UNCLASSIFIED [redacted] 0103

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
1st Review Date: 7/6/98
Authority: ADC ADD
Name: Craner
2nd Review Date: 7/13/98
Authority: ADD
Name: W Layne
Determination (Circle Number):
1. Classification Retained
2. Classification Changed to: UNCL
3. Contains No DOE Classified Information
4. Coordinate With:
5. Contains UCAI?
6. Comments: Declassify

MAY 2 1 1955
Case No. 635.00
Ref. Symbol: 1611
Project No. ET-1945J
Completed 4/6/55

TO: DISTRIBUTION

Re: TX-15 Interim Report - Resonant Frequency Survey of the MC-562 Fin Antenna Assembly

PROGRAM

CATEGORY

ORG.

DATE

Object of Test

This test was performed to determine the resonant frequency of the MC-562 Fin Antenna Assembly when mounted to the TX-15 aft section. In order to account for certain drop-test findings, it was suggested that shock conditions during drop might tend to excite the resonant frequency of the fins, thus causing them to vibrate at what might be a critical frequency. Section 1241-2 supplied the aft section with aligning and cover plates and were the test consultants.

Summary of Results

A resonant frequency of the system appeared to be approximately 340 cps. Vibration tests of the MC-562, as a separate component, disclosed a resonant frequency of approximately 230 cps in one axis (Project No. ET-1852W, Ref. Symbol: 1611).

Procedure and Results

ENDEVCO crystal accelerometers were located on the fins and the afterbody, as shown in Fig. 2. Output of these accelerometers was monitored on a Tektronix oscilliscope. In an effort to excite the fins at their resonant frequency, they were struck with a rubber mallet. Examination of the various oscilliscope records showed a resonant frequency of approximately 340 cps. Since the shock excitation imparted to the system by the rubber mallet may have had a rise time far smaller than the resonant frequency of the system, another method was employed as a simple check. Fin No. II and No. III (Fig. 2) were connected with wire rope, which was tightened until both fins were slightly deflected from their normal position (the maximum load applied was approximately 100 pounds). The wire was then cut, allowing the fins to oscilate. The frequency of this oscillation was recorded. Although somewhat distorted, the fundamental frequency appeared as 340 cps. Figure 1 shows one of the records obtained by shocking the system with the mallet. In this particular test, Fin No. II was excited and the output signal from accelerometer No. 2 on Fin No. III is shown in

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
DOWNGRADING OR DECLASSIFICATION STAMP
CLASSIFICATION CHANGED TO: U
AUTHORITY: W C Layne
Emelda Selph 7/15/98
PERSON CHANGING MARKING & DATE
RECORD ID: 98SN2962
WC Layne 7/16/98
PERSON VERIFYING MARKING & DATE
DATED: 7/13/98

CDL No.
ACCOUNTABILITY CARD
File No. TX-15
X MC 562

[redacted]

UNCLASSIFIED

3-4

4

MAY 2 4 1955

Ref. Symbol: 1611
Project No. ET-1945J

TO: DISTRIBUTION -2-

Fig. 1C. The time base is shown in Fig. 1A as a 400 cps calibration signal. In another test Fin No. I was excited and the output signal from accelerometer No. 1 is shown in Fig. 1B. As an additional check, 60 cps calibration from a different source was also used during part of these tests.

Test Conducted by R. S. HOOPER - 1611-4

Approved by D. WILLIAMS - 1611-4

RSH:1611-4:xp

Enc.
Figs. 1 and 2

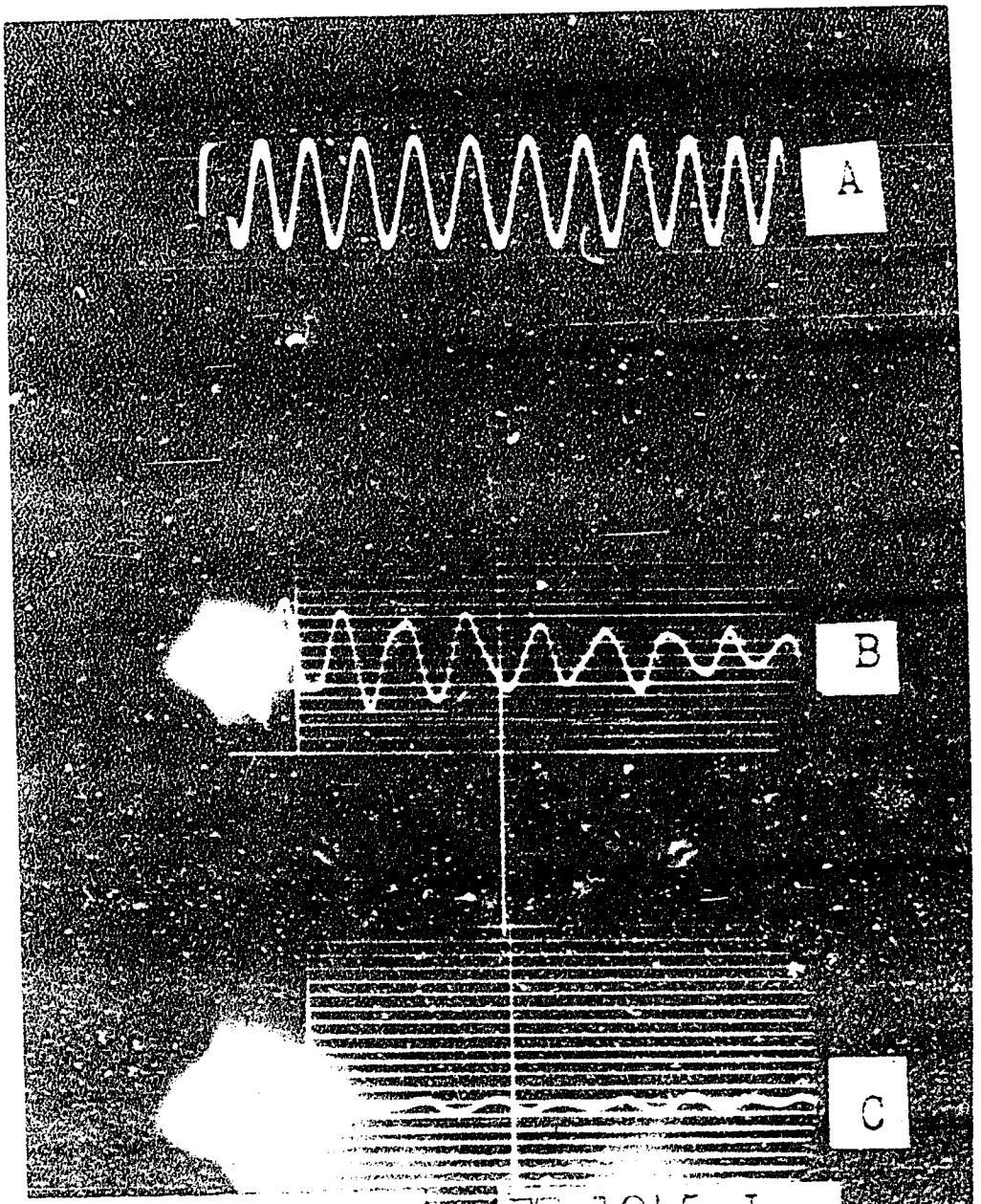
Copy to:
R. L. Brin, 1241
T. B. Morse, 1610
G. C. McDonald, 1630
J. P. Wamser, 1282
R. L. Wagar, 1611
R. O. Frantik, 5131
C. L. Gomel, 5523
R. K. Smeltzer, 1922-2 [redacted]
F. C. Hale, 1925-2, Attn: Tech. Reference File

[redacted]

#105

[redacted]

UNCLASSIFIED



ET-1945-J

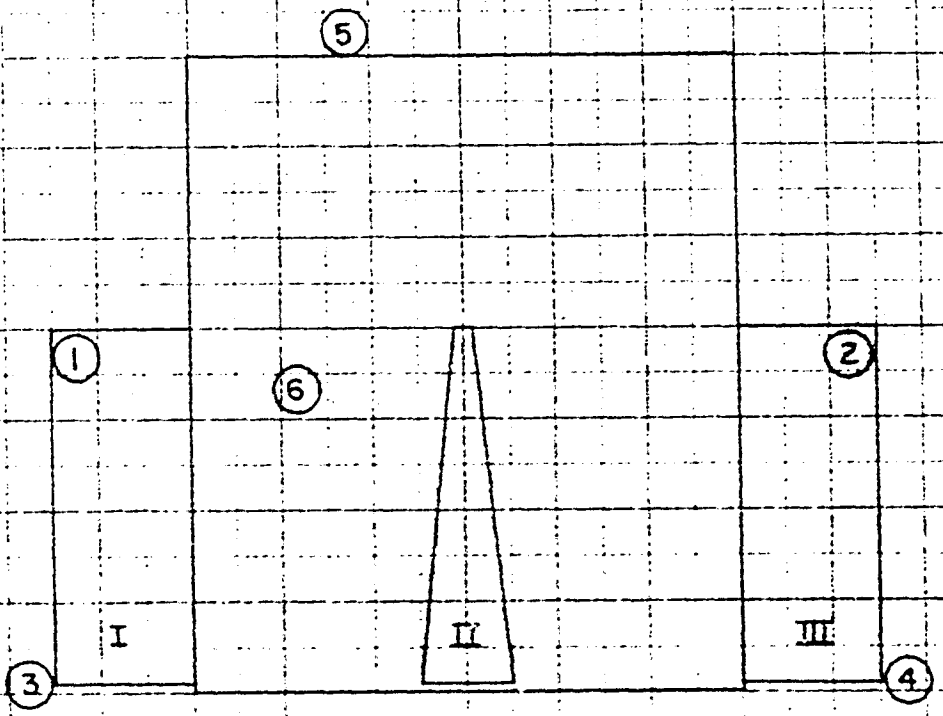
FIG. 1 Ref. Symbol: 1611

D# 59822.

UNCLASSIFIED

[redacted]

UNCLASSIFIED



UNCLASSIFIED

FIG. 2

ACCELEROMETER POSITIONS ON THE TX-15 AFT SECTIONS

ET-1945J REF SYM 1611