TEST REPORT

WYLE LABORATORIES / Norco, California . 737-0871 , 689-2104 . TWX 910-332-1204 . Cable WYLAB

REPORT NO. 54498-1
OUR JOB NO. ND 54498
YOUR P. O. NO. 7651
CONTRACT ---

66 - Page Report

JELCO, INC.
P. O. Box 2248
Pomona, California 91766

DATE 29 June 1976

Revision A
30 September 1976

SEISMIC TESTING

ON

CONTROL PANEL, SHIPPING SECTION NUMBER 3

FOR

JELCO, INC.

SUPERCEDES SØ23-502-5-167

REGISTERED PROFESSIONAL ENGINEER
GEORGE D. SHIPWAY
No. 12157
MECHANICAL
STATE OF CALIFORNIA

SØ23-502-5-501-0 SCE#0376

STATE OF CALIFORNIA }
COUNTY OF RIVERSIDE } ss.

Ray C. Myrick, being duly sworn, deposes and says: That the information contained in this report is the result of complete and carefully conducted tests and is to the best of his knowledge true and correct in all respects.

Ray C. Myrick

SUBSCRIBED and sworn to before me this 30th day of June, 1976

Catherine Kelty

Notary Public in and for the County of Riverside, State of California

My Commission Expires July, 1979

OFFICIAL SEAL
CATHERINE C. KELTY
NOTARY PUBLIC - CALIFORNIA
RIVERSIDE COUNTY
My comm. expires JUL 14, 1979

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W-867A

DEPARTMENT DYNAMICS

DEPT. MGR. James J. Anderson
James J. Anderson

TEST ENGINEER Wayne K. Franz
Wayne K. Franz

Registered Professional Engineer George D. Shipway
George D. Shipway

DCAS-QAR VERIFICATION

QUALITY CONTROL Al Heseman

8103060 575

TYLE LABORATORIES Norco, California

REVISION SHEET

Revision Number	Date 1976	Pages Affected	Par. No.	Description of Change
A	30 Sept.	7	4.4.2.3	Furnishes supplemental information.
		12	Fig. 2	Corrects axes definitions

A APPROVED BY: W. Franz, Test Engineer; Al Heeseman, Quality Control

1.0 REFERENCES

1.1 Jelco, Inc. Purchase Order No. 7651, dated 15 March 1976.

1.2 Bechtel Power Corporation Specification Number S023-502-5, Appendix 4F.

1.3 Bechtel Drawing Number 53018-C, entitled "Control Panel Layout Chemical and Volume Control, Reactor Coolant and Reactivity Systems Shipping Section 3".

1.4 Bechtel Drawing Number 53018-2, entitled "Control Panel Layout Chemical Control Shipping Section 3".

1.5 Wyle Laboratories Test Procedure No. 3570, Revision B.

2.0 GENERAL

Although Reference 1.1 above is applicable to the testing of two control panel specimens, Shipping Sections Number 7 and Number 3, only testing conducted on the latter is discussed in this report. Testing performed on Shipping Section Number 7 was described in an earlier report, Wyle Laboratories Test Report No. 54498, dated 31 March 1976.

3.0 PROCEDURES

3.1 Receiving Inspection

Prior to testing, the specimen, Shipping Section Number 3, was subjected to a visual examination for evidence of shipping damage. Specimen identification information was recorded on a receiving inspection data sheet included in the body of this report.

3.2 Test Fixture and Specimen Orientations

The specimen was fully supported on the test table by a rigid weldment of 12-inch structural steel I-beams. On this rigid base was welded a framework of four-inch square structural steel tubing. The specimen was placed on the tubing and

3.2 (continued)
welded in place employing a specified weld pattern of two-inch long welds on eight-inch centers across the entire front and rear edges of the console. The bottom angle on each open end was left unsupported underneath the spans for the first biaxial test plane (X-Y axes). For the second test plane (Z-Y axes) the end structure was supported underneath with four-inch square tubing. The open ends were not welded down, however. Additionally, in the Z-Y plane, the front and rear tubing lengths were braced (perpendicular to the longitudinal axis of the tubes) to prevent them from behaving as springs.

With the specimen in its normal upright position, its longitudinal axis was initially aligned parallel to the horizontal test machine driver axis. For the second test orientation the specimen was rotated ninety degrees about its vertical centerline such that its lateral axis was aligned with the horizontal driver. The specimen remained in its normal upright position throughout testing. Axis definitions are presented in Figures 1 and 2. The actual setups are shown in the attached photographs.

3.3 Instrumentation

3.3.1 Accelerometers

Twenty accelerometers were attached to the specimen near the mounting points for selected instruments in the panel assembly. The orientations were changed to suit each individual test run. The locations and orientations of each are shown in Figures 1 and 2 and Table I. These accelerometer data were recorded on a galvanometer recorder system for each test run.

3.3.2 Strain Gages

Eight strain gages were mounted at selected points on the specimen. Gages arbitrarily numbered 1 through 4 were mounted on the panel face at locations shown in the attached photographs. Gages 5 through 8 were mounted vertically one and one-eighth inches above the floor line on the rear structural members. Number 5 was located on the front face of the rearmost vertical strut located between the two center doors. Number 6 was on the left face of the same strut. Number 7 was on the rearmost outer

3.3.2 (continued)

surface of the leftmost structural angle. Number 8 was on the front face of the rearmost and leftmost vertical strut. These latter four gages were not photographed.

Strain gage data were recorded employing a signal conditioning/ galvanometer recorder system.

3.4 Functional Testing

No electrical functional tests were conducted. The specimen was simply assembled with dummy instruments fabricated by Wyle Laboratories. For the middle left section of the control console, the dummies, composed of wood, masonite and steel, were designed to simulate the weight, center of gravity, and mounting method for each instrument at its proper location. For the remaining sections of the console face, no attempt was made to simulate the center of gravity or the standard instrument mounting method, rather only the total instrument weight for each general panel location was simulated. The dummy instruments are shown in the attached photographs.

3.5 Seismic Testing

3.5.1 Resonance Search

The specimen was subjected to sinusoidal sweep testing in the frequency range from 1 to 35 to 1 Hz. A logarithmic frequency sweep rate of one-half octave per minute was employed at an input level of 0.2g peak.

This type test was performed uniaxially, in the three principal axes, one at a time.

3.5.2 Random and Superimposed Sine Beat

Following iterative"bare table" motion calibrations the specimen was subjected to biaxially applied random motions with biaxial sine beat motions superimposed at specific frequencies.

The biaxial random motions were amplitude controlled with a series of adjustable attenuation one-third octave bandwidth filters whose center frequencies were tuned to frequencies in one-third octave

3.5.2 (continued)

increments from 1.25 to 35 Hz. Ten oscillation-per-beat sine beats were superimposed on the random excitation at frequencies of 1.6, 2.0, and 2.5 Hz. Twenty oscillations-per-beat sine beats were employed at 1.25 Hz.

One, three, four, and five beats per frequency were used for the 1.25, 1.6, 2.0, and the 2.5 Hz test conditions, respectively, with a two-second interbeat delay in each case.

Each test run consisted of thirty seconds of random excitation with the aforementioned appropriate sine beat excitations superimposed. A separate test run was made for each of two sine beat phasing conditions: i.e., the horizontal and vertical test machine drivers in phase and the two drivers 180° out of phase. The horizontal/vertical random waveform excitations were phase incoherent throughout the testing sequence.

The test response spectra were determined with the use of a shock spectra analyzer, tuned in one-third octave frequency increments from 1.25 to 100 Hz. The data were formatted in plots of peak acceleration versus the incremental frequency.

3.5.3 Test Sequence

The detailed sequence followed in the conduction of the test is given below.

3.5.3.1 Calibrated the biaxial seismic input motion so that an analysis of the random signal and the four sine beats enveloped the required response spectra.

3.5.3.2 Installed the specimen into the test setup as previously described.

3.5.3.3 Installed the instrumentation which is called out in Paragraph 3.3 and verified that it was being recorded on an oscillograph.

3.5.3.4 Conducted a sine sweep resonance search in the longitudinal axis as detailed in Paragraph 3.5.1.

3.5.3.5 Conducted a sine sweep resonance search in the vertical axis.

3.5.3.6 Input the 30 seconds of biaxial seismic motion as detailed in Paragraph 3.5.2, with the 1.25 Hz sine beat superimposed; first with horizontal and vertical drivers in phase and then repeated the test with the drivers out of phase.

3.5.3.7 Repeated Paragraph 3.5.3.6 only input the sine beats at 1.6 Hz.

3.5.3.8 Repeated Paragraph 3.5.5.6 only input the sine beats at 2.0 Hz.

3.5.3.9 Repeated Paragraph 3.5.3.6 only input the sine beats at 2.5 Hz. Reoriented the specimen so that its lateral axis was parallel to the horizontal axis of excitation. Reoriented the appropriate accelerometers to coincide with the horizontal excitation axis.

3.5.3.10 Conducted a sine sweep as detailed in Paragraph 3.5.1 in the horizontal axis.

3.5.3.11 Repeated Paragraphs 3.5.3.6 through 3.5.3.9.

4.0 RESULTS

4.1 Receiving Inspection

Inspection of the specimen revealed no visible damage due to shipping. Receiving inspection data and specimen identification are shown on a following data sheet.

4.2 Test Fixture

No visible evidence of fixture or mounting method anomalies occurred.

4.3 Functional Tests

No visible anomalies occurred in the dummy instruments or in their mounting methods.

4.4 Seismic Tests

4.4.1 Resonance Searches

Resonance behavior, defined as an output/input acceleration ratio of at least 2.5 to 1, was evident in the lateral axis test data only. These frequency and response results are shown in Table II for each accelerometer displaying a resonance or resonances in its output.

4.4.2 Random with Sine Beats

4.4.2.1 Test Response Spectra (TRS)

The required response spectra (RRS) were enveloped by the TRS, for each sine beat condition, as shown in the attached plots.

4.4.2.2 Instrument Location Accelerations

The maximum instrument accelerations, as determined from galvanometer recordings of response accelerometer data, have been tabulated for each accelerometer. Table III is such a tabulation for the 2.5 Hz (out of phase) sine beat seismic test condition in the Z-Y biaxial test plane.

The data represent peak response accelerations for the peak table accelerations given. Since no response data have exceeded 2.5g, the requirement for less than 3.0g peak response is met, particularly when consideration is made that the inputs were significantly higher than those from the required spectra.

Only the 2.5 Hz sine beat seismic contition need be tabulated since it represents the worst case output/input amplification; i.e., it is the sine beat frequency closest to the first cabinet resonance frequency of 7.8 Hz. This rationale is valid since, from the galvanometer recordings, it is evident the peak input acceleration is derived from the sine beat input, not the random background excitation.

4.4.2.3 Strain Gages

No significant strains were measured throughout testing. The maximum strain recorded was on the order of 400 microinches per inch on gage Number 7 for the X-Y axes plane only. No other gages showed any measurable strain throughout testing. For the case of simple uniaxial strain in mild steel, 400 microinches per inch strain corresponds to 12,000 psi stress; far from its yield stress of approximately 45,000 psi (C1015, hot rolled 1-inch round).

TABLE I

ACCELEROMETER LOCATIONS

(See the attached photographs and Figures 1 and 2 for the locations)

Accelerometer Number	Orientations for Each Test				
	Resonance Search			Seismic Test	
	X	Y	Z	X-Y	Z-Y
3	X	Y	Z	Y	Y
4	X	Y	Z	Y	Y
5	X	Y	Z	Y	Y
6	X	Y	Z	Y	Y
7	X	Y	Z	X	Z
8	X	Y	Z	X	Z
9	X	Y	Z	X	Z
10	X	Y	Z	X	Z
11	X	Y	Z	X	Z
12	X	Y	Z	X	Z
13	X	Y	Z	X	Z
14	X	Y	Z	X	Z
15	X	Y	Z	X	Z
16	X	Y	Z	X	Z
17	Y	Y	Y	Y	Y
18	X	X	Z	X	Z
19	Y	Y	Y	Y	Y
20	X	X	Z	X	Z
21	X	Y	Z	Y*	Y
22	X	Y	Z	Y*	Y

* Were in the X direction for both 1.25 Hz sine beat seismic test runs.

TABLE II

LATERAL AXIS RESONANCE SEARCH DATA (Z Axis)

Direction	Accelerometer*	Frequency (Hz)	Maximum Response Acceleration (g peak)
Sweep Down	8	7.8	1.8
	10	7.8	1.6
	10	9.0	1.2
	8	10.5	1.0
	10	22.5	0.9
	10	35.0	1.3
	8	35.0	0.7
Sweep Up	11	10.0	1.0
	10	10.0	1.2
	9	10.0	0.7
	8	10.0	0.9
	7	10.0	0.7
	6 (Vertical)	10.0	0.6
	5 (Vertical)	10.0	0.6
	4 (Vertical)	10.0	0.6
	3 (Vertical)	10.0	0.6
Sweep Down	20	9.0	0.9
	18	9.0	1.0
	16	9.0	0.9
	15	9.0	1.2
	14	9.0	1.0
	13	9.0	1.0
	20	10.5	1.0
	18	10.5	1.0
	16	10.5	0.9
	15	10.5	1.0
	14	10.5	0.8
	13	10.5	0.8
Sweep Up	22 (Vertical)	35.0	0.6
	21 (Vertical)	35.0	0.6
	20	20.0	0.5
	16	20.0	0.5
	22	10.0	0.8
	21	10.0	0.8
	20	10.0	1.5
	18	10.0	1.3
	16	10.0	1.2
	15	10.0	1.5
	14	10.0	1.2
	13	10.0	1.2
	12	10.0	0.7

* All mounted in the lateral direction except where noted.

TABLE III

PEAK SEISMIC RESPONSE

Accelerometer	Acceleration Peak Response* (g)
3 (Vertical)	1.9
4 (Vertical)	1.9
5 (Vertical)	1.9
6 (Vertical)	1.9
7	2.1
8	1.9
9	2.0
10	2.1
11	2.0
12	1.4
13	1.9
14	1.9
15	1.9
16	1.9
17 (Vertical)	1.4
18	2.1
19 (Vertical)	1.4
20	2.2
21 (Vertical)	1.9
22 (Vertical)	2.5

* At the 2.5 Hz sine beat condition (in phase) in the Z-Y axes plane. Lateral input was 1.7g peak; vertical input was 1.4g peak. All accelerometers were in the lateral direction except where noted.

WYLE LABORATORIES

DATA SHEET

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Page No. 11

CUSTOMER JELCO

Test Title: SEISMIC RANDOM AND SINE BEAT

Specimen CONTROL CONSOLE

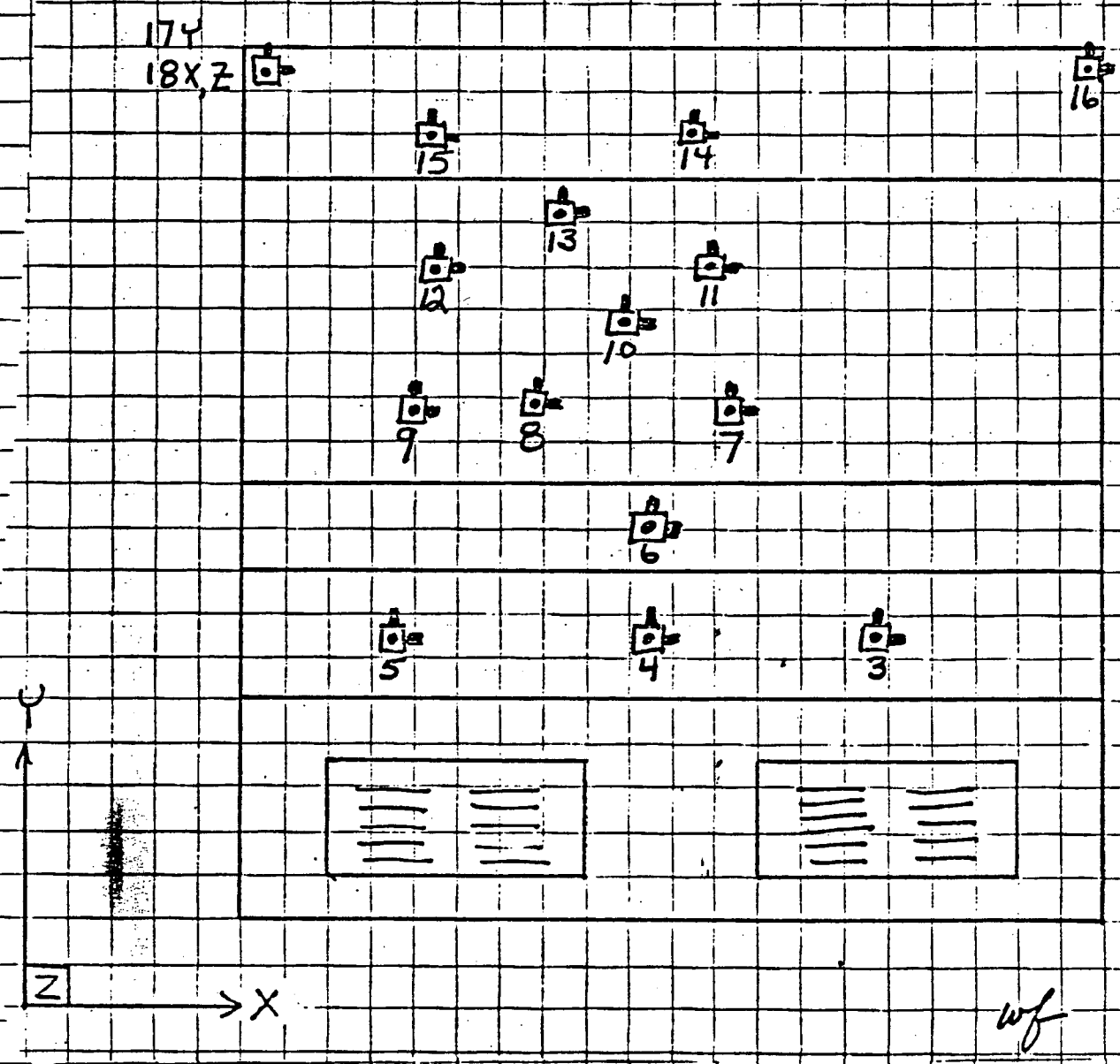
Job No. 54498

S/N

Part No. 2CR-58, 50, 51 (#3)

Date 6/18/76

FIGURE 1
ACCELEROMETER LOCATIONS AND
AXES DEFINITIONS



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CUSTOMER JELCO

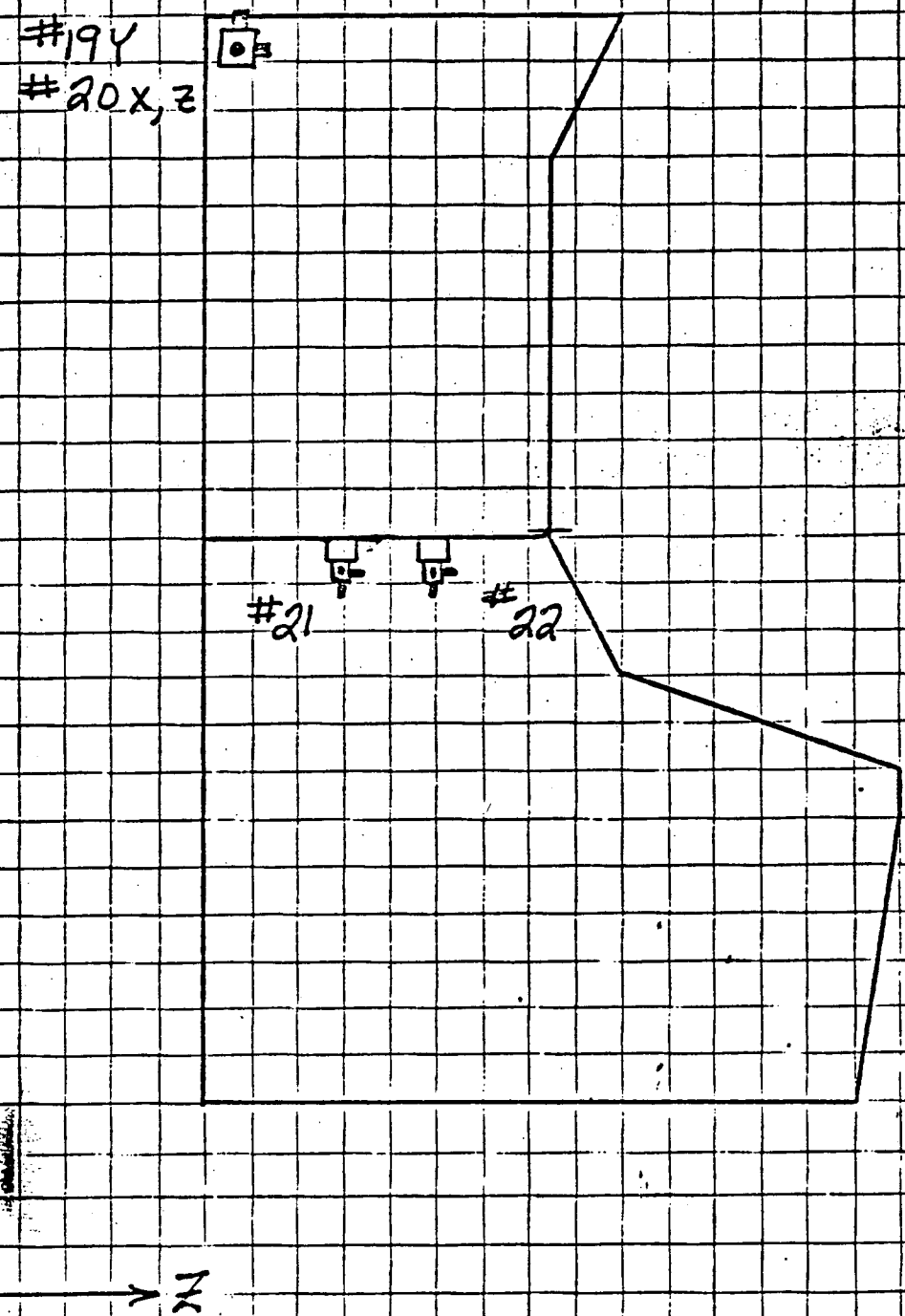
Test Title: SEISMIC RANDOM & SINE BEAT Revisi

Specimen CONTROL CONSOLE Job No. 54498

S/N

Part No. 2CR-58,50,51 (#3) Date 6-18-76

FIGURE 2
ACCELEROMETER LOCATIONS
AND AXES DEFINITIONS



DATA SHEET

Customer JELCO Job No. 54498

Date 6-15-76

Specimen CONTROL CONSOLE

RECEIVING INSPECTION

No. of Specimens Received: (1) ONE

Record identification information exactly as it appears on the tag or specimen:

Manufacturer JELCO

Part Numbers 2CR-58,50,51 (#3)

How does identification information appear: (name plate, tag, painted, imprinted, etc.)

BLUE PRINTS

Serial Numbers:* —

Examination: Visual, for evidence of damage, poor workmanship, or other defects, and completeness of identification.

Inspection Results: There was no visible evidence of damage to the specimens unless noted below.

NONE

* If additional space is required for serial numbers, use an additional page, or reference first functional test data sheet (if applicable).

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Inspected By [signature]

Sheet No. ____ of ____

Approved W. Franz Date: 6/15/76

W-614

Q.C. Form Approval

YLE LABC ORIES

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DYNAMICS SECTI
VIBRATION TEST DATA SHEET
RESONANCE SEARCH

Job No. 54498
Sheet ___ of ___
I D No. ___

ate	Time	Axis	Temp (°F)	SINUSOIDAL Freq. (HZ)	Disp. ("DA)	Accel. (± G)	Test Time (Min.)	Comments	Name
76	NOTED	X-Y-Z	AMB	1-35-1	—	0.2	*		
								* ONE CYCLE 1-35-1 HZ. AT A SWEEP	
								RATE OF APPROX. ONE HALF OCTAVE PER	
								MINUTE.	
-16	1715	Y	AMB	1-4	—	0.2		START SWEEP	
	1719						4	SHUTDOWN SWITCH TO SERVO CONTROL.	
-16	1720	Y	AMB	4-35-4	—	0.2		RESUME SWEEP	
	1732						12	SHUTDOWN SWITCH TO MANUAL	
-16	1733	Y	AMB	4-1	—	0.2		RESUME SWEEP	
	1737						4	END OF SWEEP.	
16	1740	X	AMB	1-4	—	0.2		START SWEEP.	
	1744						4	SHUTDOWN SWITCH TO SERVO CONTROL.	
-16	1745	X	AMB	4-35-4	—	0.2		RESUME SWEEP.	
	1757						12	SHUTDOWN SWITCH TO MANUAL.	
-16	1758	X	AMB	4-1	—	0.2		RESUME SWEEP.	
	1802						4	END OF SWEEP.	
-18	1520	Z	AMB	1-4	—	0.2		START SWEEP.	
	1524						4	SHUTDOWN SWITCH TO SERVO CONTROL	
-18	1525	Z	AMB	4-35-4	—	0.2		RESUME SWEEP.	
	1537						12	SHUTDOWN SWEEP. SWITCH TO MANUAL.	
-18	1538	Z	AMB	4-1	—			RESUME SWEEP	
	1542						4	END OF SWEEP.	

Signed: W. [illegible]

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DATA SHEET

Report No. 54498-1

Page No. 15

CUSTOMER JELCO

Test Title: SEISMIC RANDOM WITH SUPERIMPOSED SINE BEAT

Specimen CONTROL CONSOLE Job No. 54498

Part No. 2CR-58,50,51 (#3) S/N

Date 6-18-76

DATE	TEST DURATION	AXIS	FREQUENCY (Hz)	NO. OF OSCIL-LATIONS	NO. OF BEATS	DELAY BETWEEN BEATS	COMMENTS
6-16	30 SEC.	X-Y	1.25	20	1	—	IN Ø
6-16	30 SEC.	X-Y	1.25	20	1	—	OUT Ø
6-16	30 SEC	X-Y	1.60	10	3	2 SEC.	OUT Ø
6-16	30 SEC	X-Y	1.60	10	3	2 SEC.	IN Ø
6-16	30 SEC	X-Y	2.00	10	4	2 SEC.	IN Ø
6-16	30 SEC	X-Y	2.00	10	4	2 SEC.	OUT Ø
6-16	30 SEC	X-Y	2.50	10	5	2 SEC	OUT Ø
6-16	30 SEC	X-Y	2.50	10	5	2 SEC	IN Ø
6-18	30 SEC	Z-Y	1.25 Hz	20	1	—	IN Ø
6-18	30 SEC	Z-Y	1.25 Hz	20	1	—	OUT Ø
6-18	30 SEC	Z-Y	1.60	10	3	2 SEC.	OUT Ø
6-18	30 SEC	Z-Y	1.60	10	3	2 SEC.	IN Ø
6-18	30 SEC	Z-Y	2.00	10	4	2 SEC	IN Ø
6-18	30 SEC	Z-Y	2.00	10	4	2 SEC.	OUT Ø
6-18	30 SEC	Z-Y	2.50	10	5	2 SEC	OUT Ø
6-18	30 SEC	Z-Y	2.50	10	5	2 SEC	IN Ø
							wf

W-014-B 150

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SHEET ____ OF ____

WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498

Page No. 16

Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control (X), Response ( )

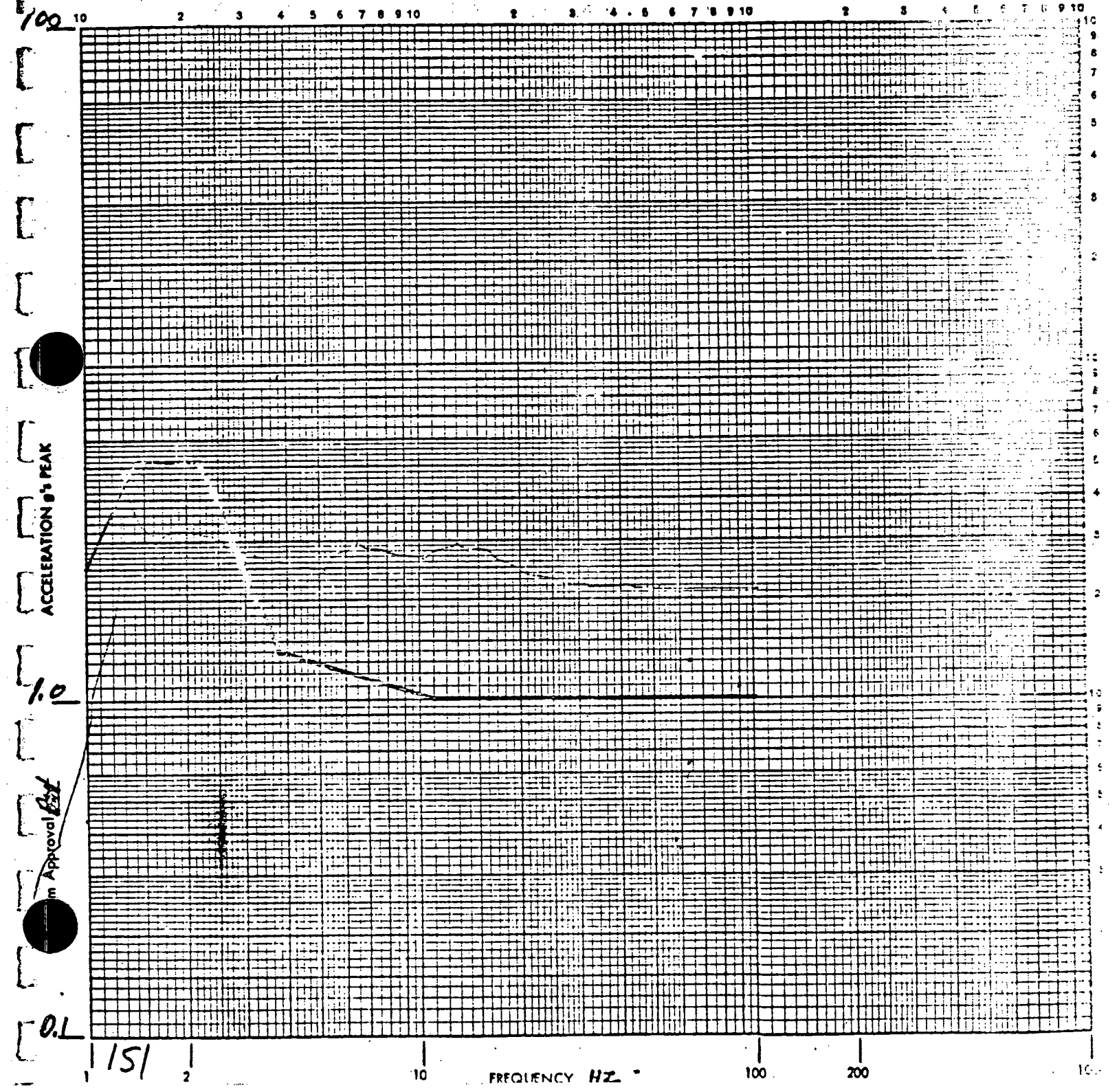
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator Knoll P/N 2CR-58,50,51 (#3)

Date 6-16-76 Polarity + Q 59 Axis of Test X-Y

HORIZONTAL RESPONSE SPECTRA 1.25 Hz. IN Ø



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Report No. 54498-1

Customer JELCO Job No. 54498

Page No. 17

Channel Identification: T/R 1 Trk. No. 2 Accel. No. 2

Transducer S/N 1034 Control (X), Response ( )

Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

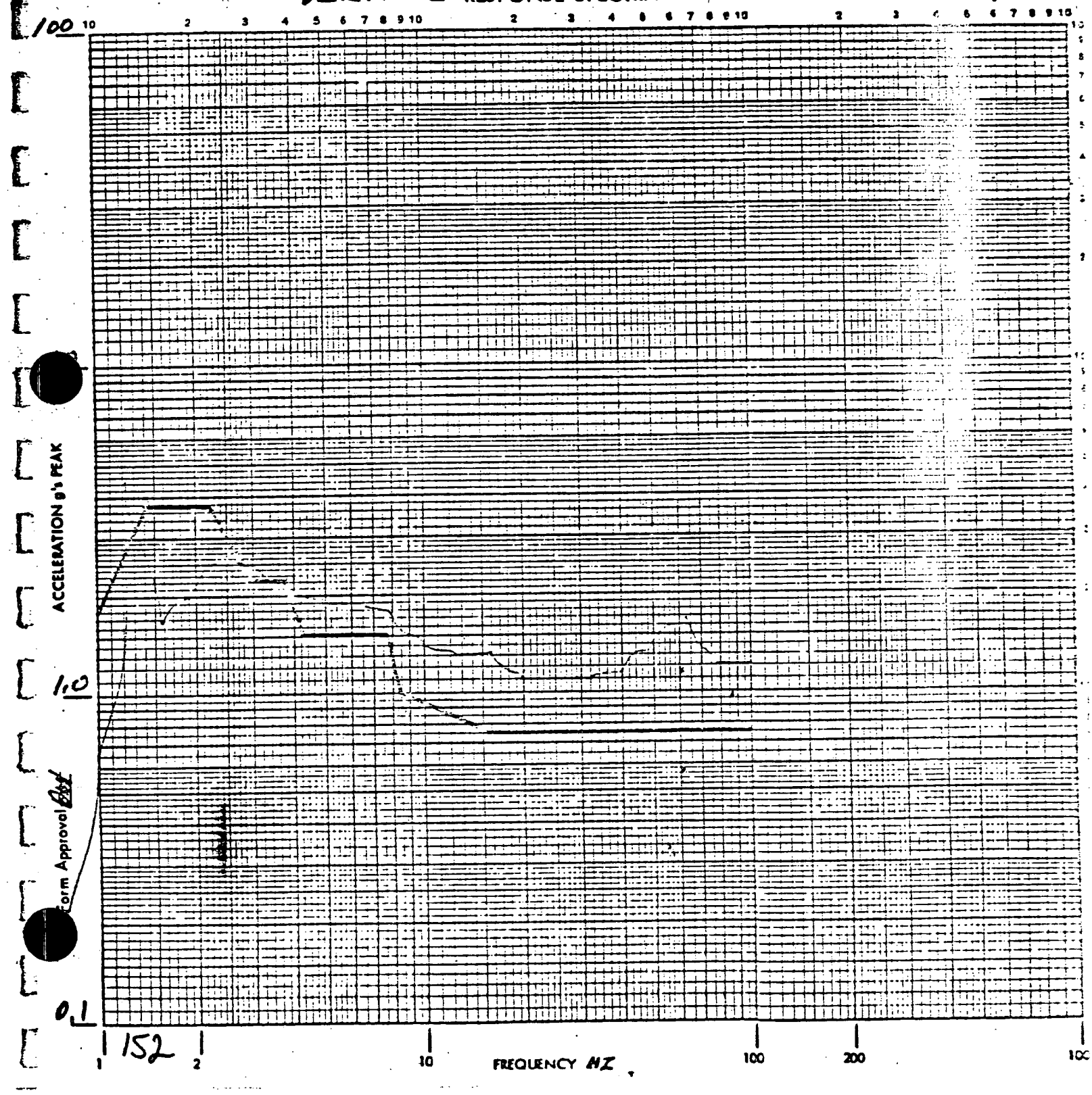
Mode PRIMARY Specimen CONTROL PANEL

Operator KJO " P/N 2CR-58, 50, 51 (#

Date 6-16-76 Polarity + Q 5% Axis of Test X-Y

VERTICAL RESPONSE SPECTRA

1.25 HZ IN Ø



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Customer JELCO Job No. 54498

Page No. 18

Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control (X), Response ( )

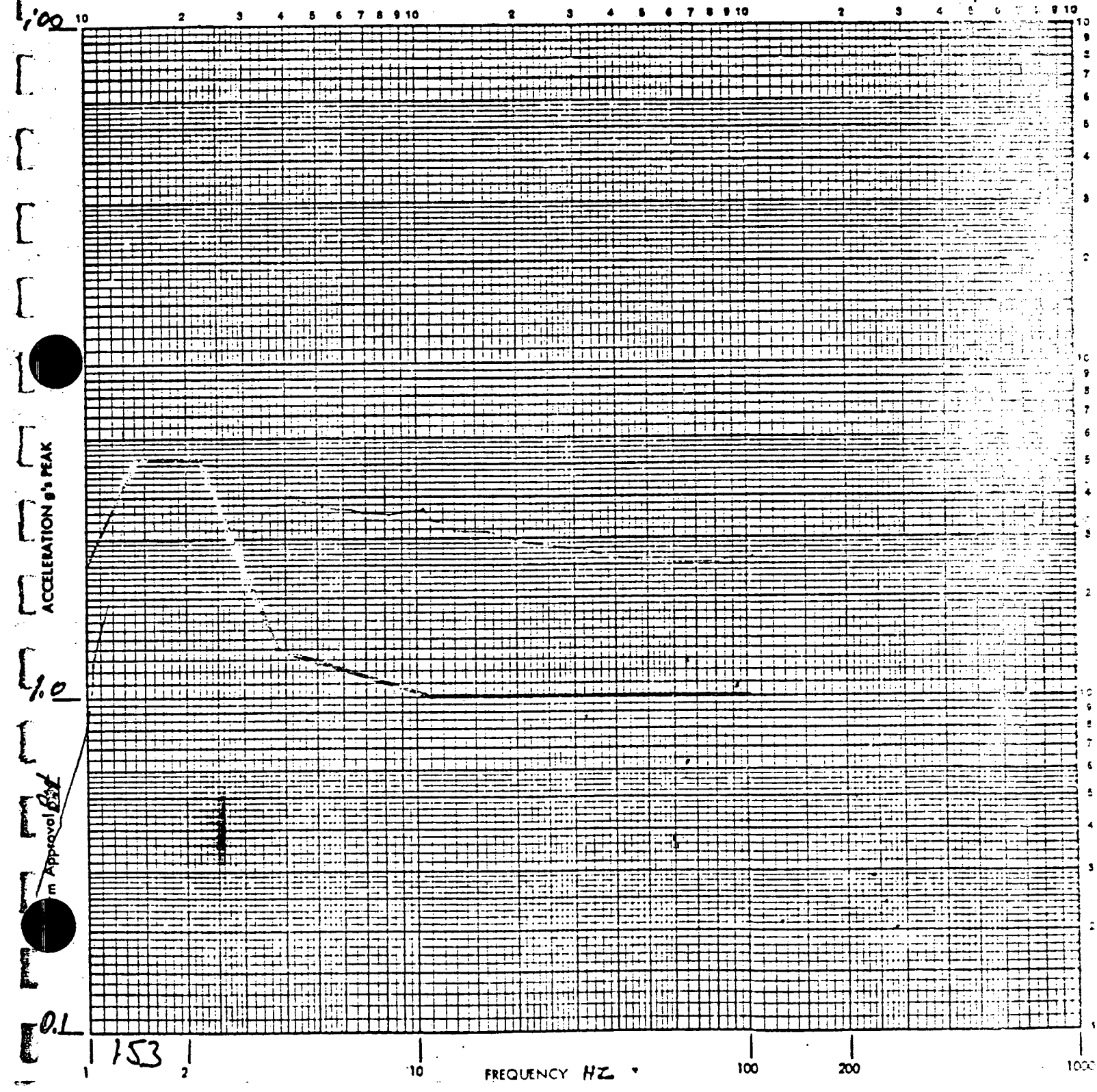
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator [illegible] P/N 2CR-58,50,51 (#3)

Date 6-16-76 Polarity + Q 5% Axis of Test X-Y

HORIZONTAL RESPONSE SPECTRA 1.25HZ OUT



WYLE LABORATORIES

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Channel Identification: T/R 1 Trk. No. 2 Accel. No. 2

Transducer S/N 1034 Control (X), Response ( )

Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

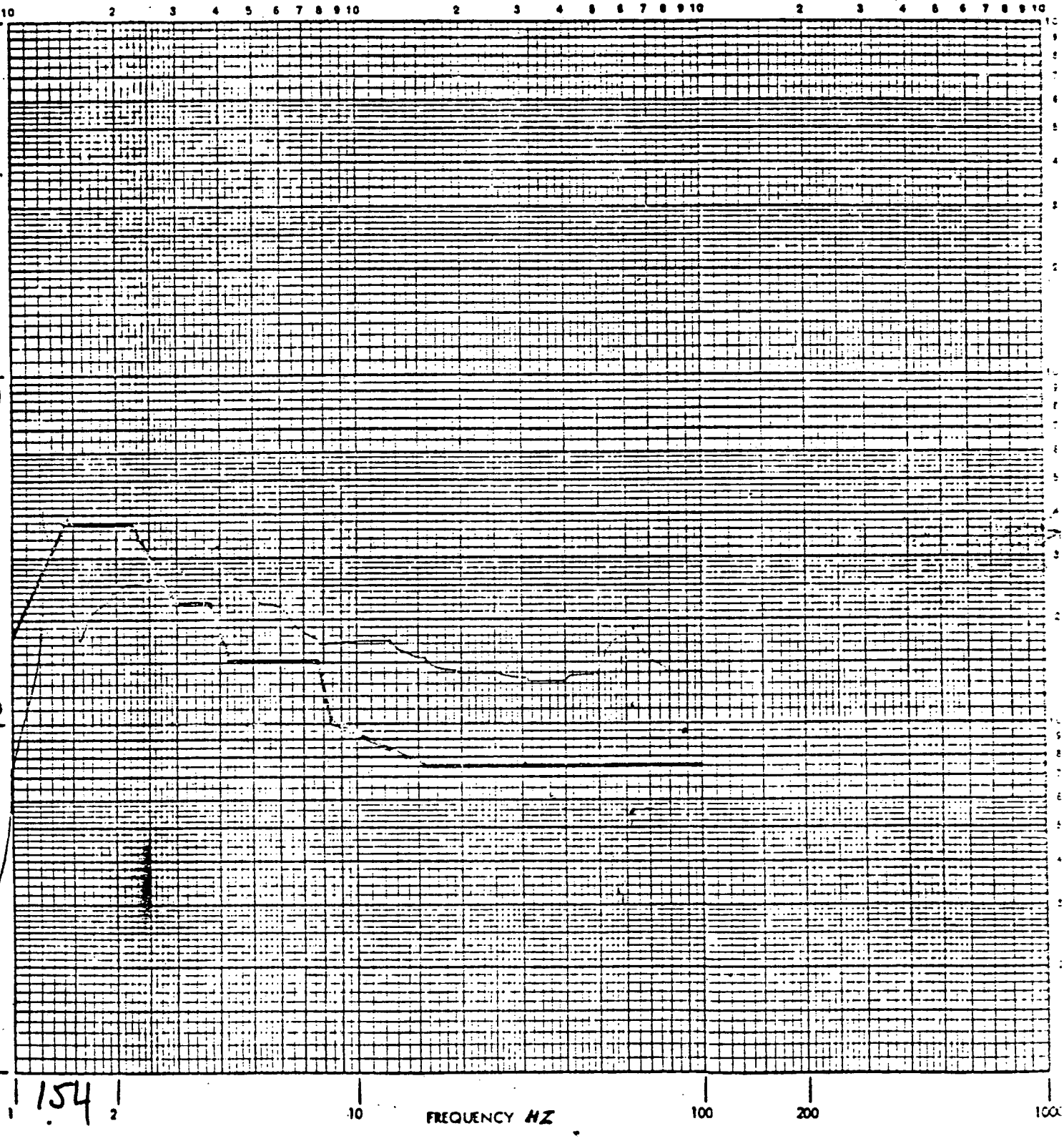
Mode PRIMARY Specimen CONTROL PANEL

Operator Rod II P/N 2CR-58, 50, 51 (4

Date 6-16-76 Polarity + Q 5% Axis of Test X-Y

1.25 HZ. OUT Ø

VERTICAL RESPONSE SPECTRA



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Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control (X). Response ( )

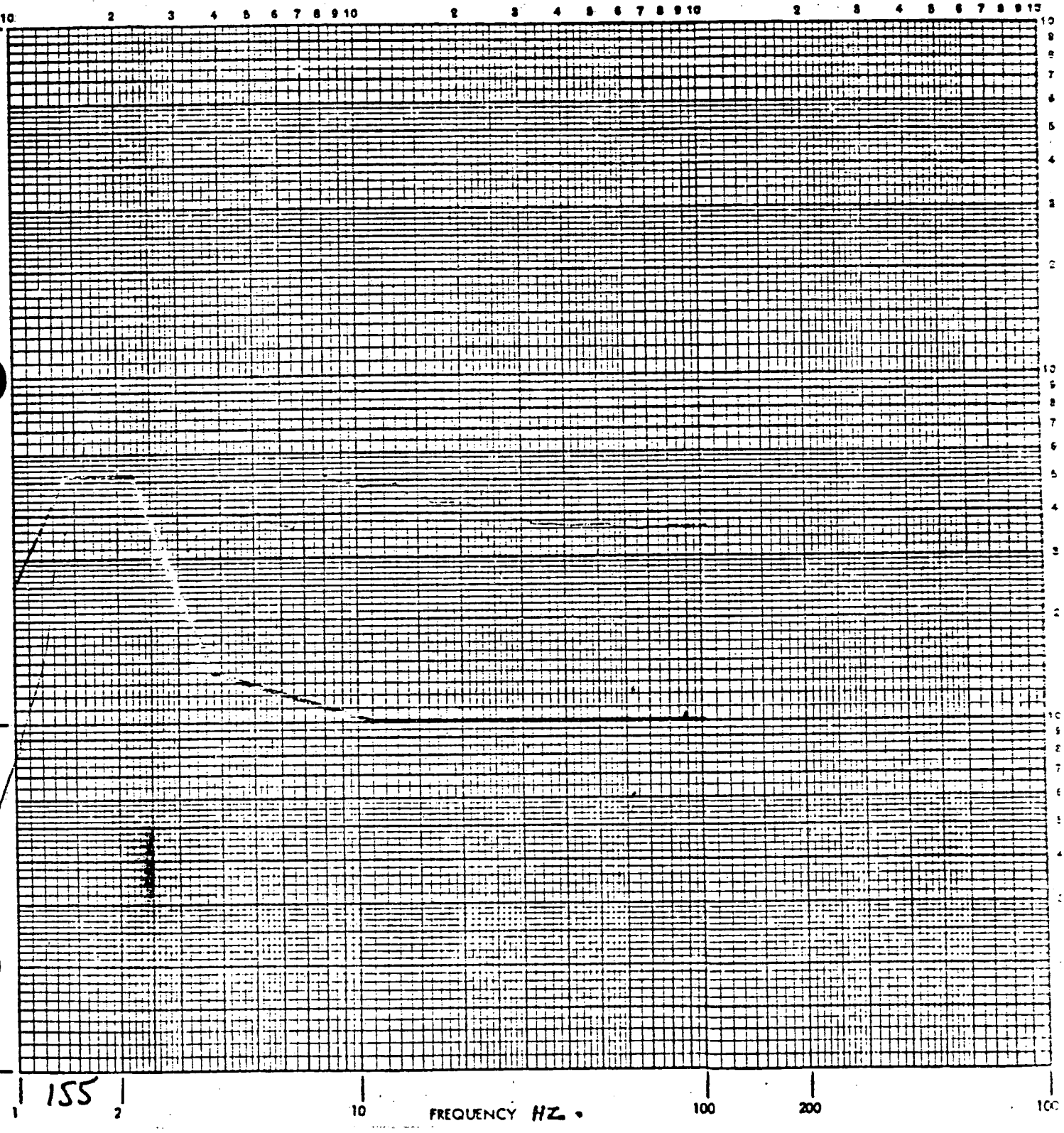
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator KAOU P/N 2CR-58,50,51 (#3)

Date 6-16-76 Polarity + Q 5% Axis of Test X-Y

HORIZONTAL RESPONSE SPECTRA 1.6 HZ. OUT Ø



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Page No. 21

Customer JELCO Job No. 54498

Channel Identification: T/R 1 Trk. No. 2 Accel. No. 2

Transducer S/N 1034 Control (X), Response ( )

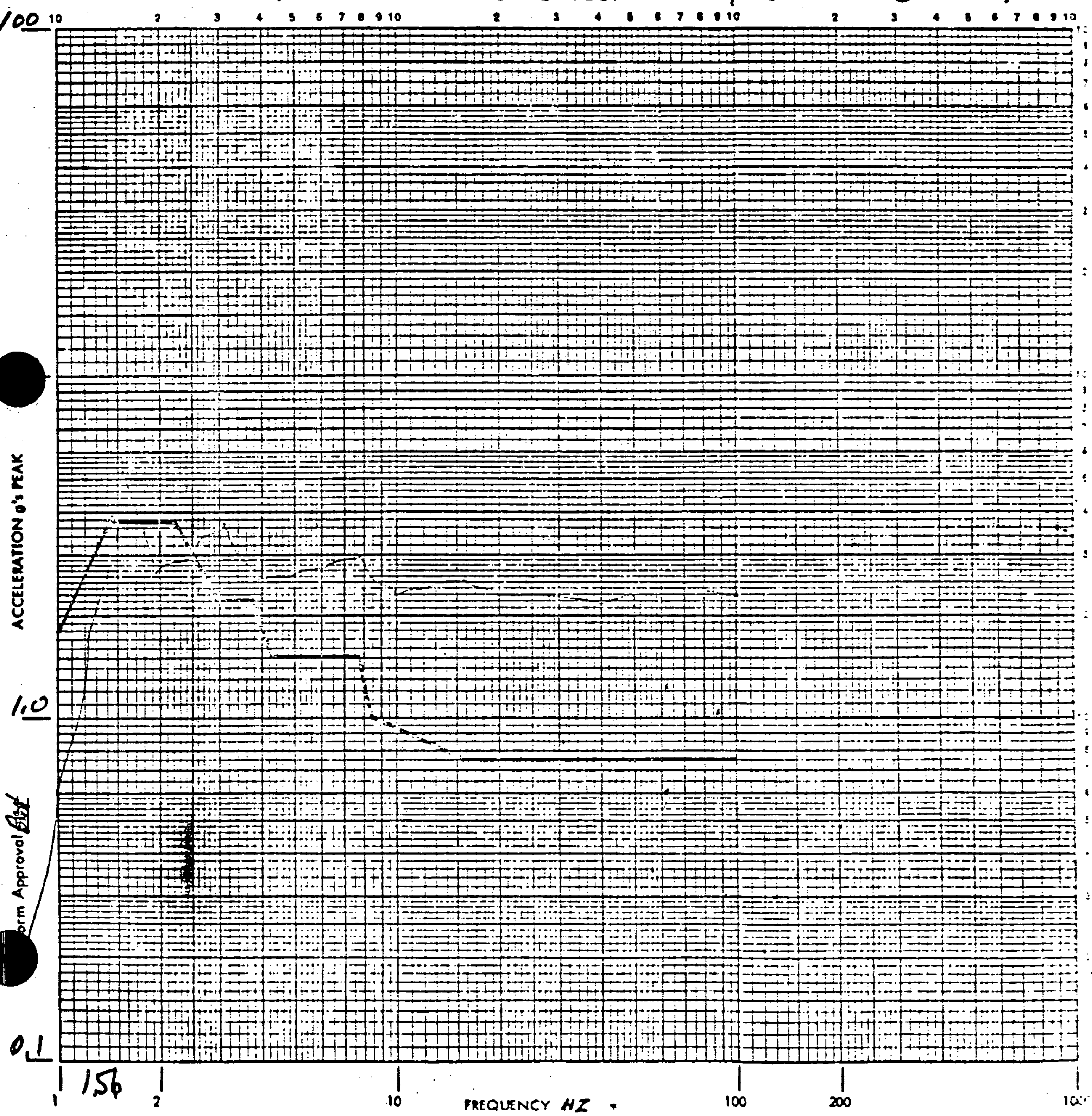
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator Knoll P/N 2CR-58, 50, 51

Date 6-16-76 Polarity + Q 5% Axis of Test X-Y

VERTICAL RESPONSE SPECTRA 1.6 HZ OUT Ø



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Customer JELCO Job No. 54498

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Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control (X). Response ( )

Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

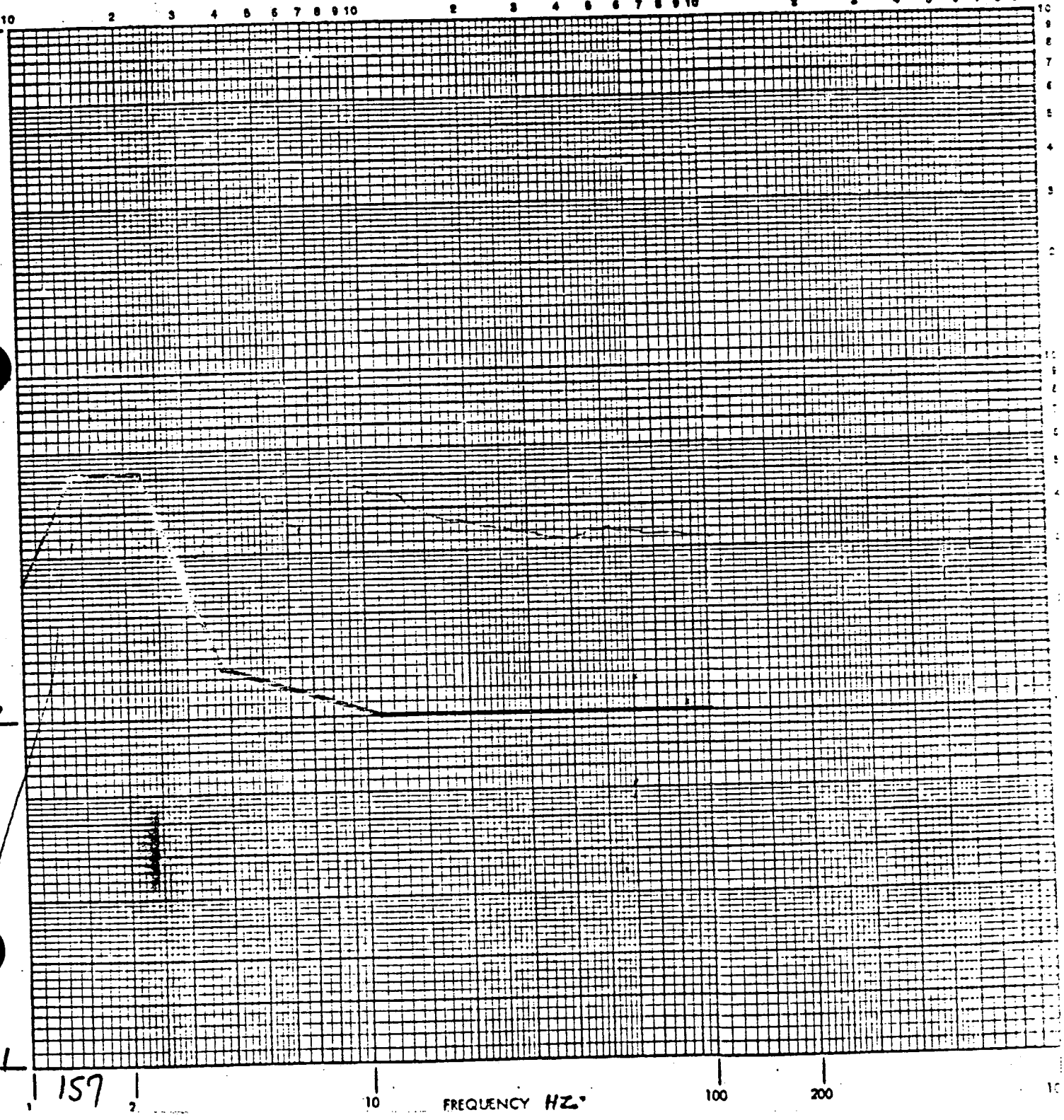
Mode PRIMARY Specimen CONTROL PANEL

P/N 2CR-58,50,51 (43)

Operator KNOll

Date 6-16-76 Polarity + Q 5% Axis of Test X-Y

HORIZONTAL RESPONSE SPECTRA 1.6 HZ. IN Ø



m Approval

WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498 Page No. 23

Channel Identification: T/R 1 Trk. No. 2 Accel. No. 2

Transducer S/N 1034 Control (X), Response ( )

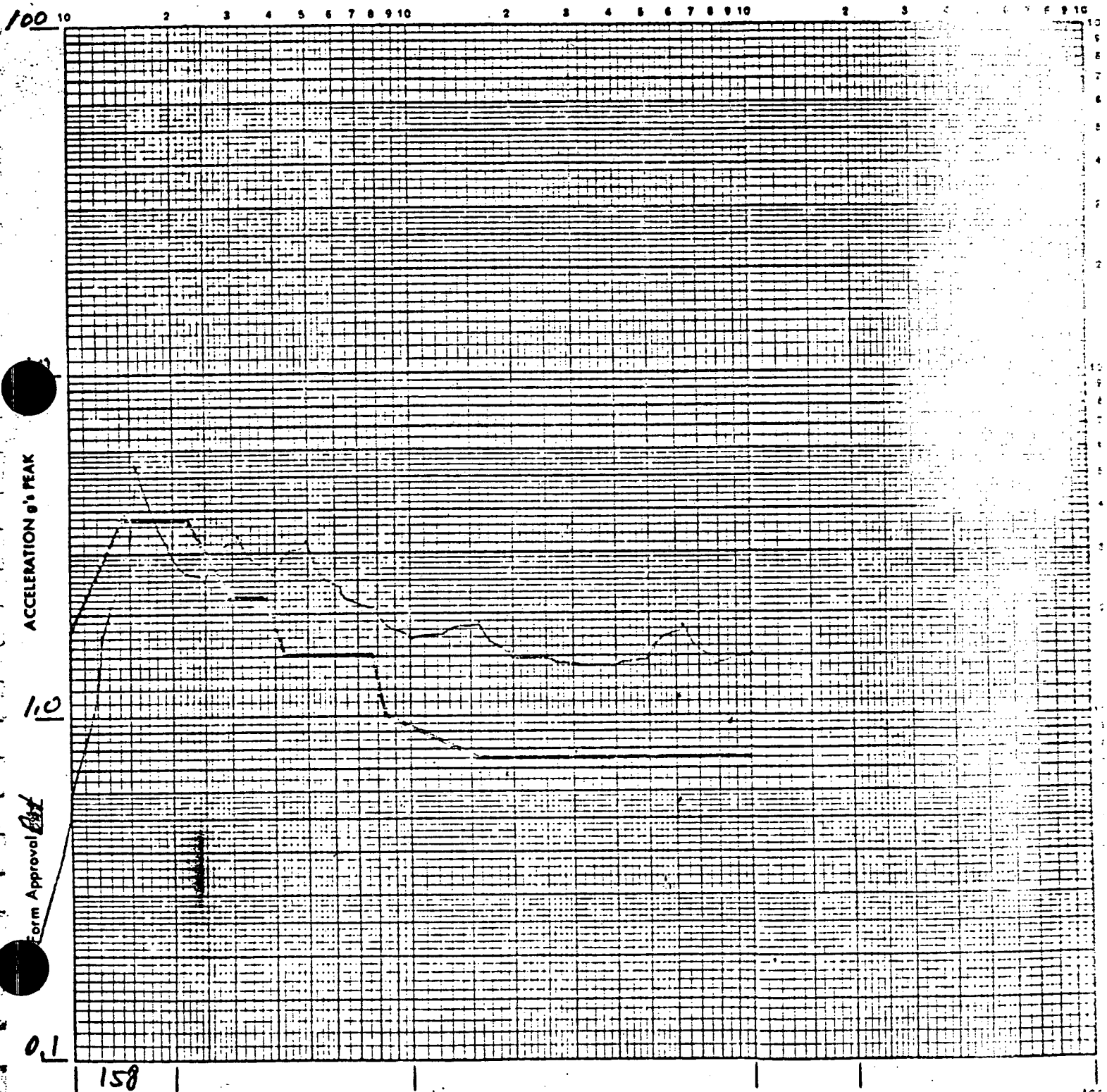
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator KAO " P/N 2CR-58 50 51 (-3

Date 6-16-76 Polarity + Q 5% Axis of Test X-Y

VERTICAL RESPONSE SPECTRA 1.6HZ. IN Q



Form Approval

WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498 Page No. 24

Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control (X), Response ( )

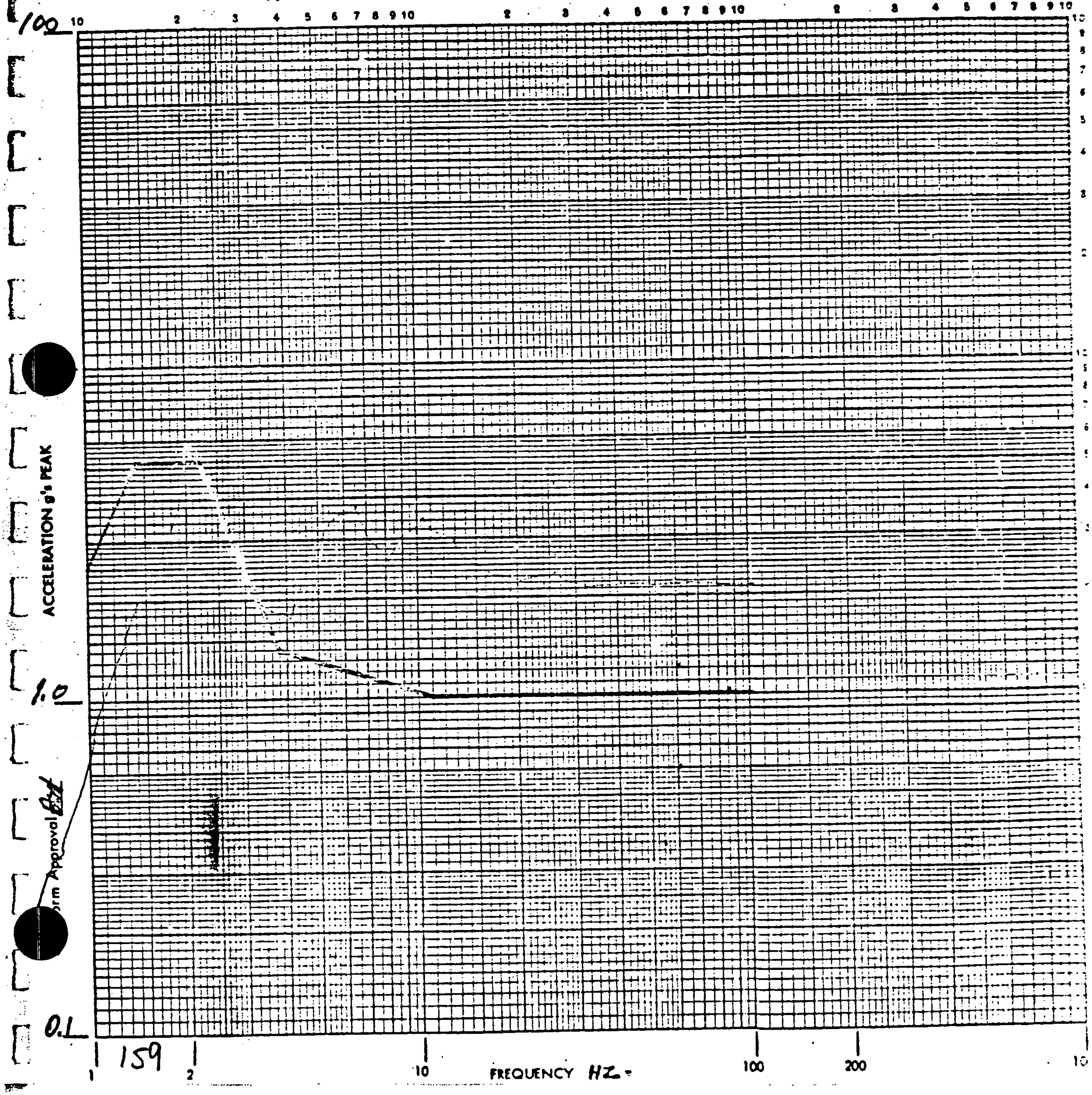
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator Knoll P/N 2CR-58,50,51 (#3)

Date 6-16-76 Polarity + Q 5% Axis of Test X-Y

HORIZONTAL RESPONSE SPECTRA 2.0 HR. IN Ø



WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498 Page No. 25

Channel Identification: T/R 1 Trk. No. 2 Accel. No. 2

Transducer S/N 103K Control (X), Response ( )

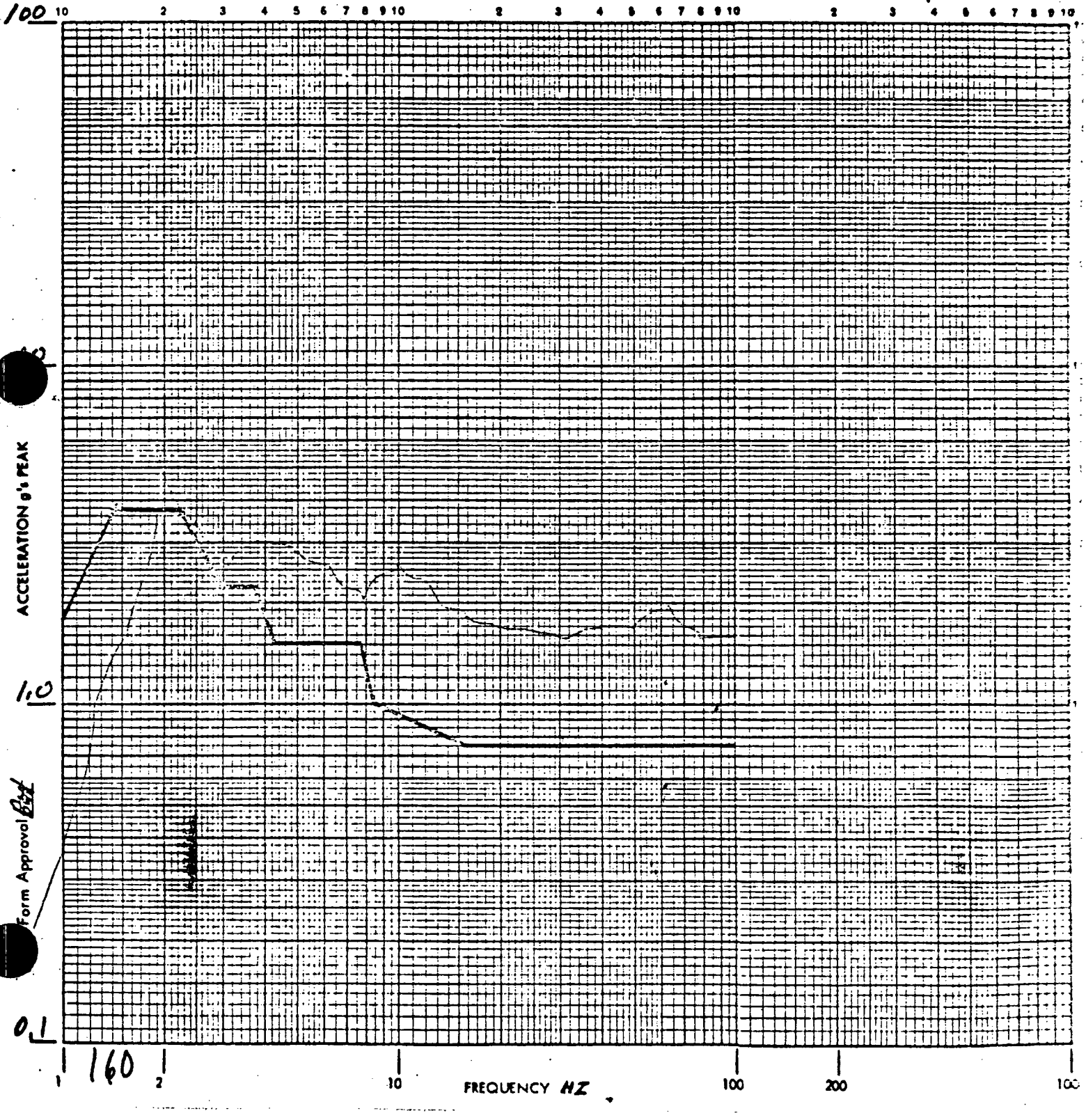
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator KNOW P/N 2CR-58, 50, 51 (

Date 6-16-71 Polarity + Q 5% Axis of Test X-Y

VERTICAL RESPONSE SPECTRA 2.0 HZ. IN Ø



Form Approval

WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498 Page No. 26

Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control (X), Response ( )

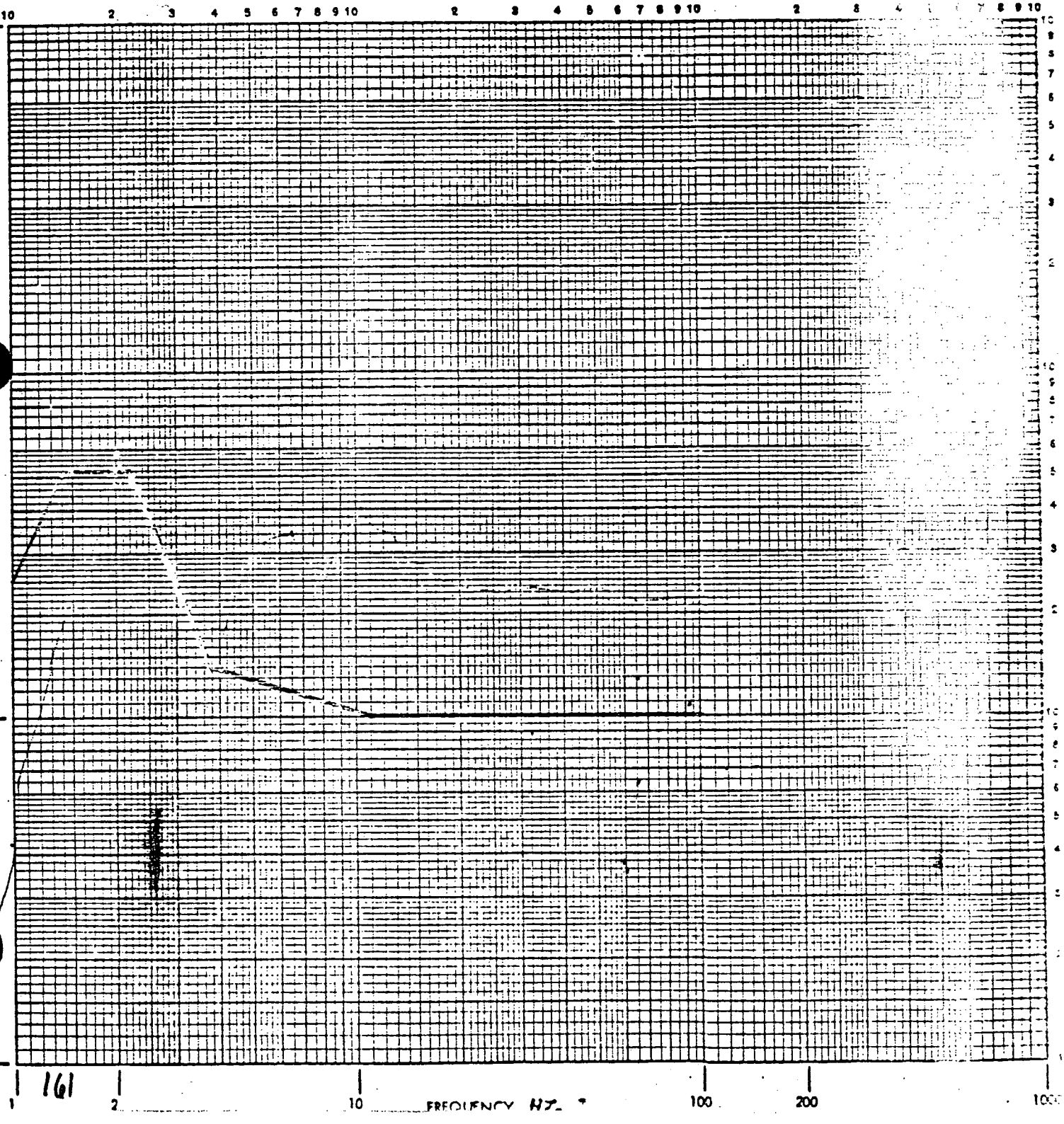
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator M NO 11 P/N 2CR-53505I (#3)

Date 6-16-76 Polarity + Q 5% Axis of Test X-Y

HORIZONTAL RESPONSE SPECTRA 1.0 HR. OBE



Test Approved

WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498

Page No. 27

Channel Identification: T/R 1 Trk. No. 2 Accel. No. 2

Transducer S/N 1034 Control (X), Response ( )

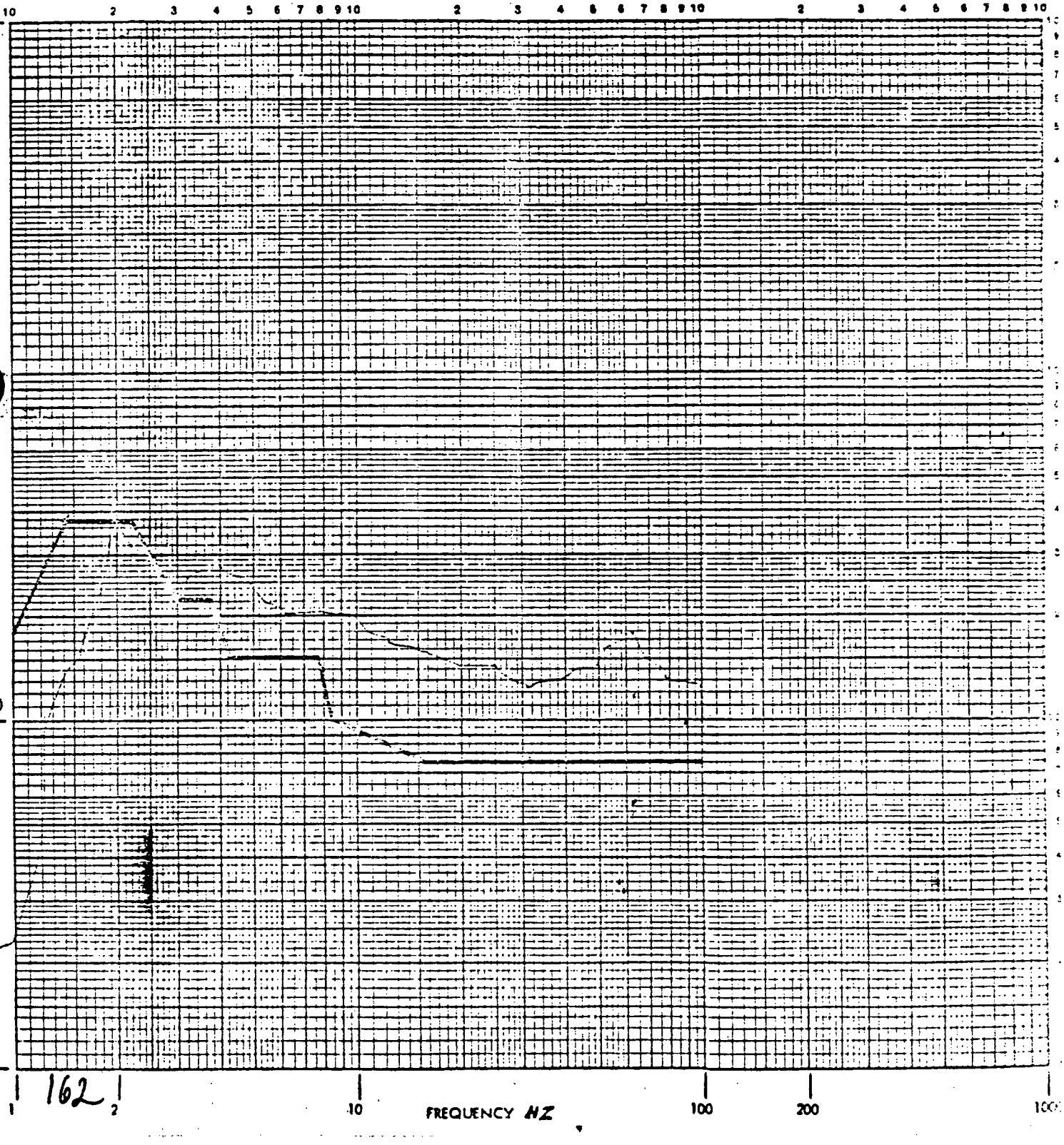
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator Kuo II P/N 2CR-58, 50, 51 (43

Date 6-16-76 Polarity + Q 5% Axis of Test X-Y

VERTICAL RESPONSE SPECTRA 2.0 HZ. OUT Ø



Form Approval

WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498

Page No. 28

Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control (X), Response ( )

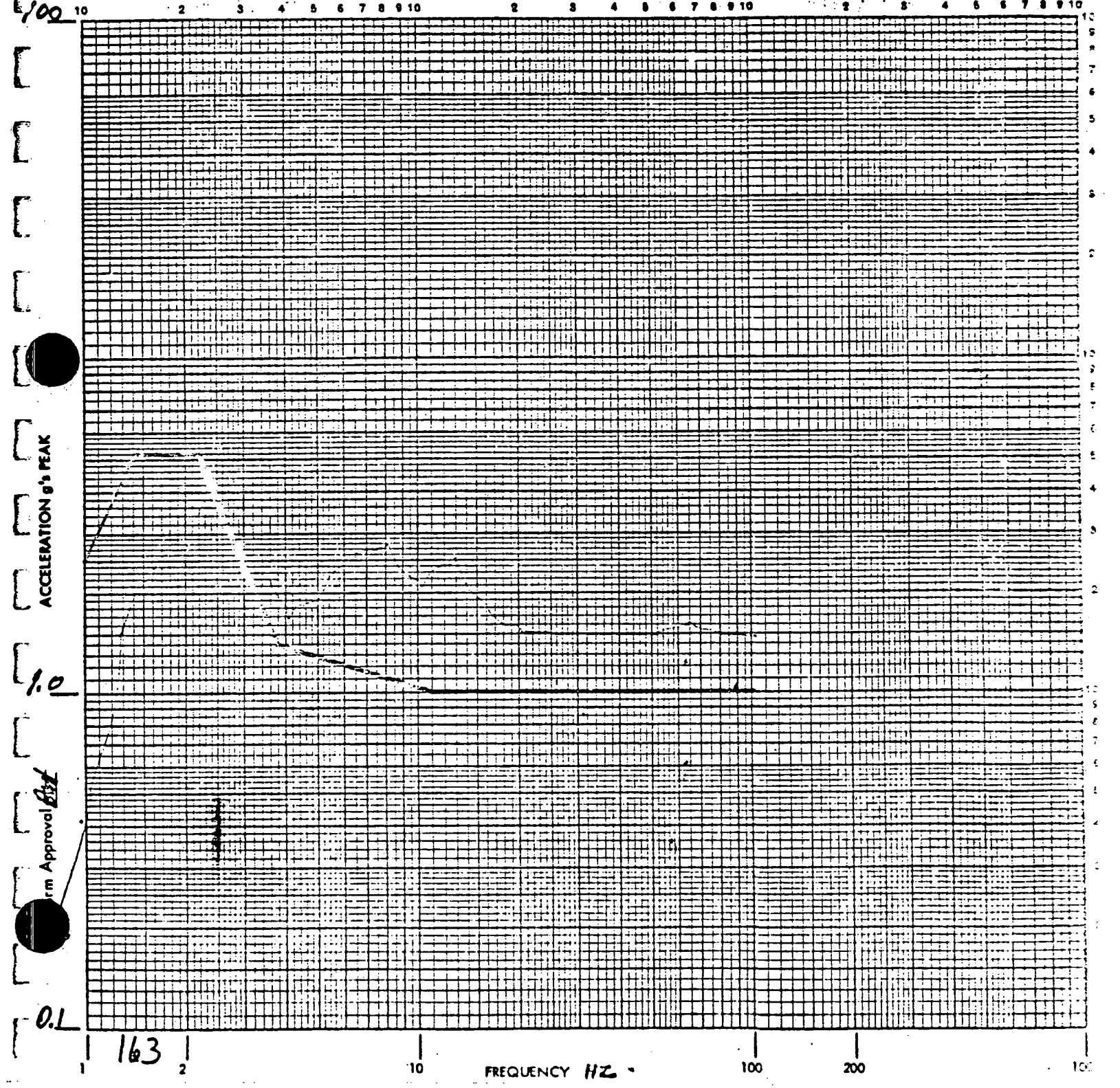
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator KNOLL P/N 2CR-58,50,51 (#3)

Date 6-16-76 Polarity + Q 5% Axis of Test X-Y

HORIZONTAL RESPONSE SPECTRA 2.5 HZ. OCT Ø



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WYLE LABORATORIES

Report No. 54470-1

Customer JELCO Job No. 54498

Page No. 29 3

Channel Identification: T/R 1 Trk. No. 2 Accel. No. 2

Transducer S/N 103Y Control (X), Response ( )

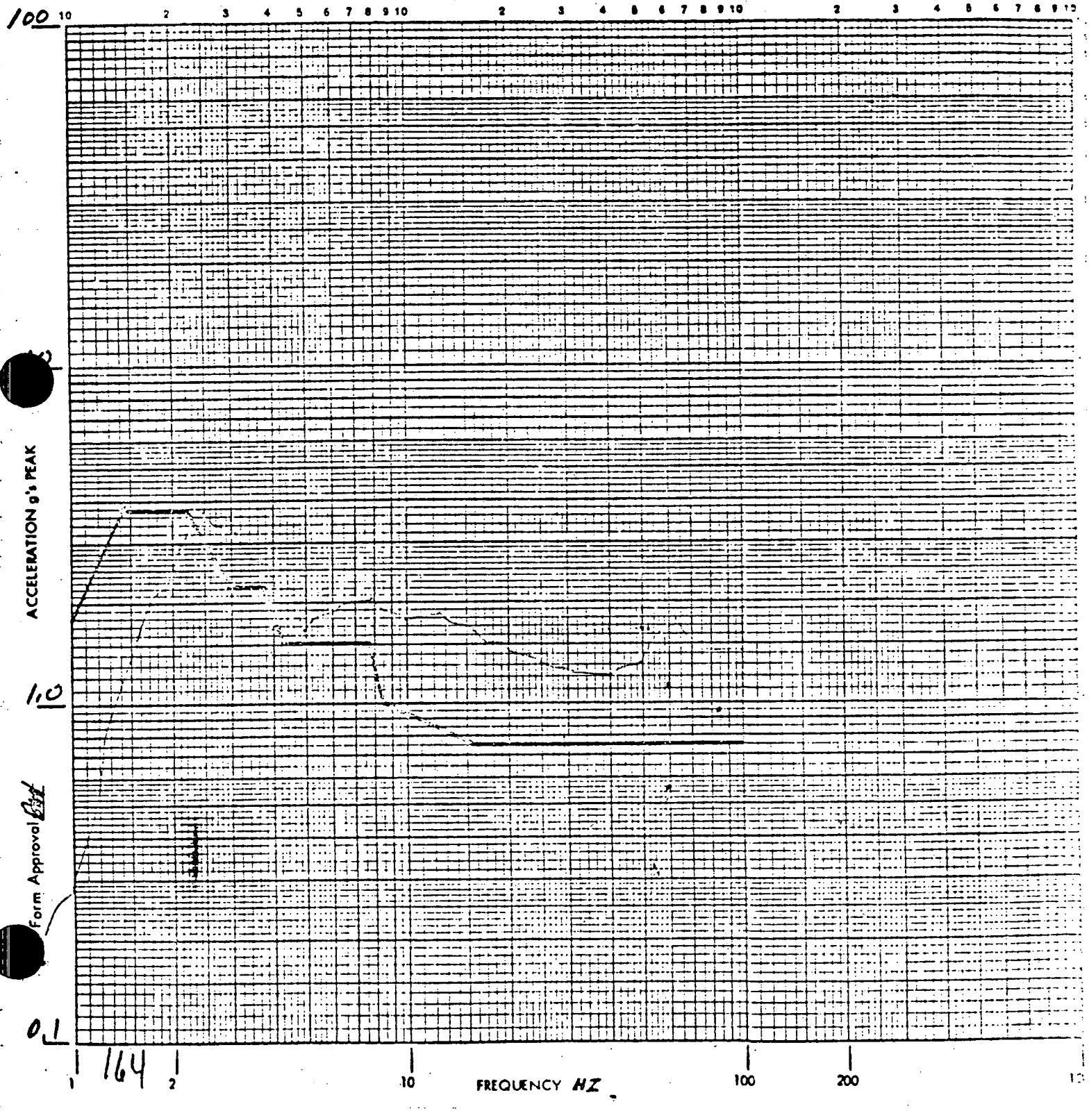
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator KNOLL P/N 2CR-53, 50, 51 (F

Date 6-16-76 Polarity + Q 5% Axis of Test X-Y

VERTICAL RESPONSE SPECTRA 2.5 Hz. OUT Ø



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WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498

Page No. 30

Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control (X), Response ( )

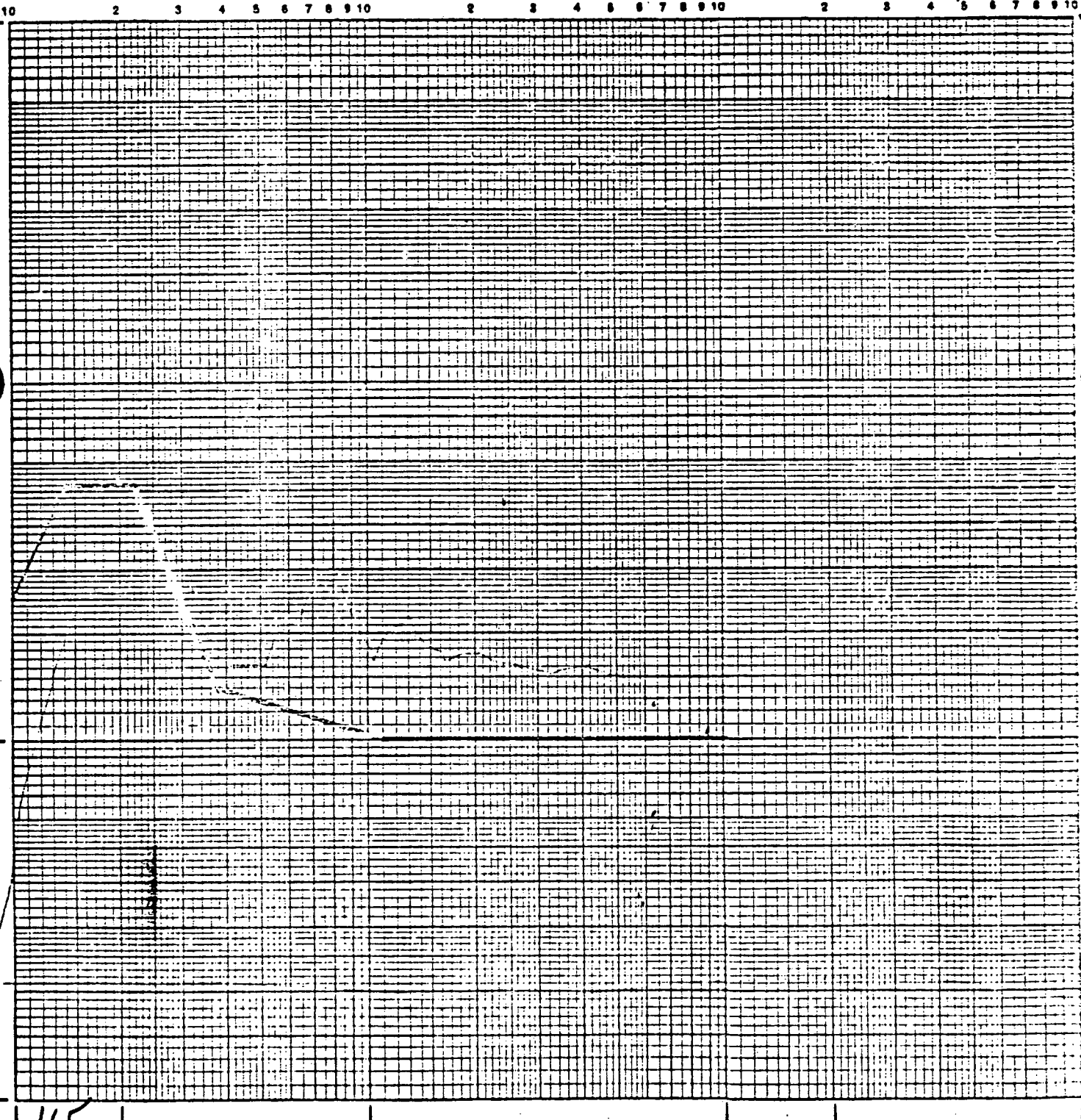
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator Knoll P/N 2CR-58,50,51 (#3)

Date 6-16-76 Polarity + Q 5% Axis of Test X-Y

HORIZONTAL RESPONSE SPECTRA 25Hz. in Ø.



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WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498 Page No. 31

Channel Identification: T/R 1 Trk. No. 2 Accel. No. 2

Transducer S/N 1034 Control (X), Response ( )

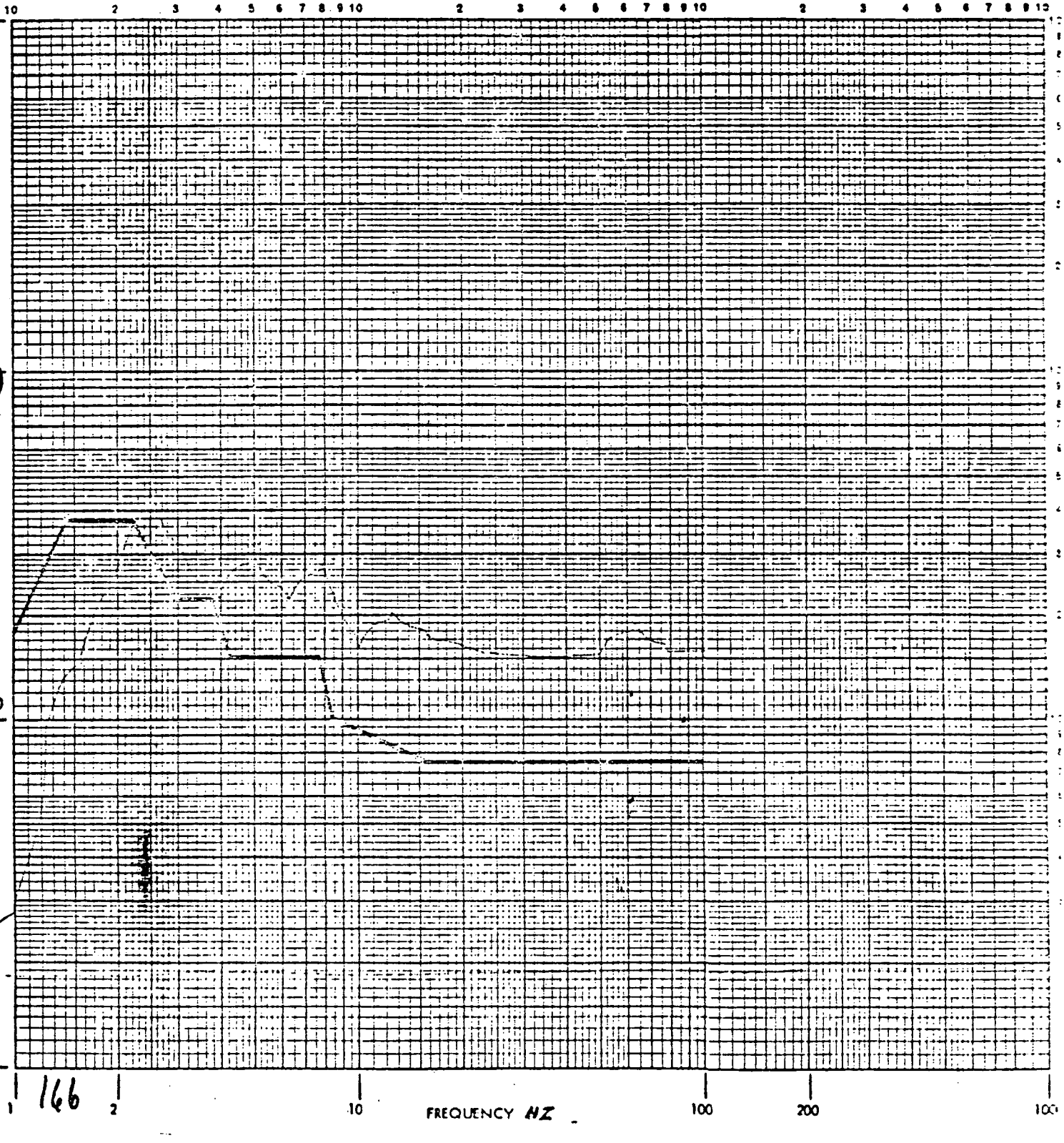
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator Knoll P/N 2CR-58, 50, 51 (-2

Date 6-16-76 Polarity + Q 5% Axis of Test X-Y

VERTICAL RESPONSE SPECTRA 2.5Hz. IN P



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WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498

Page No. 32

Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control (X), Response ( )

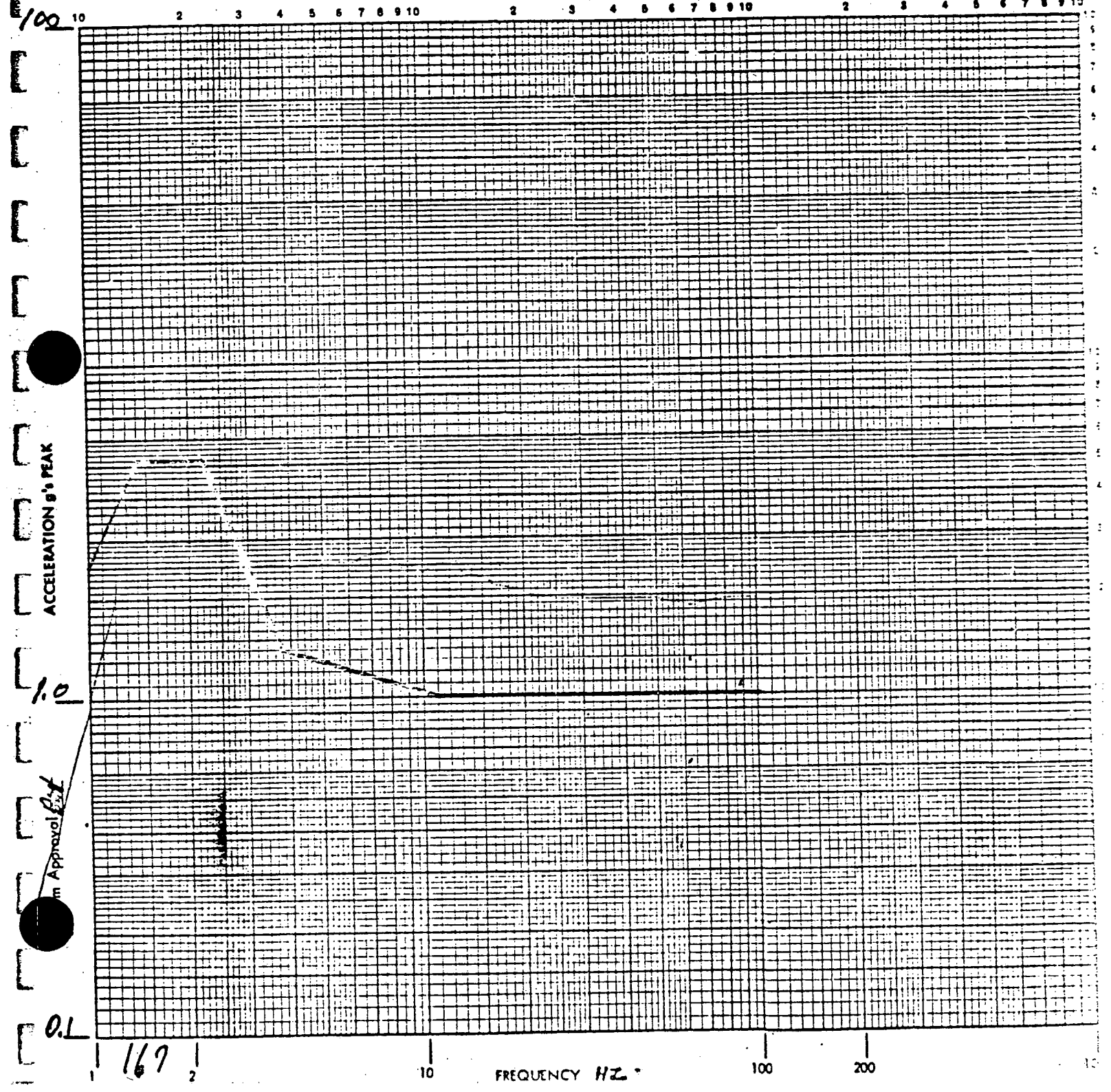
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

K=10 11 Mode PRIMARY Specimen CONTROL PANEL

Operator 6-18-76 P/N 2CR-58,50,51 (#3)

Date 6-18-76 Polarity + Q 5% Axis of Test Z-Y

HORIZONTAL RESPONSE SPECTRA 1.25 HZ. IN @



Approval

WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498

Page No. 33

Channel Identification: T/R 1 Trk. No. 2 Accel. No. 2

Transducer S/N 1024 Control (X), Response ( )

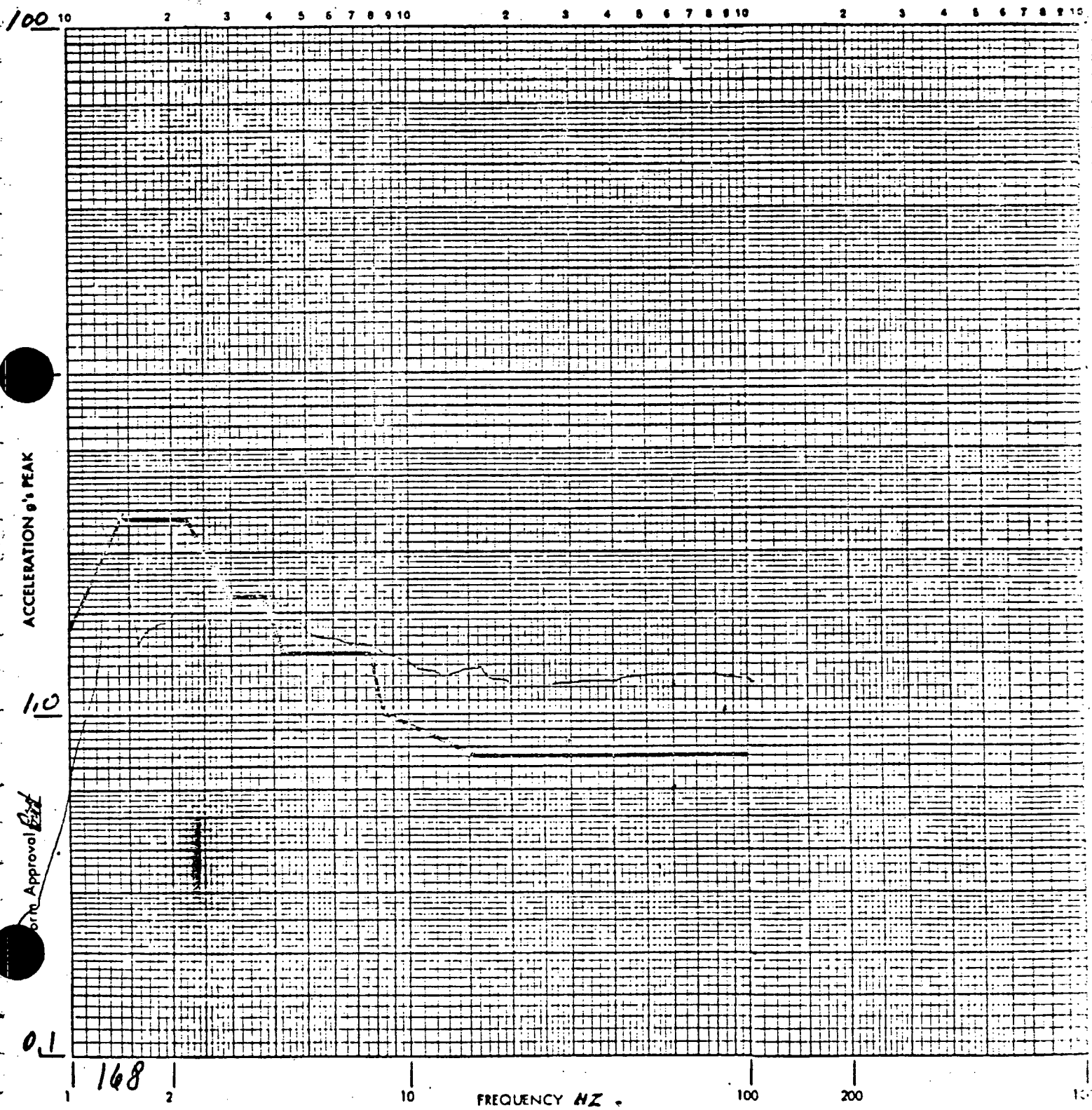
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator KNOll P/N 2CR-58, 50, 51 (

Date 6-18-76 Polarity + Q 5% Axis of Test Z-Y

VERTICAL RESPONSE SPECTRA 1.25HZ IN Ø



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Customer JELCO Job No. 54498

Page No. 34

Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control (X). Response ( )

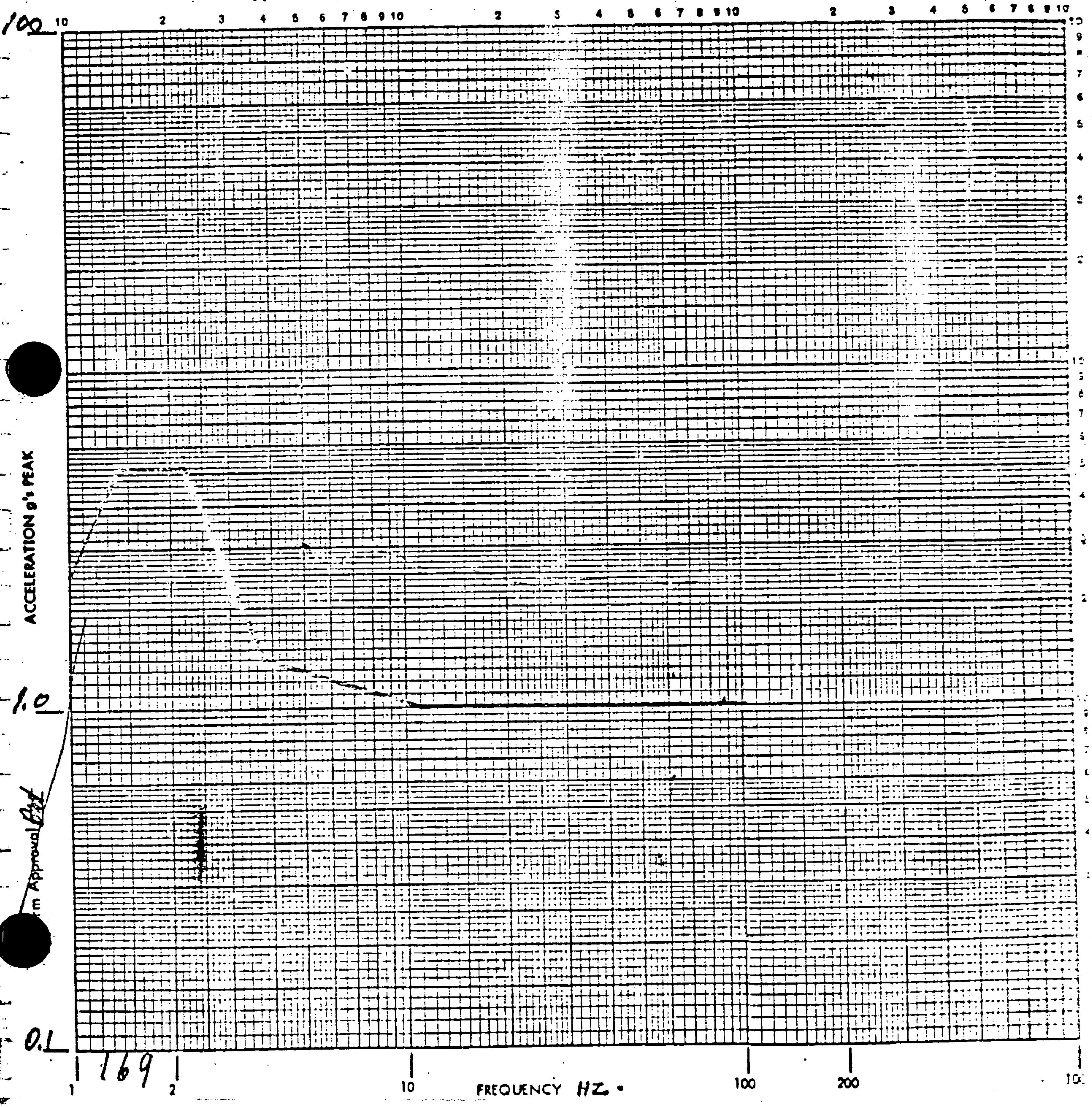
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator Knoll P/N 2CR-58,50,51 (#3)

Date 6-18-76 Polarity + Q 5% Axis of Test Z-Y

HORIZONTAL RESPONSE SPECTRA 1.25HZ. CNT Ø



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Customer JELCO Job No. 54498

Page No. 35

Channel Identification: T/R 1 Trk. No. 2 Accel. No. 2

Transducer S/N 1014 Control (X), Response ( )

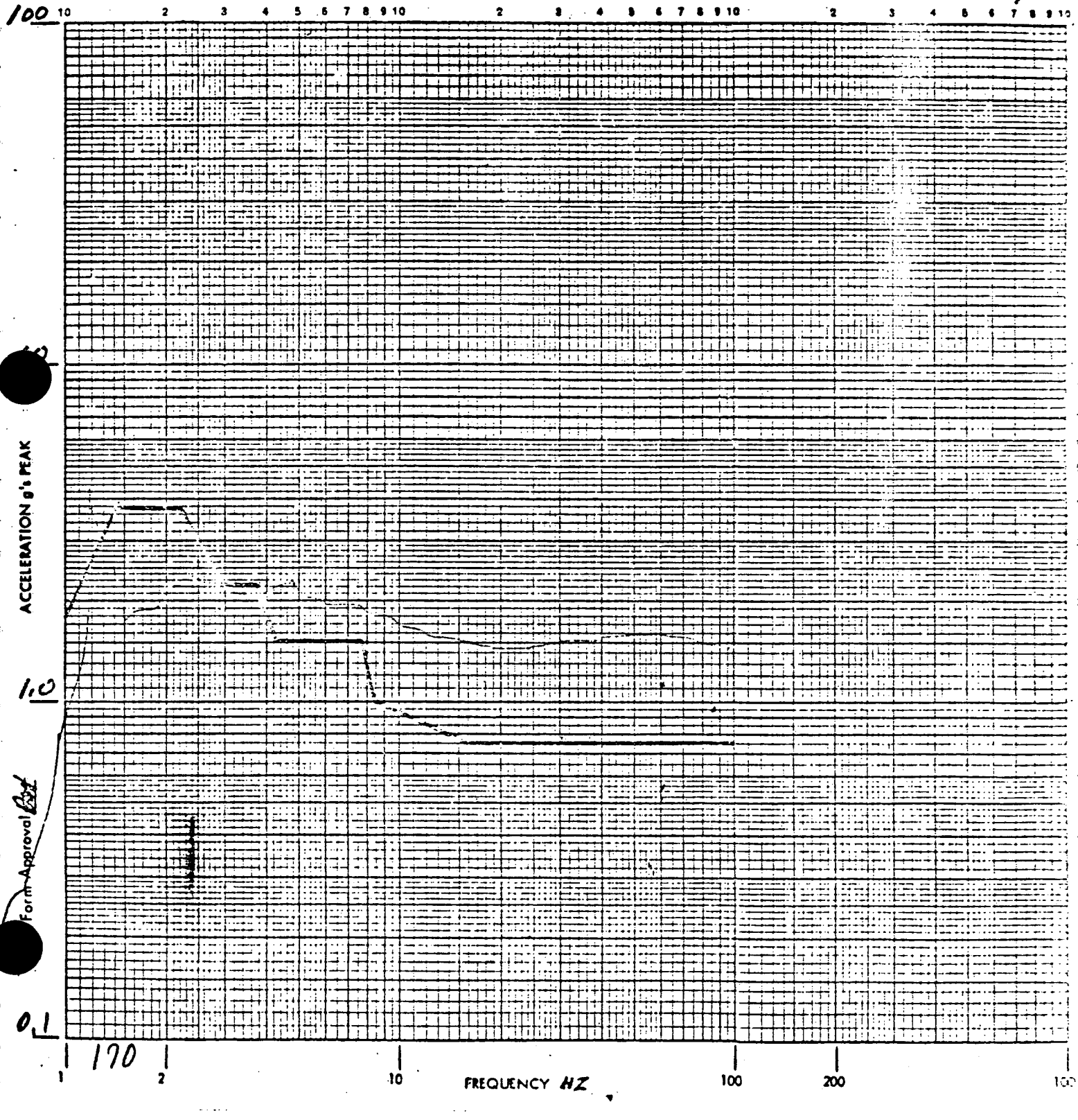
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator KNOll P/N 2CR-58, 50, 51 (2

Date 6-18-74 Polarity + Q 5% Axis of Test Z-4

VERTICAL RESPONSE SPECTRA 1.25 HZ OUT Q



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WYLE LABORATORIES

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Customer JELCO Job No. 54498

Page No. 36

Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control (X), Response ( )

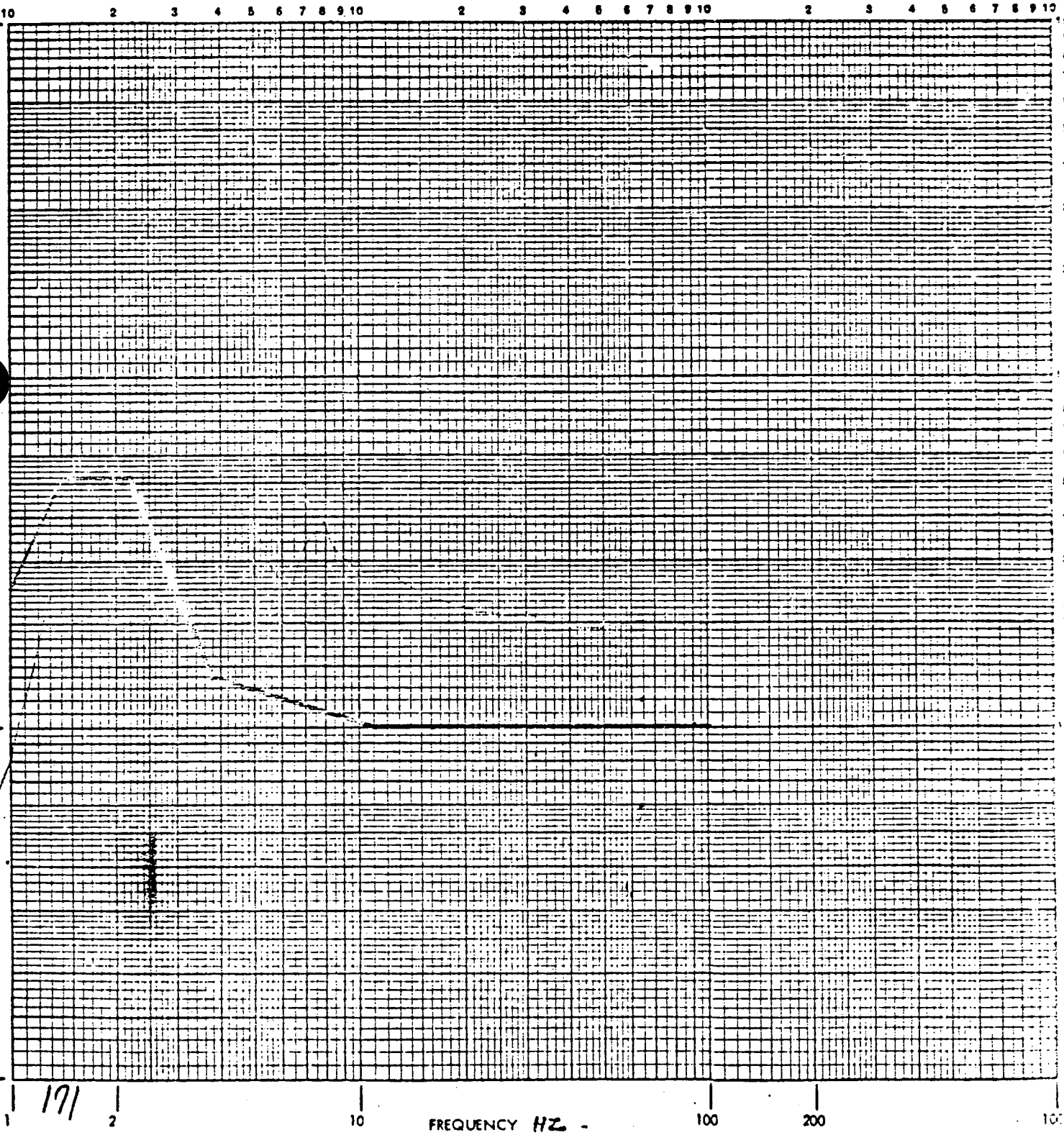
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator KNO 11 P/N 2CR-58,5051 (#3)

Date 6-18-76 Polarity + Q 5% Axis of Test Z-Y

HORIZONTAL RESPONSE SPECTRA 1.6 HZ. OUT Ø



WYLE LABORATORIES

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Customer JELCO Job No. 54498

Page No. 37

Channel Identification: T/R 1 Trk. No. 2 Accel. No. 2

Transducer S/N 1034 Control (X), Response ( )

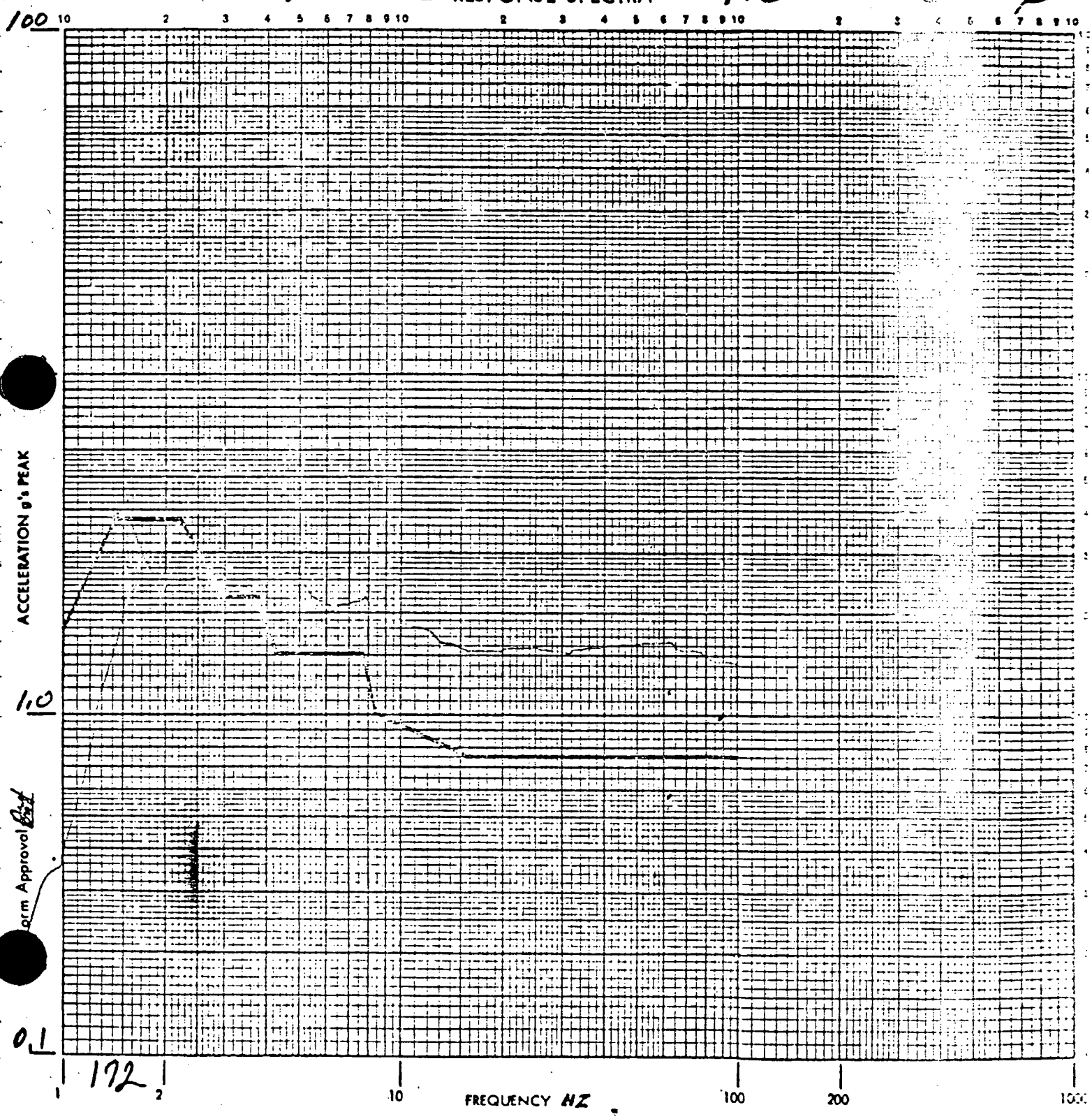
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator Kalo II P/N 2CR-58, 50, 51 (2

Date 6-18-76 Polarity + Q 5% Axis of Test Z-Y

VERTICAL RESPONSE SPECTRA 1.6 HZ. OUT Ø



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Customer JELCO Job No. 54498

Page No. 38

Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control (X), Response ( )

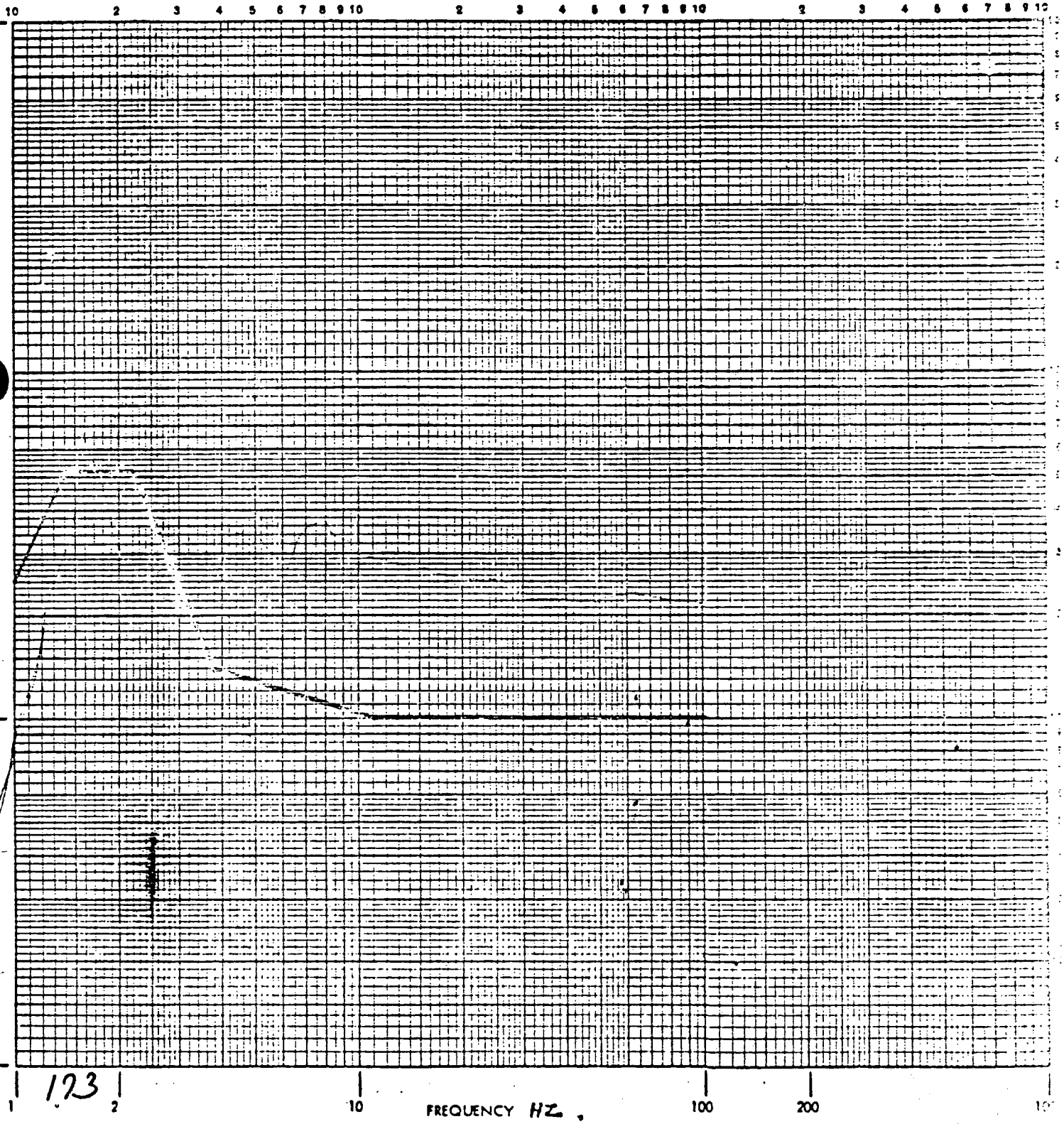
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator KNOll P/N 2CR-58,50,51 (#3)

Date 6-18-76 Polarity + Q 5% Axis of Test Z-Y

HORIZONTAL RESPONSE SPECTRA 1.6HZ IN @



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WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498

Page No. 39

Channel Identification: T/R 1 Trk. No. 2 Accel. No. 2

Transducer S/N _____ Control (X), Response ( )

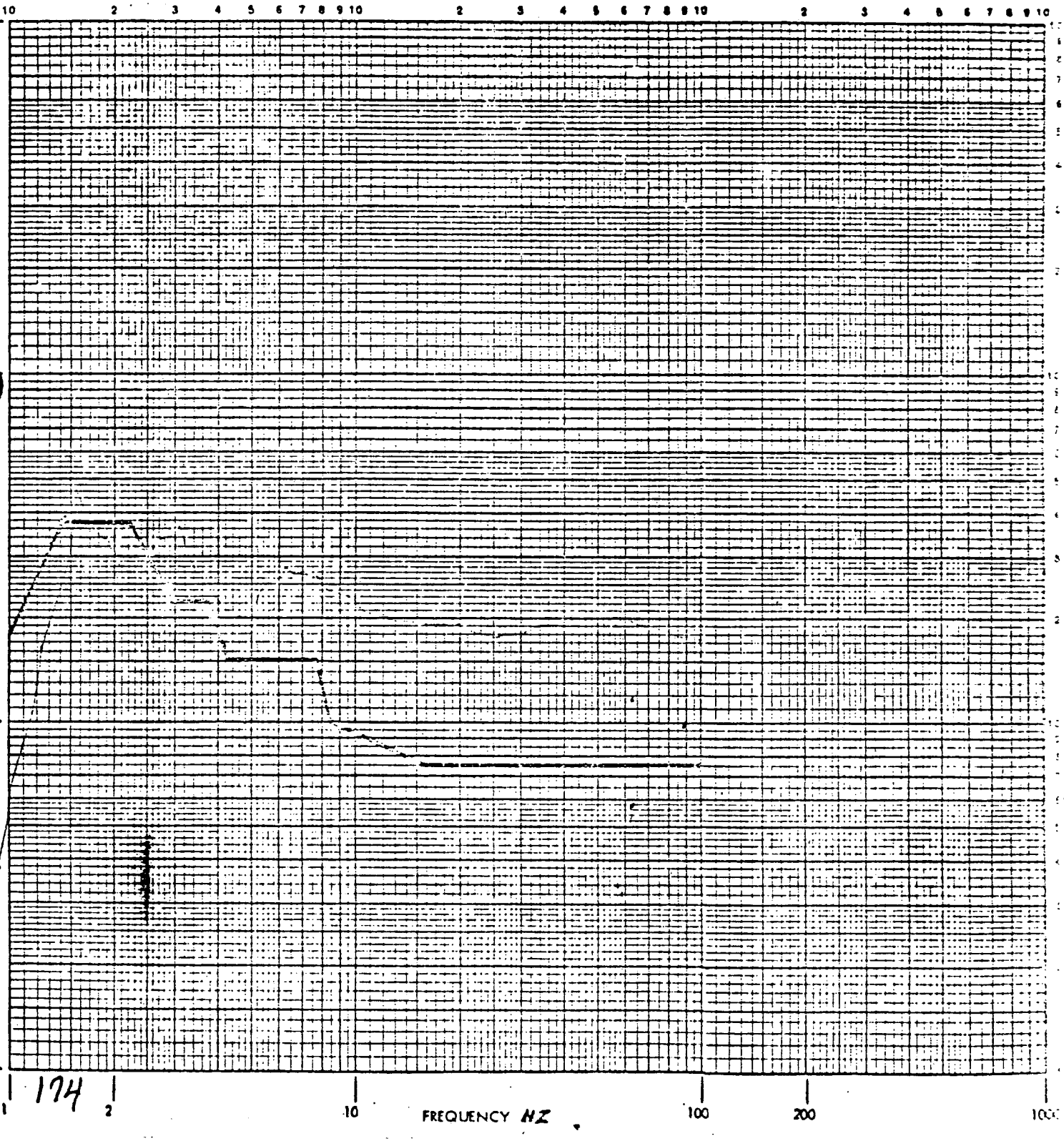
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator _____ P/N 2CR-58,50,51 (+

Date _____ Polarity + Q 5% Axis of Test Z.Y

VERTICAL RESPONSE SPECTRA 1.6HR. IN Ø



WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498

Page No. 40

Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control OC), Response ( )

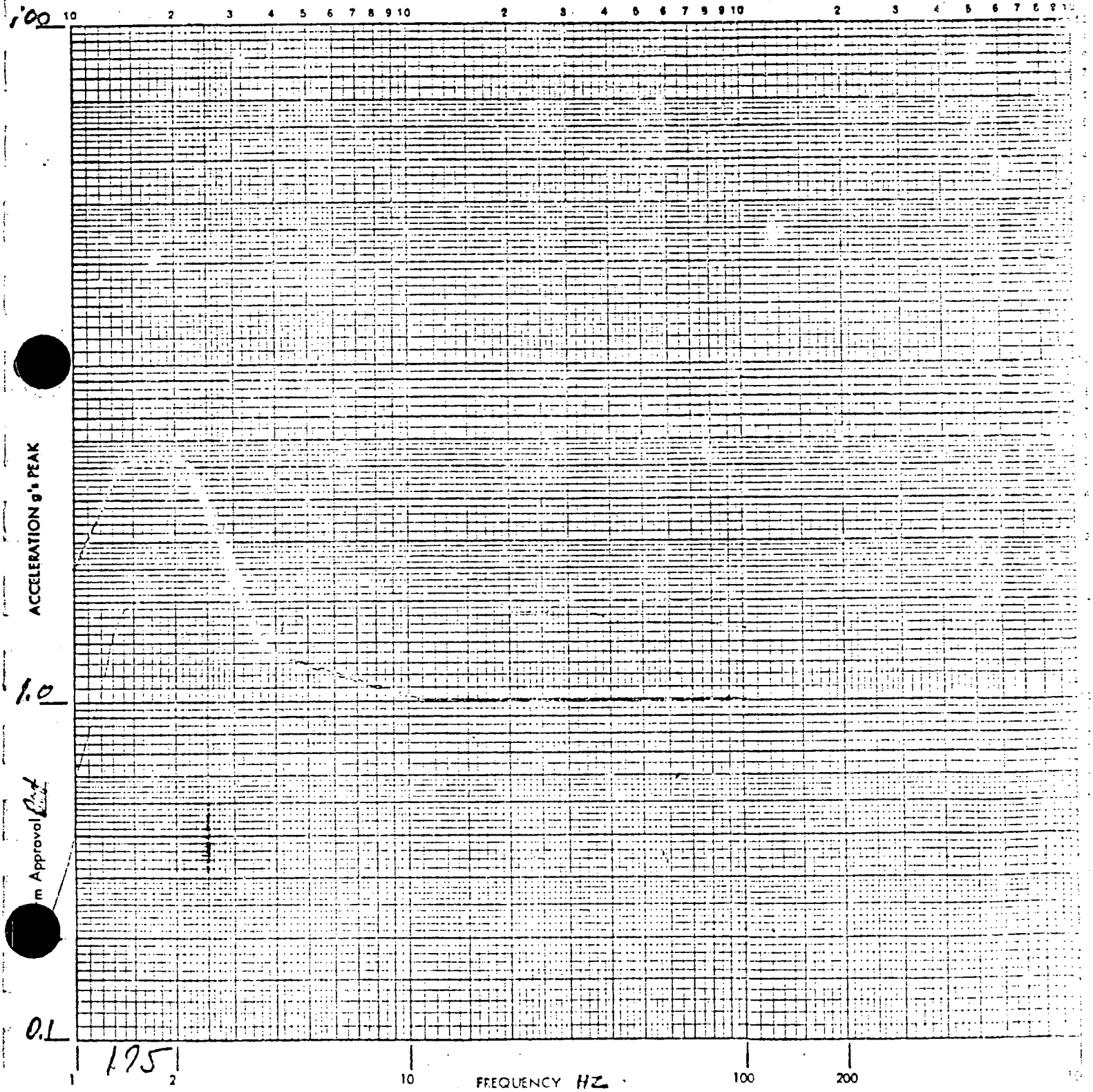
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator Knoll P/N 2CR-53,50,51 (#3)

Date 6-18-76 Polarity + Q 5% Axis of Test Z-Y

HORIZONTAL RESPONSE SPECTRA 2.0 HR. IN P



WYLE LABORATORIES

Report No. [illegible]

Customer JELCO Job No. 54498 Page No. [illegible]

Channel Identification: T/R 1 Trk. No. 2 Accel. No. [illegible]

Transducer S/N 1034 Control (X), Response ( )

Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

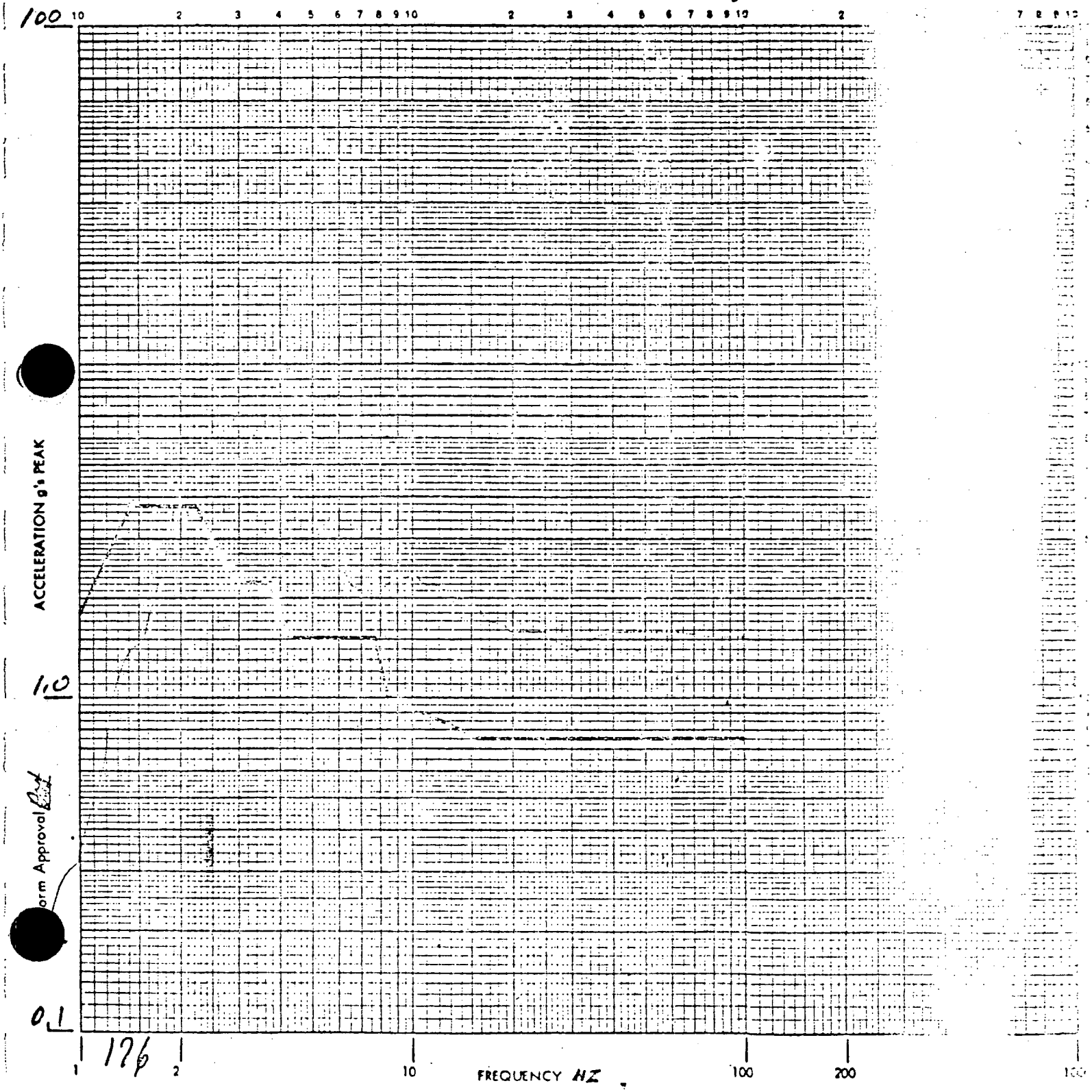
Mode PRIMARY Specimen [illegible]

Operator [illegible] P/N [illegible]

Date 6-18-76 Polarity + Q 5%

Axis of Test Z

VERTICAL RESPONSE SPECTRA 2.0 HZ



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WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498

Page No. 42

Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control (X), Response ( )

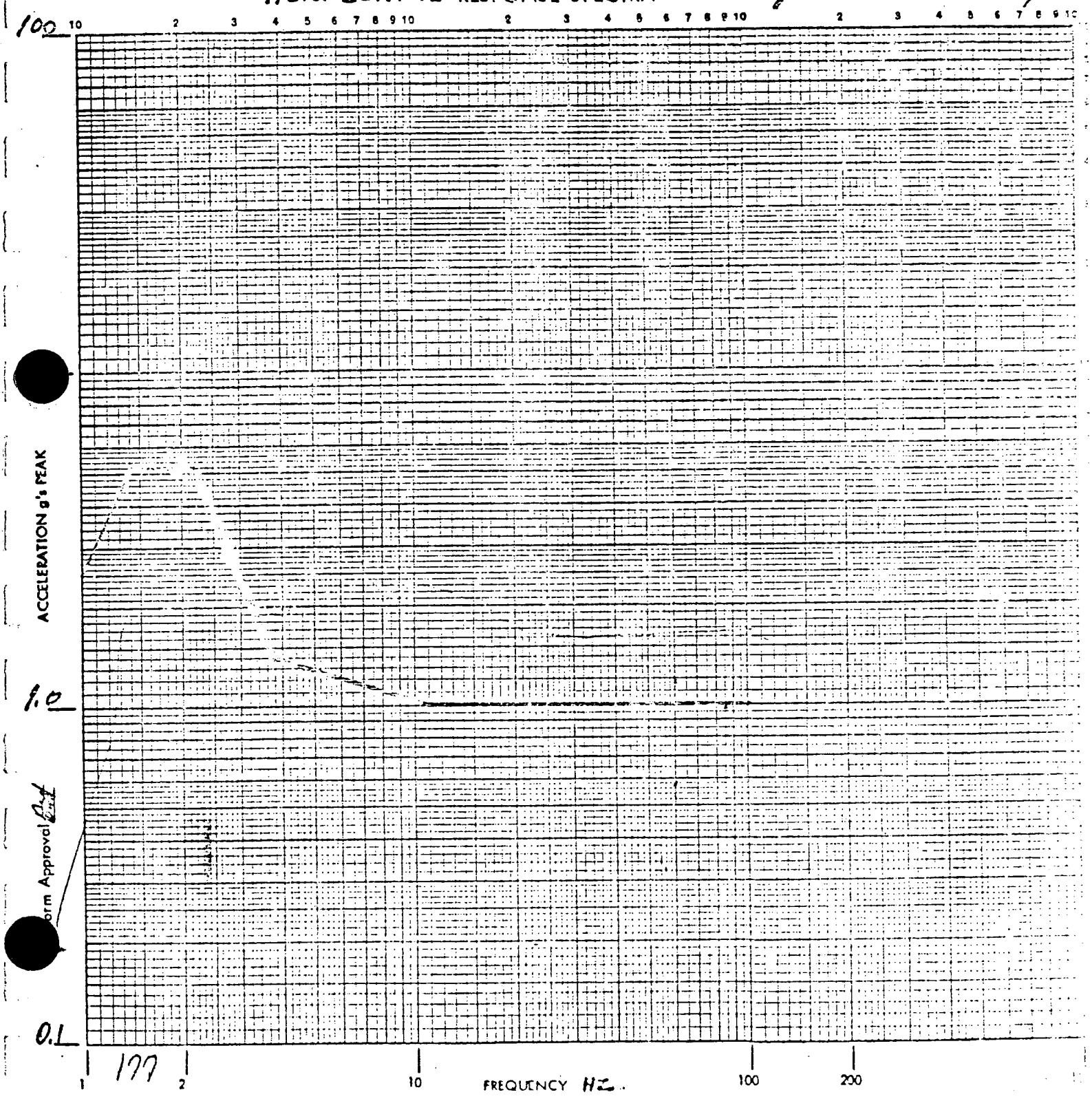
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator KNOLL P/N 2CR-53,505/ (-3)

Date 6-18-76 Polarity + Q 5% Axis of Test Z-Y

HORIZONTAL RESPONSE SPECTRA 2.0 IP. OCT Q



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WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498

Page No. 43

Channel Identification: T/R 1 Trk. No. 2 Accel. No. 2

Transducer S/N 1034 Control (X), Response ( )

Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

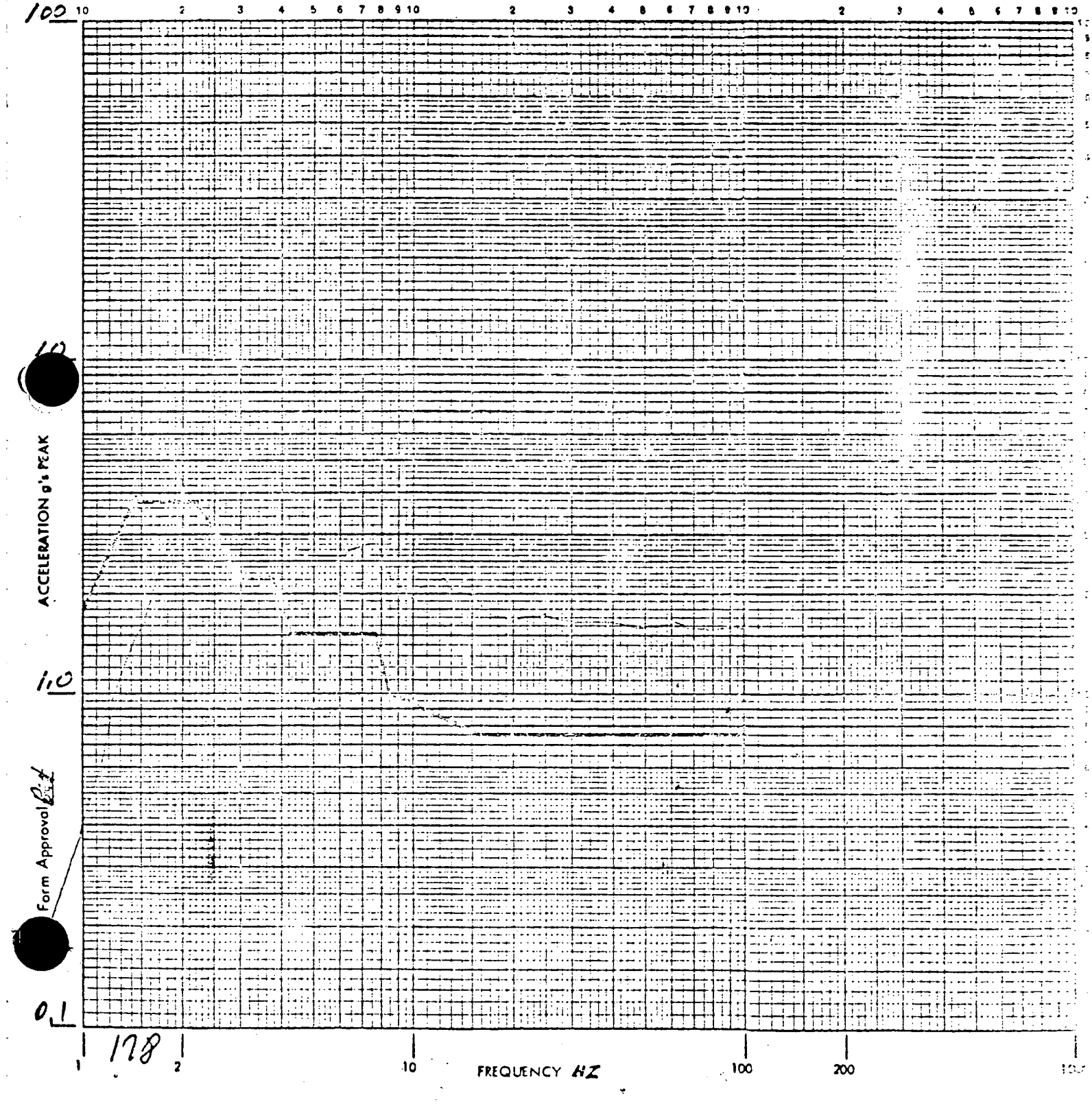
Mode PRIMARY Specimen CONTROL PANEL

Operator KMOV P/N 2CR-58, 50, 51

Date 6-18-76 Polarity + Q 5% Axis of Test Z.Y

VERTICAL RESPONSE SPECTRA

2.0 HZ. OCT Q



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WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498

Page No. 44

Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control (X), Response ( )

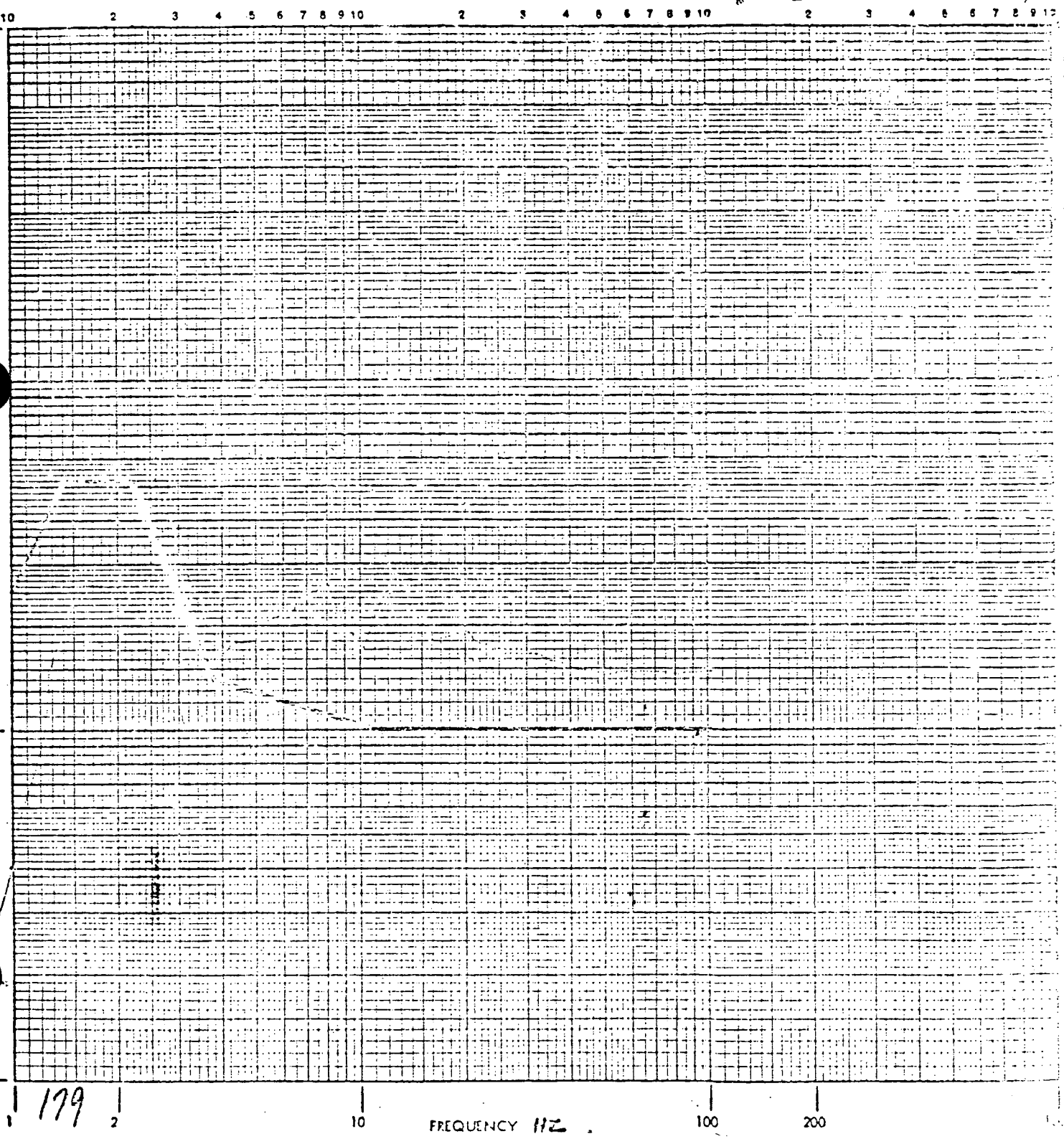
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator Knoll P/N 2CR-50,50,51 (#3)

Date 6-18-76 Polarity + Q 5% Axis of Test Z-Y

HORIZONTAL RESPONSE SPECTRA 2.5HZ. CUT Ø



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WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498

Page No. 45

Channel Identification: T/R 1 Trk. No. 2 Accel. No. 2

Transducer S/N 1034 Control (X), Response ( )

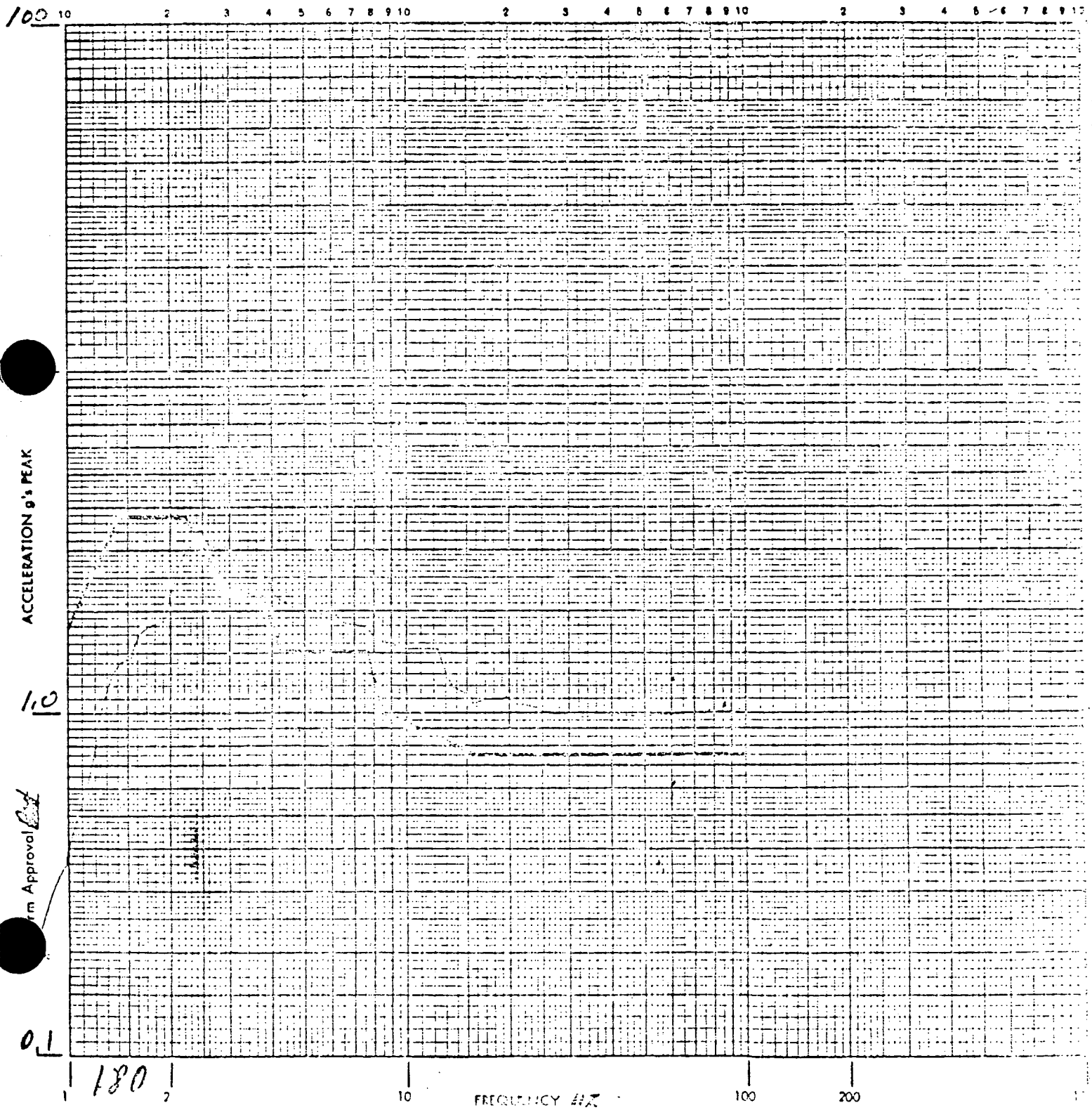
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator KNOX P/N 2CR-52, 50, 51 (

Date 6-18-76 Polarity + Q 5% Axis of Test Z-Y

VERTICAL RESPONSE SPECTRA 2.5 HR. OUT



Approval

WYLE LABORATORIES

Report No. 54498-1

Customer JELCO Job No. 54498

Page No. 46

Channel Identification: T/R 1 Trk. No. 1 Accel. No. 1

Transducer S/N 1171 Control (X), Response ( )

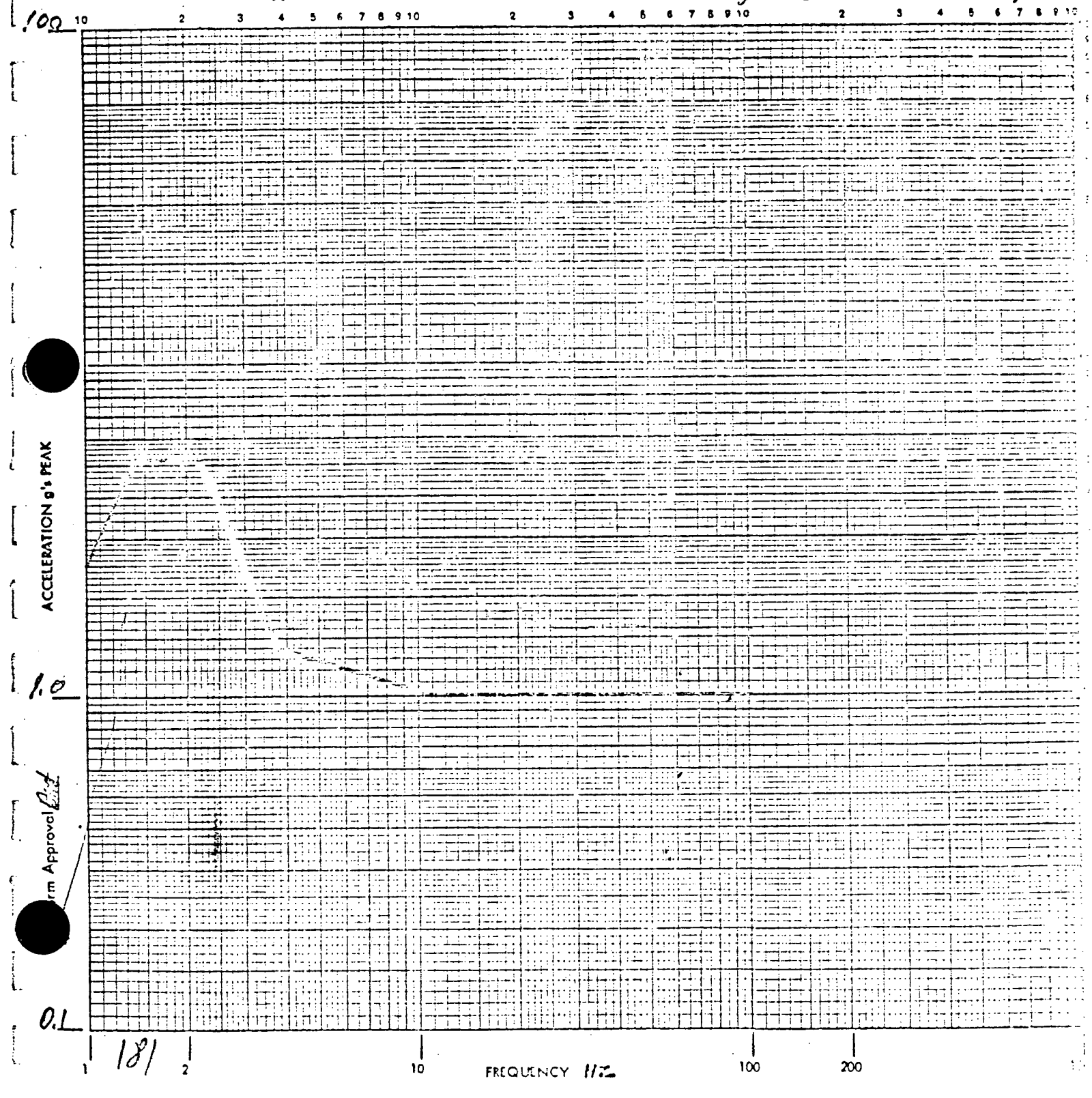
Full Scale 100 G Cal Voltage 500 MVPK/ 1.0 G

Mode PRIMARY Specimen CONTROL PANEL

Operator KNOLL P/N 2CR-58,50,51 (43)

Date 6-18-76 Polarity ± Q 5% Axis of Test Z-Y

HORIZONTAL RESPONSE SPECTRA 2.5HZ 1A Q



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WYLE LABORATORIES

Report No. _____

Customer JELCO Job No. 54498

Page No. _____

Channel Identification: T/R 1 Trk. No. 2

Accel. No. _____

Transducer S/N 1034 Control (K),

Response (

Full Scale 100 G Cal Voltage 500 MVPK/ 1.0

Mode PRIMARY Specimen CO

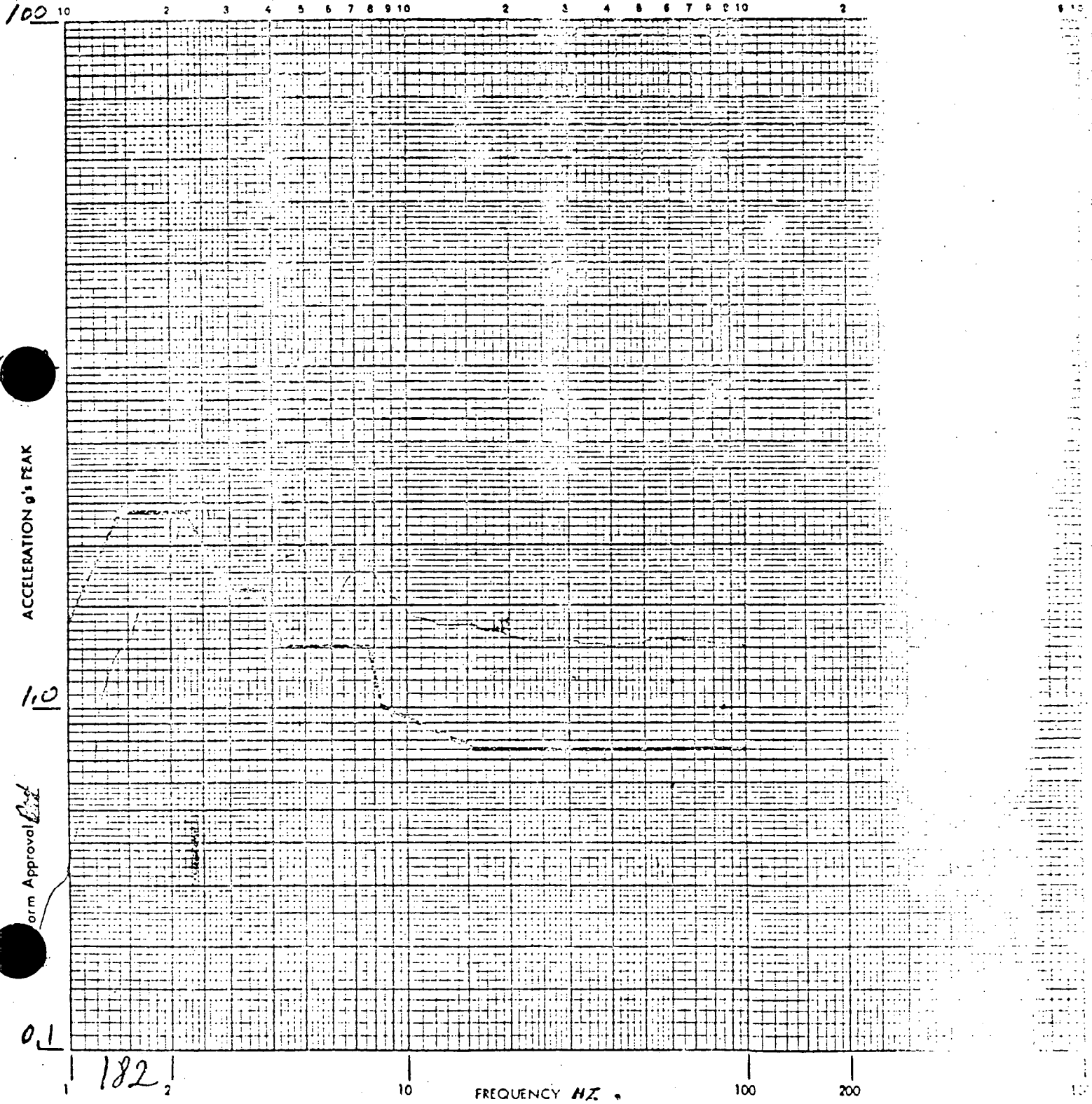
Operator KN?11 P/N 2

Date 6-18-71 Polarity + Q 5

Axis of Test Z-

VERTICAL RESPONSE SPECTRA

2.5 AF



Form Approval

SPECIMEN CONTROL CONSOLE
CUSTOMER JELCO
PART NO. 2CR-58,50,51 (-3)
S/N

JOB NO. 5449
DATE 6-18-76
TEST BY F. KNOLL
WITNESS

WYLE LABORATORIES

TEST: SEISMIC RANDOM & SINE BEAT

EQUIPMENT	MANUFACTURER	MODEL NO.	RANGE	WYLE NO.	CALIBRATION LAST	CALIBRATION DUE	ACCY.
EXCITER	TEAM CORP	W 3000	12" DIA 30,000 FORCE LBS	—	—	—	N/A
EXCITER	TEAM CORP	W 1800	10" DIA 16,000 FORCE LBS	—	—	—	N/A
EXCITER	TEAM CORP	W 1800	10" DIA 16,000 FORCE LBS	—	—	—	N/A
SERVO CONTROLLER	MCFADDEN	152 A	—	—	PRIOR TO	USE	N/A
SERVO CONTROLLER	MCFADDEN	152 A	—	—	PRIOR TO	USE	N/A
SERVO CONTROLLER	MCFADDEN	152 A	—	—	PRIOR TO	USE	N/A
AMPLIFIER	MCFADDEN	152 A	—	—	PRIOR TO	USE	N/A
AMPLIFIER	MCFADDEN	152 A	—	—	PRIOR TO	USE	N/A
AMPLIFIER	MCFADDEN	152 A	—	—	PRIOR TO	USE	N/A
SHOCK SPECTRUM ANALYZER	SPECTRAL DYNAMICS	13231	120 CHANNEL	7530	SYSTEM CALIBRATION		MFG. SPEC.
SPECTRUM SHAPER	BRUEL KJAER	123	12.5 TO 40 KHZ	31337	PRIOR TO	USE	N/A
SPECTRUM SHAPER	BRUEL KJAER	123	12.5 TO 40 KHZ	31570	PRIOR TO	USE	N/A
EQUALIZER SHAPER	TRACOR	822	1.25 TO 10 HZ	31534	PRIOR TO	USE	N/A
EQUALIZER SHAPER	TRACOR	822	1.25 TO 10 HZ	31574	PRIOR TO	USE	N/A
X-Y RECORDER	HEWLETT PACKARD	7005B	X = 30"/SEC Y = 20"/SEC	50889	PRIOR TO	USE	MFG. SPEC.
OSCILLOSCOPE	HEWLETT PACKARD	122 AR	DUAL TRACE	3086	5-17-76	11-21-76	±5%
ELECTRONIC VOLTMETER	HEWLETT PACKARD	2411	0.01 TO 1000 VOLTS	6556	3-29-76	8-1-76	±4% FULL

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Report No. 54498-1

QC Approval Date

SHEET

SPECIMEN CONTROL CONSOLE
CUSTOMER TELCO
PART NO. 2CR-58,50,51 (#3)
S/N

JOB NO. 54490
DATE 6-18-76
TEST BY P. KNOLL
WITNESS

WYLE LABORATORIES

TEST: SEISMIC RANDOM & SINE BEAT

EQUIPMENT	MANUFACTURER	MODEL NO.	RANGE	WYLE NO.	CALIBRATION LAST	CALIBRATION DUE	ACCY.
SWEEP OSCILLATOR	S.D	164A-5	.005-50KHZ.	99987	2-19-76	8-22-76	± 2%
SERVO MONITOR	S.D	105A	—	31306	PRIOR TO USE		N/A
ACCELEROMETER	UNIHOLTZ DICKIE	75D21	0-2000 HZ.	7567	4-9-76	7-9-76	± 2%
ACCELEROMETER	UNIHOLTZ DICKIE	75D21	0-2000 HZ	7571	5-17-76	8-17-76	± 2%
ACCELEROMETER	UNIHOLTZ DICKIE	75D21	0-2000 HZ	7144	6-10-76	9-10-76	± 2%
ACCELEROMETER	UNIHOLTZ DICKIE	75D21	0-2000 HZ	7360	4-14-76	7-14-76	± 2%
ACCELEROMETER	UNIHOLTZ DICKIE	75D21	0-2000 HZ	7320	6-15-76	9-15-76	± 2%
ACCELEROMETER	UNIHOLTZ DICKIE	75D21	0-2000 HZ	7377	6-15-76	9-15-76	± 2%
ACCELEROMETER	UNIHOLTZ DICKIE	75D21	0-2000 HZ	7398	6-15-76	9-15-76	± 2%
ACCELEROMETER	UNIHOLTZ DICKIE	75D21	0-2000 HZ	7566	4-13-76	7-13-76	± 2%
ACCELEROMETER	UNIHOLTZ DICKIE	75D21	0-2000 HZ	7523	6-15-76	9-15-76	± 2%
ACCELEROMETER	UNIHOLTZ DICKIE	75D21	0-2000 HZ	7572	6-15-76	9-15-76	± 2%
ACCELEROMETER	UNIHOLTZ DICKIE	75D21	0-2000 HZ	7300	6-15-76	9-15-76	± 2%
ACCELEROMETER	UNIHOLTZ DICKIE	75D21	0-2000 HZ	7557	4-27-76	7-27-76	± 2%
ACCELEROMETER	UNIHOLTZ DICKIE	75D21	0-2000 HZ	7578	3-22-76	6-22-76	± 2%
ACCELEROMETER	UNIHOLTZ DICKIE	75D21	0-2000 HZ	7143	3-22-76	6-22-76	± 2%
ACCELEROMETER	UNIHOLTZ DICKIE	75D21	0-2000 HZ	7532	3-22-76	6-22-76	± 2%

Report No. 54490

SPECIMEN CONTROL CONSOLE
CUSTOMER JELCO
PART NO. 2CR-58,50,51 (#3)
S/N

JOB NO. 54498
DATE 6-18-76
TEST BY P. KNOLL
WITNESS

WYLE LABORATORIES

TEST: SEISMIC RANDOM + SINE BEAT

EQUIPMENT	MANUFACTURER	MODEL NO.	RANGE	WYLE NO.	CALIBRATION LAST	CALIBRATION DUE	ACCY.
ACCELEROMETER	UNHOLTZ-DICKIE	25D21	[illegible]	[illegible]	[illegible]	6-[illegible]-76	± 2%
ACCELEROMETER	UNHOLTZ-DICKIE	25D21	0-2000 HZ	6625	6-15-76	9-15-76	± 2%
ACCELEROMETER	Columbia	302-6	0-2000 HZ.	6618	5-4-76	8-4-76	± 2%
ACCELEROMETER	COLUMBIA	302-6	0-2000HZ.	6619	5-4-76	8-4-76	± 2%
ACCELEROMETER	ENDEVCO	2215	0-2000HZ.	7540	6-15-76	9-15-76	± 2%
ACCELEROMETER	ENDEVCO	2211	0-2000HZ.	6794	6-15-76	9-15-76	± 2%
ACCELEROMETER	ENDEVCO	2213	0-2000HZ.	31023	6-10-76	9-10-76	± 2%
CHARGE AMP	UNHOLTZ DICKIE	D22	0-1000 g.	7341	1-13-76	7-11-76	± 2%
CHARGE AMP	UNHOLTZ DICKIE	D22	0-1000 g.	7342	1-13-76	7-11-76	± 2%
CHARGE AMP	UNHOLTZ DICKIE	D22	0-1000 g.	7343	1-13-76	7-11-76	± 2%
CHARGE AMP	UNHOLTZ DICKIE	D22	0-1000 g.	7344	1-13-76	7-11-76	± 2%
CHARGE AMP	UNHOLTZ DICKIE	D22	0-1000 g	7338	1-27-76	7-25-76	± 2%
CHARGE AMP	UNHOLTZ DICKIE	D22	0-1000 g.	31407	3-16-76	9-19-76	± 2%
CHARGE AMP	UNHOLTZ DICKIE	D22	0-1000 g.	7335	1-27-76	7-11-76	± 2%
CHARGE AMP	UNHOLTZ DICKIE	D22	0-1000 g.	7336	1-27-76	7-11-76	± 2%
CHARGE AMP	UNHOLTZ DICKIE	D22	0-1000 g.	7337	1-27-76	7-11-76	± 2%
CHARGE AMP.	UNHOLTZ DICKIE	D22	0-1000 g.	7340	1-27-76	7-11-76	± 2%

Report No. 54498-1

SPECIMEN CONTROL CONSOLE
CUSTOMER IELCO
PART NO. 2CR-58,50,51 (#3)
S/N

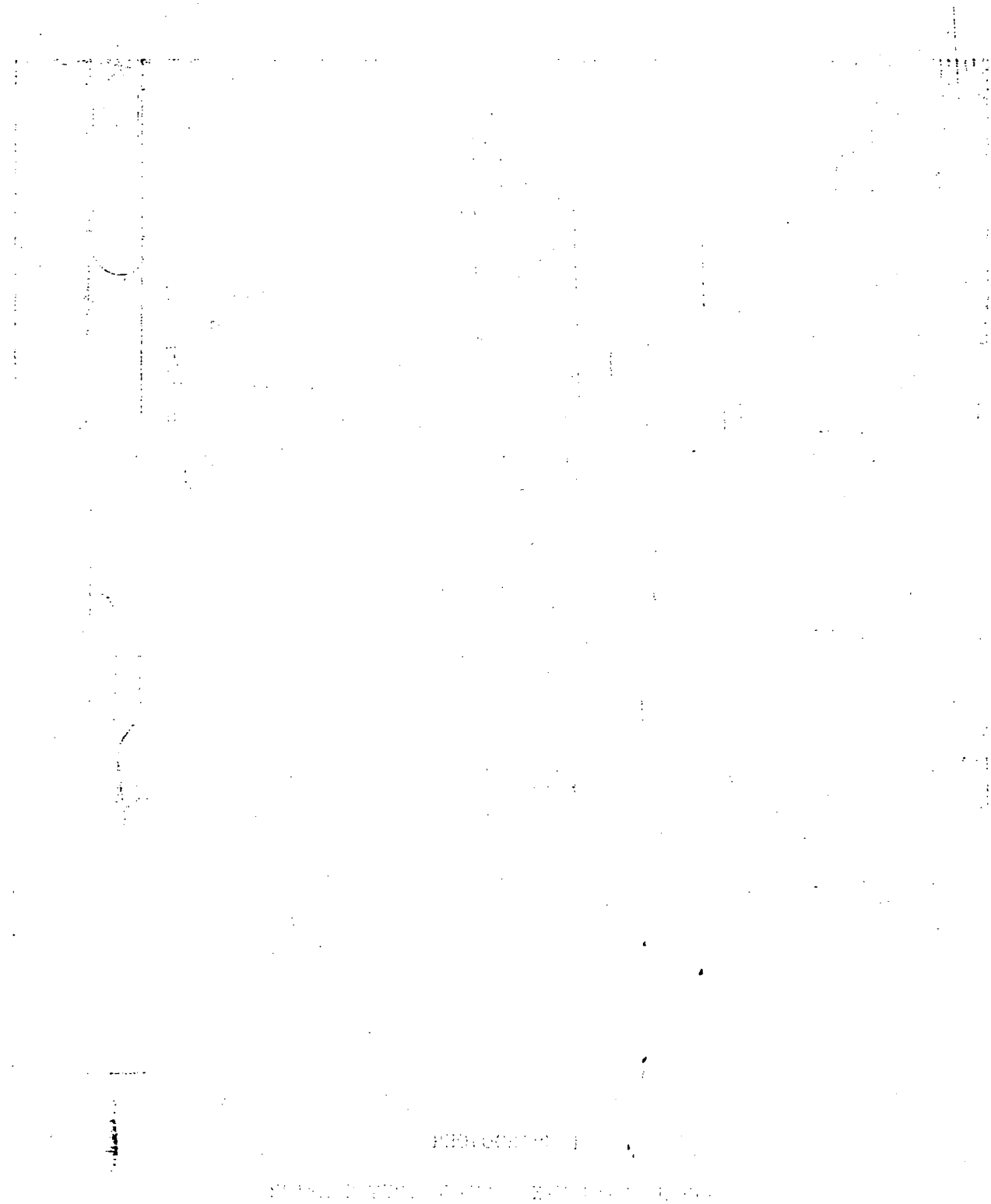
JOB NO. 54498
DATE 6-18-76
TEST BY P. KNOLL
WITNESS

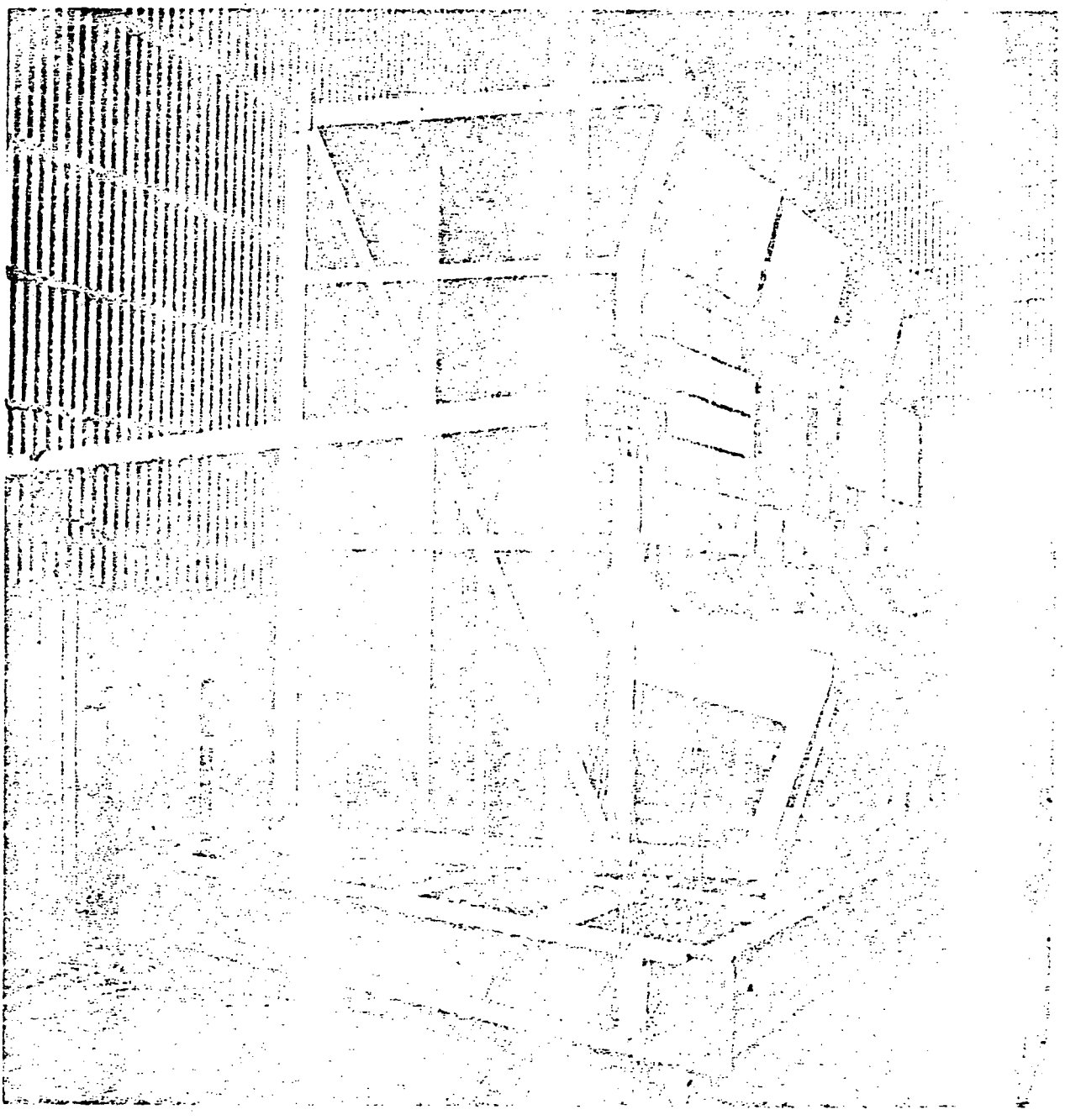
WYLE LABORATORIES

TEST: SEISMIC RANDOM, SINE BEAT

EQUIPMENT	MANUFACTURER	MODEL NO.	RANGE	WYLE NO.	CALIBRATION LAST	CALIBRATION DUE	ACCY.
CHARGE AMP	UNHOLTZ DICKIE	D22	0-1000 g.	7339	1-27-76	7-25-76	±2%
CHARGE AMP	UNHOLTZ DICKIE	11	0-1000 g.	31488	1-13-76	7-11-76	±2%
CHARGE AMP	UNHOLTZ DICKIE	8P	0-1000 g	6723	5-12-76	11-14-76	±2%
CHARGE AMP	UNHOLTZ DICKIE	8P	0-1000 g.	4541	1-8-76	7-4-76	±2%
CHARGE AMP.	UNHOLTZ DICKIE	8P	0-1000 g.	30990	5-12-76	11-14-76	±2%
CHARGE AMP	UNHOLTZ DICKIE	8P	0-1000 g.	30997	5-12-76	11-14-76	±2%
CHARGE AMP	UNHOLTZ DICKIE	8P	0-1000 g.	30770	5-12-76	11-14-76	±2%
CHARGE AMP	UNHOLTZ DICKIE	8P	0-1000 g	30880	5-12-76	11-14-76	±2%
CHARGE AMP	UNHOLTZ DICKIE	11	0-1000 g	31490	1-13-76	7-11-76	±2%
CHARGE AMP	UNHOLTZ DICKIE	11	0-1000 g.	31493	3-15-76	9-9-76	±2%
CHARGE AMP	UNHOLTZ DICKIE	11	0-1000 g.	31406	1-13-76	7-11-76	±2%
CHARGE AMP.	UNHOLTZ DICKIE	11	0-1000 g	31491	1-13-76	7-11-76	±2%
TAPERECORDER	SANBORN	3924B	14 CHANNEL	31265	PRIOR TO USE		N/A
TAPERECORDER	SANBORN	3924B	14 CHANNEL	31266	PRIOR TO USE		N/A
SINE BEAT GENERATOR	McFADDEN	2090	.5-50 CPS.	—	SYSTEM CALIB.		N/A
SUM & DIFFERENCE AMPLIFIER	McFADDEN	2004	4 CHANNEL	—	SYSTEM CALIB.		N/A

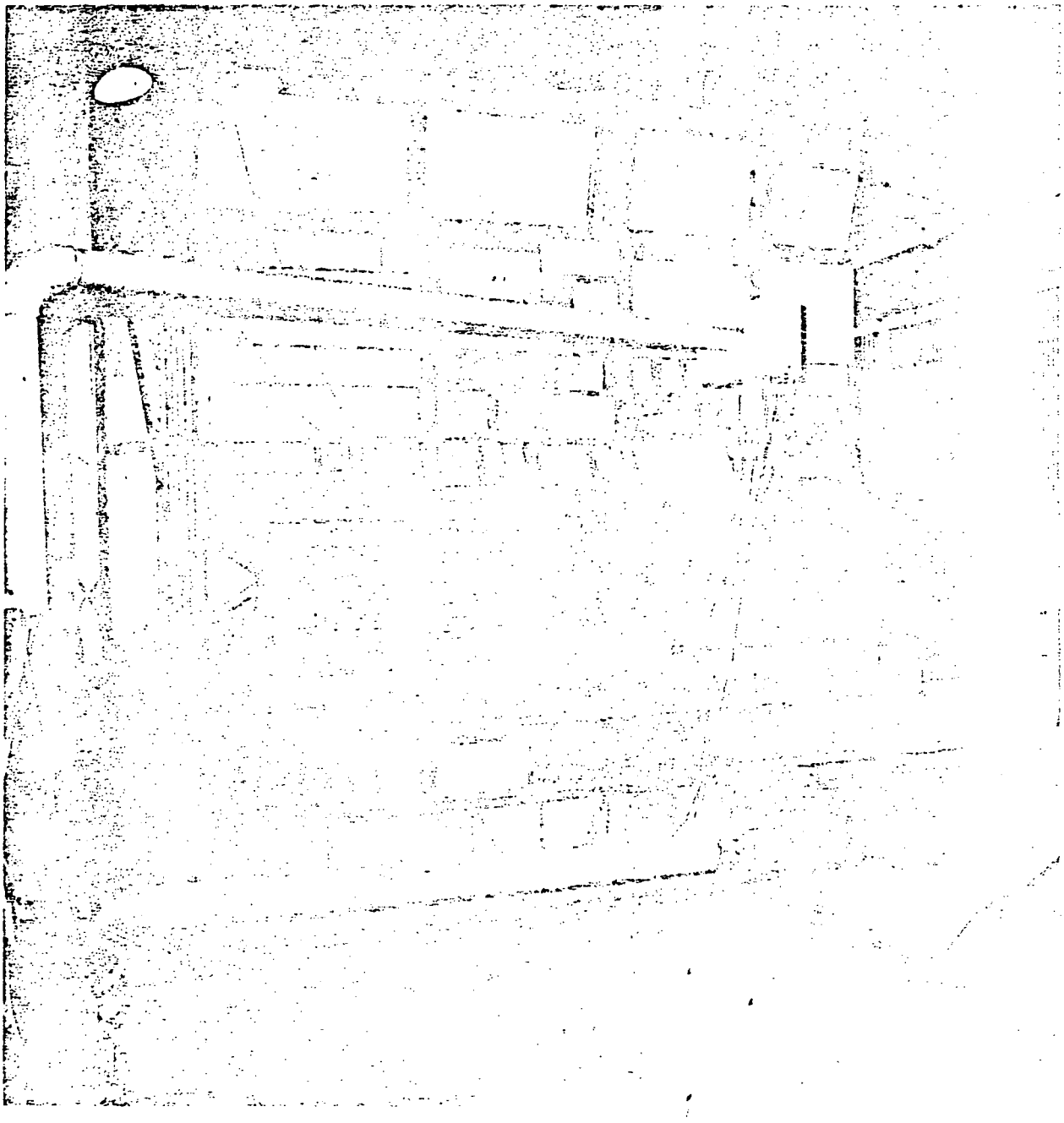
Report No. 54498-51





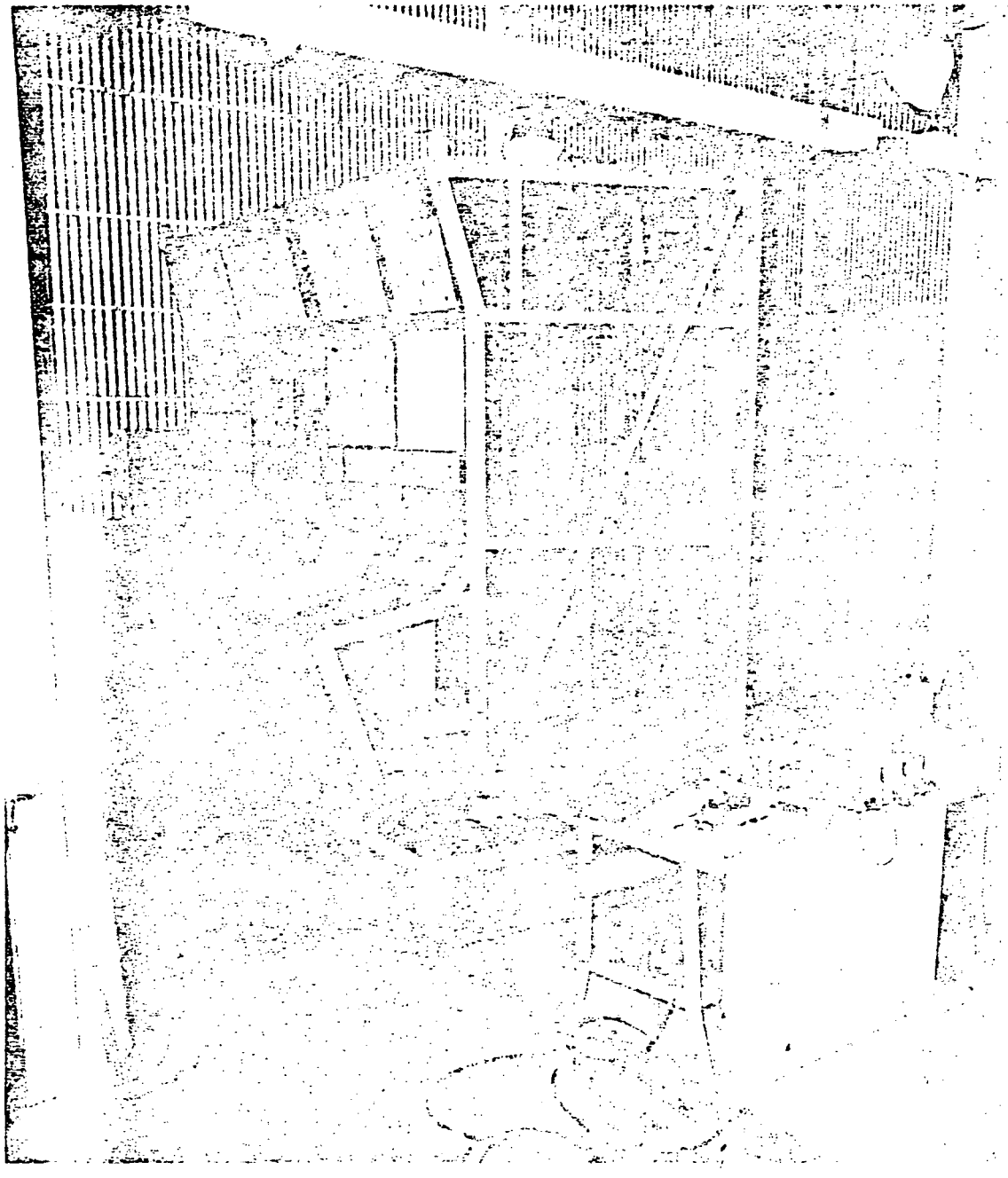
PHOTOGRAPH 2

SEISMIC TEST SETUP - X-Y BIAXIAL PLANE



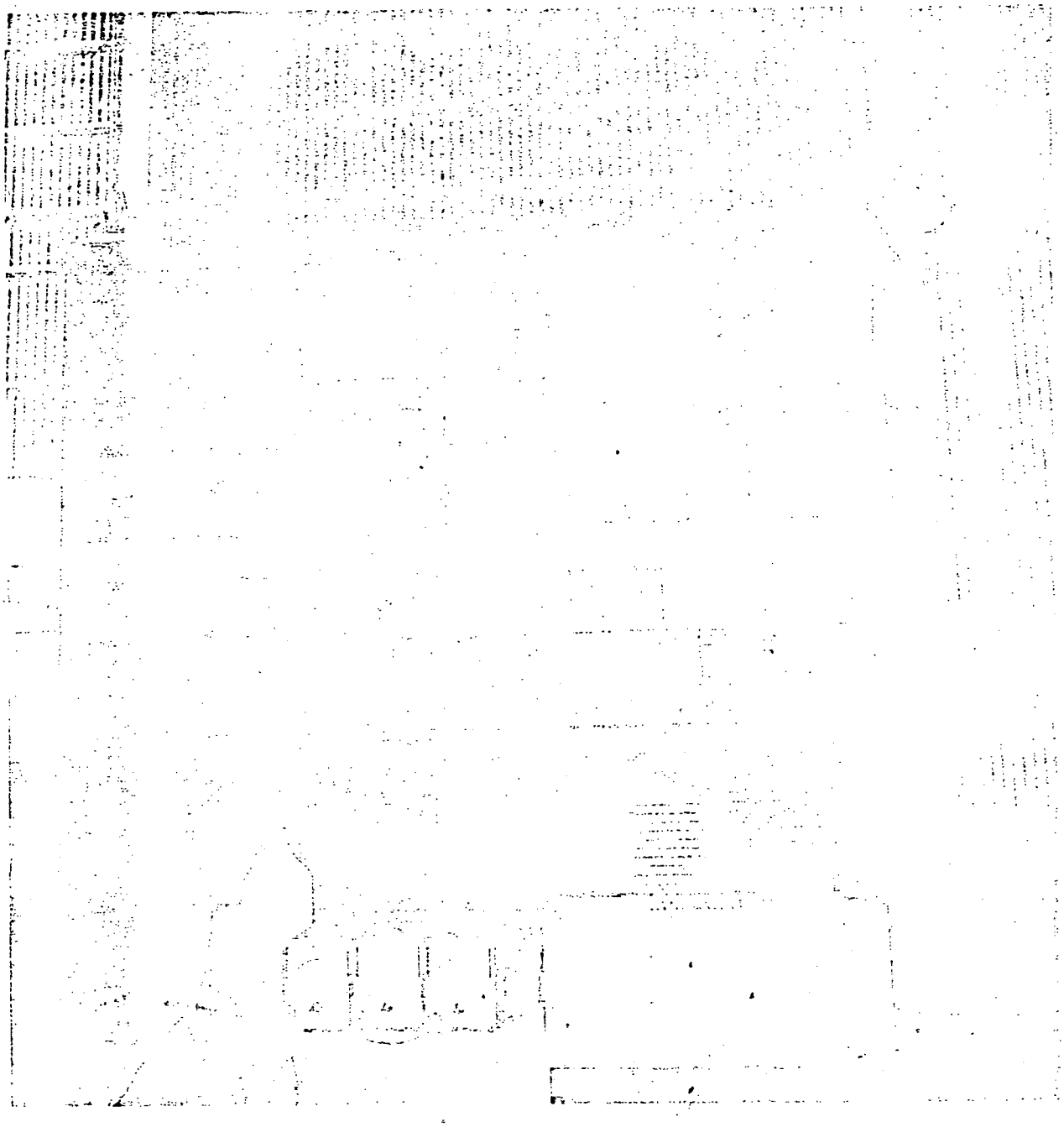
PHOTOGRAPH 3

SEISMIC TEST SETUP - Z-Y BIAXIAL PLANE



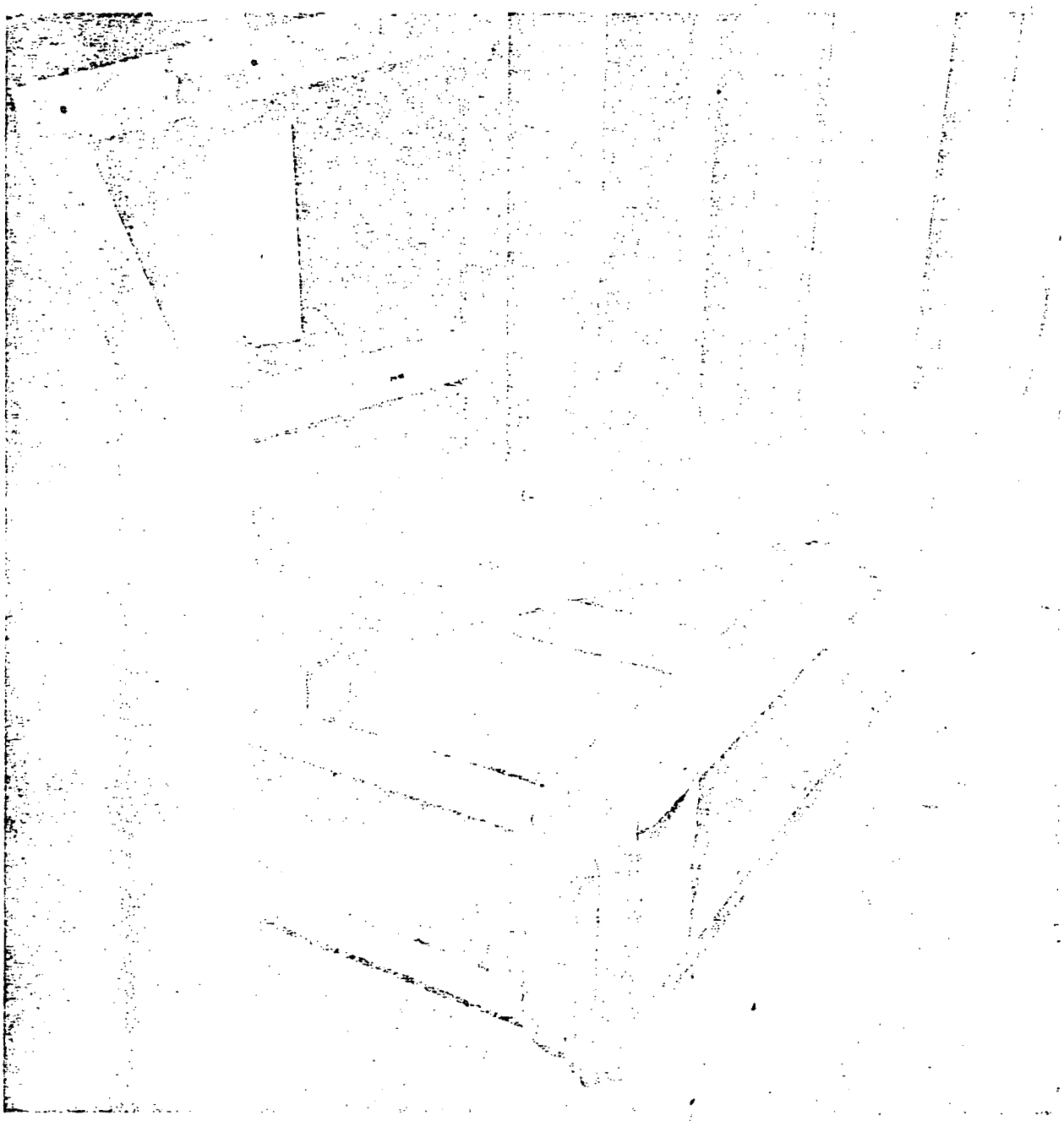
PHOTOGRAPH 4

SEISMIC TEST SETUP - Z-Y BIAXIAL PLANE



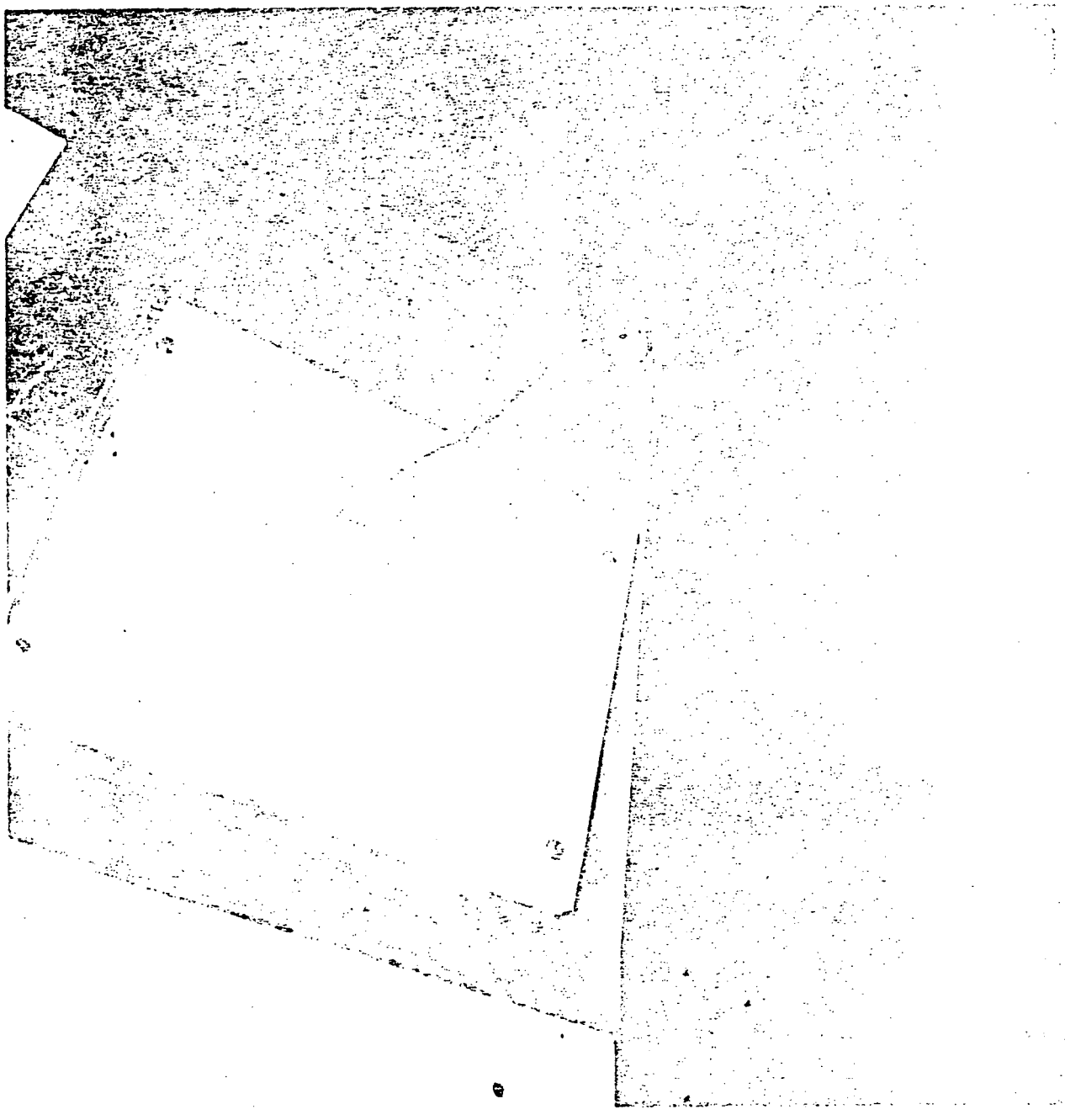
PHOTOGRAPH 5

FULL PANEL VIEW



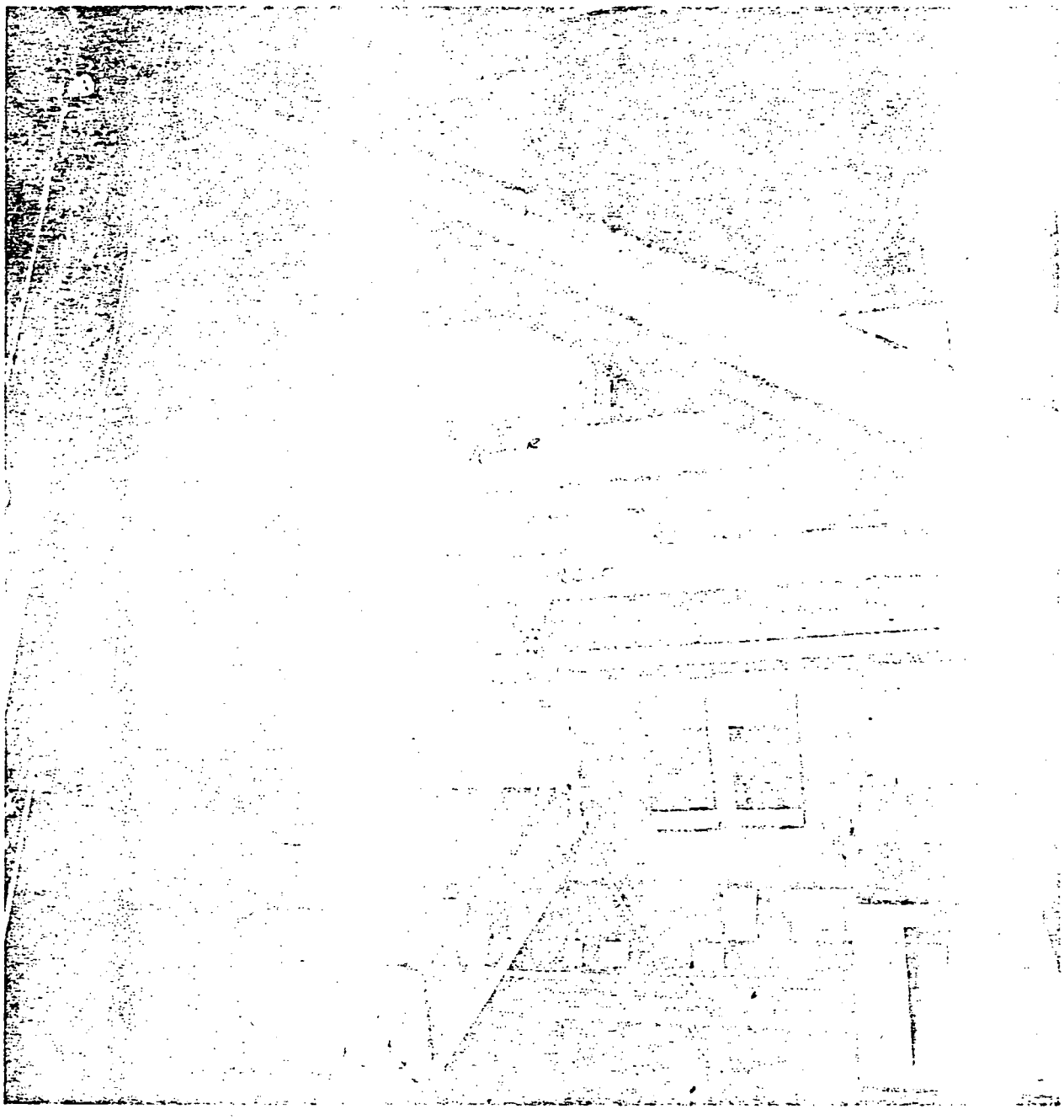
PHOTOGRAPH 6

TYPICAL END SUPPORT
(X-Y Biaxial Plane Only)



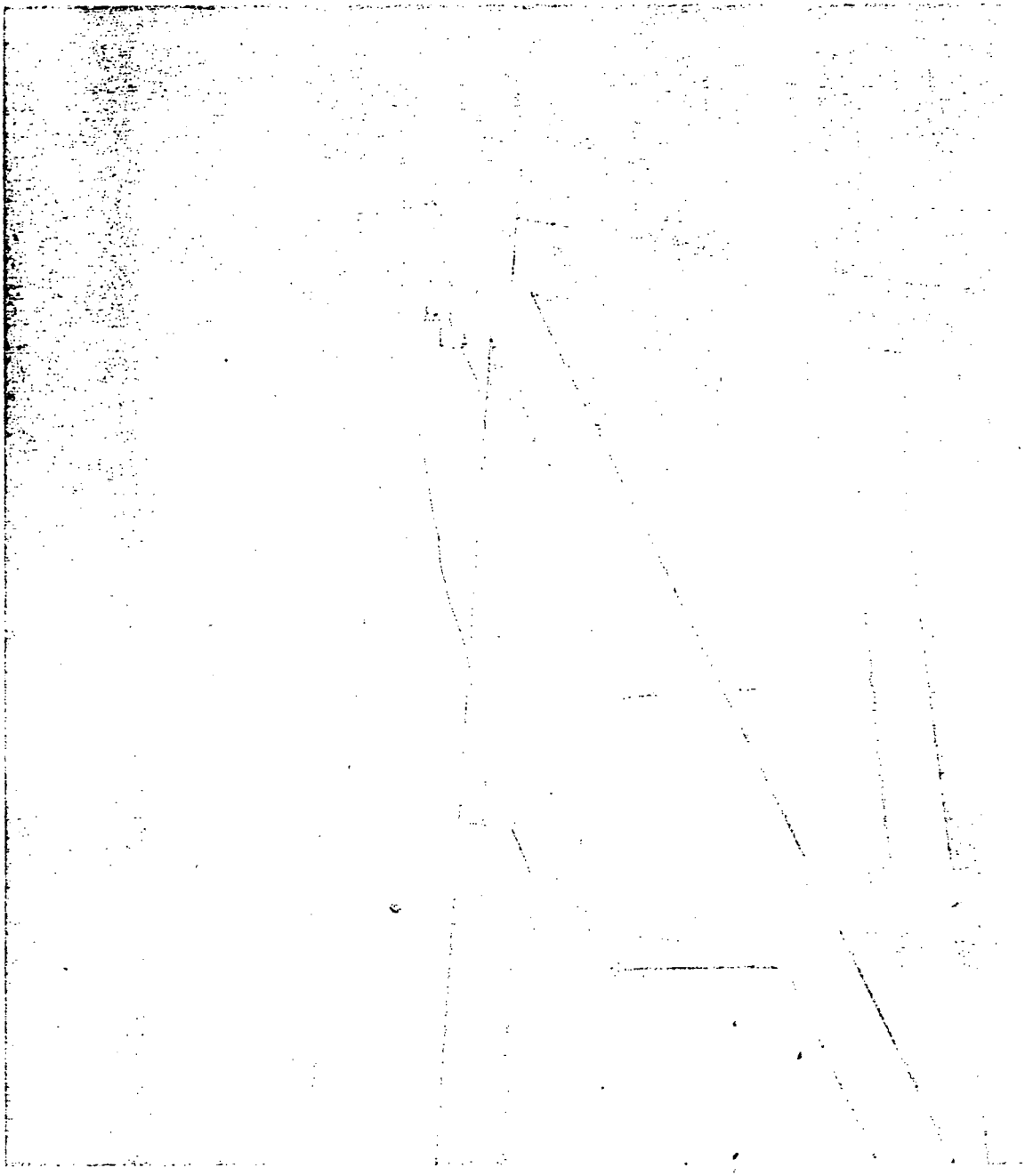
PHOTOGRAPH 7

ACCELEROMETER LOCATION



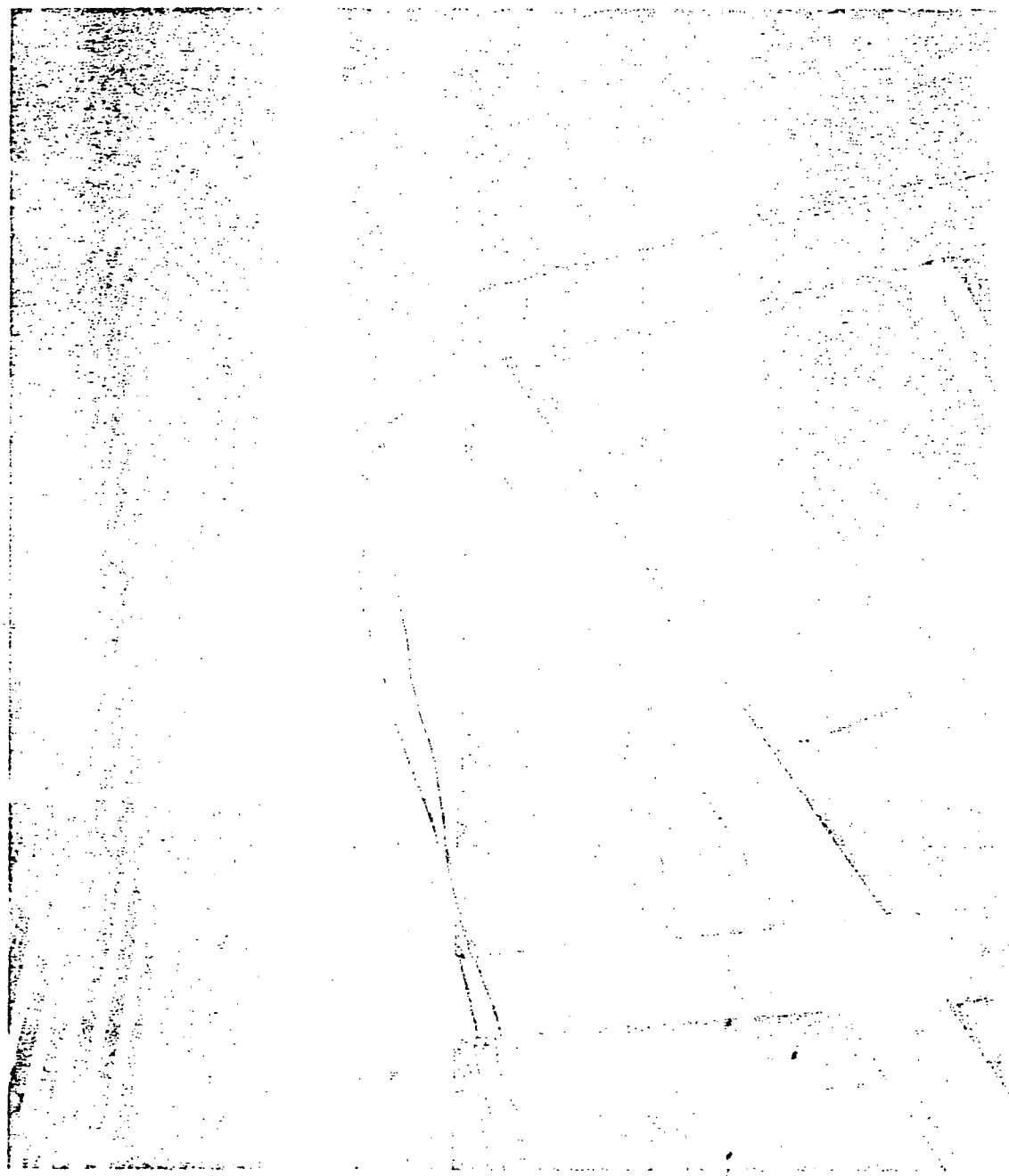
PHOTOGRAPH 8

ACCELEROMETER LOCATION
AND DUMMY INSTRUMENT DETAIL



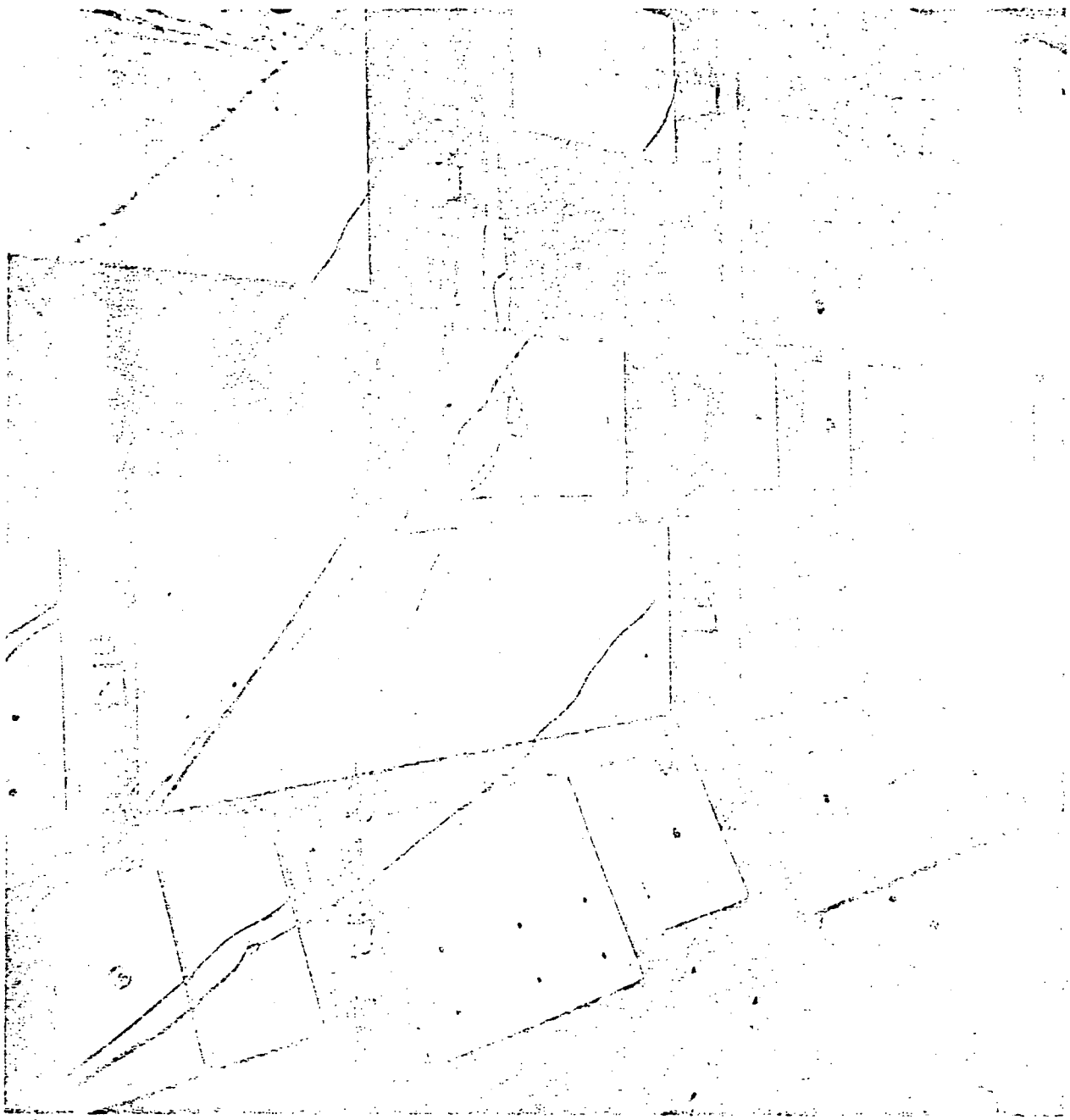
PHOTOGRAPH 9

ACCUMULATOR LOCATION
AND TYPICAL GAS LOCK LOADING DOG



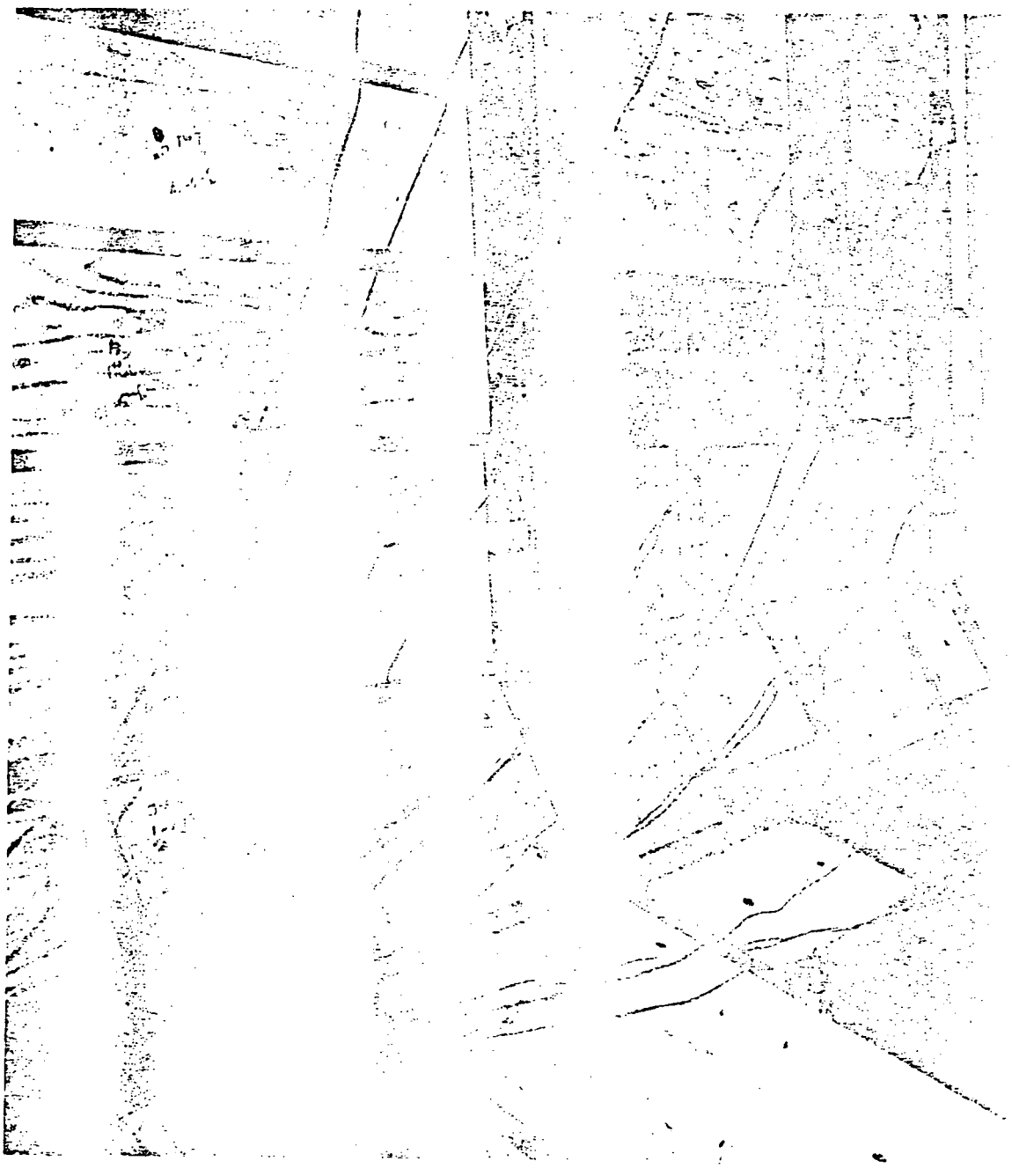
PHOTOGRAPH 10

ACCELEROGRAPH LOCATION



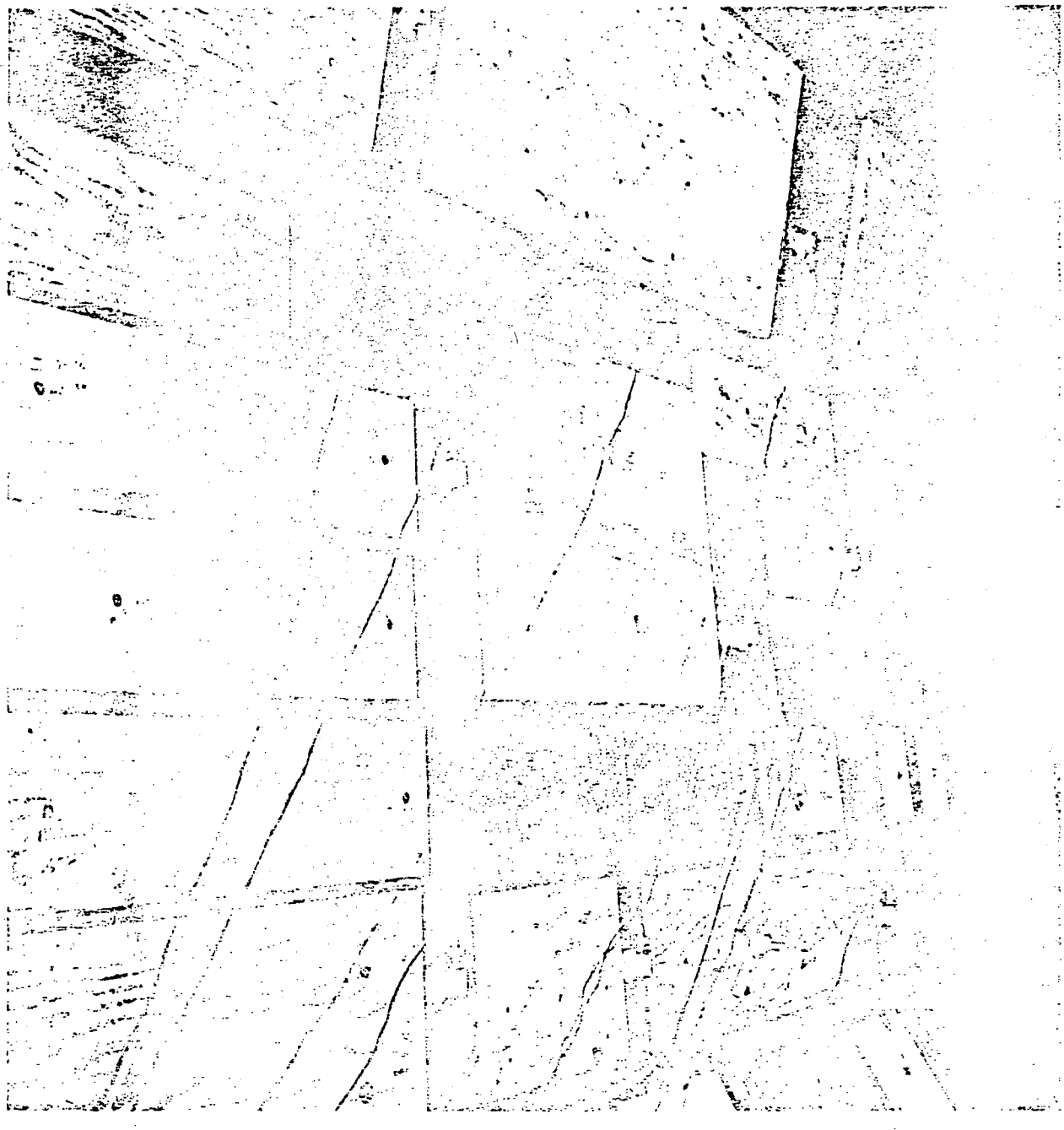
PHOTOGRAPH 11

ACCELEROMETER AND STRAIN GAGE LOCATIONS



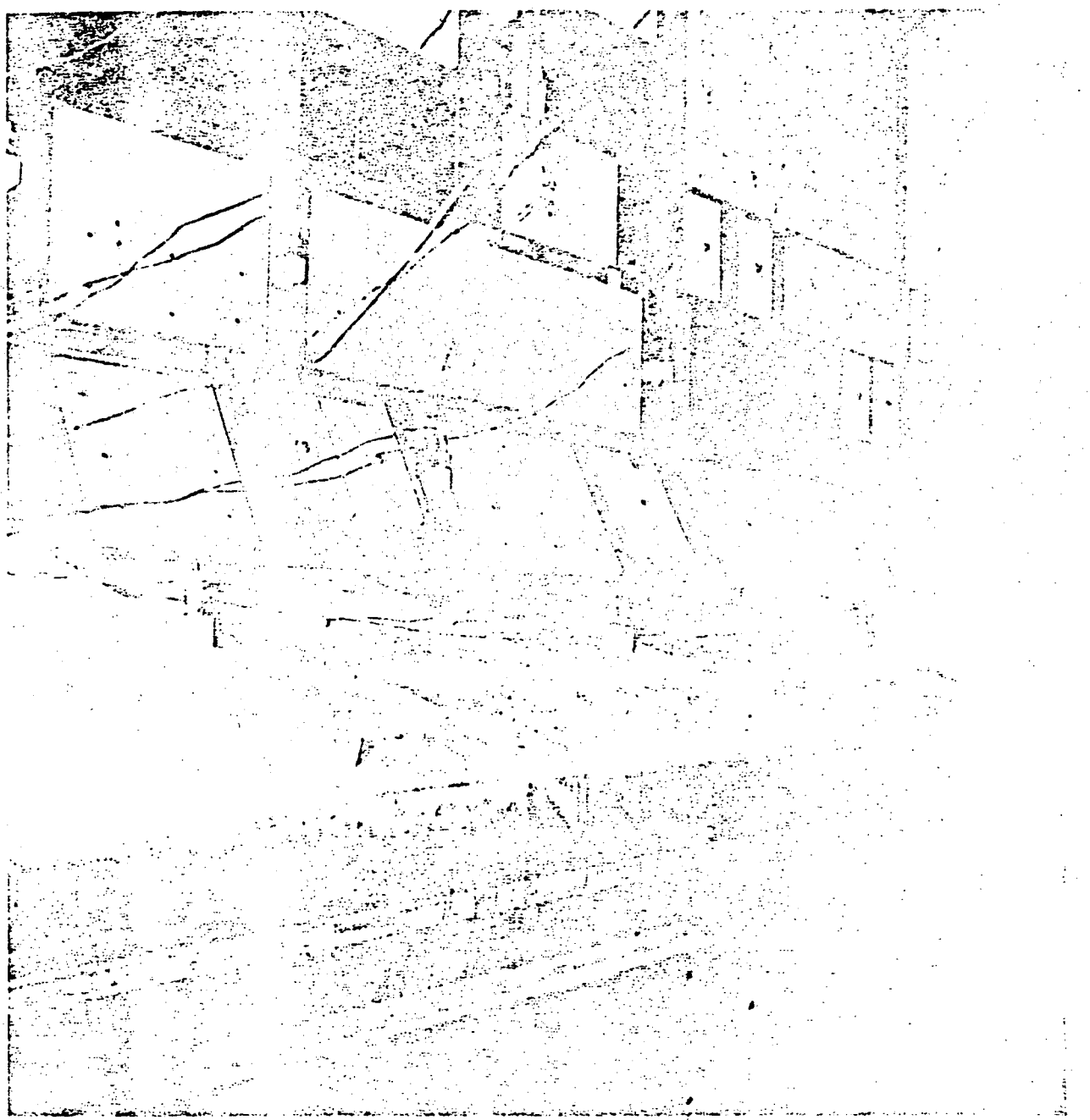
PHOTOGRAPH 12

ACCELEROMETER LOCATIONS



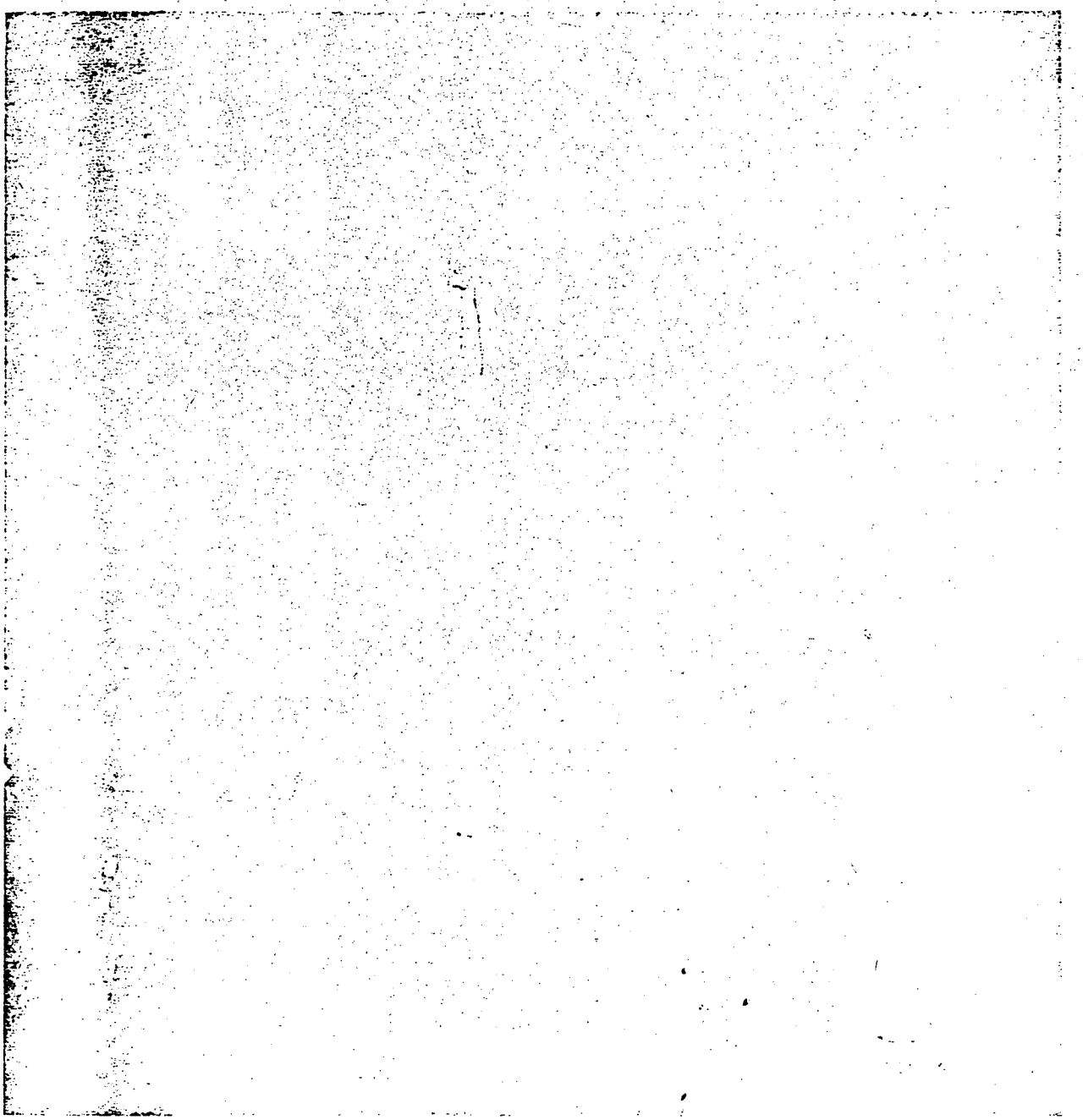
PHOTOGRAPH 13

ACCELEROMETER LOCATIONS



PHOTOGRAPH 14

ACCELEROMETER LOCATIONS



PHOTOGRAPH 15

ACCELEROMETER LOCATIONS

TEST REPORT

REPORT NO. 54498
OUR JOB NO. ND 54498
YOUR P. O. NO. 7651
CONTRACT ---

5 - Page Addendum

DATE 29 June 1976

WYLE LABORATORIES / Norco, California . 737-0971 , 689-2101 . TWX 910-332-1234 . Cable WYLAB

JELCO, Inc.
P. O. Box 2248
Pomona, California 91766

ADDENDUM I

1.0 REFERENCES

1.1 Jelco, Inc. Purchase Order No. 7651, dated 15 March 1976.

1.2 Wyle Laboratories Test Report No. 7651, dated 31 March 1976.

2.0 PURPOSE

The purpose of this addendum is to incorporate four pages of [illegible] data sheets inadvertently omitted from Reference 1.2. These data sheets furnish test information for resonance search and sc[illegible] random with sine beat tests on Shipping Section No. 7.

REGISTERED PROFESSIONAL ENGINEER GEORGE D. SHIPWAY No. 12157 MECHANICAL STATE OF CALIFORNIA

STATE OF CALIFORNIA }
COUNTY OF RIVERSIDE } ss.

Ray C. Myrick, being duly sworn, deposes and says: That the information contained in this report is the result of complete and carefully conducted tests and is to the best of his knowledge true and correct in all respects.

Ray C. Myrick

SUBSCRIBED and sworn to before me this 29th day of June, 19 76

Catherine C. Kelty
Notary Public in and for the County of Riverside, State of California

My Commission Expires 14 July, 19 79

OFFICIAL SEAL
CATHERINE C. KELTY
NOTARY PUBLIC - CALIFORNIA

130

DEPARTMENT ELECTRONICS

DEPT. MGR. James J. Anderson

TEST ENGINEER W. K. Franz

Registered Professional Engineer George D. Shipway

DCAS-QAR VERIFICATION

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