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SANDIA SYSTEMATIC DECLASSIFICATION REVIEW

1st Review Date 10/27/98
Authority ADC ADD
Name R B Craner
2nd Review Date not req'd
Authority ADD
Name per DOE/OD memo

Determination (Circle Numbers)
1 Classification Retained
2 Classification Changed to U
3 Contains No DOE Classified Information
4 Coordinate With
5 Contains UCAI? NC
6 Comments
OK for Comment

JUN 10 1953
Case No. 433
Ref. Symbol: 1611
Project No. ET-1106
Completed 2/2/53

SANDIA SYSTEMATIC DECLASSIFICATION DOWNGRADING OR DECLASSIFICATION STAMP
CLASSIFICATION CHANGED TO U
PERSON CHANGING MARKING & DATE 12/14/98
PERSON VERIFYING MARKING & DATE W. C. Jorge 12/16/98
AUTHORITY RBCraner
RECORD ID 99SN0298
DATED 10/27/98

MR. P. E. JOCKLE - 1281 TCG-NNTH

Re: Vibration Test of H-43 Container loaded with the MC-232 Cartridge

Object of Test

The object of this test was to vibrate the loaded H-43 container from 10 to 60 cps and to determine vibration amplification factors, with respect to the container base, at various locations. The tests were to be performed with and without the X-unit to simulate two different shipping conditions. The H-43 had not previously been used as a shipping and storage container for the MC-232. This container was a production model manufactured by the Precision Sheet Metal Company. No modifications were made.

Authorization for Test

This test was requested by Division 1281 in a Work Order Authorization dated November 3, 1952. Mr. D. E. Kosanda was the consultant.

Summary of Results

With the exception of damage to the rubber in the MC-73 vibration mounts, the performance of the container and cartridge was satisfactory throughout the test. Amplification factors were lower with the X-unit removed than with the X-unit mounted in the cartridge.

Procedure

A. Test Conditions:

Natural frequencies of the cartridge mounted in the container were determined by shock-exciting the container and measuring accelerations at the cartridge mounting ring.

The loaded container was placed on plywood board bolted to the table and tied down by means of a chain passed through the handling hole in the cover and anchored to the table, using turnbuckles for adjustment. The chain was transverse to the direction of vibration and the base was aligned so that the longitudinal axis of the container feet were in the direction of vibration. The container was vibrated in two mutually perpendicular planes in accordance with

CDI No
ACCOUNTABILITY CARD BB
FILE No. H-43 3-2

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SCS-5, Paragraph 2.1.4.3 (10-60-10 cps in 10 minutes at a double amplitude of 0.060 inch for 45 minutes in each plane). The direction of vibration in Plane I was along the longitudinal axis of the MC-73 (transverse axis of the cartridge) and in Plane II, it was transverse to the longitudinal axis of the MC-73 (transverse axis of the cartridge). To change planes, only the cartridge was turned 90 degrees, the container cover and base remaining fixed with respect to the direction of vibration. Accelerations were recorded at 5-cps intervals at the following locations:

A_1 - shake table
A_2 - container base
A_3 - cartridge mounting ring
A_4 - cartridge frame behind inverters
A_5 - battery mounting plate behind bumper ring
A_6 - top of container

B. Equipment Used:

Sonntag shake table No. 2
Sandia 6-channel vibration analyzer, Model 1
Statham accelerometer, Model A5A-100-300, Serial No. 622, range ± 100 g
Five Statham accelerometers, Model A5A-50-300, Serial Nos. 650, 653, 654, 656, and 657, range ± 50 g

Results

Natural frequencies of the cartridge on the vibration mounts were 13 to 25 cps and 25 to 30 cps for shock excitation along a longitudinal and a transverse plane, respectively, with the X-unit in place. With the X-unit removed, natural frequencies were approximately 15 and 40 cps for the corresponding planes.

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Inspection after 2-1/2 hours of vibration showed that the rubber in the MC-73 vibration mounts was damaged and that one of the screws fastening the bumper ring to the cartridge had come out.

Vibration amplification factors are shown in Figs. 1 through 4.

R. S. Jacobson

Test Conducted by R. S. JACOBSON - 1611

R. L. Wagar

Approved by R. L. WAGAR - 1611

RSJ:1611:bh

Encls: Figs. 1 through 4

Copy to:
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G. M. Byrne, 1921-3 [redacted]
J. M. Ralls, 1521-4 Attn: 1500 Drawing File

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FIG. 1 – H-43 CONTAINER VIBRATION TEST IN PLANE I (WITH X-UNIT IN PLACE) -- AMPLIFICATION FACTORS AND ACCELERATION OF CONTAINER BASE

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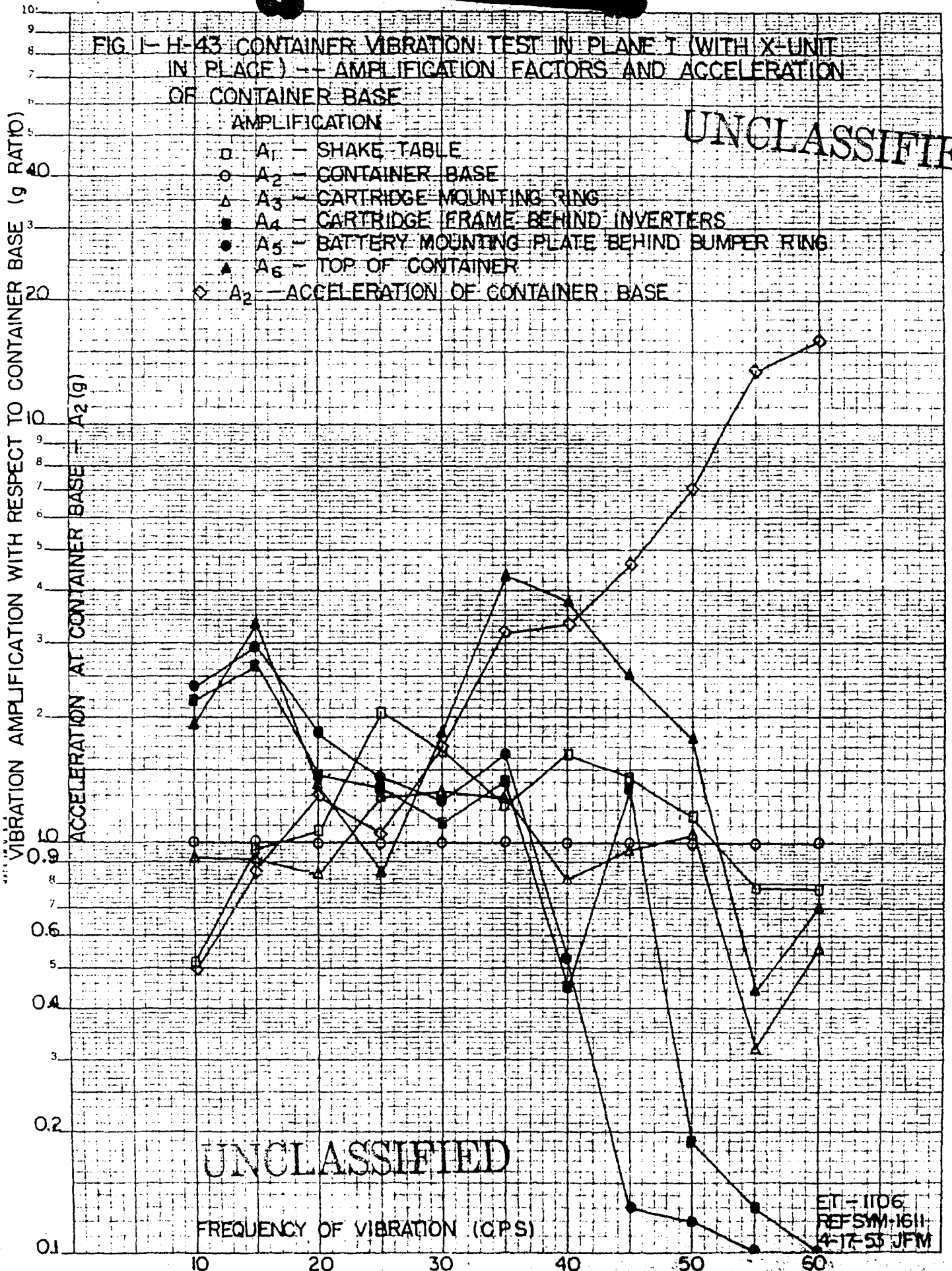

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FIG. 2 – H-43 CONTAINER VIBRATION TEST IN PLANE II (WITH X-UNIT IN PLACE) – – AMPLIFICATION FACTORS AND ACCELERATION OF CONTAINER BASE

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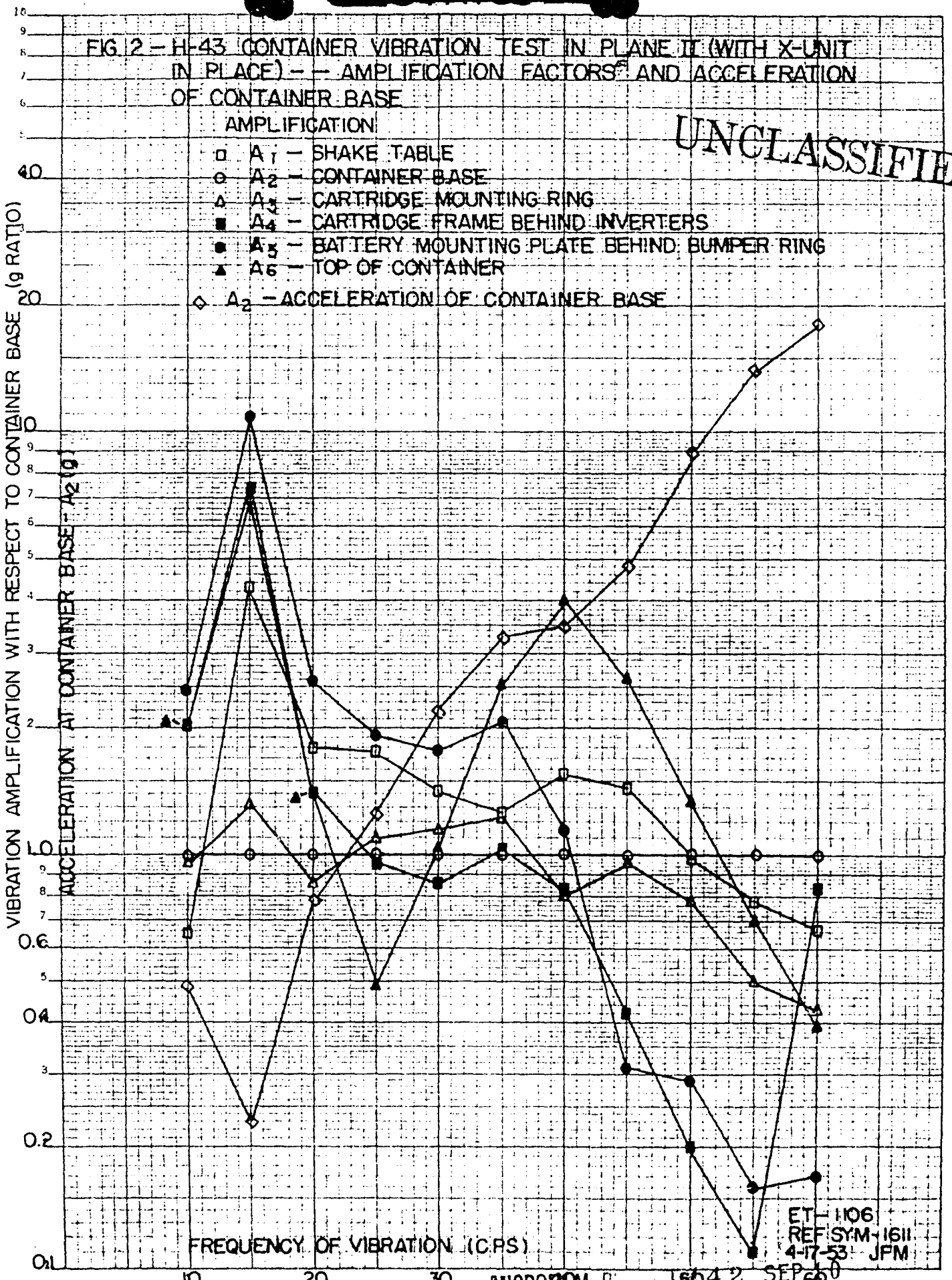

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FIG. 3 – HI-43 CONTAINER VIBRATION TEST IN PLANE I (WITH X-UNIT REMOVED) AMPLIFICATION FACTORS AND ACCELERATION OF CONTAINER BASE

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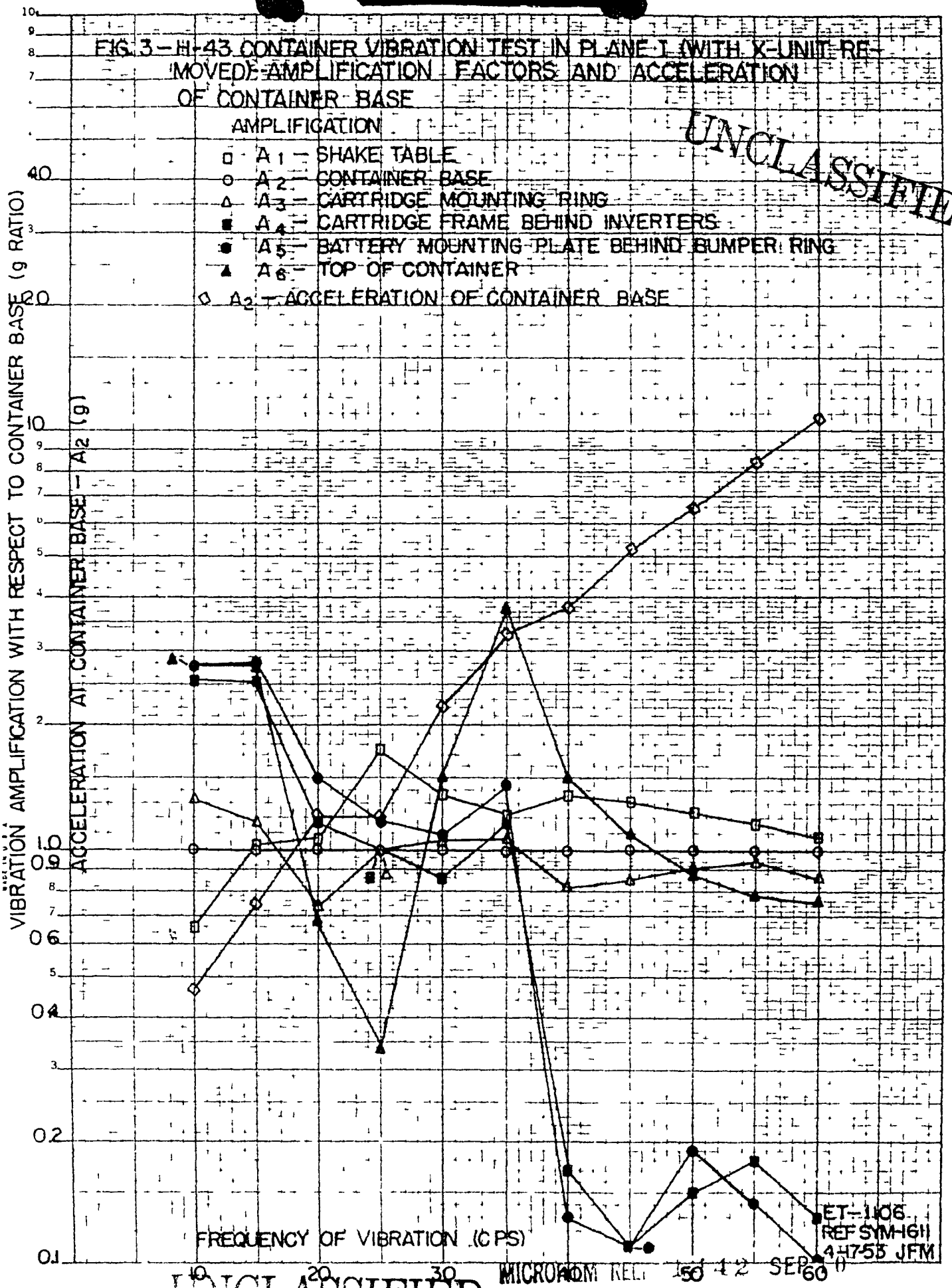

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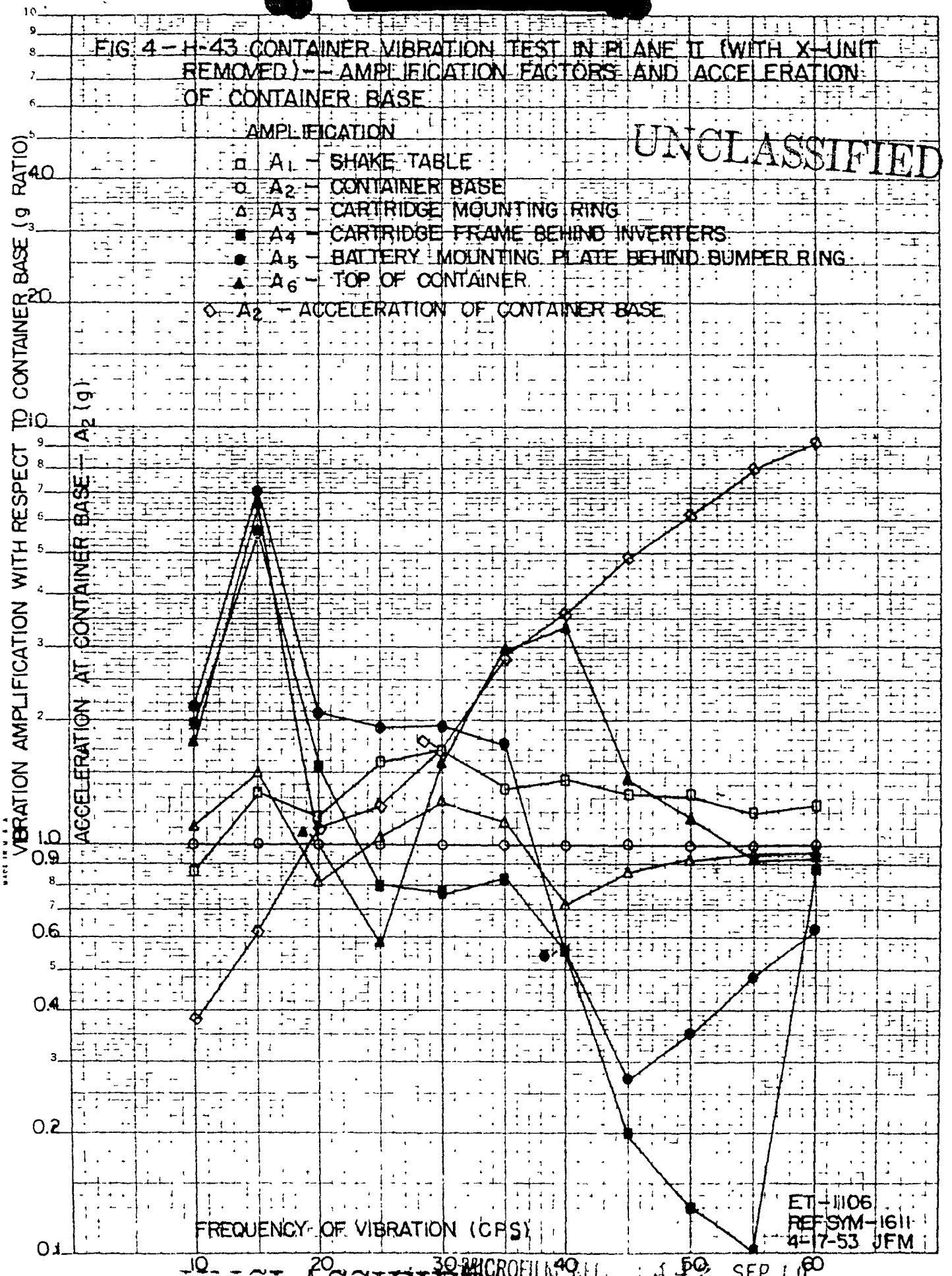

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