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SANDIA SYSTEMATIC DECLASSIFICATION REVIEW	
Review Date: <u>6/9/98</u> Authority: <u>W.C. Payne</u> Name: <u>W.C. Payne</u> Review Date: <u>6-15-98</u> Authority: <u>ADU</u> Name: <u>W.C. Payne</u>	Information (Circle Number) Classification Changed to: <u>UNCL</u> Contains No DOE Classified Information Coordinate With: Contain UCAIT? Comments: <u>releasable</u>

XW-45, 3-2
 T-16877
 13.804.15
 RS 7321/9723

MAY 3 1961

TO: DISTRIBUTION

Re: Centrifuge Test of the XW-45 FTQU-1 Warhead

Test Summary

The XW-45 FTQU-1 warhead was not damaged during this centrifuge test, and there was no indication of a malfunction of the telemetry system during the test. The records, taken on magnetic tape, were to be evaluated at Sandia-Livermore; therefore, no instrumentation results were available for this report.

The three runs made during this test consisted of 60 sec. dwells at the maximum load in each of three orientations: 100 g in the -X orientation for Run 1, 30 g in the +X orientation for Run 2, and 50 g in the -I orientation for Run 3.

Thermal batteries were successfully fired as soon as the maximum load was reached during Runs 1 and 3.

Object of Test

The object of this test was to determine whether the telemetry system, designed for use in XW-45/CAM 83B Flight Tests, could remain functional under centrifuge loadings that simulated the environments expected in CAM 83B missile.

Authorization for Test

This test was requested in a letter from W. A. Naupin, 812h, to E. H. Copeland, 7321, dated October 17, 1960. Mr. Guy Willis, 812h, was the consultant.

SEARCHED	INDEXED
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XW-45	
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 9428-1
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 MAY 4 1961
 GENERAL RECORD FILE

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW	
DOWNGRADING OR DECLASSIFICATION STAMP	
CLASSIFICATION CHANGED TO: <u>U</u>	AUTHORITY: <u>W.C. Payne</u>
PERSON CHANGING MARKING & DATE: <u>Emil da Silva 6/17/98</u>	RECORD ID: <u>98502420</u>
PERSON VERIFYING MARKING & DATE: <u>W.C. Payne 6/17/98</u>	DATED: <u>6/15/98</u>

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Setup for Test

The XW-45 FTQU-1 warhead was mounted in the centrifuge jig as shown in Fig. 1. It was mounted in the -X orientation as shown in Fig. 2 for Run 1. Run 2 was made with the warhead in the +X orientation as shown in Fig. 3. Fig. 4 shows the jig in the -Y orientation as it was mounted for Run 3.

The test equipment used during this centrifuge test included:

Berkeley Universal Counter and Timer, Model 5510, S-69144
Berkeley Digital Recorder, Model 1452, S-72144
Perkin Power Supply, Model M-1040-30, S-78614
Launch Programmer and Control, Shopmade
Ampax Tape Recorder System, Catalog No. 15000, Serial No. 393
Nema-Clarke Telemetry Receivers, Type 1671
Hydraulic Centrifuge

Telemetry instrumentation was installed by Livermore personnel. No hardware instrumentation was required for this test.

Procedure

The XW-45 FTQU-1 warhead was mounted in the centrifuge jig using the jig tail plate as shown in Fig. 1. The jig was then positioned horizontal with the jig tail plate outboard so that the nose or +X axis was in toward the center of the centrifuge as shown in Fig. 2. The instrumentation cabling was set up with the aid of D. H. Tanner, 8122.

Division 7244 personnel operated the telemetry ground station and the tape recording equipment while Mr. Tanner operated the TM controls during the runs. After the TM system checked out satisfactorily, Run 1 was begun. The load was increased to 100 g and held for 60 sec. then reduced to 0 g. One of the thermal batteries was fired as soon as the maximum load was reached. A continuous tape recording was made from before the run was started until the centrifuge stopped.

The centrifuge jig was rotated 180° so that it was horizontal, with the jig tail plate in toward the center of the centrifuge for Run 2 as shown in Fig. 3. The load was increased to 30 g, held for 60 sec., and returned to 0 g, with a continuous record of the entire run being made.

For Run 3 the jig was rotated 90° to a vertical position with the jig tail plate down as shown in Fig. 4. In this position the -Y axis was outboard. The load was increased to 50 g and held for 60 sec. before it was reduced to 0 g. The second thermal battery was fired at the maximum load and a continuous record was taken of the entire run.

The XW-45 FTQU-1 warhead and the magnetic tapes were then returned to Sandia-Livermore.

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Distribution

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Results

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The XW-45 FTQU-1 warhead was not damaged when subjected to centrifuge loads of 60 sec. duration as follows: 100 g in the -X orientation or with the tail mounting bolts in compression (Run 1), 30 g in the +X orientation or with the tail mounting bolts in tension (Run 2), and 50 g in the -Y orientation or applied perpendicular to the warhead longitudinal axis placing the tail mounting bolts in tension-shear (Run 3).

Two thermal batteries fired satisfactorily just as the maximum load was reached during Runs 1 and 3.

There was no indication of any malfunction of the telemetry system during the test.

E. J. Vavro

E. J. VAVRO - 7323-2

R. M. Workhoven

R. M. WORKHOVEN - 7323-2

J. E. Bear

7321 Project Engineer: J. E. BEAR - 7321-5

R. S. Hooper

Approved by: R. S. HOOPER - 7321-5

EJV:7323-2:dc

DISTRIBUTION:

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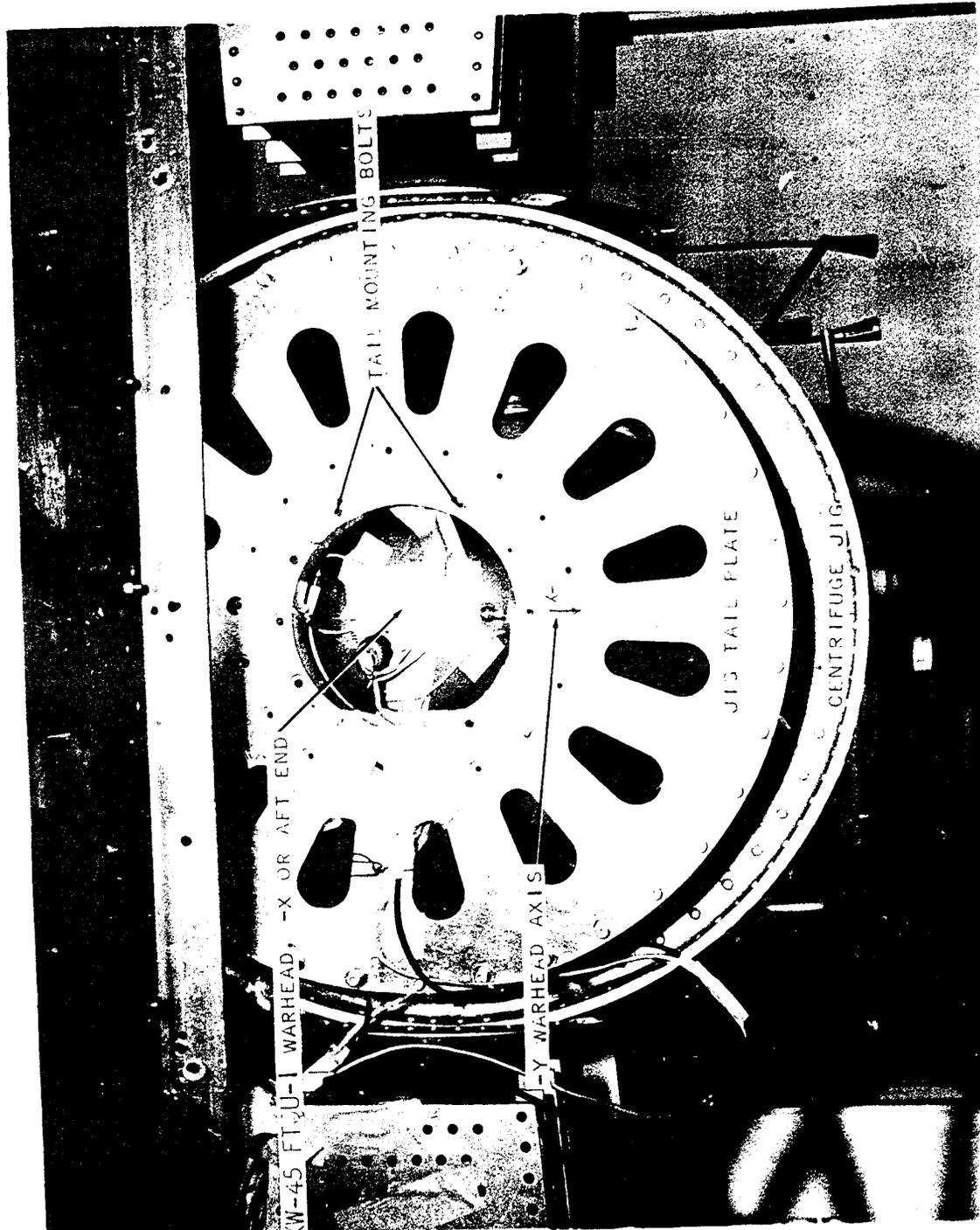


FIGURE 1 - X-45 FT-U-1 WARHEAD MOUNTED IN CENTRIFUGE JIG -- CENTRIFUGAL TEST OF THE
 X-45 FT-U-1 WARHEAD
 PROJECT NO. T-16877
 REF. SYM: 7321/9723

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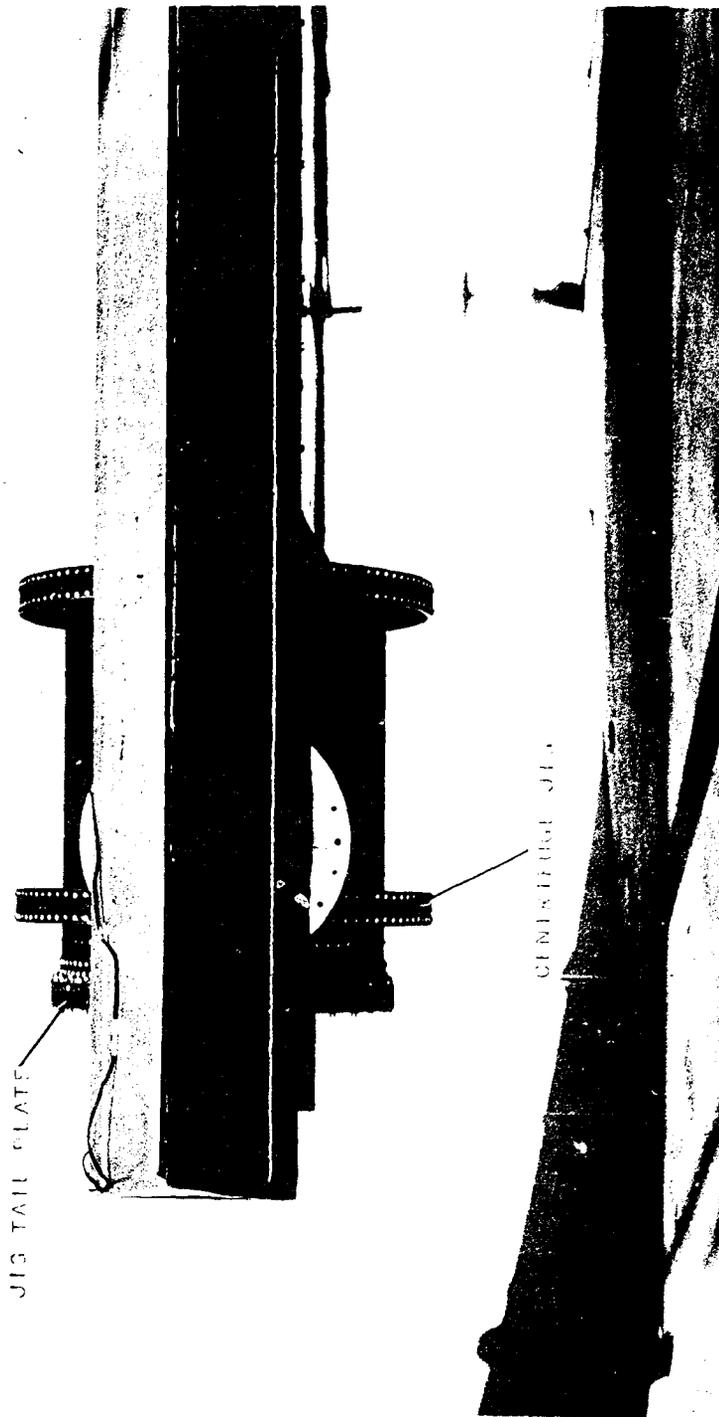


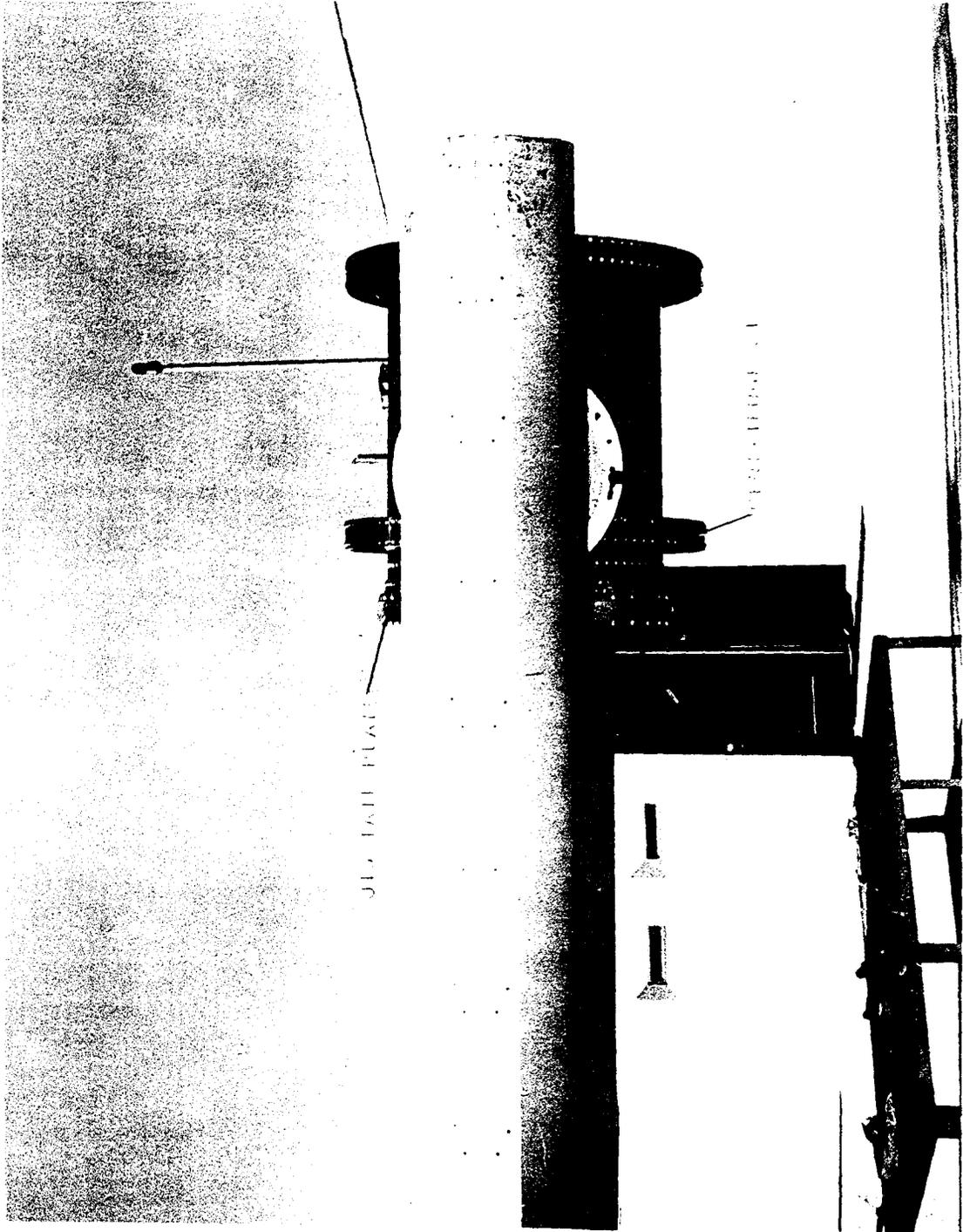
FIGURE 2 - JIG IN π -A ORIENTATION AS SETUP FOR RUN 1 -- CENTRIFUGE TEST OF THE AM-45
FTJ-1 MARKHEAD

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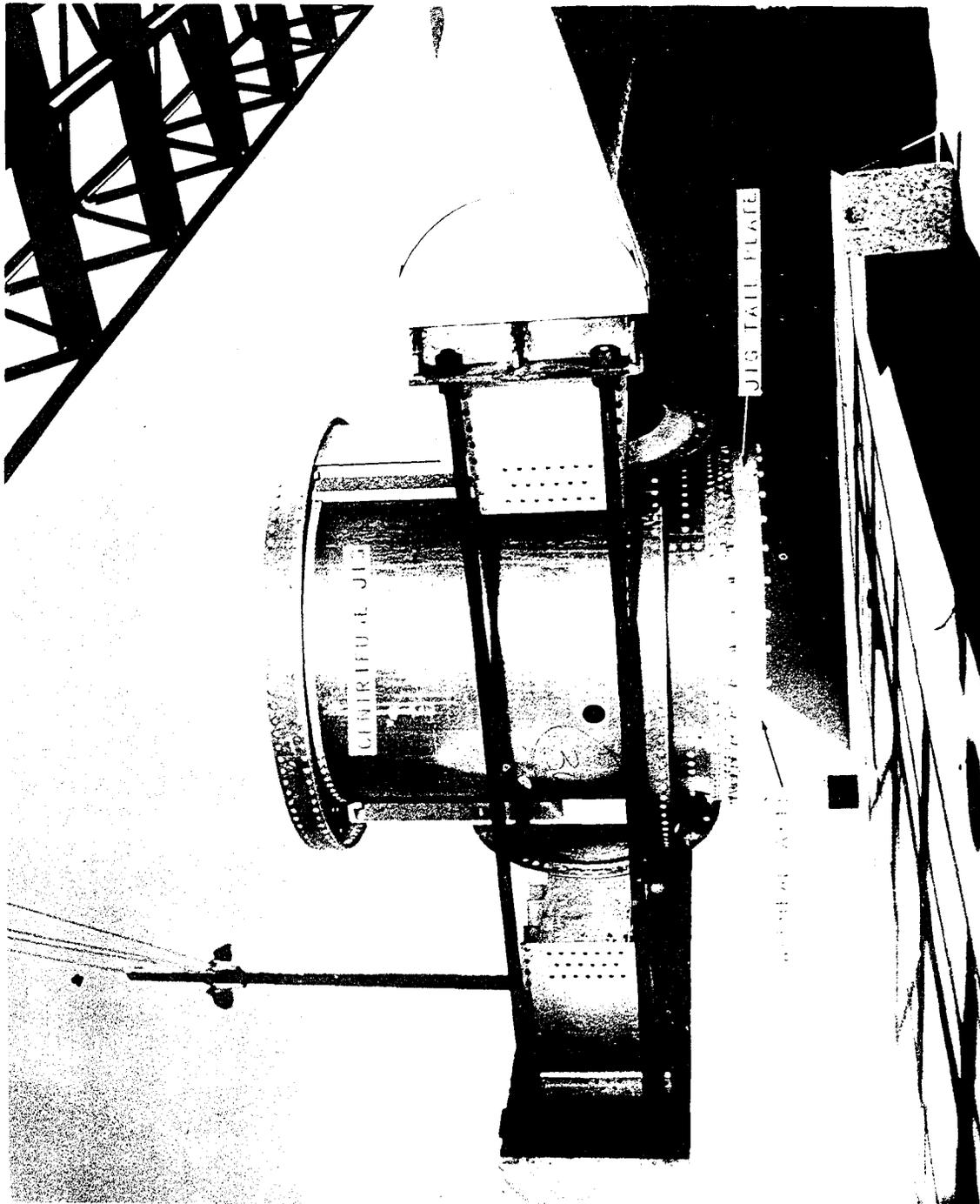


FIGURE 4 - JIG IN - BY ORIENTATION OF JIG TO RING 3 -- CENTRIFUGE TEST OF THE JIG

PLATE 1 - JIG HEAD

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