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SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
1st Review Date: 5/6/98
Authority: ADD
Name: [illegible]
2nd Review Date: 5/11/98
Authority: ADD
Name: WCLayne
Determination (Circle Number(s)):
1. Classification Retained
2. Classification Changed to: U
3. Contains No DOE Classified Information
4. Contains UCNI
5. Contains UCAI
6. Comments: Delassify

JUN 8 1961

File No: XW-59, 3-2
T-17679
Project No. 13.895.00

TO: DISTRIBUTION

Re: Hydrostatic Test of XW-59 Pressure Cover

One XW-59 Pressure Cover was hydrostatically pressurized internally to 30 psi after stress coat had been applied to the exterior surface.

A deflection of 0.116 inches was measured on the top center of the cover, indicating that there was failure to the honeycomb inside of the cover. The cover was removed and inspection showed that due to a poor bond the honeycomb had slipped.

Object of Test

The object of this test was to determine the structural adequacy of the honeycomb construction in the inside top of the XW-59 pressure cover. The cover was to be stresscoated and hydrostatically pressurized to 46 psi, with three displacement gages mounted on the top of the cover.

Authorization for Test

This test was requested by Division 7147 in a work order dated March 27, 1961. Mr. Jim Leonard, 7147, was the consultant.

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CENTRAL RECORD FILE

Test Equipment and Instrumentation

The following equipment was used:

1 - Baldwin SR-4 strain indicator, Serial No. 391905

1 - Baldwin SR-4 pressure cell, 100 psi capacity, Serial No. 10653

1 - Sprague pin operated hydraulic pump

PROGRAM	CATEGORY	ORG.	DATE
0 2 6 3 8 0	3 0 4 3	2 0 5	1 4 8 6 1

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
DOWNGRADING OR DECLASSIFICATION STAMP
CLASSIFICATION CHANGED TO: U
Emelda Selph 5/14/98
PERSON CHANGING MARKING & DATE
WC Layne 5/18/98
PERSON VERIFYING MARKING & DATE
AUTHORITY: W.C. Layne
RECORD ID: 98SN1991
DATED: 5/11/98

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CENTRAL RECORD FILE
FILE No. XW-59
3-2

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The following instrumentation was used:

Stresscoat, No. 1206

3 - Starett dial indicators, least

Graduation .001 inch

Procedure

The XW-59 pressure cover was connected to a Sprague air-operated hydraulic pump. Stresscoat was applied to the entire external surface of the cover and pressure was applied in increments, as listed in Table I. Patterns were marked and deflection gages were read and recorded at each increment of load. For dial indicator locations see Figure 1.

Pressure was measured with a load cell in conjunction with a Baldwin SR-4 strain indicator.

Results

Failure occurred to the honeycomb bonding at 30 psi. Stress coat data indicated an apparent maximum stress of 12,000 psi.

A deflection of 0.116 inch was measured at the top of the cover at 30 psi. For deflection data see Table I. For stresscoat data see Table II. For photos of stresscoat crack patterns see Figures 2 through 6.

H. A. Warrick
H. A. WARRICK - 7322-1

7321 Project Engineer: R. A. MIKKELSEN - 7321-5

HW;7322-1:mw

Encl: Figs. 1 thru 6, Tables I & II

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

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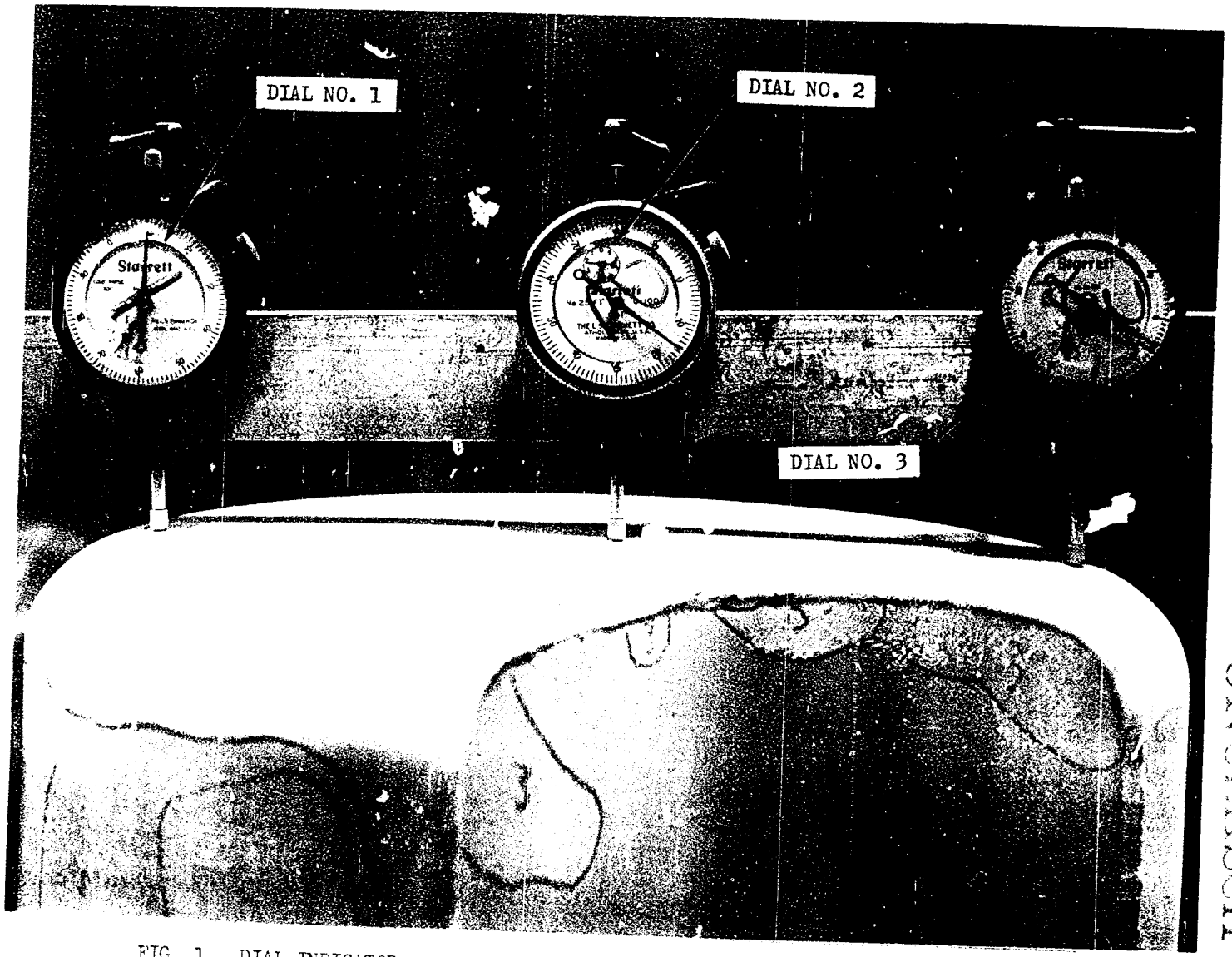

FIG. 1 - DIAL INDICATOR LOCATIONS -- HYDROSTATIC TEST OF XW-59 PRESSURE COVER.

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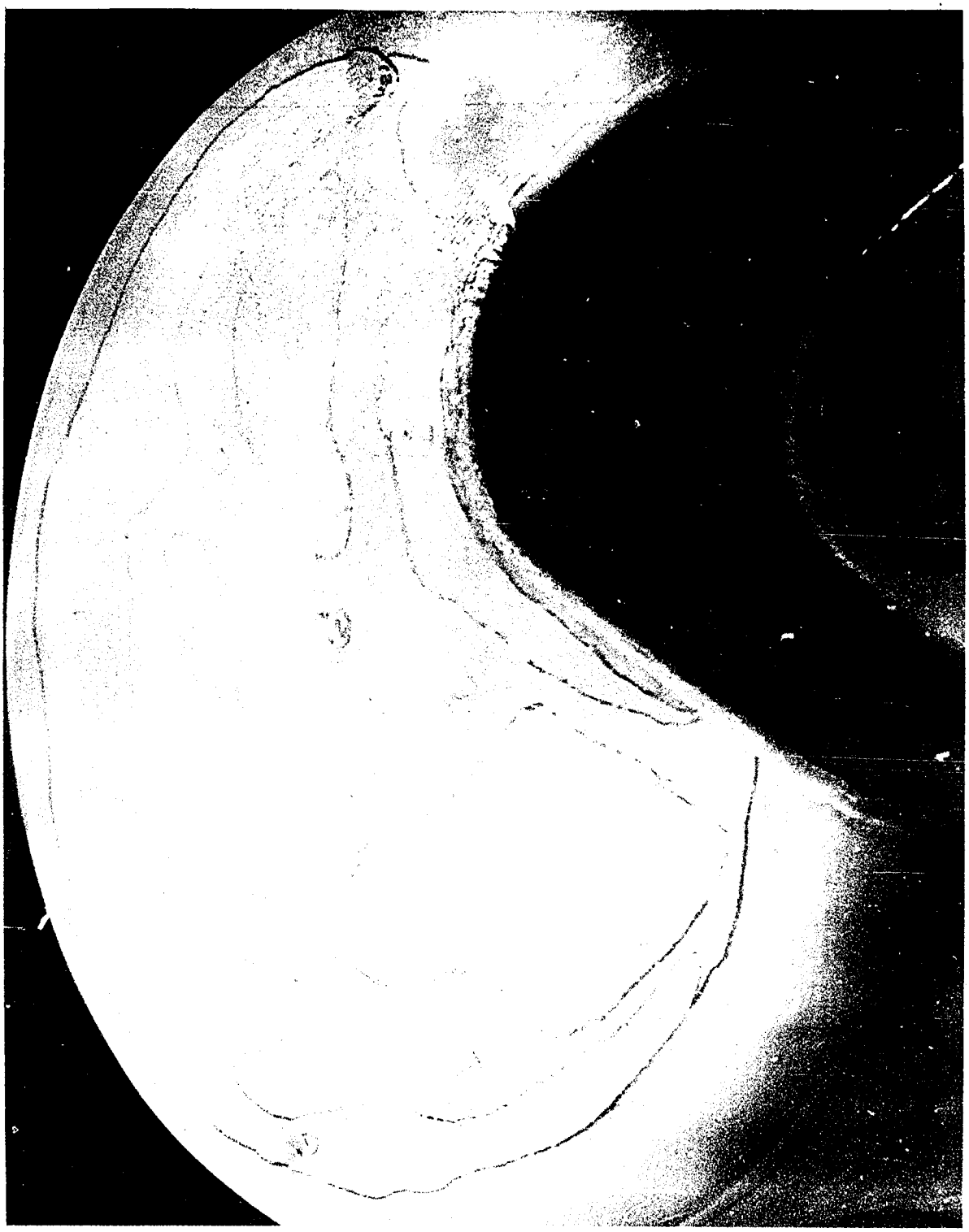

FIG. 2 - STRESSCOAT PATTERNS — HYDROSTATIC TEST OF XW-59 PRESSURE COVER.

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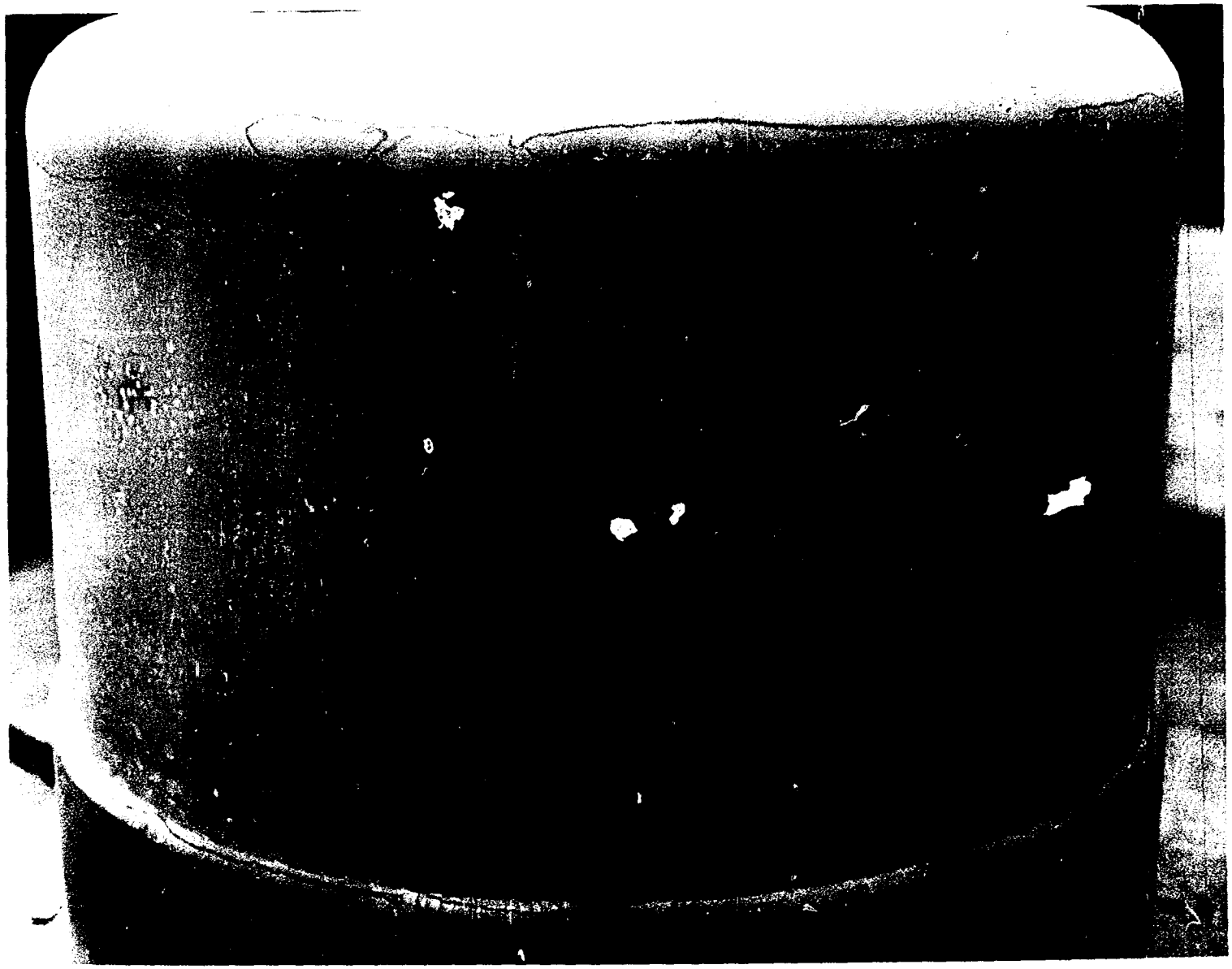

FIG. 3 - STRESSCOAT PATTERNS — HYDROSTATIC TEST OF XW-59 PRESSURE COVERS.

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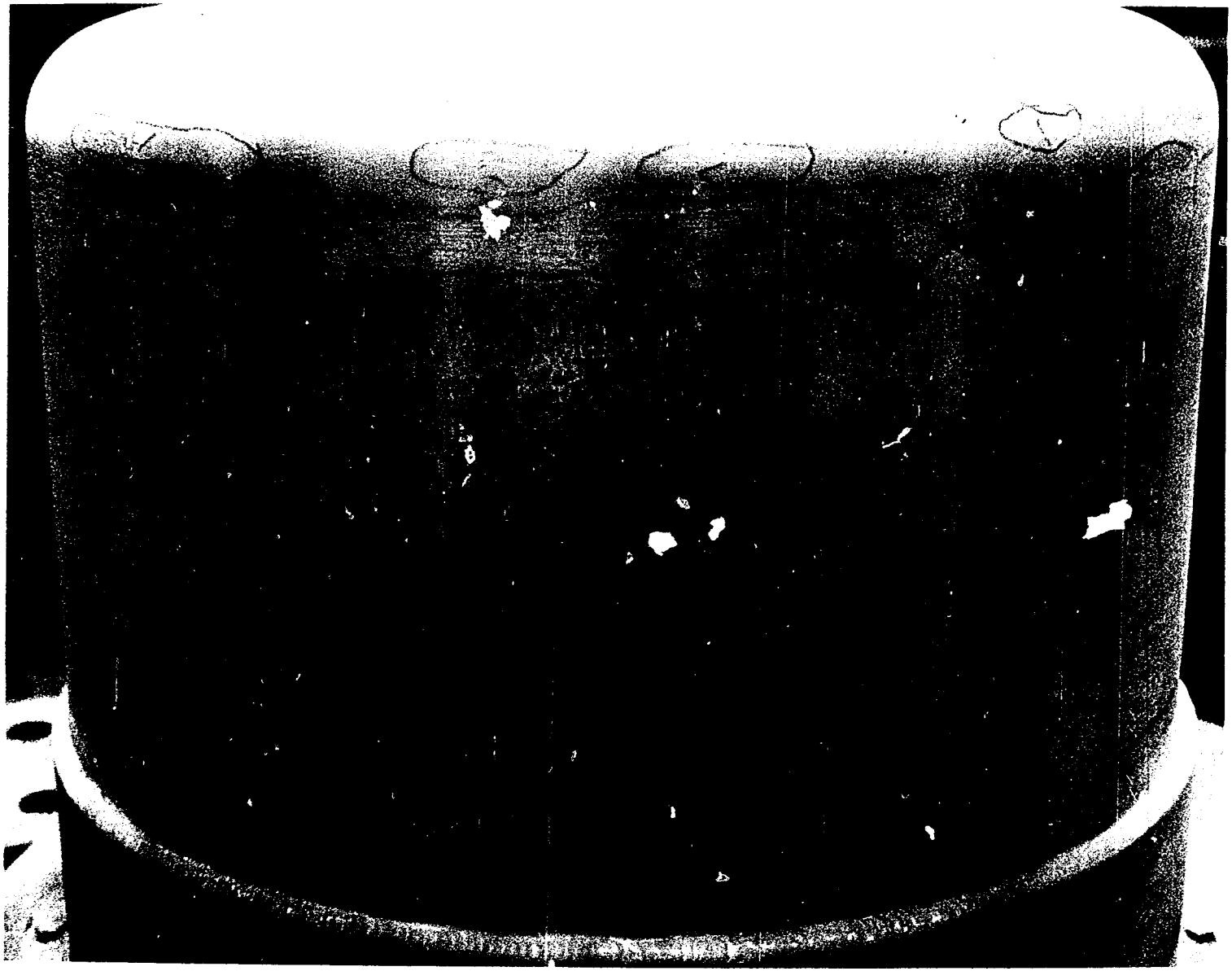

FIG. 4 - STRESSCOAT PATTERNS — HYDROSTATIC TEST OF XW-59 PRESSURE COVER.

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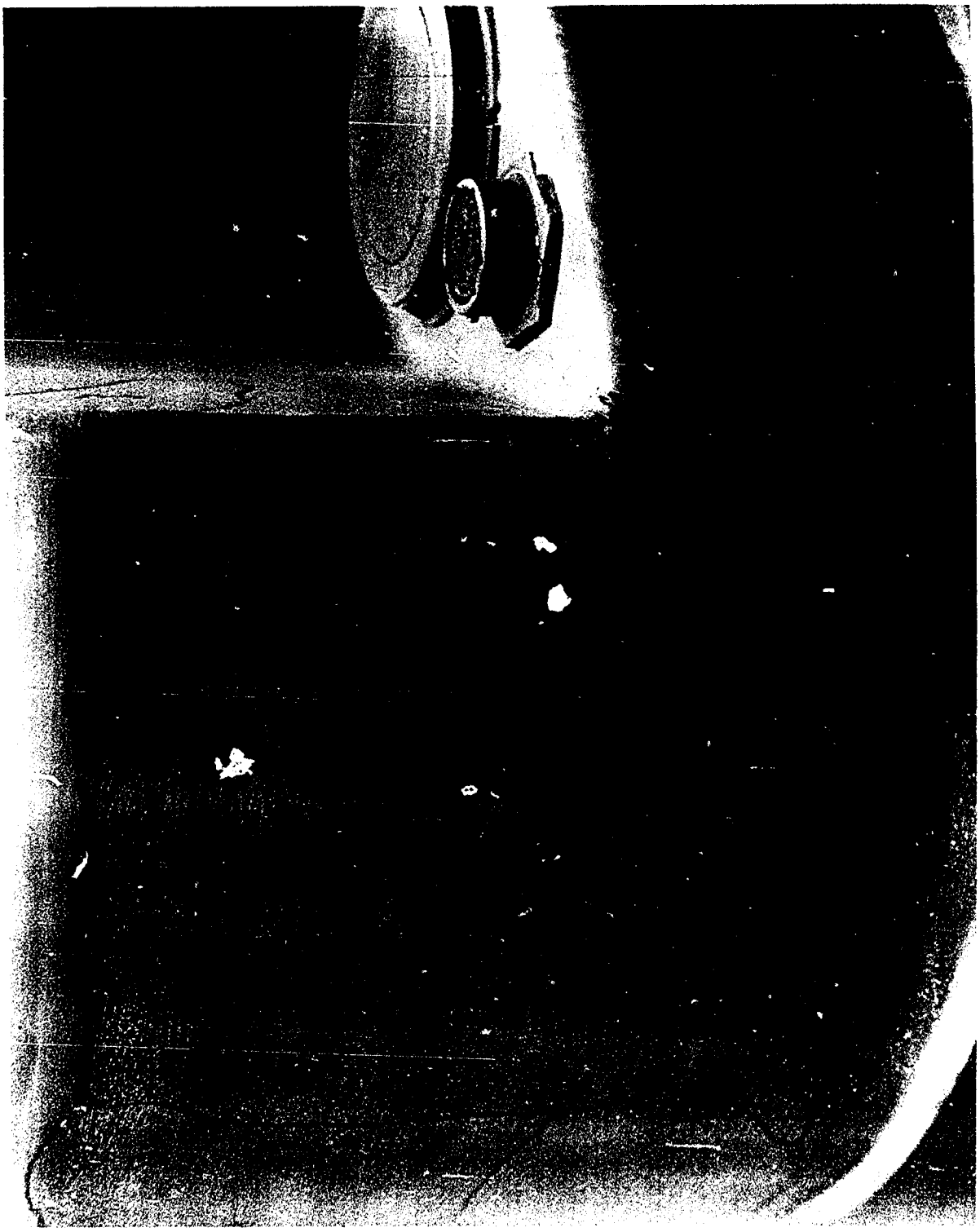

FIG. 5 - STRESSCOAT PATTERNS — HYDROSTATIC TEST OF XW-59 PRESSURE COVER.

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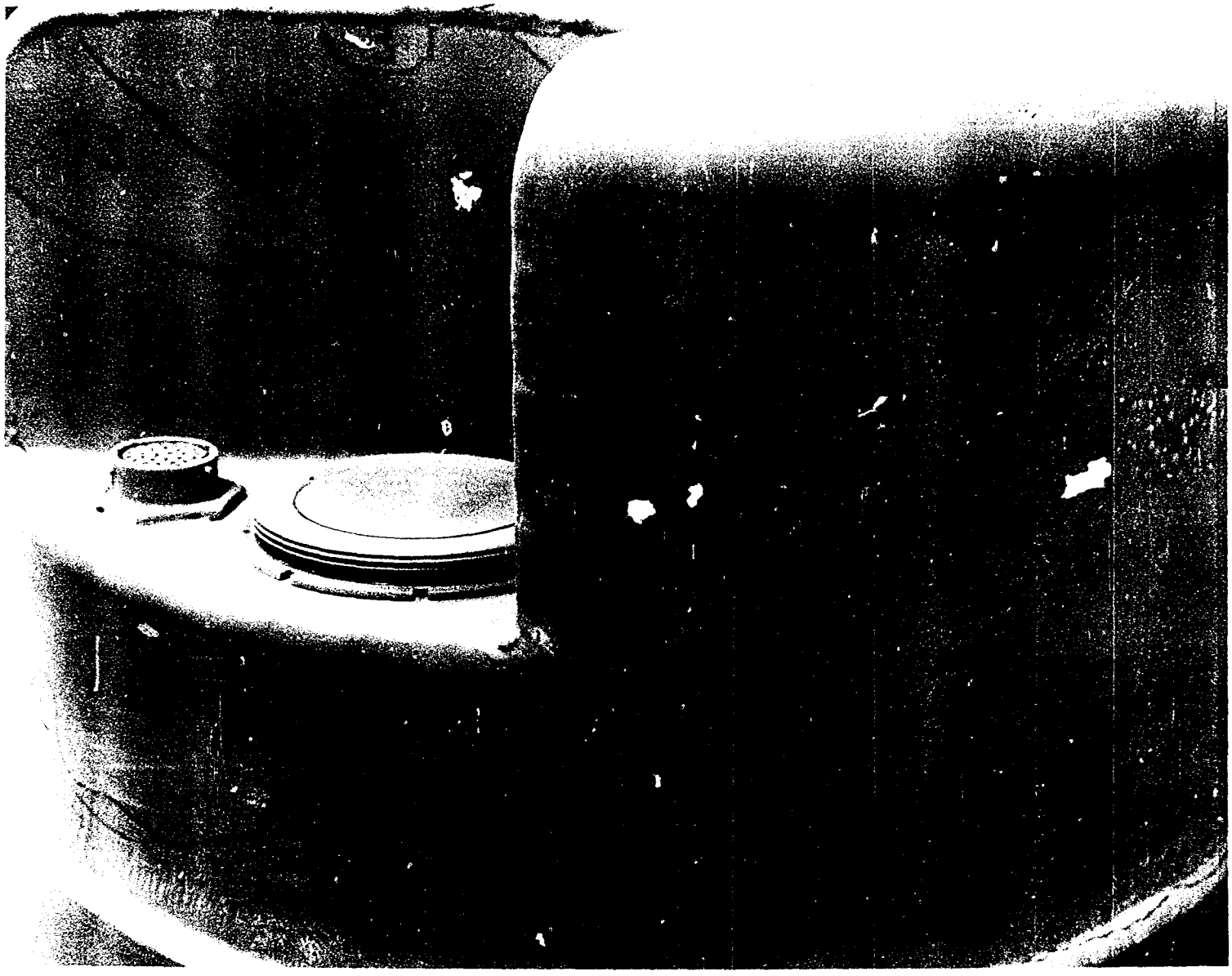

FIG. 6 - STRESSCOAT PATTERNS -- HYDROSTATIC TEST OF XW-59 PRESSURE COVER.

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TABLE I

Load - Deflection Data - Hydrostatic Test
of
XW-59 Pressure Cover

	Deflection (inches)		
Load (PSI)	No. 1	No. 2	No. 3
0	0	0	0
10	.007	.013	.002
0	.002	.004	.000
20	.018	.043	.007
0	.004	.012	.003
25	.028	.092	.014
0	.008	.057	.005
30	.040	.116	.023
0	.014	.098	.010

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TABLE II

Stresscoat Data
Hydrostatic Test of XW-59 Pressure Cover

Load (PSI)	Patterns	Photos Fig. No.	Stresscoat Sensitivity Microinches Per Inch
0			
10			800
0			800
20	1	2 - 3 - 4 - 5 - 6	800
0			800
25	2	2 - 3 - 4 - 5 - 6	800
0			
30	3	2 - 3 - 4 - 5 - 6	800
0			800