

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW	
1 st Review Date: <u>7/26/98</u>	Determination (Circle Number)
Authority: <input type="checkbox"/> ADP <input checked="" type="checkbox"/> ADP <u>W. Lorne</u>	1 Classification Retained
Name: _____	2 Classification Changed to: <u>U</u>
2 nd Review Date: <u>7/23/98</u>	3 Contains No DOE Classified Information
Authority: <u>R.B. Oraner</u>	4 Coordinate With: _____
Name: _____	5 Coordinate UCAIT: <u>RU</u>
	6 Comments: <u>OK for declass</u>

APR 13 1959
 MK-7, 3-2
 Project No. T-16028
 Case No. 627.00
 Completed 3-1-59
 Ref. Sym: 1613(19)

TO: DISTRIBUTION

Re: Humidity Test of MK-7

Summary of Results

Two tests were run using two different methods of taping the tail fins. The first method which did not lap the tape over the aft end of the retractable fin allowed moisture to accumulate in the MC-203 section. The relative humidity increased to approximately 54% within 48 hours after the test started.

The second method of taping which lapped the critical edges of the retractable fin was much more effective. The relative humidity remained less than 20% for fourteen days. The retractable fin would not extend with this tape around it but slitting the tape around each side freed the fin.

Object of Test

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The object of this test was to subject this weapon to humidity exposure after all sources of moisture entry were taped with lead tape to see if less desiccant would maintain tolerable relative humidity levels in the weapon. **3427-1**

AUG 6 1964

It was requested by Organization 1222. Mr. F. W. Millikin, 1222, was the consultant.

Procedure and Results

For the first test the weapon was taped as shown in Figures 1 thru 6 except for the retractable fin. Figure 1 shows the method used in the second test. The first test was the same except that the tape was not allowed to lap over the aft end of the fin.

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APR 23 1959

Ten 16 unit bags of desiccant were installed in the MC-263 center section of the weapon and the weapon was put together and sealed with lead tape. An MC-355 humidity sensing element was placed in the MC-203 tail section and an eight element Aminco humidity sensing element was installed in the MC-440 nose section. At the start of the test the % RH in the MC-203 was less than 10% and in the MC-440 it was approximately 3%.

CENTRAL RECORDS

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The total weight of desiccant at the start of the test was 5439 grams. The

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DOWNGRADING OR DECLASSIFICATION STAMP	
CLASSIFICATION CHANGED TO: <u>U</u>	AUTHORITY: <u>R. B. Oraner</u>
PERSON CHANGING MARKING & DATE: <u>Emilda Selp 7/30/98</u>	RECORD ID: <u>985N3080</u>
PERSON VERIFYING MARKING & DATE: <u>W. C. Lorne 7/30/98</u>	DATED: <u>7/23/98</u>



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test started at 1600 on 1-17-59 in the humidity cycling which consisted of eight hours at 50°F, raise to 80°F in four hours, eight hours at 80°F then lower to 50°F in four hours with RH maintained at 95 - 100% throughout the cycle. In twenty-four hours the RH had increased to 33.5% in the MC-203 and to approximately 60% in the MC-440. On 1-19-59 this RH had increased to 54% in the MC-203 and was still approximately 60% in the MC-440. The MC-203 was removed and a small puddle of free water was found in the bottom of the MC-203. Examination revealed that at the extreme aft end of the retractable fin, the tape had pulled away from the fin for about 1/4 inch, allowing an opening for the condensate on the outer skin to enter. This water apparently ran down the inside of the MC-203, thru an unsealed gap in the vapor barrier and collected in the forward end of the MC-203. The mounting flange of the MC-203 prevented the water from running into the MC-262. Total weight of the desiccant was now 5804 grams.

The weapon was opened up completely and dehumidified with a dehumidifier for several hours. Twelve, 16 unit bags of desiccant were installed in the proposed desiccant container and the weapon was retaped as shown in Figures 1 thru 6. This time the end of the retractable fin was carefully covered completely. The second humidity cycling began at 1400 on 1-23-59. At this time total desiccant weight was 6490 grams, the RH in the MC-203 was 10% and in the MC-440 it was approximately 2%. By 2-4-59 the RH in the MC-440 was up to approximately 13% but was still less than 10% in the MC-203. On 2-7-59 RH was 42% in the MC-203 and 43% in the MC-440. On 2-9-59 RH had increased to 52% in the MC-203 and to 54% in the MC-440. The test was stopped at this time and the weapon was opened again. Total desiccant weight was now 7065.6 grams, which indicated a desiccant moisture content of 575.6 grams absorbed during humidity cycling. This is equivalent to a little more than one pint of free water.

An attempt was made to extend the retractable fin with the tape installed but the motor overload protection would open the electrical circuit before the fin could extend. The tape was split down the cracks on either side of the fin and around the aft end of the MC-203 and the fin would then extend properly.

Further tests will include vibration of the MC-262 with the desiccant containers installed and filled with desiccant to determine the structural adequacy of the container mounts.

Test Conducted by: D. C. MCFALL - 1613-3

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Bill Johnson

1613 Project Test Engineer: BILL JOHNSON - 1613-3

A. W. Reger

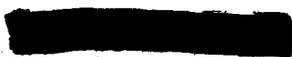
Approved by: A. W. REGER - 1613

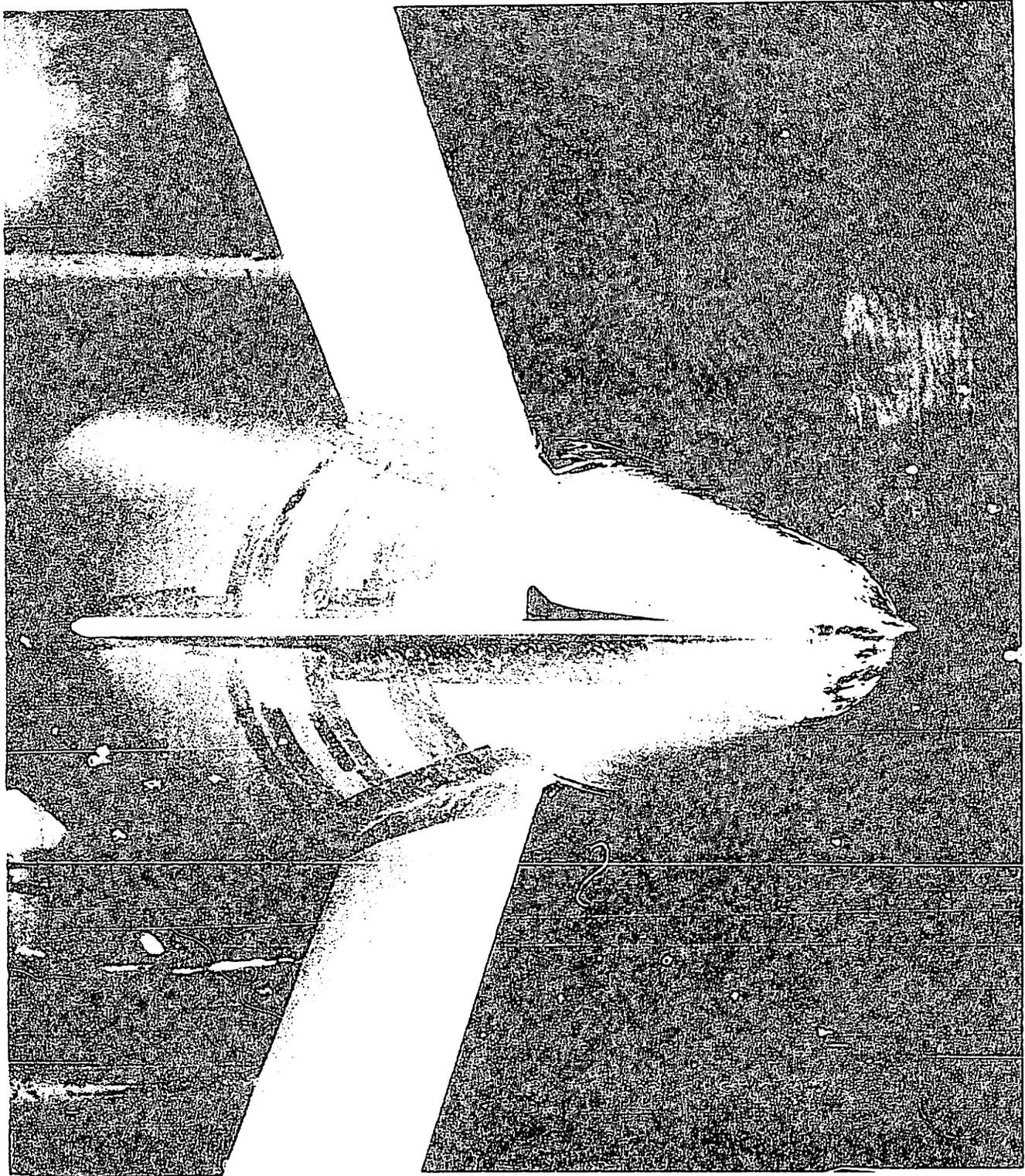
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FIGURE 1 - TAPING OF FIN SECTION OF MC-203 ON MK-7

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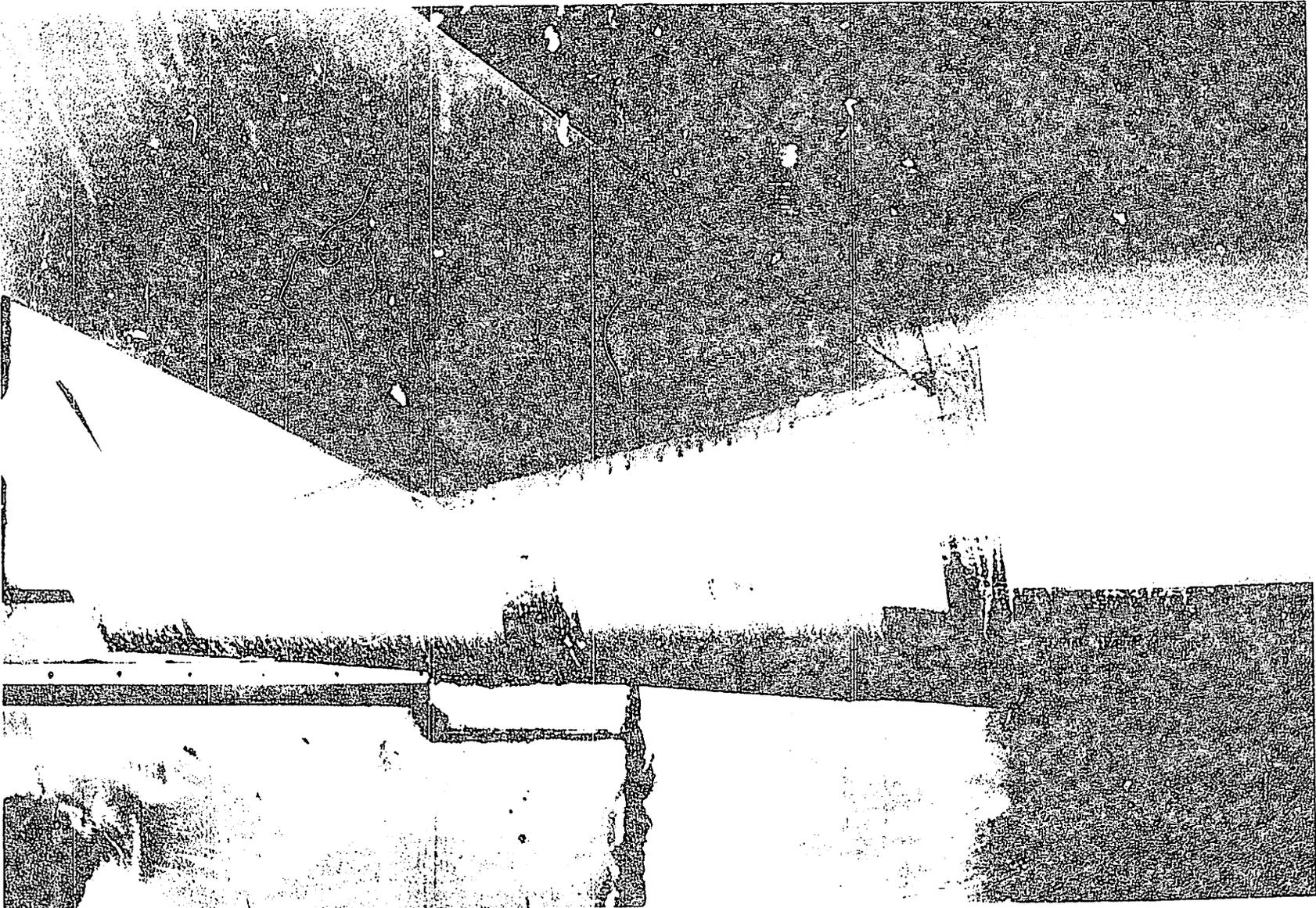


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FIGURE 2 - TAPING OF TOP PART OF MK-7

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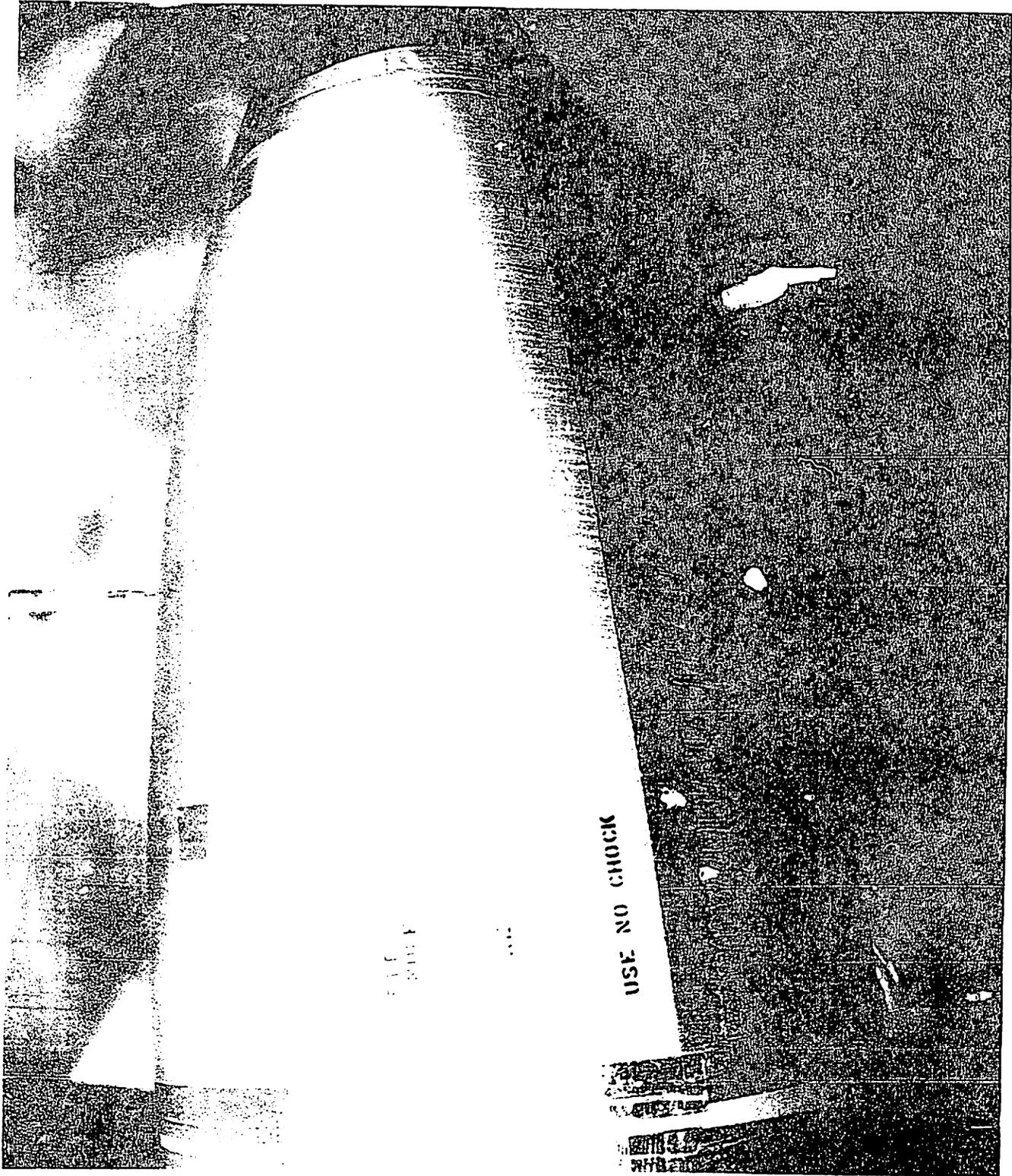
FIGURE 3 - TAPING OF UNDERSIDE OF FIN SECTION OF MK-7

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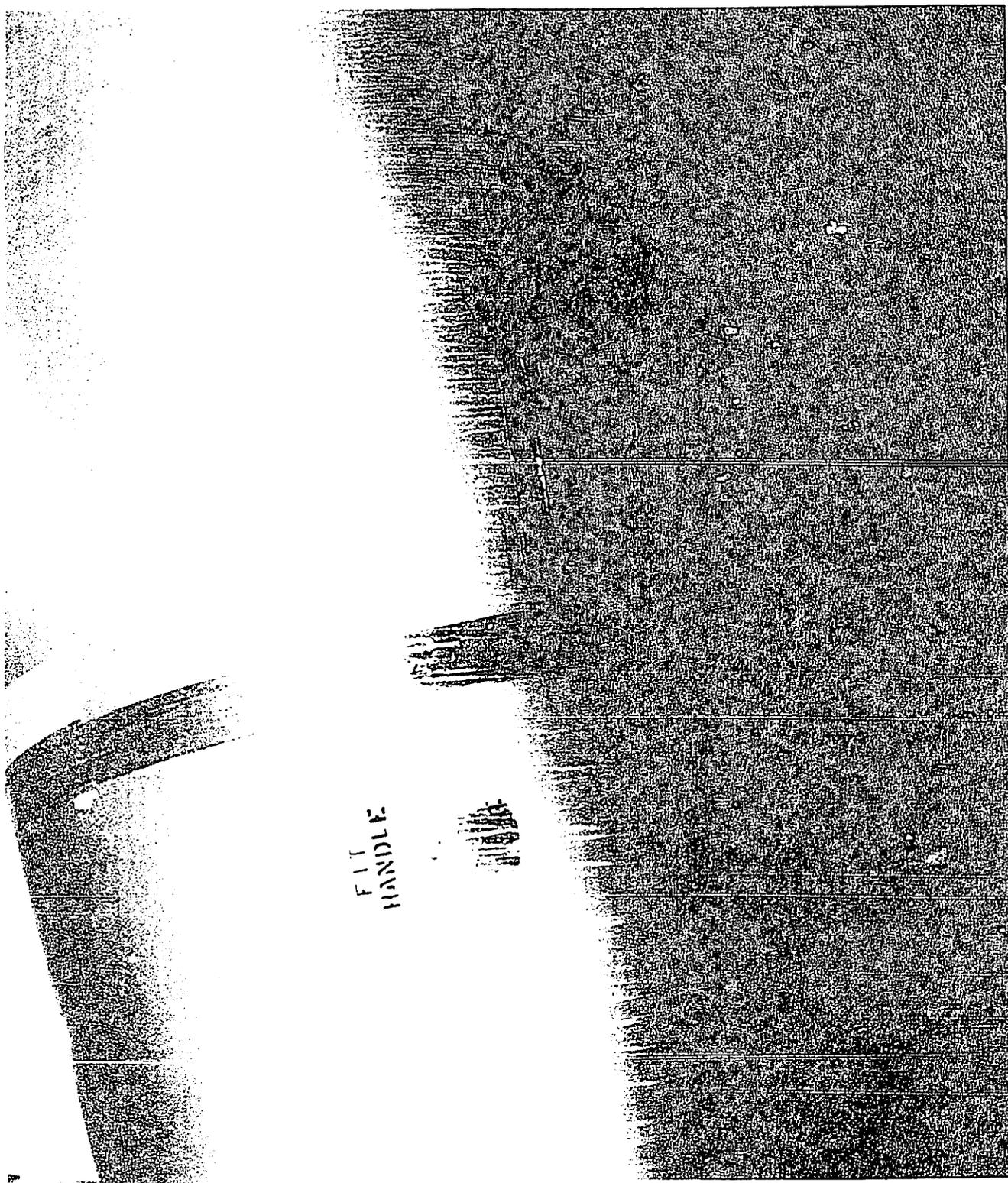


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FIGURE 4 - TAPING OF STARBOARD SIDE OF MC-440 ON MK-7

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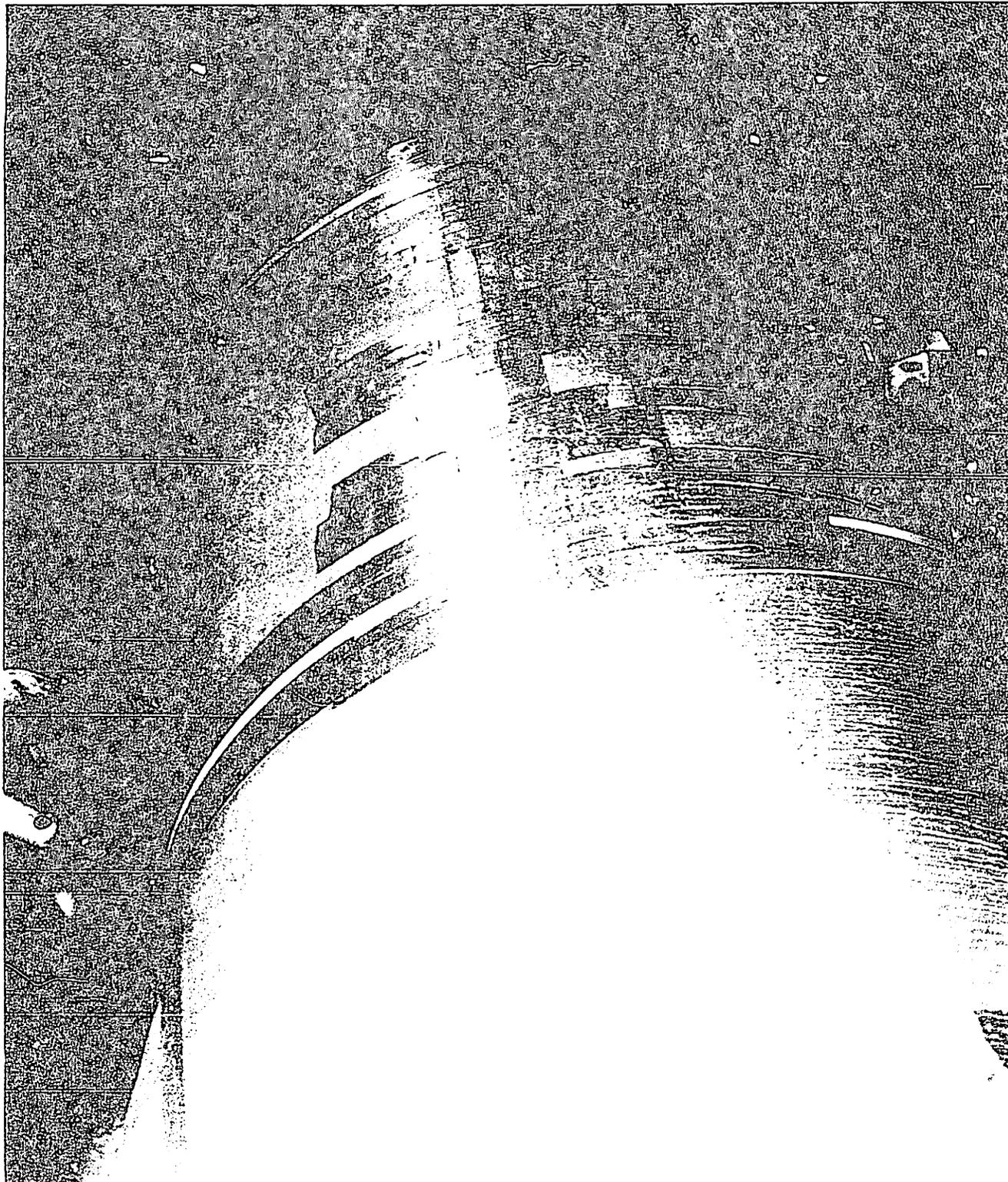
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FIGURE 5 - TAPING OF STARBOARD SIDE OF MC-203 AND MC-262 ON MK-7

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FIGURE 6 - TAPING OF STARBOARD SIDE OF MC-262 ON MK-7

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