



CHURCH STREET, BOHEMIA, LONG ISLAND,
NEW YORK 11716 / (516) 589-6300

TEST REPORT / PROCEDURE No.DTB04R80-0479...REVISION A
DAYTON T. BROWN, INC. JOB No.402438-00-000.....

CUSTOMER: DEVAR, INC.
706 BOSTWICK AVENUE
BRIDGEPORT, CONNECTICUT 06605

SUBJECT: SEISMIC TEST PROGRAM PERFORMED ON
ONE CPC 1 AND ONE CPC 2

ATTENTION: MR. J. DREHER

THIS REPORT CONTAINS: FIVE PAGES AND FOUR ENCLOSURES

PREPARED BY	T. ZIMOULIS <i>T. Zimoulis</i>
TEST ENGINEER	T. ZIMOULIS <i>T. Zimoulis</i>
STAFF ENGINEER	R. ROTH AUG <i>R. Rothaug</i>
DATE	5 AUGUST 1980



REVISION PAGE

Page No.

Changes

Cover

Revision A indicated; J. Dryerman changed to J. Dreher; enclosures added; date updated

1

Enclosures 3 and 4 added to Table of Contents

4

Names at representatives corrected

Enc 1 Pg 1

Added sentence

Enc 3

Test Procedure added as enclosure

Enc 4

Test Axis Designation Sketch and Test Point Locations added as enclosure

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Enclosures

(1) Seismic Test and Results	58 Pages	
(2) Photographs	2 Photos	
(3) Seismic Test Procedure	7 Pages	A
(4) Test Axes Designation Sketch and Test Point Locations	2 Pages	A



1.0 ABSTRACT

This test report details the results of seismic test program conducted on one CPC 1 and one CPC 2 under reference (a) to the requirements of reference (c).

Results of the test are detailed in the following text.

The test items were operated during specified portions of testing.

The test items' operation was the sole responsibility of Devar, Inc. personnel, and all operational data was retained by same.

Test data pertinent to this program will remain on file at Dayton T. Brown, Inc. for 90 days.



2.0 REFERENCES

- (a) Customer Purchase Order Number 38368
- (b) Dayton T. Brown, Inc. Job Number 402438-00-000
- (c) Test Specification DTB25P79-0285, Revision B

3.0 ADMINISTRATIVE INFORMATION

Customer: Devar, Inc.

Test Item Description: CPC 1 and CPC 2

Quantity Received: One of Each

Serial Numbers: 0030267, 0030268

Date Received: 14 April 1980

Date Shipped: 15 April 1980

Customer Representatives Present During Portions of Test:

<u>Name</u>	<u>Affiliation</u>	
Mr. J. Dreher	Devar, Inc.	A
Mr. L. Geanuracos	Devar, Inc.	A
Mr. T. A. MacNair	Combustion, Inc.	
Mr. J. Scarola	Combustion, Inc.	A
Mr. A. Anavim	Combustion, Inc.	A



4.0 TEST PROGRAM OUTLINE

<u>Test</u>	<u>Test Item Description</u>	<u>Results</u>
Seismic	CPC 1 and CPC 2	No Anomalies



Enclosure 1

Seismic Test and Results

TEST REQUIREMENT

The seismic test shall be conducted in accordance with reference (c).

TEST RESULTS

A pretest visual inspection of the test items revealed no anomalies.

All testing was performed in accordance with the referenced specification. "The seismic spectrums were analyzed using 1/3 octave filters with a Q factor of 50."

Below is a tabulated summary.

Seismic Test Summary

<u>Sequence</u>	<u>Axis</u>	<u>Condition</u>	<u>Duration (min.)</u>	<u>Graph Page No. (Enc. 1)</u>
1	Z	Resonant Survey	5.5	2 - 9
2	X	Resonant Survey	5.5	10 - 17
3	Y	Resonant Survey	5.5	18 - 26
4	Y	Strain Survey	5.5	27
5	Z	Strain Survey	5.5	28
6	X	Strain Survey	5.5	29
7	Y/Z	Fixture Equalization	0.5	30, 31
8	Y/Z	OBE Run #1	0.5	32, 33
9	Y/Z	OBE Run #2	0.5	34, 35
10	Y/Z	OBE Run #3	0.5	36, 37
11	Y/Z	OBE Run #4	0.5	38, 39
12	Y/Z	OBE Run #5	0.5	40, 41
13	Y/Z	SSE Run #1	0.5	42, 43
14	X/Z	OBE Run #1	0.5	44, 45
15	X/Z	OBE Run #2	0.5	46, 47
16	X/Z	OBE Run #3	0.5	48, 49
17	X/Z	OBE Run #4	0.5	50, 51
18	X/Z	OBE Run #5	0.5	52, 53
19	X/Z	SSE Run #1	0.5	54, 55

During the entire vibration test, the largest strain noted was 125.47 μ in/in. The largest displacement noted from LVDTs was less than 0.045 inch. This displacement occurred during both SSE runs in vertical direction.

The test items were mounted in the vibration fixture using four 1/4 - 20 screw head bolts backed with flat washers. The two test items' backs were tied together with two 1/8 inch steel plates.

The test items completed all phases of testing.

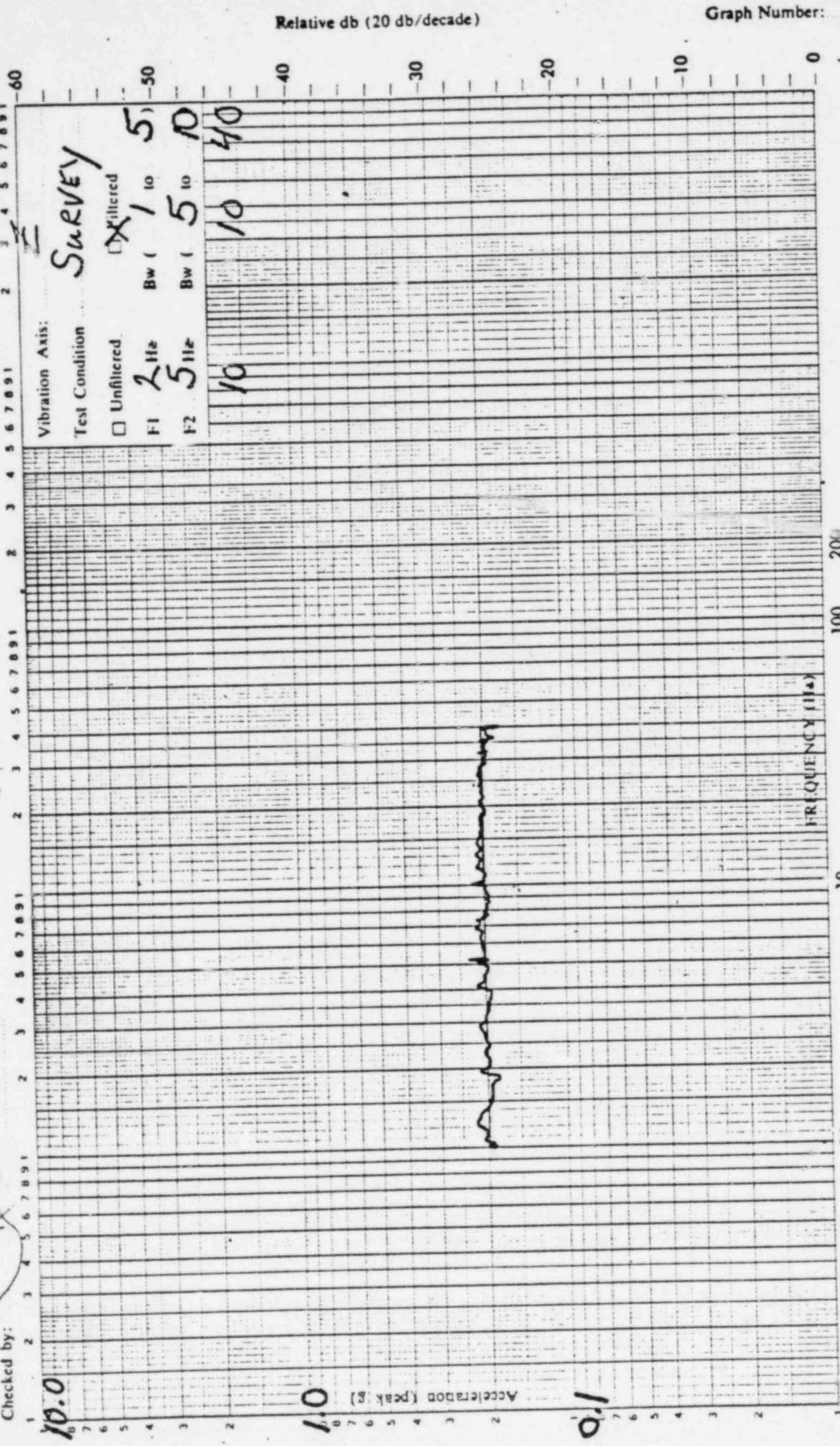
A post-test visual inspection of the test items revealed no anomalies due to testing.

Test Item: **CORE PROTECT. L.A.I.**
 Serial Number(s): **0030267, 0030268**

Unit: Operational ☒ Non-operational ☐

DAYTON T. BROWN INC.
 Testing Laboratories

Plotted by: *L. H. Hinkle*
 Checked by: *L. H. Hinkle*



Pickup Serial Number: **LA33**
 Pickup Location: **Control**
 Pickup Sensing Axis: **2**

Pickup Sensitivity: **100.0**
 Sweep Speed: **1.0**

Job Number: **402438**
 Date: **14 APR 80**
 Time: **1835**

mv peak
g peak

oct/minute

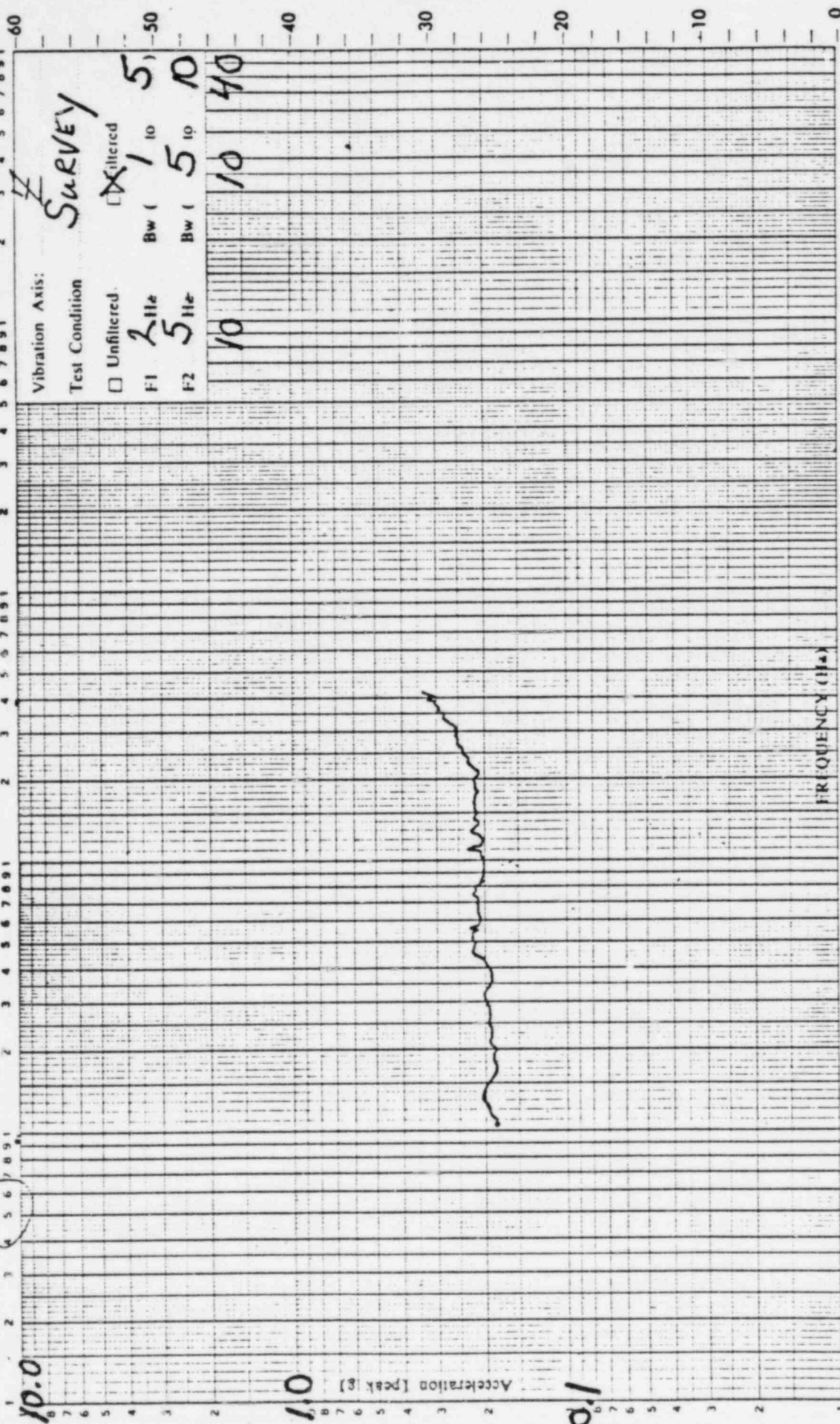
☐ Live ☒ Tape

Plotted by: *L. Hamlin*
Checked by: *[Signature]*

DAYTON T. BROWN INC.
Testing Laboratories

Test Item: *CORE PROTECT. CAL.*
Serial Number(s): *0030267, 0030268*

Unit: Operational ☒ Non-operational ☐



Vibration Axis:
Test Condition
☐ Unfiltered
☒ Filtered
F1 2 Hz Bw (1 10 5)
F2 5 Hz Bw (5 10 10)

10 10 40

Relative db (20 db/decade)

Graph Number: 1

402438
14 APR 80
1835

Job Number:
Date:
Time:
mv peak / g peak
oct/minute
Pickup Sensitivity: 100.0
Sweep Speed: 1.0

Pickup Serial Number: 863
Pickup Location: TPO4
Pickup Sensing Axis: Z

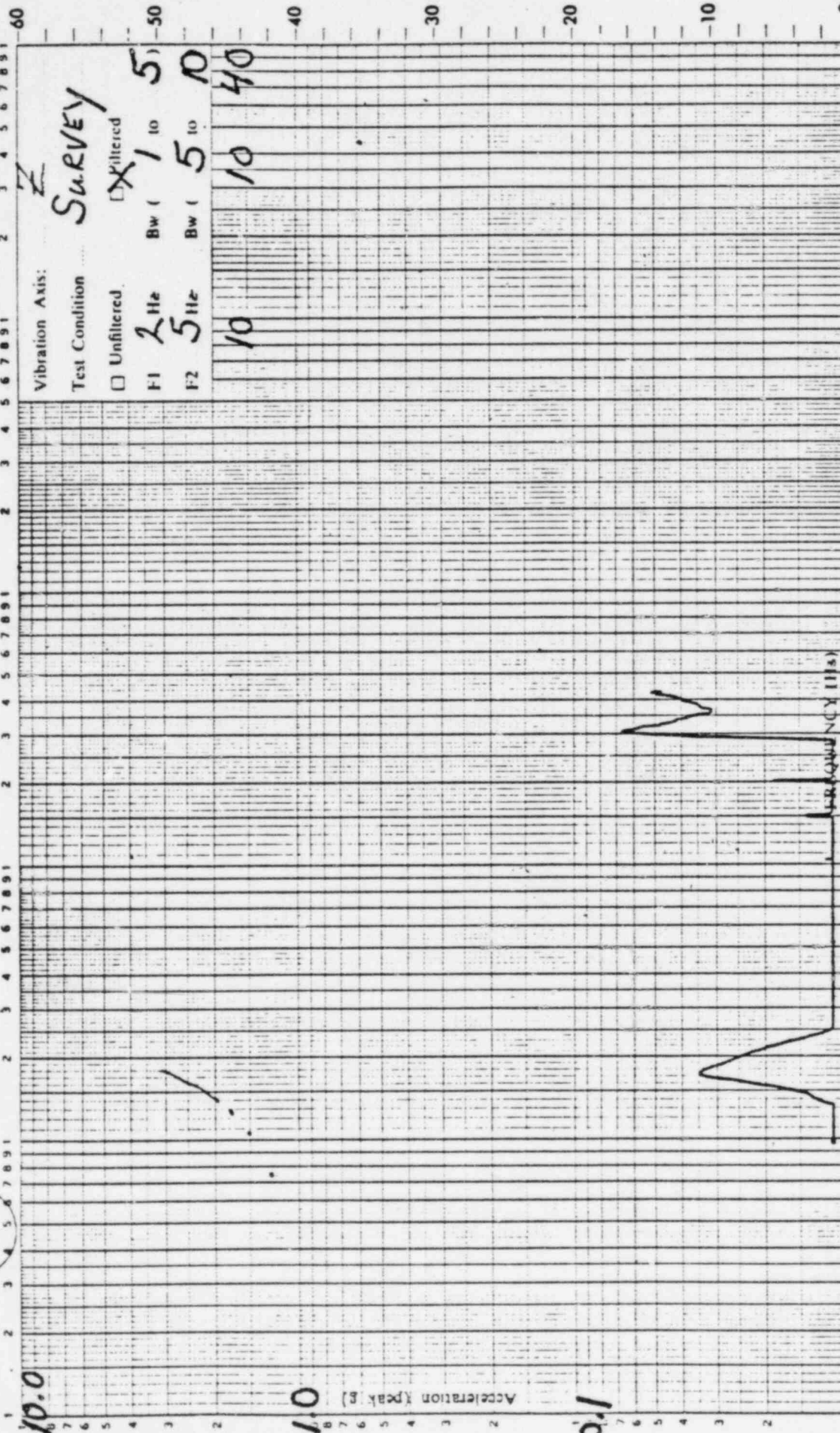
☐ Live ☒ Tape

Test Item: **CORE PROTECT. CAL.**
 Serial Number(s): **0030267, 0030268**

Unit: Operational ☒ Non-operational ☐

DAYTON T. BROWN INC.
 Testing Laboratories

Plotted by: *L. Hamilton*
 Checked by:



Job Number: **402438**

Date: **14 APR 80**

Time: **1835**

Pickup Sensitivity: **100.0**

Sweep Speed: **1.0**

☐ Live ☒ Tape

Pickup Serial Number: **XG79Z**

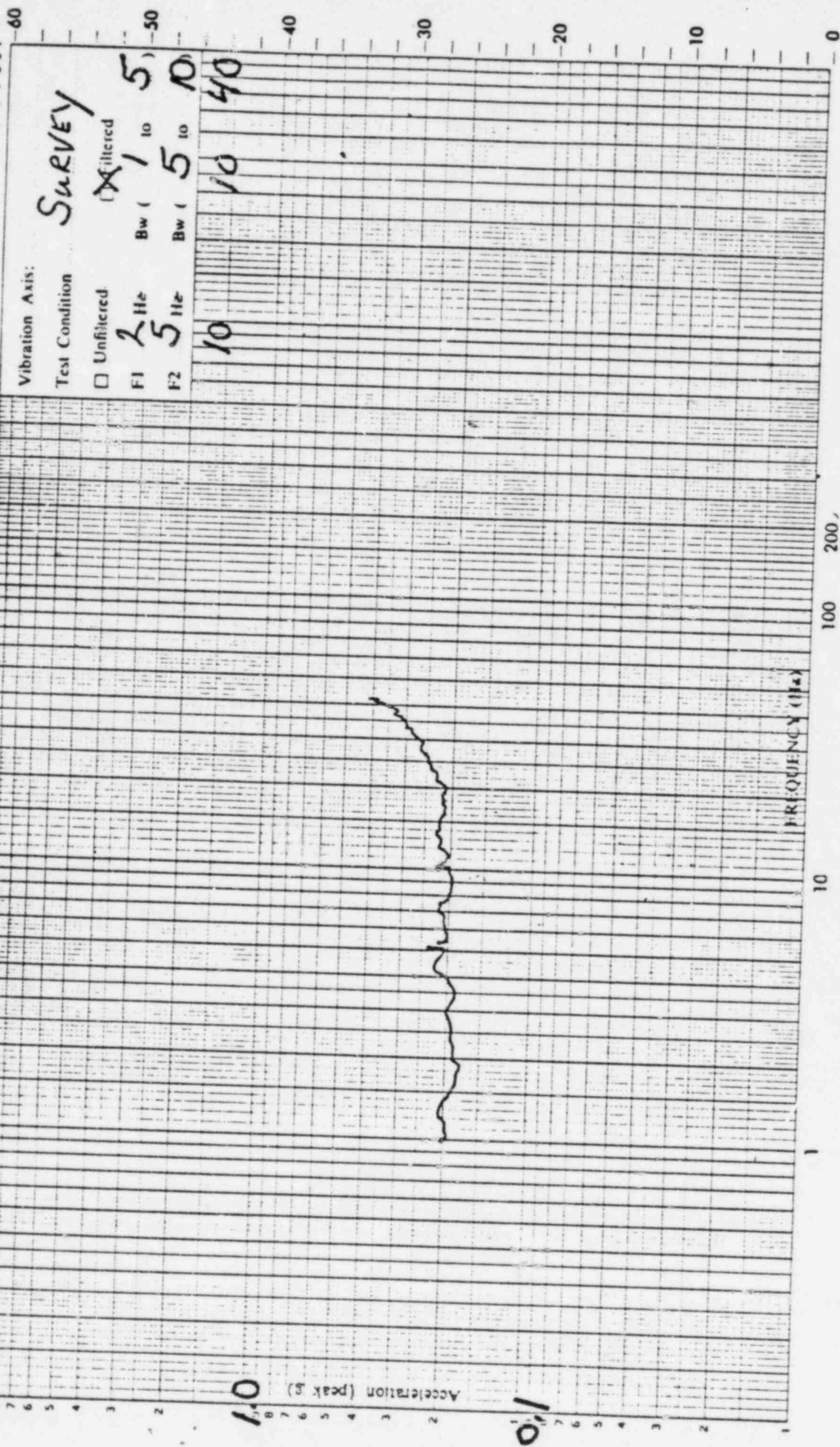
Pickup Location: **TP3**

Pickup Sensing Axis: **Y**

Plotted by: *A. H. Harkin*
 Checked by: *[Signature]*
 DAYTON T. BROWN, Inc.
 Testing Laboratories

Test Item: **CORE PROTECT. CAL.**
 Serial Number(s): **0030267, 0030268**

Unit: Operational ☒ Non-operational ☐



Pickup Serial Number: **16794**
 Pickup Location: **TP43**
 Pickup Sensing Axis: **Z**

Pickup Sensitivity: **100.0** mv peak / g peak
 Sweep Speed: **1.0** oct/minute

Job Number: **402438**
 Date: **14 APR 80**
 Time: **1835**

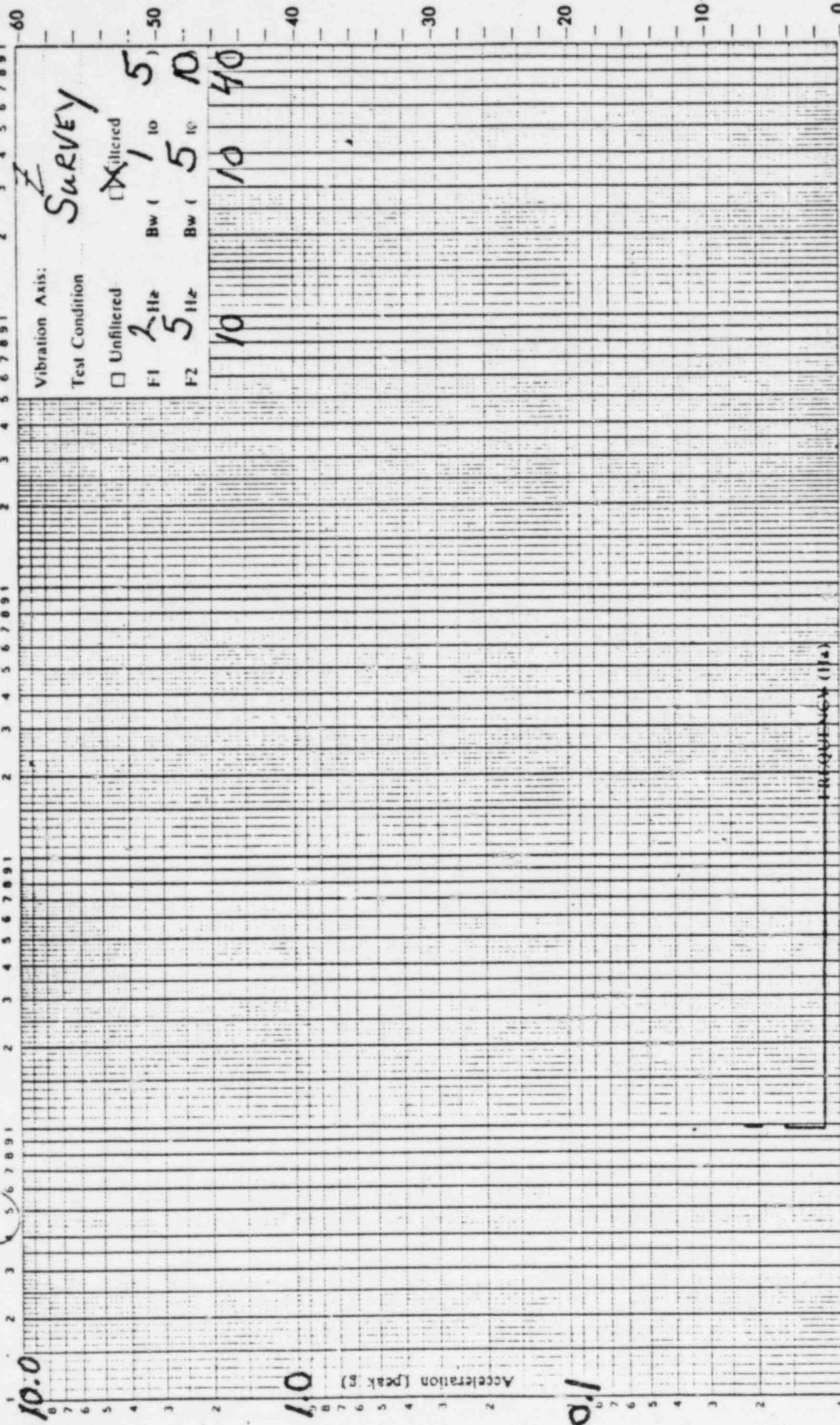
☐ Live ☒ Tape

Plotted by: *L. Hamilton*

Checked by:

DAYTON T. BROWN INC.
Testing Laboratories

Test Item: *CORE PROTECT, Cal.*
Serial Number(s): *0030267, 0030268*
Unit: Operational ☒ Non-operational ☐



Job Number: *402438*
Date: *14 APR 80*
Time: *1835*

Pickup Sensitivity: *100.0* mv peak / g peak
Sweep Speed: *1.0* oct/minute
☐ Live ☒ Tape

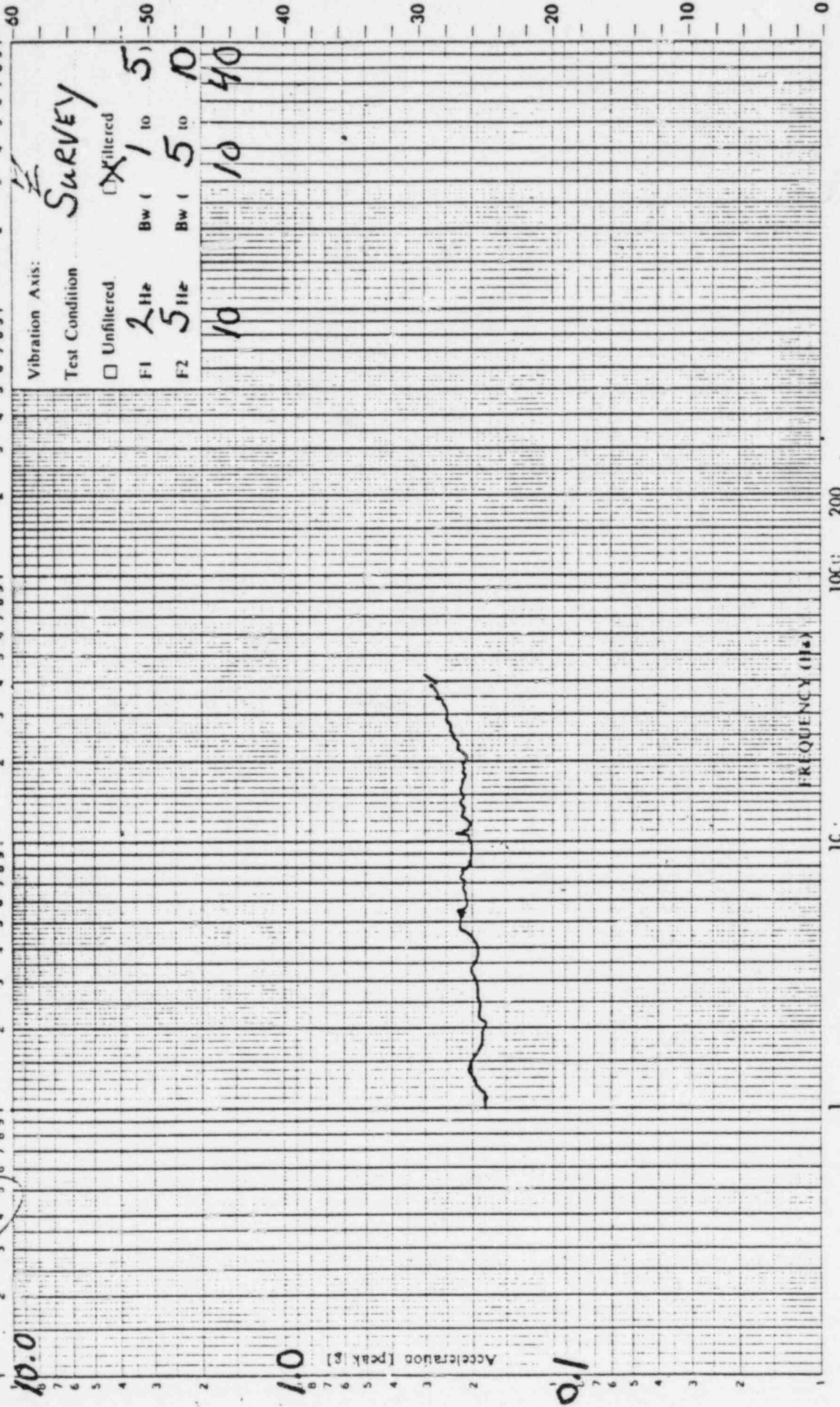
Pickup Serial Number: *1G79X*
Pickup Location: *TP# 3*
Pickup Sensing Axis: ☒

Plotted by: *L. H. Hildreth*

Checked by:

DAYTON T. BROWN INC.
Testing Laboratories

Test Item: *CORE PROTECT. CAL.*
Serial Number(s): *0030267, 0030268*
Unit: Operational ☒ Non-operational ☐



Pickup Serial Number: *224*
Pickup Location: *TP#2*
Pickup Sensing Axis: *Z*

Pickup Sensitivity: *100.0* $\frac{mv\ peak}{g\ peak}$
Sweep Speed: *1.0* oct/minute
☐ Live ☒ Tape

Job Number: *402438*
Date: *14 APR 80*
Time: *1535*

Methods

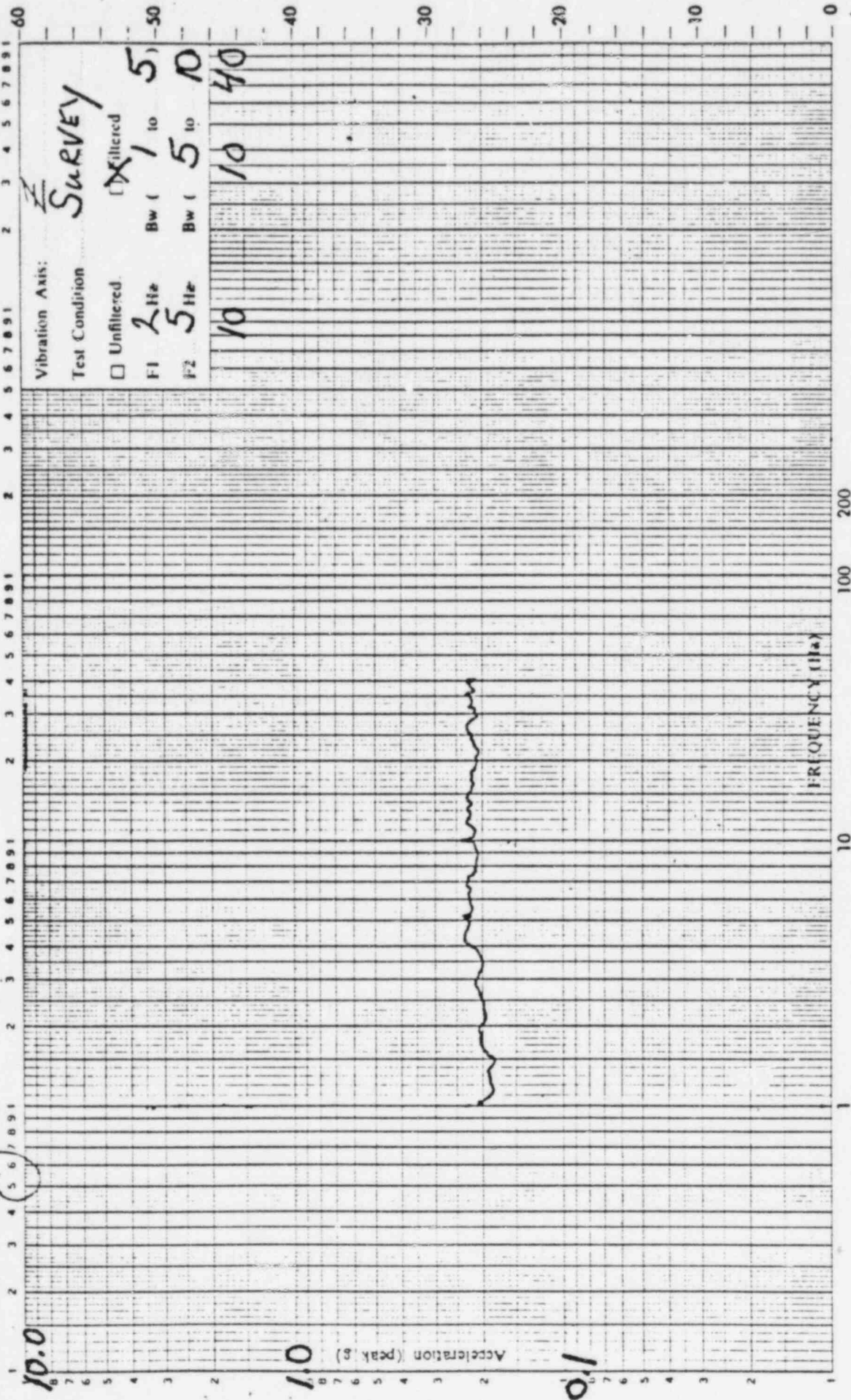
Plotted by: *L. H. H. H.*

Checked by:

DAYTON T. BROWN INC.
Testing Laboratories

Test Item: *CORE PROTECT. CAL.*
Serial Number(s): *0030267, 0030268*

Unit: Operational ☒ Non-operational ☐



Job Number: *402438*

Date: *14 APR 80*

Time: *1835*

Pickup Sensitivity: *100.0*

Sweep Speed: *1.0*

Pickup Serial Number: *1682E*

Pickup Location: *TP #1*

Pickup Sensing Axis: *Z*

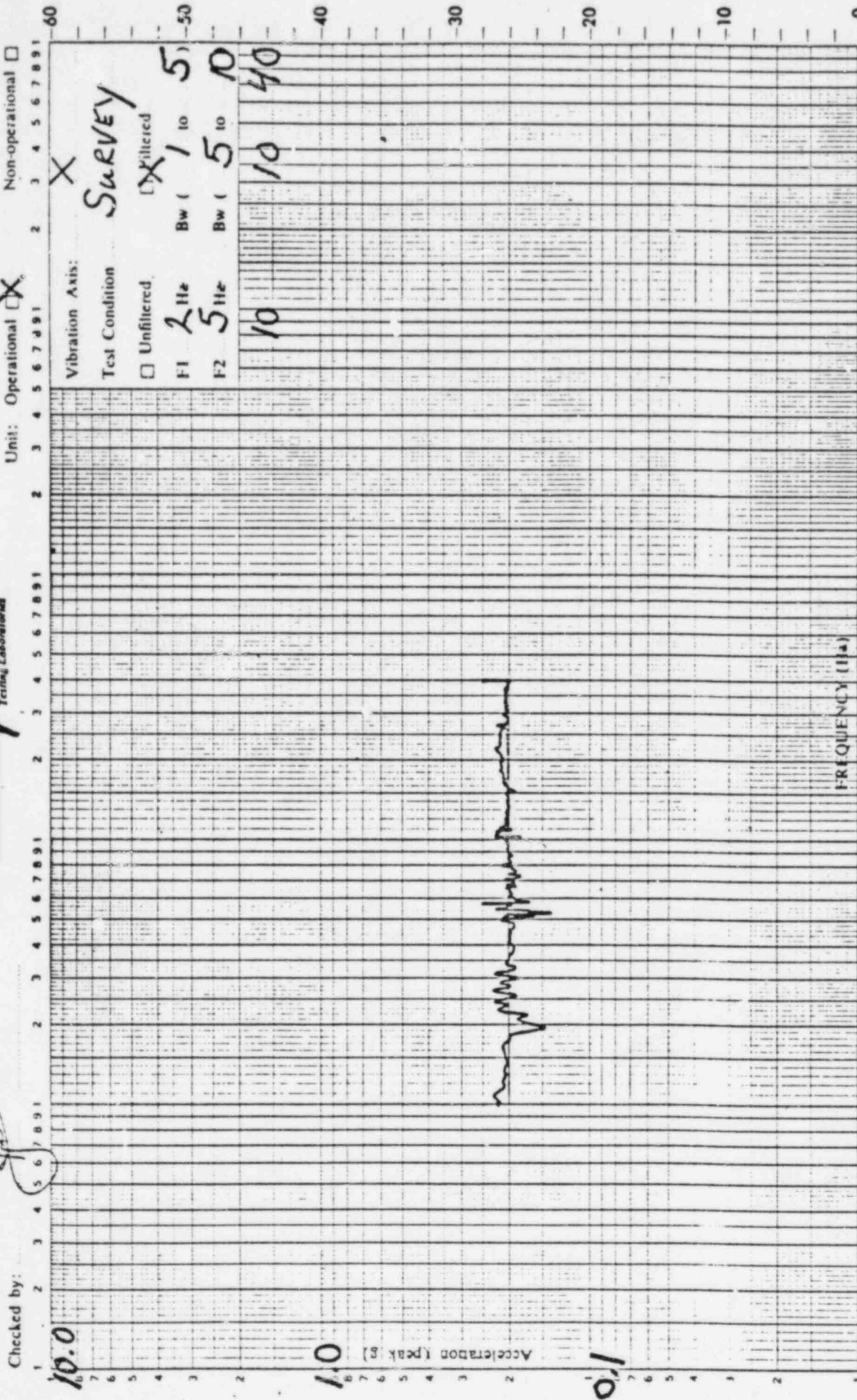
☒ Tape

☐ Live

Plotted by: *L. Heinlein*
Checked by: *[Signature]*

DAYTON BROWN INC.
Testing Laboratories

Test Item: **CORE PROTECT. CAL.**
Serial Number(s): **0030267, 0030268**
Unit: Operational ☒ Non-operational ☐



Pickup Serial Number: **LA33**

Pickup Location: **Control**

Pickup Sensing Axis: ☒ Live ☐ Tape

Pickup Sensitivity: **100.0** mv peak / g peak

Sweep Speed: **1.0** oct/minute

Job Number: **402438**

Date: **14 APR 80**

Time: **1855**

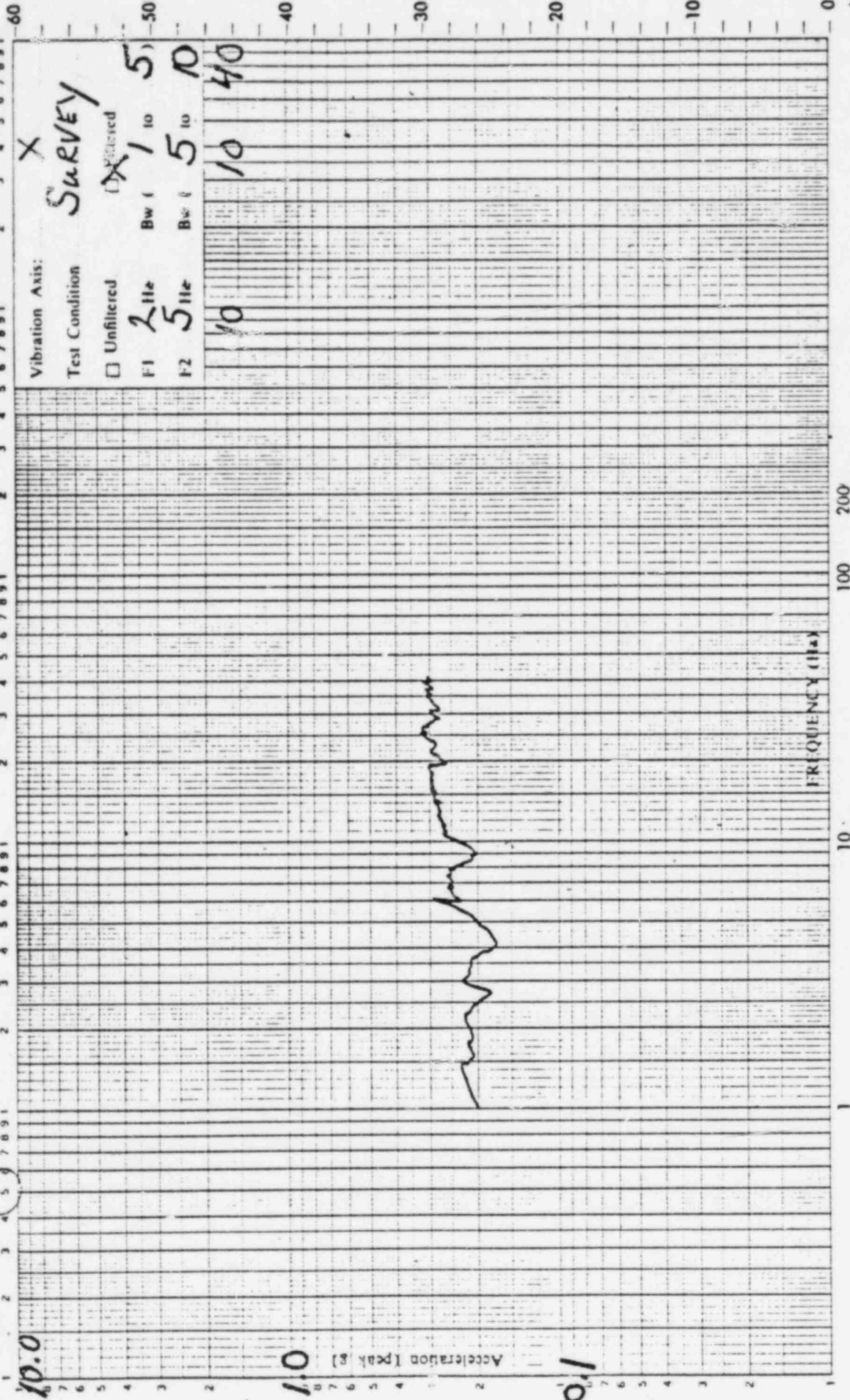
Test Item: **CORE PROTECT. CAL.**
 Serial Number(s): **0030267, 0030268**

Unit: Operational ☒ Non-operational ☐

DAYTON BROWN INC.
 Testing Laboratories

Plotted by: *L. H. Harkin*

Checked by:



Job Number: **402438**

my peak
g peak

Pickup Sensitivity: **100.0**

Sweep Speed: **1.0**

Pickup Serial Number: **Y882X**

Pickup Location: **TP#1**

Pickup Sensing Axis: **X**

Date: **14 APR 80**

Time: **1855**

oct/minute

☒ Tape

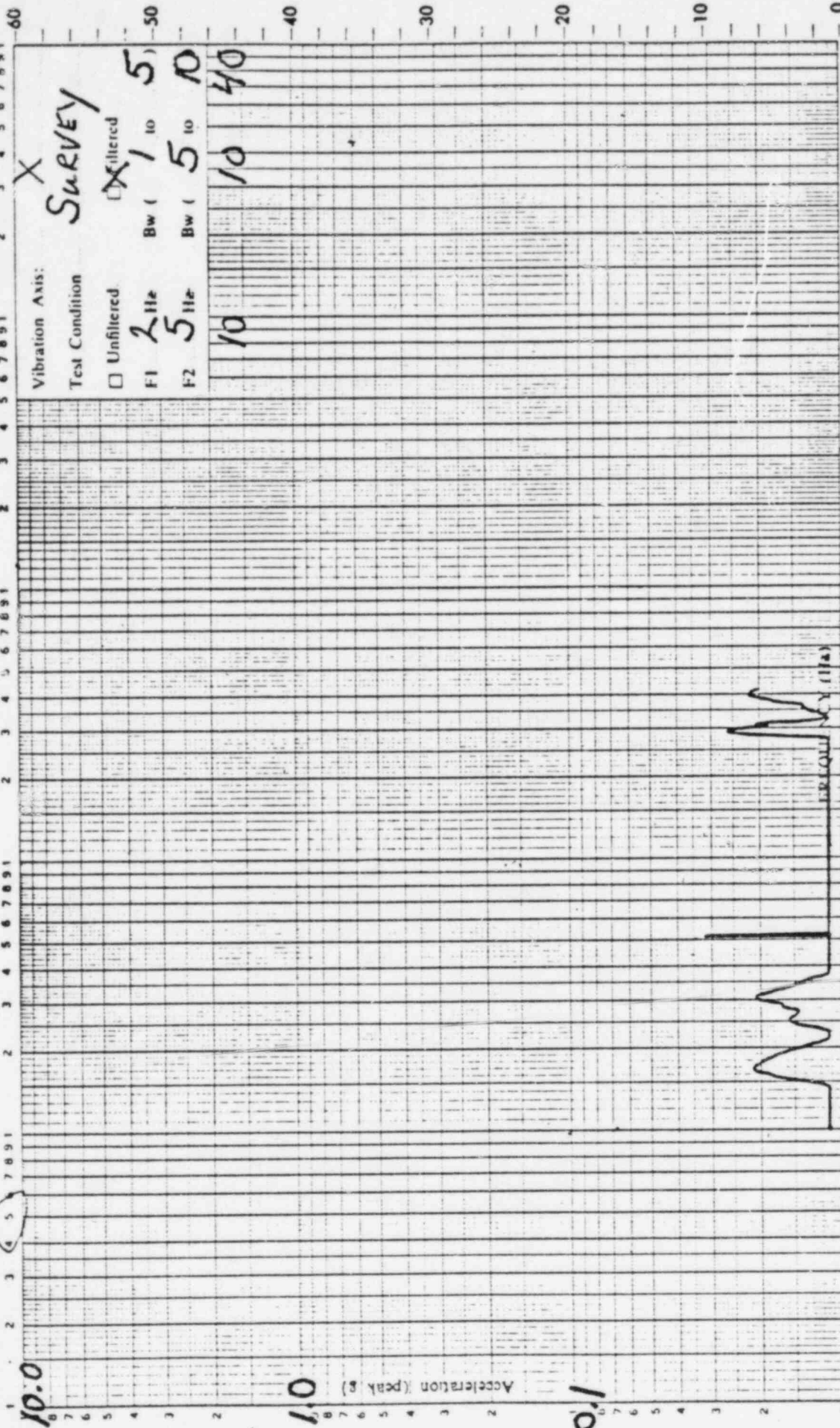
☐ Live

Test Item: **CORE PROTECT. CAL.**
 Serial Number(s): **0030267, 0030268**

Unit: Operational ☒ Non-operational ☐

DAYTON T. BROWN INC.
 Testing Laboratories

Plotted by: *A. H. H. H. H.*
 Checked by: *[Signature]*



Vibration Axis:

Test Condition

☐ Unfiltered

F1 2 Hz

F2 5 Hz

SURVEY

☒ Filtered

Bw (10)

Bw (5)

402438

Job Number:

14 APR 80

Date:

Time:

mv peak
g peak

100.0

Pickup Sensitivity:

1.0

Sweep Speed:

☒ Tape

Y681Z

Pickup Serial Number:

TP1

Pickup Location:

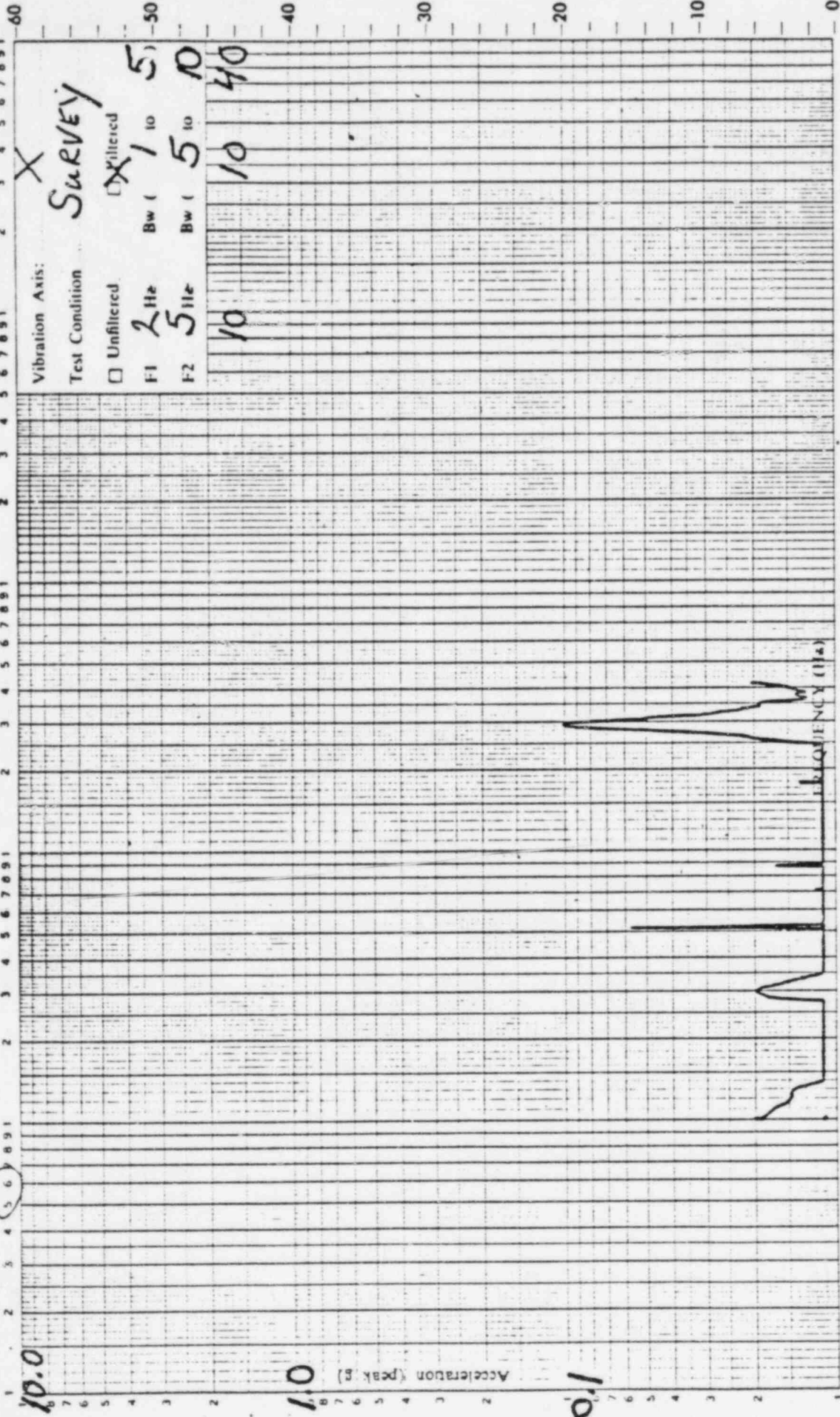
Z

Pickup Sensing Axis:

Test Item: **CORE PROTECT. CAL.**
 Serial Number(s): **0030267, 0030268**
 Unit: Operational ☒ Non-operational ☐

DAYTON T. BROWN INC.
 Testing Laboratories

Plotted by: *L. H. Hinkle*
 Checked by: *[Signature]*



402438
14 APR 80
1855

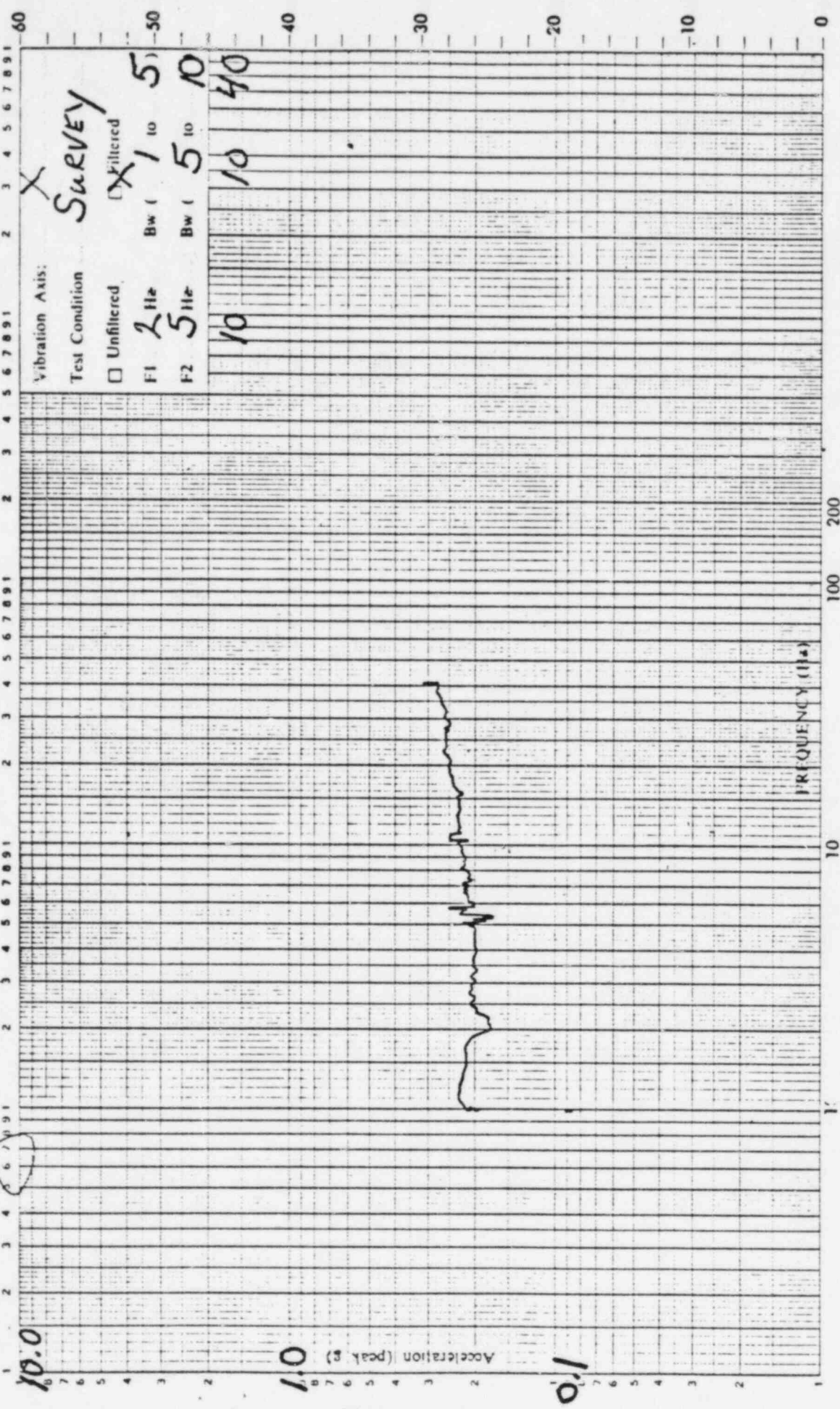
Job Number: **402438**
 Date: **14 APR 80**
 Time: **1855**

Pickup Sensitivity: **100.0**
 Sweep Speed: **1.0**
☒ Live ☐ Tape

Plotted by: *L. Heinlein*
 Checked by: *[Signature]*

DAYTON T. BROWN INC.
 Testing Laboratories

Test Item: **CORE PROTECT. CAL.**
 Serial Number(s): **0030267, 0030268**
 Unit: Operational ☒ Non-operational ☐



Pickup Serial Number: **224**
 Pickup Location: **TP#2**
 Pickup Sensing Axis: **X**

Pickup Sensitivity: **100.0** mv peak / g peak
 Sweep Speed: **1.0** oct/minute
☐ Live ☒ Tape

Job Number: **402438**
 Date: **14 APR 80**
 Time: **1855**

Handwritten signature

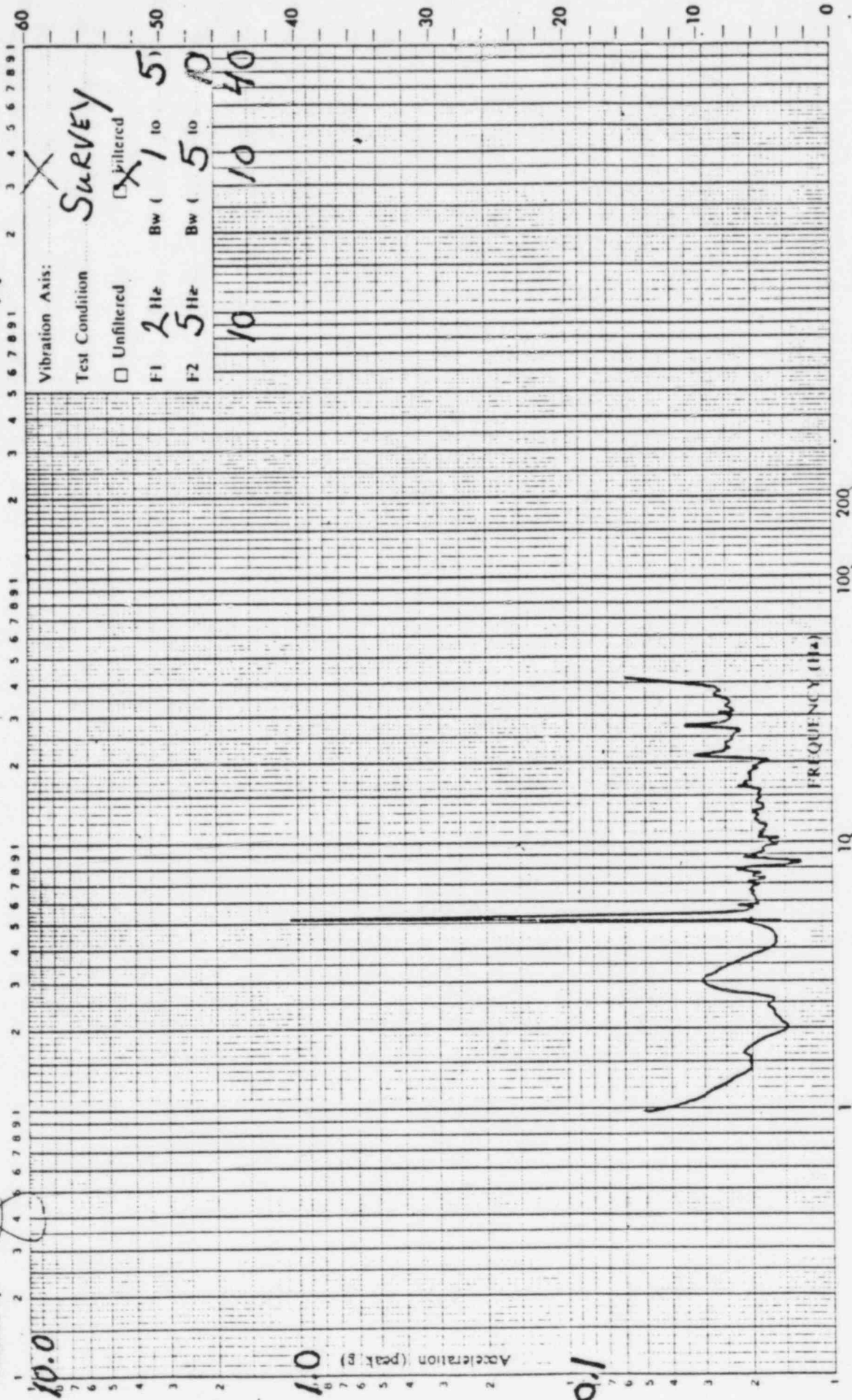
Plotted by:

Checked by:

DAYTON T. BROWN, INC.
Testing Laboratories

Test Item: *CORE PROTECT. CAL.*
Serial Number(s): *0030267, 0030268*

Unit: Operational ☒ Non-operational ☐



Pickup Serial Number: *YG797*
Pickup Location: *TP#3*
Pickup Sensing Axis: *Z*

Pickup Sensitivity: *100.0*
Sweep Speed: *1.0*
oct/minute

Job Number: *402438*
Date: *14 APR 80*
Time: *1:55*

☐ Live ☒ Tape

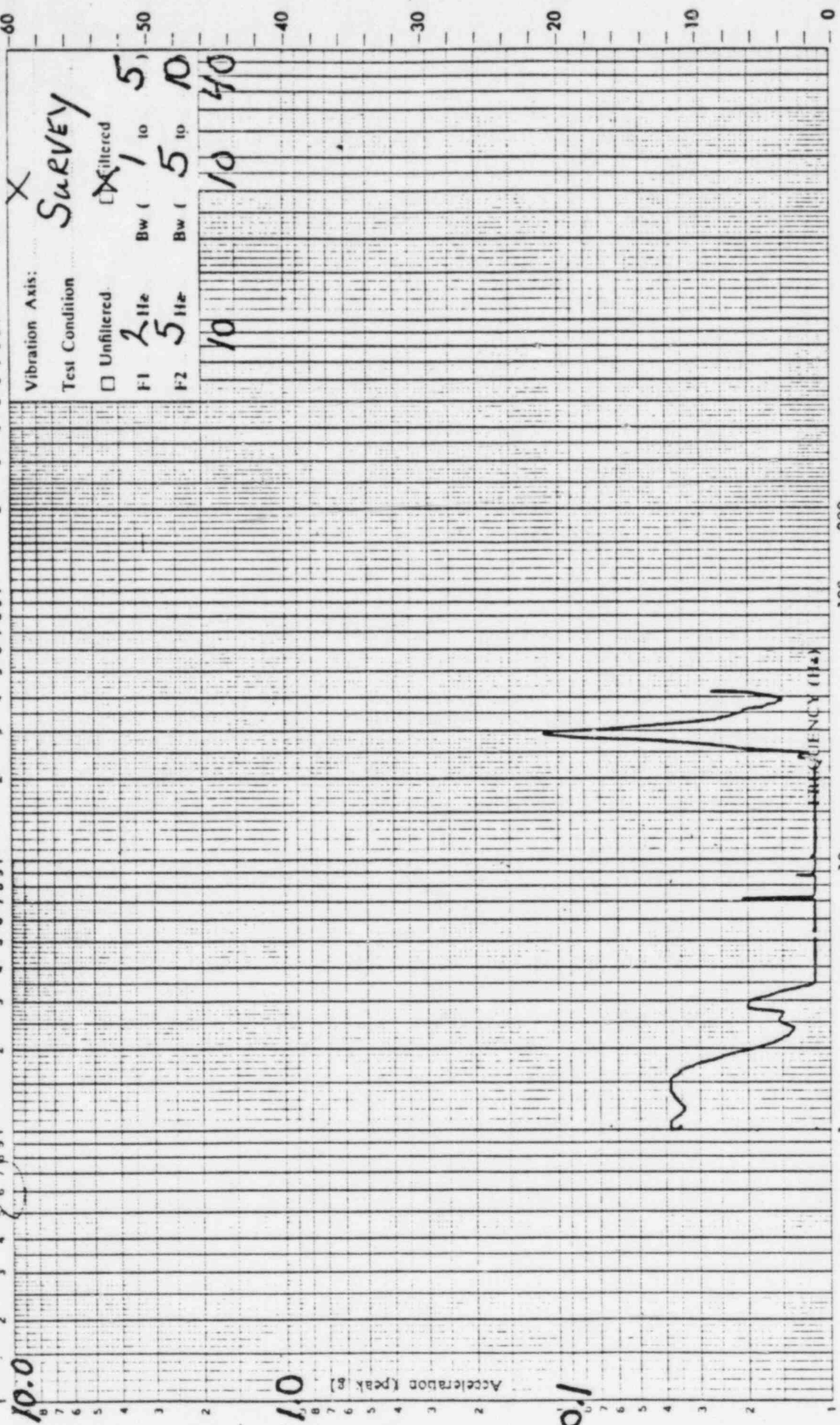
Plotted by: *L. H. Hinkle*

Test Item: *CORE PROTECT. CAL.*
Serial Number(s): *0030267, 0030268*

DAYTON T. BROWN INC.
Testing Laboratories

Checked by: *[Signature]*

Unit: Operational ☒ Non-operational ☐



Vibration Axis: ☒ SURVEY
Test Condition: ☒ Filtered
F1 2 Hz Bw (1 to 5)
F2 5 Hz Bw (5 to 10)

Job Number: *402438*
Date: *14 APR 80*
Time: *1855*

Pickup Sensitivity: *100.0* mv peak / g peak
Sweep Speed: *1.0* oct/minute
☐ Live ☒ Tape

Pickup Serial Number: *YG99Z*
Pickup Location: *TP#3*
Pickup Sensing Axis: *Y*

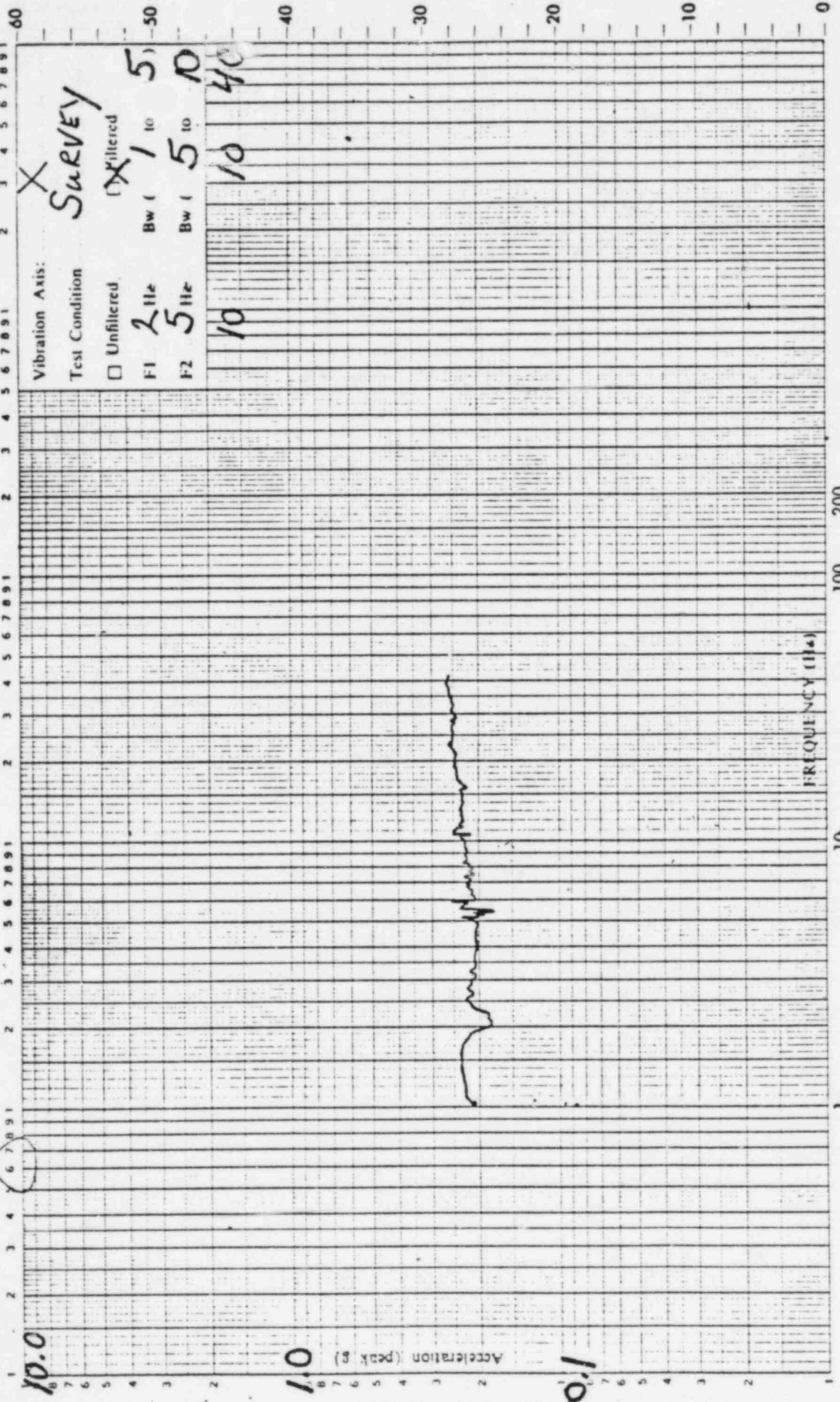
Plotted by: *A. Heine*

Checked by:

DAYTON T. BROWN, INC.
Testing Laboratories

Test Item: *CORE PROTECT. CAL.*
Serial Number(s): *0030267, 0030268*

Unit: Operational ☒ Non-operational ☐



☒ SURVEY
Vibration Axis:
Test Condition:
☐ Unfiltered
☒ Filtered
F1 2 Hz Bw (1 to 5)
F2 5 Hz Bw (5 to 10)

Pickup Serial Number: *863*
Pickup Location: *TP #4*
Pickup Sensing Axis: ☒ Live ☒ Tape
Pickup Sensitivity: *100.0*
Sweep Speed: *1.0*
Job Number: *402438*
Date: *14 APR 80*
Time: *1:55*

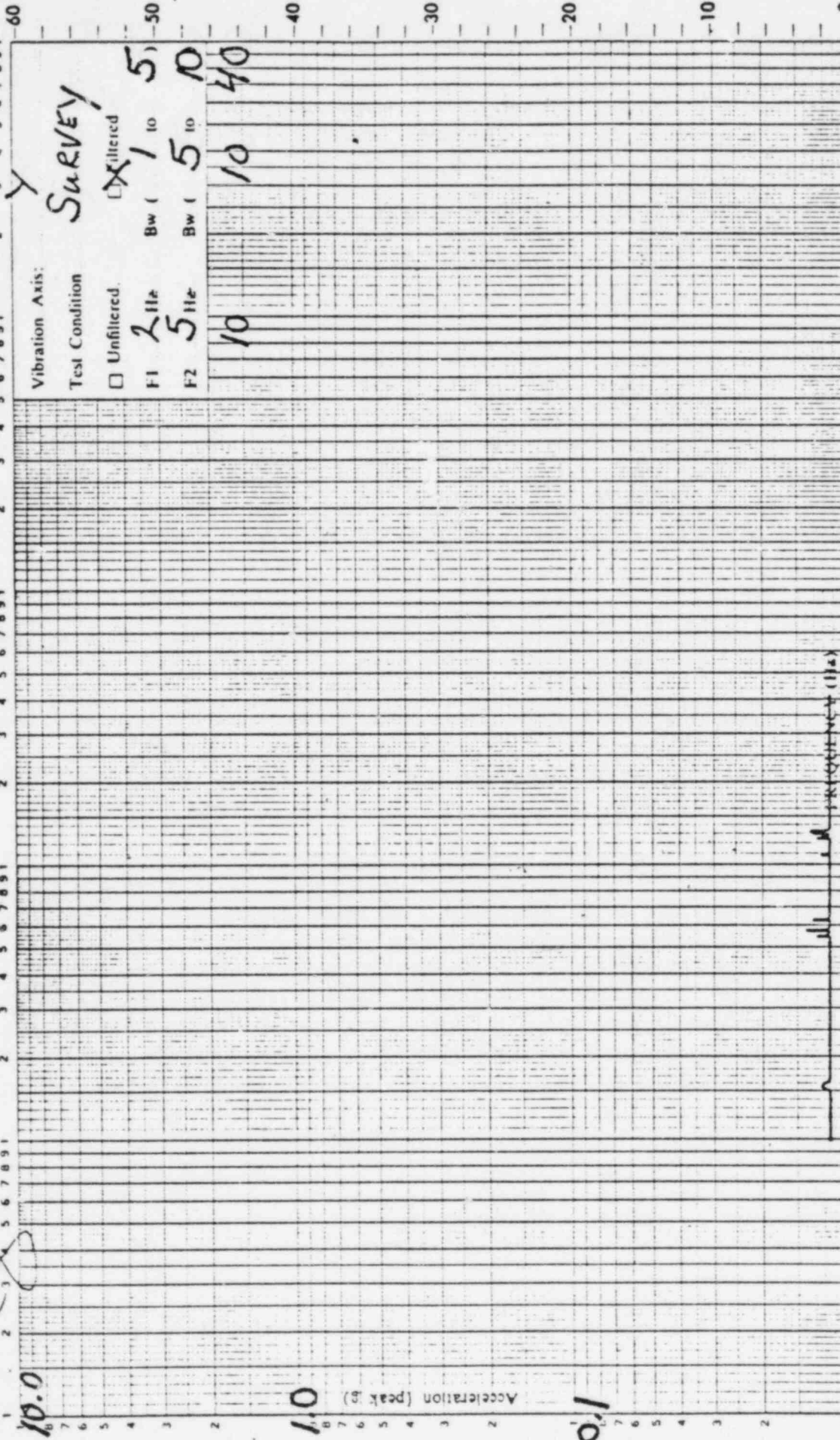
Test Item: **CORE PROTECT, CAL.**
 Serial Number(s): **0030267, 0030268**

Unit: Operational ☒ Non-operational ☐

DAYTON T. BROWN INC.
 Testing Laboratories

Plotted by: *[Signature]*

Checked by: *[Signature]*



402438

Job Number:

mv peak
g peak

100.0

Pickup Sensitivity:

7682X

Pickup Serial Number:

14 APR 80

Date:

oct/minute

1.0

Sweep Speed:

TP #1

Pickup Location:

2140

Time:

☐ Live

☒ Tape

Pickup Sensing Axis:

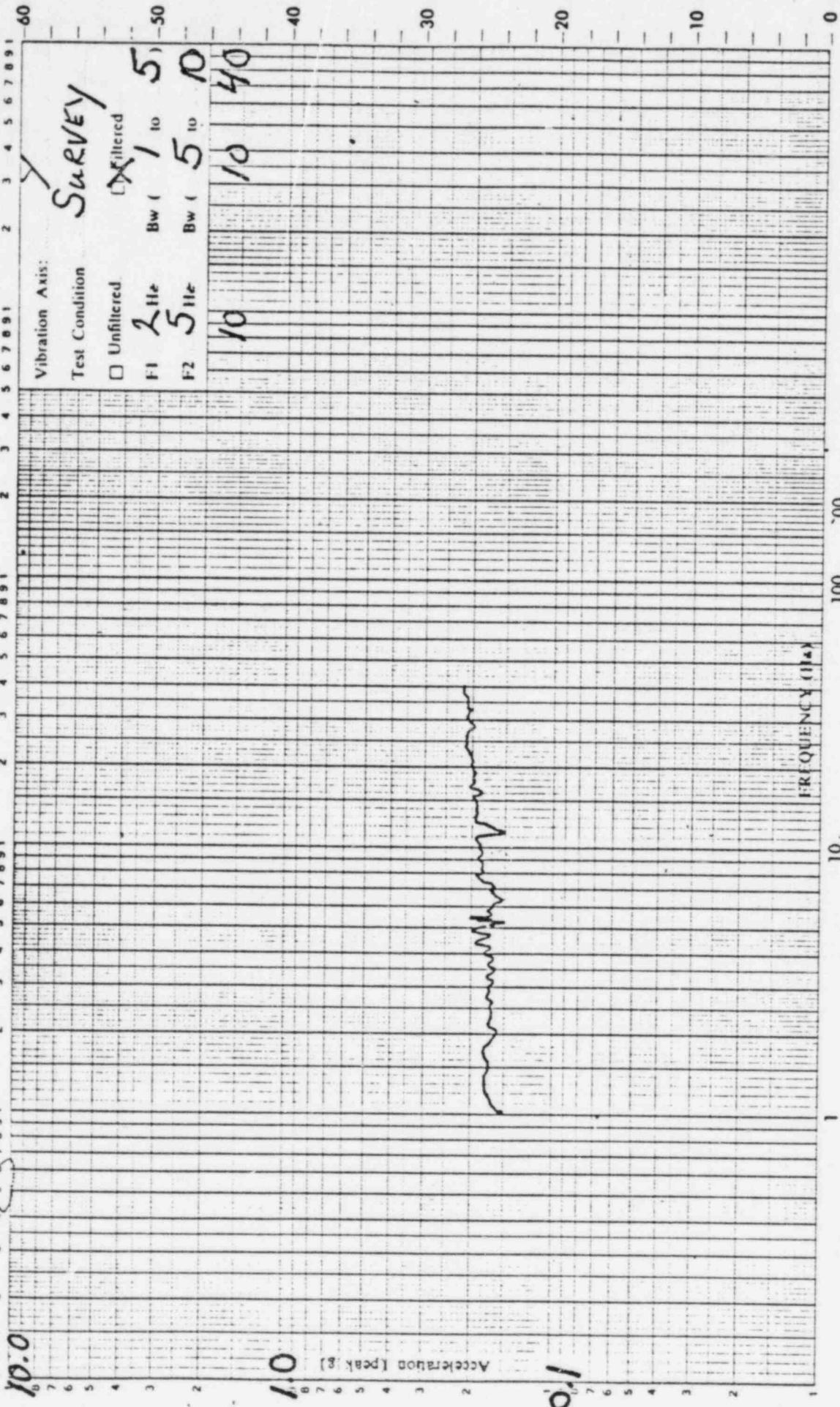
Test Item: **CORE PROTECT. CAL.**
Serial Number(s): **0030267, 0030268**

Unit: Operational ☒ Non-operational ☐

Plotted by: *L. Hillman*

Checked by: *(Signature)*

DAYTON T. HROWN INC.
Testing Laboratories



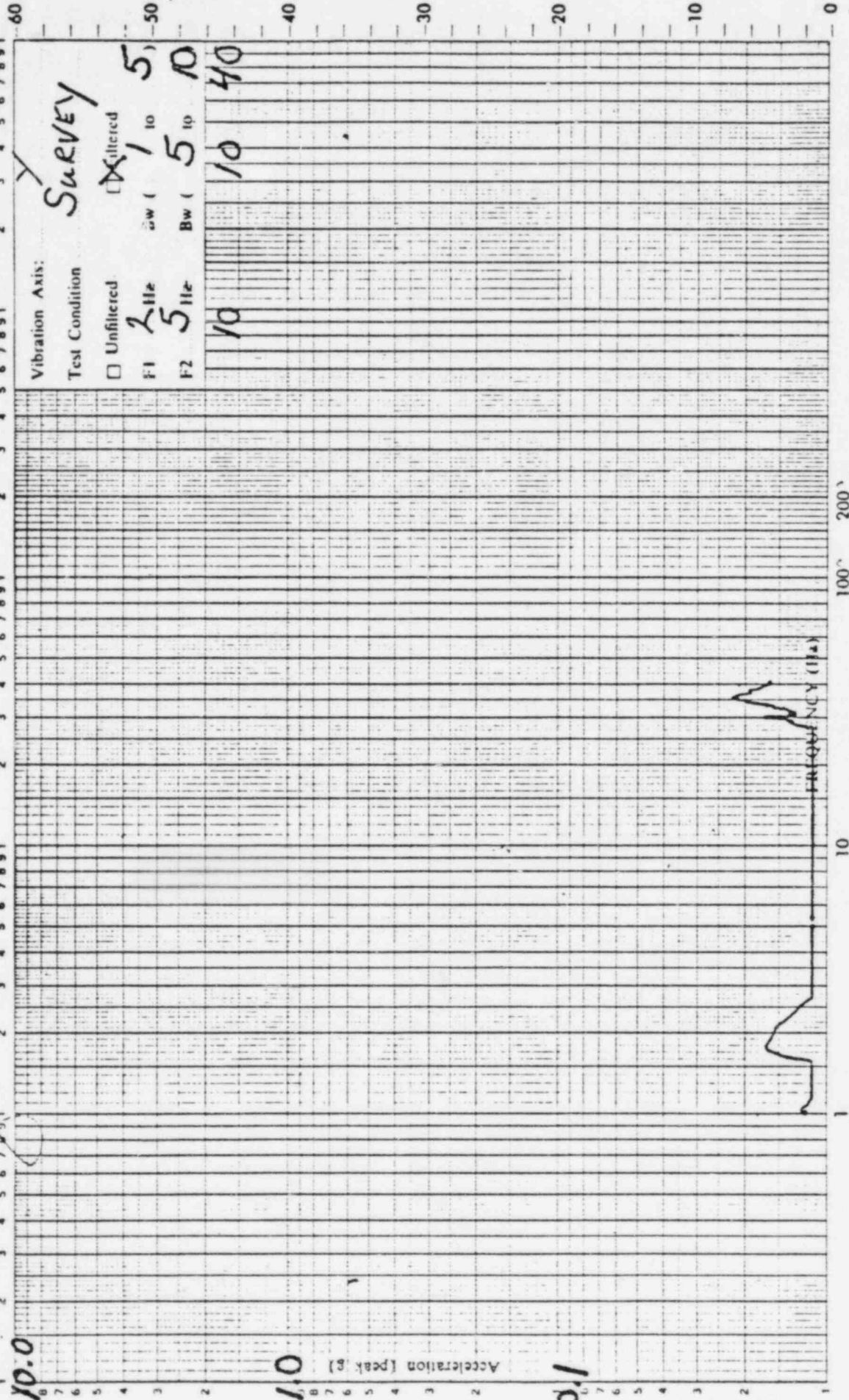
Pickup Serial Number: **76827**
Pickup Location: **TP#1**
Pickup Sensing Axis: **Y**
Pickup Sensitivity: **100.0** mv peak / g peak
Sweep Speed: **1.0** oct/minute
Job Number: **402438**
Date: **14 APR 80**
Time: **2.14/0**

Test Item: CORE PROTECT. CAL.
Serial Number(s): 0030267, 0030268

Unit: Operational ☒ Non-operational ☐

DAYTON T. BROWN INC.
Testing Laboratories

Plotted by: *L. H. Harkin*
Checked by: *[Signature]*



Pickup Serial Number: YG82E
Pickup Location: TP#1
Pickup Sensing Axis: *[Handwritten]*
Pickup Sensitivity: 100.0
Sweep Speed: 1.0
Time: 14 APR 80
Job Number: 402438
Date: 14 APR 80
Time: 2:14/0

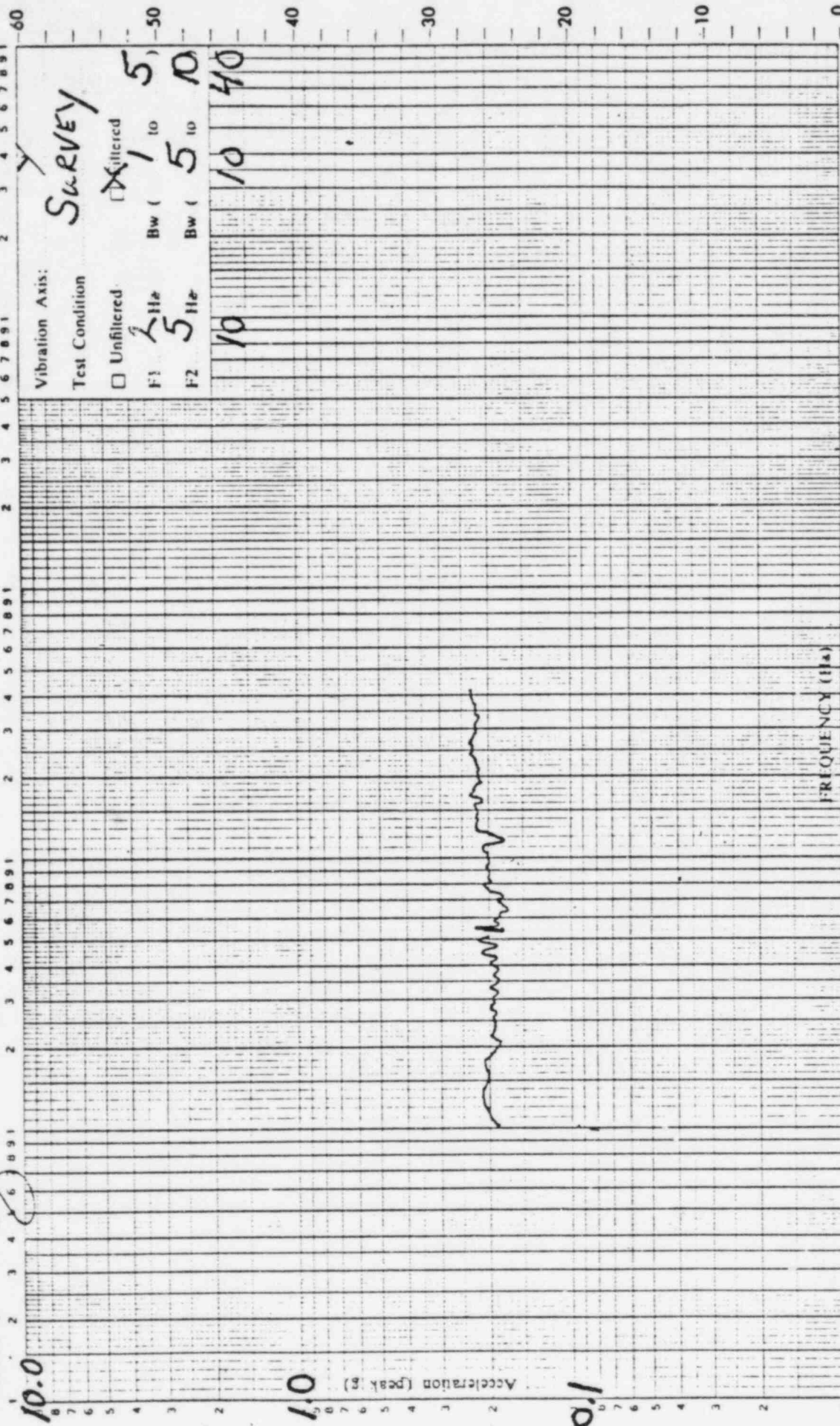
Plotted by: *L. Heinlein*

Checked by: *(Signature)*

DAYTON T. BROWN INC.
Testing Laboratories

Test Item: *CORE PROTECT. CAL.*
Serial Number(s): *0030267, 0030268*

Unit: Operational ☒ Non-operational ☐



Pickup Serial Number: *224*

Pickup Location: *TP#2*

Pickup Sensing Axis: *Y*

Pickup Sensitivity: *100.0* mv peak / g peak

Sweep Speed: *1.0* oct/minute

Job Number: *402438*

Date: *14 APR 80*

Time: *2140*

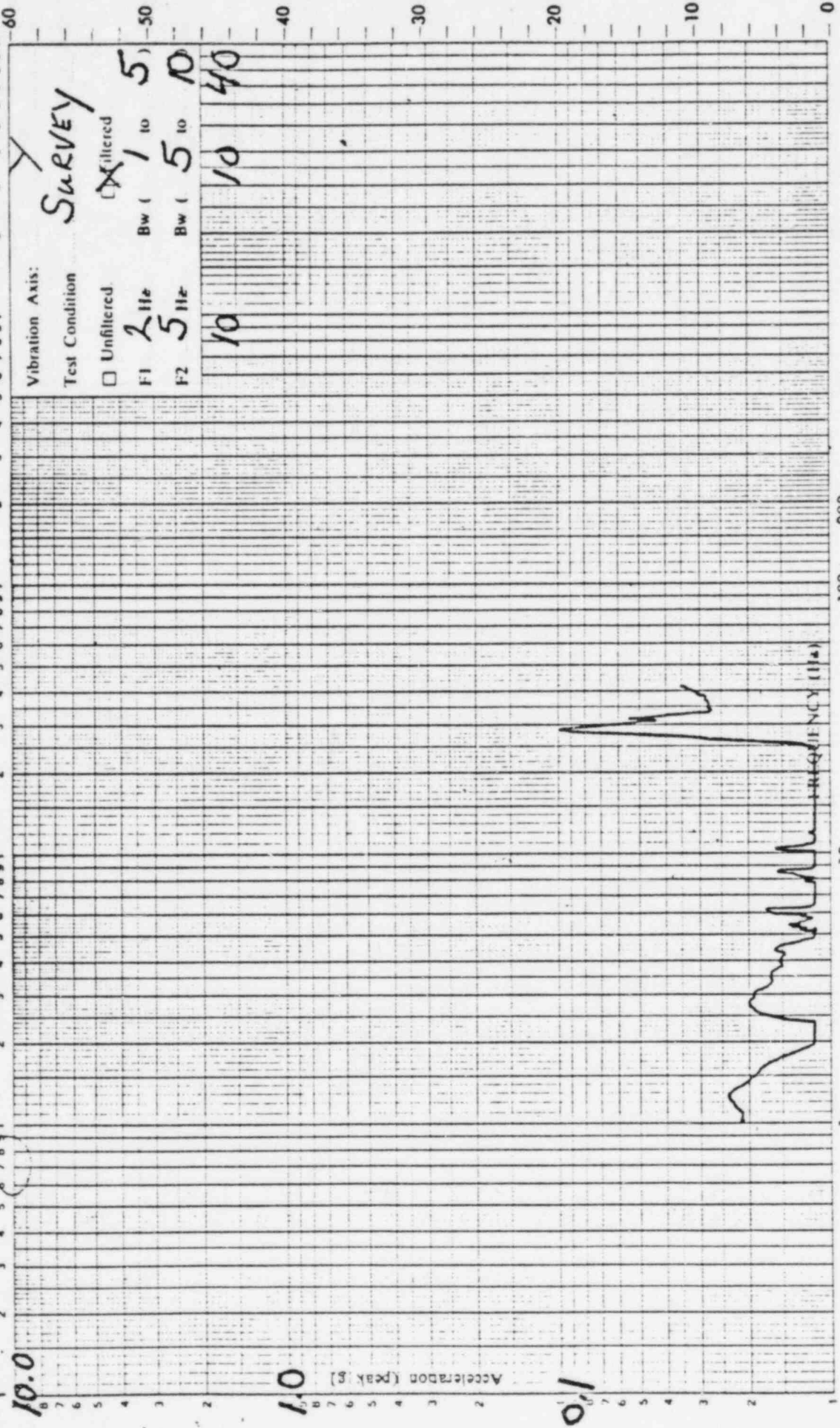
Plotted by: *L. Heinlein*

DAYTON T. BROWN INC.
Testing Laboratories

Test Item: *CORE PROTECT. CAL.*
Serial Number(s): *0030267, 0030268*

Checked by:

Unit: Operational ☒ Non-operational ☐



Pickup Serial Number: *YG 79X*

Pickup Sensitivity: *100.0*

Job Number: *402438*

Pickup Location: *TP#3*

Sweep Speed: *1.0*

oct/minute

Date: *14 APR 80*

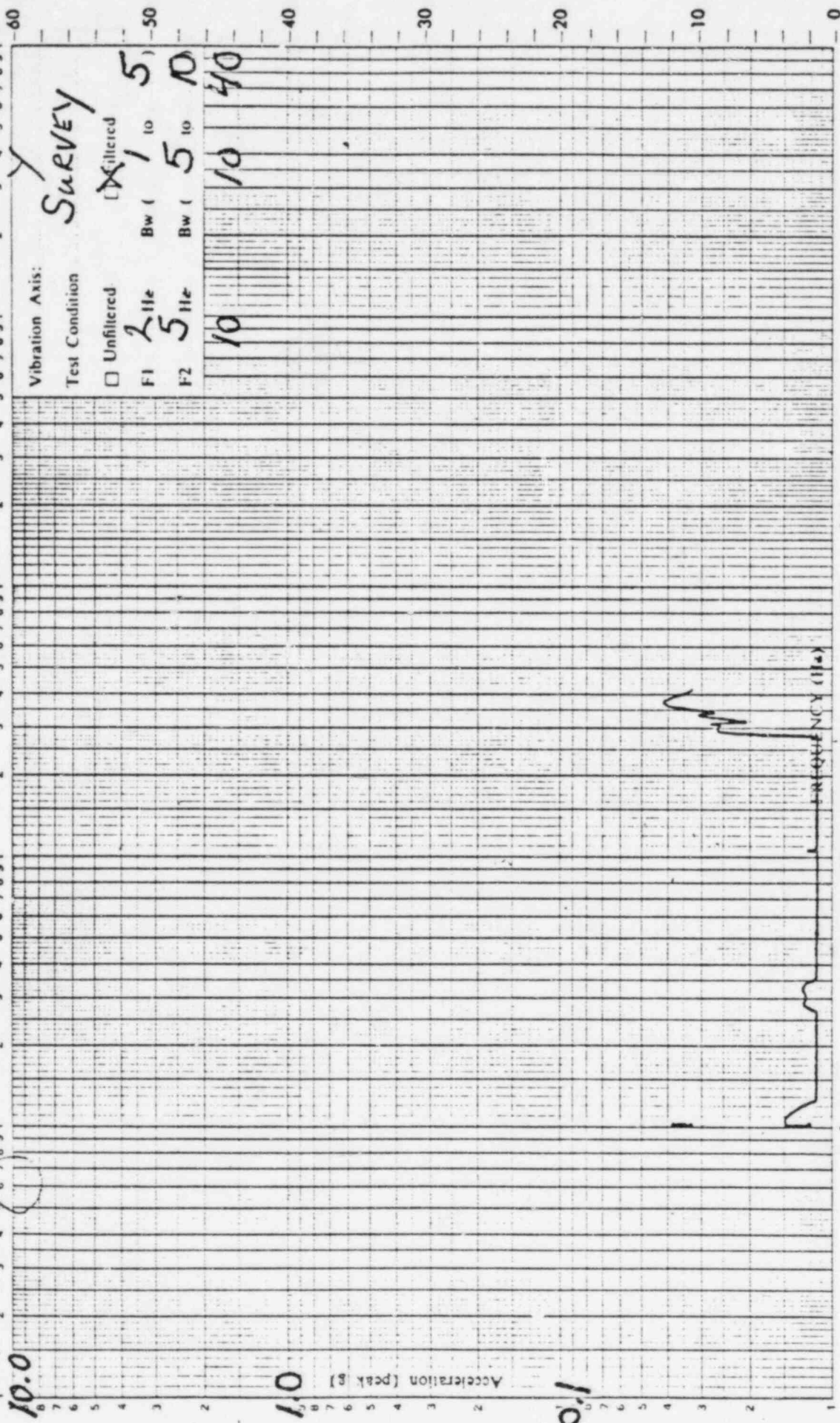
Pickup Sensing Axis: ☒ Tape

☐ Live

Time: *2140*

Test Item: **CORE PROTECT. CAL.**
 Serial Number(s): **0030267, 0030268**

Unit: Operational ☒ Non-operational ☐



Plotted by: *L. H. Hainlein*
 Checked by: *[Signature]*
DAYTON T. BROWN INC.
Testing Laboratories

Pickup Serial Number: **76797**
 Pickup Location: **TP#3**
 Pickup Sensing Axis: **Z**
 Pickup Sensitivity: **100.0** mv peak / g peak
 Sweep Speed: **1.0** oct/minute
 Job Number: **402438**
 Date: **14 APR 80**
 Time: **2140**

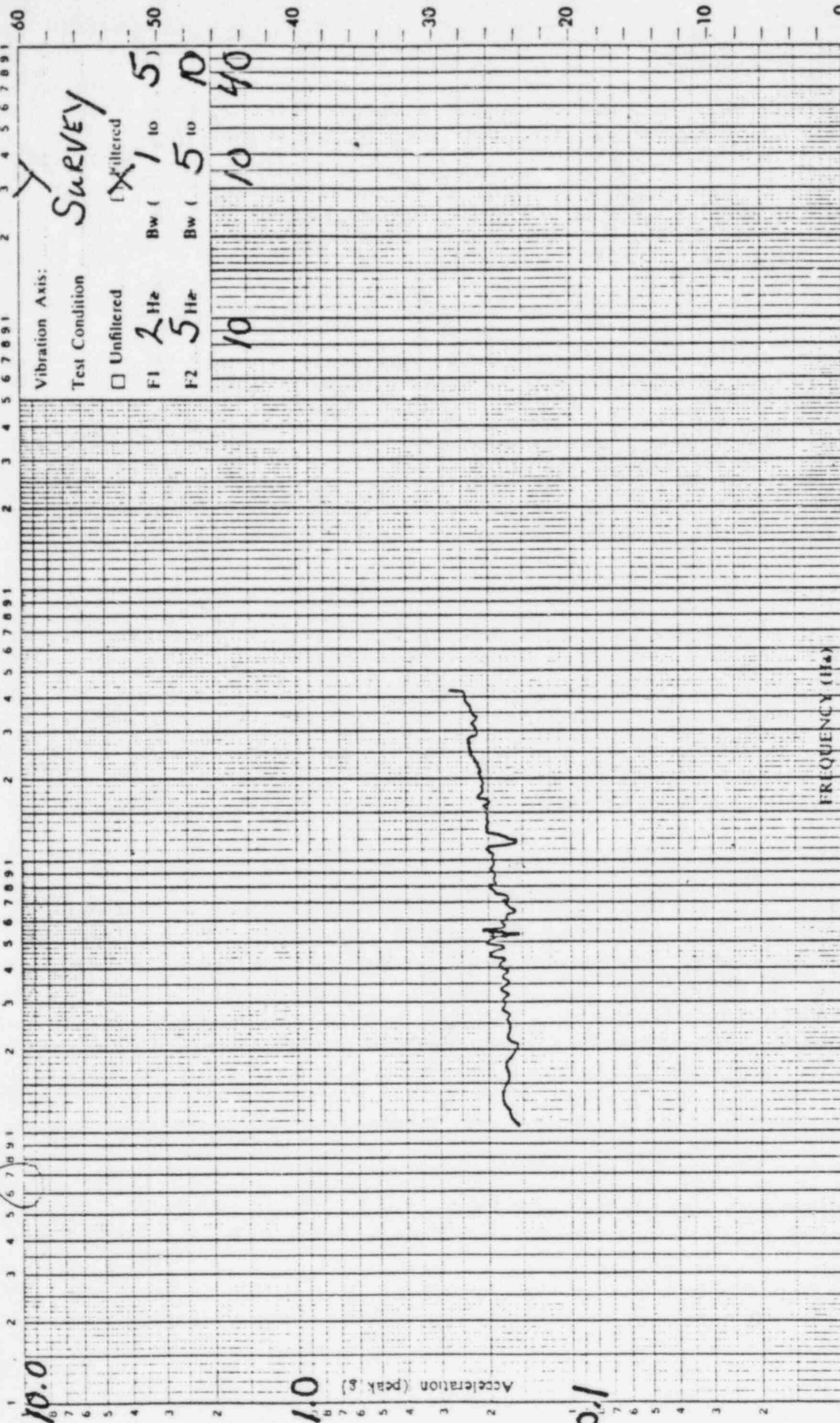
Plotted by: *A. Heinlein*

Checked by: *[Signature]*

DAYTON T. BROWN, INC.
Testing Laboratories

Test Item: *CORE PROTECT. CAL.*
Serial Number(s): *0030267, 0030268*

Unit: Operational ☒ Non-operational ☐



Pickup Serial Number: *YG 479Z* Job Number: *402438*

Pickup Location: *TP#3* Date: *14 APR 80*

Pickup Sensing Axis: *Y* Time: *2140*

Pickup Sensitivity: *100.0* mV peak / g peak

Sweep Speed: *1.0* oct/minute

☐ Live ☒ Tape

Plotted by: *[Signature]*

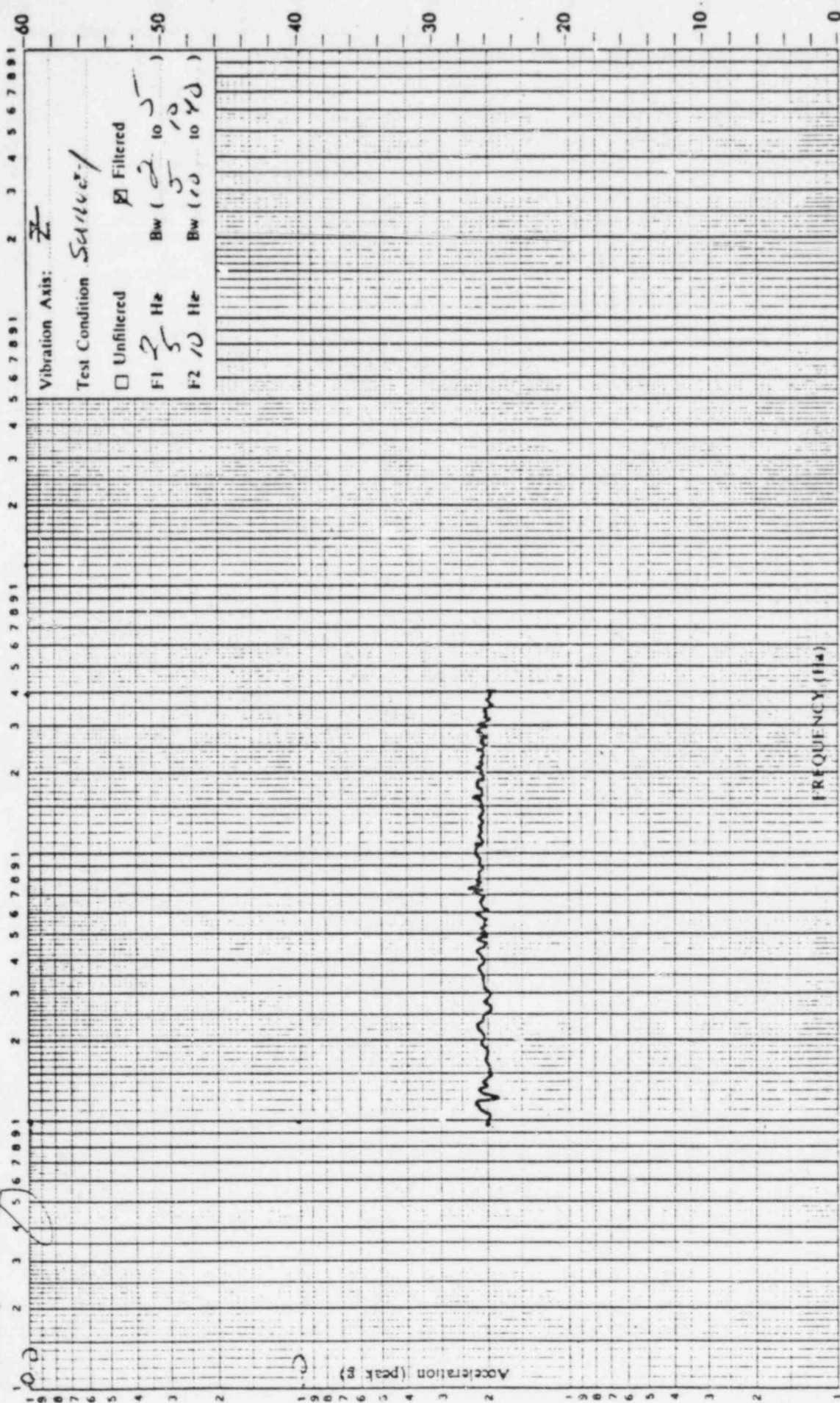
Checked by: *[Signature]*

DAYTON T. BROWN INC.
Testing Laboratories

Test Item: *CPS*

Serial Number(s): *0030267, 268*

Unit: Operational ☐ Non-operational ☒



Pickup Serial Number: *L1933*
Pickup Location: *Control*
Pickup Sensing Axis: *V*
Pickup Sensitivity: *100*
Sweep Speed: *1.0*
Job Number: *402438*
Date: *15/12/80*
Time: *1207*
mv peak / g peak
oct/minute
☒ Live ☐ Tape

Plotted by: *W. C. C.*

Checked by: *[Signature]*

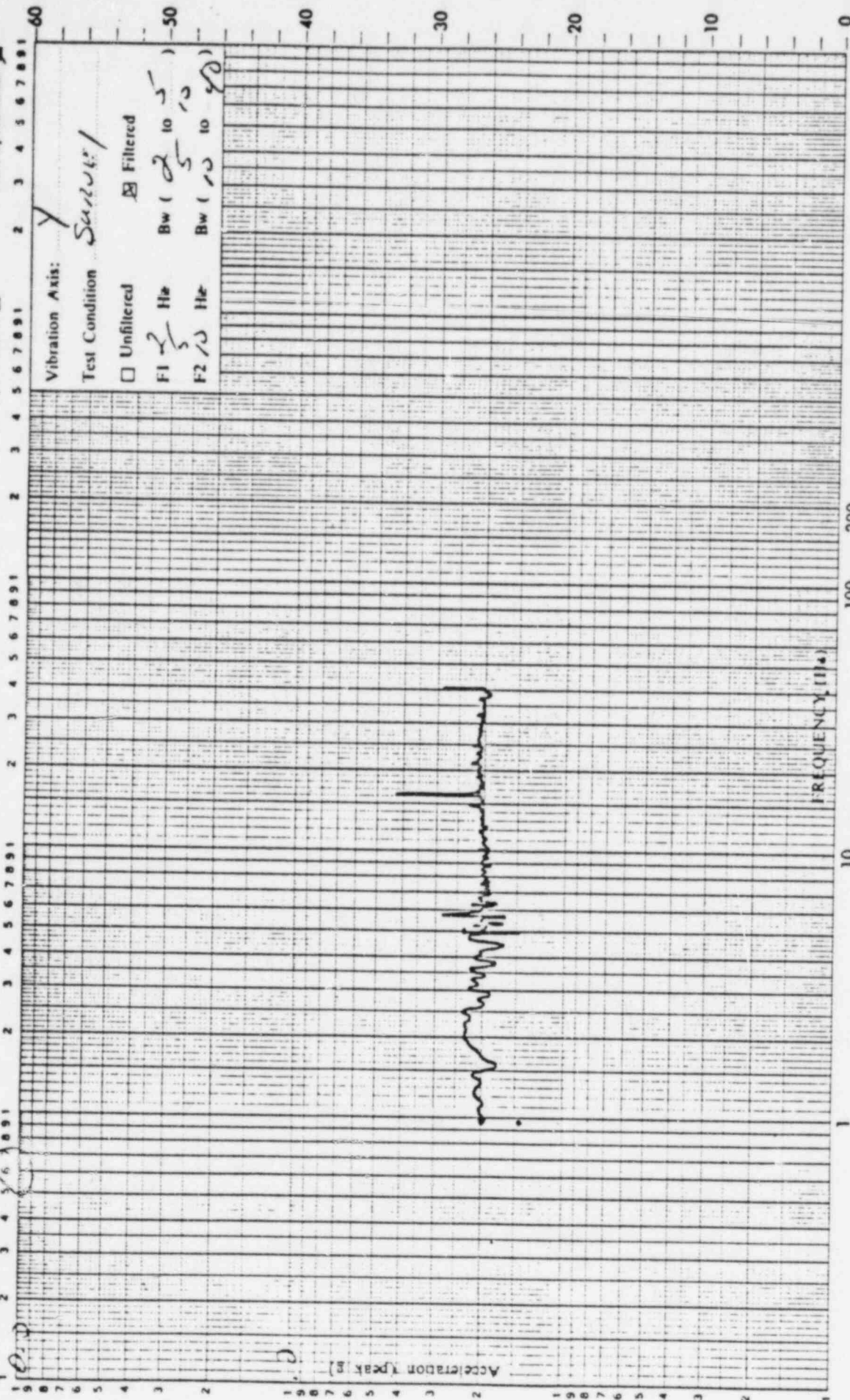
DAYTON T. BROWN, INC.
Testing Laboratories

Test Item: *CRS*

Serial Number(s): *0030267, 268*

Unit: Operational ☐ Non-operational ☒

Unit: Operational ☐ Non-operational ☒



Pickup Serial Number: *905*

Pickup Location: *Cent*

Pickup Sensing Axis: *Y*

Pickup Sensitivity: *100*

Sweep Speed: *1.0*

☒ Live ☐ Tape

Job Number: *402433*

Date: *15.4.14 80*

Time: *12.19*

Plotted by:

Checked by:

[Signature]

DAYTON T. BROWN INC.
Testing Laboratories

Test Item:

Wire Protect Cyl

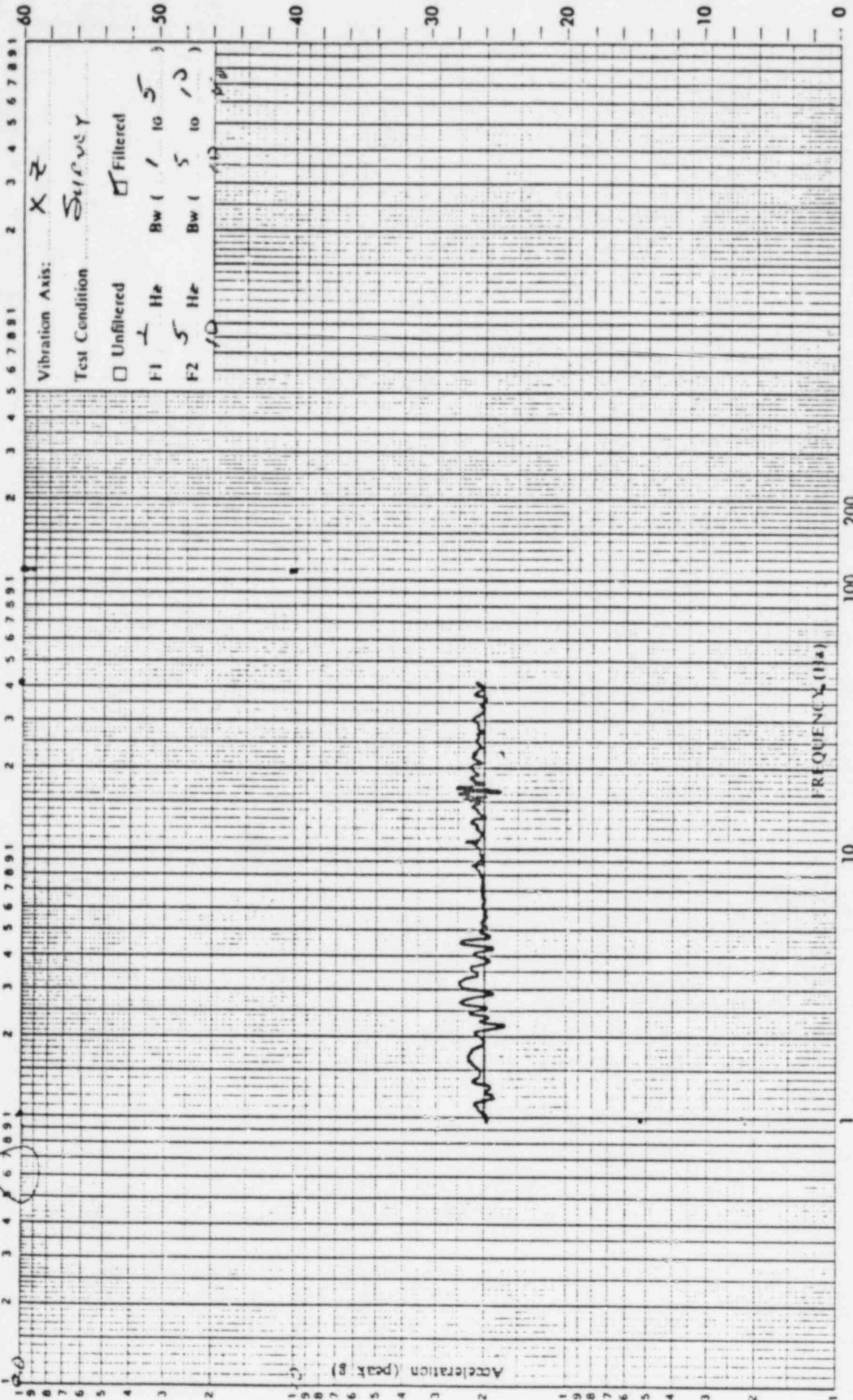
Serial Number(s):

0030267/0030268

Unit:

Operational ☒

Non-operational ☐



Vibration Axis: X Z
Test Condition: Survey
☐ Unfiltered ☒ Filtered
F1 1 Hz Bw (1 to 5)
F2 5 Hz Bw (5 to 10)

Pickup Serial Number:

909

Pickup Location:

Control

Pickup Sensing Axis:

X

Pickup Sensitivity:

100.0

Sweep Speed:

1.0

☒ Live

☐ Tape

mv peak
g peak

Job Number:

402438

oct/minute

Date:

15 APR 80

Time:

1723

Test Item: **CORE PROTECT LVL**
 Serial Number(s): **0030267, 0030268**

Plotted by: **W. Chapman**
 Checked by: **[Signature]**

DAYTON T. BROWN INC.
 Testing Laboratories

Unit: Operational ☒ Non-operational ☐



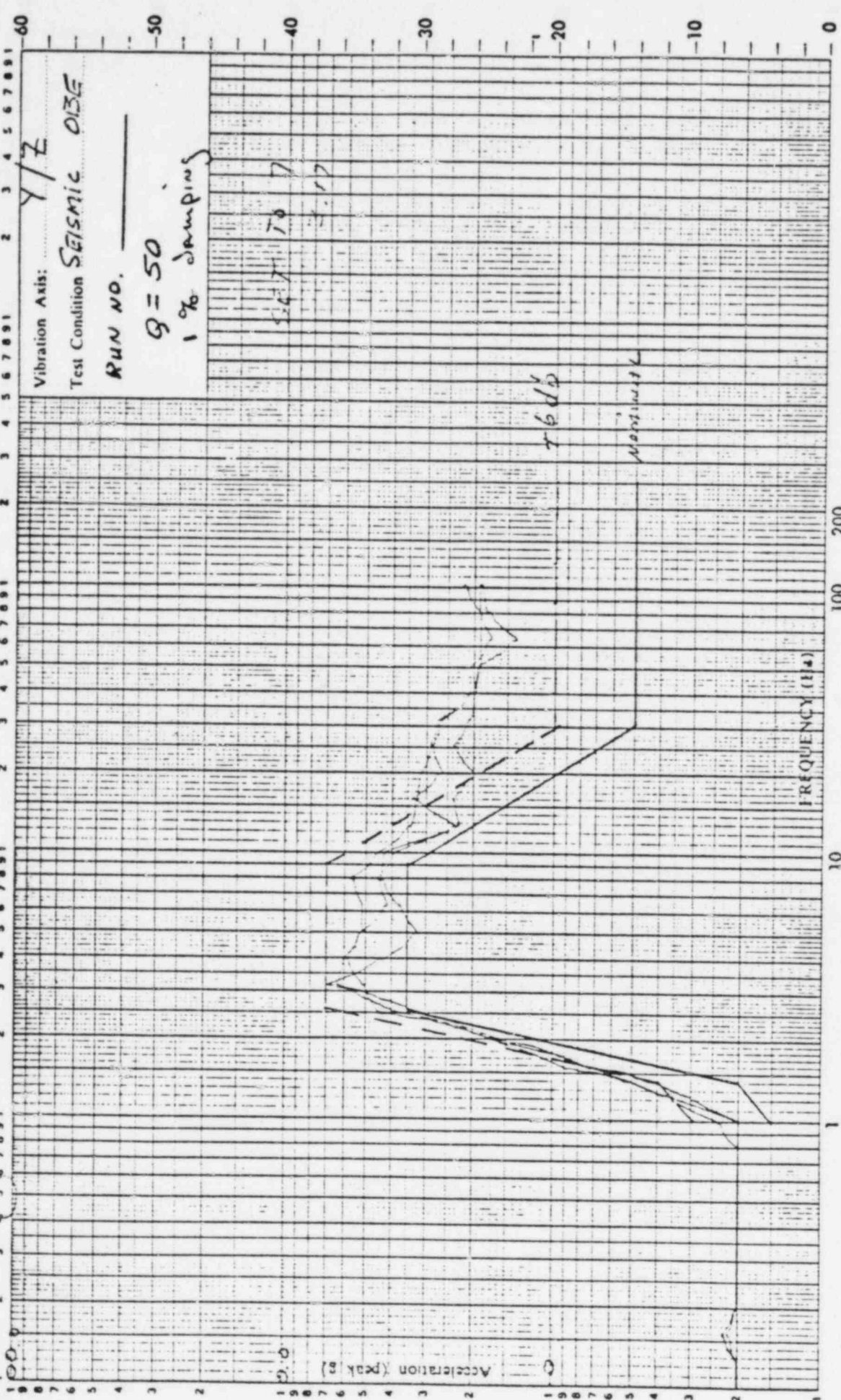
Pickup Serial Number: **1111**
 Pickup Location: **Cont**
 Pickup Sensing Axis: ☒ ☐ Live ☐ Tape
 Pickup Sensitivity: **1000** mv peak / g peak
 Job Number: **402438**
 Date: **15 APR 80**
 Time: _____

Test Item **CORE PROTECT CHL**
 Serial Number(s): **0030267, 0030268**

Plotted by: *W. Cleveland*
 Checked by: *[Signature]*

DAYTON T. BROWN INC.
 Testing Laboratories

Unit: Operational ☒ Non-operational ☐



Pickup Serial Number: **1000**
 Pickup Location: **Cont**
 Pickup Sensing Axis: **HOK**
 Pickup Sensitivity: **1000**
 Job Number: **402438**
 Date: **15 APR 80**
 Time: **10:00**

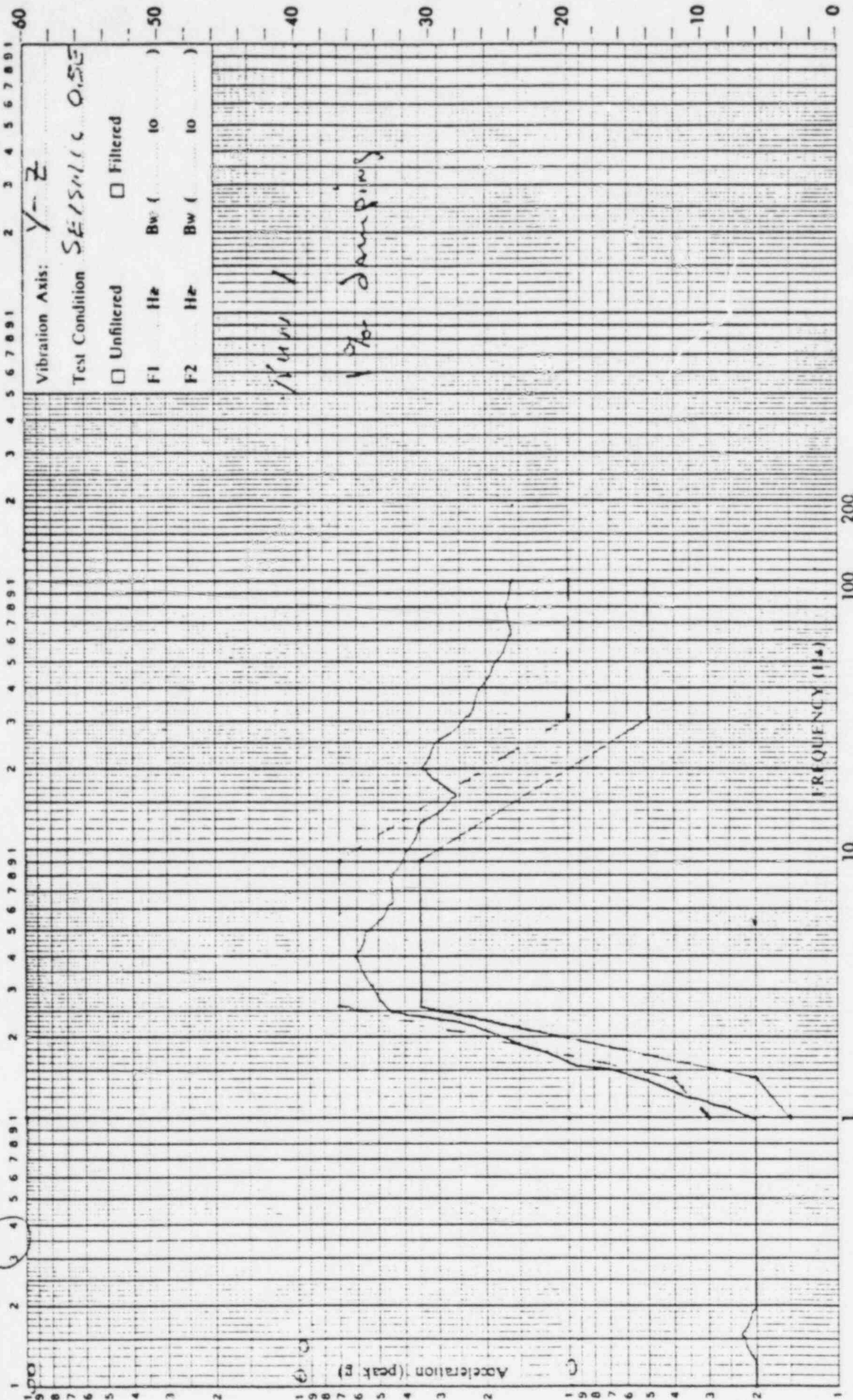
Test Item: *Code Prot. etc.*
 Serial Number(s): *0020267, 0020268*

Unit: Operational ☒ Non-operational ☐

DAYTON T. BROWN INC.
 Testing Laboratories

Plotted by: *[Signature]*

Checked by: *[Signature]*



Job Number: *402438*
 Date: *15 April 80*
 Time: *1402*

Pickup Sensitivity: *100* mv peak / g peak

Sweep Speed: oct/minute

☒ Live ☐ Tape

Pickup Serial Number: *707*

Pickup Location: *Cont*

Pickup Sensing Axis: *[Mark]*

Plotted by:

Checked by:

DAYTON T. BROWN INC.
Testing Laboratories

[Signature]

Test Item:

Code Plot Unit

Serial Number(s): 0030267, 0030268

Unit: Operational ☒ Non-operational ☐

Vibration Axis: Y-Z

Test Condition: WBE SENSITIVE

☐ Unfiltered ☐ Filtered

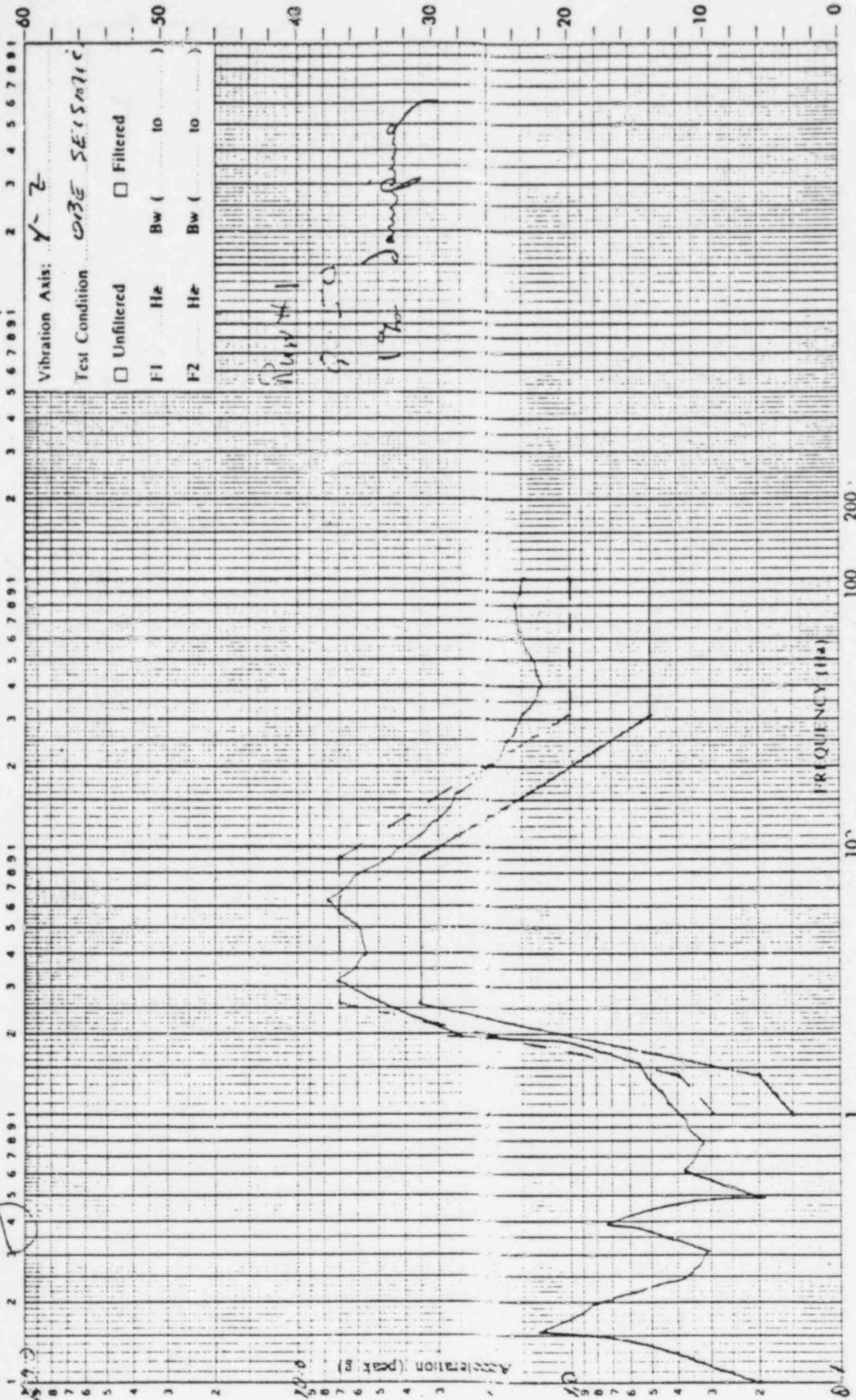
F1 Hz Bw () 50

F2 Hz Bw ()

Run #1

7-1-80

1% Damped



Pickup Serial Number: 4133

Pickup Location: (ORT)

Pickup Sensing Axis: Z

Pickup Sensitivity: 1 cm/s

Sweep Speed: —

☐ Five ☒ Tape

mv peak
g peak

oct/minute

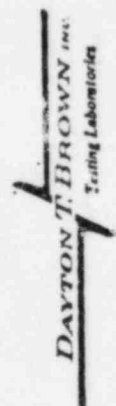
Job Number: 40243D

Date: 15 APR 80

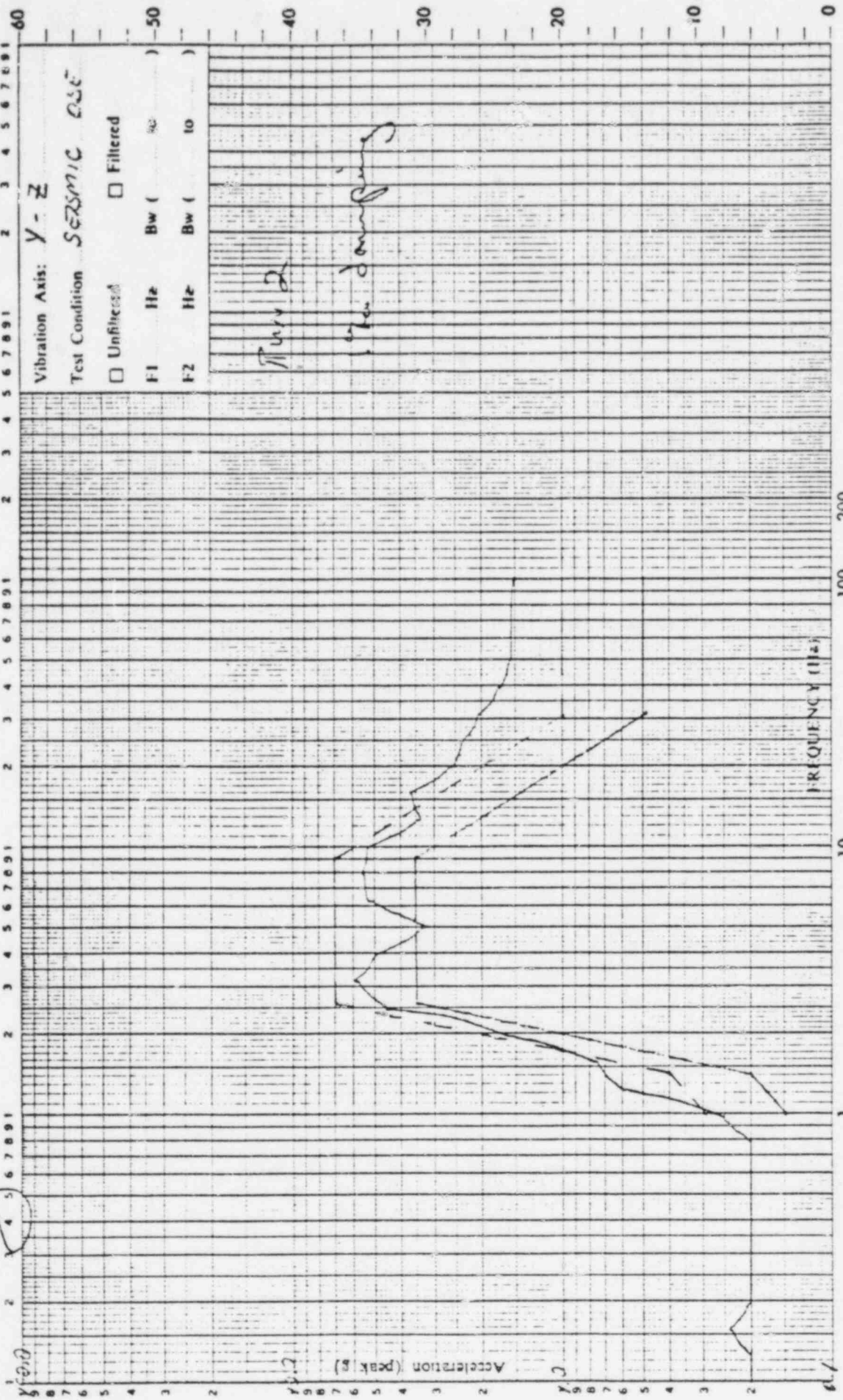
Time: 1400

Test Item: CORE PROF. CALC.
 Serial Number(s): 0030267, 0030268

Unit: ☐ Operational ☐ Non-operational



Plotted by: W. L. [Signature]
 Checked by: [Signature]



Pickup Serial Number: 707 Job Number: 402438-00-000
 Pickup Location: CONTROL Date: 15 APRIL '80
 Pickup Sensing Axis: if Y Time: 1411
 Pickup Sensitivity: 1000 0 mv peak / g peak
 Sweep Speed: — oct/minute
☐ Live ☐ Tape

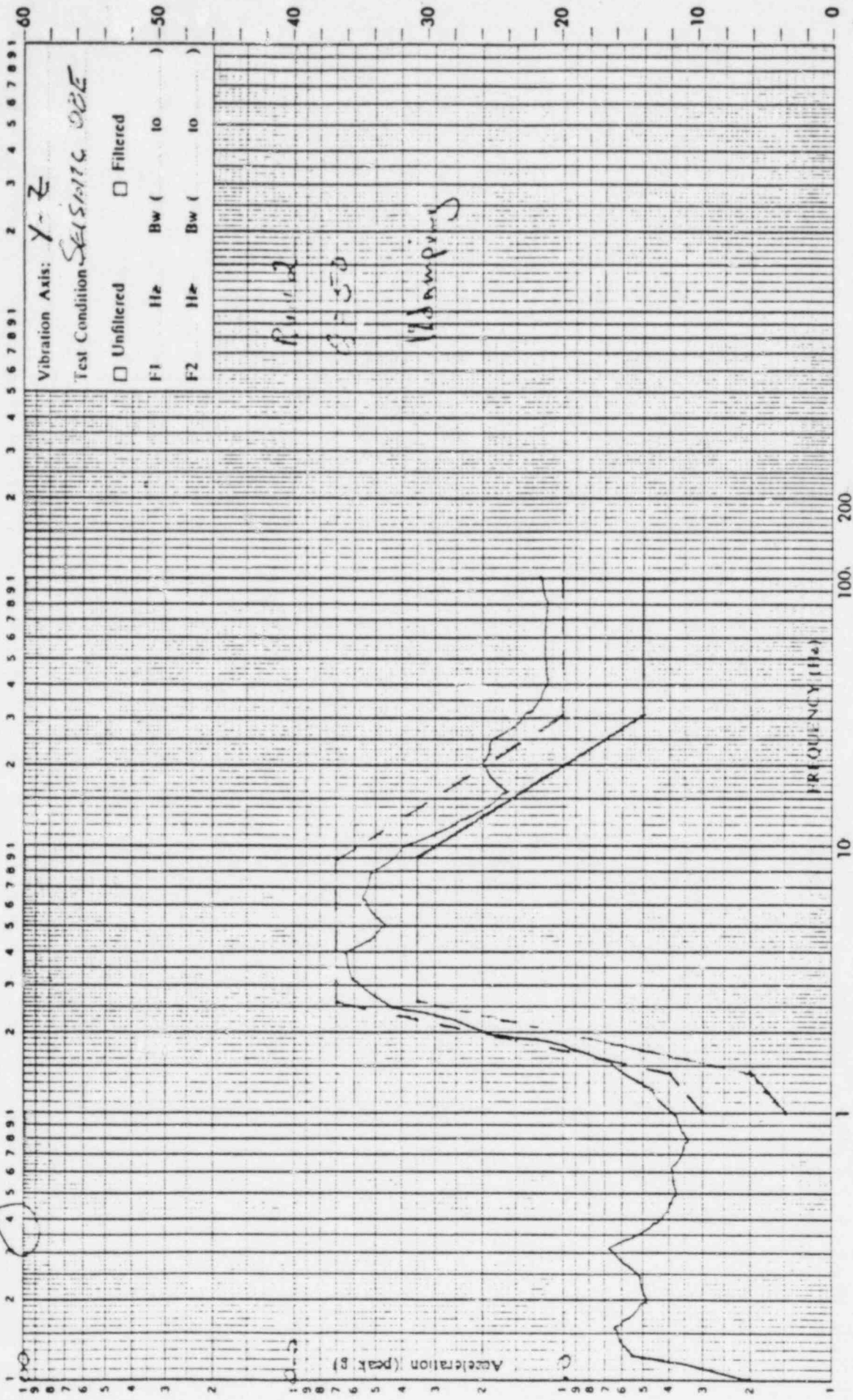
Plotted by: *W. J. J.*



Test Item: *CORE RUT. 0.1%*
Serial Number(s): *0030267, 0030268*

Unit: Operational ☒ Non-operational ☐

Checked by: *[Signature]*



Pickup Serial Number: *1073* Job Number: *402433*
Pickup Location: *CORE* Date: *15 April 80*
Pickup Sensing Axis: *V Z* Time: *1411*
Pickup Sensitivity: *1000* mv peak / g peak
Sweep Speed: ☐ Live ☐ Tape oct/minute

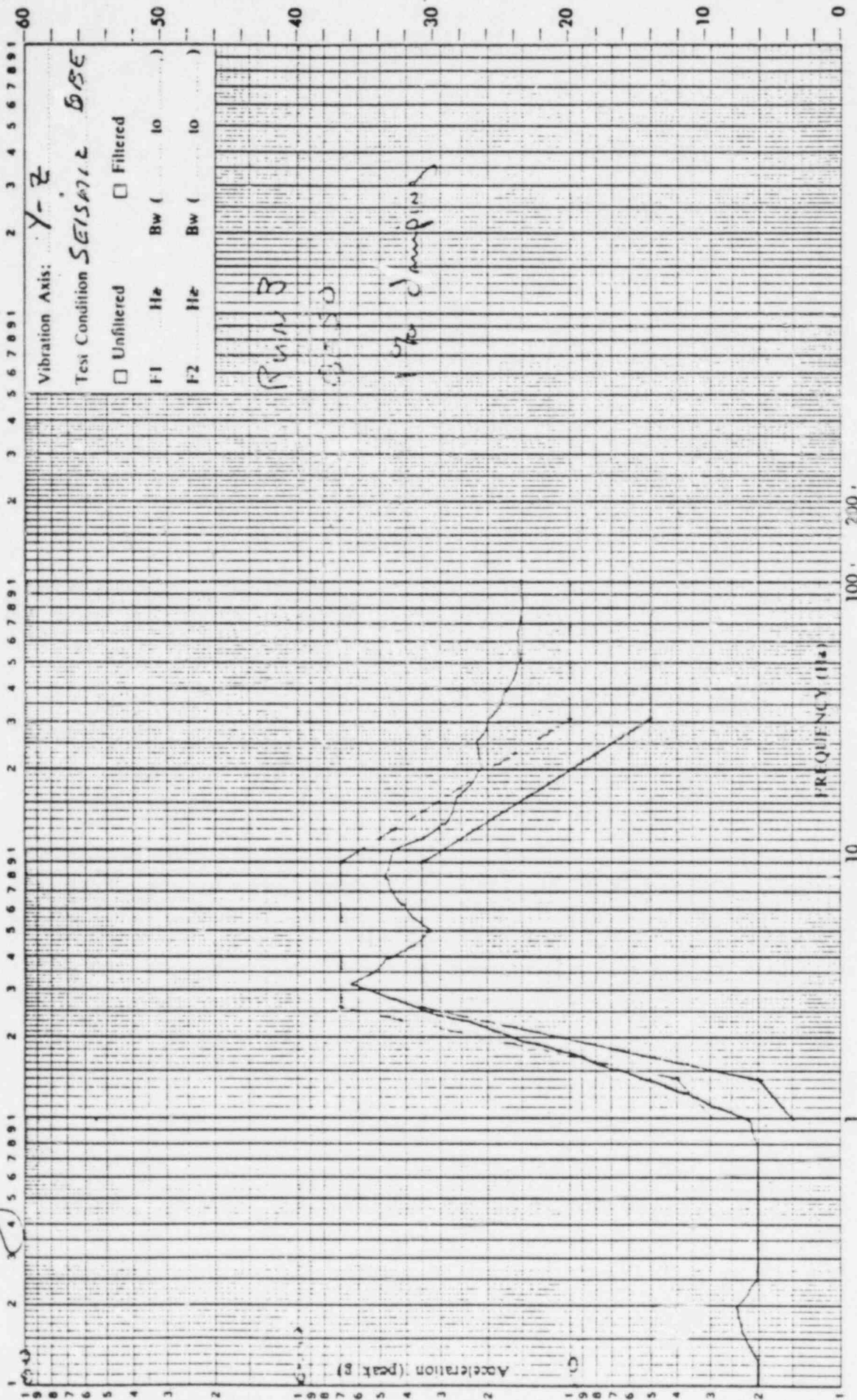
Test Item *Code Prot Cal*
 Serial Number(s): *0030267, 0030268*

Unit: Operational ☒ Non-operational ☐

DAYTON T. BROWN INC.
 Testing Laboratories

Plotted by: *W. Chab*

Checked by: *[Signature]*



Job Number: *402438*
 Date: *15 APR 80*
 Time: *1415*

Pickup Sensitivity: *100*
 Sweep Speed: *100*

209
CONT

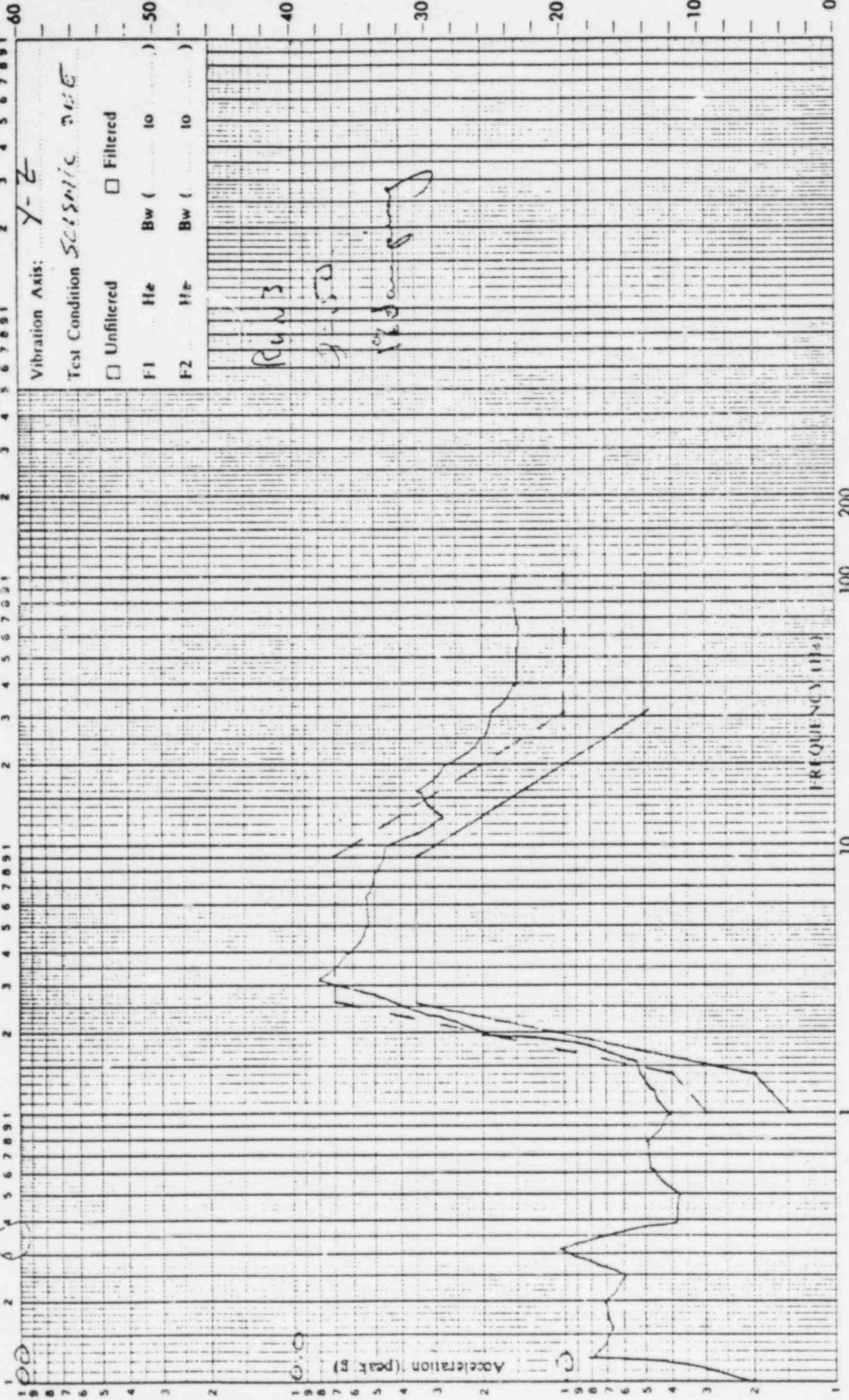
Pickup Serial Number:
 Pickup Location:
 Pickup Sensing Axis:

Test Item: *CODE PRO: LAL*
 Serial Number(s): *0030267, 0030268*
 Unit: Operational ☒ Non-operational ☐

DAYTON T. BROWN INC.
 Testing Laboratories

Plotted by: *U.C.L.*

Checked by: *[Signature]*



Job Number: *402438*
 Date: *15 APR 80*
 Time: *1415*

Pickup Sensitivity: *100* mv peak / g peak
 Sweep Speed: *100* oct/minute
☐ Live ☒ Tape

Pickup Serial Number: *L033*
 Pickup Location: *CON*
 Pickup Sensing Axis: *V Z*

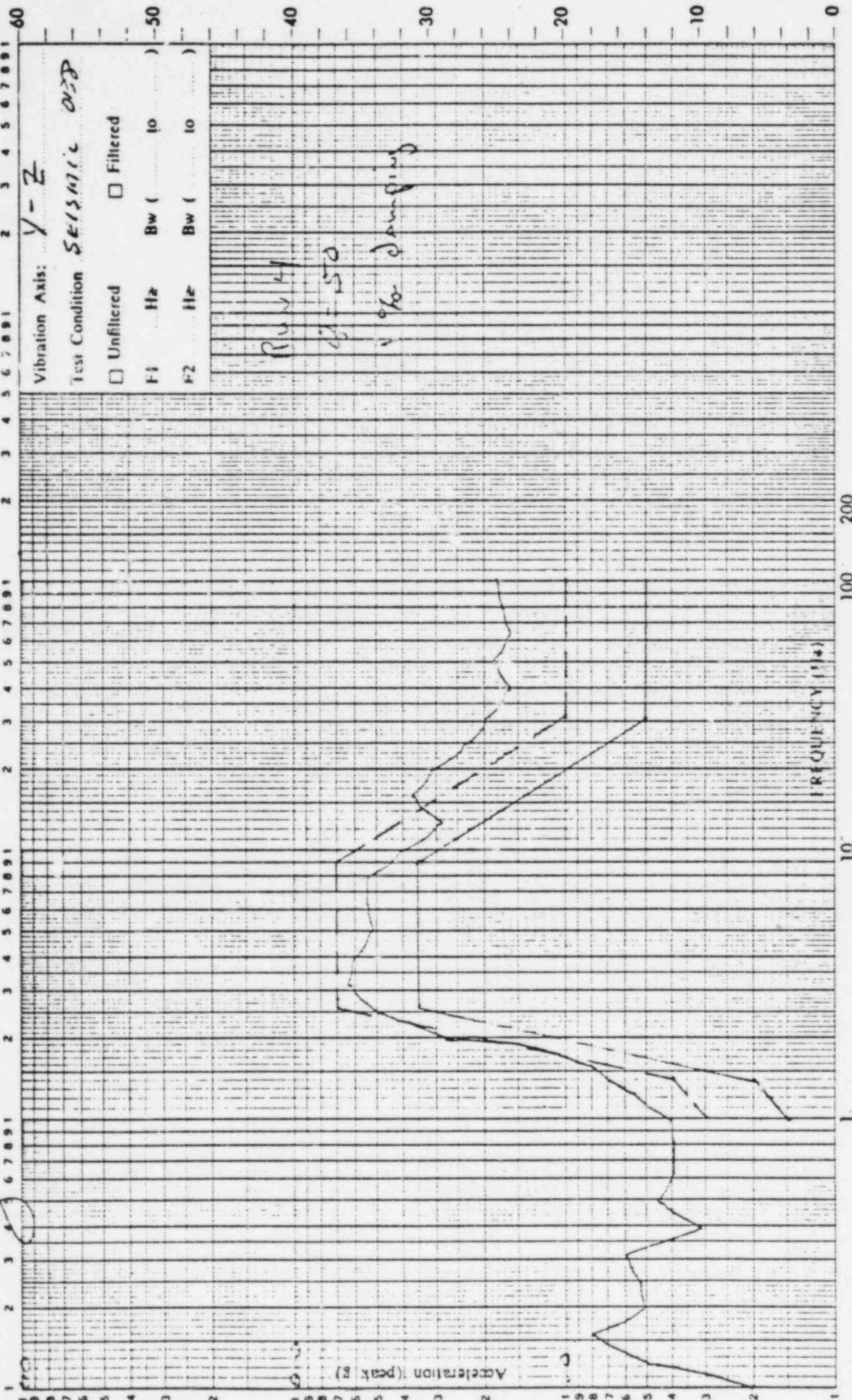
Test Item: Code Prot Cal
Serial Number(s): 030267, 030268

Unit: Operational ☒ Non-operational ☐

DAYTON T. BROWN INC.
Testing Laboratories

Plotted by: W. G. L.

Checked by: [Signature]



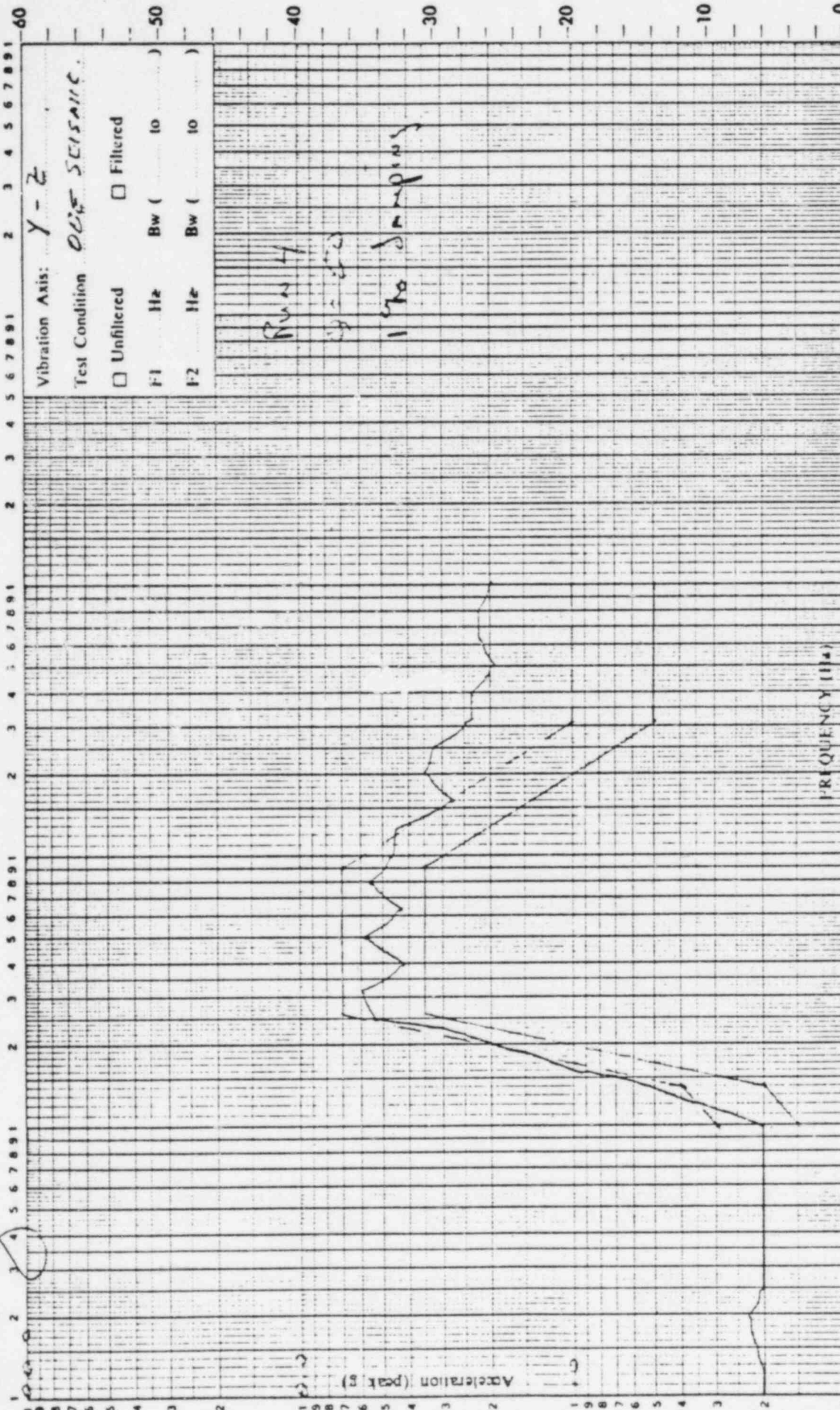
Pickup Serial Number: 1-1133
Pickup Location: CONT
Pickup Sensing Axis: V
Pickup Sensitivity: 1000 mv peak / g peak
Sweep Speed: --- oct/minute
Job Number: 402438
Date: 15/1/80
Time: 11:31

Test Item: *Core Prot. Inc*
 Serial Number(s): *0030267, 0030268*

Unit: Operational ☒ Non-operational ☐

DAYTON T. HROWN INC.
 Testing Laboratories

Plotted by: *W. L. L.*
 Checked by: *[Signature]*



Pickup Serial Number: *707*
 Pickup Location: *CONT*
 Pickup Sensing Axis: *H*

Pickup Sensitivity: *1000*
 Sweep Speed: *—*
☐ Live ☒ Tape

Job Number: *402458*
 Date: *15/1/80*
 Time: *1421*

mv peak
g peak
oct/minute

Plotted by: *W. C. L.*

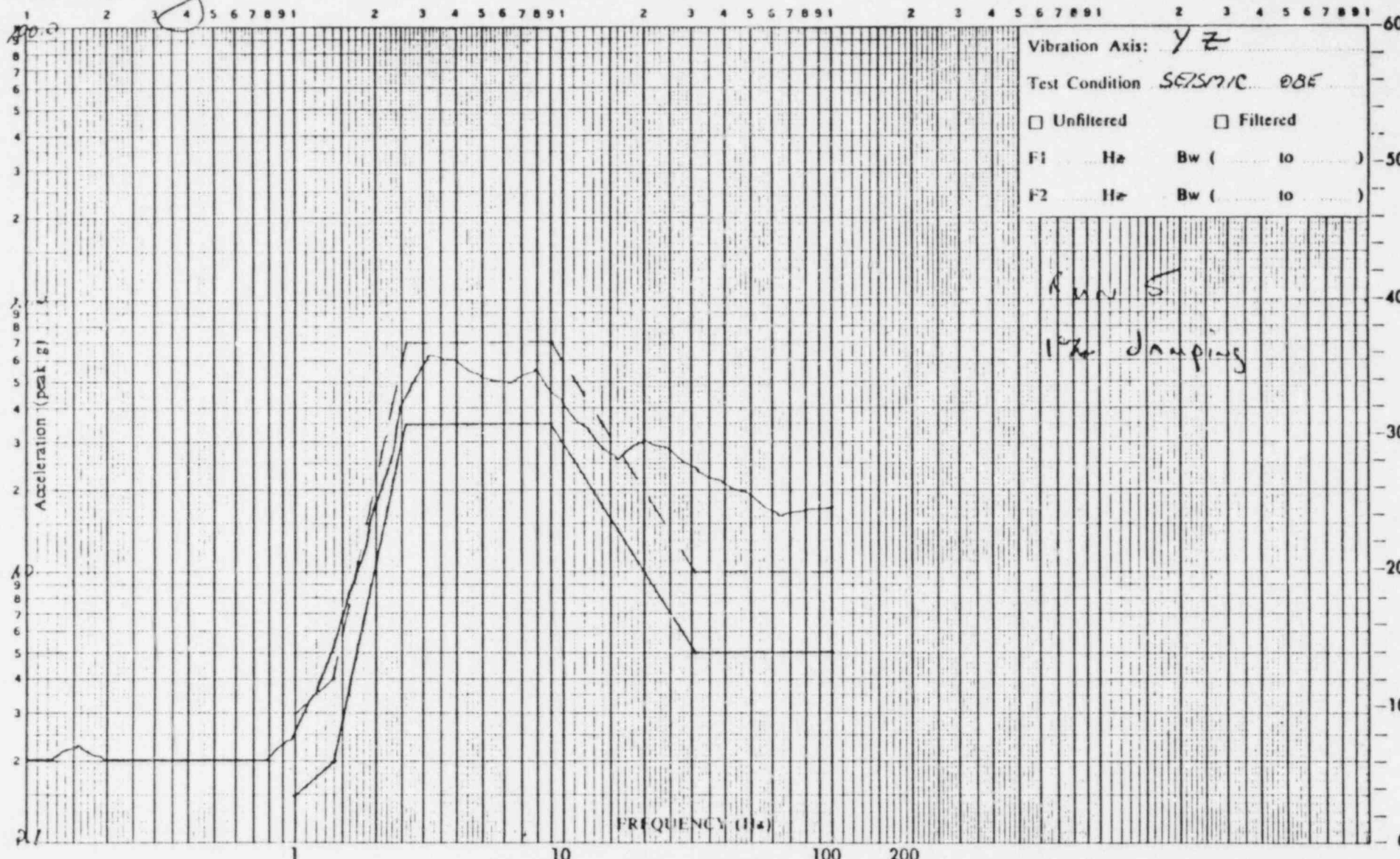
Checked by: *[Signature]*



Test Item: *CORE PROT. CAL.*

Serial Number(s): *0030267, 0030268*

Unit: Operational ☐ Non-operational ☐



Pickup Serial Number: *909*

Pickup Location: *CONTROL*

Pickup Sensing Axis: *H*

Pickup Sensitivity: *1000.0* $\frac{mv \text{ peak}}{g \text{ peak}}$

Sweep Speed: *—* oct/minute

☐ Live ☐ Tape

Job Number: *402438-60-000*

Date: *15 APRIL*

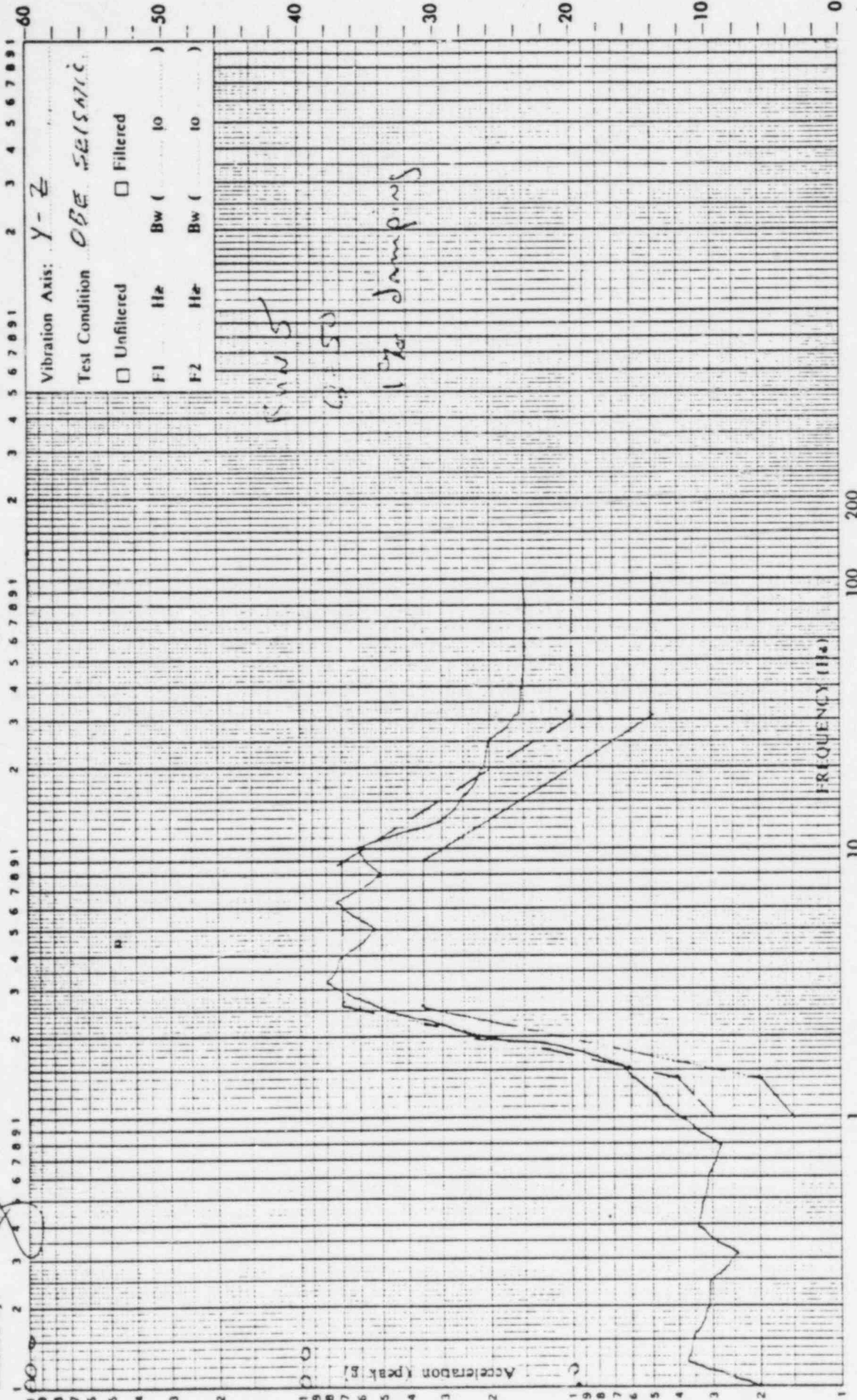
Time: *1425*

Test Item: CPC

Serial Number(s): 0030263
0030268Unit: Operational ☒ Non-operational ☐DAYTON T. BROWN INC.
Testing Laboratories

Plotted by:

Checked by:



Vibration Axis: Y-Z

Test Condition: OBE SEISMIC

☐ Unfiltered ☐ Filtered

F1 Hz Bw ()

F2 Hz Bw ()

mv peak
g peak

Pickup Sensitivity: 1000

oct/minute

Sweep Speed:

☐ Live☒ Tape

Job Number: 402438

Date: 15 Apr 80

Time: 1435

Pickup Serial Number: LH33

Pickup Location: CONT

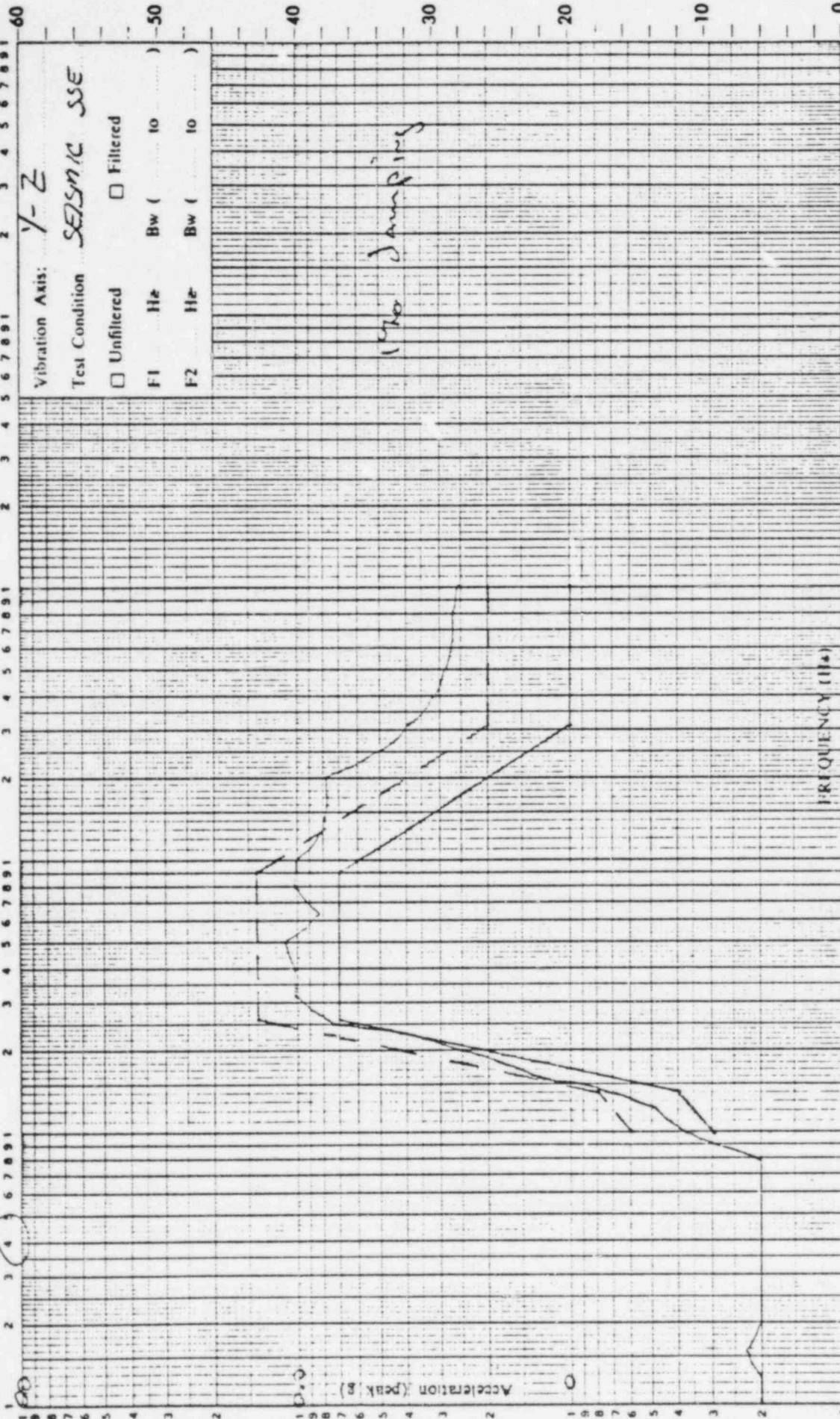
Pickup Sensing Axis: V

Test Item: CODE PROT. AL
Serial Number(s): 0030267, 0030268

Unit: Operational ☒ Non-operational ☐

DAYTON T. BROWN INC.
Testing Laboratories

Plotted by: W. Gled
Checked by:



Job Number: 402488
Date: 15 Apr 80
Time: 1459

Pickup Sensitivity: 100
Sweep Speed:
mv peak / g peak
oct/minute

Pickup Serial Number: 909
Pickup Location: Cont
Pickup Sensing Axis: H
☒ Live ☐ Tape

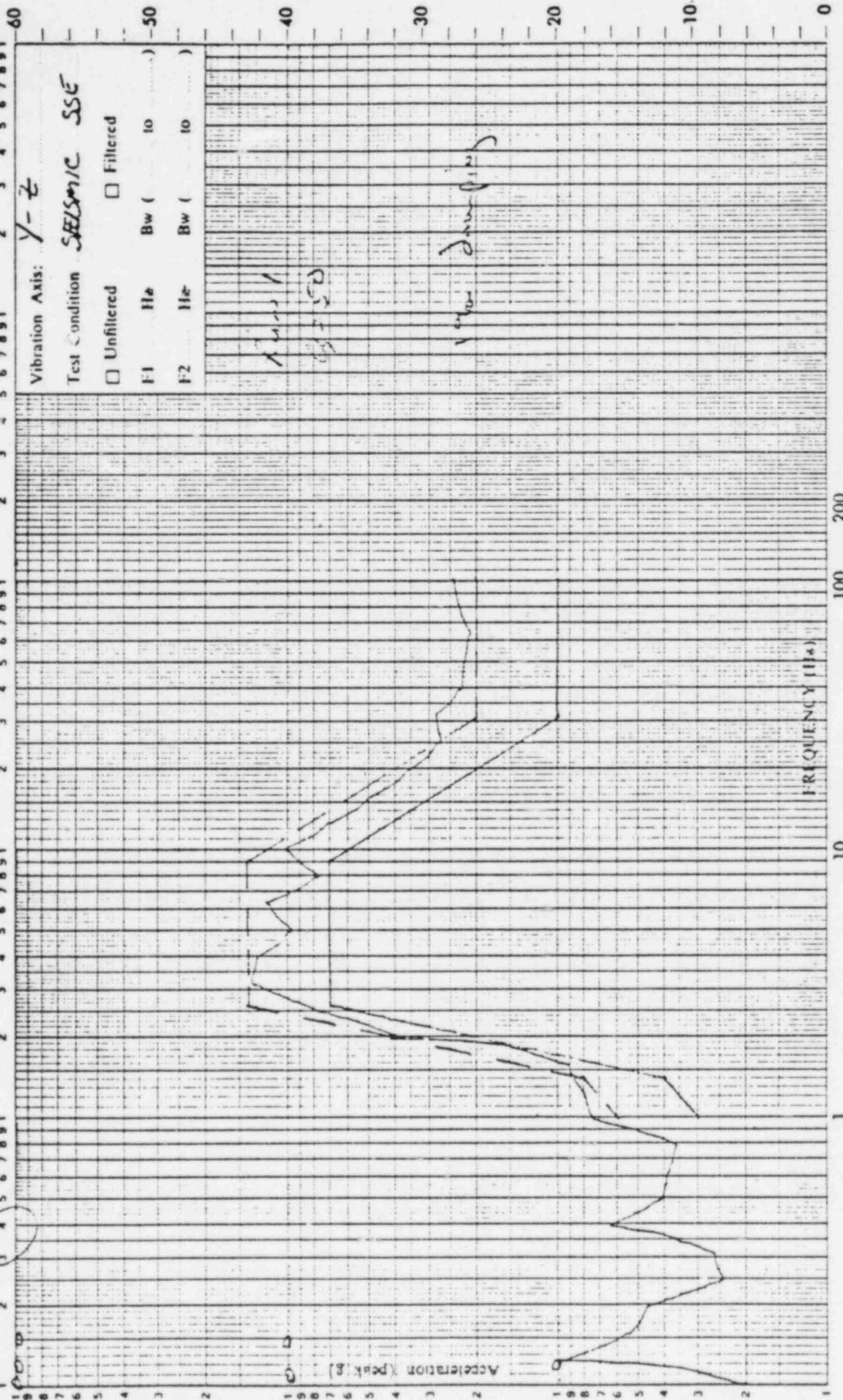
Test Item: CODE PLOT CAL
Serial Number(s): 0030267, 0030268

Unit: Operational ☒ Non-operational ☐

DAYTON T. BROWN INC.
Testing Laboratories

Plotted by: *W. J. Brown*

Checked by: *W. J. Brown*



Job Number: 402433

Date: 15 APR 80

Time: 1438

mv peak
g peak

Pickup Sensitivity: 1000

Sweep Speed: ☐ Live ☒ Tape

Pickup Serial Number: L-133

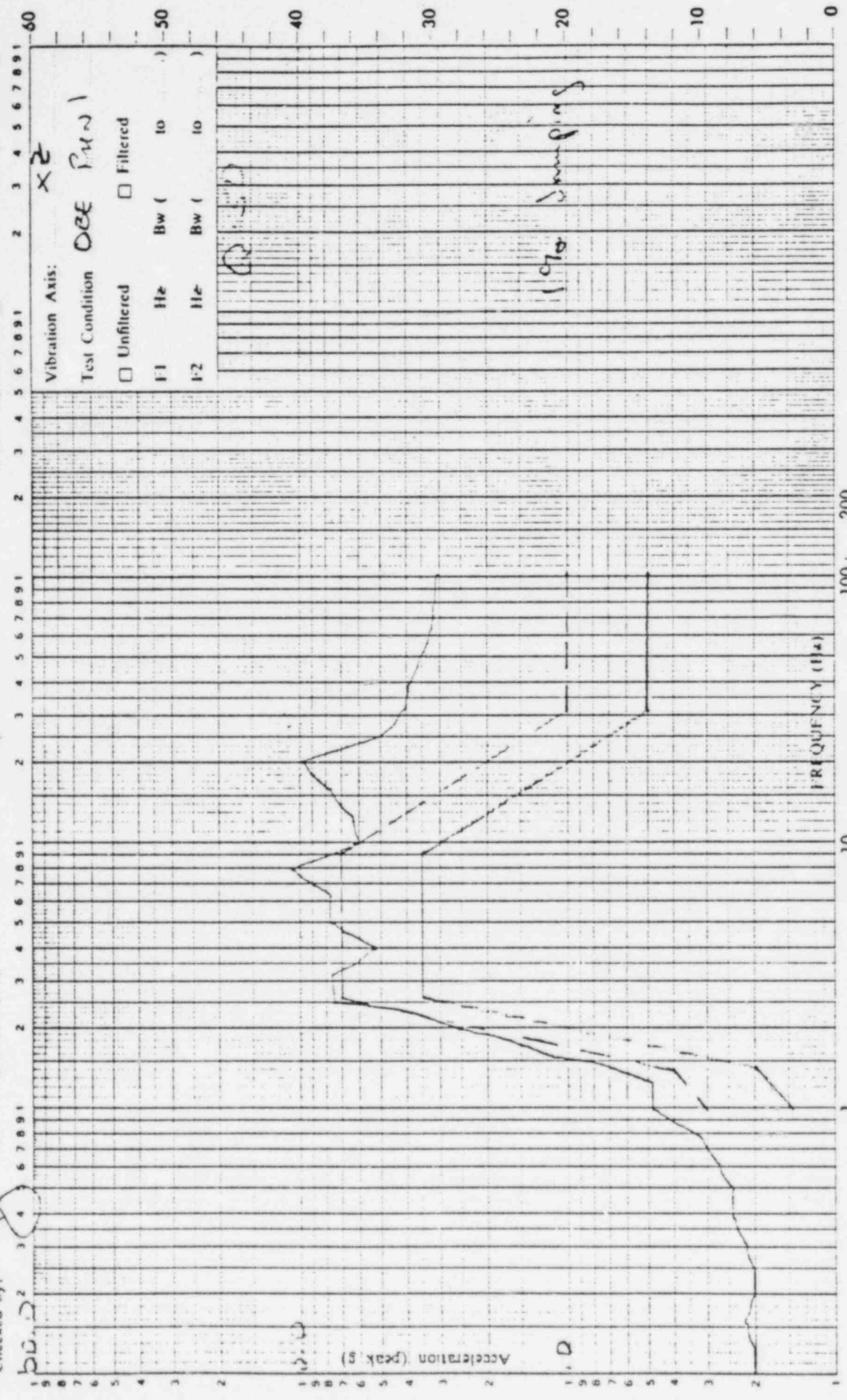
Pickup Location: CONT.

Pickup Sensing Axis: ☒

Test Item: *CEE Prototype*
 Serial Number(s): *0030767 / 0030768*
 Unit: Operational ☒ Non-operational ☐

DAYTON T. HORN, INC.
 Testing Laboratories

Plotted by: *[Signature]*
 Checked by: *[Signature]*



Pickup Serial Number: *909*
 Pickup Location: *Control*
 Pickup Sensing Axis: *160 d1*

Pickup Sensitivity: *1000 V*
 Sweep Speed: *1000*
☐ Live ☐ Tape

Job Number: *1024 18*
 Date: *15 Aug 78*
 Time: *160 d1*

W.D. 11.2

Plotted by:

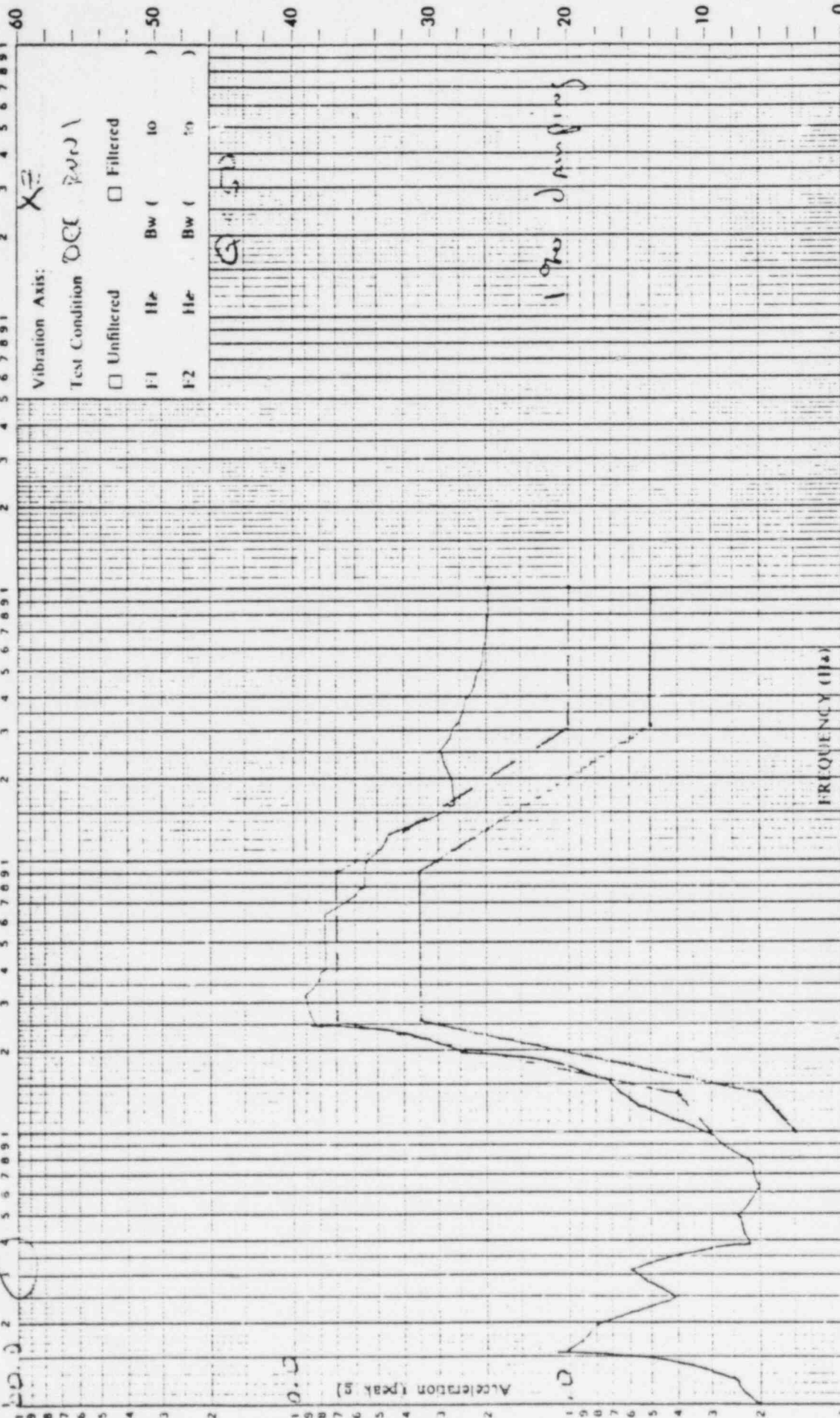
Checked by:

DAYTON THROWN INC.
Testing Laboratories

Test Item: CORE PROTECT CIR

Serial Number(s): 0030267 / 0030268

Unit: ☐ Operational ☐ Non-operational



Pickup Serial Number: LA 112
Pickup Location: 1500 0
Pickup Sensing Axis: ☐ Five ☐ Tape

Pickup Sensitivity: 1000
Sweep Speed: ☐ Five ☐ Tape

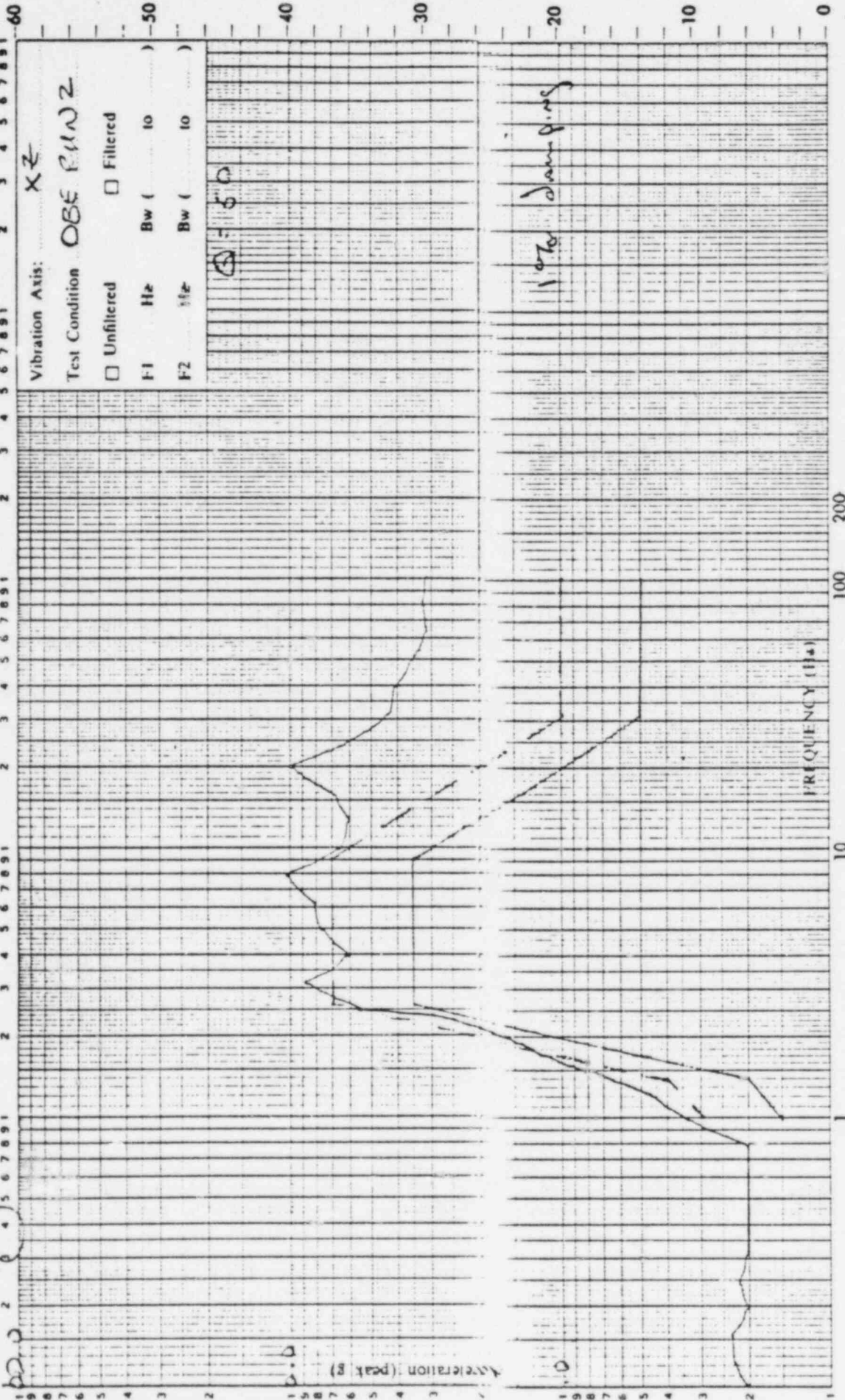
Job Number: 402438
Date: 15 DEC 82
Time: 11:11

Test Item: **CORE PROTECT CHC**
 Serial Number(s): **0030267/0030268**
 Unit: Operational ☒ Non-operational ☐

DAYTON T. BROWN INC.
 Testing Laboratories

Plotted by: *W.D. Carter*

Checked by: *[Signature]*



Pickup Serial Number: **709**
 Pickup Location: **CONF.**
 Pickup Sensing Axis: **X**
 Pickup Sensitivity: **1000.0** $\frac{mv\ peak}{g\ peak}$
 Sweep Speed: **15** oct/minute
 Job Number: **4024303**
 Date: **15 Nov 80**
 Time: **1650**

4567891

Checked by:

Testing Laboratories

Coe Protect Ctr

Serial Number(s): 0030267/0030267

Unit: Operational ☒ Non-operational ☐Non-operational ☐

Vibration Axis:

7.2

Test Condition OCE RUN 4

DEF 6112

☐ Unfiltered ☐ Filtered☐ Filtered

Fl H₂ Bw () to

Bw () to

F2	He	Bw	to
----	----	----	----

Bw () to

5

10th Sampling

LA 33

2. (4) 2

545

Pickup Sensitivity: $\frac{\text{mv peak}}{\text{g peak}}$ 1000.0

Sweep Speed: oct/minute

Job Number:

851:207

Date:

15 APR 80

Time:

6591

W. J. Miller

Plotted by:

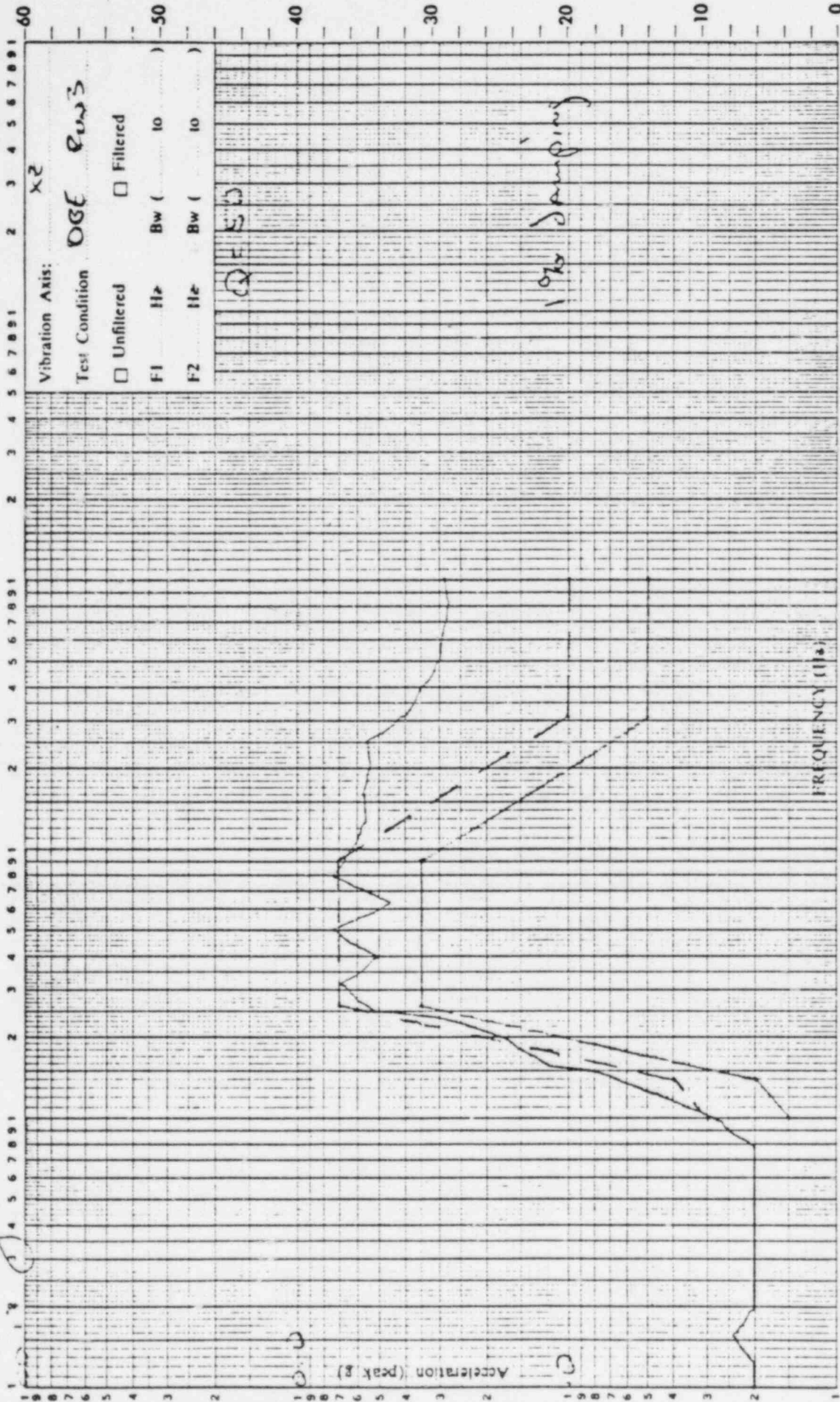
Checked by:

DAYTON T. BROWN INC.
Testing Laboratories

Test Item: *CONF PROTECT*

Serial Number(s): *0030267/0030268*

Unit: Operational ☒ Non-operational ☐



Vibration Axis: *XZ*
Test Condition: *OGE RUN 3*
☐ Unfiltered ☐ Filtered
F1 Hz: *10* Bw: *10*
F2 Hz: *10* Bw: *10*

Pickup Serial Number: *909*
Pickup Location: *CONT*
Pickup Sensing Axis: *X*
Pickup Sensitivity: *1000.0* $\frac{mv\ peak}{g\ peak}$
Sweep Speed: *154Hz*
Date: *15 APR 80*
Job Number: *102438*
Time: *1650*

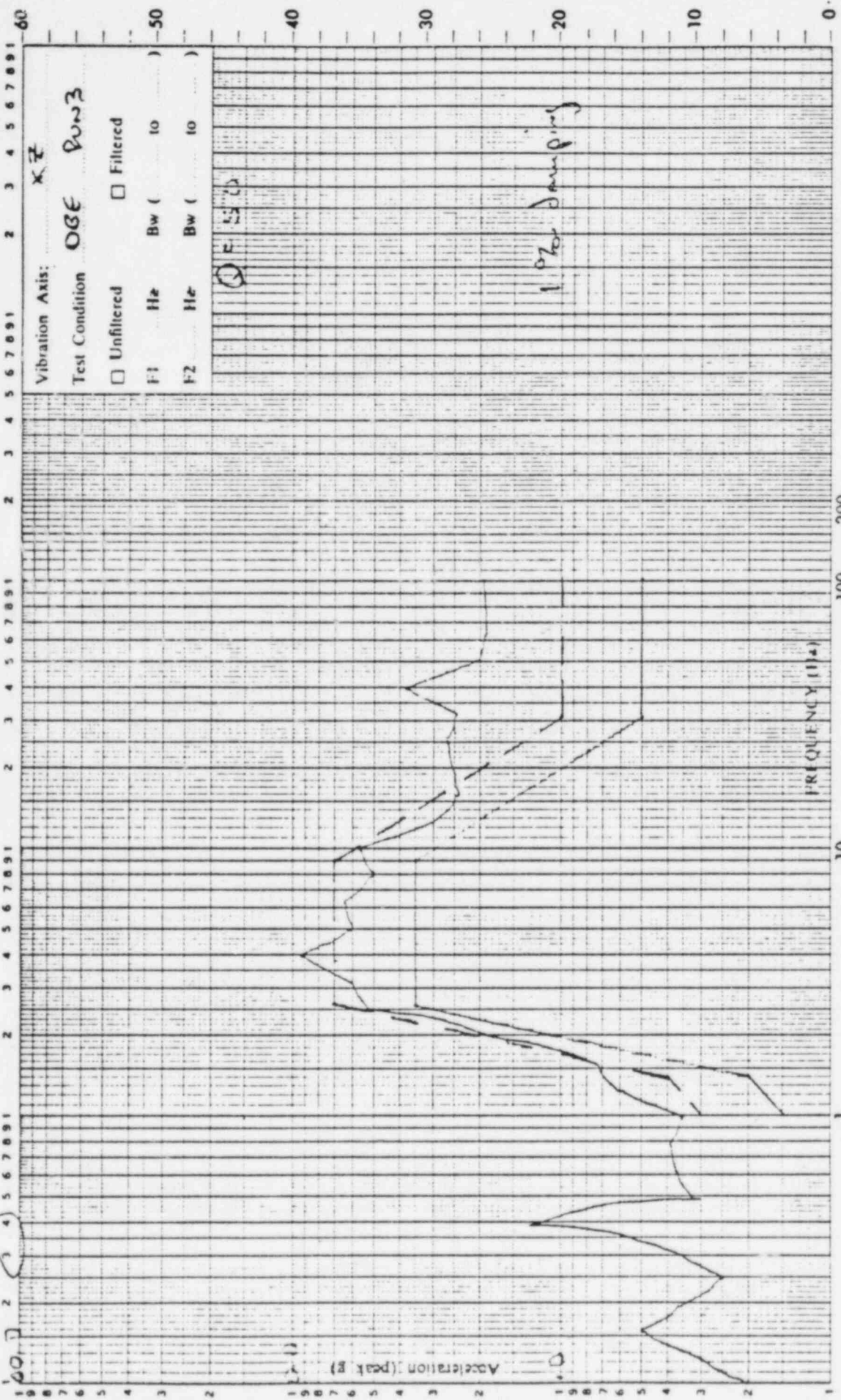
Plotted by: *W.D. Miller*
 Checked by: *[Signature]*



Test Item: *CORE PROTECT CR*

Serial Number(s):

Unit: Operational ☐ Non-operational ☐



Vibration Axis: *XZ*
 Test Condition: *OGE Run 3*
☐ Unfiltered ☐ Filtered
 F1 Hz *10* Bw *(10)*
 F2 Hz *10* Bw *(10)*

Pickup Serial Number: *LA 33*
 Pickup Location: *CONT.*
 Pickup Sensing Axis: *Z*
 Pickup Sensitivity: *1000.0* mv peak / g peak
 Sweep Speed: *15* oct/minute
 Job Number: *402438*
 Date: *15 APR 80*
 Time: *16.50*

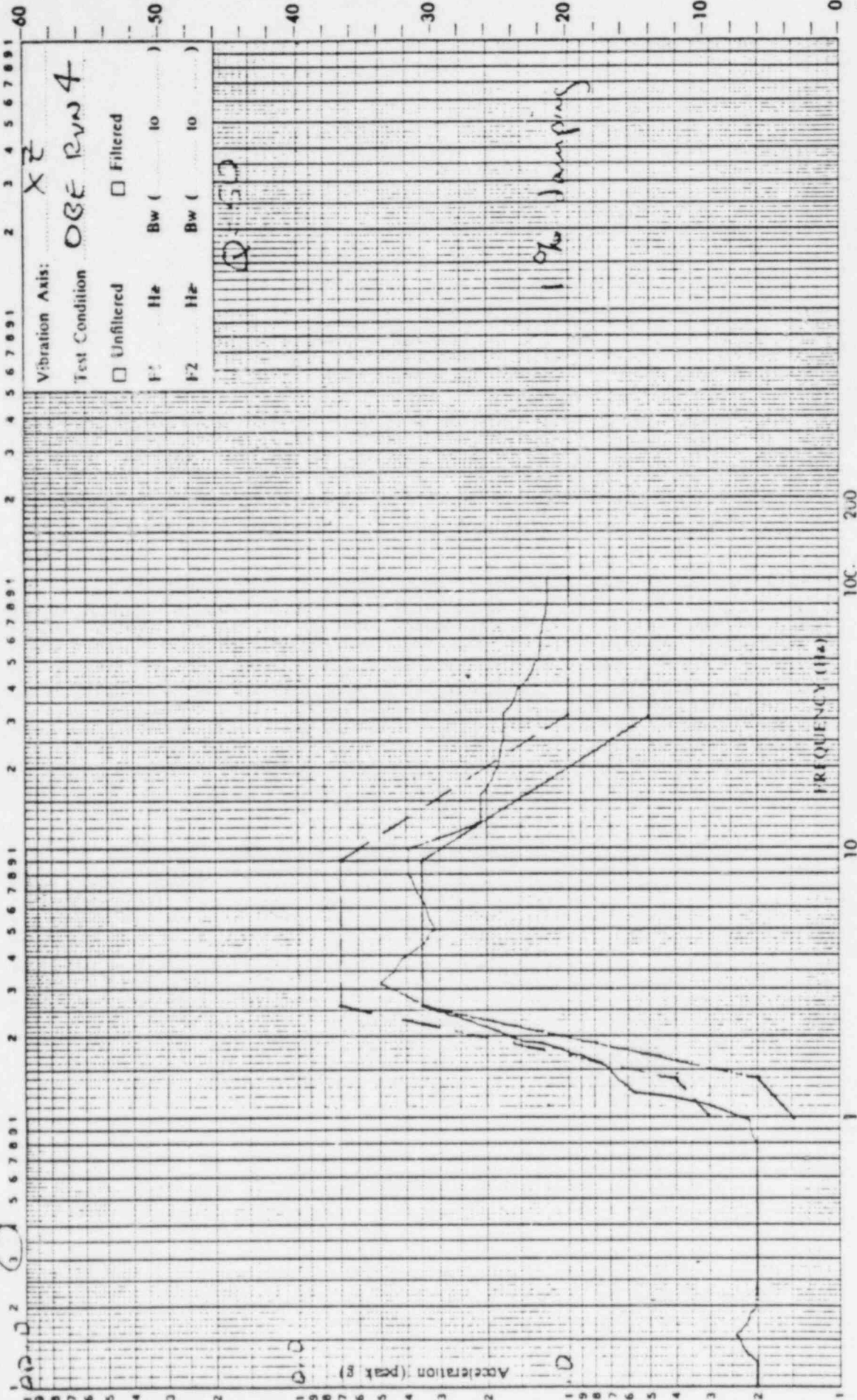
Test Item: *CORE PROTECT CR*
 Serial Number(s): *0030267/0030268*

Unit: Operational ☒ Non-operational ☐

DAYTON T. BROWN INC.
 Testing Laboratories

Plotted by: *[Signature]*

Checked by: *[Signature]*



Pickup Serial Number: *409*
 Pickup Location: *2.5, 3.5*
 Pickup Sensing Axis: ☒ Live ☐ Tape

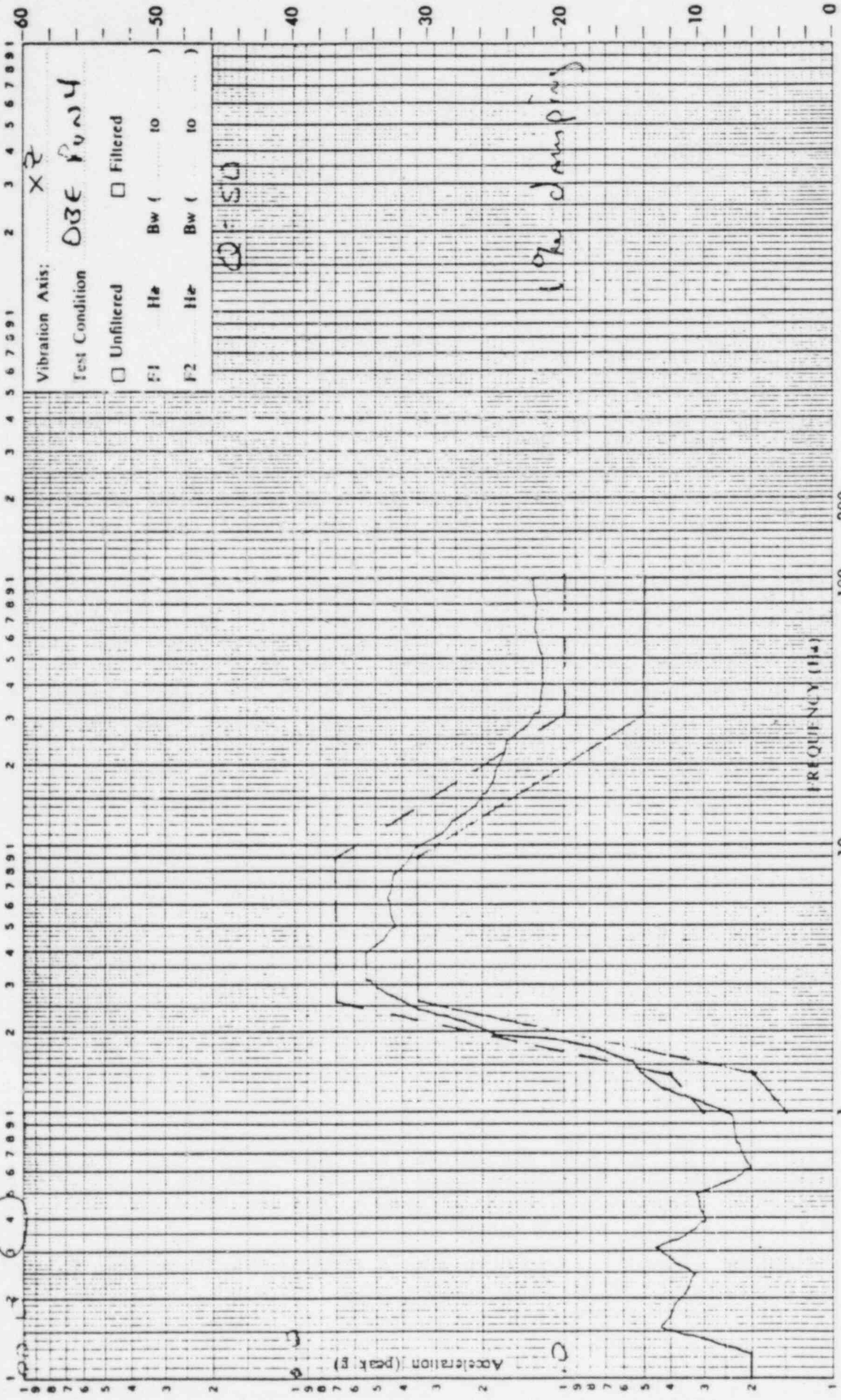
Pickup Sensitivity: *1000.0* $\frac{mv\ peak}{g\ peak}$
 Sweep Speed: *1512.0* oct/minute
 Job Number: *402438*
 Date: *15/12/80*
 Time: *12:45*

Fuller

DAYTON T. BROWN INC.
Testing Laboratories

Test Item: *Case Protection Case*
Serial Number(s): *0030267/0030268*
Unit: Operational ☒ Non-operational ☐

Plotted by:
Checked by:

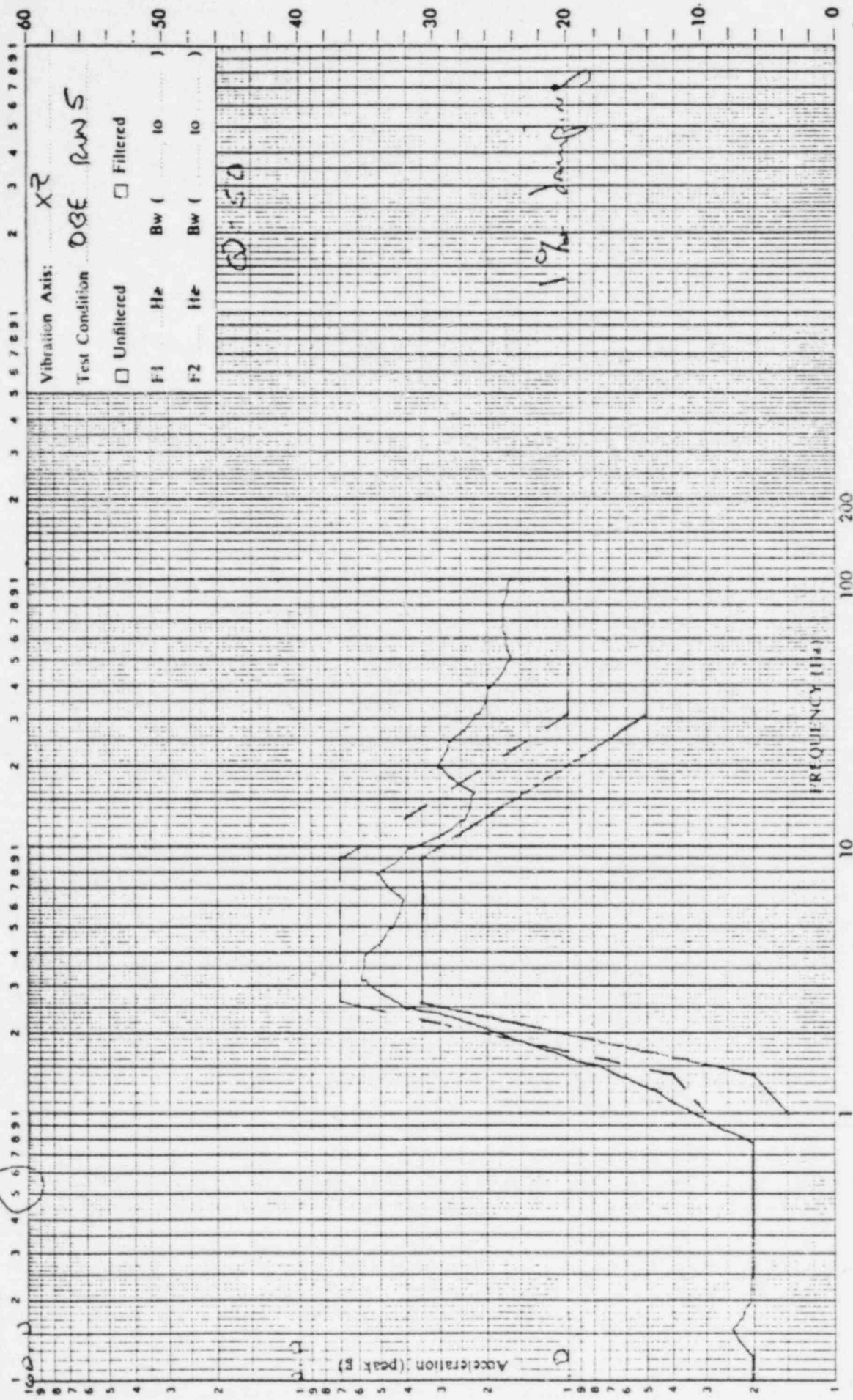


Pickup Serial Number: *6-133*
Pickup Location: *CONSOLE*
Pickup Sensing Axis: *---*
Pickup Sensitivity: *1000.0* $\frac{mv\ peak}{g\ peak}$
Sweep Speed: *---* oct/minute
Job Number: *102458*
Date: *15 APR 80*
Time: *11:55*

Test Item: *Coe Proter Gr*
 Serial Number(s): *0030267/0030268*
 Unit: Operational ☒ Non-operational ☐



Plotted by: *W. J. H. E. R.*
 Checked by: *[Signature]*



Pickup Serial Number: *909*
 Pickup Location: *0030267*
 Pickup Sensing Axis: *X*
 Pickup Sensitivity: *1000* $\frac{mv\ peak}{g\ peak}$
 Sweep Speed: *15 APR 80* oct/minute
 Job Number: *402430*
 Date: *15 APR 80*
 Time: *1705*

Plotted by: *W. S. S. S.*

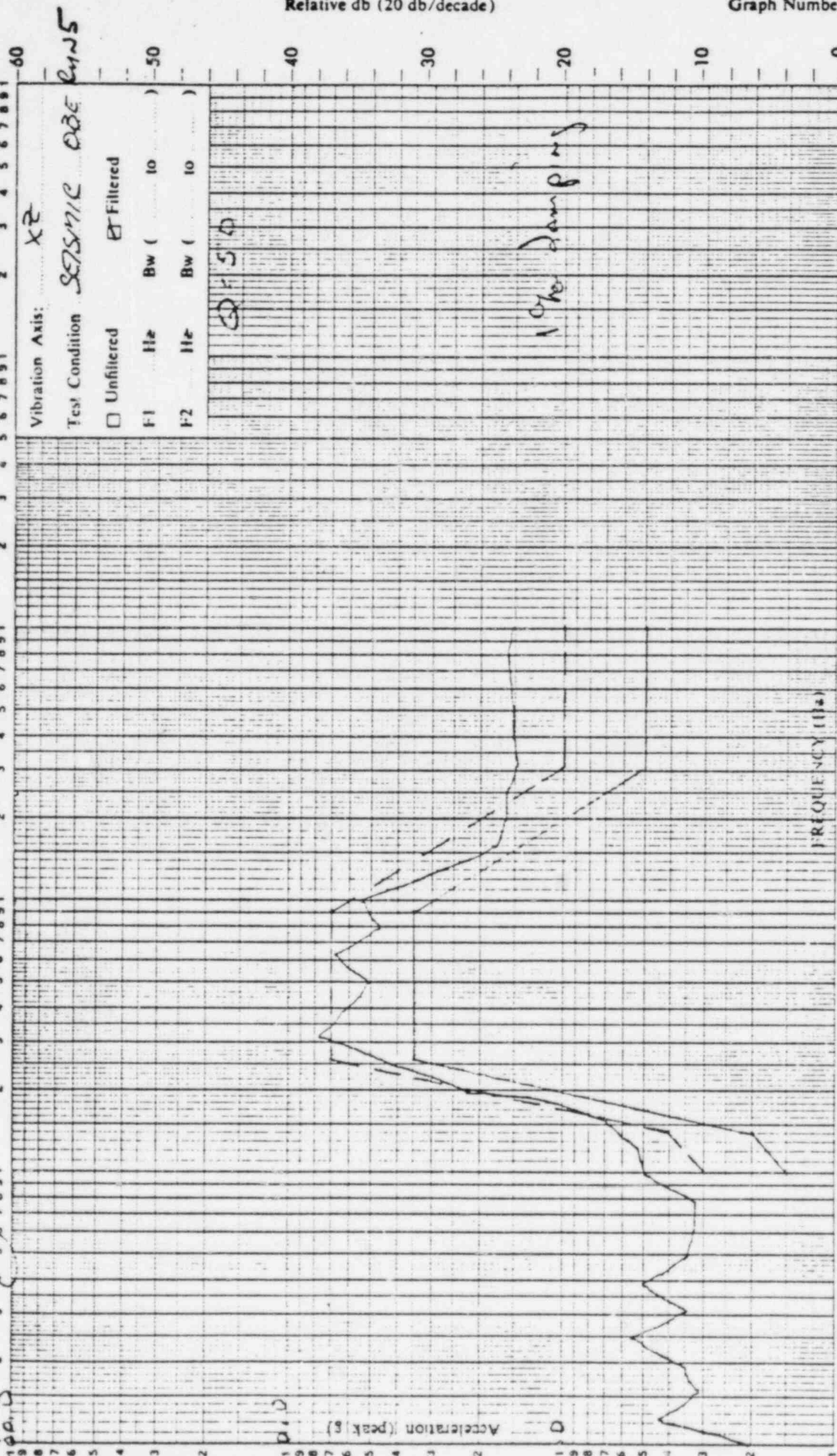
Checked by: *W. S. S. S.*

DAYTON T. BROWN, INC.
Testing Laboratories

Test Item: *CAGE PROTECT CH*

Serial Number(s): *0030267/0031268*

Unit: Operational ☒ Non-operational ☐



Pickup Sensitivity: *1000.0* $\frac{\text{mv peak}}{\text{g peak}}$

Sweep Speed: *1500 RPM*

☐ Live ☐ Tape

Job Number: *402438*

Date: *15 APR 60*

Time: *1775*

Pickup Serial Number: *LA 33*

Pickup Location: *Cont.*

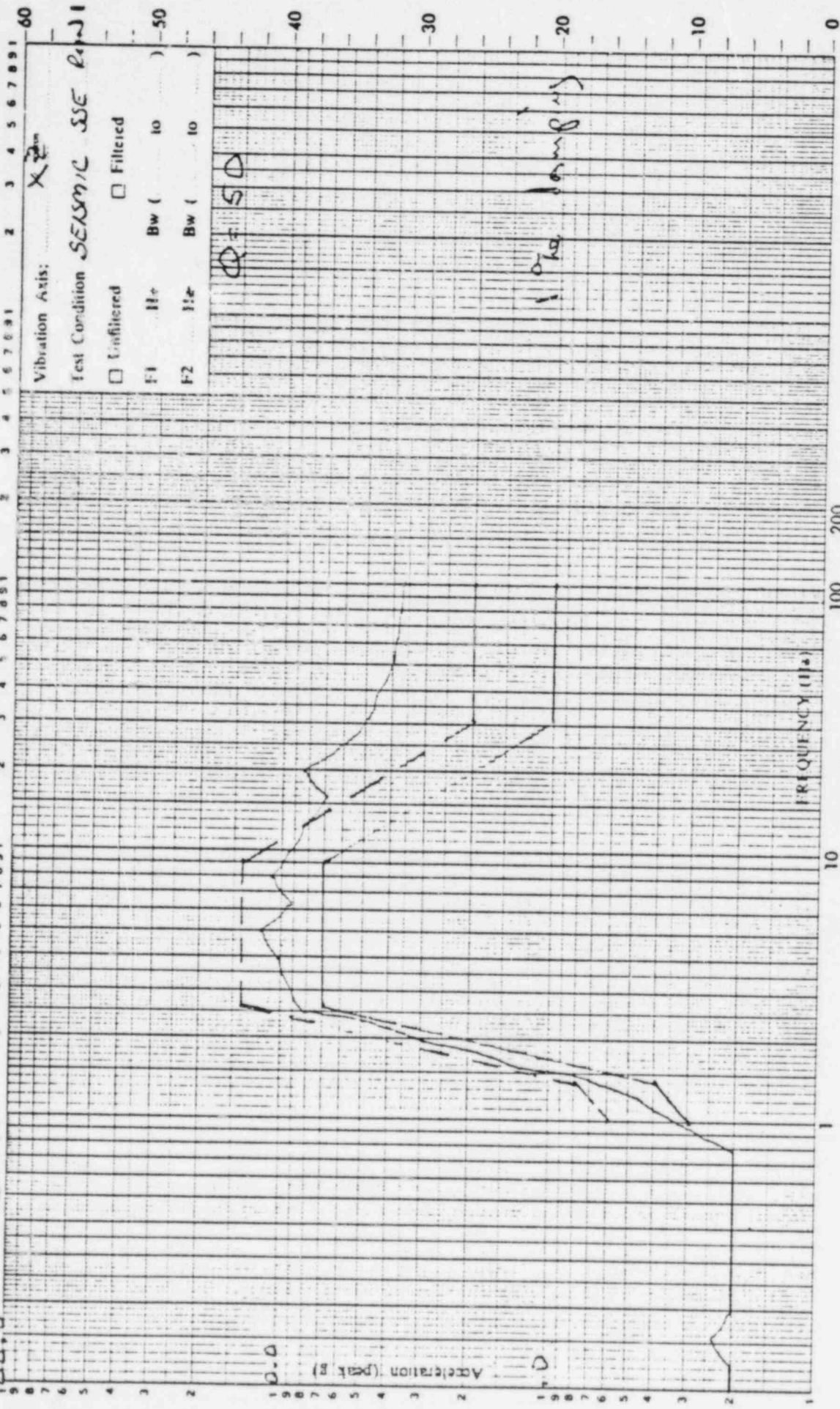
Pickup Sensing Axis: *Z*

Plotted by: *W. J. [Signature]*
 Checked by: *[Signature]*

DAYTON T. BROWN, INC.
 Testing Laboratories

Test Item: *CORE PROTECTOR*
 Serial Number(s): *0030267/0030268*

Unit: Operational ☒ Non-operational ☐



Pickup Serial Number: *909*
 Pickup Location: *WNT*
 Pickup Sensing Axis: ☒ Live ☐ X

Pickup Sensitivity: *1000.0* mv peak / g peak
 Sweep Speed: *---* oct/minute

Job Number: *402438*
 Date: *15 APR 50*
 Time: *1705*

Test Item: *CASE PROTECT LTR*
 Serial Number(s): *0030267, 0030268*

Unit: Operational ☒ Non-operational ☐

Vibration Axis: *X Z*
 Test Condition: *SEISMIC SSE ANI*
☐ Unfiltered ☐ Filtered
 F1 Hz *Bw (10)*
 F2 Hz *Bw (10)*

Q = 50

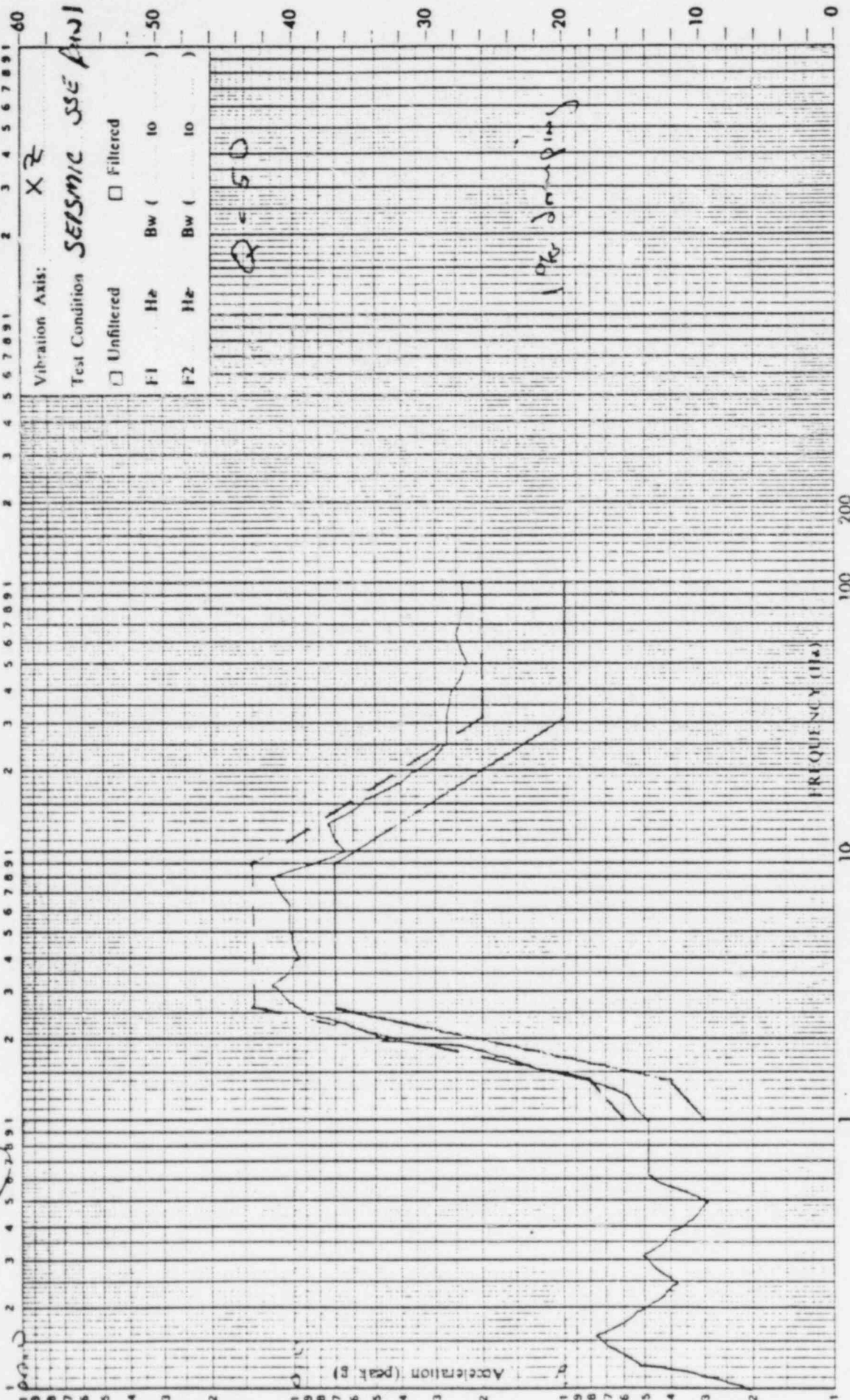
10% damping

DAYTON T. BROWN INC.
 Testing Laboratories

W. E. H. R.

Plotted by:

Checked by:



Job Number: *402430*

Pickup Sensitivity: *1000.0* $\frac{mv\ peak}{g\ peak}$

Pickup Serial Number: *LA 93*

Date: *15-11-82*

Sweep Speed: *—* oct/minute

Pickup Location: *Cent.*

Time: *1705*

☐ Live ☐

Pickup Sensing Axis: *Z*

TEST EQUIPMENT

TEST: VIBRATION

ITEM	MANUFACTURER	MODEL	S/N	ACCURACY
Seismic Vibrator	Dayton T. Brown, Inc.	001	001	Transfer Instrument
Shock Spectrum Analyzer	Spectral Dynamics	13231	13	Mfr. Spec.
Transient Memory	Spectral Dynamics	13192	16	Mfr. Spec.
Seismic Shock Synthesizer	MRAD	197S	197-20	Mfr. Spec.
Sweep Oscillator	Spectral Dynamics	SD104A-1	1664	$\pm 2\%$
Servo Monitor	Spectral Dynamics	SD105C	820	$\pm 4\%$
Magnetic Tape Recorder	Sanborn	3914A	104	± 0.5 dB 20 Hz-10 kHz
Magnetic Tape Recorder	Bell & Howell	VR3700B	51-99	Mfr. Spec.
Dynamic Analyzer	Spectral Dynamics	SD101B	53	± 0.25 dB
Log Converter	Hewlett Packard	7562A	1445A-01887	± 0.25 dB
X-Y Recorder	Hewlett Packard	7035B	1206A 05761	$\pm 1\%$
X-Y Recorder	Hewlett Packard	7035B	1320A 07557	$\pm 1\%$
Filter	Krohn-Hite	3202R	000	$\pm 5\%$
Charge Amplifier	Unholtz Dickie	D22PMS (0)-82	50-125	$\pm 5\%$
Charge Amplifier	Unholtz Dickie	D22PMS (0)-82	50-127	$\pm 5\%$

Test equipment utilized for the program reported herein was within its assigned interval of calibration. Details are on file at Dayton T. Brown, Inc. and will be made available upon request.

TEST EQUIPMENT

TEST: VIBRATION

ITEM	MANUFACTURER	MODEL	S/N	ACCURACY
Charge Amplifier	Unholtz Dickie	D22PMS (0)-82	50-128	$\pm 5\%$
Charge Amplifier	Unholtz Dickie	D22PMS (0)-82	50-131	$\pm 5\%$
Charge Amplifier	Unholtz Dickie	D22PMS (0)-82	50-132	$\pm 5\%$
Charge Amplifier	Unholtz Dickie	D22PMS (0)-82	50-133	$\pm 5\%$
Charge Amplifier	Unholtz Dickie	D22PMS (0)-82	50-134	$\pm 5\%$
Charge Amplifier	Unholtz Dickie	D22PMS (0)-82	50-135	$\pm 5\%$
Charge Amplifier	Unholtz Dickie	D22PMS (0)-82	50-136	$\pm 5\%$
Accelerometer	Unholtz Dickie	5D21	224	$\pm 5\%$
Accelerometer	Unholtz Dickie	5D21-8	863	$\pm 5\%$
Accelerometer	Endevco	2228C	YG79	$\pm 5\%$
Accelerometer	Endevco	2228C	YG82	$\pm 5\%$
DC Servo Amplifier	M. B. Electronics	N229	50-121	Transfer Instrument
DC Servo Amplifier	M. B. Electronics	N229	50-122	Transfer Instrument
Power Rack	Validyne	MC1	50-18	Mfr.
Carrier Amplifier	Validyne	CD19	50-17-1	Mfr.

Test equipment utilized for the program reported herein was within its assigned interval of calibration.
Details are on file at Dayton T. Brown, Inc. and will be made available upon request.

TEST EQUIPMENT

TEST: VIBRATION

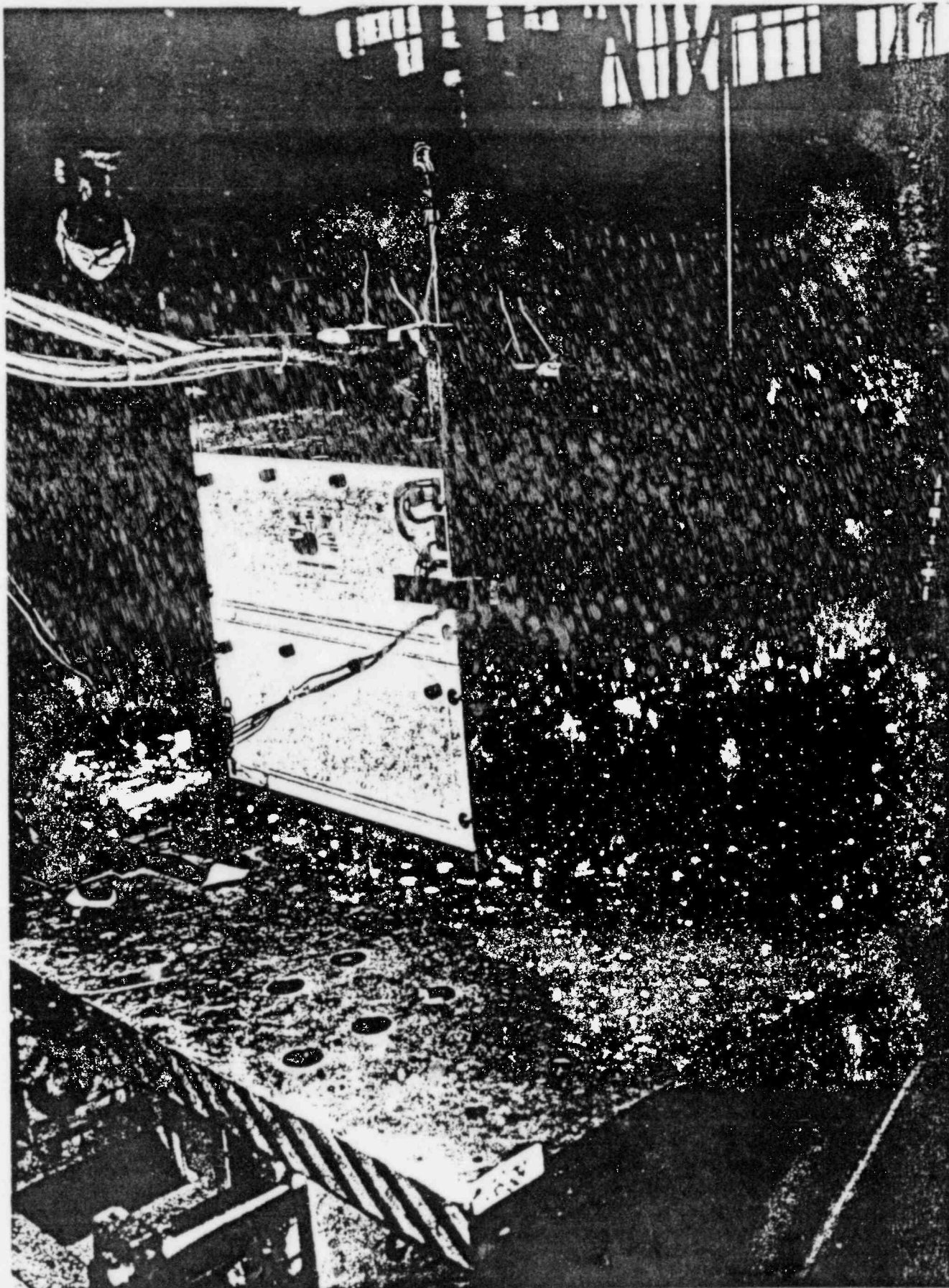
ITEM	MANUFACTURER	MODEL	S/N	ACCURACY
Carrier Amplifier	Validyne	CD19	50-119-16	Mfr.
Carrier Amplifier	Validyne	CD19	50-119-5	Mfr.
Carrier Amplifier	Validyne	CD19	50-18-8	Mfr.
Visicorder	Honeywell	1858A	23-27	Mfr.
Differential Amplifier	Honeywell	1883D	23-27-6	Mfr.
Differential Amplifier	Honeywell	1883D	23-27-3	Mfr.
Differential Amplifier	Honeywell	1883D	23-27-5	Mfr.
Differential Amplifier	Honeywell	1883D	23-25-12	Mfr.
D.V.M.	Keithley	179TRMS	9-62	Mfr.

Test equipment utilized for the program reported herein was within its assigned interval of calibration. Details are on file at Dayton T. Brown, Inc. and will be made available upon request.



Enclosure 2

Photographs



TESTED FOR & MFR'D. BY: DEVAR, INC.

S/N: 0030267, 0030268

TYPICAL FRONT VIEW SETUP OF TEST ITEMS IN SEISMIC VIBRATION Y/Z AXES

JOB NO: 402438-00-000

DTN048N1-1479

FILE NO: 80-0618

ENCLOSURE: 2

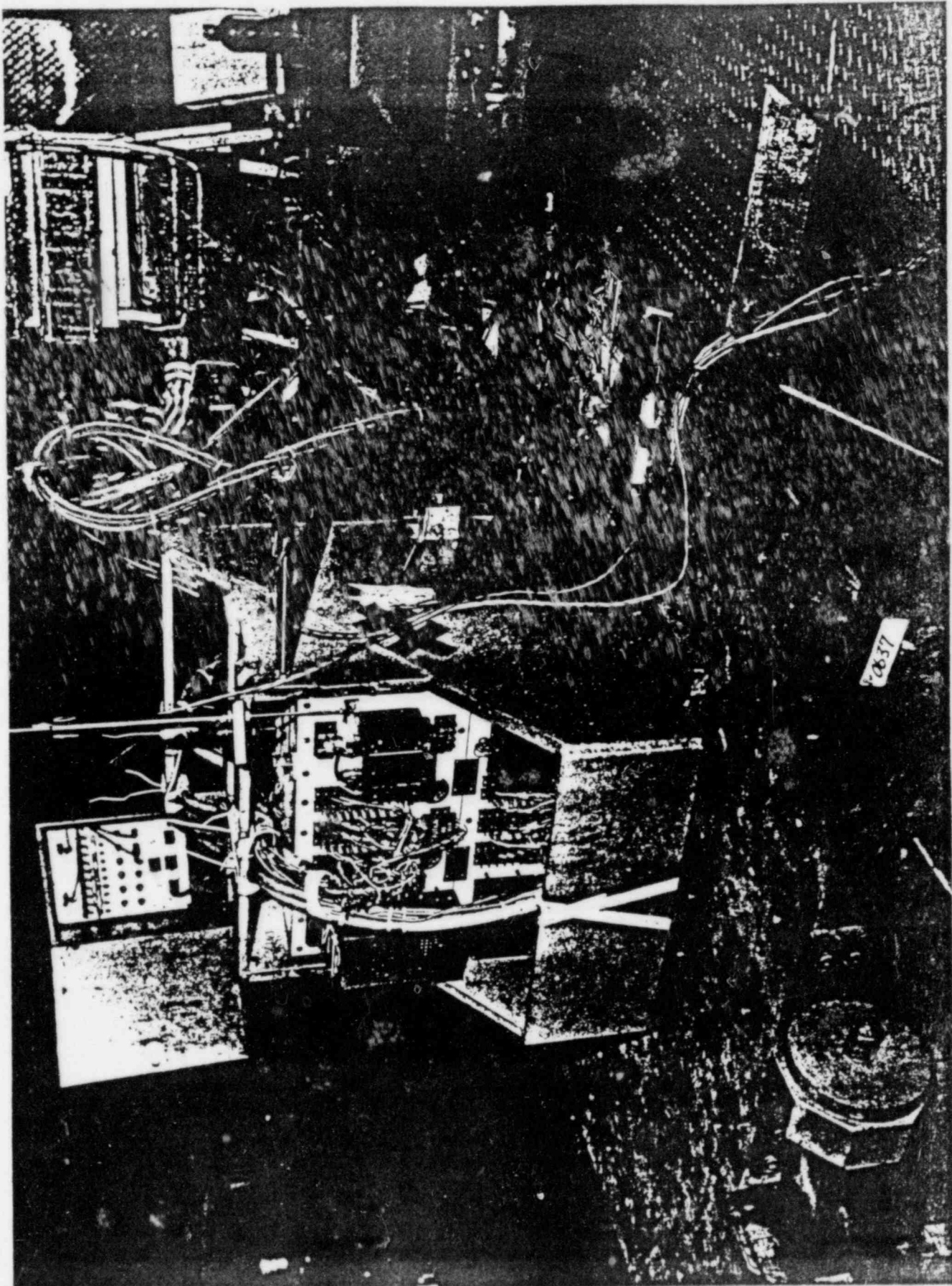
ITEM: CPC 1, CPC 2

DATE: 15 APRIL 1980

PHOTO: 1

DAYTON T. BROWN, INC.

ENGINEERING AND
TEST DIVISION



TESTED FOR & MFR'D. BY: DEVAR, INC.

S/N: 0030267, 0030268

TYPICAL REAR VIEW SETUP OF TEST ITEMS IN SEISMIC VIBRATION 1/2 AXES

JOB NO: 402418-00-000

FILE NO: 88-0617

DATE: 15 APRIL 1980

DTN04880-1479

ENCLOSURE

PHOTO: 2

DAYTON T. BROWN

ENGINEERING AND
TEST DIVISION



Enclosure 3

Seismic Test Procedure

DAYTON T. BROWN INC.

ENGINEERING AND TEST DIVISION

CHURCH STREET, BOHEMIA, LONG ISLAND,
NEW YORK 11716 / (516) 589-6300

TEST REPORT / PROCEDURE No. DTB25P79-0235 REVISION B
DAYTON T. BROWN, INC. JOB No. 402438-00-000

CUSTOMER: DEVAR, INC.
CONTROL PRODUCTS DIVISION
706 BOSTWICK AVENUE
BRIDGEPORT, CONNECTICUT 06605

SUBJECT: SEISMIC QUALIFICATION TEST PROCEDURE
ON TWO CORE PROTECTION CALCULATORS
(CPC-1 AND CPC-2)

ATTENTION: MR. L. KRUMM

THIS PROCEDURE CONTAINS: FOUR PAGES AND ONE ENCLOSURES

PREPARED BY	R. J. ROTHaug <i>RJRothaug</i>
TEST ENGINEER	W. W. SCHAAF <i>W. W. SchAAF</i>
STAFF ENGINEER	R. J. ROTHaug <i>RJRothaug</i>
DATE	29 JUNE 1979

THE DATA CONTAINED IN THIS REPORT WAS OBTAINED BY TESTING
IN COMPLIANCE WITH THE APPLICABLE TEST SPECIFICATION AS NOTED

1.0 SCOPE

This test plan details the test program required by Devar, Inc. to seismically qualify two Core Protection Calculators (CPC-1 and CPC-2).

2.0 REFERENCES

- a) Combustion Engineering, Inc. Specification Number 13172-ICE-3025. Rev. 01.
- b) Combustion Engineering, Inc. Specification Number SYS80-ICE-0506, Rev. A.
- c) EMI, SEISMIC and ENVIRONMENTAL Qualification Test Procedure, Devar Register N-46474.
- d) IEEE Std. 344-1975.
- e) IEEE Std. 323-1974.

3.0 TEST LOCATIONS AND RESPONSIBILITIES

3.1 All testing will be performed in the Environmental Test Labroatory of Dayton T. Brown, Inc., Bohemia, New York.

3.2 Deliverables: Dayton T. Brown, Inc. will provide the following:

- 3.2.1 Test Procedure
- 3.2.2 Seismic simulator with all controls and instrumentation.
- 3.2.3 Personnel to conduct the tests and generate data.
- 3.2.4 Test Report

4.0 TEST WITNESSING

4.1 Tests may be witnessed by Devar, Inc. representatives and their customers. Two weeks notice of test dates will be provided, and will be verified within a day of testing.

5.0 TEST ITEMS

5.1 The two test items will be tested in one fixture, with the calculators mounted one above the other with front panel edges touching (CPC-1 on bottom). The mounting will simulate actual installation, using the front panel hardware and rear mountings as provided by Devar, Inc. The fixture will be rigid in the frequency range of interest.

5.2 Operation of the test items will be coordinated with the seismic tests by Devar, Inc. engineers using appropriate sections of reference 2.0c.

6.0 TEST EQUIPMENT

- 6.1 All measurements will be made using calibrated test equipment with performance certified by the Dayton T. Brown, Inc. Metrology Department. All instruments are calibrated, with traceability to the National Bureau of Standards, at periodic intervals.
- 6.2 A list of test equipment anticipated to be used will be found in enclosure 1.
- 6.3 Independent Biaxial Seismic Simulator featuring independent motion in the vertical and one horizontal axis simultaneously, is capable of producing sine, sine beat, random and other types of motion.

7.0 TEST INSTRUMENTATION

- 7.1 Control accelerometers will be located on the test table adjacent to the base of the test item fixture. One triaxial response accelerometer will be mounted on the body of each unit (location TBD by Dayton T. Brown, Inc. and Devar, Inc.)

All accelerometer data will be recorded on magnetic tape for subsequent playback and analysis.

- 7.2 One set of strain gages will be applied to the outside case of each unit in a location estimated to experience maximum stress during seismic vibration.

Strain data from sine surveys will be plotted against frequency, and data from one OBE and the SSE random tests will be recorded on tape, then scanned for peak strain values. RMS strain values will also be given.

- 7.3 Two LVDT's will be positioned to measure vertical deflection of the two computers during one OBE and SSE test. Data will be recorded on tape, then scanned for peak values and interference between the two computers.

8.0 TEST PROCEDURE

8.1 Resonant Survey

Accelerometers on the test items will record unit responses in all axes. Surveys will be conducted separately in each of three axes, in a frequency range of 1 to 40 Hz at a sweep rate of one (1) octave per minute with approximately 0.2 G acceleration applied. Responses will be plotted and examined for resonance and coupling effects.

8.2 Seismic Qualification Test

- 8.2.1 This test will be conducted with procedures of IEEE-344-1975, utilizing the biaxial seismic simulator which features independent generation and control of the vertical and horizontal axes.

8.2.1 (Continued)

Excitation will be applied and analyzed to show that the Required Responses Spectrum has been enveloped by the Test Response Spectrum. Excitation waveform will be random as required to meet the RRS indicated in figure 1.

8.2.2 The test item will be subjected to five (5) half-level or operating basis earthquakes (OBE) and to one application of the full safe shutdown earthquake (SSE). The excitation will be applied simultaneously in one horizontal axis and the vertical axis. The test items will be rotated 90° on the table and testing will be repeated in the second horizontal and vertical axis combination.

8.2.3 The test response spectrum will be analyzed with 1% damping coefficient.

8.2.4 The frequency range of analysis will be from 1 to 250 Hz.

8.2.5 The assembly will be visually inspected and all mounting hardware checked for tightness after the 90° rotations only.

9.0 DATA AND LOG BOOKS

Log books are kept on each item and consist of sections containing test specifications, in-house test procedures, equipment lists and calibration data, test item inspection sheets, data sheets of work completed and work in progress and a time log of work accomplished with entries at least every hour.

After the report is written, original data will be forwarded to combustion engineering.

10.0 REPORTS

A detailed test report will be submitted which will contain as a minimum the following:

Description of Test Item

Test Dates

Test Specification

Summary of Test Results

Test Data Including Plots

Sketches of Instrumentation Locations

Test Results

Test Facility & Instrumentation, including Calibration Data

Photographs of Test Setups

Photographs of Test Item Anomalies, if any

Transmissibility Plot

Ten copies of the report will be submitted 2 to 4 weeks after completion of the testing.

Plotted by:

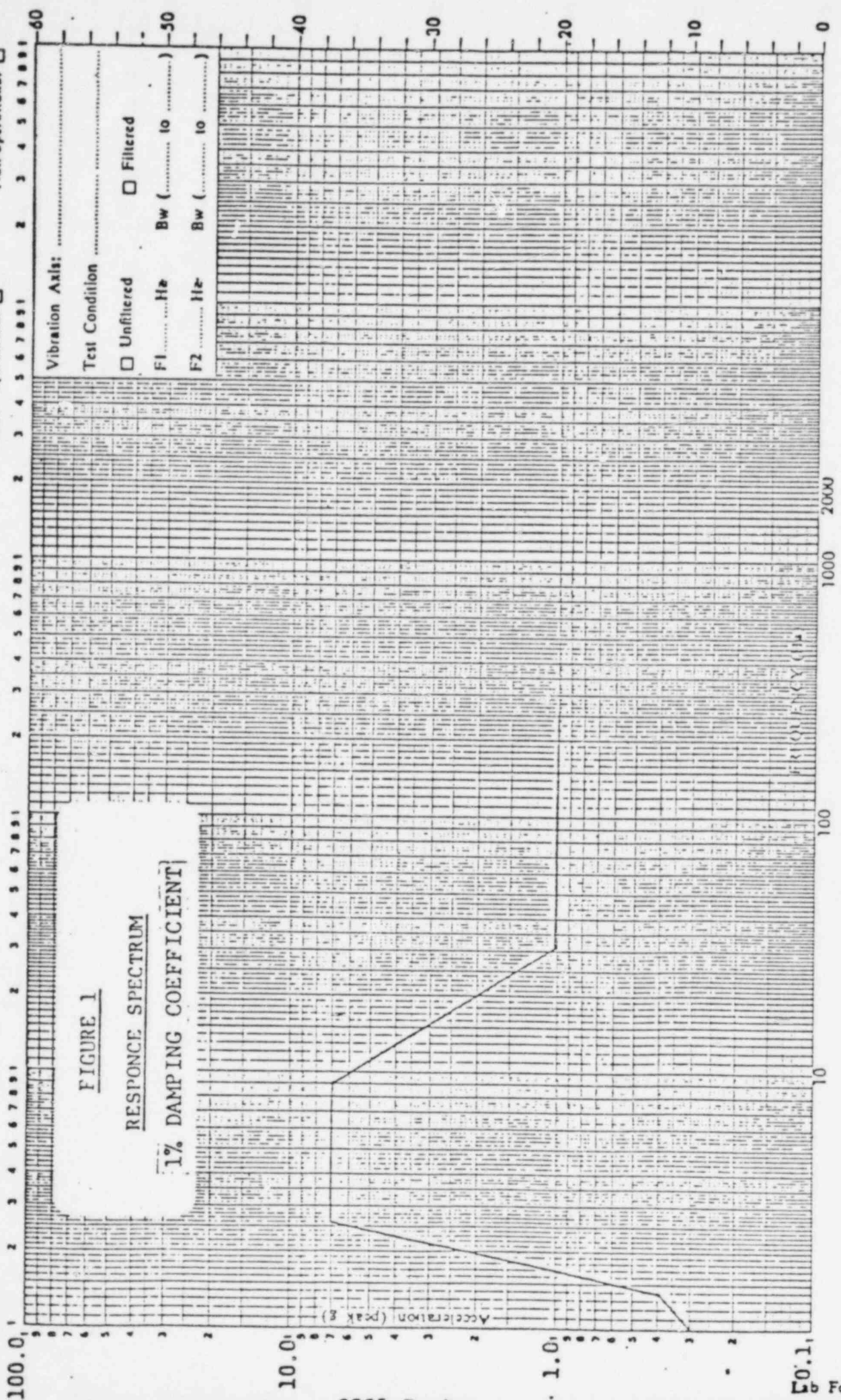
Checked by:

DAYTON T. BROWN, INC.
Testing Laboratories

Test Item:

Serial Number(s):

Unit: Operational ☐ Non-operational ☐



Pickup Serial Number:

Pickup Location:

Pickup Sensing Axis:

Pickup Sensitivity:

Sweep Speed:

☐ Live ☐ Tape

mv peak
g peak

oct/minute

Job Number:

Date:

Time:

Enclosure 1

Test Equipment List

0285

TEST EQUIPMENT

EST; SEISMIC QUALIFICATION

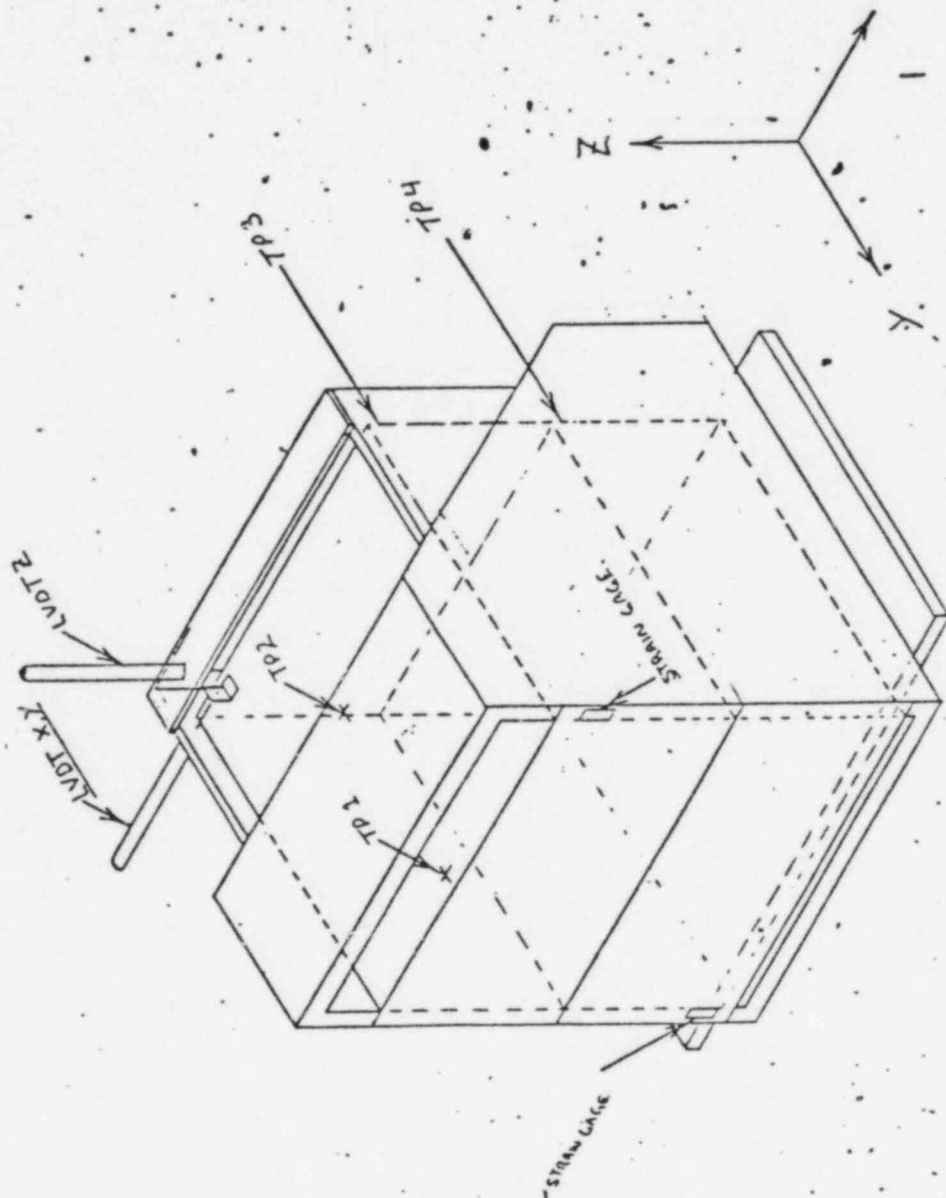
ITEM	MANUFACTURER	MODEL	S/N	ACCURACY
Independent Bidirectional Seismic Vibrator	Dayton T. Brown, Inc.	-	-	Transfer Instrument
Seismic Simulator	M'RAD	197S	-	Transfer Instrument
Shock Spectrum	Spectral Dynamics	SD321	-	1/4% F.S.
Sweep Oscillator	Spectral Dynamics	SD104A-5	-	$\pm 2\%$
Servo Monitor	Spectral Dynamics	SD105A	-	$\pm 4\%$
Accelerometers	Endevco	2272	-	$\pm 5\%$
Charge Amplifiers	Unholtz Dickie	MOD 11	-	$\pm 5\%$
Pressure Gauge	Ashcroft.	-	-	1 1/2% F.S.
Visicorder	Honeywell	1858	-	Mfr.

Test equipment utilized for the program reported herein was within its assigned interval of calibration. Details are on file at Dayton T. Brown, Inc. and will be made available upon request.

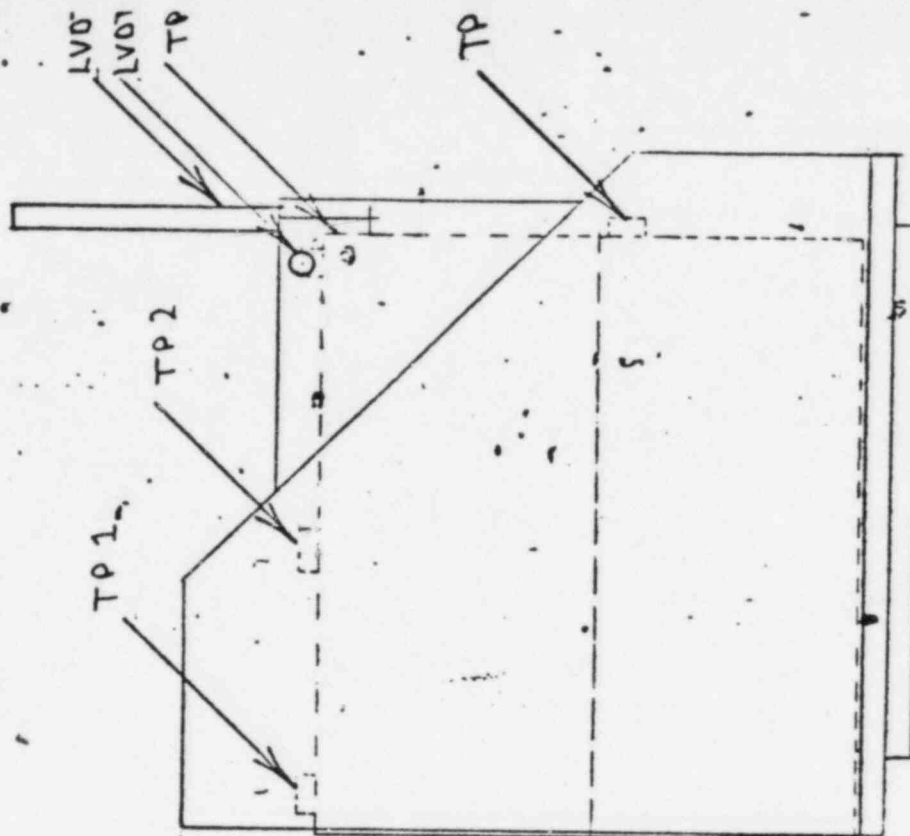


Enclosure 4

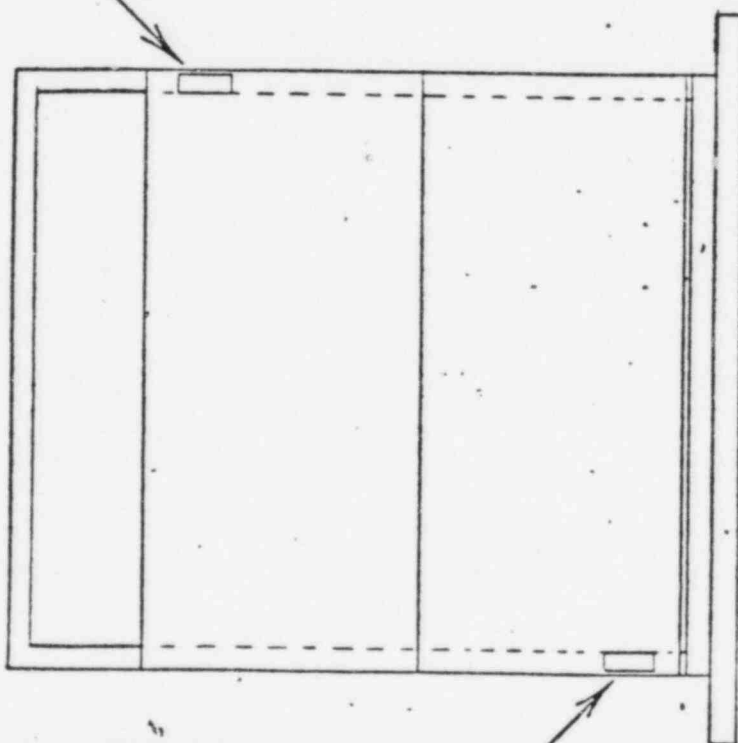
Test Axes Designation Sketch and Test Point Locations



Test Axis Designation Sketch and Test Point Locations



Strain Gauge



Test Point Location Sketch