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

JAN 4 1958

Case No. 835.00
Ref. Sym: 1612 (179)
Project No. TM-260

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW DOWNGRADING OR DECLASSIFICATION STAMP	
CLASSIFICATION CHANGED TO: U	AUTHORITY: W.C. Layne
Emelda Selph 7/15/98	RECORD ID: 98SN2957
PERSON CHANGING MARKING & DATE	
W.C. Layne 7/16/98	DATED: 7/13/98
PERSON VERIFYING MARKING & DATE	

MR. R. L. BRIN - 1241

Attn: Mr. D. B. Webb - 1241-2

Re: Static Test of TX-15 Afterbody and Double Wedges

Summary of Results

The TX-15 afterbody and double wedges withstood a vertical static load of 5360 lbs. (400 percent of limit load) on each of two double wedges without showing any indication of failure.

The maximum vertical deflection on the outboard edge of the double wedge was 0.452". The maximum vertical deflection of the afterbody at a point farthest from the afterbody support was 0.144". From the lack of stresscoat cracks, it is concluded that stresses in the afterbody were less than 8000 psi.

Object of Test

The test was performed to determine the structural adequacy of the TX-15 afterbody and double wedges when subjected to static lift loads simulating fin loading conditions encountered during free fall.

Reason for Test

The test was conducted in accordance with Work Order Authorization dated November 4, 1954 from Mr. R. L. Brin, 1241 to Mr. P. H. Adams, 1612. The requester's consultant was Mr. D. B. Webb, 1241-2.

Setup for Test

Figures 1, 2, 3, and 4 show the test setup. It may be noted that the double wedge on the left side is loaded according to the diagram in Fig. 1, whereas the right double wedge, which is loaded only for the purpose of giving a symmetrical loading condition on the afterbody, has a slightly different load distribution.

The components making up the object tested are the TX-15 afterbody (Dwg. No. 121886) and two double wedges (Dwg. No. 310100). The left

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double wedge, the one with the dial indicators, Figs. 2 and 4, had been stamped No. 3 and the right fin had been stamped No. 5.

The following equipment was used for the test: Two Simplex hydraulic jacks (60 tons); two calibrated pull bars - 3/4" x 74", No. 1 and No. 15; two Baldwin SR-4 strain indicators, serial Nos. 199392 and J-824299; Four Starrett dial indicators graduated to 0.001 inch, range 1.0 inch; attaching bolts, plates, channels and rubber pads.

Procedure

Stresscoat was applied to the outer surface of the TX-15 afterbody in the area surrounding the double wedge attachment location. The afterbody was mounted to the vertical steel plate with bolts around the periphery of afterbody and with its longitudinal axis being perpendicular to the steel plate.

Three Starrett dial indicators were placed on the outboard edge of the left double wedge at 0.1", 13.5", and 23.9" from the leading edge of the double wedge. One Starrett dial indicator was placed under the afterbody at the farthest point from the afterbody support. The location of the dial indicators is shown in Fig. 2.

The loads were applied to the double wedges by means of hydraulic jacks and measured with calibrated pull bars used in conjunction with Baldwin strain indicators. The fins were loaded to a specified value, the four dial indicators were read, the fins were unloaded, and the afterbody was examined for Stresscoat cracks. This procedure was repeated with each load being 1.2 times the previous load until a load of 5860 lbs. had been reached. The initial load was 1000 lbs. After the loadings were completed and the load on the fins had returned to zero, the four dial indicators were read to determine the permanent deflection in the double wedge and afterbody due to loading.

Results

From the stresscoat pattern, Fig. 5, the afterbody appears to have relatively low stresses. From lack of patterns, except locally at rivets, it can be concluded that the tensile strains were below the threshold sensitivity of the Stresscoat (800 microinches/inch) at 400% of limit load. Therefore, the stress where there were no stresscoat cracks was less than 8,000 psi.

Table I shows the loads and the corresponding deflections as measured by the dial indicators. Figure 6 shows the load vs. deflection curves

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prepared from the data in Table I. The maximum deflection of the double wedge, which was measured by dial indicator No. 1, was 0.452". The maximum deflection of the afterbody, which was measured by dial indicator No. 4, was 0.144". The maximum permanent deflection of the double wedge was 0.185" measured by dial indicator No. 1 and the permanent deflection of the afterbody was 0.078", measured by dial indicator No. 4.

Conclusions and Recommendations

It is concluded that the TX-15 afterbody and double wedges are structurally adequate for the loads applied in this test.

Harry P. Wheeler
HARRY P. WHEELER - 1612-2

Original Signed By

Approved by: PAUL H. ADAMS - 1612

HPW:1612-2:as

Copy to:
T. B. Morse, 1610
W. E. Caldes, 5513
J. P. Wanner, 1282
F. C. Hale, 1925-2
[redacted] G. M. Byrne, 1922-2

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TABLE I

LOAD-DEFLECTION DATA-STATIC TEST OF TX-15 AFTERBODY AND DOUBLE WEDGE

Load No.	Load lbs.	Deflections in Inches			
		Dial #1	Dial #2	Dial #3	Dial #4
0	0	0	0	0	0
1	1000	.032	.022	.016	.007
2	1200	.040	.027	.020	.008
3	1440	.050	.034	.024	.011
4	1730	.062	.044	.030	.013
5	2070	.077	.054	.038	.017
6	2480	.097	.069	.047	.021
7	2980	.127	.087	.056	.027
8	3580	.175	.126	.087	.045
9	4290	.243	.180	.129	.065
10	5150	.339	.262	.191	.098
11	5880	.452	.363	.277	.144
12	0	.185	.184	.157	.078

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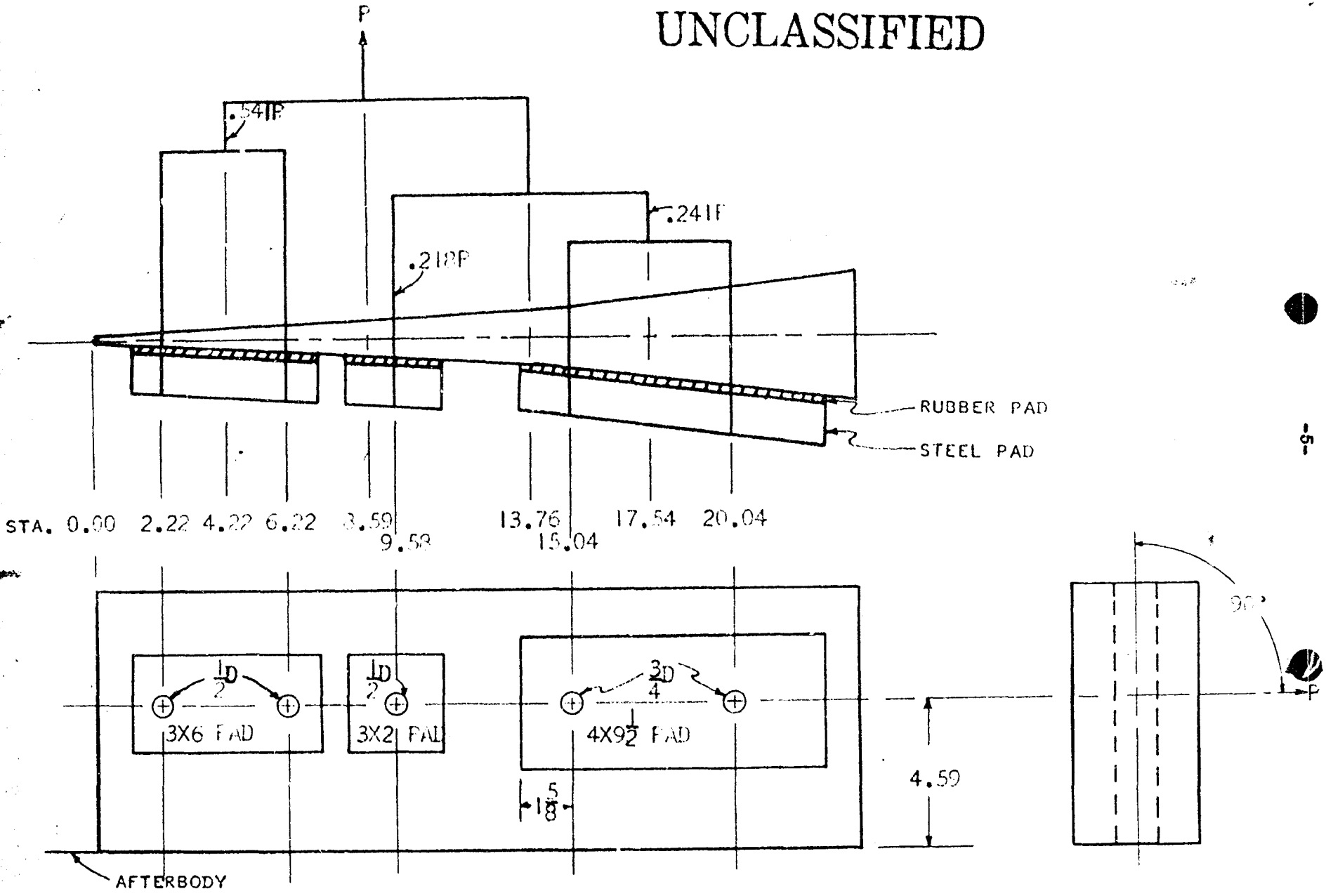

FIG. 1-LOAD DISTRIBUTION ON DOUBLE WEDGE-STATIC TEST OF DX-15 AFTERBODY AND DOUBLE WEDGES

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FIG. 2-- LEFT SIDE OF TEST SETUP--STATIC TEST OF TX-15 AFTERBODY AND DOUBLE WEDGES

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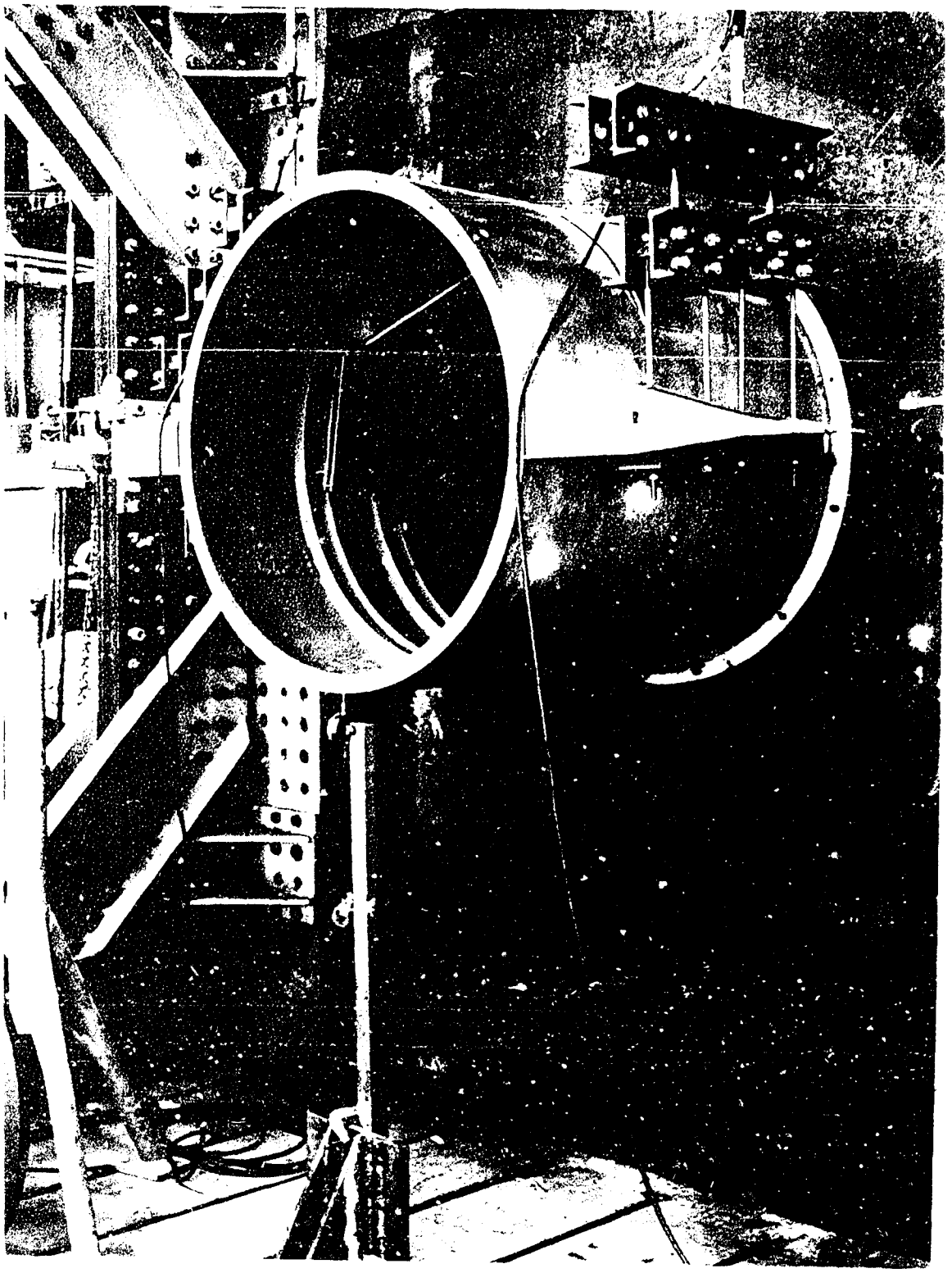

FIG. 3-- RIGHT SIDE OF TEST SETUP--STATIC TEST OF TX-15 AFTERBODY AND DOUBLE WEDGES

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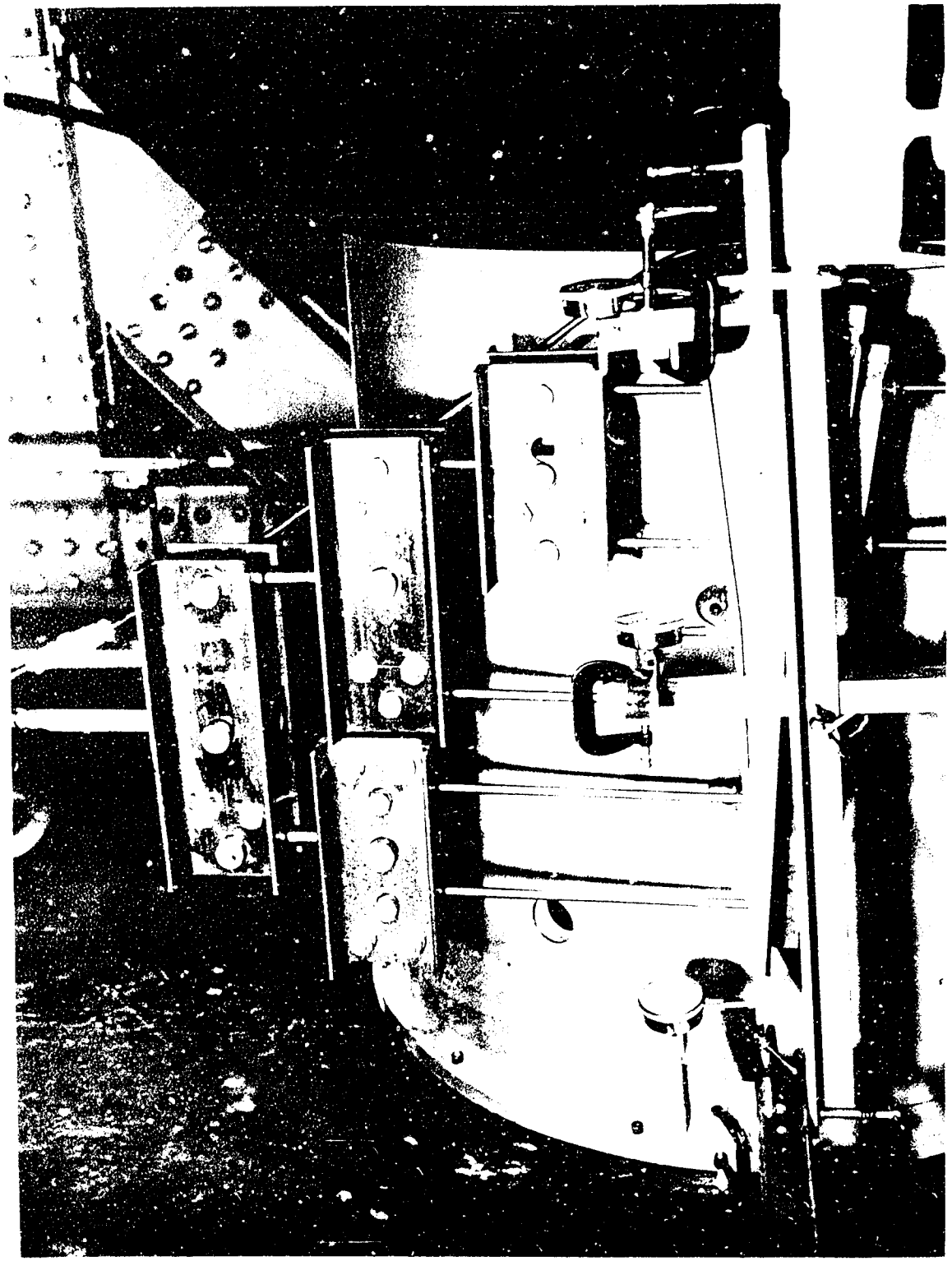

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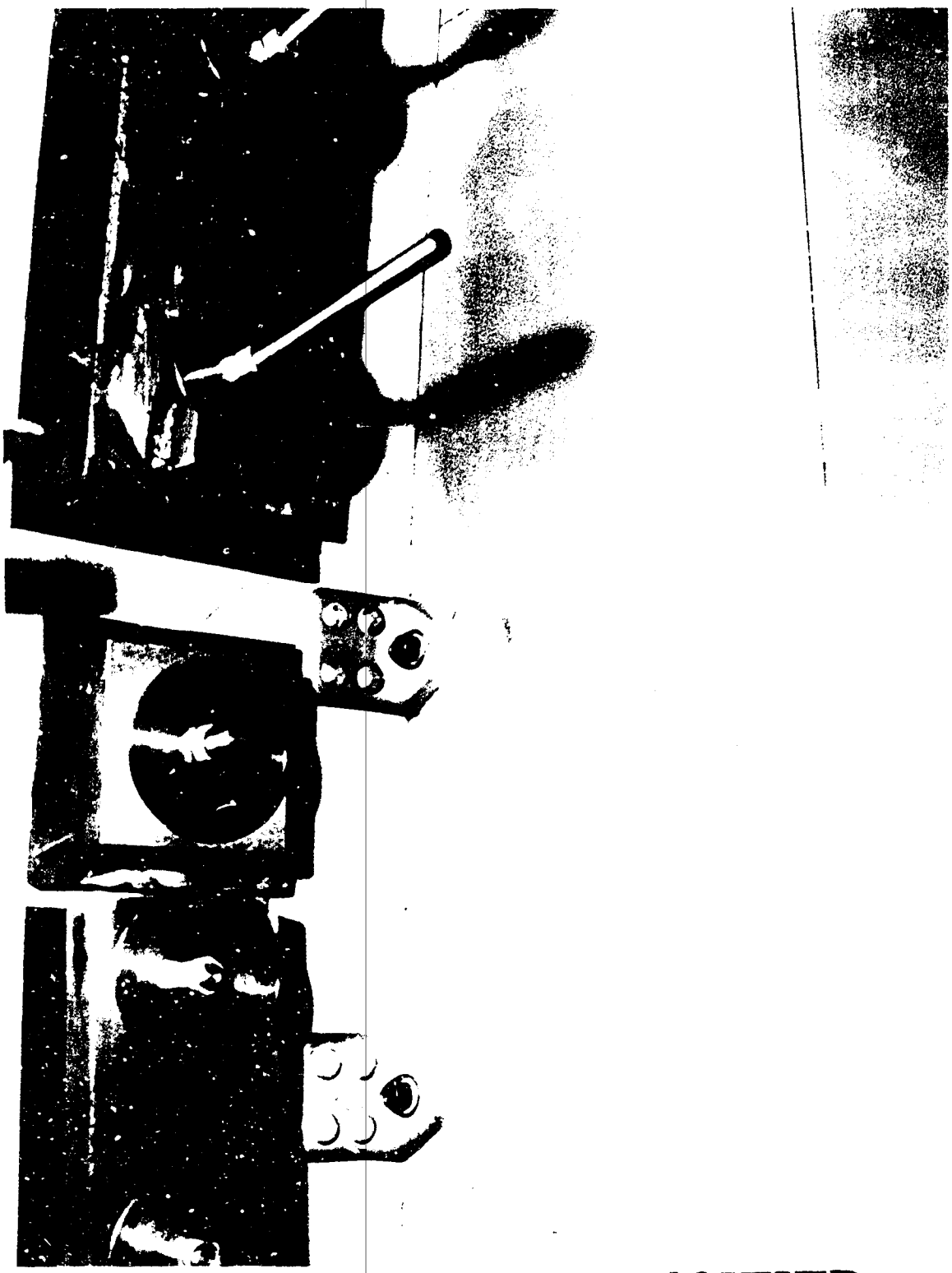

FIG. 5--STRESS-INDUCED CRACKS ON LEFT SIDE OF AFTERBODY--STATIC TEST OF TX-15 AFTERBODY AND DOUBLE WEDGES

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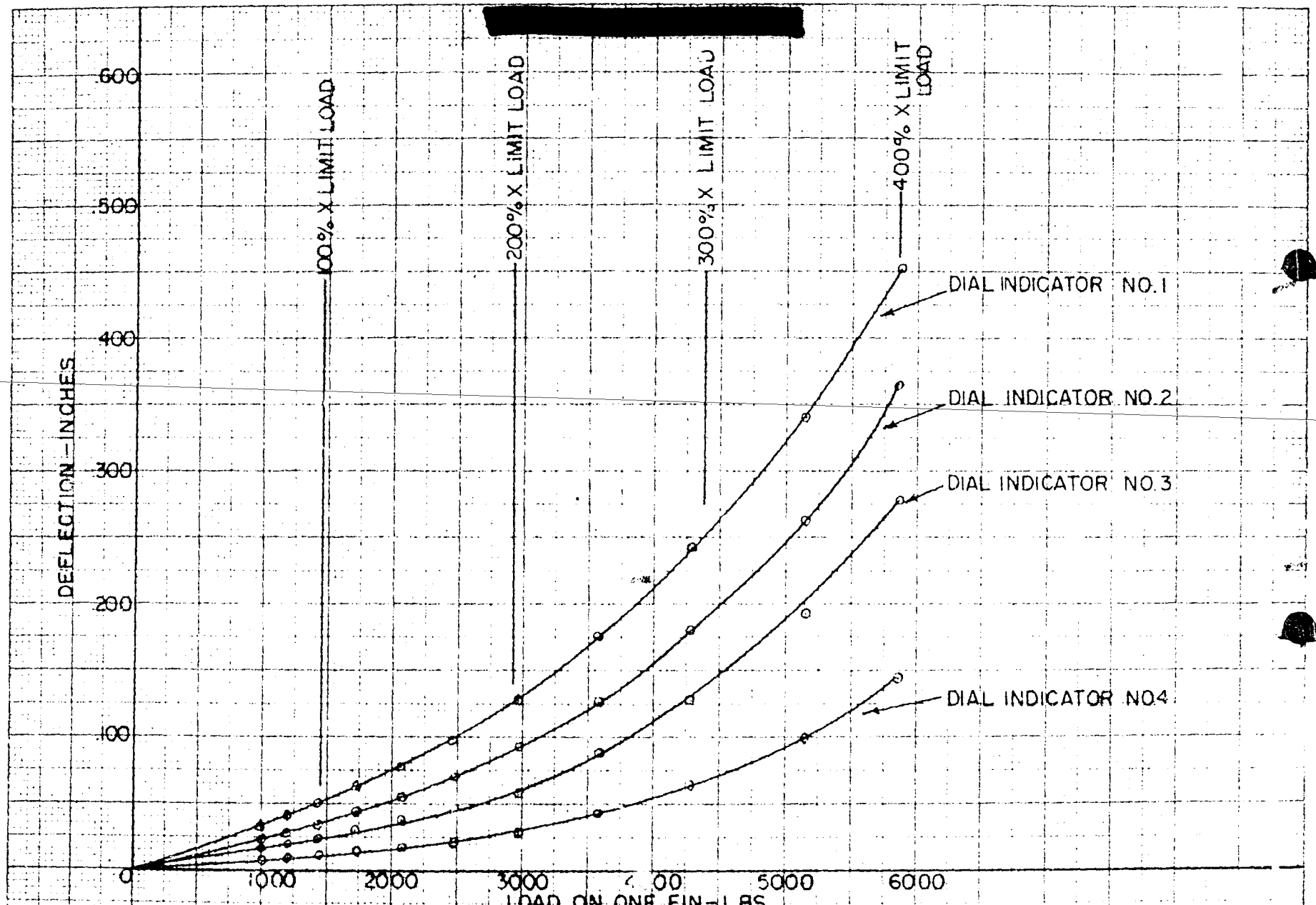

FIG. 6 - LOAD VS DEFLECTION CURVES - STATIC TEST OF TX-15 AFTERBODY AND DOUBLE WEDGES

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