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1658

JUL 30 1958

Case No. 746.00
Ref. Sym: 1612 (798)
Project No. TM-842
File: TX-41, 3-2

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
1st Review Date 9/22/98
Authority ADD W Layne
Name
Signature 9/24/98
2nd Review Date
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Signature
Document (Circle Number):
1 Classification Retained U
2 Classification Changed to:
3 Contains No DOE Classified Information
4 Contains Classified Information
5 Contains UCNI
Comments:

MR. P. F. JONES - 1218

Attn: Mr. J. M. May - 1218-1

Re: Static Test of TRM-1 Dynamic Drop Suspension Jig

INVENTORIED
AUG 6 '64
8422-4

Summary of Results

The suspension jig was statically tested with a maximum lateral load of 9.7 g (97,000 pounds) on the attached cylinder plus a maximum longitudinal load of 2.7 g (27,000 pounds + 4,000 pounds weight of test cylinder) on the cylinder. With these loads, yielding occurred on the longitudinal beams between 80 and 100 per cent of maximum load.

RECEIVED
AUG 4 1958
CENTRAL RECORD FILE

Object of Test

The object of the test was to proof load the suspension system prior to its use in drop tests on the TRM-1 (TX-41).

Reason for Test

The test was performed as a result of the Work Order Authorization dated May 7, 1958 from Division 1218 to Division 1612. The test loads in the Work Order Authorization were modified by the memorandum dated June 3, 1958, File TX-41, 3-4.7, from Division 1218 to Division 1612, Re: Static Test, Suspension Jig.

MAR 2 199
BY ORG. 7122

Function of Object Tested

The suspension system (McLean) contains the weapon as it is carried by the airplane.

INVENTORIED
SEP 14 '65
3428-3

Summary of Past Tests

No previous static tests have been performed on the McLean suspension system.

CENTRAL RECORD FILE
ACCOUNTABILITY
TX-41
3-2

Setup for Test

The setup for the test is shown in Figs. 1, 2, and 3.

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
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Emeida Selph 9/29/98
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AUTHORITY: W.C. Layne
RECORD ID: 98SN4463
DATED: 9/24/98

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The Sandia Corporation drawing number relating to the suspension system is: DS(1218)92786 - TX-41 Drop Tower Suspension Jig. In addition, the following Douglas Aircraft drawings apply: Strap Installation - Store Suspension System, Universal, Dwg. No. 5624069; Saddle Assembly - Stores, Dwg. No. 9624052; and E.O. Dwg. - Saddle Assembly - Stores, Dwg. No. 5624090.

The following equipment was used:

1 - Calibrated link, Serial No. D.
1 - Load cell, 50,000 pounds capacity, Serial No. 1114.
2 - Baldwin strain indicators, Serial Nos. 199392 and 391905.
1 - Blackhawk hydraulic ram and pump, 50-ton capacity.
1 - Paython hydraulic ram.
1 - Hydraulic console.

The following instrumentation was used:

Stresscoat No. 1206, sensitivity at time of test = 600 microinches per inch.

Procedure

The suspension system was attached to the cylinder, and the bolts which tighten the two belly bands around the cylinder were torqued to approximately 200 foot-pounds. The main structure of the suspension system, except belly bands, was Stresscoated with Stresscoat No. 1206.

The suspension system with the attached cylinder was mounted to the static jig as shown in Figs. 1, 2, and 3.

The initial loading for the Stresscoat test consisted of a 10,000-pound lateral load (10.3 per cent of maximum lateral load) and a 6,800-pound longitudinal load (4,000 pounds plus 10.3 per cent of maximum longitudinal load). The load of 4,000 pounds was applied since this is the weight of the test cylinder plus belly bands. After this initial loading, the loads were released and the Stresscoated structure was inspected for cracks in the Stresscoat. This procedure was repeated with each succeeding load being 1.2 times the preceding load. Areas of Stresscoat cracks were marked up to 64.1 per cent of the maximum load. The loads were then applied up to 100 per cent (97,000 pounds lateral and 31,000 pounds longitudinal) after which the Stresscoat was inspected for any evidence of yielding.

Results

The suspension system withstood a maximum lateral load of 97,000 pounds

(9.7 g) and a maximum longitudinal load of 31,000 pounds (2.7 g plus 4,000 pounds) without failure. However, yielding of the longitudinal beams occurred between 80 and 100 per cent of the maximum load. The areas of Stresscoat cracks are shown on Figs. 4 through 11. Table I gives the data relating to loads, Stresscoat numbers, and Stresscoat sensitivity. The areas which yielded are the areas on which the Stresscoat flaked as shown on Figs. 4 and 10.

It was observed during the test that the restraining bracket shown in Fig. 8 began reacting some of the longitudinal load when the longitudinal load reached about 20,000 pounds. There was an initial vertical clearance of about 1/4-inch between the bracket and the upset band on the cylinder. The bracket was added for the testing program and is not a part of the suspension system.

Conclusions

It is concluded that the longitudinal beams are slightly under strength for this test in as much as yielding occurred in these two beams between 80 and 100 per cent of the test loads.

It is not known how much load was reacted by the restraining bracket. However, if the restraining bracket had not been used, the test would have been more severe on the suspension system.

HARRY P. WHEELER - 1612-2

Approved by: PAUL H. ADAMS - 1612

HPW:1612-2:as

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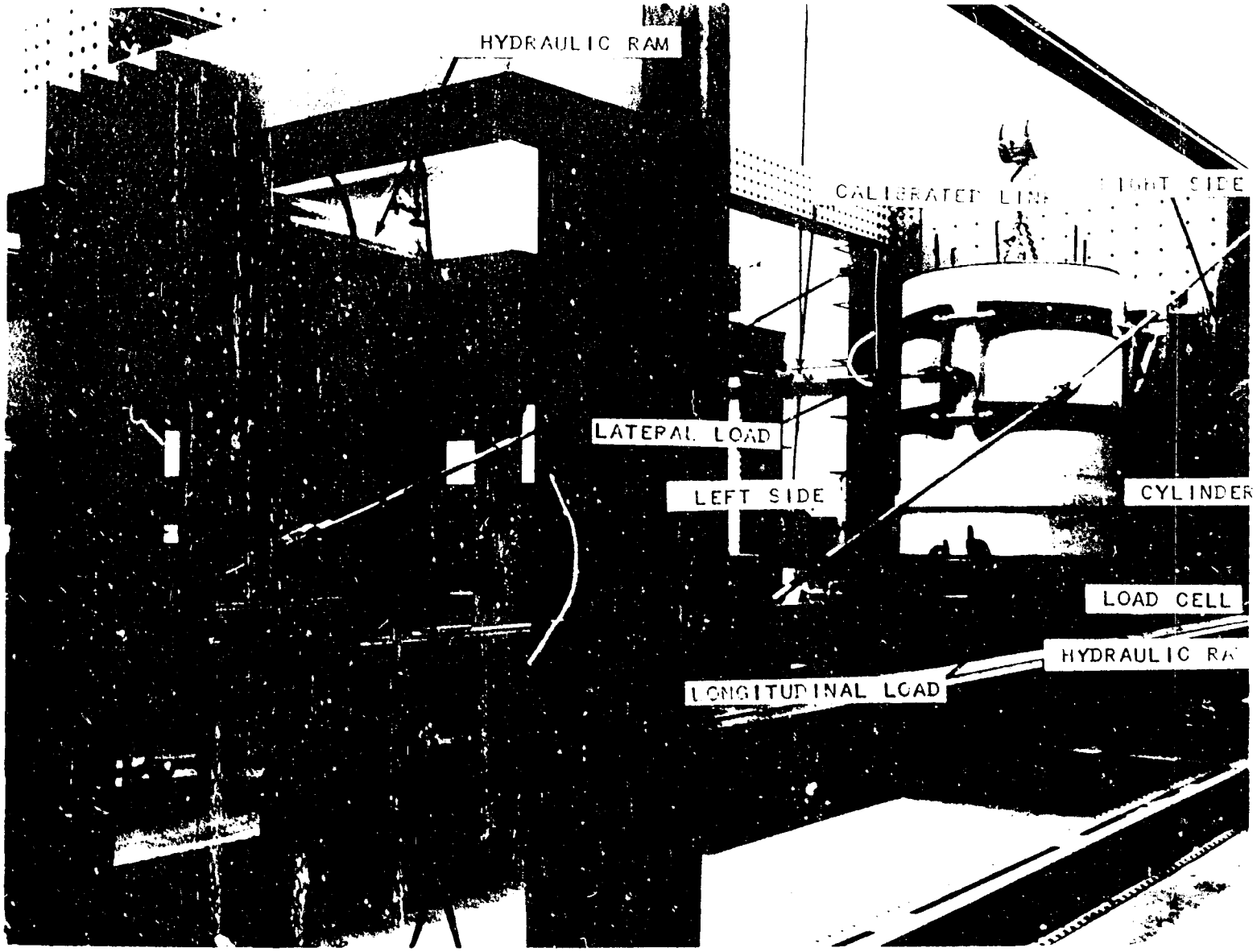

FIG. 1 -- SETUP FOR STATIC TEST OF TRW-1 DYNAMIC DROP SUSPENSION JIG.

D# 108724

REF. SYM: 161D (79[illegible])
PROJECT NO. T[illegible]

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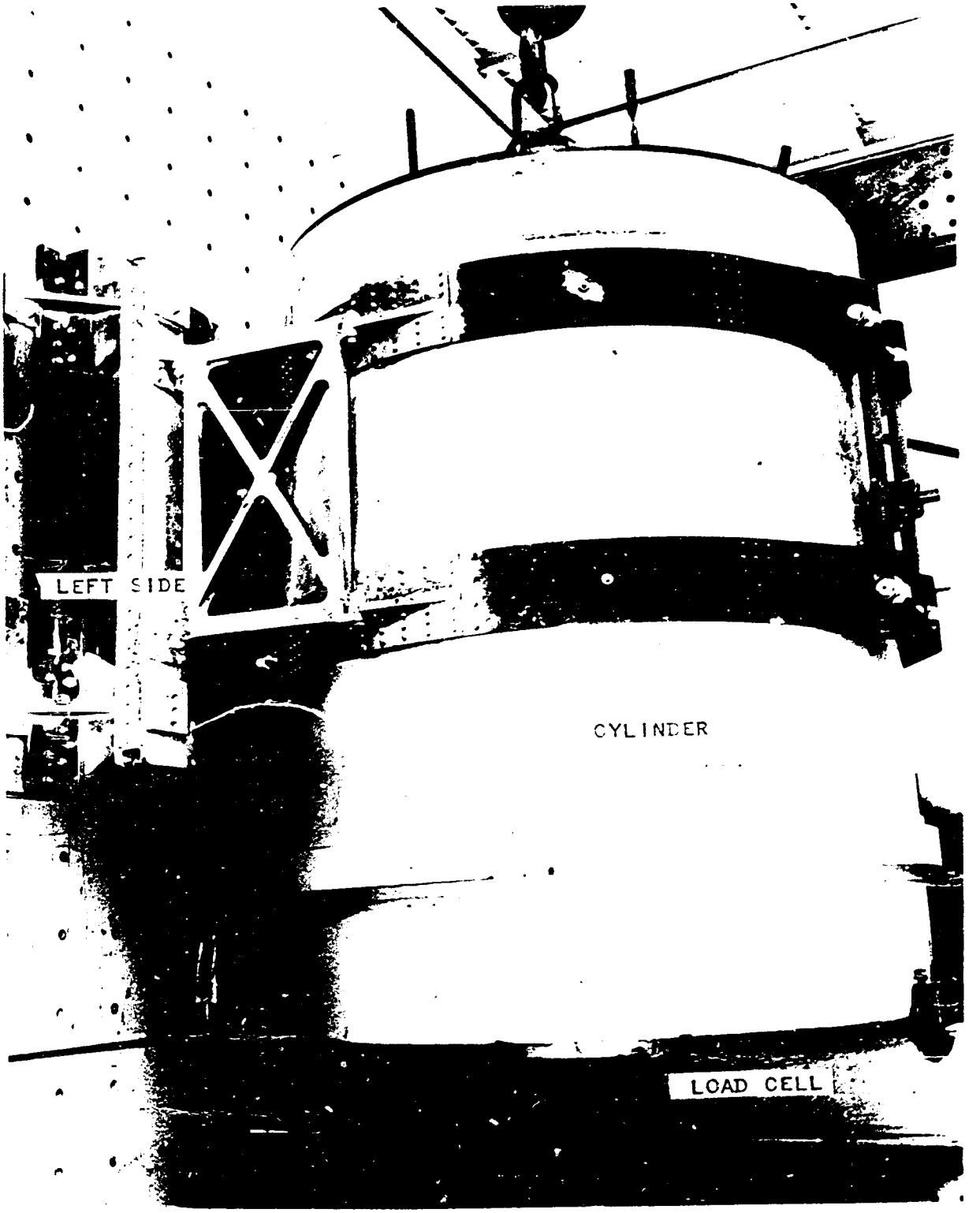

FIG. 2 -- SETUP FOR STATIC TEST OF TRM-1 DYNAMIC DROP SUSPENSION JIG.

D# 108725

REF. SYM: 1612 (798)
PROJECT NO. TM-842

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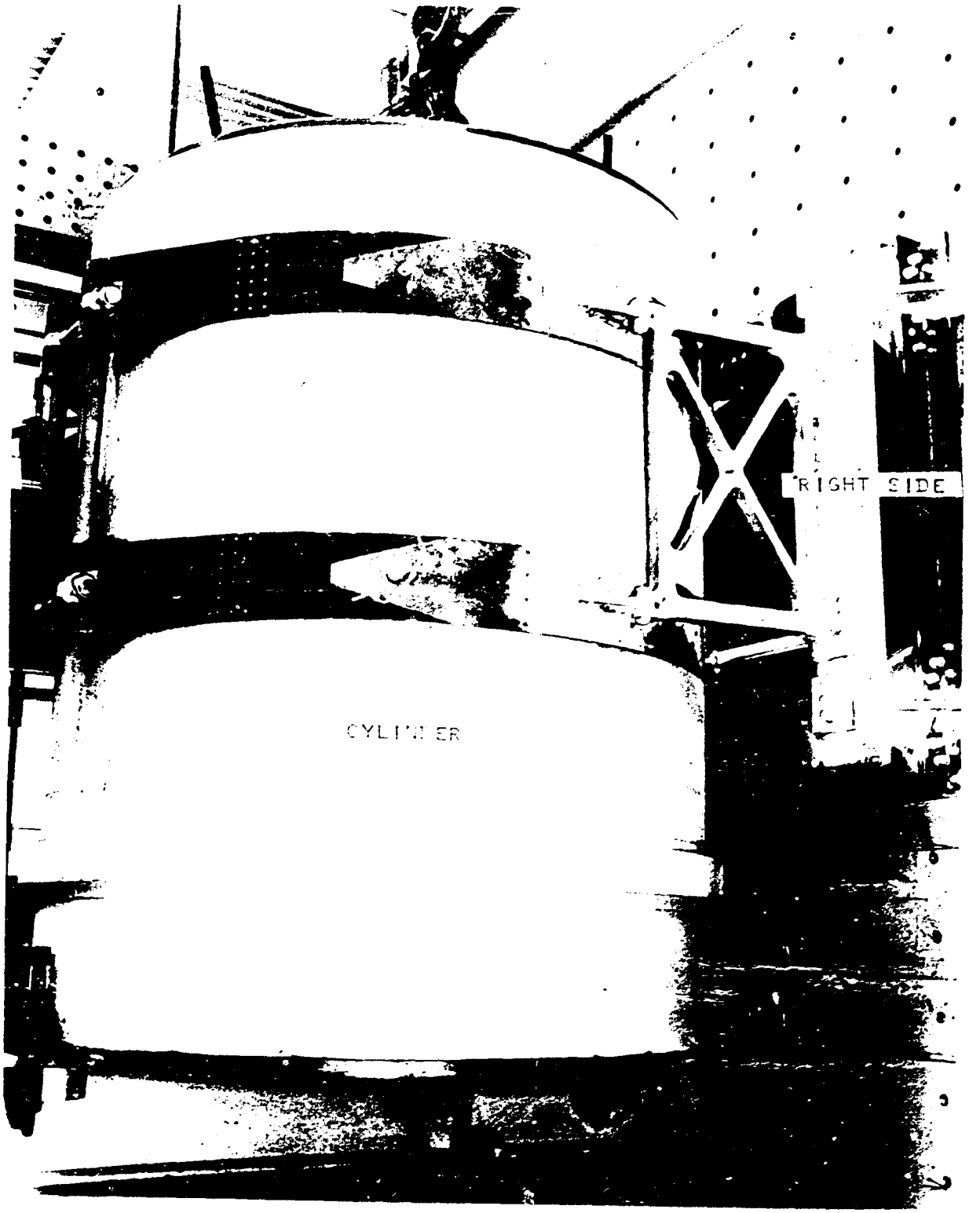

FIG. 3 -- SETUP FOR STATIC TEST OF [illegible]-1 DYNAMIC DROP SUSPENSION JIG.

D# 108726

REF. SYM: 1612 (798)
PROJECT NO. TM-842

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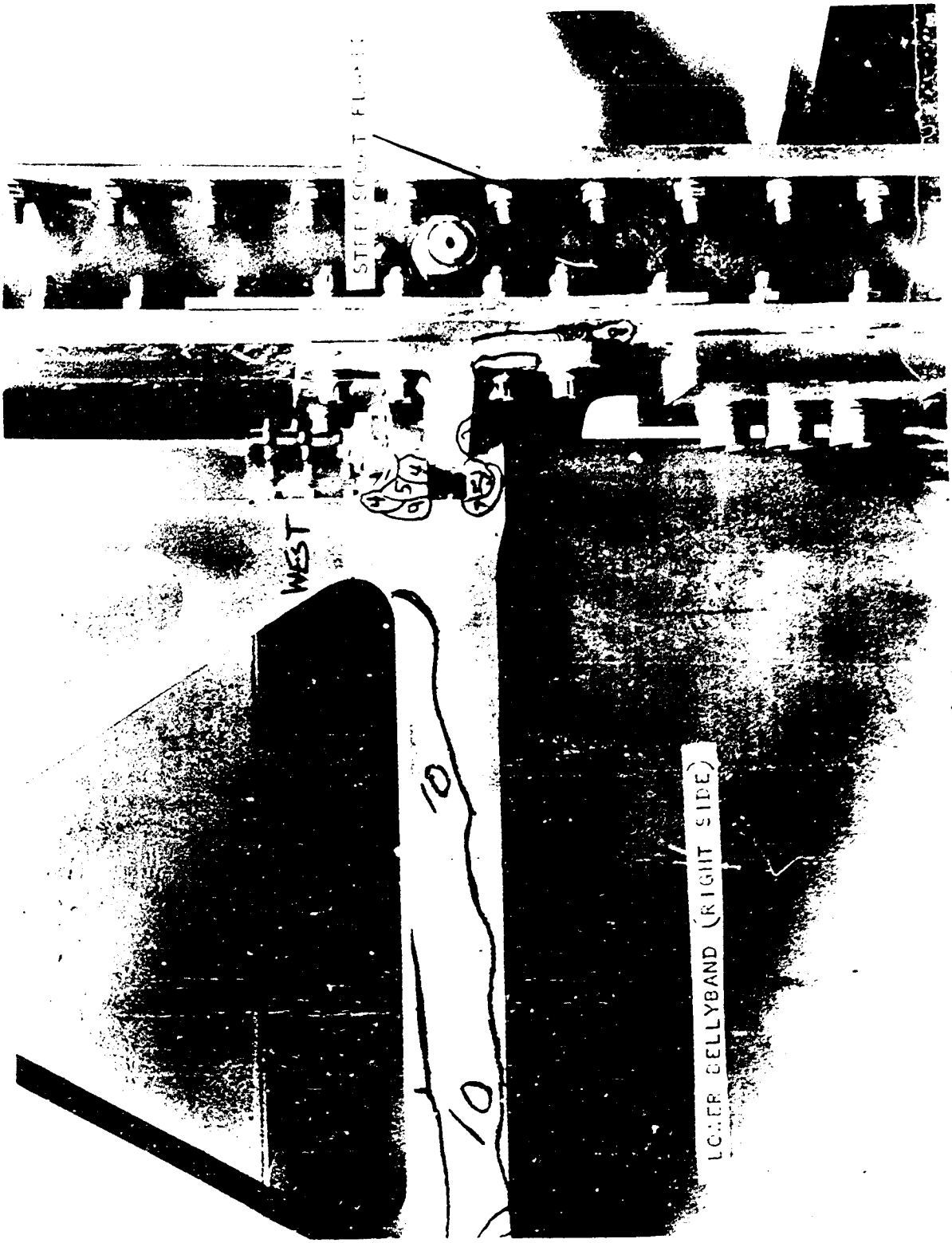

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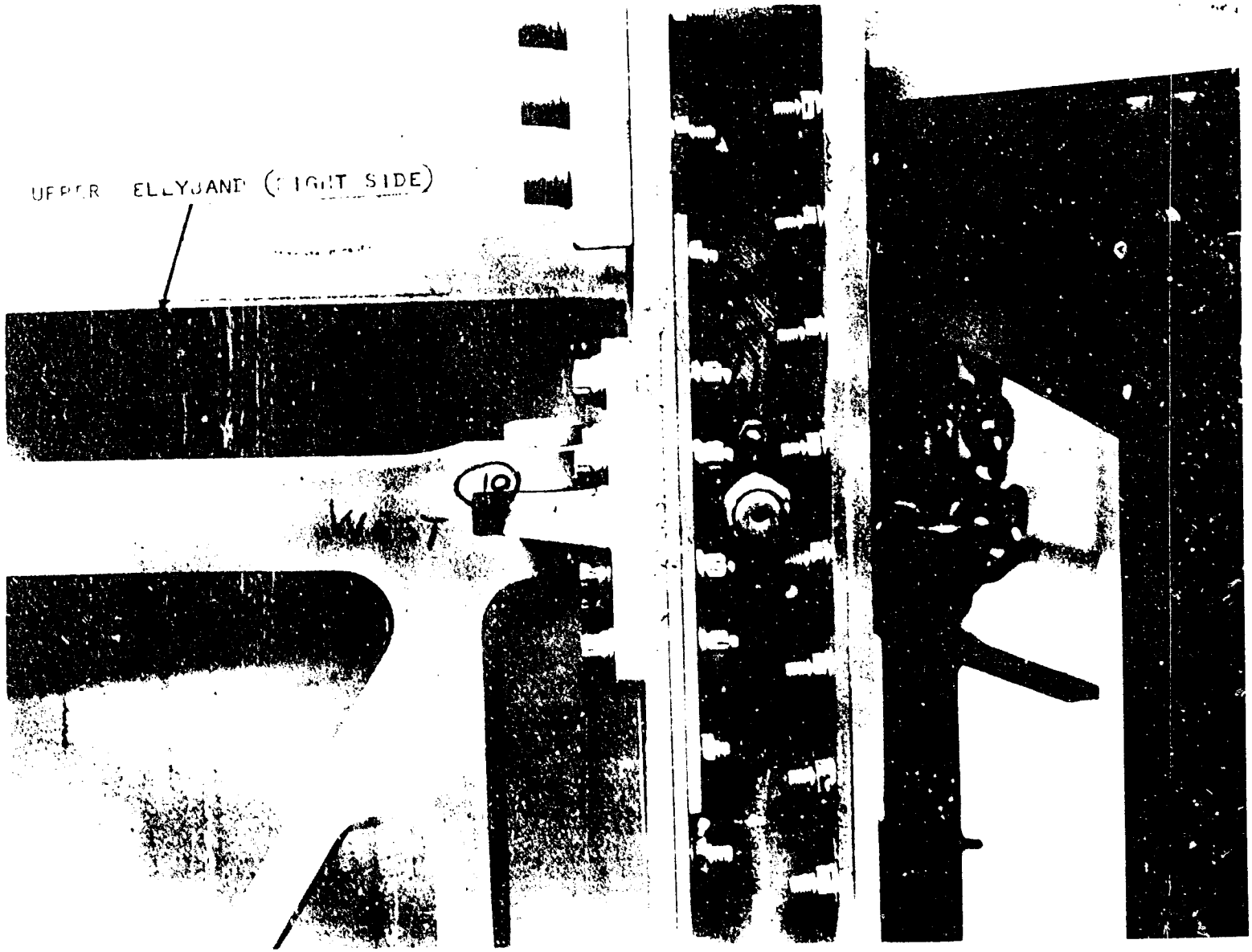

FIG. 5 -- STRESSCOAT CRACKS FROM STATIC TEST OF TRN-1 DYNAMIC DROP SUSPENSION UNIT.

D# 108728

REF. SYM: 1612 (79
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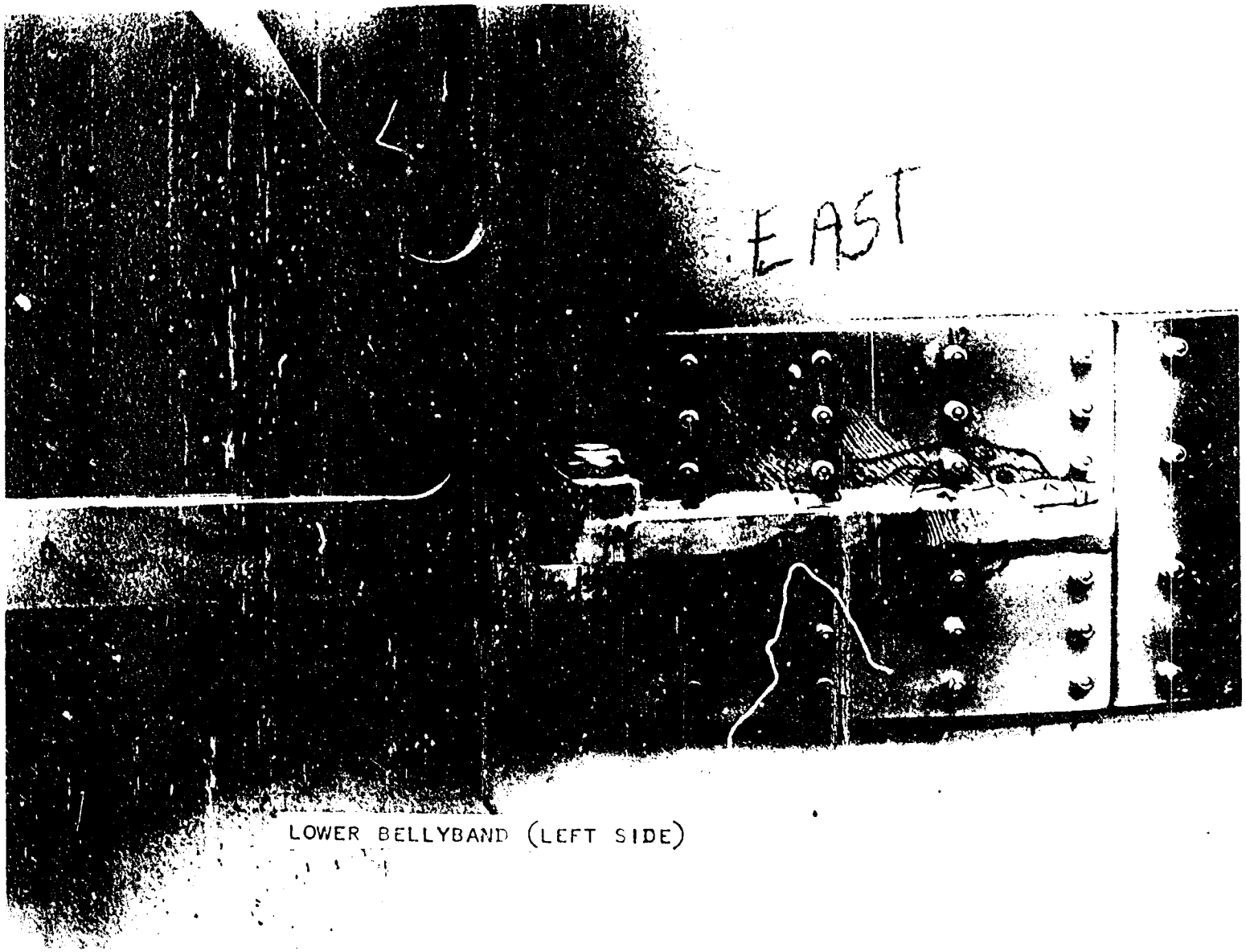

FIG. 6 -- STRESSCOAT CRACKS FROM STATIC TEST OF TM-1 DYNAMIC DROP SUSPENSION JIG.

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REF. SYM: 1612 (798)
PROJECT NO. TM-842

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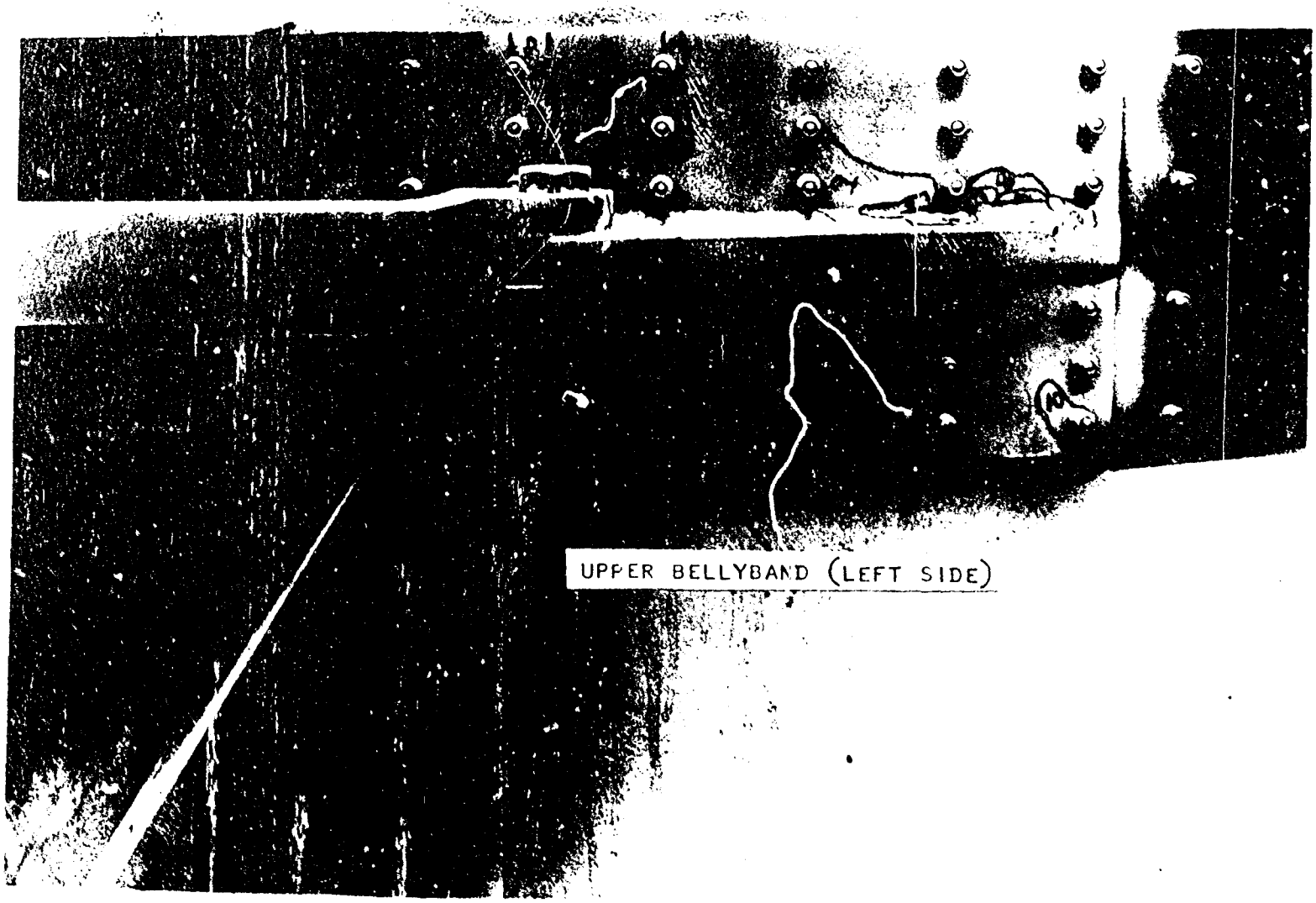

FIG. 7 -- STRESSCOAT CRACKS FROM STATIC TEST OF TRN-1 DYNAMIC DROP SUSPENSION JIG.

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REF. SYM: 1612 (798)
PROJECT NO. TN-842

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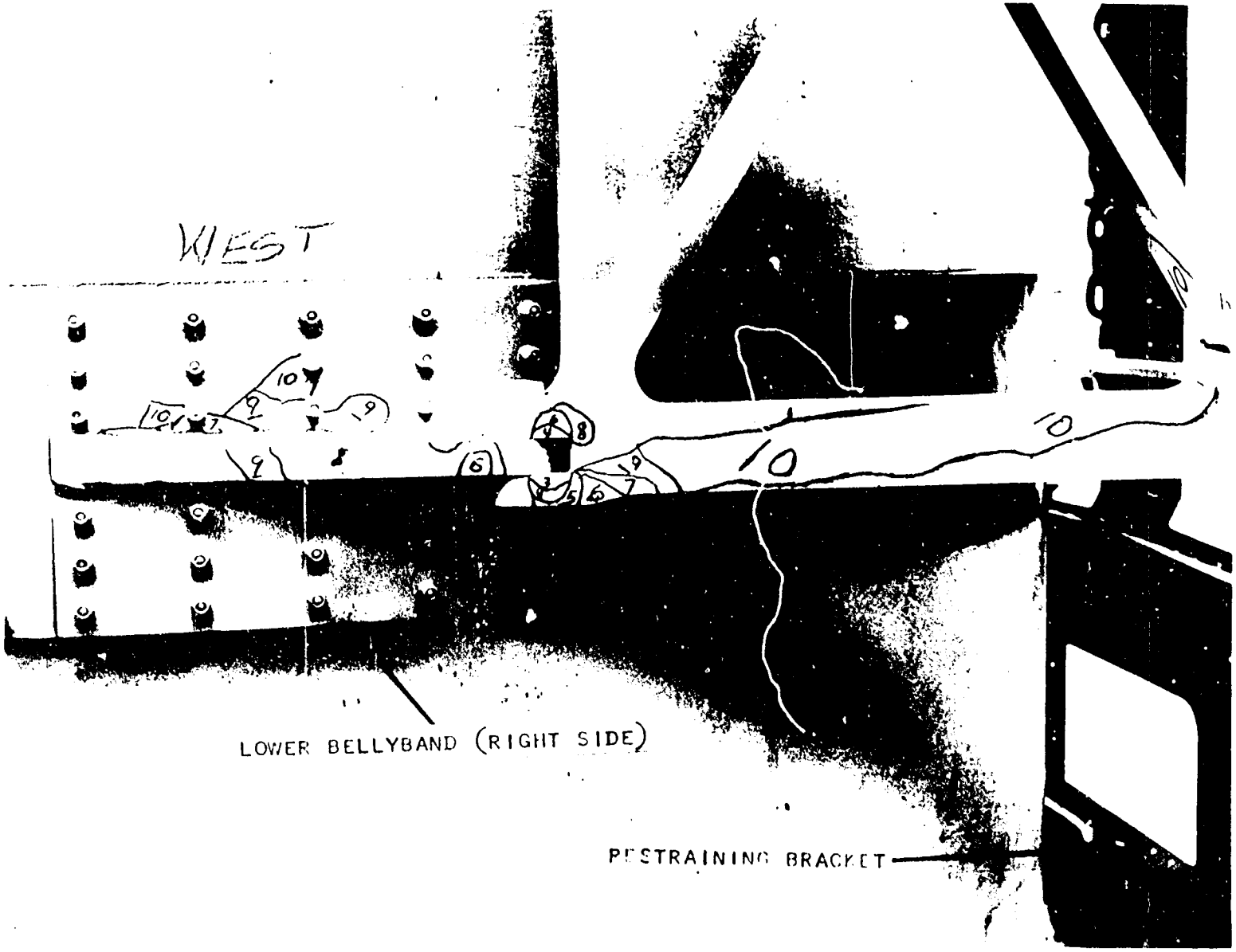

FIG. 8 -- STRESSCOAT CRACKS FROM STATIC TEST OF TRN-1 DYNAMIC DROP SUSPENSION JIG.

REF. SYM: 1612 (708)
PROJECT NO. TN-842

D# 108731

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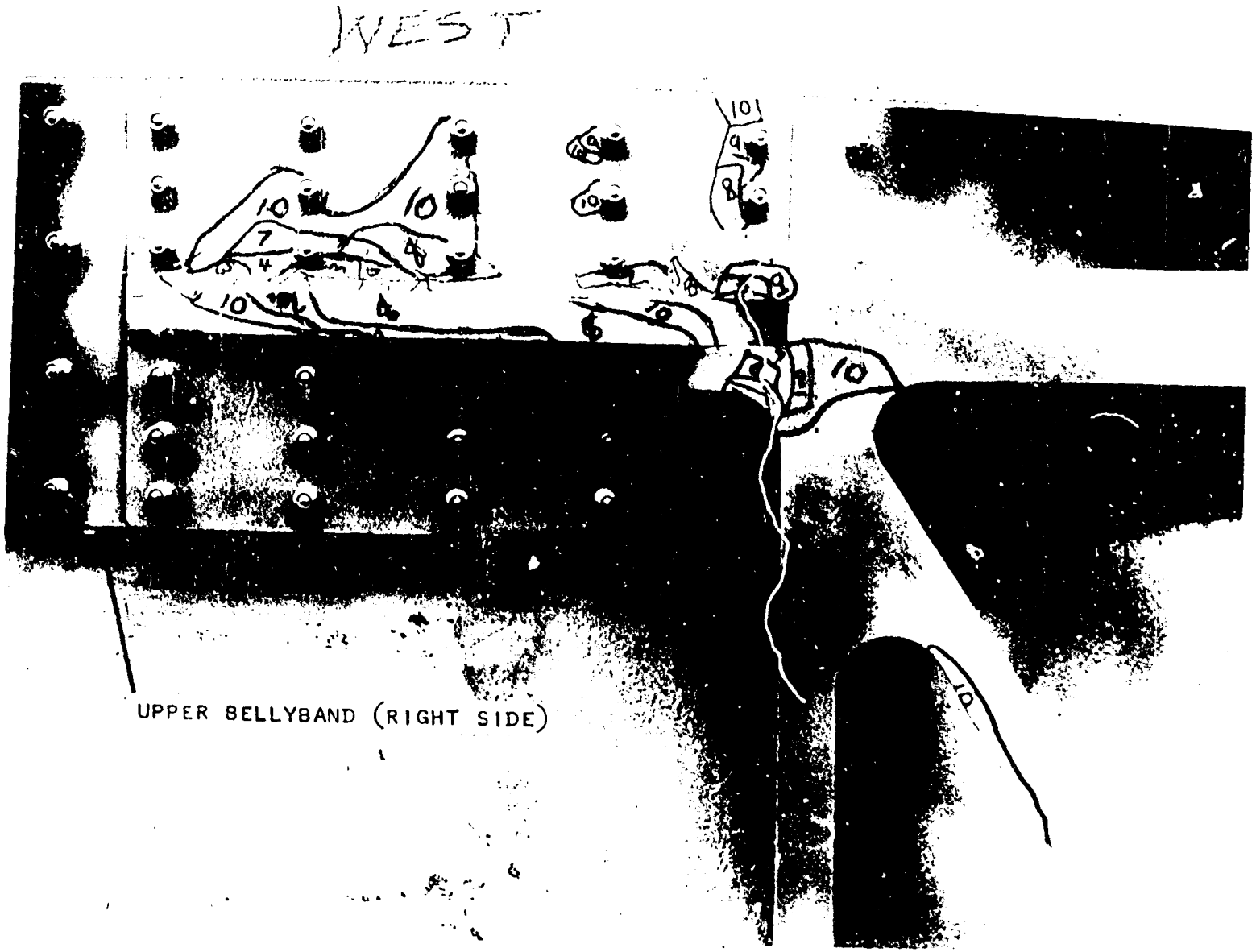

FIG. 9 -- STRESSCOAT CRACKS FROM STATIC TEST OF TRM-1 DYNAMIC DROP SUSPENSION JIG.

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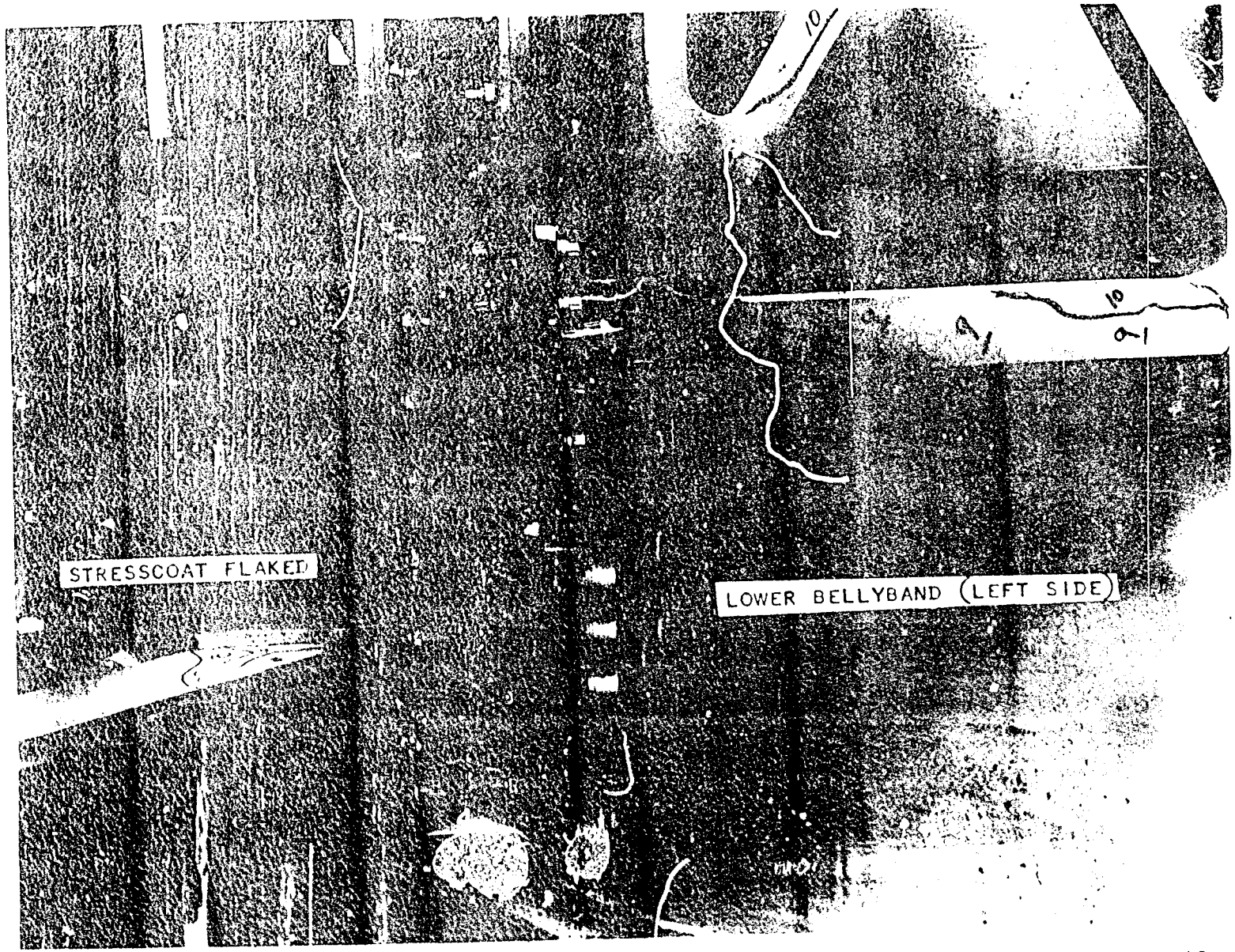

FIG. 10 -- STRESSCOAT CRACKS FROM STATIC TEST OF TRN-1 DYNAMIC DROP SUSPENSION JIG.

REF. SYM: 1612 (798)
PROJECT NO. TN-842

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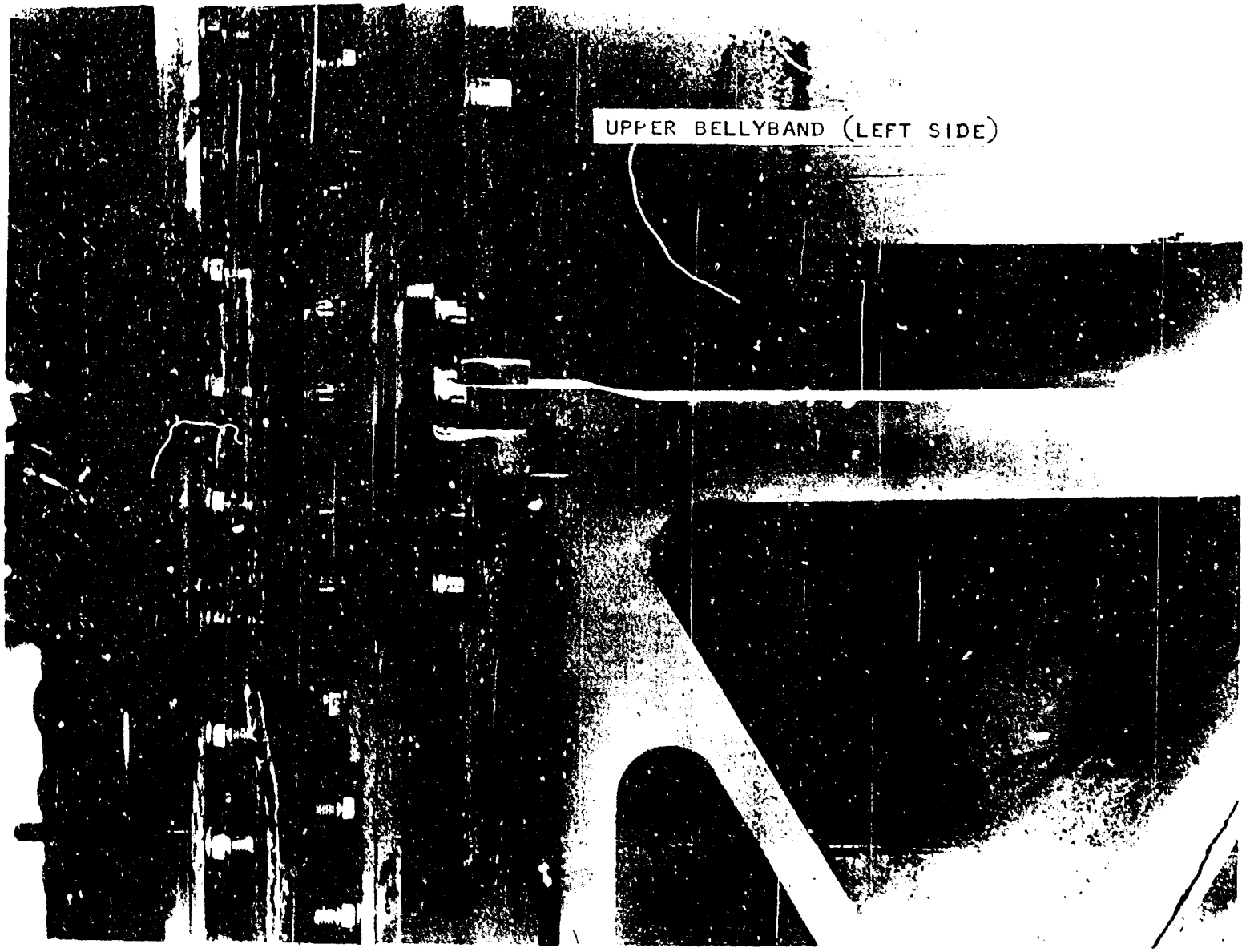

FIG. 11 -- STRESSCOAT CRACKS FROM STATIC TEST OF TRM-1 DYNAMIC DROP SUSPENSION JIG.

D # 108736

REF. SYM: 1612 (798)
PROJECT NO. TM-842

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TABLE I

STRESSCOAT DATA - STATIC TEST OF TRM-1
DYNAMIC DROP SUSPENSION JIG

Per Cent of Maximum Load	Lat. Load (Lbs.)	Long. Load (Lbs.)	Stresscoat Numbers (See Figs. 4 - 11)	Stresscoat Sensitivity Microinches/Inch
0	0	4,000	--	
10.3	10,000	6,800	--	
12.4	12,000	7,400	1	600
14.9	14,400	8,100	2	600
18.0	17,400	8,900	3	600
21.4	20,800	9,900	4	600
25.8	25,000	11,100	5	600
31.0	30,000	12,500	6	600
37.0	36,000	14,200	7	600
44.6	43,200	16,300	8	600
53.5	51,900	18,800	9	600
64.1	62,200	21,800	10	600