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CYLINDRICAL IN-SITU TESTS AT SELECTED NUCLEAR AND HIGH-EXPLOSIVE TEST SITES

February 1977

Final Report

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Prepared for
DEFENSE NUCLEAR AGENCY
Washington, DC 20305

AIR FORCE WEAPONS LABORATORY
Air Force Systems Command
Kirtland Air Force Base, NM 87117

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This final report was prepared by the Air Force Weapons Laboratory, Kirtland Air Force Base, New Mexico, under Job Order WDNS3507. First Lieutenant Joseph H. Amend III (DES) was the Laboratory Project Officer-in-Charge.

This technical report has been reviewed and is approved for publication.

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19. KEY WORDS (*Continue on reverse side if necessary and identify by block number*)

CIST	PACE
MIXED COMPANY	In-Situ Material Properties
DICE THROW	Soil Mechanics Civil Engineering

20. ABSTRACT (*Continue on reverse side if necessary and identify by block number*)

The development of high confidence ground shock prediction techniques using computer simulation of nuclear bursts over or in real geologic materials is essential for adequate design and evaluation of present and future hardened land based systems. In the past, the calculational technique developed and used in these studies has relied upon material constitutive models developed from laboratory tests of material samples. Crucial to the success of this theoretical ground shock prediction program is a clear verification of the

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20. ABSTRACT

ability of the soil modeling and calculational technique to accurately reproduce ground motions generated by scaled high explosive (HE) detonations in geologies of direct interest to DOD systems. Substantial discrepancies between calculated and observed ground motions have been noted. These are attributable primarily to inadequacies in the laboratory-based soil and rock material models. To overcome some of the shortcomings of the laboratory-based modeling techniques, an in situ material property test has been developed by the Air Force Weapons Laboratory (AFWL). The Cylindrical In Situ Test (CIST) technique permits measurement of the dynamic response of geological materials to a cylindrically symmetric high explosive shock input yielding data from which in situ material properties may be determined for a range of initial loading stresses. Models based on CIST data have resulted in substantially improved agreement between calculated and observed data. Data from CIST 2 conducted in 1972, CIST 10 conducted in 1974, CIST 15 conducted in 1975, and CIST 16 conducted in 1976 are included in this report.

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ILLUSTRATIONS

ILLUSTRATIONS (Continued)

TABLES

SECTION I

INTRODUCTION

1. BACKGROUND

The Cylindrical In Situ Test (CIST) was developed at the Air Force Weapons Laboratory in 1971 in an effort to provide an in situ technique for determining response of geologic materials to dynamic blast loadings. The objective of the experiment is to gather experimental data which can be used to develop a material model that describes the dynamic behavior of the site materials. To accomplish this objective, an explosive source consisting of 400 grain PETN primacord is detonated in a vertical, cylindrical cavity which is in intimate contact with the "in situ" geological material (ref. 1). A vertical cylindrical load geometry was chosen because of its unique capability for directly loading a number of near surface horizontal layers simultaneously. Resulting data could then be used to determine in situ material properties for each layer, independently. The relatively low cost of the technique made it feasible to test a large number of sites having different geologies. Free field measurements of acceleration are taken at various ranges and depths within the active region of the experiment as shown in figure 1. By single and double integration of the acceleration records, velocity and displacement time histories can be obtained. The material model is developed through an iterative technique of matching calculational results with velocity time histories.

2. TEST SITES

The accomplishment of the objective of material model development has a significant role in the accurate prediction of ground motions critical to the design of strategic structures. For this reason, CIST experiments have been conducted at a variety of sites, as shown in table 1. The pilot CIST event was conducted at the MIDDLE GUST wet site in southern Colorado on 16 November 1971

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1. Davis, Stephen E., General Test Plan for the Cylindrical In Situ Test (CIST), AFWL-TR-74-136, Air Force Weapons Laboratory, Kirtland Air Force Base, New Mexico, June 1974.

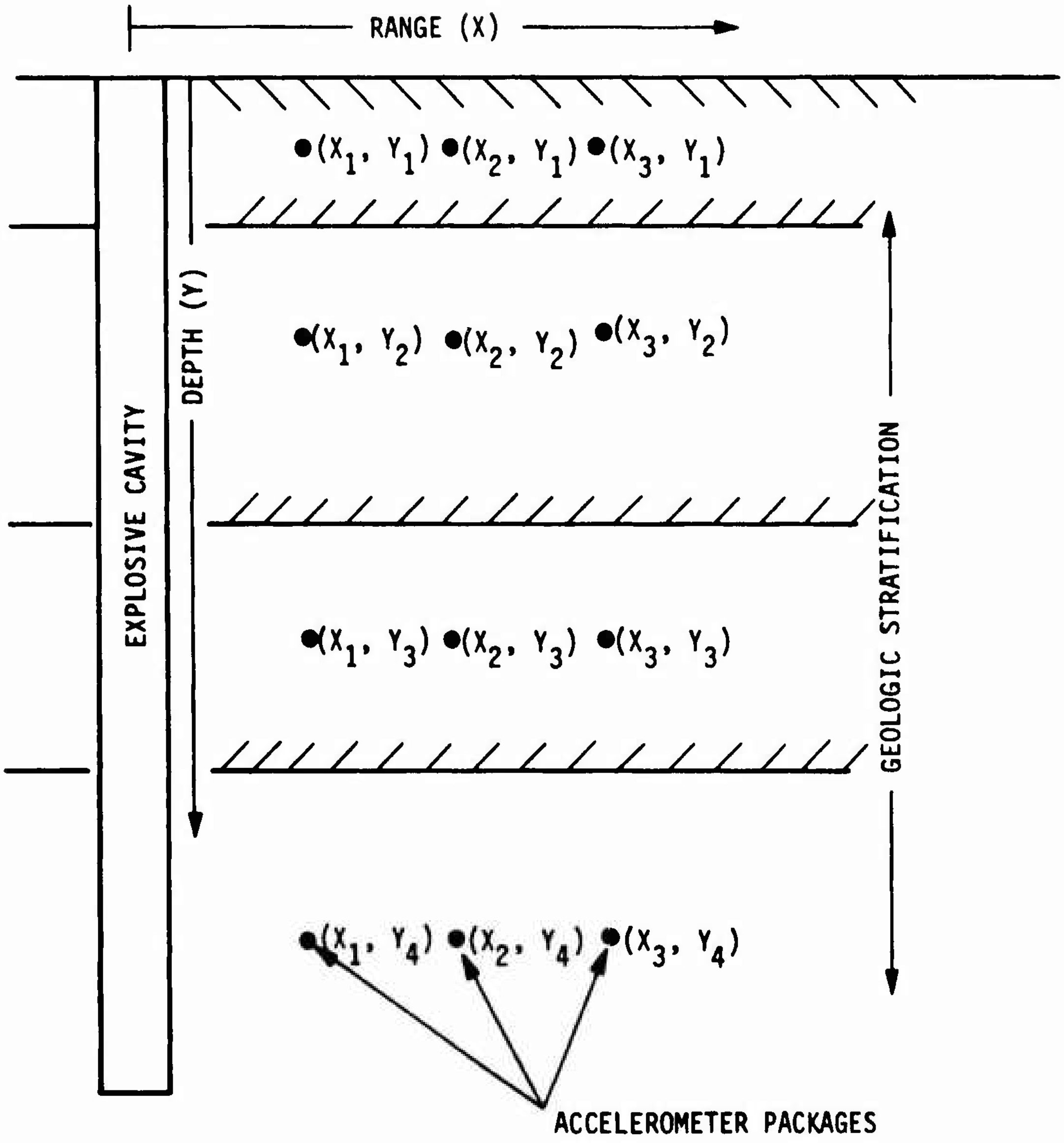

Figure 1. CIST Cavity with Geologic Stratification

Table 1

LOCATIONS AND DATES OF CIST EVENTS

Event	Location	Date
CIST 1	MIDDLE GUST Wet Site, Colorado	16 November 1971
CIST 2	MIXED COMPANY Test Site, Colorado	28 September 1972
CIST 3	MINUTEMAN Site D-1, Nebraska	2 November 1972
CIST 4	MIDDLE GUST Dry Site, Colorado	17 January 1973
CIST 5	Nevada Test Site (Area 10), Nevada	22 May 1973
CIST 6	Nevada Test Site (Area 6), Nevada	4 June 1973
CIST 7	Nevada Test Site (Area 5), Nevada	23 August 1973
CIST 8	MINUTEMAN Site P-1, Montana	30 November 1973
CIST 9	MIDDLE GUST Wet Site, Colorado	7 February 1974
CIST 10	Aranit Island, Eniwetok Atoll	12 July 1974
CIST 11	MINUTEMAN Site N-11, Missouri	22 April 1974
CIST 12	HARD PAN Test Site, Kansas	12 July 1974
CIST 13	MINUTEMAN Site F-9, South Dakota	27 September 1974
CIST 14	MINUTEMAN Site M-28, North Dakota	18 October 1974
CIST 15	Pre-DICE THROW Test Site, New Mexico	16 July 1975
CIST 16	Pre-DICE THROW Test Site, New Mexico	19 February 1976

(ref. 2). Test locations have been chosen to correspond with locations of certain key nuclear and high explosive tests as well as other "representative" sites for which a large number of conventional laboratory material properties data are available. Included in this report are CIST experiments conducted at the MIXED COMPANY Test Site in Colorado (CIST 2), the PACE Test Site at Eniwetok Atoll (CIST 10) and the Pre-DICE THROW Test Site in New Mexico (CISTS 15 and 16). Details of other CIST Events are reported in references 2, 3 and 4.

The geology for CIST 2 consisted of clayey silt overlying siltstone and sandstone. The geology for CIST 10 consisted of unconsolidated saturated coral

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2. Davis, Stephen E., MIDDLE GUST CIST Events Data, AFWL-TR-74-137, Air Force Weapons Laboratory, Kirtland Air Force Base, New Mexico, June 1974.

3. Davis, Stephen E., Nevada Test Site CIST Events Data, AFWL-TR-74-131, Air Force Weapons Laboratory, Kirtland Air Force Base, New Mexico, May 1974.

4. Wooley, John A., MINUTEMAN CIST Events Data, AFWL-TR-76-044, Air Force Weapons Laboratory, Kirtland Air Force Base, New Mexico, March 1976.

sand and gravel (ref. 5). The geology for CIST 15 consisted of alternating layers of clay and sand with the water table at approximately 8 feet depth. The geology for CIST 16 consisted of silt overlying alternating layers of clay and sand with the water table at 16.5 feet depth. Additional information concerning the geologic stratification of each test site is contained in section II.

---

5. Couch, et al, Drilling Operations on Eniwetok Atoll during Project EXPOE, AFWL-TR-75-216, Air Force Weapons Laboratory, Kirtland AFB, NM 87117, September 1975.

SECTION II

TEST DESCRIPTIONS

1. LOCATIONS

The CIST 2 Event was conducted about 15 miles west southwest of Grand Junction, Colorado, as shown in figure 2. CIST Event 10 was conducted on Aranit Island, about 15 miles north northwest of the island of Eniwetok. A map of Eniwetok Atoll showing the CIST 10 location and the locations of nuclear events is presented in figure 3. A map of a portion of the White Sands Missile Range showing the locations of CIST 15 and CIST 16 is presented in figure 4.

2. CONFIGURATIONS

A 24-inch-diameter borehole drilled to depths sufficient to provide data on the significant near surface layers (generally 30 to 75 feet) has been standardized for all CIST events. The hole is filled with racked 400-grain PETN detonating cord (Primacord) explosive at a density of 5 pounds per linear foot of hole. Two exploding bridgewire detonators are used every 5 feet giving approximately 0.175 millisecond delay before all of the explosive is detonated. The nominal peak cavity pressure for the explosive configuration is estimated at about 6700 pounds per square inch.

The site configuration for CIST 2 is illustrated in figure 5. This site configuration is typical of recent CIST events except that the diameter of the test bed can vary up to 50 feet. A plan view of the CIST 2 hole configuration is shown in figure 6. The hole configurations for CISTS 10, 15 and 16 are shown in figures 7 through 9.

For CIST tests some type of support is required to maintain the explosive cavity. This support is normally a 24-inch-diameter corrugated steel culvert. For CIST 2 a fiberglass reinforced cardboard liner was used. For CIST 10 the first drilling effort in April 1974 was abandoned due to caving. The second attempt in July 1974 resulted in an approximately 36-inch-diameter hole to 40 feet depth. This hole was grouted and then redrilled in two steps to 24-inch diameter. The hole was then lined with corrugated steel culvert. Despite attempts to seal the bottom of the hole with grout and the junctions of the culvert with caulk seepage continued, resulting in the presence of water in the hole to

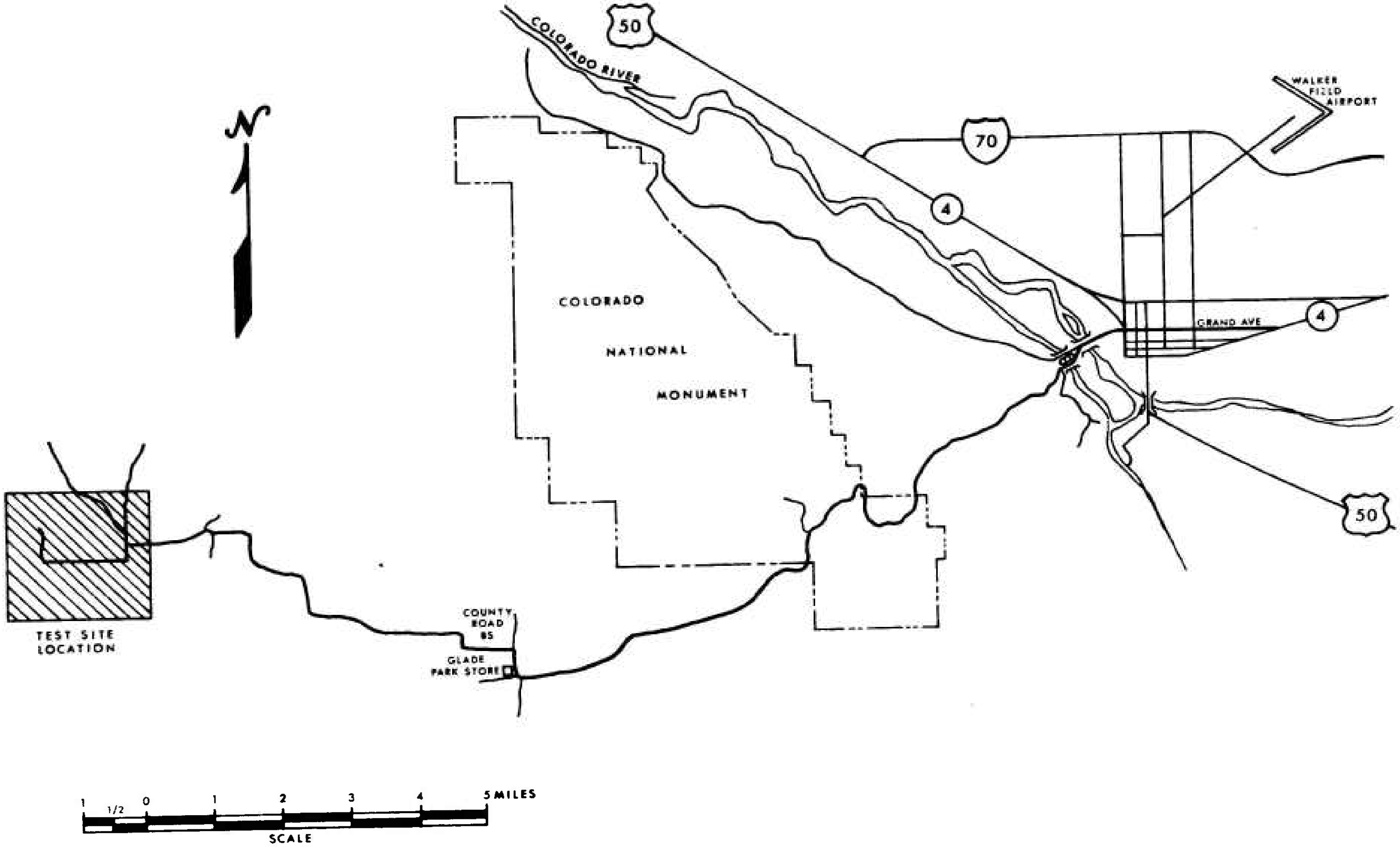


Figure 2. Grand Junction Road Map and Test Site

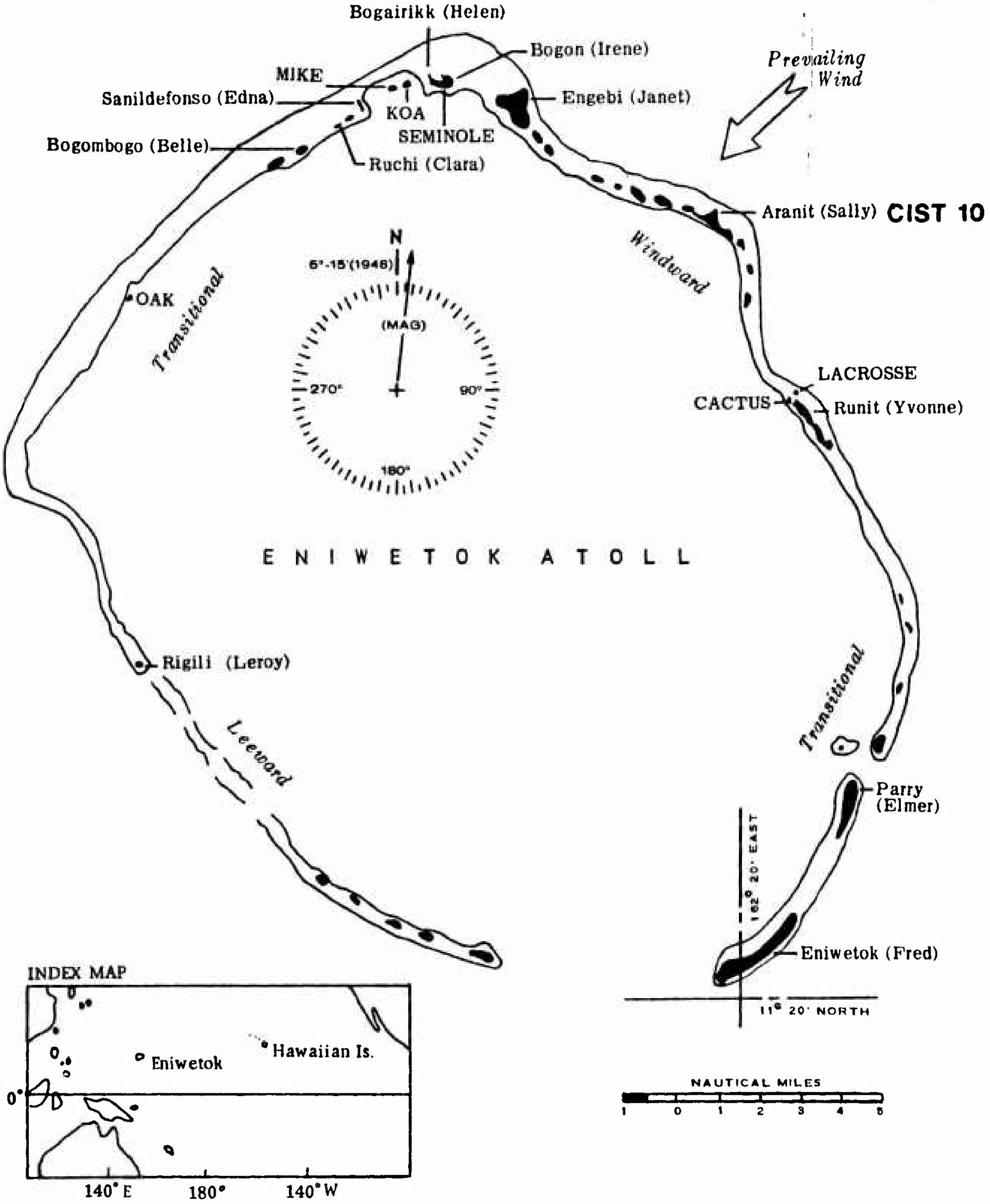


Figure 3. Map of Eniwetok Atoll Showing Location of CIST 10

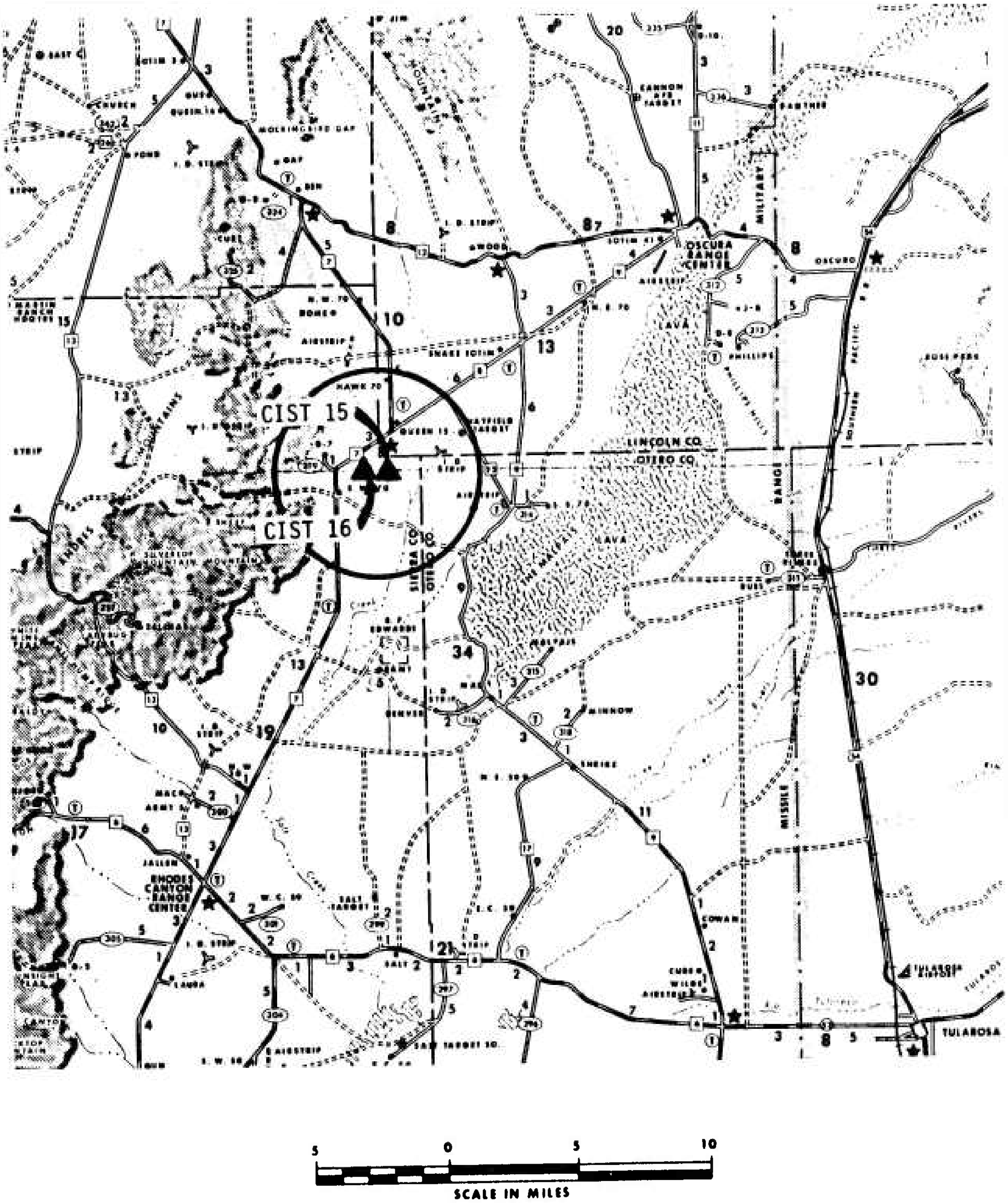


Figure 4. Map of a Portion of the White Sands Missile Range Showing Locations of CIST 15 and CIST 16

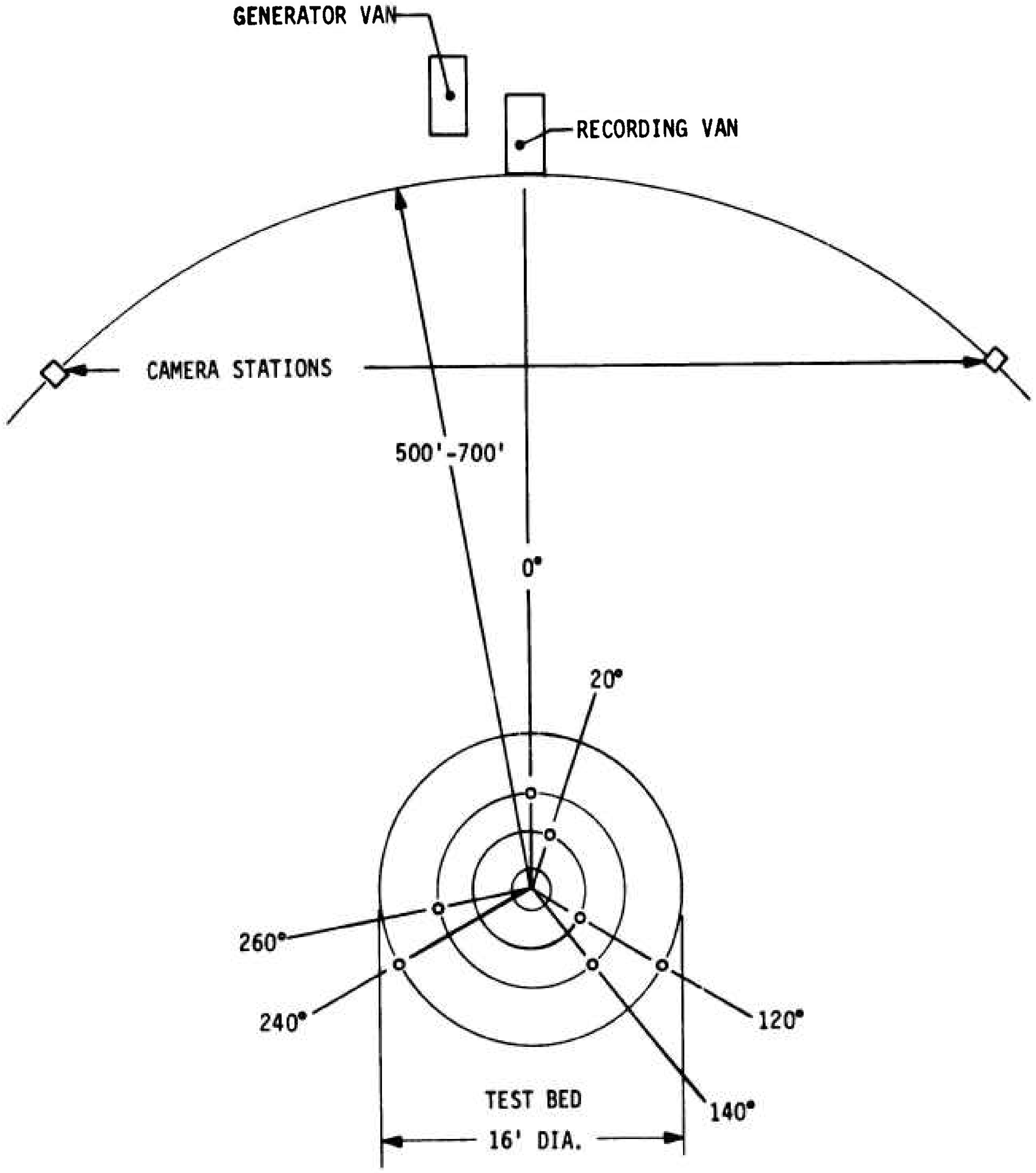


Figure 5. Site Configuration, CIST 2

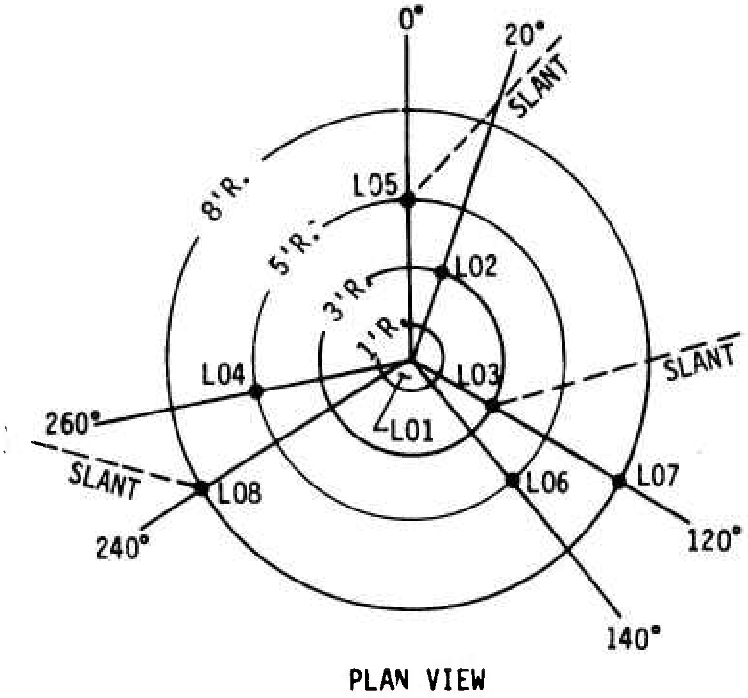


Figure 6. Hole Configuration, CIST 2

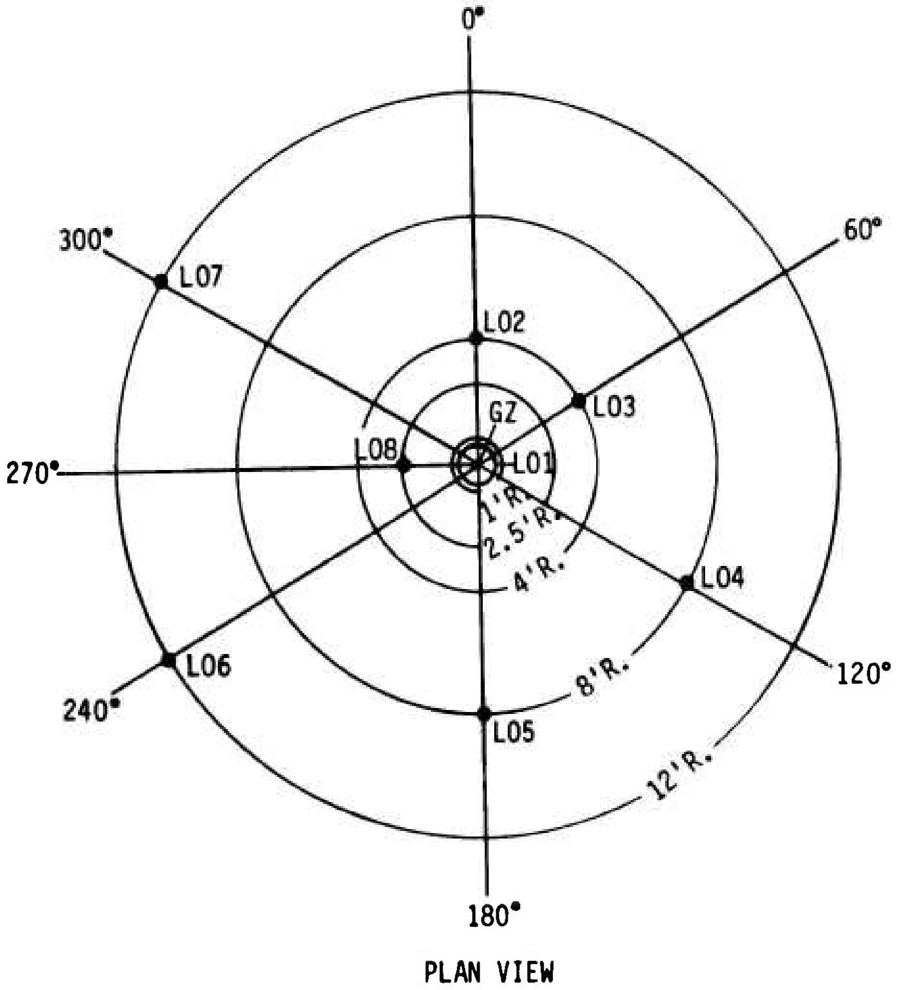


Figure 7. Hole Configuration, CIST 10

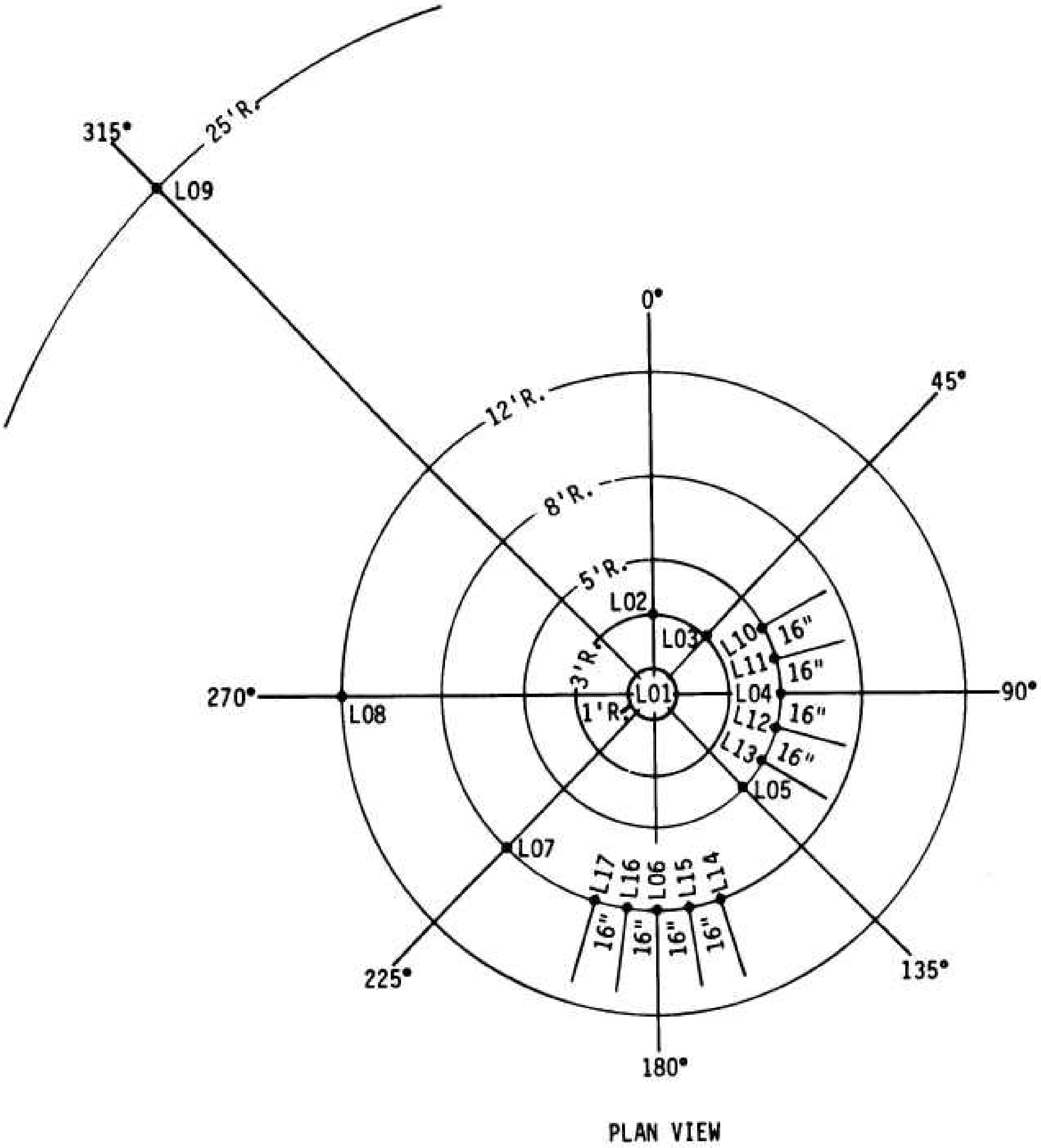


Figure 8. Hole Configuration, CIST 15

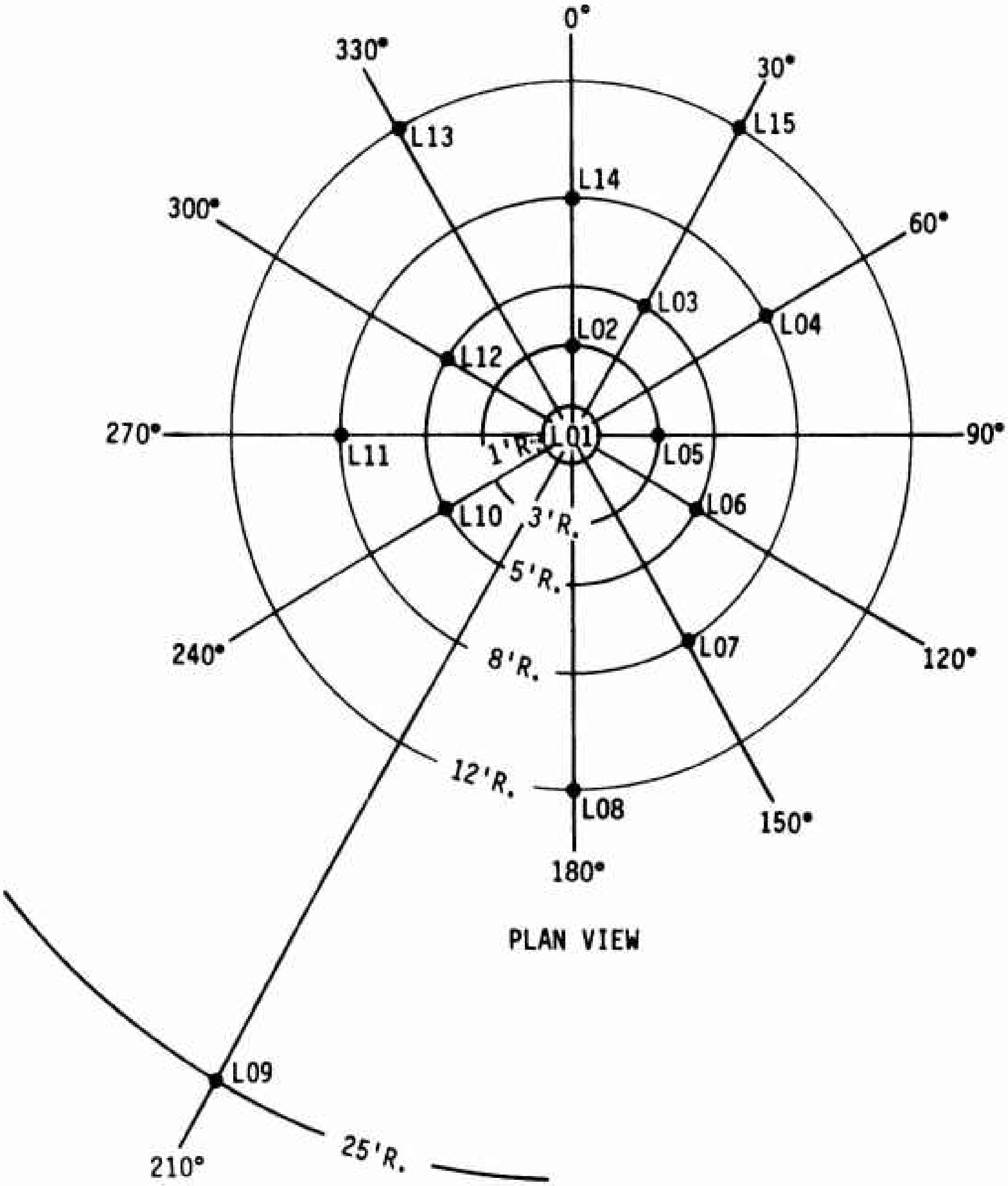


Figure 9. Hole Configuration, CIST 16

34 foot depth at shot time. The total water depth is estimated at 4 feet. Approximately 2 feet of grout was poured into the bottom of the culvert in an attempt to prevent water leakage. The standard 24-inch-diameter corrugated steel culvert was utilized on CISTS 15 and 16.

The configuration of the explosive rack is shown in figure 10 and the detonator/booster assembly is illustrated in figure 11. These configurations are standard for CIST events.

3. INSTRUMENTATION

Approximately 30 channels of acceleration data were recorded for each test. The principal transducer type was a high performance accelerometer capable of withstanding the high frequencies and stresses experienced on a CIST event. Gage ranges up to 25 feet from the explosive hole center were used as shown in figures 6 through 9. The addition of the 12-and 25-foot ranges was to insure that the developed model accurately matched the geological response for low stress states as well as high stress states. Gage depths were selected to measure the ground motions in the principal geologic layers at the particular site under study. Cavity pressure transducers were installed to measure the time history of the loading function. Strong motion seismic measurements were made at a range of 75 feet on CIST 15 and to a range of 120 feet on CIST 16. Stress/strain measurements were made on CISTS 15 and 16. The horizontal stress/strain measurements on CIST 15 and the horizontal stress measurements on CIST 16 were attempts to obtain a more accurate definition of the loading function for CIST tests and to provide additional data for the material model determination.

The geological stratifications and gage configurations for CISTS 2, 10, 15 and 16 are presented in cross sectional views in figures 12 through 15. The cavity pressure gage layout for CIST 15 is shown in figure 16. The seismic station layout for CIST 15 is shown in figure 17.

Endevco Accelerometer Models 2260, 2261, 2261C and 2264 were employed to make the free field acceleration measurements. Gage ranges were selected and calibration levels were set based upon predictions of expected acceleration levels in the field. Both horizontal and vertical measurements were made, although most of the measurements were horizontal. Accelerometers were cast in epoxy canisters which were grouted into the free field media at desired locations and orientations.

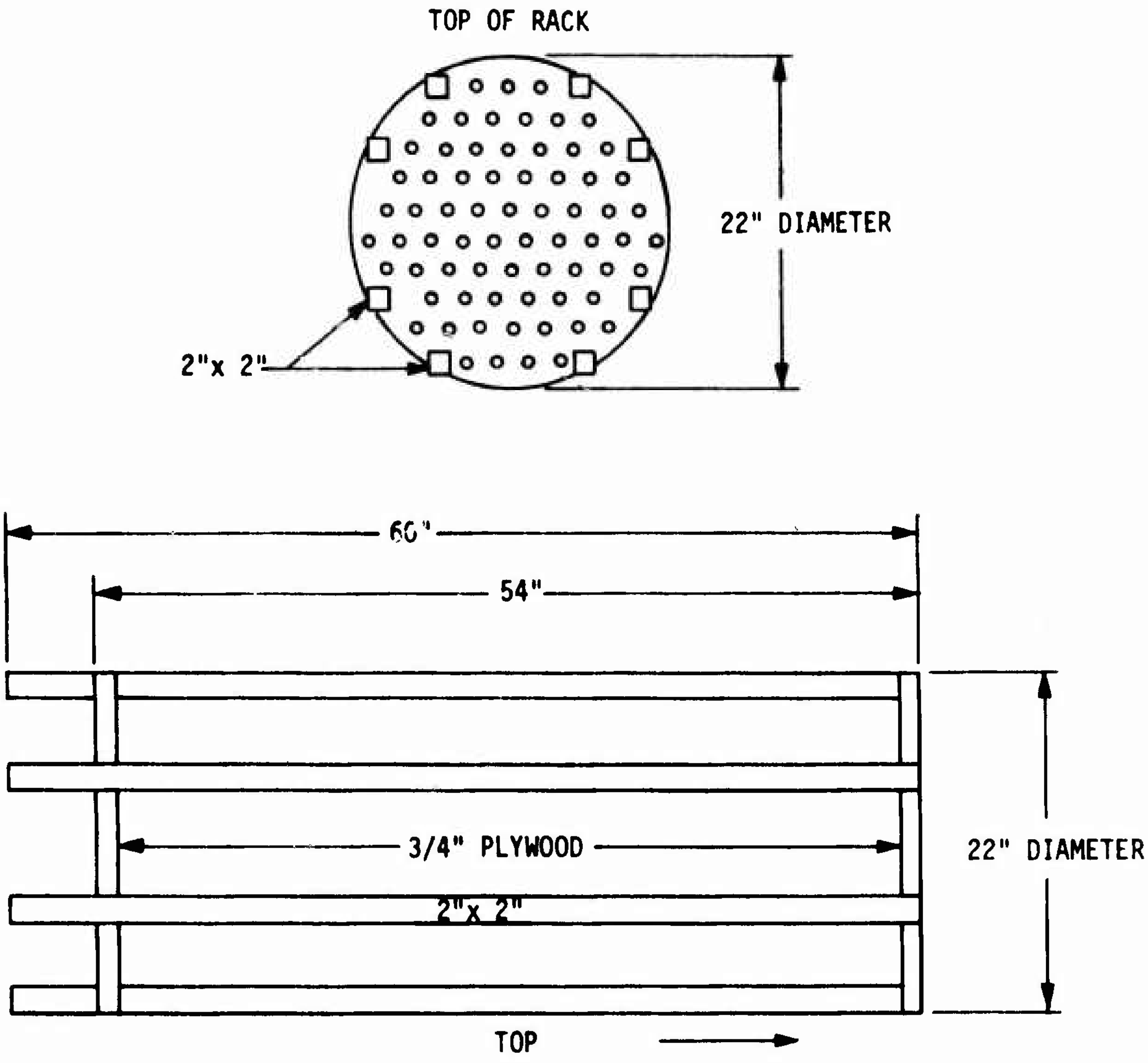
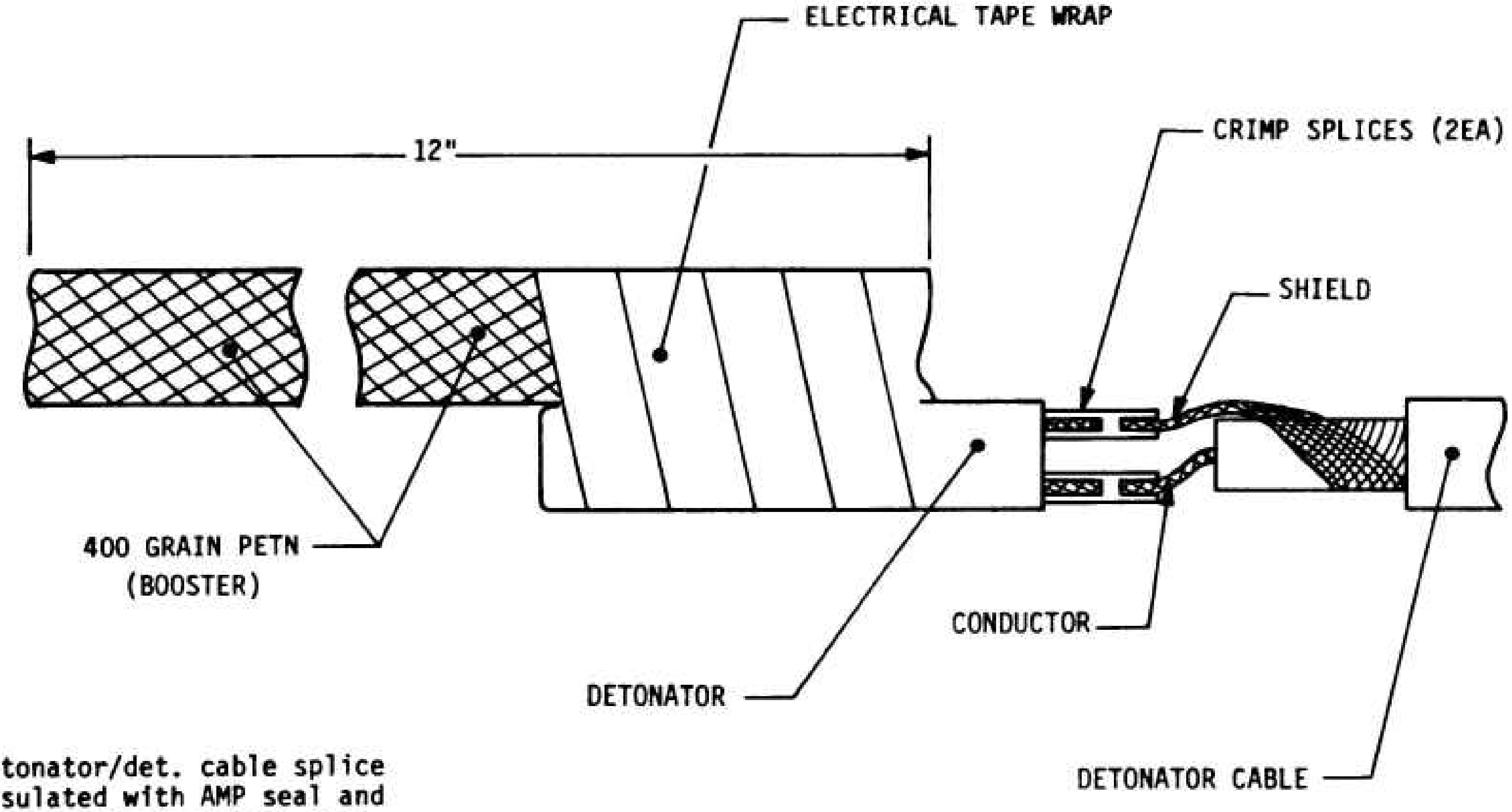


Figure 10. Explosive Rack Construction



NOTE: Detonator/det. cable splice insulated with AMP seal and taped with electrical tape.

Figure 11. Detonator/Booster Assembly

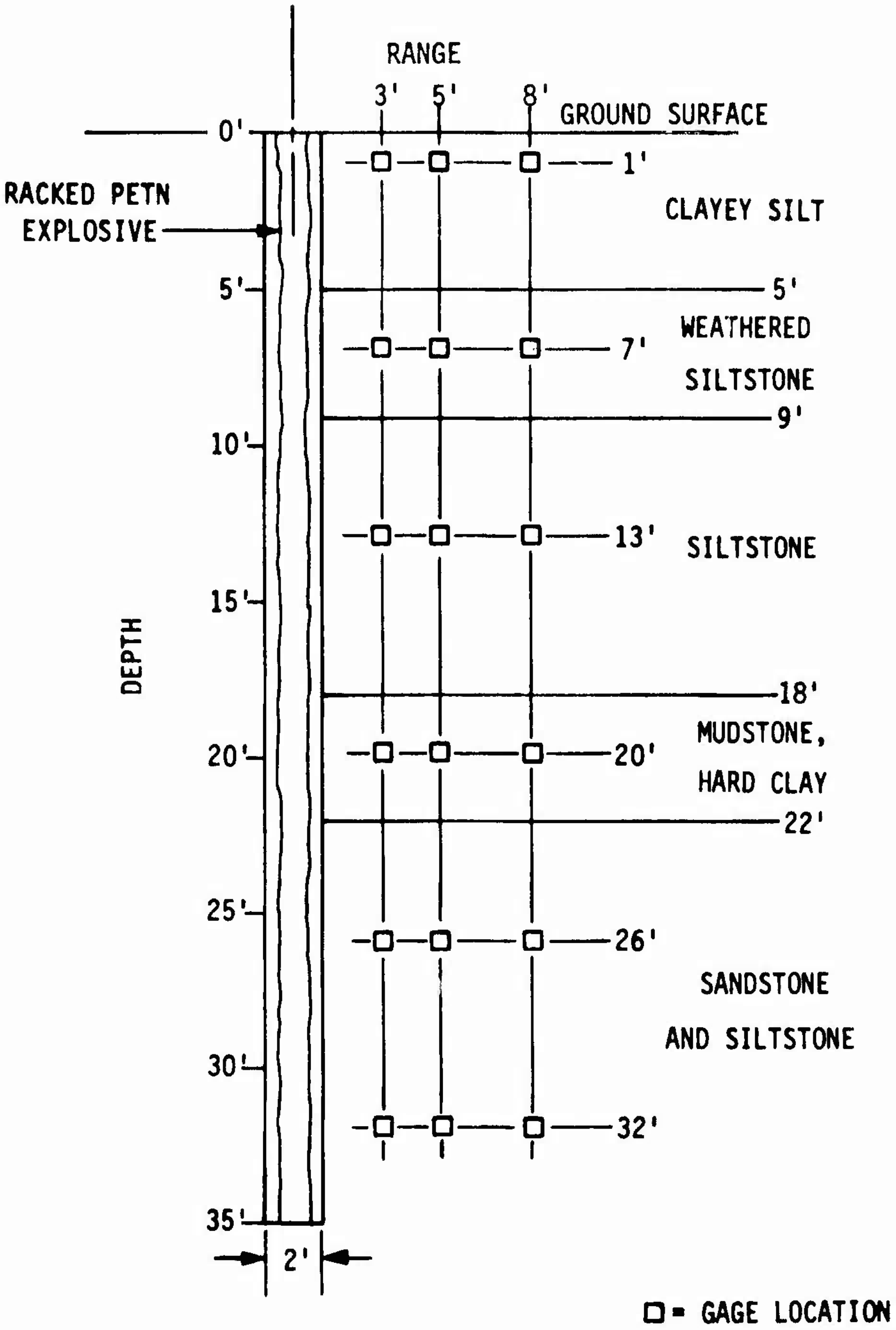


Figure 12. Cross Section of Hole and Gage Configuration with Geological Stratification, CIST 2

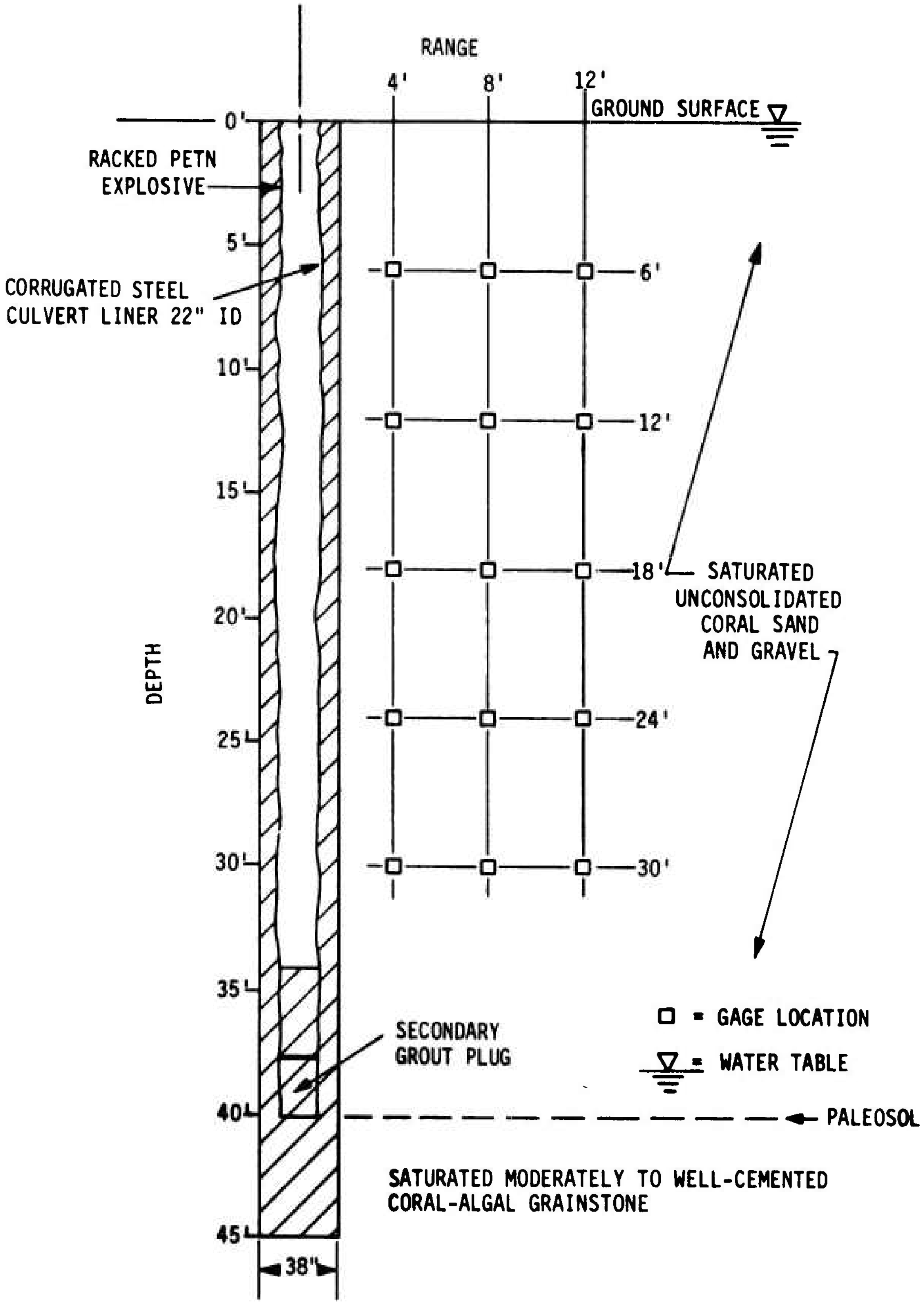


Figure 13. Cross Section of Hole and Gage Configuration with Geological Stratification, CIST 10 (ref. 5)

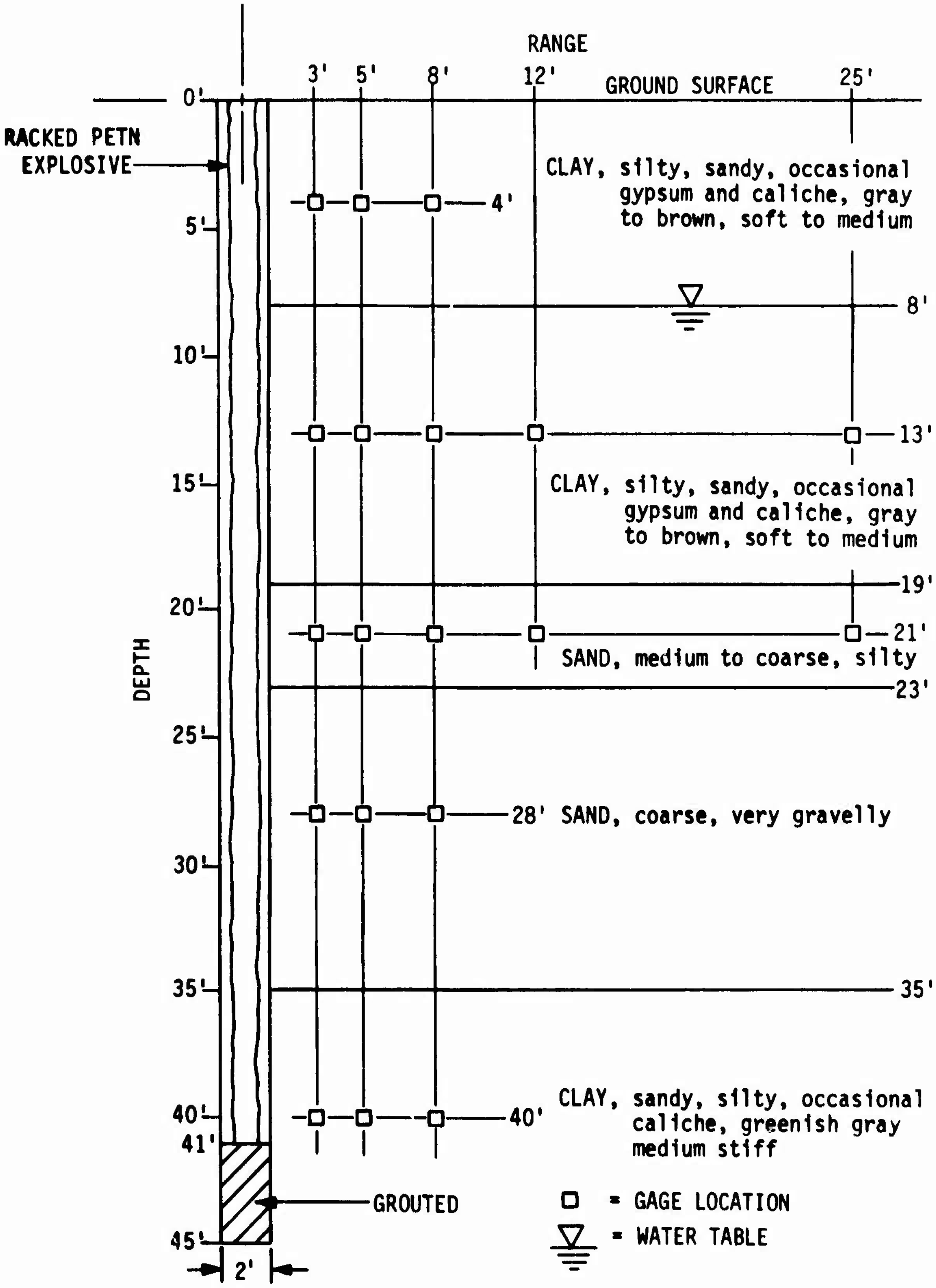


Figure 14. Cross Section of Hole and Gage Configuration with Geological Stratification, CIST 15

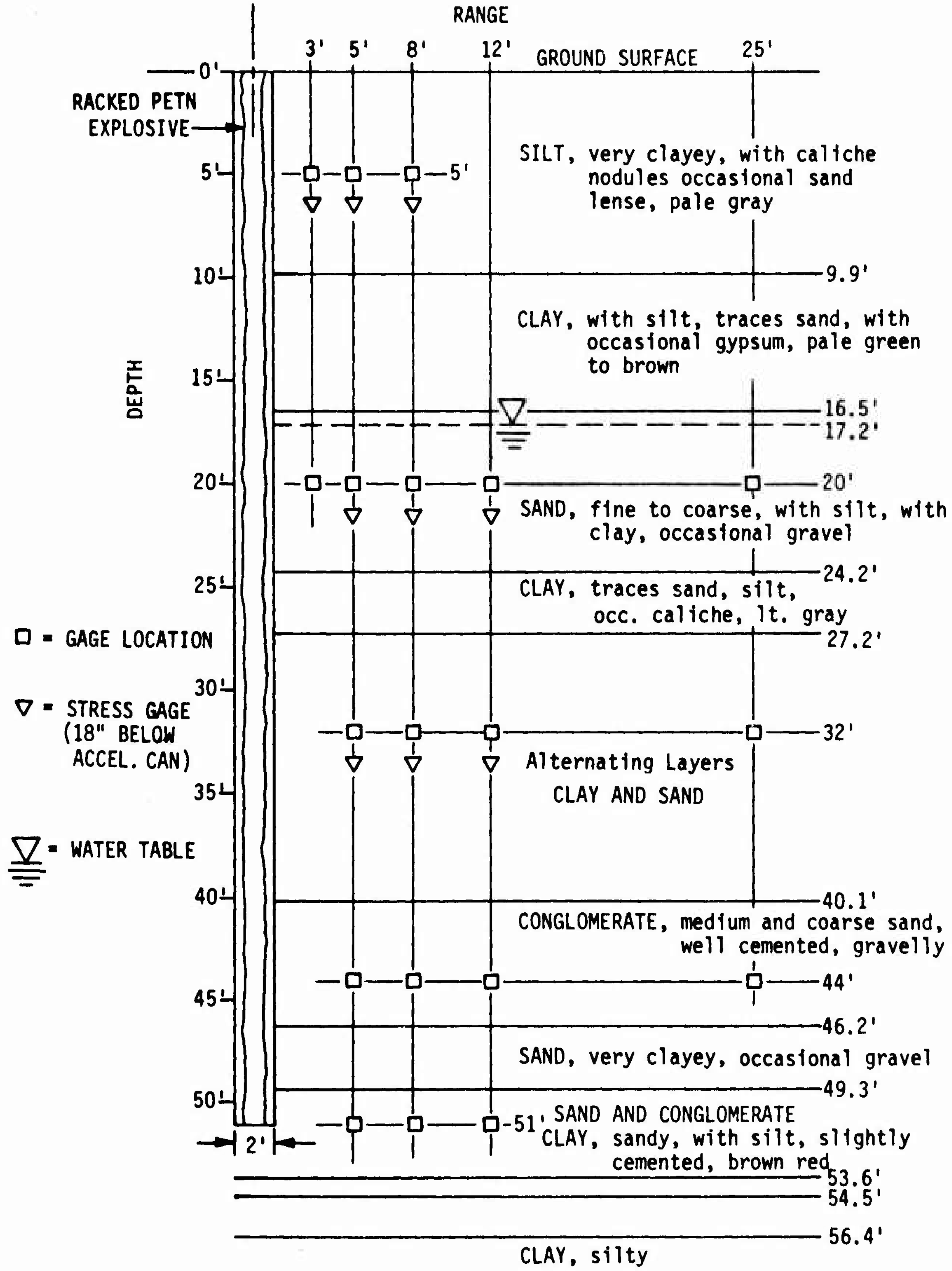


Figure 15. Cross Section of Hole and Gage Configuration with Geological Stratification, CIST 16

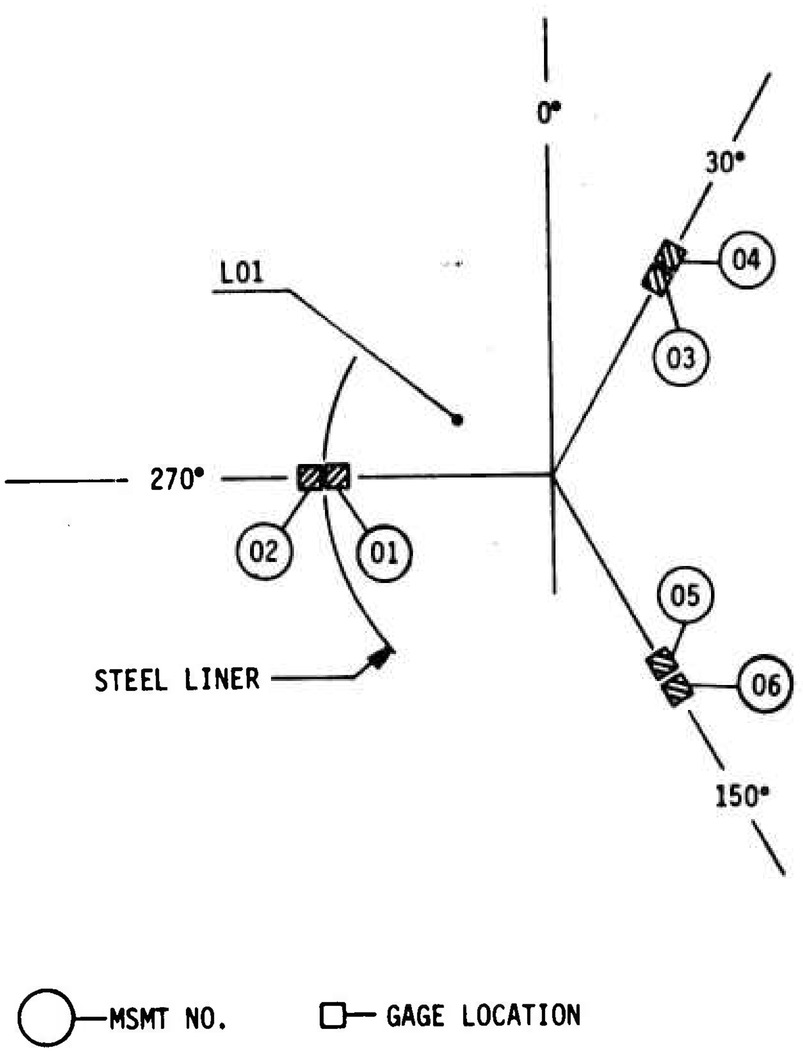


Figure 16. Cavity Pressure Measurement Locations, CIST 15

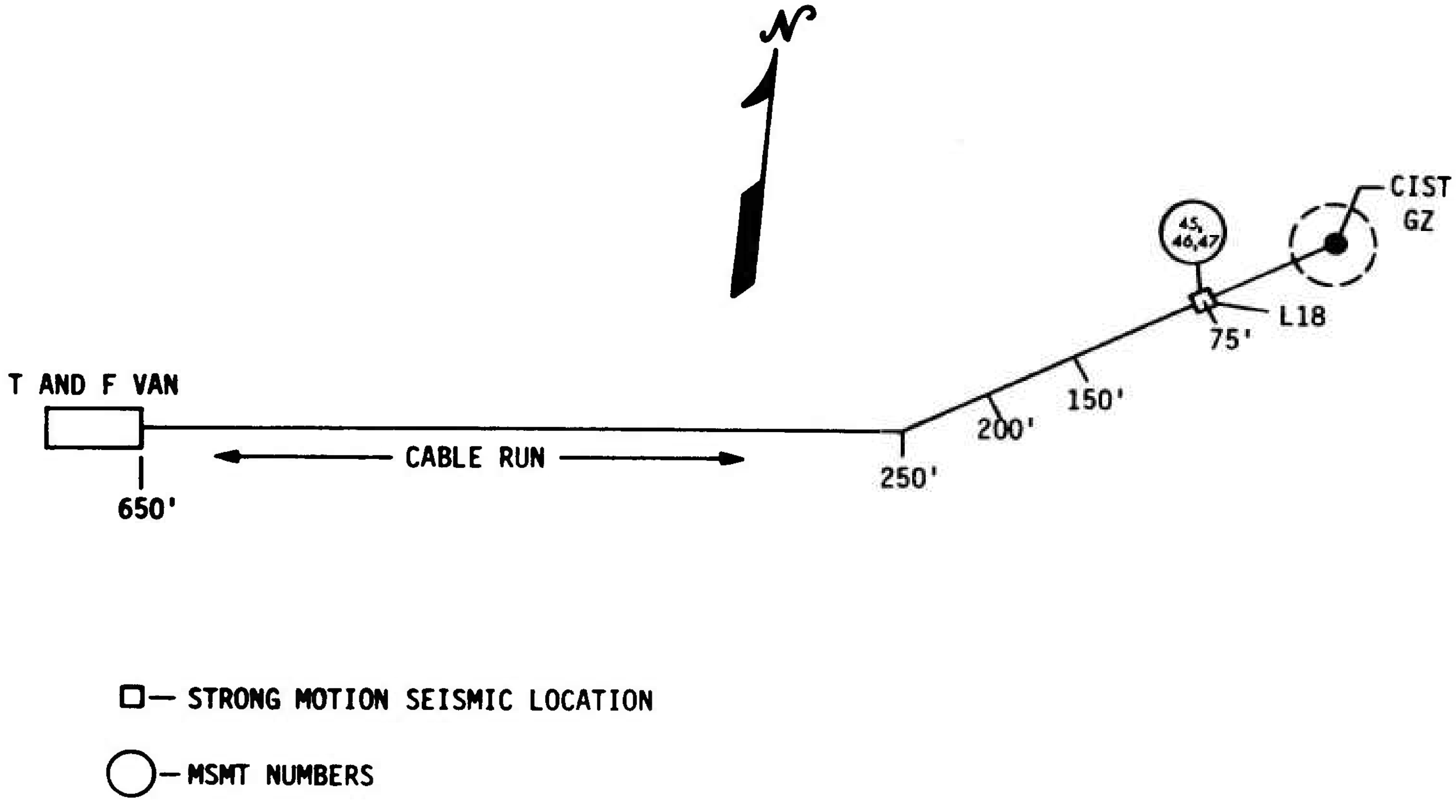


Figure 17. Seismic Stations and Van Location, CIST 15

Kulite Model HKS-5-375-10K piezoresistive pressure transducers were employed to make cavity pressure measurements. The transducers were placed inside filter modules in order to protect the transducers from high pressure spikes and alien debris. The modules were installed downhole attached to a section of ½-inch-diameter pipe and oriented vertically at the prescribed depths.

The installation procedures for the free field canisters on CIST events have been standardized. The instrument canister was identified, electrically inspected, and then attached to the first segment of the placement tool. A placement tool is used for holding and aligning the gage during placement. The placement tool was positively locked in place at the proper depth, and then rotated to correct for azimuthal offset. Accurate placement was achieved by using a cross-hair scope to sight in on ground zero (GZ). After proper positioning was assured, the gages were electrically inspected, and the backfilling operation was started. Instrument holes greater than 8-feet deep were backfilled with a pumpable soil grout. The grout pipe was placed below the bottom of the canister and the injection was started. Grout was pumped to cover the top of the instrument canister by 4 to 5 inches, and the grout pipe was progressively raised as the fill rose. When the proper amount of material had been injected, the grout pipe was removed. After initial set occurred in the backfill, the placement tool was disengaged and removed from the hole. The grout pipe was reinserted and continuous fill was made until the next instrument level was reached. This placement technique was used for all canisters. The density of the grout was changed to match the properties of the soil as the different earth material levels were reached.

Grouting continued up to the level where material properties cannot be matched by the soil slurry, which is nominally the upper few feet of recompacted and weathered material. The grout pipe was removed at this point. Canisters in the upper material were locally grouted in place and then backfilled with hand-tamped native material.

Timing, firing and data recording were done in the AFWL CIST instrumentation van which has been specifically designed to support such a test. The CIST field crew, which has conducted numerous prior tests of a similar nature, consists of a project leader from the Civil Engineering Research Division, Air Force Weapons Laboratory (AFWL/DE), a driller and helper from Waterways Experiment Station (WES) who drill the explosive and instrumentation holes with WES equipment, technical support personnel from the Civil Engineering Research Facility who provide explosive array fabrication and installation, and who also design and emplace soil matching grout for gage installations; electronic technicians from AFWL/DE who install and hook up instrumentation, record the data and provide quality control, and finally a safety officer from the Air Force Special Weapons Center (AFSWC). A more comprehensive description of the explosive assembly, instrumentation and field operations is included in the General Test Plan for the CIST program (ref. 1).

SECTION III

EXPERIMENTAL RESULTS

1. DATA PROCESSING

Data from accelerometer and pressure transducers are recorded on analog magnetic recording tape. Analog data are first digitized at a frequency comparable to about five times the bandwidth of the recording channel. For dry sites the digitization rate is 20 kHz, whereas for wet sites 100 kHz is generally used. The digitized accelerometer records are corrected for base-line shift when necessary and integrated to give particle velocity and displacement time histories.

Each data trace is identified at its top center by a measurement designation number. The measurement designation number consists of eight alphanumeric designators in the following form:

```
X - X - XXX - XX.X - XXX - X.X - XX - X
1   2    3     4      5     6    7    8
```

(1) The first character indicates the organization that established the measurement required:

F - AFWL (Free Field) (DEV-F)

(2) The second character denotes the method of data acquisition:

E - Electronic

(3) The third set of characters indicates the plan location of the free field measurement. L01 refers to hole number one.

(4) The fourth set of characters indicates the depth (in feet) of the transducer below the surface.

(5) The fifth designator indicates the azimuth, in degrees from North (0°), of the radial on which the measurement is made.

(6) The sixth set of characters indicates the radial distance in feet from GZ, to the center of the transducer.

(7) The seventh set of characters specifies the type of measurement being made:

A - Acceleration	SE - Stress
CP - Cavity Pressure	ST - Strain
HS - High Stress	

(8) The last set of characters indicates the orientation of the sensing axis of the transducer:

R - Radial	HL - Horizontal Longitudinal
H - Horizontal	HT - Horizontal Transverse
V - Vertical	

Figure 18 illustrates the azimuth, range, depth, sign convention, and sensing axis of the free field transducers. A sample of the labelling system is given in figure 19.

The measurement lists and calibration values for the CIST events in this report are contained in tables 2, 3, 4 and 5. The calibration values are approximately equal to the predicted values. The acceleration measurement numbers are generally grouped according to range from ground zero; i.e., the 3-foot-range gages are presented first, then the 5-foot and greater range gages. The cavity pressure measurements are presented prior to accelerometer measurements while other measurement designations are given last. Since the measurement designation for each data record is included on the time-history plots in the appendixes, the tables are useful in identifying the particular gage type and calibration value associated with a particular data trace.

2. RESULTS

Plots of data from the CIST 2, 10, 15 and 16 experiments are presented in appendixes A, B, C, and D. Some of the data traces have been truncated so that gage and/or cable failures would not cause the usable portion of the data to be scaled so small as to be useless. Some baseline shifting was necessary for accelerometer time histories. It is apparent that more may be required. Each data plot contains acceleration, velocity, and displacement versus time. The latter two time histories are generated from integrations of the accelerometer record.

The order of presentation of calcomp plots in the appendixes is by depth. For each value of depth, plots are arranged in order of increasing range (3, 5,

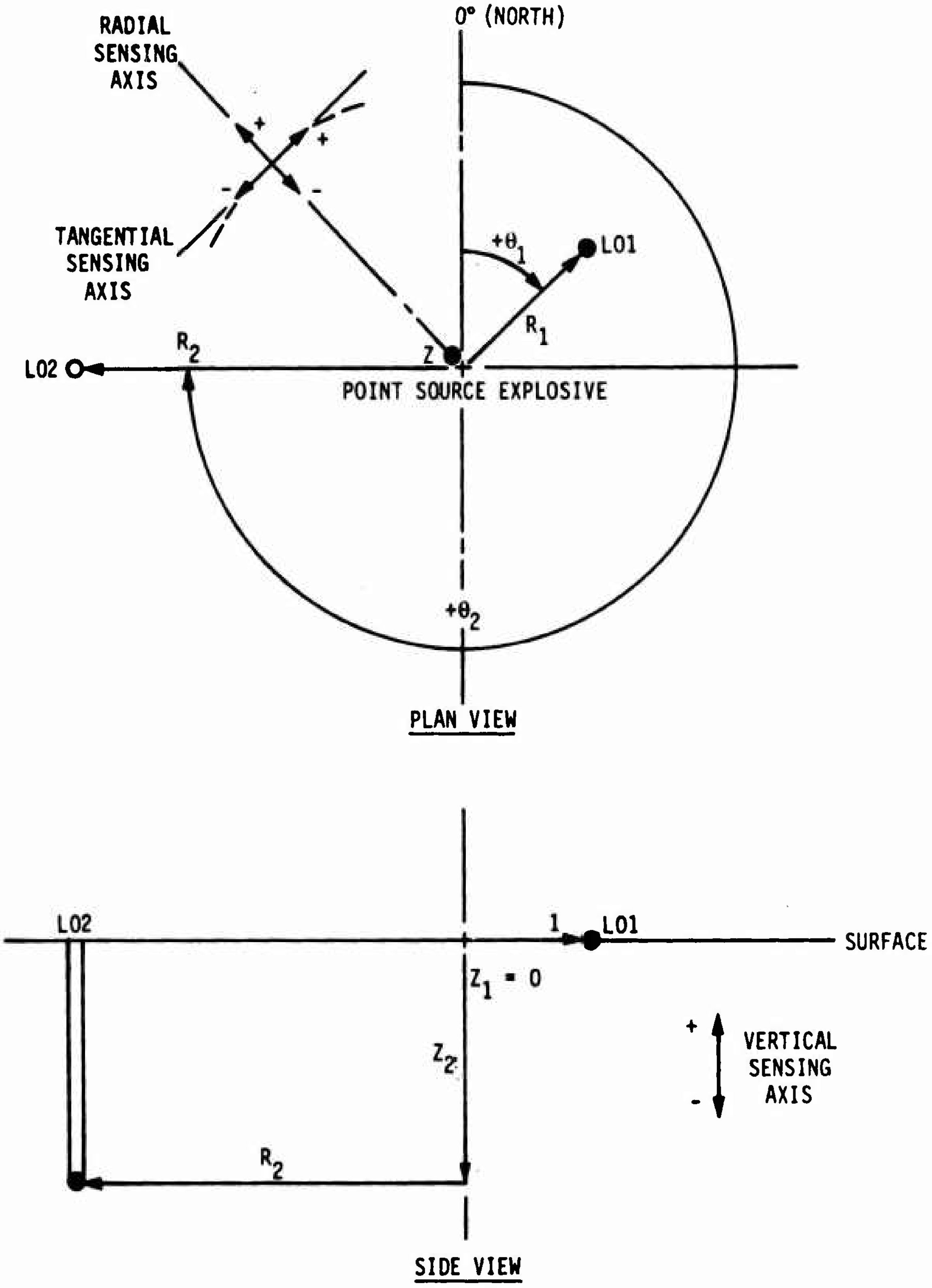


Figure 18. Definition of Angle θ for Transducers in the Free Field

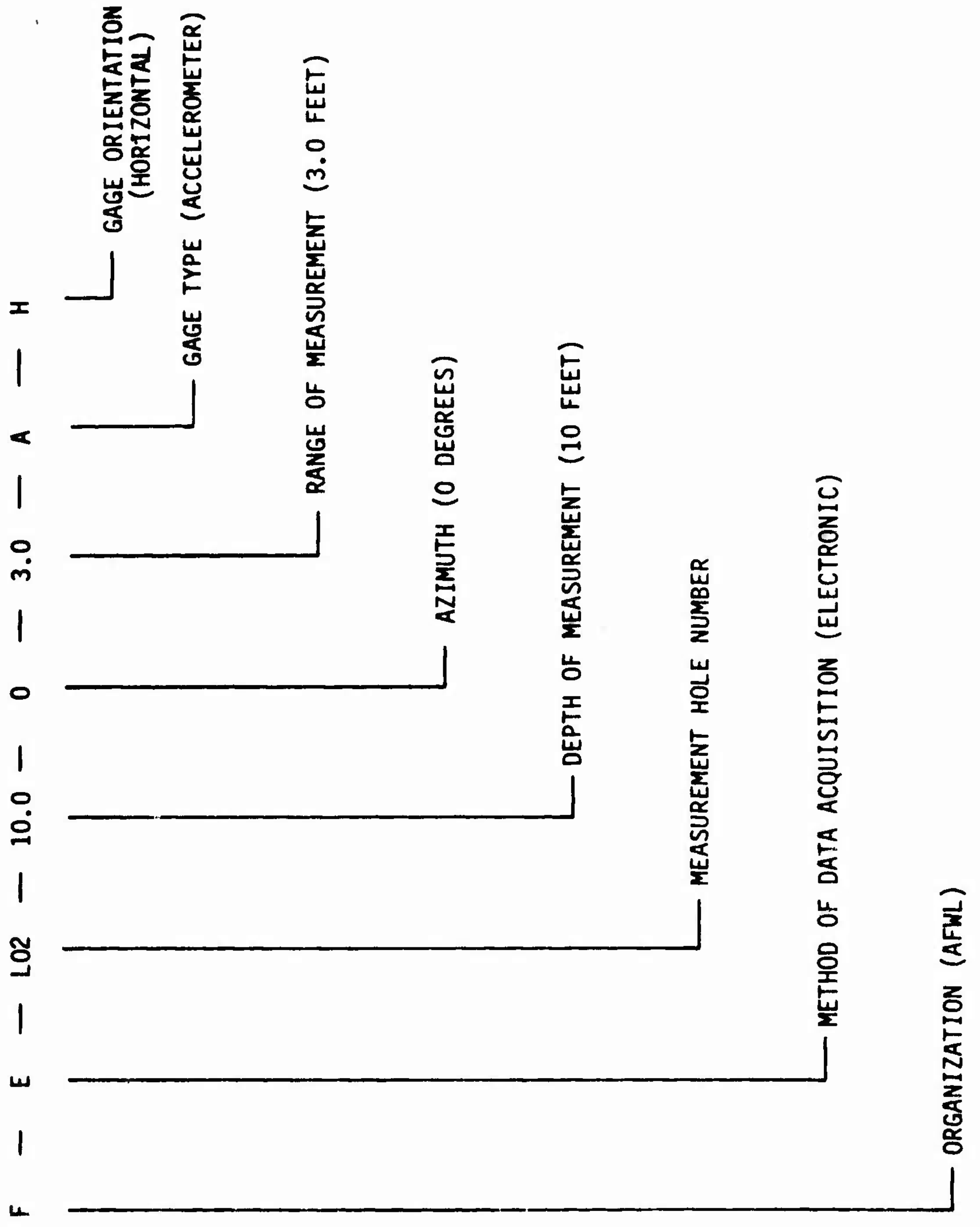


Figure 19. Sample of the Labelling System

Table 2

CIST 2 MEASUREMENT LIST AND CALIBRATION VALUES

Measurement No.	Measurement Designation	Calibration Value
01	F-E-L01-4.0-120-1.0-CP-R	6,948 psi
02	F-E-L01-4.0-240-1.0-CP-R	6,823 psi
03	F-E-L02-1.0-20-3.0-A-V	5,180g
04	F-E-L02-1.0-20-3.0-A-R	5,320g
05	F-E-L02-7.0-20-3.0-A-R	10,300g
06	F-E-L02-13.0-20-3.0-A-R	31,600g
07	F-E-L03-20.0-120-3.0-A-R	29,700g
08	F-E-L03-26.0-120-3.0-A-R	31,600g
09	F-E-L03-32.0-120-3.0-A-V	32,600g
10	F-E-L03-32.0-120-3.0-A-R	29,000g
11	F-E-L04-1.0-260-5.0-A-V	936g
12	F-E-L04-1.0-260-5.0-A-R	1,061g
13	F-E-L04-7.0-260-5.0-A-R	2,860g
14	F-E-L04-13.0-260-5.0-A-R	20,300g
15	F-E-L05-20.0-0-5.0-A-R	19,500g
16	F-E-L05-26.0-0-5.0-A-R	19,100g
17	F-E-L05-32.0-0-5.0-A-V	18,900g
18	F-E-L05-32.0-0-5.0-A-R	21,400g
19	F-E-L07-1.0-120-8.0-A-V	206g
20	F-E-L07-1.0-120-8.0-A-R	209g
21	F-E-L07-7.0-120-8.0-A-R	517g
22	F-E-L07-13.0-120-8.0-A-R	4,750g
23	F-E-L08-20.0-240-8.0-A-R	5,540g
24	F-E-L08-26.0-240-8.0-A-R	5,180g
25	F-E-L08-32.0-240-8.0-A-V	5,530g
26	F-E-L08-32.0-240-8.0-A-R	5,250g
27	F-E-L06-7.0-140-5.0-HS-R	800 psi
28	F-E-L06-13.0-140-5.0-HS-R	800 psi

Table 3

CIST 10 MEASUREMENT LIST AND CALIBRATION VALUES

Measurement No.	Measurement Designation	Calibration Value
01	F-E-L01-12.5-180-1.0-CP-R	5,000 psi
02	F-E-L02-6.0-0.0-4.0-A-V	10,000g
03	F-E-L02-6.0-0.0-4.0-A-H	20,000g
04	F-E-L02-12.0-0.0-4.0-A-V	10,000g
05	F-E-L02-12.0-0.0-4.0-A-H	20,000g
06	F-E-L02-18.0-0.0-4.0-A-V	10,000g
07	F-E-L02-18.0-0.0-4.0-A-H	20,000g
08	F-E-L02-24.0-0.0-4.0-A-H	20,000g
09	F-E-L03-12.0-60.0-4.0-A-H	20,000g
10	F-E-L03-24.0-60.0-4.0-A-V	10,000g
11	F-E-L03-24.0-60.0-4.0-A-H	20,000g
12	F-E-L03-30.0-60.0-4.0-A-V	10,000g
13	F-E-L03-30.0-60.0-4.0-A-H	20,000g
14	F-E-L04-6.0-120-8.0-A-V	1,500g
15	F-E-L04-6.0-120-8.0-A-H	3,000g
16	F-E-L04-12.0-120-8.0-A-V	1,500g
17	F-E-L04-12.0-120-8.0-A-H	3,000g
18	F-E-L04-18.0-120-8.0-A-V	2,000g
19	F-E-L04-18.0-120-8.0-A-H	4,000g
20	F-E-L04-24.0-120-8.0-A-H	4,000g
21	F-E-L05-12.0-180-8.0-A-H	3,000g
22	F-E-L05-23.0-180-8.0-A-V	2,000g
23	F-E-L05-23.0-180-8.0-A-H	4,000g
25	F-E-L05-30.0-180-8.0-A-H	4,000g
26	F-E-L06-6.0-240-12.0-A-V	300g
27	F-E-L06-6.0-240-12.0-A-H	750g
28	F-E-L06-12.0-240-12.0-A-V	300g
29	F-E-L06-12.0-240-12.0-A-H	750g
30	F-E-L06-16.0-240-12.0-A-V	500g
31	F-E-L06-16.0-240-12.0-A-H	1,000g
32	F-E-L06-24.0-240-12.0-A-H	1,000g
33	F-E-L07-12.0-300-12.0-A-H	750g

Table 3

CIST 10 MEASUREMENT LIST AND CALIBRATION VALUES (Continued)

Measurement No.	Measurement Designation	Calibration Value
34	F-E-L07-24.0-300-12.0-A-V	500g
35	F-E-L07-24.0-300-12.0-A-H	1,000g
37	F-E-L07-30.0-300-12.0-A-H	1,000g

Table 4

CIST 15 MEASUREMENT LIST AND CALIBRATION VALUES

Measurement No.	Measurement Designation	Calibration Value
01	F-E-L01-12.5-270-1.0-CP-V	4,734.8 psi
02	F-E-L01-12.5-270-1.0-CP-H	5,137.9 psi
03	F-E-L01-12.5-30-1.0-CP-V	4,786.3 psi
04	F-E-L01-12.5-30-1.0-CP-H	5,011.1 psi
05	F-E-L01-12.5-150-1.0-CP-V	4,698.3 psi
06	F-E-L01-12.5-150-1.0-CP-H	3,398.4 psi
07	F-E-L02-4.0-0.0-3.0-A-V	3,971.3g
08	F-E-L02-4.0-0.0-3.0-A-H	6,949.0g
10	F-E-L02-21.0-0.0-3.0-A-V	7,695.0g
11	F-E-L02-21.0-0.0-3.0-A-H	13,421.0g
12	F-E-L03-28.0-45.0-3.0-A-H	10,589.0g
13	F-E-L03-40.0-45.0-3.0-A-V	9,043.0g
14	F-E-L03-40.0-45.0-3.0-A-H	13,060.0g
15	F-E-L04-4.0-90.0-5.0-A-V	2,030.0g
16	F-E-L04-4.0-90.0-5.0-A-H	3,568.0g
17	F-E-L04-13.0-90.0-5.0-A-H	6,982.0g
18	F-E-L04-21.0-90.0-5.0-A-V	4,712.0g
19	F-E-L04-21.0-90.0-5.0-A-H	6,207.0g
20	F-E-L05-28.0-135-5.0-A-H	6,914.1g
21	F-E-L05-40.0-135-5.0-A-V	4,660.0g
22	F-E-L05-40.0-135-5.0-A-H	8,940.0g
23	F-E-L06-4.0-180--8.0-A-V	846.0g
24	F-E-L06-4.0-180-8.0-A-H	1,159.0g
25	F-E-L06-13.0-180-8.0-A-H	5,271.0g
26	F-E-L06-21.0-180-8.0-A-V	1,394.0g
27	F-E-L06-21.0-180-8.0-A-H	3,319.0g
28	F-E-L07-28.0-225-8.0-A-H	2,509.0g
29	F-E-L07-40.0-225-8.0-A-V	3,099.0g
30	F-E-L07-40.0-225-8.0-A-H	5,621.0g
31	F-E-L08-13.0-270-12.0-A-H	2,172.0g
32	F-E-L08-21.0-270-12.0-A-V	908.6g

Table 4

CIST 15 MEASUREMENT LIST AND CALIBRATION VALUES (Continued)

Measurement No.	Measurement Designation	Calibration Value
33	F-E-L08-21.0-270-12.0-A-H	2,201.0g
34	F-E-L09-13.0-315-25.0-A-H	501.0g
35	F-E-L09-21.0-315-25.0-A-V	306.6g
36	F-E-L09-21.0-315-25.0-A-H	488.0g
37	F-E-L10-4.0-60.0-5.0-ST-H	
38	F-E-L11-4.0-75.0-5.0-SE-H	1,383 psi
40	F-E-L13-13.0-120-5.0-ST-H	
41	F-E-L14-4.0-160-8.0-ST-H	
42	F-E-L15-4.0-170-8.0-SE-H	457.5 psi
43	F-E-L16-13.0-190-8.0-SE-H	2,550.0 psi
44	F-E-L18-0.0-245-75.0-A-V	1.0g
45	F-E-L18-0.0-245-75.0-A-HL	1.0g
46	F-E-L18-0.0-245-75.0-A-HT	1.0g

Table 5

CIST 16 MEASUREMENT LIST AND CALIBRATION VALUES

Measurement No.	Measurement Designation	Calibration Value
01	FE-L01-13.75-15.0-1.0-CP-V	9,420.0 psi
02	FE-L01-13.75-0.0-1.0-CP-H	10,018.95 psi
03	FE-L01-13.75-30.0-1.0-CP-V	9,998.51 psi
05	FE-L02-5.0-0.0-3.0-A-V	6,061.0g
06	FE-L02-5.0-0.0-3.0-A-H	17,248.0g
07	FE-L05-20.0-90.0-3.0-A-V	5,869.0g
08	FE-L05-20.0-90.0-3.0-A-H	40,000.0g
08R	FE-L05-20.0-90.0-3.0-A-H	40,000.0g
09	FE-L03-5.0-30.0-5.0-A-V	2,681.0g
10	FE-L03-5.0-30.0-5.0-A-H	3,008.0g
11	FE-L06-20.0-120.0-5.0-A-V	16,630.0g
12	FE-L06-20.0-120.0-5.0-A-H	39,955.0g
12R	FE-L06-20.0-120.0-5.0-A-H	39,955.0g
14	FE-L10-32.0-240.0-5.0-A-H	40,034.0g
15	FE-L12-44.0-300.0-5.0-A-V	1,822.0g
16	FE-L12-44.0-300.0-5.0-A-H	31,418.0g
17	FE-L12-51.0-300.0-5.0-A-H	29,600.0g
17R	FE-L12-51.0-300.0-5.0-A-H	29,600.0g
18	FE-L04-5.0-60.0-8.0-A-V	979.0g
19	FE-L04-5.0-60.0-8.0-A-H	1,790.0g
20	FE-L07-20.0-150.0-8.0-A-V	9,808.0g
21	FE-L07-20.0-150.0-8.0-A-H	10,084.0g
21R	FE-L07-20.0-150.0-8.0-A-H	10,084.0g
23	FE-L11-32.0-270.0-8.0-A-H	19,349.0g
24	FE-L14-44.0-0.0-8.0-A-V	4,874.0g
25	FE-L14-44.0-0.0-8.0-A-H	10,363.0g
26	FE-L14-51.0-0.0-8.0-A-H	30,330.0g
26R	FE-L14-51.0-0.0-8.0-A-H	30,330.0g
27	FE-L08-20.0-180.0-12.0-A-V	4,921.0g
28	FE-L08-20.0-180.0-12.0-A-H	10,735.0g
29	FE-L13-32.0-330.0-12.0-A-H	9,062.0g
30	FE-L15-44.0-30.0-12.0-A-V	3,050.0g

R = Redundant Measurement

Table 5

CIST 16 MEASUREMENT LIST AND CALIBRATION VALUES (Continued)

Measurement No.	Measurement Designation	Calibration Value
31	FE-L15-44.0-30.0-12.0-A-H	5,087.0g
32	FE-L15-51.0-30.0-12.0-A-H	17,550.0g
33	FE-L09-19.0-210.0-25.0-A-V	919.0g
34	FE-L09-19.0-210.0-25.0-A-H	3,066.0g
35	FE-L09-31.0-210.0-25.0-A-H	3,015.0g
36	FE-L09-43.0-210.0-25.0-A-V	1,003.0g
37	FE-L09-43.0-210.0-25.0-A-H	3,109.0g
38	FE-L02-7.5-0.0-3.0-SE-H	1,992.0 psi
39	FE-L03-7.5-30.0-5.0-SE-H	1,046.0 psi
40	FE-L04-7.5-60.0-8.0-SE-H	508.9 psi
41	FE-L06-22.5-120.0-5.0-SE-H	3,684.8 psi
42	FE-L07-22.5-150.0-8.0-SE-H	3,715.0 psi
44	FE-L10-34.5-240.0-5.0-SE-H	3,832.0 psi
45	FE-L11-34.5-270.0-8.0-SE-H	4,780.0 psi
47	FE-L16-0.0-15.0-60.0-A-HL	3.5g
48	FE-L16-0.0-15.0-60.0-A-HT	3.5g
49	FE-L16-0.0-15.0-60.0-A-VT	10.0g
50	FE-L17-0.0-15.0-90.0-A-HL	1.0g
51	FE-L17-0.0-15.0-90.0-A-HT	1.0g
52	FE-L17-0.0-15.0-90.0-A-VT	3.7g
53	FE-L18-0.0-15.0-120.0-A-HL	0.5g
54	FE-L18-0.0-15.0-120.0-A-HT	0.5g
55	FE-L18-0.0-15.0-120.0-A-VT	2.0g

8, 12 and 25 feet from ground zero, respectively). Any earth pressure (soil stress) and cavity pressure time histories are presented last for each event. The amplitudes of the data plots for the time histories of the measurements were automatically scaled by a computer plot routine. The time axis was scaled at 4 milliseconds per inch, and records were carried to 24 milliseconds. Records have been generated to times as great as 100 milliseconds so that late time motions can be studied. The 100 msec plots have not been included in this report, however.

Tabulated horizontal accelerometer data from CIST 2, CIST 10, CIST 15 and CIST 16 are presented in tables 6, 7, 8 and 9. The initial wave arrival time, peak acceleration, and peak velocity are shown for individual gage locations. Both the first peak velocity and the maximum peak velocity are tabulated for CISTS 10, 15 and 16. The distinction between them is shown in figure 20. Often the first peak and the ultimate peak are equal due to the form of the trace. In some cases the ultimate peak velocity had not been reached by 100 msec in which case the value at 100 msec was tabulated.

Log-log plots of peak acceleration versus range for the four events are shown in figures 21 through 24. Upper and lower data bounds are drawn to indicate the degree of data variation for each test event as well as the general rate of attenuation. From past experience with other tests at other locations a slower attenuation rate (flatter slope) indicates stiffer materials or a higher degree of saturation. Propagation velocities of the wave front can be obtained from the tabulated data for any specific layer at a given CIST location by plotting arrival time versus range from the edge of the explosive cavity and computing the inverse slope. Variations or comparisons of other characteristics associated with the acceleration, velocity, and displacement waveforms can be obtained by analysis of individual records presented in the appendixes.

3. CRATERING

The explosive cavity for CIST events is not capped. The events produce a dust cloud ranging up to approximately 300 feet altitude and an ejecta field which varies with azimuth out to a distance of approximately 700 feet.

For each experiment, the resulting crater was measured with a steel tape to determine its size. Average radius and depth for each crater are given in table 10. It must be noted that due to the irregular shapes of most craters, the dimensions given represent average values.

Table 6

EXPERIMENTAL DATA FROM CIST 2

Depth ft	Range ft	Arrival Time msec	Peak Acceleration g	Peak Velocity ft/sec
1	3	0.55	1130	34.0
	5	1.20	68	5.65
	8	1.5	42	1.84
7.0	3	0.32	1800	6.0
	5	0.40	2820	3.8
	8	0.60	400	2.3
13	3	0.32	3300	25.0
	5	0.375	1500	4.3
	8	0.62	460	1.62
20	3	0.22	2040	No Peak
	5	0.35	960	4.85
	8	0.52	600	1.6
26	3	0.36	5800	13.0
	5	0.60	3000	No Peak
	8	1.05	260	2.3
32	3	0.44	3400	9.0
	5	0.55	360	22.0
	8	0.85	290	1.1

Table 7

EXPERIMENTAL DATA FROM CIST 10

Depth ft	Range ft	Arrival Time msec	Peak Acceleration g	First Peak Velocity fps	Max Peak Velocity fps
6	4	0.65	7,000	No Data	No Data
	8	1.12	2,800	6.9	12.0
	12	1.95	1,400	8.0	14.0
12	4	0.7	9,600	16.0	>110.0
	8	1.25	4,000	16.3	>46.0
	12	2.10	No Data	No Data	No Data
18	4	0.75	12,500	20.0	120.0
	8	1.35	3,350	14.0	38.0
	12	2.05	2,500	13.0	>33.0
24	4	0.65	11,200	14.5	110.0
	8	1.30	4,300	15.4	18.0
	12	2.0	2,400	14.0	14.5
30	4	0.70	No Data	No Data	No Data
	8	1.15			
	12	2.1			

Table 8

EXPERIMENTAL DATA FROM CIST 15

Depth ft	Range ft	Arrival Time msec	Peak Acceleration g	First Peak Velocity fps	Max Peak Velocity fps
4	3	1.95	16,200	100	100
	5	5.0	3,120	44.0	44.0
	8	9.8	390	13.8	13.8
13	5	0.96	14,000	Noise	Noise
	8	1.38	21,000	Br	Br
	12	2.0	6,500	Br	Br
	25	4.25	1,200	7.0	7.0
21	3	0.37	15,500	29	66.0
	5	0.77	16,300	24	134.0
	8	1.25	10,600	BE	BE
	12	1.90	5,300	Br	Br
	25	3.60	815	4.0	6.05
28	3	0.40	39,000	Br	Br
	5	0.83	24,000	BE	BE
	8	1.05	4,500	Br	Br
40	3	0.37	42,000	Br	Br
	5	0.88	33,000	Cable	Cable
	8	1.26	1,500	2.8	2.8

Legend:
Br - Broken Gage
BE - Band Edge
Noise - Noisy Trace
Cable - Cable Problem

Table 9

EXPERIMENTAL DATA FROM CIST 16

Depth ft	Range ft	Arrival Time msec	Peak Acceleration g	First Peak Velocity fps	Max Peak Velocity fps
5	3	1.83	5,000	80	80
	5	4.0	1,770	49.6	49.6
	8	5.5	180	20.4	20.4
20	3	0.40	19,800	37.5	83.0
	5	0.70	6,900	13.0	20.0
	8	1.2	4,500	10.6	13.0
	12	1.75	730	5.1	20.2
	25	3.35	160	2.7	3.38
32	5	0.78	9,000	18.6	39.2
	8	1.10	4,700	12.5	30.8
	12	1.83	3,330	9.5	12.3
	25	3.50	480	6.35	6.5
44	5	0.50	2,400	7.2	14.7
	8	0.63	1,060	1.3	9.8
	12	1.05	270	3.9	4.2
	25	2.25	130	3.7	3.7
51	5	0.80	12,800	22.5	22.5
	8	1.23	4,450	15.2	15.2
	12	1.75	2,330	7.0	8.2

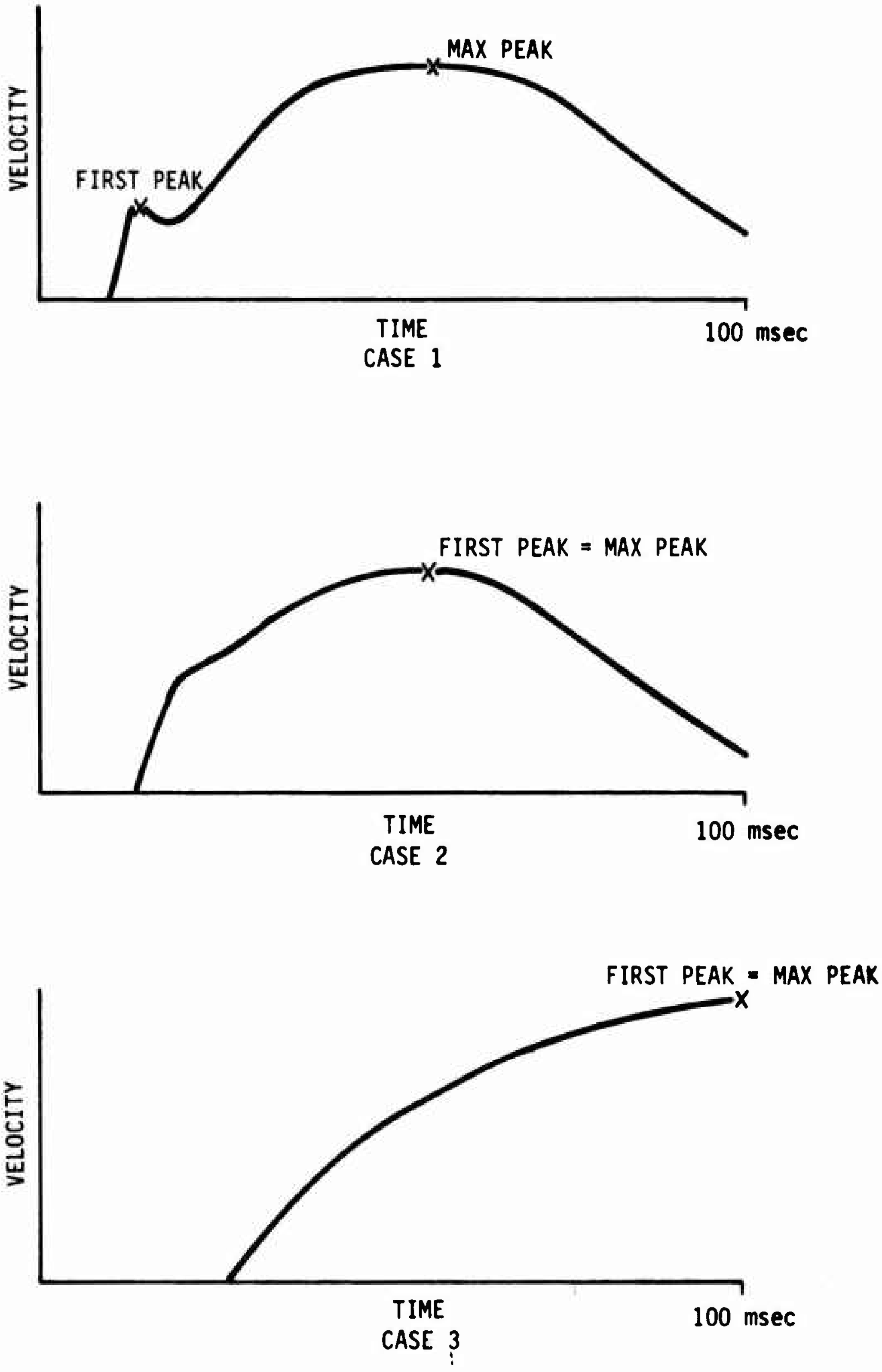


Figure 20. Definition of Tabulated Velocities

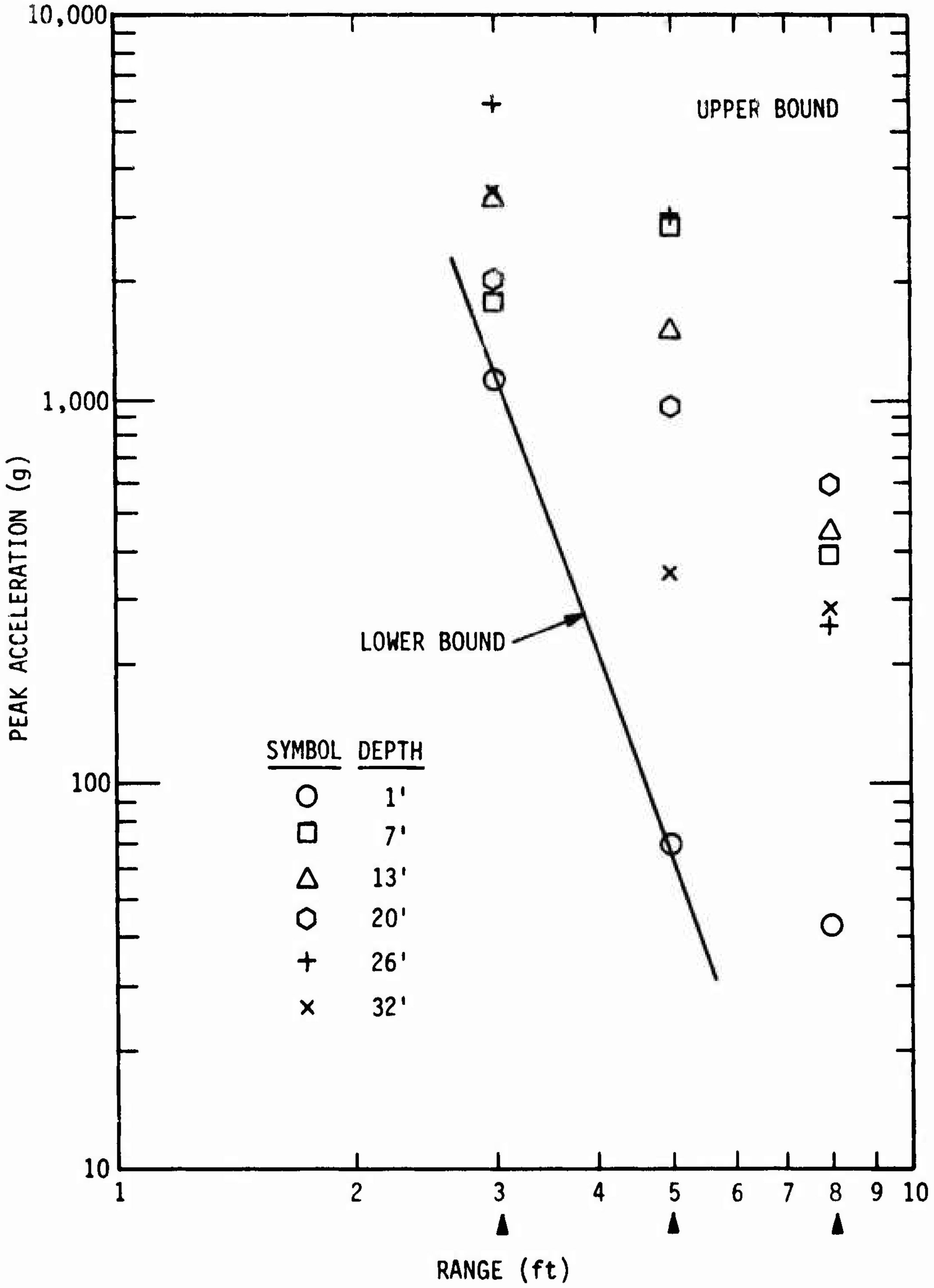


Figure 21. Peak Acceleration Versus Range, CIST 2

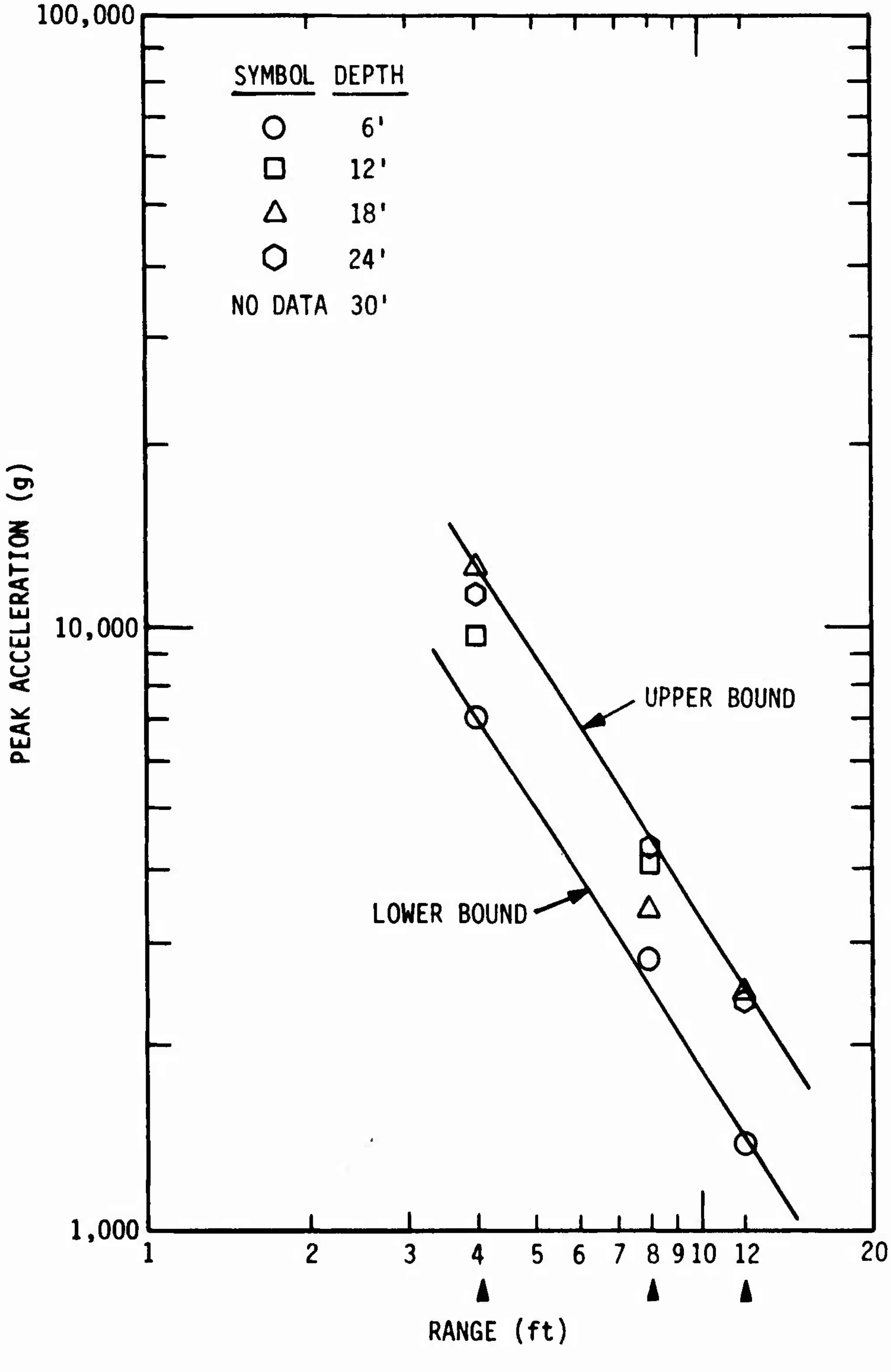


Figure 22. Peak Acceleration Versus Range, CIST 10

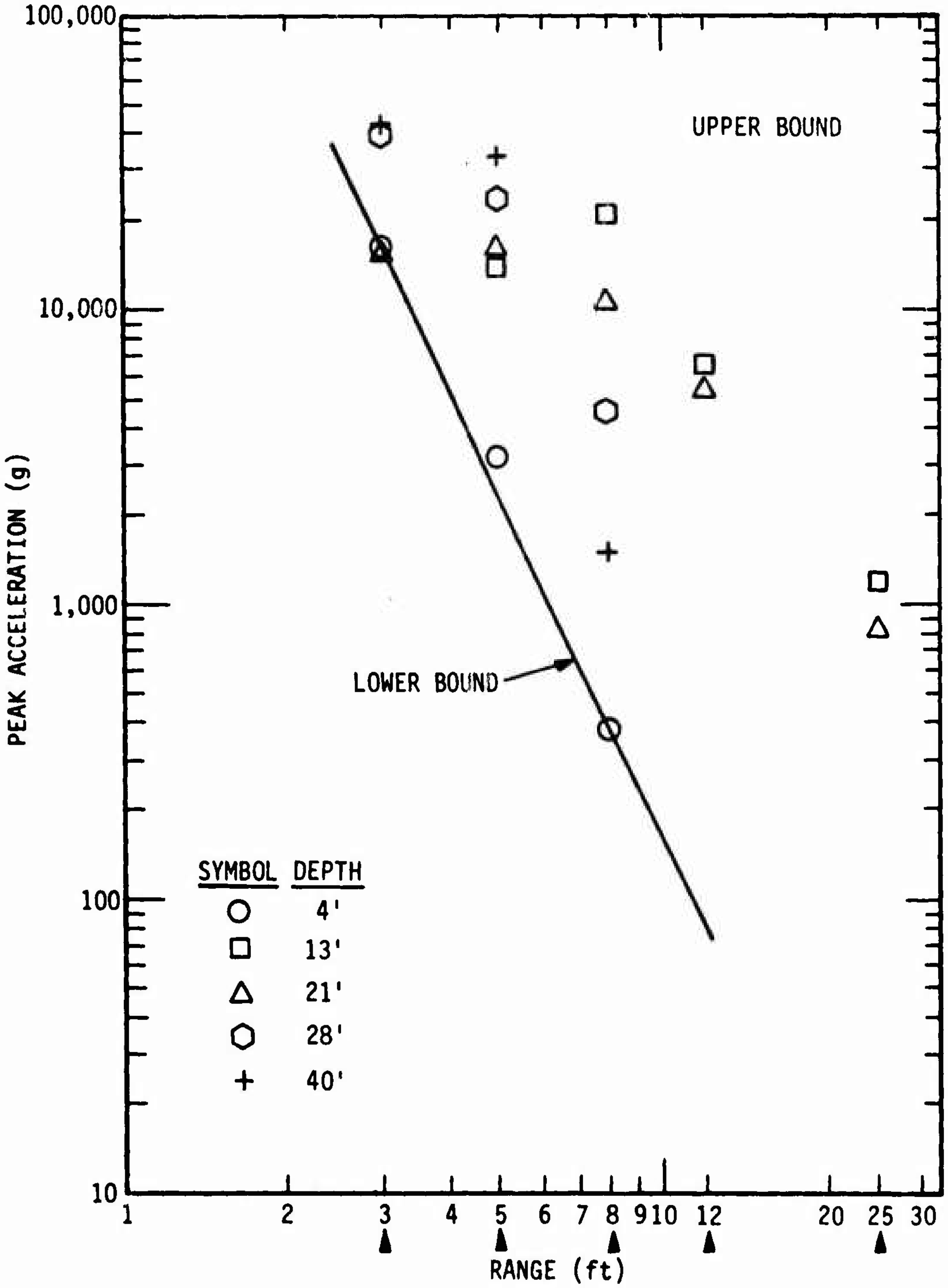


Figure 23. Peak Acceleration Versus Range, CIST 15

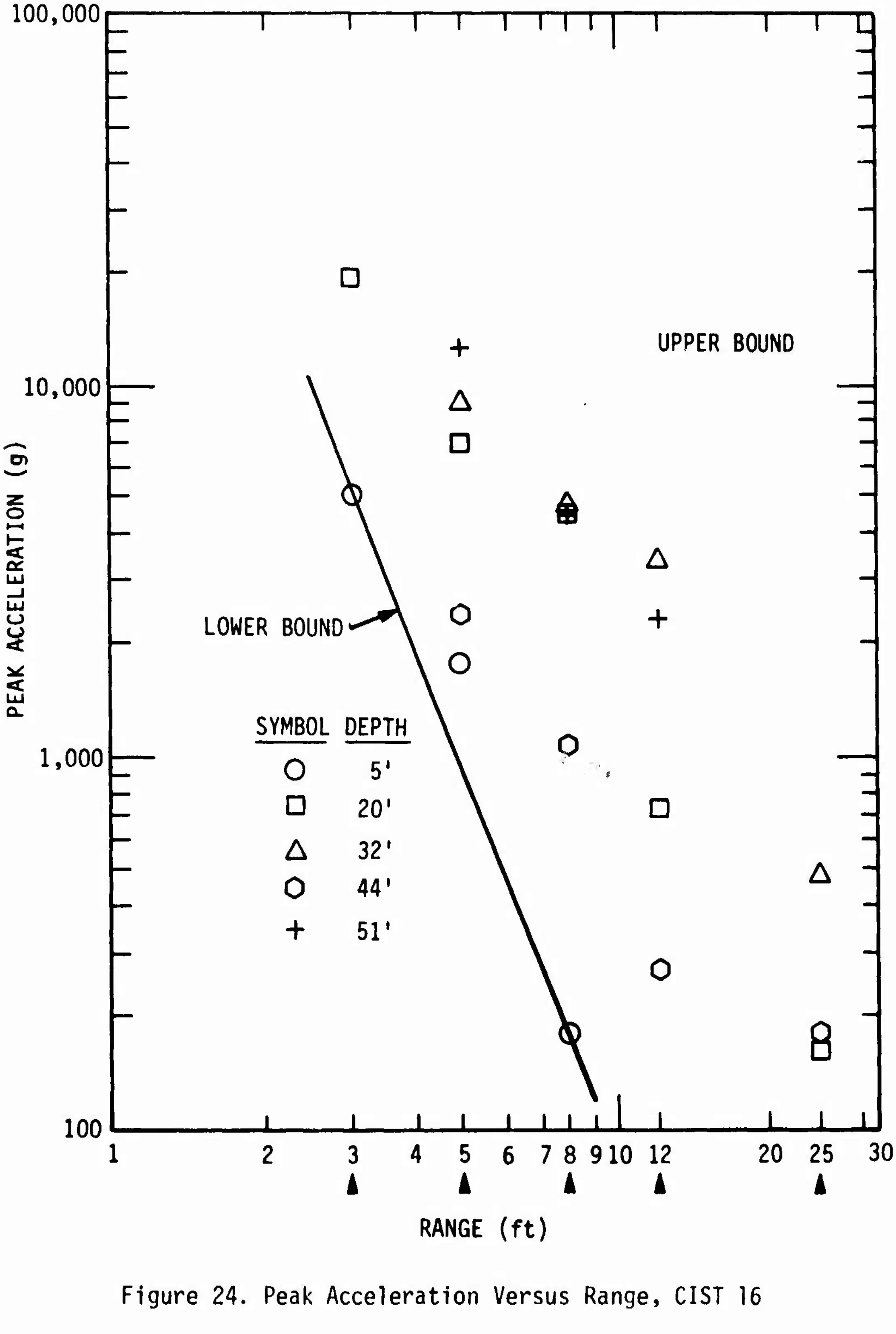


Figure 24. Peak Acceleration Versus Range, CIST 16

Table 10

CRATER DIMENSIONS

Event	Radius (Avg) (ft)	Depth (Avg) (ft)
CIST 2	8	2.67
CIST 10	12	7.4
CIST 15	13	8.0
CIST 16	8	12.0

4. ANALYSIS

The accelerometer time histories are used to determine initial wave arrival times and peaks. Plots of initial arrival time versus range from ground zero are made to determine stress wave propagation velocities in each of the geologic layers penetrated by the explosive hole. Peak acceleration values are incorporated into an increasing data base from which to develop better empirical prediction techniques for CIST. The cavity pressure time histories are used in formulating the loading input to be utilized for two-dimensional finite difference calculations.

The primary data used in the development of mathematical material models are the velocity time histories from the integrated accelerometer records. An iteration procedure using a modified version of the two-dimensional finite difference code, AFTON (ref. 6), is applied to develop constitutive relations for each soil layer at a particular test site. The primary variables affecting the solution are shape of the stress-strain curve and yield strength, which are functions of in situ density, internal friction, intergranular cohesion, water content, and grain size distribution, just to name a few. Conventional material properties data are not always available for every CIST location. For the test sites in this report much of the conventional soil properties data was obtained by the U.S. Army Waterways Experiment Station.

CIST event data and conventional soils data have been incorporated into the development of dynamic constitutive relations for computer calculations. The CIST model is developed by iterating the constitutive model parameters until

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6. Niles, W.J., Germoth, J.J., and Schuster, S.H., Numerical Studies of AFTON 2A Code Development and Applications, Volumes I and II, AFWL-TR-70-22, Air Force Weapons Laboratory, Kirtland AFB, New Mexico, February 1971.

all aspects of the particle velocity waveform are reproduced. Arrival time, time of peak velocity, magnitude of peak velocity, rise time, maximum positive phase duration, slope of the time history, and attenuation of the peak with range all play an important part in the modeling procedure. The finalized mathematical models are input into two-dimensional finite difference codes to calculate free field response to high explosive and nuclear shock. Material model development from CIST data has been previously discussed in reference 7.

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7. Bratton, J.L., and Port, R.J., "Material Models, Calculations, and Experimental Results - MIDDLE GUST IV," DNA Long Range Planning Meeting Proceedings, June 1973.

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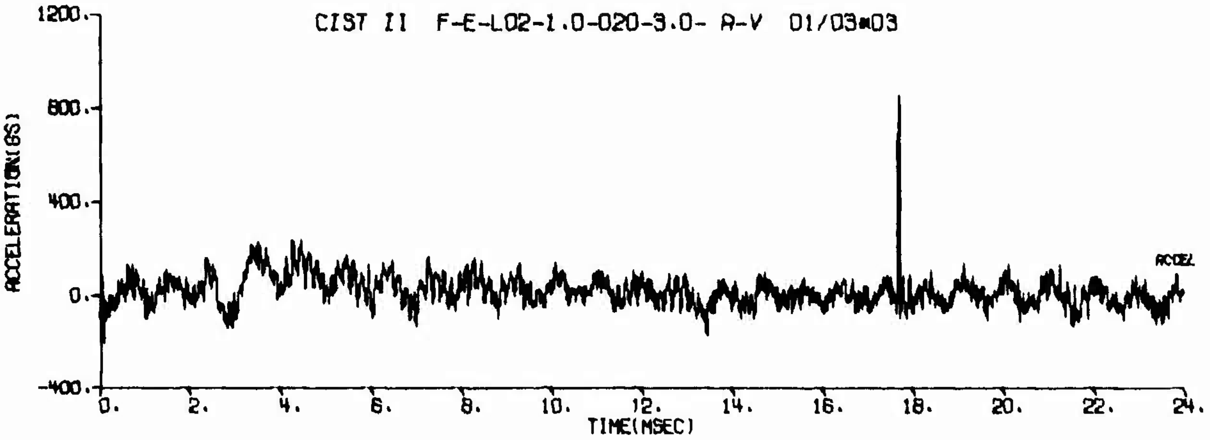
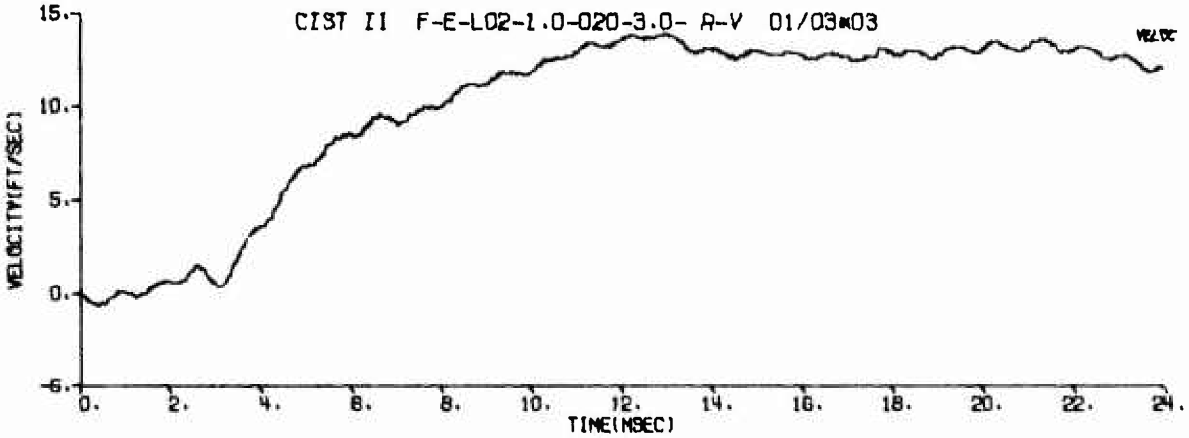
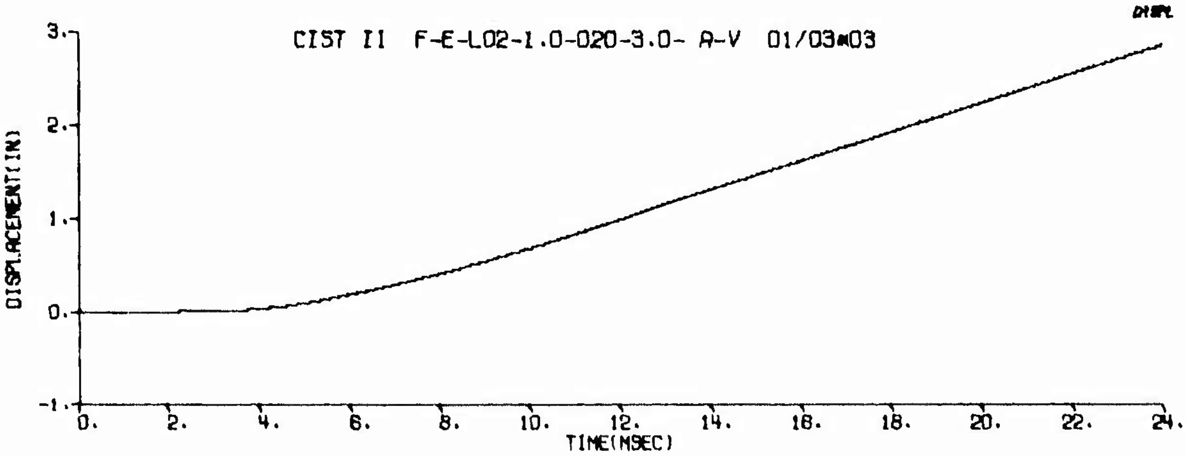
6. Niles, W.J., Germoth, J.J., and Shuster, S.H., Numerical Studies of AFTON 2A Code Development and Applications, Volumes I and II, AFWL-TR-70-22, Air Force Weapons Laboratory, Kirtland AFB, New Mexico, February 1971.
7. Bratton, J.L., and Port, R.J., "Material Models, Calculations, and Experimental Results - MIDDLE GUST IV," DNA Long Range Planning Meeting Proceedings, June 1973.

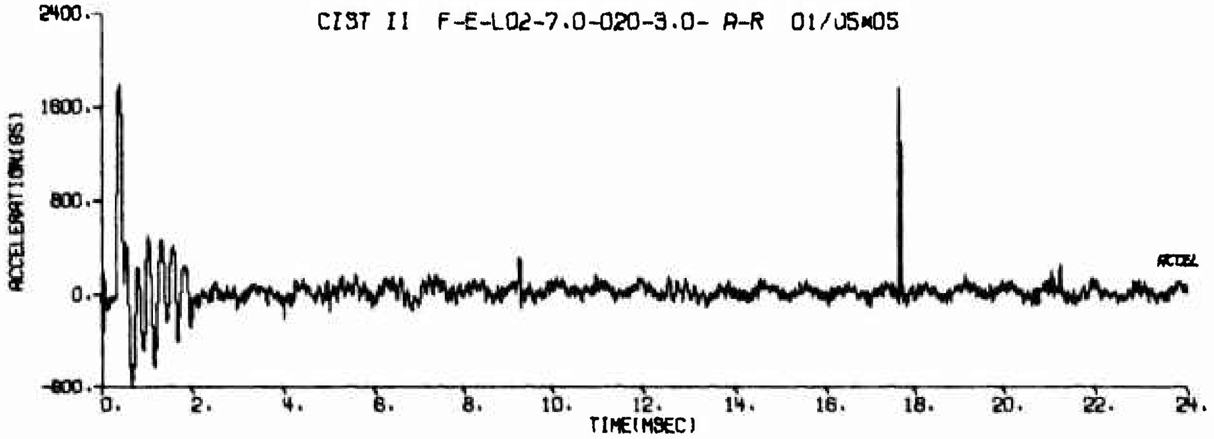
APPENDIX A

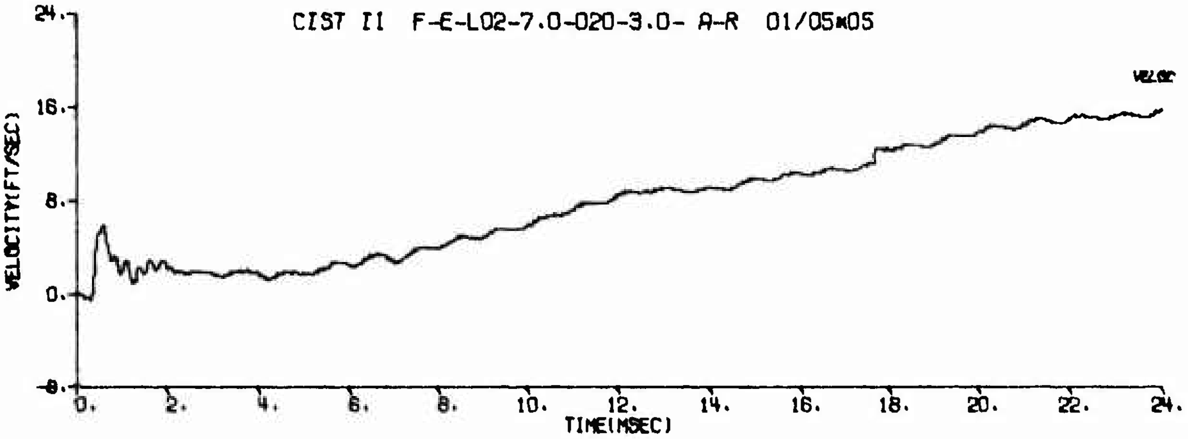
CIST 2 TIME HISTORY PLOTS

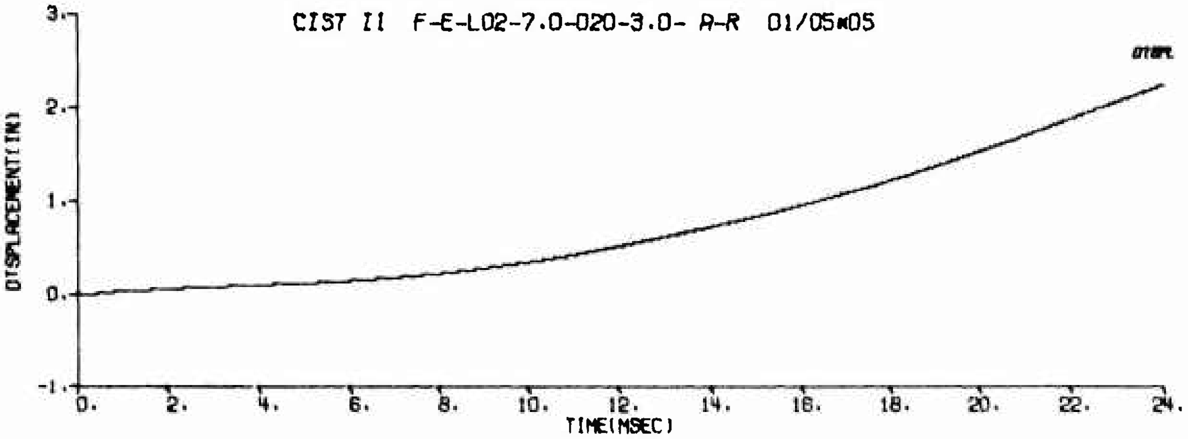

CIST II F-E-L02-1.0-020-3.0- A-V 01/03*03
ACCELERATION(GS)
1200.
800.
400.
0.
-400.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

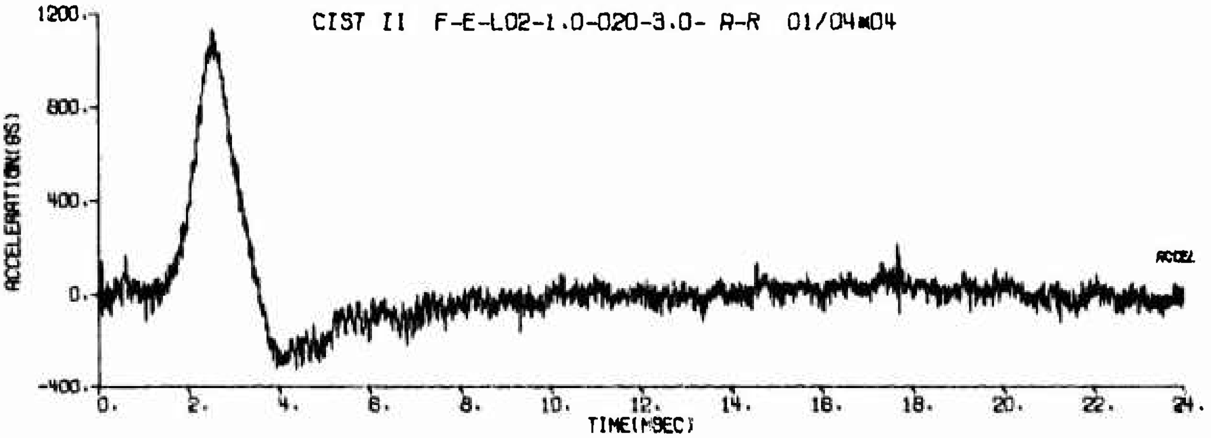

CIST II F-E-L02-1.0-020-3.0- A-V 01/03*03
VELOCITY(FT/SEC)
15.
10.
5.
0.
-5.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

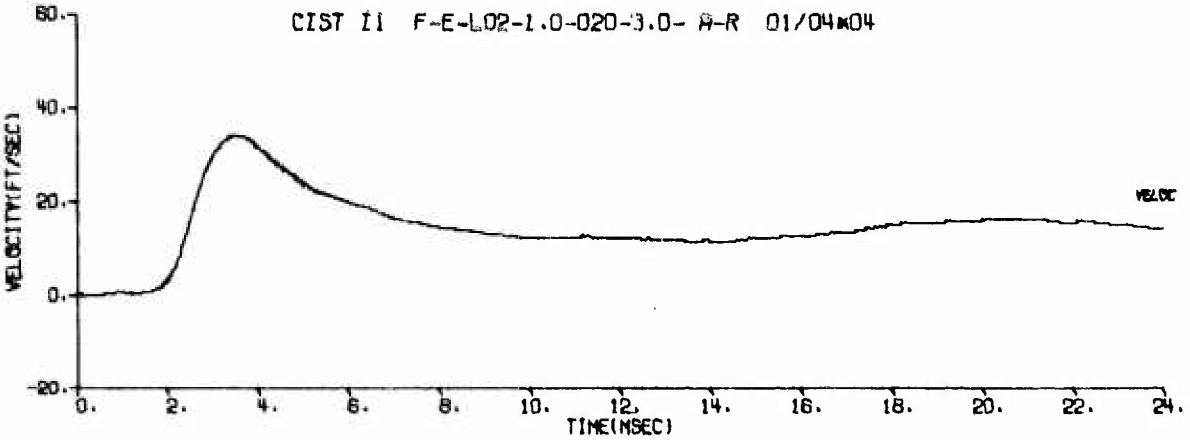

CIST II F-E-L02-1.0-020-3.0- A-V 01/03*03
DISPLACEMENT(IN)
3.
2.
1.
0.
-1.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

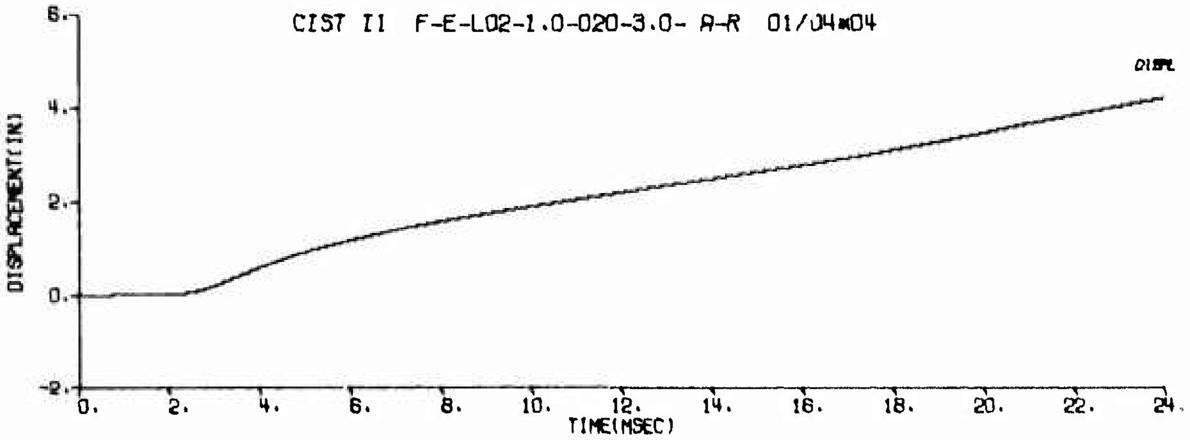

CIST II F-E-L02-7.0-020-3.0- A-R 01/05*05
ACCELERATION(GS)
2400.
1600.
800.
0.
-800.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

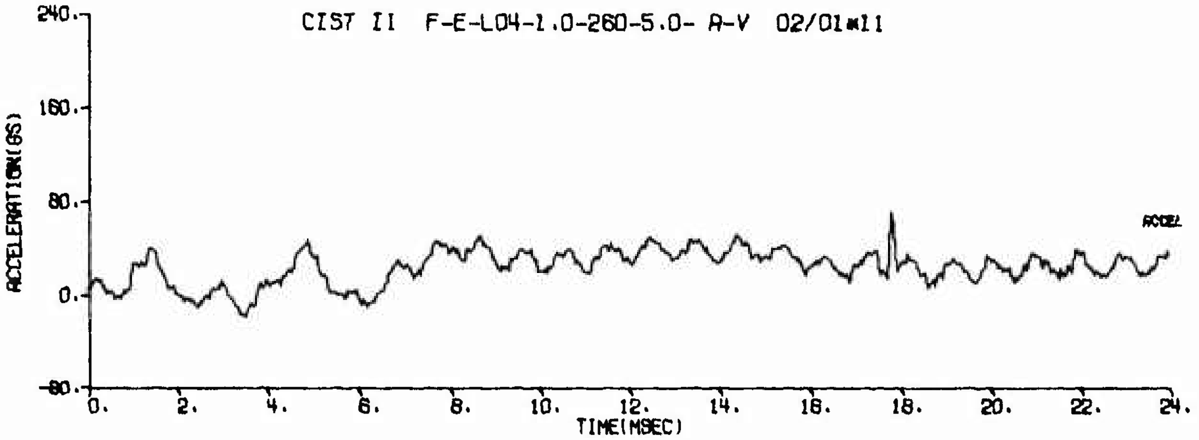

CIST II F-E-L02-7.0-020-3.0- A-R 01/05*05
VELOCITY(FT/SEC)
24.
16.
8.
0.
-8.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

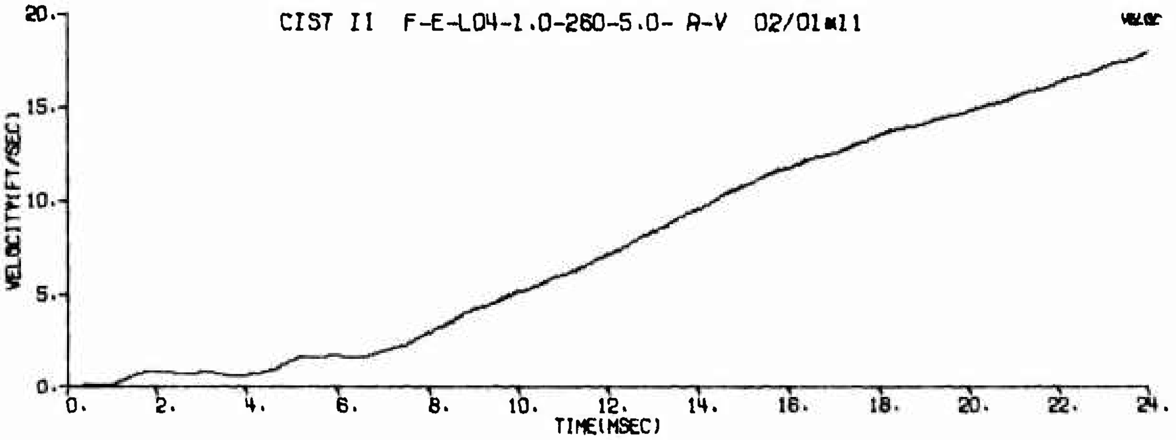

CIST II F-E-L02-7.0-020-3.0- A-R 01/05*05
DISPLACEMENT(IN)
3.
2.
1.
0.
-1.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

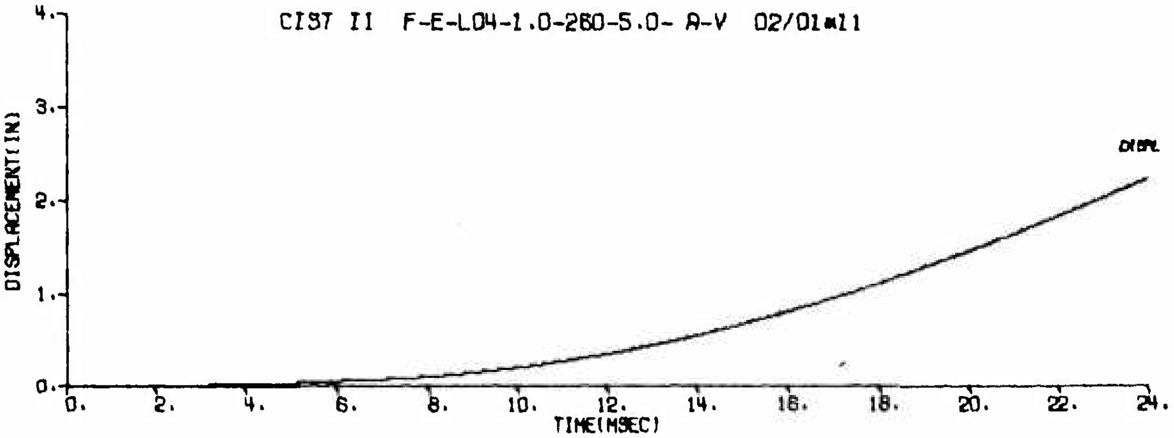

CIST II F-E-L02-1.0-020-3.0- A-R 01/04*04

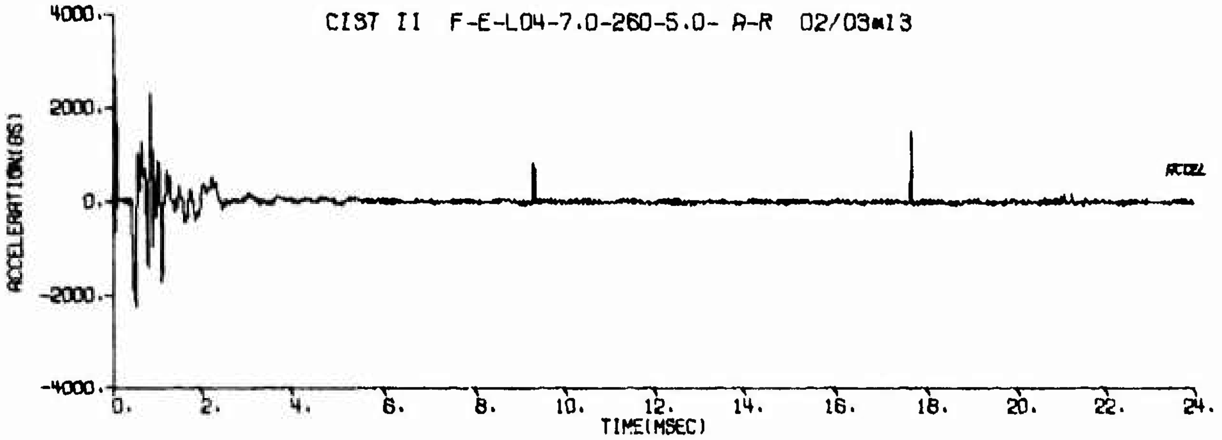

CIST II F-E-L02-1.0-020-3.0- A-R 01/04*04

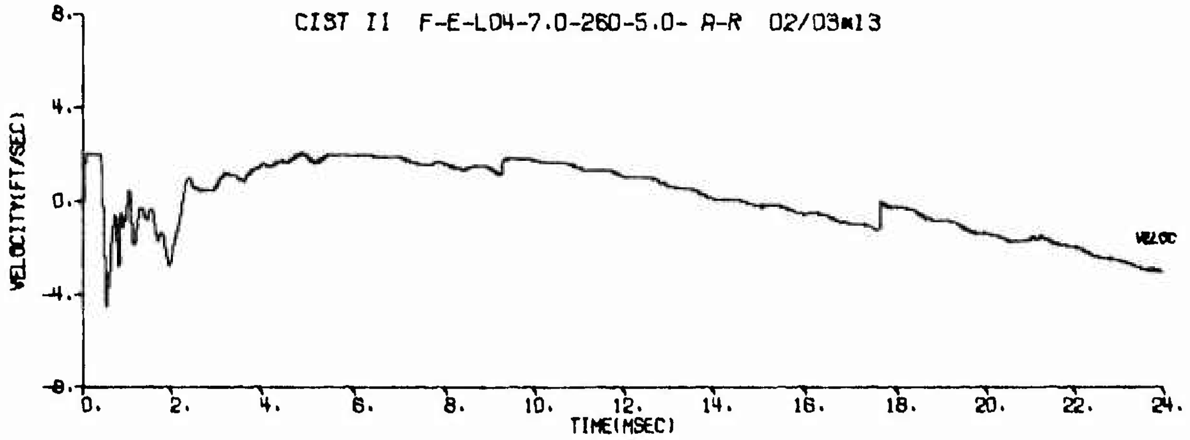

CIST II F-E-L02-1.0-020-3.0- A-R 01/04*04

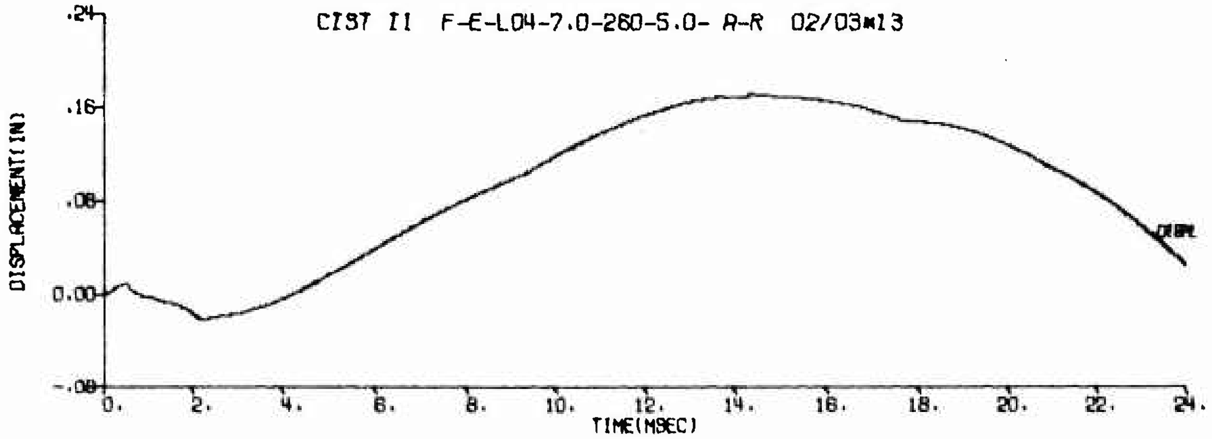

CIST II F-E-L04-1.0-260-5.0- A-V 02/01*11
ACCELERATION(GS)
240.
160.
80.
0.
-80.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

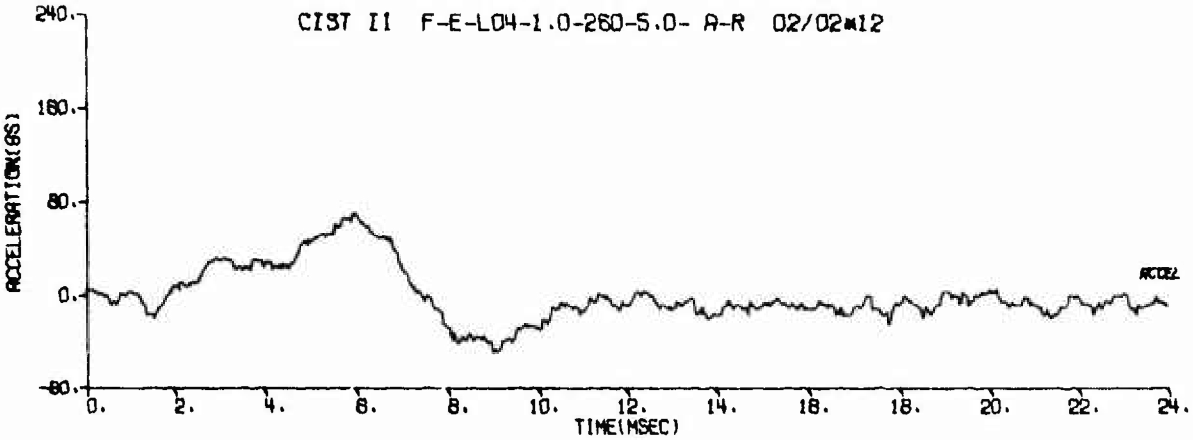

CIST II F-E-L04-1.0-260-5.0- A-V 02/01*11
VELOC
VELOCITY(FT/SEC)
20.
15.
10.
5.
0.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

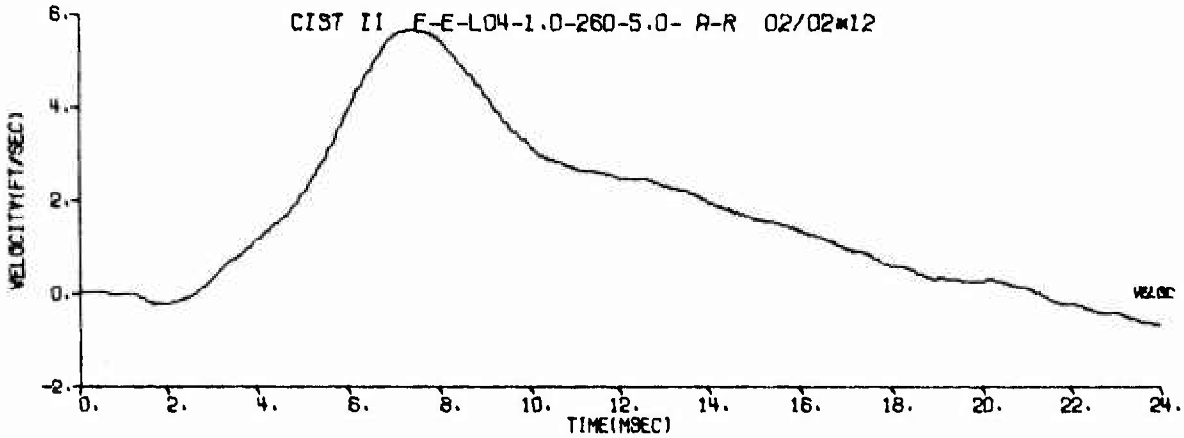

CIST II F-E-L04-1.0-260-5.0- A-V 02/01*11
DISPLACEMENT(IN)
4.
3.
2.
1.
0.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

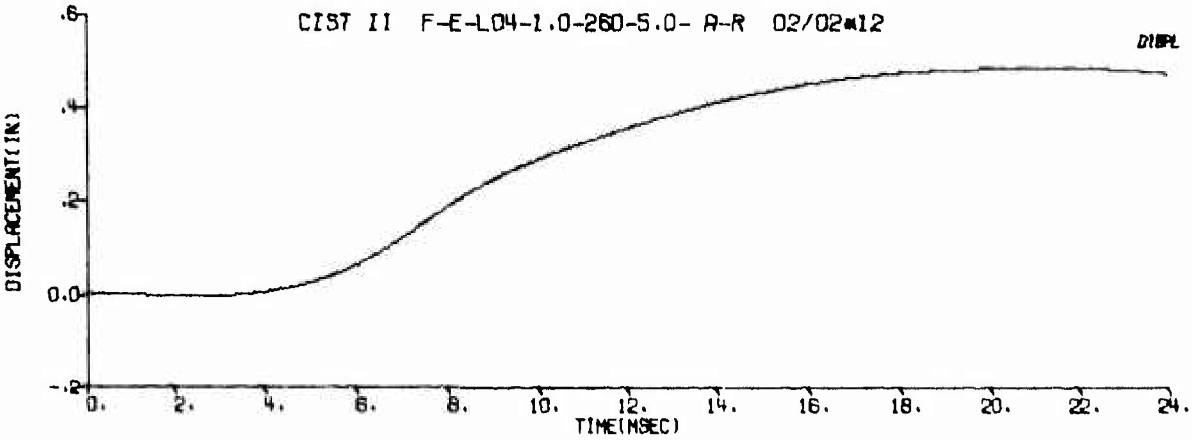

CIST II F-E-L04-7.0-260-5.0- A-R 02/03*13
4000.
2000.
0.
-2000.
-4000.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

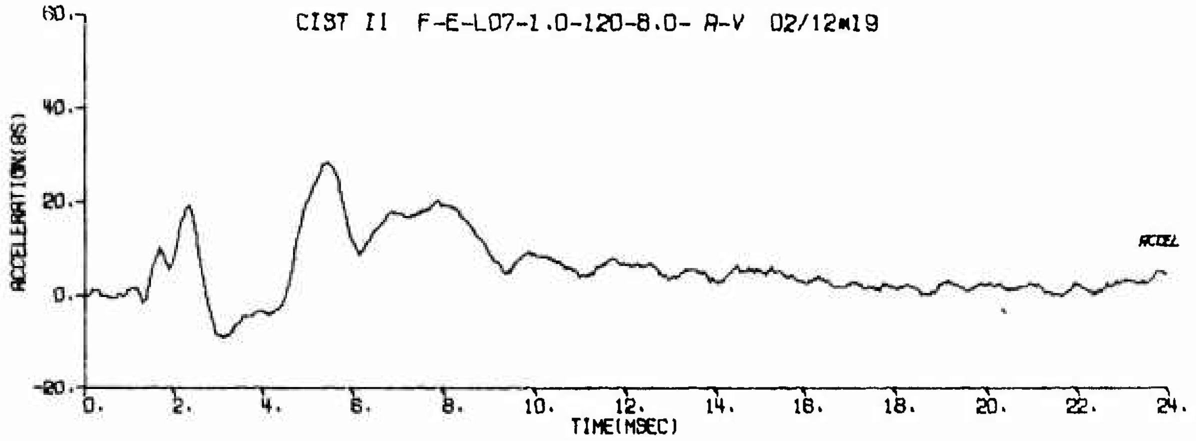

CIST II F-E-L04-7.0-260-5.0- A-R 02/03*13
8.
4.
0.
-4.
-8.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST II F-E-L04-7.0-260-5.0- A-R 02/03*13
.24
.16
.08
0.00
-.08
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

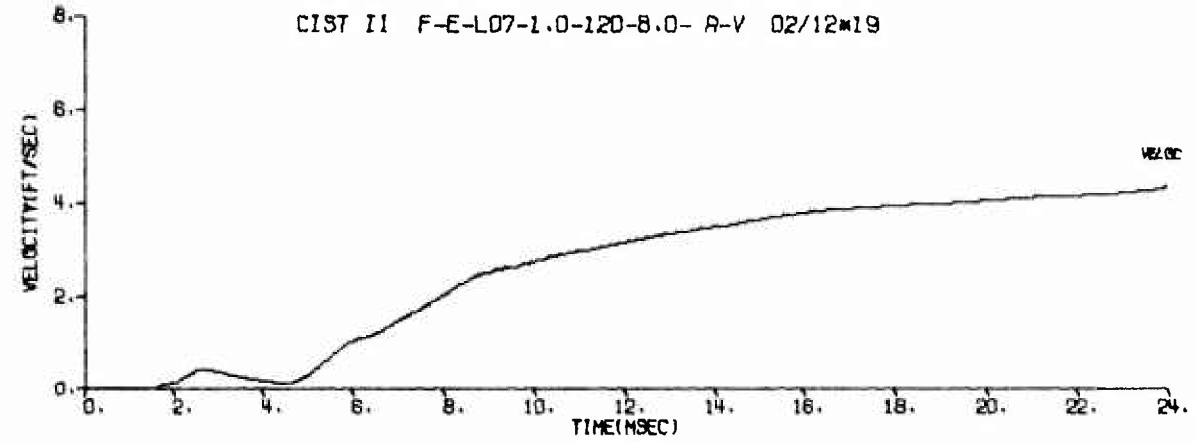

CIST II F-E-L04-1.0-260-5.0- A-R 02/02*12
ACCELERATION(GS)
240.
160.
80.
0.
-80.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST II F-E-L04-1.0-260-5.0- A-R 02/02*12
VELOCITY(FT/SEC)
6.
4.
2.
0.
-2.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

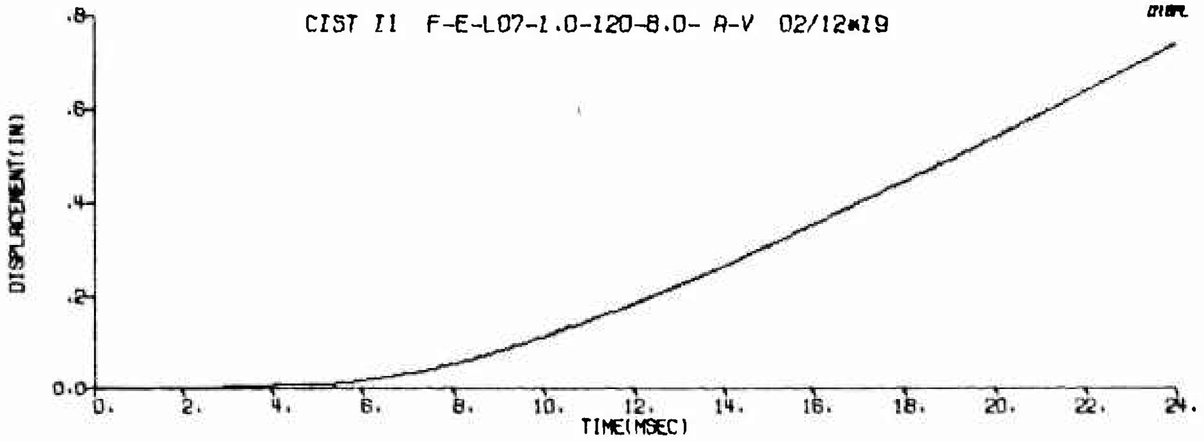

CIST II F-E-L04-1.0-260-5.0- A-R 02/02*12
DISPLACEMENT(IN)
.6
.4
.2
0.0
-.2
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)



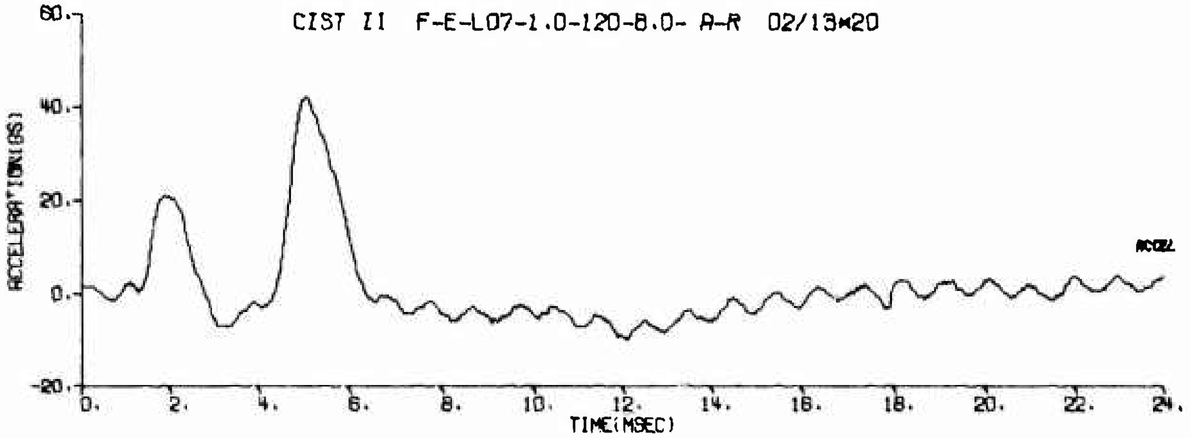
CIST II F-E-L07-1.0-120-8.0- A-V 02/12*19

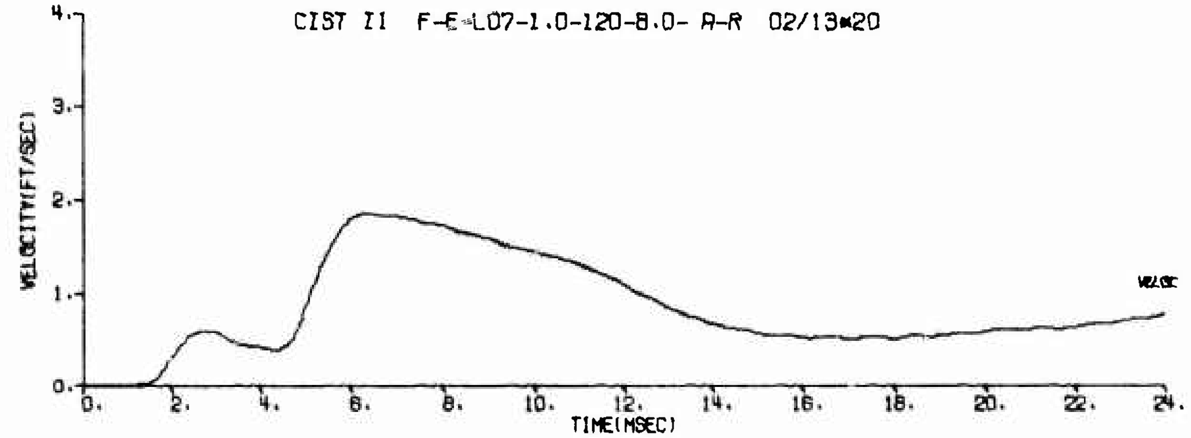


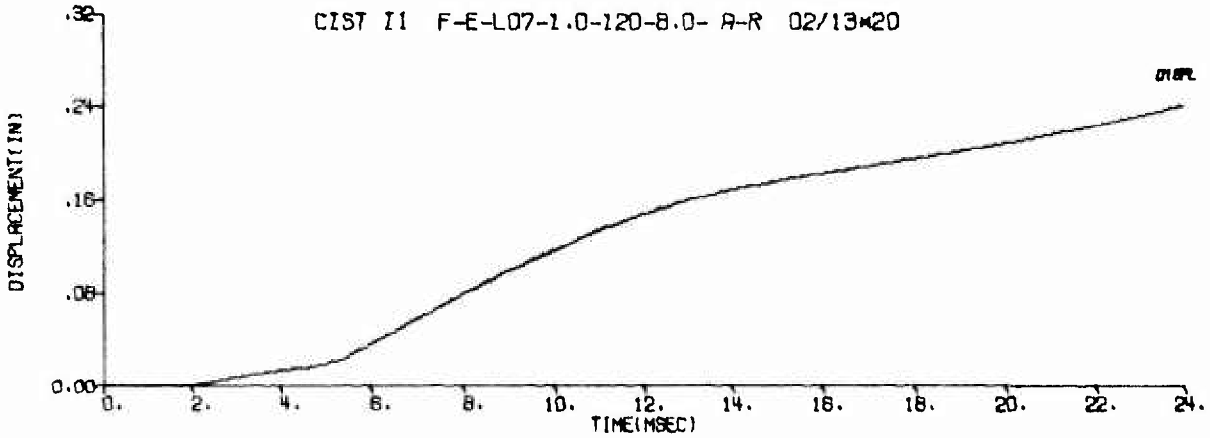
CIST II F-E-L07-1.0-120-8.0- A-V 02/12*19

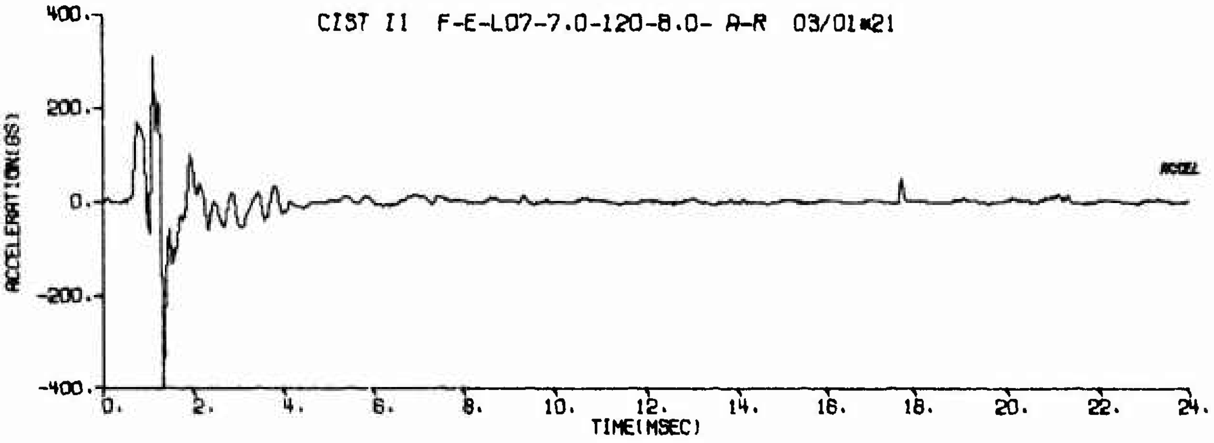


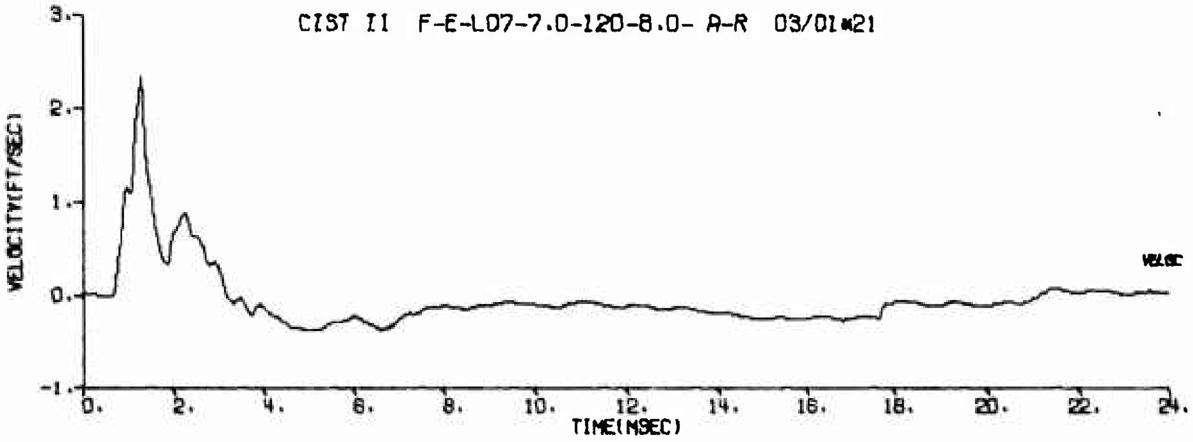
CIST II F-E-L07-1.0-120-8.0- A-V 02/12*19

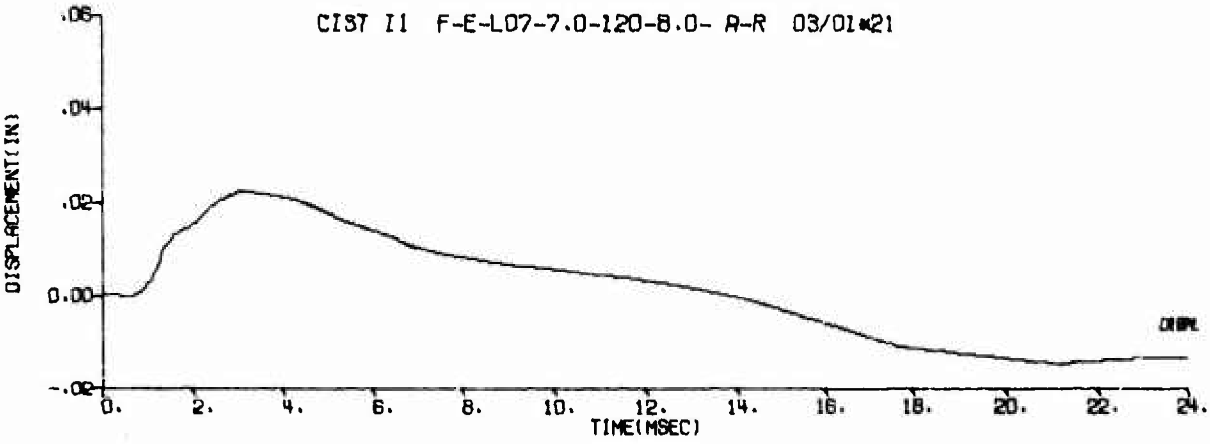

CIST II F-E-L07-1.0-120-8.0- A-R 02/13*20
ACCELERATION(GS)
60.
40.
20.
0.
-20.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

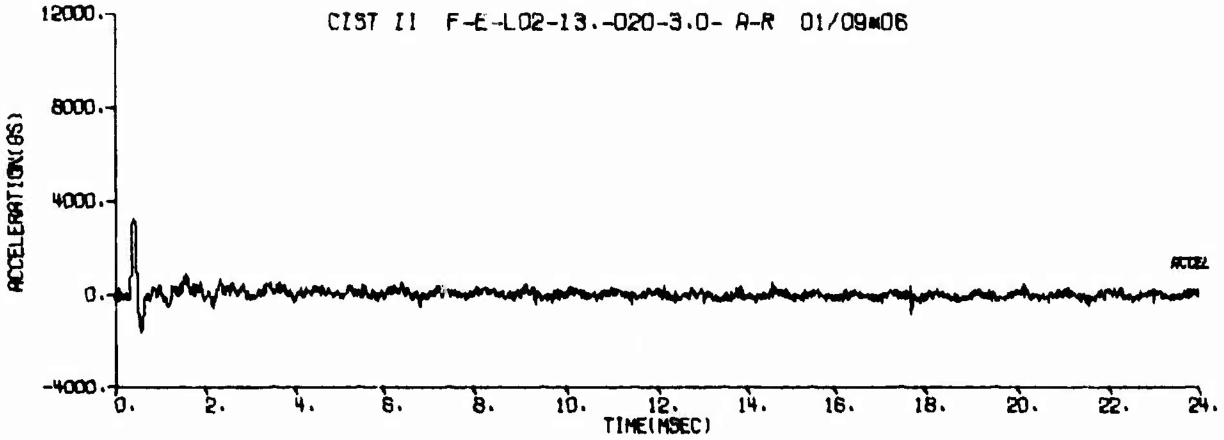

CIST II F-E-L07-1.0-120-8.0- A-R 02/13*20
VELOCITY(FT/SEC)
4.
3.
2.
1.
0.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

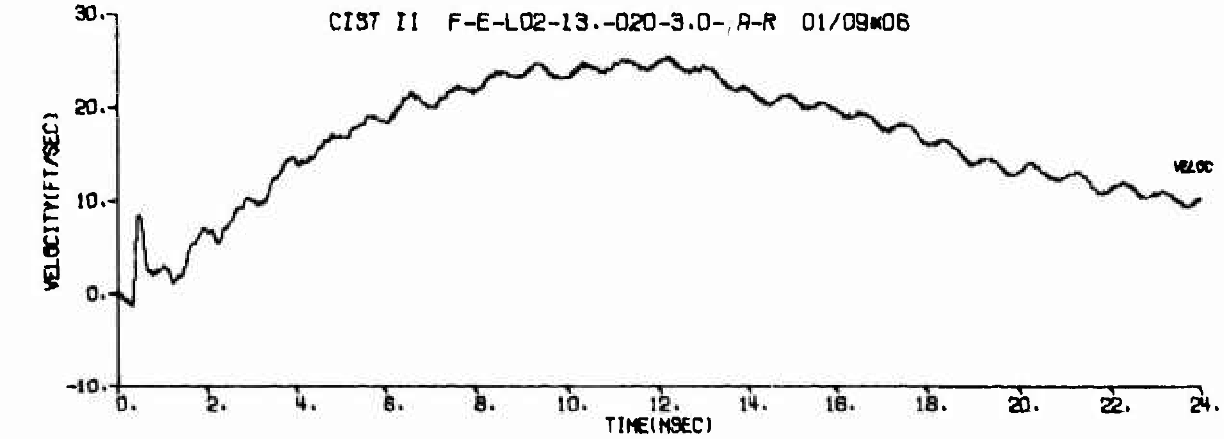

CIST II F-E-L07-1.0-120-8.0- A-R 02/13*20
DISPLACEMENT(IN)
.32
.24
.16
.08
0.00
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

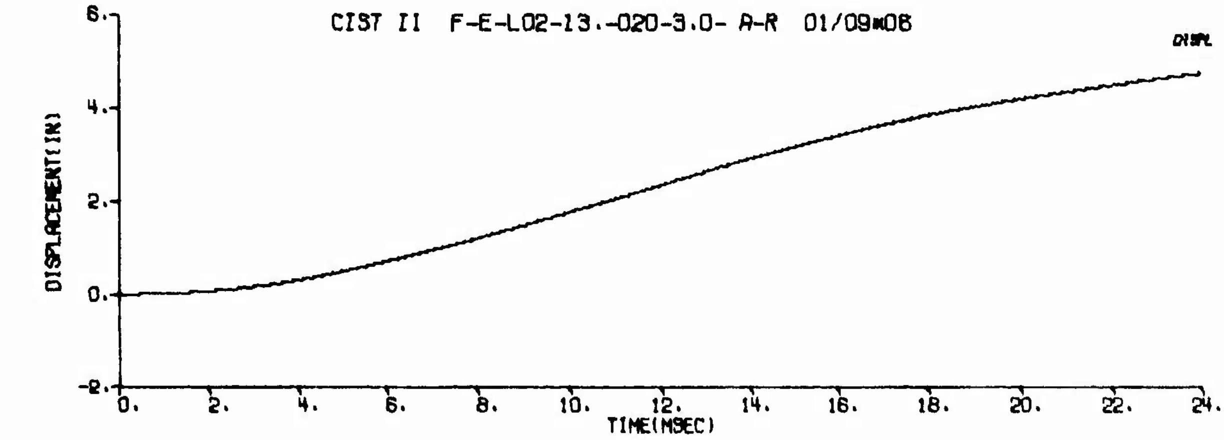

CIST II F-E-L07-7.0-120-8.0- A-R 03/01*21
400.
200.
0.
-200.
-400.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

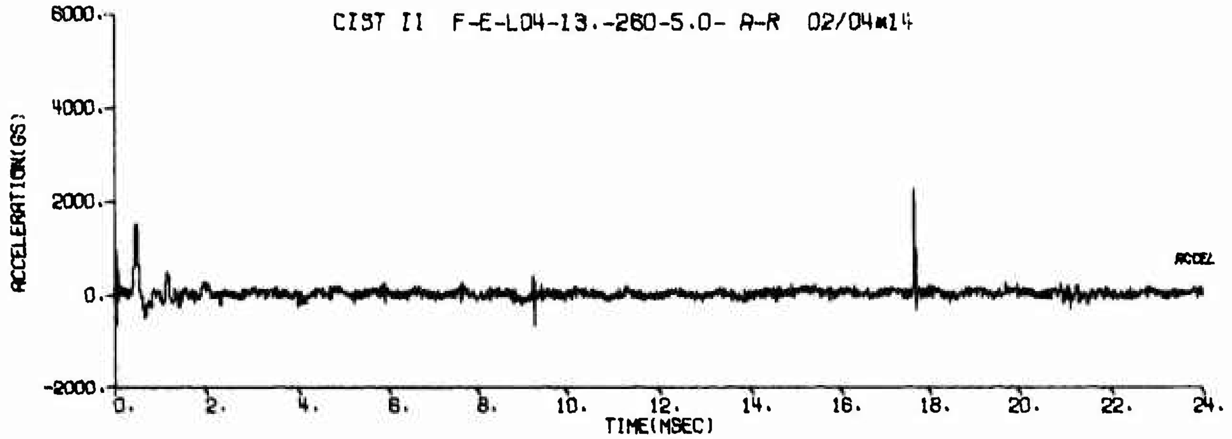

CIST II F-E-L07-7.0-120-8.0- A-R 03/01*21
3.
2.
1.
0.
-1.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

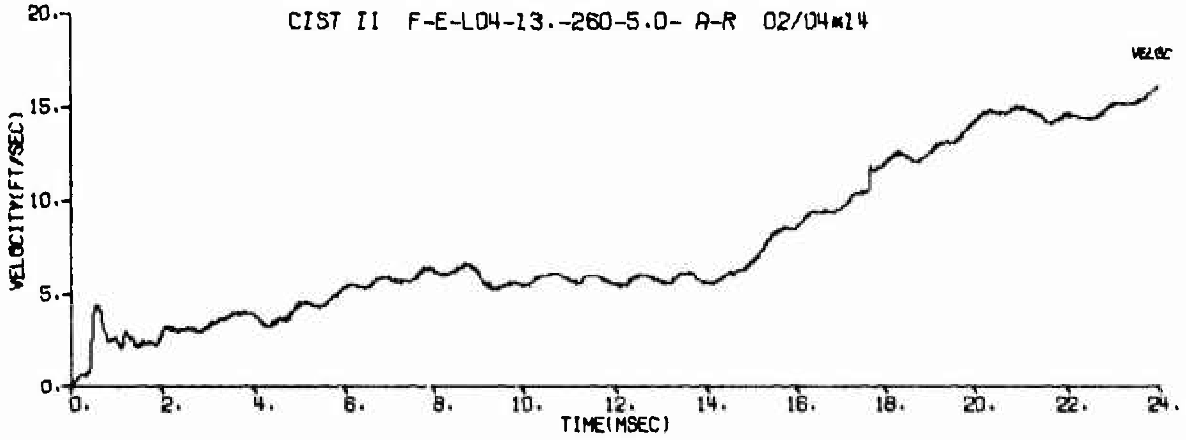

CIST II F-E-L07-7.0-120-8.0- A-R 03/01*21
.06
.04
.02
0.00
-.02
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

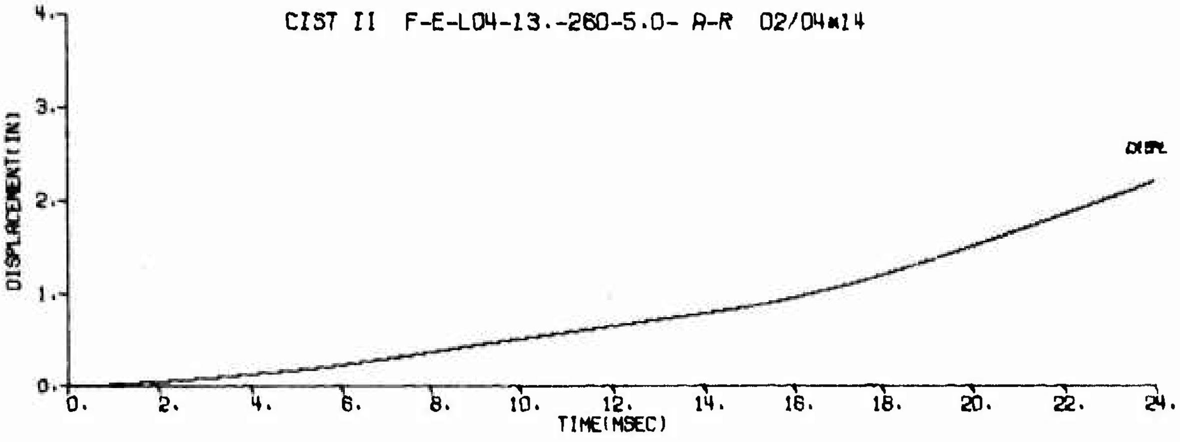

CIST II F-E-L02-13.-020-3.0- A-R 01/09*06
ACCELERATION(GS)
12000.
8000.
4000.
0.
-4000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

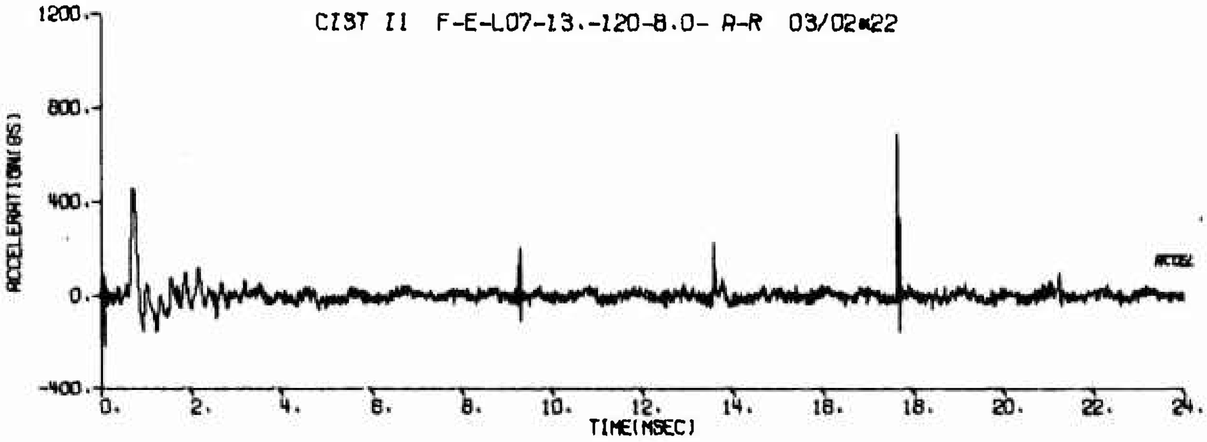

CIST II F-E-L02-13.-020-3.0- A-R 01/09*06
VELOCITY(FT/SEC)
30.
20.
10.
0.
-10.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

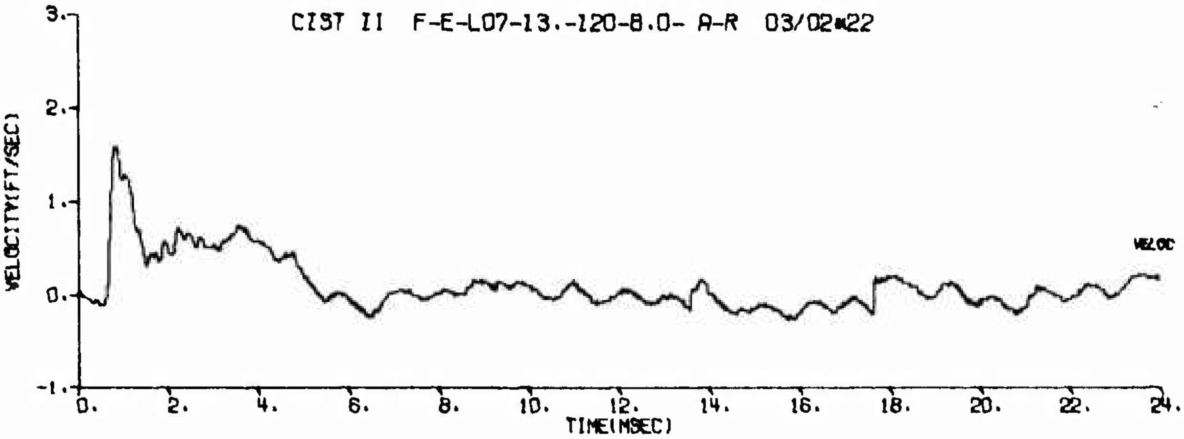

CIST II F-E-L02-13.-020-3.0- A-R 01/09*06
DISPLACEMENT(IN)
6.
4.
2.
0.
-2.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

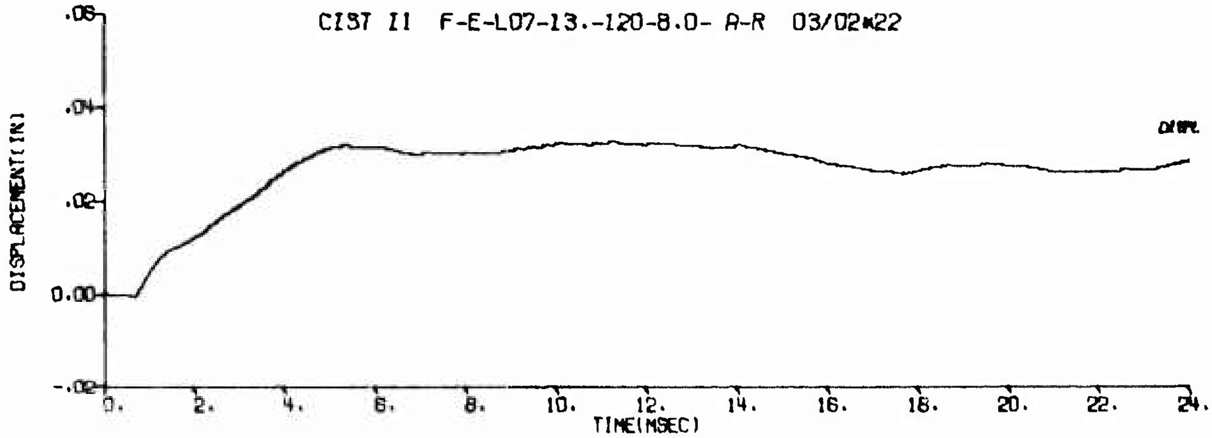

CIST II F-E-L04-13.-260-5.0- A-R 02/04*14
ACCELERATION(GS)
6000.
4000.
2000.
0.
-2000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
ACCEL

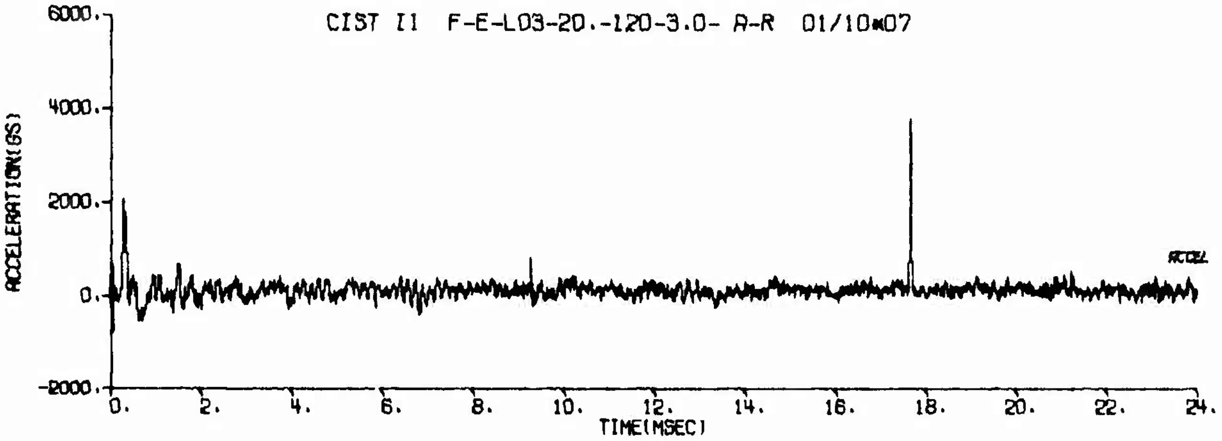

CIST II F-E-L04-13.-260-5.0- A-R 02/04*14
VELOCITY(FT/SEC)
20.
15.
10.
5.
0.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
VELOC

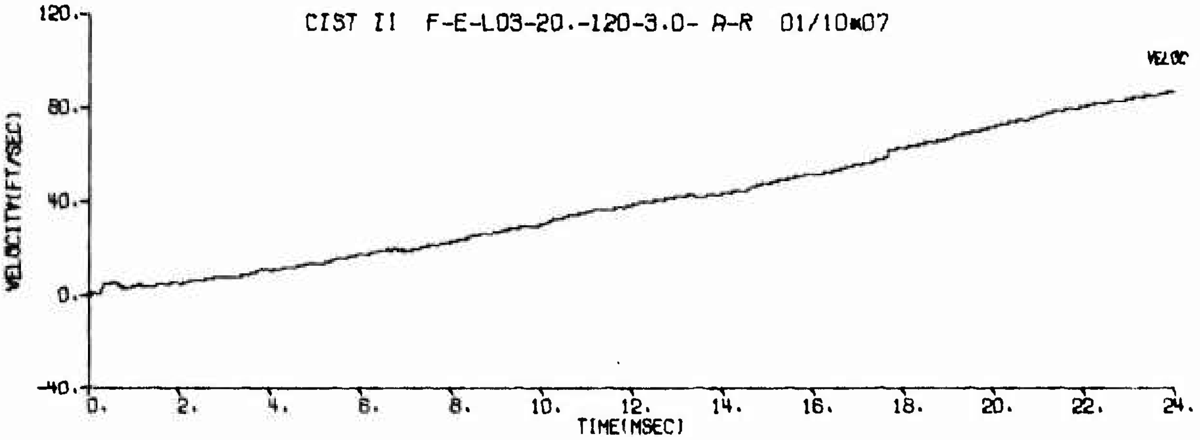

CIST II F-E-L04-13.-260-5.0- A-R 02/04*14
DISPLACEMENT(IN)
4.
3.
2.
1.
0.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
DISPL

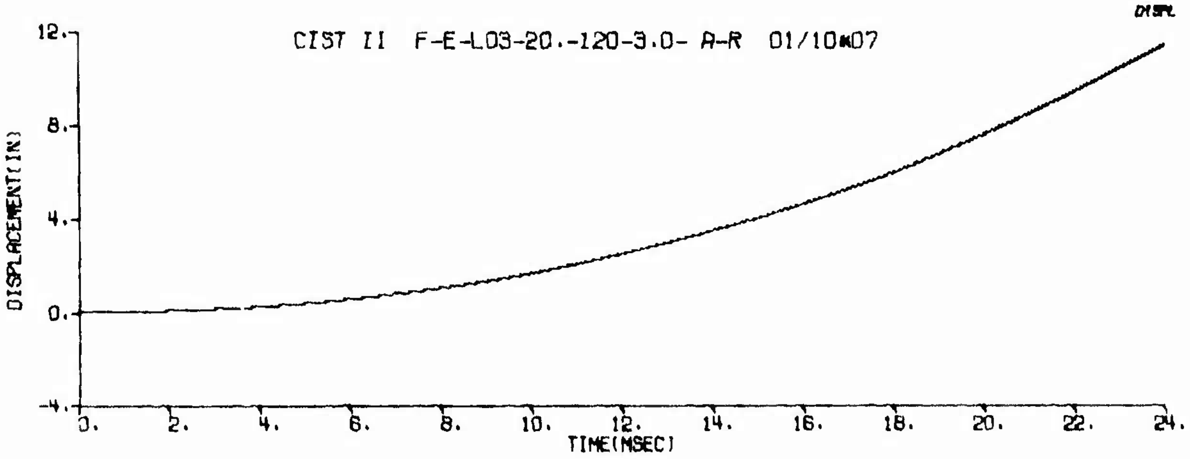

CIST II F-E-L07-13.-120-8.0- A-R 03/02*22
ACCELERATION(GS)
1200.
800.
400.
0.
-400.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

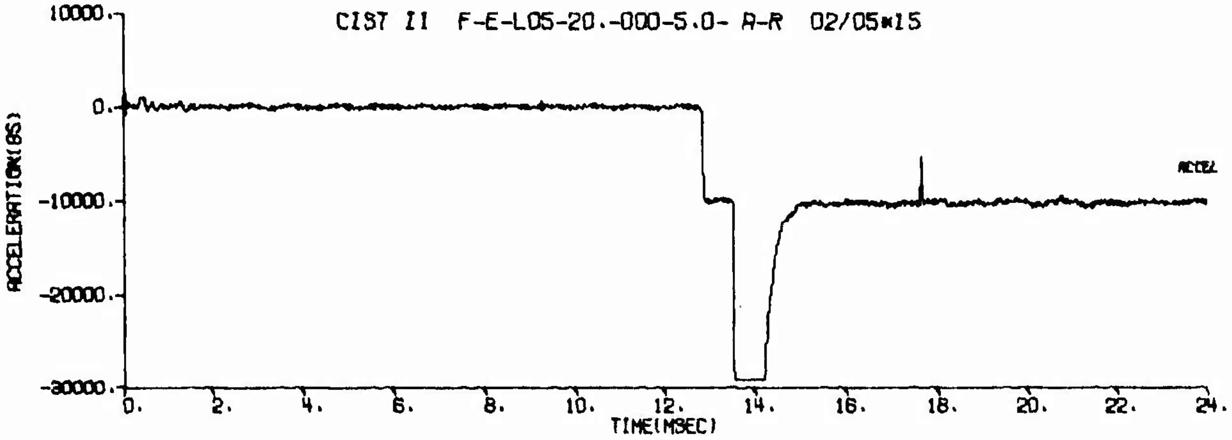

CIST II F-E-L07-13.-120-8.0- A-R 03/02*22
VELOCITY(FT/SEC)
3.
2.
1.
0.
-1.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

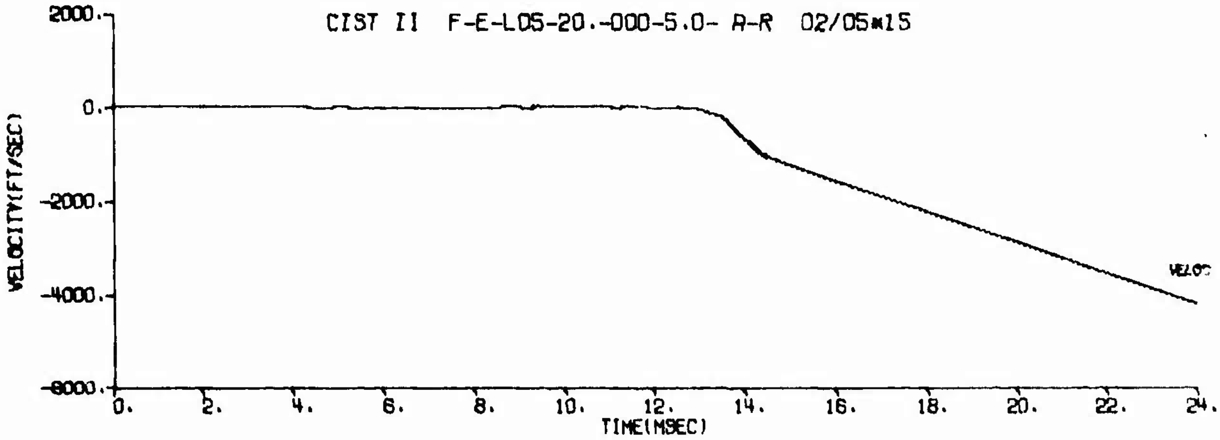

CIST II F-E-L07-13.-120-8.0- A-R 03/02*22
DISPLACEMENT(IN)
.06
.04
.02
0.00
-.02
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

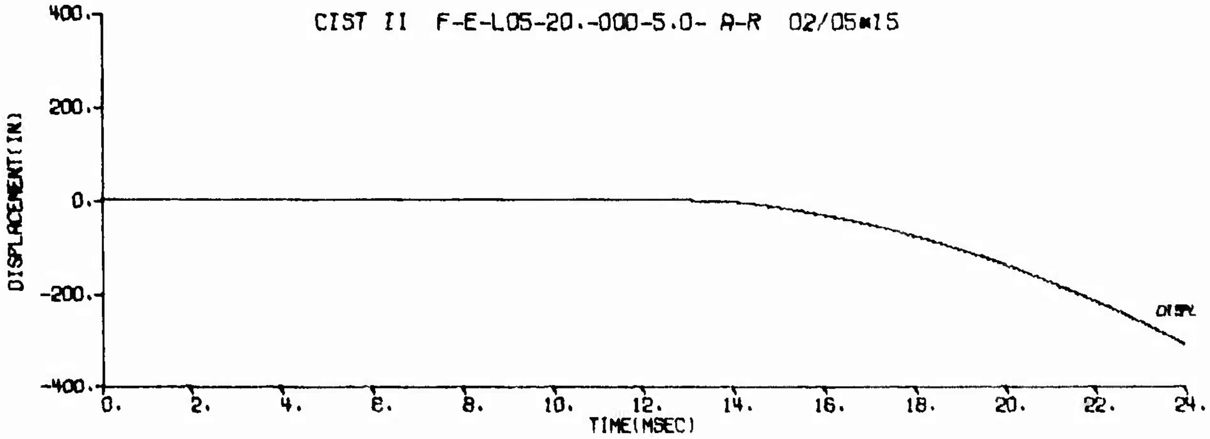

CIST II F-E-L03-20.-120-3.0- A-R 01/10*07
6000.
4000.
2000.
0.
-2000.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

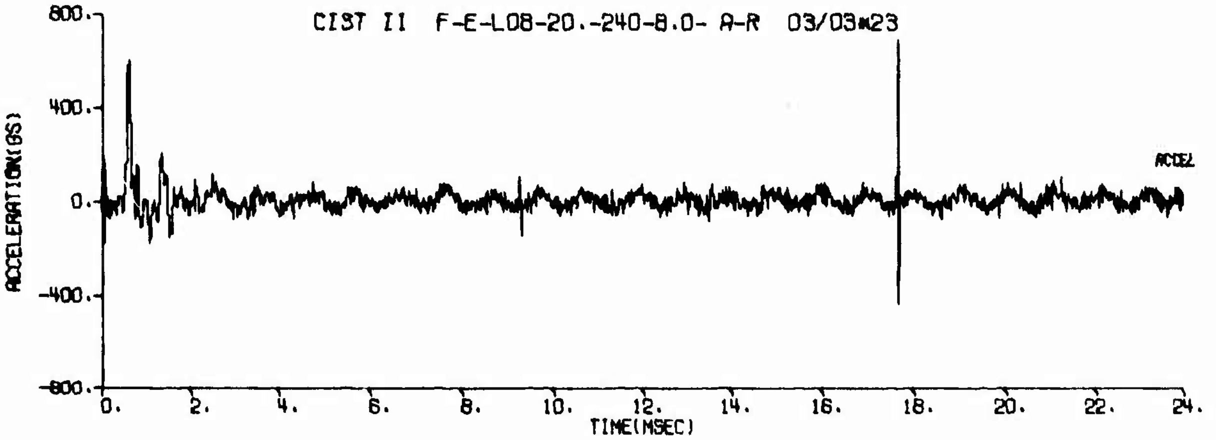

CIST II F-E-L03-20.-120-3.0- A-R 01/10*07
120.
80.
40.
0.
-40.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

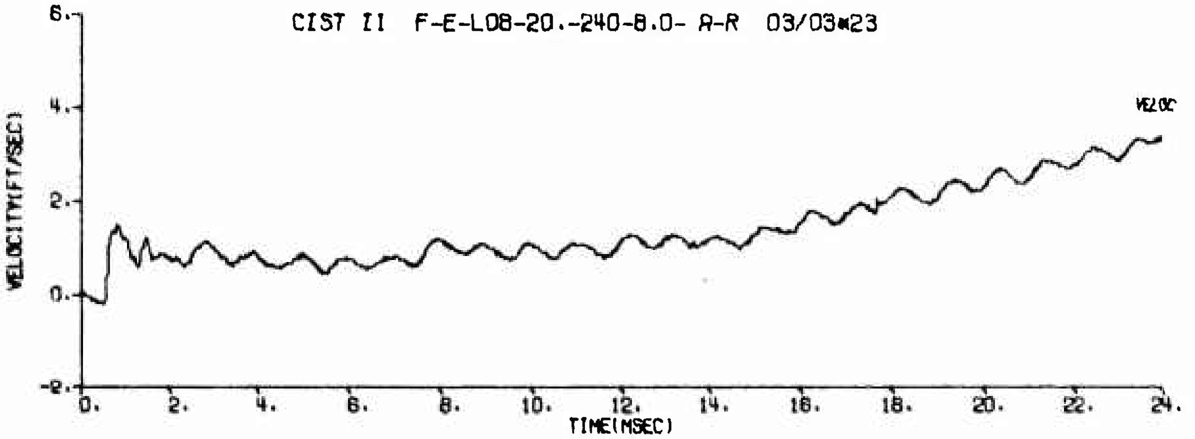

CIST II F-E-L03-20.-120-3.0- A-R 01/10*07
12.
8.
4.
0.
-4.
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

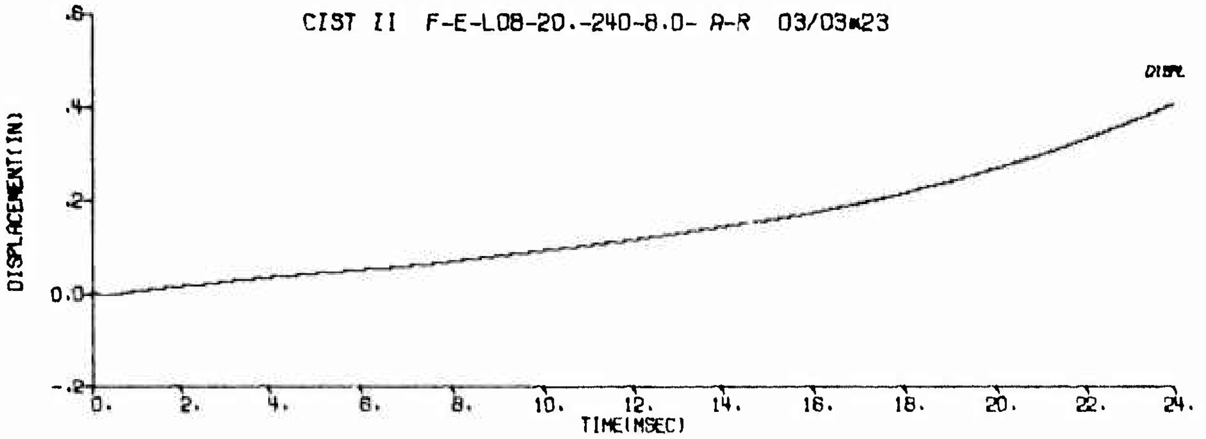

CIST II F-E-L05-20.-000-5.0- A-R 02/05*15

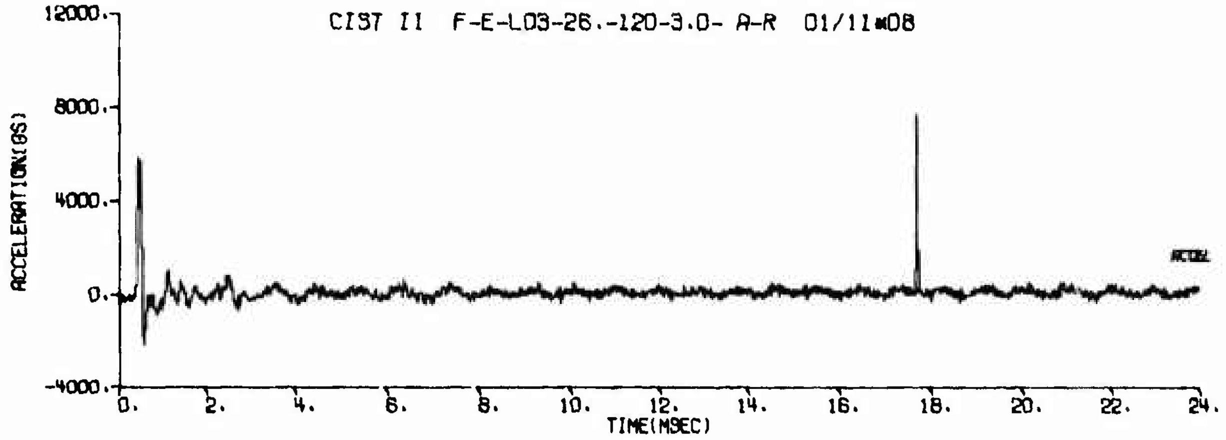

CIST II F-E-L05-20.-000-5.0- A-R 02/05*15

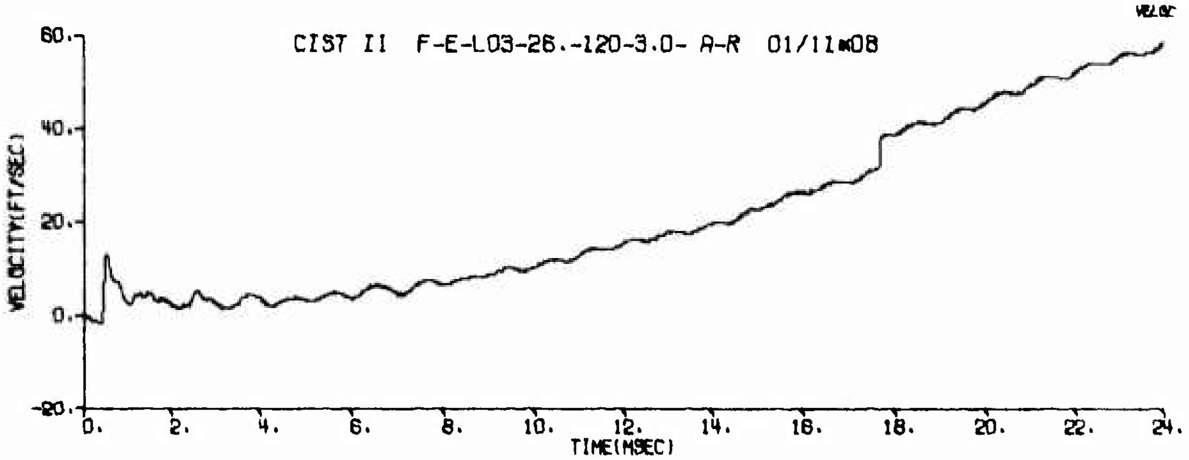

CIST II F-E-L05-20.-000-5.0- A-R 02/05*15

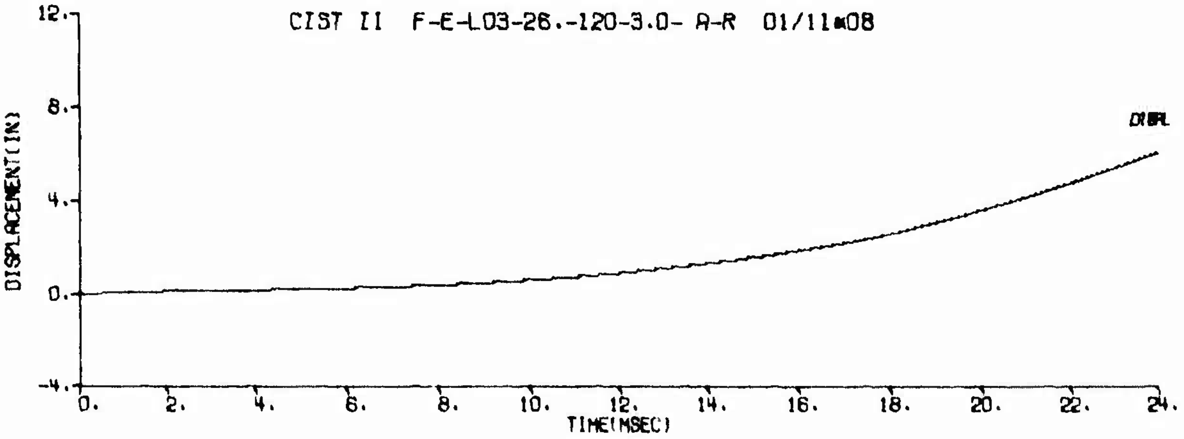

CIST II F-E-L08-20.-240-8.0- A-R 03/03*23
ACCELERATION(GS)
800.
400.
0.
-400.
-800.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

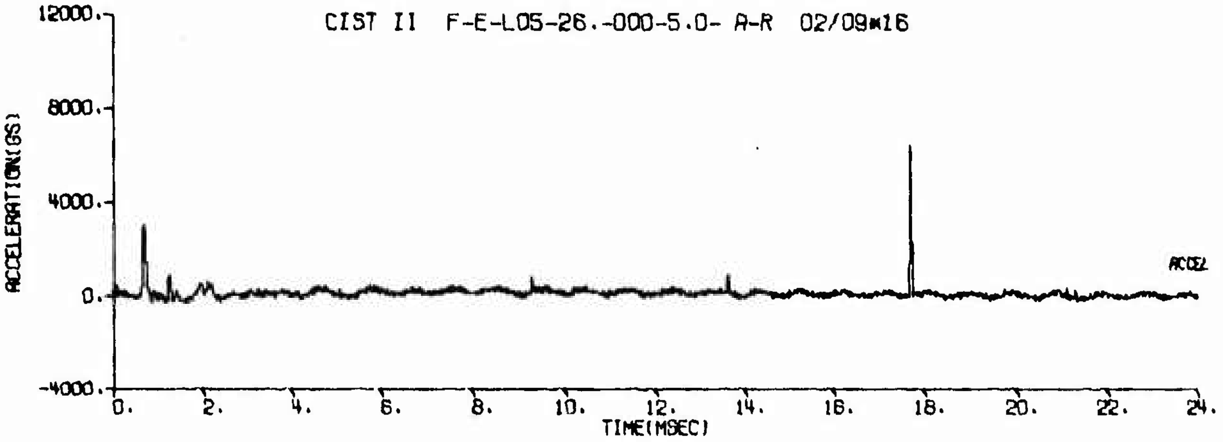

CIST II F-E-L08-20.-240-8.0- A-R 03/03*23
VELOCITY(FT/SEC)
6.
4.
2.
0.
-2.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

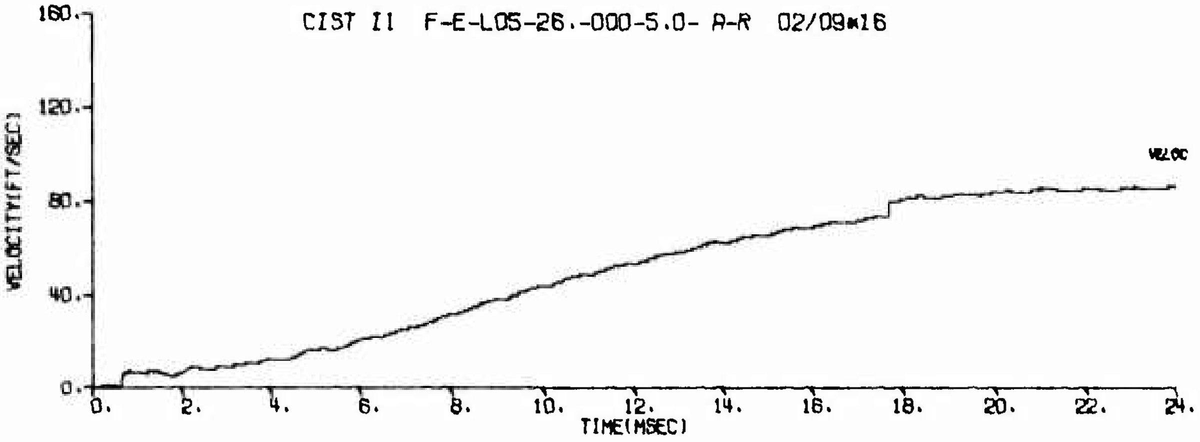

CIST II F-E-L08-20.-240-8.0- A-R 03/03*23
DISPLACEMENT(IN)
.6
.4
.2
0.0
-.2
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

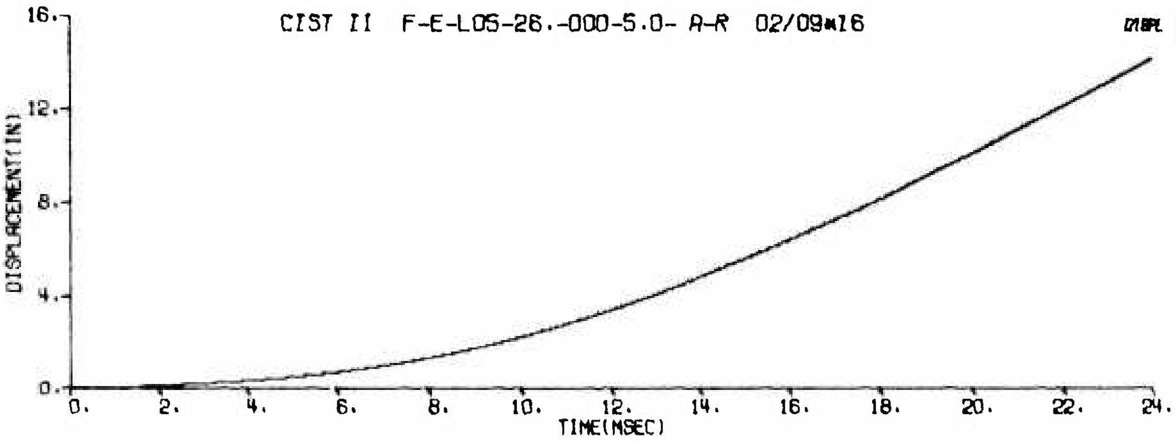

CIST II F-E-L03-26.-120-3.0- A-R 01/11*08

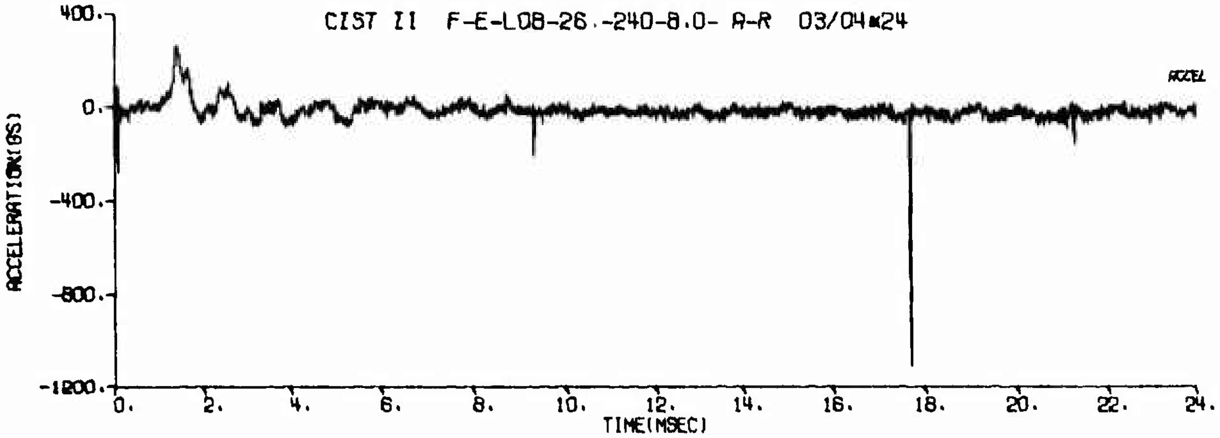

CIST II F-E-L03-26.-120-3.0- A-R 01/11*08

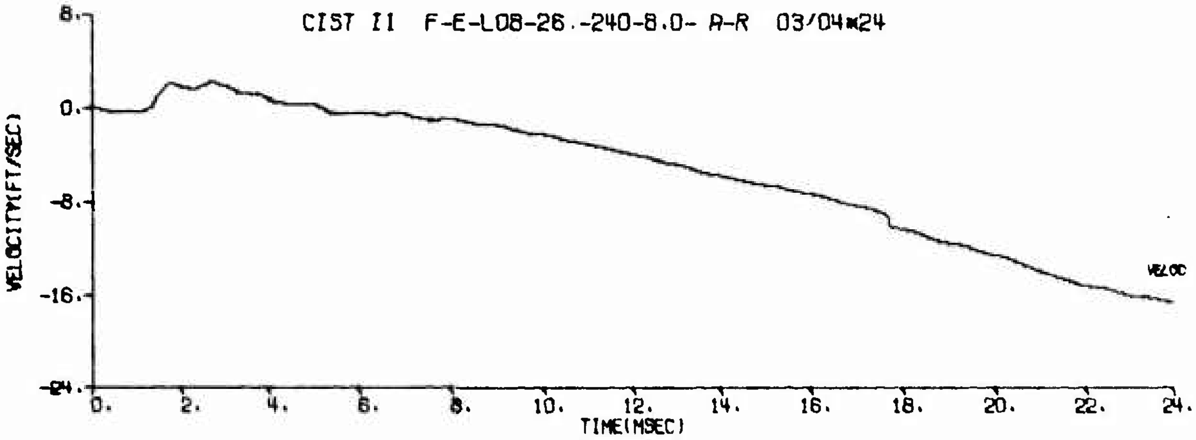

CIST II F-E-L03-26.-120-3.0- A-R 01/11*08

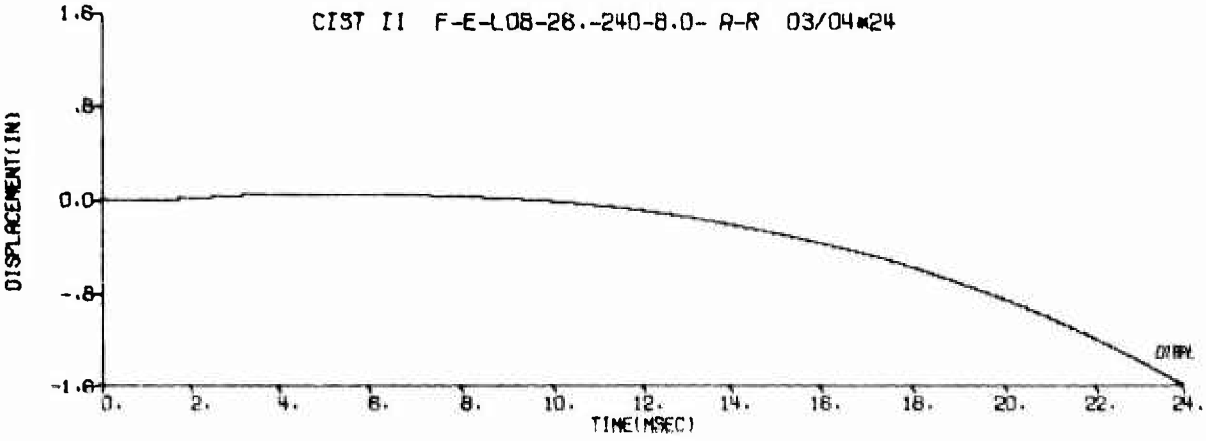

CIST II F-E-L05-26.-000-5.0- A-R 02/09*16
ACCELERATION(GS)
12000.
8000.
4000.
0.
-4000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

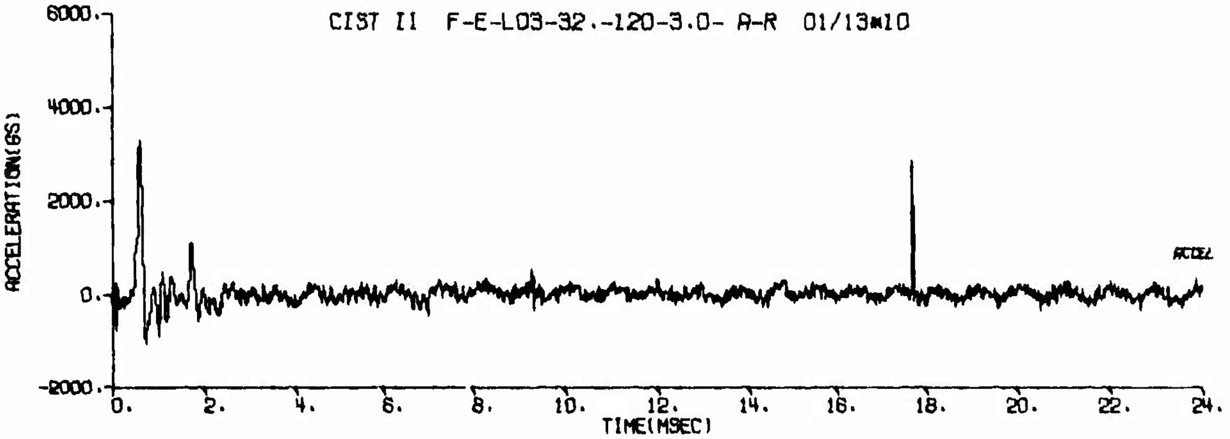

CIST II F-E-L05-26.-000-5.0- A-R 02/09*16
VELOCITY(FT/SEC)
160.
120.
80.
40.
0.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

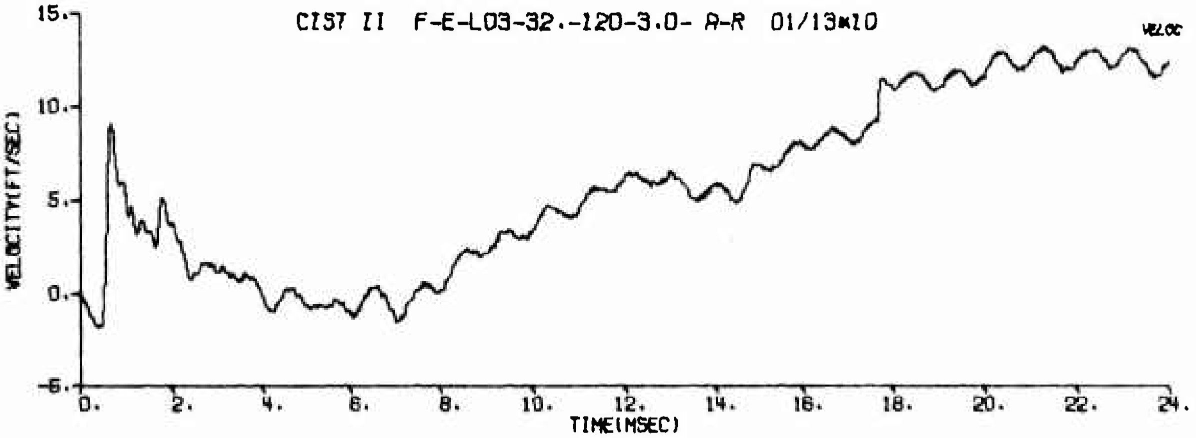

CIST II F-E-L05-26.-000-5.0- A-R 02/09*16
DISPL
DISPLACEMENT(IN)
16.
12.
8.
4.
0.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

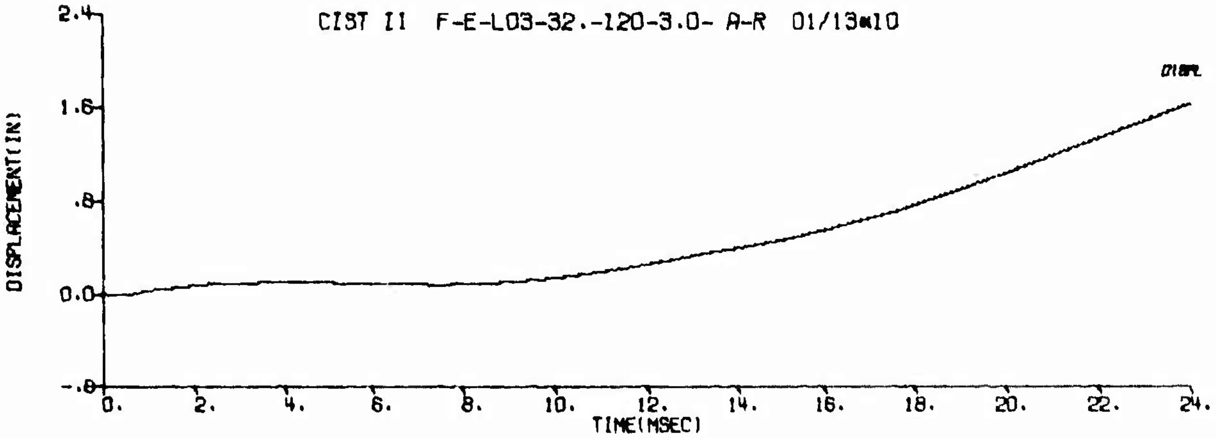

CIST II F-E-L08-26.-240-8.0- A-R 03/04*24
ACCELERATION(GS)
400.
0.
-400.
-800.
-1200.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

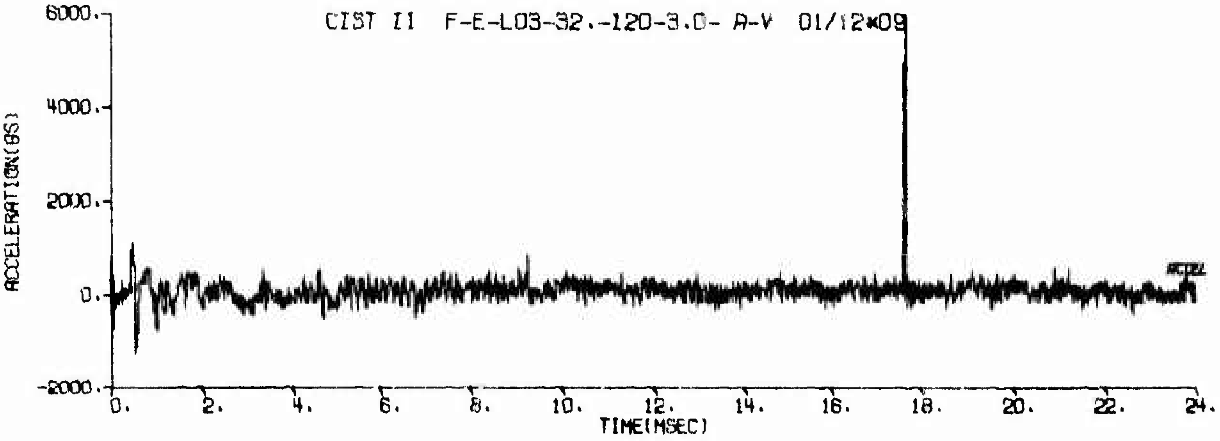

CIST II F-E-L08-26.-240-8.0- A-R 03/04*24
VELOCITY(FT/SEC)
8.
0.
-8.
-16.
-24.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

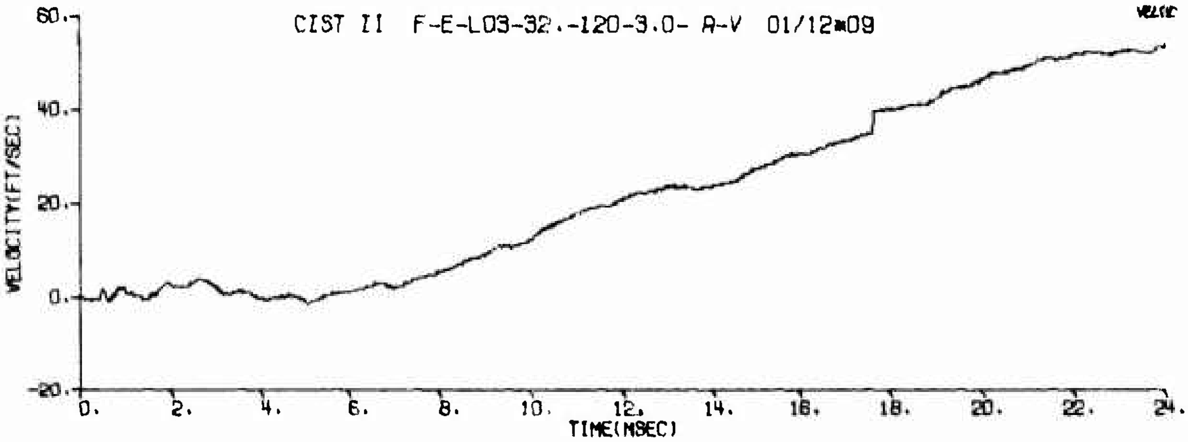

CIST II F-E-L08-26.-240-8.0- A-R 03/04*24
DISPLACEMENT(IN)
1.6
.8
0.0
-.8
-1.6
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

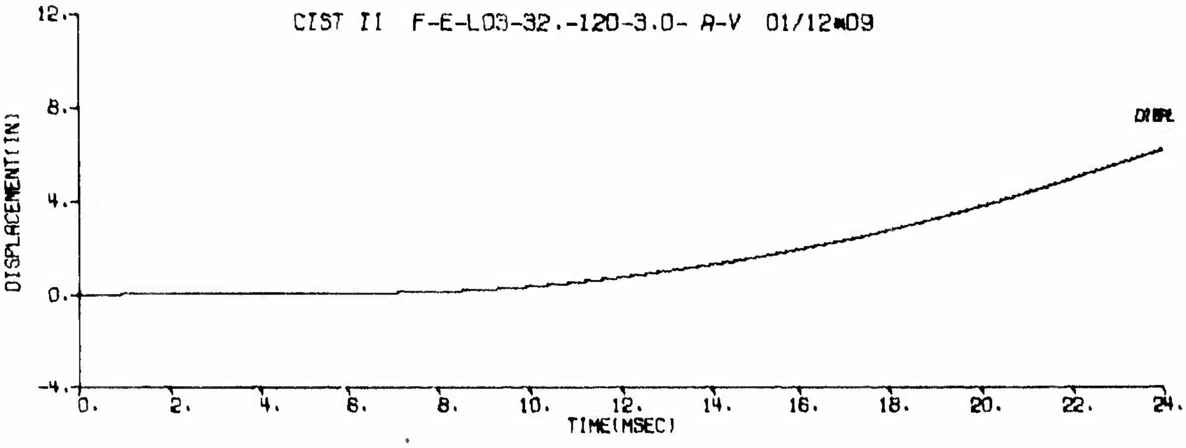

CIST II F-E-L03-32.-120-3.0- A-R 01/13*10
ACCELERATION(GS)
6000.
4000.
2000.
0.
-2000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

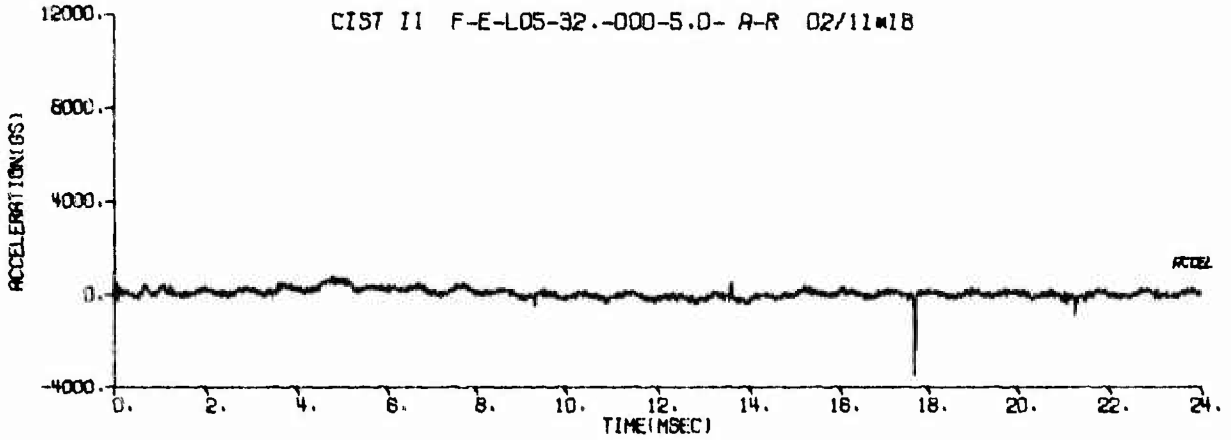

CIST II F-E-L03-32.-120-3.0- A-R 01/13*10
VELOCITY(FT/SEC)
15.
10.
5.
0.
-5.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

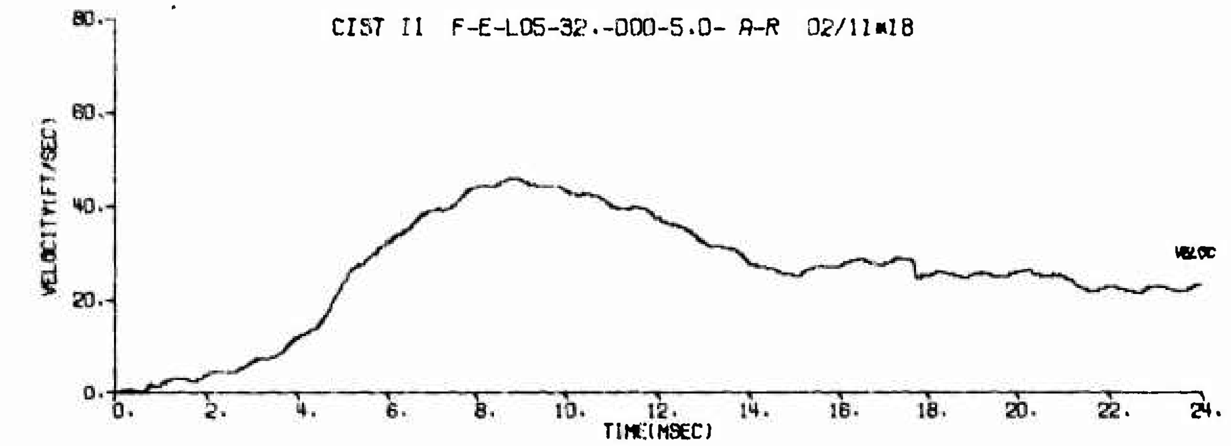

CIST II F-E-L03-32.-120-3.0- A-R 01/13*10
DISPLACEMENT(IN)
2.4
1.6
.8
0.0
-.8
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

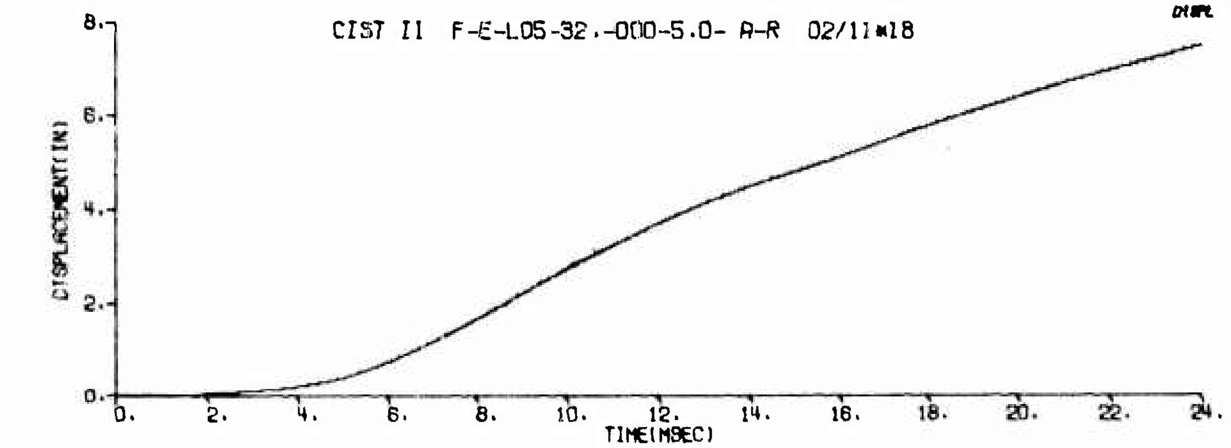

CIST II F-E-L03-32.-120-3.0- A-V 01/12*09
ACCELERATION(GS)
6000.
4000.
2000.
0.
-2000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
ACCEL

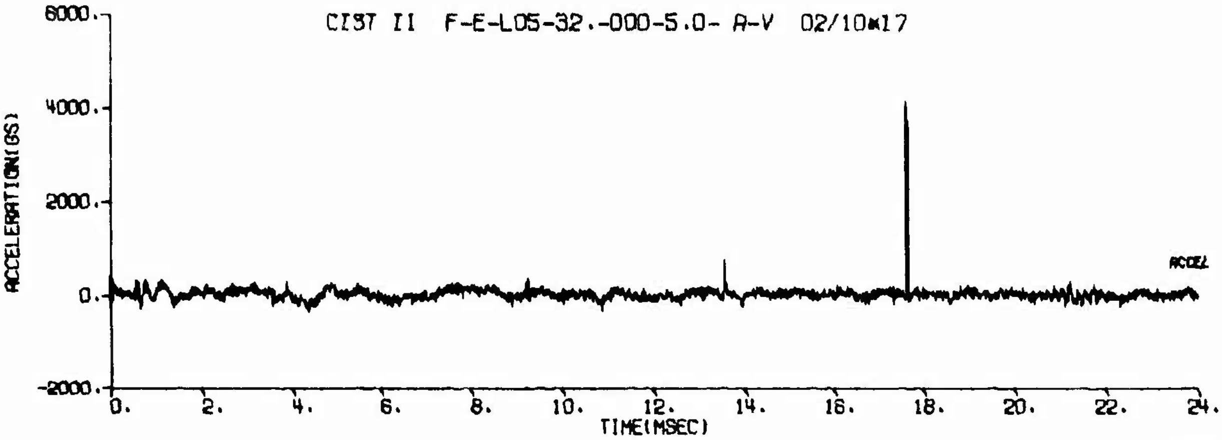

CIST II F-E-L03-32.-120-3.0- A-V 01/12*09
VELOCITY(FT/SEC)
60.
40.
20.
0.
-20.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
VELOC

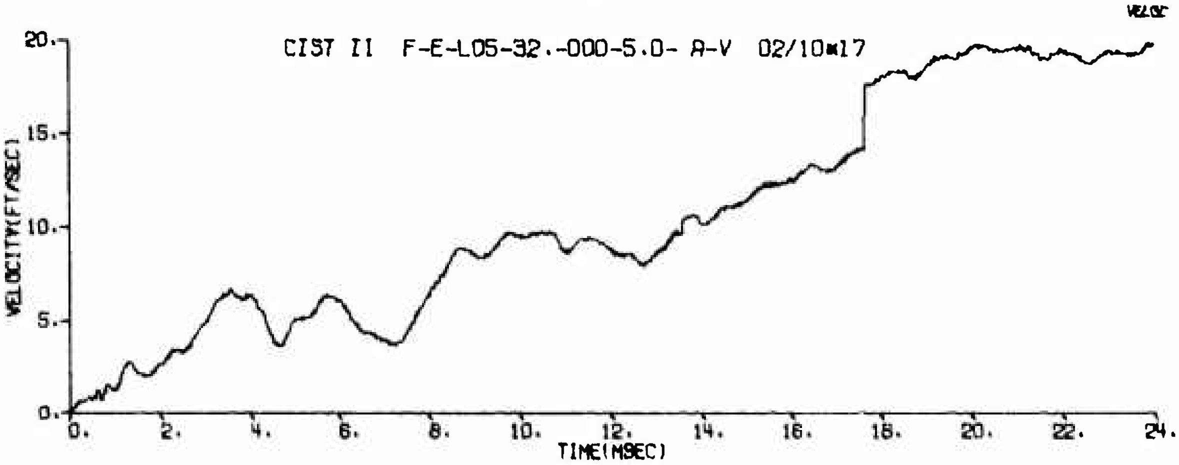

CIST II F-E-L03-32.-120-3.0- A-V 01/12*09
DISPLACEMENT(IN)
12.
8.
4.
0.
-4.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
DISPL

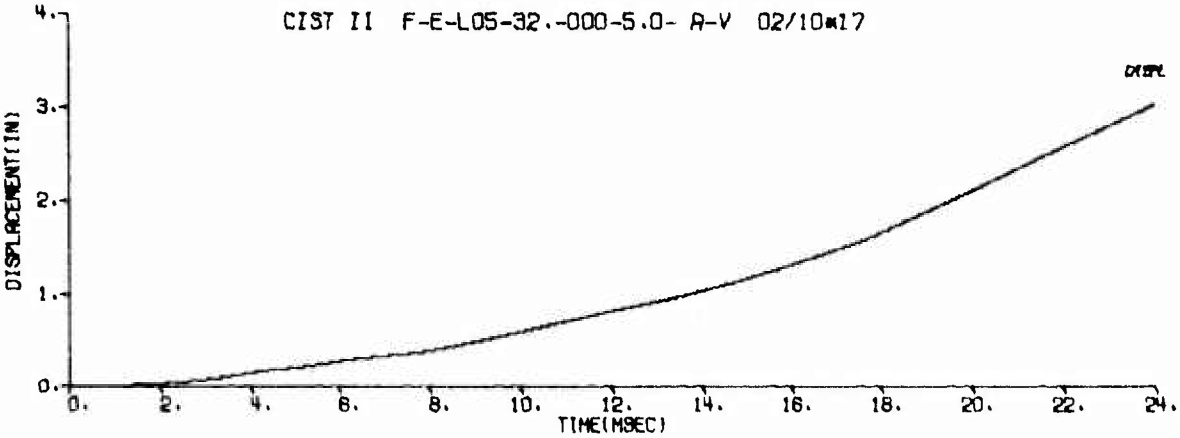

CIST II F-E-L05-32.-000-5.0- A-R 02/11*18
ACCELERATION(GS)
12000.
8000.
4000.
0.
-4000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

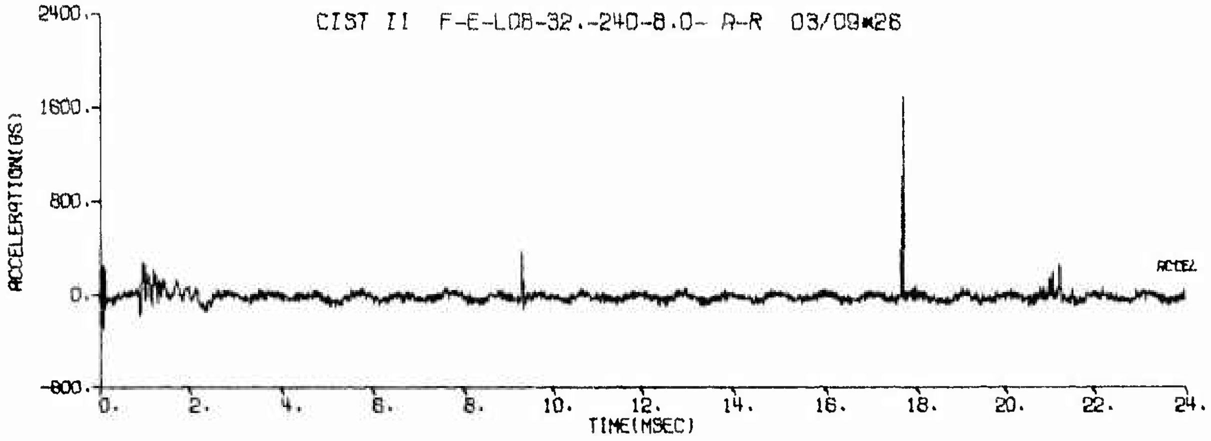

CIST II F-E-L05-32.-000-5.0- A-R 02/11*18
VELOCITY(FT/SEC)
80.
60.
40.
20.
0.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

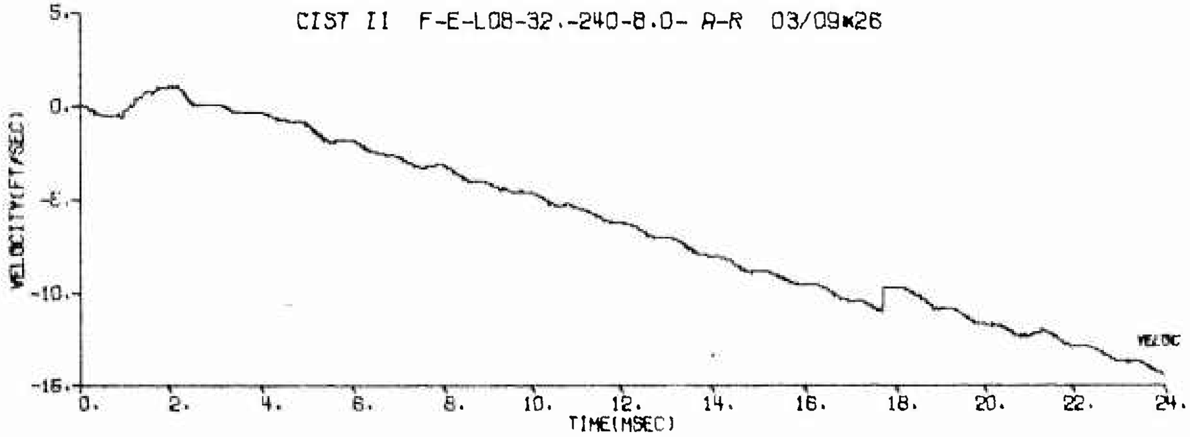

CIST II F-E-L05-32.-000-5.0- A-R 02/11*18
DISPL
DISPLACEMENT(IN)
8.
6.
4.
2.
0.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

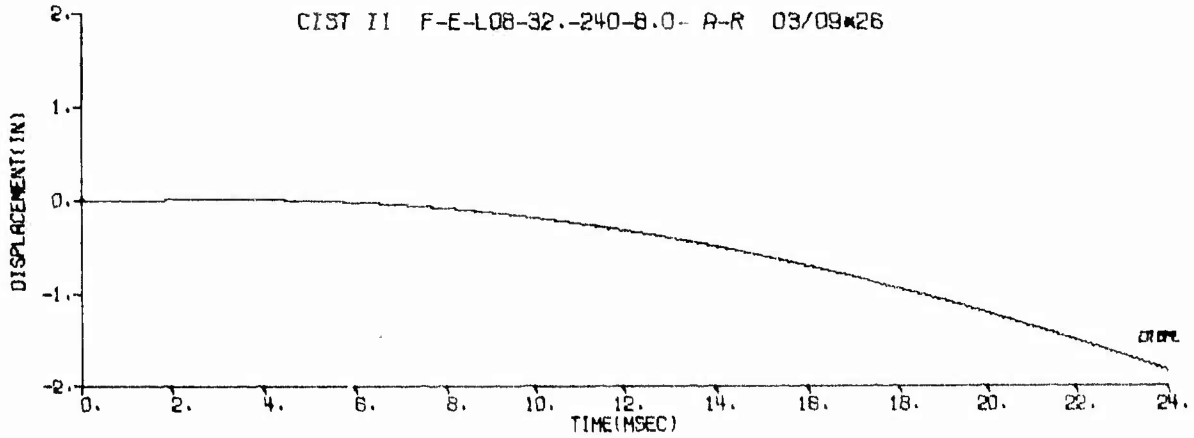

CIST II F-E-L05-32.-000-5.0- A-V 02/10*17
ACCELERATION(GS)
6000.
4000.
2000.
0.
-2000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

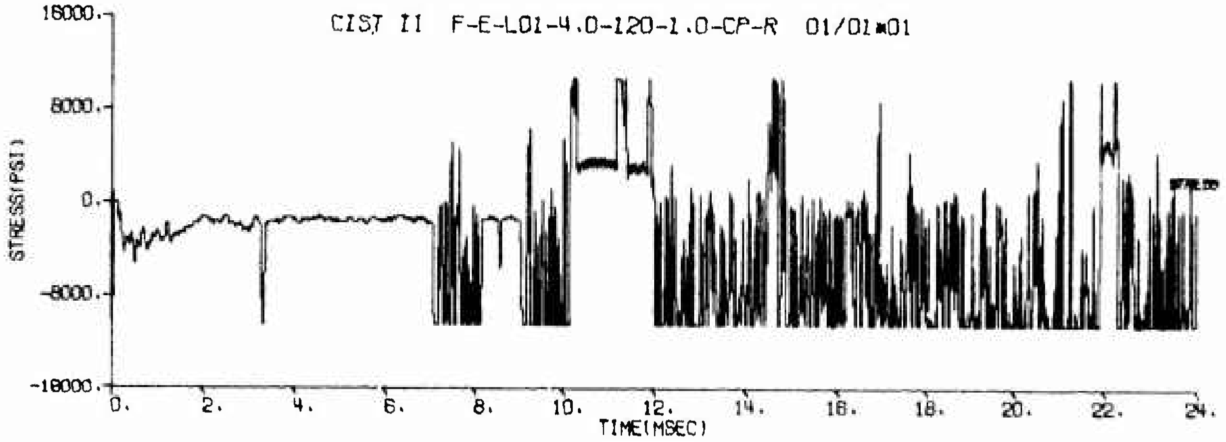

CIST II F-E-L05-32.-000-5.0- A-V 02/10*17
VELOCITY(FT/SEC)
20.
15.
10.
5.
0.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

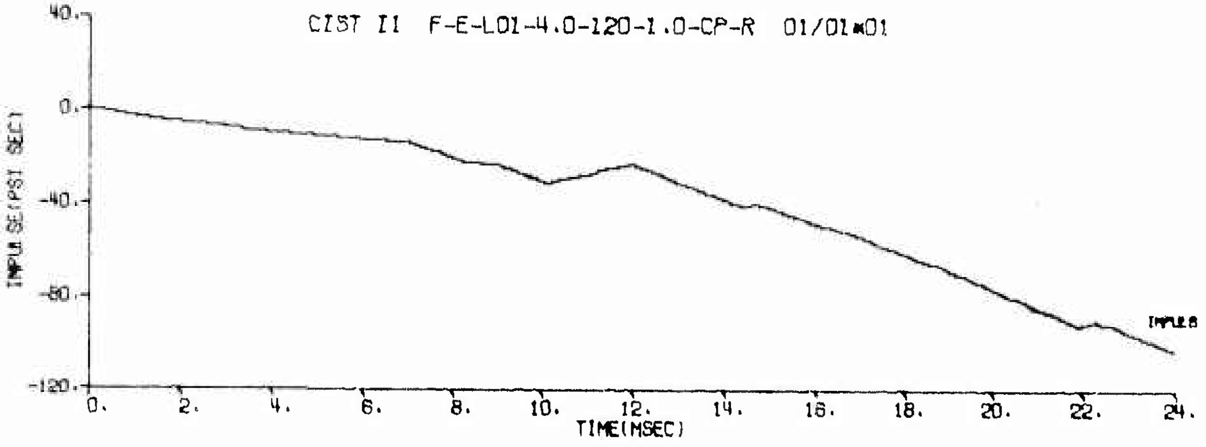

CIST II F-E-L05-32.-000-5.0- A-V 02/10*17
DISPLACEMENT(IN)
4.
3.
2.
1.
0.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

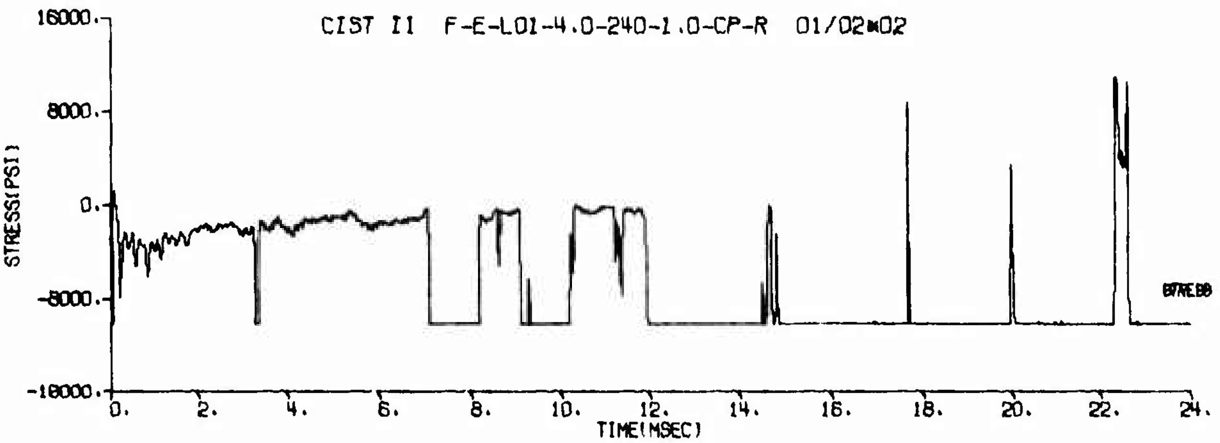

CIST II F-E-L08-32.-240-8.0- A-R 03/09*26
ACCELERATION(GS)
2400.
1600.
800.
0.
-800.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

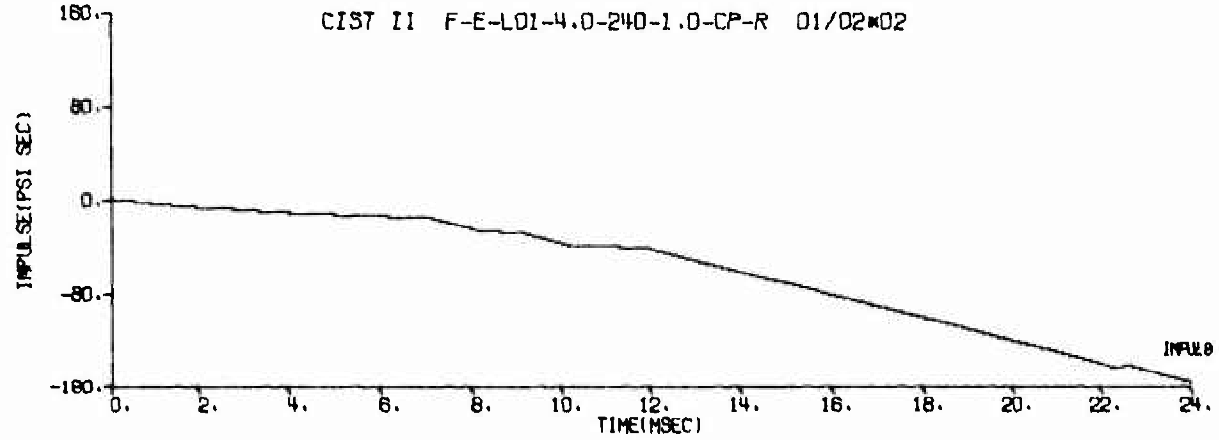

CIST II F-E-L08-32.-240-8.0- A-R 03/09*26
VELOCITY(FT/SEC)
5.
0.
-5.
-10.
-15.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

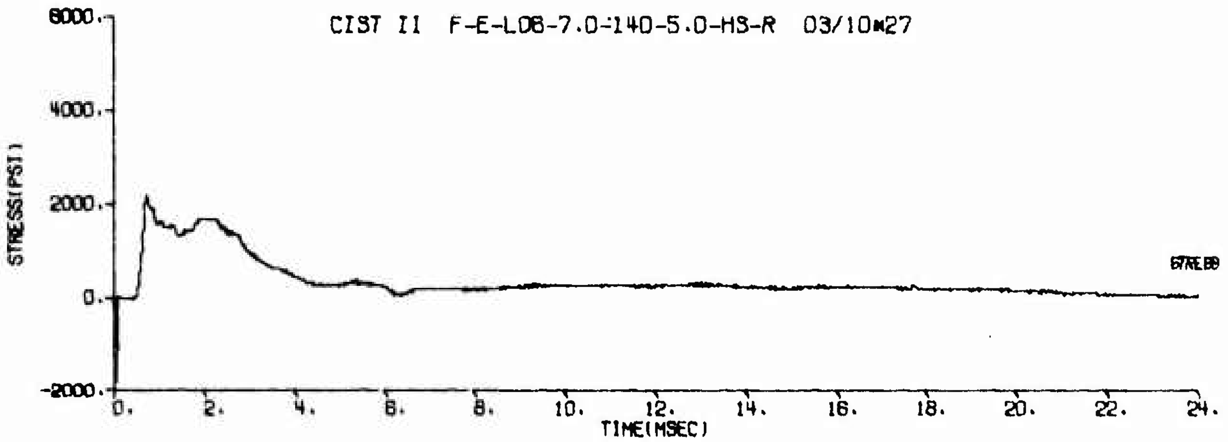

CIST II F-E-L08-32.-240-8.0- A-R 03/09*26
DISPLACEMENT(IN)
2.
1.
0.
-1.
-2.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

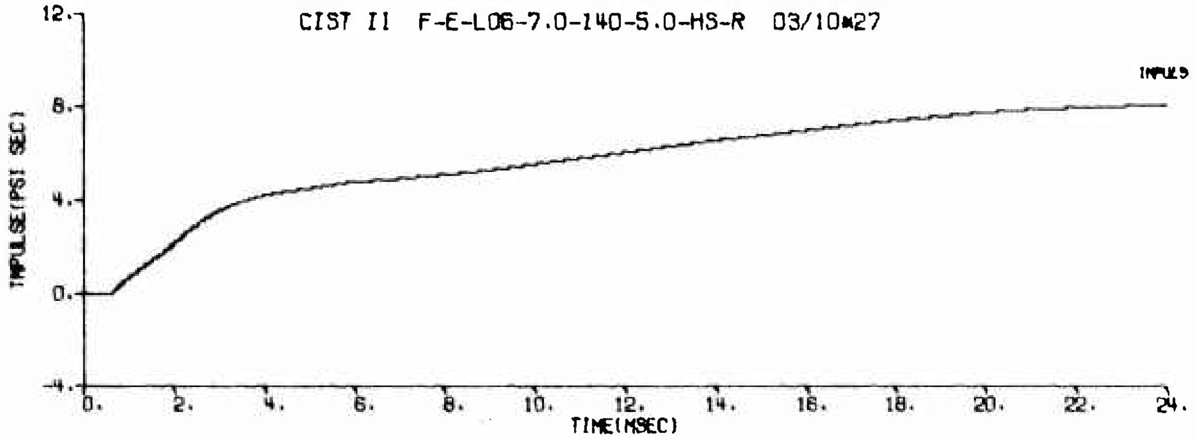

CIST II F-E-L01-4.0-120-1.0-CP-R 01/01*01
16000.
8000.
0.
-8000.
-16000.
STRESS(PSI)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
STRESS

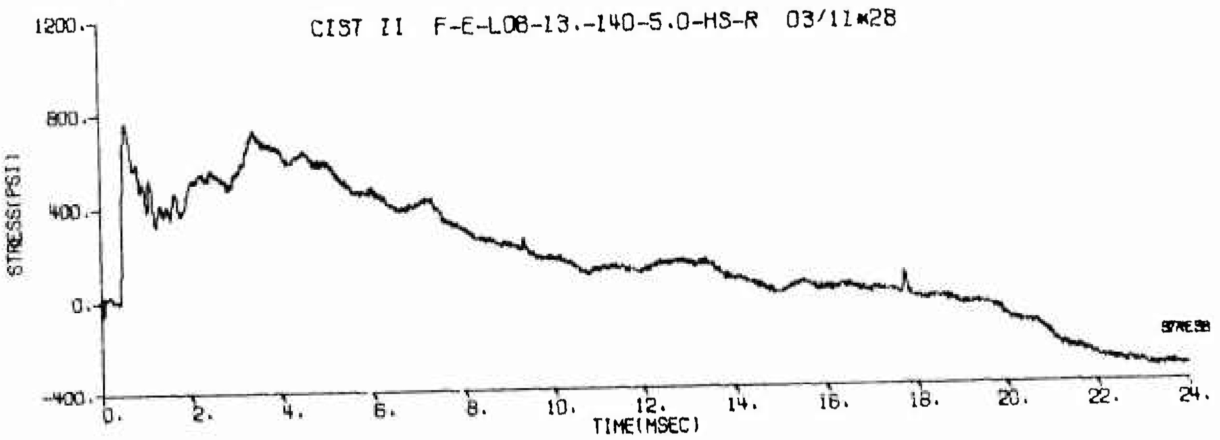

CIST II F-E-L01-4.0-120-1.0-CP-R 01/01*01
40.
0.
-40.
-80.
-120.
IMPULSE(PSI SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
IMPULS

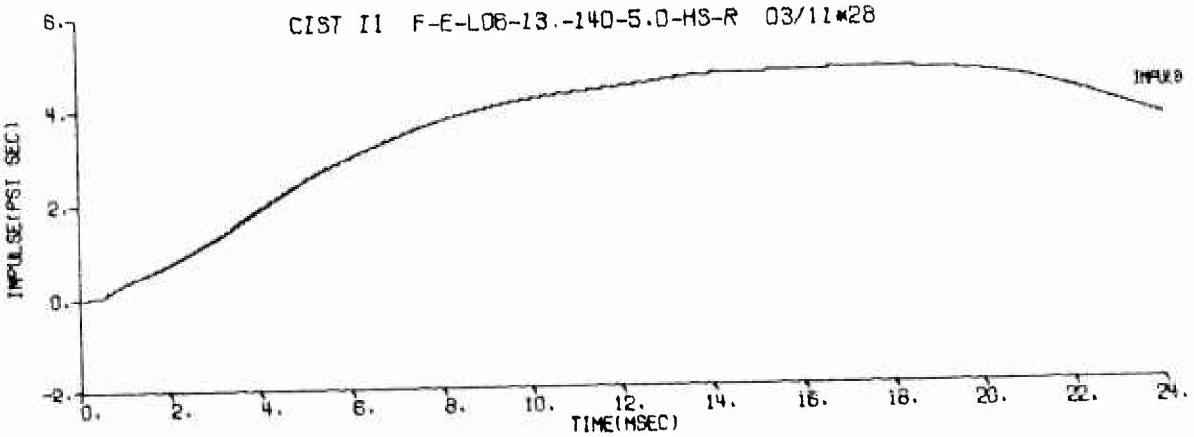

CIST II F-E-L01-4.0-240-1.0-CP-R 01/02*02
16000.
8000.
0.
-8000.
-16000.
STRESS(PSI)
STRESS
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

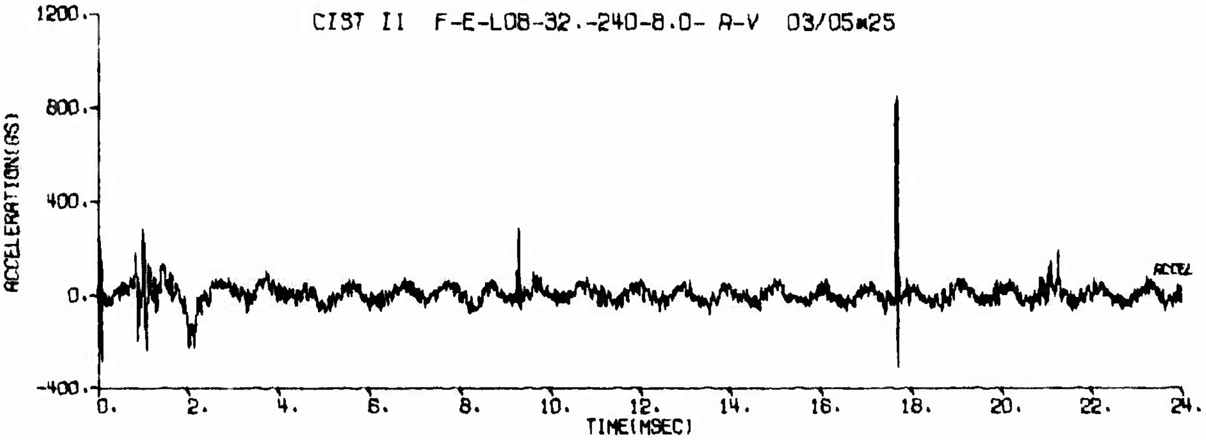

CIST II F-E-L01-4.0-240-1.0-CP-R 01/02*02
160.
80.
0.
-80.
-160.
IMPULSE(PSI SEC)
IMPULS
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

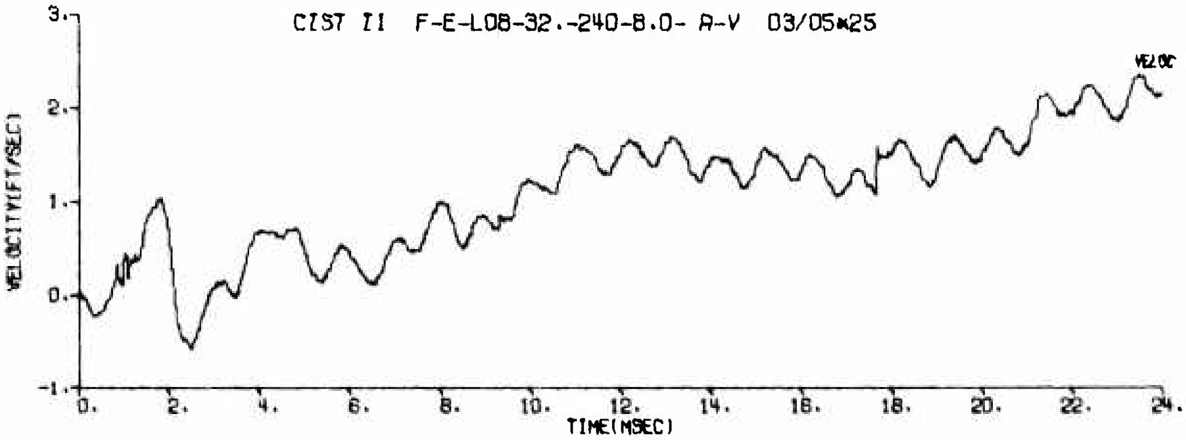

CIST II F-E-L06-7.0-140-5.0-HS-R 03/10*27
6000.
4000.
2000.
0.
-2000.
STRESS(PSI)
STRESS
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

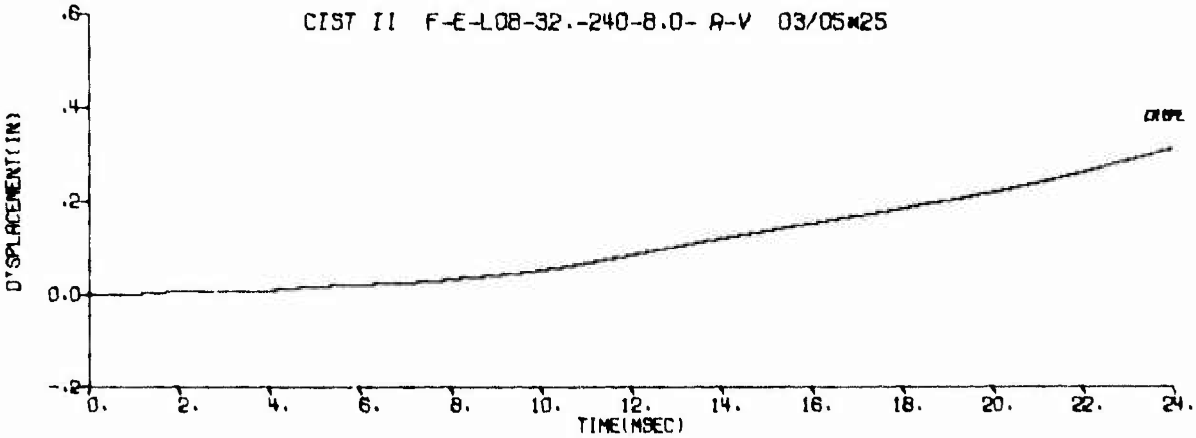

CIST II F-E-L06-7.0-140-5.0-HS-R 03/10*27
12.
8.
4.
0.
-4.
IMPULSE(PSI SEC)
IMPULS
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST II F-E-L06-13.-140-5.0-HS-R 03/11*28
1200.
800.
400.
0.
-400.
STRESS(PSI)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
STRESS


CIST II F-E-L06-13.-140-5.0-HS-R 03/11*28
6.
4.
2.
0.
-2.
IMPULSE(PSI SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
IMPULS

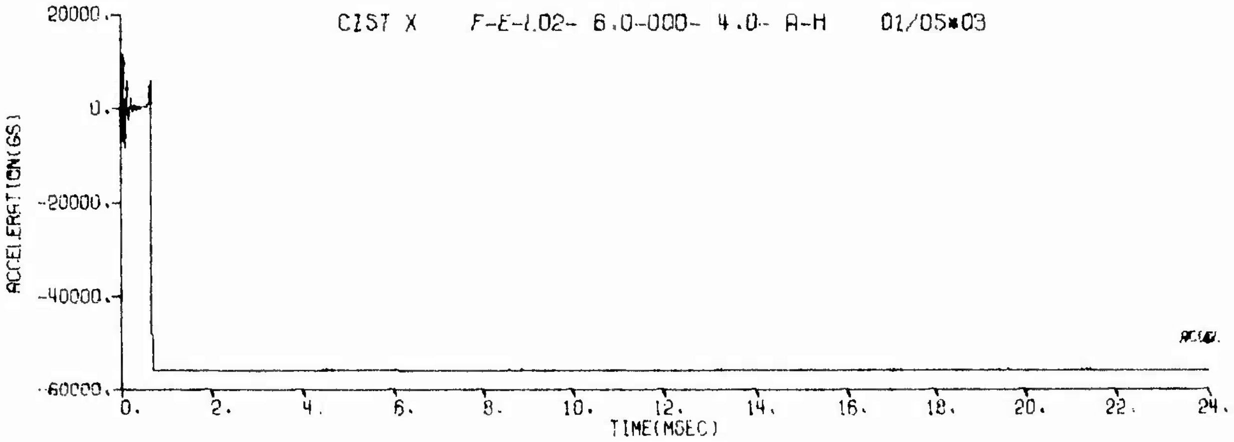

CIST II F-E-L08-32.-240-8.0- A-V 03/05*25
1200.
800.
400.
0.
-400.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

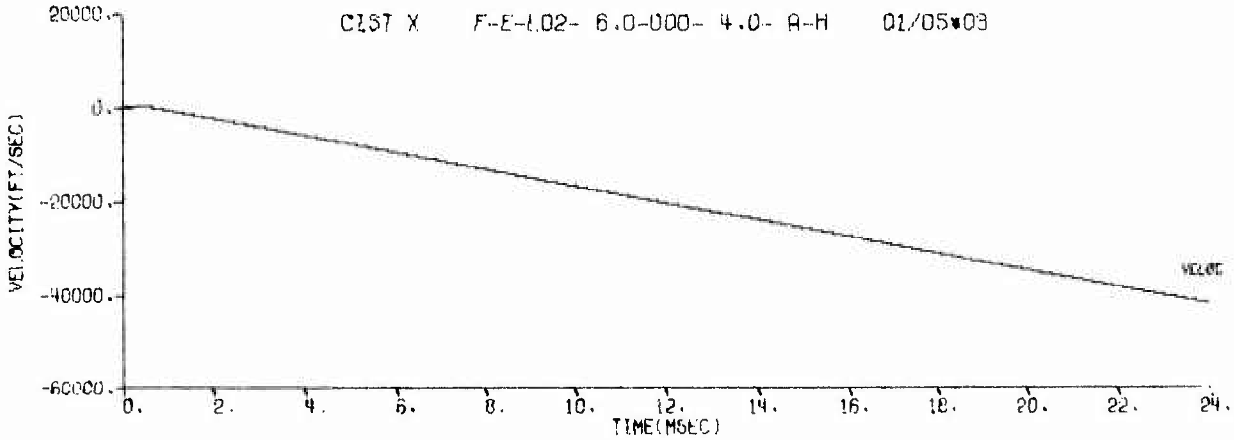

CIST II F-E-L08-32.-240-8.0- A-V 03/05*25
3.
2.
1.
0.
-1.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

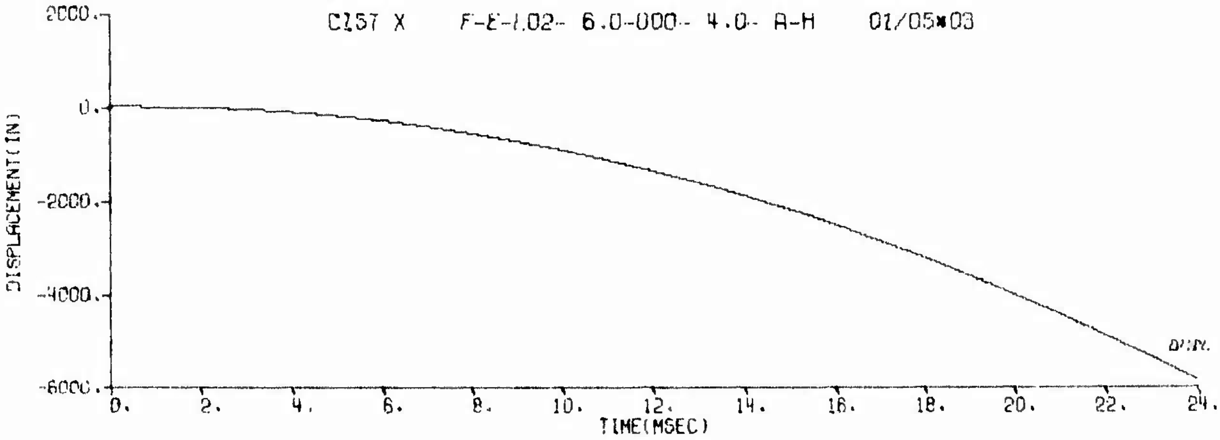

CIST II F-E-L08-32.-240-8.0- A-V 03/05*25
.6
.4
.2
0.0
-.2
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

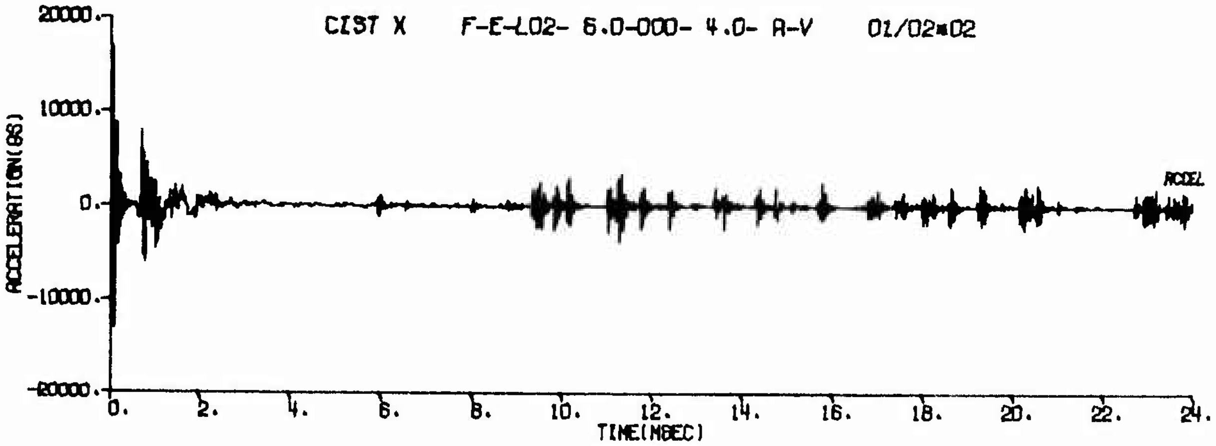
APPENDIX B

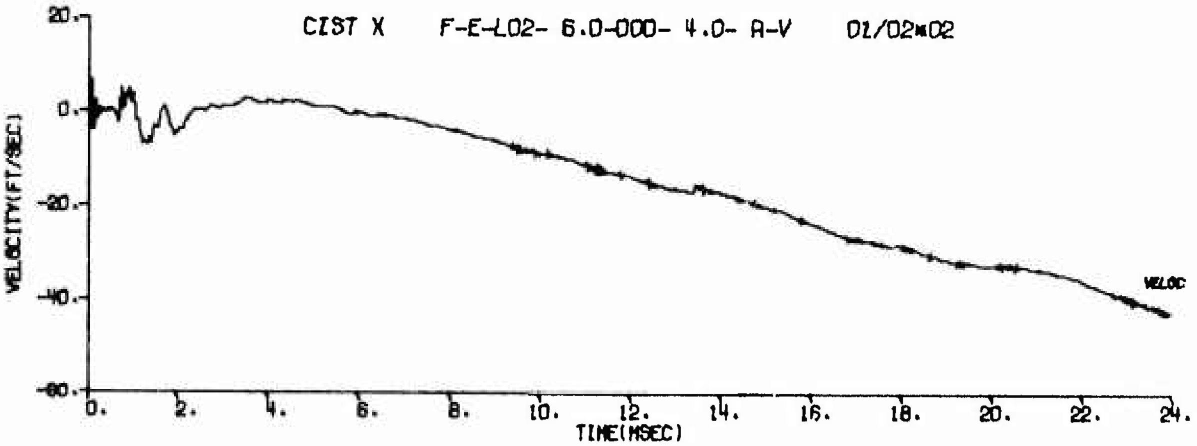
CIST 10 TIME HISTORY PLOTS

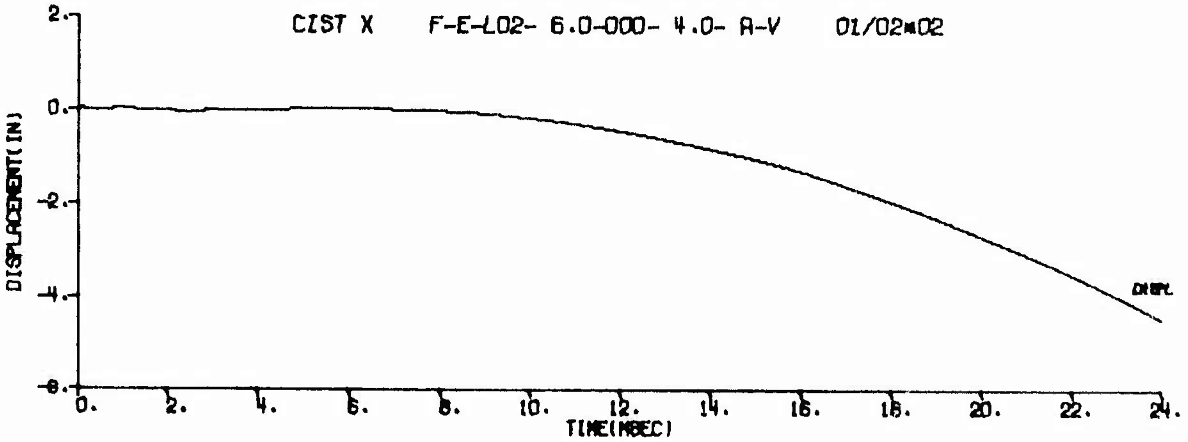

CIST X F-E-I.02- 6.0-000- 4.0- A-H 01/05*03
ACCELERATION(GS)
20000.
0.
-20000.
-40000.
-60000.
ACCEL.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

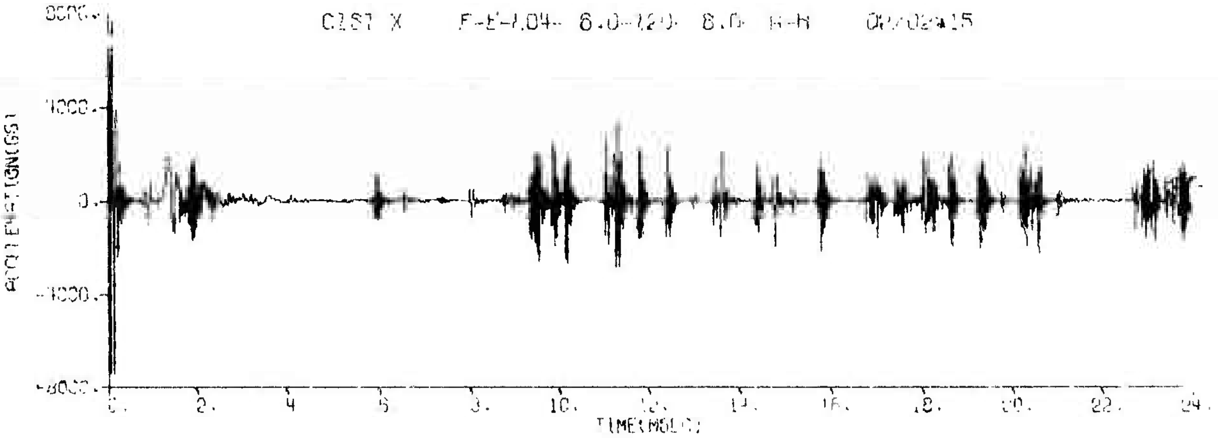

CIST X F-E-I.02- 6.0-000- 4.0- A-H 01/05*03
VELOCITY(FT/SEC)
20000.
0.
-20000.
-40000.
-60000.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

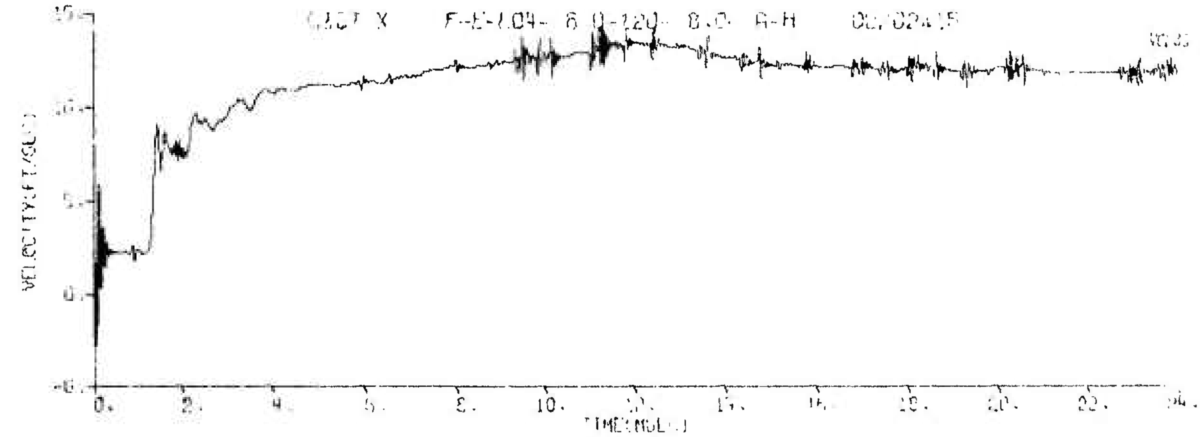

CIST X F-E-I.02- 6.0-000- 4.0- A-H 01/05*03
DISPLACEMENT(IN)
2000.
0.
-2000.
-4000.
-6000.
DISP.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

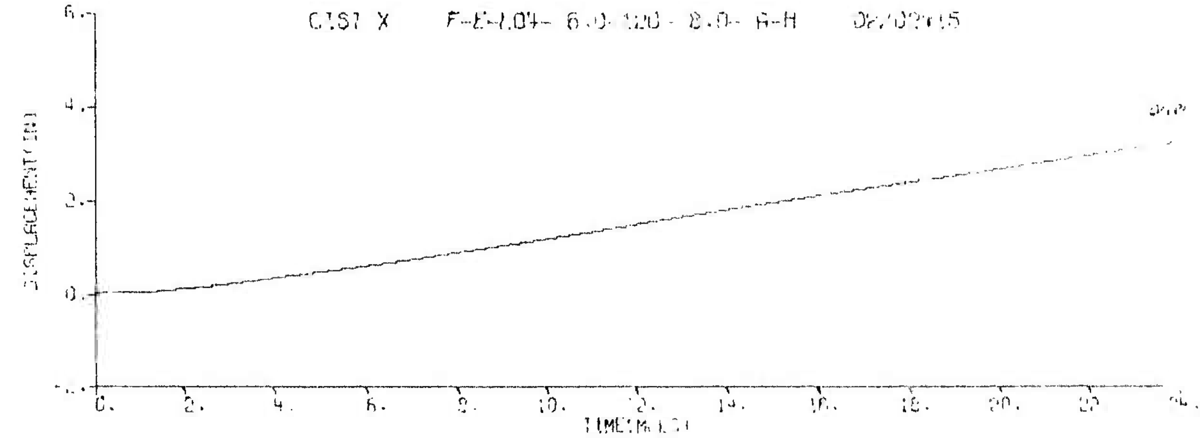

CIST X F-E-L02- 6.0-000- 4.0- A-V 01/02*02
ACCELERATION(GS)
20000.
10000.
0.
-10000.
-20000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

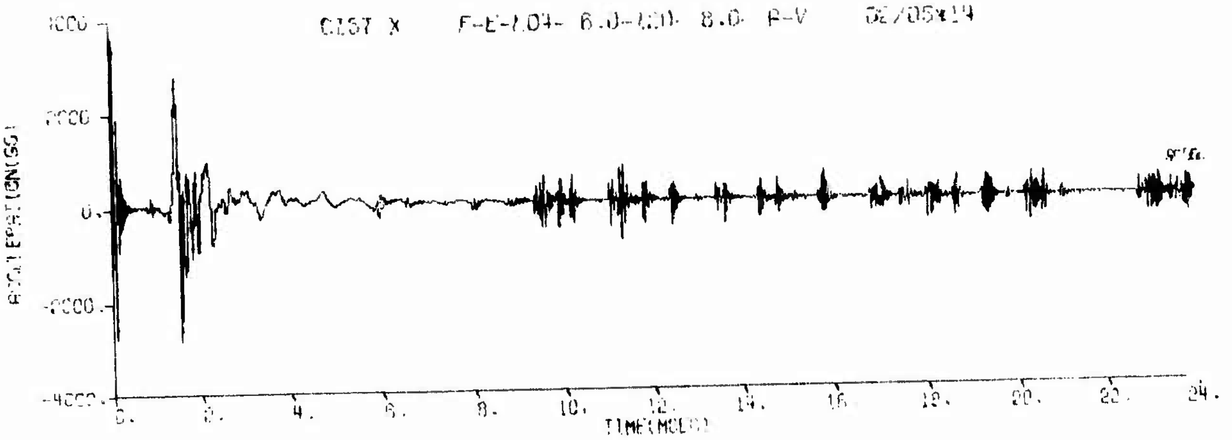

CIST X F-E-L02- 6.0-000- 4.0- A-V 01/02*02
VELOCITY(FT/SEC)
20.
0.
-20.
-40.
-60.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

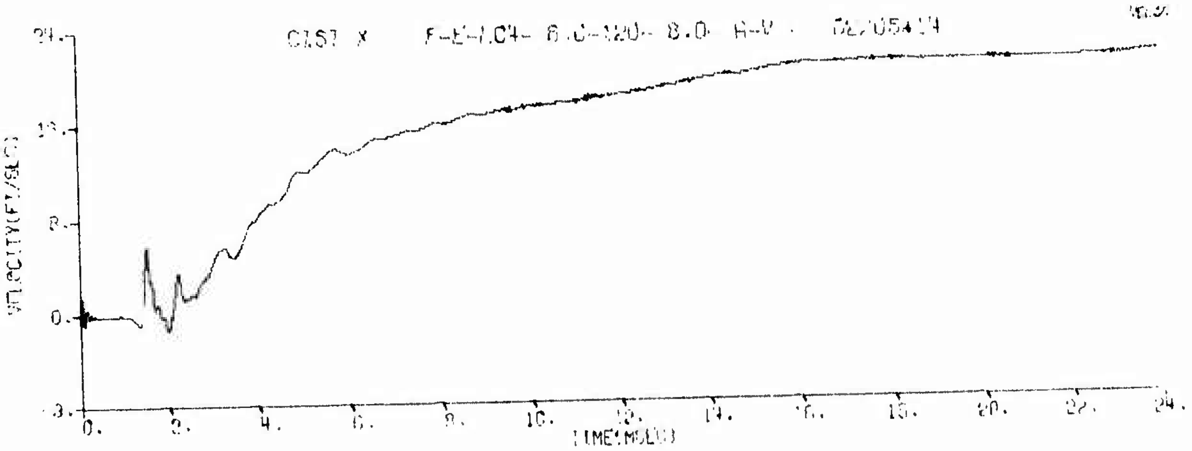

CIST X F-E-L02- 6.0-000- 4.0- A-V 01/02*02
DISPLACEMENT(IN)
2.
0.
-2.
-4.
-6.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

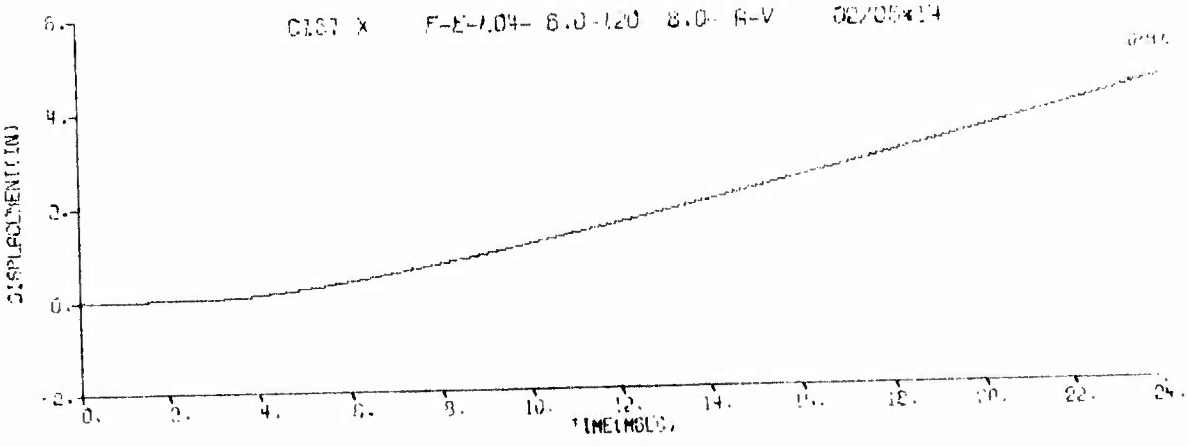

CIST X F-E-7.04- 6.0-120- 8.0- A-H 02/02*15
8000.
4000.
0.
-4000.
-8000.
ACCELERATION(GS)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

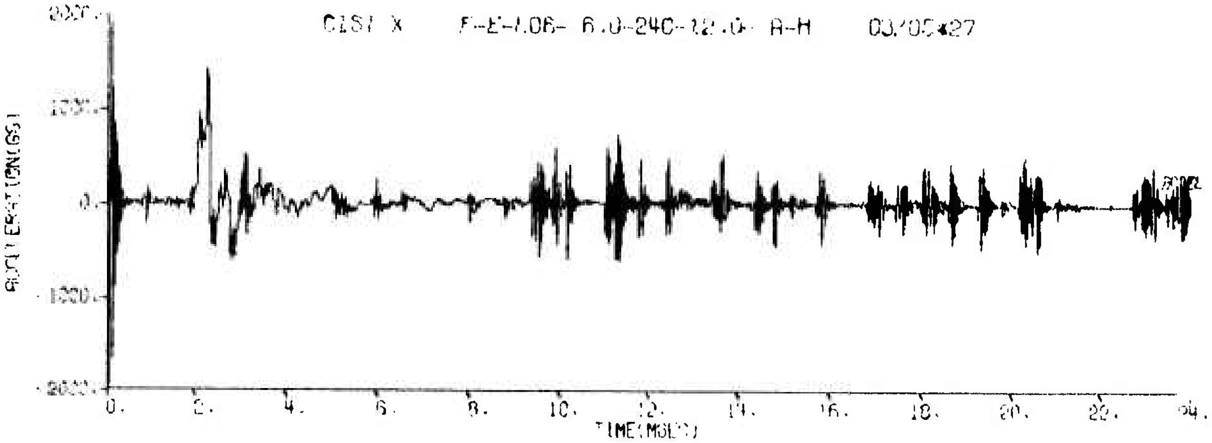

CIST X F-E-7.04- 6.0-120- 8.0- A-H 02/02*15
15.
10.
5.
0.
-5.
VELOCITY(FT/SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

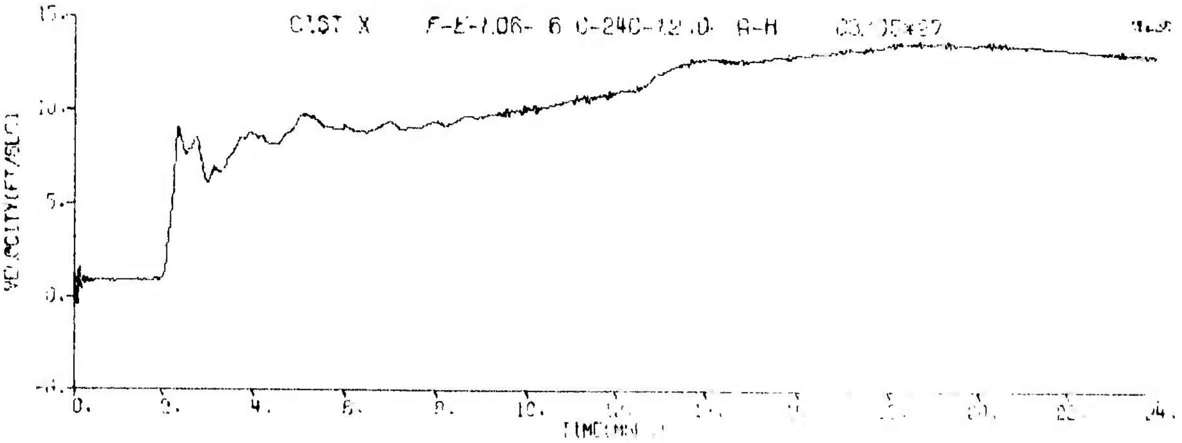

CIST X F-E-7.04- 6.0-120- 8.0- A-H 02/02*15
6.
4.
2.
0.
-2.
DISPLACEMENT(IN)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

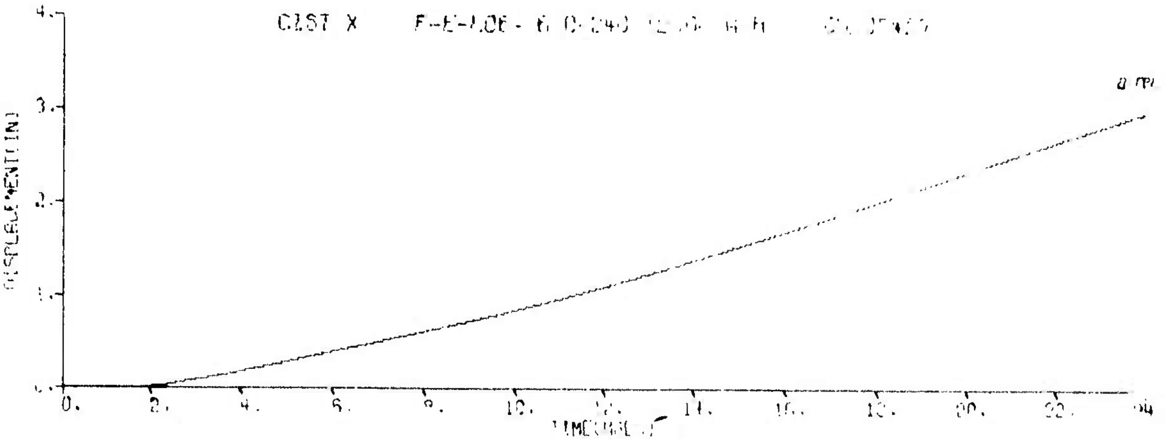

GIST X F-E-7.04- 6.0-120- 8.0- A-V 02/05*14
ACCELERATION(GS)
4000
2000
0.
-2000.
-4000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

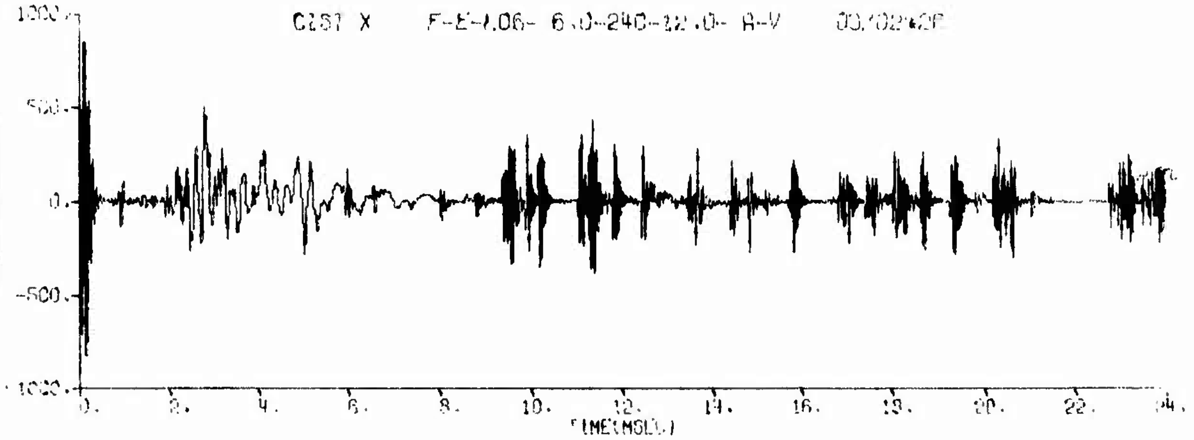

GIST X F-E-7.04- 6.0-120- 8.0- A-V 02/05*14
VELOCITY(FT/SEC)
24.
16.
8.
0.
-8.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

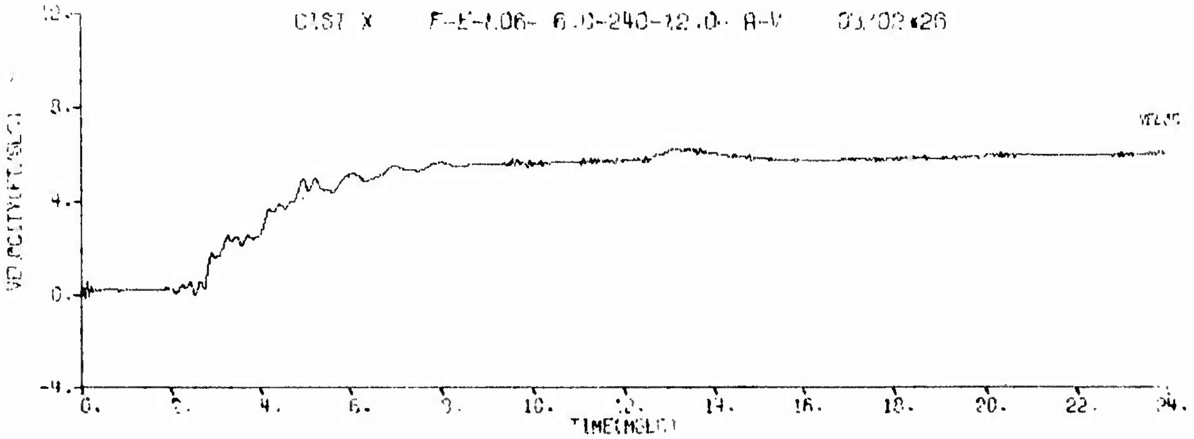

GIST X F-E-7.04- 6.0-120 8.0- A-V 02/05*14
DISPLACEMENT(IN)
6.
4.
2.
0.
-2.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

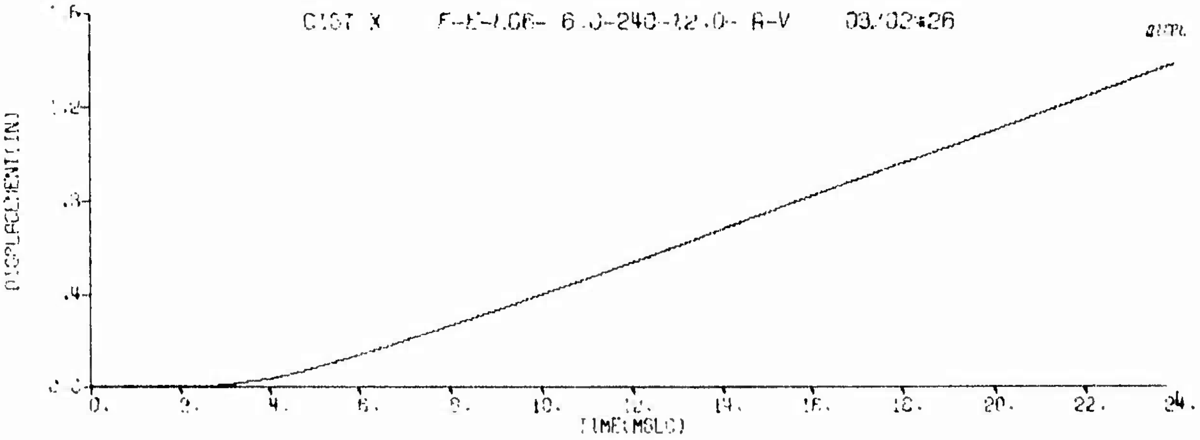

CIST X F-E-1.06- 6.0-240-12.0- A-H 03/05*27
ACCELERATION(GS)
2000.
1000.
0.
-1000.
-2000.
TIME(MSEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.

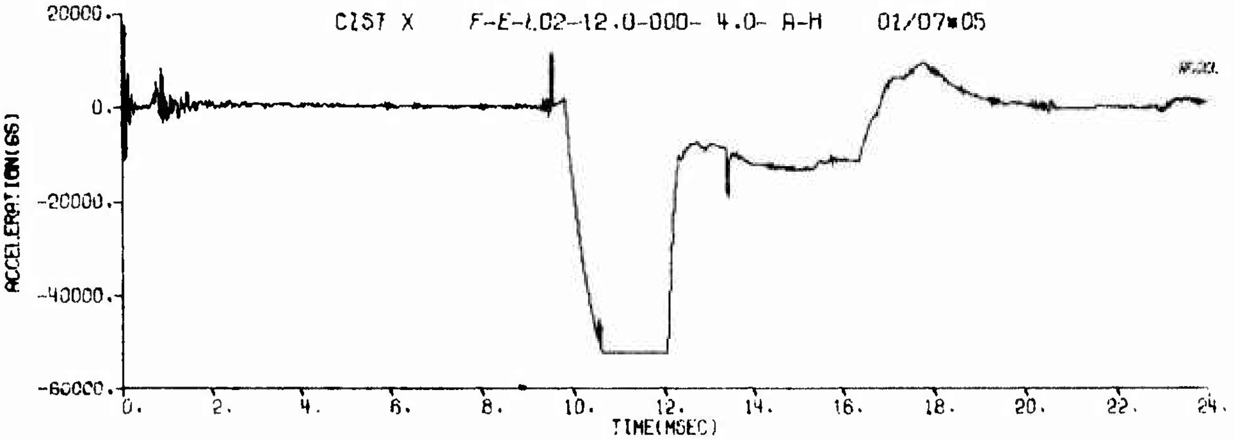

CIST X F-E-1.06- 6.0-240-12.0- A-H 03/05*27
VELOCITY(FT/SEC)
15.
10.
5.
0.
-5.
TIME(MSEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.

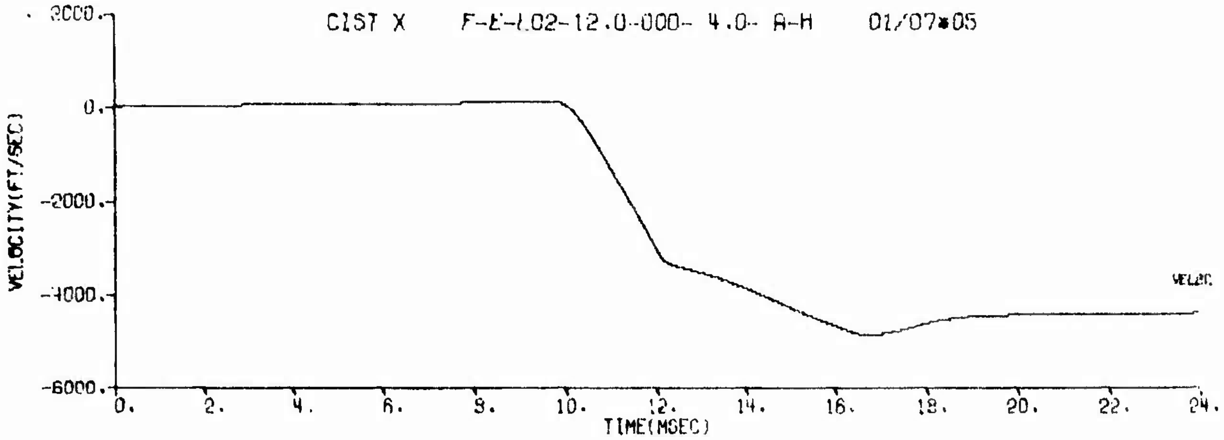

CIST X F-E-1.06- 6.0-240-12.0- A-H 03/05*27
DISPLACEMENT(IN)
4.
3.
2.
1.
0.
TIME(MSEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.

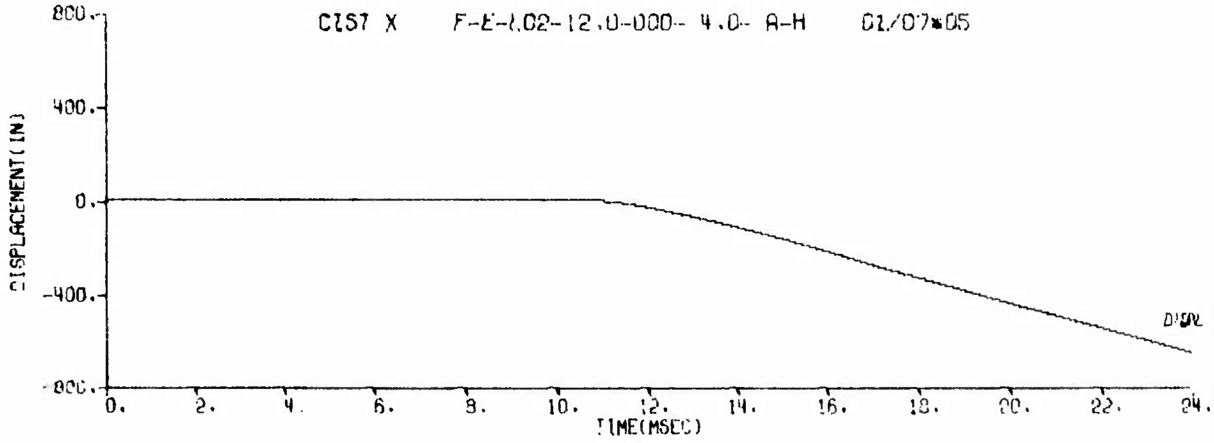

CIST X F-E-1.06- 6.0-240-12.0- A-V 03/02*26
ACCELERATION(GS)
1000.
500.
0.
-500.
-1000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

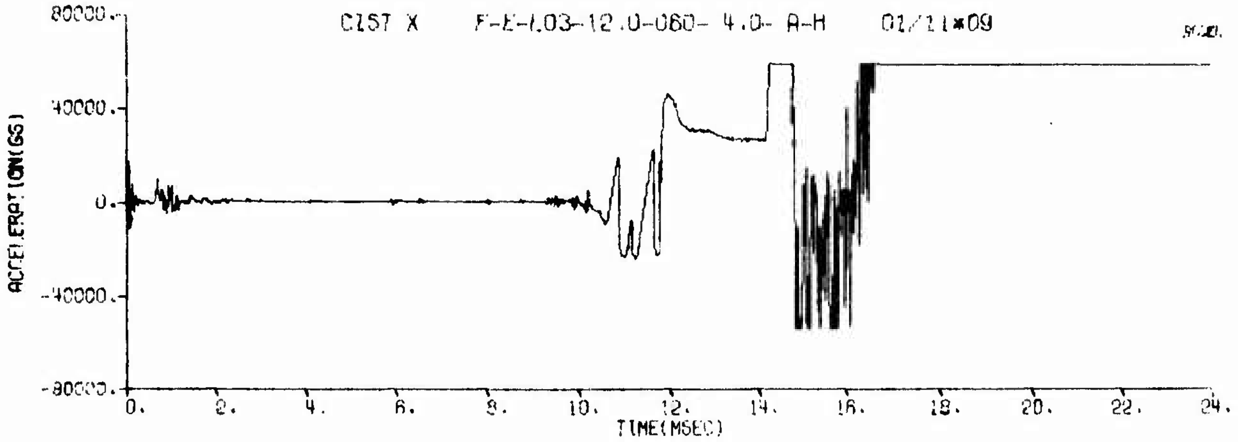

CIST X F-E-1.06- 6.0-240-12.0- A-V 03/02*26
VELOCITY(FT/SEC)
VELOC
12.
8.
4.
0.
-4.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

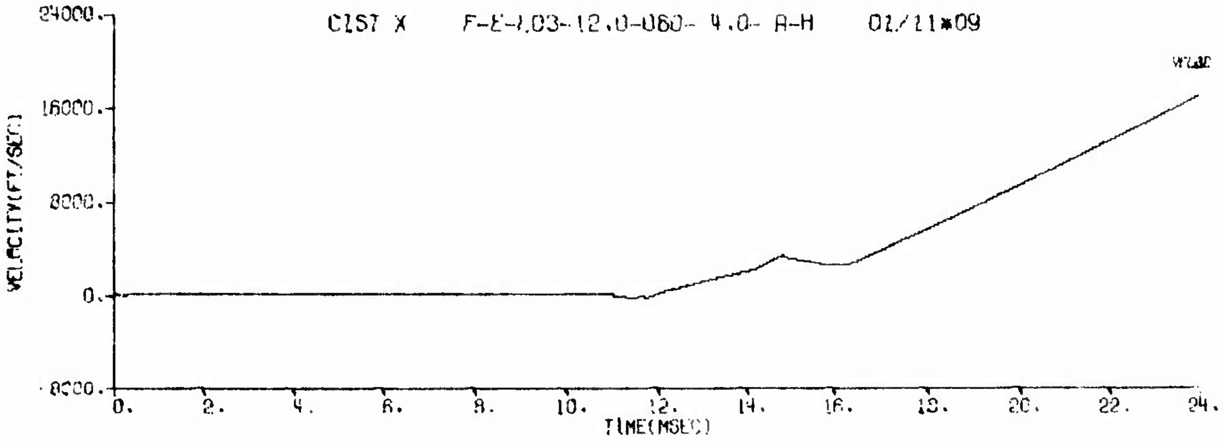

CIST X F-E-1.06- 6.0-240-12.0- A-V 03/02*26
DISPLACEMENT(IN)
DISPL
1.6
1.2
.8
.4
0.0
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

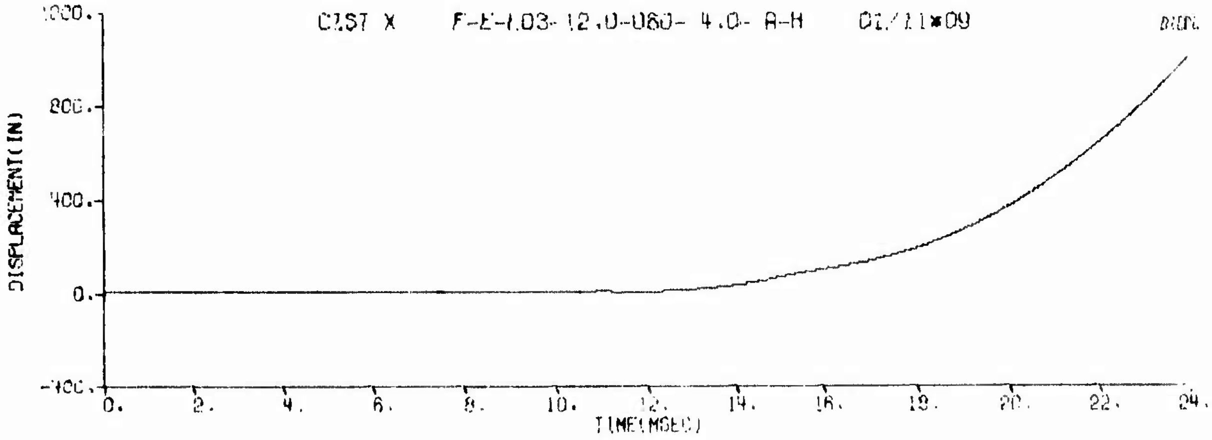

CIST X F-E-L02-12.0-000- 4.0- A-H 01/07*05
ACCELERATION(GS)
20000.
0.
-20000.
-40000.
-60000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

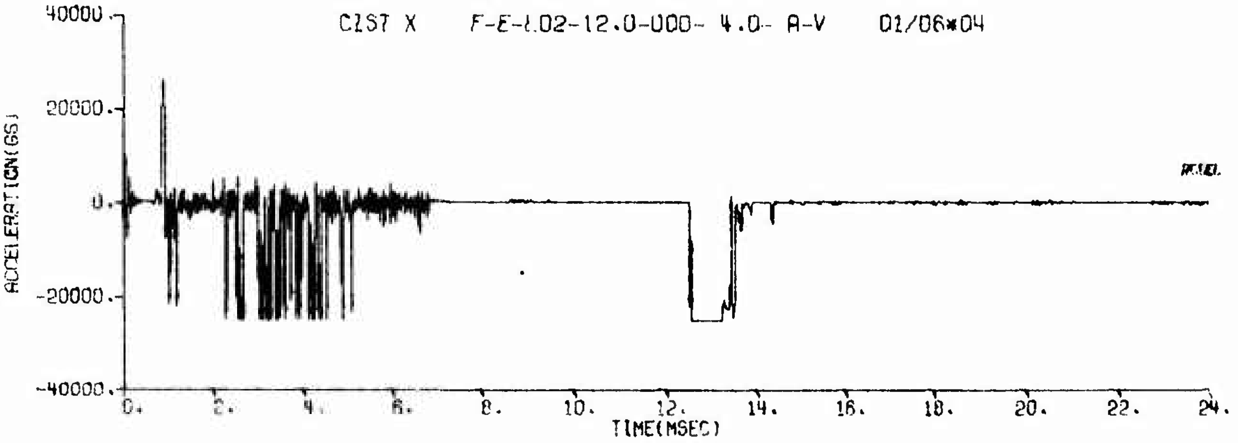

CIST X F-E-L02-12.0-000- 4.0- A-H 01/07*05
VELOCITY(FT/SEC)
2000.
0.
-2000.
-4000.
-6000.
VEL2C
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

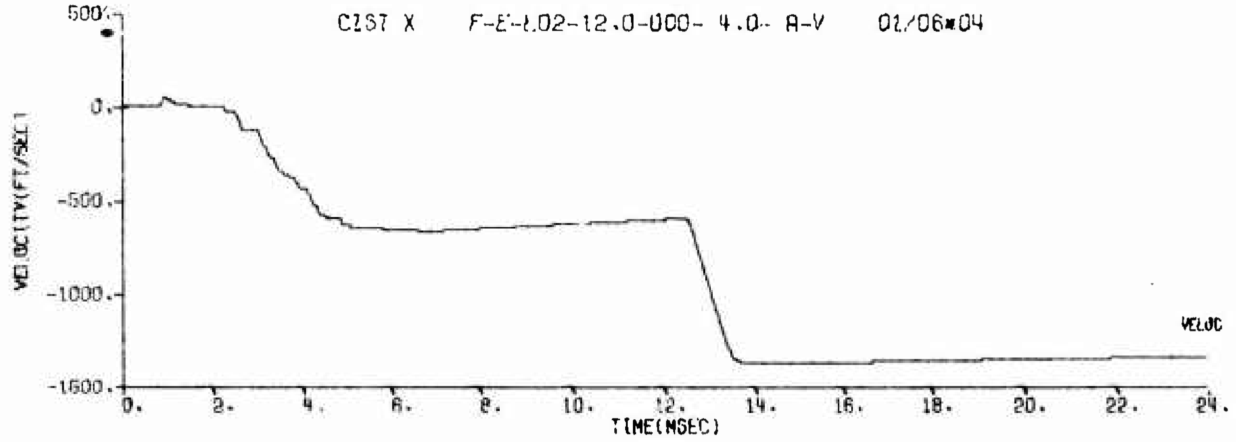

CIST X F-E-L02-12.0-000- 4.0- A-H 01/07*05
DISPLACEMENT(IN)
800.
400.
0.
-400.
-800.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

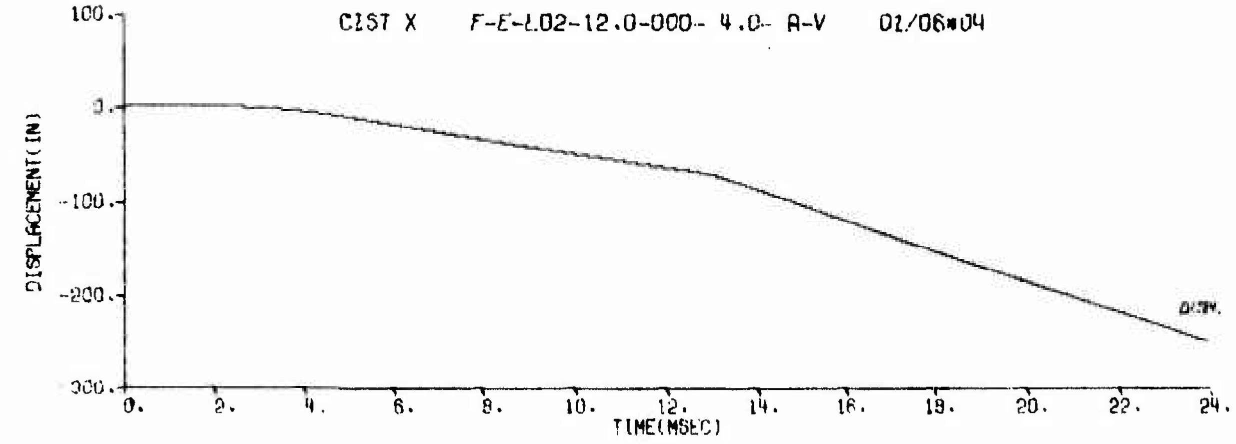

CIS7 X F-E-1.03-12.0-060- 4.0- A-H 01/11*09
ACCELERATION(GS)
80000.
40000.
0.
-40000.
-80000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

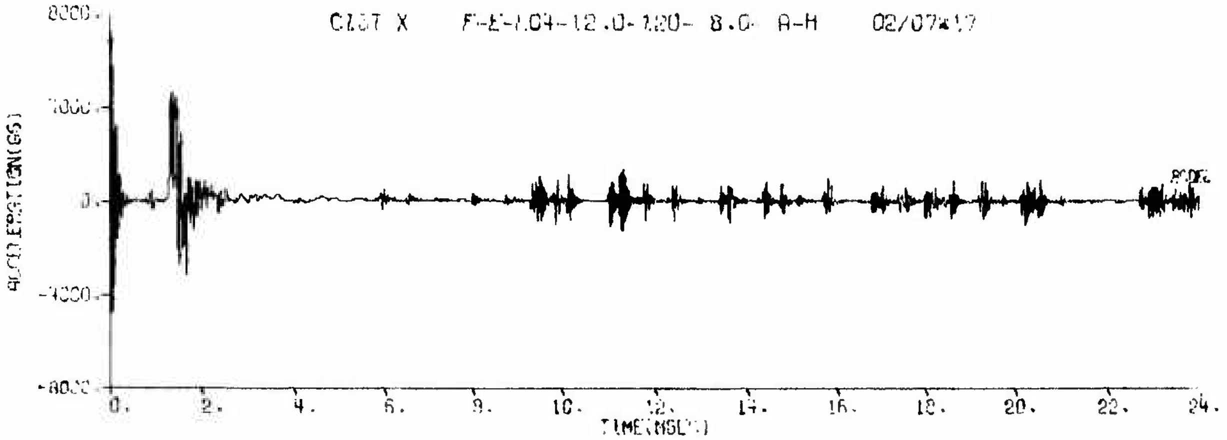

CIS7 X F-E-1.03-12.0-060- 4.0- A-H 01/11*09
VELOCITY(FT/SEC)
24000.
16000.
8000.
0.
-8000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

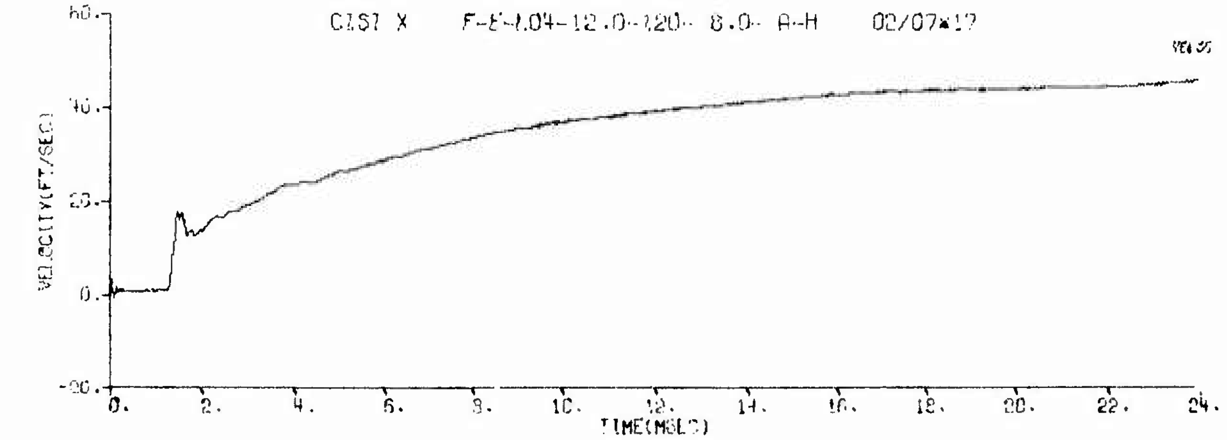

CIS7 X F-E-1.03-12.0-060- 4.0- A-H 01/11*09
DISPLACEMENT(IN)
1200.
800.
400.
0.
-400.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

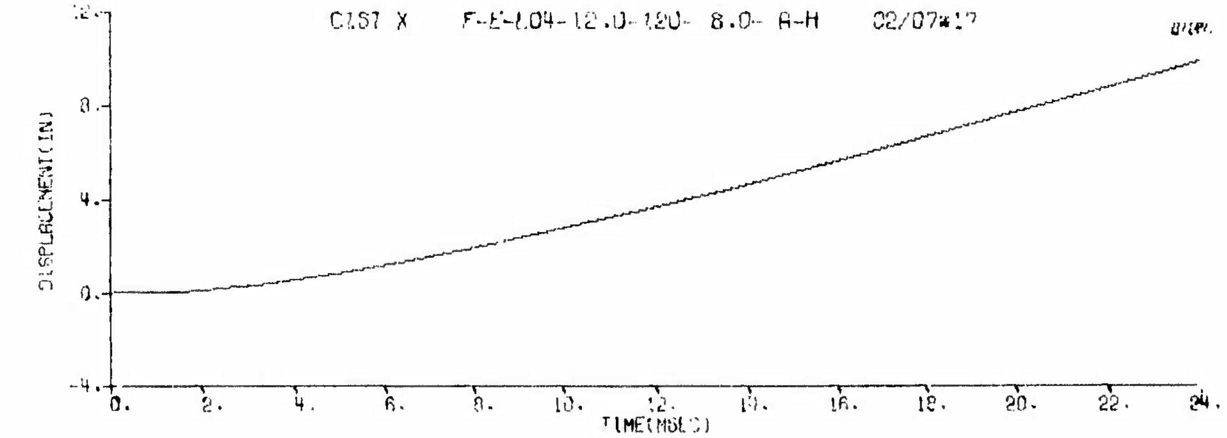

CIS7 X F-E-L02-12.0-000- 4.0- A-V 01/06*04
40000.
20000.
0.
-20000.
-40000.
ACCELERATION(GS)
ACCEL.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

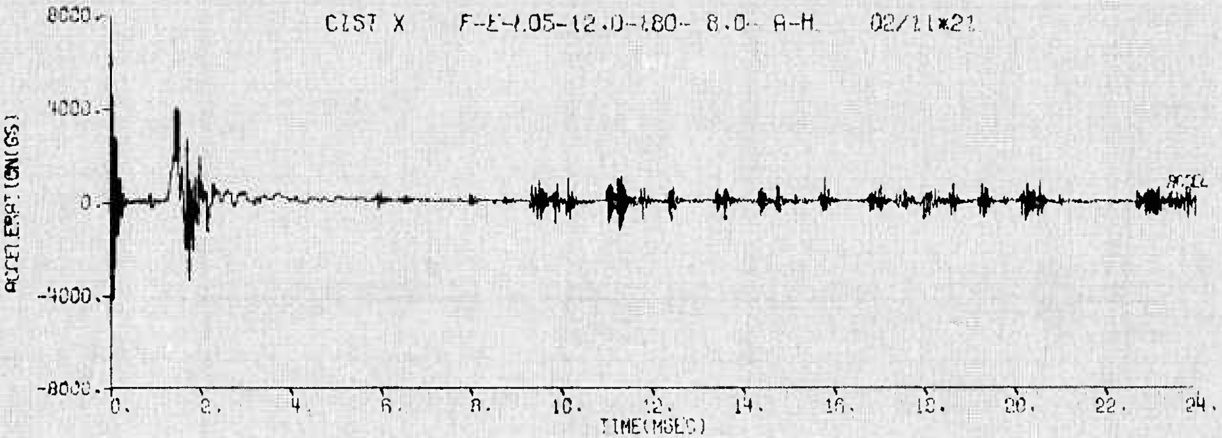

CIS7 X F-E-L02-12.0-000- 4.0- A-V 01/06*04
500.
0.
-500.
-1000.
-1500.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

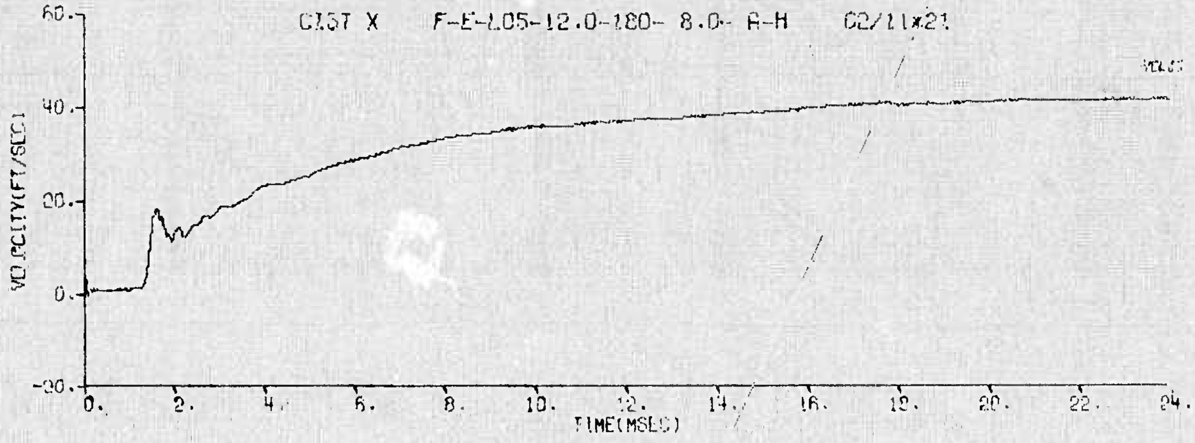

CIS7 X F-E-L02-12.0-000- 4.0- A-V 01/06*04
100.
0.
-100.
-200.
-300.
DISPLACEMENT(IN)
DISP.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

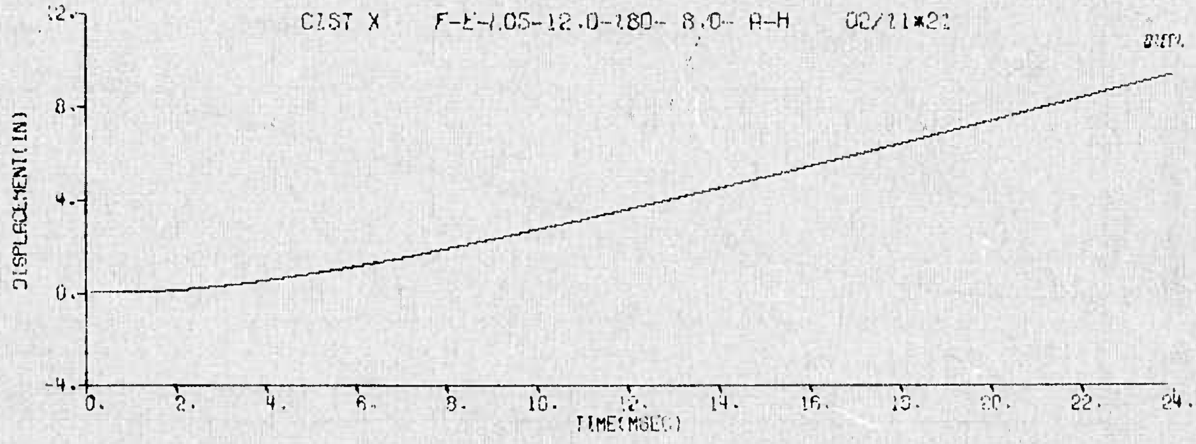

CIS7 X F-E-1.04-12.0-120- 8.0- A-H 02/07*17
8000.
4000.
0.
-4000.
-8000.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

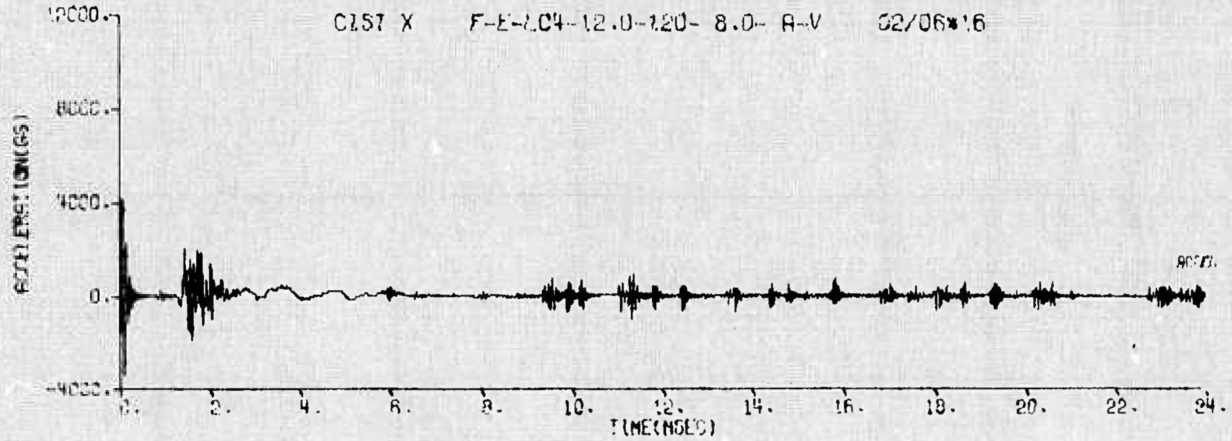

CIS7 X F-E-1.04-12.0-120- 8.0- A-H 02/07*17
60.
40.
20.
0.
-20.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

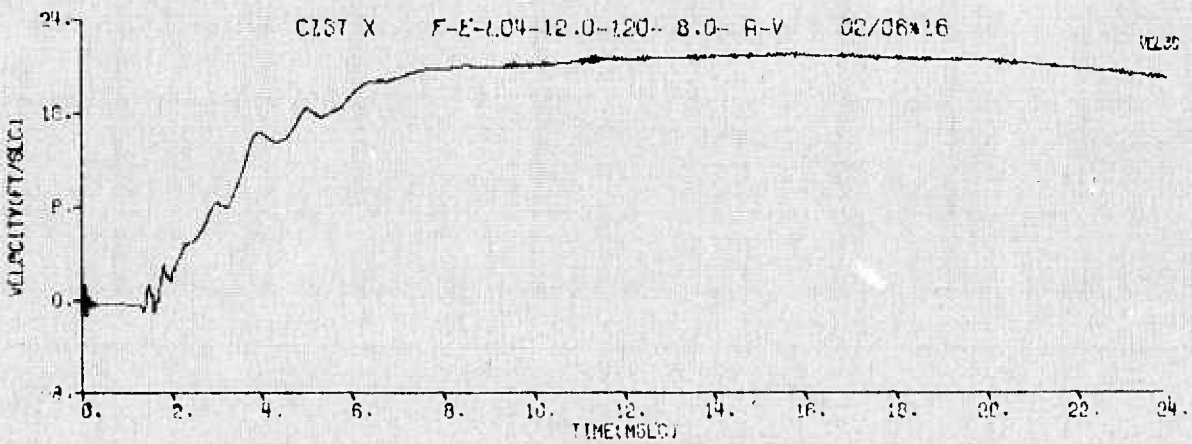

CIS7 X F-E-1.04-12.0-120- 8.0- A-H 02/07*17
12.
8.
4.
0.
-4.
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

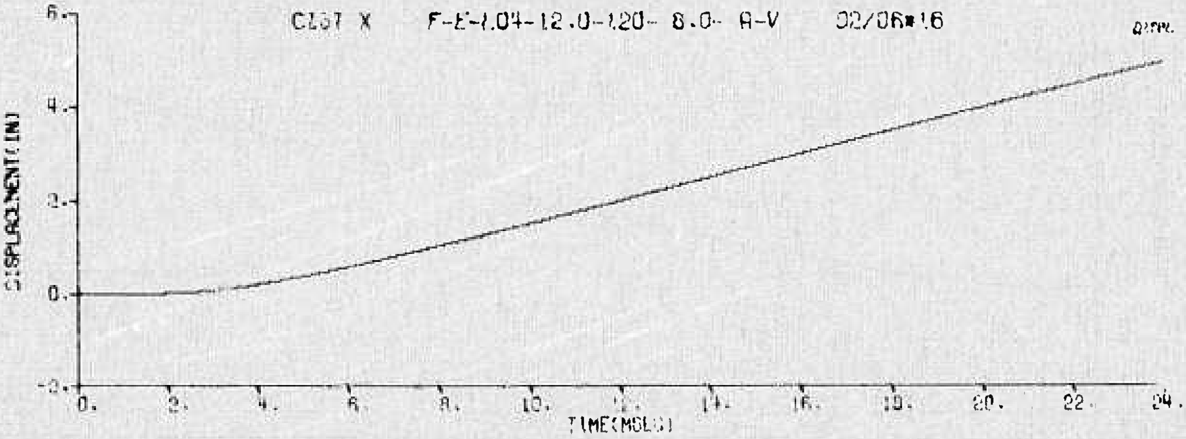

CIST X F-E-1.05-12.0-180- 8.0- A-H 02/11*21
ACCELERATION(GS)
8000.
4000.
0.
-4000.
-8000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

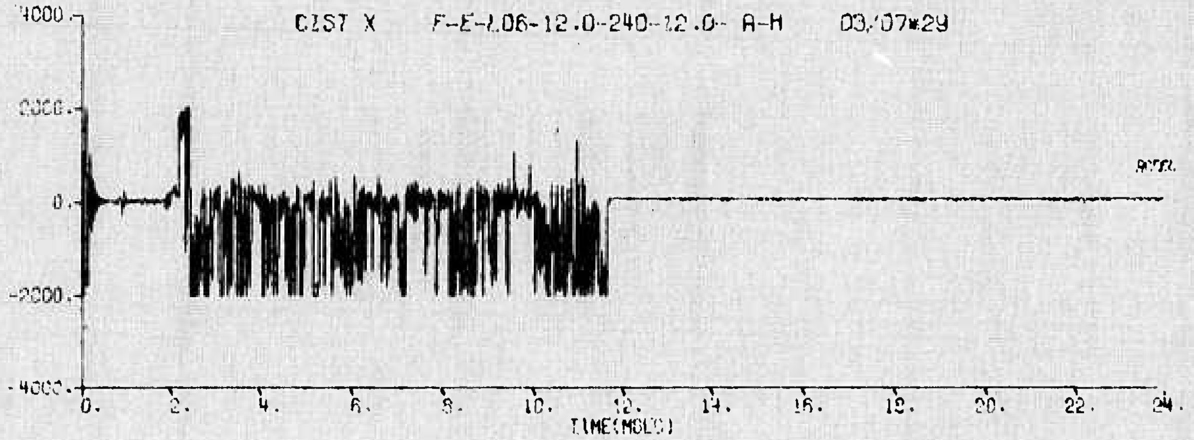

CIST X F-E-1.05-12.0-180- 8.0- A-H 02/11*21
VELOCITY(FT/SEC)
60.
40.
20.
0.
-20.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

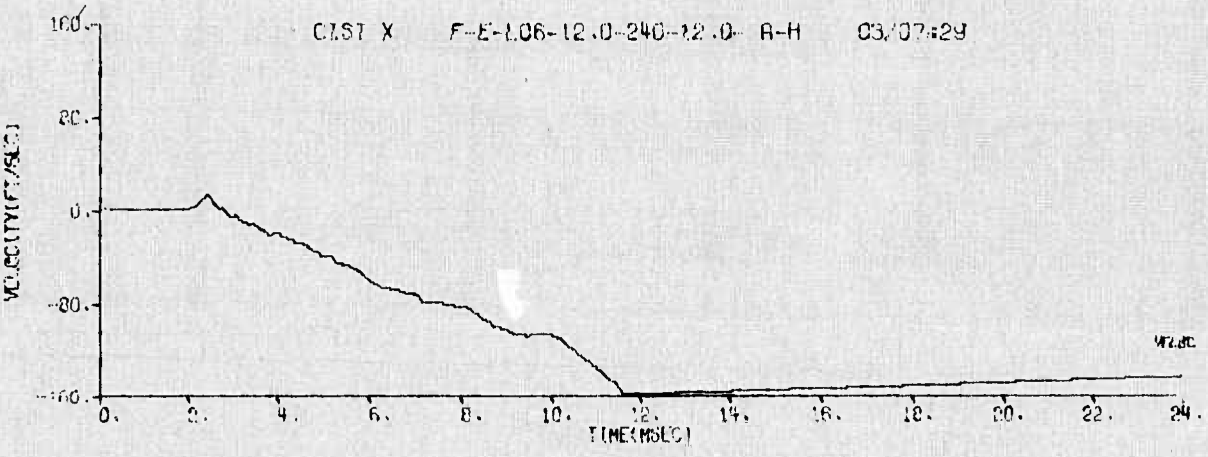

CIST X F-E-1.05-12.0-180- 8.0- A-H 02/11*21
DISPLACEMENT(IN)
12.
8.
4.
0.
-4.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

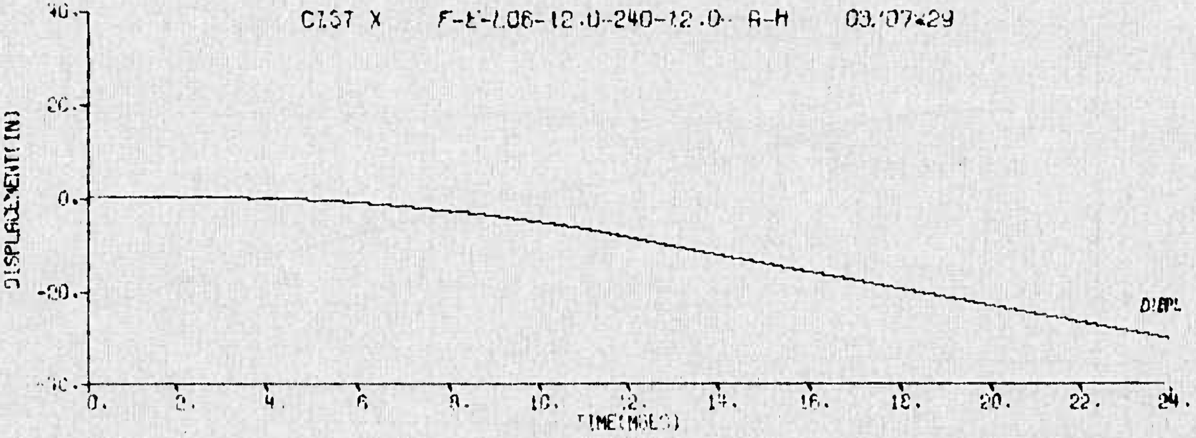

C1S7 X F-E-1.04-12.0-120- 8.0- A-V 02/06*76
12000.
8000.
4000.
0.
-4000.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

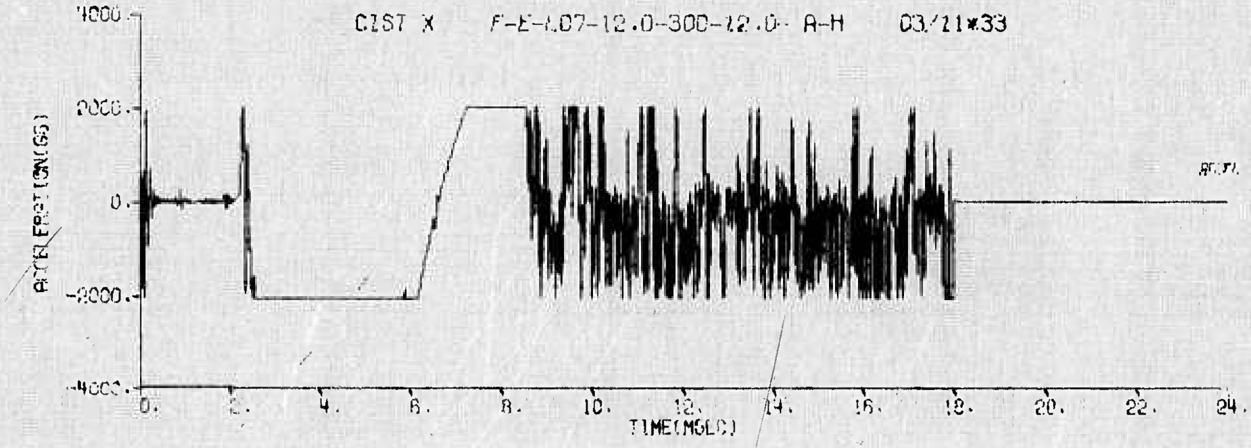

C1S7 X F-E-1.04-12.0-120- 8.0- A-V 02/06*76
24.
16.
8.
0.
-8.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

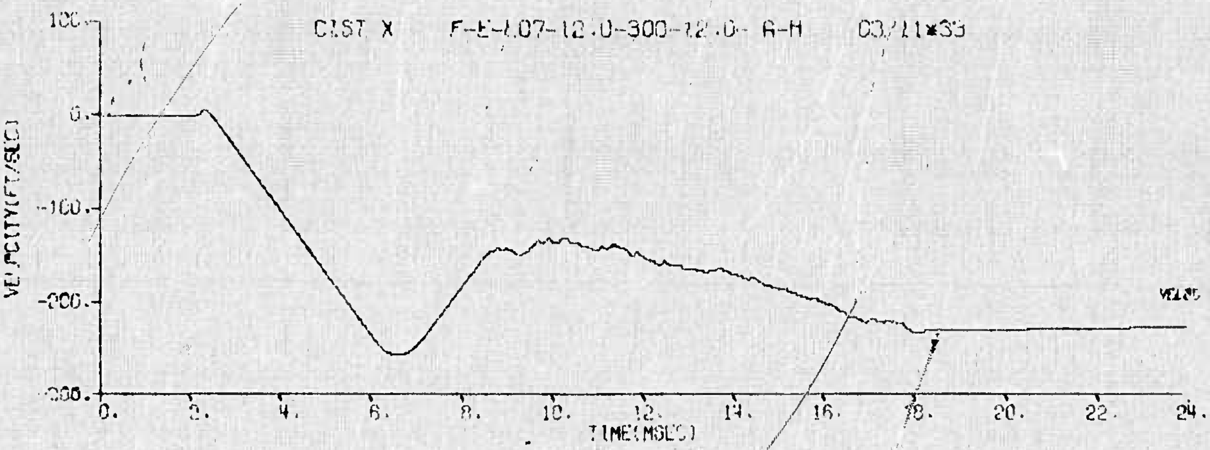

C1S7 X F-E-1.04-12.0-120- 8.0- A-V 02/06*76
6.
4.
2.
0.
-2.
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

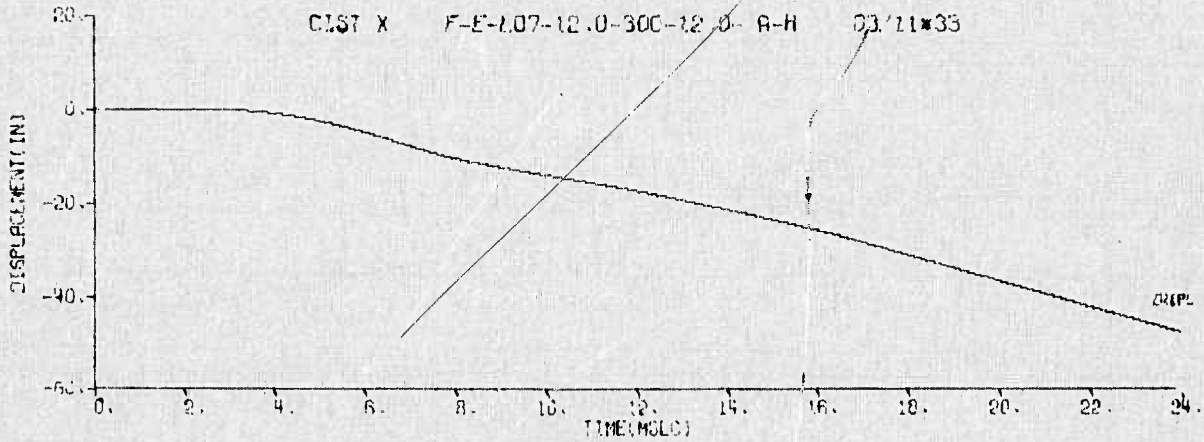

CIST X F-E-L06-12.0-240-12.0- A-H 03/07*29
4000.
2000.
0.
-2000.
-4000.
ACCELERATION(G'S)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

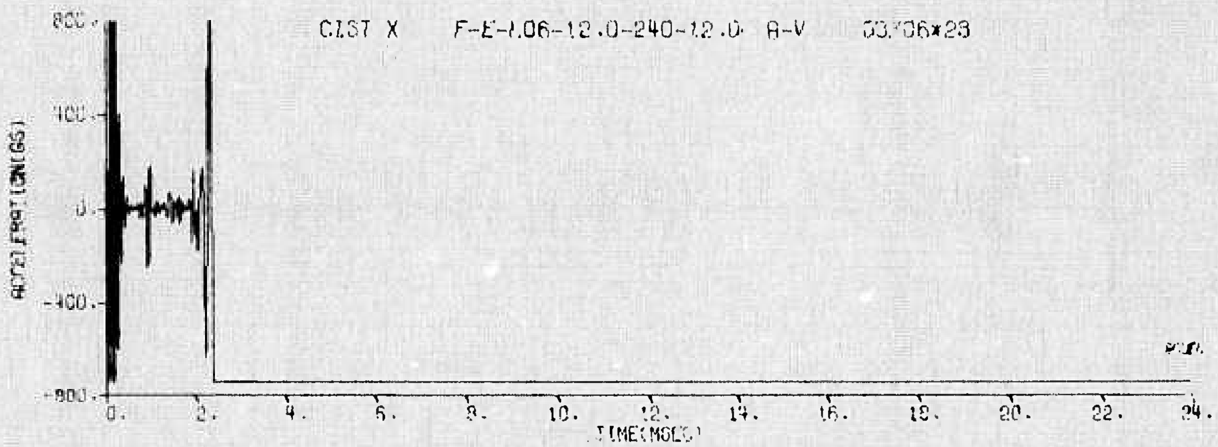

CIST X F-E-L06-12.0-240-12.0- A-H 03/07*29
160.
80.
0.
-80.
-160.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

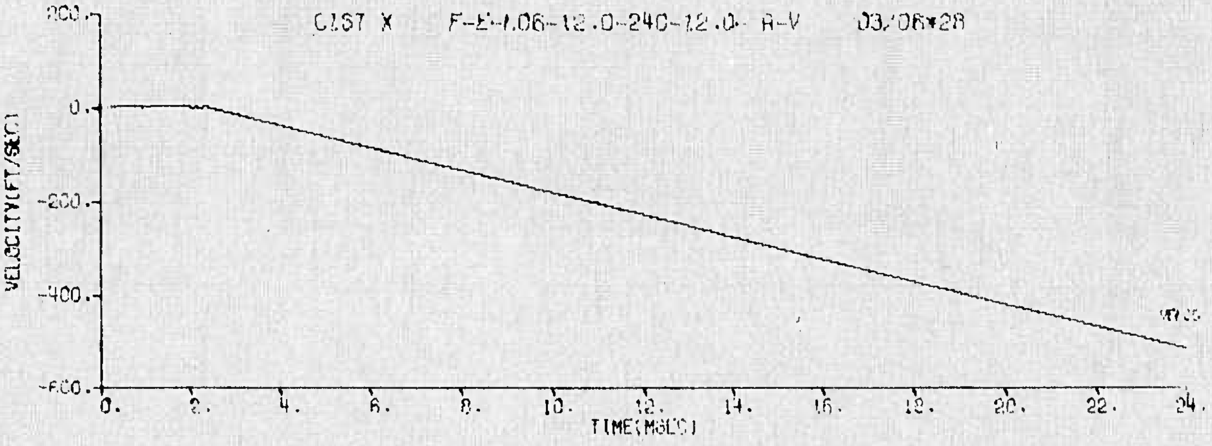

CIST X F-E-L06-12.0-240-12.0- A-H 03/07*29
40.
20.
0.
-20.
-40.
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

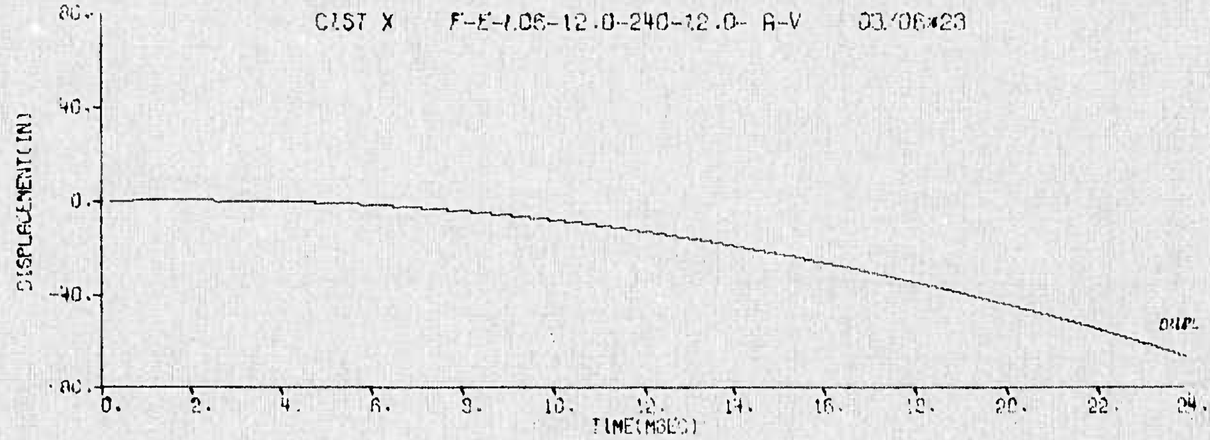

CIST X F-E-1.07-12.0-300-12.0- A-H 03/11*33
4000.
2000.
0.
-2000.
-4000.
ACCELERATION(G'S)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
ACCEL

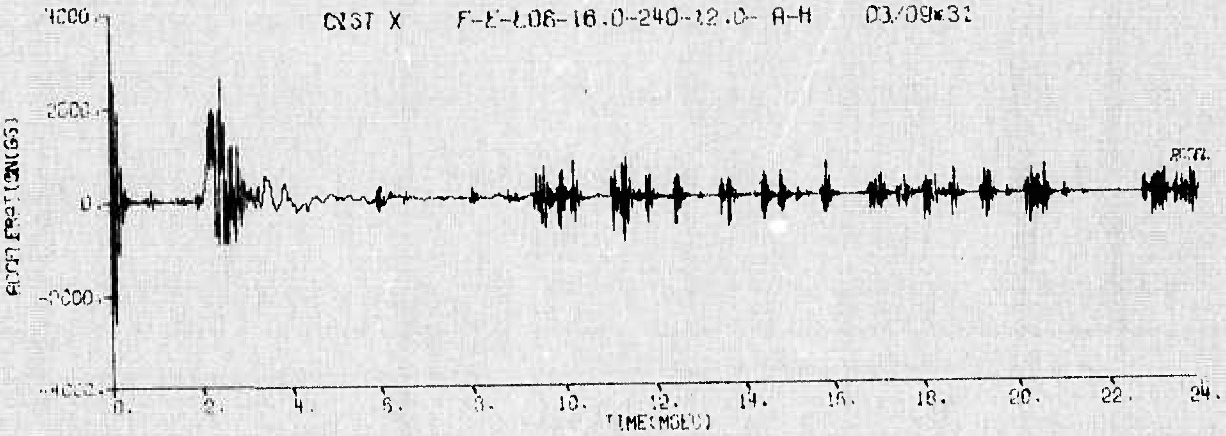

CIST X F-E-1.07-12.0-300-12.0- A-H 03/11*33
100.
0.
-100.
-200.
-300.
VELOCITY(FT/SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
VELOC

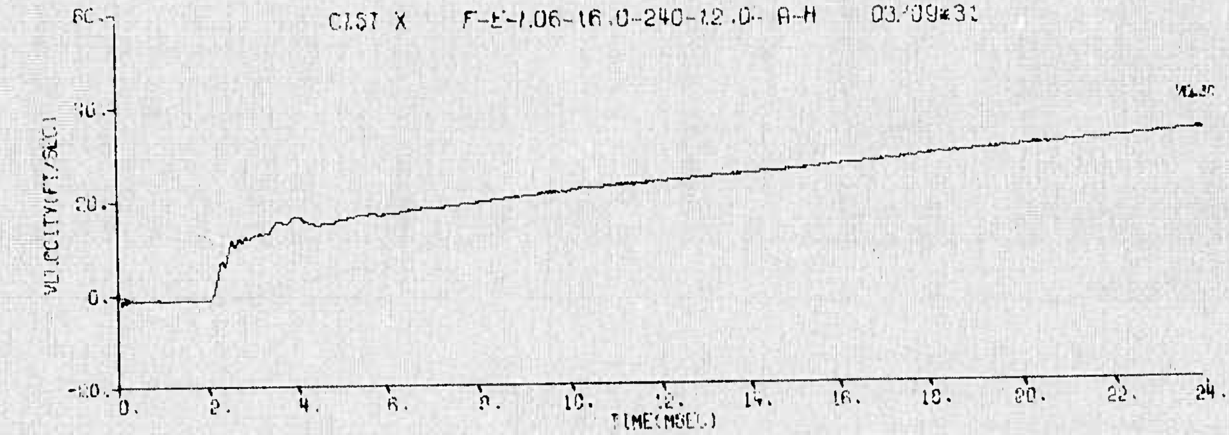

CIST X F-E-1.07-12.0-300-12.0- A-H 03/11*33
20.
0.
-20.
-40.
-60.
DISPLACEMENT(IN)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
DISPL

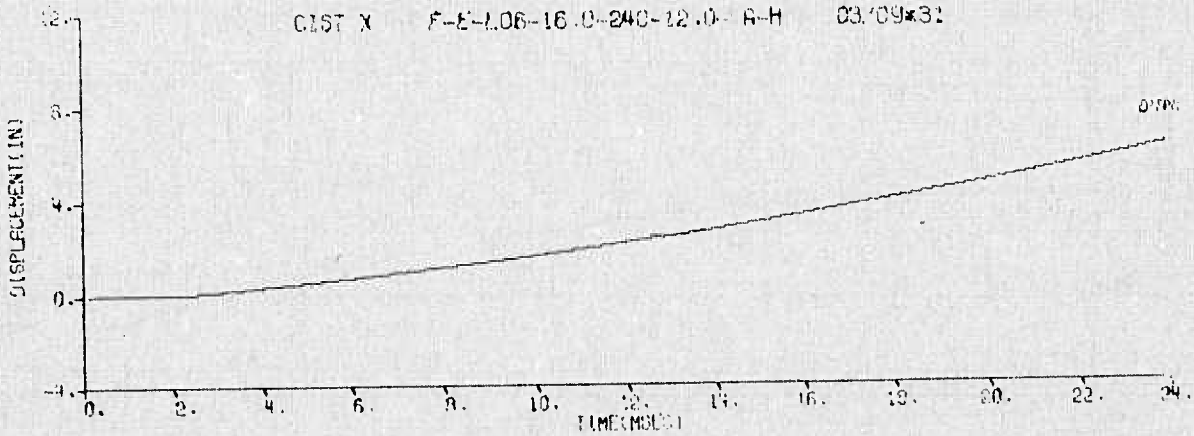

CIST X F-E-1.06-12.0-240-12.0- A-V 03/06*28
800.
400.
0.
-400.
-800.
ACCELERATION(GS)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
ACCL

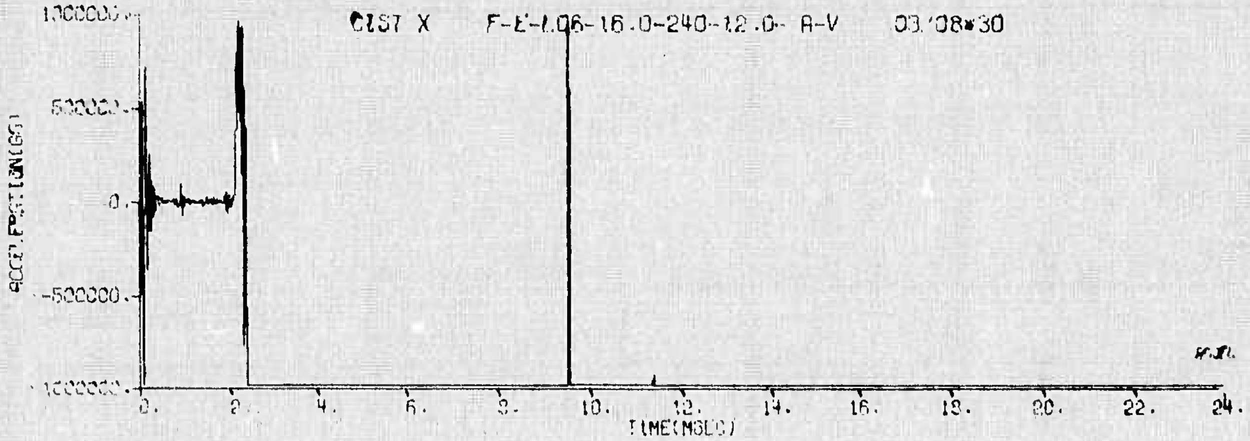

CIST X F-E-1.06-12.0-240-12.0- A-V 03/06*28
200.
0.
-200.
-400.
-600.
VELOCITY(FT/SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
VELOC

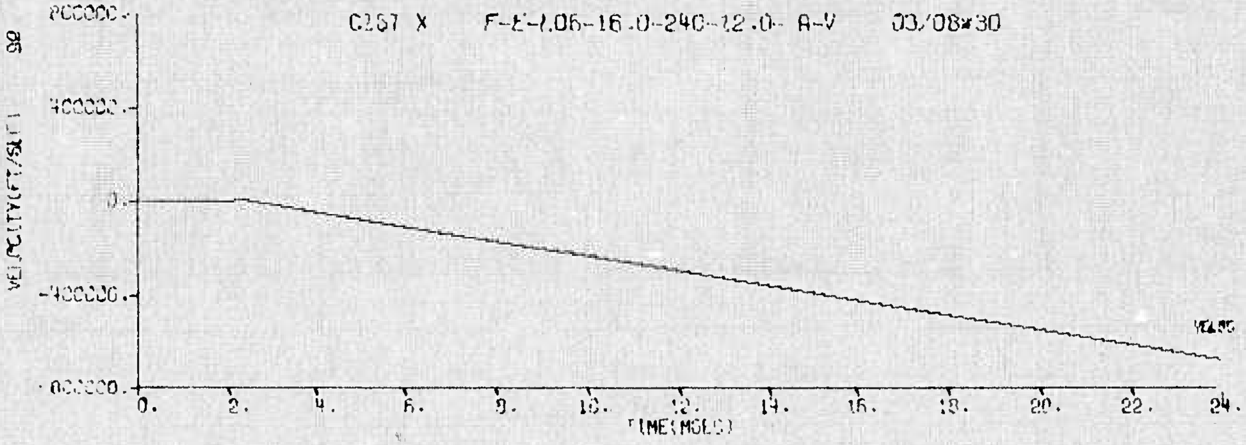

CIST X F-E-1.06-12.0-240-12.0- A-V 03/06*28
80.
40.
0.
-40.
-80.
DISPLACEMENT(IN)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
DISPL

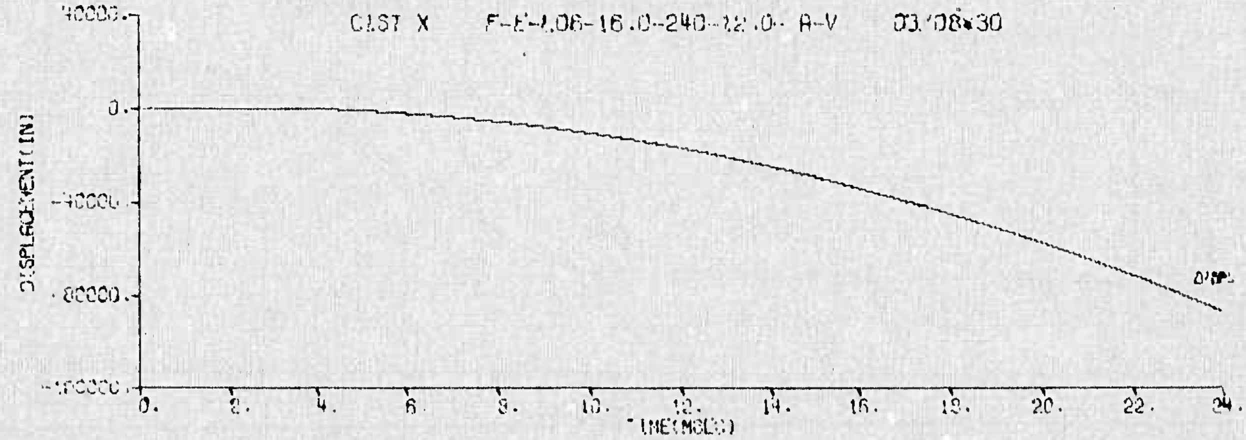

CIST X F-E-L06-16.0-240-12.0- A-H 03/09*31
4000.
2000.
0.
-2000.
-4000.
ACCELERATION(GS)
ACCL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

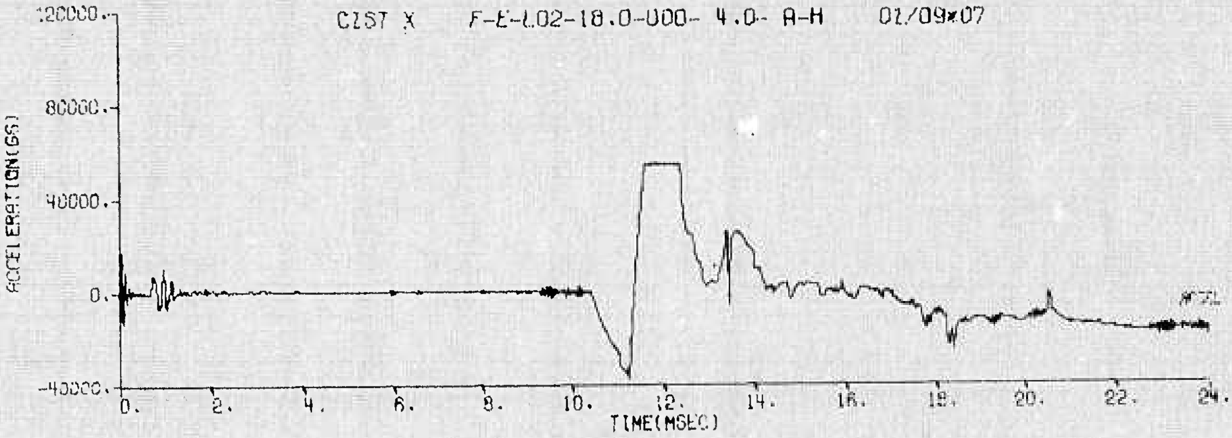

CIST X F-E-L06-16.0-240-12.0- A-H 03/09*31
60.
40.
20.
0.
-20.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

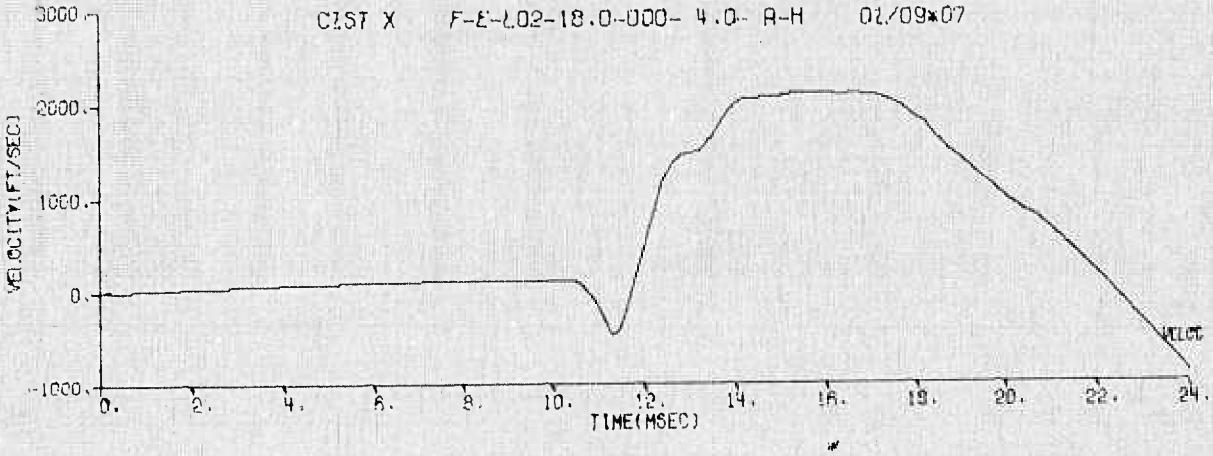

CIST X F-E-L06-16.0-240-12.0- A-H 03/09*31
12.
8.
4.
0.
-4.
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

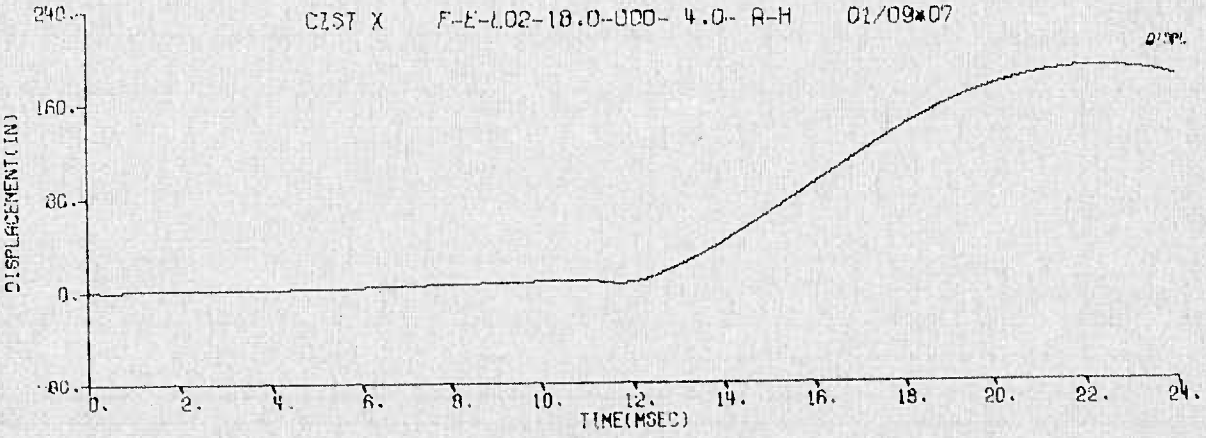

C2S7 X F-E-1.06-16.0-240-12.0- A-V 03/08*30
ACCELERATION(G)
1000000.
500000.
0.
-500000.
-1000000.
ACCL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

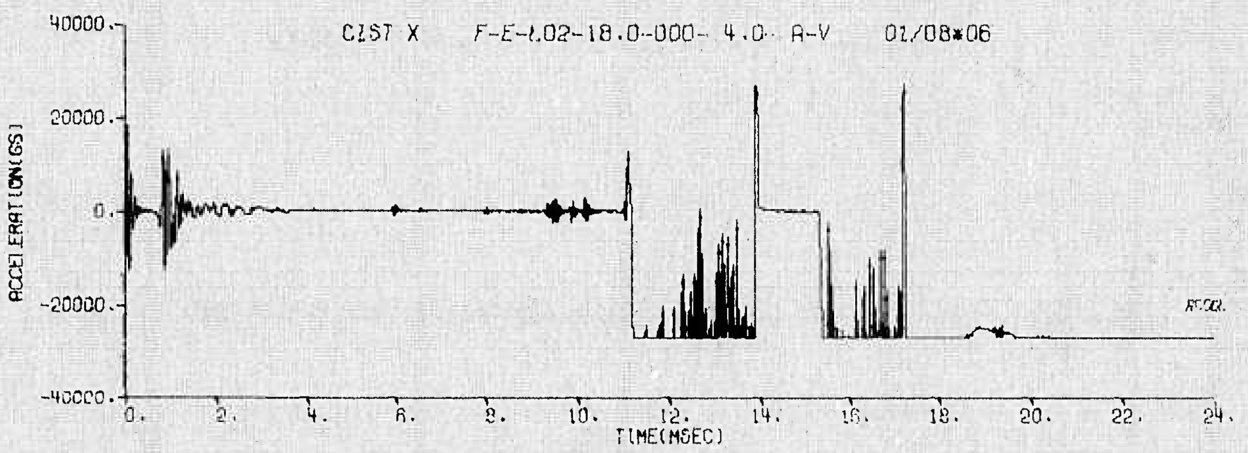

C2S7 X F-E-1.06-16.0-240-12.0- A-V 03/08*30
VELOCITY(FT/SEC)
800000.
400000.
0.
-400000.
-800000.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

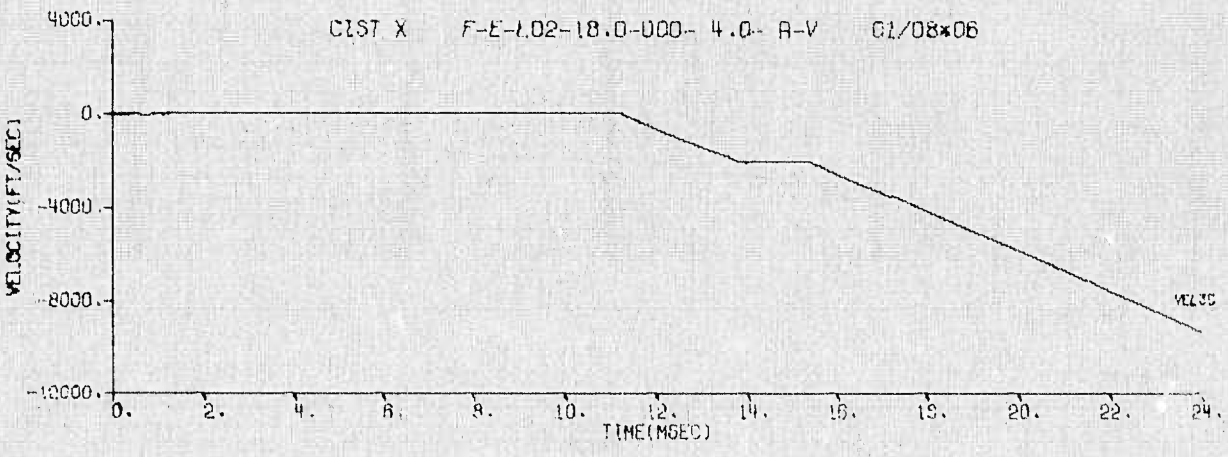

C2S7 X F-E-1.06-16.0-240-12.0- A-V 03/08*30
DISPLACEMENT(IN)
40000.
0.
-40000.
-80000.
-120000.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

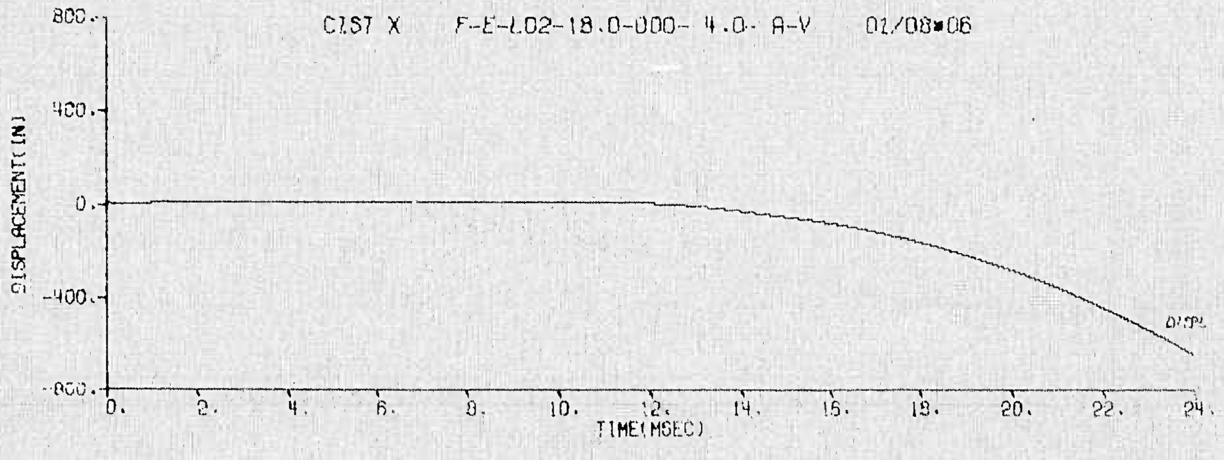

CZST X F-E-L02-18.0-000- 4.0- A-H 01/09*07
ACCELERATION(GS)
120000.
80000.
40000.
0.
-40000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
ACCEL

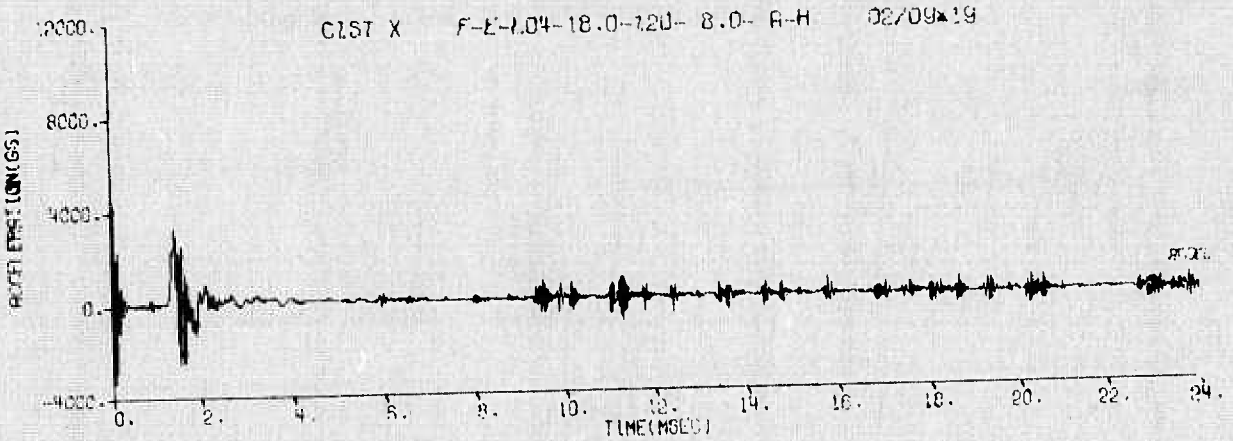

CZST X F-E-L02-18.0-000- 4.0- A-H 01/09*07
VELOCITY(FT/SEC)
3000.
2000.
1000.
0.
-1000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
VELCT

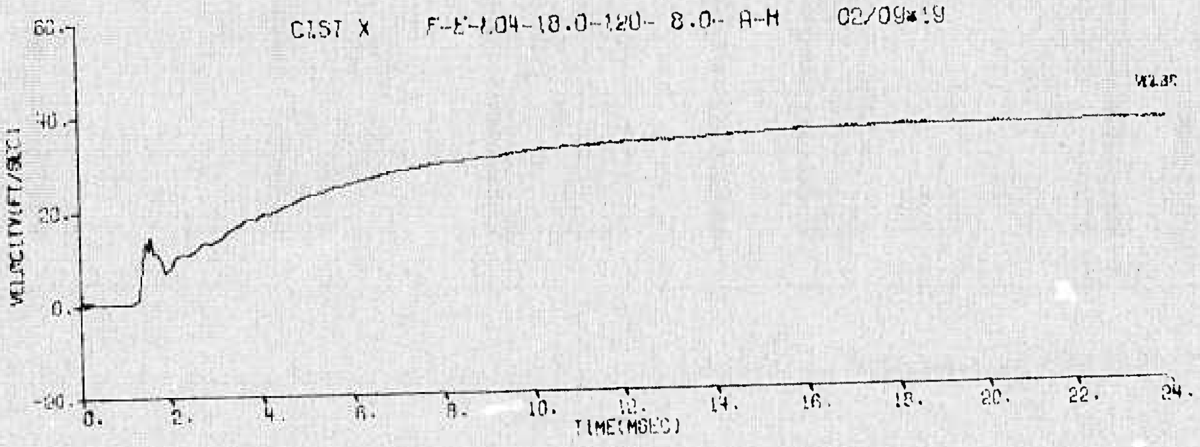

CZST X F-E-L02-18.0-000- 4.0- A-H 01/09*07
DISPLACEMENT(IN)
240.
160.
80.
0.
-80.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
DISPL

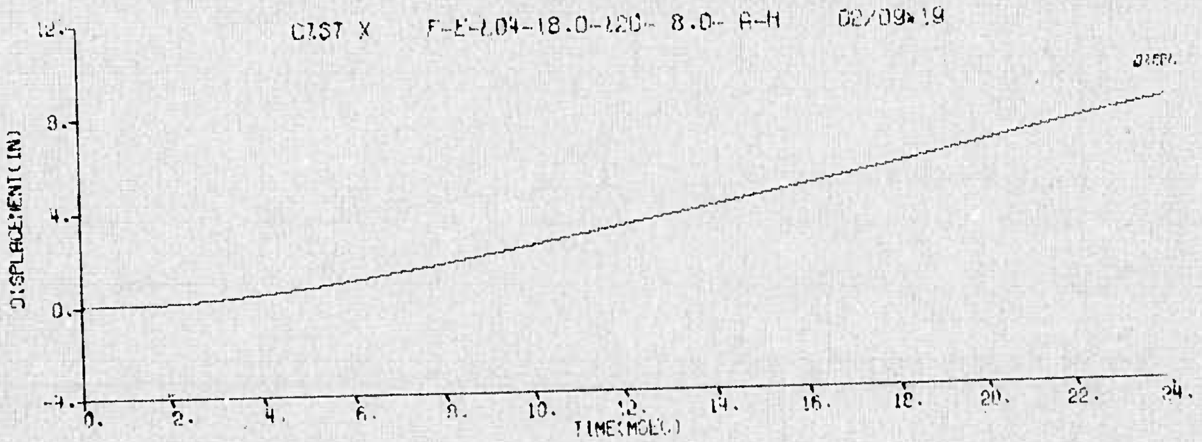

CIST X F-E-L02-18.0-000- 4.0- A-V 01/08*06
40000.
20000.
0.
-20000.
-40000.
ACCELERATION(GS)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
RECOL

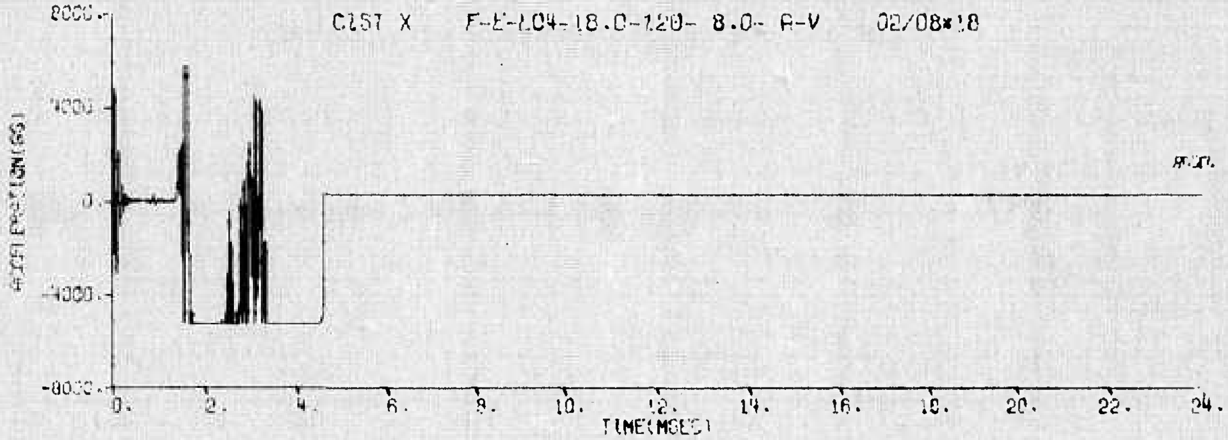

CIST X F-E-L02-18.0-000- 4.0- A-V 01/08*06
4000.
0.
-4000.
-8000.
-12000.
VELOCITY(FT/SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
VEL3C

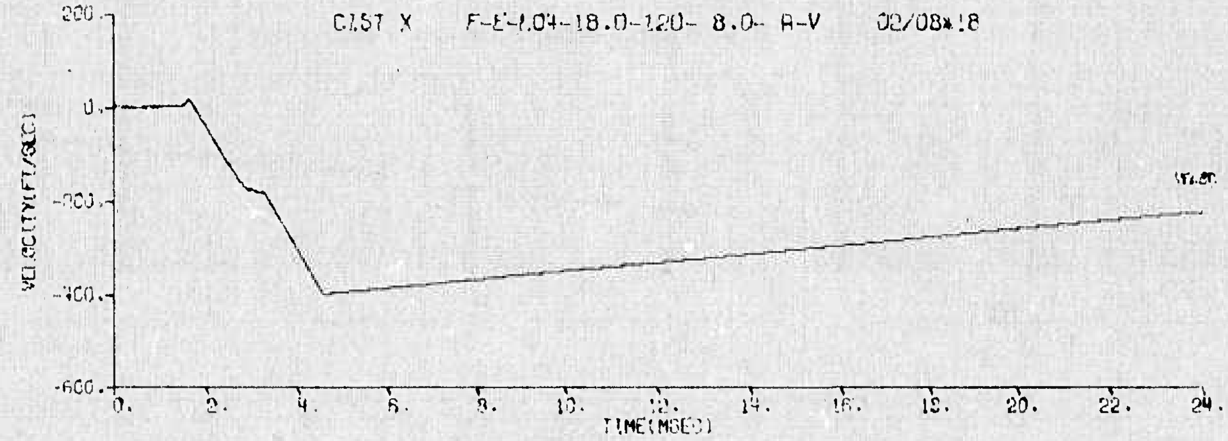

CIST X F-E-L02-18.0-000- 4.0- A-V 01/08*06
800.
400.
0.
-400.
-800.
DISPLACEMENT(IN)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
DISPL

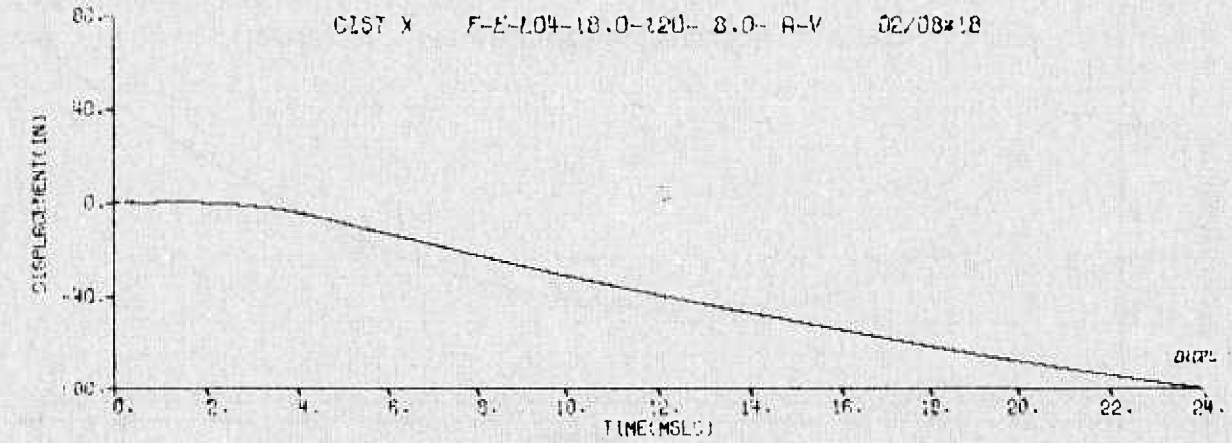

CIST X F-E-L04-18.0-L20- 8.0- A-H 02/09*19
12000.
8000.
4000.
0.
-4000.
ACCELERATION(GS)
ACCEL.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

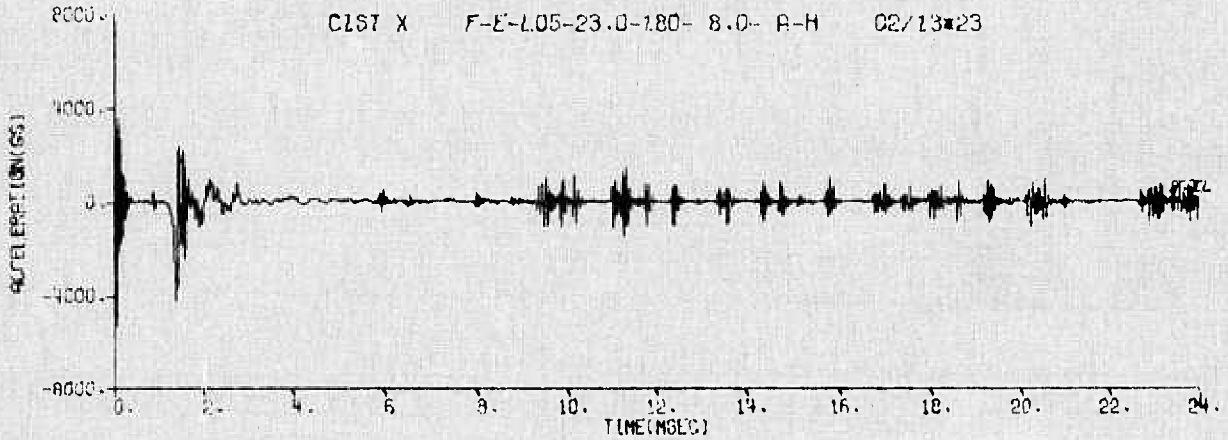

CIST X F-E-L04-18.0-L20- 8.0- A-H 02/09*19
60.
40.
20.
0.
-20.
VELOCITY(FT/SEC)
VELOC.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

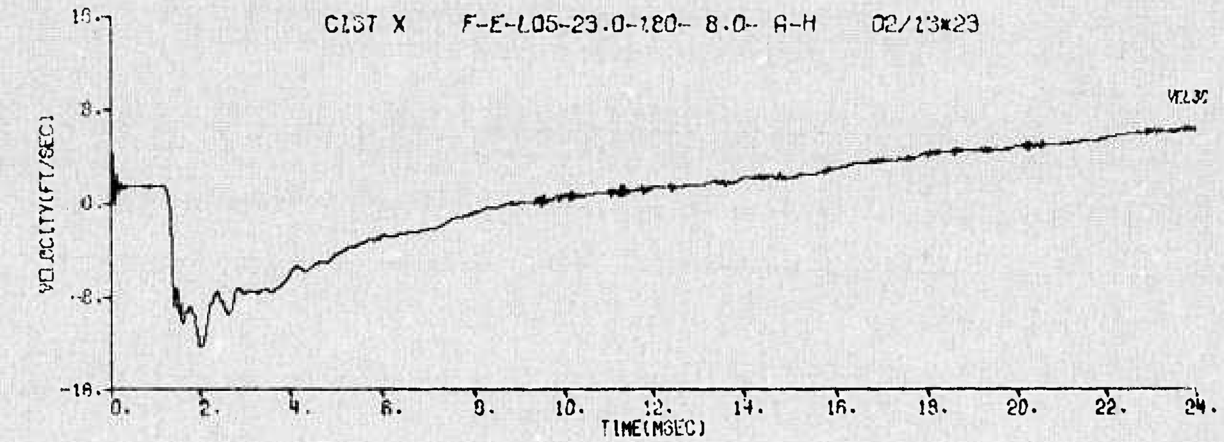

CIST X F-E-L04-18.0-L20- 8.0- A-H 02/09*19
12.
8.
4.
0.
-4.
DISPLACEMENT(IN)
DISPL.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

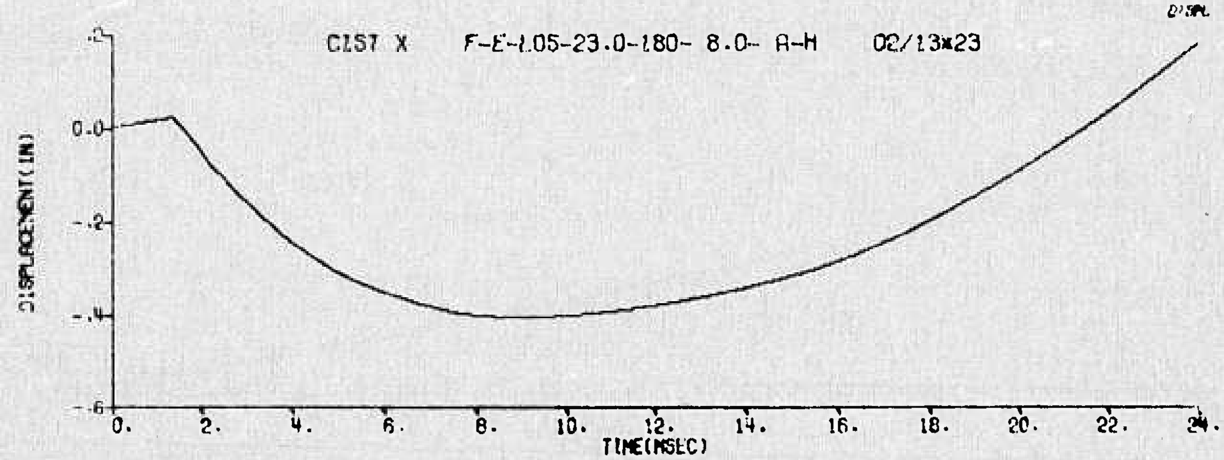

CIST X F-E-L04-18.0-120- 8.0- A-V 02/08*18
8000.
4000.
0.
-4000.
-8000.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

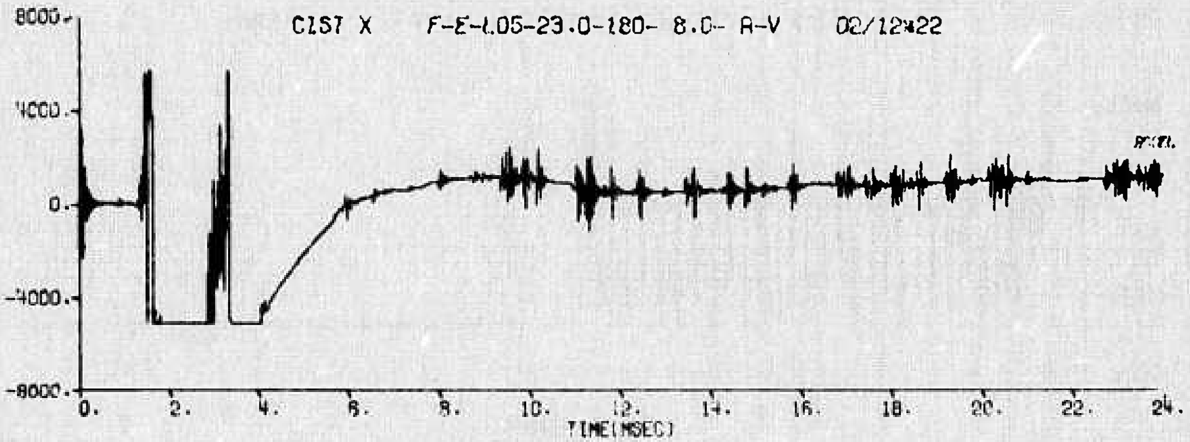

CIST X F-E-L04-18.0-120- 8.0- A-V 02/08*18
200.
0.
-200.
-400.
-600.
VELOCITY(FT/SEC)
VELO
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

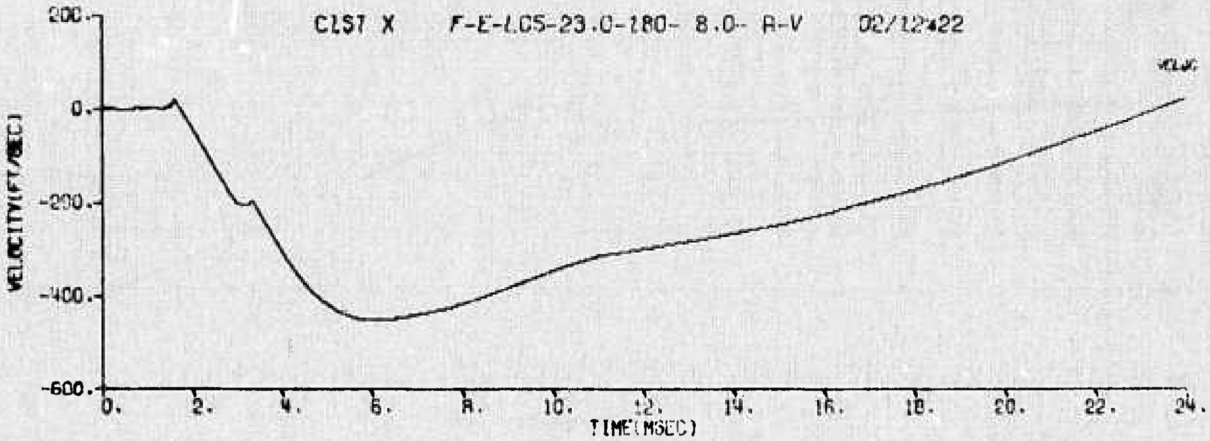

CIST X F-E-L04-18.0-120- 8.0- A-V 02/08*18
80.
40.
0.
-40.
-80.
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

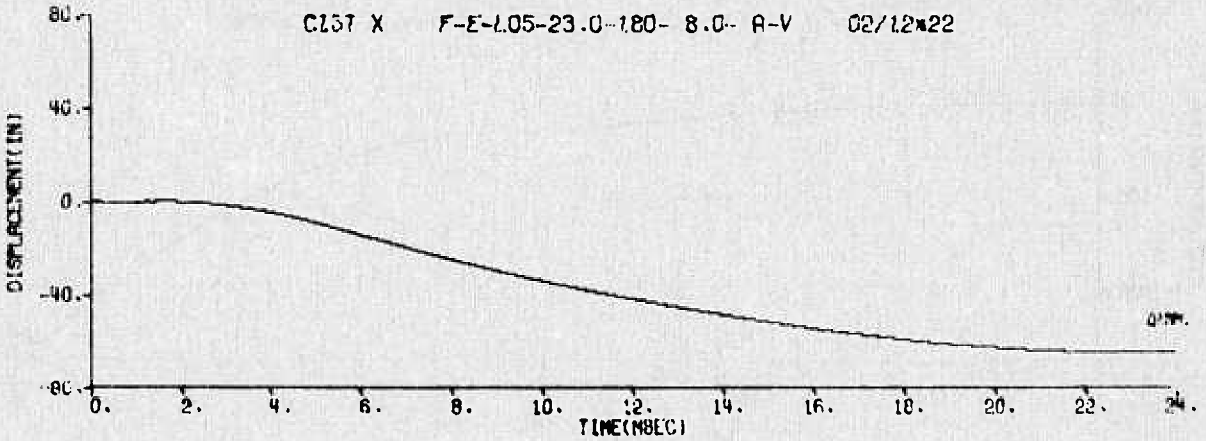

CIST X F-E-L05-23.0-180- 8.0- A-H 02/13*23
ACCELERATION(GS)
8000.
4000.
0.
-4000.
-8000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

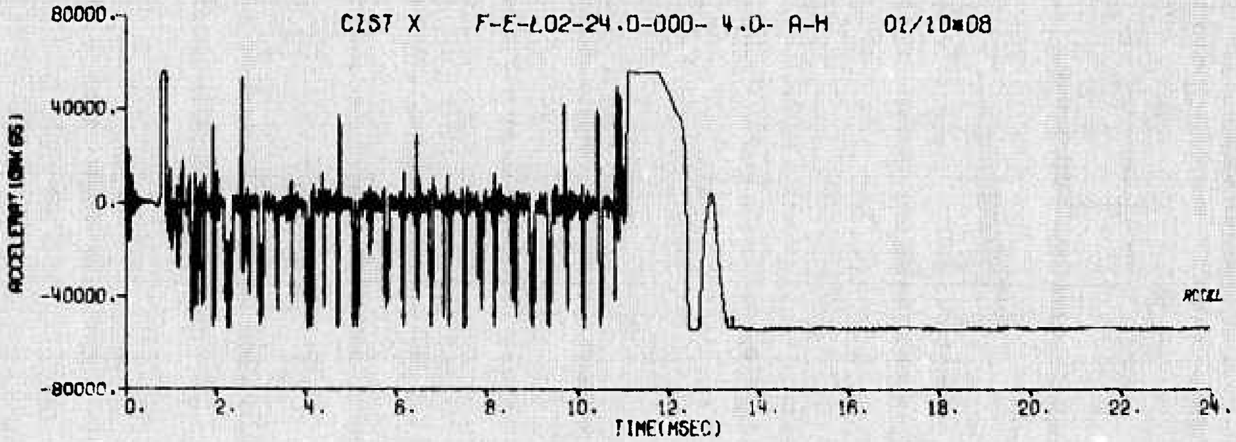

CIST X F-E-L05-23.0-180- 8.0- A-H 02/13*23
VELOCITY(FT/SEC)
16.
8.
0.
-8.
-16.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

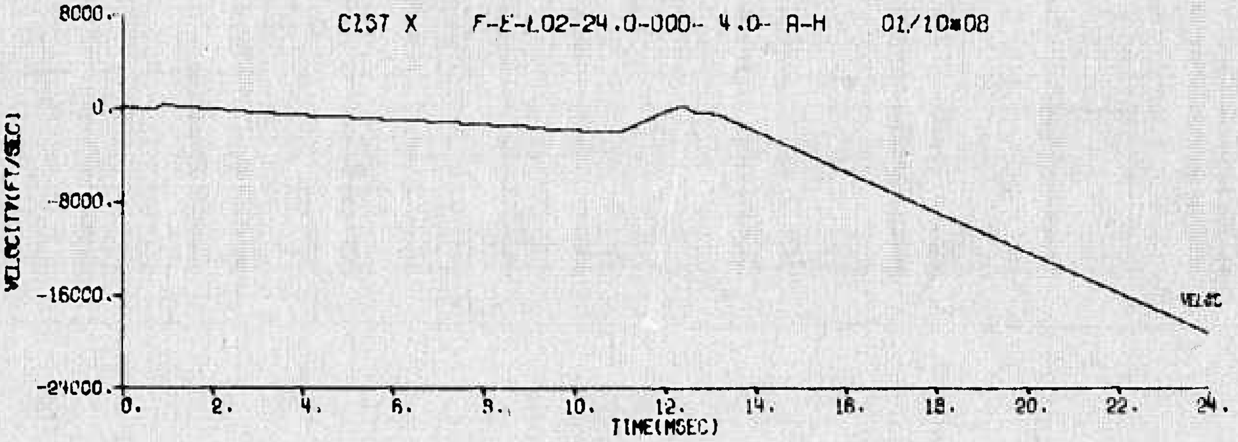

CIST X F-E-L05-23.0-180- 8.0- A-H 02/13*23
DISPLACEMENT(IN)
.2
0.0
-.2
-.4
-.6
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

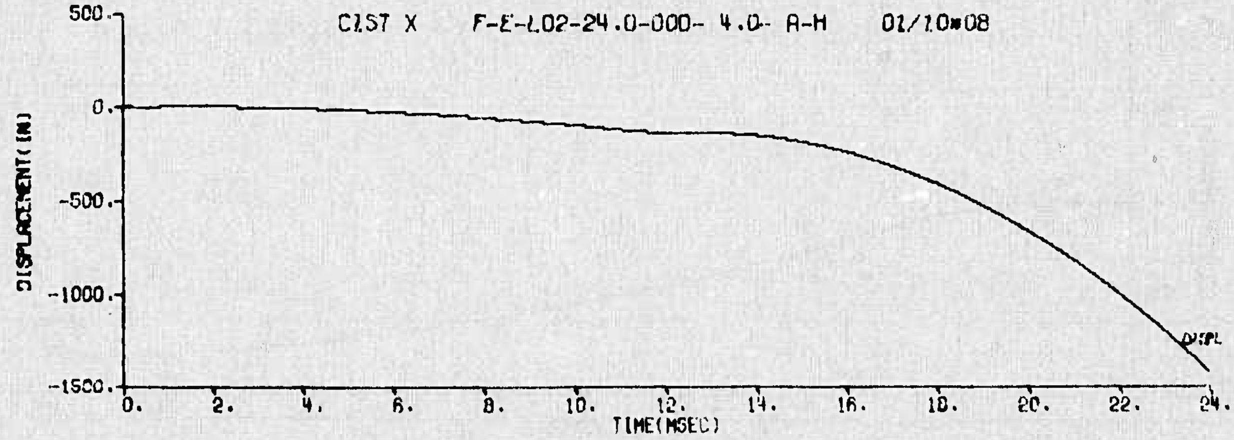

C1S7 X F-E-1.05-23.0-180- 8.0- A-V 02/12*22
ACCELERATION(GS)
8000.
4000.
0.
-4000.
-8000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

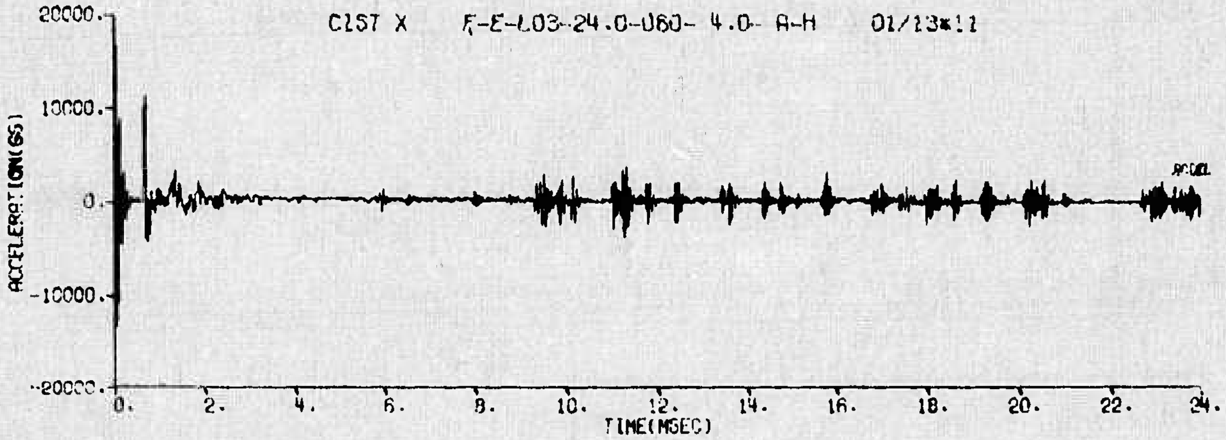

C1S7 X F-E-1.05-23.0-180- 8.0- A-V 02/12*22
VELOCITY(FT/SEC)
200.
0.
-200.
-400.
-600.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

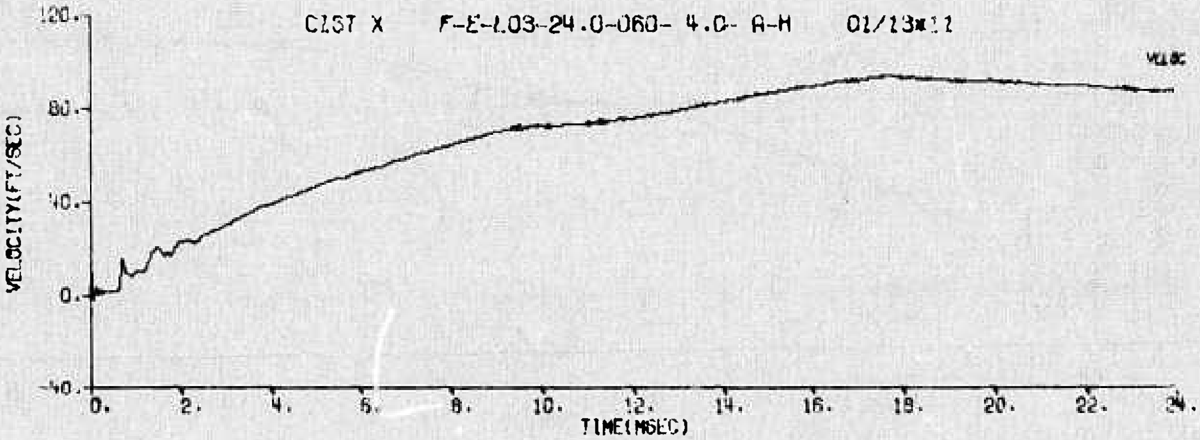

C1S7 X F-E-1.05-23.0-180- 8.0- A-V 02/12*22
DISPLACEMENT(IN)
80.
40.
0.
-40.
-80.
DISP.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

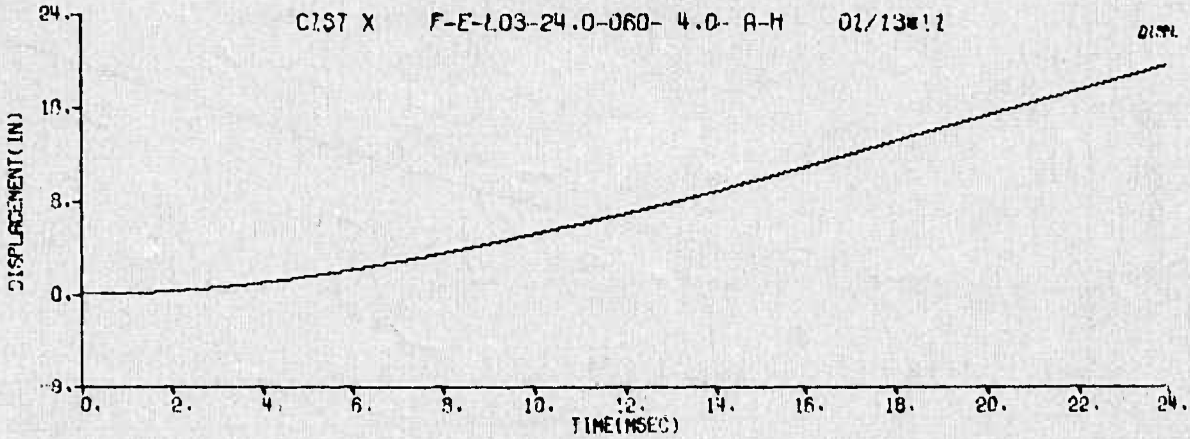

C1S7 X F-E-L02-24.0-000- 4.0- A-H 01/10*08
80000.
40000.
0.
-40000.
-80000.
ACCELERAT(GRAVS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

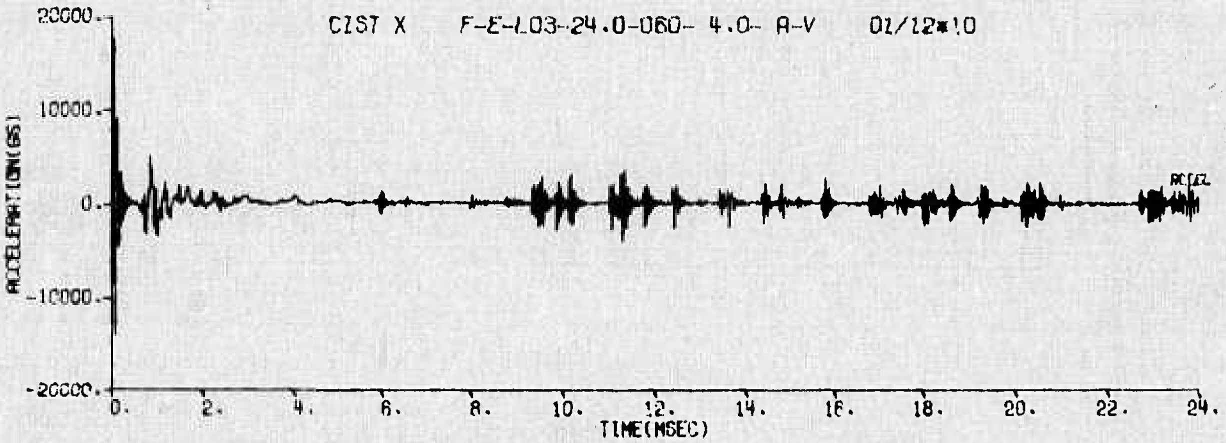

C1S7 X F-E-L02-24.0-000- 4.0- A-H 01/10*08
8000.
0.
-8000.
-16000.
-24000.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

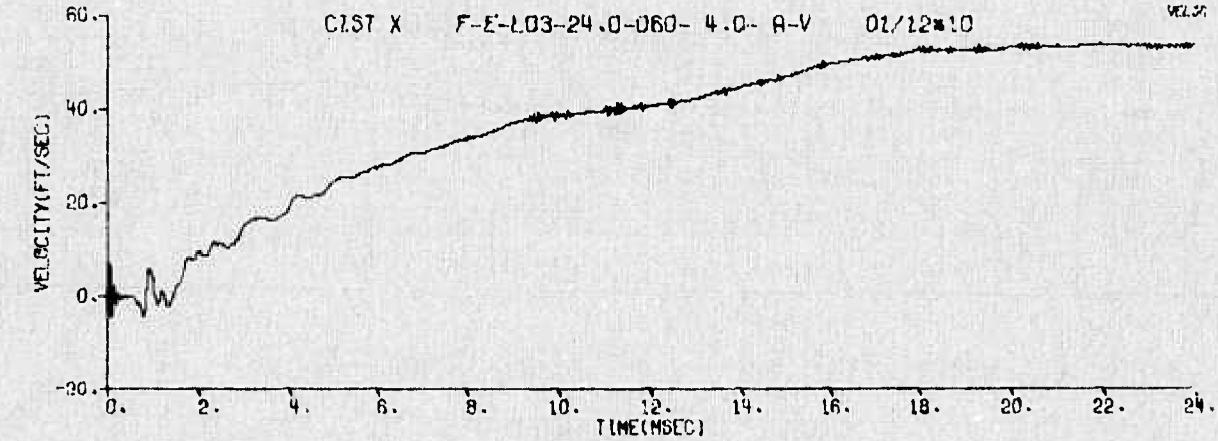

C1S7 X F-E-L02-24.0-000- 4.0- A-H 01/10*08
500.
0.
-500.
-1000.
-1500.
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

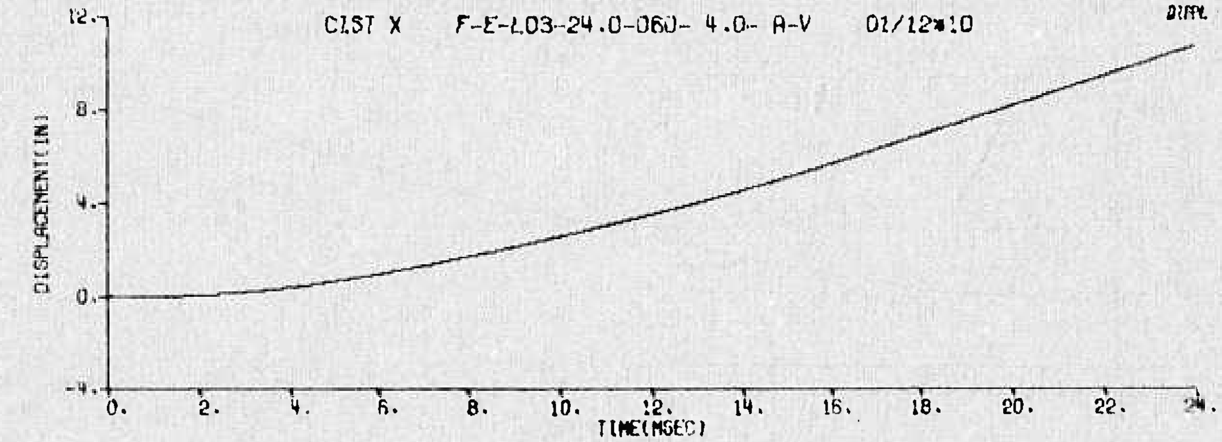

CIST X F-E-L03-24.0-060- 4.0- A-H 01/13*11
ACCEL
ACCELERATION(GS)
20000.
10000.
0.
-10000.
-20000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

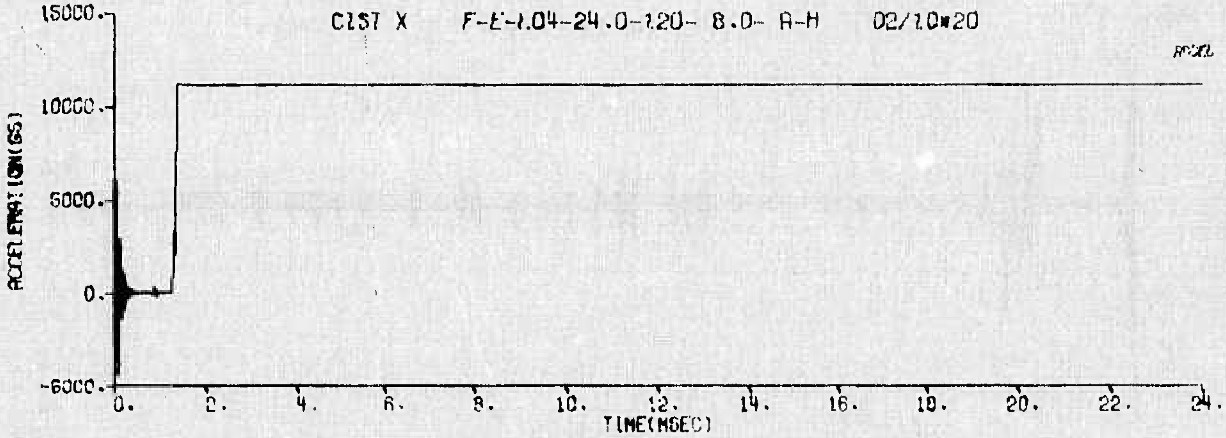

CIST X F-E-L03-24.0-060- 4.0- A-H 01/13*11
VELOC
VELOCITY(FT/SEC)
120.
80.
40.
0.
-40.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

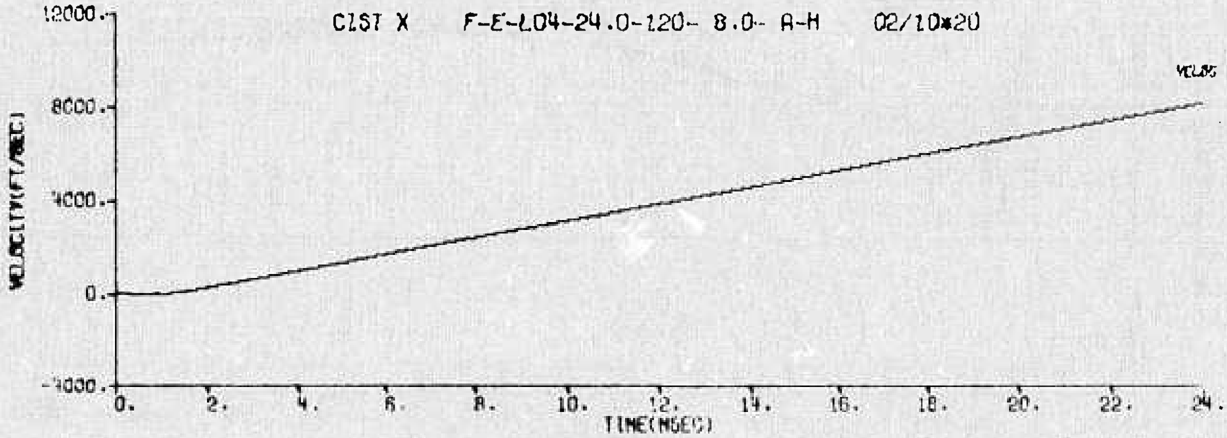

CIST X F-E-L03-24.0-060- 4.0- A-H 01/13*11
DISPL
DISPLACEMENT(IN)
24.
16.
8.
0.
-8.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

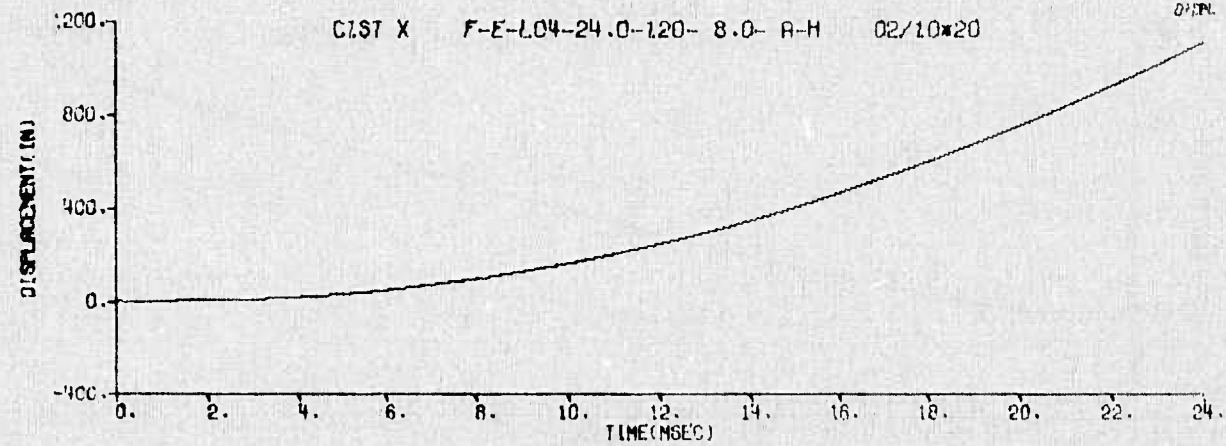

CIST X F-E-L03-24.0-060- 4.0- A-V 01/12*10
ACCELERATION(GS)
20000.
10000.
0.
-10000.
-20000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

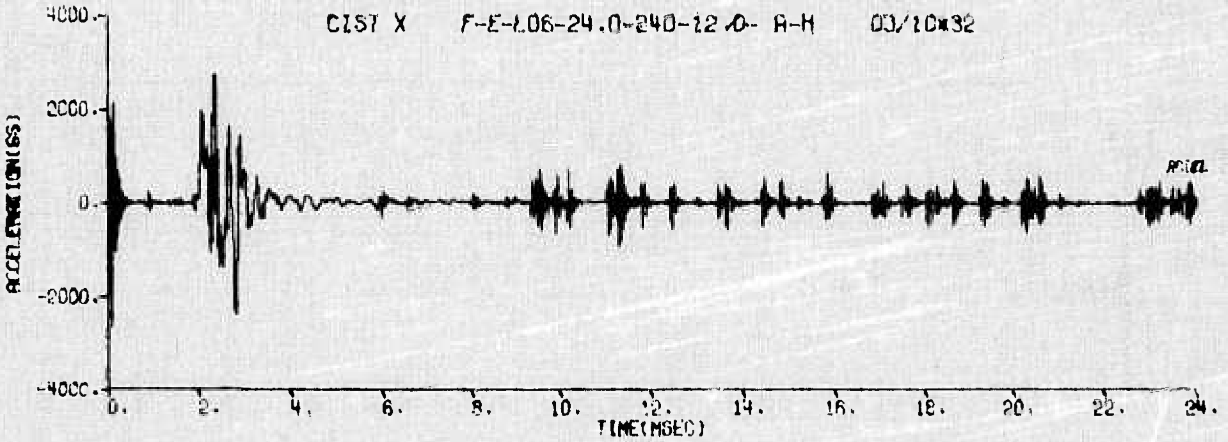

CIST X F-E-L03-24.0-060- 4.0- A-V 01/12*10
VELOCITY(FT/SEC)
60.
40.
20.
0.
-20.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

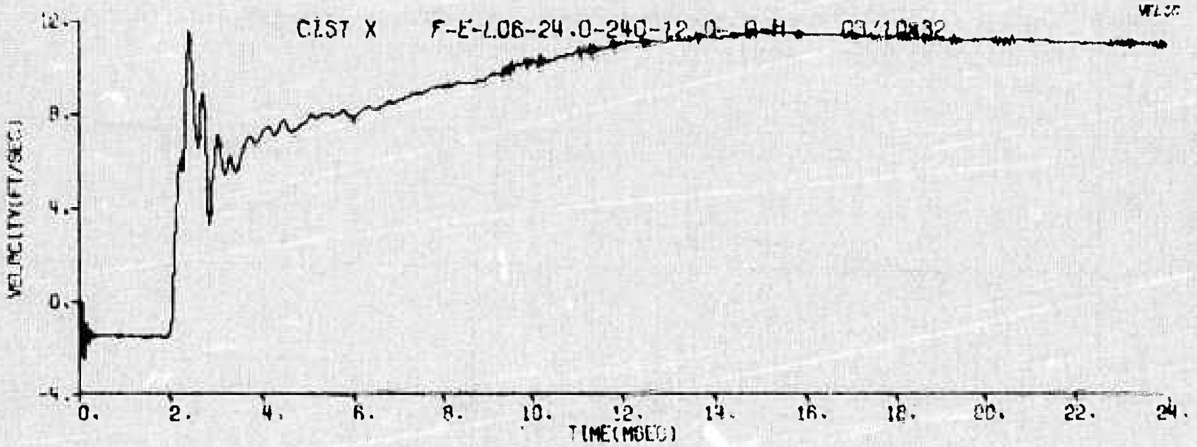

CIST X F-E-L03-24.0-060- 4.0- A-V 01/12*10
DISPLACEMENT(IN)
12.
8.
4.
0.
-4.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

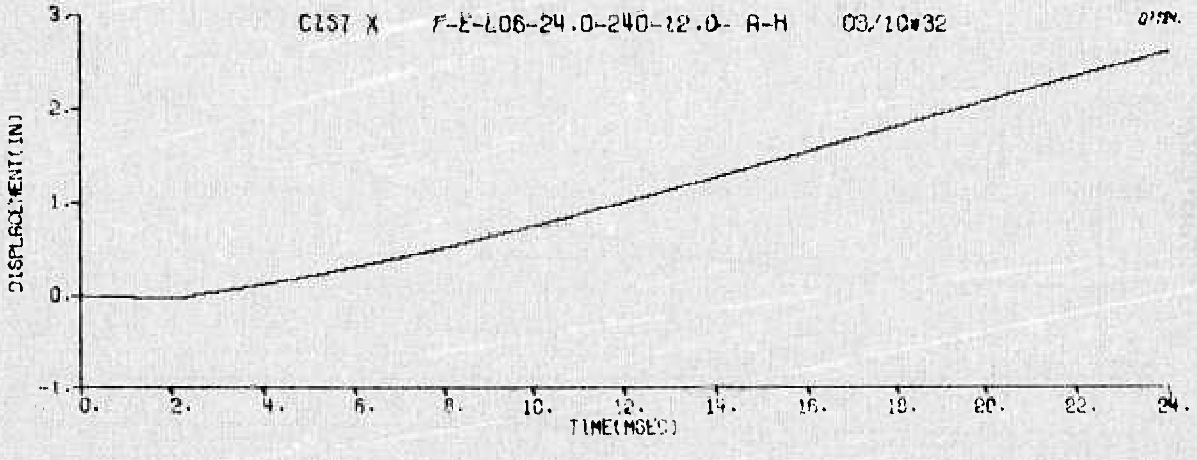

C1ST X F-E-1.04-24.0-120- 8.0- A-H 02/10*20
ACCEL
ACCELERATION(GS)
15000.
10000.
5000.
0.
-6000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

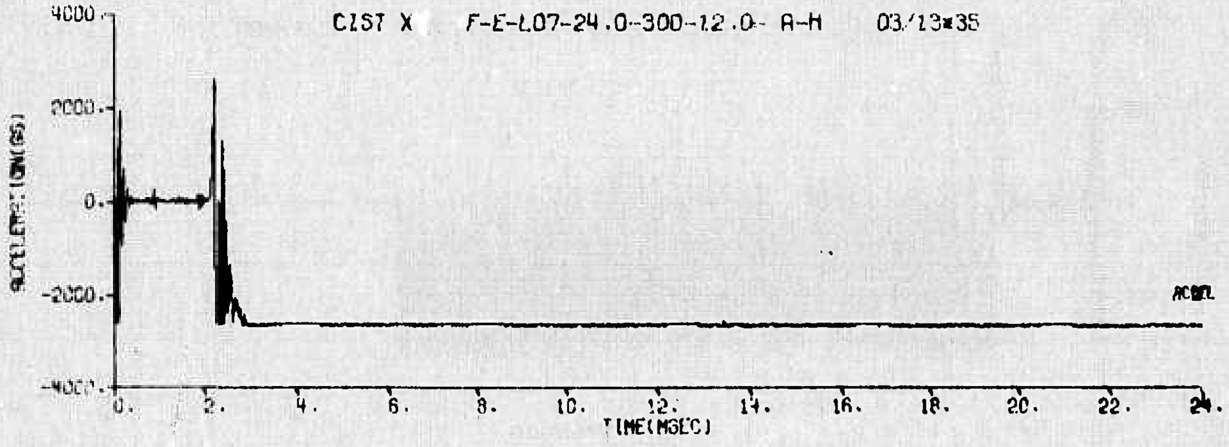

C1ST X F-E-1.04-24.0-120- 8.0- A-H 02/10*20
VELOC
VELOCITY(FT/SEC)
12000.
8000.
4000.
0.
-4000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

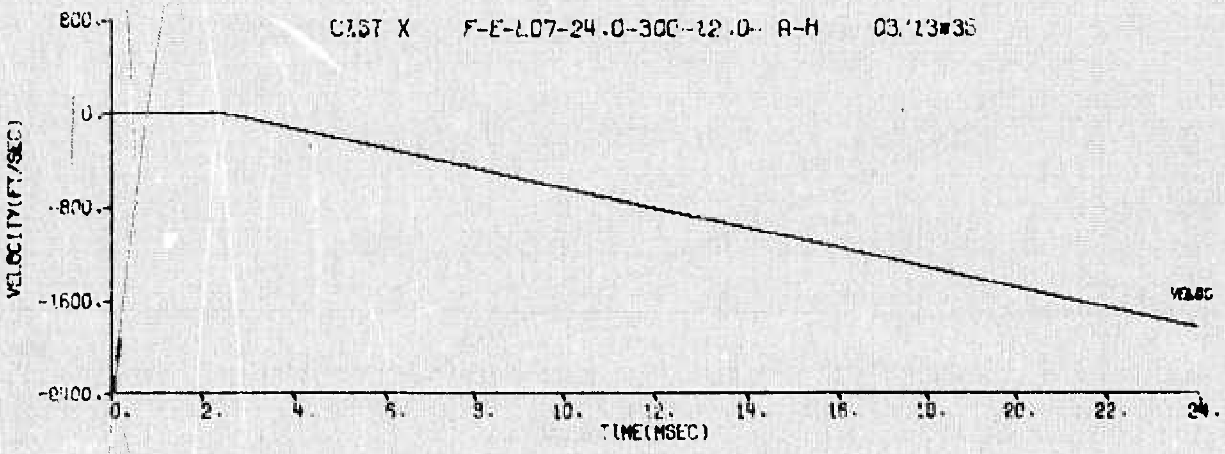

C1ST X F-E-1.04-24.0-120- 8.0- A-H 02/10*20
DISPL
DISPLACEMENT(IN)
1200.
800.
400.
0.
-400.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

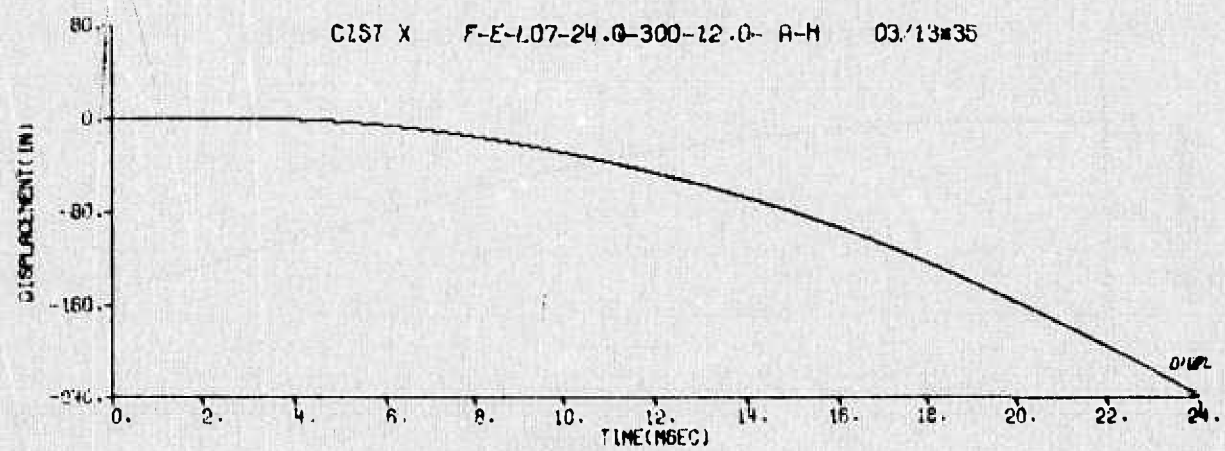

CIS7 X F-E-L06-24.0-240-12.0- A-H 03/10*32
ACCEL
ACCELERATION(GS)
4000.
2000.
0.
-2000.
-4000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

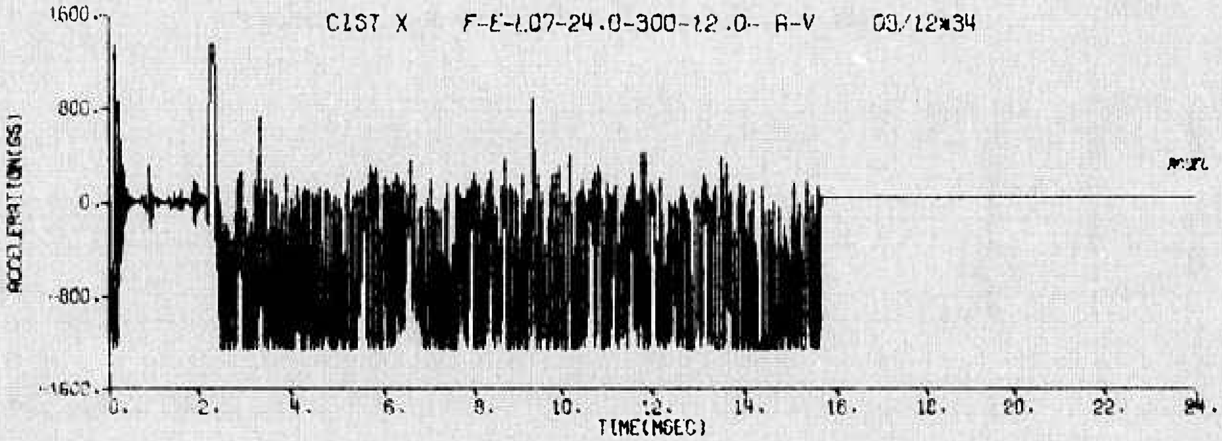

CIS7 X F-E-L06-24.0-240-12.0- A-H 03/10*32
VELOC
VELOCITY(FT/SEC)
12.
8.
4.
0.
-4.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

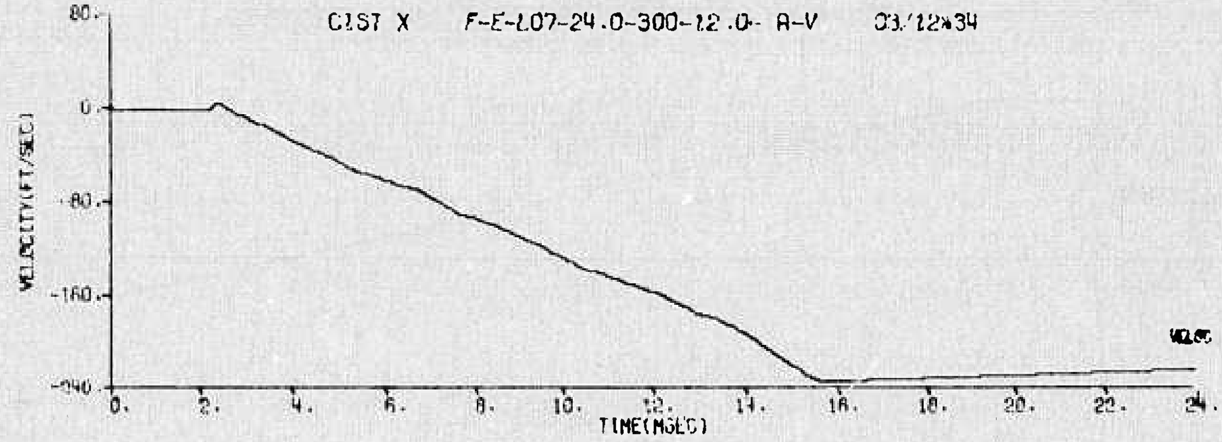

CIS7 X F-E-L06-24.0-240-12.0- A-H 03/10*32
DISPL
DISPLACEMENT(IN)
3
2.
1.
0.
-1.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

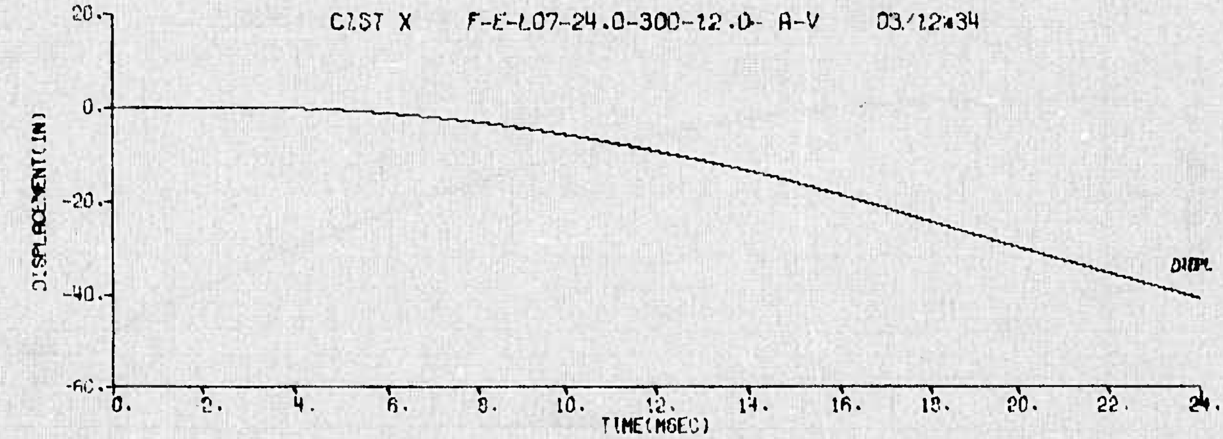

CIST X F-E-L07-24.0-300-12.0- A-H 03/13*35
ACCELERATION(GS)
4000.
2000.
0.
-2000.
-4000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

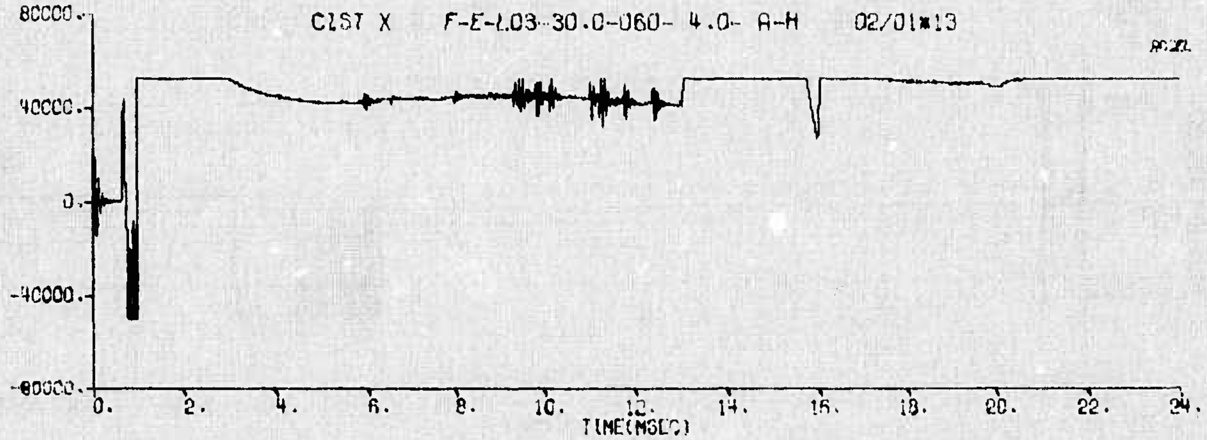

CIST X F-E-L07-24.0-300-12.0- A-H 03/13*35
VELOCITY(FT/SEC)
800.
0.
-800.
-1600.
-2400.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

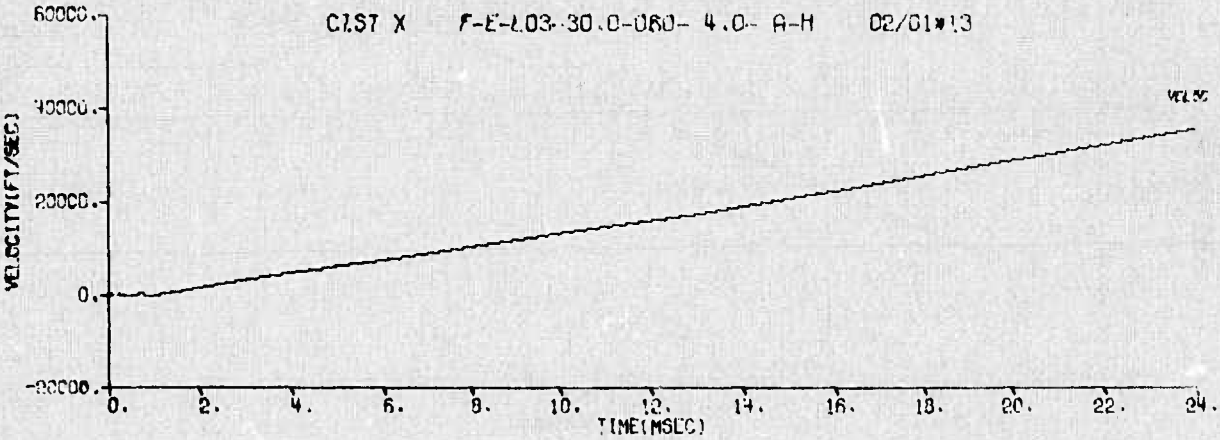

CIST X F-E-L07-24.0-300-12.0- A-H 03/13*35
DISPLACEMENT(IN)
80.
0.
-80.
-160.
-240.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

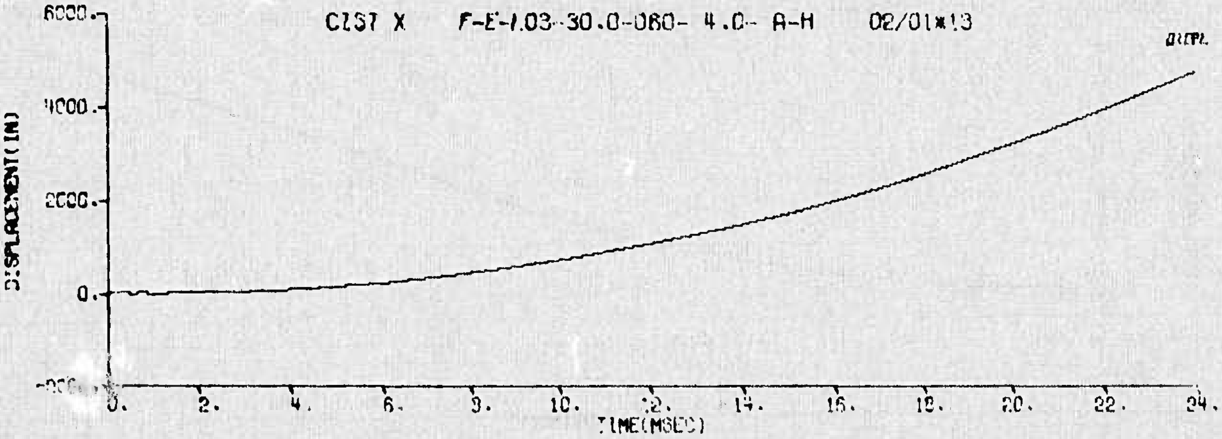

CIST X F-E-L07-24.0-300-12.0- A-V 03/12*34
ACCELERATION(GS)
1600.
800.
0.
-800.
-1600.
ACCL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

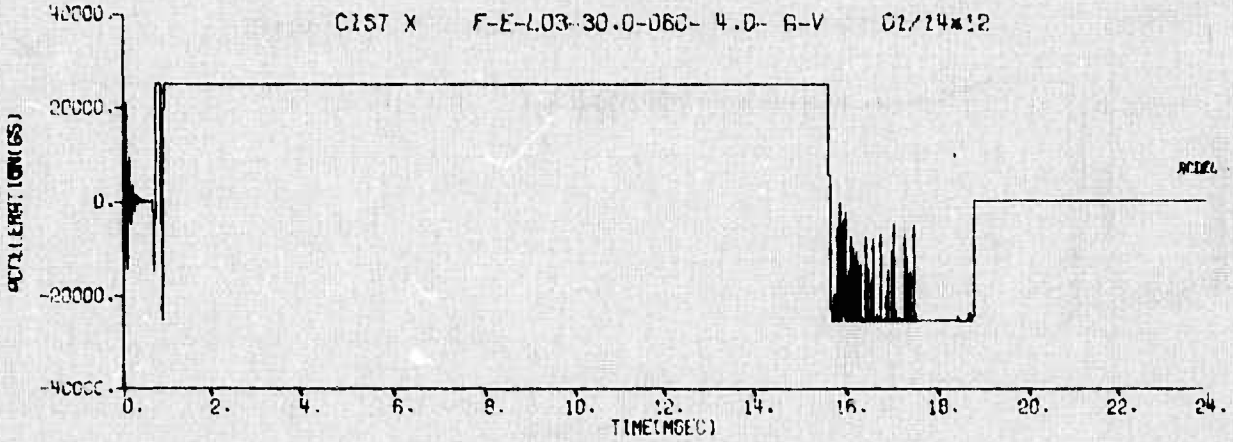

CIST X F-E-L07-24.0-300-12.0- A-V 03/12*34
VELOCITY(FT/SEC)
80.
0.
-80.
-160.
-240.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

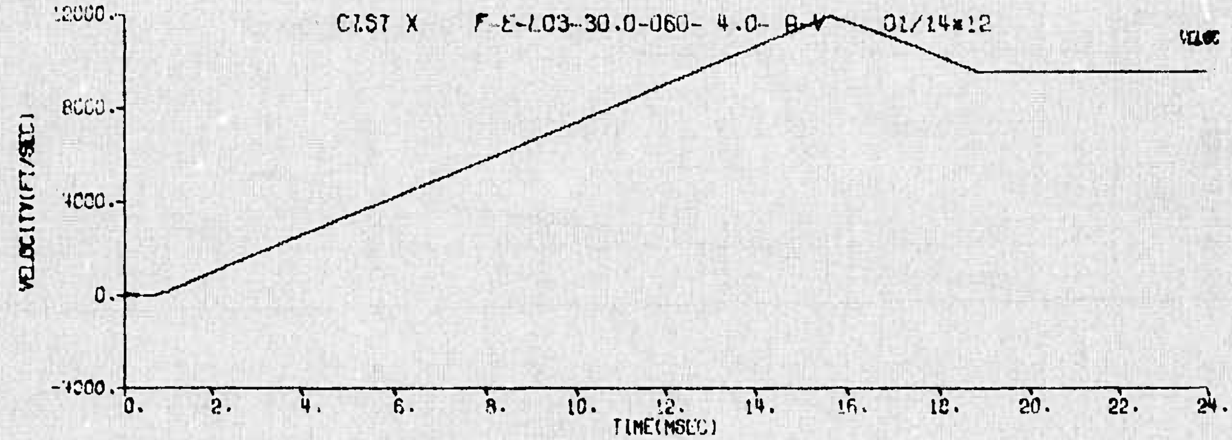

CIST X F-E-L07-24.0-300-12.0- A-V 03/12*34
DISPLACEMENT(IN)
20.
0.
-20.
-40.
-60.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

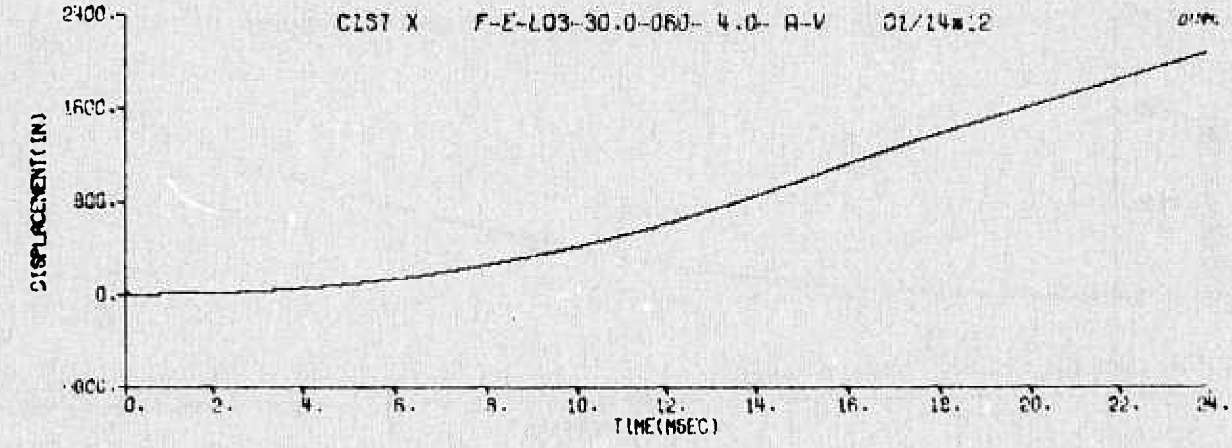

CZS7 X F-E-L03-30.0-060- 4.0- A-H 02/01*13
ACCEL
ACCELERATION(GS)
80000.
40000.
0.
-40000.
-80000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

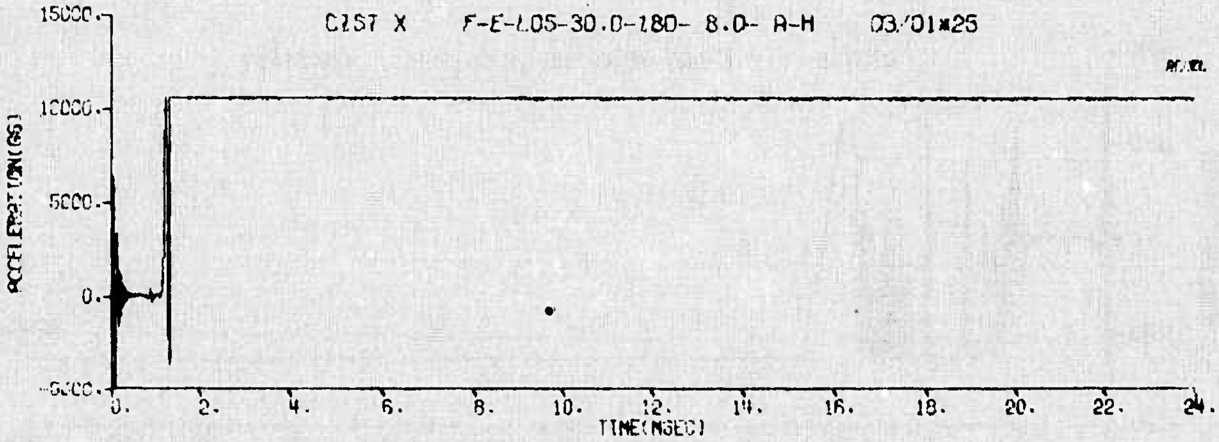

CZS7 X F-E-L03-30.0-060- 4.0- A-H 02/01*13
VELOC
VELOCITY(FT/SEC)
60000.
40000.
20000.
0.
-20000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

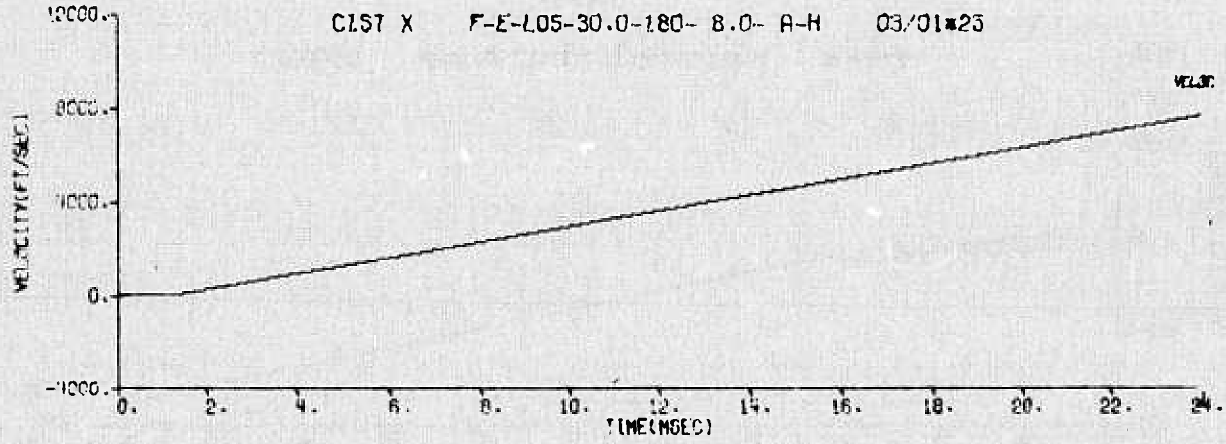

CZS7 X F-E-L03-30.0-060- 4.0- A-H 02/01*13
DISPL
DISPLACEMENT(IN)
6000.
4000.
2000.
0.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

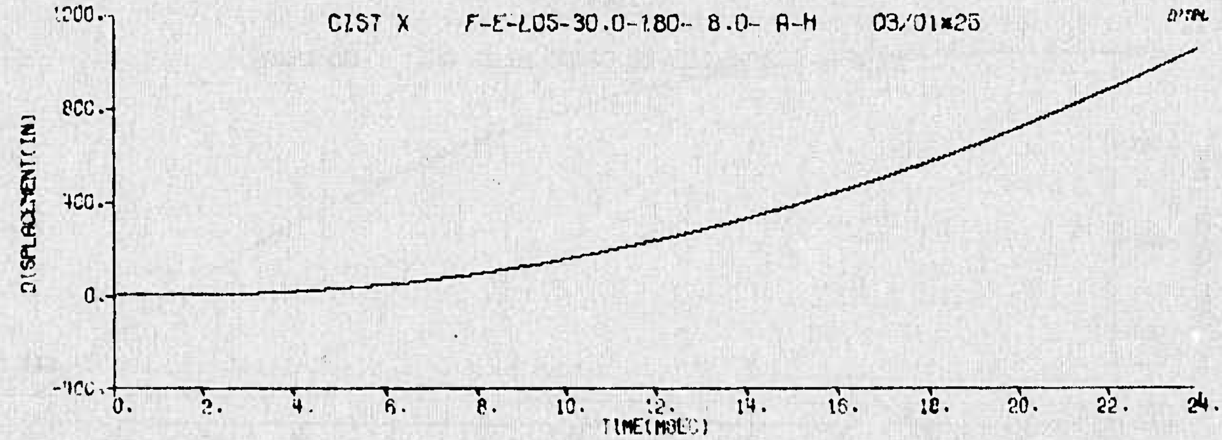

C1S7 X F-E-L03-30.0-060- 4.0- A-V 01/14*12
ACCELERATION(GS)
40000.
20000.
0.
-20000.
-40000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
ACCEL

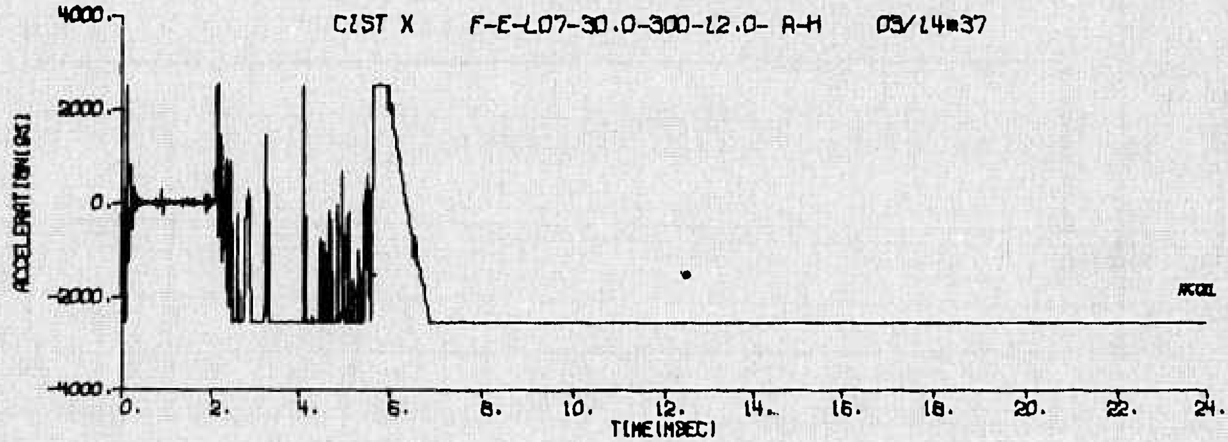

C1S7 X F-E-L03-30.0-060- 4.0- A-V 01/14*12
VELOCITY(FT/SEC)
12000.
8000.
4000.
0.
-4000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
VELOC

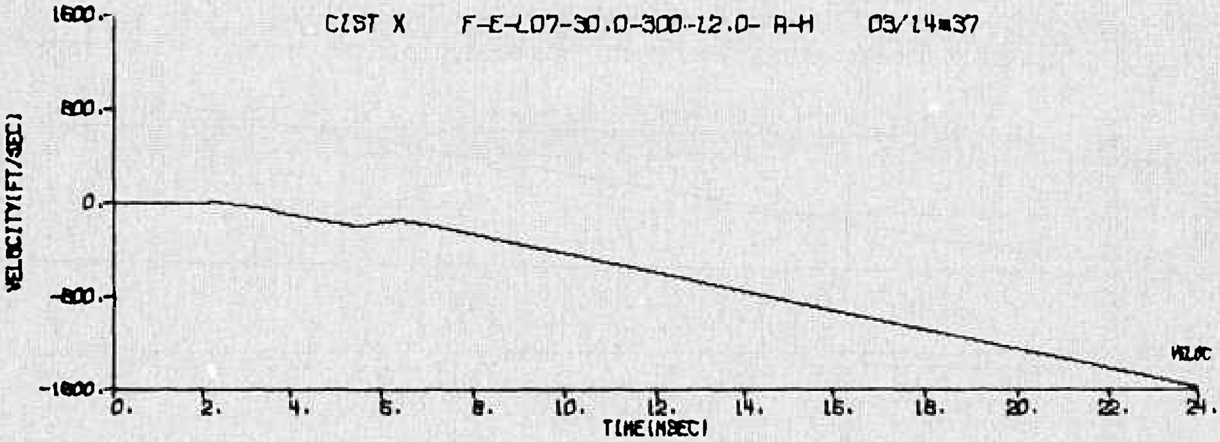

C1S7 X F-E-L03-30.0-060- 4.0- A-V 01/14*12
DISPLACEMENT(IN)
2400.
1600.
800.
0.
-800.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
DISPL

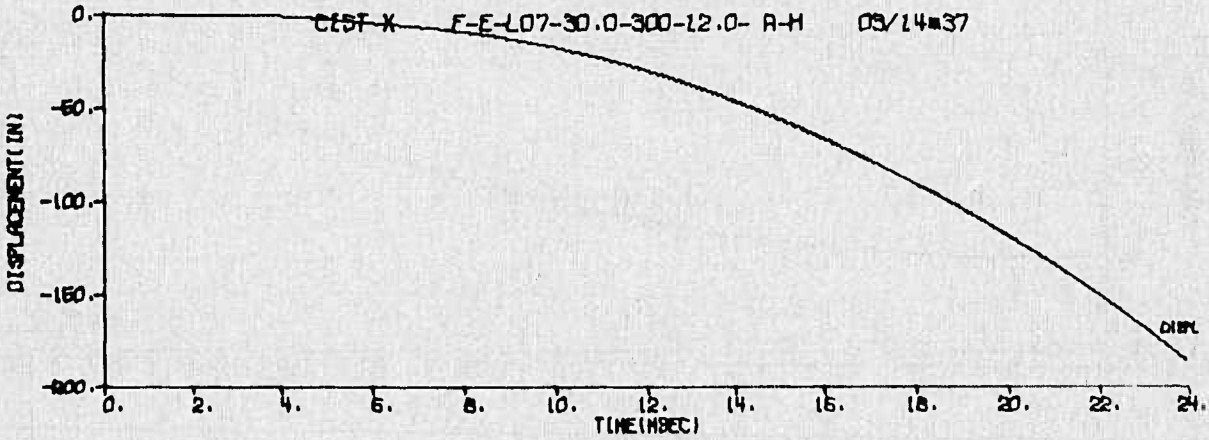

C1S7 X F-E-L05-30.0-180- 8.0- A-H 03/01*25
ACCEL.
ACCELERATION(GS)
15000.
10000.
5000.
0.
-5000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

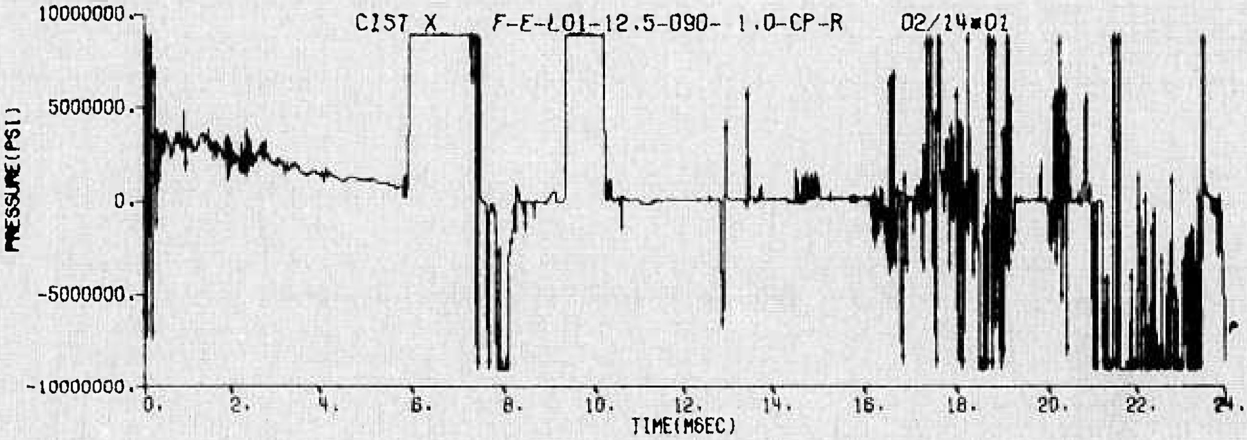

C1S7 X F-E-L05-30.0-180- 8.0- A-H 03/01*25
VELOC.
VELOCITY(FT/SEC)
12000.
8000.
4000.
0.
-4000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

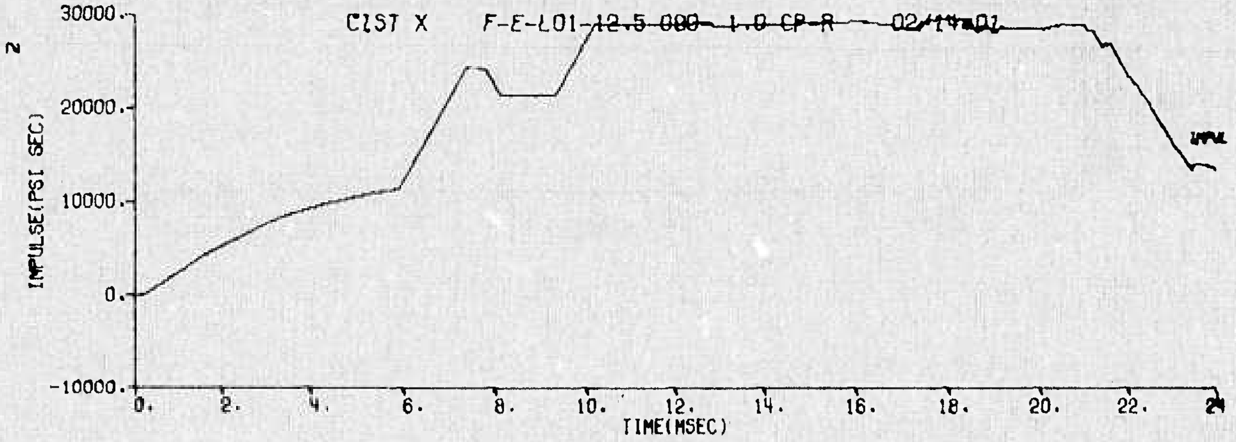

C1S7 X F-E-L05-30.0-180- 8.0- A-H 03/01*25
DISPL.
DISPLACEMENT(IN)
1200.
800.
400.
0.
-400.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

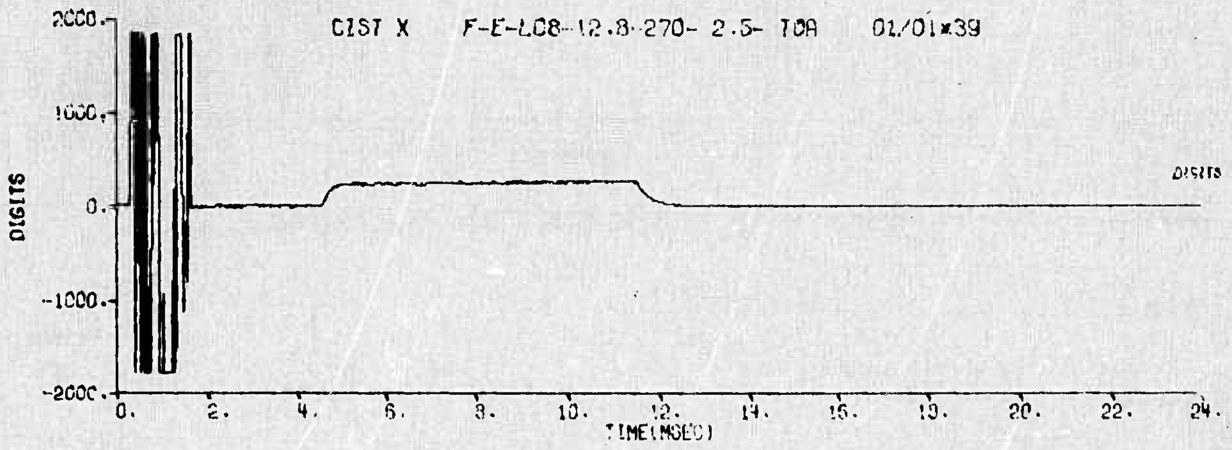

CIST X F-E-L07-30.0-300-12.0- A-H 03/14=37
ACCELERATION(G)
4000.
2000.
0.
-2000.
-4000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST X F-E-L07-30.0-300-12.0- A-H 03/14=37
VELOCITY(FT/SEC)
1600.
800.
0.
-800.
-1600.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST X F-E-L07-30.0-300-12.0- A-H 03/14=37
DISPLACEMENT(IN)
0.
-50.
-100.
-150.
-200.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

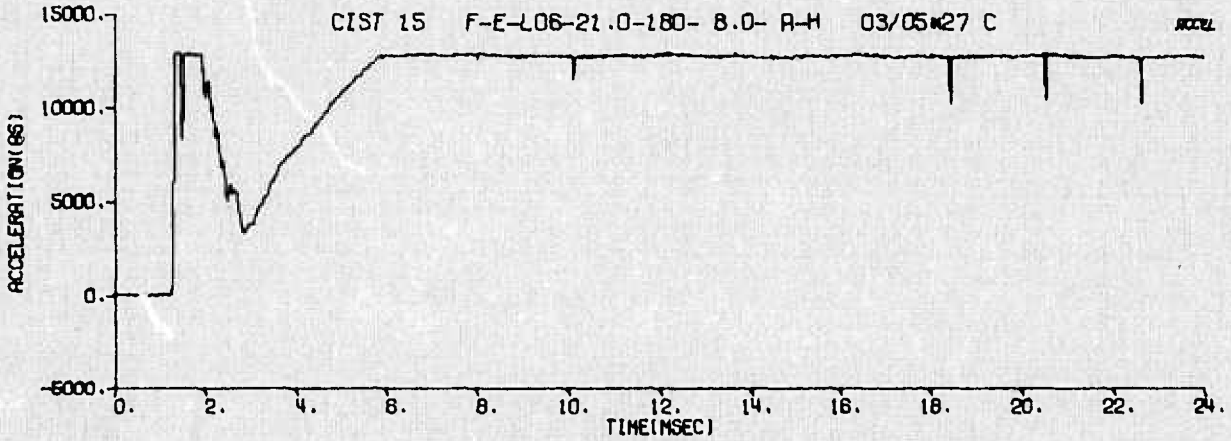

CIST X F-E-L01-12.5-090- 1.0-CP-R 02/14*01
10000000.
5000000.
0.
-5000000.
-10000000.
PRESSURE(PSI)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

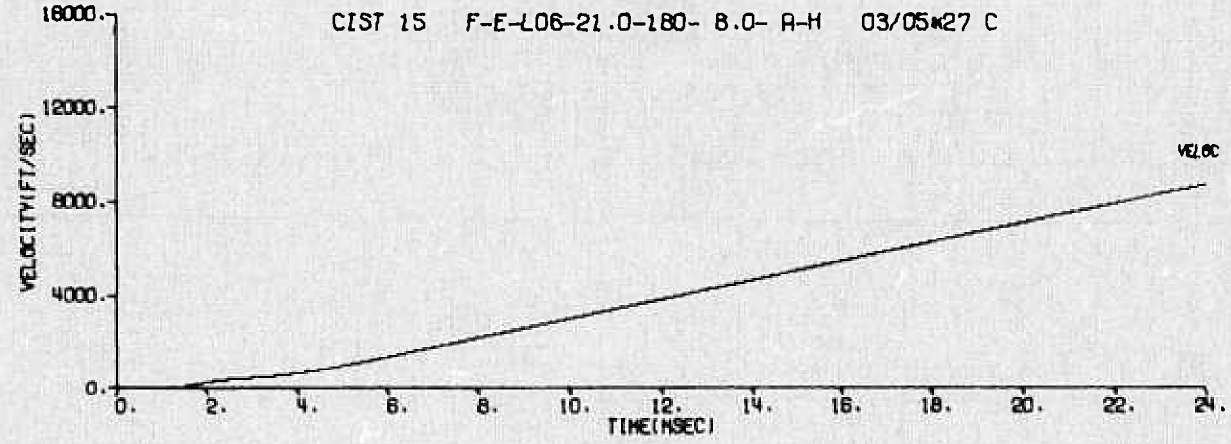

CIST X F-E-L01-12.5-090- 1.0-CP-R 02/14*01
2
30000.
20000.
10000.
0.
-10000.
IMPULSE(PSI SEC)
IMPUL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24
TIME(MSEC)

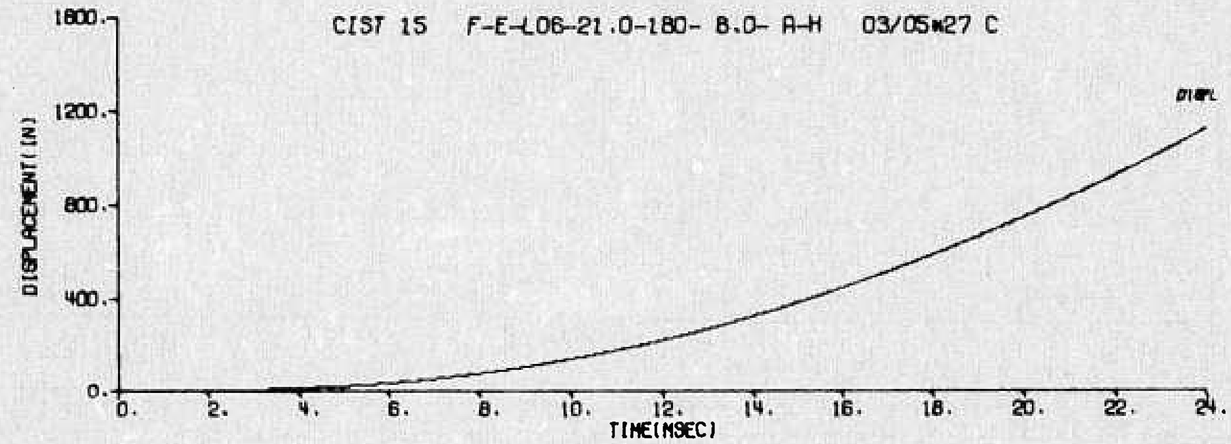

DIST X F-E-LC8-12.8-270- 2.5- TOA 01/01*39
DIGITS
2000.
1000.
0.
-1000.
-2000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
DIGITS

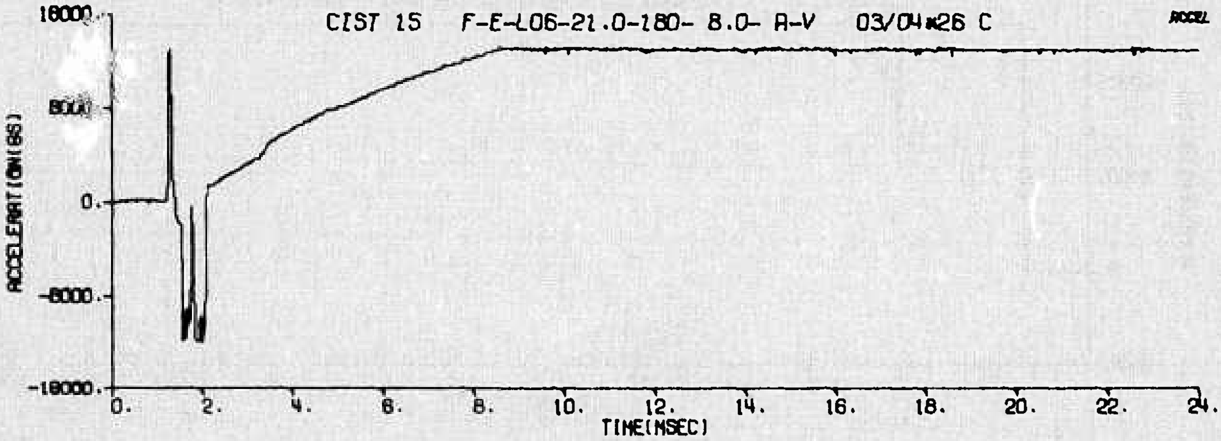
APPENDIX C

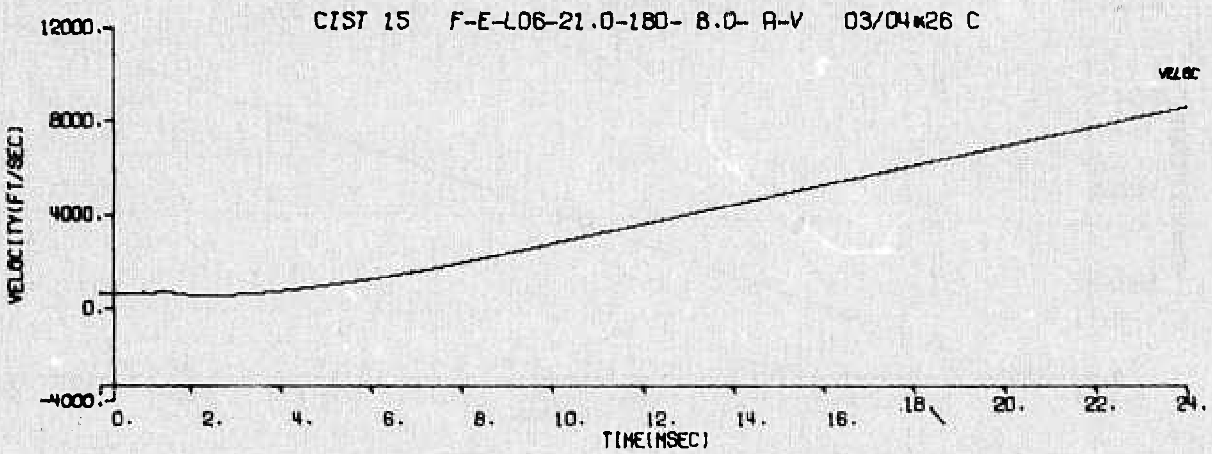
CIST 15 TIME HISTORY PLOTS

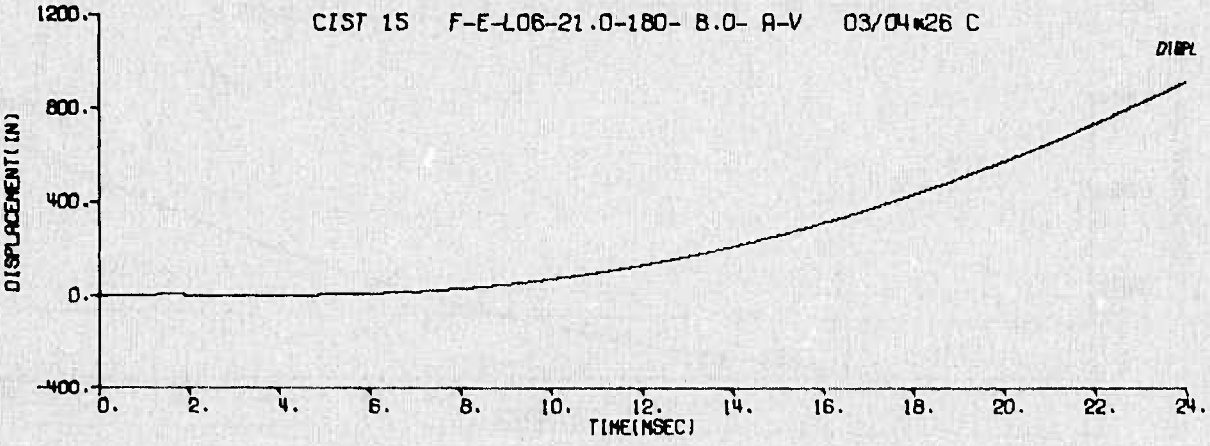

CIST 15 F-E-L06-21.0-180- 8.0- A-H 03/05*27 C
ACCEL
ACCELERATION(GS)
15000.
10000.
5000.
0.
-5000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

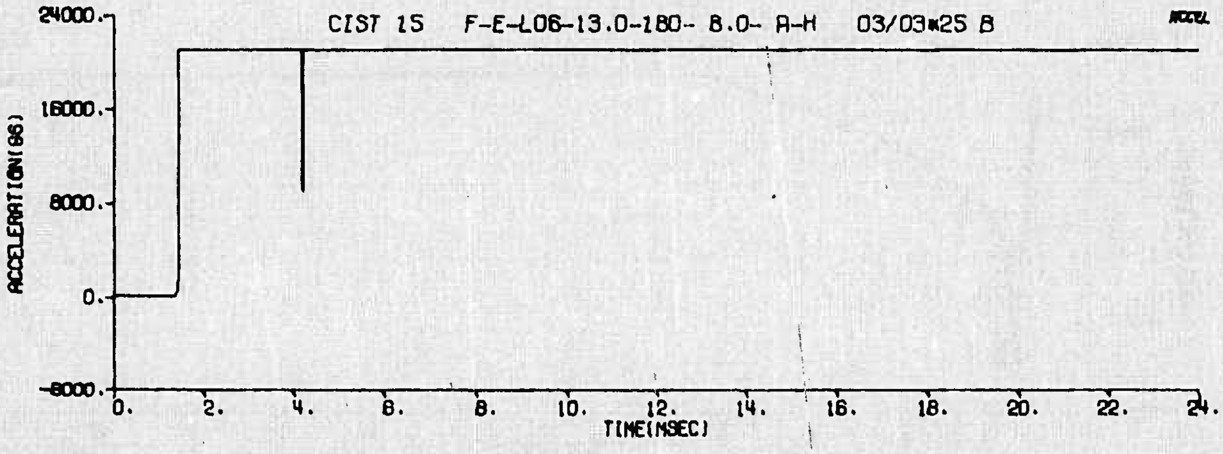

CIST 15 F-E-L06-21.0-180- 8.0- A-H 03/05*27 C
VELOC
VELOCITY(FT/SEC)
16000.
12000.
8000.
4000.
0.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

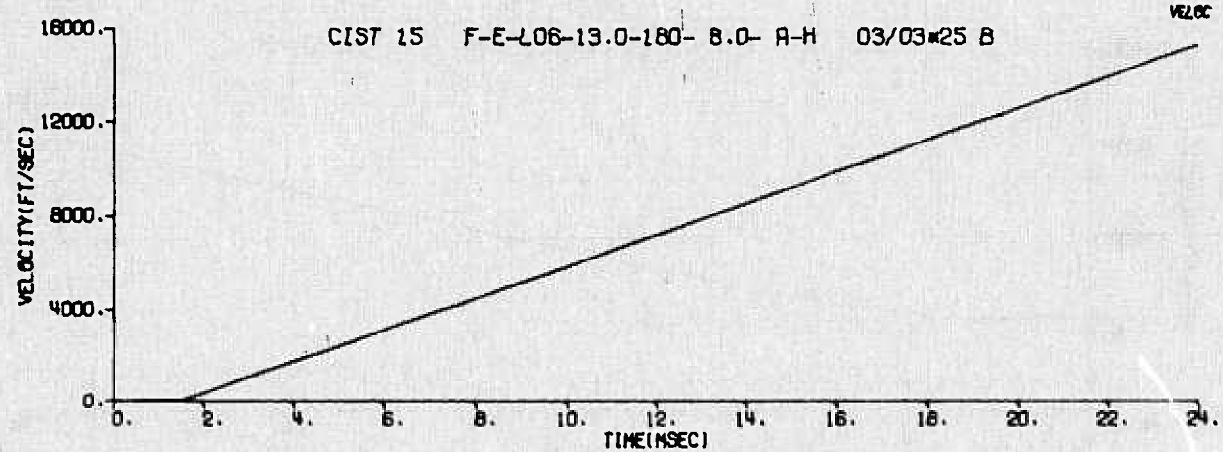

CIST 15 F-E-L06-21.0-180- 8.0- A-H 03/05*27 C
DISPL
DISPLACEMENT(IN)
1600.
1200.
800.
400.
0.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

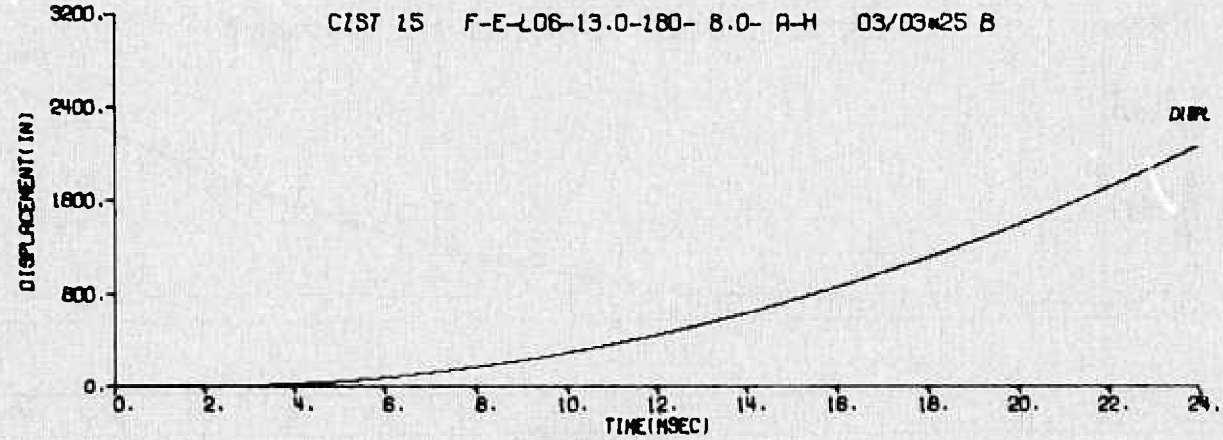

CIST 15 F-E-L06-21.0-180- 8.0- A-V 03/04*26 C

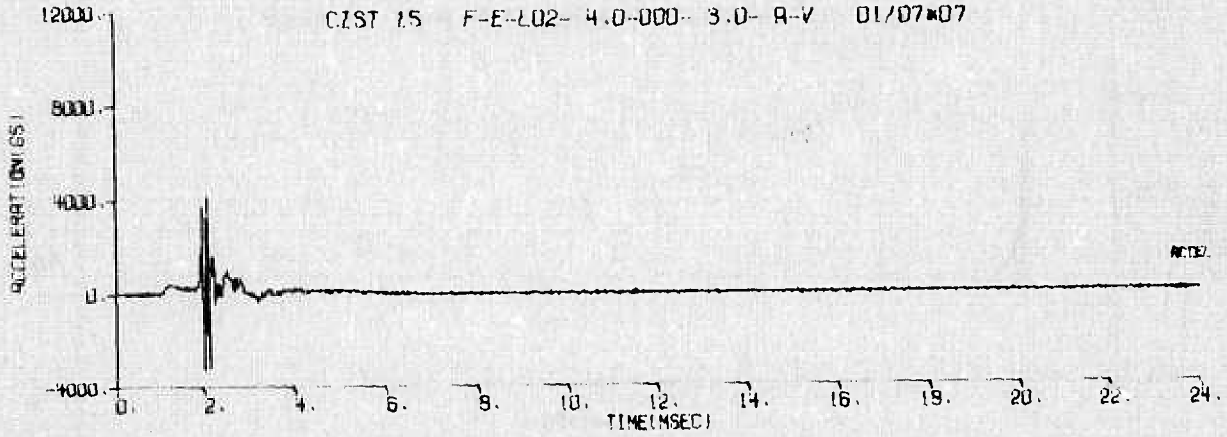

CIST 15 F-E-L06-21.0-180- 8.0- A-V 03/04*26 C

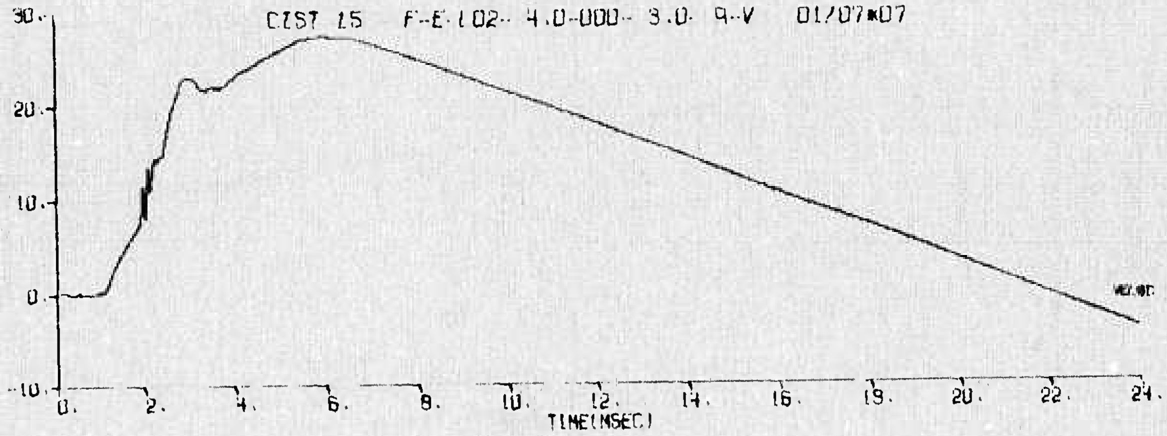

CIST 15 F-E-L06-21.0-180- 8.0- A-V 03/04*26 C

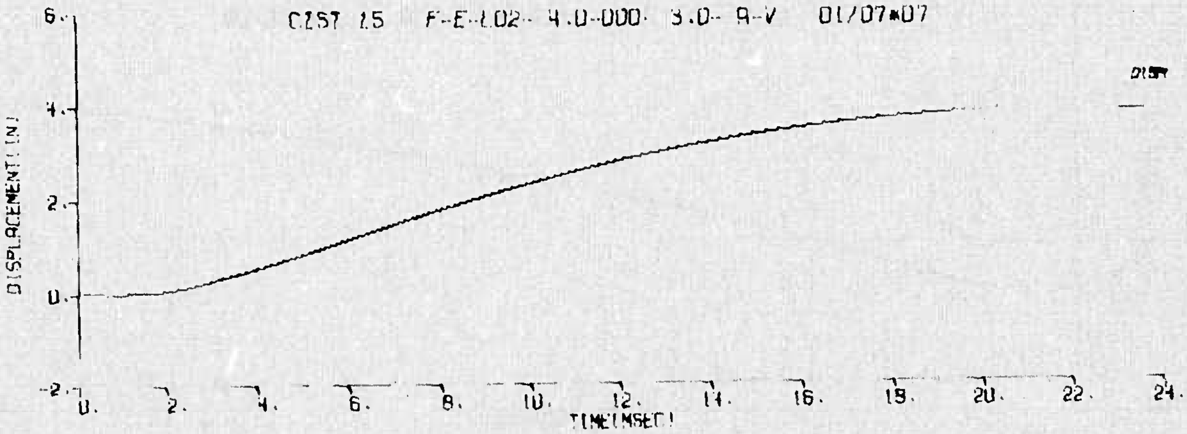

CIST 15 F-E-L06-13.0-180- 8.0- A-H 03/03*25 B
ACCEL
ACCELERATION(GS)
24000.
16000.
8000.
0.
-8000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

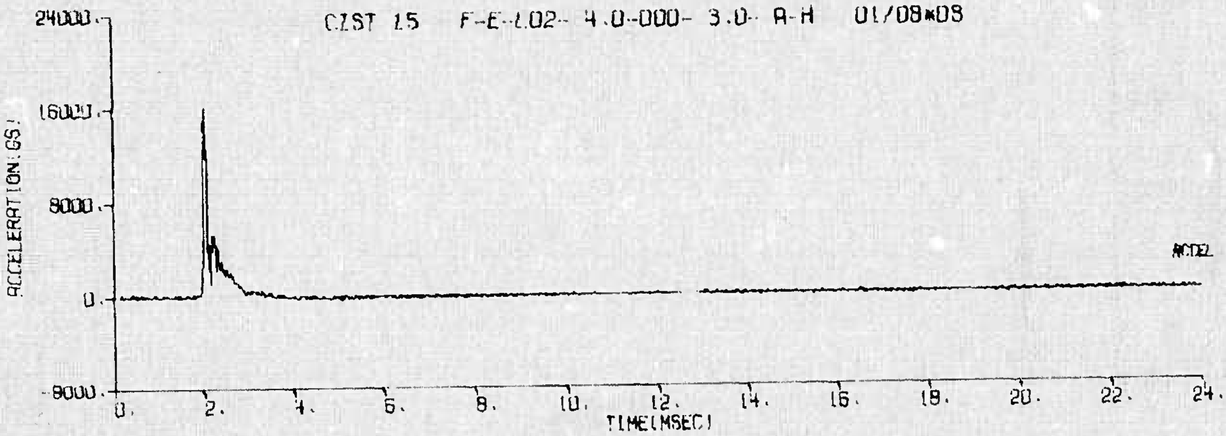

CIST 15 F-E-L06-13.0-180- 8.0- A-H 03/03*25 B
VELOC
VELOCITY(FT/SEC)
16000.
12000.
8000.
4000.
0.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

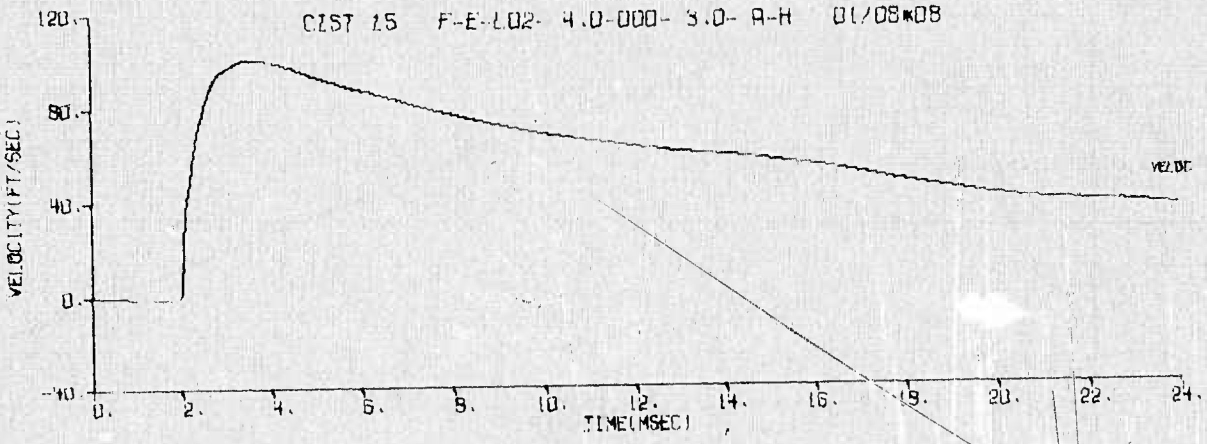

CIST 15 F-E-L06-13.0-180- 8.0- A-H 03/03*25 B
DISPL
DISPLACEMENT(IN)
3200.
2400.
1600.
800.
0.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

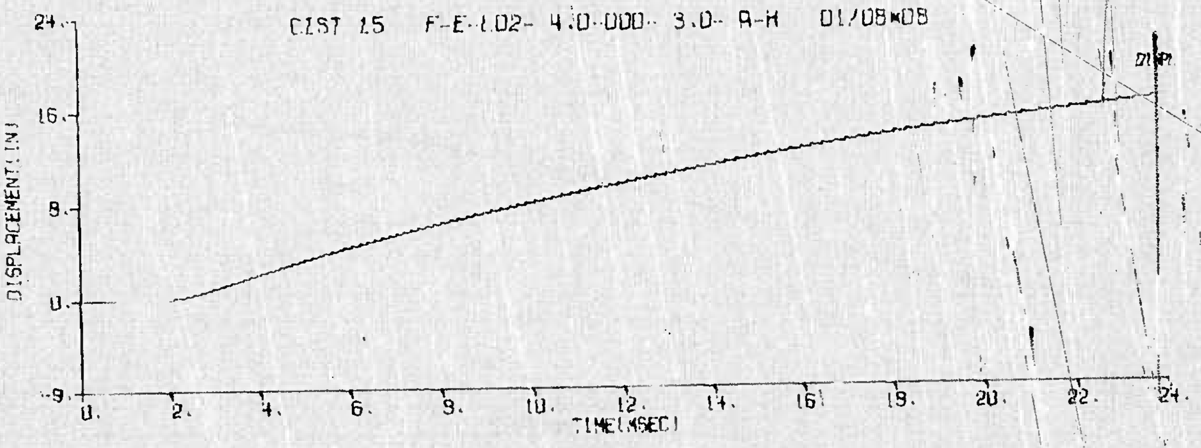

CZST 15 F-E-L02- 4.0-000- 3.0- A-V 01/07*07
ACCELERATION(GS)
12000.
8000.
4000.
0.
-4000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

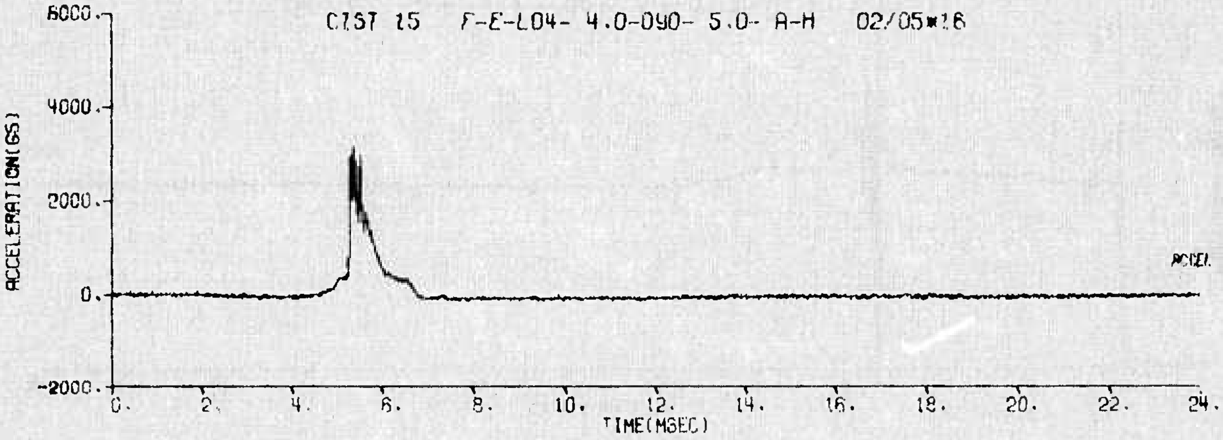

CZST 15 F-E-L02- 4.0-000- 3.0- A-V 01/07*07
VELOCITY(FT/SEC)
30.
20.
10.
0.
-10.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

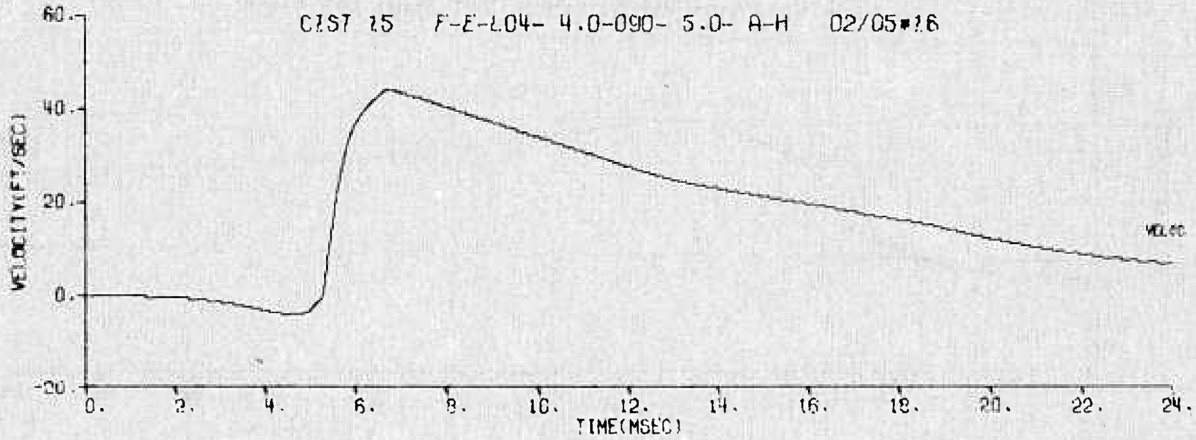

CZST 15 F-E-L02- 4.0-000- 3.0- A-V 01/07*07
DISPLACEMENT(IN)
6.
4.
2.
0.
-2.
DISP
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

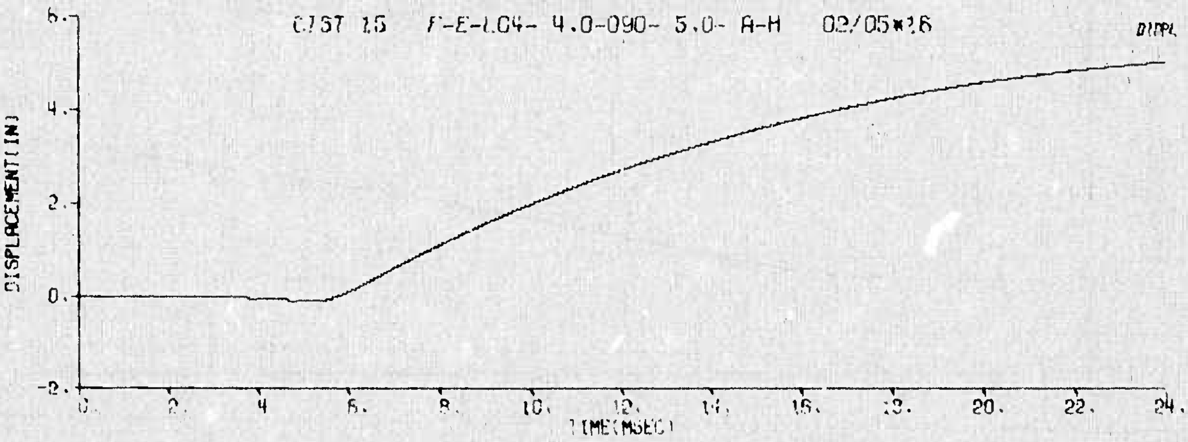

CIST 15 F-E-L02- 4.0-000- 3.0- A-H 01/08*08
24000.
16000.
8000.
0.
-8000.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

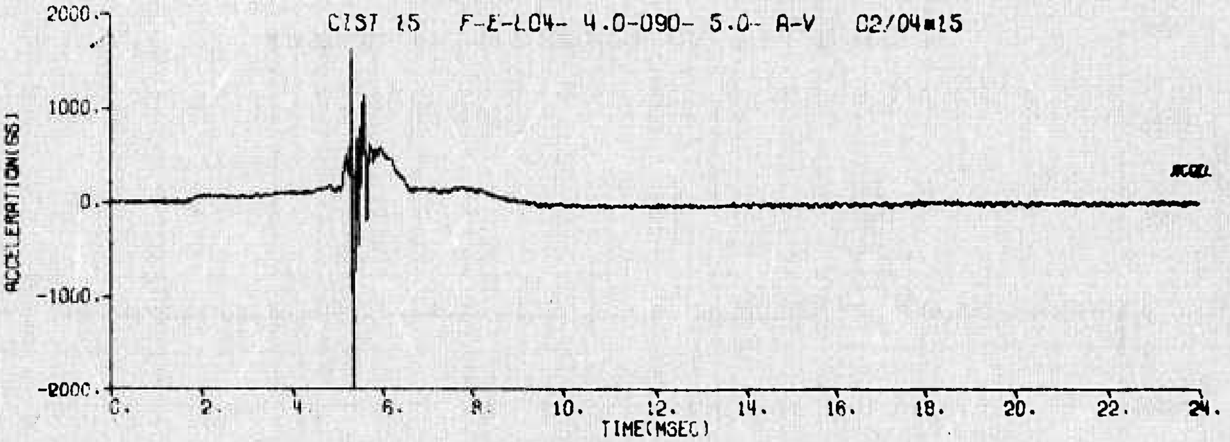

CIST 15 F-E-L02- 4.0-000- 3.0- A-H 01/08*08
120.
80.
40.
0.
-40.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

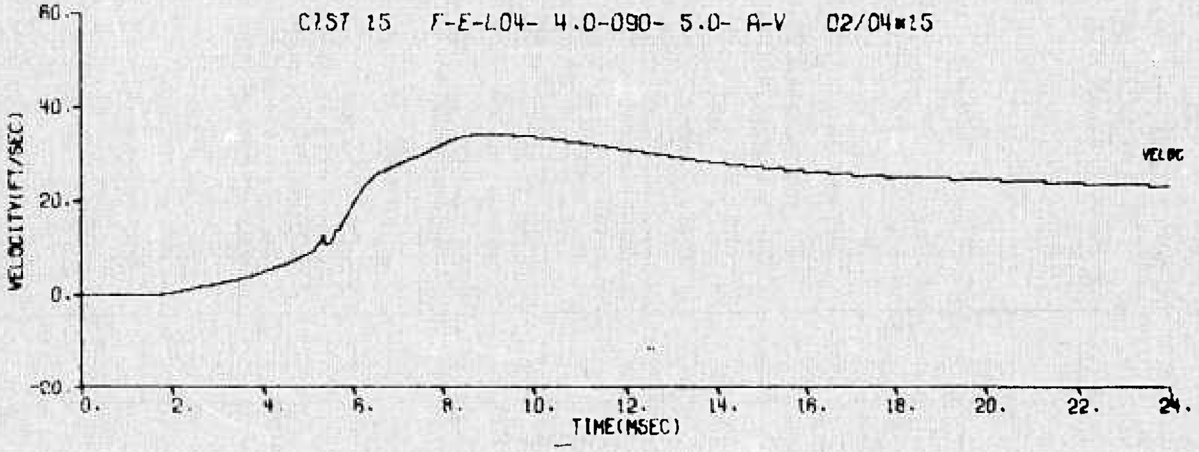

CIST 15 F-E-L02- 4.0-000- 3.0- A-H 01/08*08
24.
16.
8.
0.
-8.
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

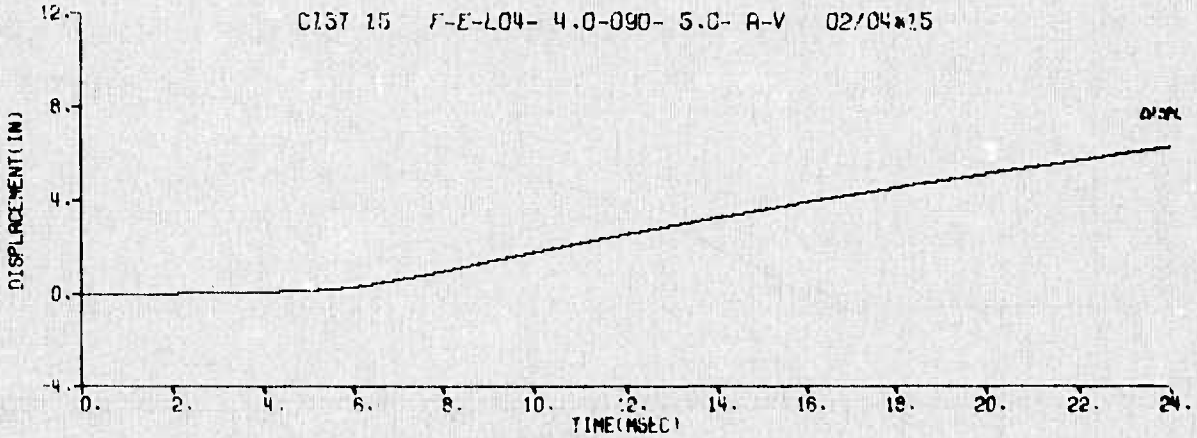

CIST 15 F-E-L04- 4.0-090- 5.0- A-H 02/05*76
ACCELERATION(GS)
6000.
4000.
2000.
0.
-2000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

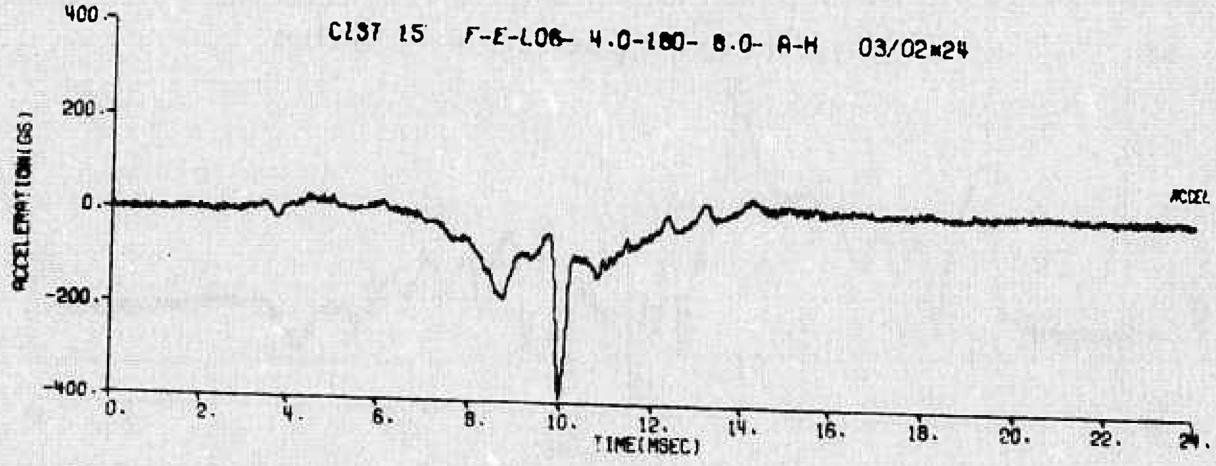

CIST 15 F-E-L04- 4.0-090- 5.0- A-H 02/05*76
VELOCITY(FT/SEC)
60.
40.
20.
0.
-20.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

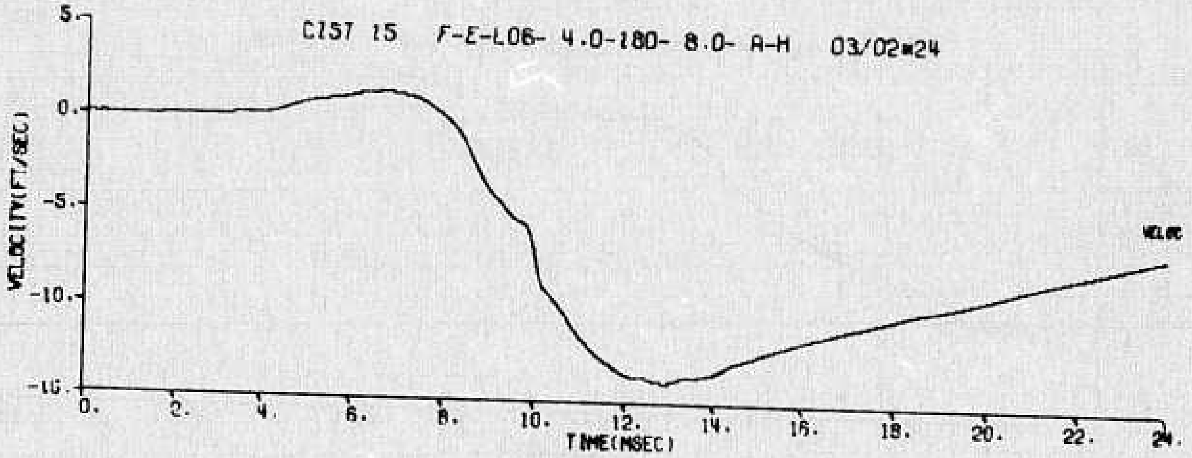

CIST 15 F-E-L04- 4.0-090- 5.0- A-H 02/05*76
DISPL
DISPLACEMENT(IN)
6.
4.
2.
0.
-2.
0.
2.
4
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

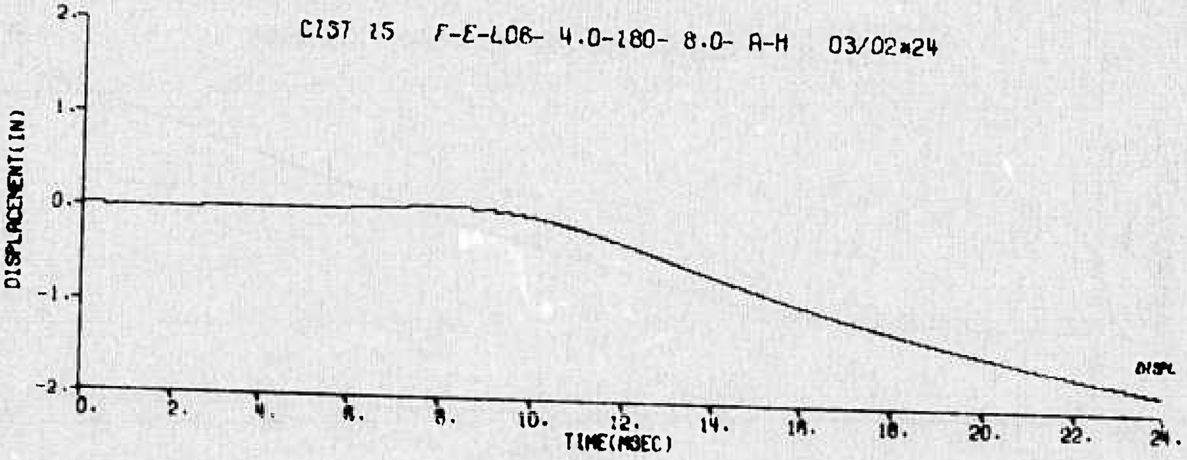

CIST 15 F-E-L04- 4.0-090- 5.0- A-V 02/04*15
ACCELERATION(GS)
2000.
1000.
0.
-1000.
-2000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

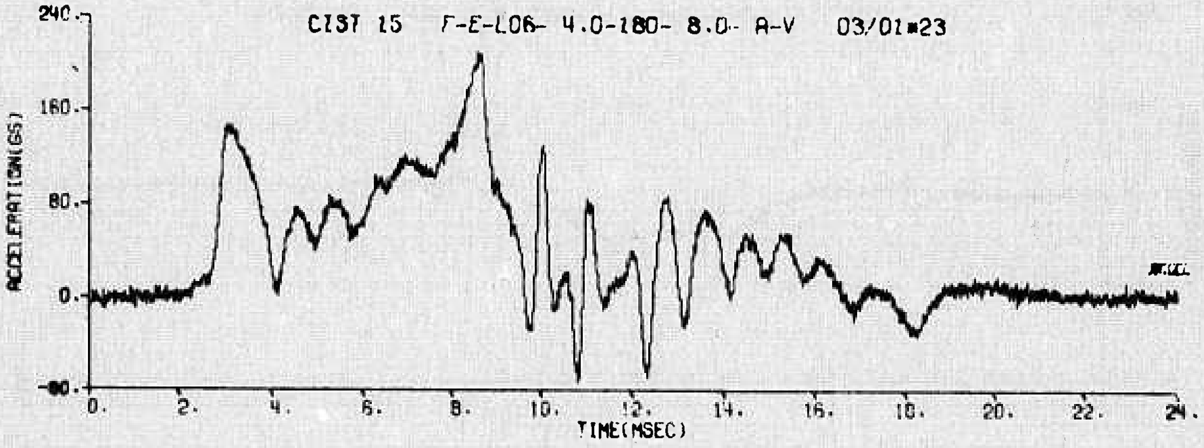

CIST 15 F-E-L04- 4.0-090- 5.0- A-V 02/04*15
VELOCITY(FT/SEC)
60.
40.
20.
0.
-20.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

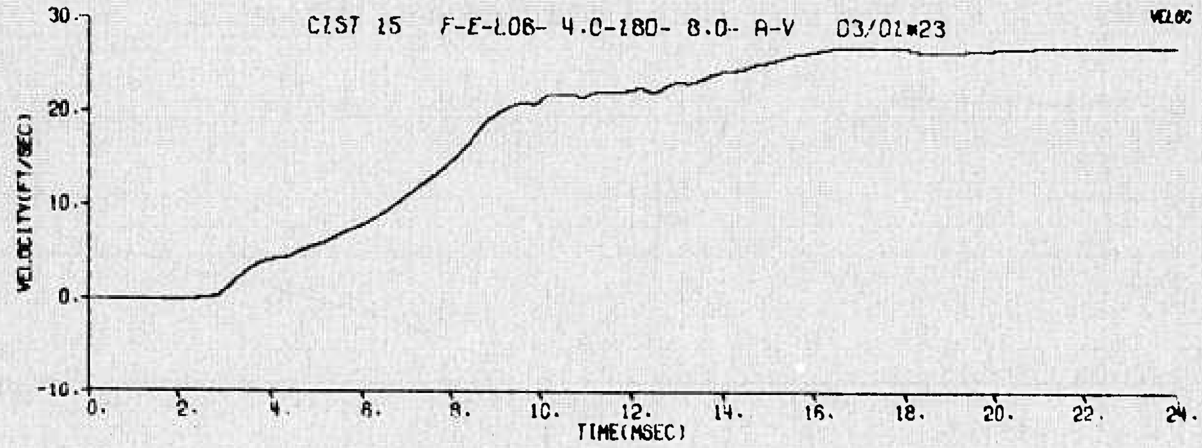

CIST 15 F-E-L04- 4.0-090- 5.0- A-V 02/04*15
DISPLACEMENT(IN)
12.
8.
4.
0.
-4.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

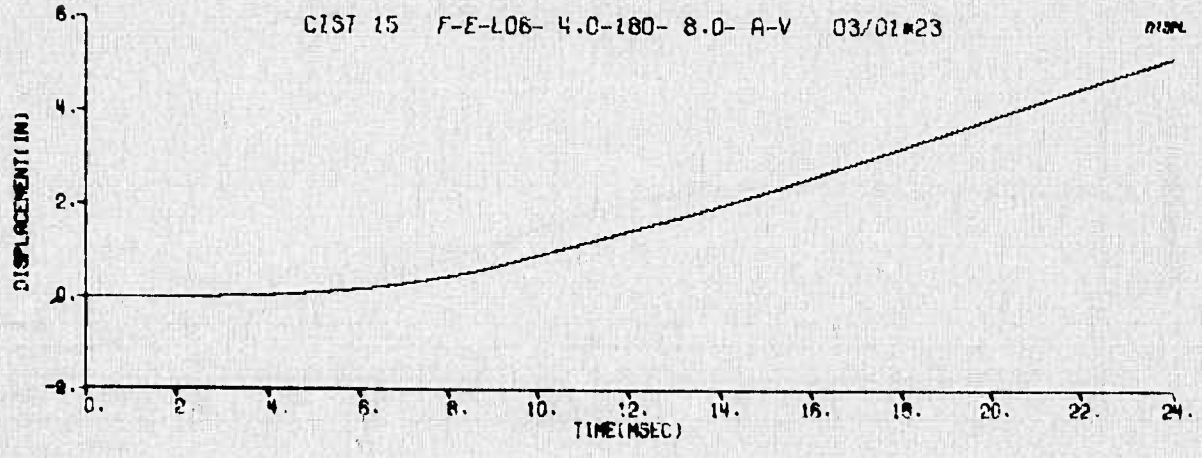

CIST 15 F-E-LO6- 4.0-180- 8.0- A-H 03/02*24
ACCELERATION(GS)
400.
200.
0.
-200.
-400.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

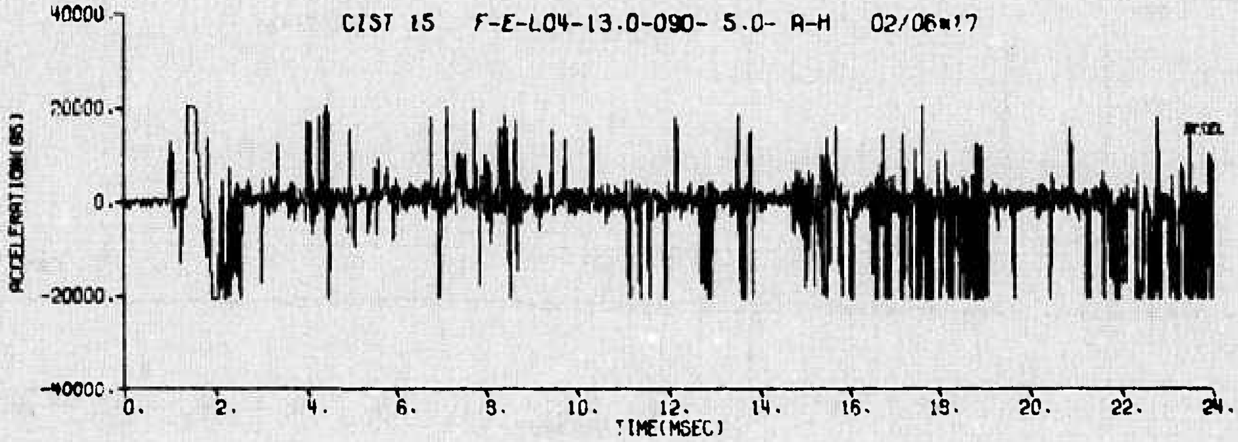

CIST 15 F-E-LO6- 4.0-180- 8.0- A-H 03/02*24
VELOCITY(FT/SEC)
5.
0.
-5.
-10.
-15.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

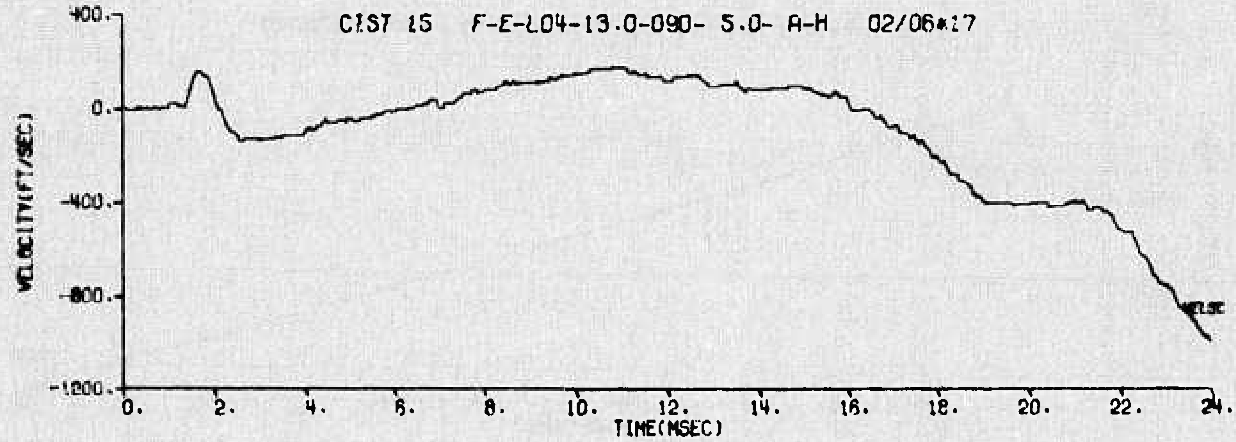

CIST 15 F-E-LO6- 4.0-180- 8.0- A-H 03/02*24
DISPLACEMENT(IN)
2.
1.
0.
-1.
-2.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

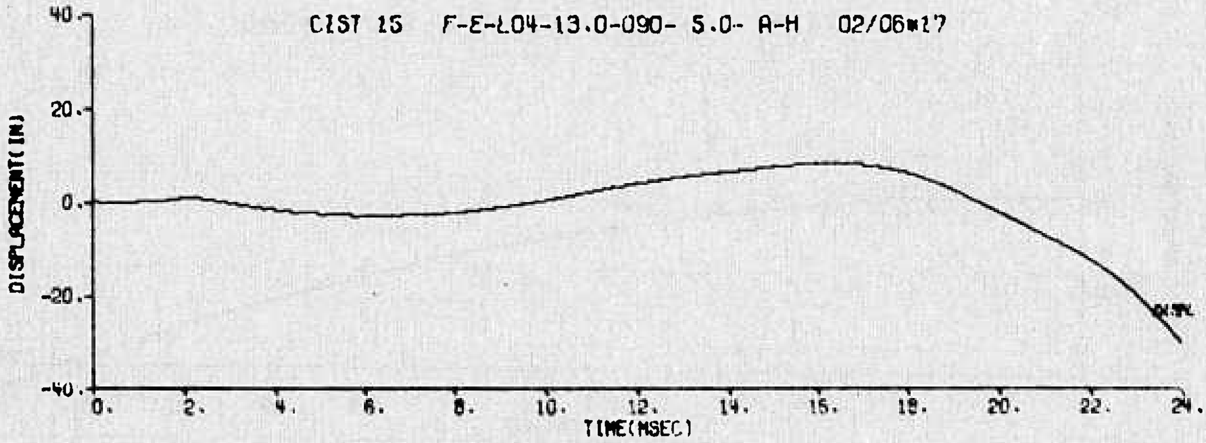

CIST 15 F-E-L06- 4.0-180- 8.0- A-V 03/01*23
ACCELERATION(GS)
240.
160.
80.
0.
-80.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

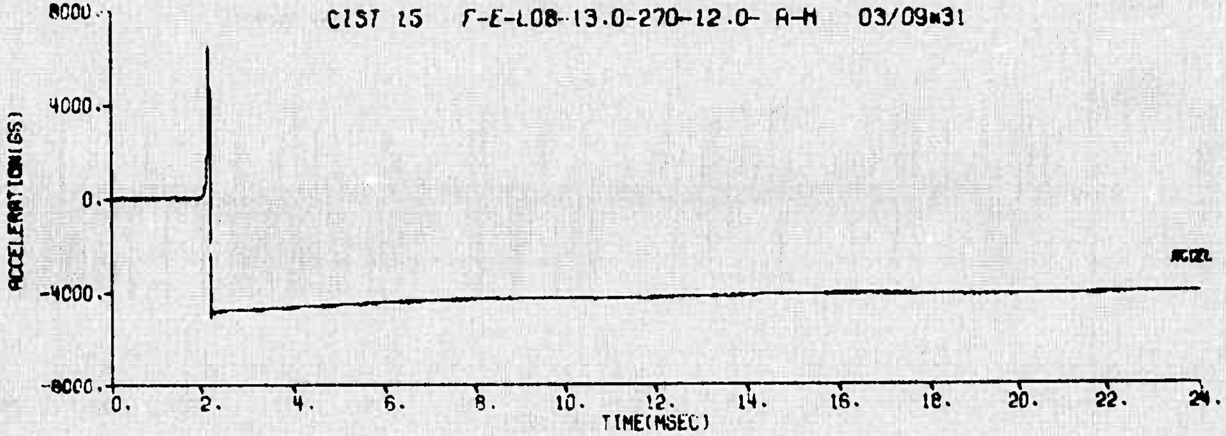

CIST 15 F-E-L06- 4.0-180- 8.0- A-V 03/01*23
VELOCITY(FT/SEC)
30.
20.
10.
0.
-10.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

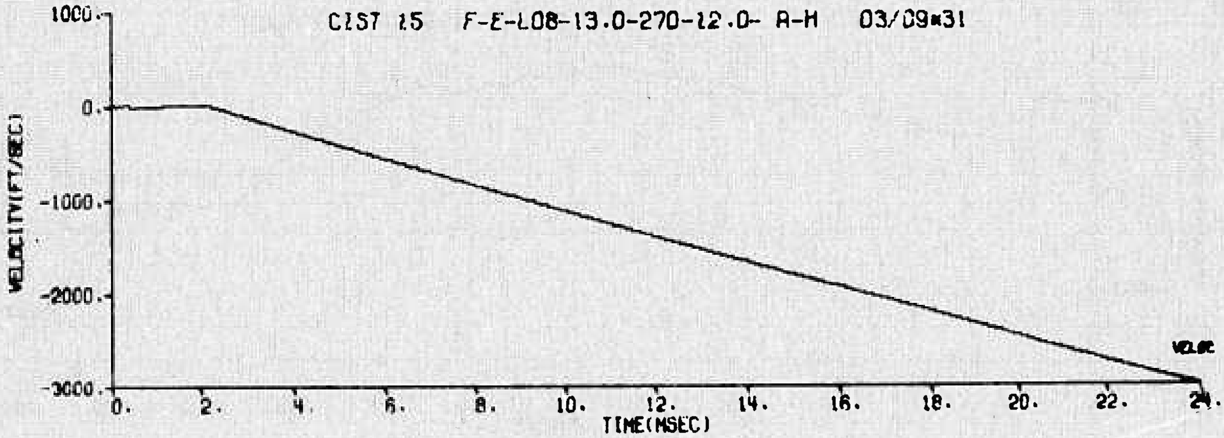

CIST 15 F-E-L06- 4.0-180- 8.0- A-V 03/01*23
DISPLACEMENT(IN)
6.
4.
2.
0.
-2.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

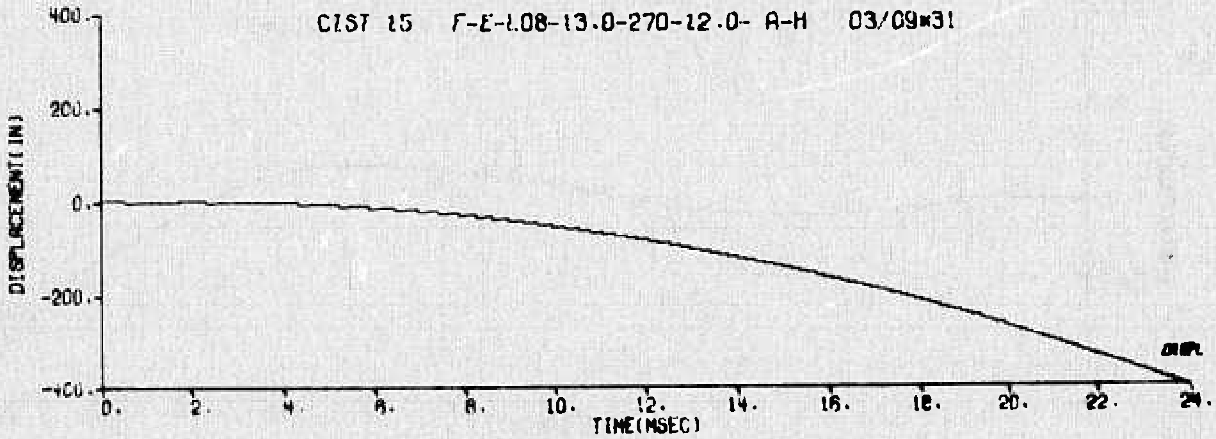

CIST 15 F-E-L04-13.0-090- 5.0- A-H 02/06*17
40000.
20000.
0.
-20000.
-40000.
ACCELERATION(GS)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

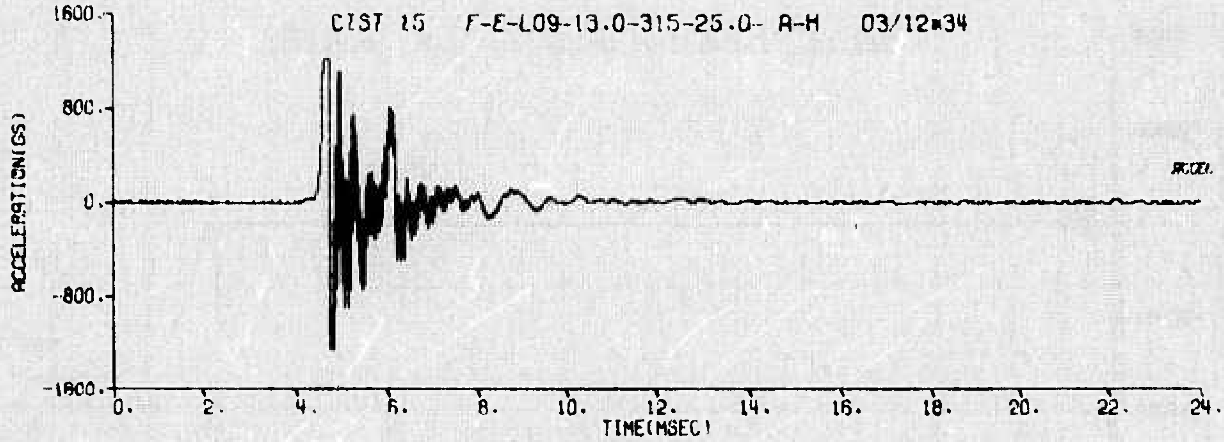

CIST 15 F-E-L04-13.0-090- 5.0- A-H 02/06*17
400.
0.
-400.
-800.
-1200.
VELOCITY(FT/SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

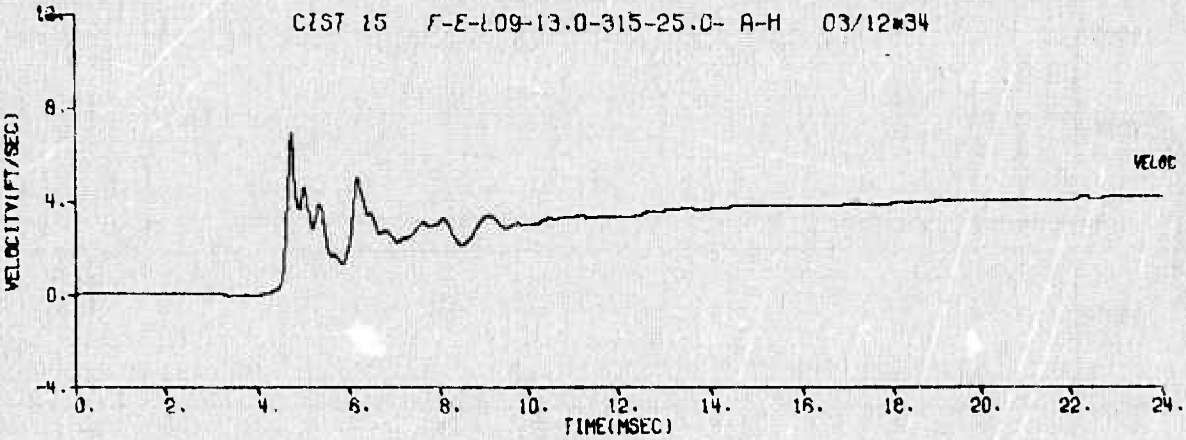

CIST 15 F-E-L04-13.0-090- 5.0- A-H 02/06*17
40.
20.
0.
-20.
-40.
DISPLACEMENT(IN)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

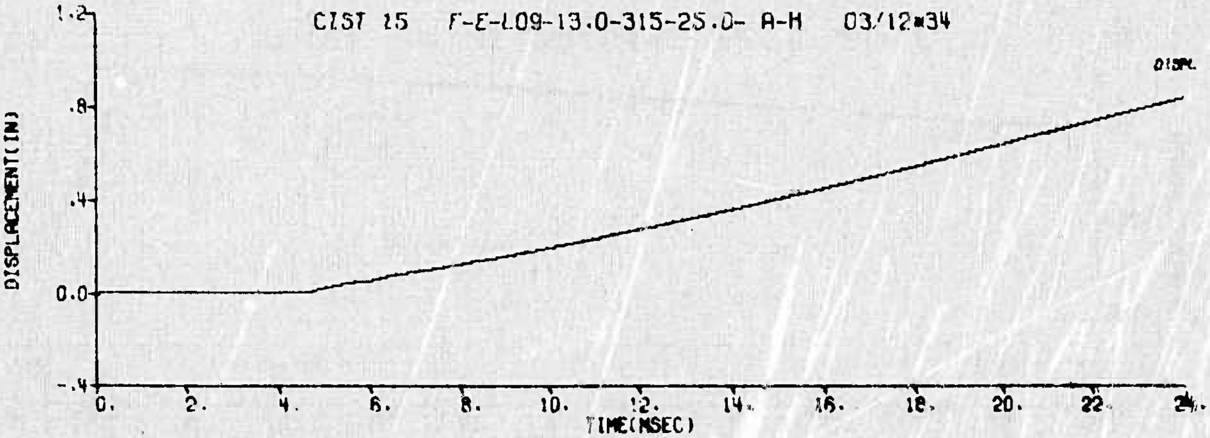

CIST 15 F-E-L08-13.0-270-12.0- A-H 03/09*31
8000.
4000.
0.
-4000.
-8000.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

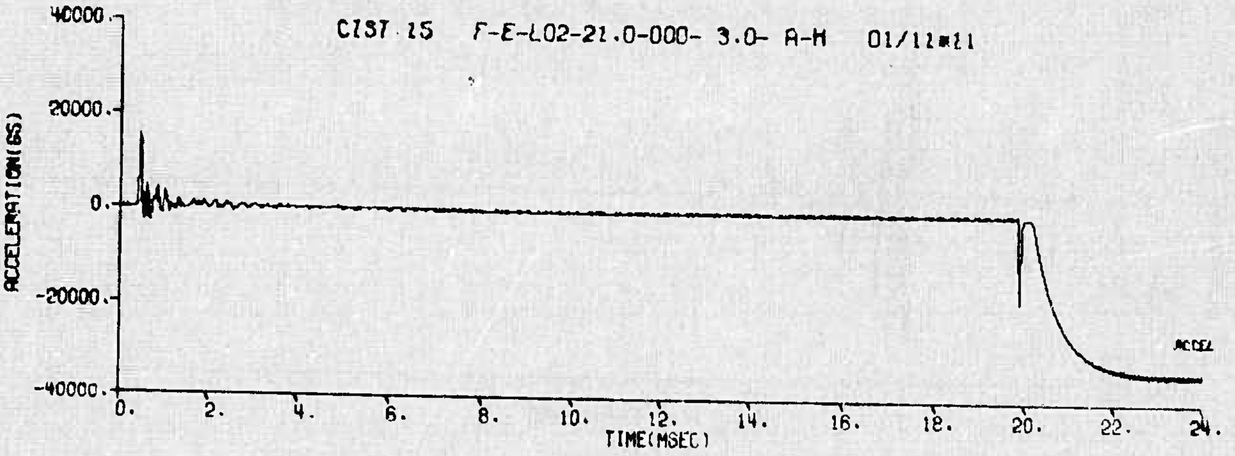

CIST 15 F-E-L08-13.0-270-12.0- A-H 03/09*31
1000.
0.
-1000.
-2000.
-3000.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

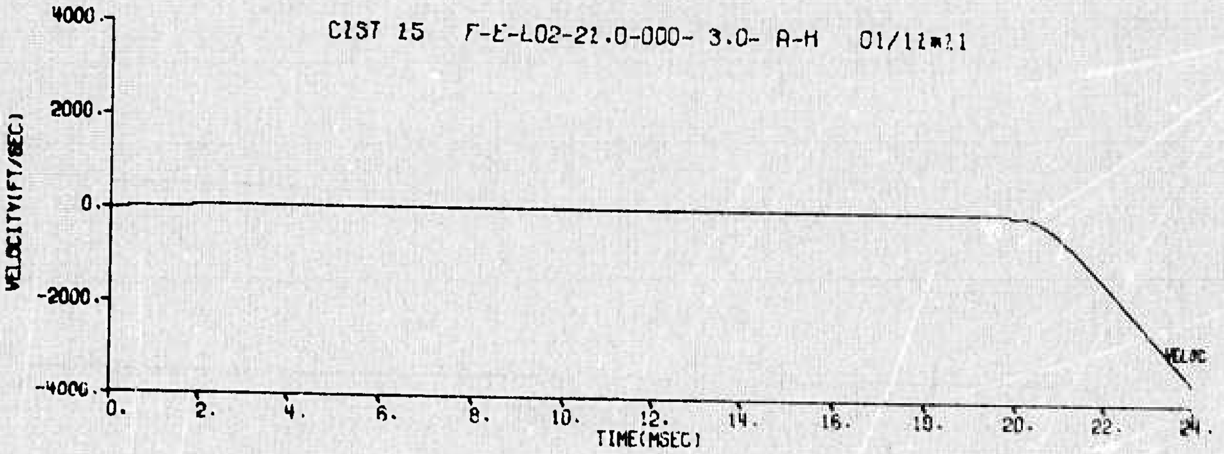

CIST 15 F-E-L08-13.0-270-12.0- A-H 03/09*31
400.
200.
0.
-200.
-400.
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

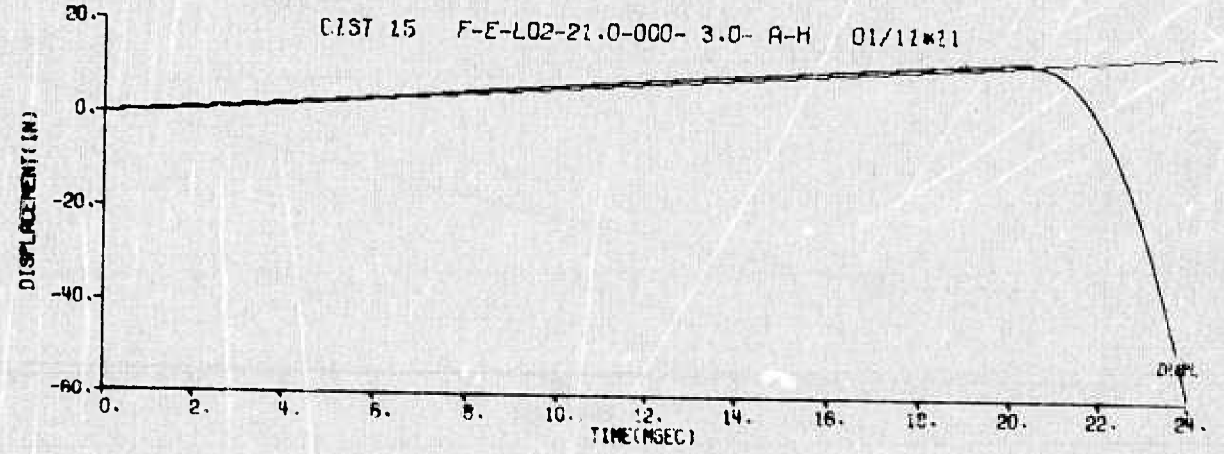

CIST 15 F-E-L09-13.0-315-25.0- A-H 03/12*34
1600.
800.
0.
-800.
-1600.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

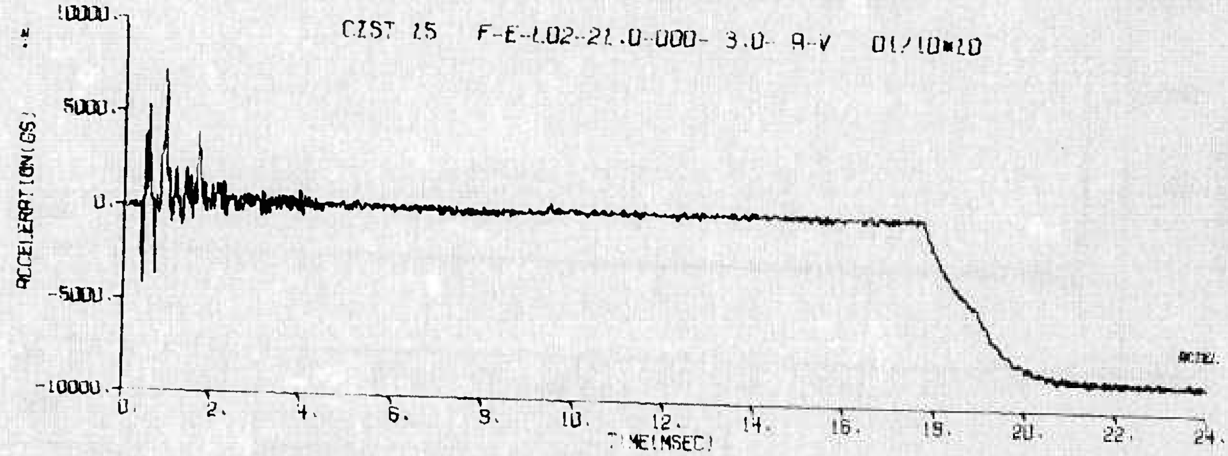

CIST 15 F-E-L09-13.0-315-25.0- A-H 03/12*34
12.
8.
4.
0.
-4.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

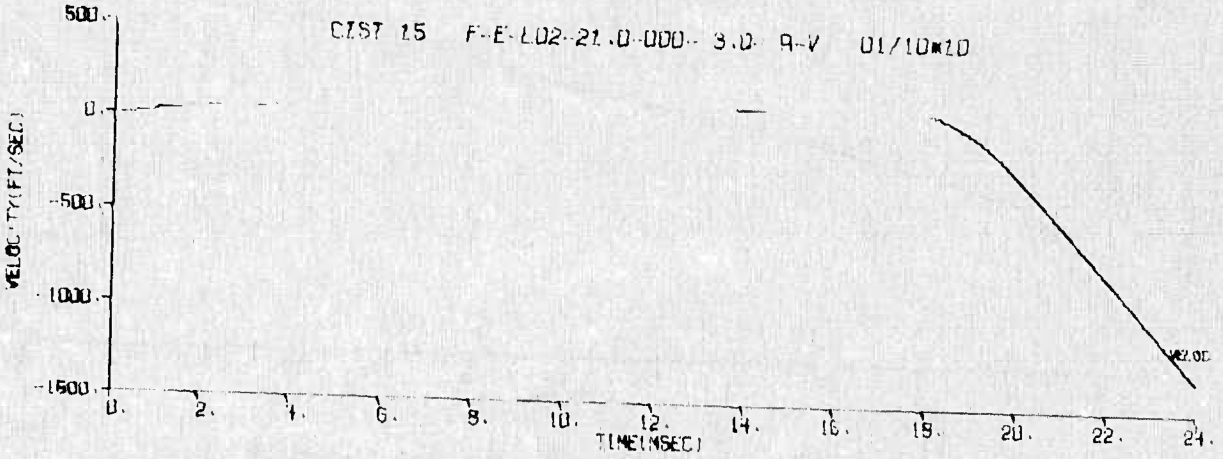

CIST 15 F-E-L09-13.0-315-25.0- A-H 03/12*34
1.2
.8
.4
0.0
-.4
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

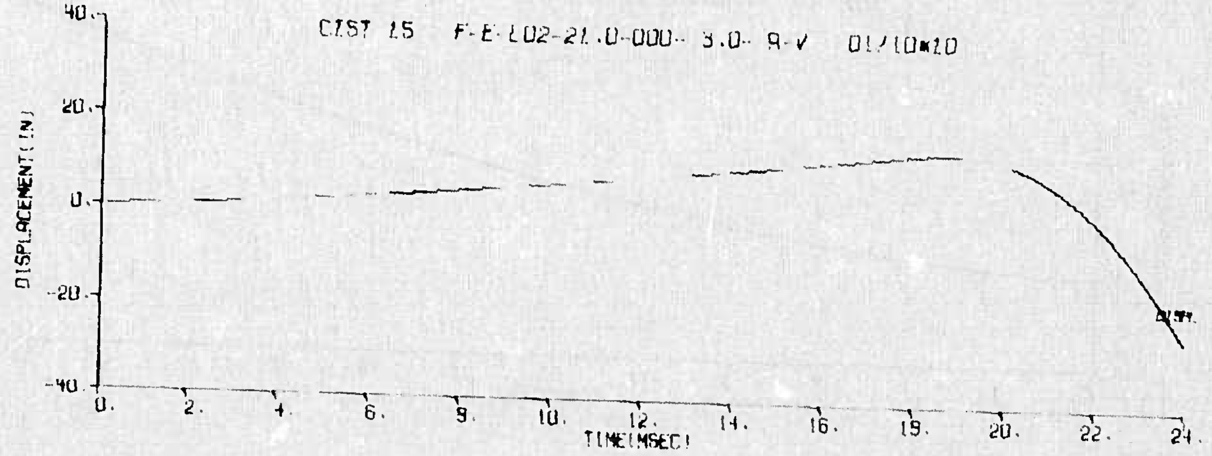

CIST 15 F-E-L02-21.0-000- 3.0- A-H 01/11*11
40000.
20000.
0.
-20000.
-40000.
ACCELERATION(GS)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
ACCEL

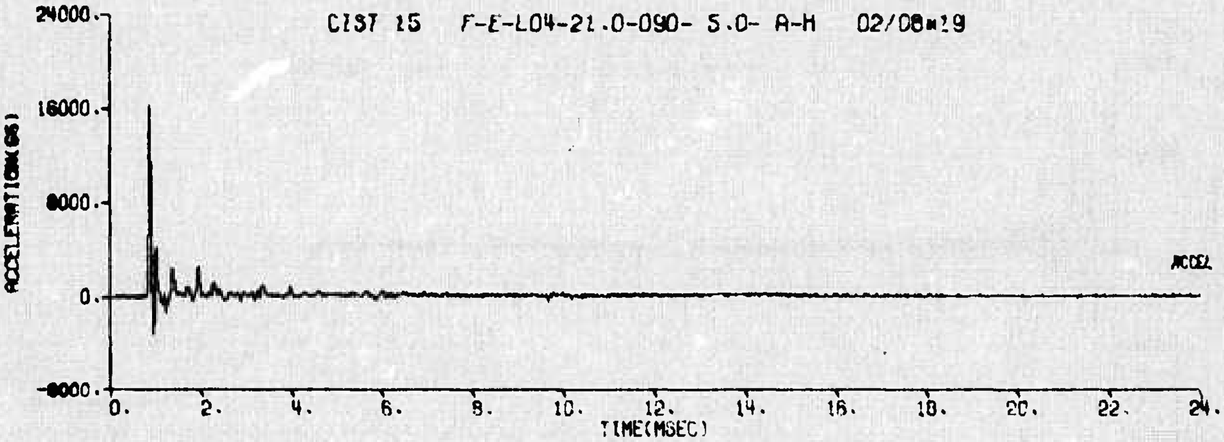

CIST 15 F-E-L02-21.0-000- 3.0- A-H 01/11*11
4000.
2000.
0.
-2000.
-4000.
VELOCITY(FT/SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
VELOC

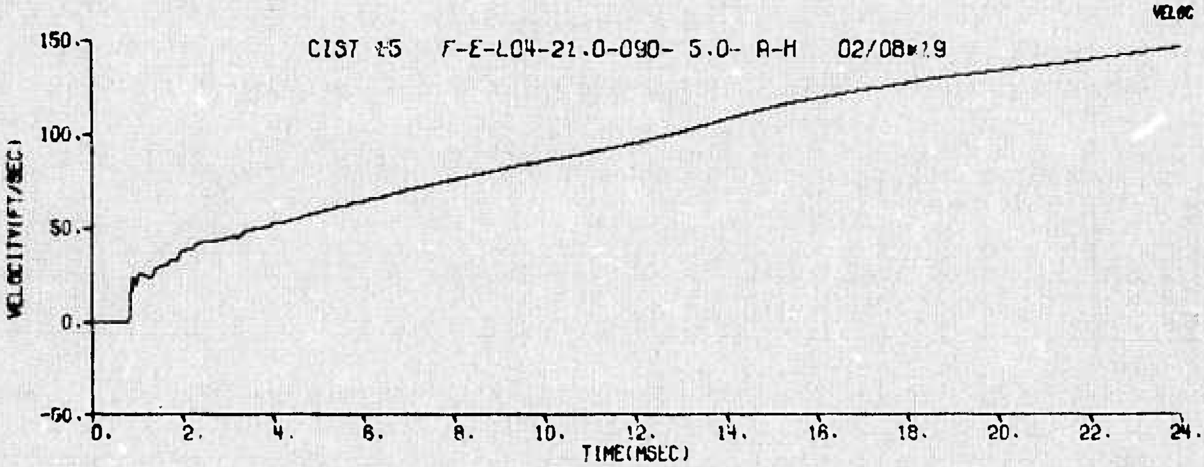

CIST 15 F-E-L02-21.0-000- 3.0- A-H 01/11*11
20.
0.
-20.
-40.
-60.
DISPLACEMENT(IN)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
DISPL

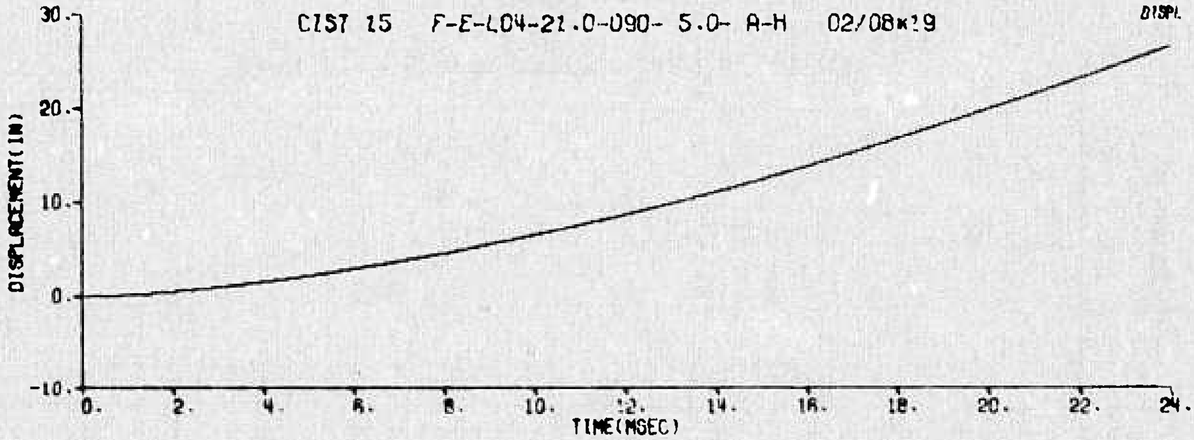

CIST 15 F-E-L02-21.0-000- 3.0- 9-V 01/10*10
ACCELERATION(GS)
10000.
5000.
0.
-5000.
-10000.
ACCEL.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

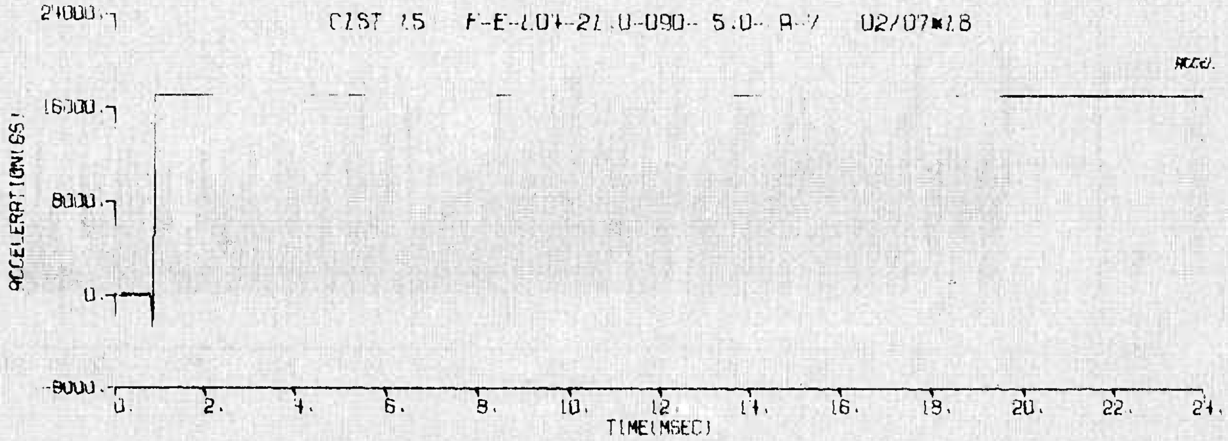

CIST 15 F-E-L02-21.0-000- 3.0- 9-V 01/10*10
VELOCITY(FT/SEC)
500.
0.
-500.
-1000.
-1500.
VELOC.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

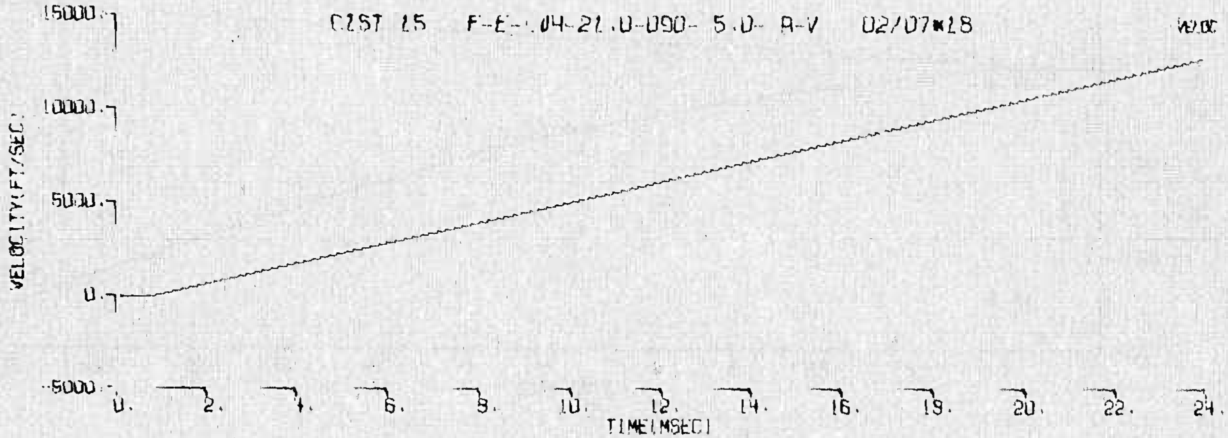

CIST 15 F-E-L02-21.0-000- 3.0- 9-V 01/10*10
DISPLACEMENT(IN)
40.
20.
0.
-20.
-40.
DISPL.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

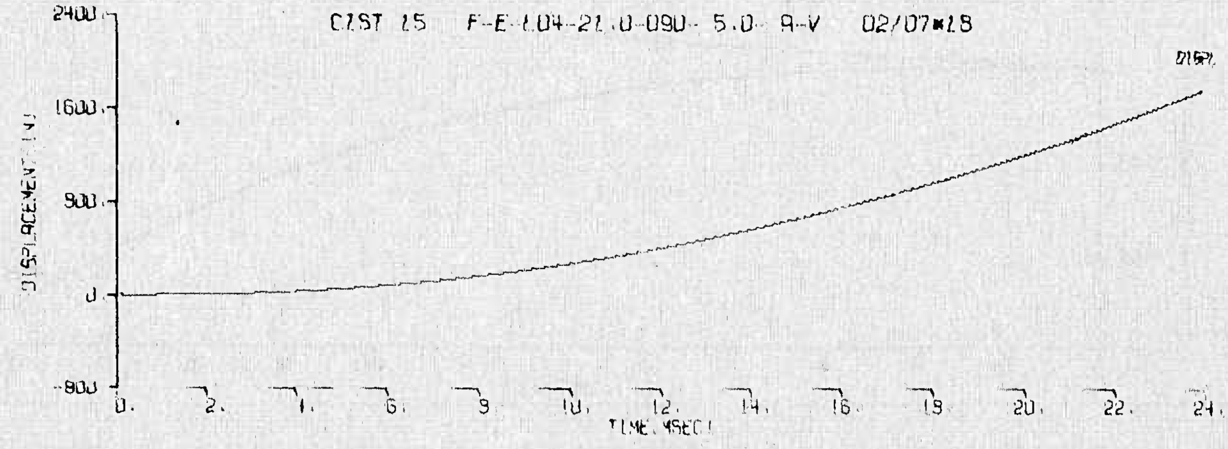

CIST 15 F-E-L04-21.0-090- 5.0- A-H 02/08*19
ACCELERATION(GS)
24000.
16000.
8000.
0.
-8000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

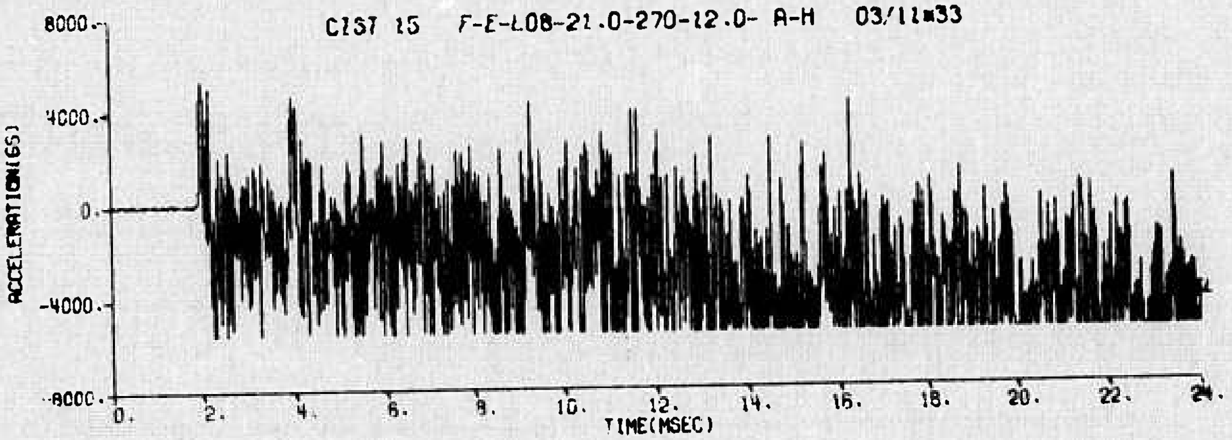

CIST 15 F-E-L04-21.0-090- 5.0- A-H 02/08*19
VELOC
VELOCITY(FT/SEC)
150.
100.
50.
0.
-50.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

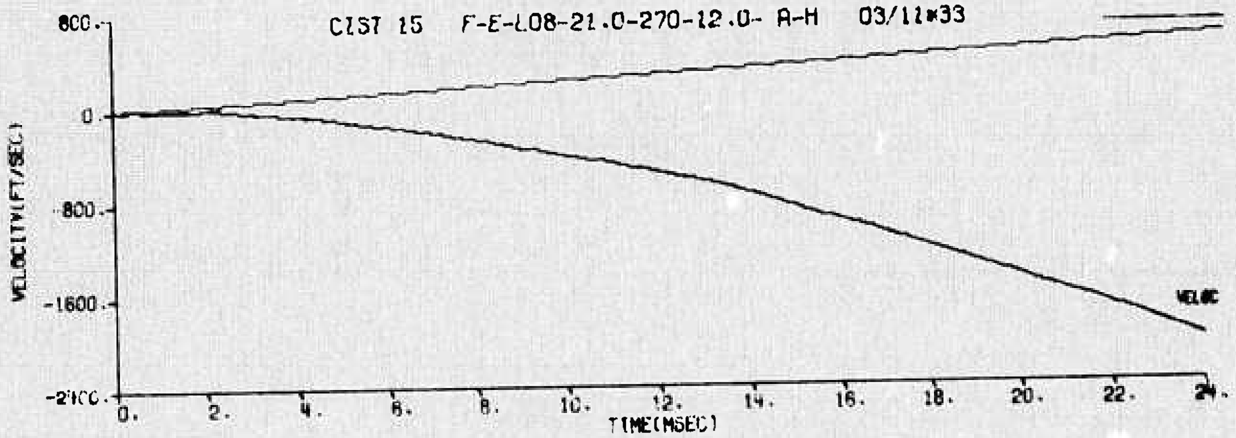

CIST 15 F-E-L04-21.0-090- 5.0- A-H 02/08*19
DISPL
DISPLACEMENT(IN)
30.
20.
10.
0.
-10.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

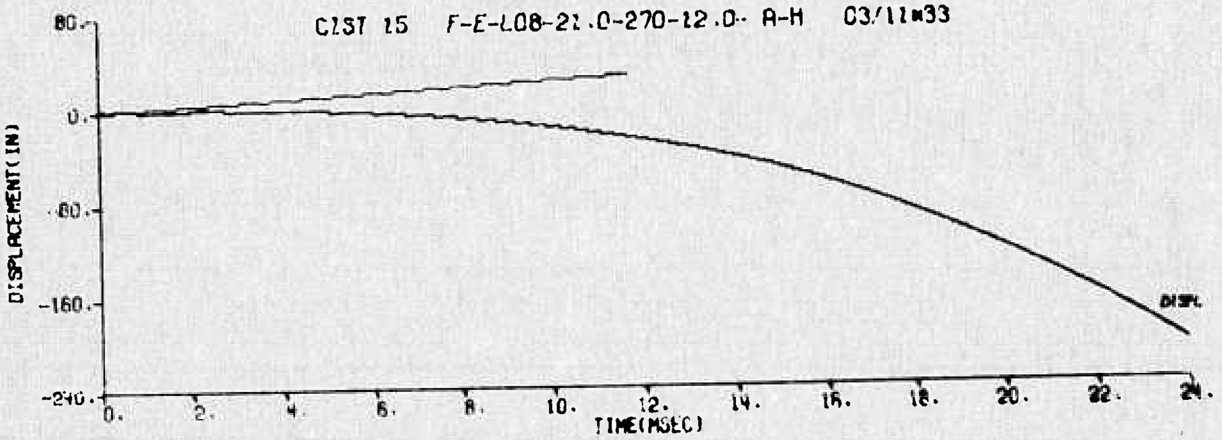

CZST 15 F-E-.04-21.0-090- 5.0- A-V 02/07*18
ACCEL.
ACCELERATION(G'S)
24000.
16000.
8000.
0.
-8000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

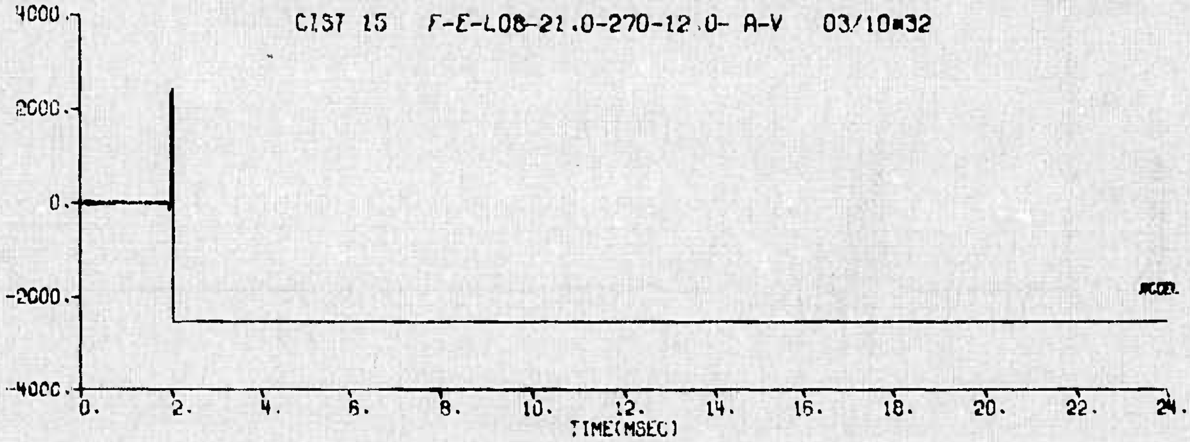

CZST 15 F-E-.04-21.0-090- 5.0- A-V 02/07*18
VELOC
VELOCITY(FT/SEC)
15000.
10000.
5000.
0.
-5000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

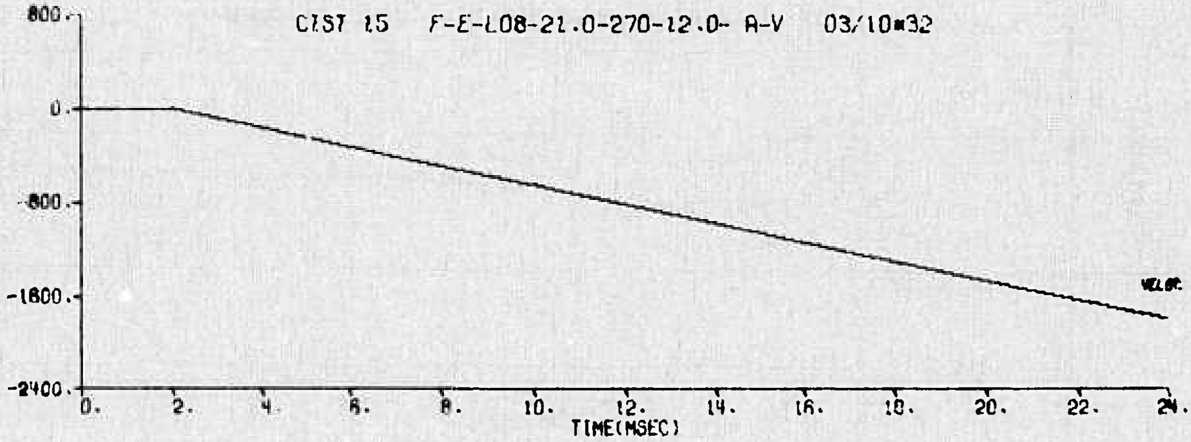

CZST 15 F-E-.04-21.0-090- 5.0- A-V 02/07*18
DISPL
DISPLACEMENT(IN)
2400.
1600.
800.
0.
-800.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

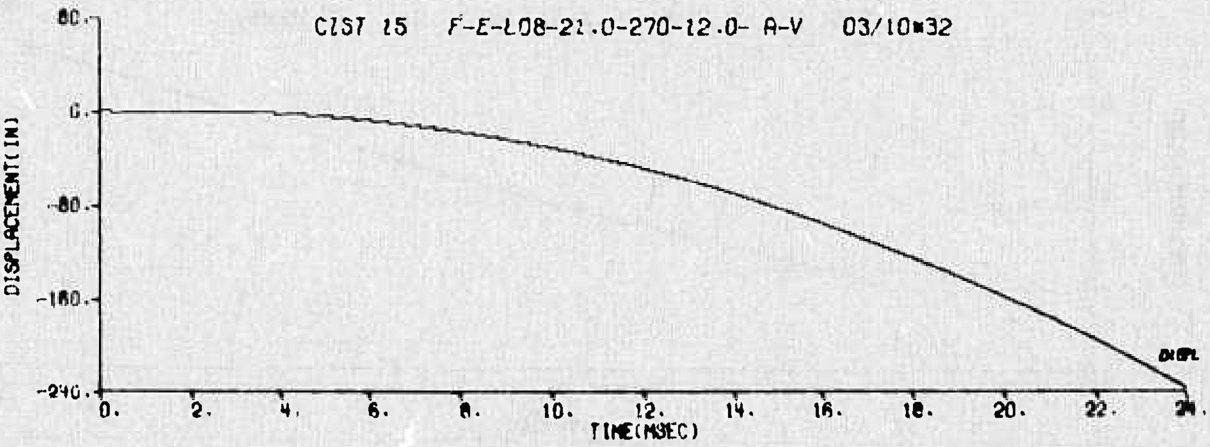

CIST 15 F-E-L08-21.0-270-12.0- A-H 03/11*33
8000.
4000.
0.
-4000.
-8000.
ACCELERATION(GS)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

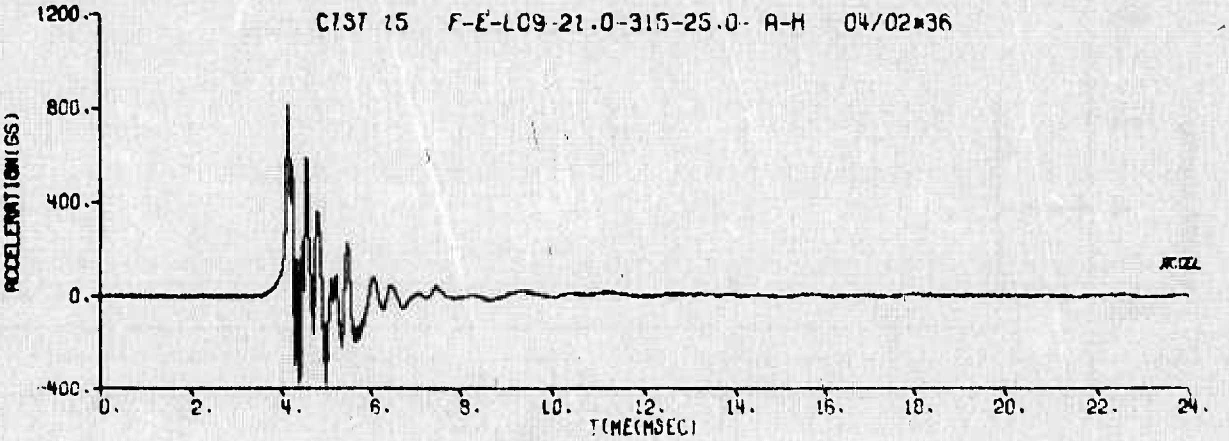

CIST 15 F-E-L08-21.0-270-12.0- A-H 03/11*33
800.
0
-800.
-1600.
-2400.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

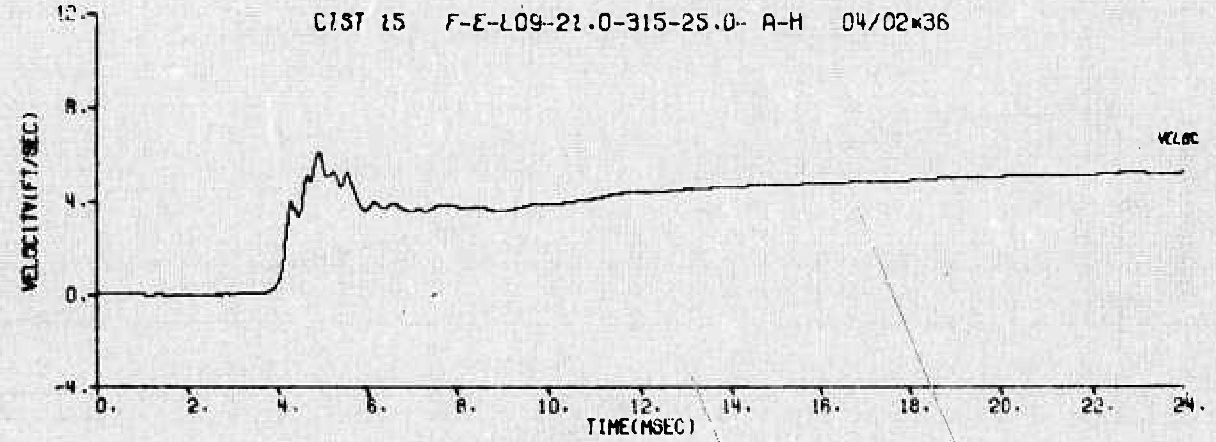

CIST 15 F-E-L08-21.0-270-12.0- A-H 03/11*33
80.
0.
-80.
-160.
-240.
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

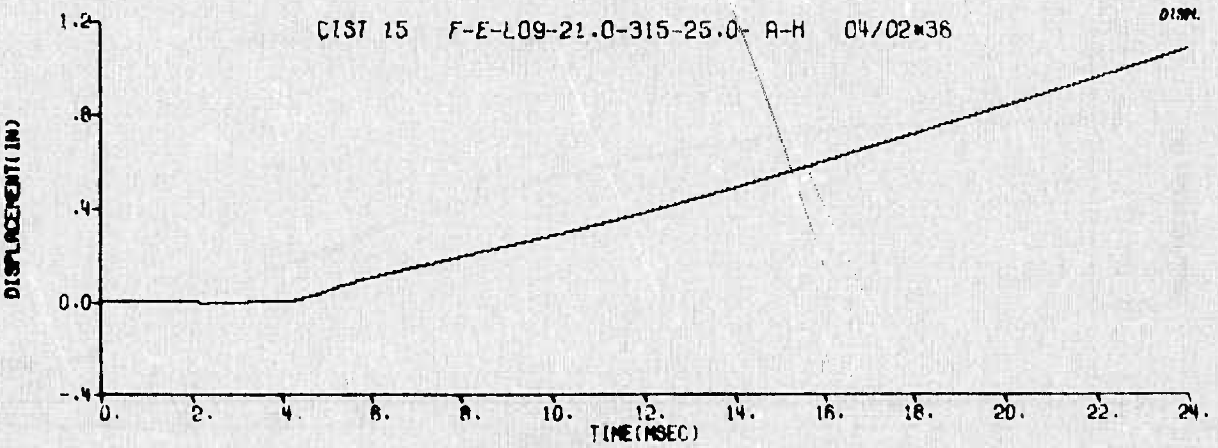

CIST 15 F-E-L08-21.0-270-12.0- A-V 03/10*32
ACCELERATION(GS)
4000.
2000.
0.
-2000.
-4000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
ACCEL.

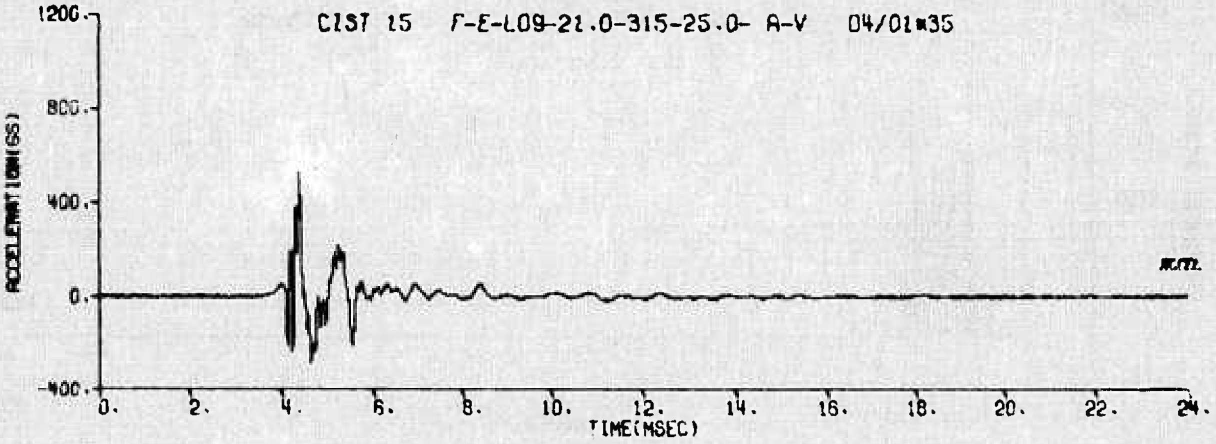

CIST 15 F-E-L08-21.0-270-12.0- A-V 03/10*32
VELOCITY(FT/SEC)
800.
0.
-800.
-1600.
-2400.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
VELOC.

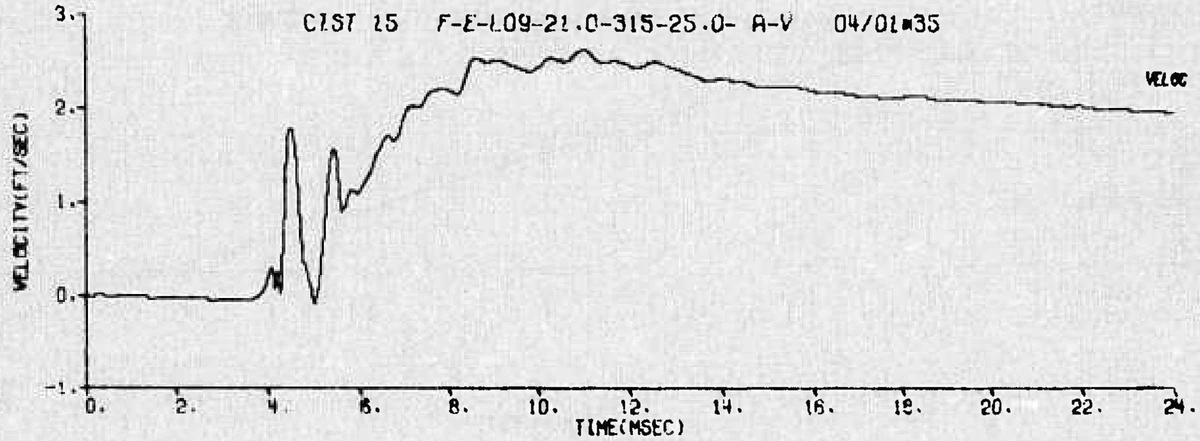

CIST 15 F-E-L08-21.0-270-12.0- A-V 03/10*32
DISPLACEMENT(IN)
80.
0.
-80.
-160.
-240.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
DISPL.

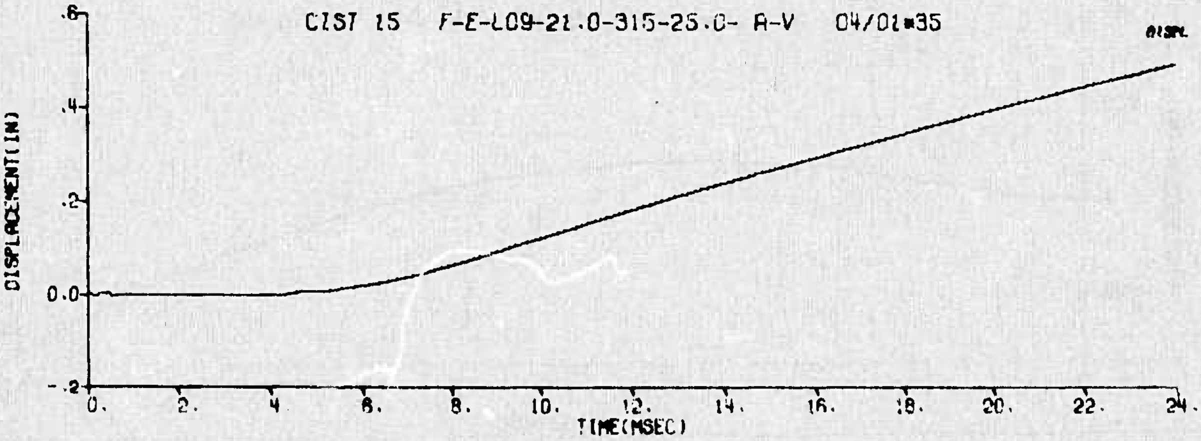

CIST 15 F-E-L09-21.0-315-25.0- A-H 04/02*36
ACCELERATION(GS)
1200.
800.
400.
0.
-400.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

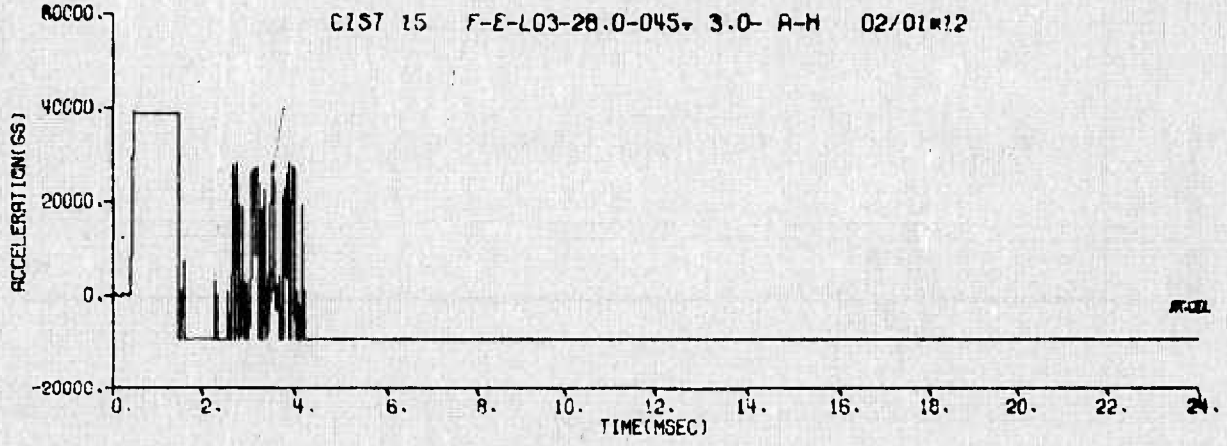

CIST 15 F-E-L09-21.0-315-25.0- A-H 04/02*36
VELOCITY(FT/SEC)
12.
8.
4.
0.
-4.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

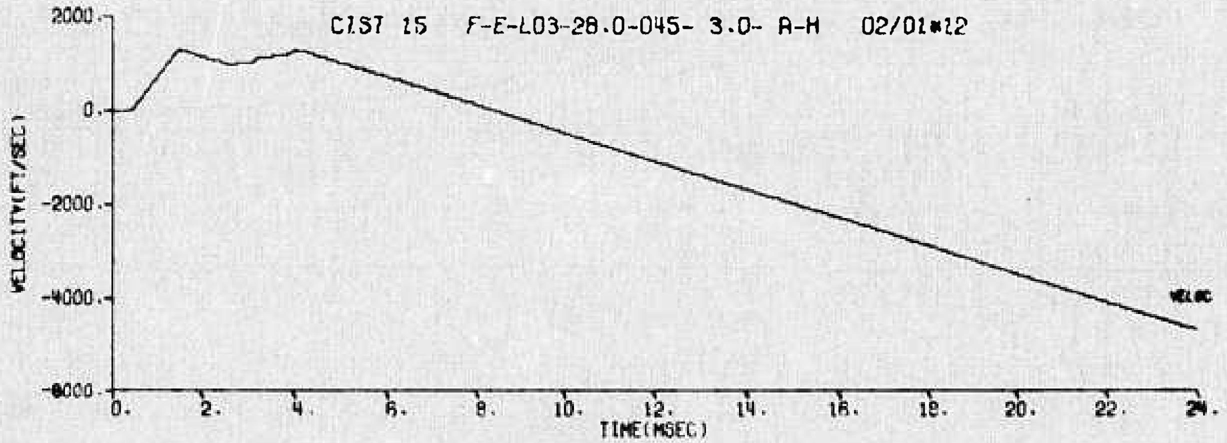

CIST 15 F-E-L09-21.0-315-25.0- A-H 04/02*36
DISPLACEMENT(IN)
1.2
.8
.4
0.0
-.4
DISPL.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

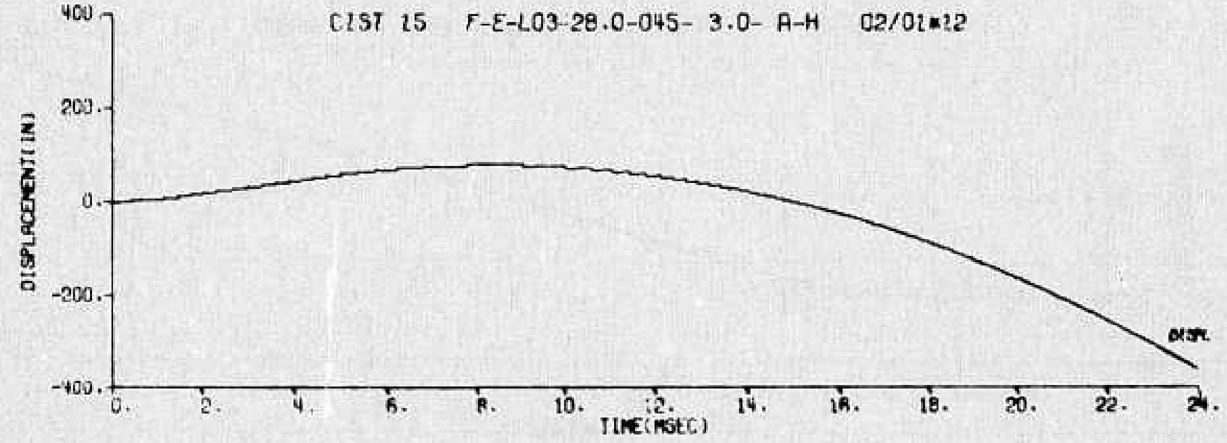

CIST 15 F-E-L09-21.0-315-25.0- A-V 04/01*35
1200.
800.
400.
0.
-400.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

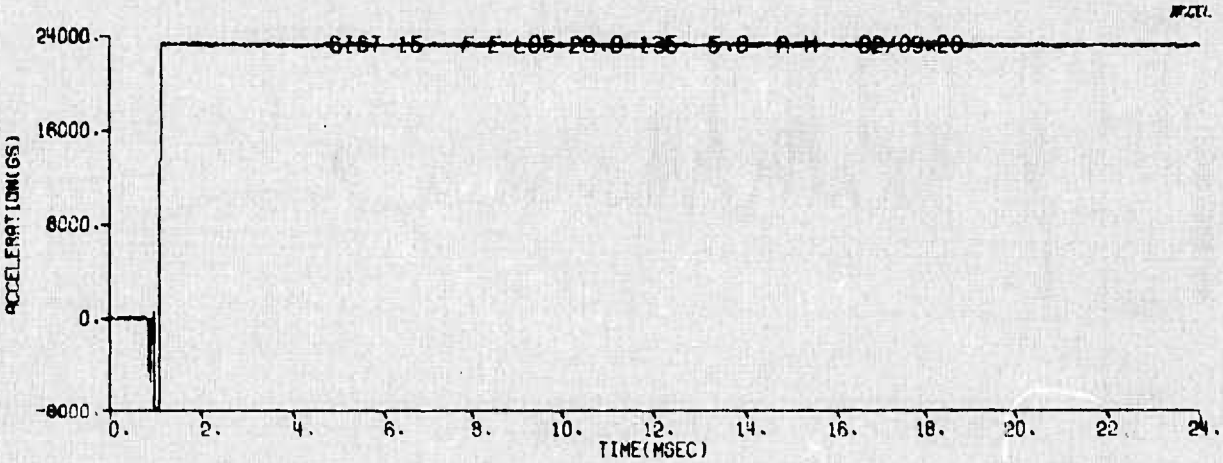

CIST 15 F-E-L09-21.0-315-25.0- A-V 04/01*35
3.
2.
1.
0.
-1.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

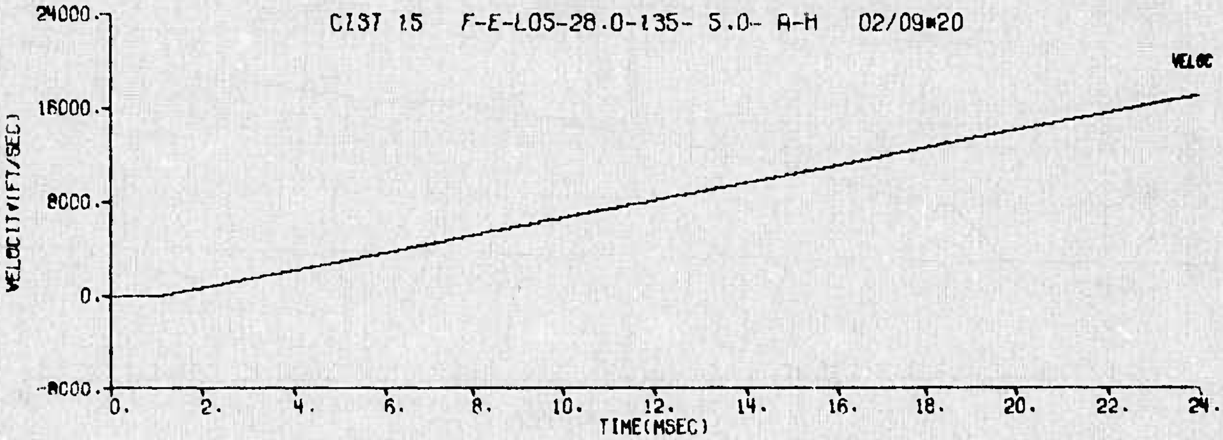

CIST 15 F-E-L09-21.0-315-25.0- A-V 04/01*35
.6
.4
.2
0.0
-.2
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

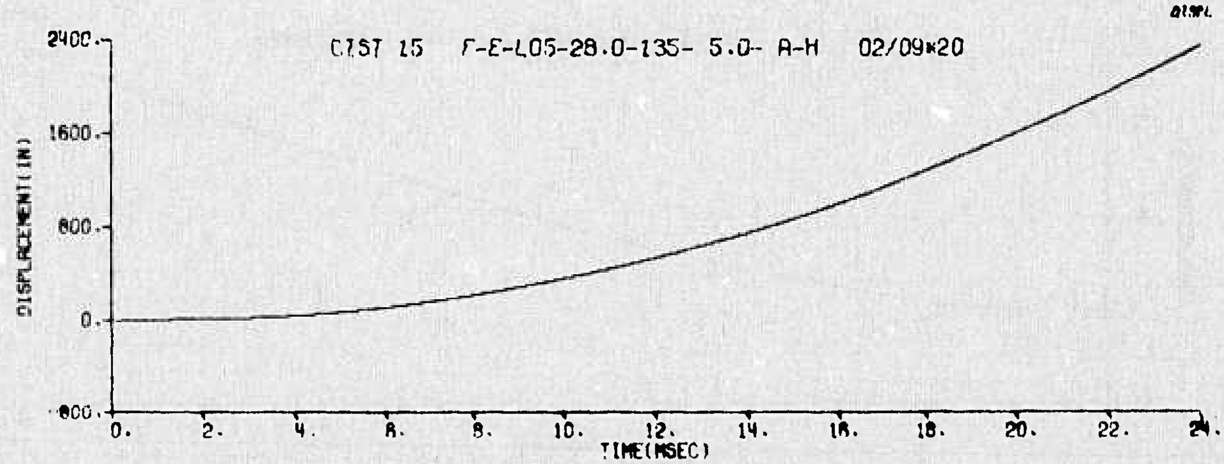

CIST 15 F-E-L03-28.0-045- 3.0- A-H 02/01*12
ACCELERATION(GS)
80000.
40000.
20000.
0.
-20000.
ACCEL
TIME(MSEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.

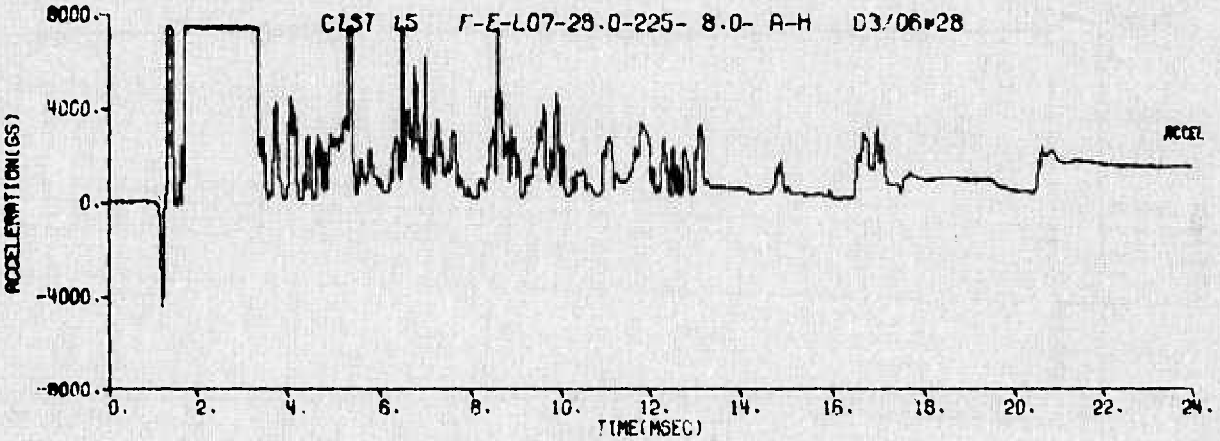

CIST 15 F-E-L03-28.0-045- 3.0- A-H 02/01*12
VELOCITY(FT/SEC)
2000.
0.
-2000.
-4000.
-6000.
VELOC
TIME(MSEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.

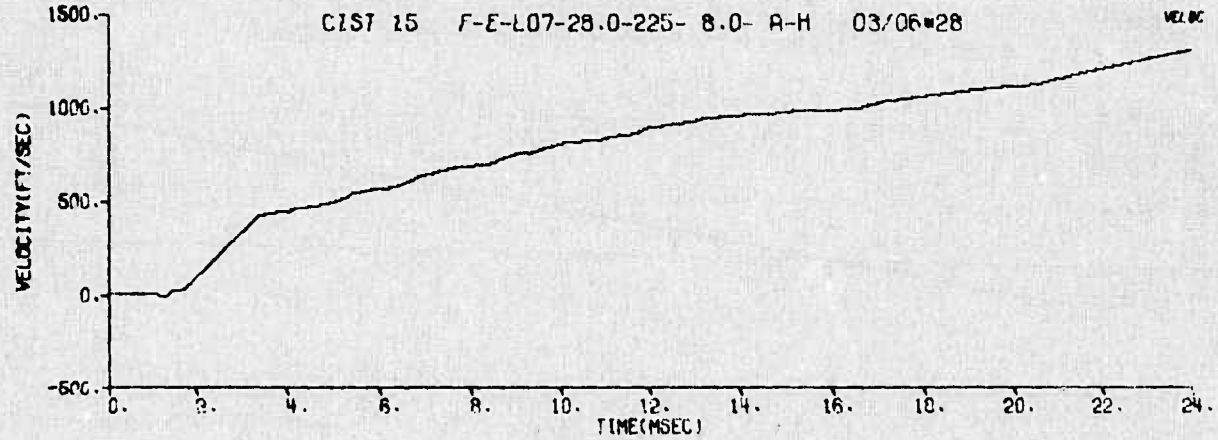

CIST 15 F-E-L03-28.0-045- 3.0- A-H 02/01*12
DISPLACEMENT(IN)
400
200.
0.
-200.
-400.
DISPL.
TIME(MSEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.

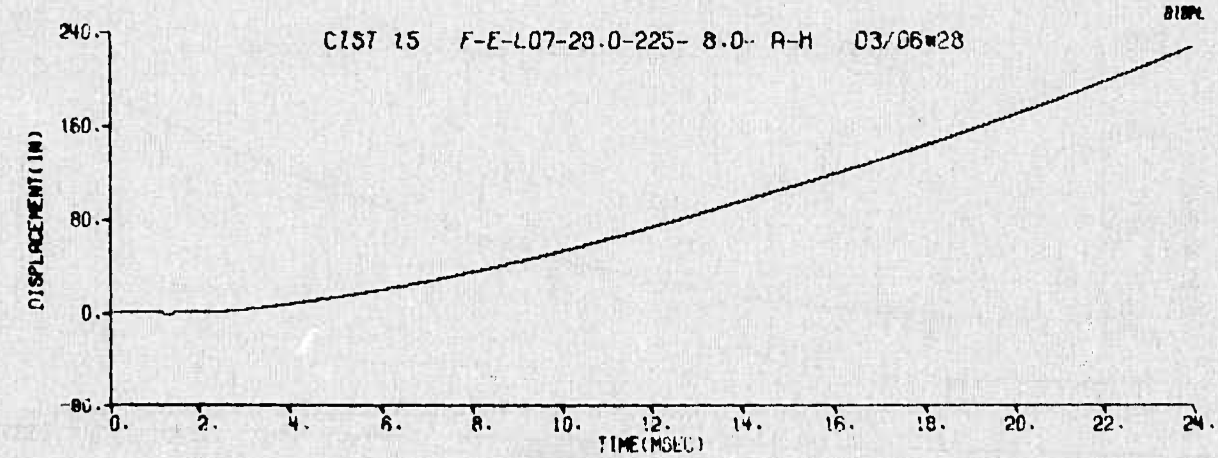

ACCEL
CIST 15 F-E-L05-28.0-135- 5.0- A-H 02/09*20
ACCELERATION(GS)
24000.
16000.
8000.
0.
-8000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

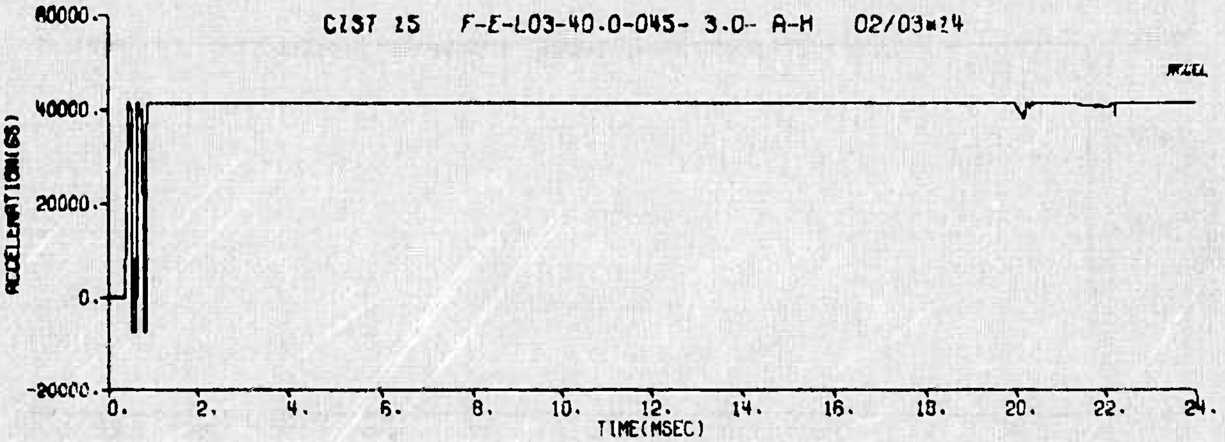

CIST 15 F-E-L05-28.0-135- 5.0- A-H 02/09*20
VELOC
VELOCITY(FT/SEC)
24000.
16000.
8000.
0.
-8000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

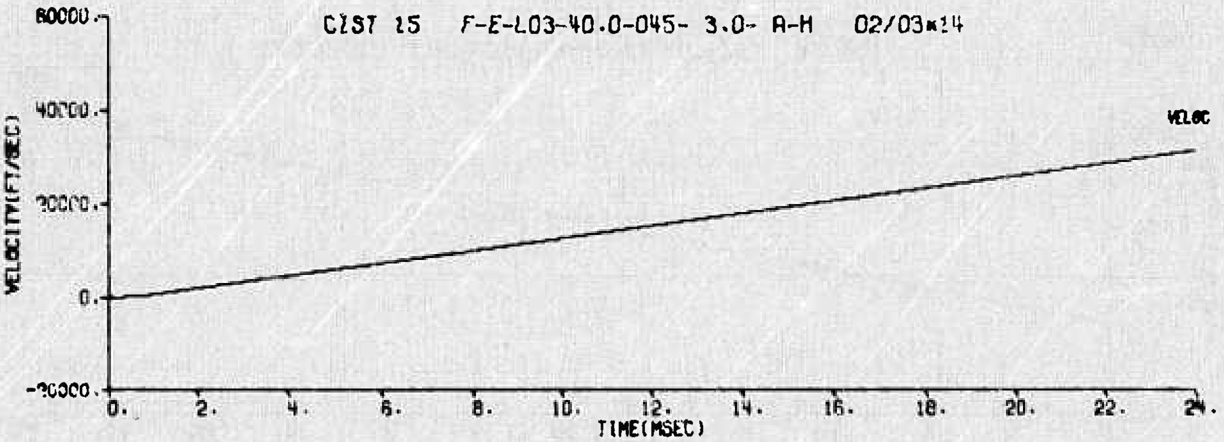

DISPL
CIST 15 F-E-L05-28.0-135- 5.0- A-H 02/09*20
DISPLACEMENT(IN)
2400.
1600.
800.
0.
-800.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

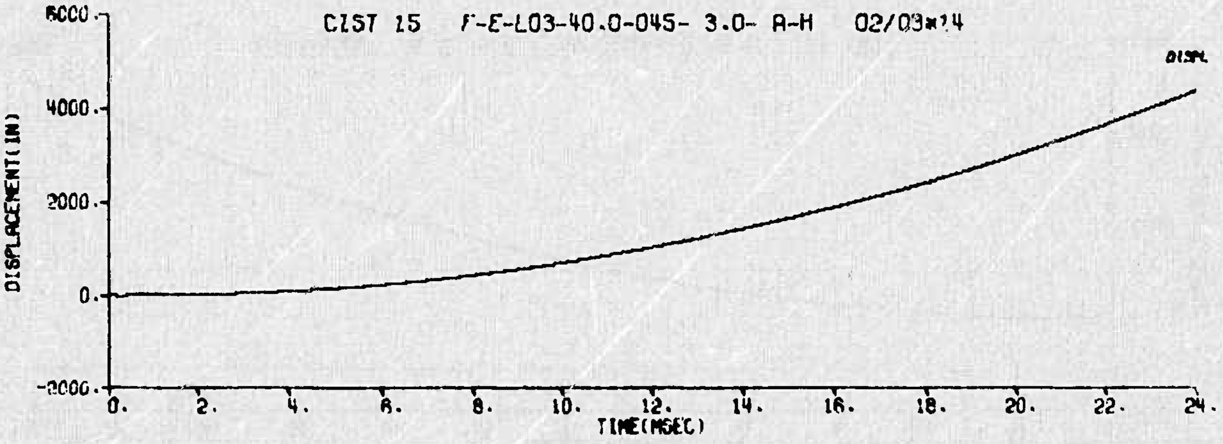

CIST 15 F-E-L07-28.0-225- 8.0- A-H 03/06*28
ACCEL
ACCELERATION(GS)
8000.
4000.
0.
-4000.
-8000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

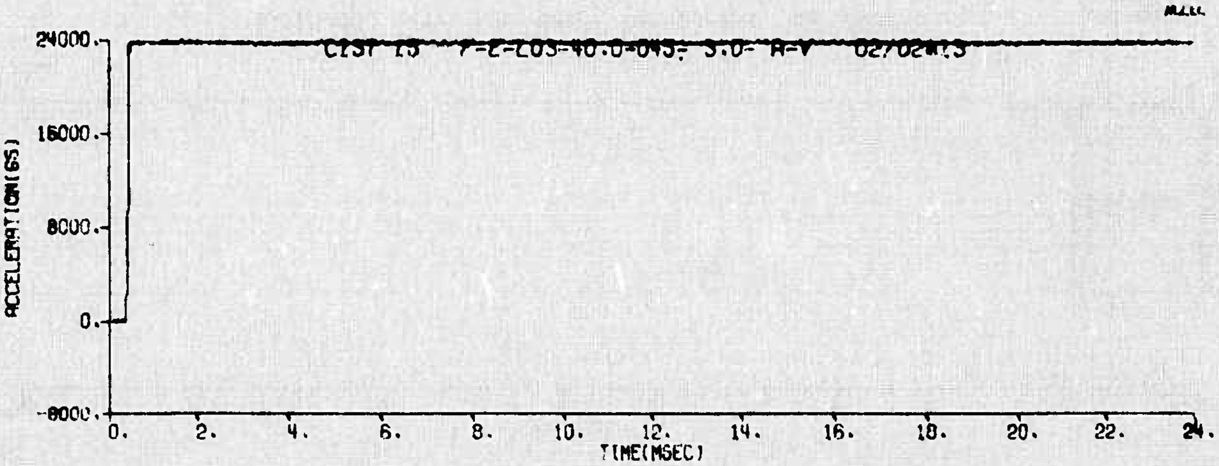

CIST 15 F-E-L07-28.0-225- 8.0- A-H 03/06*28
VELOC
VELOCITY(FT/SEC)
1500.
1000.
500.
0.
-500.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

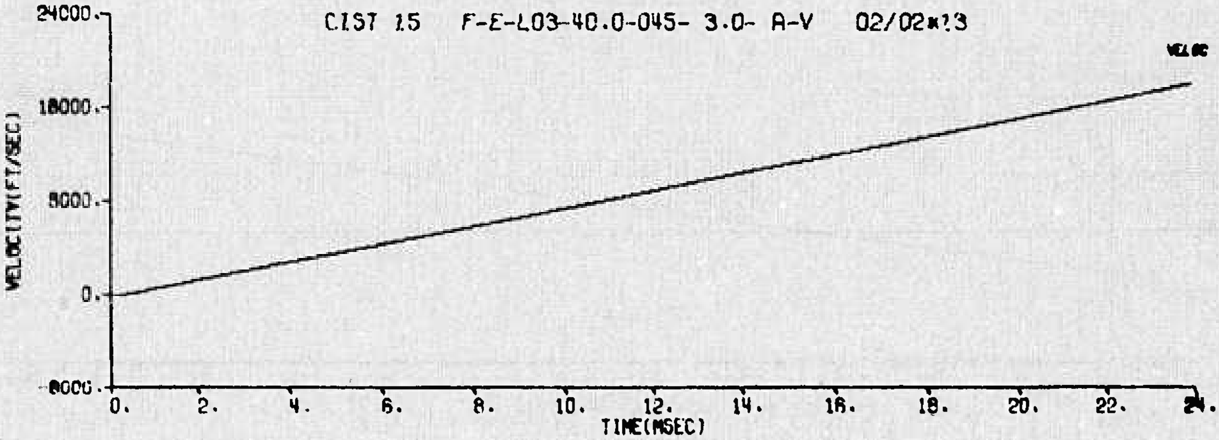

CIST 15 F-E-L07-28.0-225- 8.0- A-H 03/06*28
DISPL
DISPLACEMENT(IN)
240.
160.
80.
0.
-80.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

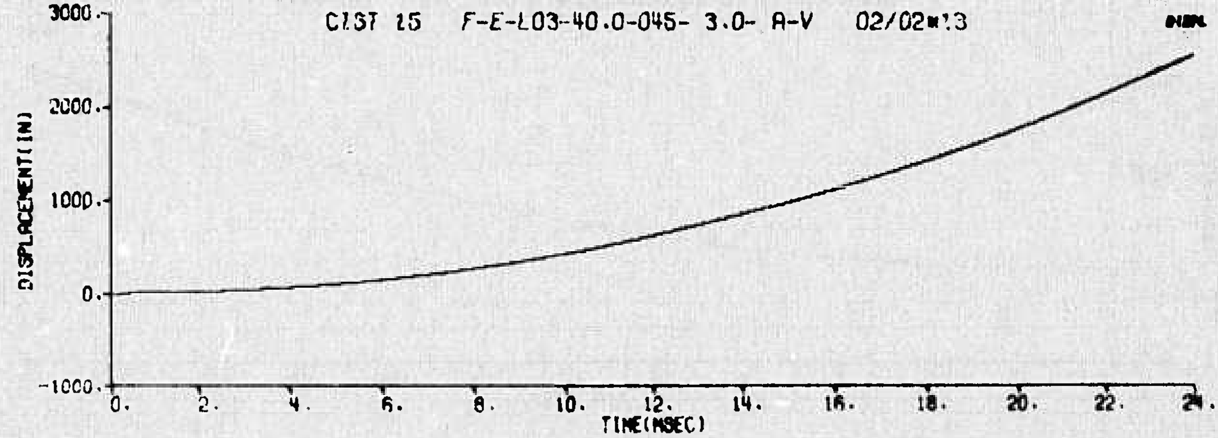

CIST 15 F-E-L03-40.0-045- 3.0- A-H 02/03*14
ACCEL
ACCELERATION(GS)
60000.
40000.
20000.
0.
-20000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

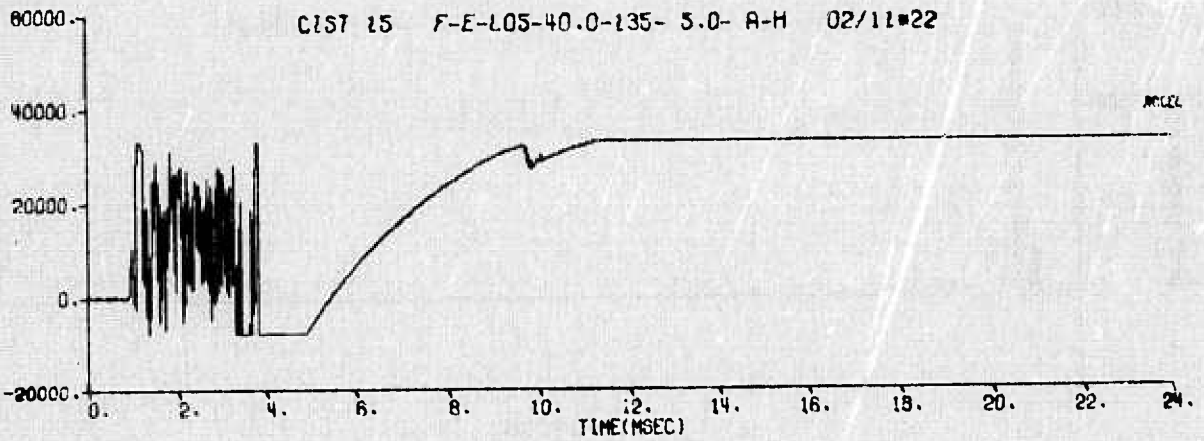

CIST 15 F-E-L03-40.0-045- 3.0- A-H 02/03*14
VELOC
VELOCITY(FT/SEC)
60000.
40000.
20000.
0.
-20000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

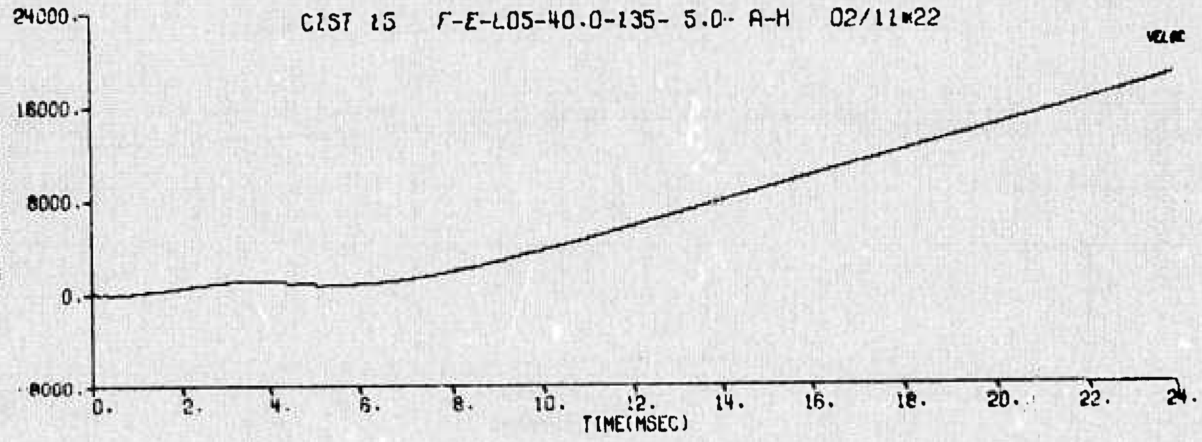

CIST 15 F-E-L03-40.0-045- 3.0- A-H 02/03*14
DISPL
DISPLACEMENT(IN)
6000.
4000.
2000.
0.
-2000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

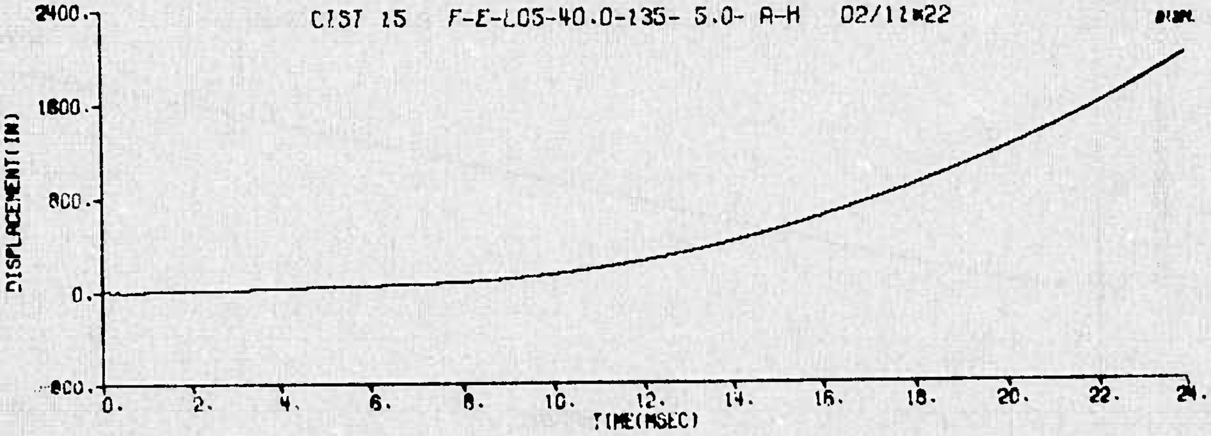

ACCEL
CIST 15 F-E-L03-40.0-045- 3.0- A-V 02/02*13
ACCELERATION(GS)
24000.
16000.
8000.
0.
-8000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

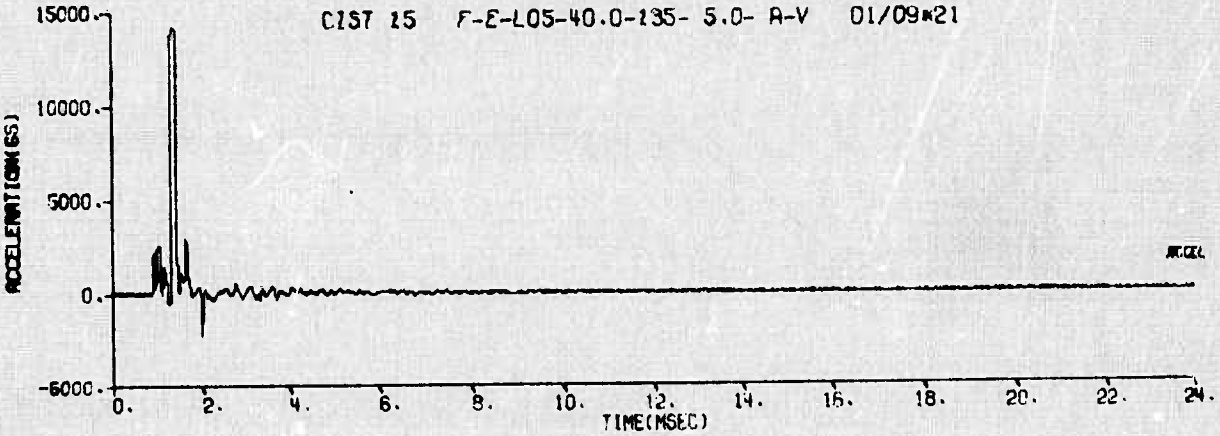

CIST 15 F-E-L03-40.0-045- 3.0- A-V 02/02*13
VELOC
VELOCITY(FT/SEC)
24000.
16000.
8000.
0.
-8000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

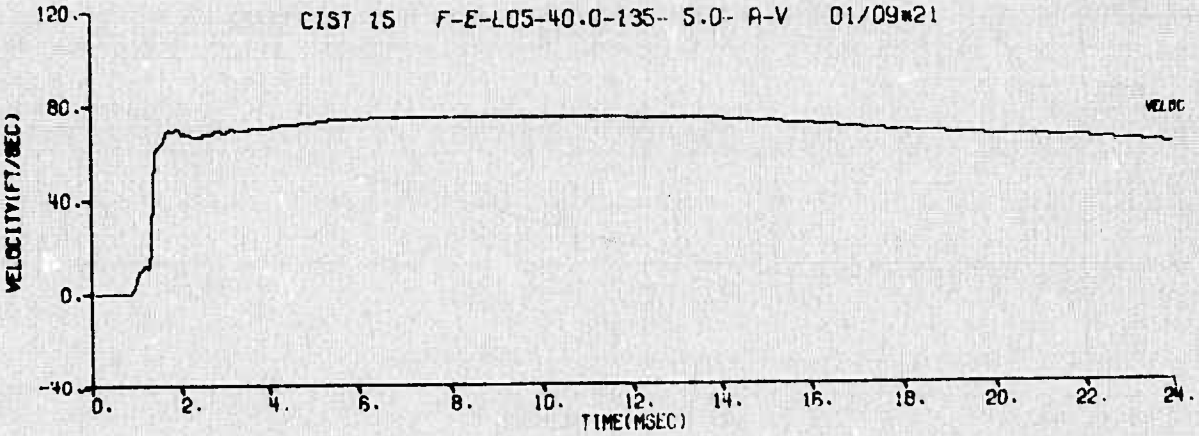

CIST 15 F-E-L03-40.0-045- 3.0- A-V 02/02*13
DISPL
DISPLACEMENT(IN)
3000.
2000.
1000.
0.
-1000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

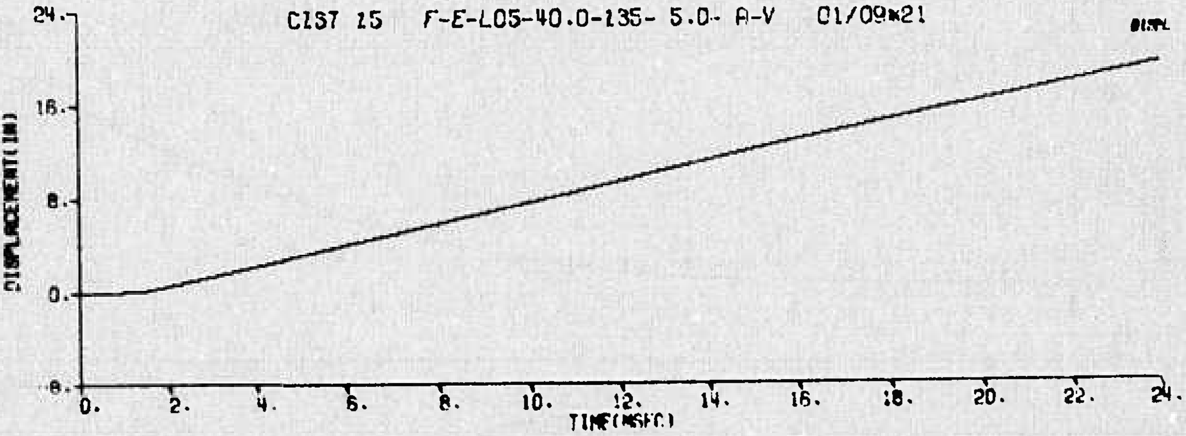

CIST 15 F-E-L05-40.0-135- 5.0- A-H 02/11*22
ACCEL
ACCELERATION(GS)
60000.
40000.
20000.
0.
-20000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

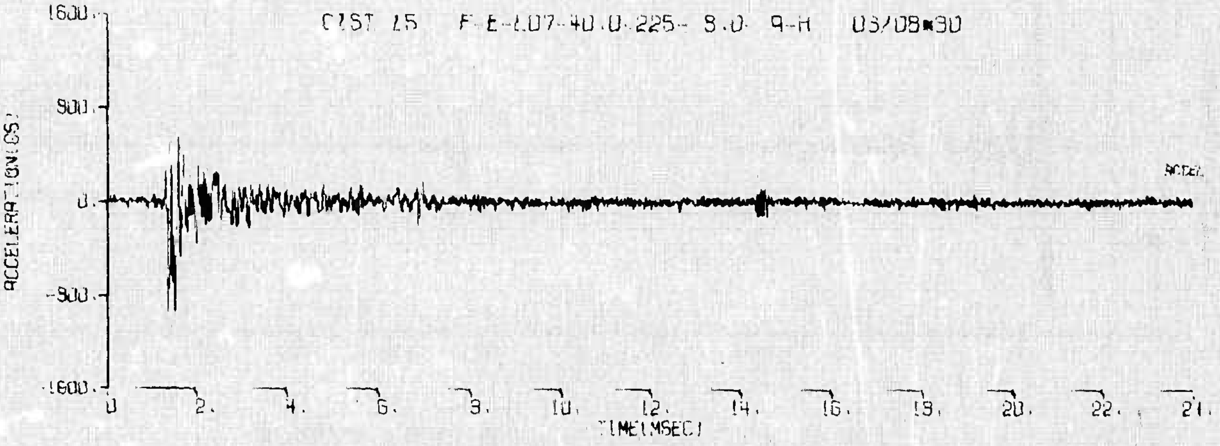

CIST 15 F-E-L05-40.0-135- 5.0- A-H 02/11*22
VELOC
VELOCITY(FT/SEC)
24000.
16000.
8000.
0.
-8000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

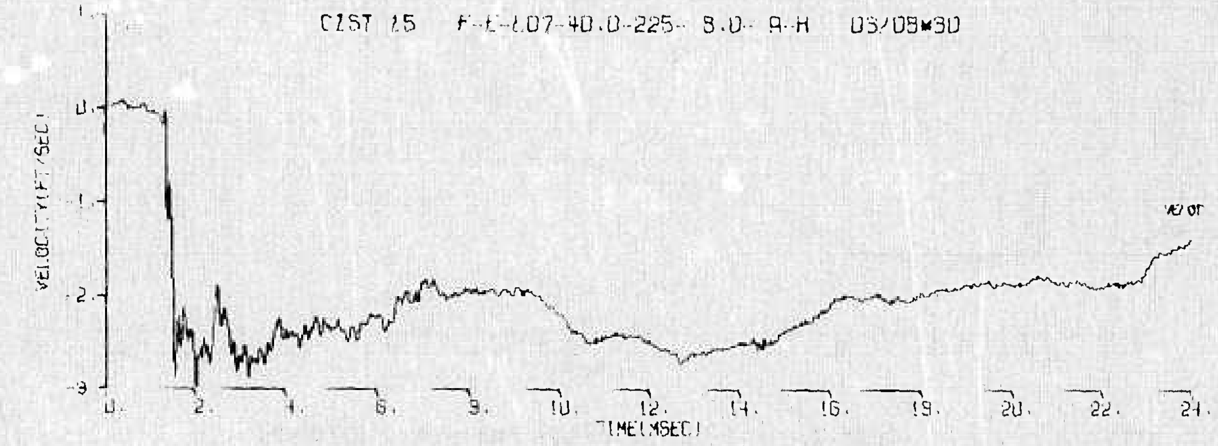

CIST 15 F-E-L05-40.0-135- 5.0- A-H 02/11*22
DISPL
DISPLACEMENT(IN)
2400.
1600.
800.
0.
-800.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

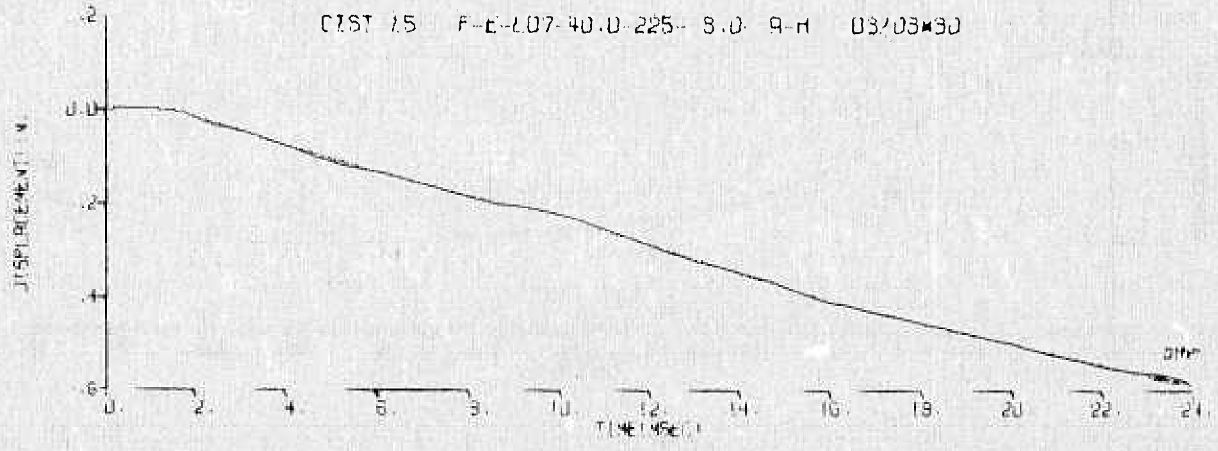

CIST 15 F-E-L05-40.0-135- 5.0- A-V 01/09*21
ACCELERATION(GS)
15000.
10000.
5000.
0.
-5000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

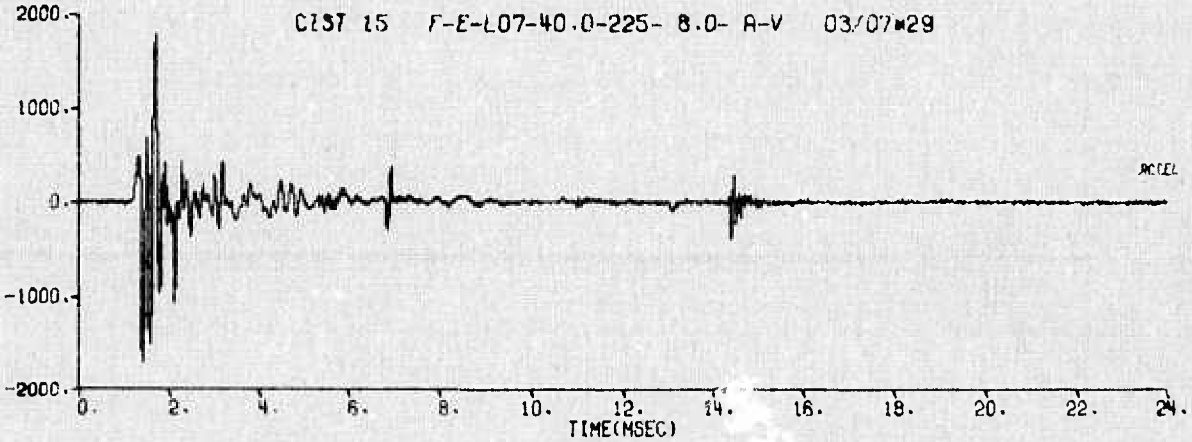

CIST 15 F-E-L05-40.0-135- 5.0- A-V 01/09*21
VELOCITY(FT/SEC)
120.
80.
40.
0.
-40
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

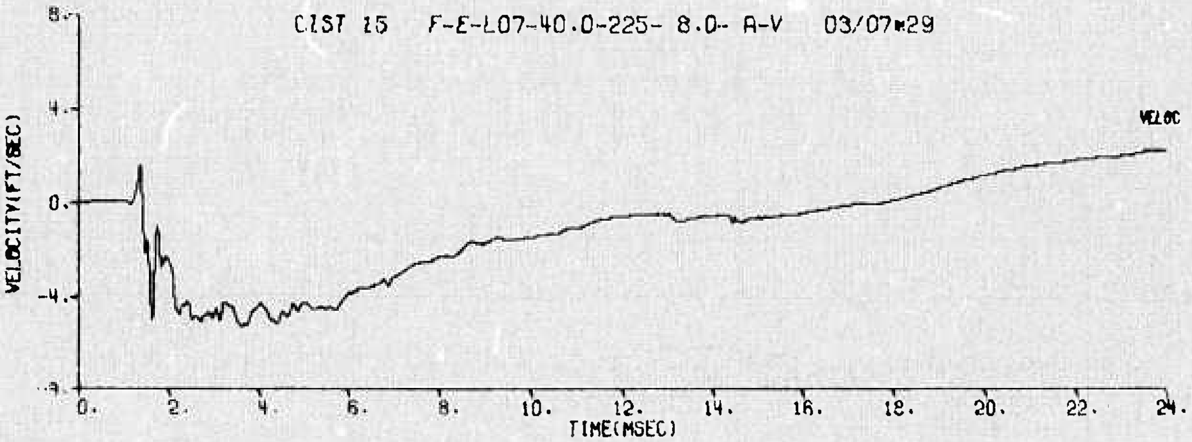

CIST 15 F-E-L05-40.0-135- 5.0- A-V 01/09*21
DISPLACEMENT(IN)
24.
16.
8.
0.
-8.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

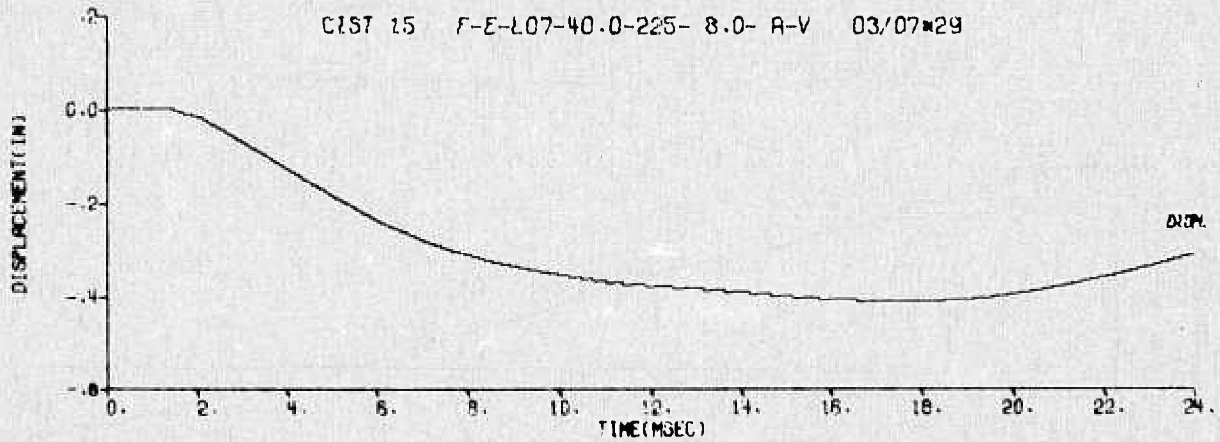

CZST 25 F-E-L07-40.0-225- 8.0- 9-H 03/08*30
ACCELERATION(GS)
1600.
800.
0.
-800.
-1600.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

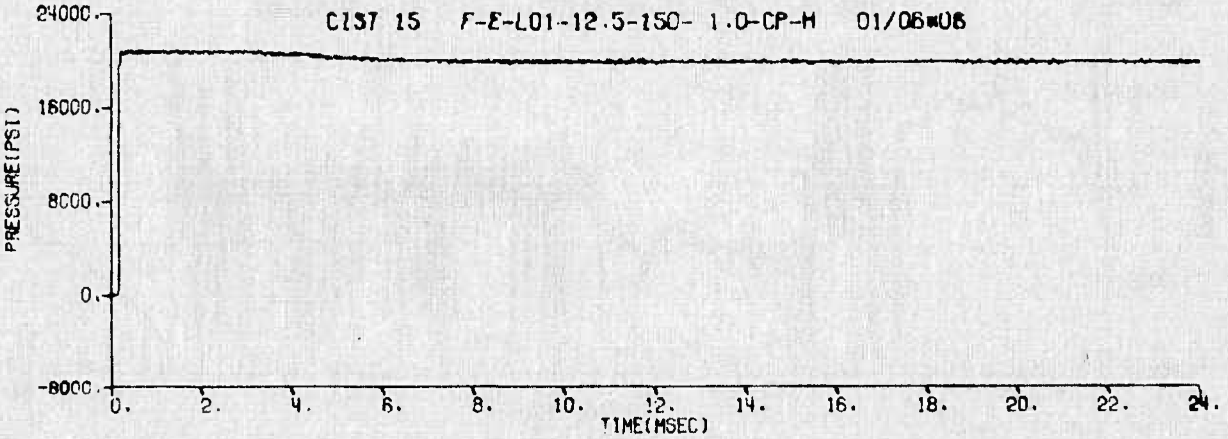

CZST 25 F-E-L07-40.0-225- 8.0- 9-H 03/08*30
VELOCITY(FT/SEC)
0.
-1.
-2.
-3
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

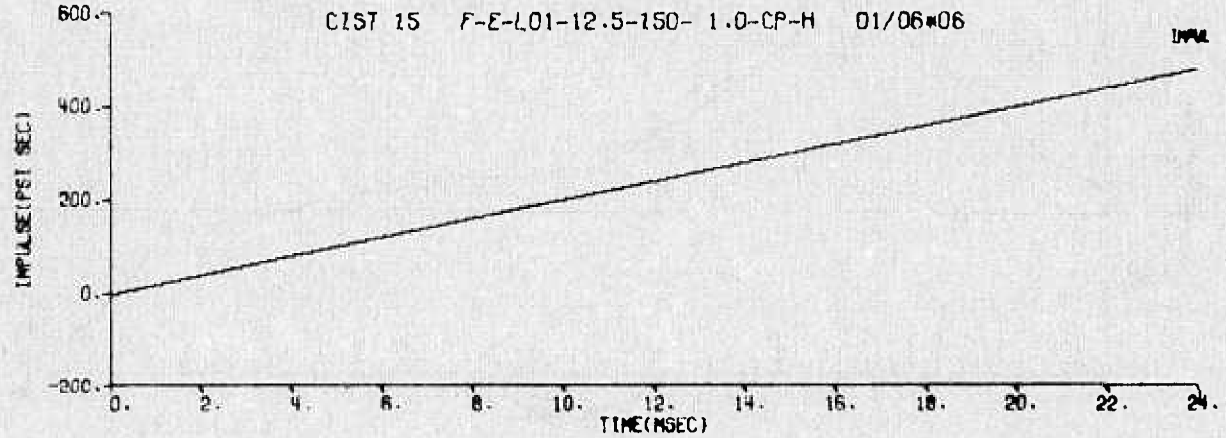

CZST 25 F-E-L07-40.0-225- 8.0- 9-H 03/08*30
DISPLACEMENT(IN)
.2
0.0
-.2
-.4
-.6
DISP
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

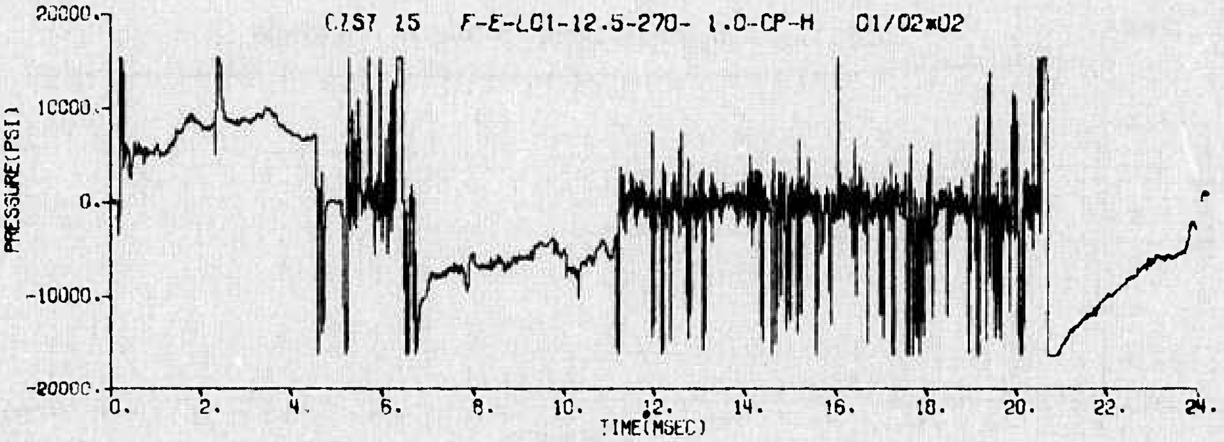

CIST 15 F-E-L07-40.0-225- 8.0- A-V 03/07*29
ACCELERATION(GS)
2000.
1000.
0.
-1000.
-2000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

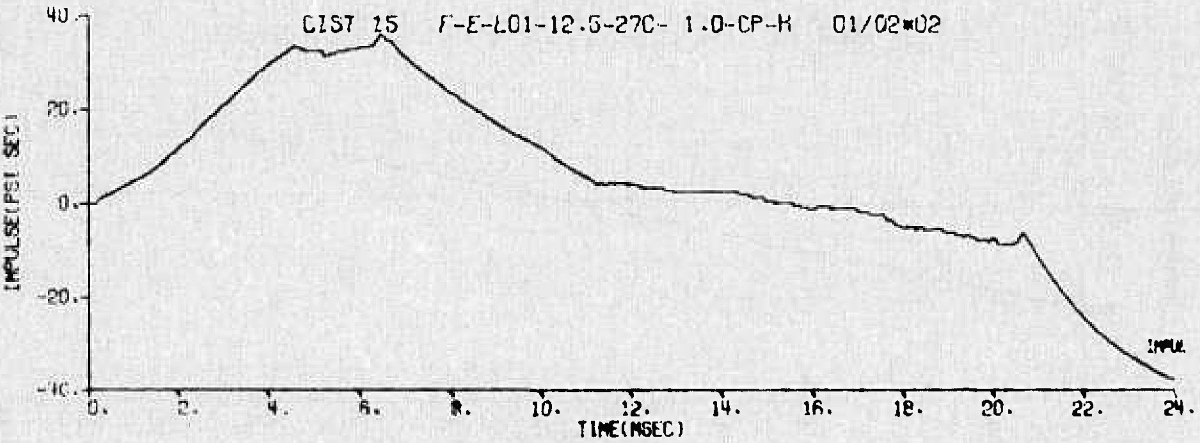

CIST 15 F-E-L07-40.0-225- 8.0- A-V 03/07*29
VELOCITY(FT/SEC)
8.
4.
0.
-4.
-8.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

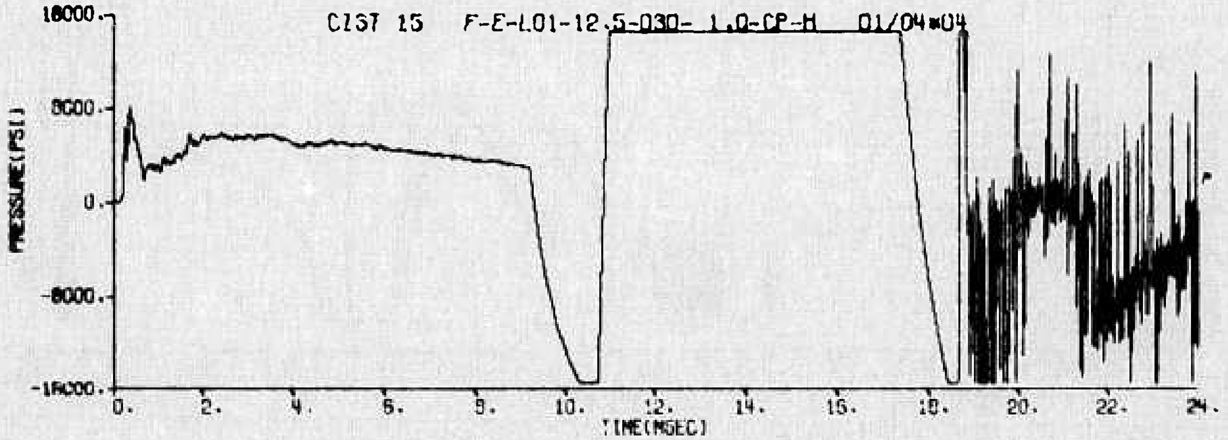

CIST 15 F-E-L07-40.0-225- 8.0- A-V 03/07*29
DISPLACEMENT(IN)
.2
0.0
-.2
-.4
-.6
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

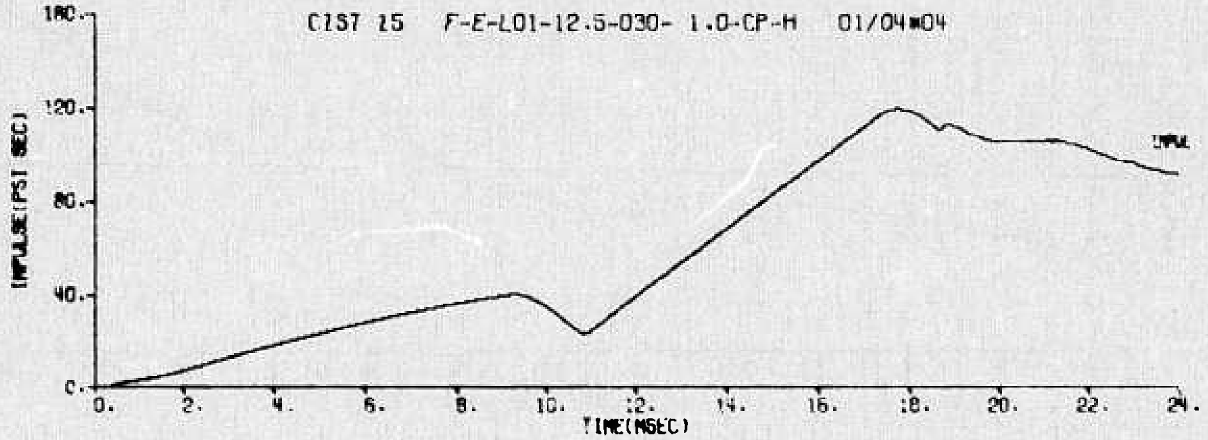

CIST 15 F-E-L01-12.5-150- 1.0-CP-H 01/06*06
24000.
16000.
8000.
0.
-8000.
PRESSURE(PSI)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

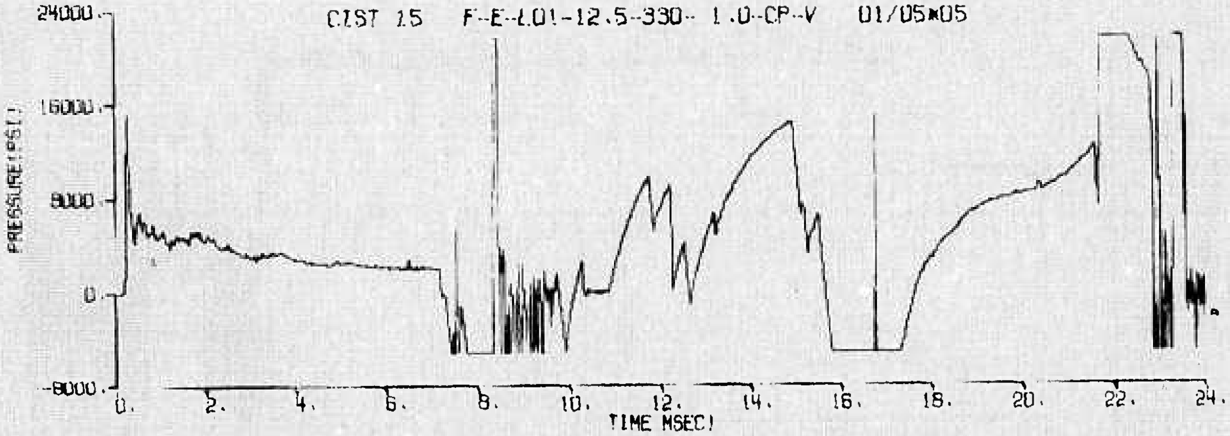

CIST 15 F-E-L01-12.5-150- 1.0-CP-H 01/06*06
IMPUL
600.
400.
200.
0.
-200.
IMPULSE(PSI SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

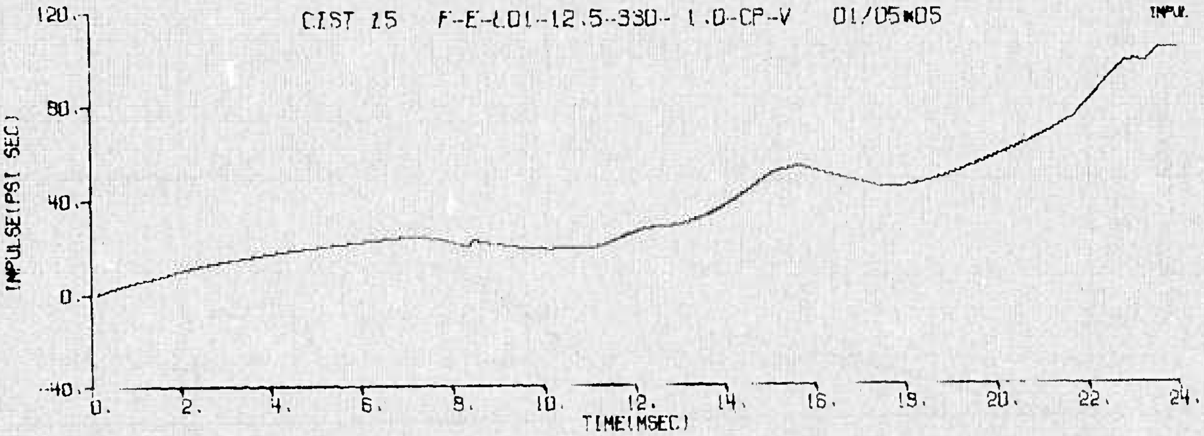

CIST 15   F-E-L01-12.5-270- 1.0-CP-H   01/02*02
PRESSURE(PSI)
20000.
10000.
0.
-10000.
-20000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

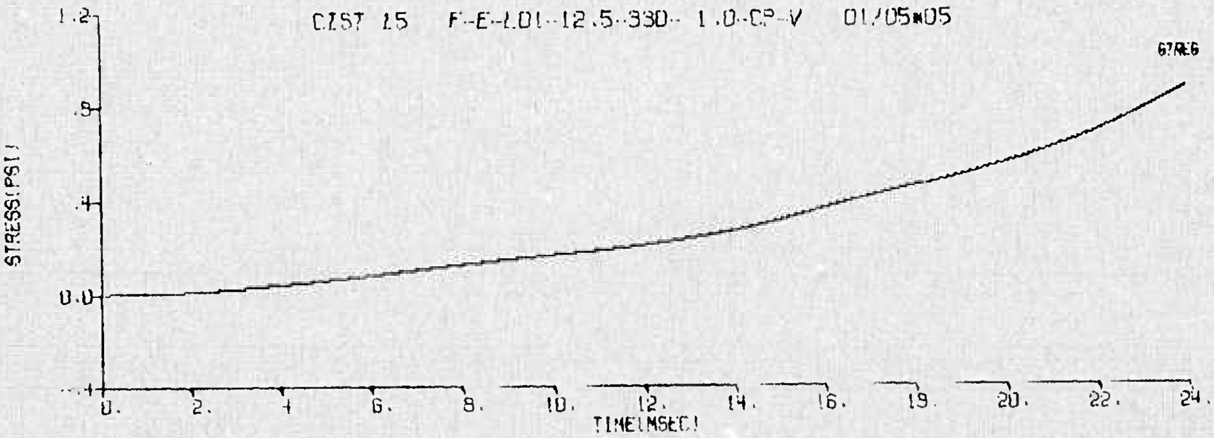

CIST 15   F-E-L01-12.5-270- 1.0-CP-H   01/02*02
IMPULSE(PSI SEC)
40.
20.
0.
-20.
-40.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
IMPUL

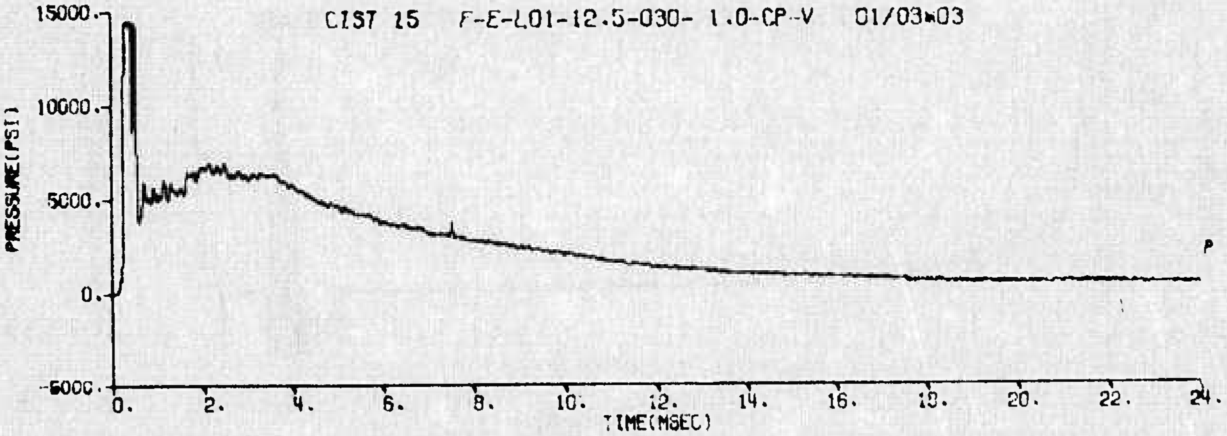

CIST 15 F-E-L01-12.5-030- 1.0-CP-H 01/04*04
16000.
8000.
0.
-8000.
-16000.
PRESSURE(PSI)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

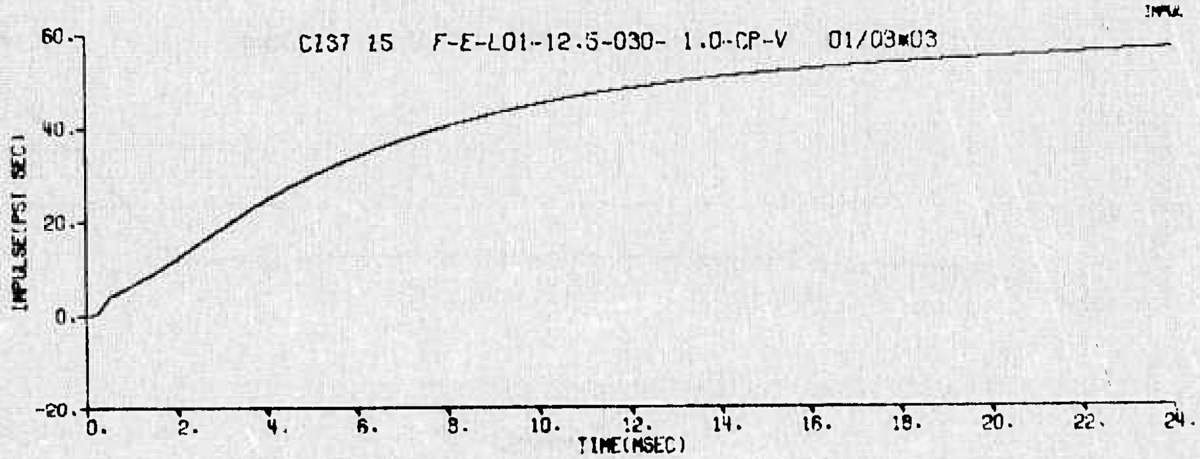

CIST 15 F-E-L01-12.5-030- 1.0-CP-H 01/04*04
160.
120.
80.
40.
0.
IMPULSE(PSI SEC)
IMPUL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

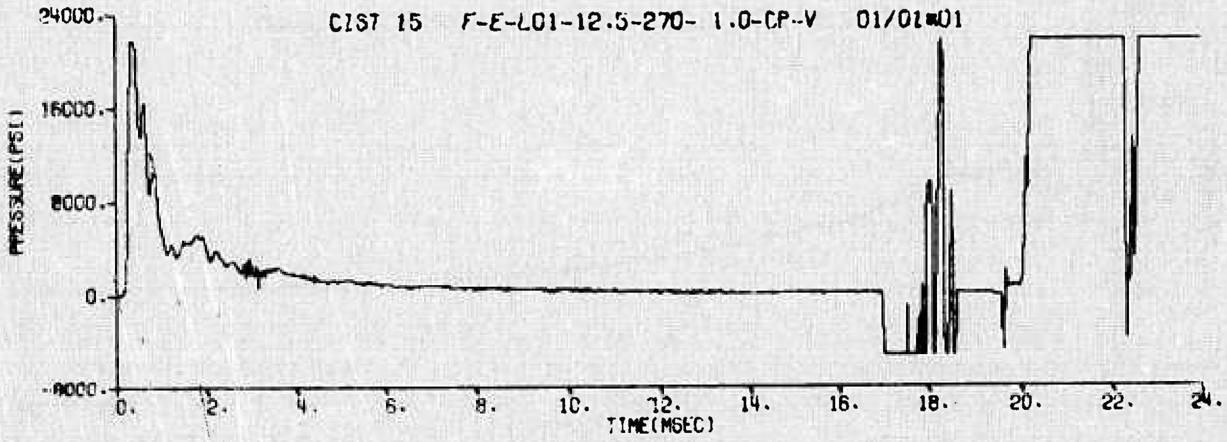

CIST 15   F--E--L01-12.5--330-- 1.0--CP--V   01/05*05
24000.
16000.
8000.
0.
-8000.
PRESSURE(PSI)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME MSEC)

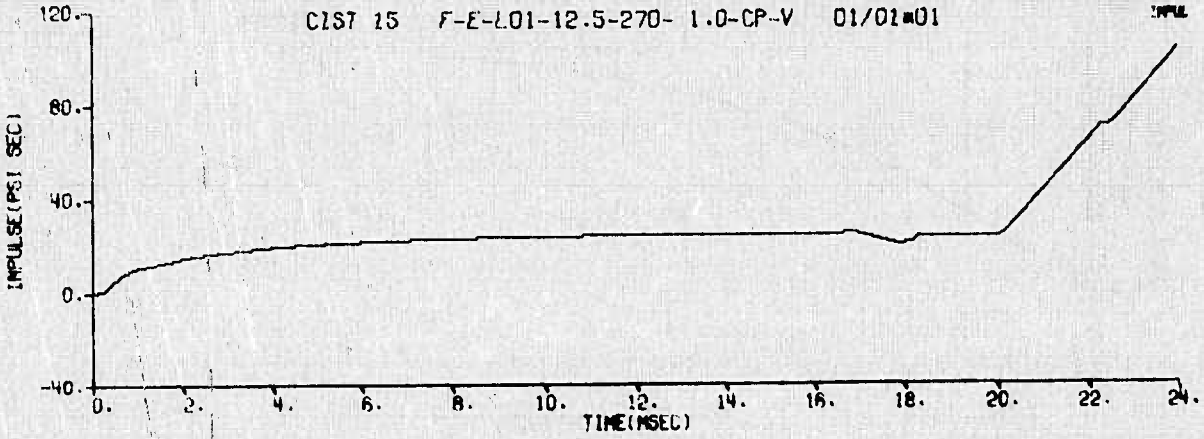

CIST 15   F--E--L01-12.5--330-- 1.0--CP--V   01/05*05
IMPUL.
120.
80.
40.
0.
-40.
IMPULSE(PSI SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

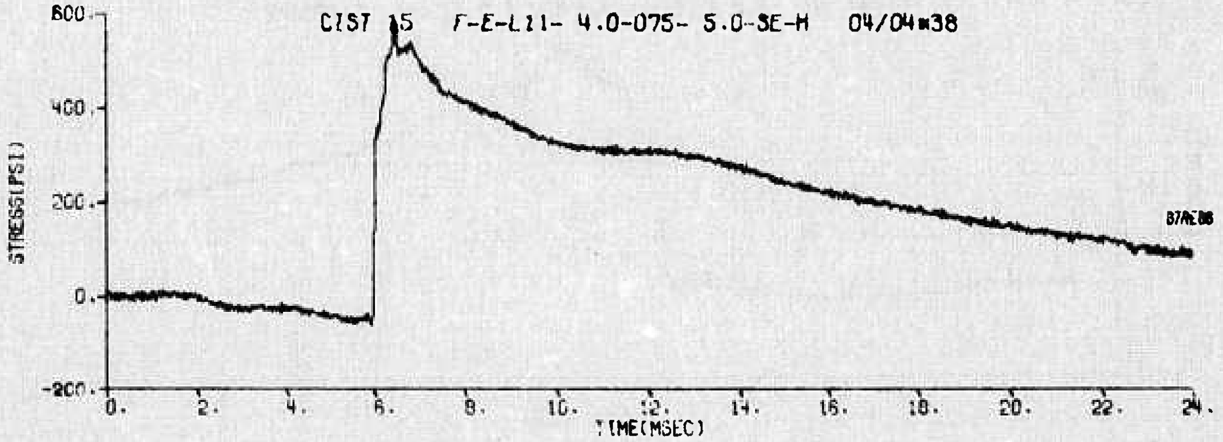

CIST 15   F--E--L01-12.5--330-- 1.0--CP--V   01/05*05
67REG
1.2
.8
.4
0.0
-.4
STRESS(PSI)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

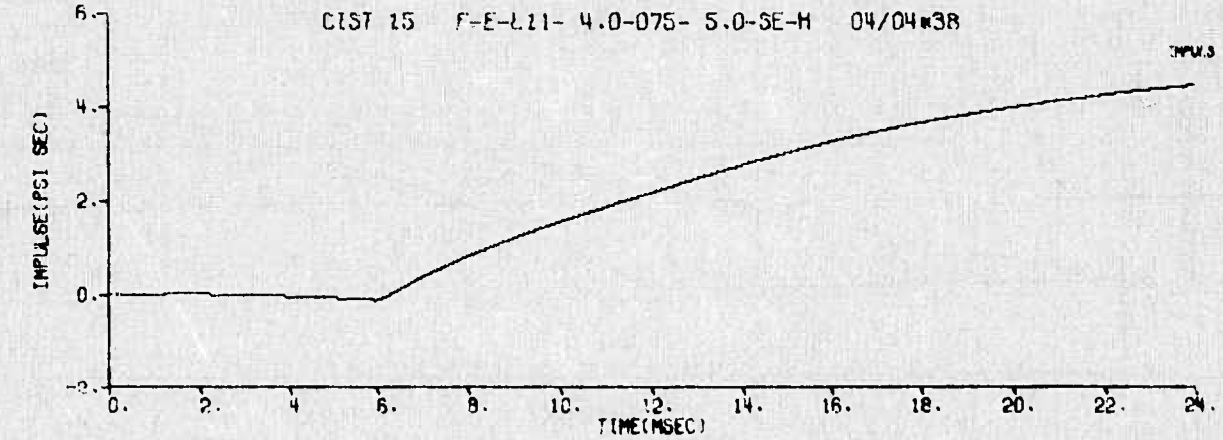

CIST 15 F-E-L01-12.5-030- 1.0-CP-V 01/03*03
PRESSURE(PSI)
15000.
10000.
5000.
0.
-5000.
P
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

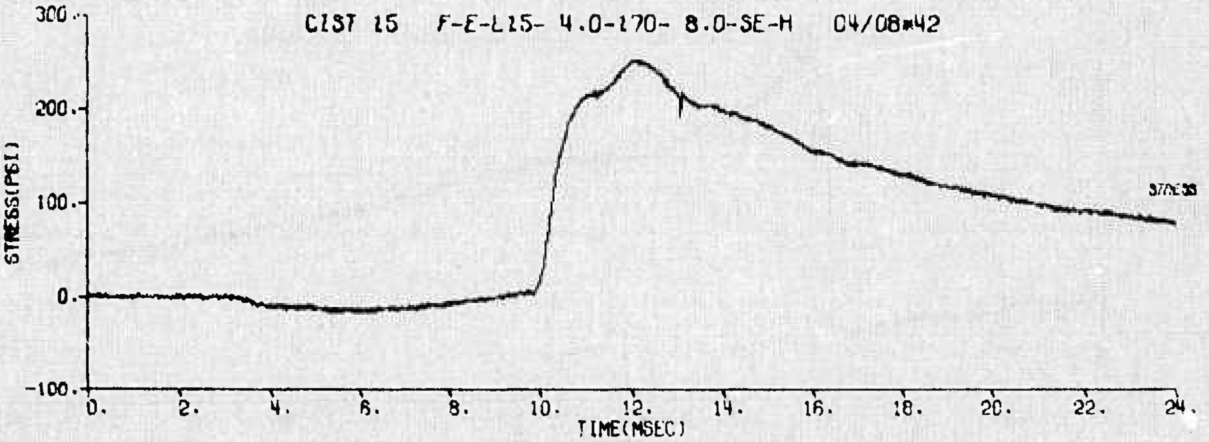

IMPUL
CIST 15 F-E-L01-12.5-030- 1.0-CP-V 01/03*03
IMPULSE(PSI SEC)
60.
40.
20.
0.
-20.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

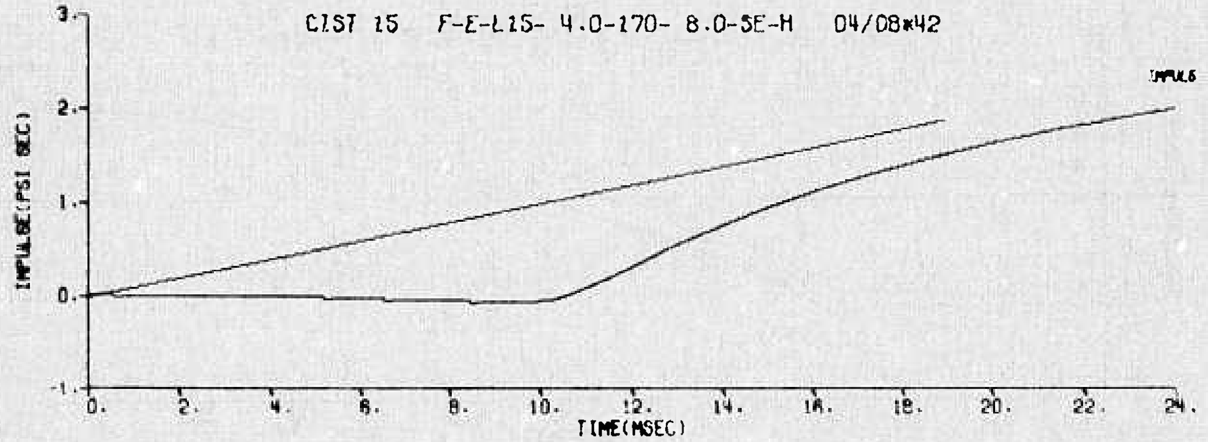

CIST 15 F-E-L01-12.5-270- 1.0-CP-V 01/01=01
PRESSURE(PSI)
24000.
16000.
8000.
0.
-8000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

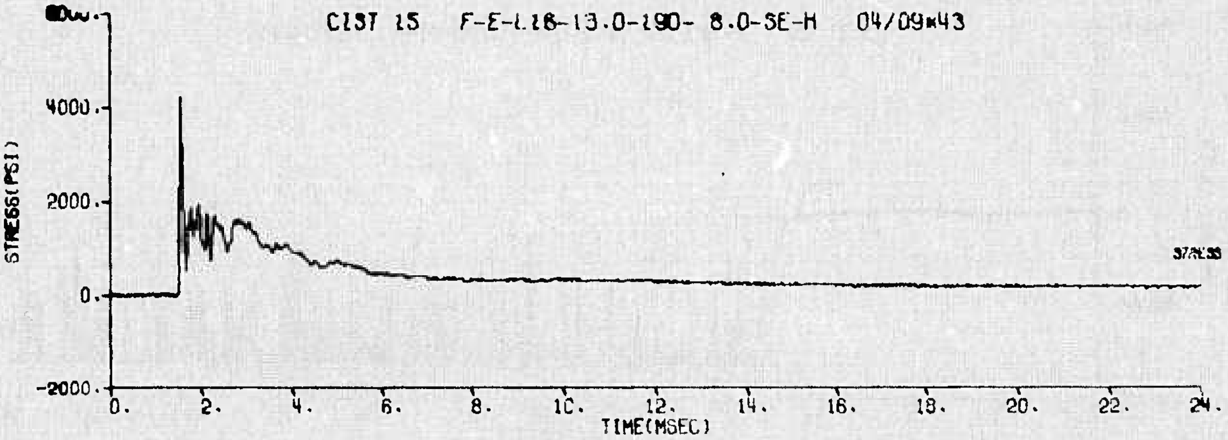

CIST 15 F-E-L01-12.5-270- 1.0-CP-V 01/01=01
IMPUL
IMPULSE(PSI SEC)
120.
80.
40.
0.
-40.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

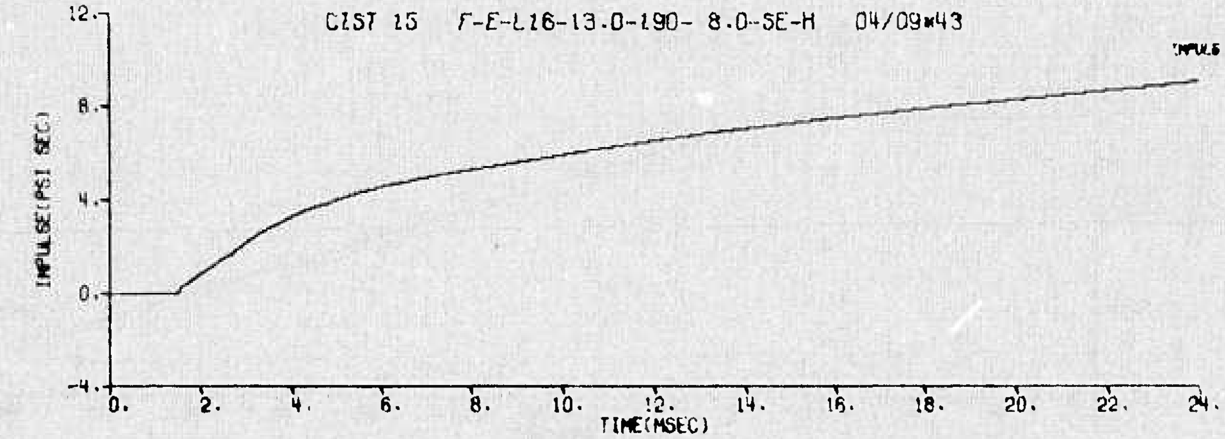

CIST 15 F-E-L11- 4.0-075- 5.0-SE-H 04/04*38
600.
400.
200.
0.
-200.
STRESS(PSI)
B7AE08
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

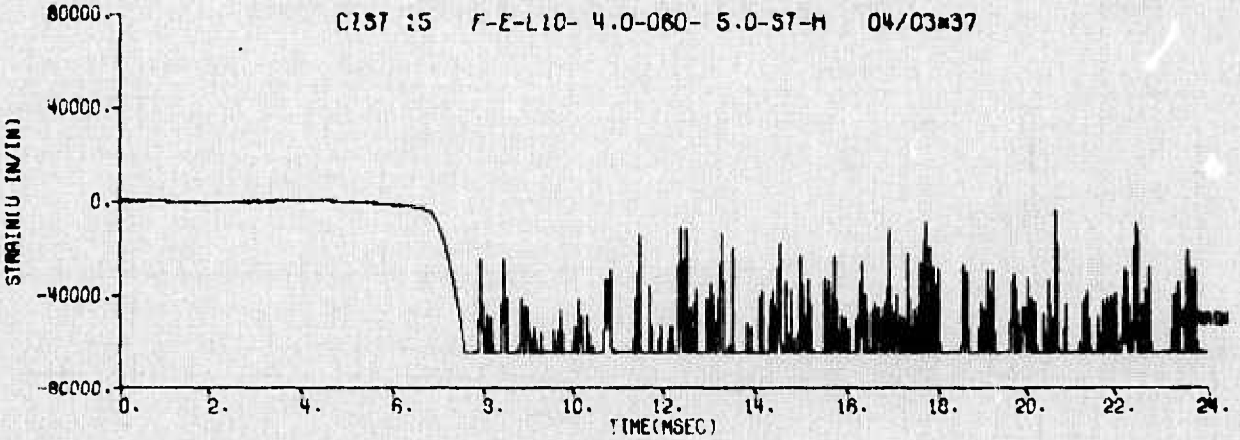

CIST 15 F-E-L11- 4.0-075- 5.0-SE-H 04/04*38
IMPULS
6.
4.
2.
0.
-2.
IMPULSE(PSI SEC)
0.
2.
4
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

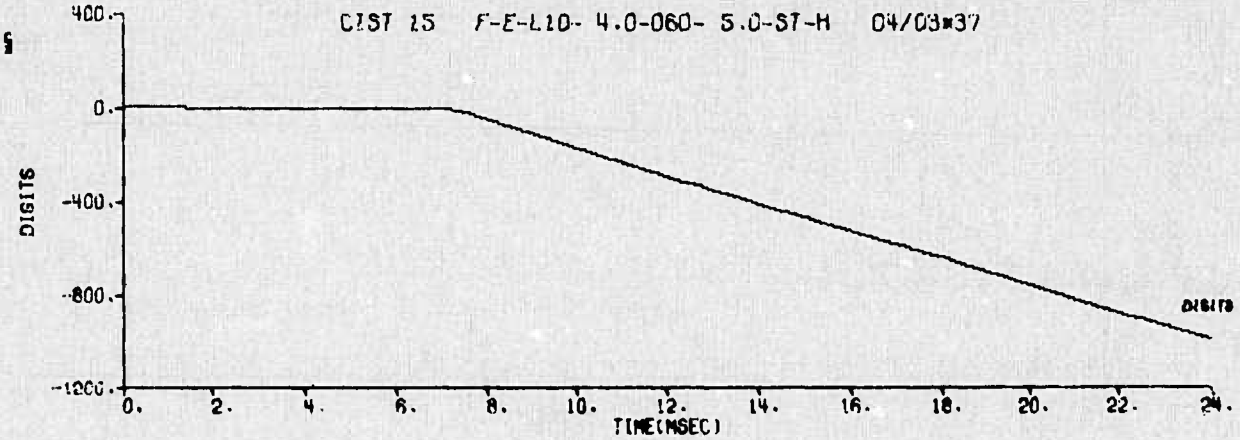

CIST 15 F-E-L15- 4.0-170- 8.0-SE-H 04/08*42
300.
200.
100.
0.
-100.
STRESS(PSI)
STRESS
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

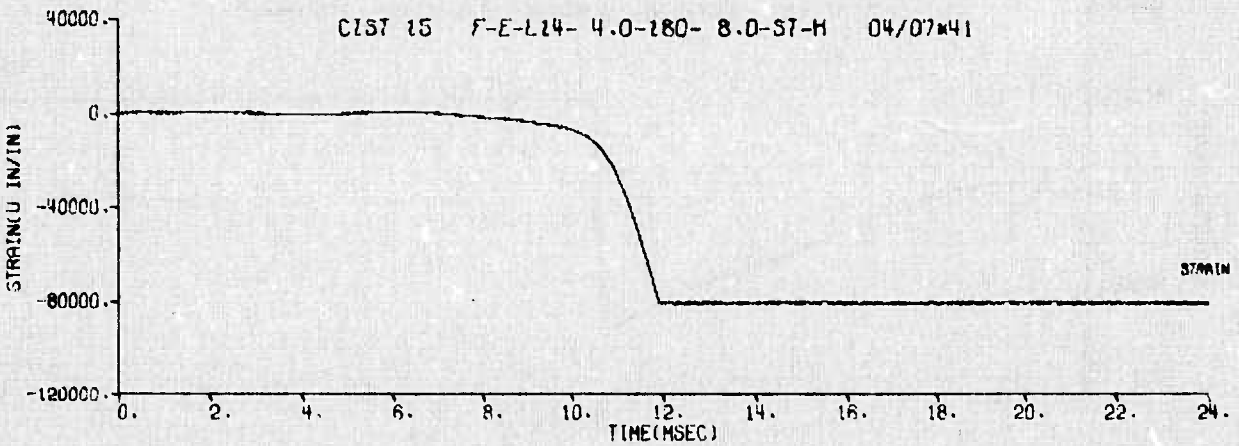

CIST 15 F-E-L15- 4.0-170- 8.0-SE-H 04/08*42
3.
2.
1.
0.
-1.
IMPULSE(PSI SEC)
IMPULSE
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

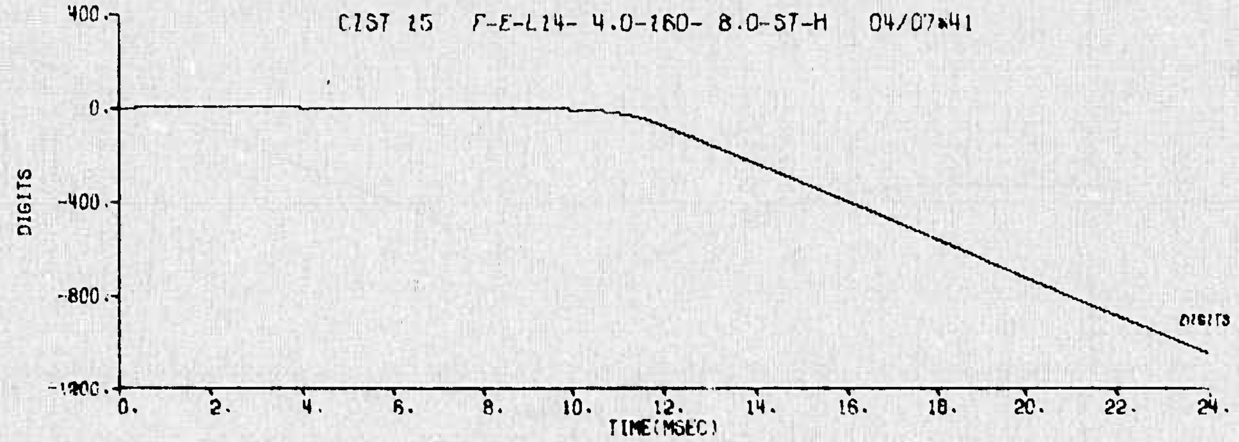

CIST 15 F-E-L16-13.0-190- 8.0-SE-H 04/09*43
6000.
4000.
2000.
0.
-2000.
STRESS(PSI)
STRESS
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

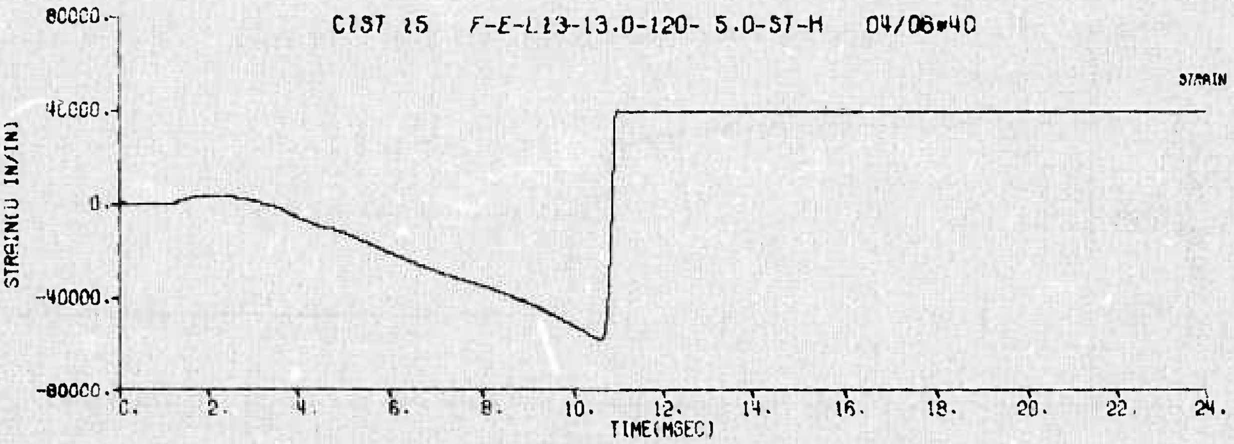

CIST 15 F-E-L16-13.0-190- 8.0-SE-H 04/09*43
12.
8.
4.
0.
-4.
IMPULSE(PSI SEC)
IMPULSE
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

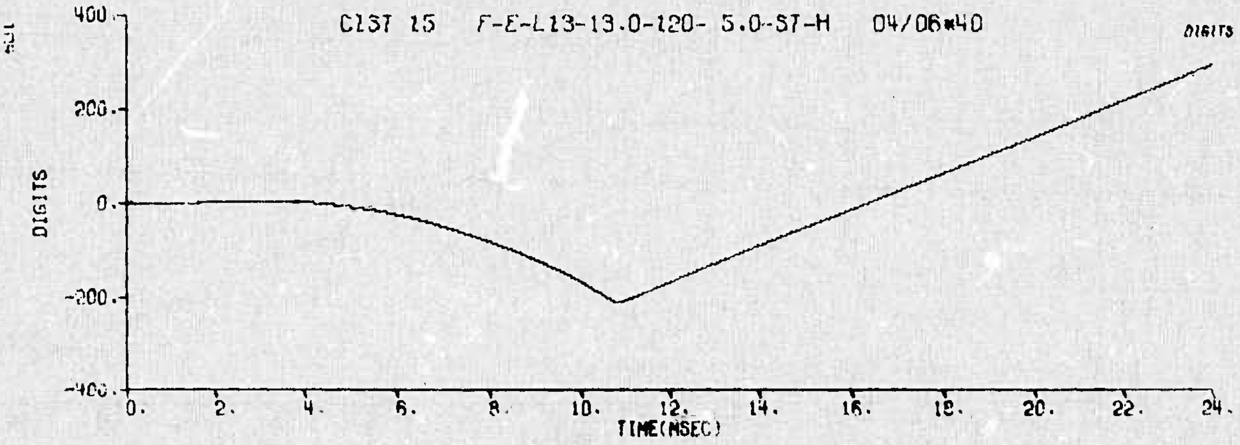

CIST 15 F-E-L10- 4.0-060- 5.0-ST-H 04/03*37
80000.
40000.
0.
-40000.
-80000.
STRAIN(U IN/IN)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

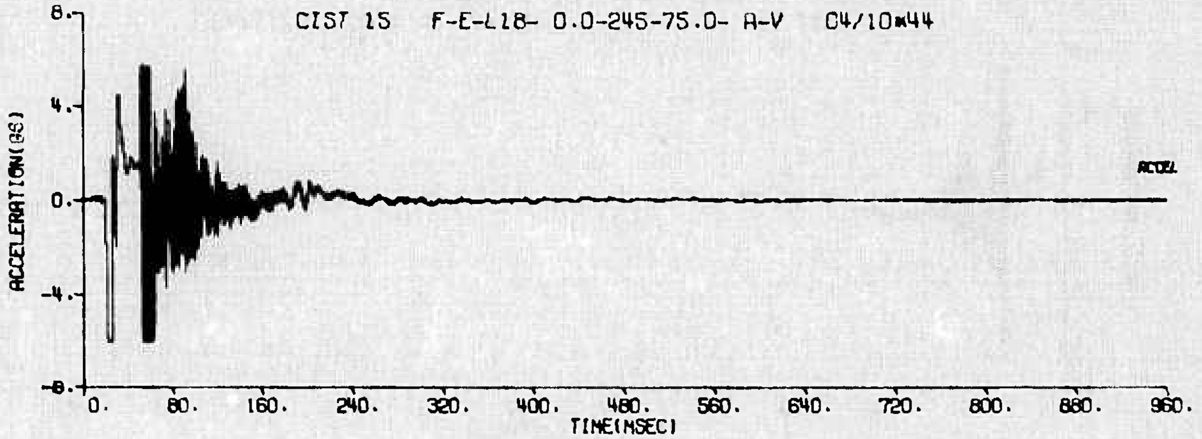

CIST 15 F-E-L10- 4.0-060- 5.0-ST-H 04/03*37
400.
0.
-400.
-800.
-1200.
DIGITS
DIGITS
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

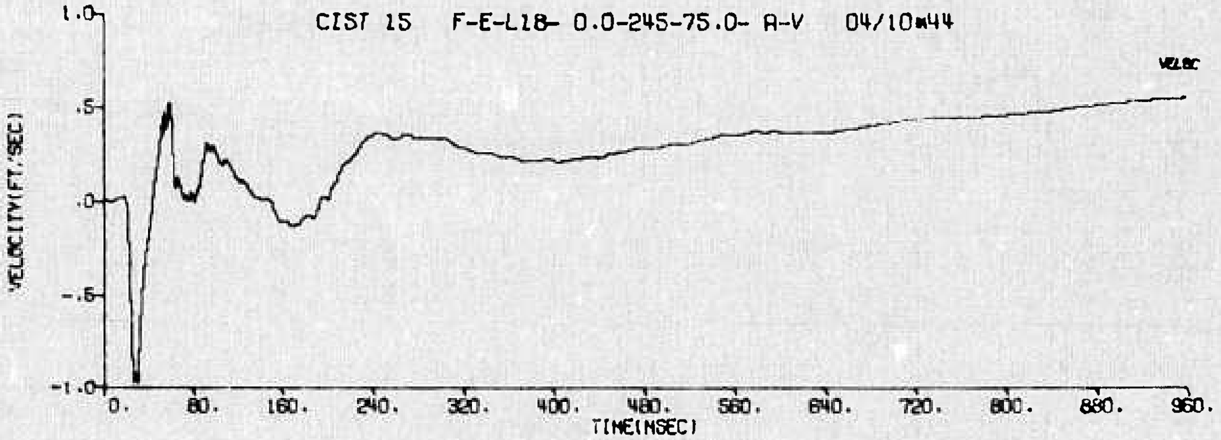

CIST 15   F-E-L14- 4.0-180- 8.0-ST-H   04/07*41
40000.
0.
-40000.
-80000.
-120000.
STRAIN(U IN/IN)
STRAIN
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

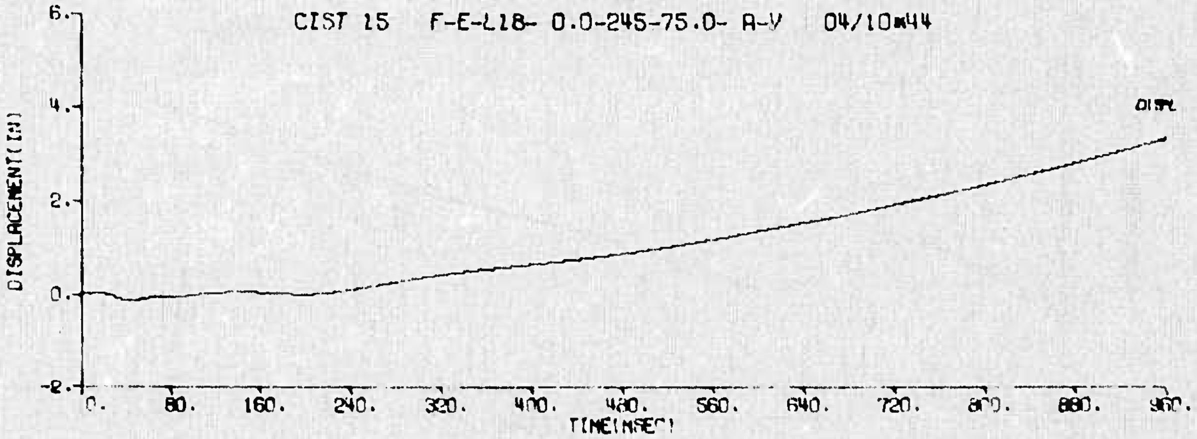

CIST 15   F-E-L14- 4.0-180- 8.0-ST-H   04/07*41
400.
0.
-400.
-800.
-1200.
DIGITS
DIGITS
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

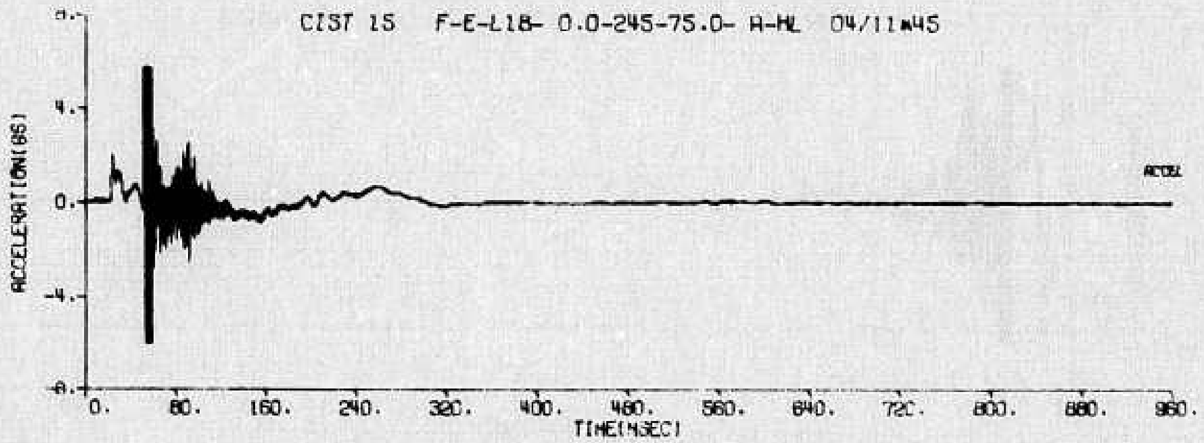

CIST 15 F-E-L13-13.0-120- 5.0-S7-H 04/06*40
STRAIN
STRAIN(U IN/IN)
80000.
40000.
0.
-40000.
-80000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

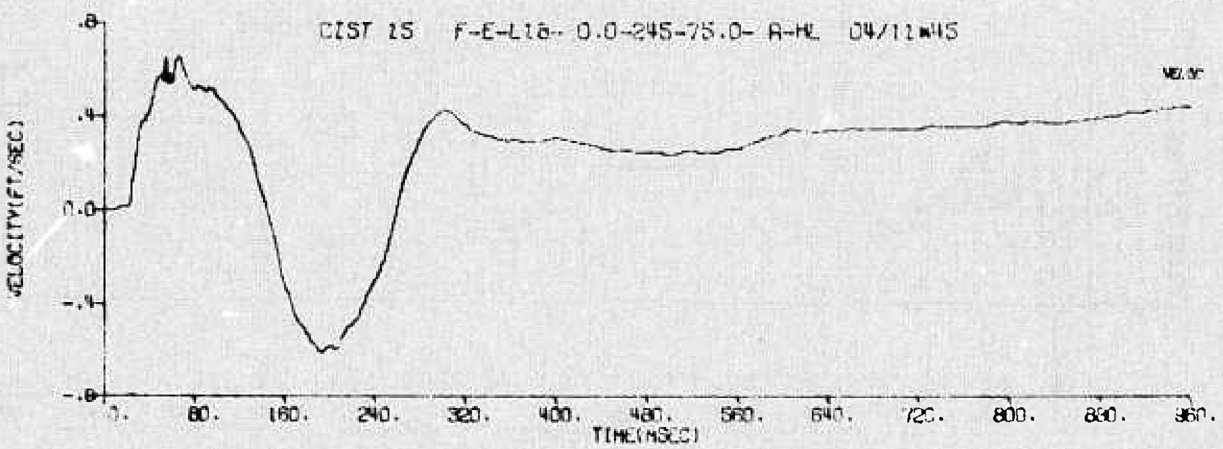

CIST 15 F-E-L13-13.0-120- 5.0-S7-H 04/06*40
DIGITS
DIGITS
400.
200.
0.
-200.
-400.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

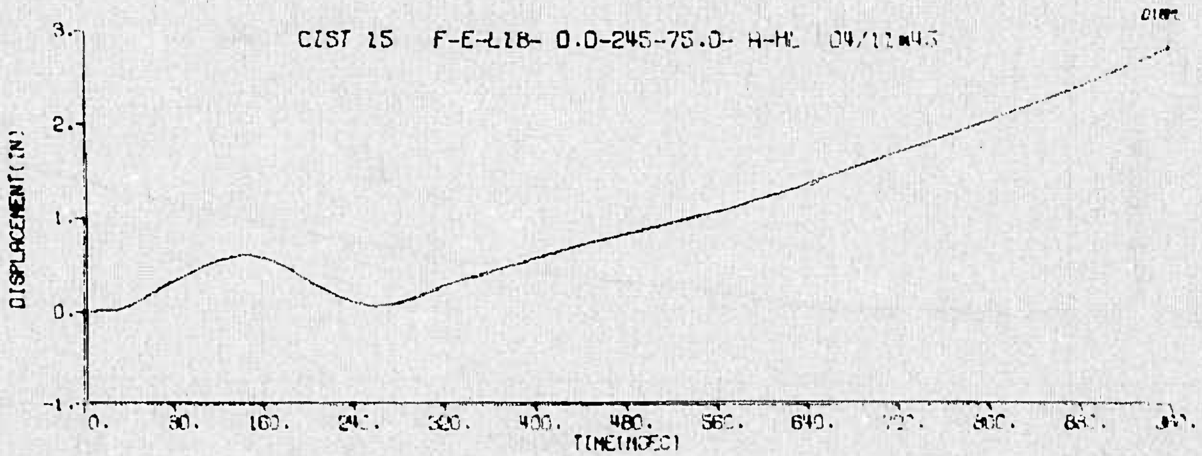

CIST 15 F-E-L18- 0.0-245-75.0- A-V 04/10*44
ACCELERATION(GS)
8.
4.
0.
-4.
-8.
ACCEL
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)

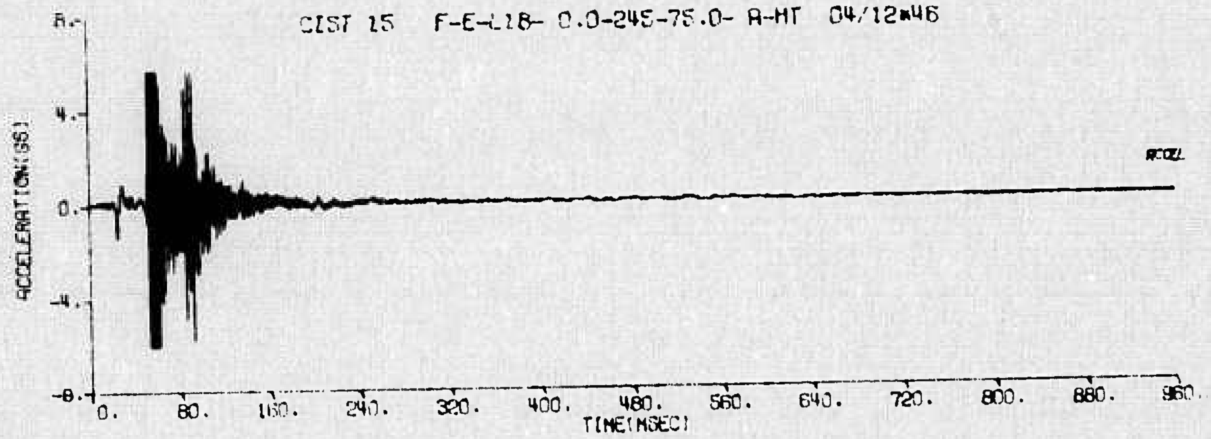

CIST 15 F-E-L18- 0.0-245-75.0- A-V 04/10*44
VELOCITY(FT/SEC)
1.0
.5
.0
-.5
-1.0
VELOC
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)

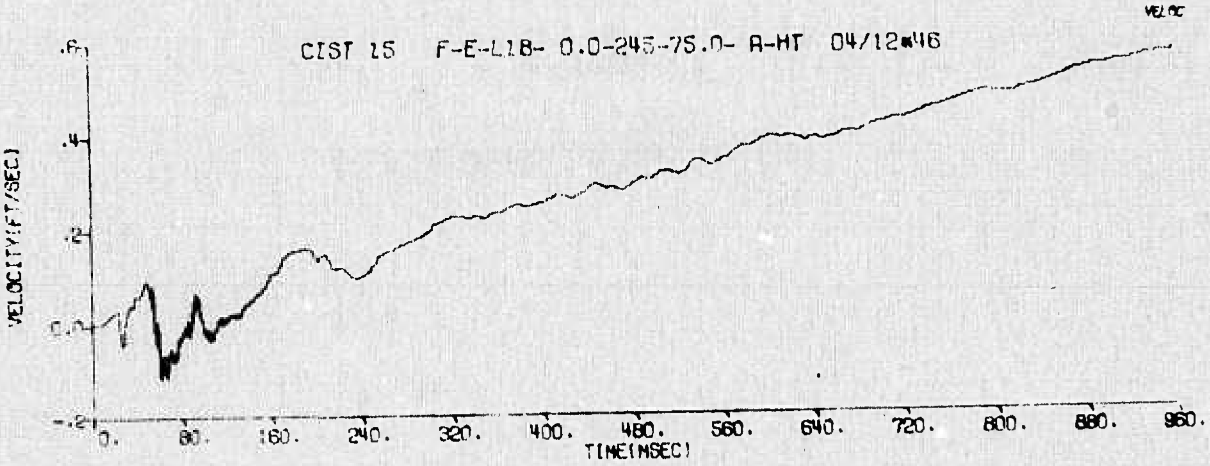

CIST 15 F-E-L18- 0.0-245-75.0- A-V 04/10*44
DISPLACEMENT(IN)
6.
4.
2.
0.
-2.
DISPL
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)

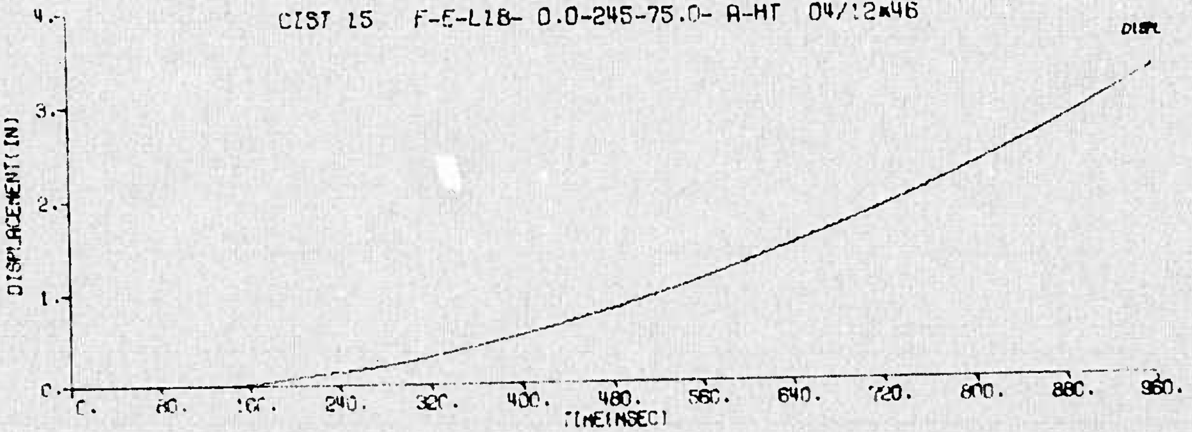

CIST 15 F-E-L18- 0.0-245-75.0- A-HL 04/11*45
ACCELERATION(GS)
8.
4.
0.
-4.
-8.
ACCEL
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)


CIST 15 F-E-L18- 0.0-245-75.0- A-HL 04/11*45
VELOCITY(FT/SEC)
.8
.4
0.0
-.4
-.8
VELOC
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)


CIST 15 F-E-L18- 0.0-245-75.0- A-HL 04/11*45
DISPLACEMENT(IN)
3.
2.
1.
0.
-1.
DISPL
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)

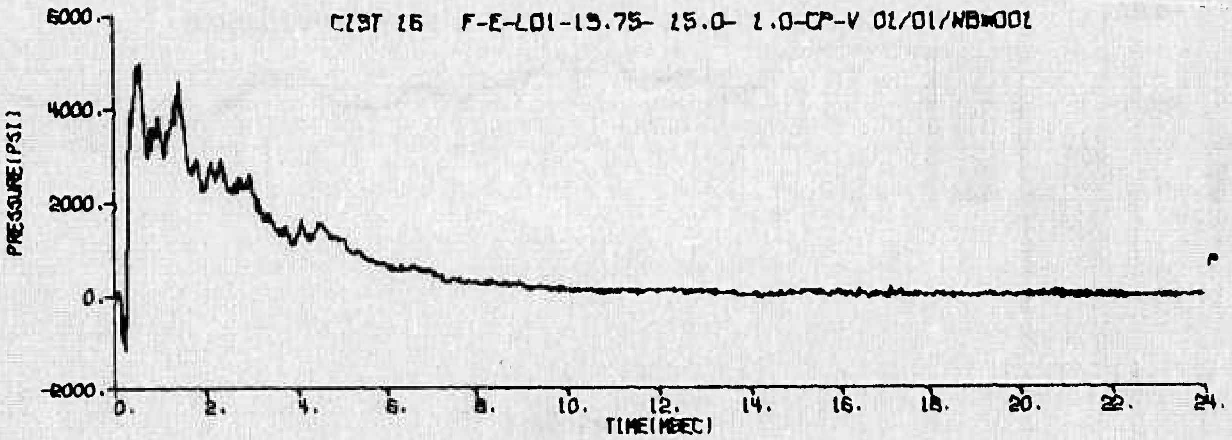

CIST 15 F-E-L18- 0.0-245-75.0- A-HT 04/12*46
ACCELERATION(GS)
8.
4.
0.
-4.
-8.
ACCEL
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)

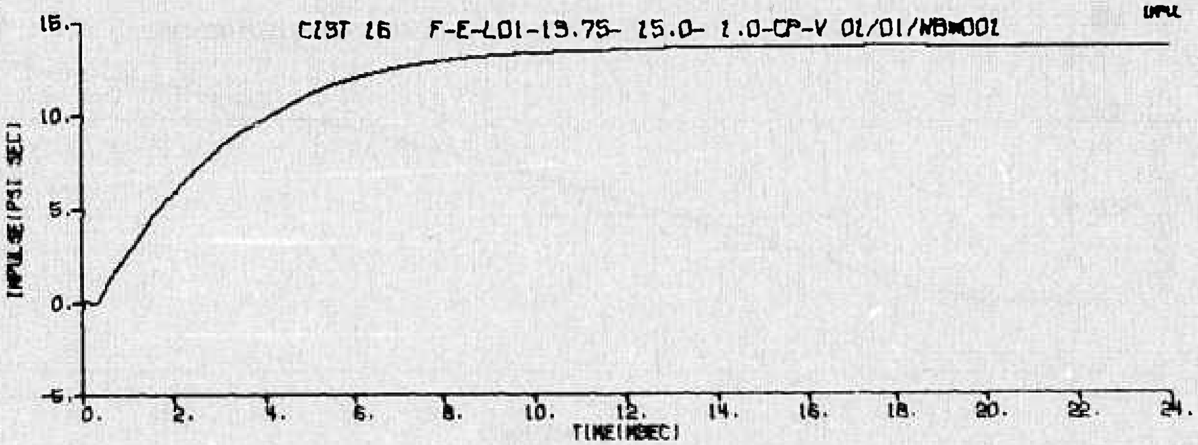

CIST 15 F-E-L18- 0.0-245-75.0- A-HT 04/12*46
VELOC
VELOCITY(FT/SEC)
.6
.4
.2
0.0
-.2
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)

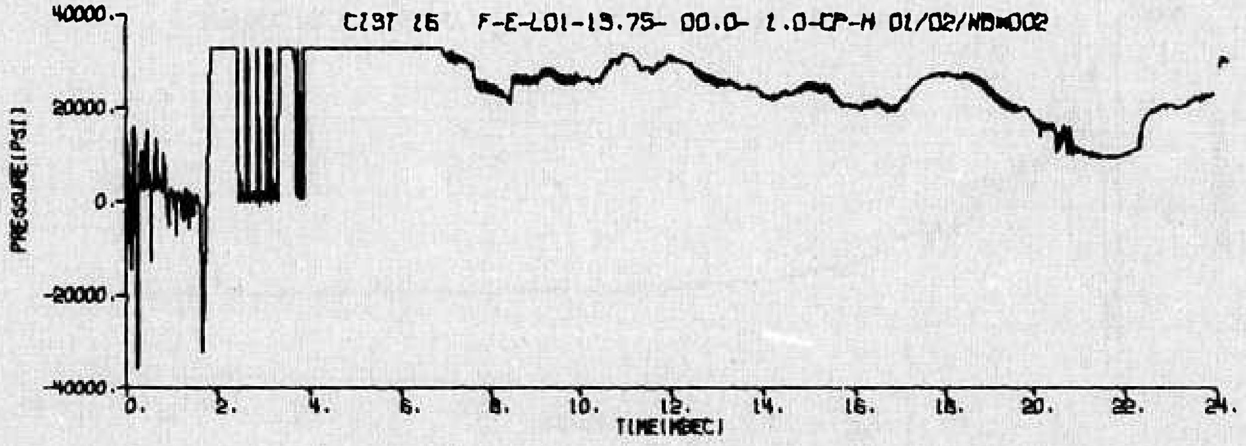

CIST 15 F-E-L18- 0.0-245-75.0- A-HT 04/12*46
DISPL
DISPLACEMENT(IN)
4.
3.
2.
1.
0.
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)

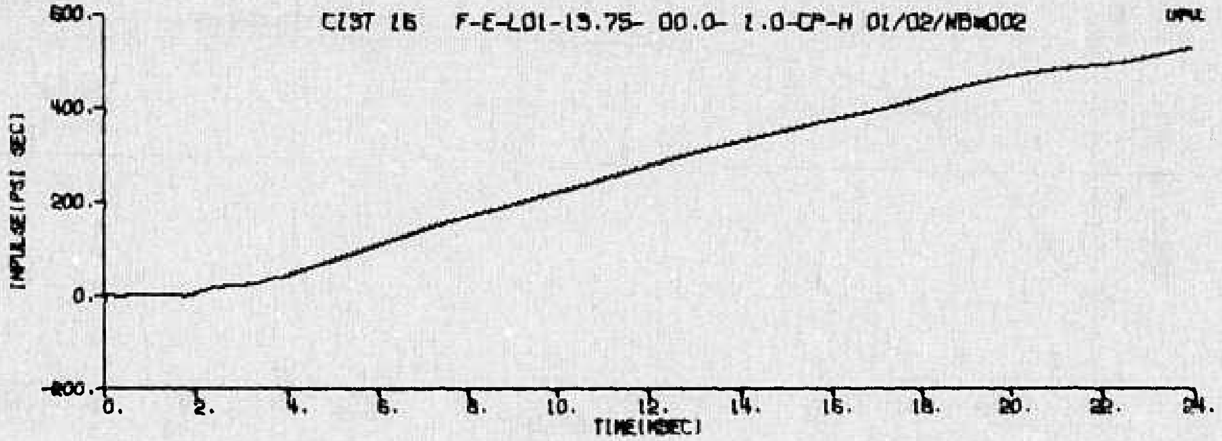
APPENDIX D

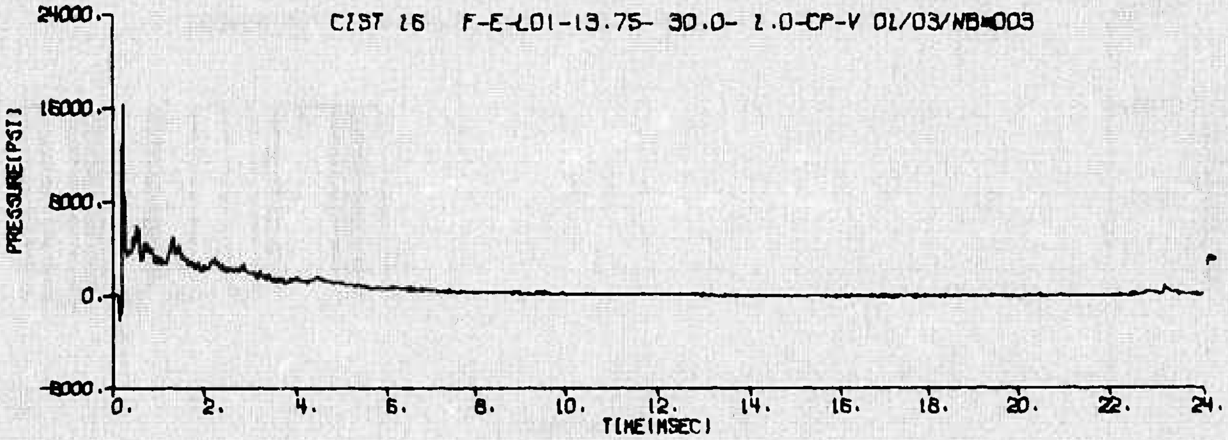
CIST 16 TIME HISTORY PLOTS

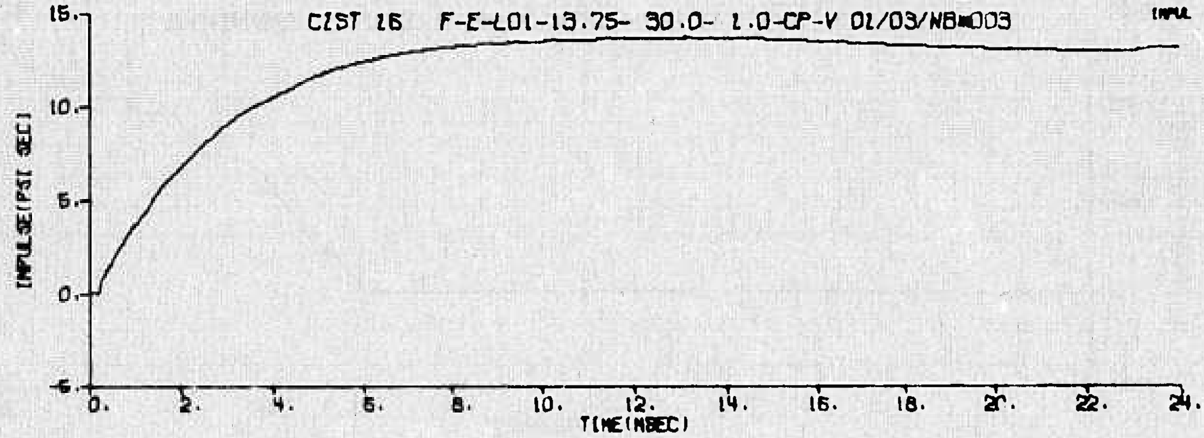

CIST 16 F-E-L01-13.75- 15.0- 1.0-CP-V 01/01/NB*001
P
PRESSURE(PSI)
6000.
4000.
2000.
0.
-2000.
TIME(MSEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.

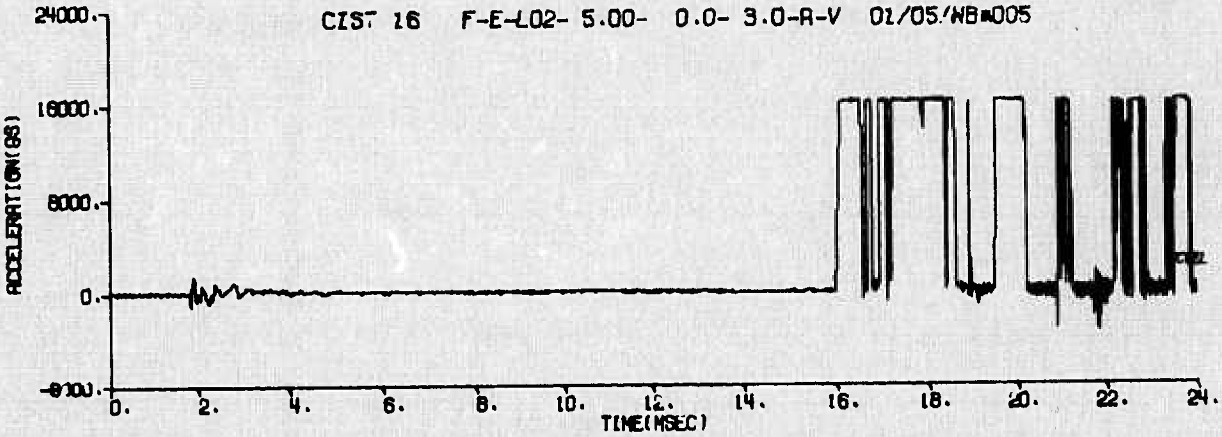

CIST 16 F-E-L01-13.75- 15.0- 1.0-CP-V 01/01/NB*001
IMPUL
IMPULSE(PSI SEC)
15.
10.
5.
0.
-5.
TIME(MSEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.

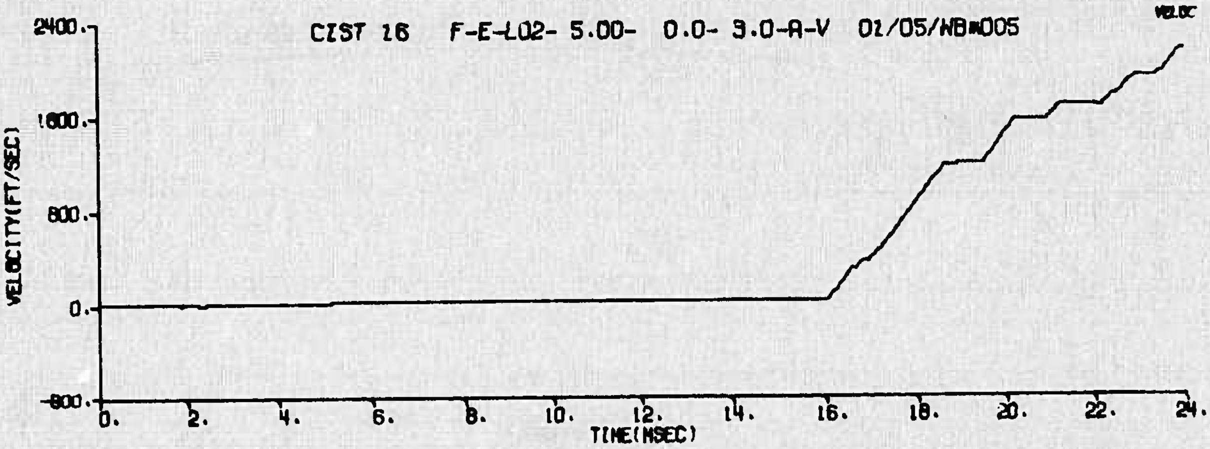

CZ3T 16 F-E-L01-13.75- 00.0- 1.0-CP-H 01/02/NB=002
40000.
20000.
0.
-20000.
-40000.
PRESSURE(PSI)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

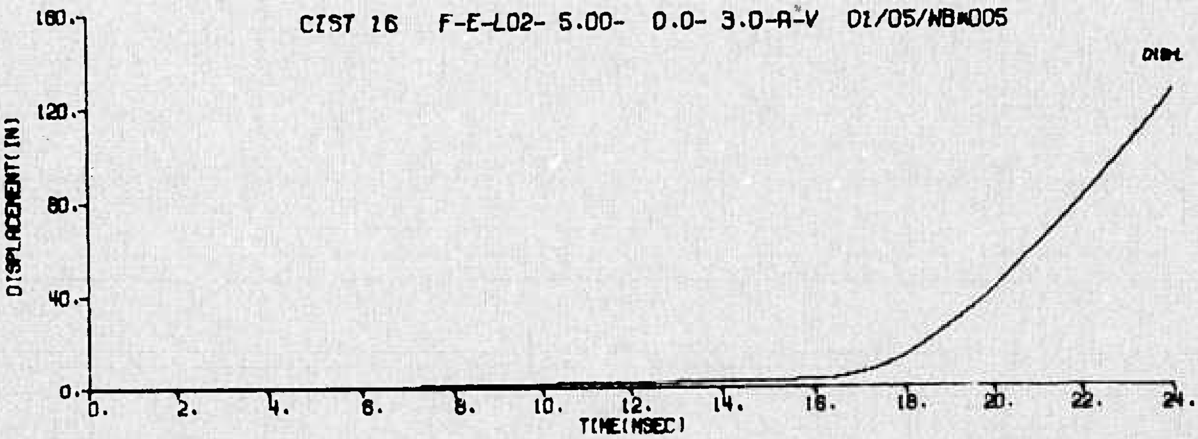

CZ3T 16 F-E-L01-13.75- 00.0- 1.0-CP-H 01/02/NB=002
IMPUL
600.
400.
200.
0.
-200.
IMPULSE(PSI SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

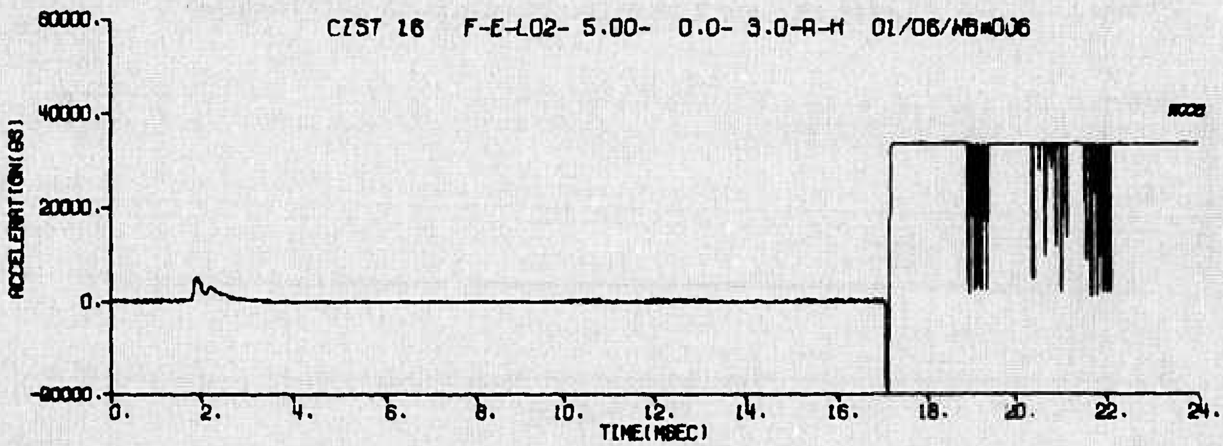

CIST 16 F-E-L01-13.75- 30.0- 1.0-CP-V 01/03/NB=003
24000.
16000.
8000.
0.
-8000.
PRESSURE(PSI)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
P

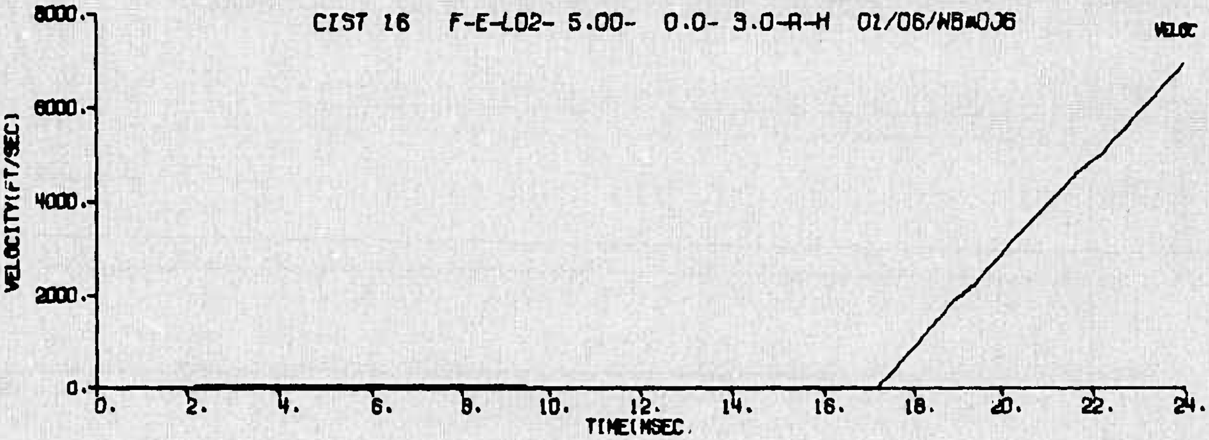

CIST 16 F-E-L01-13.75- 30.0- 1.0-CP-V 01/03/NB=003
IMPUL
15.
10.
5.
0.
-5.
IMPULSE(PSI SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

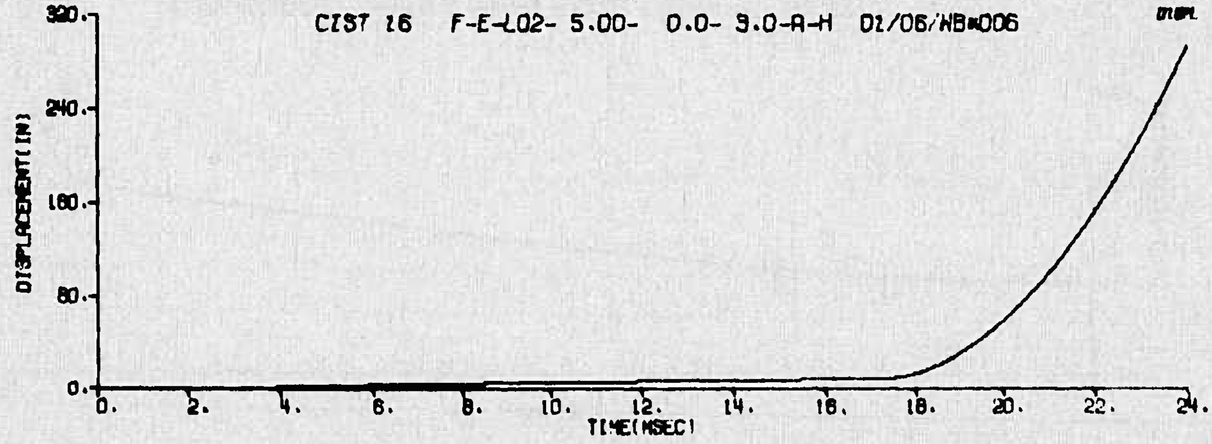

CIST 16 F-E-L02- 5.00- 0.0- 3.0-A-V 01/05/WB=005
ACCELERATION(GS)
24000.
16000.
8000.
0.
-8000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
ACCL

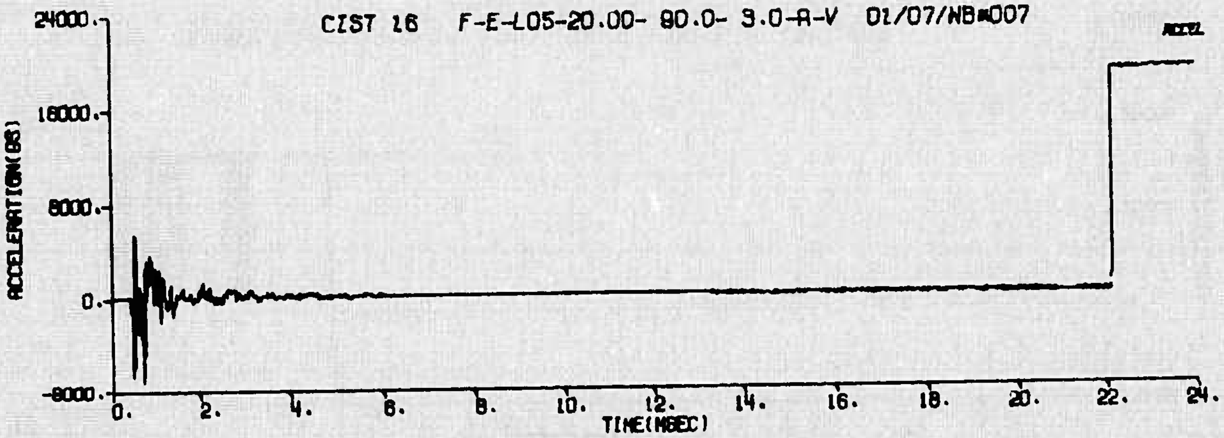

CIST 16 F-E-L02- 5.00- 0.0- 3.0-A-V 01/05/WB=005
VELOC
VELOCITY(FT/SEC)
2400.
1600.
800.
0.
-800.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

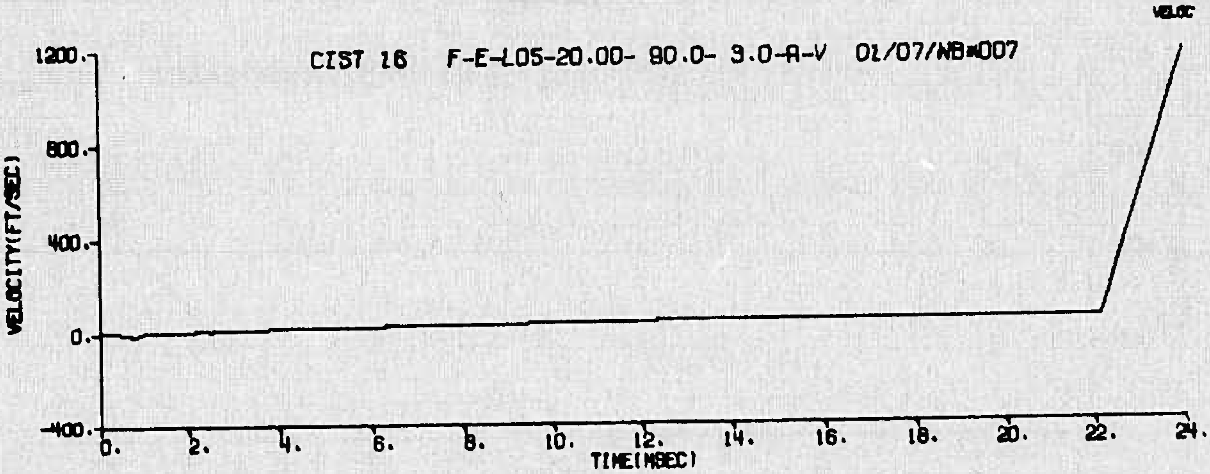

CIST 16 F-E-L02- 5.00- 0.0- 3.0-A-V 01/05/WB=005
DISPL
DISPLACEMENT(IN)
160.
120.
80.
40.
0.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

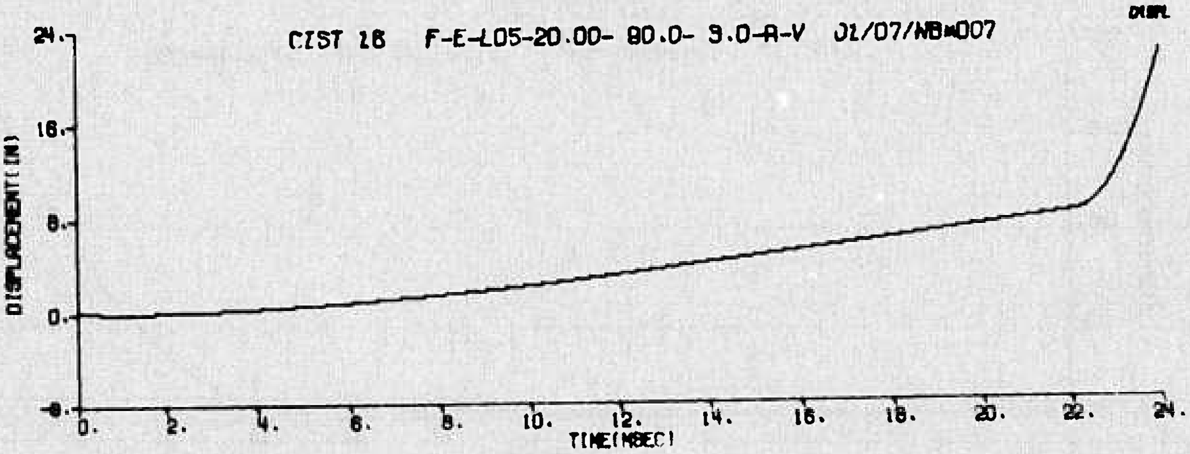

CIST 16 F-E-L02- 5.00- 0.0- 3.0-A-H 01/06/WB=006
ACCEL
ACCELERATION(GS)
60000.
40000.
20000.
0.
-20000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

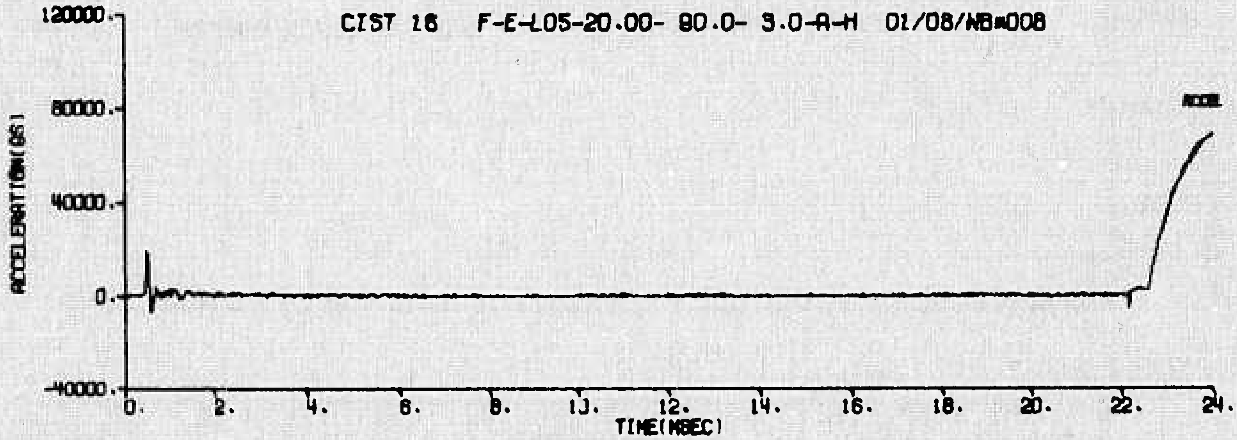

CIST 16 F-E-L02- 5.00- 0.0- 3.0-A-H 01/06/WB=006
VELOC
VELOCITY(FT/SEC)
8000.
6000.
4000.
2000.
0.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

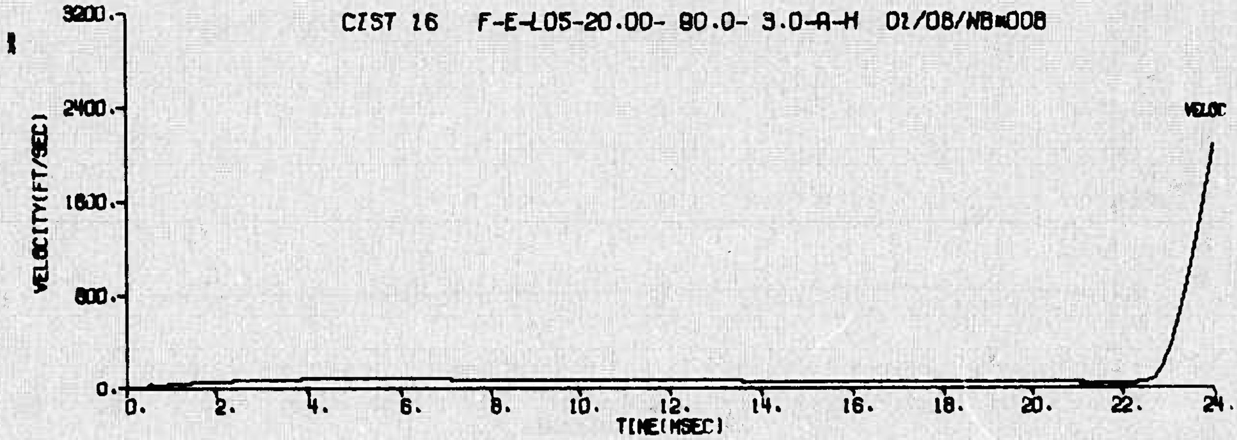

CIST 16 F-E-L02- 5.00- 0.0- 3.0-A-H 01/06/WB=006
DISPL
DISPLACEMENT(IN)
320.
240.
160.
80.
0.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

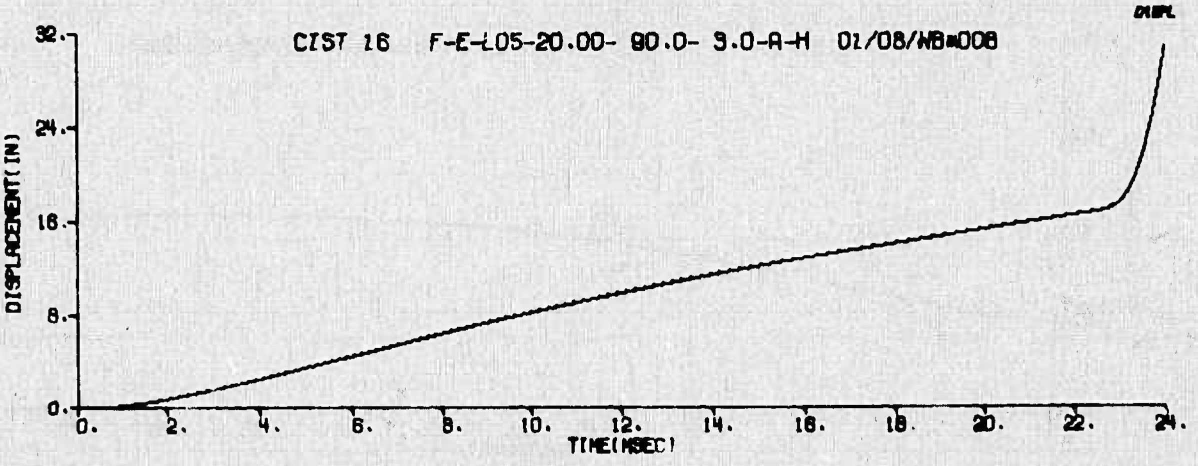

CIST 16 F-E-L05-20.00- 80.0- 3.0-A-V 01/07/NB=007
ACCEL
ACCELERATION(GS)
24000.
16000.
8000.
0.
-8000.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

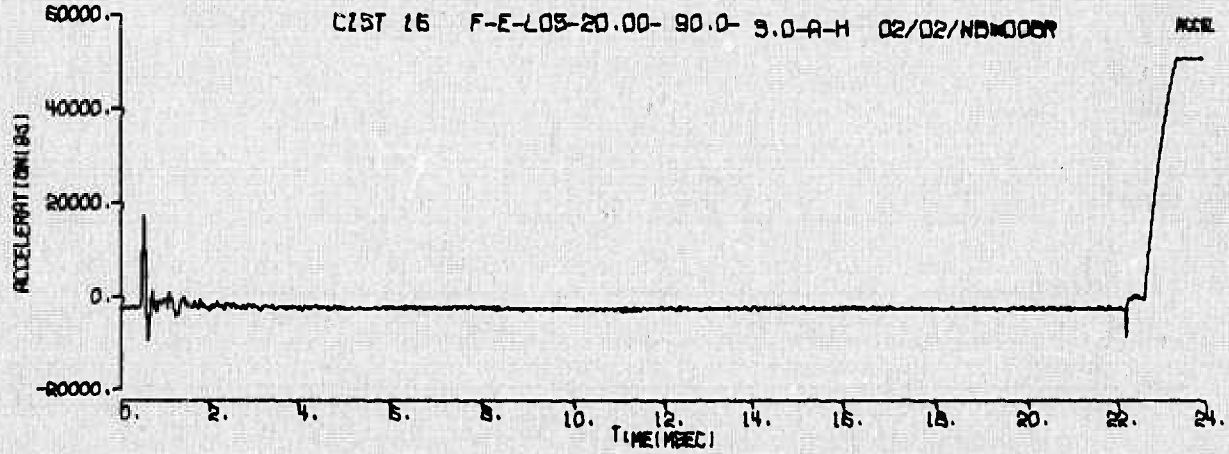

CIST 16 F-E-L05-20.00- 80.0- 3.0-A-V 01/07/NB=007
VELOC
VELOCITY(FT/SEC)
1200.
800.
400.
0.
-400.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

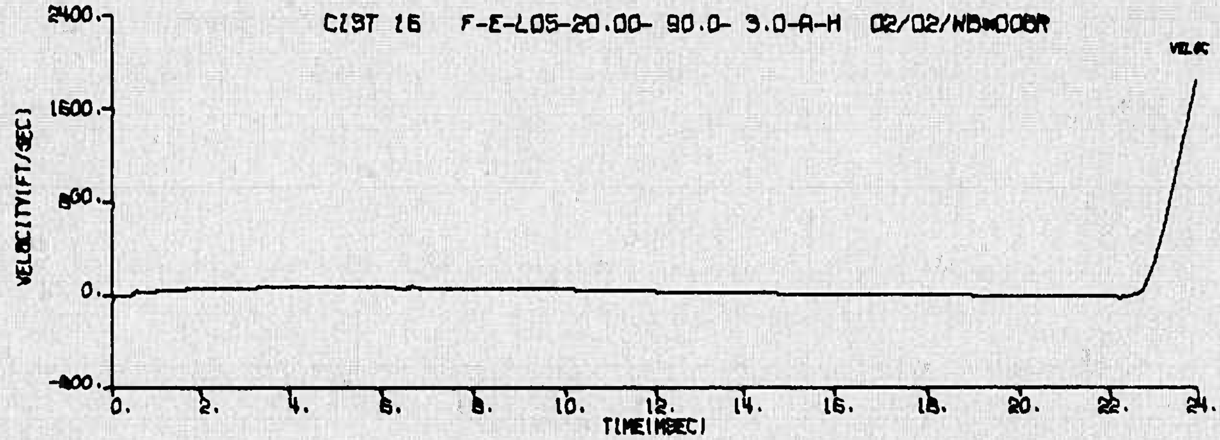

CIST 16 F-E-L05-20.00- 80.0- 3.0-A-V 01/07/NB=007
DISPL
DISPLACEMENT(IN)
24.
16.
8.
0.
-8.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

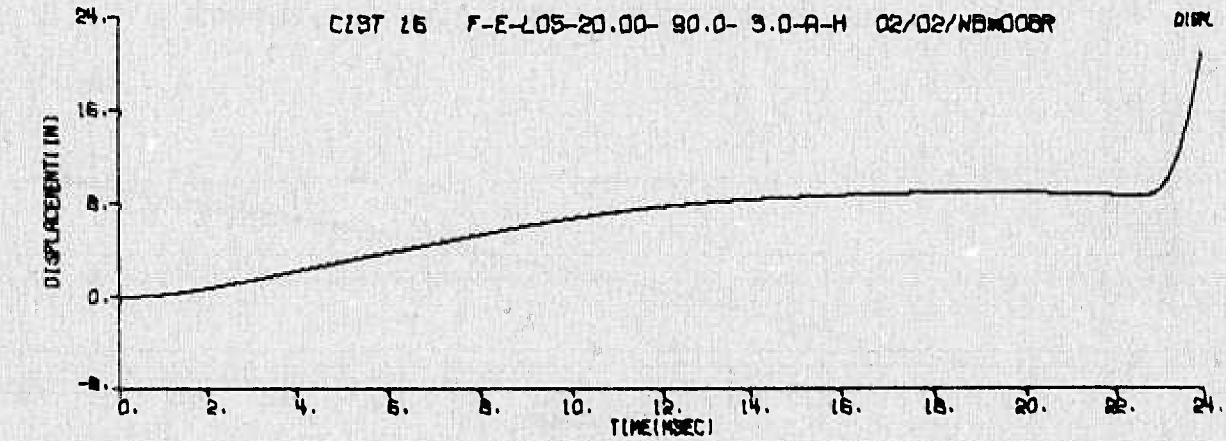

CIST 16 F-E-L05-20.00- 80.0- 3.0-A-H 01/08/NB=008
ACCELERATION(GS)
120000.
80000.
40000.
0.
-40000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

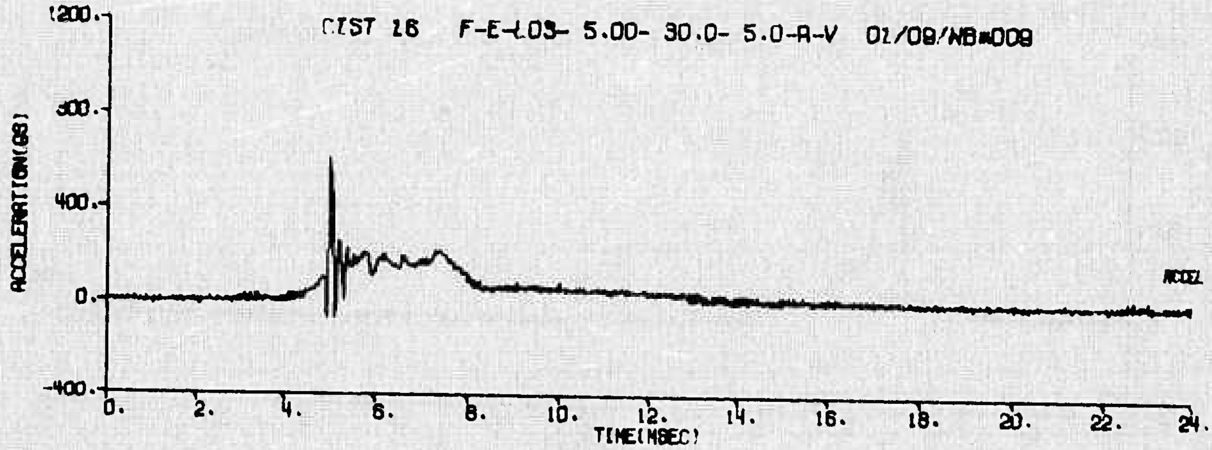

CIST 16 F-E-L05-20.00- 80.0- 3.0-A-H 01/08/NB=008
VELOCITY(FT/SEC)
3200.
2400.
1600.
800.
0.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

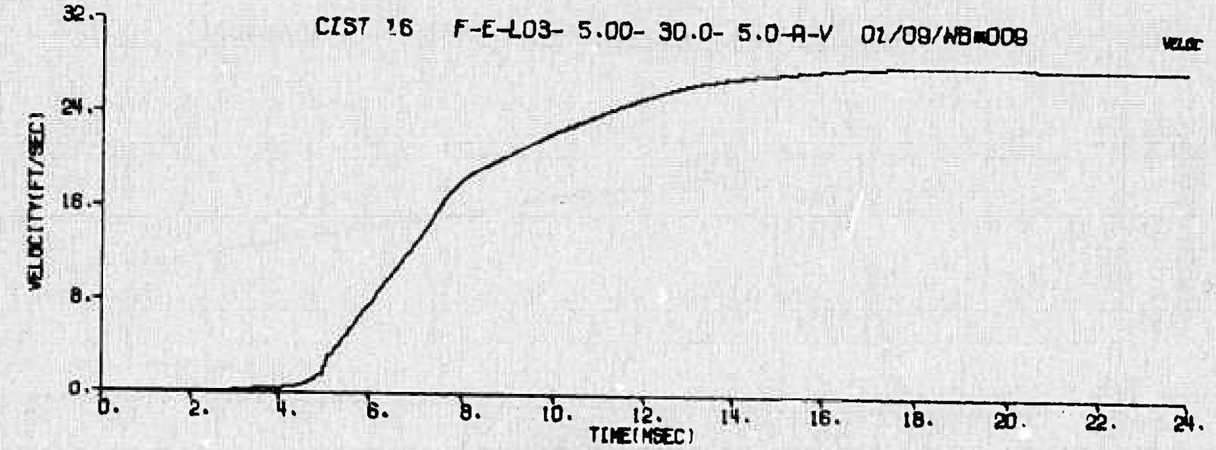

CIST 16 F-E-L05-20.00- 80.0- 3.0-A-H 01/08/NB=008
DISPLACEMENT(IN)
32.
24.
16.
8.
0.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

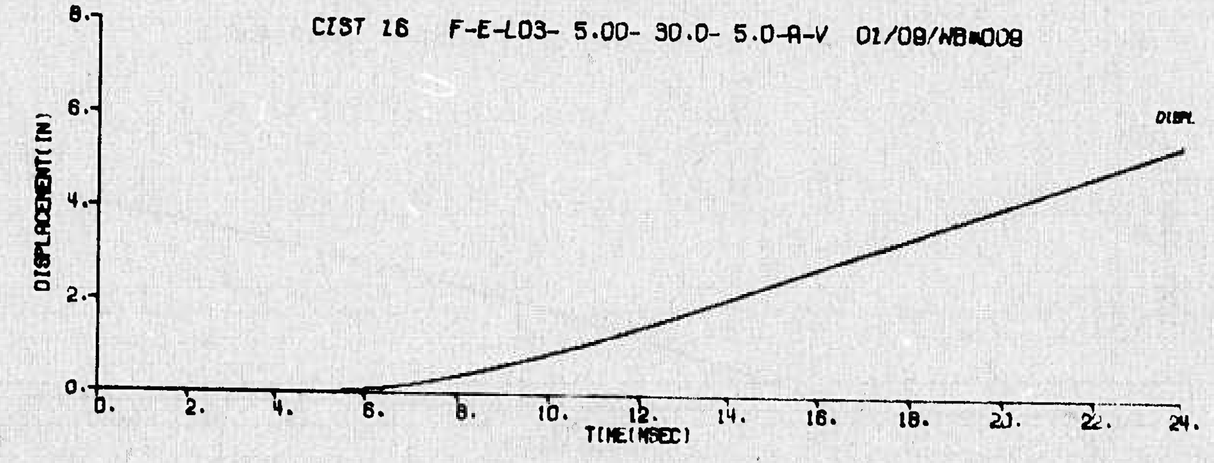

CIST 16 F-E-L05-20.00- 90.0- 3.0-A-H 02/02/NB=008R
ACCEL
60000.
40000.
20000.
0.
-20000.
ACCELERATION(GS)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

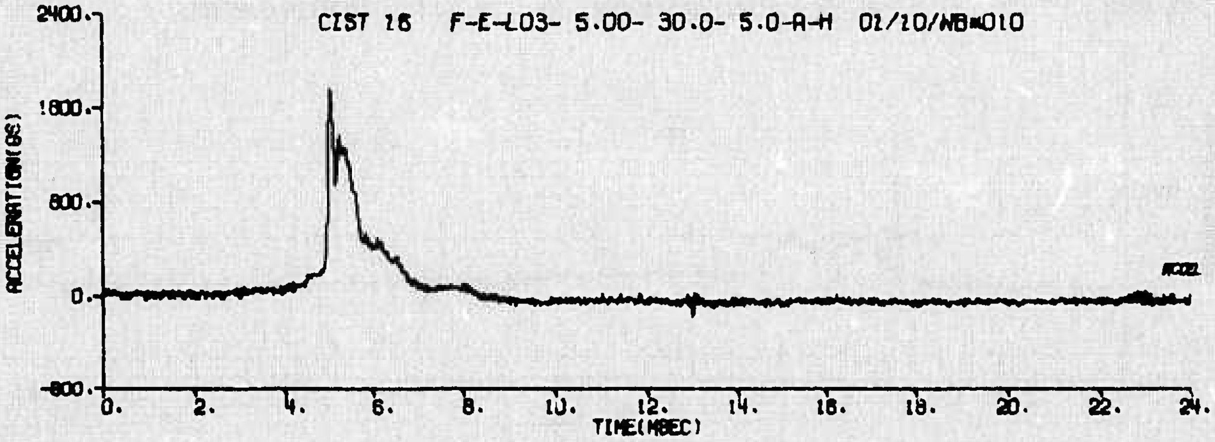

CIST 16 F-E-L05-20.00- 90.0- 3.0-A-H 02/02/NB=008R
VELOC
2400.
1600.
800.
0.
-800.
VELOCITY(FT/SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

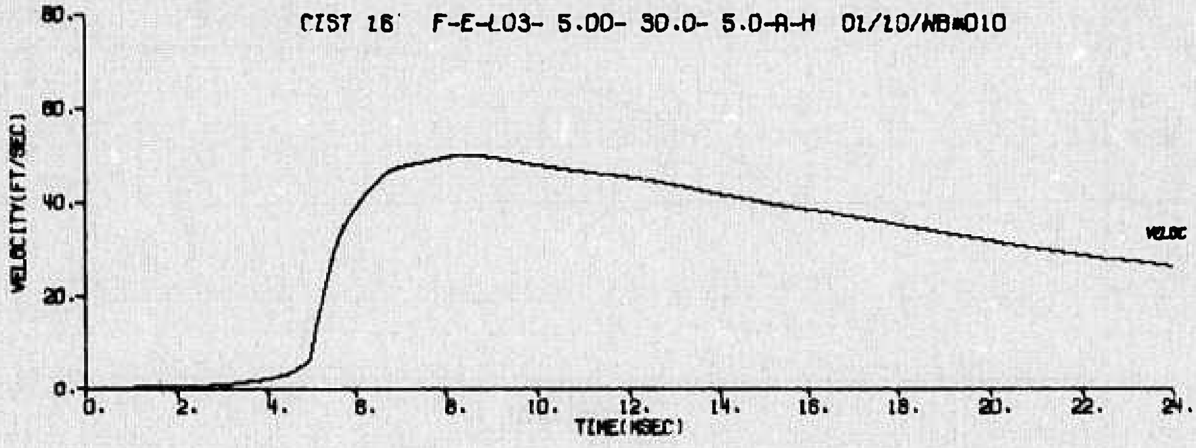

CIST 16 F-E-L05-20.00- 90.0- 3.0-A-H 02/02/NB=008R
DISPL
24.
16.
8.
0.
-8.
DISPLACEMENT(IN)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L03- 5.00- 30.0- 5.0-A-V 01/09/NB=009
1200.
800.
400.
0.
-400.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L03- 5.00- 30.0- 5.0-A-V 01/09/NB=009
32.
24.
16.
8.
0.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L03- 5.00- 30.0- 5.0-A-V 01/09/NB=009
8.
6.
4.
2.
0.
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L03- 5.00- 30.0- 5.0-A-H 01/10/NB=010
ACCELERATION(G'S)
2400.
1600.
800.
0.
-800.
ACCEL
0. 2. 4. 6. 8. 10. 12. 14. 16. 18. 20. 22. 24.
TIME(MSEC)


CIST 16 F-E-L03- 5.00- 30.0- 5.0-A-H 01/10/NB=010
VELOCITY(FT/SEC)
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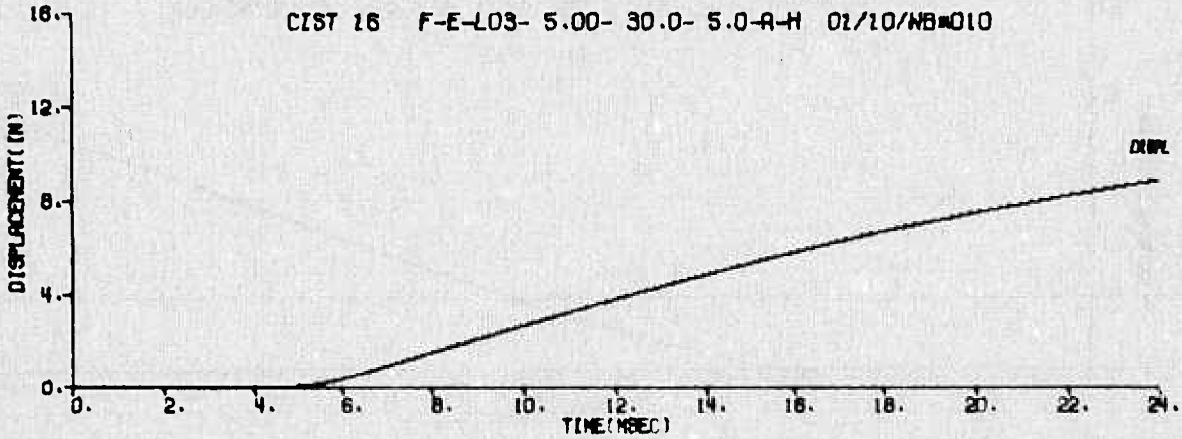
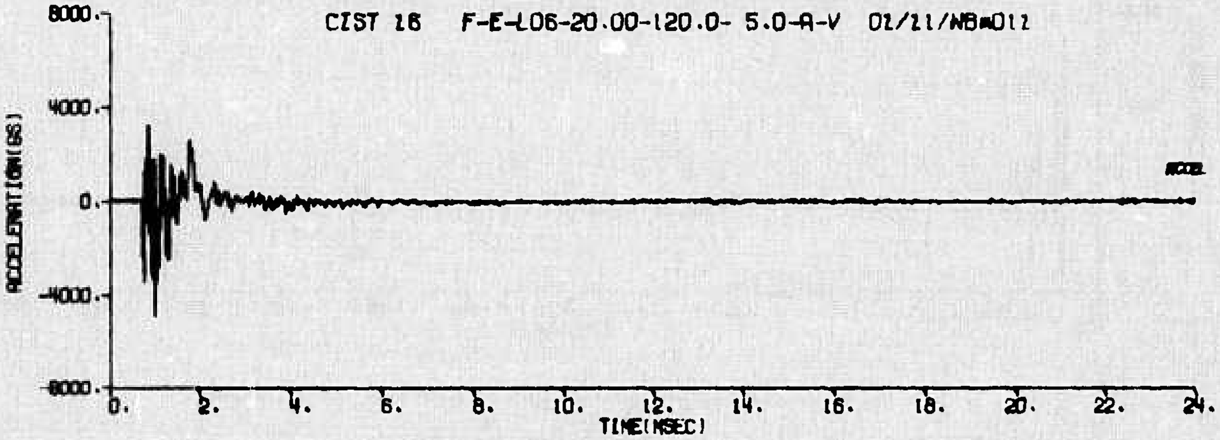
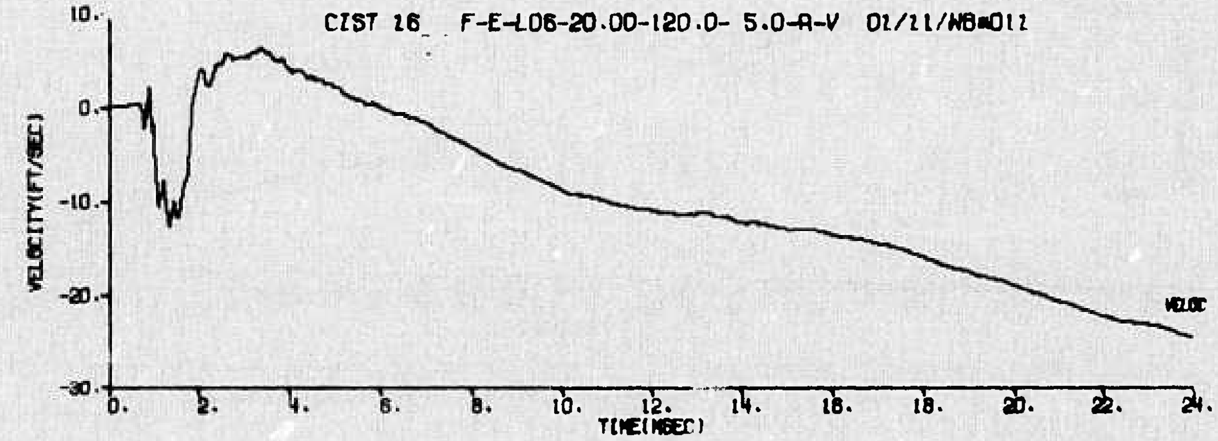
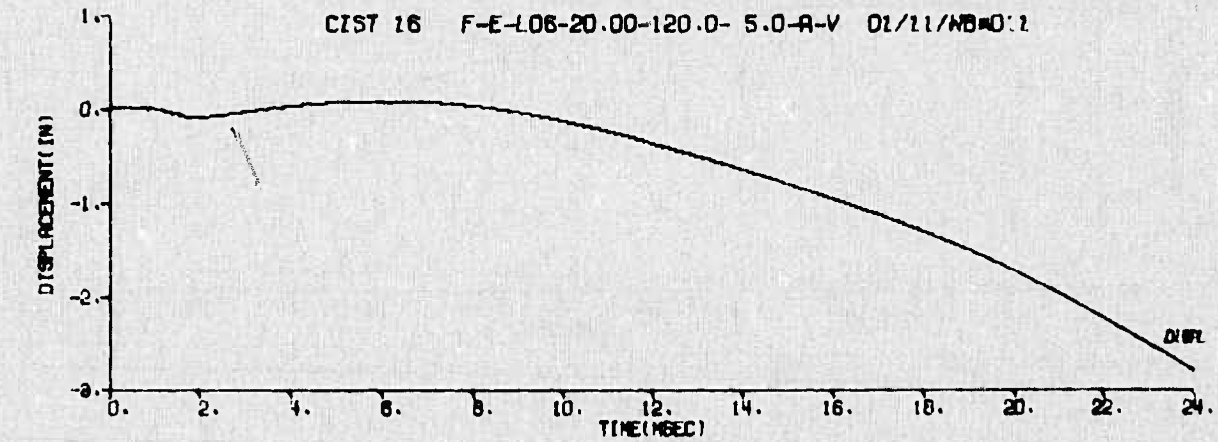
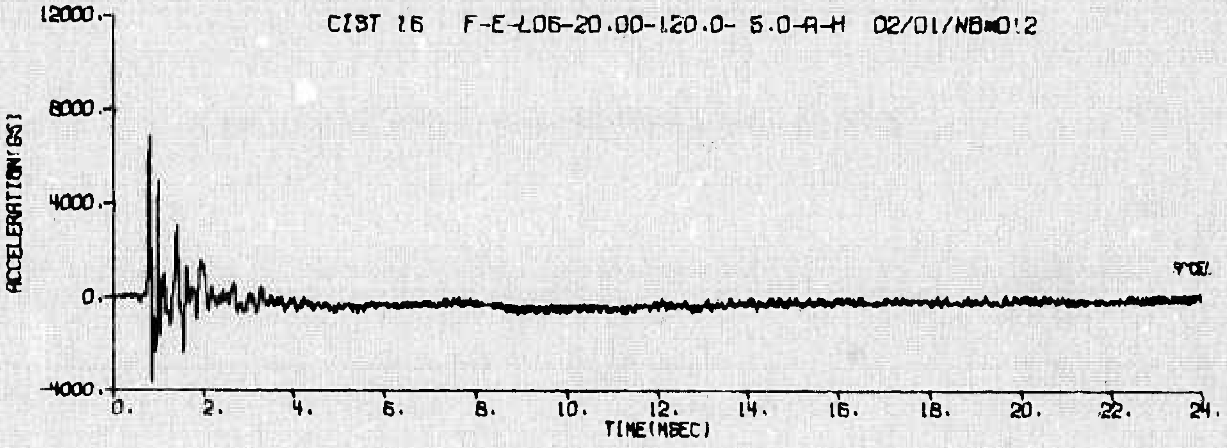
60.
40.
20.
0.
VELOC
0. 2. 4. 6. 8. 10. 12. 14. 16. 18. 20. 22. 24.
TIME(MSEC)

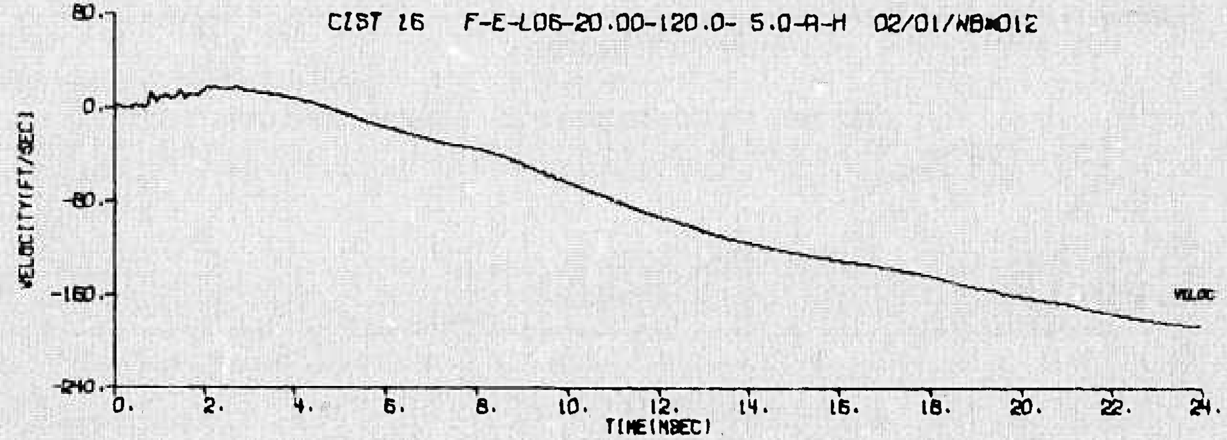

CIST 16 F-E-L03- 5.00- 30.0- 5.0-A-H 01/10/NB=010
DISPLACEMENT(IN)
16.
12.
8.
4.
0.
DISPL
0. 2. 4. 6. 8. 10. 12. 14. 16. 18. 20. 22. 24.
TIME(MSEC)

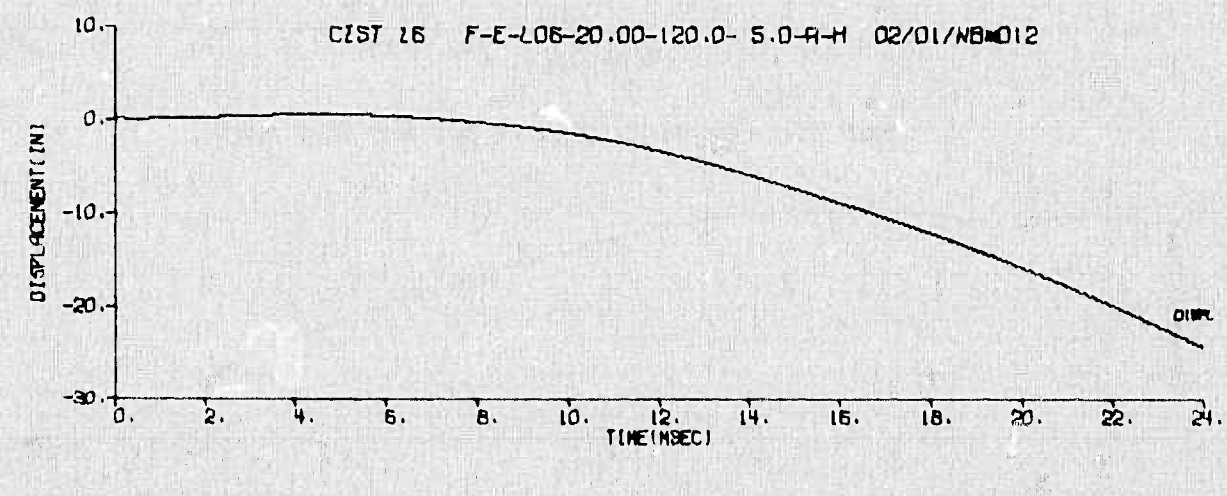

CIST 16 F-E-L06-20.00-120.0- 5.0-A-V 01/11/NB=011
8000.
4000.
0.
-4000.
-8000.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

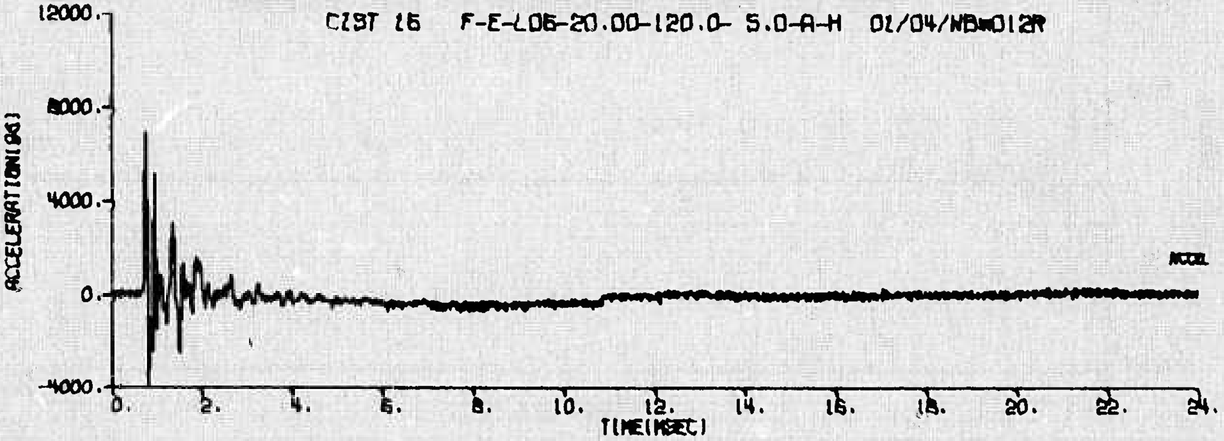

CIST 16 F-E-L06-20.00-120.0- 5.0-A-V 01/11/NB=011
10.
0.
-10.
-20.
-30.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

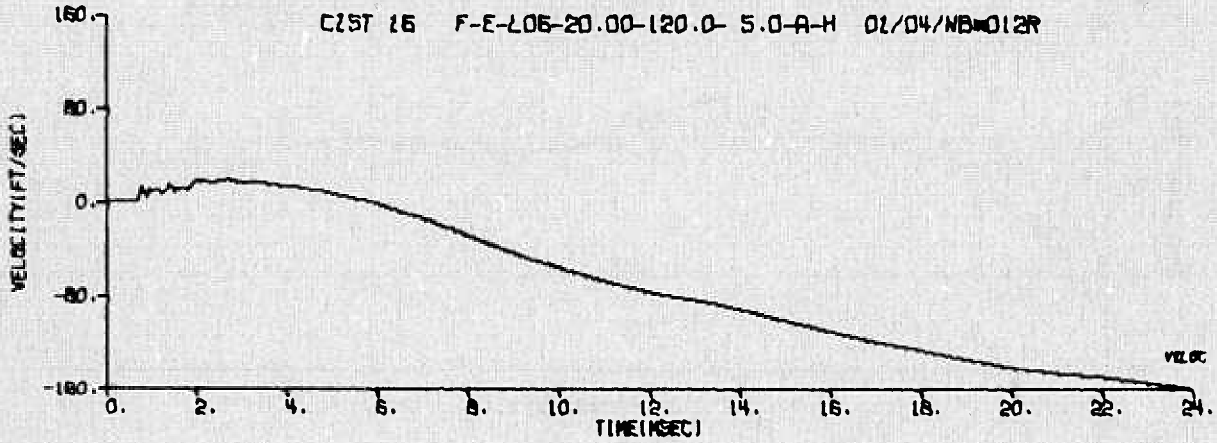

CIST 16 F-E-L06-20.00-120.0- 5.0-A-V 01/11/NB=011
1.
0.
-1.
-2.
-3.
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

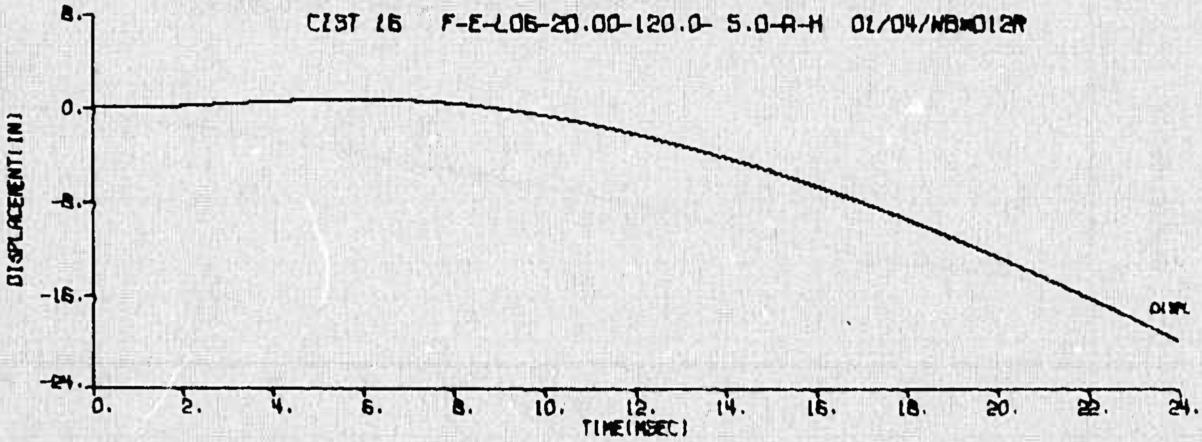

CIST 16 F-E-L06-20.00-120.0- 5.0-A-H 02/01/NB=012
12000.
8000.
4000.
0.
-4000.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

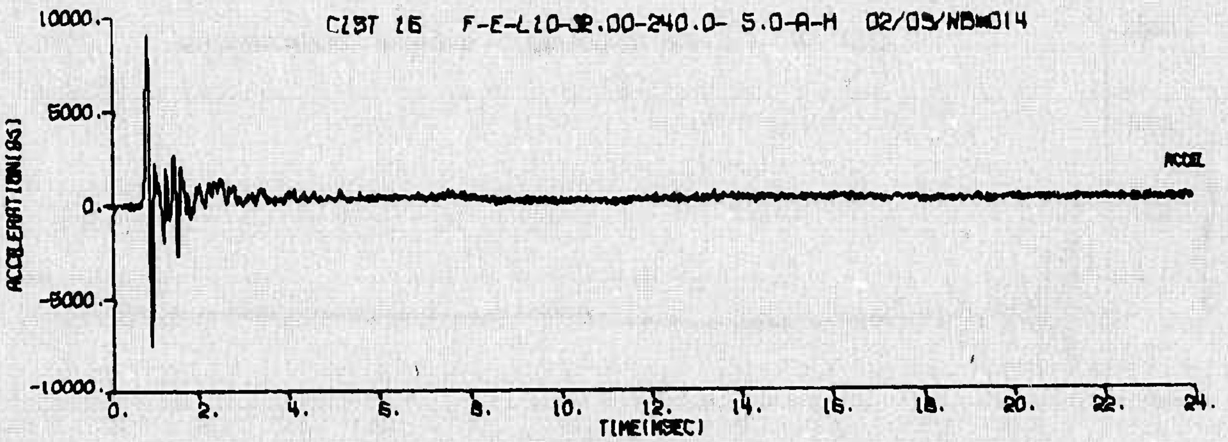

CIST 16 F-E-L06-20.00-120.0- 5.0-A-H 02/01/NB=012
80.
0.
-80.
-160.
-240.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

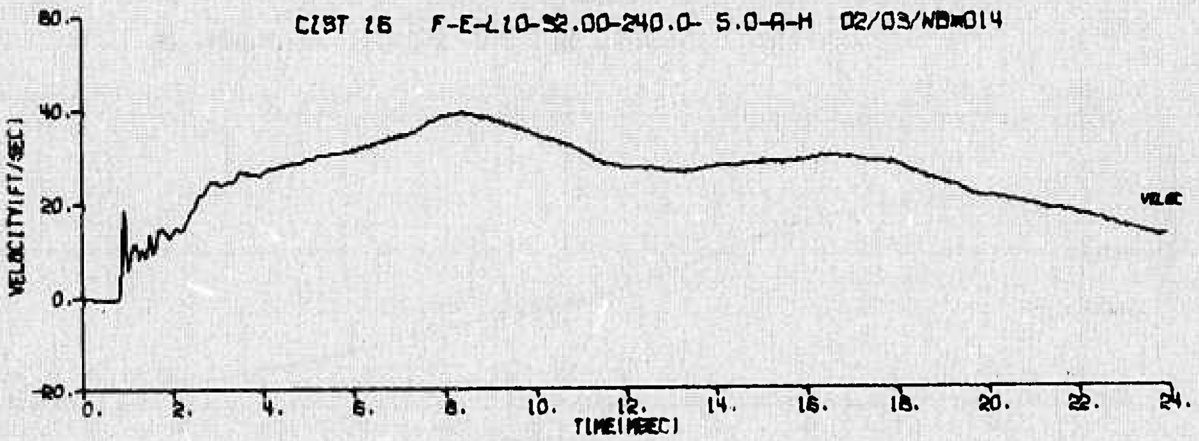

CIST 16 F-E-L06-20.00-120.0- 5.0-A-H 02/01/NB=012
10.
0.
-10.
-20.
-30.
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

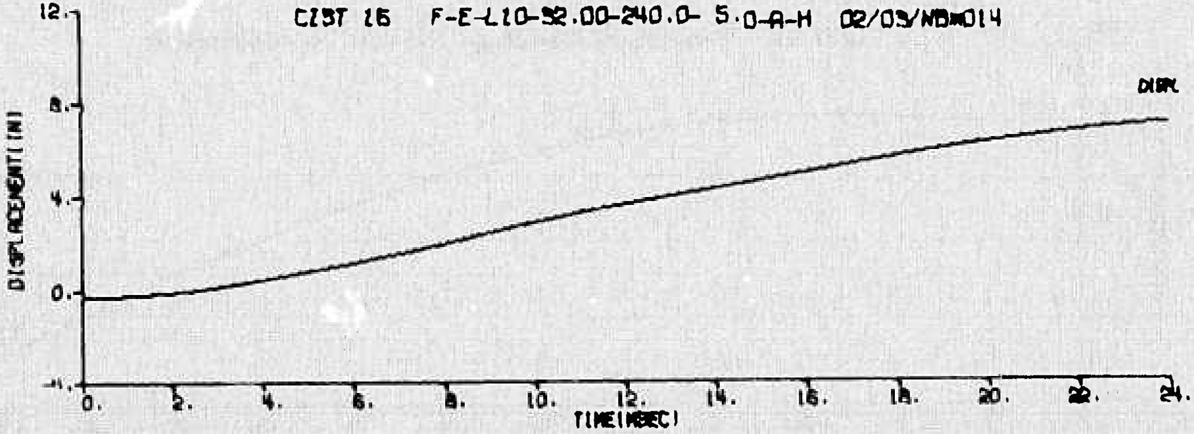

CZST 16 F-E-L06-20.00-120.0- 5.0-A-H 01/04/NB=012R
ACCELERATION(GS)
12000.
8000.
4000.
0.
-4000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

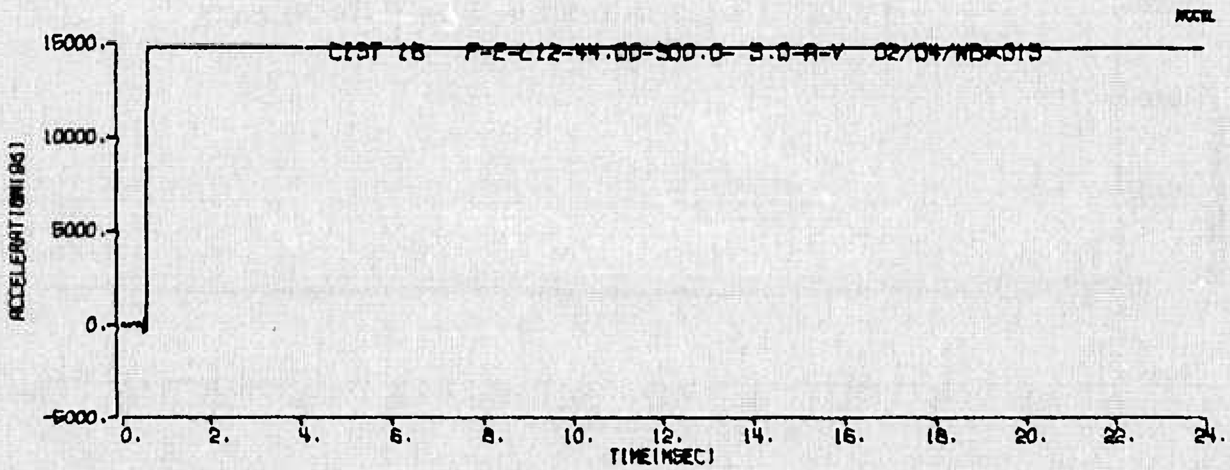

CZST 16 F-E-L06-20.00-120.0- 5.0-A-H 01/04/NB=012R
VELOCITY(FT/SEC)
160.
80.
0.
-80.
-160.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CZST 16 F-E-L06-20.00-120.0- 5.0-A-H 01/04/NB=012R
DISPLACEMENT(IN)
8.
0.
-8.
-16.
-24.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L10-32.00-240.0- 5.0-A-H 02/03/NB=014
ACCELERATION(GS)
10000.
5000.
0.
-5000.
-10000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L10-32.00-240.0- 5.0-A-H 02/03/NB=014
VELOCITY(FT/SEC)
60.
40.
20.
0.
-20.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L10-32.00-240.0- 5.0-A-H 02/03/NB=014
DISPLACEMENT(IN)
12.
8.
4.
0.
-4.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


ACCEL
CIST 16 F-E-L12-44.00-300.0- 5.0-A-V 02/04/NB=015
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10000.
5000.
0.
-5000.
ACCELERATION(GRAVS)
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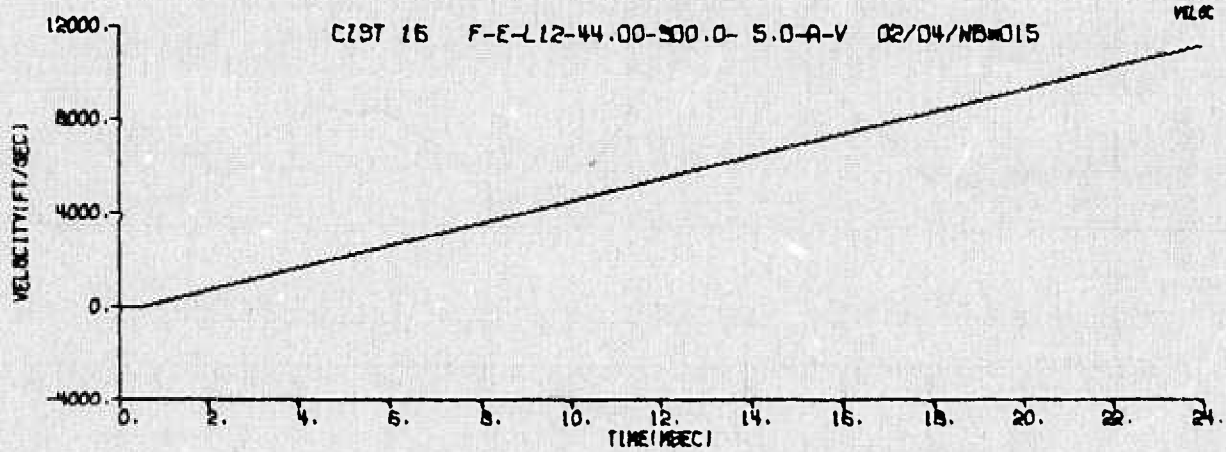
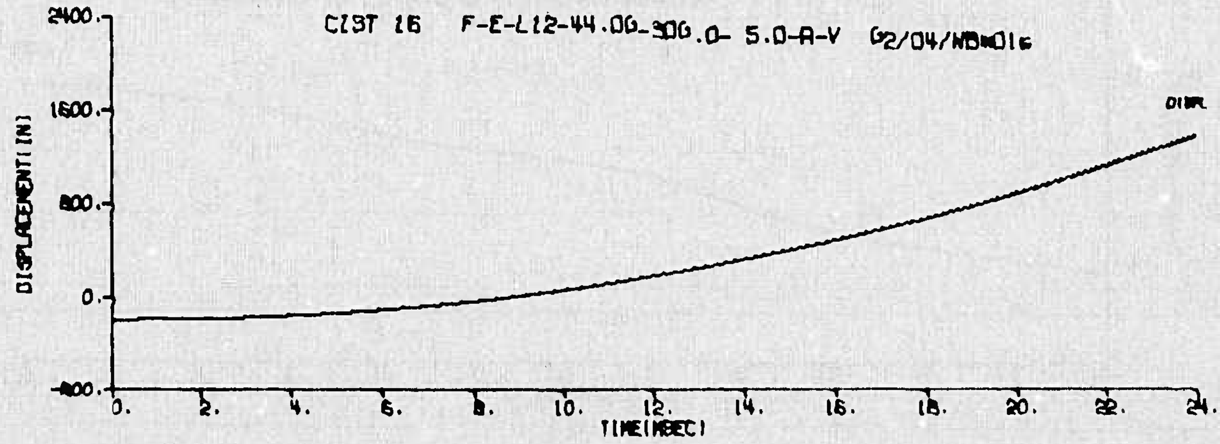
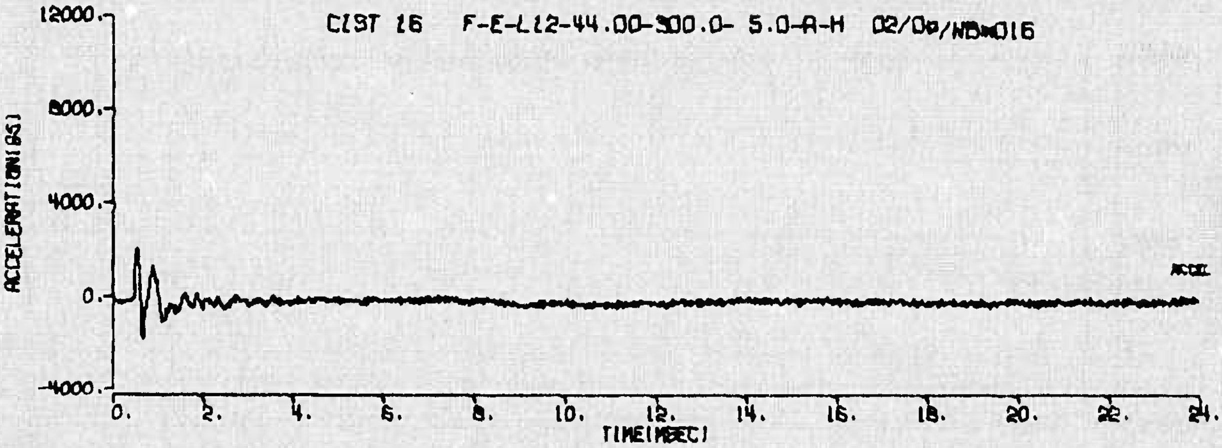
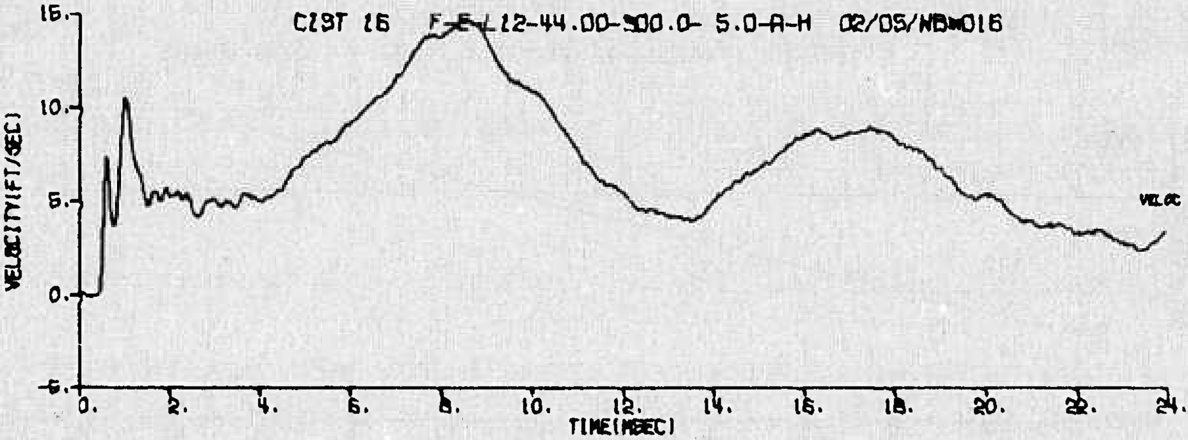
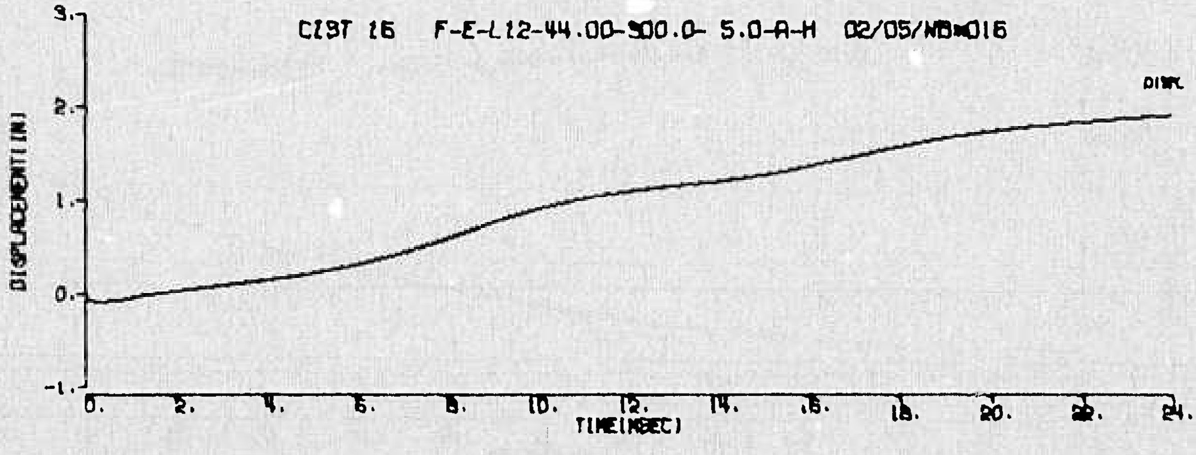
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

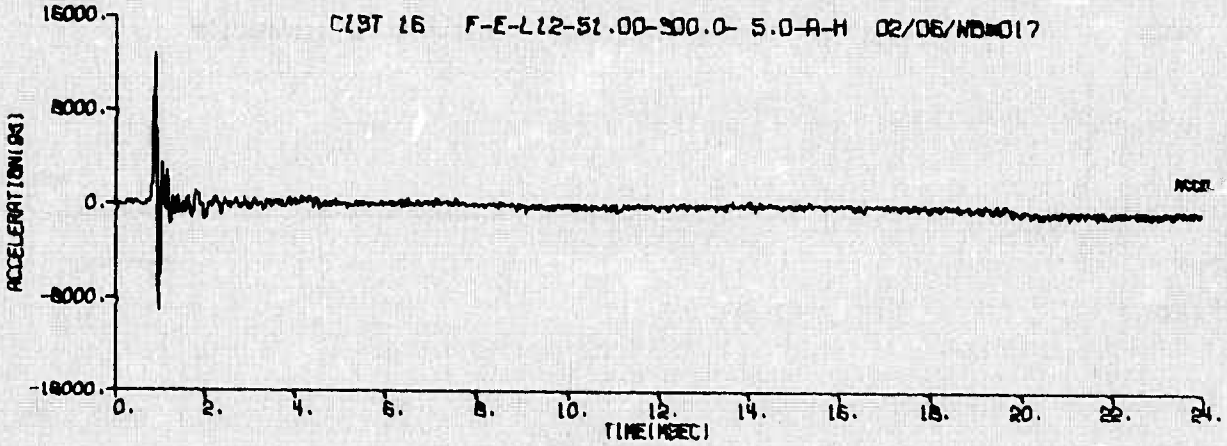

VELOC
CIST 16 F-E-L12-44.00-300.0- 5.0-A-V 02/04/NB=015
12000.
8000.
4000.
0.
-4000.
VELOCITY(FT/SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L12-44.00-300.0- 5.0-A-V 02/04/NB=016
DISPL
2400.
1600.
800.
0.
-800.
DISPLACEMENT(IN)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L12-44.00-300.0- 5.0-A-H 02/05/NB=016
ACCELERATION(GS)
12000.
8000.
4000.
0.
-4000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L12-44.00-300.0- 5.0-A-H 02/05/NB=016
VELOCITY(FT/SEC)
15.
10.
5.
0.
-5.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L12-44.00-300.0- 5.0-A-H 02/05/NB=016
DISPLACEMENT(IN)
3.
2.
1.
0.
-1.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L12-51.00-300.0- 5.0-A-H 02/06/NB=017
16000.
8000.
0.
-8000.
-16000.
ACCELERATION(G)
ACCEL
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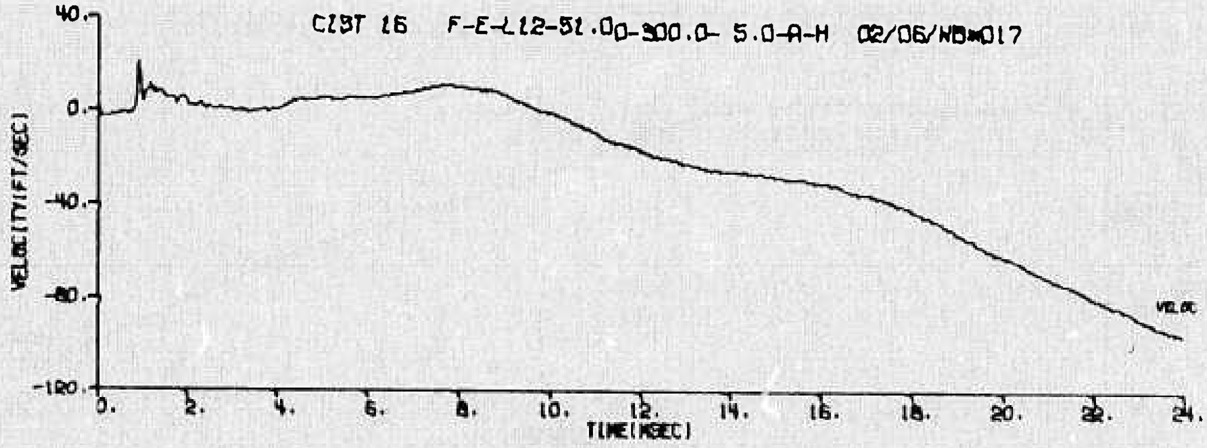
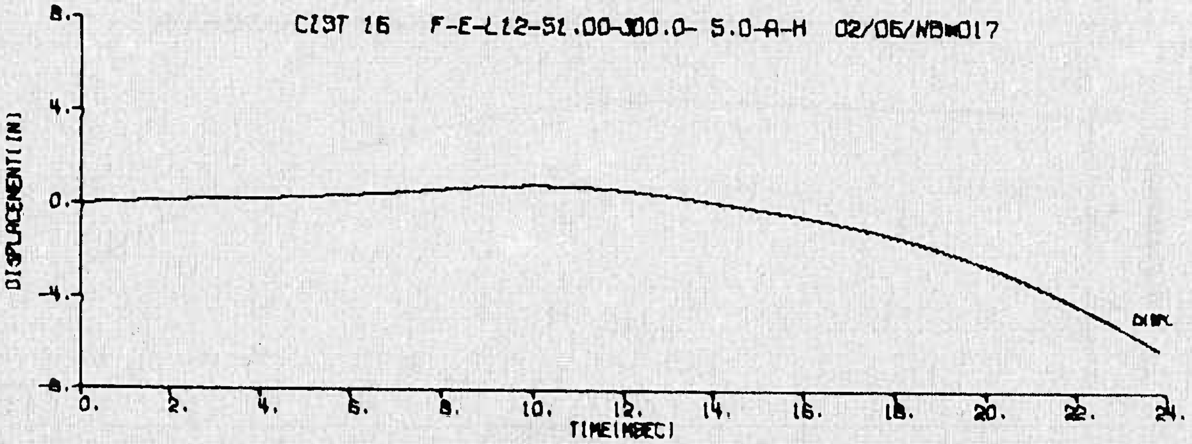
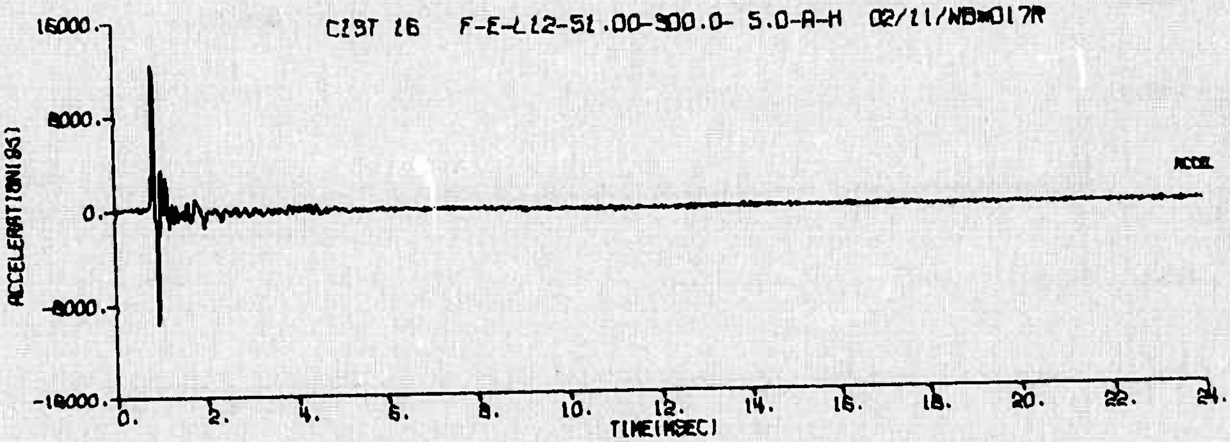
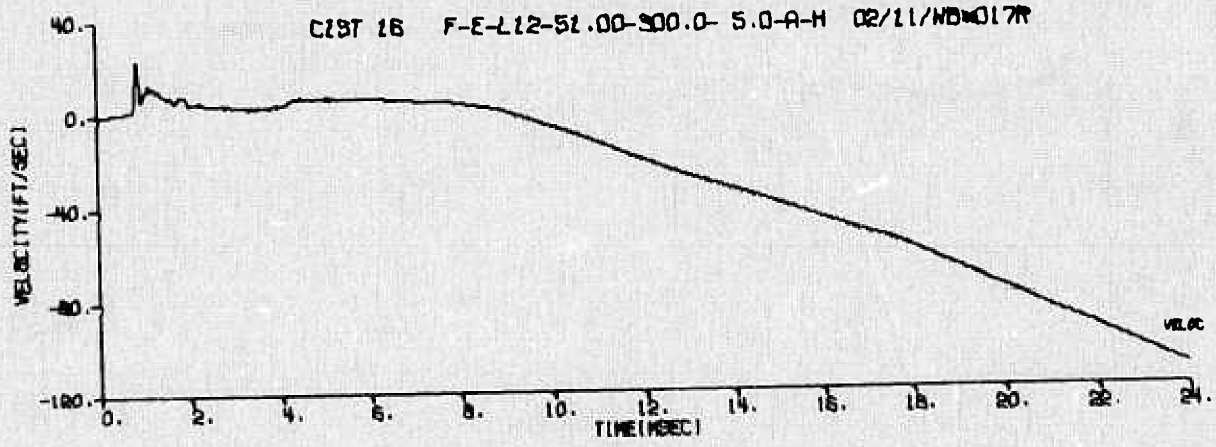
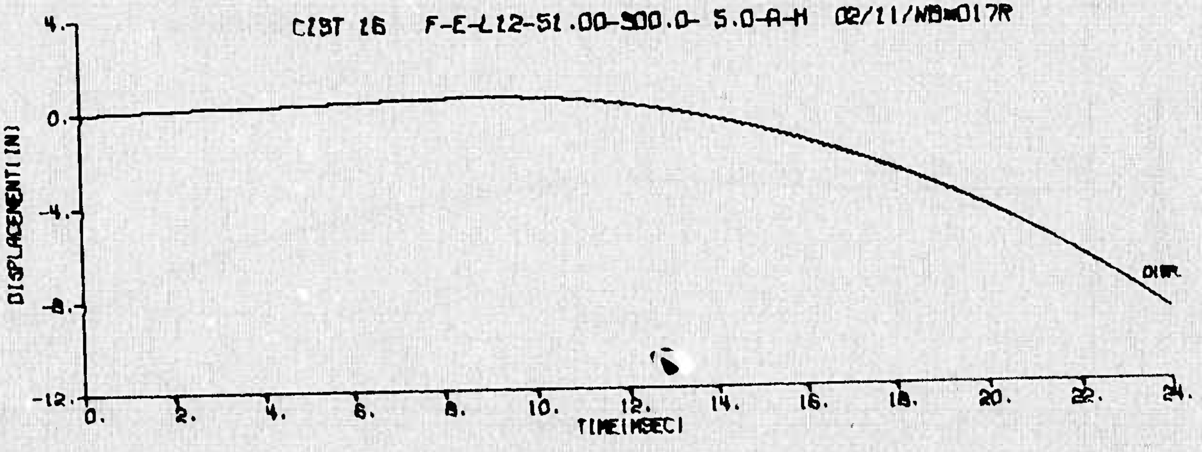
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

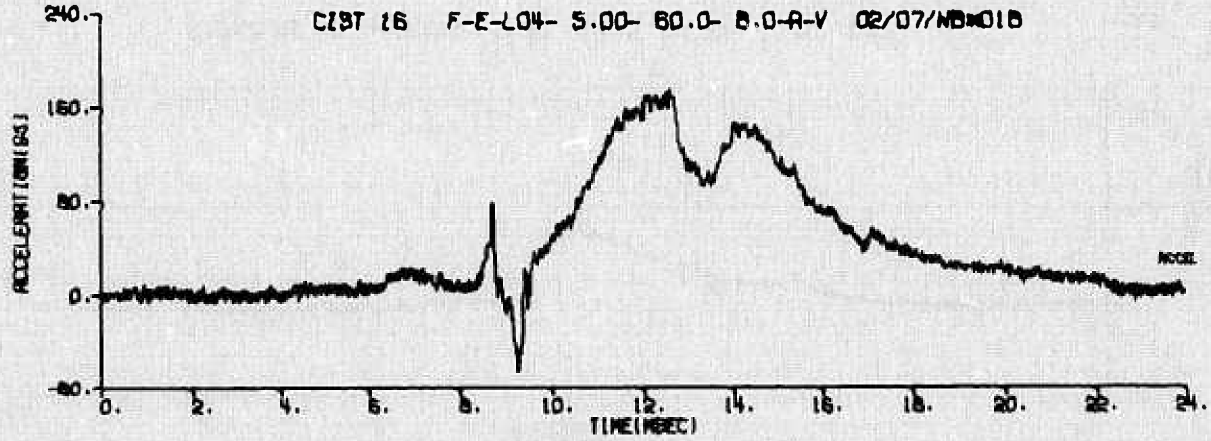

CIST 16 F-E-L12-51.00-300.0- 5.0-A-H 02/06/NB=017
40.
0.
-40.
-80.
-120.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

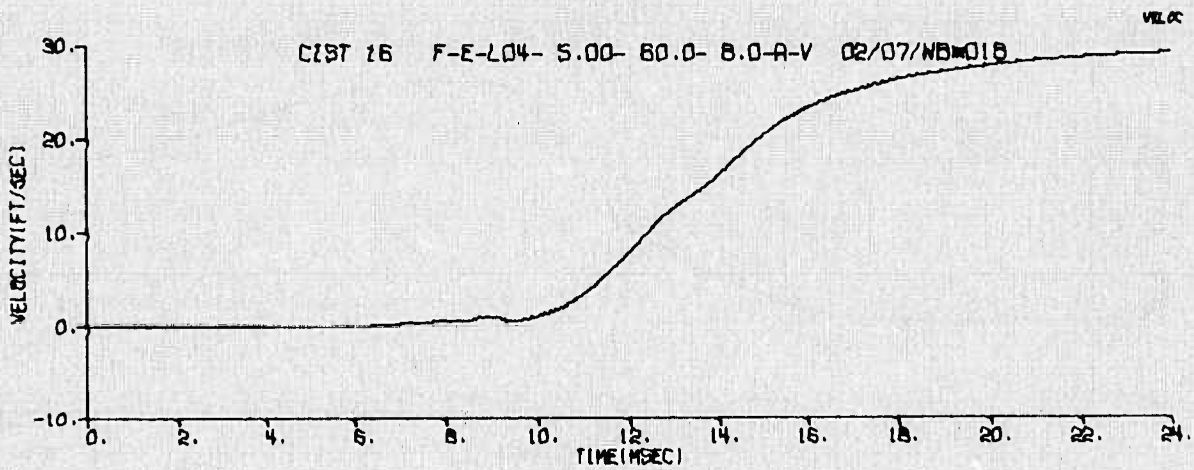

CIST 16 F-E-L12-51.00-300.0- 5.0-A-H 02/06/NB=017
8.
4.
0.
-4.
-8.
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

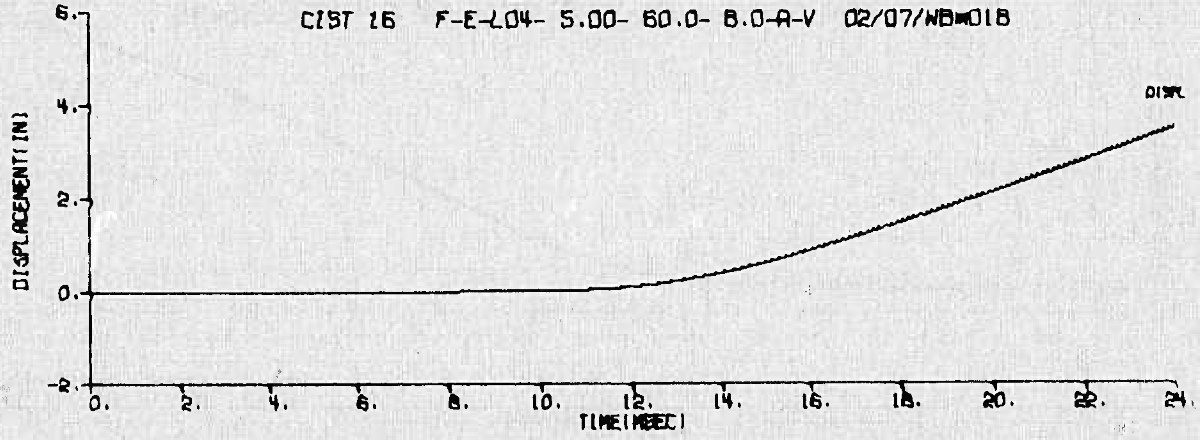

CIST 16 F-E-L12-51.00-300.0- 5.0-A-H 02/11/NB=017R
ACCELERATION(GS)
16000.
8000.
0.
-8000.
-16000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

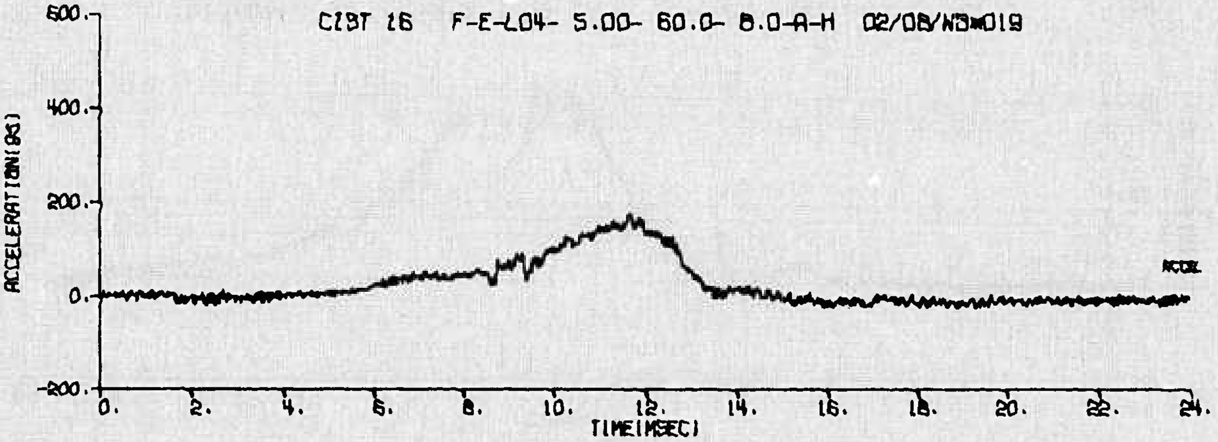

CIST 16 F-E-L12-51.00-300.0- 5.0-A-H 02/11/NB=017R
VELOCITY(FT/SEC)
40.
0.
-40.
-80.
-120.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

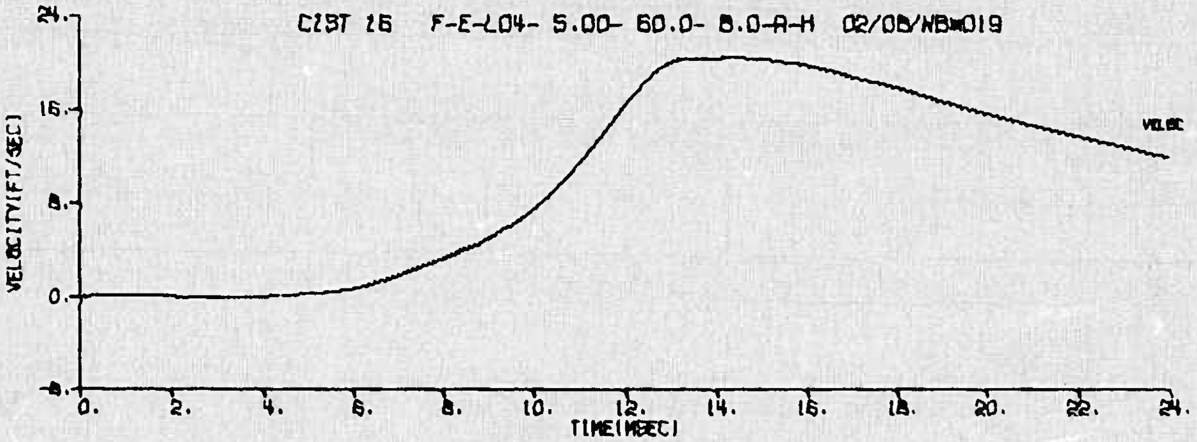

CIST 16 F-E-L12-51.00-300.0- 5.0-A-H 02/11/NB=017R
DISPLACEMENT(IN)
4.
0.
-4.
-8.
-12.
DISP.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

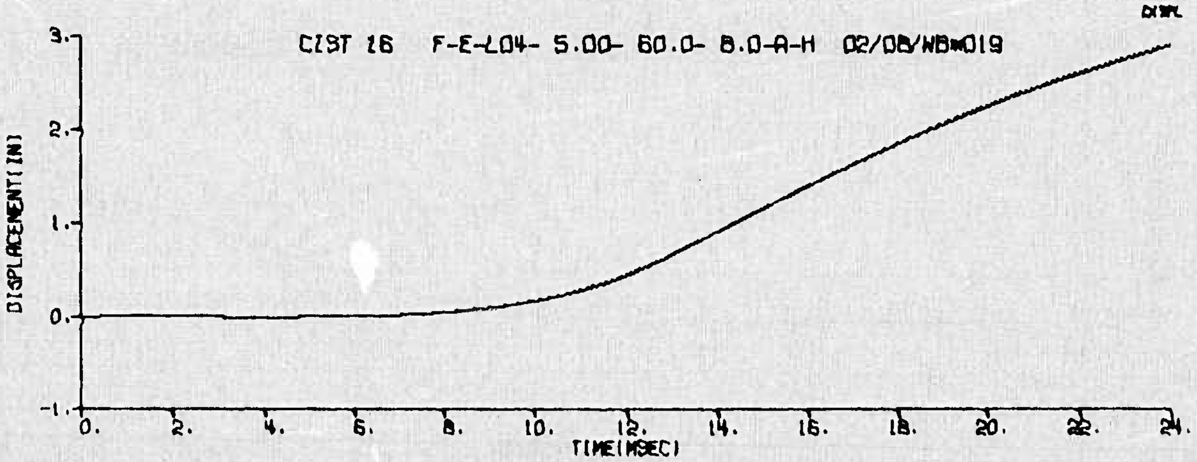

CIST 16 F-E-L04- 5.00- 60.0- 8.0-A-V 02/07/NB=018
ACCELERATION(GS)
240.
160.
80.
0.
-80.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
ACCEL

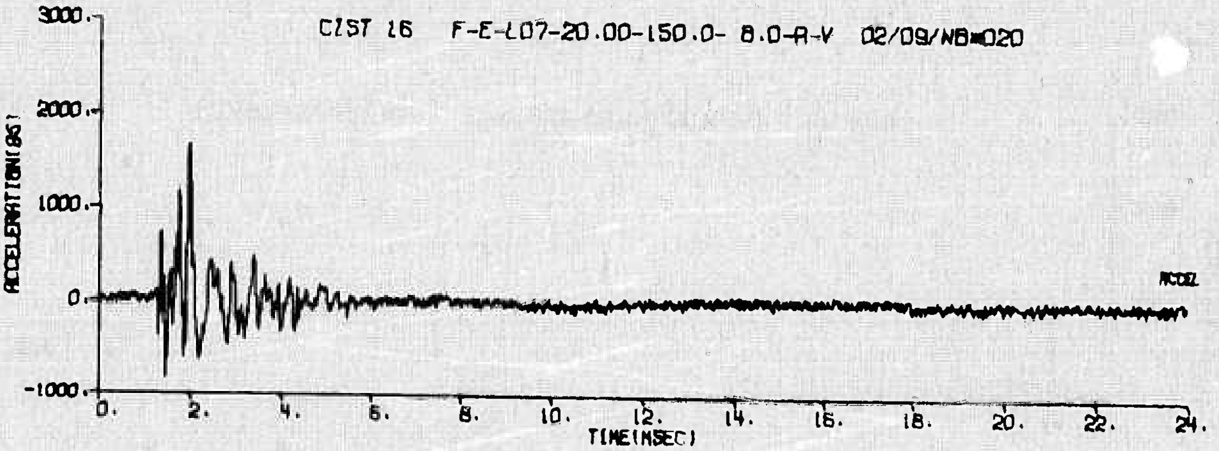

VELOC
CIST 16 F-E-L04- 5.00- 60.0- 8.0-A-V 02/07/NB=018
VELOCITY(FT/SEC)
30.
20.
10.
0.
-10.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

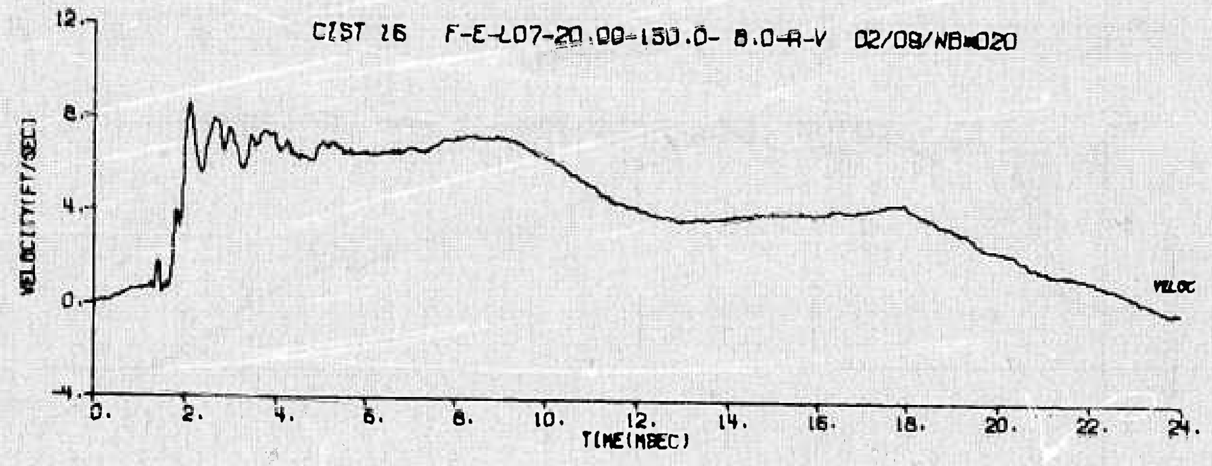

CIST 16 F-E-L04- 5.00- 60.0- 8.0-A-V 02/07/NB=018
DISPLACEMENT(IN)
6.
4.
2.
0.
-2.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
DISPL

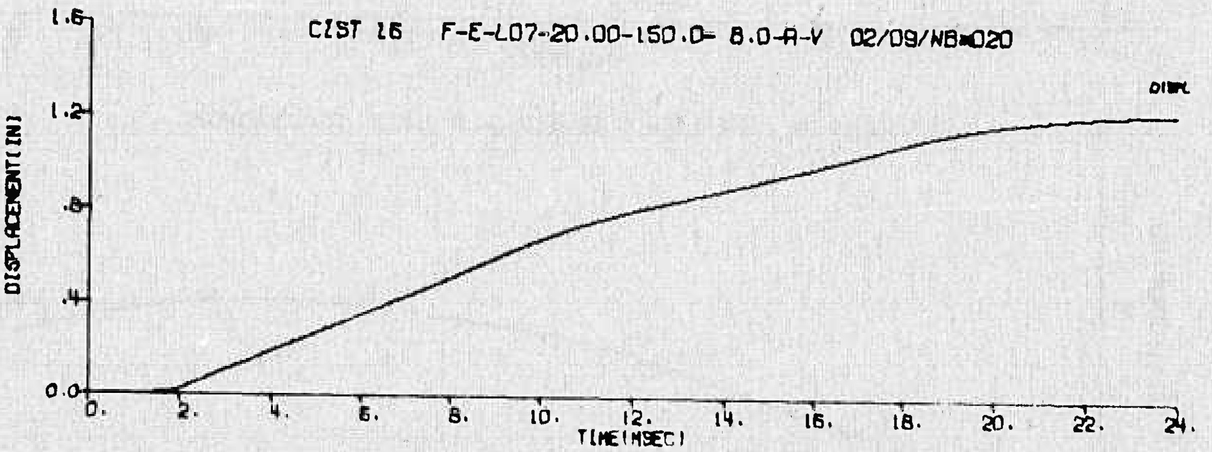

CIST 16 F-E-L04- 5.00- 60.0- 8.0-A-H 02/08/NB*019
600.
400.
200.
0.
-200.
ACCELERATION(G)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

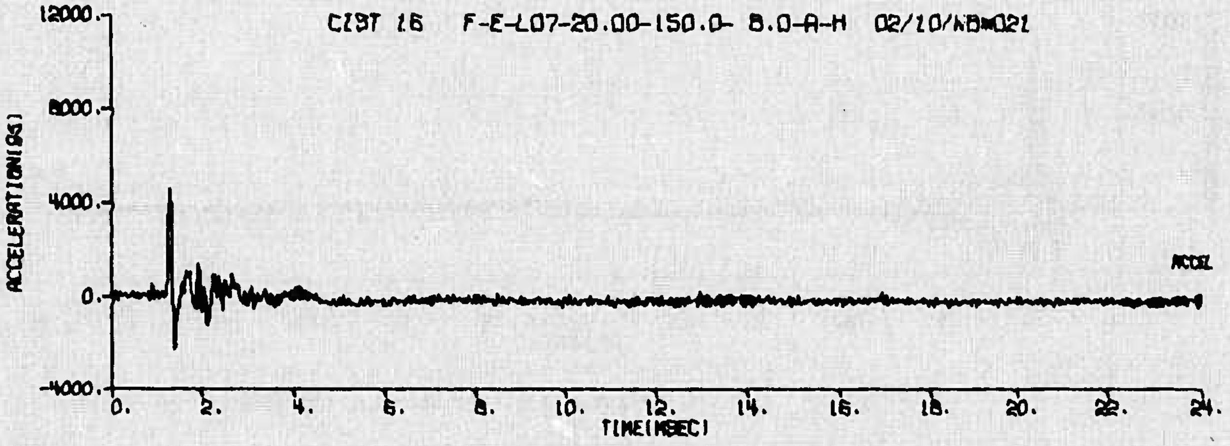

CIST 16 F-E-L04- 5.00- 60.0- 8.0-A-H 02/08/NB*019
24.
16.
8.
0.
-8.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

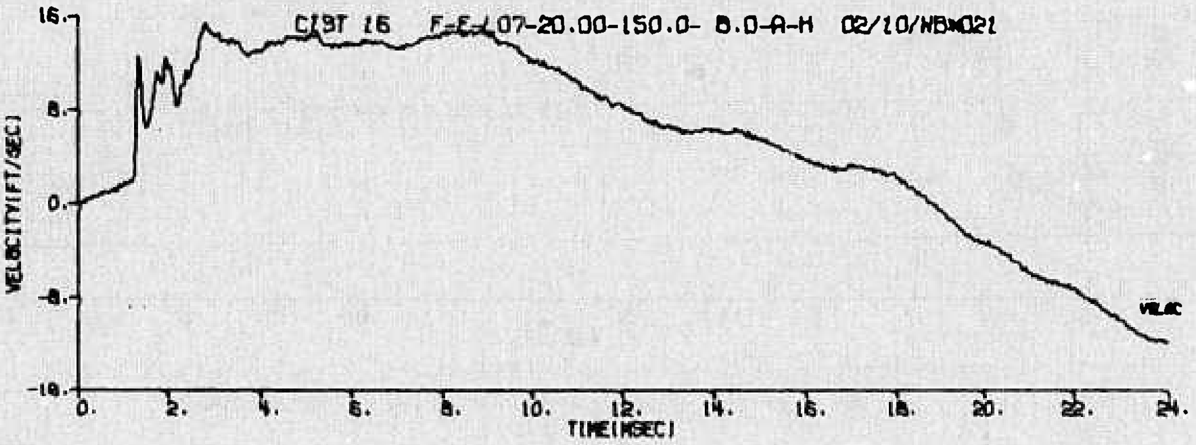

DISPL
CIST 16 F-E-L04- 5.00- 60.0- 8.0-A-H 02/08/NB*019
3.
2.
1.
0.
-1.
DISPLACEMENT(IN)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

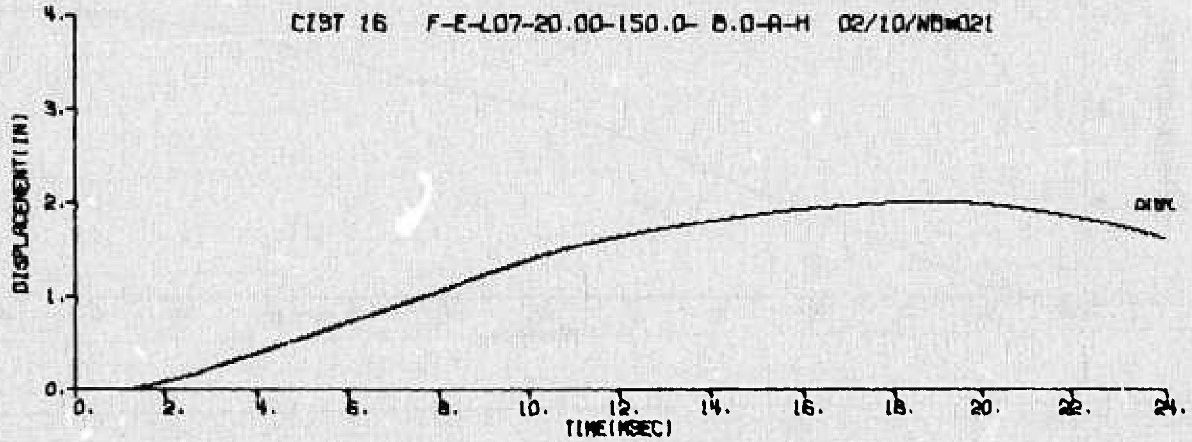

CIST 16 F-E-L07-20.00-150.0- 8.0-A-V 02/09/NB=020
ACCELERATION(GS)
3000.
2000.
1000.
0.
-1000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

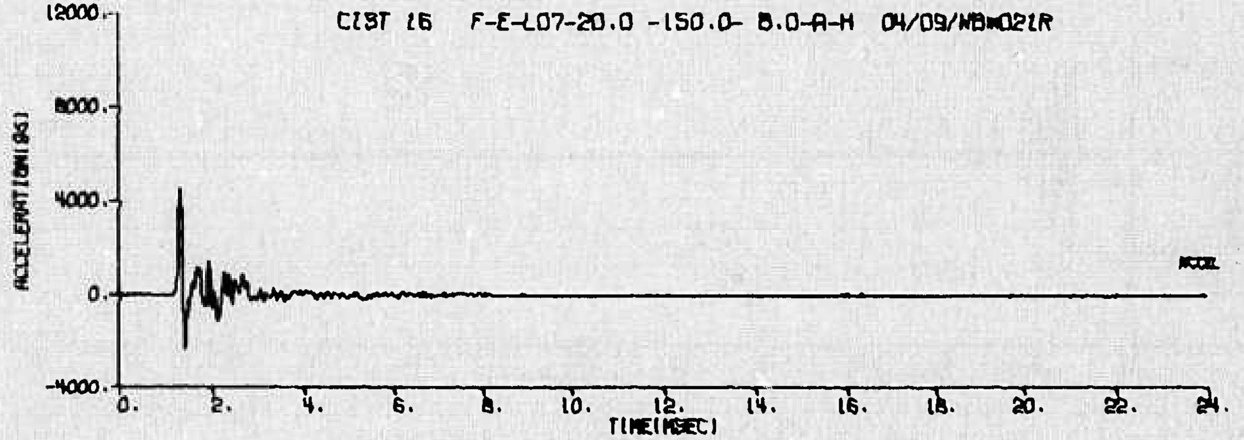

CIST 16 F-E-L07-20.00-150.0- 8.0-A-V 02/09/NB=020
VELOCITY(FT/SEC)
12.
8.
4.
0.
-4.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

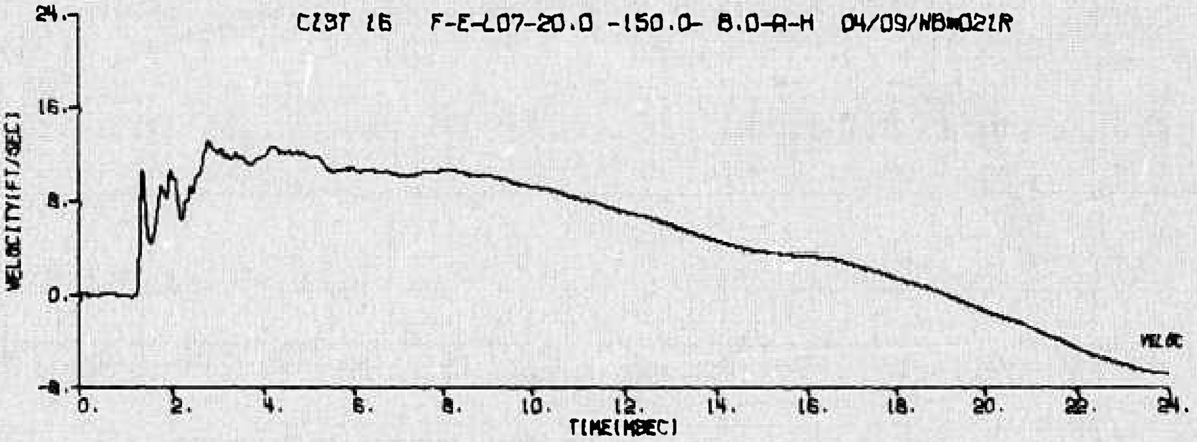

CIST 16 F-E-L07-20.00-150.0- 8.0-A-V 02/09/NB=020
DISPLACEMENT(IN)
1.6
1.2
.8
.4
0.0
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

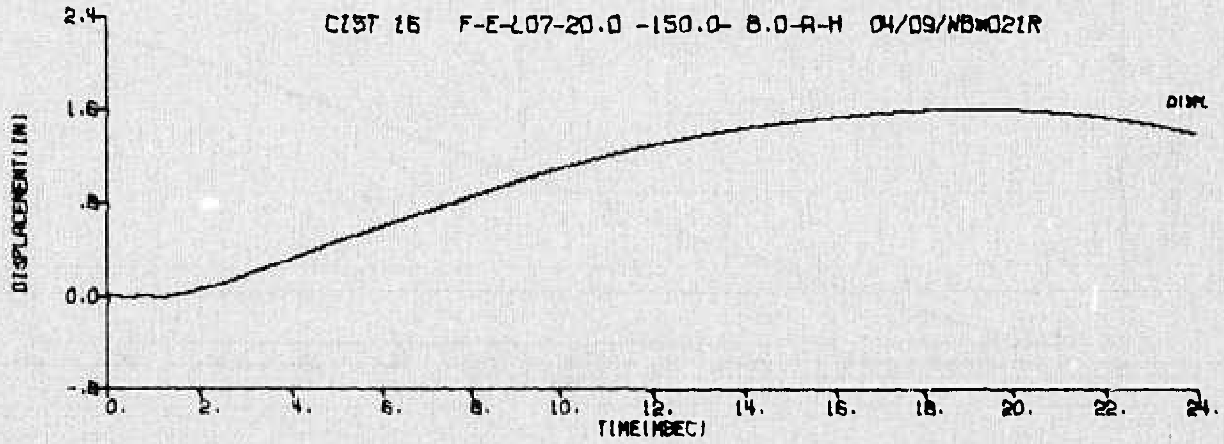

CIST 16 F-E-L07-20.00-150.0- 8.0-A-H 02/10/NB*021
ACCELERATION(G'S)
12000.
8000.
4000.
0.
-4000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

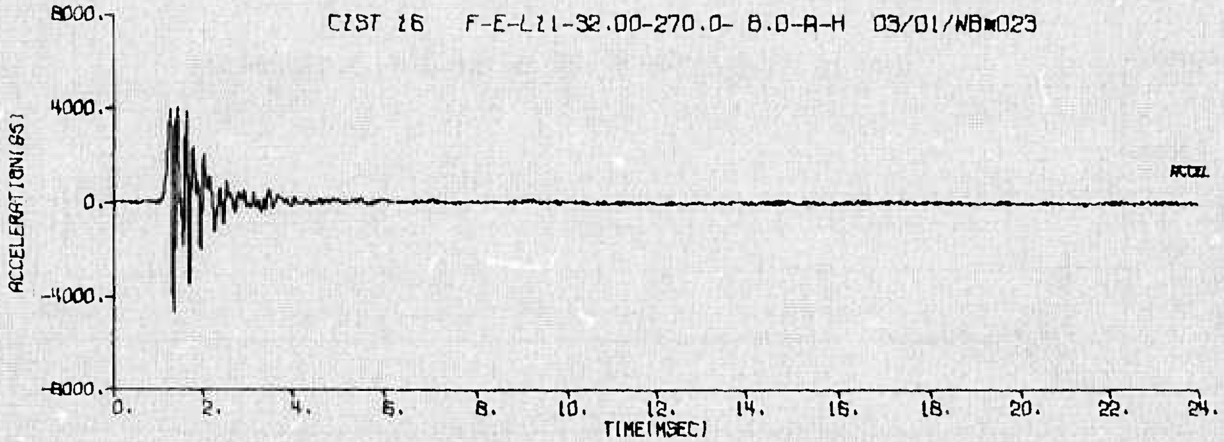

CIST 16 F-E-L07-20.00-150.0- 8.0-A-H 02/10/NB*021
VELOCITY(FT/SEC)
16.
8.
0.
-8.
-16.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

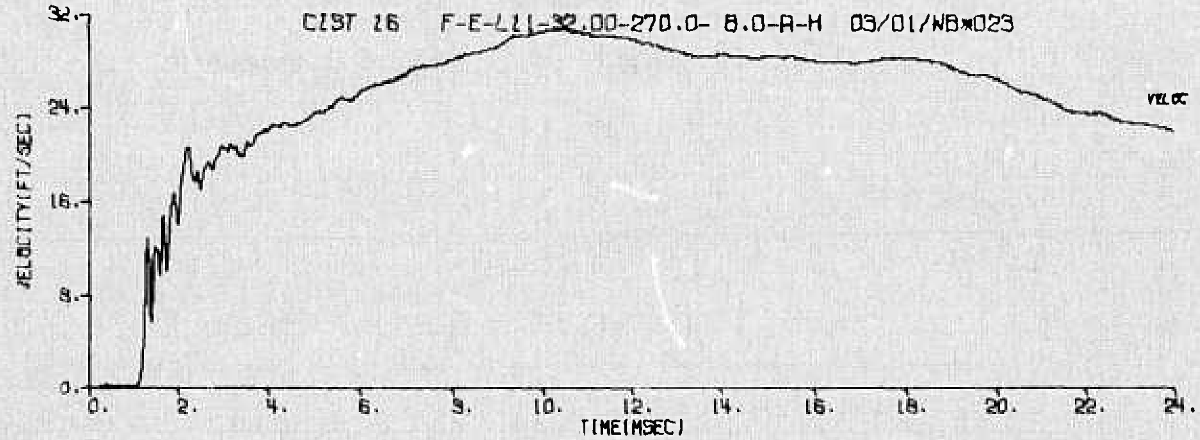

CIST 16 F-E-L07-20.00-150.0- 8.0-A-H 02/10/NB*021
DISPLACEMENT(IN)
4.
3.
2.
1.
0.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

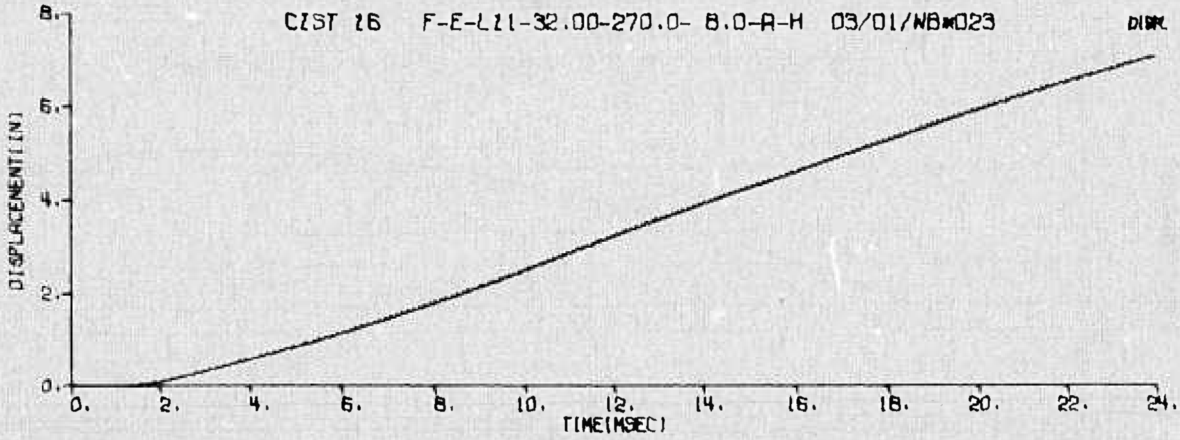

CIST 16 F-E-L07-20.0 -150.0- 8.0-A-H 04/09/NB=021R
12000.
8000.
4000.
0.
-4000.
ACCELERATION(G'S)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

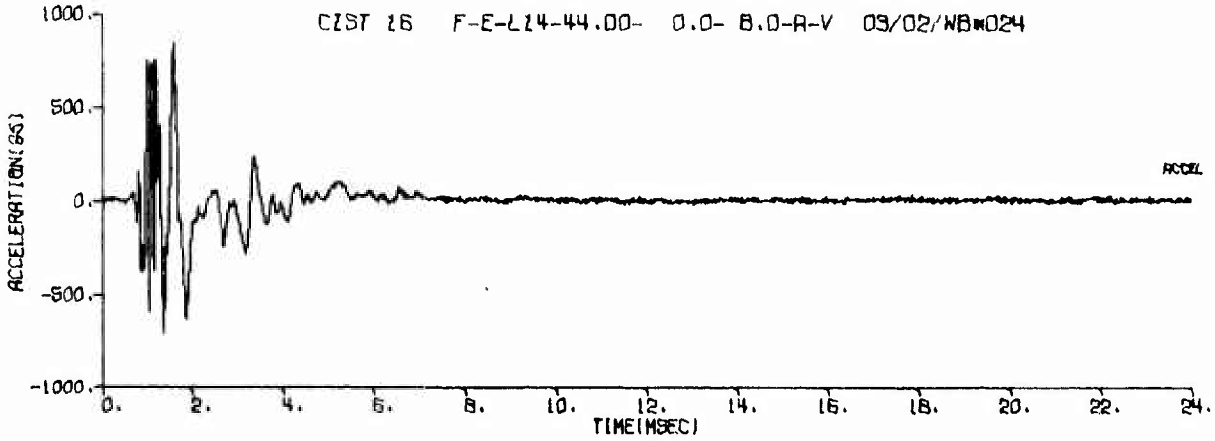

CIST 16 F-E-L07-20.0 -150.0- 8.0-A-H 04/09/NB=021R
24.
16.
8.
0.
-8.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

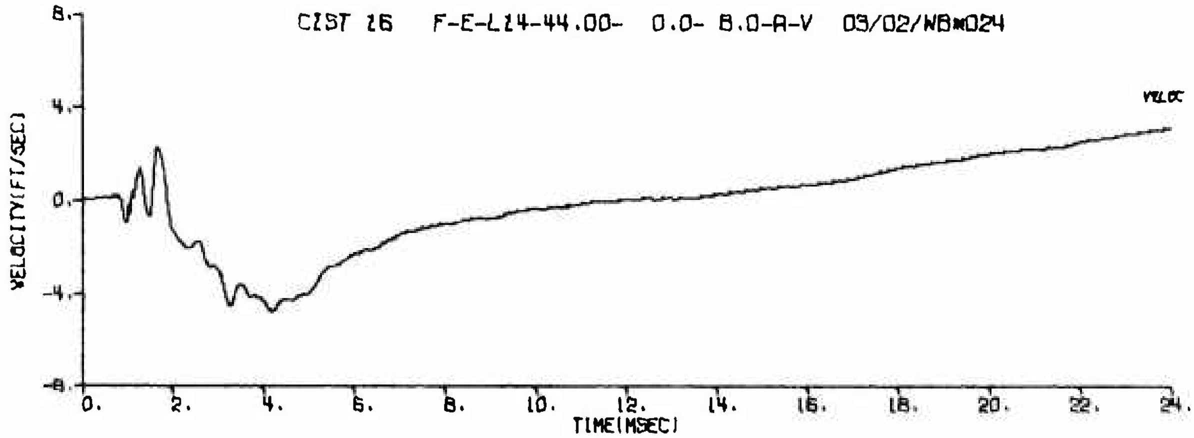

CIST 16 F-E-L07-20.0 -150.0- 8.0-A-H 04/09/NB=021R
2.4
1.6
.8
0.0
-.8
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

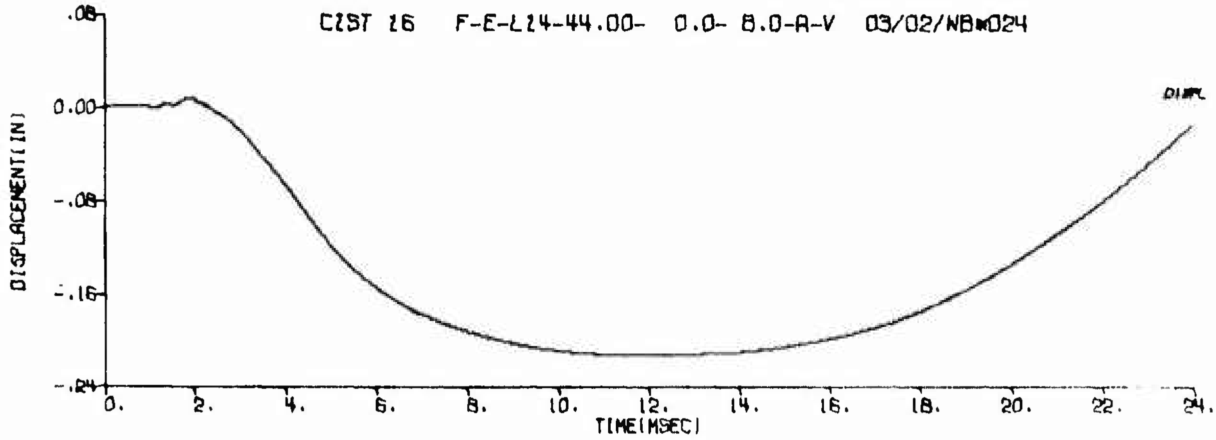

CIST 16 F-E-L11-32.00-270.0- 8.0-A-H 03/01/NB*023
ACCELERATION(GS)
8000.
4000.
0.
-4000.
-8000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

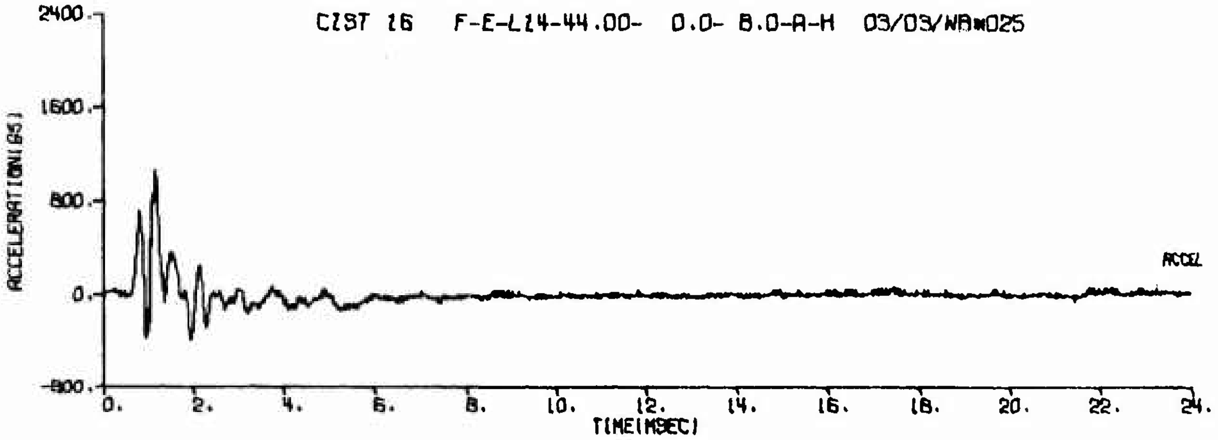

CIST 16 F-E-L11-32.00-270.0- 8.0-A-H 03/01/NB*023
VELOCITY(FT/SEC)
32.
24.
16.
8.
0.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

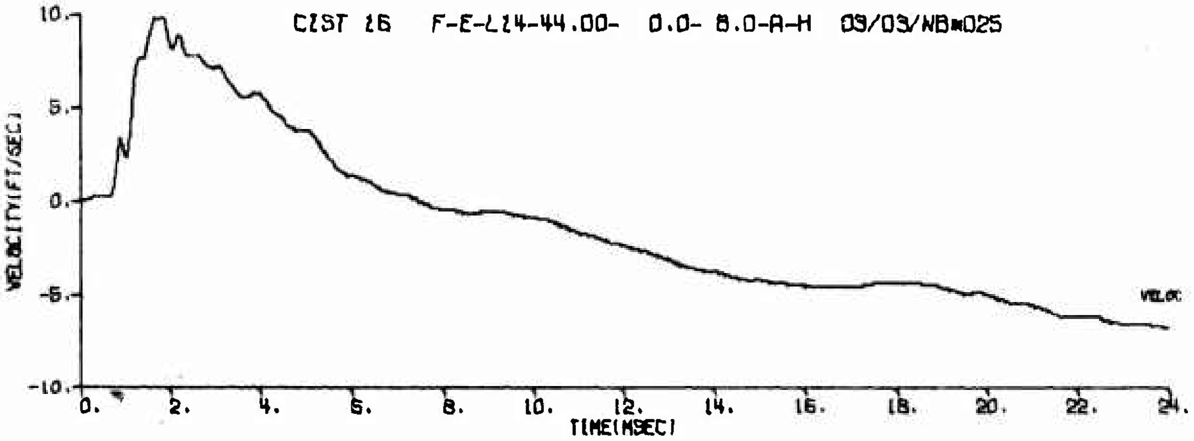

CIST 16 F-E-L11-32.00-270.0- 8.0-A-H 03/01/NB*023
DISPLACEMENT(IN)
8.
6.
4.
2.
0.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

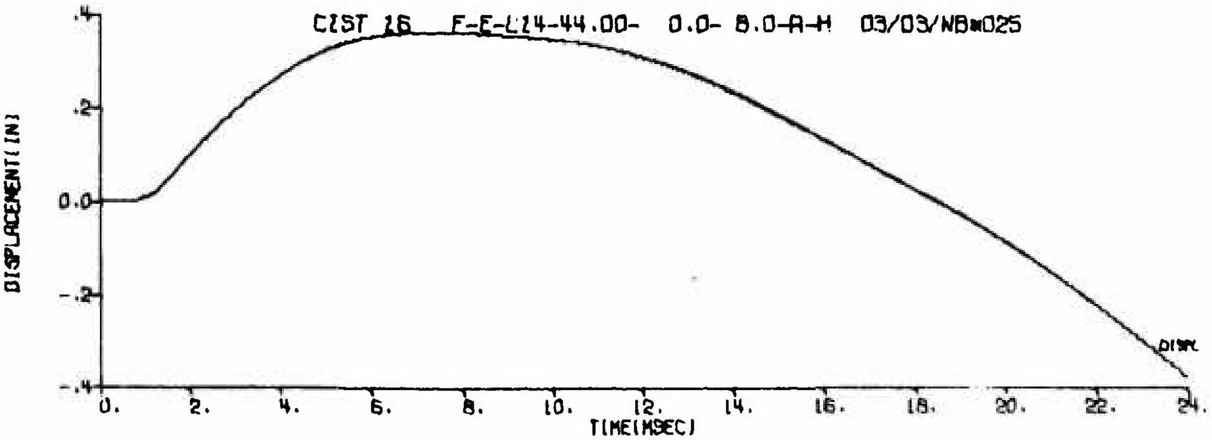

CIST 16 F-E-L14-44.00- 0.0- 8.0-A-V 03/02/WB*024
ACCELERATION(GS)
1000.
500.
0.
-500.
-1000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

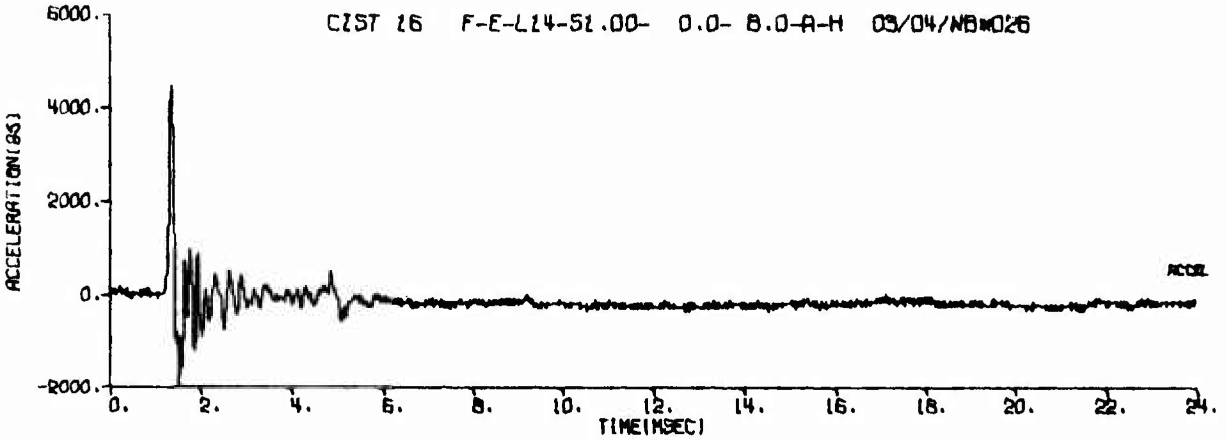

CIST 16 F-E-L14-44.00- 0.0- 8.0-A-V 03/02/WB*024
VELOCITY(FT/SEC)
8.
4.
0.
-4.
-8.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

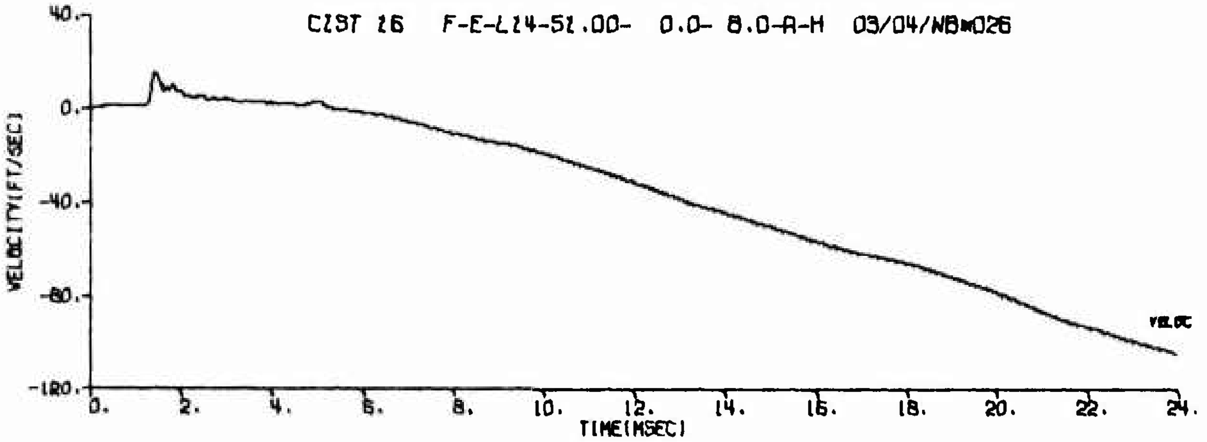

CIST 16 F-E-L14-44.00- 0.0- 8.0-A-V 03/02/WB*024
DISPLACEMENT(IN)
.08
0.00
-.08
-.16
-.24
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

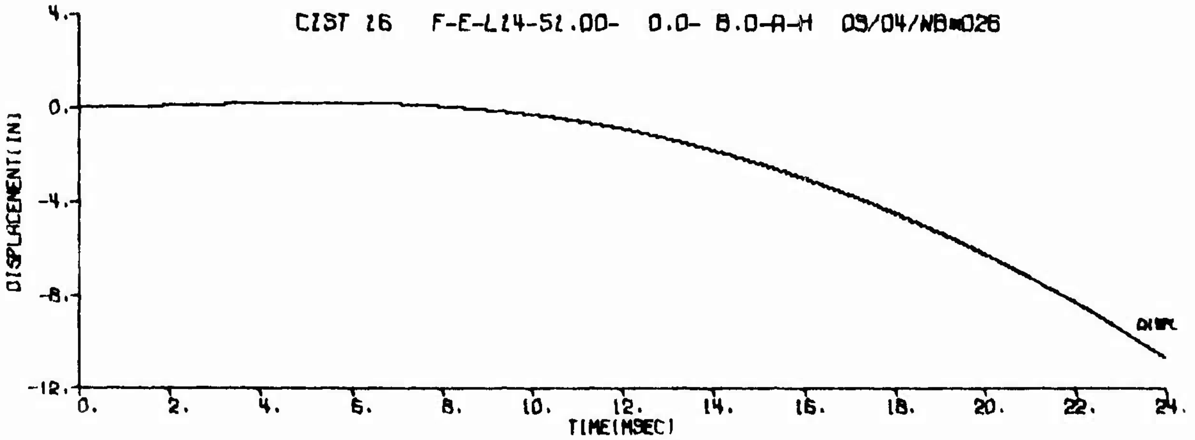

CIST 16 F-E-L14-44.00- 0.0- 8.0-A-H 03/03/NB*025
ACCELERATION(GS)
2400.
1600.
800.
0.
-800.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

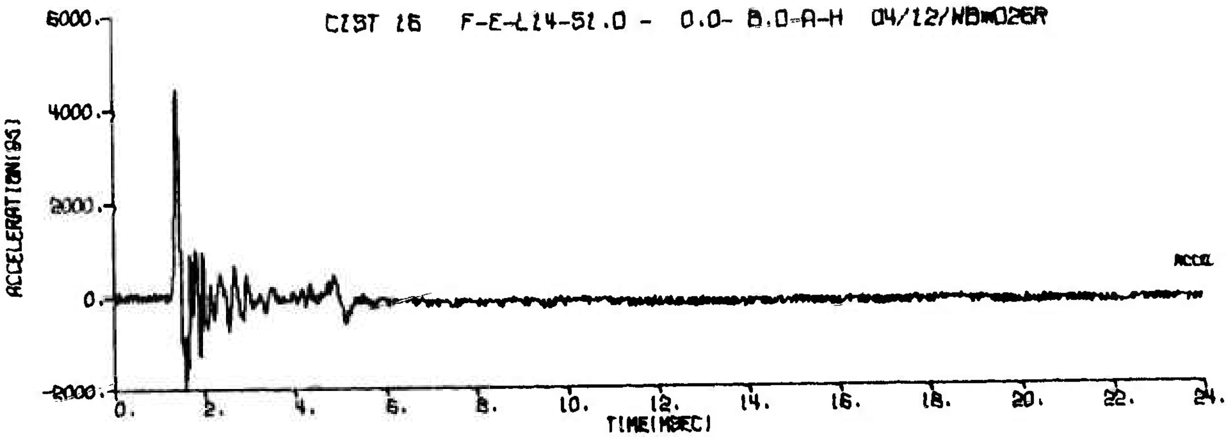

CIST 16 F-E-L14-44.00- 0.0- 8.0-A-H 03/03/NB*025
VELOCITY(FT/SEC)
10.
5.
0.
-5.
-10.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

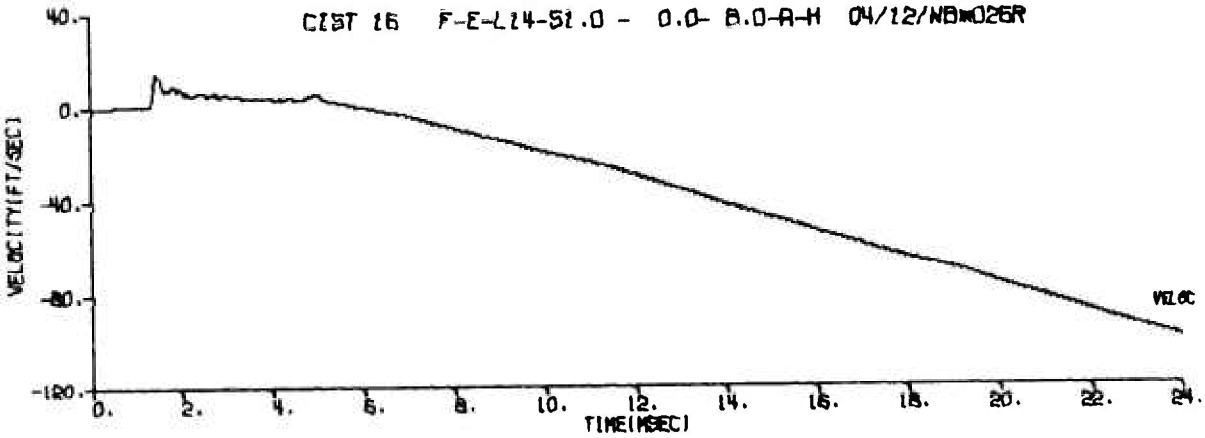

CIST 16 F-E-L14-44.00- 0.0- 8.0-A-H 03/03/NB*025
DISPLACEMENT(IN)
.4
.2
0.0
-.2
-.4
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

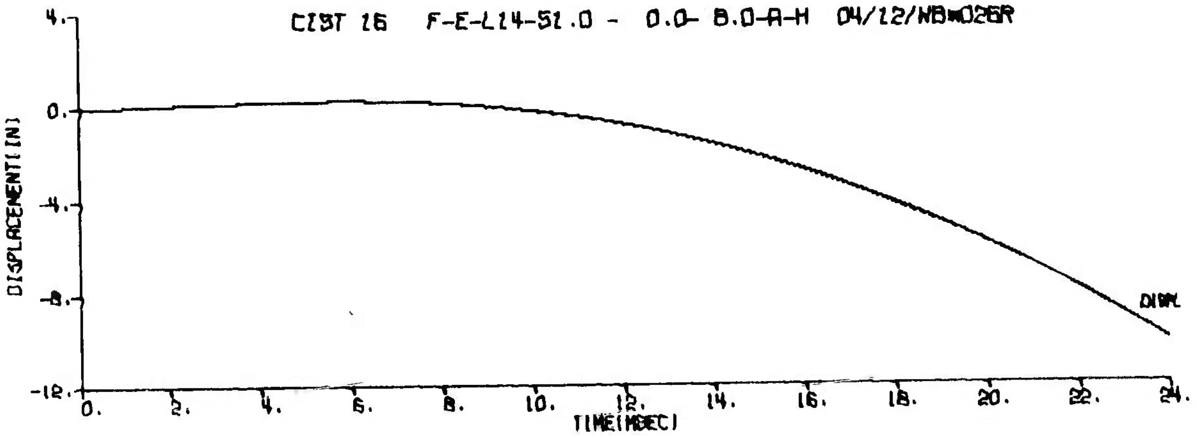

CIST 16 F-E-L14-51.00- 0.0- 8.0-A-H 03/04/NB*026
ACCELERATION(GS)
6000.
4000.
2000.
0.
-2000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

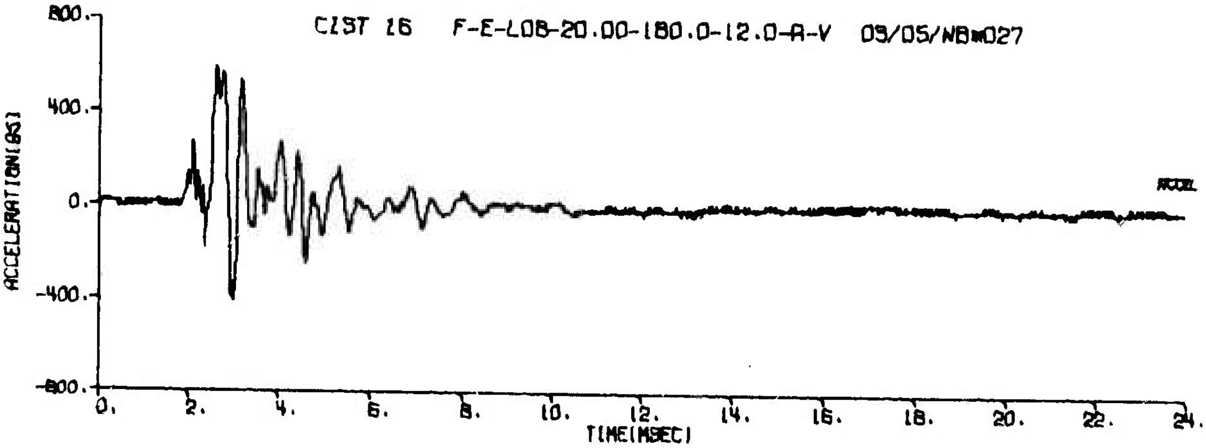

CIST 16 F-E-L14-51.00- 0.0- 8.0-A-H 03/04/NB*026
VELOCITY(FT/SEC)
40.
0.
-40.
-80.
-120.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

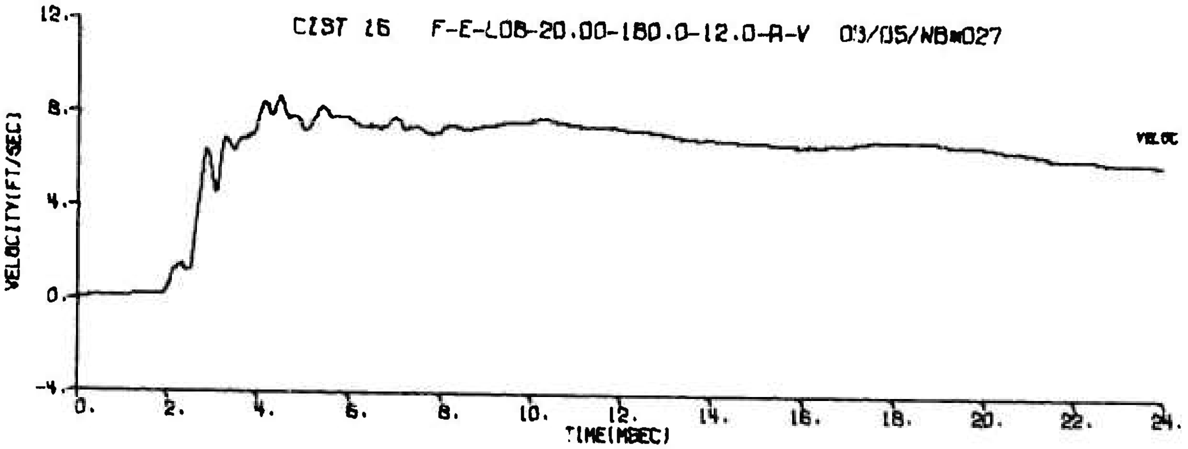

CIST 16 F-E-L14-51.00- 0.0- 8.0-A-H 03/04/NB*026
DISPLACEMENT(IN)
4.
0.
-4.
-8.
-12.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

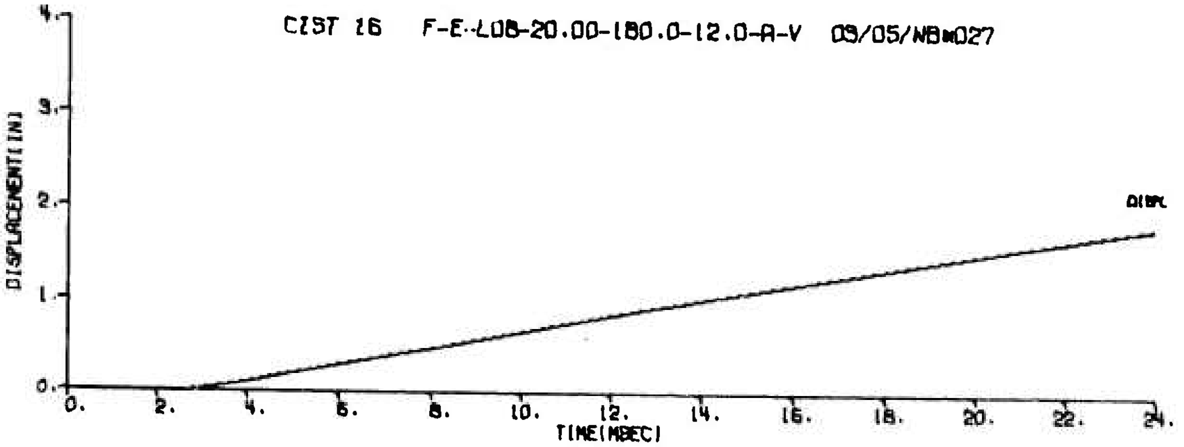

CIST 16 F-E-L14-51.0 - 0.0- 8.0-A-H 04/12/NB=026R

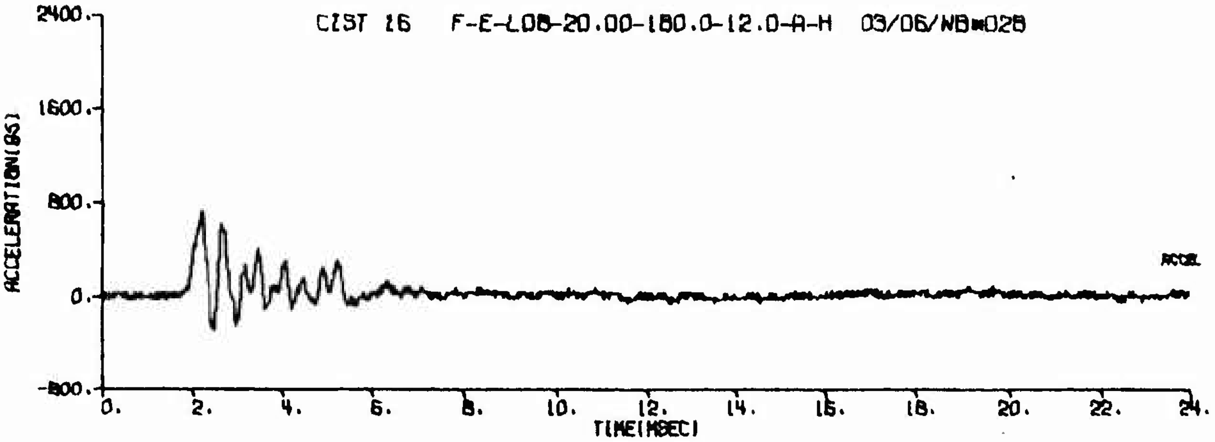

CIST 16 F-E-L14-51.0 - 0.0- 8.0-A-H 04/12/NB=026R

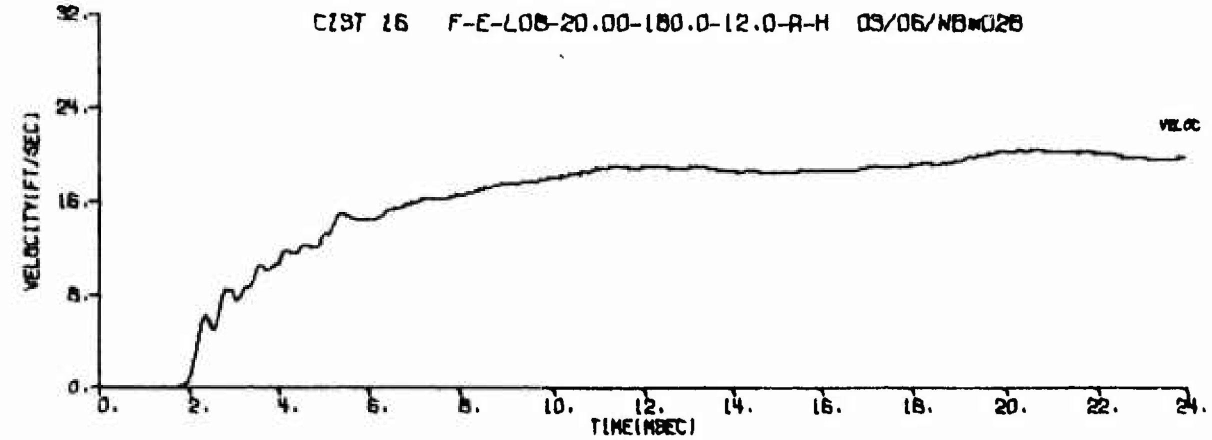

CIST 16 F-E-L14-51.0 - 0.0- 8.0-A-H 04/12/NB=026R

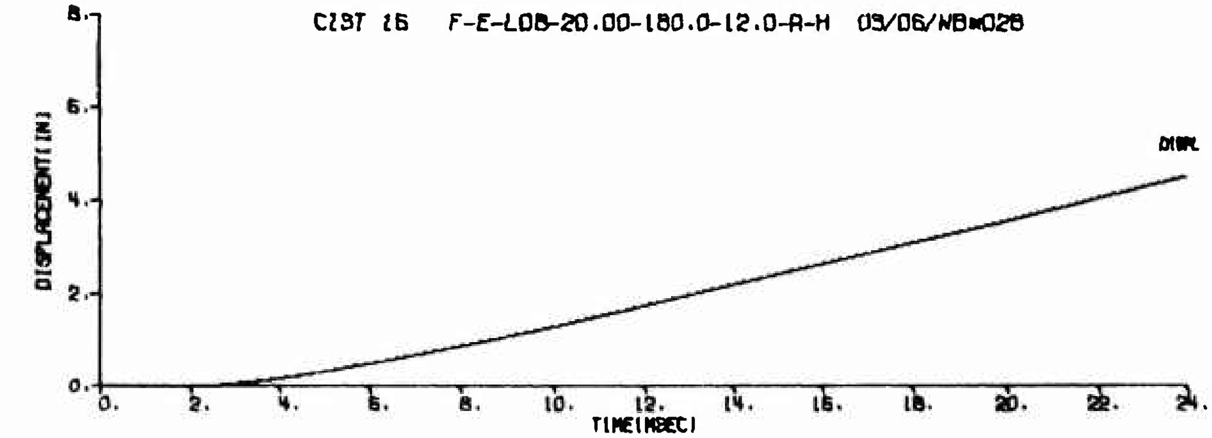

CIST 16 F-E-L08-20.00-180.0-12.0-A-V 03/05/NB*027
800.
400.
0.
-400.
-800.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

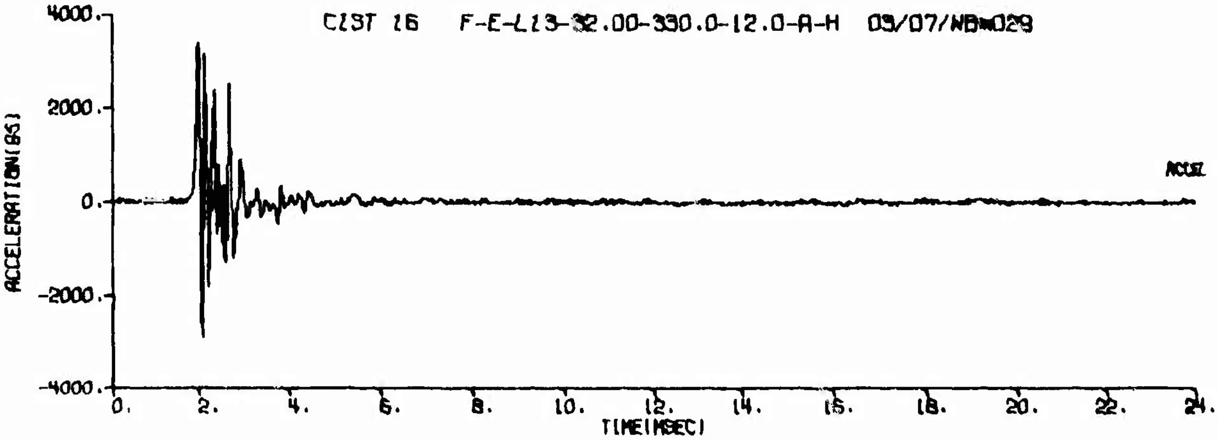

CIST 16 F-E-L08-20.00-180.0-12.0-A-V 03/05/NB*027
12.
8.
4.
0.
-4.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L08-20.00-180.0-12.0-A-V 03/05/NB*027
4.
3.
2.
1.
0.
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

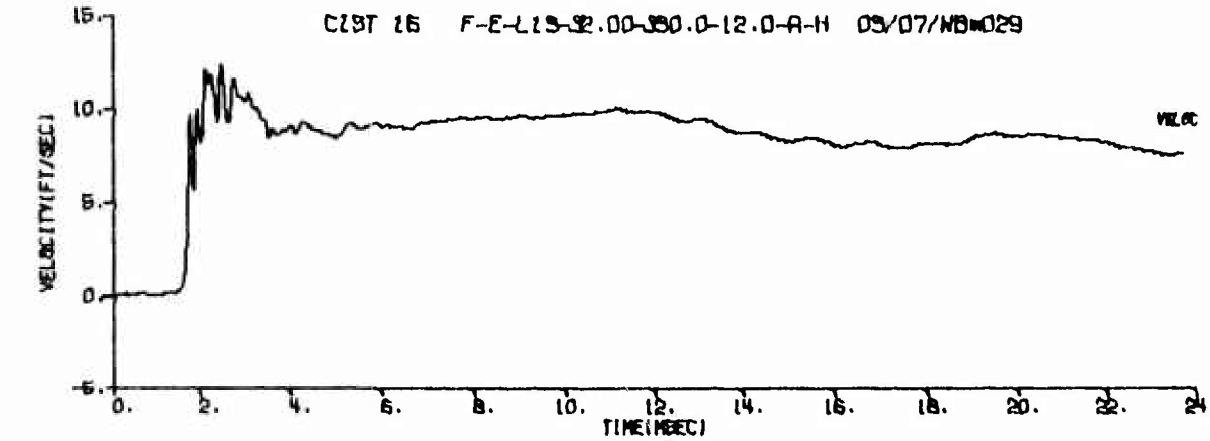

CIST 16 F-E-LOB-20.00-180.0-12.0-A-H 03/06/NB=028
ACCELERATION(GS)
2400.
1600.
800.
0.
-800.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-LOB-20.00-180.0-12.0-A-H 03/06/NB=028
VELOCITY(FT/SEC)
32.
24.
16.
8.
0.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

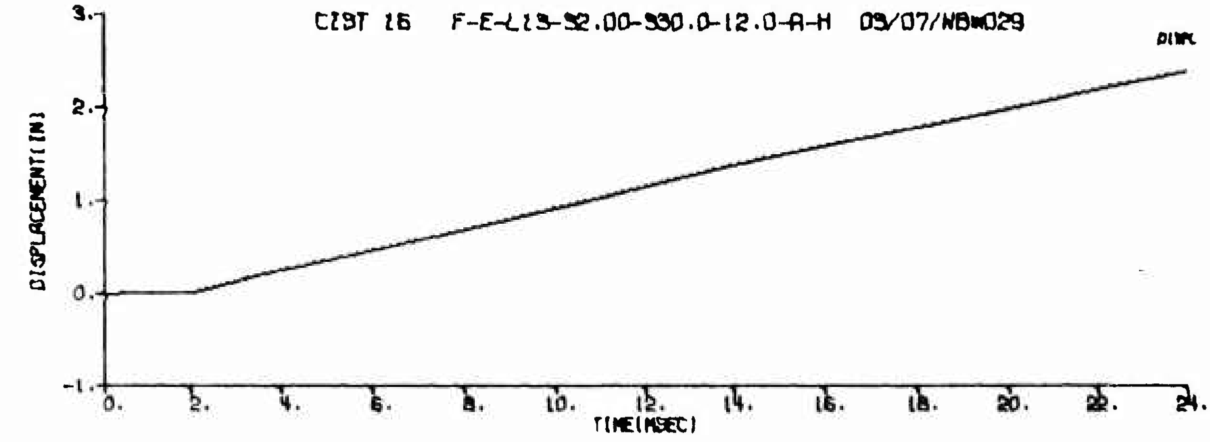

CIST 16 F-E-LOB-20.00-180.0-12.0-A-H 03/06/NB=028
DISPLACEMENT(IN)
8.
6.
4.
2.
0.
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)



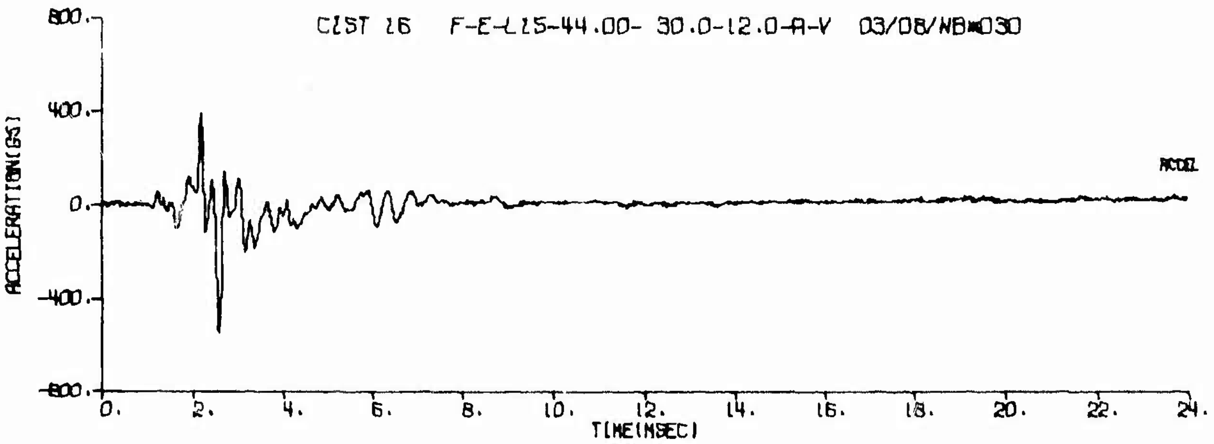
CIST 16 F-E-L13-32.00-330.0-12.0-A-H 09/07/NB=029

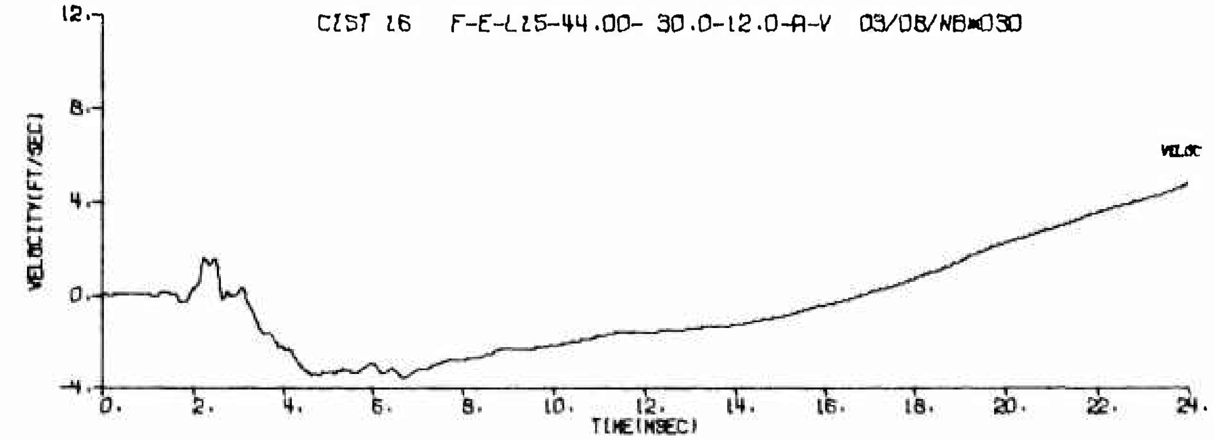


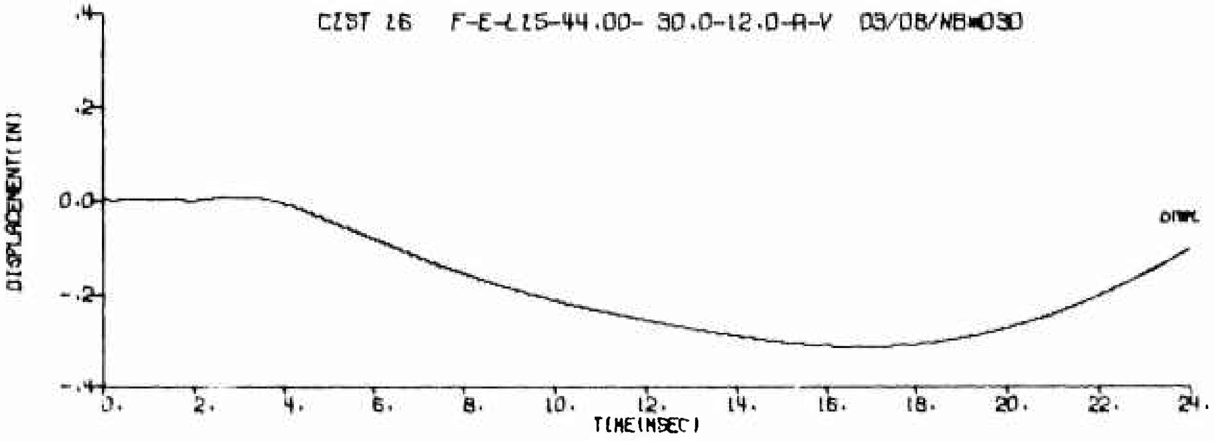
CIST 16 F-E-L13-32.00-330.0-12.0-A-H 09/07/NB=029

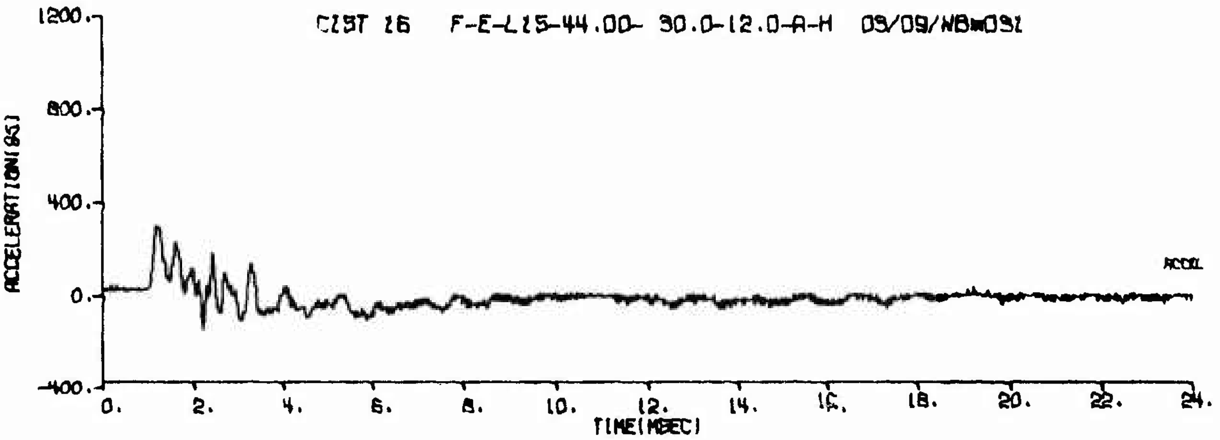


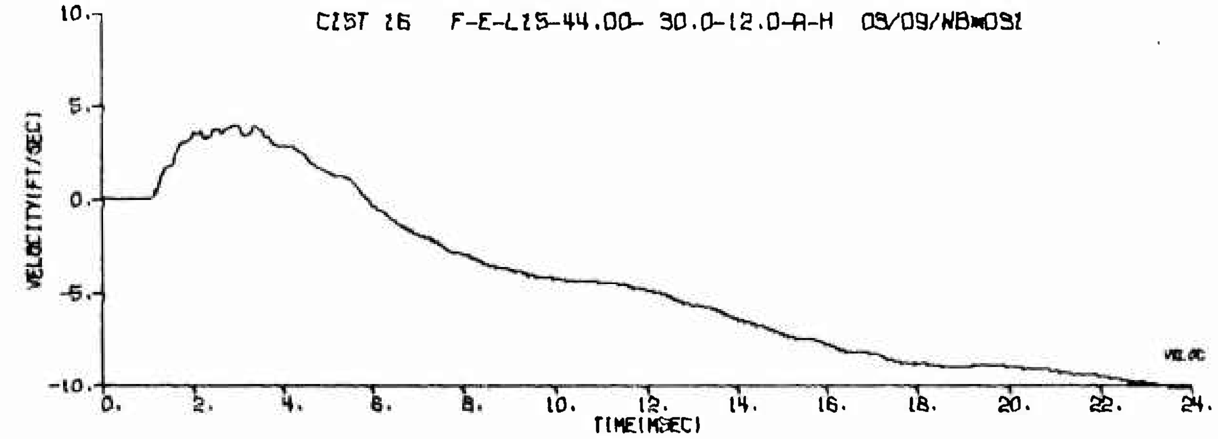
CIST 16 F-E-L13-32.00-330.0-12.0-A-H 09/07/NB=029

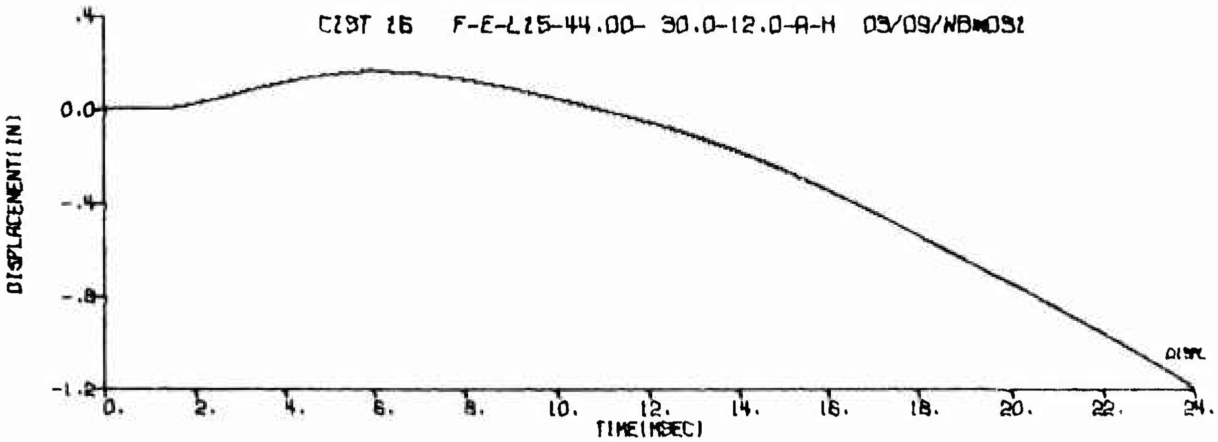

CIST 26 F-E-L25-44.00- 30.0-12.0-A-V 03/08/NB*030
800.
400.
0.
-400.
-800.
ACCELERATION(GS)
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

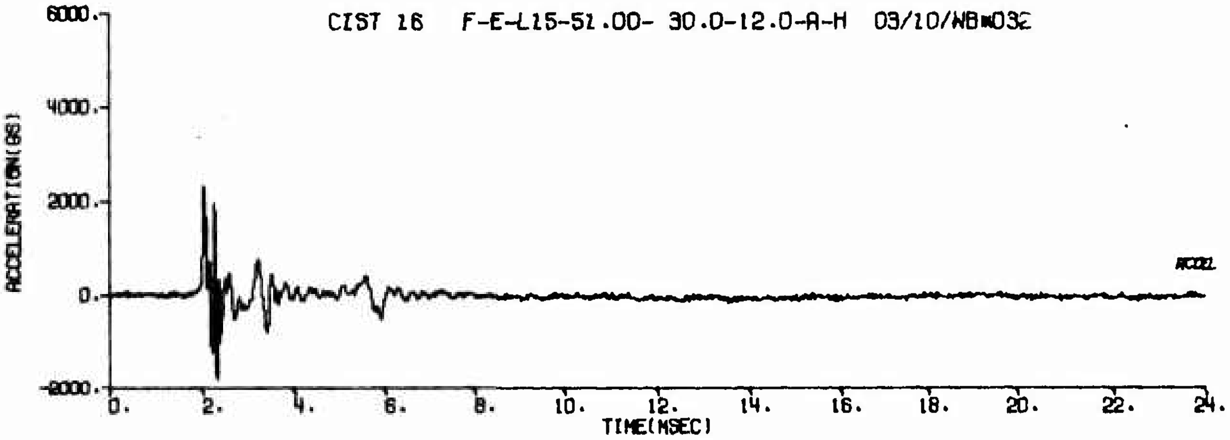

CIST 26 F-E-L25-44.00- 30.0-12.0-A-V 03/08/NB*030
12.
8.
4.
0.
-4.
VELOCITY(FT/SEC)
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

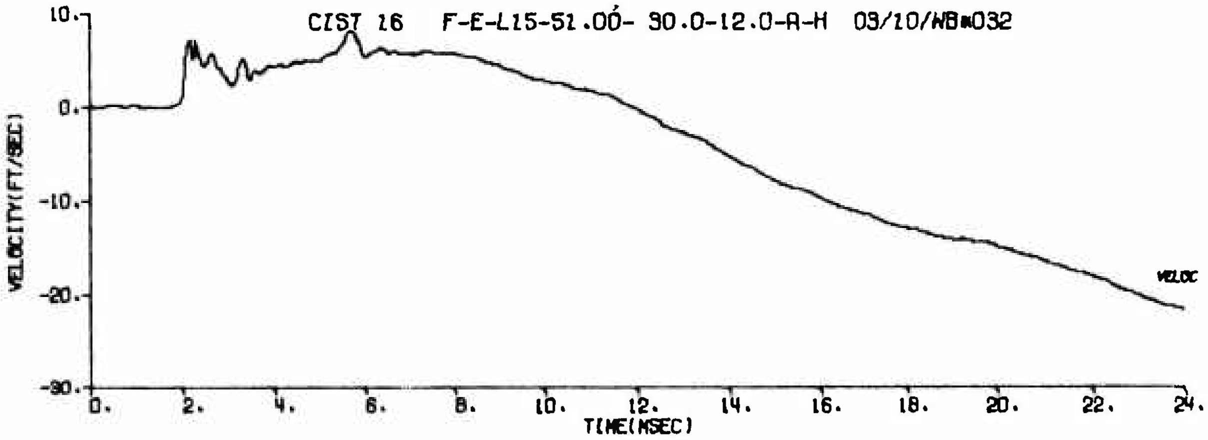

CIST 26 F-E-L25-44.00- 30.0-12.0-A-V 03/08/NB*030
.4
.2
0.0
-.2
-.4
DISPLACEMENT(IN)
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

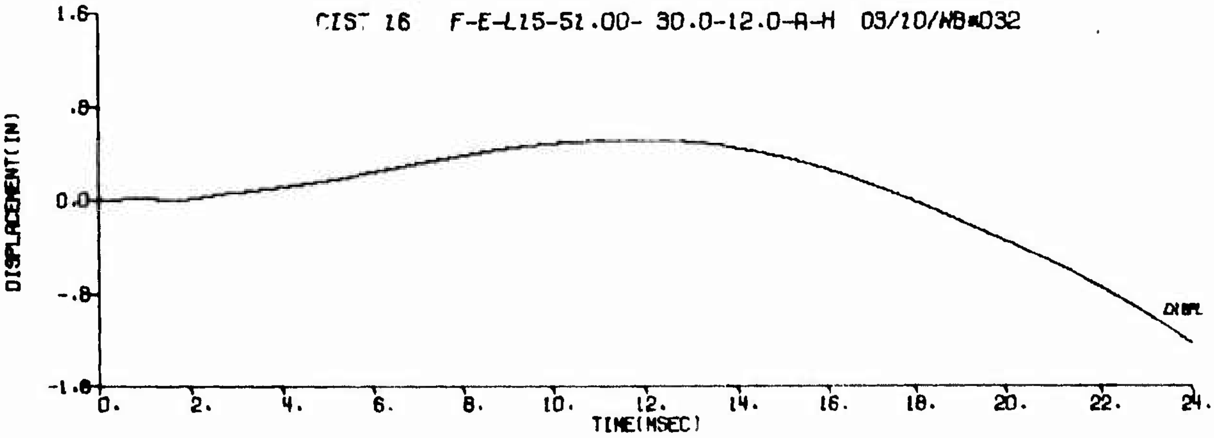

CIST 16 F-E-L15-44.00- 30.0-12.0-A-H 03/09/NB=031
ACCELERATION(GS)
1200.
800.
400.
0.
-400.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

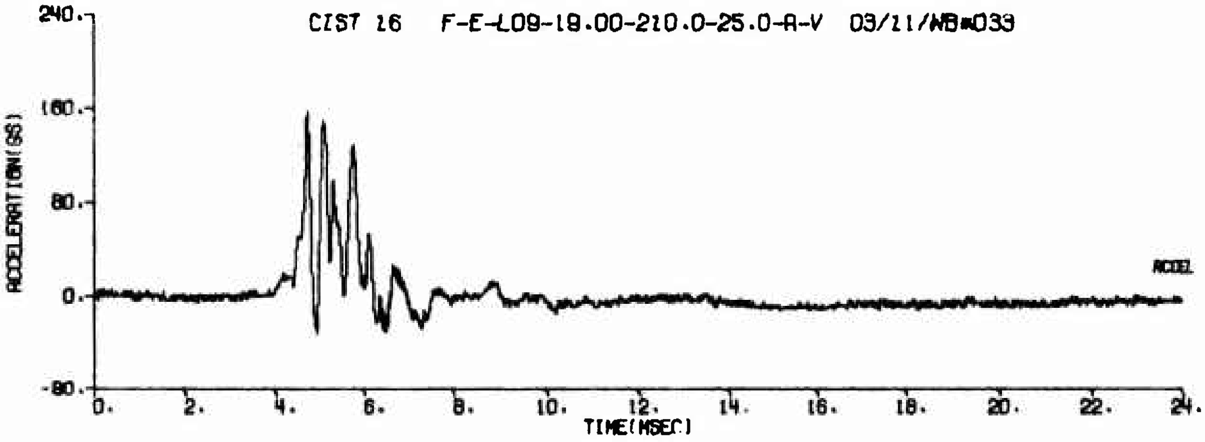

CIST 16 F-E-L15-44.00- 30.0-12.0-A-H 03/09/NB=031
VELOCITY(FT/SEC)
10.
5.
0.
-5.
-10.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

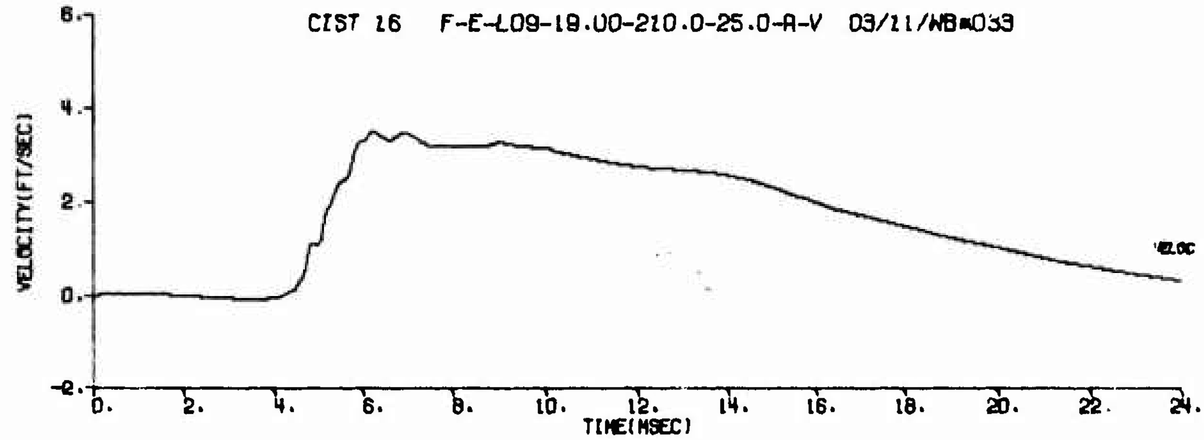

CIST 16 F-E-L15-44.00- 30.0-12.0-A-H 03/09/NB=031
DISPLACEMENT(IN)
.4
0.0
-.4
-.8
-1.2
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

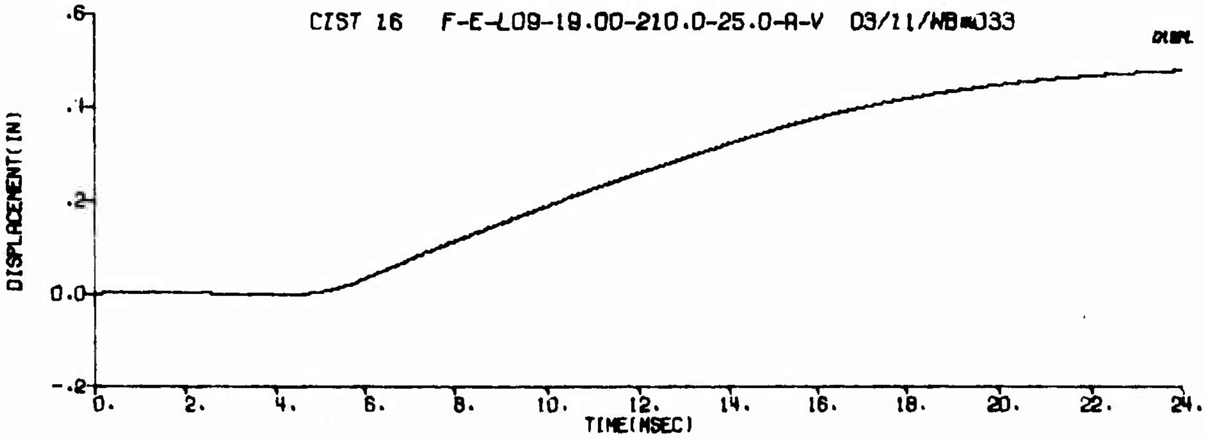

CIST 16 F-E-L15-51.00- 30.0-12.0-A-H 03/10/NB=032
ACCELERATION(GS)
6000.
4000.
2000.
0.
-2000.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

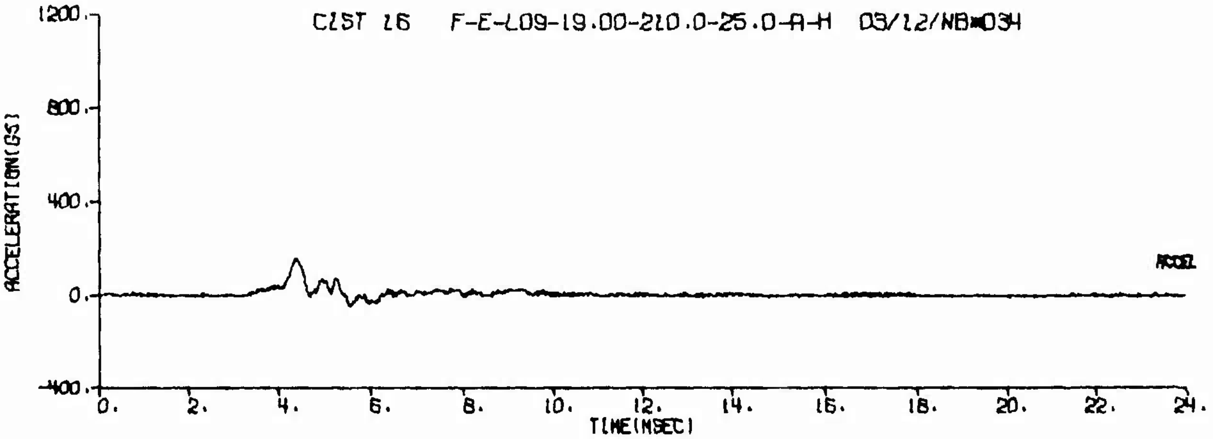

CIST 16 F-E-L15-51.00- 30.0-12.0-A-H 03/10/NB=032
VELOCITY(FT/SEC)
10.
0.
-10.
-20.
-30.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

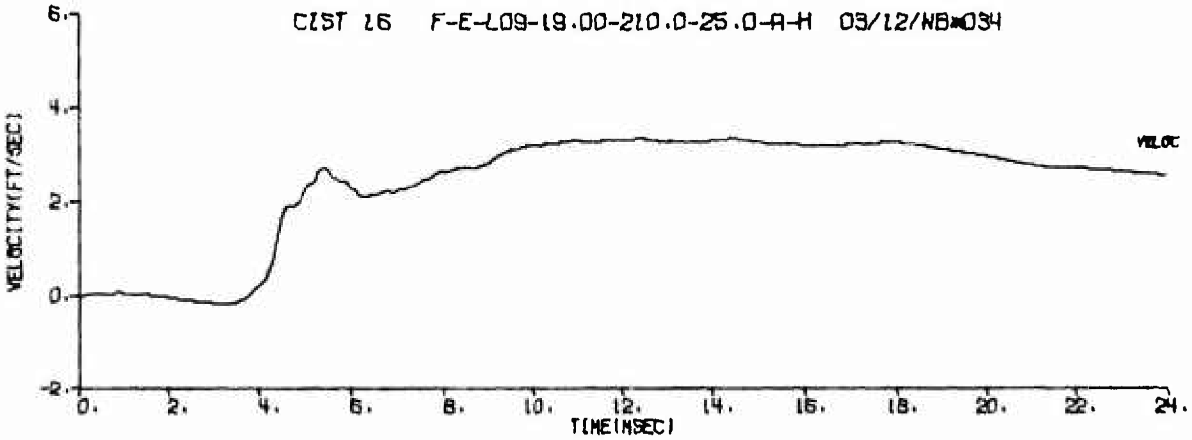

CIST 16 F-E-L15-51.00- 30.0-12.0-A-H 03/10/NB=032
DISPLACEMENT(IN)
1.6
.8
0.0
-.8
-1.6
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

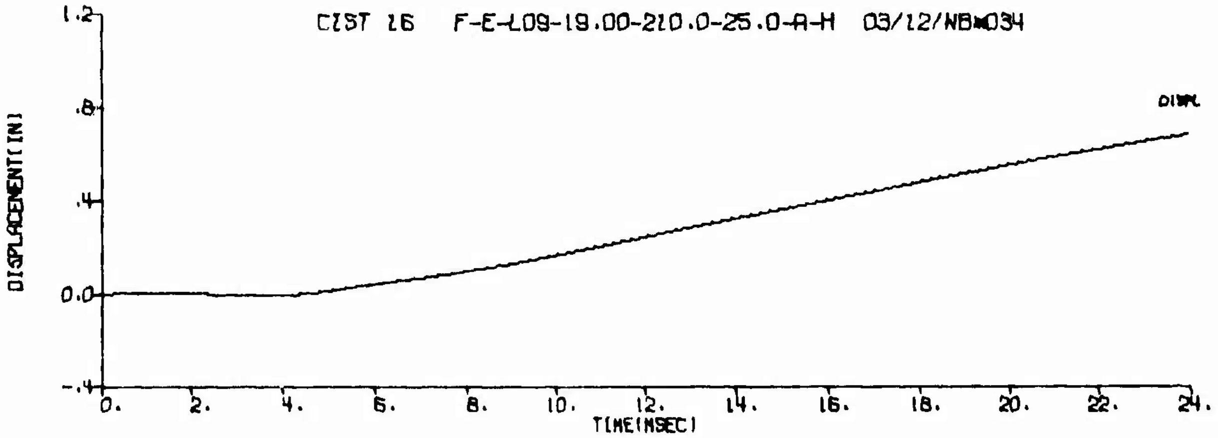

CIST 16 F-E-L09-19.00-210.0-25.0-A-V 03/11/WB=033
ACCELERATION(GS)
240.
160.
80.
0.
-80.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

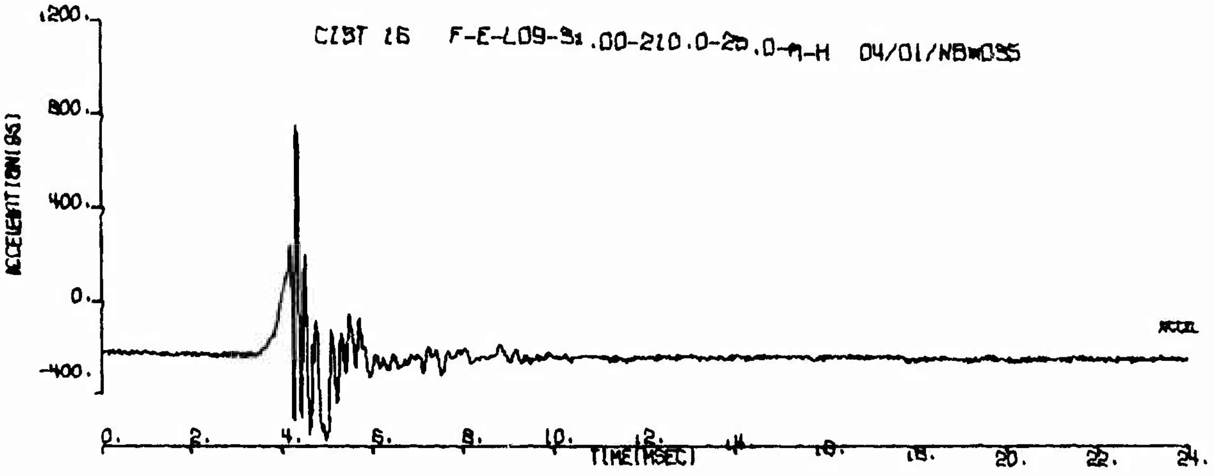

CIST 16 F-E-L09-19.00-210.0-25.0-A-V 03/11/WB=033
VELOCITY(FT/SEC)
6.
4.
2.
0.
-2.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

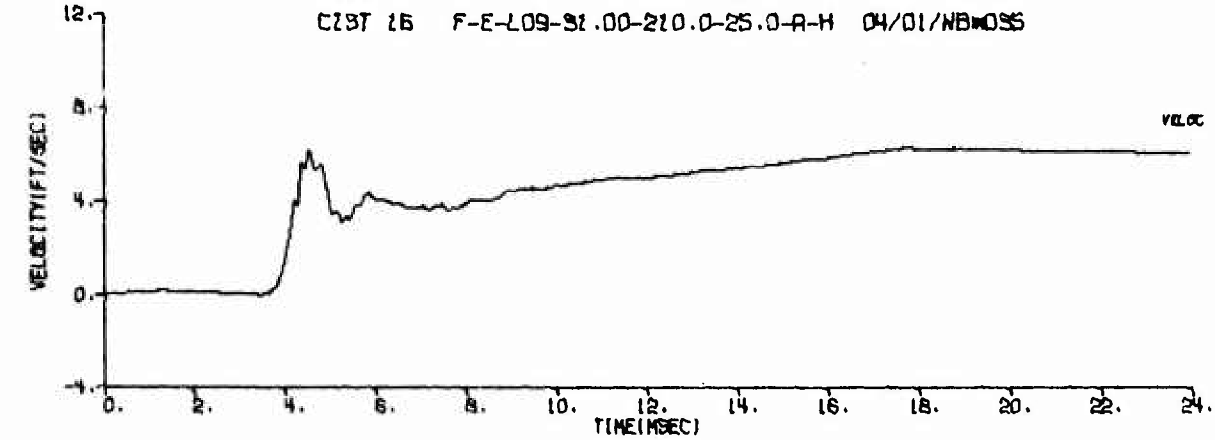

CIST 16 F-E-L09-19.00-210.0-25.0-A-V 03/11/WB=033
DISPLACEMENT(IN)
.6
.4
.2
0.0
-.2
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

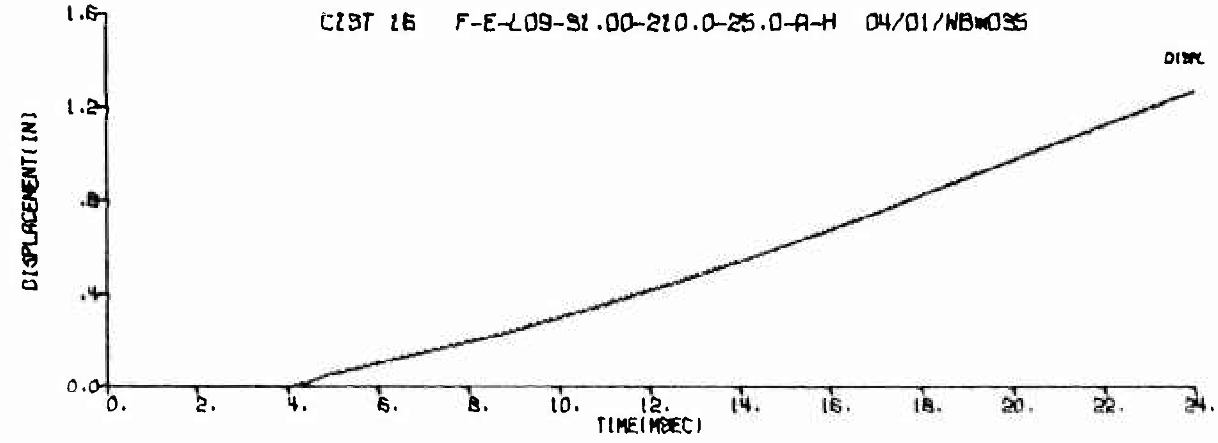

CIST 16 F-E-L09-19.00-210.0-25.0-A-H 03/12/NB*034
ACCELERATION(GS)
1200.
800.
400.
0.
-400.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

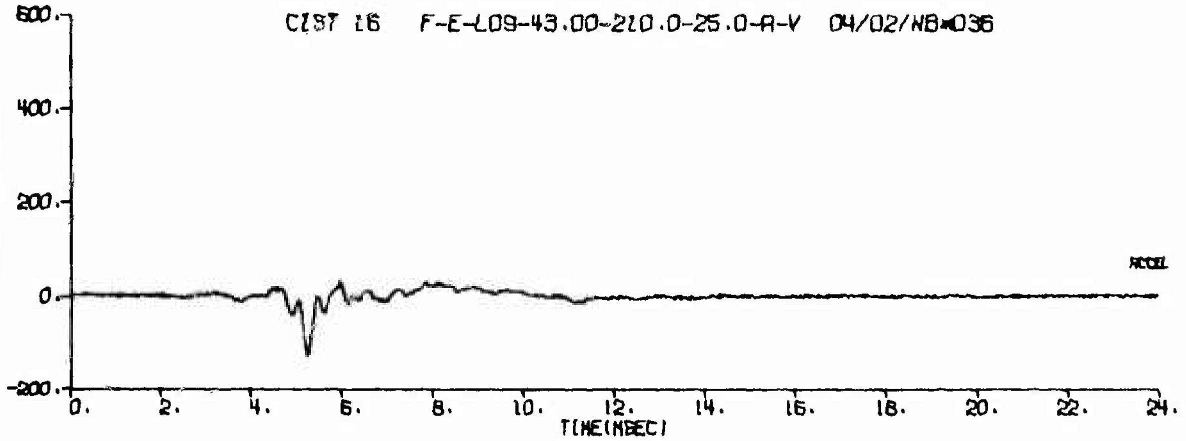

CIST 16 F-E-L09-19.00-210.0-25.0-A-H 03/12/NB*034
VELOCITY(FT/SEC)
6.
4.
2.
0.
-2.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

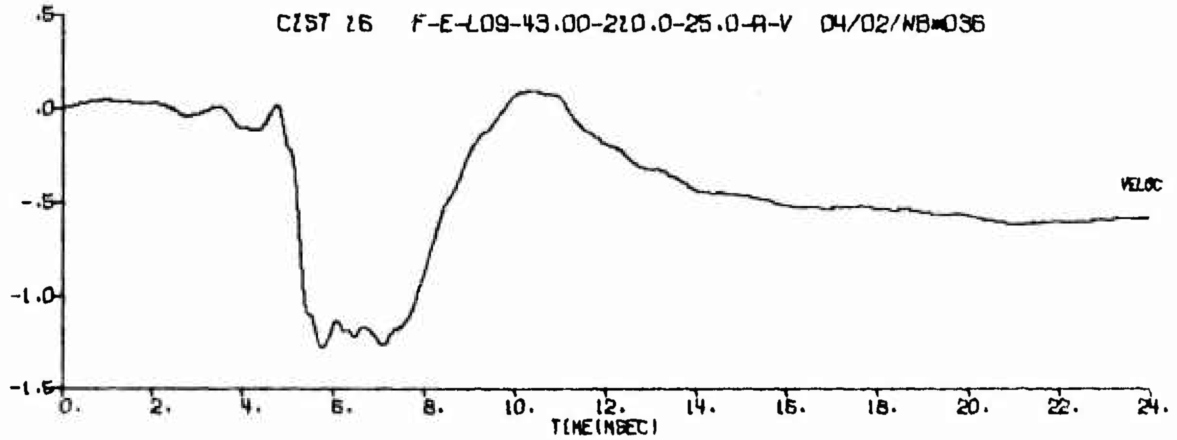

CIST 16 F-E-L09-19.00-210.0-25.0-A-H 03/12/NB*034
DISPLACEMENT(IN)
1.2
.8
.4
0.0
-.4
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

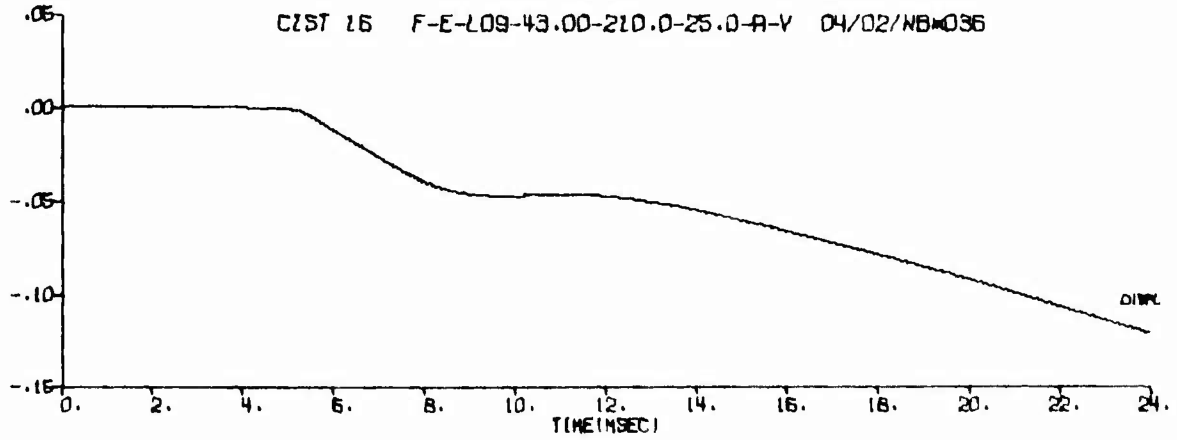

C13T 16 F-E-L09-31.00-210.0-25.0-A-H 04/01/NB*035
ACCELERATION(G'S)
1200.
800.
400.
0.
-400.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

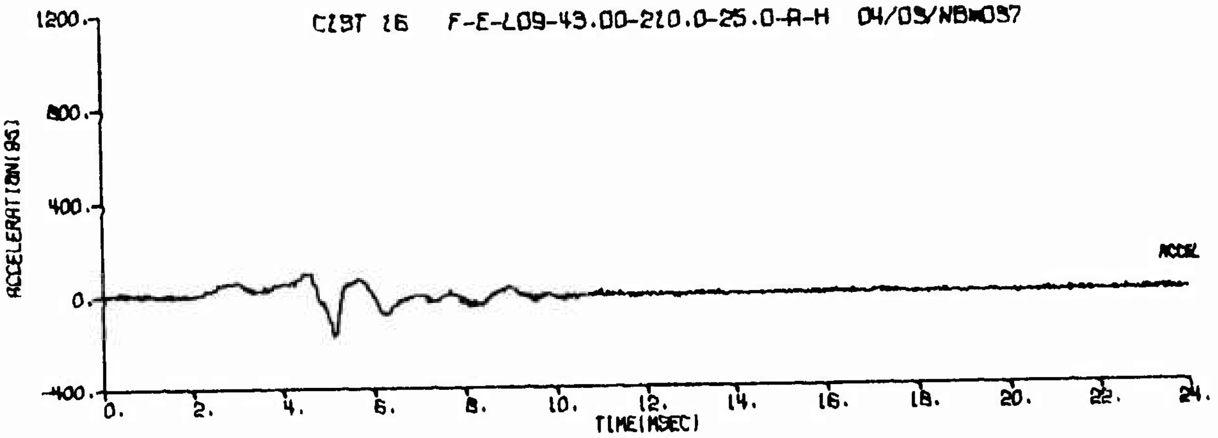

C13T 16 F-E-L09-31.00-210.0-25.0-A-H 04/01/NB*035
VELOCITY(FT/SEC)
12.
8.
4.
0.
-4.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

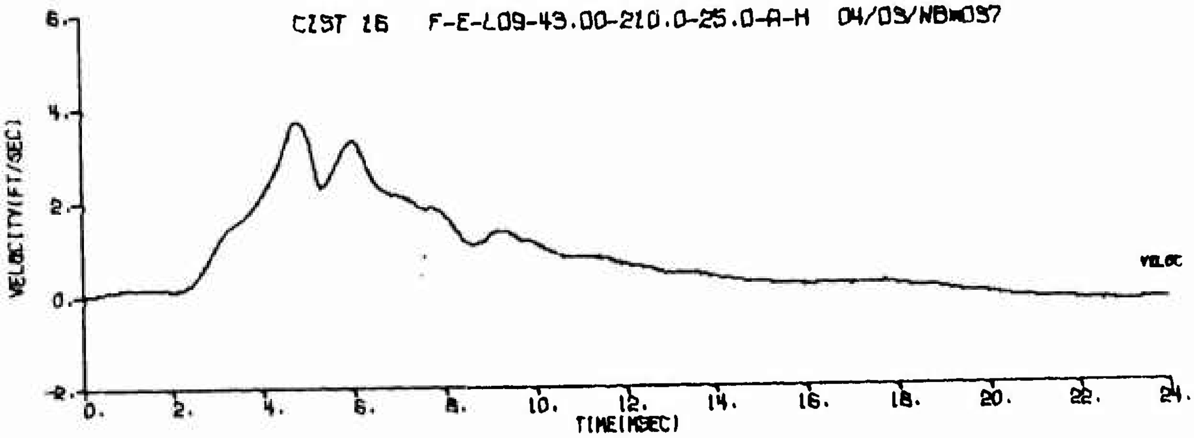

C13T 16 F-E-L09-31.00-210.0-25.0-A-H 04/01/NB*035
DISPLACEMENT(IN)
1.6
1.2
.8
.4
0.0
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

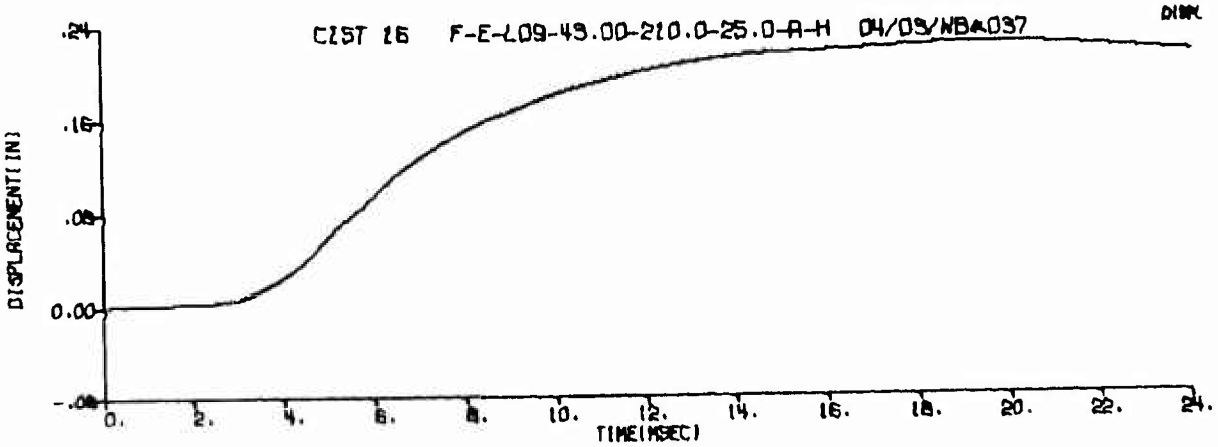

CIST 16 F-E-L09-43.00-210.0-25.0-A-V 04/02/NB=036
ACCELERATION(GS)
600.
400.
200.
0
-200.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

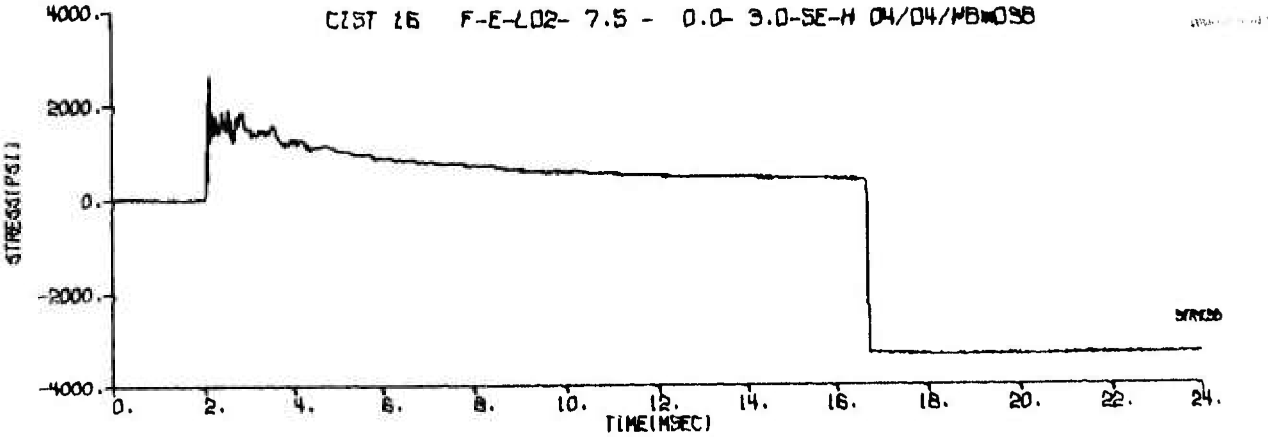

CIST 16 F-E-L09-43.00-210.0-25.0-A-V 04/02/NB=036
VELOCITY(FT/SEC)
.5
.0
-.5
-1.0
-1.5
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

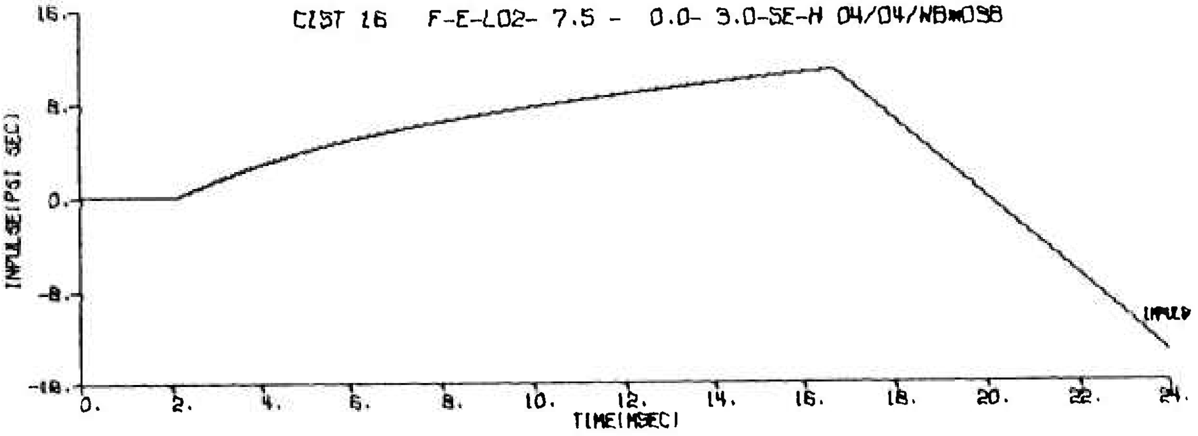

CIST 16 F-E-L09-43.00-210.0-25.0-A-V 04/02/NB=036
DISPLACEMENT(IN)
.05
.00
-.05
-.10
-.15
DISPL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

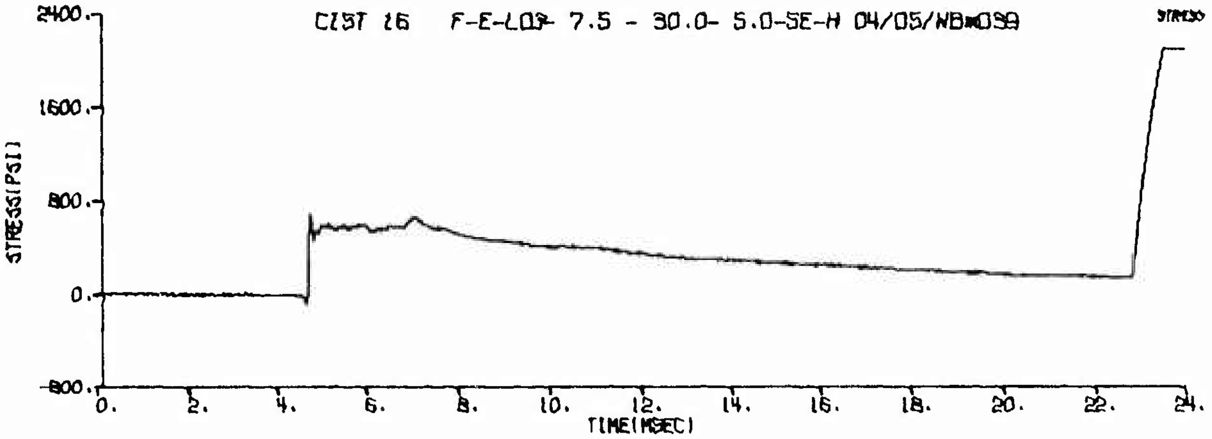

CIST 16 F-E-L09-43.00-210.0-25.0-A-H 04/09/NB=037
ACCELERATION(GS)
1200.
800.
400.
0.
-400.
ACCEL
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

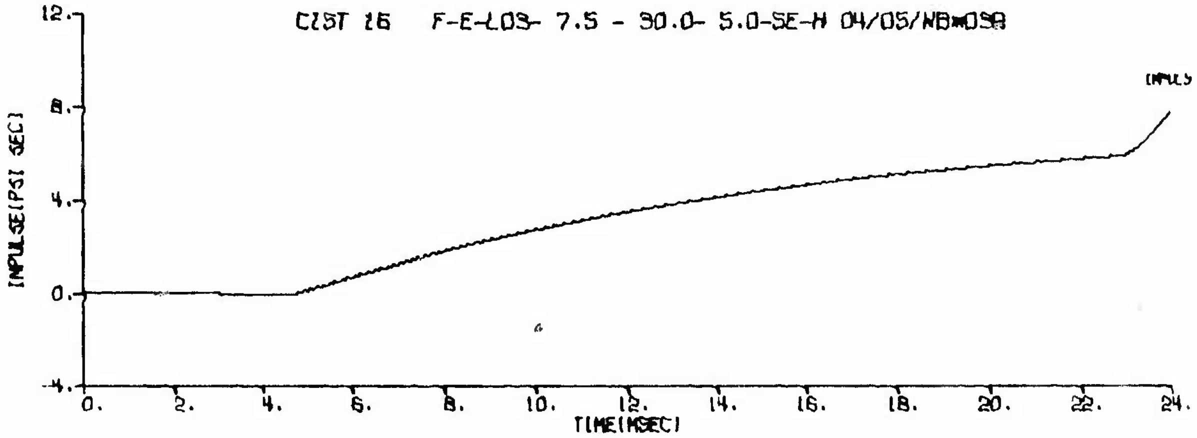

CIST 16 F-E-L09-43.00-210.0-25.0-A-H 04/09/NB=037
VELOCITY(FT/SEC)
6.
4.
2.
0.
-2.
VELOC
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

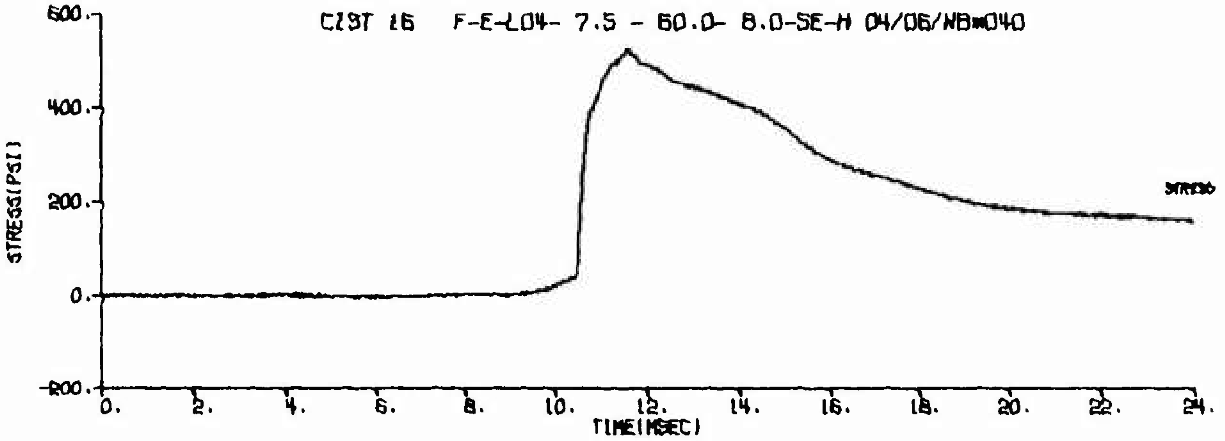

CIST 16 F-E-L09-43.00-210.0-25.0-A-H 04/09/NB=037
DISPL
DISPLACEMENT(IN)
.24
.16
.08
0.00
-.08
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

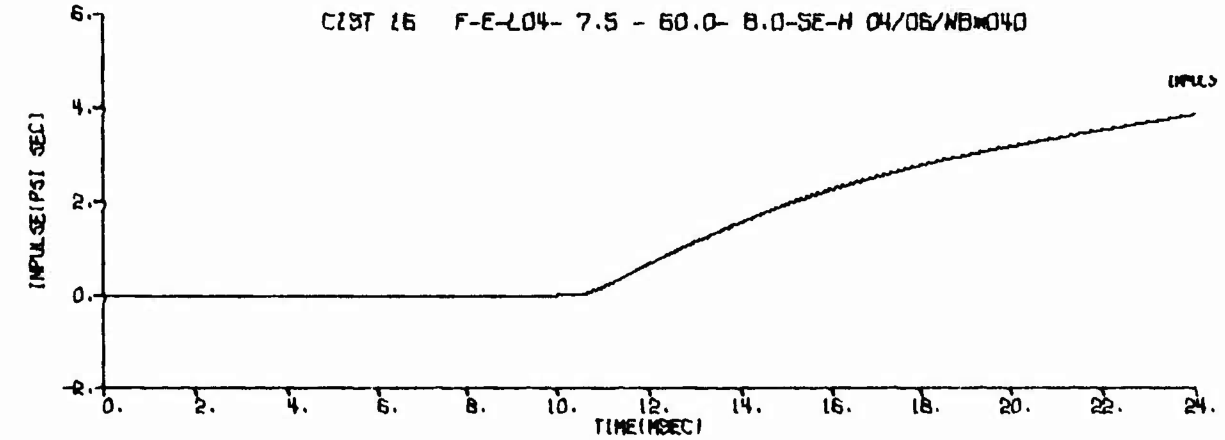

CIST 16 F-E-L02- 7.5 - 0.0- 3.0-SE-H 04/04/NB*03B
4000.
2000.
0.
-2000.
-4000.
STRESS(PSI)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
STRESS

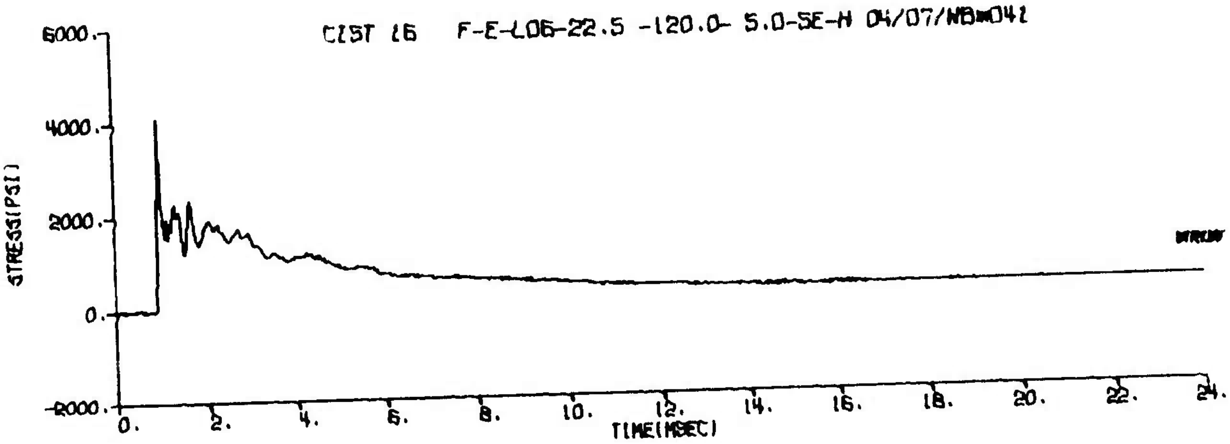

CIST 16 F-E-L02- 7.5 - 0.0- 3.0-SE-H 04/04/NB*03B
16.
8.
0.
-8.
-16.
IMPULSE(PSI SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)
IMPULS

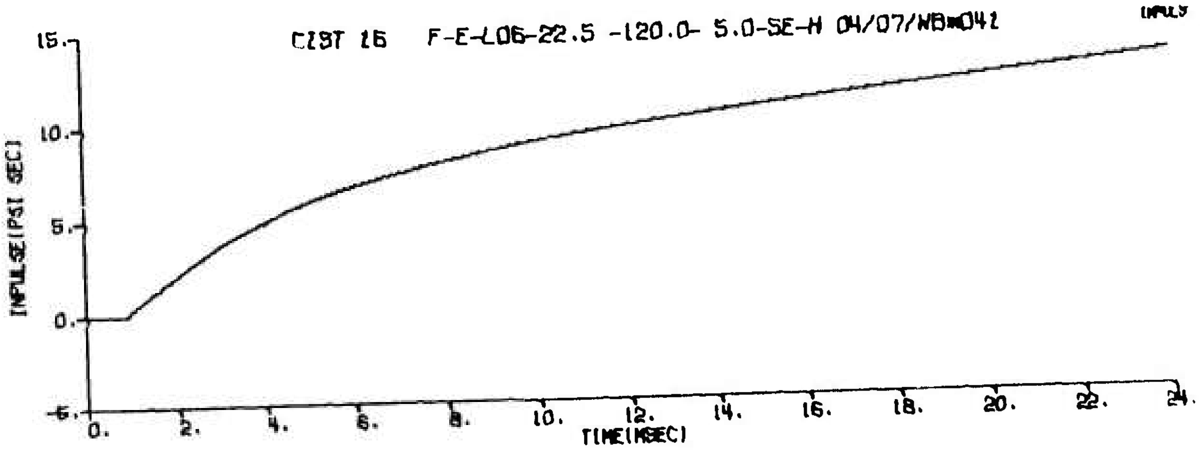

CIST 16 F-E-L03- 7.5 - 30.0- 5.0-SE-H 04/05/NB*039
STRESS
2400.
1600.
800.
0.
-800.
STRESS(PSI)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

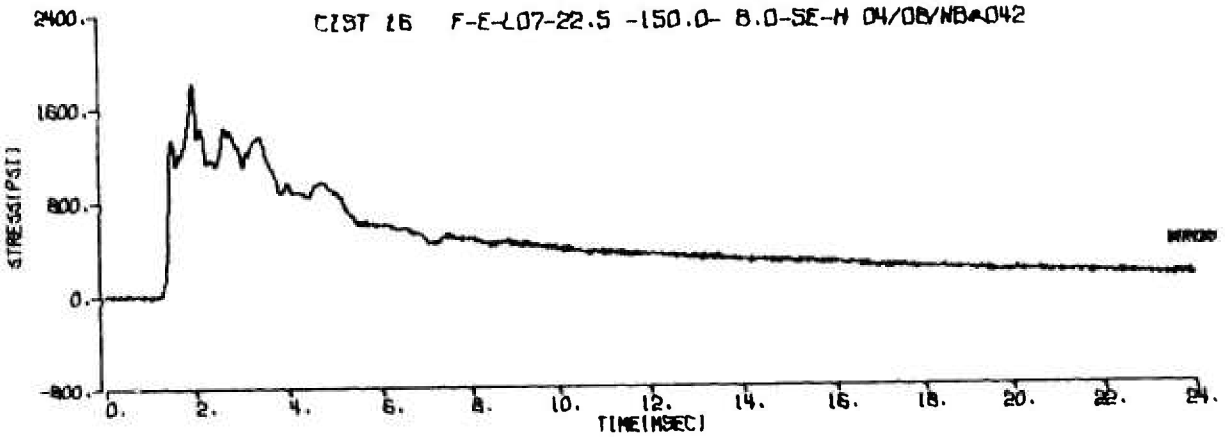

CIST 16 F-E-L03- 7.5 - 30.0- 5.0-SE-H 04/05/NB*039
IMPULS
12.
8.
4.
0.
-4.
IMPULSE(PSI SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

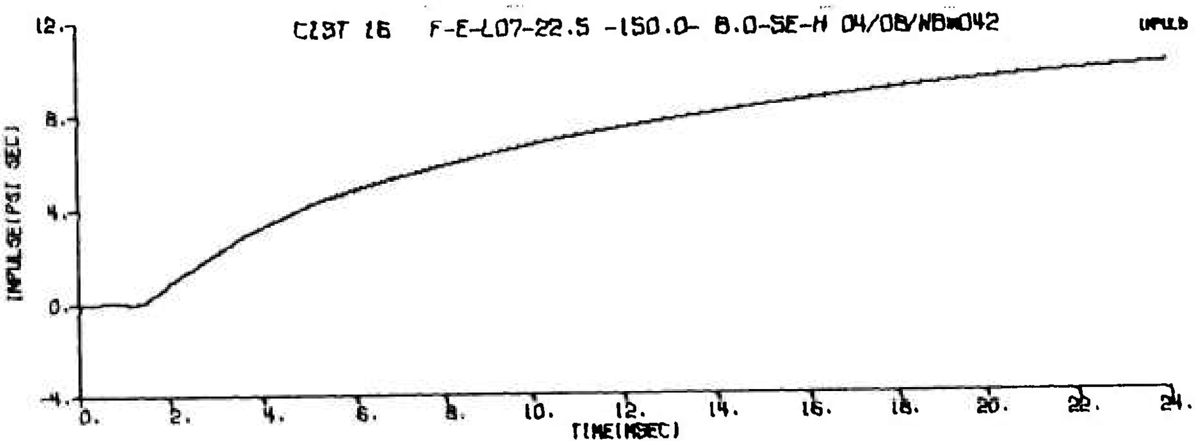

CIST 16 F-E-L04- 7.5 - 60.0- 8.0-SE-H 04/06/NB=040
600.
400.
200.
0.
-200.
STRESS(PSI)
STRESS
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

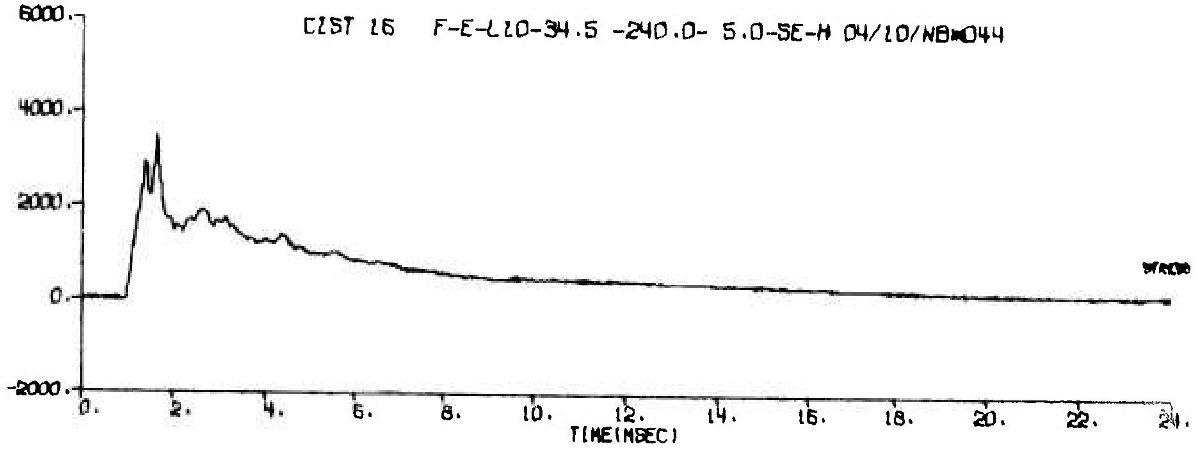

CIST 16 F-E-L04- 7.5 - 60.0- 8.0-SE-H 04/06/NB=040
6.
4.
2.
0.
-2.
IMPULSE(PSI SEC)
IMPULS
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)

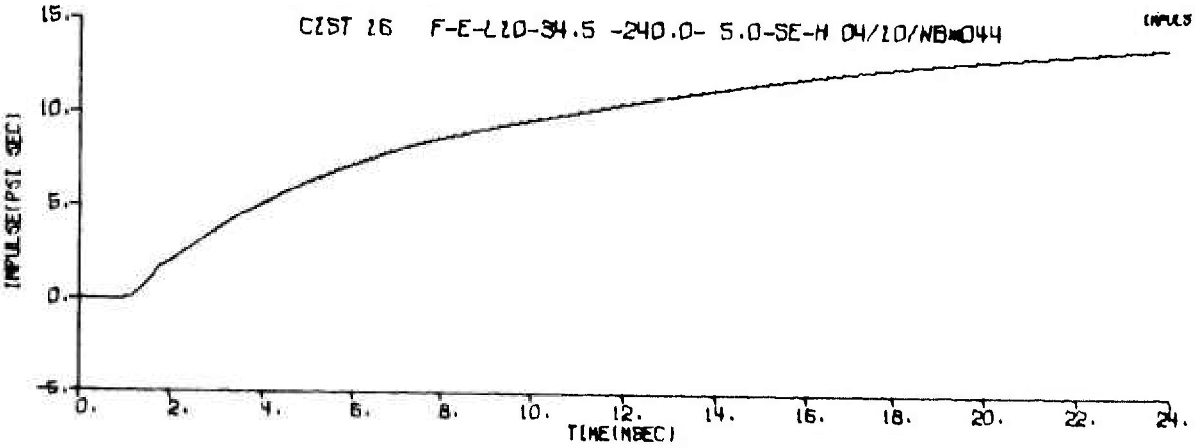

CIST 16 F-E-L06-22.5 -120.0- 5.0-SE-H 04/07/NB=041
6000.
4000.
2000.
0.
-2000.
STRESS(PSI)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L06-22.5 -120.0- 5.0-SE-H 04/07/NB=041
IMPULS
15.
10.
5.
0.
-5.
IMPULSE(PSI SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L07-22.5 -150.0- 8.0-SE-H 04/08/NB=042
2400.
1600.
800.
0.
-800.
STRESS(PSI)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L07-22.5 -150.0- 8.0-SE-H 04/08/NB=042
12.
8.
4.
0.
-4.
IMPULSE(PSI SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L10-34.5 -240.0- 5.0-SE-H 04/10/NB*044
6000.
4000.
2000.
0.
-2000.
STRESS(PSI)
STRESS
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)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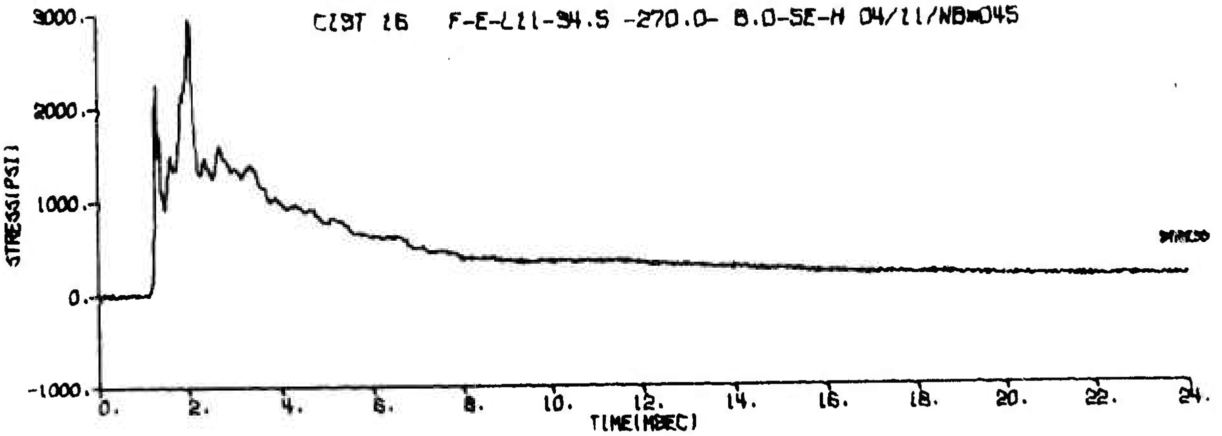
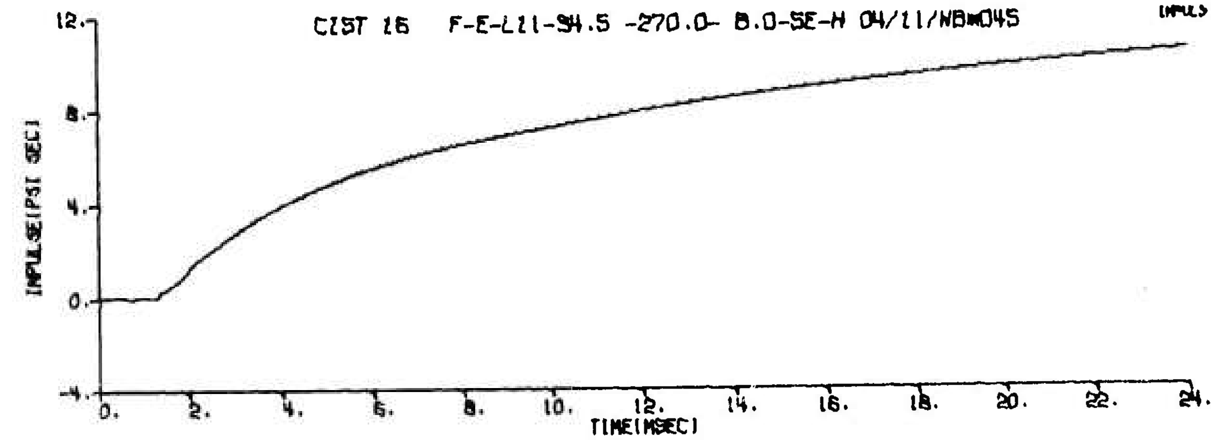
IMPULS
15.
10.
5.
0.
-5.
IMPULSE(PSI SEC)
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L11-34.5 -270.0- 8.0-SE-H 04/11/NB=045
STRESS(PSI)
3000.
2000.
1000.
0.
-1000.
STRESS
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)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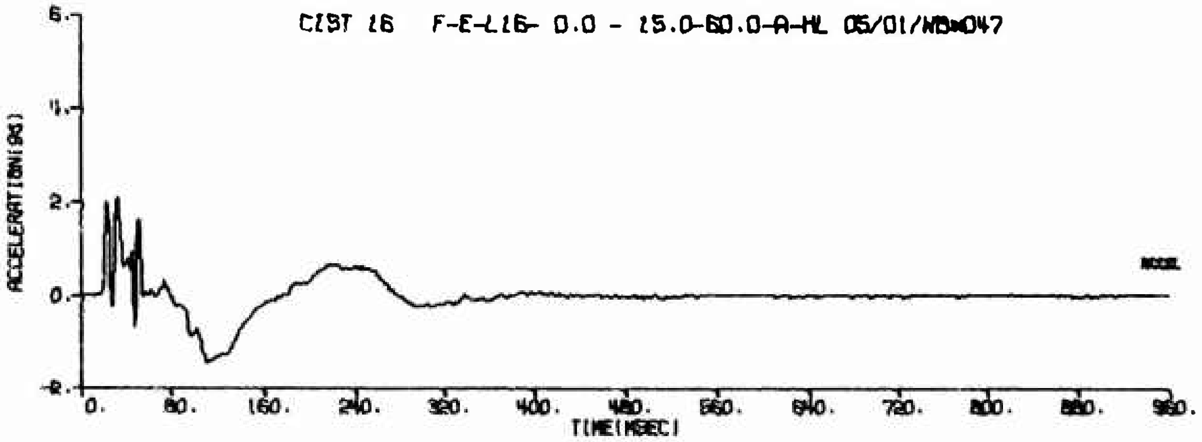
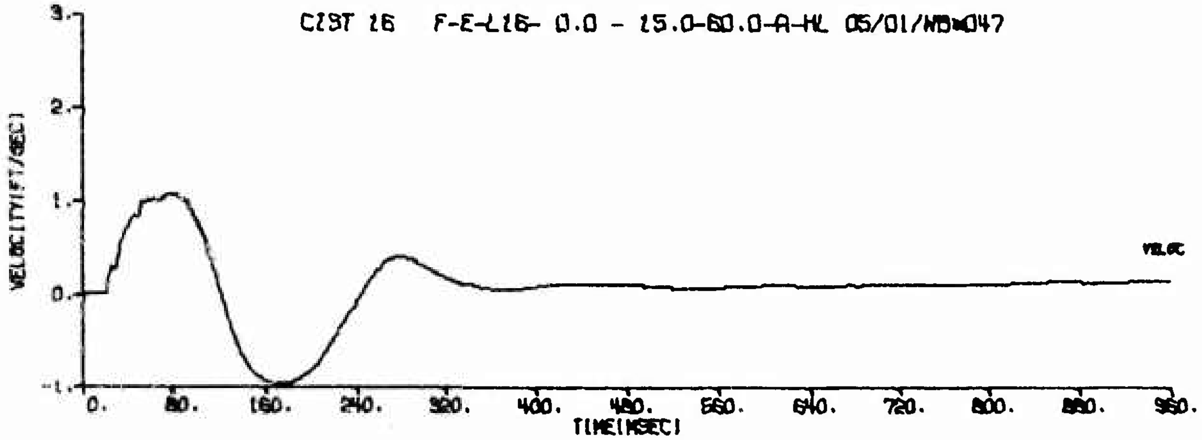
IMPULS
IMPULSE(PSI SEC)
12.
8.
4.
0.
-4.
0.
2.
4.
6.
8.
10.
12.
14.
16.
18.
20.
22.
24.
TIME(MSEC)


CIST 16 F-E-L16- 0.0 - 15.0-60.0-A-HL 05/01/NB*047
ACCELERATION(GS)
6.
4.
2.
0.
-2.
ACCEL
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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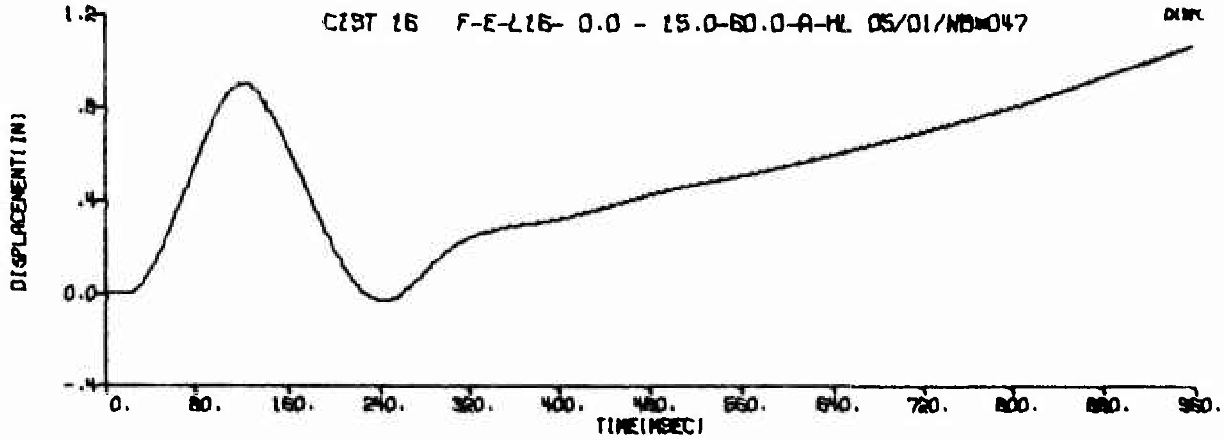
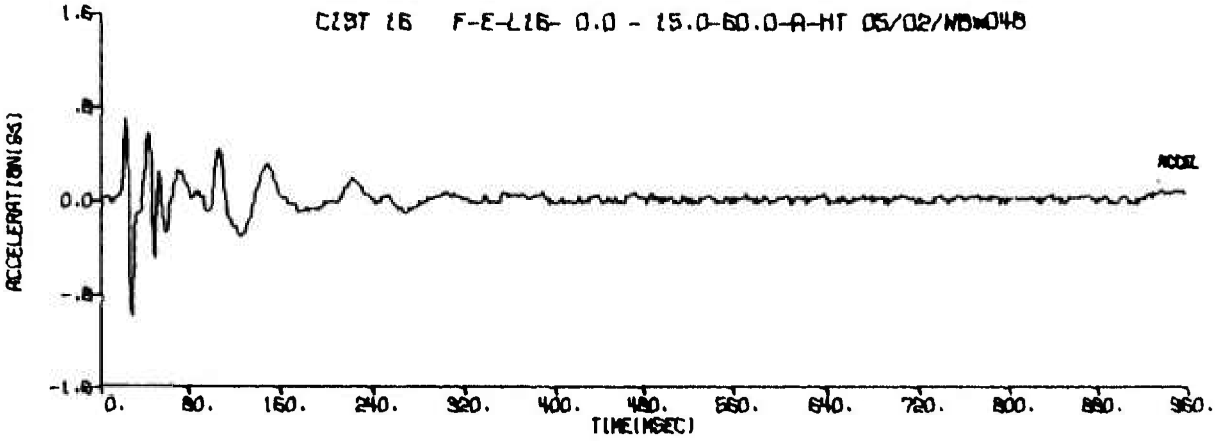
VELOCITY(FT/SEC)
3.
2.
1.
0.
-1.
VELOC
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)


CIST 16 F-E-L16- 0.0 - 15.0-60.0-A-HL 05/01/NB*047
DISPL
DISPLACEMENT(IN)
1.2
.8
.4
0.0
-.4
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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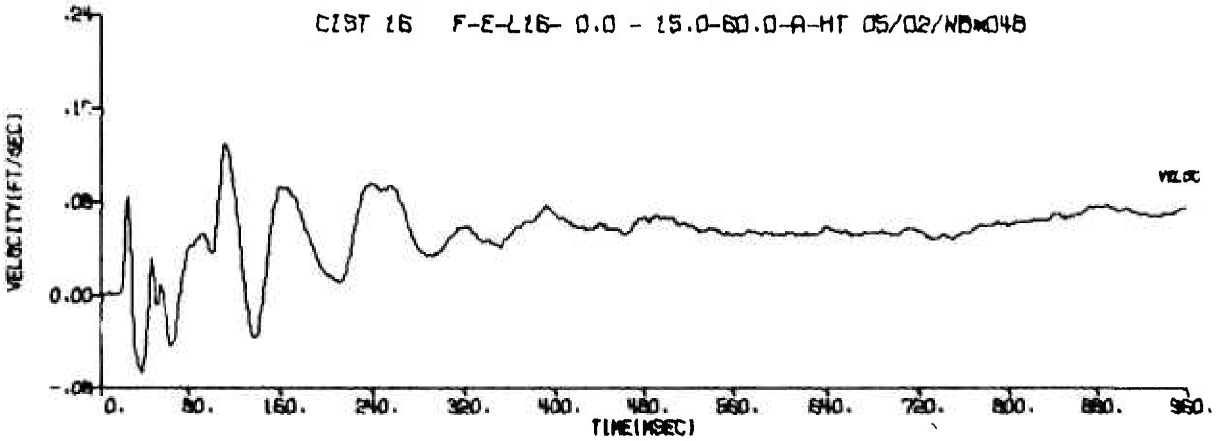
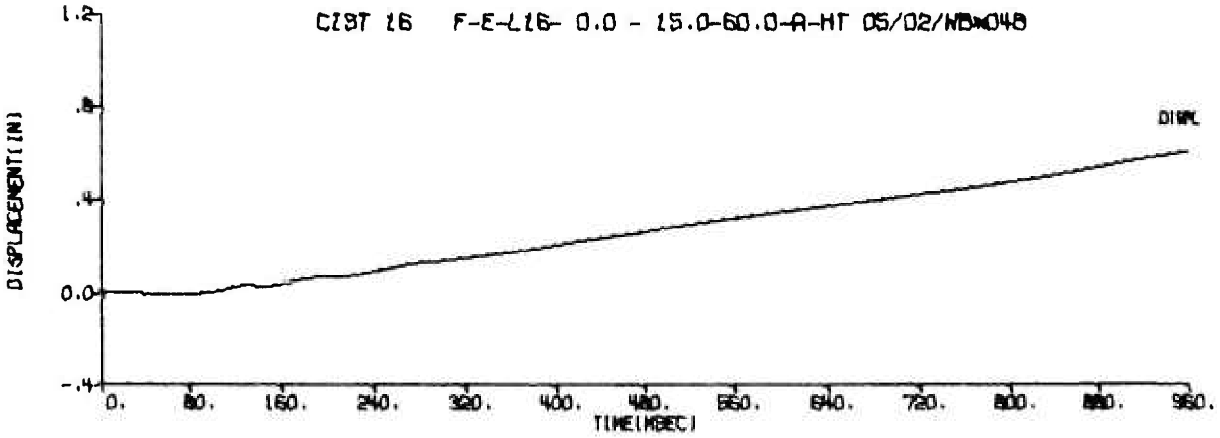
ACCELERATION(GS)
1.6
.8
0.0
-.8
-1.6
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)
ACCEL


CIST 16 F-E-L16- 0.0 - 15.0-60.0-A-HT 05/02/NB*048
VELOCITY(FT/SEC)
.24
.16
.08
0.00
-.08
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)
VELOC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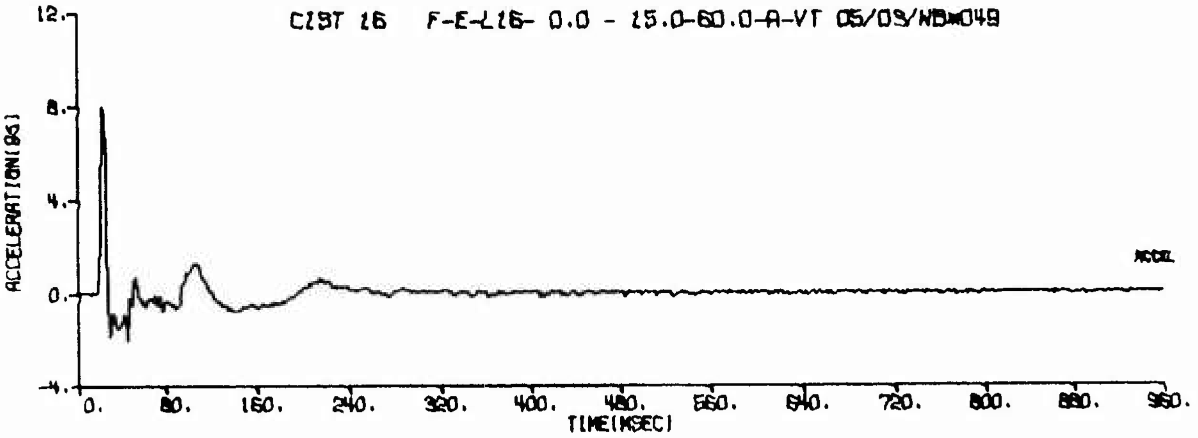
DISPLACEMENT(IN)
1.2
.8
.4
0.0
-.4
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)
DISPL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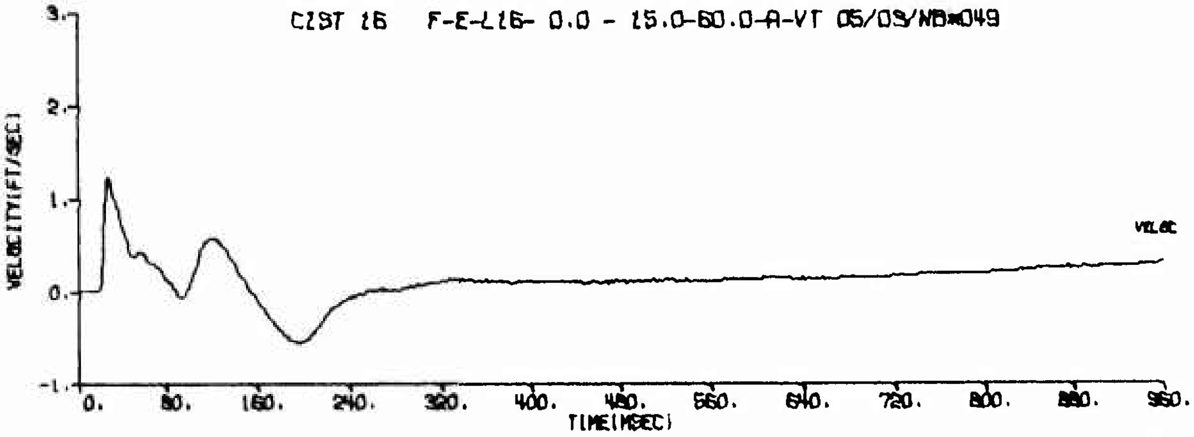
ACCELERATION(GS)
12.
8.
4.
0.
-4.
ACCEL
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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VELOCITY(FT/SEC)
3.
2.
1.
0.
-1.
VELOC
0.
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240.
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400.
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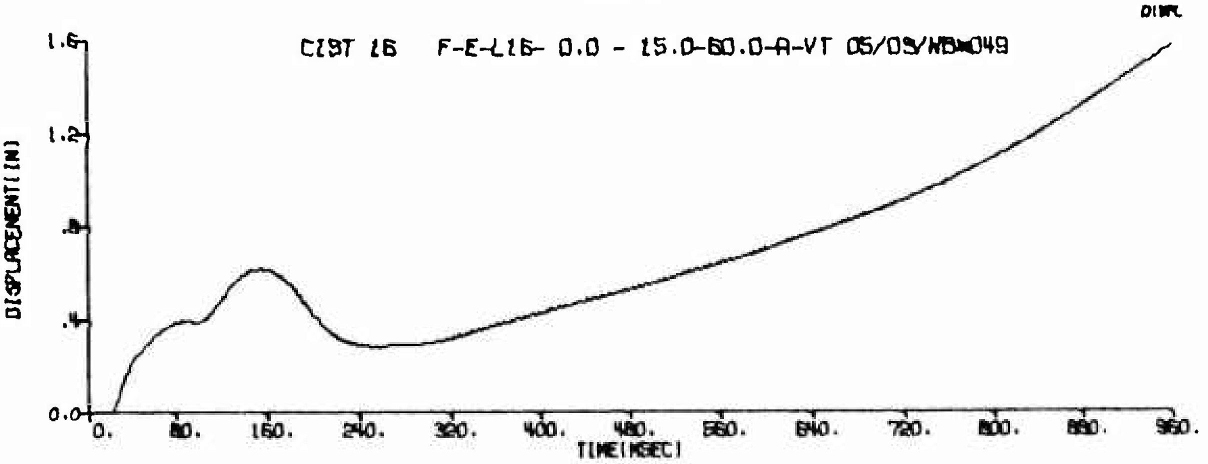
880.
960.
TIME(MSEC)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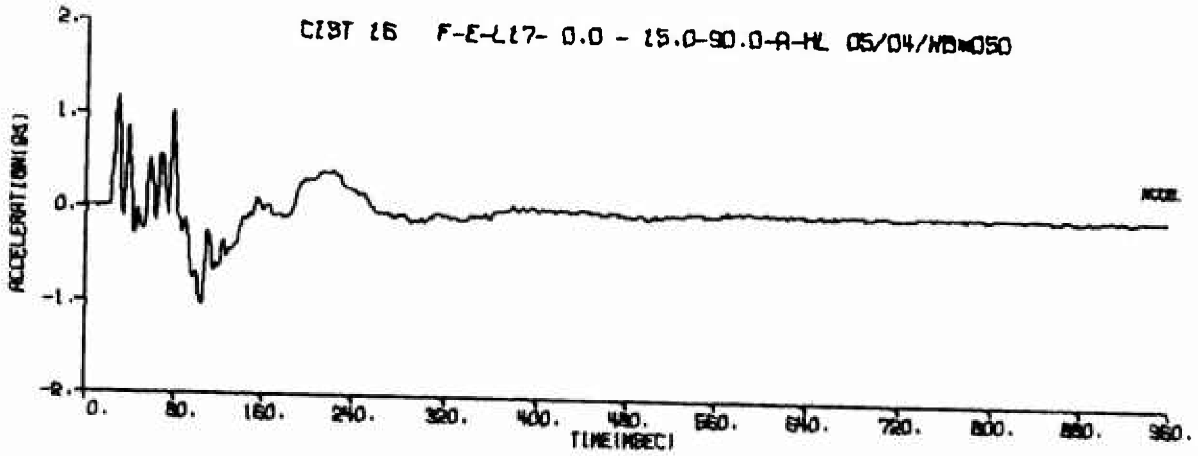
DISPLACEMENT(IN)
1.6
1.2
.8
.4
0.0
DISPL
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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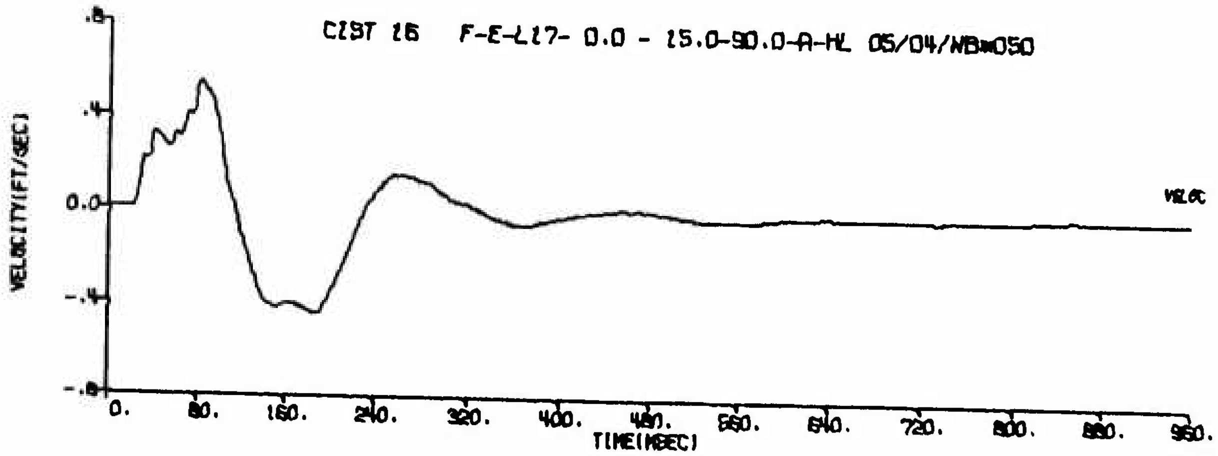
ACCELERATION(G'S)
2.
1.
0.
-1.
-2.
ACCEL
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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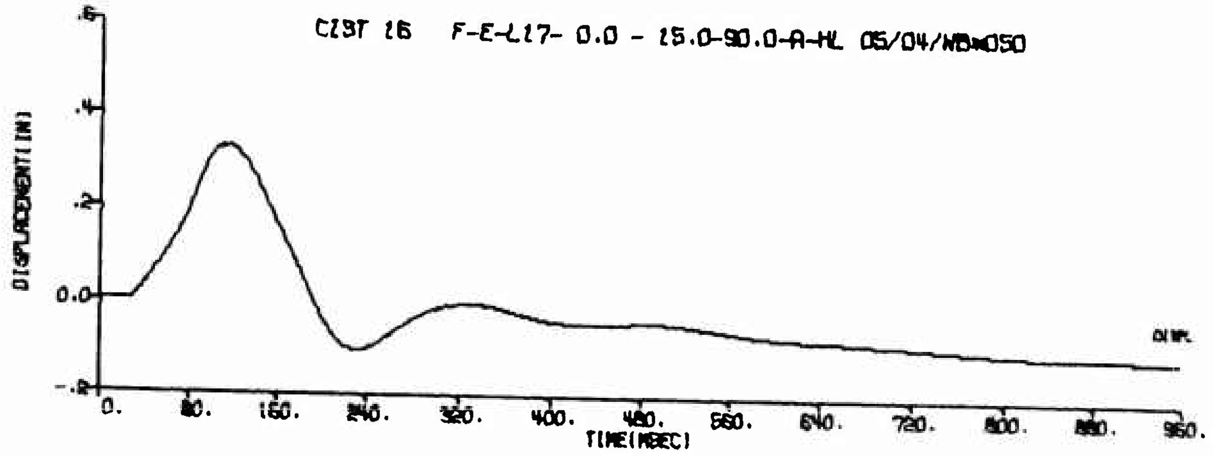
VELOCITY(FT/SEC)
.8
.4
0.0
-.4
-.8
VELOC
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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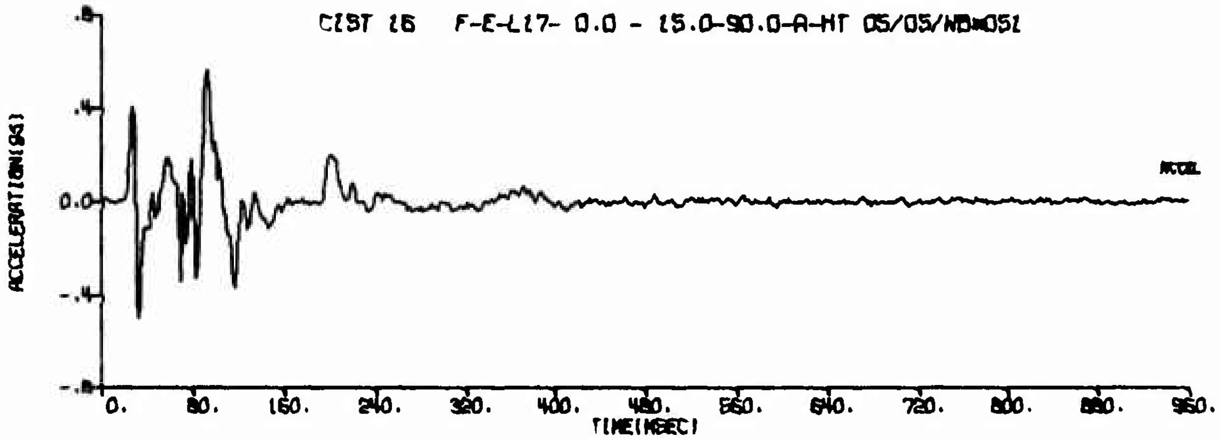
DISPLACEMENT(IN)
.6
.4
.2
0.0
-.2
DISP.
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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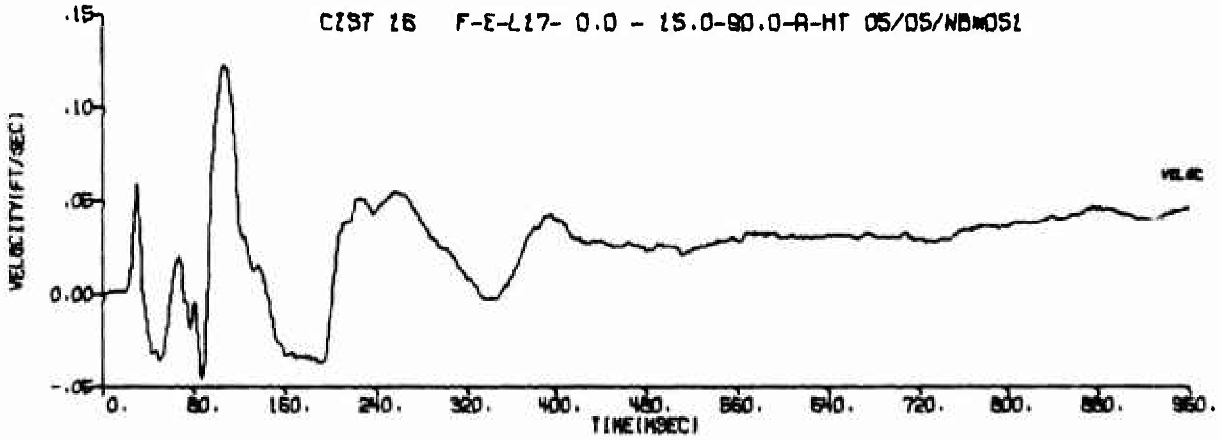
ACCELERATION(GS)
.8
.4
0.0
-.4
-.8
ACCEL
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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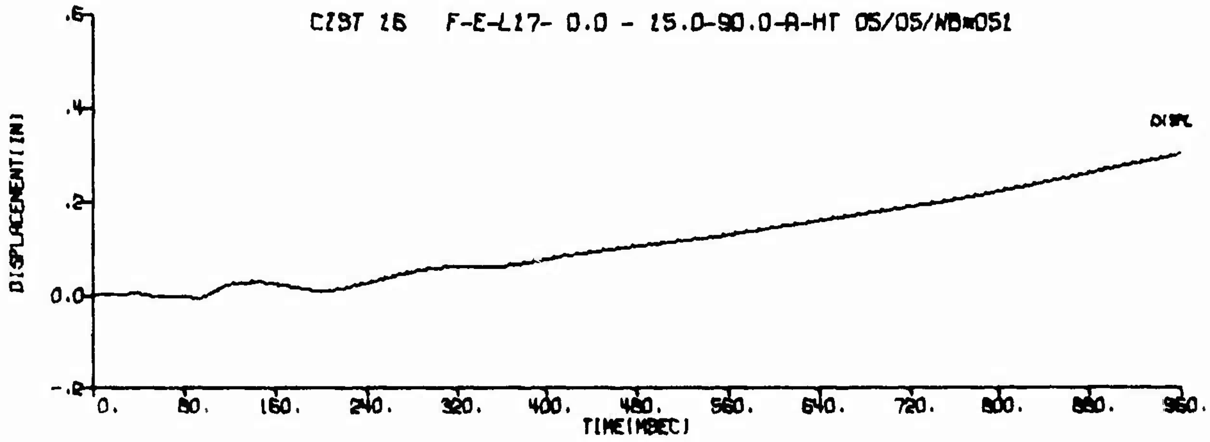
VELOCITY(FT/SEC)
.15
.10
.05
0.00
-.05
VELOC
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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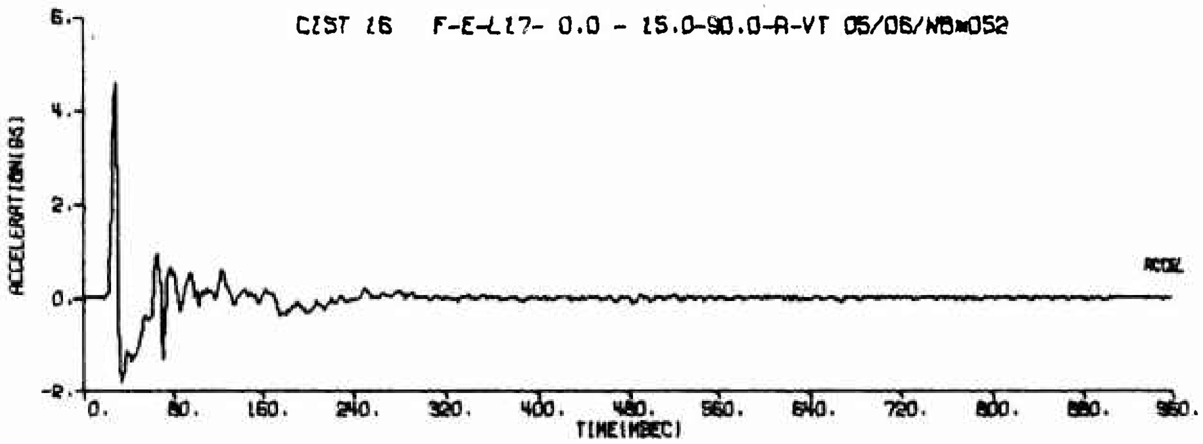
DISPLACEMENT(IN)
.6
.4
.2
0.0
-.2
DISPL
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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ACCELERATION(GS)
6.
4.
2.
0.
-2.
ACCEL
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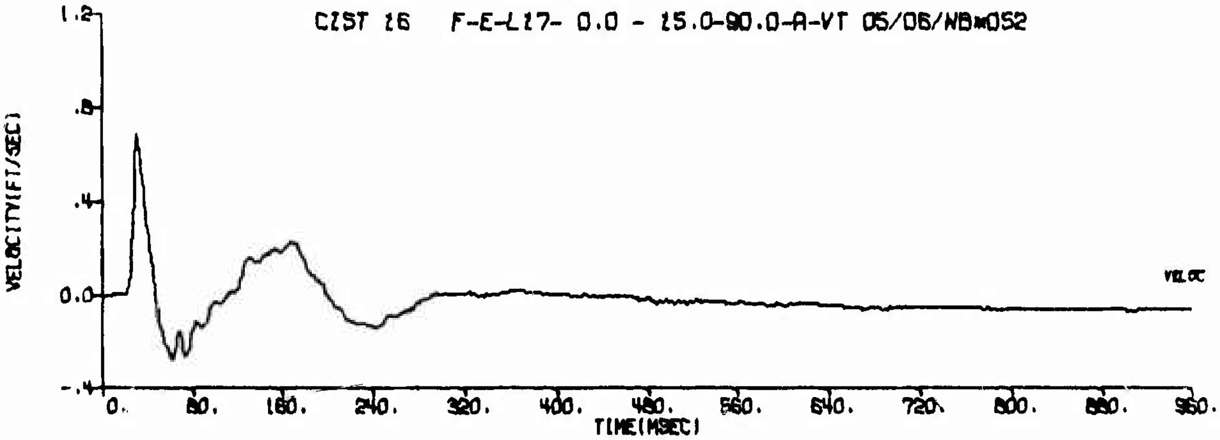
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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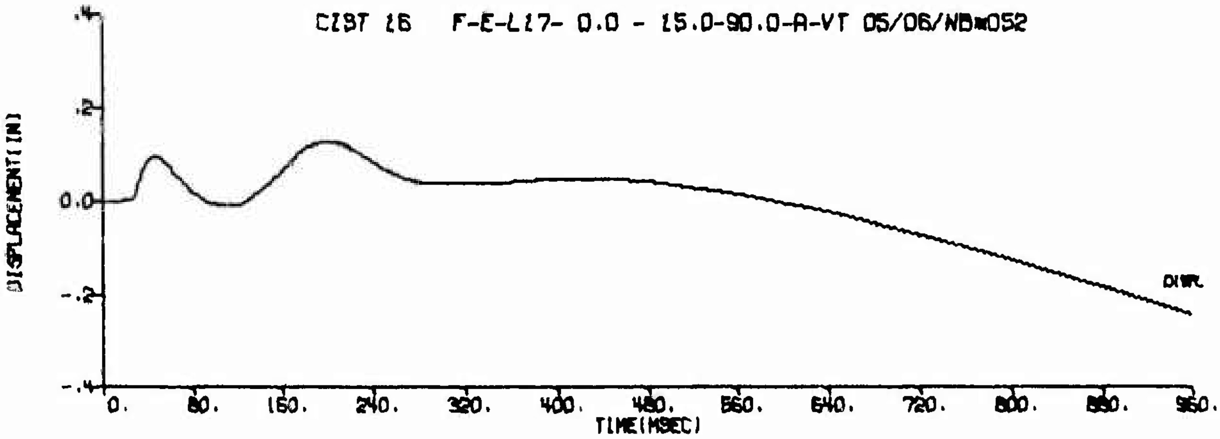
VELOCITY(FT/SEC)
1.2
.8
.4
0.0
-.4
VELOC
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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DISPLACEMENT(IN)
.4
.2
0.0
-.2
-.4
DISPL
0.
80.
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240.
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400.
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640.
720.
800.
880.
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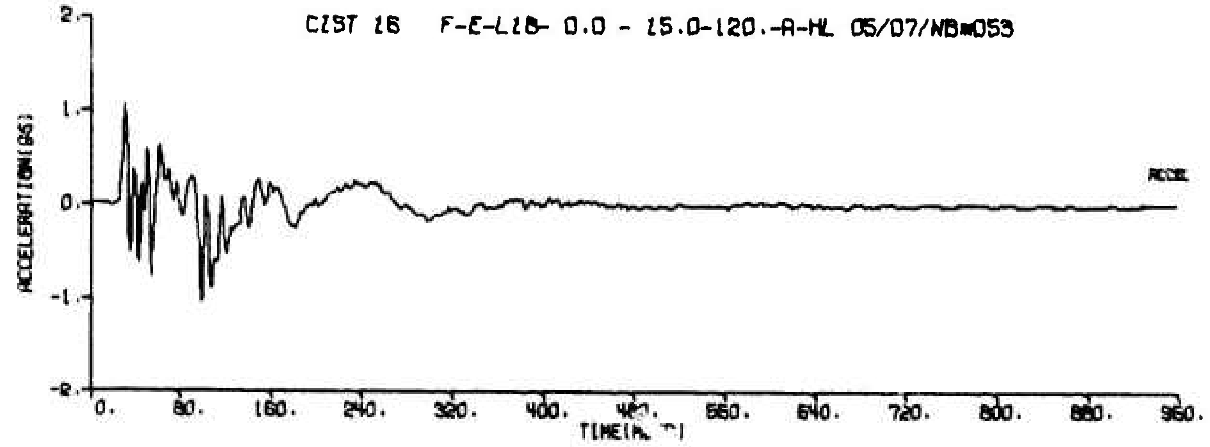
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ACCELERATION(GS)
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1.
0.
-1.
-2.
ACCEL
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240.
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400.
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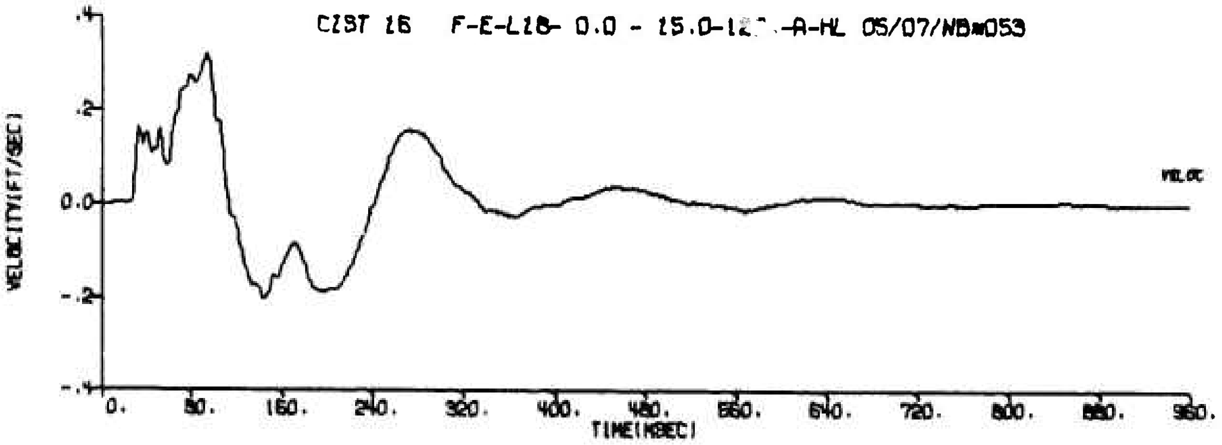
720.
800.
880.
960.
TIME(MSEC)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VELOCITY(FT/SEC)
.4
.2
0.0
-.2
-.4
VELOC
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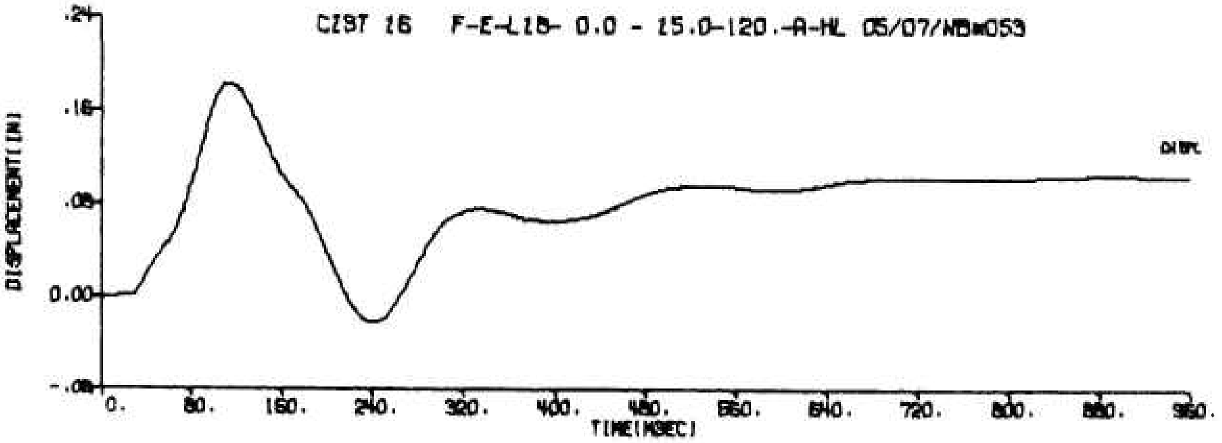
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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DISPLACEMENT(IN)
.24
.16
.08
0.00
-.08
DISPL
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560.
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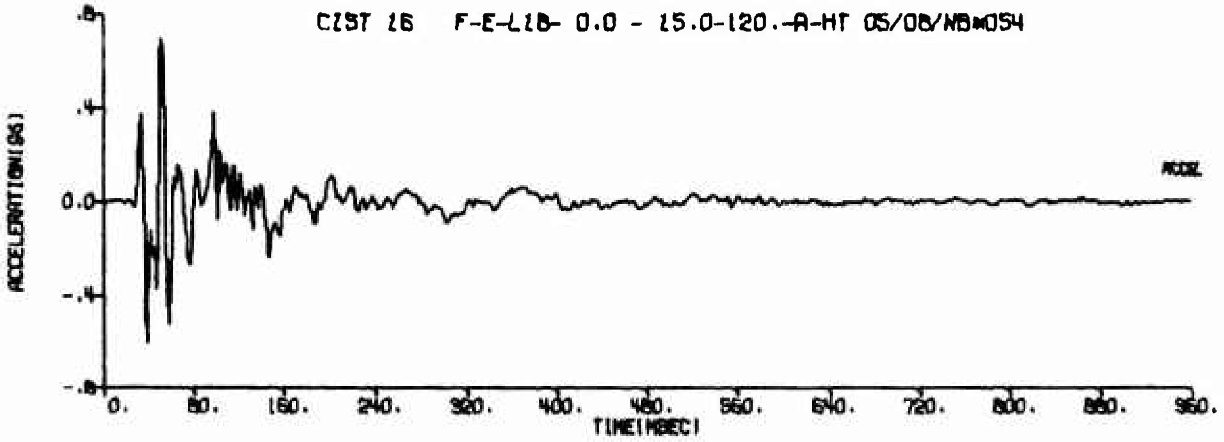
720.
800.
880.
960.
TIME(MSEC)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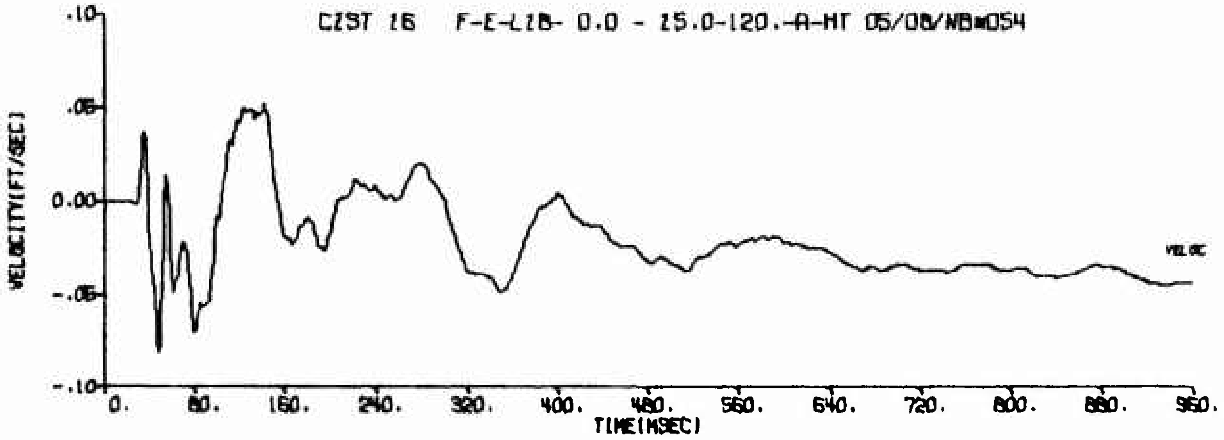
ACCELERATION(G'S)
.8
.4
0.0
-.4
-.8
ACCEL
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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.10
.05
0.00
-.05
-.10
VELOC
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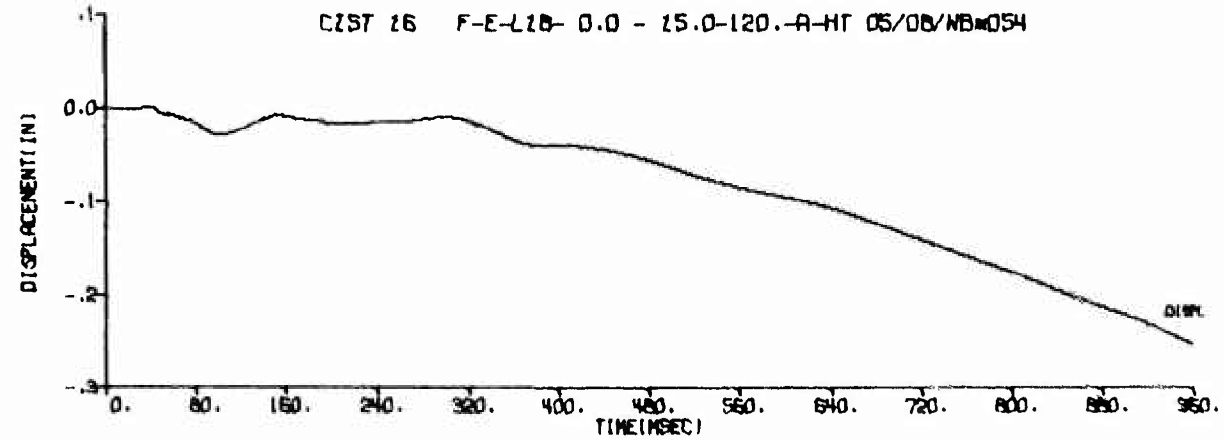
720.
800.
880.
960.
TIME(MSEC)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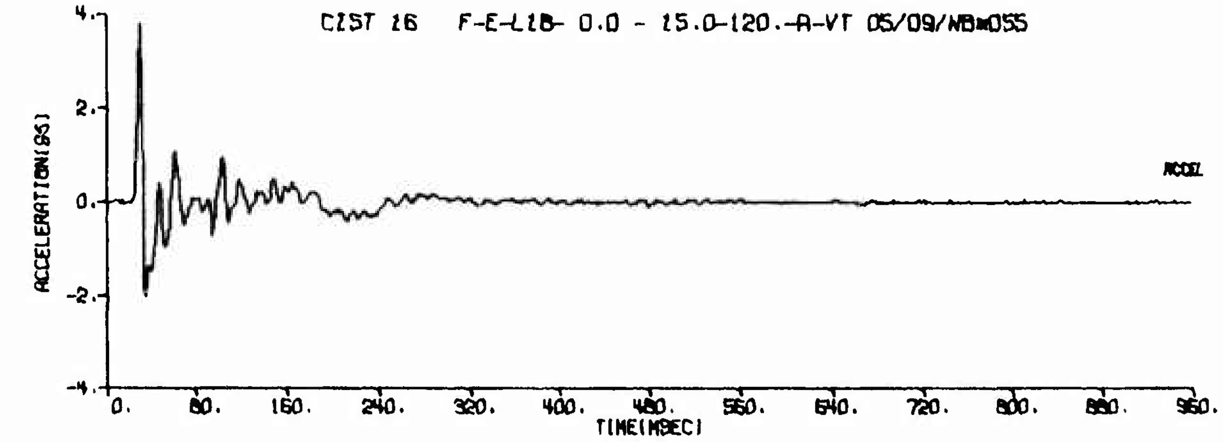
DISPLACEMENT(IN)
.1
0.0
-.1
-.2
-.3
DISPL
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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ACCELERATION(GS)
4.
2.
0.
-2.
-4.
ACCEL
0.
80.
160.
240.
320.
400.
480.
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720.
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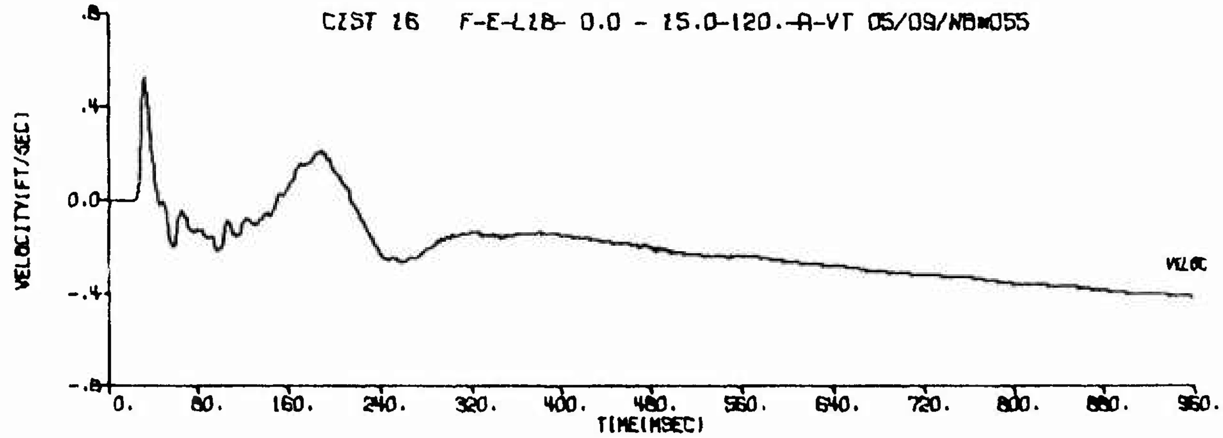
880.
960.
TIME(MSEC)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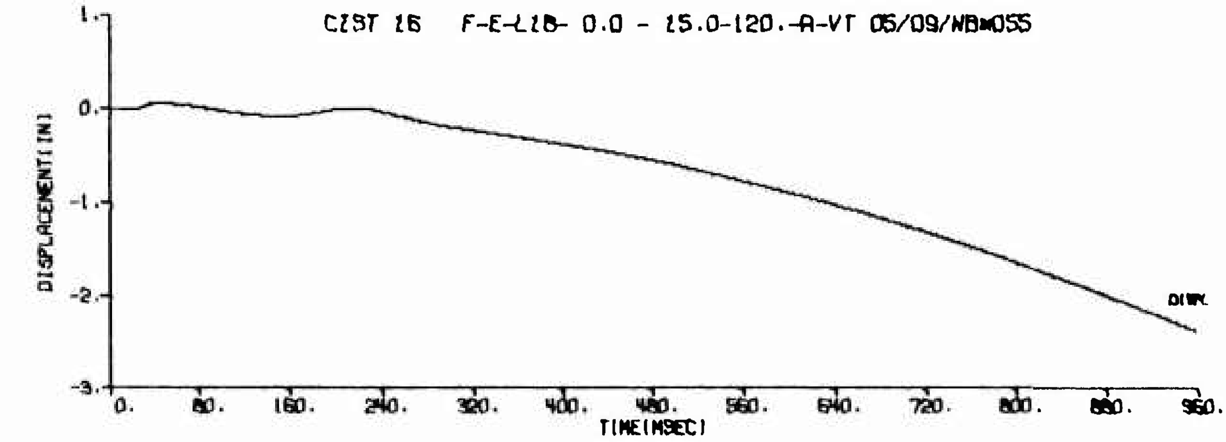
VELOCITY(FT/SEC)
.8
.4
0.0
-.4
-.8
VELOC
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)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DISPLACEMENT(IN)
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0.
-1.
-2.
-3.
DISPL
0.
80.
160.
240.
320.
400.
480.
560.
640.
720.
800.
880.
960.
TIME(MSEC)

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