

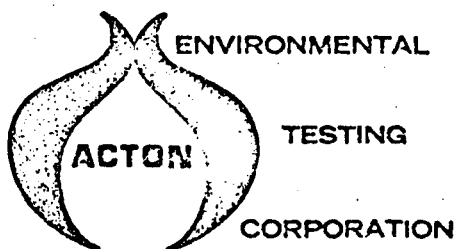
APPROVED 10/30/73
DR

Test Report No. 10348-5

No. of Pages 7

Report of Test on

SEISMIC TESTING
of
MILLIVOLT TRANSMITTERS, TYPE 550
for
BAILEY METER COMPANY
under
PURCHASE ORDER NO. 198-W6-89B-705



Date September 26, 1973

	Prepared	Checked	Approved
By	W. Schreiner	M. Casaubon	M. L. Tolf
Signed	<i>W. Schreiner</i>	<i>M. Casaubon</i>	<i>M. L. Tolf</i>
Date	<i>10/9/73</i>	<i>10/9/73</i>	<i>10/10/73</i>

MLT:WJS/hmf

7908080573

Administrative Data

1.0 Purpose of Test: Subject the below listed items to the seismic test as specified in Tennessee Valley Authority Specification No. 3-92784, Appendix C.

2.0 Manufacturer: Bailey Meter Company

3.0 Manufacturer's Type or Model No: Millivolt Transmitters
Type 550

4.0 Drawing, Specification or Exhibit: Tennessee Valley Authority
Specification No. 3-92784

5.0 Quantity of Items Tested: Two (2) of the above type
S/Ns 144316300 & 144316295

6.0 Security Classification of Items:
NONE

7.0 Date Test Completed:
September 13, 1973

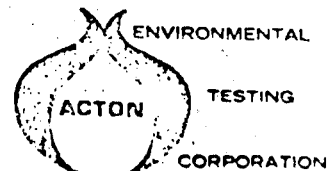
8.0 Test Conducted By: M. Casaubon/D. McLaughlin/C. Pilotte

9.0 Disposition of Specimens: Returned to Bailey Meter Company

10.0 Abstract: Refer to RESULT section herein.

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1.0 REQUIREMENTS

The test samples shall be subjected to the seismic test as specified in Tennessee Valley Authority Specification No. 3-92784, Appendix C.

2.0 PROCEDURES

2.1 OPERATION

During the seismic test performed on these samples, operation was performed by applying a 30 ma input and monitoring the outputs with a brush recorder.

2.2 MOUNTING

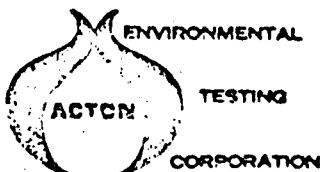
The test samples were mounted by their normal mounting means to a test rack, modified for seismic conditions, which in turn was mounted to the moveable arm of an AETC Seismic Vibration System. Throughout the vibration exposure, the test samples were mounted in their normal mounting attitude.

The Millivolt Transmitters were placed in slots 1 and 3 for this test. During this test, slots 4 and 6 were loaded with two (2) Proportional Amplifiers, Type 563.

2.3 ACCELEROMETER PLACEMENT

A control accelerometer was mounted on the mounting plate in close proximity to one mounting point of the rack. An additional accelerometer was mounted in the axis of vibration near the bottom of each Millivolt Transmitter to monitor for resonant frequencies. The outputs of the accelerometers were recorded on visicorder.

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2.4 MONITORING

During the seismic test, the test samples were monitored for any changes in output on the brush recorder.

2.5 VIBRATION TEST

VERTICAL AXIS

A resonant survey was performed on the test samples over the frequency range of from 1 to 35 Hz and return to 1 Hz at a sweep rate of 1 octave/minute. The input "G" level to the vibration table was 0.5g's.

Two (2) of the above sweeps were performed.

Resonant frequencies were detected at 8, 24, 28 and 35 Hz. The test samples were then sine beat tested at 2.5, 3.5, 8, 12, 19, 25, 26, 28, 29, 30, 30.5, 32 and 35 Hz at an input level of 2.0g's.

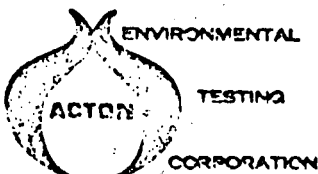
The number of beats at each test frequency was 10 and the number of test frequencies cycled per beat was 10. The time between beats was of sufficient duration to preclude significant superposition of motion.

NOTE: THE SINE BEAT TESTS WERE PERFORMED AT THE RESONANT FREQUENCIES OF THE TEST ITEMS MOUNTED IN THE RACK AND ALSO AT THE RESONANT FREQUENCIES IN THIS AXIS OF THE SINGLE BAY AND FOUR (4) BAY CABINETS AS REPORTED IN AETC REPORTS No. 10348 and 10348-1.

SIDE-TO-SIDE AXIS

A resonant survey was performed on the test samples over the frequency range of from 1 to 35 Hz and return to 1 Hz at a sweep rate of 1 octave/minute. The input "G" level to the vibration table was 0.5g's.

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Two (2) of the above sweeps were performed.

Resonant frequencies were detected at 20, 27 and 32 Hz. The test samples were then sine beat tested at 5, 10, 11, 12, 14.5, 15.5, 20, 22, 25, 27, 30, 31, 32.5 and 35 Hz at an input level of 3.0g's.

The number of beats at each test frequency was 10 and the number of test frequencies cycled per beat was 10. The time between beats was of sufficient duration to preclude significant superposition of motion.

NOTE: THE SINE BEAT TESTS WERE PERFORMED AT THE RESONANT FREQUENCIES OF THE TEST ITEMS MOUNTED IN THE RACK AND ALSO AT THE RESONANT FREQUENCIES IN THIS AXIS OF THE SINGLE BAY AND FOUR (4) BAY CABINETS AS REPORTED IN AETC REPORTS No. 10348 and 10348-1.

FRONT-TO-BACK AXIS

A resonant survey was performed on the test samples over the frequency range of from 1 to 35 Hz and return to 1 Hz at a sweep rate of 1 octave/minute. The input "G" level to the vibration table was 0.5g's.

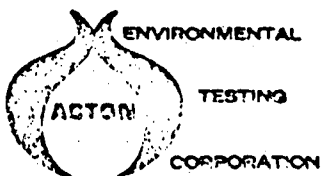
Two (2) of the above sweeps were performed.

Resonant frequencies were detected at 4.5, 27 and 32 Hz. The test samples were then sine beat tested at 4.5, 6, 9, 9.5, 14.5, 18, 20, 27, 32 & 35 Hz. The input amplitude at all frequencies was 3.0g's.

The number of beats at each test frequency was 10 and the number of test frequencies cycled per beat was 10. The time between beats was of sufficient duration to preclude significant superposition of motion.

NOTE: THE SINE BEAT TESTS WERE PERFORMED AT THE RESONANT FREQUENCIES OF THE TEST ITEMS MOUNTED IN THE RACK AND ALSO AT THE RESONANT FREQUENCIES IN THIS AXIS OF THE SINGLE BAY

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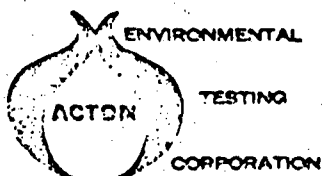


AND FOUR (4) BAY CABINETS AS REPORTED IN AETC REPORTS
NO. 10348 and 10348-1.

3.0 RESULTS

There was no evidence of any physical damage as a result
of these tests. There was no evidence of any output
shift on the brush recorder.

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TEST EQUIPMENT LIST

NAME	MFGR.	MODEL	SER. NO.	RANGE	ACCURACY	INV.#	CAL. FRE
Accelerometer	MBE	305	150613	2 Hz - 8 KHz			
"	B&KI	4335	361763	"	+2%	AC352	3 month
"	MBE	305	185719	"	"	AC353	" "
"	"	"	163291	"	"	AC350	" "
"	B&KI	4335	354735	"	"	AC351	" "
"	"	"	135360	"	"	AC355	" "
"	"	"	362084	"	"	AC357	" "
"	"	"	362113	"	"	AC372	" "
"	ENDEVCO	2226C	VM49	2 Hz - 6 KHz	"	AC373	" "
"	MBE	305	185768	2 Hz - 8 KHz	+5%	AC319	" "
"	B&KI	4335	362079	"	+2%	AC348	" "
"	"	"	320106	2 Hz - 6 KHz	"	AC370	" "
"	ENDEVCO	2221E	VK95	2 Hz - 10 KHz	"	AC333	" "
"	"	"	XM74	"	+2.5%	AC360	" "
"	"	"	XM77	"	"	AC361	" "
"	"	"	XM78	"	"	AC362	" "
"	"	"	XM80	"	"	AC363	" "
"	"	"	XM84	"	"	AC365	" "
"	"	"	XM85	"	"	AC366	" "
"	"	"	XM97	"	"	AC367	" "
"	"	"	XM99	"	"	AC368	" "
Oscillator	HP	403A		10 Hz - 1 MHz, 0-300V	"	AC369	" "
Temp Oscillator	SDY	SD-104-5	21A	0.005 Hz - 50 KHz	+3%	KV322	" "
					+1%	SG315	" "

TEST EQUIPMENT LIST (continued)

NAME	MFGR.	MODEL	SER.NO.	RANGE	ACCURACY	INV.#	CAL.FRE
Low Freq. Gen.	HP	202B	397	0.01 Hz - 1 KHz	+5%	SG319	1 mo.
Tone Burst Gen.	GRC	1396	1052	dc - 2 MHz	N/A	SG326	2 mos.
Scope, Storage	Tektronix	564	9027	DC - 10 MHz	+3%	OS311	3 months
Elec. Filter Dual	SKL	302	498	20 Hz - 200 KHz	+5%	AM328	6 months
Recorder	Honeywell	906C	99078	DC - 2 KHz	+1 db	RE335	3 months
Visi-recorder	Honeywell	906C2	99334	"	"	RE311	" "
Temp. Recorder	Bristol	64A590	64A-12PG0590	-100°C - +150°C	+1°C	RE322	" "
Pen Ink Rec.	Brush	MK II	683	DC - 100 Hz	+2%	RE307	" "
Recorder	"	"	---	"	"	RE401	" "
Tooling Mach.	CAV						
Chatter Monitor	Matrix	202D	310	Detection: 10 - 100usec	N/A	PE334	" "
False Contact Monitor	"	"	"	"	+2%	PE370	6 months
Charge Amp.	UD	D11MGSV	503	1-1000G f=2 Hz - 20 KHz	"	PE371	" "
Power Supply	Sorenson	40-2	105	0-40 VDC 0-2 Amp.	+2%	PE356	" "
"	"	QRC40-4	158	0-40VDC 0-4 Amp	.005%	PD321	" "
Amp Meter	Weston	81	596235	10/3/100/300 MA 1/3/10 Amp.	"	PD342	" "
Ammeter DC	"	"	"	" " "	+1%	ML320	" "
Hydraulic Actuator	MTS	20463		DC - 300 Hz 25,000 force lbs., 25" DA max.	2% Freq. 5% Ampl.	ML339	" "
Controller	"	443.115		DC - 2000 Hz	1%	SG315	3 months

V. M. Jiles,
 D. E. Ridelov, CMX