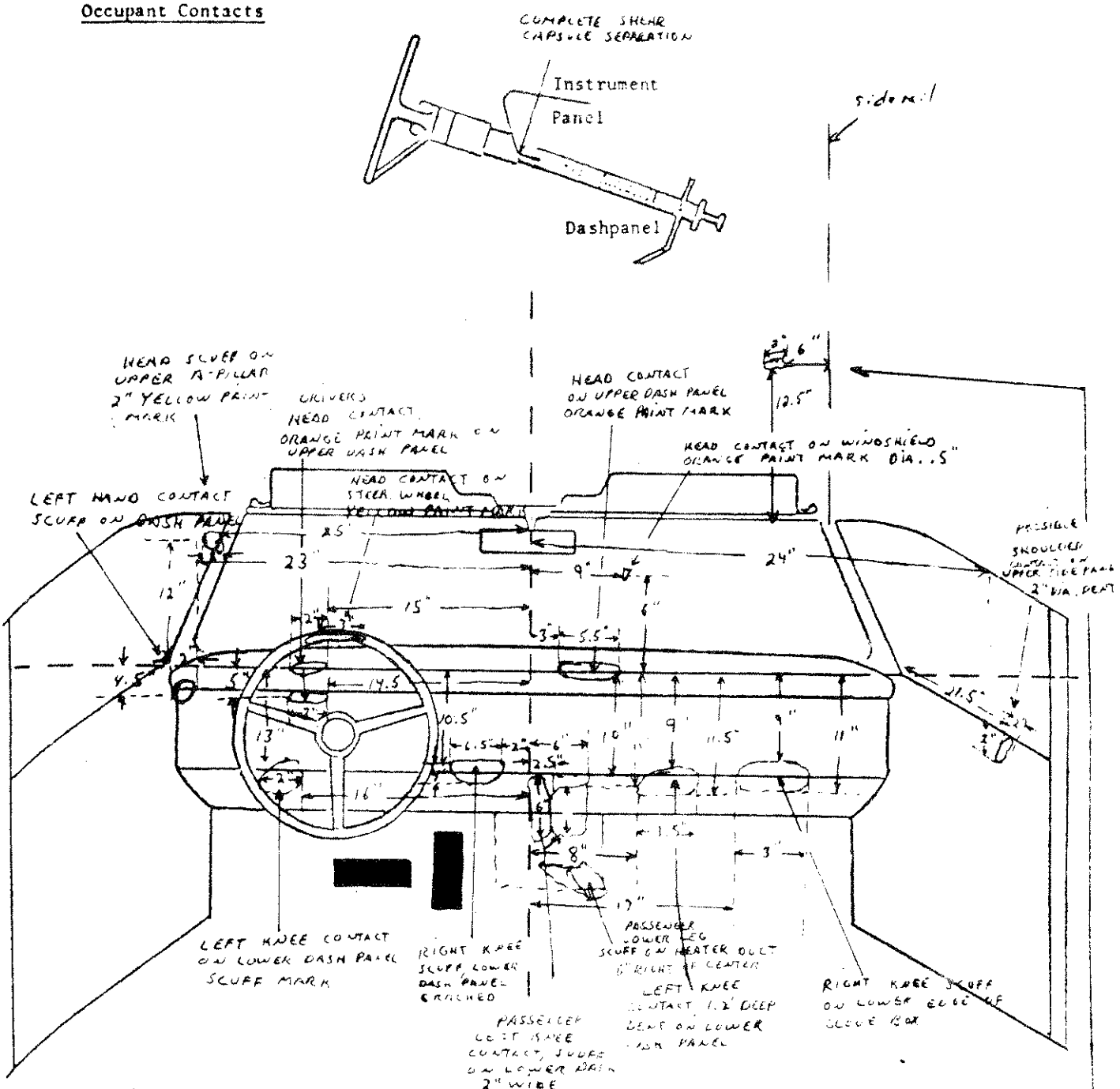
Impact Number	L	C_1	C_2	C_3	C_4	C_5	C_6	D±
1	32	38.6	34.6	29.5	24	19.6	14.25	+2.75
2								
3								
4								

NOTE: MEASURE C_1 TO C_6 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS: REAR TO FRONT IN SIDE IMPACTS

Figure 18-3
OCCUPANT CONTACT DATA
TEST NO. 12 - CAR No. 1

VEHICLE INTERIOR

Occupant Contacts



Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and code on next two pages. Dash lines indicate center of instrument panel-windshield area and top of panel for measurement purposes.

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TABLE 18-2

TEST NO. 12 - CAR NO. 2

TEAM	YEAR	MONTH	DAY	SEQUENCE
1	8	0 7	1 2	0 1 2

VEHICLE DATA

Vehicle data not collected. Reason? _____

Vehicle No. 2 — 14-15 No. of VIN Characters 1 1

16-22 VIN (Left Justify, Omit Production Numbers) 4B 27 F 1 0 7 41 8

23-27 Make/Model (CPIR Code) TORINO - 4DR. GREEN 1 2 1 0 1

28-32 Mileage (Odometer Reading) 99998 = 99998 mi. or more; 99999 = Unknown 7 3 9 5 8

33-34 Model Year 7 4

35-36 BODY STYLE

Automobiles		Trucks		Other	
Passenger Car	(01)	Van - Passenger	05	School Bus	11
Stationwagon	02	- Cargo	06	Other Bus	12
Convertible	03	Multi-Purpose	07	Motorcycle	13
Car, pickup body (e.g., El Camino, Ranchero, etc.)	04	Pickup	08	Other Body Style	98
		Straight Truck	09	Unknown	99
		Tractor-Trailer	10		

VEHICLE WEIGHT

37-39 Curb 4 0 , 0 0

40-42 Occupant and Cargo Only _ _ , 0 0

43 TOWING ANOTHER VEHICLE: Yes (1) / No (2) / Unknown 9

VEHICLE DAMAGE

	Object Contacted	CDC	Veh. No.	Impact No.	
44-54 (1)	0 1	1 2 F Y E W 4	1	1	(1) = Highest Severity (Estimated ΔV)
55-65 (2)					
(3)					
(4)					

66 VEHICLE TOWED FROM SCENE: Yes (1) / No 2 / Unknown 9

67 SOURCE OF VEHICLE DATA

- Inspection at Repair or Tow Facility (1)
- Inspection at Person's Home 2
- Inspection at Scene 3
- Not Inspected (Photos or Repair Data) 4
- Not Inspected. Reason. _____ 5
- Unknown 9

68 VEHICLE INSPECTION

- Not Inspected 0
- Inspected on First Visit (1)
- Actual Number of Locations Visited (Including Follow-Ups to Same Location) 2 3 4 5 6 7
- 8 or More 8
- Unknown 9

69 APPLICABLE VEHICLE: Yes (1) / No 2

NOTE: COLUMN NUMBERS FROM THE SUMMARY VEHICLE DATA FORM ARE LISTED ON THE LEFT IN THIS FORM TO SIMPLIFY TRANSFER OF DATA.

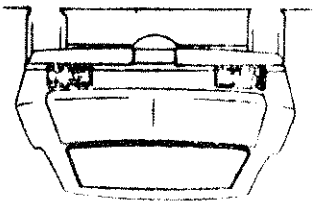
Figure 18-4
VEHICLE CRUSH SCHEMATIC
TEST NO. 12 - CAR NO. 2

DAMAGE DESCRIPTION

WHEELS LOCKED BY DAMAGE

RF 2
LF 1
RR 2
LR 2

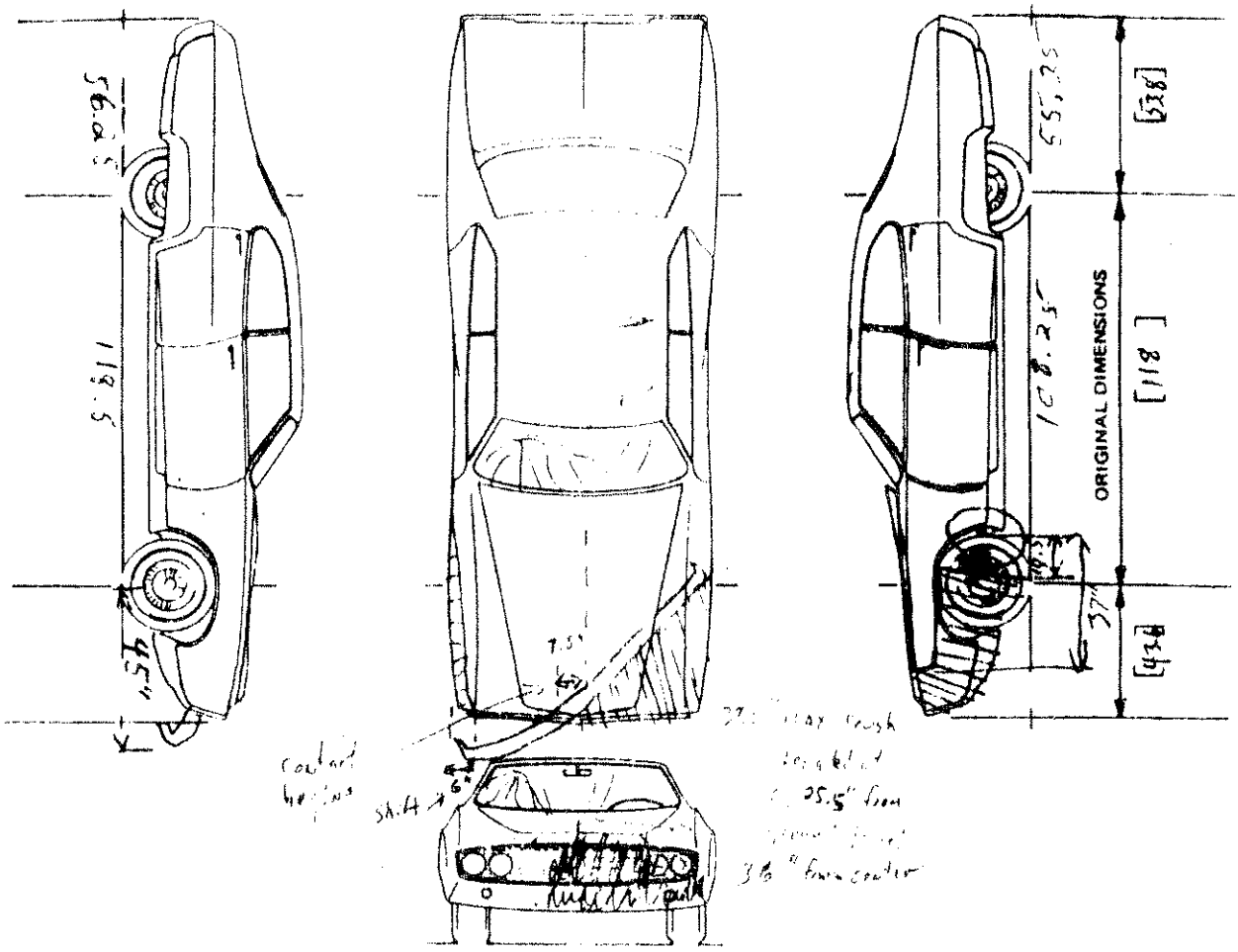
1 Yes, 2 No, 8 NA, 9 Unk.



WHEEL STEER ANGLES*
(For locked front wheels or displaced rear axles only)

RF ± 0 1 2
LF ± 0 1 9
RR ± N A
LR ± N A

Within ± 5°



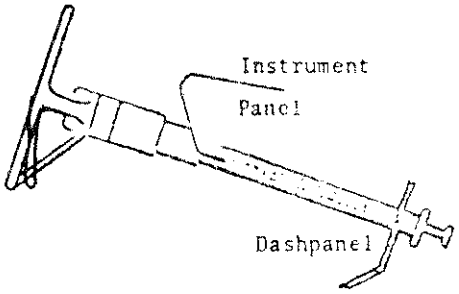
Impact Number	L	C_1	C_2	C_3	C_4	C_5	C_6	D±
1	28.25	39.5	33	28.25	23.75	19.2	15.3	⊖ 10.6
2								
3								
4								

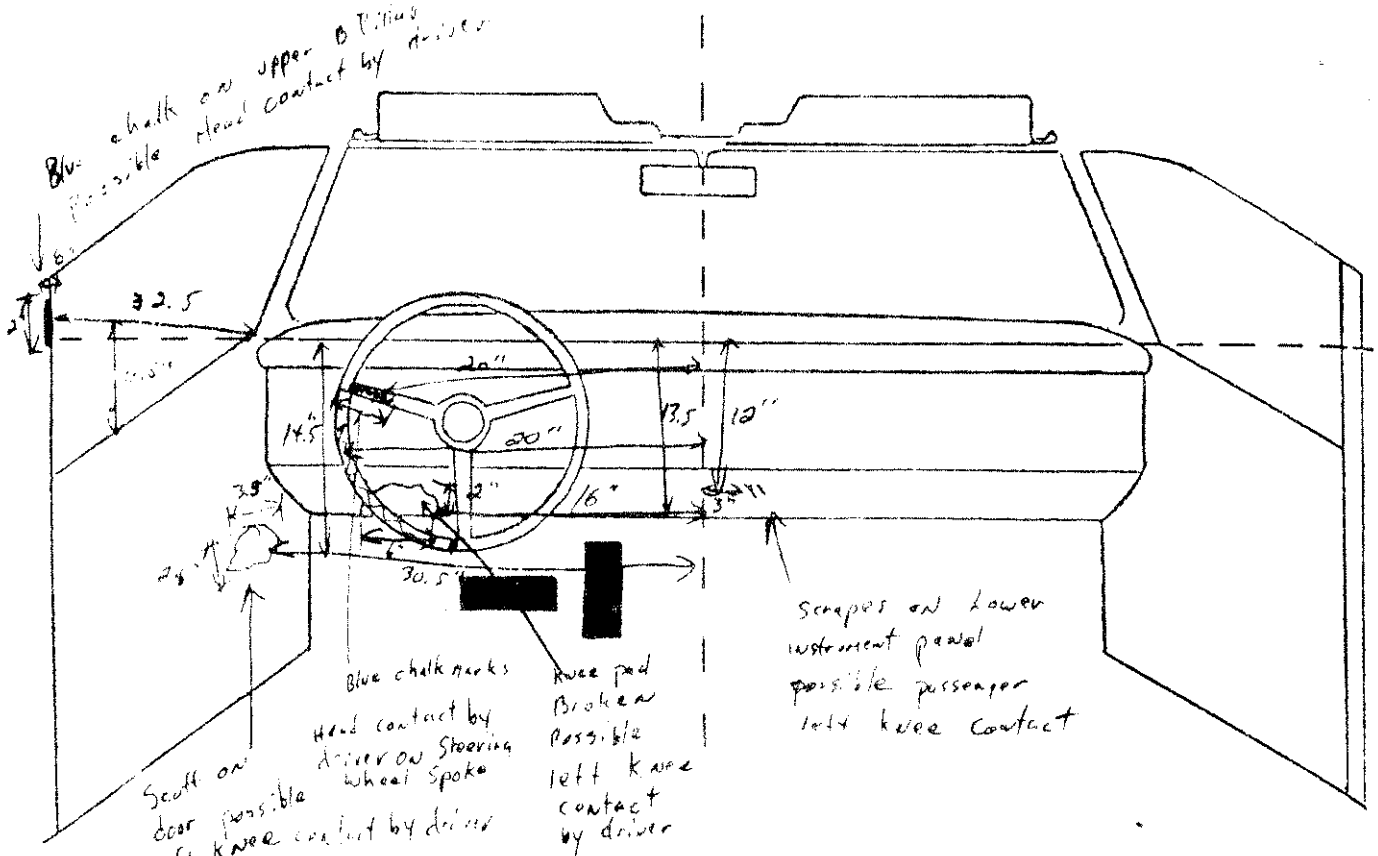
NOTE: MEASURE C_1 TO C_6 FROM: DRIVER TO PASSENGER SIDE IN FRONT OR REAR IMPACTS: REAR TO FRONT IN SIDE IMPACTS

Figure 18-5
OCCUPANT CONTACT DATA
TEST NO. 12 - CAR NO. 2

VEHICLE INTERIOR

Occupant Contacts





Sketch controls in appropriate positions, if contacted. Sketch all occupant contact points and code on next two pages. Dash lines indicate center of instrument panel-windshield area and top of panel for measurement purposes.

2/77

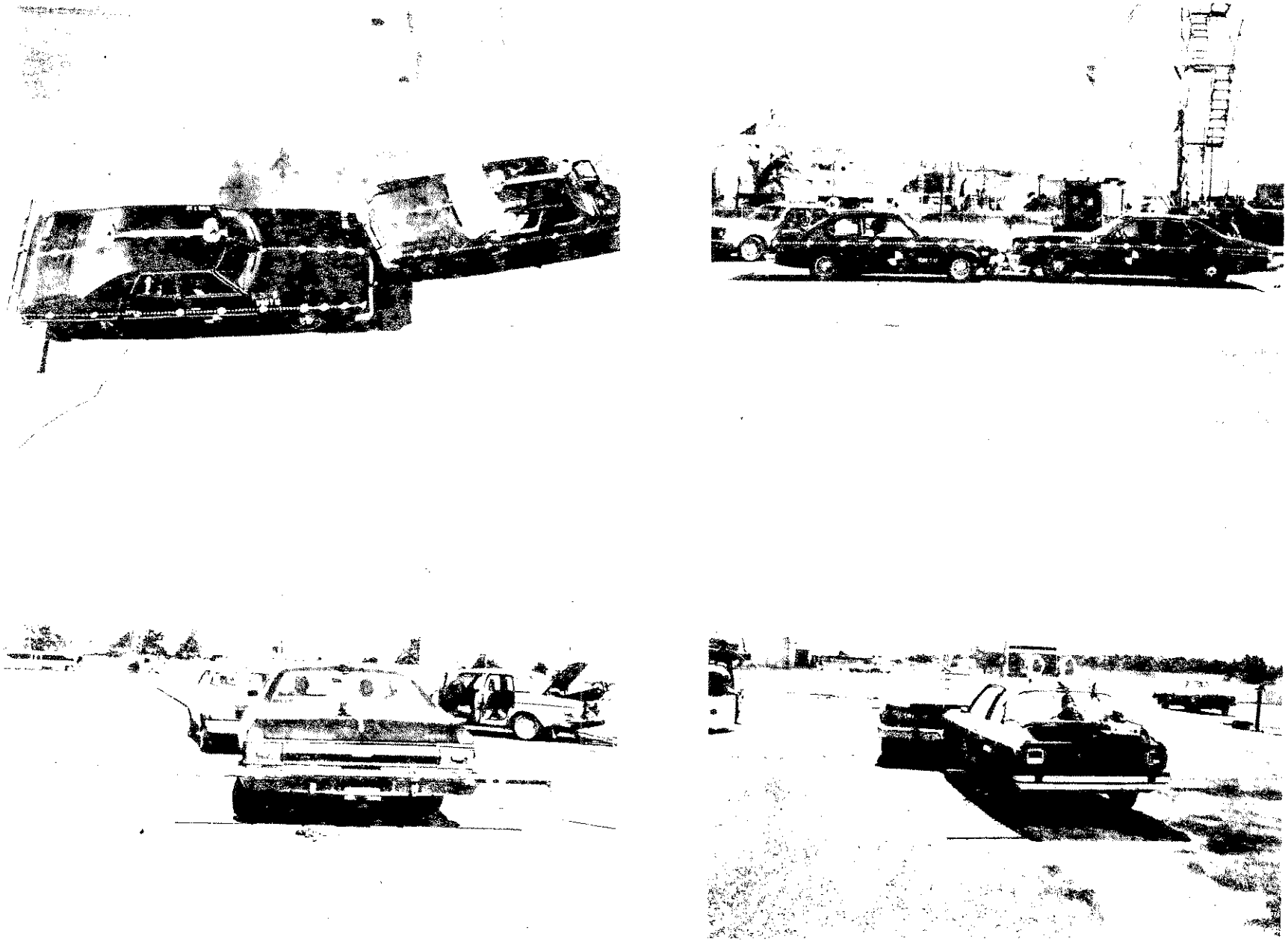


Figure 8-6 TEST NO. 12 – PRE TEST COLLISION CONFIGURATION

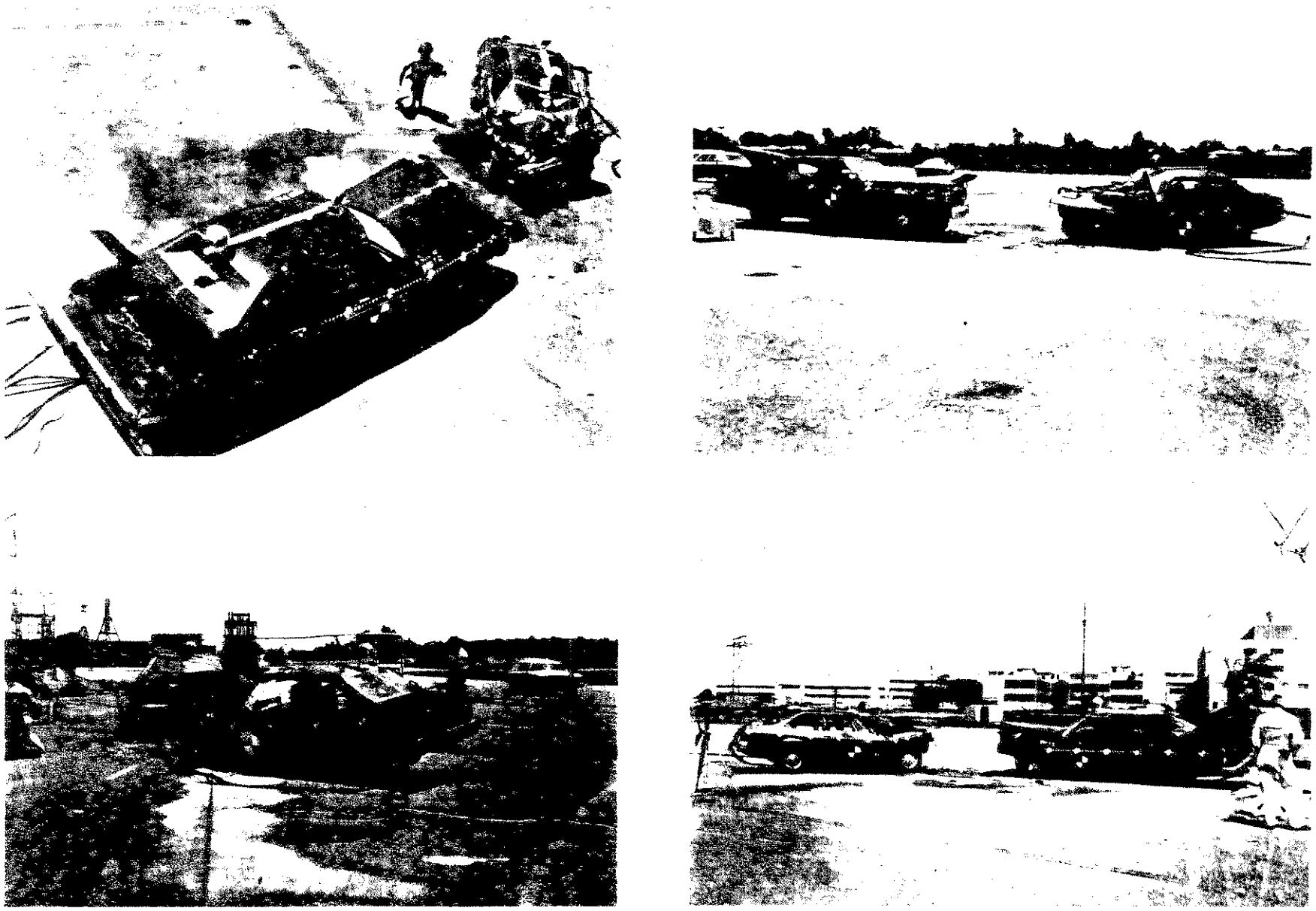


Figure 18-1 TEST NO. 12 – POST TEST COLLISION SCENE

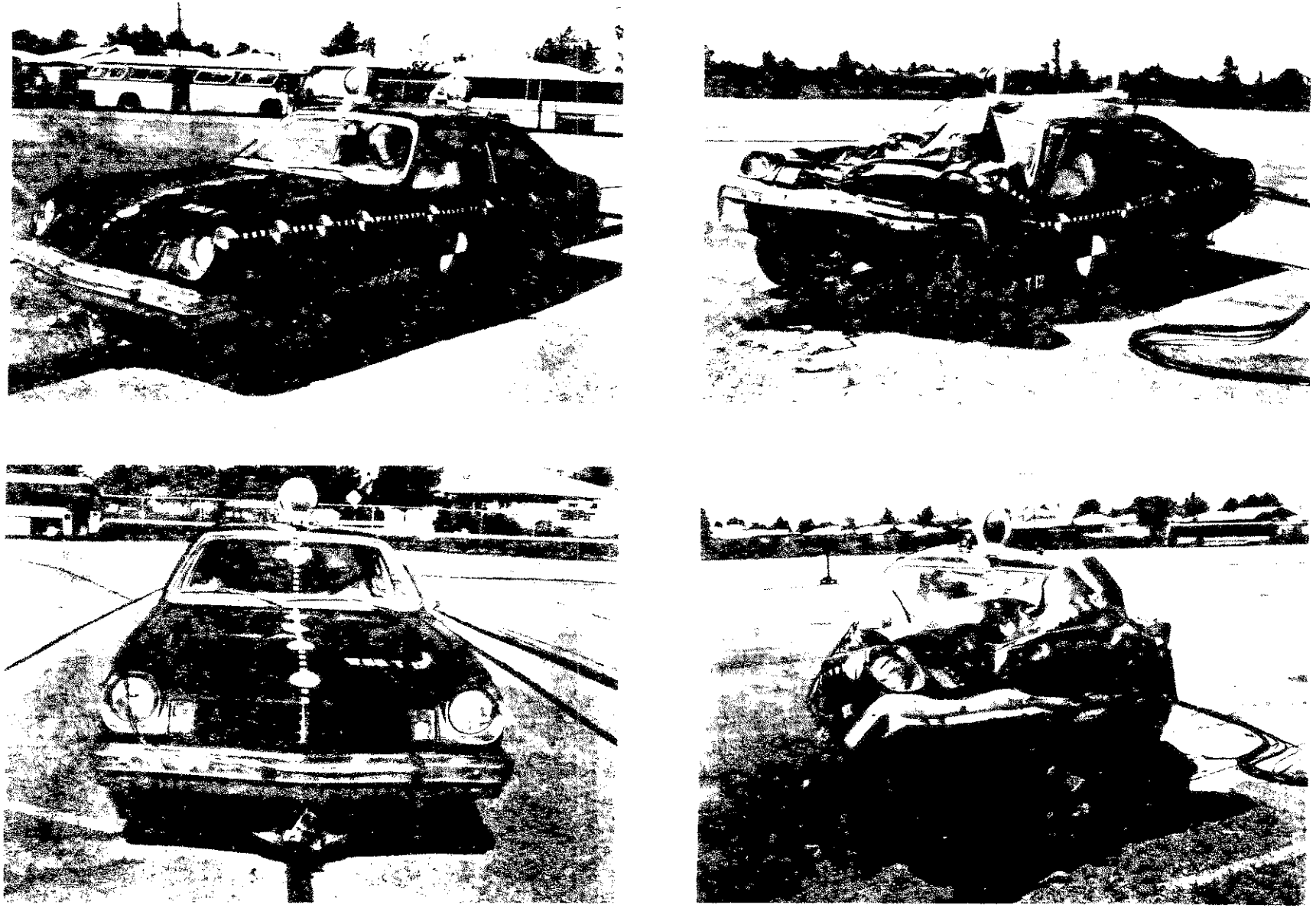


Figure 18-8 TEST NO. 12 – PRE AND POST EXTERIOR VIEWS, CAR NO. 1 - VEGA

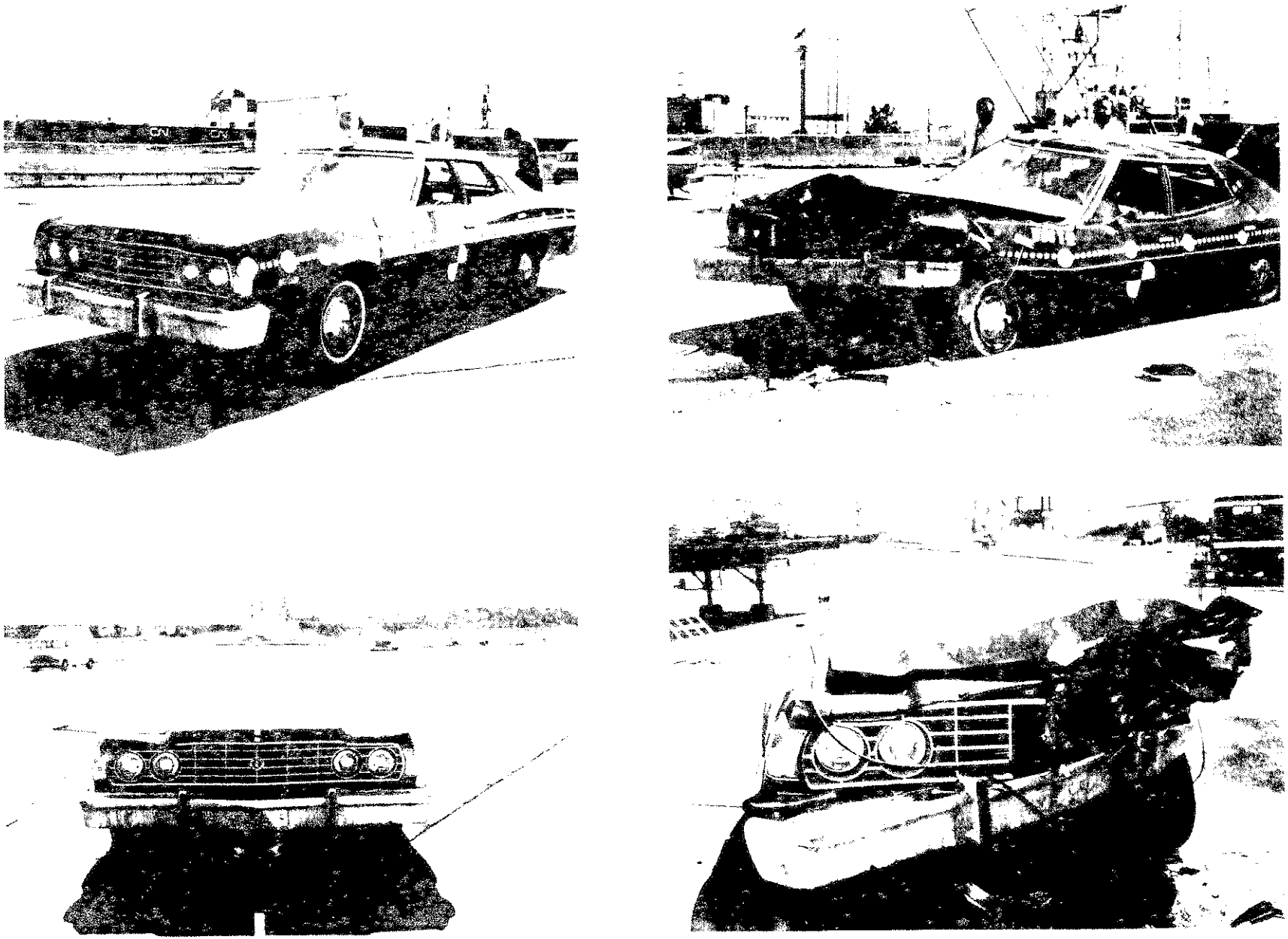


Figure 18-9 TEST NO. 12 – PRE AND POST EXTERIOR VIEWS, CAR NO. 2 - TORINO

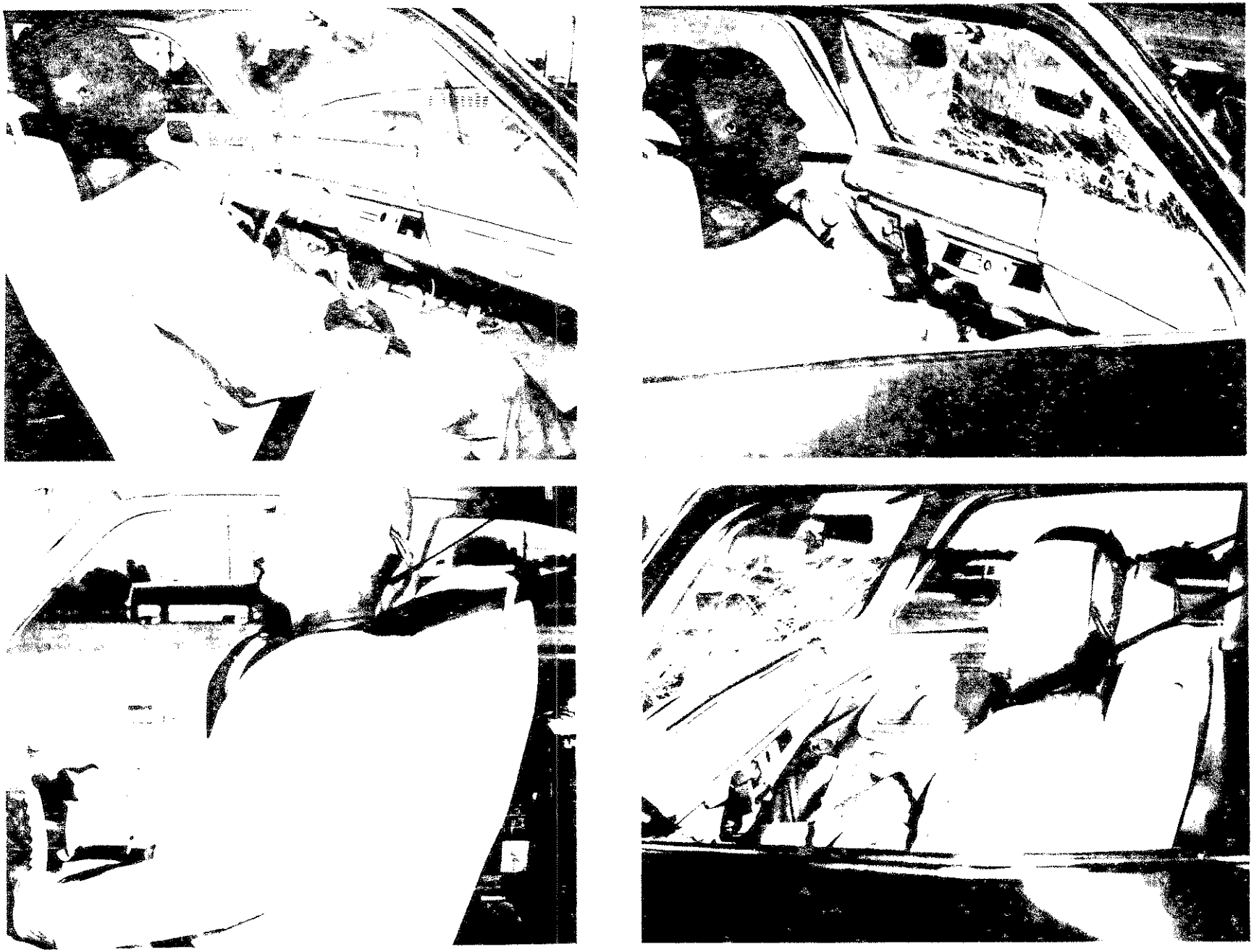


Figure 8-10 TEST NO. 12 – PRE AND POST INTERIOR VIEWS, CAR NO. 1 - VEGA

TABLE 18-3

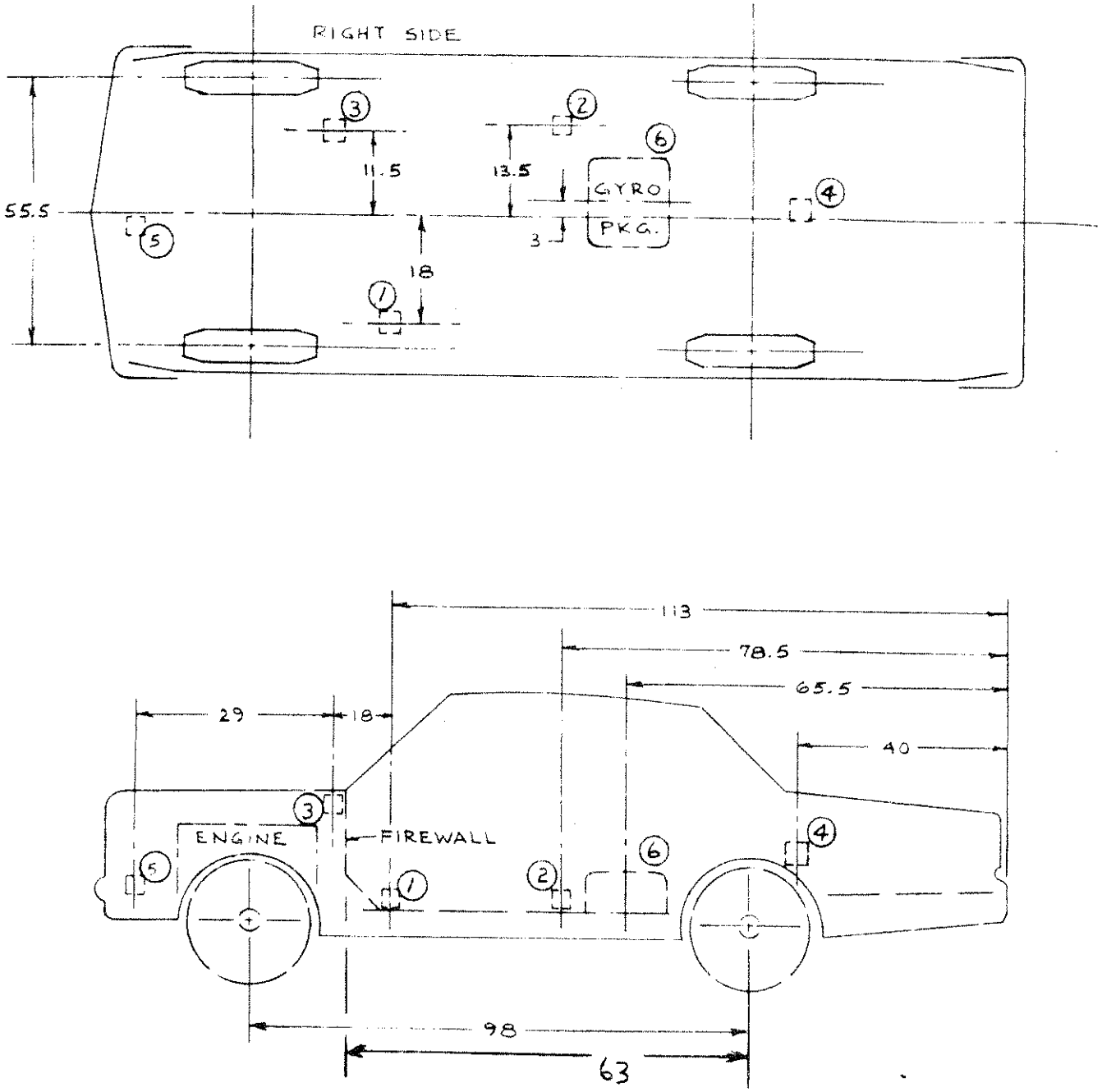
ELECTRONIC INSTRUMENTATION TEST No. 12

BULLET VEHICLE - CAR 1 - 1974 VEGA

TRANSDUCER DESCRIPTION OR ACCELEROMETER LOCATION *	DIRECTION OF PARAMETER BEING MEASURED	LOCATION ON VEHICLE	DESCRIPTION LISTED ON DATA PLOTS
VEHICLE ACCELEROMETER			
1	X,Y,Z	Floorpan L.F. Corner	Left Front Corner
2	X,Y,Z	Floorpan R.R. Corner	Right Rear Corner
3	X,Y,Z	Firewall	Firewall
4	X,Y,Z	Rear Deck	Rear Deck
5	X	Bumper	Bumper
VEHICLE ATTITUDE			
Pitch Angle - 6		Gyro Package	Vehicle Pitch Angle
Roll Angle - 6		Gyro Package	Vehicle Roll Angle
Yaw Angle - 6		Gyro Package	Vehicle Yaw Angle
Yaw Rate Angle - 6		Gyro Package	Vehicle Yaw Rate
Steer Angle		Front Wheels	Steer Angle-Front Wheels
R.F. Wheel Velocity		R.F. Wheel Axle	R.F. Wheel Velocity
L.F. Wheel Velocity		L.F. Wheel Axle	L.F. Wheel Velocity
R.R. Wheel Velocity		R.R. Wheel Axle	R.R. Wheel Velocity
L.R. Wheel Velocity		L.R. Wheel Axle	L.R. Wheel Velocity
DUMMY			
L.F. Head	X,Y,Z	L.F. Seat	Dummy L.F. Head
L.F. Chest	X,Y,Z	L.F. Seat	Dummy L.F. Chest
L.F. Femur	R,L**	L.F. Seat	Dummy L.F. Femur
L.F. Pelvic	X	L.F. Seat	Dummy L.F. Pelvic
R.F. Head	X,Y,Z	R.F. Seat	Dummy R.F. Head
R.F. Chest	X,Y,Z	R.F. Seat	Dummy R.F. Chest
R.F. Femur	R,L**	R.F. Seat	Dummy R.F. Femur
R.F. Pelvic	X	R.F. Seat	Dummy R.F. Pelvic

*SEE FIGURE 18-12 VEHICLE INSTRUMENTATION LOCATIONS

**RIGHT AND LEFT FORCES



VEHICLE INSTRUMENTATION LOCATIONS

CAR 1 - VEGA - TEST NO. 12

Figure 18-12

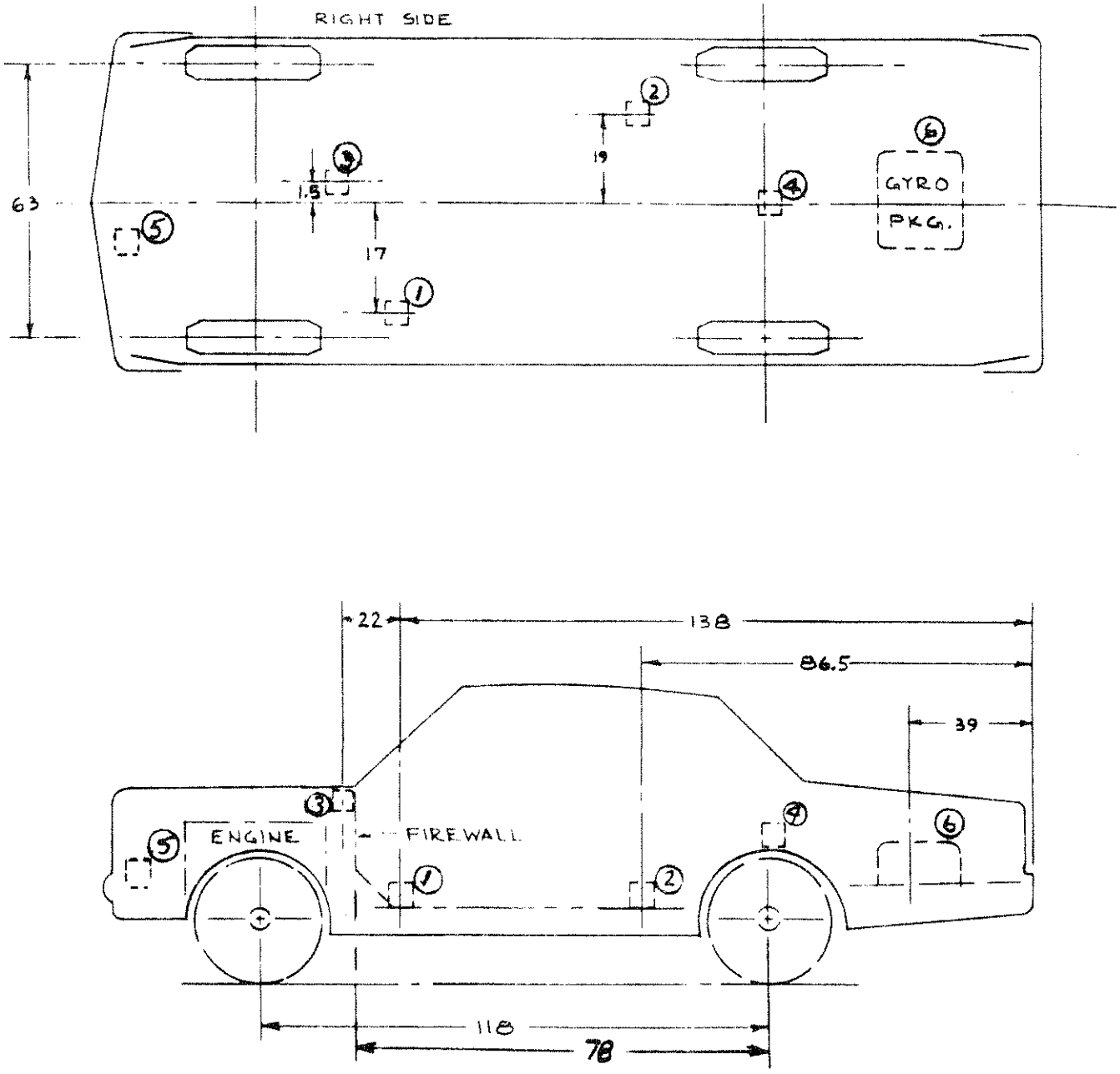
TABLE 18-4

ELECTRONIC INSTRUMENTATION TEST No. 12

TARGET VEHICLE - CAR 2 - 1974 FORD TORINO

TRANSDUCER DESCRIPTION OR ACCELEROMETER LOCATION *	DIRECTION OF PARAMETER BEING MEASURED	LOCATION ON VEHICLE	DESCRIPTION LISTED ON DATA PLOTS
VEHICLE ACCELEROMETER			
1	X,Y,Z	Floorpan L.F. Corner	Left Front Corner
2	X,Y,Z	Floorpan R.R. Corner	Right Rear Corner
3	X,Y,Z	Firewall	Firewall
4	X,Y,Z	Rear Deck	Rear Deck
5	X	Bumper	Bumper
VEHICLE ATTITUDE			
Pitch Angle - 6		Gyro Package	Vehicle Pitch Angle
Roll Angle - 6		Gyro Package	Vehicle Roll Angle
Yaw Angle - 6		Gyro Package	Vehicle Yaw Angle
Yaw Rate Angle - 6		Gyro Package	Vehicle Yaw Rate
Steer Angle		Front Wheels	Steer Angle-Front Wheels
R.F. Wheel Velocity		R.F. Wheel Axle	R.F. Wheel Velocity
L.F. Wheel Velocity		L.F. Wheel Axle	L.R. Wheel Velocity
R.R. Wheel Velocity		R.R. Wheel Axle	R.R. Wheel Velocity
L.R. Wheel Velocity		L.R. Wheel Axle	L.R. Wheel Velocity

*SEE FIGURE 18-13 VEHICLE INSTRUMENTATION LOCATIONS



VEHICLE INSTRUMENTATION LOCATIONS

CAR 2 - FORD TORINO - TEST NO. 12

Figure 18-13

TABLE 18-5

VEHICLE TEST WEIGHTS - TEST NO. 12

CAR 1 - 197 Vega

Left Front	830 lbs.		Left Rear	780 lbs.	
Right Front	780 lbs.		Right Rear	760 lbs.	
Total Front	1610 lbs.		Total Rear	1540 lbs.	
Total Weight =	1610 lbs.	+	1540 lbs.	=	3150 lbs.
Wheel Base	97 in.				
Cg_{FW} =	1540 lbs. / 3150 lbs.	97 in.		=	47.42 in.

CAR 2 - 1974 Torino

Left Front	1250 lbs.		Left Rear	1050 lbs.	
Right Front	1150 lbs.		Right Rear	1090 lbs.	
Total Front	2400 lbs.		Total Rear	2140 lbs.	
Total Weight =	2400 lbs.	+	2140 lbs.	=	4540 lbs.
Wheel Base	118 in.				
Cg_{FW} =	2140 lbs. / 4540 lbs.	118 in.		=	55.62 in.

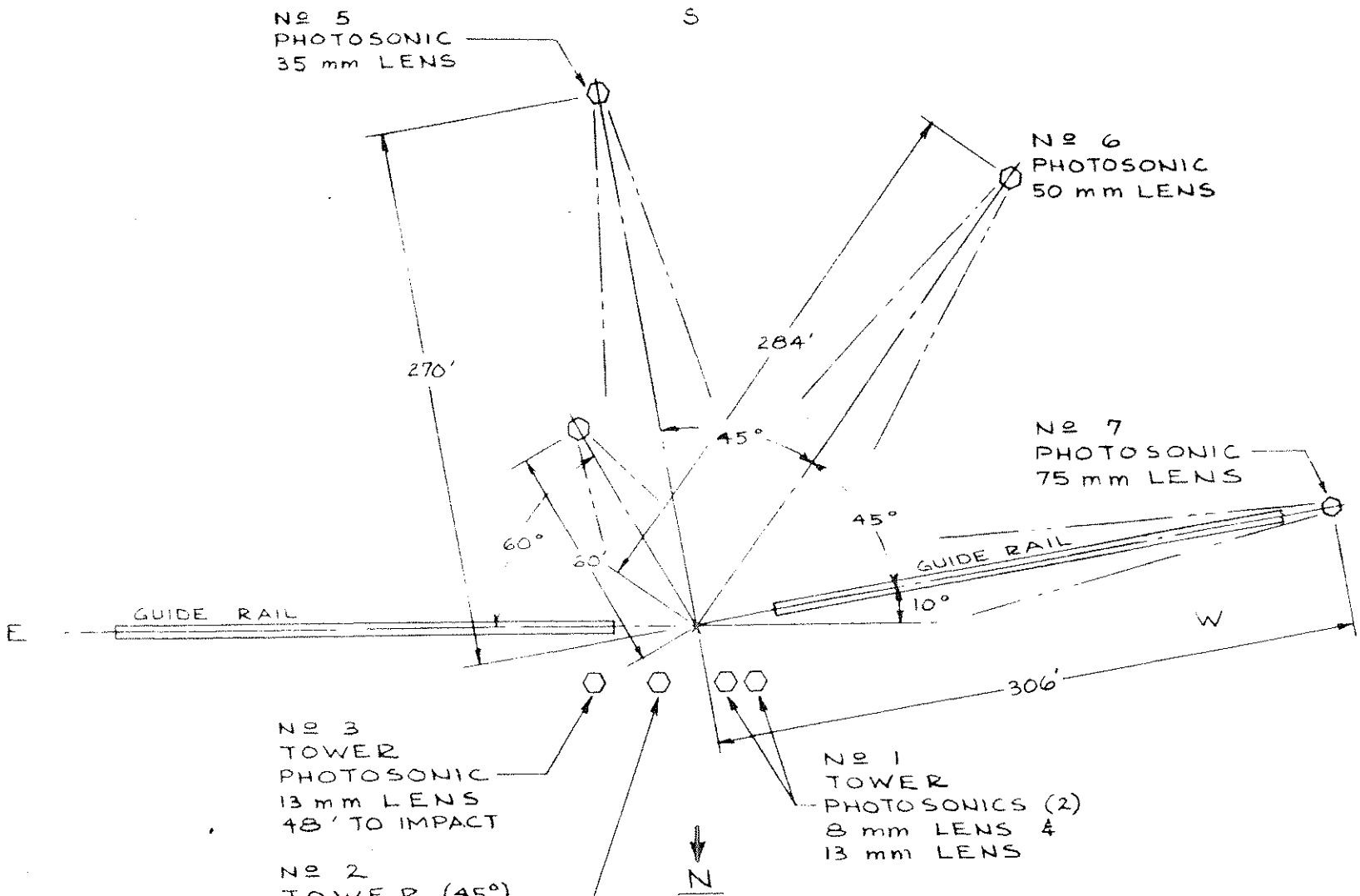


Figure 18-14

STAGED COLLISION SCENE & CAMERA LOCATIONS - TESTS 11 & 12

TABLE 18-6

HIGH SPEED CAMERA INFORMATION (TEST No. 12)

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)
	SOUTH CLOSE	PHOTOSONIC	13 MM	700
5	SOUTH	PHOTOSONIC	35 MM	725
6	SOUTHWEST	PHOTOSONIC	50 MM	675
7	WEST	PHOTOSONIC	75 MM	700
3	TOWER EAST	PHOTOSONIC	13 MM	800
2	TOWER 45°	PHOTOSONIC	13 MM	775
1	TOWER CLOSE	PHOTOSONIC	13 MM	600
1	TOWER WIDE	PHOTOSONIC	8 MM	700
	O.B. REAR	STALEX	8 MM	500

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.

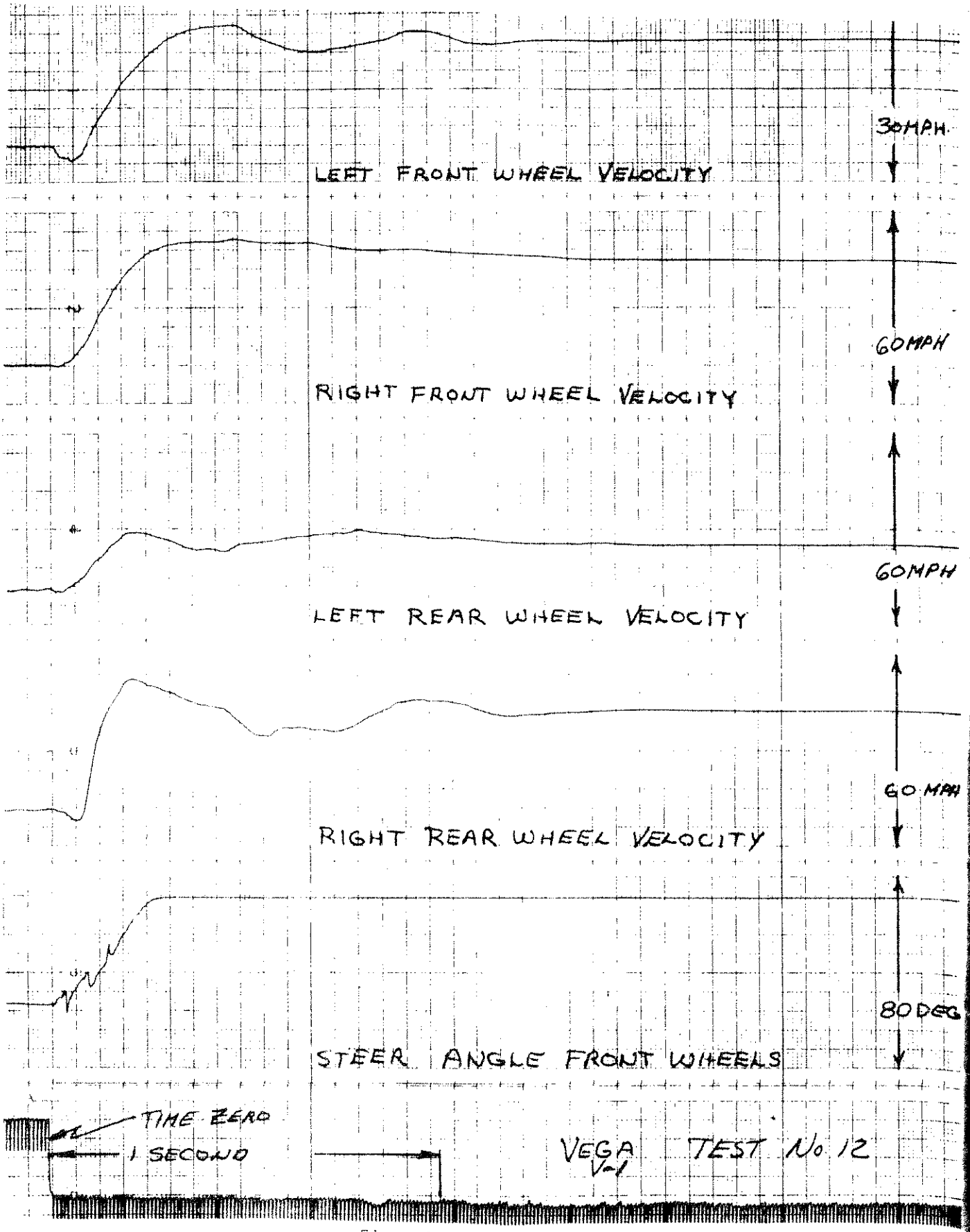


Figure 18-15 TEST NO. 12
CAR NO. 1 WHEEL RESPONSES

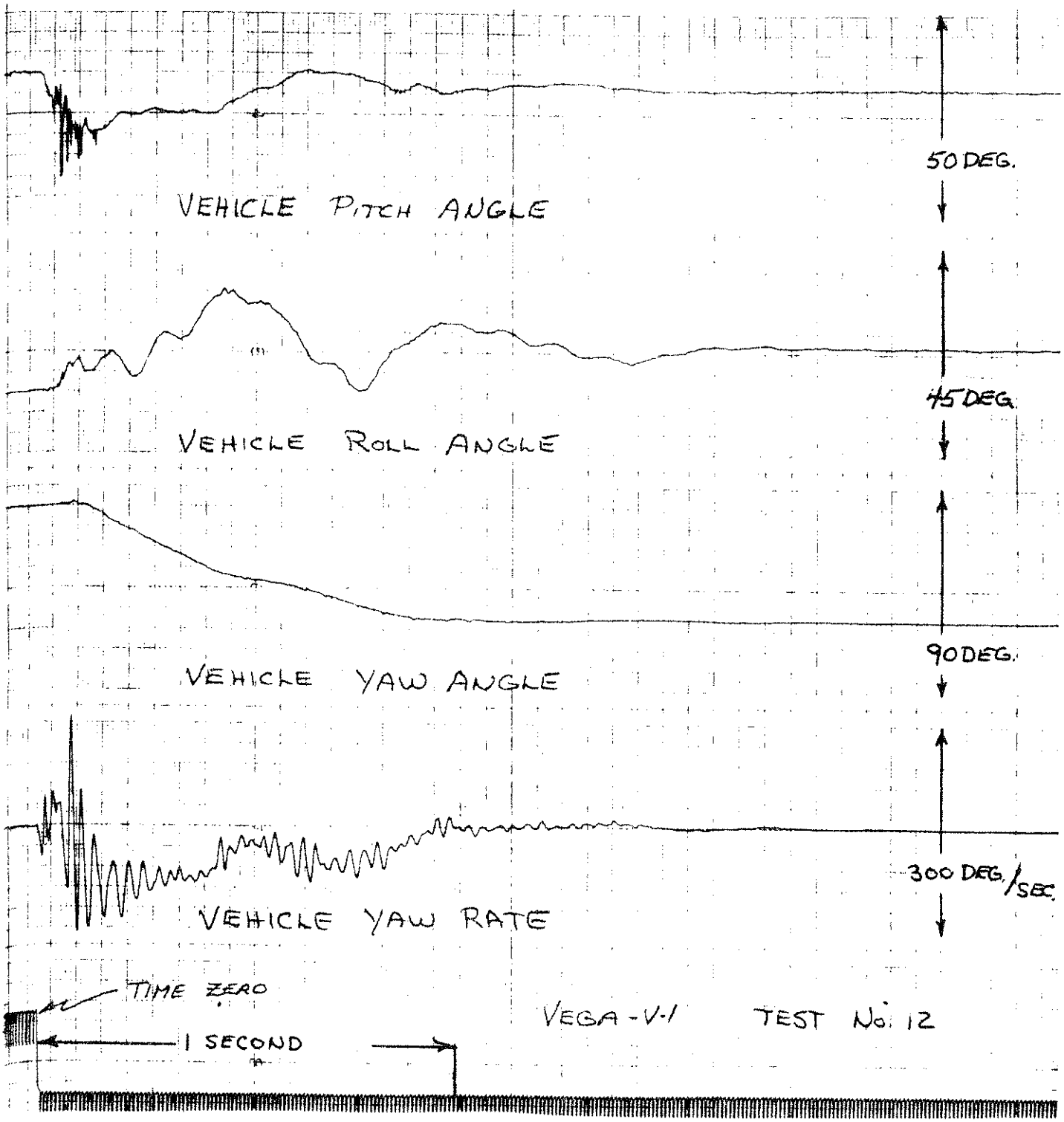


Figure 18-16 TEST NO. 12
CAR NO. 1 VEHICLE ATTITUDE

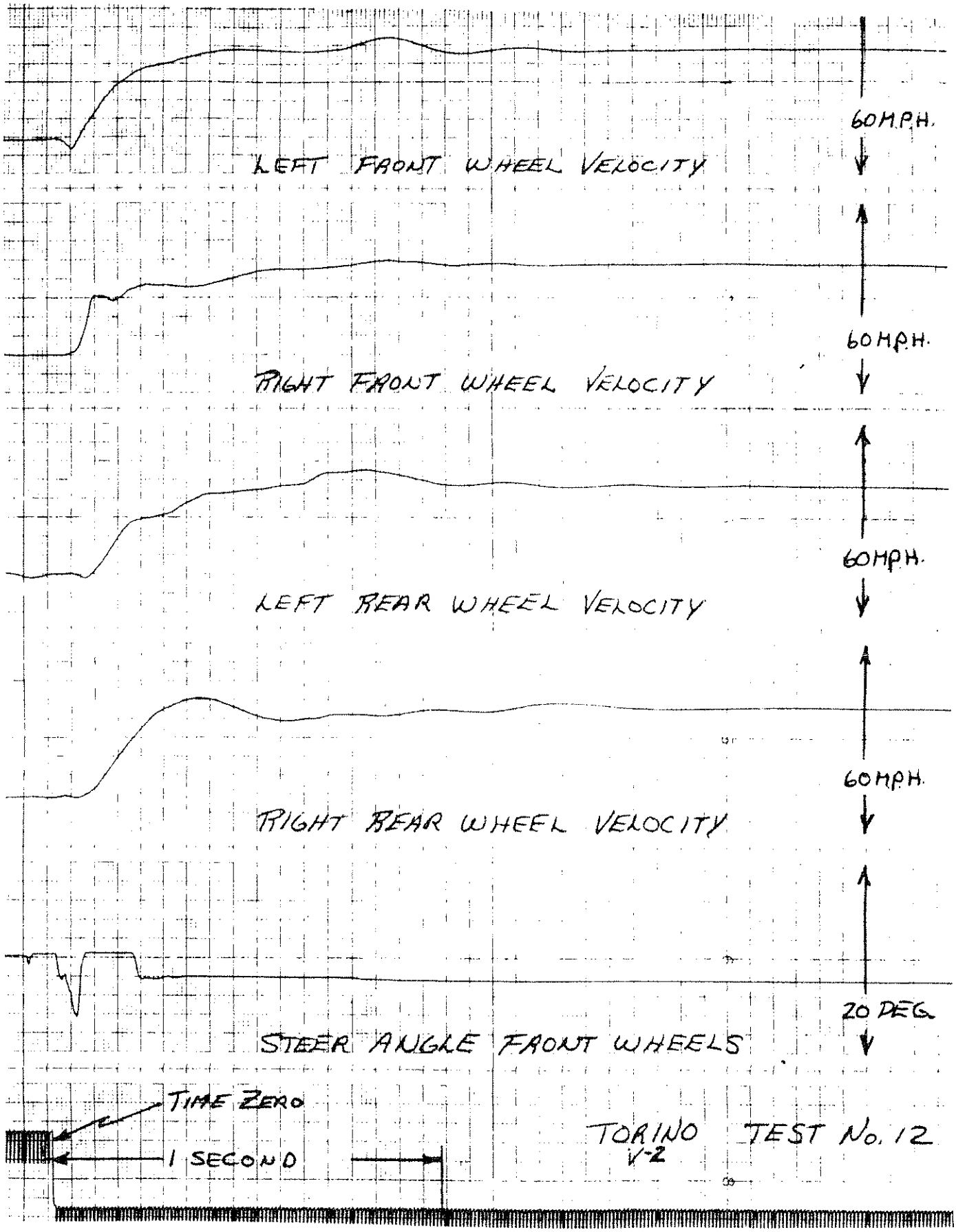


Figure 18-17 TEST NO. 12 ZQ-6057-V-5
CAR NO. 2 WHEEL RESPONSES 18-26

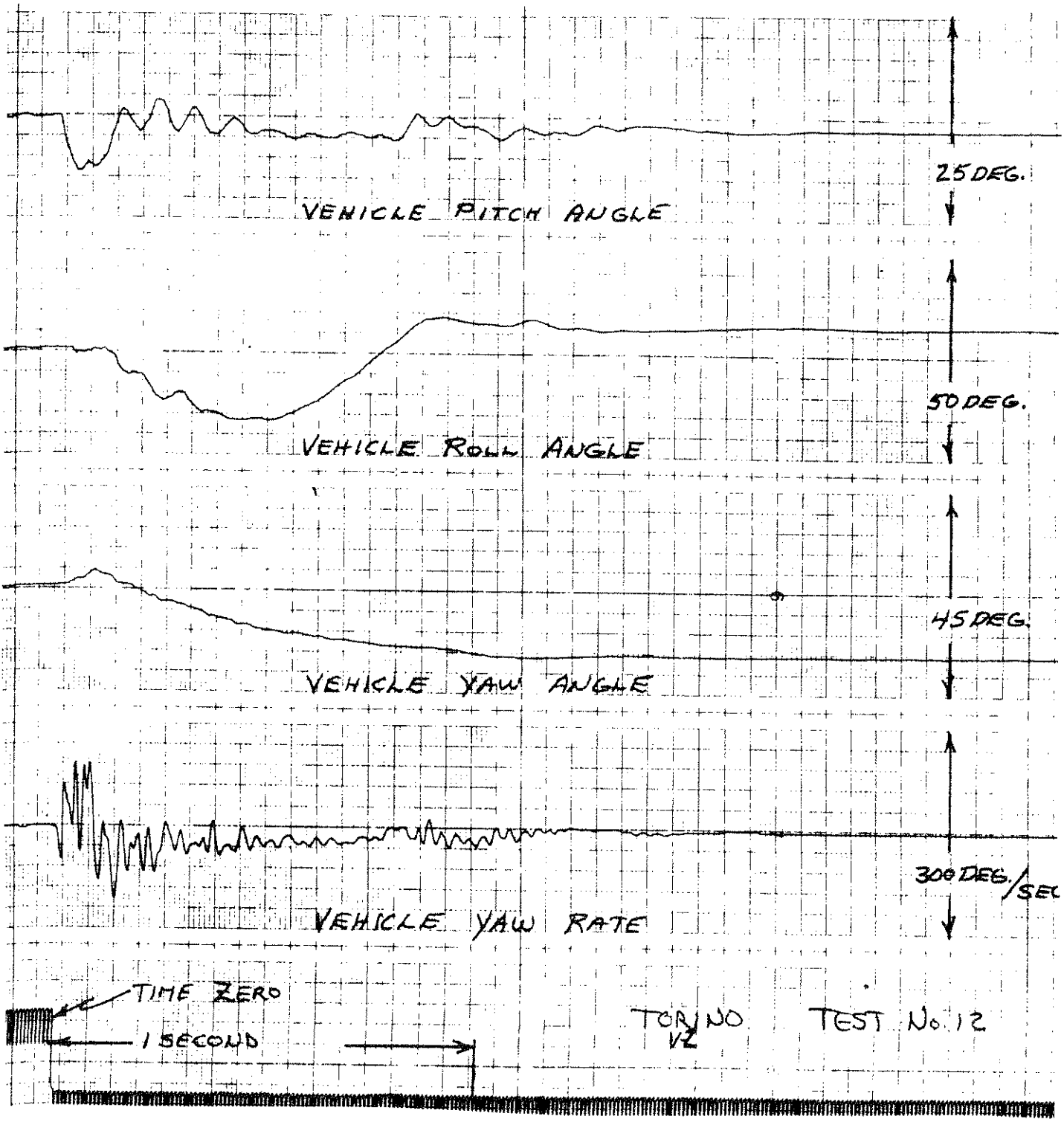


Figure 18-17 TEST NO. 12 - CAR NO. 2
VEHICLE ATTITUDE

RICSAC TEST NO. 12

VEHICLE RESPONSES

CAR NO. 1 VEGA

DATA PLOTS

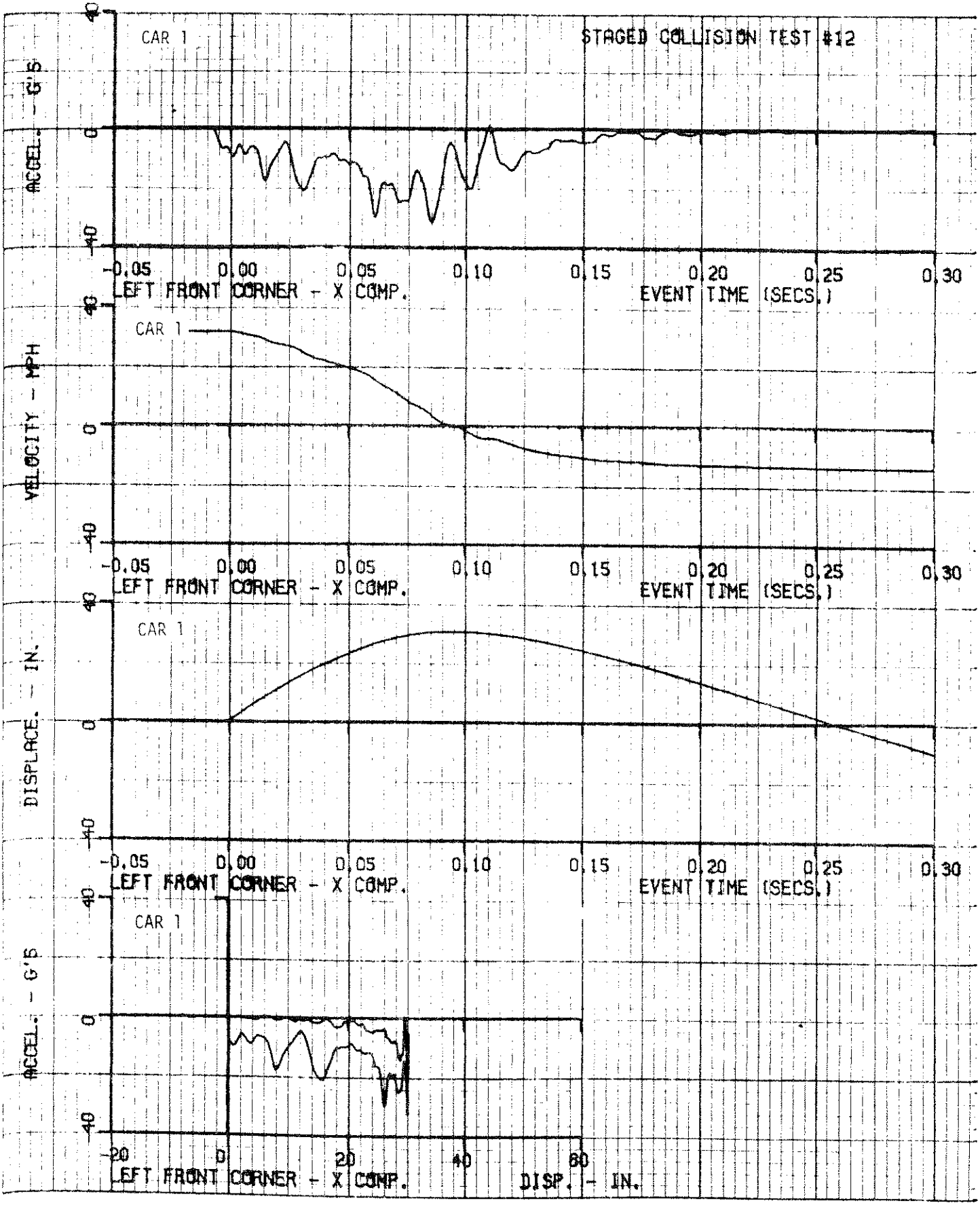
ACCELERATION TIME HISTORIES

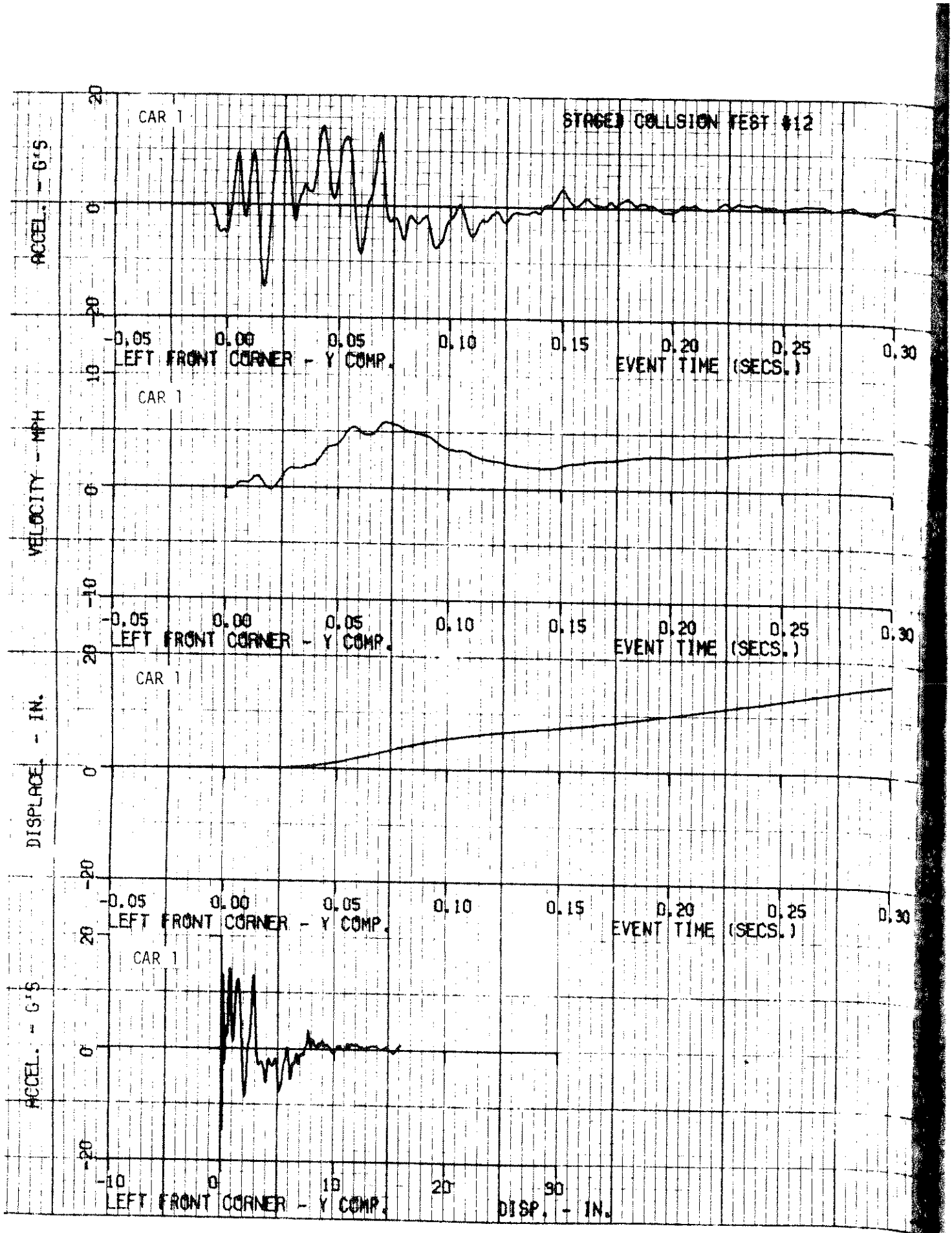
VELOCITY TIME HISTORIES

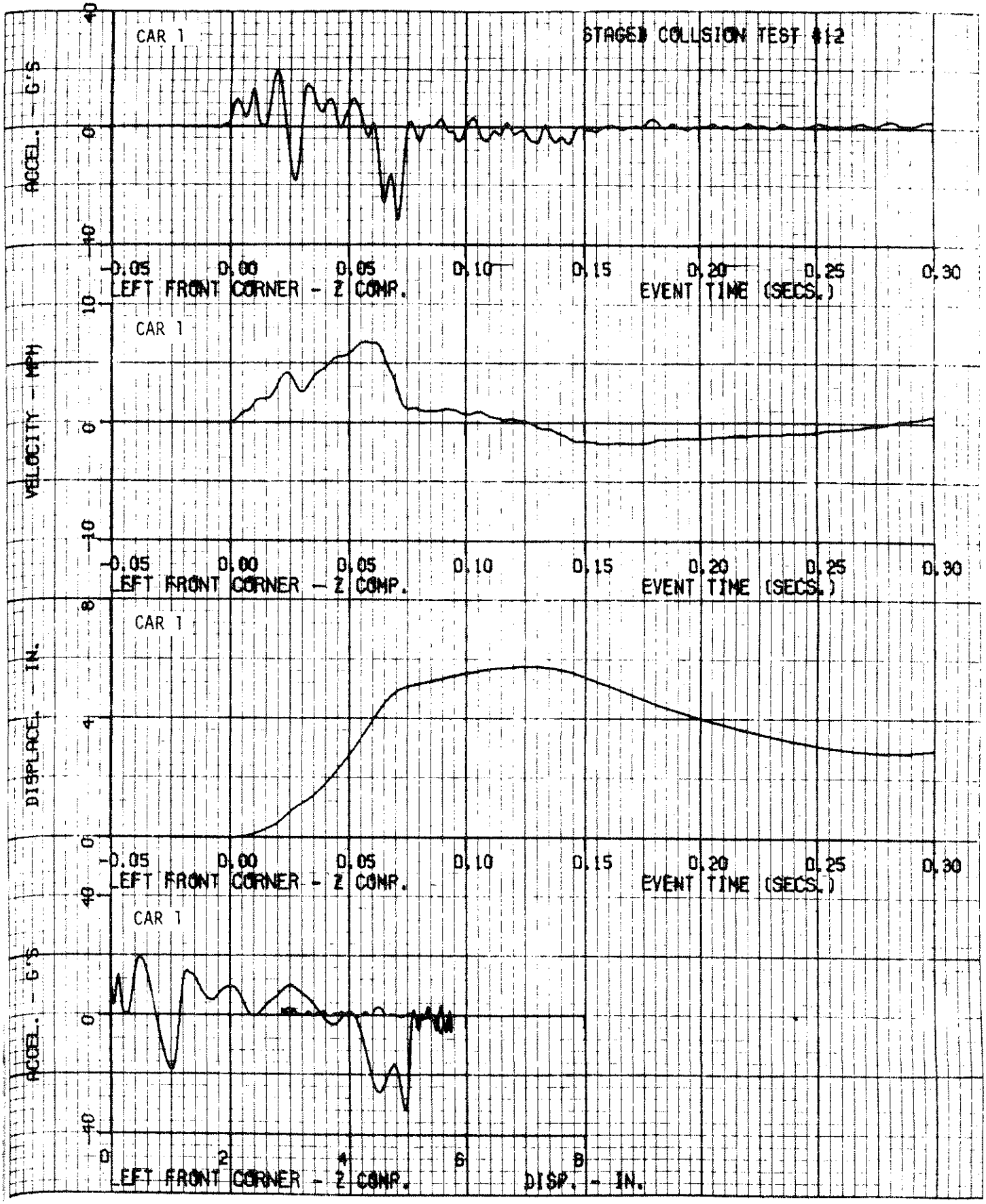
DISPLACEMENT TIME HISTORIES

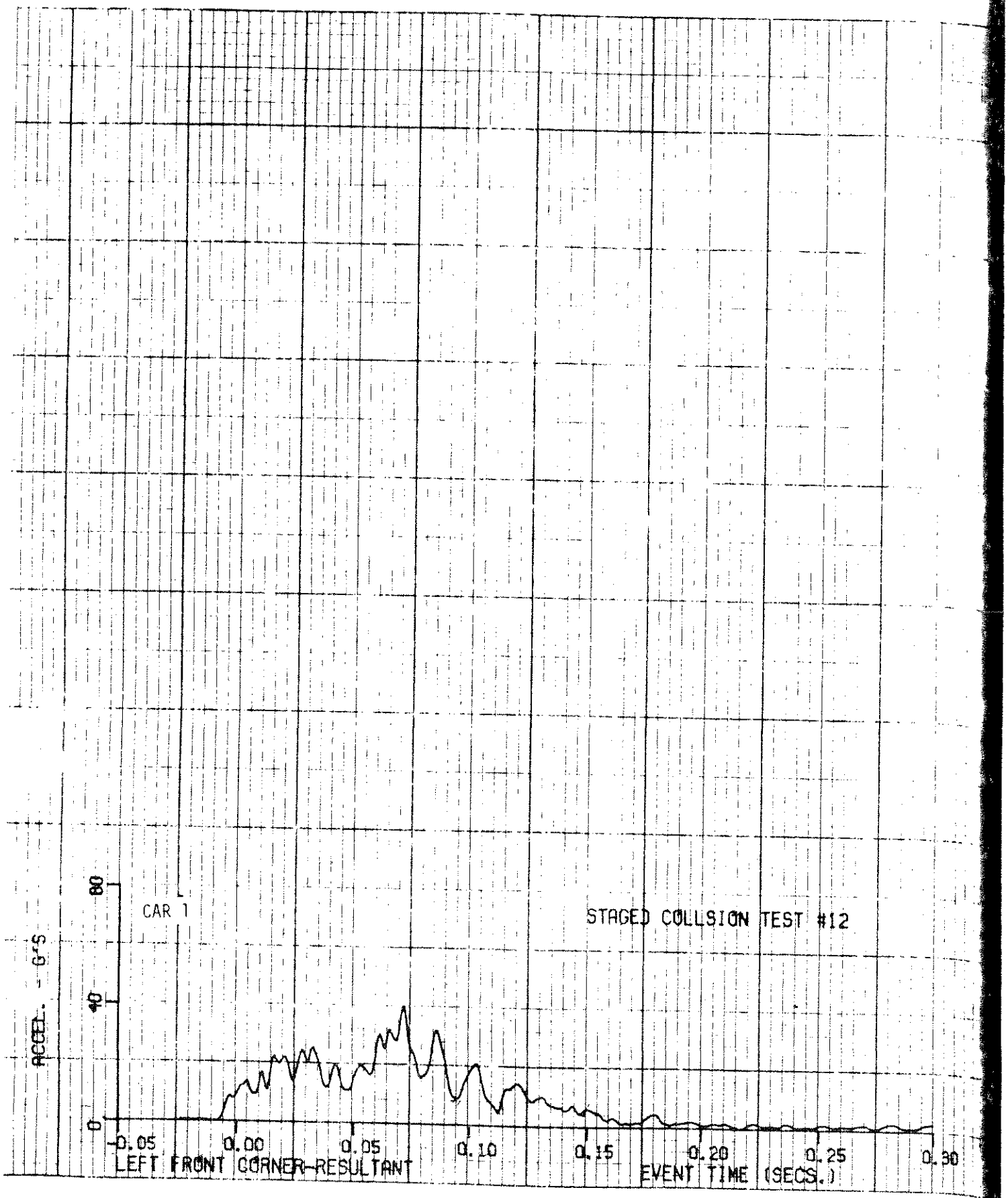
ACCELERATION VS DISPLACEMENT

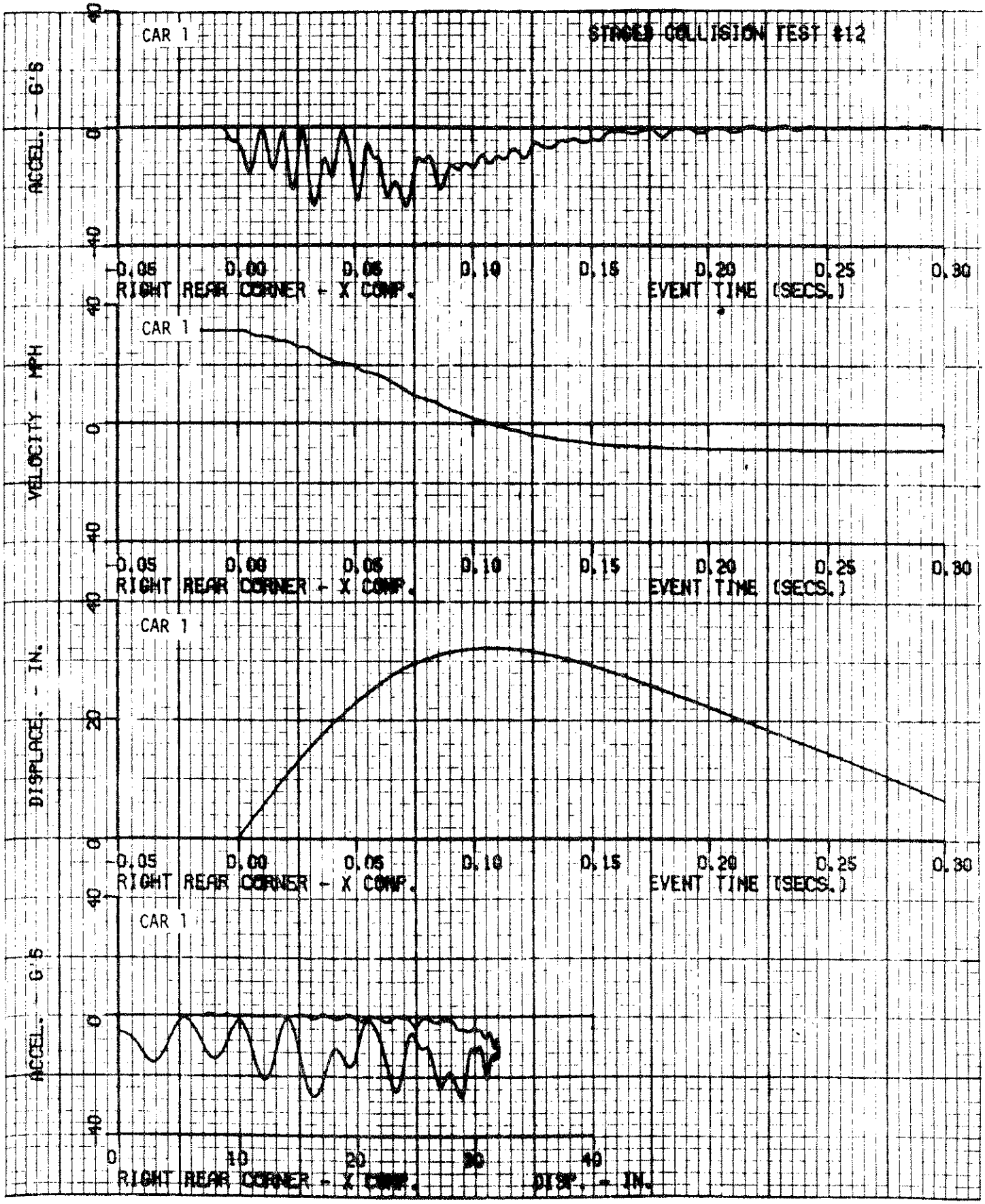
FILTER CLASS 60

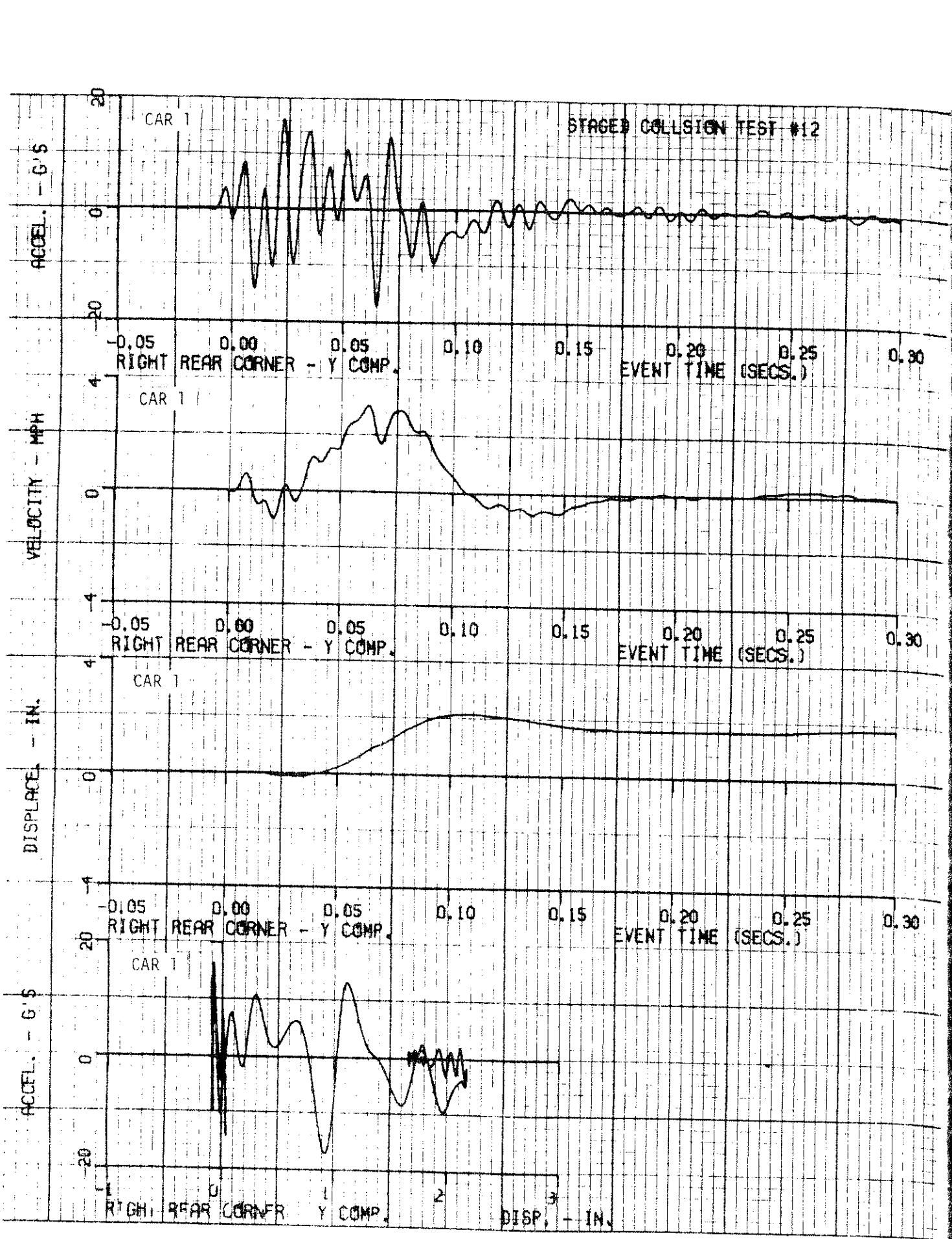

CAR 1
STAGED COLLISION TEST #12
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
-20
0
20
40
60
LEFT FRONT CORNER - X COMP.
DISP. - IN.

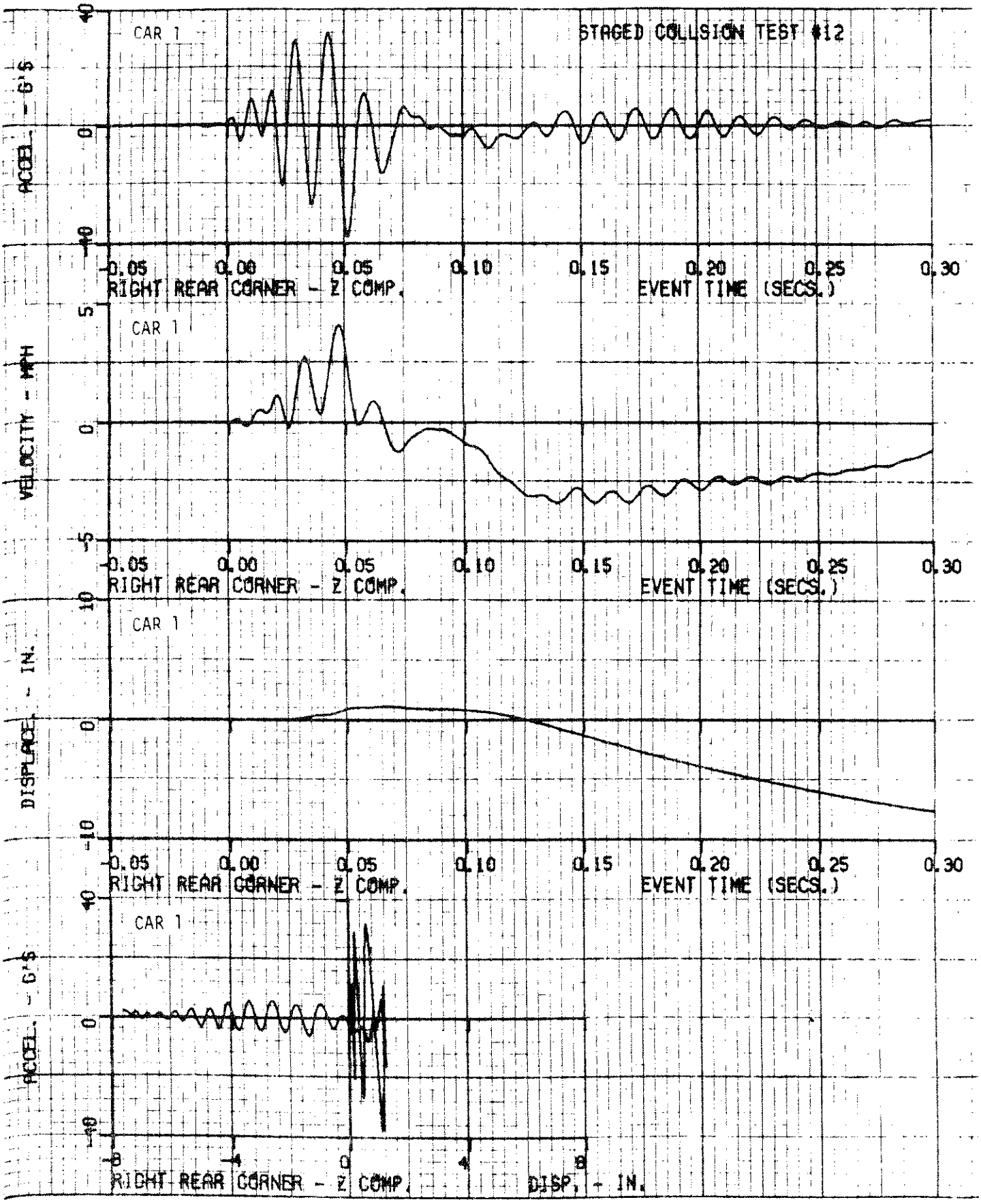

STAGED COLLSION TEST #12
CAR 1
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
10
0
-10
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
20
0
-20
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
-10
0
10
20
30
LEFT FRONT CORNER - Y COMP.
DISP. - IN.

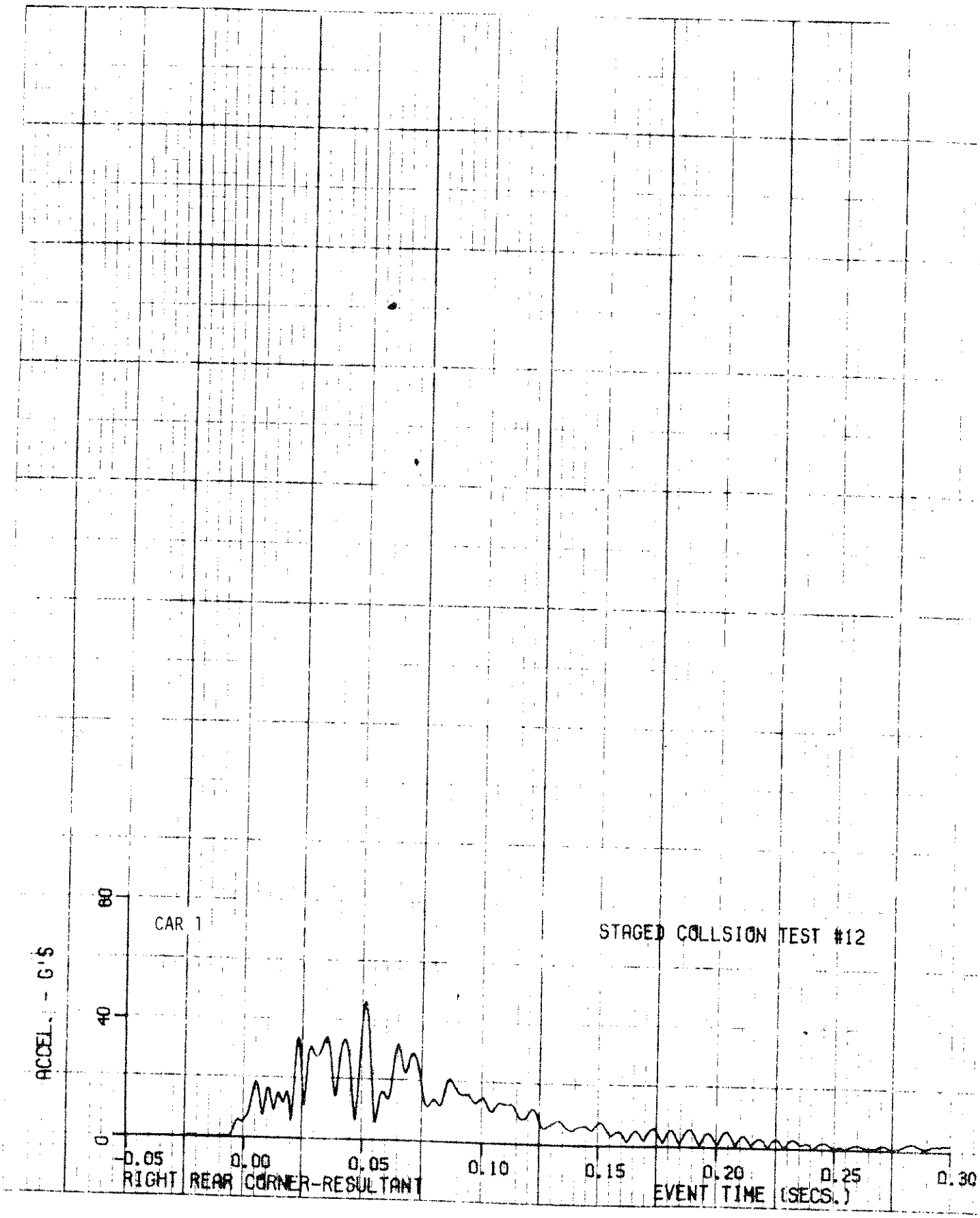

CAR 1
STAGED COLLISION TEST #12
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
8
4
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
0
2
4
6
8
LEFT FRONT CORNER - Z COMP.
DISP. - IN.


CAR 1
STAGED COLLSION TEST #12
ACCEL. - G'S
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)

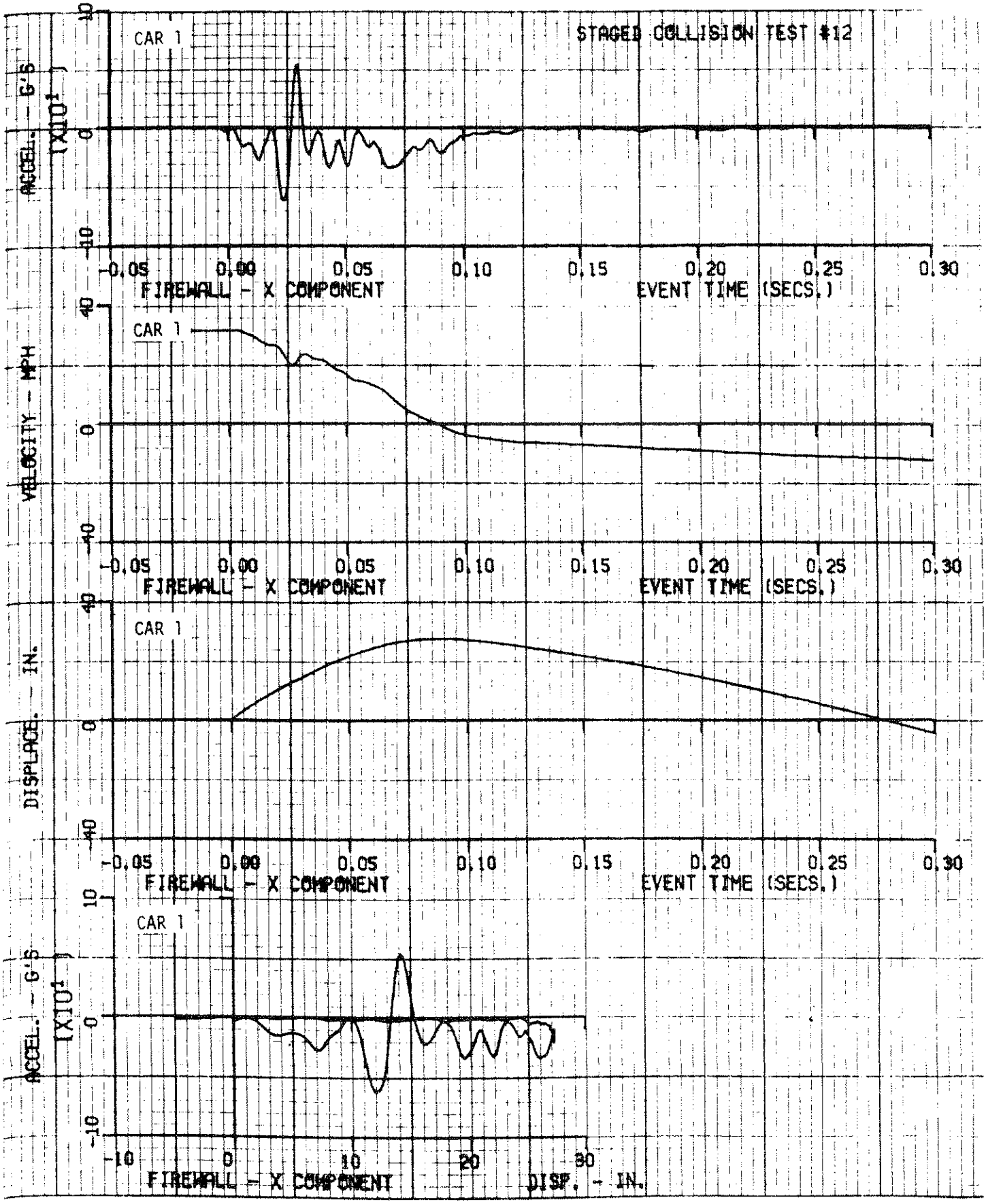

CAR 1
STAGED COLLISION TEST #12
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
0
10
20
30
40
RIGHT REAR CORNER - X COMP.
DISP. - IN.

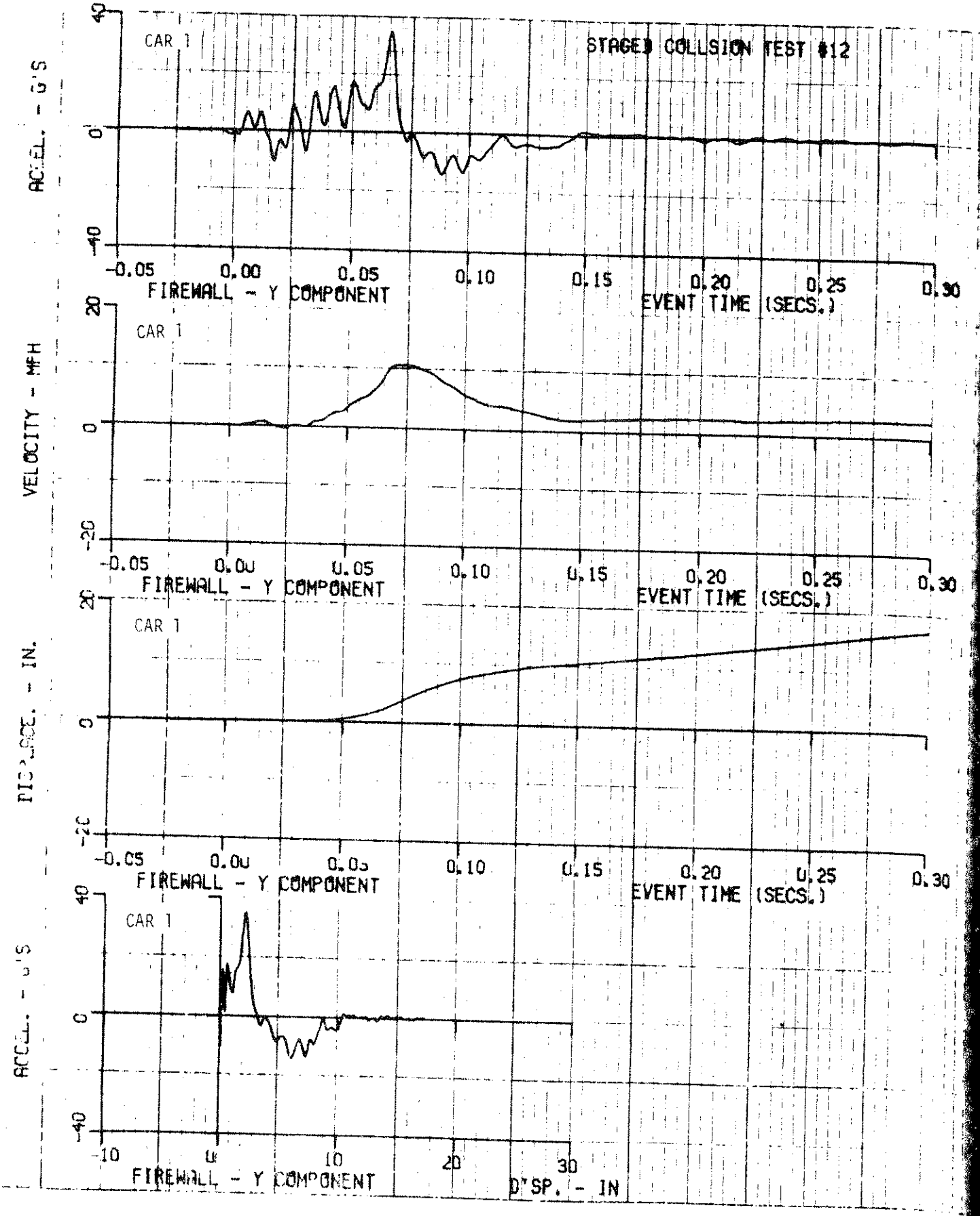

STAGED COLLSION TEST #12
CAR 1
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
4
0
-4
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
4
0
-4
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
1
2
3
RIGHT REAR CORNER Y COMP.
DISP. - IN.

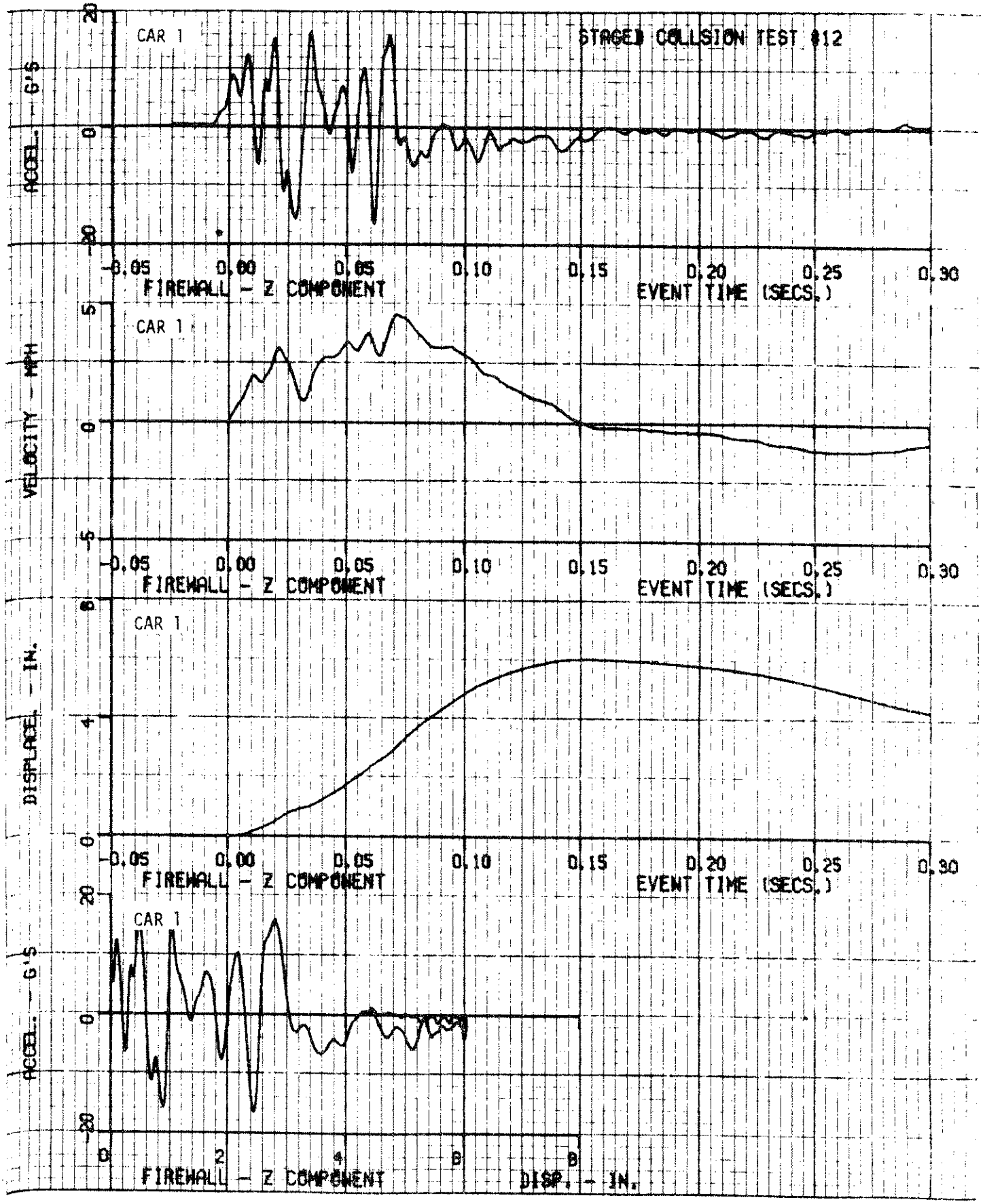

CAR 1
STAGED COLLSION TEST #12
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
5
0
-5
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
10
0
-10
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL.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

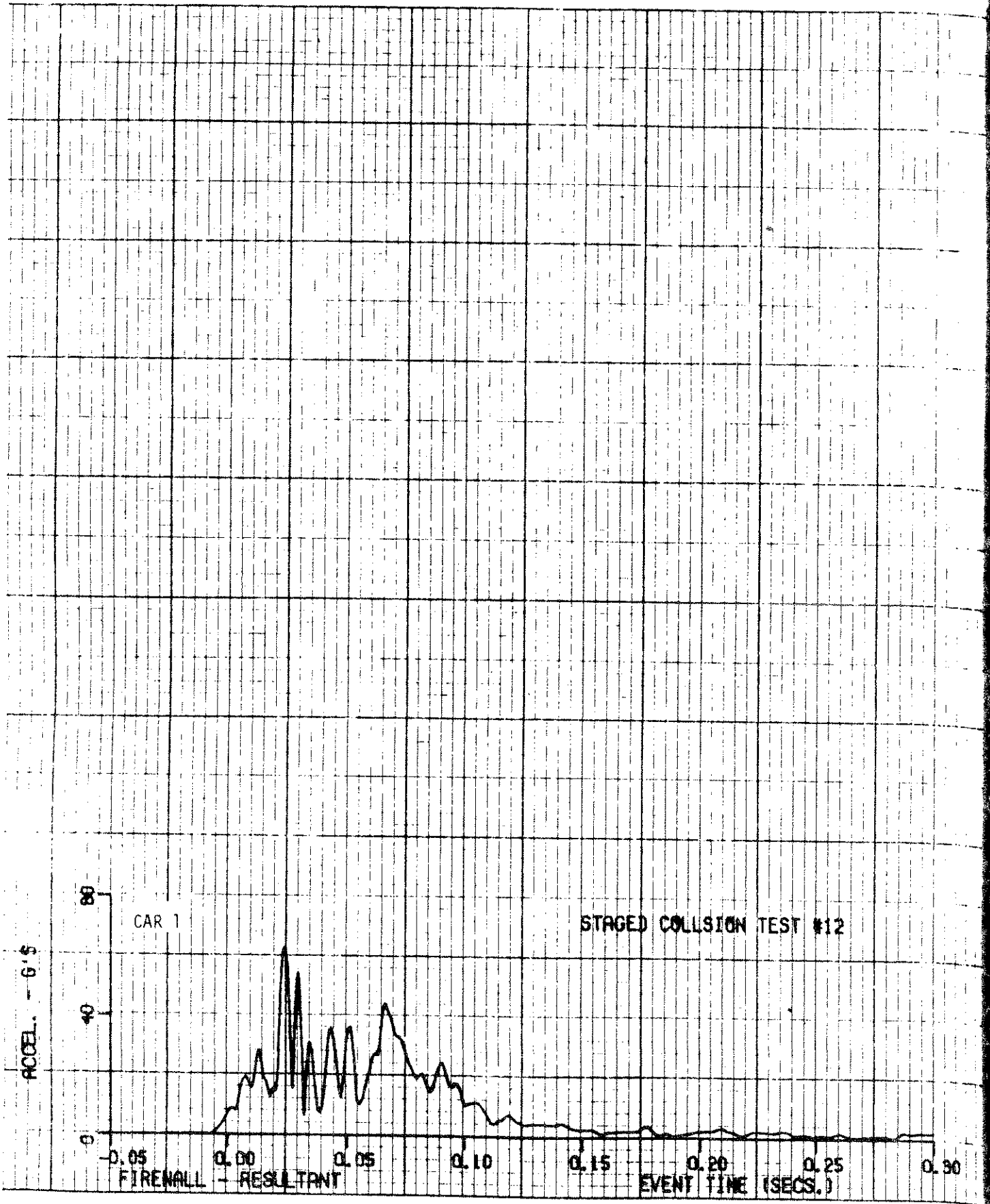

CAR 1
STAGED COLLSION TEST #12
ACCEL. - G'S
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER-RESULTANT
EVENT TIME (SECS.)

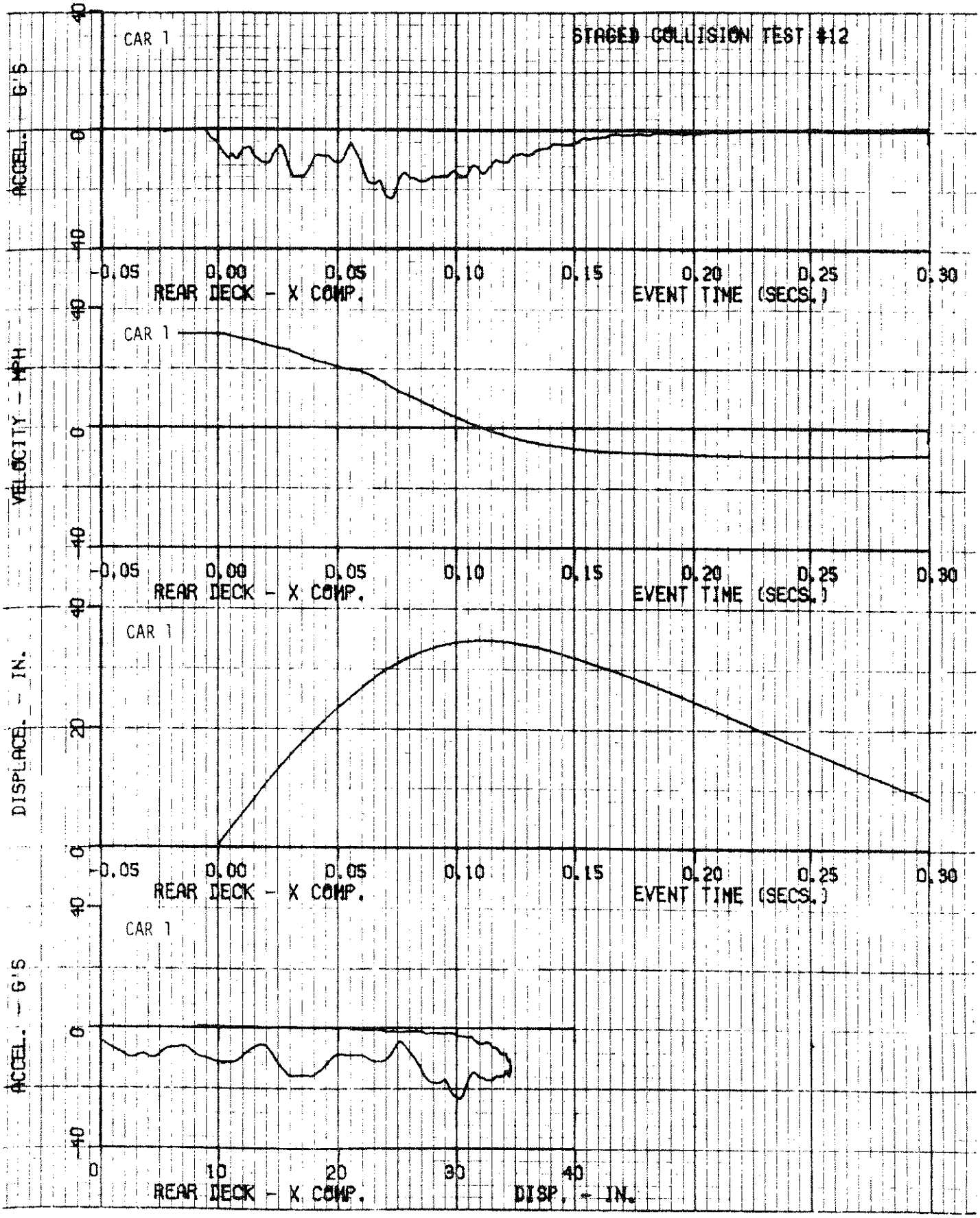
ZQ-6057-V-5

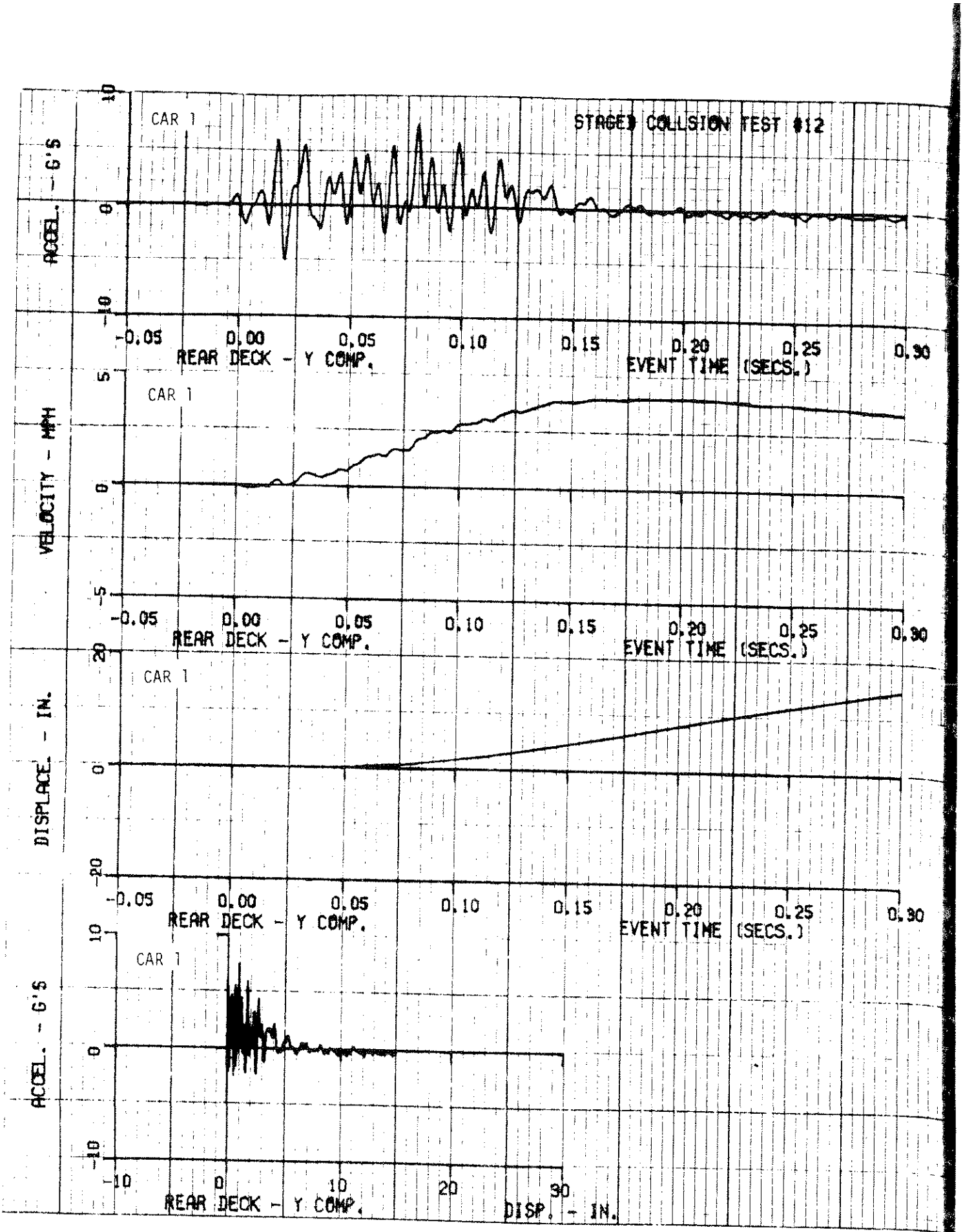

STAGED COLLISION TEST #12
CAR 1
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
0
-40
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
40
0
-40
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S (X10¹)
10
0
-10
-10
0
10
20
30
FIREWALL - X COMPONENT
DISP. - IN.

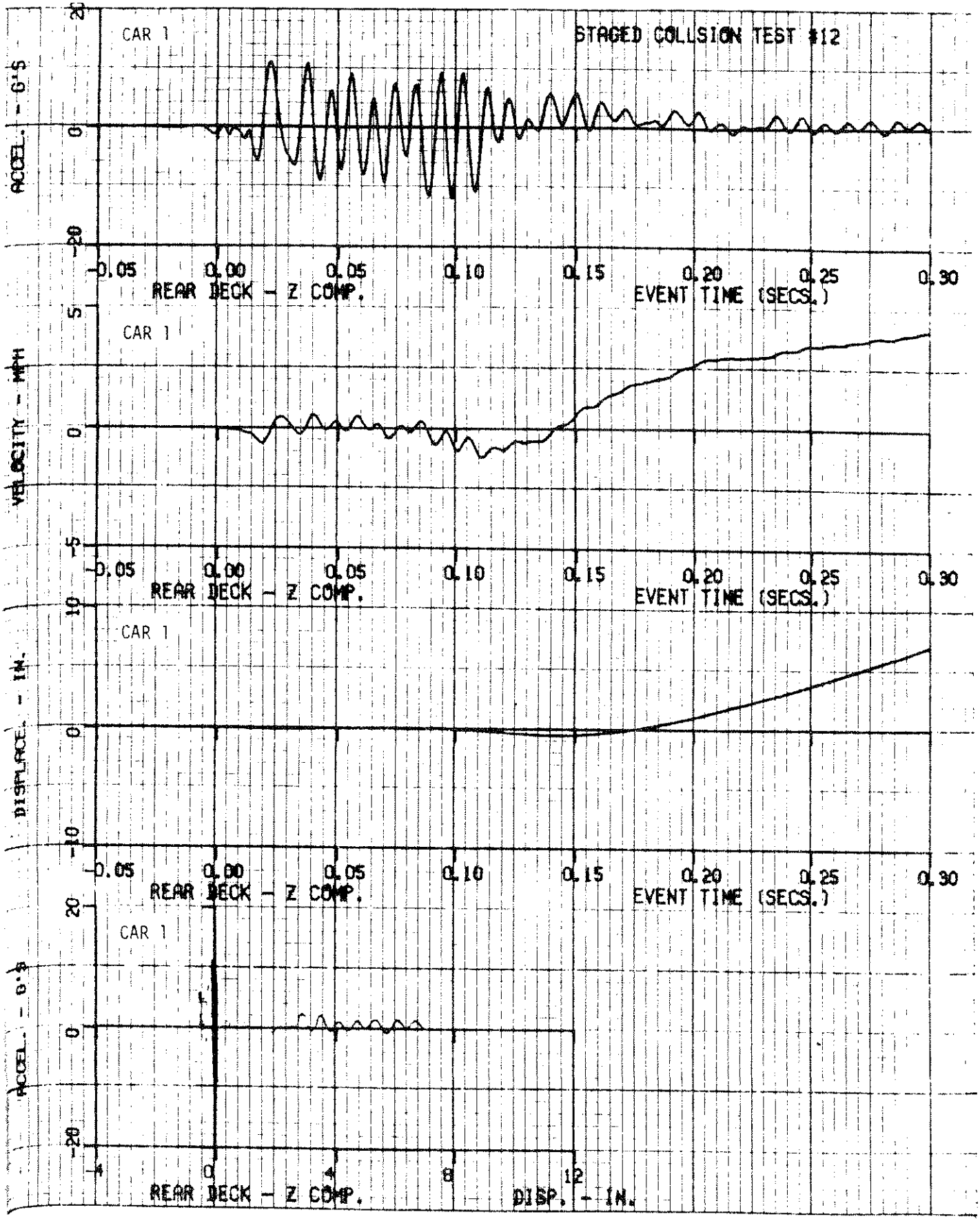

STAGED COLLSION TEST #12
CAR 1
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
20
0
-20
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
20
0
-20
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
-10
0
10
20
30
FIREWALL - Y COMPONENT
DISP. - IN

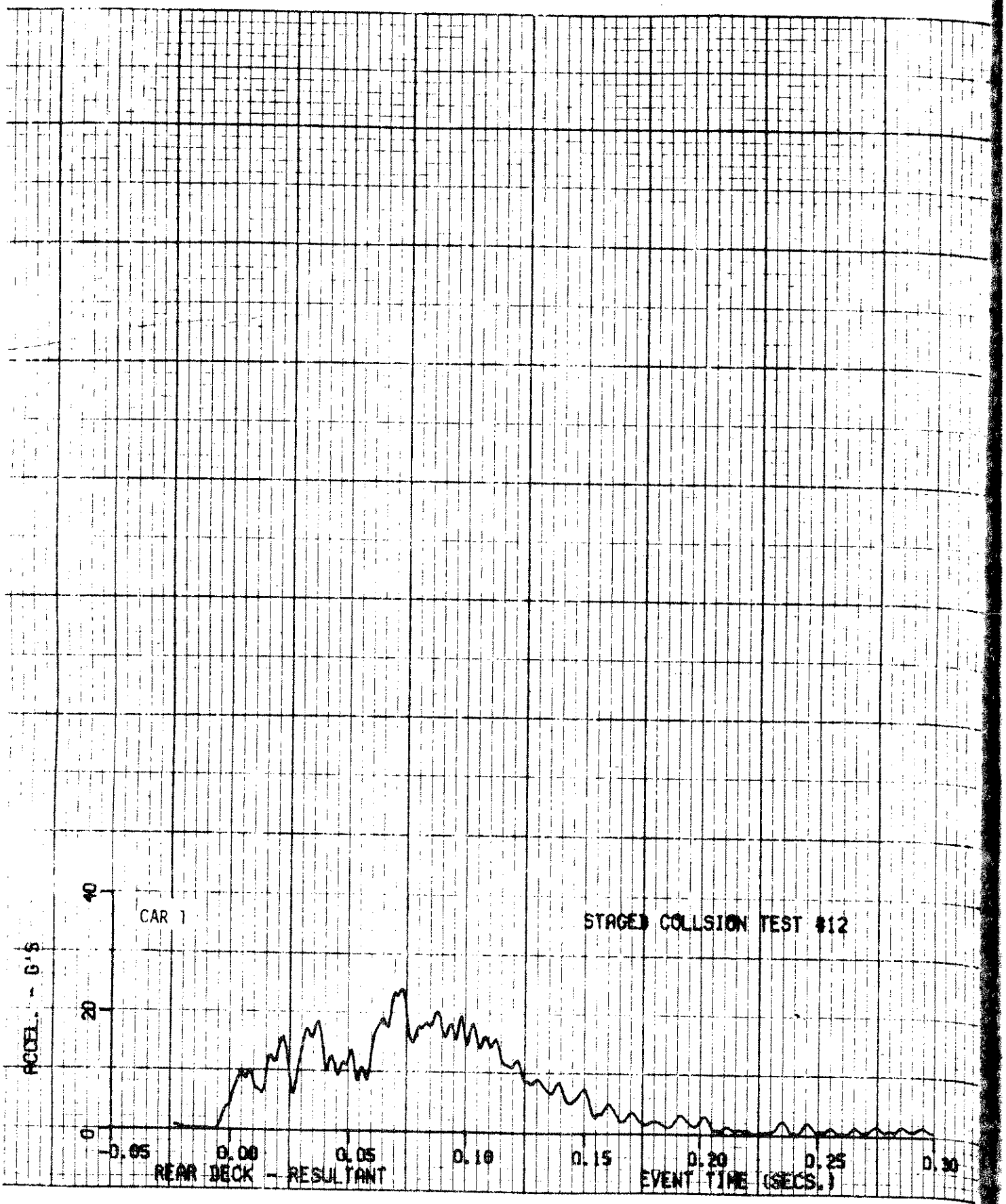

CAR 1
STAGED COLLSION TEST #12
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
5
0
-5
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
DISPLACEL - IN.
8
4
0
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
0
2
4
6
8
FIREWALL - Z COMPONENT
DISP. - IN.


CAR 1
STAGED COLLSION TEST #12
ACCEL. - G'S
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIRENALL - RESULTANT
EVENT TIME (SECS.)


STAGED COLLISION TEST #12
CAR 1
ACCEL. - G'S
40
0
-40
-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
0
-40
-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.
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
ACCEL. - G'S
40
0
-40
0
10
20
30
40
REAR DECK - X COMP.
DISP. - IN.


STAGED COLLSION TEST #12
CAR 1
ACCEL. - G'S
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
VELOCITY - MPH
5
0
-5
-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.
20
0
-20
-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
-10
0
10
20
30
REAR DECK - Y COMP.
DISP. - IN.


STAGED COLLSION TEST #12
CAR 1
ACCEL. - G'S
REAR DECK - Z COMP.
EVENT TIME (SECS.)
VELOCITY - MPH
DISPLACE. - IN.
DISP. - IN.


CAR 1
STAGED COLLSION TEST #12
ACCEL. - G'S
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - RESULTANT
EVENT TIME (SECS.)

RICSAC TEST NO. 12

VEHICLE RESPONSES

CAR NO. 2 TORINO

DATA PLOTS

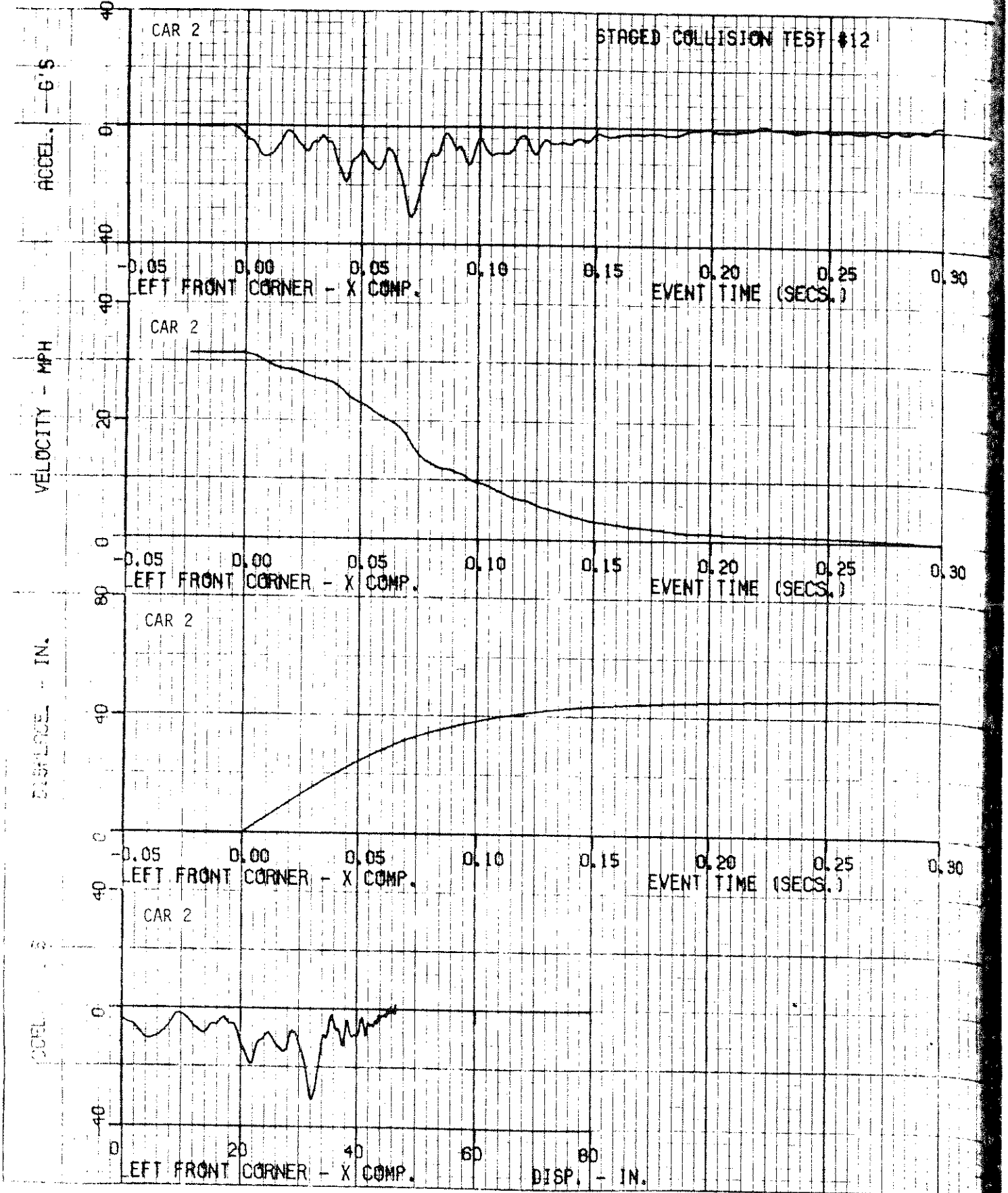
ACCELERATION TIME HISTORIES

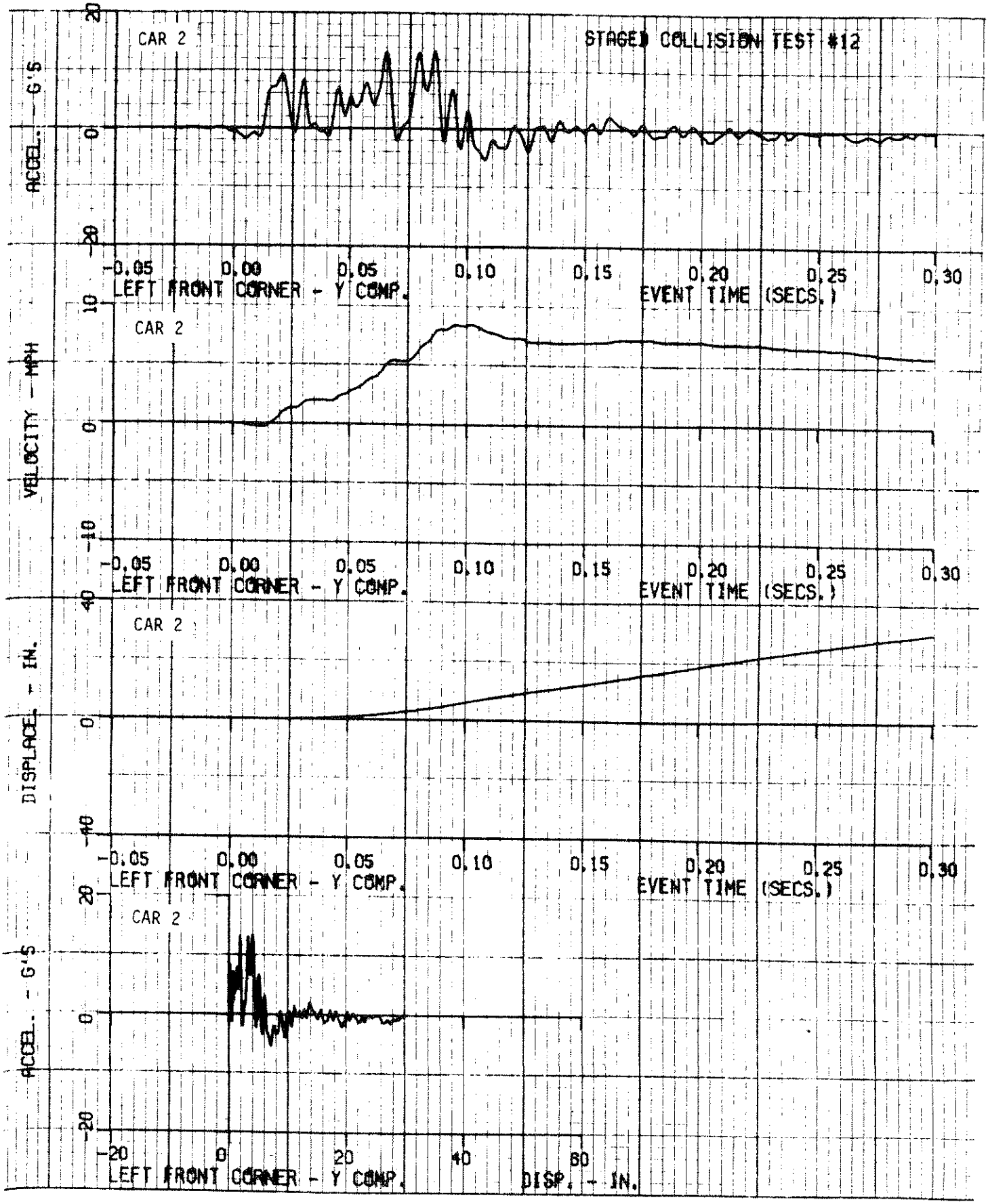
VELOCITY TIME HISTORIES

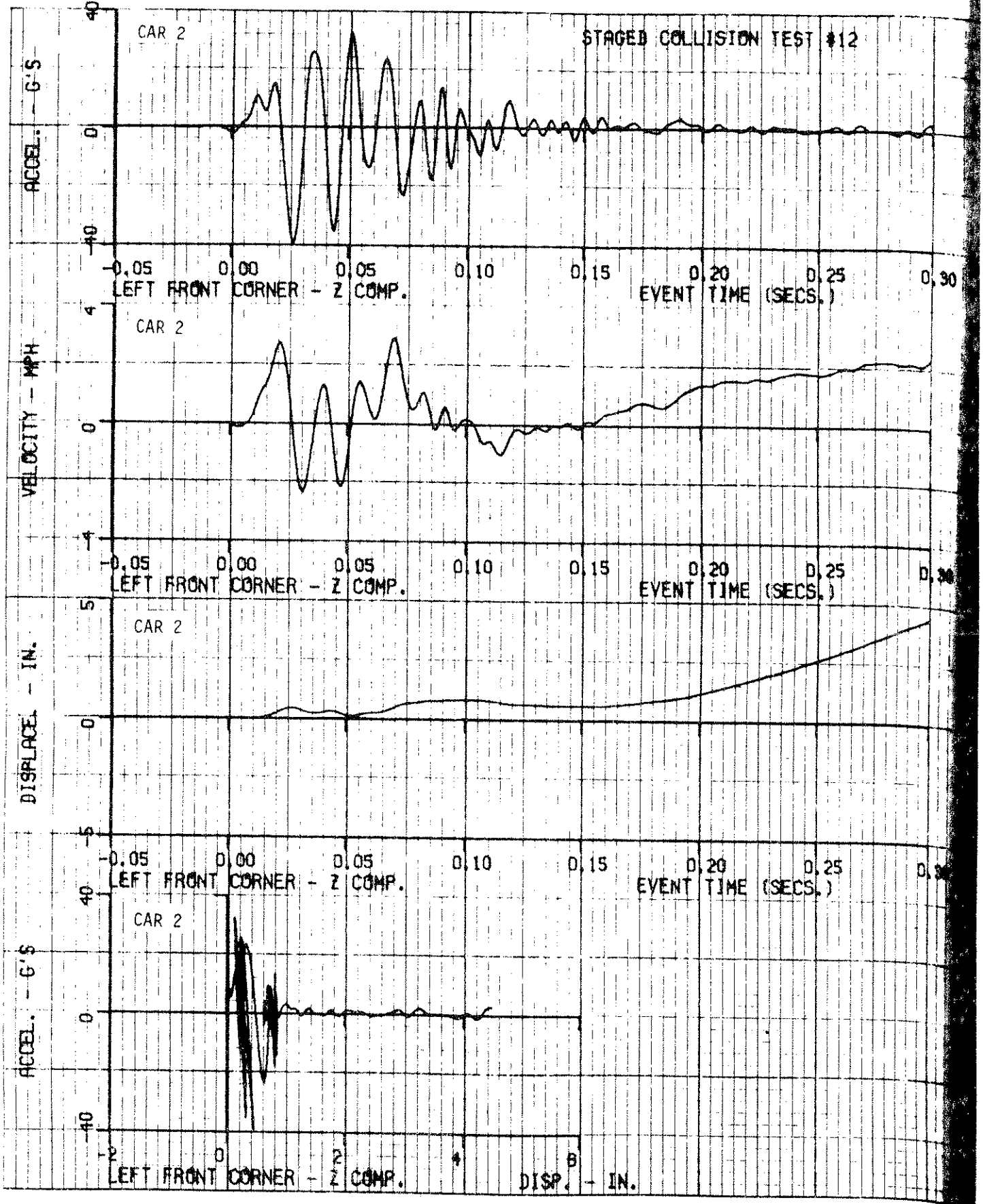
DISPLACEMENT TIME HISTORIES

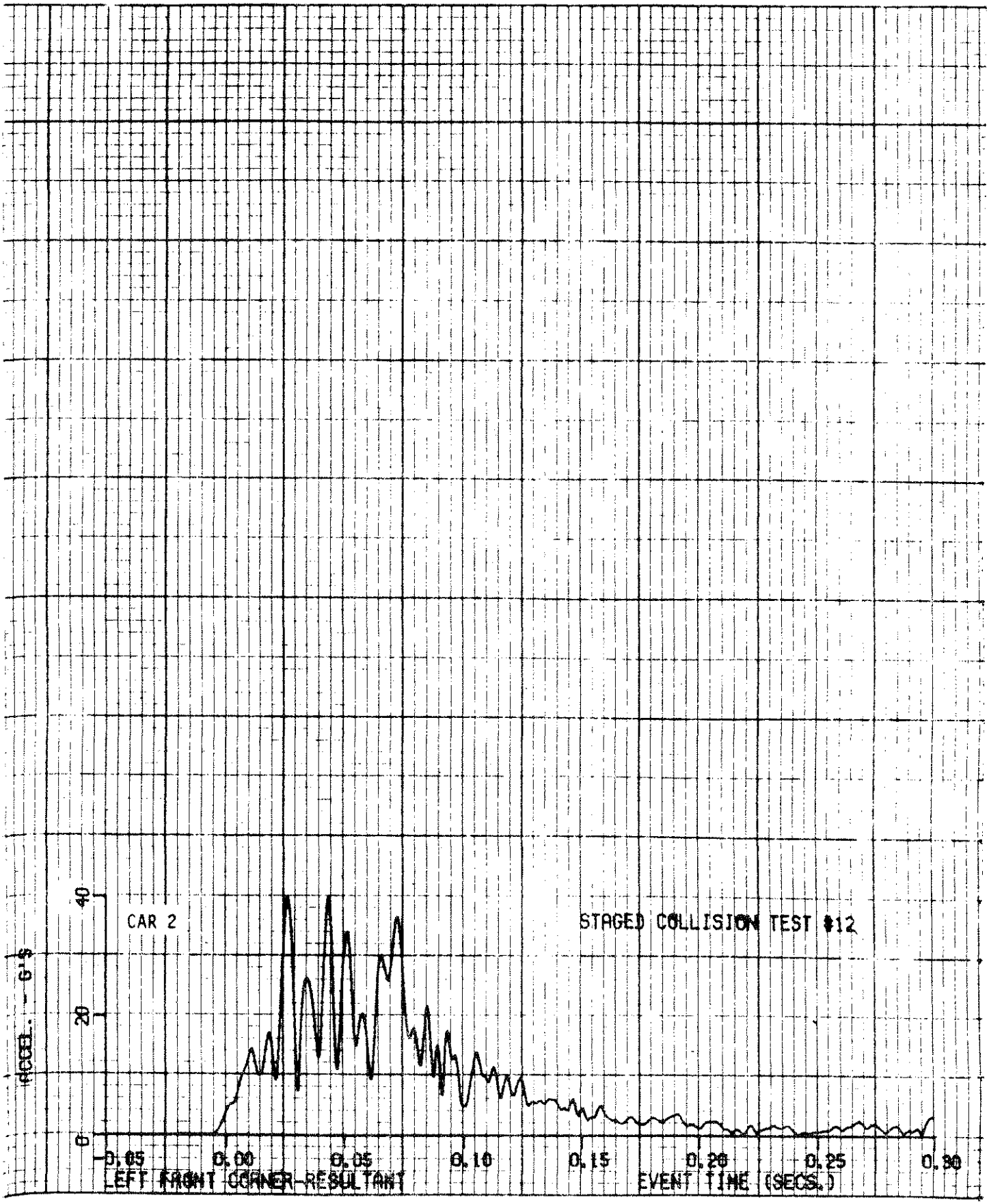
ACCELERATION VS DISPLACEMENT

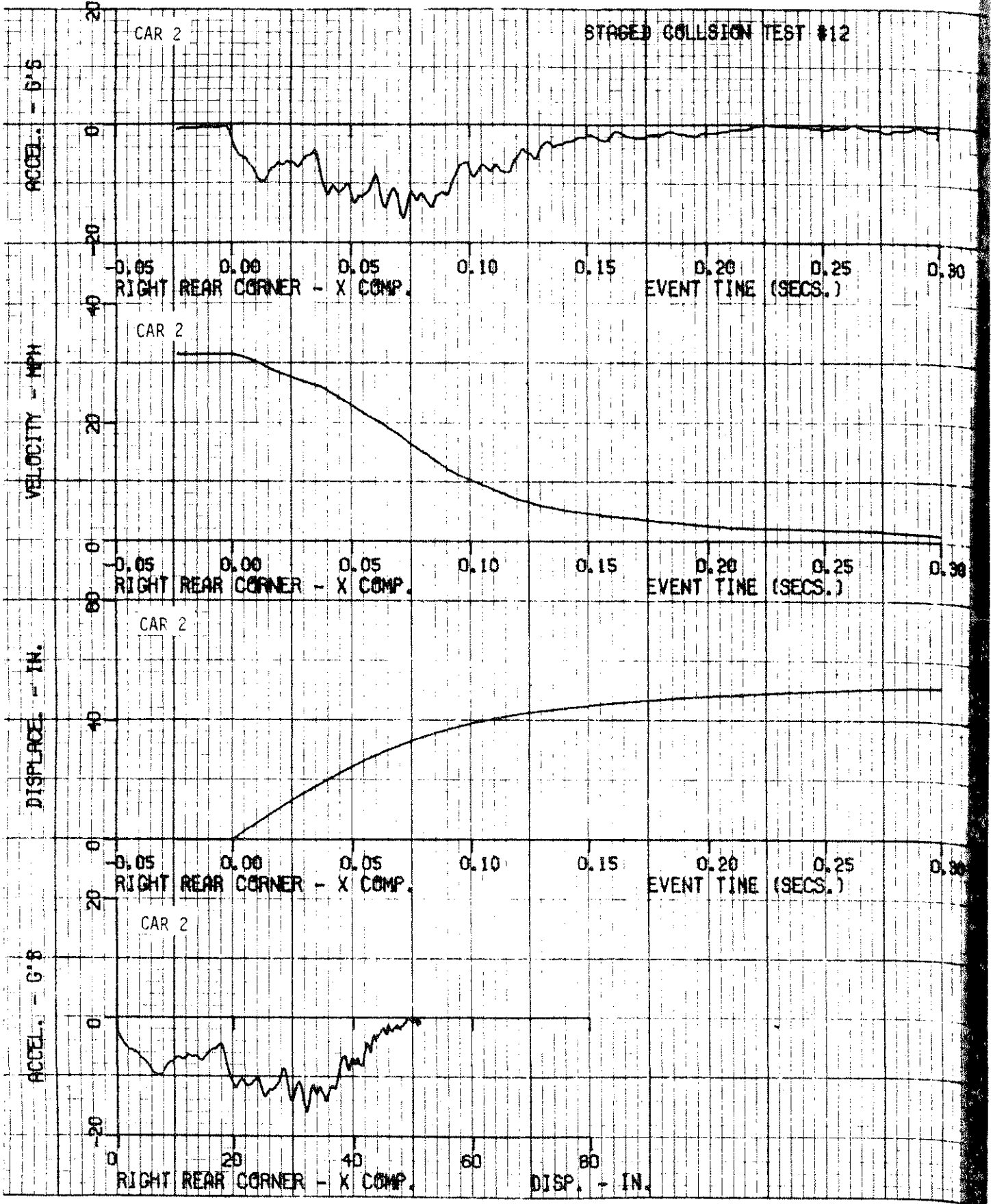
FILTER CLASS 60

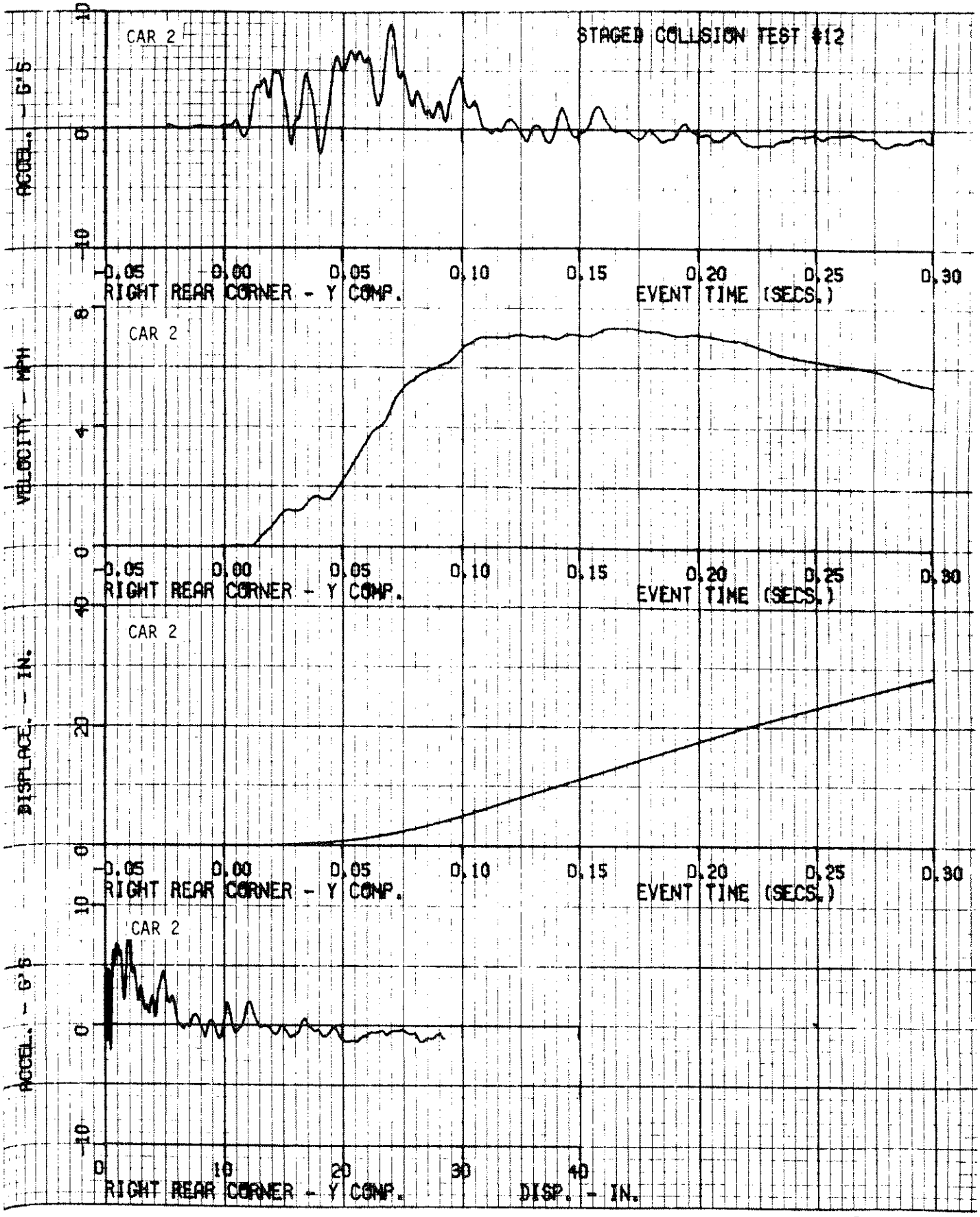

CAR 2
STAGED COLLISION TEST #12
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
20
0
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE - IN.
80
40
0
LEFT FRONT CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
0
20
40
60
80
LEFT FRONT CORNER - X COMP.
DISP. - IN.

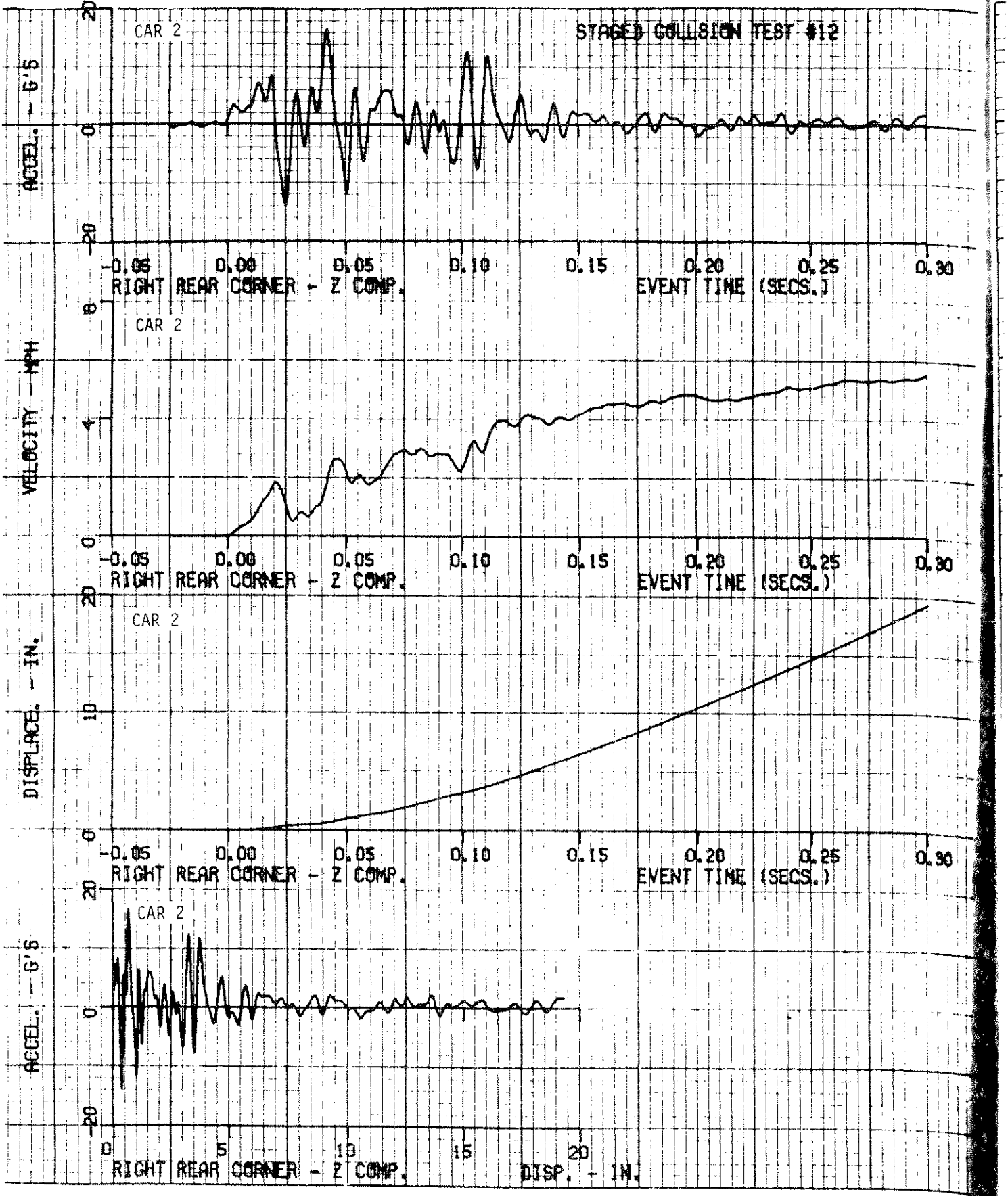

STAGED COLLISION TEST #12
CAR 2
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
-20
0
20
40
60
LEFT FRONT CORNER - Y COMP.
DISP. - IN.

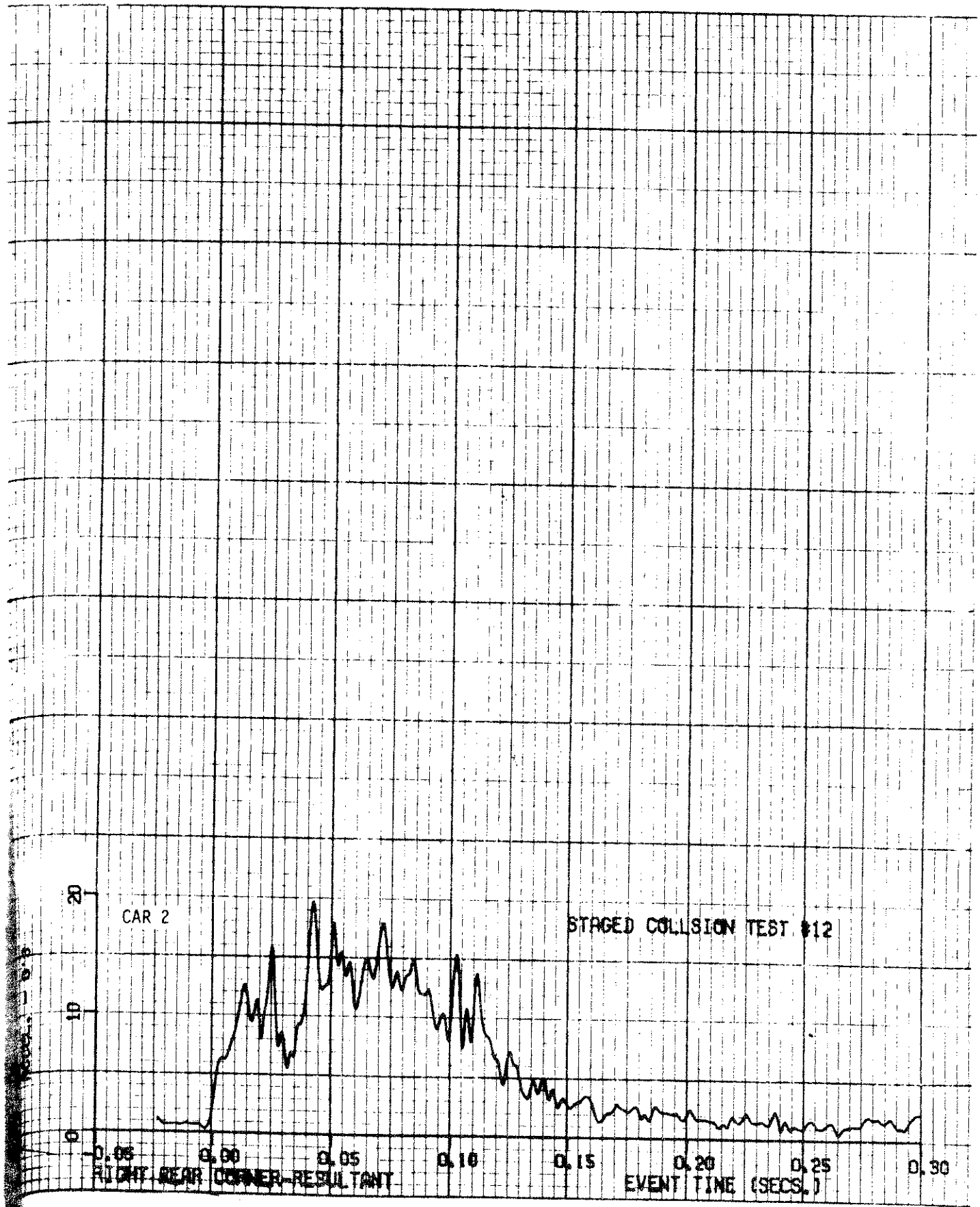

STAGED COLLISION TEST #12
CAR 2
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
4
0
-4
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
5
0
-5
LEFT FRONT CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
40
0
-40
-2
0
2
4
6
LEFT FRONT CORNER - Z COMP.
DISP. - IN.

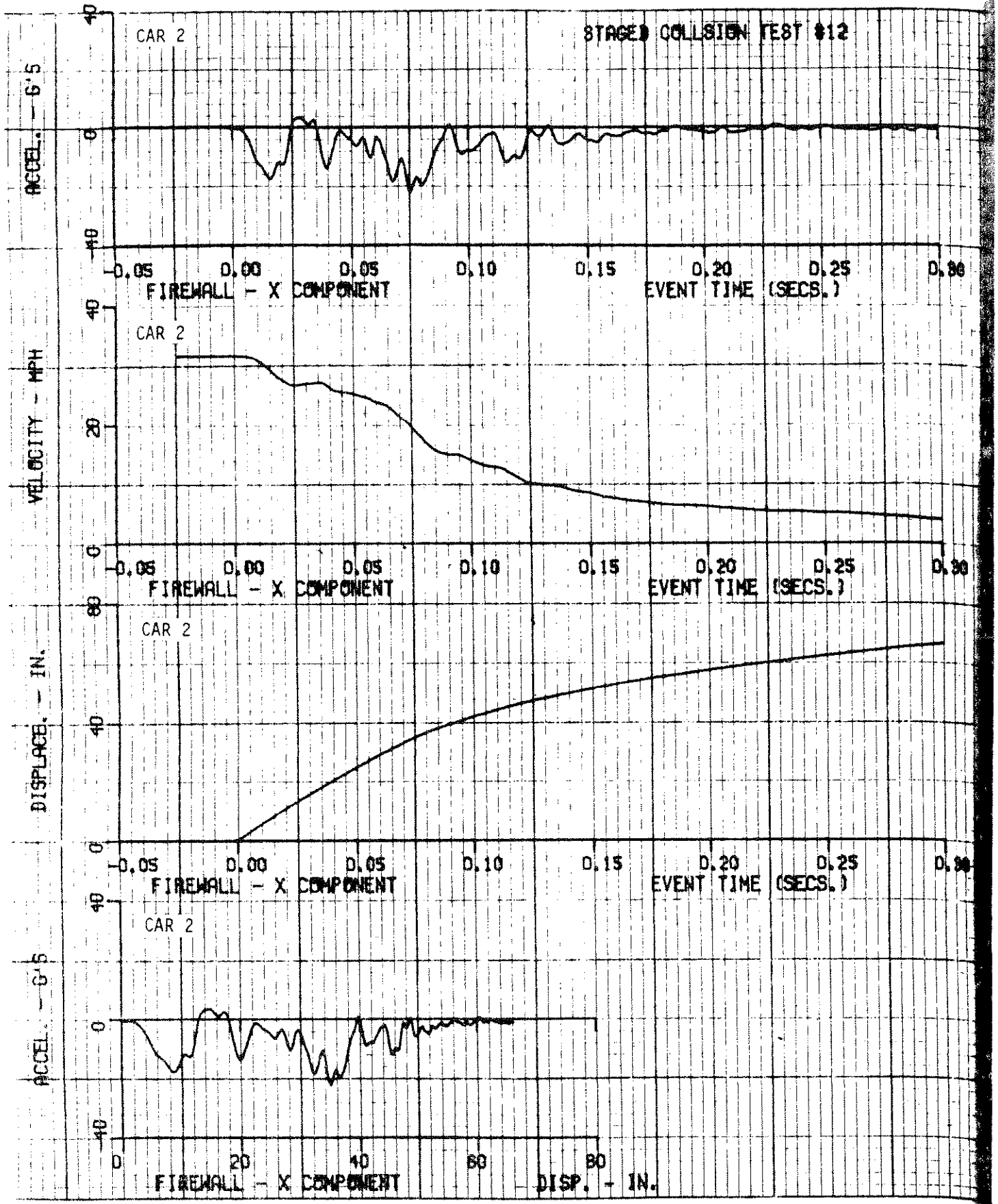

CAR 2
STAGED COLLISION TEST #12
ACCEL. - G'S
0
20
40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
LEFT FRONT CORNER-RESULTANT
EVENT TIME (SECS.)

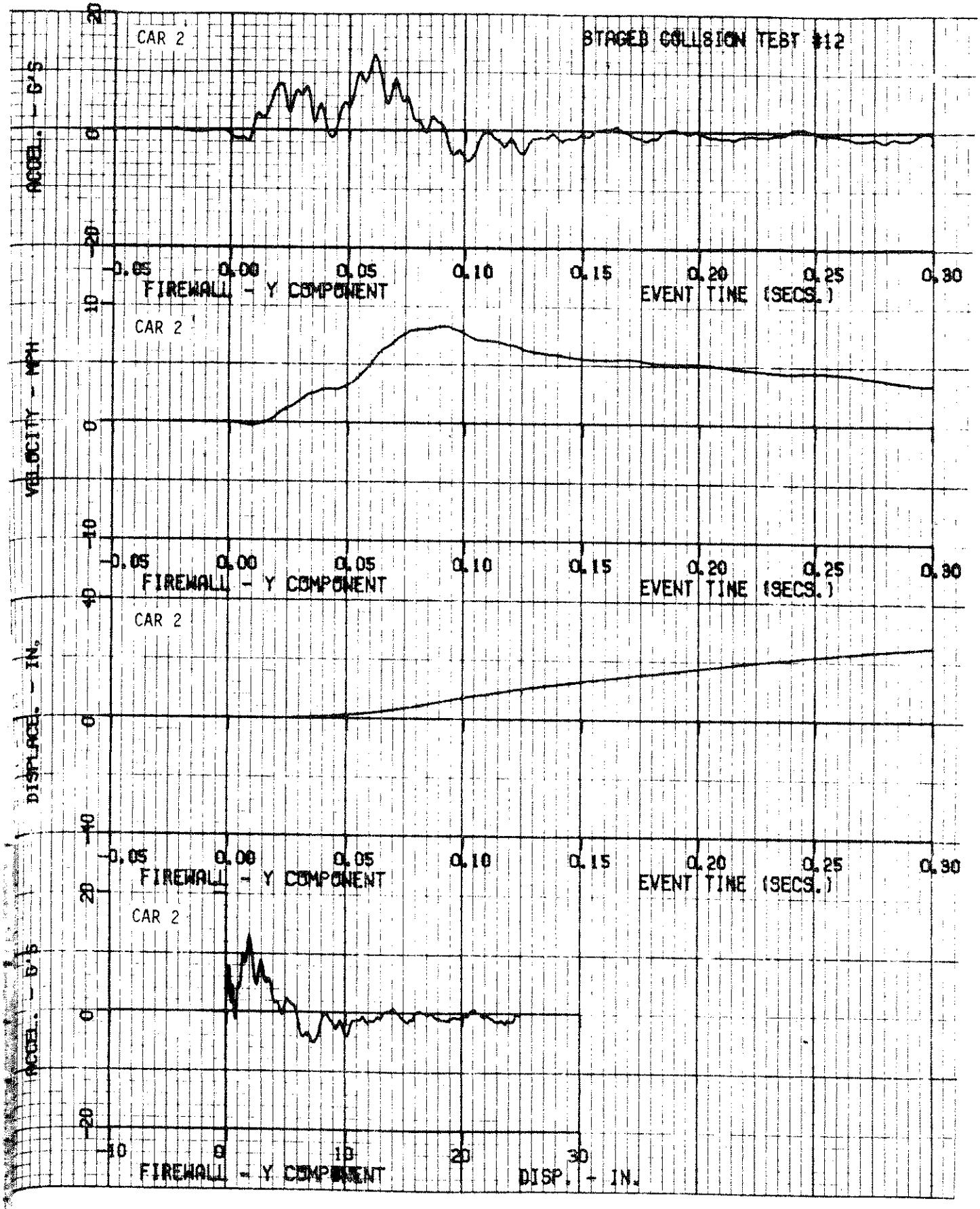

STAGED COLLISION TEST #12
CAR 2
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
20
0
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
60
40
0
RIGHT REAR CORNER - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
0
20
40
60
80
RIGHT REAR CORNER - X COMP.
DISP. - IN.

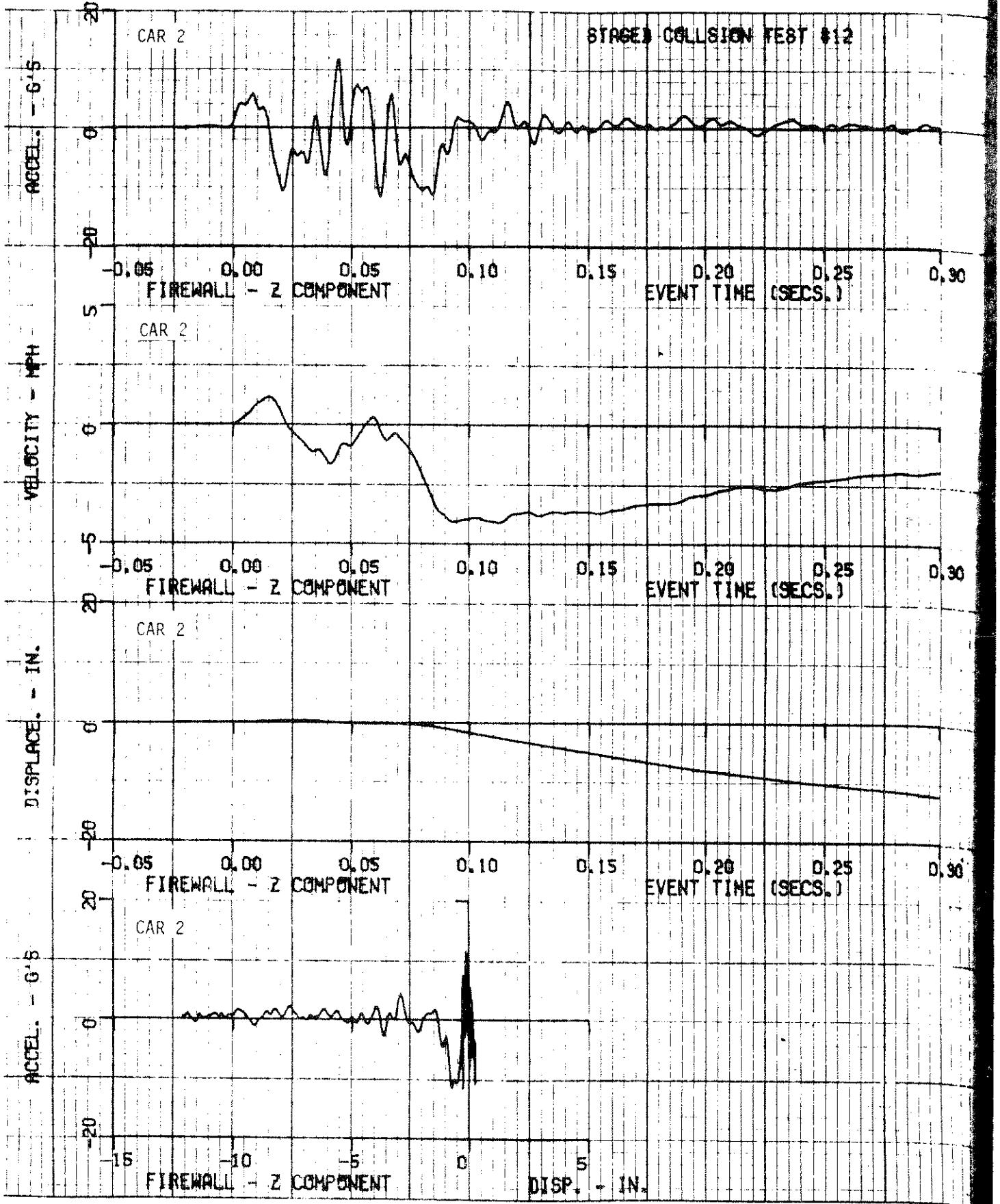

STAGED COLLISION TEST #12
CAR 2
ACCEL. - G'S
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
8
4
0
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
40
20
0
RIGHT REAR CORNER - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
0
10
20
30
40
RIGHT REAR CORNER - Y COMP.
DISP. - IN.

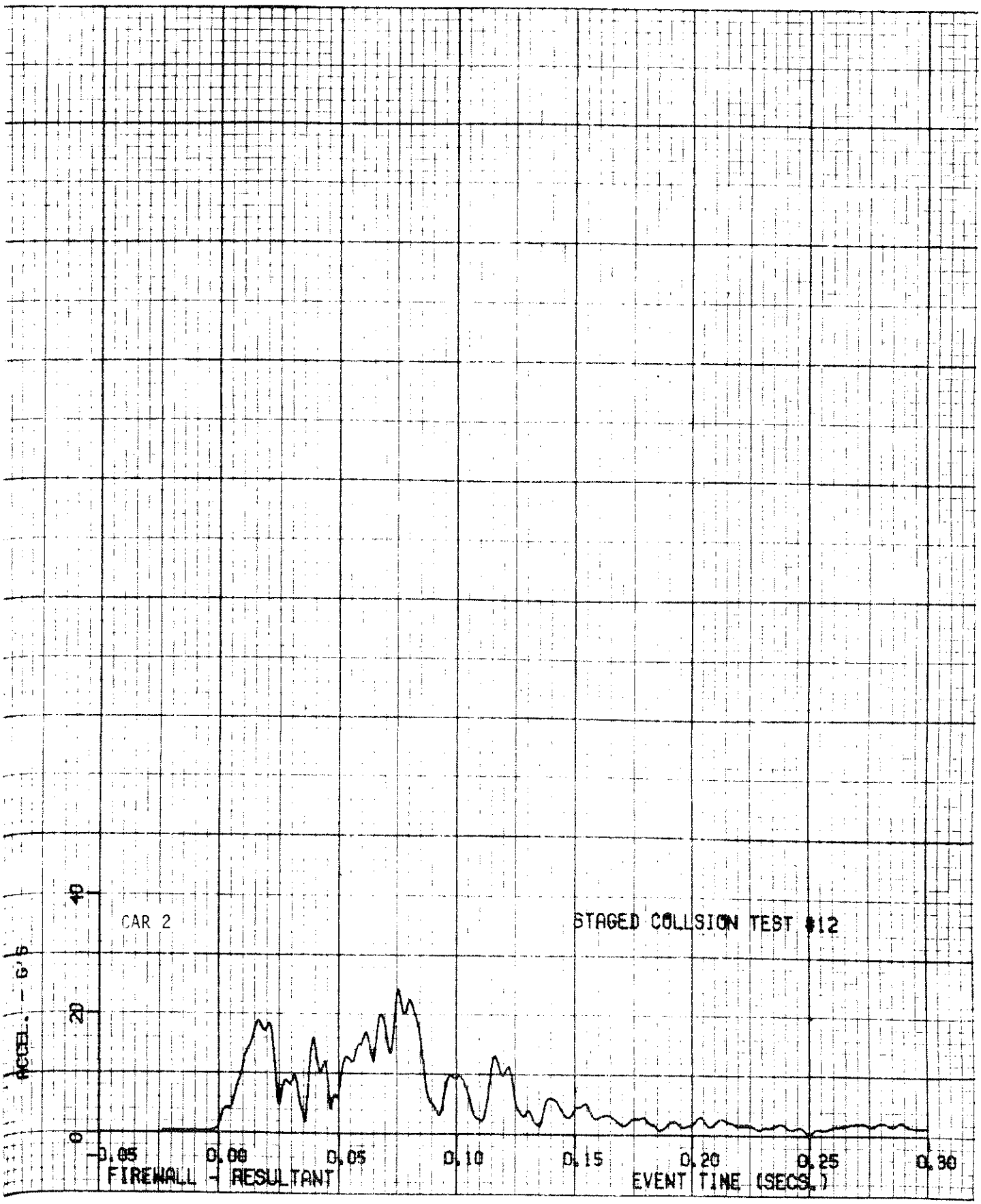

CAR 2
STAGED COLLISION TEST #12
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
8
4
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
20
10
0
-0.05
0.00
0.05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

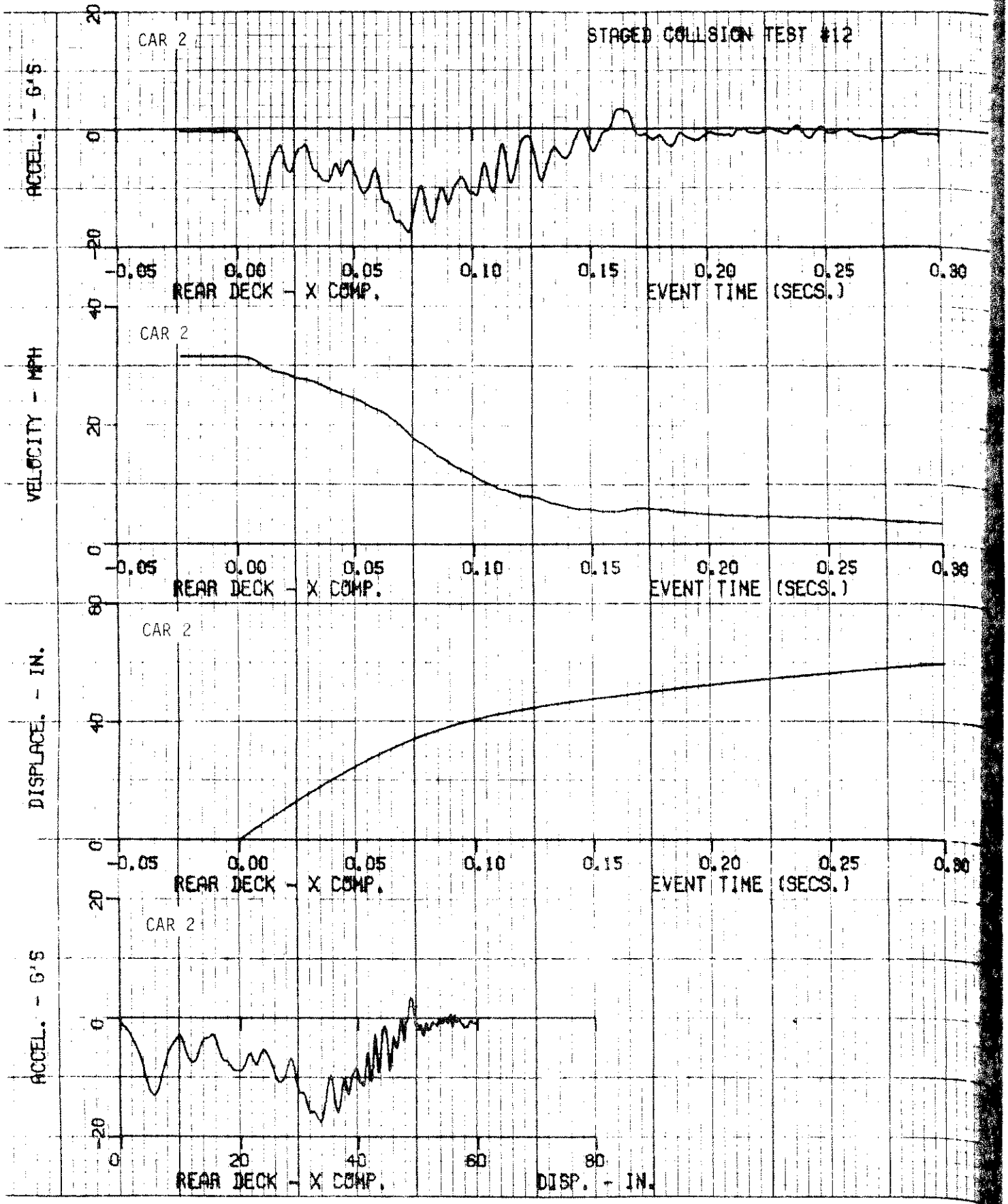

CAR 2
STAGED COLLSION TEST #12
20
10
0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
RIGHT REAR CORNER-RESULTANT
EVENT TIME (SECS.)

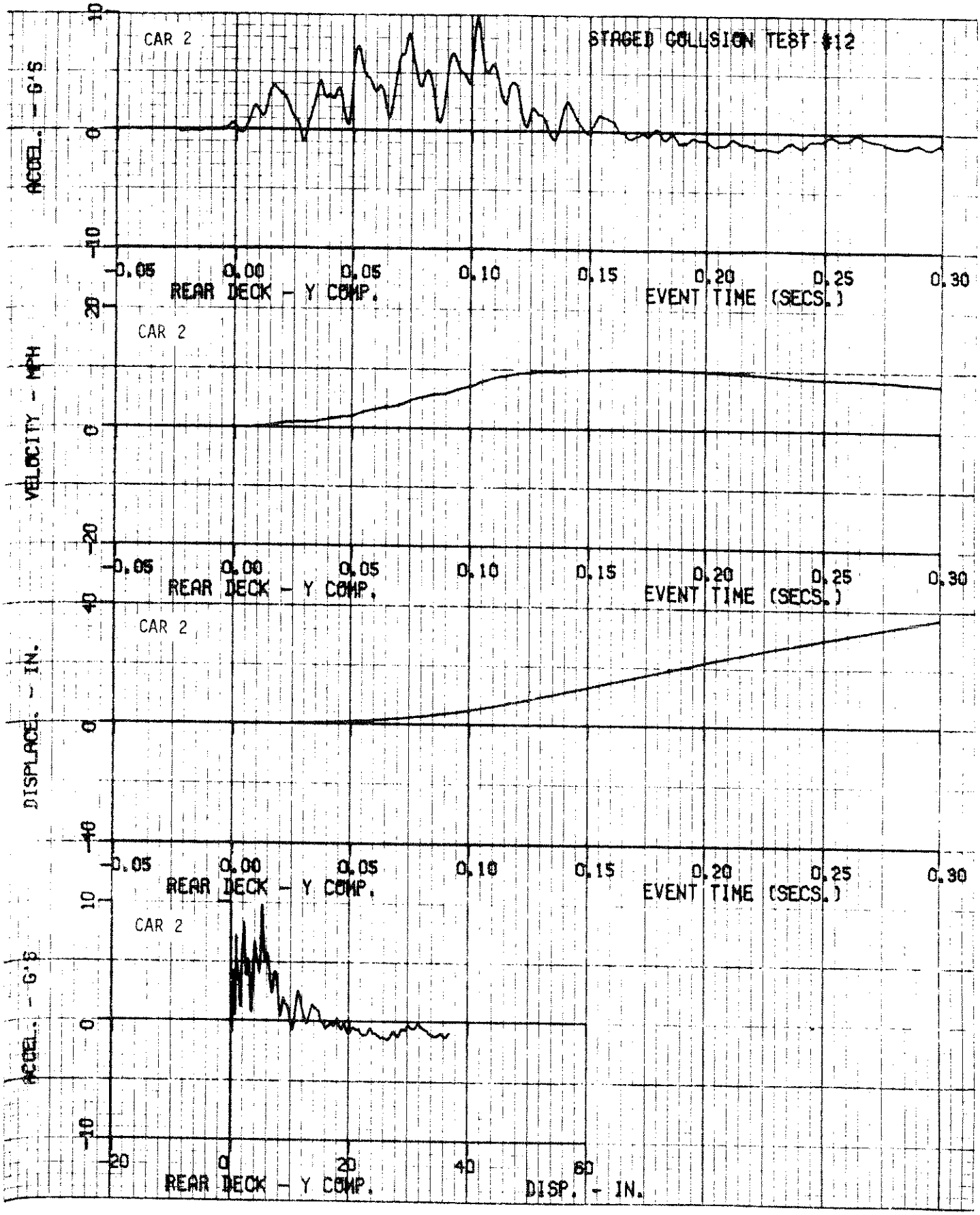

STAGED COLLSION TEST #12
CAR 2
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - X COMPONENT
EVENT TIME (SECS.)
VELOCITY - MPH
20
DISPLACE. - IN.
80
ACCEL. - G'S
DISP. - IN.

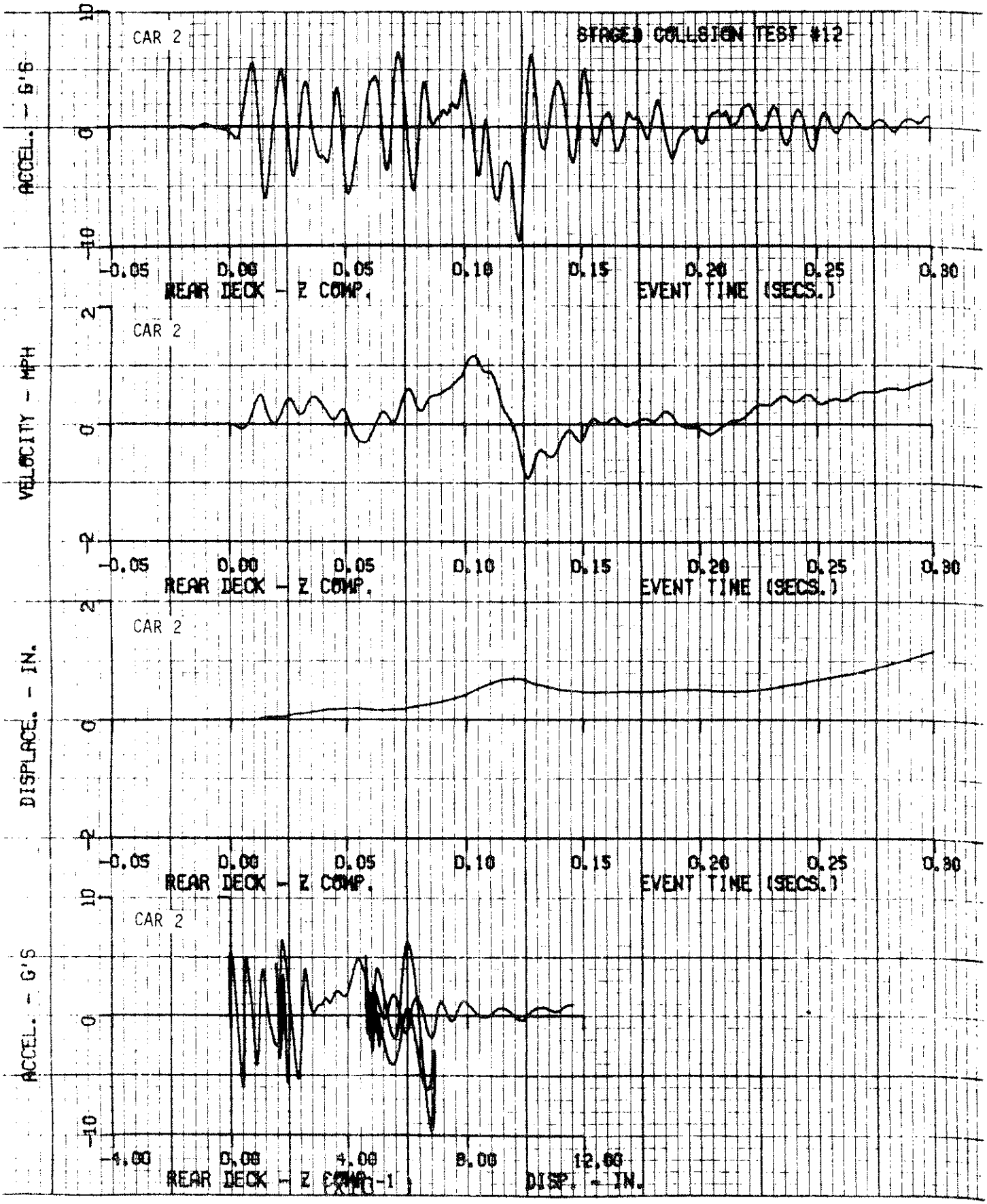

STAGED COLLISION TEST #12
CAR 2
ACCEL. - G'S
FIREWALL - Y COMPONENT
EVENT TIME (SECS.)
VELOCITY - MPH
DISPLACE. - IN.
DISP. - IN.

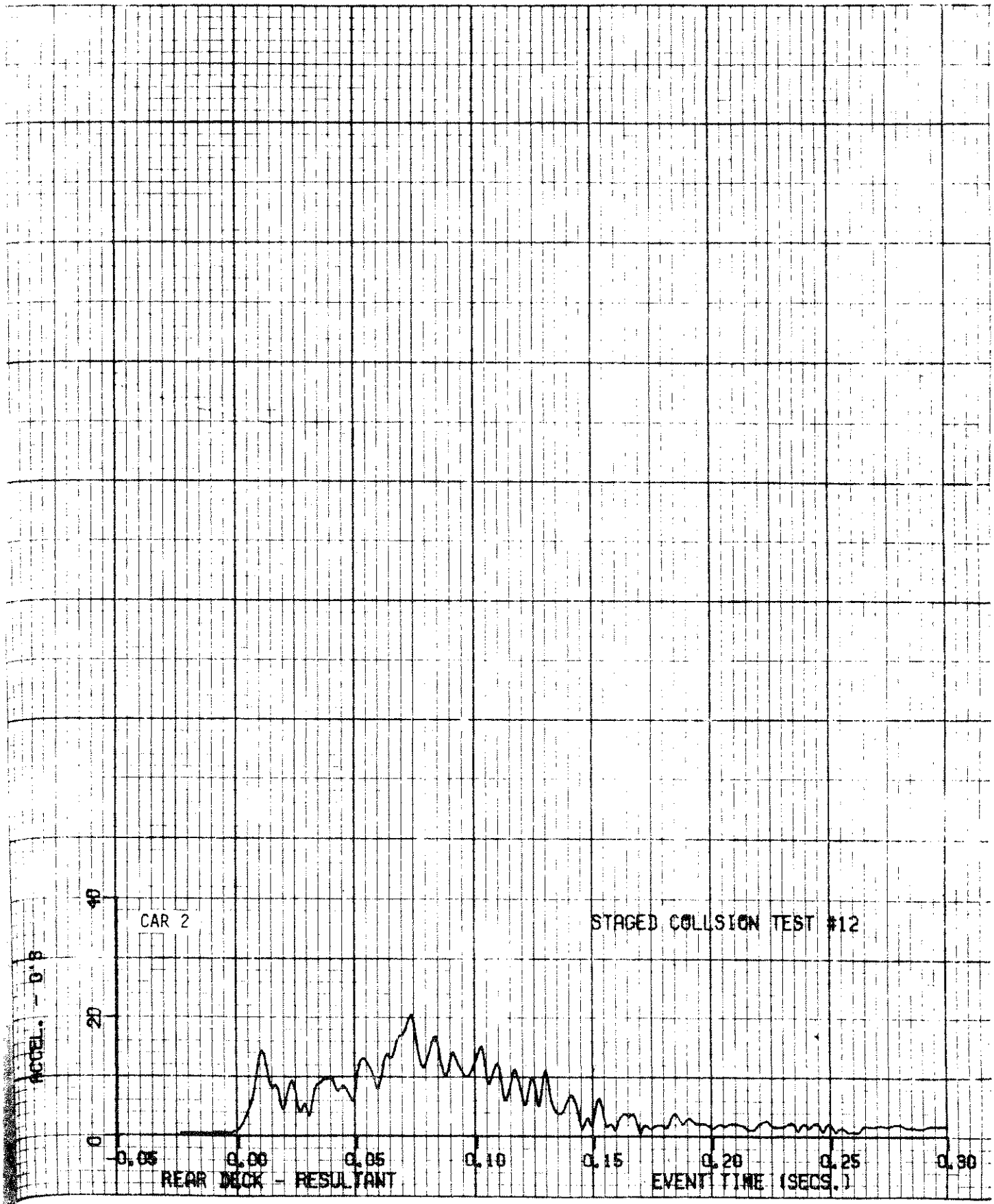

STAGED COLLSION TEST #12
CAR 2
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - Z COMPONENT
EVENT TIME (SECS.)
VELOCITY - MPH
5
0
-5
DISPLACE. - IN.
-15
-10
-5
5
DISP. - IN.


CAR 2
STAGED COLLSION TEST #12
ACCEL. - G's
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
FIREWALL - RESULTANT
EVENT TIME (SECS.)


STAGED COLLISION TEST #12
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
40
20
0
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
80
40
0
REAR DECK - X COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
20
0
-20
0
20
40
60
80
REAR DECK - X COMP.
DISP. - IN.


CAR 2
STAGED COLLISION TEST #12
ACCEL. - G'S
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 2
VELOCITY - MPH
20
0
-20
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
40
0
-40
REAR DECK - Y COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-20
0
20
40
60
REAR DECK - Y COMP.
DISP. - IN.


STAGED COLLISION TEST #12
CAR 2
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
2
0
-2
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN.
2
0
-2
REAR DECK - Z COMP.
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S
10
0
-10
-4.00
0.00
4.00
8.00
12.00
REAR DECK - Z COMP.
DISP. - IN.


CAR 2
STAGED COLLSION TEST #12
ACCEL. - G'S
40
20
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
REAR DECK - RESULTANT
EVENT TIME (SECS.)

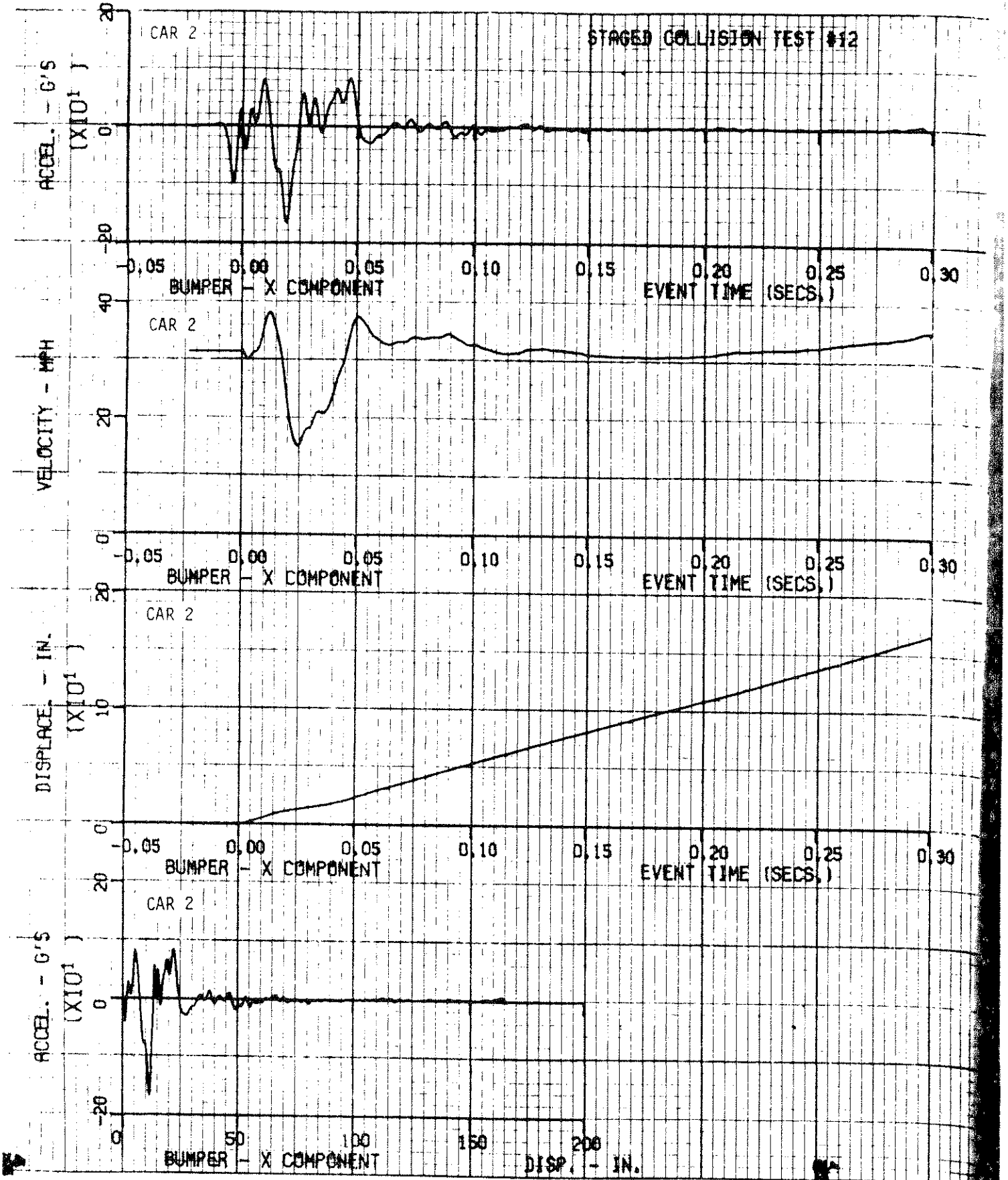

CAR 2
STAGED COLLISION TEST #12
ACCEL. - G'S (X10¹)
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 2
VELOCITY - MPH
40
20
0
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 2
DISPLACE. - IN. (X10¹)
20
10
0
BUMPER - X COMPONENT
EVENT TIME (SECS.)
CAR 2
ACCEL. - G'S (X10¹)
20
0
-20
0
50
100
150
200
BUMPER - X COMPONENT
DISP. - IN.

TABLE 18-7

DUMMY INJURY CRITERIA VALUES

CAR 1 - BULLET VEHICLE

	MAXIMUM ACCELERATION ("G") *											
	HEAD				CHEST				PELVIS			
	X	Y	Z	R	X	Y	Z	R	X	Y	Z	R
DUMMY (1)	-70	25	63	87	-50	16	-14	58	-60			
DUMMY (2)	-68	***	50	***	-24	-15	-10	30	-26			
DUMMY (3)												
DUMMY (4)												

	MAXIMUM FORCE-FEMUR LOAD (LBS)	
	RIGHT FEMUR	LEFT FEMUR
DUMMY (1)	850	2000
DUMMY (2)	280	1150
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)	976.4	.082	.123	56.3	1311	470
DUMMY (2)	***	.077	.299	30.1	***	220
DUMMY (3)						
DUMMY (4)						

*DEFINED AS EXCEEDING 0.003 SEC. DURATION

**AS DEFINED IN FMVSS NO. 208

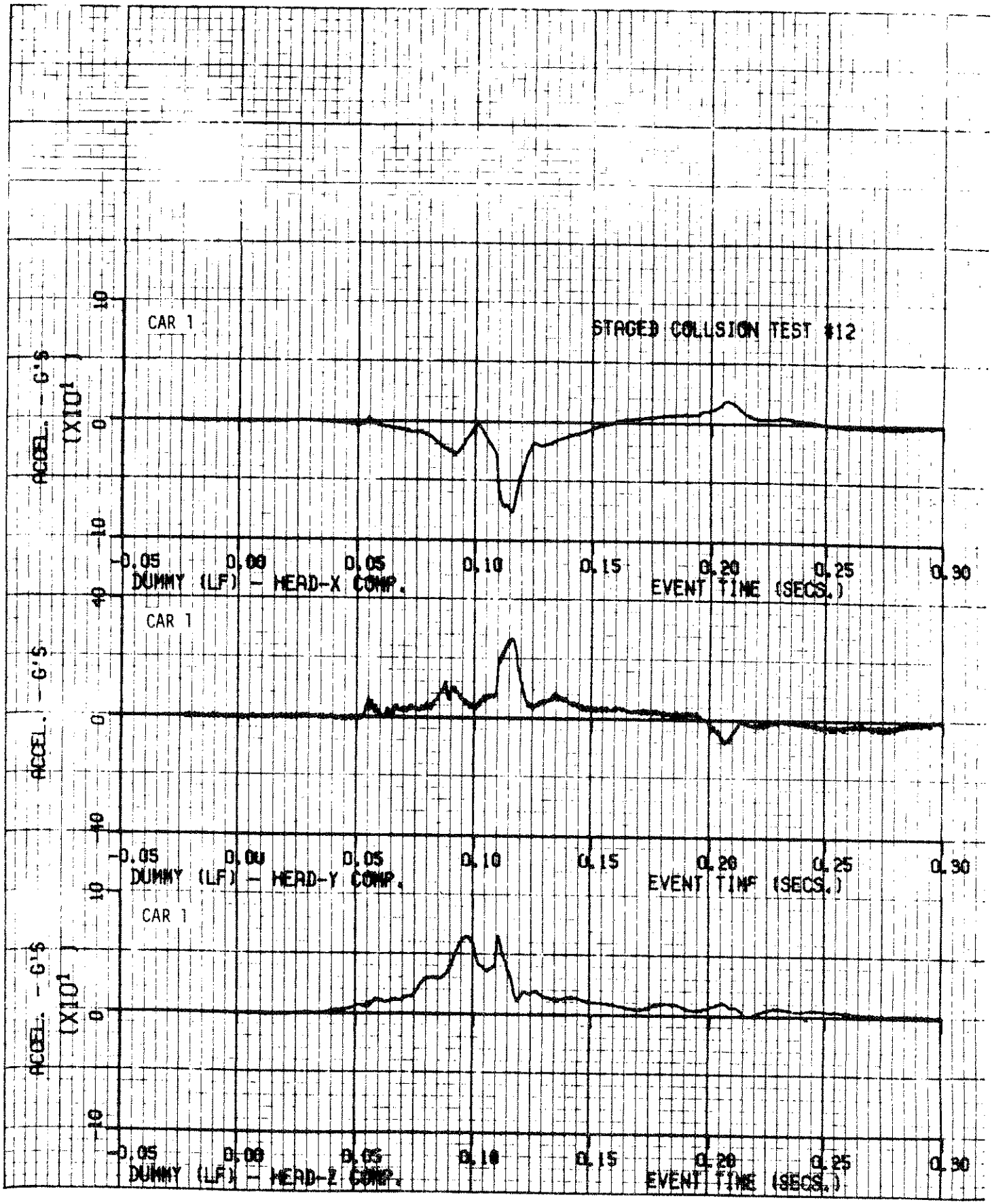
*** HEAD Y ACCELERATION LOST

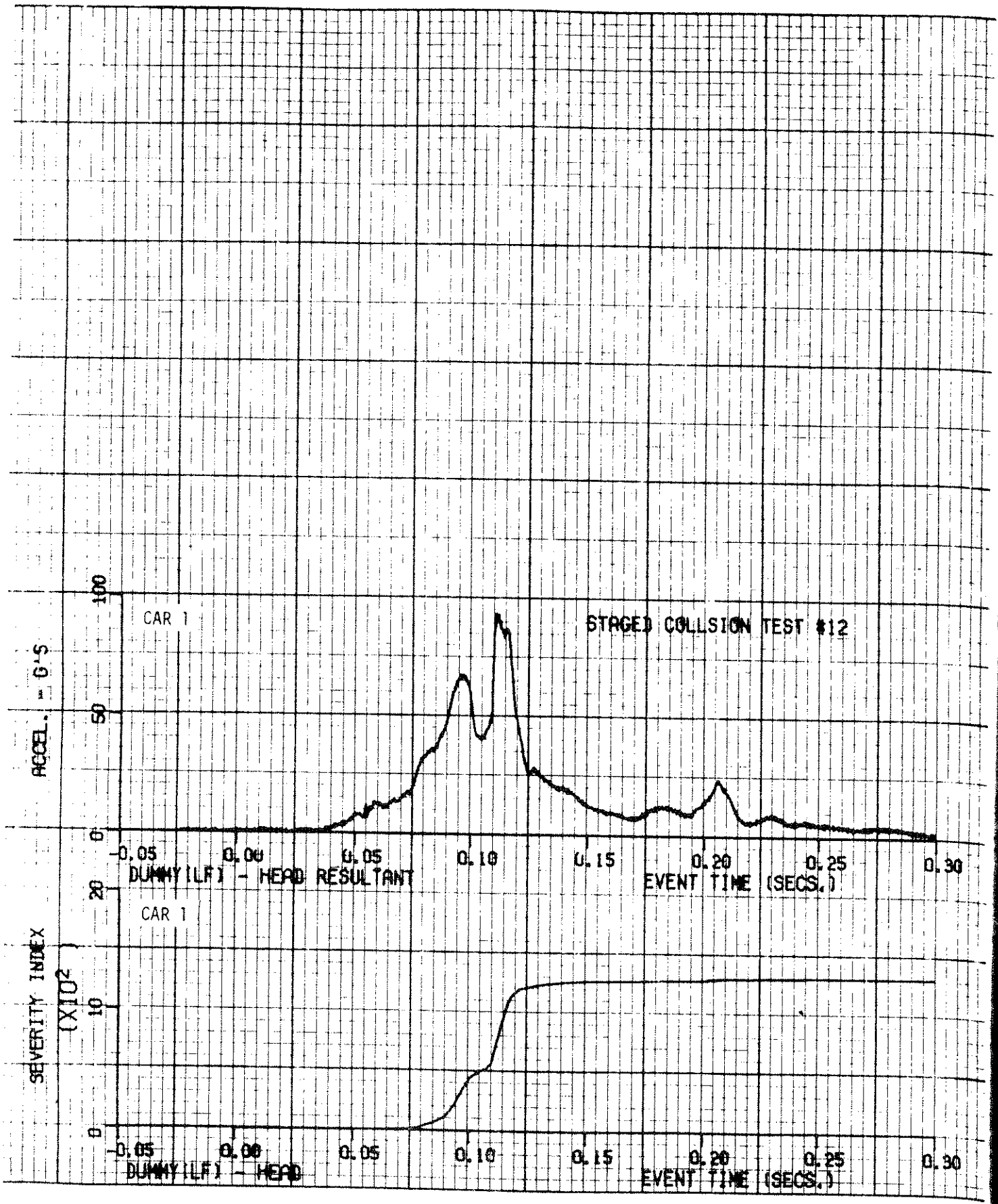
RICSAC TEST NO. 12

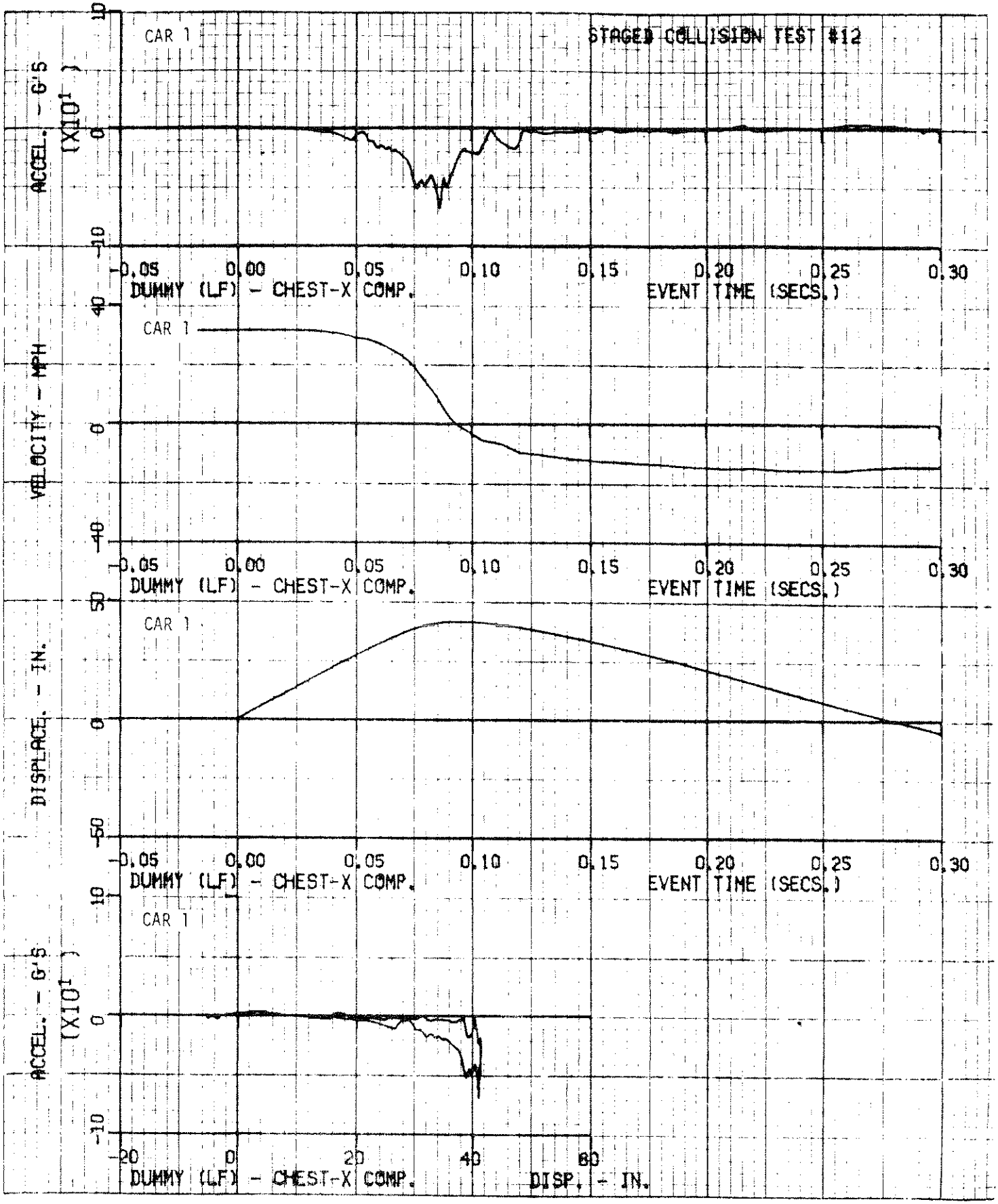
DUMMY DATA

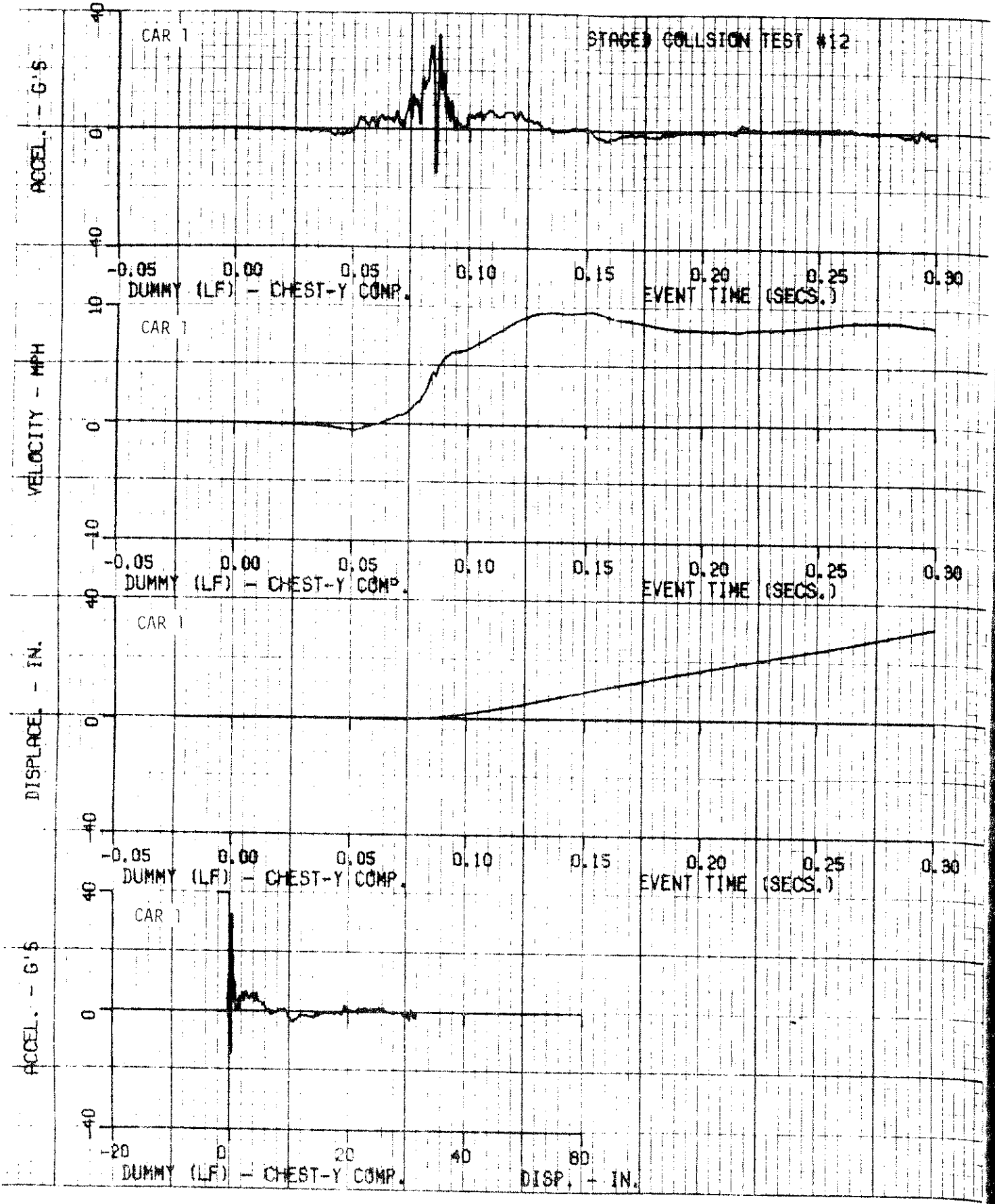
CAR NO. 1 VEGA

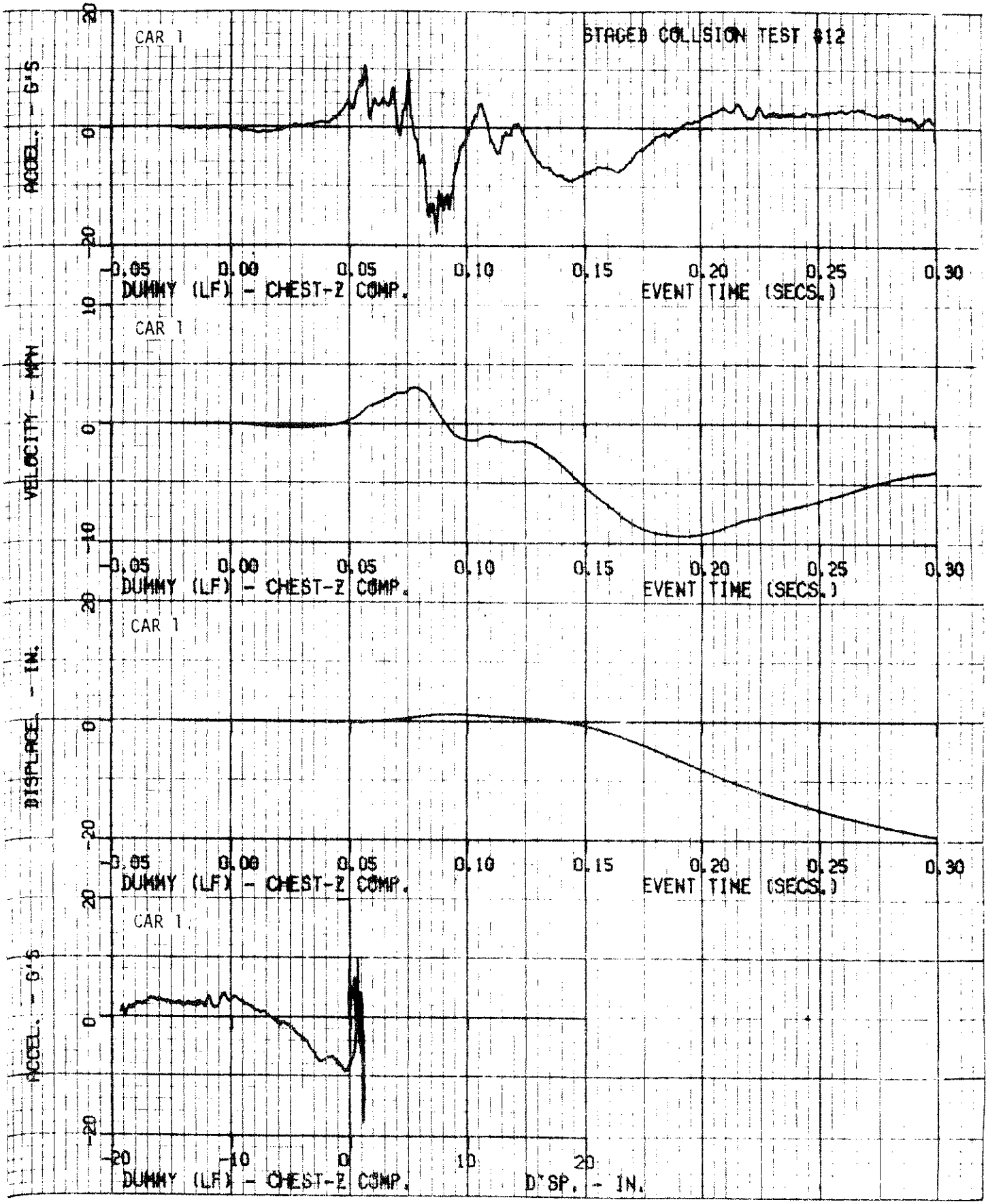
DATA PLOTS		FILTER CLASS
HEAD ACCELERATION	X,Y,X	1000
HEAD RESULTANT		
HEAD SEVERITY INDEX		
CHEST ACCELERATION	X,Y,Z	180
CHEST RESULTANT		
CHEST VELOCITY	X,Y,Z	
CHEST DISPLACEMENT	X,Y,Z	
CHEST SEVERITY INDEX		
PELVIC ACCELERATION	Y	180
PELVIC VELOCITY	X	
PELVIC DISPLACEMENT	X	
FEMUR LOADS	L & R	600

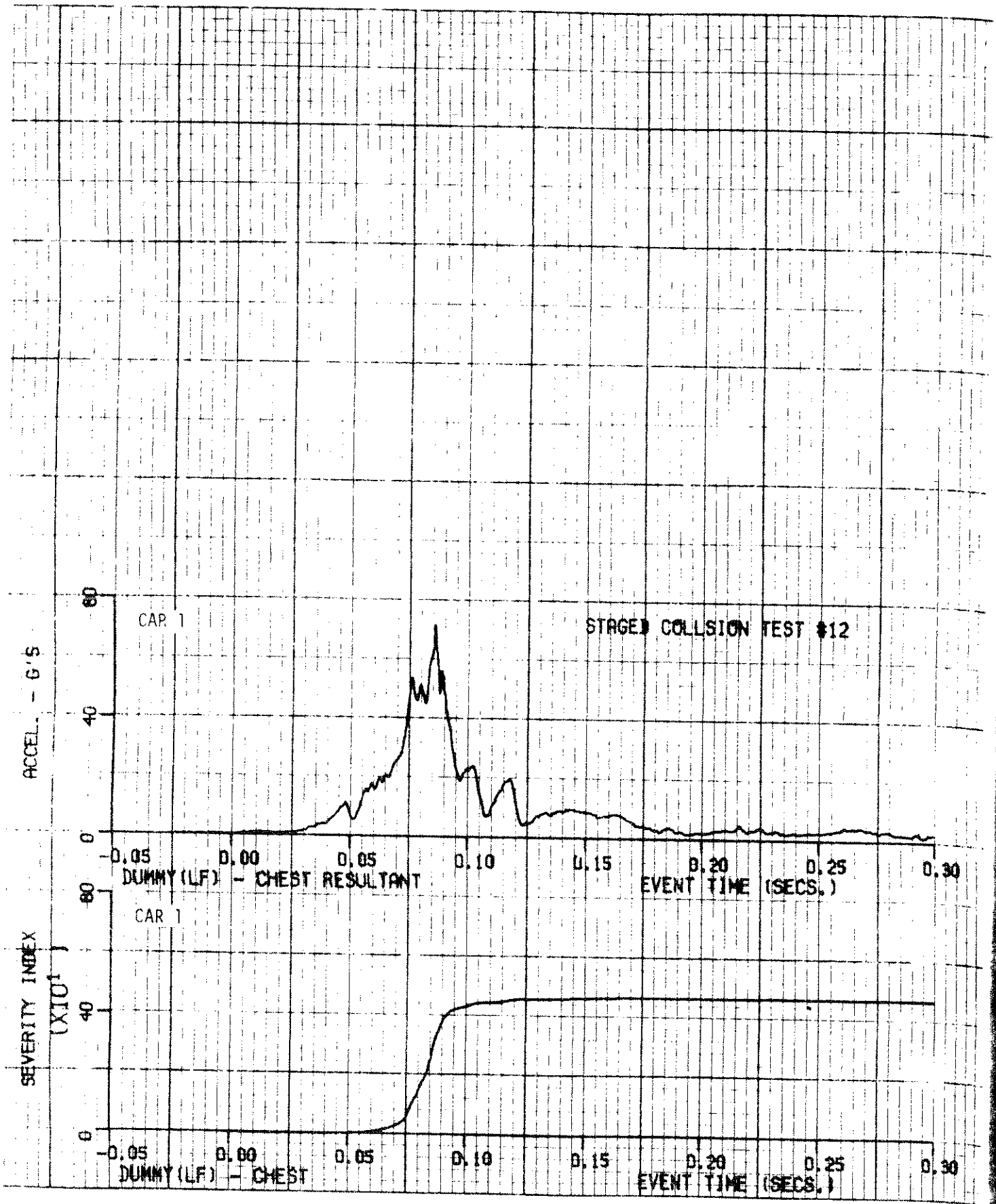

CAR 1
STAGED COLLISION TEST #12
ACCEL. - G'S (X10)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
DUMMY (LF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S (X10)
10
0
-10
DUMMY (LF) - HEAD-Z COMP.
EVENT TIME (SECS.)

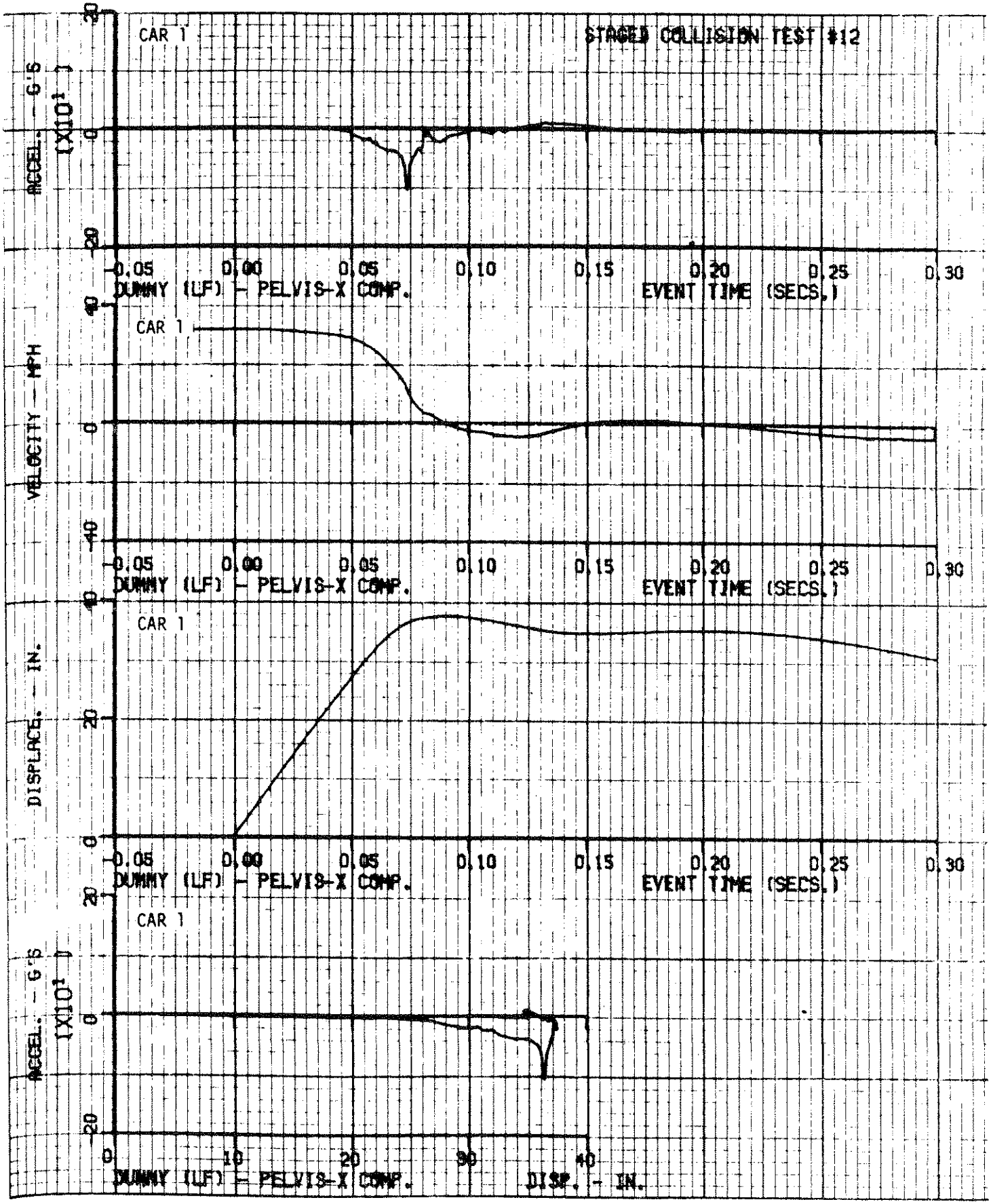

CAR 1
STAGED COLLSION TEST #12
ACCEL. - G'S
100
50
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - HEAD RESULTANT
EVENT TIME (SECS.)
CAR 1
SEVERITY INDEX (X10²)
20
10
0
DUMMY (LF) - HEAD
EVENT TIME (SECS.)

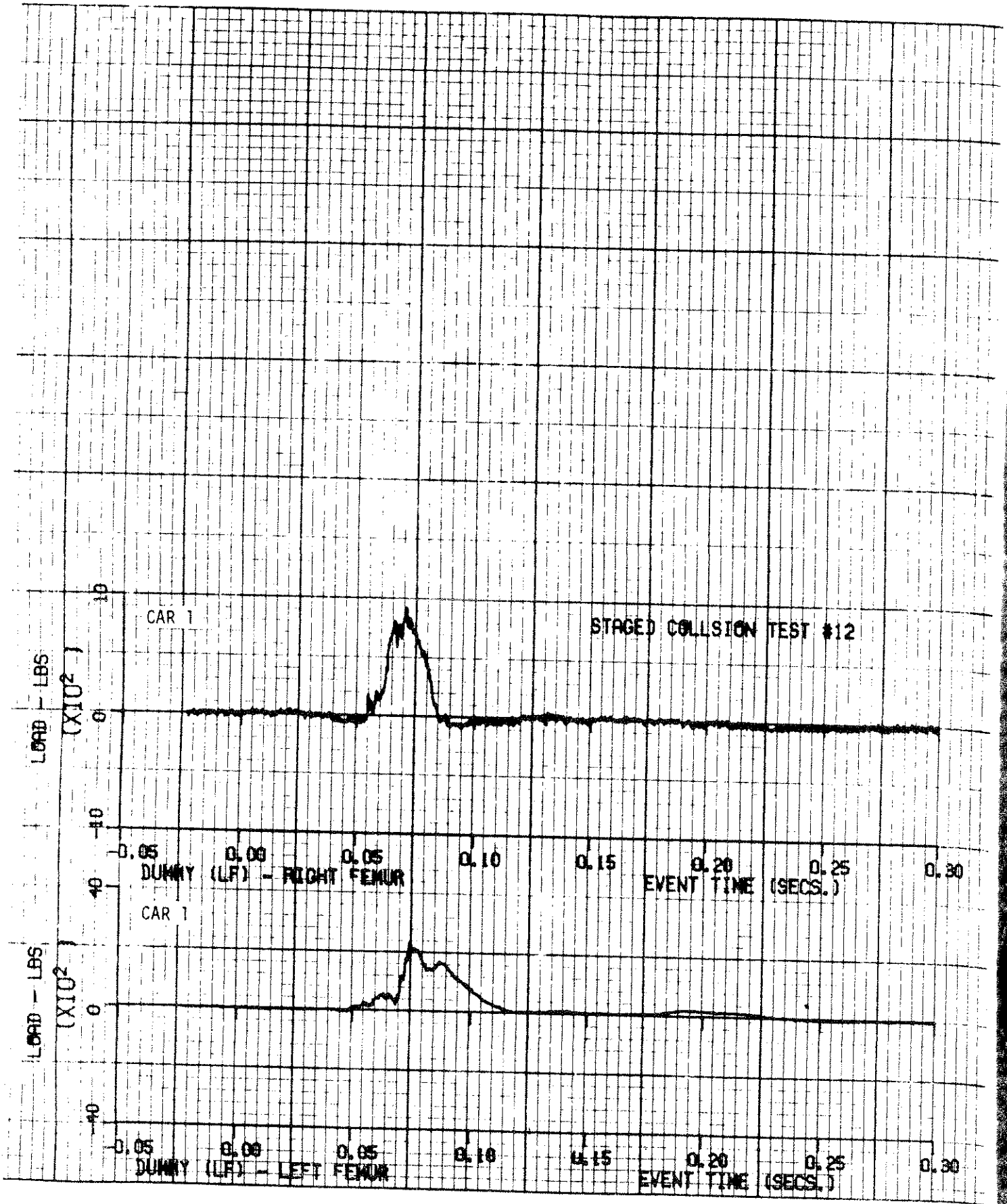

STAGED COLLISION TEST #12
CAR 1
ACCEL. - G'S (X10¹)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-X COMP.
EVENT TIME (SECS.)
VELOCITY - MPH
40
0
-40
DISPLACE. - IN.
50
0
-50
-20
0
20
40
60
DISP. - IN.

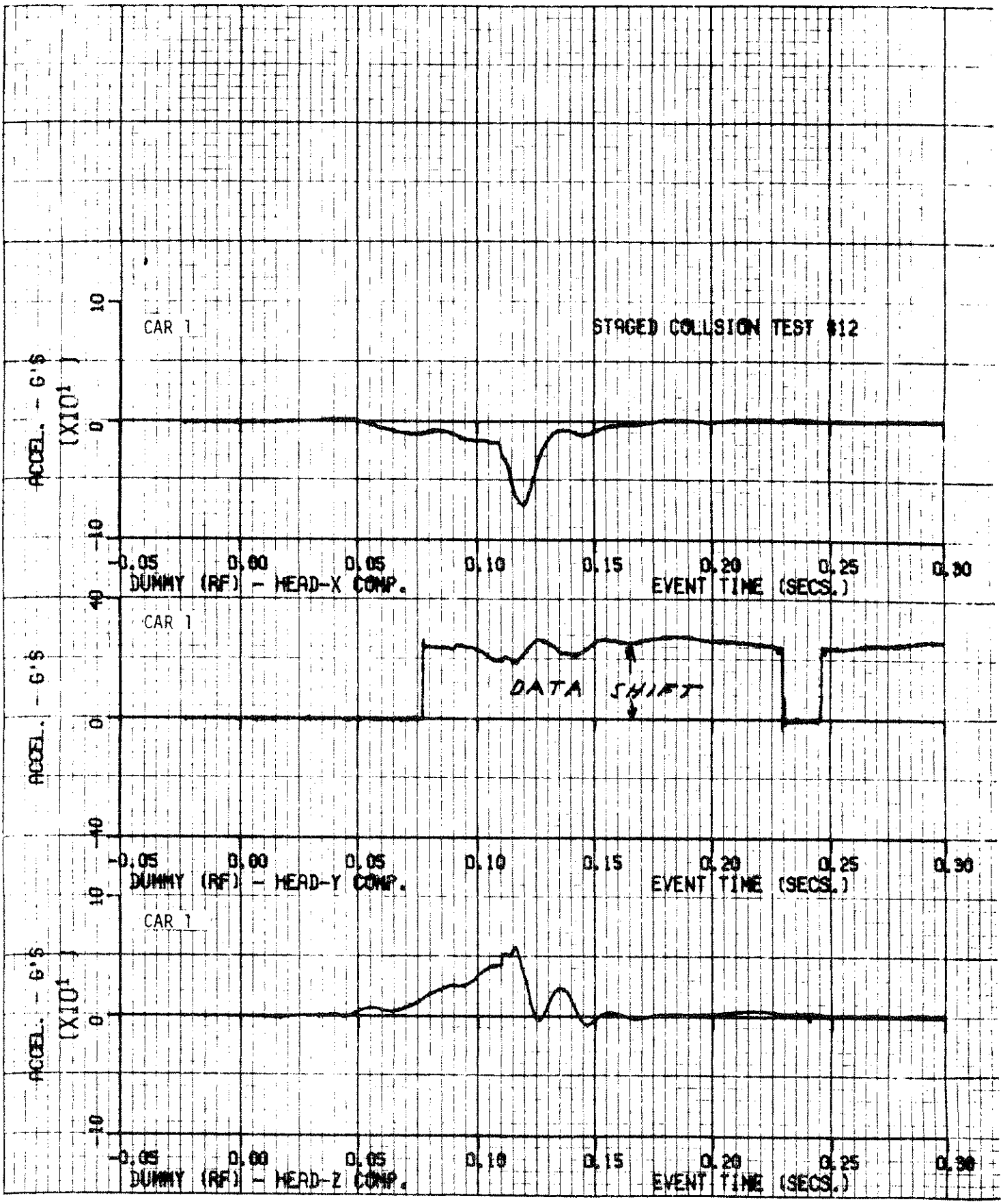

STAGED COLLSION TEST #12
CAR 1
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Y COMP.
EVENT TIME (SECS.)
VELOCITY - MPH
10
-10
DISPLACE. - IN.
-20
20
40
60
DISP. - IN.

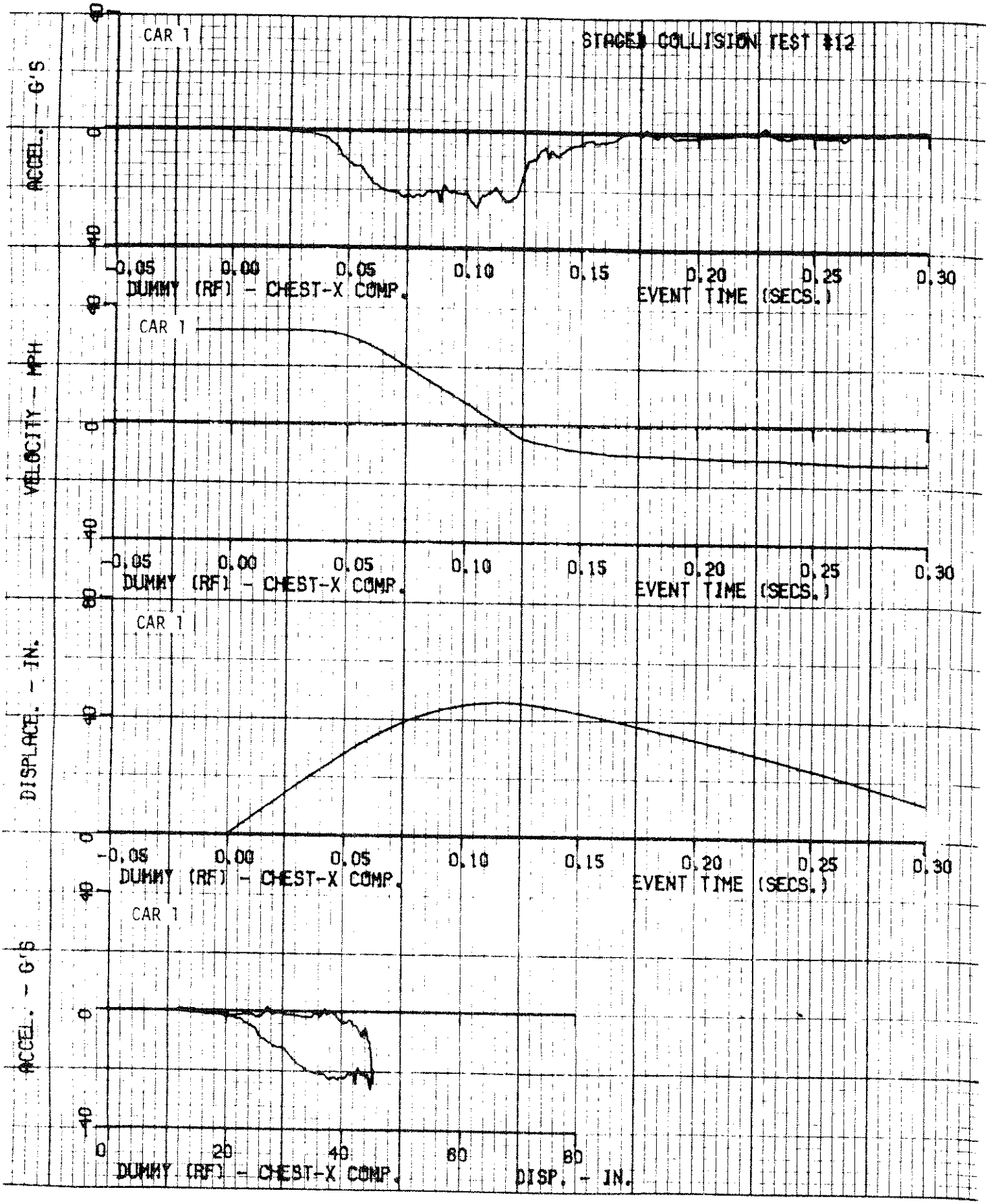

CAR 1
STAGED COLLSION TEST #12
ACCEL. - G'S
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
20
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
0
-20
-20
-10
0
10
20
DUMMY (LF) - CHEST-Z COMP.
DISP. - IN.

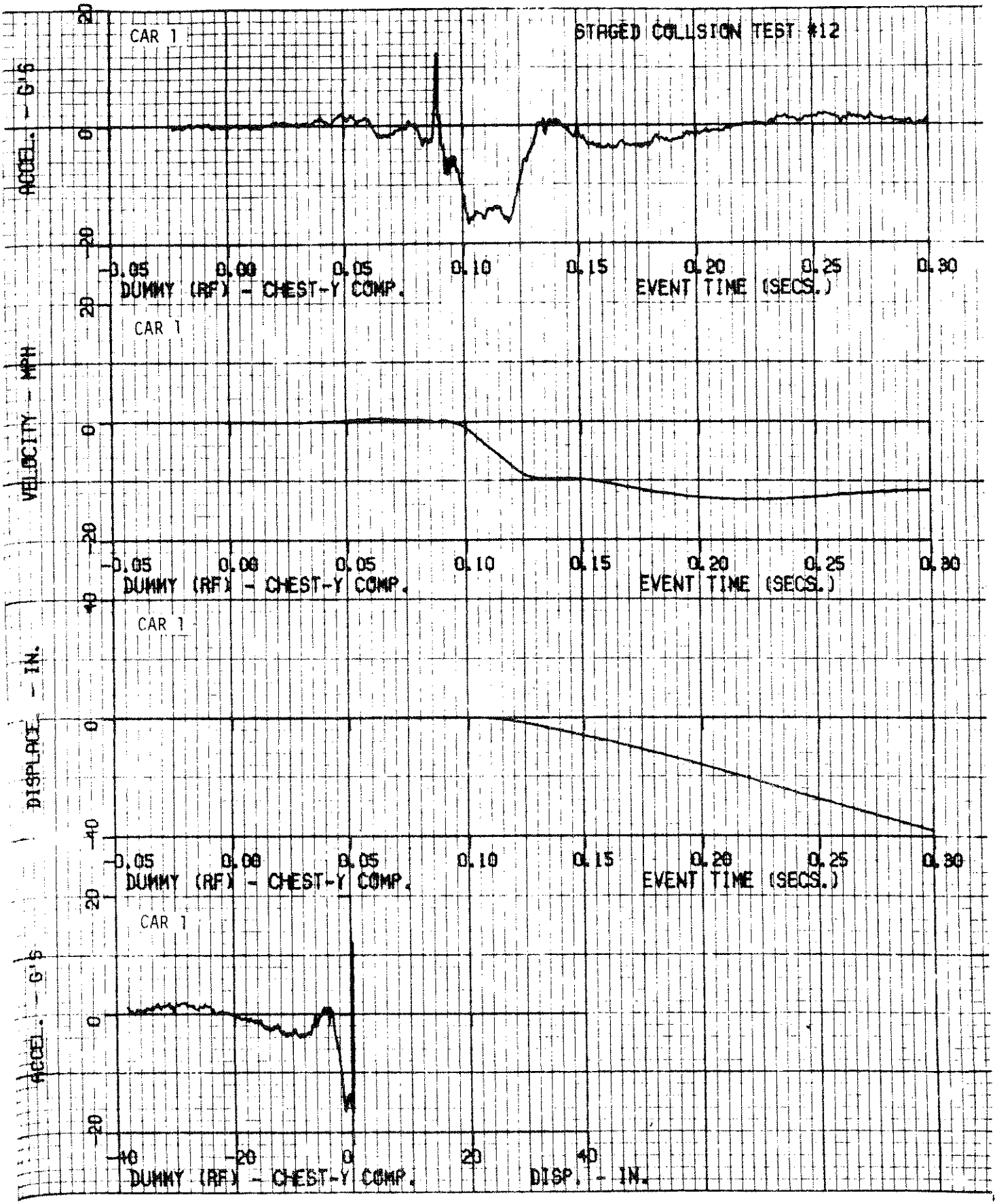

CAR 1
STAGED COLLSION TEST #12
ACCEL. - G'S
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST RESULTANT
EVENT TIME (SECS.)
CAR 1
SEVERITY INDEX (X10¹)
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - CHEST
EVENT TIME (SECS.)

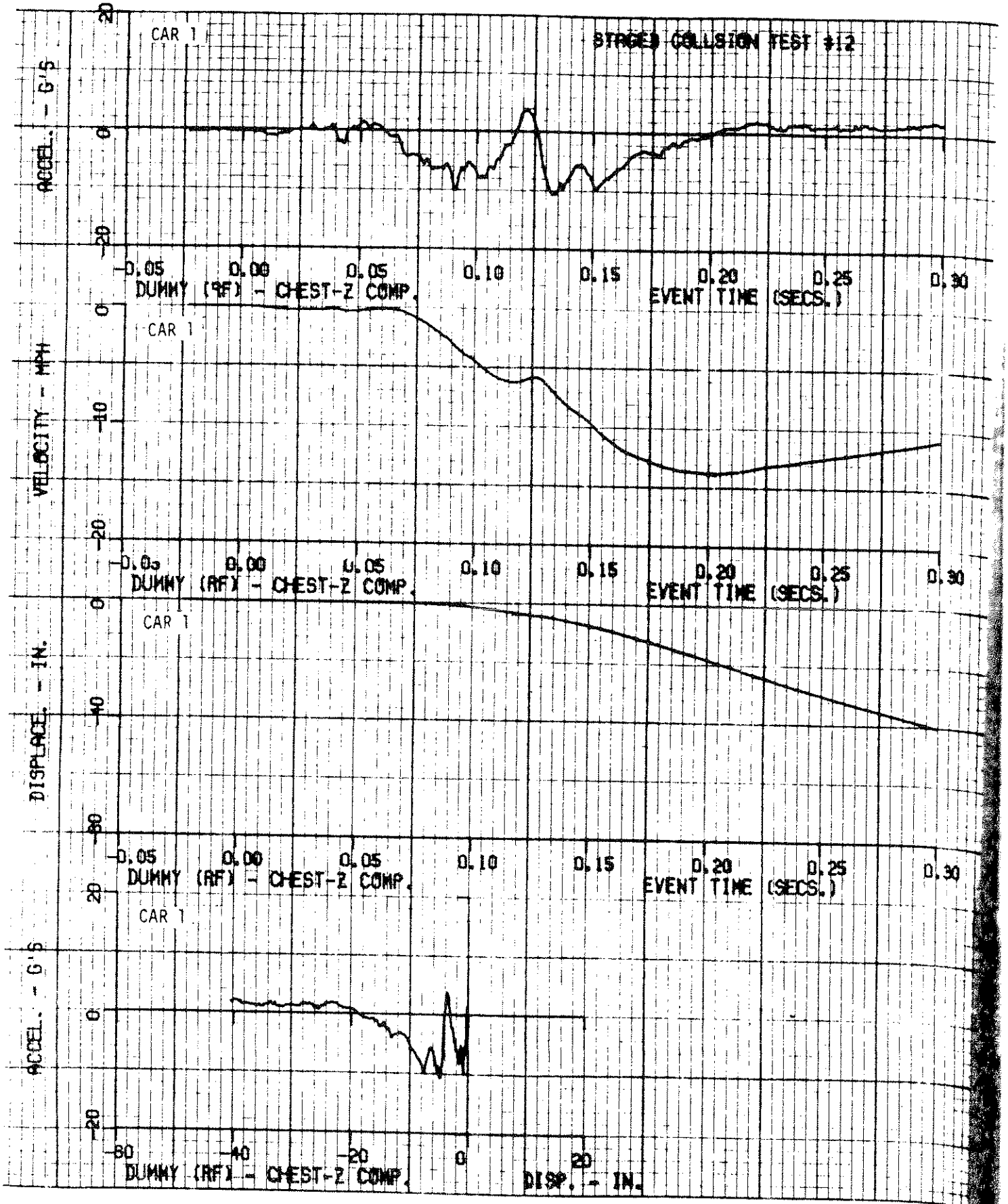

CAR 1
STAGED COLLISION TEST #12
ACCEL. - G'S (X10¹)
20
0
-20
0.05 0.00 0.05 0.10 0.15 0.20 0.25 0.30
DUMMY (LF) - PELVIS-X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
0
-40
0.05 0.00 0.05 0.10 0.15 0.20 0.25 0.30
DUMMY (LF) - PELVIS-X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
40
20
0
0.05 0.00 0.05 0.10 0.15 0.20 0.25 0.30
DUMMY (LF) - PELVIS-X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S (X10¹)
20
0
-20
0 10 20 30 40
DUMMY (LF) - PELVIS-X COMP.
DISP. - IN.

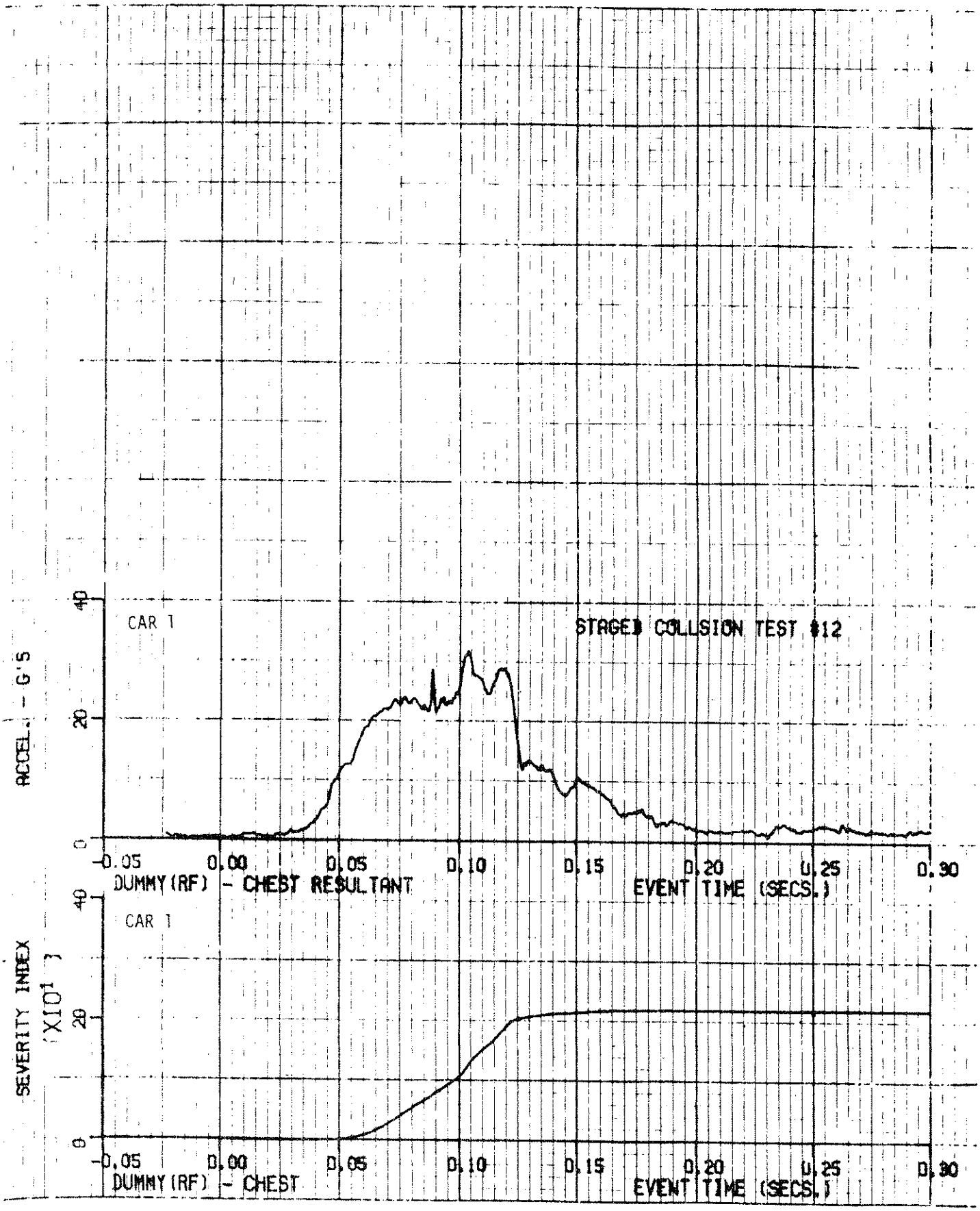

CAR 1
STAGED COLLISION TEST #12
LOAD - LBS (X10²)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 1
LOAD - LBS (X10²)
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (LF) - LEFT FEMUR
EVENT TIME (SECS.)

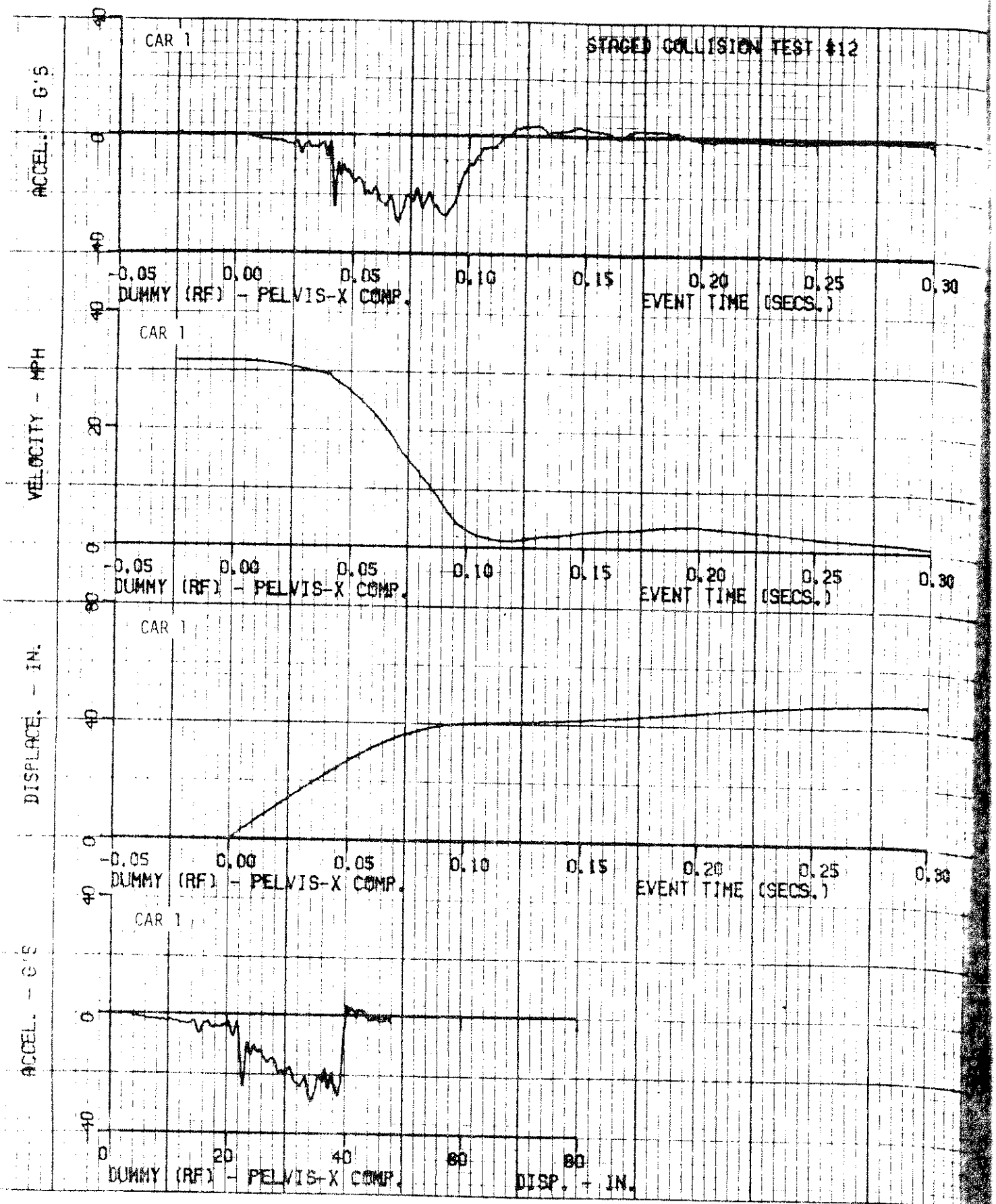

CAR 1
STAGED COLLSION TEST #12
ACCEL. - G'S (X10)
10
0
-10
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - HEAD-X COMP.
EVENT TIME (SECS.)
CAR 1
DATA SHIFT
ACCEL. - G'S
40
0
-40
DUMMY (RF) - HEAD-Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S (X10)
10
0
-10
DUMMY (RF) - HEAD-Z COMP.
EVENT TIME (SECS.)

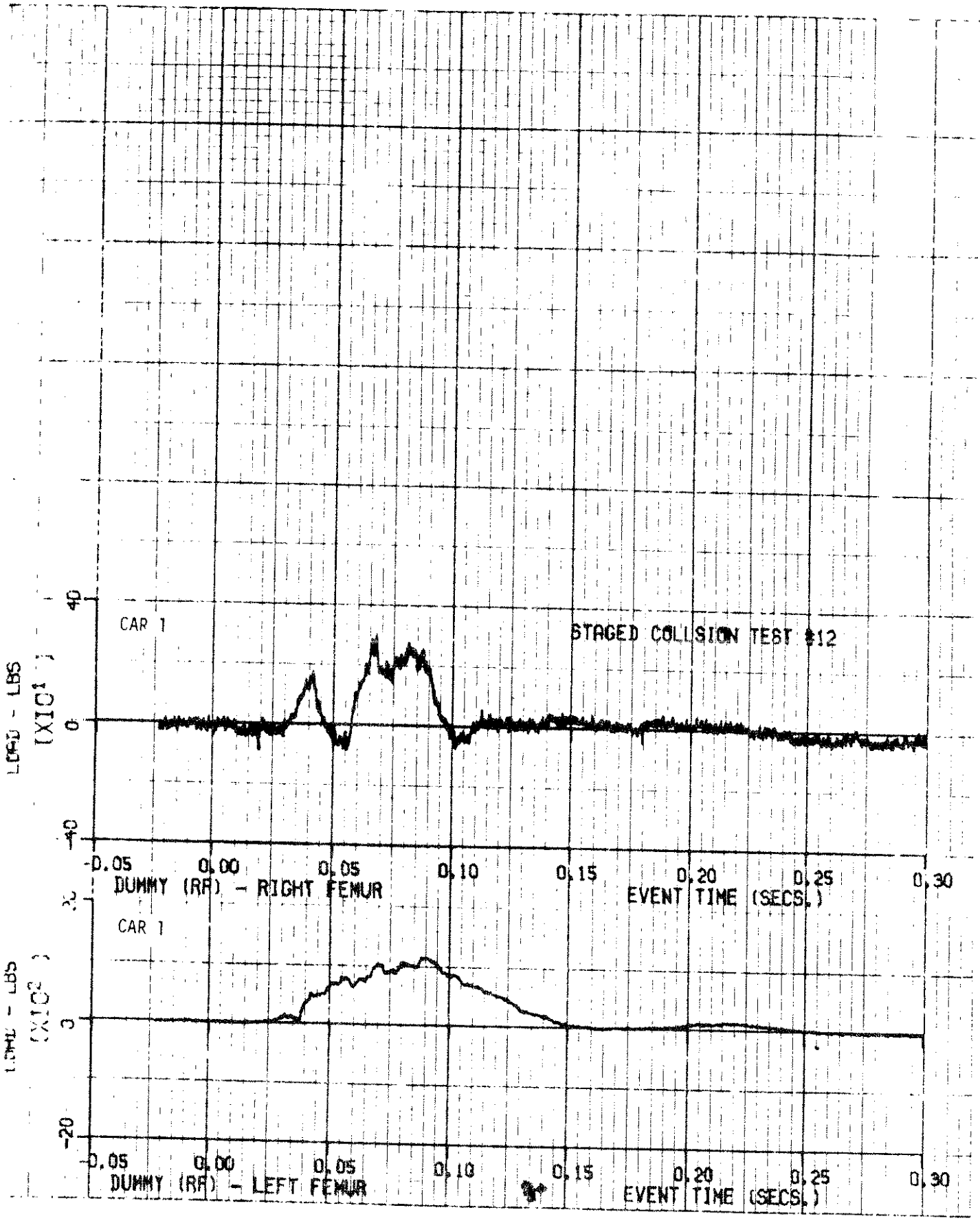

STAGED COLLISION TEST #12
CAR 1
ACCEL. - G'S
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
80
40
0
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - CHEST-X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
0
20
40
60
80
DUMMY (RF) - CHEST-X COMP.
DISP. - IN.


STAGED COLLISION TEST #12
CAR 1
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-Y COMP.
EVENT TIME (SECS.)
CAR 1
VELOCITY - MPH
20
0
-20
DUMMY (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE - IN.
40
0
-40
DUMMY (RF) - CHEST-Y COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
-40
-20
0
20
40
DUMMY (RF) - CHEST-Y COMP.
DISP. - IN.


STAGED COLLISION TEST #12
CAR 1
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 1
VELOCITY - MPH
0
-10
-20
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
0
-10
-20
DUMMY (RF) - CHEST-Z COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
20
0
-20
-60
-40
-20
0
20
DUMMY (RF) - CHEST-Z COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #12
ACCEL. - G'S
40
20
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 1
SEVERITY INDEX
(X10¹)
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.)


STAGED COLLISION TEST #12
CAR 1
ACCEL. - G'S
40
0
-40
-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 1
VELOCITY - MPH
40
20
0
DUMMY (RF) - PELVIS-X COMP.
EVENT TIME (SECS.)
CAR 1
DISPLACE. - IN.
80
40
0
DUMMY (RF) - PELVIS-X COMP.
EVENT TIME (SECS.)
CAR 1
ACCEL. - G'S
40
0
-40
0
20
40
60
80
DUMMY (RF) - PELVIS-X COMP.
DISP. - IN.


CAR 1
STAGED COLLISION TEST #12
LOAD - LBS (X10³)
40
0
-40
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - RIGHT FEMUR
EVENT TIME (SECS.)
CAR 1
LOAD - LBS (X10³)
0
-20
-0.05
0.00
0.05
0.10
0.15
0.20
0.25
0.30
DUMMY (RF) - LEFT FEMUR
EVENT TIME (SECS.)