CALIFORNIA INSTITUTE OF TECHNOLOGY

EARTHQUAKE ENGINEERING RESEARCH LABORATORY

A SELECTION OF IMPORTANT STRONG MOTION EARTHQUAKE RECORDS

David M. Lee
Paul C. Jennings
George W. Housner

REPORT NO. EERL 80-01

A REPORT ON RESEARCH CONDUCTED UNDER A GRANT FROM THE NATIONAL SCIENCE FOUNDATION

PASADENA, CALIFORNIA

JANUARY, 1980

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ABSTRACT

This report is a condensed collection of 45 strong and/or historically important earthquake-generated ground and building motions. These data are presented as accelerogram and integrated velocity and displacement time histories. Linear, absolute acceleration, relative velocity and relative displacement response spectra are given for all the ground motions presented. As a major aim of this report was to allow comparisons of different ground motions, the time history and response spectra plots were plotted, wherever possible, to fixed vertical and horizontal scales.

A short introduction is given to earthquake recording instruments and recording networks using these devices. The sources from which the data in this report were drawn are identified and information given to enable one to obtain printed copies or magnetic tape copies of these data or any of the other earthquake data recorded in the U.S.

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A SELECTION OF IMPORTANT STRONG-MOTION EARTHQUAKE RECORDS

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INTRODUCTION

In the field of earthquake engineering the real dynamic test of structures occurs when they are subjected to strong ground shaking from a major earthquake. An earthquake provides a full-scale test which may cause damage, or even collapse. Ideally, when a strong earthquake occurs it would be desirable to have many structures instrumented to record the base motions and the resulting structural vibrations. However, not knowing where and when earthquakes will occur and having limited finances for installation and maintenance of instruments, it is only occasionally possible to obtain such recordings in the region of strongest ground shaking. Many more records have been obtained in regions where moderately strong ground shaking has occurred. A study of strong-motion records can be very helpful to engineers in developing an understanding of the nature of earthquake ground shaking and the nature of building response. These records comprise the basic data of earthquake engineering. The accelerograms of strong ground shaking define the forces that would be applied to structures, and the records of structural response define the earthquake behavior of real structures. Such records enable the performance of structures to be judged and the adequacy of building code requirements to be assessed.

The first strong-motion accelerogram was recorded during the Long Beach earthquake of 1933 and since that time several hundred records have been obtained. These records have provided a greatly increased understanding of the significant characteristics of strong ground motion and structural response. The objective of this report is to collect together, from a variety of sources, a set of the more important and commonly used strong-motion records and to present them in a single volume in a form suitable for comparison and study.

The records were selected to include most of the stronger motions obtained in the United States from ground sites and from the basements of buildings, along with other records which illustrate important characteristics of strong ground motion. A representative sample of recorded building responses was also included to illustrate the nature of the responses of structures to strong ground motion.

The data presented are the corrected accelerogram records and the derived velocity and displacement records. Acceleration, velocity and displacement response spectra are given for those accelerograms which were recorded on the ground or in the basements of buildings. The intent of this presentation is to provide engineers and geo-scientists with an informative and useful selection of strong-motion data.

The Strong-Motion Accelerometer

The basic strong-motion recording instrument is the accelerometer of which there are several varieties in use. The most common form records the three mutually perpendicular components of acceleration; such as N-S, E-W and vertical; onto 70 mm photographic film. Also recorded are reference baseline traces and internally-generated timing marks. The recording sensitivity is most commonly set to record ±1g maximum and the instrument is self starting, triggered by accelerations of about ±0.01g. The transducers in modern accelerometers typically have a natural frequency near 25 Hz and damping of the order of 60 percent of critical. These characteristics enable the instrument to record, without distortion, accelerations whose frequencies range from the very low, up to 25 Hz. Some of the pre-1967 accelerographs had natural frequencies of about 10 Hz and hence could not record the higher frequency ground motions. The electric power for the accelerometers is usually provided by batteries which are kept at peak charge by slow acting chargers connected to standard power outlets. In a reasonably well-maintained network of accelerometers, experience has shown that 90 percent or more of the instruments can be expected to function satisfactorily.

Figure 1 shows typical accelerograms from a strong-motion array.

Instrument Networks

The agency principally responsible for the deployment and maintenance of strong-motion instruments and the processing of the records obtained, is the Seismic Engineering Branch of the U.S. Geological Survey which is funded by the National Science Foundation. This agency installs and maintains its own instruments and performs similar services for instruments owned by other organizations. Another agency which operates a program of similar size and scope is the Office of Strong-Motion Studies, California Division of Mines and Geology. Other smaller networks are operated by the City of Los Angeles, university research groups and public utilities.

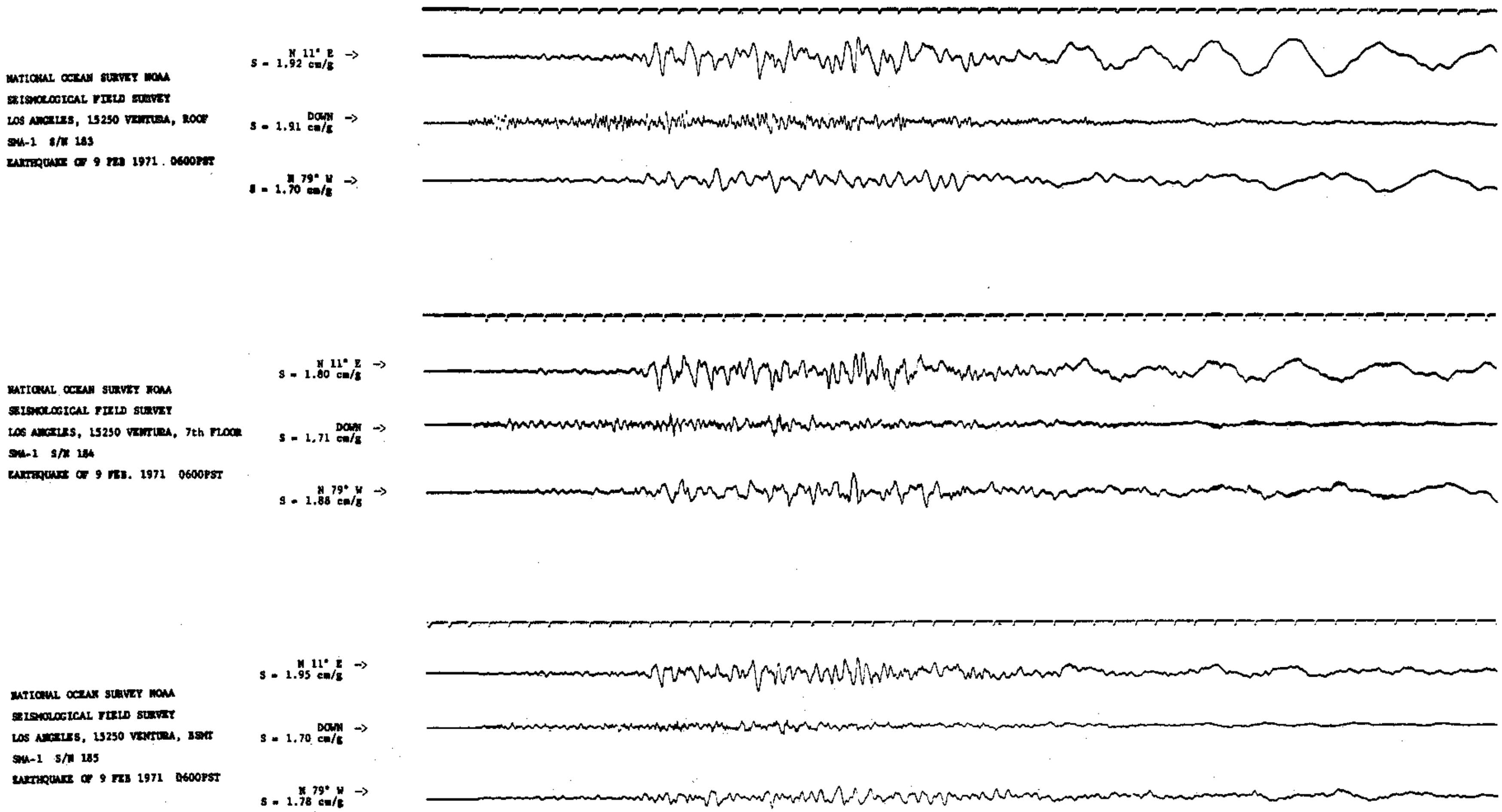

Figure 1 Photocopies of accelerograms recorded during the San Fernando earthquake of 9 February 1971. Corrected accelerograms for these motions are contained in the report.

In addition, many buildings and dams have been instrumented by their owners. Accelerometer networks exist in several foreign countries including Japan, Mexico, Yugoslavia, Iran, Italy, New Zealand, Peru, Chile, People's Republic of China and Soviet Russia among others.

The Seismic Engineering Branch maintains approximately 600 strong-motion installations. A little over 200 of these installations belong to the Seismic Engineering Branch, with the remainder being owned by other agencies but maintained by the Seismic Engineering Branch on a contract basis.

The State of California's strong-motion recording program was established in 1972 and the Office of Strong-Motion Studies now operates a network of over 300 installations. In the last year this office has also developed the capability for processing the data from its network and for disseminating the results.

The largest of these other networks is that run by the City of Los Angeles which maintains instruments in approximately 160 tall buildings within its jurisdiction.

Strong-Motion Records

The Seismic Engineering Branch of the U.S. Geological Survey has the primary responsibility for collecting and cataloging strong-motion records. They do this not only for their own network but also for the other networks as well. In addition, the Seismic Engineering Branch tries to obtain copies of important records obtained in foreign countries.

The Seismic Engineering Branch has in its archives approximately 3,000 records recorded from about 750 separate events. With a few exceptions, each record contains three components of ground acceleration. Of these records about 800 are from upper stories of buildings, crests of dams, etc., leaving over 2,000 records of basement or free-field motion. Approximately 100 of the records are from foreign stations. As might be expected, most of these records are of small motions and of the over 2,000 ground-level accelerograms only about 250 are classified as being significant on the basis of having a peak acceleration of 10 percent g or more, or of being of special interest. On the same basis, some 200 of the approximately 800 records of structural response are classified as significant.

On this basis there are about 450 significant records, with about half of these coming from the San Fernando earthquake of February 9, 1971. Most of the records, including the San Fernando data and nearly all of the records prior to 1971, were digitized and processed at the California Institute of Technology. About 420 digitized and processed records are stored on computer tapes which can be obtained from the Environmental Data Service (EDS-NOAA) at Boulder, Colorado. Tape files also exist at the Seismic Engineering Branch and at the National Information Service for Earthquake Engineering (NISEE) which has facilities at the University of California, Berkeley, and at the California Institute of Technology.

Developments in the strong-motion network and additions to the strong-motion data set are published in the program reports of the Seismic Engineering Branch[1] and in the publications of the California Office of Strong-Motion Studies.[2]

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1. Available free on application from Branch of Distribution, U.S. Geological Survey, 1200 South Eads St., Arlington, Virginia 22202.

2. Office of Strong-Motion Studies, California Division of Mines and Geology, 2811 O Street, Sacramento, California 95816.

The Caltech Data Reports

Nearly all of the significant records obtained up to and including 1971 have been published in report form in a project directed by Professor Donald E. Hudson.[3] This extensive series of reports consists of 77 individual reports, including an index volume, and occupies about four linear feet of shelf space. These data reports contain accelerograms, integrated velocities and displacements, and response and Fourier spectra of 381 strong-motion records obtained in the United States up to and including the San Fernando earthquake of February 9, 1971. One of the main objectives of the project was to produce integrated velocity and displacement curves, response spectra and Fourier spectra, all evaluated and presented in a standardized manner. It was hoped that this set of data would allow all investigators to begin with the same basic information thereby aiding comparisons of research results. A chronological list of the earthquakes which produced the records in the reports, together with other information is given in Table A1, which is adapted from Table I given by Hudson in the Index Volume to the data reports.

The information presented in the reports was organized into four volumes, each with 25 parts.

Volume I: Uncorrected Digitized Accelerograms - Listing of data and plots of the digitized records.

Volume II: Corrected Accelerograms - Plots and listings of accelerograms and integrated velocities and displacements.

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3. Hudson, D. E., M. D. Trifunac, and A. G. Brady (1969 to 1976). Analysis of strong-motion accelerograms, Vol. I, Parts A-Y, Vol. II, Parts A-Y, Vol. III, Parts A-Y, Vol. IV, Parts A-Y, Index Vol. (EERL Report 76-02), Earthquake Engineering Research Laboratory, California Institute of Technology, Pasadena.

Volume *III*: *Response Spectrum Curves - Listing of data and* linear and tripartite logarithmic plots of response spectra.

Volume IV: Fourier Amplitude Spectra - Linear and logarithmic plots of Fourier spectra.

The sites at which the records were obtained are given in Table A2, also taken from the Index Volume. In Tables A1 and A2 the letters A,B,C,... refer to the individual parts of each volume. For example, if one were interested in data from the El Centro earthquake of 1934, which from Table A1 has a reference number of B024, one would look under this number in volumes *IB*, *IIB*, *IIIB* and *IVB*.

It should be noted that part A of each volume contains introductory and background information, including details of methods used, applications of the data, references, etc. *Volume II, Part G, contains additional* information on the calculation of long-period errors, and Volume IV, Parts Q, R and S contain further studies of high frequency errors.

All of these data reports are available in either book form or on microfiche from the National Technical Information Service (NTIS).[4] Table A3 lists the NTIS numbers, which will faciltate ordering from this source. The same basic data set is also available in digitized form on magnetic tapes supplied by the Environmental Data Service.[5]

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4. National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia, 22151.

5. EDS/NOAA, National Geophysical and Solar-Terrestrial Data Center (1062), Boulder, Colorado, 80302.

FORMAT OF THIS REPORT

In the Caltech data reports and in most subsequent publications, the time histories and response spectra of ground motions were plotted to varying vertical and horizontal scales, both chosen so that the resulting plot would fully occupy the available page space. While this method was virtually required for a large project like the production of the data reports, it tends to make all the plots of a given type appear the same. The reader cannot, from a visual comparison of a number of plots, easily appreciate what is a large, medium or small earthquake, or determine how the dominant periods of one earthquake record compare to those of another. Such information tends to be obscured by the plotting process. The wide and very real variability of amplitude, duration and general appearance of different accelerograms can be clearly seen in Figure 2.[6] In order to preserve the variability of ground motion and structural response within this report, nearly all the diagrams within a given section have been plotted to fixed vertical and horizontal scales. For the rare case where the diagrams were very large, the chosen scales were increased. Whenever this was necessary, a statement indicating a change of scale has been printed on the diagram itself.

The report is divided into four sections of which the first three contain ground motion data while the fourth contains building response data. Specifically, these sections are:

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6. Hudson, D. E., Reading and Interpreting Strong Motion Accelerograms, Earthquake Engineering Research Institute, 1979.

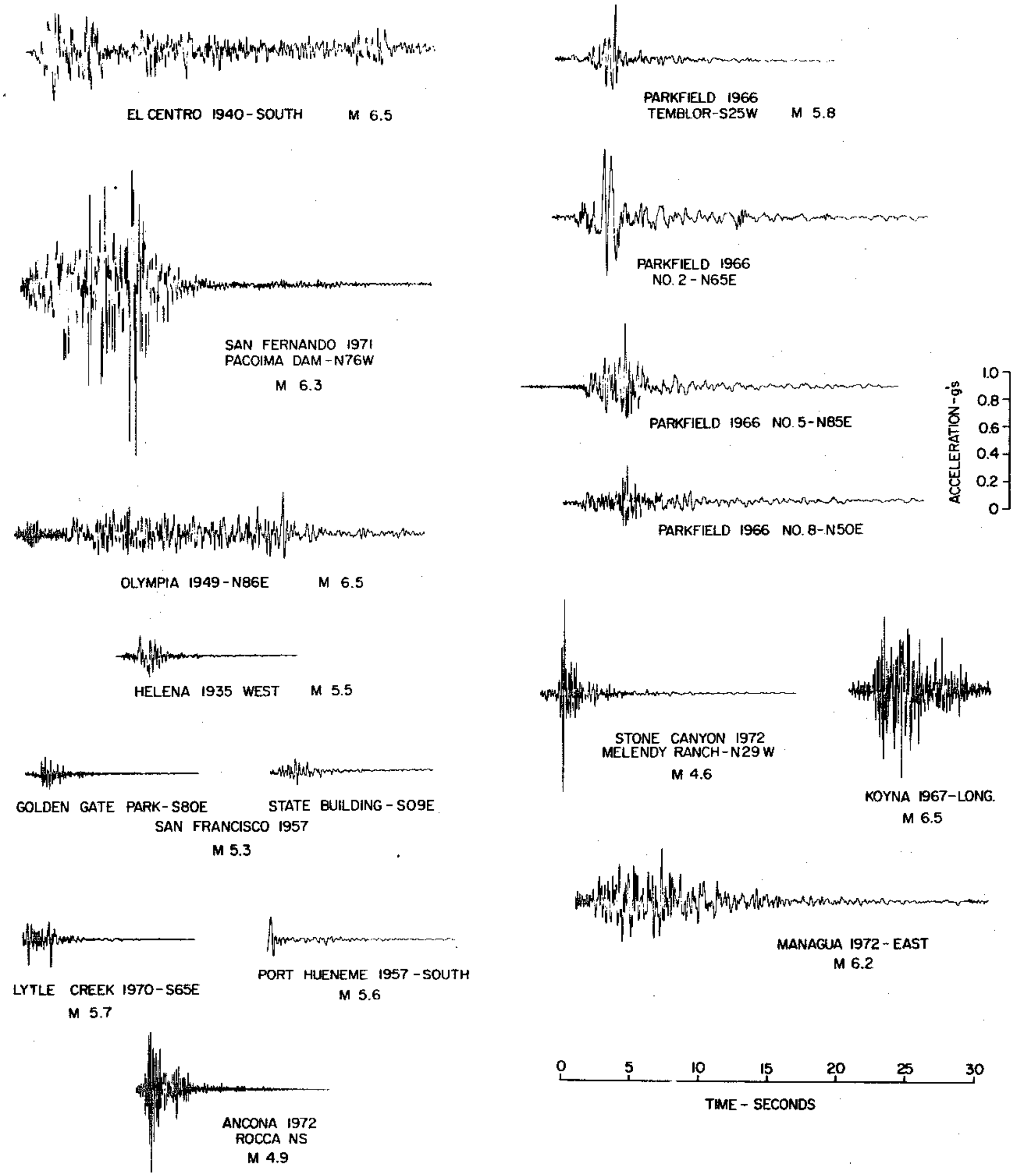


FIGURE 2 EARTHQUAKE GROUND ACCELERATIONS IN EPICENTRAL REGIONS.

Section	Contents
1	Accelerograms from free field sites and building basements.
2	Linear plots of absolute acceleration, relative velocity and relative displacement response spectra, for the free-field and basement records of Section 1.
3	Accelerograms, together with integrated velocities and displacements, for the free-field and basement records of Section 1.
4	Accelerograms, integrated velocities and displacements, for building basement and upper floor records.

The strong-motion ground and basement records selected for inclusion in this report are listed in Table 1 at the beginning of Section 1 and the selected building motion records are listed in Table 2 at the beginning of Section 4.

ACKNOWLEDGMENTS

The authors wish to thank Dr. A. G. Brady of the U.S. Geological Survey at Menlo Park for providing accelerograms for inclusion in this report and for other information. Recently recorded building motions were kindly provided by Mr. L. D. Porter of the Office of Strong-Motion Studies, California Division of Mines and Geology. Finally, thanks are extended to Mr. Moh-jiann Huang for his aid in preparing plots for the report.

Financial support for this project was provided by the National Science Foundation under grant AEN77-07472 and by the Earthquake Research Affiliates of the California Institute of Technology. Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the authors and do not necessarily reflect the views of the National Science Foundation.

SECTION 1

FREE-FIELD AND BUILDING BASEMENT ACCELEROGRAMS

In this section the accelerograms of selected free-field and building basement records are presented. The maximum accelerations, velocities and displacements of these records are listed in order in Table 1. In all but three cases the records are plotted on acceleration-time axes which have maximum values of 0.5g and 40 seconds, respectively. The exceptions to this rule are the Cholame-Shandon Array No. 2 records from the Parkfield earthquake for which the acceleration axes have a maximum value of 0.8g, the Pacoima Dam records from the San Fernando earthquake for which the acceleration axes have a maximum of 1.2g and the Inpres, San Juan record from the Argentina earthquake for which the time axis has a maximum value of 60 seconds.

It should be noted that due to an instrument malfunction the N25W component of motion was not recorded at Cholame-Shandon Array No. 2 during the Parkfield earthquake.

The final records in this section were obtained from the basement of the North Hall building at the University of California, Santa Barbara. This building was instrumented by the Office of Strong-Motion Studies of the California Division of Mines and Geology. The instrumentation includes nine single-axis accelerometers, four of which were located at ground level. These four transducers are arranged so that instruments 2, 3 and 1 provide accelerograms of the vertical, east-west and north-south motion of the center of the building's ground floor slab, while instrument 4 provides an accelerogram of the north-south motion of the west end of this slab. Details of the installation and other information are available from the above office on request.[7]

7. Porter, L. D., J. T. Ragsdale, and R. D. McJunkin, "Processed data from the strong-motion records of the Santa Barbara earthquake of 13 August 1978. Final Results," Calif. Div. of Mines and Geology, Special Report 144, Vol. 1-3 (1979).

Table 1

The Free Field and Building Basement Records Presented in Sections 1, 2 and 3, With Their Maximum Accelerations, Velocities and Displacements

Date	Earthquake	Recording Site	Component	Max. Acceln. (cm/s/s)	Time (sec)	Max. Velocity (cm/s)	Time (sec)	Max. Displ. (cm)	Time (sec)
1933 MAR 10	Long Beach	Vernon CMD Bldg.	Down	149.5	1.00	12.0	1.44	7.4	2.18
			S08W	130.6	1.88	29.0	6.66	-15.5	5.60
			N82W	-151.5	2.14	17.3	1.90	-17.5	1.70
1934 DEC 30	Lower California	El Centro, Imperial Valley	Vert	-68.1	3.40	-8.8	3.48	-5.6	4.48
			S00W	-156.8	3.32	-20.9	2.90	-4.2	3.20
			S90W	-179.1	15.12	11.6	3.18	-3.7	16.50
1935 OCT 31	Helena, Montana	Carrol College	Down	87.5	2.32	-9.7	2.26	2.8	1.70
			S00W	143.5	3.04	7.3	1.92	1.4	2.36
			S90W	142.5	2.42	-13.3	1.82	-3.7	2.32
1940 MAY 18	Imperial Valley	El Centro	Vert	-206.3	0.98	-10.8	3.26	-5.6	3.42
			S00E	341.7	2.12	33.4	2.18	10.9	8.58
			S90W	210.1	11.44	-36.9	2.14	-19.8	3.00
1949 APR 13	Western Washington	Seattle, Distr. Engs. Office	Vert	-22.0	12.16	2.4	16.96	-2.3	54.28
			S02W	66.5	10.46	8.2	10.66	2.4	25.26
			N88W	-65.9	12.90	7.9	12.80	2.7	39.94
1949 APR 13	Western Washington	Olympia, Hwy. Test Lab	Down	90.6	0.14	7.0	0.74	4.0	2.58
			N04W	161.6	10.94	21.4	11.04	-8.6	10.68
			N86E	-274.6	19.62	-17.1	8.46	10.4	7.30
1952 JUL 21	Kern County	Pasadena, Caltech Athenaeum	Vert	29.3	19.32	-4.5	24.90	-3.0	16.18
			S00E	-46.5	17.34	-6.2	23.62	2.7	20.98
			S90W	-52.1	16.70	9.1	16.56	-2.9	18.52
1952 JUL 21	Kern County	Taft, Lincoln School Tunnel	Vert	102.9	9.76	6.7	7.80	-5.0	41.56
			N21E	152.7	9.10	-15.7	3.40	-6.7	44.14
			S69E	175.9	3.70	-17.7	3.56	-9.2	44.12
1952 JUL 21	Kern County	Santa Barbara Court House	Vert	43.6	8.12	5.0	9.78	2.2	12.80
			N42E	-87.8	11.58	-11.8	17.10	4.6	9.90
			S48E	128.6	6.98	19.3	13.44	-5.8	8.92
1952 JUL 21	Kern County	Hollywood Storage Bsmt.	Vert	22.5	21.98	-4.2	11.52	-2.2	12.22
			S00W	-54.1	13.28	-6.1	26.04	-5.1	35.80
			N90E	43.5	12.92	9.4	13.66	-5.9	12.50
1952 JUL 21	Kern County	Hollywood Storage P.E. Lot	Vert	-20.3	18.06	3.0	13.12	-3.4	50.38
			S00W	-58.1	13.30	-6.6	26.10	-4.5	35.90
			N90E	41.2	12.98	8.9	13.20	6.4	14.62
1957 MAR 22	San Francisco	Golden Gate Park	Vert	37.2	1.18	-1.2	1.80	-0.7	18.24
			N10E	-81.8	1.34	-4.9	1.40	-2.3	1.94
			S80E	-102.8	1.44	-4.6	1.50	-0.8	2.56
1959 AUG 17	Bozeman, Montana	Engr. Bldg., State College	Vert	28.4	19.80	5.2	34.80	5.9	22.62
			N00E	52.7	27.12	-7.7	36.16	6.5	34.92
			N90E	-39.1	28.54	-4.2	24.16	-3.4	25.98
1965 APR 29	Puget Sound	Olympia, Hwy. Test Lab.	Vert	-59.9	0.24	-3.0	0.32	1.7	42.78
			S04E	134.2	7.24	8.1	8.58	-2.7	37.86
			S86W	-194.3	6.42	13.1	8.06	-3.8	7.40
1966 JUN 27	Parkfield, California	Cholame, Shandon Array No. 2	Down	-202.2	2.80	-14.1	6.32	4.3	6.10
			N65E	-479.6	3.74	-78.1	4.46	26.5	4.18
			N25W	---	----	not recorded		---	----
1966 JUN 27	Parkfield, California	Cholame, Shandon Array No. 5	Down	-116.9	6.20	7.3	7.86	-3.4	6.88
			N05W	-347.8	7.40	-23.2	7.50	-5.3	10.64
			N85E	-425.7	7.50	-25.4	7.60	-7.1	10.12
1966 JUN 27	Parkfield, California	Cholame, Shandon Array No. 8	Down	77.7	2.30	4.5	5.36	2.1	6.26
			N50E	-232.6	4.64	10.8	1.64	4.4	3.14
			N40W	-269.6	4.54	11.8	6.04	-3.9	16.18
1966 JUN 27	Parkfield, California	Cholame, Shandon Array No. 12	Down	44.6	4.78	5.0	23.82	-2.6	23.10
			N50E	-52.1	6.64	7.0	16.48	4.1	18.52
			N40W	-63.2	5.46	-8.0	17.80	5.7	15.52
1966 JUN 27	Parkfield, California	Temblor, California No. 2	Down	-129.8	4.26	4.4	4.64	1.4	8.42
			N65W	-264.3	4.00	-14.5	4.08	4.7	4.00
			S25W	-340.8	4.30	22.5	4.24	-5.5	3.00
1971 FEB 9	San Fernando	Pacoima Dam	Down	696.0	6.02	58.3	6.12	-19.3	5.00
			S16E	-1148.1	7.74	-113.2	3.04	37.7	7.78
			S74W	1054.9	8.50	-57.7	3.14	-10.8	3.32
1971 FEB 9	San Fernando	8244 Orion Blvd., 1st Floor	Down	167.5	3.62	-32.0	19.04	-14.6	19.72
			N00W	-250.0	12.52	-30.0	9.78	-14.9	10.24
			S90W	-131.7	7.02	23.9	20.76	13.8	16.50
1971 FEB 9	San Fernando	250 E. First St., Bsmt.	Down	48.0	5.40	-7.8	4.68	5.8	3.74
			N36E	97.8	3.18	17.1	9.18	-9.2	8.22
			N54W	122.7	2.82	21.9	5.88	11.6	7.00
1971 FEB 9	San Fernando	445 Figueroa St., Sub Bsmt.	Down	51.7	5.18	10.7	8.02	5.1	9.00
			N52W	147.1	4.72	17.4	7.72	11.8	8.88
			S38W	-117.0	5.08	-17.3	11.40	11.8	10.18
1971 FEB 9	San Fernando	Hollywood Storage, Bsmt.	Up	-49.8	3.26	-6.0	7.38	-3.8	9.04
			S00W	103.8	4.68	-17.0	6.68	8.6	5.44
			N90E	148.2	3.50	-19.4	7.48	-13.1	9.02
1971 FEB 9	San Fernando	Caltech Seismological Lab.	Down	83.5	5.68	-5.9	7.30	-2.3	8.22
			S00W	-87.5	5.14	-6.0	7.62	1.7	10.94
			S90W	-188.6	5.78	-11.6	5.52	5.0	9.32
1971 FEB 9	San Fernando	Caltech, Athenaeum	Down	-92.9	8.28	6.6	11.68	2.7	8.32
			N00E	93.5	7.66	-8.0	11.46	3.0	14.88
			N90E	-107.3	7.90	14.3	7.80	-7.4	11.66
1971 FEB 9	San Fernando	Caltech, Millikan Library	Down	-91.2	7.52	9.0	7.46	2.4	7.58
			N00E	-198.0	7.12	-9.8	7.20	2.7	10.38
			N90E	-181.6	7.24	-16.4	9.98	-6.9	10.62
1971 FEB 9	San Fernando	Jet Propulsion Lab, Bsmt.	Down	-126.3	5.06	-5.9	6.46	2.6	8.90
			S82E	207.8	5.10	13.9	5.18	-5.0	7.68
			S08W	139.0	5.16	9.2	5.26	-2.9	6.92

Table 1 (Continued)

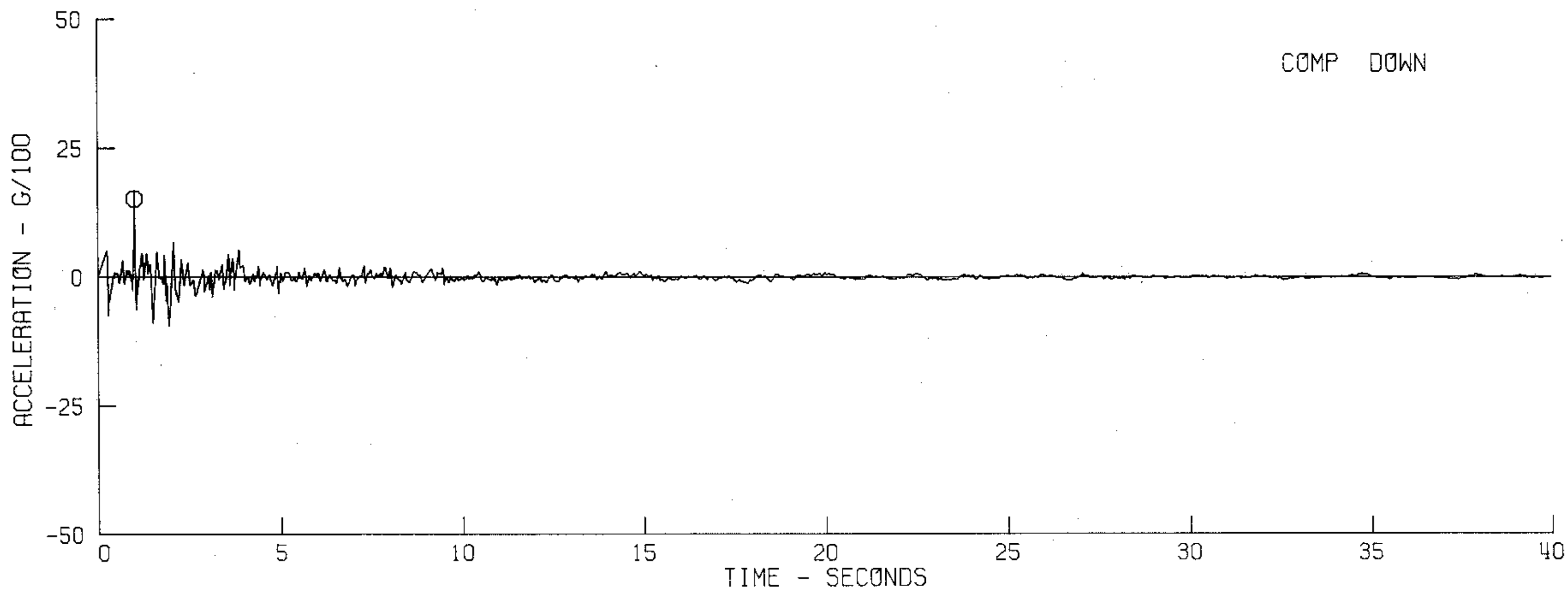
Date	Earthquake	Recording Site	Component	Max. Acceln. (cm/s/s)	Time (sec)	Max. Velocity (cm/s)	Time (sec)	Max. Displ. (cm)	Time (sec)
1971 FEB 9	San Fernando	Palmdale Fire Station	Down	-86.6	4.06	7.8	5.46	-2.4	4.80
			S60E	110.8	5.48	14.2	5.74	-3.8	5.44
			S30W	136.2	1.10	-9.3	6.90	2.8	6.56
1971 FEB 9	San Fernando	15250 Ventura Blvd., Bsmt.	Down	94.5	7.56	-9.4	12.26	4.3	11.34
			N11E	220.6	6.96	-28.2	12.02	-13.5	12.96
			N79W	-146.0	8.94	-23.5	21.64	-10.3	22.20
1972 DEC 23	Managua	Nicaragua, ESSO Refinery	Down	-299.9	2.20	17.5	4.52	-8.7	3.28
			S00E	318.5	6.08	-30.0	5.90	-6.4	6.44
			N90E	351.0	6.26	37.7	6.20	14.9	7.08
1977 NOV 23	Argentina	INPRES, San Juan	Down	150.5	31.96	14.0	41.94	4.9	42.28
			S00E	186.9	32.24	15.6	50.02	4.2	42.62
			N90E	189.5	41.32	-20.6	48.94	5.9	48.32
1978 AUG 13	Santa Barbara	UCSB North Hall, Grd. Floor	VERT TR 2	105.6	4.06	7.1	9.72	1.3	9.98
			N90E TR 3	269.0	3.30	-21.6	3.22	-2.6	3.82
			N00E TR 1	395.9	4.50	-34.4	4.34	5.6	4.10
			N00E TR 4	351.3	4.50	-34.3	4.36	5.3	4.12

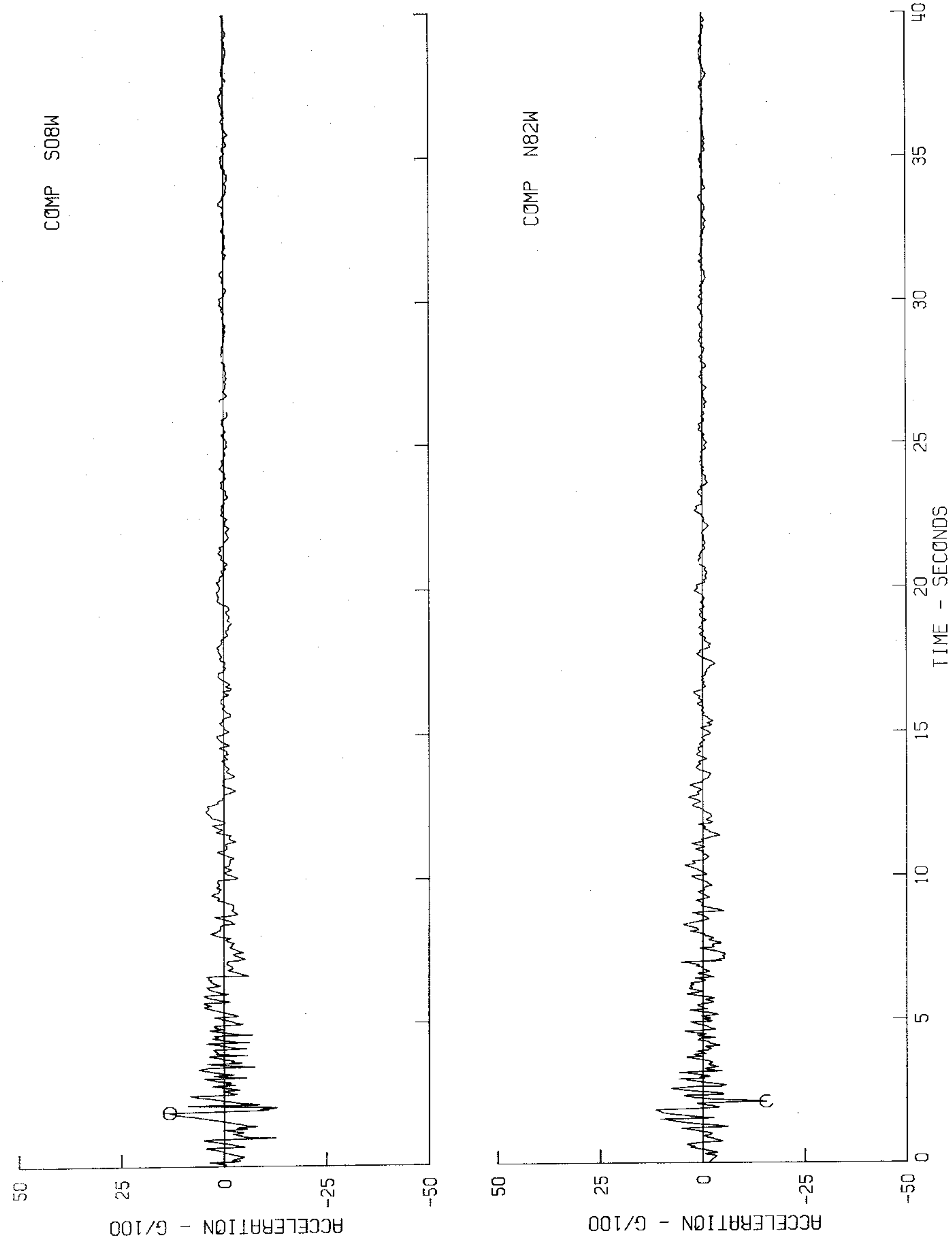
LONG BEACH EARTHQUAKE   MAR 10, 1933 - 1754 PST
EPICENTER 33 35 00N,117 59 00W
MAGNITUDE 6.4

VERNON CMD BLDG - STATION NO. 288   34 00 00N,118 12 00W

CORRECTED ACCELEROGRAM SET IIB021,   ⦶ PEAK VALUES...

DOWN	149.5	CM/SEC/SEC
S08W	130.6	CM/SEC/SEC
N82W	-151.5	CM/SEC/SEC

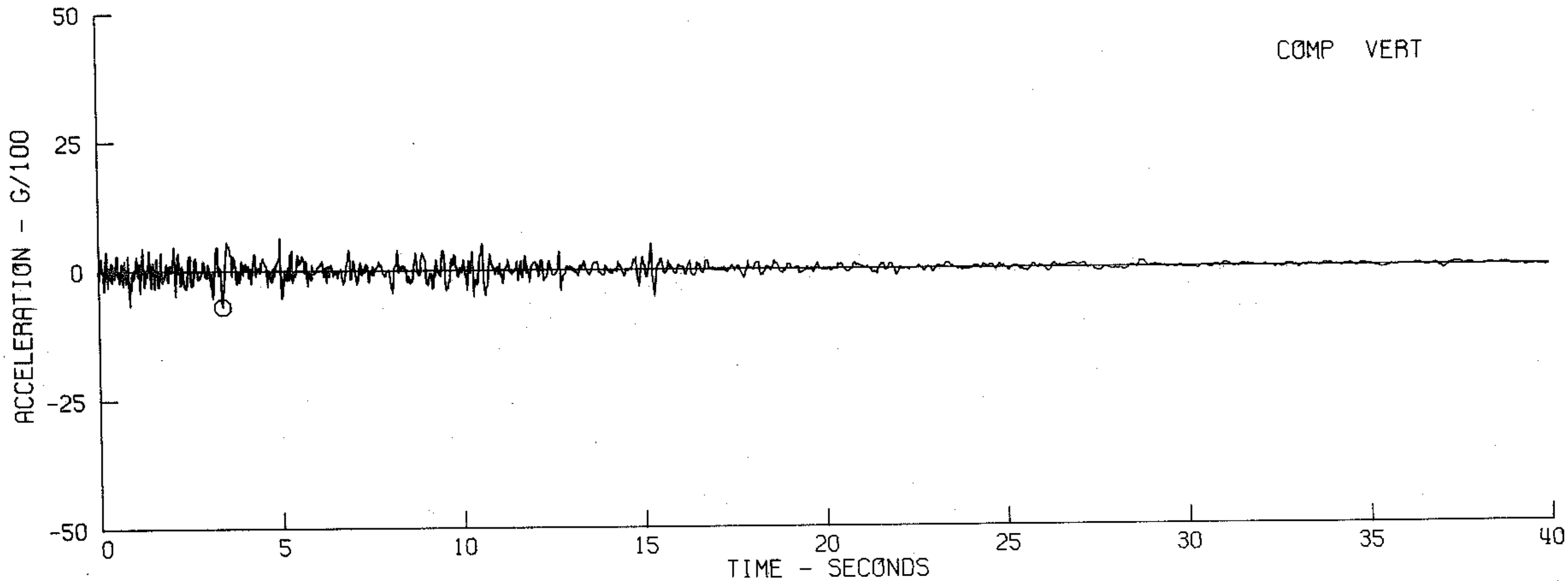


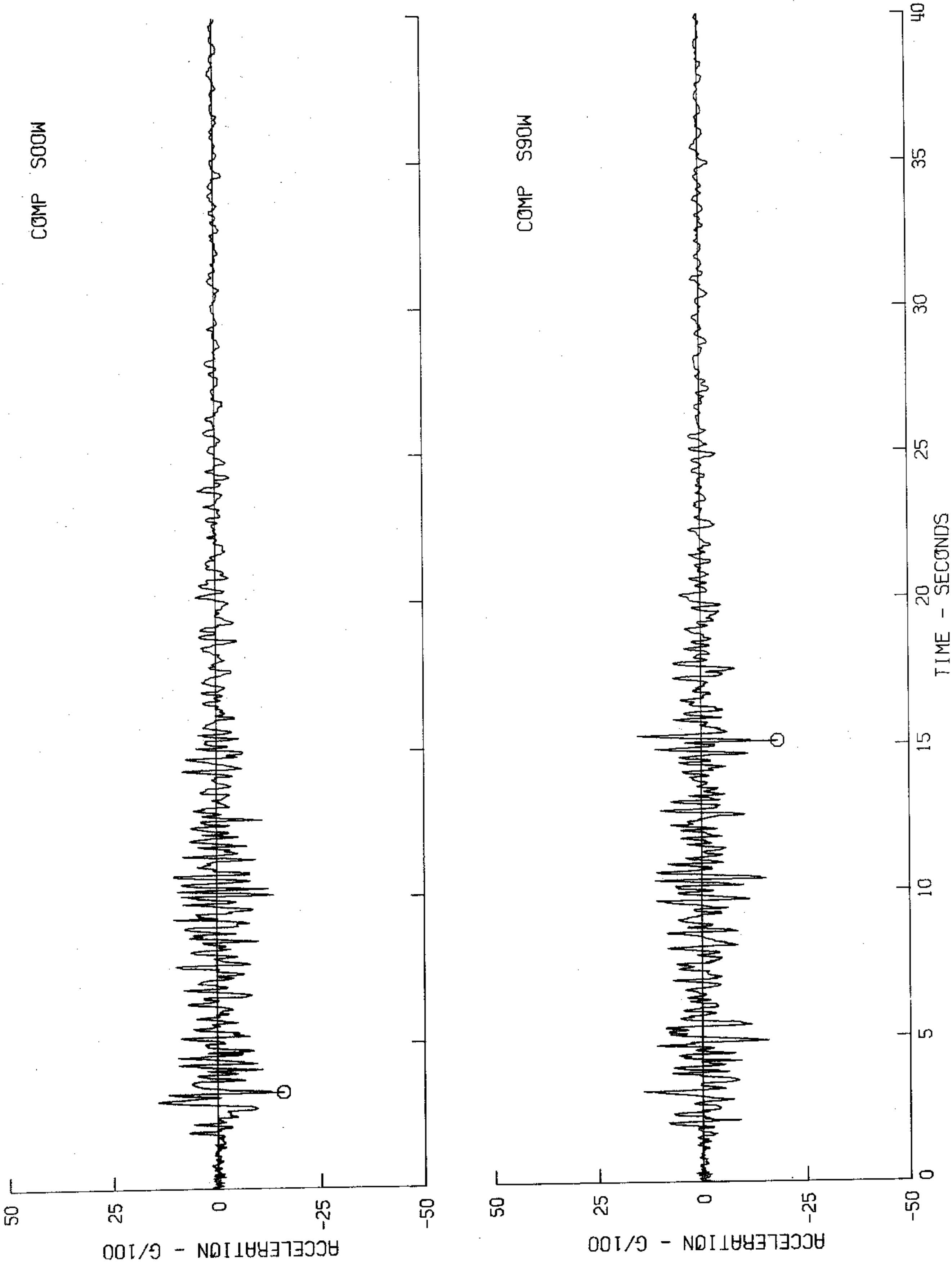

COMP S08W
COMP N82W
ACCELERATION - G/100
ACCELERATION - G/100
TIME - SECONDS
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40

LOWER CALIFORNIA EARTHQUAKE DEC 30, 1934 - 0552 PST
EPICENTER 32 12 00N,115 30 00W
MAGNITUDE 7.1

EL CENTRO IMPERIAL VALLEY - STATION NO. 117 32 47 43N,115 32 55W

CORRECTED ACCELEROGRAM SET IIB024. ⊙ PEAK VALUES... VERT -68.1 CM/SEC/SEC
S00W -156.8 CM/SEC/SEC
S90W -179.1 CM/SEC/SEC



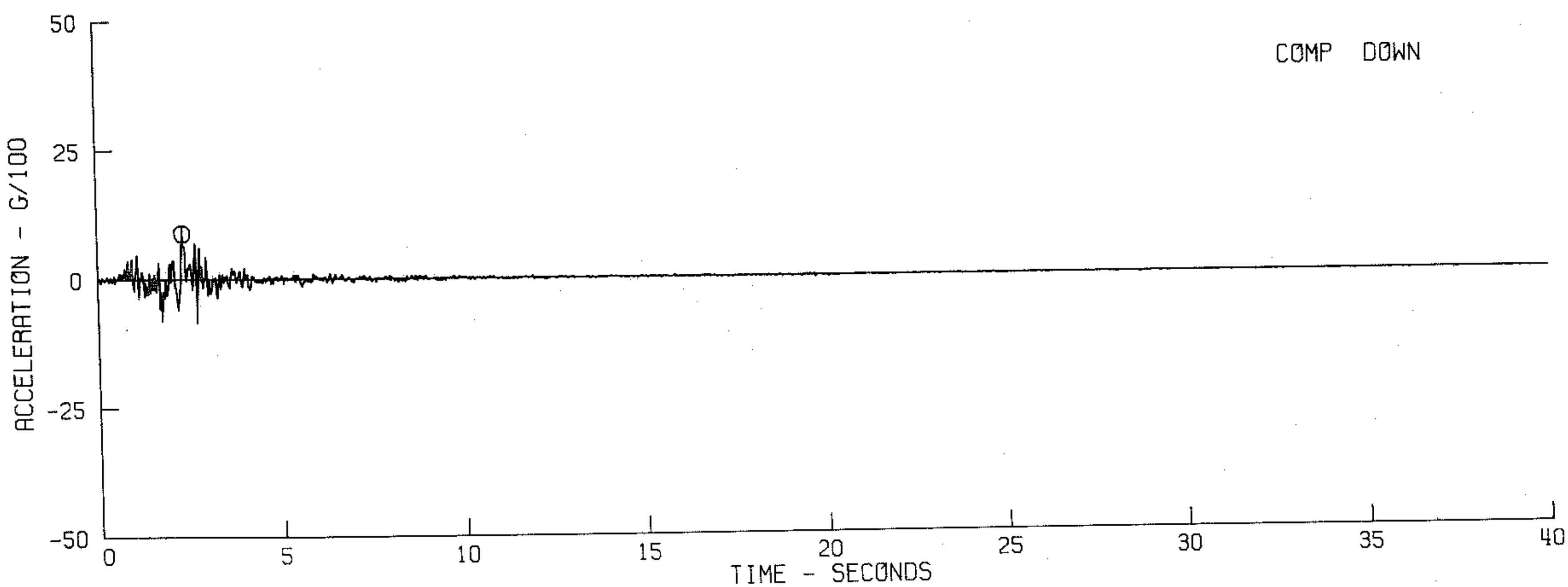


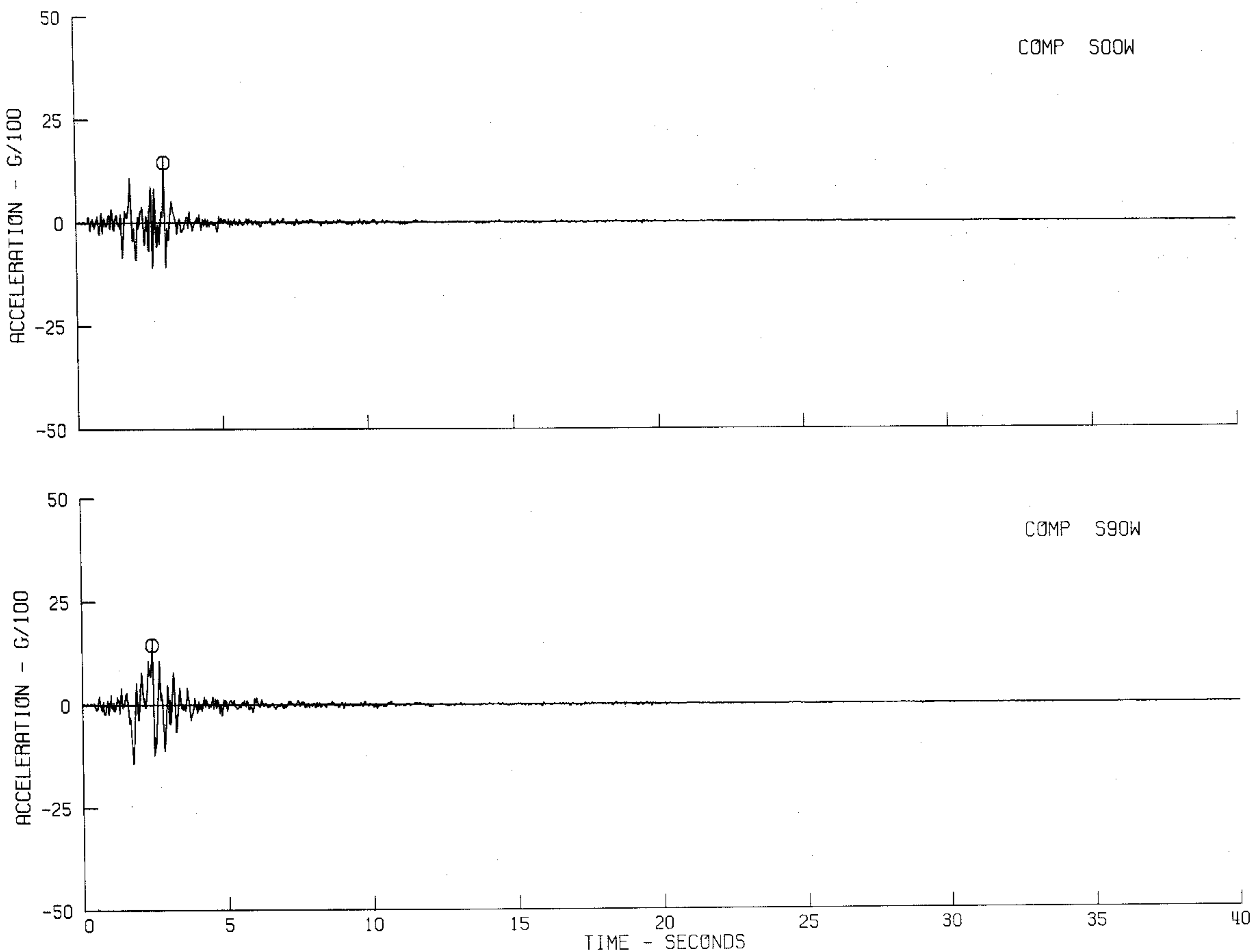
COMP S00W
COMP S90W
ACCELERATION - G/100
ACCELERATION - G/100
50
25
0
-25
-50
TIME - SECONDS
0
5
10
15
20
25
30
35
40

HELENA, MONTANA EARTHQUAKE OCT 31, 1935 - 1138 MST
EPICENTER 46 37 00N,111 58 00W
MAGNITUDE 5.5

HELENA, MONTANA CARROLL COLLEGE - STATION NO. 323 46 35 00N,112 02 00W

CORRECTED ACCELEROGRAM SET IIB025, ⓘ PEAK VALUES... DOWN 87.5 CM/SEC/SEC
S00W 143.5 CM/SEC/SEC
S90W 142.5 CM/SEC/SEC

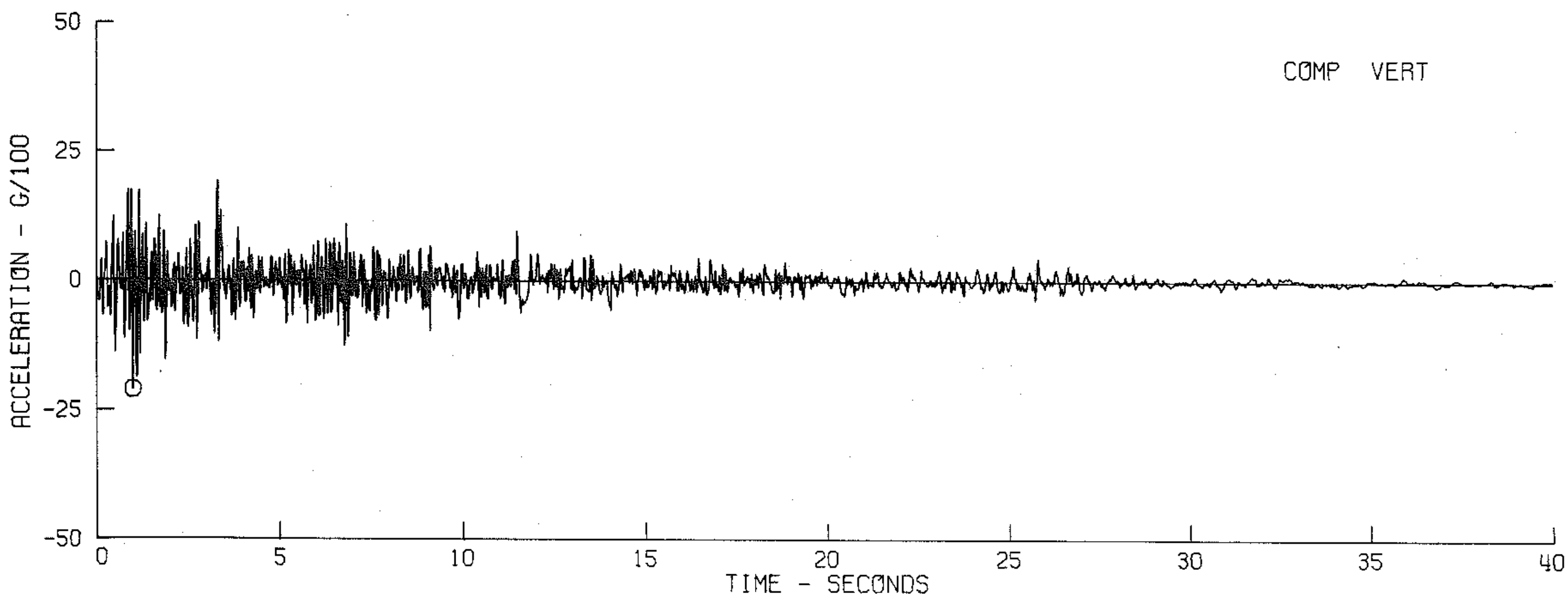


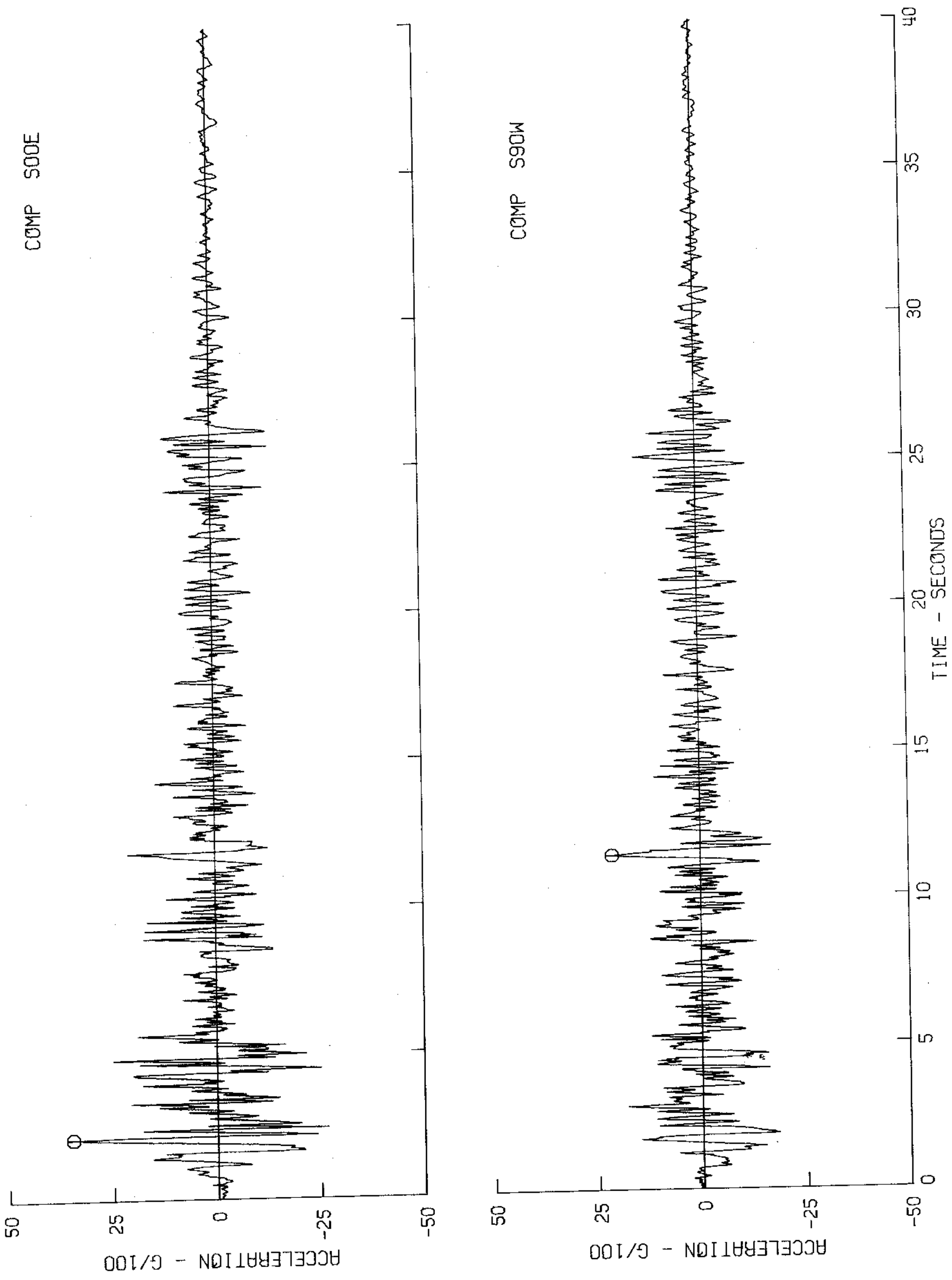

ACCELERATION - G/100
50
25
0
-25
-50
COMP S00W
ACCELERATION - G/100
50
25
0
-25
-50
COMP S90W
0
5
10
15
20
25
30
35
40
TIME - SECONDS

IMPERIAL VALLEY EARTHQUAKE MAY 18, 1940 - 2037 PST
EPICENTER 32 44 00N,115 27 00W
MAGNITUDE 6.5

EL CENTRO VALLEY IRRIGATION DISTRICT - STATION NO. 117 32 47 43N,115 32 55W

CORRECTED ACCELEROGRAM SET IIA001, ① PEAK VALUES... VERT -206.3 CM/SEC/SEC
SOOE 341.7 CM/SEC/SEC
S90W 210.1 CM/SEC/SEC

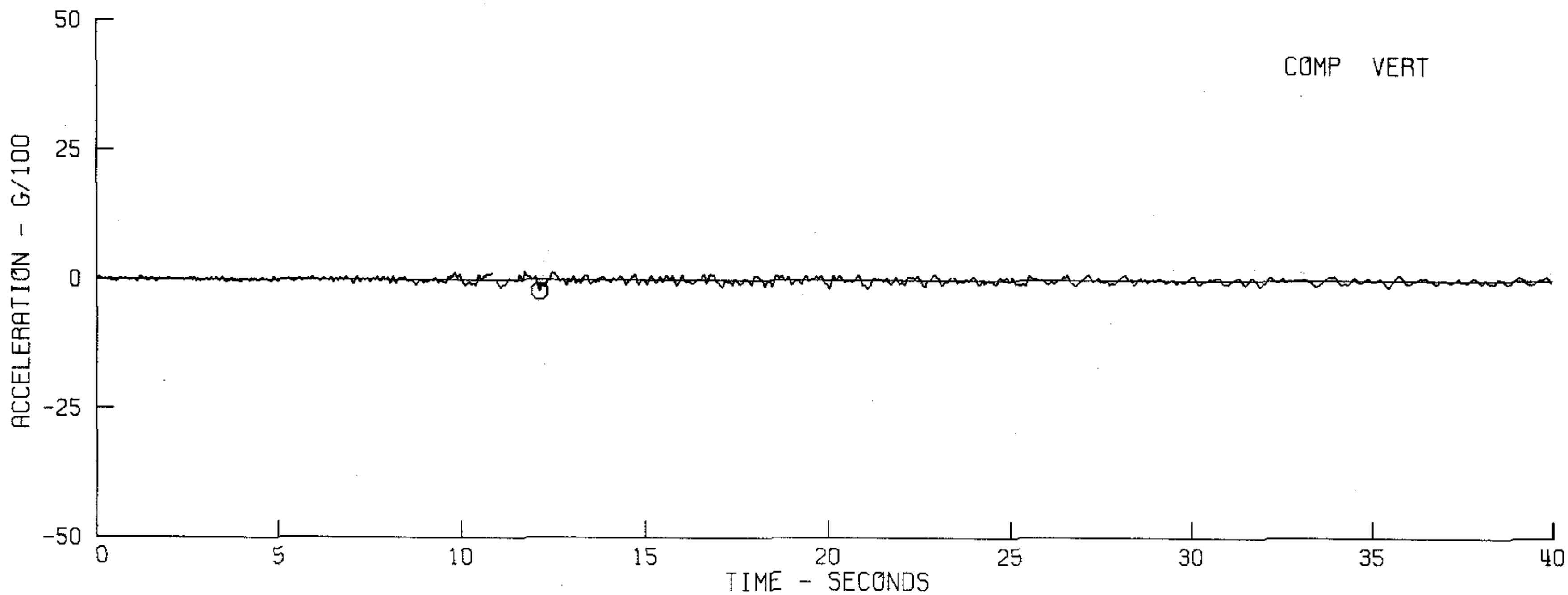


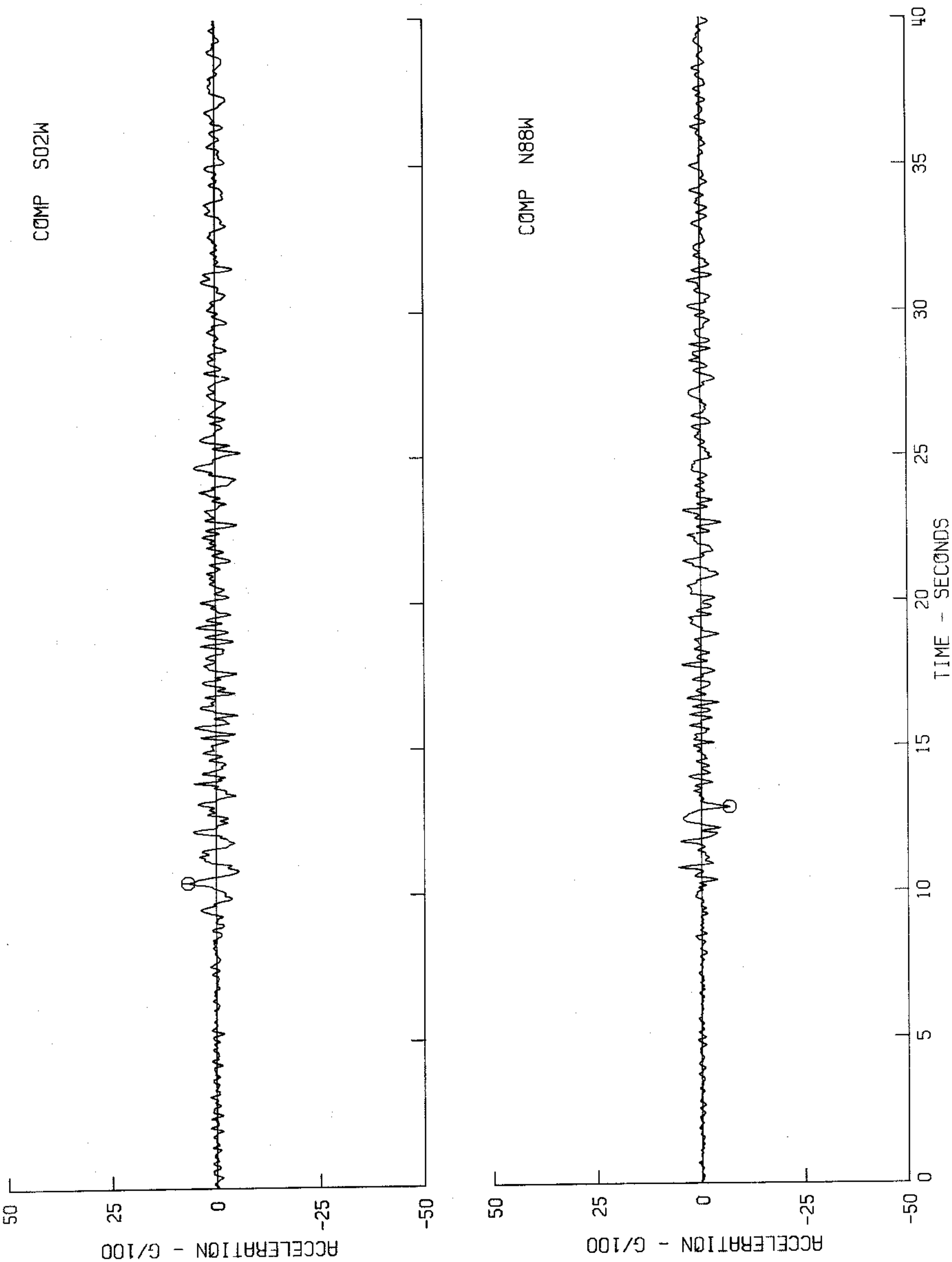

COMP S00E
COMP S90W
ACCELERATION - G/100
ACCELERATION - G/100
50
25
0
-25
-50
TIME - SECONDS
0
5
10
15
20
25
30
35
40

WESTERN WASHINGTON EARTHQUAKE APR 13, 1949 - 1156 PST
EPICENTER 47 06 00N,122 42 00W
MAGNITUDE 6.5

SEATTLE, WASH. DIST ENGRS OFFC AT ARMY BASE - STATION NO. 000 47 33 34N,122 20 31W

CORRECTED ACCELEROGRAM SET IIB028. ⊙ PEAK VALUES... VERT -22.0 CM/SEC/SEC
S02W 66.5 CM/SEC/SEC
N88W -65.9 CM/SEC/SEC



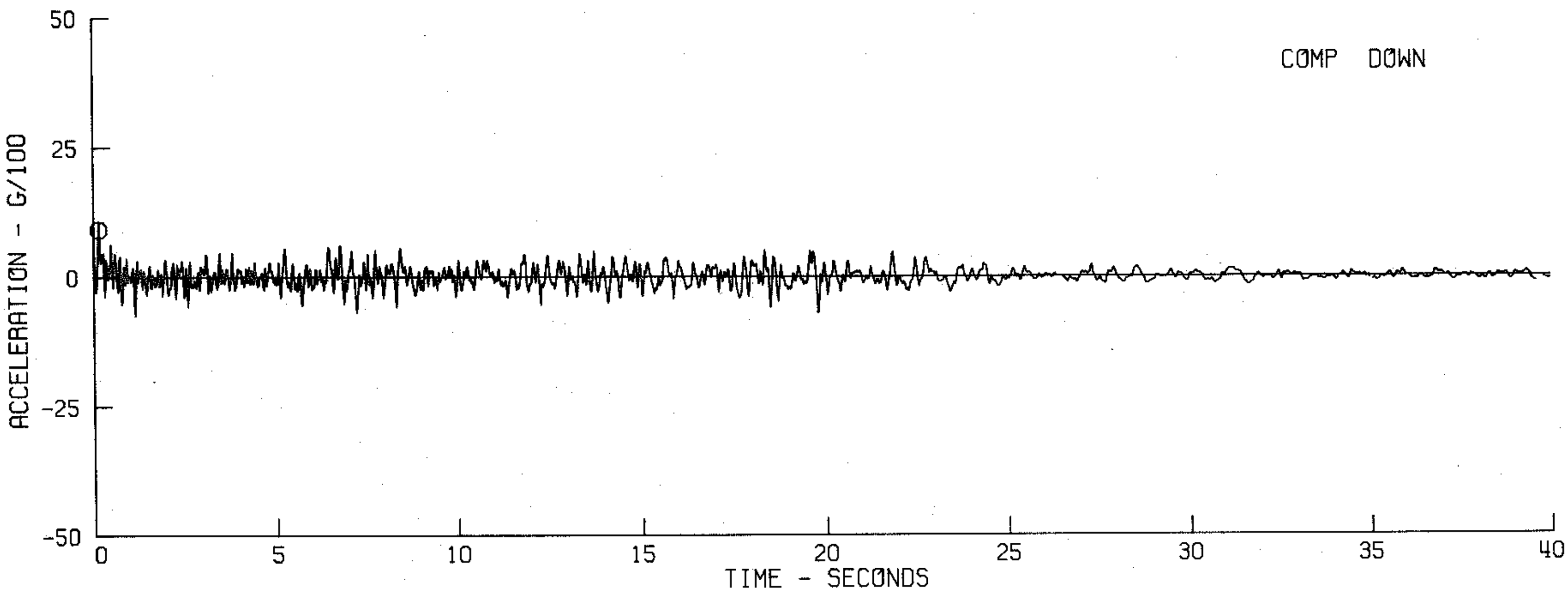

COMP S02W
COMP N88W
ACCELERATION - G/100
ACCELERATION - G/100
50
25
0
-25
-50
TIME - SECONDS
0
5
10
15
20
25
30
35
40

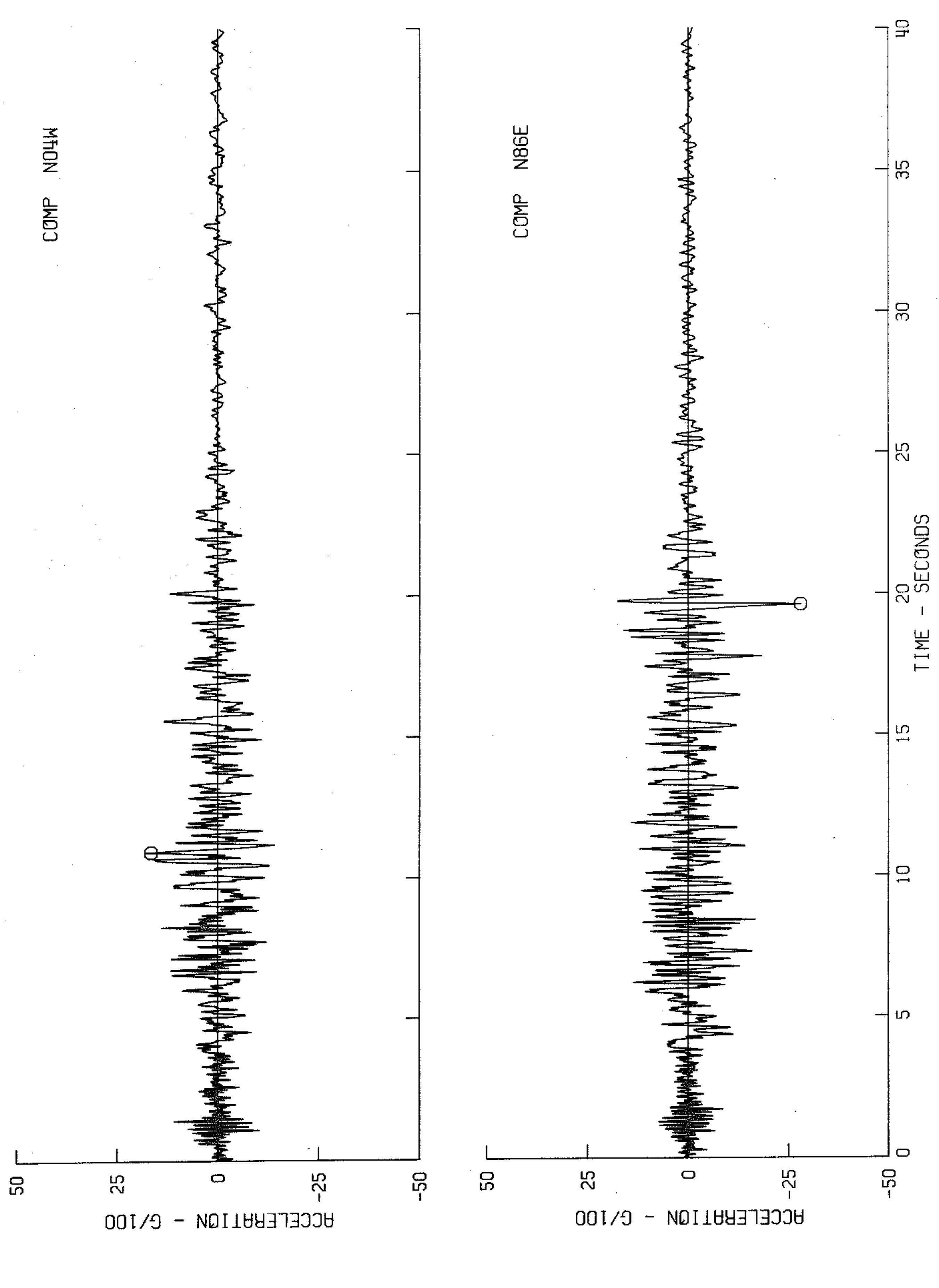
WESTERN WASHINGTON EARTHQUAKE   APR 13, 1949 - 1156 PST
EPICENTER 47 06 00N,122 42 00W
MAGNITUDE 6.5

OLYMPIA, WASHINGTON HWY TEST LAB - STATION NO. 325   47 02 00N,122 54 00W

CORRECTED ACCELEROGRAM SET IIB029,   Ⓘ PEAK VALUES...

DOWN	90.6	CM/SEC/SEC
N04W	161.6	CM/SEC/SEC
N86E	-274.6	CM/SEC/SEC

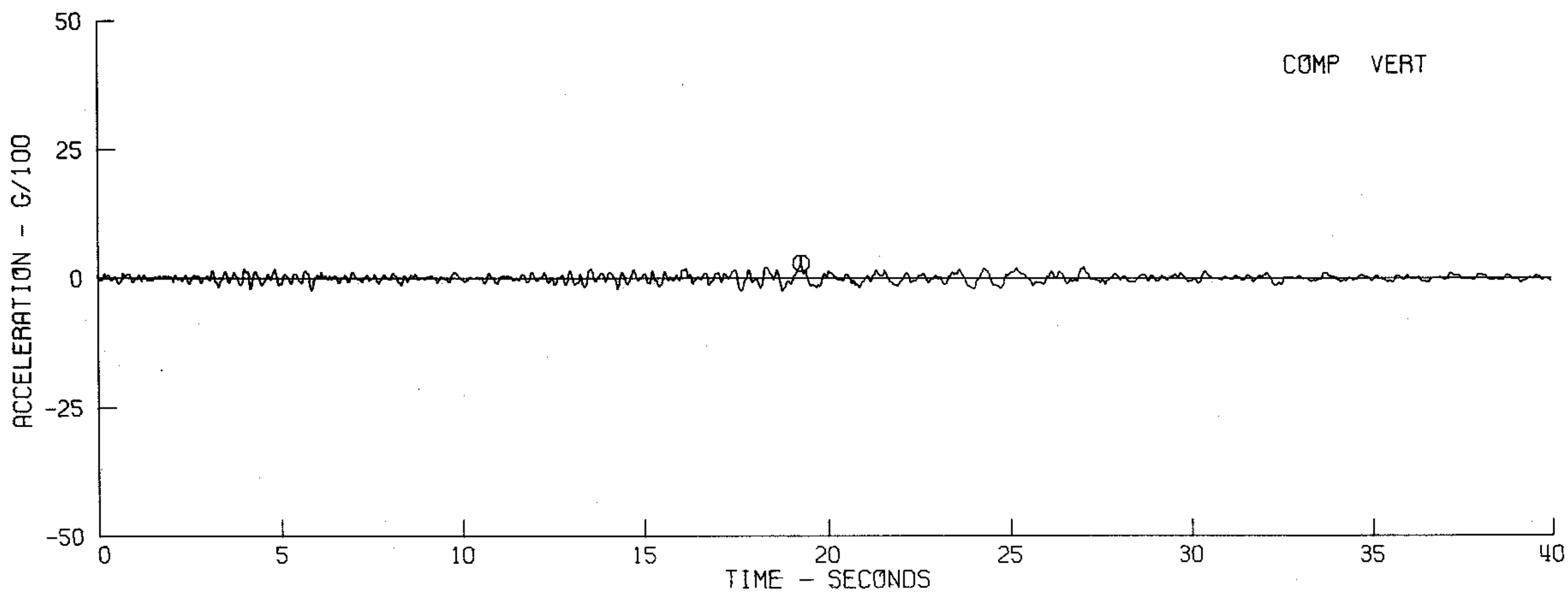


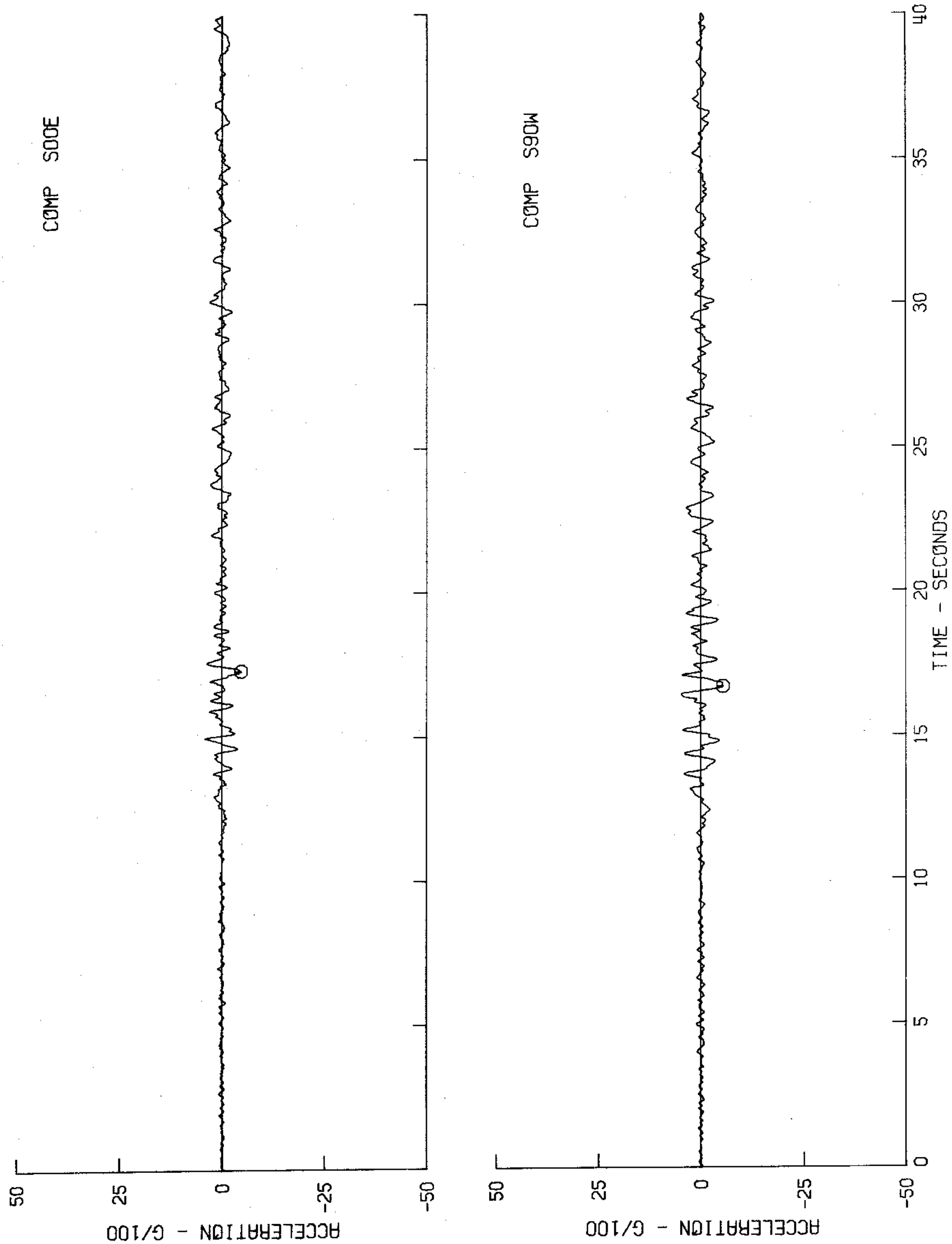

COMP N04W
COMP N86E
ACCELERATION - G/100
ACCELERATION - G/100
TIME - SECONDS
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40

KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
EPICENTER 35 00 00N,119 02 00W
MAGNITUDE 7.2

PASADENA - CALTECH ATHENAEUM - STATION NO. 475 34 08 20N,118 07 17W

CORRECTED ACCELEROGRAM SET IIA003, ① PEAK VALUES... VERT 29.3 CM/SEC/SEC
SOOE -46.5 CM/SEC/SEC
S90W -52.1 CM/SEC/SEC

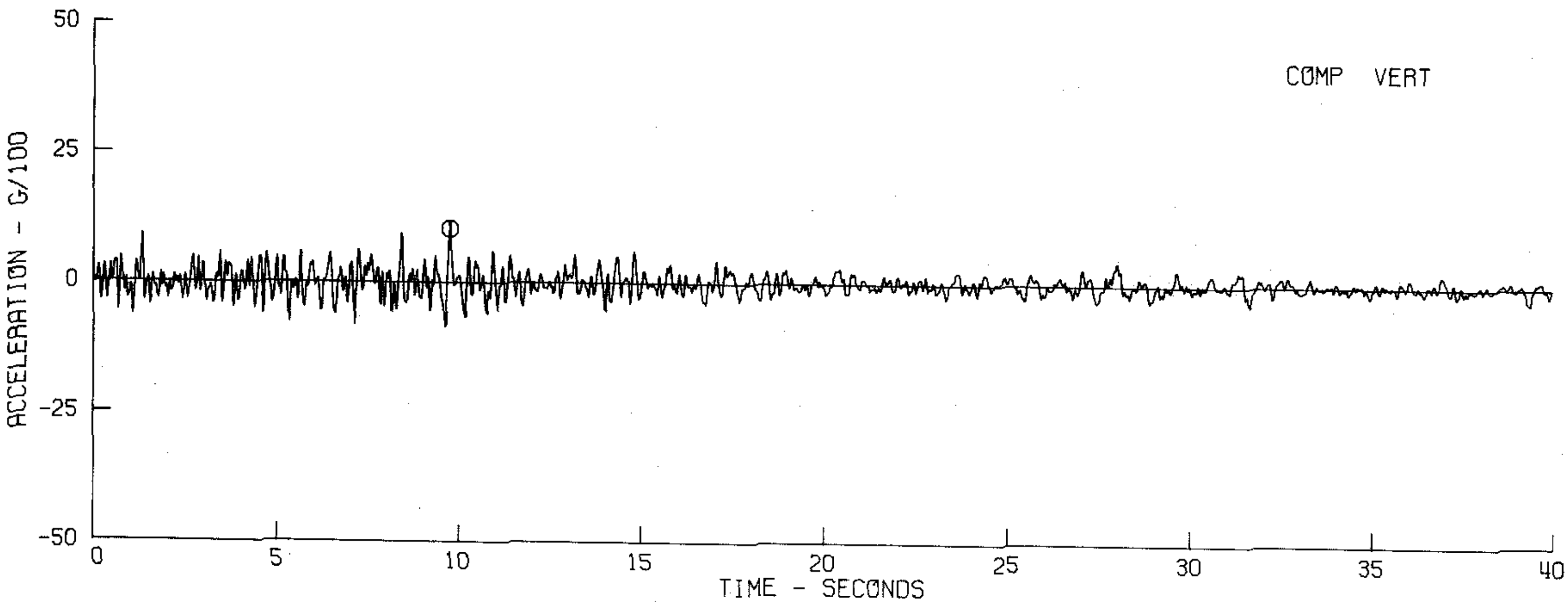


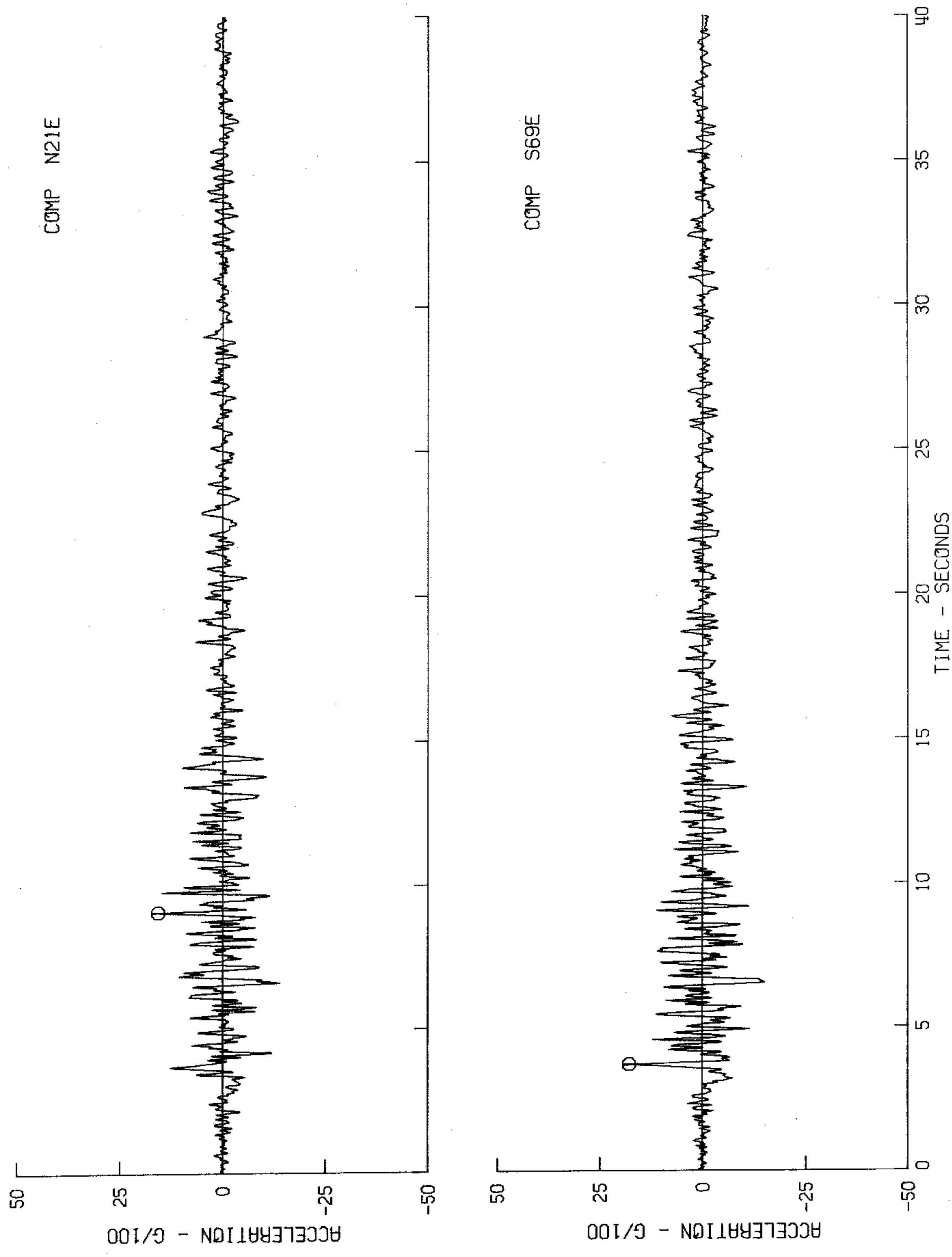

COMP S00E
COMP S90W
ACCELERATION - G/100
ACCELERATION - G/100
TIME - SECONDS
50
25
0
-25
-50
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40

KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
EPICENTER 35 00 00N,119 02 00W
MAGNITUDE 7.2

TAFT LINCOLN SCHOOL TUNNEL - STATION NO. 095 35 09 00N,119 27 00W

CORRECTED ACCELEROGRAM SET IIA004. ⏀ PEAK VALUES... VERT 102.9 CM/SEC/SEC
N21E 152.7 CM/SEC/SEC
S69E 175.9 CM/SEC/SEC

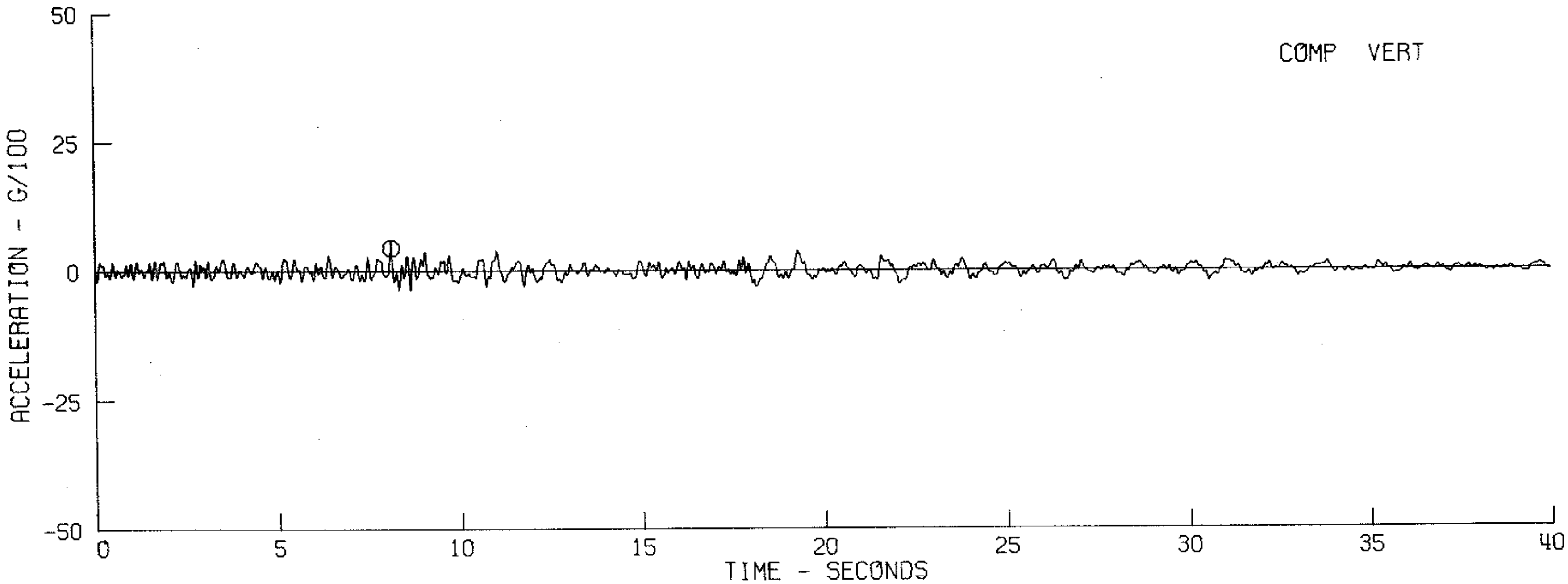


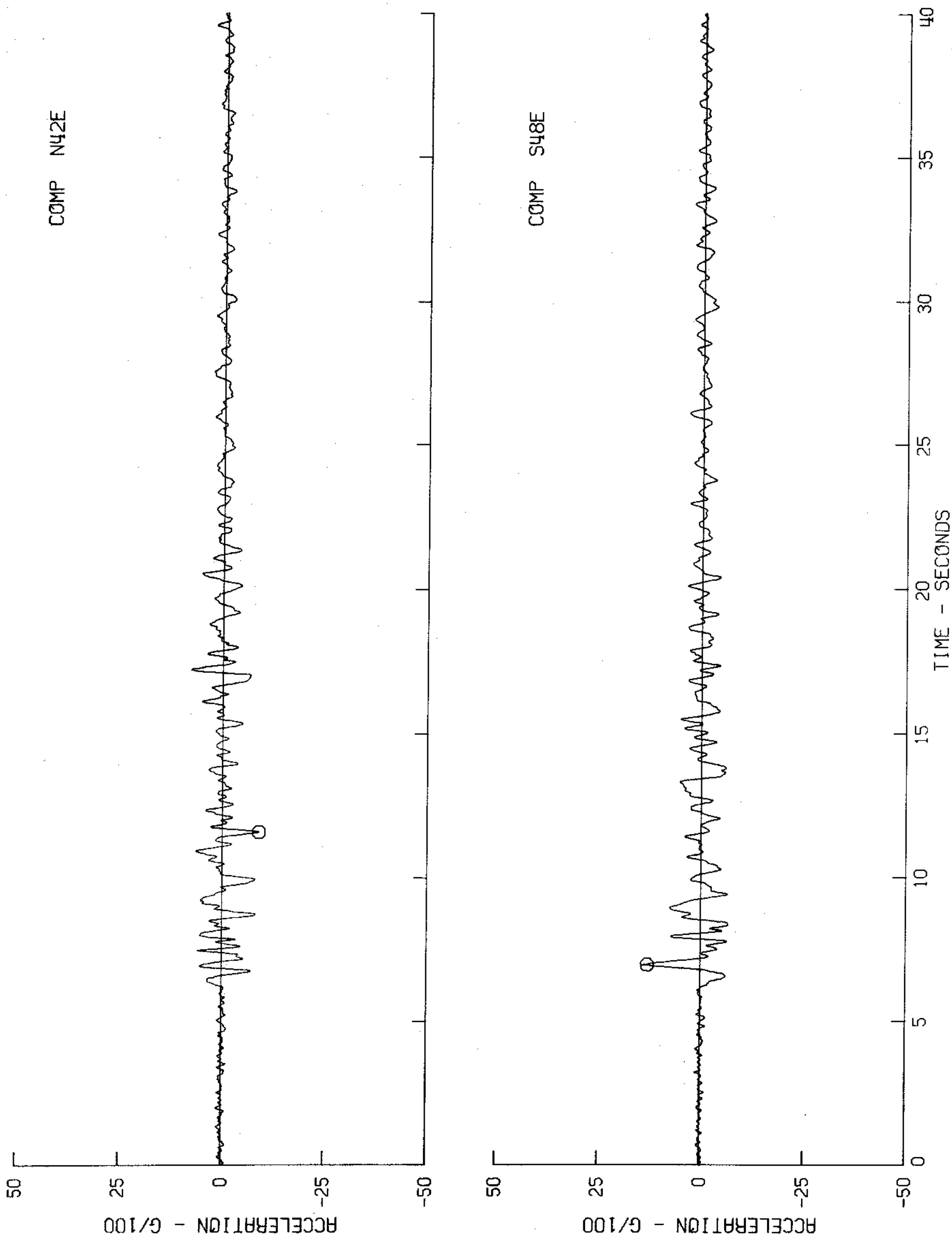

COMP N21E
COMP S69E
ACCELERATION - G/100
ACCELERATION - G/100
50
25
0
-25
-50
TIME - SECONDS
0
5
10
15
20
25
30
35
40

KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
EPICENTER 35 00 00N,119 02 00W
MAGNITUDE 7.2

SANTA BARBARA COURT HOUSE - STATION NO. 283 34 25 28N,119 42 05W

CORRECTED ACCELEROGRAM SET IIA005, Ⓘ PEAK VALUES... VERT 43.6 CM/SEC/SEC
N42E -87.8 CM/SEC/SEC
S48E 128.6 CM/SEC/SEC



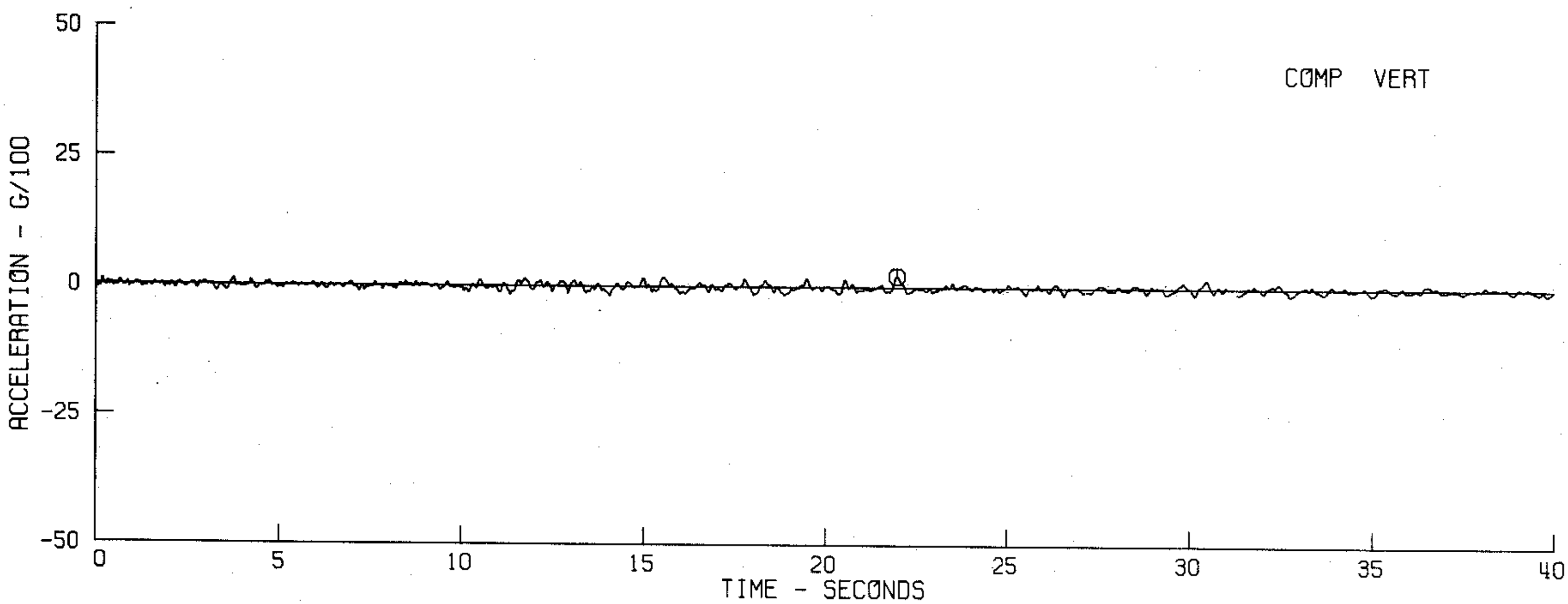

COMP N42E
COMP S48E
ACCELERATION - G/100
ACCELERATION - G/100
50
25
0
-25
-50
TIME - SECONDS
0
5
10
15
20
25
30
35
40

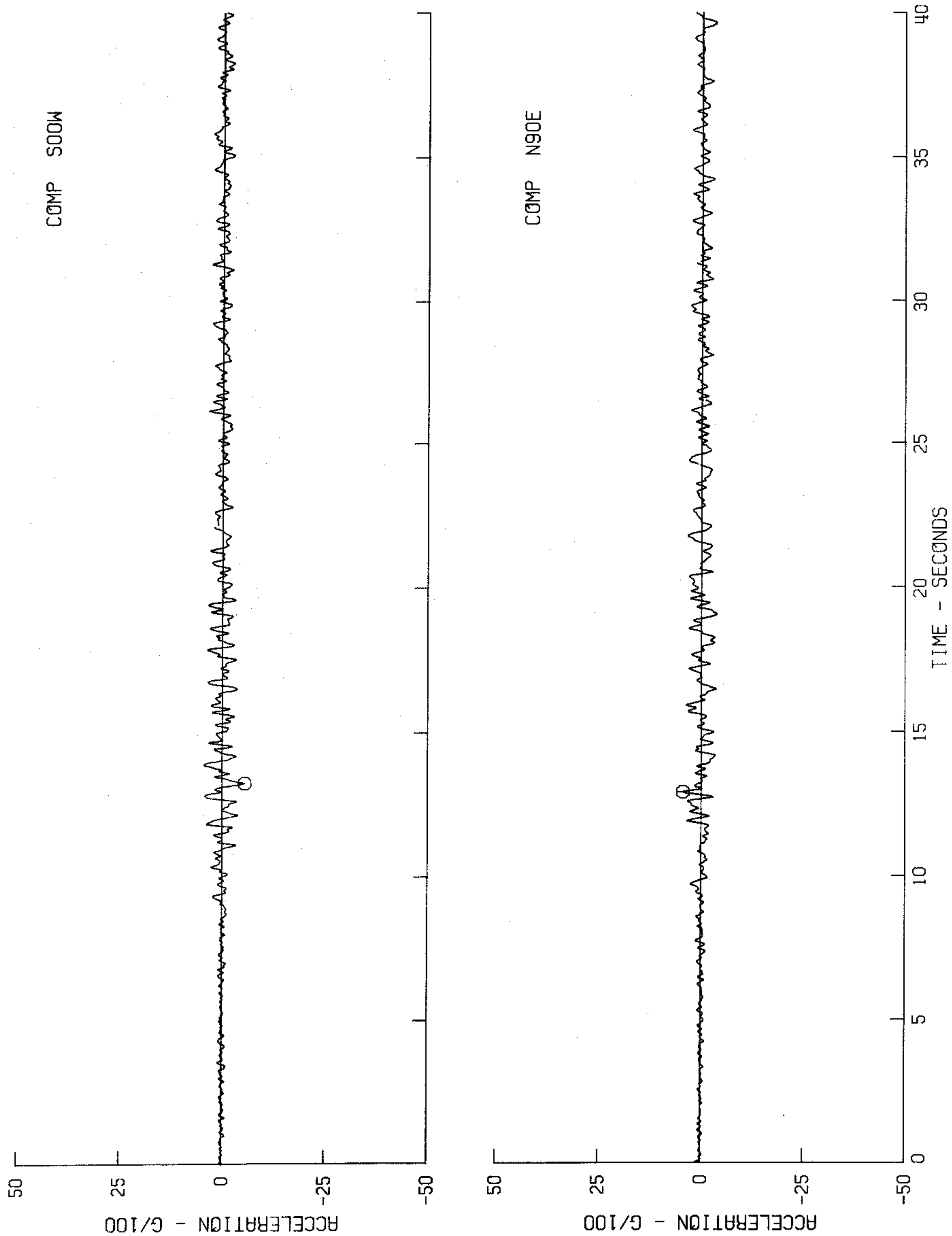
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
EPICENTER 35 00 00N,119 02 00W
MAGNITUDE 7.2

HOLLYWOOD STORAGE BASEMENT - STATION NO. 133 34 05 00N,118 20 00W

CORRECTED ACCELEROGRAM SET IIA006, ⓘ PEAK VALUES...

VERT	22.5	CM/SEC/SEC
S00W	-54.1	CM/SEC/SEC
N90E	43.5	CM/SEC/SEC

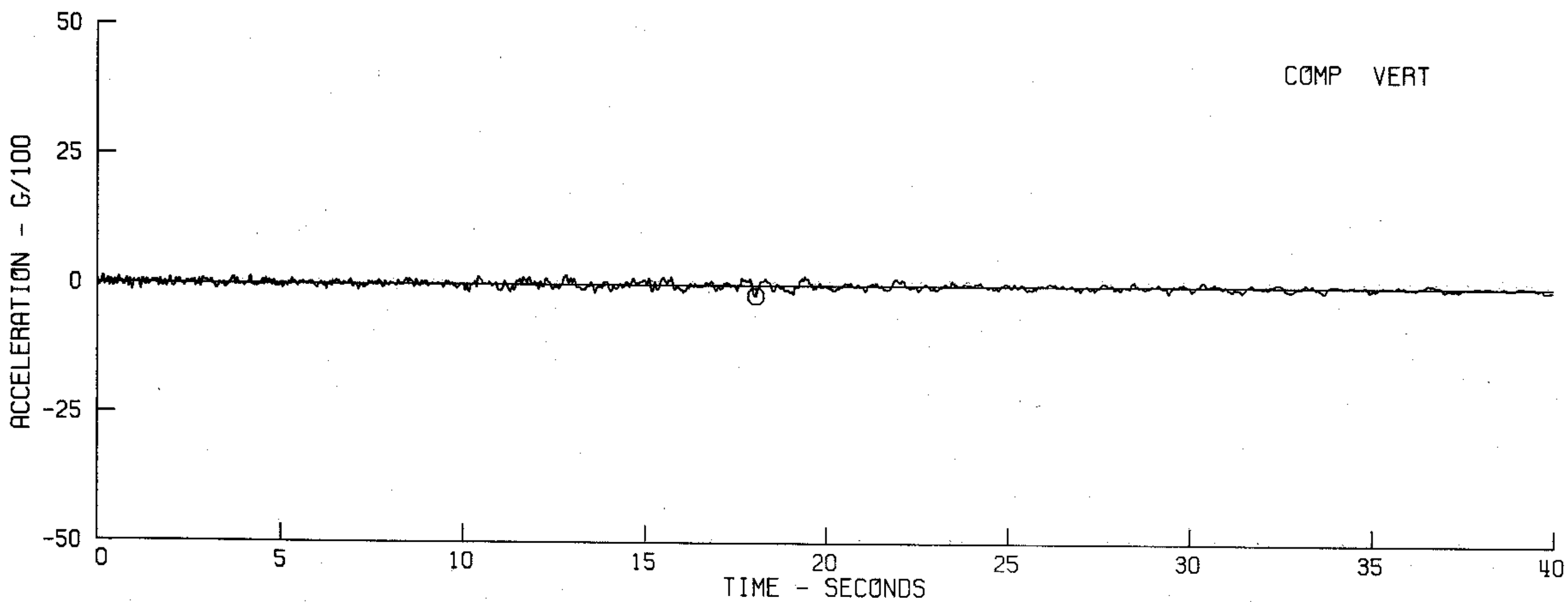


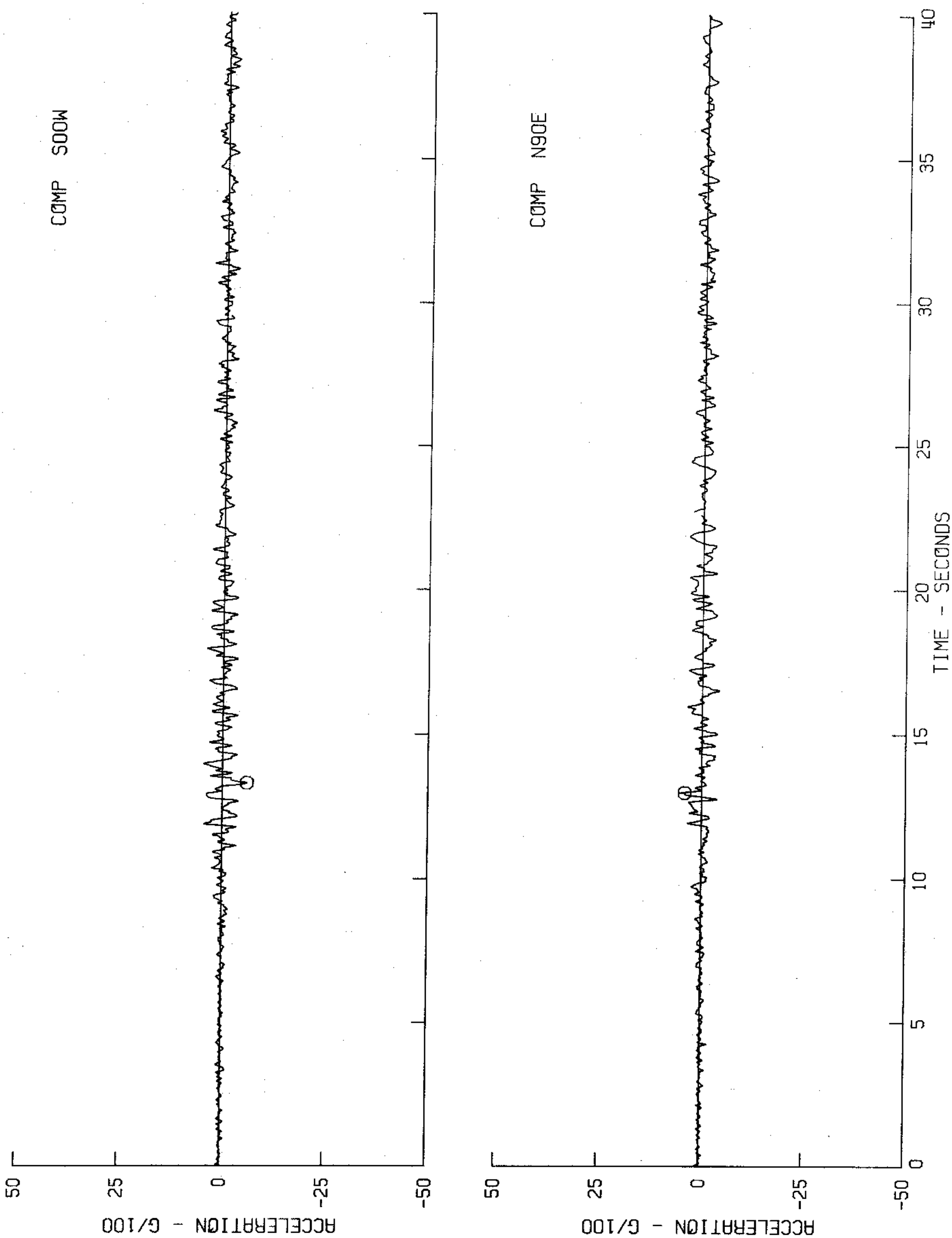

COMP S00W
COMP N90E
ACCELERATION - G/100
ACCELERATION - G/100
50
25
0
-25
-50
TIME - SECONDS
0
5
10
15
20
25
30
35
40

KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
EPICENTER 35 00 00N,119 02 00W
MAGNITUDE 7.2

HOLLYWOOD STORAGE P.E. LOT - STATION NO. 135 34 05 00N,118 20 00W

CORRECTED ACCELEROGRAM SET IIA007, ⊙ PEAK VALUES... VERT -20.3 CM/SEC/SEC
S00W -58.1 CM/SEC/SEC
N90E 41.2 CM/SEC/SEC



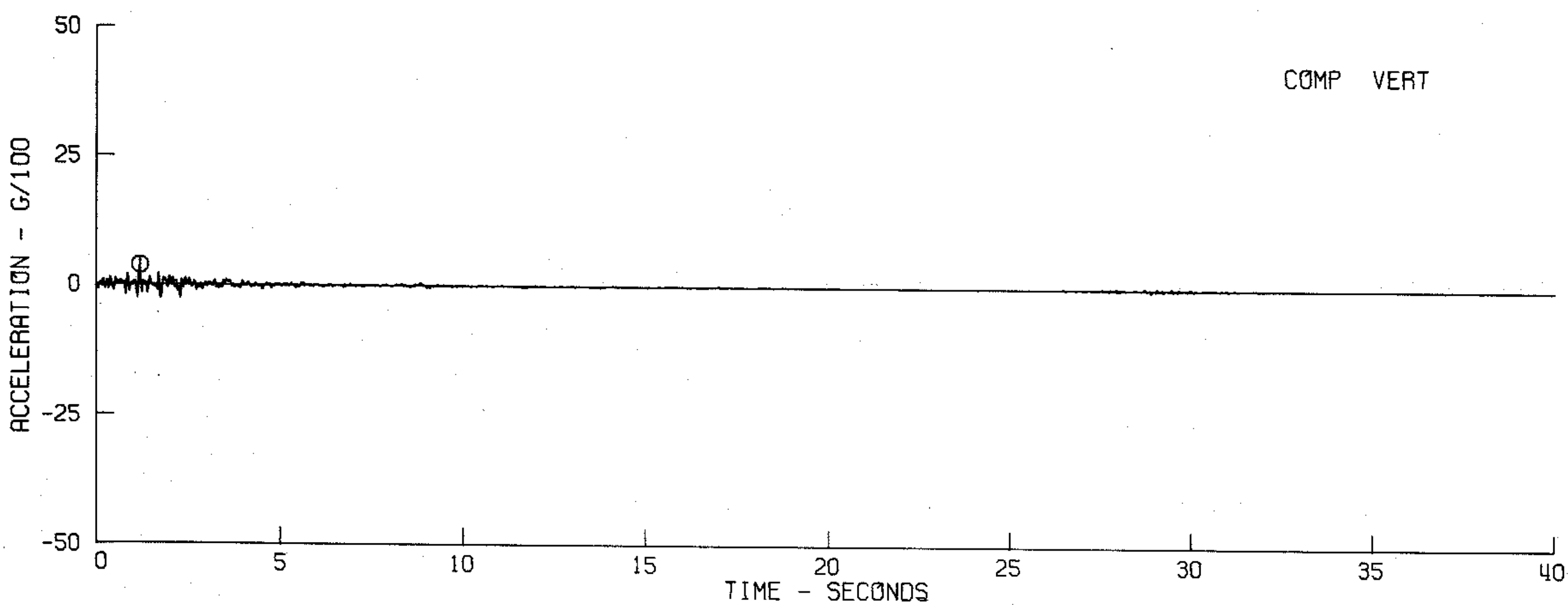

COMP S00W
COMP N90E
ACCELERATION - G/100
ACCELERATION - G/100
TIME - SECONDS
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40

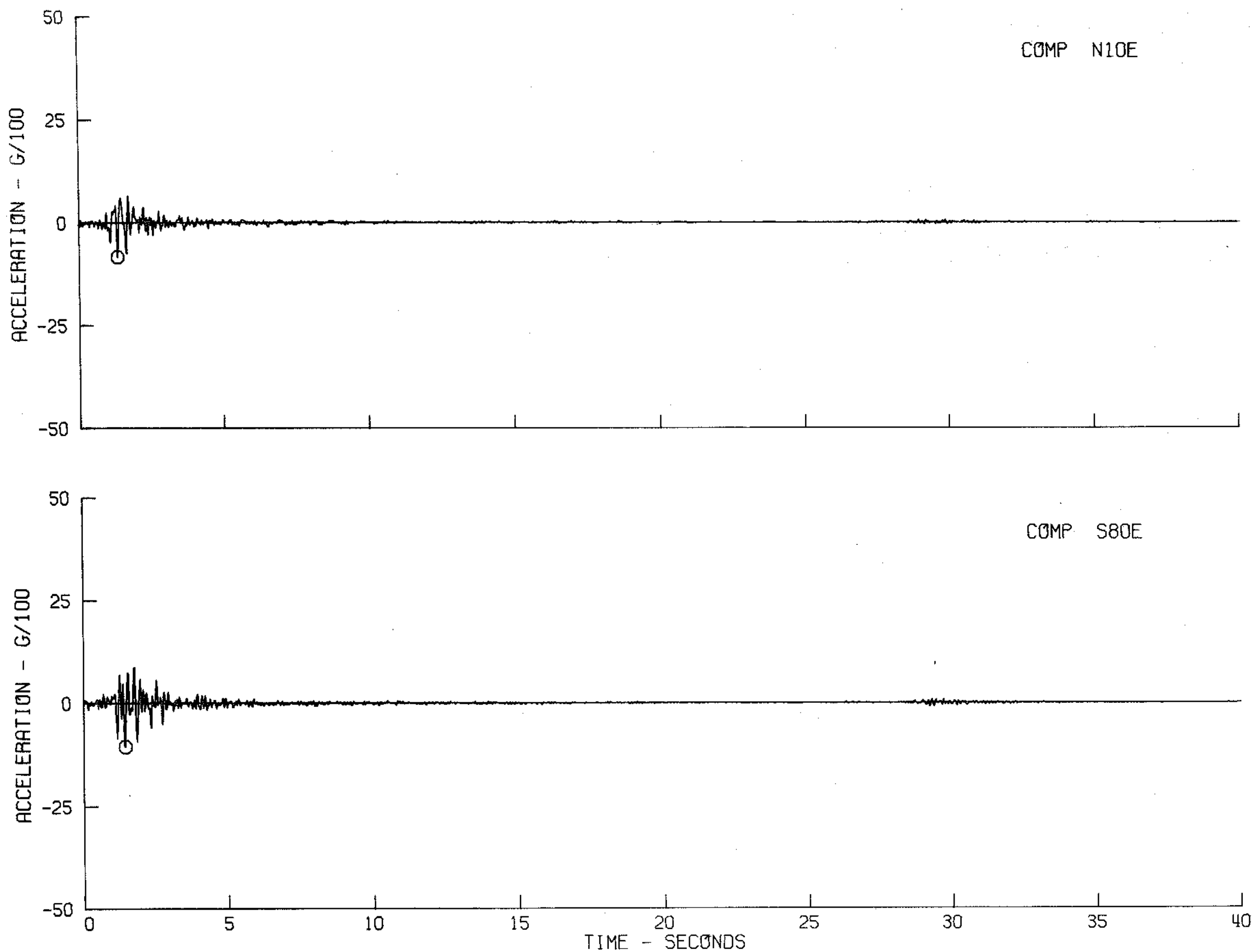
SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST
EPICENTER 37 40 00N,122 29 00W
MAGNITUDE 5.3

SAN FRANCISCO GOLDEN GATE PARK - STATION NO. 077 37 46 12N,122 28 42W

CORRECTED ACCELEROGRAM SET IIA015, ⊕ PEAK VALUES...

VERT	37.2	CM/SEC/SEC
N10E	-81.8	CM/SEC/SEC
S80E	-102.8	CM/SEC/SEC



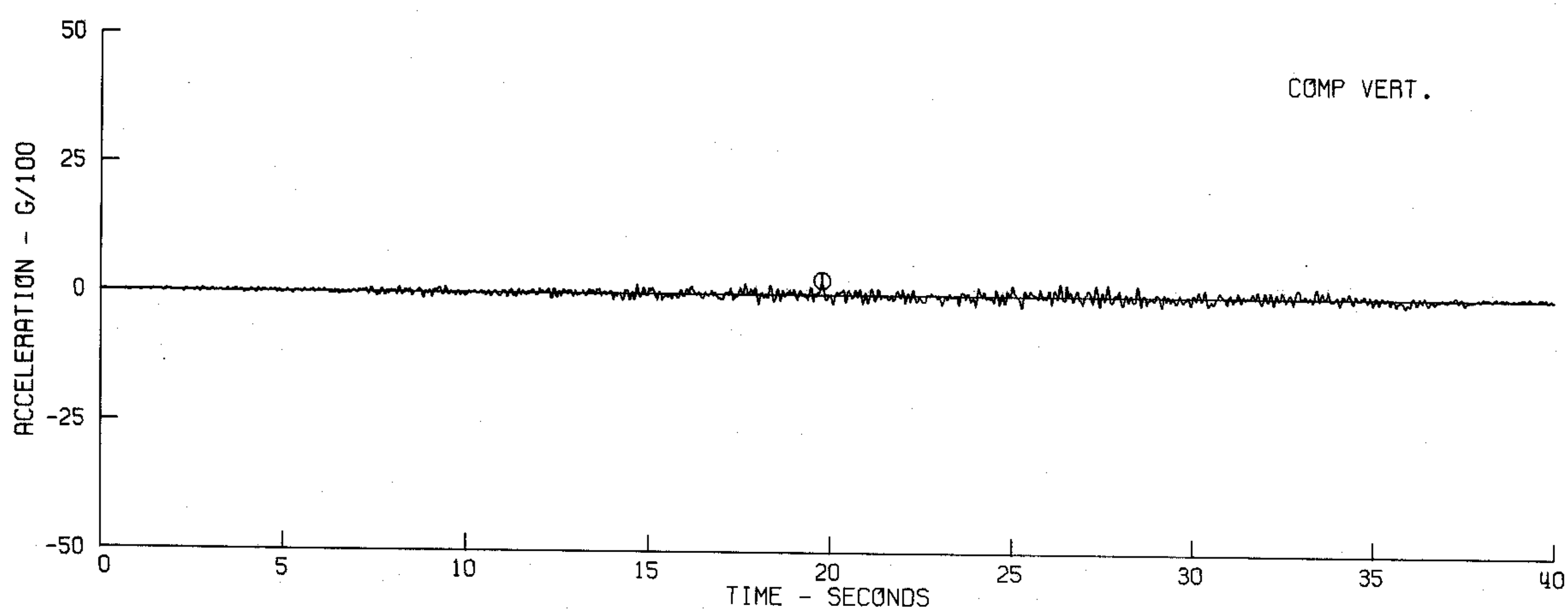

50
25
0
-25
-50
ACCELERATION - G/100
COMP N10E
50
25
0
-25
-50
ACCELERATION - G/100
COMP S80E
0
5
10
15
20
25
30
35
40
TIME - SECONDS

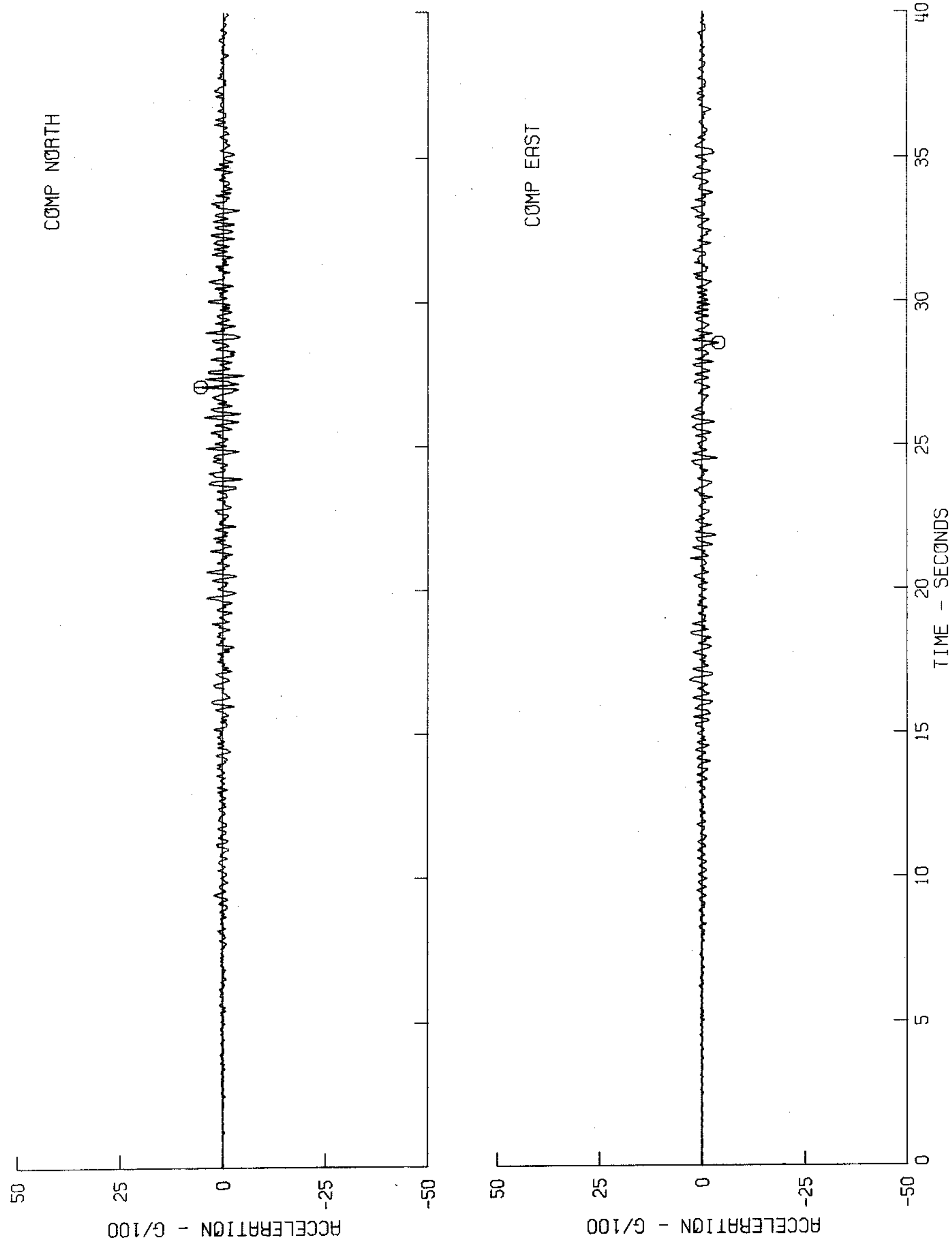
ENG BLDG,STATE COLL. ,MONTANA,E/Q OF AUG 17 1959-0639 MST
EPICENTER AT 44.83N 111.01W
MAGNITUDE 6.8

ENG. BLDG., STATE COLLEGE - STATION LOCATION 45.68N,111.03W

CORRECTED ACCELEROGRAM SET I 000, ⊕ PEAK VALUES...

VERT.	28.4	CM/SEC/SEC
NORTH	52.7	CM/SEC/SEC
EAST	-39.1	CM/SEC/SEC

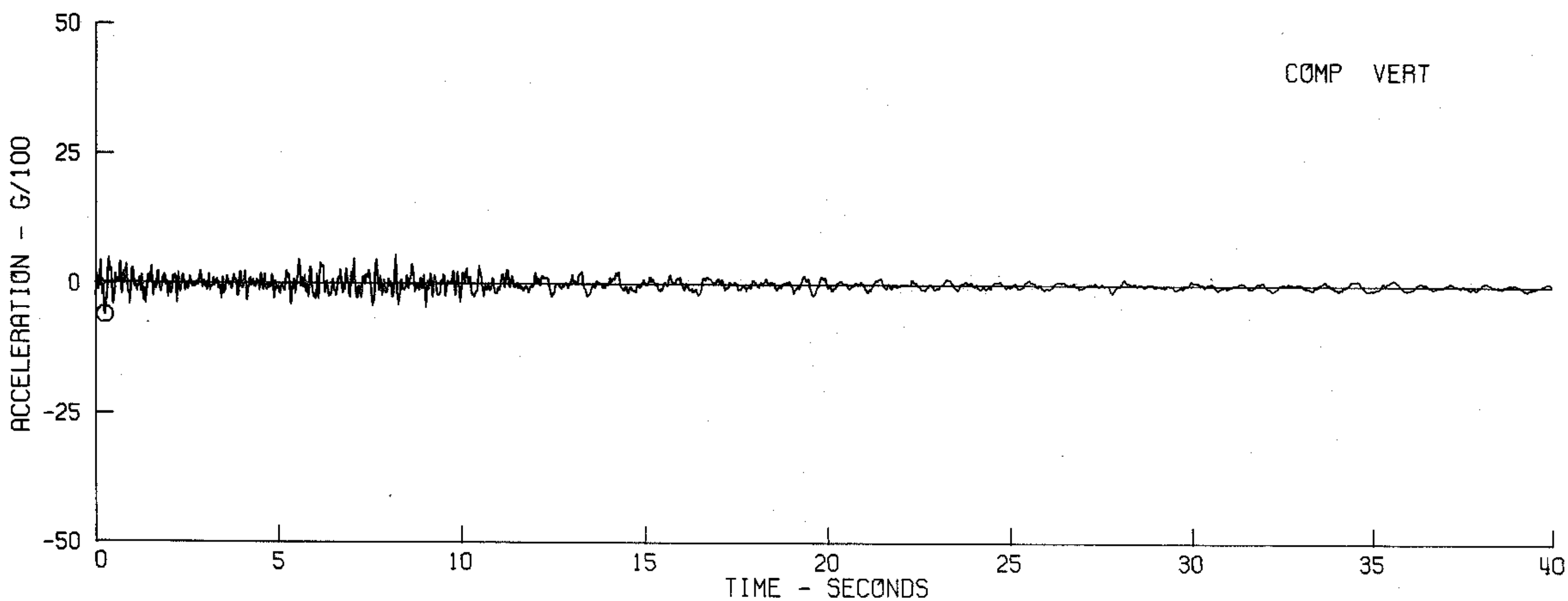


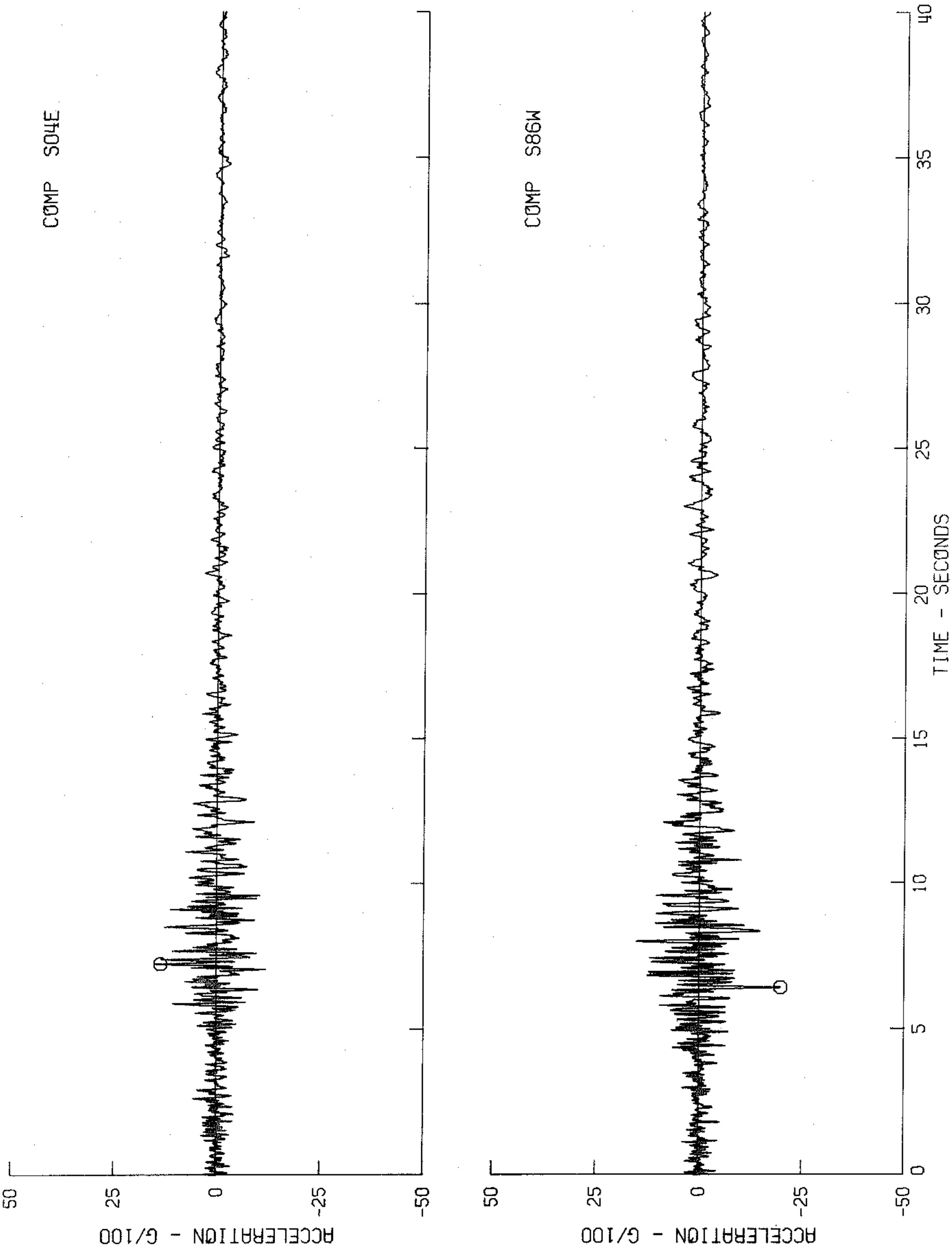

COMP NORTH
COMP EAST
ACCELERATION - G/100
ACCELERATION - G/100
TIME - SECONDS
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40

PUGET SØUND, WASHINGTØN EARTHQUAKE APR 29, 1965 - 0728 PST
EPICENTER 47 24 00N,122 18 00W
MAGNITUDE 6.4

ØLYMPIA, WASHINGTØN HWY TEST LAB - STATIØN NØ. 325 47 02 00N,122 54 00W

CØRRECTED ACCELERØGRAM SET IIB032, ⓘ PEAK VALUES... VERT -59.9 CM/SEC/SEC
S04E 134.2 CM/SEC/SEC
S86W -194.3 CM/SEC/SEC

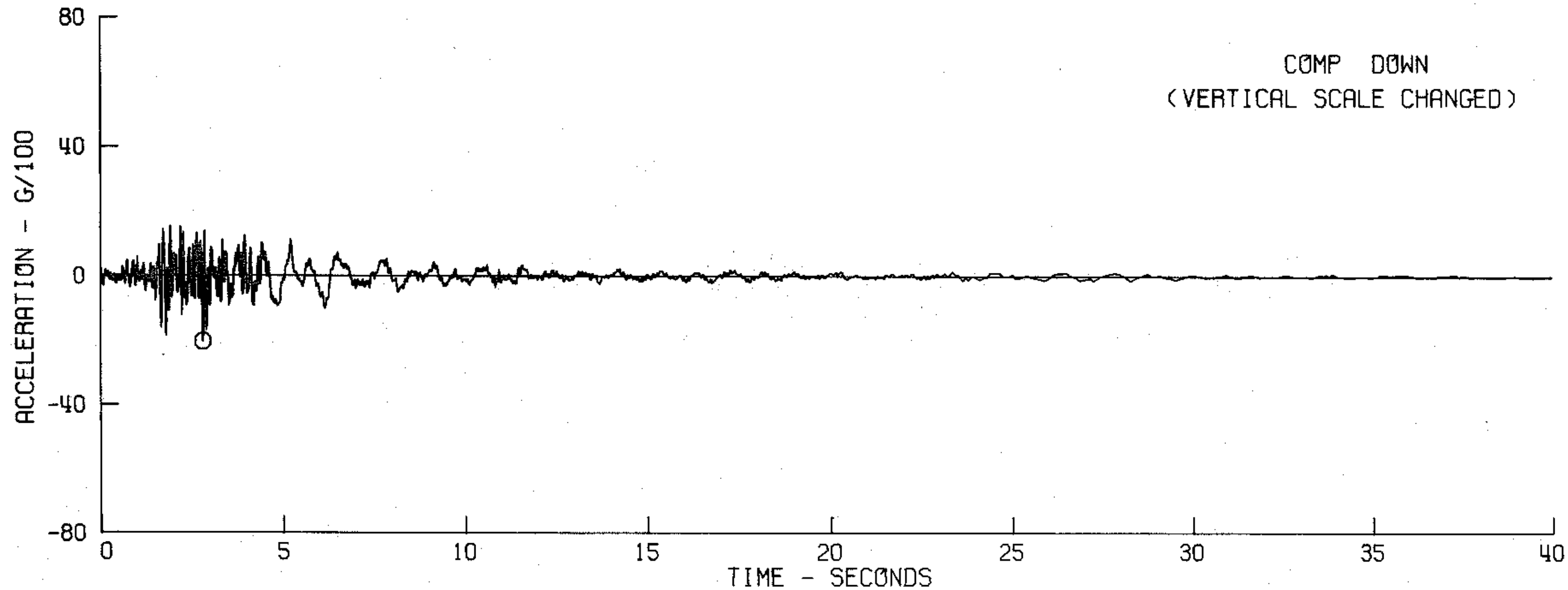


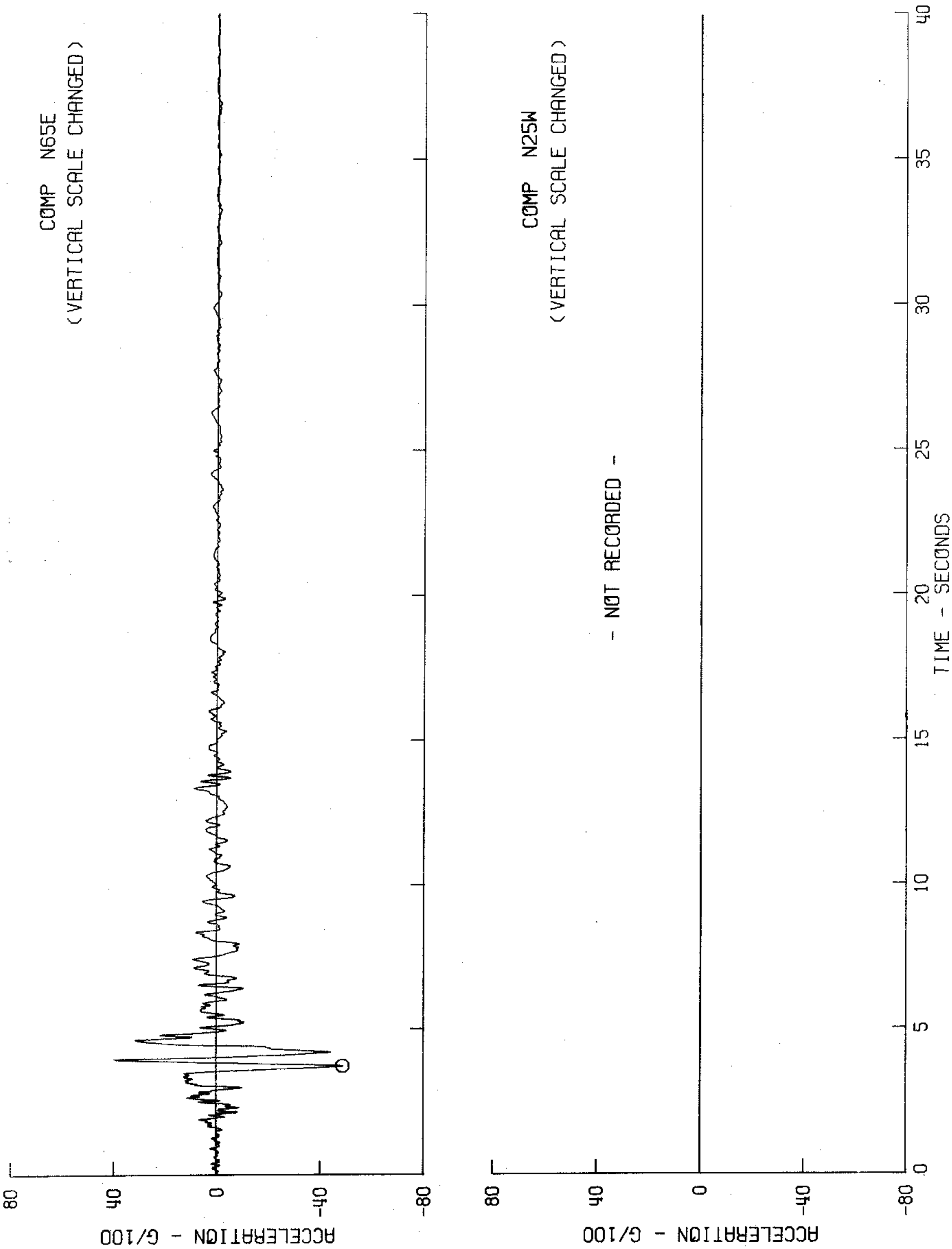

COMP S04E
COMP S86W
ACCELERATION - G/100
ACCELERATION - G/100
TIME - SECONDS
50
25
0
-25
-50
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40

PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
EPICENTER 35 54 00N,120 54 00W
MAGNITUDE 5.8

CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 2 - STATION NO. 013 35 43 35N,120 17 13W

CORRECTED ACCELEROGRAM SET IIB033, ⊙ PEAK VALUES... DOWN -202.2 CM/SEC/SEC
N65E -479.6 CM/SEC/SEC
N25W NOT RECORDED



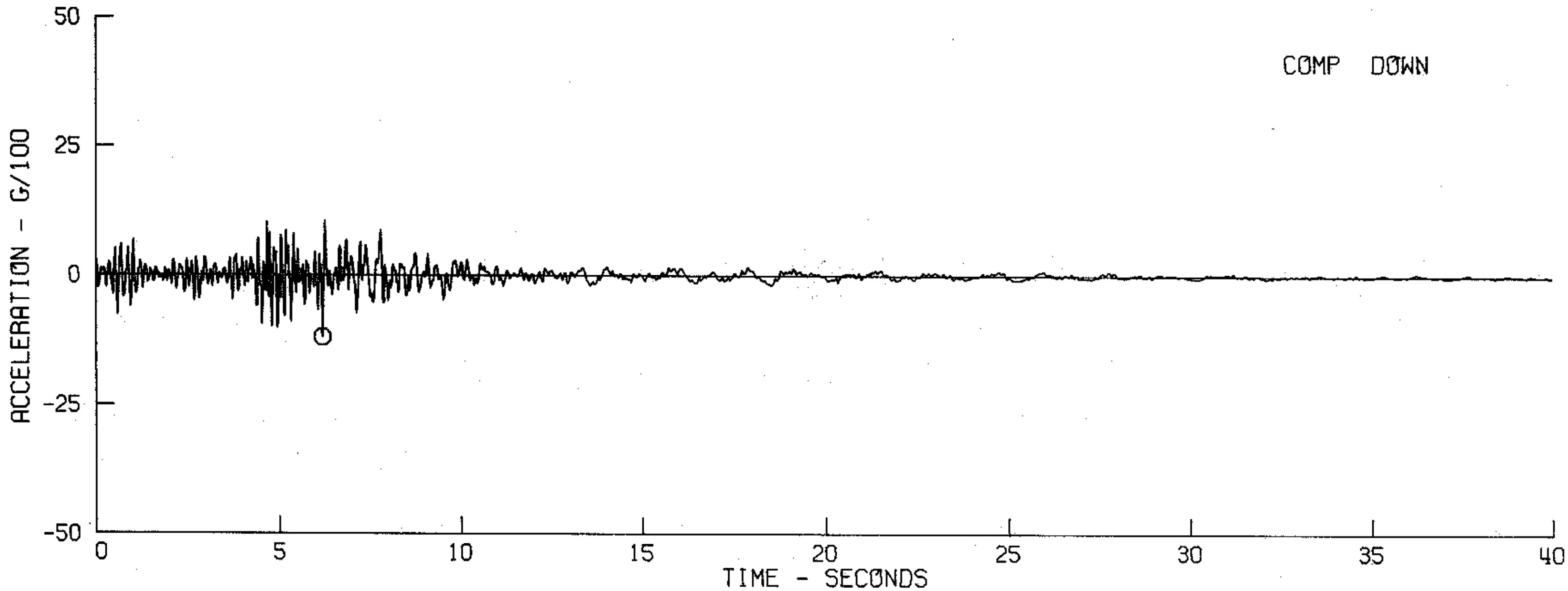

COMP N65E
(VERTICAL SCALE CHANGED)
COMP N25W
(VERTICAL SCALE CHANGED)
- NOT RECORDED -
ACCELERATION - G/100
80
40
0
-40
-80
ACCELERATION - G/100
80
40
0
-40
-80
0
5
10
15
20
25
30
35
40
TIME - SECONDS

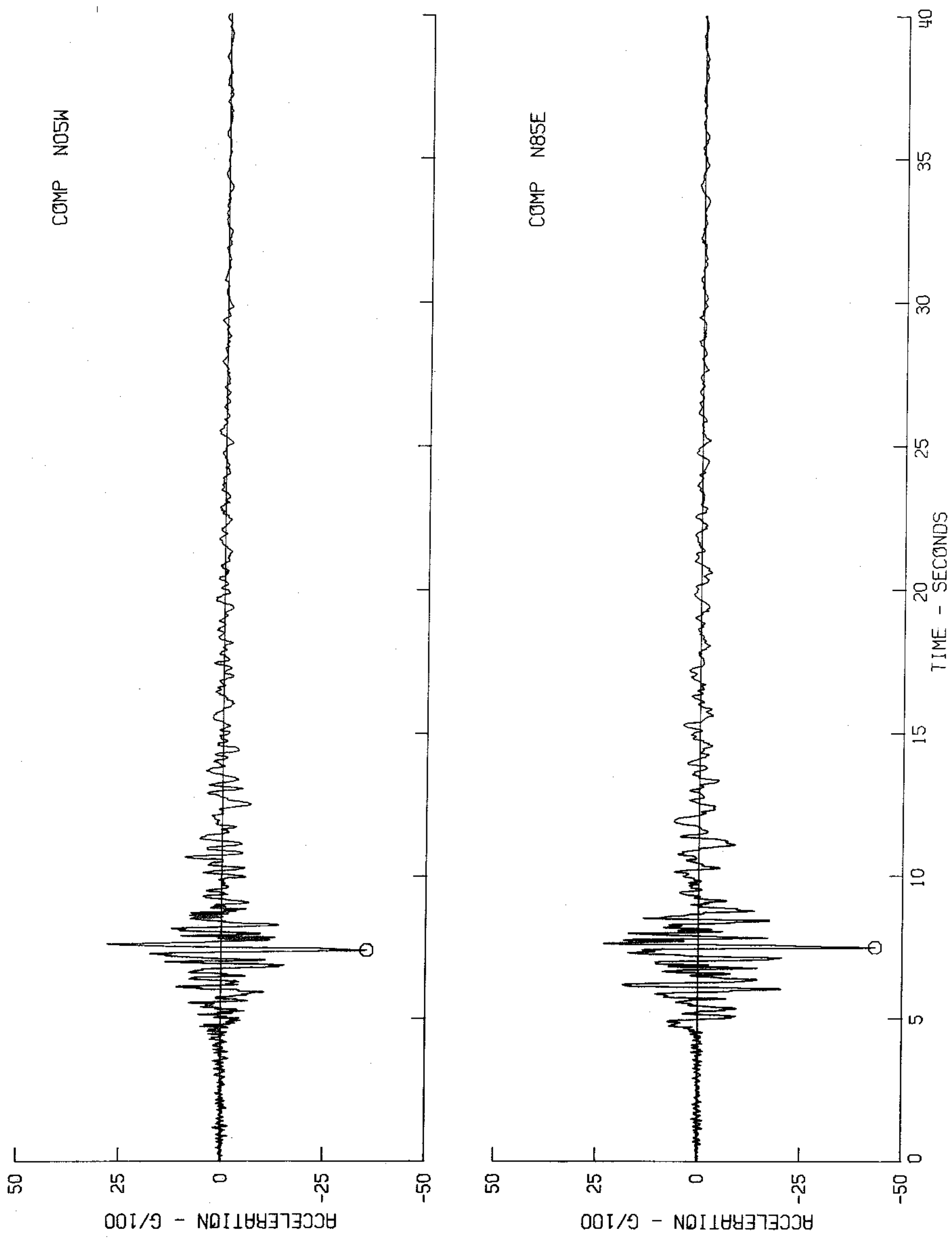
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
EPICENTER 35 54 00N,120 54 00W
MAGNITUDE 5.8

CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 5 - STATION NO. 014 35 42 00N,120 19 42W

CORRECTED ACCELEROGRAM SET IIB034, ⊕ PEAK VALUES...

DOWN	-116.9	CM/SEC/SEC
N05W	-347.8	CM/SEC/SEC
N85E	-425.7	CM/SEC/SEC



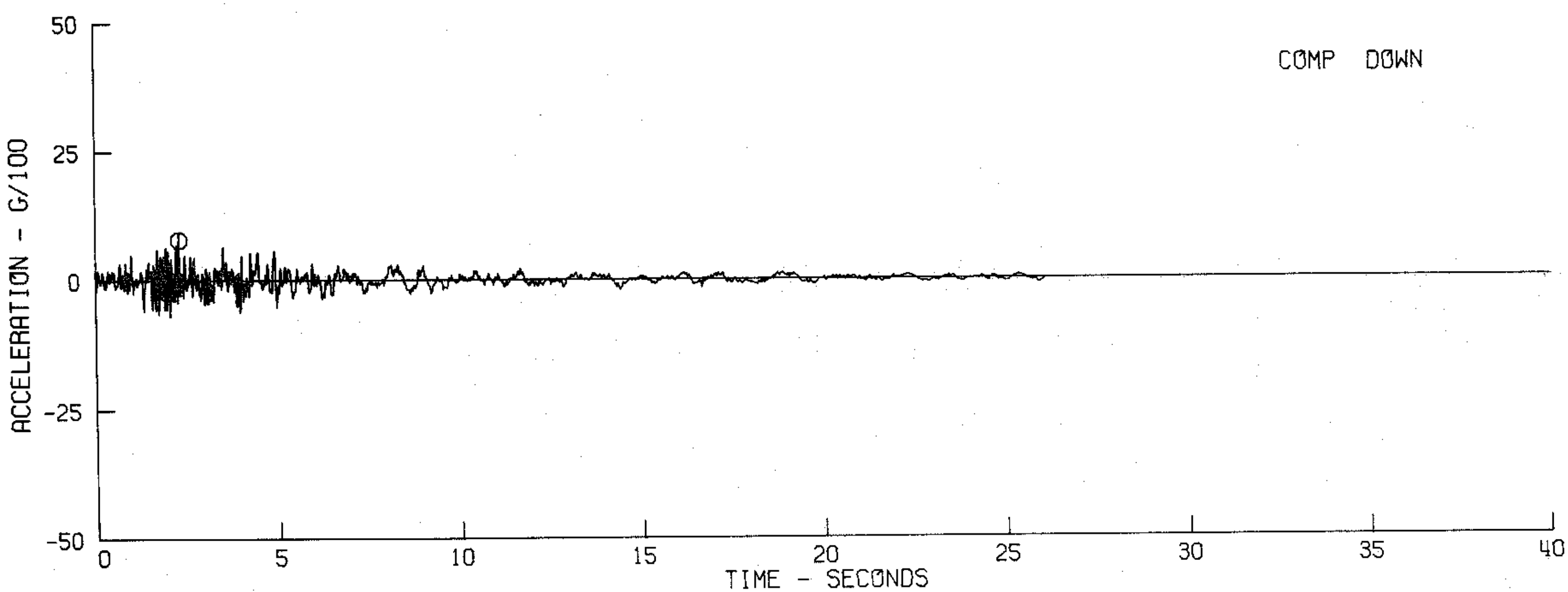

COMP N05W
COMP N85E
ACCELERATION - G/100
ACCELERATION - G/100
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40
TIME - SECONDS

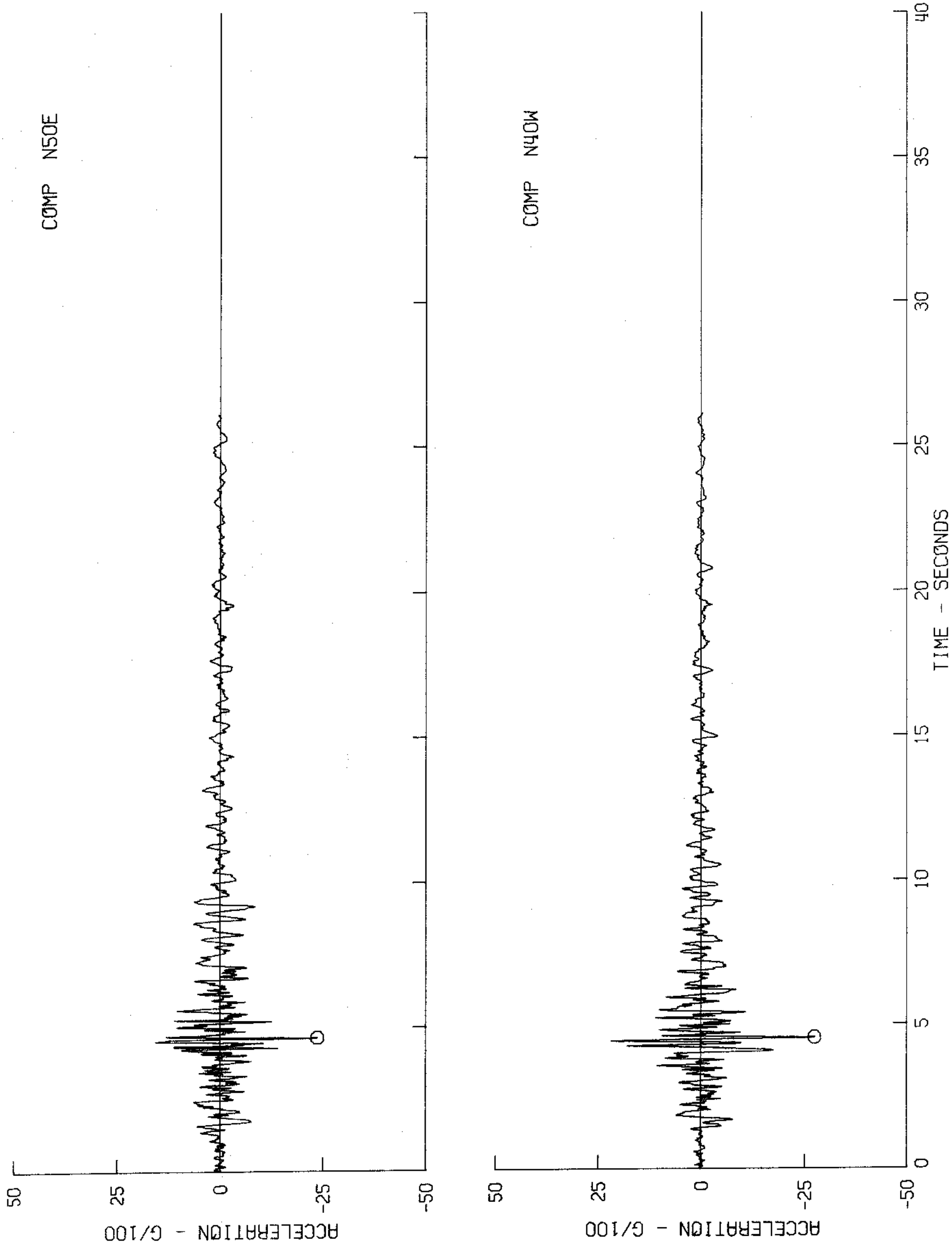
PARKFIELD, CALIFØRNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
EPICENTER 35 54 00N,120 54 00W
MAGNITUDE 5.8

CHØLAME,SHANDØN, CALIFØRNIA ARRAY NØ. 8 - STATIØN NØ. 015 35 40 18N,120 54 00W

CØRRECTED ACCELERØGRAM SET IIB035, ⓘ PEAK VALUES...

DØWN	77.7	CM/SEC/SEC
N50E	-232.6	CM/SEC/SEC
N40W	-269.6	CM/SEC/SEC

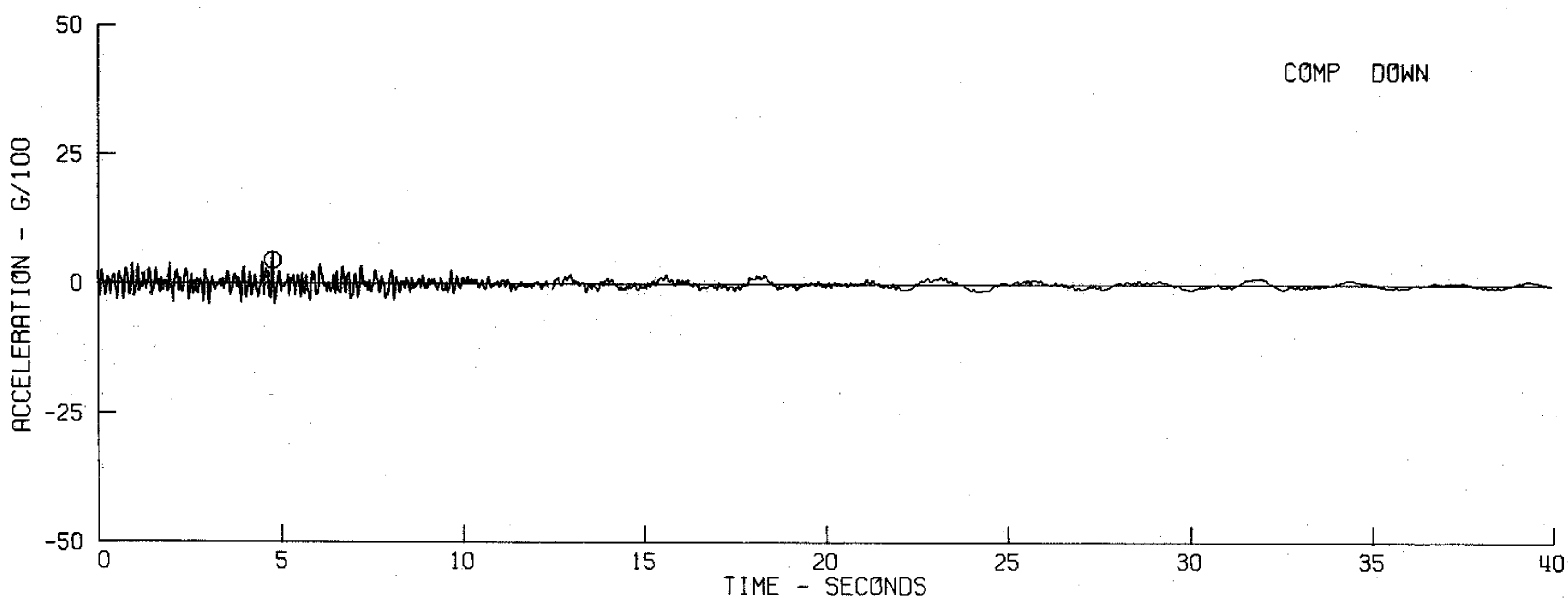


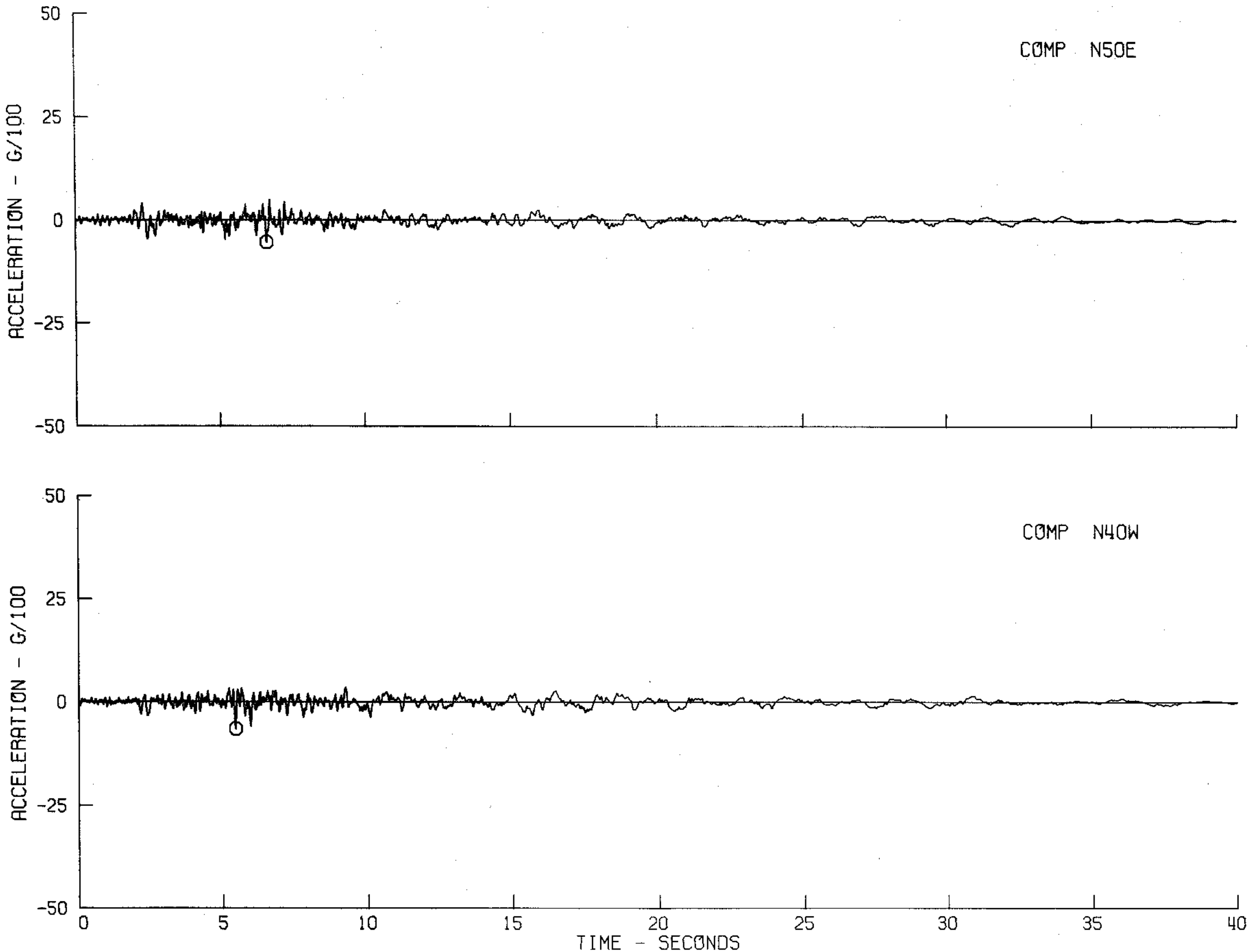

COMP N50E
COMP N40W
ACCELERATION - G/100
ACCELERATION - G/100
50
25
0
-25
-50
TIME - SECONDS
0
5
10
15
20
25
30
35
40

PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
EPICENTER 35 54 00N,120 54 00W
MAGNITUDE 5.8

CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 12 - STATION NO. 016 35 38 12N,120 24 12W

CORRECTED ACCELEROGRAM SET IIB036, ⊕ PEAK VALUES... DOWN 44.6 CM/SEC/SEC
N50E -52.1 CM/SEC/SEC
N40W -63.2 CM/SEC/SEC

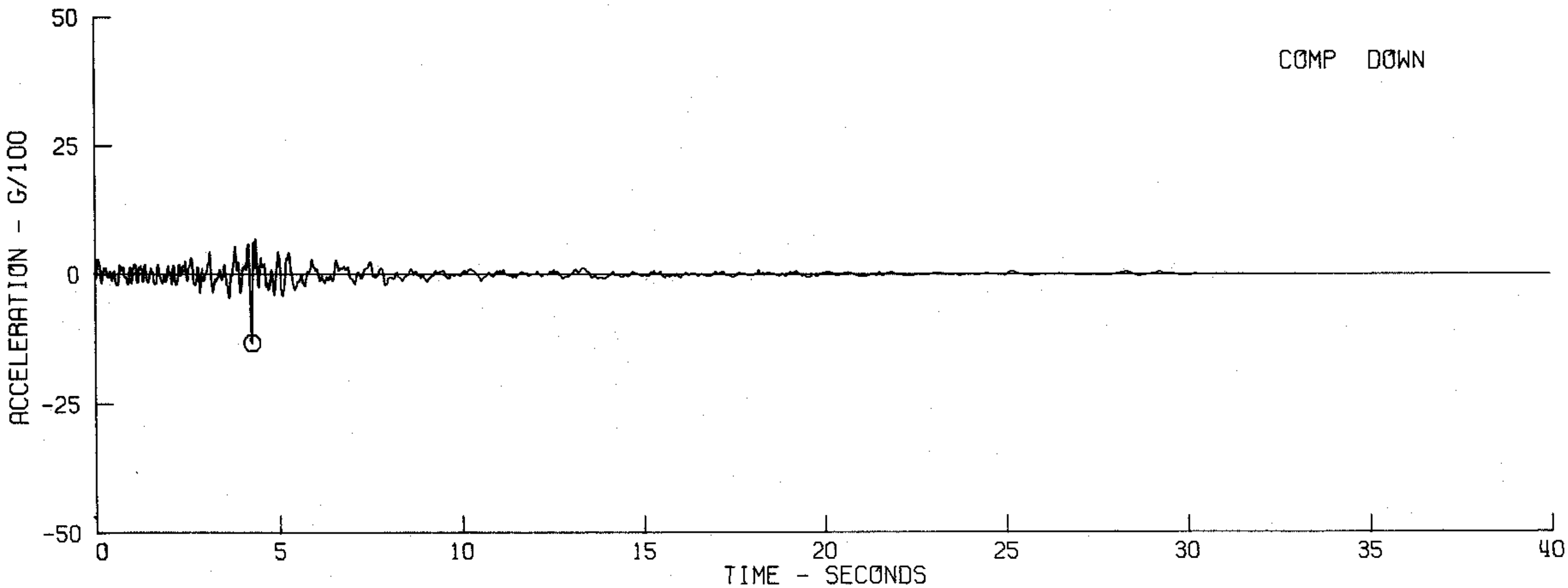


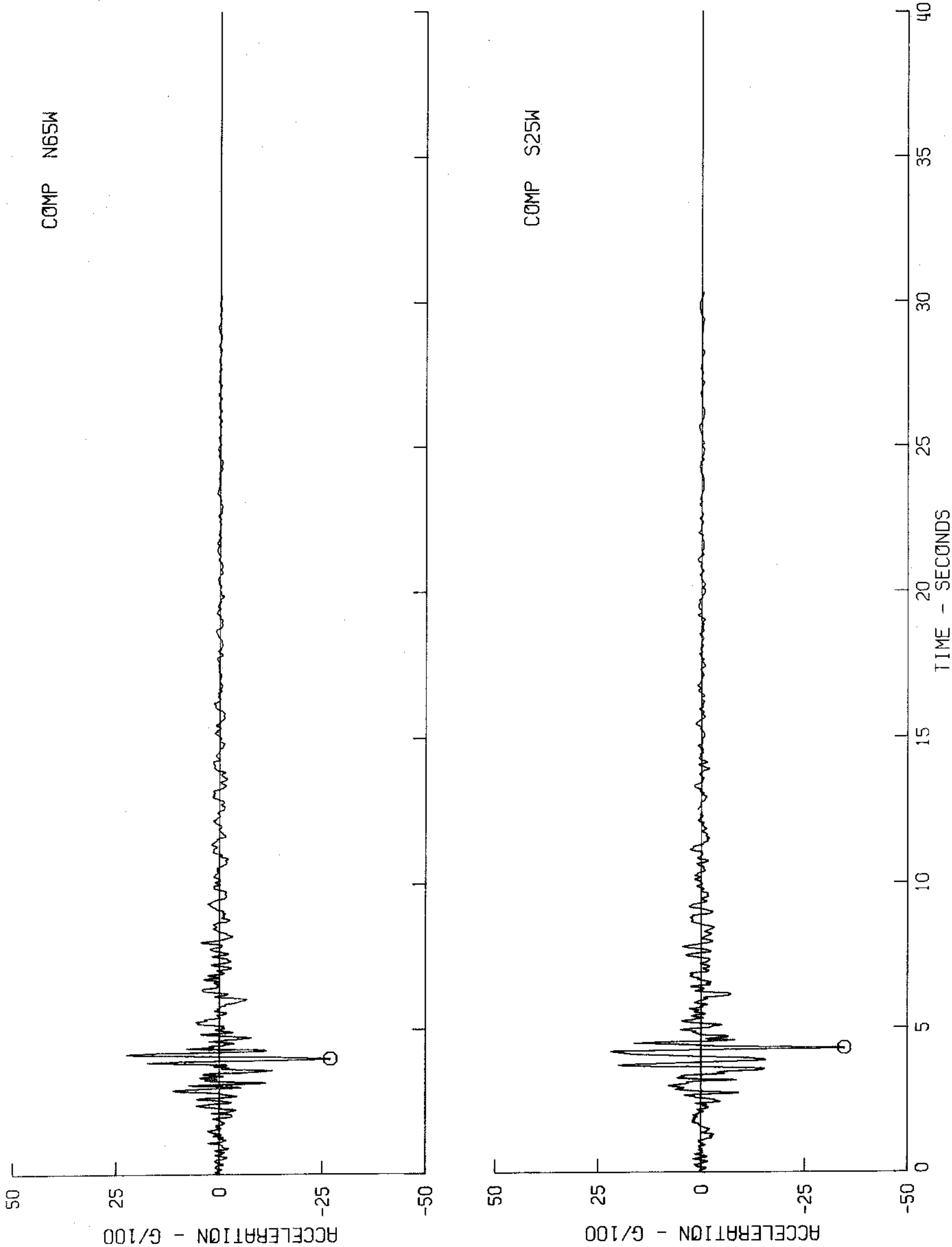

COMP N50E
COMP N40W
ACCELERATION - G/100
ACCELERATION - G/100
50
25
0
-25
-50
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40
TIME - SECONDS

PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
EPICENTER 35 54 00N,120 54 00W
MAGNITUDE 5.8

TEMBLOR, CALIFORNIA NO. 2 - STATION NO. 097 35 45 07N,120 15 52W

CORRECTED ACCELEROGRAM SET IIB037. ⊙ PEAK VALUES... DOWN -129.8 CM/SEC/SEC
N65W -264.3 CM/SEC/SEC
S25W -340.8 CM/SEC/SEC



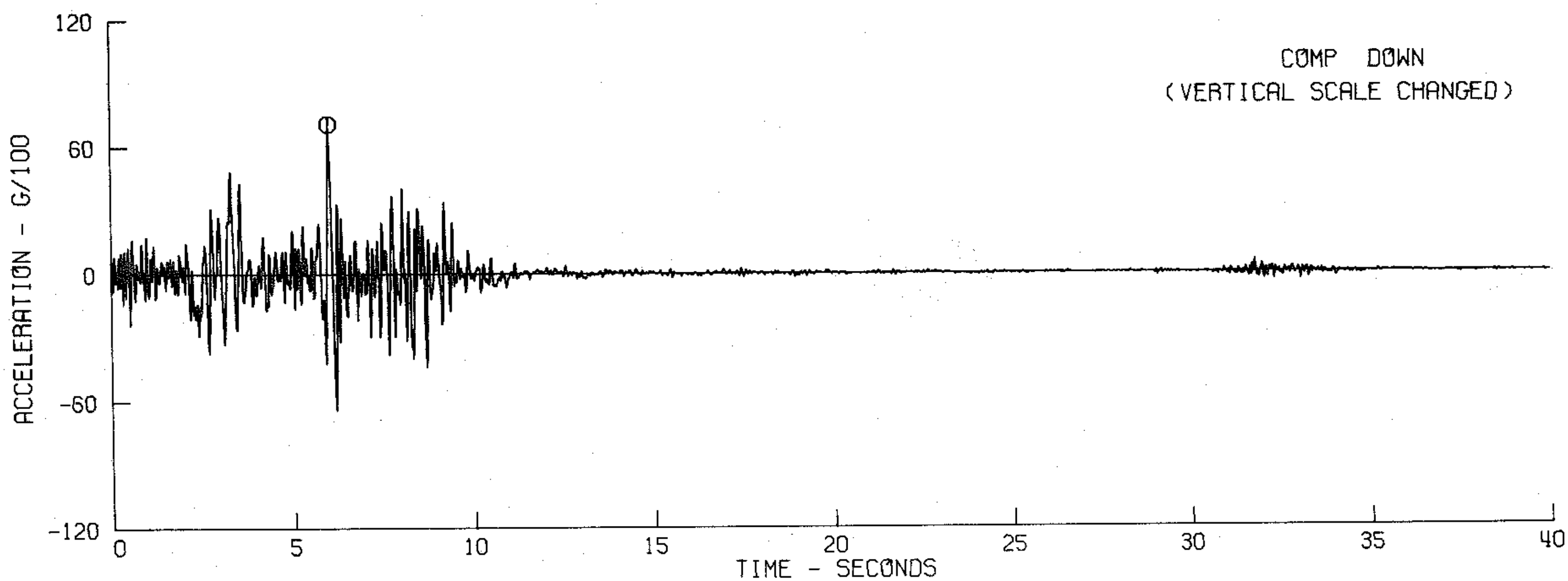


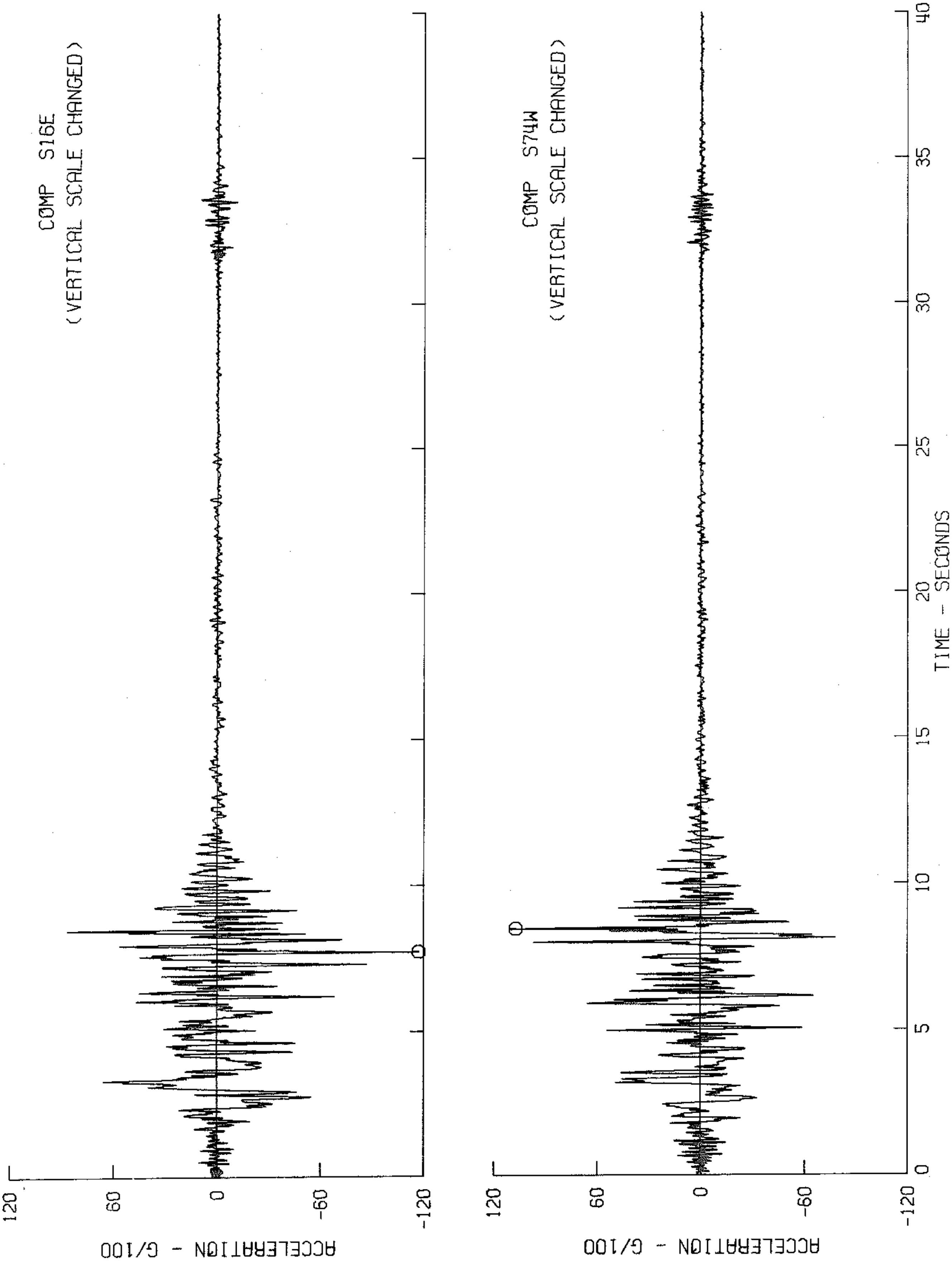
COMP N65W
COMP S25W
ACCELERATION - G/100
ACCELERATION - G/100
50
25
0
-25
-50
TIME - SECONDS
0
5
10
15
20
25
30
35
40

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
EPICENTER 34 24 00N,118 23 42W
MAGNITUDE 6.3

PACOIMA DAM, CAL. - STATION NO. 279 34 20 06N,118 23 48W

CORRECTED ACCELEROGRAM SET IIC041, ① PEAK VALUES... DOWN 696.0 CM/SEC/SEC
S16E -1148.1 CM/SEC/SEC
S74W 1054.9 CM/SEC/SEC

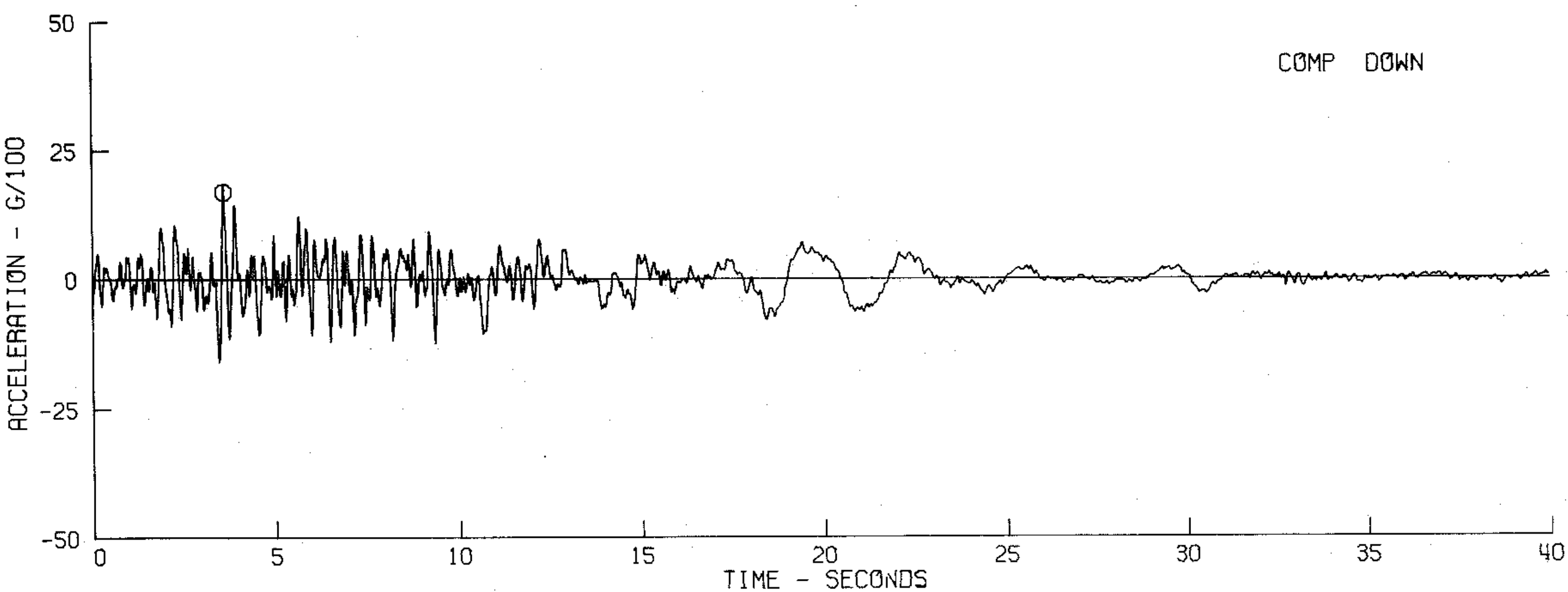


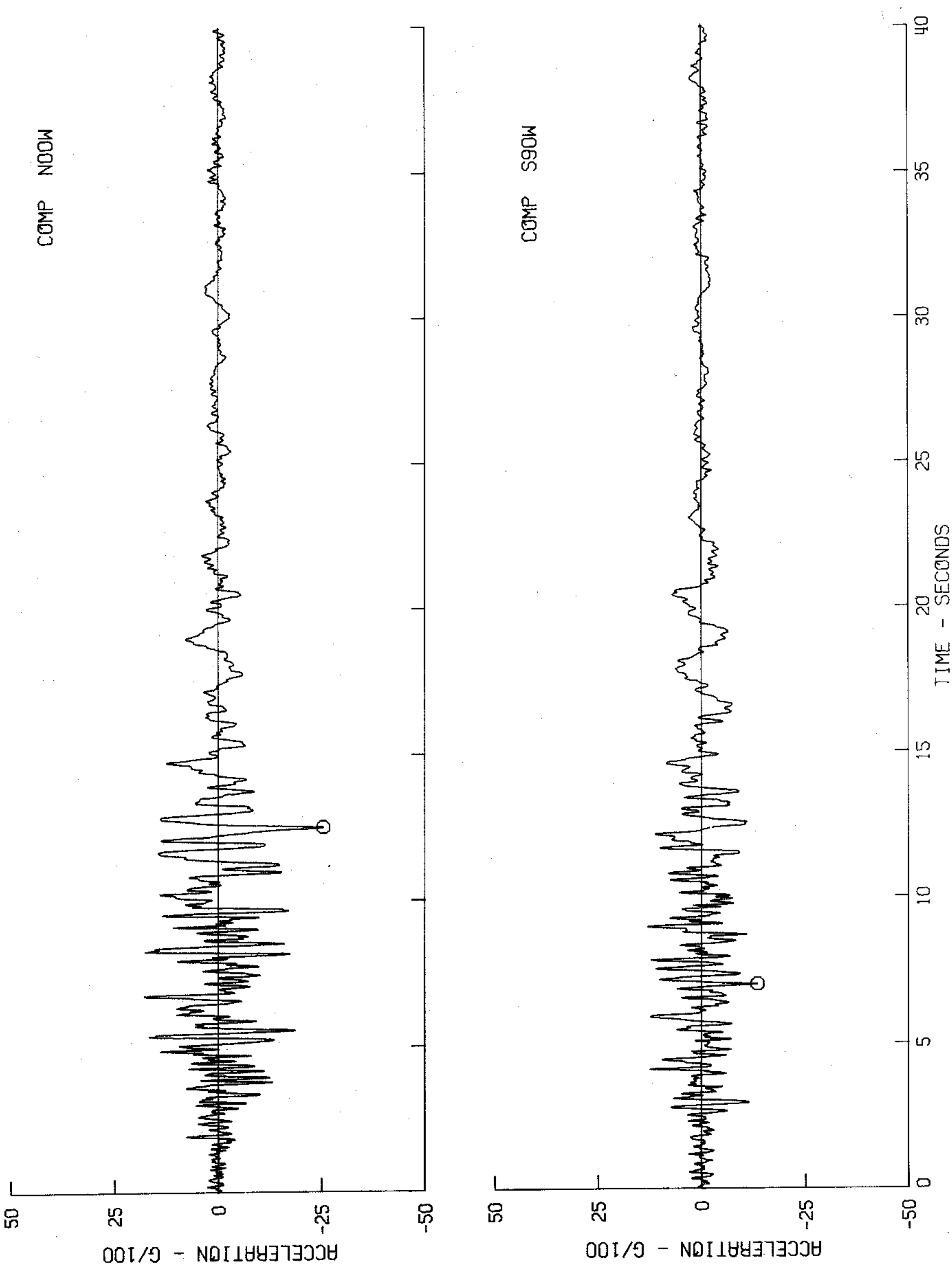

COMP S16E
(VERTICAL SCALE CHANGED)
COMP S74W
(VERTICAL SCALE CHANGED)
ACCELERATION - G/100
120
60
0
-60
-120
TIME - SECONDS
0
5
10
15
20
25
30
35
40

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
EPICENTER 34 24 00N,118 23 42W
MAGNITUDE 6.3

8244 ORION BLVD. 1ST FLOOR, LOS ANGELES, CAL. - STATION NO. 241 34 13 16N,118 28 16W

CORRECTED ACCELEROGRAM SET IIC048, ⦶ PEAK VALUES... DOWN 167.5 CM/SEC/SEC
NOOW -250.0 CM/SEC/SEC
S90W -131.7 CM/SEC/SEC

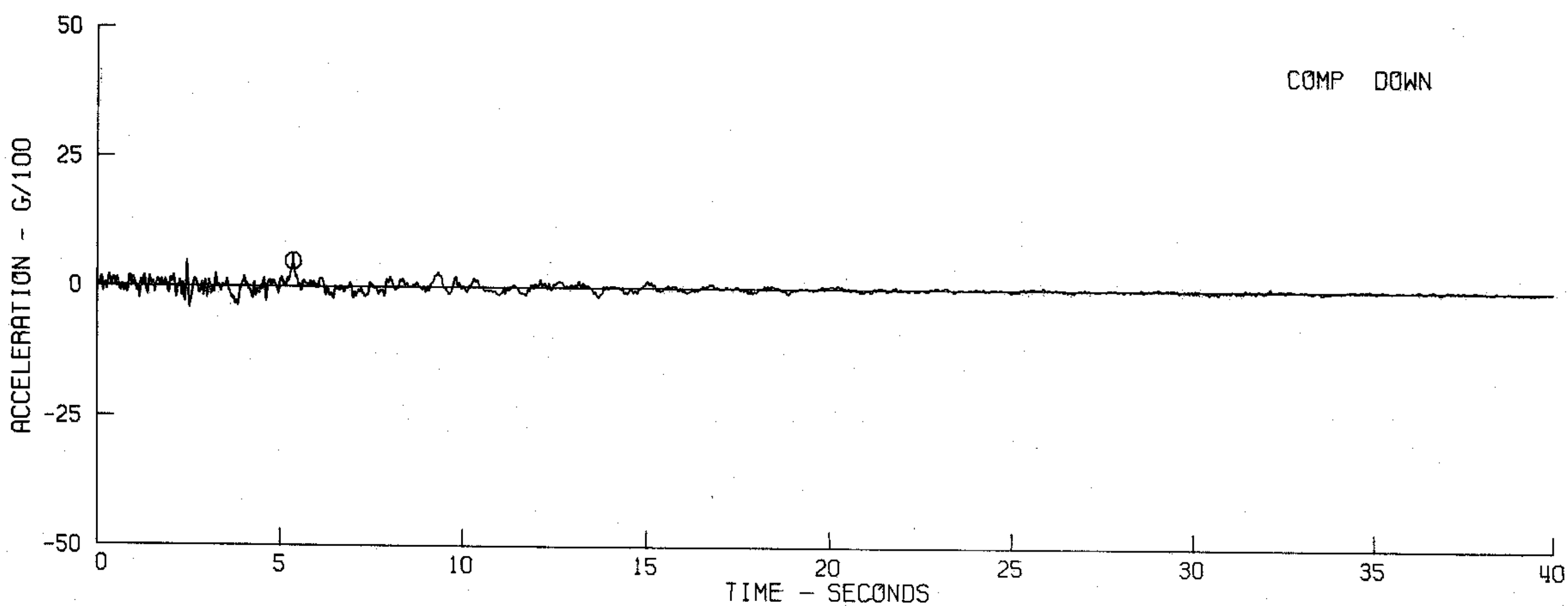


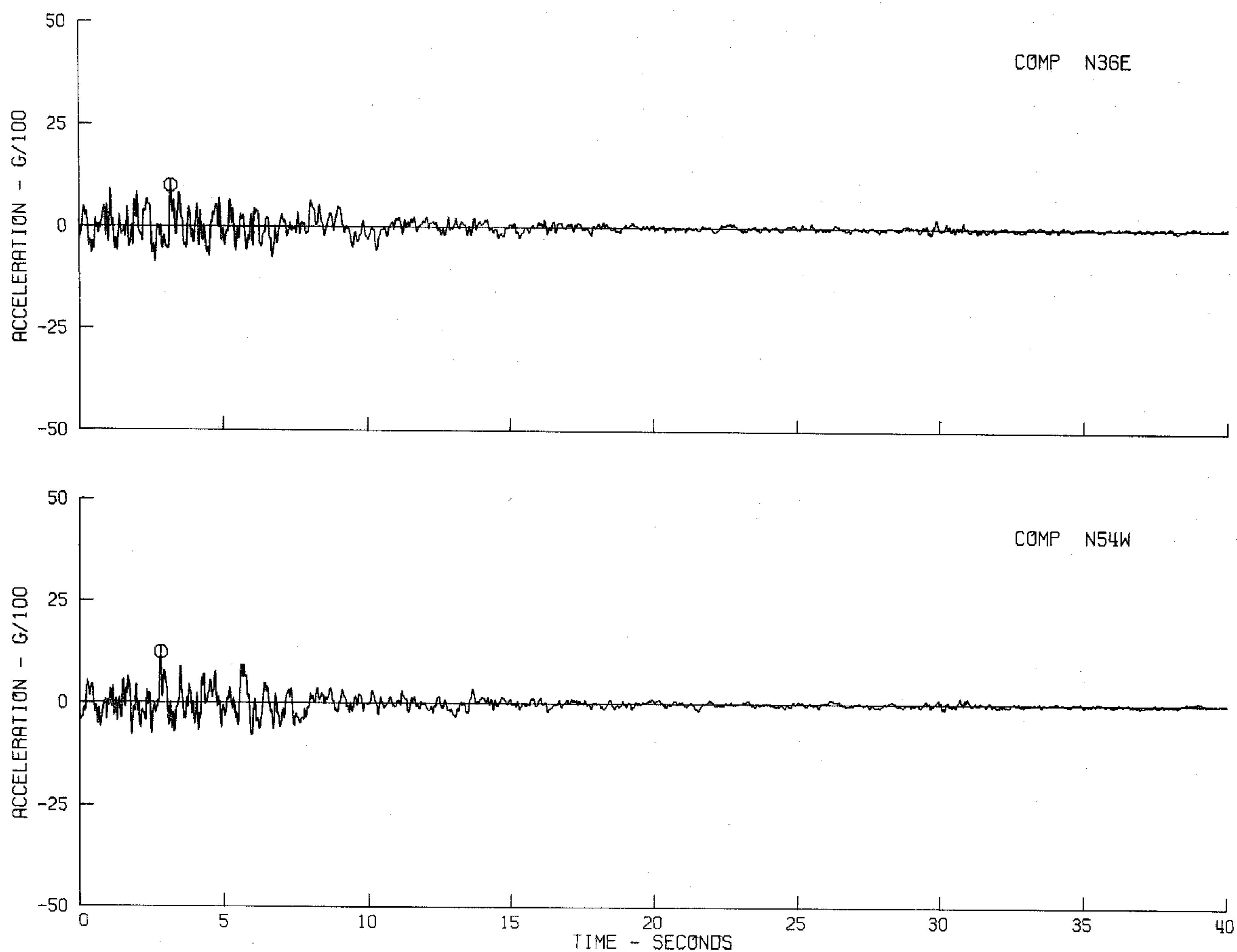

COMP N00W
COMP S90W
ACCELERATION - G/100
ACCELERATION - G/100
TIME - SECONDS
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
EPICENTER 34 24 00N,118 23 42W
MAGNITUDE 6.3

250 E FIRST STREET BASEMENT, LOS ANGELES, CAL. - STATION NO. 151 34 03 01N,118 14 26W

CORRECTED ACCELEROGRAM SET IIC051, ① PEAK VALUES... DOWN 48.0 CM/SEC/SEC
N36E 97.8 CM/SEC/SEC
N54W 122.7 CM/SEC/SEC

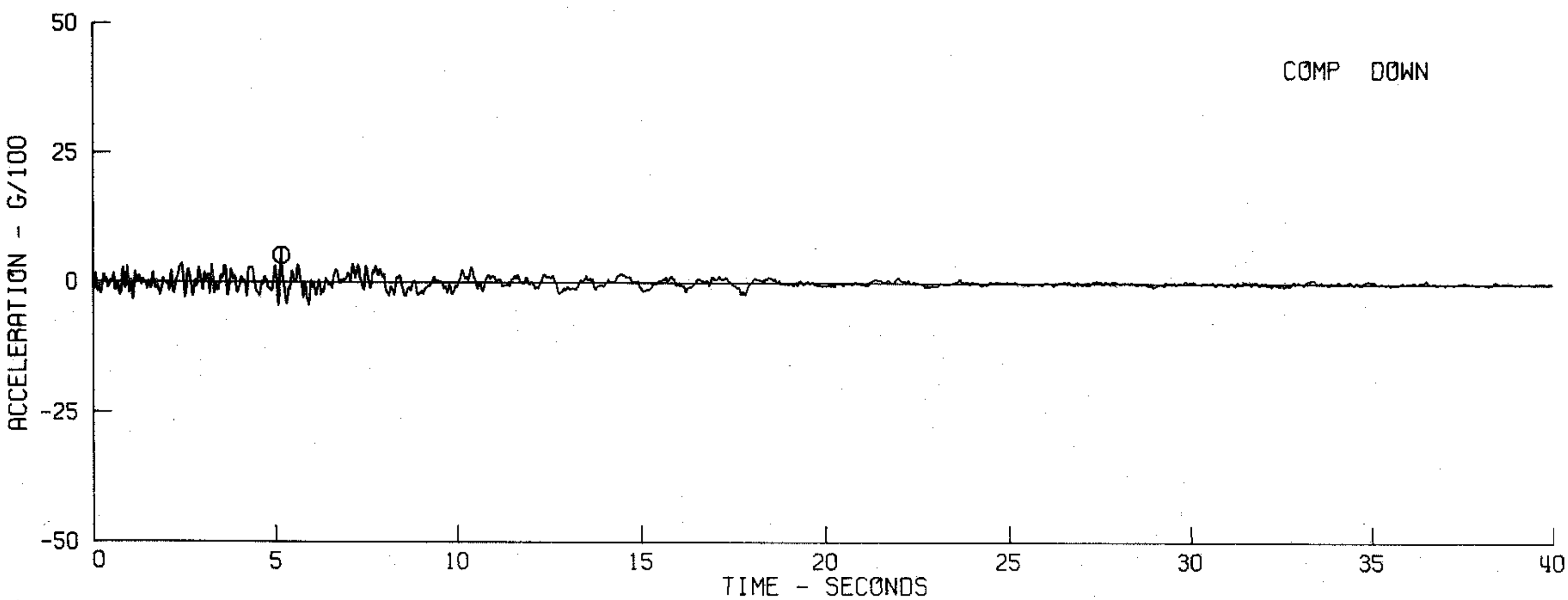


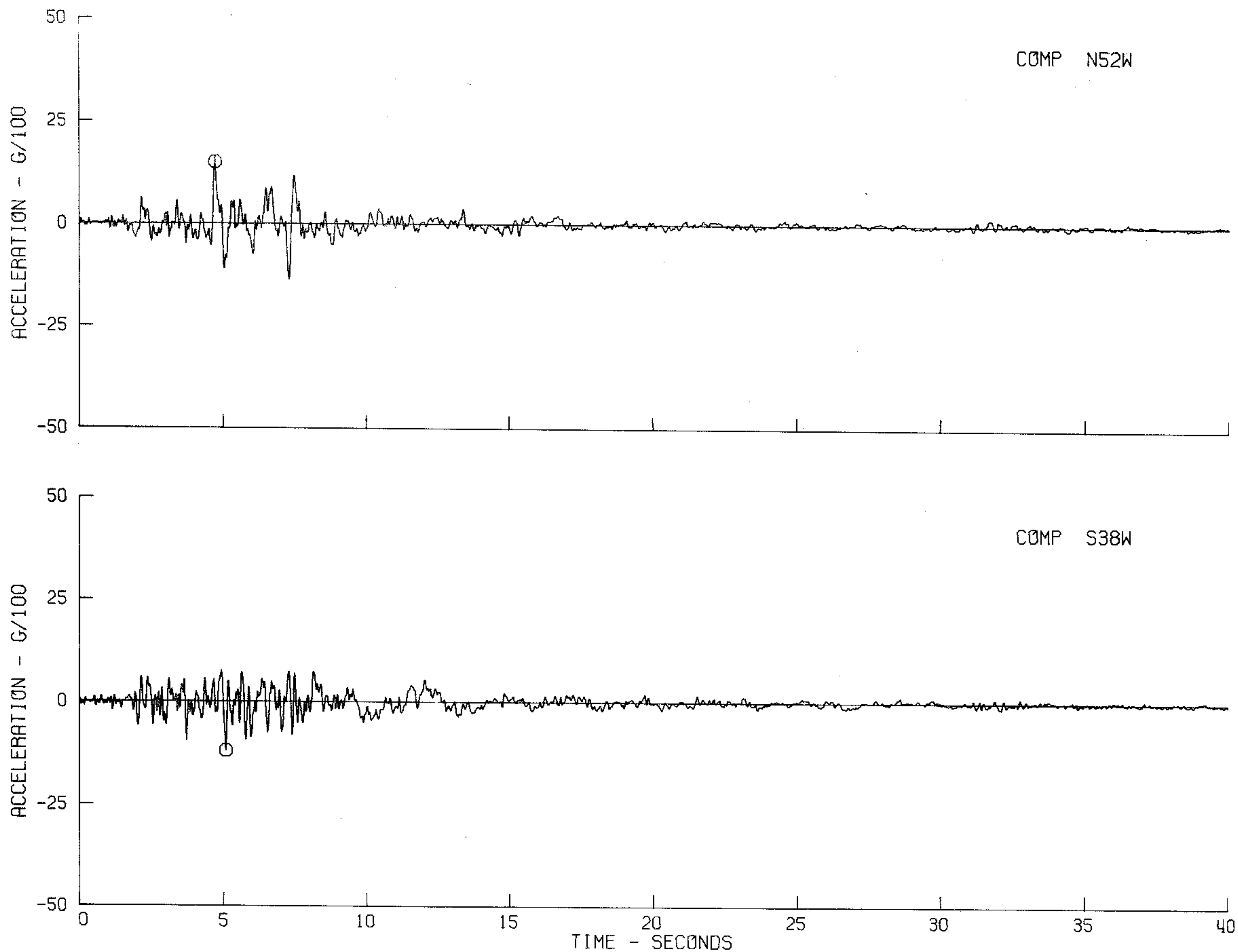

COMP N36E
COMP N54W
ACCELERATION - G/100
50
25
0
-25
-50
TIME - SECONDS
0
5
10
15
20
25
30
35
40

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
EPICENTER 34 24 00N,118 23 42W
MAGNITUDE 6.3

445 FIGUEROA STREET, SUB-BASEMENT, LOS ANGELES, CAL. - STATION NO. 157 34 03 12N,118 15 24W

CORRECTED ACCELEROGRAM SET IIC054, ⓘ PEAK VALUES... DOWN 51.7 CM/SEC/SEC
N52W 147.1 CM/SEC/SEC
S38W -117.0 CM/SEC/SEC

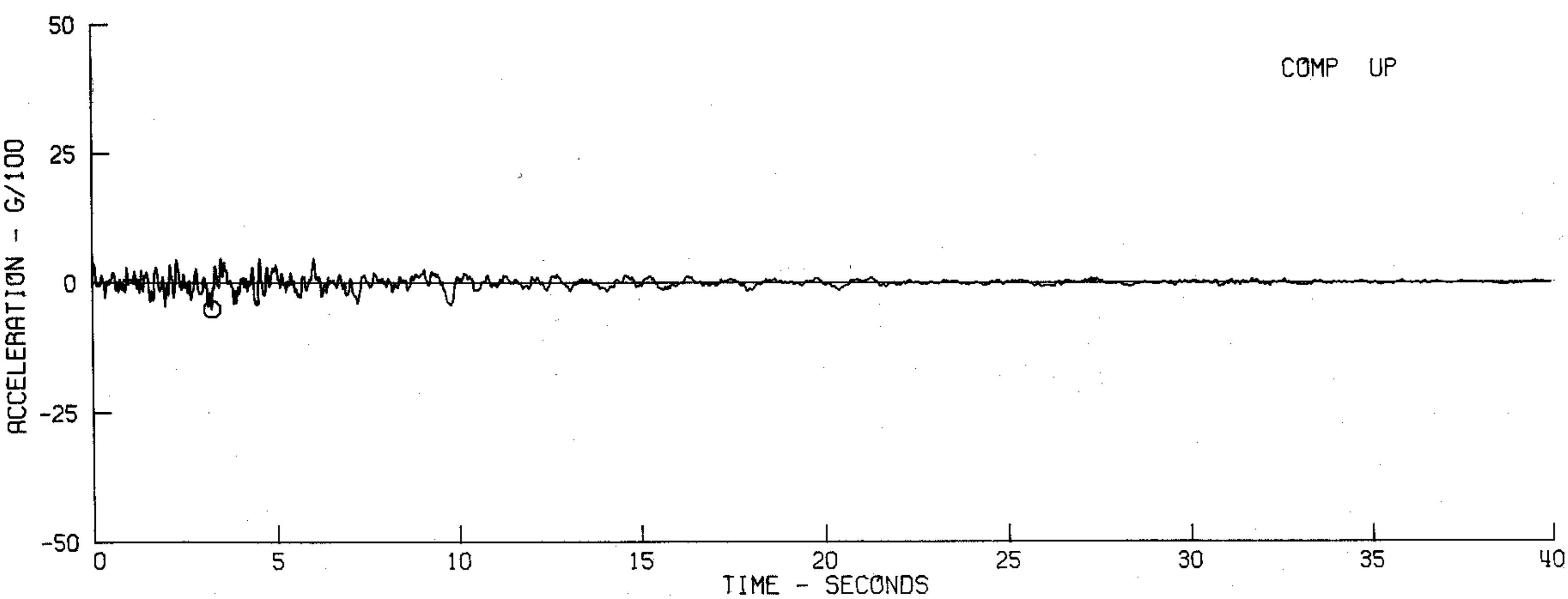


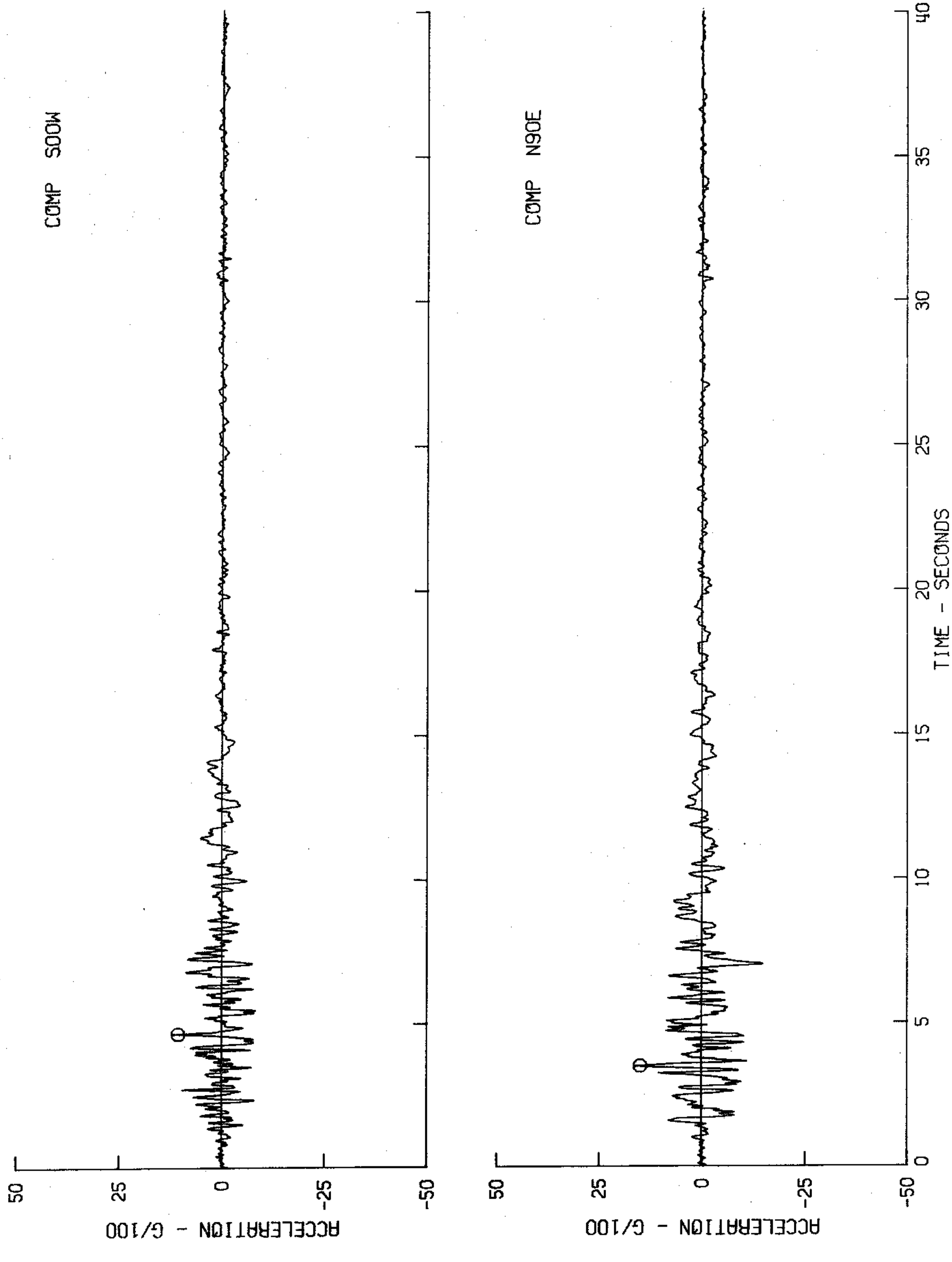

COMP N52W
COMP S38W
ACCELERATION - G/100
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40
TIME - SECONDS

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
EPICENTER 34 24 00N,118 23 42W
MAGNITUDE 6.3

HOLLYWOOD STORAGE BSMT. LOS ANGELES, CAL - STATION NO. 133 34 05 00N,118 20 00W

CORRECTED ACCELEROGRAM SET IID057, ⊙ PEAK VALUES... UP -49.8 CM/SEC/SEC
S00W 103.8 CM/SEC/SEC
N90E 148.2 CM/SEC/SEC



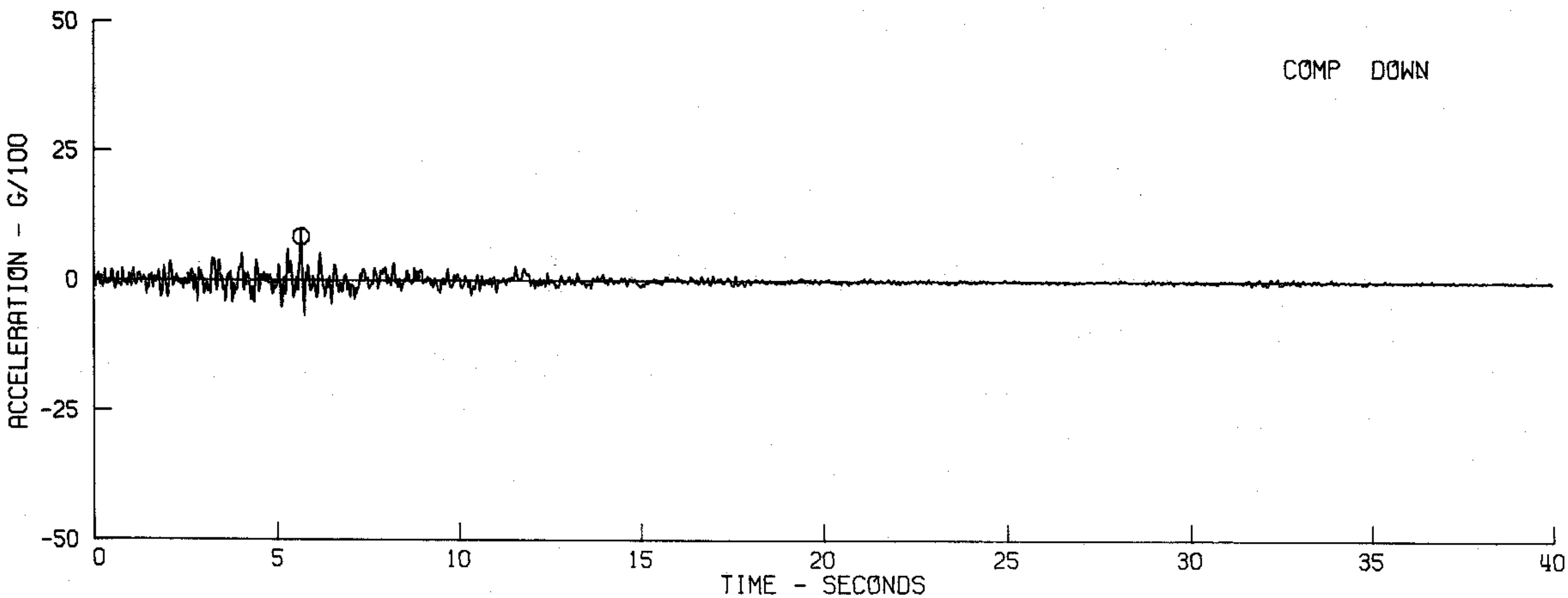

COMP S00W
COMP N90E
ACCELERATION - G/100
ACCELERATION - G/100
TIME - SECONDS
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40

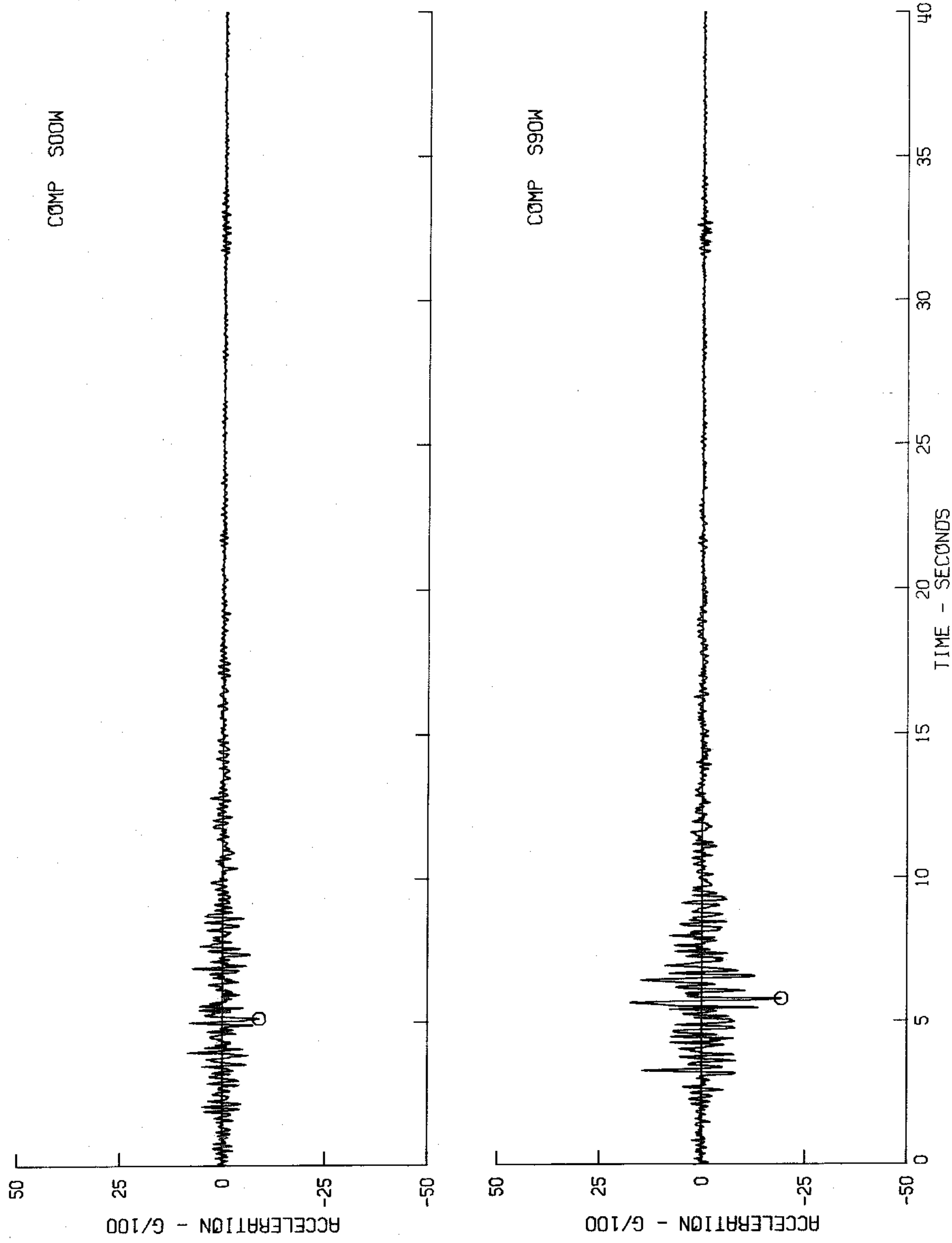
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
EPICENTER 34 24 00N,118 23 42W
MAGNITUDE 6.3

CALTECH SEISMOLOGICAL LAB., PASADENA, CAL. - STATION NO. 266 34 08 55N,118 10 15W

CORRECTED ACCELEROGRAM SET IIG106, ⊕ PEAK VALUES...

DOWN	83.5	CM/SEC/SEC
S00W	-87.5	CM/SEC/SEC
S90W	-188.6	CM/SEC/SEC

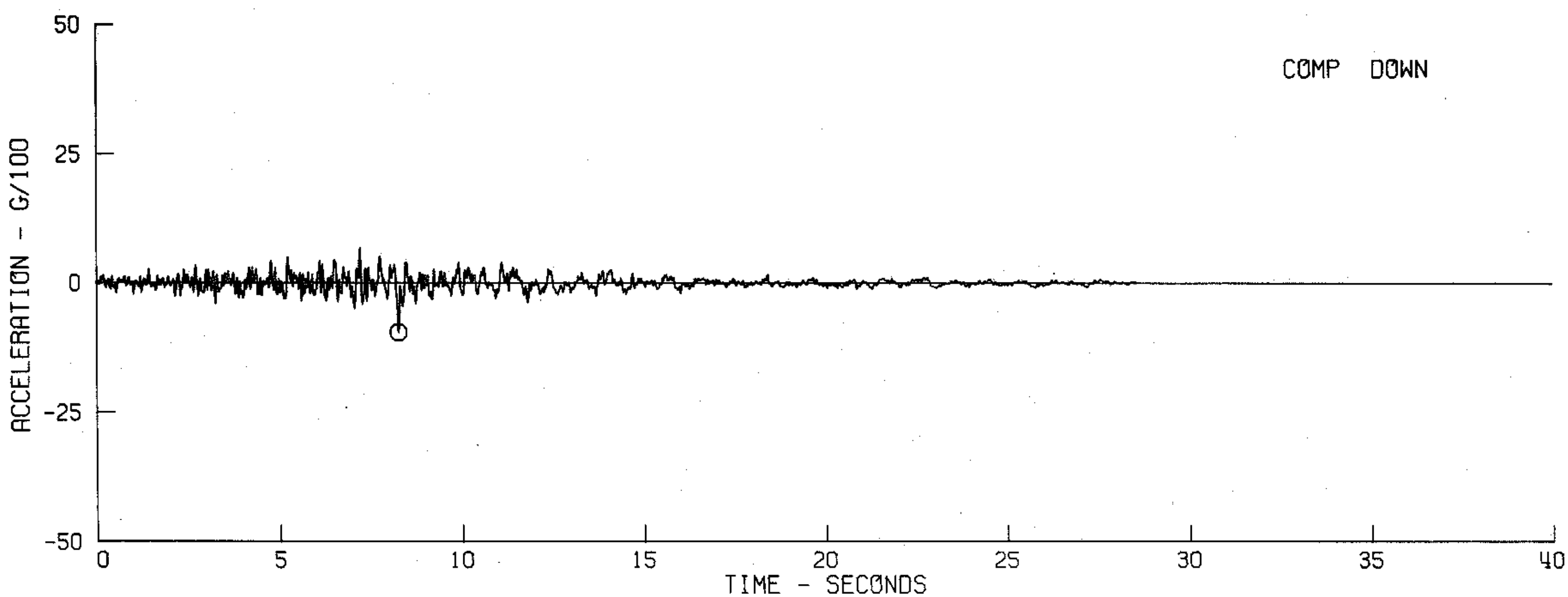


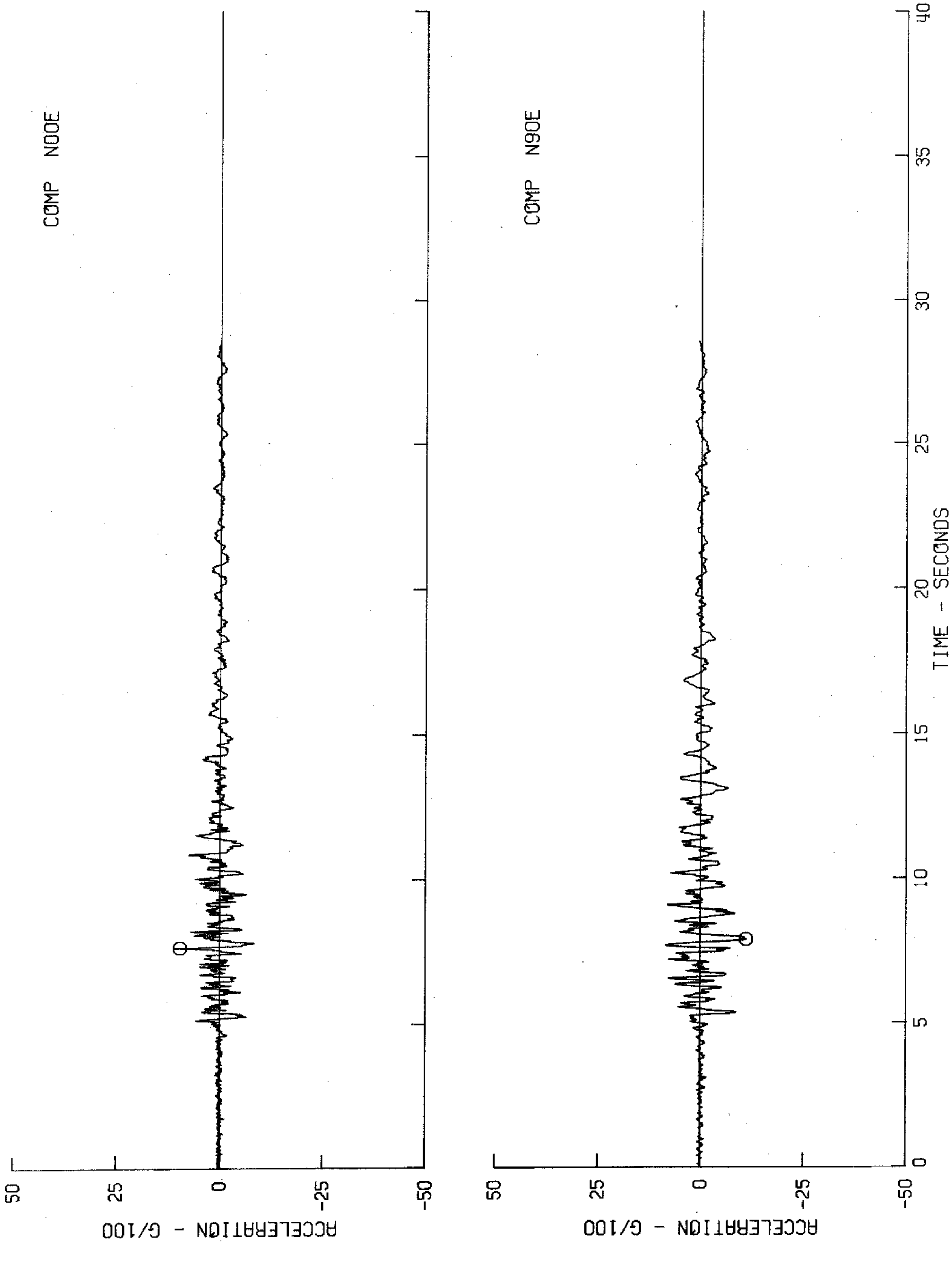

COMP S00W
COMP S90W
50
25
0
-25
-50
ACCELERATION - G/100
ACCELERATION - G/100
0
5
10
15
20
25
30
35
40
TIME - SECONDS

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
EPICENTER 34 24 00N,118 23 42W
MAGNITUDE 6.3

CALTECH ATHENAEUM, PASADENA, CAL. - STATION NO. 475 34 08 20N,118 07 17W

CORRECTED ACCELEROGRAM SET IIG107, ⊙ PEAK VALUES... DOWN -92.9 CM/SEC/SEC
NOOE 93.5 CM/SEC/SEC
N90E -107.3 CM/SEC/SEC

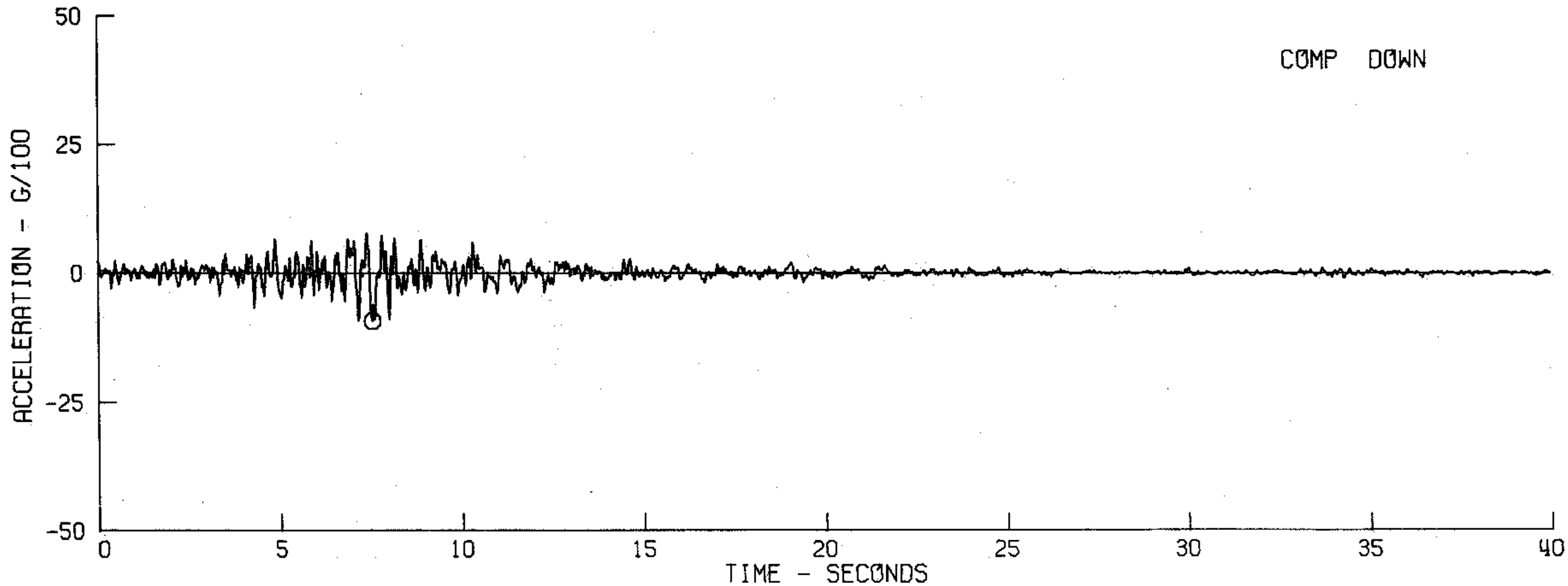


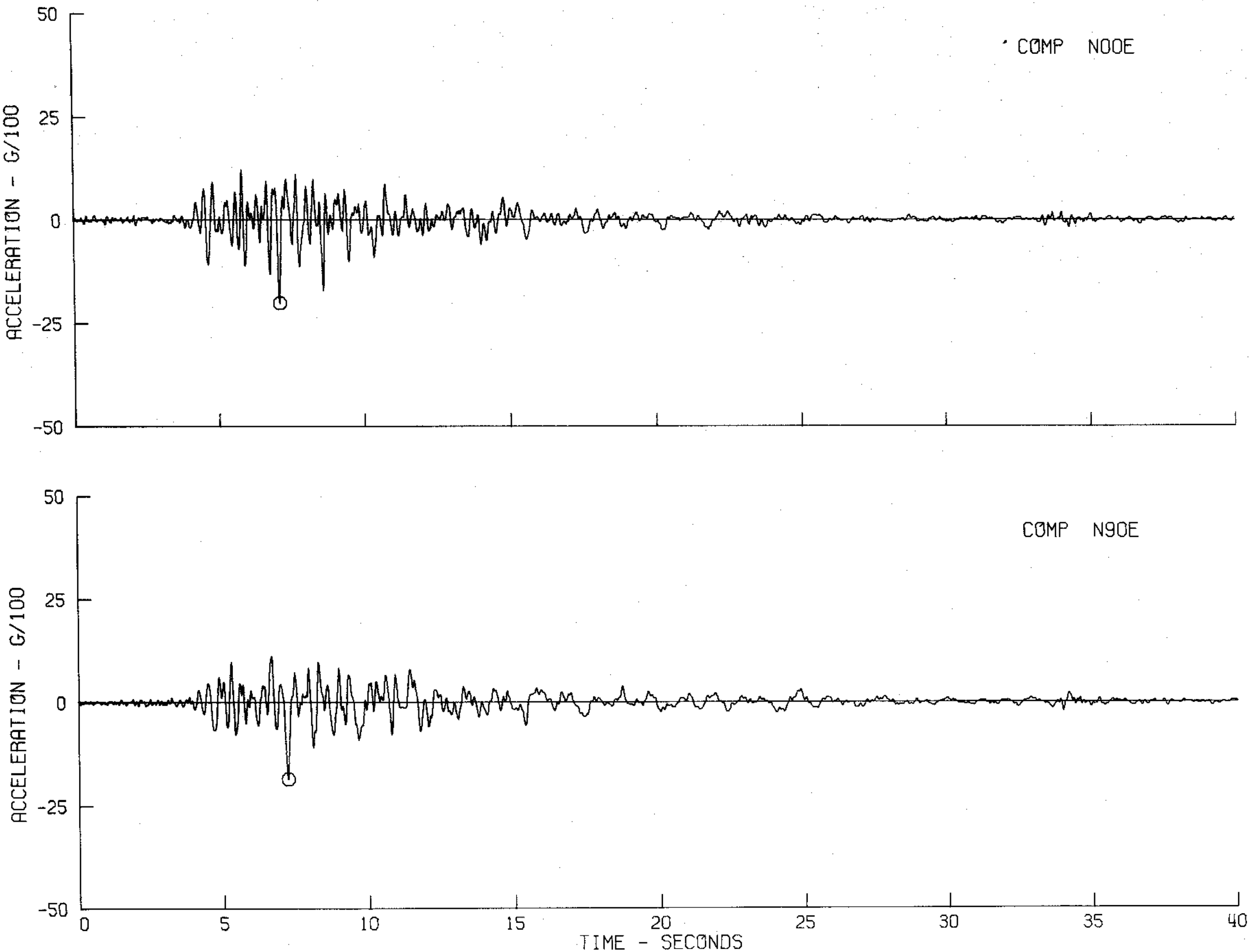

COMP N00E
COMP N90E
TIME - SECONDS
ACCELERATION - G/100
ACCELERATION - G/100
0
5
10
15
20
25
30
35
40
50
25
0
-25
-50

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
EPICENTER 34 24 00N,118 23 42W
MAGNITUDE 6.3

CALTECH MILLIKAN LIBRARY, BASEMENT, PASADENA, CAL. - STATION NO. 264 34 08 12N,118 07 30W

CORRECTED ACCELEROGRAM SET IIG108, ⊙ PEAK VALUES... DOWN -91.2 CM/SEC/SEC
NOOE -198.0 CM/SEC/SEC
N90E -181.6 CM/SEC/SEC

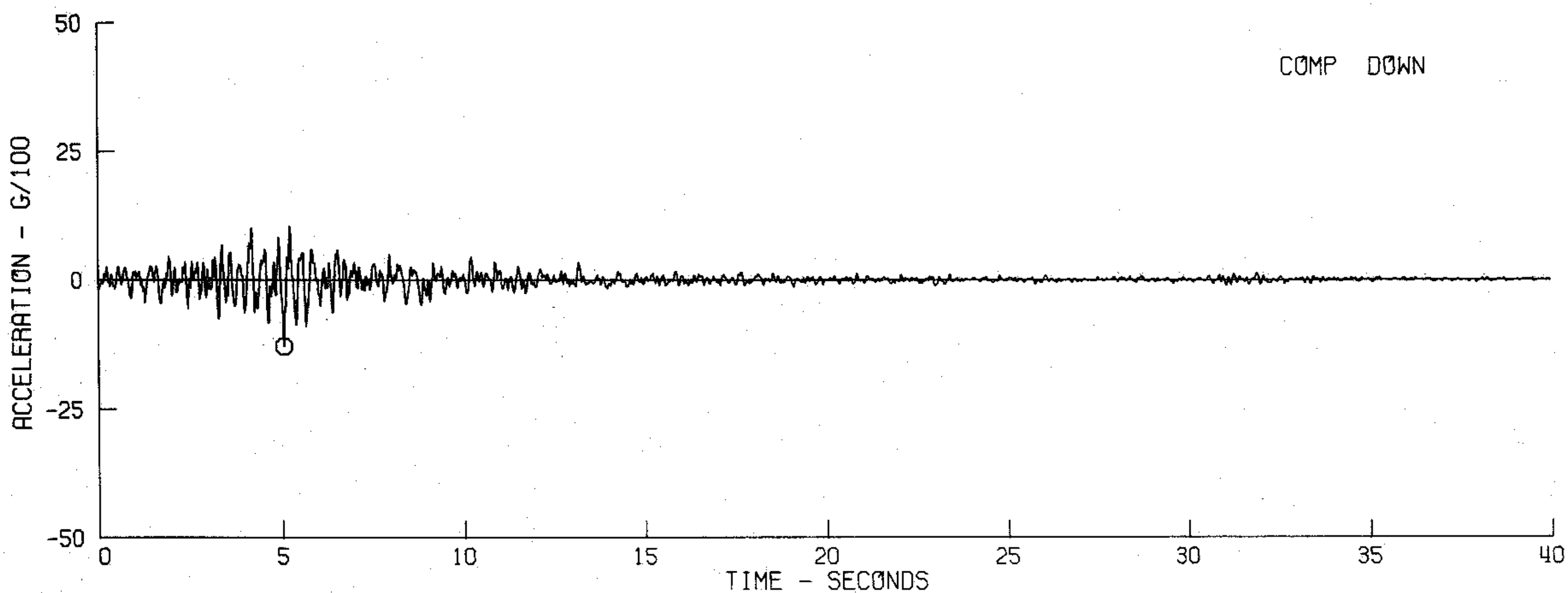


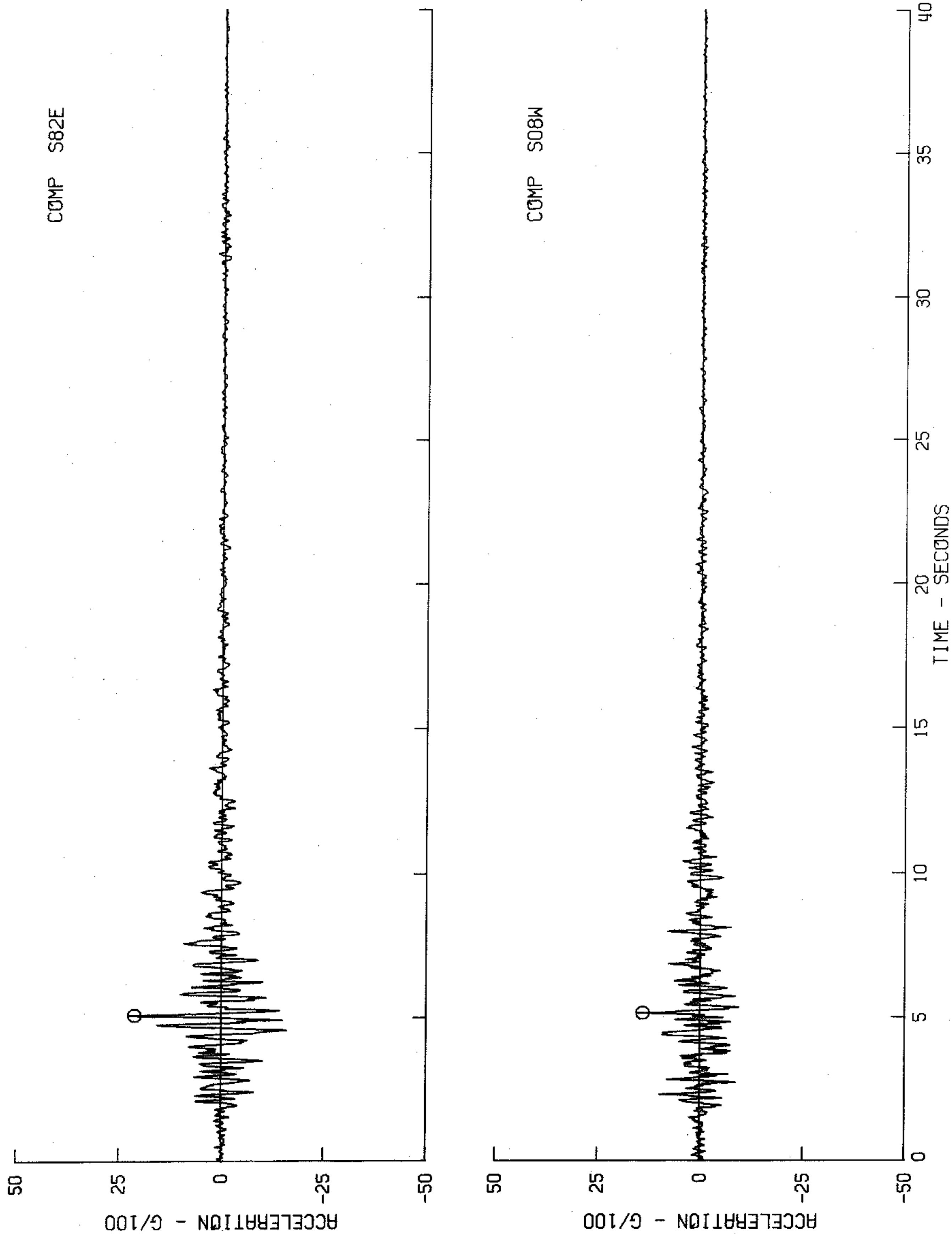

COMP N00E
COMP N90E
ACCELERATION - G/100
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40
TIME - SECONDS

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
EPICENTER 34 24 00N,118 23 42W
MAGNITUDE 6.3

JET PROPULSION LAB., BASEMENT, PASADENA, CAL. - STATION NO. 267 34 12 01N,118 10 25W

CORRECTED ACCELEROGRAM SET IIG110, ⓘ PEAK VALUES... DOWN -126.3 CM/SEC/SEC
S82E 207.8 CM/SEC/SEC
S08W 139.0 CM/SEC/SEC



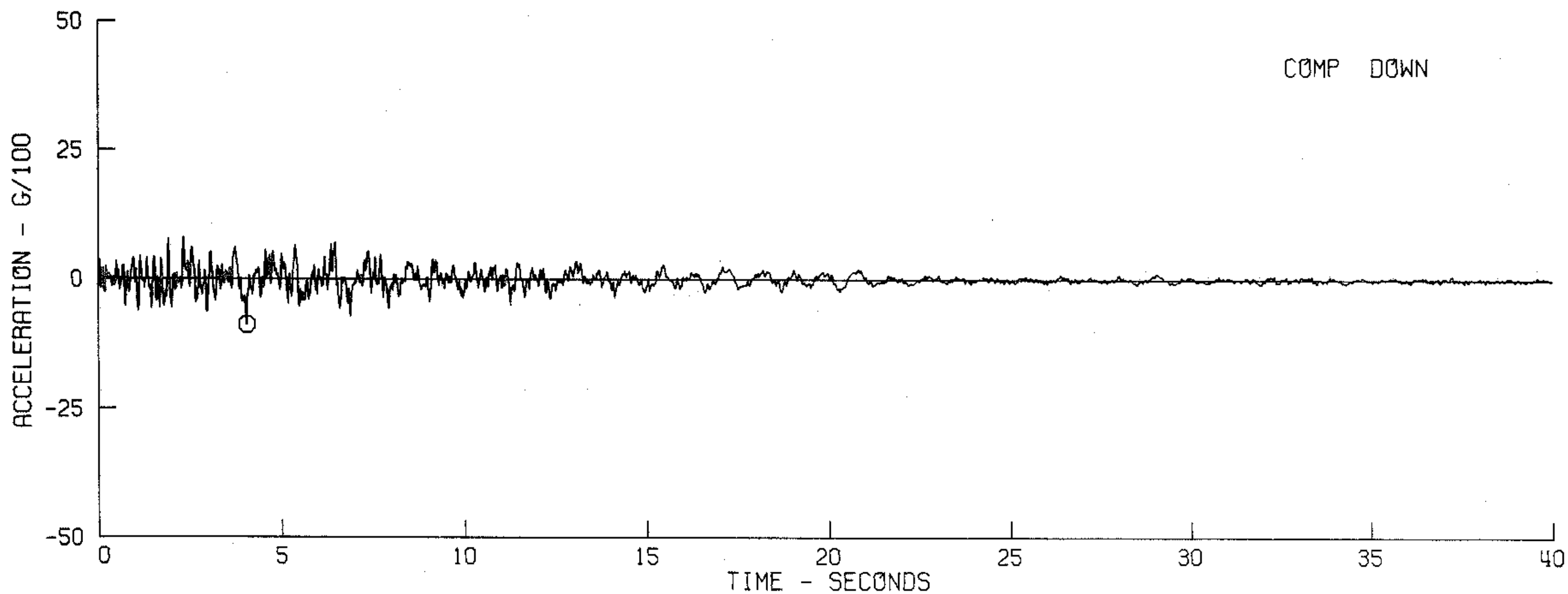

COMP S82E
COMP S08W
ACCELERATION - G/100
ACCELERATION - G/100
TIME - SECONDS
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40

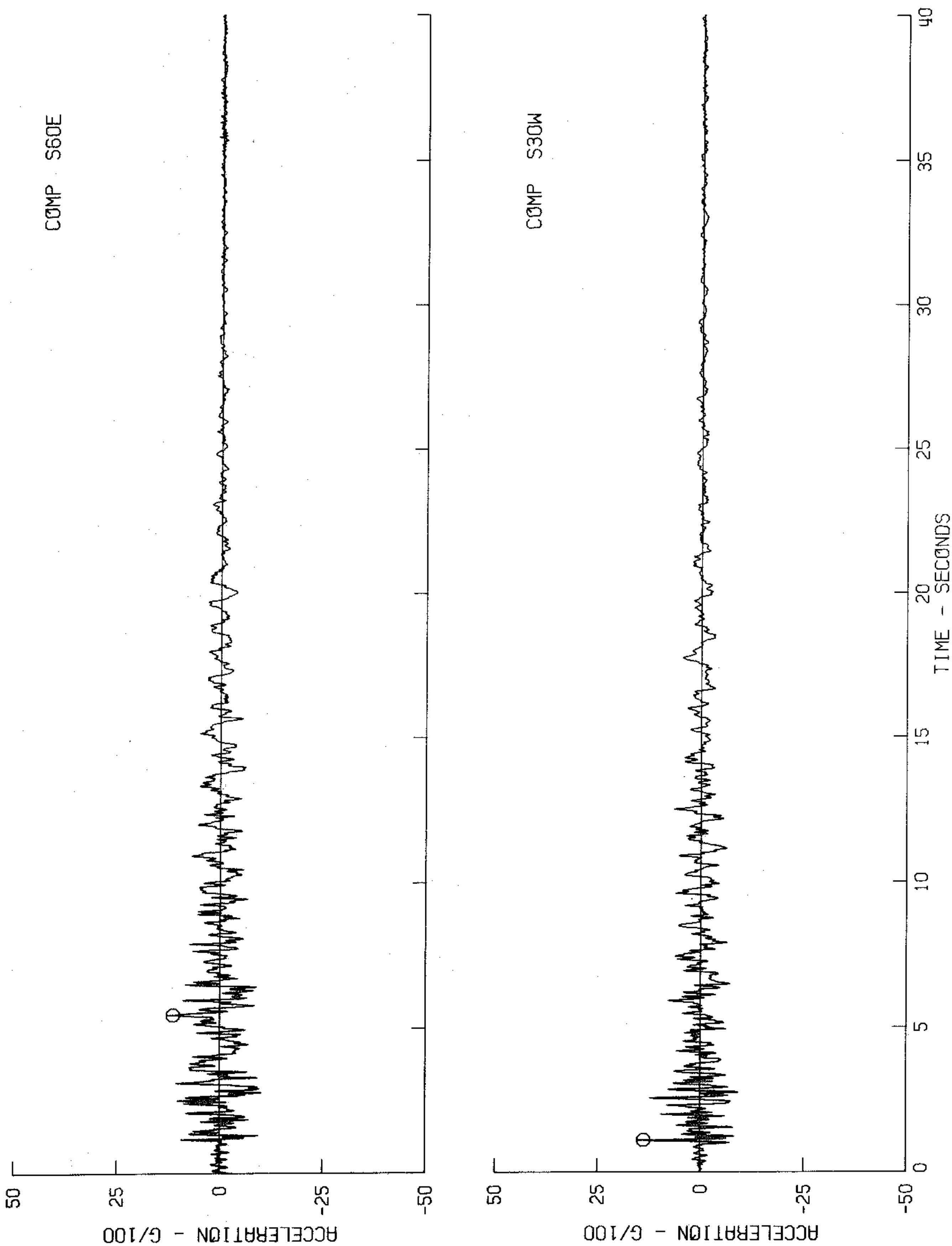
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
EPICENTER 34 24 00N,118 23 42W
MAGNITUDE 6.3

PALMDALE FIRE STATION, STORAGE ROOM, PALMDALE, CAL. - STATION NO. 262 34 34 40N,118 06 45W

CORRECTED ACCELEROGRAM SET IIG114, ⦶ PEAK VALUES...

DOWN	-86.6	CM/SEC/SEC
S60E	110.8	CM/SEC/SEC
S30W	136.2	CM/SEC/SEC



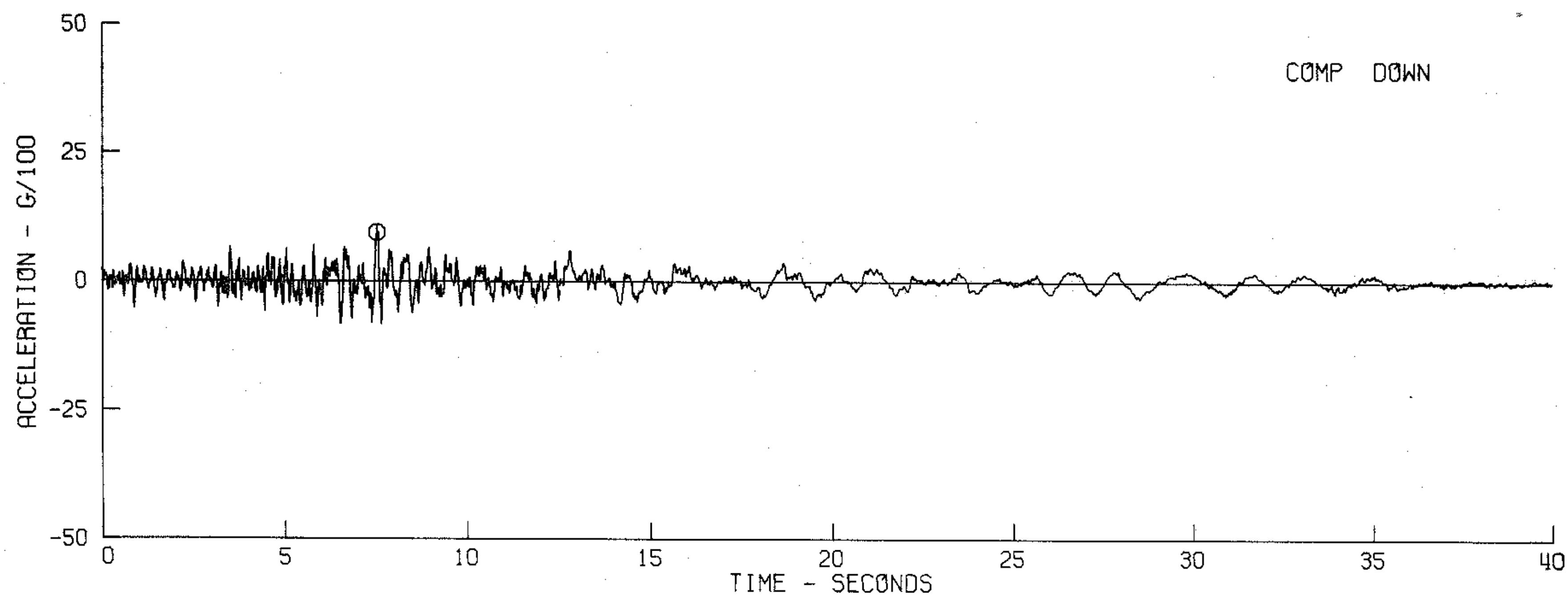

COMP S60E
COMP S30W
ACCELERATION - G/100
ACCELERATION - G/100
TIME - SECONDS
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40

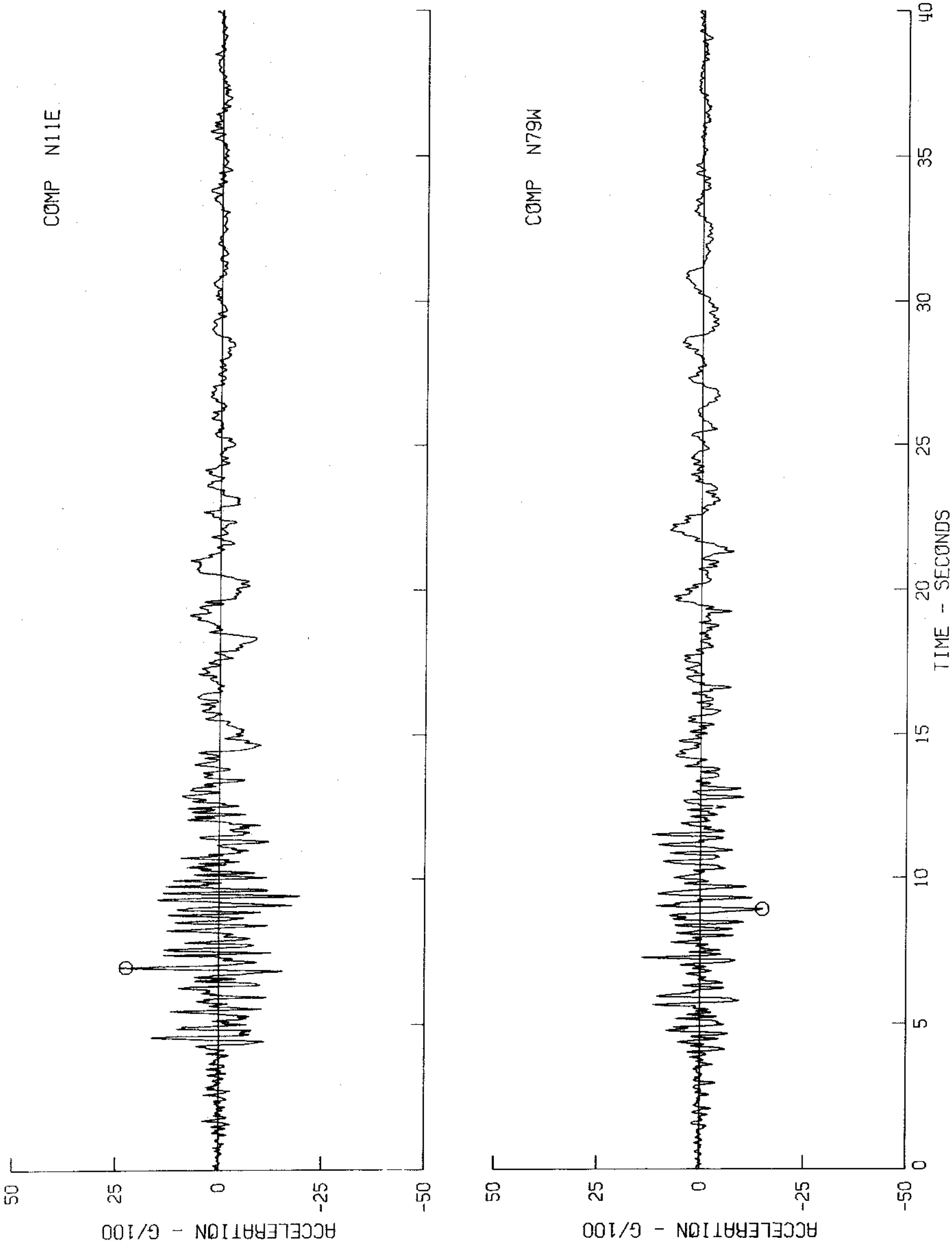
SAN FERNANDO EARTHQUAKE   FEB 9, 1971 - 0600 PST
EPICENTER 34 24 00N,118 23 42W
MAGNITUDE 6.3

15250 VENTURA BLVD., BASEMENT, LOS ANGELES, CAL. - STATION NO. 466   34 09 14N,118 27 50W

CORRECTED ACCELEROGRAM SET IIH115,   ⓣ PEAK VALUES...

DOWN	94.5	CM/SEC/SEC
N11E	220.6	CM/SEC/SEC
N79W	-146.0	CM/SEC/SEC

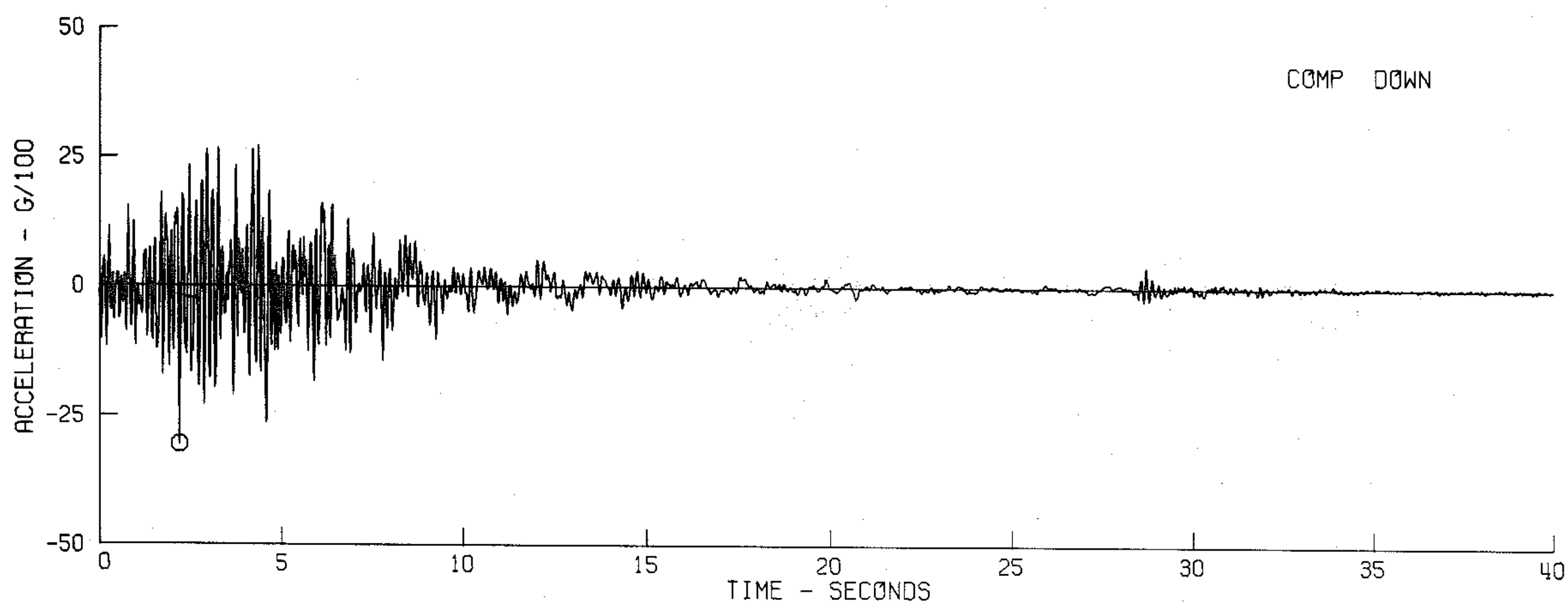


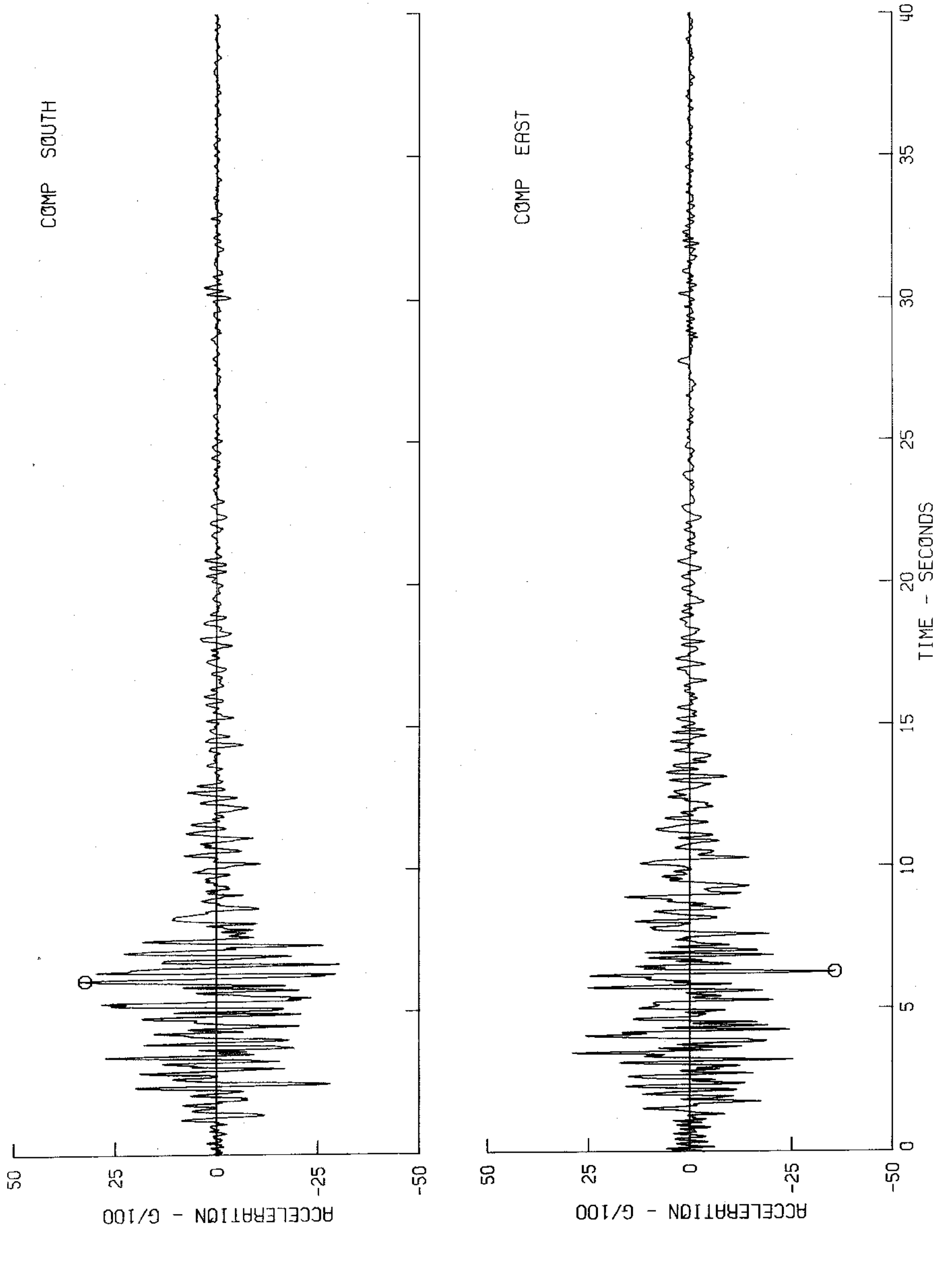

COMP N11E
COMP N79W
ACCELERATION - G/100
ACCELERATION - G/100
50
25
0
-25
-50
TIME - SECONDS
0
5
10
15
20
25
30
35
40

MANAGUA EARTHQUAKE DEC 23, 1972 - 0629 GMT
EPICENTER - 12 24 00N, 86 06 00W
MAGNITUDE 6.2

MANAGUA, NICARAGUA - ESSOREFINERY 12 08 42N, 86 19 18W

CORRECTED ACCELEROGRAM SET IIZ001, ⓘ PEAK VALUES... DOWN -299.9 CM/SEC/SEC
SOOE 318.5 CM/SEC/SEC
EAST -351.0 CM/SEC/SEC

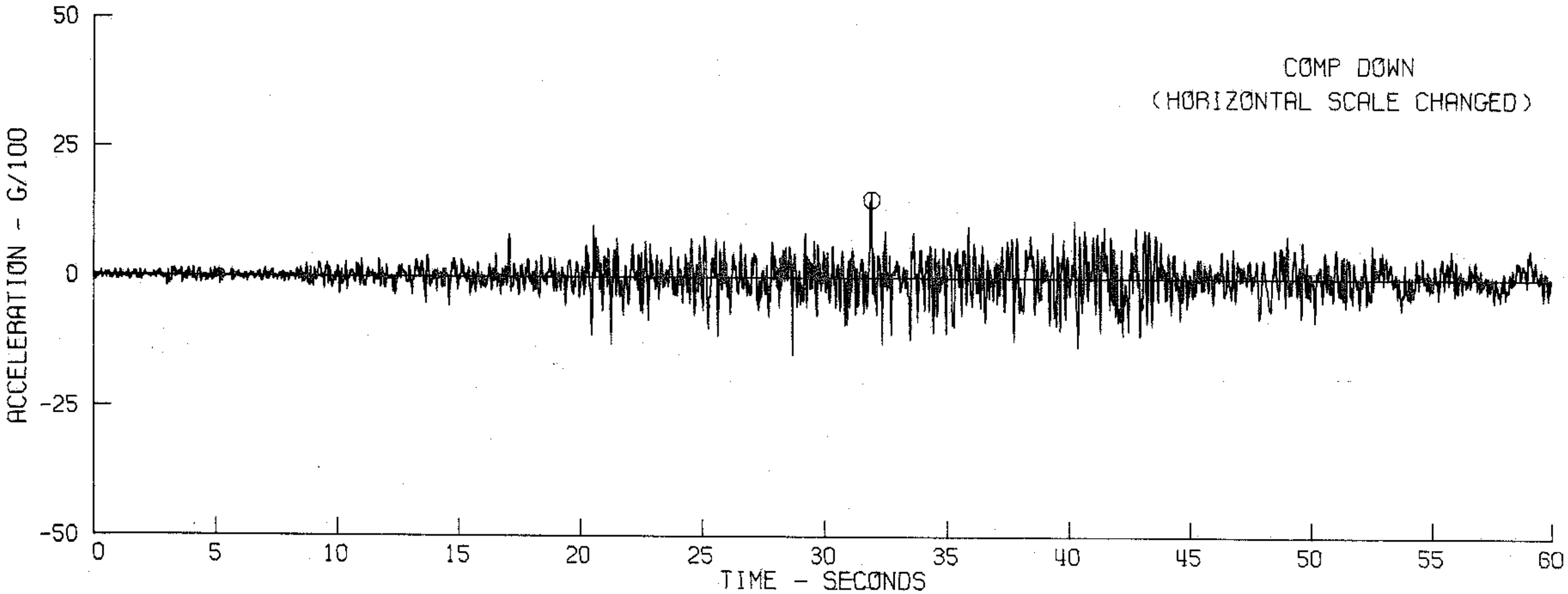


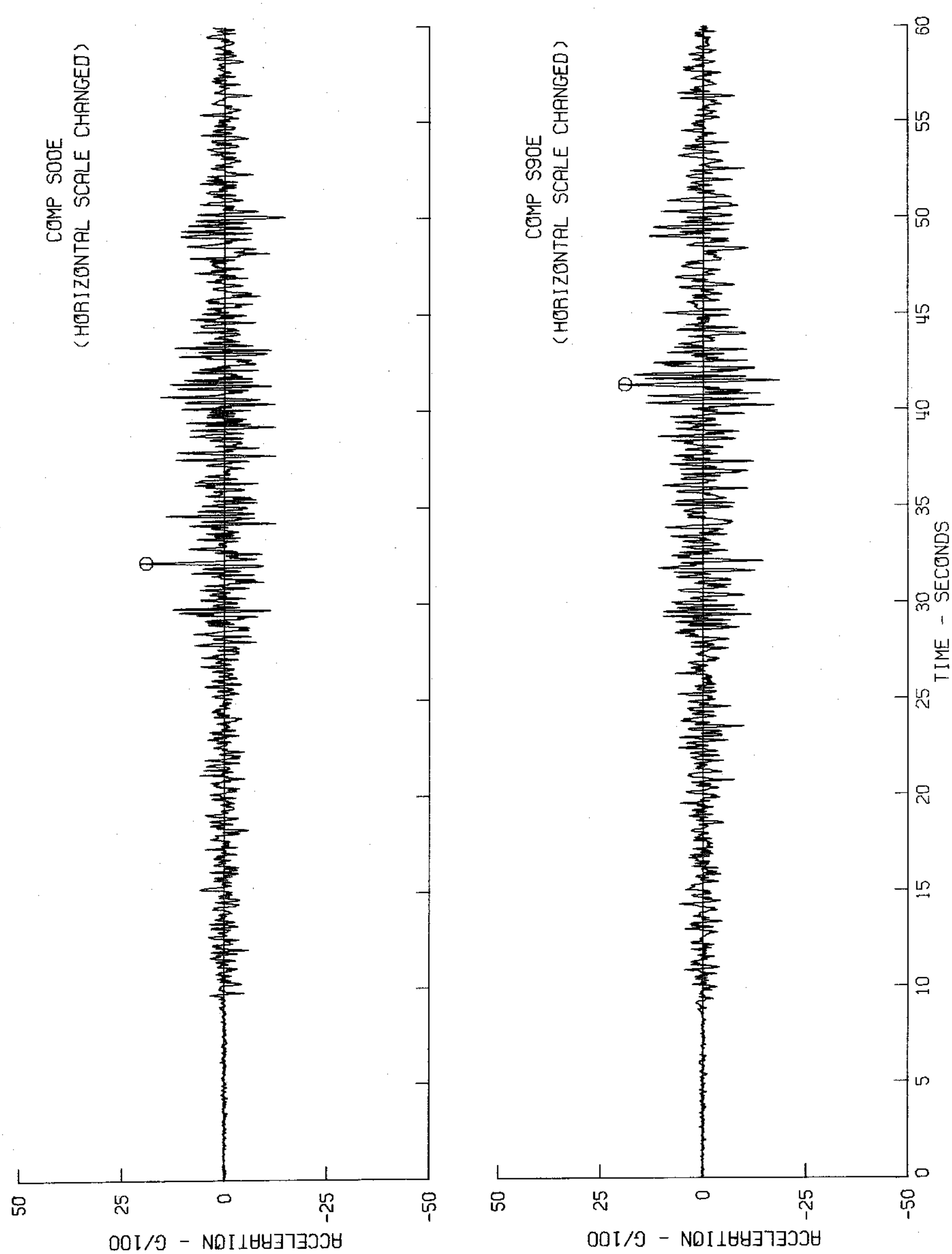

COMP SOUTH
COMP EAST
ACCELERATION - G/100
ACCELERATION - G/100
TIME - SECONDS
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40

ARGENTINA EARTHQUAKE NOV 23 1977 - 0927 GMT
EPICENTER 31.13S , 67.98W
MAGNITUDE 7.4

INPRES,SAN JUAN - STATION LOCATION 31.526S,68.558W

CORRECTED ACCELEROGRAM SET , ⊕ PEAK VALUES... DOWN 150.5 CM/SEC/SEC
S00E 186.9 CM/SEC/SEC
S90E 189.5 CM/SEC/SEC

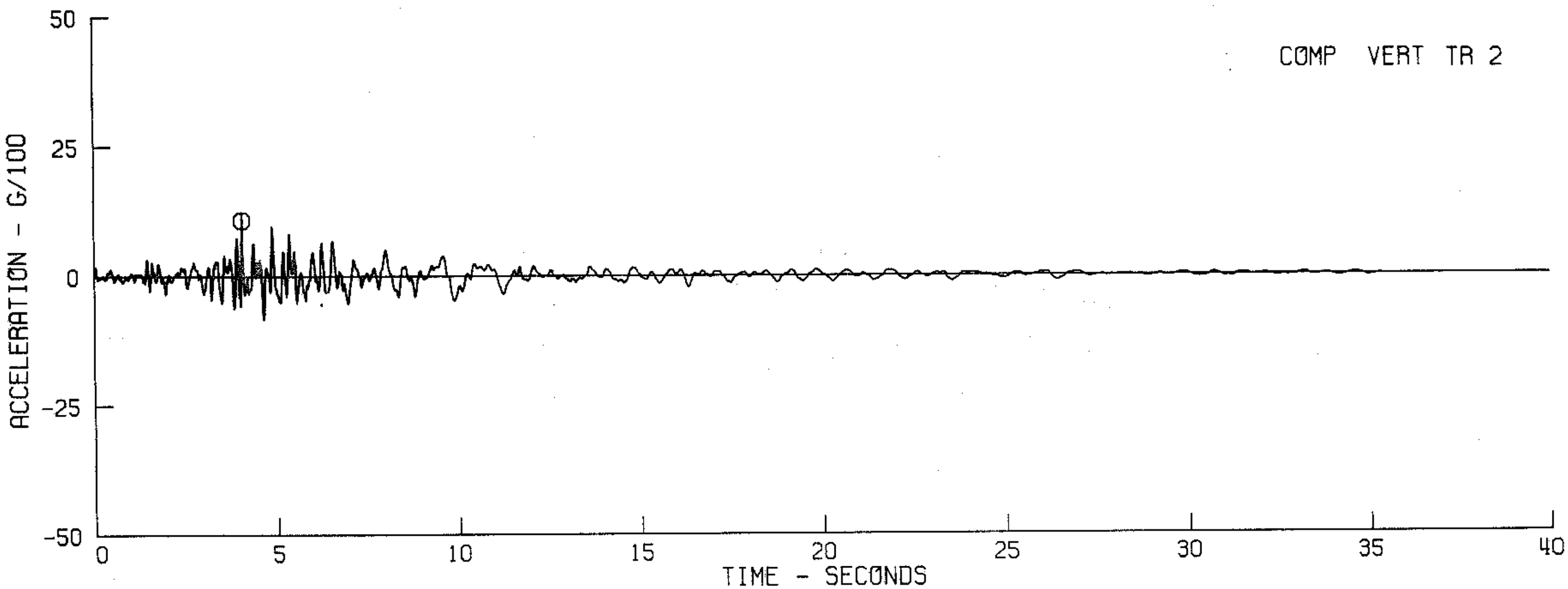


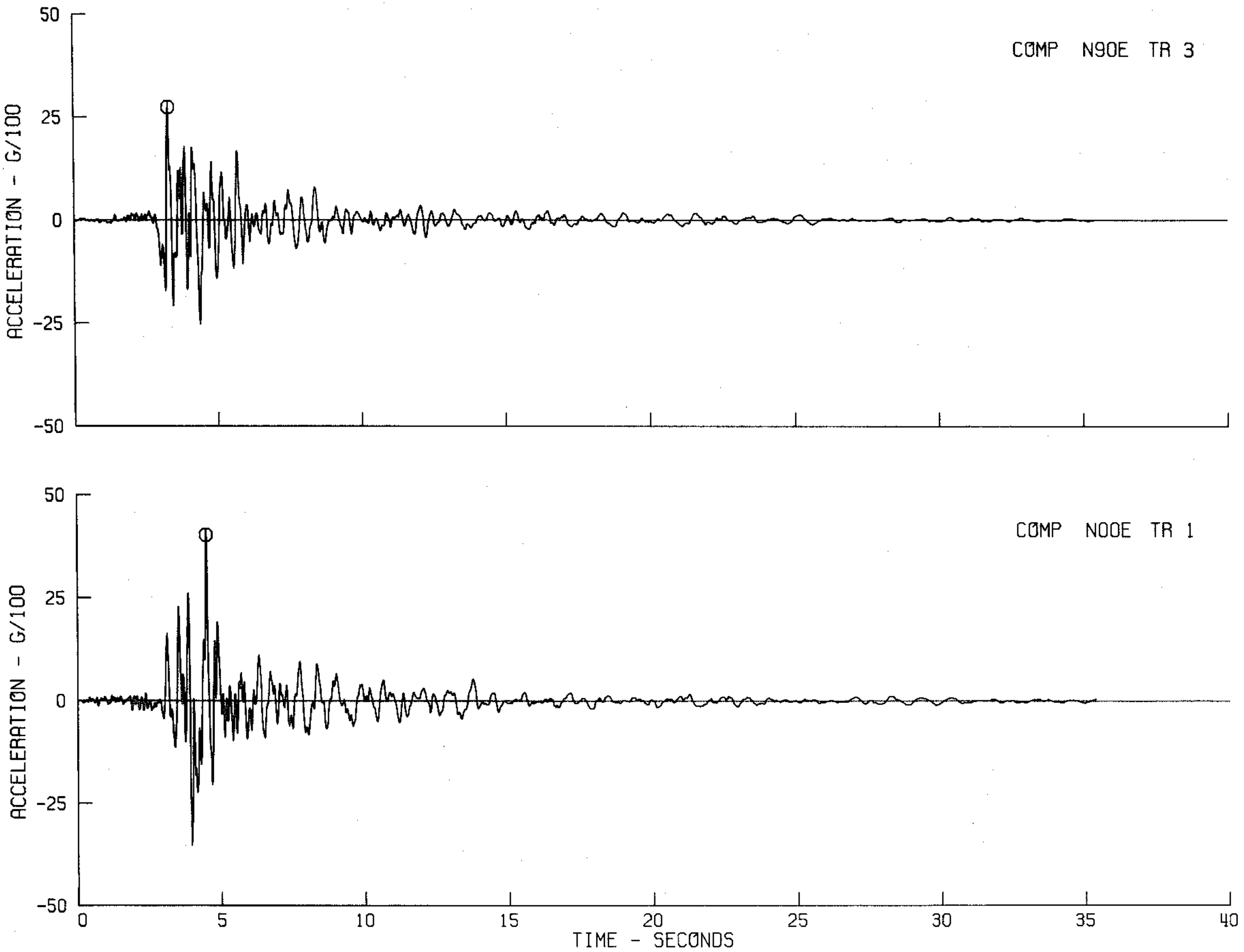

COMP S00E
(HORIZONTAL SCALE CHANGED)
ACCELERATION - G/100
50
25
0
-25
-50
COMP S90E
(HORIZONTAL SCALE CHANGED)
ACCELERATION - G/100
50
25
0
-25
-50
TIME - SECONDS
0
5
10
15
20
25
30
35
40
45
50
55
60

SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT
EPICENTER 34.37N , 119.72W
MAGNITUDE 5.1

UCSB NORTH HALL,GROUND FLOOR - STATION LOCATION 34.41N , 119.85W

CORRECTED A/GRAMS TRACES 2,3,1 , ⏀ PEAK VALUES... VERT 105.6 CM/SEC/SEC
N90E 269.0 CM/SEC/SEC
N00E 395.9 CM/SEC/SEC

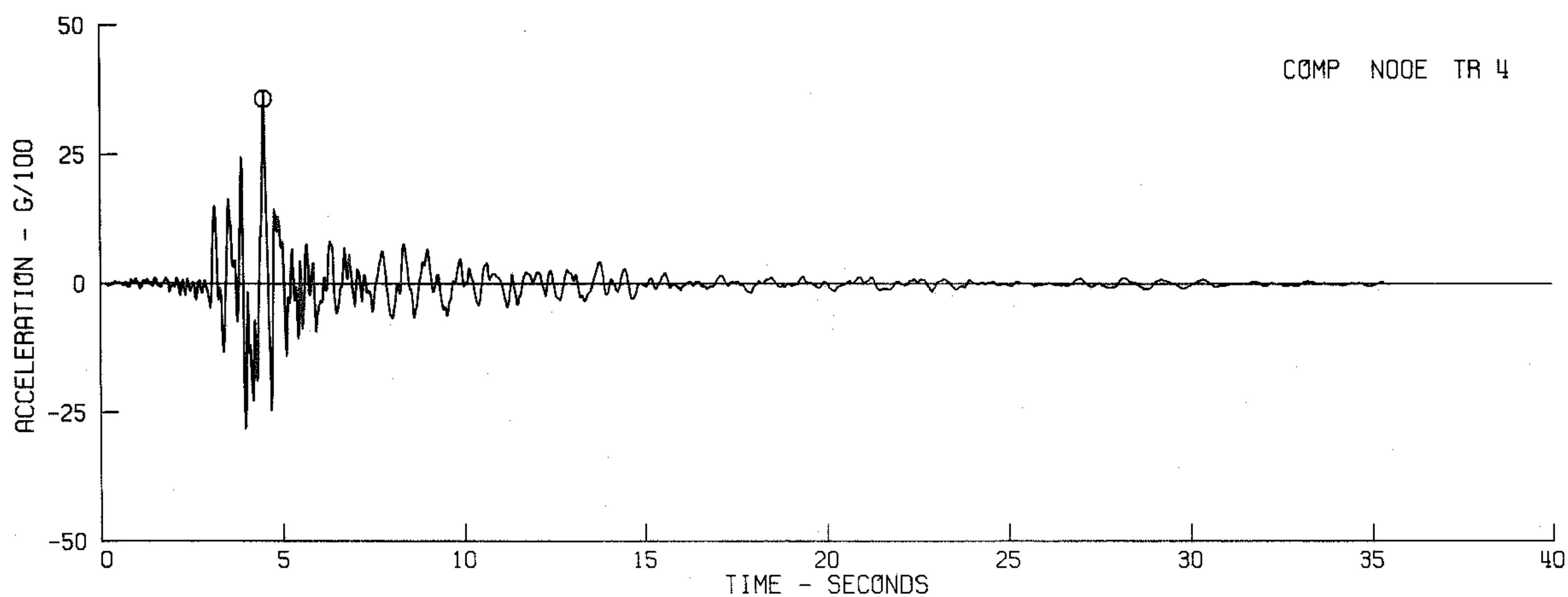



COMP N90E TR 3
COMP N00E TR 1
ACCELERATION - G/100
50
25
0
-25
-50
0
5
10
15
20
25
30
35
40
TIME - SECONDS

SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT
EPICENTER 34.37N , 119.72W
MAGNITUDE 5.1

UCSB NORTH HALL,GROUND FLOOR - STATION LOCATION 34.41N , 119.85W

CORRECTED ACCELEROGRAM TRACE 4 , PEAK VALUE ... NOOE 351.3 CM/SEC/SEC



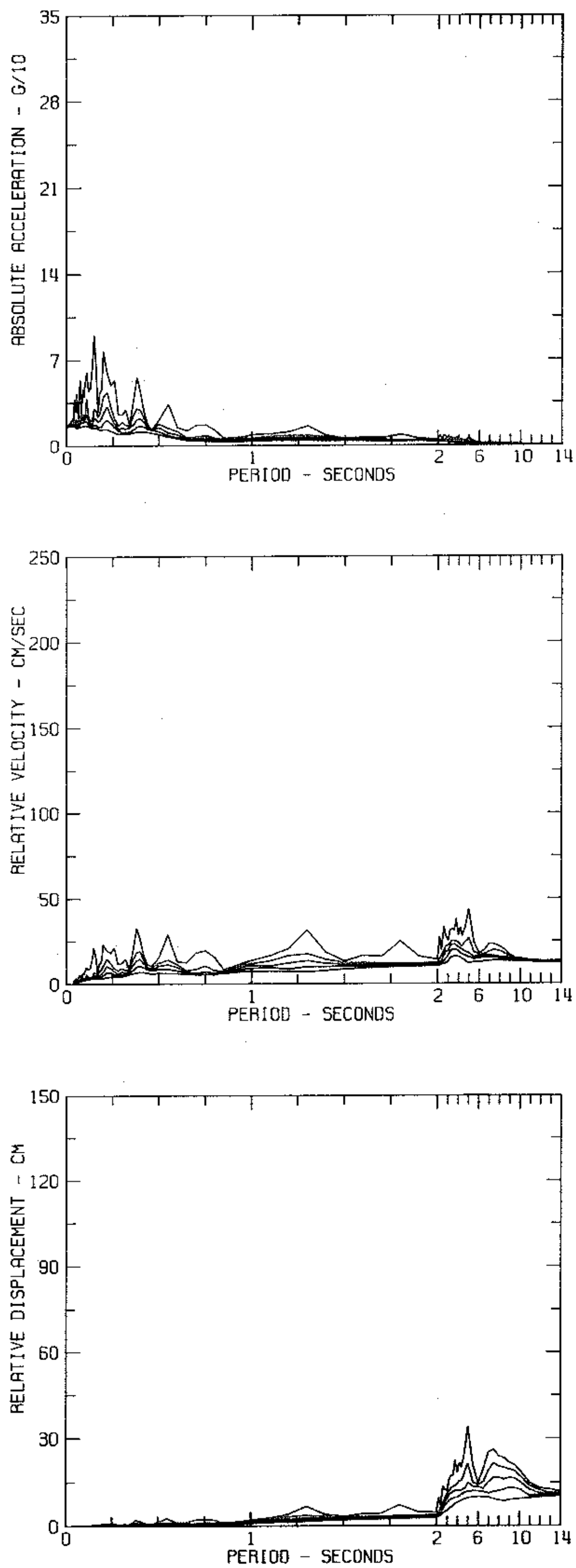
SECTION 2

FREE-FIELD AND BUILDING BASEMENT RESPONSE SPECTRA

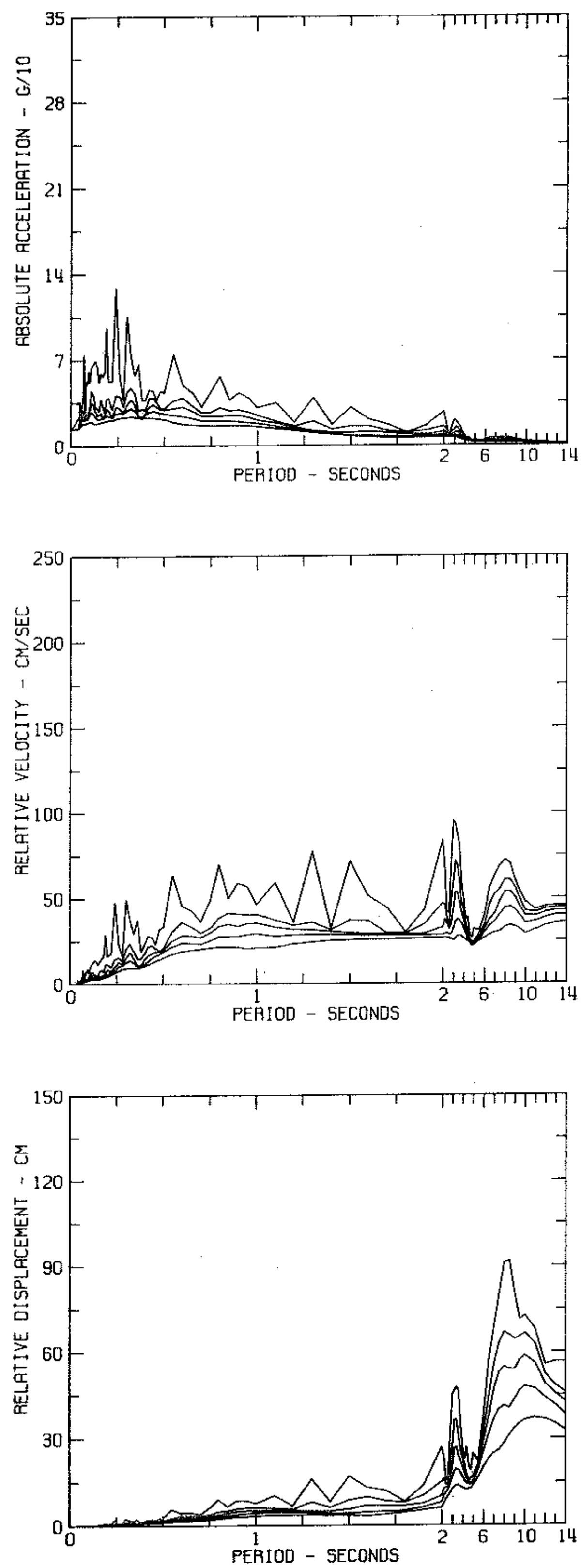
In this section linear absolute acceleration, relative velocity and relative displacement response spectra are presented for the earthquake records of Section 1 (as listed in Table 1). In all cases the spectra are plotted on a (horizontal) period axis which is divided so that oscillator periods from zero to 2.0 seconds occupy three-quarters of the abcissa, with periods from 2.0 seconds to 14.0 seconds occupying the remaining one-quarter. For all the records but two, the vertical axes have maximum values for response acceleration, velocity and displacement of 3.5g, 250 cm/sec and 150 cm, respectively. The exceptional cases are the Pacoima Dam records of the San Fernando earthquake for which the maximum acceleration and velocity were increased to 10.0g and 500 cm/sec, respectively and the Nicaragua-Esso refinery records of the Managua earthquake for which the maximum acceleration was also increased to 10.0g.

The N25W component of the Cholame-Shandon Array No. 2 record of the Parkfield earthquake was not recorded and hence does not appear here.

RESPONSE SPECTRA IIIB021 COMP DOWN
LONG BEACH EARTHQUAKE MAR 10, 1933 - 1754 PST
VERNON CMD BLDG
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



RESPONSE SPECTRA IIIB021 COMP S08W
LONG BEACH EARTHQUAKE MAR 10, 1933 - 1754 PST
VERNON CMD BLDG
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

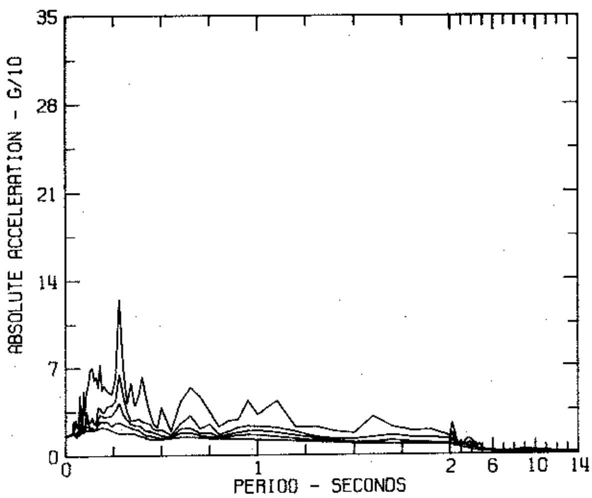


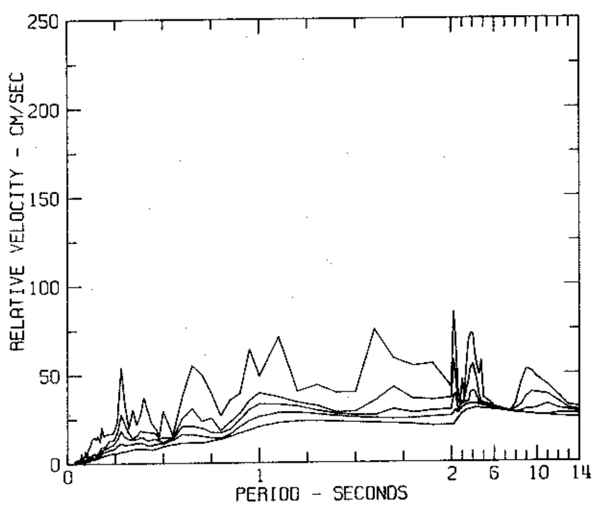
RESPONSE SPECTRA IIIB021 COMP N82W

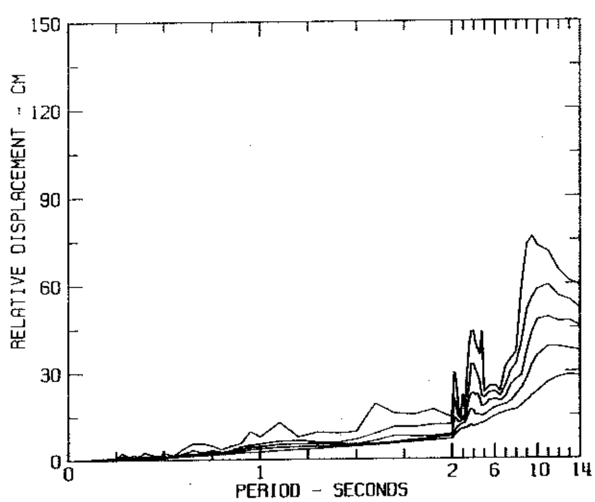
LONG BEACH EARTHQUAKE MAR 10, 1933 - 1754 PST

VERNON CMD BLDG

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL





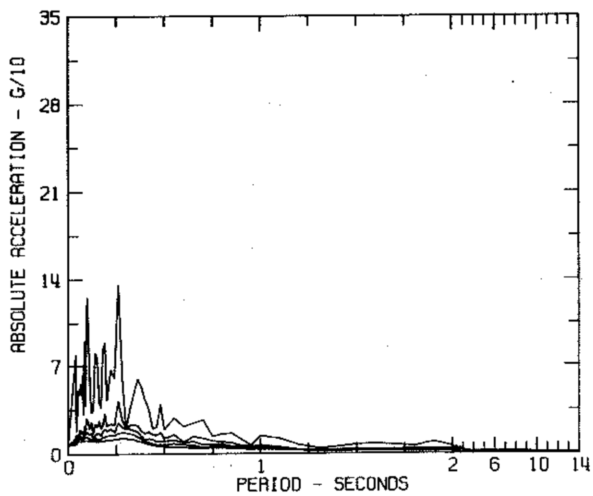


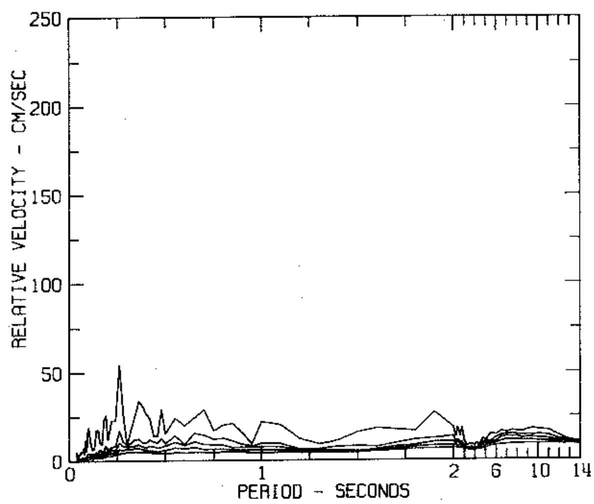
RESPONSE SPECTRA IIIB024 COMP VERT

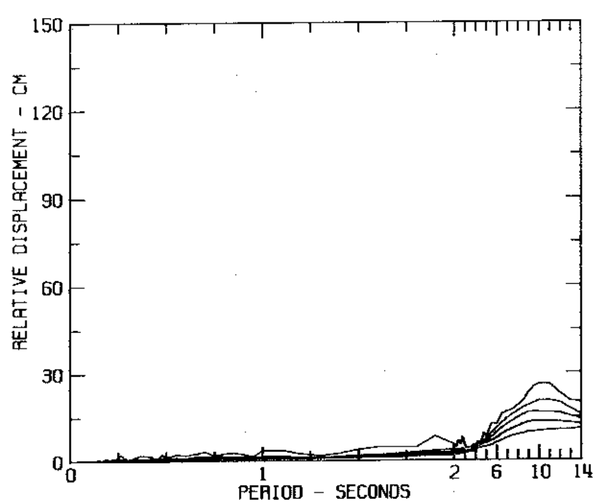
LOWER CALIFORNIA EARTHQUAKE DEC 30, 1934 - 0552 PST

EL CENTRO IMPERIAL VALLEY

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL





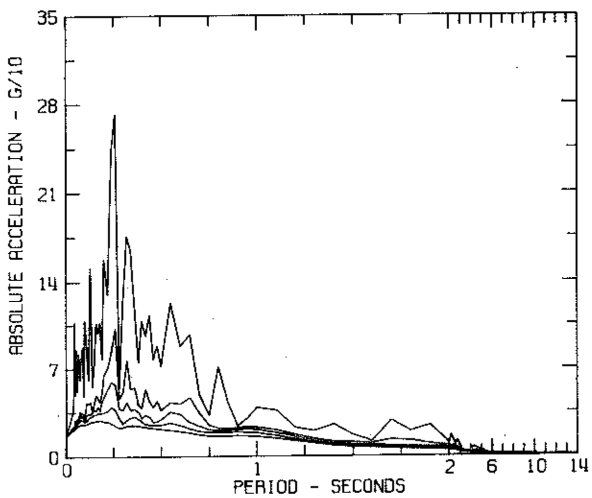


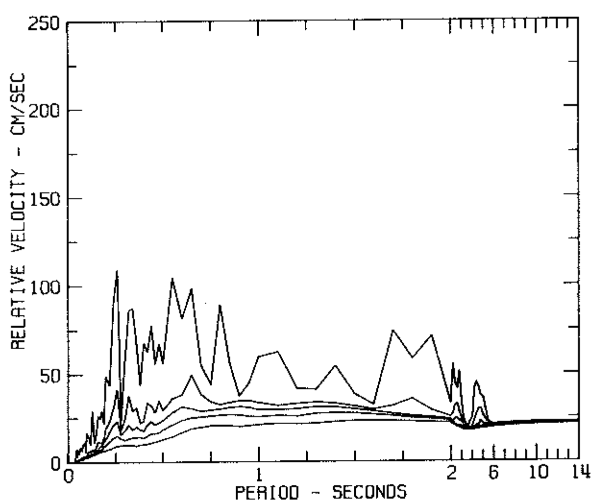
RESPONSE SPECTRA IIIB024 COMP S00W

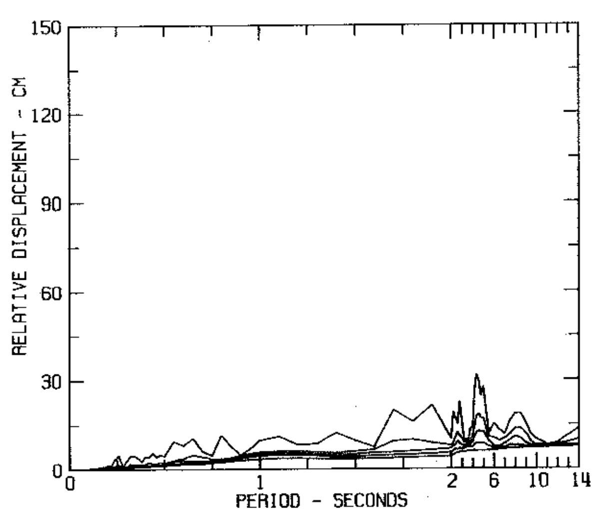
LOWER CALIFORNIA EARTHQUAKE DEC 30, 1934 - 0552 PST

EL CENTRO IMPERIAL VALLEY

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL





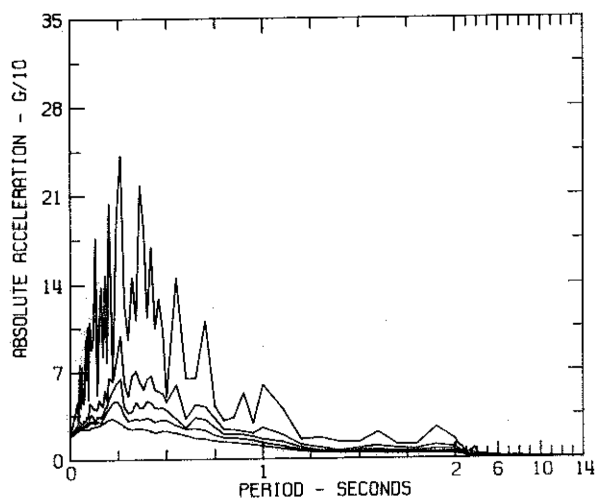


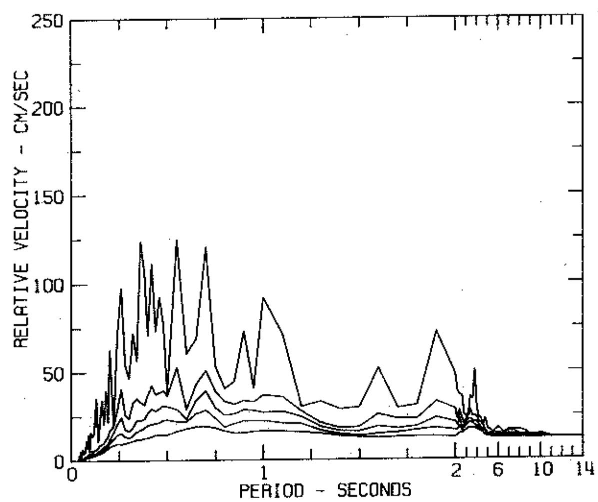
RESPONSE SPECTRA IIIB024 COMP S90W

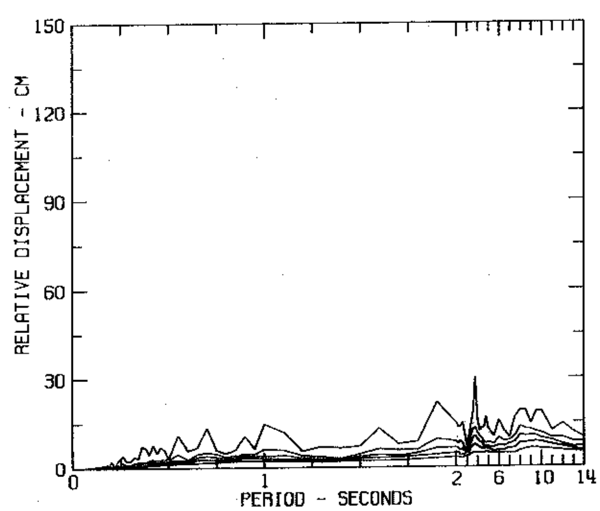
LOWER CALIFORNIA EARTHQUAKE DEC 30, 1934 - 0552 PST

EL CENTRO IMPERIAL VALLEY

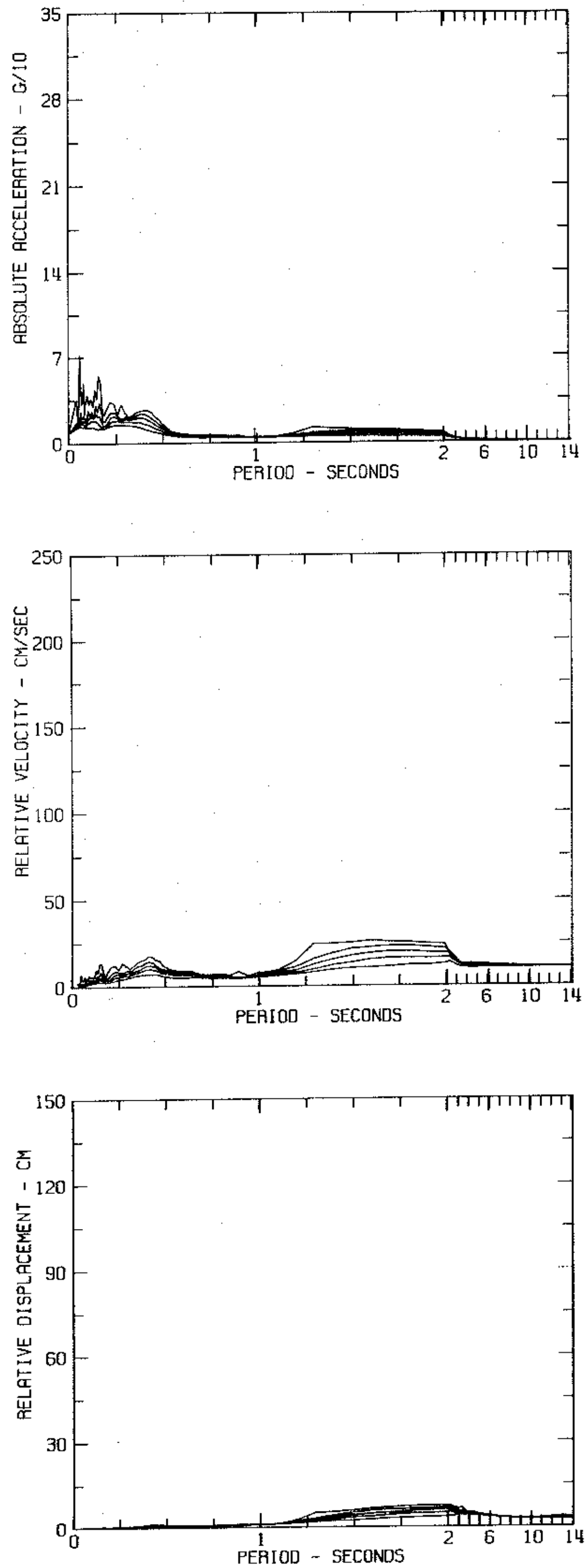
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



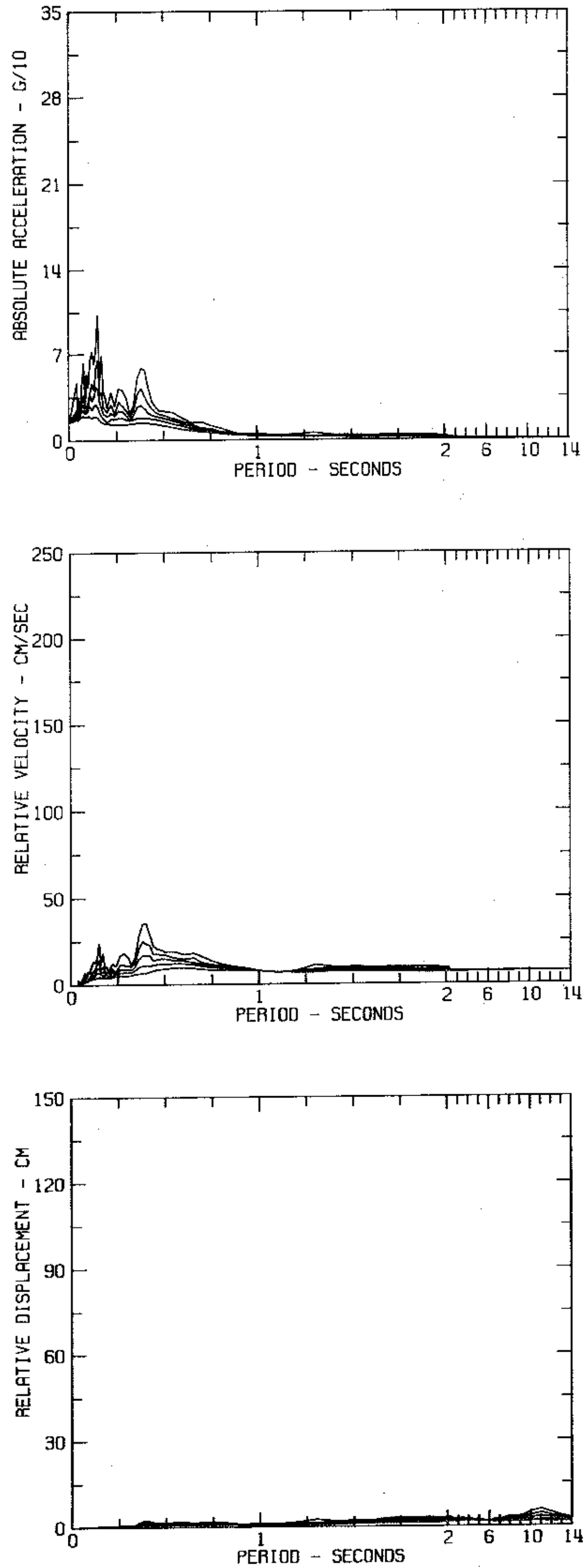




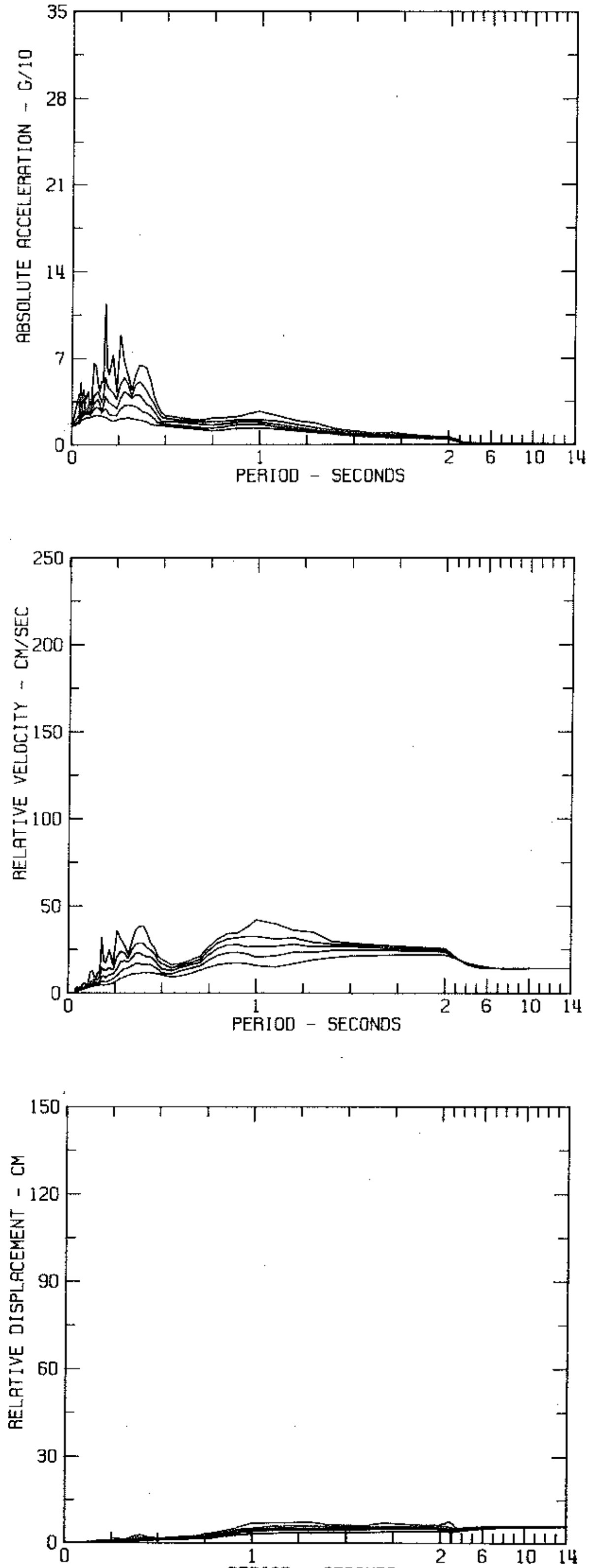
RESPONSE SPECTRA IIIB025 COMP DOWN
HELENA, MONTANA EARTHQUAKE OCT 31, 1935 - 1138 MST
HELENA, MONTANA CARROLL COLLEGE
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



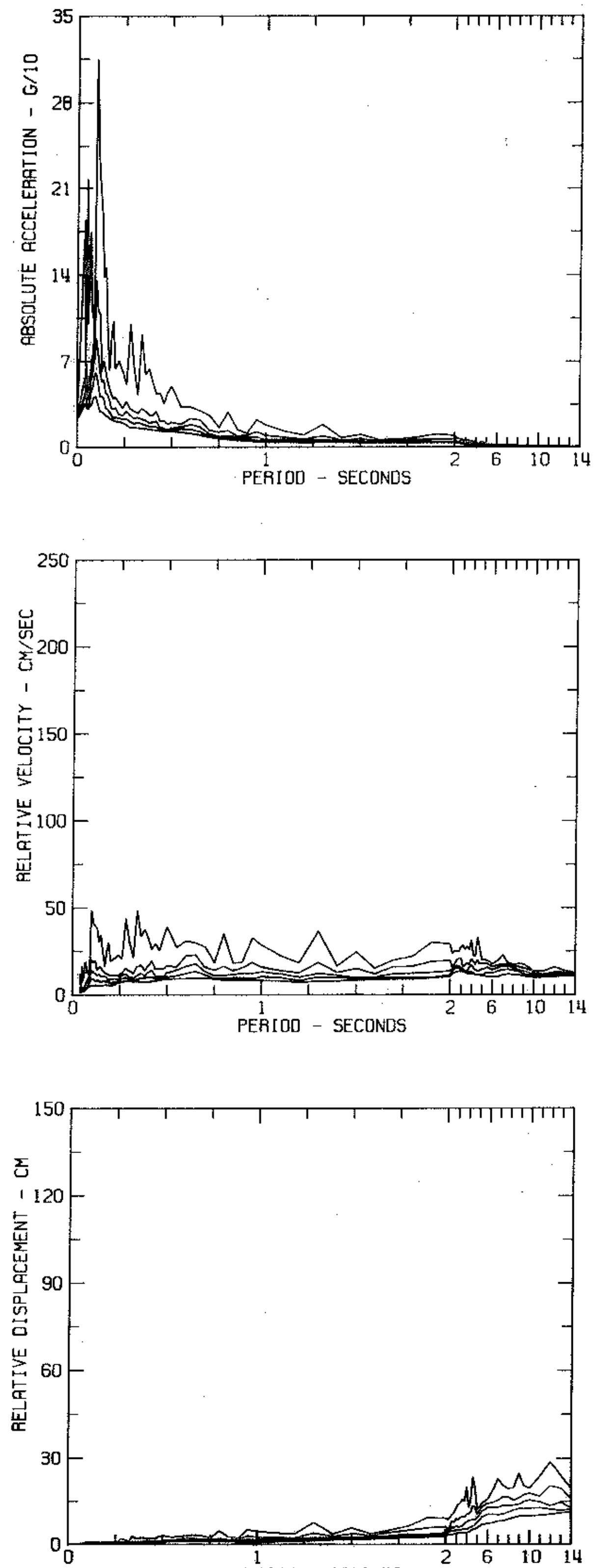
RESPONSE SPECTRA IIIB025 COMP S00W
HELENA, MONTANA EARTHQUAKE OCT 31, 1935 - 1138 MST
HELENA, MONTANA CARROLL COLLEGE
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



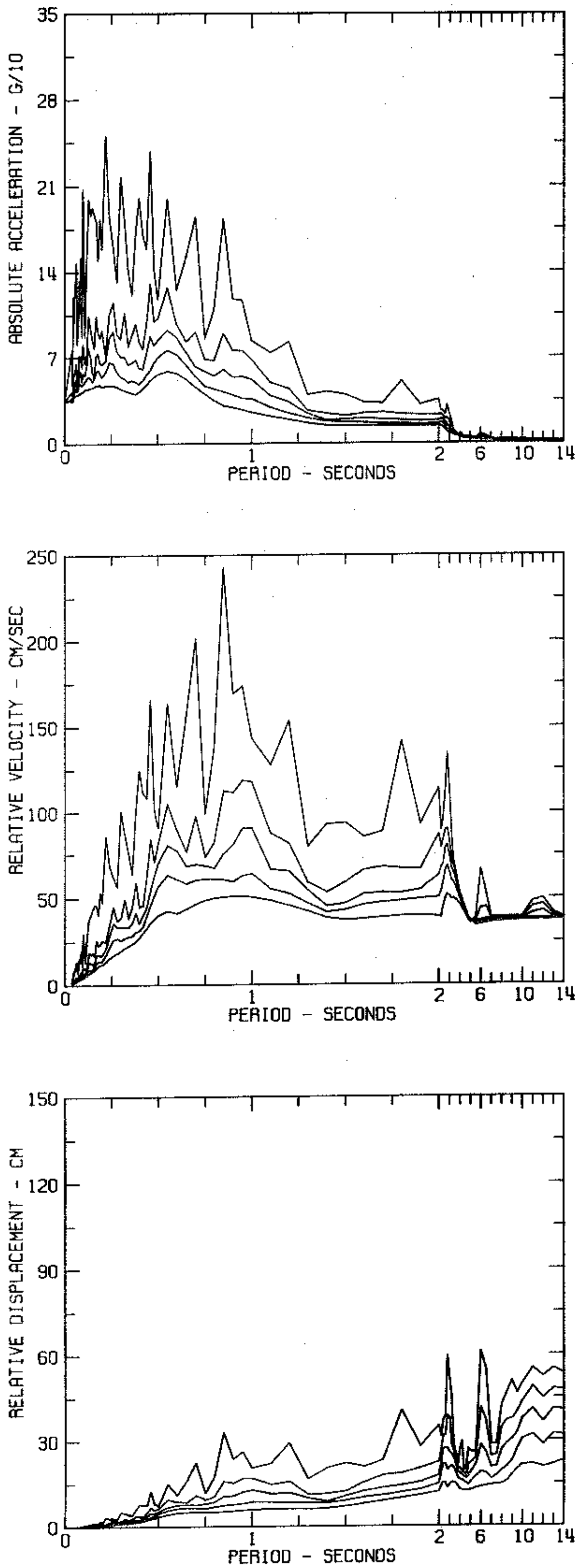
RESPONSE SPECTRA IIIB025 COMP S90W
HELENA, MONTANA EARTHQUAKE OCT 31, 1935 - 1138 MST
HELENA, MONTANA CARROLL COLLEGE
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



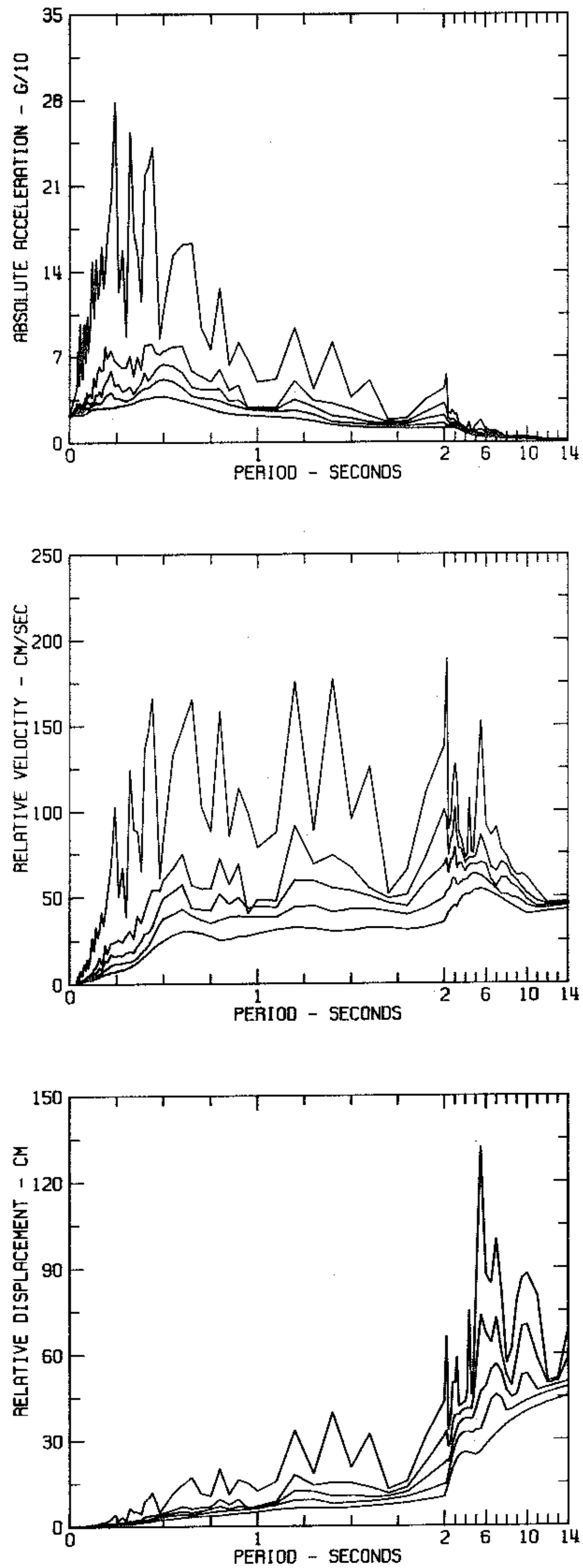
RESPONSE SPECTRA IIIA001 COMP VERT
IMPERIAL VALLEY EARTHQUAKE MAY 18, 1940 - 2037 PST
EL CENTRO VALLEY IRRIGATION DISTRICT
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



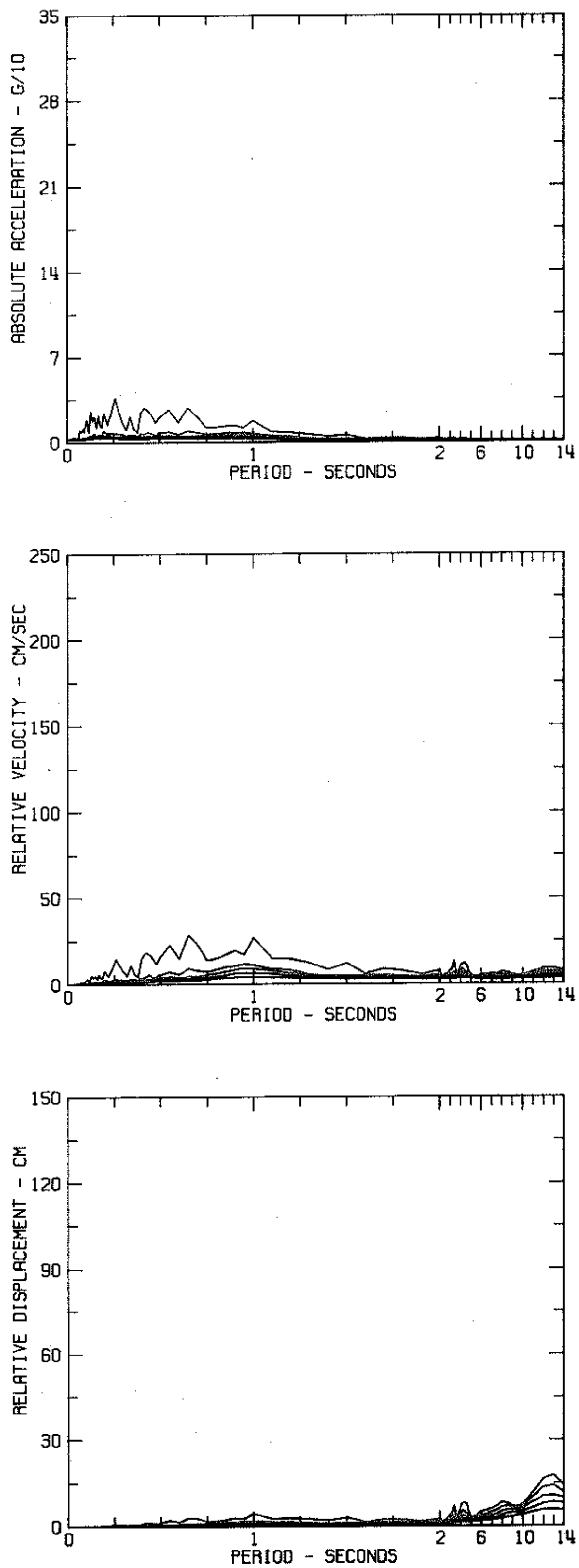
RESPONSE SPECTRA IIIA001 COMP S00E
IMPERIAL VALLEY EARTHQUAKE MAY 18, 1940 - 2037 PST
EL CENTRO SITE IMPERIAL VALLEY IRRIGATION DISTRICT
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



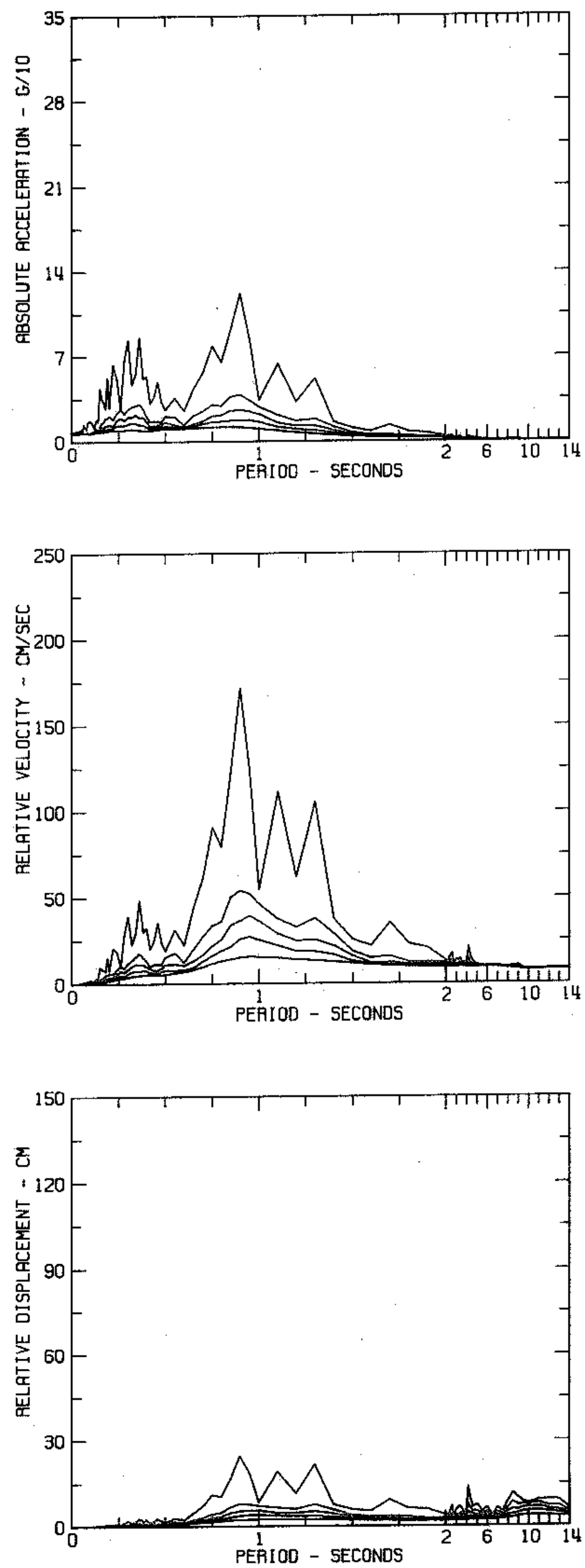
RESPONSE SPECTRA IIIA001 COMP S90W
IMPERIAL VALLEY EARTHQUAKE MAY 18, 1940 - 2037 PST
EL CENTRO SITE IMPERIAL VALLEY IRRIGATION DISTRICT
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



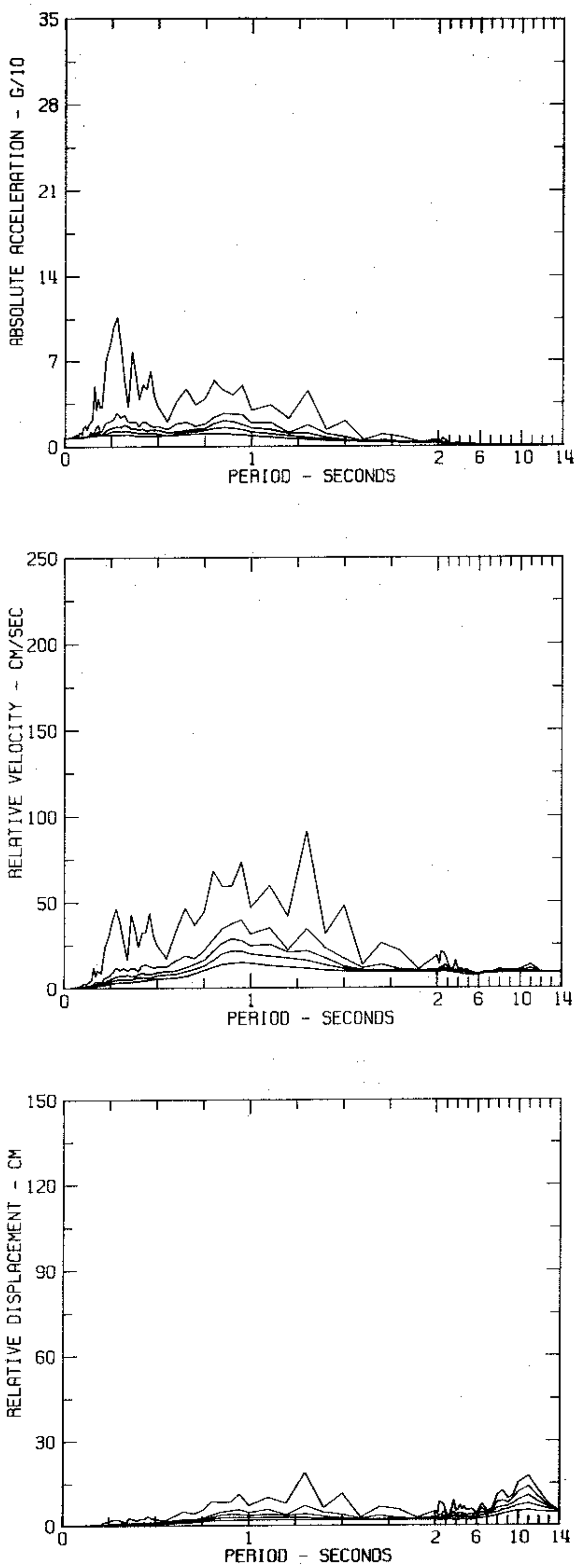
RESPONSE SPECTRA IIIB028 COMP VERT
WESTERN WASHINGTON EARTHQUAKE APR 13, 1949 - 1156 PST
SEATTLE, WASH. DIST ENGRS OFFC AT ARMY BASE
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



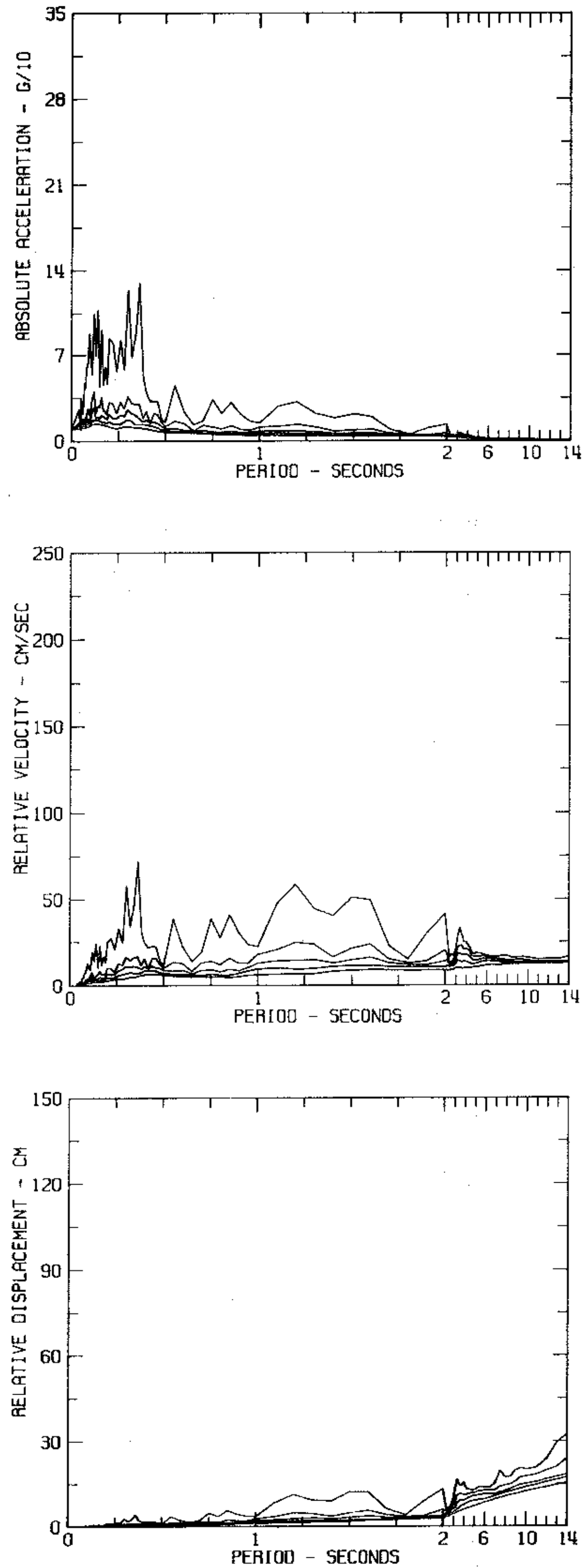
RESPONSE SPECTRA IIIB028 COMP S02W
WESTERN WASHINGTON EARTHQUAKE APR 13, 1949 - 1156 PST
SEATTLE, WASH. DIST ENGRS OFFC AT ARMY BASE
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



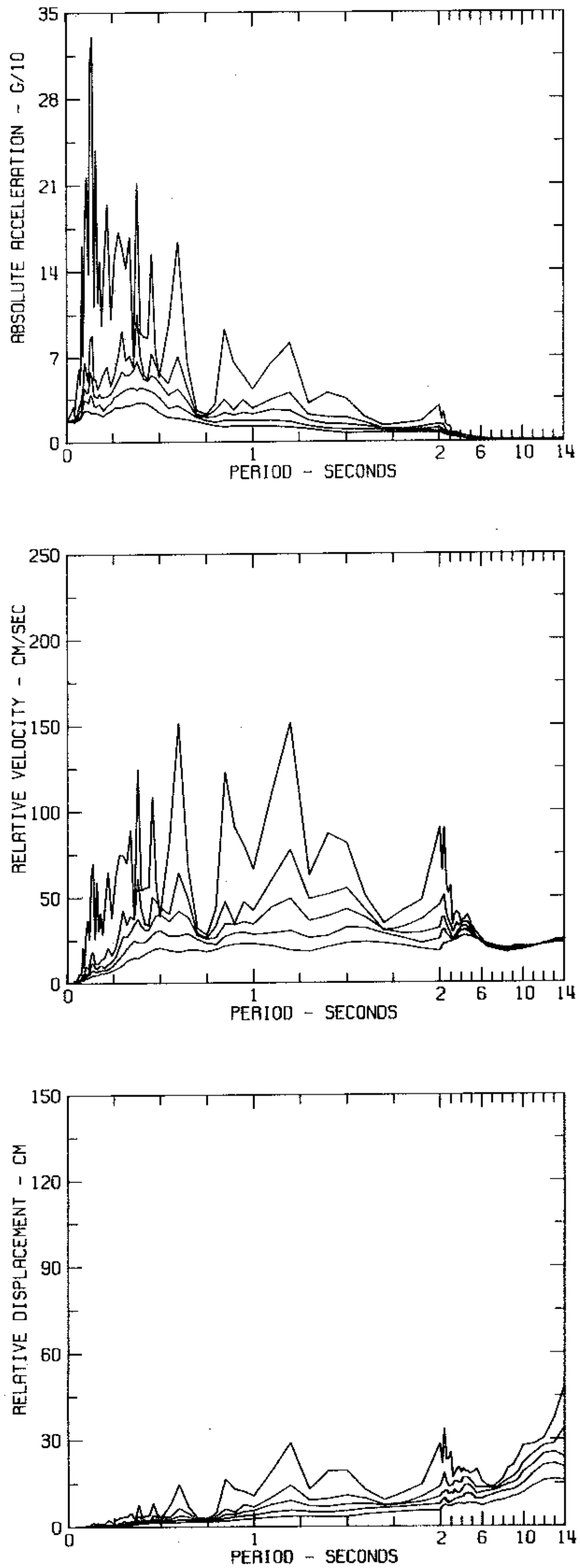
RESPONSE SPECTRA IIIB028 COMP N88W
WESTERN WASHINGTON EARTHQUAKE APR 13, 1949 - 1156 PST
SEATTLE, WASH. DIST ENGRS OFFC AT ARMY BASE
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



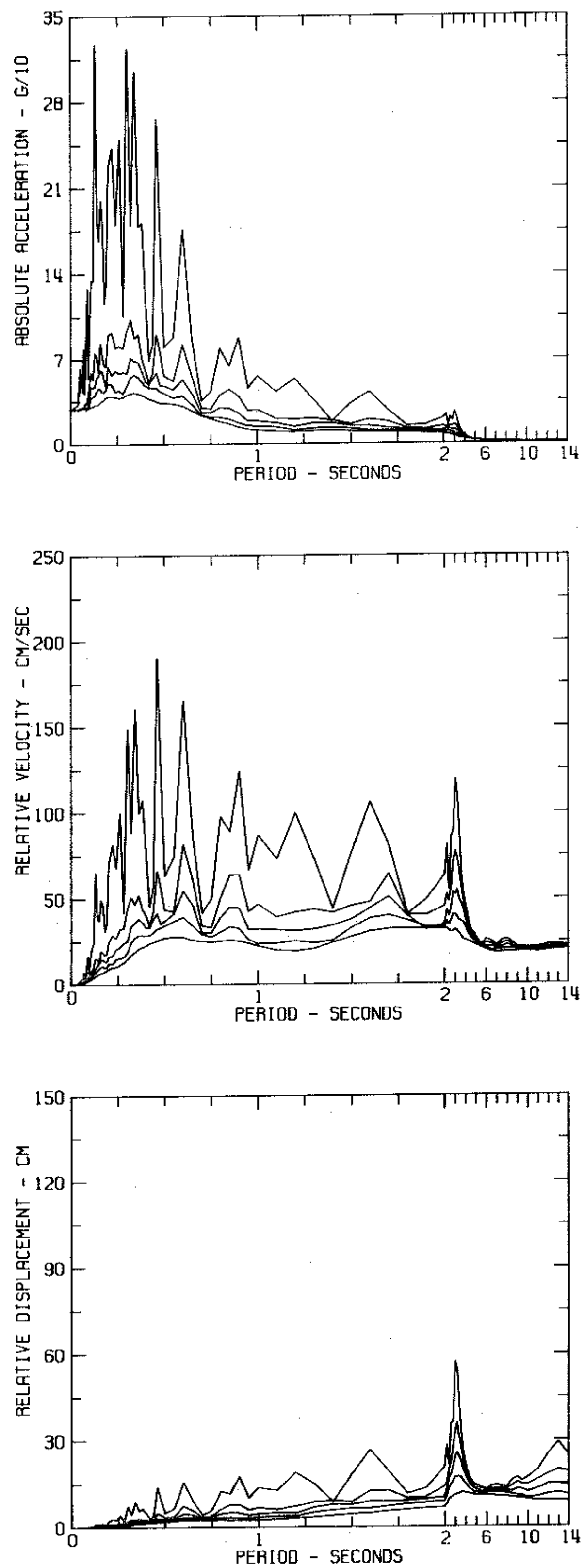
RESPONSE SPECTRA IIIB029 COMP DOWN
WESTERN WASHINGTON EARTHQUAKE APR 13, 1949 - 1156 PST
OLYMPIA, WASHINGTON HWY TEST LAB
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



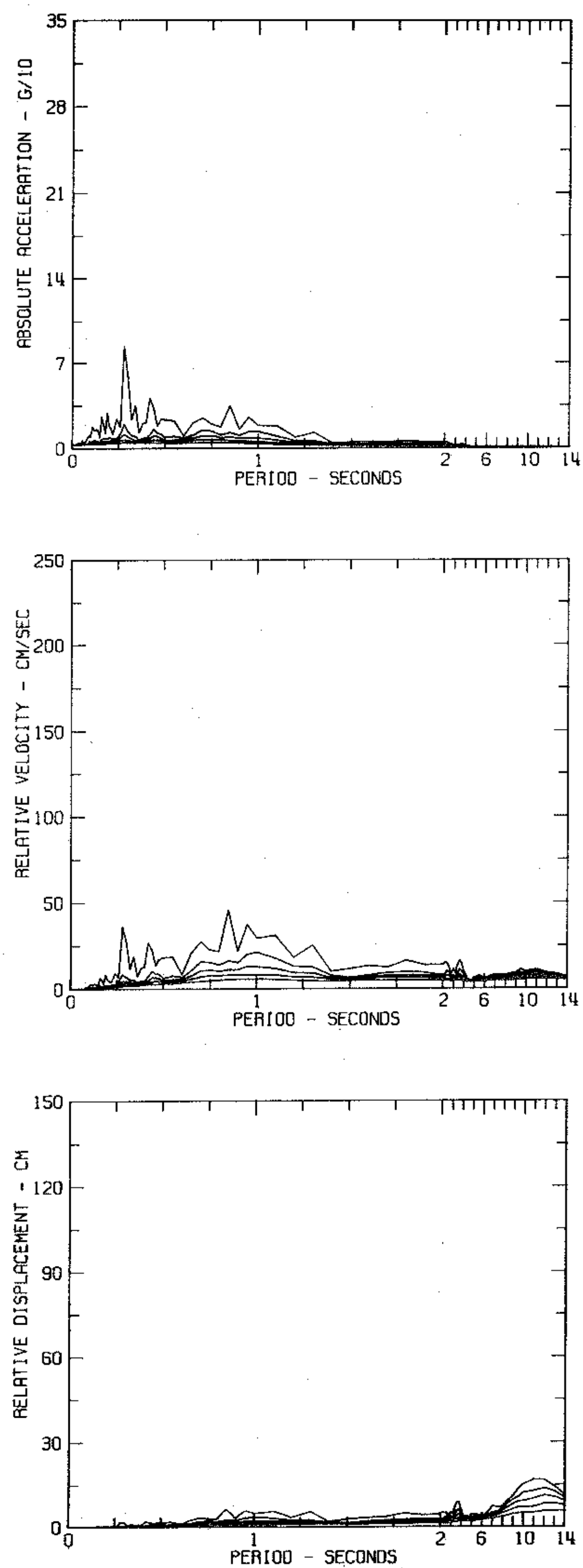
RESPONSE SPECTRA IIIB029 COMP N04W
WESTERN WASHINGTON EARTHQUAKE APR 13, 1949 - 1156 PST
OLYMPIA, WASHINGTON HWY TEST LAB
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



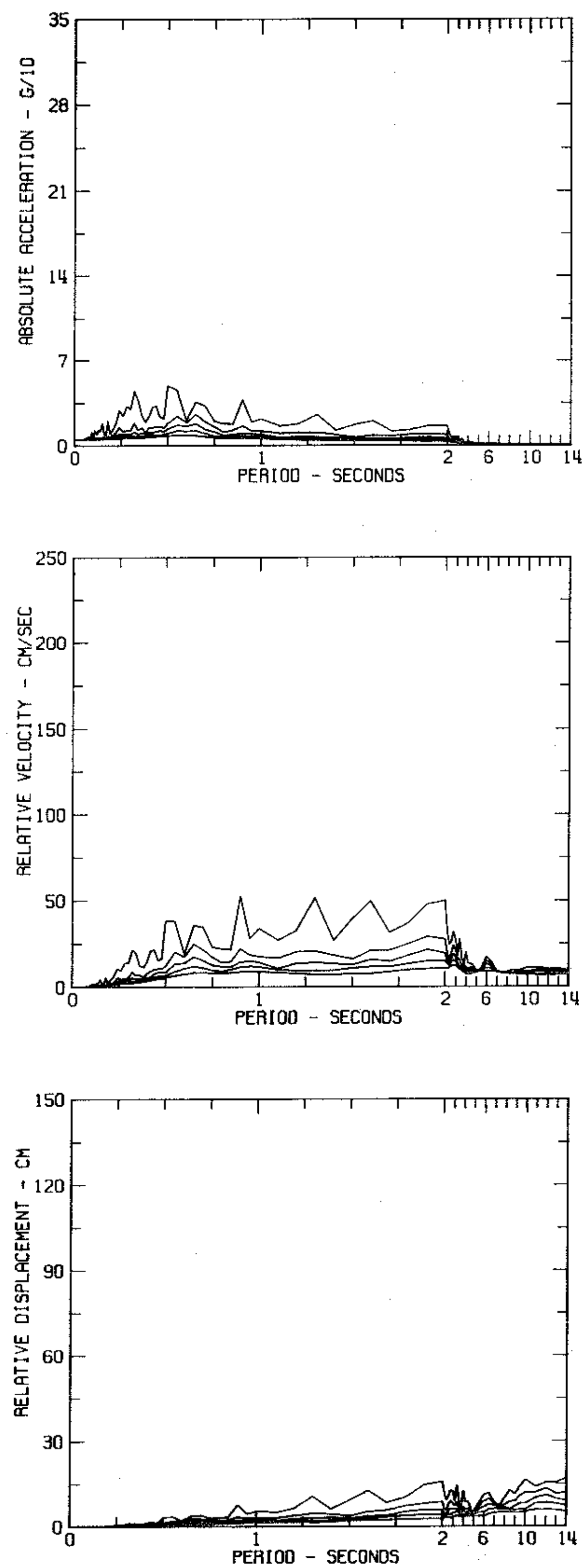
RESPONSE SPECTRA IIIB029 COMP N86E
WESTERN WASHINGTON EARTHQUAKE APR 13, 1949 - 1156 PST
OLYMPIA, WASHINGTON HWY TEST LAB
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



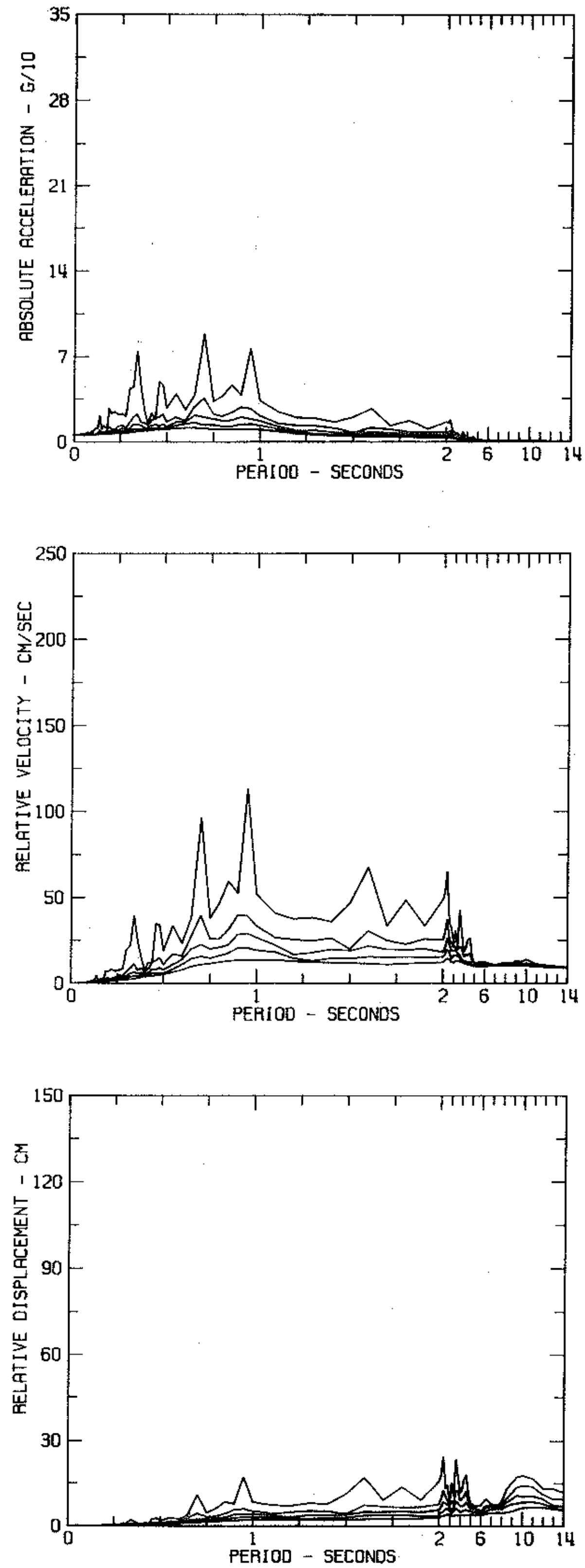
RESPONSE SPECTRA IIIA003 COMP VERT
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
PASADENA - CALTECH ATHENAEUM
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



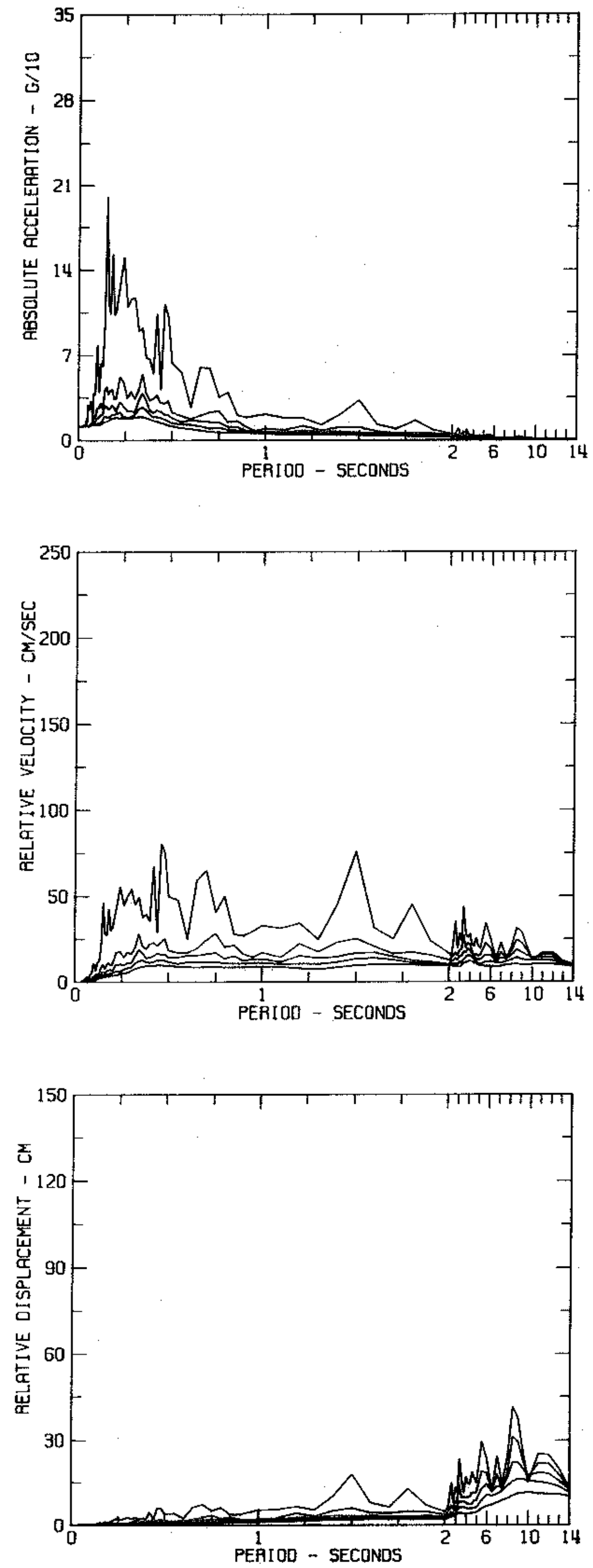
RESPONSE SPECTRA IIIA003 COMP S00E
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
PASADENA - CALTECH ATHENAEUM
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



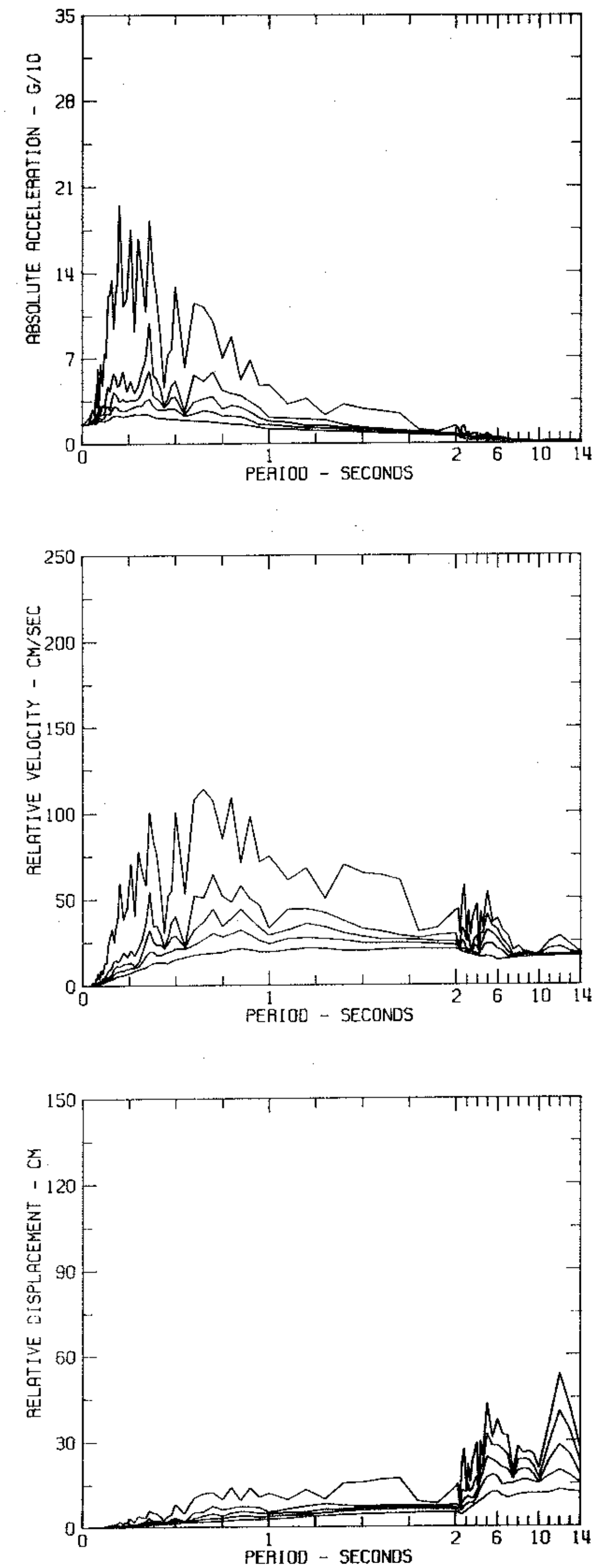
RESPONSE SPECTRA IIIA003 COMP S90W
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
PASADENA - CALTECH ATHENAEUM
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



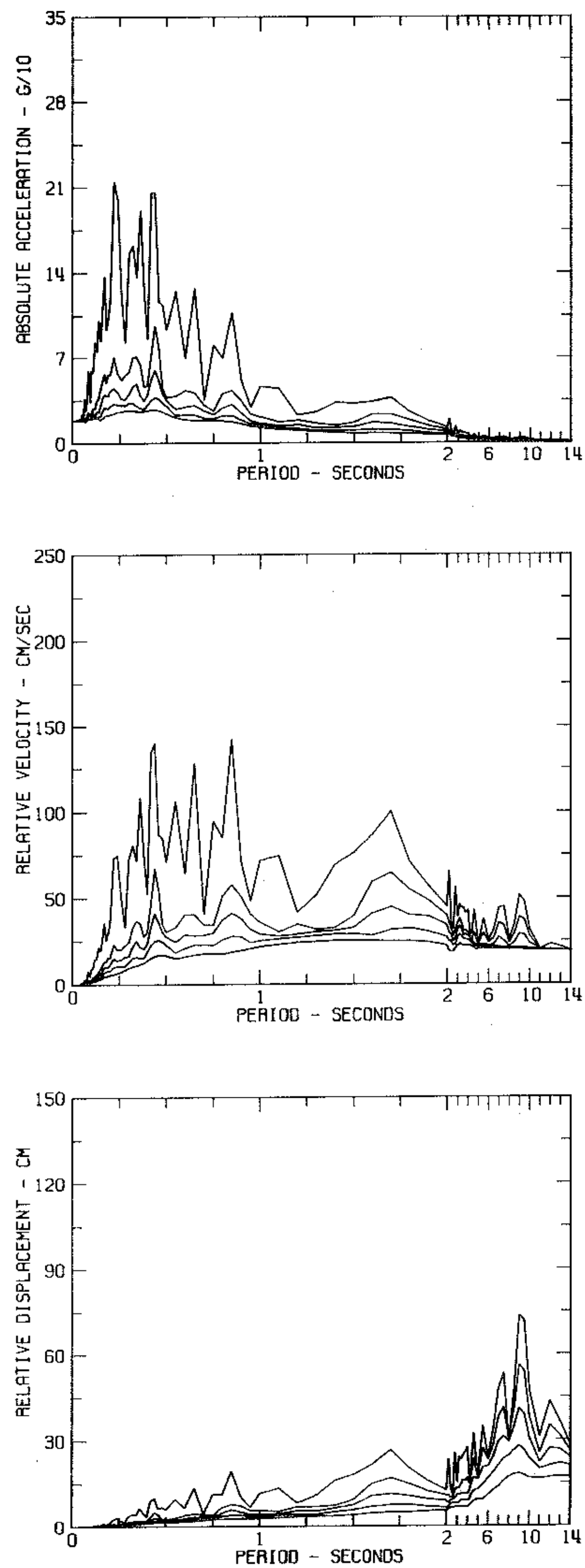
RESPONSE SPECTRA IIIA004 COMP VERT
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
TAFT LINCOLN SCHOOL TUNNEL
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



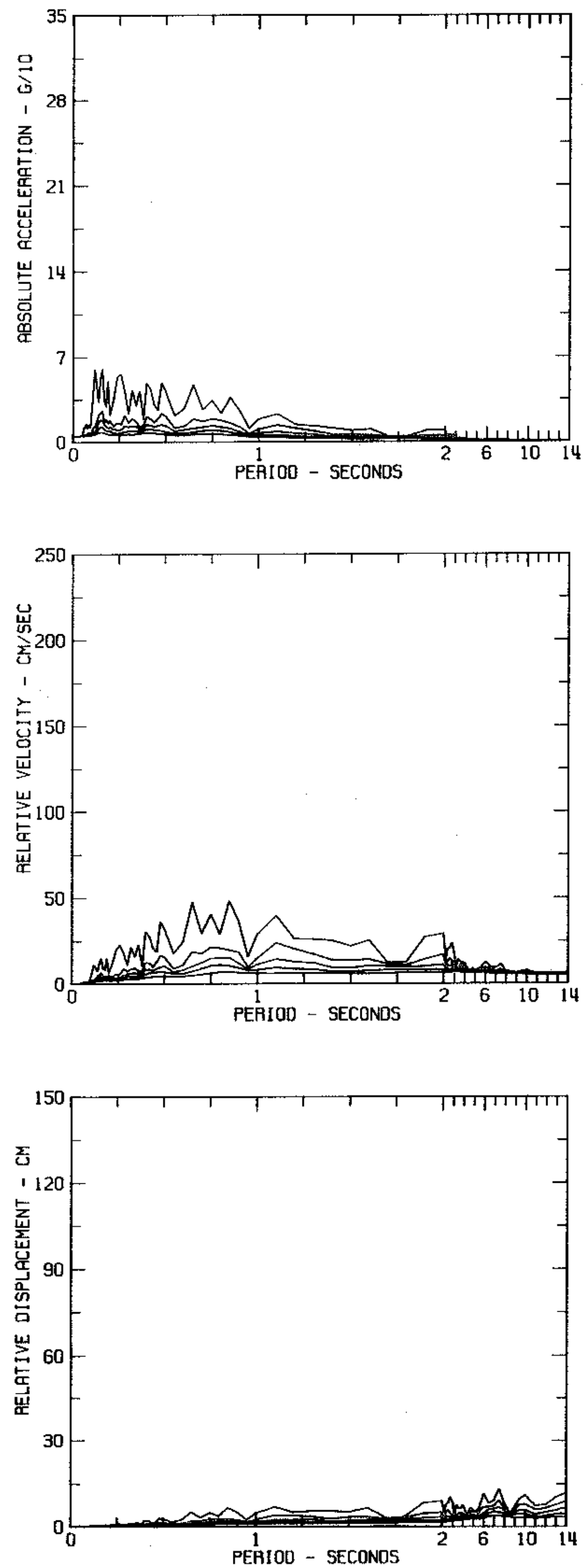
RESPONSE SPECTRA IIIA004 COMP N21E
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
TAFT LINCOLN SCHOOL TUNNEL
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



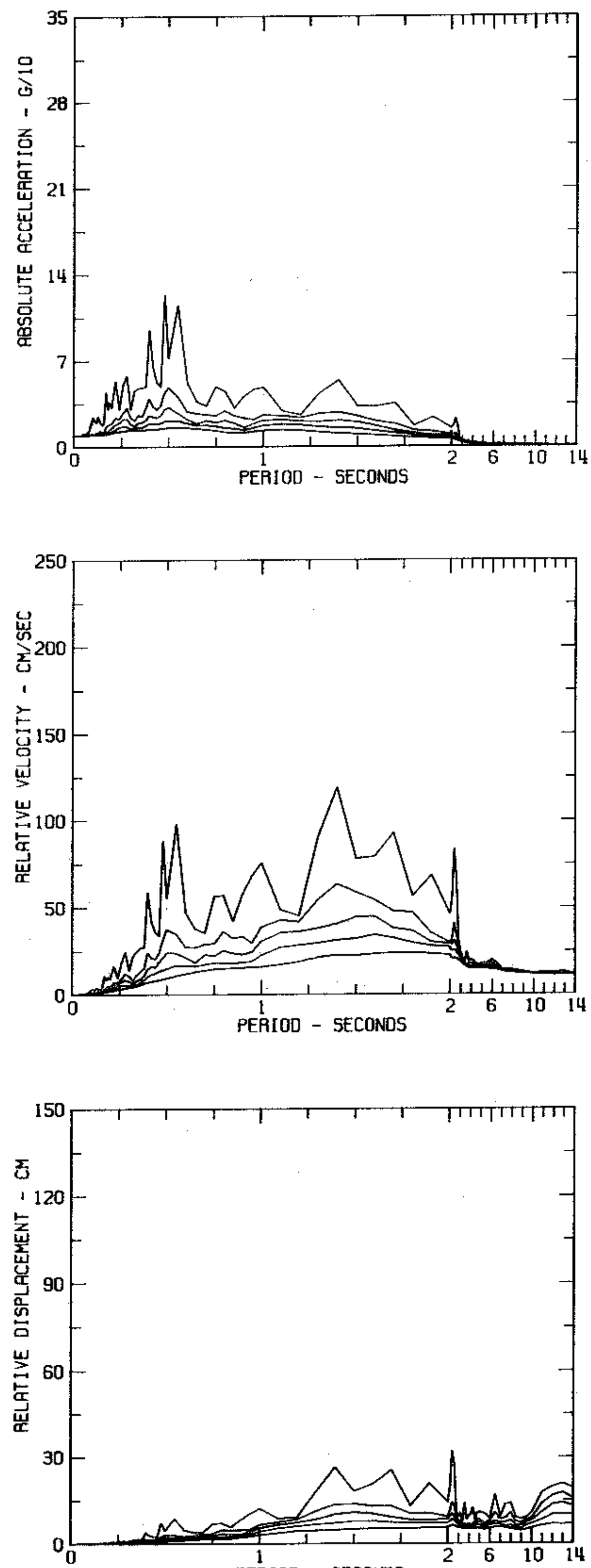
RESPONSE SPECTRA IIIA004 COMP S69E
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
TAFT LINCOLN SCHOOL TUNNEL
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



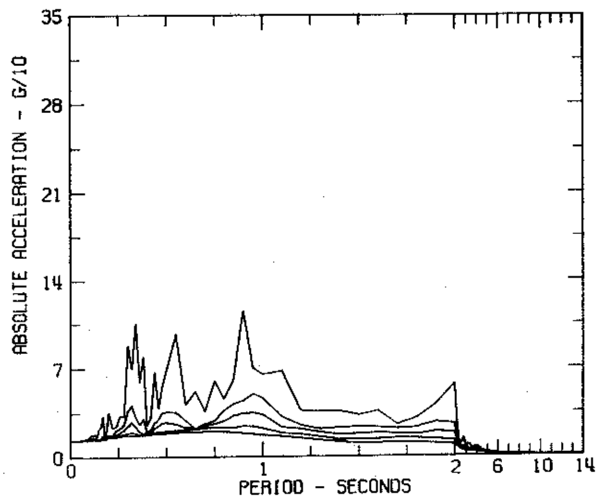
RESPONSE SPECTRA IIIA005 COMP VERT
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
SANTA BARBARA COURT HOUSE
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

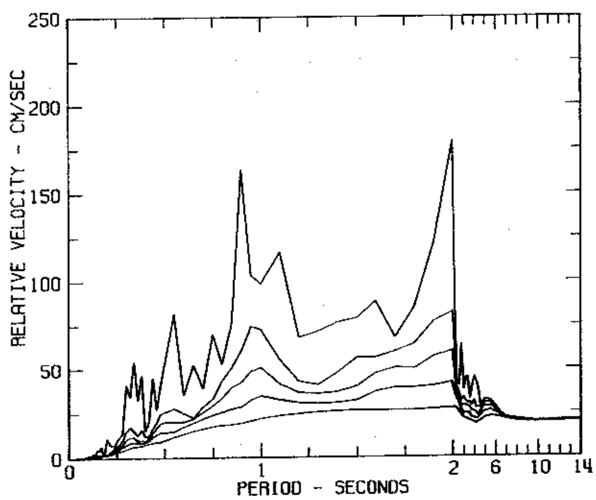


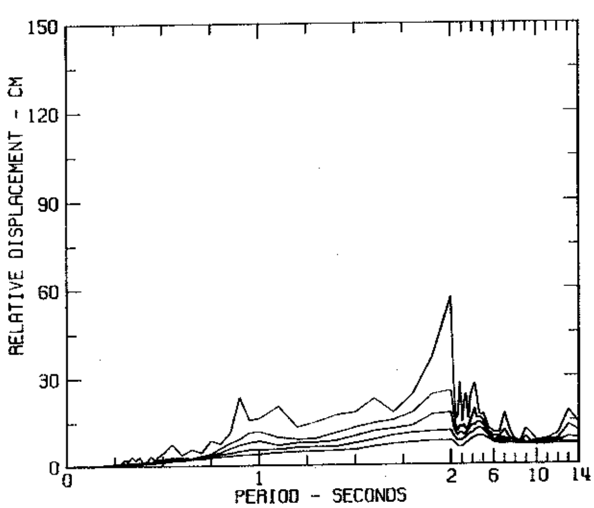
RESPONSE SPECTRA IIIA005 COMP N42E
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
SANTA BARBARA COURTHOUSE
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



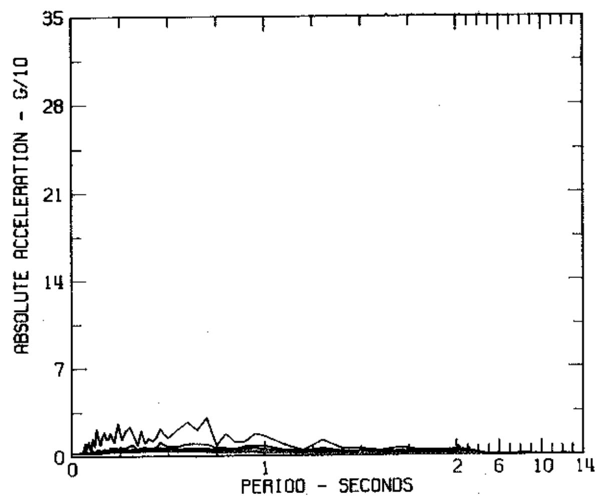
RESPONSE SPECTRA IIIA005 COMP S48E
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
SANTA BARBARA COURTHOUSE
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

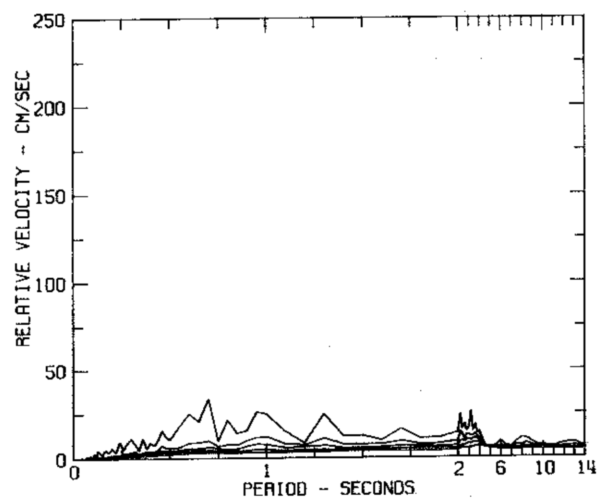


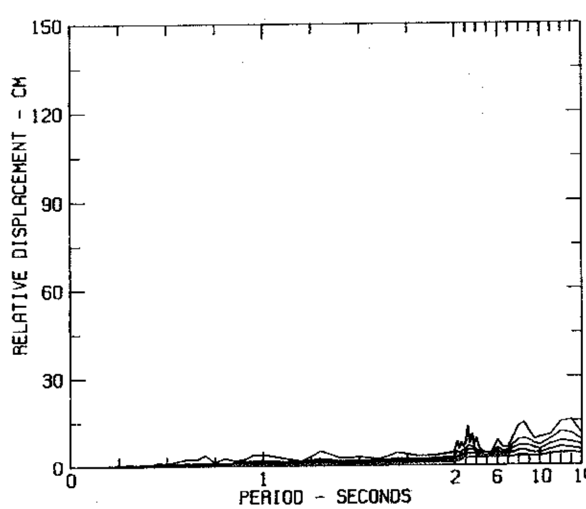




RESPONSE SPECTRA IIIA006 COMP VERT
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
HOLLYWOOD STORAGE BASEMENT
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL





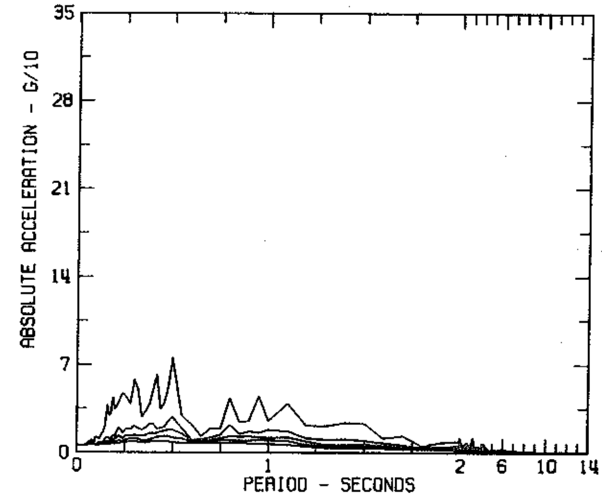


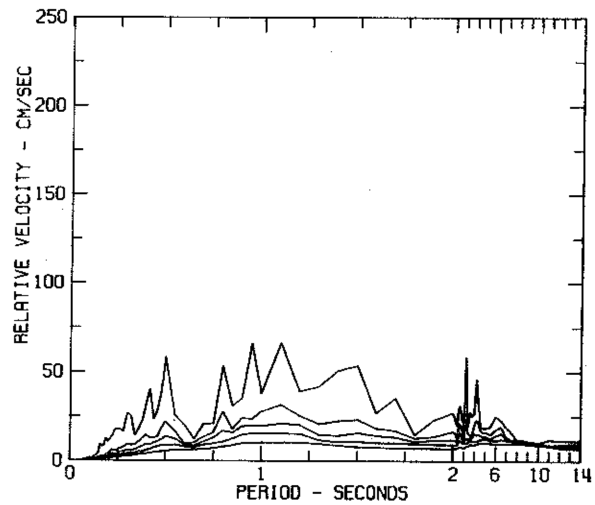
RESPONSE SPECTRA IIIA006 COMP S00W

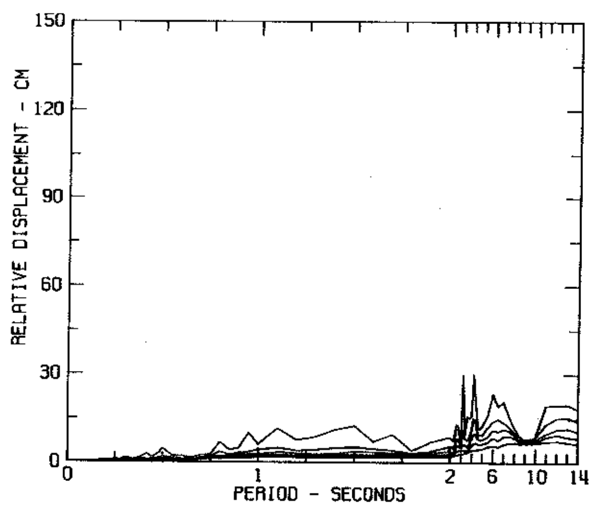
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT

HOLLYWOOD STORAGE BASEMENT

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL





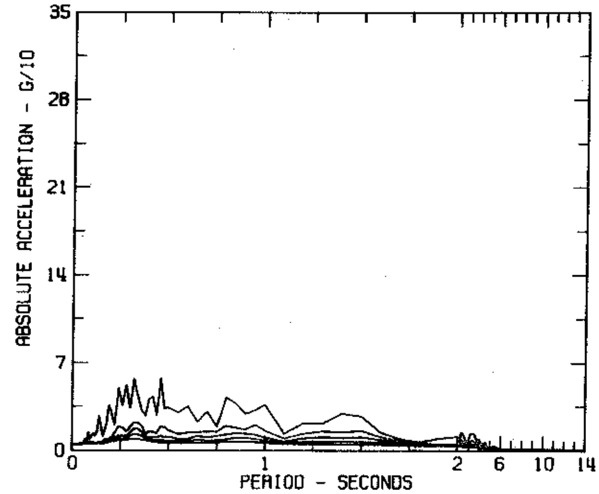


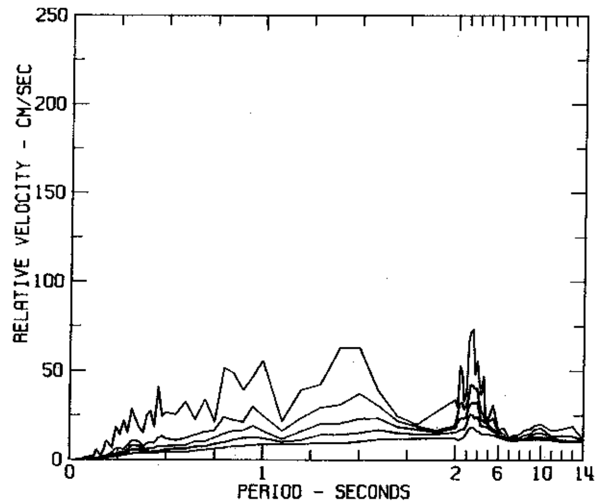
RESPONSE SPECTRA IIIA006 COMP N90E

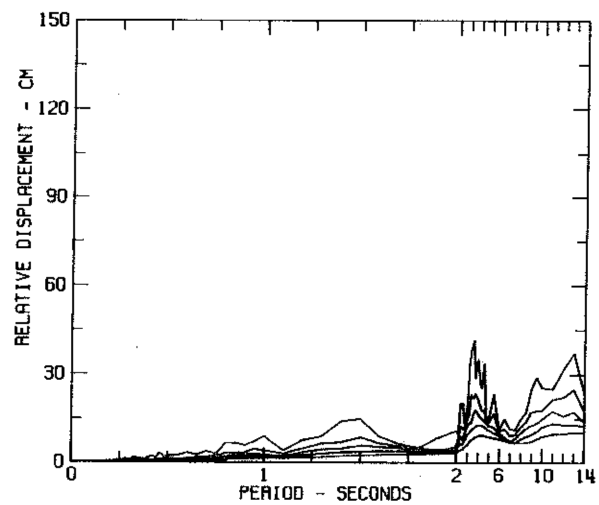
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT

HOLLYWOOD STORAGE BASEMENT

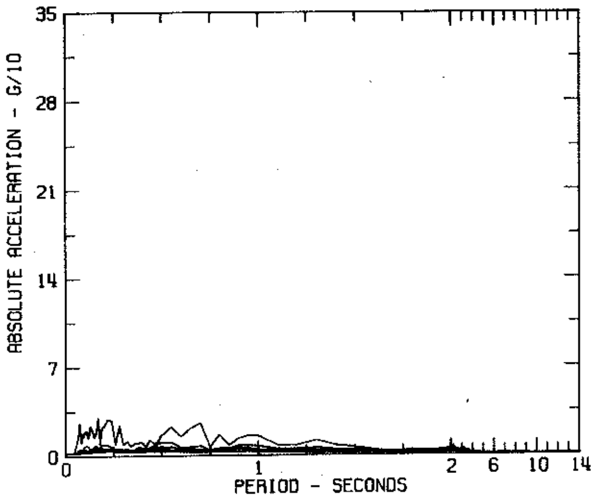
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

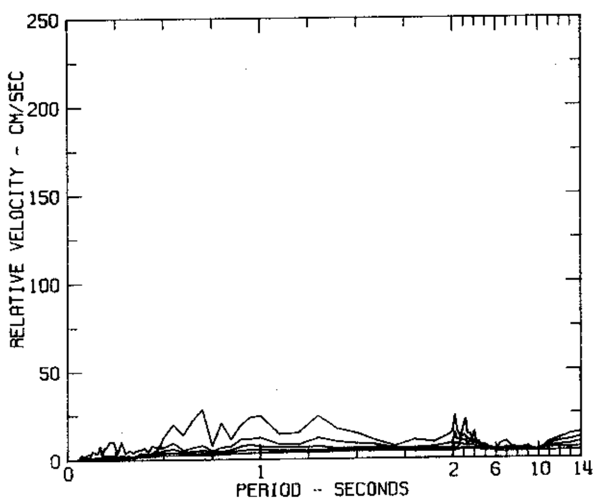


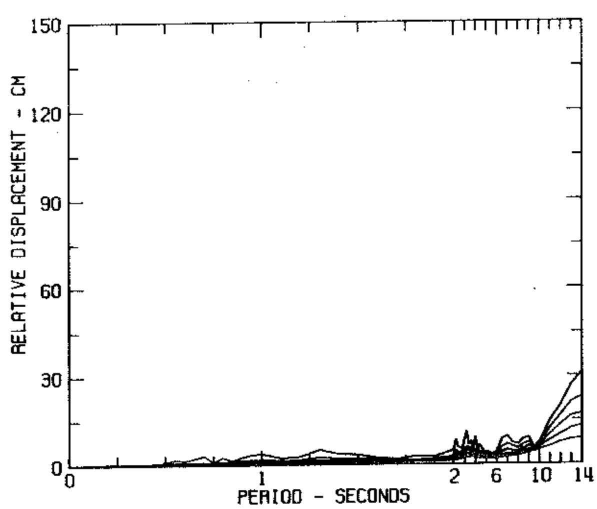




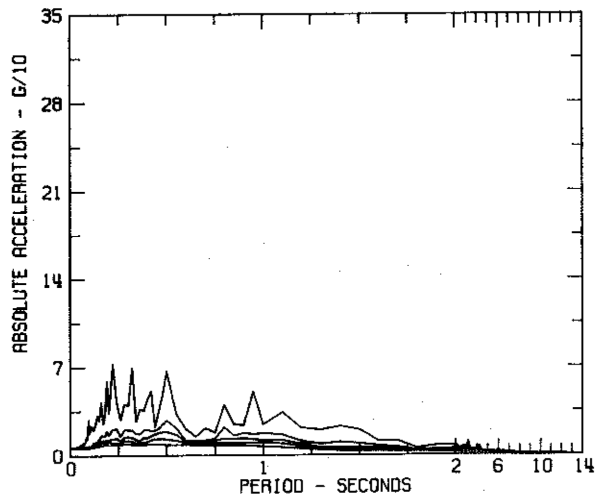
RESPONSE SPECTRA IIIA007 COMP VERT
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
HOLLYWOOD STORAGE P.E. LOT
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

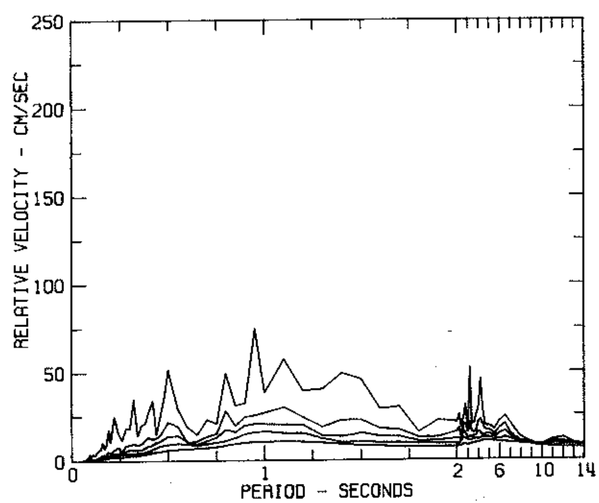


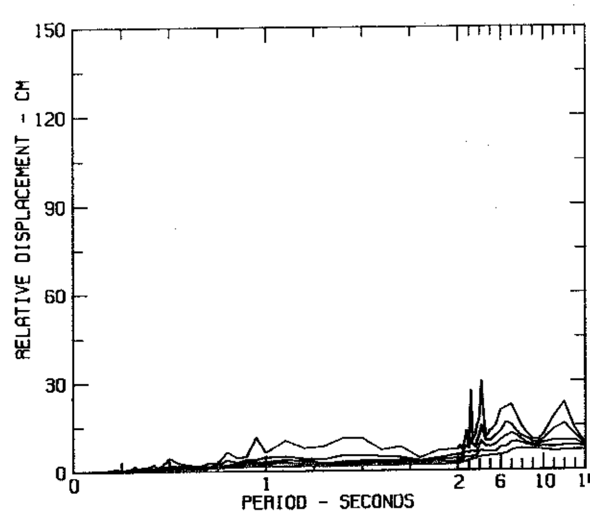




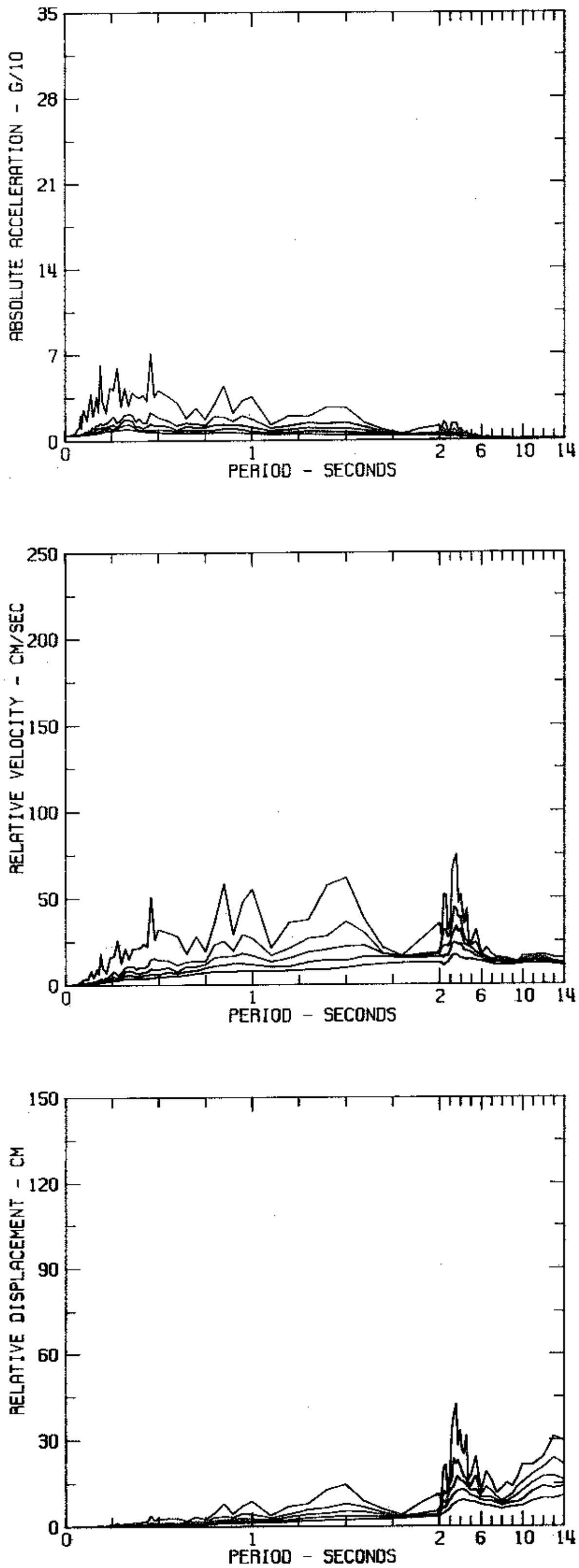
RESPONSE SPECTRA IIIA007 COMP S00W
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
HOLLYWOOD STORAGE P.E. LOT
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



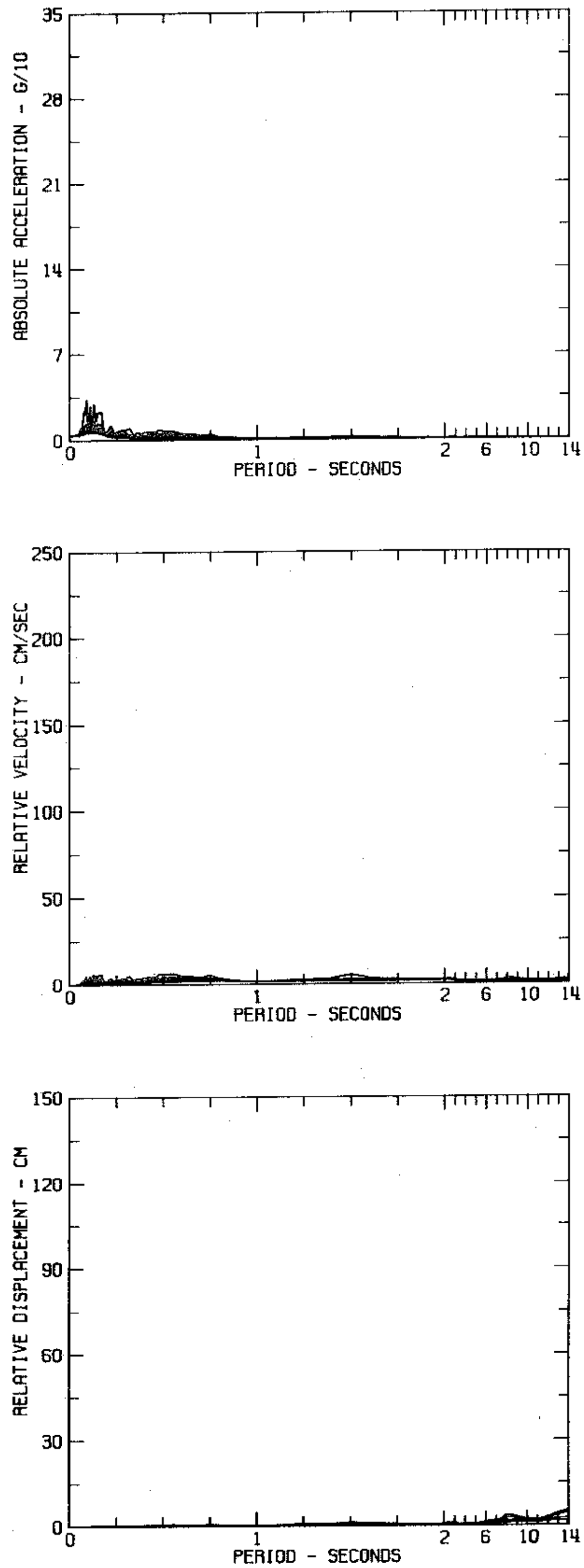




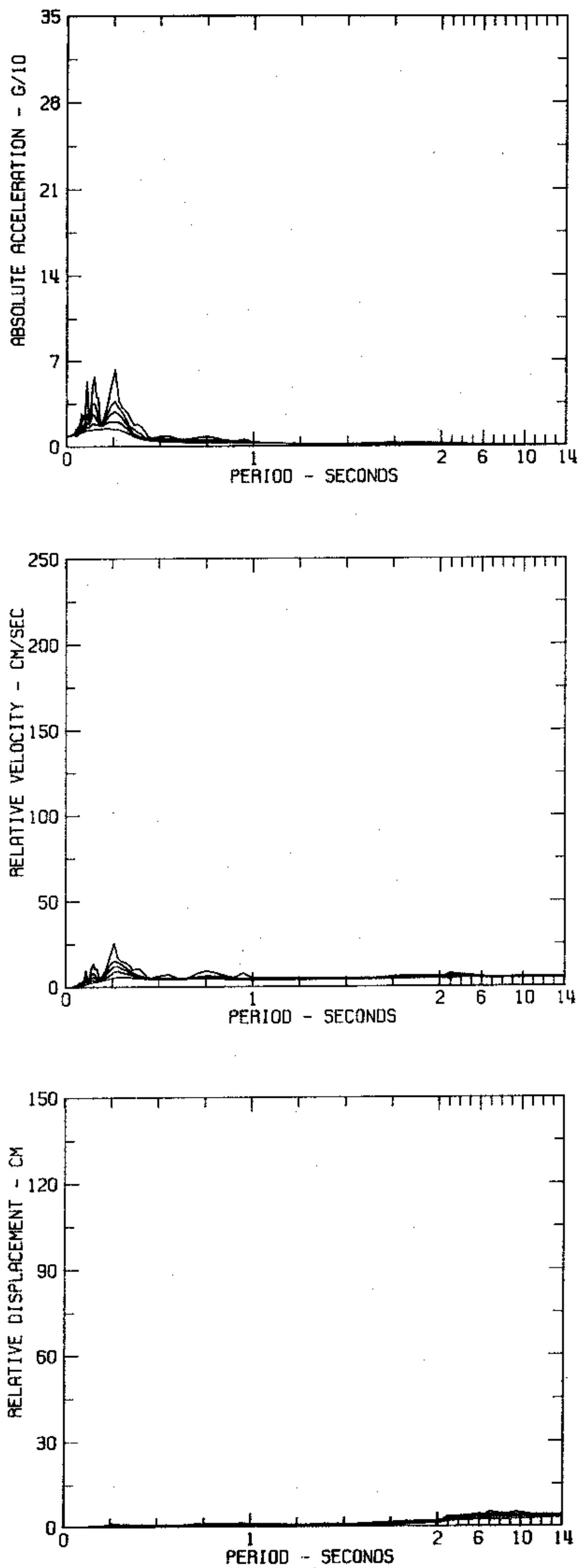
RESPONSE SPECTRA IIIA007 COMP N90E
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
HOLLYWOOD STORAGE P.E. LOT
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



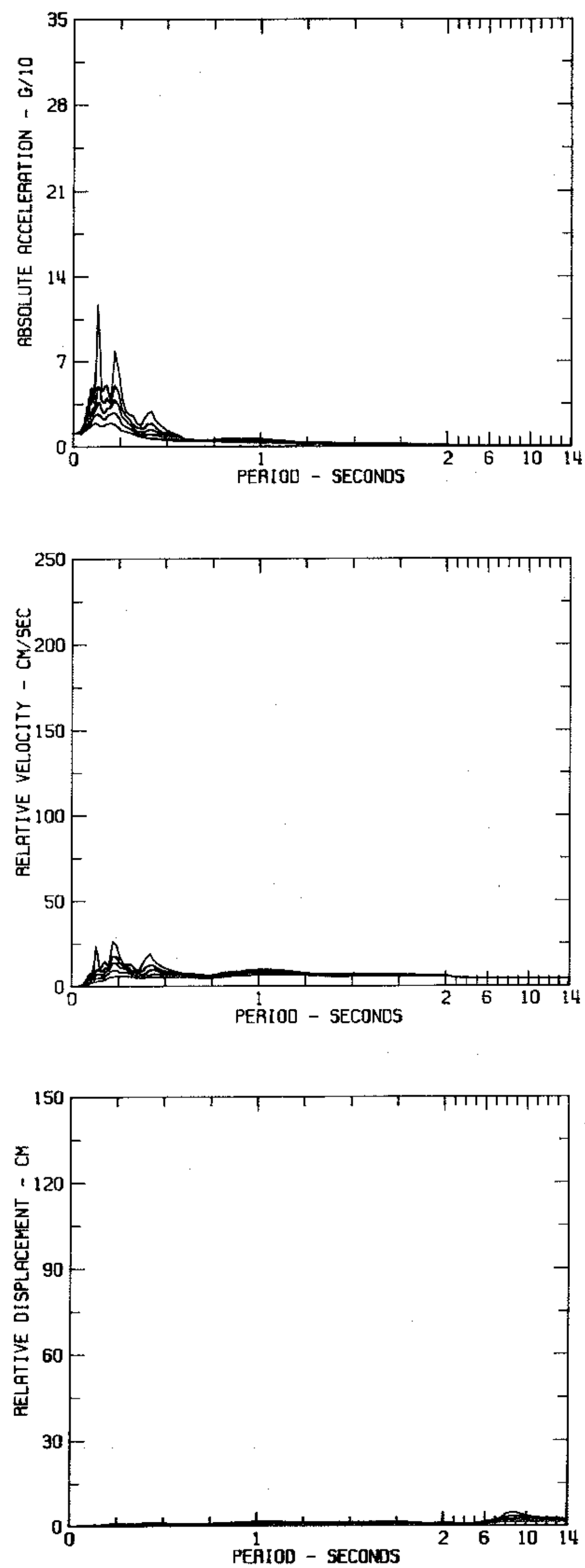
RESPONSE SPECTRA IIIA015 COMP VERT
SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST
SAN FRANCISCO GOLDEN GATE PARK
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



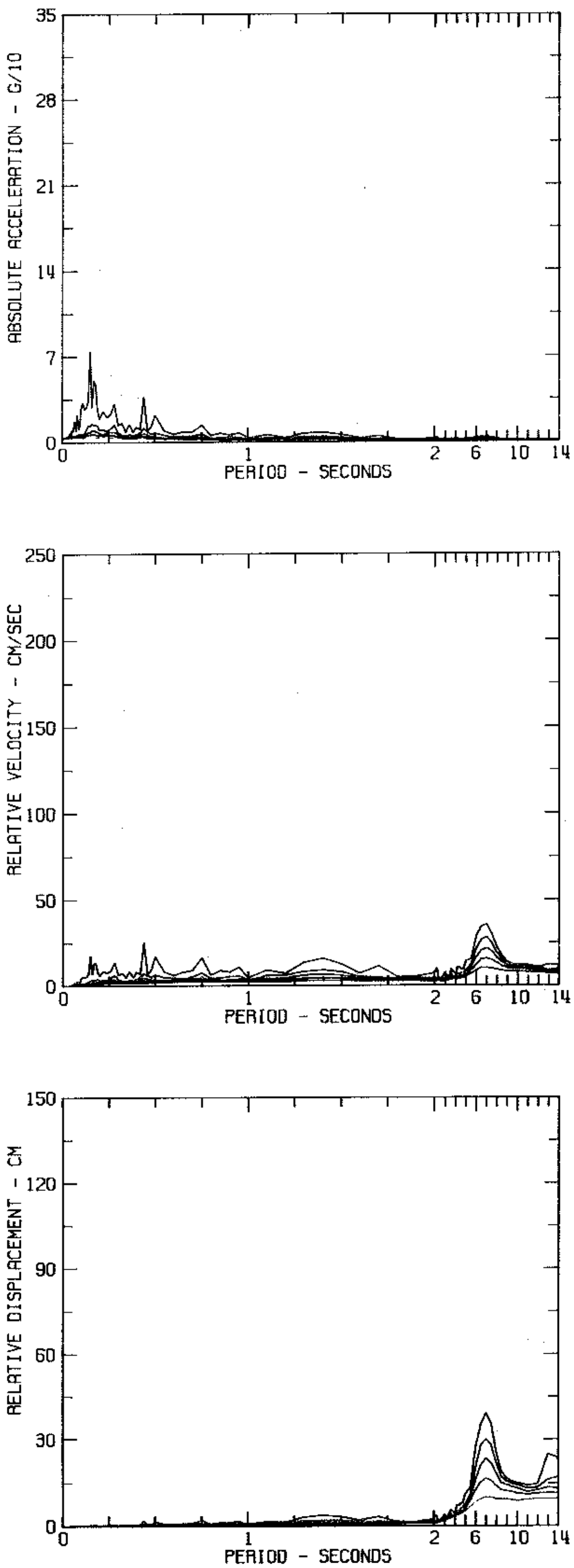
RESPONSE SPECTRA IIIA015 COMP N10E
SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST
SAN FRANCISCO GOLDEN GATE PARK
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



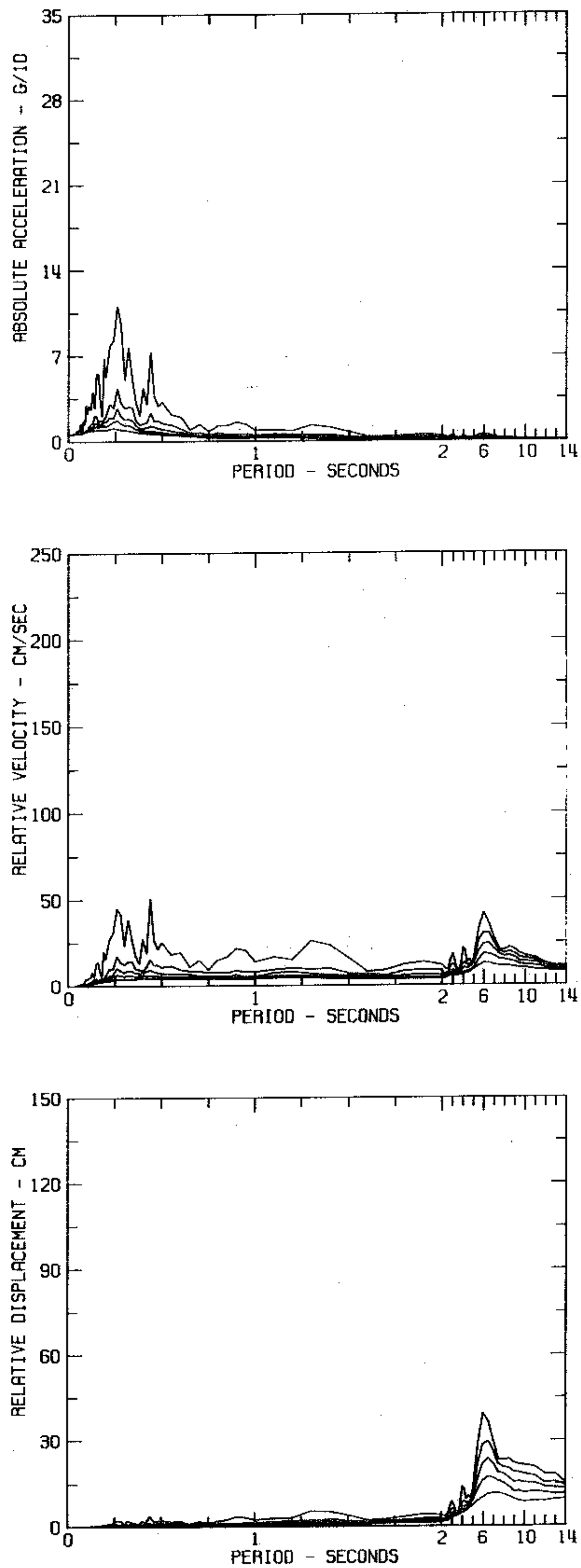
RESPONSE SPECTRA IIIA015 COMP S80E
SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST
SAN FRANCISCO GOLDEN GATE PARK
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



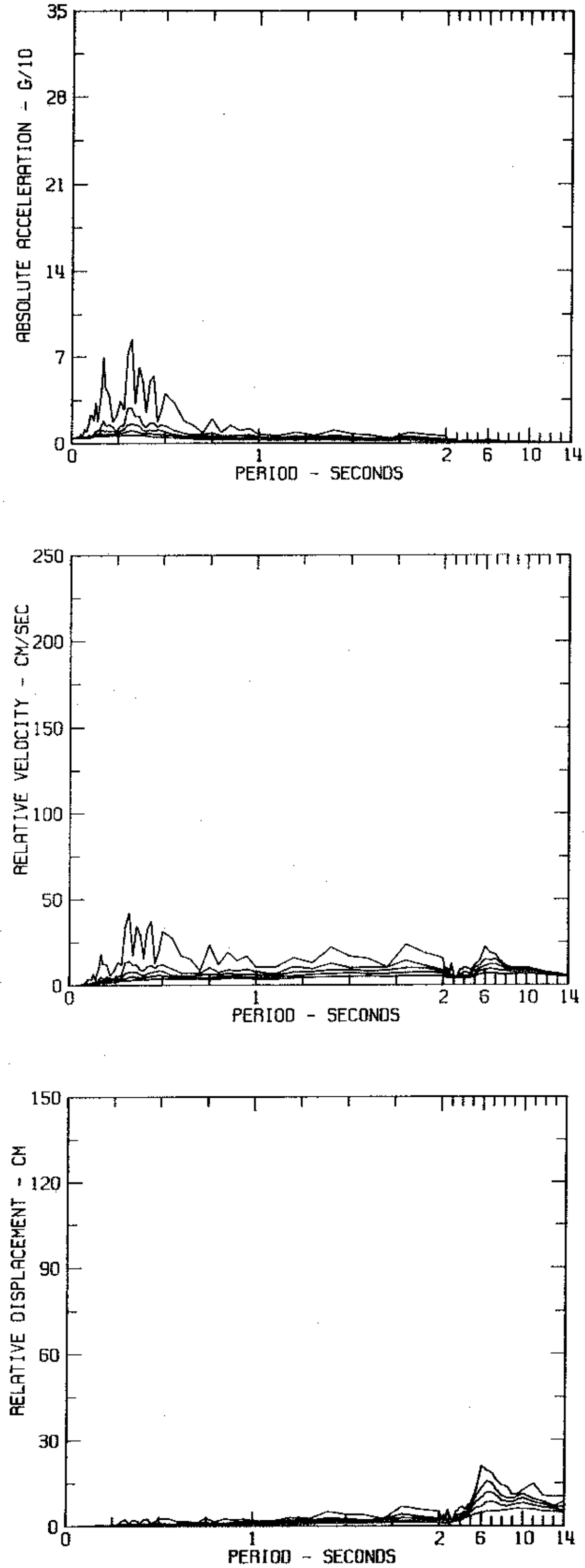
RESPONSE SPECTRA II 000 COM.VERT.
ENG BLDG.STATE COLL. .MONTANA.E/Q OF AUG 17 1959-0639 MST
ENG. BLDG., STATE COLLEGE
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



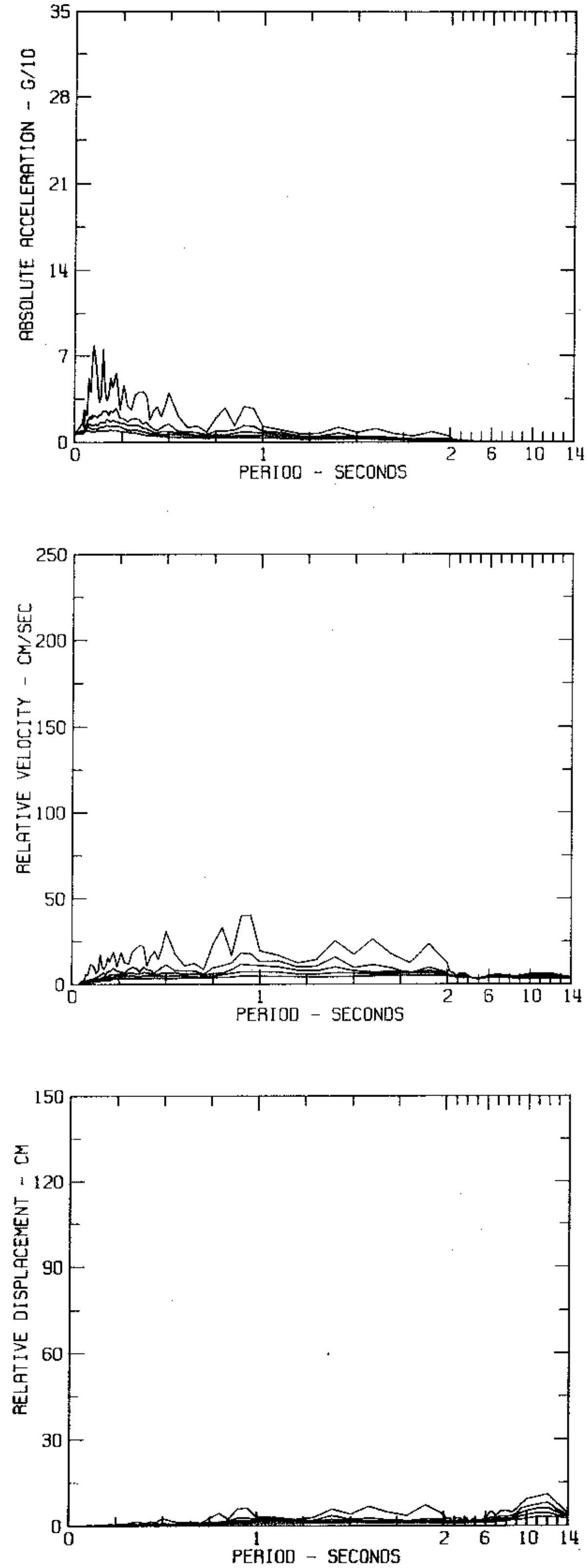
RESPONSE SPECTRA II 000 COM.NORTH
ENG BLDG.STATE COLL. .MONTANA.E/Q OF AUG 17 1959-0639 MST
ENG. BLDG., STATE COLLEGE
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



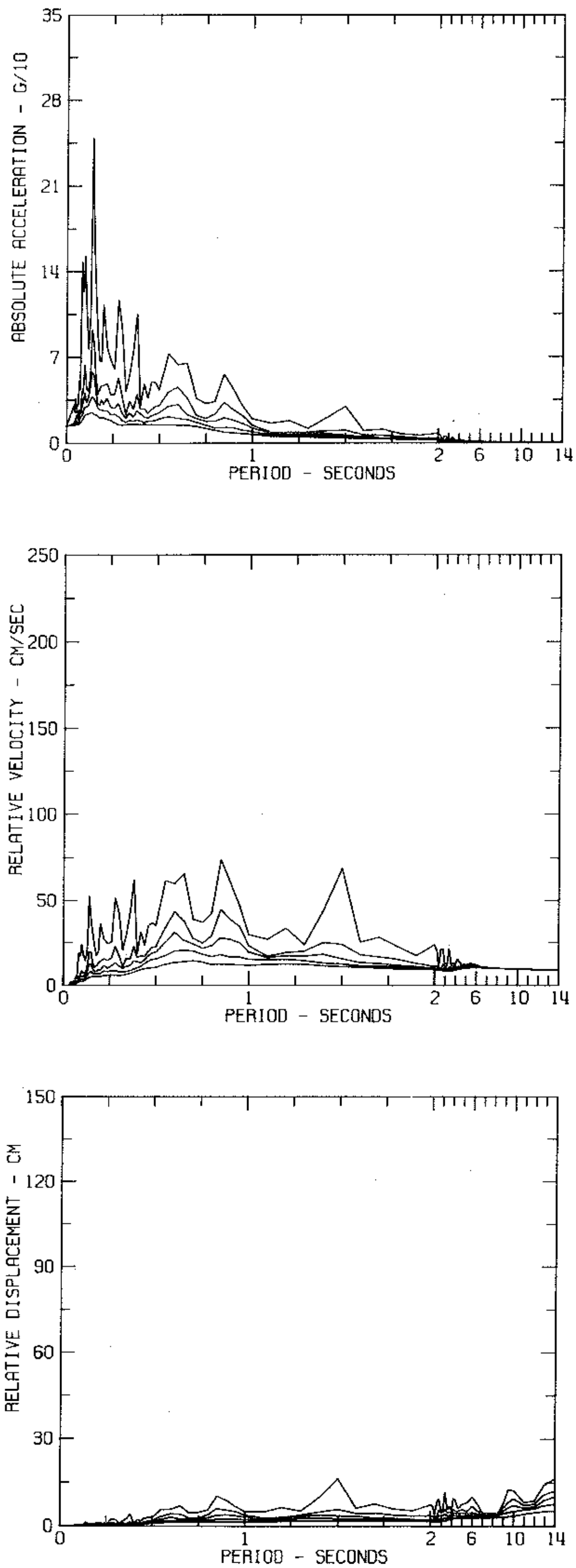
RESPONSE SPECTRA II 000 COM.EAST
ENG BLDG.STATE COLL. .MONTANA.E/Q OF AUG 17 1959-0639 MST
ENG. BLDG.. STATE COLLEGE
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



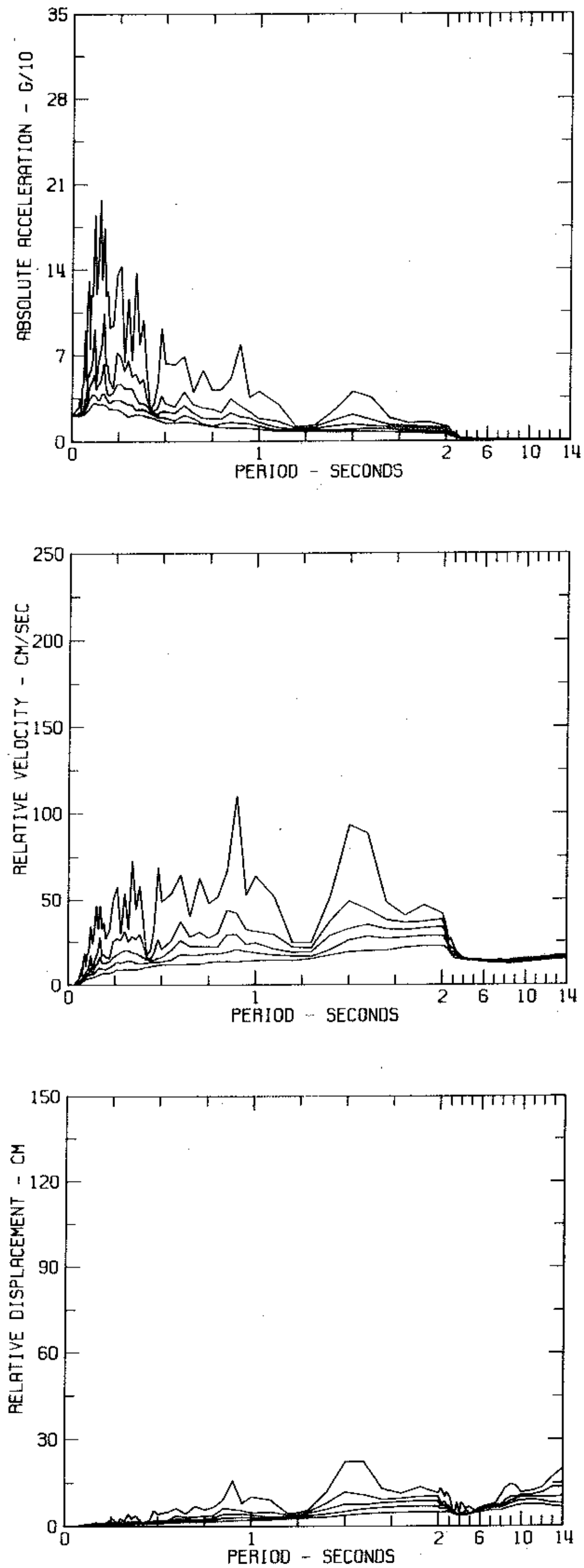
RESPONSE SPECTRA IIIB032 COMP VERT
PUGET SOUND, WASHINGTON EARTHQUAKE APR 29, 1965 - 0728 PST
OLYMPIA, WASHINGTON HWY TEST LAB
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



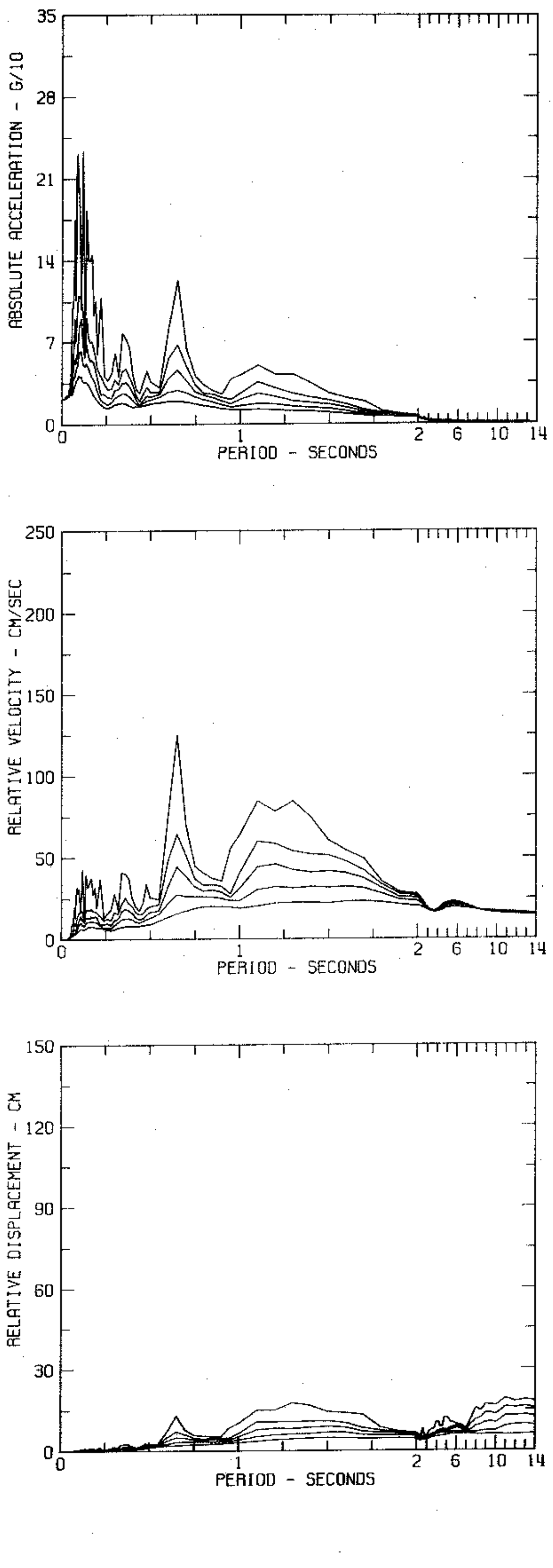
RESPONSE SPECTRA IIIB032 COMP S04E
PUGET SOUND, WASHINGTON EARTHQUAKE APR 29, 1965 - 0728 PST
OLYMPIA, WASHINGTON HWY TEST LAB
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



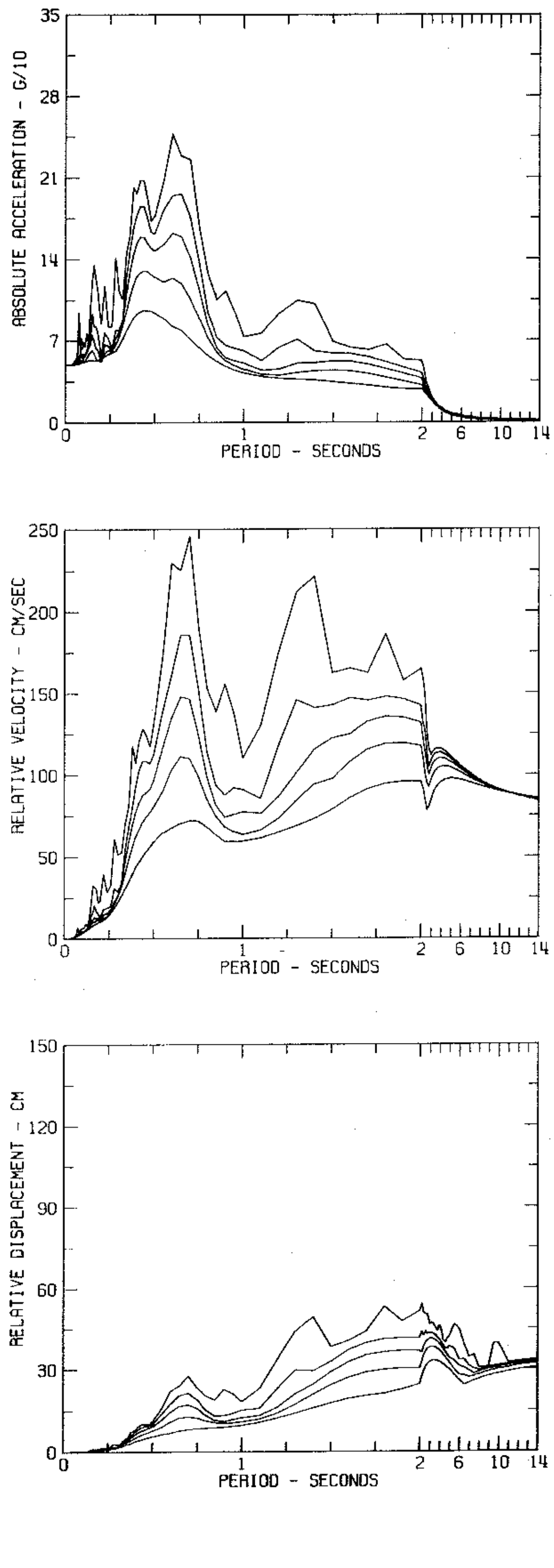
RESPONSE SPECTRA IIIB032 COMP S86W
PUGET SOUND, WASHINGTON EARTHQUAKE APR 29, 1965 - 0728 PST
OLYMPIA, WASHINGTON HWY TEST LAB
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



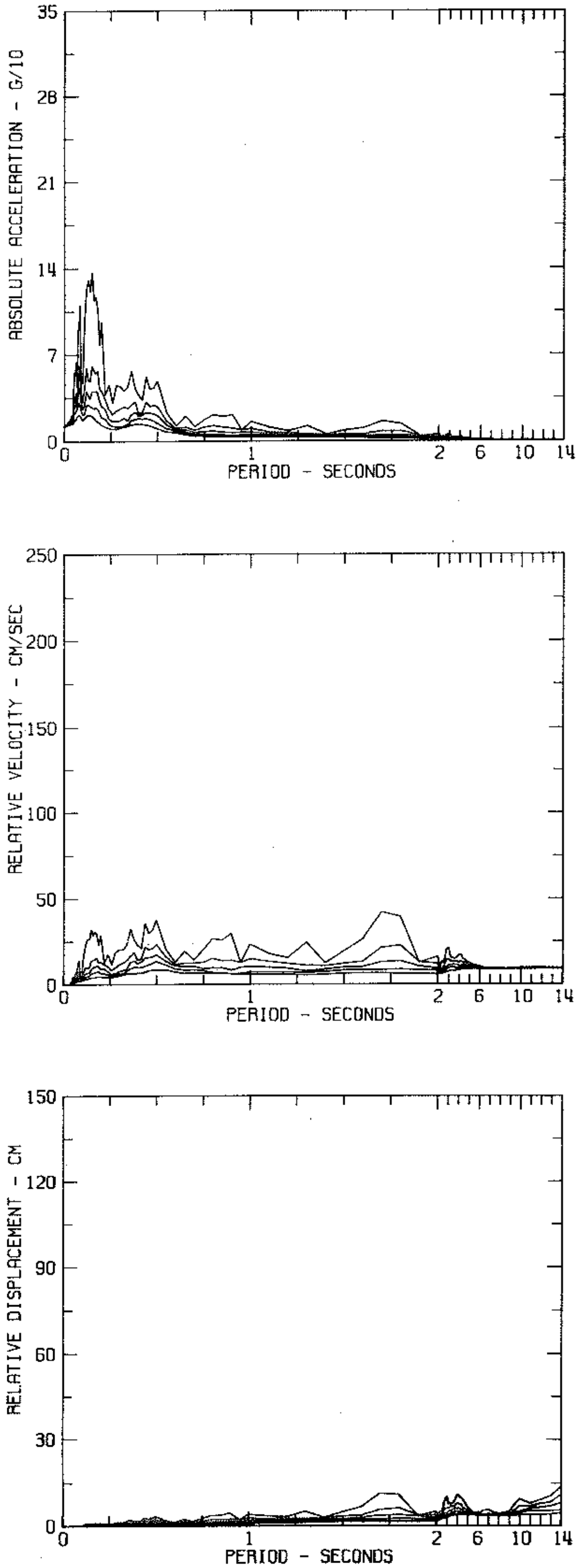
RESPONSE SPECTRA IIIB033 COMP DOWN
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 2
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



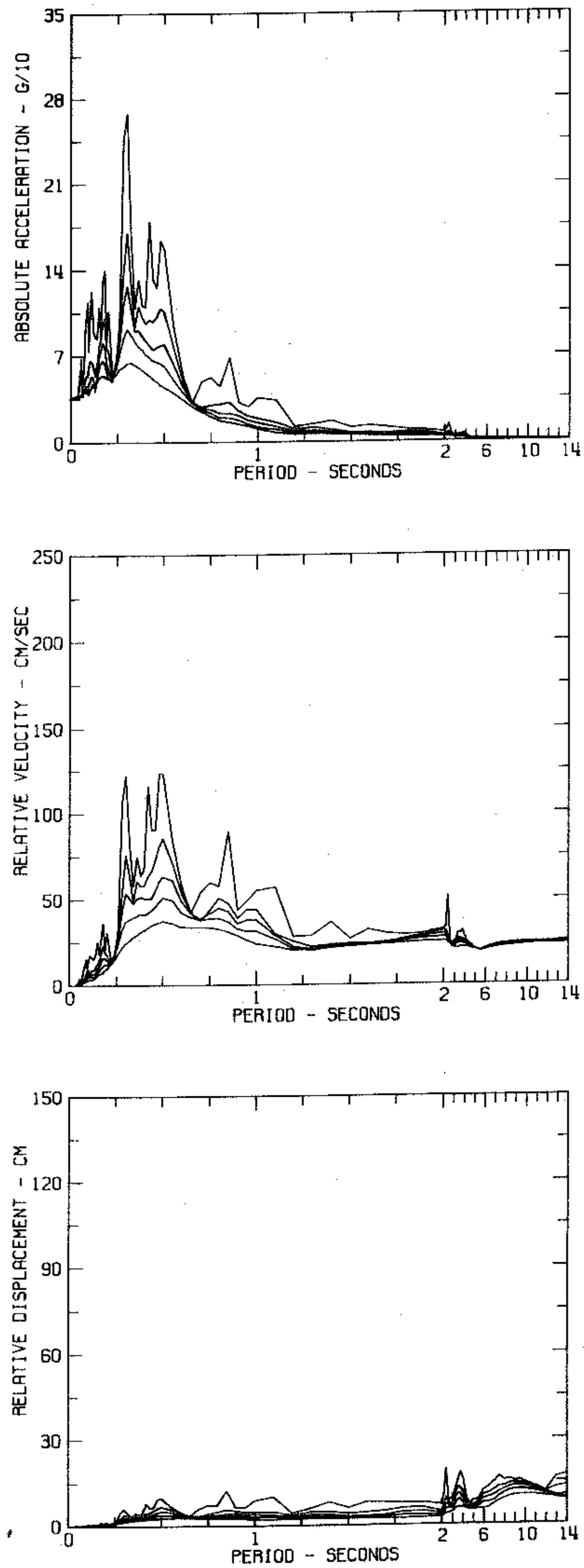
RESPONSE SPECTRA IIIB033 COMP N65E
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 2
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



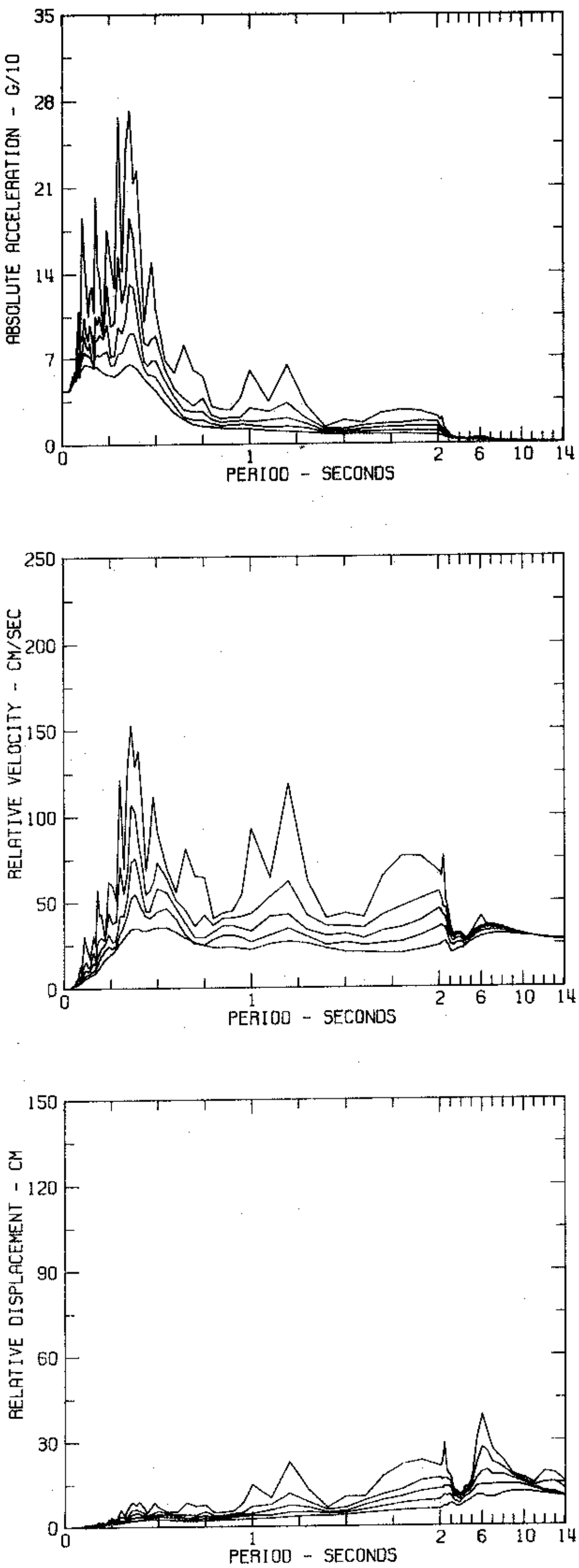
RESPONSE SPECTRA IIIB034 COMP DOWN
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 5
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



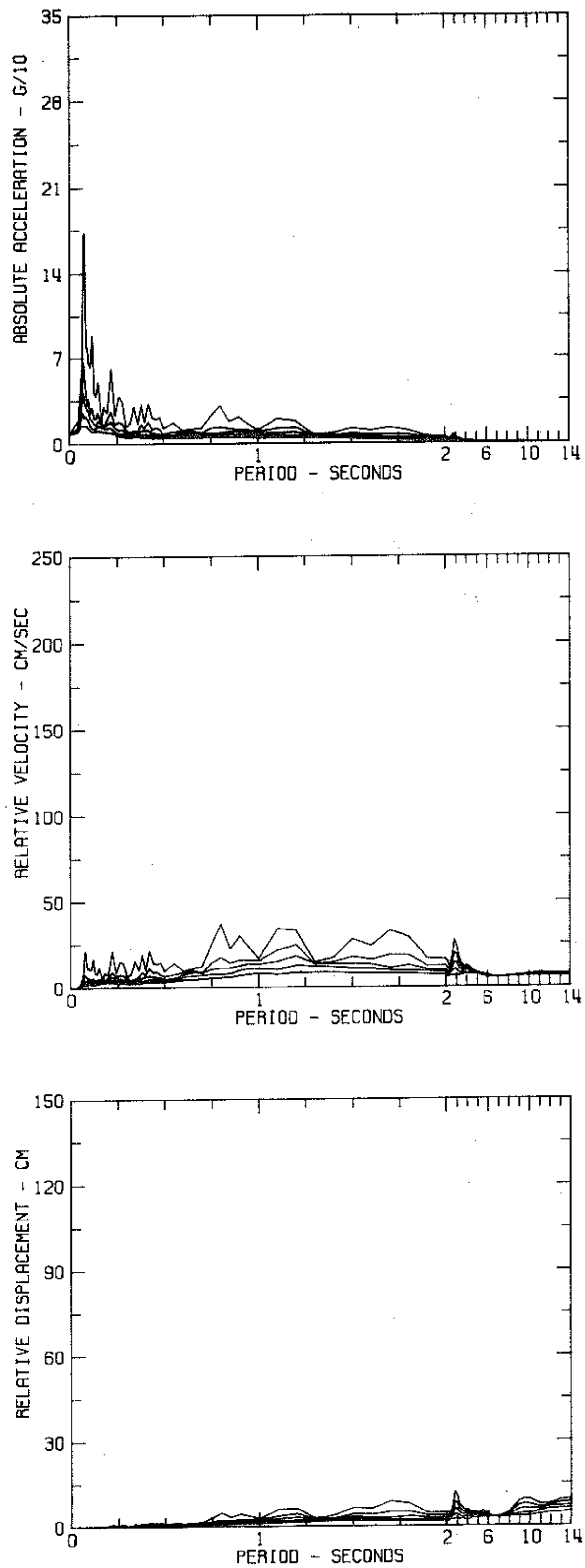
RESPONSE SPECTRA IIIB034 COMP N05W
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 5
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



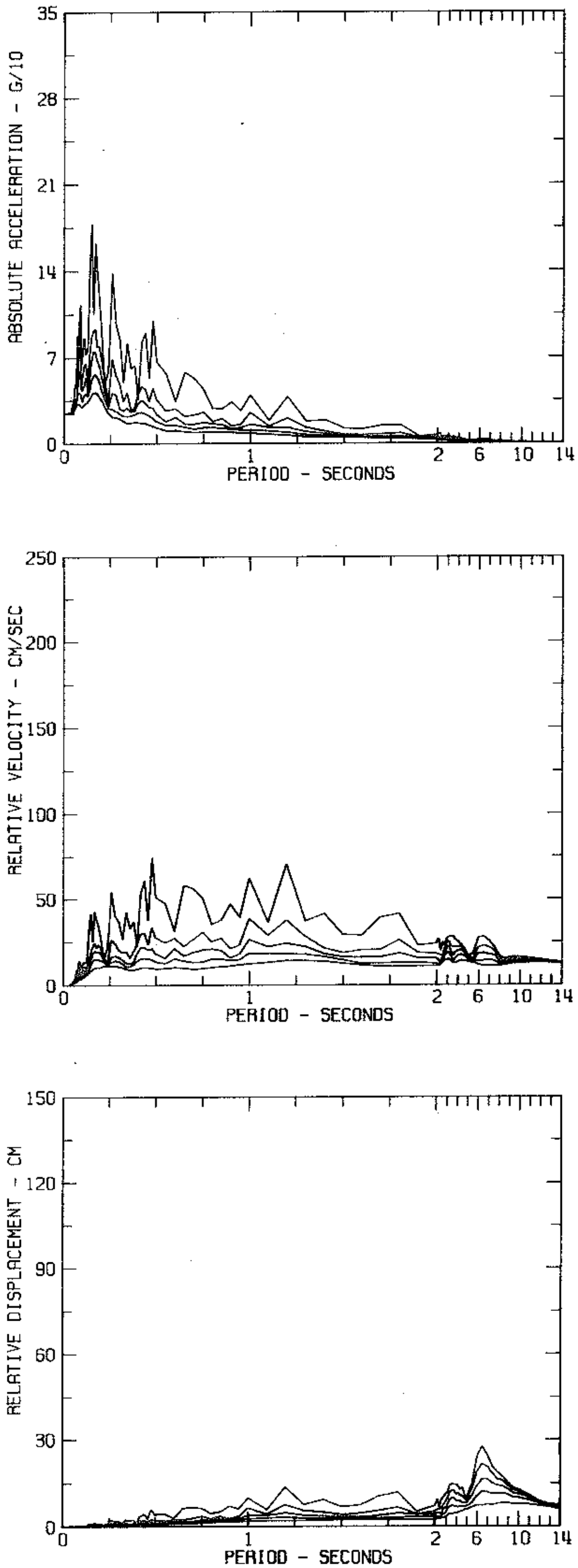
RESPONSE SPECTRA IIIB034 COMP N85E
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 5
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



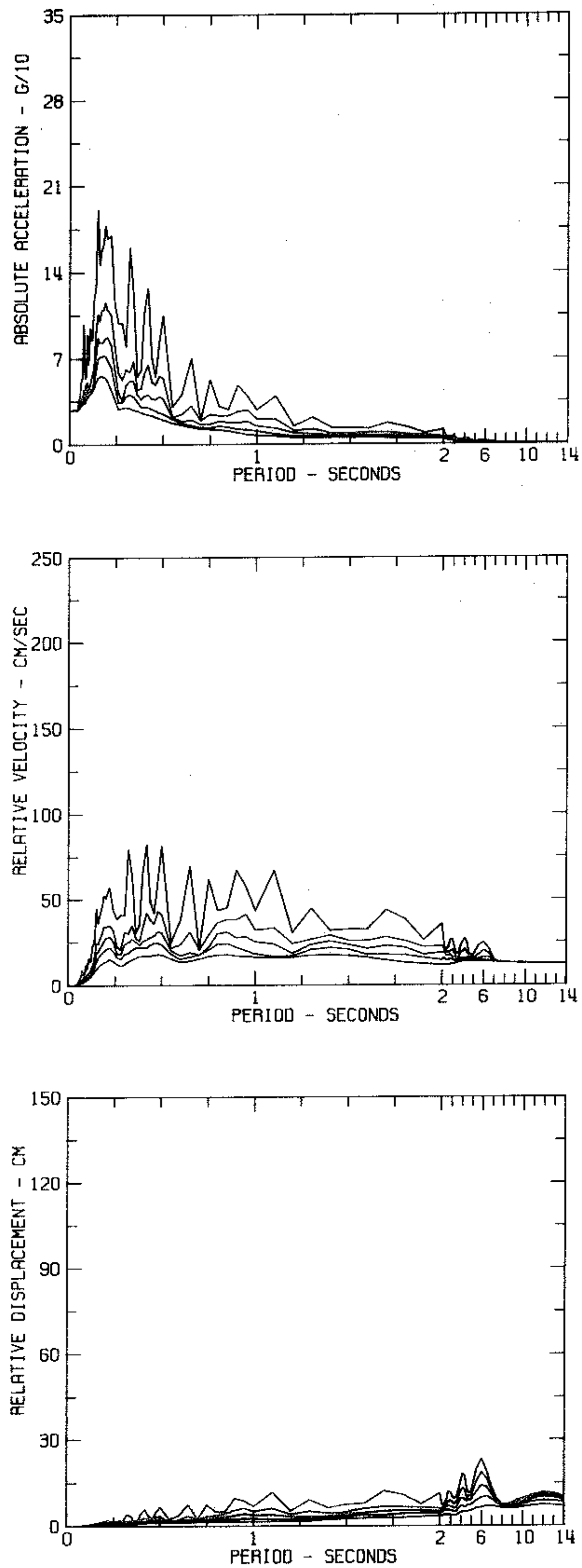
RESPONSE SPECTRA IIIB035
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 8
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



RESPONSE SPECTRA IIIB035 COMP N50E
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 8
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



RESPONSE SPECTRA IIIB035 COMP N40W
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 8
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

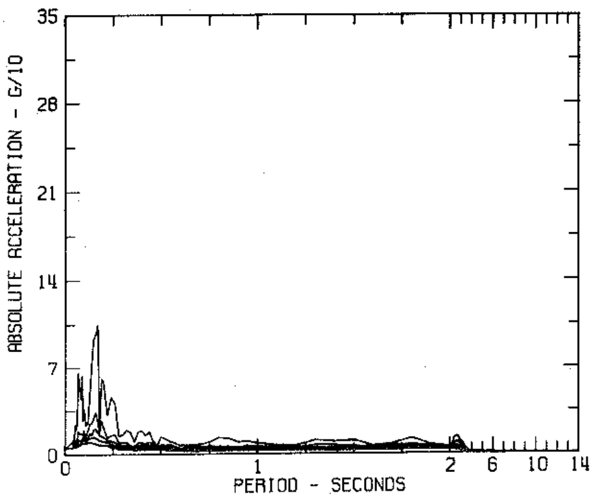


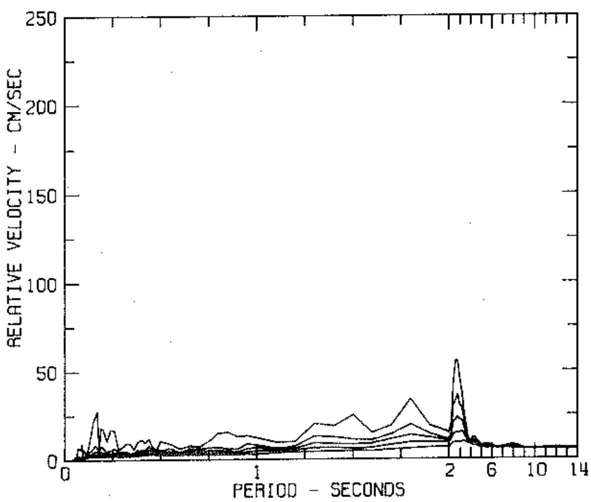
RESPONSE SPECTRA IIIB036 COMP DOWN

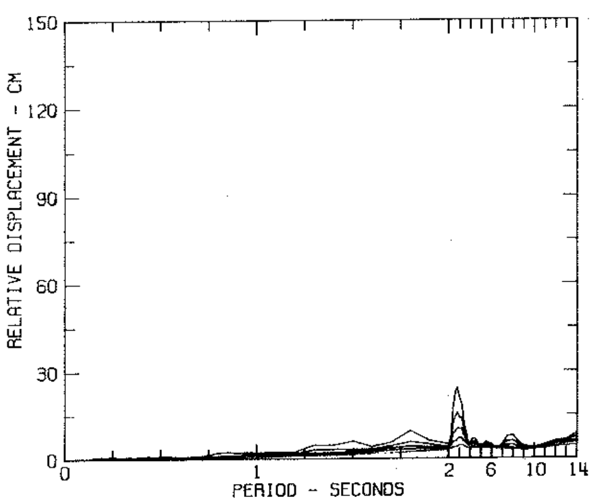
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST

CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 12

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL





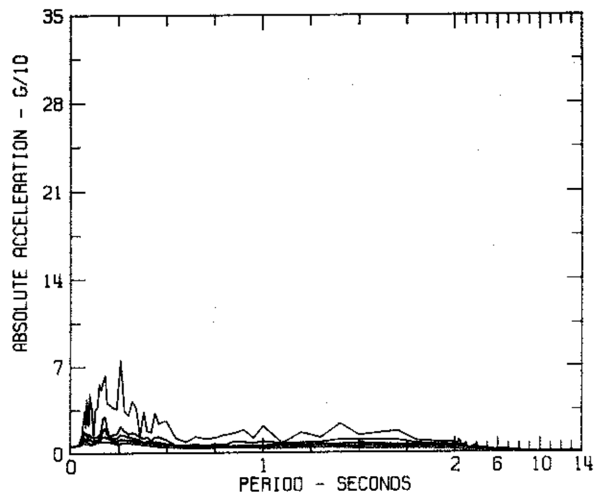


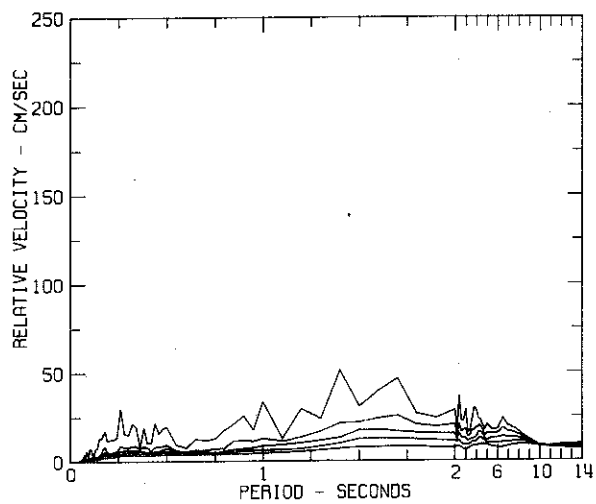
RESPONSE SPECTRA IIIB036 COMP N50E

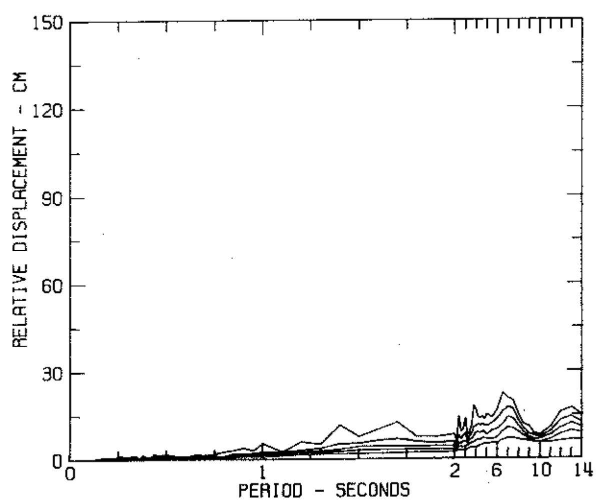
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST

CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 12

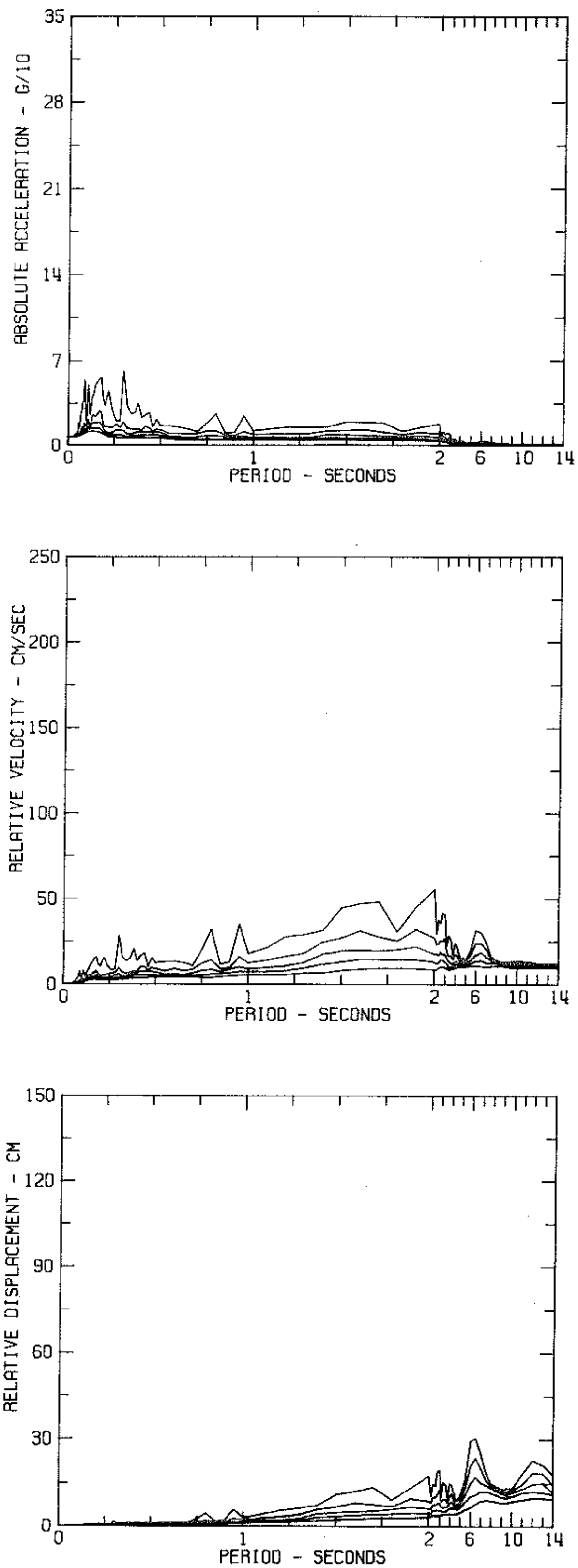
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



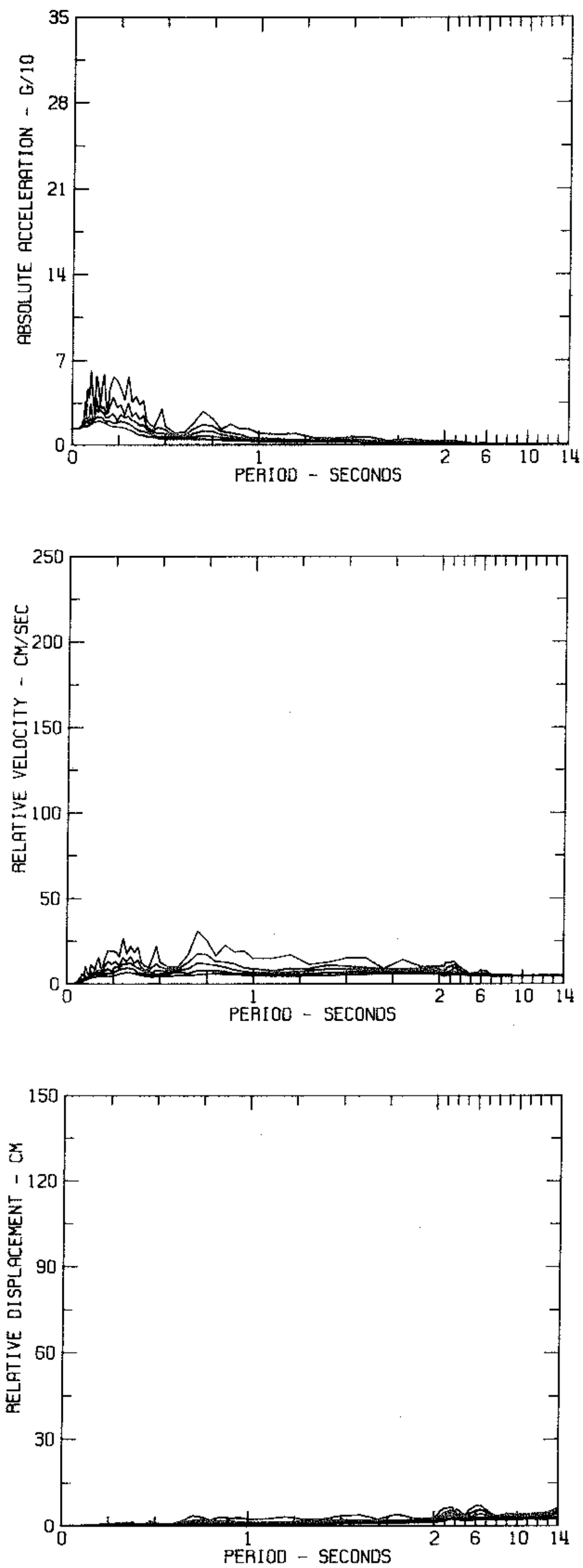




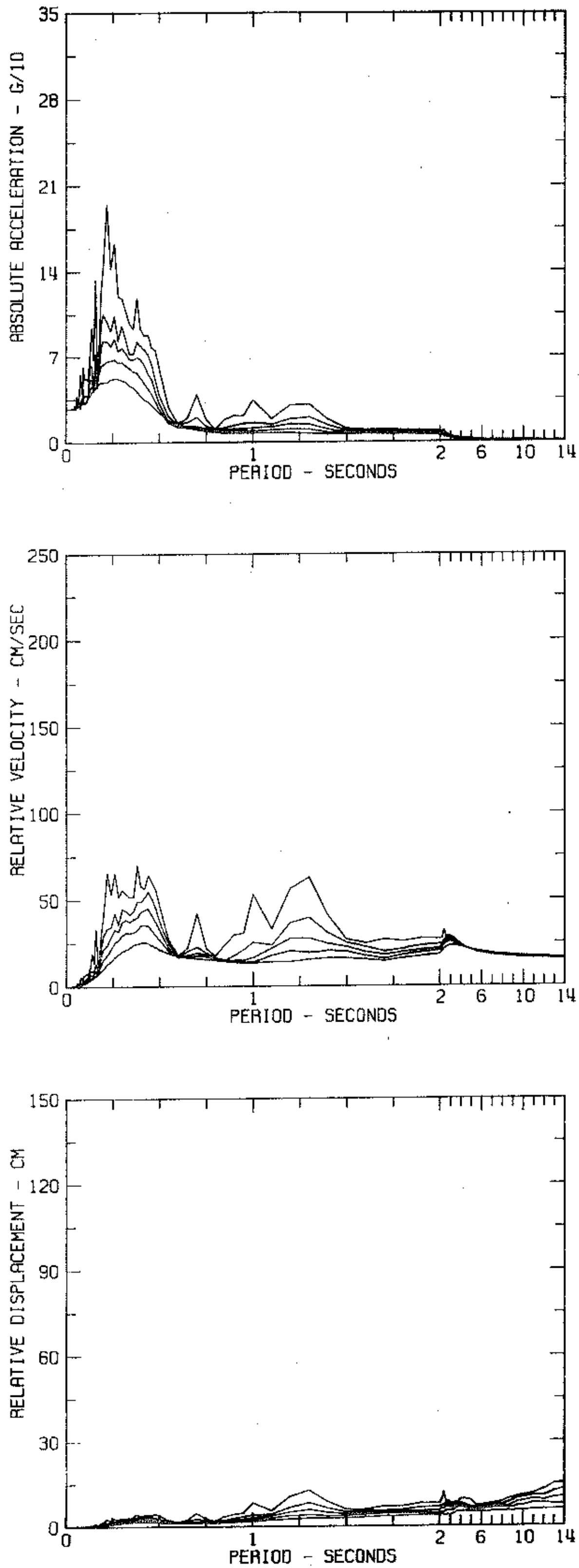
RESPONSE SPECTRA IIIB036 COMP N40W
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 12
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



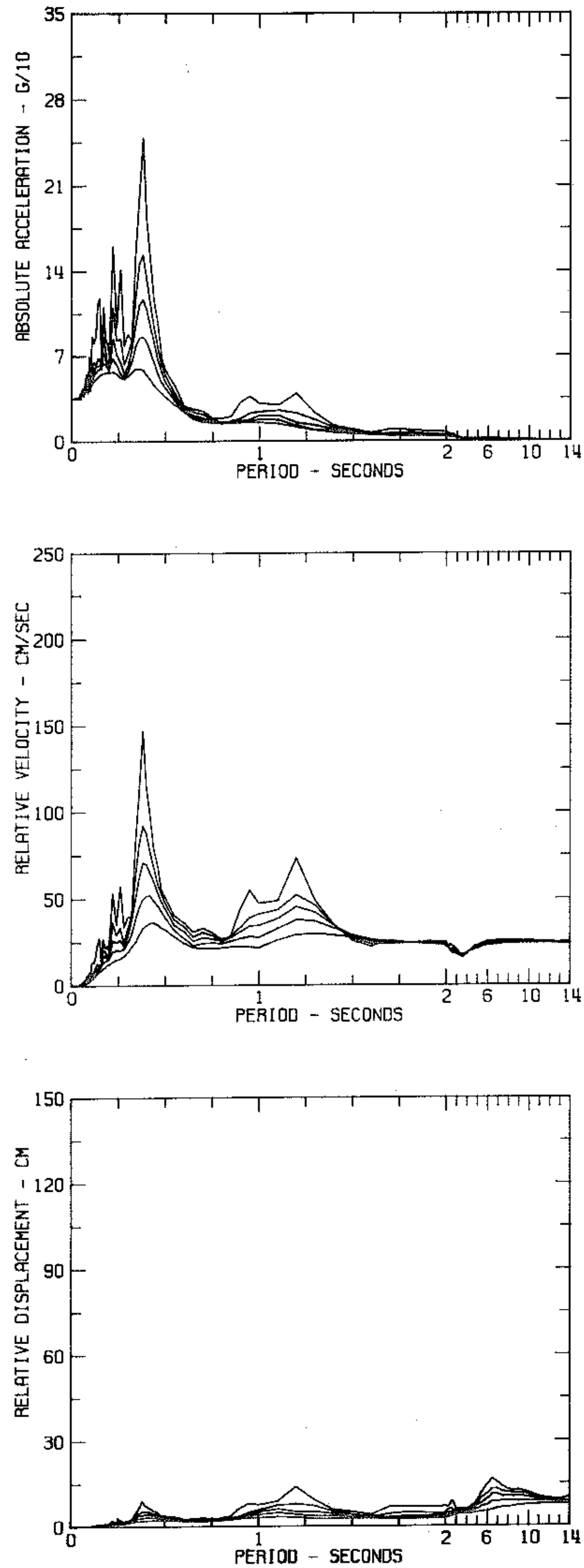
RESPONSE SPECTRA IIIB037 COMP DOWN
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
TEMBLOR, CALIFORNIA NO. 2
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



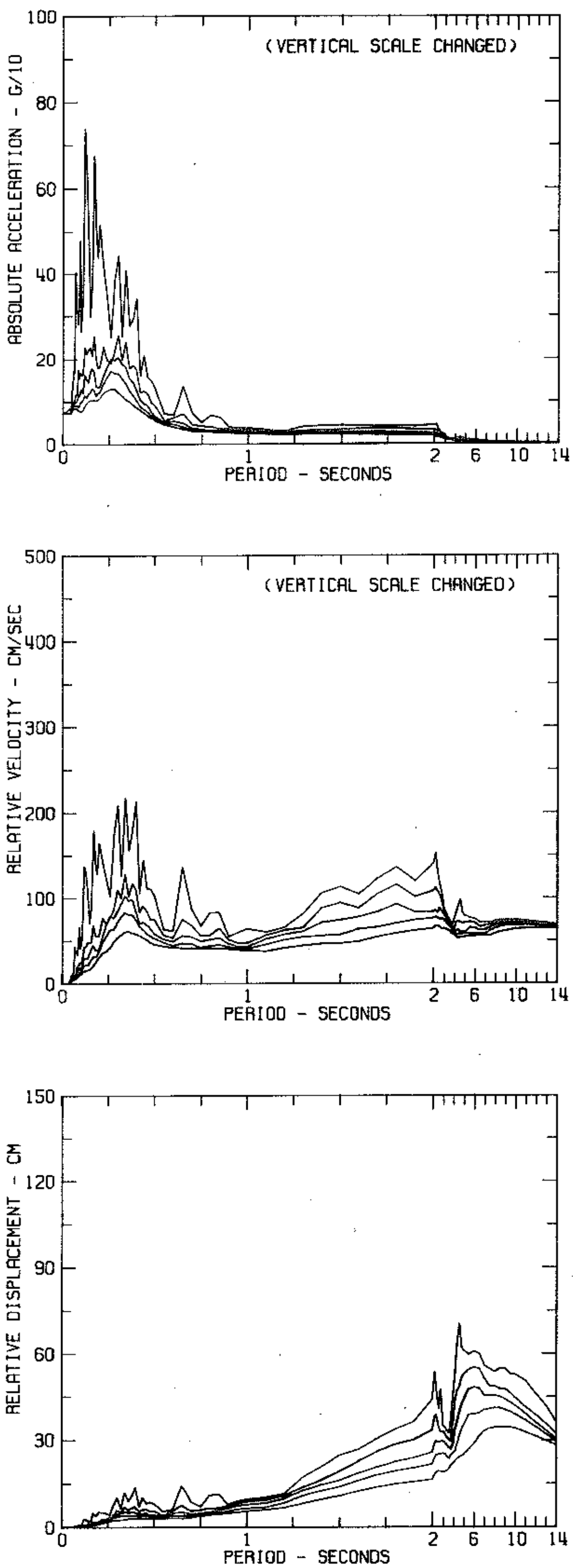
RESPONSE SPECTRA IIIB037 COMP N65W
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
TEMBLOR, CALIFORNIA NO. 2
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



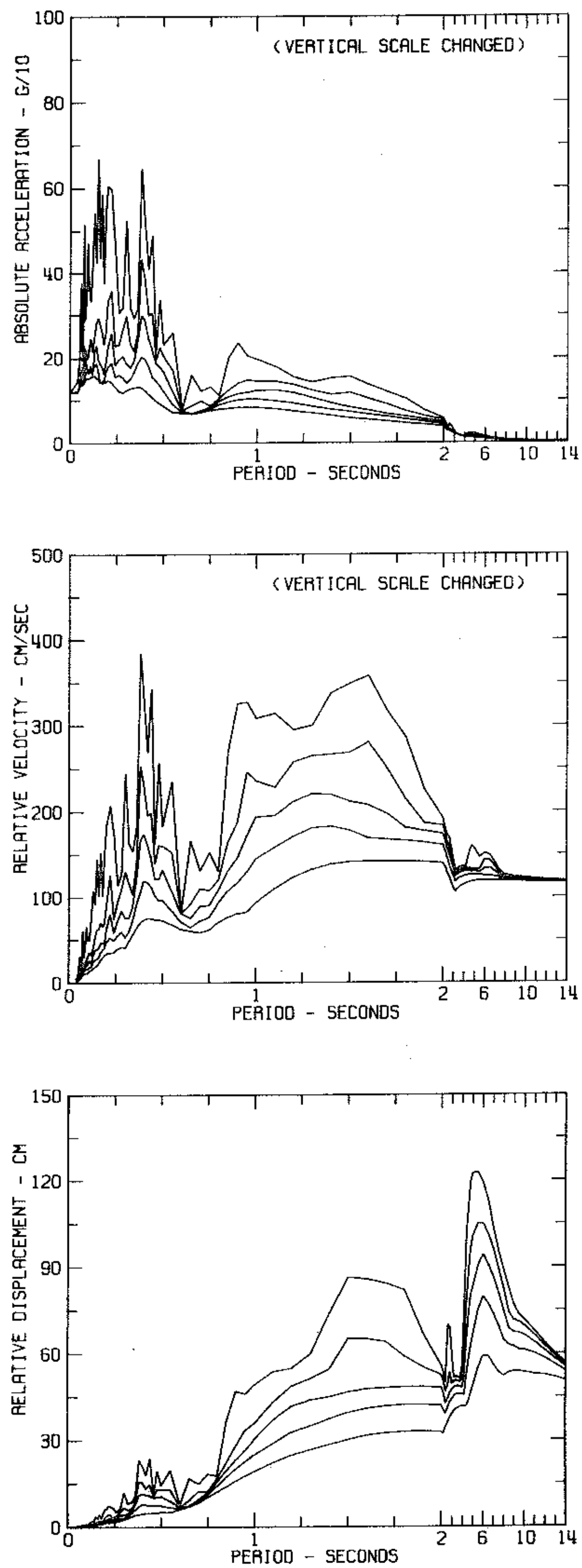
RESPONSE SPECTRA IIIB037 COMP S25W
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
TEMBLOR, CALIFORNIA NO. 2
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



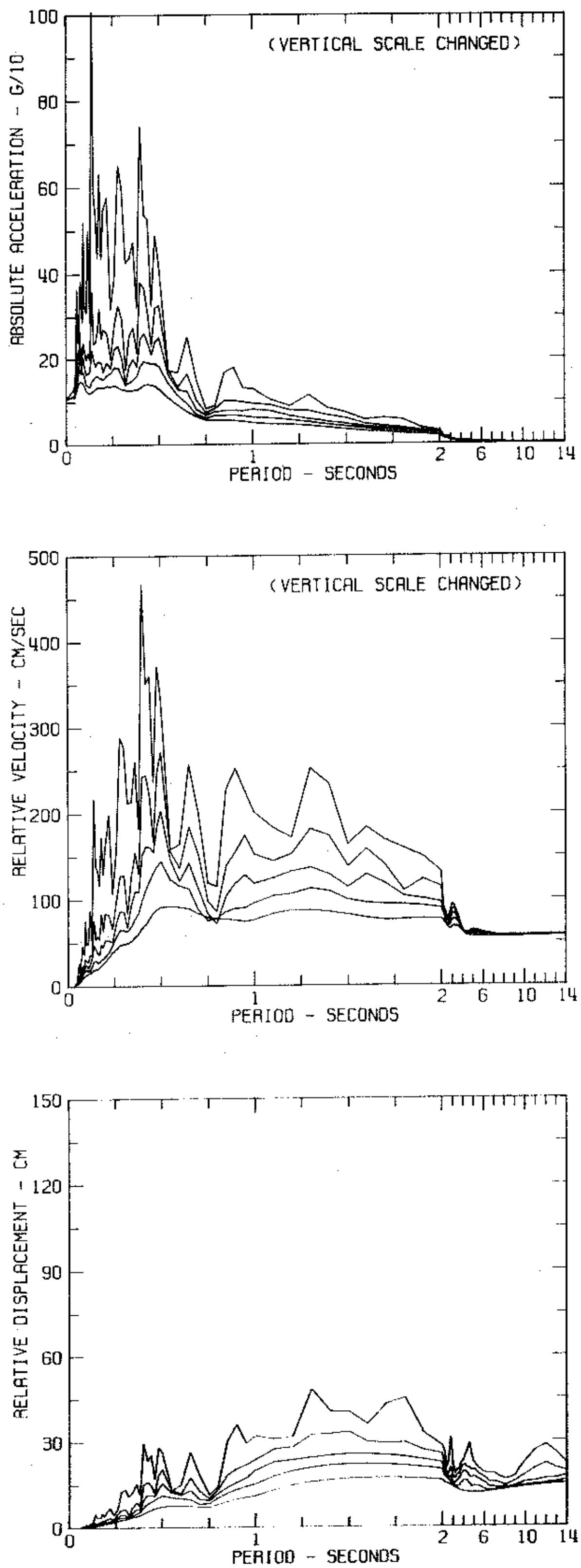
RESPONSE SPECTRA IIIC041 COMP DOWN
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
PACOIMA DAM, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



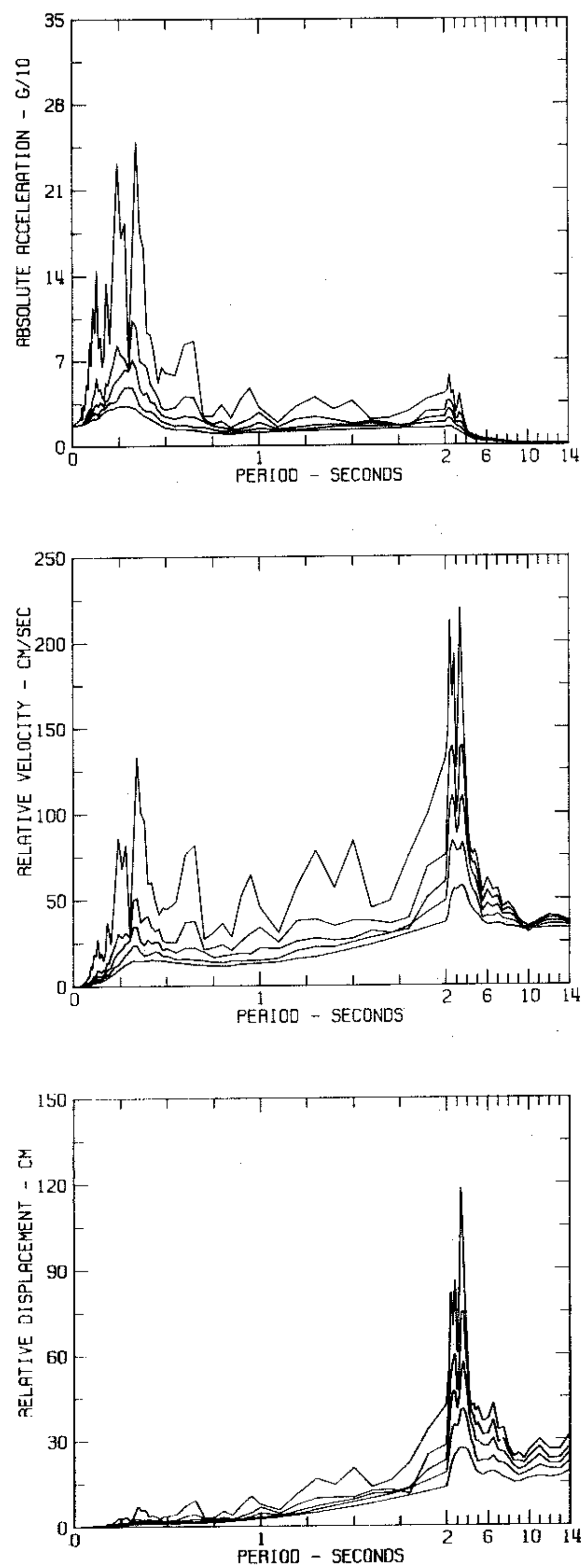
RESPONSE SPECTRA IIIC041 COMP S16E
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
PACOIMA DAM, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



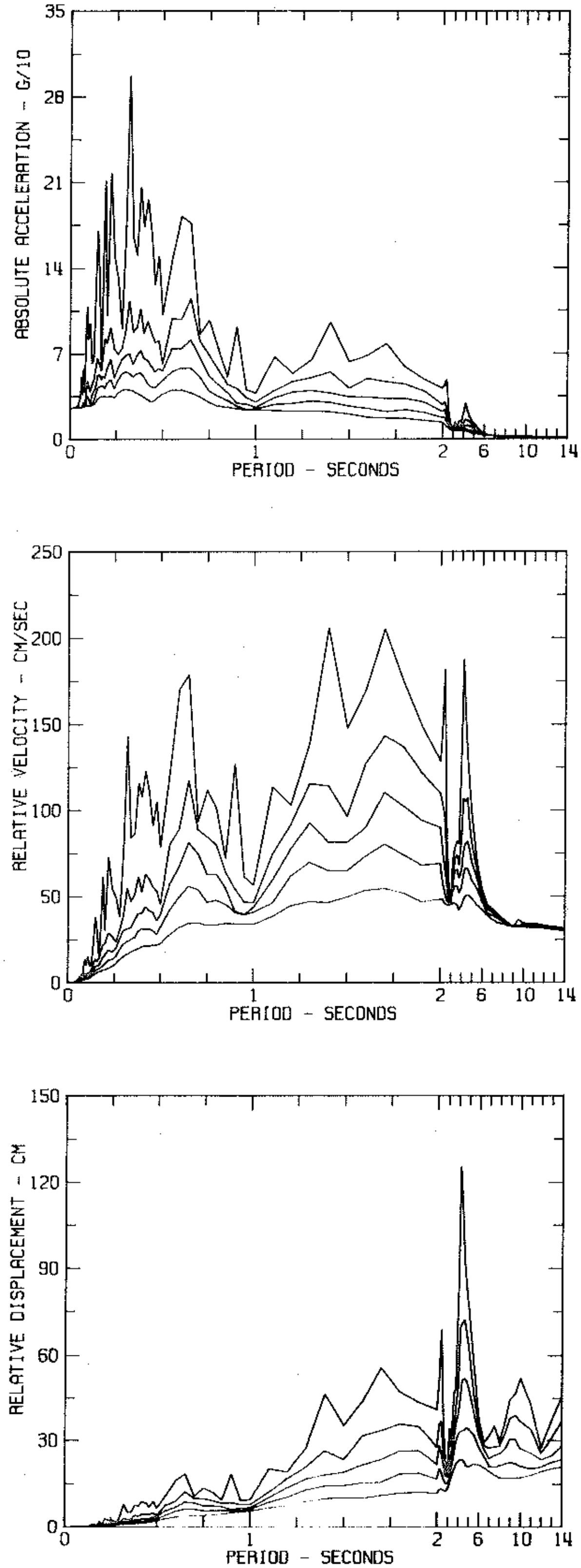
RESPONSE SPECTRA IIIC041 COMP S74W
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
PACOIMA DAM, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



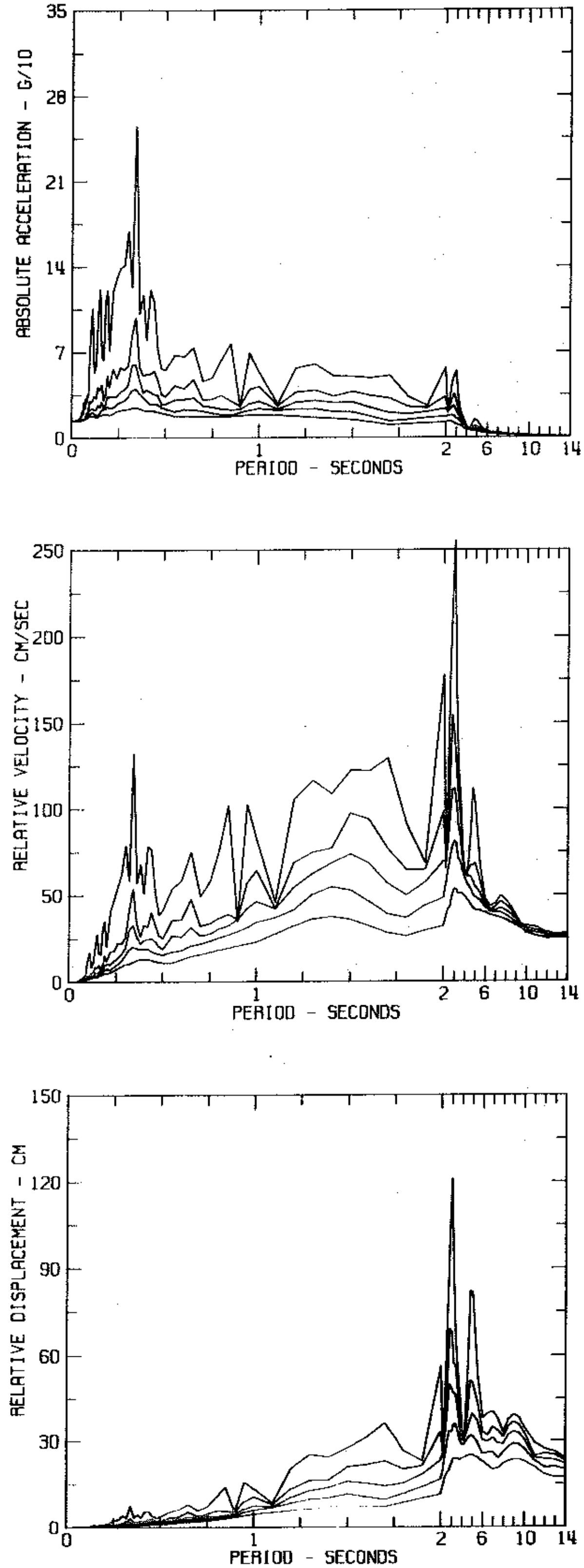
RESPONSE SPECTRA IIIC048 COMP DOWN
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
8244 ORION BLVD. 1ST FLOOR, LOS ANGELES, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

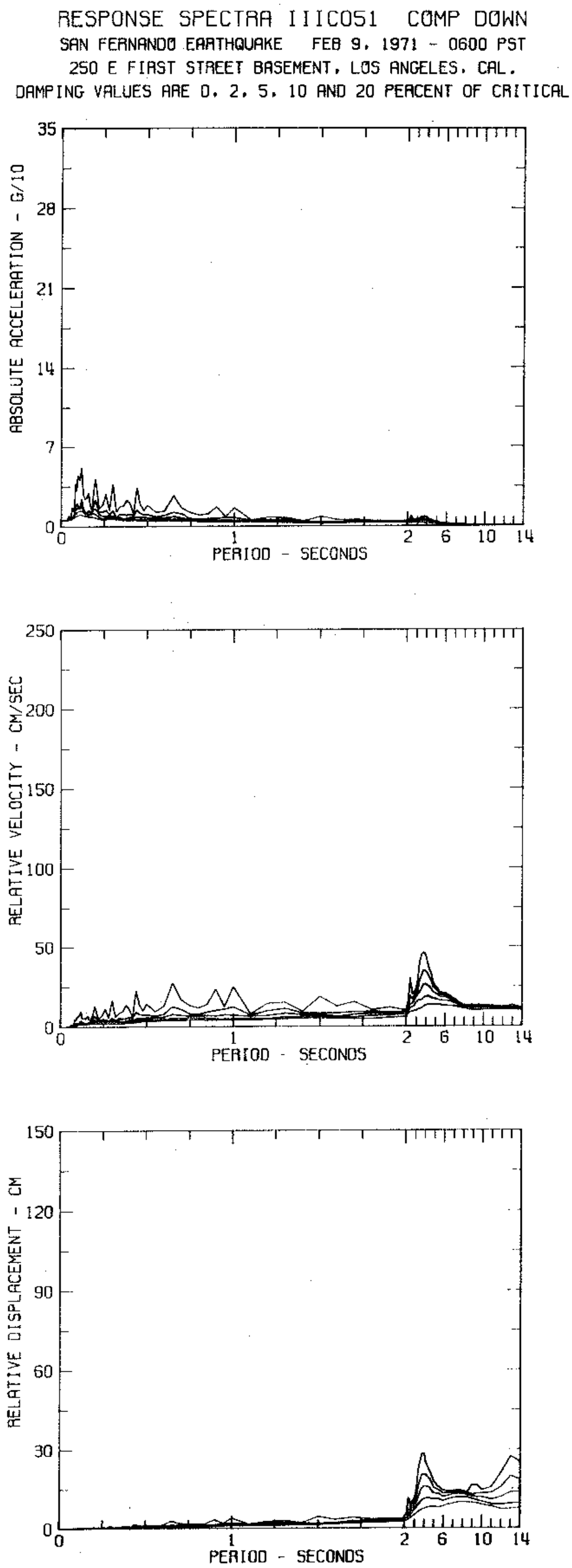


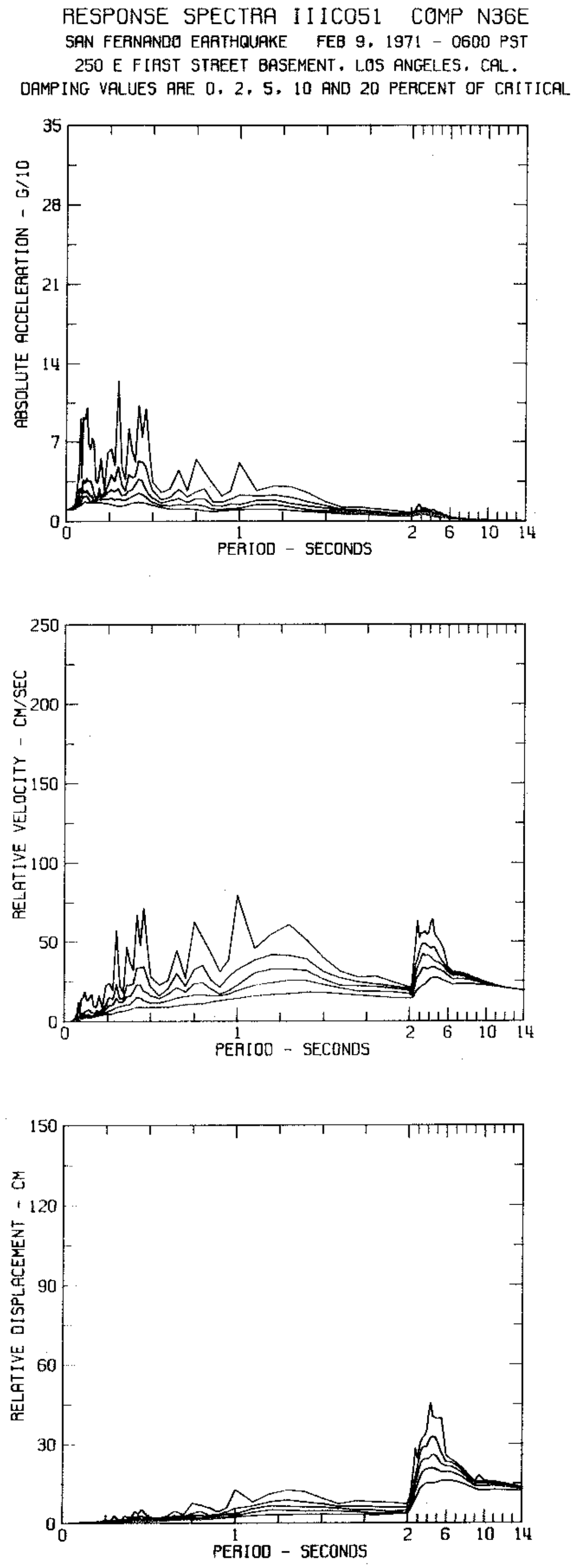
RESPONSE SPECTRA IIIC048 COMP N00W
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
8244 ORION BLVD. 1ST FLOOR, LOS ANGELES, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



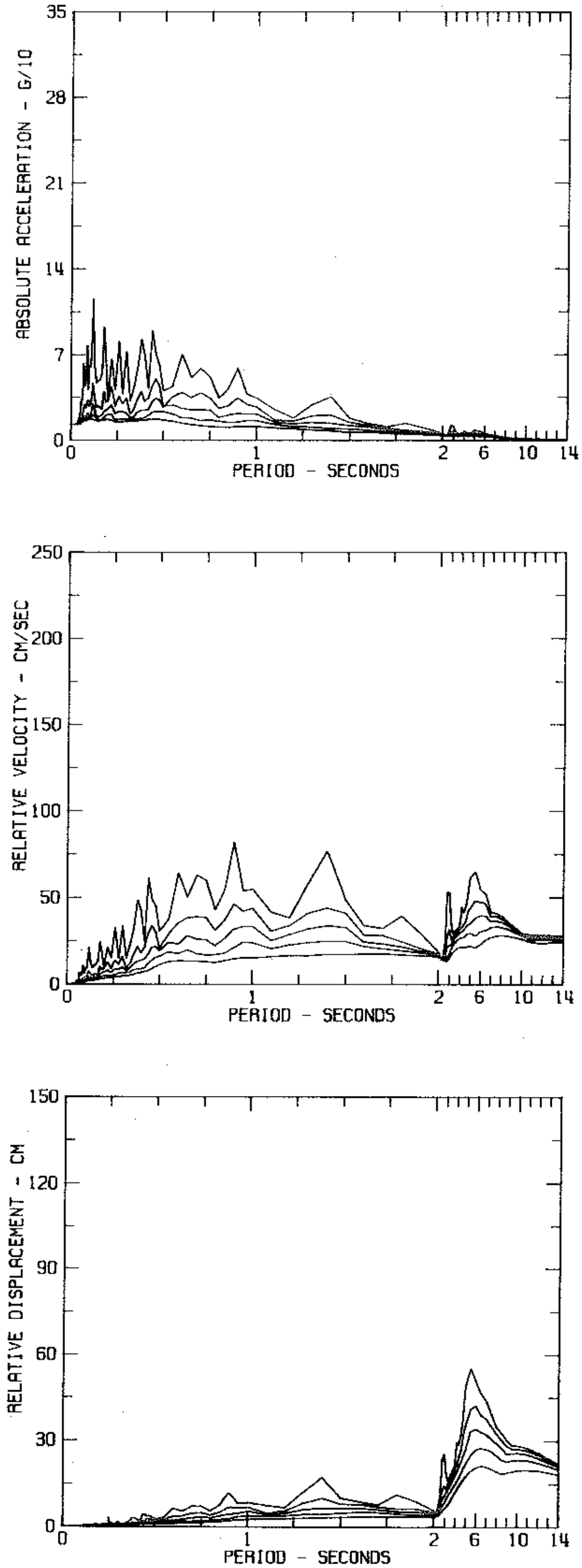
RESPONSE SPECTRA IIIC048 COMP S90W
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
8244 ORION BLVD. 1ST FLOOR, LOS ANGELES, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



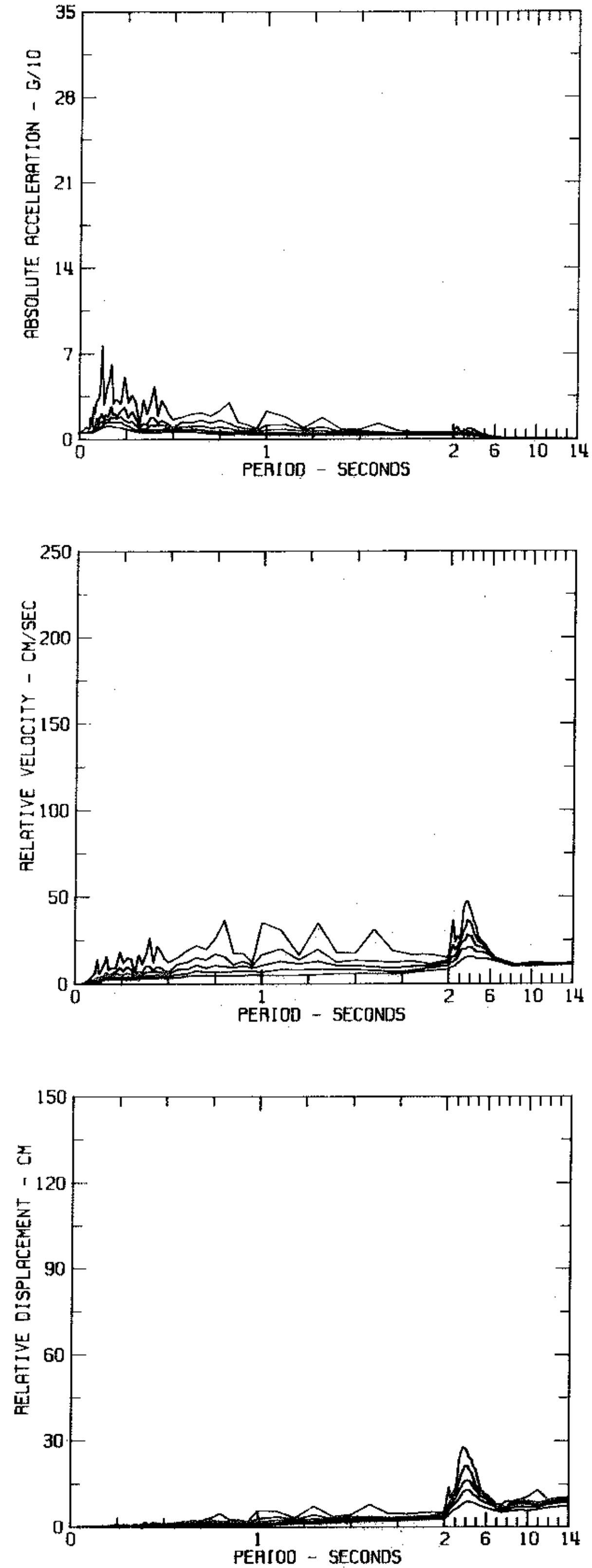

RESPONSE SPECTRA IIIC051 COMP DOWN
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
250 E FIRST STREET BASEMENT, LOS ANGELES, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL
ABSOLUTE ACCELERATION - G/10
RELATIVE VELOCITY - CM/SEC
RELATIVE DISPLACEMENT - CM
PERIOD - SECONDS


RESPONSE SPECTRA IIIC051 COMP N36E
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
250 E FIRST STREET BASEMENT, LOS ANGELES, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL
ABSOLUTE ACCELERATION - G/10
RELATIVE VELOCITY - CM/SEC
RELATIVE DISPLACEMENT - CM
PERIOD - SECONDS

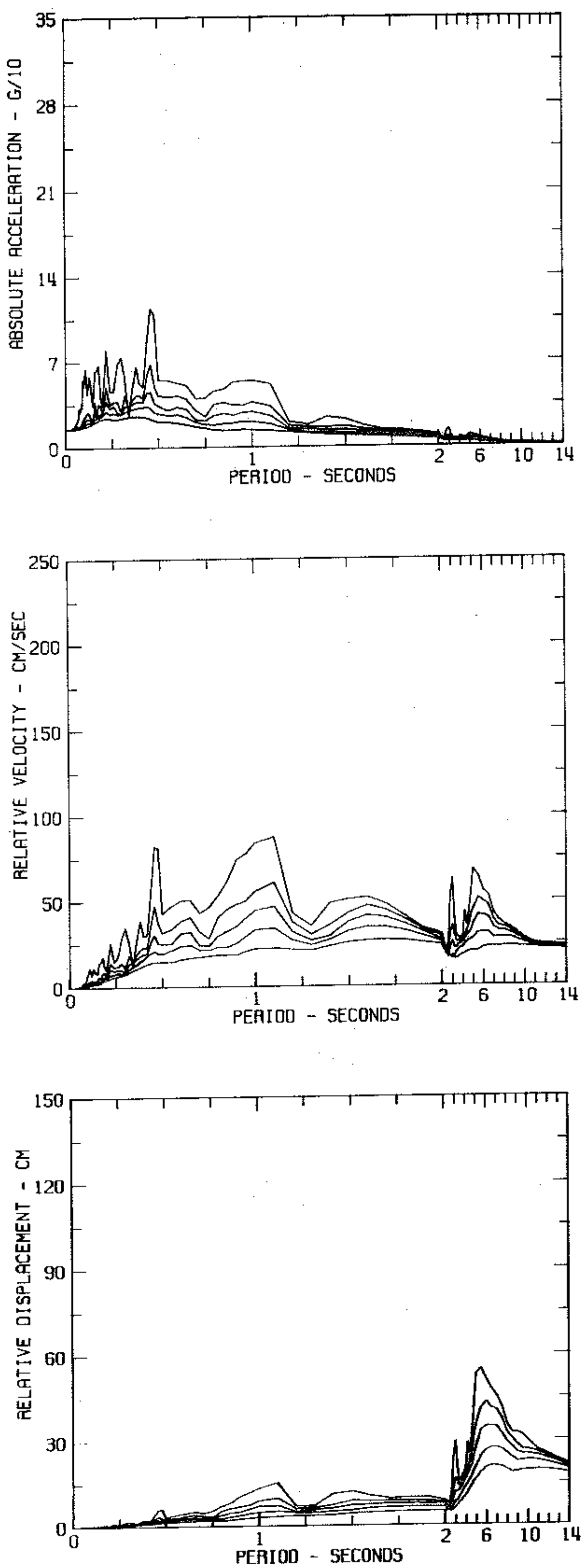
RESPONSE SPECTRA IIIC051 COMP N54W
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
250 E FIRST STREET BASEMENT, LOS ANGELES, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



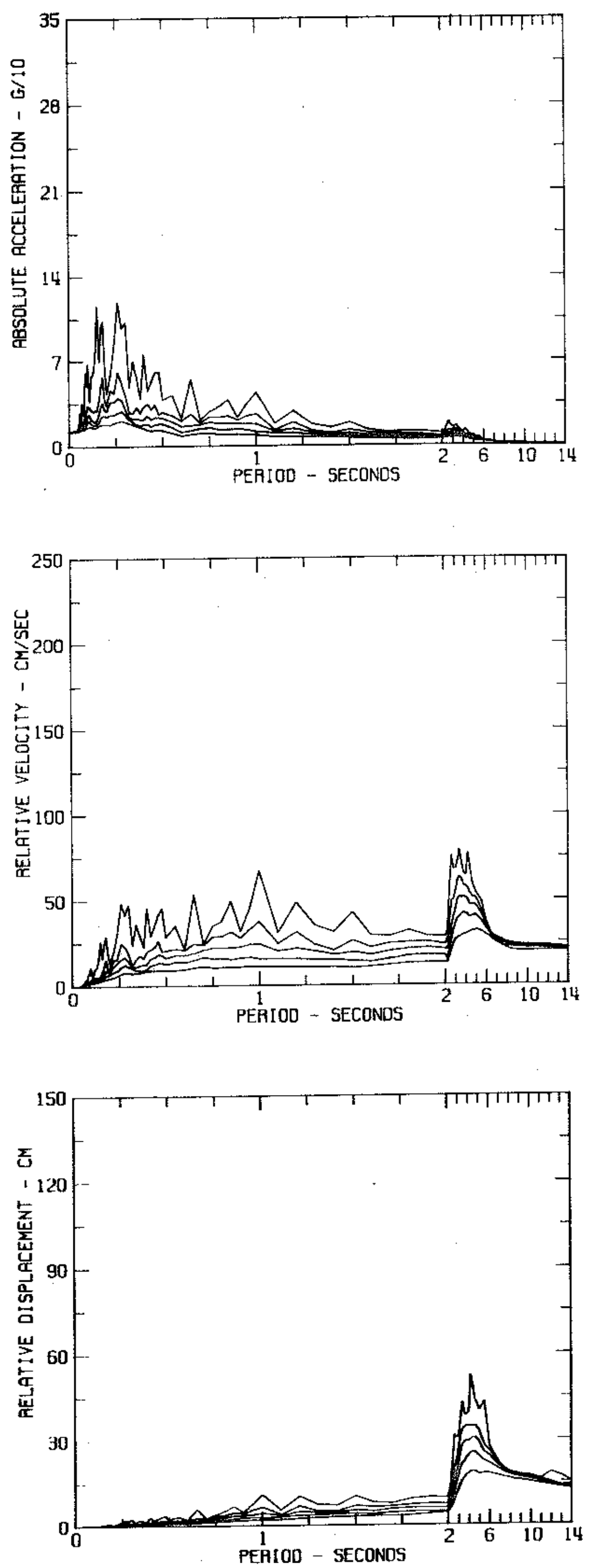
RESPONSE SPECTRA IIIC054 COMP DOWN
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
445 FIGUEROA STREET, SUB-BASEMENT, LOS ANGELES, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



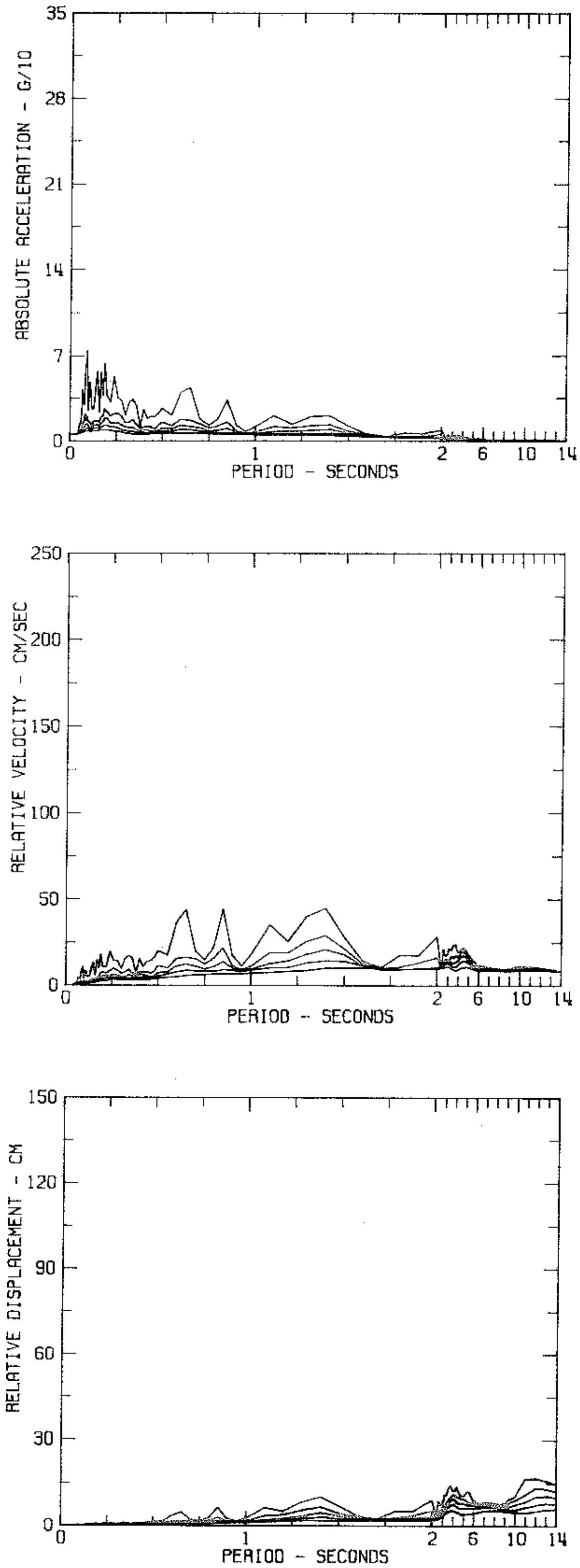
RESPONSE SPECTRA IIIC054 COMP N52W
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
445 FIGUEROA STREET, SUB-BASEMENT, LOS ANGELES, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



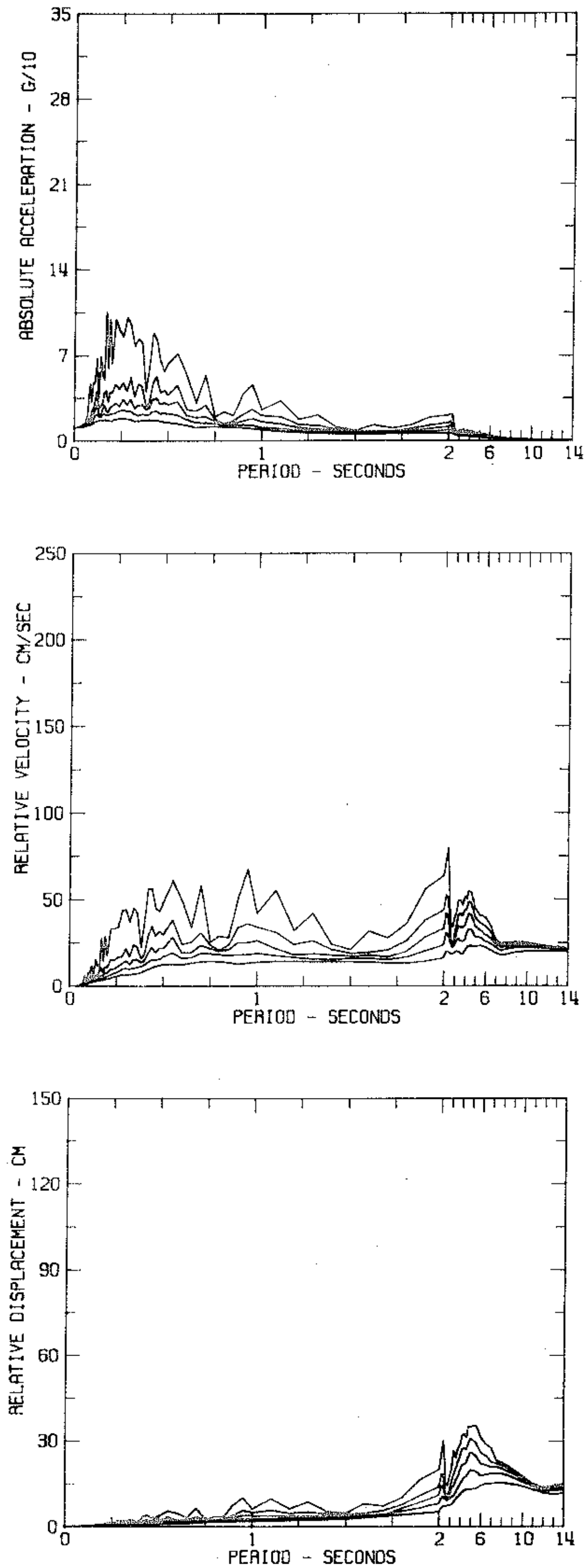
RESPONSE SPECTRA IIIC054 COMP S38W
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
445 FIGUEROA STREET, SUB-BASEMENT, LOS ANGELES, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



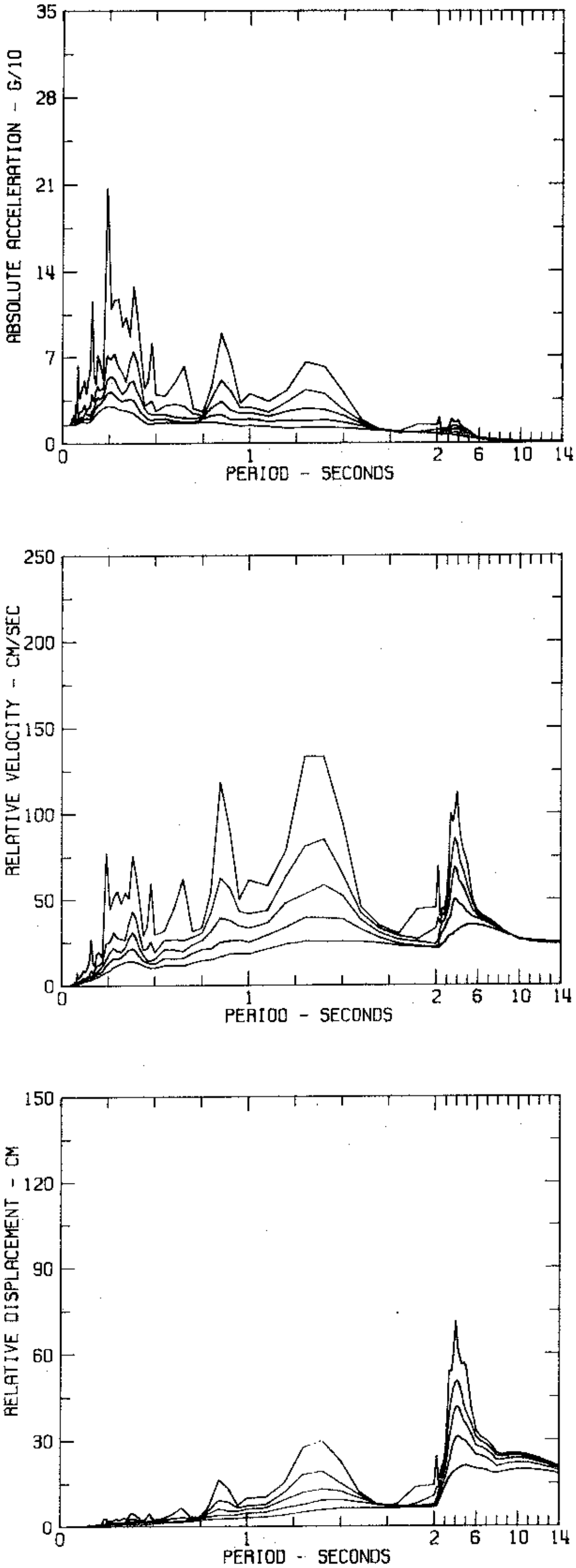
RESPONSE SPECTRA IIID057 COMP UP
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
HOLLYWOOD STORAGE BSMT. LOS ANGELES, CAL
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



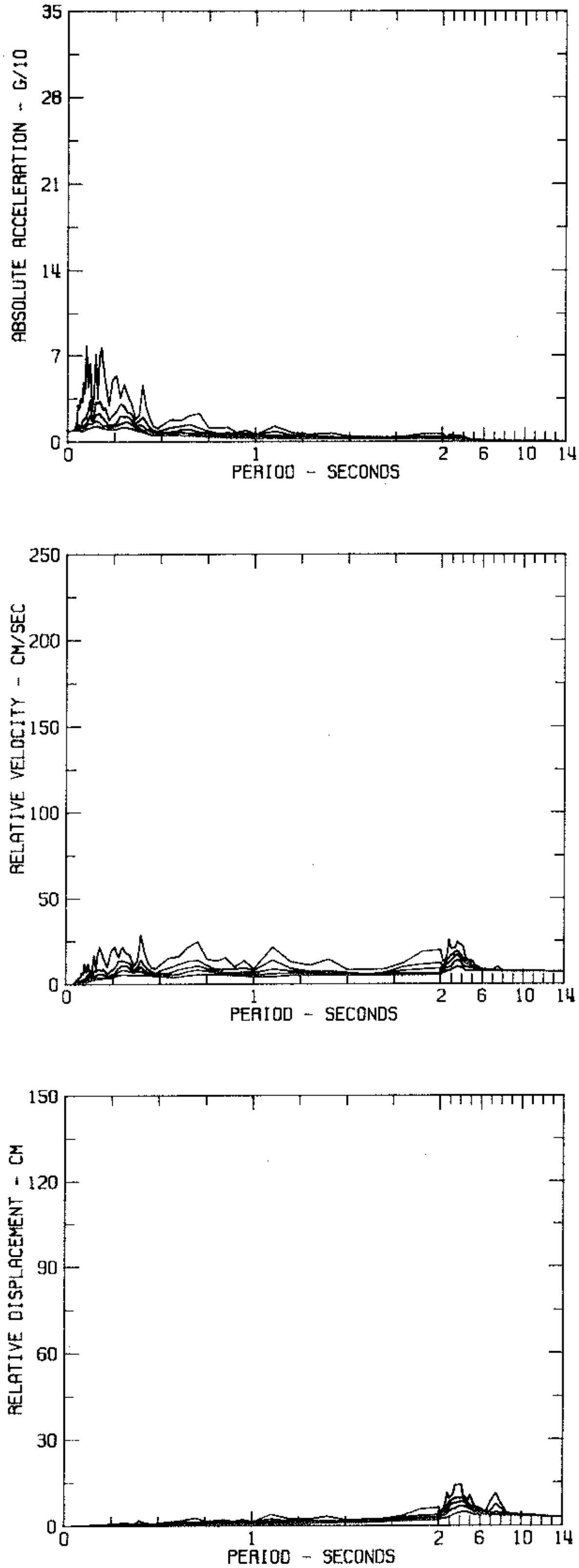
RESPONSE SPECTRA IIID057 COMP S00W
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
HOLLYWOOD STORAGE BSMT. LOS ANGELES, CAL
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



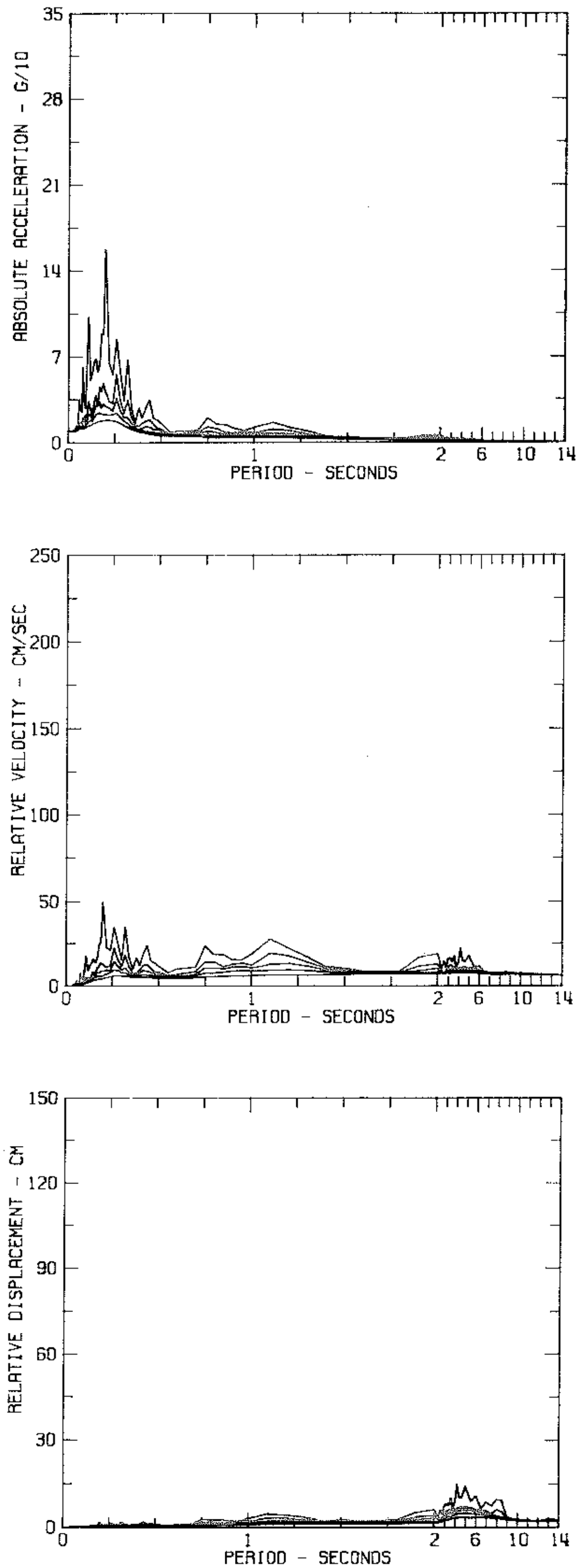
RESPONSE SPECTRA IIID057 COMP N90E
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
HOLLYWOOD STORAGE BSMT. LOS ANGELES, CAL
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



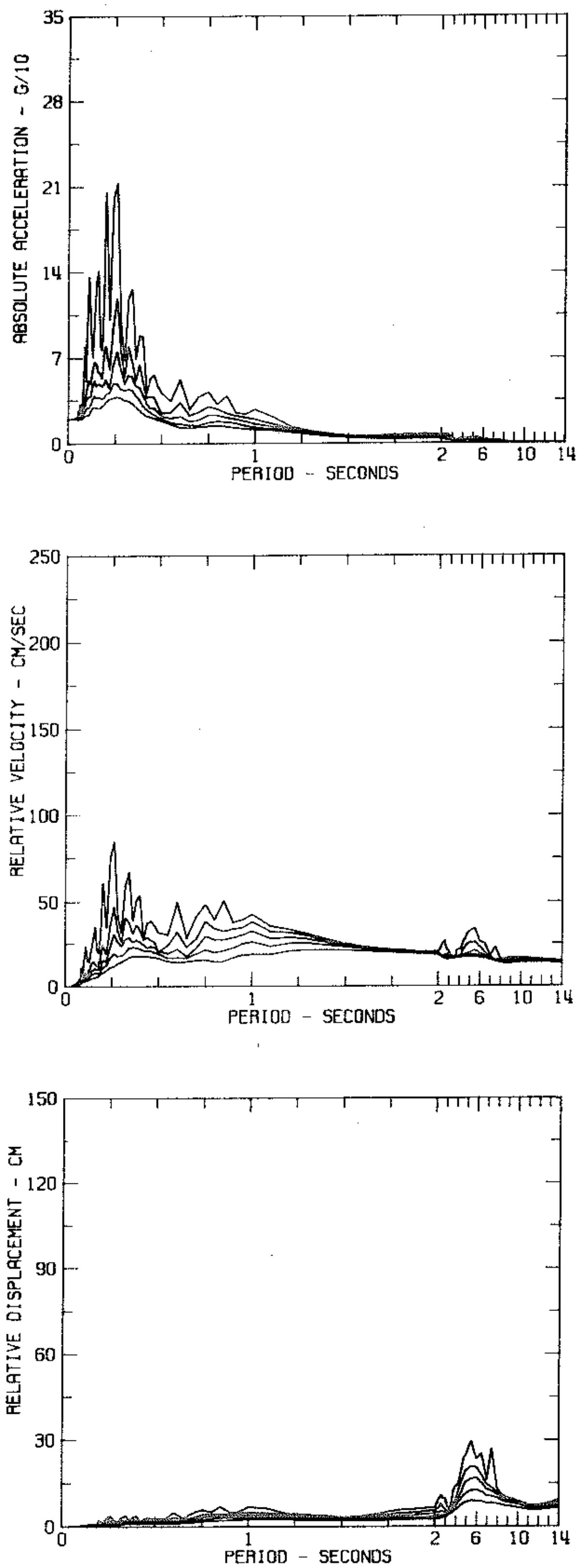
RESPONSE SPECTRA IIIG106 COMP DOWN
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
CALTECH SEISMOLOGICAL LAB., PASADENA, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



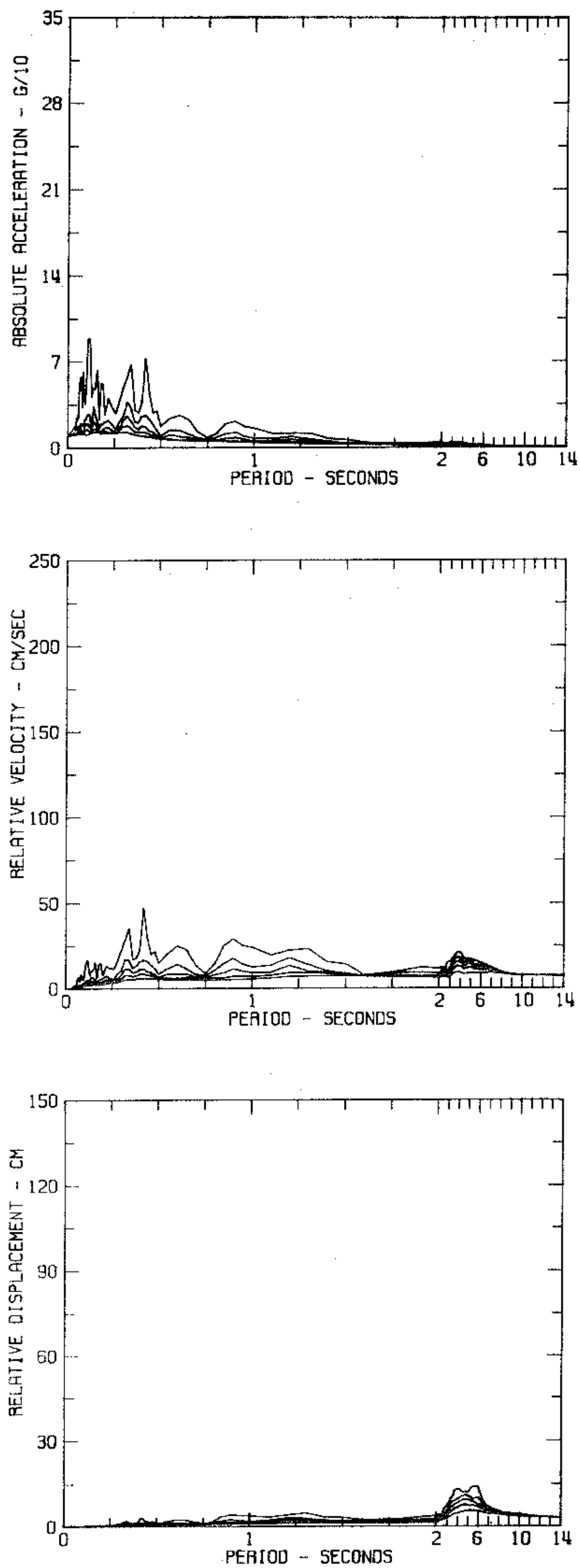
RESPONSE SPECTRA IIIG106 COMP S00W
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
CALTECH SEISMOLOGICAL LAB., PASADENA, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



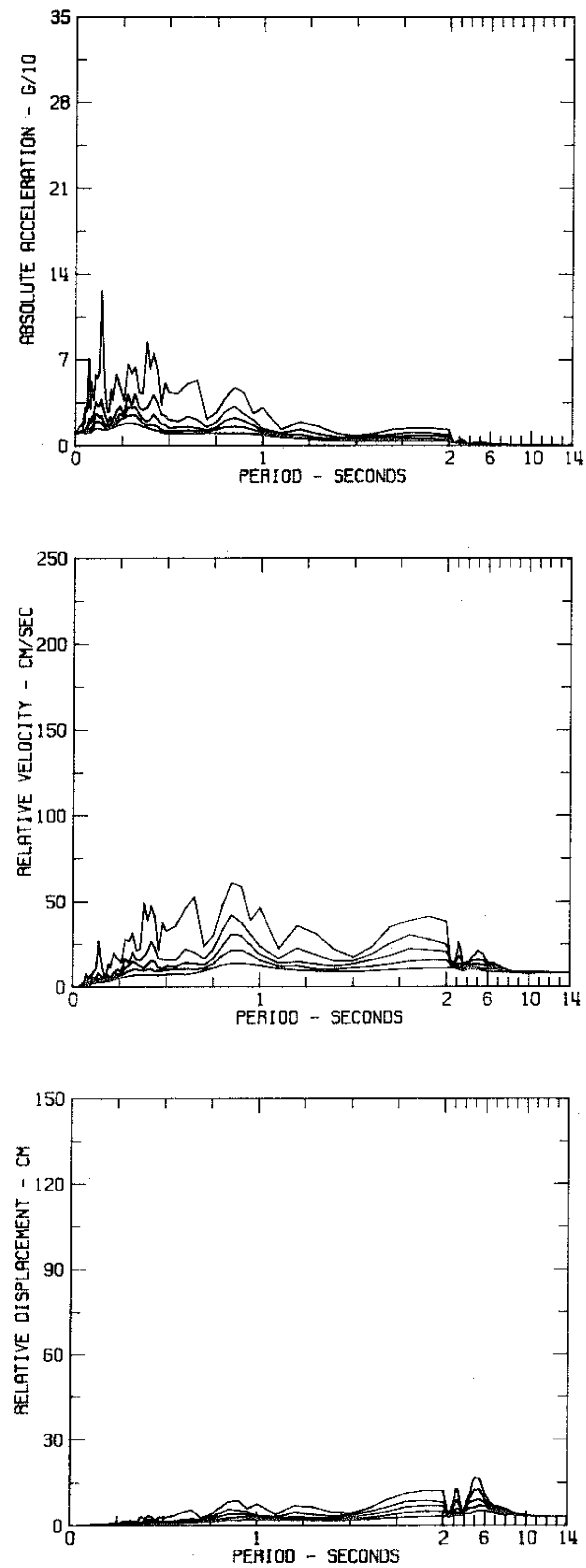
RESPONSE SPECTRA IIIG106 COMP S90W
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
CALTECH SEISMOLOGICAL LAB., PASADENA, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



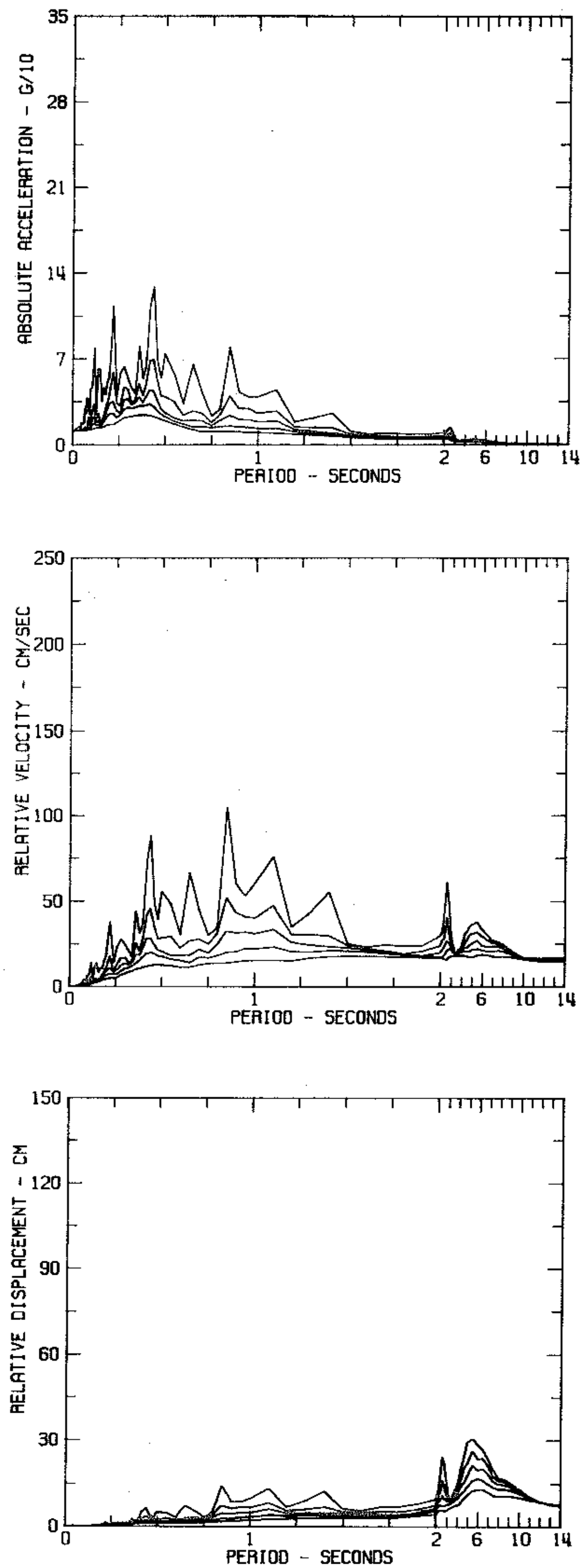
RESPONSE SPECTRA IIIG107 COMP DOWN
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
CALTECH ATHENAEUM, PASADENA, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



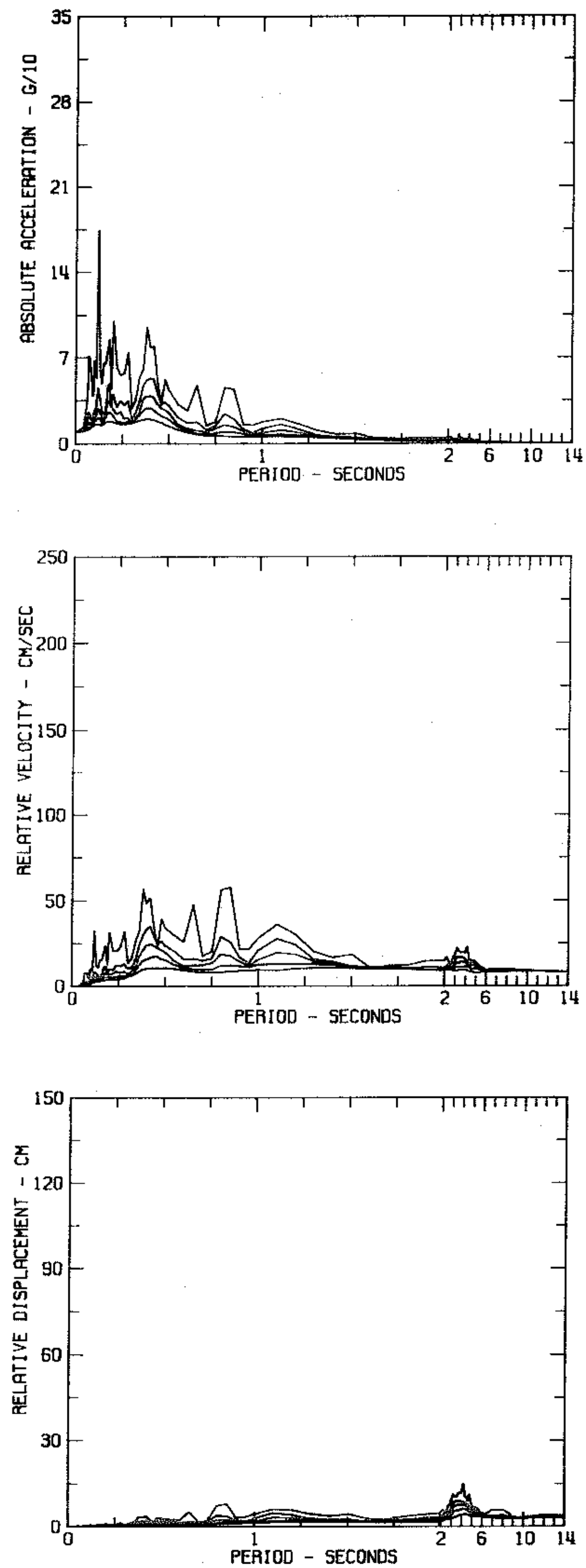
RESPONSE SPECTRA IIIG107 COMP N00E
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
CALTECH ATHENAEUM, PASADENA, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



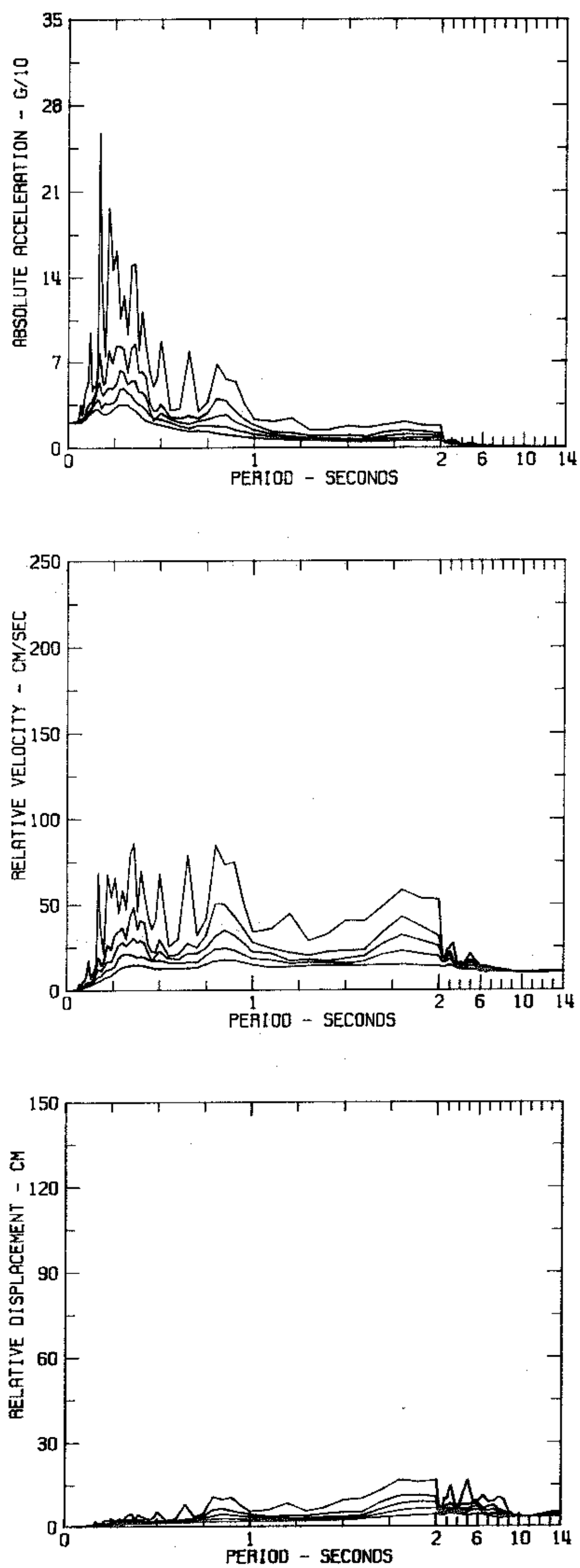
RESPONSE SPECTRA IIIG107 COMP N90E
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
CALTECH ATHENAEUM, PASADENA, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



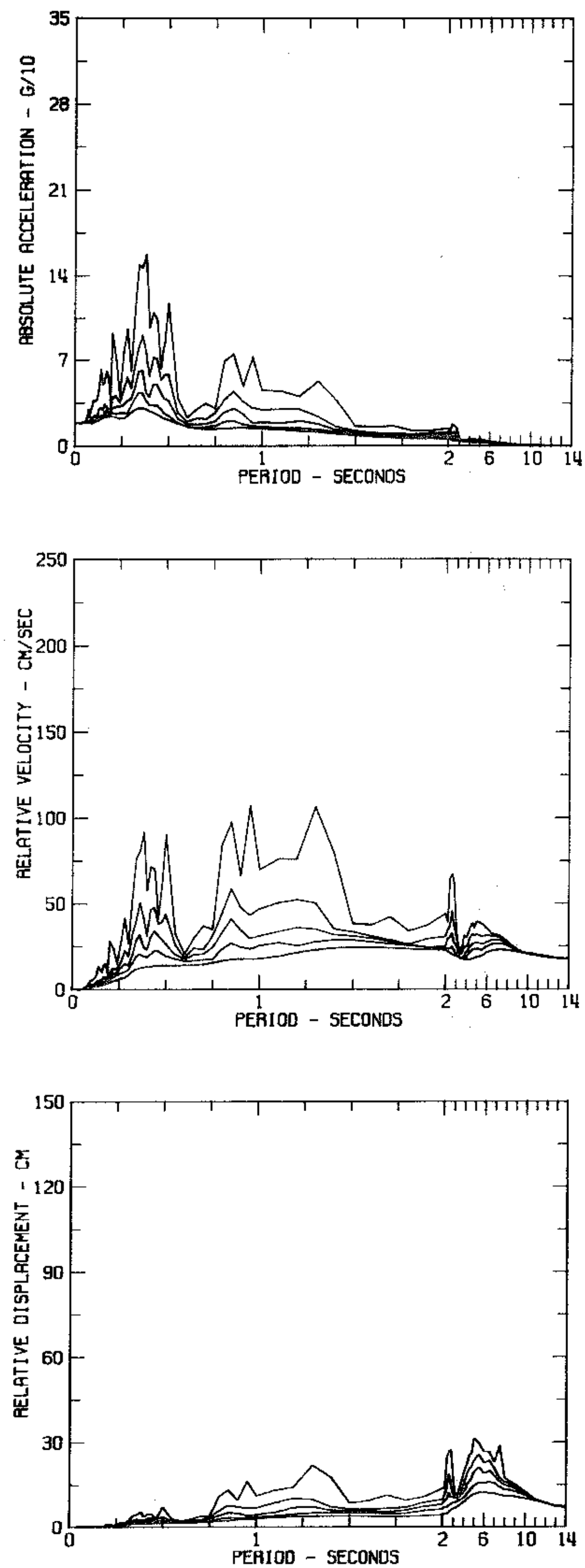
RESPONSE SPECTRA IIIG108 COMP DOWN
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
CALTECH MILLIKAN LIBRARY, BASEMENT, PASADENA, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



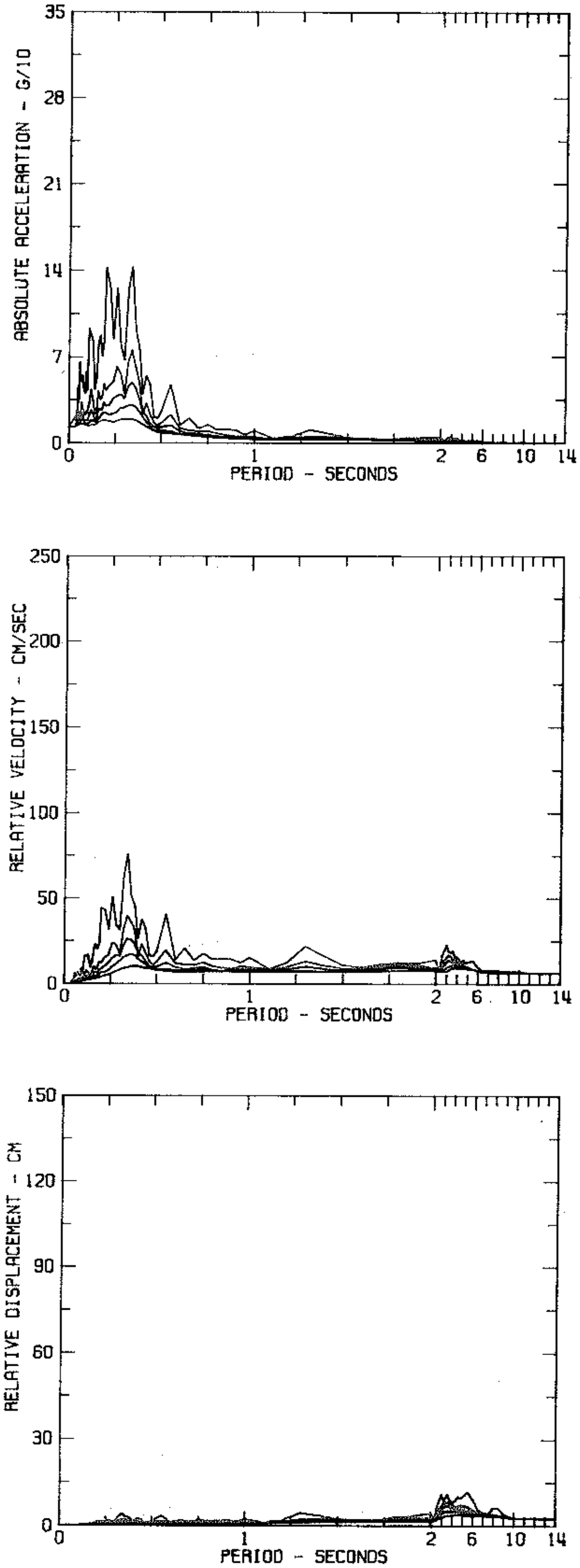
RESPONSE SPECTRA IIIG108 COMP N00E
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
CALTECH MILLIKAN LIBRARY, BASEMENT, PASADENA, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



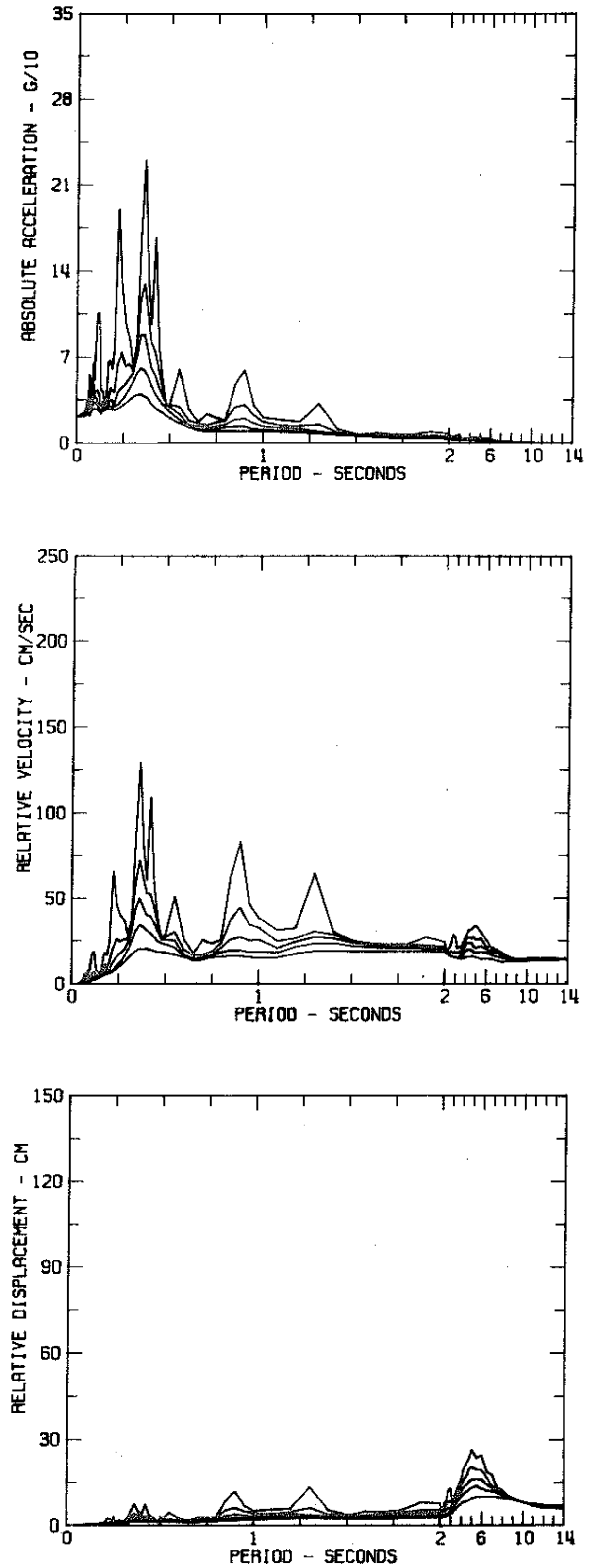
RESPONSE SPECTRA IIIG108 COMP N90E
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
CALTECH MILLIKAN LIBRARY, BASEMENT, PASADENA, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



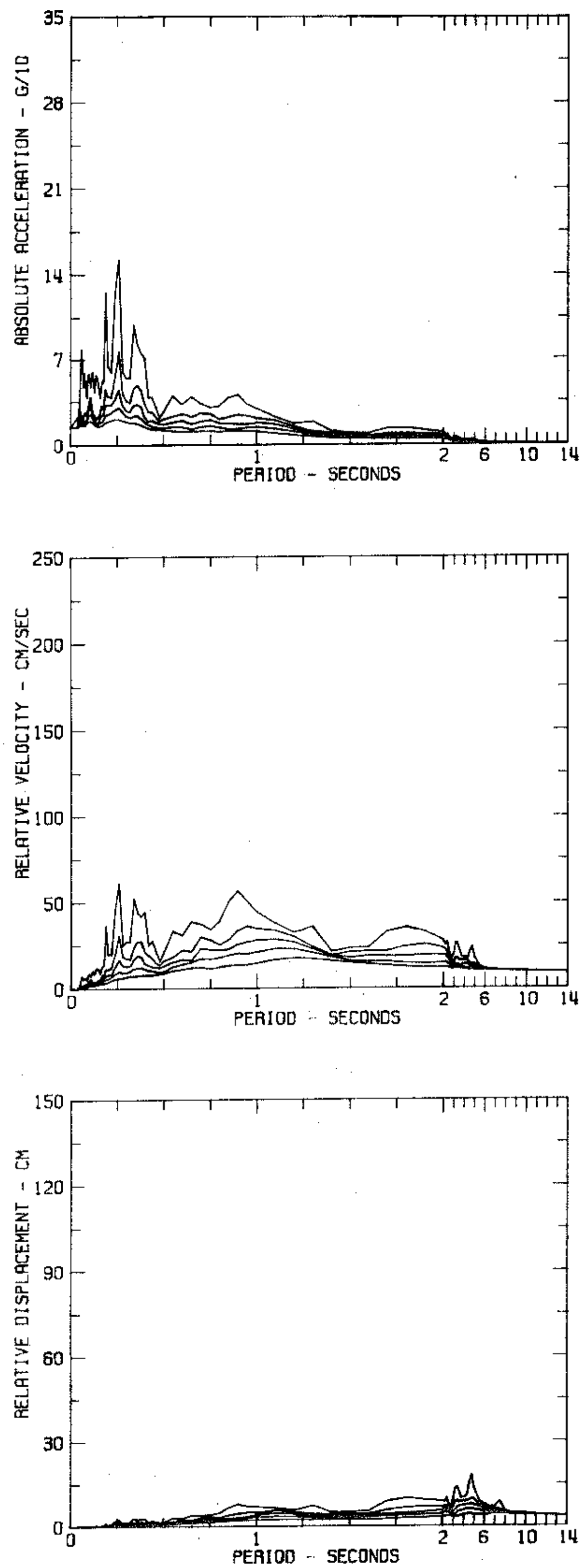
RESPONSE SPECTRA IIIG110 COMP DOWN
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
JET PROPULSION LAB., BASEMENT, PASADENA, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



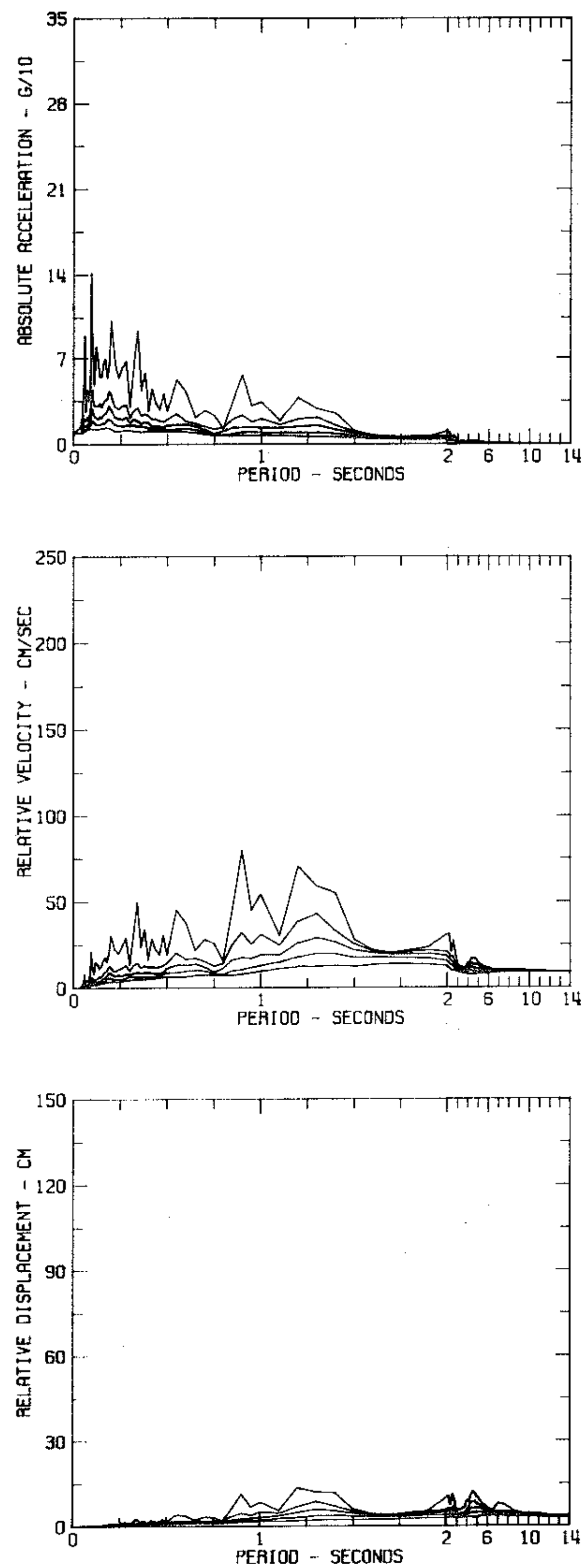
RESPONSE SPECTRA IIIG110 COMP S82E
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
JET PROPULSION LAB., BASEMENT, PASADENA, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



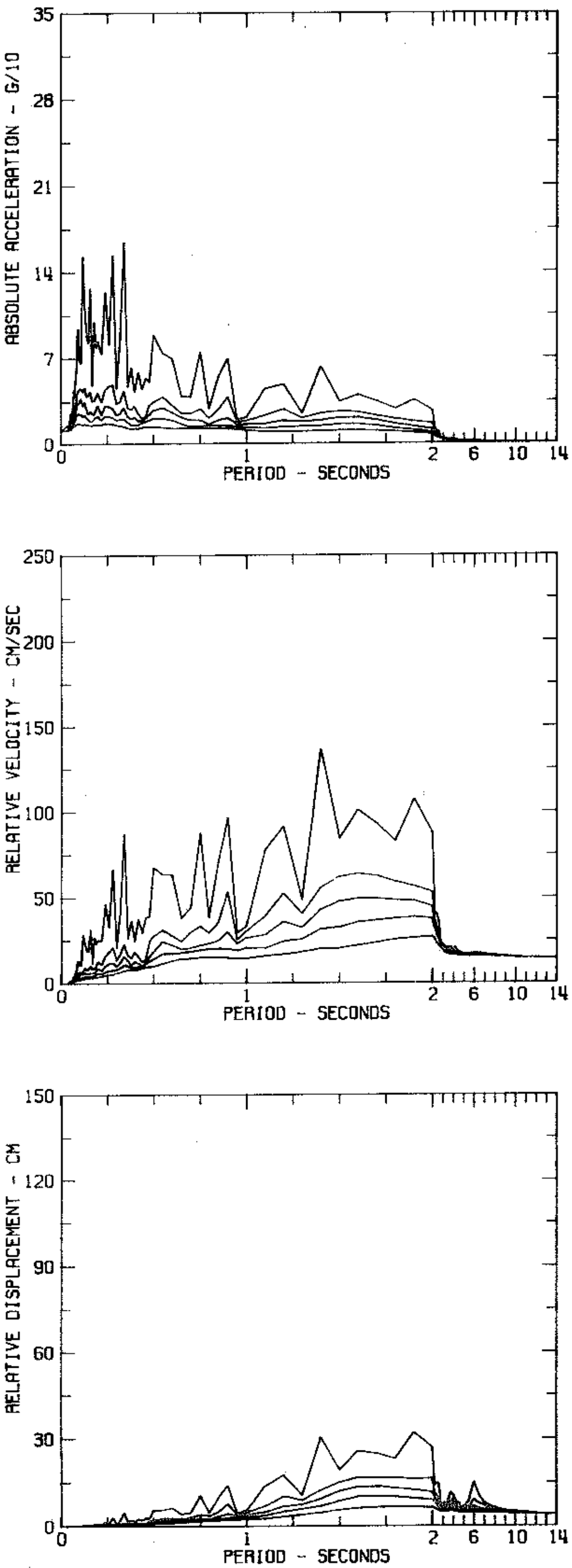
RESPONSE SPECTRA IIIG110 COMP S08W
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
JET PROPULSION LAB., BASEMENT, PASADENA, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



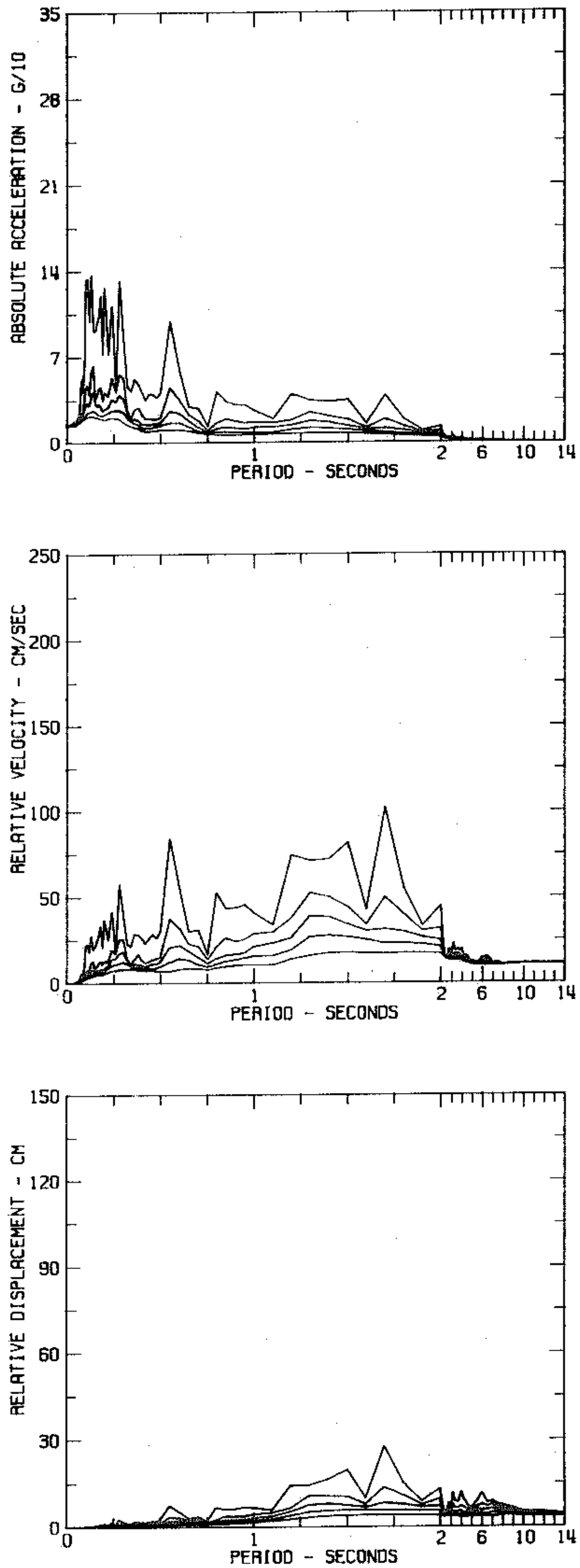
RESPONSE SPECTRA IIIG114 COMP DOWN
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
PALMDALE FIRE STATION, STORAGE ROOM, PALMDALE, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



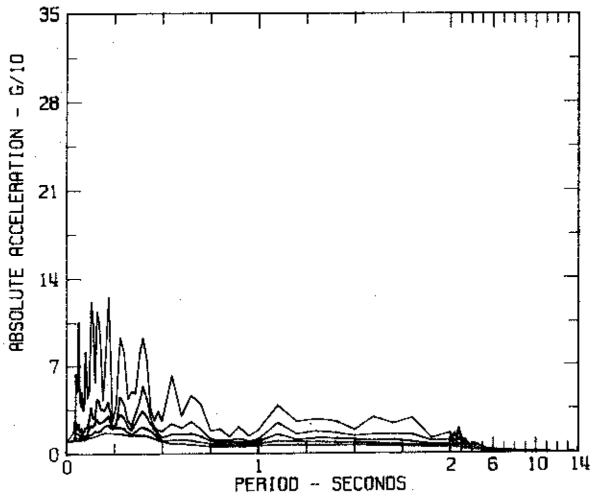
RESPONSE SPECTRA IIIG114 COMP S60E
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
PALMDALE FIRE STATION, STORAGE ROOM, PALMDALE, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

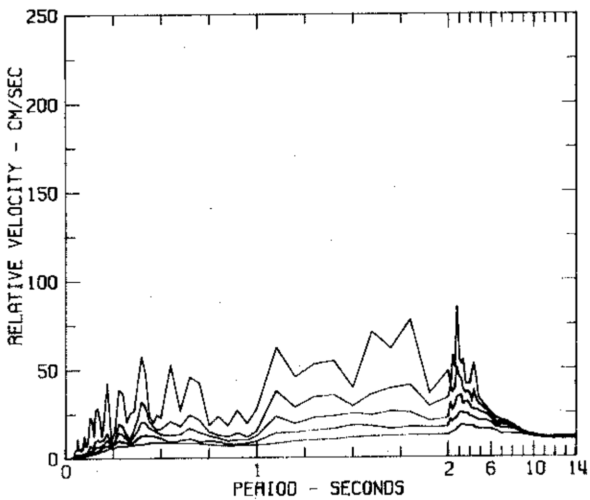


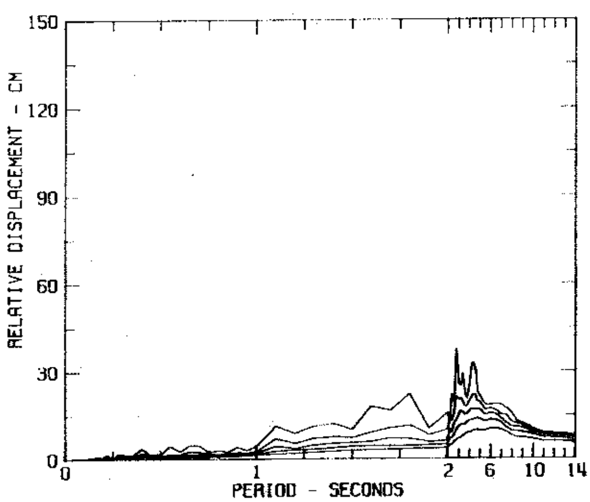
RESPONSE SPECTRA IIIG114 COMP S30W
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
PALMDALE FIRE STATION, STORAGE ROOM, PALMDALE, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



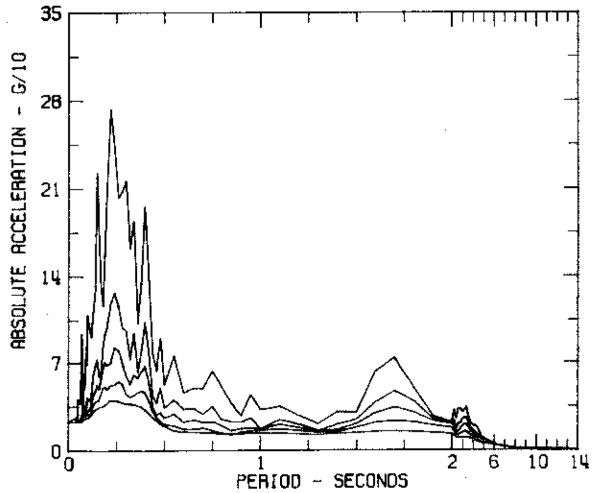
RESPONSE SPECTRA IIIH115 COMP DOWN
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
15250 VENTURA BLVD., BASEMENT, LOS ANGELES, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

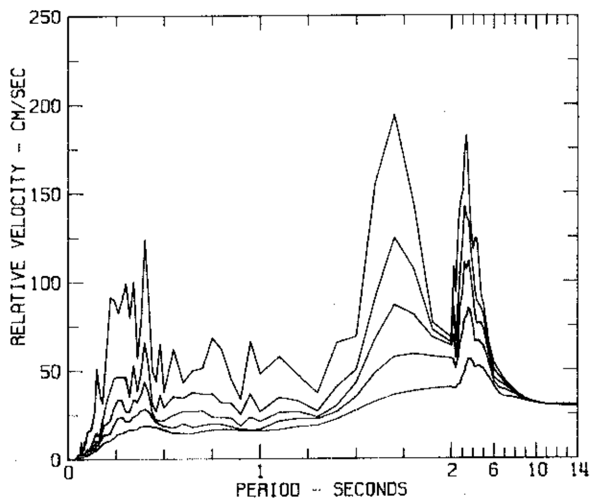


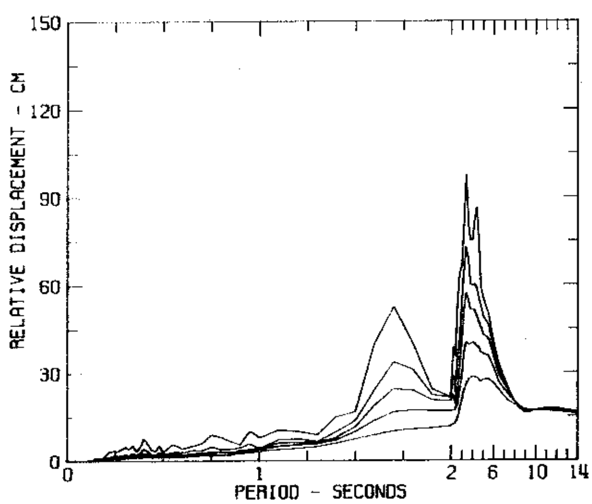




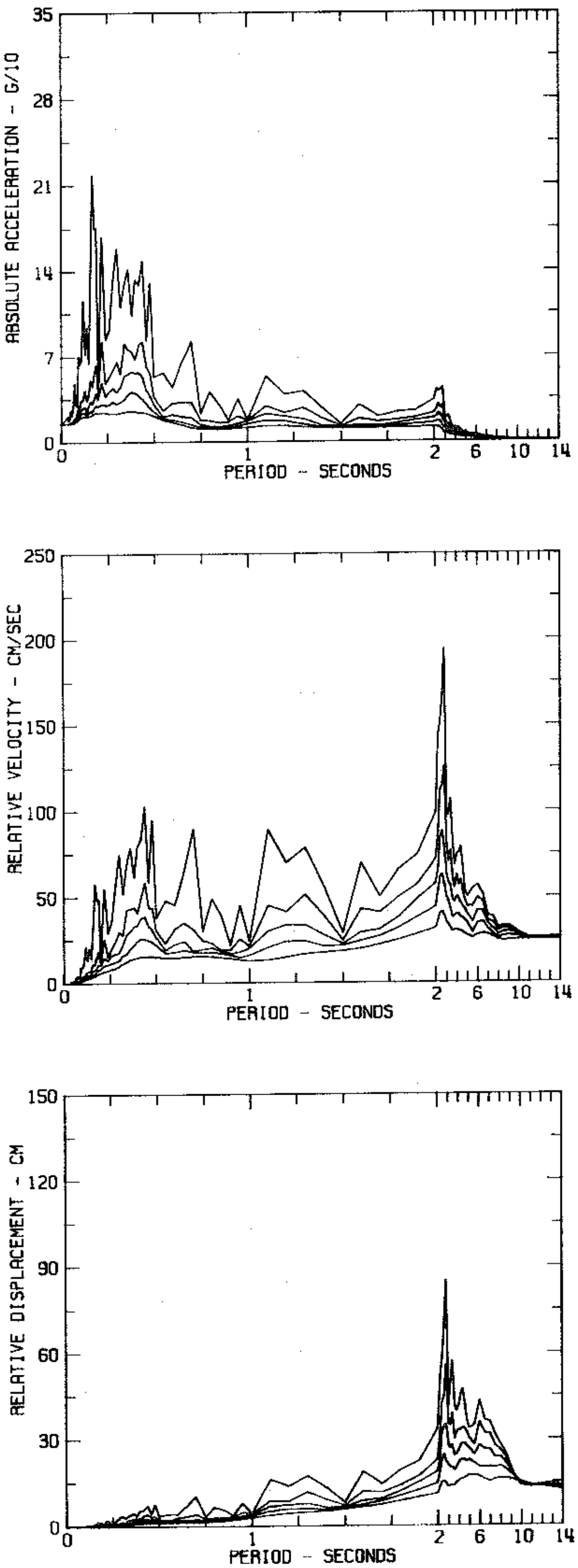
RESPONSE SPECTRA IIIH115 COMP N11E
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
15250 VENTURA BLVD., BASEMENT, LOS ANGELES, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



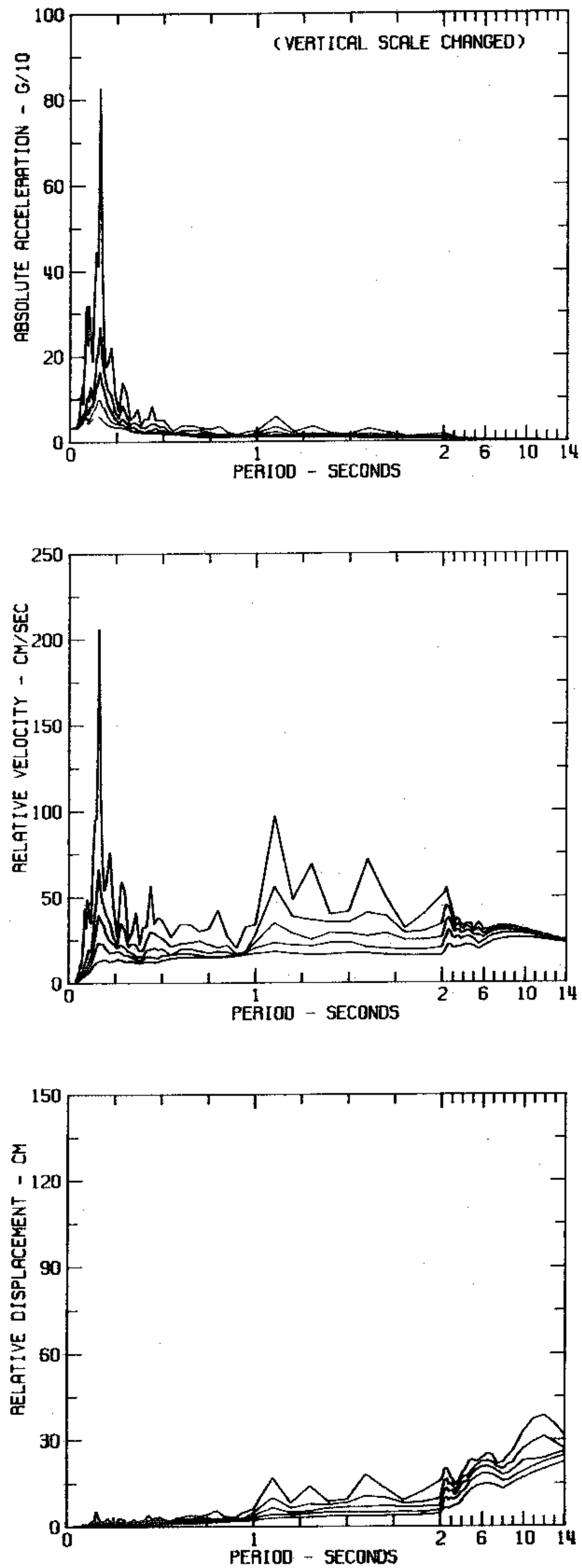




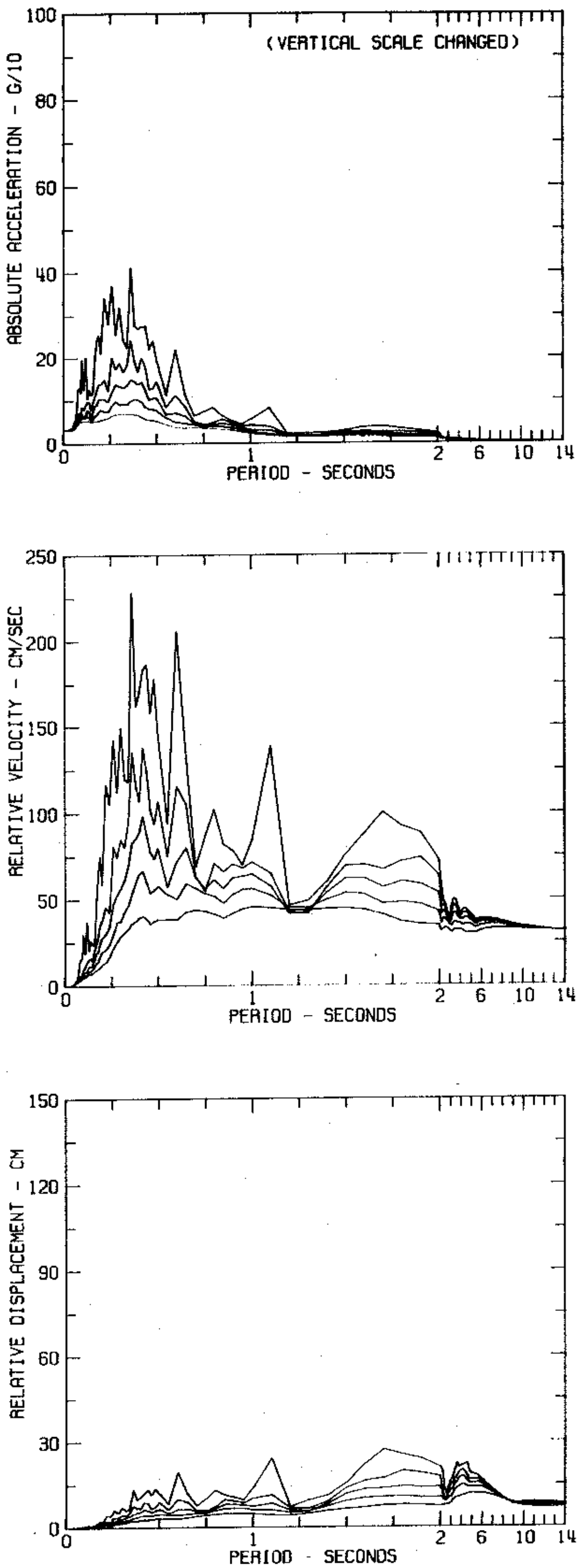
RESPONSE SPECTRA IIIH115 COMP N79W
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
15250 VENTURA BLVD., BASEMENT, LOS ANGELES, CAL.
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



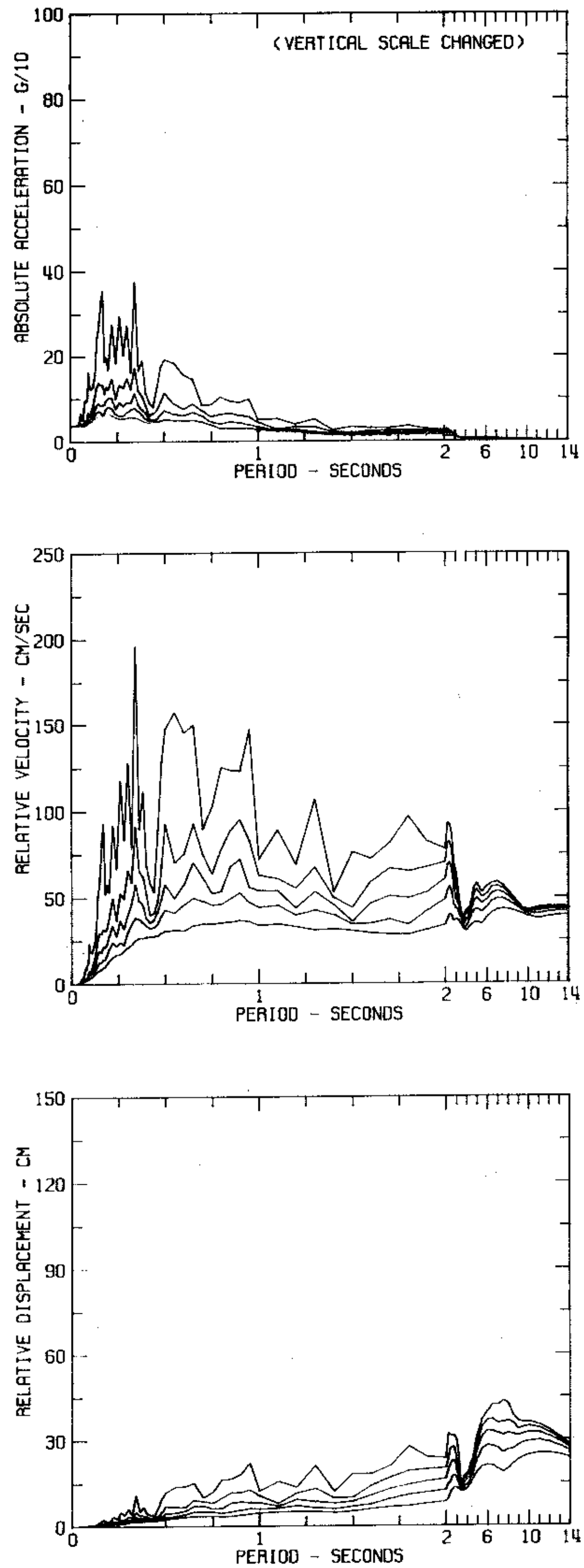
RESPONSE SPECTRA IIIZ001 COMP DOWN
MANAGUA EARTHQUAKE DEC 23, 1972 - 0629 GMT
MANAGUA, NICARAGUA
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



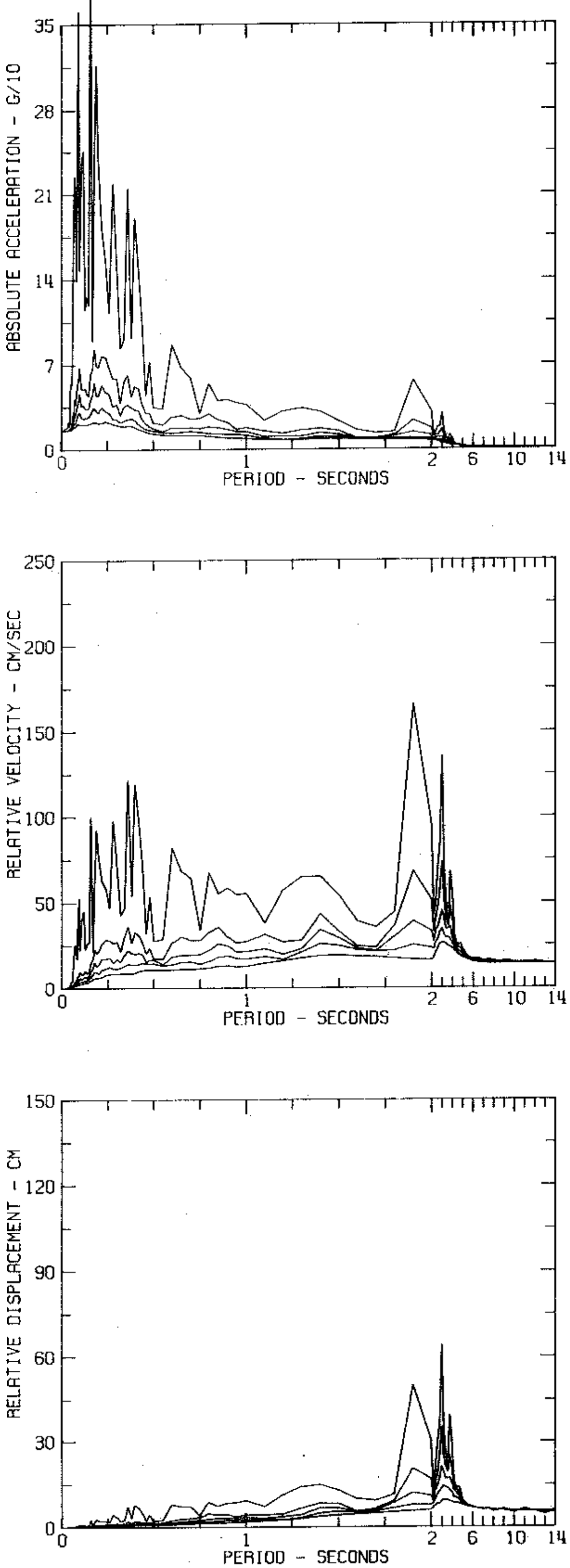
RESPONSE SPECTRA IIIZ001 COMP SOUTH
MANAGUA EARTHQUAKE DEC 23, 1972 - 0629 GMT
MANAGUA, NICARAGUA
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



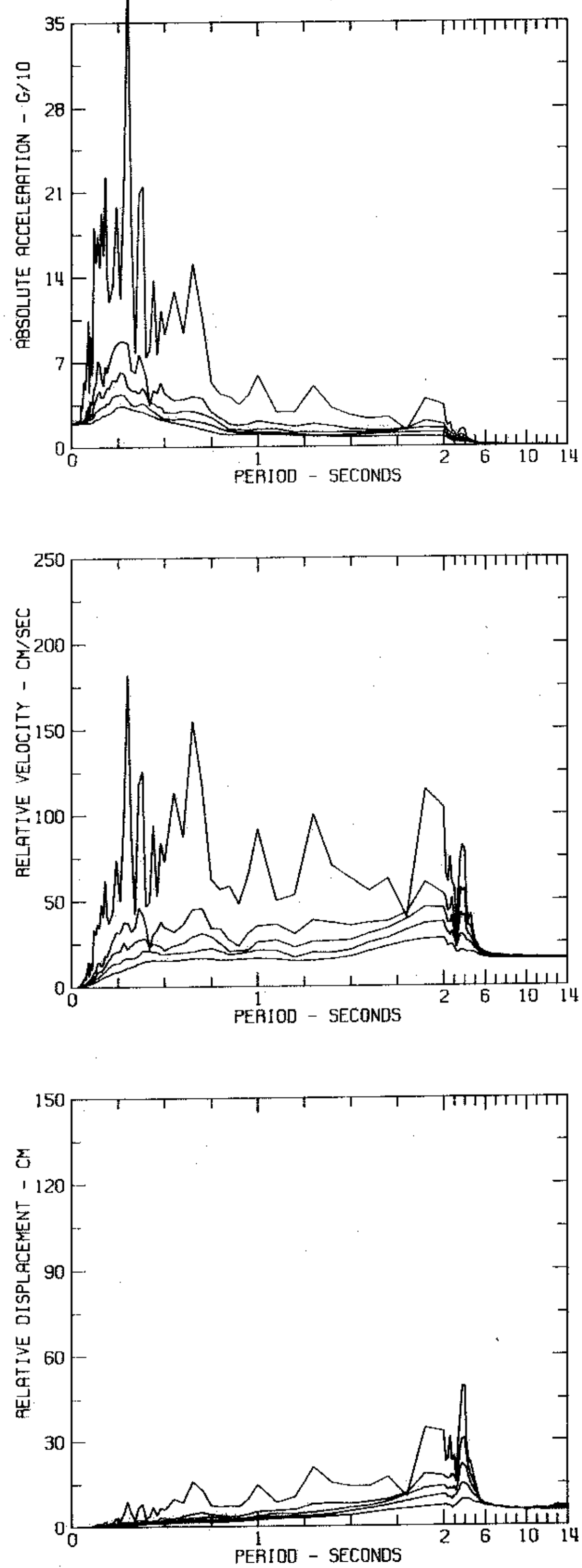
RESPONSE SPECTRA IIIZ001 COMP EAST
MANAGUA EARTHQUAKE DEC 23, 1972 - 0629 GMT
MANAGUA, NICARAGUA
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



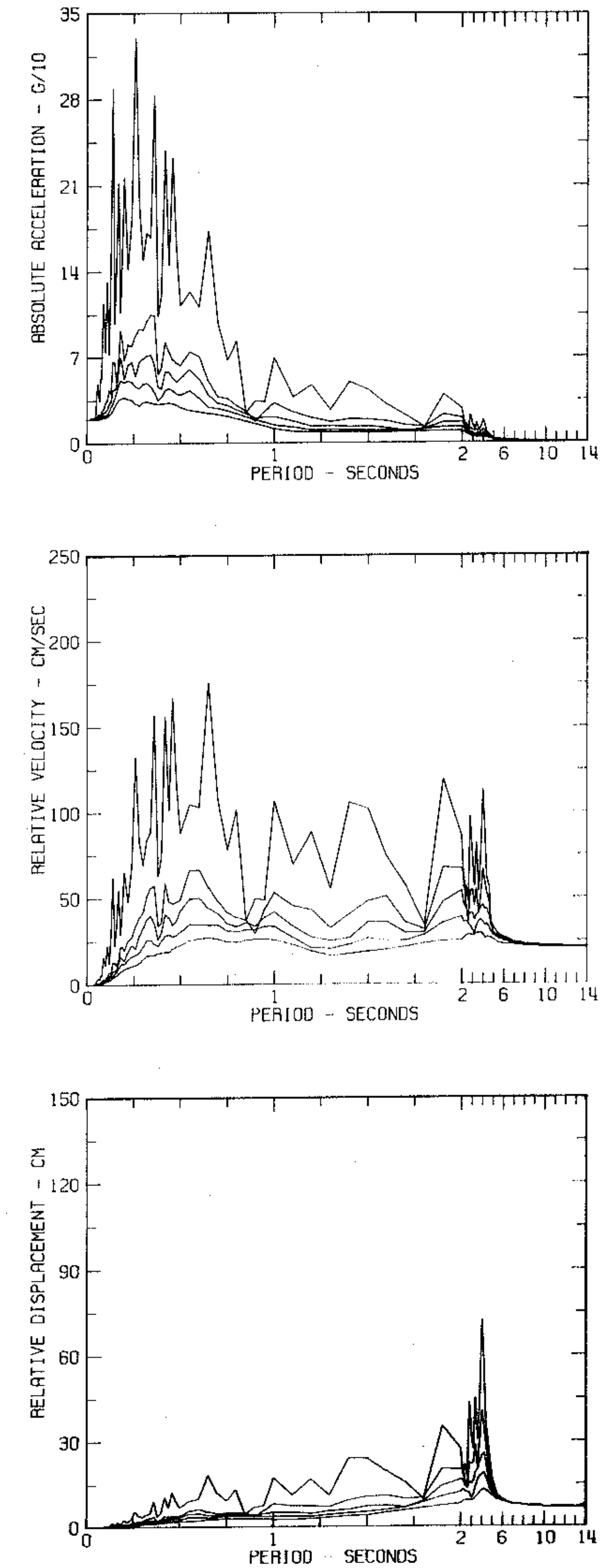
RESPONSE SPECTRA INPRES COMP DOWN
ARGENTINA EARTHQUAKE NOV 23 1977 - 0927 GMT
INPRES,SAN JUAN
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



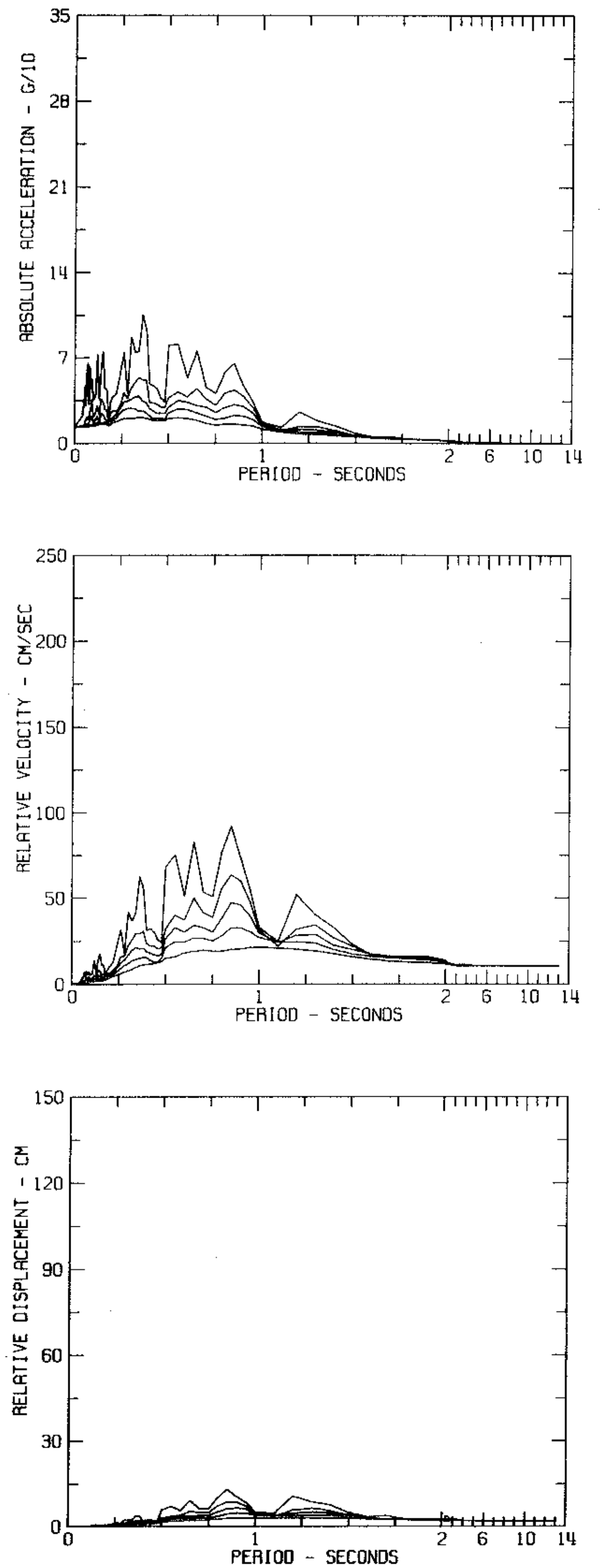
RESPONSE SPECTRA INPRES COMP S00E
ARGENTINA EARTHQUAKE NOV 23 1977 - 0927 GMT
INPRES,SAN JUAN
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



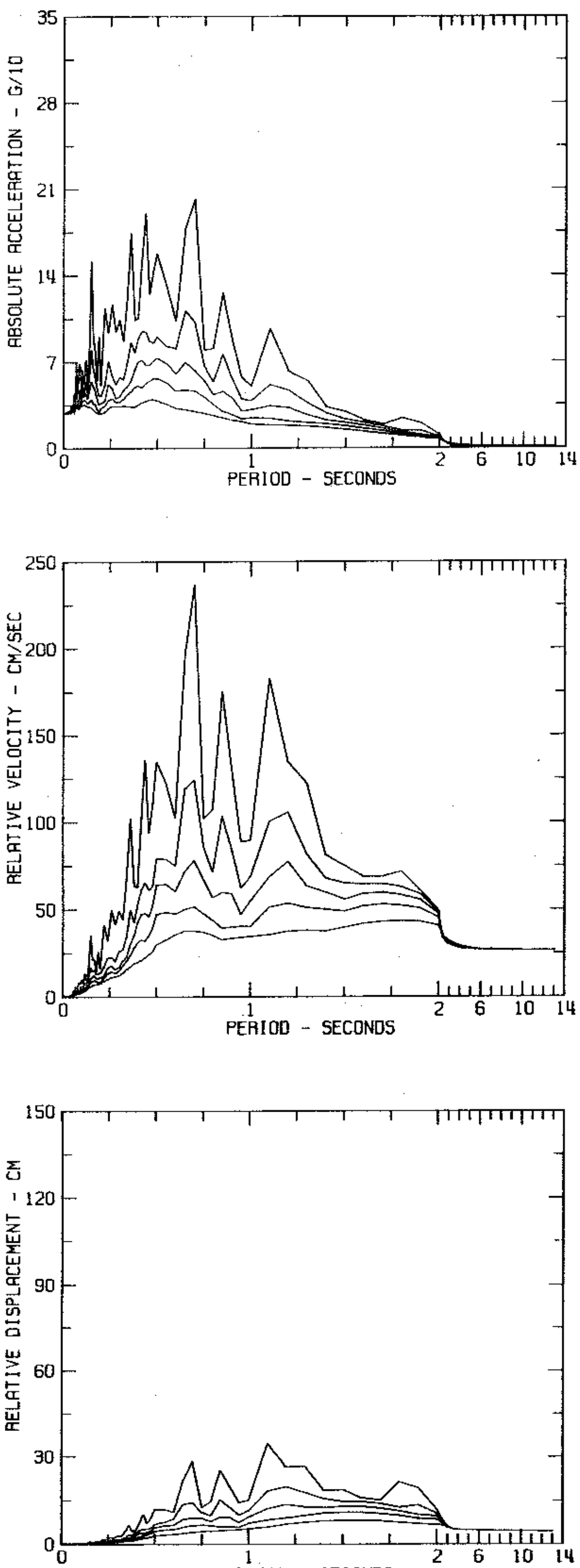
RESPONSE SPECTRA INPRES COMP S90E
ARGENTINA EARTHQUAKE NOV 23 1977 - 0927 GMT
INPRES.SAN JUAN
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



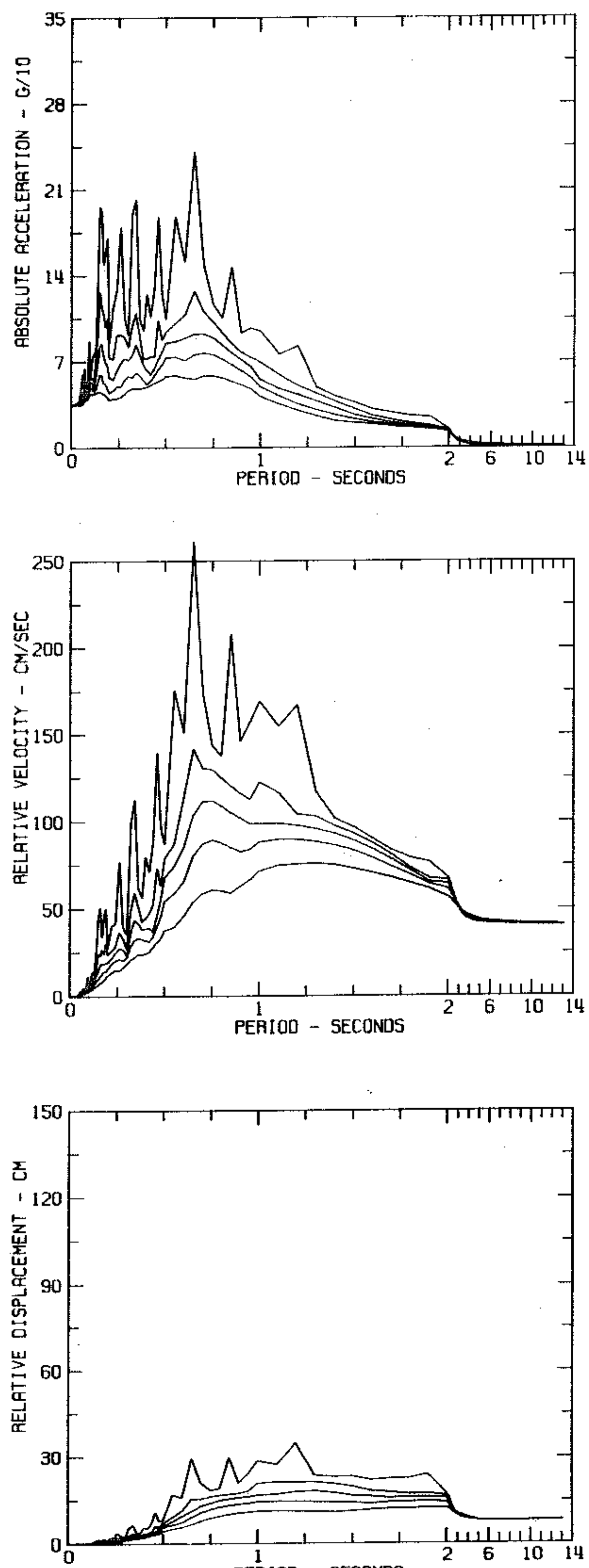
RESPONSE SPECTRA TRACE 2 DIRN VERT
SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT
UCSB NORTH HALL,GROUND FLOOR
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



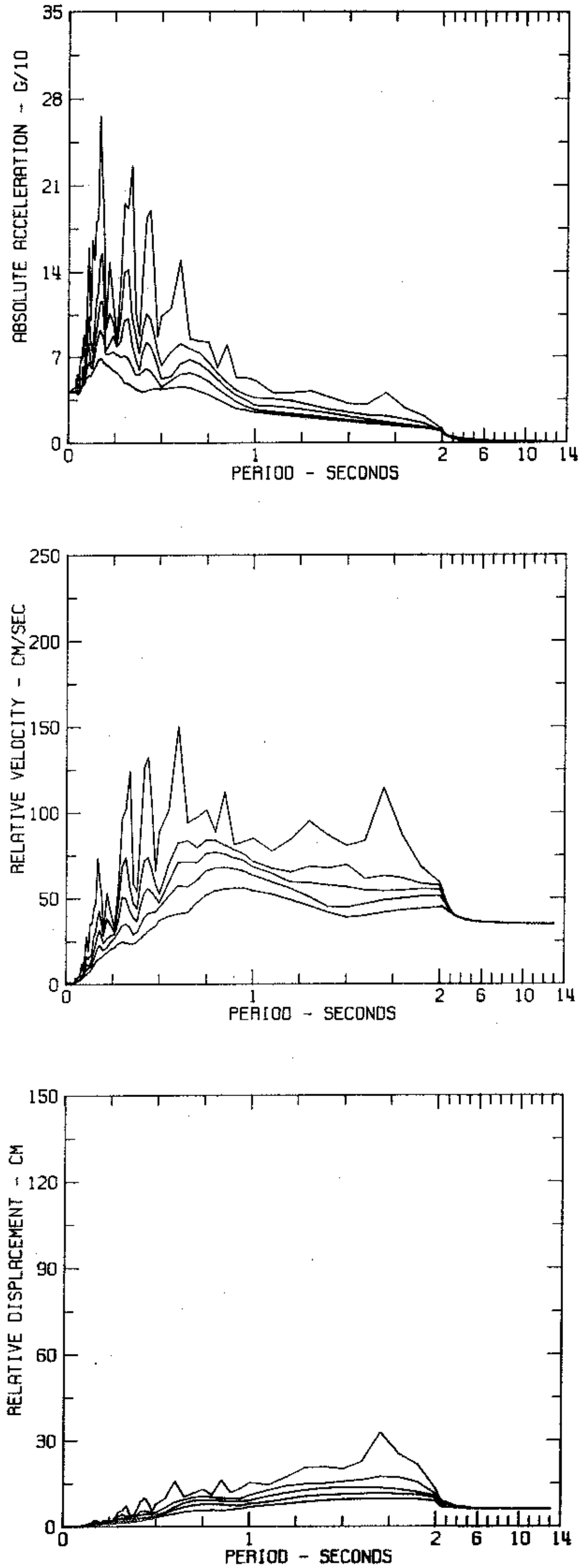
RESPONSE SPECTRA TRACE 3 DIRN N90E
SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT
UCSB NORTH HALL,GROUND FLOOR
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



RESPONSE SPECTRA TRACE 1 DIRN N00E
SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT
UCSB NORTH HALL,GROUND FLOOR
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL



RESPONSE SPECTRA TRACE 4 DIRN NOOE
SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT
UCSB NORTH HALL, GROUND FLOOR
DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

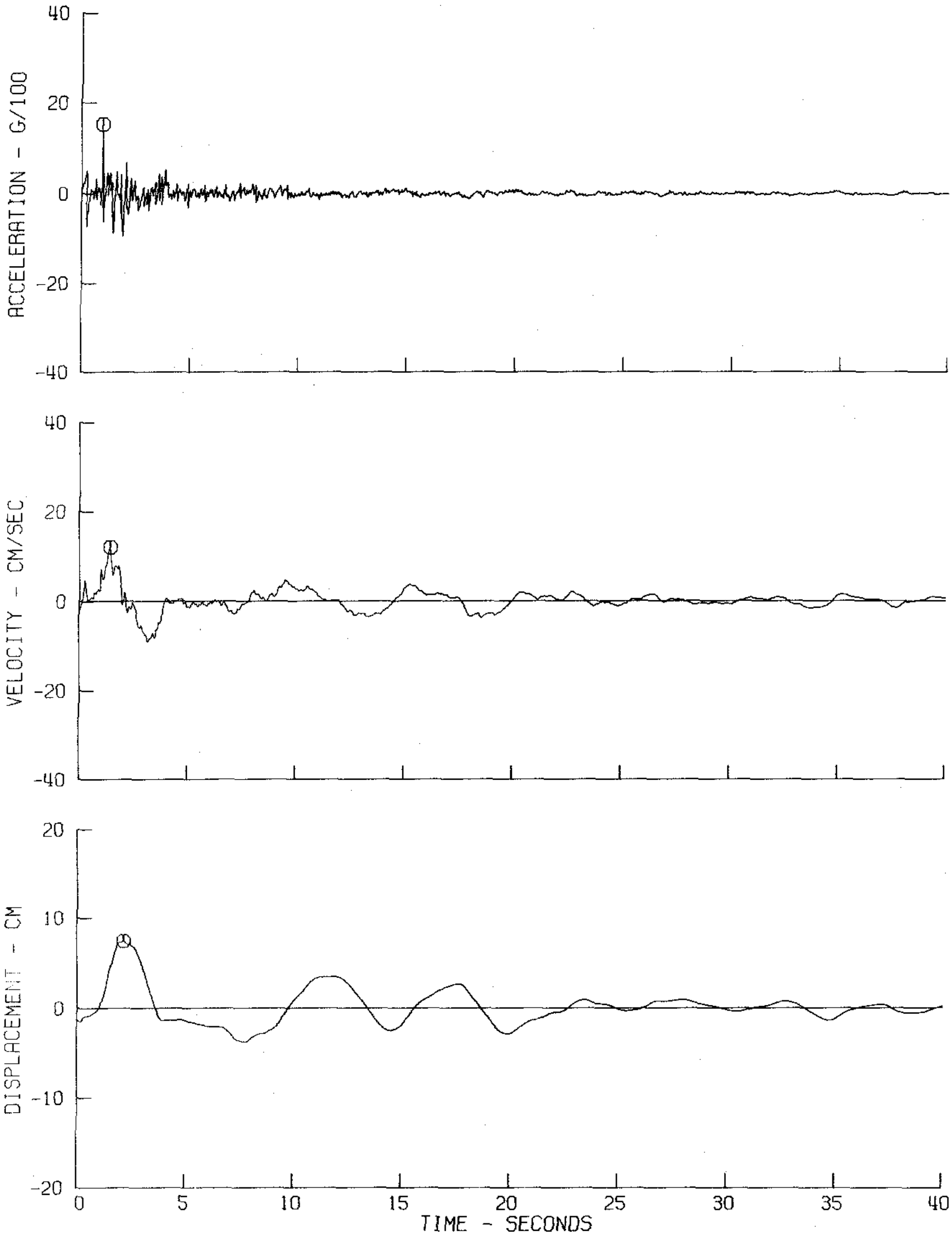


SECTION 3

FREE-FIELD AND BUILDING BASEMENT ACCELEROGRAMS, INTEGRATED VELOCITIES AND DISPLACEMENTS

In this section accelerograms and integrated velocities and displacements are presented for the earthquake records of Section 1 (as listed in Table 1). In all but five records the time histories are plotted on a horizontal axis that extends to 40 seconds and on vertical axes that extend to 0.4g, 40 cm/sec and 20 cm for acceleration, velocity and displacement, respectively. In three of the five exceptional cases it was necessary to increase the time axis to 60 seconds to accommodate fully the strong-motion part of these records. The records so affected are the Seattle District Engineers Office record of the Western Washington earthquake, the Taft, Lincoln School Tunnel record of the Kern County earthquake and the Inpres, San Juan record of the Argentina earthquake. Two records needed increased vertical axes, namely the Cholame-Shandon Array No. 2 record of the Parkfield earthquake (0.8g, 80 cm/sec and 40 cm) and the Pacoima Dam record of the San Fernando earthquake (1.2g, 120 cm/sec and 40 cm). It should again be noted that the N25W component of the Cholame-Shandon Array No. 2 record of the Parkfield earthquake is not included here.

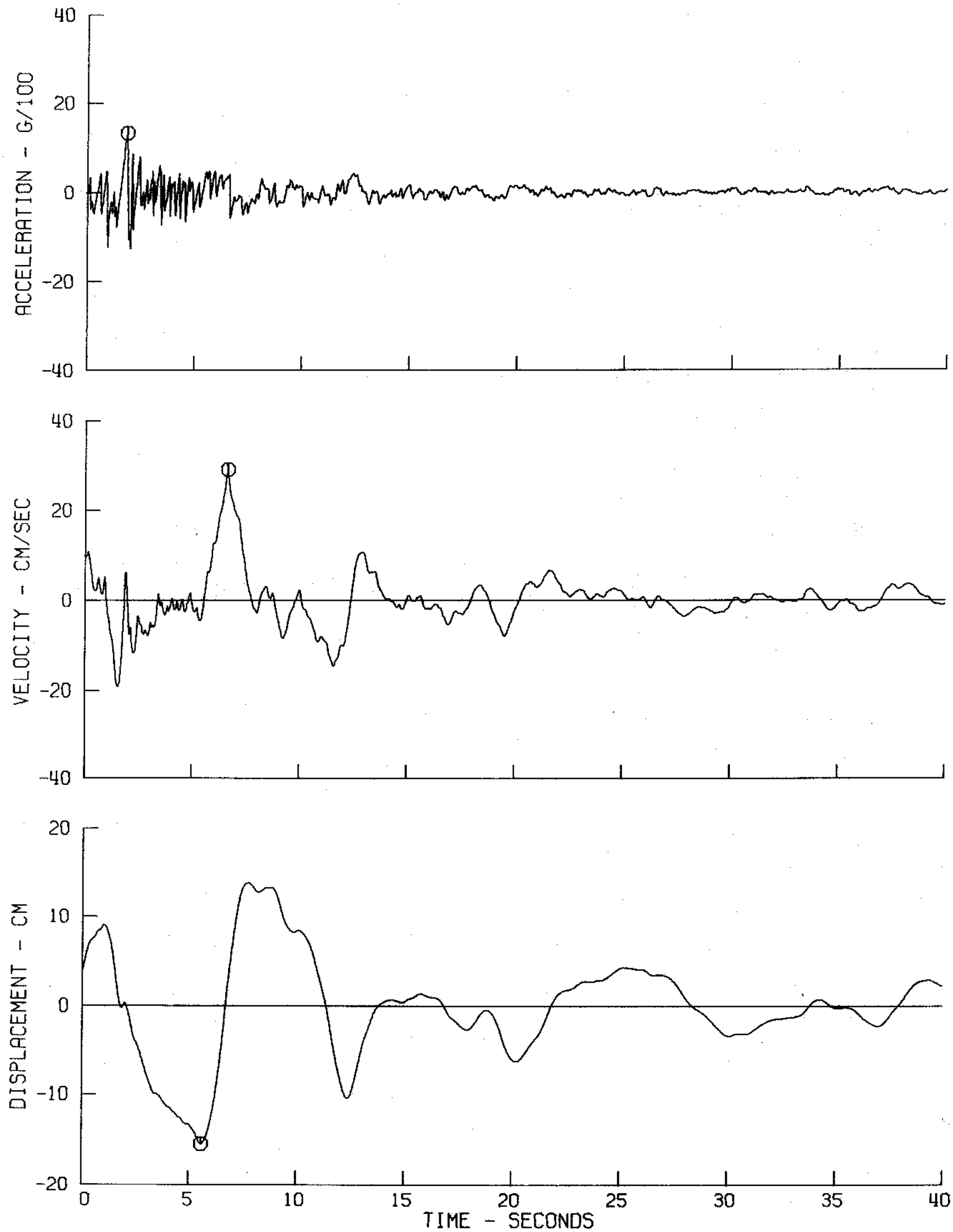
LONG BEACH EARTHQUAKE MAR 10, 1933 - 1754 PST
IIB021 33.001.0 VERNON CMD BLDG COMP DOWN
Ⓟ PEAK VALUES : ACCEL = 149.5 CM/SEC/SEC VELOCITY = 12.0 CM/SEC DISPL = 7.4 CM



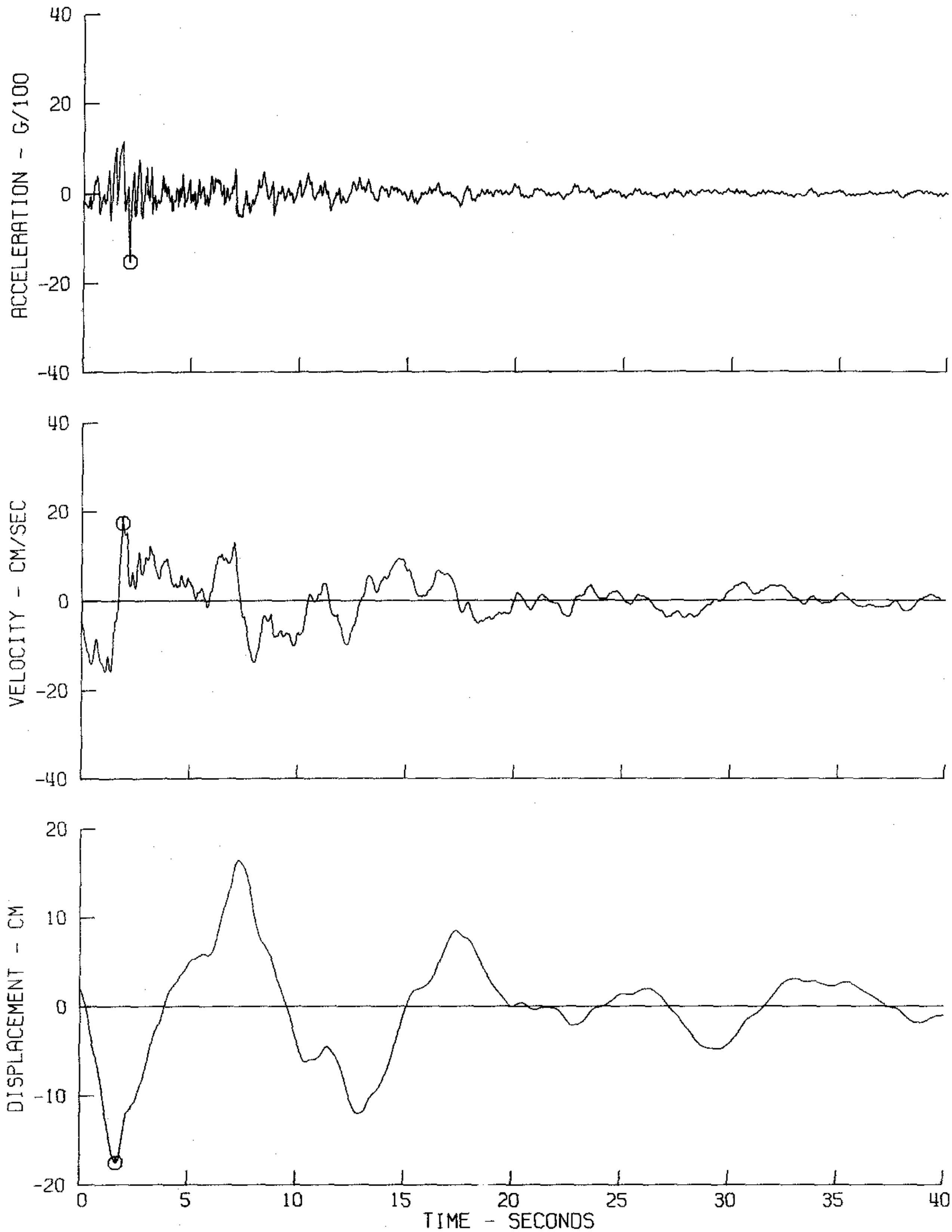
LONG BEACH EARTHQUAKE MAR 10, 1933 - 1754 PST

IIB021 33.001.0 VERNON CMD BLDG COMP S08W

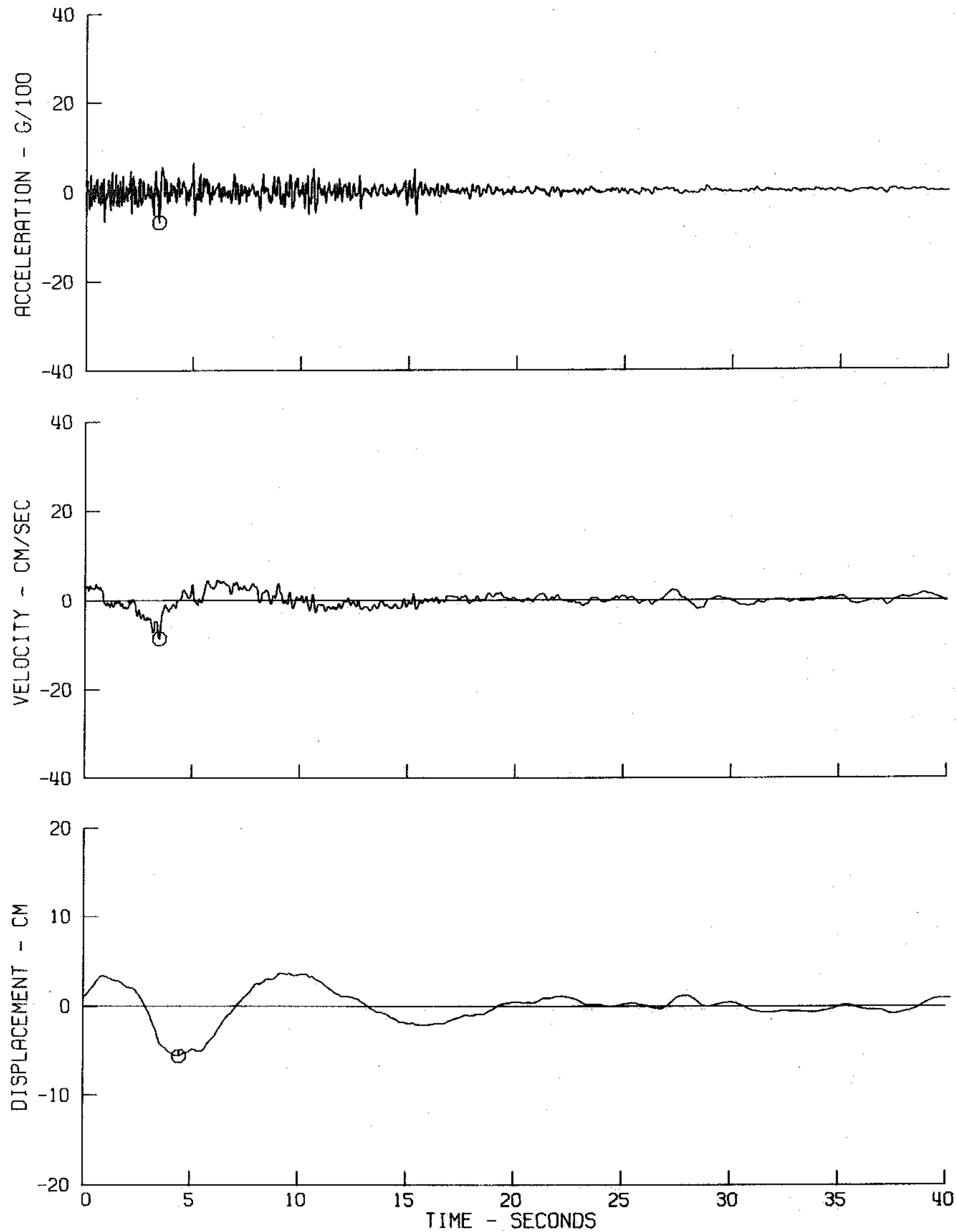
⊕ PEAK VALUES : ACCEL = 130.6 CM/SEC/SEC VELOCITY = 29.0 CM/SEC DISPL = -15.5 CM



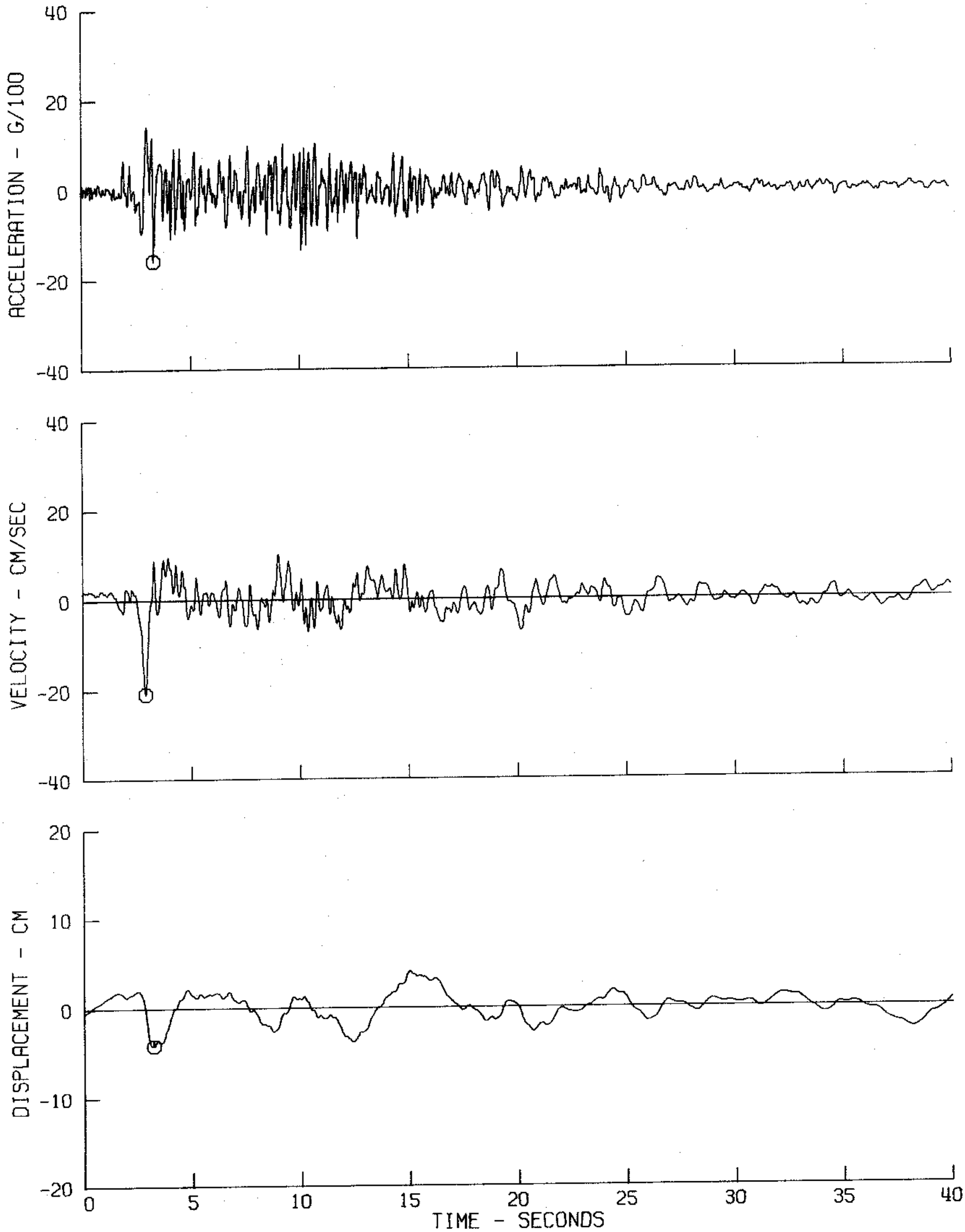
LONG BEACH EARTHQUAKE MAR 10, 1933 - 1754 PST
IIB021 33.001.0 VERNON CMD BLDG COMP N82W
⊙ PEAK VALUES : ACCEL = -151.5 CM/SEC/SEC VELOCITY = 17.3 CM/SEC DISPL = -17.5 CM



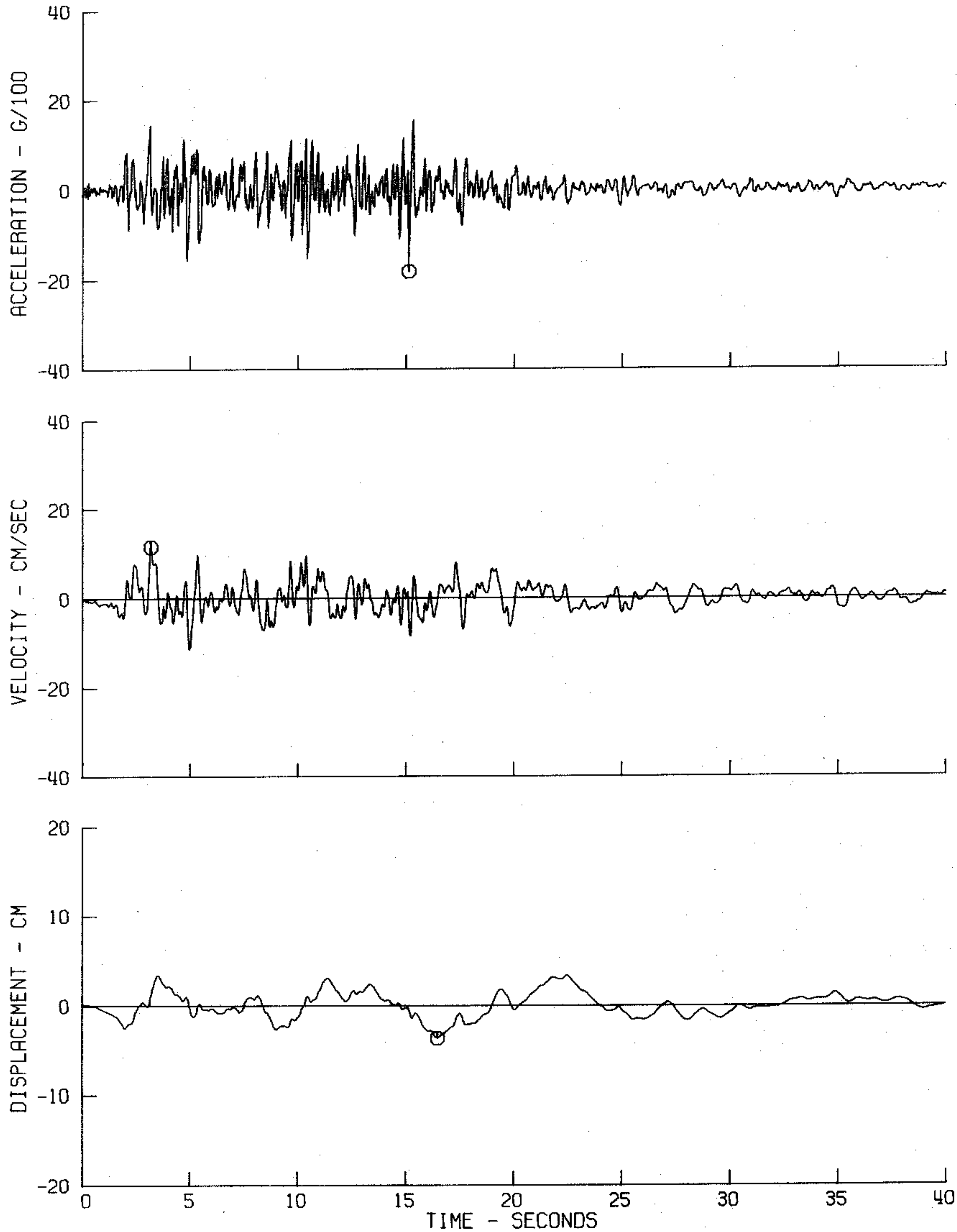
LOWER CALIFORNIA EARTHQUAKE DEC 30, 1934 - 0552 PST
IIB024 34.002.0 EL CENTRO IMPERIAL VALLEY COMP VERT
① PEAK VALUES : ACCEL = -68.1 CM/SEC/SEC VELOCITY = -8.8 CM/SEC DISPL = -5.6 CM



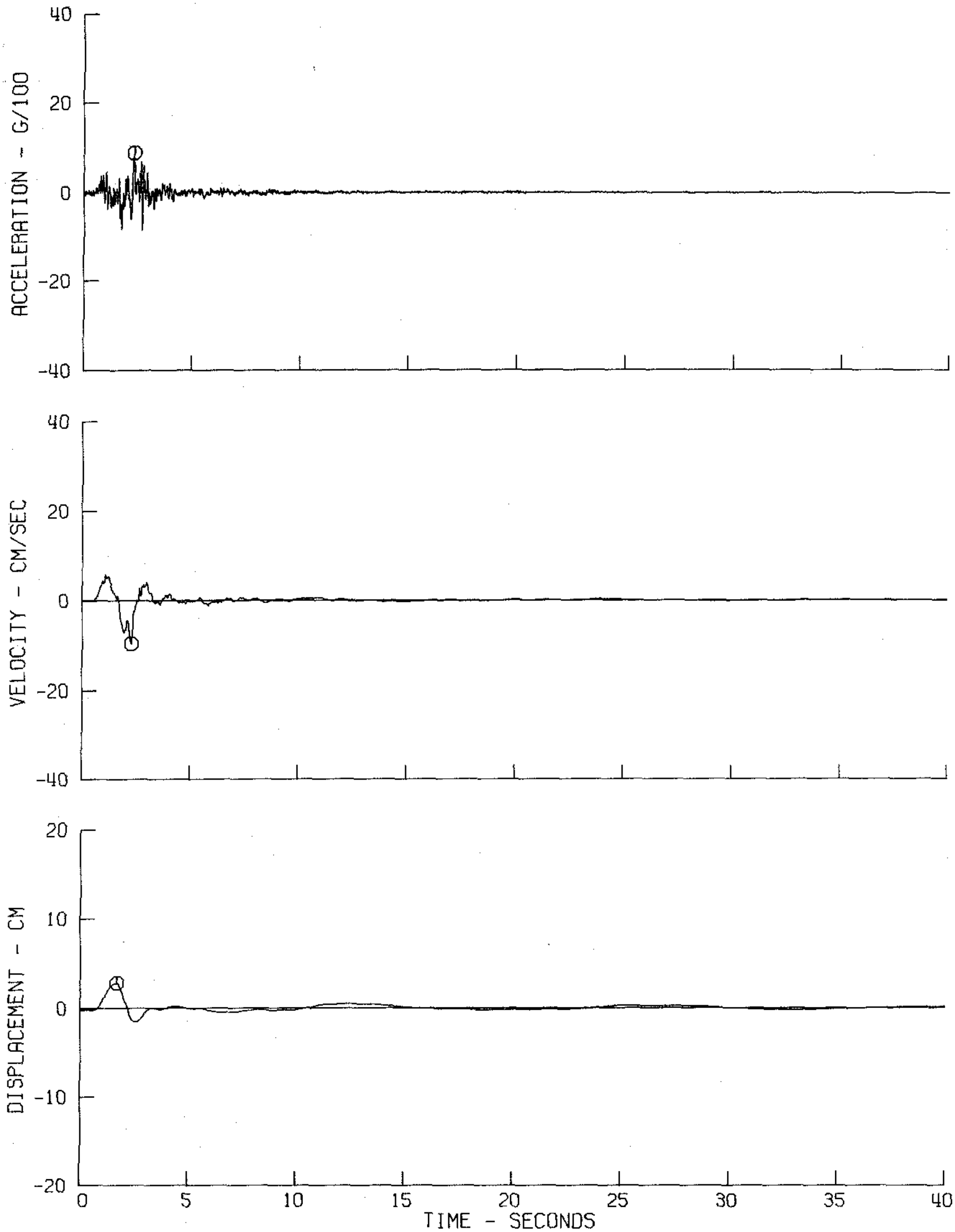
LOWER CALIFORNIA EARTHQUAKE DEC 30, 1934 - 0552 PST
IIB024 34.002.0 EL CENTRO IMPERIAL VALLEY COMP S00W
⊙ PEAK VALUES : ACCEL = -156.8 CM/SEC/SEC VELOCITY = -20.9 CM/SEC DISPL = -4.2 CM



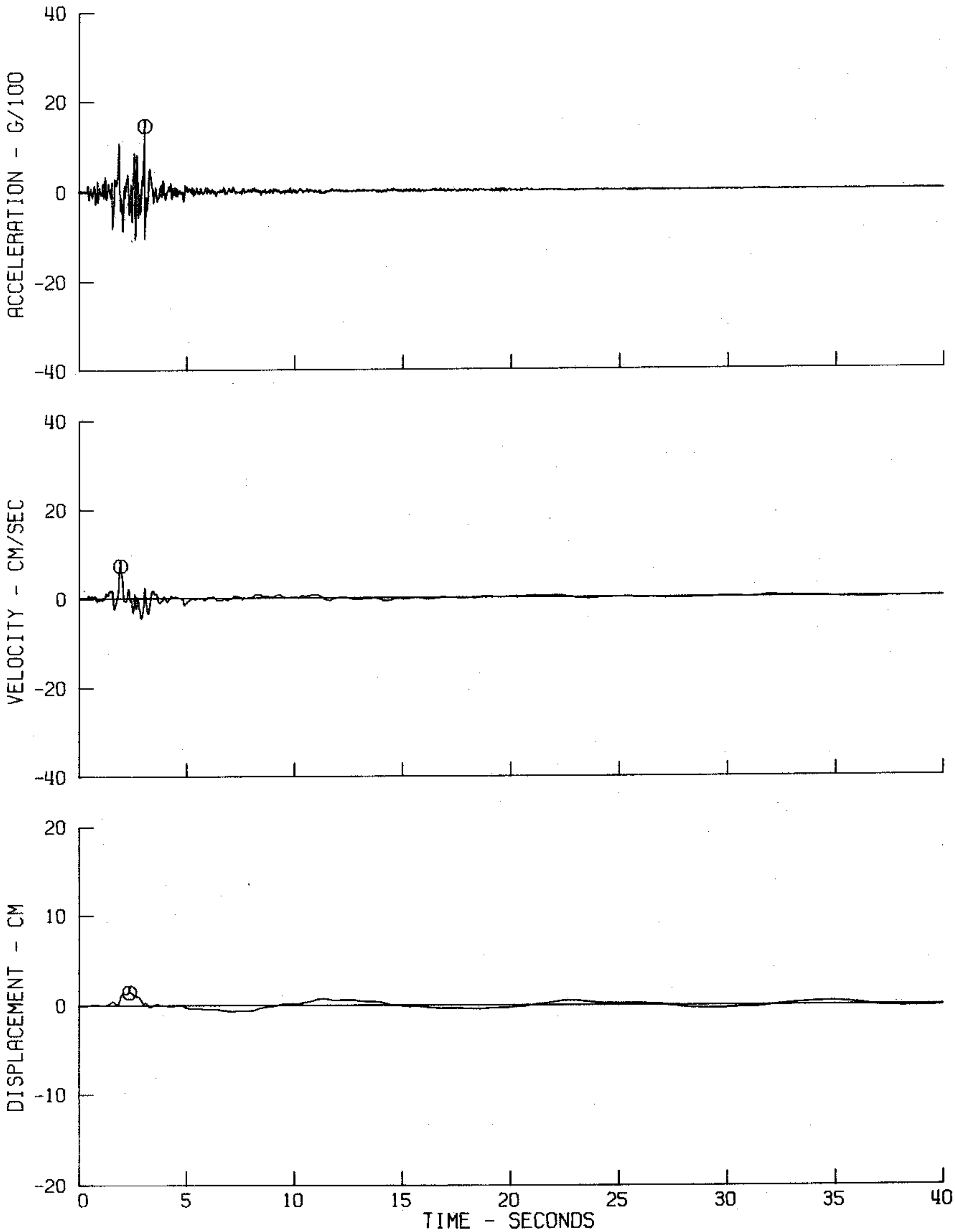
LOWER CALIFORNIA EARTHQUAKE DEC 30, 1934 - 0552 PST
IIB024 34.002.0 EL CENTRO IMPERIAL VALLEY COMP S90W
Ⓘ PEAK VALUES : ACCEL = -179.1 CM/SEC/SEC VELOCITY = 11.6 CM/SEC DISPL = -3.7 CM



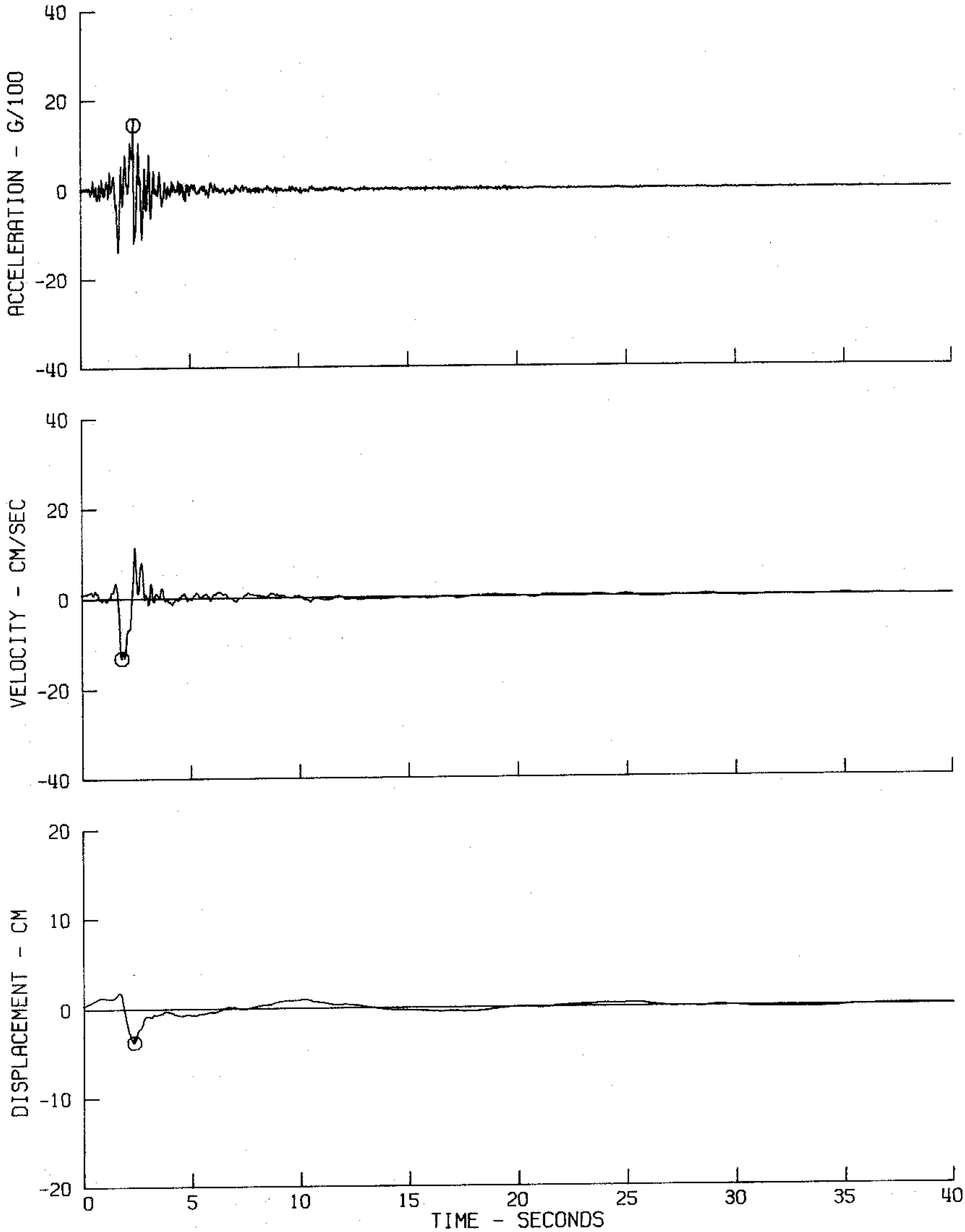
HELENA, MONTANA EARTHQUAKE OCT 31, 1935 - 1138 MST
IIB025 35.001.0 HELENA, MONTANA CARROLL COLLEGE COMP DOWN
⊕ PEAK VALUES : ACCEL = 87.5 CM/SEC/SEC VELOCITY = -9.7 CM/SEC DISPL = 2.8 CM



HELENA, MONTANA EARTHQUAKE OCT 31, 1935 - 1138 MST
IIB025 35.001.0 HELENA, MONTANA CARROLL COLLEGE COMP S00W
① PEAK VALUES : ACCEL = 143.5 CM/SEC/SEC VELOCITY = 7.3 CM/SEC DISPL = 1.4 CM



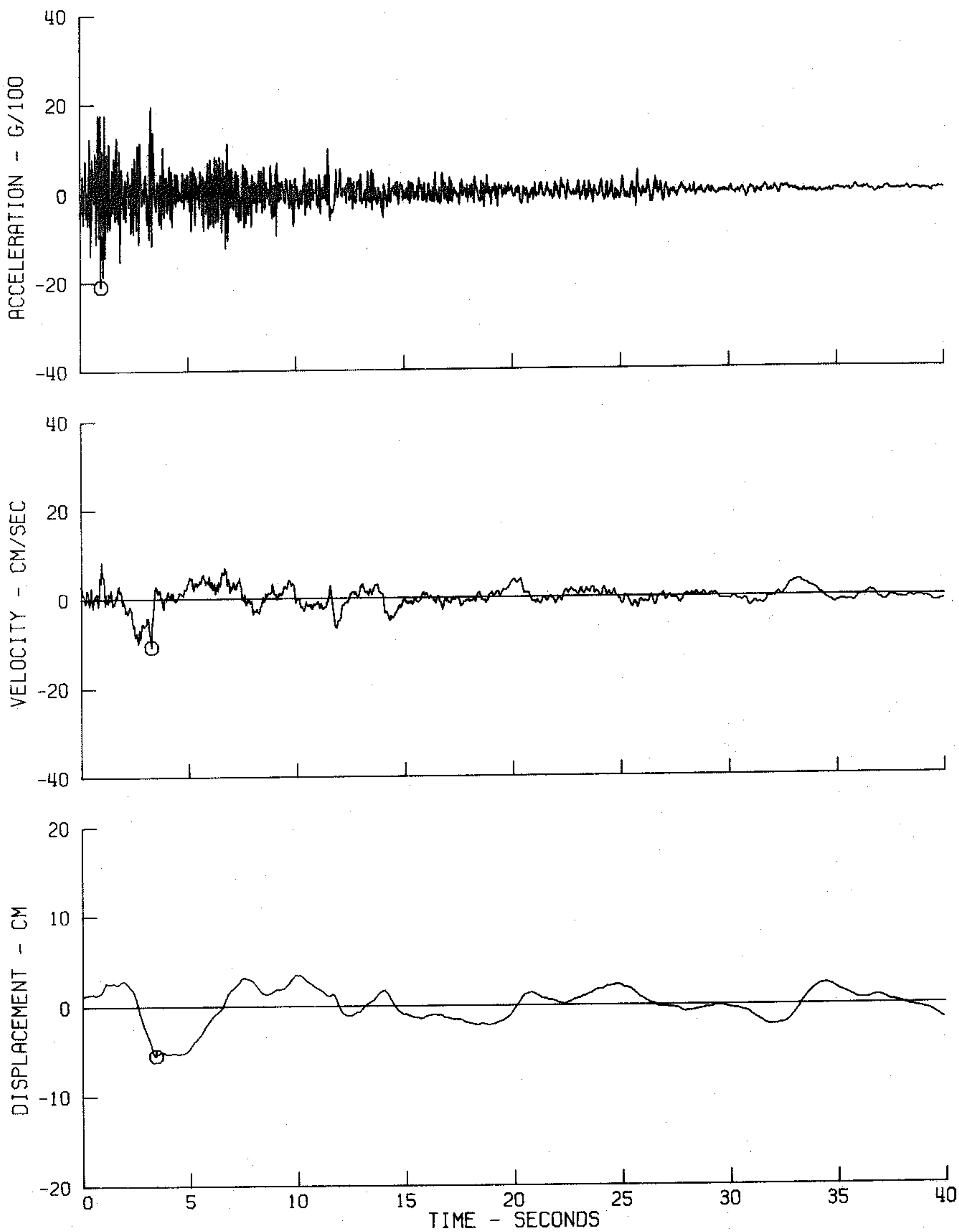
HELENA, MONTANA EARTHQUAKE OCT 31, 1935 - 1138 MST
IIB025 35.001.0 HELENA, MONTANA CARROLL COLLEGE COMP S90W
⊙ PEAK VALUES : ACCEL = 142.5 CM/SEC/SEC VELOCITY = -13.3 CM/SEC DISPL = -3.7 CM



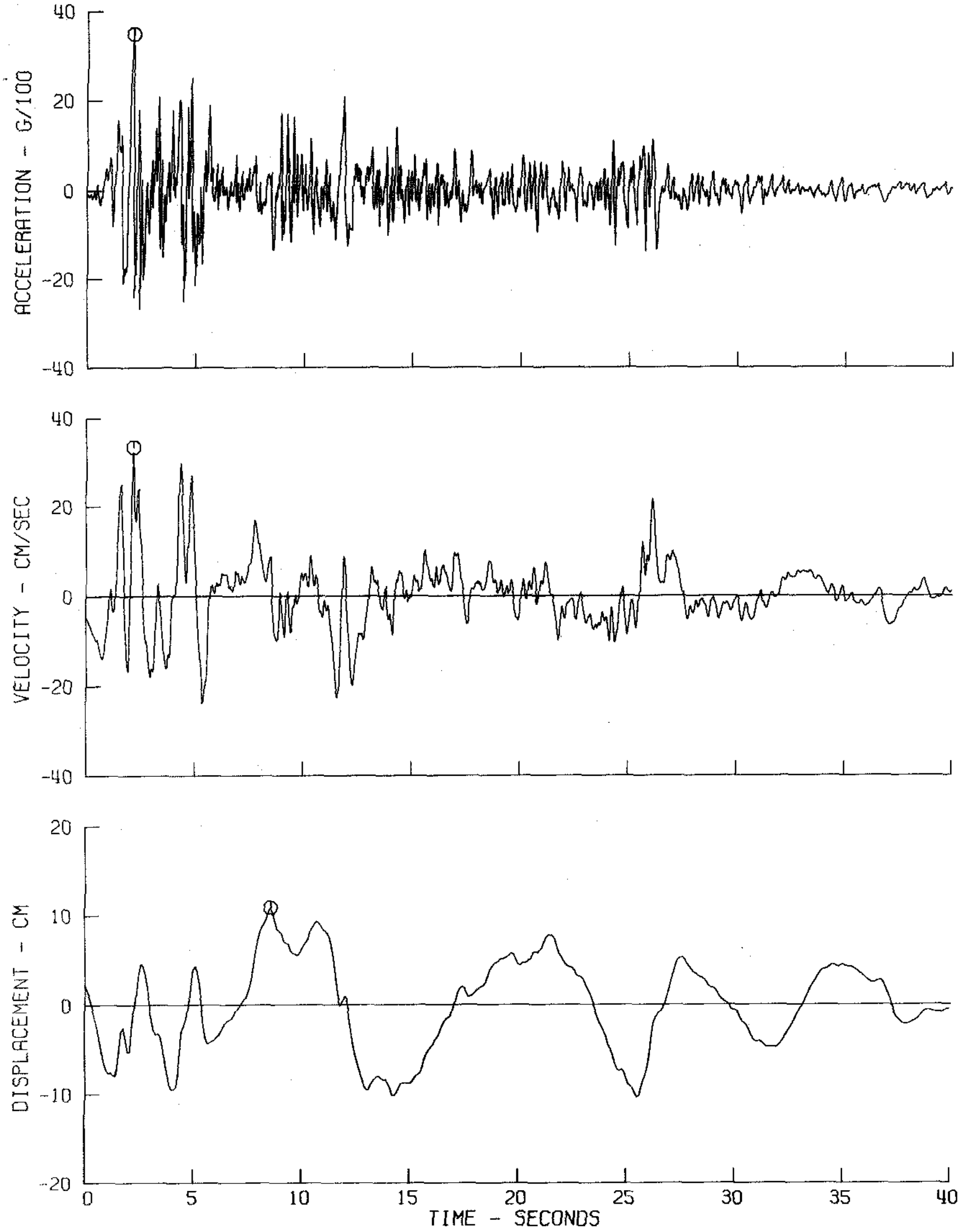
IMPERIAL VALLEY EARTHQUAKE MAY 18, 1940 - 2037 PST

IIA001 40.001.0 EL CENTRO VALLEY IRRIGATION DISTRICT COMP VERT

PEAK VALUES : ACCEL = -206.3 CM/SEC/SEC VELOCITY = -10.8 CM/SEC DISPL = -5.6 CM



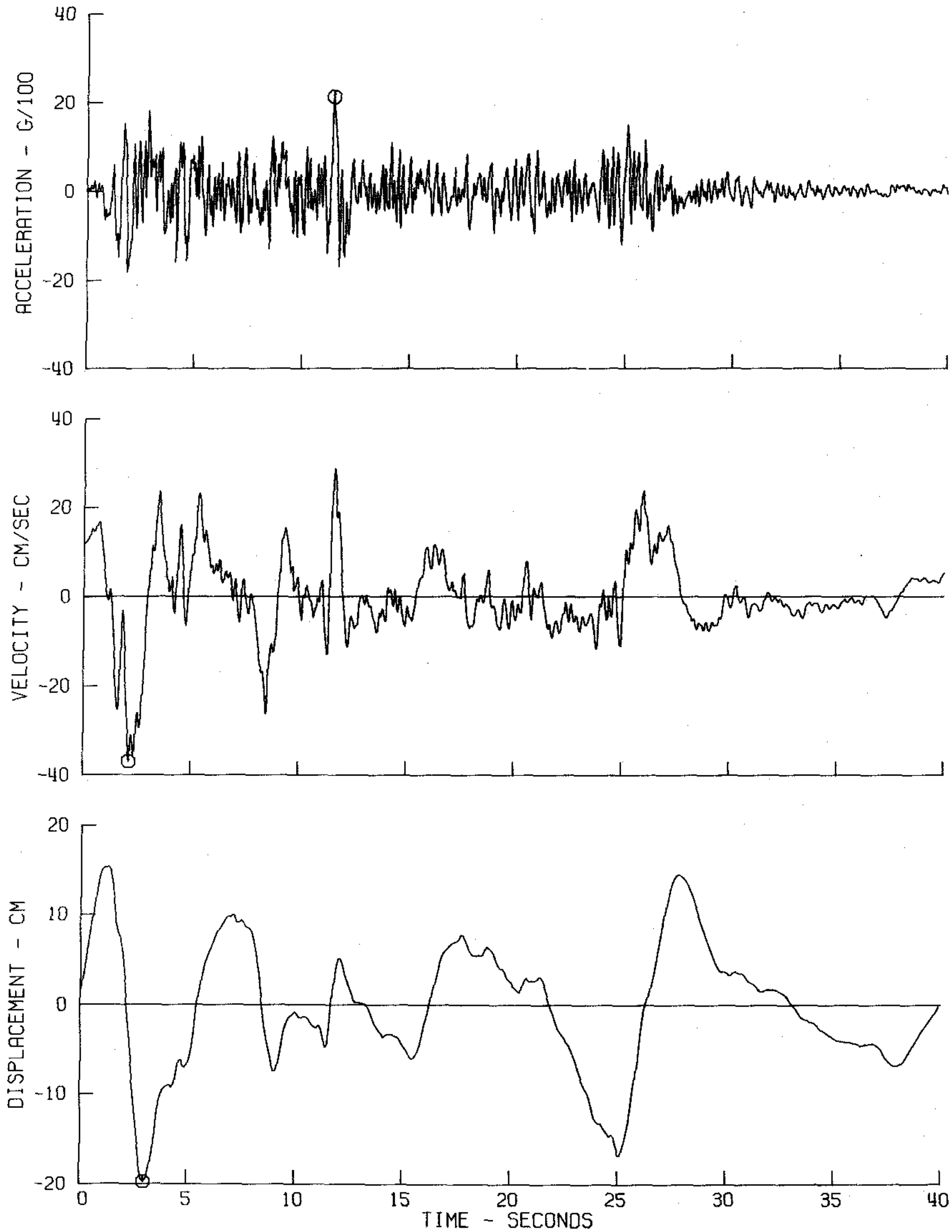
IMPERIAL VALLEY EARTHQUAKE MAY 18, 1940 - 2037 PST
IIA001 40.001.0 EL CENTRO SITE IMPERIAL VALLEY IRRIGATION DISTRICT COMP S00E
PEAK VALUES : ACCEL = 341.7 CM/SEC/SEC VELOCITY = 33.4 CM/SEC DISPL = 10.9 CM



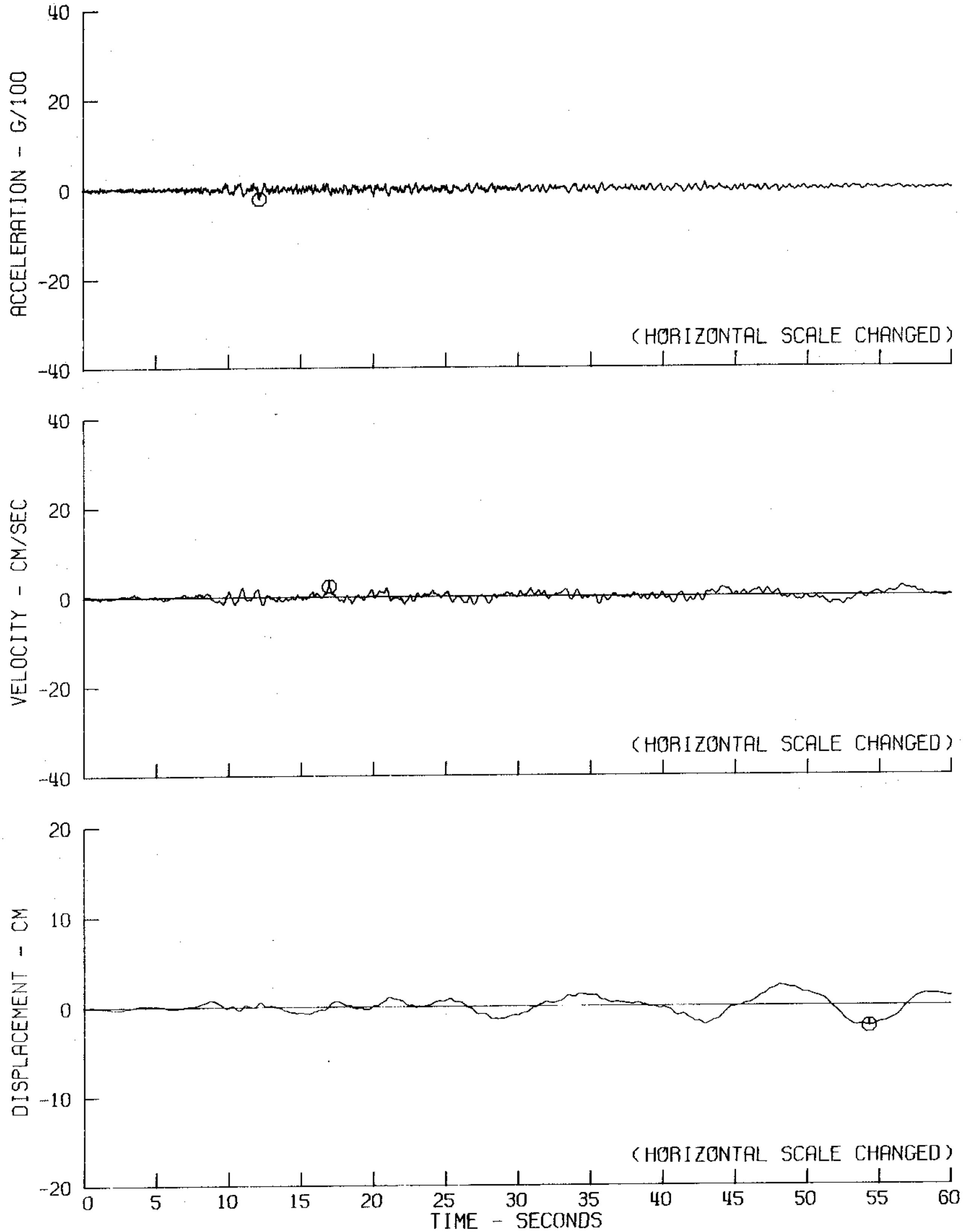
IMPERIAL VALLEY EARTHQUAKE MAY 18, 1940 - 2037 PST

IIA001 40.001.0 EL CENTRO SITE IMPERIAL VALLEY IRRIGATION DISTRICT COMP S90W

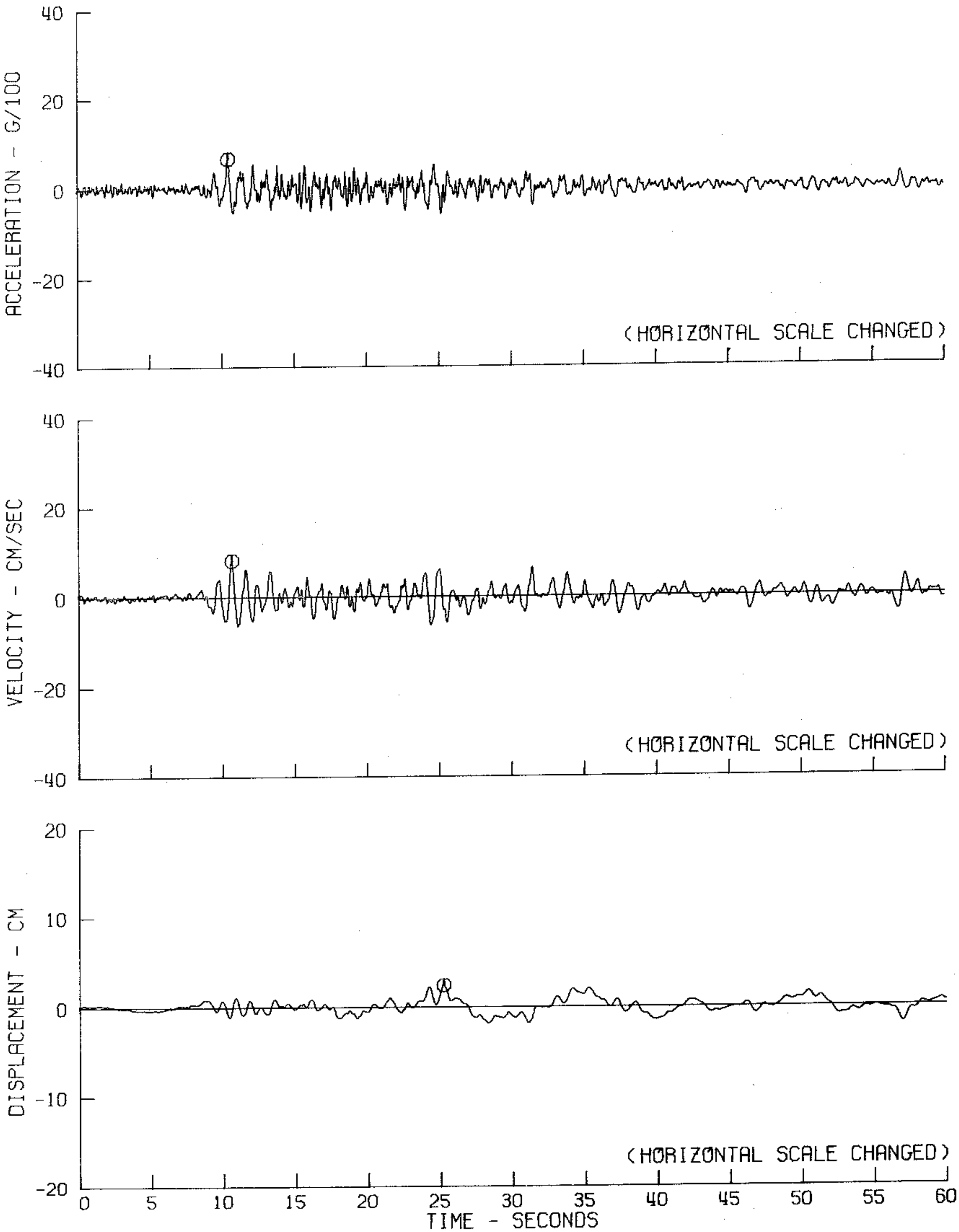
⊙ PEAK VALUES : ACCEL = 210.1 CM/SEC/SEC VELOCITY = -36.9 CM/SEC DISPL = -19.8 CM



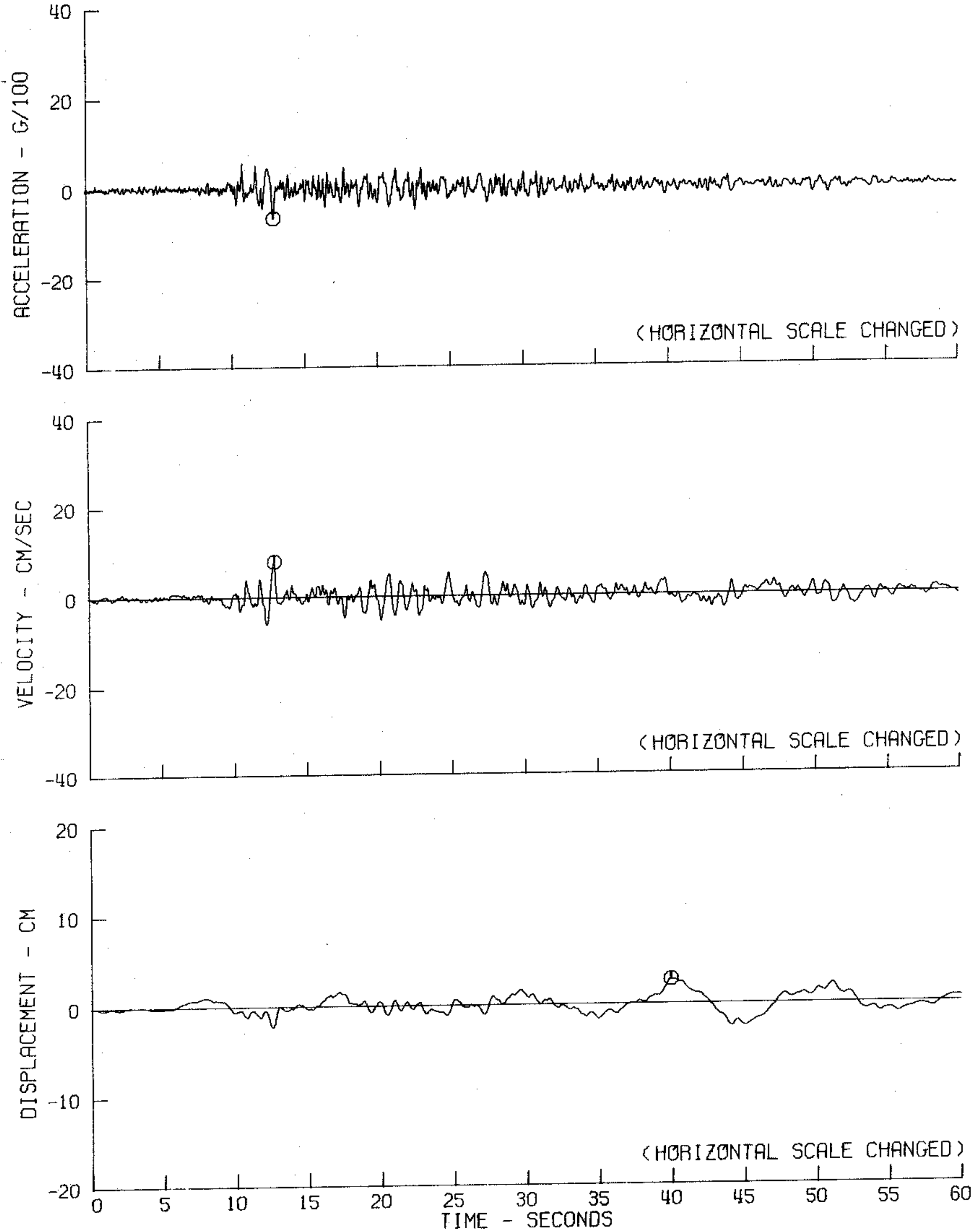
WESTERN WASHINGTON EARTHQUAKE APR 13, 1949 - 1156 PST
IIB028 49.002.0 SEATTLE, WASH. DIST ENGRS OFFC AT ARMY BASE COMP VERT
PEAK VALUES : ACCEL = -22.0 CM/SEC/SEC VELOCITY = 2.4 CM/SEC DISPL = -2.3 CM



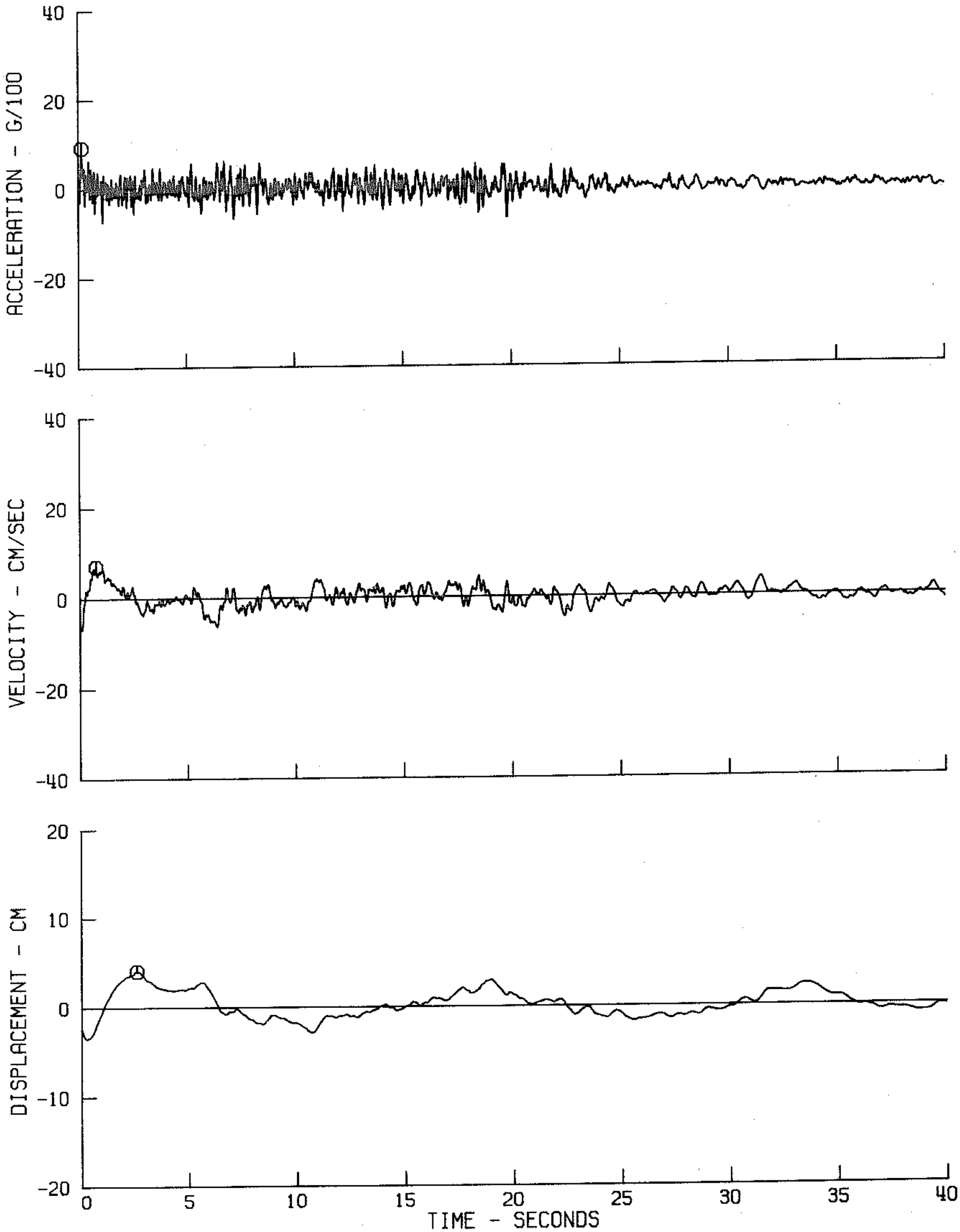
WESTERN WASHINGTON EARTHQUAKE APR 13, 1949 - 1156 PST
IIB028 49.002.0 SEATTLE, WASH. DIST ENGRS OFFC AT ARMY BASE COMP S02W
PEAK VALUES : ACCEL = 66.5 CM/SEC/SEC VELOCITY = 8.2 CM/SEC DISPL = 2.4 CM

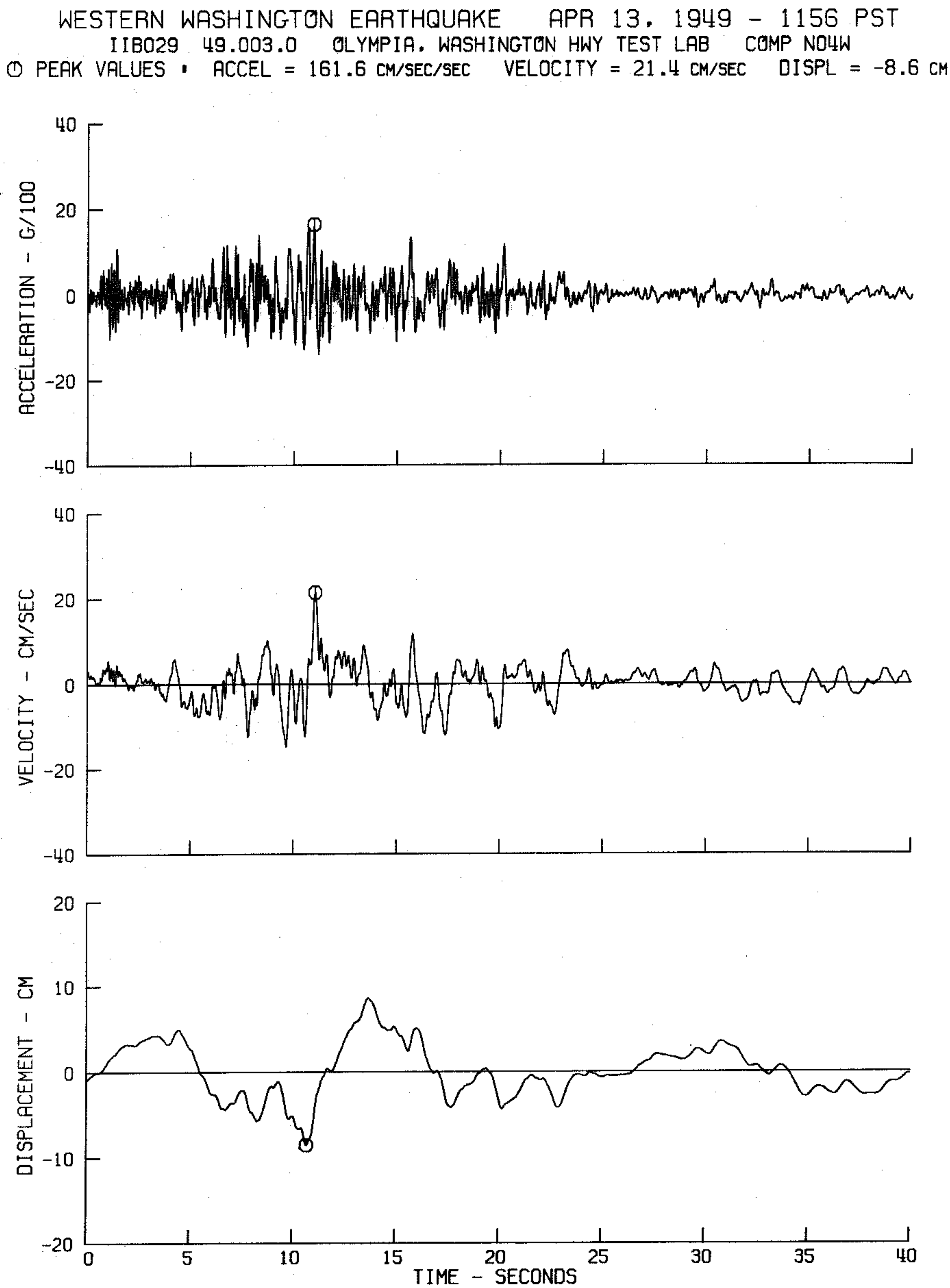


WESTERN WASHINGTON EARTHQUAKE APR 13, 1949 - 1156 PST
IIB028 49.002.0 SEATTLE, WASH. DIST ENGRS OFFC AT ARMY BASE COMP N88W
PEAK VALUES : ACCEL = -65.9 CM/SEC/SEC VELOCITY = 7.9 CM/SEC DISPL = 2.7 CM



WESTERN WASHINGTON EARTHQUAKE APR 13, 1949 - 1156 PST
IIB029 49.003.0 OLYMPIA, WASHINGTON HWY TEST LAB COMP DOWN
Ⓟ PEAK VALUES : ACCEL = 90.6 CM/SEC/SEC VELOCITY = 7.0 CM/SEC DISPL = 4.0 CM



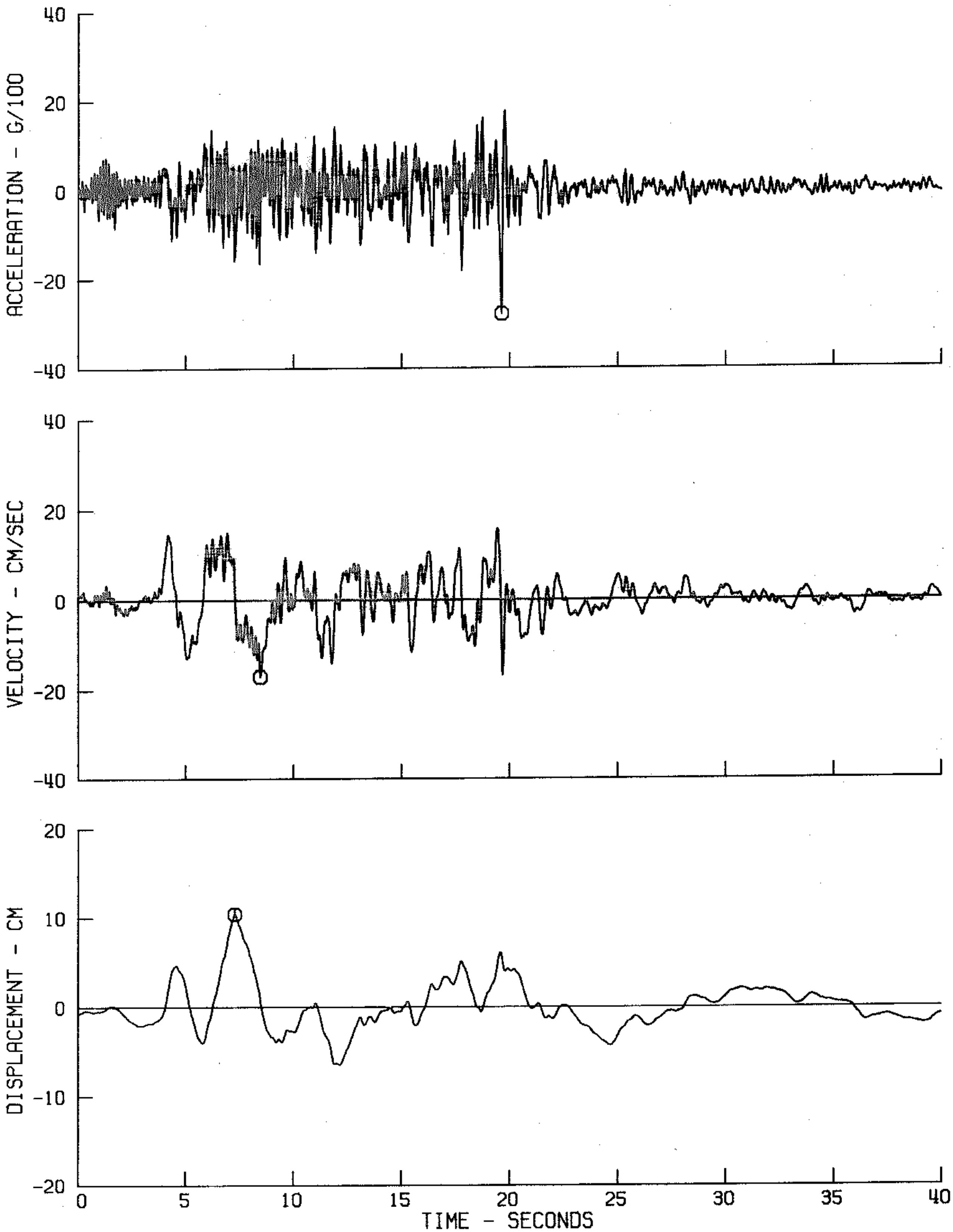


WESTERN WASHINGTON EARTHQUAKE APR 13, 1949 - 1156 PST
IIB029 49.003.0 OLYMPIA, WASHINGTON HWY TEST LAB COMP N04W
PEAK VALUES : ACCEL = 161.6 CM/SEC/SEC VELOCITY = 21.4 CM/SEC DISPL = -8.6 CM
ACCELERATION - G/100
VELOCITY - CM/SEC
DISPLACEMENT - CM
TIME - SECONDS
40
20
0
-20
-40
10
-10
5
15
25
30
35

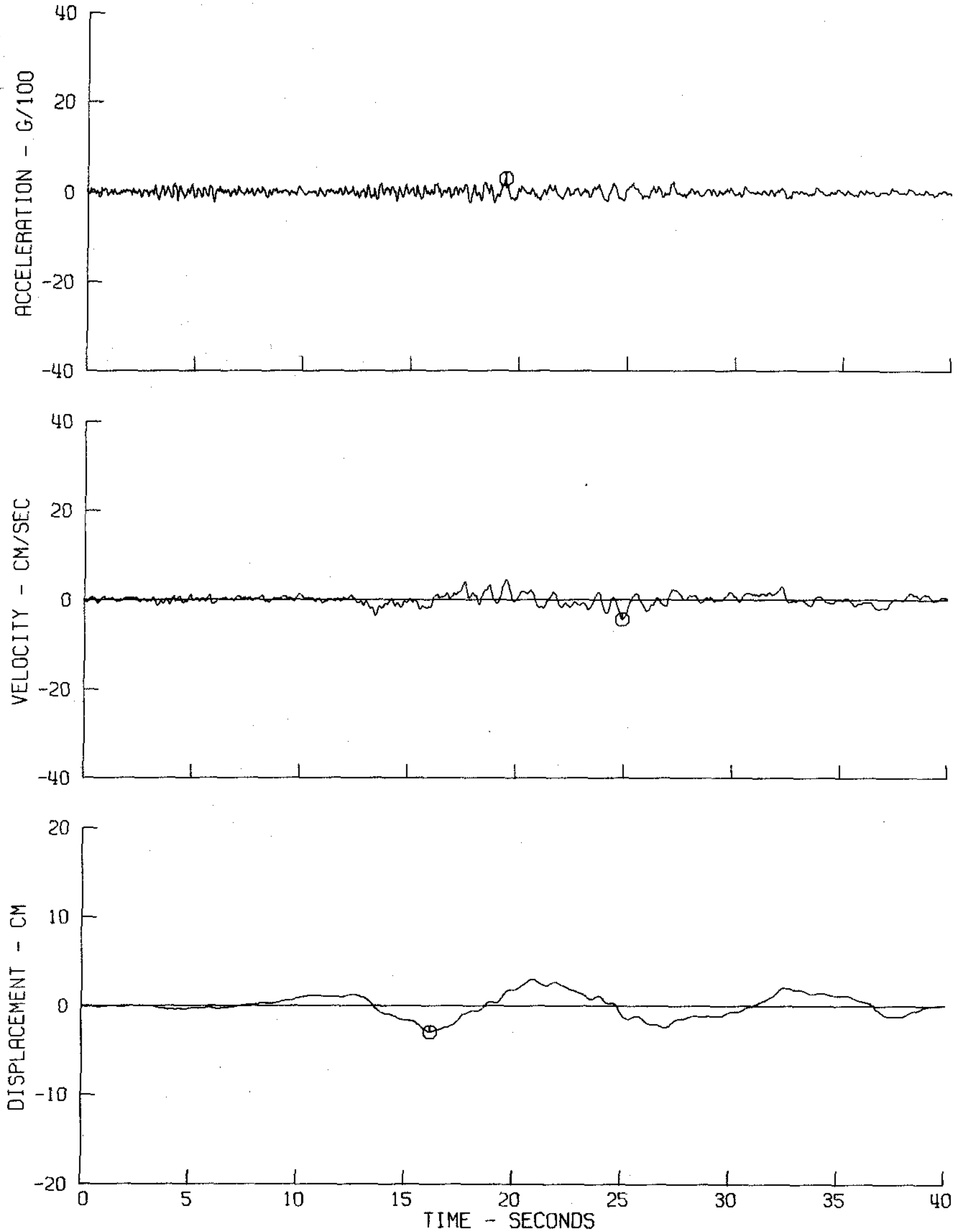
WESTERN WASHINGTON EARTHQUAKE APR 13, 1949 - 1156 PST

IIB029 49.003.0 OLYMPIA, WASHINGTON HWY TEST LAB COMP N86E

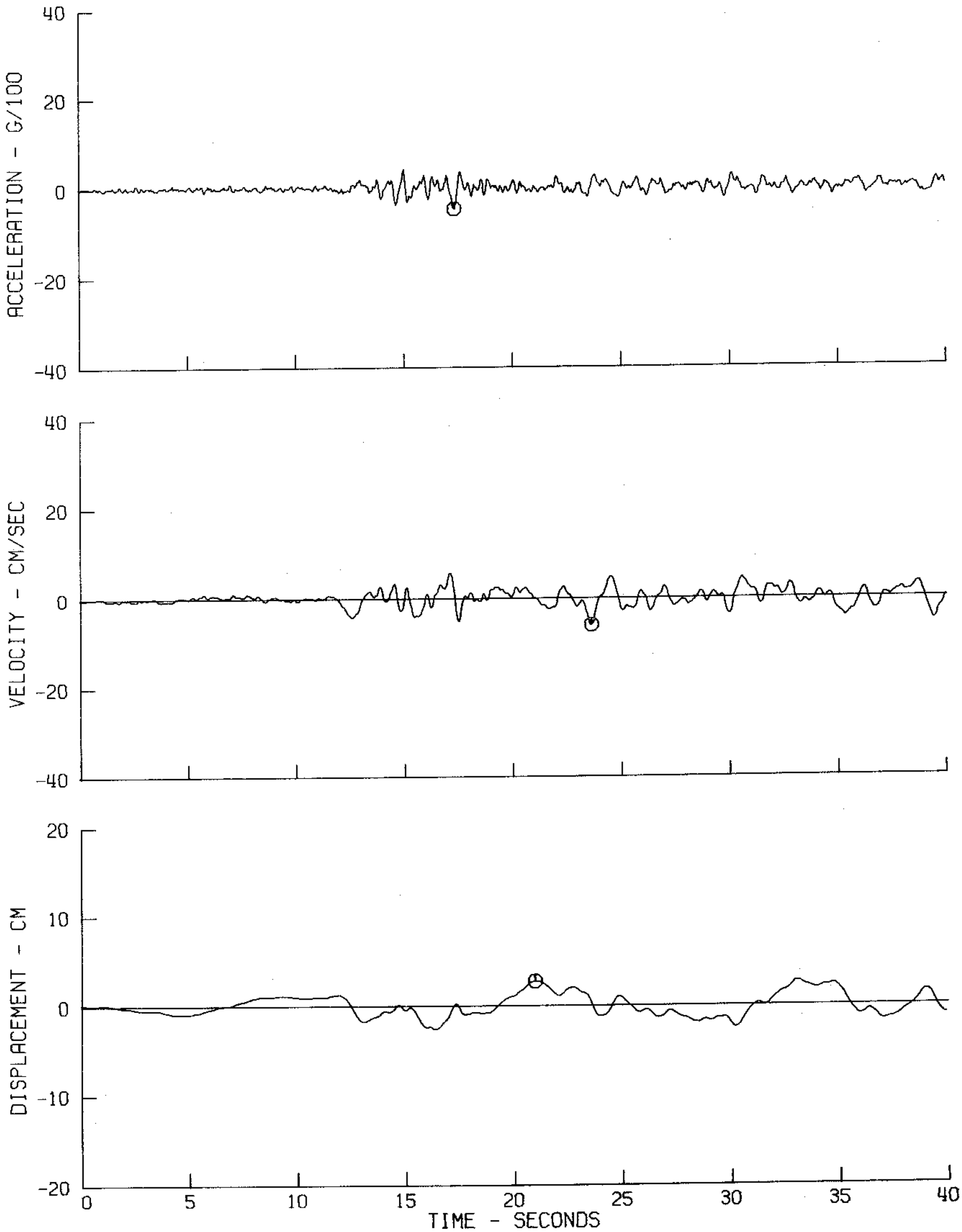
⊙ PEAK VALUES : ACCEL = -274.6 CM/SEC/SEC VELOCITY = -17.1 CM/SEC DISPL = 10.4 CM



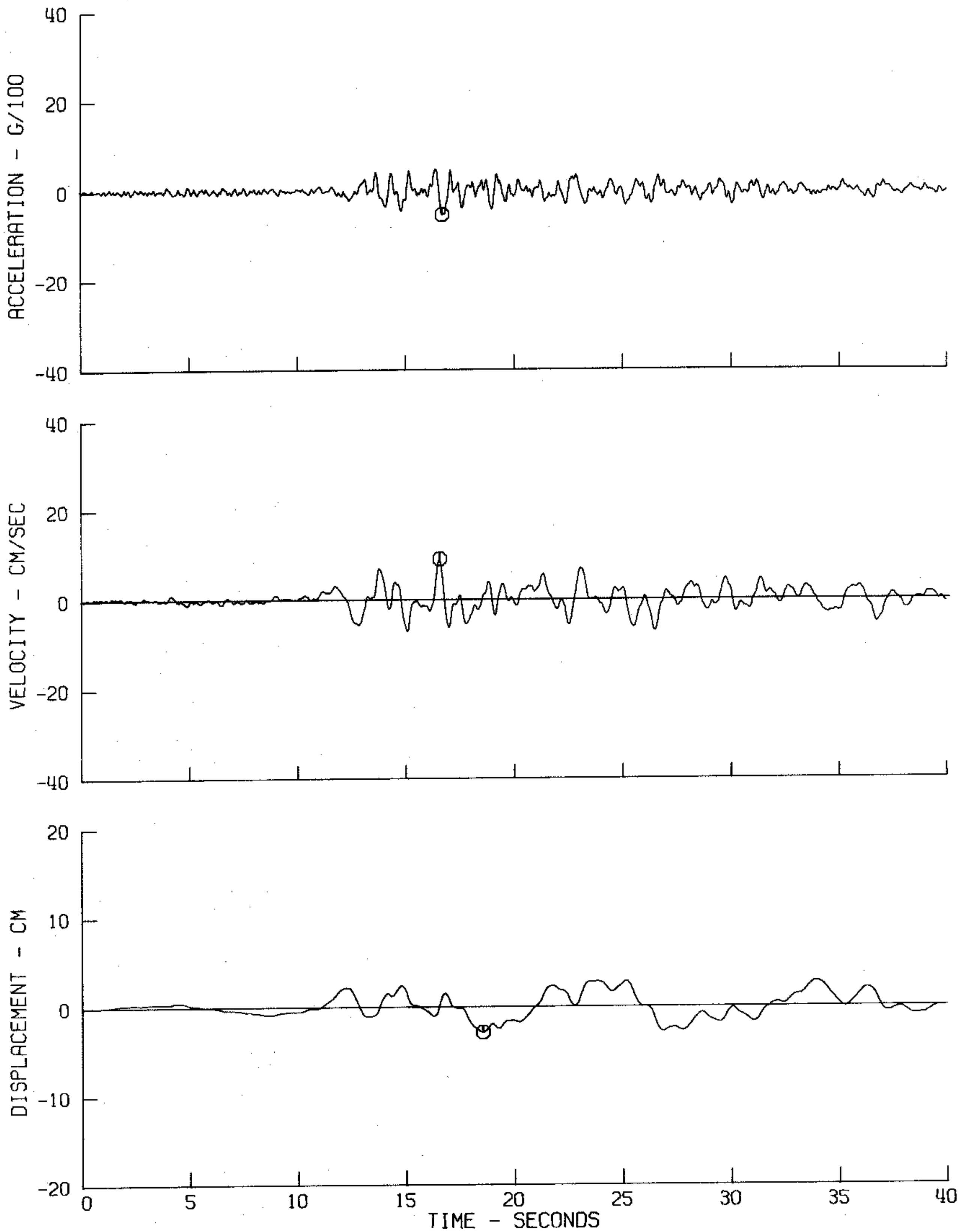
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
IIA003 52.001.0 PASADENA - CALTECH ATHENAEUM COMP VERT
① PEAK VALUES : ACCEL = 29.3 CM/SEC/SEC VELOCITY = -4.5 CM/SEC DISPL = -3.0 CM



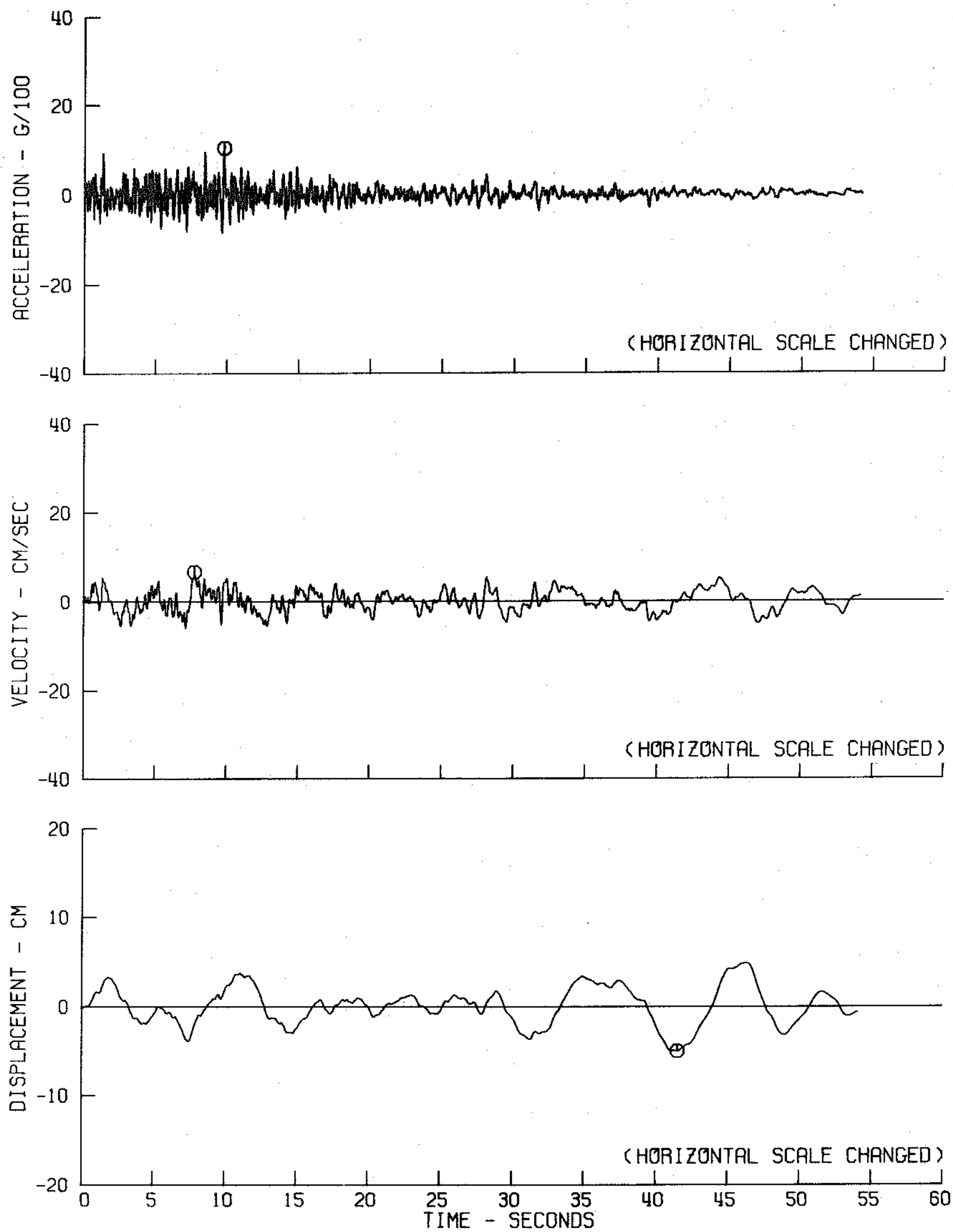
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
IIA003 52.001.0 PASADENA - CALTECH ATHENAEUM COMP S00E
⊙ PEAK VALUES : ACCEL = -46.5 CM/SEC/SEC VELOCITY = -6.2 CM/SEC DISPL = 2.7 CM



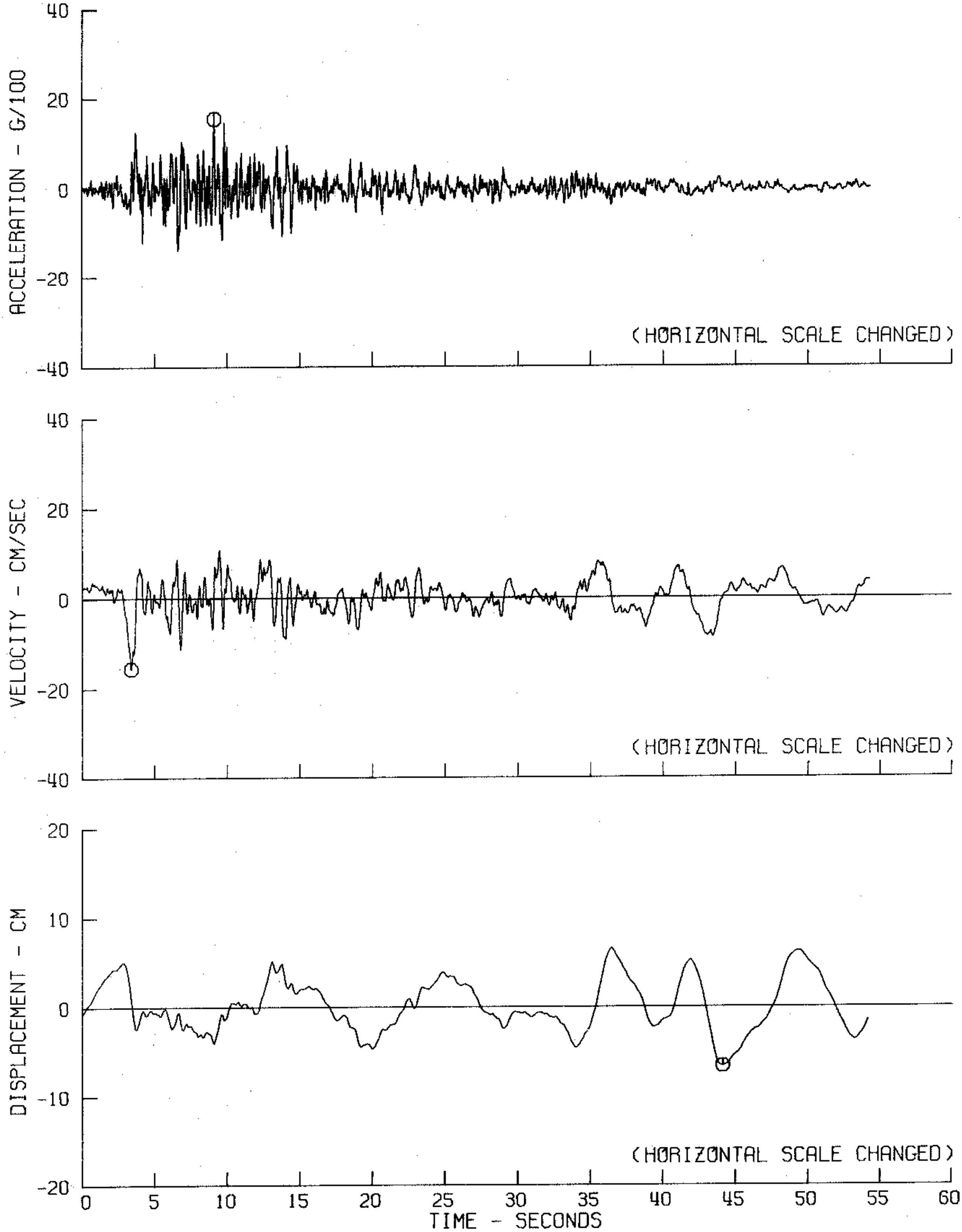
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
IIA003 52.001.0 PASADENA - CALTECH ATHENAEUM COMP S90W
⦶ PEAK VALUES : ACCEL = -52.1 CM/SEC/SEC VELOCITY = 9.1 CM/SEC DISPL = -2.9 CM



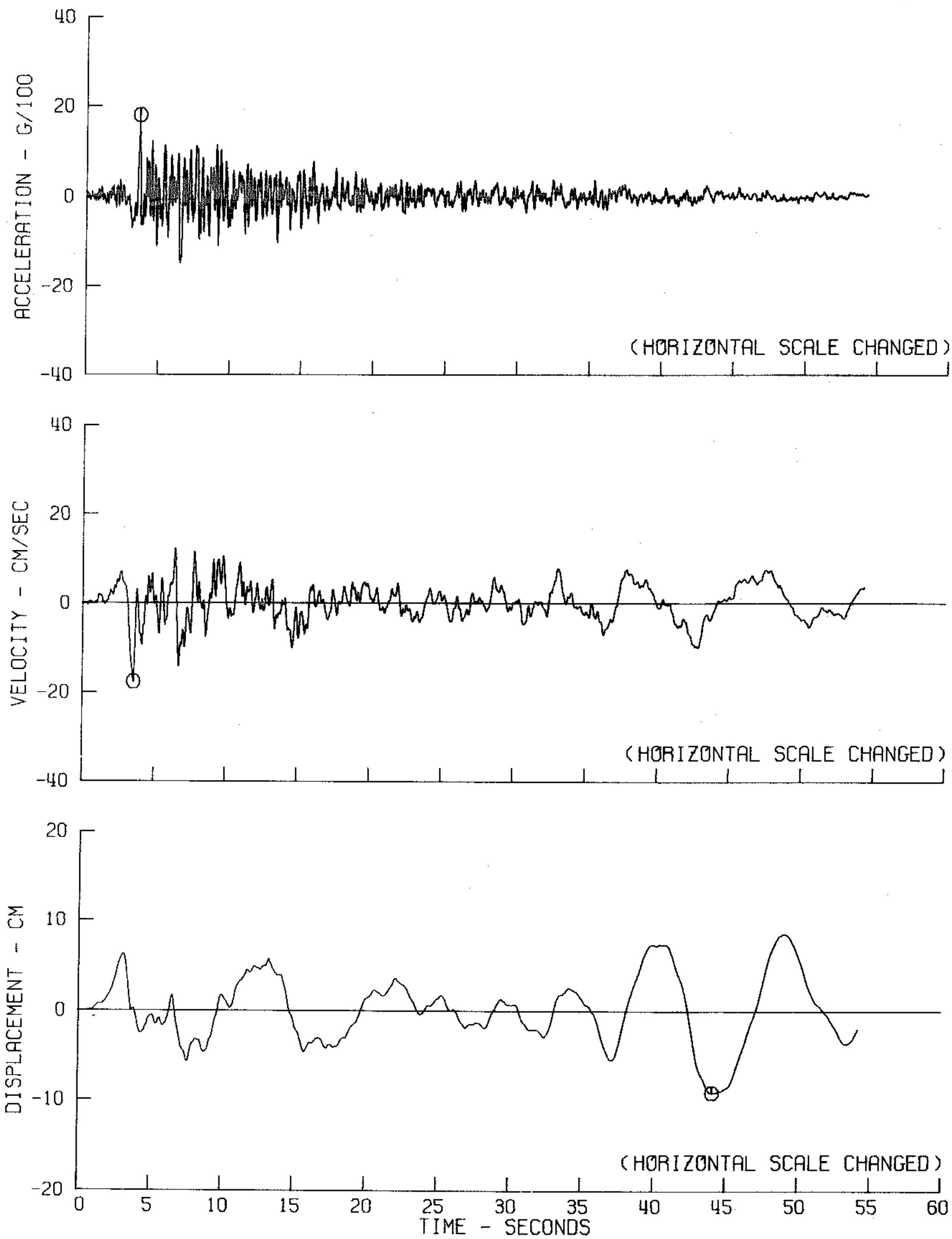
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
IIA004 52.002.0 TAFT LINCOLN SCHOOL TUNNEL COMP VERT
⊕ PEAK VALUES : ACCEL = 102.9 CM/SEC/SEC VELOCITY = 6.7 CM/SEC DISPL = -5.0 CM



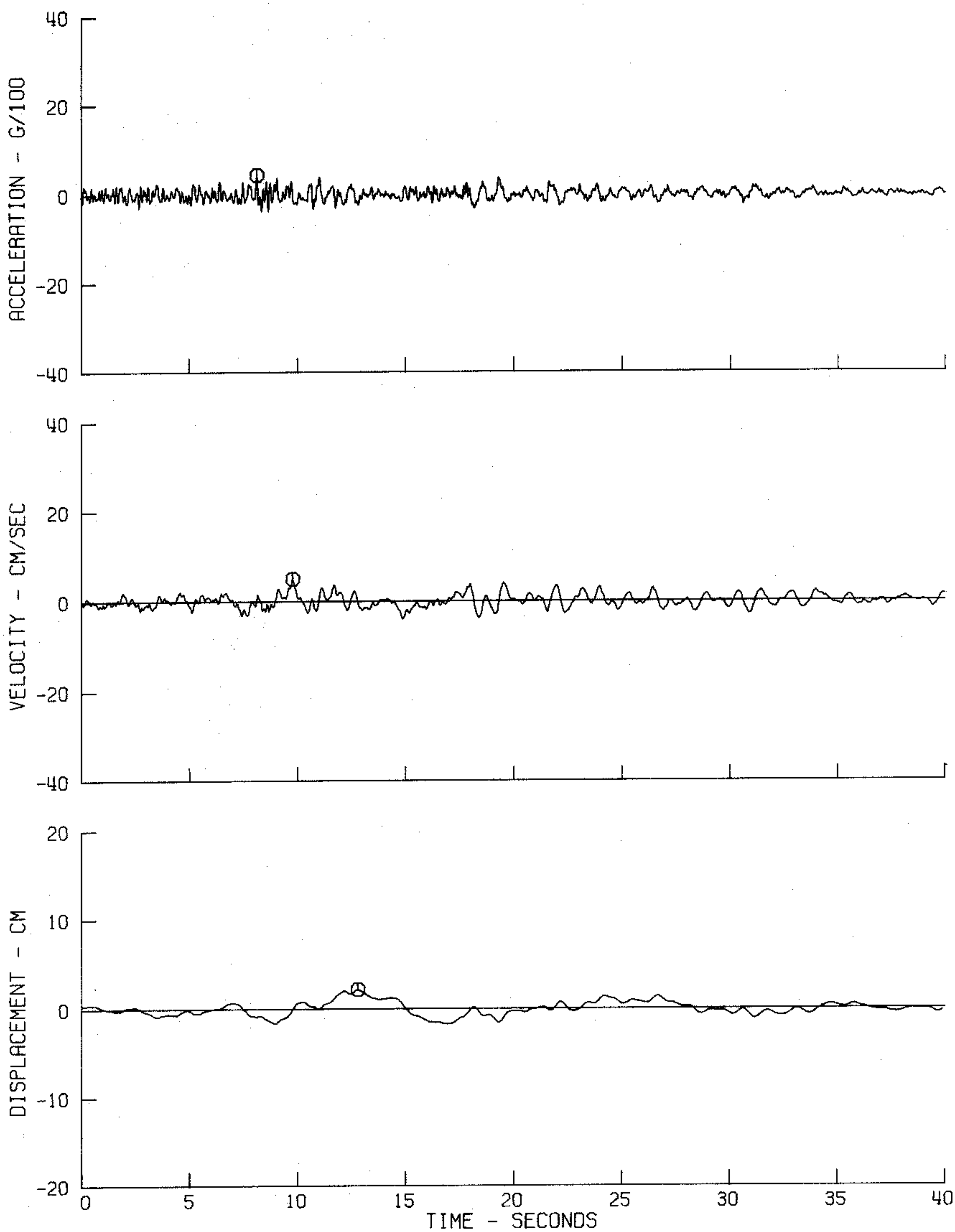
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
IIA004 52.002.0 TAFT LINCOLN SCHOOL TUNNEL COMP N21E
⊕ PEAK VALUES : ACCEL = 152.7 CM/SEC/SEC VELOCITY = -15.7 CM/SEC DISPL = -6.7 CM



KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
IIA004 52.002.0 TAFT LINCOLN SCHOOL TUNNEL COMP S69E
⊕ PEAK VALUES : ACCEL = 175.9 CM/SEC/SEC VELOCITY = -17.7 CM/SEC DISPL = -9.2 CM



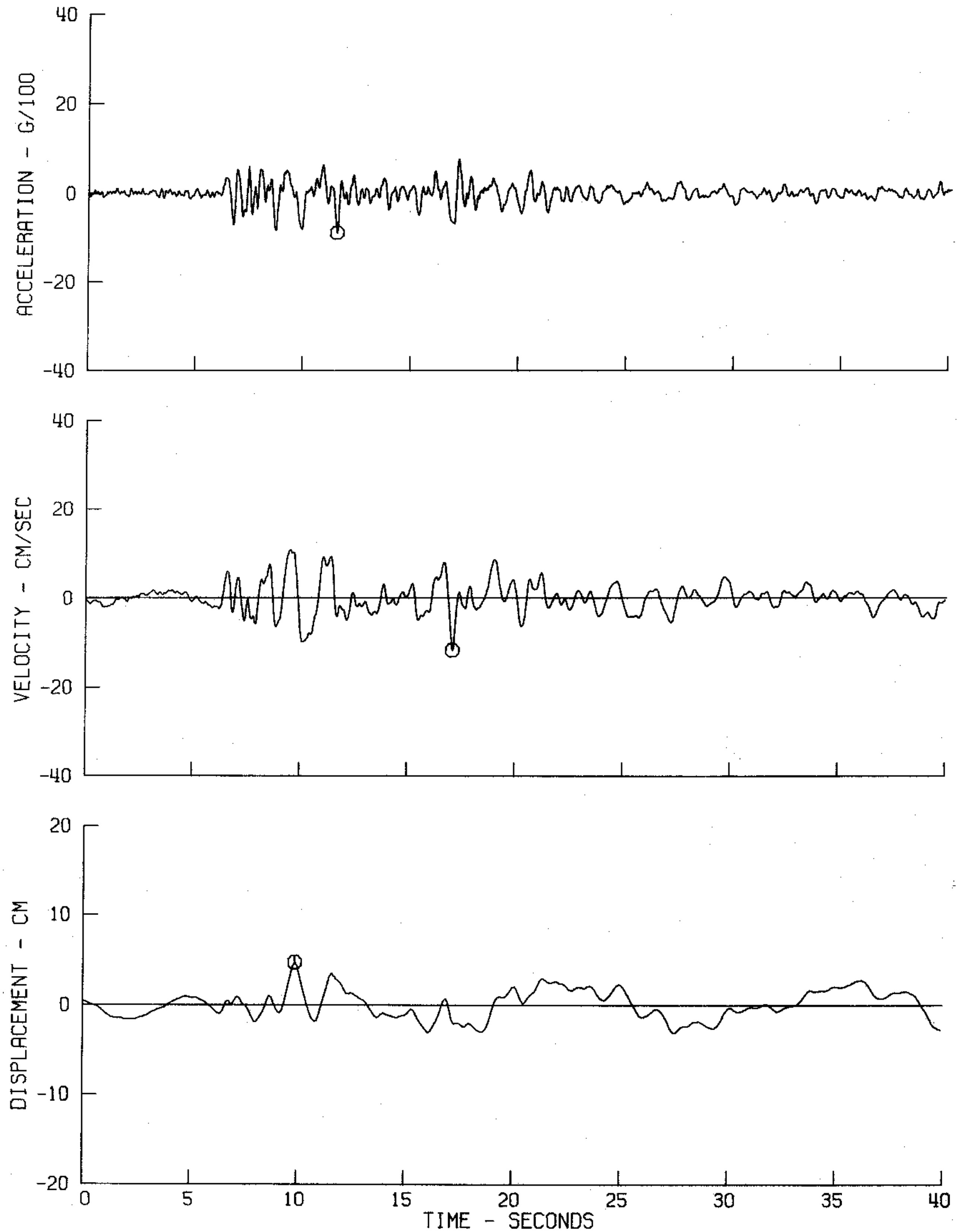
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
IIA005 52.003.0 SANTA BARBARA COURT HOUSE COMP VERT
PEAK VALUES : ACCEL = 43.6 CM/SEC/SEC VELOCITY = 5.0 CM/SEC DISPL = 2.2 CM



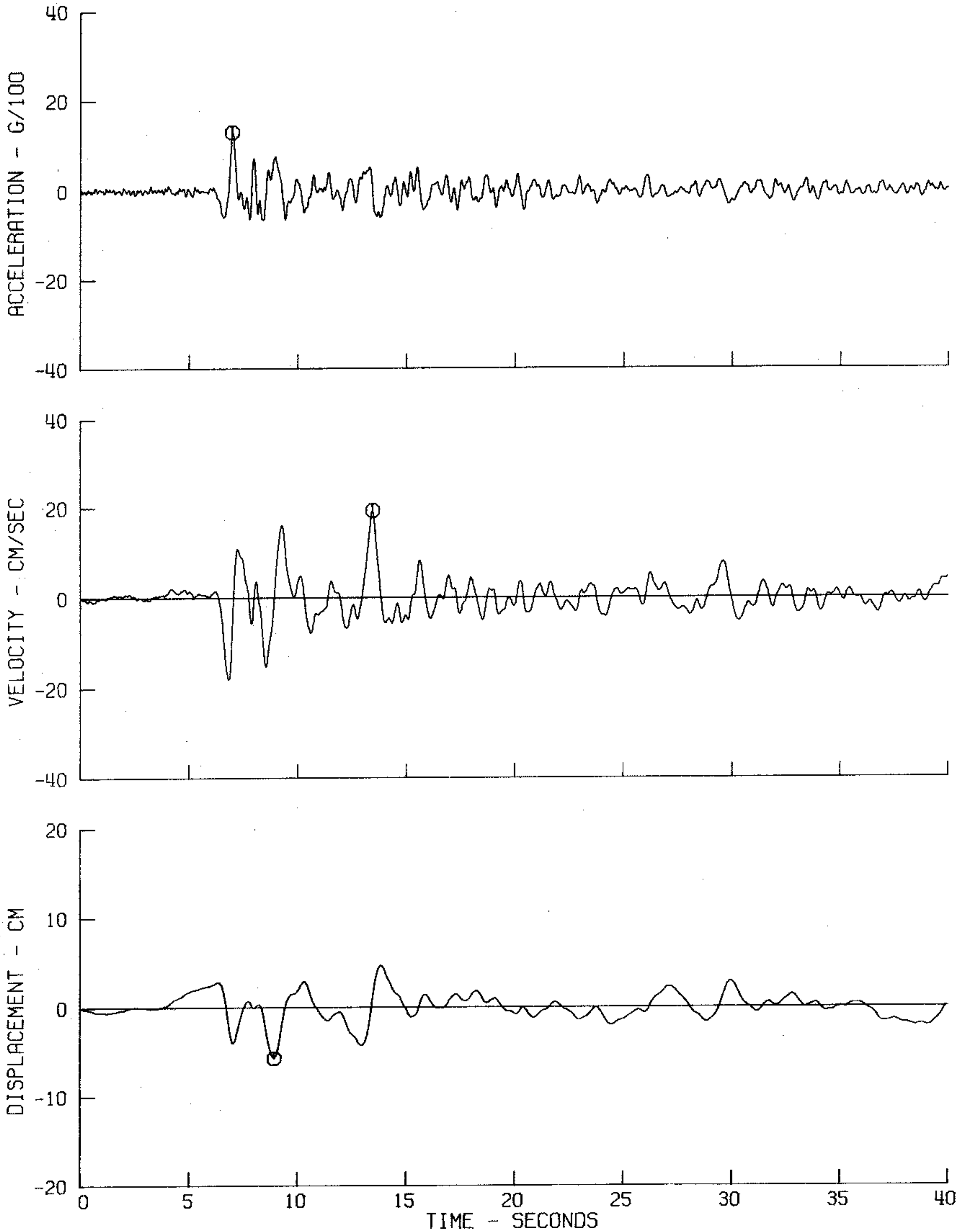
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT

IIA005 52.003.0 SANTA BARBARA COURTHOUSE COMP N42E

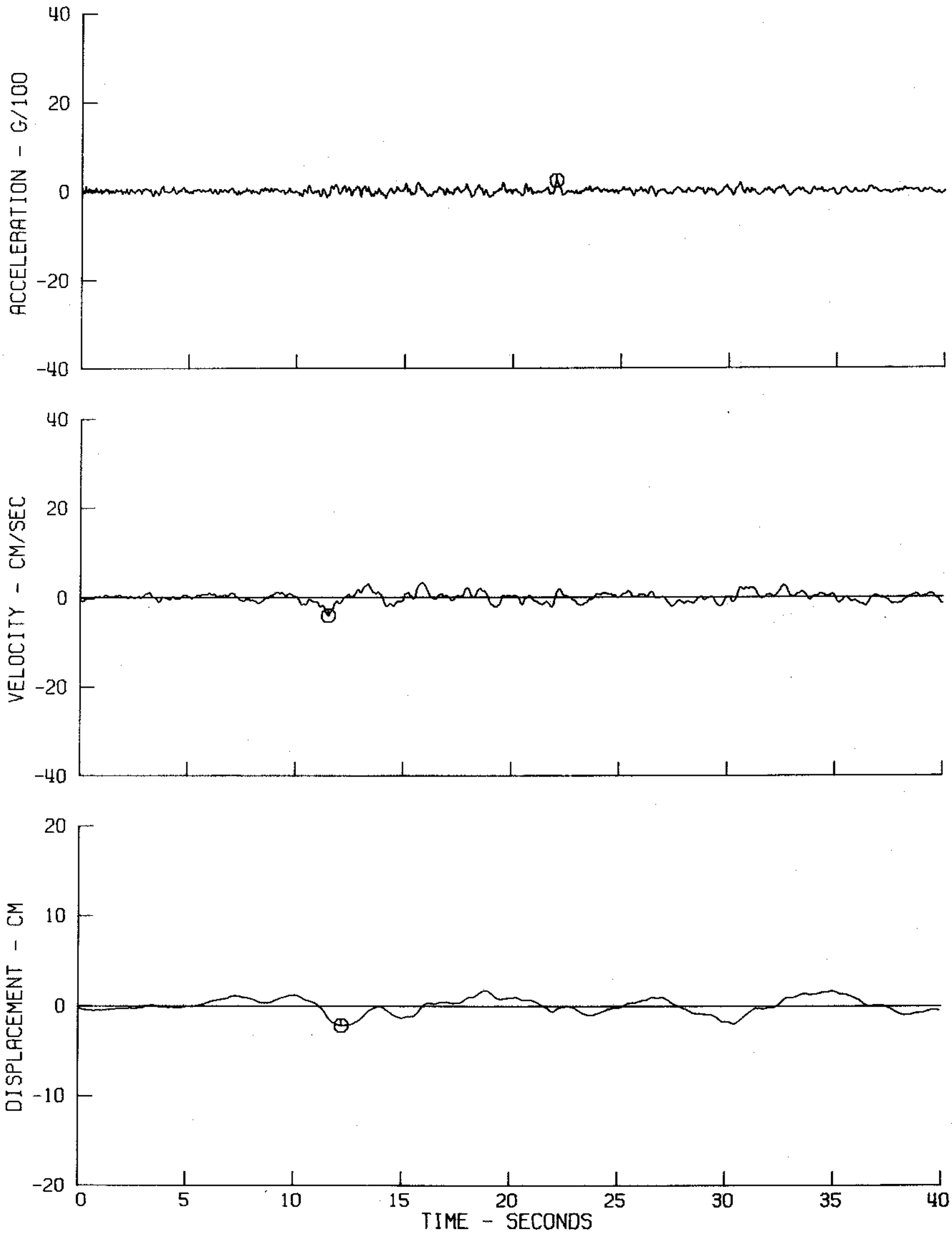
PEAK VALUES : ACCEL = -87.8 CM/SEC/SEC VELOCITY = -11.8 CM/SEC DISPL = 4.6 CM



KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
IIA005 52.003.0 SANTA BARBARA COURTHOUSE COMP S48E
PEAK VALUES : ACCEL = 128.6 CM/SEC/SEC VELOCITY = 19.3 CM/SEC DISPL = -5.8 CM



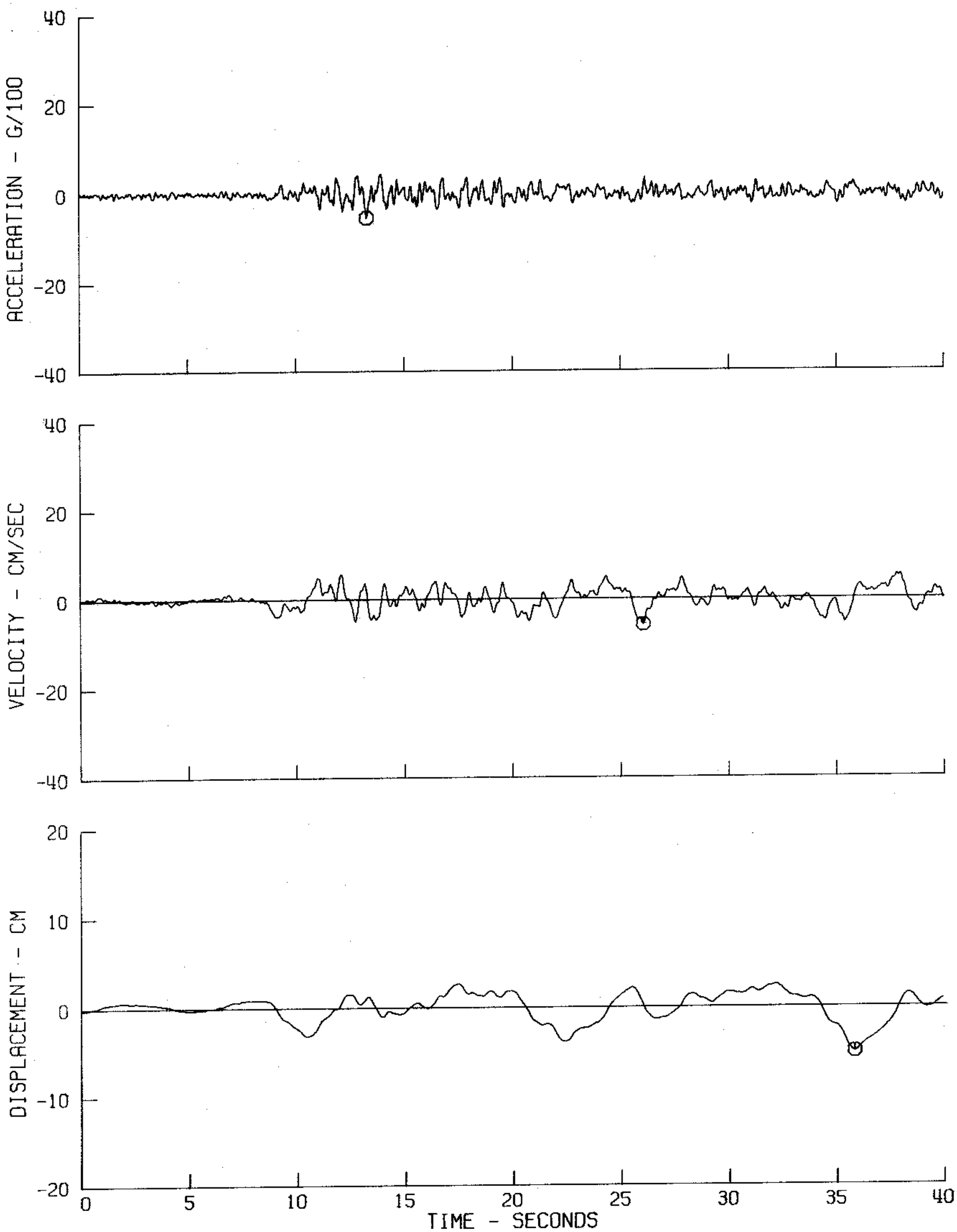
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
IIA006 52.005.0 HOLLYWOOD STORAGE BASEMENT COMP VERT
⊕ PEAK VALUES : ACCEL = 22.5 CM/SEC/SEC VELOCITY = -4.2 CM/SEC DISPL = -2.2 CM



KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT

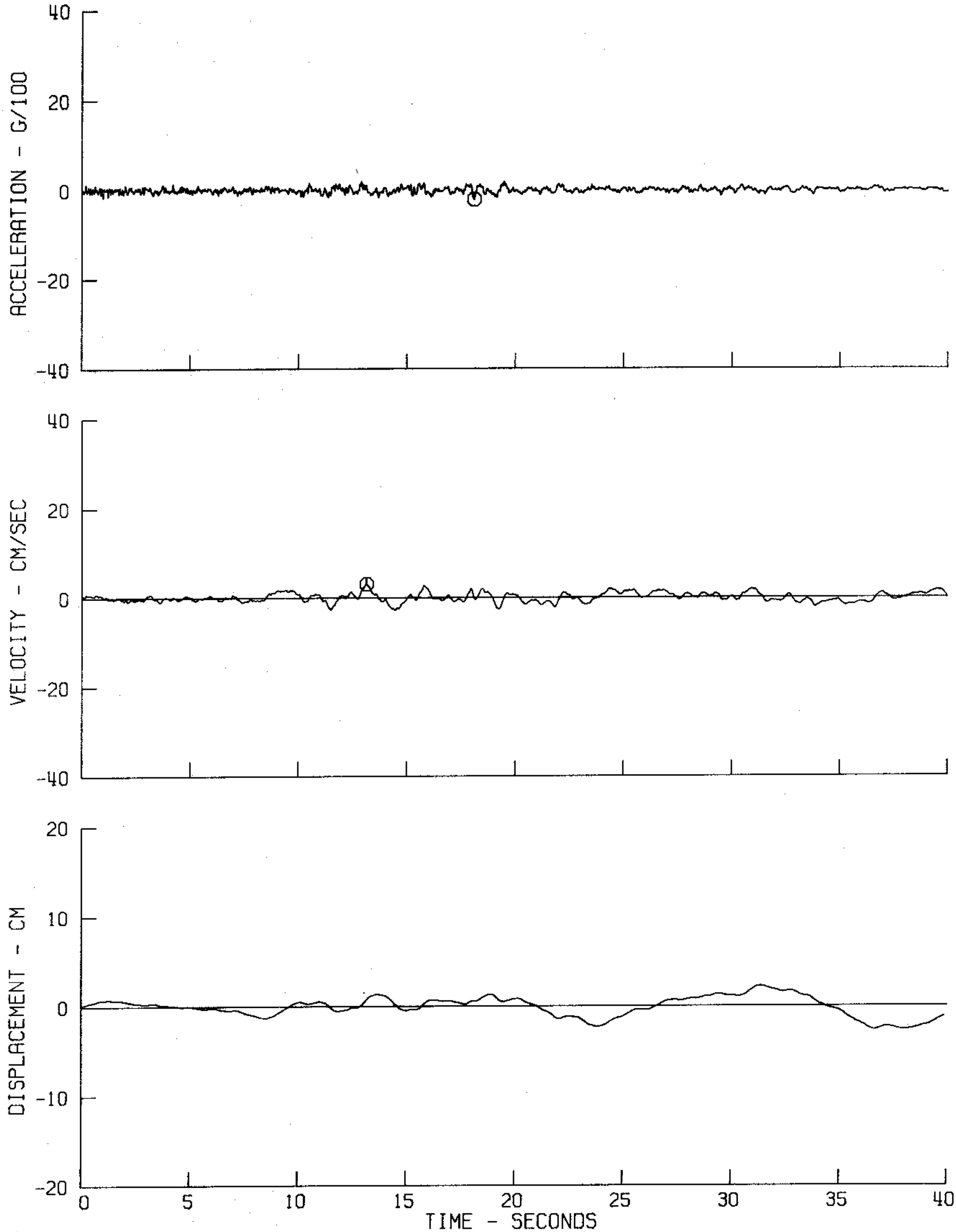
IIA006 52.005.0 HOLLYWOOD STORAGE BASEMENT COMP S00W

PEAK VALUES : ACCEL = -54.1 CM/SEC/SEC VELOCITY = -6.1 CM/SEC DISPL = -5.1 CM

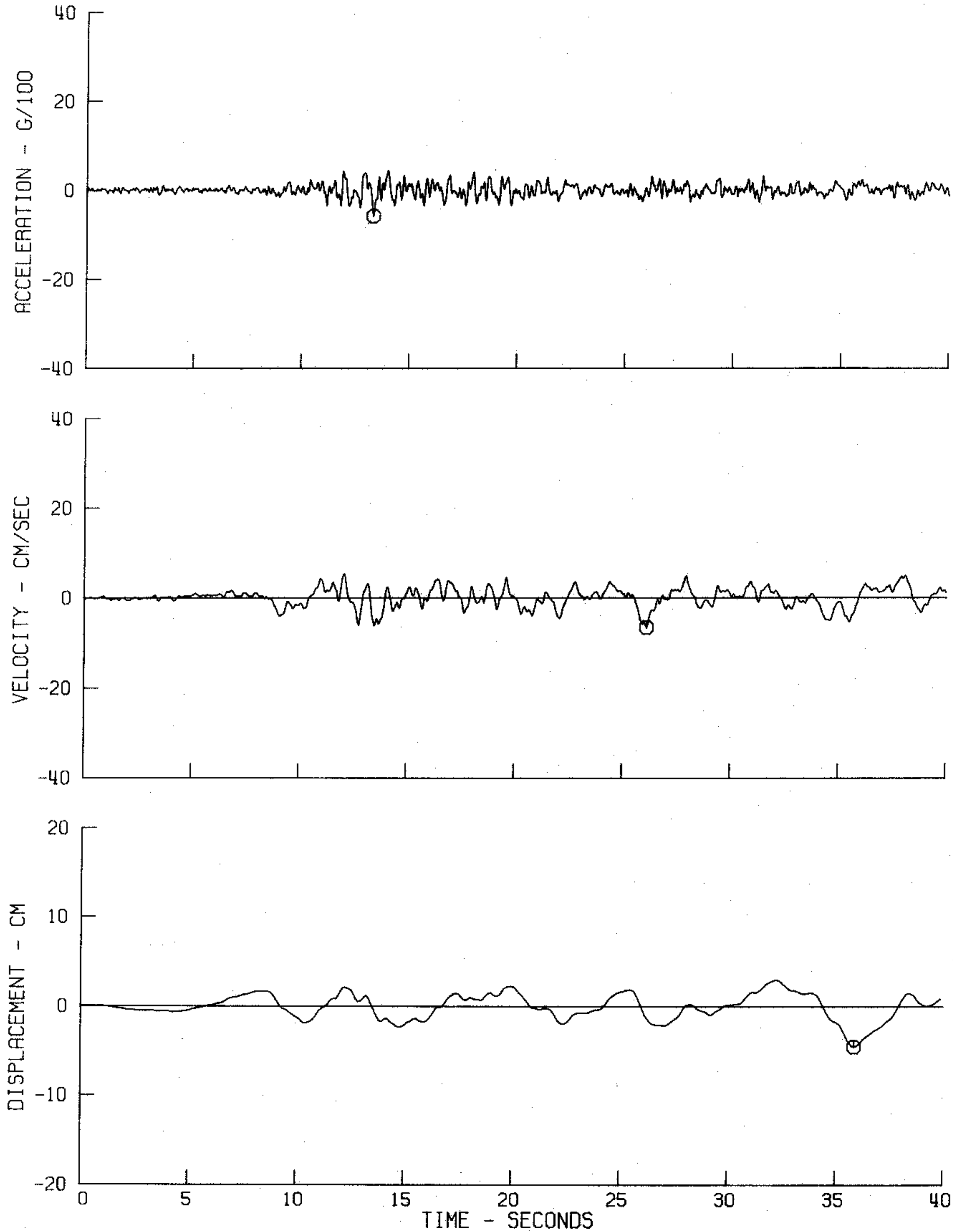


(Blank)

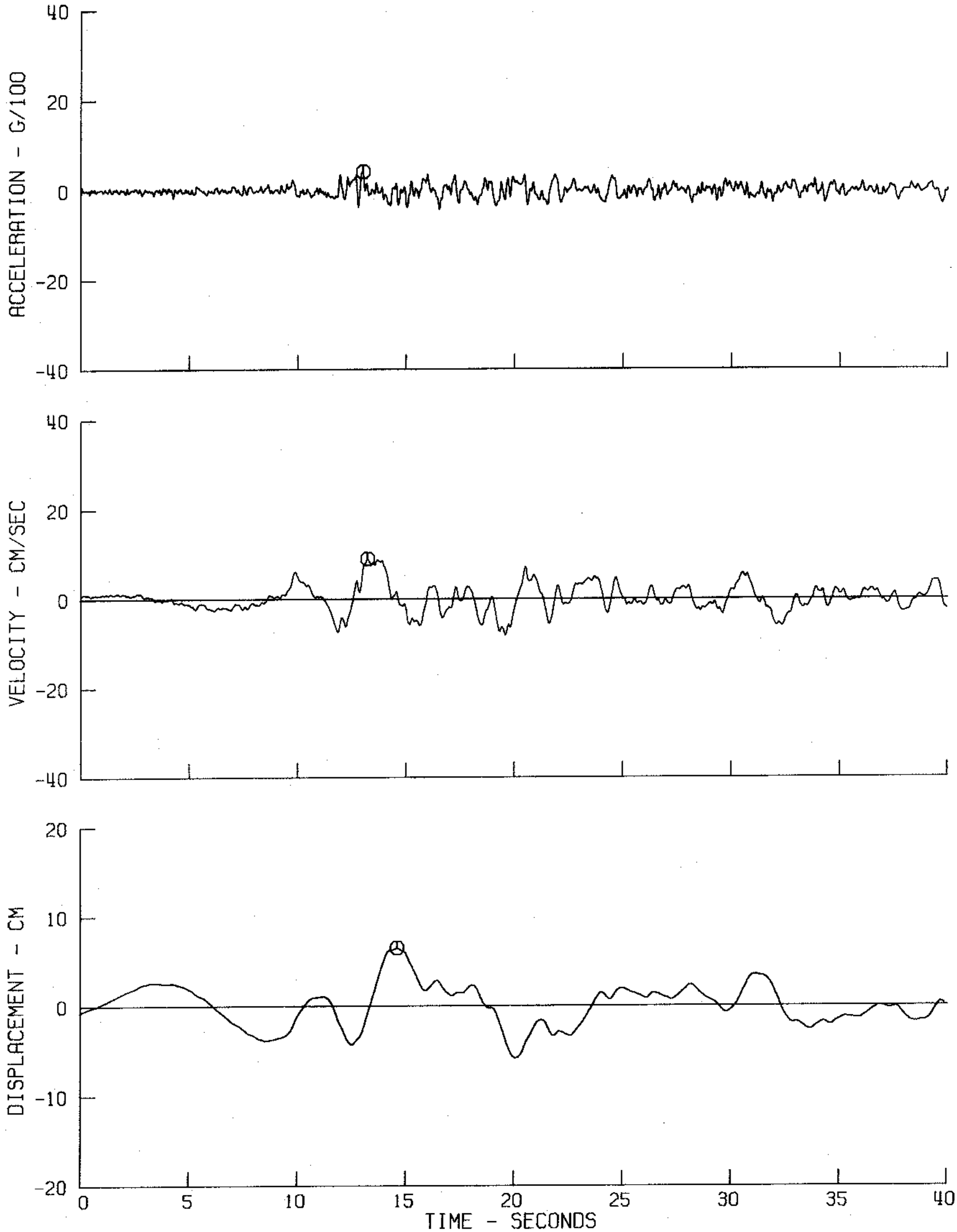
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
IIA007 52.006.0 HOLLYWOOD STORAGE P.E. LOT COMP VERT
⊙ PEAK VALUES : ACCEL = -20.3 CM/SEC/SEC VELOCITY = 3.0 CM/SEC DISPL = -3.4 CM



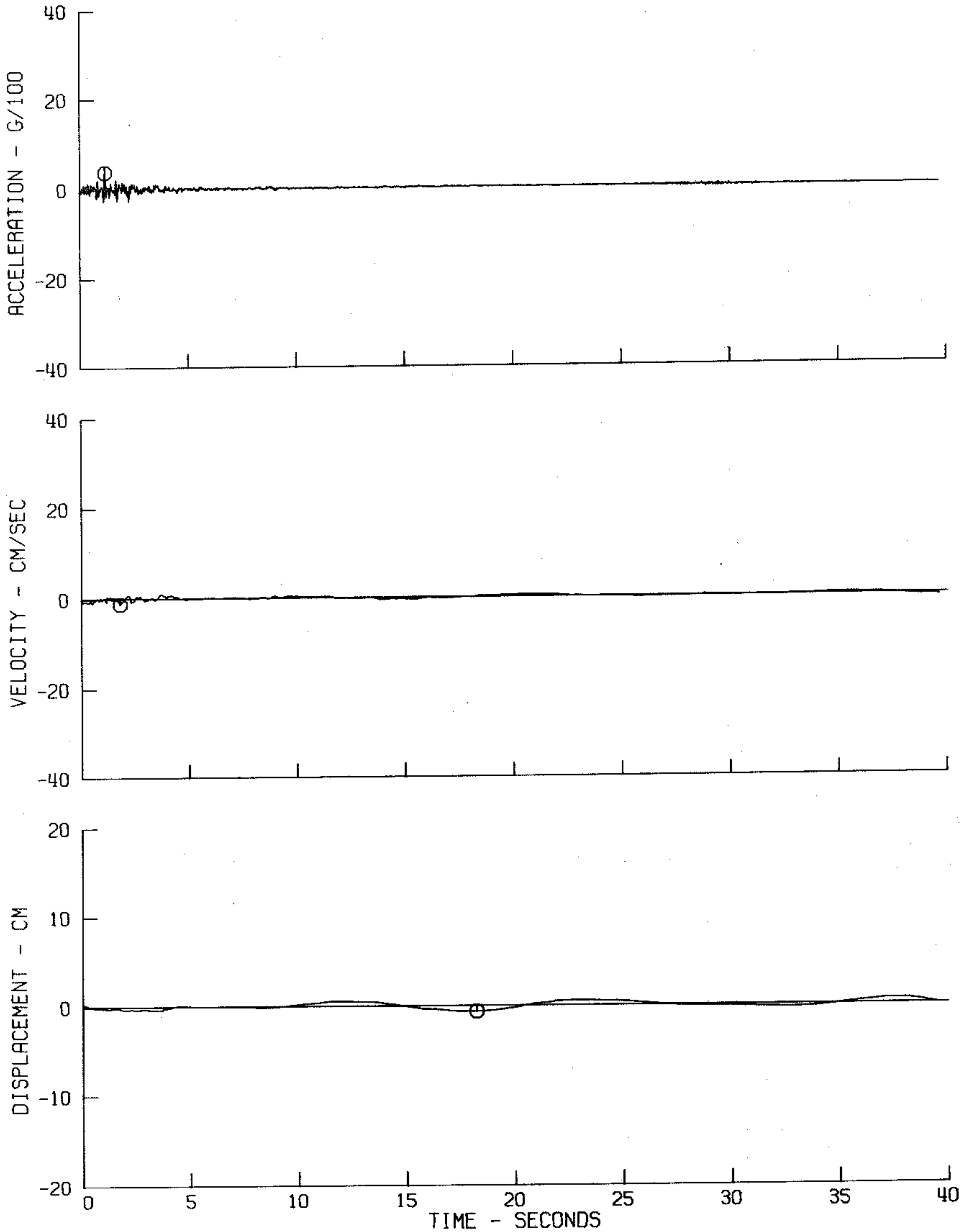
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
IIA007 52.006.0 HOLLYWOOD STORAGE P.E. LOT COMP S00W
PEAK VALUES : ACCEL = -58.1 CM/SEC/SEC VELOCITY = -6.6 CM/SEC DISPL = -4.5 CM



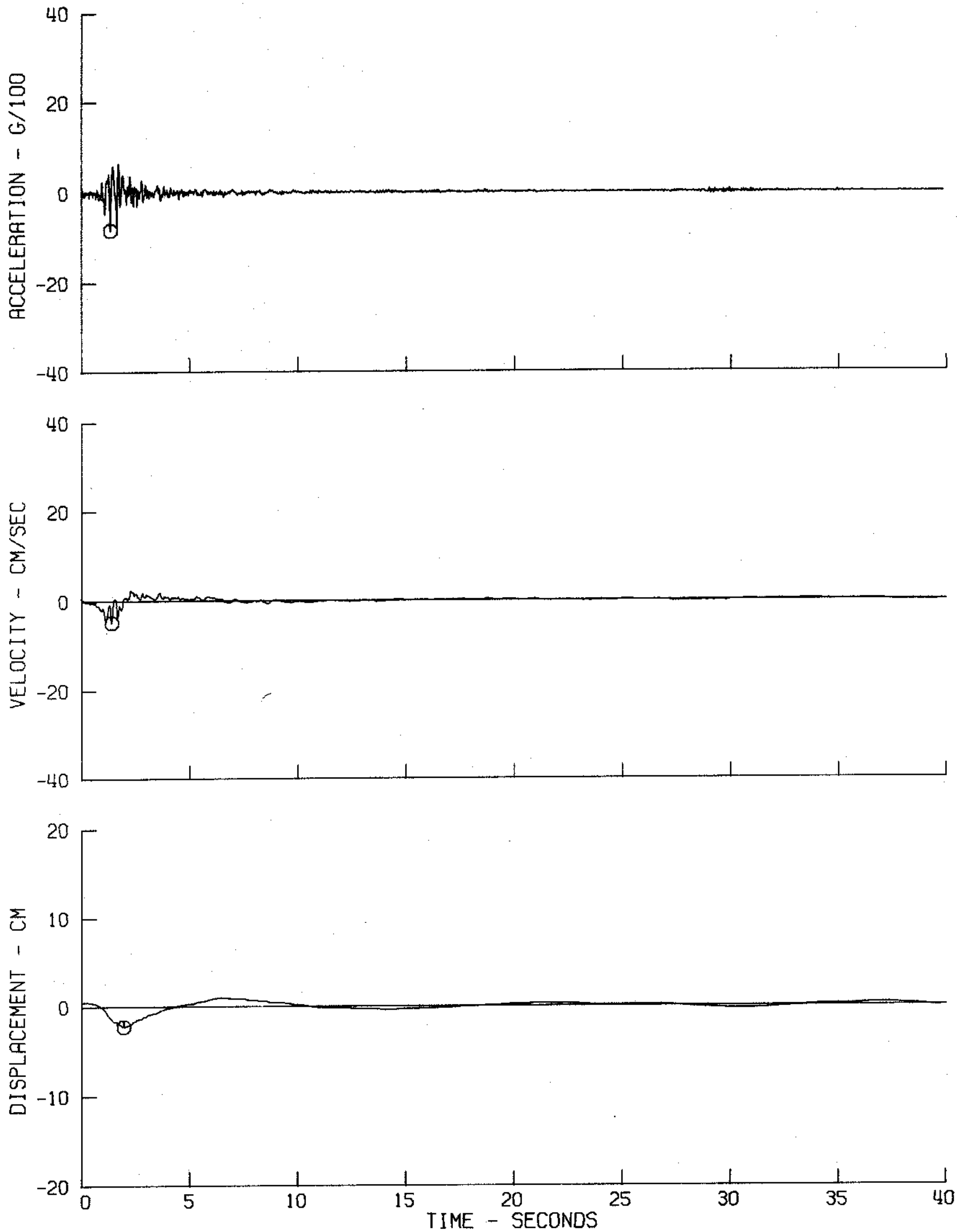
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
IIA007 52.006.0 HOLLYWOOD STORAGE P.E. LOT COMP N90E
⊕ PEAK VALUES : ACCEL = 41.2 CM/SEC/SEC VELOCITY = 8.9 CM/SEC DISPL = 6.4 CM



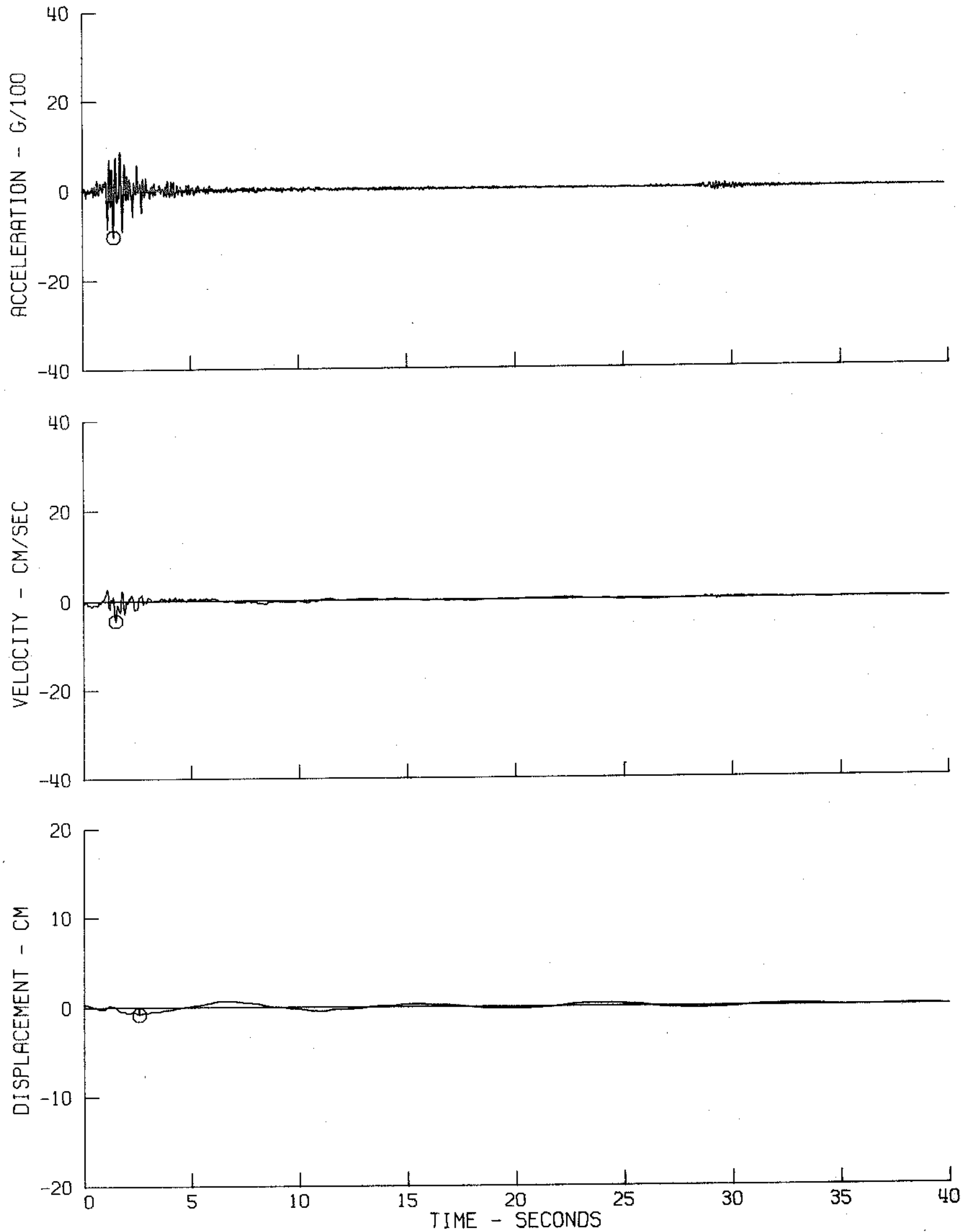
SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST
IIA015 57.006.0 SAN FRANCISCO GOLDEN GATE PARK COMP VERT
⦶ PEAK VALUES : ACCEL = 37.2 CM/SEC/SEC VELOCITY = -1.2 CM/SEC DISPL = -0.7 CM



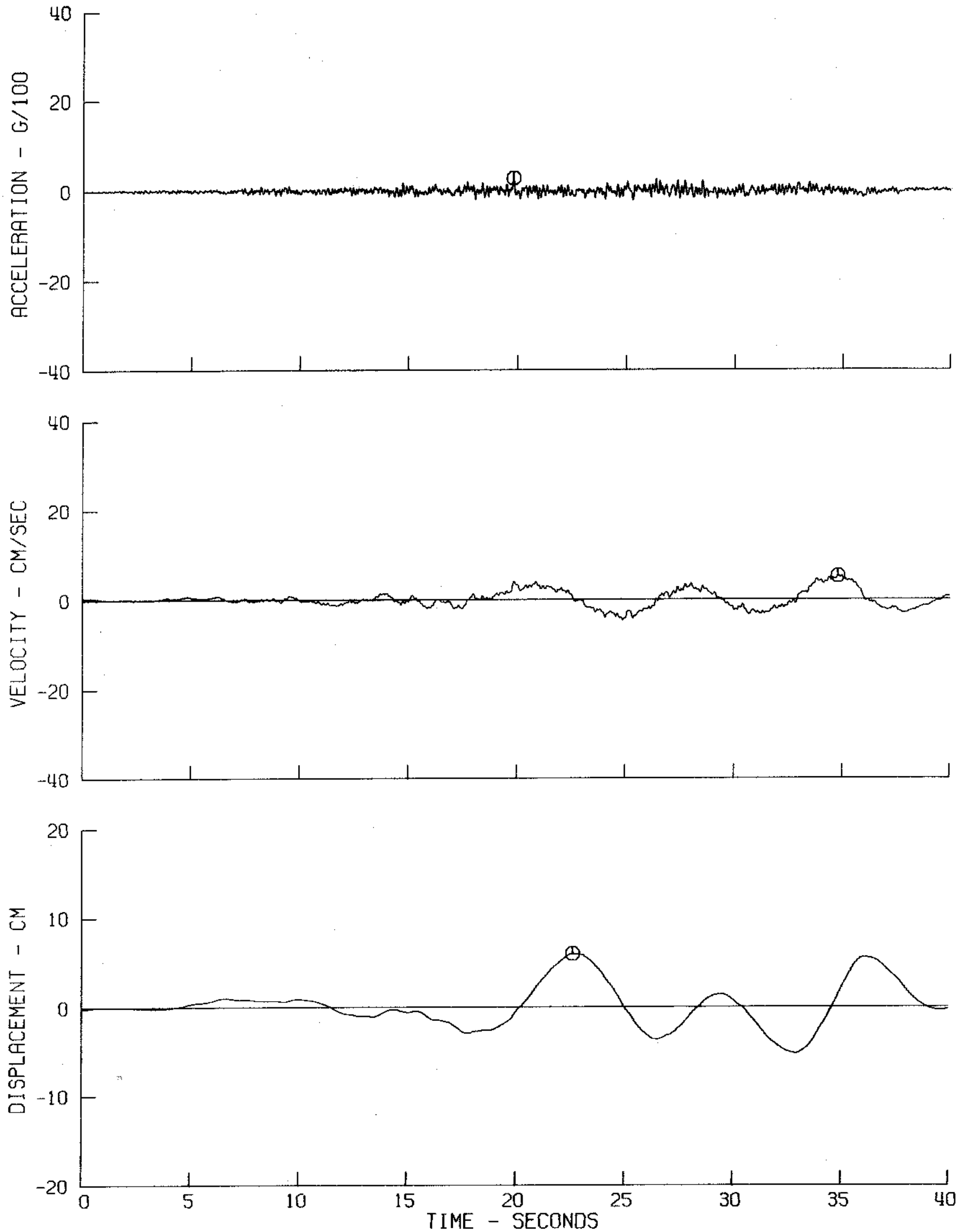
SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST
IIA015 57.006.0 SAN FRANCISCO GOLDEN GATE PARK COMP N10E
① PEAK VALUES : ACCEL = -81.8 CM/SEC/SEC VELOCITY = -4.9 CM/SEC DISPL = -2.3 CM



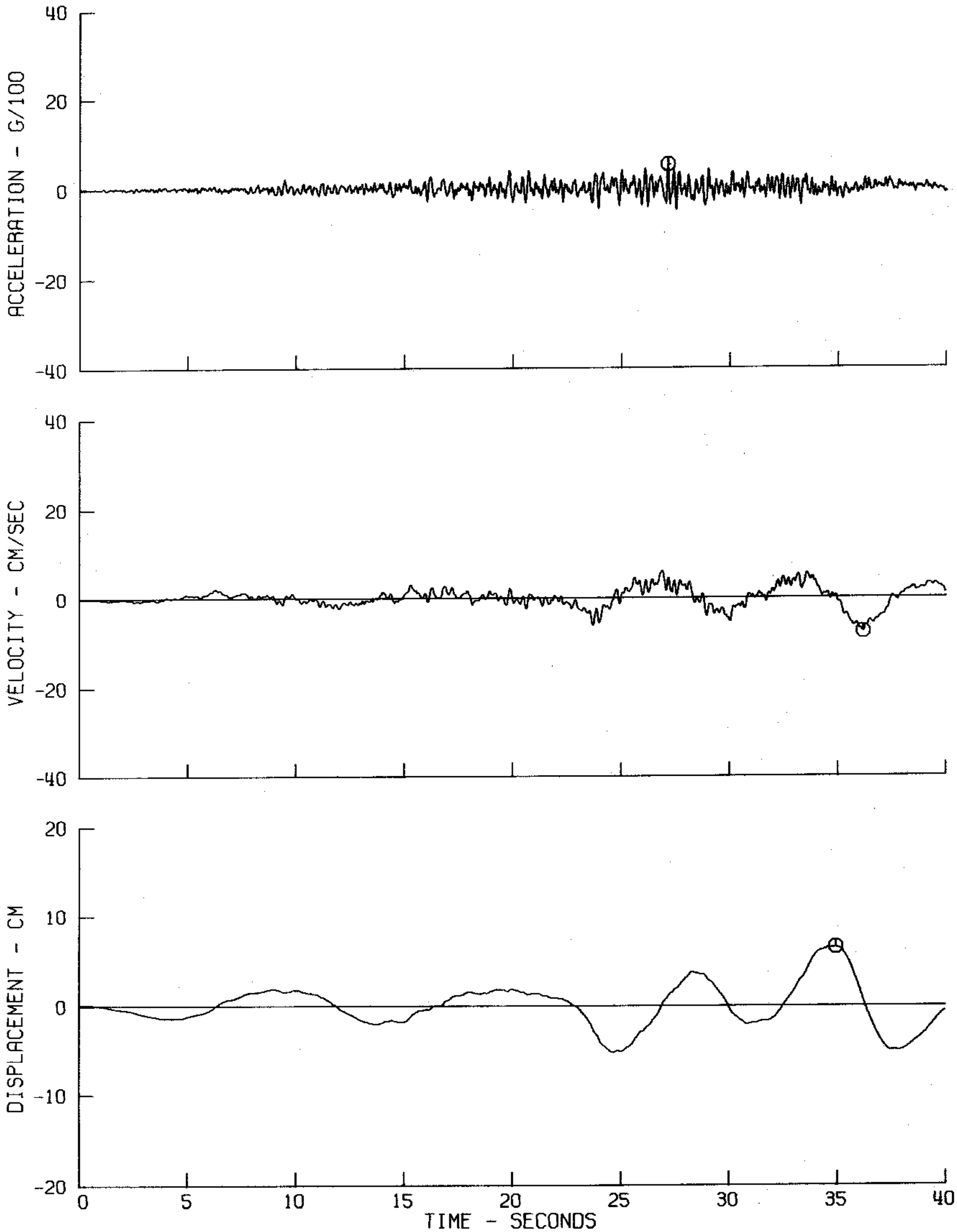
SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST
IIA015 57.006.0 SAN FRANCISCO GOLDEN GATE PARK COMP S80E
PEAK VALUES : ACCEL = -102.8 CM/SEC/SEC VELOCITY = -4.6 CM/SEC DISPL = -0.8 CM



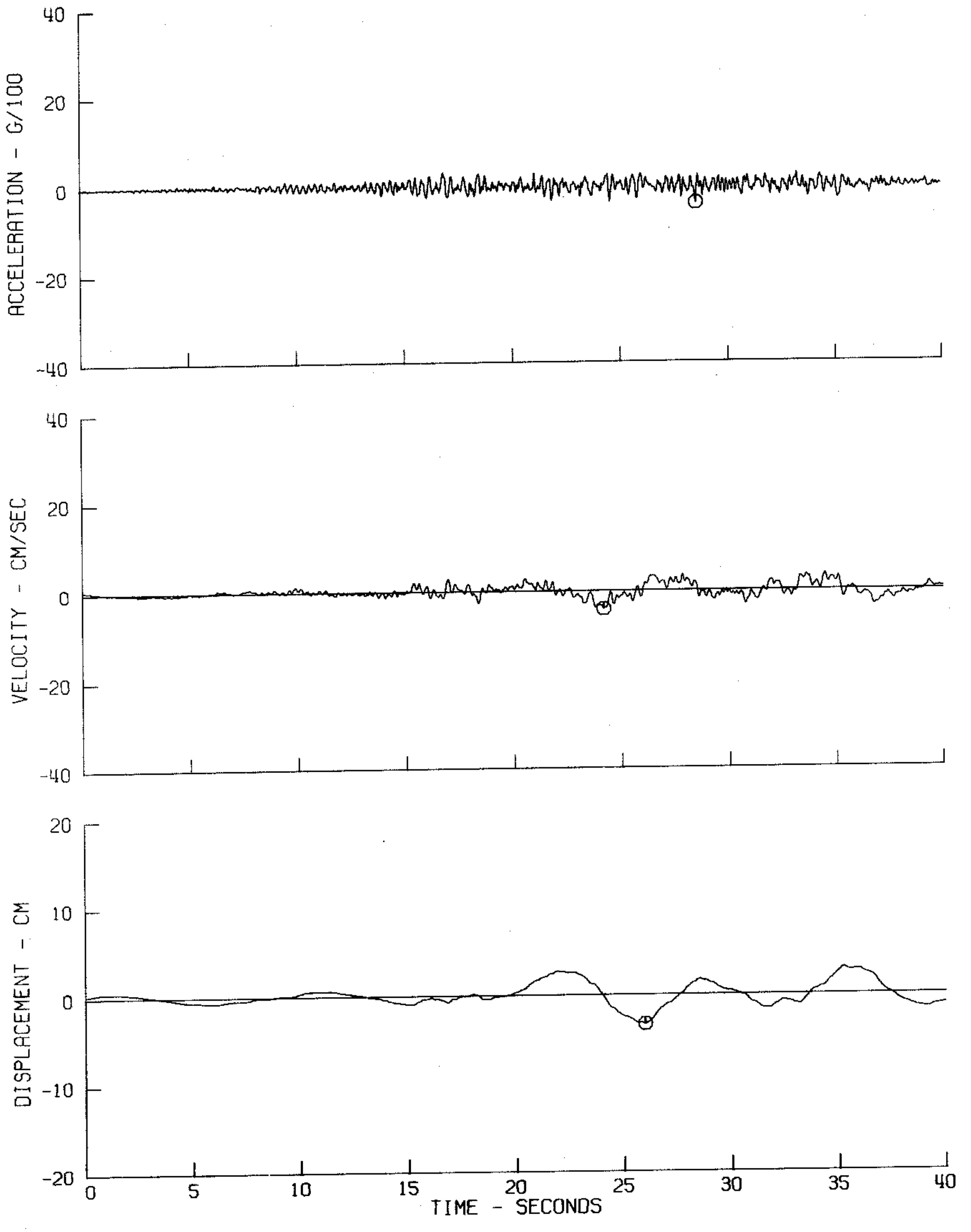
ENG BLDG,STATE COLL. ,MONTANA,E/Q OF AUG 17 1959-0639 MST
I 000 ENG. BLDG., STATE COLLEGE COM.VERT.
PEAK VALUES : ACCEL = 28.4 CM/SEC/SEC VELOCITY = 5.2 CM/SEC DISPL = 5.9 CM



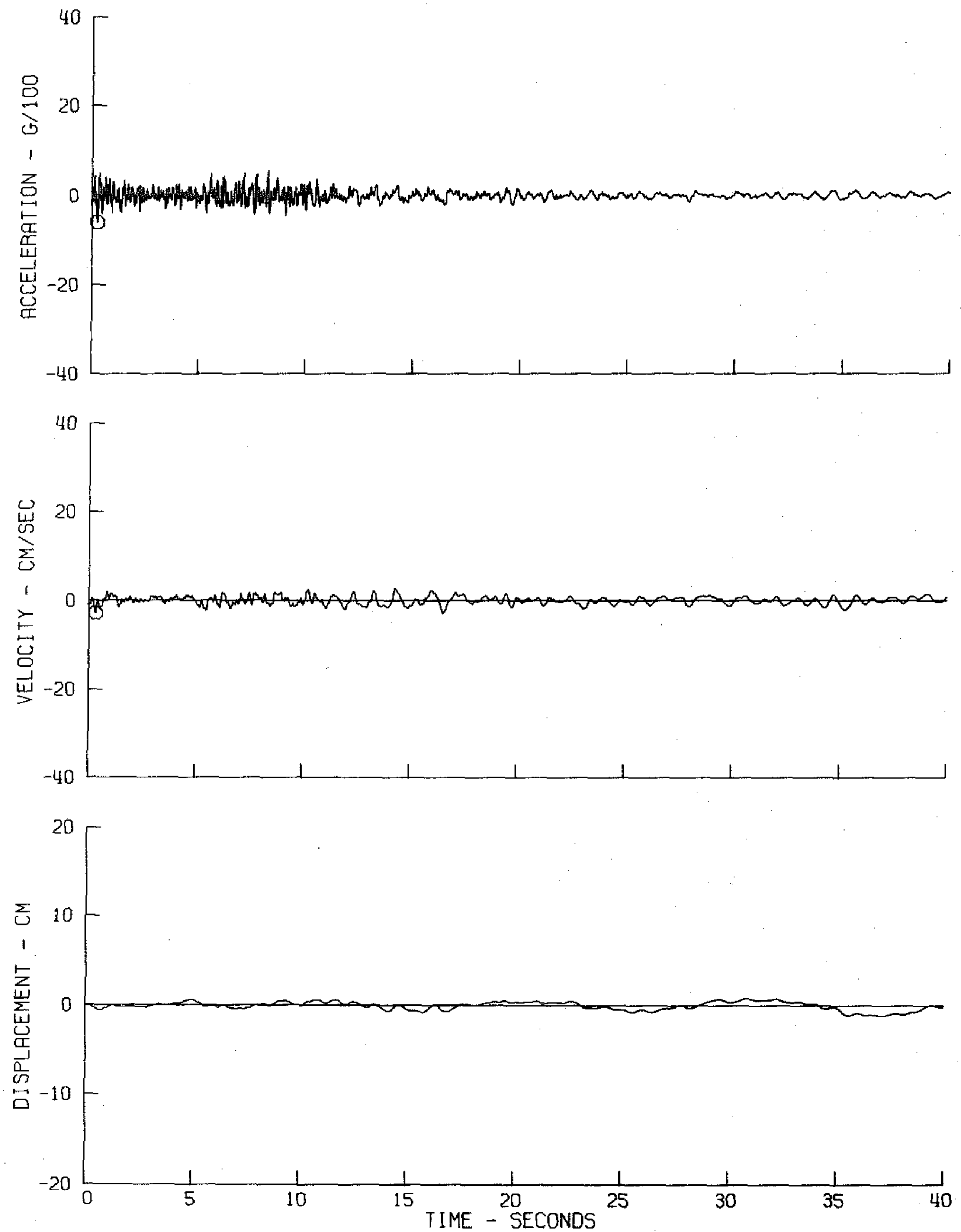
ENG BLDG,STATE COLL. ,MONTANA,E/Q OF AUG 17 1959-0639 MST
I 000 ENG. BLDG., STATE COLLEGE COM.NORTH
PEAK VALUES : ACCEL = 52.7 CM/SEC/SEC VELOCITY = -7.7 CM/SEC DISPL = 6.5 CM

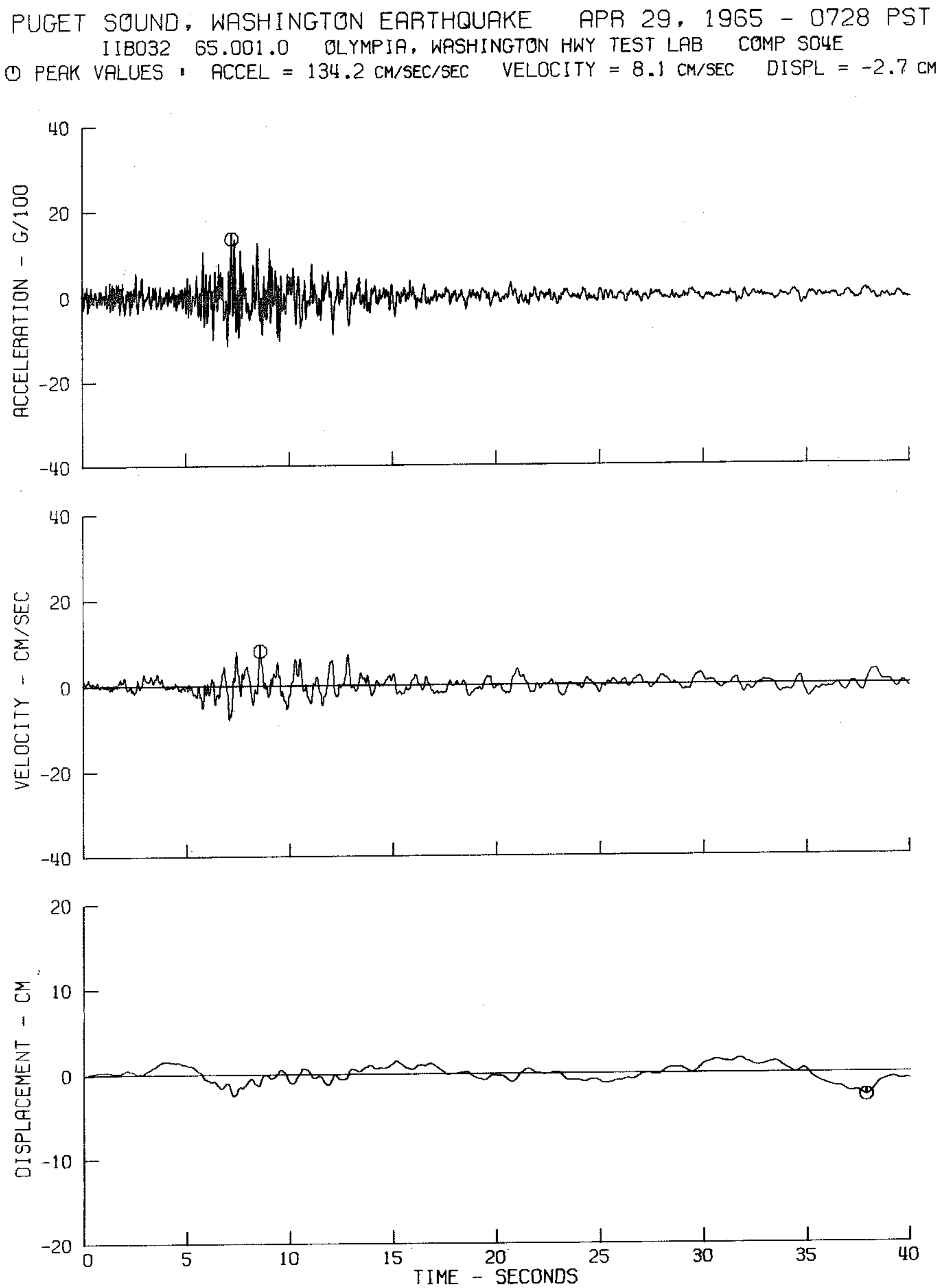


ENG BLDG,STATE COLL. ,MONTANA,E/Q OF AUG 17 1959-0639 MST
I 000 ENG. BLDG., STATE COLLEGE COM.EAST
① PEAK VALUES : ACCEL = -39.1 CM/SEC/SEC VELOCITY = -4.2 CM/SEC DISPL = -3.4 CM

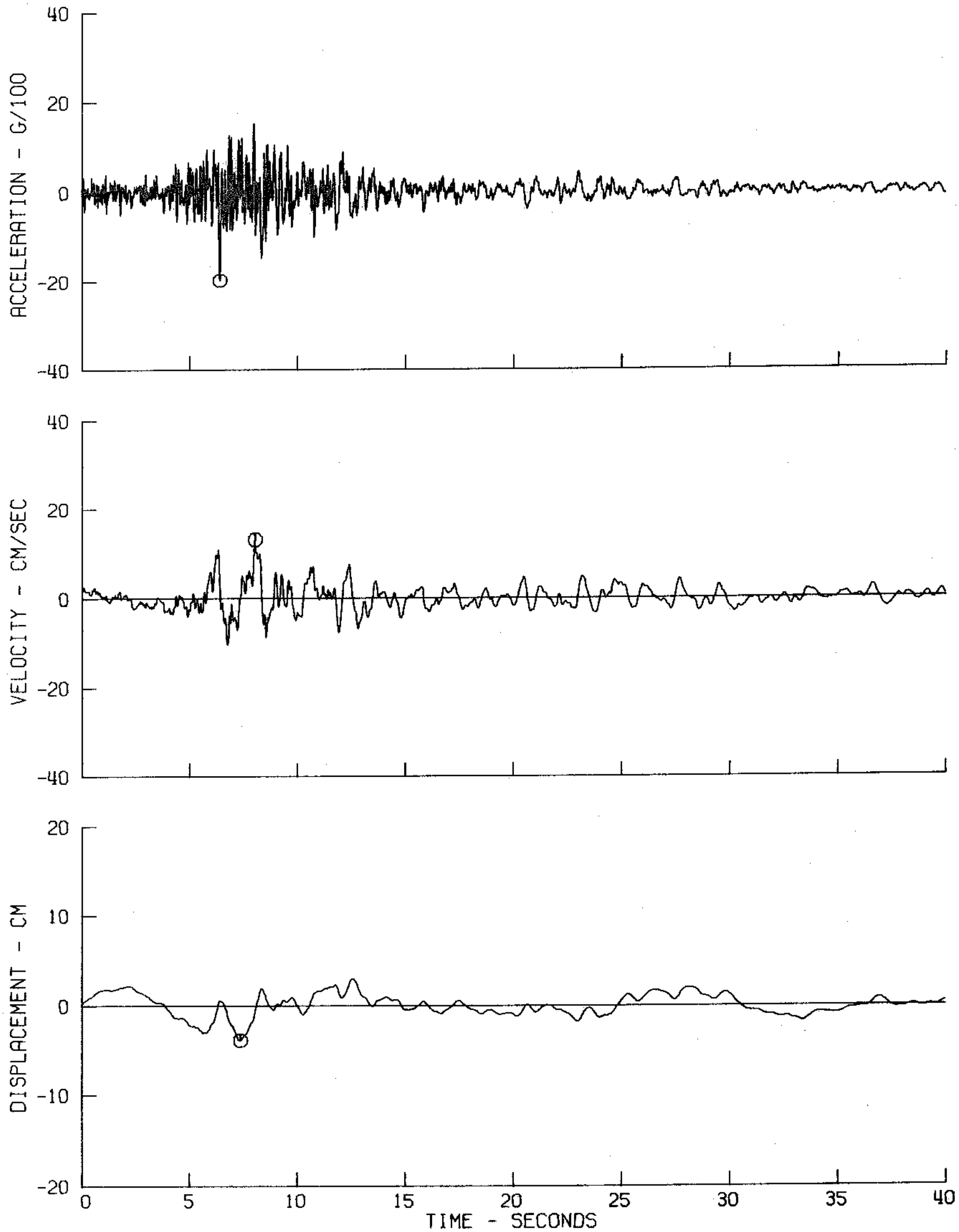


PUGET SOUND, WASHINGTON EARTHQUAKE APR 29, 1965 - 0728 PST
IIB032 65.001.0 OLYMPIA, WASHINGTON HWY TEST LAB COMP VERT
PEAK VALUES : ACCEL = -59.9 CM/SEC/SEC VELOCITY = -3.0 CM/SEC DISPL = 1.7 CM

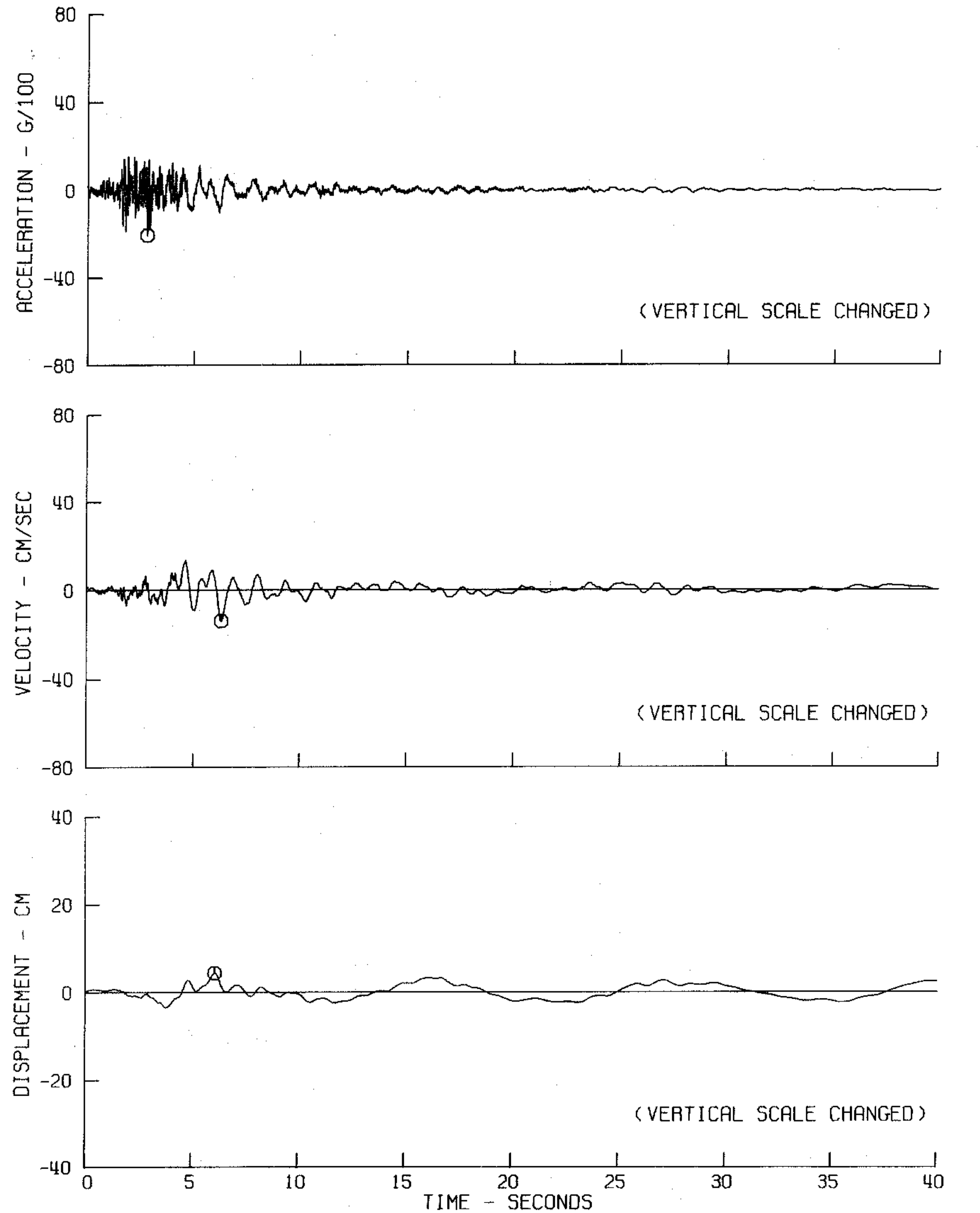



PUGET SOUND, WASHINGTON EARTHQUAKE APR 29, 1965 - 0728 PST
IIB032 65.001.0 OLYMPIA, WASHINGTON HWY TEST LAB COMP S04E
PEAK VALUES : ACCEL = 134.2 CM/SEC/SEC VELOCITY = 8.1 CM/SEC DISPL = -2.7 CM
ACCELERATION - G/100
40
20
0
-20
-40
VELOCITY - CM/SEC
40
20
0
-20
-40
DISPLACEMENT - CM
20
10
0
-10
-20
0
5
10
15
20
25
30
35
40
TIME - SECONDS

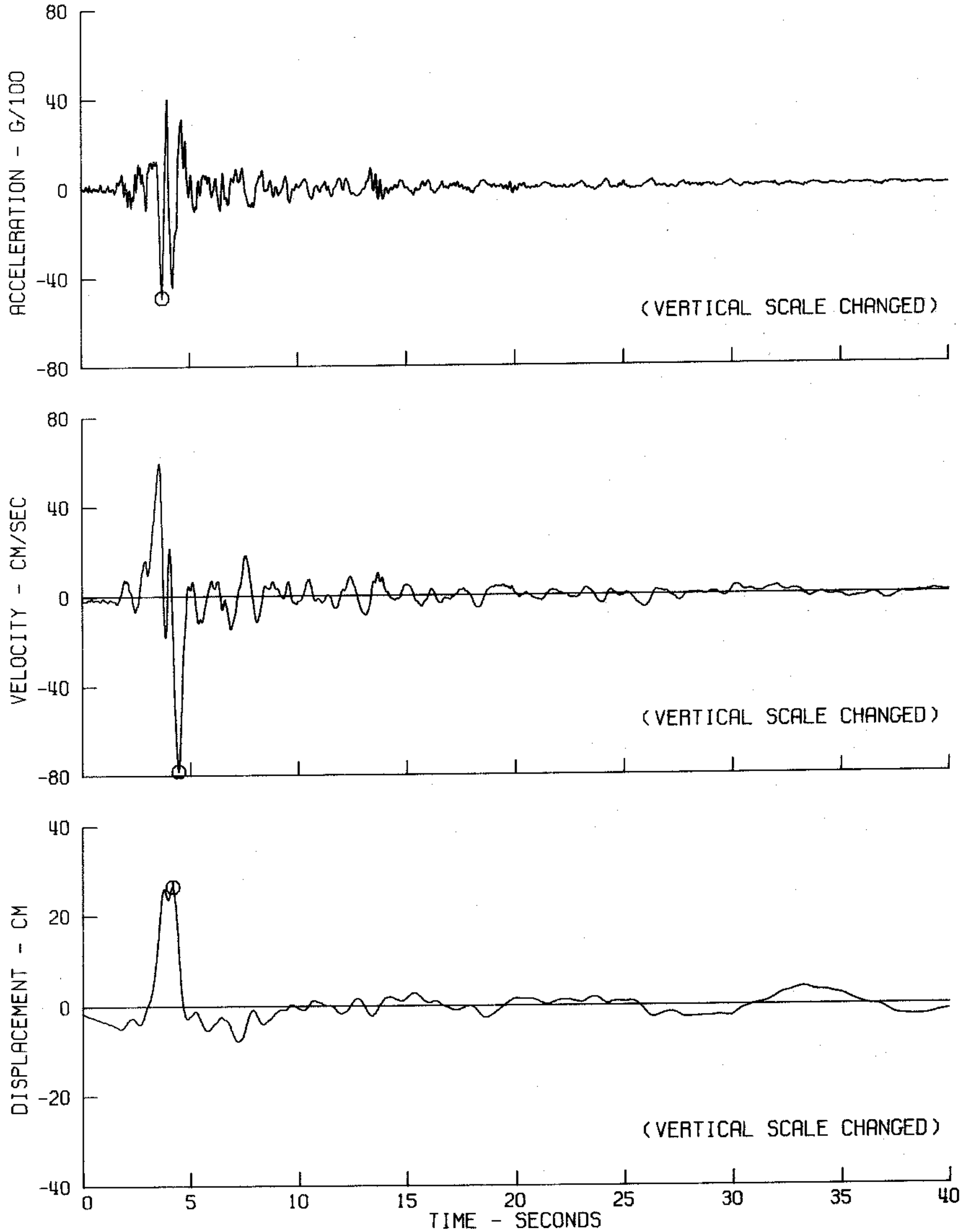
PUGET SOUND, WASHINGTON EARTHQUAKE APR 29, 1965 - 0728 PST
IIB032 65.001.0 OLYMPIA, WASHINGTON HWY TEST LAB COMP S86W
PEAK VALUES : ACCEL = -194.3 CM/SEC/SEC VELOCITY = 13.1 CM/SEC DISPL = -3.8 CM



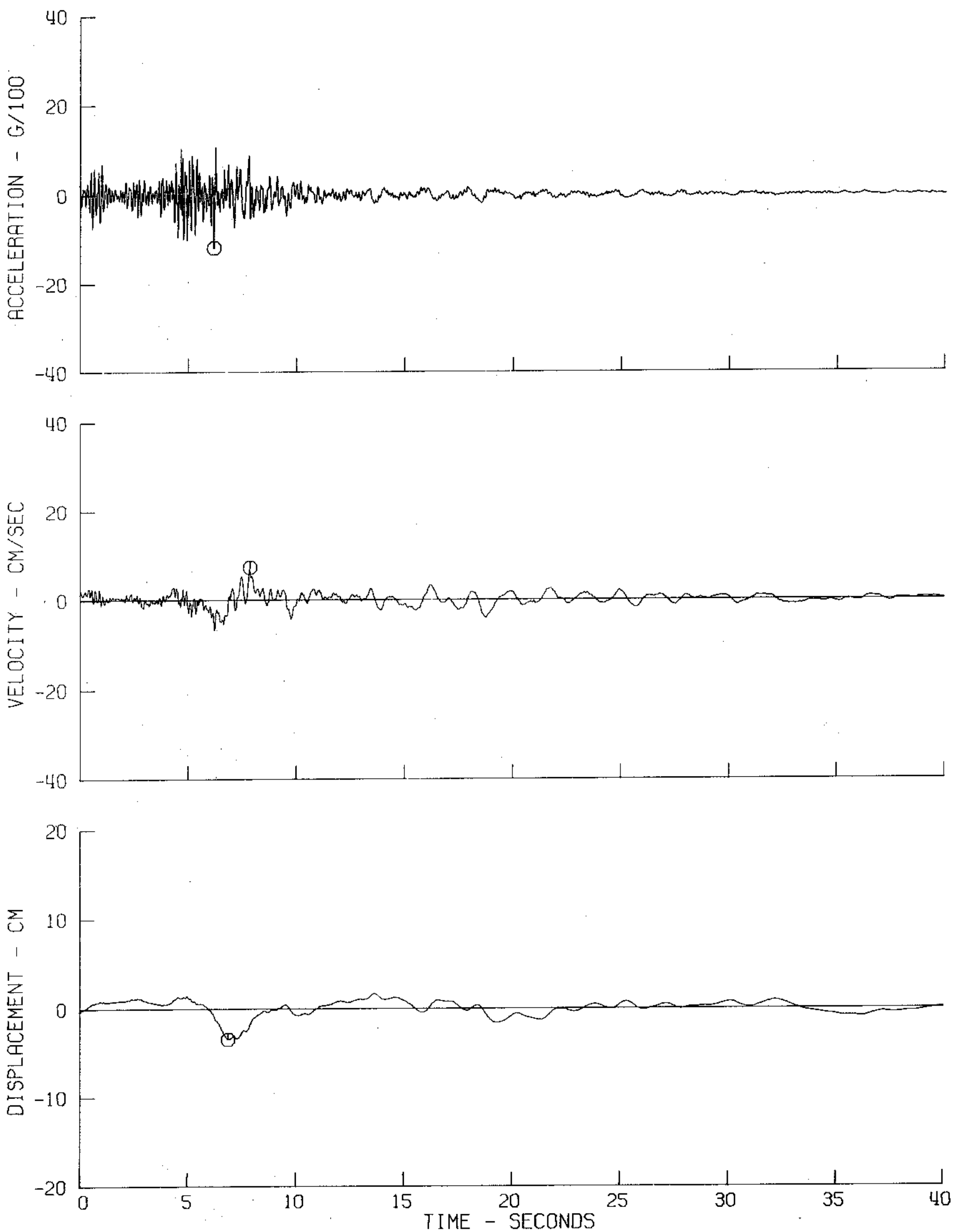
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB033 66.001.0 CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 2 COMP DOWN
① PEAK VALUES : ACCEL = -202.2 CM/SEC/SEC VELOCITY = -14.1 CM/SEC DISPL = 4.3 CM



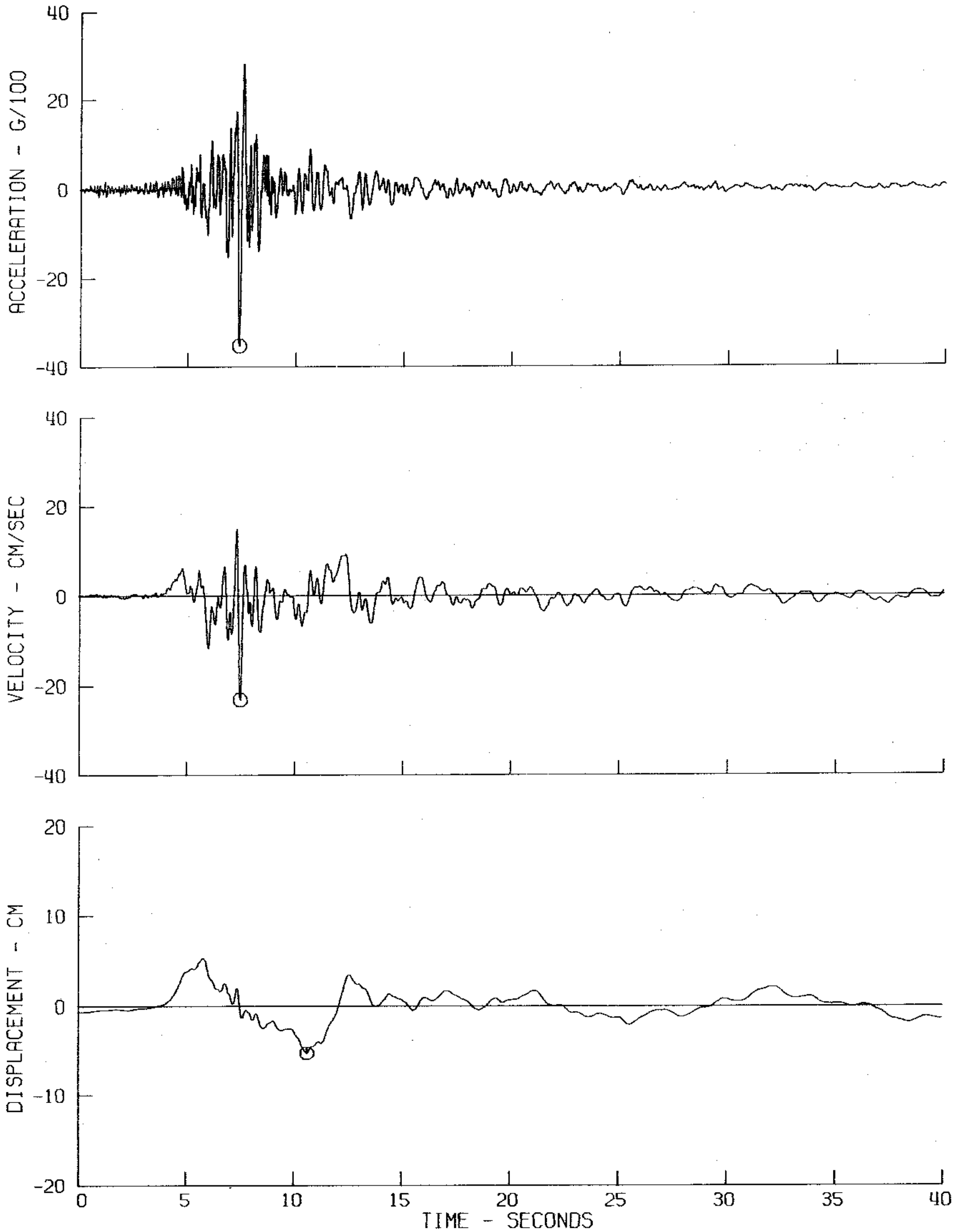
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB033 66.001.0 CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 2 COMP N65E
⊙ PEAK VALUES : ACCEL = -479.6 CM/SEC/SEC VELOCITY = -78.1 CM/SEC DISPL = 26.5 CM



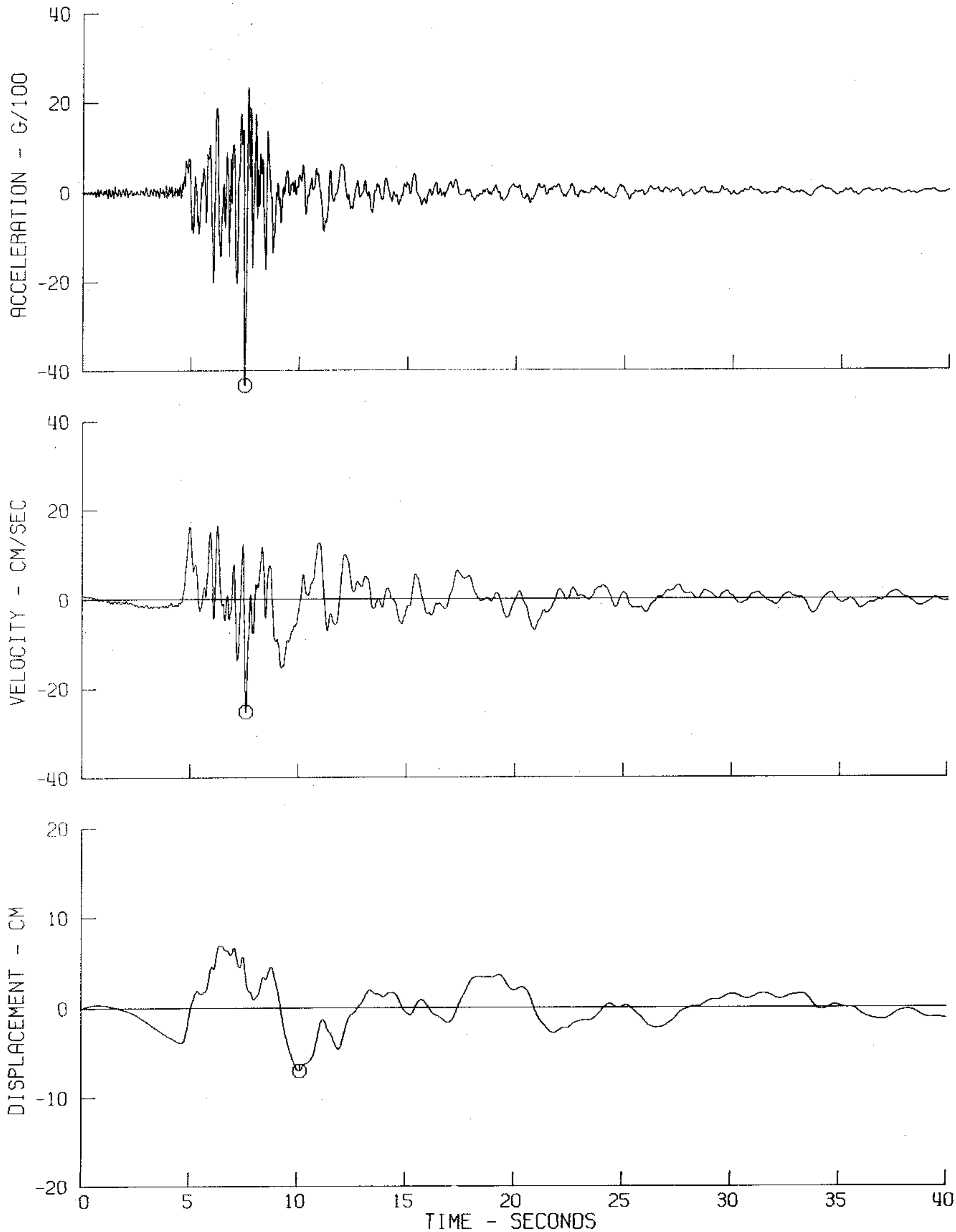
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB034 66.002.0 CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 5 COMP DOWN
① PEAK VALUES : ACCEL = -116.9 CM/SEC/SEC VELOCITY = 7.3 CM/SEC DISPL = -3.4 CM



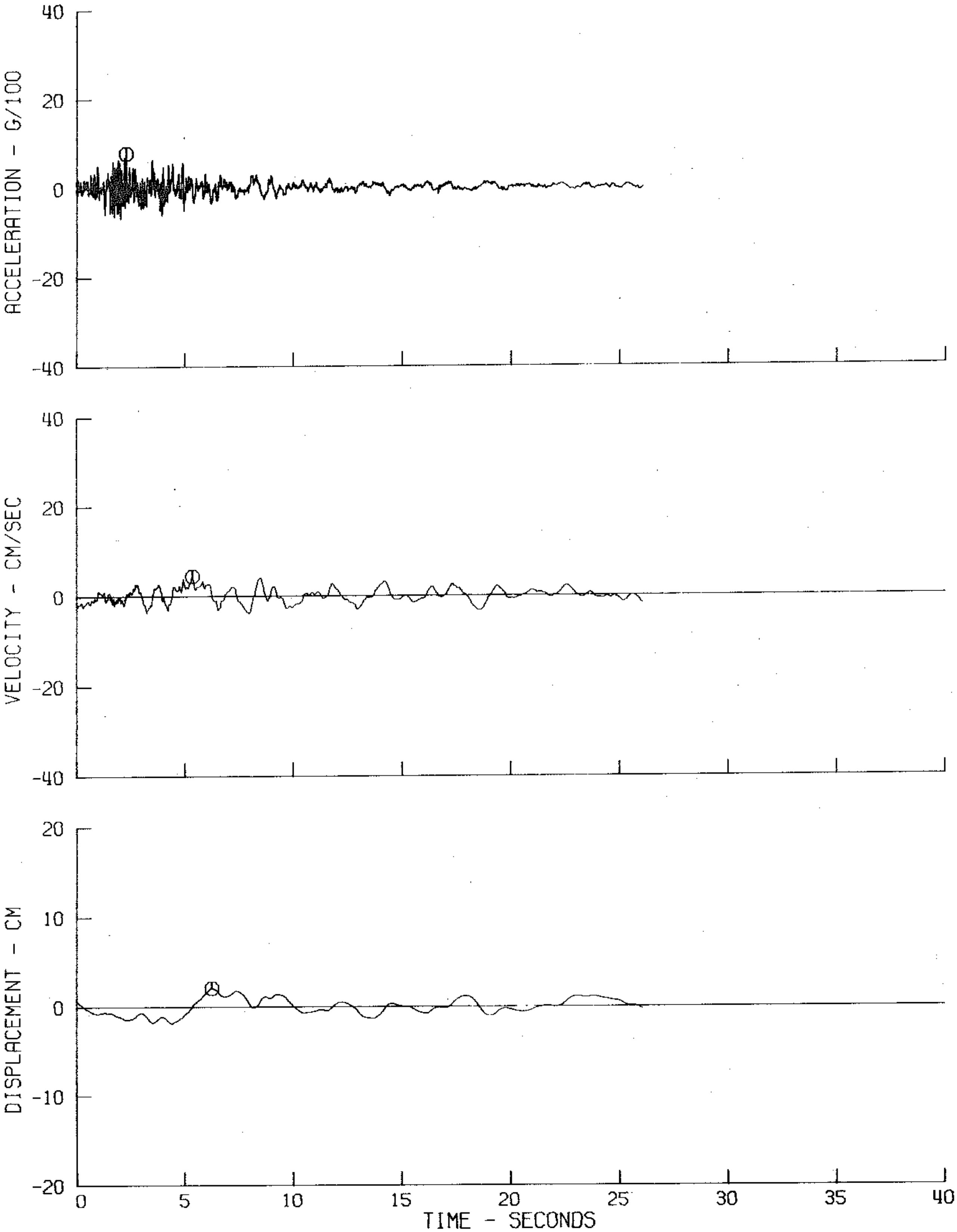
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB034 66.002.0 CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 5 COMP N05W
⊙ PEAK VALUES : ACCEL = -347.8 CM/SEC/SEC VELOCITY = -23.2 CM/SEC DISPL = -5.3 CM



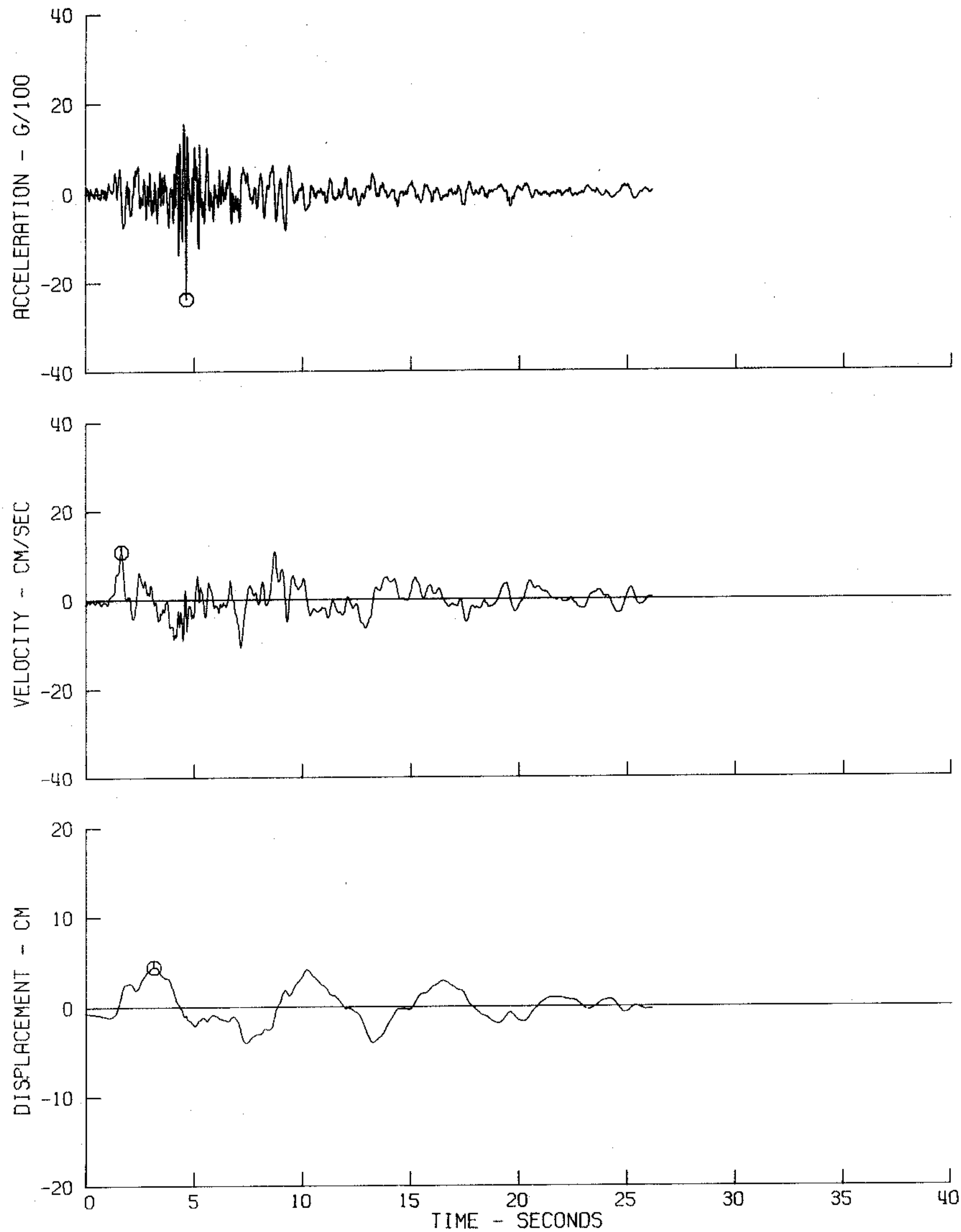
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB034 66.002.0 CHOLAME, SHANDON, CALIFORNIA ARRAY NO. 5 COMP N85E
PEAK VALUES : ACCEL = -425.7 CM/SEC/SEC VELOCITY = -25.4 CM/SEC DISPL = -7.1 CM



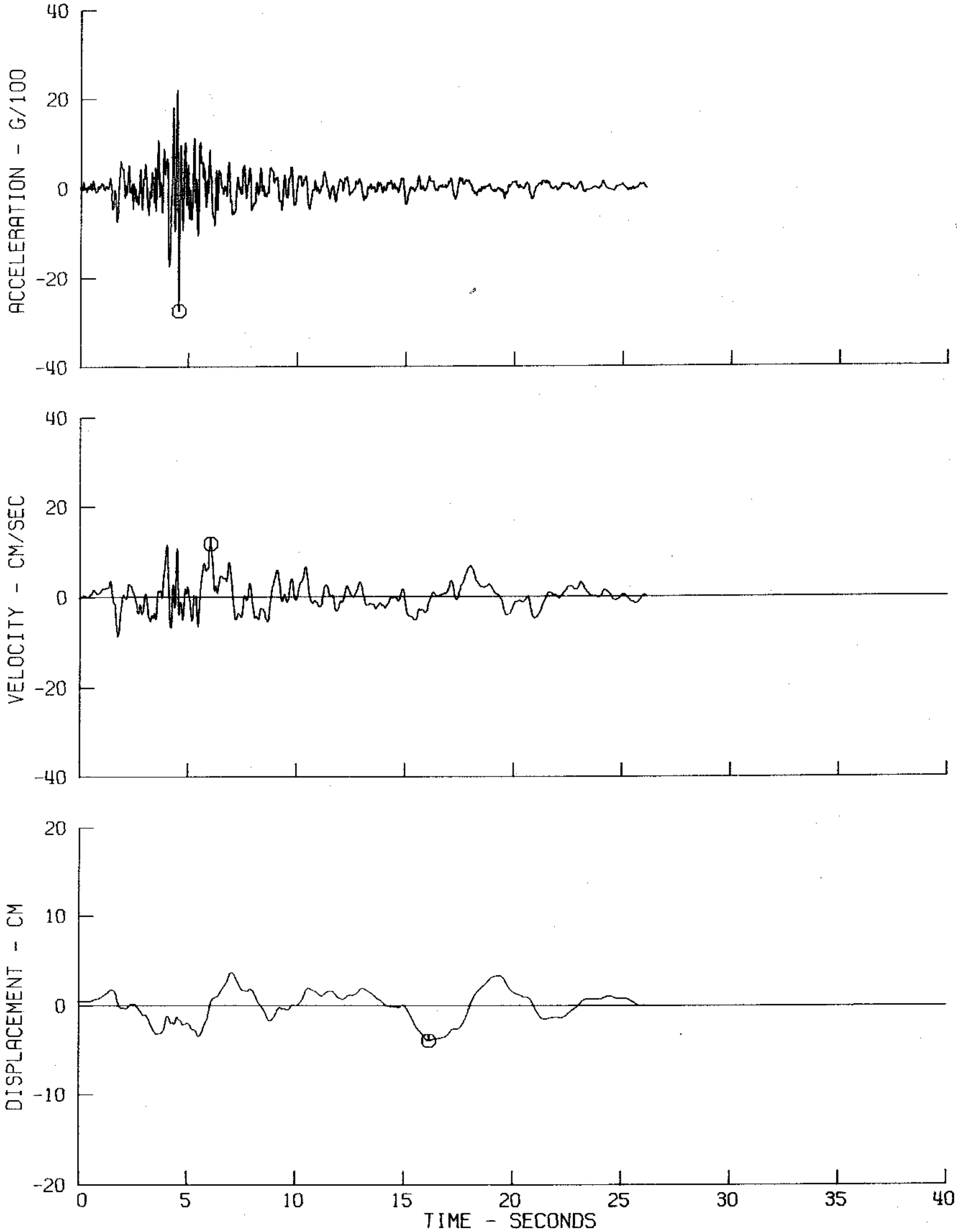
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB035 66.003.0 CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 8 COMP DOWN
⊕ PEAK VALUES : ACCEL = 77.7 CM/SEC/SEC VELOCITY = 4.5 CM/SEC DISPL = 2.1 CM



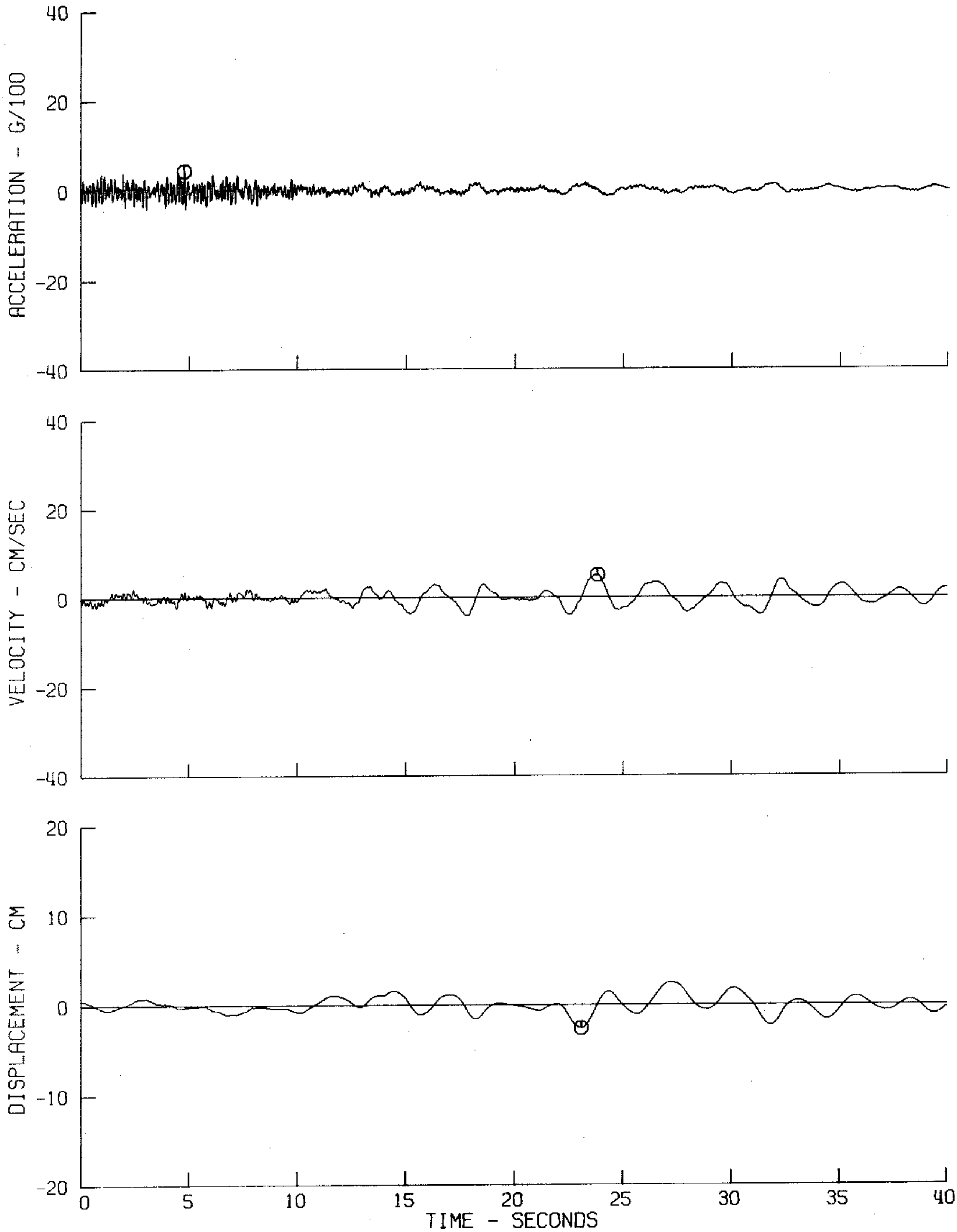
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB035 66.003.0 CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 8 COMP N50E
PEAK VALUES : ACCEL = -232.6 CM/SEC/SEC VELOCITY = 10.8 CM/SEC DISPL = 4.4 CM



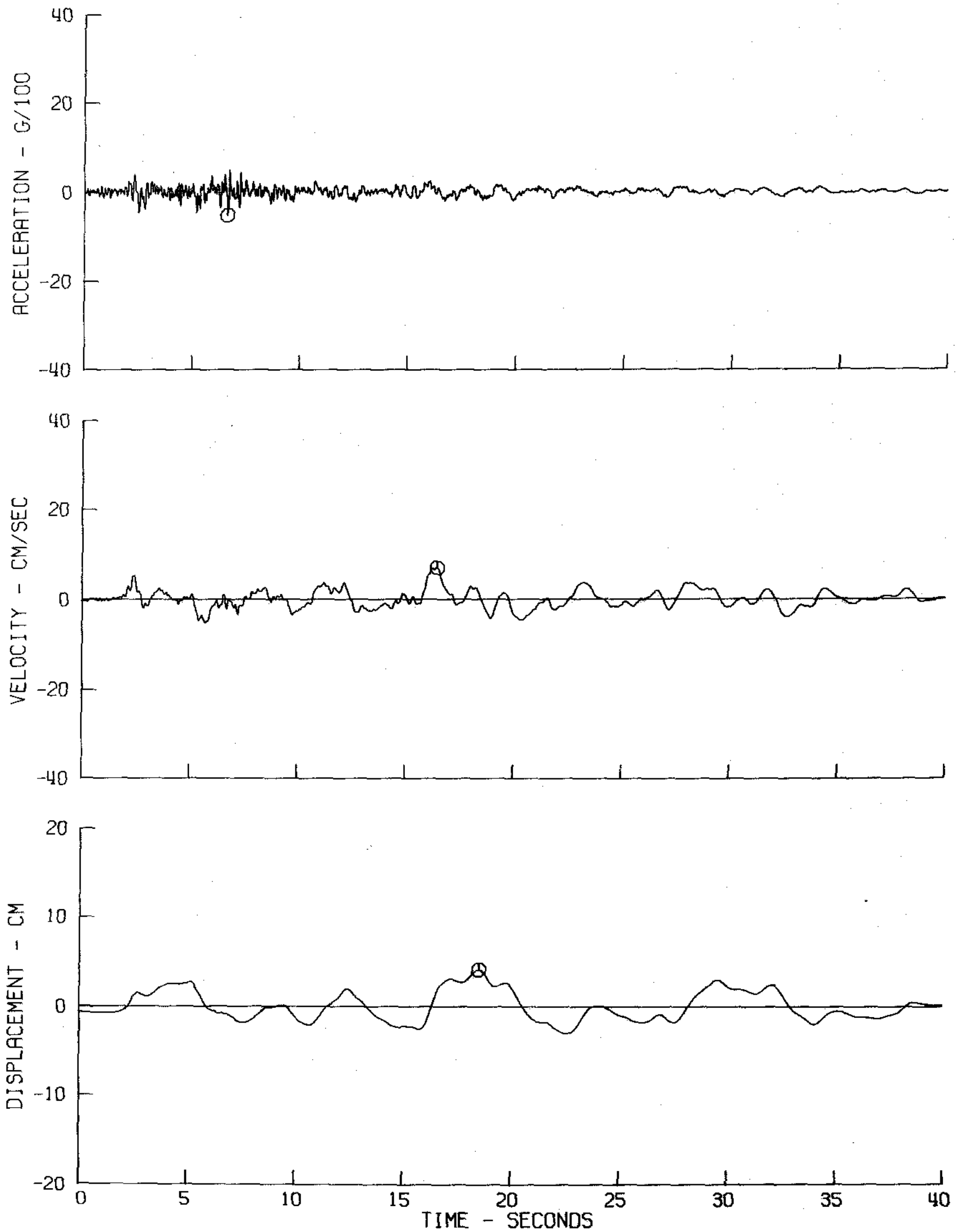
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB035 66.003.0 CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 8 COMP N40W
PEAK VALUES : ACCEL = -269.6 CM/SEC/SEC VELOCITY = 11.8 CM/SEC DISPL = -3.9 CM



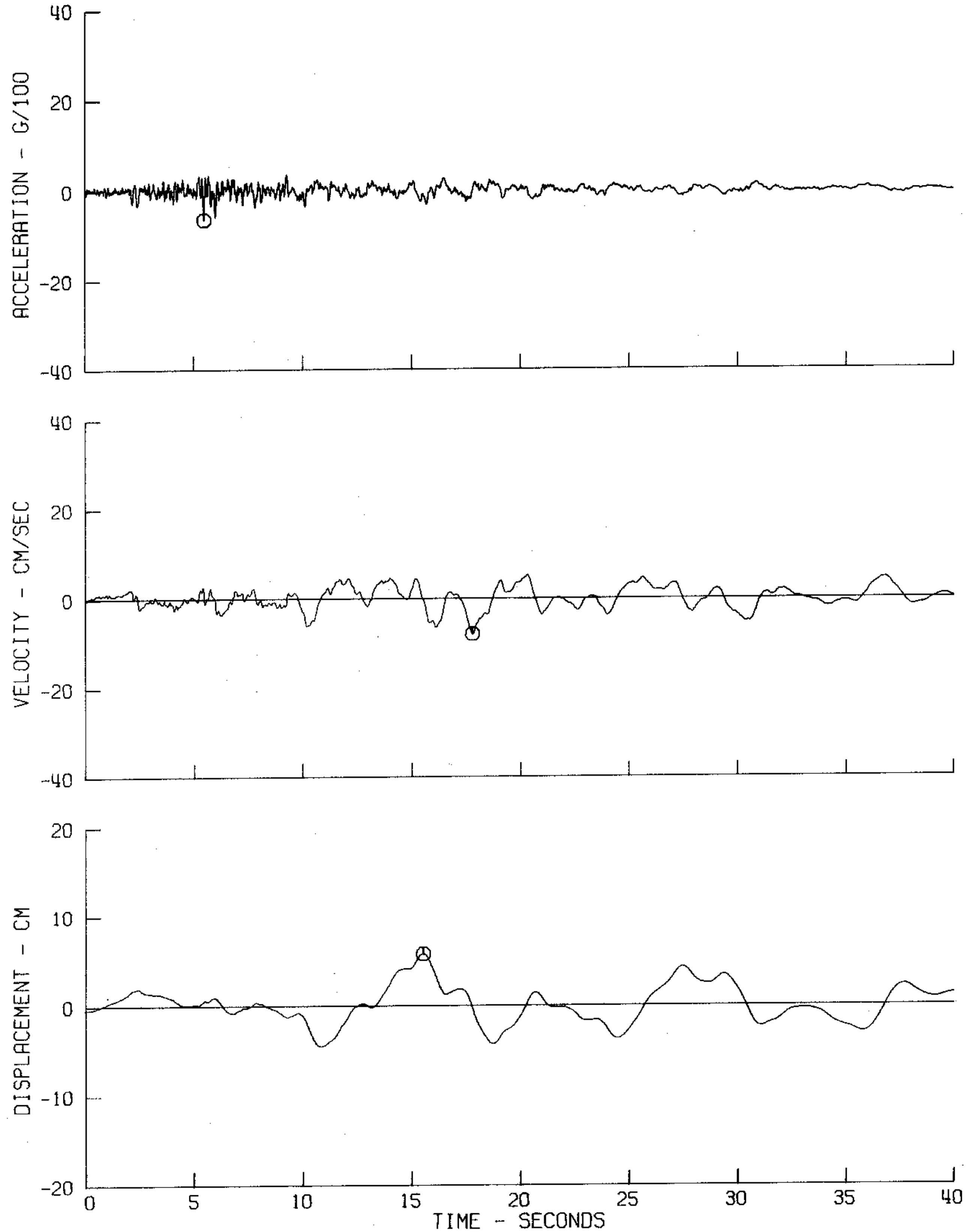
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB036 66.004.0 CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 12 COMP DOWN
PEAK VALUES : ACCEL = 44.6 CM/SEC/SEC VELOCITY = 5.0 CM/SEC DISPL = -2.6 CM



PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB036 66.004.0 CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 12 COMP N50E
⊙ PEAK VALUES : ACCEL = -52.1 CM/SEC/SEC VELOCITY = 7.0 CM/SEC DISPL = 4.1 CM



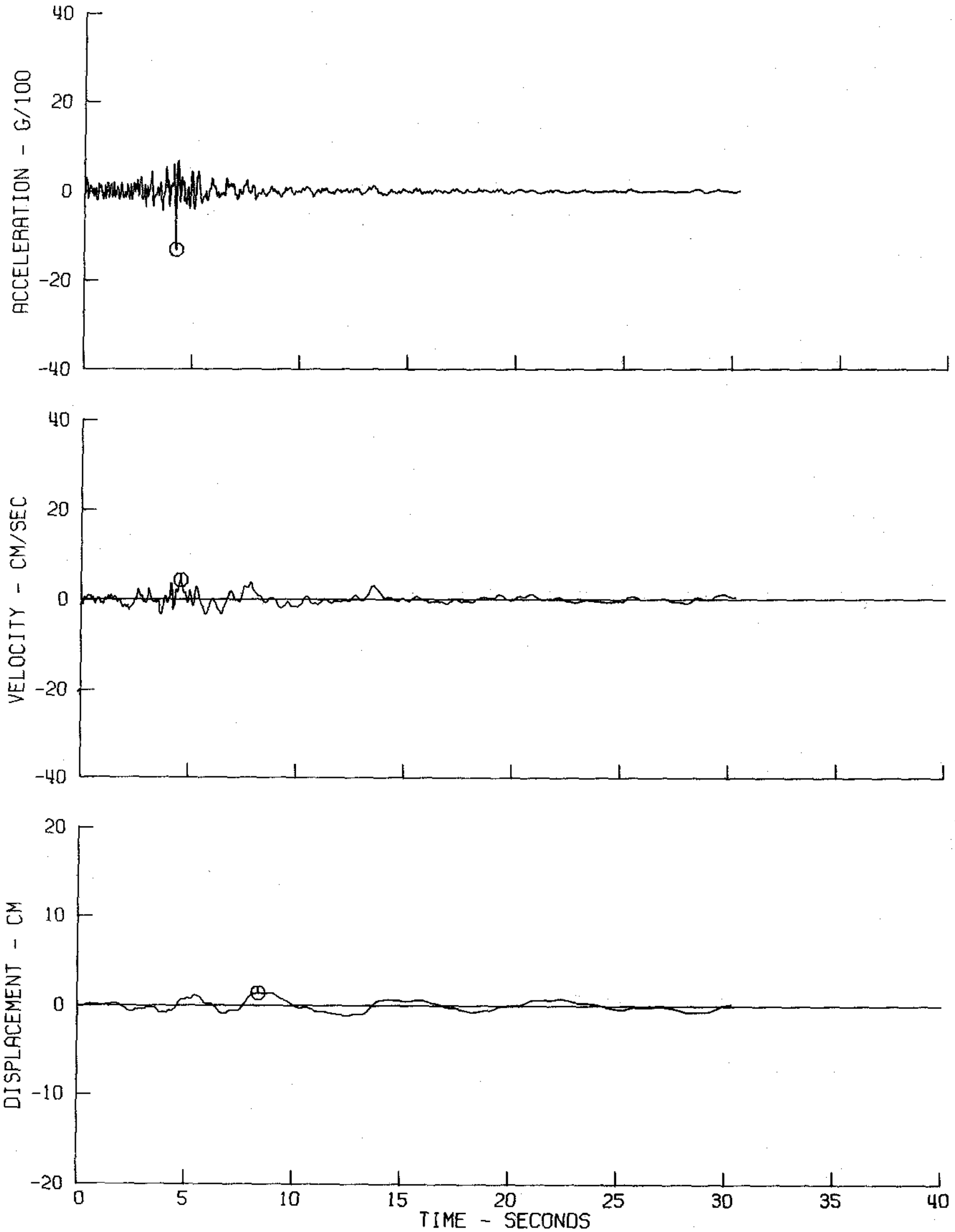
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB036 66.004.0 CHOLAME,SHANDON, CALIFORNIA ARRAY NO. 12 COMP N40W
PEAK VALUES : ACCEL = -63.2 CM/SEC/SEC VELOCITY = -8.0 CM/SEC DISPL = 5.7 CM



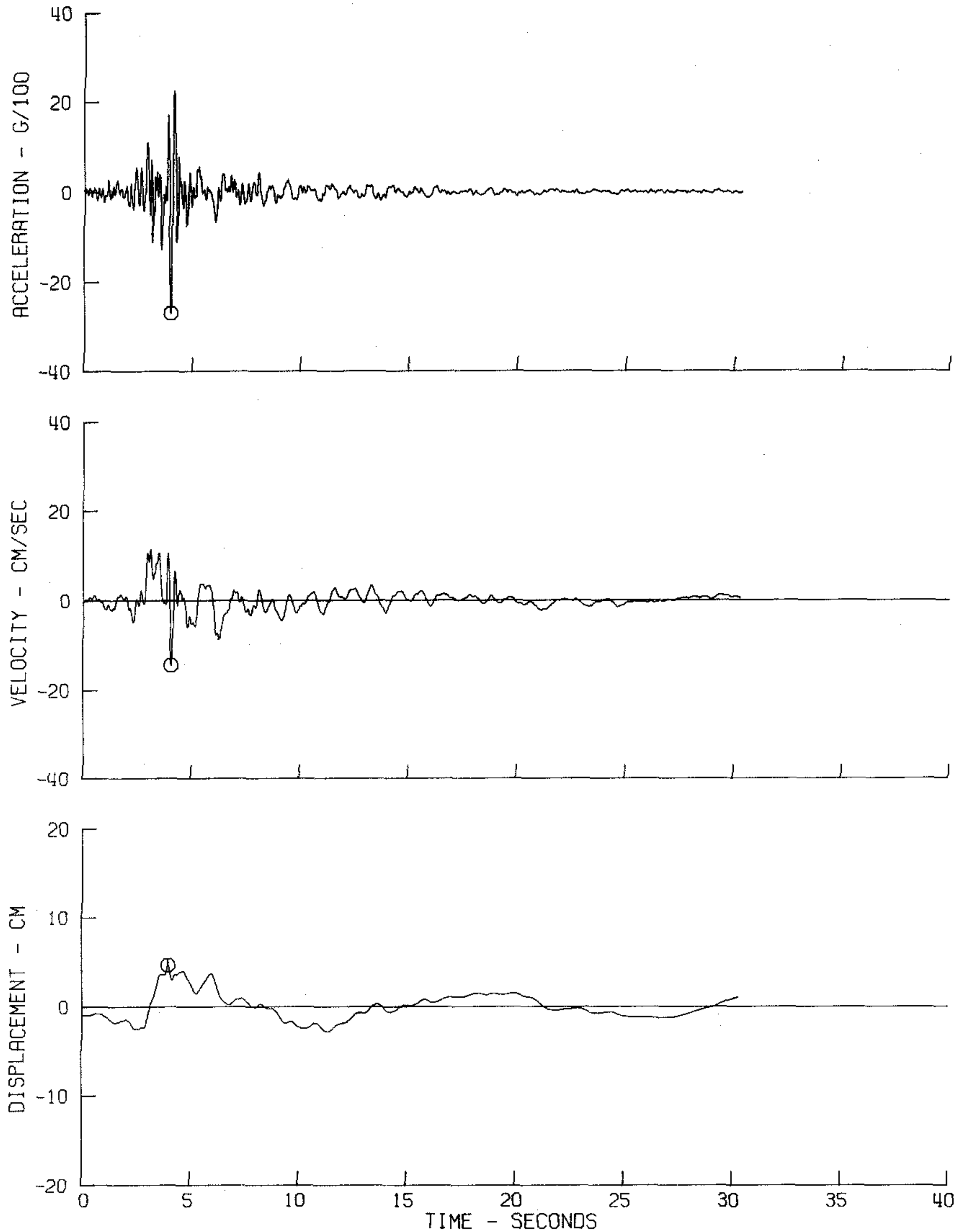
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST

IIB037 66.005.0 TEMBLOR, CALIFORNIA NO. 2 COMP DOWN

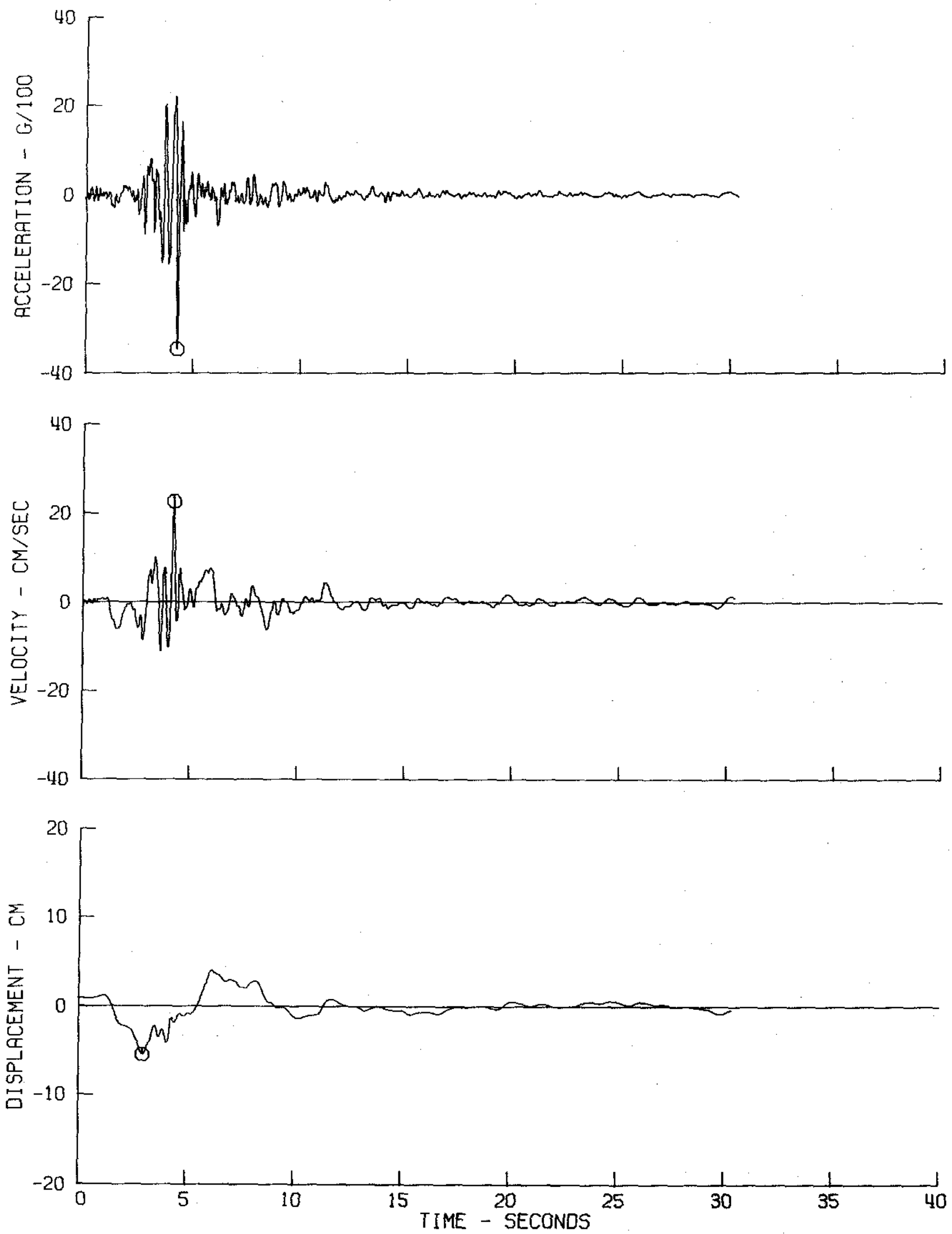
⊕ PEAK VALUES : ACCEL = -129.8 CM/SEC/SEC VELOCITY = 4.4 CM/SEC DISPL = 1.4 CM



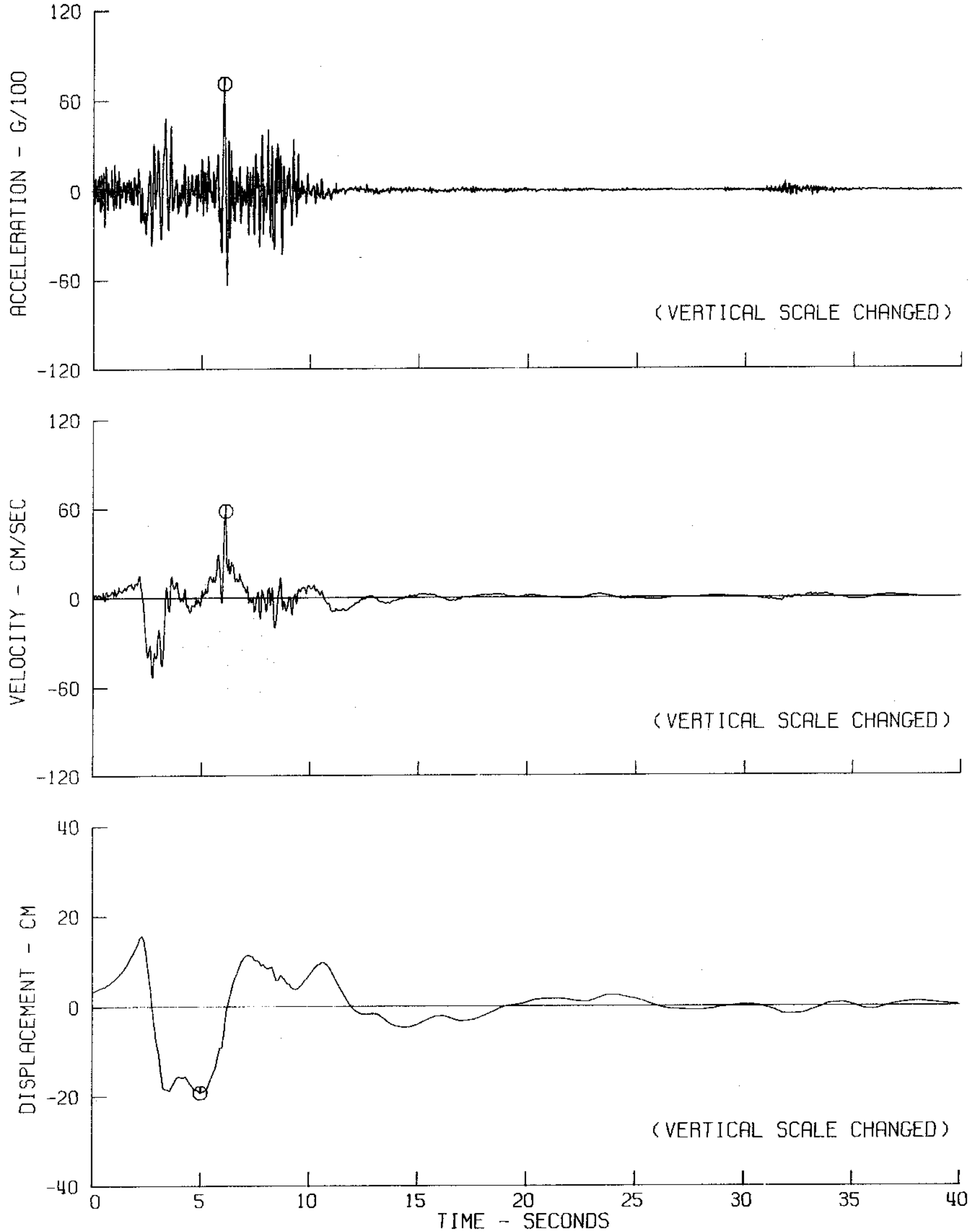
PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB037 66.005.0 TEMBLOR, CALIFORNIA NO. 2 COMP N65W
⊕ PEAK VALUES : ACCEL = -264.3 CM/SEC/SEC VELOCITY = -14.5 CM/SEC DISPL = 4.7 CM



PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB037 66.005.0 TEMBLOR, CALIFORNIA NO. 2 COMP S25W
PEAK VALUES : ACCEL = -340.8 CM/SEC/SEC VELOCITY = 22.5 CM/SEC DISPL = -5.5 CM



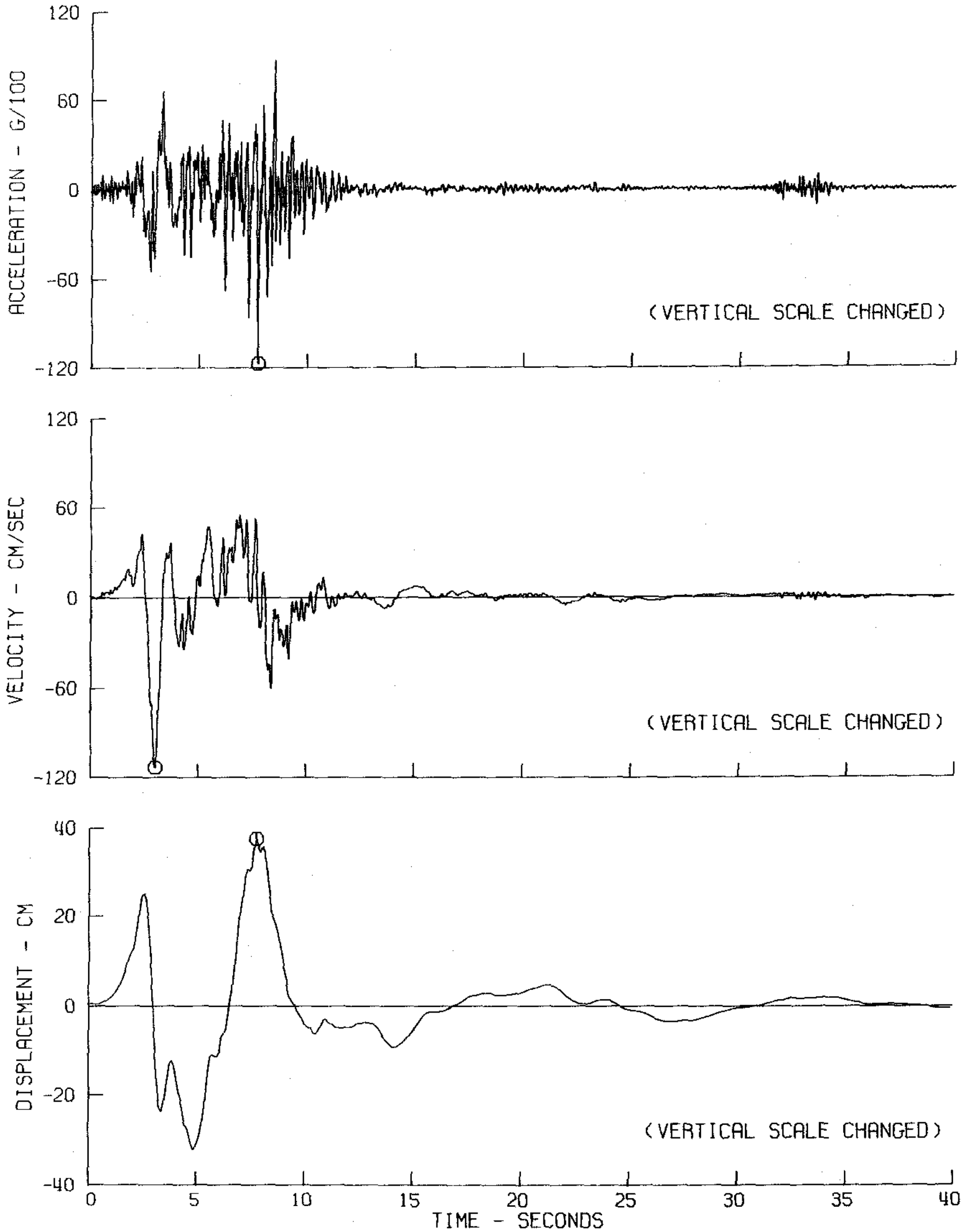
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC041 71.001.0 PACOIMA DAM, CAL. COMP DOWN
⦶ PEAK VALUES : ACCEL = 696.0 CM/SEC/SEC VELOCITY = 58.3 CM/SEC DISPL = -19.3 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC041 71.001.0 PACOIMA DAM, CAL. COMP S16E

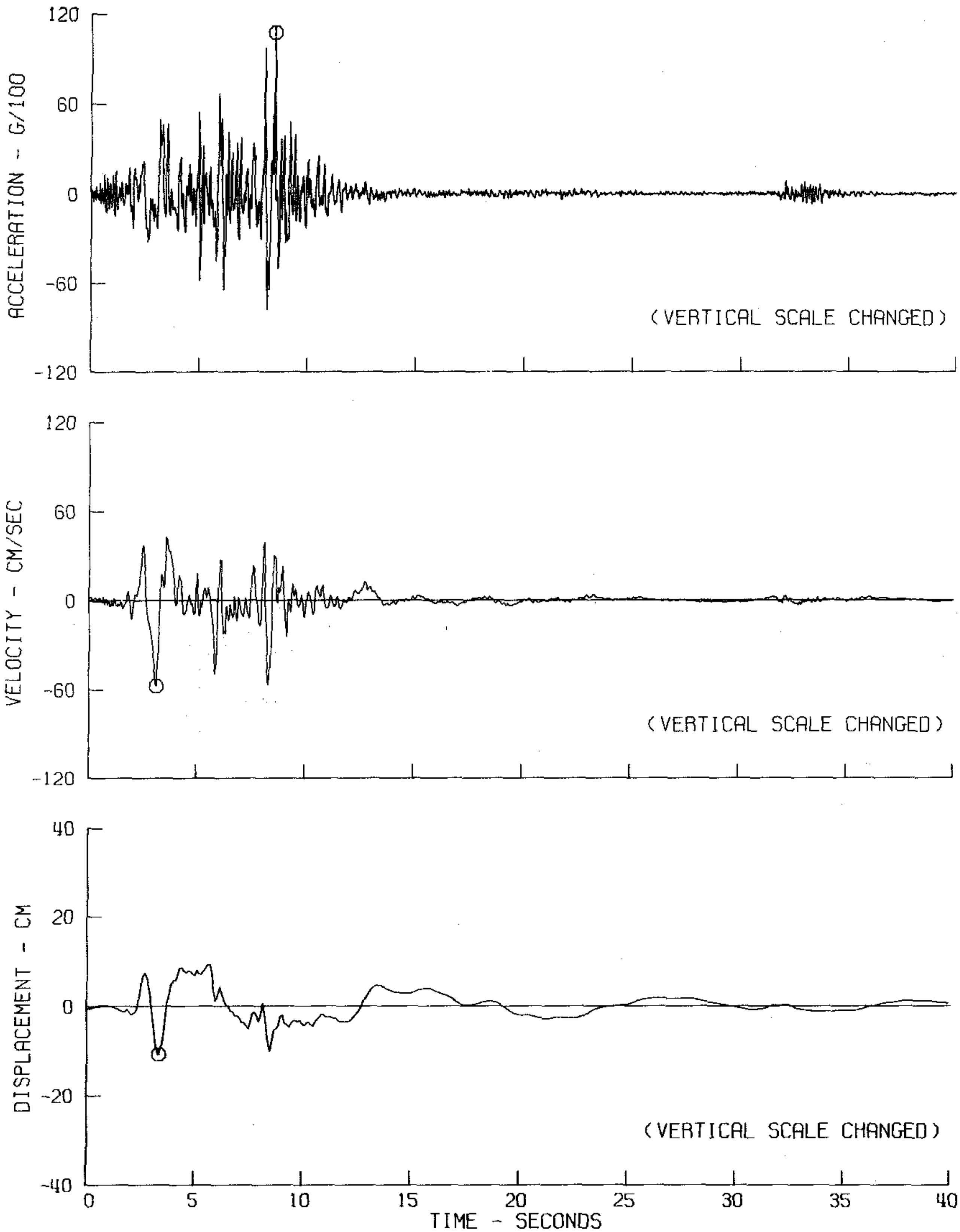
⊕ PEAK VALUES : ACCEL = -1148.1 CM/SEC/SEC VELOCITY = -113.2 CM/SEC DISPL = 37.7 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC041 71.001.0 PACOIMA DAM, CAL. COMP S74W

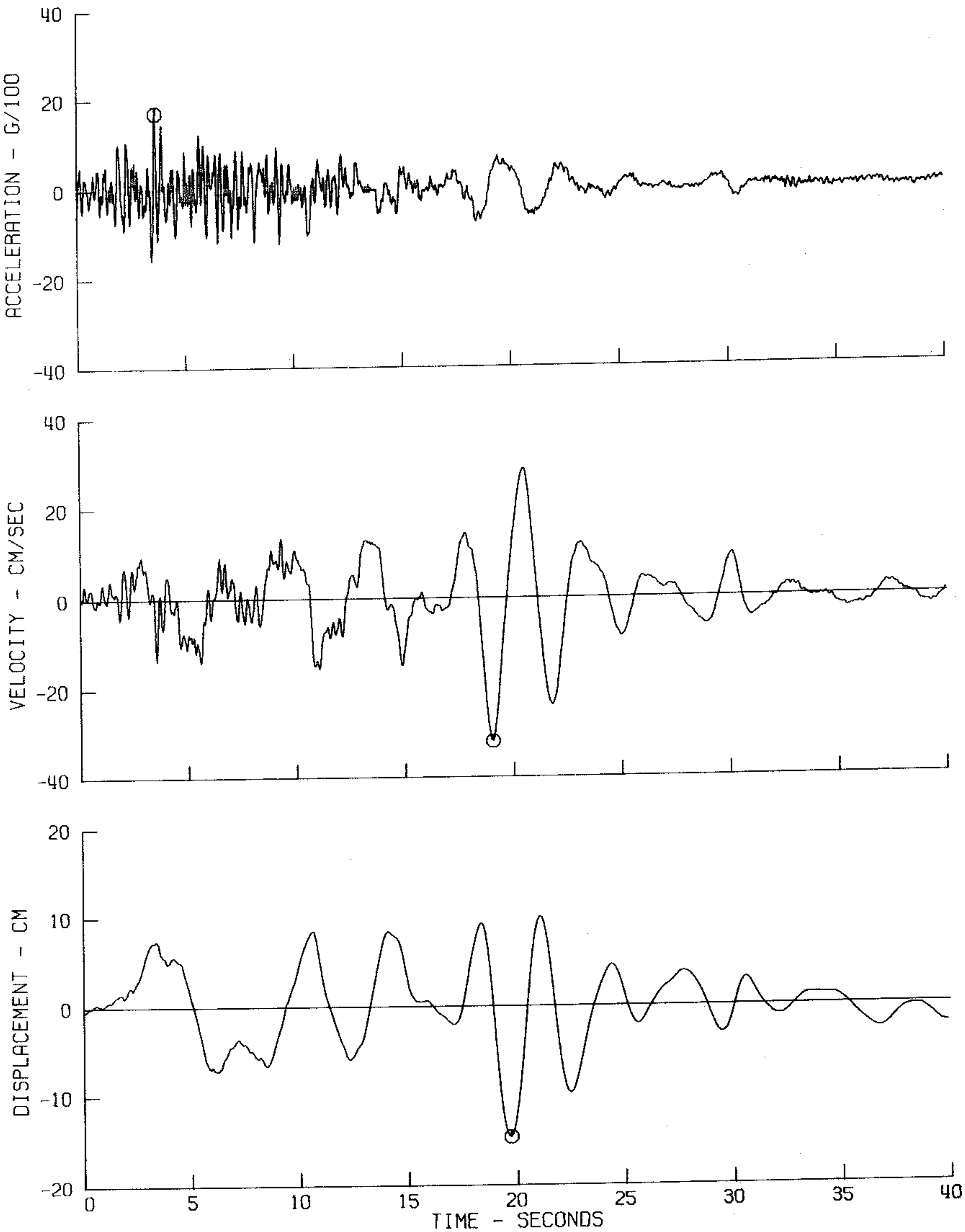
Ⓘ PEAK VALUES : ACCEL = 1054.9 CM/SEC/SEC VELOCITY = -57.7 CM/SEC DISPL = -10.8 CM



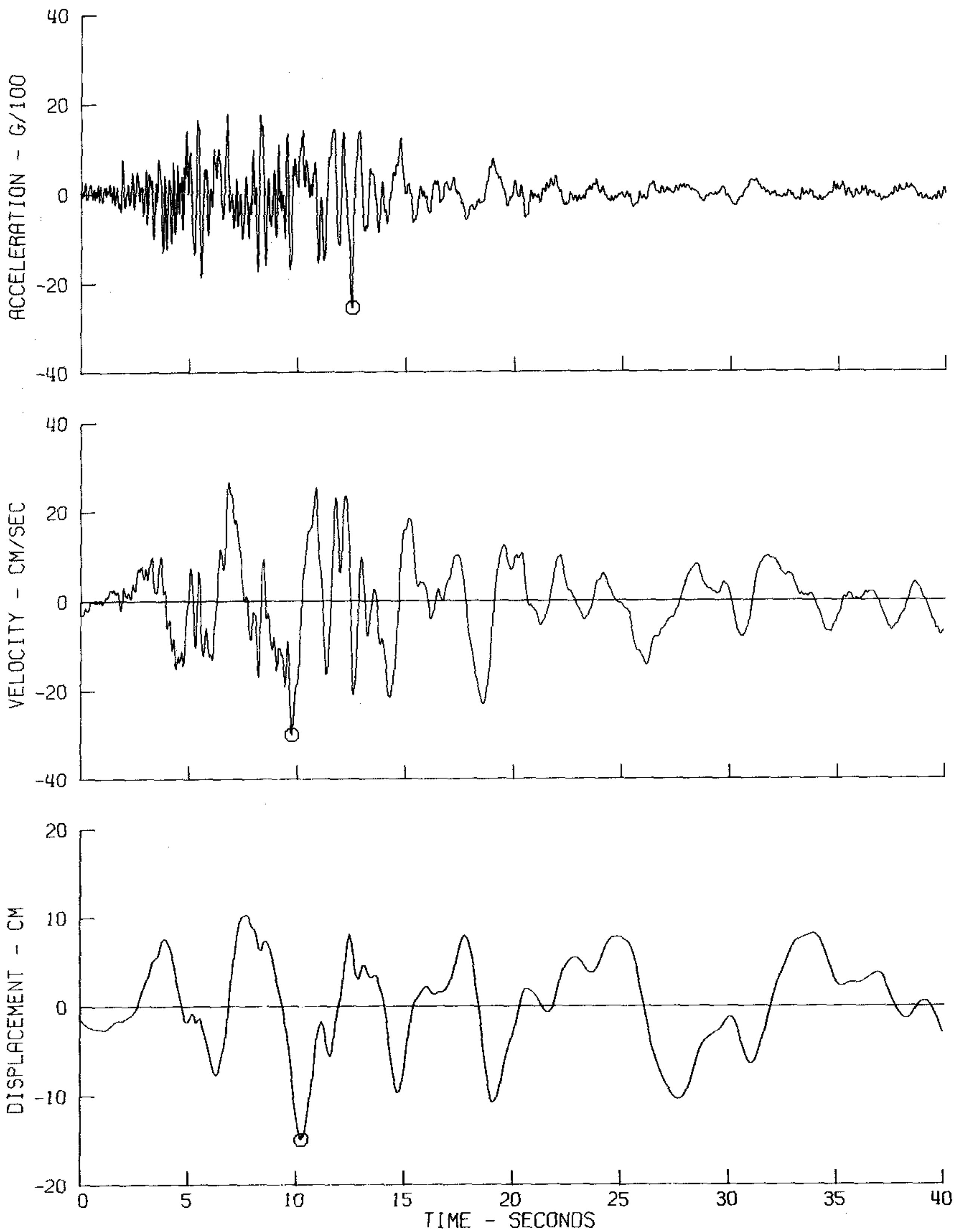
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC048 71.008.0 8244 ORION BLVD. 1ST FLOOR, LOS ANGELES, CAL. COMP DOWN

⊙ PEAK VALUES : ACCEL = 167.5 CM/SEC/SEC VELOCITY = -32.0 CM/SEC DISPL = -14.6 CM



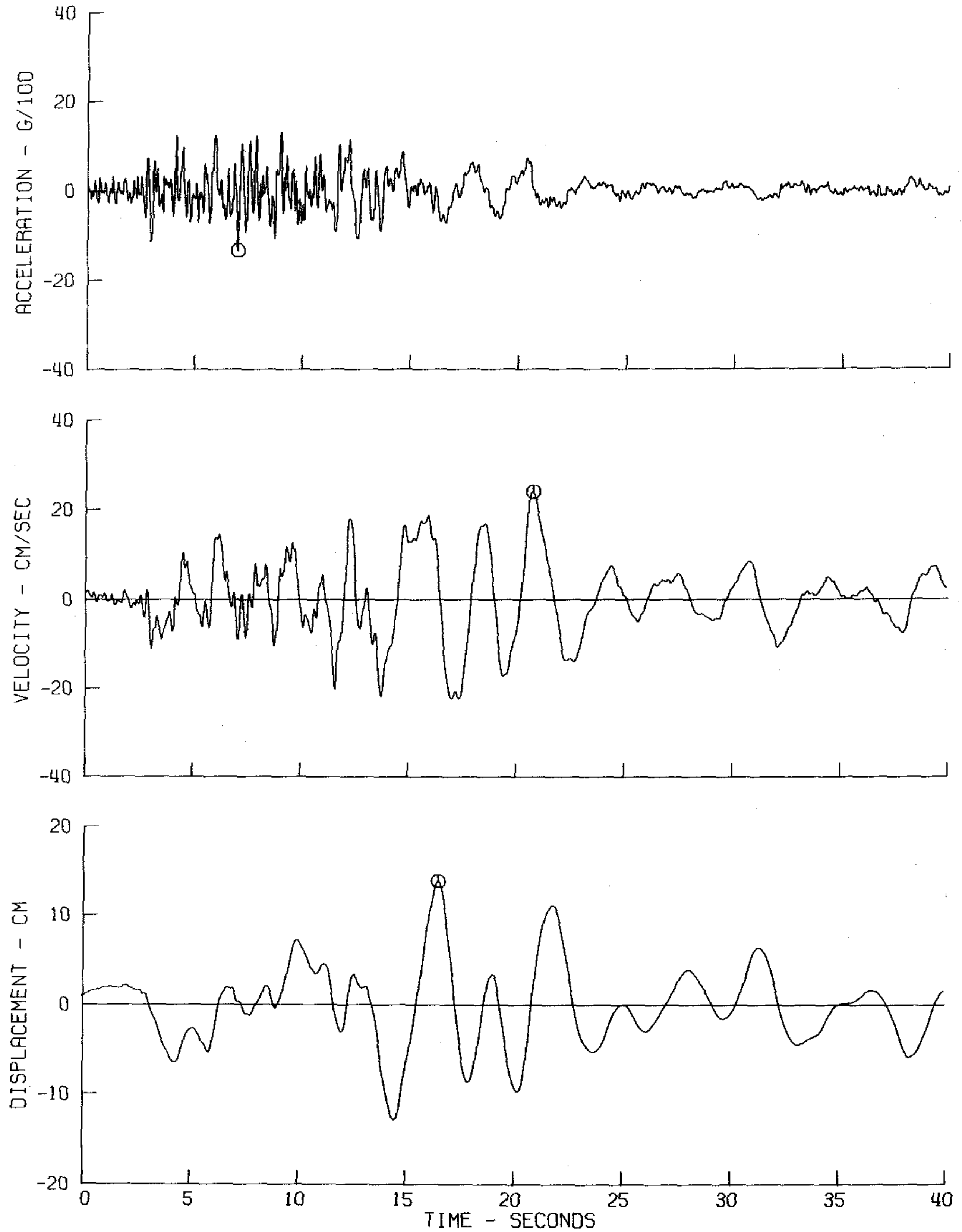
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC048 71.008.0 8244 ORION BLVD. 1ST FLOOR, LOS ANGELES, CAL. COMP N00W
PEAK VALUES : ACCEL = -250.0 CM/SEC/SEC VELOCITY = -30.0 CM/SEC DISPL = -14.9 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC048 71.008.0 8244 ORION BLVD. 1ST FLOOR, LOS ANGELES, CAL. COMP S90W

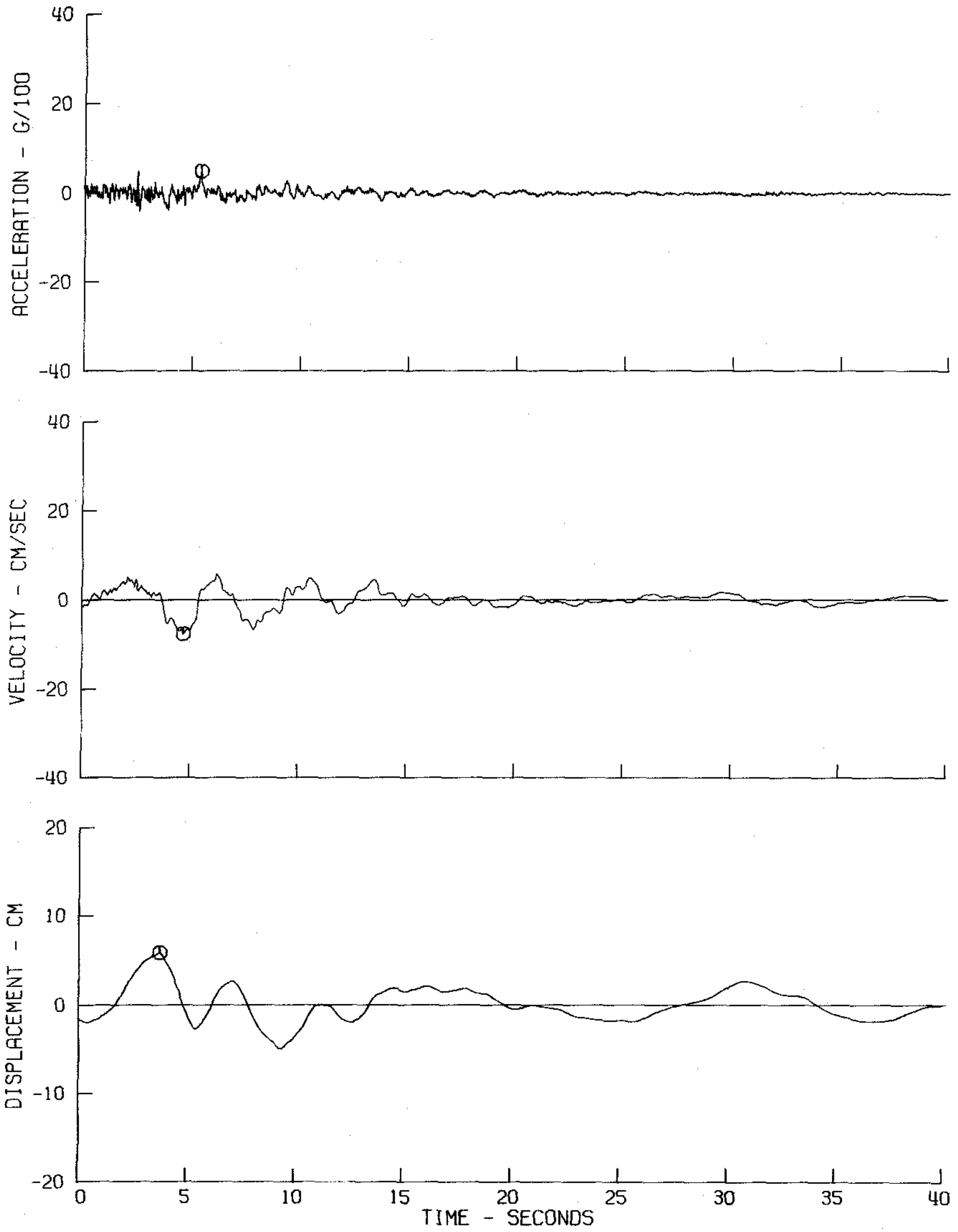
① PEAK VALUES : ACCEL = -131.7 CM/SEC/SEC VELOCITY = 23.9 CM/SEC DISPL = 13.8 CM

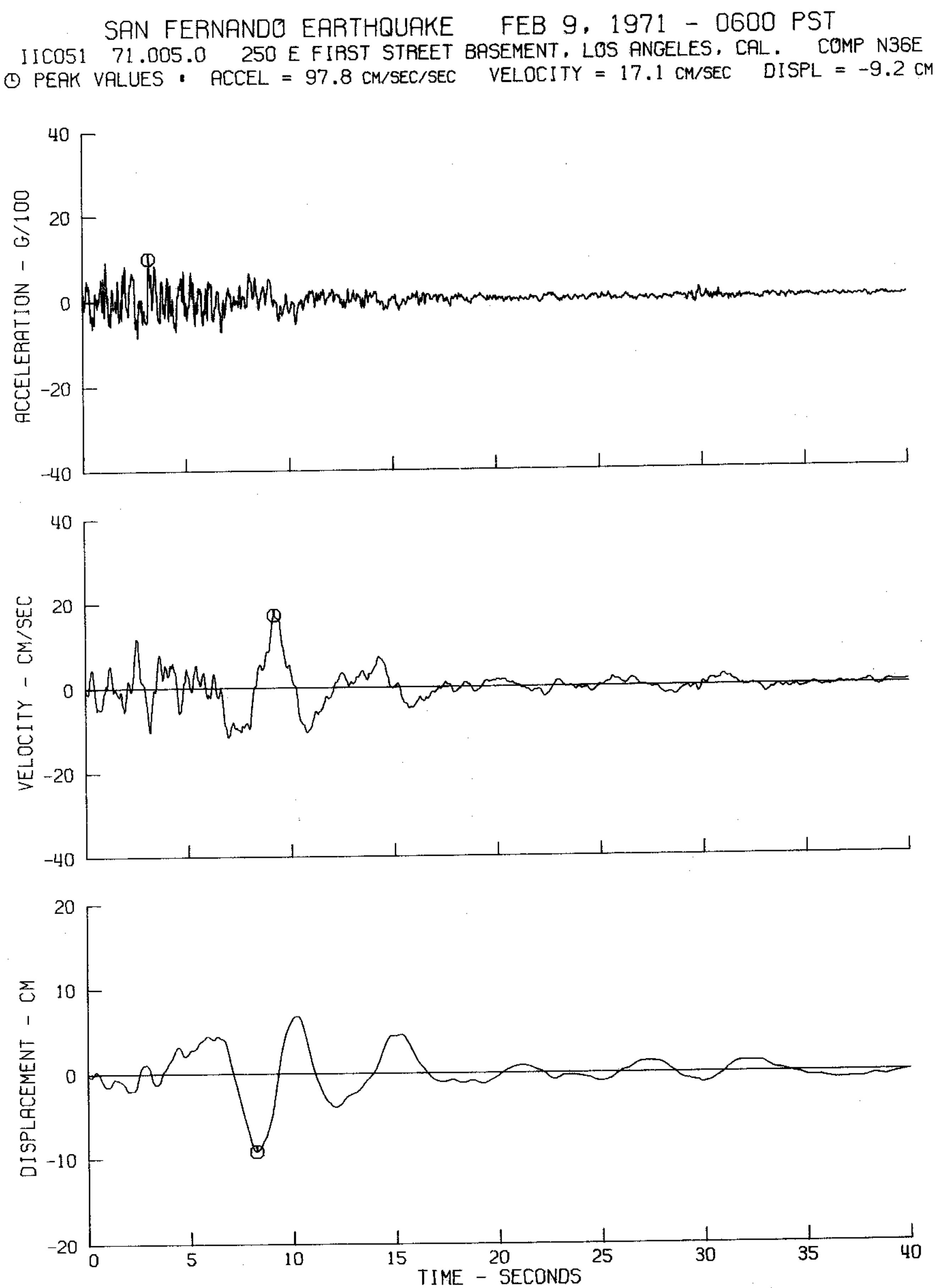


SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

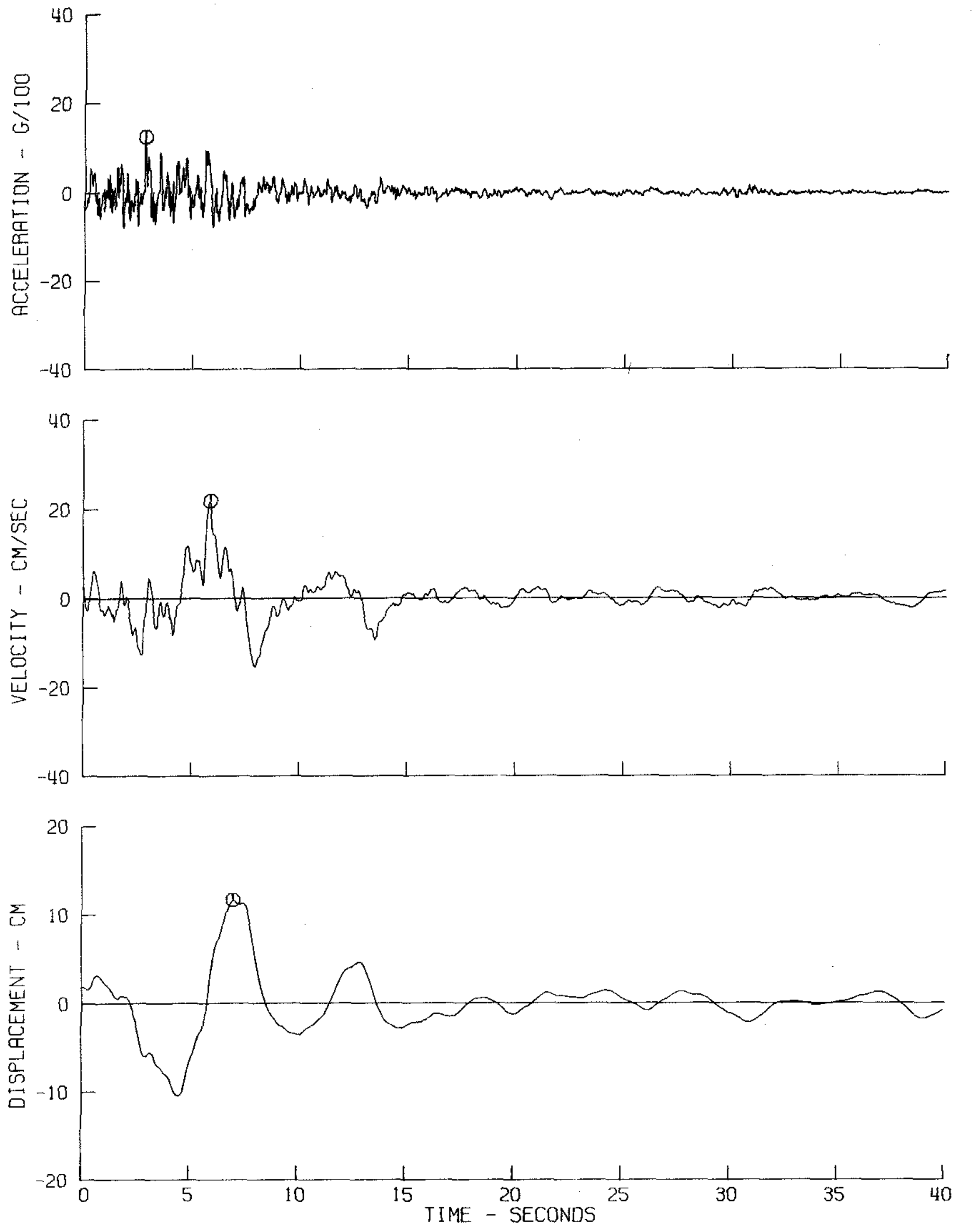
IIC051 71.005.0 250 E FIRST STREET BASEMENT, LOS ANGELES, CAL. COMP DOWN

PEAK VALUES : ACCEL = 48.0 CM/SEC/SEC VELOCITY = -7.8 CM/SEC DISPL = 5.8 CM




SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC051 71.005.0 250 E FIRST STREET BASEMENT, LOS ANGELES, CAL. COMP N36E
PEAK VALUES : ACCEL = 97.8 CM/SEC/SEC VELOCITY = 17.1 CM/SEC DISPL = -9.2 CM
ACCELERATION - G/100
VELOCITY - CM/SEC
DISPLACEMENT - CM
40
20
0
-20
-40
10
-10
0
5
10
15
20
25
30
35
40
TIME - SECONDS

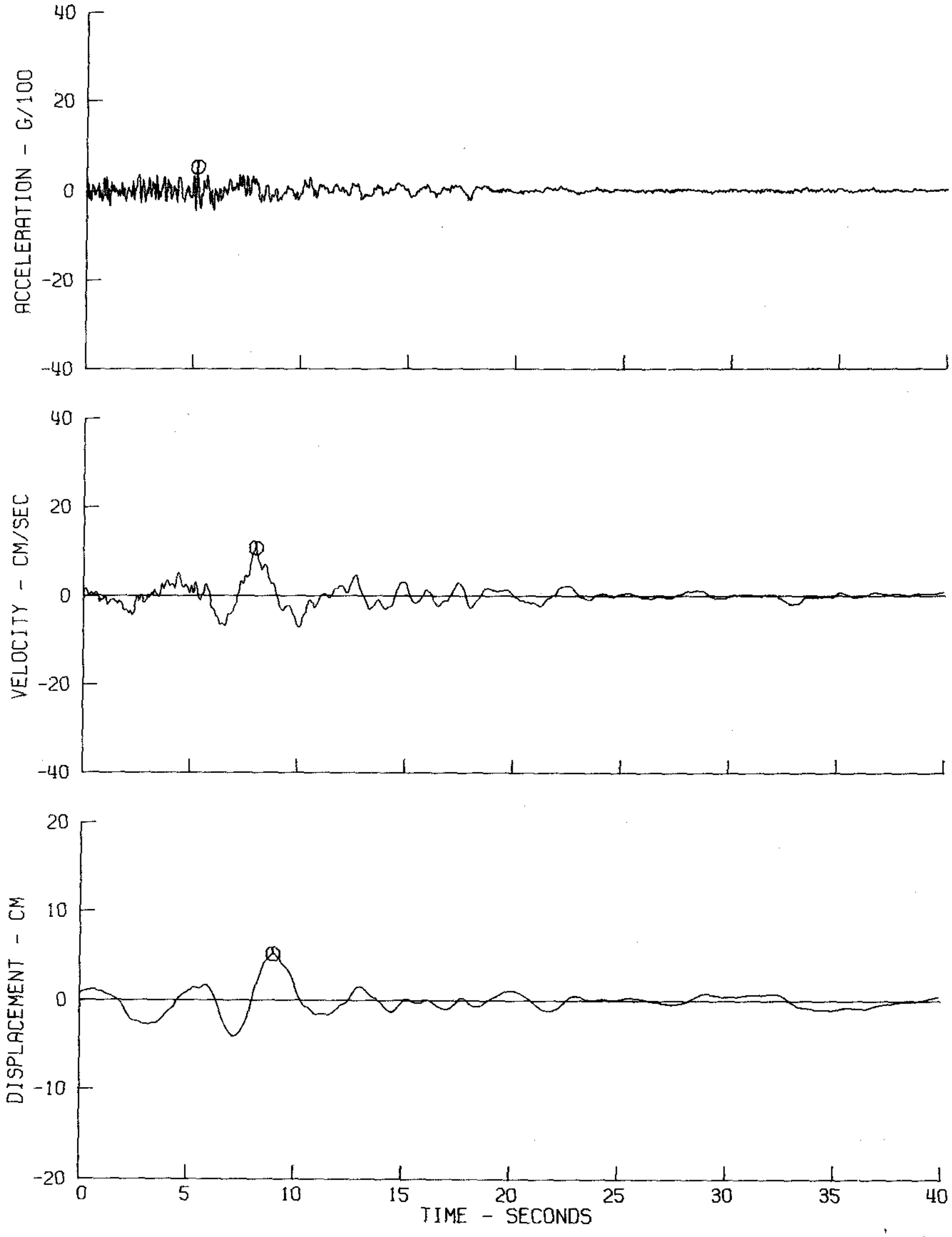
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC051 71.005.0 250 E FIRST STREET BASEMENT, LOS ANGELES, CAL. COMP N54W
⊕ PEAK VALUES : ACCEL = 122.7 CM/SEC/SEC VELOCITY = 21.9 CM/SEC DISPL = 11.6 CM



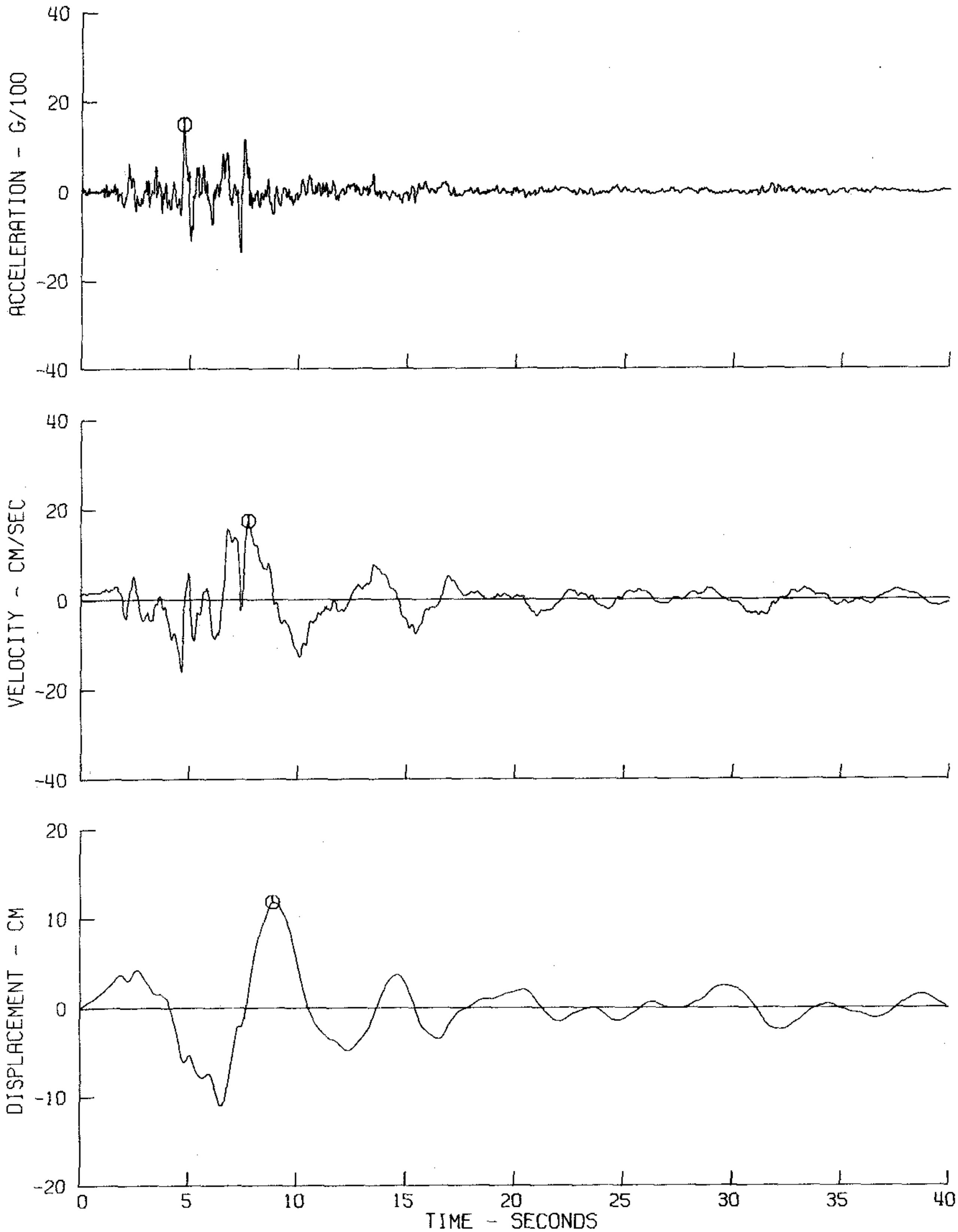
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC054 71.060.0 445 FIGUEROA STREET, SUB-BASEMENT, LOS ANGELES, CAL. COMP DOWN

Ⓘ PEAK VALUES : ACCEL = 51.7 CM/SEC/SEC VELOCITY = 10.7 CM/SEC DISPL = 5.1 CM



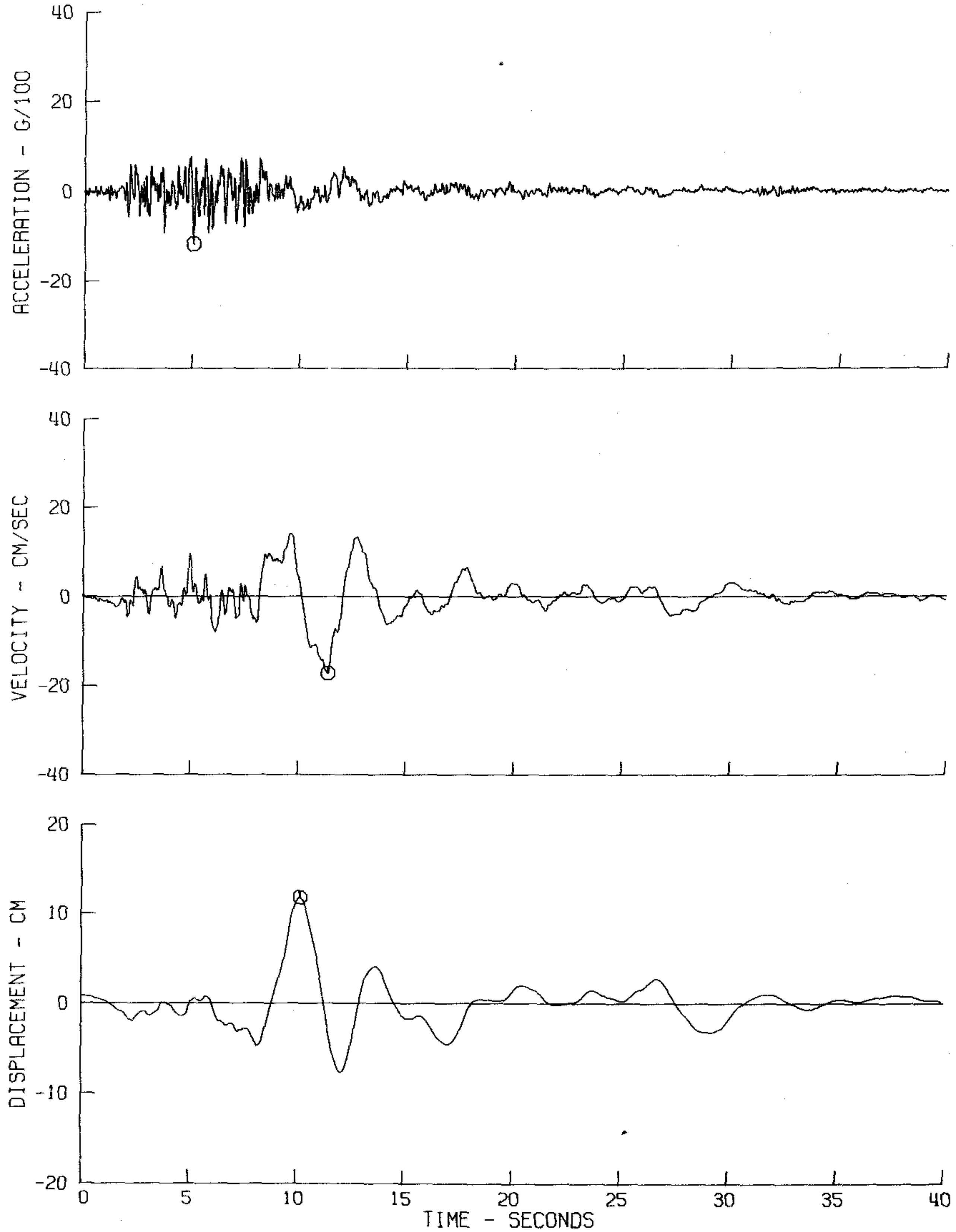
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC054 71.060.0 445 FIGUEROA STREET, SUB-BASEMENT, LOS ANGELES, CAL. COMP N52W
⊕ PEAK VALUES : ACCEL = 147.1 CM/SEC/SEC VELOCITY = 17.4 CM/SEC DISPL = 11.8 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC054 71.060.0 445 FIGUEROA STREET, SUB-BASEMENT, LOS ANGELES, CAL. COMP S38W

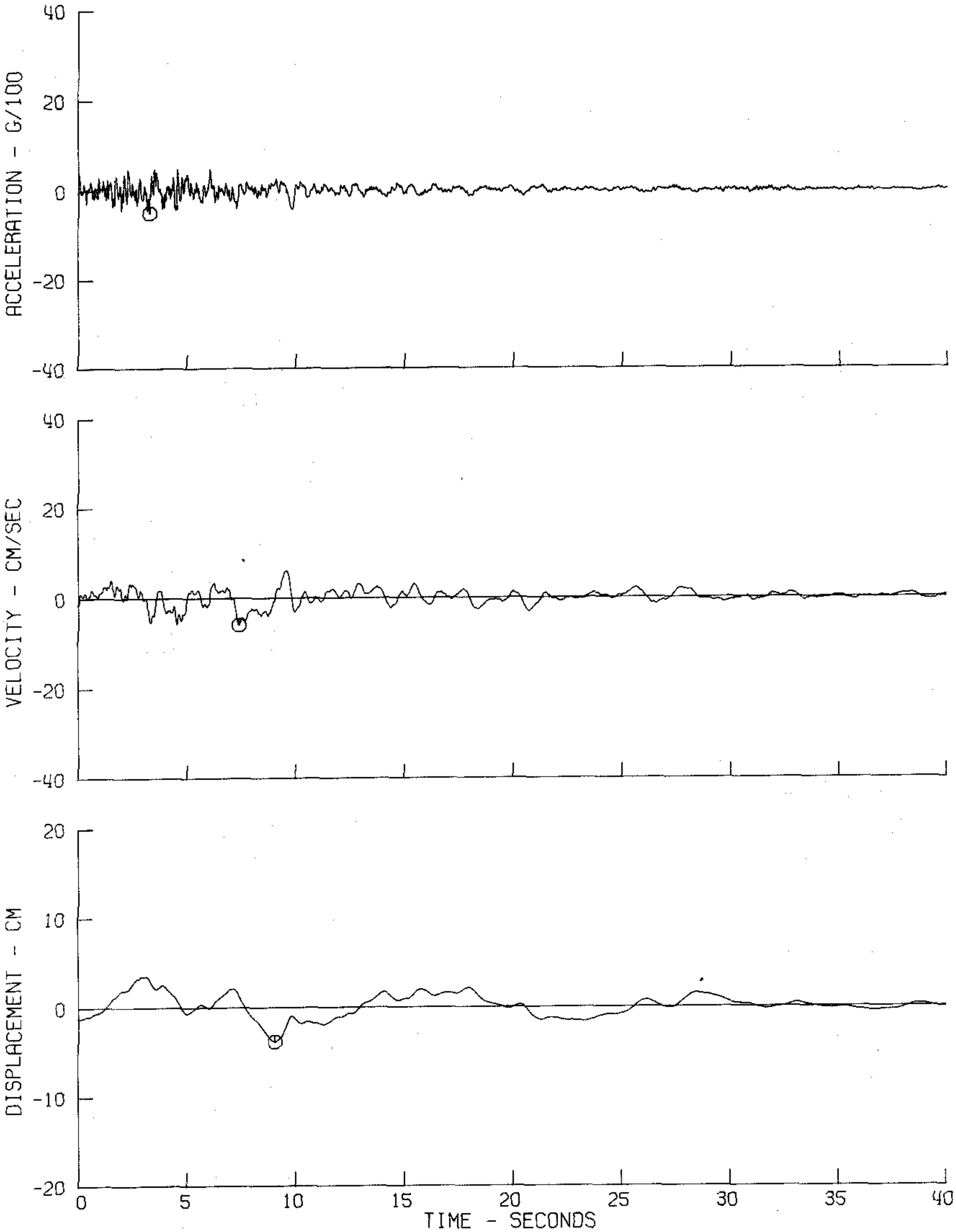
① PEAK VALUES : ACCEL = -117.0 CM/SEC/SEC VELOCITY = -17.3 CM/SEC DISPL = 11.8 CM



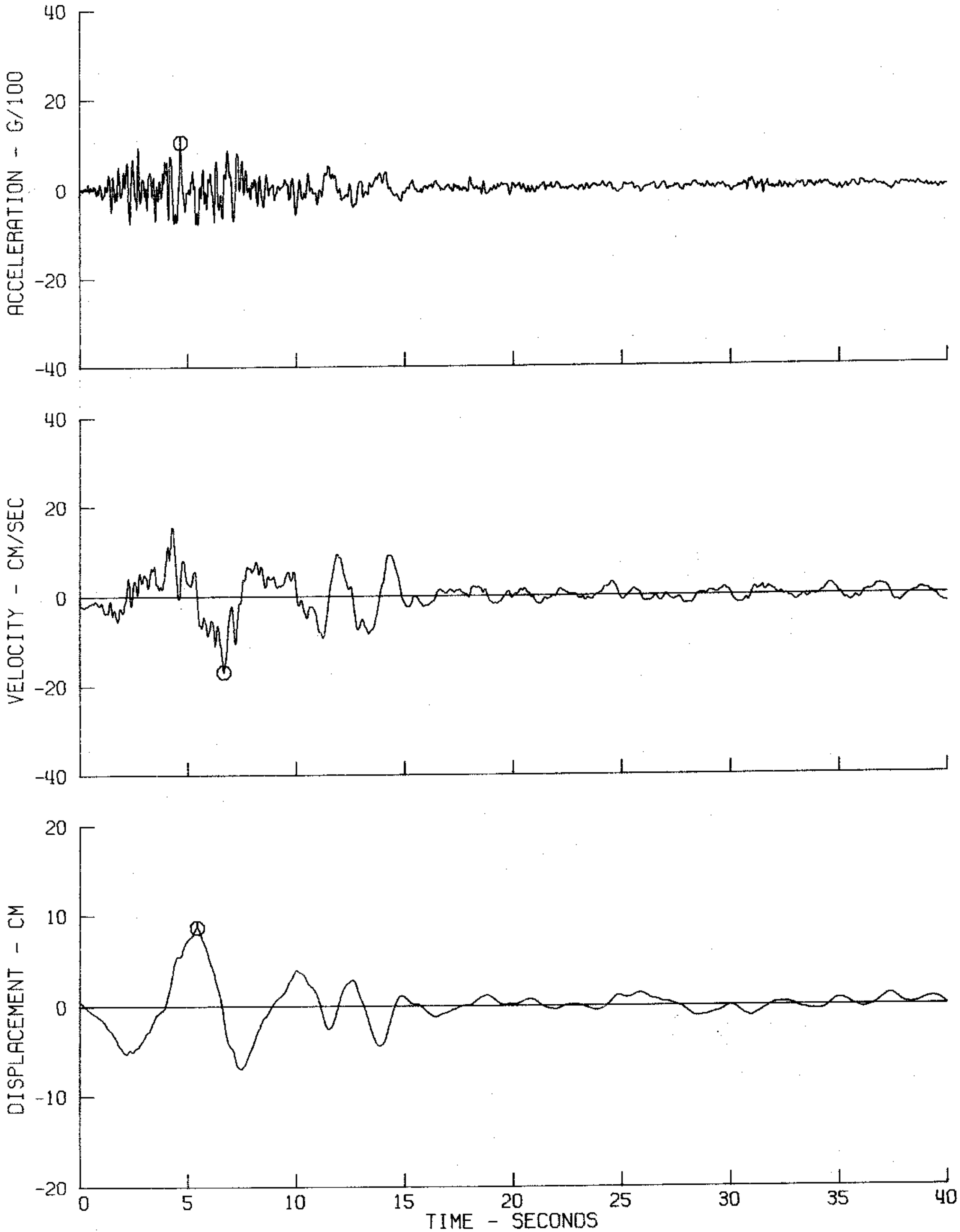
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

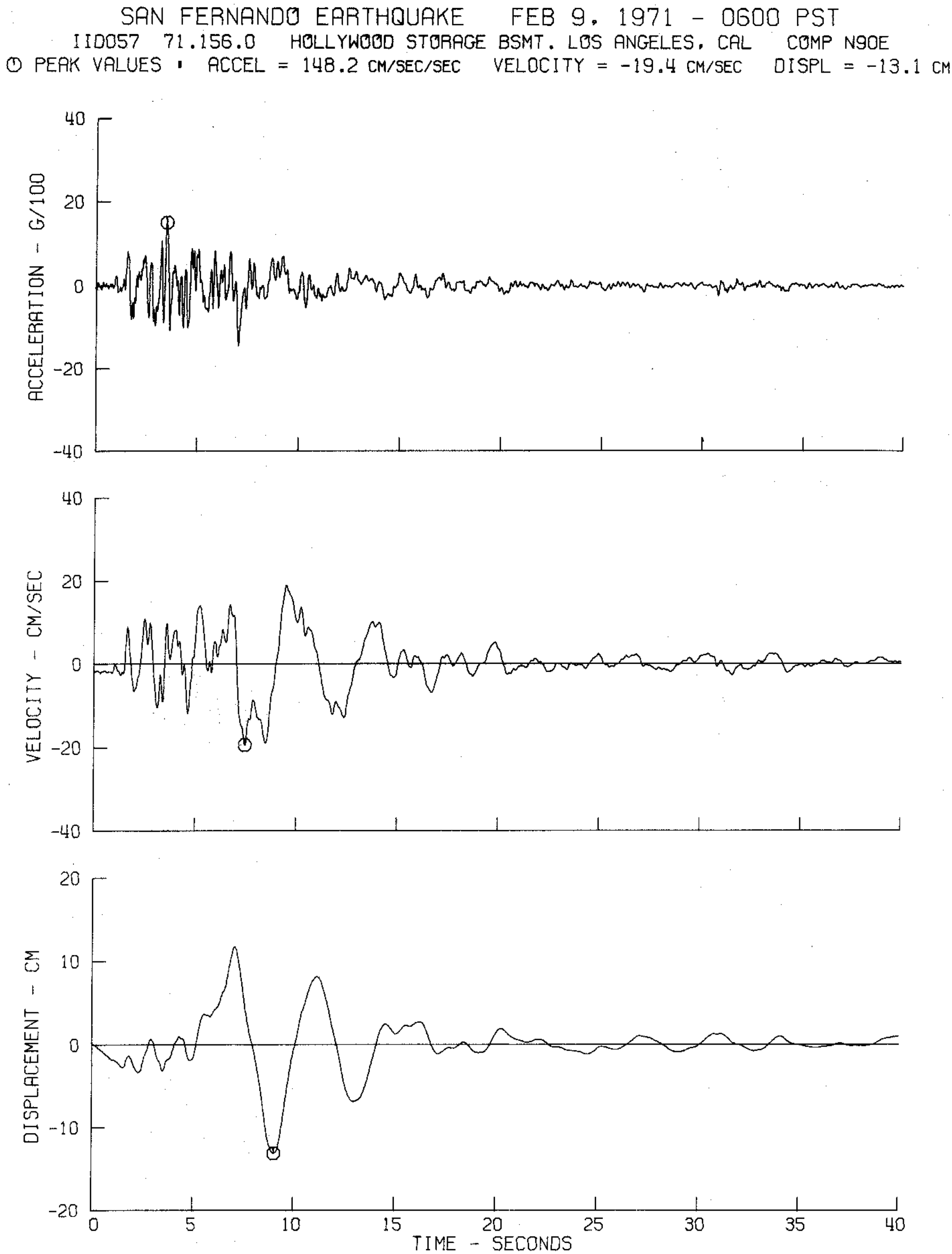
IID057 71.156.0 HOLLYWOOD STORAGE BSMT. LOS ANGELES, CAL COMP UP

PEAK VALUES : ACCEL = -49.8 CM/SEC/SEC VELOCITY = -6.0 CM/SEC DISPL = -3.8 CM

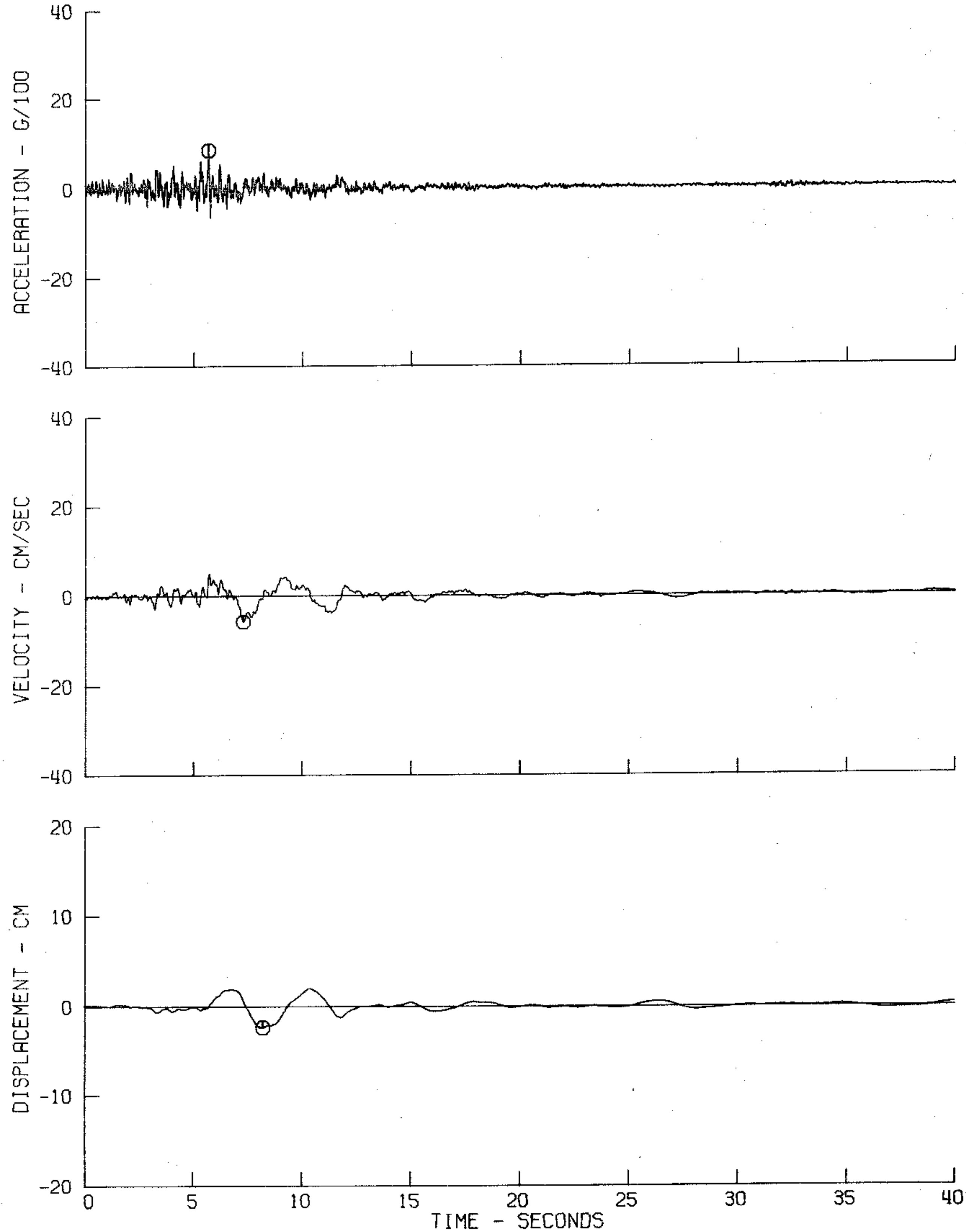


SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IID057 71.156.0 HOLLYWOOD STORAGE BSMT. LOS ANGELES, CAL COMP SOOW
① PEAK VALUES : ACCEL = 103.8 CM/SEC/SEC VELOCITY = -17.0 CM/SEC DISPL = 8.6 CM




SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IID057 71.156.0 HOLLYWOOD STORAGE BSMT. LOS ANGELES, CAL COMP N90E
PEAK VALUES : ACCEL = 148.2 CM/SEC/SEC VELOCITY = -19.4 CM/SEC DISPL = -13.1 CM
ACCELERATION - G/100
40
20
0
-20
-40
VELOCITY - CM/SEC
40
20
0
-20
-40
DISPLACEMENT - CM
20
10
0
-10
-20
0
5
10
15
20
25
30
35
40
TIME - SECONDS

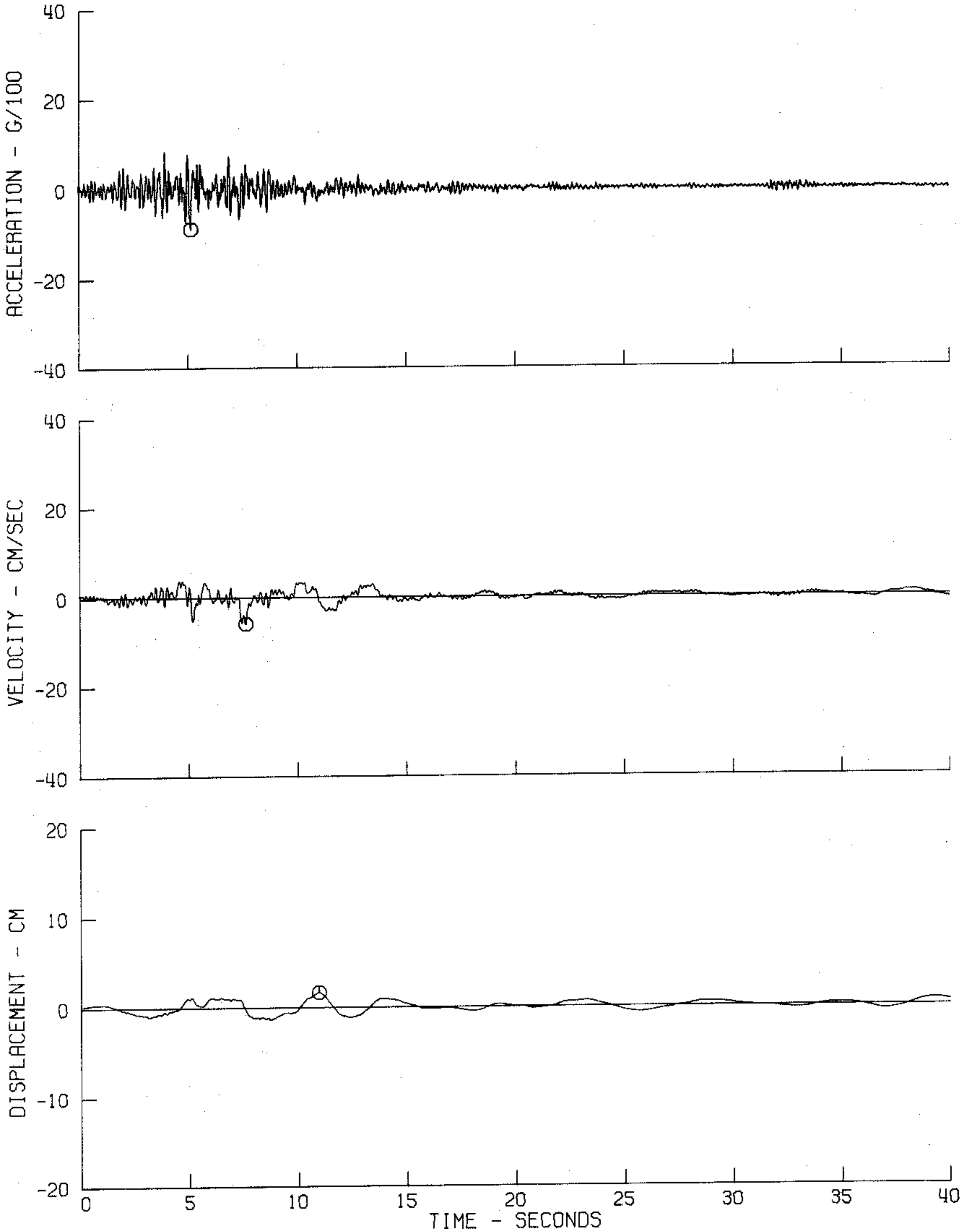
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG106 71.018.0 CALTECH SEISMOLOGICAL LAB., PASADENA, CAL. COMP DOWN
PEAK VALUES : ACCEL = 83.5 CM/SEC/SEC VELOCITY = -5.9 CM/SEC DISPL = -2.3 CM



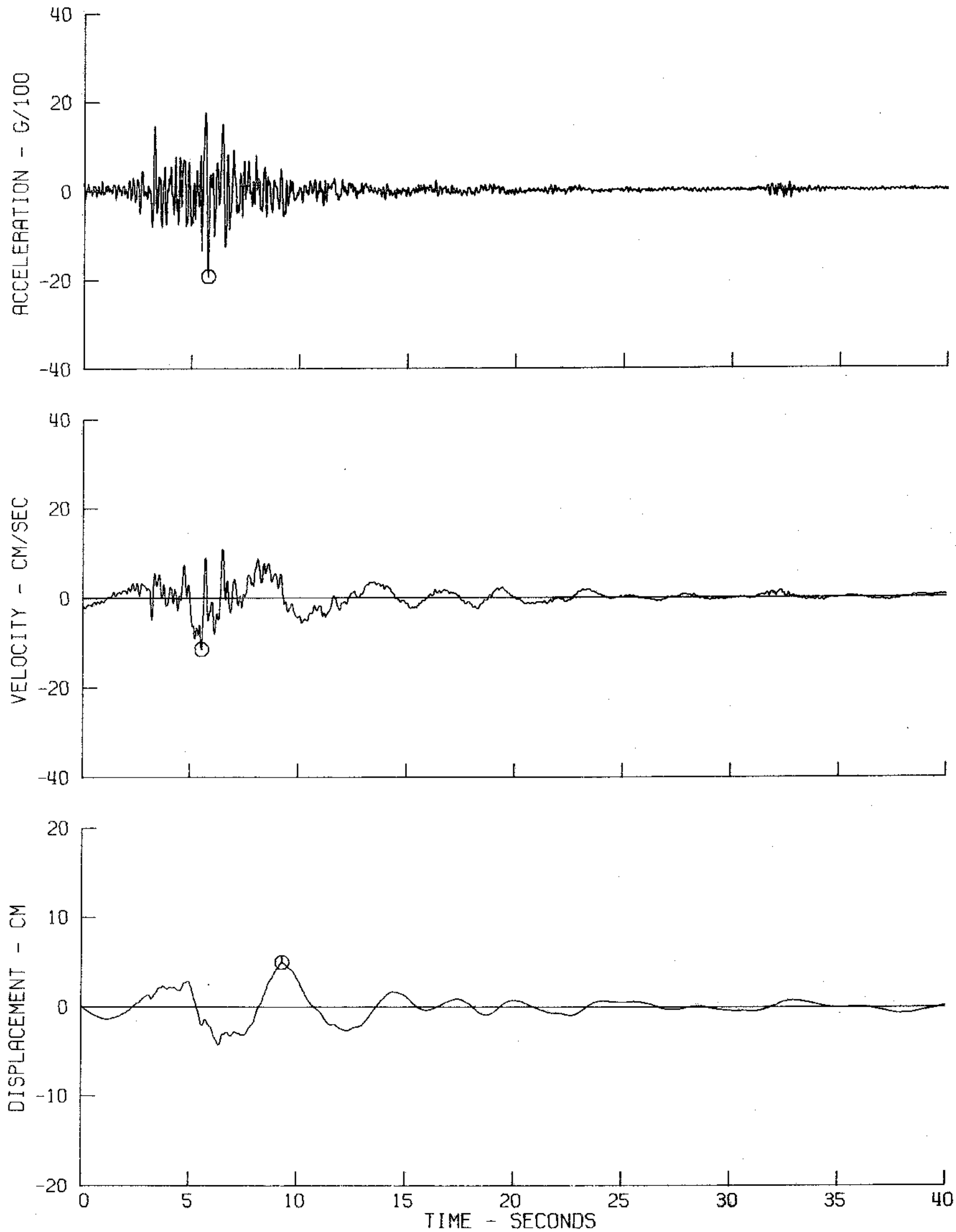
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIG106 71.018.0 CALTECH SEISMOLOGICAL LAB., PASADENA, CAL. COMP SOOW

Ⓟ PEAK VALUES : ACCEL = -87.5 CM/SEC/SEC VELOCITY = -6.0 CM/SEC DISPL = 1.7 CM



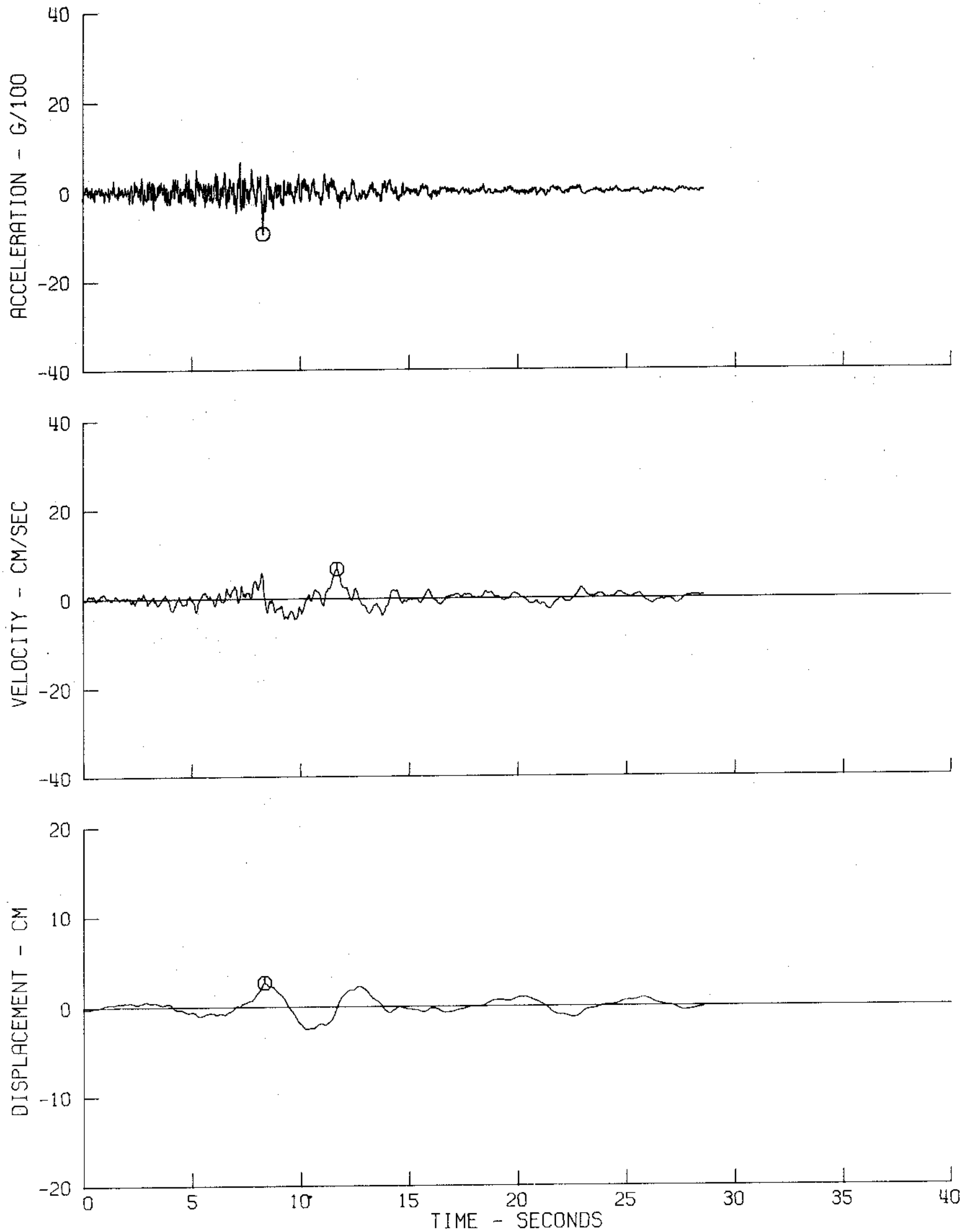
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG106 71.018.0 CALTECH SEISMOLOGICAL LAB., PASADENA, CAL. COMP S90W
① PEAK VALUES : ACCEL = -188.6 CM/SEC/SEC VELOCITY = -11.6 CM/SEC DISPL = 5.0 CM



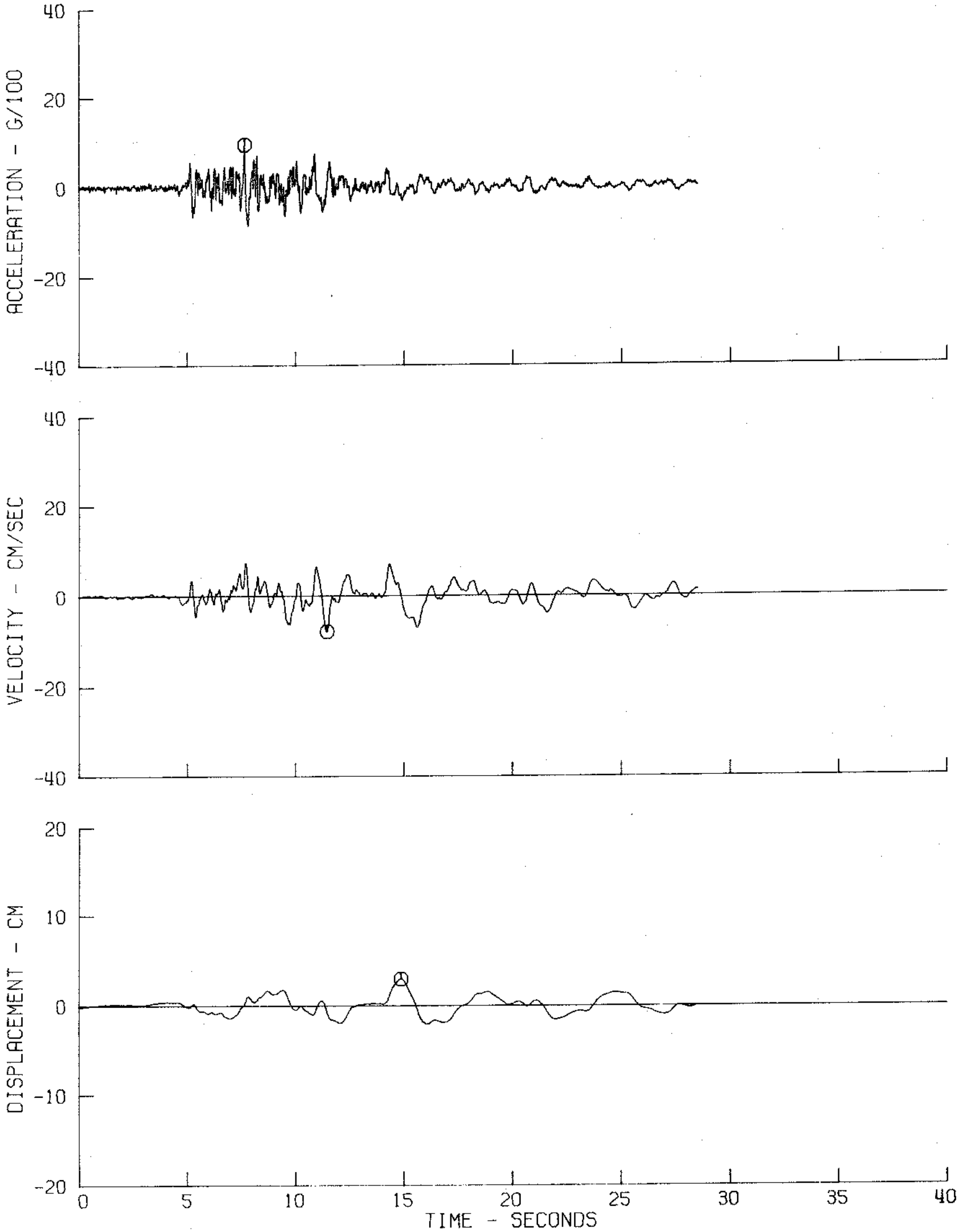
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIG107 71.019.0 CALTECH ATHENAEUM, PASADENA, CAL. COMP DOWN

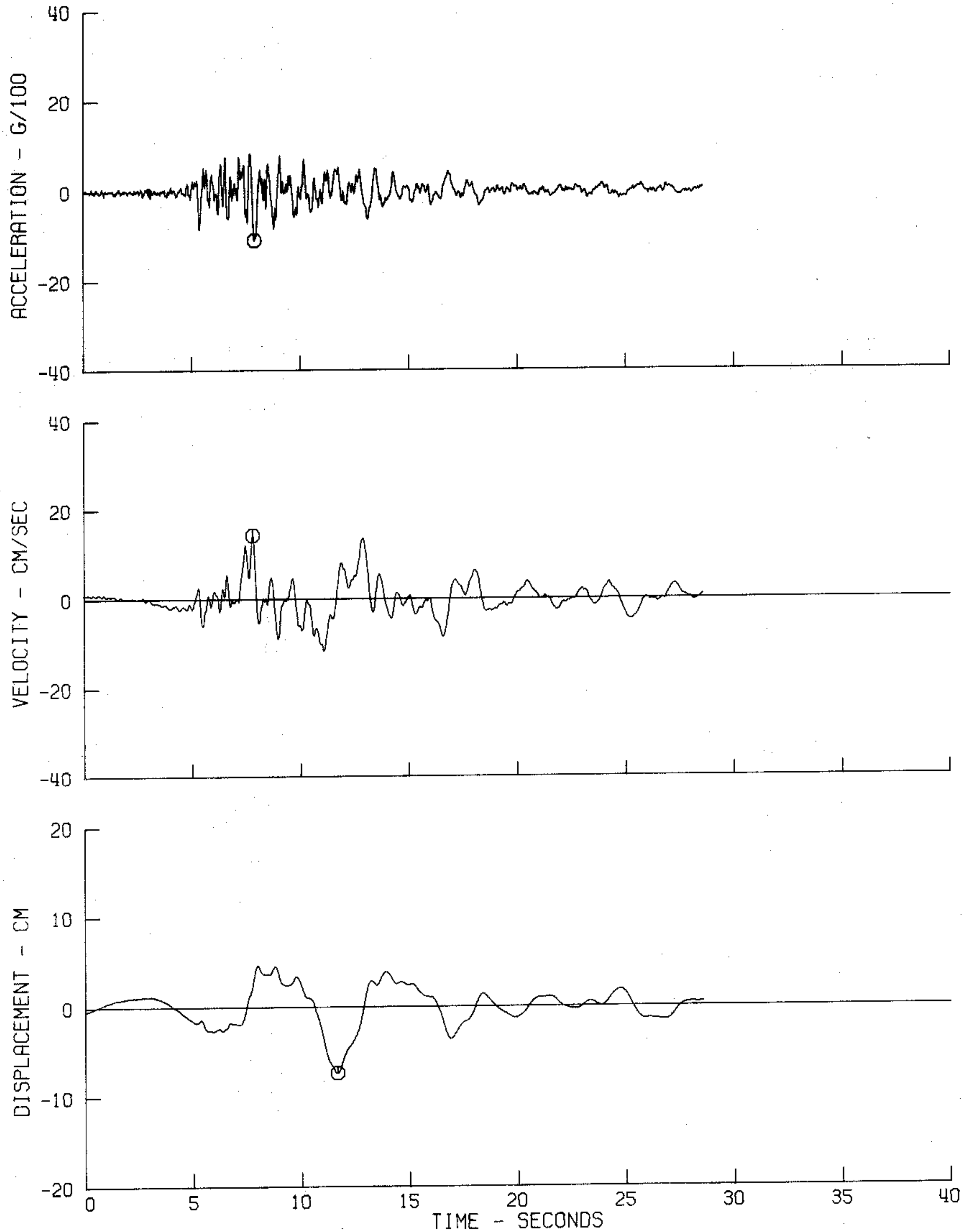
⊙ PEAK VALUES : ACCEL = -92.9 CM/SEC/SEC VELOCITY = 6.6 CM/SEC DISPL = 2.7 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG107 71.019.0 CALTECH ATHENAEUM, PASADENA, CAL. COMP NOOE
① PEAK VALUES : ACCEL = 93.5 CM/SEC/SEC VELOCITY = -8.0 CM/SEC DISPL = 3.0 CM



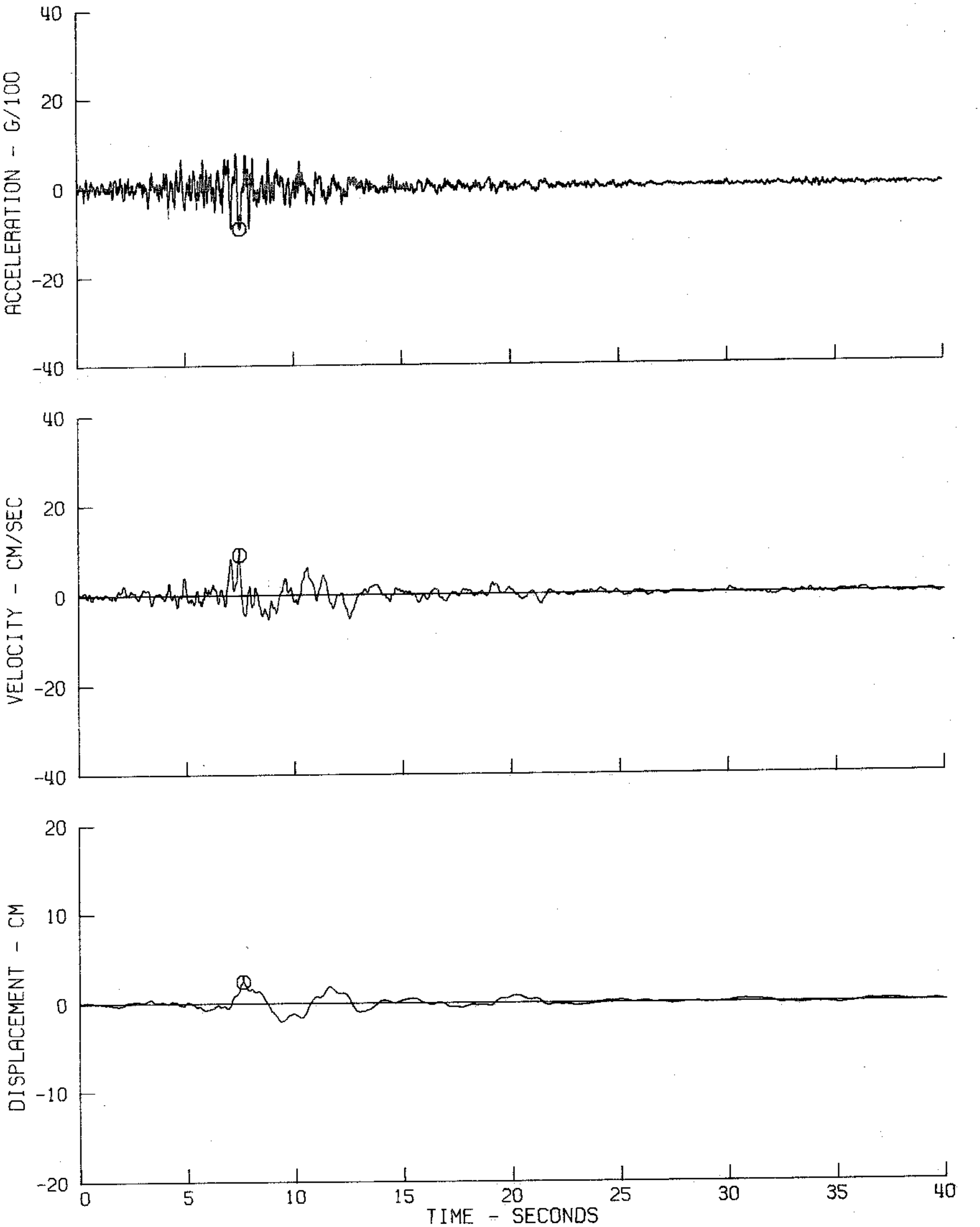
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG107 71.019.0 CALTECH ATHENAEUM, PASADENA, CAL. COMP N90E
⊙ PEAK VALUES : ACCEL = -107.3 CM/SEC/SEC VELOCITY = 14.3 CM/SEC DISPL = -7.4 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIG108 71.022.0 CALTECH MILLIKAN LIBRARY, BASEMENT, PASADENA, CAL. COMP DOWN

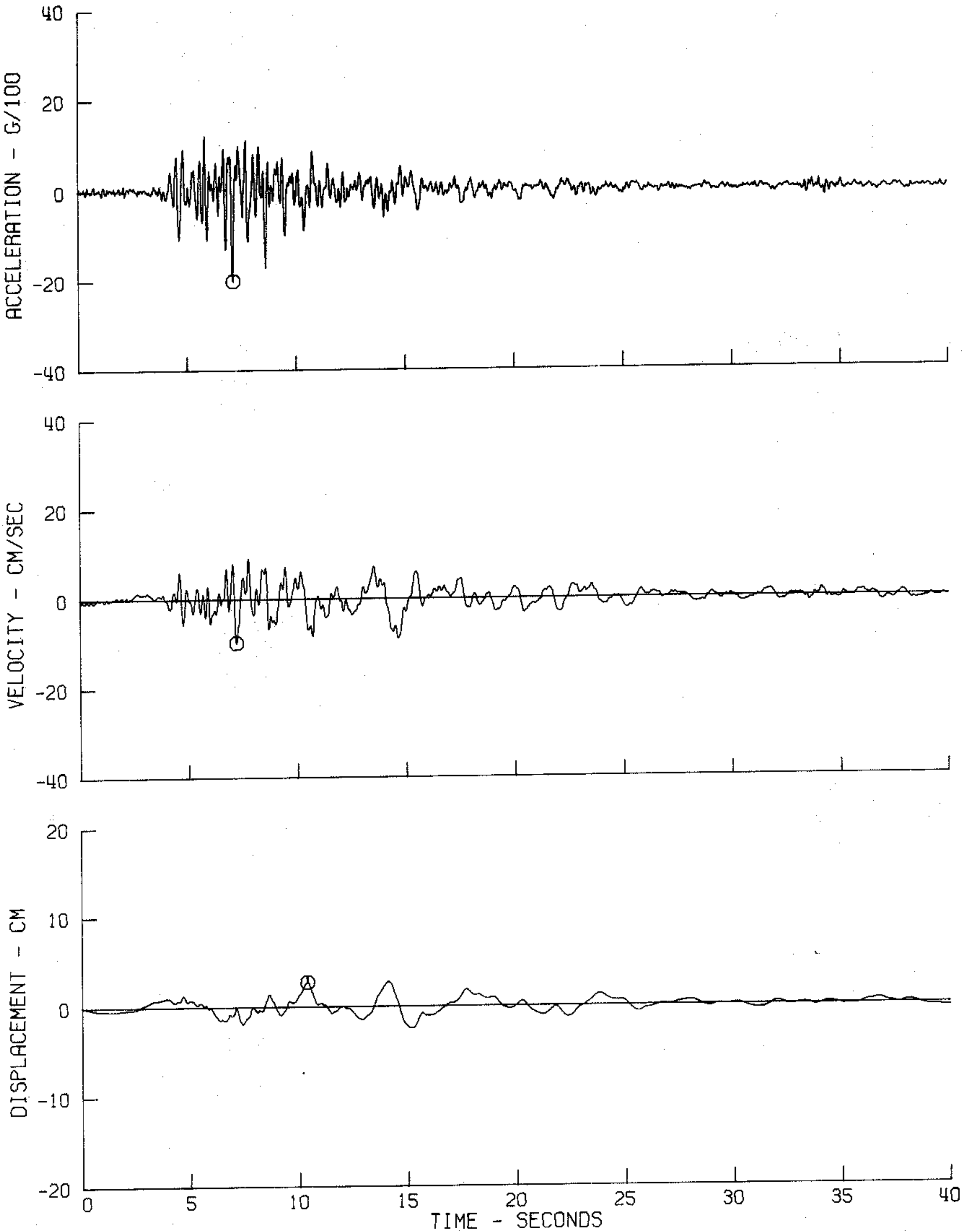
⊙ PEAK VALUES : ACCEL = -91.2 CM/SEC/SEC VELOCITY = 9.0 CM/SEC DISPL = 2.4 CM



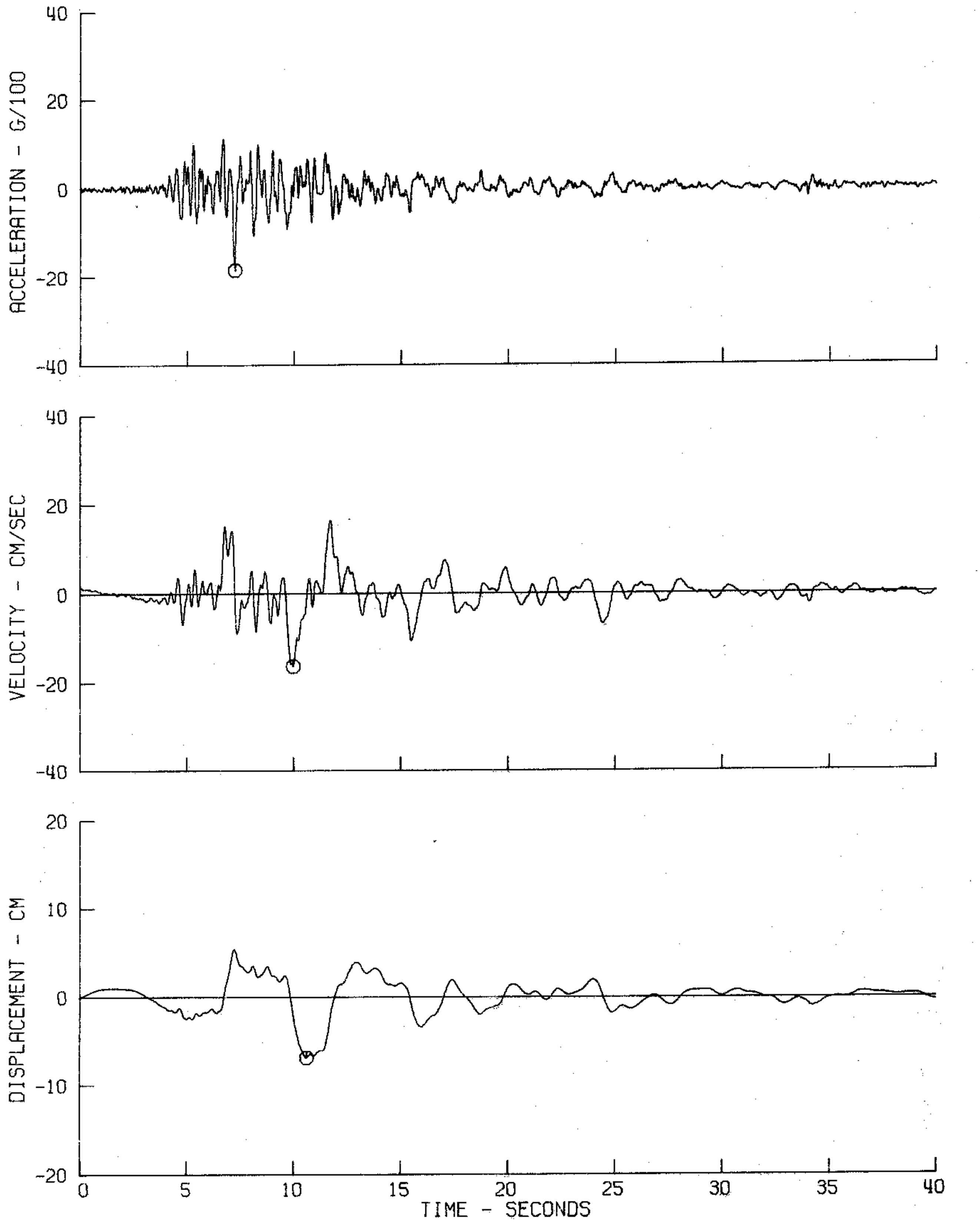
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIG108 71.022.0 CALTECH MILLIKAN LIBRARY, BASEMENT, PASADENA, CAL. COMP N00E

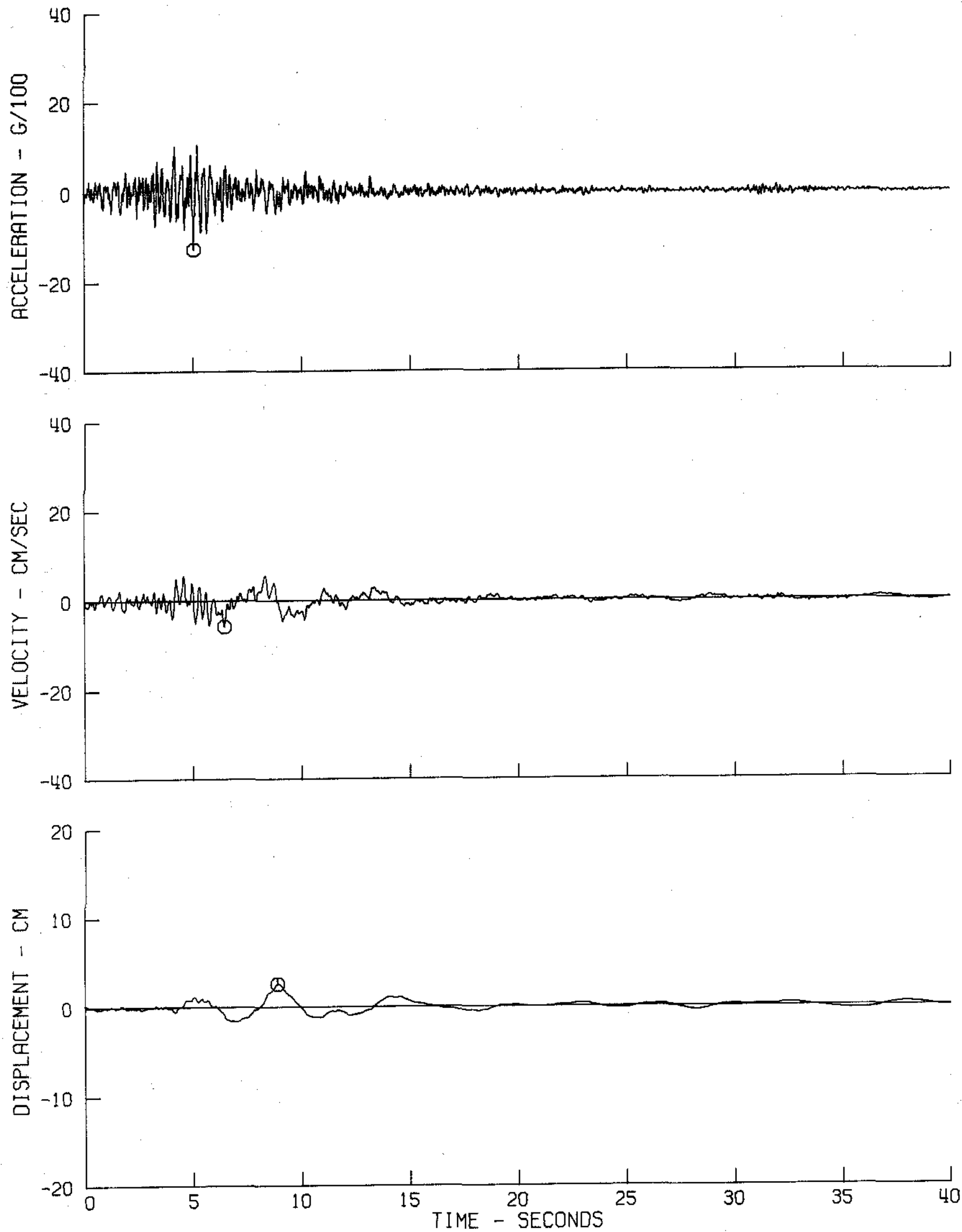
⊙ PEAK VALUES : ACCEL = -198.0 CM/SEC/SEC VELOCITY = -9.8 CM/SEC DISPL = 2.7 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG108 71.022.0 CALTECH MILLIKAN LIBRARY, BASEMENT, PASADENA, CAL. COMP N90E
① PEAK VALUES : ACCEL = -181.6 CM/SEC/SEC VELOCITY = -16.4 CM/SEC DISPL = -6.9 CM



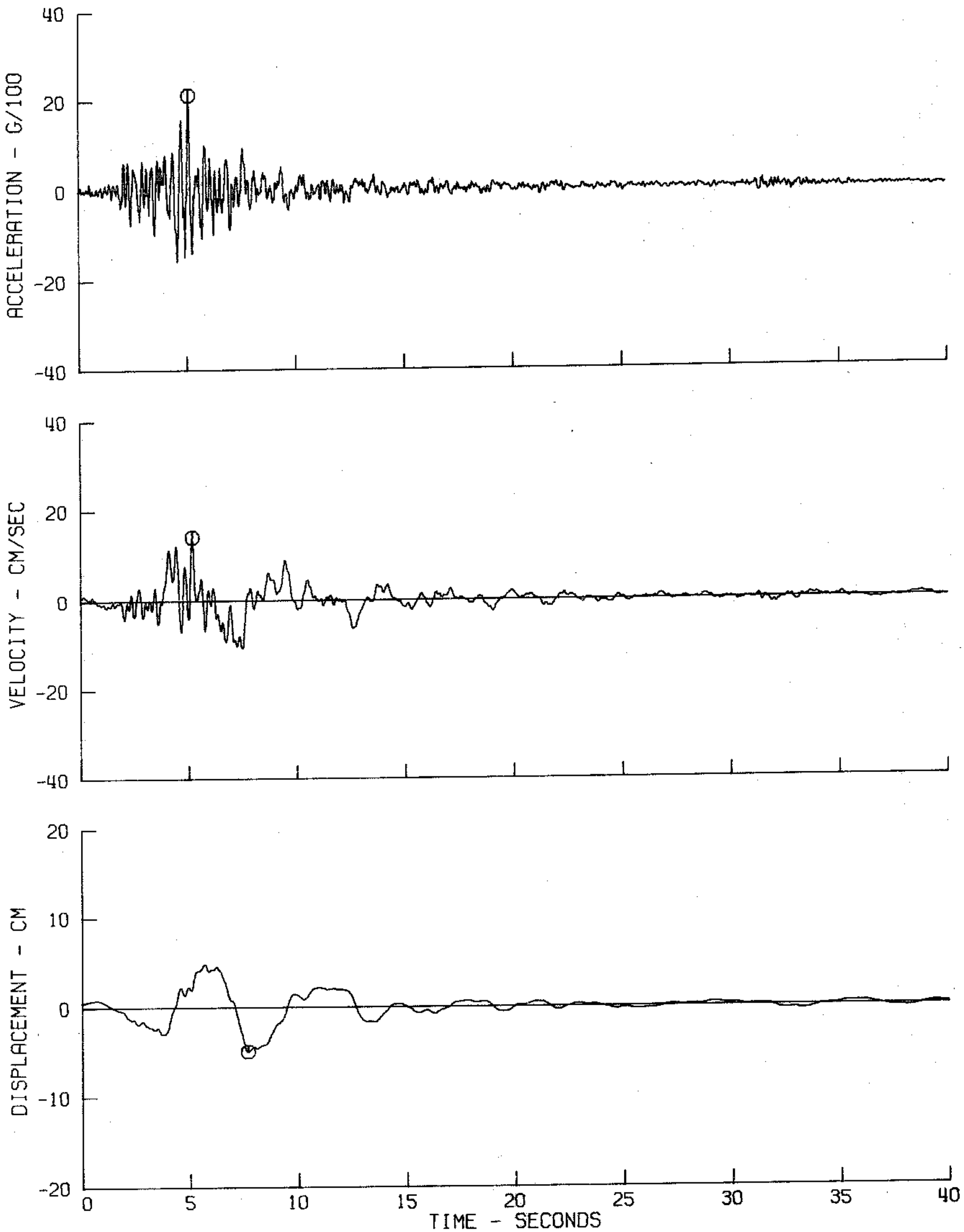
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG110 71.032.0 JET PROPULSION LAB., BASEMENT, PASADENA, CAL. COMP DOWN
PEAK VALUES : ACCEL = -126.3 CM/SEC/SEC VELOCITY = -5.9 CM/SEC DISPL = 2.6 CM



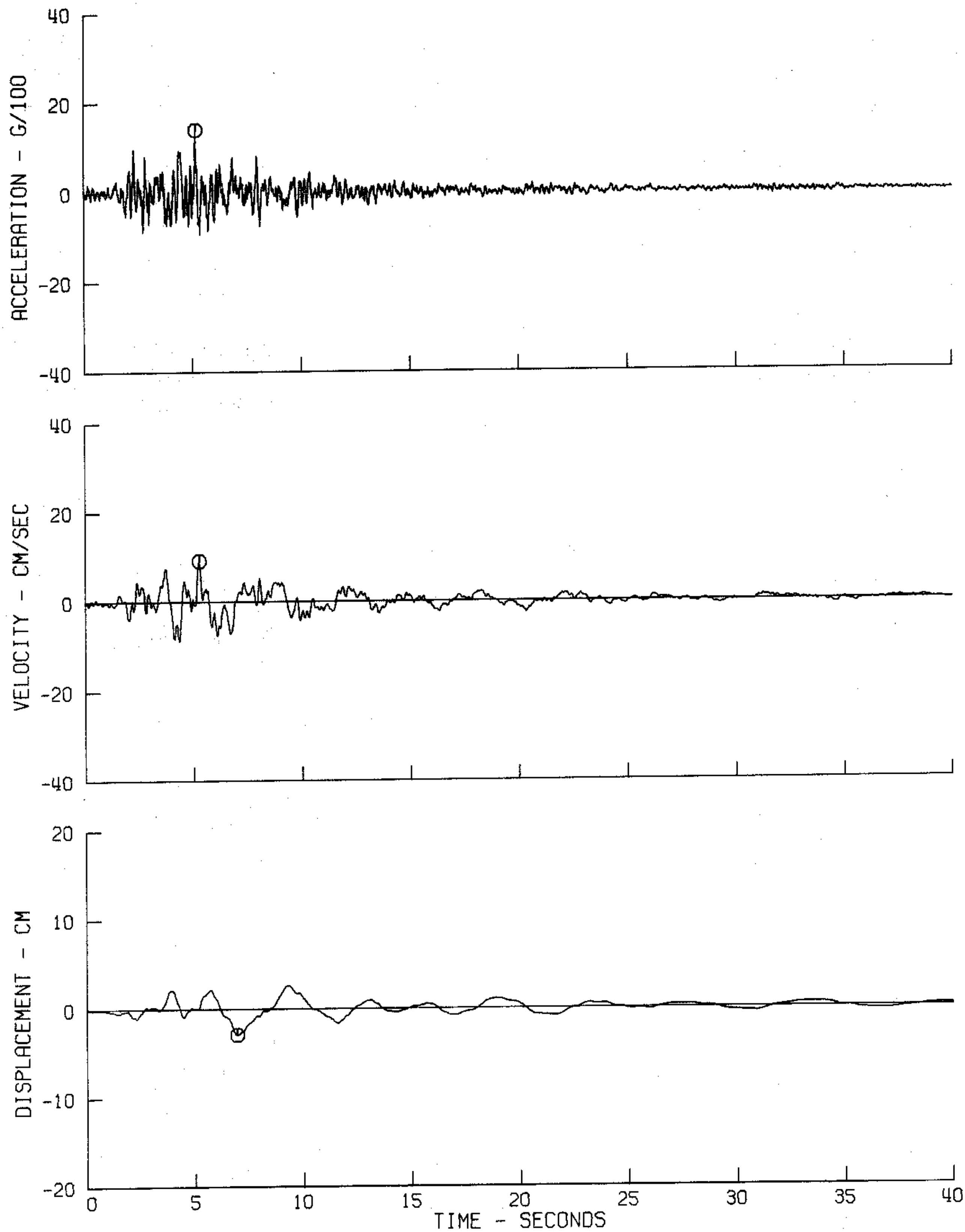
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIG110 71.032.0 JET PROPULSION LAB., BASEMENT, PASADENA, CAL. COMP S82E

PEAK VALUES : ACCEL = 207.8 CM/SEC/SEC VELOCITY = 13.9 CM/SEC DISPL = -5.0 CM



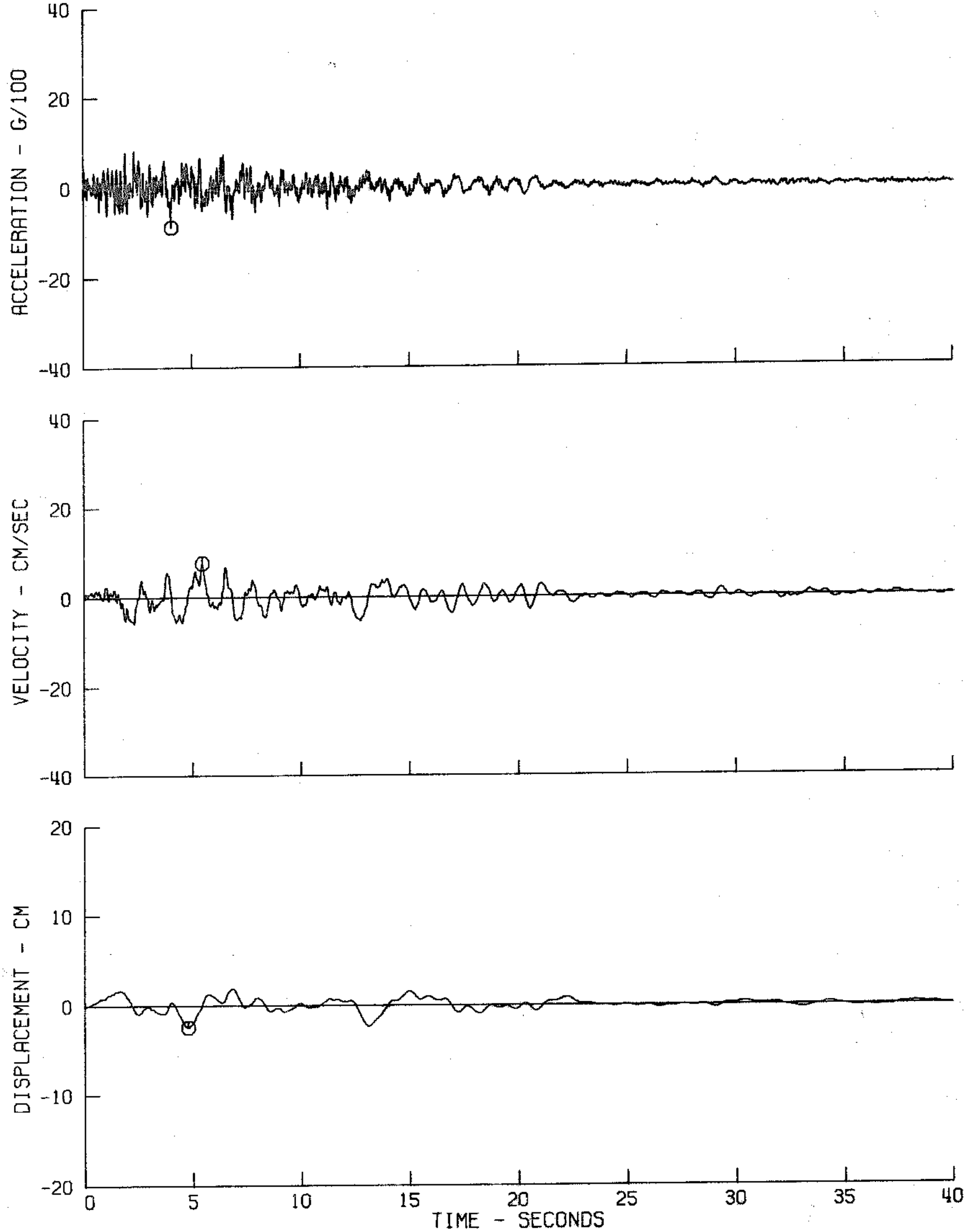
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG110 71.032.0 JET PROPULSION LAB., BASEMENT, PASADENA, CAL. COMP S08W
PEAK VALUES : ACCEL = 139.0 CM/SEC/SEC VELOCITY = 9.2 CM/SEC DISPL = -2.9 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIG114 71.064.0 PALMDALE FIRE STATION, STORAGE ROOM, PALMDALE, CAL. COMP DOWN

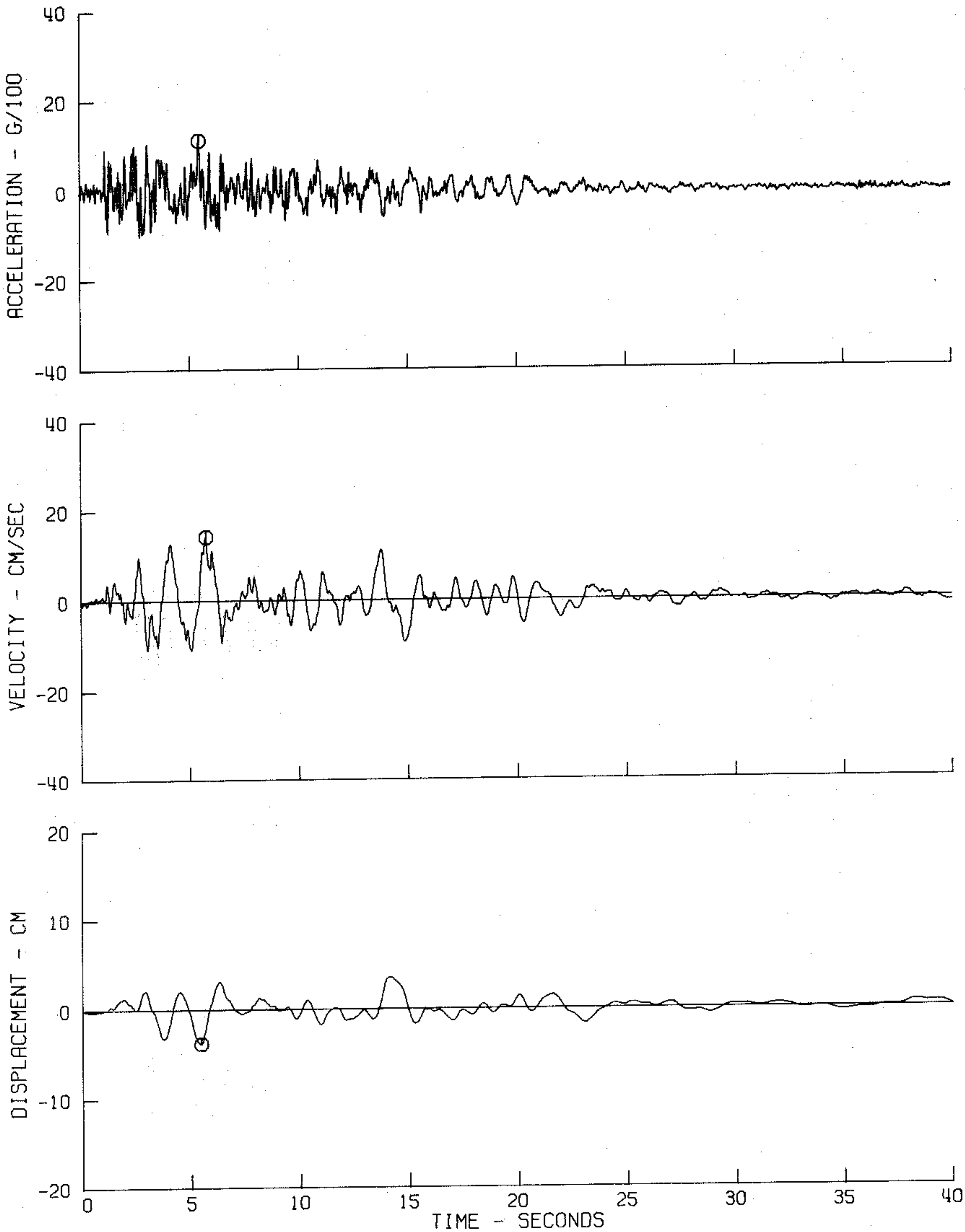
⊙ PEAK VALUES : ACCEL = -86.6 CM/SEC/SEC VELOCITY = 7.8 CM/SEC DISPL = -2.4 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIG114 71.064.0 PALMDALE FIRE STATION, STORAGE ROOM, PALMDALE, CAL. COMP S60E

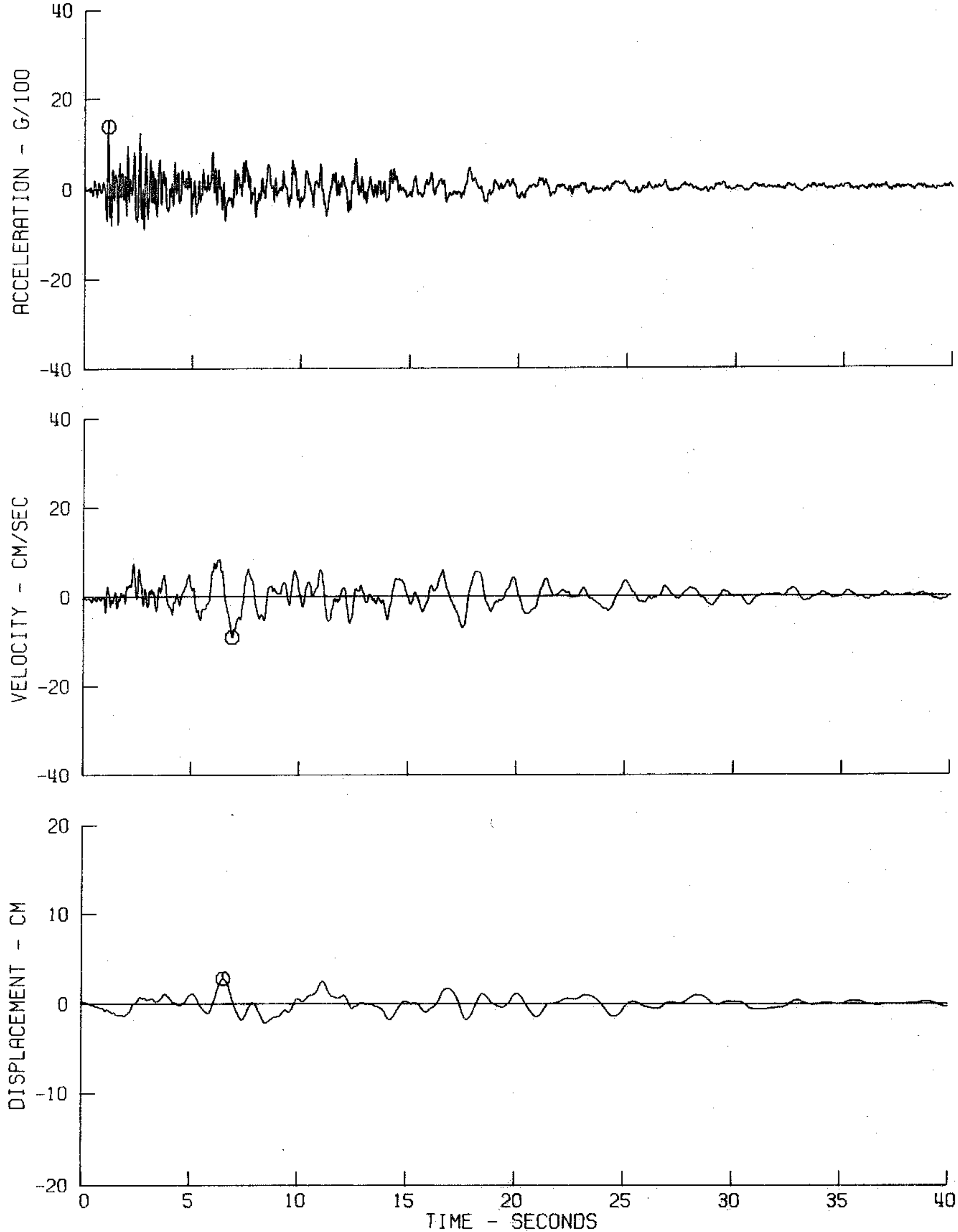
⊙ PEAK VALUES : ACCEL = 110.8 CM/SEC/SEC VELOCITY = 14.2 CM/SEC DISPL = -3.8 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIG114 71.064.0 PALMDALE FIRE STATION, STORAGE ROOM, PALMDALE, CAL. COMP S30W

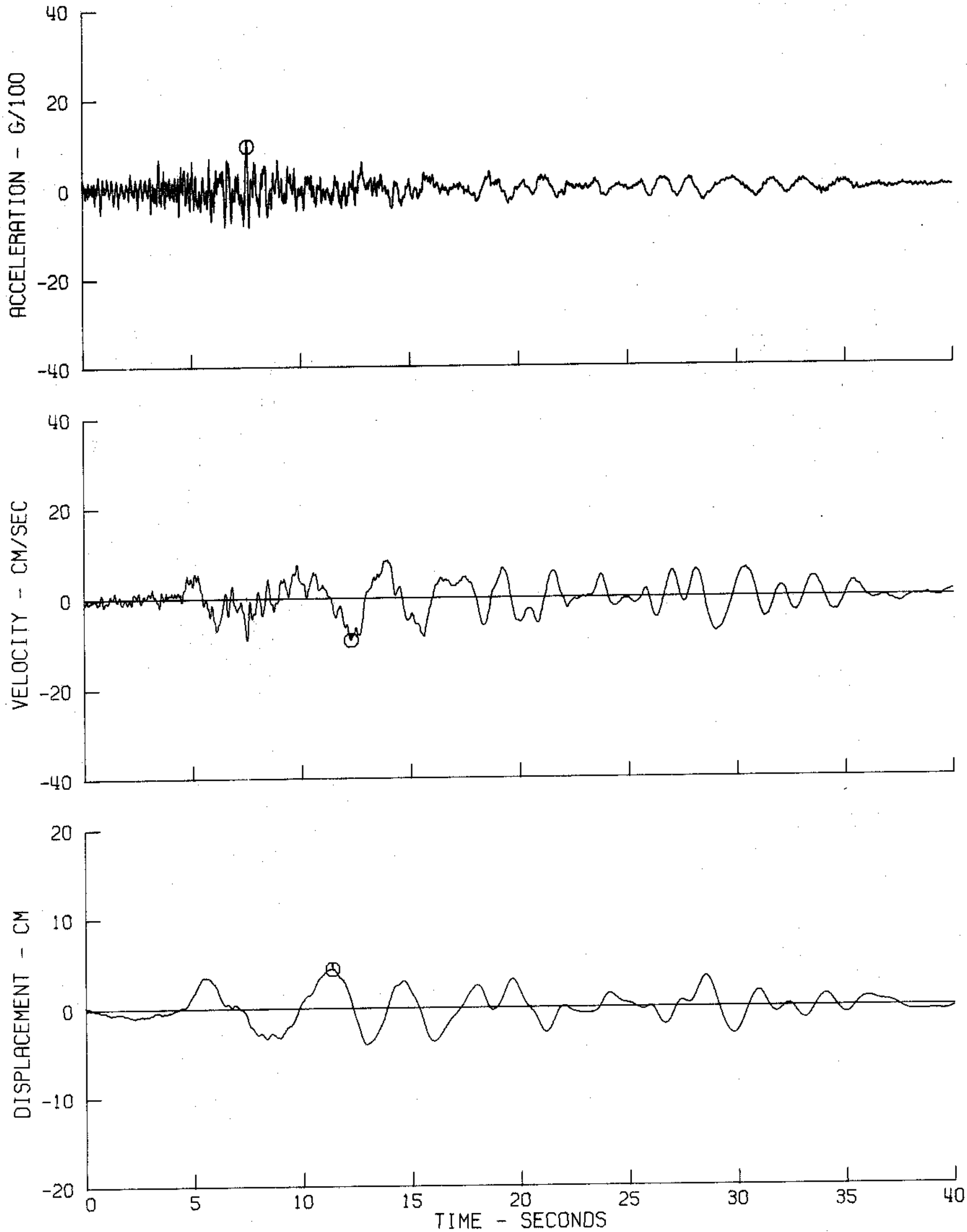
⊕ PEAK VALUES : ACCEL = 136.2 CM/SEC/SEC VELOCITY = -9.3 CM/SEC DISPL = 2.8 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIH115 71.024.0 15250 VENTURA BLVD., BASEMENT, LOS ANGELES, CAL. COMP DOWN

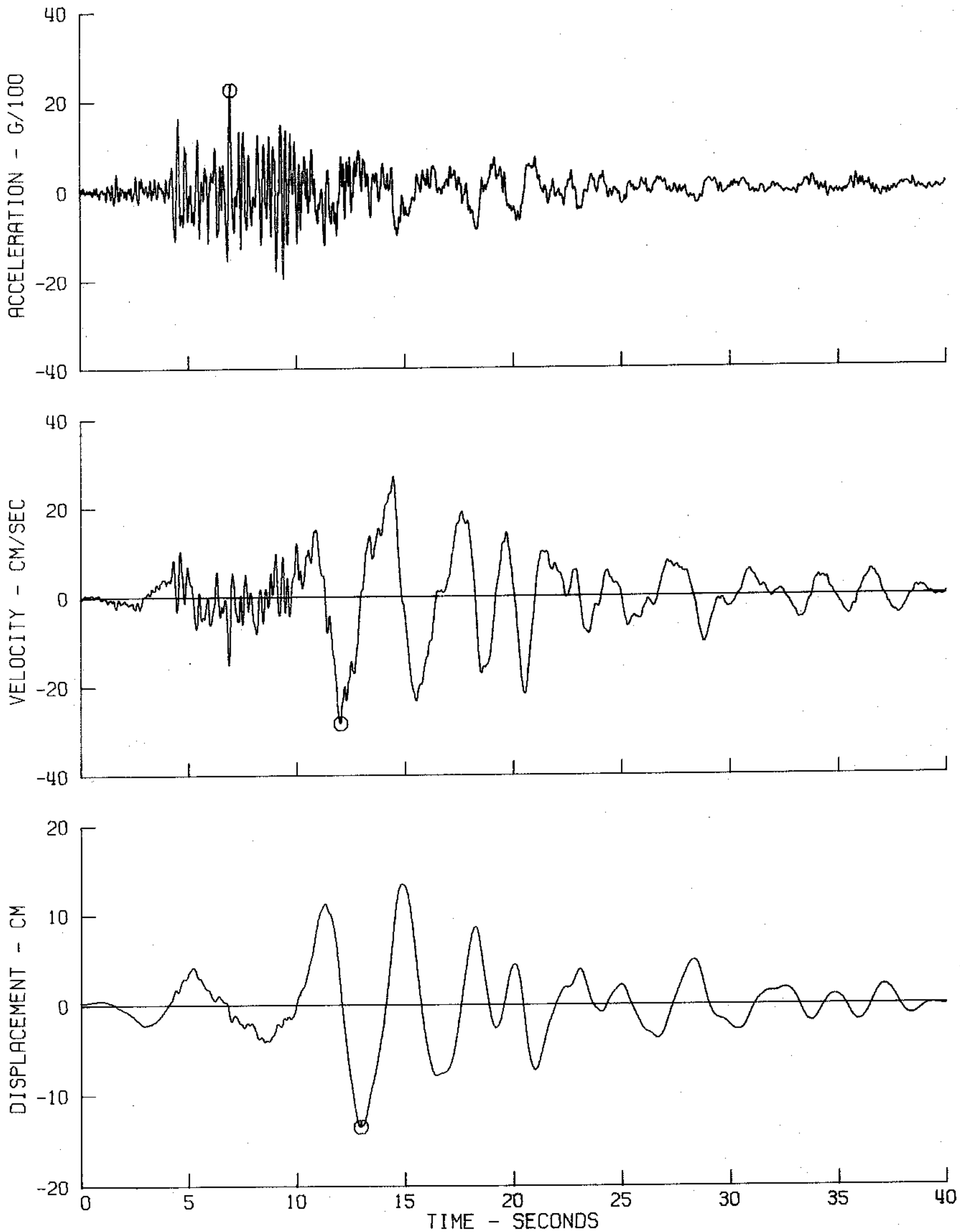
⊕ PEAK VALUES : ACCEL = 94.5 CM/SEC/SEC VELOCITY = -9.4 CM/SEC DISPL = 4.3 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIH115 71.024.0 15250 VENTURA BLVD., BASEMENT, LOS ANGELES, CAL. COMP N11E

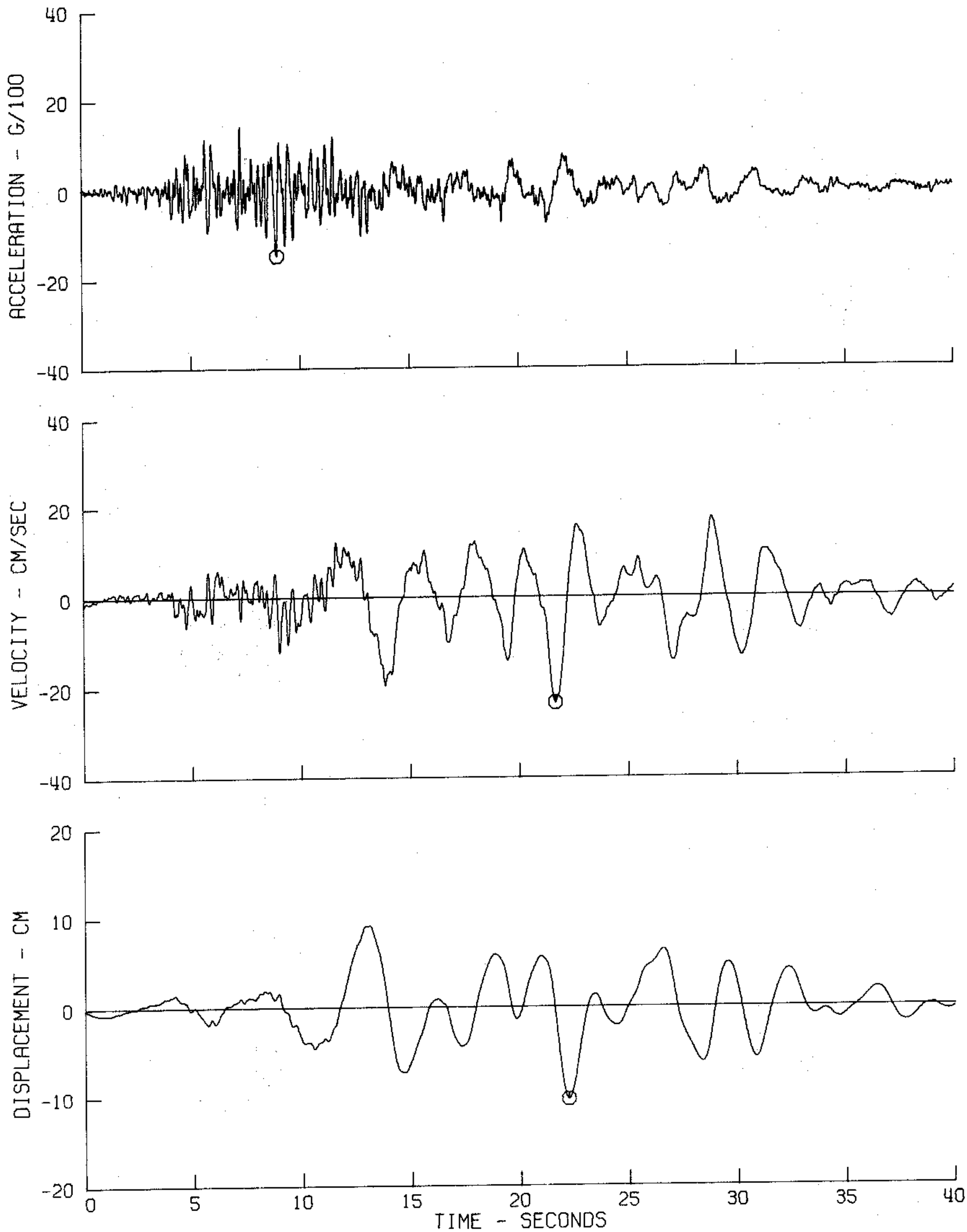
⏀ PEAK VALUES : ACCEL = 220.6 CM/SEC/SEC VELOCITY = -28.2 CM/SEC DISPL = -13.5 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIH115 71.024.0 15250 VENTURA BLVD., BASEMENT, LOS ANGELES, CAL. COMP N79W

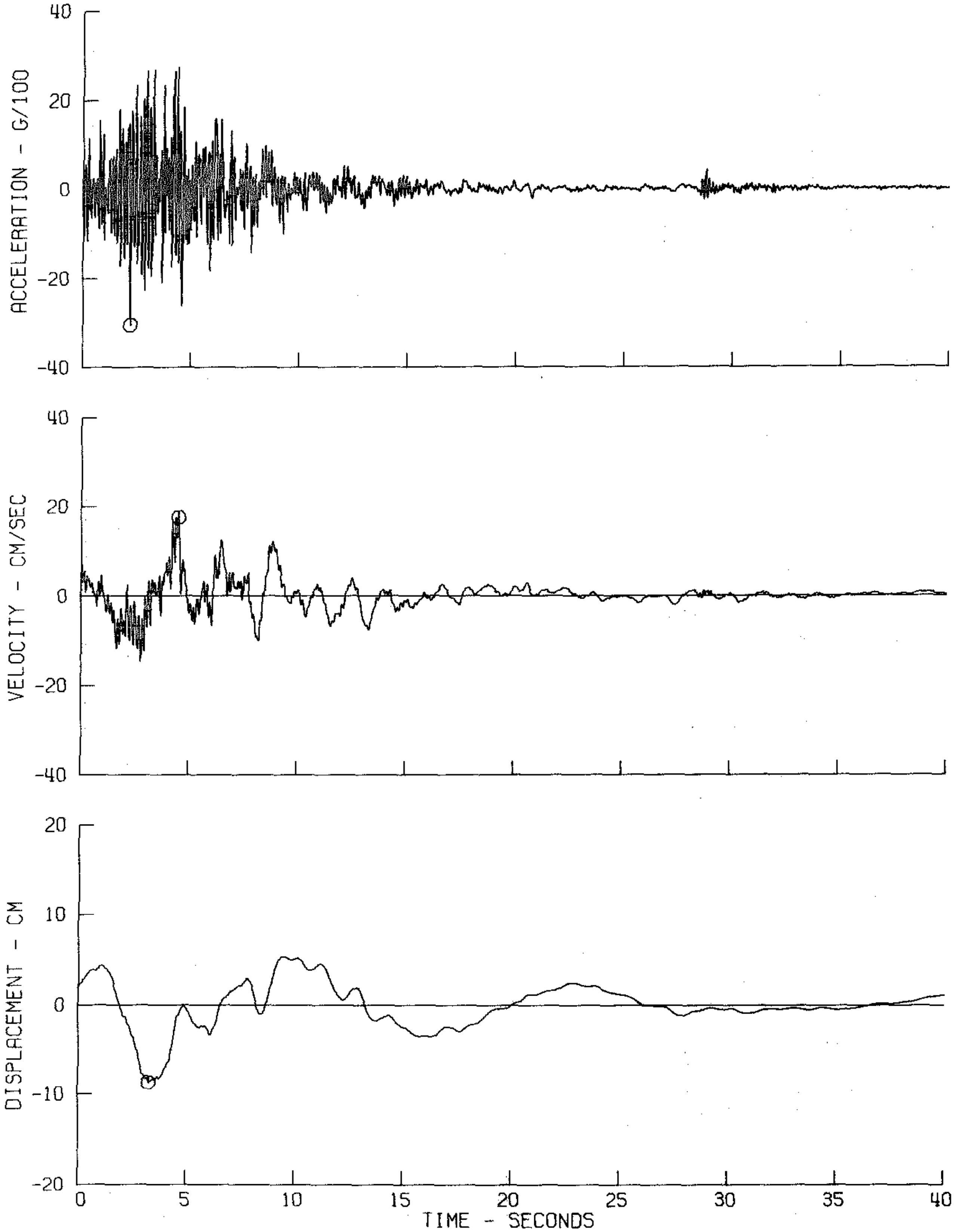
⊙ PEAK VALUES : ACCEL = -146.0 CM/SEC/SEC VELOCITY = -23.5 CM/SEC DISPL = -10.3 CM



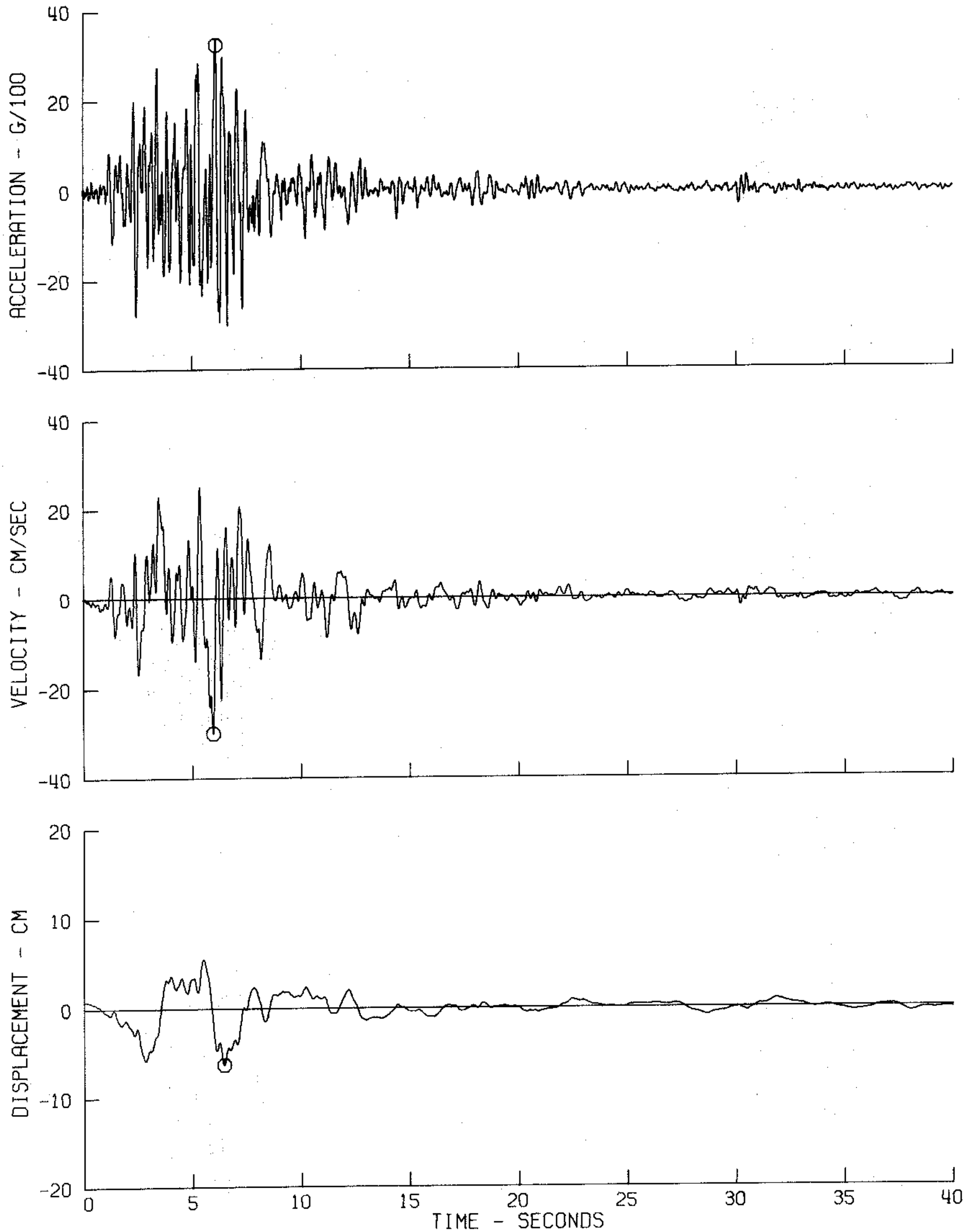
MANAGUA EARTHQUAKE DEC 23, 1972 - 0629 GMT

IIZ001 00.000.0 MANAGUA, NICARAGUA COMP DOWN

Ⓘ PEAK VALUES : ACCEL = -299.9 CM/SEC/SEC VELOCITY = 17.5 CM/SEC DISPL = -8.7 CM



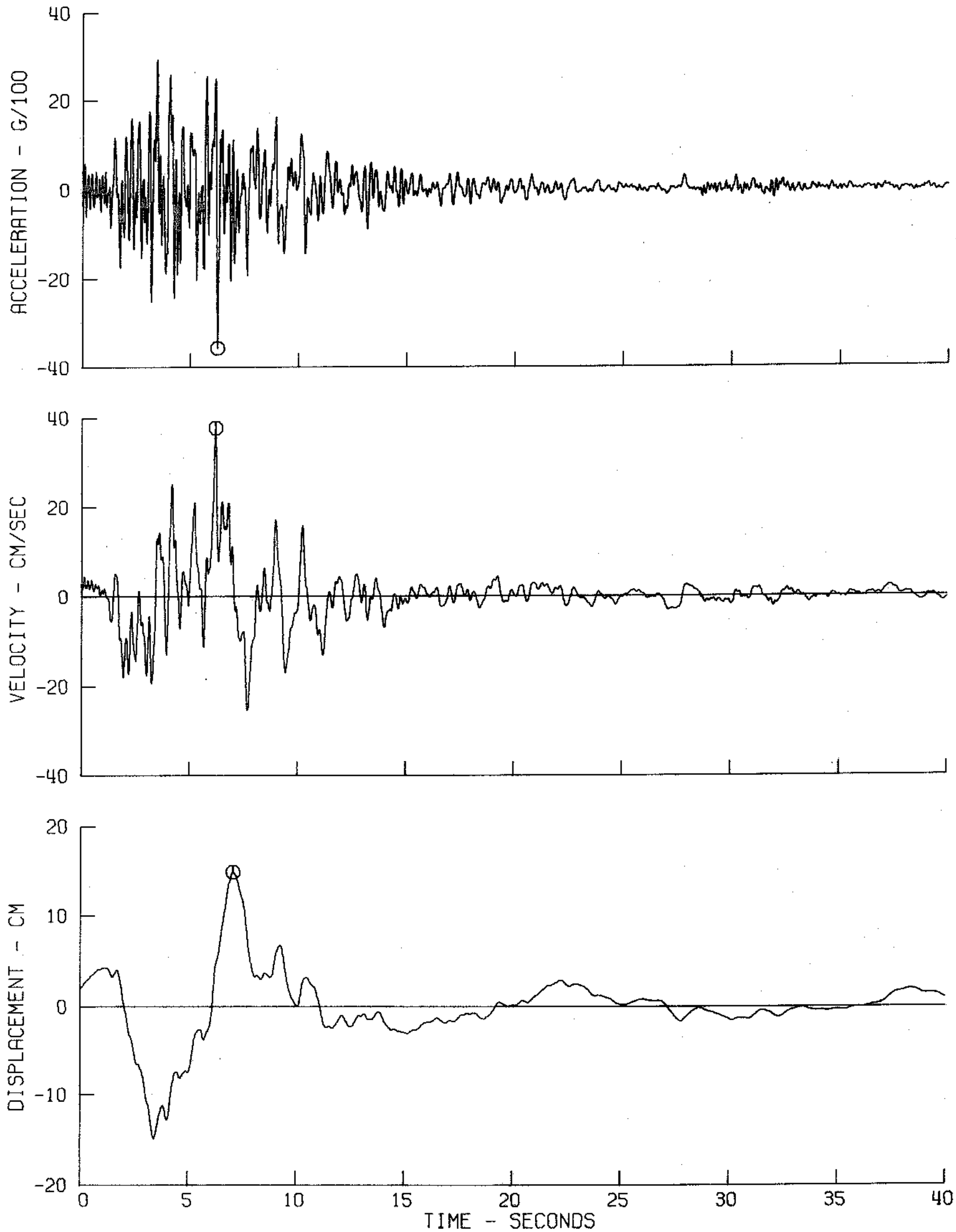
MANAGUA EARTHQUAKE DEC 23, 1972 - 0629 GMT
IIZ001 00.000.0 MANAGUA, NICARAGUA COMP SOUTH
⊕ PEAK VALUES : ACCEL = 318.5 CM/SEC/SEC VELOCITY = -30.0 CM/SEC DISPL = -6.4 CM



MANAGUA EARTHQUAKE DEC 23, 1972 - 0629 GMT

IIZ001 00.000.0 MANAGUA, NICARAGUA COMP EAST

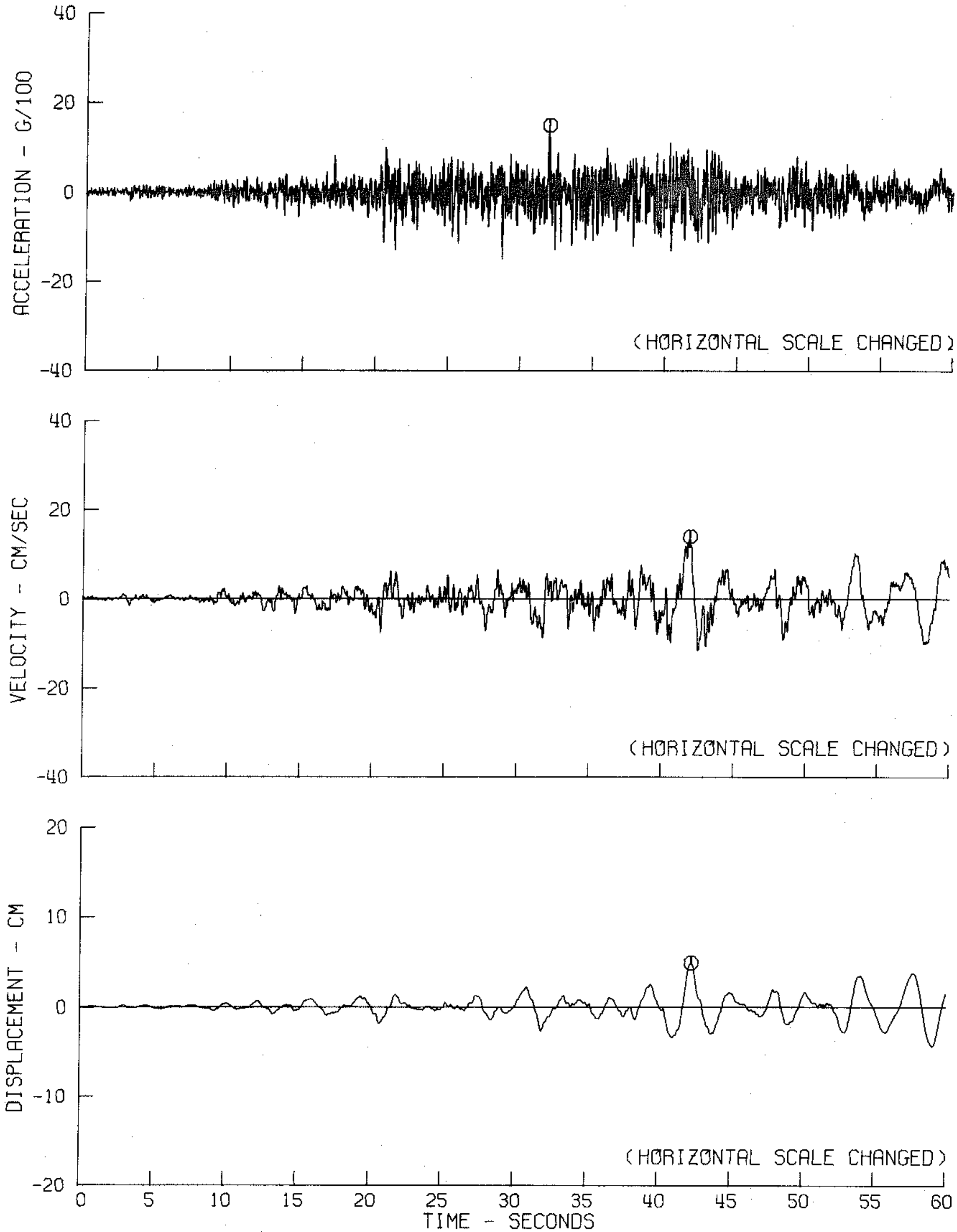
Ⓘ PEAK VALUES : ACCEL = -351.0 CM/SEC/SEC VELOCITY = 37.7 CM/SEC DISPL = 14.9 CM



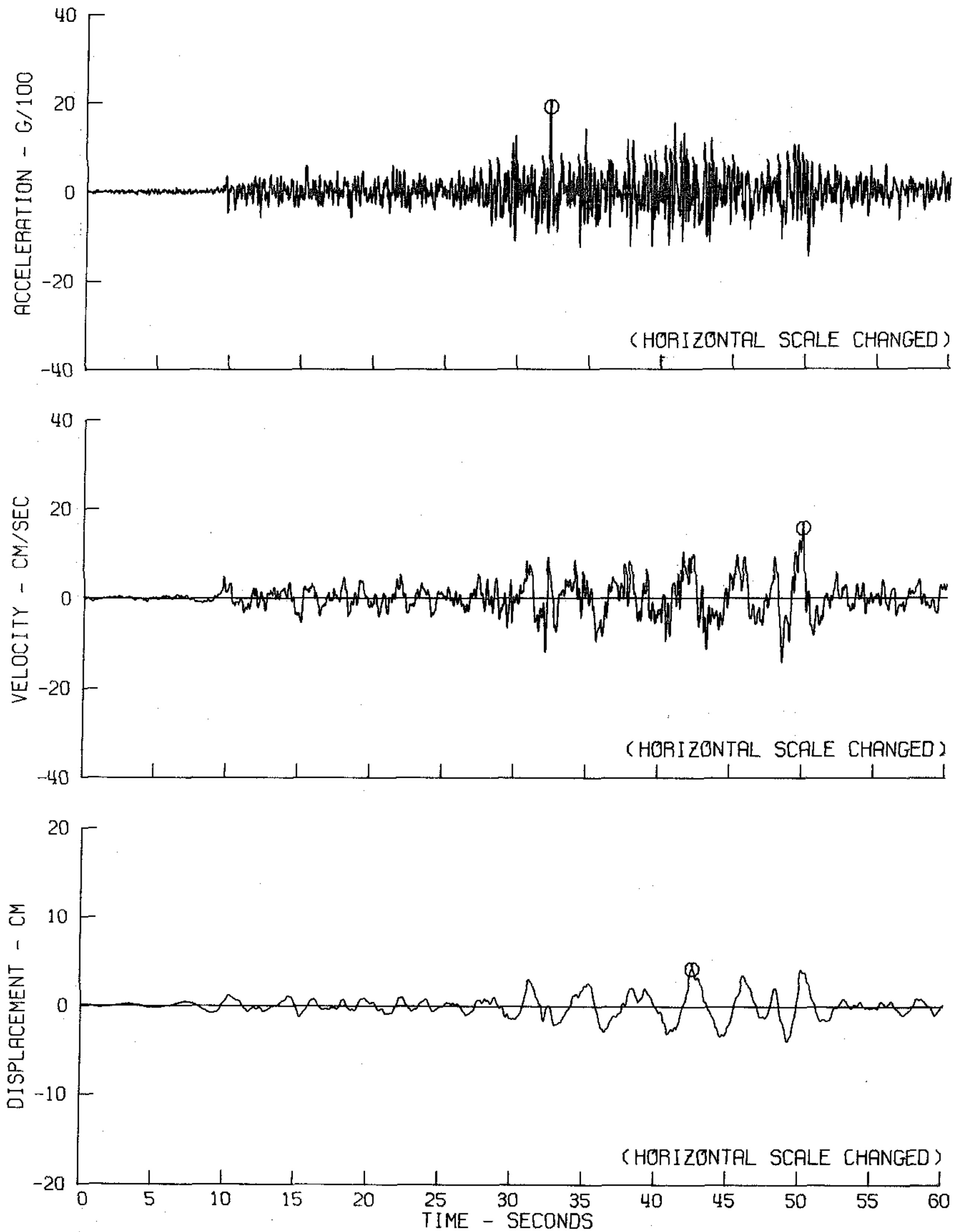
ARGENTINA EARTHQUAKE NOV 23 1977 - 0927 GMT

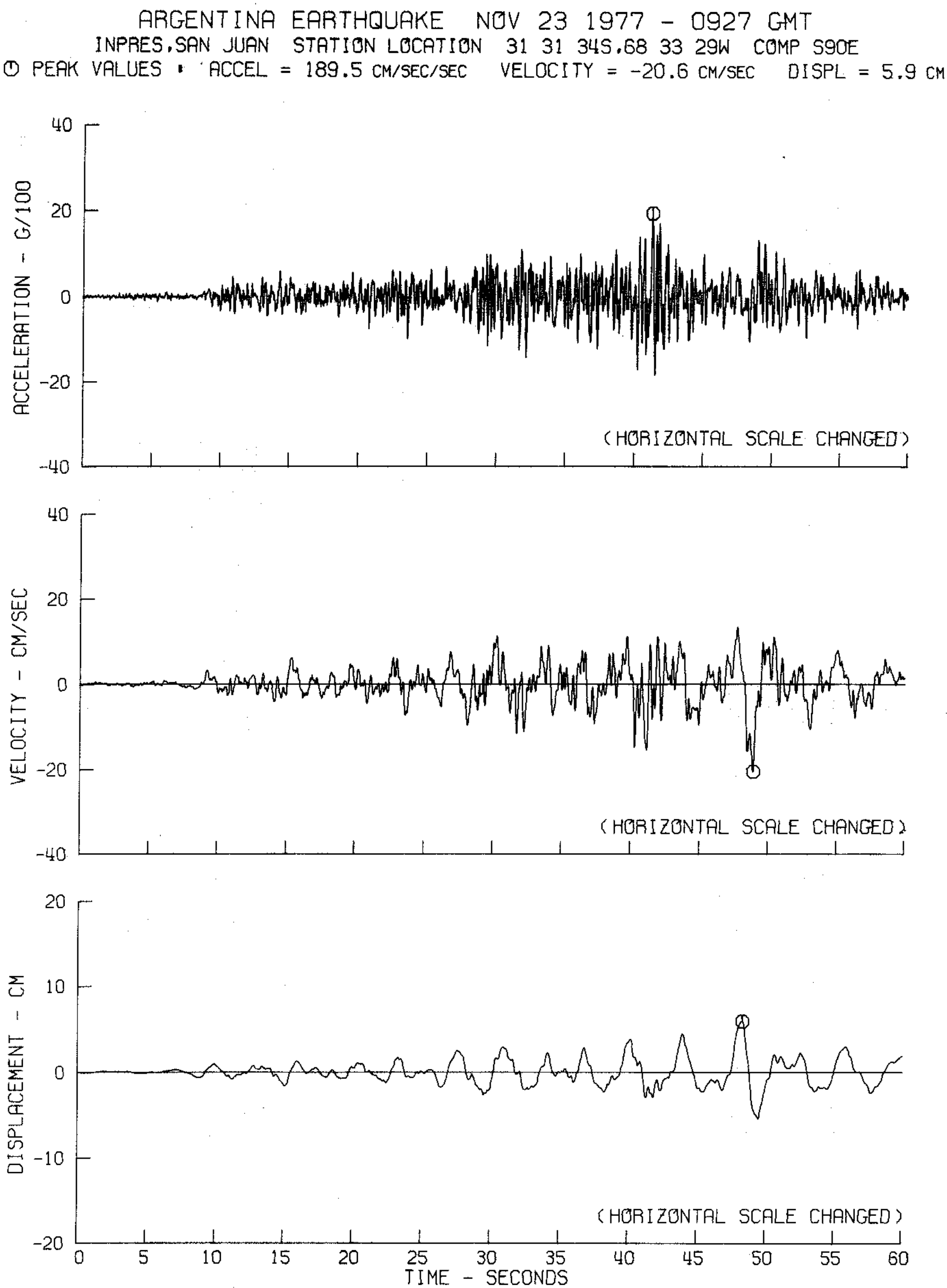
INPRES,SAN JUAN STATION LOCATION 31 31 34S,68 33 29W COMP DOWN

Ⓟ PEAK VALUES : ACCEL = 150.5 CM/SEC/SEC VELOCITY = 14.0 CM/SEC DISPL = 4.9 CM

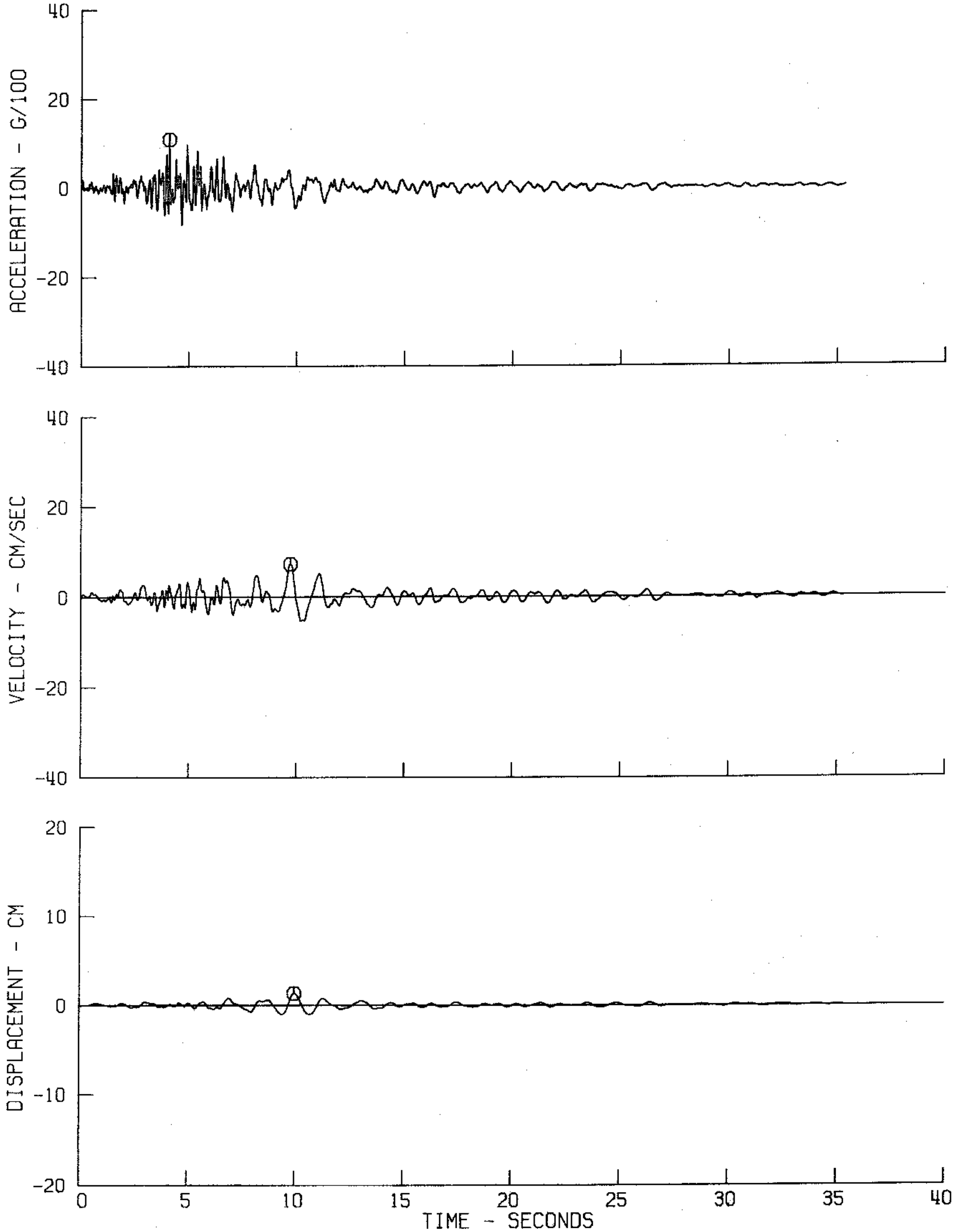


ARGENTINA EARTHQUAKE NOV 23 1977 - 0927 GMT
INPRES,SAN JUAN STATION LOCATION 31 31 34S,68 33 29W COMP SOOE
⊕ PEAK VALUES : ACCEL = 186.9 CM/SEC/SEC VELOCITY = 15.6 CM/SEC DISPL = 4.2 CM

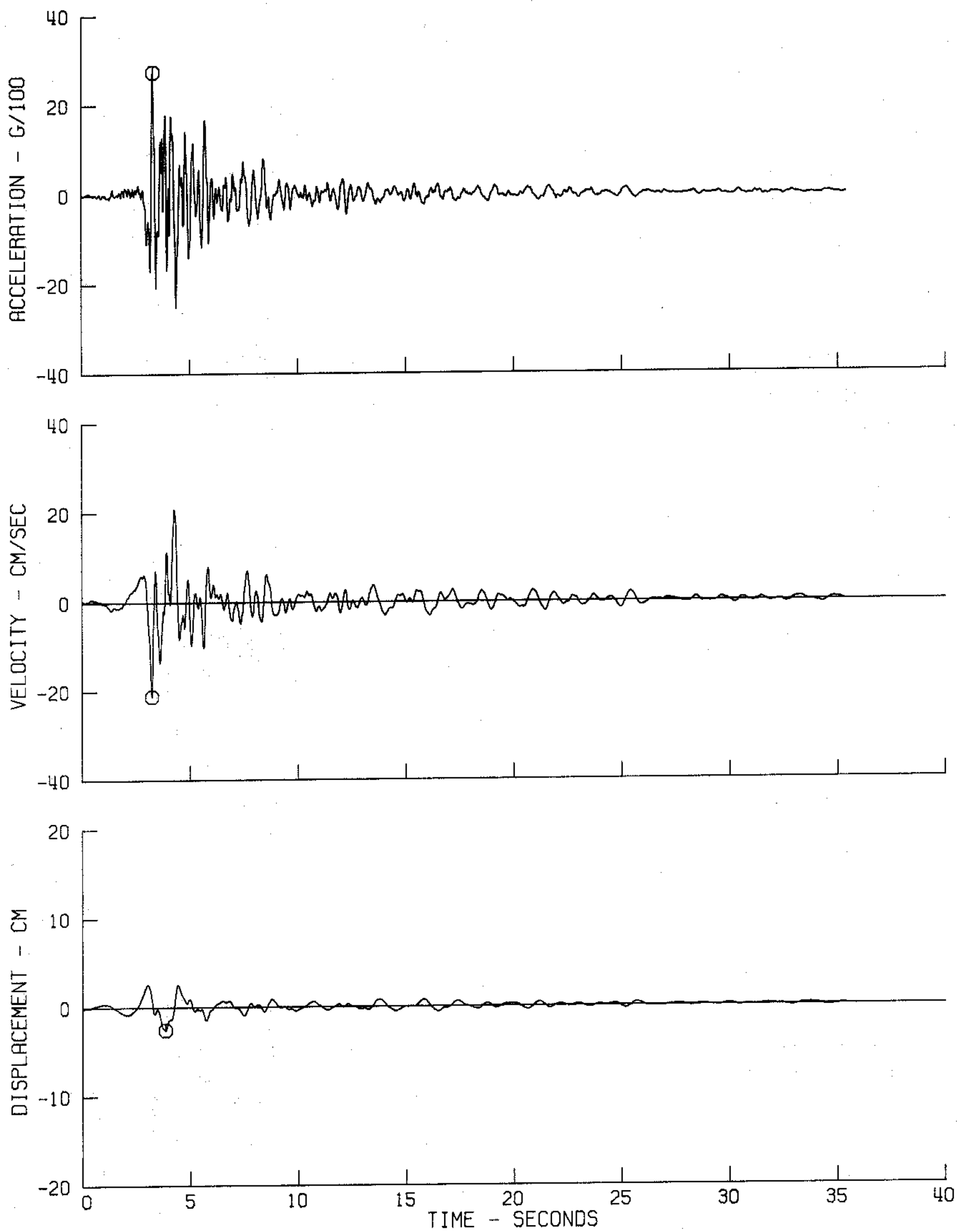



ARGENTINA EARTHQUAKE NOV 23 1977 - 0927 GMT
INPRES,SAN JUAN STATION LOCATION 31 31 34S,68 33 29W COMP S90E
PEAK VALUES : ACCEL = 189.5 CM/SEC/SEC VELOCITY = -20.6 CM/SEC DISPL = 5.9 CM
ACCELERATION - G/100
40
20
0
-20
-40
(HORIZONTAL SCALE CHANGED)
VELOCITY - CM/SEC
40
20
0
-20
-40
(HORIZONTAL SCALE CHANGED)
DISPLACEMENT - CM
20
10
0
-10
-20
(HORIZONTAL SCALE CHANGED)
0
5
10
15
20
25
30
35
40
45
50
55
60
TIME - SECONDS

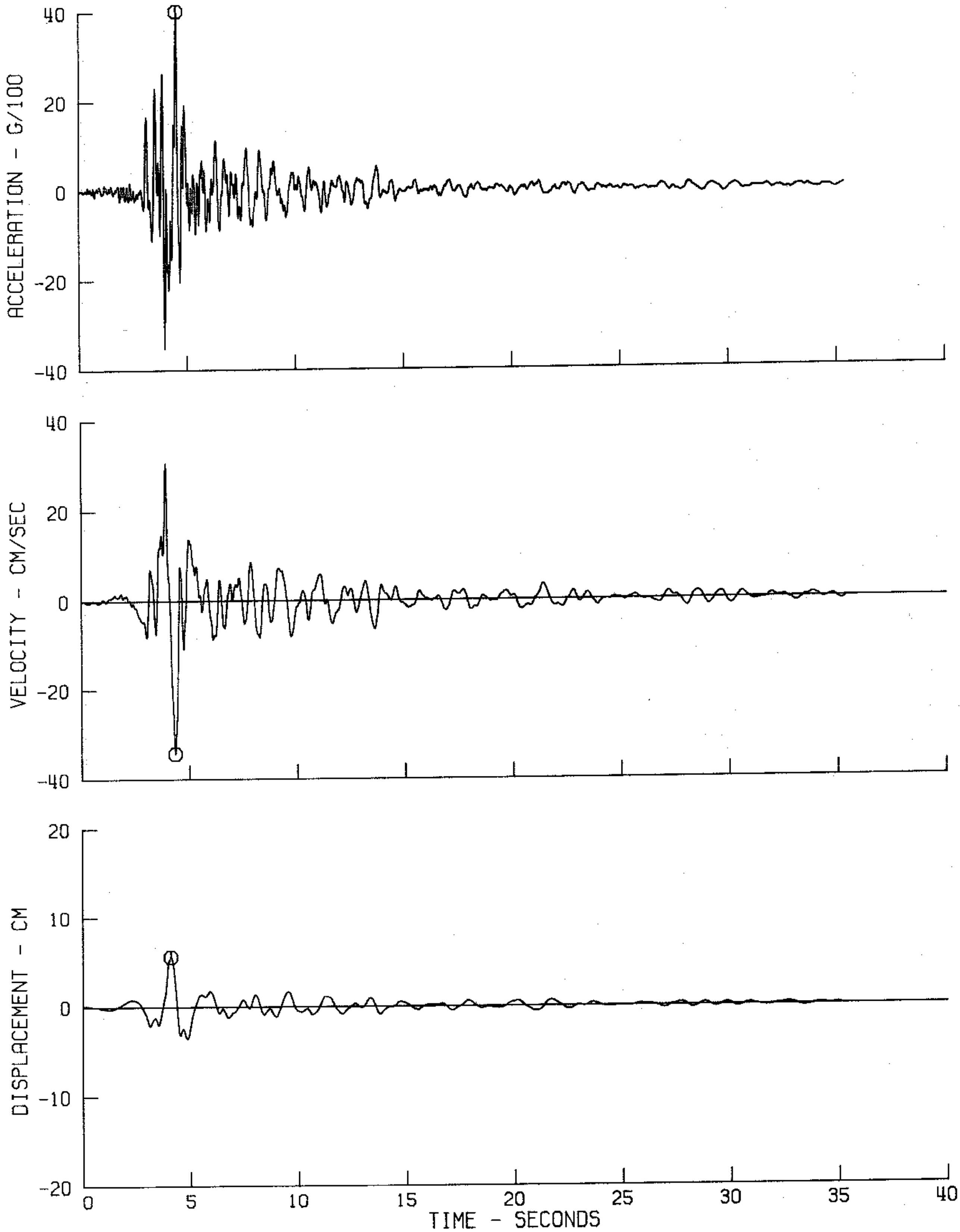
SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT
UCSB NORTH HALL, GROUND FLOOR TRACE 2 (DIRN. VERT)
Ⓟ PEAK VALUES : ACCEL = 105.6 CM/SEC/SEC VELOCITY = 7.1 CM/SEC DISPL = 1.3 CM



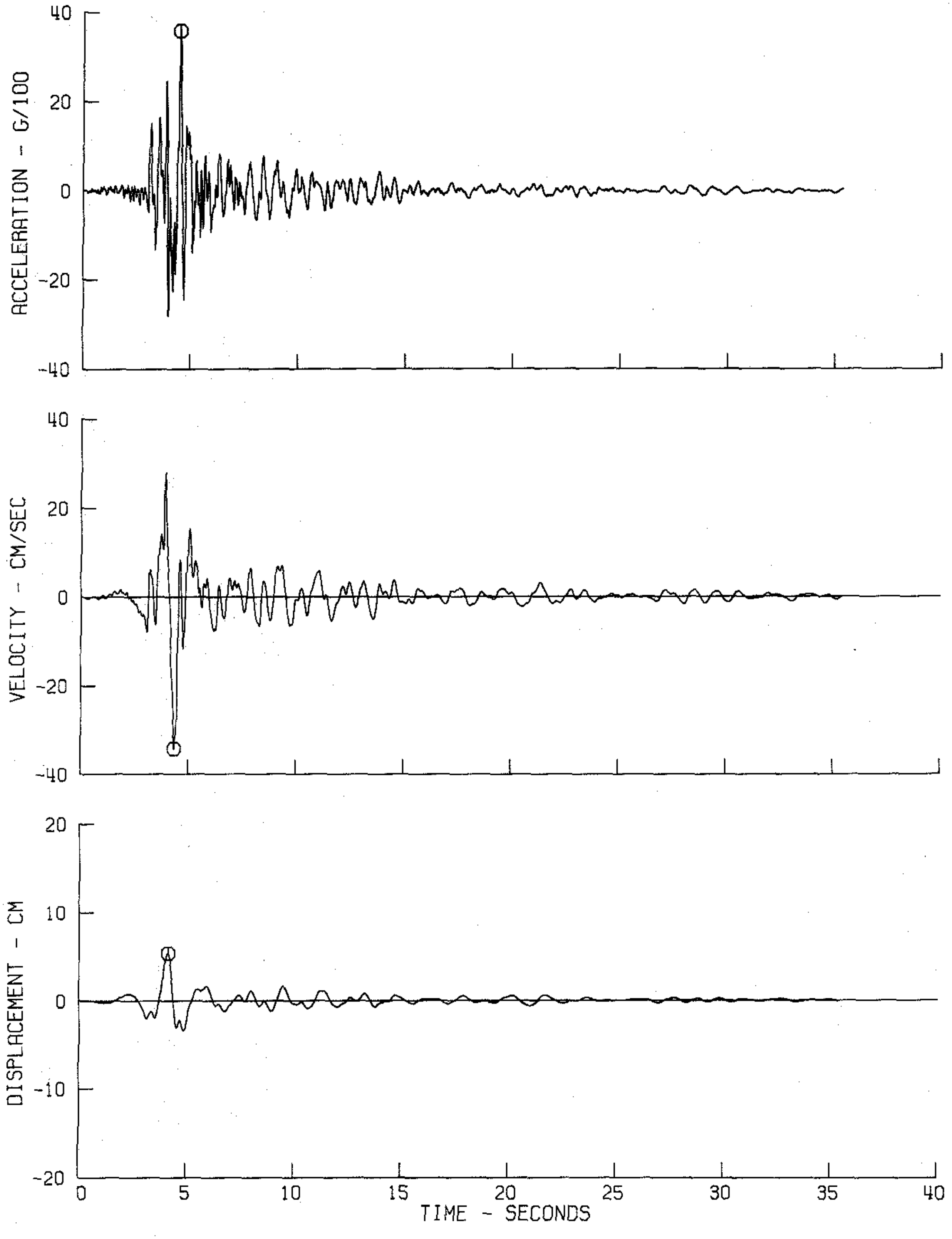
SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT
UCSB NORTH HALL,GROUND FLOOR TRACE 3 (DIRN. N90E)
⊙ PEAK VALUES : ACCEL = 269.0 CM/SEC/SEC VELOCITY = -21.3 CM/SEC DISPL = -2.6 CM



SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT
UCSB NORTH HALL,GROUND FLOOR TRACE 1 (DIRN. N00E)
① PEAK VALUES : ACCEL = 395.9 CM/SEC/SEC VELOCITY = -34.4 CM/SEC DISPL = 5.6 CM



SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT
UCSB NORTH HALL,GROUND FLOOR TRACE 4 (DIRN.NOOE)
⊕ PEAK VALUES : ACCEL = 351.3 CM/SEC/SEC VELOCITY = -34.3 CM/SEC DISPL = 5.3 CM



SECTION 4

BUILDING BASEMENT AND UPPER FLOOR, ACCELEROGRAMS, INTEGRATED VELOCITIES AND DISPLACEMENTS

This section contains accelerograms and integrated velocities and displacements of building motions, including their basement motions. For all except two buildings, the time histories were plotted on a time (horizontal) axis with a maximum extent of 40 seconds and acceleration, velocity and displacement (vertical) axes of maximum extent of 0.4g, 60 cm/sec and 30 cm, respectively. The two exceptions were the 15250 Ventura Blvd. records of the San Fernando earthquake for which velocity and displacement axes of 80 cm/sec and 40 cm respectively were used and the U.C.S.B. North Hall records of the Santa Barbara earthquake for which an acceleration axis of maximum value 0.8g was required. In both these cases the entire set of floor records (usually ground, middle floor and roof records) were plotted to the enlarged scales, even though the usual plotting axes were exceeded only by the roof records. This was done in order to facilitate the examination of how basement motions are transmitted through multi-story structures.

A list of the records presented in this section is given in Table 2, together with the maximum values of acceleration, velocity and displacement for these records.

As noted in the introduction to Section 1 the three-story North Hall building at the University of Santa Barbara is rather unique, in this report, in regard to its instrumentation. It contains nine accelerometers, four at ground level, four at the third floor and one attached to a roof joist. Nine accelerogram traces were therefore produced; traces 2, 3 and

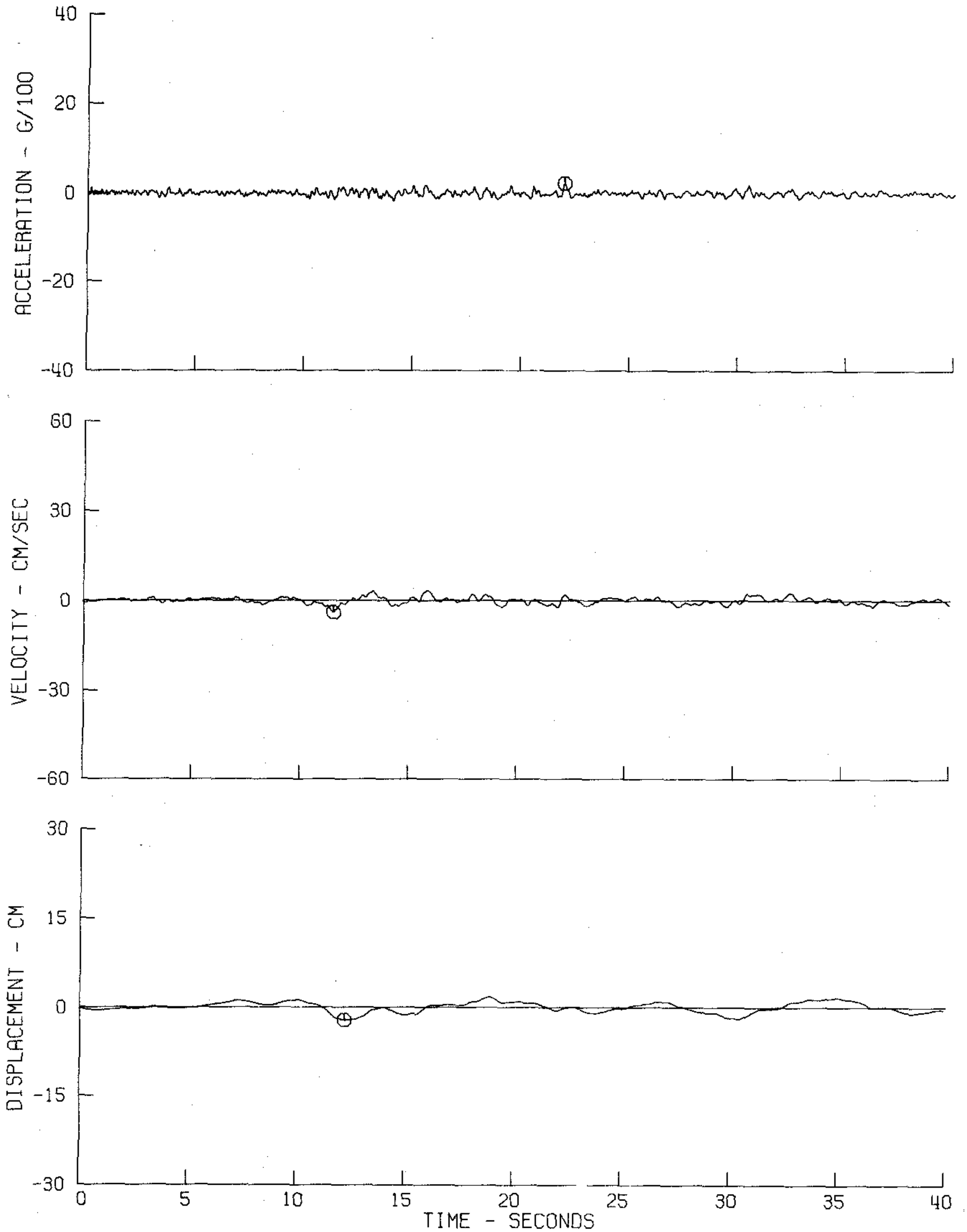
1 record respectively the vertical, east-west and north-south motions of the center of the building base while trace 4 records the north-south motion of the west end of the building base. Trace 6 is the record of the east-west motion of the approximate center of the third floor slab while traces 9, 5 and 8 record the north-south motions of the eastward end, approximate center and far west end of the third floor slab, respectively. Trace 7 records the south-north motion of an approximately central roof joist. For more detailed information on this building the reader is directed to the reference given on page 13.

Table 2

The Building Basement and Upper Floor Records Presented in Section 4,
With Their Maximum Accelerations, Velocities and Displacements

Date	Earthquake	Recording Site	Component	Max. Acceln. (cm/s/s)	Time (sec)	Max. Velocity (cm/s)	Time (sec)	Max. Displ. (cm)	Time (sec)
1952 JUL 21	Kern County	Hollywood Storage, Bsmt.	Vert	22.5	21.98	-4.2	11.52	-2.2	12.22
			S00W	-54.1	13.28	-6.1	26.04	-5.1	35.80
			N90E	43.5	12.92	9.4	13.66	-5.9	12.50
1952 JUL 21	Kern County	Hollywood Storage, Penthouse	Up	-52.4	12.50	-5.1	11.02	-3.6	46.64
			South	-113.3	18.76	-18.5	20.54	-5.6	22.32
			West	-145.6	12.74	-21.7	12.92	10.4	12.20
1971 FEB 9	San Fernando	8244 Orion Blvd., 1st Floor	Down	167.5	3.62	-32.0	19.04	-14.6	19.72
			N00W	-250.0	12.52	-30.0	9.78	-14.9	10.24
			S90W	-131.7	7.02	23.9	20.76	13.8	16.50
1971 FEB 9	San Fernando	8244 Orion Blvd., 4th Floor	Down	-223.1	3.46	-31.2	19.02	-12.4	19.70
			N00W	-195.2	12.64	41.8	15.32	-17.3	10.38
			S90W	231.5	7.88	-33.5	17.08	19.3	16.52
1971 FEB 9	San Fernando	8244 Orion Blvd., 8th Floor	Down	211.5	3.96	31.8	20.50	14.0	10.60
			N00W	-375.3	9.90	-63.9	14.48	-24.1	14.88
			S90W	313.5	9.20	-43.2	17.12	21.9	16.62
1971 FEB 9	San Fernando	250 E. First St., Bsmt.	Down	48.0	5.40	-7.8	4.68	5.8	3.74
			N36E	97.8	3.18	17.1	9.18	-9.2	8.22
			N54W	122.7	2.82	21.9	5.88	11.6	7.00
1971 FEB 9	San Fernando	250 E. First St., 8th Floor	Down	62.0	5.42	-8.6	4.74	-5.3	5.40
			N36E	-189.2	4.68	27.6	9.40	-13.9	8.38
			N54W	-167.8	7.96	-37.9	8.20	20.0	7.16
1971 FEB 9	San Fernando	250 E. First St., 17th Floor	Down	-162.7	2.30	-13.7	4.74	-7.5	5.40
			N36E	-162.5	5.08	-45.8	11.32	22.4	10.30
			N54W	-159.0	7.54	-41.1	8.60	20.1	7.48
1971 FEB 9	San Fernando	445 Figueroa St., Sub Bsmt.	Down	51.7	5.18	10.7	8.02	5.1	9.00
			N52W	147.1	4.72	17.4	7.72	11.8	8.88
			S38W	-117.0	5.08	-17.3	11.40	11.8	10.18
1971 FEB 9	San Fernando	445 Figueroa St., 19th Floor	Down	-108.3	5.52	10.2	8.10	4.2	9.12
			N52W	-195.5	7.84	-35.3	10.90	22.0	9.28
			S38W	-120.8	5.60	-35.5	16.64	-23.4	17.70
1971 FEB 9	San Fernando	Caltech, Millikan Library, Bsmt.	Down	-91.2	7.52	9.0	7.46	2.4	7.58
			N00E	-198.0	7.12	-9.8	7.20	2.7	10.38
			N90E	-181.6	7.24	-16.4	9.98	-6.9	10.62
1971 FEB 9	San Fernando	Caltech, Millikan Library, 10th Floor	Down	-119.4	7.56	7.7	7.46	2.8	7.58
			N00E	-305.5	7.92	-24.9	8.08	3.8	13.86
			N90E	-340.8	10.98	-49.9	10.22	-11.7	10.50
1971 FEB 9	San Fernando	Jet Propulsion Lab, Bsmt.	Down	-126.3	5.06	-5.9	6.46	2.6	8.90
			S82E	207.8	5.10	13.9	5.18	-5.0	7.68
			S08W	139.0	5.16	9.2	5.26	-2.9	6.92
1971 FEB 9	San Fernando	Jet Propulsion Lab, 9th Floor	Down	248.0	4.16	-12.4	5.74	2.8	8.86
			S82E	374.8	5.34	32.6	5.46	-9.6	7.86
			S08W	-205.6	5.98	-29.5	4.60	6.6	5.68
1971 FEB 9	San Fernando	15250 Ventura Blvd., Bsmt.	Down	94.5	7.56	-9.4	12.26	4.3	11.34
			N11E	220.6	6.96	-28.2	12.02	-13.5	12.96
			N79W	-146.0	8.94	-23.5	21.64	-10.3	22.20
1971 FEB 9	San Fernando	15250 Ventura Blvd., 7th Floor	Down	152.3	7.60	-11.2	7.54	5.2	28.58
			N11E	255.0	7.54	44.7	22.26	18.6	15.18
			N79W	-237.6	9.56	-54.6	30.88	-29.3	31.70
1971 FEB 9	San Fernando	15250 Ventura Blvd., Roof	Down	-140.9	5.48	-10.3	12.24	3.8	28.50
			N11E	282.9	7.30	-83.5	21.14	-31.0	21.68
			N79W	194.9	31.52	-82.0	30.92	-43.5	31.64
1978 AUG 13	Santa Barbara	UCSB North Hall, Grd. Floor	VERT TR 2	105.6	4.06	7.1	9.72	1.3	9.98
			N90E TR 3	269.0	3.30	-21.3	3.22	-2.6	3.82
			N00E TR 1	395.9	4.50	-34.4	4.34	5.6	4.10
			N00E TR 4	351.3	4.50	-34.3	4.36	5.3	4.12
1978 AUG 13	Santa Barbara	UCSB North Hall, 3rd Floor	N90E TR 6	561.0	3.32	25.6	4.24	2.8	4.40
			N00E TR 9	554.9	4.88	-43.4	4.40	6.6	4.06
			N00E TR 5	676.7	4.88	-45.0	4.40	6.7	4.06
			N00E TR 8	-564.5	4.72	-47.4	4.40	6.0	4.08
1978 AUG 13	Santa Barbara	UCSB North Hall, Roof	S00W TR 7	-943.0	4.88	-53.8	3.98	-7.4	4.06

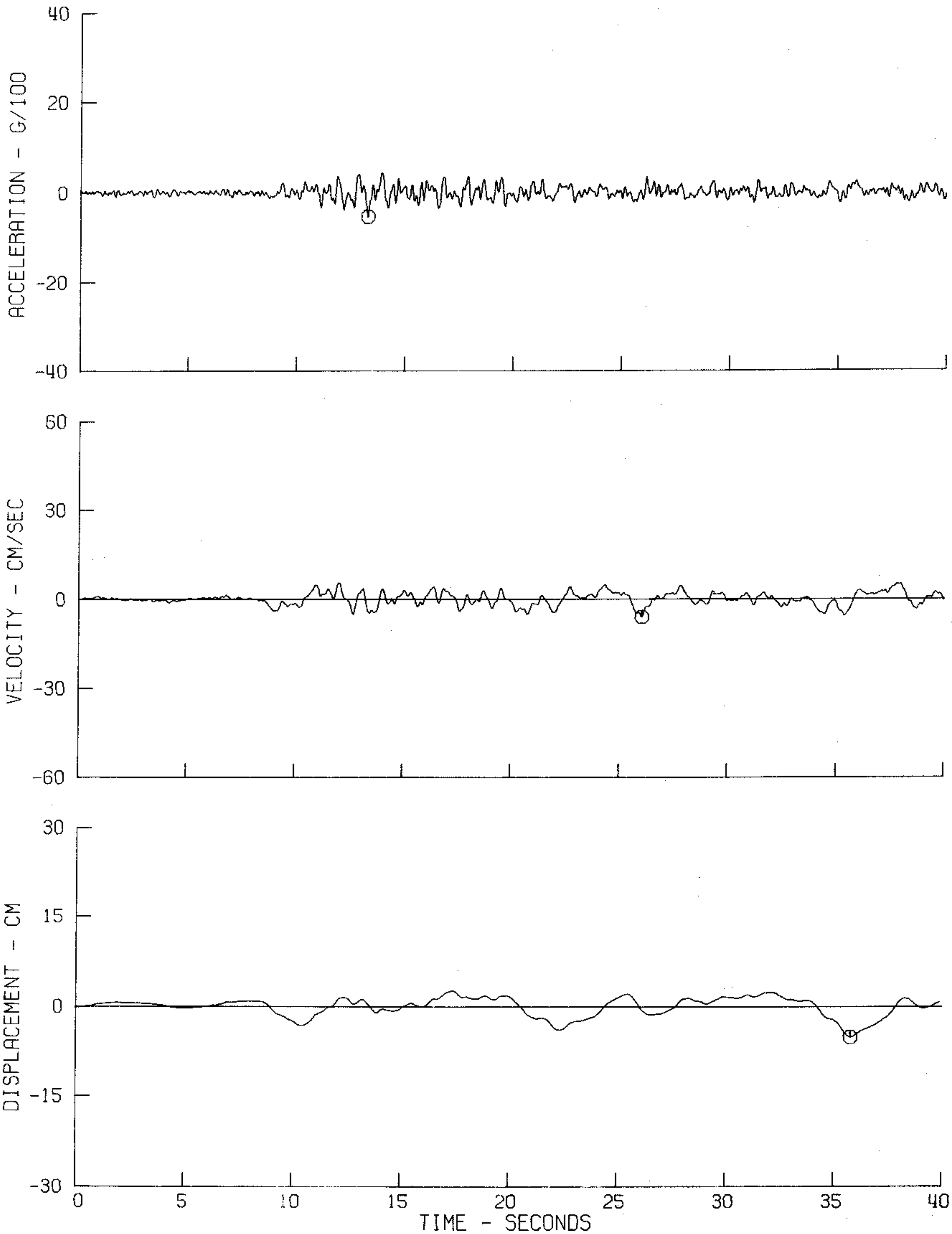
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
IIA006 52.005.0 HOLLYWOOD STORAGE BASEMENT COMP VERT
⊙ PEAK VALUES : ACCEL = 22.5 CM/SEC/SEC VELOCITY = -4.2 CM/SEC DISPL = -2.2 CM



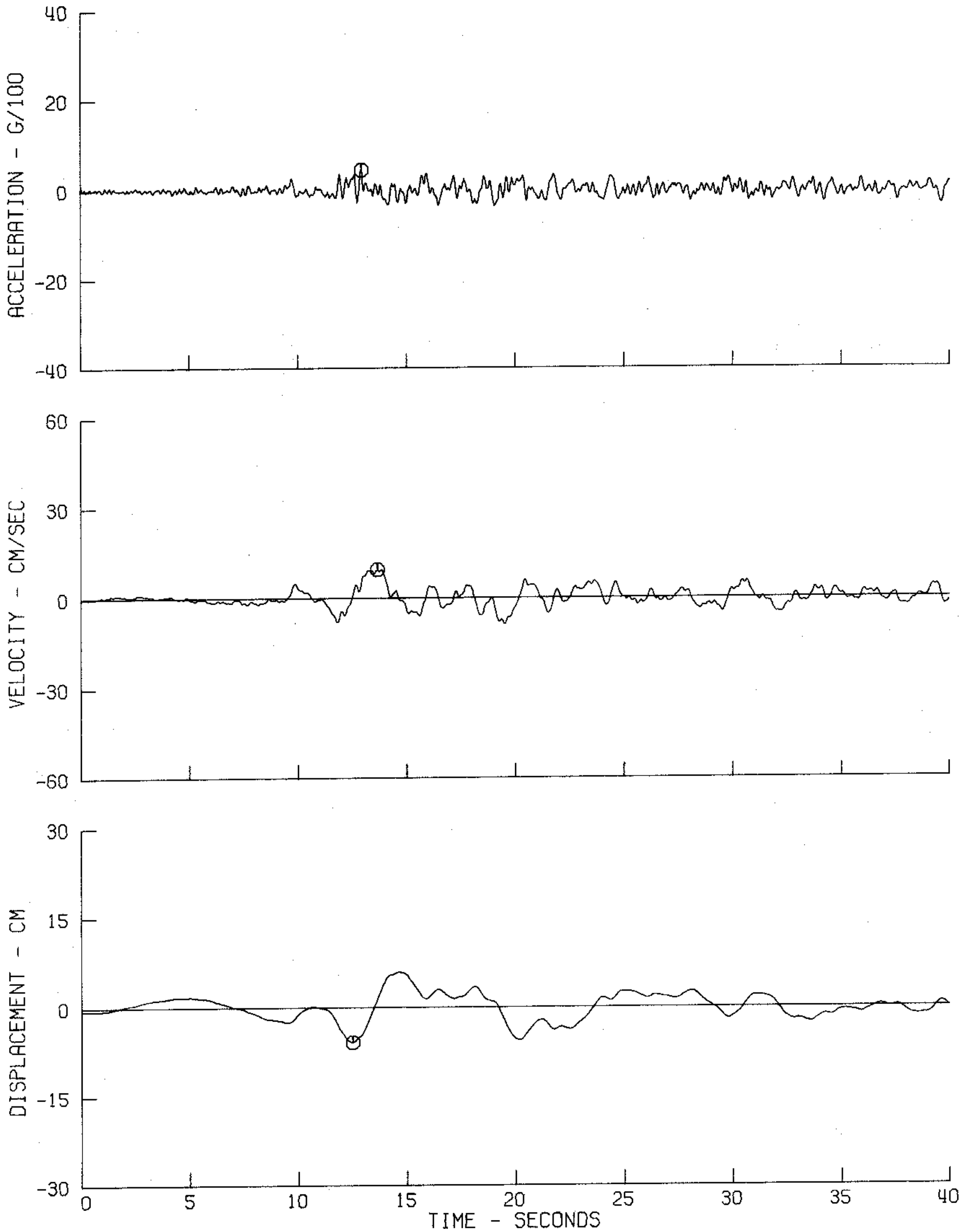
KERN COUNTY, CALIFØRNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT

IIA006 52.005.0 HØLLYWØØD STØRAGE BASEMENT CØMP S00W

⊙ PEAK VALUES : ACCEL = -54.1 CM/SEC/SEC VELOCITY = -6.1 CM/SEC DISPL = -5.1 CM



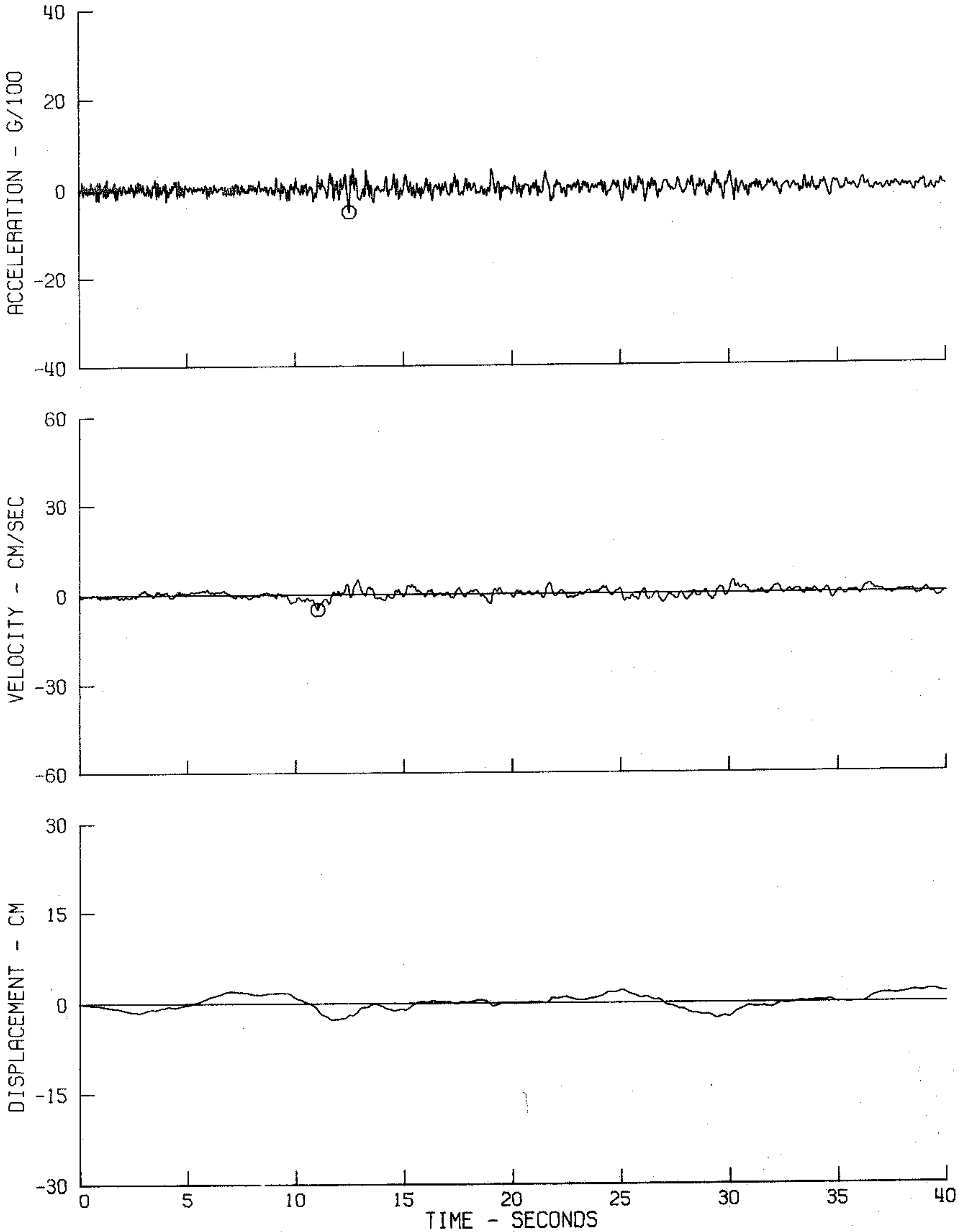
KERN COUNTY, CALIFORNIA EARTHQUAKE JULY 21, 1952 - 0453 PDT
IIA006 52.005.0 HOLLYWOOD STORAGE BASEMENT COMP N90E
PEAK VALUES : ACCEL = 43.5 CM/SEC/SEC VELOCITY = 9.4 CM/SEC DISPL = -5.9 CM



KERN COUNTY EARTHQUAKE JUL 21, 1952 - 0453 PDT

IIV318 52.004.0 HOLLYWOOD STORAGE CO., PENTHOUSE, HOLLYWOOD, CAL. COMP UP

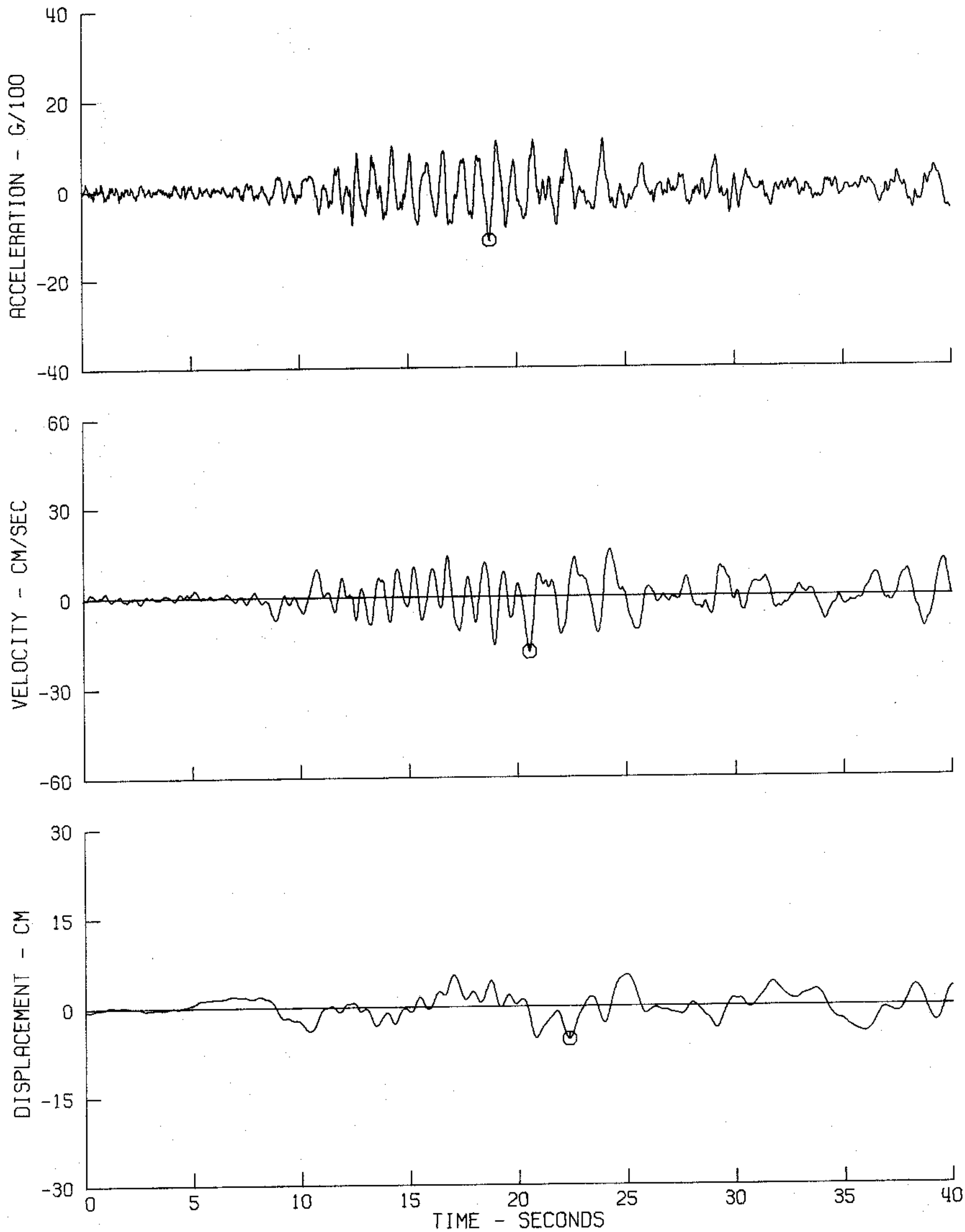
⊙ PEAK VALUES : ACCEL = -52.4 CM/SEC/SEC VELOCITY = -5.1 CM/SEC DISPL = -3.6 CM



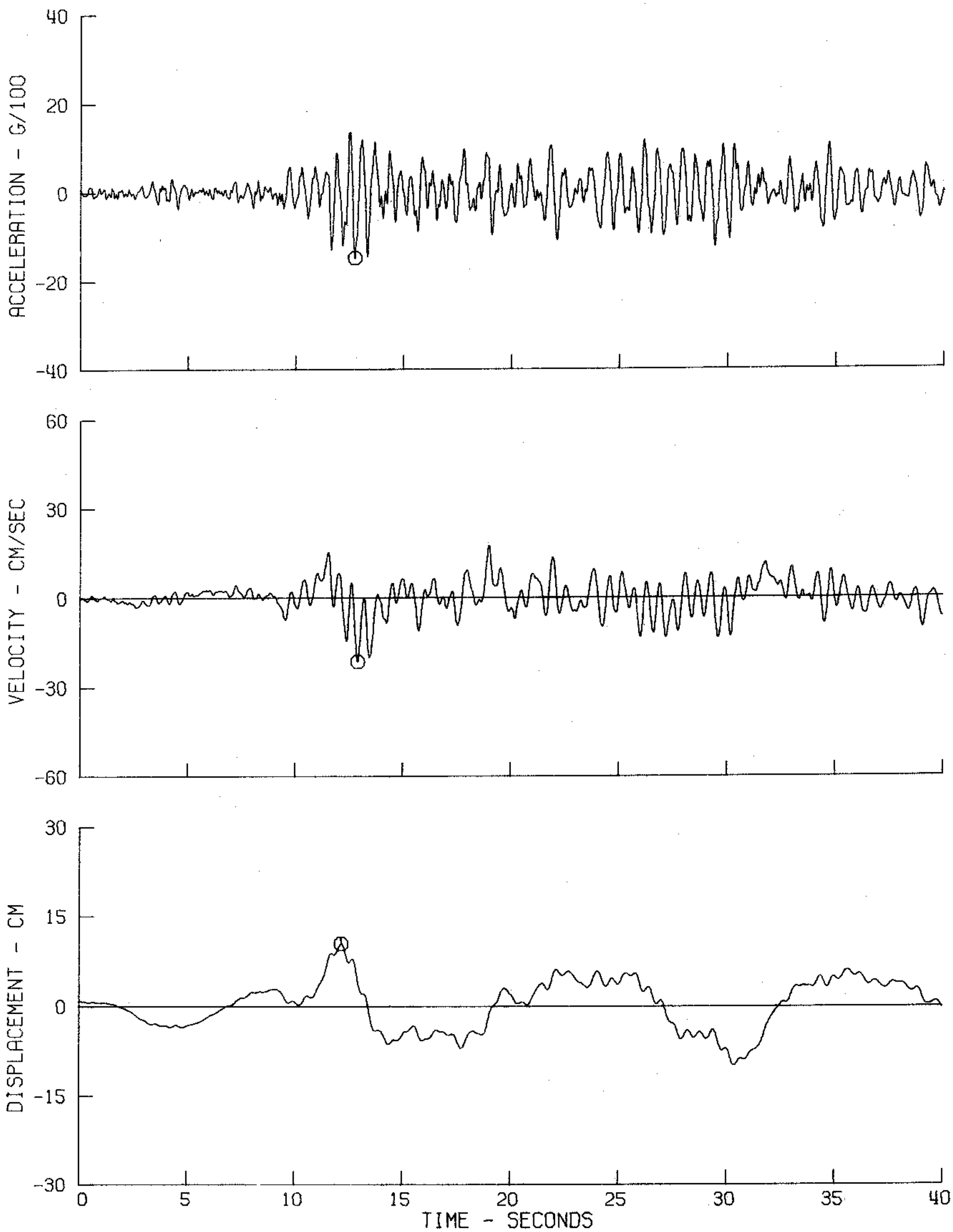
KERN COUNTY EARTHQUAKE JUL 21, 1952 - 0453 PDT

IIV318 52.004.0 HOLLYWOOD STORAGE CO., PENTHOUSE, HOLLYWOOD, CAL. COMP SOUTH

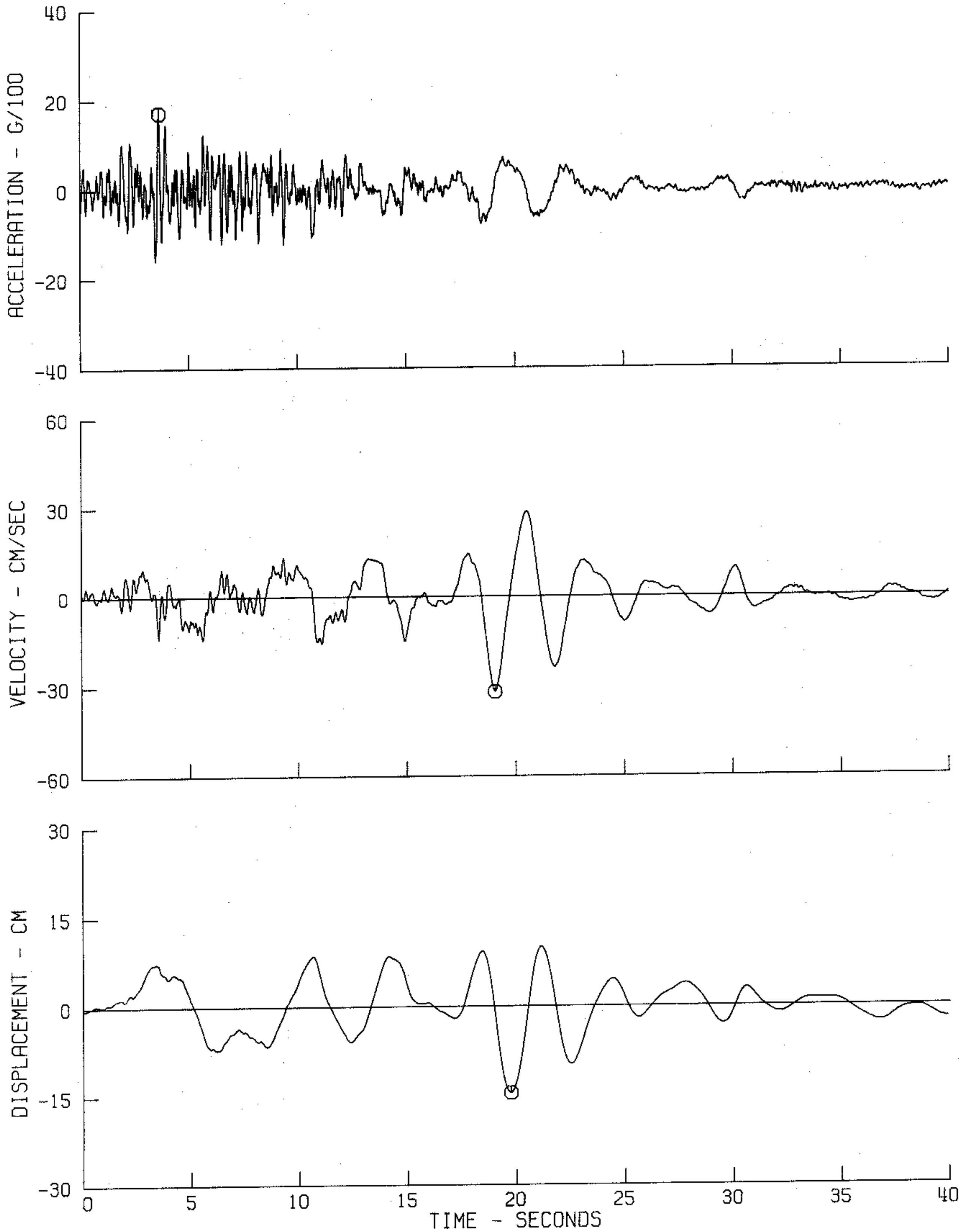
⊙ PEAK VALUES : ACCEL = -113.3 CM/SEC/SEC VELOCITY = -18.5 CM/SEC DISPL = -5.6 CM



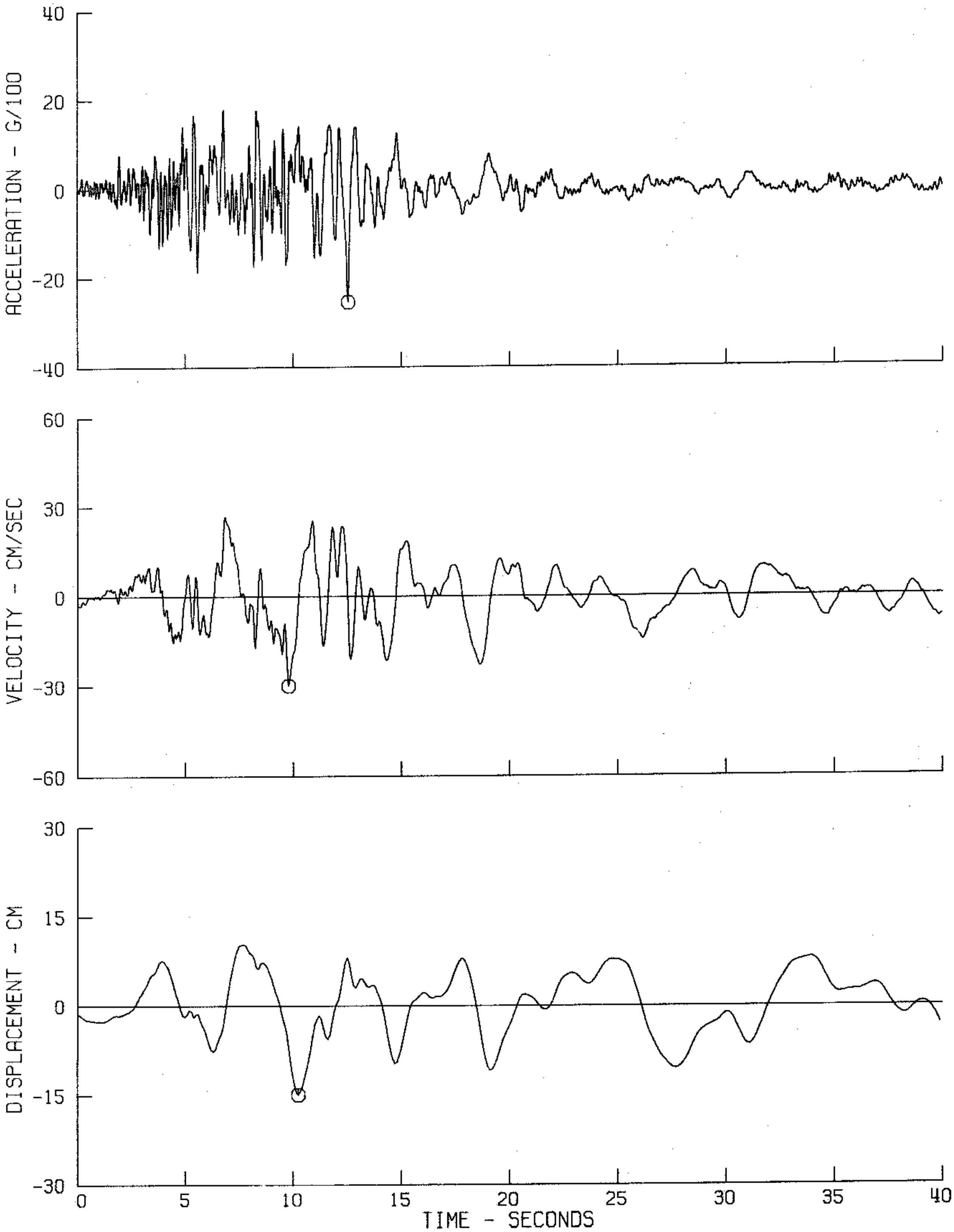
KERN COUNTY EARTHQUAKE JUL 21, 1952 - 0453 PDT
IIV318 52.004.0 HOLLYWOOD STORAGE CO., PENTHOUSE, HOLLYWOOD, CAL. COMP WEST
Ⓣ PEAK VALUES : ACCEL = -145.6 CM/SEC/SEC VELOCITY = -21.7 CM/SEC DISPL = 10.4 CM



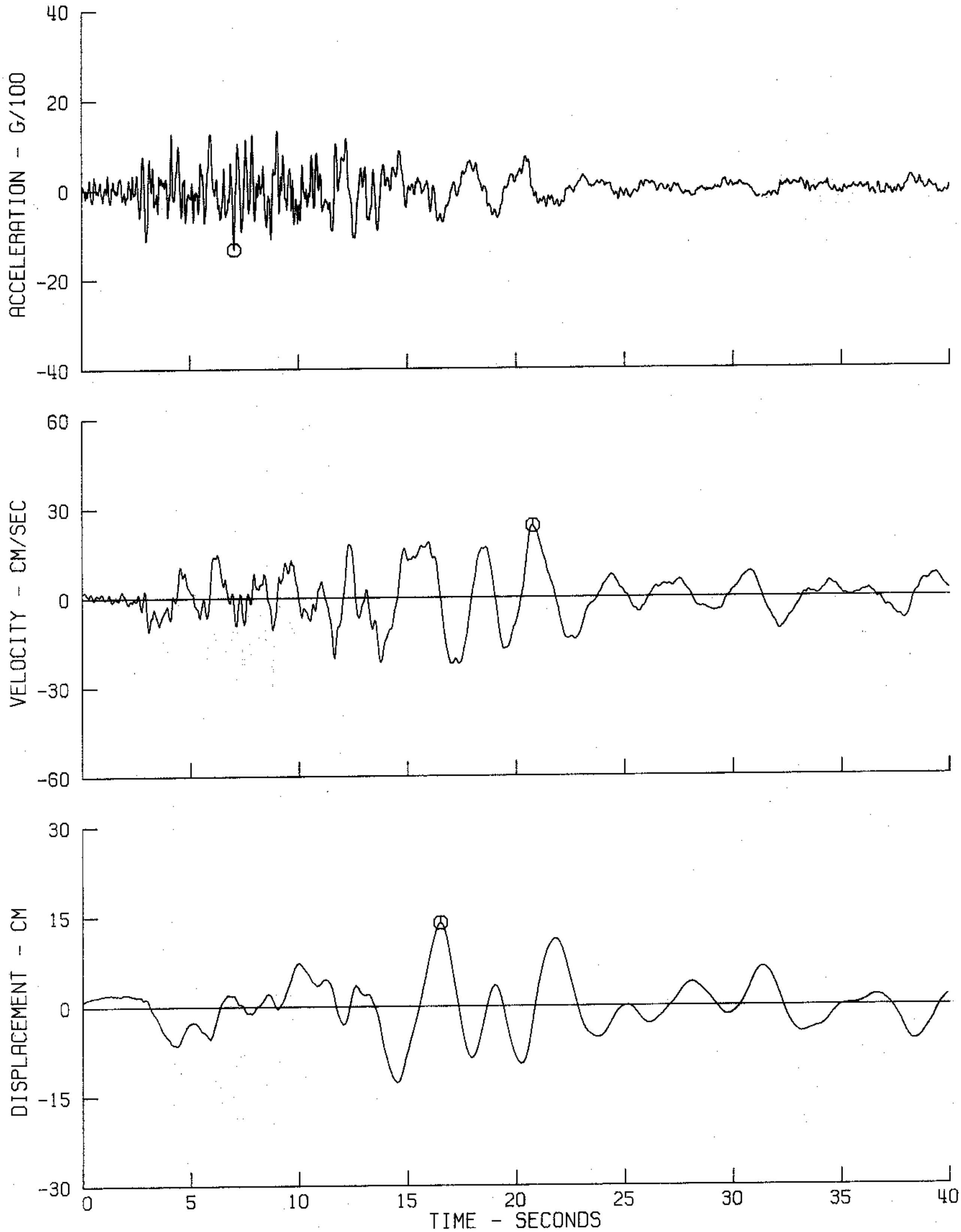
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC048 71.008.0 8244 ORION BLVD. 1ST FLOOR, LOS ANGELES, CAL. COMP DOWN
⦶ PEAK VALUES : ACCEL = 167.5 CM/SEC/SEC VELOCITY = -32.0 CM/SEC DISPL = -14.6 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC048 71.008.0 8244 ORION BLVD. 1ST FLOOR, LOS ANGELES, CAL. COMP NOOW
PEAK VALUES : ACCEL = -250.0 CM/SEC/SEC VELOCITY = -30.0 CM/SEC DISPL = -14.9 CM



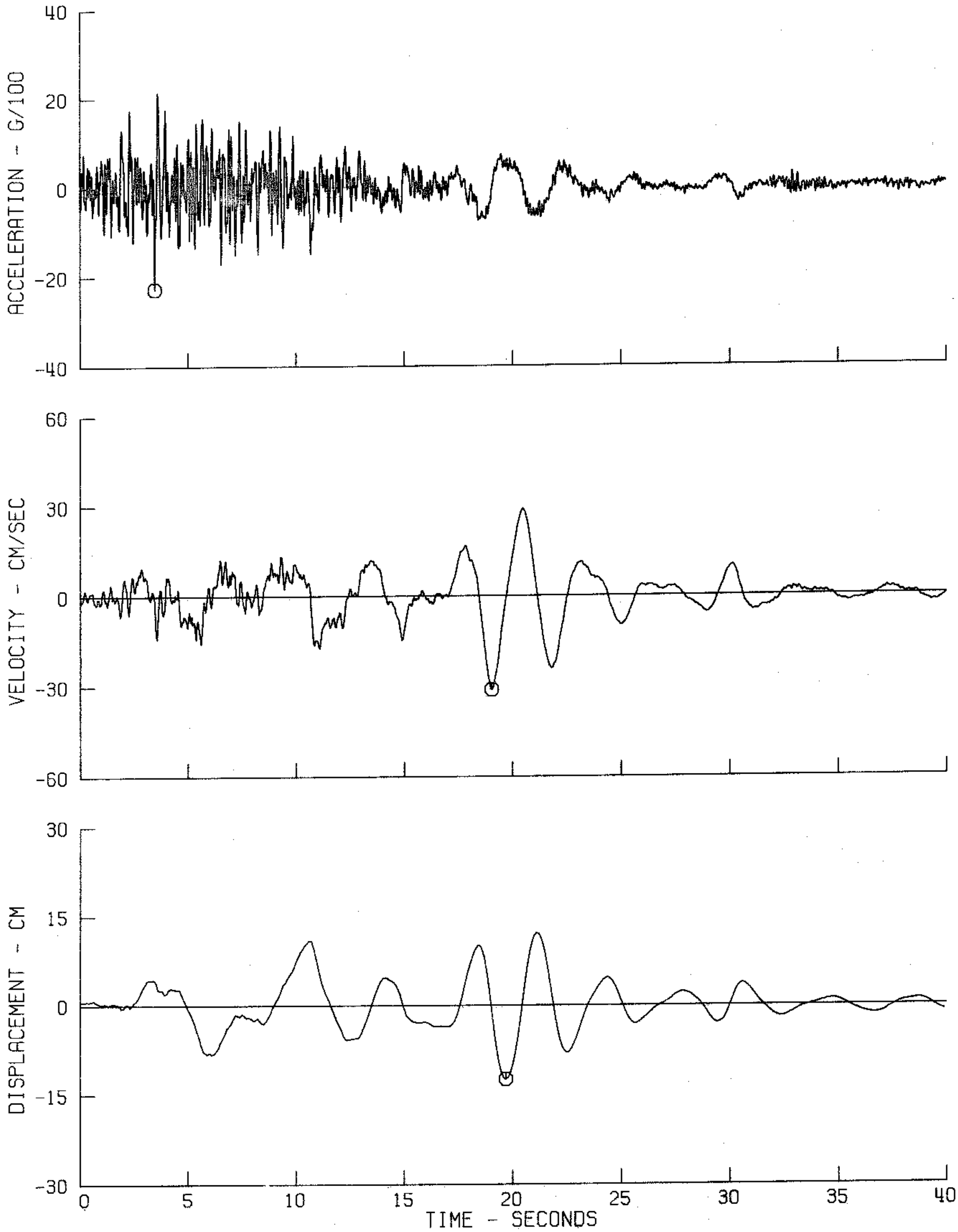
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC048 71.008.0 8244 ORION BLVD. 1ST FLOOR, LOS ANGELES, CAL. COMP S90W
⊙ PEAK VALUES : ACCEL = -131.7 CM/SEC/SEC VELOCITY = 23.9 CM/SEC DISPL = 13.8 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC049 71.002.0 8244 ORION BLVD. 4TH FLOOR, LOS ANGELES, CAL. COMP DOWN

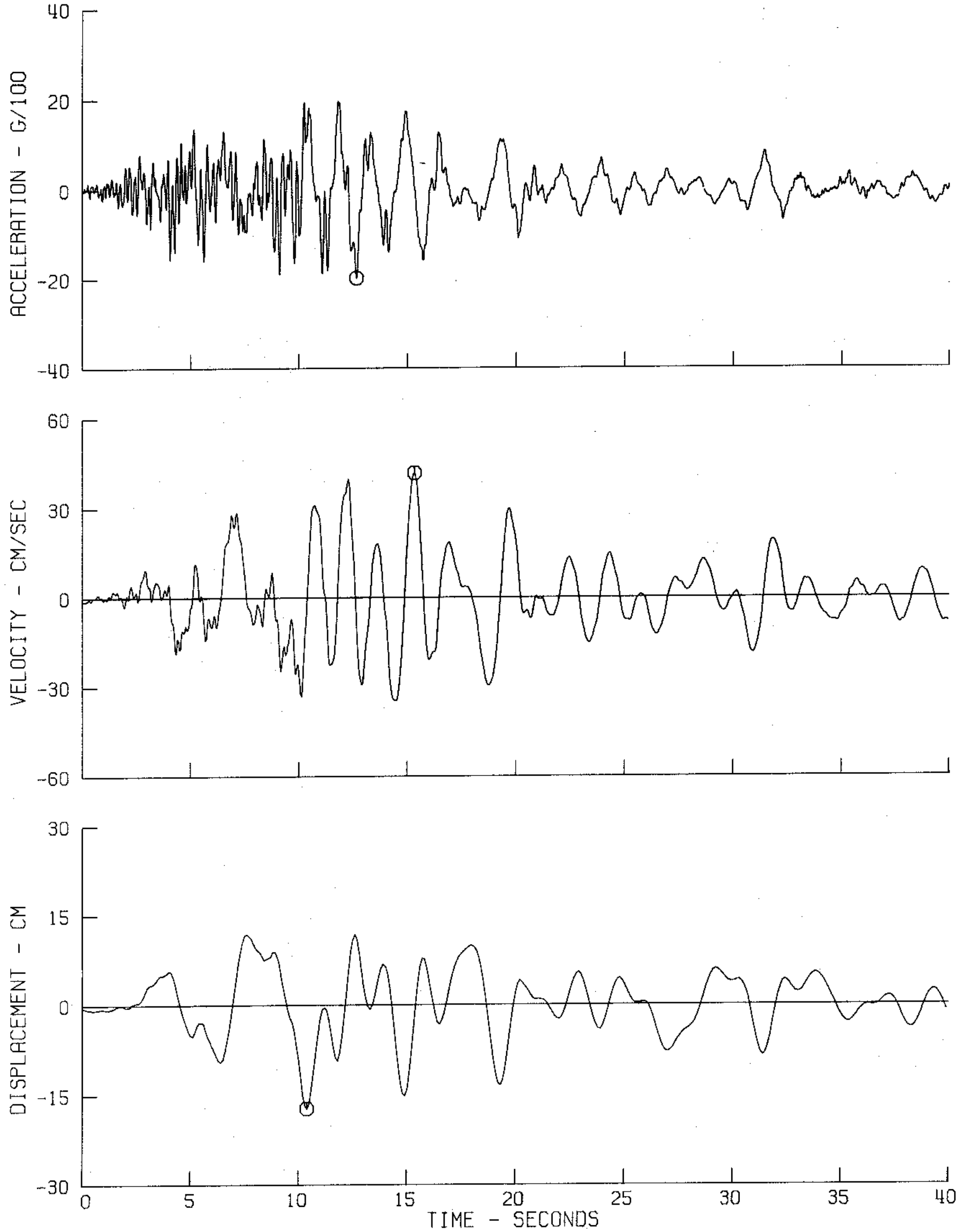
⊙ PEAK VALUES : ACCEL = -223.1 CM/SEC/SEC VELOCITY = -31.2 CM/SEC DISPL = -12.4 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC049 71.002.0 8244 ORION BLVD. 4TH FLOOR, LOS ANGELES, CAL. COMP NOOW

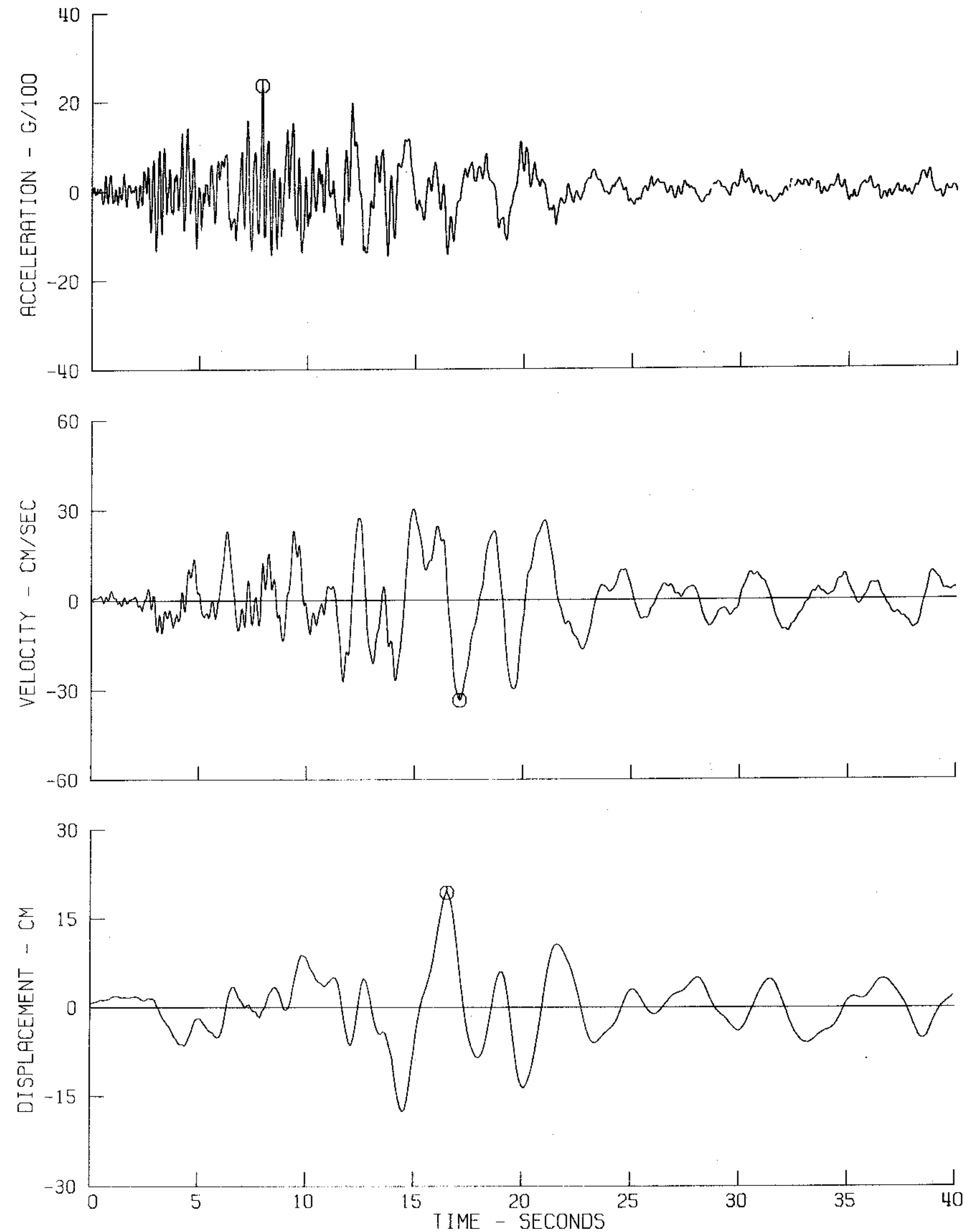
PEAK VALUES : ACCEL = -195.2 CM/SEC/SEC VELOCITY = 41.8 CM/SEC DISPL = -17.3 CM



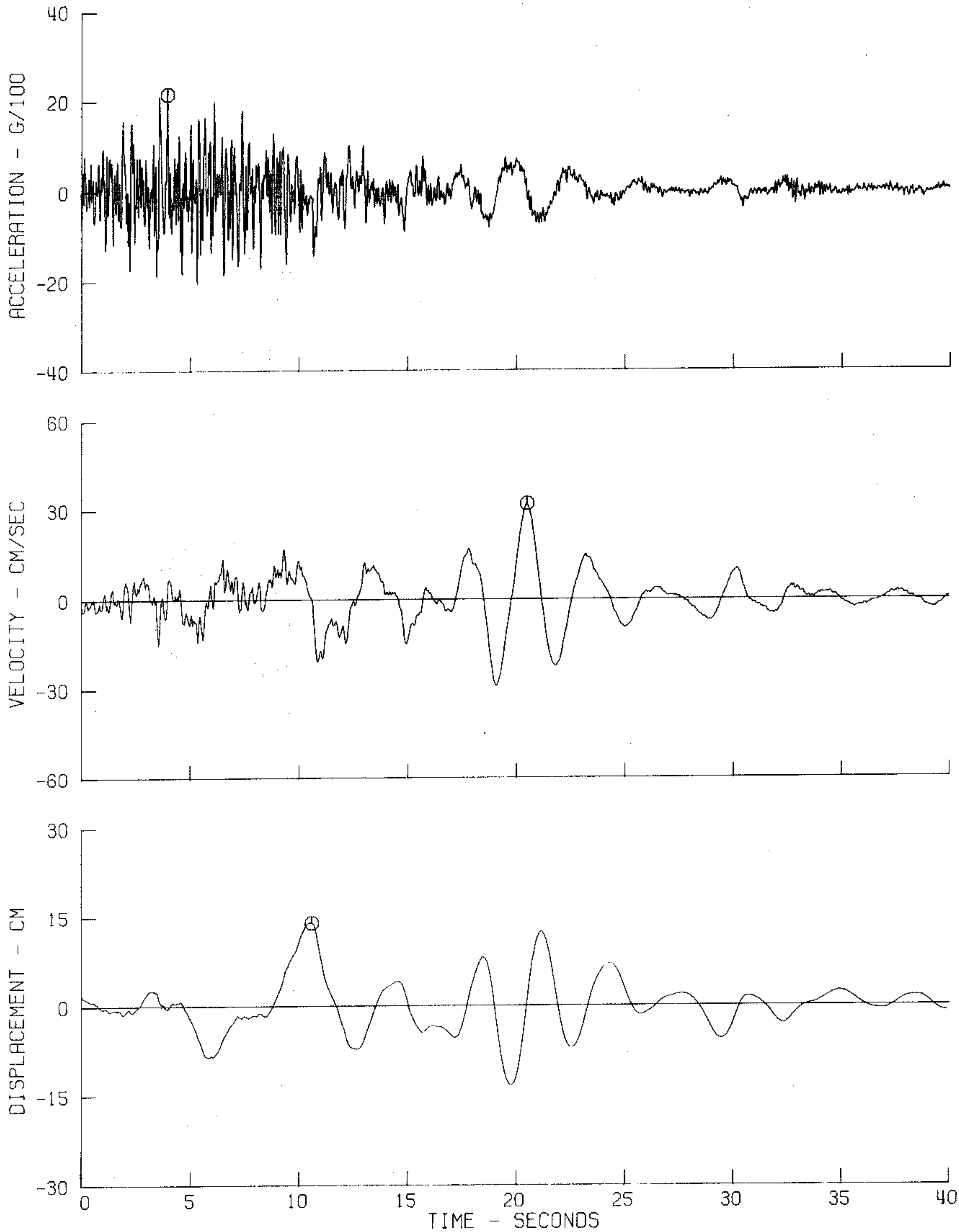
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC049 71.002.0 8244 ORION BLVD. 4TH FLOOR, LOS ANGELES, CAL. COMP S90W

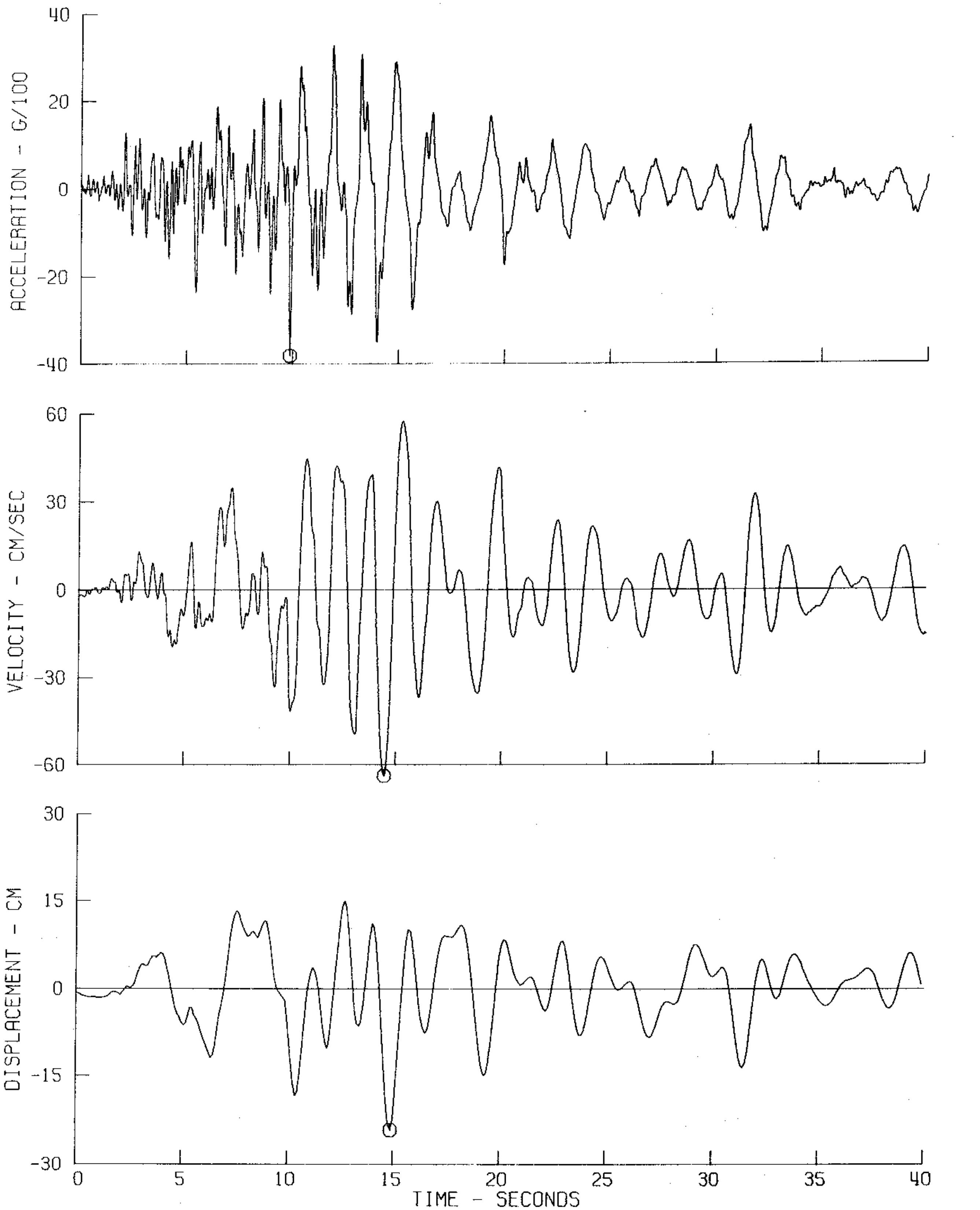
⊕ PEAK VALUES : ACCEL = 231.5 CM/SEC/SEC VELOCITY = -33.5 CM/SEC DISPL = 19.3 CM

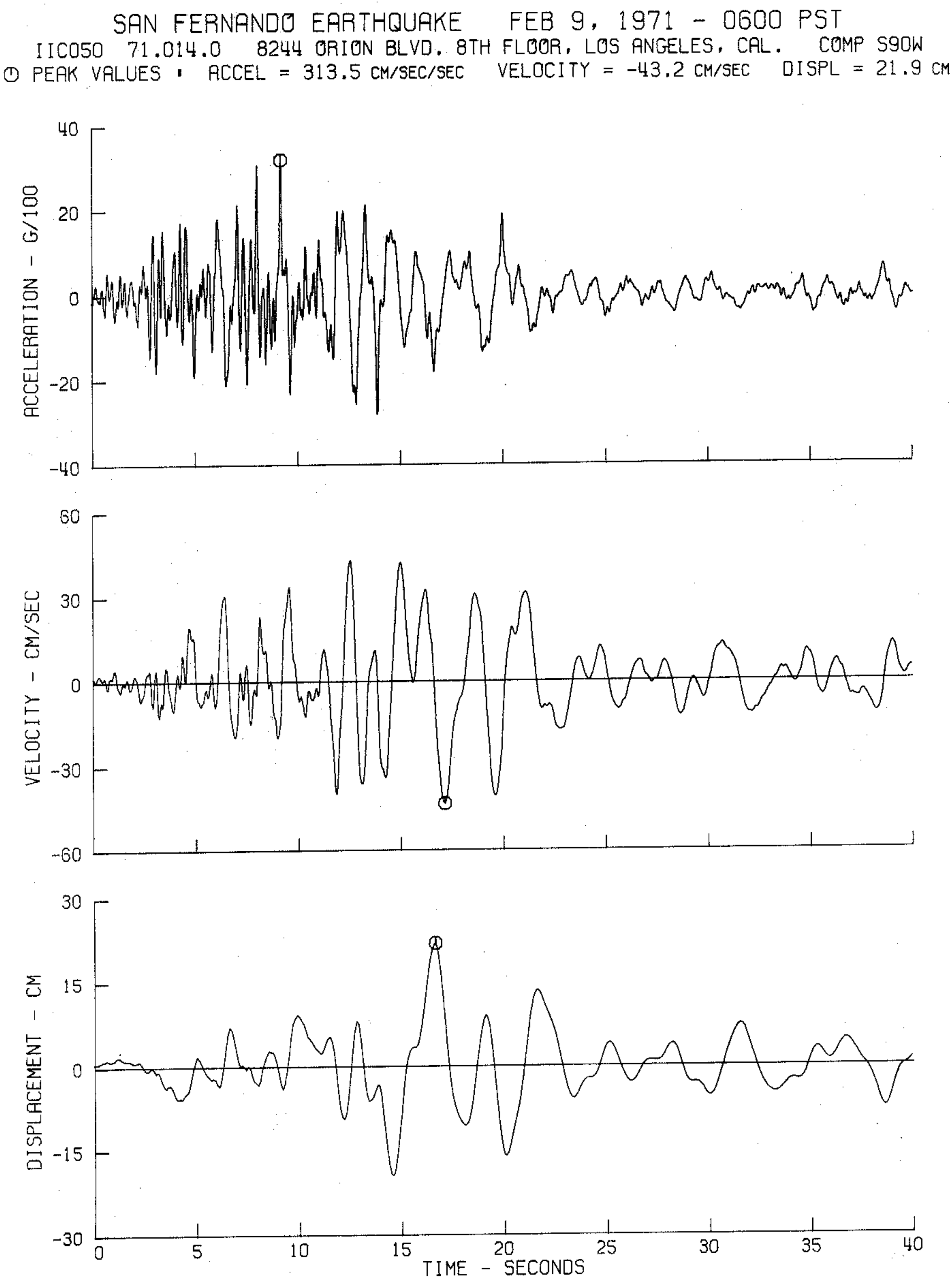


SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC050 71.014.0 8244 ORION BLVD. 8TH FLOOR, LOS ANGELES, CAL. COMP DOWN
PEAK VALUES : ACCEL = 211.5 CM/SEC/SEC VELOCITY = 31.8 CM/SEC DISPL = 14.0 CM

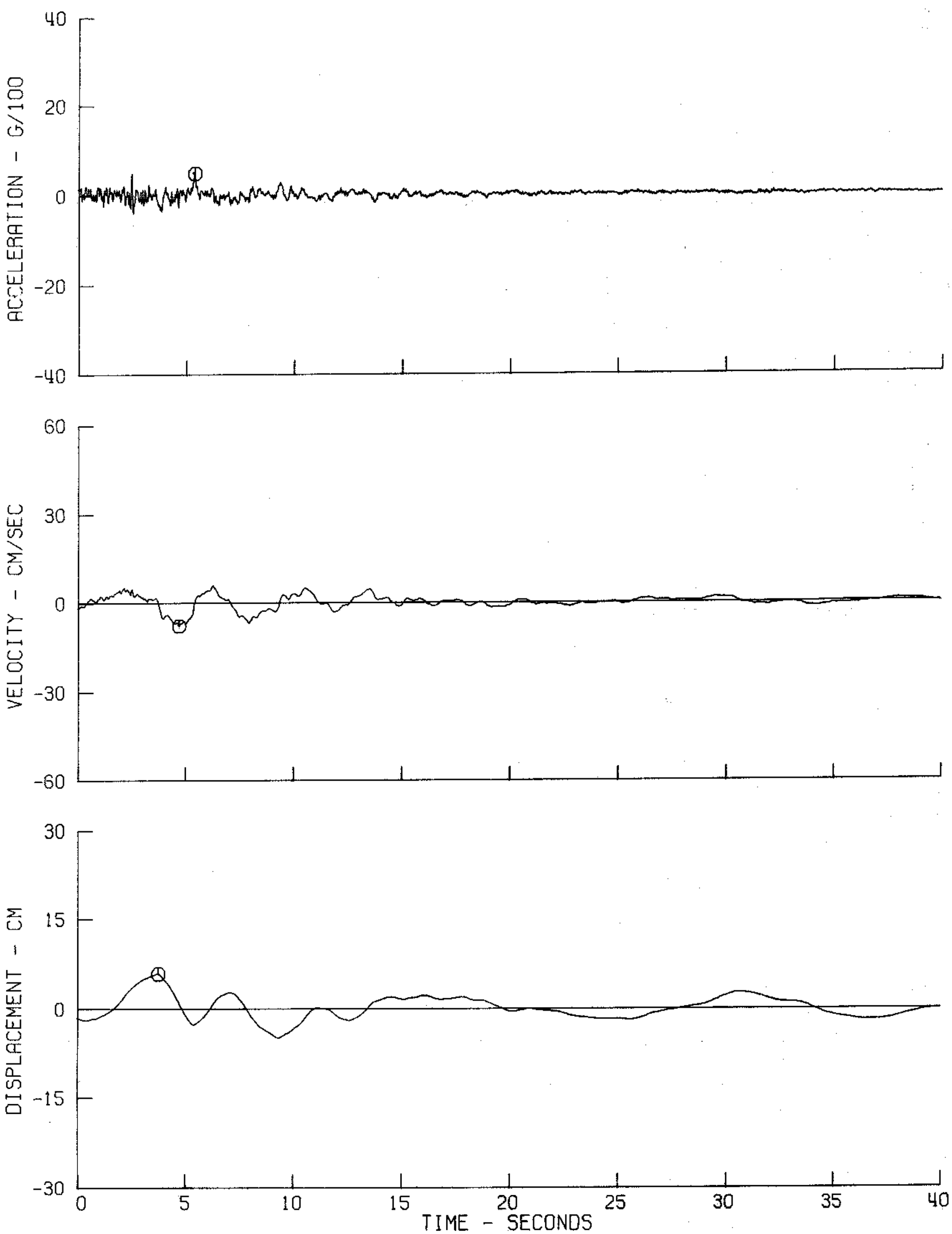


SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC050 71.014.0 8244 ORION BLVD. 8TH FLOOR, LOS ANGELES, CAL. COMP NOOW
⊙ PEAK VALUES : ACCEL = -375.3 CM/SEC/SEC VELOCITY = -63.9 CM/SEC DISPL = -24.1 CM




SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC050 71.014.0 8244 ORION BLVD. 8TH FLOOR, LOS ANGELES, CAL. COMP S90W
PEAK VALUES : ACCEL = 313.5 CM/SEC/SEC VELOCITY = -43.2 CM/SEC DISPL = 21.9 CM
ACCELERATION - G/100
40
20
0
-20
-40
VELOCITY - CM/SEC
60
30
0
-30
-60
DISPLACEMENT - CM
30
15
0
-15
-30
0
5
10
15
20
25
30
35
40
TIME - SECONDS

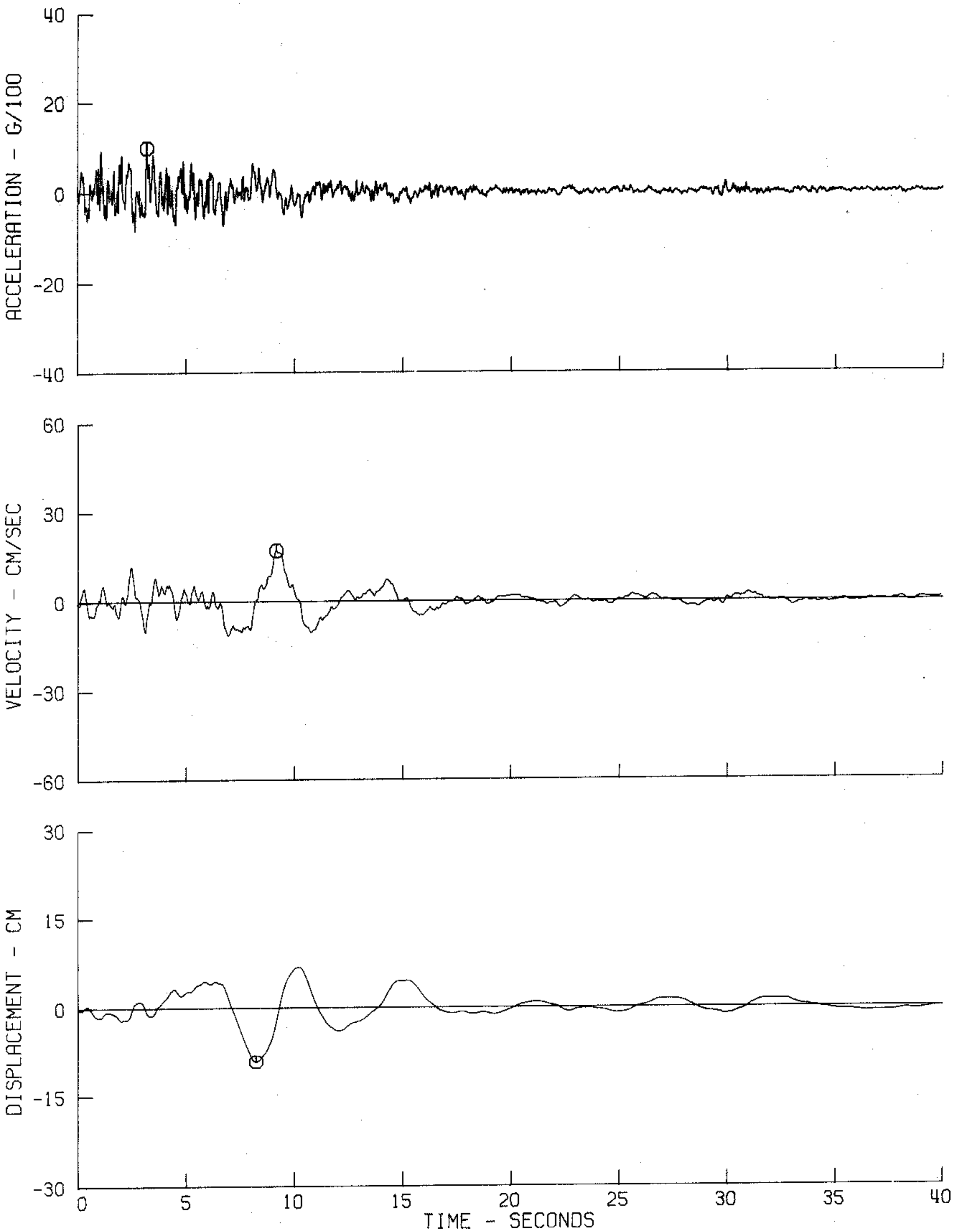
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC051 71.005.0 250 E FIRST STREET BASEMENT, LOS ANGELES, CAL. COMP DOWN
PEAK VALUES : ACCEL = 48.0 CM/SEC/SEC VELOCITY = -7.8 CM/SEC DISPL = 5.8 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC051 71.005.0 250 E FIRST STREET BASEMENT, LOS ANGELES, CAL. COMP N36E

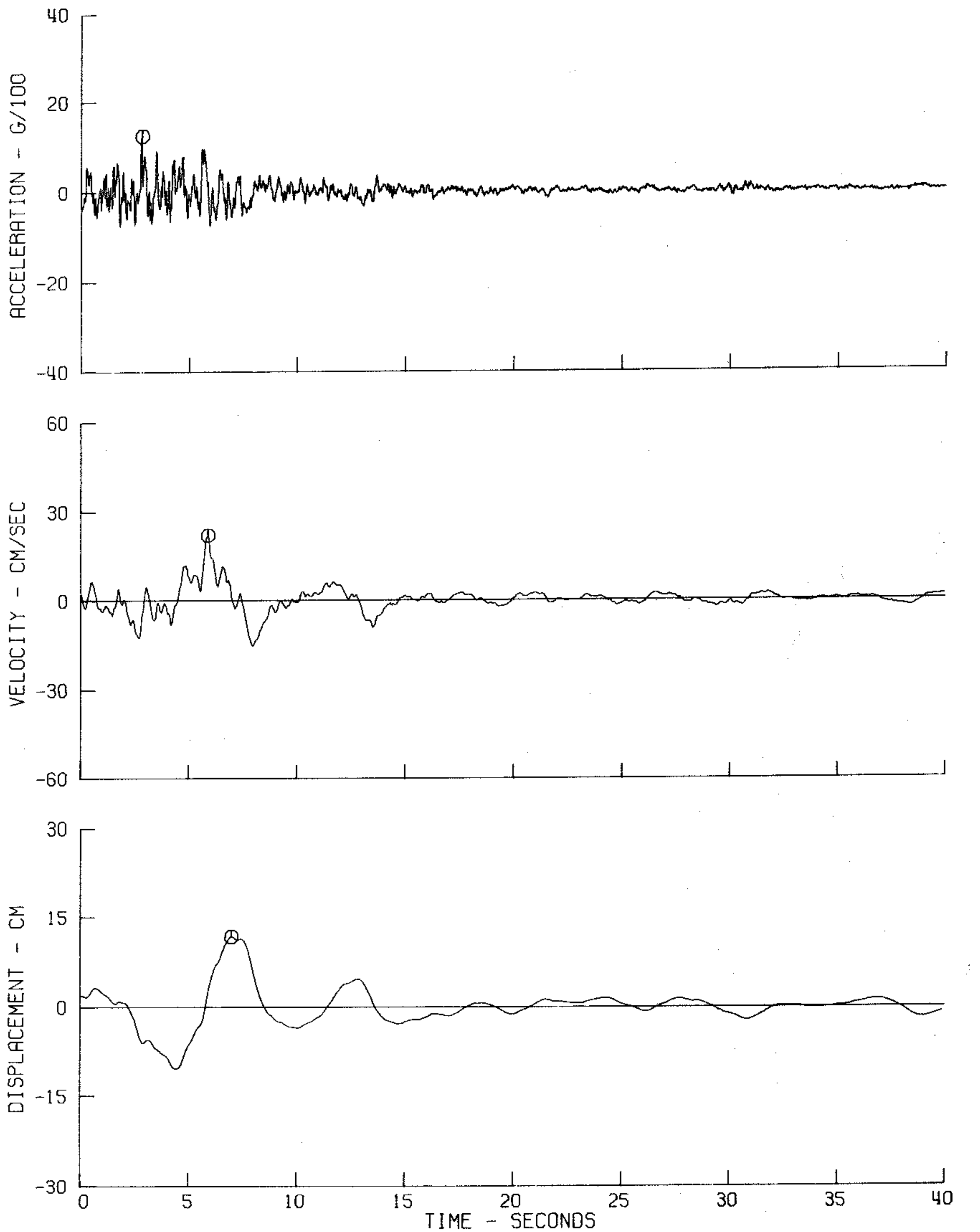
Ⓟ PEAK VALUES : ACCEL = 97.8 CM/SEC/SEC VELOCITY = 17.1 CM/SEC DISPL = -9.2 CM



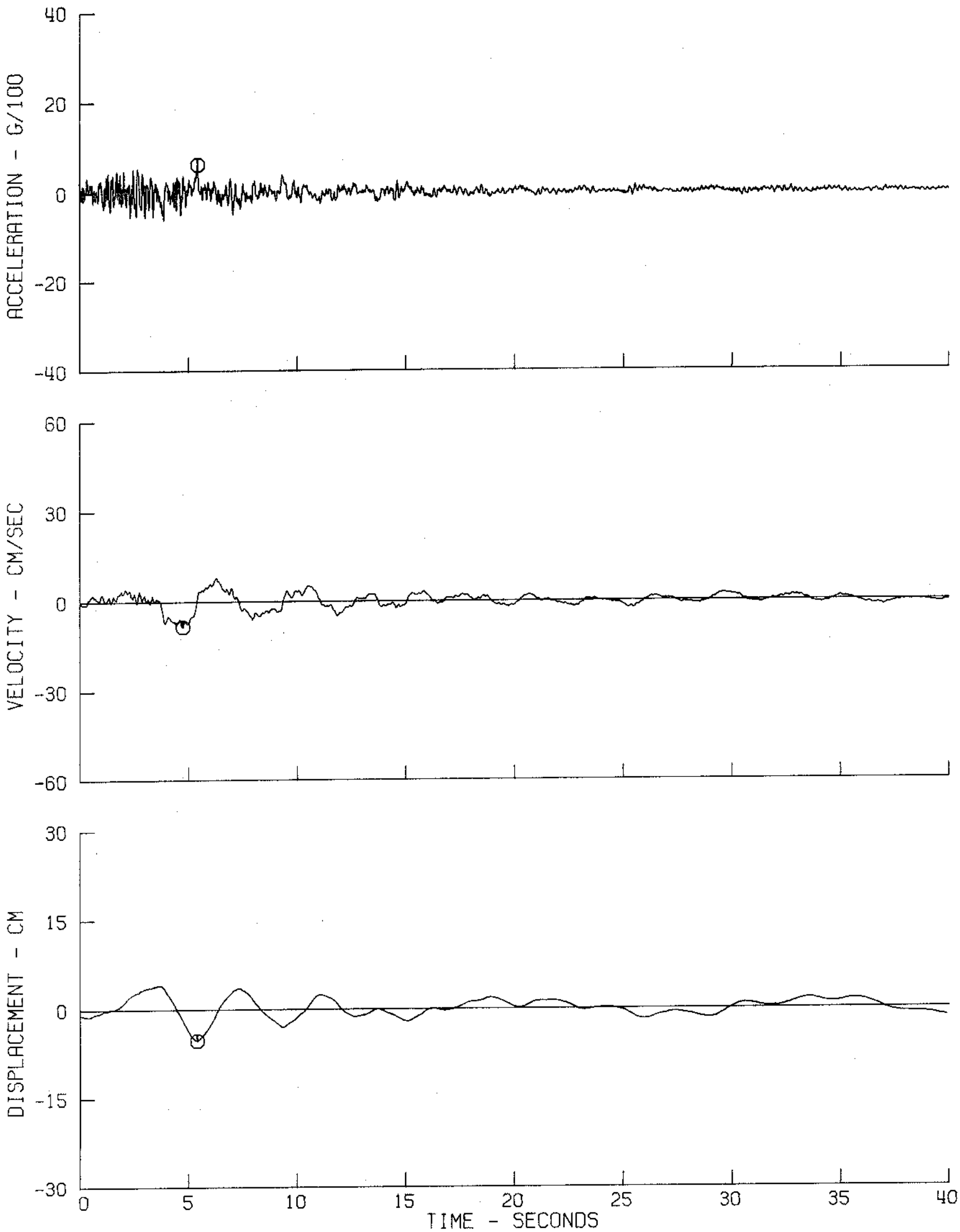
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC051 71.005.0 250 E FIRST STREET BASEMENT, LOS ANGELES, CAL. COMP N54W

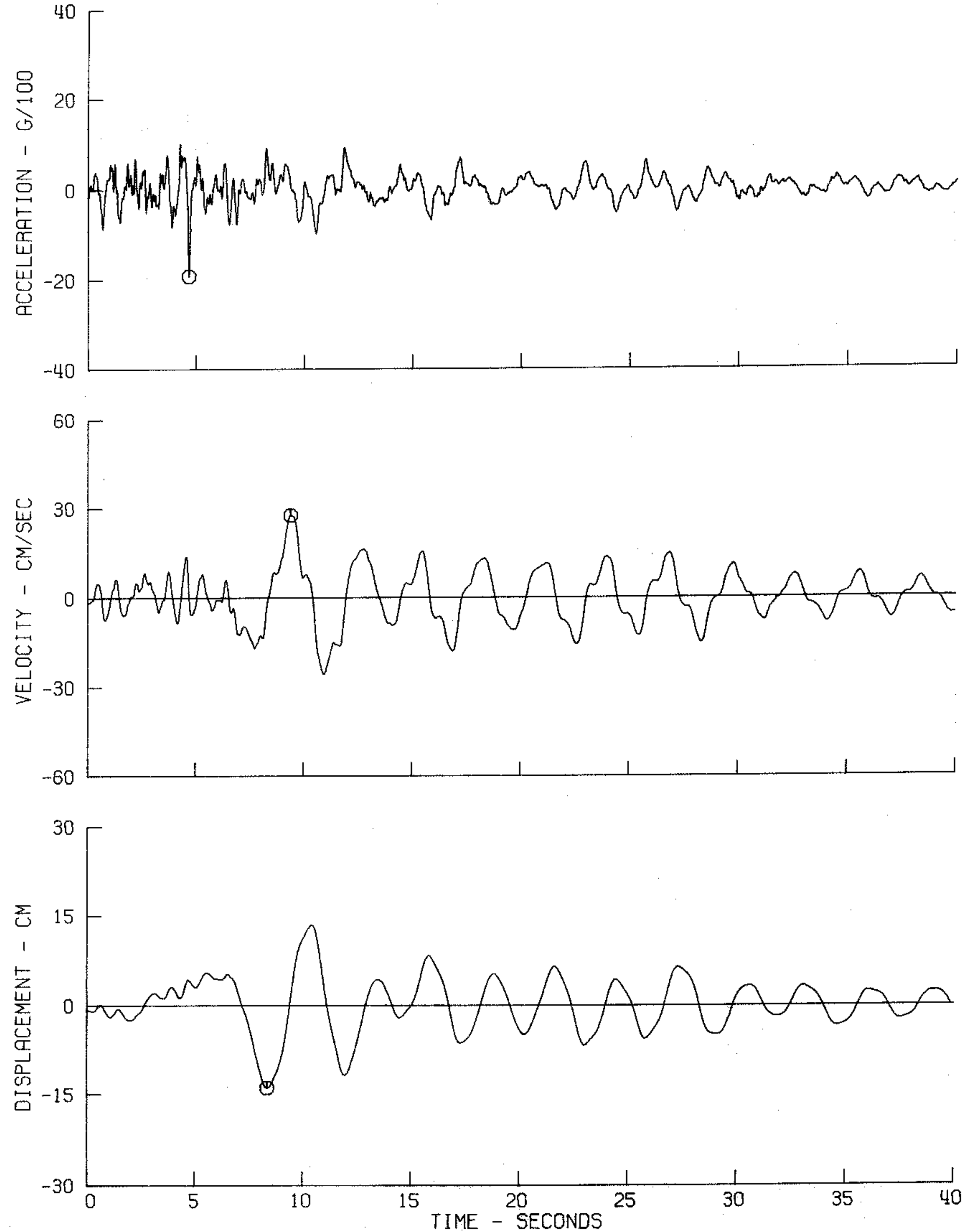
⦶ PEAK VALUES : ACCEL = 122.7 CM/SEC/SEC VELOCITY = 21.9 CM/SEC DISPL = 11.6 CM



SAN FERNANDO EARTHQUAKE   FEB 9, 1971 - 0600 PST
IIC052 71.011.0   250 E FIRST STREET 8TH FLOOR, LOS ANGELES, CAL.   COMP DOWN
PEAK VALUES : ACCEL = 62.0 CM/SEC/SEC   VELOCITY = -8.6 CM/SEC   DISPL = -5.3 CM



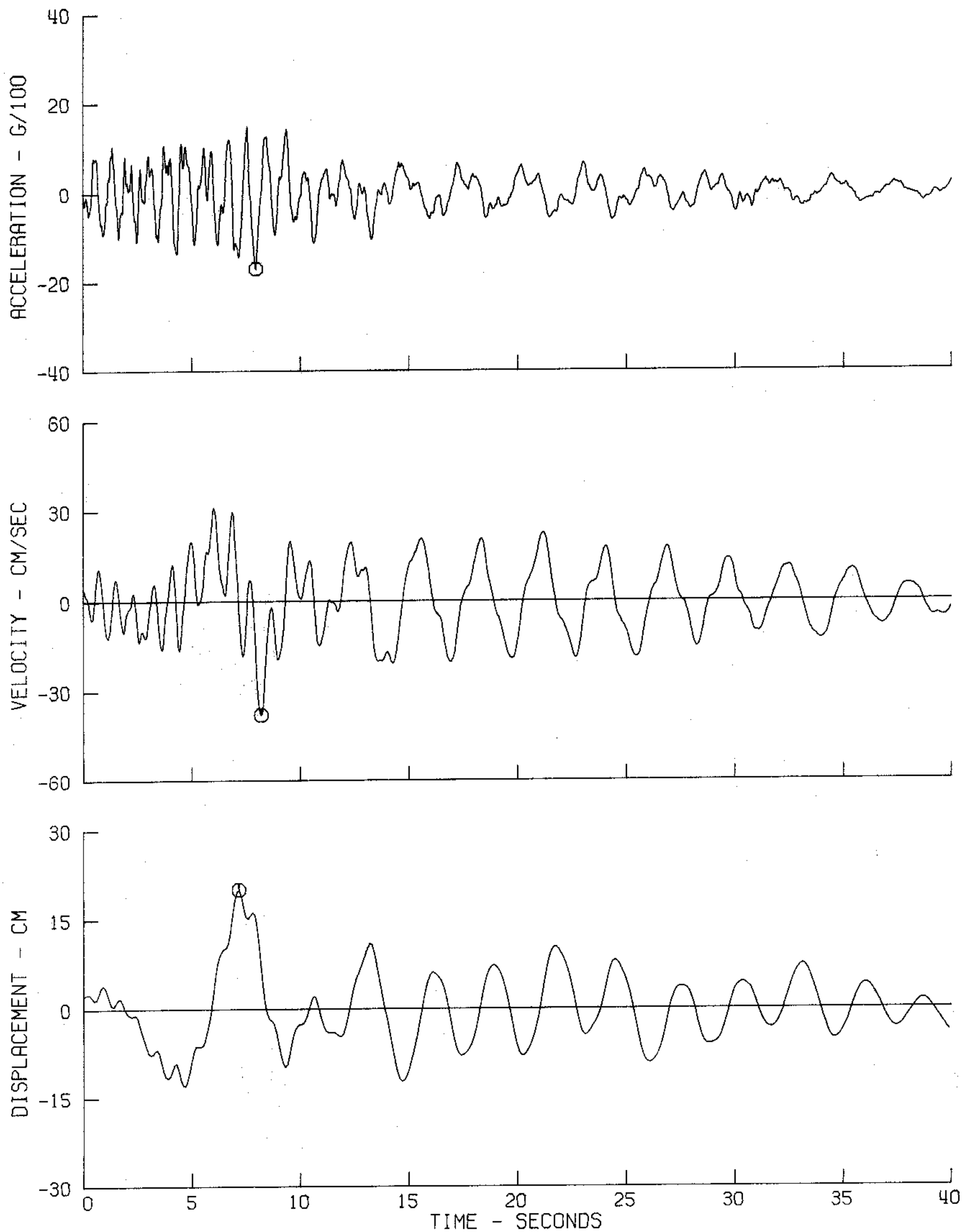
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC052 71.011.0 250 E FIRST STREET 8TH FLOOR, LOS ANGELES, CAL. COMP N36E
⊙ PEAK VALUES : ACCEL = -189.2 CM/SEC/SEC VELOCITY = 27.6 CM/SEC DISPL = -13.9 CM

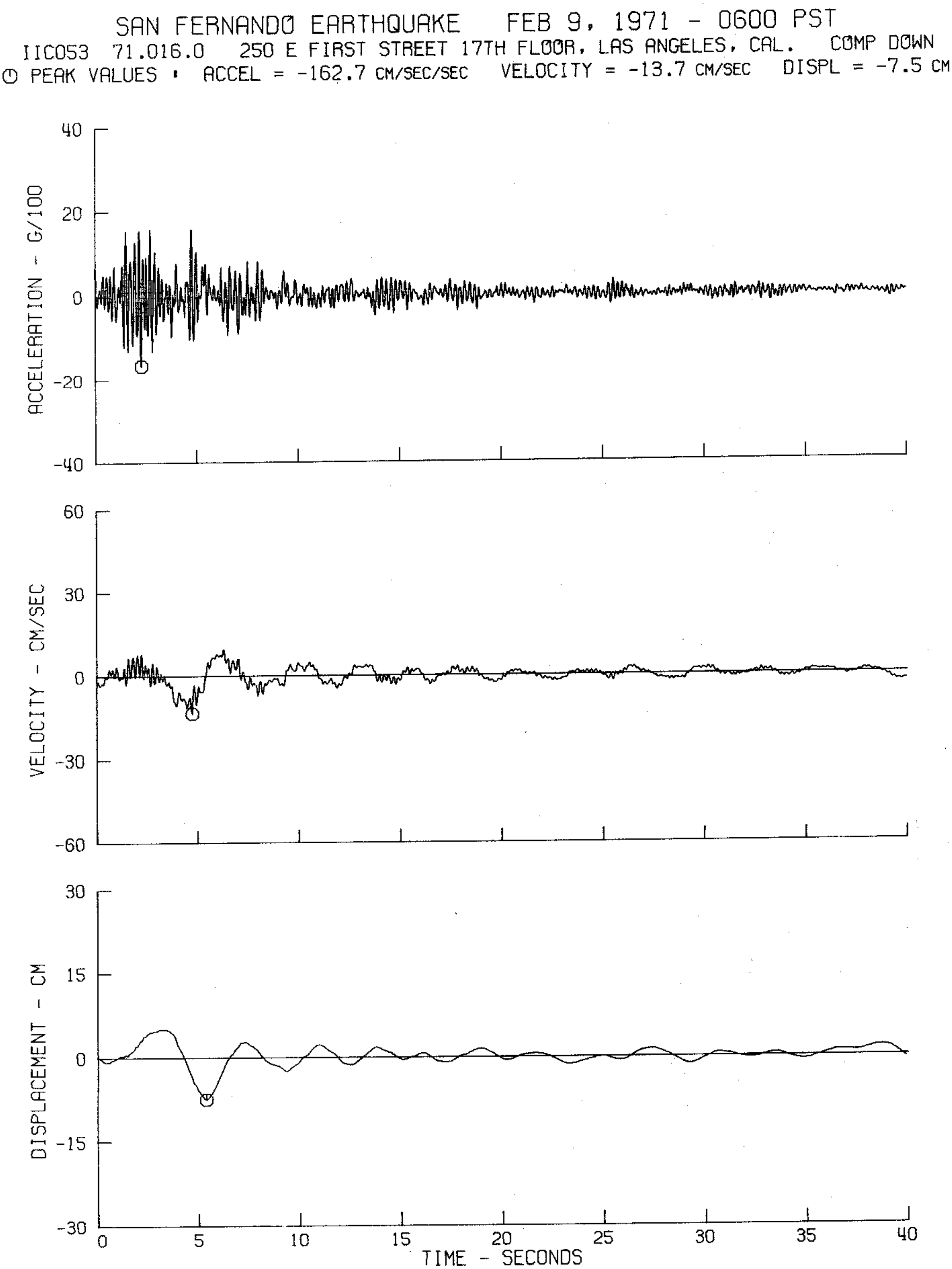


SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC052 71.011.0 250 E FIRST STREET 8TH FLOOR, LOS ANGELES, CAL. COMP N54W

PEAK VALUES : ACCEL = -167.8 CM/SEC/SEC VELOCITY = -37.9 CM/SEC DISPL = 20.0 CM

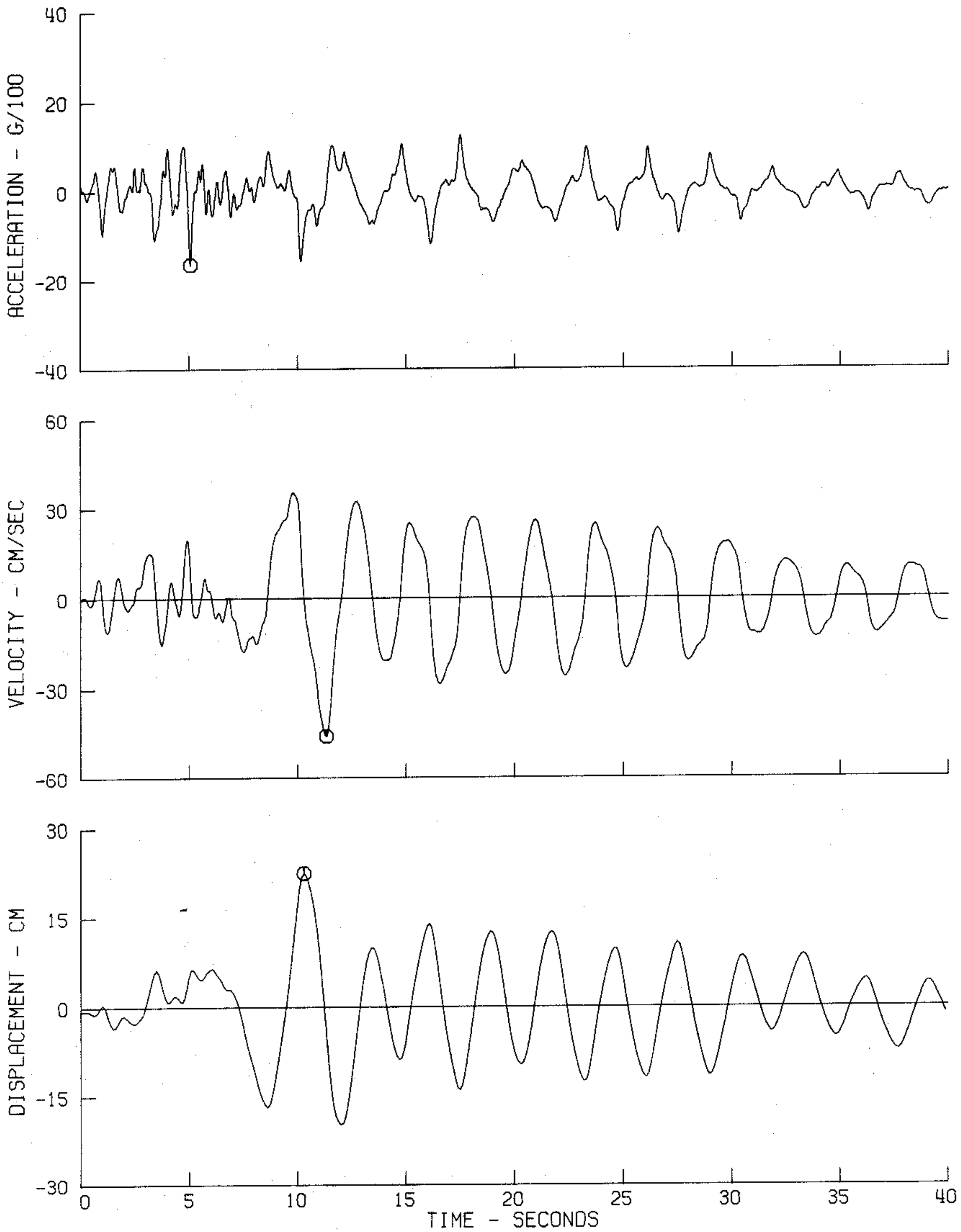



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC053 71.016.0 250 E FIRST STREET 17TH FLOOR, LAS ANGELES, CAL. COMP DOWN
PEAK VALUES : ACCEL = -162.7 CM/SEC/SEC VELOCITY = -13.7 CM/SEC DISPL = -7.5 CM
ACCELERATION - G/100
VELOCITY - CM/SEC
DISPLACEMENT - CM
TIME - SECONDS

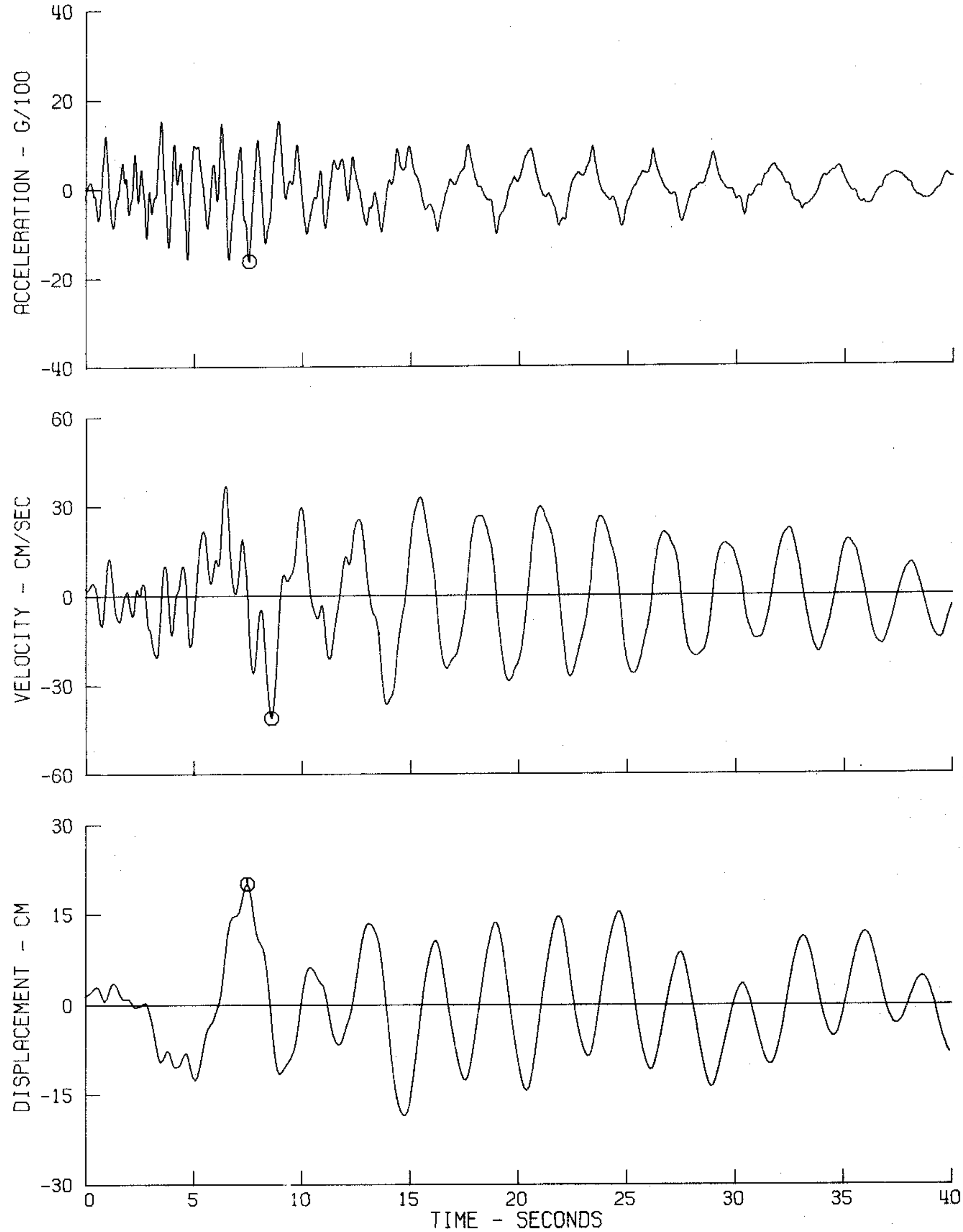
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC053 71.016.0 250 E FIRST STREET 17TH FLOOR, LAS ANGELES, CAL. COMP N36E

PEAK VALUES : ACCEL = -162.5 CM/SEC/SEC VELOCITY = -45.8 CM/SEC DISPL = 22.4 CM



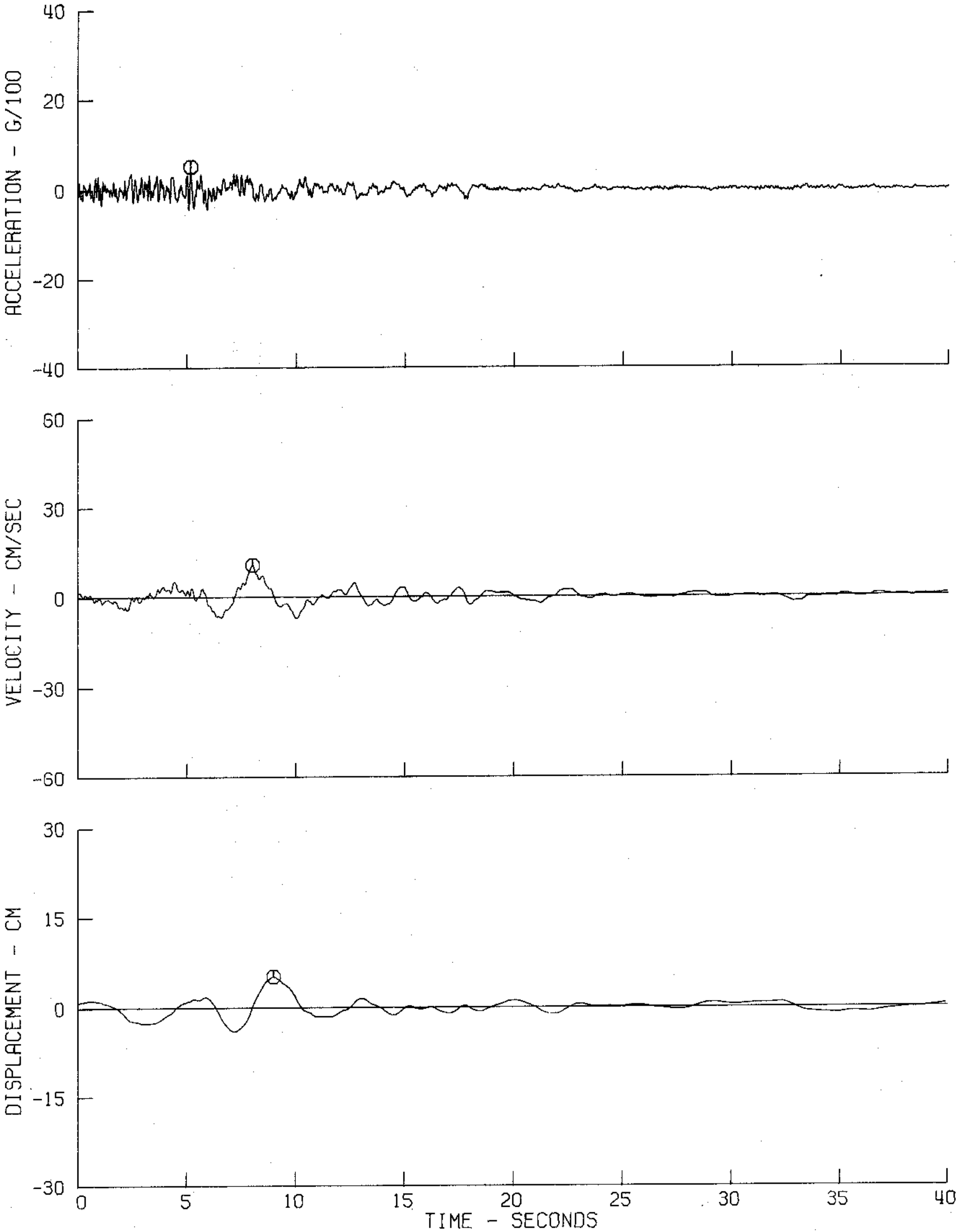
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC053 71.016.0 250 E FIRST STREET 17TH FLOOR, LOS ANGELES, CAL. COMP N54W
⊙ PEAK VALUES : ACCEL = -159.0 CM/SEC/SEC VELOCITY = -41.1 CM/SEC DISPL = 20.1 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC054 71.060.0 445 FIGUEROA STREET, SUB-BASEMENT, LOS ANGELES, CAL. COMP DOWN

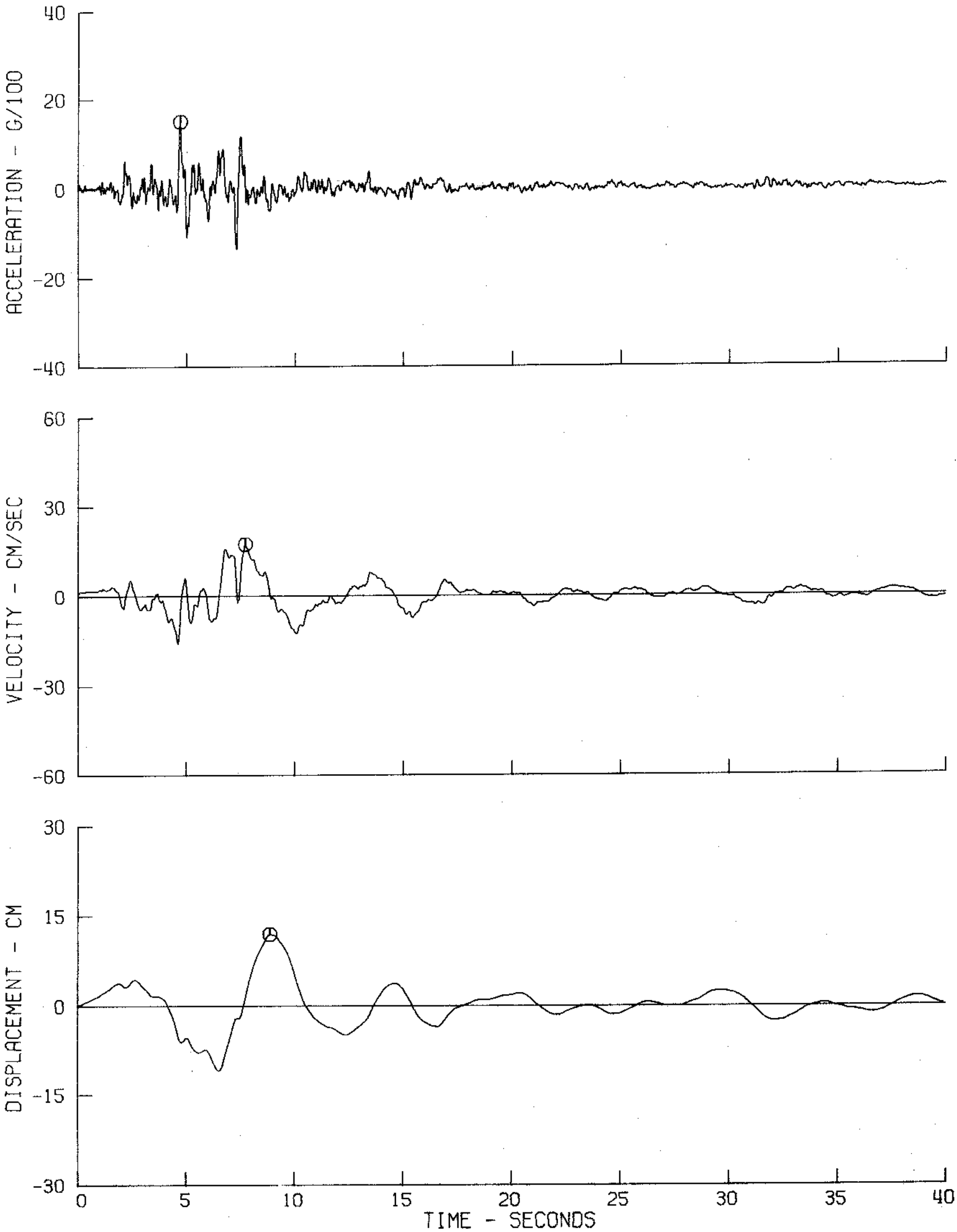
① PEAK VALUES : ACCEL = 51.7 CM/SEC/SEC VELOCITY = 10.7 CM/SEC DISPL = 5.1 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC054 71.060.0 445 FIGUEROA STREET, SUB-BASEMENT, LOS ANGELES, CAL. COMP N52W

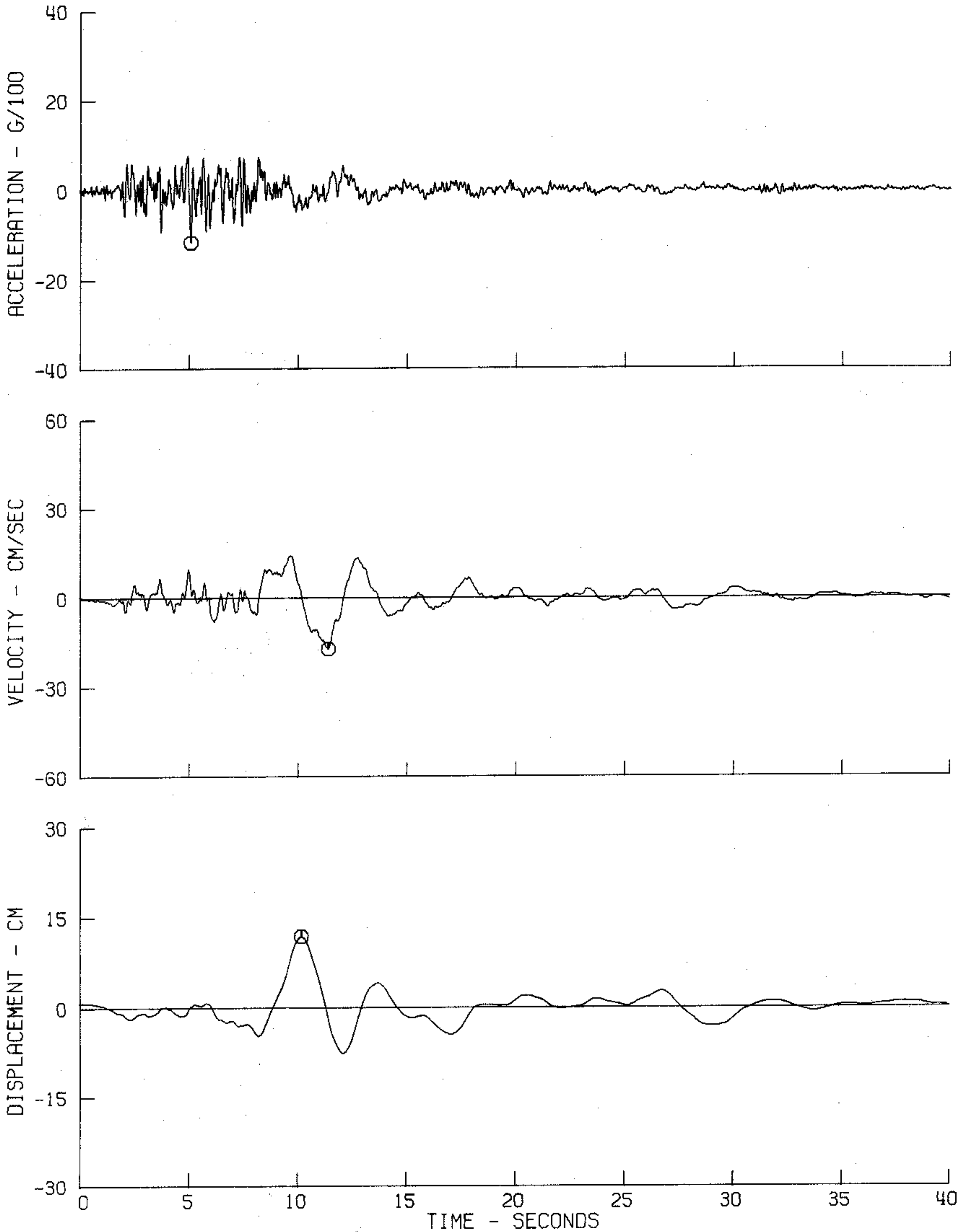
Ⓟ PEAK VALUES : ACCEL = 147.1 CM/SEC/SEC VELOCITY = 17.4 CM/SEC DISPL = 11.8 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC054 71.060.0 445 FIGUEROA STREET, SUB-BASEMENT, LOS ANGELES, CAL. COMP S38W

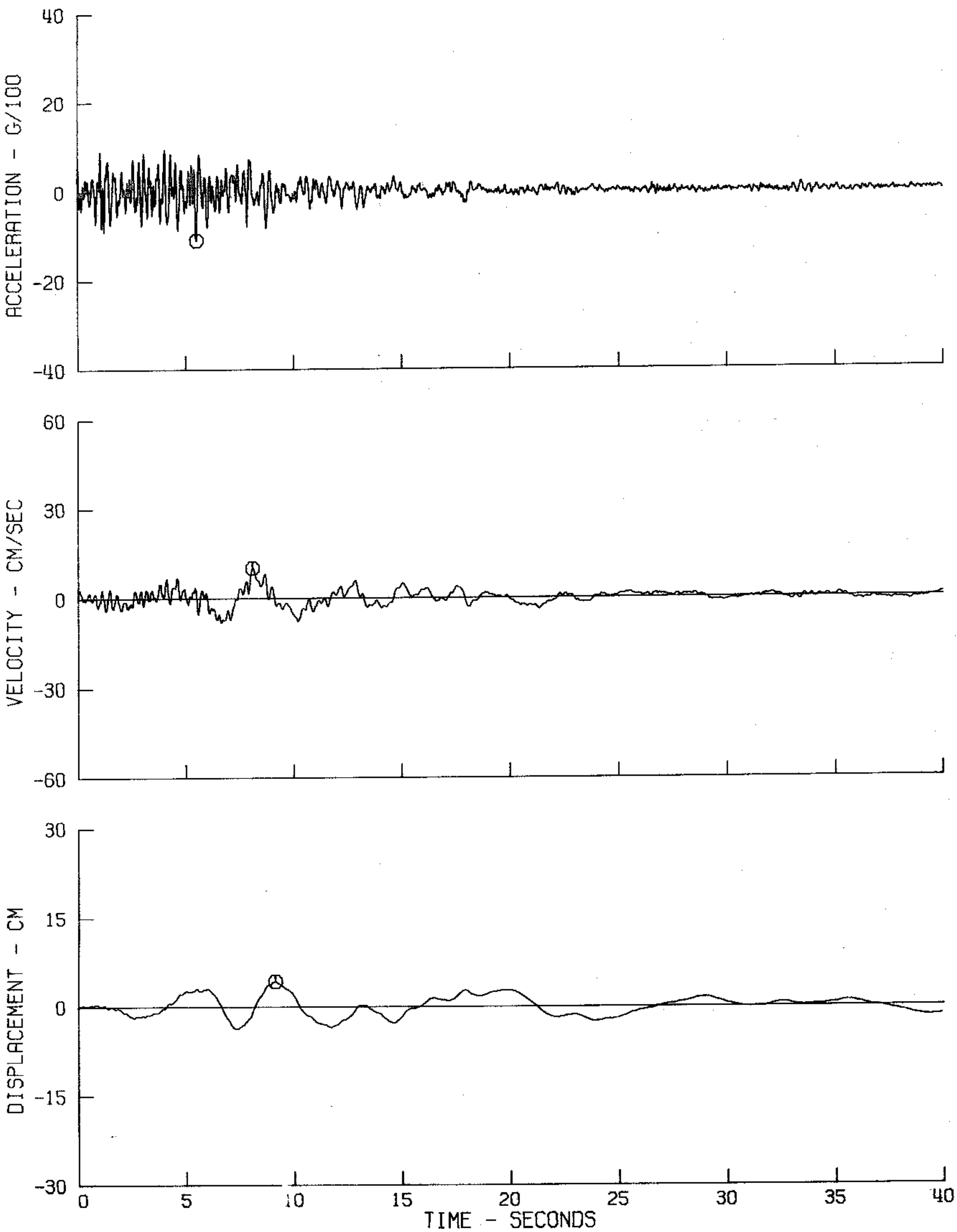
① PEAK VALUES : ACCEL = -117.0 CM/SEC/SEC VELOCITY = -17.3 CM/SEC DISPL = 11.8 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC055 71.091.0 445 FIGUEROA STREET, 19TH FLOOR, LOS ANGELES, CAL. COMP DOWN

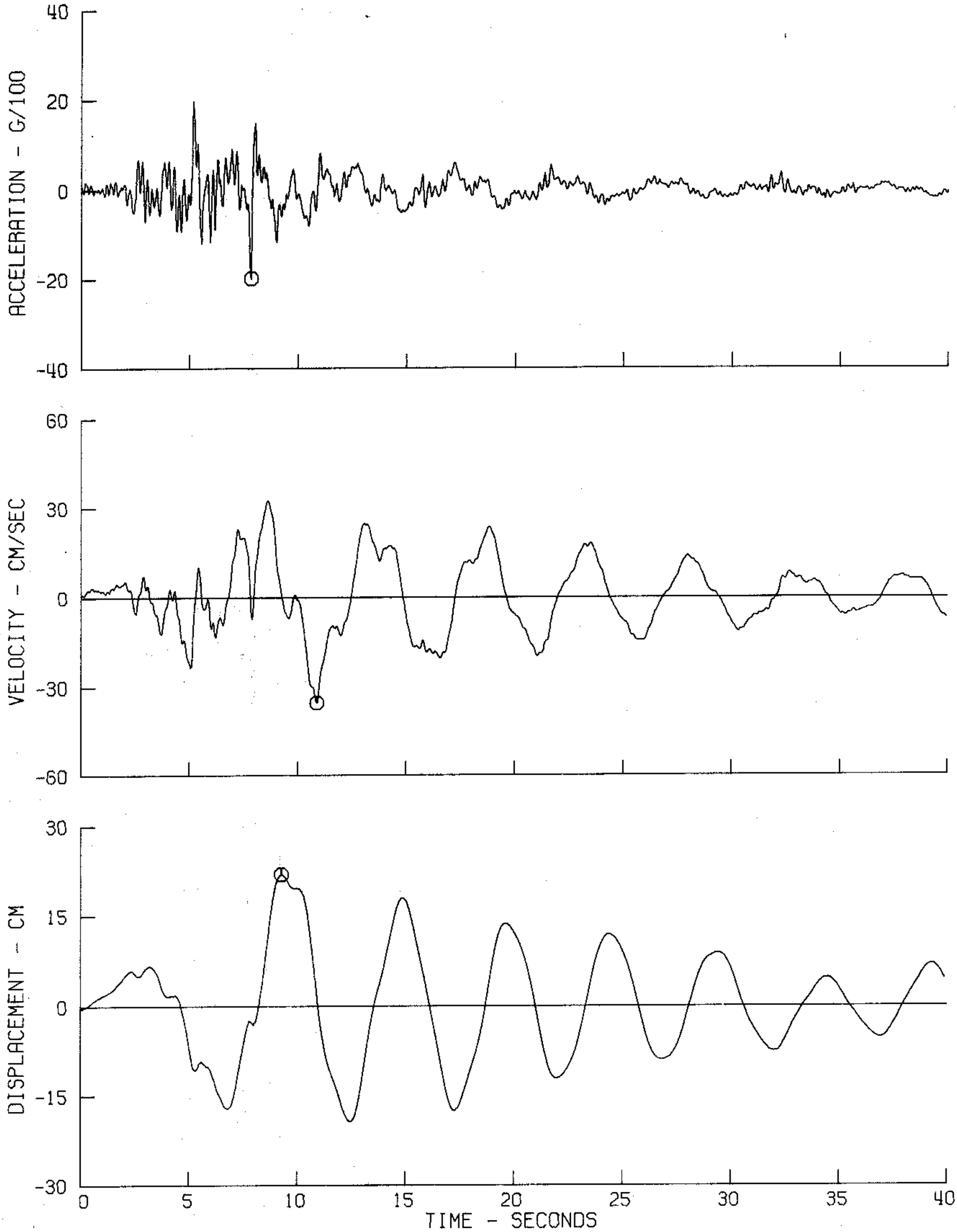
PEAK VALUES : ACCEL = -108.3 CM/SEC/SEC VELOCITY = 10.2 CM/SEC DISPL = 4.2 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC055 71.091.0 445 FIGUEROA STREET, 19TH FLOOR, LOS ANGELES, CAL. COMP N52W

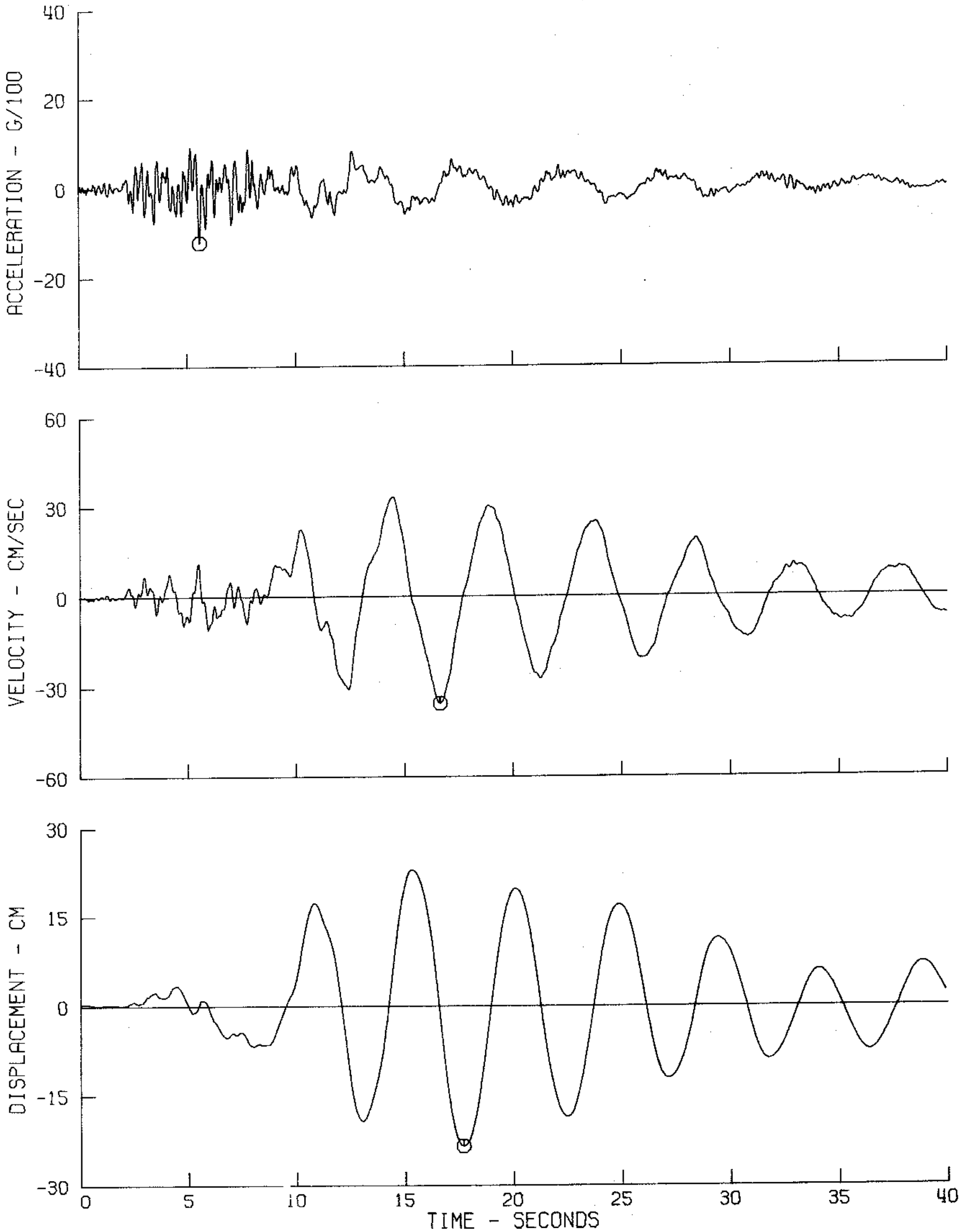
⊙ PEAK VALUES : ACCEL = -195.5 CM/SEC/SEC VELOCITY = -35.3 CM/SEC DISPL = 22.0 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIC055 71.091.0 445 FIGUEROA STREET, 19TH FLOOR, LOS ANGELES, CAL. COMP S38W

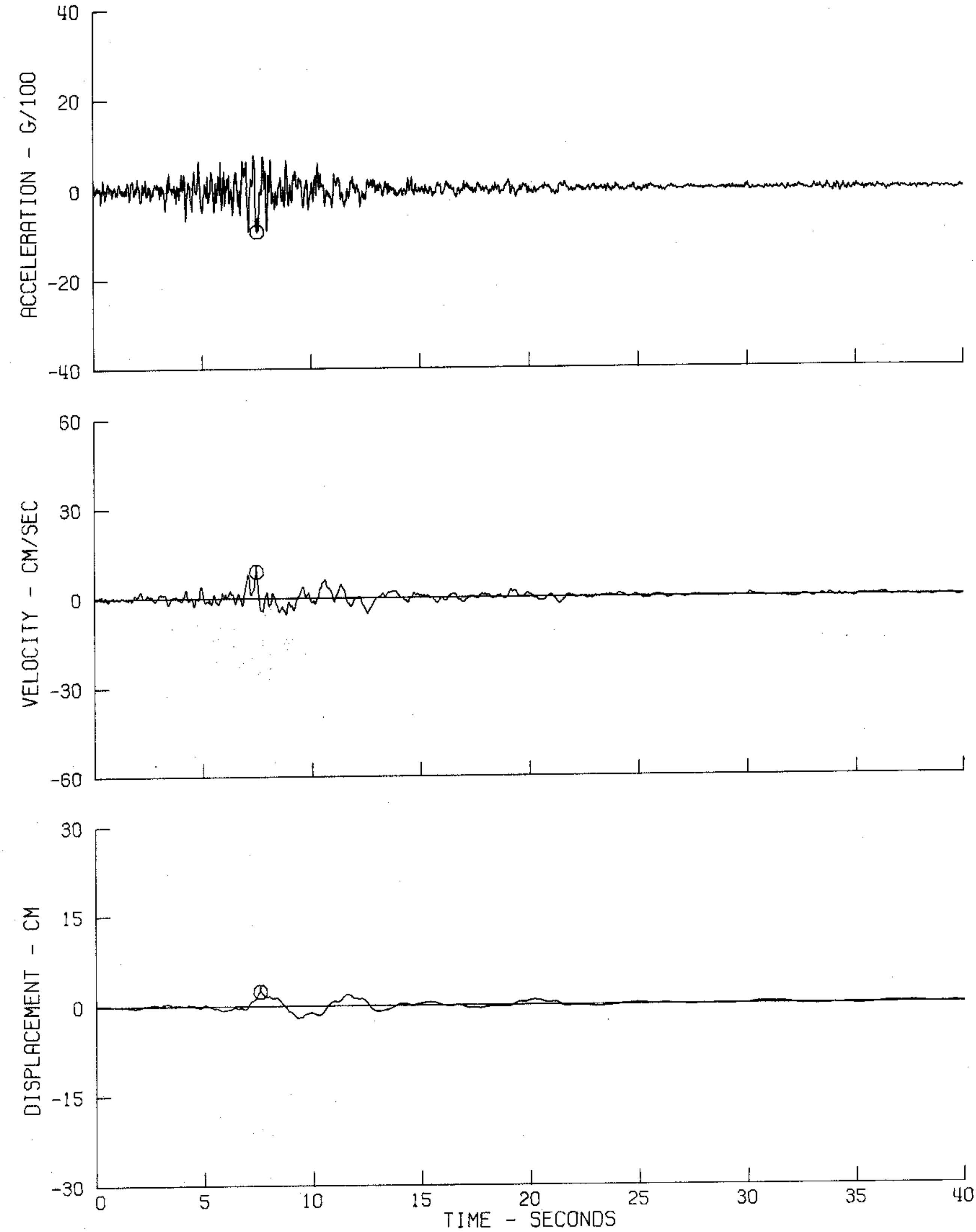
PEAK VALUES : ACCEL = -120.8 CM/SEC/SEC VELOCITY = -35.5 CM/SEC DISPL = -23.4 CM



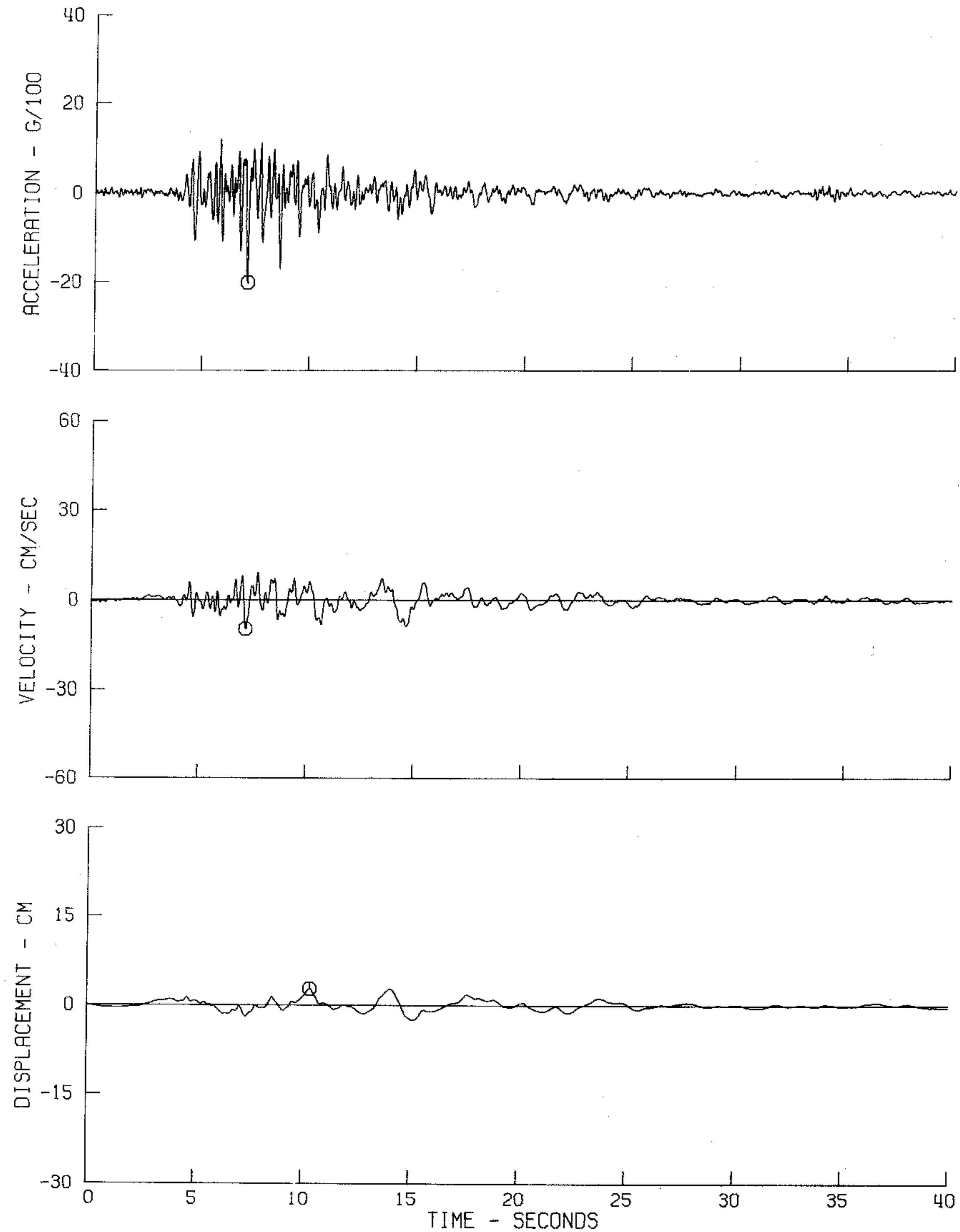
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIG108 71.022.0 CALTECH MILLIKAN LIBRARY, BASEMENT, PASADENA, CAL. COMP DOWN

PEAK VALUES : ACCEL = -91.2 CM/SEC/SEC VELOCITY = 9.0 CM/SEC DISPL = 2.4 CM



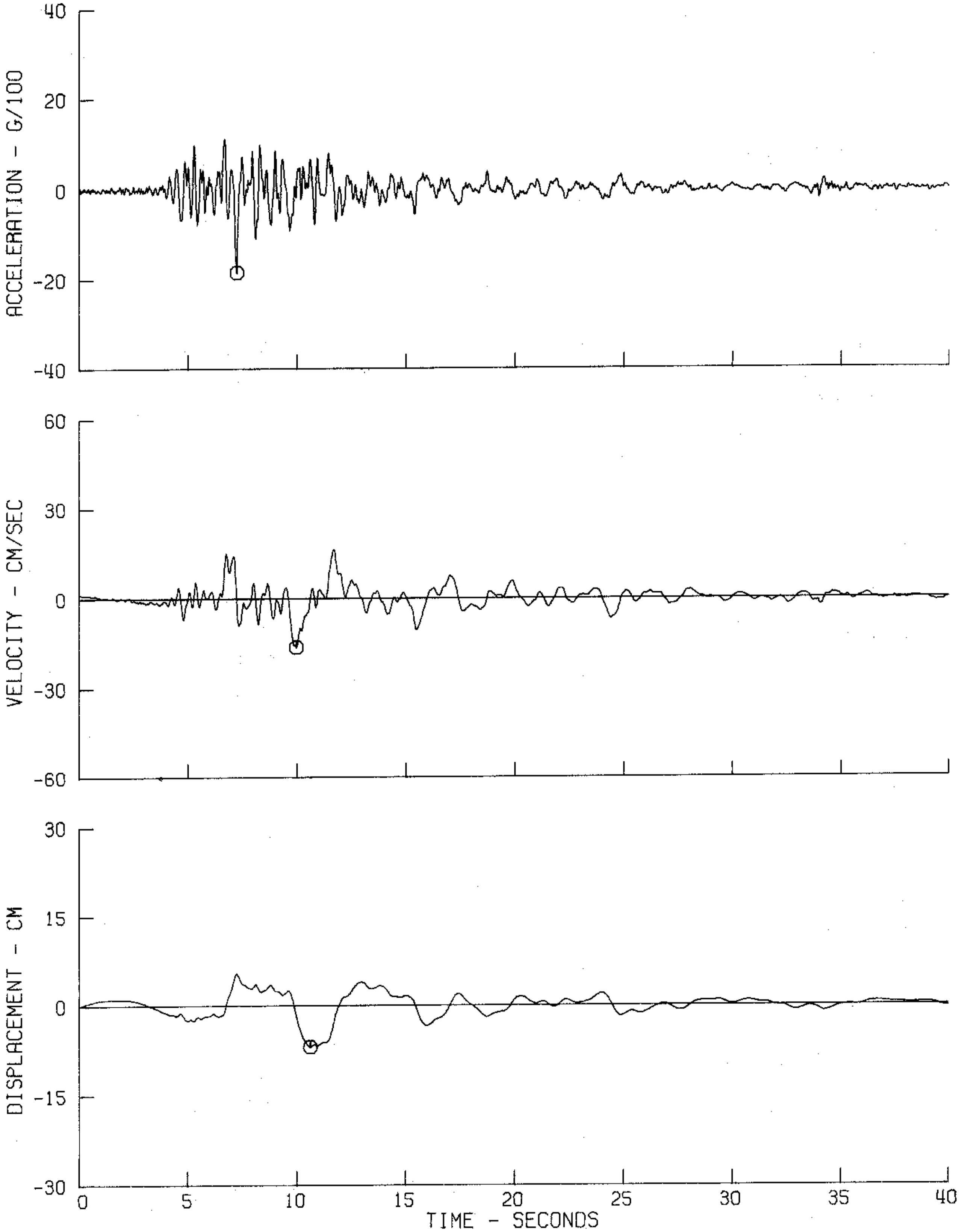
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG108 71.022.0 CALTECH MILLIKAN LIBRARY, BASEMENT, PASADENA, CAL. COMP N00E
⊙ PEAK VALUES : ACCEL = -198.0 CM/SEC/SEC VELOCITY = -9.8 CM/SEC DISPL = 2.7 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIG108 71.022.0 CALTECH MILLIKAN LIBRARY, BASEMENT, PASADENA, CAL. COMP N90E

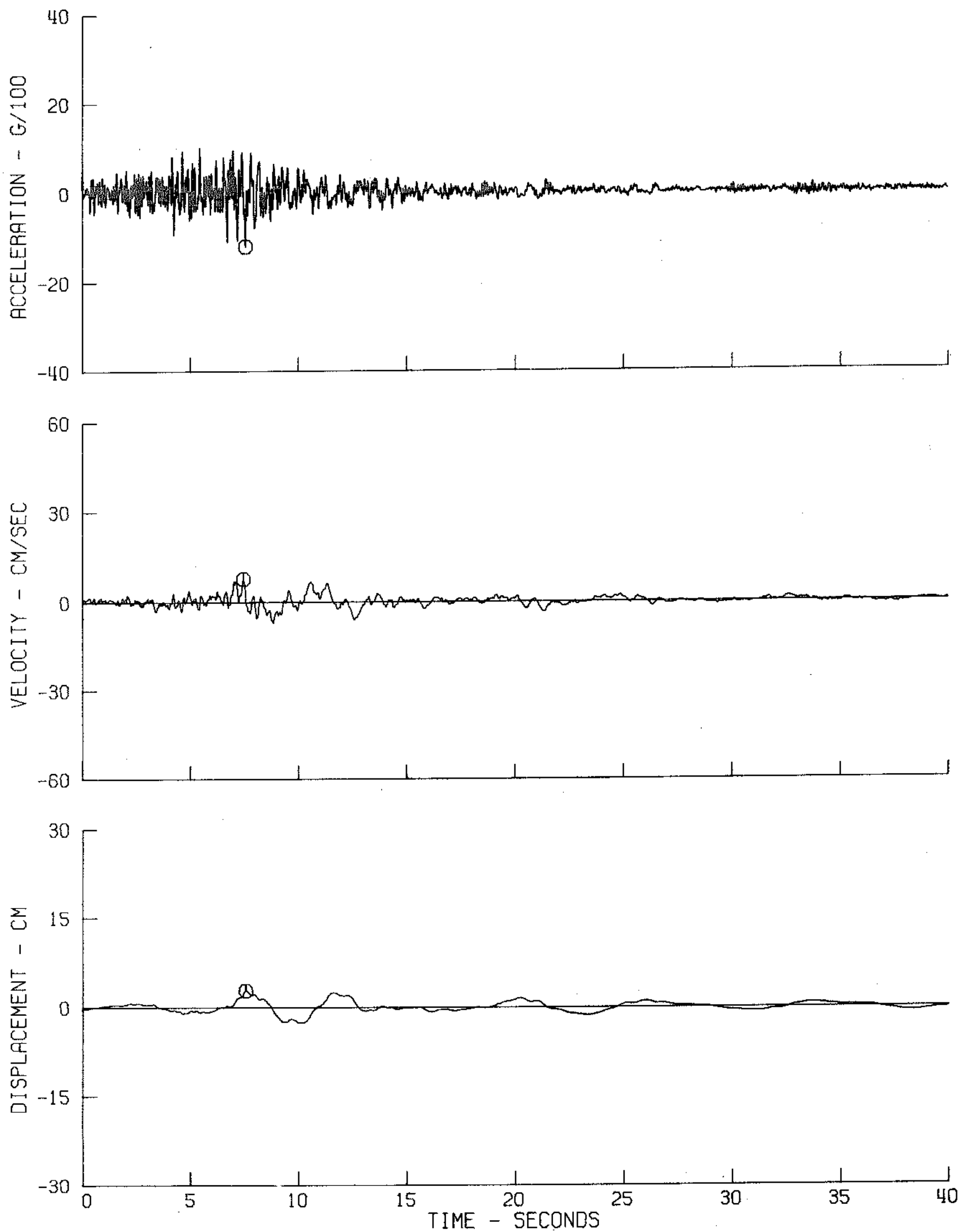
PEAK VALUES : ACCEL = -181.6 CM/SEC/SEC VELOCITY = -16.4 CM/SEC DISPL = -6.9 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIG109 71.023.0 CALTECH MILLIKAN LIBRARY, 10TH FLOOR, PASADENA, CAL. COMP DOWN

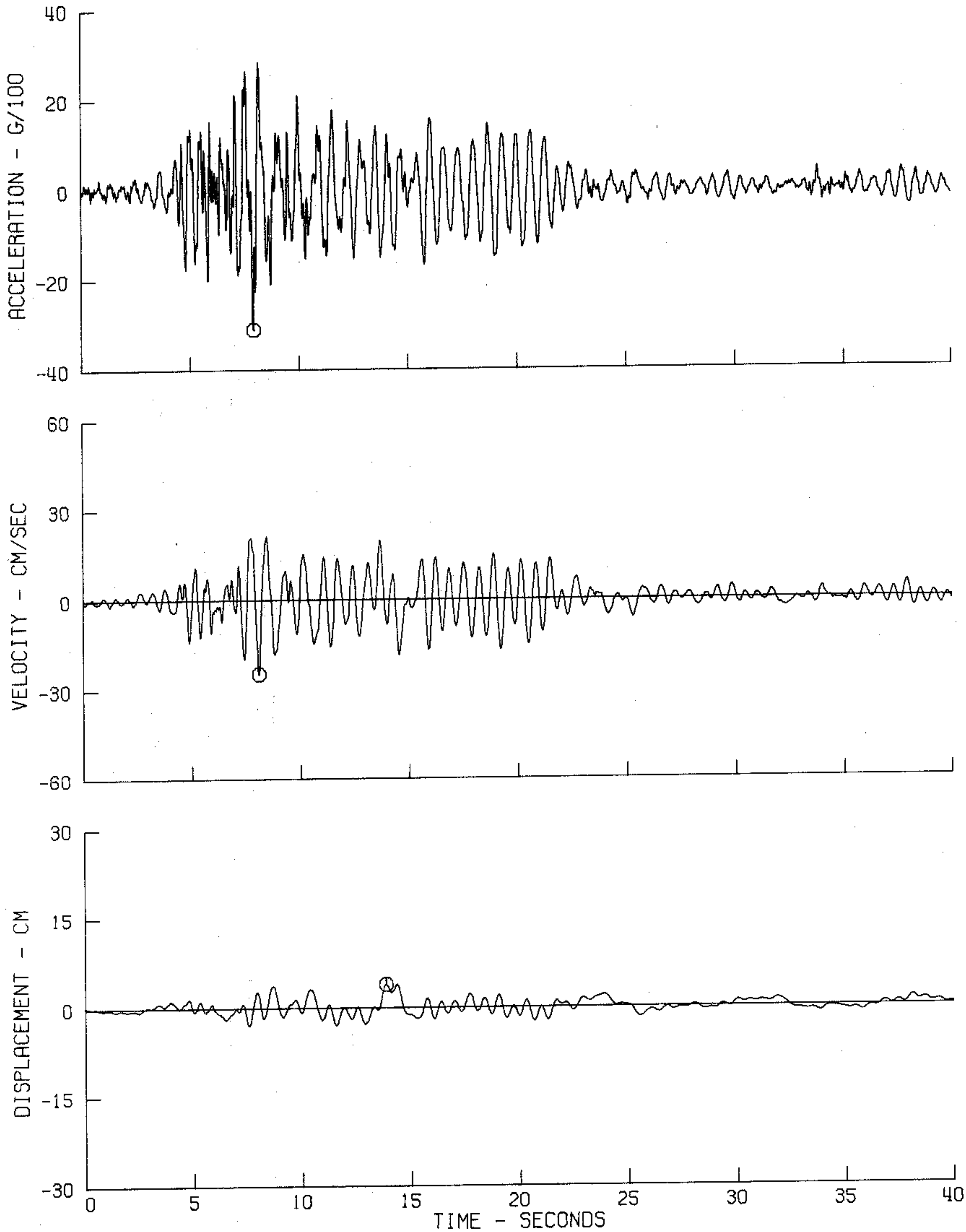
⊙ PEAK VALUES : ACCEL = -119.4 CM/SEC/SEC VELOCITY = 7.7 CM/SEC DISPL = 2.8 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIG109 71.023.0 CALTECH MILLIKAN LIBRARY, 10TH FLOOR, PASADENA, CAL. COMP NODE

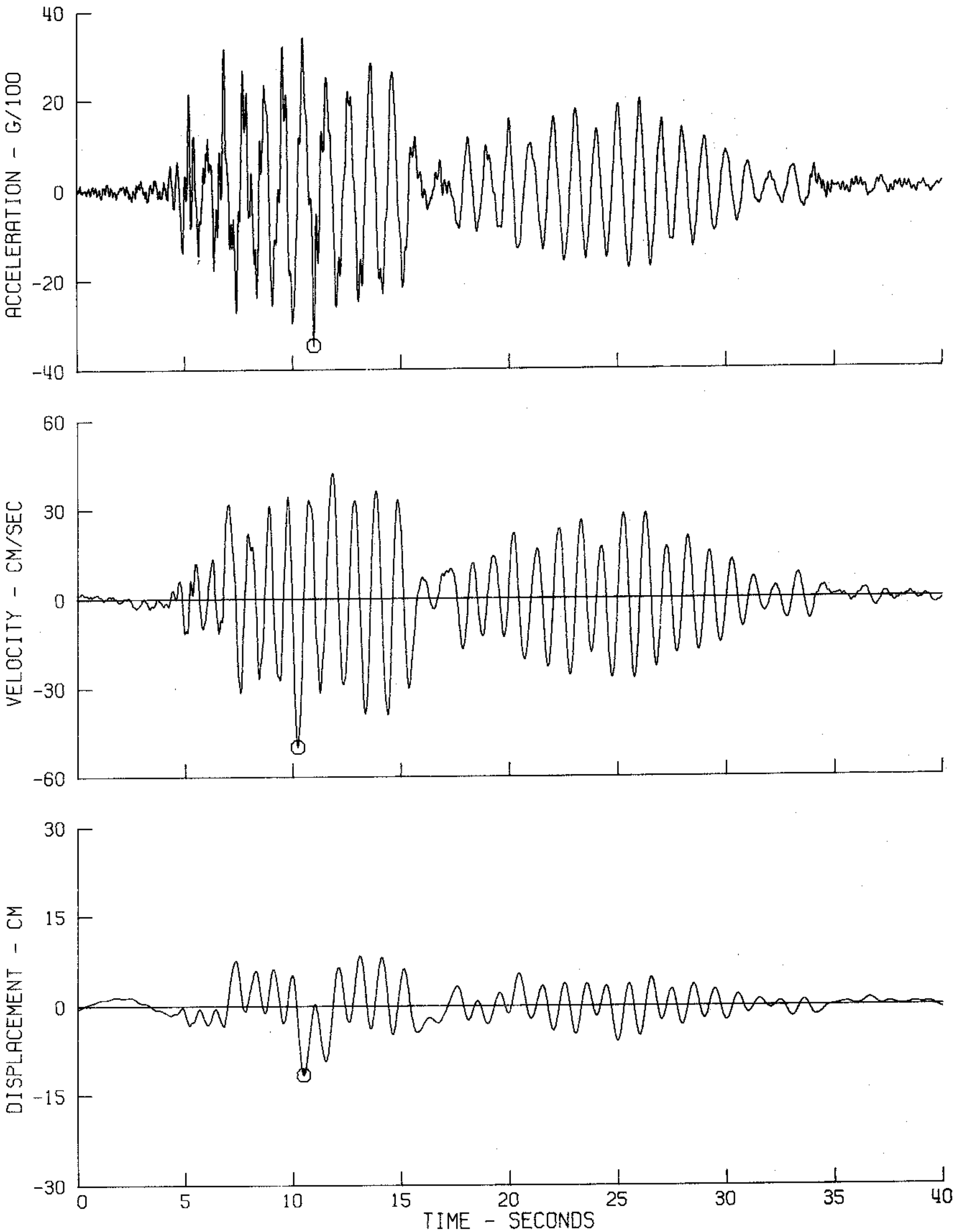
⊙ PEAK VALUES : ACCEL = -305.5 CM/SEC/SEC VELOCITY = -24.9 CM/SEC DISPL = 3.8 CM



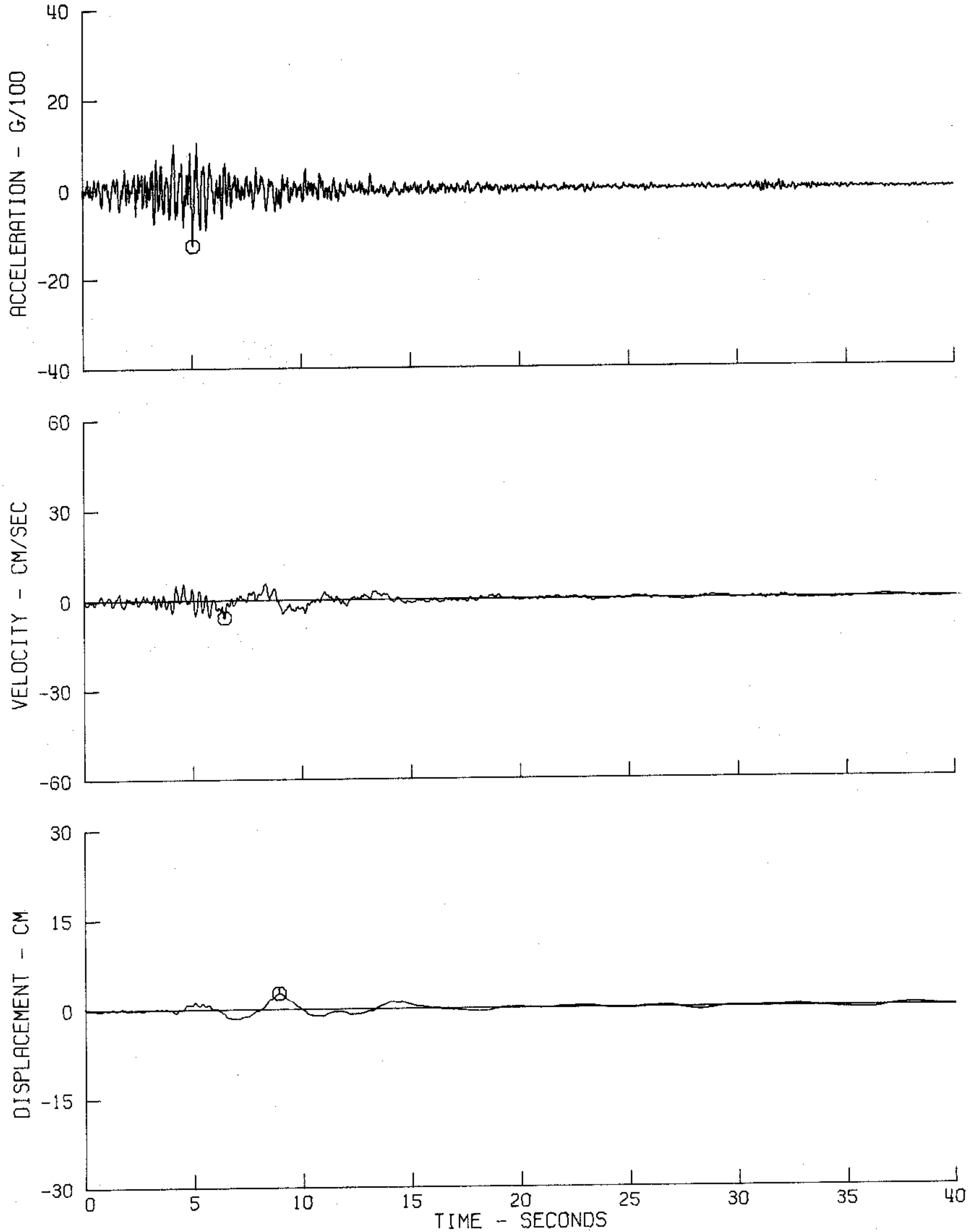
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIG109 71.023.0 CALTECH MILLIKAN LIBRARY, 10TH FLOOR, PASADENA, CAL. COMP N90E

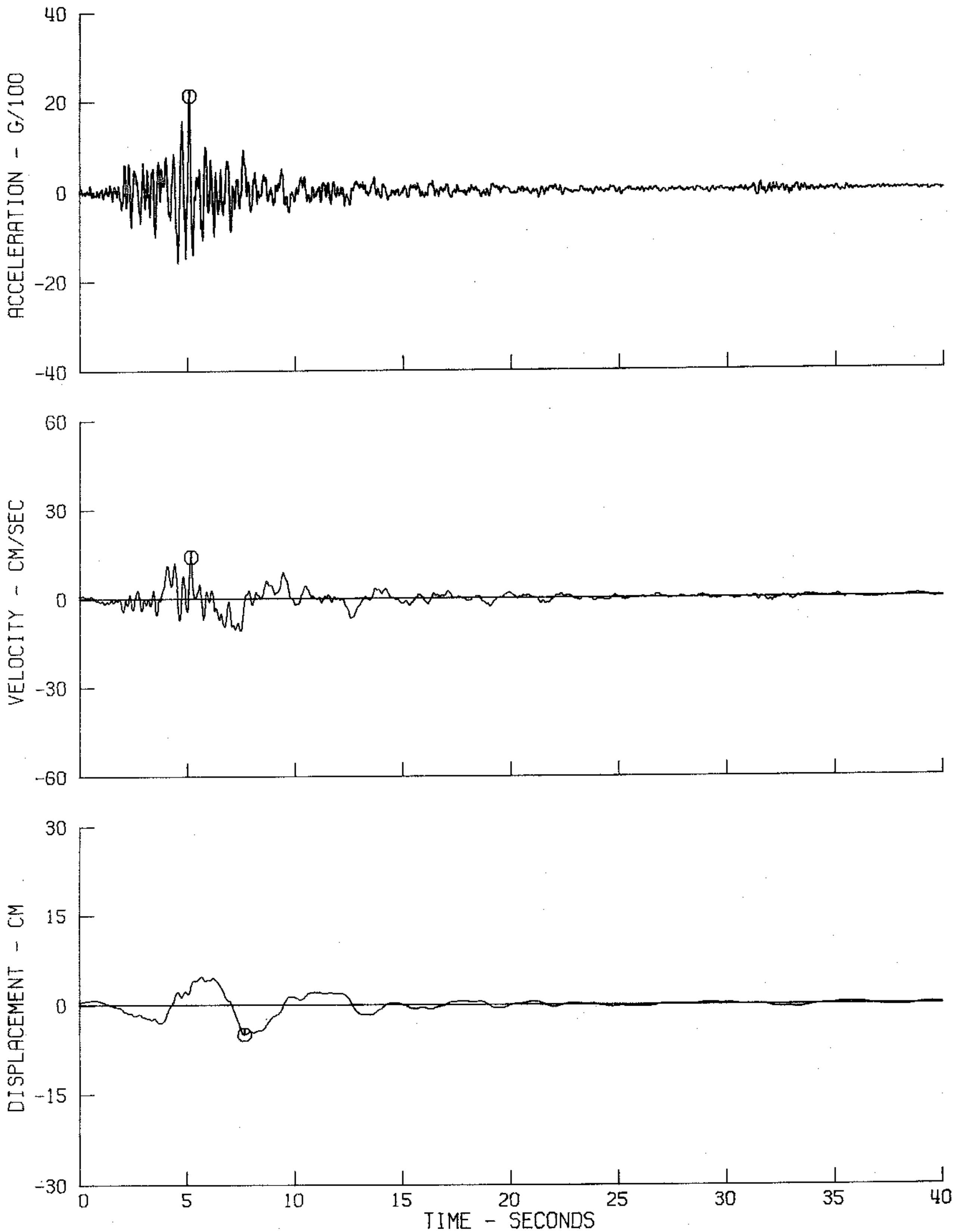
① PEAK VALUES : ACCEL = -340.8 CM/SEC/SEC VELOCITY = -49.9 CM/SEC DISPL = -11.7 CM



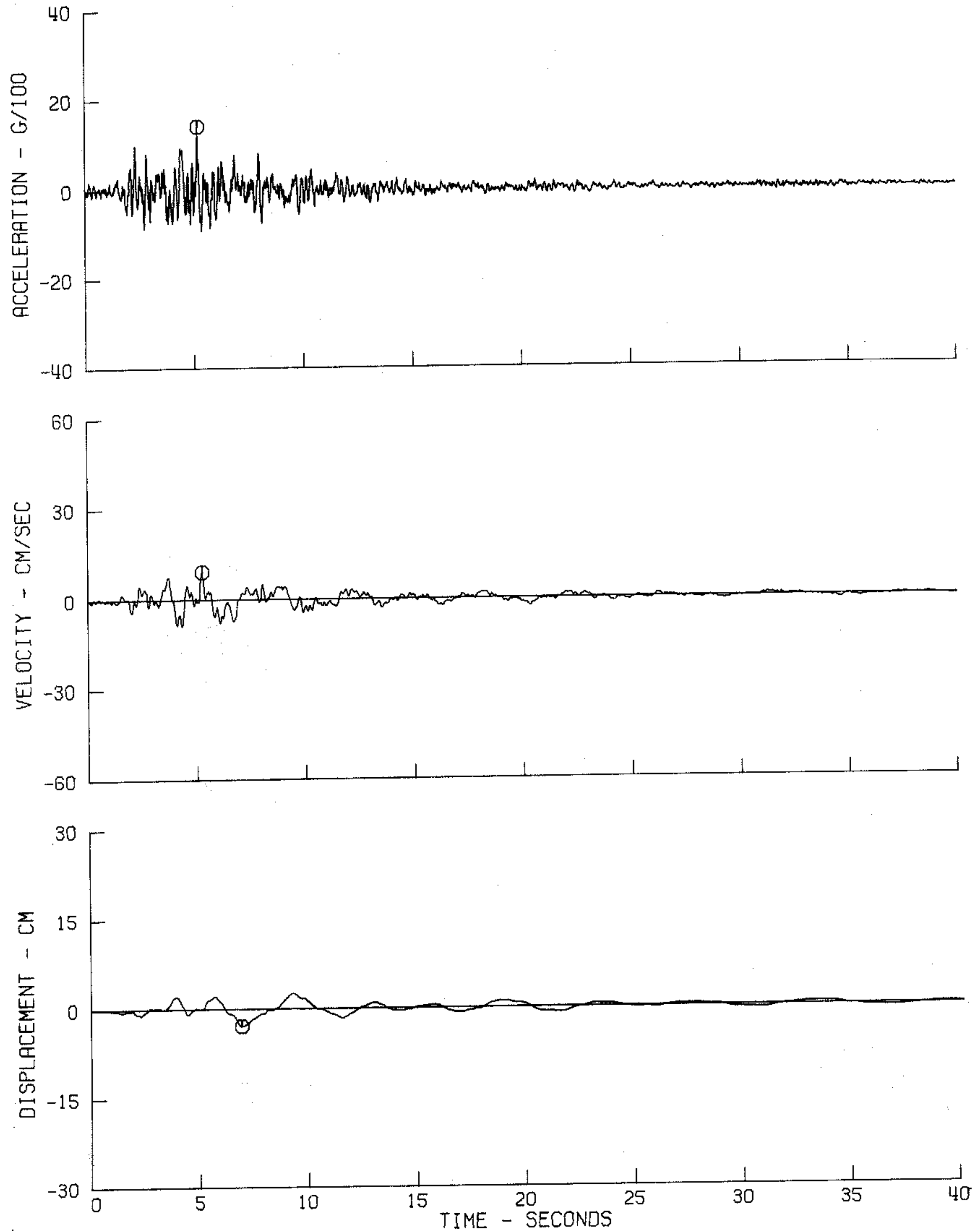
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG110 71.032.0 JET PROPULSION LAB., BASEMENT, PASADENA, CAL. COMP DOWN
PEAK VALUES : ACCEL = -126.3 CM/SEC/SEC VELOCITY = -5.9 CM/SEC DISPL = 2.6 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG110 71.032.0 JET PROPULSION LAB., BASEMENT, PASADENA, CAL. COMP S82E
Ⓘ PEAK VALUES : ACCEL = 207.8 CM/SEC/SEC VELOCITY = 13.9 CM/SEC DISPL = -5.0 CM



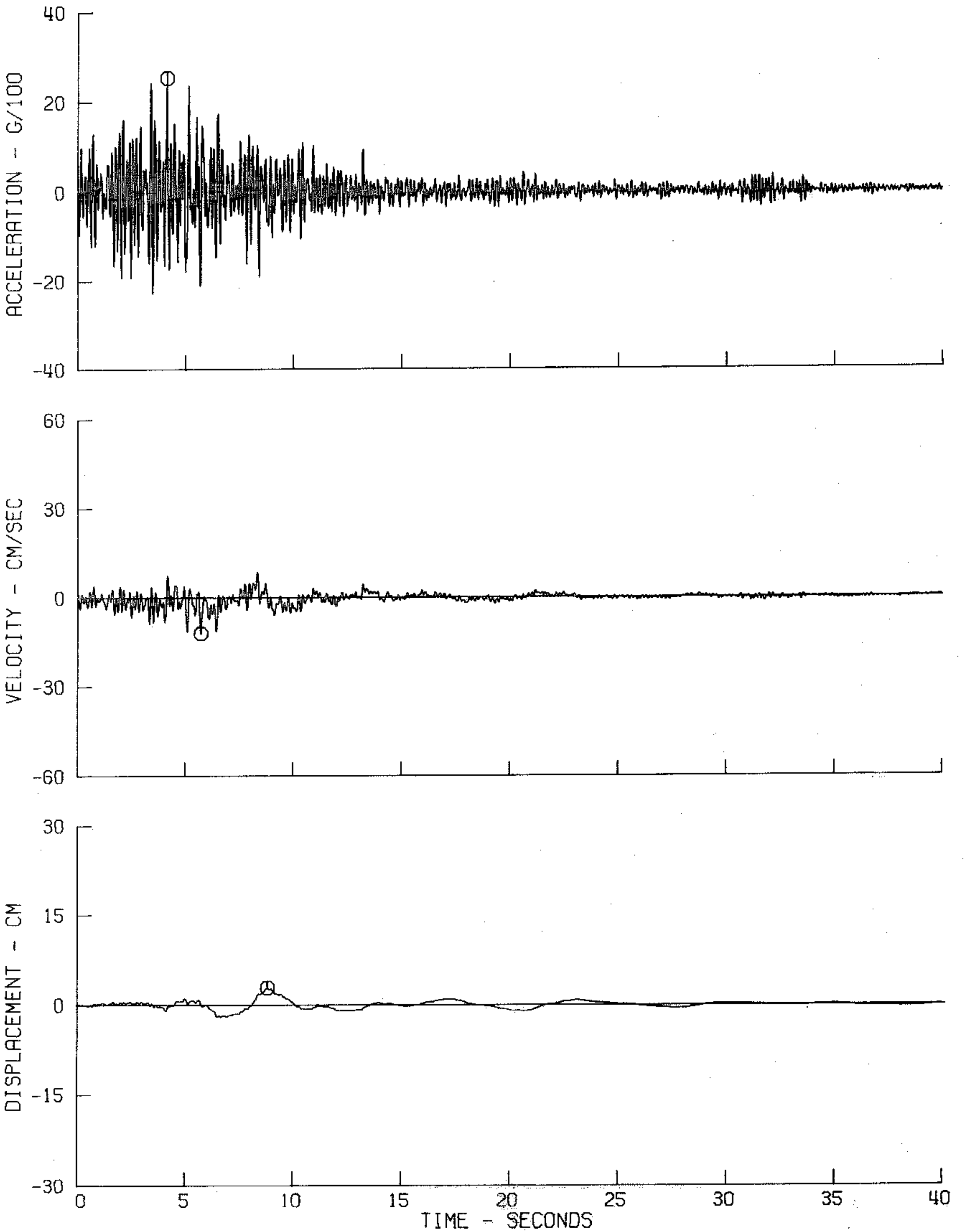
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG110 71.032.0 JET PROPULSION LAB., BASEMENT, PASADENA, CAL. COMP S08W
① PEAK VALUES : ACCEL = 139.0 CM/SEC/SEC VELOCITY = 9.2 CM/SEC DISPL = -2.9 CM



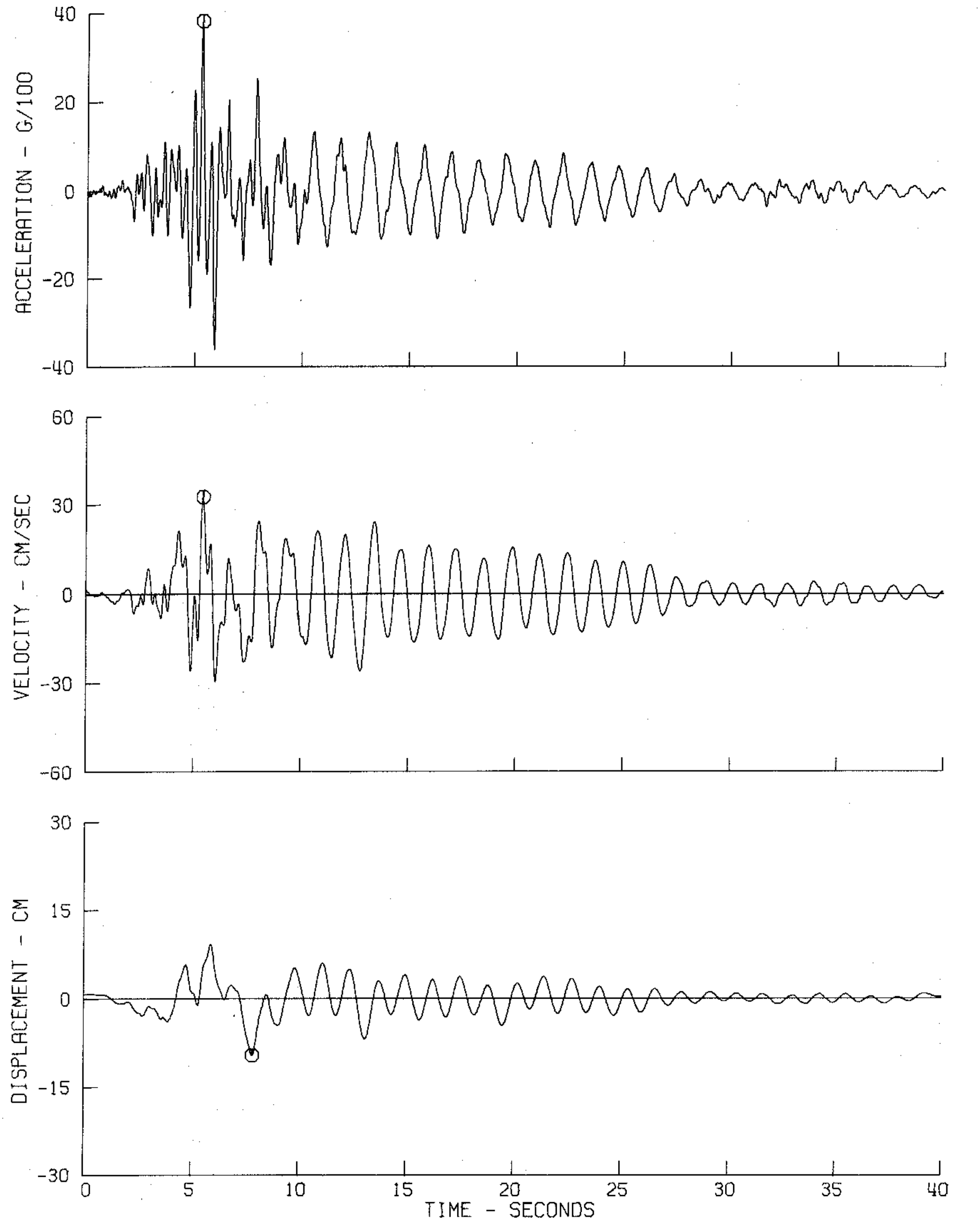
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIG111 71.031.0 JET PROPULSION LAB., 9TH FLOOR, PASADENA, CAL. COMP DOWN

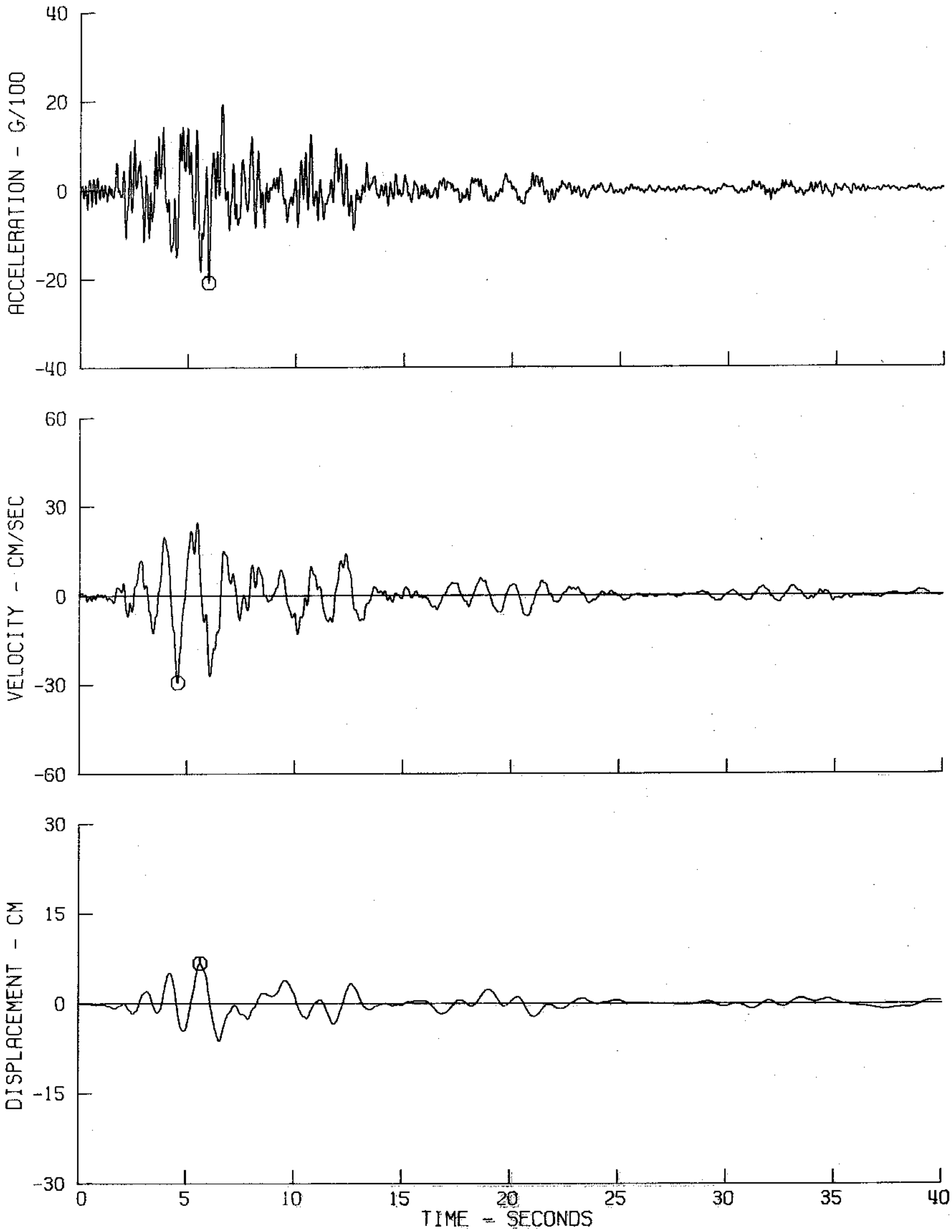
Ⓘ PEAK VALUES : ACCEL = 248.0 CM/SEC/SEC VELOCITY = -12.4 CM/SEC DISPL = 2.8 CM



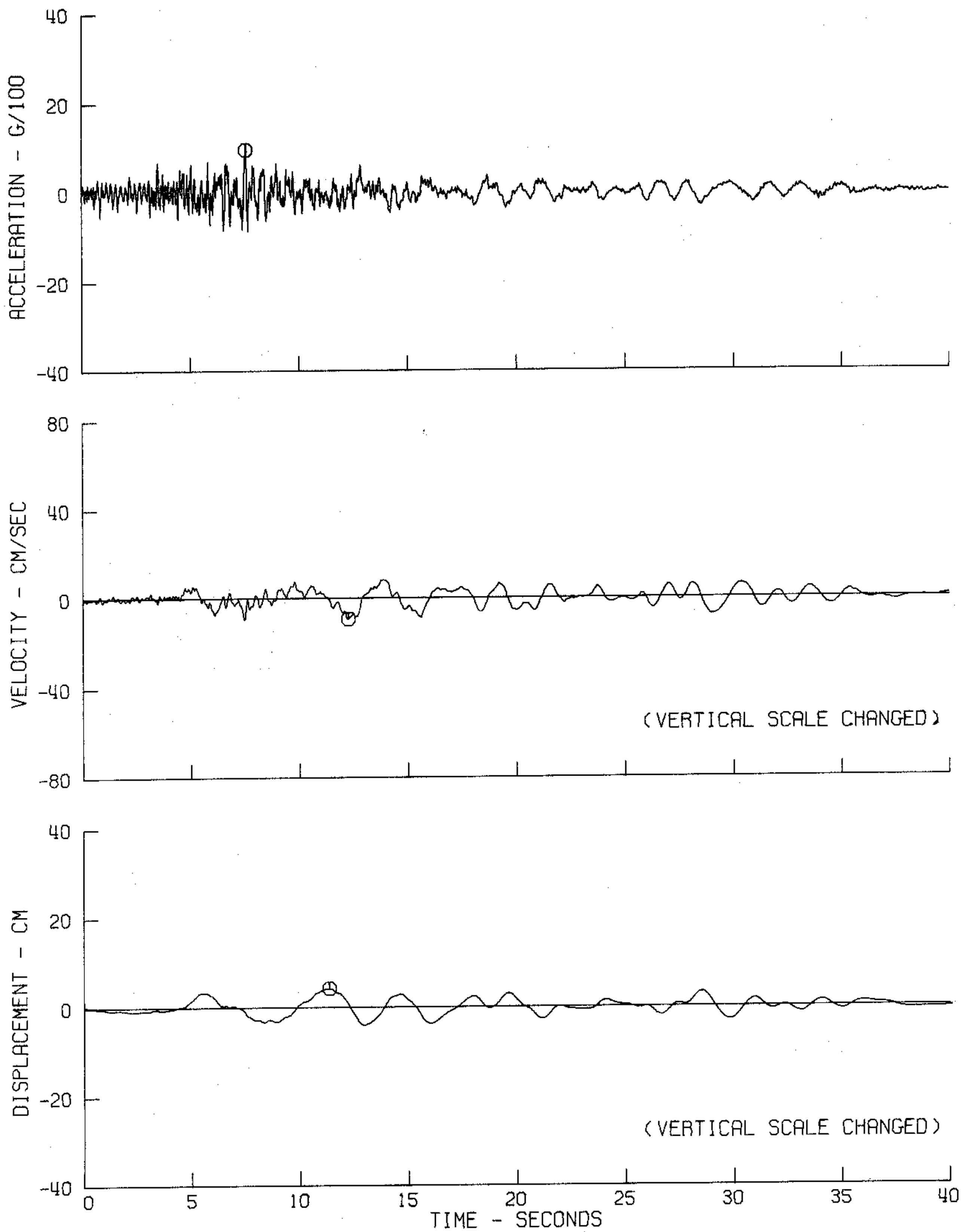
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG111 71.031.0 JET PROPULSION LAB., 9TH FLOOR, PASADENA, CAL. COMP S82E
⦶ PEAK VALUES : ACCEL = 374.8 CM/SEC/SEC VELOCITY = 32.6 CM/SEC DISPL = -9.6 CM



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG111 71.031.0 JET PROPULSION LAB., 9TH FLOOR, PASADENA, CAL. COMP S08W
⊙ PEAK VALUES : ACCEL = -205.6 CM/SEC/SEC VELOCITY = -29.5 CM/SEC DISPL = 6.6 CM



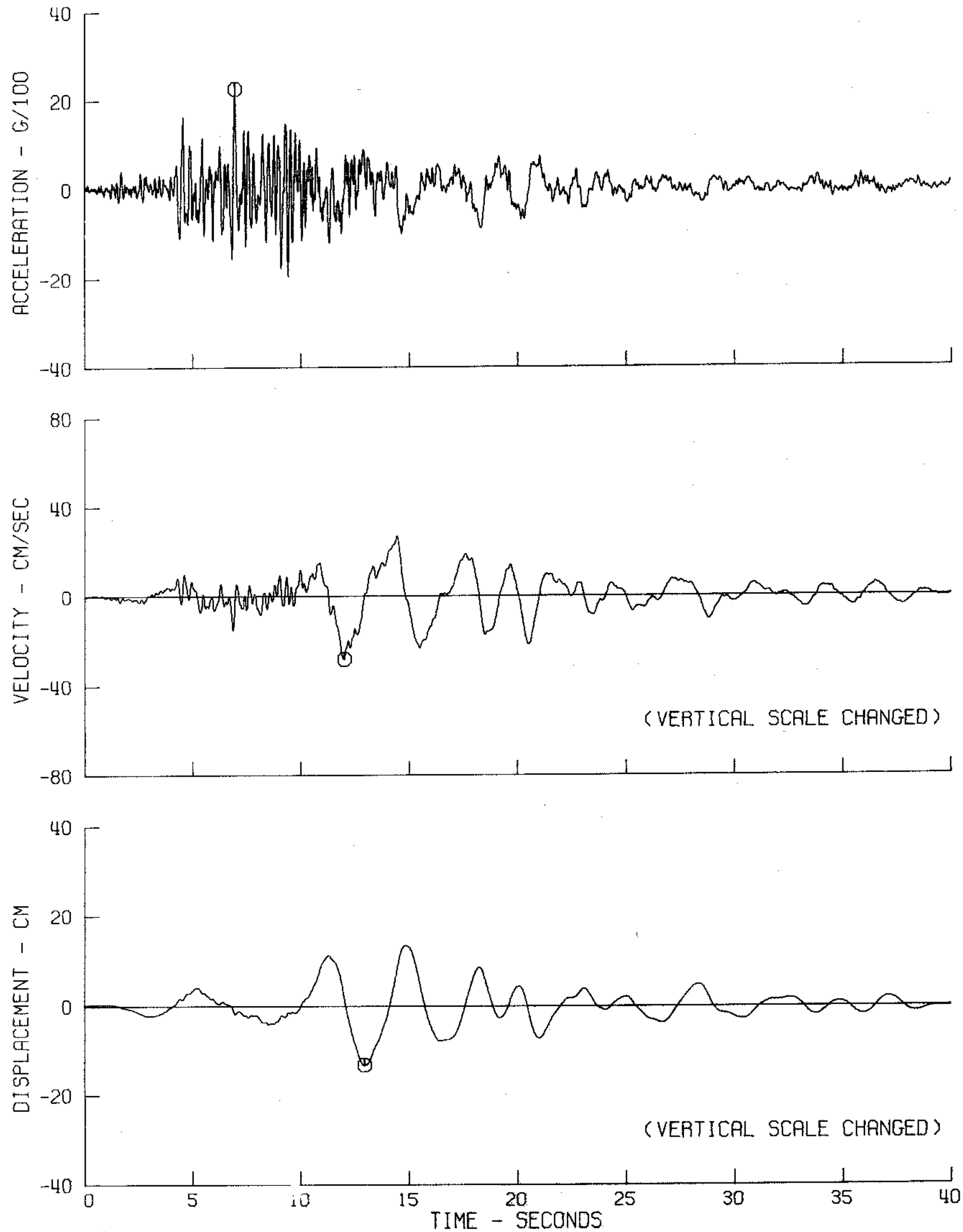
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIH115 71.024.0 15250 VENTURA BLVD., BASEMENT, LOS ANGELES, CAL. COMP DOWN
PEAK VALUES : ACCEL = 94.5 CM/SEC/SEC VELOCITY = -9.4 CM/SEC DISPL = 4.3 CM



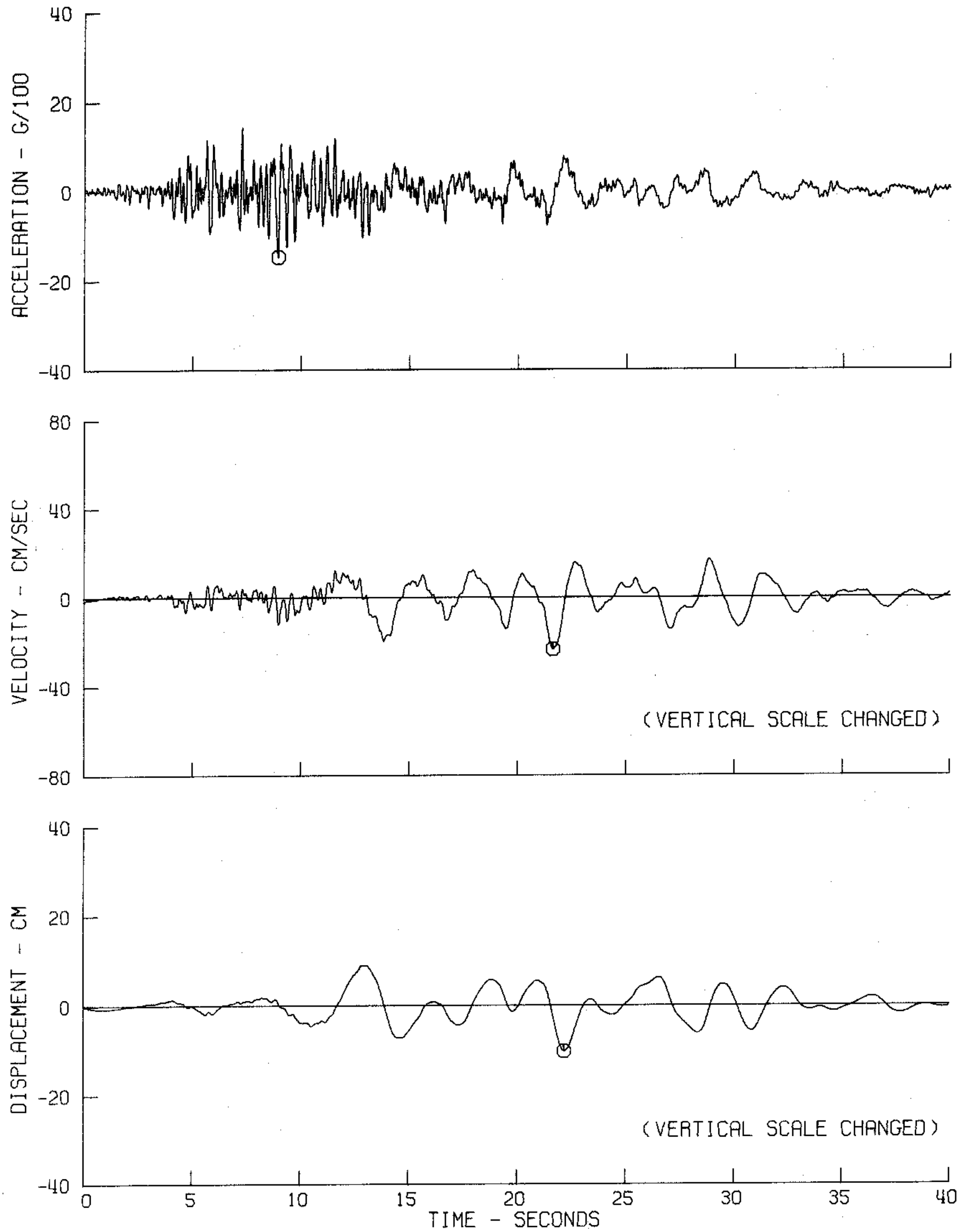
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIH115 71.024.0 15250 VENTURA BLVD., BASEMENT, LOS ANGELES, CAL. COMP N11E

⊕ PEAK VALUES : ACCEL = 220.6 CM/SEC/SEC VELOCITY = -28.2 CM/SEC DISPL = -13.5 CM



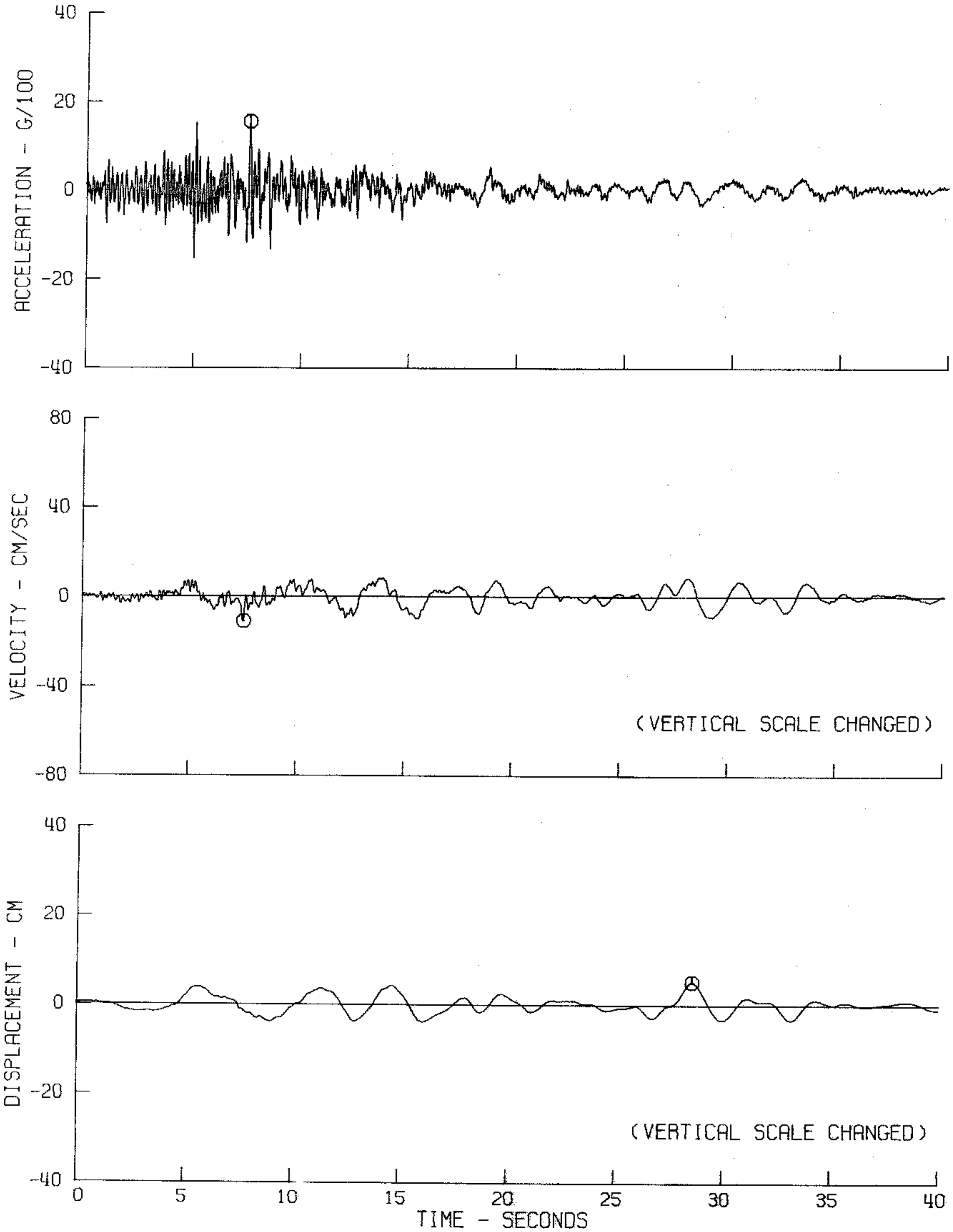
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIH115 71.024.0 15250 VENTURA BLVD., BASEMENT, LOS ANGELES, CAL. COMP N79W
PEAK VALUES : ACCEL = -146.0 CM/SEC/SEC VELOCITY = -23.5 CM/SEC DISPL = -10.3 CM

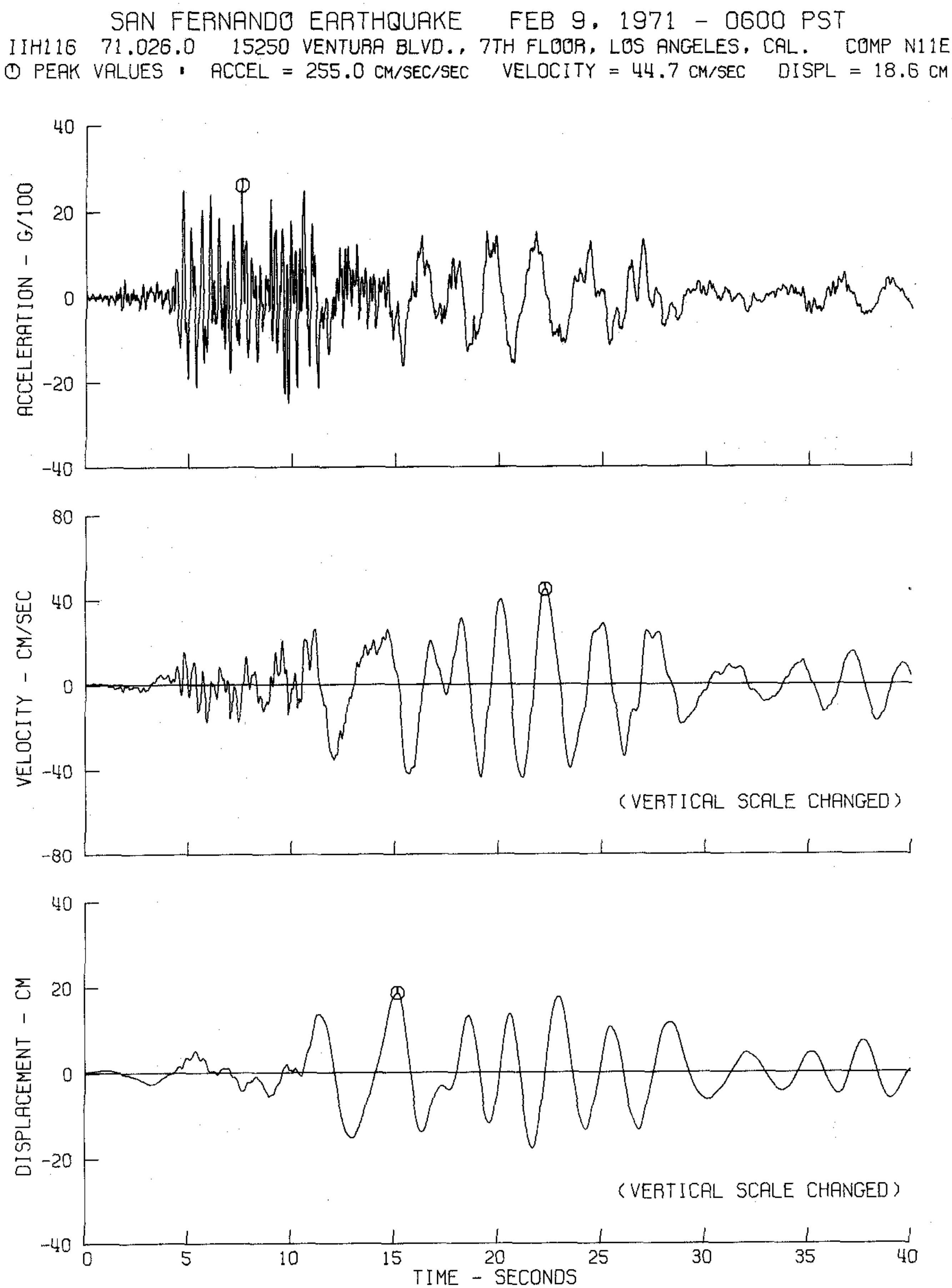


SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIH116 71.026.0 15250 VENTURA BLVD., 7TH FLOOR, LOS ANGELES, CAL. COMP DOWN

PEAK VALUES : ACCEL = 152.3 CM/SEC/SEC VELOCITY = -11.2 CM/SEC DISPL = 5.2 CM

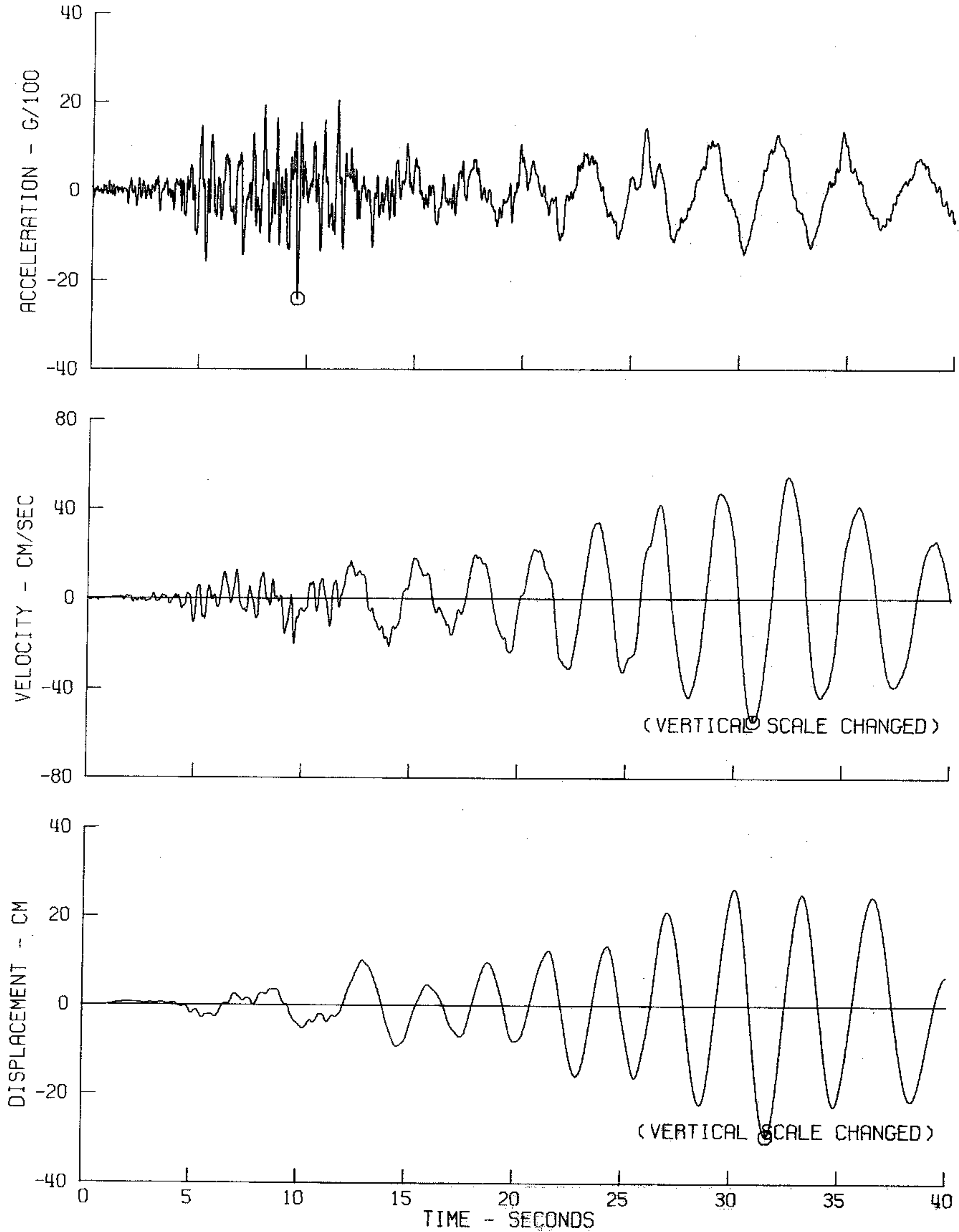



SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIH116 71.026.0 15250 VENTURA BLVD., 7TH FLOOR, LOS ANGELES, CAL. COMP N11E
PEAK VALUES : ACCEL = 255.0 CM/SEC/SEC VELOCITY = 44.7 CM/SEC DISPL = 18.6 CM
ACCELERATION - G/100
40
20
0
-20
-40
VELOCITY - CM/SEC
80
40
0
-40
-80
(VERTICAL SCALE CHANGED)
DISPLACEMENT - CM
40
20
0
-20
-40
(VERTICAL SCALE CHANGED)
0
5
10
15
20
25
30
35
40
TIME - SECONDS

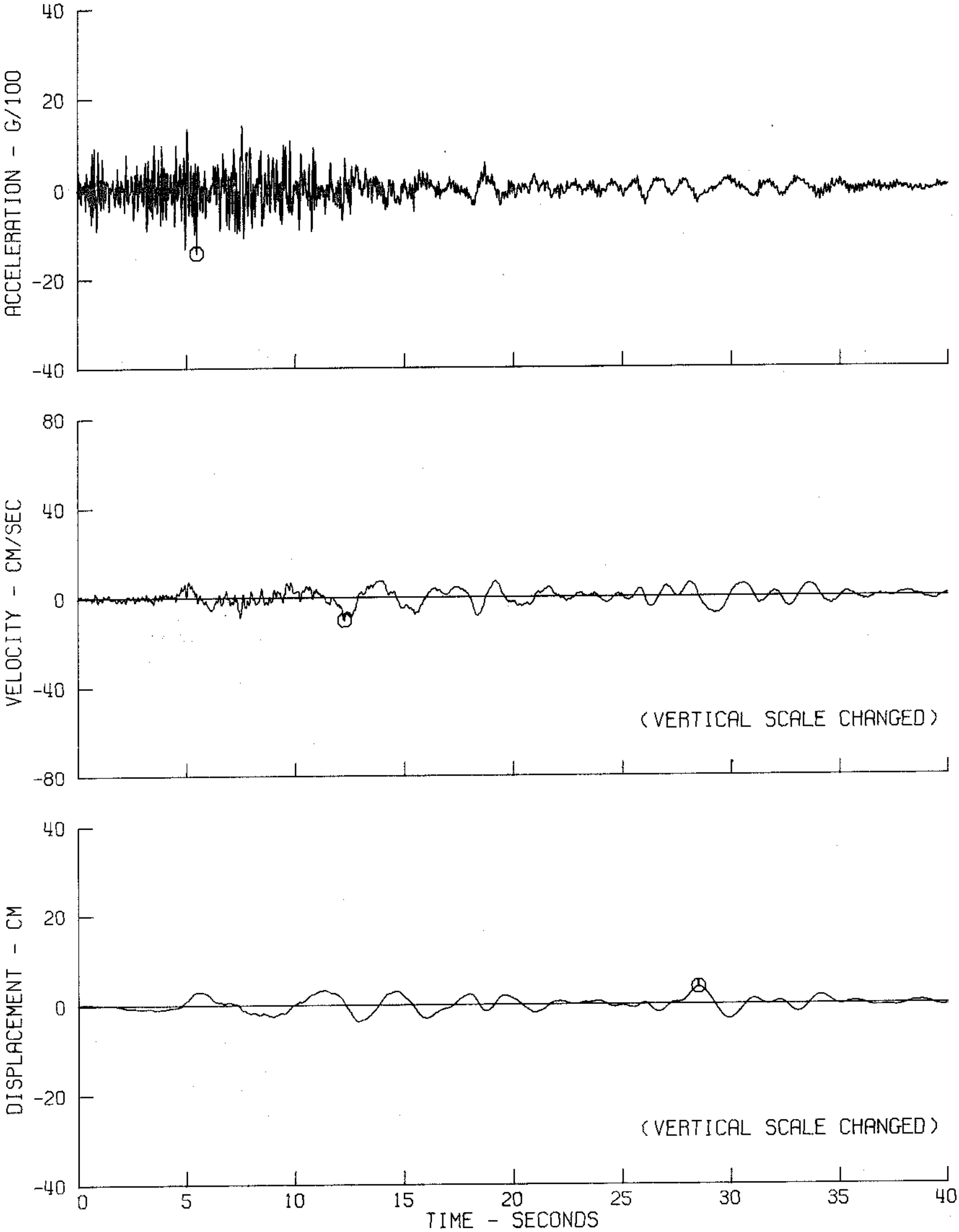
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIH116 71.026.0 15250 VENTURA BLVD., 7TH FLOOR, LOS ANGELES, CAL. COMP N79W

PEAK VALUES : ACCEL = -237.6 CM/SEC/SEC VELOCITY = -54.6 CM/SEC DISPL = -29.3 CM



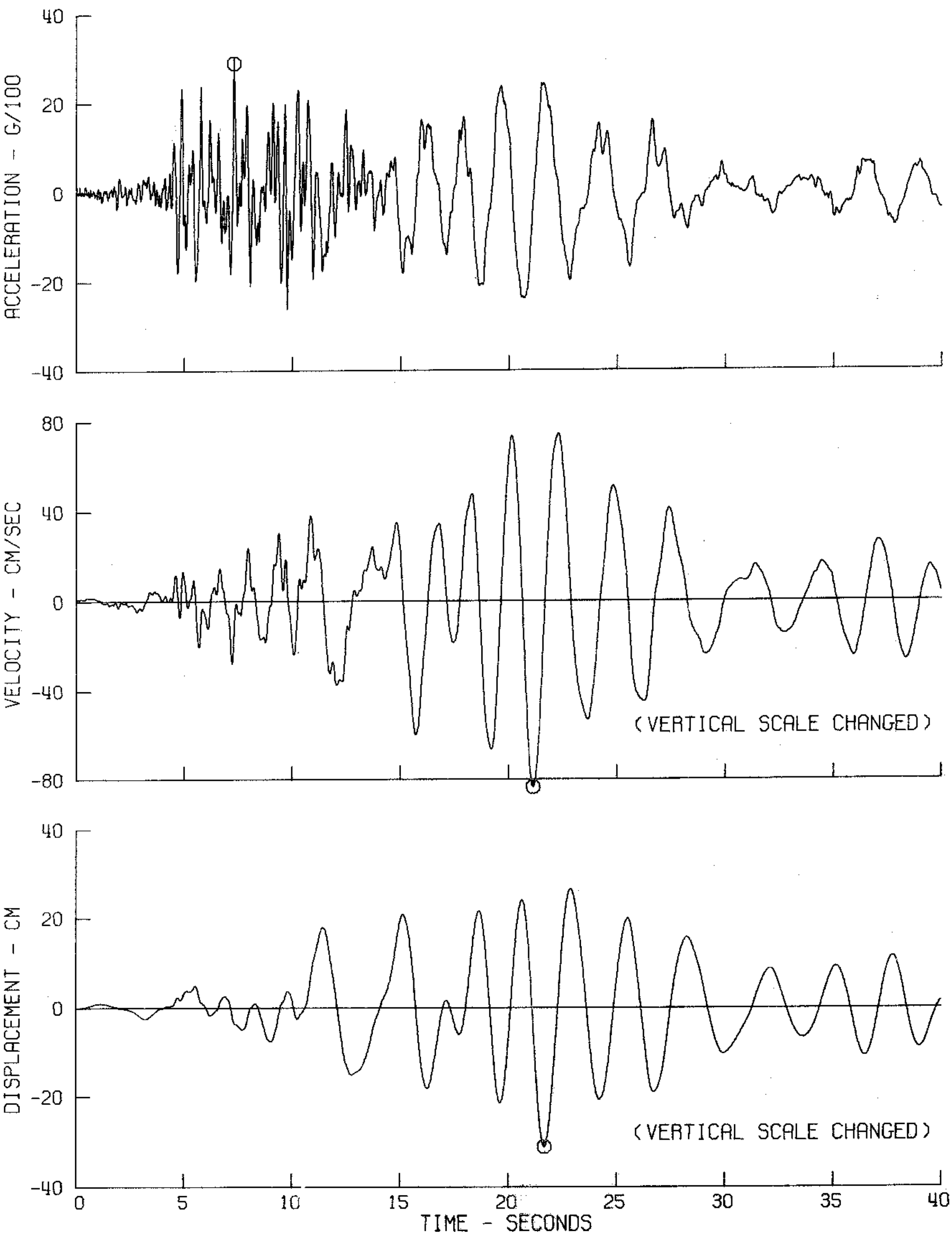
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIH117 71.025.0 15250 VENTURA BLVD., ROOF, LOS ANGELES, CAL. COMP DOWN
PEAK VALUES : ACCEL = -140.9 CM/SEC/SEC VELOCITY = -10.3 CM/SEC DISPL = 3.8 CM



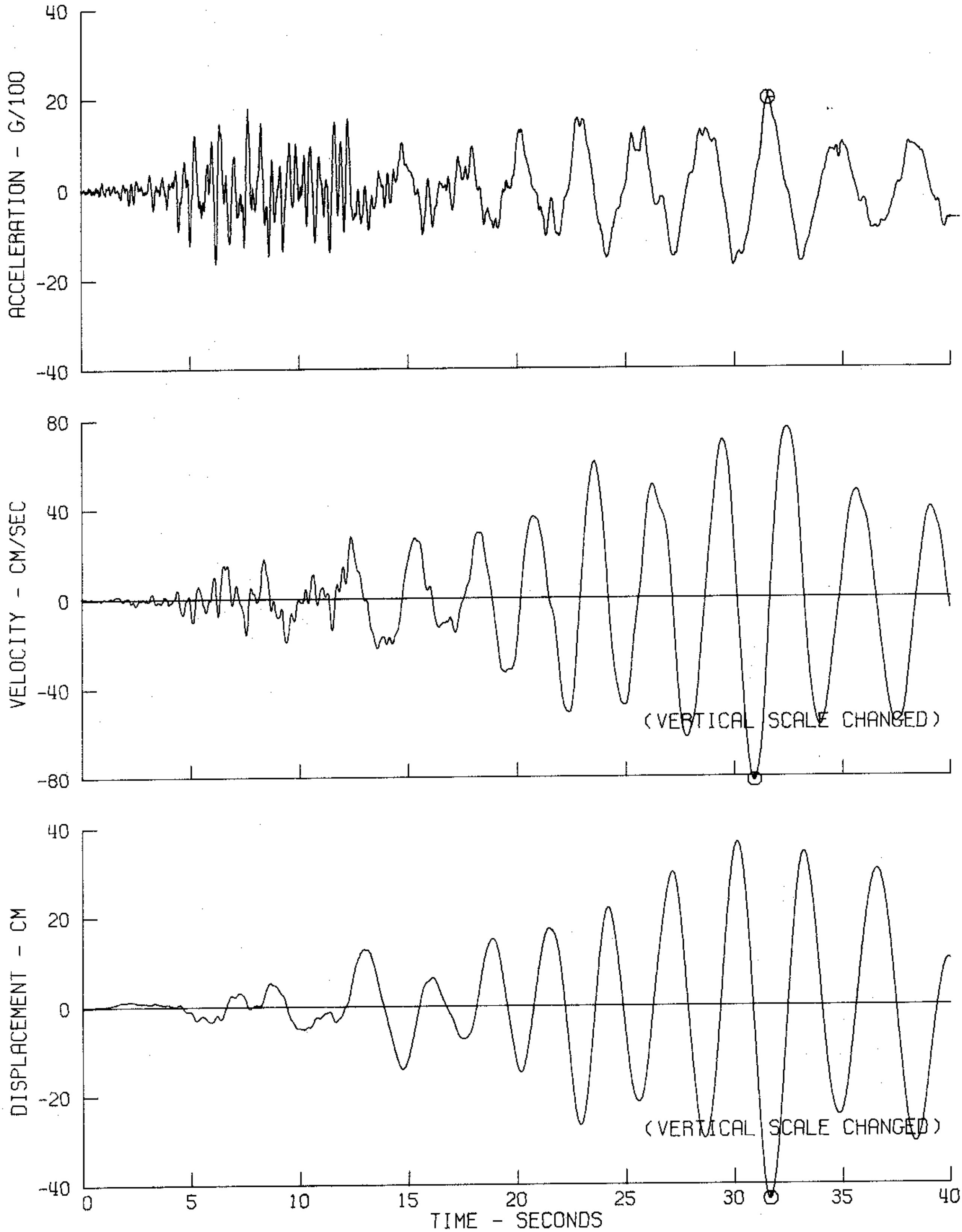
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIH117 71.025.0 15250 VENTURA BLVD., ROOF, LOS ANGELES, CAL. COMP N11E

PEAK VALUES : ACCEL = 282.9 CM/SEC/SEC VELOCITY = -83.5 CM/SEC DISPL = -31.0 CM



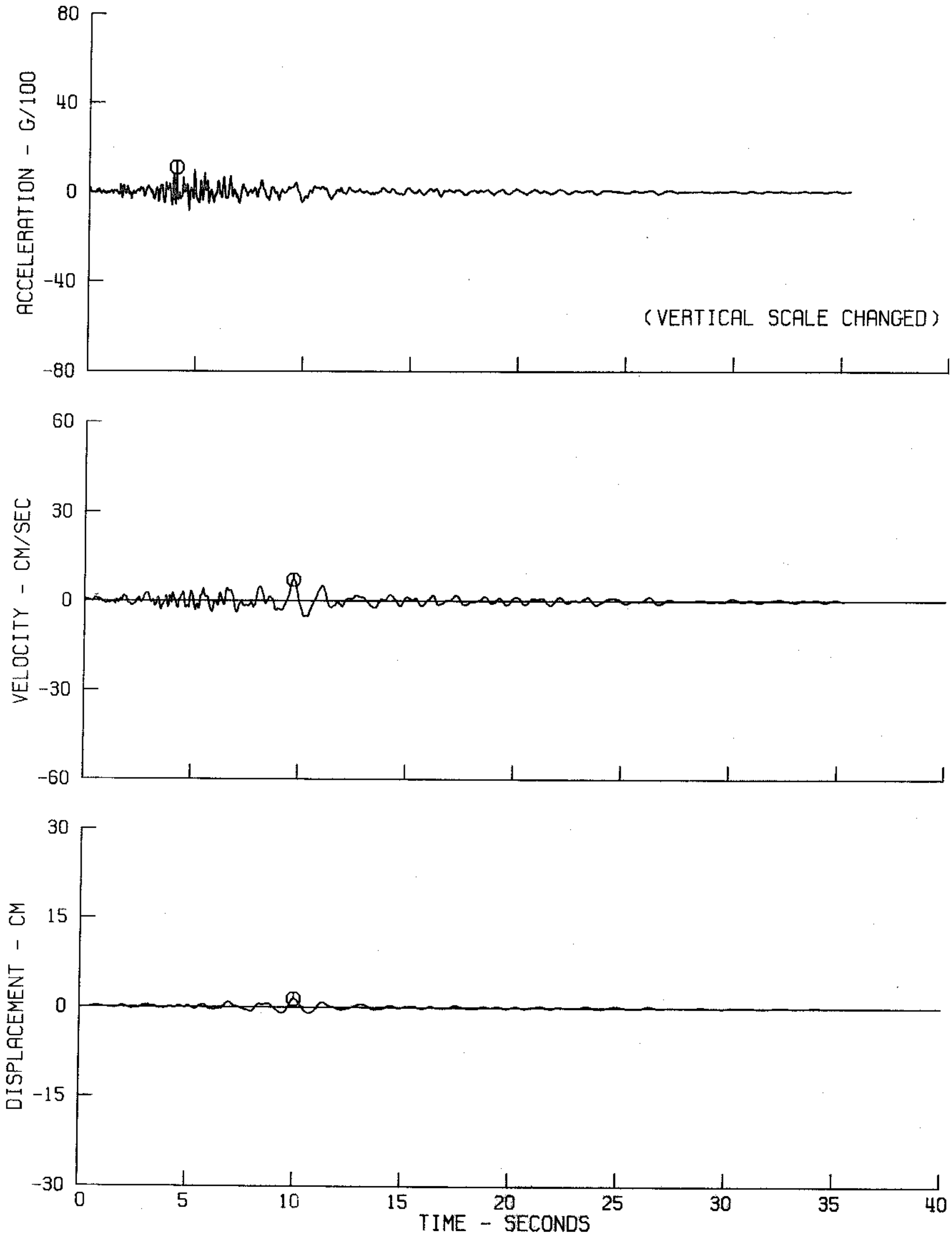
SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIH117 71.025.0 15250 VENTURA BLVD., ROOF, LOS ANGELES, CAL. COMP N79W
① PEAK VALUES : ACCEL = 194.9 CM/SEC/SEC VELOCITY = -82.0 CM/SEC DISPL = -43.5 CM



SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT

UCSB NORTH HALL, GROUND FLOOR TRACE 2 (DIRN. VERT)

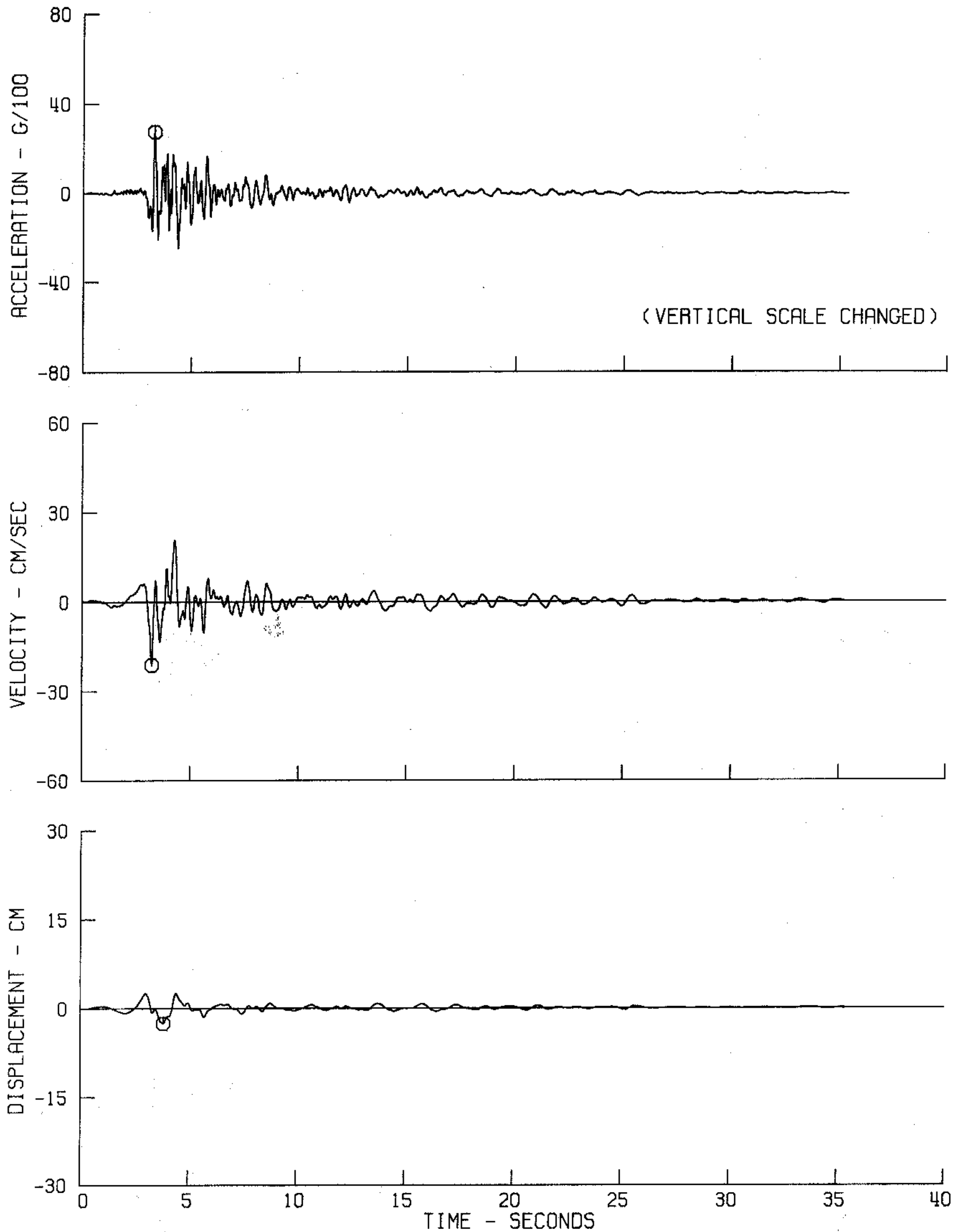
Ⓘ PEAK VALUES : ACCEL = 105.6 CM/SEC/SEC VELOCITY = 7.1 CM/SEC DISPL = 1.3 CM



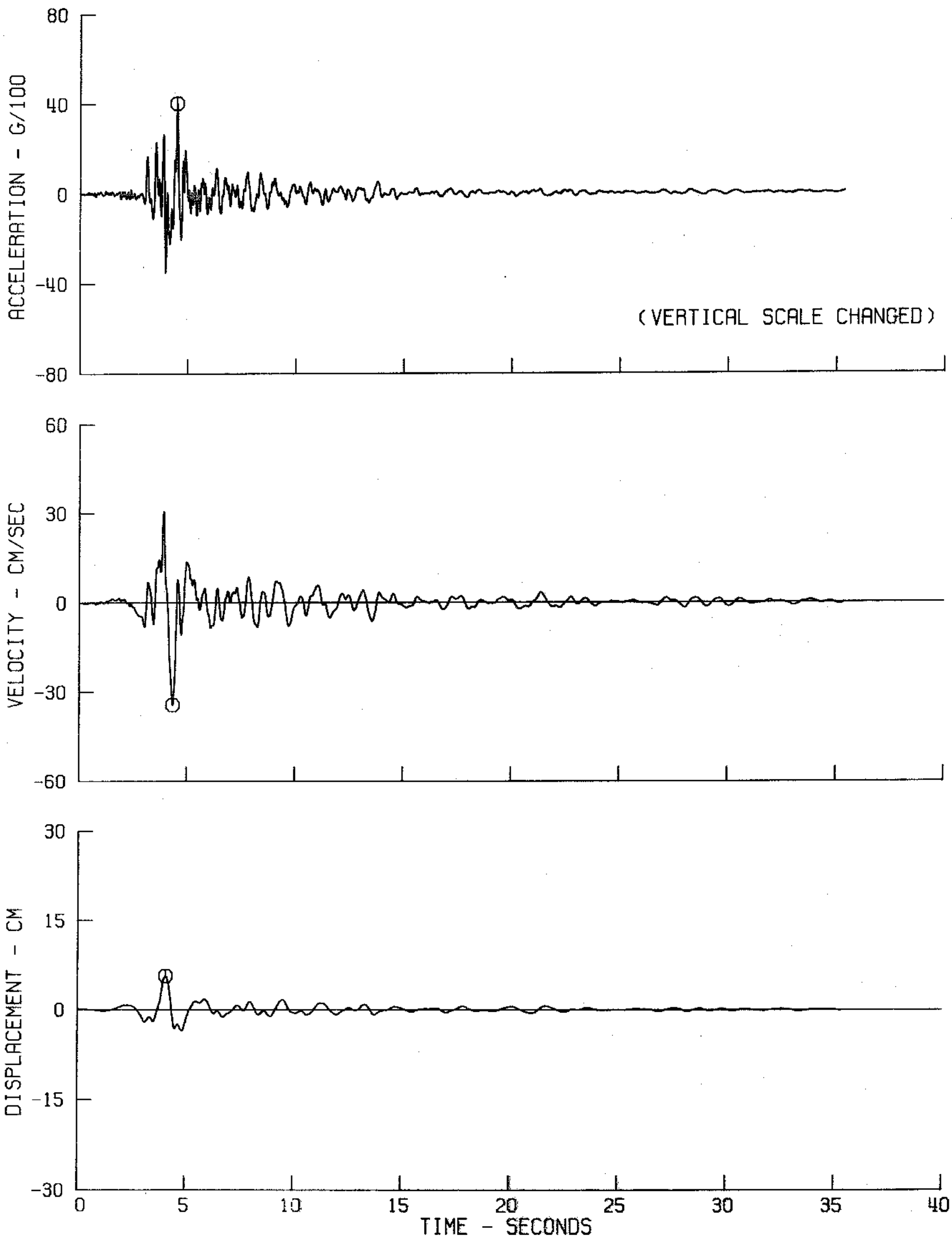
SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT

UCSB NORTH HALL,GROUND FLOOR TRACE 3 (DIRN. N90E)

⊙ PEAK VALUES : ACCEL = 269.0 CM/SEC/SEC VELOCITY = -21.3 CM/SEC DISPL = -2.6 CM



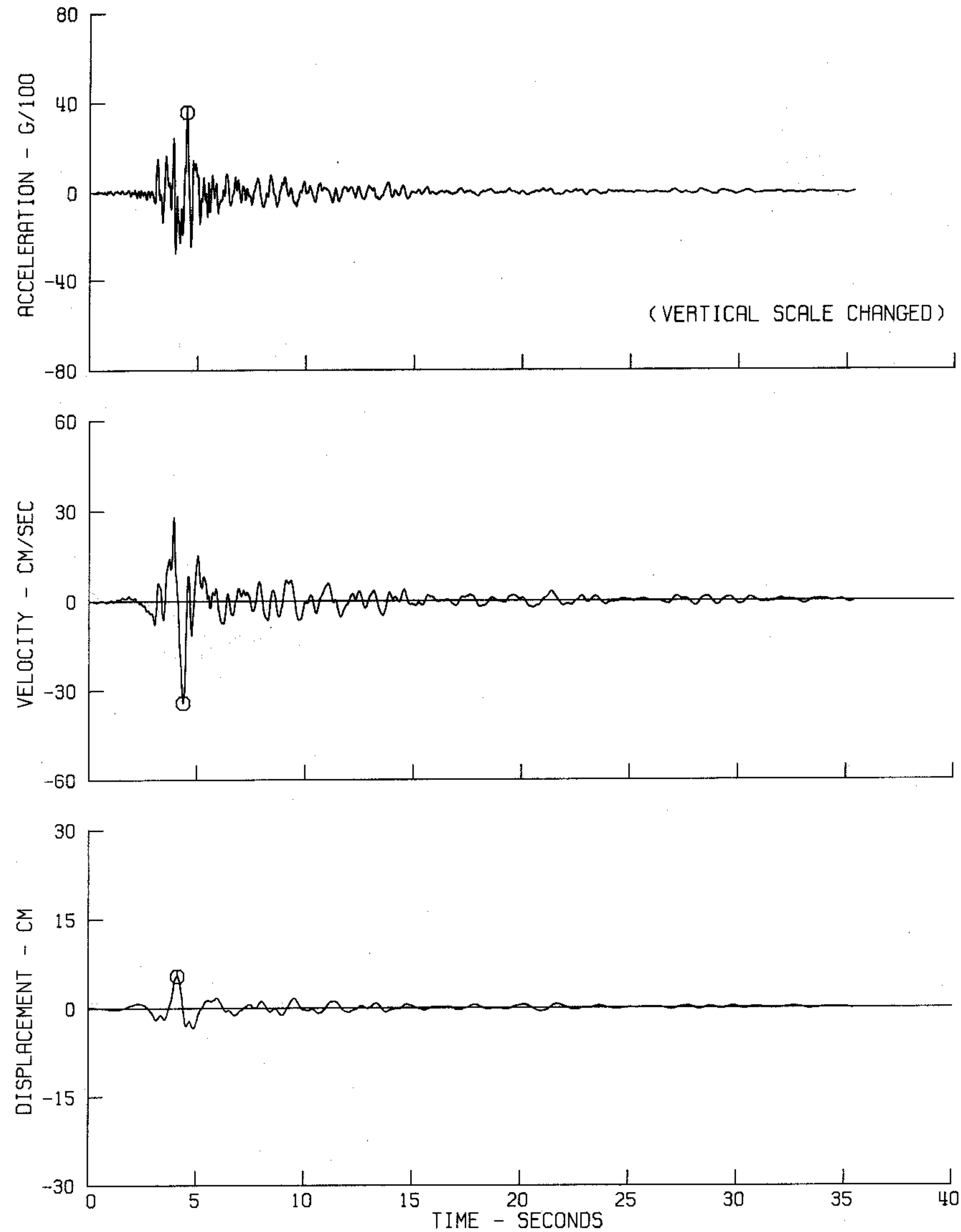
SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT
UCSB NORTH HALL,GROUND FLOOR TRACE 1 (DIRN. NOOE)
⊕ PEAK VALUES : ACCEL = 395.9 CM/SEC/SEC VELOCITY = -34.4 CM/SEC DISPL = 5.6 CM



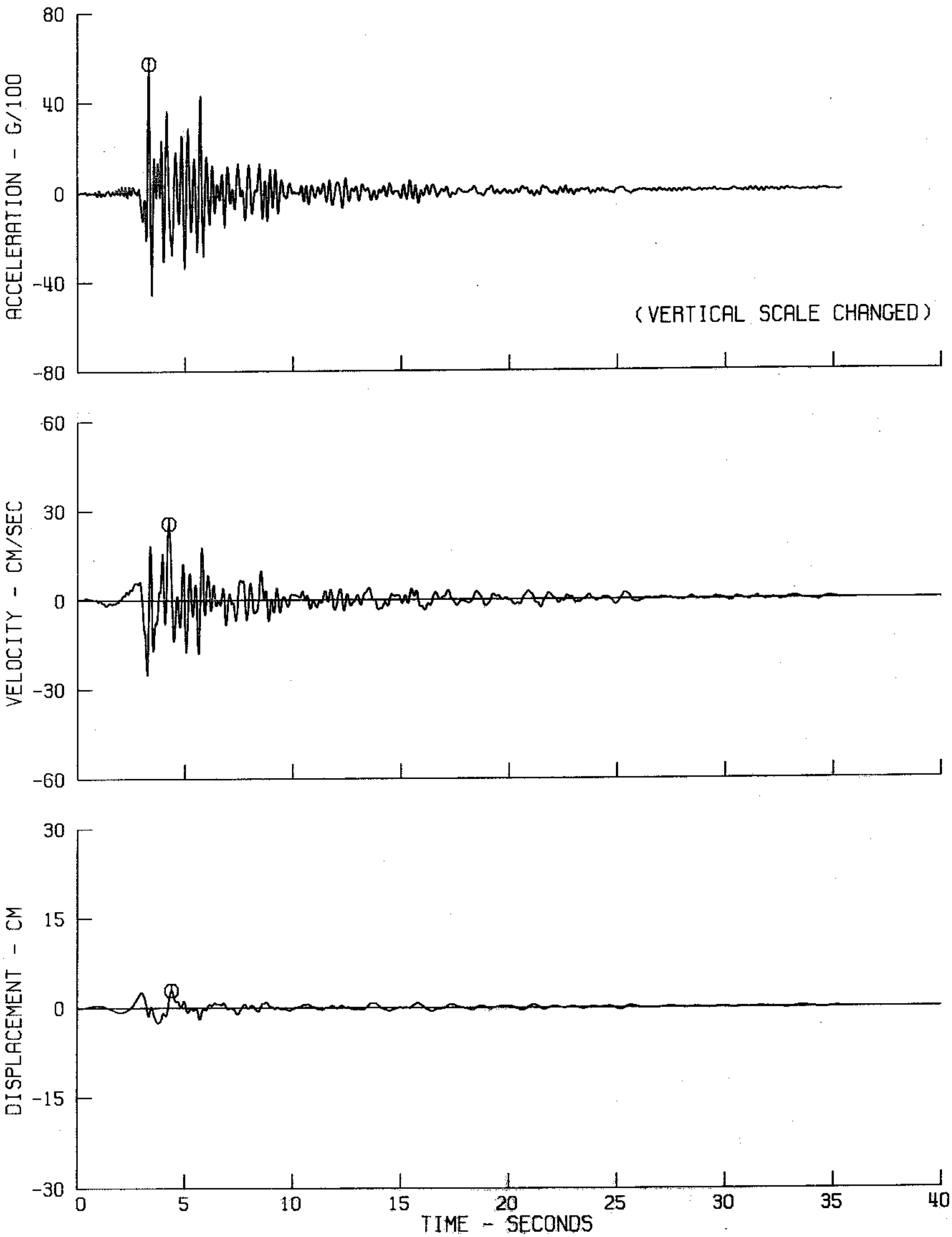
SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT

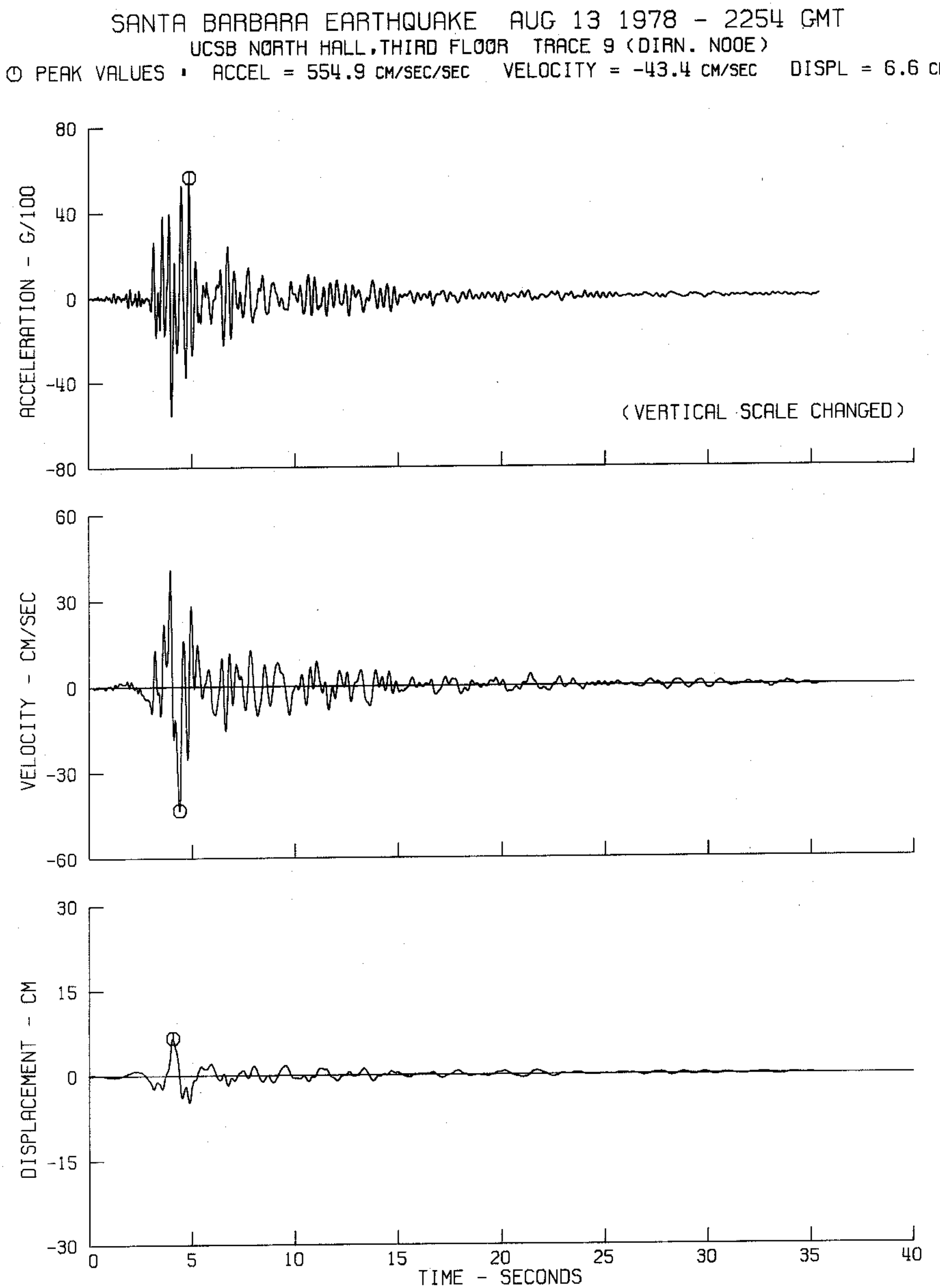
UCSB NORTH HALL,GROUND FLOOR TRACE 4 (DIRN.NOOE)

⊕ PEAK VALUES : ACCEL = 351.3 CM/SEC/SEC VELOCITY = -34.3 CM/SEC DISPL = 5.3 CM



SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT
UCSB NORTH HALL, THIRD FLOOR TRACE 6 (DIRN. N90E)
⊕ PEAK VALUES : ACCEL = 561.0 CM/SEC/SEC VELOCITY = 25.6 CM/SEC DISPL = 2.8 CM

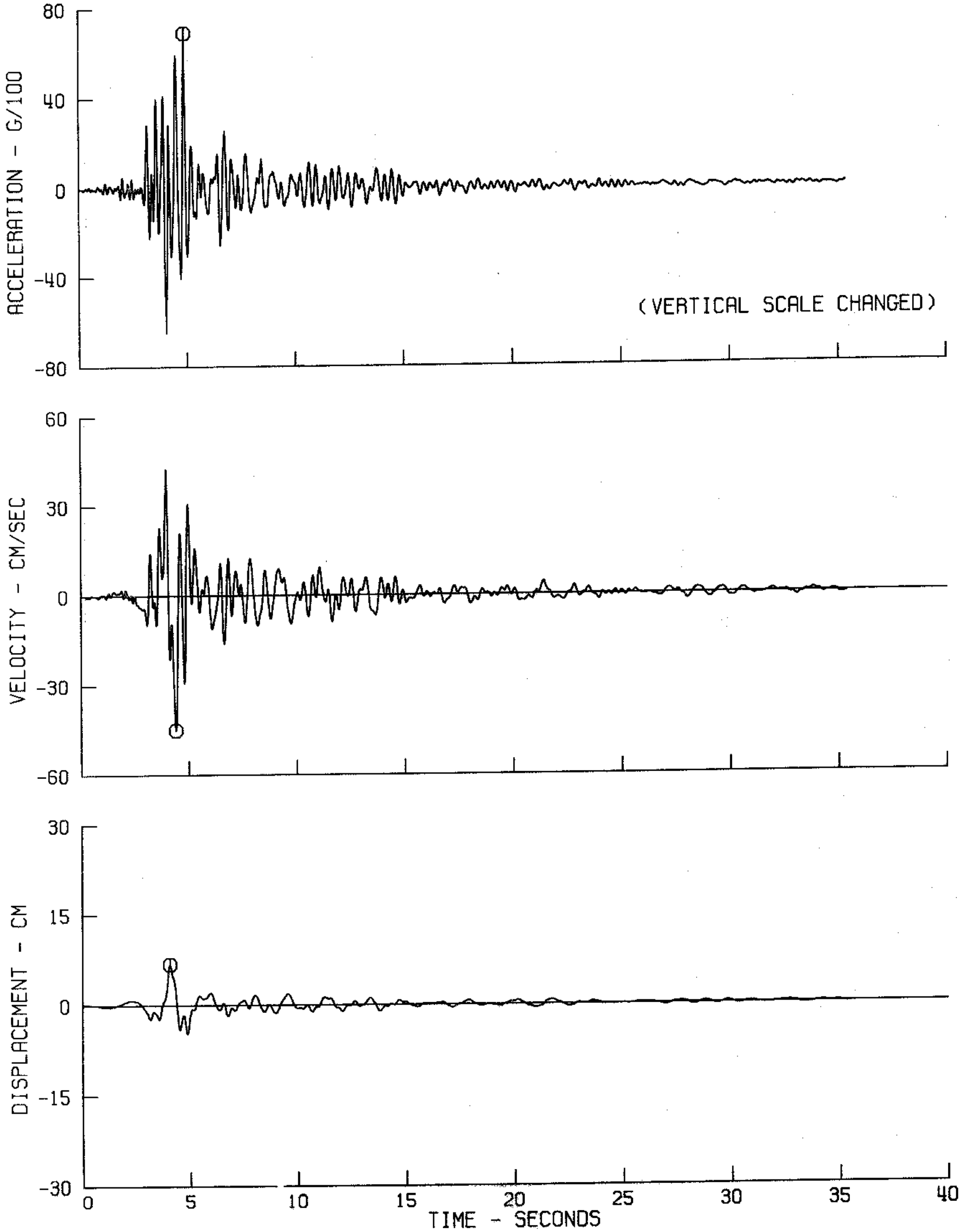



SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT
UCSB NORTH HALL, THIRD FLOOR TRACE 9 (DIRN. N00E)
PEAK VALUES : ACCEL = 554.9 CM/SEC/SEC VELOCITY = -43.4 CM/SEC DISPL = 6.6 CM
ACCELERATION - G/100
80
40
0
-40
-80
(VERTICAL SCALE CHANGED)
VELOCITY - CM/SEC
60
30
0
-30
-60
DISPLACEMENT - CM
30
15
0
-15
-30
0
5
10
15
20
25
30
35
40
TIME - SECONDS

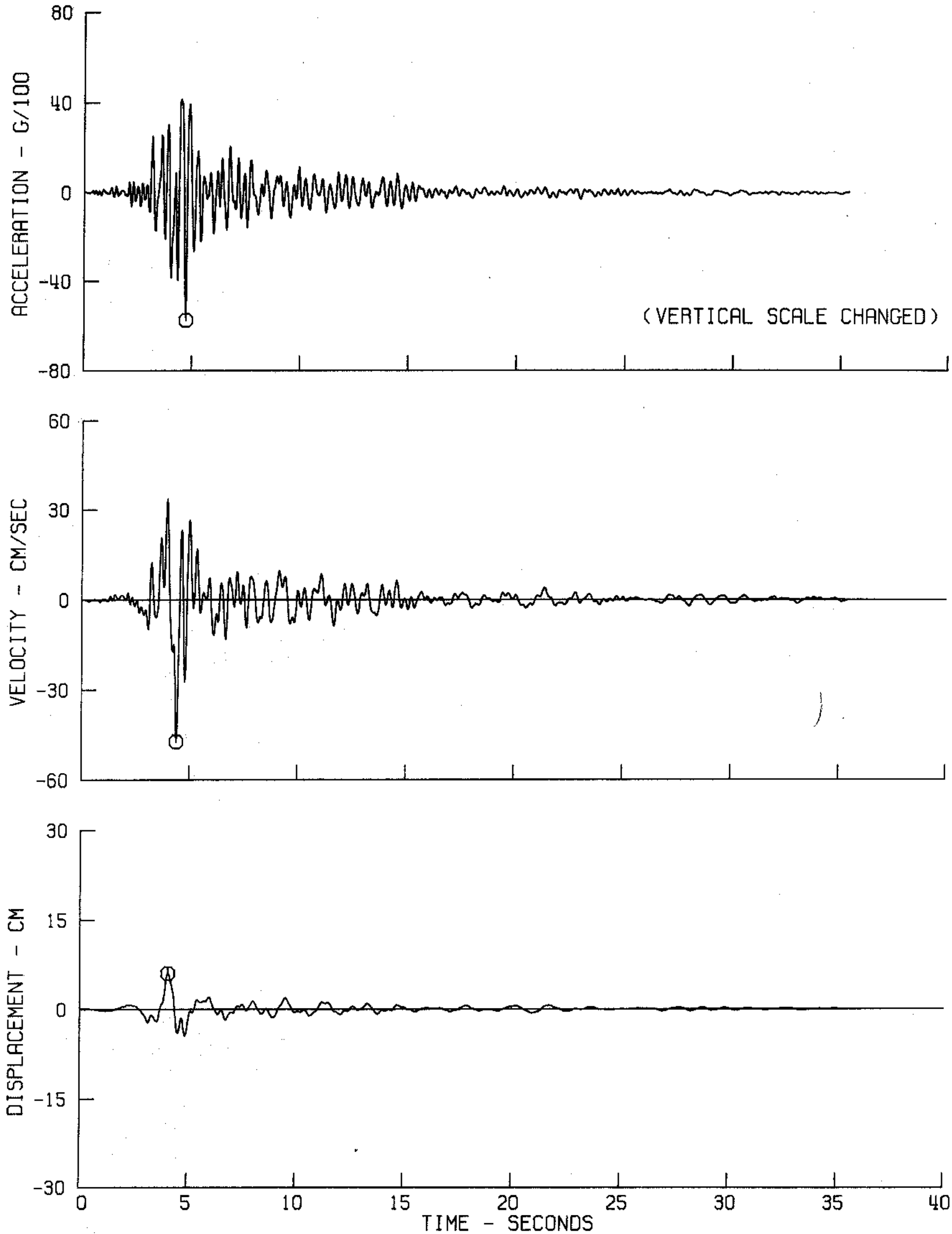
SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT

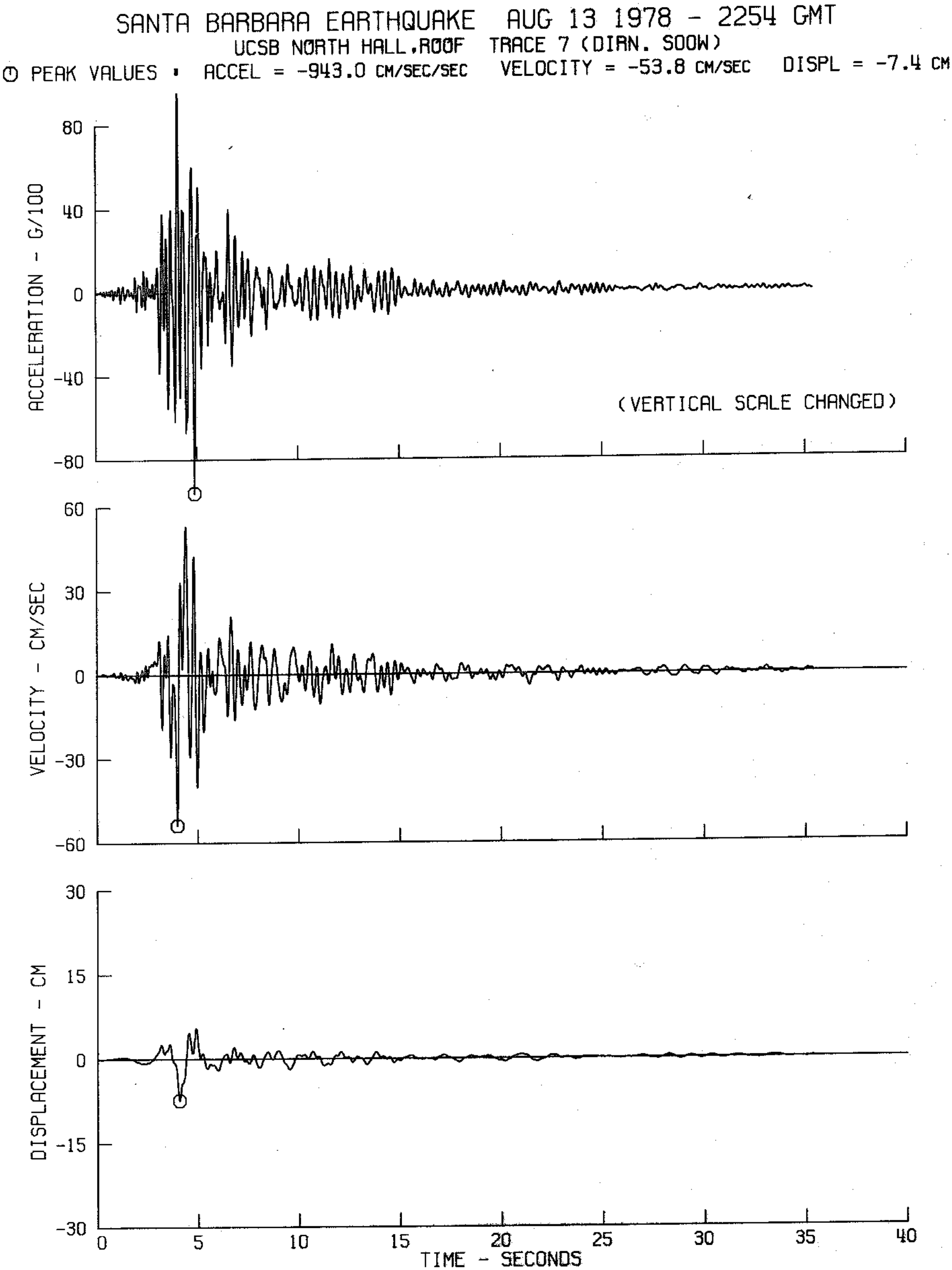
UCSB NORTH HALL, THIRD FLOOR TRACE 5 (DIRN. NOOE)

⊕ PEAK VALUES : ACCEL = 676.7 CM/SEC/SEC VELOCITY = -45.0 CM/SEC DISPL = 6.7 CM



SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT
UCSB NORTH HALL, THIRD FLOOR TRACE 8 (DIRN. N00E)
⊙ PEAK VALUES : ACCEL = -564.5 CM/SEC/SEC VELOCITY = -47.4 CM/SEC DISPL = 6.0 CM




SANTA BARBARA EARTHQUAKE AUG 13 1978 - 2254 GMT
UCSB NORTH HALL,ROOF TRACE 7 (DIRN. S00W)
PEAK VALUES : ACCEL = -943.0 CM/SEC/SEC VELOCITY = -53.8 CM/SEC DISPL = -7.4 CM
ACCELERATION - G/100
80
40
0
-40
-80
(VERTICAL SCALE CHANGED)
VELOCITY - CM/SEC
60
30
0
-30
-60
DISPLACEMENT - CM
30
15
0
-15
-30
0
5
10
15
20
25
30
35
40
TIME - SECONDS

APPENDIX

TABLE A-1

STRONG MOTION EARTHQUAKE ACCELEROGRAMS - STANDARD DATA
CHRONOLOGICAL INDEX OF EARTHQUAKES

NO.	YEAR	EARTHQUAKE	MAG.*	DATE	TIME, PST	DATA REPORT REF.
1.	1933	Long Beach, Calif.	6.4	3/10	1754	B021, V314, V315
2	1933	Los Angeles, Calif.	5.4	10/2	0110	B022, B023
3	1934	Ferndale, Calif.		7/6	1449	U294
4	1934	El Centro, Calif.	7.1	12/30	0552	B024
5	1935	Helena, Mont.	5.5	10/31	1138(MST)	B025
6	1935	Helena, Mont.	4.0	10/31	1218(MST)	U295
7	1935	Helena, Mont.	3.8	11/21	2058(MST)	U296
8	1935	Helena, Mont.	5.0	11/28	0742(MST)	U297
9	1937	Ferndale, Calif.	6.7	2/6	2042	U298
10	1938	El Centro, Calif.	3.0	4/12	0825	T274
11	1938	El Centro, Calif.	5.2	6/5	1842	T275
12	1938	El Centro, Calif.	4.0	6/6	0435	T276
13	1938	Ferndale, Calif.	5.5	9/11	2210	B026
14	1940	El Centro, Calif.	6.5	5/18	2037	A001, T277-T285
15	1941	Ferndale, Calif.	6.4	2/9	0145	B027
16	1941	Santa Barbara, Calif.	6.0	6/30	2351	U299
17	1941	Ferndale, Calif.	6.4	10/3	0813	U300
18	1941	Los Angeles, Calif.	5.4	11/14	0042	V316, V317
19	1942	El Centro, Calif.	6.3	10/21	0822	T286
20	1949	Hollister, Calif.	5.8	3/9	0429	U301
21	1949	Seattle, Wash.	6.5	4/13	1156	B028, B029 (Olympia)
22	1951	El Centro, Calif.	5.6	1/23	2317	T287
23	1951	Ferndale, Calif.	5.8	10/7	2011	A002
24	1952	Kern County, Calif.	7.2	7/21	0453	A003-A007, V318
25	1952	Tehachapi, Calif.		7/23-31	—	U302, U303, U304
26	1952	Ferndale, Calif.	5.5	9/22	0441	B030
27	1952	San Luis Obispo, Calif.	6.0	11/21	2346	V319
28	1953	El Centro, Calif.	5.5	6/13	2017	T288
29	1954	Taft, Calif.	5.9	1/12	1534	B031
30	1954	Hollister, Calif.	5.3	4/25	1233	U305
31	1954	El Centro, Calif.	6.9	11/12	0427	T289
32	1954	Eureka, Calif.	6.7	12/21	1156	A008, A009 (Ferndale)
33	1955	San Jose, Calif.	5.2	9/4	1801	A010, U306
34	1955	El Centro, Calif.	4.3	12/16	2117	T290
35	1955	El Centro, Calif.	3.9	12/16	2142	T291
36	1955	El Centro, Calif.	5.6	12/16	2207	T292
37	1956	El Centro, Calif.	7.0	2/9	0633	A011
38	1956	El Centro, Calif.	6.6	2/9	0725	A012
39	1957	Port Hueneme, Calif.	5.6	3/18	1056	V329
40	1957	San Francisco, Calif.	3.8	3/22	1048	V320
41	1957	San Francisco, Calif.	5.3	3/22	1144	A013-A017, V321
42	1957	San Francisco, Calif.	4.4	3/22	1515	V322-V327
43	1957	San Francisco, Calif.	4.0	3/22	1627	V328
44	1960	Hollister, Calif.	5.3	1/19	1926	U307
45	1960	Ferndale, Calif.	6.4	6/5	1718	U308
46	1961	Hollister, Calif.	5.9	4/8	2323	A018, U309
47	1962	Eureka, Calif.	5.8	9/4	0917	V330
48	1965	Olympia, Wash.	6.4	4/29	0729	B032, U310 (Seattle)
49	1965	Castaic, Calif.	4.7	7/15	2346	V331
50	1966	Parkfield, Calif.	5.8	6/27	2026	B033-B038, U311
51	1966	El Centro, Calif.	6.7	8/7	0936	T293
52	1966	Sacramento, Calif.	6.5	9/12	0841	V332
53	1967	Eureka, Calif.	6.3	12/10	0407	B039, U312 (Ferndale)
54	1967	Hollister, Calif.	5.0	12/18	0925	U313, V333
55	1968	Borrego Mtn., Calif.	6.8	4/8	1830	A019, A020, B040, Y370-Y381
56	1970	Lytle Creek, Calif.	5.7	9/12	0630	W334 through X369
57	1971	San Fernando, Calif.	6.3	2/9	0600	C041 through S273

*Magnitudes are Local Magnitudes, M_L, calculated from strong-motion records by the technique developed by Kanamori and Jennings: "Determination of local magnitude, M_L, from strong motion accelerograms," Bull. Seism. Soc. Amer. 68, 2, 471-485 (1978). When such magnitudes were not available, the data were obtained from Hileman, J. A., C. R. Allen and J. N. Nordquist, "Seismicity of the Southern California Region, 1 January 1932 to 31 December 1972," Seism. Lab., California Institute of Technology, Pasadena (1973).

TABLE A2

STRONG MOTION EARTHQUAKE ACCELEROGRAMS - STANDARD DATA

GEOGRAPHICAL INDEX OF ACCELEROGRAPH SITES

I. CALIFORNIA SITES

ACCELEROGRAPH SITE	USGS NO.[1]	INST. TYPE	DATA REPORT REF.[3]
ALHAMBRA			
Fremont Ave., 900 S.; Bsmt.	482	SMA-1	H121
6th Fl.	483	SMA-1	H122
12th Fl.	484	SMA-1	H123
ANZA			
Post Office, Storage Rm.	103	RFT-250	N197
ARCADIA			
Santa Anita Reservoir, Dam Abut.	104	AR-240	P221, W341
BAKERSFIELD			
Harvey Aud.; Bsmt.	1004	USCGS[2]	P224
BEVERLY HILLS			
Oakhurst Ave., 435 N.; Bsmt.	452	SMA-1	I128
5th Fl.	453	SMA-1	I129
Roof, 11th Lvl.	454	SMA-1	I130
Roxbury Dr., 450 N.; 1st Fl.	455	SMA-1	I131
5th Fl.	456	SMA-1	I132
10th Fl.	457	SMA-1	I133
Wilshire Blvd., 9100; Bsmt.	416	MO-2	Q239
5th Fl.	417	MO-2	Q240
BORREGO SPRINGS			
Fire Department Shop; Main Fl. (2322-24 Stirrup Rd.)	105	RFT-250	I140
BREA			
Carbon Canyon Dam	108	RFT-250	N185
BUENA VISTA			
Taft CWR Site	1011	AR-240	P230
CASTAIC			
Old Ridge Route, CWR Site	110	AR-240	D056, V331, W346
CEDAR SPRINGS			
Allen Ranch, CWR Site; Grnd.	111	AR-240	O202, W335
CWR Site, Pump House, Dam Abut.	---[b]	AR-240	O203, W336
CHOLAME			
Cholame-Shandon Array No. 2	1013	AR-240	B033, P228
Cholame-Shandon Array No. 5	1014	AR-240	B034
Cholame-Shandon Array No. 8	1015	AR-240	B035, P229
Cholame-Shandon Array No. 12	1016	AR-240	B036
Temblor II	1097	AR-240	B037
COLTON			
So. Calif. Edison Co. Substn.; Grnd.	---[b]	USCGS	F101, W339, Y370
COSTA MESA			
666 W. 19th St.; Grnd. Fl.	114	AR-240	P220
EL CENTRO			
Community Hospital	412	RFT-250	O209
Imperial Vly. Irrigation Dist. Substn.	117	USCGS	A001, A011, A012, A019, T274-T293
EUREKA			
Federal Building; Bsmt.	1022	USCGS	A008, B039, V330
FAIRMONT			
Reservoir	121	USCGS	O207
FERNDALE			
City Hall, Grnd. Level Pier	1023	USCGS	A002, A009, B026, B027, B030, U294, U298, U300

See footnotes at end of table.

TABLE A2 (Continued)

ACCELEROGRAPH SITE	USGS NO.[1]	INST. TYPE	DATA REPORT REF.[3]
FULLERTON			
Nutwood Ave., 2600; Bsmt.	476	SMA-1	H124
Penths., Center	478	SMA-1	H125
Penths., W. Wing	477	SMA-1	H126
GLENDALE			
Broadway, 633 E.; Bsmt. (Municipal Services Bldg.)	122	AR-240	F088
GORMON			
Oso Pumping Plant	1052	AR-240	F104
GRAPEVINE			
Tehachapi (Edmonston) Pumping Plant CWR Site	---[5]	AR-240	M179
HEMET			
Fire Station, Hose Storage Rm.	123	RFT-250	O210
HOLLISTER			
City Hall, Publ. Libr.; Half-Bsmt.	1028	USCGS	A018, U301, U305, U307, U309, U313
HOOVER DAM			
Intake Tower	2003	USCGS	O211
Oil House	2004	USCGS	O212
1215 Gallery	2002	USCGS	O213
ISABELLA DAM			
Spillway Gallery	1035	RFT-250	K161
Aux. Abutment	1039	RFT-250	K162
Aux. Crest	1037	RFT-250	K163
Control Tower	1038	RFT-250	K164
Crest	1036	RFT-250	K165
LAKE HUGHES ARRAY			
Station No. 1	---[5]	AR-240	J141, X364
Station No. 4	126	RFT-250	J142
Station No. 9	127	AR-240	J143
Station No. 12	128	AR-240	J144
LONG BEACH			
Long Beach Utilities Bldg. (215 W. Broadway)	131	USCGS	O204, V315, V316
Long Beach State Coll.; Grnd. Lvl.	132	RFT-250	N196
Terminal Island So. Calif. Edison; Grnd.	130	USCGS	O205, Y372
LOS ANGELES			
Airport Blvd., 9841; Bsmt.	247	MO-2	P231
15th Fl.	249	MO-2	P232
Avenue of the Stars, 1900; Bsmt.	184	MO-2	R249
Roof, 29th Lvl.	186	MO-2	R250
Avenue of the Stars, 1901; Sub-bsmt.	187	AR-240	D059
9th Fl.	188	AR-240	D060
21st Fl.	189	AR-240	D061
Beverly Drive, 1177; Bsmt.	413	MO-2	S261
Century Blvd., 5260; 1st Fl.	229	MO-2	S267
4th Fl.	230	MO-2	S268
Roof, 8th Lvl.	231	MO-2	S269
Century Park E., 1800; Bsmt.	425	SMA-1	I134
5th Fl.	426	SMA-1	I135
Penths., 16th Fl.	427	SMA-1	I136
Century Park E., 1880; Bsmt.	440	SMA-1	N188
7th Fl.	441	SMA-1	N189
Penths., 17th Fl.	442	SMA-1	N190
Century Park E., 1888; 14th Fl.	420	RFT-250	L174
21st Fl.	421	RFT-250	L175

TABLE A2 (Continued)

ACCELEROGRAPH SITE	USGS NO.[1]	INST. TYPE	DATA REPORT REF.[3]
LOS ANGELES (Continued)			
Century Park E., 1888			
Parking Ramp; 5th Lvl.	423	RFT-250	L172
9th Lvl., Roof	424	RFT-250	L173
Chamber of Commerce Bldg. (old) (12th & Hill St.)	---[5]	USCGS	V317
Figueroa St., 222 S.; 1st Fl.	145	MO-2	R244
20th Fl.	147	MO-2	R245
Figueroa St., 234 S.; Bsmt.	148	MO-2	R251
Roof, 18th Lvl.	150	MO-2	R252
Figueroa St., 455 S.; Sub-bsmt.	157	AR-240	C054
19th Fl.	158	AR-240	C055, X365
39th Fl.	159	AR-240	X366
First St., 250 E.; Bsmt.	151	AR-240	C051
8th Fl.	152	AR-240	C052
17th Fl.	153	AR-240	C053
First St., 800 W.; 1st Fl.	172	MO-2	Q241
16th Fl.	173	MO-2	Q242
33rd Fl.	174	MO-2	Q243
Fremont Ave., 533 S.; Bsmt.	160	MO-2	R253
6th Fl.	161	MO-2	R254
Garland Ave., 750 S.; 2nd Fl.	170	RFT-250	K159
6th Fl.	171	RFT-250	K160
Grand Ave., 420 S.; Bsmt.	154	RFT-250	K157
15th Fl.	156	RFT-250	K158
Griffith Park Observatory, Moon Rm.	141	RFT-250	O198
Hilgard Ave., 930; 15th Fl.	409	MO-2	S270
Hill St., 1150 S.; Bsmt.	437	RFT-250	M176
5th Fl.	438	RFT-250	M177
10th Fl.	439	RFT-250	M178
Hollywood Storage Bldg.; Penths.	134	USCGS	B022, V318, Y381
(1025 N. Highland) Bsmt.	133	USCGS	A006, B023, D057, W348
Parking Lot	---[5]	USCGS	A007, D058, W347, Y380
Hollywood Blvd., 7080; Bsmt.	238	AR-240	D068
6th Fl.	239	AR-240	D069
12th Fl.	240	AR-240	D070
Lankershim Blvd., 3838; Bsmt.	220	RFT-250	L166
11th Fl.	221	RFT-250	L167
21st Fl.	222	RFT-250	L168
L.A. Water & Power Bldg.; Bsmt.	137	AR-240	E078, X358
(111 S. Hope St.) 7th Fl.	138	AR-240	E079, X359
15th Fl.	139	AR-240	E080, X360
Lincoln Blvd., 8639; Bsmt.	244	RFT-250	H118
6th Fl.	245	RFT-250	H119
12th Fl.	246	RFT-250	H120
Marengo St., 1640; 1st Fl.	181	AR-240	D062, X355
4th Fl.	182	AR-240	D063, X356
Penths., 8th Fl.	183	AR-240	D064, X357
Normandie Ave., 616 S.; Bsmt.	431	SMA-1	J148
8th Fl.	432	SMA-1	J149
Roof, 18th Lvl.	433	SMA-1	J150
Olive Ave., 646 S.; Bsmt.	166	AR-240	F098, X367
4th Lvl.	167	AR-240	F099, X368
Roof	168	AR-240	F100, X369
Olive Ave., 808 S.; Street Lvl.	175	AR-240	F089, X361
4th Lvl.	176	AR-240	F090, X362
8th Lvl.	177	AR-240	F091, X363

TABLE A2 (Continued)

ACCELEROGRAPH SITE	USGS NO.[1]	INST. TYPE	DATA REPORT REF.[3]
LOS ANGELES (Continued)			
Olympic Blvd., 1625 W.; Grnd. Fl.	469	SMA-1	O199
6th Fl.	470	SMA-1	O200
10th Fl.	471	SMA-1	O201
Orchid Ave., 1760 N.; Grnd.	446	MO-2	Q236
2nd Fl.	447	MO-2	Q237
23rd Fl.	448	MO-2	Q238
Orion Blvd., 8244; 1st Fl.	241	AR-240	C048
4th Fl.	242	AR-240	C049
Roof, 8th Lvl.	243	AR-240	C050
Robertson Blvd., 120 N.; Sub-bsmt.	143	AR-240	F095, W352
4th Fl.	144	AR-240	F096, W353
9th Fl.	142	AR-240	F097, W354
San Vicente Blvd., 11661; 5th Fl.	251	MO-2	S271
11th Fl.	252	MO-2	S272
Sixth Street, 611 W.; Bsmt.	163	RFT-250	G112
42nd Fl.	165	RFT-250	G113
Sixth Street, 3407 W.; Bsmt.	199	AR-240	E083
4th Fl.	200	AR-240	E084
Penths., 8th Fl.	201	AR-240	E085
Southern Calif. Edison Bldg. (601 W. 5th St.)	---[5]	USCGS	Y377
Subway Terminal Sub-bsmt.	---[5]	USCGS	V314
(4th, 5th, Hill, & Olive St.); Bsmt.	---[5]	USCGS	Y378
Sunset Blvd., 4867; Bsmt.	226	AR-240	P214
3rd Fl.	227	AR-240	P215
8th Fl.	228	AR-240	P216
Sunset Blvd., 6430; 1st Fl.	232	MO-2	R248
Sunset Blvd., 6464; Bsmt.	235	MO-2	R246
12th Fl.	237	MO-2	R247
Tiverton Ave., 945; Sub-bsmt.	178	AR-240	W349
8th Fl.	179	AR-240	L169, W350
14th Fl.	180	AR-240	L170, W351
UCLA, Boelter Hall, Reactor Lab.; Grnd.	140	USCGS	F105
Univ. of So. Calif., Phillips Hall			
(3440 University Ave.); Bsmt.	205	MO-2	S258
5th Fl.	206	MO-2	S259
Roof, 13th Fl.	207	MO-2	S260
Van Owen St., 15107; Bsmt.	458	RFT-250	J145
4th Fl.	459	RFT-250	J146
Roof, 8th Lvl.	460	RFT-250	J147
Ventura Blvd., 14724; 1st Fl.	253	MO-2	Q233
6th Fl.	254	MO-2	Q234
Penths., 13th Fl.	255	MO-2	Q235
Ventura Blvd., 15250; Bsmt.	466	SMA-1	H115
7th Fl.	467	SMA-1	H116
Roof, 13th Fl.	468	SMA-1	H117
Ventura Blvd., 15433; 7th Fl.	257	MO-2	S273
Ventura Blvd., 15910; Bsmt.	461	SMA-1	I137
9th Fl.	462	SMA-1	I138
Roof, 19th Fl.	463	SMA-1	I139
Wilshire Blvd., 2500; Bsmt.	449	SMA-1	N192
8th Fl.	450	SMA-1	N193
Roof, 14th Lvl.	451	SMA-1	N194
Wilshire Blvd., 3345; Bsmt.	196	AR-240	P217
2nd Fl.	197	AR-240	P218
12th Fl.	198	AR-240	P219

TABLE A2 (Continued)

ACCELEROGRAPH SITE	USGS NO.[1]	INST. TYPE	DATA REPORT REF.[3]
LOS ANGELES (Continued)			
Wilshire Blvd., 3435; 5th Bsmt.	202	MO-2	S265
Wilshire Blvd., 3470; Sub-bsmt.	208	AR-240	E075
5th Fl.	209	AR-240	E076
11th Fl.	210	AR-240	E077
Wilshire Blvd., 3550; Bsmt.	211	MO-2	S266
Wilshire Blvd., 3710; Bsmt.	217	AR-240	D065
5th Fl.	218	AR-240	D066
10th Fl.	219	AR-240	D067
Wilshire Blvd., 4680; Bsmt.	223	AR-240	E072
3rd Fl.	224	AR-240	E073
6th Fl.	225	AR-240	E074
Wilshire Blvd., 5900; 'B' Pkg. Lot (Bsmt.)	428	MO-2	S262
16th Fl.	429	MO-2	S263
Penths.	430	MO-2	S264
Wilshire Blvd., 6200; Grnd. Fl.	443	MO-2	S255
10th Fl.	444	MO-2	S256
17th Fl.	445	MO-2	S257
Zonal Ave., 2011; Bsmt.	190	AR-240	F092
5th Fl.	191	AR-240	F093
9th Fl.	192	AR-240	F094
MARICOPA ARRAY			
Station No. 1	1041	RFT-250	K153
Station No. 2	1042	RFT-250	K154
Station No. 3	1043	RFT-250	K155
Station No. 4	1044	RFT-250	K156
OAKLAND			
City Hall; Bsmt.	1049	USCGS	A017, V326
16th Fl.	---[5]	USCGS	V321, V327
ORANGE			
City Blvd., 1; Bsmt.	472	RFT-250	M180
10th Fl.	473	RFT-250	M181
19th Fl.	474	RFT-250	M182
PACOIMA			
Pacoima Dam, Abutment	279	AR-240	C041, C042-C047
PALMDALE			
Fire Station, Storage Rm.	262	RFT-250	G114
PALOS VERDES ESTATES; Bsmt. (2516 Via Tejon)	411	RFT-250	N191
PASADENA			
Athenaeum, CIT; Bsmt.	475	SMA-1	A003, G107, Y376
Millikan Library, CIT; Bsmt.	264	RFT-250	G108, W342, Y375
10th Fl.	265	RFT-250	G109, W343
JPL; Bsmt.	267	RFT-250	G110, W344, Y373
9th Fl.	268	RFT-250	G111, W345, Y374
Seismological Lab., CIT; Bsmt.	266	RFT-250	G106
PEARBLOSSOM			
Pumping Plant	269	AR-240	F103
PORT HUENEME			
Navy Laboratory; Grnd.	272	USCGS	P222, V329
SACRAMENTO			
Pacific Tel. & Tel. Bldg.; Bsmt.	1062	USCGS	V332
SAN BERNARDINO			
Devil's Canyon CWR Site	116	AR-240	W337
Hall of Records; Bsmt.	274	RFT-250	O206, W338

TABLE A2 (Continued)

ACCELEROGRAPH SITE	USGS NO.[1]	INST. TYPE	DATA REPORT REF.[3]
SAN DIEGO			
San Diego Light & Power, Service Bldg.	277	USCGS	A020, P227
San Diego Gas & Electric Bldg.; Bsmt.	275	RFT-250	H127
SAN DIMAS			
Puddingstone Reservoir, Dam Abutment	278	AR-240	P223, W340
SAN FRANCISCO			
Alexander Bldg.; Bsmt.	1065	USCGS[4]	A014, V323
11th Fl.	1066	USCGS[4]	V324
16th Fl.	1067	USCGS[4]	V325
Golden Gate Park	1117	USCGS[4]	A015
Insurance Securities Bldg.; 12th Fl. (Bethlehem)	1072	USCGS	V333
Southern Pacific Bldg.; Bsmt.	1078	USCGS	A013, V320, V322, V328
State Building; Bsmt.	1080	USCGS	A016
SAN JOSE			
Bank of America Bldg.; Bsmt.	1081	USCGS	A010
13th Fl.	---[5]	USCGS	U306
SAN JUAN CAPISTRANO			
32010 Del Obispo, City Hall; Grnd. Fl.	465	RFT-250	N195
SAN LUIS OBISPO			
City Recreation Bldg.; Bsmt.	1083	USCGS	B038, V319
SAN ONOFRE			
Nuclear Power Plant; Bsmt.	280	AR-240	B040, L171
SANTA ANA			
Orange Cty. Engr. Bldg.; Bsmt.	281	USCGS	F087, Y371
SANTA BARBARA			
Univ. of Calif., Fluid Mech. Lab.; Bsmt.	282	RFT-250	O208
Court House; Bsmt.	283	USCGS	A005, U299
SANTA FELICIA DAM (Piru)			
Outletworks	284	AR-240	E081
Crest	285	AR-240	E082
TAFT			
Lincoln School; Shop Roof	1094	AR-240	P225
Tunnel	1095	USCGS	A004, B031, P226, U311
TEHACHAPI			
Fire House (Temporary station for Kern County Earthquake)	---[5]	USCGS	U302, U303, U304
TEJON			
Fort Tejon, CWR Site	1096	AR-240	F102
TERMINUS DAM (Lemon Cove)			
Control Tower	1100	RFT-250	J151
Crest	1098	RFT-250	J152
UPLAND			
San Antonio Dam, Crest	287	RFT-250	N187
VERNON			
CMD Terminal Bldg.; Bsmt.	288	USCGS	B021, F086, Y379
WHEELER RIDGE	1102	AR-240	E071
WHITTIER			
Whittier Narrows Dam, Crest	289	RFT-250	N186
WRIGHTWOOD			
Park Ave., 6074; Grnd., Temporary installtn.	---	SMA-1	M183
Bsmt.	290	RFT-250	M184, W334

TABLE A2 (Continued)

II. SITES OUTSIDE OF CALIFORNIA

ACCELEROGRAPH SITE	USGS NO.[1]	INST. TYPE	DATA REPORT REF.[3]
HELENA, MONTANA Federal Building	---[5]	USCGS[2]	U295,U296,U297
Carroll College; Bsmt.	2202	USCGS	B025
OLYMPIA, WASHINGTON Highway Test Lab.; Grnd. beside bldg.	2101	USCGS	B029,B032
SEATTLE, WASHINGTON District Engrs. Office at Army Base (Temporary Site)	---[5]	USCGS	B028
Federal Office Bldg.; Sub-bsmt.	2102	USCGS	U310

[1]From "Strong-Motion Instrument Station Data," Open File Report, June 11, 1975, Seismic Engineering Branch, U.S. Geological Survey.

[2]Referred to as "SFS Standard" or "S-M" in Open File Report 1975.

[3]Lettered Parts. Volume I, Uncorrected Digitized Accelerograms; Volume II, Corrected Accelerograms, and Integrated Velocity and Displacement; Volume III, Response Spectrum Curves; Volume IV, Fourier Amplitude Spectra.

[4]Later replaced by SMA-1 accelerograph.

[5]Station removed.

TABLE A3

The following standardized data reports from the Earthquake Engineering Research Laboratory can be obtained from the National Technical Information Service, Springfield, Virginia, 22121.

<table>
<tr><th>PART</th><th>VOLUME I</th><th>VOLUME II</th><th>VOLUME III</th><th>VOLUME IV</th></tr>
<tr><td>A</td><td>PB-287 847</td><td>PB-208 283</td><td>PB-212 602</td><td>PB-212 603</td></tr>
<tr><td>B</td><td>PB-196 823</td><td>PB-220 161</td><td>PB-221 256</td><td>PB-220 837</td></tr>
<tr><td>C</td><td>PB-204 364</td><td>PB-220 162</td><td>PB-223 025</td><td>PB-222 514</td></tr>
<tr><td>D</td><td>PB-208 529</td><td>PB-220 836</td><td>PB-227 469/AS</td><td>PB-223 969/AS</td></tr>
<tr><td>E</td><td>PB-209 749</td><td>PB-223 024</td><td>PB-227 470/AS</td><td>PB-229 240/AS</td></tr>
<tr><td>F</td><td>PB-210 619</td><td>PB-224 977/9AS</td><td>PB-227 471/AS</td><td>PB-229 241/AS</td></tr>
<tr><td>G</td><td>PB-211 357</td><td>PB-229 239/AS</td><td>PB-231 223/AS</td><td>PB-231 224/AS</td></tr>
<tr><td>H</td><td>PB-211 781</td><td>PB-231 225/AS</td><td>PB-231 319/AS</td><td>PB-232 327/AS</td></tr>
<tr><td>I</td><td>PB-213 422</td><td>PB-232 316/AS</td><td>PB-232 326/AS</td><td>PB-232 328/AS</td></tr>
<tr><td>J</td><td>PB-213 423</td><td rowspan="2">PB-233 257/AS</td><td rowspan="3">PB-236 110/AS</td><td rowspan="4">PB-236 111/AS</td></tr>
<tr><td>K</td><td>PB-213 424</td></tr>
<tr><td>L</td><td>PB-215 639</td><td rowspan="2">PB-237 174/AS</td></tr>
<tr><td>M</td><td>PB-220 554</td><td rowspan="2">PB-236 400/AS</td></tr>
<tr><td>N</td><td>PB-223 023</td><td>PB-236 399/AS</td><td rowspan="3">PB-238 447/AS</td></tr>
<tr><td>O</td><td>PB-222 417</td><td rowspan="2">PB-239 586/AS</td><td rowspan="2">PB-238 102/AS</td></tr>
<tr><td>P</td><td>PB-227 481/AS</td></tr>
<tr><td>Q</td><td>PB-232 315/AS</td><td rowspan="2">PB-239 587/AS</td><td rowspan="2">PB-240 688/AS</td><td rowspan="3">PB-241 554/AS</td></tr>
<tr><td>R</td><td>PB-239 585/AS</td></tr>
<tr><td>S</td><td>PB-241 551/AS</td><td>PB-241 552/AS</td><td>PB-241 553/AS</td></tr>
<tr><td>T</td><td>PB-241 943/AS</td><td>PB-242 433/AS</td><td>PB-243 698/AS</td><td rowspan="2">PB-243 493/AS</td></tr>
<tr><td>U</td><td>PB-242 262/AS</td><td>PB-242 949/AS</td><td>PB-242 950/AS</td></tr>
<tr><td>V</td><td>PB-243 483/AS</td><td>PB-242 948/AS</td><td>PB-242 951/AS</td><td rowspan="4">PB-243 494/AS</td></tr>
<tr><td>W</td><td>PB-243 497/AS</td><td rowspan="3">PB-243 719</td><td rowspan="3">PB-243 492/AS</td></tr>
<tr><td>X*</td><td>PB-243 594/AS</td></tr>
<tr><td>Y</td><td>PB-242 947/AS</td></tr>
</table>

*Part X deleted from Volumes II, III and IV (records too small to process).