[redacted]

1370

UNCLASSIFIED

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
Review Date 9/22/98
Authority ADC
Name W Layne
Review Date 9/24/98
Authority ADC
Name W Layne
Determination (Circle Numbers)
1. Classification Retained
2. Classification Changed to: U
3. Contains No DOE Classified Information
4. Coordinate With:
5. Contains UCAI? NO
6. Comments: Declassify & release

JAN 24 1958
Case No. 746.00
Ref. Sym: 1612 (666)
Project No. TM-715
File: TX-41, 3-2

RECEIVED
JAN 27 1958
R & D FILES

MR. L. E. DAVIES - 1218

Attn: Mr. J. J. Lang - 1218-1

Re: Static Test of TX-41 Fin

CDL No.
ACCOUNTABILITY CARD B/h
FILE No. TX-41
3-2

Summary of Results

The TX-41 fin was statically tested to simulate air loads encountered during free fall and showed no indication of yielding, failure, or excessive deflection when tested to 200 per cent design limit load.

Object of Test

The object of this test was to determine the structural adequacy of the TX-41 fin to withstand air loads encountered during free fall.

Reason for Test

This test was authorized in a Work Order Authorization from Mr. L. E. Davis, 1218 to Mr. P. H. Adams, 1612, dated October 28, 1957.

Function of Object Tested

The function of the TX-41 fins are to stabilize the weapon during free fall.

Summary of Past Tests

No previous static tests have been run on the TX-41 by Division 1612.

Setup for Test

I. Figures 1 and 2 are photographs of the test setup.

II. The item tested was one TX-41 fin (XMC-978, per DL-10073, Issue C)

III. The following equipment was used in the test:

1. Four Blackhawk hydraulic jacks and pumps, capacity 15,000 pounds.

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
DOWNGRADING OR DECLASSIFICATION STAMP
CLASSIFICATION CHANGED TO: U
Emeida Selph 9/29/98
PERSON CHANGING MARKING & DATE
WC Layne 9/29/98
PERSON VERIFYING MARKING & DATE
AUTHORITY: W. C. Layne
RECORD ID: 98SN4462
DATED: 9/24/98

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[redacted]

2. Two Baldwin load cells, 2000 pounds capacity, Serial Nos. 20871, 8813.

3. One Baldwin load cell, 1000 pounds capacity, Serial No. 7889.

4. One Baldwin load cell, 5000 pounds capacity, Serial No. 4898.

5. Sadic automatic data processing system, Type 34-1124-1.

6. Four loading pads.

7. Four Bedwin SR-4 strain indicators, Serial Nos. 175441, 391903, 92498, and J-92499.

IV. The following instrumentation was used:

1. Stresscoat

2. Nineteen rosettes and four biaxial strain gage configurations, Type A-7 strain gages, resistance 120.5 ± 3 ohms, GF 1.57 ± 2 per cent, Lot B-32 DCWY.

3. Nine Starrett dial indicators, least graduation .001 inch.

Procedure

The TX-41 was stresscoated and mounted to the static jig (see Fig. 1). Four load pads were placed at the top of the fin at the locations shown in Fig. 3. Four loads were applied simultaneously to the four load pads by means of hydraulic jacks and measured with load cells. In the Stresscoat test the fin was loaded in increments up to 100 per cent design limit load and the Stresscoat was inspected for cracks after each increment of load. At the completion of this test the Stresscoat patterns were used to locate strain gages in addition to the locations of strain gages designated by the consultant. The gages were mounted to the fin at the locations shown in Figs. 4 thru 7. The fin was set up as in the Stresscoat test with the exception that nine dial indicators were placed at the locations shown in Fig. 2 to measure the deflection of the fin with respect to the static jig.

The fin was loaded in increments up to 200 per cent design limit load with strain readings and deflection readings taken at each increment of load. Strain readings were recorded by means of a Sadic automatic data processing system.

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Results

The TX-41 fin when statically tested to 200 per cent design limit load to simulate air loads encountered in free fall showed no indication of failures, yielding, or excessive deflections. The maximum stress computed from the strain readings was 41,396 psi (Rosette No. 55-56-57) and the gages were located near a rivet at the outboard edge. The maximum deflection recorded was .260 inch at dial indicator No. 3, located on the forward outboard tip of the fin. Load strain information are shown in Table I, computed stress are listed in Table II, and load deflection data are listed in Table III. Stresscoat patterns are shown in Figs. 8 and 9.

Conclusions

The TX-41 fin tested was structurally adequate to withstand 200 per cent design limit load when statically tested to simulate air loads encountered in free fall.

L. J. Woolrich
L. J. WOOLRICH - 1612-2

Approved by: Paul H. Adams
PAUL H. ADAMS - 1612

LJW:1612-2:as

Copy to:
W. A. Gardner, 1610
D. M. Bruce, 1282
C. L. Gomel, 5523
R. K. Smeltzer, 7221-3
Tech. Ref. File, 7221-3

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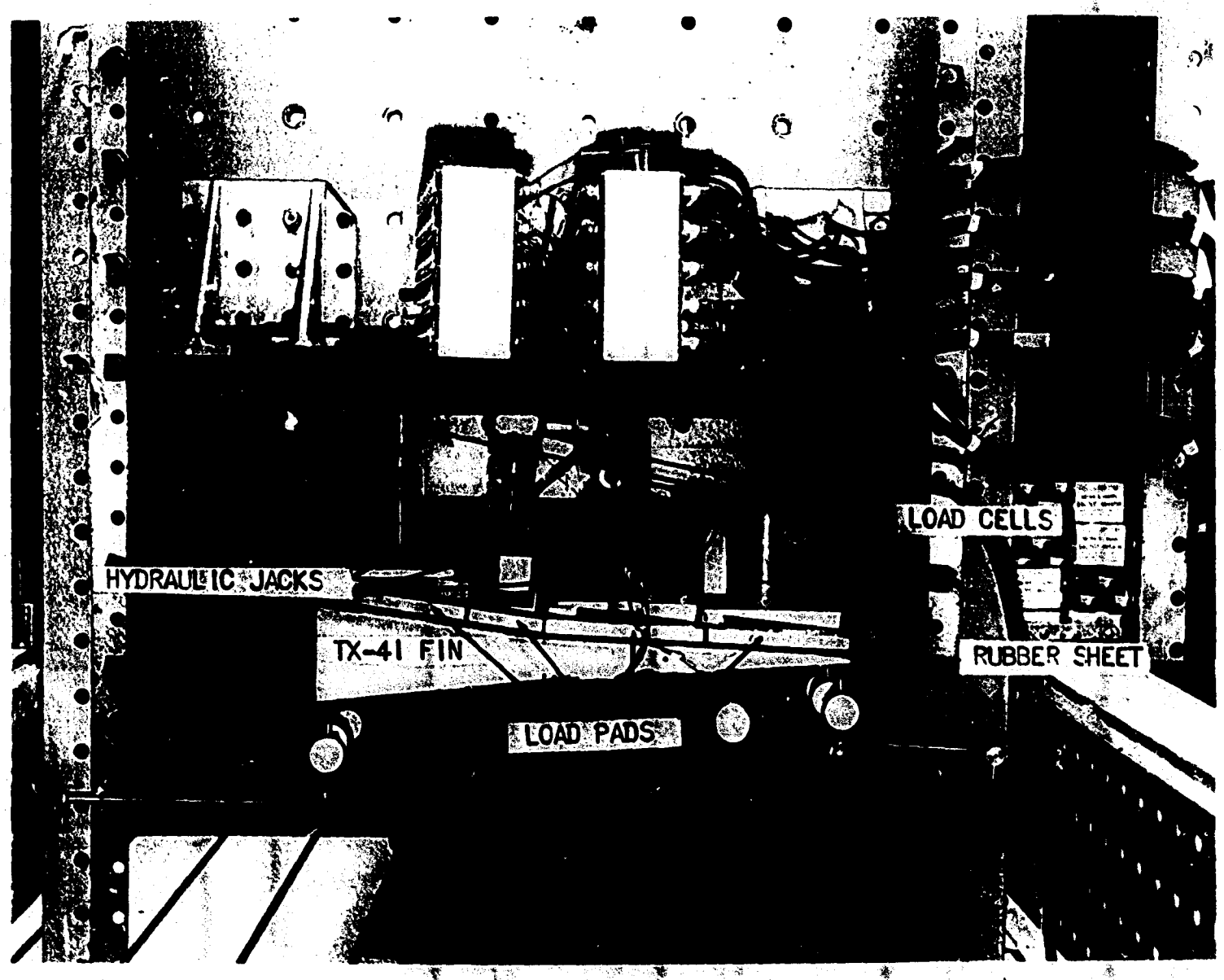

FIG. 1 -- TEST SETUP IN STATIC TEST OF TX-41 FIN.

D# 100724

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FIG. 2 -- TEST SETUP SHOWING DIAL INDICATOR LOCATIONS IN STATIC TEST OF TX-41 FIN.

D# 100723

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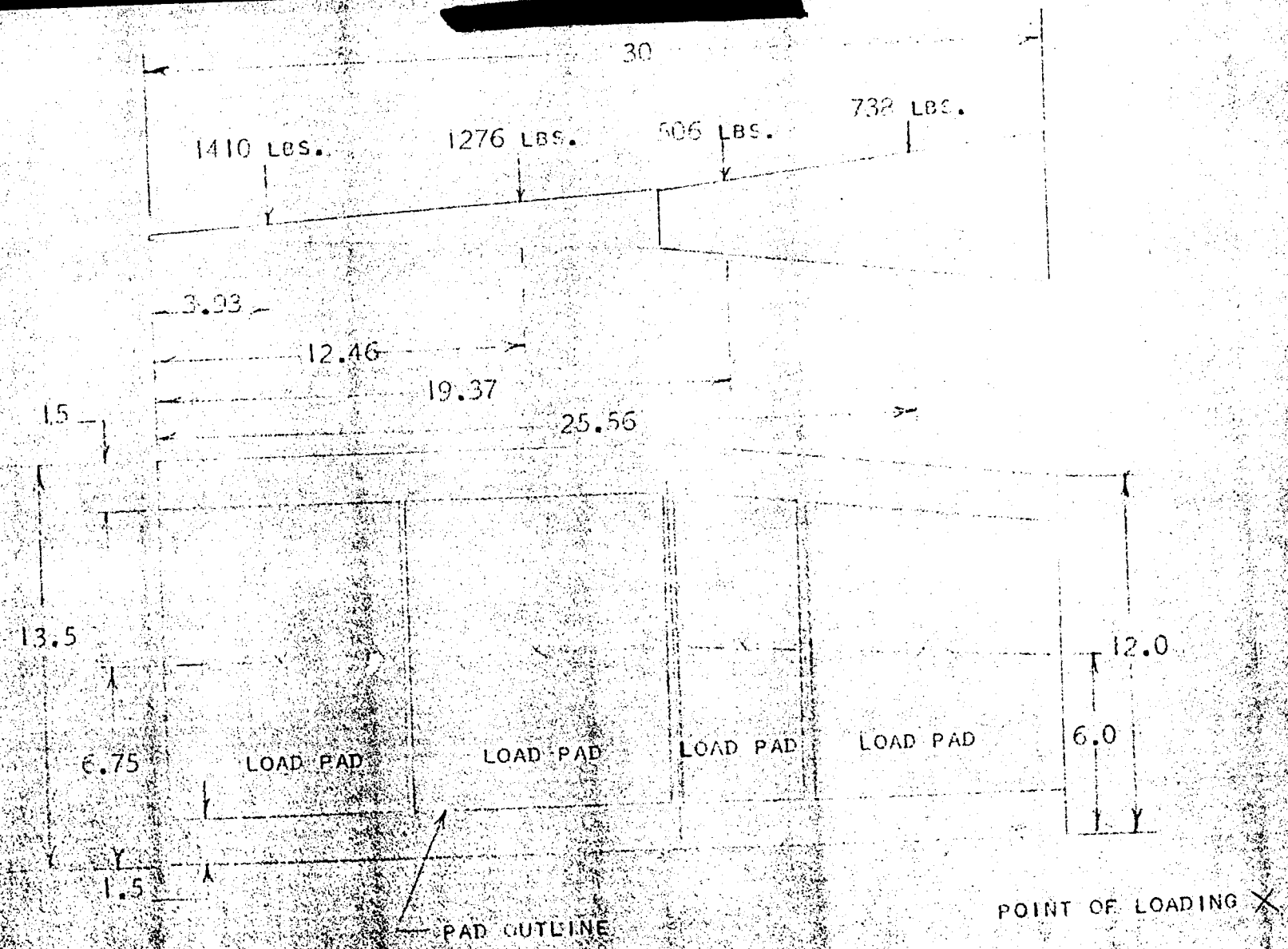

FIG. 3 -- LOCATION OF LOAD PADS AND MAGNITUDES OF LOAD AT 200 PER CENT DESIGN LIMIT LOAD IN STATIC TEST OF TX-41 FIN.

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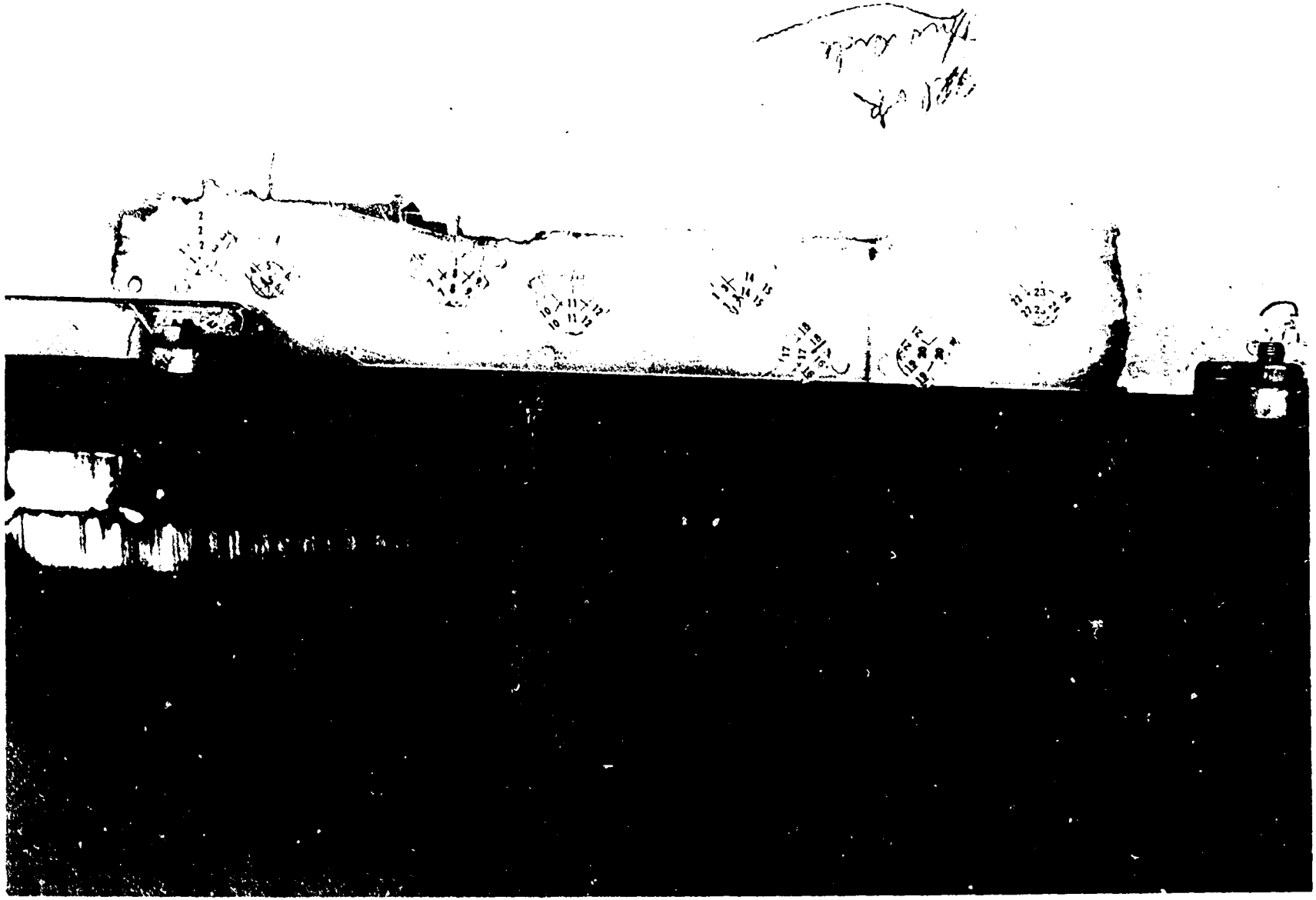

FIG. 4 -- STRAIN GAGE LOCATIONS ON UPPERSIDE (OR SIDE WHERE LOAD WAS APPLIED) OF FIN IN STATIC TEST OF TX-41 FIN.

D#98757

REF. SYM: 1612 (666)
PROJECT NO. TM-715

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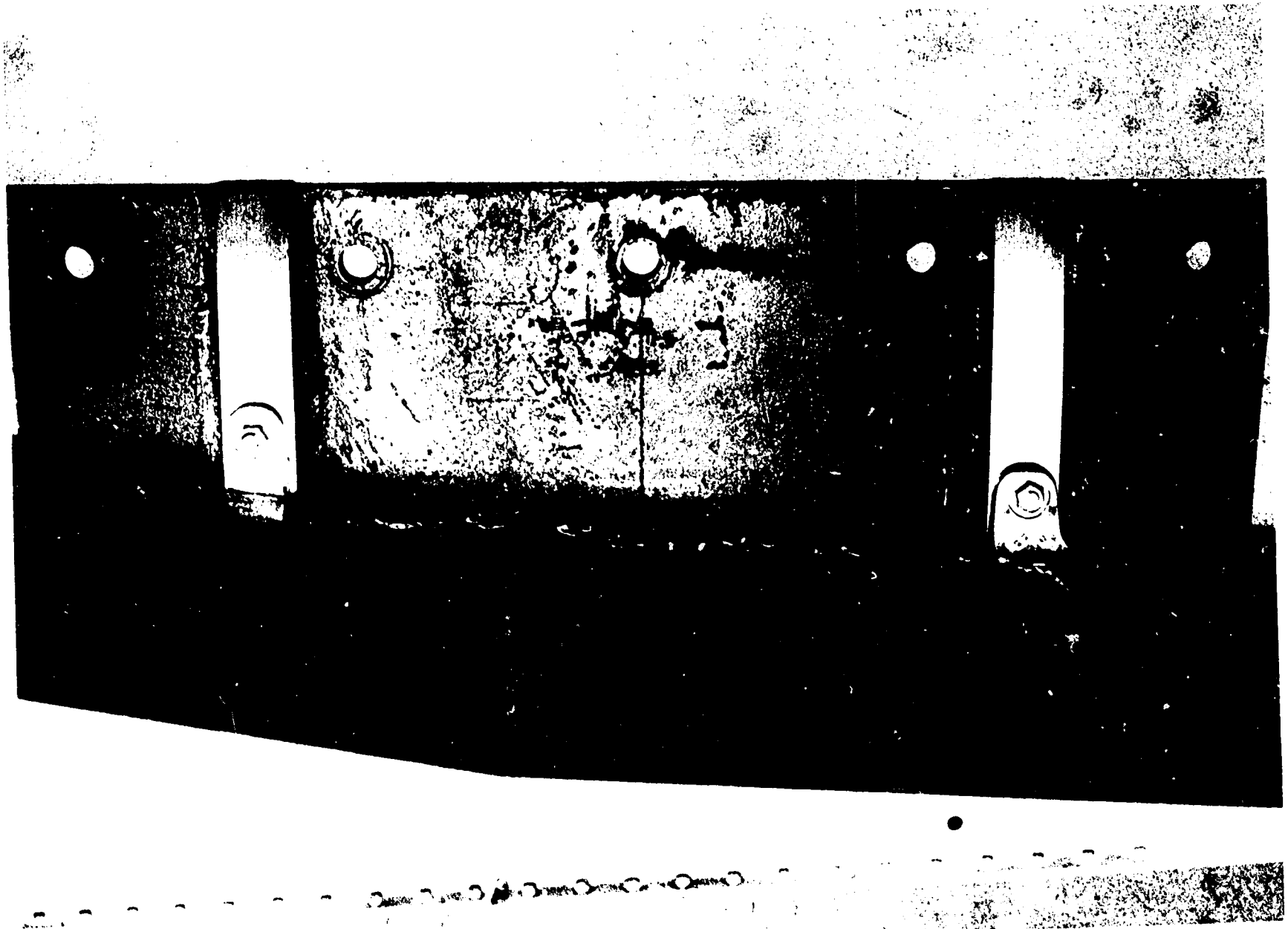

FIG. 5 -- STRAIN GAGE LOCATIONS ON UPPER SIDE (OR SIDE WHERE LOAD WAS APPLIED) OF FIN IN STATIC TEST OF TX-41 FIN.

D# 98758

REF. SYM: 1612 (666)
PROJECT NO. TM-715

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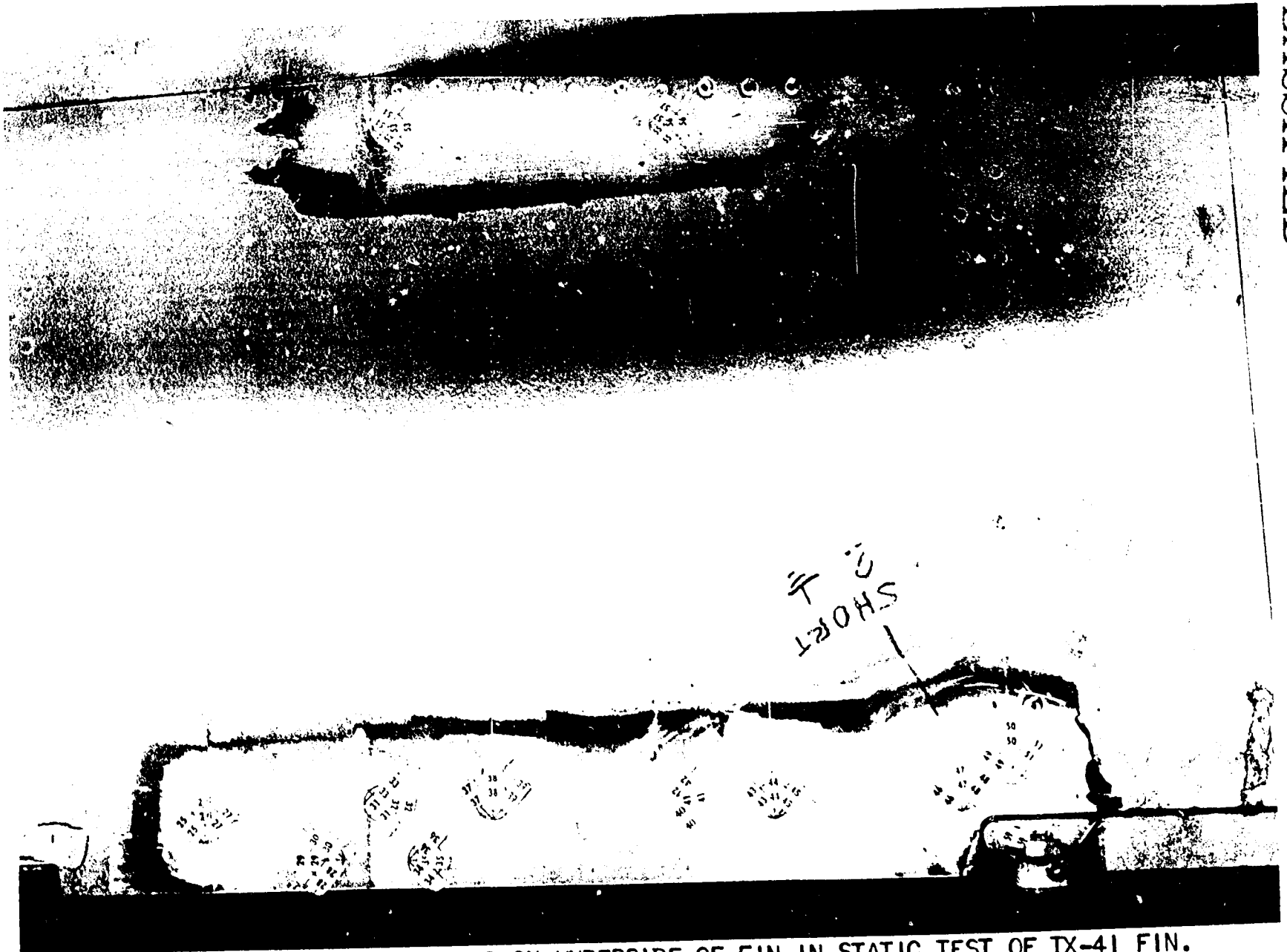

FIG. 6 -- STRAIN GAGE LOCATIONS ON UNDERSIDE OF FIN IN STATIC TEST OF TX-41 FIN.

D# 98759

REF. SYM: 1612 (666)
PROJECT NO. TM-715

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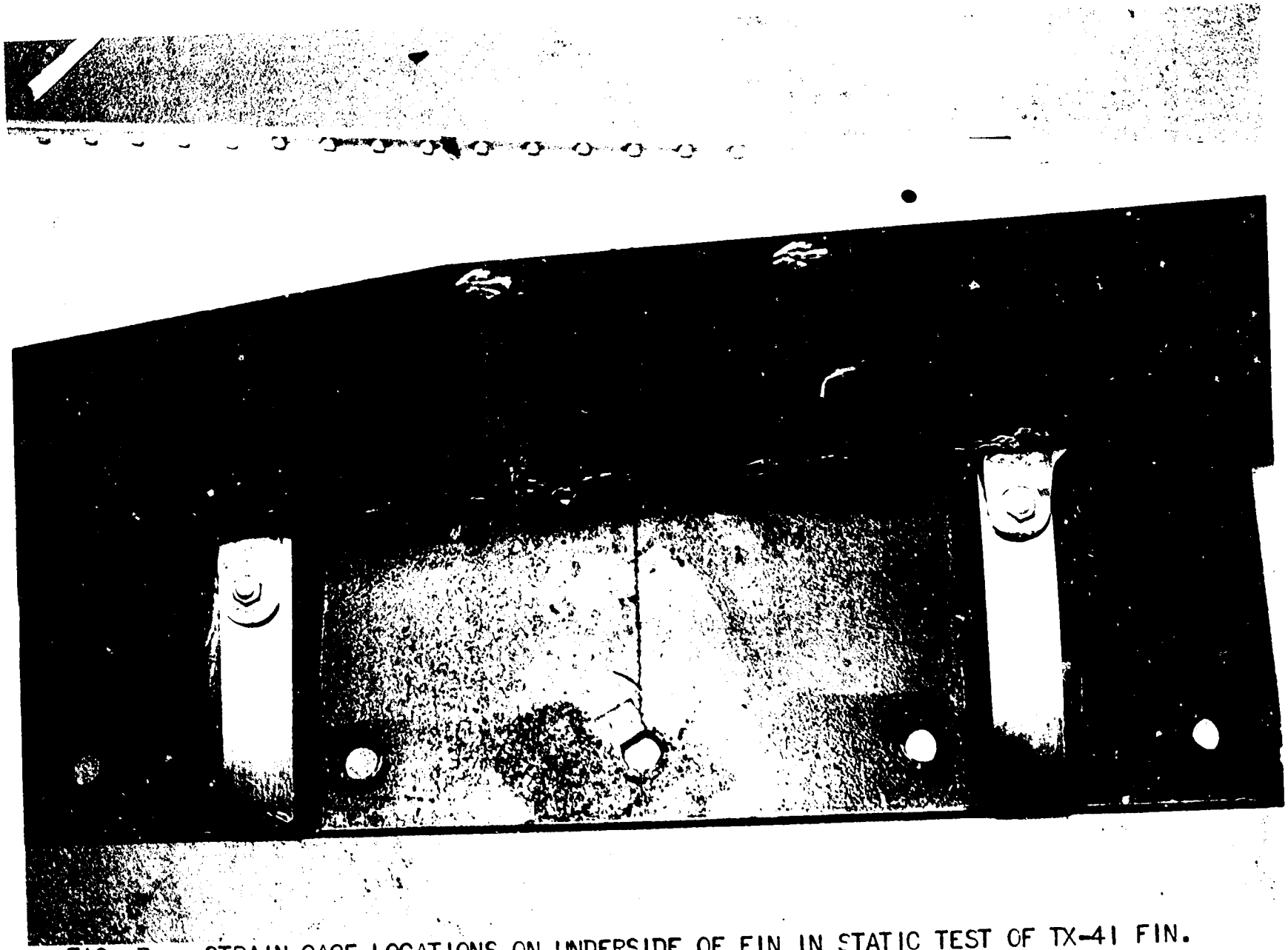

FIG. 7 -- STRAIN GAGE LOCATIONS ON UNDERSIDE OF FIN IN STATIC TEST OF TX-41 FIN.

D#98956

REF. SYM: 1612 (666)
PROJECT NO. TM-715

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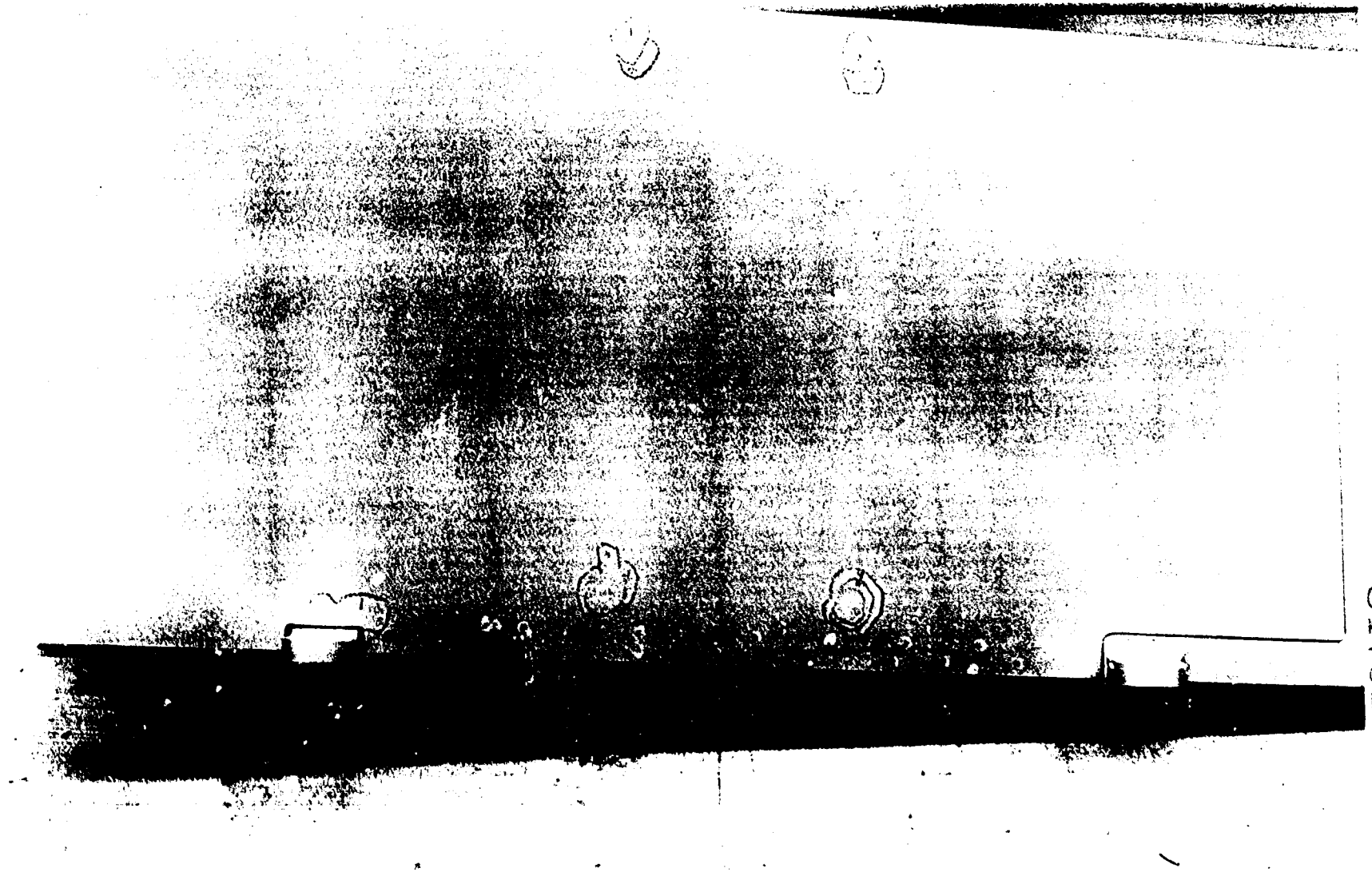

FIG. 8 -- STRESSCOAT PATTERNS ON UNDERSIDE OF FIN IN STATIC TEST OF TX-41 FIN.

D# 98206

REF. SYM: 1612 (666)
PROJECT NO. TM-715

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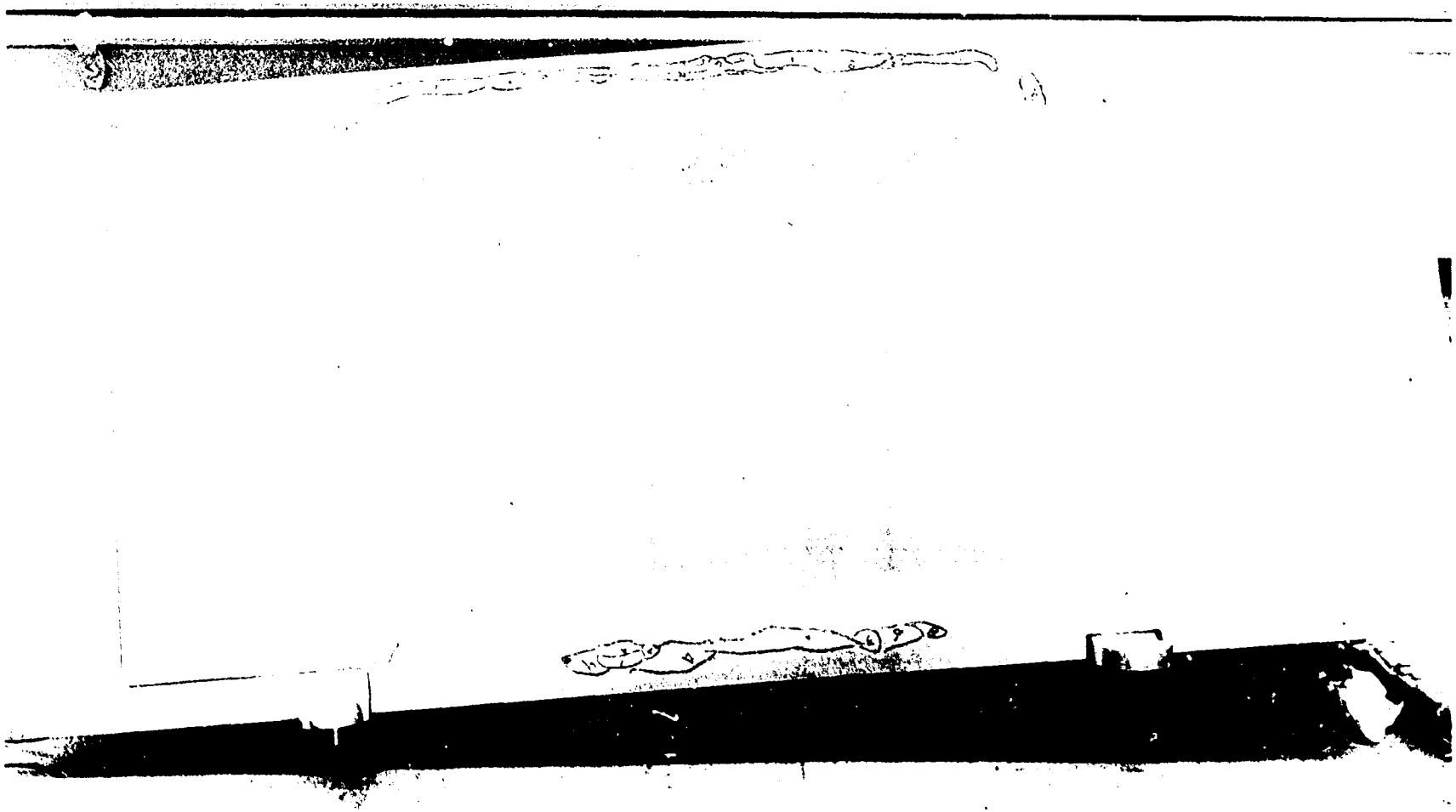

FIG. 9 -- STRESSCOAT PATTERNS ON UPPERSIDE (OR SIDE WHERE LOAD WAS APPLIED) OF FIN IN STATIC TEST OF TX-41 FIN.

D# 98207

REF. SYM: 1612 (666)
PROJECT NO. TM-715

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TABLE I

RECORDED STRAINS IN STATIC TEST OF T

Load Per Cent	Strain (Microinches/Inch) Gage Numbers 1 - 2 - 3			4 - 5 - 6			7 - 8 - 9			10 - 11 - 12		
0	0	0	0	0	0	0	0	0	0	0	0	0
20	36	116	74	55	34	58	70	58	8	189	226	-52
40	78	215	133	139	72	98	129	107	6	379	454	-19
60	91	297	183	180	100	131	162	157	32	556	701	+49
80	92	377	239	196	123	167	179	206	71	713	955	137
100	90	450	300	230	160	210	200	570	120	860	1250	219
0	12	74	47	99	40	3	27	327	-7	50	83	-95
100	110	510	320	260	200	210	230	280	60	830	1260	159
115	110	550	340	300	220	230	240	330	100	990	1450	219
125	110	570	370	320	240	240	230	360	120	1070	160	259
0	0	79	70	139	66	55	7	25	18	66	157	-33
125	110	560	360	330	230	250	210	350	130	1040	1620	197
140	110	610	410	310	240	260	200	350	150	1060	1660	289
160	110	670	460	340	270	300	200	400	180	1190	1900	349
180	110	710	500	360	280	330	200	450	230	1320	2170	419
200	100	760	550	360	320	360	200	520	270	1480	2500	549
0	-6	111	109	107	84	36	27	38	5	226	248	79

Load Per Cent	Strain (Microinches/Inch) Gage Numbers 22 - 23 - 24			25 - 26 - 27			28 - 29 - 30			31 - 32 - 33		
0	0	0	0	0	0	0	0	0	0	0	0	0
20	180	118	-34	36	-35	-66	19	147	-35	56	-26	12
40	284	184	-64	66	-71	-142	48	259	-79	121	-16	36
60	386	263	-71	80	-94	205	66	343	-123	192	-11	62
80	468	328	-68	83	-108	-181	73	399	-163	459	33	113
100	570	400	-80	90	-120	-210	90	460	-210	820	110	500
0	58	44	-3	29	-16	-34	28	65	-4	7	-4	-14
100	550	340	-150	120	-140	-250	400	510	-190	900	130	180
115	620	400	-150	130	-150	-270	110	550	-240	1170	210	260
125	660	440	-150	320	-380	-110	-60	-120	-250	1380	240	300
0	80	53	-11	32	-32	-58	30	97	-15	69	-52	-46
125	700	450	-160	130	-170	-320	130	620	-250	1480	210	270
140	730	410	-210	140	-190	0	140	660	-280	1640	280	320
160	800	470	-220	160	-210	-390	160	720	-330	2010	370	410
180	900	540	-220	160	-240	-430	180	790	-380	2450	450	500
200	990	600	-250	170	-270	-130	220	880	-450	2940	510	570
0	21	74	-53	37	-39	-99	19	126	-19	687	-199	-232

+ denotes tension.
- denotes compression.

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LE I

ATIC TEST OF TX-21 FIN

inches/Inch)

umbers 9 - 11 - 12		13 - 14 - 15			16 - 17 - 18			19 - 20 - 21		
0	0	0	0	0	0	0	0	0	0	0
226	-52	33	60	16	-8	-63	74	50	-161	178
454	-19	71	117	22	-20	-106	180	93	-241	267
701	+42	103	170	50	-41	-145	258	120	-297	364
955	137	131	213	83	-58	-177	318	138	-336	446
1250	219	160	230	130	-70	-210	380	160	-390	540
83	-95	21	16	-9	38	-8	54	29	-85	99
1260	159	180	310	110	-100	-220	480	140	-440	510
1450	219	210	360	160	-120	-250	520	140	-480	570
160	259	220	320	170	-140	-270	560	130	-520	640
157	-33	9	30	23	46	40	72	38	-122	150
1620	299	200	400	200	-160	-260	580	140	-540	660
1660	289	200	380	170	-180	-290	590	140	-530	700
1900	349	210	430	220	-220	-330	640	140	-620	790
2170	419	230	490	280	-260	-370	710	120	-680	910
2500	549	240	580	310	-320	-410	810	120	-740	1070
248	79	10	38	-8	44	31	149	46	-162	176

inches/Inch

umbers 31 - 32 - 33		34 - 35 - 36			37 - 38 - 39			40 - 41 - 42		
0	0	0	0	0	0	0	0	0	0	0
-26	12	23	69	-62	-24	-13	-25	163	60	21
-16	36	26	139	-128	-26	-22	-45	314	142	54
-11	62	30	182	-178	-41	-31	-64	599	270	127
33	113	32	207	-220	-62	-36	-84	897	408	257
110	500	30	240	-280	-90	-50	-90	1200	550	380
-4	-14	-9	50	-62	297	1	1	24	296	-29
130	180	50	270	-320	-60	-40	-110	1240	880	310
210	260	50	310	-350	-80	-50	-120	1490	690	430
240	300	50	320	-380	-110	-60	-120	1660	750	480
-52	-46	-7	54	-76	-39	-7	10	28	-31	-62
210	270	40	320	-410	-130	-50	-120	1610	720	400
280	320	70	360	-450	-150	-70	-110	1660	760	450
370	410	70	400	-490	-150	-70	-120	1910	860	570
450	500	80	450	-560	-180	-80	-140	2190	990	670
510	570	100	490	-630	-220	-80	-150	2500	1110	-740
-199	-232	20	76	-118	-34	-8	-17	159	-161	-310

[redacted]

The written material - Printing, on Page # 1383 ~~[illegible]~~ is of Inferior Quality.

Gas Kill
3428-1.

TABLE I (Continued)

RECORDED STRAINS IN STATIC TEST OF TX-41 FIN

Load Per Cent	Strain (Microinches/Inch) Gage Numbers 43	44	45	46	47	48	49	50	51	52	53	54
0	0	0	0	0	0	0	0	0	0	0	0	0
20	-19	-8	-39	-20	-13	-8	-41	-107	-24	163	-24	139
40	-29	-22	-73	-6	-14	2	-58	-163	-33	314	-10	358
60	-59	-41	-94	-2	-16	12	-70	-251	-46	453	9	581
80	196	-46	-105	-10	-22	24	-86	-308	-49	557	20	754
100	-120	-40	-110	0	-10	50	-90	-360	-60	660	330	960
0	-9	-5	-6	32	31	60	-14	-47	-8	38	249	32
100	-70	-40	-130	0	-20	70	-70	-430	-90	690	30	1040
115	-110	-40	-130	0	-20	100	-70	-460	-120	770	60	1190
125	-110	-40	-140	300	-20	110	-70	-490	-140	790	40	1240
0	-31	-6	16	326	35	95	3	-64	-41	-19	-107	47
125	-110	-40	-130	-20	-30	100	220	-480	-150	790	10	1250
140	-130	-40	-110	-110	-70	120	-90	-520	-140	920	30	1490
160	-140	-40	-110	-40	-40	150	-90	-560	-170	980	20	1610
180	-170	-40	-110	-60	-30	180	-90	-610	-190	1070	20	1760
200	-190	-40	-120	230	-30	210	-80	-650	-220	1170	20	1930
0	-22	-6	-4	46	53	88	18	-84	-71	-303	-361	89

Load Per Cent	Strain (Microinches/Inch) Gage Numbers 55	56	57	58	59	60	61	62	63	64	65
0	0	0	0	0	0	0	0	0	0	0	0
20	118	14	138	-123	-114	-76	-50	49	88	33	-125
40	239	74	412	-245	-220	-149	-65	122	163	160	-258
60	355	145	708	-360	-331	-214	-95	203	249	364	-391
80	457	220	937	-491	-433	-292	-89	284	338	696	-525
100	560	300	1270	-610	-550	-380	-110	360	440	1010	-660
0	25	2	31	-35	-112	-84	-34	30	84	57	-49
100	570	270	1200	-600	-590	-410	-110	410	470	1130	-740
115	640	340	1420	-770	-660	-470	-120	470	550	1390	-830
125	670	380	1560	-840	-720	-510	-150	490	590	1510	-890
0	32	315	89	-30	-138	-119	-53	12	91	31	-71
125	660	380	1540	-830	-700	-500	-150	490	590	1510	-890
140	760	500	1970	-930	-780	-570	-160	570	680	1840	-1060
160	830	560	2210	-1060	-860	-630	-180	660	790	2120	-1240
180	930	690	2470	-1220	-950	-680	-210	-750	880	2450	-1430
200	1000	790	2770	-1360	-1040	-740	-240	-840	930	2740	-1610
0	-72	-106	383	-134	-254	-130	-85	-40	106	-103	-229

+ denotes tension.
- denotes compression.

TABLE II

COMPUTED MAXIMUM AND MINIMUM STRESSES IN [illegible]

Load Per Cent	Rosette 1 - 2 - 3 Su	Rosette 1 - 2 - 3 Sv	Rosette 4 - 5 - 6 Su	Rosette 4 - 5 - 6 Sv	Rosette 7 - 8 - 9 Su	Rosette 7 - 8 - 9 Sv	Rosette 10 - 11 - 12 Su	Rosette 10 - 11 - 12 Sv	Stress (psi) Rosette Gage Numbers 13 - 14 - 15 Su	Stress (psi) Rosette Gage Numbers 13 - 14 - 15 Sv	16
0	0	0	0	0	0	0	0	0	0	0	
20	1370	371	1071	718	901	333	2634	-466	673	102	1
40	2552	787	2273	1478	1640	497	5496	202	1319	153	2
60	3470	867	2935	1987	2227	844	8477	1083	1970	451	4
80	4370	870	3344	2402	2739	1218	11441	2013	2581	806	4
100	5242	931	3958	3007	5752	-687	14631	2447	3357	1233	5
0	841	93	1450	797	2639	-2323	644	-1357	236	-46	1
100	5850	956	4056	3383	3542	1048	14660	1736	3613	977	6
115	6256	867	4640	3749	4056	1326	16831	2306	4310	1547	7
125	6571	1027	4874	3990	4278	1261	15577	5459	4546	1627	7
0	993	115	1943	1127	309	91	1425	-903	376	131	1
125	6441	998	5154	4027	4132	1250	18570	2624	4729	1603	7
140	7093	1139	4913	4109	4152	1338	18947	2405	4457	1400	[illegible]
160	7816	1206	5486	4644	4651	1364	21607	2753	5084	1722	[illegible]
180	8341	1314	5982	4939	5244	1563	24520	3006	5883	2189	
200	8972	1316	6011	5386	5964	1475	28225	3891	6752	1953	1
0	1462	168	2523	1165	445	61	3370	1489	508	-1	2

Load Per Cent	Rosette 31 - 32 - 33 Su	Rosette 31 - 32 - 33 Sv	Rosette 34 - 35 - 36 Su	Rosette 34 - 35 - 36 Sv	Rosette 37 - 38 - 39 Su	Rosette 37 - 38 - 39 Sv	Rosette 40 - 41 - 42 Su	Rosette 40 - 41 - 42 Sv	Stress (psi) Rosette Gage Numbers 43 - 44 - 45 Su	Stress (psi) Rosette Gage Numbers 43 - 44 - 45 Sv	46
0	0	0	0	0	0	0	0	0	0	0	
20	1038	39	459	-1076	-298	-478	2065	848	-277	-641	
40	2052	433	795	-2410	-433	-691	3930	1845	-558	-1056	
60	3202	818	988	-3331	-640	-1022	7728	3763	-902	-1520	
80	6922	2131	1062	-4038	-854	-1457	11961	6305	2097	-656	
100	14924	5970	1121	-5078	-1112	-1737	16218	8791	-1233	-2408	
0	27	-138	138	-1262	3994	723	2303	-2382	-96	-141	
100	12812	4283	1343	-5617	-943	-1748	15993	8541	-1059	-2107	1
115	16630	6005	1546	-6295	-1162	-2004	19344	10546	-1269	-2530	1
125	19605	6987	1535	-6758	-1389	-2252	22182	11690	-1304	-2653	1
0	852	-488	137	-1450	-29	-430	93	-637	66	-303	
125	20876	6823	1393	-7249	-1391	-2566	21134	10681	-1269	-2530	1
140	23031	7992	1747	-7762	-1563	-2552	21960	11438	-1269	-2530	1
160	28219	10086	1922	-8570	-1615	-2658	25647	13607	-1304	-2653	1
180	34403	12290	2146	-9743	-1888	-3177	29498	15771	-1400	-3032	2
200	41212	14345	2360	-10749	-2063	-3793	33591	17692	-1514	-3393	1
0	3501	-1299	340	-1892	-252	-556	756	-2146	-117	-295	1

+ denotes tension.
- denotes compression.

[redacted]

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Ref. Sym: 1612 (666)
Project No. T4-715

LE II

RESSES IN STATIC TEST OF TX-41 FIN

s (psi) tte Numbers	Rosette		Rosette		Rosette		Rosette		Rosette	
- 15	16 - 17 - 18		19 - 20 - 21		22 - 23 - 24		25 - 26 - 27		28 - 29 - 30	
Sv	Su	Sv	Su	Sv	Su	Sv	Su	Sv	Su	Sv
0	0	0	0	0	0	0	0	0	0	0
102	1338	-294	4011	-402	2063	248	191	-666	1103	-1356
153	2917	-384	6209	-511	3219	263	4326	549	1957	-2447
451	4018	-583	8150	-489	4460	526	4167	344	2545	-3447
806	4871	-756	9676	-432	5487	844	354	-1906	2878	-4303
1233	5805	-898	11511	-431	6692	1064	313	-2212	3280	-5180
-46	1155	301	2209	-183	706	164	228	-307	623	-243
977	6932	-918	11296	-1307	6112	219	531	-2589	5578	-2254
1547	7481	-1150	12358	-1120	6993	446	576	-2792	3969	-6026
1627	7967	-1319	13443	-1255	7516	556	5808	-2484	-1662	-3245
131	1114	754	3232	-256	930	162	176	-588	840	-603
1603	7999	-1351	13954	-1291	7917	630	350	-3357	4569	-6468
1400	8146	-1656	14764	-1468	7971	259	3212	-996	4829	-7045
1722	8719	-2071	16213	-1492	8817	363	454	-4094	5231	-7922
2189	9561	-2438	17938	-1685	10029	734	311	-4584	5709	-8875
1953	10639	-2383	20493	-1657	11025	688	2868	-2235	6385	-10026
-1	2184	871	3950	-436	925	-481	44	-1026	996	-996

s (psi) tte Numbers	Rosette		Rosette		Rosette		Rosette	
- 45	46 - 47 - 48		49 - 50 - 51		52 - 53 - 54		55 - 56 - 57	
Sv	Su	Sv	Su	Sv	Su	Sv	Su	Sv
0	0	0	0	0	0	0	0	0
-641	-174	-269	72	-1100	3822	1038	-2920	1132
-1056	67	-131	359	-1799	8028	2609	7231	3073
-1520	267	-109	593	-2429	12185	4181	11734	5092
-656	374	-152	817	-2954	15402	5349	15997	7018
-2408	732	60	1043	-3418	16751	8890	20033	8933
-141	888	568	108	-456	2227	-1119	648	239
-2107	1064	44	1470	-4003	20369	7024	19409	8608
-2530	1464	119	1356	-4363	22887	8136	22498	10108
-2653	5154	1336	1360	-4683	23886	8245	24364	10933
-303	4974	1690	91	-692	1202	-759	2959	-1044
-2530	1354	-87	4831	-3723	24241	8049	24006	10816
-2530	1152	-994	1351	-4992	28523	9623	29356	13356
-2653	1768	-344	1318	-5433	30762	10233	33299	14819
-3032	2122	-223	1476	-5910	33882	11229	37352	16780
-3393	5438	1527	1572	-6320	37489	12371	41396	18277
-295	1258	863	149	-988	814	-4201	5170	-248

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The written material - Printing on Pages # 1335 through # 1336 is of Inferior Quality.

Gas Kill
3 of 28-1.

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TABLE II (Continued)

COMPUTED MAXIMUM AND MINIMUM STRESSES IN STATIC TEST OF TX-21 FIN

Load Per Cent	Maximum and Minimum Principal Stress - psi							
	58 - 59		60 - 61		62 - 63		64 - 65	
	Su	Sv	Su	Sv	Su	Sv	Su	Sv
0	0	0	0	0	0	0	0	0
20	-1840	-1910	-900	-1100	1240	930	-110	-1340
40	-3580	-3770	-1370	-2020	2410	2090	850	2400
60	-5390	-5680	-1790	-2840	3750	3390	2730	-3150
80	-7080	-7530	-2220	-3800	5130	4710	6110	-3400
100	-8940	-9410	-2820	-4930	6640	6010	9270	-3740
0	-860	-1460	-740	-1130	1110	690	480	-350
100	-9690	-10390	-2940	-5280	7190	6720	10960	-4000
115	-10880	-11730	-3300	-6030	8380	7750	13070	-4220
125	-11870	-12800	-3820	-6620	8930	8150	14250	-4440
0	-910	-1750	-1100	-1620	1120	510	80	-710
125	-11590	-12600	-3780	-6500	8930	8150	14250	-4440
140	-12940	-14100	-4180	-7370	13850	10660	17460	-5130
160	-14400	-15960	-4650	-8160	11970	10960	20040	-6130
180	-16110	-18210	-5210	-8870	7380	-5320	23170	-7050
200	-17730	-20220	-5800	-9700	8190	-5980	25870	-8010
0	-2660	-3540	-1730	-2470	1080	-50	-2190	-3140

+ denotes tension.
- denotes compression.

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TABLE III

LOAD-DEFLECTION DATA IN STATIC TEST OF [illegible]-41 FIN

Load Per Cent	Deflection (Inches) Dial Indicators 1	2	3	4	5	6	7	8	9
0	.000	.000	.000	.000	.000	.000	.000	.000	.000
20	.001	.004	.018	.001	.003	-.035	.002	.002	.007
40	.006	.019	.035	.004	.012	-.022	.009	.014	.021
60	.011	.032	.058	.007	.021	-.030	.011	.028	.037
80	.016	.044	.082	-.008	.030	-.019	.012	.029	.051
100	.022	.058	.107	-.004	.039	.042	.012	.034	.064
0	.001	.002	.005	-.013	.003	-.041	.009	.007	.018
100	.025	.073	.134	-.002	.040	.062	.007	.033	.067
115	.029	.082	.151	.000	.049	.076	.005	.036	.074
125	.040	.089	.164	.003	.053	.088	.005	.039	.080
0	.009	.021	.035	-.014	.008	-.019	.010	.012	.024
125	.034	.038	.160	.002	.056	.088	.004	.038	.081
140	.037	.098	.183	[illegible]	[illegible]	.109	.005	.045	.093
160	.043	.111	.208	.010	.074	.103	.003	.051	.107
180	.046	.123	.232	.014	.084	.156	.002	.056	.119
200	.051	.137	.260	.019	.095	.182	.000	.062	.130
0	.008	.019	.035	-.013	.015	-.019	-.007	.016	.031