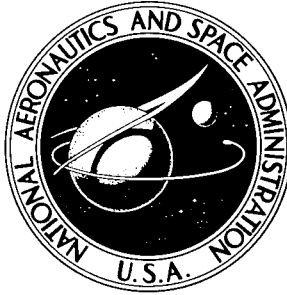
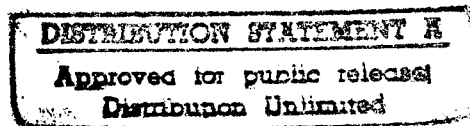


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NASA TN D-3753

NASA TN D-3753



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ARC-TUNNEL EVALUATION OF SOME ABLATIVE HEAT SHIELD MATERIALS FOR THE X-15-2

by Andrew J. Chapman and Marvin B. Dow

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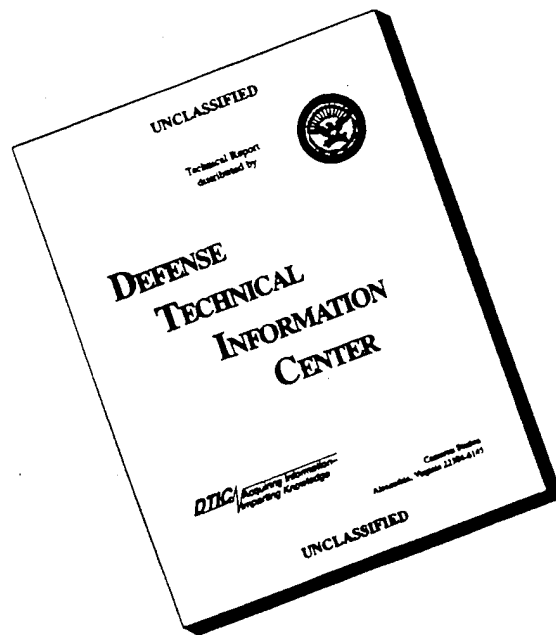
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SUMMARY

[Fourteen ablation materials have been investigated at test conditions simulating the heating predicted for the X-15-2 research aircraft. Twenty-seven wedge-shaped models with a leading-edge radius similar to the X-15-2 wing and horizontal stabilizer leading edges were tested in the 2-inch supersonic arc tunnel at the Langley Research Center. The ablation materials were exposed to the heating conditions which will occur on the X-15-2 leading edges and fuselage areas at an altitude of 105 000 feet (32 kilometers) and at Mach number 8. The results presented include back surface temperature response at several locations on the models and photographs of the models before and after testing.]

INTRODUCTION

One of the three existing X-15 research aircraft (X-15-2) has been modified to obtain a significant increase in velocity. The modification discussed in reference 1 includes increased propellant capacity which will permit acceleration to a maximum speed of approximately Mach 8 as compared with a maximum speed of approximately Mach 6 previously attained by the unmodified X-15. Some of the flight profiles proposed for the X-15-2 will produce heating conditions which will exceed the design capability of the present structure which is made of a nickel-chromium alloy. For example, calculations indicate that one flight profile with a maximum velocity of 8000 ft/sec (2400 m/s) at an altitude of 100 000 feet (30 kilometers) will produce temperatures as high as 2400° F (1600° K) on wing and tail leading edges. A decision has been made to use an ablative coating on the entire aircraft to provide the required heat shielding rather than to redesign the aircraft structure.

Several types of ablation materials have been investigated for use on the X-15-2 aircraft. Flight tests with the X-15 have been conducted by the NASA Flight Research Center at speeds of about Mach 5.5. In these flight tests, small areas of the fuselage were

covered with ablation material for performance evaluation. Tests were also conducted in ground facilities in which various ablation materials were exposed to simulated X-15-2 flight conditions. The various ablation materials were evaluated for compliance with the criteria for the ablative heat shield system established by the NASA Flight Research Center (ref. 1). Evaluation of one ablation material is included in reference 1.

As a result of the flight and ground facility tests mentioned previously, those ablative materials which most nearly satisfied the established criteria were chosen for further evaluation. These materials were then tested in the 2-inch supersonic arc tunnel at the Langley Research Center and are reported herein. Some of these results were reported previously in reference 2. The test conditions simulated heating conditions encountered on wing or horizontal stabilizer leading edges and on certain fuselage areas at Mach number 8 and an altitude of 105 000 feet (32 kilometers). The purpose of these tests was to investigate the thermal performance of the various materials. It was not intended that the tests should provide design data.

The units used for physical quantities in this paper are given both in U.S. Customary Units and in the International System of Units (SI) (ref. 3). The appendix presents factors relating these two systems of units.

TEST MODELS

Ablative Coatings

The 14 different materials tested in this investigation were furnished by four aerospace companies and by the NASA Langley Research Center. Many of the materials, however, differed only in minor features such as density, additives, and methods of application. The materials are listed in table 1. The information in this table includes the composition, the specific gravity, the type of model on which the material was tested (see section on "Configurations"), and the method used to apply the material to the model. A code designation is given to each material and this identification is used throughout the paper. The designation consists of a letter for each source and a number for different materials of a particular source.

Configurations

Two model configurations were used for testing the various ablation materials: a leading-edge model shown in figure 1 and a flat afterbody model shown in figure 2. The pertinent dimensions of each model are given in the figures. The models were the largest size which could be tested in the arc-tunnel facility at the present test conditions.

Leading-edge models.- Although both model configurations had a similar leading-edge shape, the first configuration will be referred to as the leading-edge model because

the ablative material was applied over the entire surface of the model with the primary purpose of testing the material at the stagnation region. This model consisted of a reinforced plastic frame covered by a 0.030-inch (0.076-cm) thick skin of a nickel-chromium alloy. The 0.50-inch (1.27-cm) leading-edge radius corresponds to the X-15 horizontal stabilizer. Thermocouples were attached to the back surface of the skin at the locations shown in figure 1. These positions are identified by numbers which are used subsequently in connection with temperature and thickness measurements. The models were constructed in two sections so that they could be easily separated to facilitate postexposure examination after the ablative coating had been cut along the center line.

The exterior shape of the ablative coating is shown as a dashed line in figure 1. The coating thickness was varied, according to the density of the material, to give a specified mass per unit area at the stagnation line. The only exterior dimensions changed by varying the coating thickness were the overall length L of the model and the total thickness at the base B . The nominal values of stagnation line mass per unit area were 1.0 lbm/ft^2 (4.9 kg/m^2) and 1.5 lbm/ft^2 (7.3 kg/m^2) for this program. In addition to the test material on the contoured surface, an ablative coating was applied to each side of the model to protect the plastic structure. (See fig. 1.)

Eleven ablation materials were tested on 21 leading-edge models which are identified in table 2(a). The pretest thicknesses of the ablation materials at the different thermocouple locations are shown in table 2(a) for all models for which this information was available. The ablation material thicknesses were constant in the spanwise direction. Models L-16 and L-17 were the only leading-edge models on which more than one type of ablation material was applied.

Flat afterbody models.— The afterbody model configuration is shown in figure 2. This model was of hollow stainless-steel construction and was cooled by circulating water. Test panels of ablative materials were mounted in recessed areas on each side of the model. The purpose of this configuration was to test thin coatings of material at the low heating rate and pressure conditions which will occur over much of the aircraft surface. The water-cooled model permitted exposure periods which were limited only by the performance of the test material.

The test panels consisted of a thin sheet of ablative material bonded to a 0.03-inch (0.08-cm) thick plate of a nickel-chromium alloy which had thermocouples attached to the back surface. Details of the instrumentation are shown in figure 2. The ablation materials were of a thickness which gave a nominal mass per unit area of 0.25 lbm/ft^2 (1.22 kg/m^2). The cutout area on the model was 0.25 inch (0.64 cm) deep so that an additional layer of spacing material was needed between the panel and the model to position the panel surface flush with the model surface. This spacing material, which was a

low-density filled silicone resin, also served as insulation to isolate the nickel-chromium alloy substrate plate from the water-cooled model.

Four ablative materials were tested on six afterbody models. The models and materials are listed in table 2(b). The ablative materials are identified by the code designation used in table 1. Each afterbody model had an A-2 panel on one side and a panel of one of the three commercial materials on the opposite side. The thickness of the ablative material before testing is given in table 2(b).

TEST CONDITIONS AND PROCEDURE

Test Facility

The 2-inch supersonic arc tunnel at the Langley Research Center was used for testing. This facility is described for a subsonic configuration in references 4 and 5. The pertinent mechanical and electrical features remained unchanged for this investigation except that for the present tests the tunnel has been equipped with a supersonic nozzle and provisions for exhausting into a vacuum chamber. A schematic diagram of the tunnel is shown in figure 3. A conical nozzle with a throat diameter of 1.5 inches (3.8 cm) and an exit diameter of 4 inches (10.2 cm) was used.

Test Conditions

The arc-tunnel test conditions are as follows:

Total enthalpy	1450 Btu/lbm (3.36 MJ/kg)
Free-stream Mach number	3.2
Model stagnation pressure	0.73 atm (74 kN/m ²)
Heat-transfer rate at model stagnation point	127 Btu/ft ² -sec (1.44 MW/m ²)
Shear force at sonic line (ratio of surface distance to leading-edge radius equal 0.72)	4 lbf/ft ² (190 N/m ²)

The curves of figure 4 show the total enthalpy, the wing leading-edge heating rate, and the total pressure for a proposed Mach 8 flight of the X-15-2. Corresponding conditions obtained in the arc tunnel are superimposed on the flight conditions. Although the Mach number in the arc tunnel was only 3.2, a good simulation of maximum enthalpy and maximum pressure was obtained. Inasmuch as tunnel operation was limited to steady-state conditions, it was not possible to simulate an entire flight history. Test conditions, therefore, were selected which simulated the more severe heating period of the flight. Arc-tunnel limitations also prevented testing with the model leading edge at a sweep angle similar to the X-15 leading edges. Therefore, all models were tested with the leading edge normal to the test stream.

Enthalpy.- Total enthalpy of the tunnel flow was determined by the sonic flow method described in reference 6. The enthalpy is determined by this method from the mass flow rate, total pressure, and nozzle minimum area. There was good agreement between enthalpy values obtained by the sonic flow method and values obtained by an energy balance.

Pressure distribution.- Several pressure measurements were made on a calibration model having the same external shape as the test models. These pressure measurements are plotted in figure 5 and show good agreement with the Newtonian pressure-distribution curve.

Heating rate.- The heating rates were measured with a 0.017-inch (0.043-cm) thick 301 stainless-steel calorimeter model having the same exterior shape and dimensions as the test models. Heating rate distributions on the calorimeter model from several different calibration tests are shown in figure 6.

Test Procedure

For each test of an ablative material the tunnel operating conditions determined from previous calibration tests were established. The model was then inserted into the test stream. During tests of the leading-edge models the outputs from the four thermocouples located on the stagnation line (see fig. 1) were monitored on a visual display. When the temperature at any one of these thermocouples reached 600°F (590°K) the model was withdrawn from the test section. During tests of the afterbody panels the outputs from thermocouples 1-a and 1-b at the center of the panel (see fig. 2) were monitored and the tests were terminated when one of these thermocouples indicated a temperature of 600°F (590°K). After the leading-edge and afterbody models were withdrawn from the test stream, temperatures were recorded until maximum values occurred. Pressure in the test section and model storage chamber was then increased slowly to atmospheric pressure to avoid damage to the decomposed ablative coating.

All temperature and pressure data were recorded by the Langley central digital data recording facility.

RESULTS AND DISCUSSION

An index of tables and figures showing test results is given in table 3.

Leading-Edge Models

Photographs of the leading-edge models are shown in figures 7 to 16. Each figure shows models with one particular coating and includes a photograph of a typical model before testing, post-test exterior views showing an eight-view sequence of model surfaces,

and center-line section views. Materials A-1, A-2, A-3, B-2, C-2, D-3, and E-1 were tested with a nominal mass per unit area of 1.0 lbm/ft^2 (4.9 kg/m^2) on the stagnation line of the model. Materials B-1, C-1, and D-1 were tested with a nominal mass per unit area of 1.5 lbm/ft^2 (7.3 kg/m^2) on the stagnation line.

The photographs show that most of the leading-edge materials were severely affected by the test environment, particularly at the region near the stagnation line. Only material D-1, a relatively high-density heavily reinforced composite, maintained a smooth unbroken surface in all tests. However, both models L-16 and L-17 showed post-test separation at the junction between the D-1 material and the D-2 elastomeric material on the model afterbody.

Model L-1 of material A-1 withstood the test environment without experiencing severe defects or material removal. Examination of this material after testing indicated that the interface between the char layer and the undegraded material on the nose radius, although separated, was extensively interlaced with glass fibers. Apparently the material had good adhesion to the glass fibers which in turn made the material resistant to cracking and removal by shear. However, model L-2 of material A-1 experienced a failure at one end of the stagnation area. (See fig. 7(d).) Severe local heating caused extensive melting in the failure area and prevented a determination of whether lack of fiber reinforcement caused the failure. Although model L-1 performed well, the failure of model L-2 indicated inconsistent performance for material A-1 in the test environment.

The sprayed leading-edge materials A-2 and E-1, which were similar in composition to material A-1, appeared to be weak in resistance to shear forces. Severe loss of both of these materials occurred at the region of high shear at the spanwise edge of the models. In the case of material E-1, the hard glassy char layer noted for the other elastomeric materials separated during handling immediately after the tests.

Material A-3, a low-density phenolic-nylon composite, was severely oxidized by the test environment. This result indicates an undesirable feature of this type of material for X-15 thermal protection.

Materials B-1 and B-2 both developed severe cracks at the model stagnation area. The substantial increase in the density of material B-1 as compared with that of material B-2 did not appear to influence the severity of cracking.

Material C-2 developed extensive fissures at the model stagnation area. The models coated with material C-1 experienced severe loss of the ablator on the stagnation line at the model ends.

Material D-3, a silicone elastomeric in honeycomb, was rapidly removed from the entire model stagnation area during the test.

A marked difference appeared in the residual material or char layer at various locations on the models coated with silicone elastomeric materials. The char layer produced at the high heating rate and pressure conditions at the stagnation area had a hard glassy appearance. When a layer of undegraded material remained on the stagnation area there was a well-defined interface between the char layer and the undegraded material. On most models there was evidence of separation at this interface. The residual material on the flat afterbodies was more friable with no glassy appearance. The defects in the afterbody residual material consisted of blisters and cracks which were much less severe than the stagnation area defects. The interface between residual material and undegraded material on the afterbody appeared to be a zone of decomposition and was not as well defined as on the nose radius. Also there was little separation along this interface.

Temperature histories for the leading-edge model thermocouples (see fig. 1) are given in tables 4 to 24. The time at which heating was terminated is indicated on the table for each test. Temperature histories on the stagnation line of leading-edge models are compared in figure 17 for materials A-1, B-1, C-1, and D-1, which represent the best leading-edge materials from each supplier. Material A-1 had a nominal mass per unit area of 1.0 lbm/ft^2 (4.9 kg/m^2) on the stagnation line whereas the other materials had a nominal mass per unit area of 1.5 lbm/ft^2 (7.3 kg/m^2). Material A-1, although of lower unit mass, limited the substrate temperature on model L-1 for a period comparable to that of material B-1 and for a longer period than the other materials. The high temperature rise at position 6 on model L-2 was a result of the failure at the edge of this model. Material C-1 was comparatively effective in limiting temperature rise at position 1; however, the severe loss of material at the model edge (figs. 12(b) and 12(d)) resulted in very high temperature rises at position 6. The temperature rise on the stagnation line of material D-1 was quite high. It should be noted, however, that the temperature histories along the stagnation line of coating D-1 were nearly identical and thus indicated uniform behavior of the material in this region. The low thermal performance of coating D-1 was to be expected since this relatively high-density material had higher thermal conductivity than the less dense materials.

Although the ablation materials were tested at heating conditions in the range predicted for Mach 8 flights of the X-15-2, the tests were in some respects less severe than flight conditions. For example, the materials were not restrained from expanding in a spanwise direction, the maximum calculated shear force on the models was less than that calculated for flight (see ref. 1), the ablation materials did not have joints parallel to the stream flow, and the model substructure did not deflect and thus impose loads on the ablation materials.

Flat Afterbody Models

Afterbody models of materials A-2, B-3, and C-3 before and after testing are shown in figures 18 to 20. Figure 21 shows the afterbody model of material D-4 before testing and the panels removed from the model after testing.

The post-test appearance of the ablation materials on the panels was similar to the post-test appearance of similar materials on the flat afterbody of the leading-edge models. The sprayed materials A-2, C-3, and D-4 had surface defects consisting of blisters and cracks. Some of these defects may have resulted from entrapment of volatile compounds (see ref. 7) during the spraying operation. These materials showed a gradient of decomposition through the thickness rather than a definite pyrolysis layer. The test of the D-4 panel on model P-5 was terminated before a temperature of 600° (580° K) was reached because of an arc-tunnel malfunction. The D-4 panel on model P-6 was severely damaged during testing as a result of the panel being blown off the model shortly after insertion into the arc-tunnel stream.

Material B-3, a blown foam, showed no obvious surface defects such as the blistering or cracking noted on the other materials. This material also showed a gradient of decomposition through the thickness.

Complete temperature histories for the afterbody models are given in tables 25 to 30. Each table contains data for a commercial panel and an A-2 panel since each model mounted a commercial and an A-2 panel on opposite sides. Thermocouple positions on the panels are identified by the numbers shown in figure 2. Temperature histories from thermocouples 1-a and 1-b for each panel are shown in figure 22. These temperature histories are a direct comparison of thermal shielding performance since each panel had the same nominal mass per unit area. Although the temperature histories for materials A-2, B-3, and C-3 show some differences between panels of the same material, there is little difference in the shielding performance of the three materials. As noted previously, the tests of the D-4 panels were terminated early. The curves of figure 22 show a faster initial temperature response for the D-4 panels than for panels with the other three materials. Since the density of material D-4 was considerably higher than the density of materials A-2, B-3, and C-3, it follows that for a given mass per unit area the higher density material would give reduced shielding performance.

CONCLUDING REMARKS

Fourteen ablation materials were tested on 27 models at conditions simulating the heating on the X-15-2 leading edges and fuselage areas at Mach 8 at an altitude of 105 000 feet (32 kilometers). The models were a wedge shape with a leading-edge radius and tangent surface angle similar to the X-15 wing and horizontal stabilizer. The

materials were investigated in the 2-inch supersonic arc tunnel at the Langley Research Center at a total enthalpy of 1450 Btu/lbm (3.36 MJ/kg), a heat-transfer rate of 127 Btu/ft²-sec (1.44 MW/m²), and a model stagnation pressure of 0.73 atm (74 kN/m²). Heat-transfer rate and pressure on the afterbody were approximately 10 percent of the stagnation values.

The conditions at the model stagnation region were a severe test for most of the ablation materials. The deficiencies, which occurred to varying degree on different materials, included rapid and irregular loss of material and the formation of deep cracks and fissures. The elastomeric materials were particularly prone to such deficiencies. One material, a relatively high-density phenolic bonded silica fiber composition, retained an unbroken surface at the stagnation region. This material, however, was inefficient as a thermal shield.

Several elastomeric materials were sprayed directly onto the models. The sprayed elastomers tested at the stagnation conditions showed markedly poor performance. The sprayed materials tested at the low heating rate and pressure conditions on the model afterbody developed defects such as shallow blisters and cracks. However, these defects did not appear to adversely affect thermal shielding performance. A particular precast elastomer tested at these conditions ablated uniformly and did not blister or crack.

Langley Research Center,
National Aeronautics and Space Administration,
Langley Station, Hampton, Va., August 16, 1966,
719-02-00-01-23.

APPENDIX

CONVERSION OF U.S. CUSTOMARY UNITS TO SI UNITS

The International System of Units (SI) was adopted in 1960 by the Eleventh General Conference on Weights and Measures held in Paris, France. A complete set of conversion factors and a description of the system is given in reference 3. Conversion factors for units used herein are given in the following table:

Physical quantity	U.S. Customary Unit	Conversion factor (*)	SI Unit
Enthalpy	Btu/lbm	2.32×10^3	J/kg
Force	lbf/ft ²	47.88	N/m ²
Heat-transfer rate	Btu/ft ² -sec	1.135×10^4	W/m ²
Heat load	Btu/ft ²	1.135×10^4	J/m ²
Length	{ ft	0.3048	m
	{ in.	0.0254	m
Mass per unit area	lbm/ft ²	4.88	kg/m ²
Pressure	atm	1.013×10^5	N/m ²
Temperature	°F	$5/9 (°F + 460)$	°K
Velocity	ft/sec	0.3048	m/s

*Multiply value given in U.S. Customary Unit by conversion factor to obtain equivalent value in SI Unit.

Prefixes to indicate multiples of units are as follows:

Prefix	Multiple
mega (M)	10^6
kilo (k)	10^3
centi (c)	10^{-2}

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TABLE 1.- DESCRIPTION OF ABLATIVE MATERIALS

Source	Name	Composition (percent by mass)	Specific gravity	Model type and position	Application method	Material designation
Langley Research Center	E4A1	Silicone resin 73.62 Hollow silica spheres 10.80 Silica fiber 3.92 Phenolic Microballoons 9.82 Silicone fluid 1.84	0.632	Leading-edge radius and afterbody	Precast to shape and bonded to model	A-1
	E5A1	Silicone resin 69.8 Hollow silica spheres 10.2 Silica fiber 3.7 Phenolic Microballoons 9.3 Silicone fluid 3.5 Silicone primer 3.5	0.479	Leading-edge radius and afterbody	Sprayed onto mandrel, bonded to model, and sanded to thickness	A-2
			0.477 to 0.500	Afterbody panels	Sprayed onto panel and sanded to thickness	
	Phenolic nylon	Phenolic resin 25 Nylon powder 40 Phenolic Microballoons 35	0.556	Leading-edge radius and afterbody	Molded to shape and bonded to model	A-3
General Electric Co., Missile and Space Division	ESM 1004-DP	Elastomeric silicone resin with additives	0.961	Leading-edge radius and afterbody	Cast to shape and bonded to model	B-1
	ESM 1004-BP	Elastomeric silicone resin with additives	0.649	Leading-edge radius and afterbody	Cast to shape and bonded to model	B-2
			0.464	Afterbody panel	Cast to shape and bonded to model	B-3
Martin Company	-----	Elastomeric silicone resin with additives	0.520	Leading-edge radius and afterbody	Cast to shape and bonded to model	C-1
	MA-25S	Elastomeric silicone resin with additives	0.665			C-2
	MA-25S	Elastomeric silicone resin with additives	0.448	Afterbody panel	Sprayed onto panel	C-3
McDonnell Aircraft Corp.	-----	Phenolic resin filled with silica fibers	1.762	Leading-edge radius	Molded to shape and bonded to model	D-1
	Y-6	Elastomeric silicone resin Note: D-3 leading-edge radius in honeycomb	0.769	Leading-edge afterbody	Cast to shape and bonded to model	D-2
			0.822	Leading-edge radius and afterbody	Cast to shape and bonded to model	D-3
			0.769	Afterbody panel	Sprayed onto panel	D-4
North American Aviation, Inc.	E2A1	Composition similar to A-2	0.433	Leading-edge radius and afterbody	Sprayed onto model	E-1

TABLE 2. - THICKNESS OF ABLATIVE MATERIALS BEFORE TEST

(a) Leading-edge models

Material	Model	Thickness in inches at thermocouple location -									Thickness in centimeters at thermocouple location -								
		1	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b	1	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
A-1	L-1	0.300	0.270	0.300	0.237	0.267	0.221	0.264	0.215	0.252	0.762	0.686	0.762	0.602	0.678	0.561	0.670	0.546	0.640
A-1	L-2	.291	.285	.298	.243	.267	.223	.255	.215	.243	.739	.724	.757	.617	.678	.566	.648	.546	.617
A-2	L-3	.394	.362	.346	.273	.250	.258	.243	.239	.239	1.001	.919	.879	.693	.635	.655	.617	.607	.607
A-2	L-4	.397	.362	.333	.291	.231	.263	.230	.257	.228	1.008	.919	.846	.739	.587	.668	.584	.663	.579
A-3	L-5	Information not available									Information not available								
A-3	L-6	.357	.323	.317	.244	.247	.238	.240	.227	.234	.907	.820	.805	.620	.627	.604	.610	.576	.594
A-3	L-7	.357	.321	.326	.248	.255	.239	.248	.225	.237	.907	.815	.828	.630	.648	.607	.630	.572	.602
B-1	L-8	.294	.298	.291	.254	.261	.252	.253	.237	.238	.747	.757	.739	.645	.663	.640	.643	.602	.604
B-1	L-9	.275	.284	.296	.261	.264	.246	.243	.238	.239	.698	.721	.752	.663	.670	.625	.617	.604	.607
B-2	L-10	.277	.275	.272	.213	.233	.212	.231	.204	.225	.704	.698	.691	.541	.692	.538	.587	.518	.572
B-2	L-11	.262	.242	.249	.233	.208	.238	.211	.230	.213	.665	.615	.632	.584	.528	.604	.536	.584	.541
C-1	L-12	.545	.507	.506	.285	.283	.260	.260	.240	.240	1.384	1.288	1.285	.724	.719	.660	.660	.610	.610
C-1	L-13	.548	.508	.507	.285	.286	.258	.259	.230	.230	1.392	1.290	1.288	.724	.726	.655	.658	.584	.584
C-2	L-14	.292	.294	.294	.242	.240	.242	.242	.243	.246	.742	.747	.747	.615	.610	.615	.615	.617	.625
C-2	L-15	.294	.289	.294	.248	.242	.249	.247	.253	.250	.747	.734	.747	.630	.615	.632	.627	.643	.635
D-1	L-16	.175	.176	.174	.176	.166	----	----	----	----	.444	.447	.442	.447	.422	----	----	----	----
D-2	L-16	----	----	----	----	----	.152	.138	.113	.113	----	----	----	----	----	.386	.350	.287	.287
D-1	L-17	.169	.165	.168	.164	.172	----	----	----	----	.429	.419	.427	.416	.437	----	----	----	----
D-2	L-17	----	----	----	----	----	.151	.133	.108	.107	----	----	----	----	----	.384	.338	.274	.272
D-3	L-18	.235	.235	.235	.210	.210	.215	.215	.215	.215	.597	.597	.597	.533	.533	.546	.546	.546	.546
D-3	L-19	.240	.235	.235	.210	.210	.230	.225	.225	.225	.610	.597	.597	.533	.533	.584	.572	.572	.572
E-1	L-20	.445	.375	.375	.268	.268	.260	.260	.250	.250	1.130	.952	.952	.681	.681	.660	.660	.635	.635
E-1	L-21	Information not available									Information not available								

(b) Afterbody models

Material	Model	Thickness at thermocouple position 1	
		inches	centimeters
A-2	P-1	0.097	0.246
A-2	P-2	.093	.236
A-2	P-3	.099	.251
A-2	P-4	.095	.241
A-2	P-5	.096	.244
A-2	P-6	.098	.249
B-3	P-1	.090	.229
B-3	P-2	.090	.229
C-3	P-3	.107	.272
C-3	P-4	.102	.259
D-4	P-5	.061	.155
D-4	P-6	.061	.155

TABLE 3.- INDEX OF TEST RESULTS

Ablative coating	Model	Photographs of models before test presented in figure –	Photographs of models after test presented in figure –		Substrate temperatures presented in table –
			Exterior view	Section view	
Leading-edge models					
A-1	L-1	7(a)	7(b)	7(c)	4
A-1	L-2	----	7(d)	7(e)	5
A-2	L-3	8(a)	8(b)	8(c)	6
A-2	L-4	----	8(d)	----	7
A-3	L-5	----	----	----	8
A-3	L-6	----	----	----	9
A-3	L-7	9(a)	9(b)	9(c)	10
B-1	L-8	10(a)	10(b)	10(c)	11
B-1	L-9	----	10(d)	10(e)	12
B-2	L-10	11(a)	11(b)	11(c)	13
B-2	L-11	----	11(d)	11(e)	14
C-1	L-12	12(a)	12(b)	12(c)	15
C-1	L-13	----	12(d)	12(e)	16
C-2	L-14	13(a)	13(b)	13(c)	17
C-2	L-15	----	13(d)	13(e)	18
D-1, D-2	L-16	14(a)	14(b)	14(c)	19
D-1, D-2	L-17	----	14(d)	14(e)	20
D-3	L-18	15(a)	15(b)	15(c)	21
D-3	L-19	----	15(d)	15(e)	22
E-1	L-20	16(a)	16(b)	16(c)	23
E-1	L-21	----	16(d)	16(e)	24
Flat afterbody models					
A-2	P-1	18(a)	18(b)	----	25
A-2	P-2	----	18(c)	----	26
A-2	P-3	----	----	----	27
A-2	P-4	----	----	----	28
A-2	P-5	----	----	----	29
A-2	P-6	----	----	----	30
B-3	P-1	19(a)	19(b)	----	25
B-3	P-2	----	19(c)	----	26
C-3	P-3	20(a)	20(b)	----	27
C-3	P-4	----	20(c)	----	28
D-4	P-5	21(a)	21(b)	----	29
D-4	P-6	----	----	----	30

TABLE 4.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING A-1; MODEL L-1.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	301	301	301	301	301	301	301	301	300	300	312	298
1.110	301	301	301	301	301	301	301	301	300	300	299	298
2.460	301	301	301	301	301	301	301	301	300	300	293	298
3.810	301	301	301	301	301	301	301	301	300	300	285	298
5.180	301	301	301	301	301	301	301	301	300	300	283	298
6.540	301	301	301	301	301	301	301	301	300	300	283	298
7.910	301	301	301	301	301	301	301	301	300	300	295	298
9.300	301	301	301	301	301	301	301	301	300	300	310	298
10.670	301	301	301	302	301	301	301	301	300	300	306	298
12.040	301	301	301	302	301	301	301	301	300	300	292	298
13.400	301	301	301	302	301	302	301	302	300	300	288	299
14.770	302	301	302	302	301	302	301	302	300	301	302	299
16.130	302	301	302	302	301	302	301	302	300	301	296	299
17.500	302	302	302	302	301	302	301	302	300	301	304	299
18.870	302	302	302	303	302	302	301	303	300	301	302	298
20.220	302	302	303	303	302	303	302	303	301	302	298	300
21.590	302	302	303	304	302	303	302	304	301	303	298	300
22.950	303	303	304	304	302	305	302	305	301	303	307	301
24.330	303	303	304	305	302	305	302	306	302	304	298	301
25.680	304	304	305	306	303	305	303	307	302	305	303	302
27.050	305	305	307	308	304	308	303	309	302	306	302	302
28.420	306	307	308	310	304	309	303	310	303	307	294	303
29.780	307	308	309	311	305	310	304	311	303	308	306	303
31.150	308	309	311	313	306	311	304	312	304	309	310	304
32.520	309	310	312	314	307	315	305	314	304	310	304	304
33.880	311	310	314	316	308	316	306	315	305	311	300	305
35.260	312	314	316	318	310	318	307	316	306	312	312	306
36.640	314	316	318	321	311	320	308	320	307	315	304	307
38.000	316	318	320	323	311	322	309	321	308	316	306	307
39.370	318	320	323	325	313	324	310	323	309	317	316	308
40.740	320	323	325	327	315	326	310	325	310	318	313	309
42.120	323	325	327	330	317	329	311	327	311	320	292	309
43.490	325	328	331	333	318	331	312	328	311	321	296	310
44.840	328	331	333	336	320	334	313	330	312	322	304	311
46.200	331	334	336	340	322	337	315	332	313	324	306	311
47.580	334	337	339	344	324	340	316	334	314	325	303	312
48.950	337	341	343	347	326	342	317	336	315	326	306	313
50.320	341	344	346	350	328	346	318	338	316	328	314	313
51.680	344	348	350	353	331	349	319	341	317	329	318	314
53.060	348	353	355	358	333	352	321	343	317	331	318	314
54.440	352	357	359	362	336	355	322	345	318	332	309	315
55.820	356	361	362	366	338	359	323	347	319	334	313	316
57.180	360	366	367	371	341	363	325	350	321	335	318	316
58.520	365	372	373	377	344	366	326	352	322	337	317	317
59.890	370	375	377	382	347	370	328	355	323	338	317	318
61.270	375	380	381	385	350	374	329	357	324	340	304	318
62.650	380	385	387	391	353	378	331	359	325	341	319	319
63.980	385	391	392	396	356	383	333	362	326	342	318	319
65.330	390	396	398	403	360	387	334	365	327	344	320	320
66.690	395	401	402	406	363	391	336	367	328	345	307	321
68.050	401	408	410	415	367	395	338	370	329	347	324	321
69.420	407	414	416	422	370	400	340	373	330	348	321	322
70.780	413	420	422	428	374	404	342	376	331	350	306	322
72.130	419	426	428	435	378	409	343	379	332	351	317	323
73.510	426	433	435	443	382	414	345	381	333	353	321	323
74.870	432	439	441	449	386	419	347	384	334	354	325	324
76.230	438	446	448	456	390	424	349	387	336	356	303	324
77.580	445	453	455	463	395	429	351	390	337	357	318	325
78.920	451	460	462	470	399	435	354	394	338	359	323	325
80.300	458	466	468	476	404	440	356	397	339	360	341	326
81.680	465	473	475	483	408	445	358	400	340	362	337	327
83.050	471	480	482	490	413	451	360	403	341	363	326	327
84.410	477	486	488	496	418	456	362	406	343	364	333	328
85.780	484	493	495	503	423	462	365	410	344	366	317	328
87.130	490	499	501	509	428	467	367	413	345	367	335	329
88.490	497	506	508	516	433	473	369	417	346	369	328	329
89.850	503	512	514	522	438	479	372	420	347	370	334	330
91.200	509	518	520	528	443	484	374	424	348	372	342	330
92.570	515	525	527	535	448	489	377	428	350	373	340	331
93.940	522	531	533	541	453	495	380	431	351	375	338	331
95.300	528	537	539	547	458	500	382	435	352	376	332	332
96.650	534	543	545	553	463	505	385	439	353	377	329	332
98.010	540	549	551	559	468	511	387	442	355	379	342	333
99.370	546	555	557	565	473	516	390	446	356	381	344	334
100.740	552	561	563	571	478	521	393	449	357	382	333	334
102.090	557	566	568	576	483	526	395	452	358	383	343	334
103.430	563	572	574	582	488	531	398	456	359	385	343	335
104.780	569	578	580	588	493	536	401	460	361	386	343	335
106.150	575	584	586	594	498	542	404	463	362	388	347	336
107.510	580	589	591	600	503	546	407	467	363	389	329	336
108.880	586	595	597	605	508	551	410	471	364	390	348	337
110.250	591	600	602	610	513	556	413	475	366	392	345	337
111.620	597	606	608	616	517	561	415	478	367	393	348	338
112.970	602	611	613	621	522	565	419	482	368	394	346	338
114.350	607	616	618	626	527	568	422	486	370	395	347	338
115.680	611	620	622	630	531	571	425	489	371	396	348	339
117.050	614	623	625	633	535	573	428	493	372	398	349	339
118.420	616	625	627	635	539	575	431	496	373	399	350	340
119.780	616	625	627	635	543	575	434	498	375	400	350	340
121.130	616	625	627	635	547	577	437	501	376	401	351	340
122.560	615	624	626	634	549	579	439	503	377	403	352	340
123.910	614	623	625	633	546	574	442	505	379	404	352	340
125.260	612	621	623	631	547	575	444	506	380	405	353	341
126.620	610	619	621	629	547	575	447	508	381	407	353	341
127.980	608	617	619	627	547	575	449	509	382	408	354	341
129.350	605	614	616	624	547	575	451	509	384	409	354	341
130.730	603	612	614	622	547	575	453	510	385	411	355	342
132.080	600	609	611	619	546	565	455	510	386	412	355	342
133.440	597	606	608	616	546	563	457	510	387	413	355	342
134.800	594	603	605	613	546	562	458	510	389	414	356	342
136.170	591	600	602	610	544	560	460	510	390	415	356	343
137.530	588	597	599	607	543	558	461	510	391	417	356	343
138.880	585	594	596	604	542	556	462	510	392	418	357	343
140.230	583	592	594	602	542	556	463	509	393	419	357	343
141.600	580	589	591	599	541	554	464	509	394	420	357	343
142.970	577	586	588	596	540	553	465	508	395	420	357	343
144.330	574	583	585	593	539	552	466	508	396	421	357	343
145.680	571	580	582	590								

TABLE 4.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING A-1; MODEL L-1. Concluded

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
155.210	554	557	558	562	528	537	468	503	401	425	358	344
156.590	551	555	555	560	527	535	468	503	402	426	358	344
157.950	549	553	553	557	525	533	468	502	402	426	358	344
159.270	547	550	550	555	524	532	468	501	403	427	358	344
160.620	545	548	548	552	523	530	468	500	404	427	358	344
161.990	543	546	546	550	521	528	468	499	404	427	358	344
163.360	540	544	543	548	520	527	468	498	405	428	358	344
164.720	538	542	541	545	518	525	468	497	405	428	358	344
166.070	536	540	539	543	517	523	468	496	406	428	358	343
167.420	534	538	537	541	516	522	468	495	407	428	358	343
168.790	533	536	535	539	514	520	468	494	407	428	358	343
170.150	531	534	533	537	513	519	467	493	407	429	358	343
171.500	529	532	531	535	512	517	467	492	408	429	358	343
172.850	527	530	530	533	511	516	467	491	408	429	358	343
174.210	525	529	528	531	509	514	467	491	409	429	358	343
175.570	524	527	526	529	508	513	466	490	409	429	357	343
176.930	522	525	524	528	507	512	466	489	409	429	357	343
178.300	520	523	523	526	506	510	466	488	410	429	357	343
179.650	519	522	521	524	504	509	465	487	410	429	357	343
181.020	517	520	519	522	503	507	465	486	410	429	357	342
182.400	516	518	518	521	502	506	464	485	410	428	357	342
183.740	514	517	516	519	501	505	464	484	410	428	357	342
185.100	513	515	515	517	500	504	464	483	411	428	357	342
186.430	511	514	513	516	498	502	463	482	411	428	357	342
187.800	510	512	512	514	497	501	463	481	411	428	357	342
189.170	508	511	510	513	496	500	462	480	411	428	357	342
190.530	507	509	509	511	495	499	462	480	411	427	357	341
191.880	505	508	508	510	494	498	461	479	411	427	357	341
193.220	504	507	506	508	493	496	461	478	411	427	357	341
194.590	503	505	505	507	492	495	460	477	411	427	356	341
195.950	502	504	504	505	491	494	460	476	411	426	356	341
197.280	500	503	502	504	490	493	459	475	411	426	356	341
198.650	499	501	501	503	489	492	459	474	411	426	356	341
200.020	498	500	500	501	488	491	458	473	411	426	356	340
201.390	497	499	499	500	487	490	458	473	411	425	356	340
202.740	495	497	498	499	486	489	457	472	411	425	356	340
204.100	494	496	497	497	485	488	457	471	411	425	356	340
205.440	493	495	495	496	484	486	457	470	411	424	356	340
206.800	492	494	494	495	483	486	456	469	411	424	356	340
208.130	491	493	493	494	482	485	456	468	411	424	355	339
209.490	490	492	492	493	481	483	455	468	411	423	355	339
210.850	489	490	491	491	480	483	455	467	411	423	355	339
212.220	488	489	490	490	479	482	454	466	411	423	355	339
213.580	487	488	489	489	478	481	454	465	411	422	355	339
214.920	486	487	488	488	477	480	453	465	411	422	355	339
216.280	485	486	487	487	476	479	453	464	411	422	355	338
217.650	484	485	486	486	475	478	452	463	411	421	355	338
219.020	483	484	485	485	474	477	452	462	411	421	355	338
220.380	482	483	484	484	474	476	451	461	410	420	354	338
221.730	481	482	483	483	473	475	451	461	410	420	354	338
223.100	480	481	482	482	472	474	450	460	410	420	354	338
224.470	479	480	481	481	471	473	450	459	410	419	354	337
225.830	478	479	480	480	470	473	449	459	410	419	354	337
227.200	477	478	479	479	469	472	449	458	410	419	354	337
228.540	476	477	478	478	469	471	448	457	410	418	354	337
229.890	475	476	477	477	468	470	448	457	409	418	354	337
231.250	474	475	476	476	467	469	447	456	409	417	354	337
232.630	473	474	475	475	466	469	447	455	409	417	354	336
233.970	473	473	474	474	466	468	446	455	409	417	353	336
235.320	472	473	474	473	465	467	446	454	409	417	353	336
236.750	469	470	472	470	462	464	444	452	408	415	353	336
244.140	467	467	469	467	460	462	443	450	408	414	353	335
249.070	464	464	467	464	458	460	441	447	407	413	352	335
254.020	461	462	464	461	455	457	440	445	406	412	352	334
258.950	459	459	462	459	453	455	438	443	405	410	351	334

TABLE 5.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING A-1; MODEL L-2.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	296	296	296	296	296	296	296	296	297	297	297	298
0.080	296	296	296	296	296	296	296	296	297	297	297	298
1.470	296	296	297	296	296	296	296	296	297	297	297	298
2.840	296	296	297	297	296	296	296	296	297	297	297	298
4.200	296	296	297	296	296	296	296	296	297	297	297	298
5.580	296	296	297	297	296	296	296	296	297	297	297	298
6.970	296	296	297	297	296	296	296	296	297	297	297	298
8.350	296	296	297	297	296	296	296	296	297	297	297	298
9.730	296	296	297	297	296	296	296	296	297	297	297	298
11.100	296	296	297	297	296	296	296	296	297	297	297	298
12.480	296	296	297	297	296	296	296	296	297	297	297	298
13.860	296	296	297	297	296	296	296	296	297	297	297	298
15.270	296	296	297	297	296	296	296	296	297	297	297	298
16.630	296	296	297	298	296	296	296	296	297	298	298	299
18.020	297	296	298	298	296	296	296	296	297	298	298	299
19.400	297	297	298	298	296	297	296	297	298	299	299	300
20.810	297	297	299	299	297	297	297	297	298	299	299	300
22.180	297	297	299	300	297	297	297	297	298	299	299	300
23.550	297	297	300	301	297	297	297	297	298	299	299	300
24.930	297	298	300	302	297	297	297	297	298	299	299	300
26.340	298	298	301	303	297	298	297	298	299	300	300	301
27.740	298	299	303	304	297	298	297	299	300	300	300	301
29.130	298	299	304	306	298	298	298	299	301	304	302	303
30.500	299	300	305	308	298	299	298	299	301	305	303	304
31.880	299	301	307	309	299	299	298	300	302	306	304	305
33.270	300	302	309	312	299	300	298	300	303	308	305	306
34.650	300	303	311	314	299	300	299	301	304	310	306	307
36.010	301	304	313	316	300	301	299	301	305	311	307	308
37.390	302	305	315	319	300	302	299	302	306	313	308	309
38.780	303	306	317	322	301	302	300	302	307	314	309	310
40.180	304	308	320	325	302	303	300	303	308	315	310	311
41.560	305	309	323	328	302	304	301	304	309	317	311	312
42.930	306	311	325	331	303	305	301	304	310	318	312	313
44.300	307	313	328	335	304	306	302	305	311	319	313	314
45.680	308	315	332	339	305	306	302	306	311	319	313	314
47.080	310	317	335	343	306	307	303	306	312	321	314	315
48.460	311	320	339	348	307	308	303	307	313	322	315	316
49.840	313	322	343	352	308	310	304	308	314	324	316	317
51.200	314	324	347	357	309	311	305	309	315	325	317	318
52.580	316	327	351	362	310	312	305	309	316	326	319	320
53.960	318	330	355	367	311	313	306	310	317	328	320	321
55.340	320	333	360	373	312	314	306	311	318	329	321	322
56.710	322	337	365	379	314	315	307	312	320	331	322	323
58.100	324	340	370	385	315	317	308	313	321	332	323	324
59.480	326	343	375	391	316	318	309	314	323	333	324	325
60.860	328	347	381	397	318	319	309	314	323	333	325	326
62.250	330	351	387	404	319	321	310	315	324	334	326	327
63.620	333	354	393	411	321	322	311	316	326	338	328	329
65.000	335	357	399	418	323	324	312	317	327	340	329	330
66.380	337	361	405	426	324	326	313	318	328	341	330	331
67.760	340	364	412	434	326	327	314	319	329	343	331	332
69.130	342	368	418	442	327	329	314	320	331	345	333	334
70.510	345	372	426	450	329	331	315	321	332	346	334	335
71.900	347	377	434	459	331	332	316	322	333	348	335	336
73.270	350	381	442	468	333	334	317	323	335	349	336	337
74.650	353	385	451	477	335	336	318	324	336	351	337	338
76.030	356	390	460	486	337	338	319	325	337	352	339	339
77.410	358	394	469	495	339	340	320	326	339	354	340	340
78.800	361	398	478	503	341	342	321	327	340	355	341	341
80.170	364	402	487	512	343	344	322	329	341	357	342	342
81.550	367	407	495	521	345	346	323	330	343	358	343	343
82.930	370	411	505	529	347	348	325	331	344	359	344	344
84.310	372	415	514	537	349	350	326	332	345	361	346	346
85.690	375	419	523	546	352	352	327	333	347	363	347	347
87.060	378	423	532	554	354	354	328	334	348	364	348	348
88.440	380	426	542	562	356	356	329	336	349	366	349	349
89.820	383	430	552	570	358	359	330	337	351	367	351	351
91.200	386	434	564	578	360	361	332	338	352	369	352	352
92.570	389	438	576	585	362	363	333	339	353	370	353	353
93.960	391	442	588	593	365	365	334	341	355	372	354	354
95.350	394	446	602	600	367	367	335	342	356	373	355	355
96.730	397	449	619	607	369	370	337	343	358	375	356	356
98.110	399	453	639	614	371	372	338	345	359	377	358	358
99.480	402	451	665	621	374	375	339	346	360	378	359	359
100.840	406	466	696	628	377	378	341	348	362	380	360	360
102.240	409	469	730	635	379	380	343	349	363	381	361	361
103.600	412	462	762	642	381	383	344	351	365	383	362	362
104.960	415	466	797	648	383	386	346	352	366	384	363	363
106.350	418	469	835	655	386	389	347	354	367	386	365	365
107.810	421	473	883	662	388	393	348	355	369	388	366	366
109.200	425	477	*	668	390	397	350	357	370	389	367	367
110.580	428	481	*	675	392	401	351	358	372	391	368	368
111.950	432	485	*	681	394	406	353	360	373	393	369	369
113.330	435	488	*	688	396	411	354	362	374	395	370	370
114.720	439	492	*	693	397	416	355	363	376	396	371	371
116.120	443	494	*	698	400	421	356	365	377	398	372	372
117.500	446	496	*	702	402	426	358	367	378	400	373	373
118.880	449	498	879	704	404	430	359	369	380	402	375	375
120.260	451	498	845	704	406	432	361	371	381	404	376	376
121.650	453	497	815	702	407	434	362	373	382	406	377	377
123.030	453	496	786	699	408	435	364	375	384	408	378	378
124.400	453	494	761	696	409	436	365	376	385	410	379	379
125.780	453	492	739	692	410	436	366	378	387	412	380	380
127.160	452	490	718	688	410	436	368	379	388	415	381	381
128.550	451	488	700	684	410	435	369	380	389	417	382	382
129.940	450	486	683	679	410	434	370	381	391	419	383	383
131.300	449	483	668	675	410	433	371	382	392	421	384	384
132.680	447	481	654	670	410	432	371	383	394	424	385	385
134.040	446	479	641	666	409	431	372	383	395	426	386	386
135.430	444	476	628	662	409	430	373	384	396	428	387	387
136.780	443	474	617	657	408	429	373	384	398	429	388	388
138.170	441	471	607	653	407	427	374	384	399	431	389	389
139.550	439	469	597	648	407	426	374	384	401	433	390	390
140.920	437	467	588	644	406	424	375	385	402	434	391	391
142.300	435	465	580	639	405	423	375	385	403	436	391	391
143.680	433	463	572	635	404	421	375	385	404	437	392	392
145.070	432	460	564	631	403	420	375	384	405	438	393	393
146.460	430	458	557	627	402	418	375	3				

TABLE 5. - BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING A-1; MODEL L-2. Concluded

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
170.590	400	425	482	568	387	394	371	377	419	442	402	396
176.020	394	419	472	558	384	389	369	375	420	440	403	395
181.450	390	414	464	549	381	385	368	374	421	439	403	394
186.890	386	409	457	541	379	382	366	372	421	437	404	393
192.330	382	405	450	533	376	378	365	370	421	434	403	392
197.780	378	401	445	526	374	375	363	368	421	432	403	390
203.230	375	397	440	520	372	373	362	367	420	430	403	389
208.650	372	394	435	514	370	370	360	365	419	427	403	387
214.080	370	391	431	509	368	368	359	363	418	425	402	385
219.520	367	388	427	503	366	365	358	362	417	422	402	384
224.960	365	386	424	499	365	363	356	360	416	420	402	382
230.390	363	383	421	494	363	362	355	359	415	418	401	381
235.840	361	381	418	490	362	360	354	358	414	415	400	380
241.260	360	379	415	486	360	358	353	357	413	413	400	378
246.700	358	377	412	483	359	357	352	355	412	411	399	377
252.140	357	376	410	479	358	355	351	354	411	409	398	376
257.580	355	374	408	476	357	354	350	353	410	407	397	374
263.050	354	372	405	472	356	353	349	352	409	405	396	374
268.490	353	371	403	469	355	351	348	351	408	403	396	373
273.930	351	369	401	467	354	350	347	351	407	401	395	372

TABLE 6.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING A-2; MODEL L-3.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	297	297	297	297	297	297	297	297	297	297	297	297
0.180	297	297	297	297	297	297	297	297	297	297	297	297
1.540	297	297	297	297	297	297	297	297	297	297	297	297
2.910	297	297	297	297	297	297	297	297	297	297	297	297
4.260	297	297	297	297	297	297	297	297	297	297	297	297
5.630	297	297	297	297	297	297	297	297	297	297	297	297
6.990	297	297	297	297	297	297	297	297	297	297	297	297
8.360	297	297	297	297	297	297	297	297	297	297	297	297
9.710	297	297	297	297	297	297	297	297	297	297	297	297
11.060	297	297	297	297	297	297	297	297	297	297	297	297
12.430	297	297	298	297	297	297	297	297	297	297	298	298
13.790	298	297	298	297	297	297	297	297	297	298	298	298
15.160	298	298	298	297	297	297	297	297	297	298	299	299
16.510	298	298	299	297	297	297	297	298	297	298	299	299
17.860	298	298	299	298	297	297	297	298	298	298	299	299
19.230	298	298	300	298	297	298	298	298	298	299	300	300
20.610	299	298	300	298	298	298	298	298	298	299	300	300
21.970	299	299	301	299	298	298	298	299	298	299	301	301
23.310	299	299	301	299	298	298	298	299	298	300	302	301
24.680	300	300	302	300	298	299	298	300	299	300	302	302
26.040	301	301	303	300	299	299	299	301	300	302	304	303
27.430	302	302	304	301	301	300	300	301	300	302	305	304
28.790	304	303	305	302	300	300	300	302	300	303	306	305
30.140	305	305	306	302	301	301	301	303	301	304	307	306
31.500	308	307	307	303	301	303	300	303	301	304	307	307
32.860	311	310	309	305	302	305	301	305	302	305	307	307
34.300	315	313	311	306	303	307	301	306	302	306	309	308
35.660	319	317	312	308	303	310	302	308	303	307	309	310
37.010	324	321	314	309	304	315	302	310	303	308	311	311
38.360	330	327	317	311	306	321	303	313	304	309	311	312
39.730	336	333	319	313	307	330	303	316	305	310	312	314
41.090	344	341	323	315	308	343	304	320	306	312	314	315
42.460	349	346	326	318	310	358	305	327	307	313	315	317
43.820	363	360	331	321	312	377	306	336	307	315	316	319
45.170	374	371	337	324	314	403	307	349	308	316	317	320
46.520	387	385	343	328	316	435	307	366	309	318	318	322
47.900	401	402	352	332	318	478	309	393	311	320	319	324
49.250	417	423	362	336	321	544	310	447	312	323	321	326
50.590	435	447	375	341	324	611	311	497	313	325	322	328
51.940	456	475	389	346	328	663	312	535	315	328	323	330
53.290	479	501	406	353	333	704	314	566	316	331	325	332
54.650	501	525	424	359	336	735	314	589	316	334	325	333
55.990	526	549	445	369	343	763	316	612	319	339	328	336
57.350	550	571	466	379	349	787	318	631	321	343	329	338
58.700	575	595	487	388	356	811	320	649	323	347	331	341
60.080	597	622	507	398	364	825	322	668	324	352	333	343
61.440	614	637	525	409	372	815	324	676	326	357	334	345
62.780	623	642	538	419	381	797	326	674	328	361	336	348
64.130	627	640	546	429	390	775	328	667	330	369	337	350
65.500	627	635	550	438	398	752	330	658	332	374	339	352
66.860	623	628	551	445	405	731	333	648	334	380	340	355
68.210	617	620	551	451	411	711	335	638	335	385	342	357
69.580	611	611	550	456	416	693	338	628	337	390	343	359
70.940	604	603	547	460	421	676	340	618	339	395	345	361
72.280	596	595	545	463	424	660	343	608	341	399	346	363
73.650	589	587	542	466	428	646	345	599	342	402	347	365
75.010	582	579	539	468	431	633	348	590	344	405	348	366
76.380	575	572	536	470	433	621	351	582	345	408	349	368
77.730	569	565	533	471	435	610	353	574	347	410	350	369
79.100	562	559	530	472	437	600	356	566	348	412	351	370
80.460	557	553	527	473	438	591	358	560	349	413	352	371
81.830	551	547	524	473	440	582	361	553	351	415	353	372
83.190	546	542	521	474	441	574	363	547	352	415	353	373
84.550	541	537	519	474	442	566	365	541	353	416	354	374
85.910	536	533	516	474	443	559	367	535	354	417	354	374
87.260	532	528	514	474	444	553	369	530	355	417	355	375
88.630	528	524	511	474	445	547	371	525	356	417	355	375
90.010	524	520	509	474	446	541	373	520	356	417	355	376
91.450	511	508	501	472	447	523	379	506	359	417	356	377
92.870	498	495	493	469	448	503	384	492	361	414	356	377
94.280	487	484	486	466	448	484	389	479	363	411	356	376
95.630	477	475	479	462	447	466	392	467	364	408	356	375
97.010	467	466	473	459	444	451	393	456	365	404	355	374
98.390	459	457	467	455	442	439	395	446	366	401	354	373
99.770	451	450	462	451	439	429	396	438	366	397	353	372
101.150	443	443	457	447	436	420	396	430	366	394	352	370
102.530	437	437	452	444	433	413	396	423	366	391	352	369
103.910	431	431	448	440	429	407	396	417	366	388	351	368
105.290	426	426	444	437	426	402	396	412	365	385	350	367
106.670	422	421	440	434	423	398	395	407	365	383	349	365
108.050	418	417	436	431	420	394	394	402	364	380	348	364
109.430	414	413	433	428	417	391	393	398	363	378	347	363
110.810	410	409	430	425	414	388	392	395	363	375	346	361
112.190	407	406	427	422	411	385	391	391	362	373	345	360
113.570	404	403	424	420	408	382	389	388	361	371	345	359
114.950	401	400	422	417	405	380	388	386	360	369	344	358
116.330	398	397	419	415	403	377	387	383	360	367	343	356
117.710	396	394	417	412	401	375	386	381	359	366	342	355
119.090	393	392	414	410	398	373	385	378	358	364	341	354
120.470	391	390	412	408	396	372	383	376	357	363	340	353
121.850	389	388	410	406	394	370	382	374	356	361	340	352
123.230	387	386	408	404	392	368	381	372	356	360	339	351
124.610	385	384	406	403	390	367	380	370	355	359	339	350
125.990	383	382	404	401	389	366	379	369	354	357	338	350
127.370	382	380	402	399	387	364	378	367	354	356	338	349
128.750	380	379	400	398	385	363	377	366	353	355	337	348
130.130	379	377	399	396	384	362	376	365	353	355	337	348
131.510	378	376	397	394	383	362	375	364	352	354	337	347
132.890	377	375	396	393	381	361	374	363	352	353	337	346
134.270	375	373	394	392	380	360	373	362	351	352	337	346
135.650	374	372	393	390	379	360	372	361	351	351	336	345

TABLE 7.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING A-2; MODEL L-4.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	297	297	298	297	297	297	297	297	298	297	298	298
1.130	298	297	298	297	297	297	298	297	298	297	298	298
2.510	298	297	298	297	297	297	297	297	298	297	298	298
3.880	298	297	298	297	297	297	297	297	298	297	298	298
5.270	298	297	298	297	297	297	297	297	298	297	298	298
6.630	298	297	298	297	297	297	297	297	298	297	298	298
8.020	298	298	298	297	297	297	297	297	298	298	298	298
9.390	298	298	298	298	297	298	298	297	298	298	298	298
10.760	298	298	298	298	298	298	298	297	298	298	298	298
12.150	298	298	298	298	298	298	298	297	298	298	298	298
13.530	298	298	298	298	298	298	298	297	298	298	298	298
14.900	298	298	298	298	298	298	298	297	298	298	298	298
16.270	298	298	298	299	298	298	298	297	298	298	299	299
17.650	299	298	298	299	298	298	299	297	299	298	299	299
19.030	299	298	298	299	298	298	299	298	299	298	300	299
20.420	299	299	298	300	299	298	300	298	300	298	300	299
21.800	300	299	298	301	299	298	300	298	300	299	301	299
23.180	301	300	298	301	299	298	301	298	301	299	301	300
24.570	302	300	298	302	300	299	301	298	301	299	302	300
25.960	303	301	299	303	300	299	302	298	302	299	302	301
27.330	304	302	299	304	301	299	303	299	303	300	303	301
28.690	305	303	299	305	302	300	304	299	304	300	304	302
30.070	307	304	299	306	303	300	305	299	305	300	305	302
31.450	309	306	299	308	305	301	307	299	306	301	306	303
32.850	311	308	300	309	307	302	308	300	307	301	307	303
34.220	313	310	300	311	310	303	310	300	308	302	308	304
35.590	316	313	300	313	314	304	312	301	309	302	309	304
36.970	318	315	300	315	319	305	315	301	311	303	310	305
38.370	321	319	300	318	327	306	318	302	312	303	311	306
39.750	324	323	301	321	339	307	323	302	314	304	312	306
41.100	328	329	301	324	355	308	329	303	315	304	313	307
42.470	333	335	301	328	374	310	338	304	317	305	315	308
43.860	340	342	302	332	393	311	349	304	319	306	316	309
45.250	347	351	302	338	414	313	362	305	322	307	317	309
46.630	356	360	303	344	436	314	376	306	324	307	319	310
47.990	366	370	303	352	457	316	390	307	328	308	320	311
49.370	379	381	303	360	478	318	404	308	331	309	322	312
50.760	393	394	304	370	500	321	420	309	335	310	323	313
52.150	410	408	304	381	521	324	435	310	340	311	325	314
53.530	428	425	305	393	542	328	450	311	345	312	327	315
54.910	446	437	305	404	562	331	464	312	350	313	329	315
56.290	466	452	306	417	581	335	477	314	356	314	330	316
57.680	494	470	306	430	605	340	490	315	362	315	332	317
59.070	529	488	307	443	706	345	501	316	369	316	334	318
60.450	560	513	307	459	877	352	537	318	377	317	337	320
61.800	551	544	307	477	*	359	659	320	384	319	339	321
63.170	722	583	309	498	*	367	767	321	393	319	341	322
64.530	788	625	309	523	*	376	853	323	405	321	343	323
65.910	837	672	309	550	*	392	*	326	423	323	346	325
67.280	826	705	310	577	*	407	*	328	444	324	348	327
68.640	799	722	311	594	*	422	*	330	464	325	351	328
70.010	773	727	312	604	*	434	883	332	481	327	353	330
71.410	749	724	312	608	*	443	861	334	494	329	356	332
72.790	728	719	313	609	*	450	838	337	504	330	359	334
74.170	709	710	314	608	*	454	814	341	512	332	361	336
75.550	692	700	314	605	876	458	792	346	517	334	364	337
76.920	678	689	315	602	847	460	771	347	520	336	366	339
78.310	664	678	316	597	821	462	751	350	521	337	369	340
79.690	652	667	317	593	797	464	733	354	522	339	371	342
81.070	641	657	317	589	774	466	716	357	521	341	373	343
82.450	631	647	318	585	753	467	701	360	520	342	375	344
83.830	622	637	319	581	734	468	686	363	519	344	377	346
85.210	613	629	319	577	716	469	673	366	516	345	379	347
86.590	605	620	320	573	700	470	660	369	514	347	381	347
87.970	598	612	320	569	685	470	648	372	512	348	382	348
89.360	591	605	321	566	671	471	637	374	509	349	383	349
90.740	585	598	321	562	657	471	627	377	506	351	384	350
92.120	578	592	322	559	645	472	617	379	504	352	385	350
93.480	572	586	323	556	632	472	607	381	501	353	386	351
94.860	567	579	323	553	620	472	598	383	498	354	387	351
96.230	561	573	323	550	608	472	589	385	495	355	387	352
97.620	556	568	324	547	597	472	579	387	492	356	388	352
99.000	550	562	324	544	586	472	570	389	489	357	388	353
100.390	545	556	325	541	575	471	560	391	486	357	388	353
101.770	540	550	325	539	565	471	550	392	484	358	388	353
103.150	535	545	325	536	555	470	541	394	481	359	388	354
104.530	530	539	326	533	546	470	531	395	478	360	388	354
105.900	525	534	326	531	538	469	522	396	475	360	388	354
107.280	515	523	327	526	522	468	504	399	469	361	388	354
108.640	499	505	328	518	497	464	478	402	459	363	387	355
109.990	484	491	328	511	478	460	456	404	449	364	385	355
111.370	472	480	329	504	463	455	443	406	440	365	384	355
112.750	462	469	330	498	451	451	427	406	433	365	382	355
114.130	453	460	330	492	441	447	416	407	426	366	380	355
115.510	446	452	331	486	432	443	407	407	420	366	379	355
116.890	439	445	331	481	425	440	400	407	414	366	377	354
118.270	434	439	331	476	419	436	394	406	409	366	375	354
119.650	428	434	331	472	414	433	389	405	404	366	373	354
121.030	424	429	331	468	409	430	384	405	400	365	372	353
122.410	419	424	331	464	404	426	380	404	396	365	370	353
123.790	415	420	331	460	400	423	377	403	392	365	369	352
125.170	412	416	331	456	397	421	374	401	389	364	367	352
126.550	409	413	331	453	393	418	371	400	386	364	366	352
127.930	405	410	331	450	390	415	369	399	383	363	365	351
129.310	402	406	332	446	388	413	367	398	381	363	364	351
130.690	400	403	332	443	385	410	364	397	378	362	363	351
132.070	397	401	332	441	383	408	362	395	376	362	362	350

* Temperature readings off scale.

TABLE 8.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING A-3; MODEL L-5.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	290	290	290	290	290	290	290	290	291	291	292	292
0.060	290	290	290	290	290	290	290	290	291	291	292	292
1.990	290	290	290	290	290	290	290	291	291	291	292	292
3.120	290	290	290	290	290	290	290	290	291	291	292	292
4.260	290	290	290	290	290	290	290	290	291	291	292	292
5.390	290	290	290	290	290	290	290	290	291	291	292	292
6.520	290	290	290	290	290	290	290	290	291	291	292	292
7.640	290	290	290	290	290	290	290	291	291	291	292	292
8.760	290	290	290	290	290	290	290	291	291	291	292	292
9.890	290	290	290	290	290	290	290	291	291	291	292	292
11.020	290	290	291	290	290	290	290	291	291	291	292	292
12.140	290	290	291	291	290	290	290	291	292	292	293	293
13.250	291	291	292	291	290	291	291	291	292	292	293	293
14.390	292	292	293	292	291	291	291	291	292	292	293	293
15.500	293	293	294	293	291	291	291	291	292	292	293	293
16.620	295	296	296	296	292	292	291	291	292	292	293	293
17.760	298	299	299	299	293	294	291	292	292	293	294	294
18.870	301	302	302	302	295	296	291	292	293	293	294	294
20.000	304	305	306	306	297	298	292	293	293	294	295	295
21.100	307	308	310	310	300	301	292	293	293	294	295	295
22.240	310	311	313	313	303	304	293	294	294	295	296	296
23.390	313	314	317	317	306	306	293	295	294	295	297	297
24.520	315	316	320	320	310	309	294	296	295	296	297	298
25.640	318	319	323	323	312	312	295	297	295	297	298	299
26.760	320	321	326	325	315	314	296	299	296	298	299	300
27.870	322	323	328	328	317	316	297	300	297	298	300	301
29.010	324	325	331	330	319	318	299	302	298	299	301	302
30.140	326	327	334	333	321	320	300	304	298	300	302	303
31.260	328	329	336	335	324	322	302	306	299	301	303	304
32.370	330	331	339	338	325	324	304	308	300	302	304	305
33.490	331	332	342	341	327	326	305	310	301	303	305	306
34.620	333	335	345	347	329	328	307	312	302	305	306	308
35.760	335	336	349	357	331	330	309	315	303	306	307	309
36.890	338	339	354	375	332	332	311	317	304	307	308	310
38.040	345	346	360	409	334	334	313	319	305	309	309	311
39.150	360	361	370	466	336	337	315	322	306	310	310	312
40.270	368	369	389	552	338	338	317	325	308	311	312	313
41.390	433	438	422	670	342	353	319	328	309	313	312	315
42.520	476	485	469	753	348	372	321	331	310	314	314	316
43.660	482	494	503	759	358	392	322	335	312	316	315	317
44.770	478	490	518	748	369	407	324	339	313	317	316	318
45.900	471	484	523	733	379	417	326	344	315	319	317	320
47.040	466	477	523	716	386	422	328	349	317	320	319	321
48.150	460	471	519	698	392	425	329	353	317	322	320	322
49.280	454	465	515	681	396	426	331	357	319	323	321	324
50.410	450	460	509	665	398	426	333	361	320	325	322	325
51.530	446	455	504	649	400	426	335	365	322	326	323	326
52.640	442	452	499	636	401	425	337	368	323	327	324	327
53.760	439	448	494	623	402	424	339	371	325	329	325	328
54.890	436	445	489	611	403	422	341	373	326	330	326	330
56.030	433	442	484	600	403	421	342	375	327	331	327	331
57.160	430	440	480	589	403	420	344	377	328	333	328	332
58.290	428	437	476	580	403	419	346	379	329	334	329	333
59.410	426	435	472	571	403	417	348	380	330	335	330	333
60.540	424	433	468	562	403	416	350	381	332	336	330	334
61.660	422	431	465	554	402	415	352	382	332	337	331	335
62.790	420	430	461	547	402	414	354	383	333	338	332	335
63.890	419	428	458	540	402	412	355	384	334	338	332	336
65.010	417	426	455	534	401	411	357	384	335	339	333	336
66.130	416	425	453	527	401	410	358	385	335	340	333	337
67.240	414	423	450	522	401	409	359	385	336	340	334	337
68.390	413	422	447	516	400	408	361	385	337	341	334	338
69.520	412	420	445	511	400	407	362	386	337	342	335	338
70.640	411	419	442	506	400	406	363	386	337	343	335	338
71.760	408	416	436	494	398	404	365	387	338	345	336	339
72.870	405	412	431	483	397	401	367	387	340	348	337	339
73.990	402	409	426	472	396	399	369	387	342	350	338	341
75.110	399	406	421	463	394	397	371	386	345	352	340	343
76.230	397	403	417	456	393	395	372	386	347	354	341	344
77.350	395	401	414	451	392	393	373	386	349	356	343	346
78.470	393	399	410	445	390	392	373	385	351	358	345	348
79.590	392	397	407	440	389	390	374	385	353	359	347	349
80.710	390	395	405	435	388	389	374	384	355	361	348	351
81.830	389	393	402	431	387	387	374	383	356	361	350	352
82.950	387	391	400	427	386	386	374	382	357	362	351	353
84.070	386	389	398	424	385	385	374	382	358	363	352	353
85.190	384	388	396	420	384	384	374	381	359	363	352	354
86.310	383	386	394	417	382	382	374	380	359	363	353	354
87.430	382	385	392	414	381	381	373	379	360	364	353	355
88.550	381	384	390	411	380	380	373	378	360	364	354	355
89.670	379	382	389	409	379	379	372	378	360	364	354	355
90.790	378	381	388	407	378	378	372	377	360	364	354	355
91.910	377	380	386	404	378	377	371	376	360	363	355	355
93.030	376	379	385	402	377	376	371	375	360	363	355	355
94.150	375	377	383	399	375	375	370	374	360	363	355	355
95.270	374	376	381	397	374	374	369	373	360	362	355	355
96.390	373	375	380	394	373	372	368	372	360	362	355	355
97.510	371	373	379	392	372	371	368	371	360	361	355	355
98.630	370	372	377	390	371	370	367	370	359	361	355	355
99.750	369	371	376	388	370	369	366	369	359	360	355	354
100.870	368	370	375	387	369	368	365	368	358	359	354	354
101.990	367	369	373	385	368	367	364	367	358	359	354	354
103.110	366	368	372	383	367	366	364	366	357	358	354	353
104.230	366	367	371	382	366	366	363	365	357	358	353	353
105.350	365	366	370	381	366	365	362	364	356	357	353	353
106.470	364	366	369	379	365	364	362	363	356	357	353	353
107.590	364	365	369	378	364	363	361	363	356	356	353	352
108.710	364	365	369	377	363	362	360	362	355	355	352	351
109.830	363	364	368	376	362	362	360	361	355	355	352	351
110.950	362	363	367	375	362	362	360	361	355	355	352	351
112.070	361	363	366	374	362	361	359	360	354	354	351	351
113.190	361	362	365	373	361	361	359	360	354	354	351	350

TABLE 9.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING A-3; MODEL L-6.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	297	297	298	298	298	297	298	297	297	297	297	297
0.970	297	298	298	298	297	297	298	297	297	297	297	297
2.070	297	297	298	298	297	297	298	297	297	297	297	297
3.180	297	297	298	298	297	297	298	297	297	297	297	297
4.280	297	297	298	298	297	297	298	297	297	297	297	297
5.380	297	297	298	298	298	297	298	297	297	297	297	297
6.500	297	298	298	298	298	297	298	297	298	297	298	297
7.610	297	297	298	298	297	297	298	297	298	297	298	297
8.710	297	297	298	298	298	297	298	297	298	297	298	297
9.810	297	298	298	298	298	297	298	297	298	297	298	297
10.930	297	298	298	298	298	297	298	297	298	297	298	297
12.040	297	298	298	298	298	297	298	297	298	297	298	297
13.160	297	298	298	298	298	297	298	297	298	297	298	297
14.280	298	298	298	298	298	298	298	298	298	297	298	297
15.390	298	298	299	298	298	298	298	298	298	297	298	297
16.480	298	298	299	299	298	298	298	298	298	298	299	298
17.580	299	299	299	299	298	298	298	298	298	298	299	298
18.700	300	300	300	300	298	298	298	298	298	298	299	298
19.880	301	301	301	301	299	299	299	299	299	299	299	298
21.000	302	302	302	302	300	300	299	298	299	298	300	298
22.100	303	304	303	304	300	301	299	299	299	299	300	299
23.200	305	305	305	306	302	302	299	299	300	299	300	299
24.310	306	307	307	307	303	304	300	299	300	300	301	300
25.440	308	308	308	309	304	305	300	300	300	300	301	300
26.530	309	310	310	310	305	306	301	301	301	300	302	300
27.640	311	311	311	312	306	308	301	301	301	301	302	301
28.740	312	312	313	313	308	309	302	302	302	302	303	302
29.840	313	314	315	315	309	310	303	303	302	302	303	302
30.940	315	315	316	316	310	311	304	304	303	303	304	303
32.040	316	316	316	317	311	312	305	305	304	304	305	303
33.180	317	317	319	319	312	314	306	306	304	304	305	304
34.290	318	318	321	320	313	315	307	307	305	305	306	305
35.400	319	319	323	322	314	316	308	308	306	306	307	306
36.490	320	320	326	323	315	317	309	309	307	307	308	307
37.590	321	322	329	325	316	318	310	310	308	308	309	307
38.700	323	323	334	328	318	319	311	311	309	309	310	308
39.820	326	326	340	333	319	320	312	312	310	310	310	309
40.910	330	330	350	342	320	322	313	313	310	310	311	310
42.020	338	337	369	360	322	323	314	314	311	312	312	311
43.130	349	348	397	398	325	326	316	315	312	313	312	312
44.220	369	366	448	462	329	330	317	317	313	314	313	313
45.320	415	407	530	566	335	336	318	318	314	315	314	313
46.440	487	477	638	714	343	344	320	319	315	316	315	314
47.550	523	517	706	753	356	360	322	320	316	317	316	315
48.650	523	520	710	744	373	378	325	321	317	318	316	316
49.750	515	513	699	726	389	394	328	323	318	319	317	317
50.870	504	504	683	705	401	405	331	325	319	320	318	318
51.990	494	494	666	685	413	413	335	328	320	321	318	318
53.110	485	486	649	665	417	418	340	331	321	322	319	319
54.210	476	478	634	647	421	420	344	334	322	323	320	320
55.320	469	471	619	631	423	422	349	338	323	324	321	321
56.430	463	465	606	616	425	423	353	341	324	325	321	321
57.530	458	460	593	602	426	423	356	345	325	326	322	322
58.630	453	455	582	590	426	424	360	348	326	327	323	323
59.750	449	451	571	578	426	423	364	351	327	328	323	323
60.840	445	448	561	569	426	423	367	354	328	329	324	324
61.950	442	445	552	558	425	423	370	357	329	330	325	325
63.050	440	442	544	550	424	422	372	360	331	331	326	325
64.170	437	439	536	541	424	421	375	363	332	332	327	326
65.290	435	437	529	534	423	421	377	365	334	333	327	327
66.400	433	435	522	527	422	420	379	367	335	334	328	327
67.490	431	433	516	521	422	419	381	370	336	336	329	328
68.600	429	431	510	515	421	419	382	371	338	337	330	329
69.720	428	430	505	509	420	418	384	373	339	338	331	330
70.830	426	428	499	504	419	417	385	375	340	340	332	330
71.940	425	427	495	499	418	417	386	377	342	341	333	331
73.050	424	425	490	494	418	416	387	378	343	342	333	332
74.170	423	424	486	490	417	415	388	379	344	344	334	333
75.300	421	423	482	486	416	415	388	381	346	345	335	333
76.400	420	422	479	482	415	414	389	382	347	346	335	334
77.520	419	420	475	478	414	413	390	382	348	347	336	335
78.630	418	419	472	475	414	413	390	384	349	348	337	336
79.750	417	418	468	471	413	412	391	384	350	349	337	336
80.870	416	417	465	468	412	411	391	385	352	351	338	337
81.980	415	416	463	465	411	411	391	386	353	352	339	338
83.090	413	414	456	458	409	409	392	387	355	354	340	339
84.190	409	410	446	448	406	406	392	389	359	358	342	341
85.290	405	406	437	440	403	404	392	390	362	361	344	344
86.390	402	403	430	433	401	401	391	390	364	364	345	345
87.490	399	400	424	426	398	399	390	390	365	366	346	346
88.590	397	397	419	421	396	396	389	389	366	367	347	347
89.690	394	395	414	416	393	394	387	388	367	367	348	348
90.790	392	393	410	412	391	392	386	387	367	368	349	349
91.890	390	391	407	409	389	390	385	386	367	368	346	349

TABLE 10. - BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING A-3; MODEL L-7.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) --											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	298	298	298	298	298	298	298	298	298	298	298	298
0.690	298	298	298	298	298	298	298	298	298	298	298	298
1.820	298	298	298	298	298	298	298	298	298	298	298	298
2.950	298	298	298	298	298	298	298	298	298	298	298	298
4.080	298	298	298	298	298	298	298	298	298	298	298	298
5.190	298	298	298	298	298	298	298	298	298	298	298	298
6.310	298	298	298	298	298	298	298	298	298	298	298	298
7.420	298	298	298	298	298	298	298	298	298	298	298	298
8.550	298	298	298	298	298	298	298	298	298	298	298	298
9.680	298	298	298	298	298	298	298	298	298	298	298	298
10.810	298	298	298	298	298	298	298	298	298	298	298	298
11.920	298	298	299	298	298	298	298	298	298	298	298	298
13.050	298	298	299	299	298	298	298	298	298	298	298	298
14.180	298	298	299	299	298	298	298	298	298	298	298	298
15.320	298	298	299	300	298	298	298	298	298	298	298	298
16.450	298	298	300	299	298	298	298	298	299	299	299	298
17.580	299	299	300	300	298	298	299	299	299	299	299	299
18.710	300	299	301	300	299	299	299	299	299	299	300	299
19.860	301	300	302	302	300	299	299	299	300	299	300	299
20.990	302	302	304	302	301	300	300	299	300	300	300	299
22.130	304	304	307	303	301	300	300	299	300	300	301	300
23.260	306	306	309	305	302	301	300	300	300	300	301	300
24.390	309	308	311	307	303	302	301	300	301	301	302	301
25.520	311	310	314	309	305	304	301	300	301	301	302	301
26.640	313	313	316	311	307	305	302	301	302	301	303	301
27.770	315	315	319	313	309	307	303	301	302	301	303	302
28.910	317	317	321	315	311	309	303	302	303	302	304	302
30.040	319	319	323	317	313	311	304	303	304	303	305	303
31.170	321	321	325	319	315	313	305	304	305	303	306	303
32.290	323	322	327	321	317	315	307	305	306	304	307	304
33.420	325	324	329	323	318	317	308	306	306	305	308	305
34.520	326	326	331	325	320	318	309	307	307	305	309	306
35.660	328	328	333	327	322	320	311	308	308	306	310	307
36.790	330	330	336	329	324	322	312	309	309	307	310	307
37.920	332	332	339	332	325	323	313	310	310	308	311	308
39.040	334	334	345	335	327	325	315	312	311	309	312	309
40.170	337	337	348	339	329	328	317	313	312	310	313	310
41.300	342	341	380	345	331	330	318	315	313	311	314	311
42.440	351	349	414	356	333	332	320	316	314	312	315	312
43.570	367	365	458	376	336	336	322	318	315	313	316	313
44.700	392	388	511	409	340	341	324	320	317	314	318	314
45.820	427	422	575	465	346	349	326	322	317	315	319	315
46.950	470	463	644	555	356	362	327	324	319	316	320	316
48.050	482	479	658	599	370	379	329	329	321	318	322	318
49.200	477	477	652	608	387	397	331	329	321	318	322	318
50.330	471	473	641	605	400	411	334	332	323	319	323	319
51.440	466	469	628	598	409	419	336	336	324	320	324	320
52.550	461	464	615	589	415	424	339	339	325	322	325	321
53.670	456	460	602	579	419	426	342	344	327	323	326	322
54.800	452	455	590	569	420	427	346	348	328	324	327	323
55.940	448	451	579	559	421	426	350	352	330	326	328	325
57.070	444	447	568	549	421	426	353	356	331	327	329	326
59.180	438	440	550	533	420	423	360	362	334	330	331	328
62.400	432	433	528	514	418	420	368	370	337	334	333	331
65.640	426	427	509	498	415	416	374	376	340	338	335	334
68.880	422	422	494	485	413	414	379	380	344	341	337	336
72.100	418	417	481	474	411	411	383	383	347	345	339	338
75.350	414	414	470	465	409	408	386	385	351	348	341	340
78.590	411	410	460	456	407	406	388	386	354	351	343	341
83.490	406	406	448	446	404	403	390	387	358	355	346	345
88.390	402	402	438	436	401	400	391	388	362	358	348	347
93.300	398	398	429	429	398	397	391	388	365	361	350	349
98.220	395	395	422	422	395	394	391	387	368	364	351	350
103.120	392	392	416	416	393	392	390	386	370	365	352	350
108.020	389	390	410	411	391	390	389	386	371	367	353	351
112.930	386	387	406	406	389	388	388	384	372	367	353	352
117.870	384	385	402	402	386	386	387	383	372	368	353	353
122.770	382	383	398	399	385	384	386	382	372	368	353	353

TABLE 11. - BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING B-1; MODEL L-8.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	300	299	300	300	300	300	303	299	299	299	298	298
0.680	300	299	300	300	300	300	300	299	299	299	298	298
2.050	300	299	300	300	300	300	300	299	299	299	299	298
3.430	300	299	300	300	300	300	300	300	299	299	299	298
4.800	300	299	300	300	300	300	300	300	299	299	299	298
6.150	300	299	300	300	300	300	300	300	299	299	299	299
7.530	300	299	300	300	300	300	300	300	299	299	299	299
8.900	300	299	300	300	300	300	300	300	299	299	299	299
10.290	300	299	300	300	300	300	300	300	299	299	300	299
11.670	300	299	300	301	300	300	300	300	300	299	300	300
13.030	300	299	300	301	300	300	300	300	300	300	300	300
14.390	300	300	301	301	300	300	300	300	300	300	301	301
15.770	301	299	301	301	301	300	301	300	300	300	301	302
17.170	301	300	302	302	301	301	301	301	301	300	302	302
18.540	302	301	302	303	302	301	301	301	301	301	301	303
19.920	303	302	303	304	302	302	302	302	302	302	302	303
21.270	304	303	304	305	303	303	303	303	303	303	304	304
22.660	306	304	305	306	304	303	303	303	303	303	305	306
24.050	307	306	306	307	305	304	304	303	304	303	307	308
25.410	309	307	307	308	306	305	305	304	305	304	308	309
26.760	311	309	309	310	308	306	306	305	306	305	309	310
28.120	313	310	311	312	309	308	307	306	307	306	310	312
29.510	315	313	312	314	311	309	309	307	308	307	311	313
30.890	317	315	314	315	313	311	310	308	309	308	312	315
32.270	319	317	316	318	315	313	311	310	310	309	314	316
33.640	322	319	319	320	317	315	313	311	313	312	317	319
35.020	325	322	321	322	319	317	314	313	314	314	318	321
36.410	328	325	323	325	321	319	316	314	314	314	319	322
37.790	331	327	326	327	323	322	317	316	315	315	321	324
39.170	334	330	329	330	326	324	319	317	317	315	322	325
40.560	337	333	331	333	329	327	321	319	318	317	322	325
41.950	340	337	334	336	331	329	323	321	320	318	324	327
43.320	343	340	337	339	334	332	324	323	321	320	325	329
44.690	347	343	340	342	337	335	326	325	323	321	327	330
46.060	351	347	343	345	340	338	328	327	325	323	328	332
47.430	354	350	346	348	343	341	330	329	326	324	330	333
48.810	358	354	350	351	346	344	332	331	328	326	331	335
50.190	362	358	355	356	351	348	334	333	330	328	333	337
51.560	366	362	358	358	352	351	337	335	331	329	334	338
52.940	370	366	360	362	356	355	339	337	333	331	336	340
54.320	374	370	363	365	359	359	341	340	335	332	337	341
55.710	378	374	367	369	363	363	343	342	336	334	339	343
57.070	382	379	370	373	366	367	345	344	338	336	340	344
58.450	387	383	374	376	370	371	347	347	340	337	341	346
59.830	391	387	378	380	373	376	350	349	341	339	343	348
61.200	396	391	381	384	377	380	352	352	343	341	344	349
62.580	400	396	385	388	381	386	354	354	345	342	346	351
63.950	405	401	389	392	385	391	356	357	347	344	347	352
65.310	410	406	393	396	388	396	359	360	349	346	349	354
66.690	415	411	397	400	392	401	361	363	350	347	350	355
68.070	420	416	401	404	396	406	363	365	352	349	352	356
69.440	426	421	405	408	400	412	366	368	354	351	353	358
70.800	431	426	409	412	404	416	368	371	356	353	354	359
72.180	436	431	413	416	409	421	370	374	357	354	356	361
73.560	441	436	417	420	413	427	373	377	359	356	357	362
74.940	446	441	421	425	417	432	375	380	361	357	358	363
76.310	452	446	425	429	421	438	378	383	363	359	360	365
77.700	457	451	429	433	425	443	380	386	364	361	361	366
79.100	462	457	434	438	429	448	383	389	366	363	362	367
80.500	468	462	438	442	433	453	385	392	368	364	364	369
81.850	473	467	442	446	437	458	388	395	370	366	365	370
83.230	479	473	447	451	441	464	390	398	371	368	366	371
84.600	484	478	451	455	445	469	392	401	373	369	367	372
85.990	490	484	455	460	449	474	395	404	375	371	369	374
87.360	495	489	460	464	453	479	397	408	376	372	370	375
88.740	501	494	464	469	457	484	400	411	378	374	371	376
90.100	506	499	468	474	461	488	403	414	380	376	372	377
91.480	511	504	473	478	465	493	405	417	381	377	373	378
92.860	517	509	477	483	469	497	408	420	383	379	374	379
94.230	522	514	481	487	474	502	410	423	385	380	375	380
95.590	527	520	486	492	478	506	413	426	386	382	377	382
96.980	533	525	490	496	482	511	415	429	388	384	378	383
98.350	538	529	495	501	486	516	418	432	390	385	379	384
99.770	543	535	499	506	491	520	421	436	391	387	380	385
101.120	548	540	503	510	495	524	423	438	393	389	381	386
102.500	554	545	508	515	499	529	426	441	394	390	382	387
103.870	559	550	512	520	503	533	428	444	396	392	383	388
105.260	564	555	517	524	507	538	431	448	397	393	384	389
106.650	569	559	522	529	512	542	433	451	399	395	385	390
108.020	574	564	527	534	516	546	436	454	401	397	386	391
109.380	579	569	531	538	520	551	438	457	402	398	387	392
110.740	584	574	536	543	524	555	441	460	404	400	388	393
112.130	589	578	540	548	529	559	444	463	405	401	389	394
113.510	594	584	545	552	533	563	446	466	407	403	390	395
114.890	599	588	550	557	538	567	449	469	408	404	391	396
116.250	603	593	554	562	542	572	451	472	410	406	392	397
117.650	608	597	559	566	547	576	454	475	412	407	393	398
119.030	613	602	563	571	551	581	457	478	413	409	394	399
120.420	618	607	568	576	555	585	459	481	415	411	394	400
121.790	621	612	572	581	560	588	462	484	416	412	395	400
123.170	625	616	577	585	564	590	464	487	417	413	396	401
124.570	629	619	581	589	567	593	467	490	419	415	397	402
125.950	632	623	585	593	571	595	470	493	421	416	398	403
127.320	635	626	589	597	575	598	473	496	422	418	399	403
128.690	638	629	593	601	579	600	475	499	423	419	399	404
130.060	640	632	597	605	582	602	478	501	425	420	400	405
131.450	642	635	601	609	585	604	480	504	426	422	401	405
132.830	644	637	604	612	588	606	483	506	428	423	401	406
134.210	645	638	607	615	591	607	485	509	429	425	402	406
135.570	645	639	610	618	593	608	488	512	430	426	403	407
136.940	646	640	613	621	595	609	490	514	432	427	403	407
138.320	646	641	615	623	597	610	493	516	433	428	404	407
139.700	646	641	617	625	599	610	495	518	435	430	404	408
141.070	645	641	619	627	600	611	497	520	436	431	405	408
142.450	645	641	620	628	601	611	499	522	437	432	405	408
143.830	644	641	622	629	602	611	501	524	438	434	406	408
145.220	643	640	623	630	603	610	503	526	440	436	406	408
146.600	642	639	623	63								

TABLE 11.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING B-1; MODEL L-8. Concluded

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) --											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
156.200	634	632	624	630	603	606	517	535	448	443	408	408
157.570	633	631	624	630	603	606	518	536	449	444	408	408
158.940	631	630	623	629	603	605	519	537	449	444	408	407
160.320	630	628	623	629	602	604	520	537	450	445	408	407
161.710	629	627	622	628	602	603	521	538	451	446	408	407
163.070	627	626	621	627	601	603	522	538	452	447	407	406
164.450	626	625	621	626	601	602	523	539	452	447	407	406
165.820	625	624	620	626	600	601	524	539	453	448	407	406
167.200	623	622	619	625	600	600	524	539	453	448	407	405
168.600	622	621	618	624	599	600	525	540	454	449	407	405
169.950	621	620	618	623	598	599	526	540	454	449	406	404
171.310	620	619	617	622	598	598	526	540	454	450	406	404
172.670	618	618	616	621	597	597	527	540	455	450	406	403
174.070	617	616	615	620	596	596	527	540	455	450	405	403
175.450	616	615	614	619	596	595	527	540	455	451	405	402
176.810	614	614	613	618	595	594	527	540	456	451	405	402
178.170	613	613	612	616	594	593	528	540	456	451	404	401
179.560	612	612	611	615	593	592	528	540	456	451	404	401
180.940	611	611	610	614	592	591	528	539	456	451	404	400
182.320	609	609	608	613	592	590	528	539	456	451	403	399
183.680	608	608	608	612	591	590	528	539	456	452	403	399
185.040	607	607	606	611	590	588	528	539	456	452	402	398
186.410	606	606	605	609	590	588	528	538	456	452	402	398
187.800	604	605	604	608	589	586	528	538	456	452	402	397
189.200	603	603	603	607	588	585	528	538	456	452	401	396
190.570	602	602	602	606	587	584	528	537	455	451	401	396
191.940	601	601	601	605	587	583	528	537	455	451	400	395
193.320	599	600	600	603	586	582	527	537	455	451	400	394
194.680	598	599	599	602	585	581	527	536	455	451	399	394
196.040	597	598	598	601	584	580	527	536	455	451	399	393
197.400	596	596	596	600	583	579	527	535	455	451	398	393
198.780	595	595	595	599	583	578	526	535	454	451	398	392
200.150	593	594	594	598	582	576	526	534	454	451	398	392
201.530	592	593	593	597	581	575	526	534	454	450	397	391
202.900	591	592	592	596	580	574	525	533	454	450	397	390
204.240	590	591	591	595	579	573	525	533	453	450	396	390
205.630	589	590	590	593	578	572	525	532	453	450	396	389
207.000	588	589	588	592	577	571	524	531	453	449	395	388
208.390	586	587	587	591	576	570	524	531	453	449	395	388
209.750	585	586	586	590	575	569	523	530	452	449	394	387
211.130	584	585	585	589	574	567	523	529	452	449	394	387
212.500	583	584	584	588	573	566	522	529	452	448	393	386
213.890	582	583	583	587	572	565	522	528	451	448	393	386
215.260	580	582	582	586	571	564	522	528	451	448	392	385
216.630	579	580	581	585	570	563	521	527	451	447	392	384
217.970	578	579	580	584	568	562	520	526	450	447	391	384
219.350	577	578	578	583	567	561	520	526	450	447	391	383
220.720	576	577	577	582	566	560	519	525	449	446	390	383
222.100	574	575	576	580	565	559	519	524	449	446	390	382
223.450	573	574	575	579	564	558	518	523	449	445	389	381
224.820	572	573	574	578	562	557	518	523	448	445	389	381
226.210	571	572	573	577	561	555	517	522	448	445	388	380
227.570	569	570	572	576	560	554	517	521	447	444	388	380
228.960	568	569	571	575	559	553	516	521	447	444	388	379
230.320	567	568	570	574	558	552	515	520	447	444	387	379
231.710	566	566	569	573	556	551	515	519	446	443	387	378
233.160	561	562	565	570	553	548	513	517	445	442	385	376
241.540	557	557	561	566	548	543	510	514	443	440	383	374
246.970	552	552	557	562	543	537	508	510	441	438	382	372
252.430	547	547	553	557	539	532	505	506	439	436	380	370
257.870	542	542	549	553	535	527	502	503	437	435	378	368
263.340	538	537	545	549	530	522	499	499	435	433	377	367
268.810	533	533	540	545	526	518	496	496	433	431	375	365
274.260	529	528	537	541	522	512	494	492	431	429	374	363
279.700	525	524	533	537	519	504	491	488	429	427	372	362
285.130	521	520	529	534	516	495	487	483	427	425	371	360
290.570	516	516	526	530	511	487	484	477	424	423	369	359
296.030	511	510	522	526	506	481	481	472	422	421	368	357
301.490	506	505	519	523	502	474	477	467	420	419	367	356
306.950	502	500	516	519	498	469	474	462	418	417	366	355
312.390	497	495	512	516	493	464	471	458	416	415	365	353
317.860	493	491	509	512	490	460	468	454	414	413	364	352
323.340	489	486	506	509	486	456	465	450	412	411	363	351
328.830	485	482	503	506	482	452	462	446	410	410	362	351
334.290	481	478	500	503	478	449	460	443	408	408	362	350
339.760	477	474	497	499	475	445	457	440	406	406	361	349
345.230	474	470	494	497	471	442	455	437	405	405	360	348
350.700	471	467	492	494	468	440	452	434	403	403	360	347
356.160	468	463	489	491	465	437	450	431	402	402	359	347
361.650	464	460	486	488	461	435	448	428	400	401	358	346
367.120	461	456	484	485	458	433	446	425	399	399	358	346
372.580	459	453	481	483	455	430	444	423	397	398	357	345
378.050	456	450	478	480	453	428	442	420	396	397	357	345
383.520	453	447	476	477	450	426	440	418	395	395	356	344
388.980	451	444	474	474	447	424	438	416	394	394	356	344

TABLE 12.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING B-1; MODEL L-9.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	305	305	305	305	305	305	305	305	304	304	303	302
1.150	305	305	305	305	305	305	305	305	304	304	303	302
2.480	305	305	305	305	305	305	305	305	304	304	303	302
3.810	305	305	305	305	305	305	305	305	304	304	303	302
5.150	305	305	305	305	305	305	305	305	304	304	303	302
6.460	305	305	305	305	305	305	305	305	304	304	303	302
7.800	305	305	305	305	305	305	305	305	304	304	303	302
9.130	305	305	305	305	305	305	305	305	304	304	303	302
10.480	305	305	306	305	305	305	305	305	304	304	303	302
11.810	305	305	306	306	305	305	305	305	304	304	303	303
13.140	306	306	306	306	305	305	305	305	304	304	304	303
14.470	306	306	306	306	306	305	305	305	304	304	304	303
15.780	306	306	307	307	306	305	306	306	305	305	305	304
17.110	307	307	307	307	307	306	306	306	305	305	305	304
18.440	308	308	308	308	308	306	306	306	305	305	305	304
19.770	309	308	309	309	309	307	307	306	305	305	306	304
21.090	310	310	310	310	310	307	307	307	305	307	305	305
22.420	312	311	311	311	311	308	308	307	306	307	306	306
23.770	313	312	313	312	312	309	309	308	306	308	307	307
25.090	315	314	314	314	314	311	310	309	307	309	307	307
26.400	318	316	316	315	316	312	311	309	310	307	310	308
27.720	320	318	317	317	318	313	312	310	310	308	311	309
29.050	322	320	319	319	321	315	313	311	311	309	312	310
30.390	325	323	321	321	324	317	314	312	312	309	313	311
31.720	327	325	324	323	328	319	315	313	313	310	315	312
33.050	330	328	326	325	331	321	317	314	314	311	316	313
34.380	333	331	328	327	334	324	318	315	316	312	317	314
35.720	336	334	331	329	337	326	320	316	317	313	318	315
37.050	339	337	333	332	340	329	322	318	318	314	320	317
38.380	342	340	336	334	343	332	323	319	319	315	321	318
39.710	345	344	339	337	346	335	325	321	321	316	322	319
41.030	349	347	342	340	349	338	327	322	322	317	324	320
42.370	352	349	345	343	352	342	329	324	324	318	325	321
43.700	356	356	348	346	355	346	330	325	325	319	326	322
45.030	360	361	351	349	358	350	333	327	326	320	328	324
46.360	365	365	354	352	361	354	334	329	328	322	329	325
47.680	369	370	357	355	364	359	336	331	329	323	331	327
49.010	373	375	360	358	366	363	338	333	331	324	332	328
50.350	378	380	364	362	368	368	340	335	332	326	334	329
51.670	382	385	367	365	371	373	342	337	334	327	335	331
53.000	387	390	371	369	374	379	344	339	335	328	336	332
54.330	392	395	374	372	378	384	346	341	337	330	338	334
55.690	397	401	378	376	381	387	348	343	338	331	339	335
57.020	401	406	382	380	382	397	350	346	340	333	341	336
58.350	407	412	385	383	385	403	353	348	341	334	342	338
59.690	412	417	389	387	389	409	355	350	343	336	344	339
61.020	417	423	393	391	392	416	357	353	345	337	345	340
62.350	422	429	397	395	395	422	359	356	346	339	347	342
63.670	428	435	401	399	399	428	361	358	348	340	348	343
65.000	433	441	405	403	402	434	363	361	349	342	350	345
66.330	439	447	409	408	408	441	364	364	351	344	351	346
67.670	444	453	413	412	410	447	368	366	353	345	353	347
69.000	450	459	417	416	414	454	370	369	354	347	354	349
70.330	456	465	422	421	417	460	372	372	356	348	356	350
71.660	462	471	426	425	421	466	375	375	357	350	357	352
73.000	468	477	430	430	425	473	377	378	359	352	358	353
74.310	473	483	435	434	429	479	379	379	361	353	360	355
75.630	479	490	439	439	433	485	382	382	362	355	361	356
76.950	485	496	444	444	437	492	384	387	364	356	363	357
78.280	491	502	448	448	441	498	388	391	365	358	364	359
79.620	498	509	453	454	445	505	389	394	367	360	366	360
80.950	504	515	458	459	449	511	391	398	368	361	367	362
82.260	510	522	462	464	454	518	393	401	370	363	368	363
83.590	516	528	467	469	458	525	396	405	371	365	370	364
84.930	522	535	472	474	462	531	398	409	373	367	371	366
86.260	529	541	477	479	466	538	401	413	375	368	373	367
87.590	535	547	482	484	471	544	403	417	376	370	374	368
88.920	541	554	487	488	475	551	405	421	378	371	375	370
90.240	547	560	492	494	480	557	408	424	379	373	377	371
91.570	554	566	497	499	484	563	410	428	381	375	378	372
92.920	560	573	502	505	489	569	413	432	382	377	379	374
94.250	566	579	507	510	493	575	416	436	384	378	381	375
95.580	572	585	512	515	498	581	418	440	385	380	382	376
96.890	579	591	517	520	503	586	420	444	387	382	383	378
98.220	585	597	522	526	508	592	423	448	388	384	385	379
99.560	591	603	528	531	514	598	426	452	390	385	386	380
100.880	598	609	533	536	519	604	428	456	391	387	387	381
102.210	604	615	538	542	524	609	431	460	393	389	389	382
103.520	610	621	544	547	530	615	433	464	394	390	390	384
104.850	617	627	549	553	535	621	436	469	395	392	391	385
106.200	623	633	554	558	541	627	439	473	397	394	392	386
107.530	630	639	560	564	547	632	441	477	398	396	394	387
108.850	636	645	565	569	553	638	445	482	400	398	395	389
110.180	642	651	570	574	559	642	447	486	401	399	396	390
111.480	646	655	575	579	563	645	450	490	403	401	397	391
112.830	650	659	580	584	567	648	453	494	404	403	398	392
114.170	654	663	586	589	571	651	456	498	406	405	400	394
115.470	658	666	590	594	575	653	459	502	407	407	401	395
116.800	661	668	595	598	578	655	462	506	408	408	402	396
118.150	663	670	599	603	582	656	465	509	410	410	403	397
119.480	664	672	603	607	584	656	467	513	411	412	404	398
120.810	665	672	607	611	587	656	470	516	413	414	406	399
122.140	666	672	610	614	589	656	473	519	414	416	407	401
123.470	666	672	613	617	591	656	476	522	415	418	408	402
124.790	666	672	616	620	593	656	478	524	417	419	409	403
126.130	666	671	618	622	595	654	481	527	418	421	410	404
127.460	665	670	621	624	597	653	483	529	420	423	411	405
128.780	664	669	622	626	598	652	486	531	421	425	412	406
130.120	663	668	624	627	599	650	488	533	422	427	413	407
131.460	662	666	625	628	600	649	490	535	424	428	415	408
132.790	660	664	626	629	600	647	492	536	425	430	416	409
134.130	659	662	627	629	601	646	494	538	426	432	417	410
135.450	657	660	627	630	601	644	496	539	427	433	417	411
136.760	655	658	628	630	601	642	498	540	429	435	418	411
138.090	653	656	628	630	602	641	500	541	430	437	419	412
139.420	651	654	628	629	601	639	502	542	431	438	420	413
140.770	649	652	628	629	601	637	504	543	432	440	421	414
142.110	648	650	628	629								

TABLE 12.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING B-1; MODEL L-9. Concluded

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
151.430	634	635	624	624	598	623	514	546	440	451	426	418
152.770	632	633	623	623	597	621	515	546	441	452	427	419
154.110	630	631	622	621	596	620	516	546	442	453	427	419
155.430	628	630	621	620	595	618	516	546	442	454	428	420
156.760	626	628	620	619	595	616	517	546	442	455	428	420
158.180	624	626	619	618	594	614	518	546	444	456	428	420
159.510	623	624	618	617	593	613	518	546	445	457	429	421
160.850	621	622	617	616	592	611	519	546	445	458	429	421
162.200	619	620	616	615	591	610	519	546	446	459	429	421
163.530	617	619	614	614	591	608	520	545	446	459	430	421
164.860	616	617	613	612	590	606	520	545	447	460	430	422
166.190	614	615	612	611	589	605	521	545	447	461	430	422
167.530	613	614	611	610	588	603	521	545	448	461	430	422
168.860	611	612	610	609	587	602	521	544	448	462	430	422
170.190	609	610	609	607	586	600	521	544	449	463	431	422
171.520	608	609	607	606	585	599	522	544	449	463	431	422
172.870	606	607	606	605	584	598	522	543	450	464	431	422
174.210	605	606	605	604	583	596	522	543	450	464	431	422
175.550	603	604	604	602	582	595	522	542	450	465	431	422
176.880	602	602	603	601	581	593	522	542	451	465	431	422
178.200	600	601	601	600	580	592	522	541	451	465	432	422
179.530	599	599	600	599	579	591	522	541	451	466	432	422
180.880	597	598	599	597	578	589	522	540	451	466	432	422
182.230	596	596	598	596	577	588	522	540	452	466	432	422
183.560	595	595	596	595	576	586	522	539	452	466	432	422
184.880	593	594	595	594	575	585	522	539	452	467	432	422
186.200	592	592	594	593	574	584	522	538	452	467	432	422
187.560	590	591	593	591	573	583	521	538	452	467	432	422
188.900	589	589	591	590	573	581	521	537	452	467	432	422
190.240	588	588	590	589	572	580	521	537	452	467	432	422
191.570	586	587	589	588	571	579	521	536	452	467	432	422
192.900	585	585	588	586	570	578	521	535	452	468	432	422
194.250	584	584	587	585	569	576	520	535	452	468	432	421
195.600	582	583	586	584	568	575	520	534	452	468	432	421
196.910	581	581	584	583	567	574	520	534	452	468	432	421
198.230	580	580	583	582	566	572	519	533	452	468	432	421
199.550	578	579	582	580	565	571	519	532	452	468	432	421
200.900	577	577	581	579	564	570	519	532	452	468	431	421
202.230	576	576	580	578	563	569	518	531	452	468	431	421
203.560	575	575	579	577	562	568	518	531	452	468	431	421
204.900	573	573	577	576	561	566	518	530	452	468	431	420
206.240	572	572	576	575	560	565	517	529	452	468	431	420
207.580	571	571	575	573	559	564	517	529	452	467	431	420
208.920	570	569	574	572	558	563	516	528	452	467	431	420
210.250	568	568	573	571	557	562	516	527	452	467	431	419
211.580	567	567	572	570	556	561	516	527	452	467	431	419
214.190	564	565	569	568	554	558	515	525	451	467	430	419
219.590	560	560	565	563	550	554	513	523	451	466	430	418
224.990	555	555	561	559	546	550	511	520	450	465	429	417
230.390	551	551	556	555	543	545	509	517	449	465	428	416
235.780	546	546	552	551	539	541	507	514	448	464	428	415
241.180	542	542	548	546	535	537	505	511	448	462	427	414
246.560	538	538	544	543	532	533	502	508	447	461	427	413
251.960	534	534	540	539	528	529	500	506	446	460	426	412
257.370	530	530	537	535	525	525	498	503	445	459	425	411
262.780	526	527	533	531	521	522	496	500	444	458	424	411
268.170	523	523	529	528	518	518	494	497	443	456	424	410
273.560	519	519	526	524	515	515	491	495	441	455	423	409
278.930	516	516	522	521	511	512	489	492	440	454	422	408
284.330	513	513	519	517	508	509	487	490	439	452	422	408
289.740	510	510	516	514	505	506	485	488	438	451	421	407
295.130	507	507	513	511	503	503	482	485	437	450	420	406
300.540	504	504	510	508	500	500	480	483	436	449	420	405
305.950	501	501	507	506	497	498	478	481	435	448	419	405
311.330	499	499	504	503	494	495	476	479	434	446	418	404
316.740	496	496	502	500	492	493	474	477	433	445	418	403
322.140	494	493	499	498	490	490	473	475	432	444	417	403
327.550	491	491	497	495	488	488	471	473	432	443	416	402
332.950	489	489	494	493	485	486	469	471	431	442	416	401

TABLE 13.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING B-2; MODEL L-10.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	299	299	298	295	298	298	298	298	296	297	293	295
0.166	299	299	298	296	298	298	298	298	296	297	299	295
1.370	299	299	298	296	298	298	298	298	296	297	299	295
2.560	299	299	298	296	298	298	298	298	296	297	299	295
3.760	299	299	298	295	298	298	298	298	296	297	299	295
4.960	299	299	298	296	298	298	298	298	296	297	299	295
6.180	299	299	298	296	298	298	298	298	296	297	299	295
7.410	299	299	298	296	298	298	298	298	297	297	299	295
8.630	299	299	298	296	298	298	298	298	297	297	299	295
9.840	299	300	299	296	298	298	298	298	297	297	299	296
11.060	299	300	299	296	298	298	298	298	298	298	299	296
12.280	300	301	299	297	299	299	299	299	299	299	299	296
13.510	300	301	300	297	299	299	300	299	300	299	299	297
14.730	301	302	301	298	300	300	301	300	301	300	299	298
15.940	302	303	302	299	301	300	302	300	303	300	299	299
17.160	303	305	303	300	302	302	304	301	304	302	299	300
18.380	305	307	305	301	303	303	305	302	306	303	299	301
19.600	307	309	307	303	305	304	307	303	308	304	299	303
20.820	309	312	309	304	307	306	309	304	310	306	299	304
22.030	312	315	312	306	309	308	311	306	312	308	299	306
23.250	314	318	315	308	312	310	313	307	314	309	299	307
24.460	318	322	318	310	315	312	315	309	316	311	299	309
25.680	321	325	322	312	318	315	317	311	319	313	299	311
26.900	325	329	326	314	321	318	320	313	321	315	299	313
28.110	329	334	330	316	325	321	323	315	324	317	299	315
29.330	334	339	335	319	328	325	325	317	326	319	299	317
30.550	339	344	340	321	332	328	328	319	328	321	299	319
31.760	344	349	345	324	337	332	331	322	331	324	299	321
32.980	349	355	351	327	341	336	334	324	334	326	299	323
34.200	355	360	357	330	346	340	337	327	336	328	299	325
35.410	361	367	363	333	351	345	341	329	339	330	299	328
36.610	367	373	369	336	356	349	344	332	341	335	299	330
37.840	373	380	376	339	362	354	347	335	344	339	299	332
39.050	380	387	382	342	367	359	351	338	347	338	299	334
40.260	387	394	390	346	372	365	354	341	349	343	299	337
41.470	394	401	397	349	378	370	358	345	352	343	299	339
42.680	402	409	404	352	384	376	362	348	354	345	299	341
43.920	410	416	412	356	390	381	366	351	357	347	299	343
45.120	418	424	420	359	396	387	370	355	360	350	299	346
46.330	425	433	428	362	402	393	373	357	362	353	299	347
47.530	434	440	436	367	409	400	377	362	365	355	299	351
48.730	441	449	444	369	414	406	381	364	367	357	299	352
49.960	452	457	452	375	423	413	385	370	371	360	299	356
51.180	458	466	461	377	428	419	390	373	372	363	299	357
52.390	467	474	469	380	434	426	394	376	374	365	299	359
53.600	477	483	478	384	442	432	398	381	378	367	299	362
54.810	486	492	487	388	448	439	402	385	381	373	299	365
56.000	495	500	495	391	455	446	406	389	383	372	299	366
57.210	504	509	504	394	461	453	411	393	385	375	299	369
58.430	516	518	513	399	469	460	415	399	389	377	299	372
59.630	527	527	522	401	475	467	419	401	390	380	299	373
60.830	539	537	532	403	479	474	423	403	391	382	299	375
62.050	557	546	545	408	489	482	428	410	395	385	299	377
63.280	578	556	560	412	495	491	432	414	397	387	299	379
64.510	594	565	575	417	503	502	437	419	400	390	299	381
65.720	603	574	588	422	510	513	441	423	402	392	299	384
66.920	609	583	597	426	517	523	445	428	405	394	299	386
68.120	615	591	605	429	524	532	449	433	407	397	299	388
69.320	619	599	611	432	531	539	453	438	409	399	299	390
70.520	622	605	615	434	537	546	457	442	412	401	299	392
71.710	624	611	619	436	543	552	461	447	414	404	299	393
72.890	625	616	622	438	548	556	465	452	416	406	299	395
74.080	626	620	624	439	552	560	469	456	418	408	299	397
75.290	627	624	625	440	556	564	473	461	420	411	299	399
76.490	627	626	626	441	559	566	476	465	422	413	299	401
77.710	627	628	626	442	562	569	480	469	424	415	299	402
78.920	626	629	626	442	564	571	483	473	425	417	299	404
80.130	625	631	624	443	568	572	486	477	427	419	299	406
81.320	624	631	625	443	567	573	488	480	428	421	299	407
82.530	623	631	624	444	569	574	491	483	429	423	299	408
83.750	622	630	623	444	569	575	493	486	431	424	299	409
84.950	620	630	622	444	570	575	495	489	432	426	299	410
86.170	619	629	621	444	570	576	497	491	433	428	299	412
87.350	617	628	619	444	570	576	498	493	433	429	299	413
88.550	615	627	617	444	570	575	500	495	434	430	299	413
89.770	613	626	616	444	570	575	501	497	435	432	299	414
90.980	612	624	614	444	570	575	502	499	436	433	299	415
92.200	610	623	612	444	569	574	503	500	436	434	299	416
93.440	608	621	610	444	569	573	504	501	437	435	299	416
94.660	606	619	609	443	568	573	505	503	437	436	299	417
96.530	603	616	606	443	567	572	505	504	438	438	299	418
98.910	599	613	602	442	565	570	506	506	438	439	299	418
101.250	595	609	598	442	563	568	506	507	438	440	299	419
103.620	592	605	594	441	561	566	506	507	439	441	299	419
105.980	588	601	591	440	558	563	506	508	439	442	299	419
108.360	584	597	587	439	556	561	506	508	439	443	299	420
110.720	580	593	583	438	553	559	505	508	438	444	299	420
113.080	576	589	579	437	551	556	504	508	438	444	299	420
115.460	573	585	575	436	548	553	503	507	438	444	299	419
117.820	569	582	572	435	546	551	502	507	437	444	299	419
120.180	566	578	568	434	543	548	501	506	437	445	299	419
122.550	562	574	565	433	541	546	500	505	436	444	299	419
124.920	559	570	561	432	538	543	499	504	436	444	299	418
127.280	555	567	558	431	536	541	498	503	435	444	299	418
129.650	552	563	555	430	533	538	496	502	434	444	299	417
132.030	549	560	551	429	531	536	495	501	434	443	299	417
134.370	546	560	548	428	528	533	493	500	433	443	299	416
136.740	543	553	545	427	526	531	492	498	432	443	299	416
139.120	540	550	542	426	524	528	490	497	431	442	299	415
141.480	537	547	539	425	521	526	489	496	431	442	299	415
143.840	534	544	536	424	519	524	487	494	430	441	299	414
146.200	531	540	534	423	517	521	486	493	429	440	299	414
148.560	529	537	531	422	514	519	485	492	428	440	299	413
150.930	526	535	528	421	512	517	483	490	428	439	299	413
153.260	524	532	525	420	510	515	482	489	427	438	299	412
155.610	521	529	523	419	508	512	480	487	426	438	299	411
157.990	519	526	520	418	506	510	479	486	425	437	299	411
160.350	516	523	518	417	50							

TABLE 14.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING B-2; MODEL L-11.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	297	297	298	297	297	297	297	297	296	296	295	295
0.550	297	297	298	297	297	297	297	297	296	296	295	295
1.780	297	297	298	297	297	297	297	297	296	296	295	295
2.980	297	297	298	297	297	297	297	297	296	296	295	295
4.200	297	297	298	297	297	297	297	297	296	296	295	295
5.400	297	297	298	297	297	297	297	297	296	297	295	295
6.620	297	297	298	297	297	297	297	297	296	297	295	295
7.850	297	298	298	298	297	297	297	297	296	297	295	295
9.070	297	298	298	298	297	297	297	297	296	297	295	295
10.280	297	298	299	299	298	297	297	298	296	297	295	296
11.500	298	299	299	299	298	298	298	298	296	298	295	297
12.720	299	300	300	301	299	298	299	299	297	299	295	298
13.940	300	301	301	302	300	299	299	300	297	300	296	299
15.150	302	302	302	305	302	300	301	301	298	301	296	300
16.360	304	304	304	307	303	302	302	303	298	303	297	301
17.600	308	307	306	310	307	304	303	305	299	304	297	303
18.780	312	311	308	313	310	306	305	306	300	306	298	305
20.010	318	315	311	317	314	310	307	308	301	308	299	307
21.240	325	321	314	322	319	314	309	311	302	310	300	309
22.430	335	328	317	327	326	319	312	313	303	312	301	311
23.640	347	337	320	332	334	326	314	315	304	314	302	313
24.850	362	350	325	338	344	336	317	318	305	317	303	315
26.070	380	369	329	346	356	344	322	321	307	319	304	317
27.280	400	391	333	353	370	355	326	324	308	321	305	319
28.500	425	421	338	362	386	367	331	327	309	324	307	322
29.720	454	460	344	373	404	381	337	331	311	327	308	324
30.930	488	510	349	383	425	397	344	334	313	329	309	326
32.130	525	564	355	396	447	414	352	339	315	332	311	329
33.320	565	615	362	410	471	433	361	343	317	335	313	332
34.530	607	663	372	427	497	459	373	349	321	340	316	336
35.750	634	666	375	439	517	470	380	352	320	341	316	336
36.950	644	660	382	453	534	486	391	357	322	343	318	339
38.160	645	652	390	465	544	497	401	363	324	346	319	341
39.370	640	643	397	475	549	504	411	368	326	349	321	344
40.570	634	635	405	483	551	508	420	374	328	352	323	346
41.780	627	627	412	490	552	511	427	380	330	355	325	349
42.970	620	620	420	496	552	514	433	385	332	358	326	351
44.160	613	614	427	501	551	515	438	391	335	361	328	354
45.390	606	607	433	505	549	515	442	397	337	364	330	356
46.590	601	609	440	509	548	515	446	402	339	366	332	358
47.790	594	596	446	512	546	515	449	407	341	369	333	360
48.990	589	591	451	515	544	515	451	412	344	372	335	363
50.210	584	586	456	517	542	515	454	417	346	374	337	365
51.410	579	581	460	519	540	514	455	421	348	377	339	367
52.640	567	570	470	522	534	513	459	430	354	382	343	371
53.840	557	560	478	523	529	510	461	438	359	387	347	375
55.050	547	550	484	523	523	508	462	444	364	392	351	379
56.280	539	542	488	522	518	505	463	449	369	396	354	381
57.500	532	535	490	520	513	503	463	452	373	399	357	383
58.710	526	529	491	517	509	500	462	454	377	401	359	385
59.910	520	522	492	515	504	497	462	456	380	403	361	386
61.120	514	517	492	511	500	494	461	456	382	405	363	387
62.320	509	511	491	508	496	492	459	456	384	406	365	388
63.530	504	506	490	505	492	488	458	456	386	406	366	388
64.730	499	501	489	501	488	485	456	456	388	407	367	388
65.940	495	497	487	498	484	482	455	455	389	407	368	388
67.140	491	493	485	495	480	479	453	453	390	407	368	388
68.350	487	489	483	491	477	476	451	452	390	407	369	387
69.550	483	485	481	488	474	473	449	451	391	406	369	387
70.760	479	481	478	485	470	470	447	449	391	406	370	387
71.960	476	478	476	482	467	468	445	448	391	405	370	386
73.170	473	474	474	479	464	465	443	446	391	405	370	386
74.370	469	471	472	476	461	462	441	444	391	404	370	385
75.580	466	468	469	473	459	459	439	443	391	403	370	384
76.780	463	465	467	470	456	457	438	441	391	402	370	384
77.990	461	462	464	467	454	455	439	441	391	401	370	383
79.190	458	459	462	464	452	454	437	439	390	401	369	382
80.400	455	456	460	462	449	450	432	436	390	400	369	382
81.600	453	454	457	459	446	448	430	434	389	399	369	381
82.810	450	452	455	457	444	445	429	432	389	398	369	380
84.010	448	449	453	455	442	443	427	431	388	397	368	380
85.220	446	447	451	453	440	441	426	429	388	396	368	379
86.420	444	445	449	450	438	439	424	428	387	395	368	378
87.630	443	444	447	448	436	437	423	426	387	394	367	378
88.830	439	441	445	446	434	435	421	425	386	394	367	377
90.040	438	439	443	444	433	434	419	423	385	393	367	376
91.240	436	437	441	442	431	432	418	422	385	392	366	375
92.450	434	435	439	441	429	430	417	420	384	391	366	375
93.650	432	433	438	439	427	428	415	419	384	390	365	374
94.860	430	431	436	437	426	427	414	418	383	389	365	374
96.060	428	430	434	435	424	425	413	416	382	388	364	373
97.270	427	428	433	434	423	424	411	415	382	388	364	372
98.470	425	427	431	432	421	422	410	414	381	387	364	372
99.680	424	425	429	430	420	421	409	412	380	386	363	371
100.880	422	424	428	429	418	419	408	411	380	385	363	370
102.090	421	422	426	428	417	418	407	410	379	385	362	370
103.290	419	421	425	426	416	416	405	409	379	384	362	369
104.500	418	419	423	425	414	415	404	408	378	383	362	369
105.700	416	417	422	423	413	413	403	406	378	382	361	368
106.910	415	416	420	422	412	412	402	405	377	382	361	368
108.110	413	415	419	420	410	411	401	404	376	381	360	368
109.320	412	414	418	419	409	410	400	403	376	380	360	367
110.520	411	412	418	419	408	409	399	402	375	380	360	367
111.730	410	411	415	417	407	408	398	401	375	379	359	366
112.930	409	410	414	415	406	406	397	400	374	379	359	366
114.140	408	409	413	414	405	405	396	399	374	378	359	365
115.340	407	408	411	413	404	404	395	398	373	377	358	365
116.550	406	407	410	412	403	403	395	398	373	377	358	364
117.750	405	406	409	411	402	402	394	397	372	376	357	364
118.960	404	405	408	410	401	401	393	396	372	376	357	364
120.160	403	404	407	409	400	401	392	395	371	375	357	363
121.370	402	403	406	408	399	400	392	394	371	375	357	363
122.570	401	402	405	407	399	399	391	394	371	374	356	362
123.780	400	401	404	406	398	398	390	393	370	374	356	362
124.980	399	401	404	405	397	397	389	392	370	373	356	362
126.190	399	400	403	404	396	396	389	391	369	373	355	361
127.390	398	399	402	403	395	395	388	391	369	372	355	361
128.600	397	398	401	402	395</							

TABLE 15. - BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING C-1; MODEL L-12.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	297	297	297	297	297	297	297	297	298	297	298	298
0.950	297	296	297	297	297	297	297	297	298	298	298	298
2.360	297	296	297	297	297	297	297	297	298	298	298	298
3.740	297	296	297	297	297	297	297	297	298	297	298	298
5.160	298	297	297	297	297	297	297	297	298	298	298	298
6.580	297	297	297	297	297	297	297	297	298	298	298	298
7.990	298	296	298	297	297	297	297	297	298	298	298	298
9.390	298	297	298	297	297	297	297	297	298	298	298	298
10.900	298	297	298	298	297	297	297	297	298	298	298	298
12.330	298	297	298	298	297	297	297	297	298	298	298	298
13.760	298	297	299	298	297	297	297	298	298	298	298	298
15.160	298	297	299	298	297	297	297	298	298	298	299	298
16.570	298	297	300	299	297	297	297	298	298	298	299	299
17.980	298	297	300	299	297	297	297	298	298	298	299	299
19.400	298	297	301	300	297	298	297	298	298	298	300	299
20.810	298	297	302	300	297	298	297	298	298	299	300	300
22.220	298	297	303	301	297	298	297	298	299	299	301	300
23.620	299	297	304	301	297	298	297	299	300	299	301	301
25.030	299	297	305	302	298	298	297	299	300	300	302	302
26.460	299	297	307	303	298	298	297	300	301	300	303	302
27.880	300	297	308	303	298	298	297	300	301	301	304	303
29.290	300	298	309	304	298	299	298	301	302	302	304	304
30.700	301	298	311	305	298	299	298	301	303	302	306	305
32.130	301	298	312	306	298	299	298	302	304	303	306	306
33.550	302	298	313	307	298	300	298	303	304	303	308	307
34.950	303	298	315	308	299	300	298	303	306	305	309	308
36.350	304	299	316	309	299	300	299	304	307	306	310	309
37.770	304	299	317	310	299	301	299	305	308	307	311	310
39.180	305	300	319	312	300	301	300	306	309	308	312	311
40.590	306	300	320	313	300	302	300	307	310	309	313	312
42.010	307	301	322	314	301	303	301	308	311	310	314	313
43.430	308	301	323	316	301	304	302	309	312	311	316	315
44.860	309	302	325	317	302	304	303	310	313	312	317	316
46.290	310	303	326	318	303	305	304	311	315	313	318	317
47.710	311	304	328	320	303	306	305	312	316	314	320	318
49.110	312	305	330	321	304	307	306	313	317	316	321	320
50.530	314	306	331	323	305	308	307	314	319	317	322	321
51.940	315	307	333	324	306	309	308	315	320	318	324	322
53.360	316	308	335	326	307	310	309	316	321	319	325	324
54.780	317	309	336	328	308	311	310	318	323	321	326	325
56.190	319	310	338	329	309	312	311	319	324	322	328	326
57.600	320	311	340	331	310	313	312	320	325	323	329	328
59.000	321	312	342	332	312	315	313	321	327	325	331	329
60.410	323	313	343	334	313	316	314	323	328	326	332	330
61.830	324	314	345	336	314	317	316	324	330	327	334	332
63.240	326	315	347	337	315	318	317	325	331	329	335	333
64.670	327	316	349	339	316	320	318	327	333	330	337	334
66.080	329	317	351	341	318	321	319	328	334	332	338	336
67.510	331	319	354	343	319	322	320	330	336	333	340	337
68.910	332	314	357	345	320	324	321	331	337	335	341	339
70.330	334	*	362	347	321	325	322	332	339	336	343	340
71.740	336	*	371	350	323	326	323	334	340	338	344	341
73.160	337	*	382	352	324	328	324	336	342	339	346	343
74.570	339	*	394	355	326	329	326	337	343	340	347	344
75.990	341	*	407	357	327	330	327	338	345	342	349	345
77.410	343	*	420	360	329	332	328	340	347	343	350	347
78.820	345	*	433	363	330	333	329	342	348	345	352	348
80.250	346	*	447	366	331	335	330	343	350	346	353	350
81.660	348	*	461	370	333	337	331	345	351	348	355	351
83.070	350	*	475	373	334	338	333	346	353	349	356	352
84.490	352	*	489	377	336	340	334	348	355	351	357	354
85.910	354	*	503	381	337	341	335	349	356	352	359	355
87.330	356	*	517	385	339	343	337	351	358	354	361	356
88.740	358	*	533	389	340	345	338	352	359	355	362	358
90.150	360	*	551	394	342	346	340	354	361	356	363	359
91.570	362	*	574	398	344	348	341	356	362	358	365	361
93.000	364	*	603	403	345	350	343	357	364	360	366	362
94.420	366	*	646	408	347	352	344	359	365	361	368	363
95.850	368	*	707	413	349	353	345	360	367	362	369	365
97.240	371	*	773	418	350	355	347	362	368	364	371	366
98.660	373	*	835	424	352	357	348	364	370	365	372	367
100.070	375	347	848	429	353	359	349	365	371	367	374	369
101.510	377	347	823	435	355	360	350	367	373	368	375	370
102.920	379	347	796	441	356	362	351	369	375	370	377	371
104.340	382	348	770	446	358	364	352	370	376	371	378	373
105.720	384	349	746	450	359	366	354	372	378	373	379	374
107.160	387	350	724	454	361	368	356	374	379	374	381	375
108.590	389	351	704	458	363	370	358	375	381	376	382	377
110.000	392	353	685	461	365	373	361	377	382	377	384	378
111.410	394	354	669	464	368	375	364	379	384	378	385	379
112.830	398	356	654	467	370	377	367	380	385	380	386	380
114.260	400	359	640	469	373	380	371	382	387	381	388	381
115.680	403	361	628	471	375	382	375	384	388	383	389	383
117.070	406	364	617	473	378	385	379	385	390	384	390	384
118.490	409	367	606	475	381	388	383	387	391	385	391	385
119.920	411	370	597	476	384	390	387	389	392	387	392	386
121.360	414	374	588	478	387	393	391	390	394	388	393	387
122.770	416	377	580	479	390	396	395	392	395	389	394	388
124.180	418	380	572	481	393	398	399	394	396	390	395	388
125.590	421	384	565	482	396	401	403	395	397	391	396	389
127.020	423	387	559	483	399	404	407	397	398	393	397	390
128.440	425	391	553	484	402	406	410	398	399	394	398	391
129.860	426	394	548	485	405	408	414	400	400	395	399	391
131.270	428	397	543	486	407	411	417	401	401	396	399	392
132.700	430	401	538	487	410	413	420	402	402	397	400	393
134.130	433	411	524	490	419	420	430	407	405	399	402	394
135.550	435	422	512	492	428	427	440	411	402	403	403	396
136.970	439	422	503	493	435	433	448	415	409	404	404	397
138.390	442	431	503	493	441	438	454	418	411	406	404	397
139.810	445	439	495	494	441	438	454	421	412	407	404	397
141.230	447	446	489	494	446	442	459	423	412	407	404	397
142.650	448	451	484	494	450	445	463	425	413	408	404	397
144.070	448	455	479	494	453	447	466	426	413	408	404	397
145.490	448	459	475	493	456	449	468	427	413	408	404	397
146.910	448	461	471	491	457	450	469	427	413	408	404	397
148.330	447	463	468	490	459	451	470	428	412	407	400	395
149.750	447	465	465	488	459	451	470	428	412	407	400	395
151.170	446	465	463	487	460	452	470	429	411	407	399	395
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TABLE 16. - BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING C-1; MODEL L-13.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) --											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	300	300	300	300	299	300	299	301	299	301	299	301
0.140	300	283	300	300	299	300	299	301	298	301	299	301
1.540	300	284	300	300	299	300	299	301	298	301	299	301
2.960	300	288	300	301	299	300	299	301	299	301	299	301
4.380	300	297	300	301	299	300	299	301	299	301	299	301
5.790	300	297	300	301	299	300	299	301	299	301	299	301
7.190	300	297	300	301	299	300	299	301	299	301	299	301
8.600	300	297	300	301	299	300	299	301	299	301	299	301
10.000	300	298	301	301	299	300	299	301	299	301	299	301
11.390	300	298	301	302	299	300	299	301	299	301	299	301
12.800	300	298	301	302	299	300	299	301	299	301	299	301
14.190	300	298	302	303	300	300	299	301	299	301	299	302
15.610	300	299	303	303	299	301	299	301	299	301	300	302
17.030	300	299	304	304	300	301	299	301	299	301	300	302
18.420	301	299	306	306	300	301	300	302	299	301	300	303
19.840	301	300	307	307	300	301	300	302	299	302	301	303
21.250	302	300	309	309	300	301	300	302	300	302	302	304
22.680	303	301	310	310	300	302	301	303	300	302	303	306
24.070	304	303	312	312	301	303	301	303	301	303	304	307
25.490	305	303	314	313	301	304	302	304	301	303	304	308
26.910	306	305	315	315	302	305	302	305	302	304	305	309
28.300	307	306	317	317	302	306	303	306	302	305	306	310
29.720	309	307	319	320	303	307	304	307	303	305	308	311
31.120	310	309	321	324	304	308	305	304	307	304	309	312
32.530	311	309	324	328	305	310	306	309	305	307	310	314
33.950	312	311	326	333	306	311	306	310	307	309	313	315
35.360	313	312	329	339	307	312	307	311	307	310	314	317
36.770	315	314	331	344	309	313	308	312	308	311	315	318
38.180	315	312	335	350	310	314	309	314	309	311	317	319
39.600	317	307	339	356	311	315	311	315	310	312	318	321
41.010	318	*	344	363	312	317	312	317	311	313	319	323
42.420	319	*	353	369	313	318	313	319	313	315	320	324
43.820	320	*	366	375	315	319	314	320	314	316	321	326
45.230	321	*	384	381	316	321	316	322	315	318	323	328
46.660	322	*	407	388	317	322	317	323	316	319	324	329
48.090	323	*	435	394	318	324	319	327	318	321	326	331
49.510	324	*	467	400	320	325	320	329	319	322	327	333
50.910	325	*	499	406	321	327	321	331	320	324	329	335
52.330	326	*	533	413	322	329	323	333	322	326	331	336
53.760	328	*	567	419	323	331	324	336	323	328	332	338
55.180	329	*	602	425	325	334	326	339	325	330	334	340
56.580	330	*	636	431	326	336	328	341	327	331	336	342
57.990	332	*	671	438	328	339	330	345	328	333	337	344
59.430	334	*	705	445	330	342	331	347	330	335	339	346
60.860	335	335	749	460	331	347	335	351	331	337	341	348
62.260	336	336	748	467	332	351	337	357	334	342	344	350
63.670	336	334	738	473	332	354	338	361	336	344	346	352
65.090	337	334	725	478	333	358	340	365	338	347	348	354
66.520	338	335	711	483	334	363	342	369	340	349	350	356
67.940	341	336	697	486	335	368	344	373	341	351	351	358
69.340	343	338	683	488	336	373	347	377	343	354	353	360
70.760	347	338	670	490	338	379	349	381	345	356	355	362
72.300	351	340	658	492	340	384	351	385	347	359	356	364
73.700	355	343	647	493	342	390	353	389	348	361	358	365
75.110	360	349	637	494	345	395	356	392	350	364	360	367
76.530	364	353	619	495	351	400	358	396	352	366	361	368
77.940	369	356	611	495	354	410	363	399	353	369	363	370
79.360	374	360	597	495	357	415	365	402	355	371	364	371
80.780	379	365	597	495	360	419	368	406	357	374	365	373
82.180	383	369	583	494	366	427	372	414	361	380	368	376
83.580	388	373	577	494	369	430	375	416	362	382	369	377
85.000	392	377	572	494	372	433	377	419	364	384	370	378
86.430	396	385	566	494	376	436	379	421	365	385	371	379
87.850	400	393	561	493	379	439	381	423	367	387	372	379
89.260	404	397	557	493	381	441	383	424	368	389	373	380
90.660	408	400	552	492	384	443	385	426	369	390	373	381
92.080	411	404	548	492	387	446	386	428	370	392	374	381
93.490	415	404	544	491	390	447	388	429	371	393	374	382
94.880	417	407	540	490	392	449	390	430	372	394	375	382
96.290	420	425	536	490	394	451	391	431	373	395	375	382
97.690	423	413	533	489	397	452	393	432	374	396	376	383
99.120	425	418	529	489	399	453	394	433	375	397	376	383
100.530	427	420	526	488	401	454	395	434	375	398	376	384
101.940	429	435	523	487	403	455	397	435	376	399	377	384
103.360	431	438	520	487	405	456	398	436	377	400	377	384
104.750	433	442	517	486	407	456	399	437	378	401	377	384
106.150	435	444	514	485	409	457	400	437	379	401	378	385
107.540	436	444	512	485	410	458	401	437	379	401	378	385
108.960	438	444	509	484	412	458	402	437	379	402	378	385
110.370	439	444	501	482	417	459	404	438	381	403	378	385
111.790	440	444	493	479	421	459	407	438	383	404	378	385
113.200	441	444	486	476	424	458	408	438	384	405	378	385
114.610	442	444	479	473	426	457	410	437	385	405	378	385
116.020	443	444	473	471	427	455	410	436	385	405	378	385
117.430	444	444	468	468	428	453	411	435	385	404	378	385
118.840	445	444	463	466	429	451	411	433	385	404	377	384
120.250	446	444	459	463	429	449	411	432	385	403	377	384
121.660	447	444	455	460	429	447	410	430	385	402	376	384
123.070	448	444	451	458	428	444	410	429	385	401	376	383
124.480	449	444	447	455	428	442	409	427	385	400	375	383
125.890	450	444	444	453	427	440	409	425	384	399	375	382
127.300	451	444	441	451	426	438	408	424	384	398	374	382
128.710	452	444	438	448	425	435	407	422	383	397	374	381
130.120	453	444	435	446	424	433	406	420	383	396	373	380
131.530	454	444	432	444	423	431	405	419	382	395	373	380
132.940	455	444	430	442	422	429	404	417	382	394	372	379
134.350	456	444	427	440	421	427	403	415	381	393	372	379
135.760	457	444	425	438	420	425	403	414	381	392	371	379
137.170	458	444	423	436	419	423	402	412	380	391	371	379
138.580	459	444	421	434	417	422	401	411	379	390	370	378
139.990	460	444	419	432	416	420	400	410	379	389	370	378
141.400	461	444	418	431	415	418	399	408	378	388	370	377
142.810	462	444	417	430	414	416	398	407	378	388	369	377
144.220	463	444	416	429	413	415	397	406	377	387	369	376
145.630	464	444	415	428	412	414	396	404	377	386	369	376
147.040	465	444	414	427	411	413	395	403	376	385	368	376
148.450	466	444	413	426	410	412	394	402	376	385	368	375

*Temperature readings off scale.

TABLE 17.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING C-2; MODEL L-14.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	296	297	297	299	296	296	295	295	293	293	289	291
0.830	296	296	297	299	296	296	295	295	293	293	289	291
2.040	296	296	297	299	296	296	295	295	293	293	290	291
3.250	296	296	297	299	296	296	295	295	293	293	290	291
4.490	296	296	297	299	296	296	295	295	293	293	290	291
5.700	296	296	297	299	296	296	295	295	293	293	290	291
6.910	296	296	297	299	296	296	295	295	293	293	291	291
8.150	296	296	297	299	296	296	295	295	293	293	291	292
9.350	296	296	297	299	296	296	295	295	293	293	291	292
10.570	296	296	298	299	296	296	295	295	293	293	292	292
11.780	297	297	298	299	296	296	295	295	294	294	292	292
13.010	297	297	299	299	296	297	296	296	294	294	293	293
14.240	297	297	299	299	297	297	297	297	294	294	293	294
15.460	297	297	301	299	297	297	297	297	295	295	295	295
16.680	298	298	302	299	297	298	297	298	296	296	296	296
17.920	299	299	303	299	298	299	298	298	296	296	296	296
19.140	299	301	305	299	299	299	299	299	297	297	297	297
20.390	301	303	307	299	301	301	299	300	298	298	298	298
21.590	303	307	310	299	302	302	301	301	299	299	299	299
22.790	306	312	313	299	305	304	302	303	300	300	300	300
24.030	310	319	317	299	308	306	303	304	301	301	301	301
25.260	315	330	322	299	312	309	305	306	303	302	302	303
26.470	323	344	328	299	318	312	308	308	304	304	304	304
27.680	333	362	334	299	325	316	308	310	306	305	306	307
28.870	345	383	342	299	334	321	313	312	307	307	308	309
30.080	359	406	352	299	344	326	313	314	309	309	308	309
31.310	377	432	364	299	357	332	315	317	311	311	310	310
32.530	399	459	378	299	371	340	318	320	313	312	311	312
33.760	424	491	394	299	389	349	321	323	315	314	313	314
34.980	453	527	413	299	415	360	325	327	317	317	315	316
36.200	485	566	435	299	450	372	329	331	319	319	316	318
37.420	523	613	466	299	495	385	333	335	321	321	318	319
38.630	556	656	486	299	515	400	338	340	322	323	319	321
39.840	570	686	497	299	519	415	344	346	325	325	321	323
41.040	574	598	505	299	520	428	351	351	327	327	322	325
42.260	574	591	510	299	520	439	357	357	328	330	324	326
43.450	572	585	515	299	519	448	364	363	331	332	325	328
44.690	570	580	518	299	518	455	370	369	333	334	327	330
45.890	567	576	521	299	518	462	376	374	335	337	328	331
47.110	565	573	524	299	518	467	382	380	337	339	330	333
48.320	563	570	526	299	517	472	387	385	339	342	331	334
49.530	561	567	528	299	517	476	392	390	341	344	332	336
50.730	559	565	529	299	516	479	396	395	343	347	333	337
51.910	557	562	530	299	516	482	401	399	345	349	335	338
53.140	556	560	531	299	516	485	405	404	347	351	336	340
54.330	554	558	532	299	515	487	408	408	348	354	337	341
55.560	552	556	532	299	515	489	412	412	350	356	338	342
56.740	550	554	533	299	514	491	415	416	352	358	339	343
57.930	549	552	533	299	514	492	418	419	354	360	340	344
59.110	547	550	533	299	513	494	420	423	355	362	341	345
60.310	545	548	533	299	513	495	423	426	357	364	341	346
61.510	544	547	533	299	512	496	425	428	358	366	342	346
62.740	544	546	533	299	513	497	428	432	360	368	343	347
63.940	544	547	534	299	515	499	431	435	363	371	345	349
65.140	545	547	534	299	517	500	434	437	365	373	347	351
66.340	545	548	534	299	518	501	438	440	368	374	348	353
67.540	545	547	534	299	519	502	440	442	370	376	350	355
68.780	545	547	534	299	520	503	443	444	372	378	352	357
69.970	544	547	534	299	520	503	445	445	374	379	354	359
71.200	544	546	533	299	520	504	447	447	375	381	355	360
72.440	543	545	533	299	520	504	447	447	377	382	356	362
73.660	542	544	533	299	520	505	451	450	379	383	358	363
74.890	541	543	532	299	520	505	453	451	380	385	359	364
76.100	540	542	532	299	520	505	454	453	382	386	360	365
77.300	539	541	531	299	519	505	456	454	383	387	361	366
78.520	538	540	530	299	519	505	457	455	385	388	362	367
79.740	537	539	529	299	519	505	458	456	386	389	363	368
80.970	536	538	529	299	518	505	459	456	387	390	364	368
82.180	535	536	528	299	517	504	460	457	388	391	364	369
83.460	532	533	527	299	516	504	462	458	391	393	366	371
84.660	529	530	524	299	514	502	463	459	393	394	368	372
85.850	529	530	524	299	514	502	463	459	393	394	368	372
87.030	525	526	522	299	511	501	464	460	395	396	369	373
88.250	522	522	519	299	509	499	465	460	397	397	371	374
89.480	518	519	516	299	506	497	465	460	399	398	372	375
90.690	514	515	513	299	503	495	465	460	400	399	373	376
91.910	511	511	511	299	501	493	464	459	401	400	373	376
93.120	507	508	508	299	498	490	464	459	402	400	374	377
94.340	504	505	505	299	495	488	465	458	403	401	375	377
95.560	501	501	502	299	492	486	462	457	403	401	375	377
96.780	498	498	500	299	490	483	461	456	403	401	375	377
98.000	495	495	497	299	487	481	459	454	403	401	375	377
99.220	492	492	494	299	484	478	458	453	403	401	376	378
100.440	489	489	491	299	482	476	457	452	403	400	376	377
101.660	486	486	489	299	479	474	455	450	403	400	376	377
102.880	483	483	486	299	477	471	454	449	403	400	376	377
104.100	480	480	484	299	474	469	453	448	403	399	376	377
105.320	478	477	481	299	472	467	451	446	402	399	375	377
106.540	475	475	479	299	469	465	450	445	402	399	375	377
107.760	473	472	477	299	467	463	448	444	402	398	375	376
108.980	470	470	474	299	465	461	445	442	401	398	375	376
110.200	468	467	472	299	462	459	445	441	401	397	375	376
111.420	466	465	470	299	460	457	443	439	400	397	374	375
112.640	463	463	468	299	458	455	442	438	400	396	374	375
113.860	461	461	466	299	456	453	441	437	399	396	374	375
115.080	459	458	464	299	454	451	439	436	399	395	374	374
116.300	457	456	462	299	452	449	438	434	398	394	373	374
117.520	455	455	460	299	451	448	436	433	397	394	373	374
118.740	453	453	458	299	449	446	435	432	397	394	373	373
119.960	452	451	456	299	447	444	434	430	396	393	372	373
121.180	450	449	454	299	445	443	432	429	396	393	372	373
122.400	448	447	453	299	444	441	431	428	395	392	372	372
123.620	446	445	451	299	442	440	430	427	394	392	371	372
124.840	445	444	449	299	440	438	429	426	394	391	371	372
126.060	443	442	448	299	439	437	428	425	393	390	371	371
127.280	441	441	446	299	437	435	426	423	393	390	370	371
128.500	440	439	444	299	436	434	425	422	392	389	370	370
129.720	439	438	443	299	434</							

TABLE 18.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING C-2; MODEL L-15.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	300	300	292	301	300	299	300	299	298	297	294	295
1.220	300	300	292	301	300	300	303	299	298	297	294	295
2.430	300	300	292	301	300	300	303	299	298	297	294	295
3.620	300	300	292	301	300	300	303	299	298	297	294	295
4.840	300	300	292	301	300	299	300	299	298	297	294	295
6.040	300	300	293	301	300	300	300	299	298	297	294	295
7.250	300	300	293	301	300	300	300	299	298	297	294	295
8.450	300	300	293	301	300	300	300	299	298	297	294	295
9.650	300	300	293	302	300	299	300	299	298	297	294	295
10.870	300	301	292	302	300	300	300	299	298	297	294	295
12.100	300	301	288	302	300	300	303	300	298	297	294	295
13.320	300	301	285	303	301	300	300	300	298	297	295	295
14.550	301	301	280	304	301	300	300	300	298	298	295	295
15.750	301	302	278	304	302	300	301	300	299	298	295	296
16.990	301	302	275	306	302	301	302	301	299	298	295	296
18.200	302	303	270	307	303	302	302	301	300	299	296	297
19.420	303	304	273	308	305	302	303	302	300	299	296	297
20.640	304	306	278	310	307	303	304	303	301	300	297	298
21.850	306	308	284	312	309	304	305	304	302	301	298	298
23.050	307	310	285	315	311	306	306	305	303	302	298	299
24.280	310	313	286	317	314	307	308	306	304	303	299	300
25.500	312	316	286	320	318	309	309	308	305	304	300	300
26.730	315	319	287	323	321	311	311	309	306	305	301	302
27.930	318	323	287	326	325	313	313	311	307	306	302	303
29.120	321	326	288	330	328	315	315	312	308	308	303	304
30.330	324	329	288	333	332	318	317	314	310	309	304	305
31.510	328	333	289	337	335	320	319	316	311	310	305	306
32.690	331	336	292	340	339	323	321	318	312	312	307	307
33.880	335	339	296	344	342	326	323	319	314	313	308	308
35.100	338	342	297	347	345	329	325	321	315	315	309	309
36.310	342	345	297	351	348	331	328	323	317	316	310	310
37.510	345	349	298	354	351	334	330	325	318	318	311	311
38.690	349	351	298	357	354	337	332	327	320	319	312	312
39.910	352	354	298	361	357	340	335	329	321	320	314	313
41.110	355	357	299	364	360	342	337	331	323	322	315	314
42.360	358	360	299	367	362	345	339	333	324	323	316	315
43.560	361	363	299	370	365	348	341	335	326	325	317	317
44.760	364	365	299	373	367	350	343	337	327	326	318	318
45.940	367	368	299	375	369	353	346	339	328	328	320	319
47.160	369	370	299	378	371	355	348	341	330	329	321	320
48.380	372	372	298	380	373	357	350	343	331	330	322	322
49.610	374	375	298	383	375	360	352	345	332	332	323	323
50.810	377	377	298	385	377	362	353	346	333	333	324	324
52.030	379	379	299	387	379	364	355	348	334	334	325	325

TABLE 19. - BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATINGS D-1, D-2; MODEL L-16.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	302	301	302	302	302	302	301	301	301	301	301	301
0.880	302	301	302	302	302	302	301	301	301	301	301	301
2.280	302	301	302	302	302	302	301	301	301	301	301	301
3.680	302	301	303	302	303	303	302	302	301	301	301	301
5.080	305	305	307	305	307	307	303	303	301	301	301	301
6.470	311	314	314	312	314	315	306	306	301	302	301	301
7.850	320	325	325	321	325	326	309	310	301	302	301	302
9.250	333	339	340	334	338	339	315	316	302	303	302	303
10.640	347	355	356	350	353	354	321	322	302	304	303	305
12.000	363	372	373	367	369	370	327	329	303	306	304	307
13.380	380	389	391	384	386	385	335	337	304	308	305	310
14.760	397	406	409	403	403	401	343	344	305	310	307	312
16.170	415	423	428	421	420	416	352	351	307	313	308	315
17.550	433	436	445	440	437	431	361	358	308	315	310	321
18.930	451	446	463	458	453	444	370	364	310	318	312	321
20.310	466	446	480	475	466	457	379	370	313	322	315	324
21.680	480	459	497	492	477	469	388	376	315	325	317	328
23.080	496	472	513	509	491	482	396	383	317	329	320	331
24.470	511	500	527	527	505	494	404	390	320	332	322	334
25.850	528	512	542	545	518	505	409	398	323	336	325	338
27.230	545	524	557	563	532	516	413	405	326	340	328	341
28.630	561	548	572	581	545	528	418	412	329	344	330	345
30.020	577	566	586	596	559	541	425	418	332	348	333	348
31.400	592	575	600	610	573	554	432	425	336	352	336	351
32.790	606	583	613	623	587	568	439	433	339	356	339	355
34.170	620	592	625	634	600	583	446	442	343	361	342	358
35.560	632	646	635	645	612	597	453	451	346	365	345	361
36.950	639	652	642	650	617	604	461	460	350	369	348	365
38.340	645	657	647	655	620	611	468	470	354	373	351	368
39.730	649	660	651	659	621	617	475	480	357	377	354	372
41.110	653	664	655	663	624	623	481	488	361	381	357	375
42.500	656	668	659	668	627	629	486	496	365	385	360	378
43.880	659	671	664	673	630	635	491	503	369	390	363	381
45.270	663	675	668	677	633	639	496	510	372	393	366	384
46.650	665	677	672	681	636	644	501	515	376	397	368	386
48.030	668	680	676	684	639	647	505	520	380	401	371	389
49.410	671	682	679	687	642	651	509	524	383	404	373	391
50.800	673	684	682	689	645	654	512	528	387	408	375	393
52.180	675	686	685	691	647	656	516	531	390	411	378	394
53.560	678	688	687	692	649	659	519	534	393	414	380	396
54.960	680	689	689	692	651	661	522	537	396	416	381	397
56.340	681	691	691	690	653	662	524	539	399	419	383	398
57.730	683	691	691	689	654	663	527	541	402	421	384	399
59.130	684	692	691	687	655	664	529	543	404	425	387	400
60.520	684	692	692	685	656	664	531	545	407	425	387	400
61.880	685	692	691	682	657	664	533	546	409	427	388	401
63.260	685	691	691	680	657	664	534	547	411	428	389	401
64.650	685	691	690	677	657	664	536	548	414	430	390	402
66.060	684	690	689	674	656	663	537	548	415	431	391	402
67.460	684	689	688	670	656	662	538	549	417	432	392	402
68.840	683	688	687	667	655	661	539	549	419	433	392	402
70.200	682	686	685	664	654	660	540	549	420	434	393	402
71.580	681	685	683	661	653	659	541	550	421	435	393	402
72.980	679	683	681	658	652	658	541	549	423	435	394	402
74.360	678	682	679	654	651	656	542	549	424	436	394	401
75.730	676	680	677	651	650	655	542	549	425	436	395	401
77.110	675	678	675	649	648	653	542	549	426	437	395	401
78.510	673	676	672	645	647	651	543	548	427	437	395	401
79.920	671	673	670	642	645	650	543	548	428	438	395	400
81.290	669	671	667	639	644	648	543	547	428	438	395	400
82.660	667	669	664	636	642	646	543	547	429	438	395	400
84.040	665	667	661	633	641	644	542	546	430	438	396	399
85.440	663	665	658	630	639	642	542	545	430	438	396	399
86.840	661	663	655	627	637	641	542	545	431	438	396	399
88.220	659	660	652	624	635	639	542	544	431	438	396	398
89.590	657	658	648	621	633	637	541	543	431	438	396	398
90.980	655	656	645	619	632	635	541	542	432	438	396	397
92.370	652	654	641	616	630	633	540	541	432	437	396	397
93.760	650	651	638	614	628	631	540	541	432	437	396	396
95.120	648	649	635	611	626	629	539	540	432	437	396	396
96.490	646	647	632	609	624	627	539	539	432	437	396	396
97.890	644	644	629	606	622	625	538	538	433	437	396	396
99.290	642	642	626	604	621	623	537	537	433	436	396	395
100.690	640	640	623	602	619	621	537	536	433	436	395	395
102.070	637	638	621	599	617	619	536	535	433	436	395	395
103.450	635	636	618	597	615	617	535	534	433	435	395	394
104.840	633	633	615	595	613	614	534	533	433	435	395	394
106.230	631	631	613	593	611	615	533	533	433	435	395	394
107.600	629	629	610	591	610	612	533	531	433	434	395	393
108.980	627	627	608	589	608	610	532	530	432	434	395	393
110.380	625	625	605	587	606	608	531	529	432	434	395	392
111.770	623	623	603	585	604	606	531	528	432	433	394	392
113.150	621	621	600	583	603	604	530	527	432	433	394	391
114.550	619	619	598	581	601	603	529	526	432	433	394	391
115.910	613	613	591	575	596	597	526	523	431	431	393	390
117.290	605	605	583	569	589	590	523	519	430	430	393	388
118.670	598	598	575	563	583	584	519	515	429	428	392	387
120.050	591	591	568	557	576	577	516	511	428	426	391	386
121.430	584	584	561	551	570	570	512	507	427	425	390	384
122.810	577	577	555	545	563	564	509	503	426	423	389	383
124.190	570	571	549	539	557	558	505	499	425	421	388	382
125.570	563	563	544	534	551	551	501	495	424	420	387	381
126.950	557	558	538	529	544	545	498	492	422	418	387	380
128.330	550	551	533	524	538	539	494	488	421	416	386	379
129.710	544	545	529	520	532	534	491	485	419	415	385	378

TABLE 20. - BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATINGS D-1, D-2; MODEL L-17.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	300	300	300	300	300	300	300	300	300	300	300	300
0.630	300	300	300	300	300	300	300	300	300	300	300	300
1.950	300	300	300	300	300	300	300	300	300	300	300	300
3.270	301	301	301	301	301	302	300	301	300	300	300	300
4.590	304	303	304	303	304	307	301	302	300	300	300	300
5.900	310	308	311	309	310	315	302	305	300	300	300	300
7.230	319	317	322	319	319	328	304	309	300	300	300	300
8.540	332	328	335	331	331	343	308	314	301	301	301	301
9.860	347	343	351	345	346	360	313	320	301	301	302	302
11.170	364	360	368	361	361	377	318	326	302	302	303	303
12.450	382	378	385	378	377	395	324	331	304	303	304	304
13.790	401	397	403	396	391	413	331	337	305	305	306	306
15.120	420	418	422	414	404	430	338	342	307	307	308	308
16.440	438	437	440	432	418	446	345	347	309	309	310	310
17.760	456	456	458	449	433	462	352	353	312	311	313	313
19.070	475	475	475	466	448	478	358	359	314	314	315	315
20.400	494	493	491	482	463	493	365	367	317	316	318	318
21.720	513	511	505	498	476	506	370	375	320	319	320	320
23.030	532	529	521	512	488	520	372	382	323	322	323	323
24.350	551	548	538	528	501	535	376	390	326	325	326	326
25.680	569	567	554	543	514	550	381	398	329	328	328	328
27.000	588	586	571	559	528	566	386	406	332	332	331	331
28.330	605	603	587	575	543	582	391	414	336	335	334	334
29.620	621	621	602	590	560	598	398	424	339	339	337	337
30.930	638	639	615	604	577	614	405	433	342	342	339	340
32.260	654	655	627	617	593	627	412	443	346	346	342	343
33.580	671	671	644	626	608	638	420	455	349	349	345	345
34.920	679	681	643	635	620	649	430	468	353	353	348	348
36.230	690	692	652	644	632	659	440	481	357	357	351	351
37.550	700	701	662	653	643	668	451	492	360	361	353	354
39.000	709	710	671	662	653	677	462	504	364	364	356	357
40.320	715	717	678	669	661	684	471	513	368	369	359	360
41.650	721	722	685	676	668	690	480	521	372	373	361	362
42.970	726	727	691	682	673	694	488	528	375	377	364	365
44.290	730	730	695	687	678	698	494	534	379	380	366	367
45.620	732	733	699	691	682	700	500	539	382	384	368	369
46.950	734	735	702	695	685	702	505	544	385	387	369	371
48.280	736	736	704	698	687	703	510	548	388	391	371	373
49.590	736	736	705	701	689	704	514	551	391	394	373	375
50.890	736	737	706	703	691	704	517	554	394	397	374	376
52.200	736	736	707	705	692	704	520	556	397	400	375	377
53.540	735	735	707	706	692	703	523	559	400	402	376	378
54.860	734	734	706	706	692	702	526	561	402	405	377	379
56.160	732	733	705	705	692	701	528	562	404	407	378	380
57.460	731	731	703	703	691	700	530	563	407	410	378	381
58.780	729	729	701	701	690	698	532	564	409	412	379	382
60.100	726	727	697	698	689	696	533	565	410	414	379	382
61.410	724	725	693	695	688	694	534	565	412	415	380	382
62.720	722	722	688	690	687	692	535	566	414	417	380	383
64.130	719	719	684	684	685	690	536	566	415	419	380	384
65.450	716	717	680	678	683	687	537	566	417	420	381	384
66.760	713	714	677	673	681	685	538	566	418	421	381	384
68.070	711	711	674	667	679	683	538	566	419	422	381	384
69.400	707	708	671	663	677	680	539	565	420	423	381	384
70.710	705	705	668	658	675	678	539	565	421	424	381	385
72.030	702	702	664	653	673	675	539	564	422	425	381	385
73.350	699	699	661	649	670	672	539	564	423	426	380	385
74.660	696	696	657	645	668	670	539	563	424	426	380	384
75.990	693	693	653	641	666	667	539	562	424	427	380	384
77.300	690	690	650	637	663	664	539	561	425	428	380	384
78.610	687	687	647	633	661	662	538	561	425	428	380	384
79.930	684	684	643	629	658	659	538	560	426	428	379	384
81.250	681	681	640	625	656	657	538	559	426	429	379	384
82.560	678	678	636	621	653	654	537	558	426	429	379	384
83.880	675	675	633	618	651	652	537	557	426	429	379	383
85.210	672	672	629	615	648	649	536	556	427	429	378	383
86.520	669	669	626	611	646	646	536	555	427	429	378	383
87.820	666	666	622	608	644	644	535	554	427	429	378	383
89.130	663	663	619	605	641	641	535	553	427	429	377	383
90.350	661	661	616	602	639	639	534	552	427	429	377	382
95.280	650	650	605	591	630	630	531	547	427	429	376	381
100.600	640	639	594	580	621	621	528	542	426	428	374	380
105.930	630	629	584	570	612	612	525	538	425	427	373	379
111.280	620	620	574	561	604	603	521	533	424	426	371	377
116.630	611	611	565	552	596	595	517	528	423	425	370	376
121.980	603	602	556	544	588	587	514	523	421	423	368	375
127.310	595	594	548	536	581	580	510	519	420	421	367	373
132.650	587	586	540	529	574	573	506	514	418	420	366	372
137.980	579	578	533	522	567	566	502	510	417	418	364	371
143.330	572	570	525	516	560	559	499	505	415	416	363	370
148.670	564	562	519	510	553	552	495	501	414	415	362	369
154.010	557	555	512	504	547	545	492	497	412	413	361	368
159.330	550	547	506	498	541	539	488	493	410	411	360	367
164.660	543	540	501	493	535	533	485	489	409	409	359	366
170.010	536	532	495	488	528	527	481	485	407	408	358	365

TABLE 21.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING D-3; MODEL L-18.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	290	291	291	290	290	290	290	290	290	290	290	289
0.840	290	291	291	291	290	290	290	290	290	290	289	289
2.060	290	291	291	290	290	290	290	290	290	290	290	289
3.270	290	291	291	290	290	290	290	290	290	290	290	289
4.490	290	291	291	291	290	290	290	290	290	290	290	289
5.700	290	291	291	290	291	290	290	290	290	290	290	289
6.900	290	291	291	291	290	290	290	290	290	290	290	289
8.120	290	291	291	291	290	290	290	290	290	290	290	289
9.350	290	291	291	291	290	290	290	290	290	290	290	289
10.570	290	291	291	291	291	290	290	290	290	290	290	290
11.790	291	291	291	291	291	291	291	291	290	290	290	290
13.000	291	291	292	291	291	291	291	291	290	290	290	290
14.220	291	292	292	291	292	292	292	292	291	291	290	290
15.450	292	292	293	292	293	293	293	293	291	291	291	291
16.680	293	293	294	293	294	294	294	294	292	292	291	291
17.870	294	294	296	294	296	295	294	295	293	292	292	292
19.040	295	295	297	295	298	297	296	296	293	293	293	292
20.250	297	297	300	297	300	299	297	298	294	294	293	293
21.480	298	299	303	299	303	301	299	299	295	295	294	294
22.700	301	301	308	302	306	305	301	302	296	296	295	295
23.920	303	304	315	306	309	308	303	304	297	297	296	296
25.130	306	307	324	312	313	312	306	307	298	298	297	297
26.340	310	311	338	319	317	317	308	310	300	299	298	298
27.550	314	315	359	328	315	322	323	311	314	301	299	299
28.780	318	319	397	343	327	330	314	318	302	301	300	300
29.980	322	324	492	368	333	339	317	323	304	303	301	301
31.200	328	330	679	414	341	349	321	328	306	304	303	303
32.400	334	337	821	504	351	361	325	335	307	306	304	304
33.630	342	345	773	539	364	375	330	343	309	307	305	305
34.850	351	356	728	543	378	389	335	351	311	309	307	307
36.070	362	367	693	541	392	402	342	360	312	310	308	308
37.280	373	379	664	537	405	413	349	369	314	312	310	310
38.480	385	390	639	532	417	422	357	376	316	314	311	311
39.700	397	401	619	527	428	430	364	383	318	315	312	313
40.900	409	411	602	522	437	437	371	390	319	317	314	314
42.100	419	421	587	517	444	442	378	395	321	319	315	315
43.280	428	429	574	513	450	447	384	400	323	321	317	317
44.480	436	436	563	508	455	450	390	404	325	323	318	318
45.700	443	442	552	504	459	453	395	408	327	324	319	320
46.910	449	448	543	500	462	456	400	411	330	327	321	321
48.110	454	452	535	496	464	457	404	414	332	328	323	323
49.310	458	456	527	493	465	458	408	416	334	330	324	324
51.770	464	461	514	486	467	460	415	420	338	334	327	327
53.160	468	465	500	478	467	459	421	424	344	340	331	331
54.480	469	466	488	471	465	458	425	426	350	345	334	335
56.850	468	465	478	464	462	455	428	426	355	350	338	338
58.190	466	463	470	458	459	453	429	426	360	355	341	341
60.550	463	460	463	453	455	449	430	426	364	359	344	344
62.890	459	456	457	448	452	446	429	425	367	362	346	346
65.250	455	453	451	444	448	443	428	424	370	365	349	349
67.600	451	449	447	440	444	439	427	423	373	368	351	351
69.960	448	446	442	437	446	441	426	421	375	371	353	353
72.300	444	442	438	433	443	437	425	420	377	373	354	354
74.670	440	438	435	430	434	430	423	418	379	374	356	356
77.030	436	435	431	427	431	428	421	417	380	376	357	357
79.400	433	432	428	425	428	425	420	415	381	377	358	358
81.750	430	429	426	422	425	422	418	413	382	378	359	359
84.110	427	426	423	419	422	420	416	412	383	379	360	360
86.460	424	423	420	417	420	417	415	410	383	379	361	361
88.820	421	420	418	414	417	415	413	408	383	379	361	361
91.180	419	418	415	412	415	413	411	406	383	379	362	361
93.540	416	415	414	412	412	411	409	405	383	379	362	362
95.900	414	412	412	409	410	409	408	403	383	379	362	362
98.260	411	410	411	407	408	407	406	402	383	379	363	362
100.600	409	408	409	406	406	405	405	400	382	379	363	362
102.970	407	406	408	404	404	403	403	399	382	379	363	363
105.320	405	404	406	403	402	402	401	398	382	379	363	363
107.690	404	403	405	401	401	401	400	397	381	379	363	363
109.940	402	401	403	400	399	399	399	395	381	378	363	363
112.300	400	400	402	399	398	398	394	390	381	378	363	363
114.650	399	398	401	398	397	396	393	389	380	378	363	363
117.010	398	397	400	396	395	395	395	392	380	377	363	362
119.370	396	395	399	395	394	394	394	391	379	377	363	362
121.720	395	394	398	394	393	393	393	390	379	376	363	362
124.080	394	393	396	393	392	392	392	389	378	376	362	362
126.440	393	392	395	392	390	391	391	388	378	375	362	362
128.800	391	390	394	391	389	390	390	387	377	375	362	362
131.160	390	389	393	390	388	389	389	386	376	374	362	361
133.520	389	388	392	389	388	388	388	385	376	374	362	361
135.880	388	387	392	388	386	387	387	384	375	373	361	361
138.240	387	386	391	387	386	386	386	383	375	373	361	361
140.600	386	385	390	387	385	385	385	382	374	372	361	360
142.960	385	385	389	386	384	384	384	382	374	372	360	360
145.320	385	384	388	385	383	383	383	381	373	371	360	360
147.680	384	383	387	384	382	383	382	380	372	371	360	360
150.040	383	382	386	383	381	382	382	380	372	371	360	359
152.400	382	381	386	383	381	381	381	379	371	370	359	359
154.760	381	381	385	382	380	380	380	378	371	369	359	359
157.120	380	380	384	381	379	380	379	377	370	369	359	358
159.480	380	379	383	381	378	379	379	376	370	368	358	358
161.840	379	379	383	380	378	378	378	376	369	368	358	358
164.200	378	378	382	379	377	378	377	375	369	367	358	357
166.560	377	377	381	379	376	377	376	375	368	367	358	357
168.920	377	376	381	378	376	376	376	374	368	367	357	357
171.280	377	376	380	377	375	376	375	373	367	366	357	357
173.640	376	375	380	377	375	375	374	373	367	366	357	356
176.000	375	374	378	375	373	374	374	371	366	365	356	356
178.360	374	374	378	375	373	373	373	371	365	364	356	356
180.720	374	373	377	374	372	373	372	370	365	364	355	355
183.080	373	372	376	374	372	372	372	370	364	364	355	355
185.440	373	372	376	373	371	372	371	369	364	363	355	355
187.800	372	371	375	372	370	371	370	368	363	362	354	354
190.160	371	371	375	372	370	371	370	368	363	362	354	354
192.520	370	370	374	371	370	370	369	367	362	362	354	353
194.880	370	369	373	370	369	369	369	367	362	361	353	353
197.240	369	369	372	370	368	369	368	367	362	361	353	353
199.600	369	368	371	369	368	368	367	366	361	361	353	353
201.960	368	368										

TABLE 22.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING D-3; MODEL L-19.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	298	298	298	298	298	298	298	297	297	295	296	297
1.130	298	298	298	298	298	298	298	297	297	296	296	297
2.350	298	298	298	298	298	298	298	297	297	296	296	297
3.550	298	298	298	298	298	298	298	297	297	296	296	297
4.760	298	298	298	298	298	298	298	297	297	296	296	297
5.970	298	298	298	298	298	298	298	297	297	296	296	297
7.200	298	298	298	298	298	298	298	297	297	296	296	297
8.410	298	298	298	298	298	298	298	297	297	296	296	297
9.610	298	298	298	298	298	298	298	297	297	296	296	297
10.810	298	299	298	299	298	298	298	297	297	296	296	297
12.020	298	299	298	299	298	298	298	297	297	296	296	297
13.220	298	299	298	299	298	298	298	297	297	296	296	297
14.430	299	299	299	300	299	299	299	298	298	297	297	298
15.620	299	300	299	300	299	299	299	298	298	297	297	298
16.840	300	300	300	301	300	300	299	298	298	297	297	298
18.030	301	301	301	303	301	300	300	298	298	297	297	298
19.230	301	302	302	305	303	301	301	299	299	298	297	298
20.450	303	303	304	308	304	302	301	299	299	298	298	299
21.660	304	304	306	311	306	303	302	300	300	299	299	299
22.860	306	306	308	315	308	304	303	300	300	299	299	299
24.060	308	308	311	321	310	305	302	301	301	300	300	299
25.270	310	310	313	328	312	307	304	302	301	300	300	297
26.490	313	313	317	340	315	309	308	302	302	301	301	297
27.710	316	315	321	359	318	311	310	303	303	302	302	297
28.920	320	319	324	385	321	313	311	304	304	303	303	297
30.120	324	323	329	414	324	316	313	305	305	304	303	297
31.330	328	328	333	451	328	318	316	306	305	305	304	298
32.550	334	334	338	503	331	321	318	307	307	306	305	298
33.790	341	342	343	560	336	325	321	308	308	307	306	298
35.000	348	348	348	734	340	328	323	309	309	307	307	298
36.200	359	370	354	880	340	328	326	311	345	310	309	298
37.410	375	391	361	*	350	338	330	312	312	310	310	299
38.630	395	413	368	*	356	343	333	313	313	311	311	299
39.840	416	441	376	*	362	348	336	314	314	312	312	299
41.040	448	472	387	*	369	353	340	316	315	313	313	299
42.270	490	568	401	*	379	360	345	317	317	315	314	300
43.480	574	642	422	*	389	365	350	318	318	316	315	300
44.680	625	673	454	*	403	372	355	320	319	317	316	300
45.910	544	613	481	*	420	380	364	321	321	318	317	300
47.140	535	607	500	*	435	389	374	323	322	319	319	301
48.350	528	604	512	*	446	397	384	324	323	321	320	301
49.550	522	600	521	*	456	406	394	326	325	322	321	301
50.770	519	597	526	*	464	414	403	327	327	323	323	302
51.990	516	593	530	*	471	422	412	329	329	324	324	302
53.190	514	590	532	*	477	429	419	331	330	326	325	302
54.410	513	586	533	869	483	435	426	333	331	327	327	303
55.610	512	582	534	840	487	442	432	335	333	328	328	303
56.820	512	578	533	814	491	447	437	337	335	330	329	303
58.020	511	574	533	791	494	452	442	339	336	331	330	304
59.250	510	570	532	770	497	456	446	341	338	332	332	304
60.460	510	566	531	750	499	459	449	343	340	334	333	305
61.660	509	563	529	732	501	452	452	345	342	335	334	305
62.860	509	559	528	715	503	454	455	347	343	335	335	305
64.110	508	556	526	700	504	456	457	350	345	338	337	306
65.330	508	552	524	685	505	458	460	352	347	339	338	306
66.540	507	549	522	672	505	459	461	354	349	340	340	307
67.730	506	546	520	660	506	470	463	356	351	341	341	307
68.940	506	543	518	649	506	471	464	358	353	343	342	308
70.160	505	540	516	638	506	471	466	360	355	344	343	308
72.230	503	535	513	621	506	472	468	363	357	346	345	309
74.590	501	530	509	604	505	472	469	366	361	348	347	310
76.960	499	524	506	589	503	472	470	369	364	350	350	311
79.330	497	520	502	575	501	471	470	372	367	352	352	311
81.700	495	515	498	563	499	470	470	375	370	354	354	312
84.050	492	511	495	552	497	469	470	377	372	356	356	313
86.400	490	506	492	542	495	468	469	379	375	358	357	314
88.760	487	503	489	533	492	466	469	381	377	359	359	315
91.130	485	499	486	525	490	465	468	383	379	361	360	316
93.490	482	494	482	519	487	463	467	385	381	362	362	317
95.860	479	490	479	511	485	462	466	386	382	364	364	318
98.210	477	487	476	503	482	461	465	387	384	365	365	319
100.580	475	484	473	497	480	459	464	388	385	366	366	319
102.960	473	481	471	493	477	458	463	389	387	367	367	320
105.300	470	478	468	488	473	456	461	390	388	368	368	321
107.670	468	476	466	485	477	454	460	391	389	369	369	322
110.030	466	473	463	481	470	453	459	392	390	370	369	322
112.380	464	471	461	478	468	451	458	392	390	370	370	323
114.780	462	468	459	474	466	449	456	393	391	371	371	324
117.130	460	466	457	471	464	448	455	393	392	372	372	325
119.540	458	464	455	469	462	446	454	393	392	372	372	325
121.920	456	462	453	466	460	445	452	394	393	373	373	326
124.240	455	459	451	463	458	443	451	394	393	373	373	327
126.610	453	457	449	461	456	442	450	394	394	374	374	327
128.980	451	456	448	459	454	440	448	394	394	374	374	328
131.330	449	454	446	456	452	439	447	394	394	374	374	328
133.710	448	452	444	454	450	438	446	394	394	375	375	329
136.040	446	450	443	452	449	436	445	394	394	375	375	330
138.390	445	448	441	450	447	435	443	394	394	375	375	331
140.780	443	447	440	448	445	434	442	394	394	375	375	331
143.140	442	445	438	447	444	432	441	394	394	375	375	331
145.500	440	444	437	445	442	431	440	394	394	376	376	332
147.860	439	442	436	443	441	430	439	394	394	376	376	332
150.230	438	441	434	442	440	429	437	394	394	376	376	333
152.590	436	439	433	440	438	428	436	394	394	376	376	333
154.960	435	438	432	439	437	427	435	394	394	376	376	334
157.330	434	437	431	437	435	426	434	393	394	376	376	334
159.690	433	436	429	436	434	425	433	393	394	376	376	335
162.060	431	434	428	435	433	424	432	393	394	376	376	335
164.410	430	433	427	434	432	423	431	393	393	376	376	336
166.760	429	432	426	432	431	422	430	393	393	376	376	336
169.130	428	431	425	431	429	421	429	392	393	376	376	336
173.430	426	429	423	429	427	419	427	392	393	376	376	337
177.810	424	427	421	427	425	417	425	391	392	376	376	338
182.200	422	425	420	425	423	415	423	391	392	376	376	338
186.580	421	423	418	424	422	414	422	390	391	376	376	340
190.950	419	421	416	422	420	413	420	390	391	376	376	340
195.330	418	420	415	420	418	411	418	389	390	375	375	341
199.730	422	418	413	419	416	410	417	389	390	375		

TABLE 23.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING E-1; MODEL L-20.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	5-b
0.000	292	293	294	295	292	293	293	292	293	290	292	290
0.820	292	293	294	295	293	293	292	292	293	290	292	290
2.020	292	293	294	295	293	293	292	292	293	290	292	290
3.260	292	293	294	295	293	293	292	293	291	290	292	290
4.490	292	293	294	295	293	293	293	293	291	290	292	290
5.730	292	293	294	295	293	293	293	293	291	290	292	290
6.970	292	293	294	295	293	294	293	293	291	290	292	290
8.190	293	293	294	295	293	294	293	293	291	290	292	291
9.420	293	293	294	295	293	294	293	293	292	291	292	291
10.650	293	293	294	295	293	294	293	293	292	291	292	292
11.890	293	293	294	295	293	294	293	293	292	291	292	292
13.120	293	293	294	295	293	294	293	293	292	291	292	292
14.350	294	294	295	296	293	294	293	293	292	291	292	292
15.580	294	294	295	296	293	294	293	293	292	291	292	292
16.810	299	299	700	295	294	295	294	294	294	294	294	294
18.000	305	296	*	296	296	295	295	295	295	295	294	295
19.240	315	295	*	294	295	294	293	293	294	294	294	295
20.470	342	299	*	296	300	296	294	295	295	295	293	296
21.710	381	305	*	294	305	295	293	295	295	295	294	297
22.940	475	326	*	295	316	298	295	298	297	296	294	298
24.150	671	440	*	295	331	302	302	303	298	297	294	298
25.390	714	449	*	296	371	320	325	314	299	298	295	299
26.620	678	422	*	296	423	347	341	328	300	299	295	300
27.830	650	406	*	296	460	371	349	340	301	299	296	300
29.030	629	398	*	296	483	390	354	349	302	300	296	301
30.240	612	393	*	296	497	404	357	356	304	301	297	302
31.450	599	390	*	297	506	413	361	361	306	302	298	303
32.680	586	390	844	297	512	418	364	365	308	303	299	304
33.910	574	390	790	298	515	421	367	369	310	304	299	304
35.140	564	390	744	298	516	421	370	371	313	305	300	304
36.360	554	391	704	299	518	420	373	372	315	306	300	305
37.580	544	390	669	300	515	418	375	373	317	307	301	306
38.800	535	390	640	301	513	415	377	374	319	308	302	307
40.040	526	389	613	302	511	413	379	374	321	309	303	307
41.270	518	388	590	303	507	410	380	375	324	309	305	308
42.480	511	387	570	304	504	408	381	375	325	310	306	309
43.680	504	386	552	305	500	405	382	374	327	311	307	310
44.930	497	385	535	307	495	402	383	374	329	312	308	311
46.150	490	384	520	308	491	400	383	373	330	313	309	312
47.390	484	382	506	309	487	397	383	373	332	314	310	312
48.610	478	381	494	310	483	395	383	372	333	314	311	312
49.820	472	380	484	311	478	393	383	372	334	315	312	313
51.020	467	378	474	313	474	391	383	371	335	316	313	313
52.220	462	377	465	314	470	389	382	370	336	316	314	314
53.430	455	375	453	315	464	386	381	369	337	317	315	315
54.650	445	373	438	318	456	383	380	367	338	318	317	316
55.870	434	370	422	321	446	379	378	365	339	319	319	316
57.090	424	367	409	324	437	375	376	363	339	320	321	317
58.310	416	365	398	327	428	372	373	361	339	321	322	317
59.530	408	362	390	329	421	369	371	359	339	321	324	317
60.750	400	360	382	332	414	366	368	357	338	322	325	317
61.970	394	358	375	334	407	364	366	355	338	322	326	317
63.190	388	357	370	336	401	362	364	354	337	322	327	317
64.410	383	355	365	338	395	360	361	352	336	322	327	317
65.630	377	353	360	341	387	357	359	351	335	322	328	317
66.850	372	352	353	342	386	358	358	350	335	322	328	317
68.070	372	352	353	344	385	360	356	350	338	324	328	319
69.290	372	352	353	345	384	360	355	350	339	325	329	321
70.510	372	352	353	346	382	360	354	349	340	326	329	322
71.730	372	352	353	347	380	360	353	349	340	327	330	323
72.950	372	352	353	347	378	359	353	349	340	327	330	324
74.170	372	352	353	347	377	359	352	349	340	328	331	325
75.390	372	352	353	347	376	358	351	348	340	328	331	325
76.610	372	352	353	347	375	358	350	348	340	328	331	325
77.830	372	352	353	347	374	358	350	348	340	328	331	325
79.050	372	352	353	347	373	357	350	347	340	329	331	325
80.270	372	352	353	347	372	357	349	347	340	329	331	325
81.490	372	352	353	347	371	357	349	347	340	329	331	325
82.710	372	352	353	347	370	356	349	347	340	329	331	325
83.930	372	352	353	347	369	355	348	346	339	329	331	325
85.150	372	352	353	347	368	355	347	346	339	329	331	325
86.370	372	352	353	347	367	355	347	346	339	329	331	325
87.590	372	352	353	347	366	354	347	345	339	329	331	325
88.810	372	352	353	347	365	354	346	345	339	329	331	325
90.030	372	352	353	347	364	353	346	344	338	328	331	325
91.250	372	352	353	347	363	353	345	344	338	328	331	325
92.470	372	352	353	347	362	352	345	344	338	328	331	325
93.690	372	352	353	347	361	352	345	343	337	328	330	325
94.910	372	352	353	347	360	351	344	342	337	328	330	325
96.130	372	352	353	347	359	351	344	342	337	328	330	325
97.350	372	352	353	347	358	351	344	342	337	328	330	325
98.570	372	352	353	347	357	351	344	342	337	328	330	325
99.790	372	352	353	347	356	351	344	342	337	328	330	325
101.010	372	352	353	347	355	351	344	342	337	328	330	325
102.230	372	352	353	347	354	351	344	342	337	328	330	325
103.450	372	352	353	347	353	351	344	342	337	328	330	325
104.670	372	352	353	347	352	351	344	342	337	328	330	325
105.890	372	352	353	347	351	351	344	342	337	328	330	325
107.110	372	352	353	347	350	351	344	342	337	328	330	325
108.330	372	352	353	347	349	351	344	342	337	328	330	325
109.550	372	352	353	347	348	351	344	342	337	328	330	325
110.770	372	352	353	347	347	351	344	342	337	328	330	325
111.990	372	352	353	347	346	351	344	342	337	328	330	325
113.210	372	352	353	347	345	351	344	342	337	328	330	325
114.430	372	352	353	347	344	351	344	342	337	328	330	325
115.650	372	352	353	347	343	351	344	342	337	328	330	325
116.870	372	352	353	347	342	351	344	342	337	328	330	325
118.090	372	352	353	347	341	351	344	342	337	328	330	325
119.310	372	352	353	347	340	351	344	342	337	328	330	325
120.530	372	352	353	347	339	351	344	342	337	328	330	325
121.750	372	352	353	347	338	351	344	342	337	328	330	325
122.970	372	352	353	347	337	351	344	342	337	328	330	325
124.190	372	352	353	347	336	351	344	342	337	328	330	325
125.410	372	352	353	347	335	351	344	342	337	328	330	325
126.630	372	352	353	347	334	351	344	342	337	328	330	325
127.850	372	352	353	347	333	351	344	342	337	328	330	325
129.070	372	352	353	347	332	351	344	342	337	328	330	325
130.290	372	352	353	347	331	351	344	342	337	32		

TABLE 24.- BACK SURFACE TEMPERATURE HISTORIES FOR LEADING-EDGE MODELS. COATING E-1; MODEL L-21.

Time, sec	Temperature in degrees Kelvin at thermocouple positions (see fig. 1) -											
	1-a	1-b	6-a	6-b	2-a	2-b	3-a	3-b	4-a	4-b	5-a	6-b
0.000	293	293	289	294	292	293	292	292	290	291	289	289
0.190	293	293	289	294	292	293	292	292	290	291	289	289
1.420	293	293	289	294	292	293	292	292	290	291	289	289
2.640	293	293	290	294	292	293	292	292	291	291	289	289
3.870	293	293	290	294	292	293	292	292	291	291	289	290
5.090	293	293	290	294	292	293	292	292	291	291	290	290
6.320	293	293	291	294	293	293	292	293	291	291	290	291
7.540	293	293	291	294	293	293	292	293	291	291	291	291
8.760	293	293	292	294	293	293	292	293	292	291	291	292
9.970	293	293	292	294	293	293	292	293	292	292	292	293
11.210	293	293	293	294	293	293	293	293	293	292	293	294
12.420	293	293	293	294	293	293	293	293	293	292	294	294
13.640	293	293	294	294	293	293	293	293	293	292	294	294
14.900	293	293	295	294	293	293	293	293	294	293	295	295
16.110	293	293	295	294	293	293	293	293	294	293	295	296
17.350	293	293	296	294	293	293	293	293	294	293	296	297
18.570	293	293	297	294	293	294	294	294	295	294	297	298
19.770	293	293	297	294	294	294	294	294	295	294	298	299
20.980	293	294	298	294	294	294	294	294	295	294	299	300
22.190	294	294	299	294	294	294	294	294	295	294	300	301
23.400	294	294	299	294	294	294	294	294	295	294	301	302
24.610	294	294	300	295	294	294	295	295	297	296	301	302
25.830	294	294	301	296	295	294	296	296	298	296	302	303
27.060	294	294	301	301	295	294	296	296	299	297	303	304
28.290	294	294	302	332	295	295	297	296	299	298	304	305
29.480	293	294	302	438	297	294	297	297	300	298	305	306
30.710	295	296	304	793	301	295	298	298	301	299	306	307
31.910	295	297	304	749	307	295	299	299	302	300	307	309
33.120	295	297	305	693	317	296	301	299	303	301	308	309
34.360	296	305	306	652	329	297	303	300	303	302	309	310
35.570	297	311	306	620	340	297	305	302	304	302	310	311
36.790	299	317	307	594	350	299	309	304	305	303	310	312
37.990	301	323	307	571	358	299	312	306	306	304	311	313
39.180	303	329	307	553	364	301	315	308	308	305	312	314
40.380	306	334	308	537	369	303	319	310	309	306	312	314
41.620	308	338	308	522	373	305	322	313	310	307	313	315
42.840	311	341	308	509	376	307	326	315	312	308	314	316
44.050	313	344	309	498	377	309	329	318	313	309	314	316
45.260	316	347	309	488	379	310	332	320	314	311	315	317
46.460	318	349	309	479	380	312	334	322	316	311	316	317
47.680	320	351	309	471	380	314	336	323	317	312	316	318
48.910	322	352	310	464	380	316	338	325	318	313	317	318
50.130	324	354	310	457	380	317	340	327	319	314	317	319
51.330	326	355	310	451	380	319	342	328	320	315	318	319
52.540	327	356	310	445	380	320	343	329	321	316	318	320
53.740	329	356	310	440	379	322	344	331	322	317	318	320
54.940	330	357	310	435	379	323	345	332	323	318	319	320
56.160	332	358	310	429	378	325	347	333	324	319	319	320
57.360	333	359	310	418	376	327	348	335	326	321	320	321
58.560	333	359	310	410	374	330	349	337	328	323	320	321
59.760	333	359	310	402	372	332	349	338	328	325	320	321
60.960	333	359	310	396	370	333	349	339	329	326	320	321
62.160	333	359	310	390	368	335	349	339	329	327	320	321
63.360	333	359	310	386	366	336	349	339	329	327	320	321
64.560	333	359	310	382	364	337	349	339	329	327	320	321
65.760	333	359	310	378	362	337	346	340	329	328	320	321
66.960	333	359	310	375	361	338	345	340	329	328	320	321
68.160	333	359	310	372	359	339	344	340	329	328	320	321
69.360	333	359	310	369	358	339	343	340	329	328	320	321
70.560	333	359	310	367	356	339	342	339	327	327	320	321
71.760	333	359	310	365	355	339	341	339	327	327	320	321
72.960	333	359	310	363	354	339	340	338	326	326	320	321
74.160	333	359	310	361	353	340	340	338	325	328	320	321
75.360	333	359	310	360	352	340	340	338	325	328	320	321
76.560	333	359	310	359	352	341	340	338	326	329	320	321
77.760	333	359	310	358	351	341	340	338	327	329	320	321
78.960	333	359	310	357	351	341	339	338	327	329	320	321
80.160	333	359	310	356	350	342	339	338	328	329	320	321
81.360	333	359	310	355	349	342	339	338	328	329	320	321
82.560	333	359	310	354	349	342	338	337	328	329	320	321
83.760	333	359	310	353	348	342	338	337	328	329	320	321
84.960	333	359	310	352	347	341	337	336	328	329	320	321
86.160	333	359	310	351	346	341	337	336	328	329	320	321
87.360	333	359	310	350	345	341	336	336	328	329	320	321
88.560	333	359	310	349	345	341	336	336	328	329	320	321
89.760	333	359	310	348	344	341	336	336	328	329	320	321
90.960	333	359	310	347	343	340	335	335	327	328	322	323
92.160	333	359	310	346	343	340	335	335	327	328	322	323
93.360	333	359	310	345	342	340	335	335	327	328	322	323
94.560	333	359	310	344	341	339	334	334	327	327	322	323
95.760	333	359	310	343	341	339	334	334	327	327	322	323
96.960	333	359	310	342	340	338	333	333	326	327	322	323
98.160	333	359	310	341	339	338	333	333	326	327	322	323
99.360	333	359	310	340	338	337	332	332	325	326	322	323
100.560	333	359	310	339	337	336	332	332	325	326	322	323
101.760	333	359	310	338	336	336	331	332	325	325	322	323
102.960	333	359	310	337	335	335	331	331	325	325	321	321
104.160	333	359	310	336	334	334	330	330	324	324	321	321
105.360	333	359	310	335	333	333	329	329	324	324	321	321
106.560	333	359	310	334	332	333	328	328	323	323	320	320
107.760	333	359	310	333	332	332	327	327	322	322	319	320
108.960	333	359	310	332	331	331	326	326	321	321	319	320
110.160	333	359	310	331	330	330	325	325	320	320	319	320
111.360	333	359	310	330	329	329	324	324	319	319	319	320
112.560	333	359	310	329	328	328	323	323	318	318	319	320
113.760	333	359	310	328	327	327	322	322	317	317	319	320
114.960	333	359	310	327	326	326	321	321	316	316	319	320
116.160	333	359	310	326	325	325	320	320	315	315	319	320
117.360	333	359	310	325	324	324	319	319	314	314	319	320
118.560	333	359	310	324	323	323	318	318	313	313	319	320
119.760	333	359	310	323	322	322	317	317	312	312	319	320
120.960	333	359	310	322	321	321	316	316	311	311	319	320
122.160	333	359	310	321	320	320	315	315	310	310	319	320
123.360	333	359	310	320	319	319	314	314	309	309	319	320
124.560	333	359	310	319	318	318	313	313	308	308	319	320
125.760	333	359	310	318	317	317	312	312	307	307	319	320
126.960	333	359	310	317	316	316	311	311	306	306	319	320
128.160	333	359	310	316	315							

TABLE 25. - BACK SURFACE TEMPERATURE HISTORIES FOR AFTERBODY MODELS. COATINGS B-3, A-2; MODEL P-1.

Time, sec	Temperature in degrees Kelvin for coating B-3 at thermocouple positions (see fig. 2) -						Temperature in degrees Kelvin for coating A-2 at thermocouple positions (see fig. 2) -					
	1-a	1-b	2-a	2-b	3-a	3-b	1-a	1-b	2-a	2-b	3-a	3-b
0.000	302	302	301	301	302	301	302	302	301	301	302	301
0.890	302	302	301	301	301	301	302	302	301	301	302	301
2.230	302	302	301	301	301	301	302	302	302	302	302	302
3.560	302	302	302	302	302	302	305	305	305	304	304	303
4.890	304	304	303	302	303	303	309	309	309	308	308	306
6.230	306	306	304	304	304	304	314	314	314	313	312	310
7.560	308	308	306	306	306	306	321	321	319	319	318	314
8.890	311	311	308	308	308	308	328	327	325	325	324	319
10.230	314	314	311	311	310	310	335	335	331	332	330	325
11.560	318	318	314	314	313	313	343	343	337	338	337	331
12.890	322	322	317	317	316	316	350	350	344	345	343	337
14.240	326	327	321	321	320	320	358	358	350	352	350	343
15.570	331	332	325	325	323	323	365	366	356	358	357	349
16.890	336	337	329	329	327	327	373	373	361	365	363	355
18.220	342	342	334	333	331	331	380	380	367	371	370	361
19.550	347	347	338	338	335	336	387	388	373	377	376	367
20.870	352	352	343	342	340	340	394	395	378	383	382	373
22.200	357	358	347	347	344	344	401	402	384	389	388	379
23.530	362	363	352	351	348	349	408	409	389	395	394	385
24.850	368	368	356	356	352	353	414	415	394	400	400	391
26.190	374	374	360	360	356	358	421	422	399	406	406	396
27.520	379	380	365	365	360	362	427	428	404	411	412	402
28.850	385	386	370	369	365	366	433	435	409	417	418	407
30.180	391	391	374	374	370	371	440	441	414	422	423	413
31.520	396	397	379	379	374	375	445	447	419	427	428	418
32.850	402	403	383	383	379	380	451	452	423	432	434	423
34.190	408	408	388	388	383	384	457	458	427	436	439	428
35.500	414	414	392	392	388	389	462	464	432	441	444	433
36.830	419	419	397	397	393	393	468	469	436	445	449	437
38.170	425	425	402	401	397	398	473	474	440	450	454	442
39.510	430	430	406	406	402	403	478	480	444	454	458	447
40.830	436	436	411	411	407	408	483	485	448	458	463	451
42.150	441	441	415	415	412	412	488	490	452	463	468	456
43.480	446	446	420	420	416	417	493	494	456	467	472	460
44.800	452	452	424	424	421	422	498	499	460	471	477	464
46.130	457	457	428	428	426	426	503	504	463	475	481	469
47.470	462	462	432	433	430	431	507	509	467	479	486	473
48.790	467	467	436	437	435	435	512	513	470	483	490	477
50.100	472	471	441	441	439	440	516	517	474	486	494	481
51.440	477	476	444	445	444	444	520	522	478	490	498	485
52.780	481	481	449	449	448	448	524	526	481	494	502	489
54.110	486	486	452	453	452	452	529	530	484	498	506	492
55.410	491	490	456	457	456	456	533	534	488	501	510	496
56.740	495	494	460	461	461	461	537	538	491	505	514	500
58.080	499	499	464	464	465	465	541	542	494	508	517	503
59.410	504	503	467	468	469	469	544	546	497	512	521	507
60.730	508	508	471	472	474	473	548	550	500	515	525	511
62.050	512	512	475	476	476	477	552	554	503	519	528	514
63.360	516	516	478	479	482	481	556	557	506	522	532	517
64.690	520	520	482	483	486	485	559	561	509	525	535	521
66.000	524	524	486	486	490	489	563	565	512	528	538	524
67.310	528	528	489	490	494	492	566	568	515	532	541	527
68.610	532	531	492	493	497	496	569	571	517	535	545	530
69.930	536	536	496	496	501	500	573	575	520	538	548	533
71.280	540	539	499	500	505	503	576	578	522	541	551	536
72.580	543	542	502	503	509	506	579	581	525	544	554	540
73.910	547	546	505	506	512	510	582	584	528	547	557	543
75.230	550	550	509	509	516	513	586	587	530	549	560	546
76.540	554	553	512	512	519	516	588	590	533	552	563	549
77.880	558	557	515	515	523	520	591	593	535	555	566	551
79.200	561	560	518	518	526	523	594	596	537	557	569	554
80.530	564	563	521	521	529	526	597	599	540	560	572	557
81.850	568	567	524	524	533	529	600	602	542	563	574	560
83.160	571	570	527	527	536	532	603	605	544	565	577	562
84.500	574	573	530	530	539	535	605	607	546	568	580	565
85.820	578	576	533	532	542	538	608	610	549	570	582	568
87.150	581	580	535	535	545	541	611	613	551	572	585	570
88.470	584	583	538	538	549	544	613	615	553	575	587	573
89.780	587	586	541	540	552	547	616	618	555	577	590	576
91.100	590	589	543	543	555	550	618	620	557	579	592	578
92.420	593	592	546	546	558	553	621	623	559	581	595	581
93.750	596	595	549	548	561	556	623	625	561	584	597	583
95.080	599	598	551	551	564	559	626	628	563	586	599	585
96.420	601	600	554	553	567	561	628	630	565	588	601	587
97.750	603	602	556	555	569	564	630	632	566	589	603	589
99.080	604	603	558	557	571	565	631	633	567	590	604	591
100.420	604	603	559	558	572	566	631	633	567	590	605	592
101.750	603	603	560	559	573	566	631	632	566	588	604	592
103.070	602	602	560	559	572	566	630	631	565	587	603	592
104.390	600	601	560	559	572	565	628	630	563	585	602	591
105.710	598	599	559	558	571	564	626	628	562	580	600	590
107.030	596	597	558	557	570	563	624	626	559	580	598	588
108.360	594	595	557	555	568	561	622	623	557	577	596	586
109.680	592	593	555	554	567	560	620	621	555	574	594	584
111.010	590	591	553	552	565	558	617	618	553	571	592	582
112.350	588	588	552	550	563	556	614	616	550	568	589	580
113.680	585	586	550	548	561	555	612	613	547	565	586	578
115.020	583	583	548	546	559	553	609	610	545	562	584	575
116.350	580	581	546	544	557	551	606	607	542	559	581	573
117.680	578	579	543	542	555	549	603	605	540	556	578	570
119.010	576	576	541	539	553	547	600	602	537	553	576	568
120.350	573	574	539	537	551	545	598	599	535	550	573	565
121.690	571	572	537	535	549	543	595	596	532	547	570	563
123.010	569	569	535	533	547	541	592	593	530	544	568	560
124.340	566	567	532	530	544	539	589	591	527	542	565	558
125.650	564	565	530	528	542	537	587	588	525	539	562	555
126.980	562	562	528	526	540	535	584	586	522	536	560	553
128.310	559	560	526	524	538	533	581	583	520	533	557	550
129.640	557	558	524	521	536	531	579	580	517	531	555	548
130.940	555	555	521	519	534	529	576	578	515	528	552	545
132.280	553	553	519	517	532	527	574	575	513	526	549	543
133.610	550	551	517	515	530	525	571	572	510	523	547	540
134.960	548	549	515	513	528	523	568	570	508	521	544	538
136.280	546	547	513	511	526	521	566	567	506	518	542	536
137.590	544	545	511	508	524	519	563	565	504	516	539	533
138.930	542	543	508	506	522	517	561	562	501	514	537	531
140.260	540	541	506	504	520	515	558	560	499	511	534	528

TABLE 26.- BACK SURFACE TEMPERATURE HISTORIES FOR AFTERBODY MODELS. COATINGS B-3, A-2; MODEL P-2.

Time, sec	Temperature in degrees Kelvin for coating B-3 at thermocouple positions (see fig. 2) -						Temperature in degrees Kelvin for coating A-2 at thermocouple positions (see fig. 2) -					
	1-a	1-b	2-a	2-b	3-a	3-b	1-a	1-b	2-a	2-b	3-a	3-b
0.000	301	301	300	300	301	301	301	301	300	300	301	300
0.420	301	301	300	300	301	301	301	300	300	300	301	300
1.480	301	301	300	301	301	301	301	301	300	300	301	300
2.520	302	302	301	302	302	302	301	301	301	301	301	300
3.590	304	304	303	304	304	304	302	302	301	301	301	301
4.660	307	307	306	307	306	307	303	303	302	302	302	302
5.720	311	311	309	311	309	310	306	305	304	303	303	303
6.780	315	315	313	315	313	314	308	308	306	305	305	305
7.840	320	320	317	319	317	319	311	311	308	307	307	306
8.890	326	326	322	324	322	324	314	314	315	309	309	308
9.940	332	332	327	329	327	330	318	318	313	312	311	311
11.010	338	338	332	334	333	335	322	322	316	315	314	313
12.070	344	344	337	339	338	341	326	326	322	319	318	317
13.140	350	350	342	344	344	347	331	331	323	321	320	319
14.210	356	356	347	350	350	353	335	335	326	324	323	322
15.280	363	363	352	355	355	358	340	340	330	328	326	325
16.330	369	369	356	359	361	364	345	345	334	331	330	329
17.380	375	375	361	364	366	369	350	350	338	335	333	332
18.440	381	381	366	369	372	375	355	355	342	339	337	336
19.510	387	387	370	374	377	381	360	360	346	343	341	339
20.580	393	393	375	379	382	386	365	365	350	347	345	343
21.630	399	399	379	383	388	391	369	369	354	350	347	347
22.680	404	404	384	387	393	396	374	374	358	354	353	350
23.740	410	410	388	392	398	402	379	379	362	358	357	354
24.810	416	416	392	396	403	407	383	383	366	362	361	358
25.880	421	421	396	400	408	412	387	387	370	366	365	361
26.940	426	427	401	405	413	417	392	391	374	369	368	365
28.010	431	432	405	409	418	422	396	396	378	373	372	369
29.080	436	437	409	413	422	426	400	400	382	376	376	372
30.140	441	442	413	417	427	431	405	404	385	380	380	376
31.180	446	446	416	421	431	435	409	408	389	383	383	379
32.240	451	451	420	425	436	440	413	412	392	387	386	382
33.300	456	456	424	428	440	444	417	416	396	390	389	386
34.380	460	461	427	432	444	449	422	420	400	394	392	390
35.440	465	465	431	436	449	453	426	424	403	397	396	393
36.480	469	469	434	439	453	457	430	429	407	401	400	397
37.530	473	474	437	443	457	461	434	433	410	404	403	400
38.600	478	478	441	446	461	465	438	437	413	408	407	404
39.660	482	483	444	450	465	469	442	441	416	411	411	408
40.730	486	487	447	453	469	473	447	445	420	415	415	411
41.810	490	491	450	456	473	478	451	450	424	418	419	415
42.860	494	495	454	459	477	481	455	454	428	422	423	418
43.910	498	499	458	463	481	485	459	458	432	425	427	422
44.970	502	502	460	466	484	489	463	462	435	429	431	425
46.020	505	506	462	469	488	492	467	466	439	432	434	429
47.080	509	510	465	472	491	496	471	470	443	435	438	433
48.160	513	514	468	475	495	500	475	474	446	439	442	436
49.230	517	517	471	478	498	503	479	478	450	442	447	440
50.280	520	521	474	481	502	507	482	481	454	446	451	443
51.340	524	524	477	484	505	510	486	485	457	449	455	447
52.400	527	528	480	487	509	514	490	489	461	452	459	451
53.460	531	531	483	490	512	517	494	493	465	455	462	454
54.540	534	535	485	493	515	520	497	497	468	459	466	458
55.600	537	538	488	495	518	524	501	500	472	462	470	461
56.660	541	541	490	498	522	527	505	504	475	465	474	465
57.700	544	544	493	501	525	530	508	507	478	468	478	468
58.760	547	548	495	503	528	533	512	511	482	471	482	472
59.830	550	551	498	506	531	536	515	514	485	474	485	475
60.910	553	554	500	509	534	539	519	518	489	478	489	479
61.970	556	557	503	511	537	542	522	522	492	481	492	482
63.030	559	560	505	514	540	545	526	525	495	484	496	486
64.080	562	563	508	516	543	548	529	528	498	487	500	489
65.150	565	566	510	519	546	551	533	532	502	489	503	492
66.240	568	569	512	521	549	554	536	535	505	492	507	495
67.300	571	572	514	524	552	557	539	539	508	495	511	499
68.380	574	575	517	526	555	560	542	542	511	498	514	502
69.440	576	577	519	528	558	563	545	545	514	501	518	505
70.500	579	580	521	531	561	565	549	548	517	503	521	508
71.540	582	582	523	533	563	568	552	551	521	506	524	511
72.600	584	585	525	535	566	571	555	554	524	509	528	514
73.680	587	588	527	537	569	573	558	558	527	511	531	517
74.740	589	590	529	539	571	576	561	561	530	514	534	520
75.800	592	593	531	542	574	579	564	564	534	516	538	523
76.870	594	595	533	544	577	581	567	567	537	519	541	526
77.930	597	597	535	546	579	584	570	570	540	522	544	529
78.970	599	600	537	548	582	586	573	573	543	524	547	532
80.040	601	602	539	550	584	588	576	576	547	526	550	535
81.100	604	604	541	552	586	591	579	578	550	529	553	537
82.170	606	607	543	554	589	593	582	581	553	531	556	540
83.200	608	609	544	556	591	596	584	584	555	534	559	543
84.270	611	611	546	558	593	598	587	587	558	536	562	546
85.320	613	613	548	559	596	600	590	589	560	538	565	548
86.390	615	616	550	561	598	602	592	592	562	540	568	551
87.460	617	618	552	563	600	605	595	594	564	542	571	553
88.510	618	619	553	565	602	606	596	595	564	544	573	555
89.570	619	620	555	566	603	607	597	596	565	546	574	557
90.620	620	621	555	566	604	608	598	597	565	547	575	559
91.670	620	621	555	566	605	608	598	597	565	548	576	560
92.740	620	621	554	566	605	608	597	596	564	548	576	560
93.810	619	620	554	565	604	608	596	595	563	549	576	561
94.850	618	619	553	564	604	607	596	594	562	549	576	561
95.920	617	618	552	563	603	606	594	593	561	548	575	560
96.990	616	617	551	561	602	605	593	592	560	547	575	560
98.040	614	615	549	560	601	604	592	591	559	547	574	559
99.100	612	614	548	558	599	603	590	589	557	546	573	558
100.140	611	612	546	556	598	601	589	588	556	545	572	558
101.210	609	610	544	554	596	600	587	586	554	544	571	557
102.270	607	608	542	553	595	598	586	585	553	542	570	555
103.340	605	606	541	551	593	596	584	583	551	541	568	554
104.410	603	604	539	549	591	595	582	581	549	540	567	553
105.470	601	602	537	547	590	593	581	580	547	538	566	552
106.510	599	600	535	545	588	591	579	578	546	537	564	551
107.570	597	598	533	543	586	589	577	576	544	535	563	549
108.640	595	596	531	541	584	587	575	575	542	534	561	548
109.700	593	594	529	539	583	586	574	573	540	532	560	547
110.770	591	592	527	537	581	584	572	571	538	530	558	545
111.820	589	590	525	535	579	582	570	570	536	529	557	544
112.870	587	588										

TABLE 27. - BACK SURFACE TEMPERATURE HISTORIES FOR AFTERBODY MODELS. COATINGS C-3, A-2; MODEL P-3.

Time, sec	Temperature in degrees Kelvin for coating C-3 at thermocouple positions (see fig. 2) -						Temperature in degrees Kelvin for coating A-2 at thermocouple positions (see fig. 2) -					
	1-a	1-b	2-a	2-b	3-a	3-b	1-a	1-b	2-a	2-b	3-a	3-b
0.000	300	300	300	300	300	300	300	300	301	301	300	300
0.940	300	300	300	300	300	300	300	300	301	301	300	300
2.300	301	301	300	301	300	300	301	301	301	301	301	300
3.650	301	301	301	301	300	300	301	301	302	301	301	301
5.010	304	303	302	302	301	301	303	303	304	303	303	303
6.360	306	306	303	304	302	302	306	306	307	306	306	305
7.700	308	308	305	306	303	304	310	310	311	309	309	308
9.060	310	310	307	308	305	306	314	314	316	313	314	312
10.420	312	312	309	311	307	308	319	319	321	317	318	316
11.780	314	315	312	314	309	310	324	324	326	322	323	321
13.160	318	318	315	317	312	313	330	330	331	327	329	326
14.490	321	322	318	321	314	317	336	336	337	332	334	331
15.860	325	326	321	325	317	320	343	343	343	338	340	337
17.220	329	330	324	328	320	324	349	349	348	343	346	343
18.580	333	334	328	332	324	328	355	355	354	348	352	349
19.950	338	339	331	336	327	332	362	362	360	354	358	355
21.310	343	344	335	340	331	336	369	368	365	359	364	360
22.670	348	349	339	344	334	340	375	375	371	364	370	366
24.030	352	353	343	348	338	344	382	382	376	369	376	372
25.390	357	358	346	352	342	348	388	388	381	375	382	378
26.740	362	363	350	356	346	352	394	394	387	380	387	383
28.100	367	369	354	360	349	356	401	400	392	385	393	389
29.430	373	374	358	363	353	360	407	407	397	389	399	394
30.770	378	379	361	367	357	364	413	413	401	394	404	400
32.130	384	385	365	371	361	368	419	418	406	399	410	405
33.520	390	391	369	375	365	373	423	424	411	404	415	411
34.880	396	397	373	379	369	377	428	429	416	409	420	416
36.220	401	403	376	383	373	381	433	434	420	413	425	421
37.580	407	408	380	387	378	385	438	439	424	417	429	426
38.940	412	413	384	390	382	390	443	443	427	421	433	431
40.300	417	418	388	394	386	394	448	448	430	425	437	435
41.650	422	423	391	398	390	398	452	453	433	429	441	440
43.000	427	428	395	402	395	403	457	458	437	432	445	444
44.360	432	433	398	406	399	407	462	462	440	435	449	449
45.730	437	438	402	409	403	411	467	467	444	439	453	453
47.110	442	443	406	413	408	416	471	472	447	442	458	457
48.470	447	447	409	417	412	420	476	476	451	445	462	461
49.810	451	452	413	421	416	424	480	480	454	448	466	466
51.180	456	457	416	424	419	428	485	485	458	452	470	470
52.560	460	461	420	428	425	432	489	489	461	455	475	475
53.930	465	466	423	431	429	436	493	493	465	459	479	479
55.280	469	470	427	435	433	440	497	497	468	462	483	483
56.630	473	474	430	438	437	444	501	501	471	465	487	488
57.990	478	478	433	441	441	448	505	505	474	468	491	492
59.360	482	482	436	445	445	451	509	509	478	471	494	496
60.740	486	486	440	448	449	455	513	513	481	475	498	500
62.070	490	490	442	451	451	459	517	517	484	478	502	504
63.420	494	494	446	454	457	463	521	521	487	481	505	508
64.770	497	498	449	457	461	467	524	524	490	484	509	513
66.130	501	502	452	460	465	470	528	528	493	487	513	517
67.490	505	505	454	463	469	474	532	532	496	490	516	521
68.830	508	509	457	466	473	477	535	535	498	493	519	524
70.180	512	512	460	469	476	481	539	539	501	496	523	528
71.560	515	516	463	472	480	485	542	542	504	499	526	532
72.940	519	519	466	476	484	488	545	545	507	502	530	536
74.280	522	523	469	478	487	491	549	549	509	504	533	539
75.630	525	526	471	481	491	494	552	552	512	507	536	543
76.990	529	529	474	484	494	498	555	555	515	510	539	546
78.350	532	532	477	487	497	501	558	559	517	512	542	549
79.710	535	535	480	490	501	504	561	562	519	515	545	552
81.080	538	538	482	492	504	507	564	565	522	517	548	556
82.410	541	541	485	495	507	510	567	568	524	520	551	559
83.770	544	544	487	497	510	513	570	571	527	522	554	562
85.140	547	547	490	500	513	516	573	574	529	525	557	565
86.490	550	550	492	503	517	519	576	577	531	527	559	567
87.840	553	553	494	505	519	522	579	579	533	529	562	570
89.180	555	556	497	507	522	524	581	582	535	531	565	573
90.530	558	558	499	510	525	527	584	585	538	534	567	576
91.900	561	561	501	512	528	530	586	587	540	536	570	578
93.250	563	564	503	514	531	533	589	590	542	538	572	581
94.610	566	566	506	516	534	535	591	592	544	540	575	584
95.970	569	569	508	519	537	538	594	594	546	542	577	586
97.330	571	572	510	521	540	541	596	597	547	544	580	589
98.690	574	574	512	523	543	544	598	599	549	546	582	591
100.030	576	577	514	525	545	546	600	601	551	548	584	593
101.390	579	579	516	527	548	548	603	603	553	549	587	596
102.750	581	582	518	529	551	551	605	605	555	551	589	598
104.100	583	584	520	531	553	553	607	608	556	553	591	600
105.450	586	586	522	533	556	556	609	610	558	555	593	602
106.800	588	589	524	535	559	558	611	612	560	557	595	604
108.160	590	591	526	537	561	561	613	614	561	558	597	606
109.530	593	593	528	539	564	563	615	615	563	560	599	608
110.890	595	595	530	541	566	565	617	617	564	562	601	611
112.240	597	597	531	542	569	568	618	619	566	563	603	612
113.610	598	598	533	544	571	569	620	621	567	564	604	614
114.990	597	598	535	546	573	571	621	622	568	566	606	615
116.330	597	597	536	547	575	571	622	622	569	566	606	615
117.680	595	595	536	547	576	571	621	622	568	566	606	615
119.030	593	594	537	547	576	570	621	621	568	566	606	614
120.390	591	592	536	547	576	569	619	619	566	565	604	612
121.760	589	590	536	546	576	568	617	617	565	563	603	610
123.120	587	587	535	545	575	566	615	615	563	561	601	608
124.440	585	585	534	543	574	564	613	613	561	559	599	606
125.800	582	583	533	542	572	562	610	610	558	557	597	603
127.160	580	580	531	540	571	560	608	607	555	555	595	600
128.530	577	577	530	538	569	557	605	604	553	552	593	597
129.890	574	575	528	536	567	555	602	601	550	550	590	595
131.230	572	572	526	534	565	553	599	598	547	547	588	592
132.580	569	569	524	532	563	550	596	596	544	544	585	589
133.940	567	567	522	529	561	548	593	592	541	541	582	586
135.320	564	564	520	527	558	545	590	589	538	538	580	583
136.700	561	561	518	525	556	543	586	586	535	535	577	580
138.060	559	559	516	523	554	540	583	583	532	532	574	577
139.410	556	556	513	520	552	537	580	580	529	530	571	574
140.770	554	554	511	518	549	535	577	576	526	527	568	570
142.150	551	551	509	516	547	532	574	573	523	524	565	568
143.470	549	549	507	513	544	530	571	570	520	521	563	565

TABLE 28.- BACK SURFACE TEMPERATURE HISTORIES FOR AFTERBODY MODELS. COATINGS C-3, A-2; MODEL P-4.

Time, sec	Temperature in degrees Kelvin for coating C-3 at thermocouple positions (see fig. 2) -						Temperature in degrees Kelvin for coating A-2 at thermocouple positions (see fig. 2) -					
	1-a	1-b	2-a	2-b	3-a	3-b	1-a	1-b	2-a	2-b	3-a	3-b
0.000	300	300	300	299	300	300	299	299	299	299	299	299
0.740	300	300	300	299	300	300	300	299	299	299	299	299
1.790	300	300	300	299	300	300	300	299	299	299	300	299
2.870	300	300	300	300	300	300	300	300	300	299	300	299
3.940	302	302	301	301	301	301	301	301	300	300	300	300
5.030	304	304	303	302	302	302	302	301	301	301	301	301
6.110	307	307	305	305	304	304	304	302	302	302	303	303
7.190	310	310	308	308	306	307	307	306	304	303	304	305
8.270	314	314	311	311	309	310	309	309	306	305	306	307
9.340	318	318	315	314	312	313	312	308	307	307	309	310
10.400	323	323	318	318	316	317	315	315	310	309	311	312
11.490	328	328	322	322	319	321	318	318	313	312	314	315
12.570	333	333	326	326	323	325	321	321	315	314	316	318
13.670	338	338	330	330	327	330	325	324	318	317	319	321
14.740	343	343	334	334	331	334	328	328	321	319	322	324
15.800	348	348	338	338	335	338	332	332	324	322	325	327
16.880	353	354	342	342	340	343	336	335	327	325	328	330
17.950	359	359	347	347	344	348	339	339	330	328	332	334
19.040	364	364	351	351	349	352	343	343	333	331	335	337
20.120	369	370	355	355	353	357	347	347	336	334	338	340
21.220	375	375	359	359	358	362	351	351	340	337	342	344
22.290	380	380	363	363	362	366	356	355	343	340	345	347
23.360	385	385	367	367	367	371	360	359	346	343	349	351
24.430	390	390	371	371	371	376	364	363	350	346	352	354
25.500	395	395	375	375	375	380	367	367	353	349	356	358
26.590	400	400	379	379	380	385	371	371	356	352	359	361
27.690	405	405	383	383	385	389	375	375	360	355	363	364
28.770	410	410	387	387	389	394	379	378	363	358	367	368
29.840	414	415	390	390	393	398	382	382	366	361	370	371
30.920	419	420	394	394	397	402	385	385	370	364	373	374
32.000	424	424	398	398	402	406	387	387	373	367	377	377
33.100	428	429	401	401	406	411	391	391	376	370	380	380
34.180	432	433	405	405	410	415	394	394	379	373	383	383
35.250	434	434	408	408	414	419	398	398	382	376	386	386
36.330	435	435	412	411	418	423	402	401	385	379	389	388
37.380	437	437	415	415	422	427	405	405	388	381	392	391
38.470	440	439	418	418	425	431	409	409	390	384	395	394
39.550	442	442	421	421	429	434	413	412	393	386	397	397
40.640	445	444	424	424	433	438	416	416	396	389	400	400
41.720	448	447	427	427	436	441	420	419	399	392	403	403
42.800	451	451	430	430	439	444	423	423	402	394	406	406
43.880	454	454	433	432	443	447	427	426	404	397	409	409
44.950	457	457	436	435	446	450	430	429	407	400	412	412
46.050	460	460	438	437	449	453	433	433	410	402	415	415
47.120	464	464	441	440	452	456	437	436	413	405	419	418
48.190	467	467	444	442	456	459	440	439	416	408	422	421
49.270	470	470	446	444	458	462	443	443	418	410	425	424
50.350	474	474	448	447	461	465	446	446	421	413	428	427
51.410	477	477	450	449	464	468	450	449	424	416	432	430
52.500	481	481	453	452	467	471	453	452	427	419	435	433
53.580	484	484	455	454	470	474	456	455	429	421	438	436
54.650	487	487	458	456	473	477	459	458	432	424	441	439
55.720	490	490	460	459	476	480	461	461	435	427	445	442
56.790	493	494	462	461	479	482	464	464	437	429	448	444
57.870	496	497	465	463	482	484	467	467	440	432	452	447
58.960	500	500	467	466	485	487	470	469	443	434	455	450
60.030	502	503	469	468	488	490	473	472	445	437	458	453
61.100	505	506	471	470	490	492	476	475	448	439	461	456
62.190	508	509	474	472	493	495	478	478	450	442	465	458
63.270	511	512	476	475	496	497	481	480	453	444	468	461
64.350	514	515	478	477	498	500	484	483	455	447	471	464
65.450	517	517	480	479	501	502	486	486	458	449	474	466
66.520	520	520	483	481	504	505	489	488	460	452	477	469
67.570	522	523	485	483	506	507	491	491	463	454	480	471
68.660	525	525	487	485	508	509	494	493	465	456	483	474
69.740	527	528	489	487	511	512	496	495	468	459	486	476
70.820	530	531	491	489	513	514	499	498	470	461	489	479
71.900	532	533	493	491	516	516	501	500	472	463	492	481
72.990	535	536	495	493	518	518	503	503	475	466	495	484
74.070	537	538	497	495	520	521	506	505	477	468	498	486
75.150	540	541	499	497	523	523	508	507	479	470	500	488
76.240	542	543	500	499	525	525	510	510	482	473	503	491
77.320	544	545	502	501	527	527	512	512	484	475	506	493
78.410	547	548	504	502	530	529	515	514	486	477	508	495
79.490	549	550	506	504	532	531	517	516	488	479	511	497
80.560	551	552	508	506	534	533	519	518	490	481	514	499
81.640	553	555	510	508	536	535	521	520	492	483	516	501
82.720	555	557	511	510	538	537	523	522	494	485	519	504
83.780	557	559	513	511	540	539	525	525	496	487	521	506
84.850	559	561	514	514	542	541	527	527	498	489	524	508
85.920	561	563	516	514	544	543	529	529	500	491	526	510
86.990	563	565	518	516	546	545	531	530	502	493	529	511
88.070	565	567	519	517	548	546	533	533	504	494	531	513
89.160	567	569	521	519	550	548	535	535	506	496	534	516
90.240	569	571	522	520	552	550	537	536	508	498	536	517
91.320	571	573	524	522	554	552	539	538	510	500	538	519
92.400	573	575	525	523	556	553	541	540	512	502	541	521
93.470	574	577	527	525	558	555	543	542	514	504	543	523
94.560	576	578	528	526	559	557	545	544	516	505	545	525
95.640	578	580	530	527	561	558	547	546	517	507	548	527
96.740	579	582	531	529	563	560	549	548	519	509	550	529
97.830	581	583	532	530	565	561	550	549	521	510	552	530
98.890	583	585	534	531	566	563	552	551	523	512	555	532
99.970	584	586	535	533	568	565	554	553	524	514	557	534
101.060	586	588	536	534	569	566	555	555	526	515	559	536
102.130	588	590	538	535	571	568	557	556	528	517	561	537
103.200	589	591	539	536	572	569	559	558	530	518	563	539
104.300	590	592	540	538	574	571	561	560	531	520	565	541
105.340	592	594	541	539	576	572	562	561	533	521	567	542
106.420	593	595	543	540	577	573	564	563	534	523	569	544
107.500	594	597	544	541	578	575	565	564	536	524	572	546
108.590	595	597	545	542	580	576	567	566	538	526	573	547
109.690	596	598	546	543	581	577	568	567	539	527	575	549
110.750	596	598	547	544	582	578	569	568	541	529	577	550
111.840	596	598	548	545	583	579	570	569	542	530	578	551
112.910	596	597	548	545	583	579	570	569	542	530	578	551
113.990	595	596	548	545	583	579	570	569	543	531	578	551
115.070	594											

TABLE 29. - BACK SURFACE TEMPERATURE HISTORIES FOR AFTERBODY MODELS. COATINGS D-4, A-2; MODEL P-5.

Time, sec	Temperature in degrees Kelvin for coating D-4 at thermocouple positions (see fig. 2) -						Temperature in degrees Kelvin for coating A-2 at thermocouple positions (see fig. 2) -					
	1-a	1-b	2-a	2-b	3-a	3-b	1-a	1-b	2-a	2-b	3-a	3-b
0.000	300	300	300	300	300	300	300	300	299	300	300	300
0.300	300	300	300	300	300	300	300	300	300	298	300	300
1.650	301	301	300	301	301	301	300	300	300	298	300	300
3.000	303	304	303	305	303	304	301	300	300	298	300	300
4.360	309	309	308	312	308	309	302	302	301	299	301	301
5.730	316	316	315	320	314	316	304	304	303	301	303	303
7.100	324	324	323	329	322	324	307	307	305	303	306	306
8.450	333	333	331	339	330	332	311	310	308	307	308	309
9.800	342	343	339	349	338	341	315	314	311	310	312	312
11.170	352	353	347	358	346	350	319	319	314	313	315	315
12.520	362	362	356	368	355	359	324	323	318	317	319	319
13.880	372	372	364	377	363	368	329	328	322	320	324	323
15.230	381	382	373	386	372	377	334	333	326	325	328	328
16.580	391	391	380	395	380	386	339	338	330	330	333	332
17.950	400	401	388	403	388	395	344	343	334	335	337	337
19.320	409	410	396	412	396	403	349	348	339	339	342	342
20.680	418	419	403	420	404	411	355	353	343	344	347	347
22.030	427	428	411	428	412	419	360	358	348	348	352	352
23.400	435	436	418	436	419	427	365	364	351	354	356	356
24.770	444	445	425	443	427	434	371	370	355	358	360	361
26.120	452	453	432	450	434	442	376	375	359	363	364	366
27.470	459	460	438	457	441	449	382	381	364	367	368	371
28.820	467	468	445	464	448	456	388	387	368	372	372	376
30.170	474	476	451	470	455	462	394	393	372	377	376	381
31.520	482	483	457	477	462	470	400	399	376	381	381	385
32.870	489	490	463	483	468	477	406	405	381	385	385	390
34.230	495	497	469	489	475	484	413	411	385	387	389	395
35.580	502	504	474	496	481	490	419	417	389	391	394	400
36.930	509	510	480	502	487	496	425	423	393	395	399	405
38.280	515	516	486	507	493	502	430	429	397	400	403	410
39.650	522	523	491	513	499	508	436	435	402	404	408	415
41.010	528	529	497	519	504	514	442	440	406	409	413	420
42.360	534	535	502	525	509	520	447	446	410	413	418	425
43.690	540	541	507	530	515	526	453	453	414	419	422	430
45.030	546	547	512	536	520	531	459	458	419	423	427	435
46.400	552	553	517	541	525	537	464	464	423	428	431	440
47.730	557	558	522	547	529	542	470	469	427	432	436	445
49.090	562	564	527	551	534	547	475	475	431	437	440	450
50.430	567	569	531	556	539	551	481	480	435	442	444	455
51.780	572	574	535	561	543	555	485	485	439	446	448	460
53.150	577	578	539	565	547	559	490	489	443	450	452	465
54.520	581	582	542	568	550	562	493	492	446	454	456	469
55.880	583	585	545	569	552	564	494	494	449	457	459	473
57.230	585	586	546	570	553	565	495	494	451	459	461	475
58.600	586	588	547	570	554	566	495	494	453	461	463	477
59.960	587	588	547	569	554	566	495	494	454	463	464	479
61.320	587	588	547	568	554	565	494	494	455	464	465	480
62.680	586	588	546	567	553	565	493	493	455	464	466	480
64.020	586	587	545	565	552	564	492	492	455	464	467	480
65.370	585	586	544	563	551	562	491	491	455	464	467	480
66.720	583	584	542	561	550	561	490	490	455	464	467	480
68.090	582	583	541	558	549	559	489	489	455	463	467	479
69.430	580	581	539	556	547	558	488	489	454	463	467	478
70.780	578	579	537	554	545	556	487	487	453	462	466	478
72.130	577	577	535	551	544	554	486	486	453	461	466	477
73.500	575	575	533	549	542	553	485	485	452	460	465	476
74.870	573	573	531	547	540	551	484	484	451	459	464	474
76.220	571	571	530	544	539	549	483	483	450	458	464	473
77.570	569	569	528	542	537	547	481	482	449	456	463	472
78.920	567	567	526	540	535	545	480	481	448	455	462	471
80.280	565	565	524	537	533	543	479	479	446	454	461	470
81.650	562	563	522	535	531	542	478	478	445	453	460	468
83.000	560	561	520	533	529	540	477	477	444	451	459	467
84.350	558	559	518	531	528	538	475	476	443	450	458	466
85.730	556	557	516	528	526	536	474	475	442	449	457	464
87.100	554	555	514	526	524	534	473	473	440	447	456	463
88.470	552	552	512	524	522	532	472	472	439	446	455	461
89.810	550	550	510	522	520	531	470	471	438	445	454	460
91.180	548	548	508	520	519	529	469	470	437	443	453	459
92.550	545	546	506	518	517	527	468	468	435	442	451	457
93.920	543	544	504	516	515	525	467	467	434	441	450	456
95.270	541	542	502	513	513	524	465	466	433	439	449	455
96.610	539	540	500	511	512	522	464	464	432	438	448	453
97.970	537	538	498	509	510	520	463	463	430	436	446	452
99.320	535	536	496	507	508	518	462	462	429	435	445	451
101.530	532	533	493	504	505	516	459	460	427	433	443	448
102.770	525	526	486	496	498	509	455	455	422	428	438	443
112.000	517	518	479	489	492	503	450	450	418	423	434	438
117.230	511	511	472	483	485	497	446	446	413	418	429	433
122.450	504	505	465	476	479	491	441	441	409	413	425	428
127.660	498	499	459	470	472	485	437	437	405	409	420	423
132.880	491	492	453	464	467	479	432	432	401	404	416	419
138.130	485	487	447	458	461	473	428	428	397	400	412	414
143.370	480	481	442	452	455	468	424	424	393	396	408	410
148.590	474	475	437	447	450	462	420	420	389	393	404	405
153.800	469	470	432	442	445	457	416	416	386	389	400	401
159.020	463	464	427	437	440	452	412	413	383	386	396	397
164.250	458	459	422	432	435	447	409	409	380	382	393	394
169.480	453	454	418	428	430	443	405	405	376	379	389	390
174.720	449	449	413	423	426	438	401	401	374	376	386	386
179.940	444	445	409	419	421	434	398	398	371	373	382	383
185.160	439	440	405	415	417	429	395	395	368	370	379	380
190.390	435	436	401	411	413	425	391	391	365	367	376	377
195.620	431	432	398	407	409	421	388	388	363	365	373	374
200.860	427	428	394	403	405	417	385	385	360	362	371	371
206.080	422	423	391	400	401	413	382	382	358	360	368	368
211.310	418	419	387	397	397	409	379	379	356	357	365	365
216.560	414	415	384	393	393	406	376	376	354	355	363	363
221.790	409	411	379	389	389	402	373	373	352	353	360	360
227.020	404	405	374	385	384	399	370	370	350	351	358	357
232.260	397	398	368	381	378	394	367	367	348	349	356	353
237.500	389	390	353	375	371	389	364	363	346	348	353	353
242.740	380	383	326	370	365	384	360	359	344	348	351	351
247.980	320	325	323	363	358	378	327	322	342	349	348	351
253.220	316	317	320	357	357	371	316	315	339	379	345	315

TABLE 30. - BACK SURFACE TEMPERATURE HISTORIES FOR AFTERBODY MODELS. COATINGS D-4, A-2; MODEL P-6.

Time, sec	Temperature in degrees Kelvin for coating D-4 at thermocouple positions (see fig. 2) -						Temperature in degrees Kelvin for coating A-2 at thermocouple positions (see fig. 2) -					
	1-a	1-b	2-a	2-b	3-a	3-b	1-a	1-b	2-a	2-b	3-a	3-b
0.000	300	300	300	766	300	300	300	300	300	300	300	300
0.220	300	300	300	*	300	300	300	300	300	300	300	300
1.290	300	300	300	*	300	300	300	300	300	300	300	300
2.390	303	303	302	*	302	302	300	300	300	300	300	300
3.470	308	308	305	*	305	305	301	301	301	301	300	300
4.550	315	314	310	*	315	309	302	302	301	301	301	301
5.640	322	321	316	*	315	314	303	303	302	303	302	302
6.730	330	329	322	*	322	320	306	306	304	304	304	303
7.820	338	337	329	*	328	327	308	308	306	306	305	305
8.920	347	346	336	*	335	334	311	311	307	308	307	307
10.010	355	355	343	*	342	341	314	314	310	310	309	309
11.090	364	363	350	*	349	348	317	317	312	312	312	311
12.170	372	371	357	*	356	355	320	320	314	315	314	313
13.240	380	379	364	*	363	362	324	324	317	317	317	316
14.330	388	388	370	*	371	369	327	328	319	320	320	318
15.420	396	395	377	*	378	376	331	331	322	323	322	321
16.510	403	403	384	*	384	383	335	335	325	326	325	324
17.590	*	*	*	*	*	*	342	342	329	331	332	331
18.670	811	*	*	*	*	*	347	347	332	335	338	334
19.750	*	*	*	*	*	*	353	353	336	340	343	338
20.840	*	*	*	*	*	*	358	358	340	343	348	342
21.940	*	*	*	*	*	*	363	363	343	347	353	346
23.050	*	*	*	*	*	*	368	368	347	351	358	350
24.120	*	*	*	*	*	*	371	371	350	352	359	353
25.200	*	*	*	*	*	*	374	374	353	355	361	355
26.290	867	844	882	893	*	877	376	376	355	357	364	357
27.380	795	752	810	825	900	800	378	378	358	359	366	359
28.470	732	680	749	767	844	738	379	380	360	361	369	362
29.570	678	621	697	718	795	685	381	382	363	363	371	364
30.670	633	574	652	675	751	639	383	384	365	365	373	366
31.740	595	536	615	639	712	601	384	385	367	366	375	368
32.820	564	503	582	606	676	567	386	387	368	367	377	369
33.910	535	469	550	567	640	532	387	388	369	369	378	371
34.990	511	442	522	535	608	503	388	389	370	370	379	372
36.080	489	422	499	509	581	480	389	390	371	371	380	373
37.180	471	408	481	491	559	463	390	390	372	372	381	374
38.250	456	396	465	476	540	449	390	390	373	372	382	375
39.330	442	384	449	459	521	436	390	391	373	372	383	376
40.430	428	374	435	442	503	422	390	391	374	373	383	376
41.500	417	365	421	426	486	410	390	391	374	373	384	377
42.600	406	358	406	410	469	398	390	391	374	373	384	377
43.700	395	352	393	398	454	389	390	390	374	373	384	377
44.780	387	347	383	387	440	382	389	390	374	373	384	377
45.870	379	344	374	378	427	376	389	389	374	373	385	377
46.950	371	341	366	371	415	371	388	389	374	372	385	377
48.050	365	338	360	364	405	367	388	388	374	372	385	377
49.150	356	332	353	356	394	360	385	385	373	370	384	376
50.250	346	327	343	346	382	354	381	381	371	368	382	374
51.350	334	324	332	334	370	344	377	377	368	364	380	372
52.450	328	324	327	328	358	338	373	373	365	361	378	370
53.550	324	322	323	324	346	333	368	368	362	357	375	367
54.650	322	321	321	322	334	329	364	364	359	354	373	364
55.750	320	319	319	320	323	326	361	361	356	350	370	361
56.850	318	318	318	318	319	321	357	357	353	347	367	358
57.950	317	316	317	317	319	321	354	354	350	344	364	356
59.050	316	315	315	315	318	319	351	351	347	341	362	353
60.150	315	314	314	314	316	318	348	348	344	338	359	350
61.250	314	313	313	313	315	316	345	345	342	336	356	347
62.350	313	312	313	312	314	315						

*Temperature readings off scale.

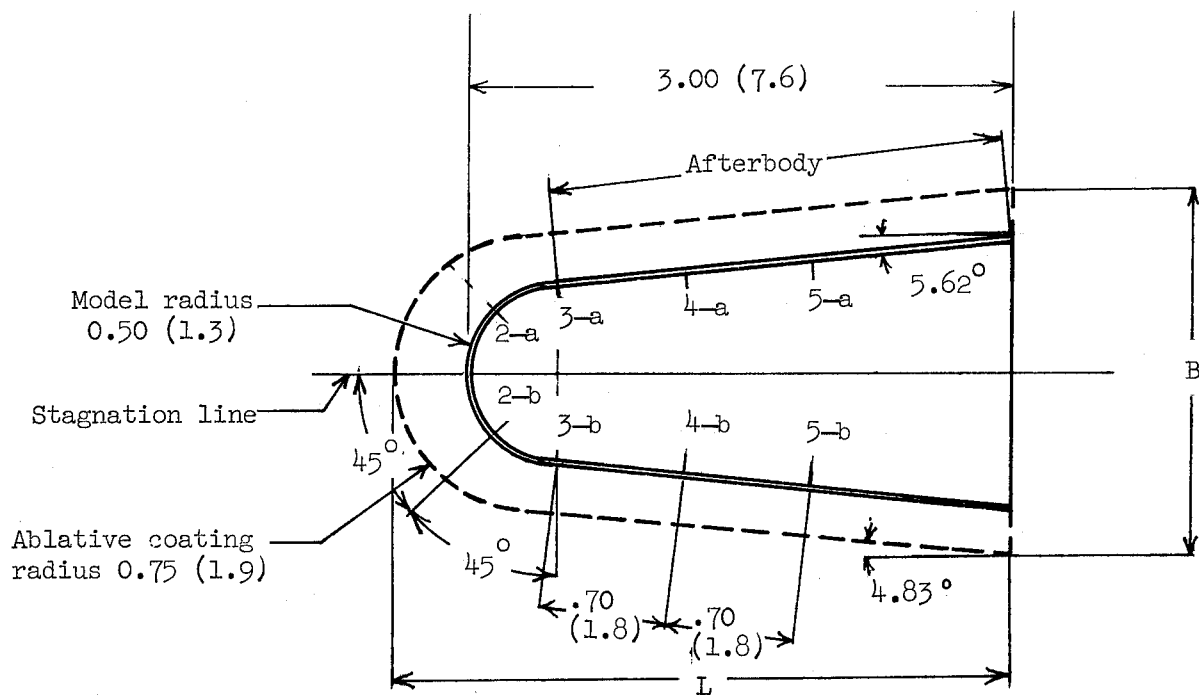
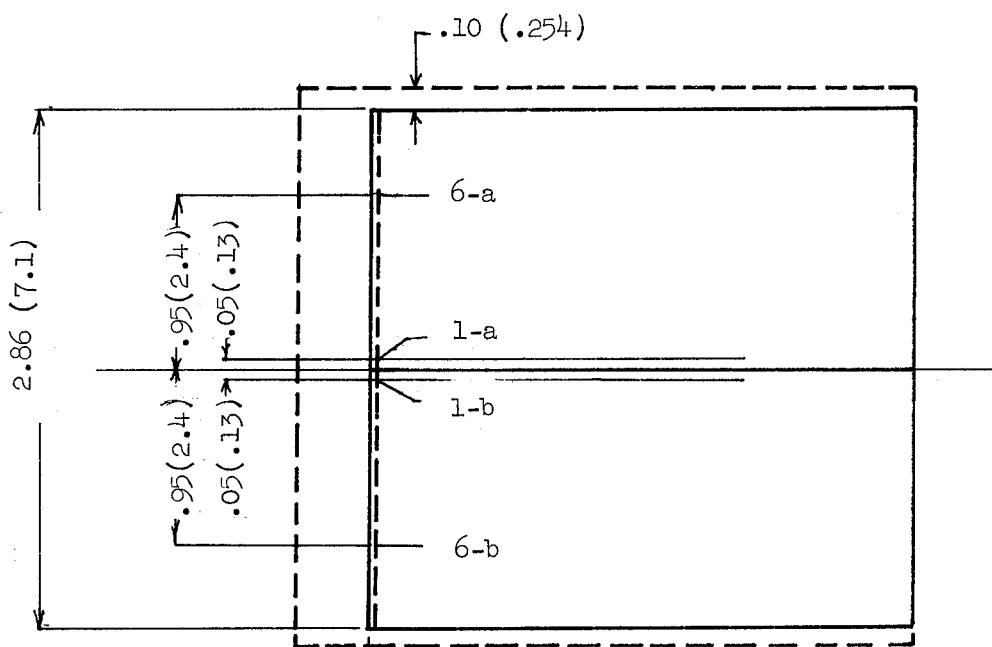


Figure 1.- Leading-edge model configuration and thermocouple positions. All dimensions are in inches (centimeters).

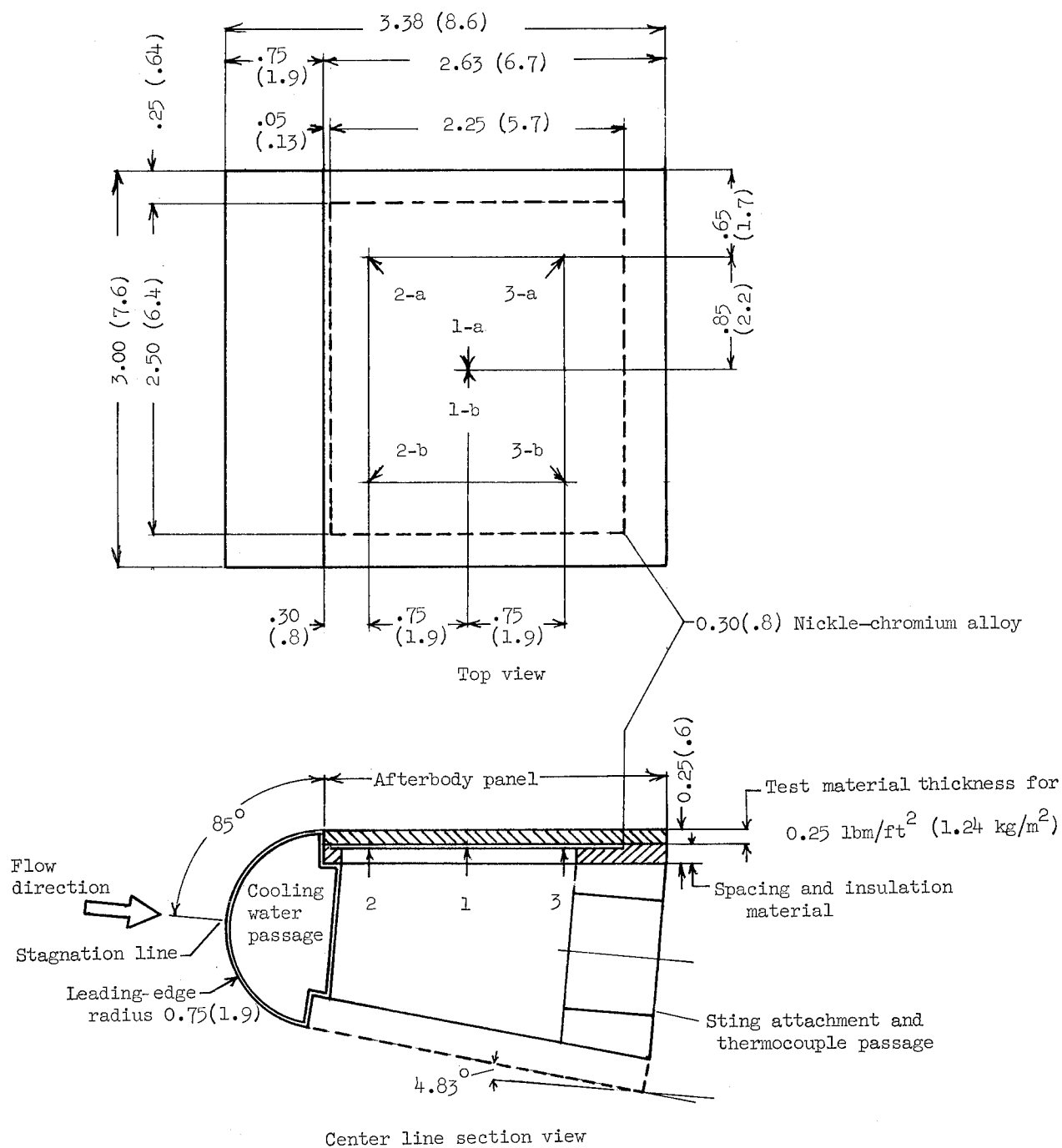


Figure 2.- Afterbody model configuration and thermocouple positions. All dimensions are in inches (centimeters).

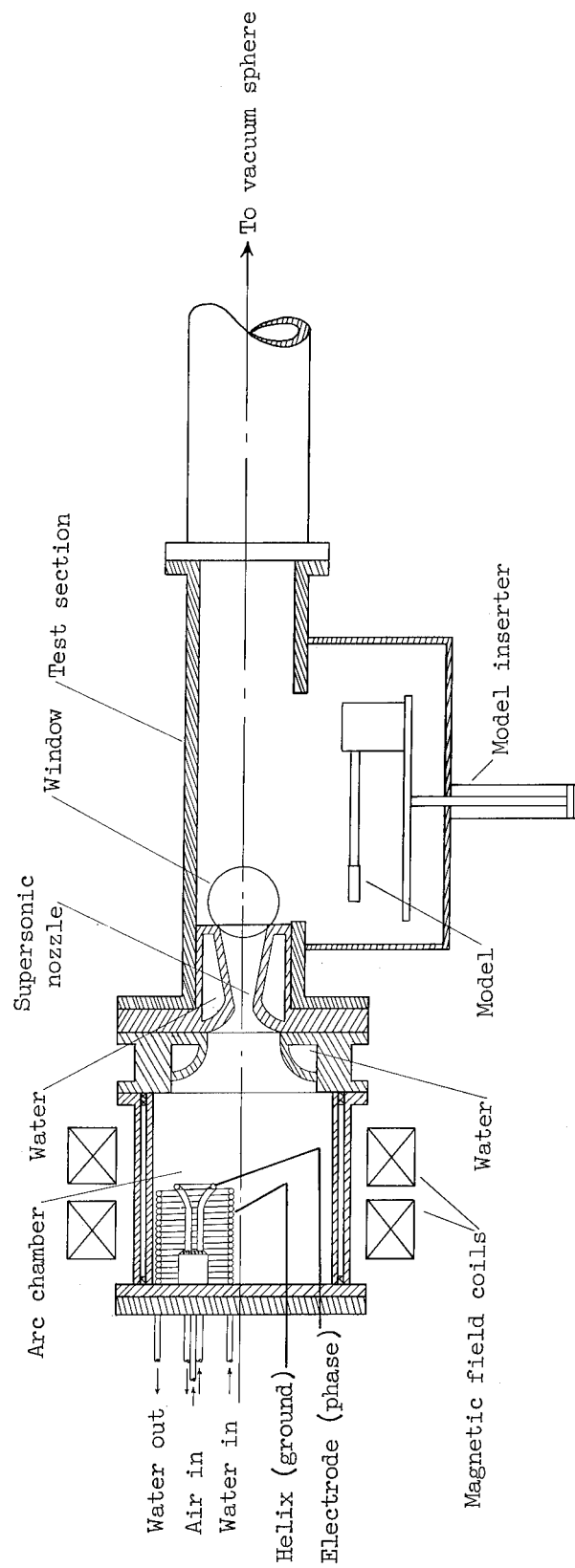


Figure 3.- Diagram of 2-inch supersonic arc tunnel at the Langley Research Center.

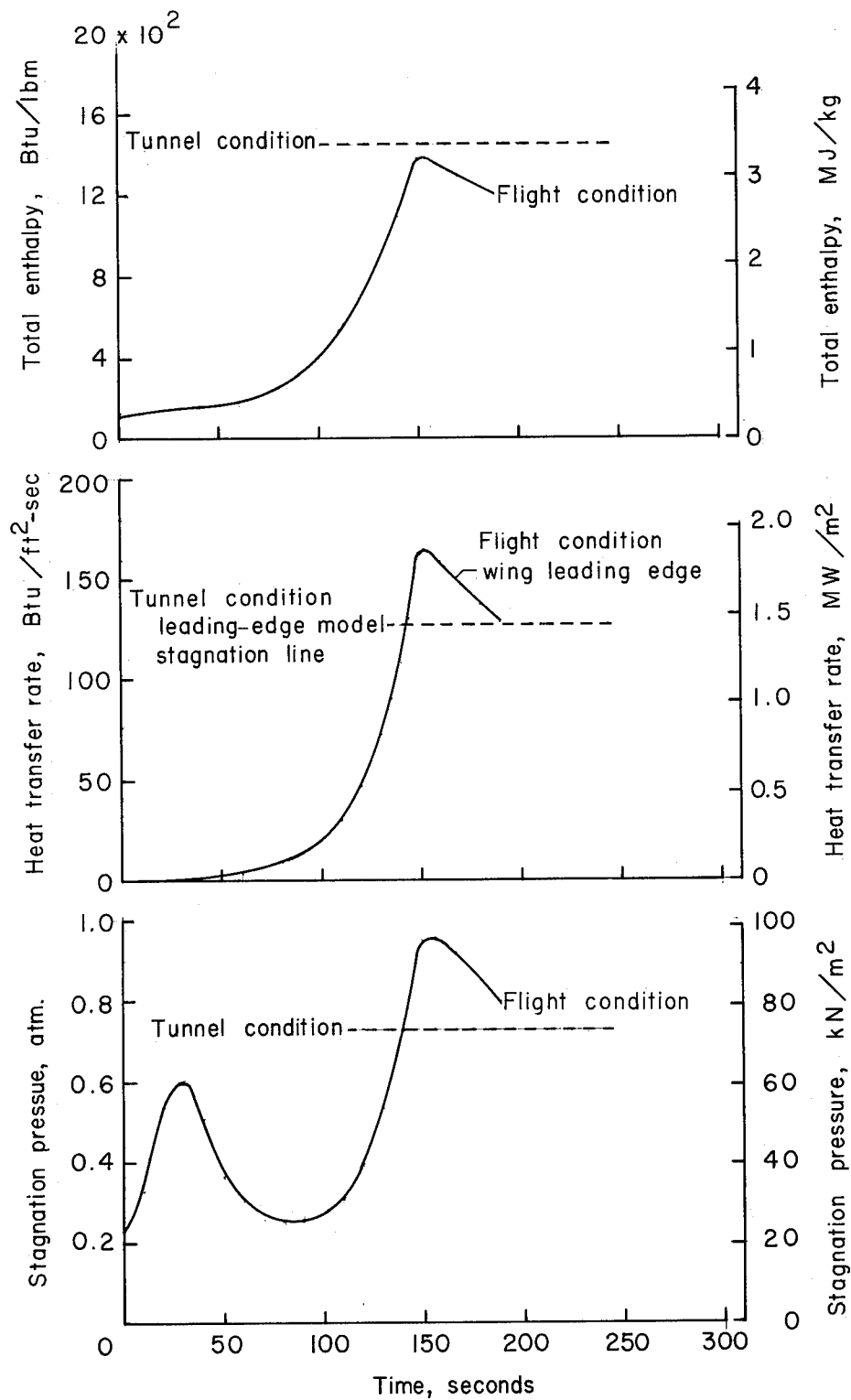


Figure 4.- Typical Mach 8 flight profile for X-15-2.

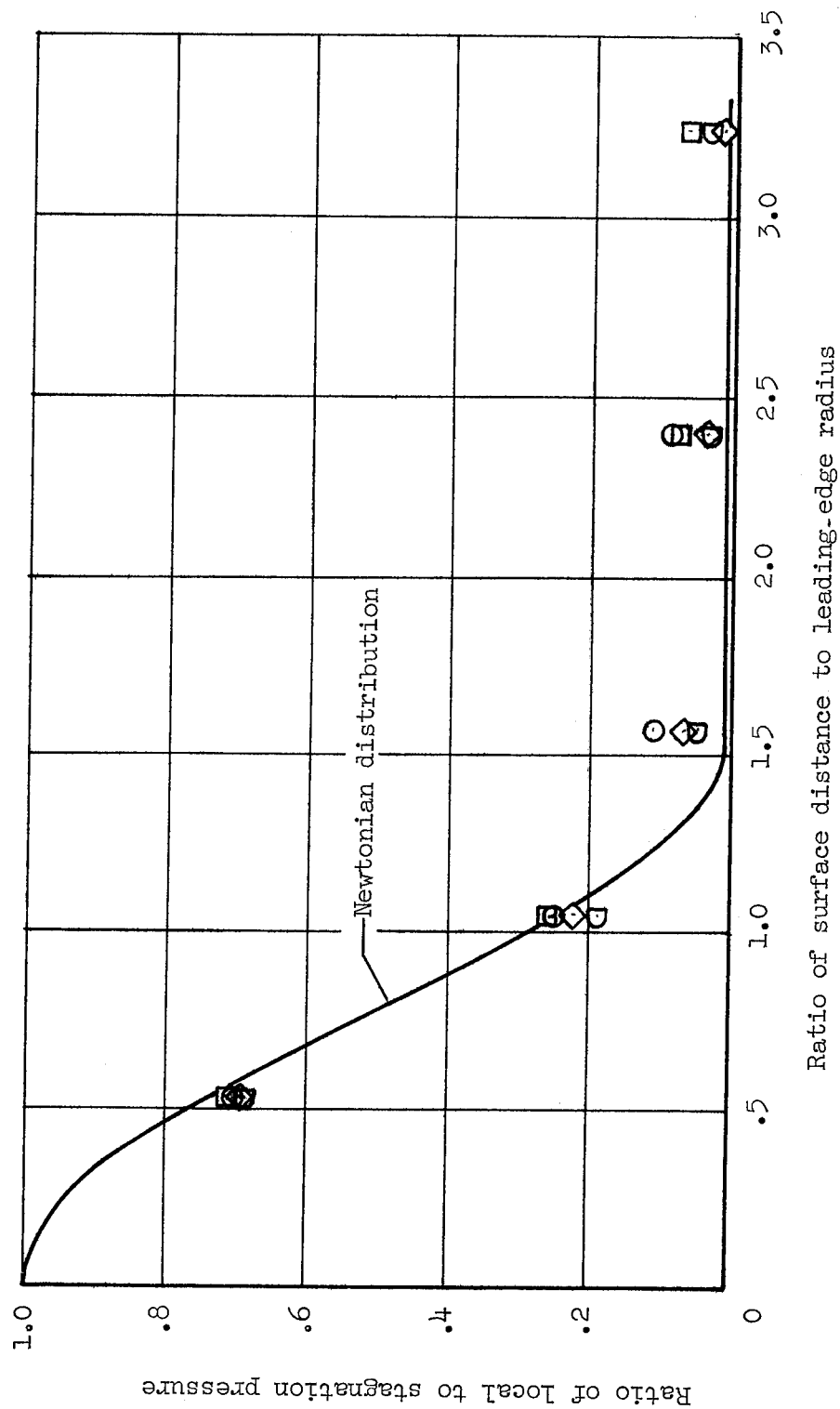


Figure 5.- Pressure distribution on calibration model center line (symbols indicate test data). Stagnation pressure: 0.73 atm (74 kN/m²).

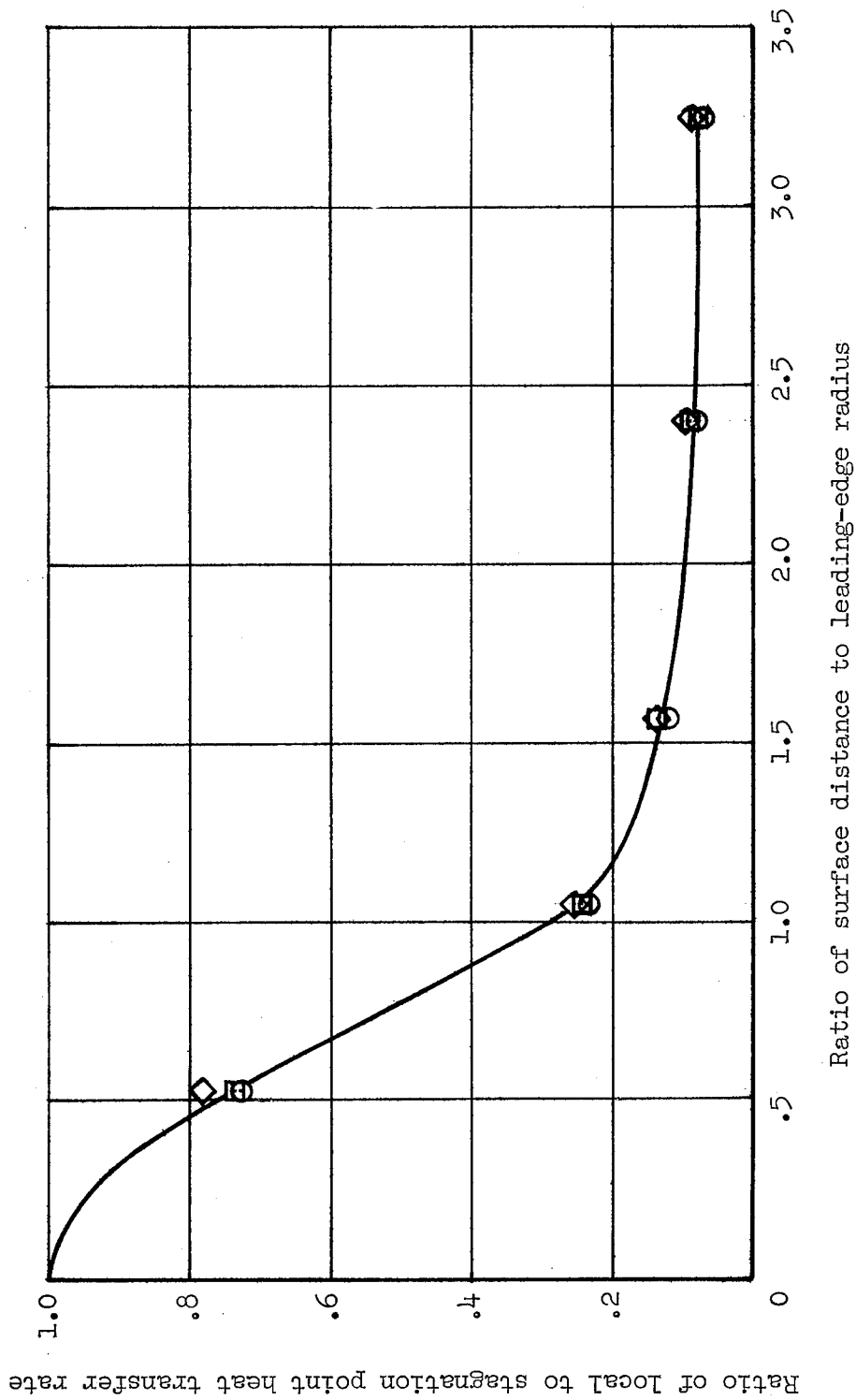
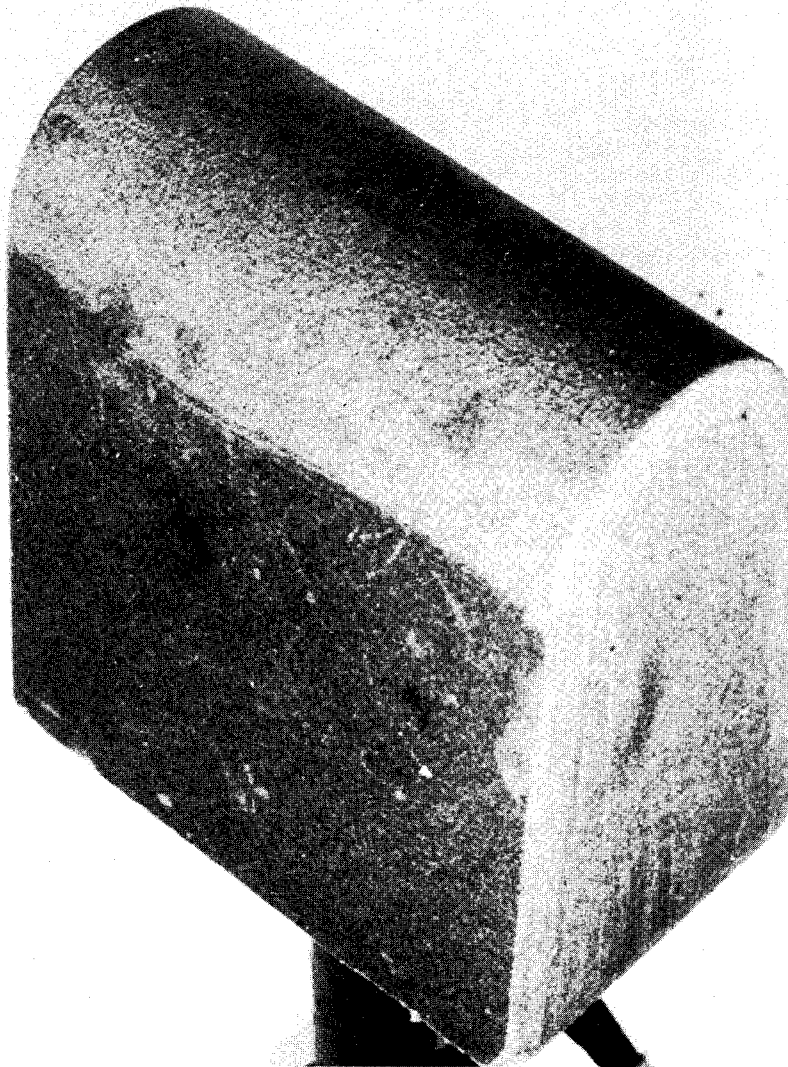


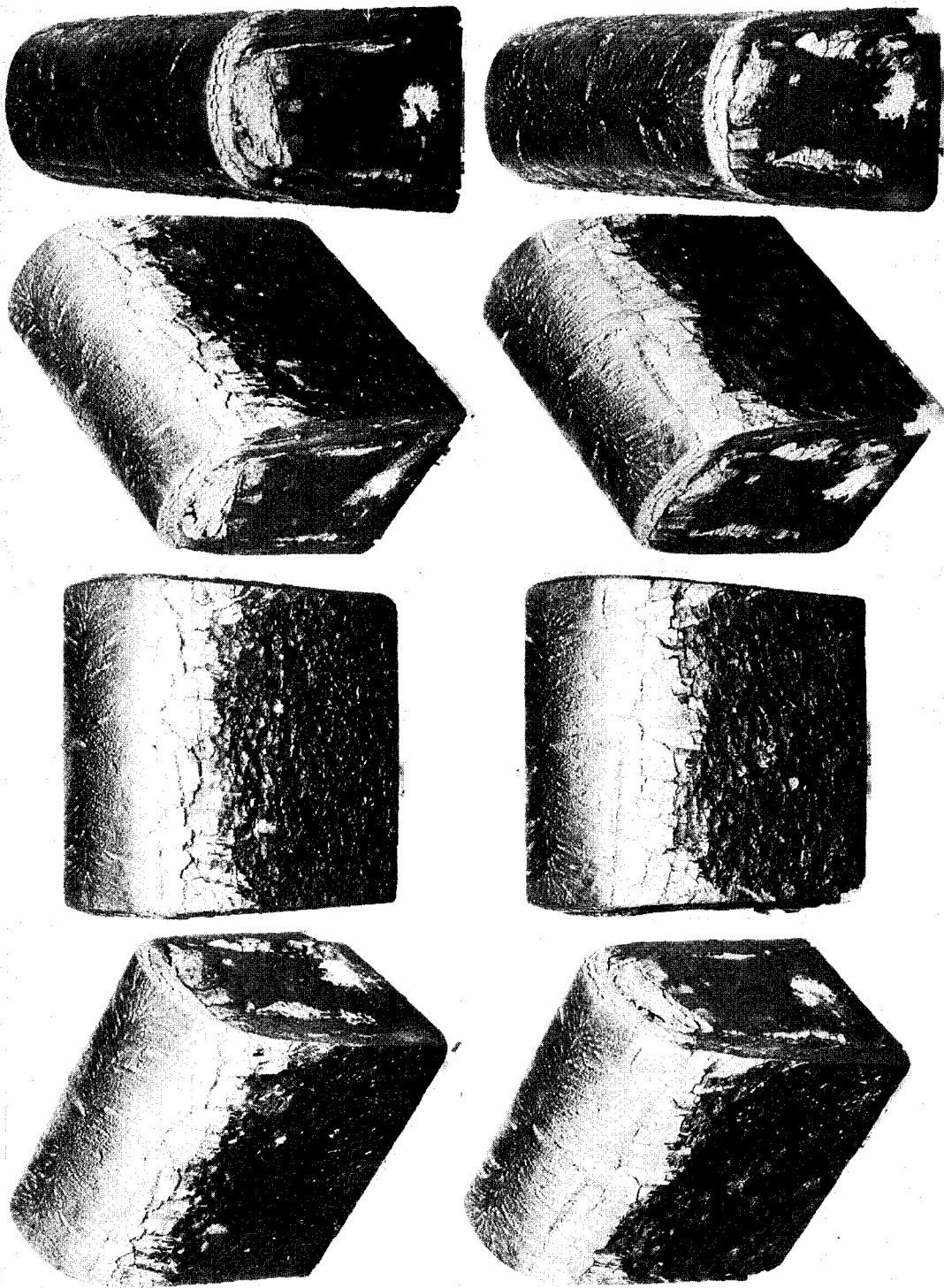
Figure 6.- Heat-transfer distribution on calibration model center line (symbols indicate test data). Stagnation point heat-transfer rate: 127 Btu/ft²-sec (1.44 MW/m²).



(a) Typical model before test.

L-66-4564

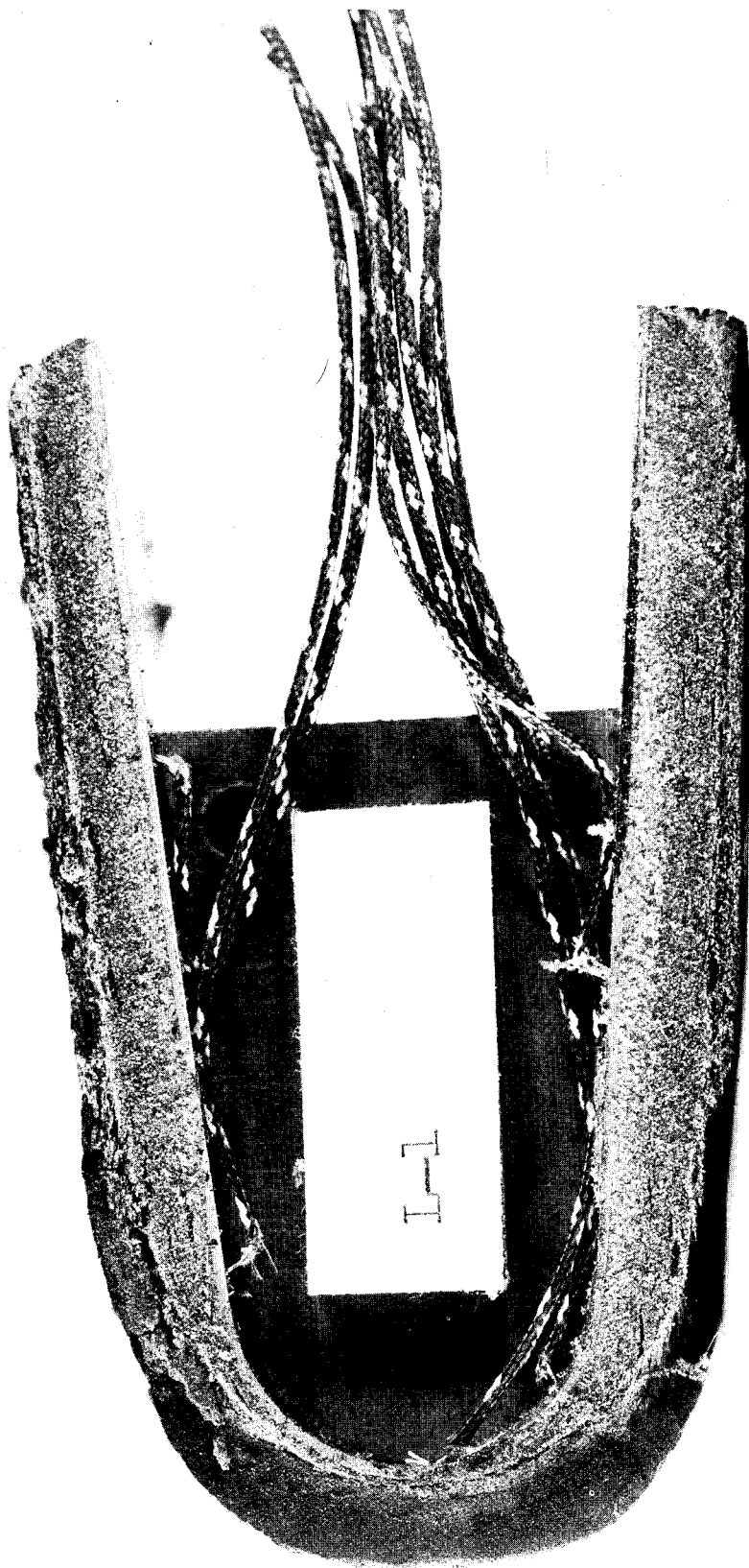
Figure 7.- Photographs of material A-1 on leading-edge models.



L-66-4565

(b) Model L-1 after test; eight exterior views.

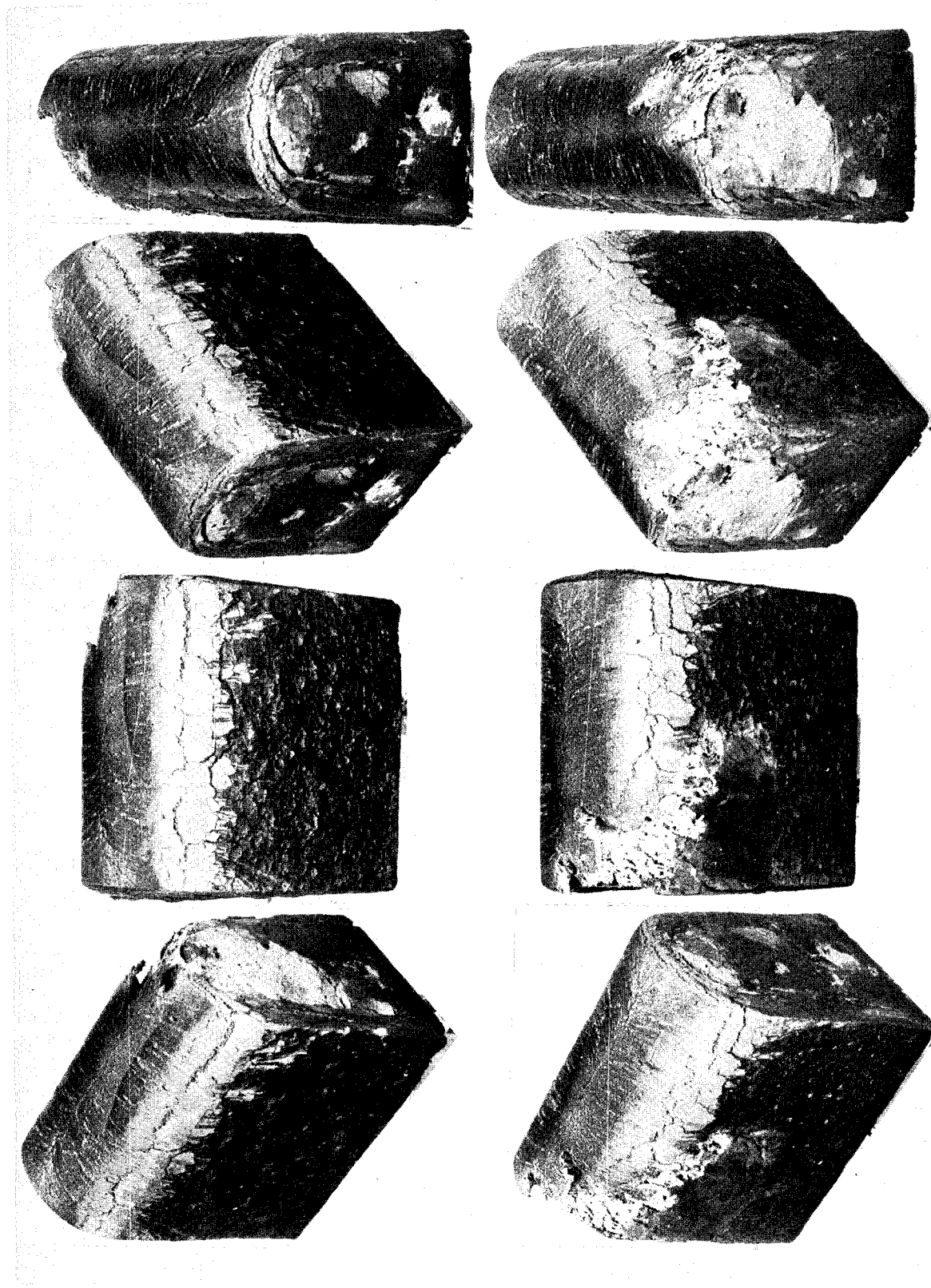
Figure 7.- Continued.



(c) Model L-1 after test; section view.

Figure 7.- Continued.

L-65-6395



L-66-4566

(d) Model L-2 after test; eight exterior views.

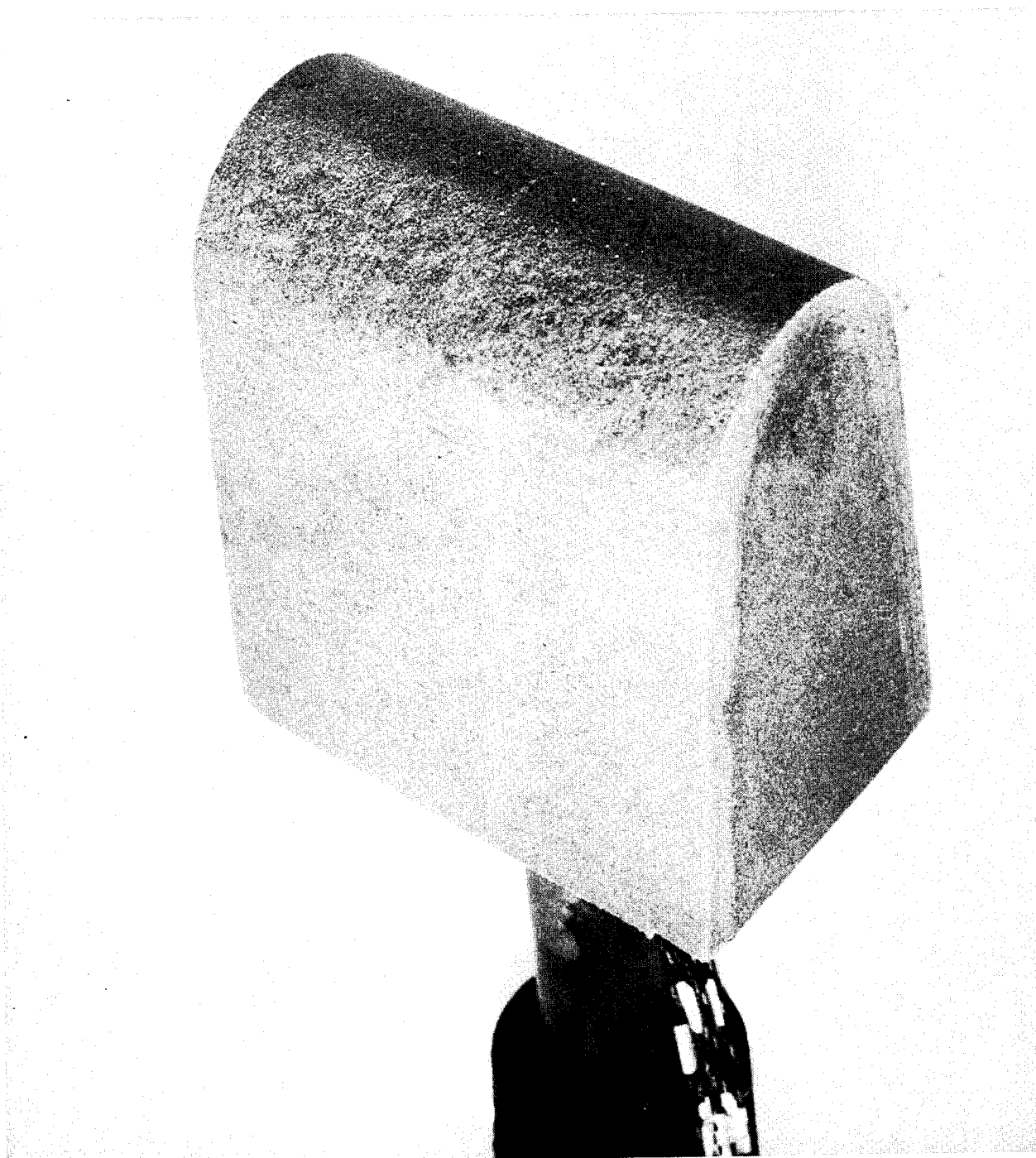
Figure 7.- Continued.



(e) Model L-2 after test; section view.

Figure 7.- Concluded.

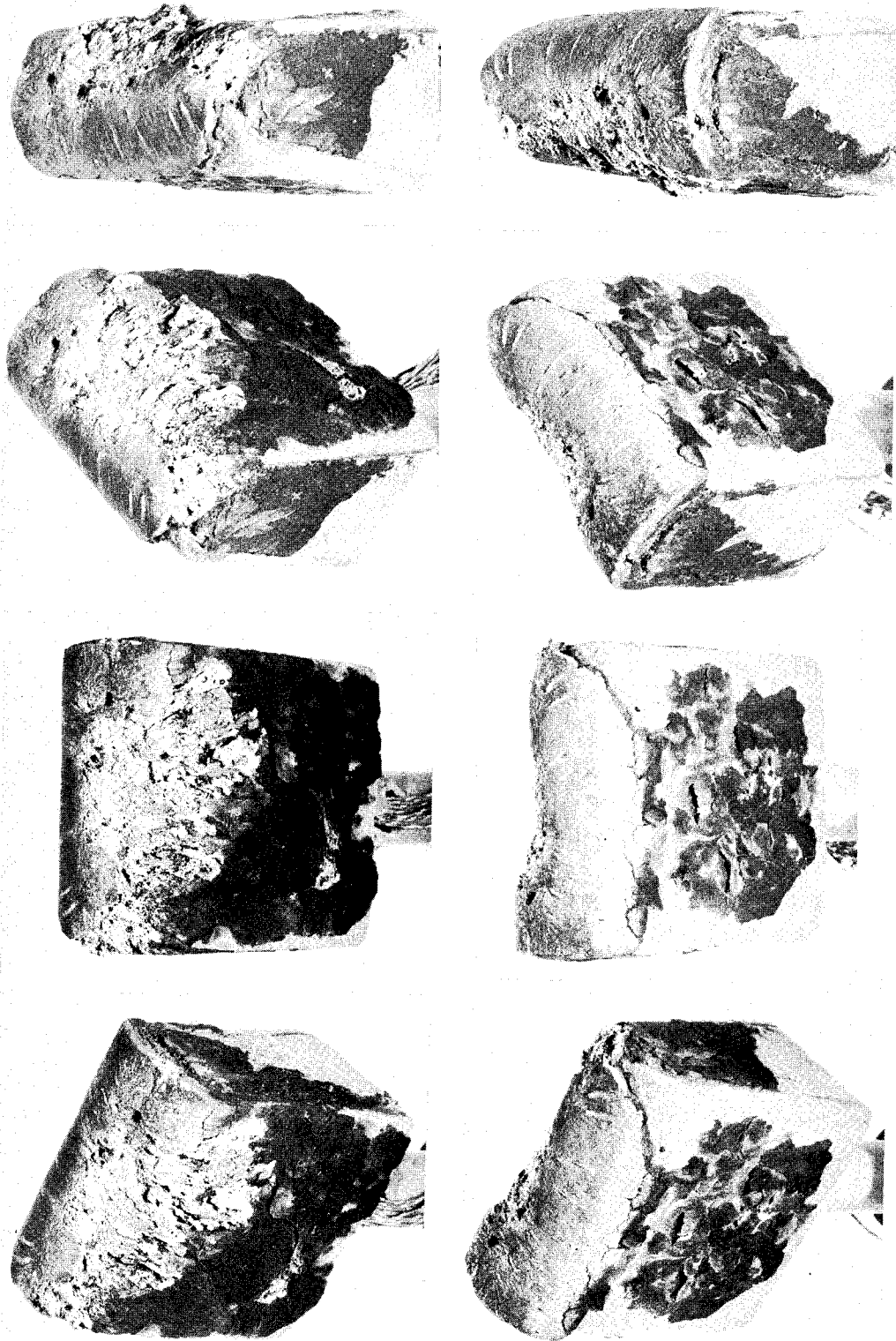
L-65-6408



(a) Typical model before test.

L-66-4567

Figure 8.- Photographs of material A-2 on leading-edge models.



(b) Model L-3 after test; eight exterior views.

Figure 8.- Continued.

L-66-4568



(c) Model L-3 after test; section view.

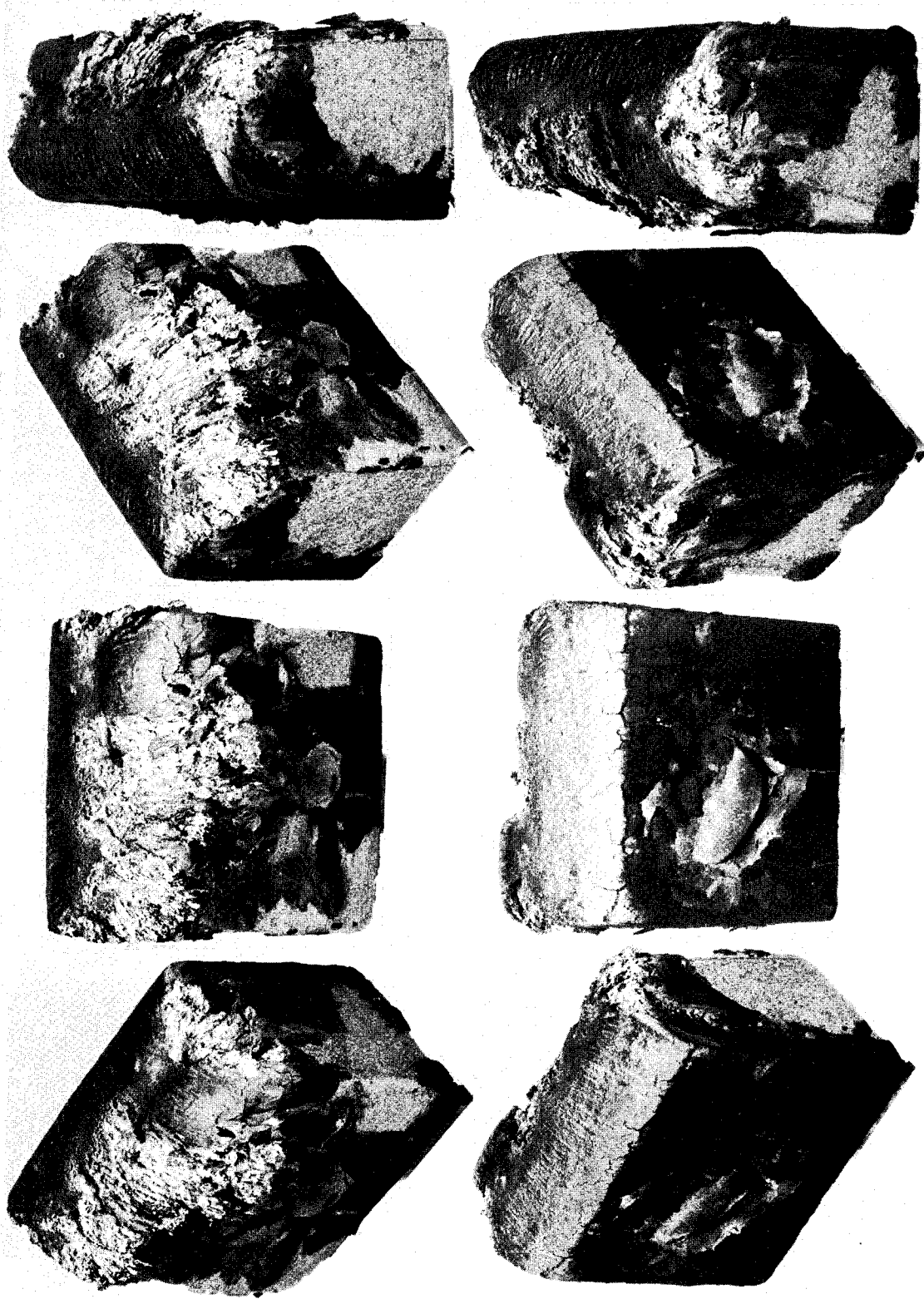
Figure 8.- Continued.

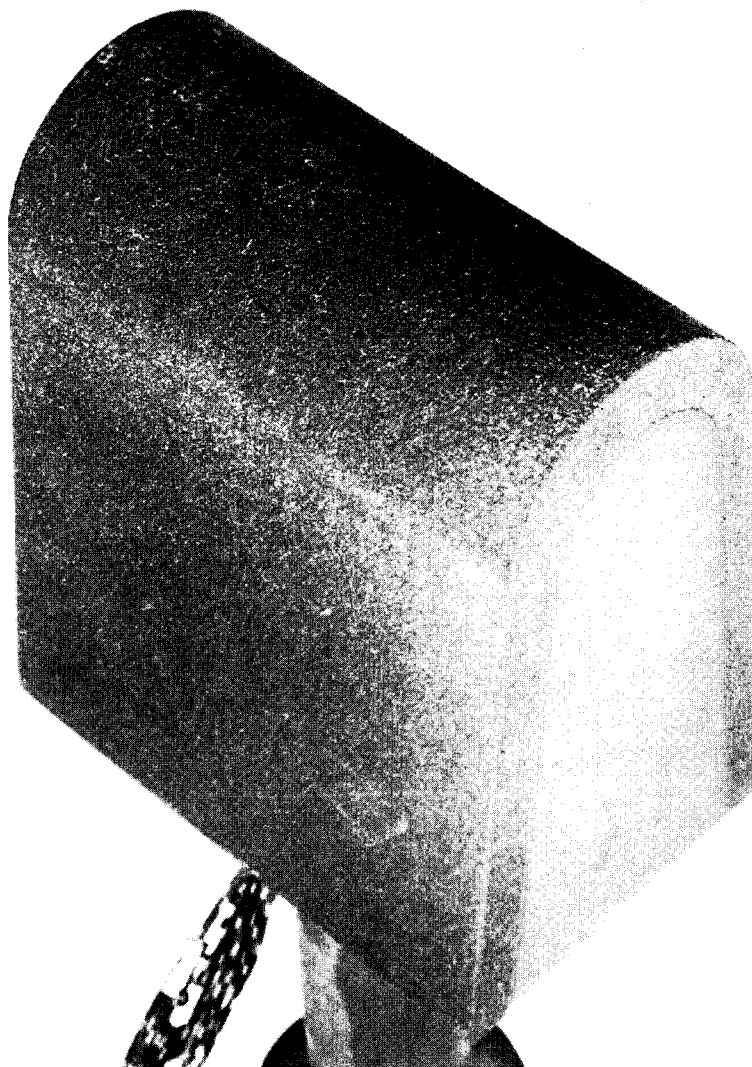
L-65-6385

L-66-4569

(d) Model L-4 after test; eight exterior views.

Figure 8.- Concluded.

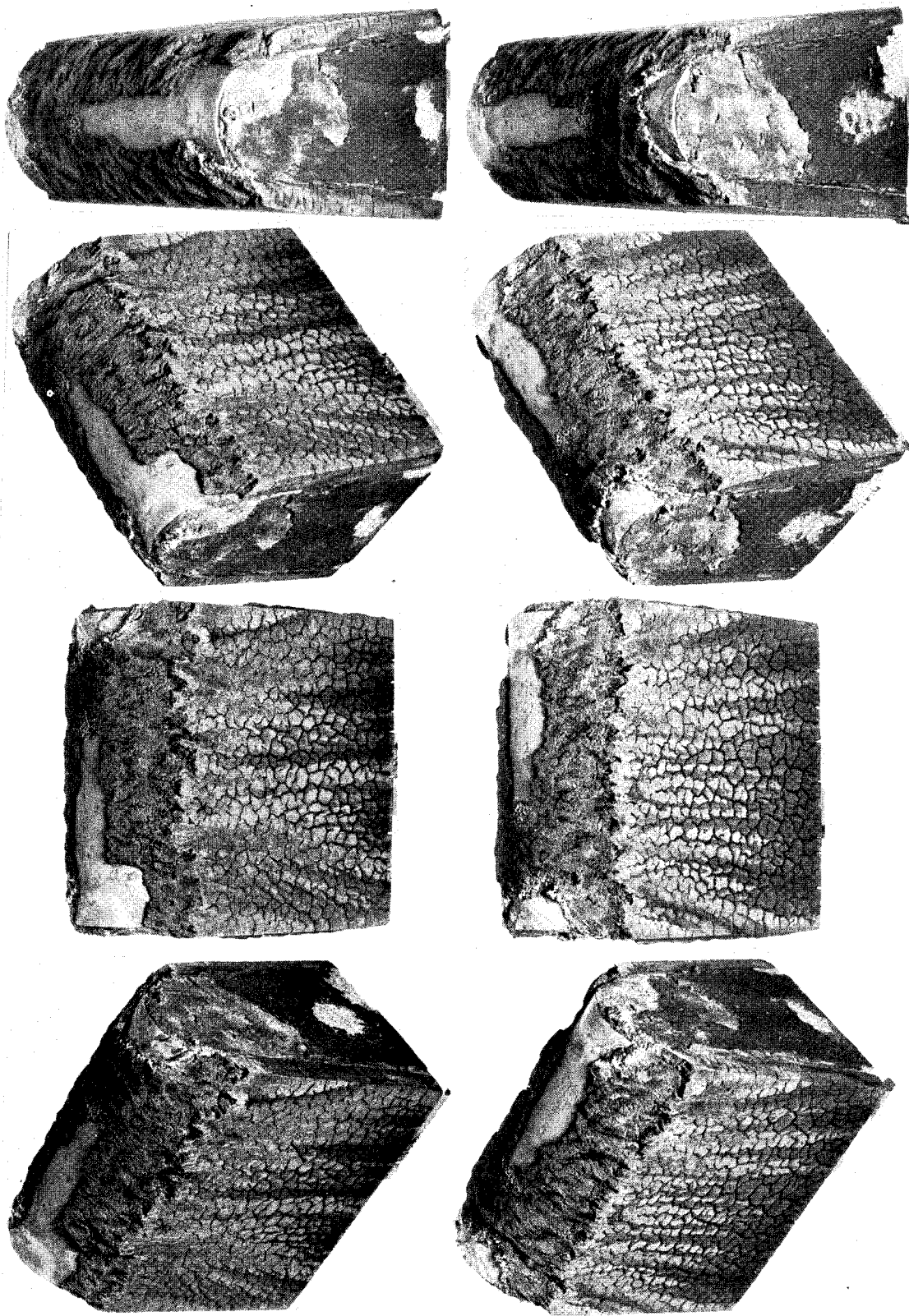




(a) Typical model before test.

L-66-4570

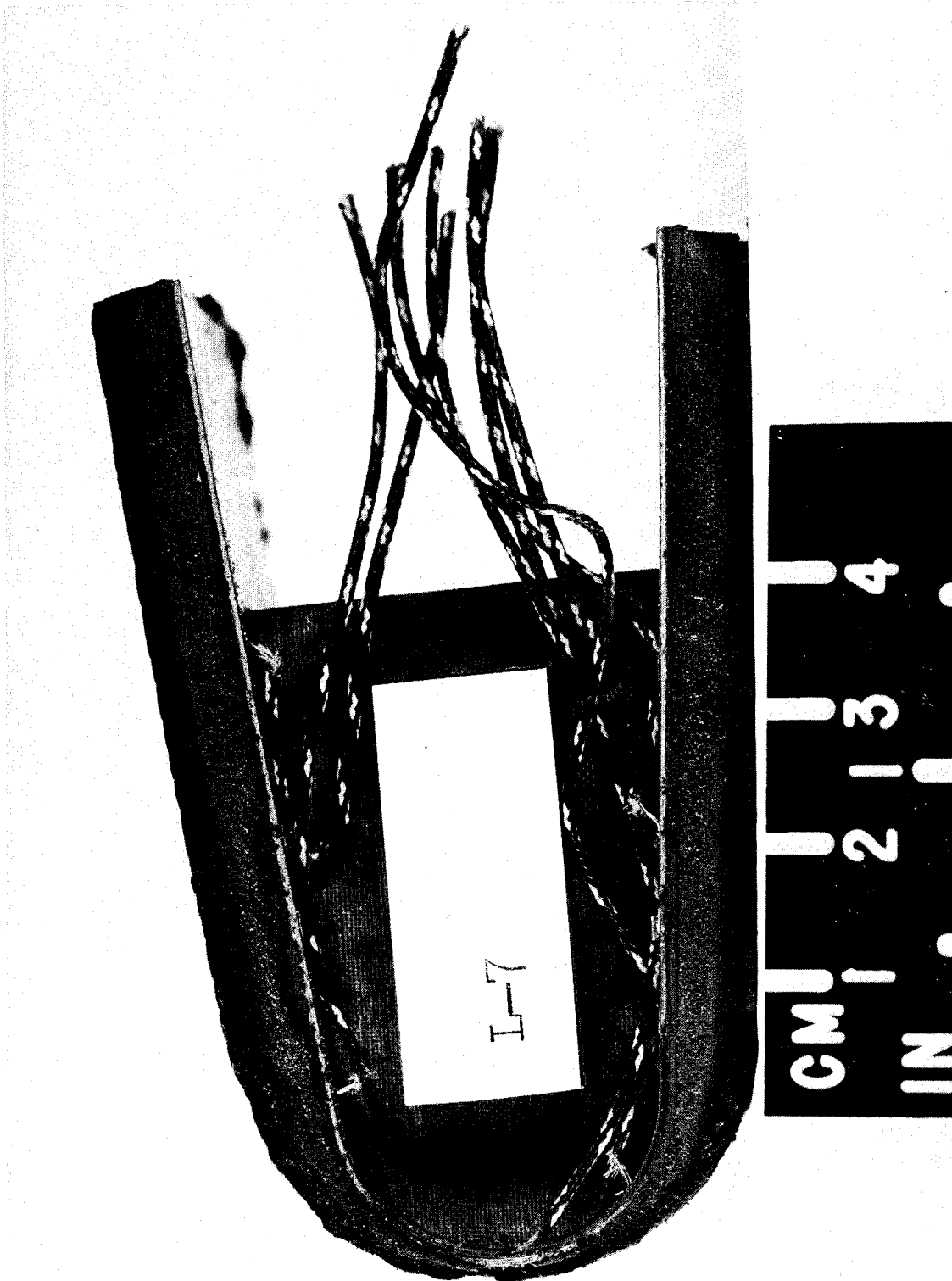
Figure 9.- Photographs of material A-3 on leading-edge models.



(b) Model L-7 after test; eight exterior views.

Figure 9.- Continued.

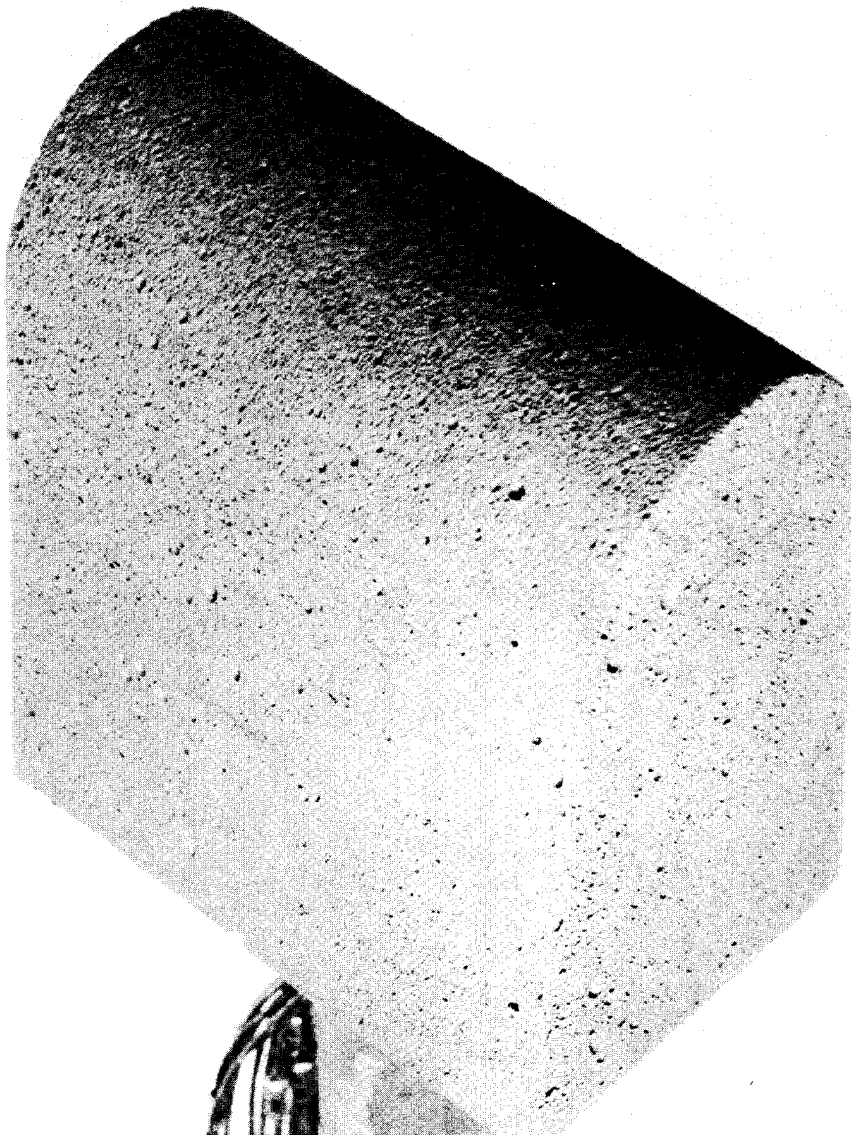
L-66-4571



L-65-6387

(c) Model L-7 after test; section view.

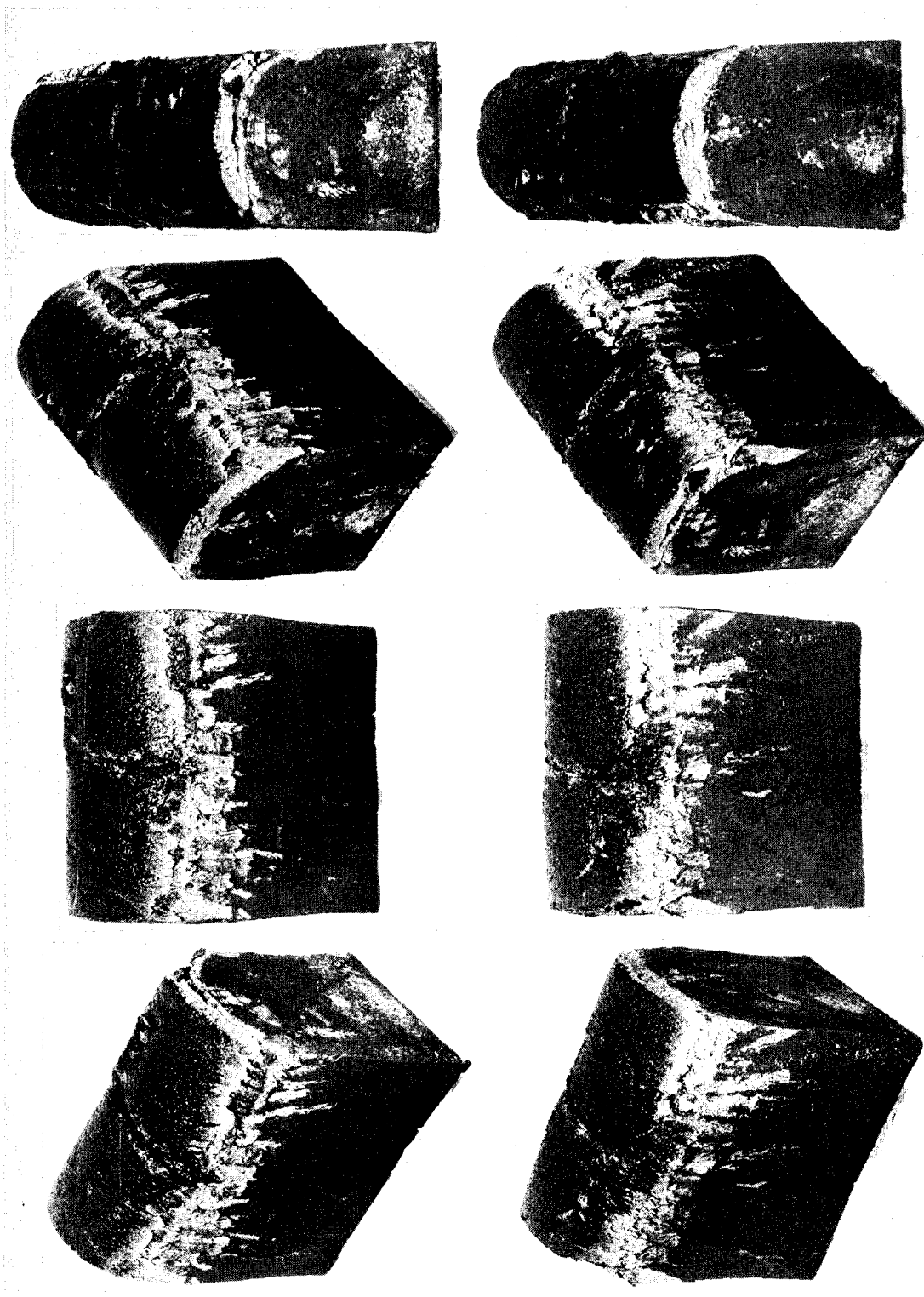
Figure 9.- Concluded.



(a) Typical model before test.

L-66-4572

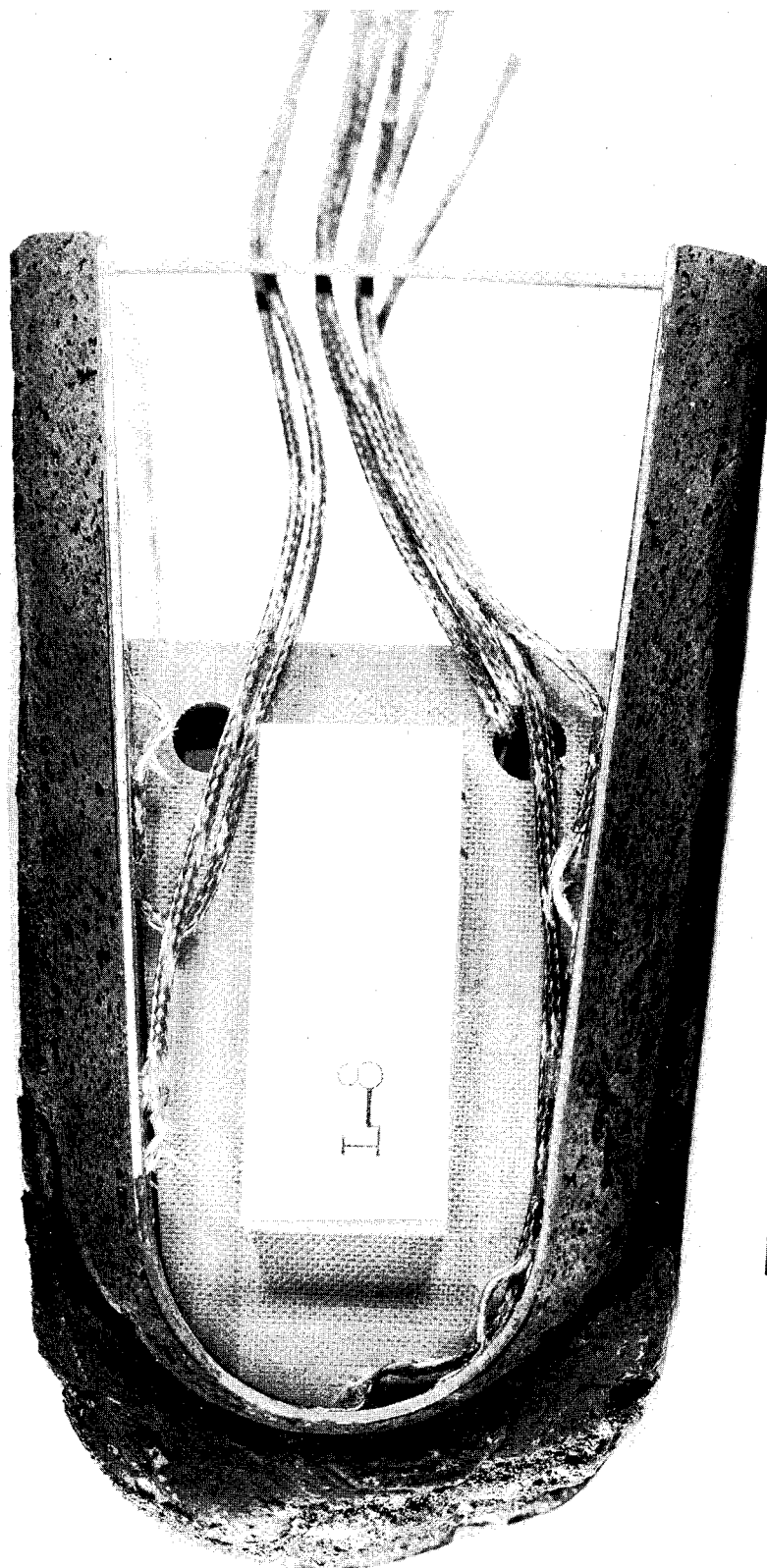
Figure 10.- Photographs of material B-1 on leading-edge models.



L-66-4573

(b) Model L-8 after test; eight exterior views.

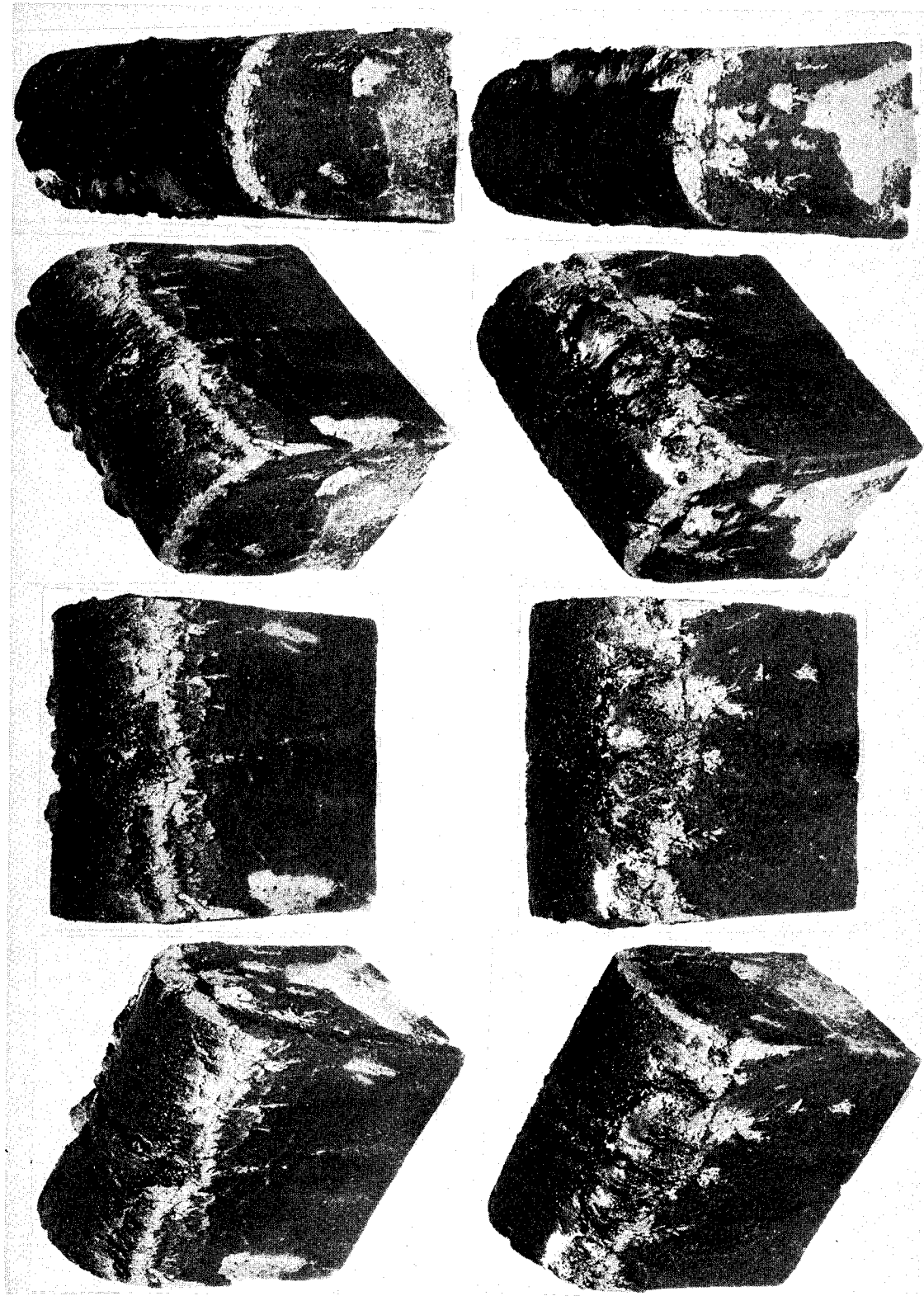
Figure 10.- Continued.



(c) Model L-8 after test; section view.

Figure 10.- Continued.

L-65-6380



L-66-4574

(d) Model L-9 after test; eight exterior views.

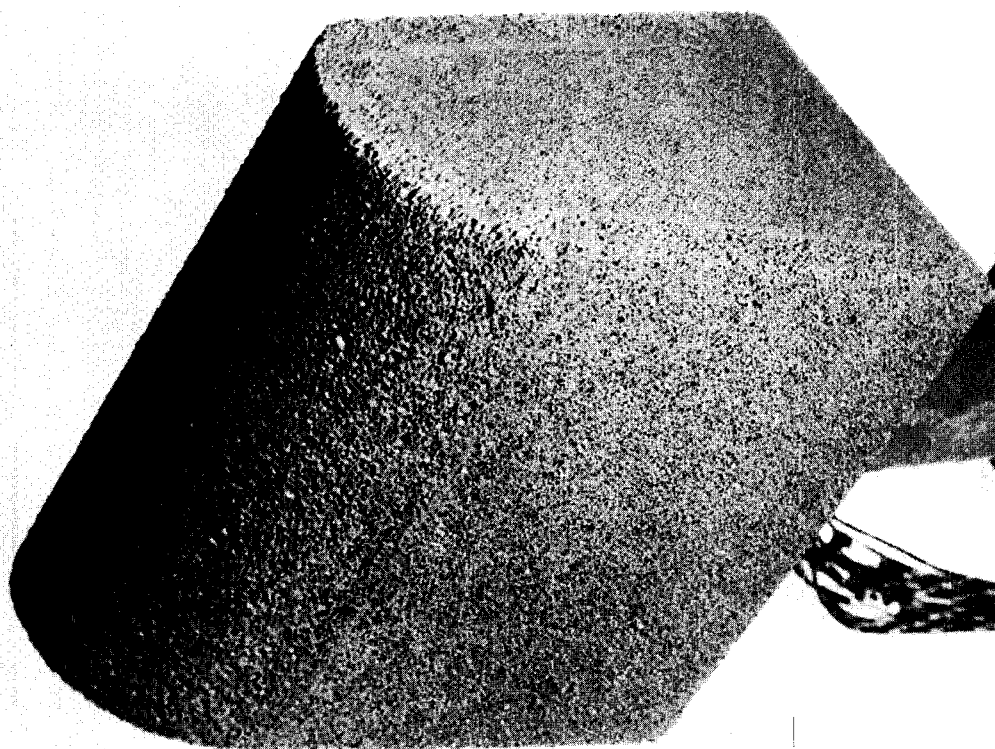
Figure 10.- Continued.



(e) Model L-9 after test; section view.

Figure 10.- Concluded.

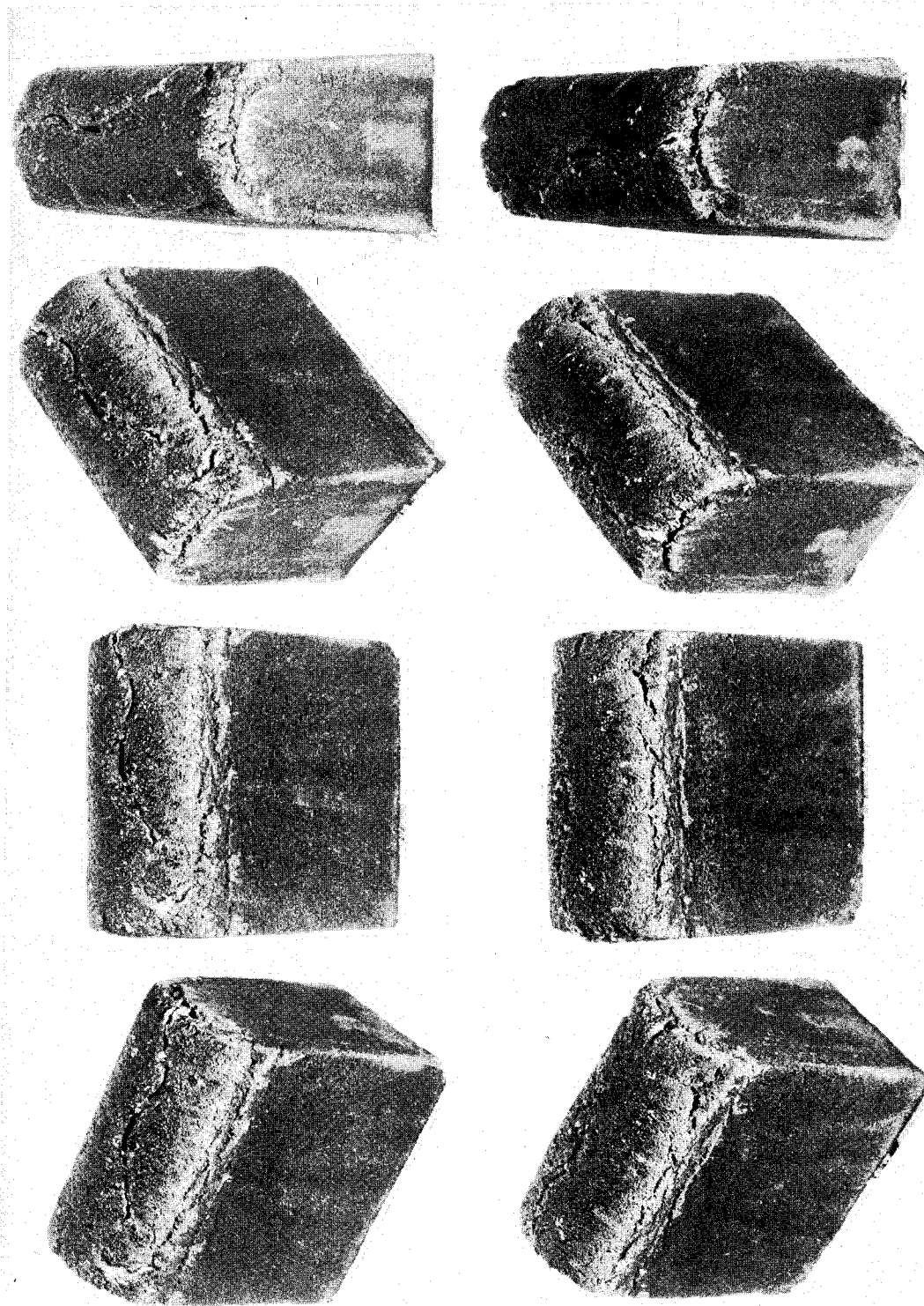
L-65-6383



(a) Typical model before test.

Figure 11.- Photographs of material B-2 on leading-edge models.

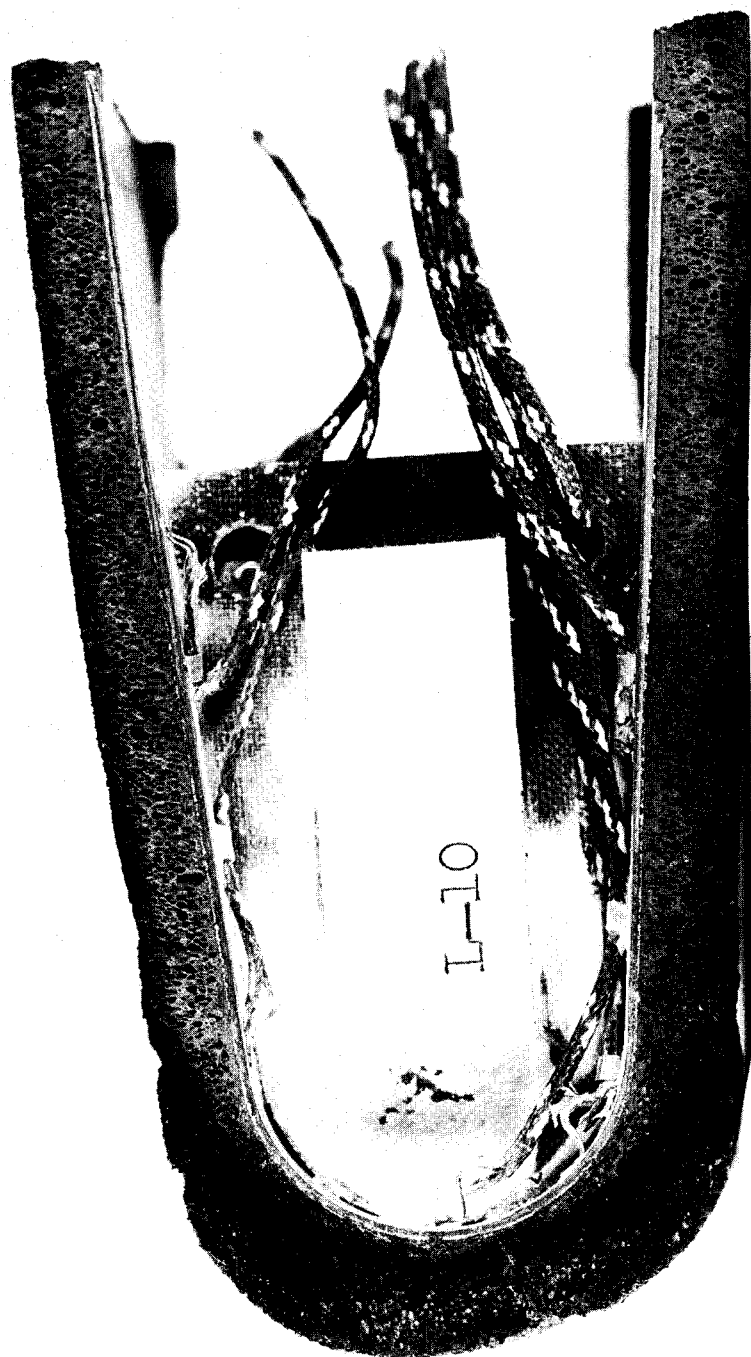
L-66-4575



(b) Model L-10 after test; eight exterior views.

Figure 11.- Continued.

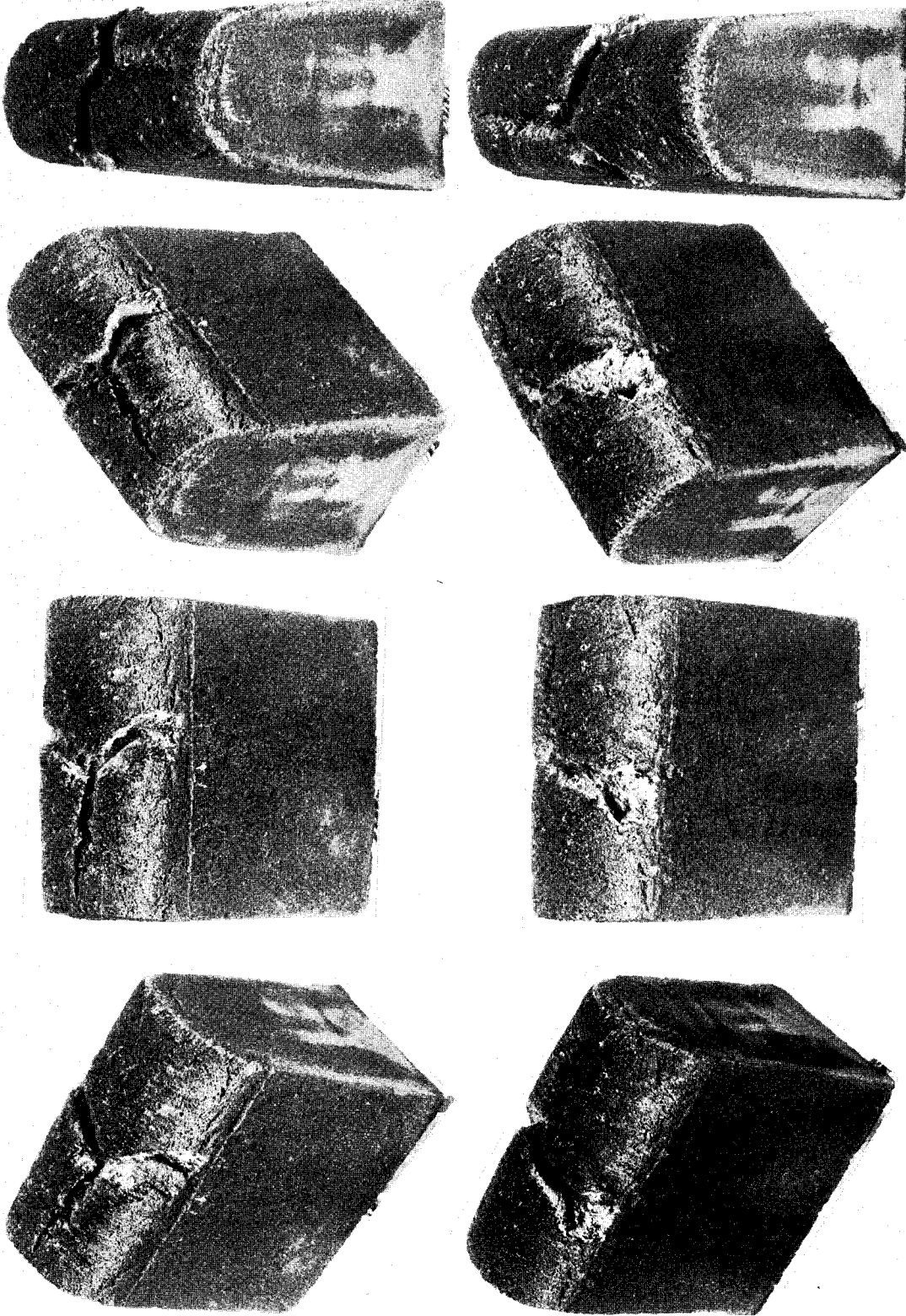
L-66-4576



L-65-6379

(c) Model L-10 after test; section view.

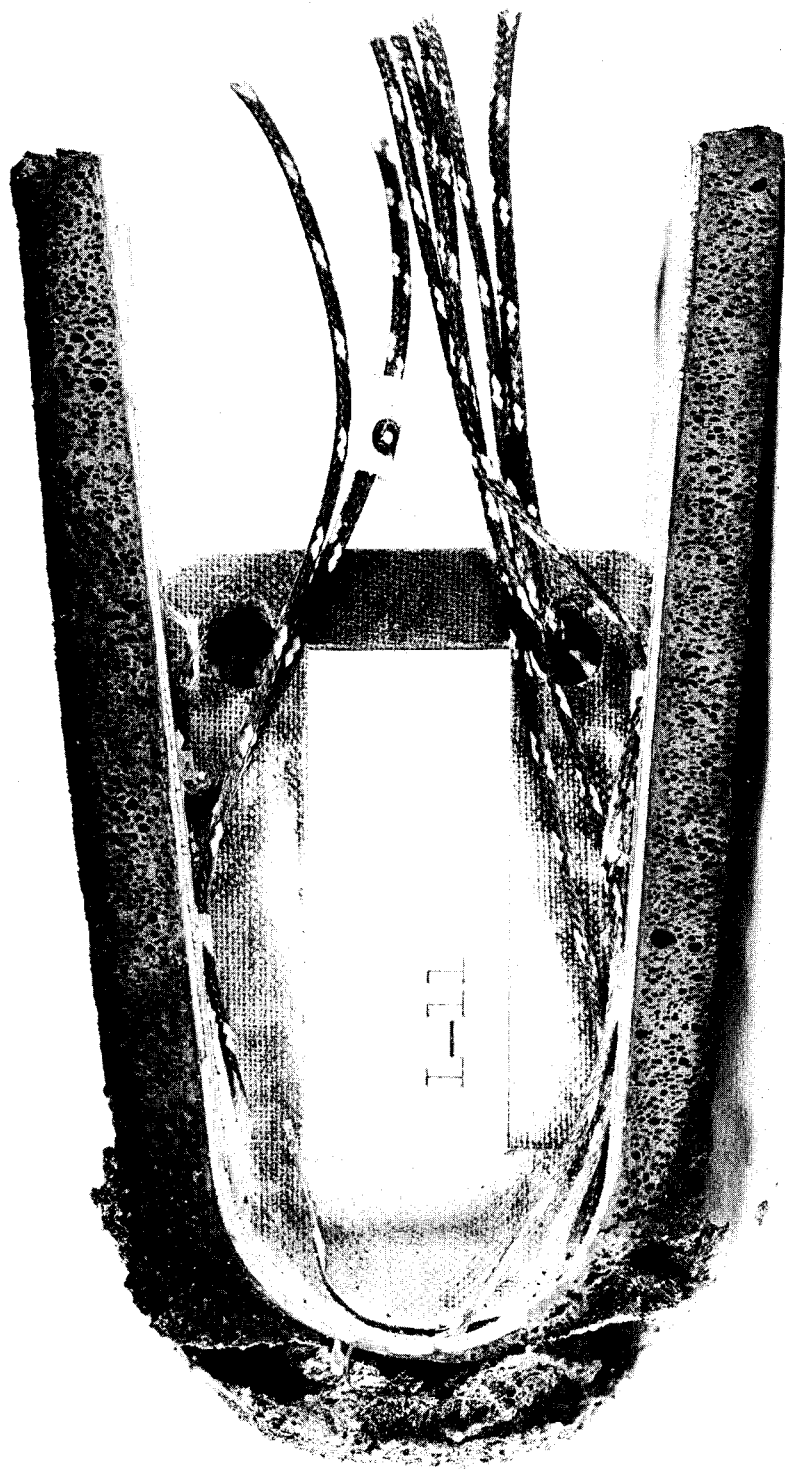
Figure 11.- Continued.



(d) Model L-11 after test; eight exterior views.

Figure 11.- Continued.

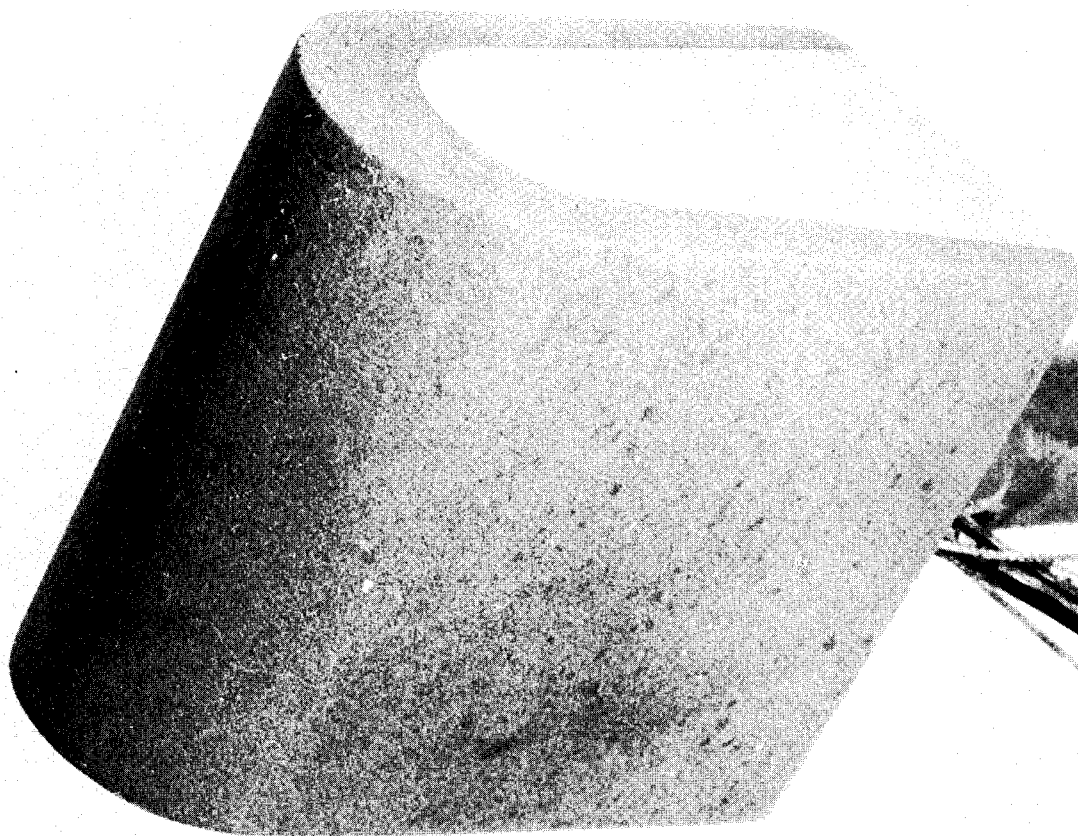
L-66-4577



L-65-6378

(e) Model L-11 after test; section view.

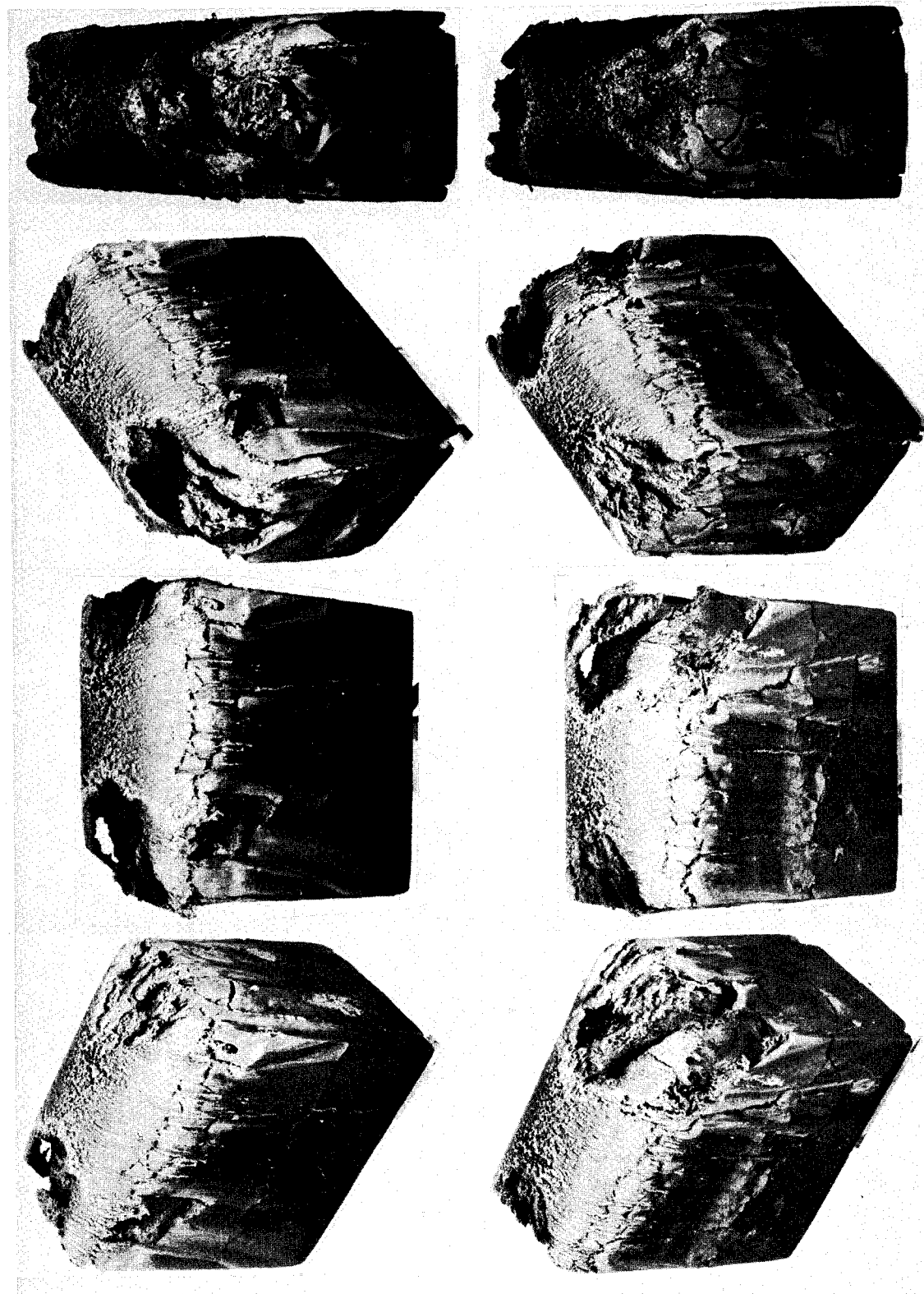
Figure 11.- Concluded.



(a) Typical model before test.

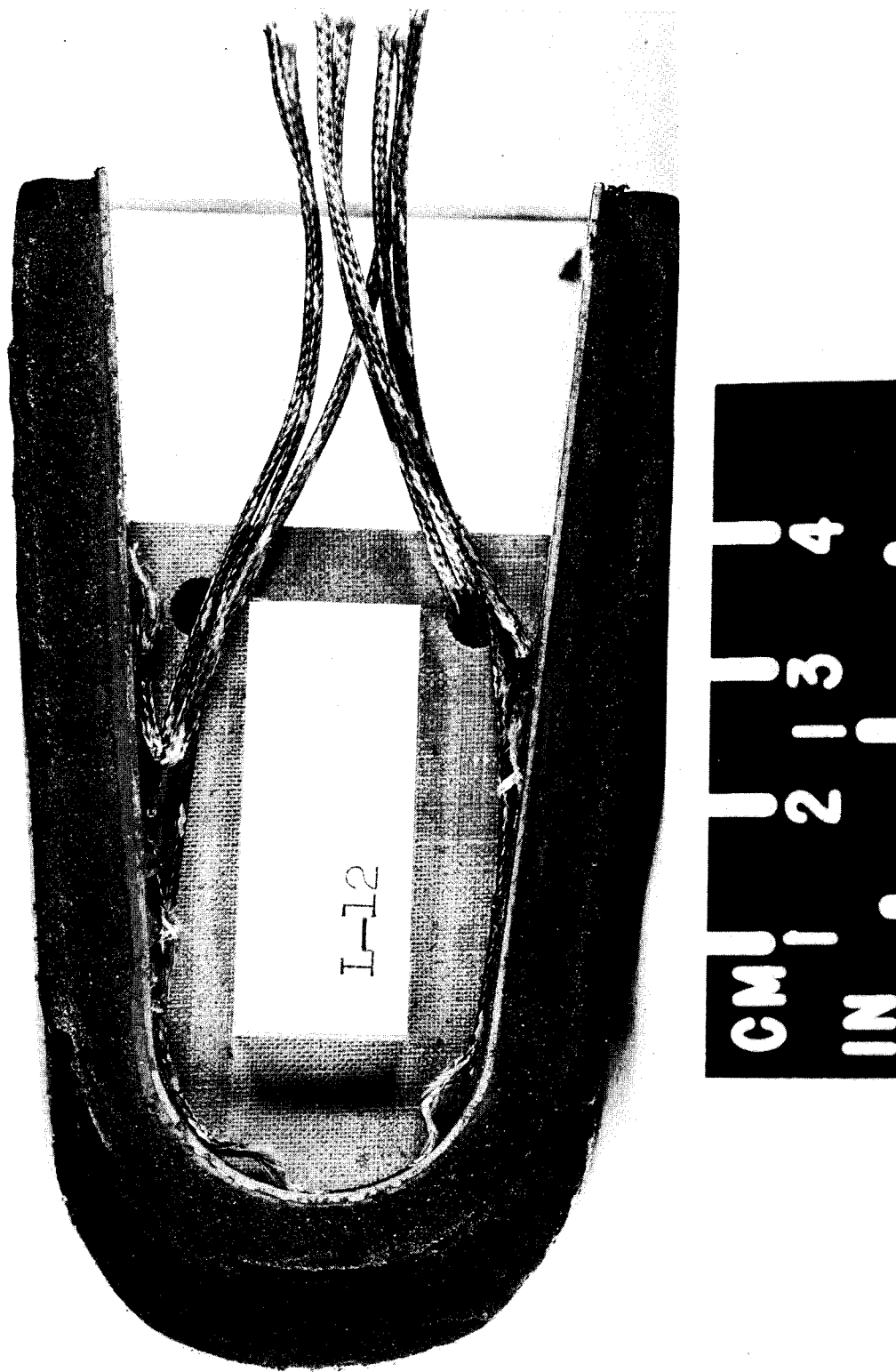
Figure 12.- Photographs of coating C-1 on leading-edge models.

L-66-4578



L-66-4579

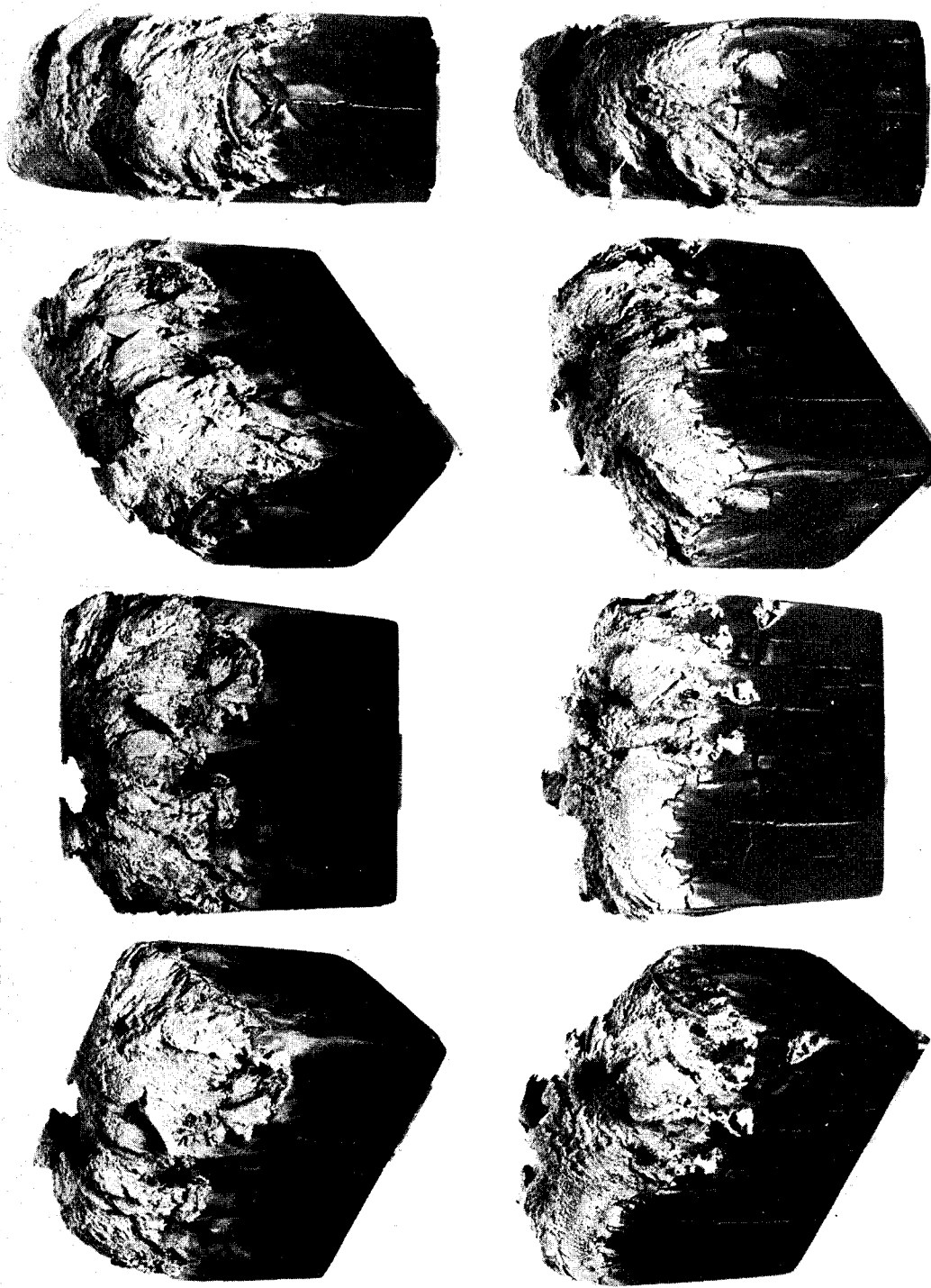
(b) Model L-12 after test; eight exterior views.
Figure 12.- Continued.



(c) Model L-12 after test; section view.

Figure 12.- Continued.

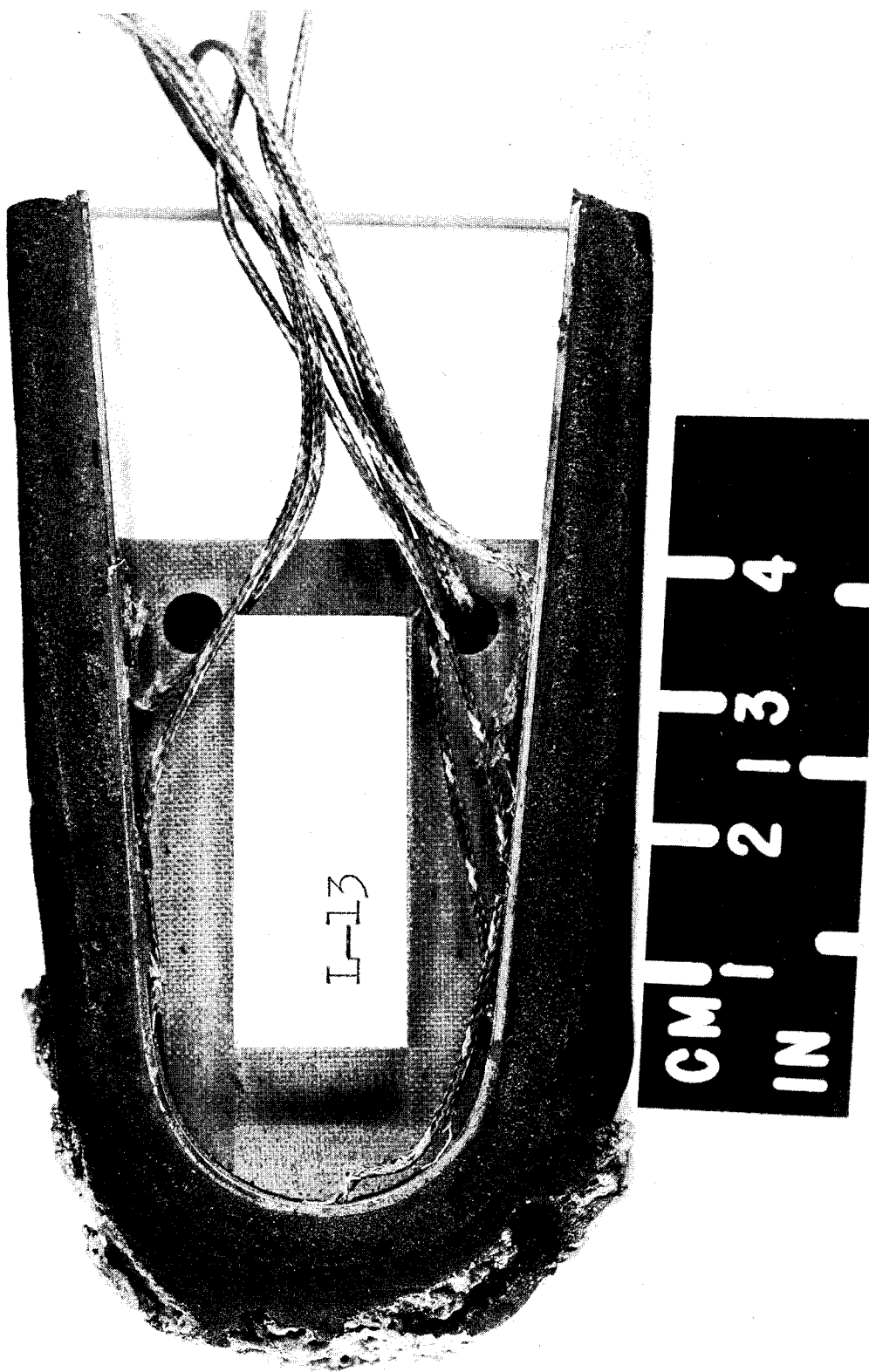
L-65-6390



L-66-4580

(d) Model L-13 after test; eight exterior views.

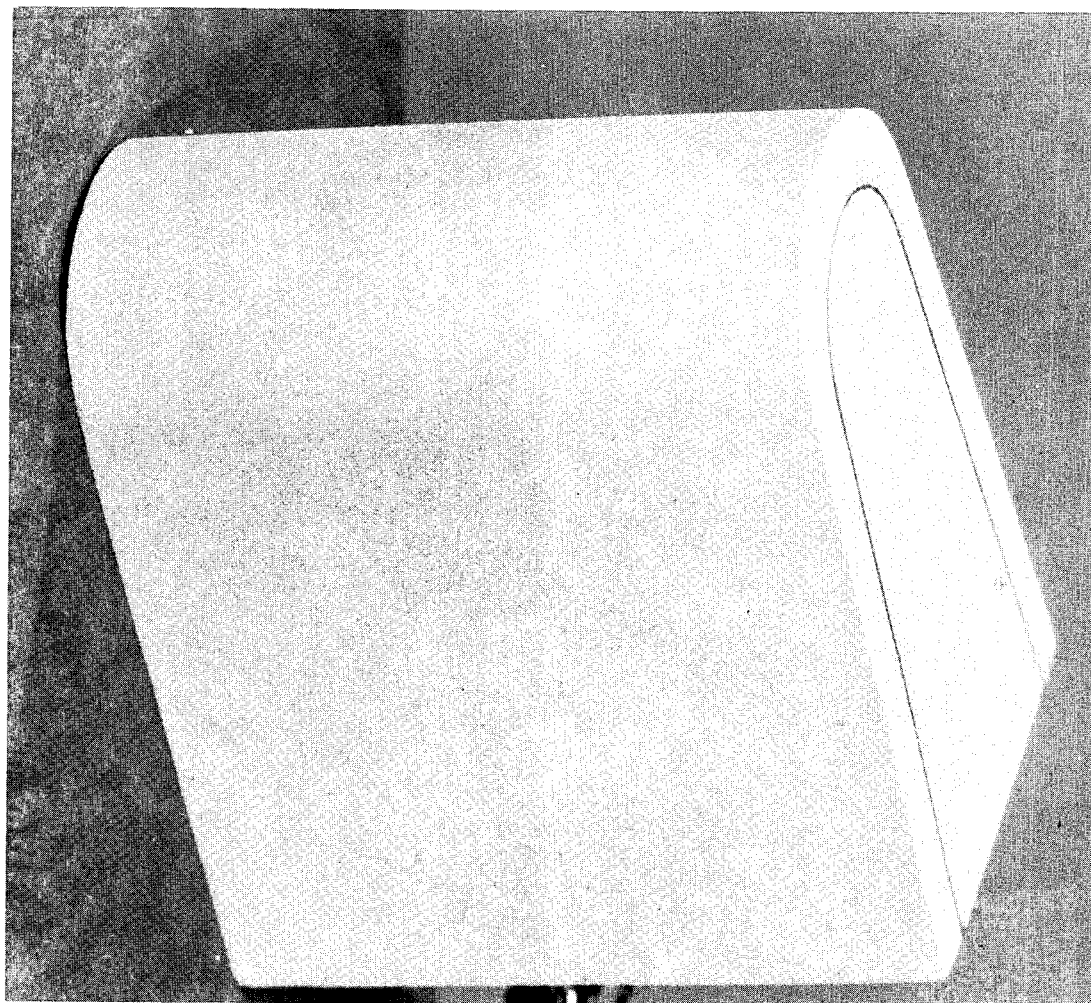
Figure 12.- Continued.



(e) Model L-13 after test; section view.

Figure 12. - Concluded.

L-65-6407



(a) Typical model before test.

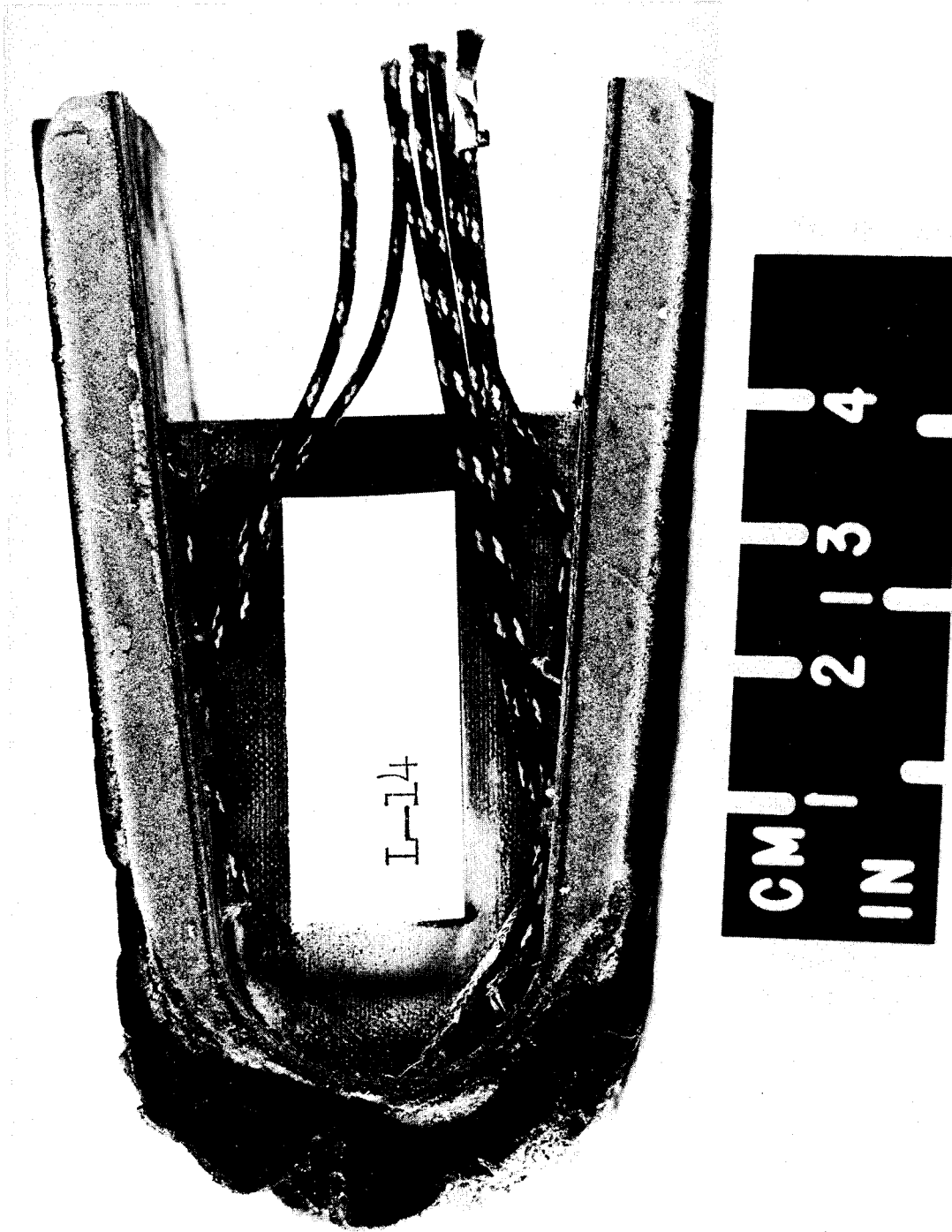
L-65-3000

Figure 13.- Photographs of coating C-2 on leading-edge models.

L-66-4581

(b) Model L-14 after test; eight exterior views.

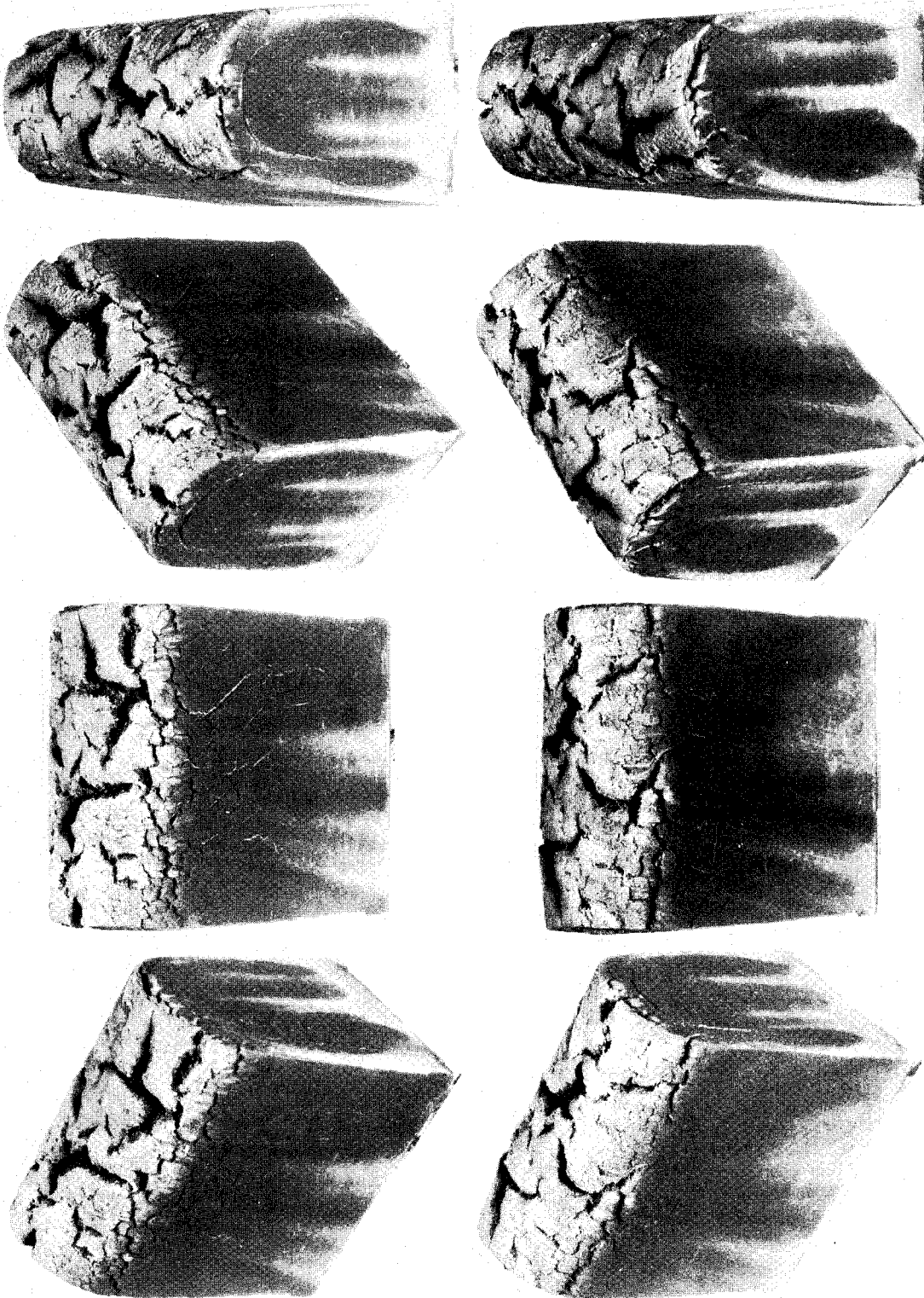
Figure 13.- Continued.



L-65-6392

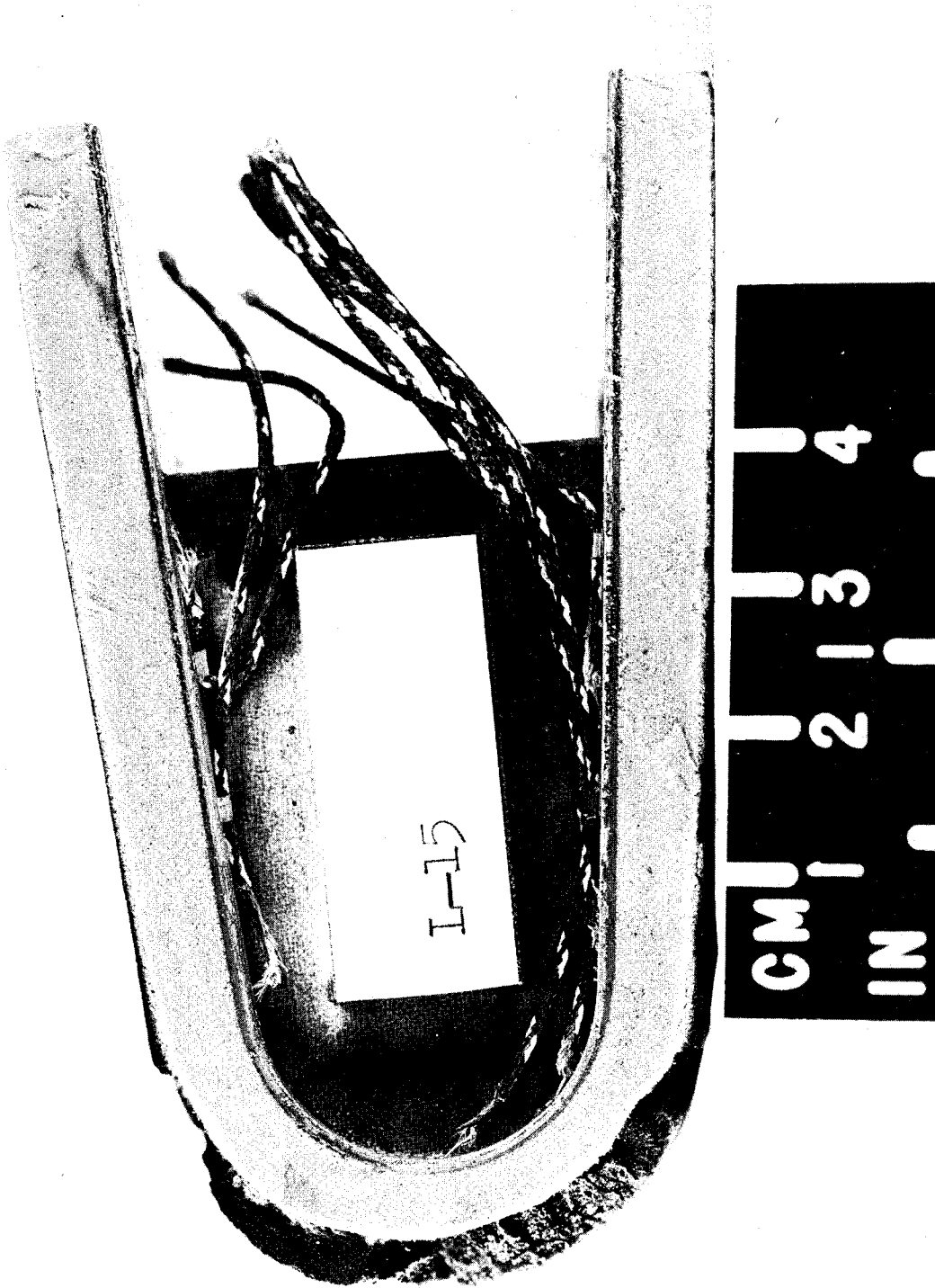
(c) Model L-14 after test; section view.

Figure 13.- Continued.



L-66-4582

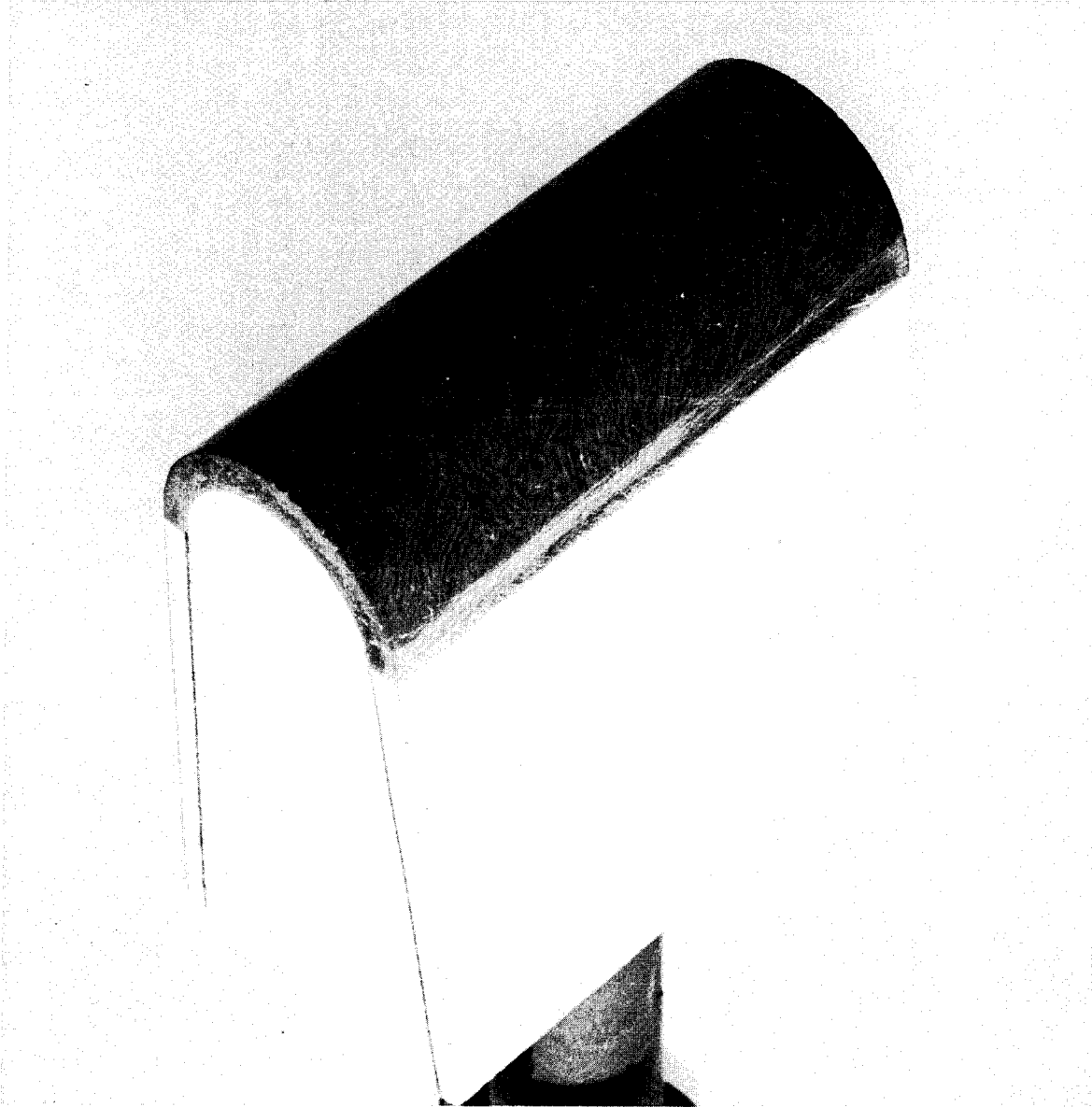
(d) Model L-15 after test; eight exterior views.
Figure 13.- Continued.



(e) Model L-15 after test; section view.

Figure 13.- Concluded.

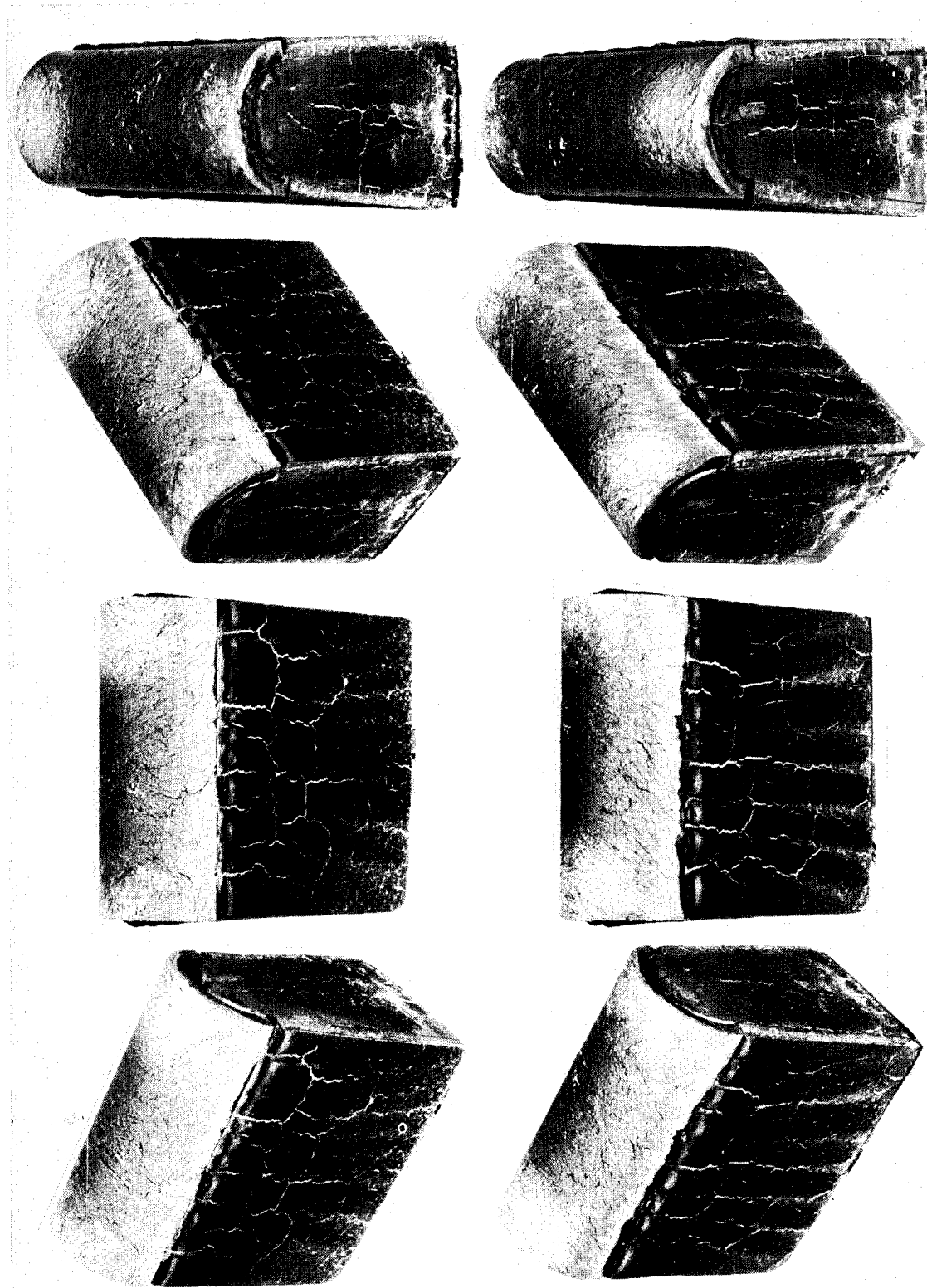
L-65-6382



(a) Typical model before test.

L-66-4583

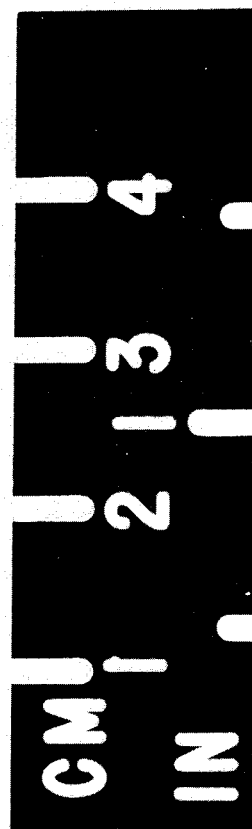
Figure 14.- Photographs of coatings D-1 and D-2 on leading-edge models.



L-66-4584

(b) Model L-16 after test; eight exterior views.

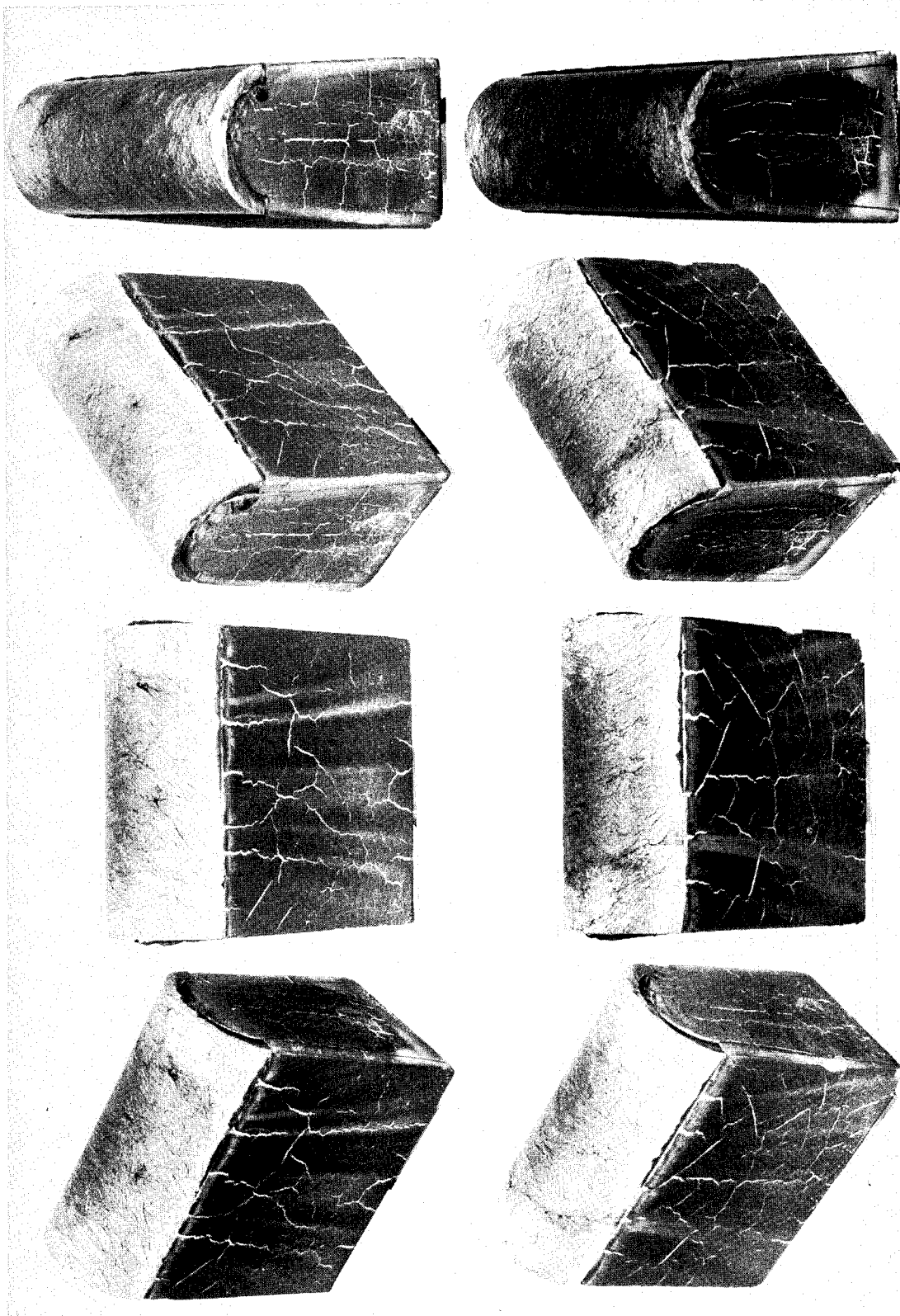
Figure 14.- Continued.



(c) Model L-16 after test; section view.

Figure 14.- Continued.

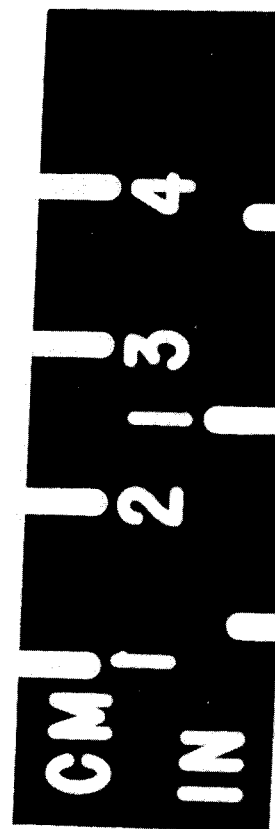
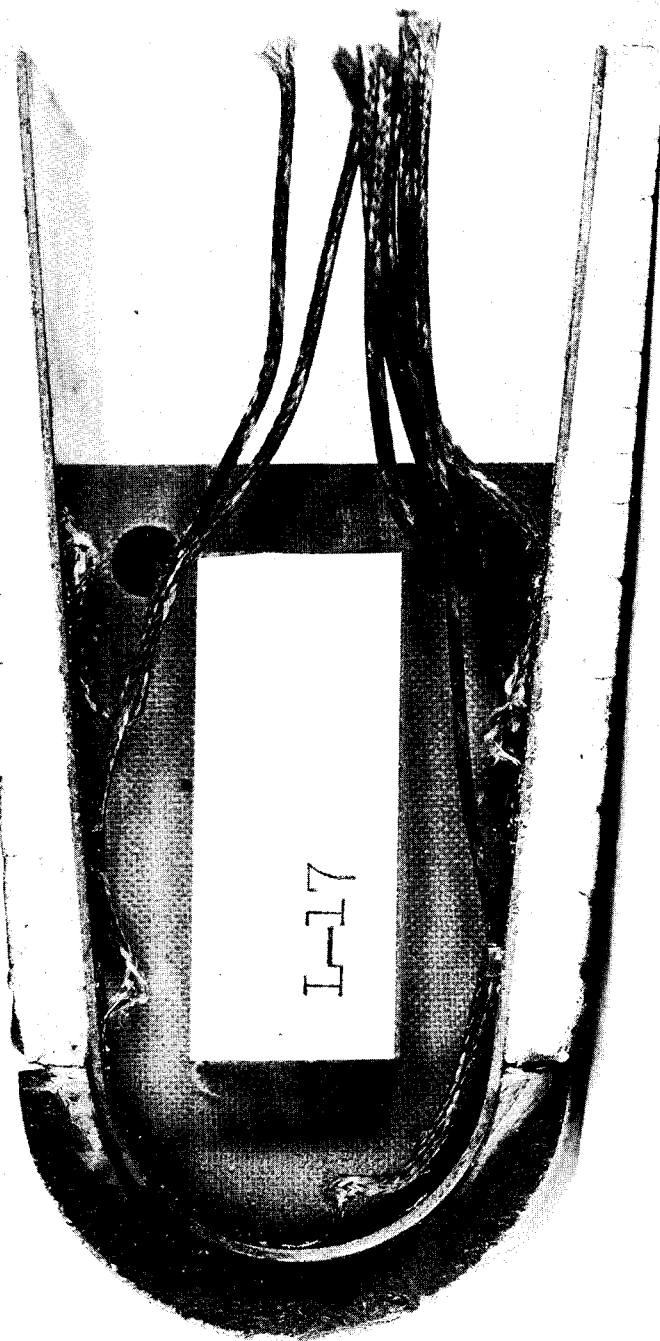
L-65-6399



L-66-4585

(d) Model L-17 after test; eight exterior views.

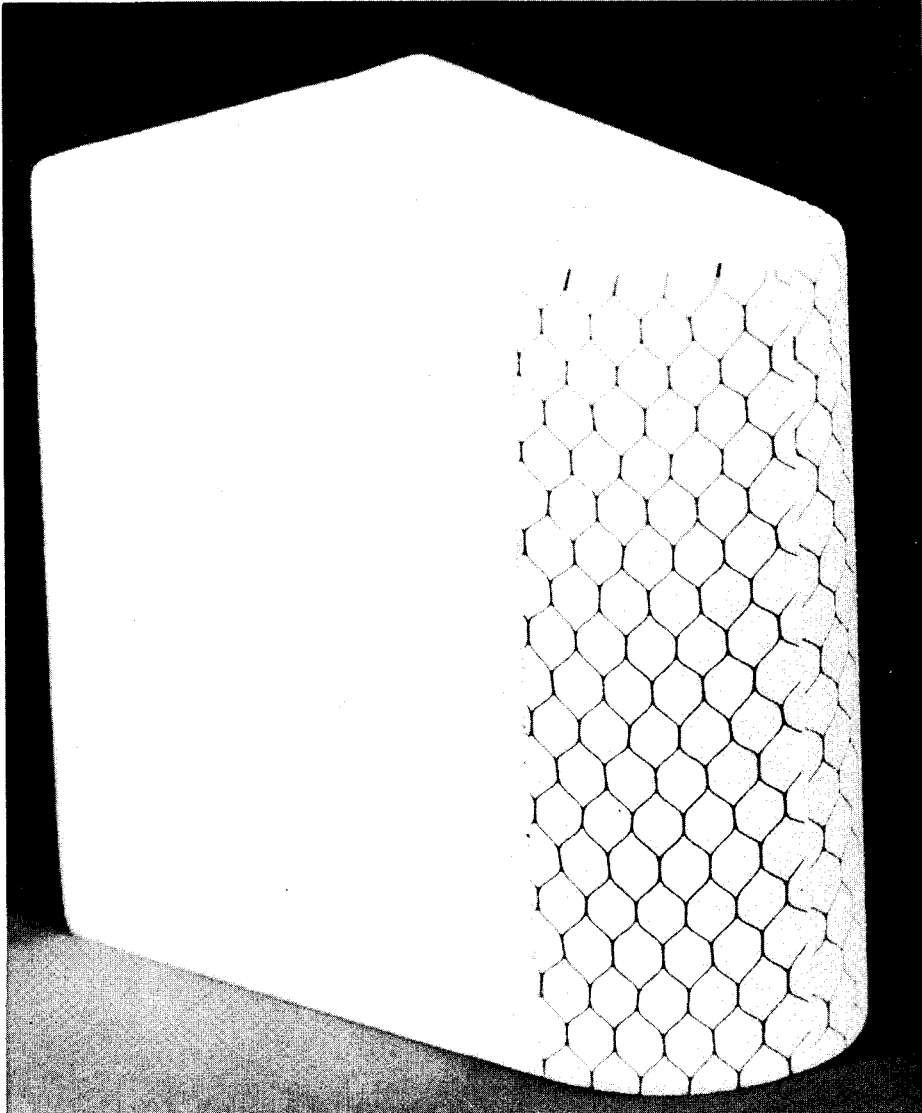
Figure 14.- Continued.



(e) Model L-17 after test; section view.

Figure 14.- Concluded.

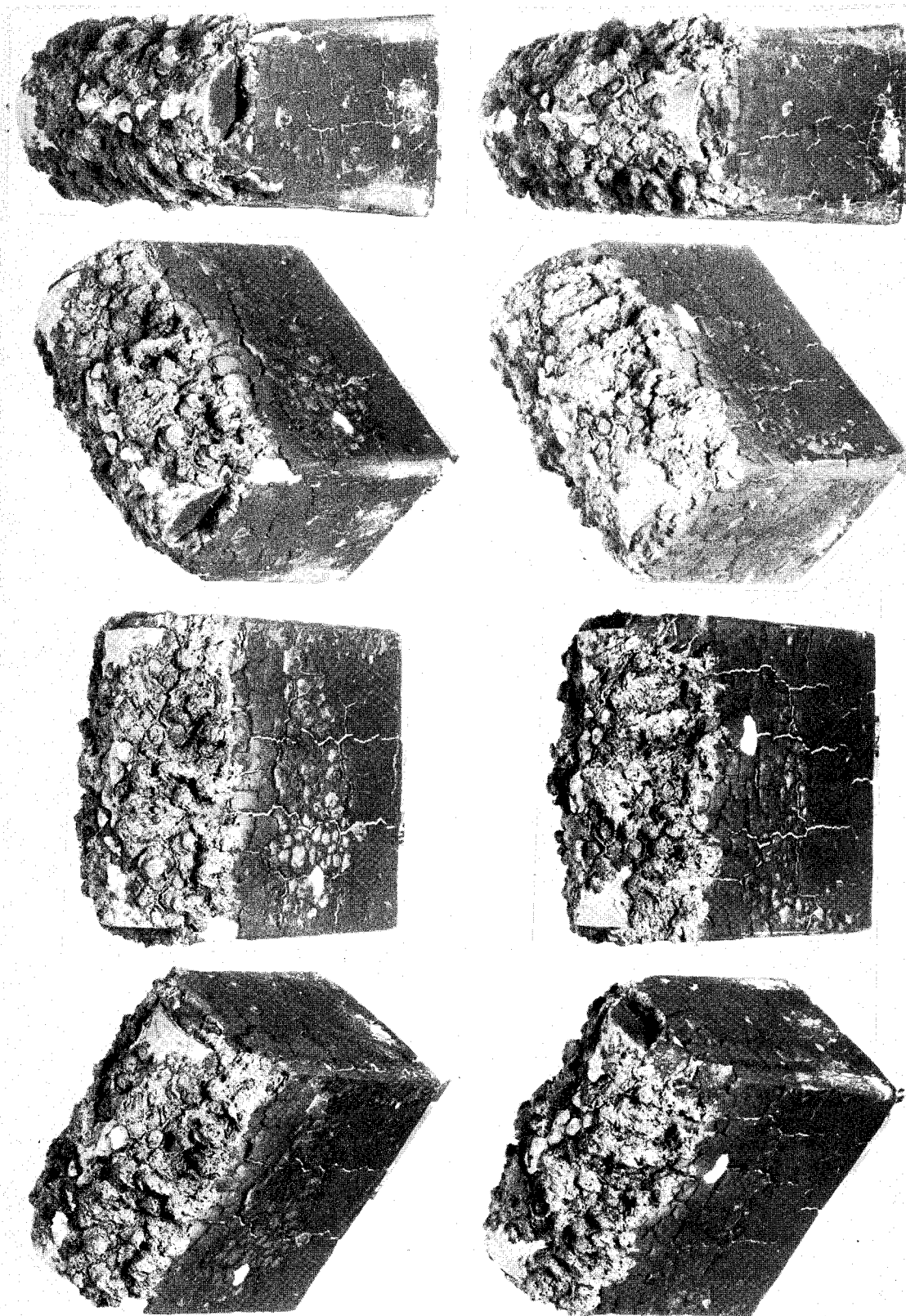
L-65-6398



(a) Typical model before test.

L-65-3169

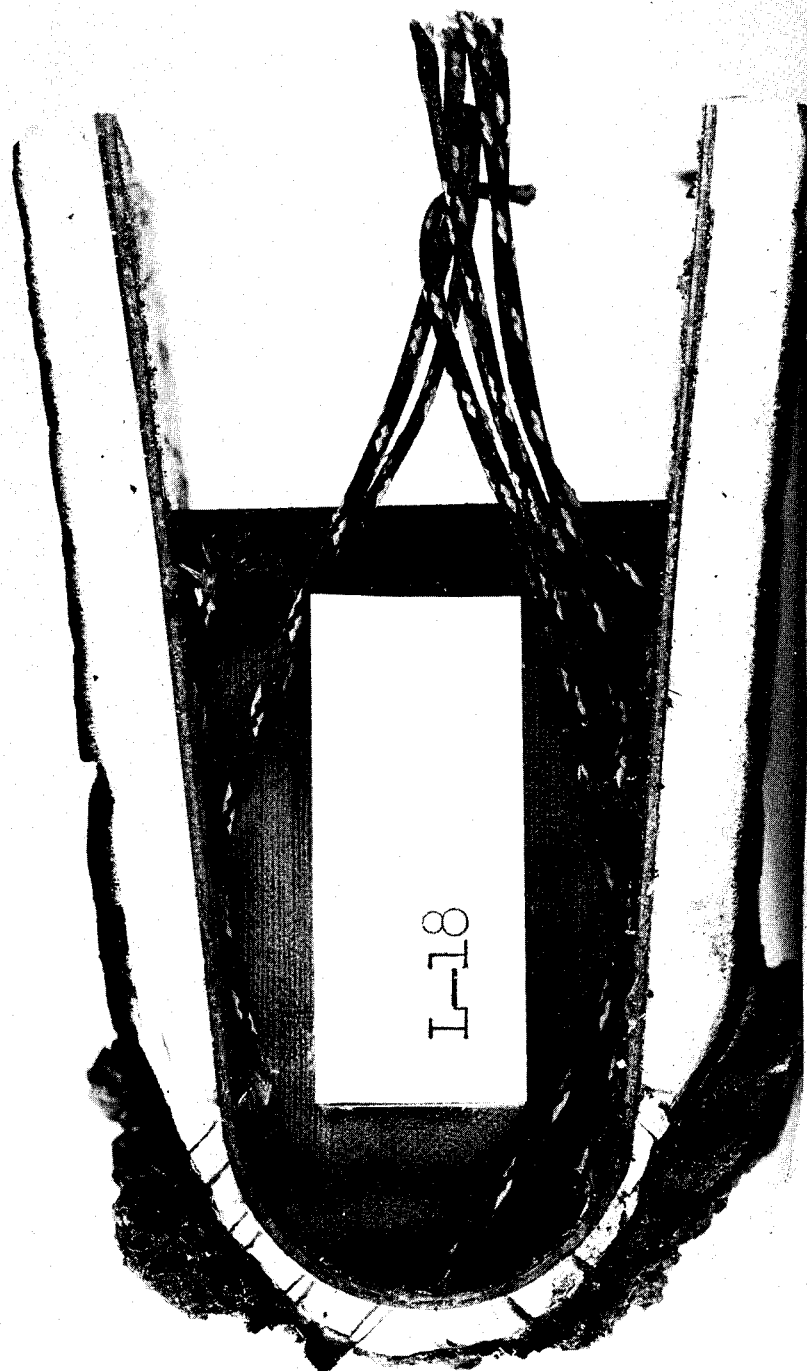
Figure 15.- Photographs of material D-3 on leading-edge models.



L-66-4586

(b) Model L-18 after test; eight exterior views.

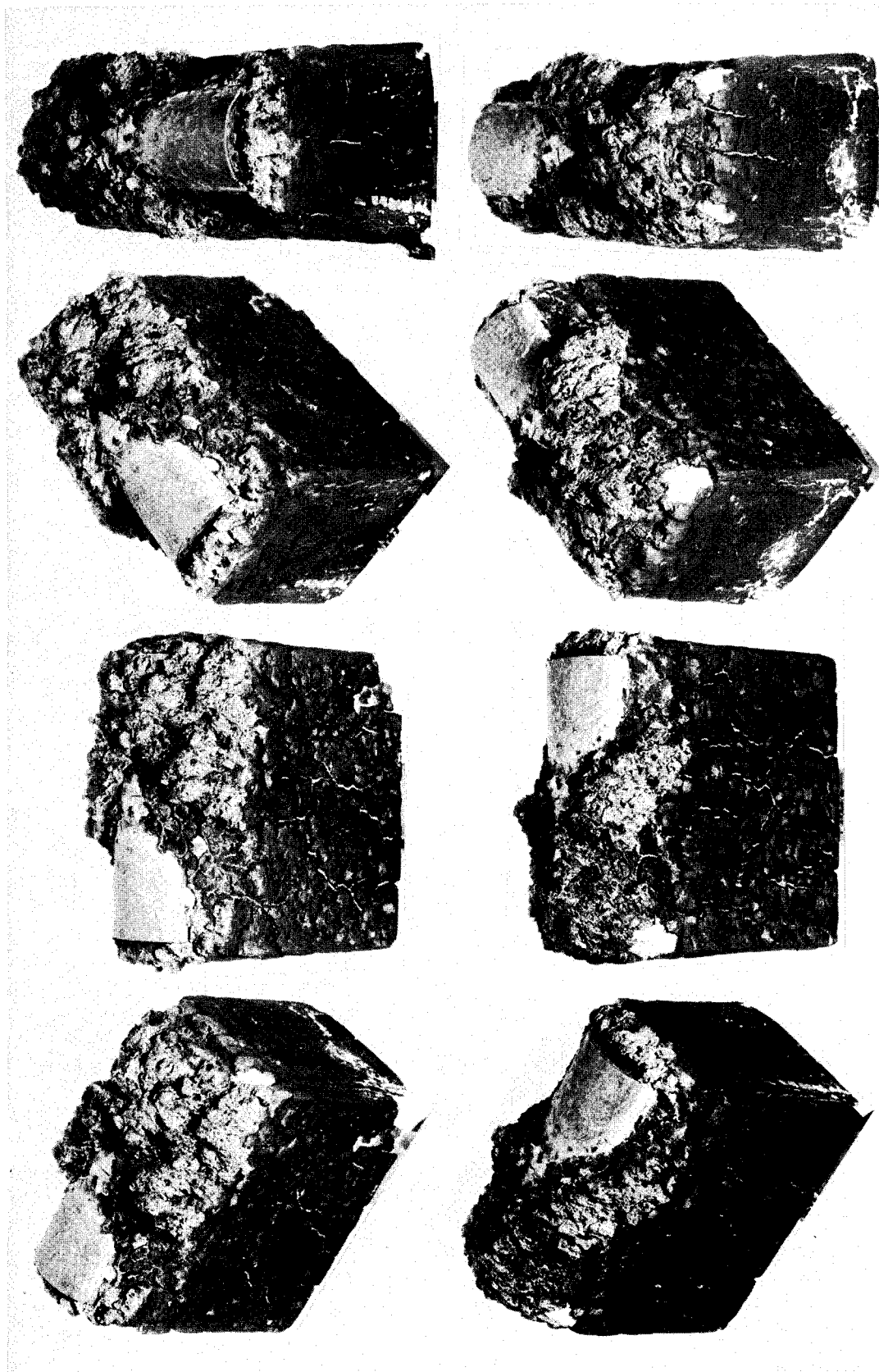
Figure 15.- Continued.



(c) Model L-18 after test; section view.

Figure 15.- Continued.

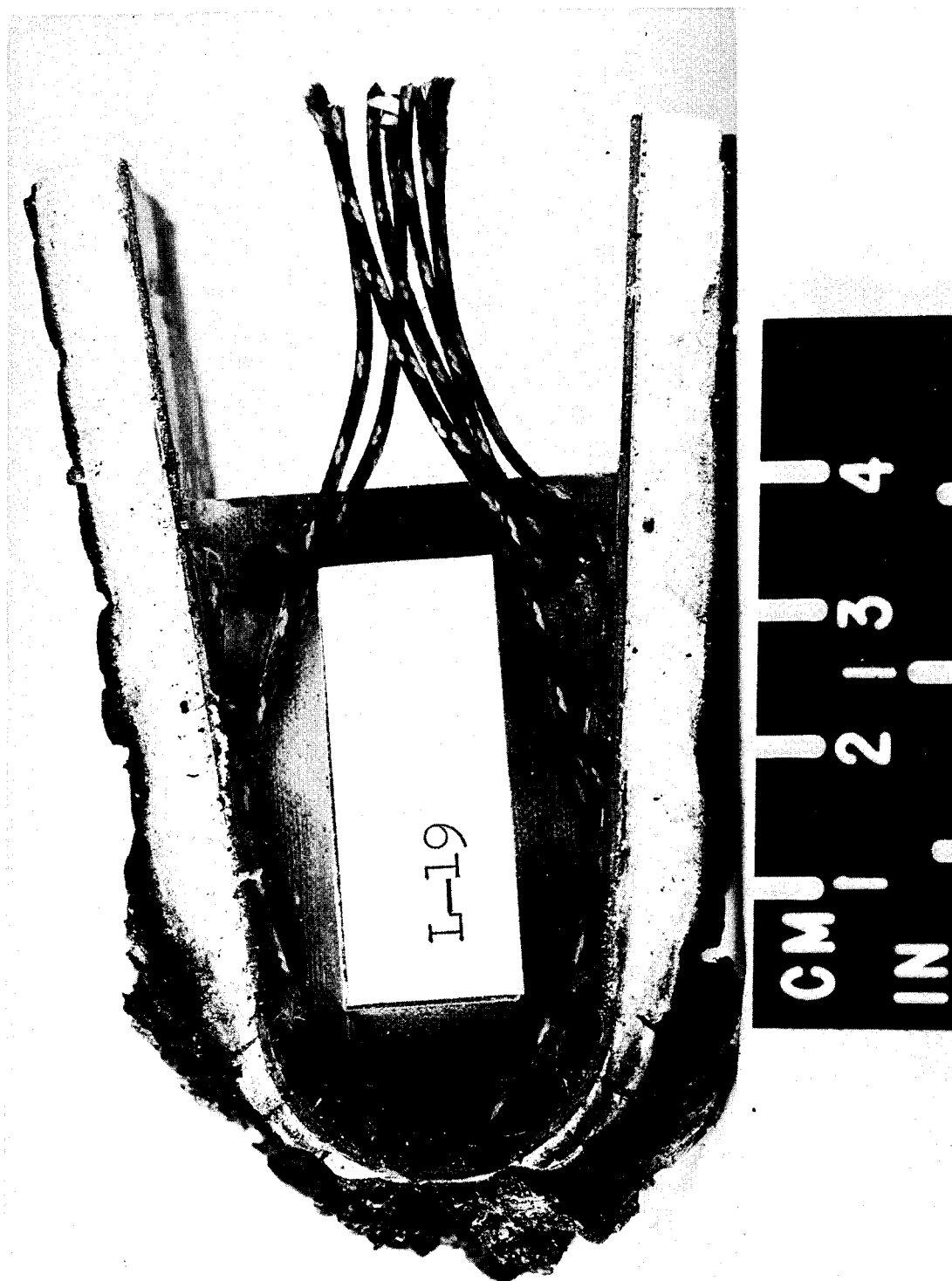
L-65-6381



L-66-4587

(d) Model L-19 after test; eight exterior views.

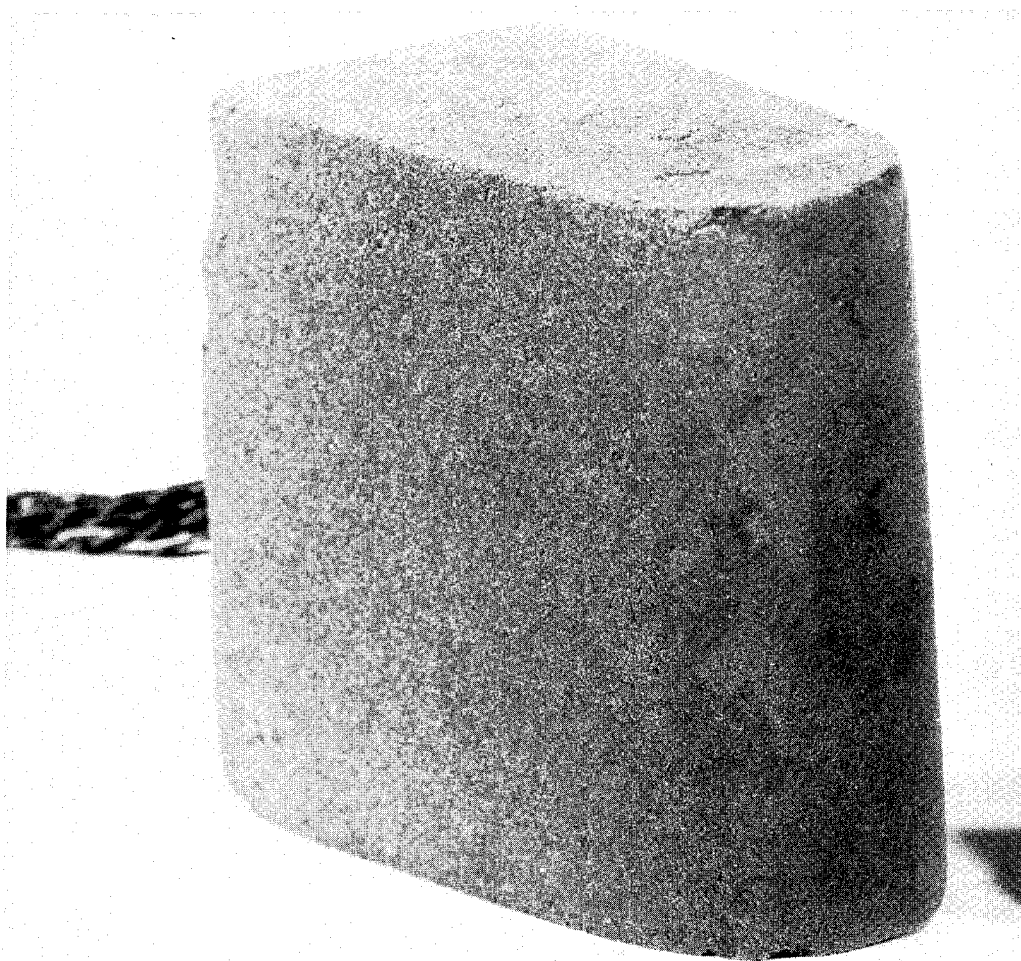
Figure 15.- Continued.



(e) Model L-19 after test; section view.

Figure 15:- Concluded.

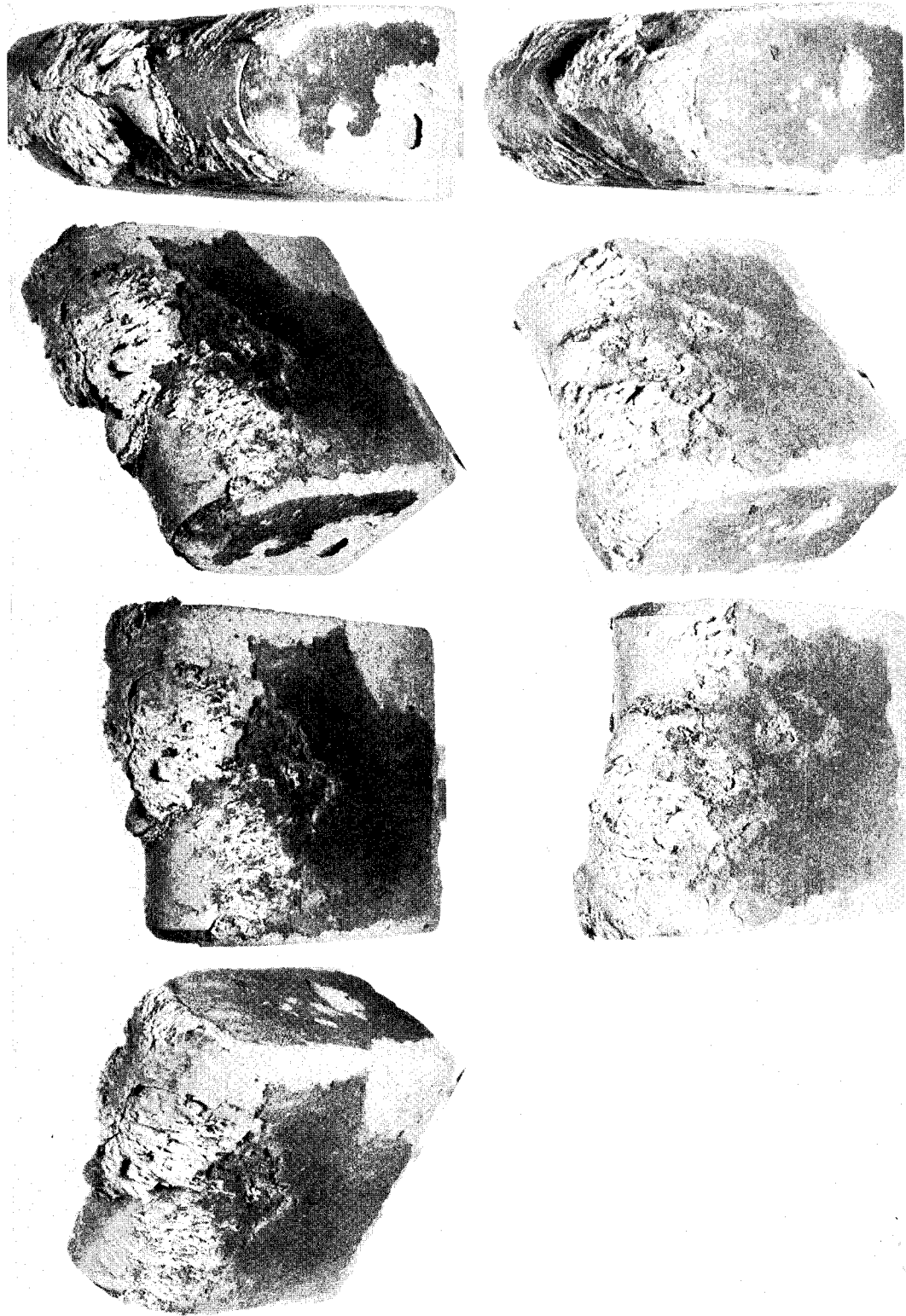
L-65-6401



(a) Typical model before test.

L-65-3161

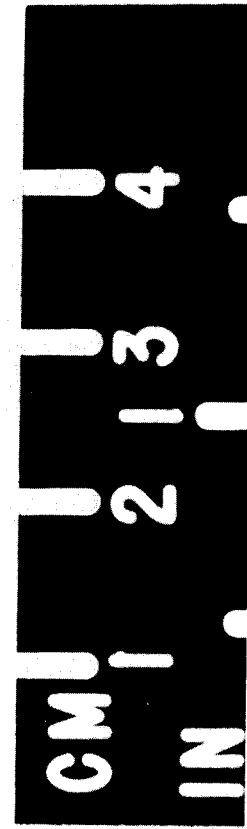
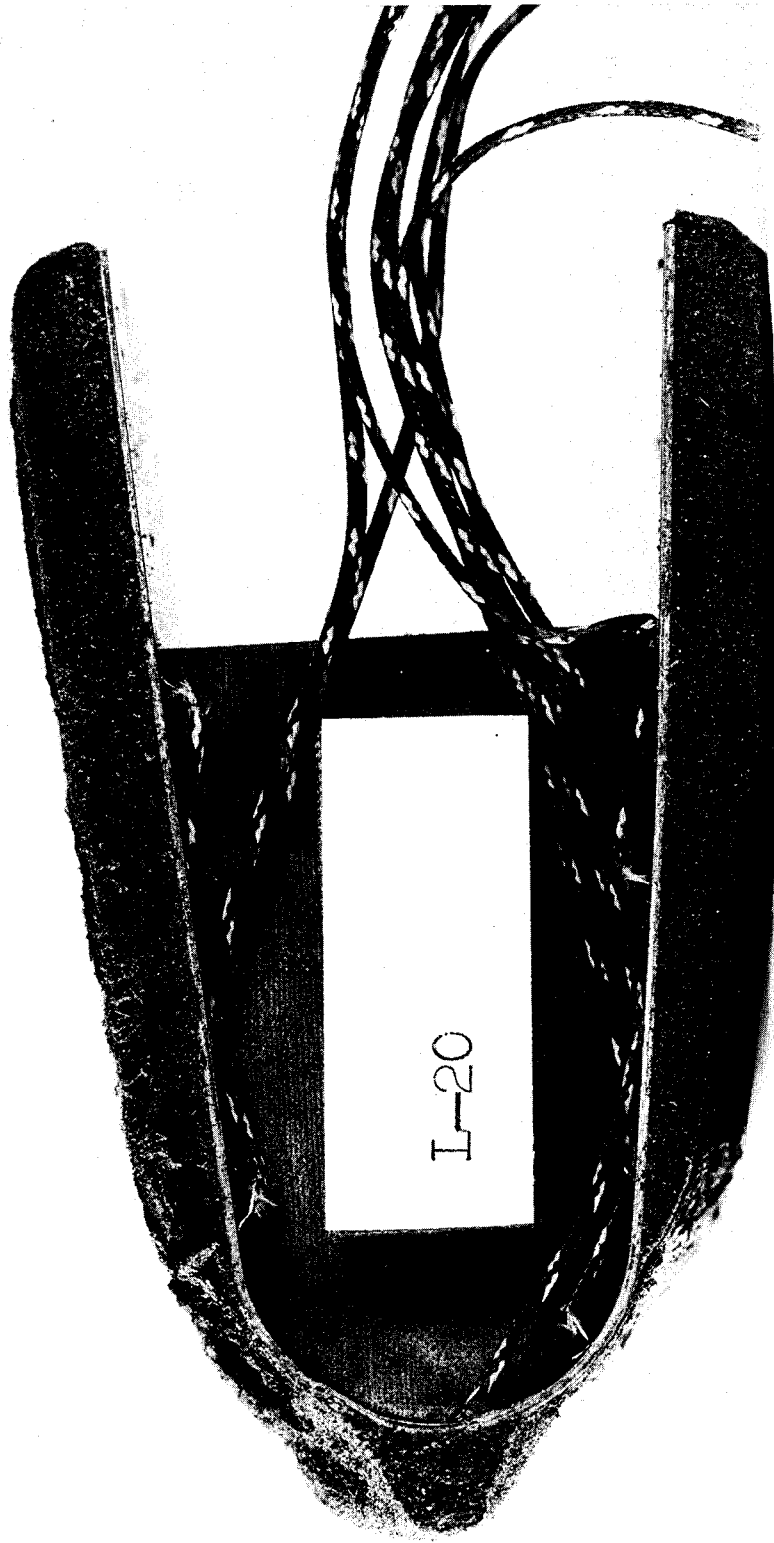
Figure 16.- Photographs of material E-1 on leading-edge models.



L-66-4588

(b) Model L-20 after test; seven exterior views.

Figure 16.- Continued.



(c) Model L-20 after test; section view.

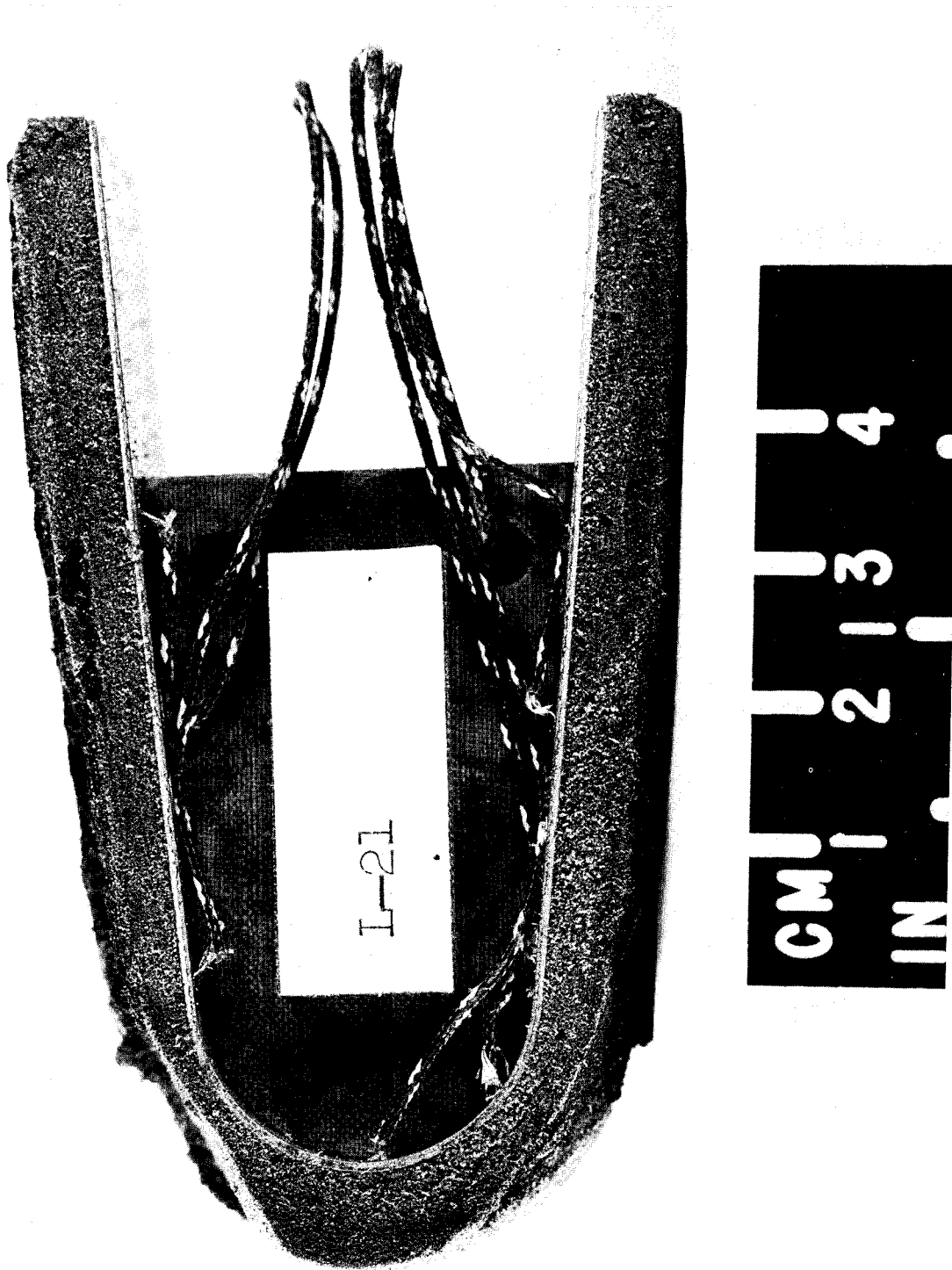
Figure 16.- Continued.

L-65-6393

L-66-4589

(d) Model L-21 after test; eight exterior views.

Figure 16.- Continued.



(e) Model L-21 after test; section view.

Figure 16.- Concluded.

L-65-6403

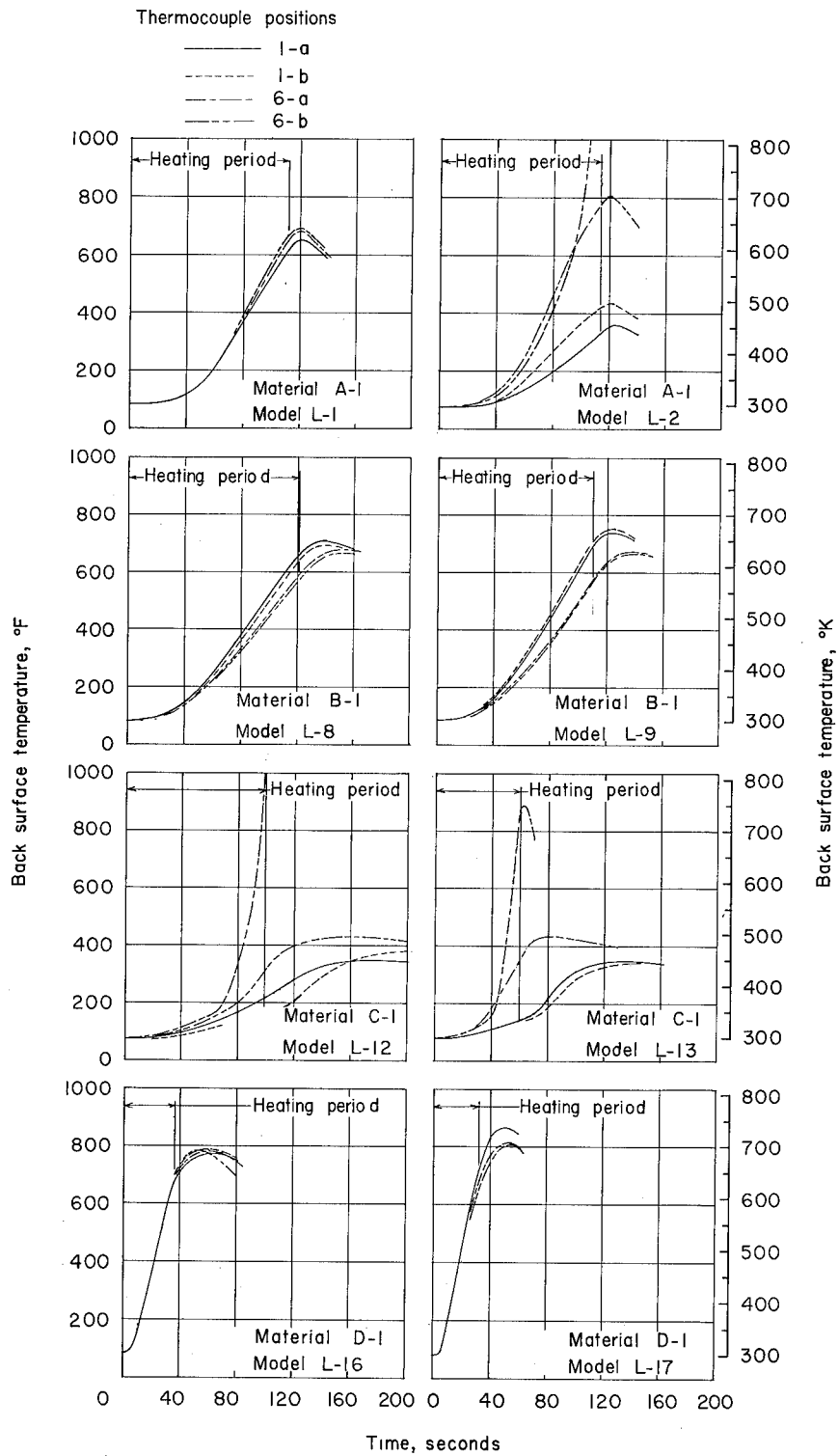
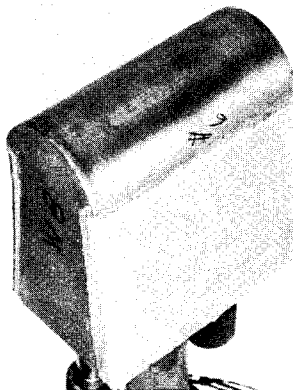
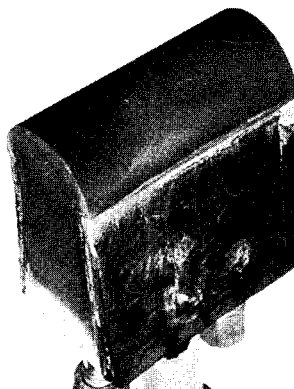
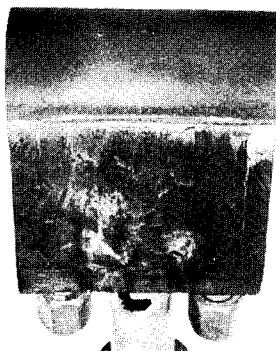
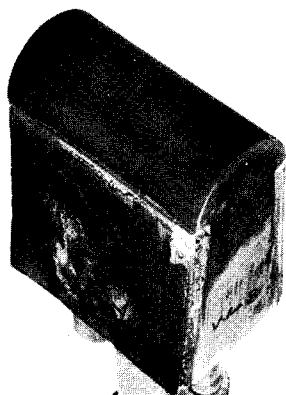


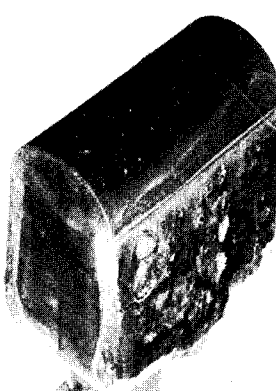
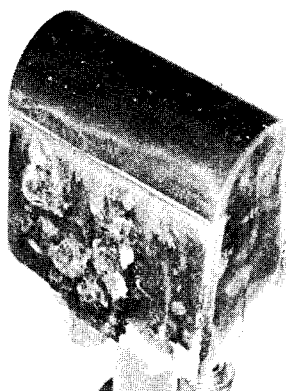
Figure 17.- Temperature histories on leading-edge model stagnation line.



(a) Typical model before test.



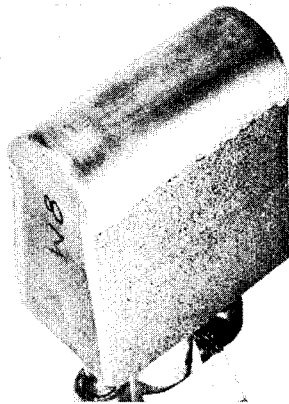
(b) Model P-1 after test.



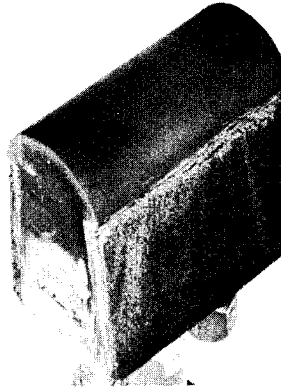
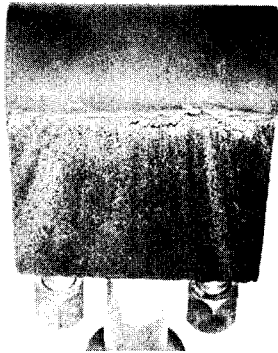
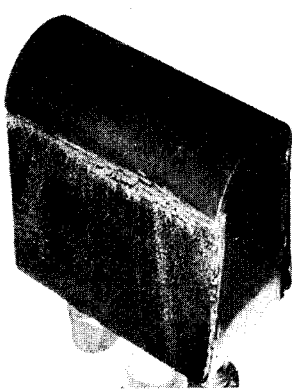
(c) Model P-2 after test.

L-66-4590

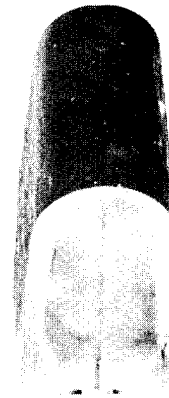
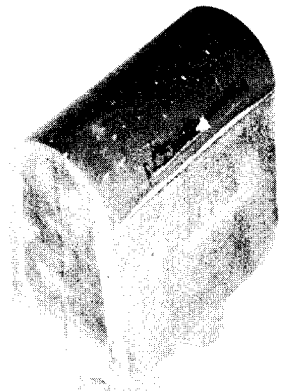
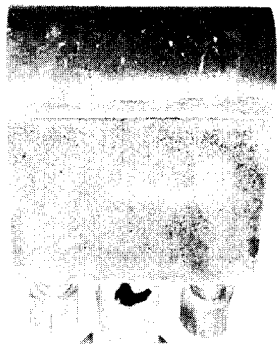
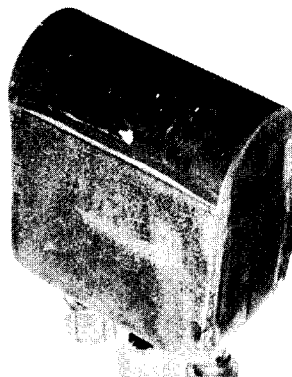
Figure 18.- Photographs of material A-2 on afterbody models.



(a) Typical model before test.



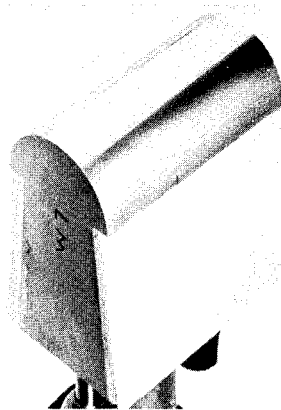
(b) Model P-1 after test.



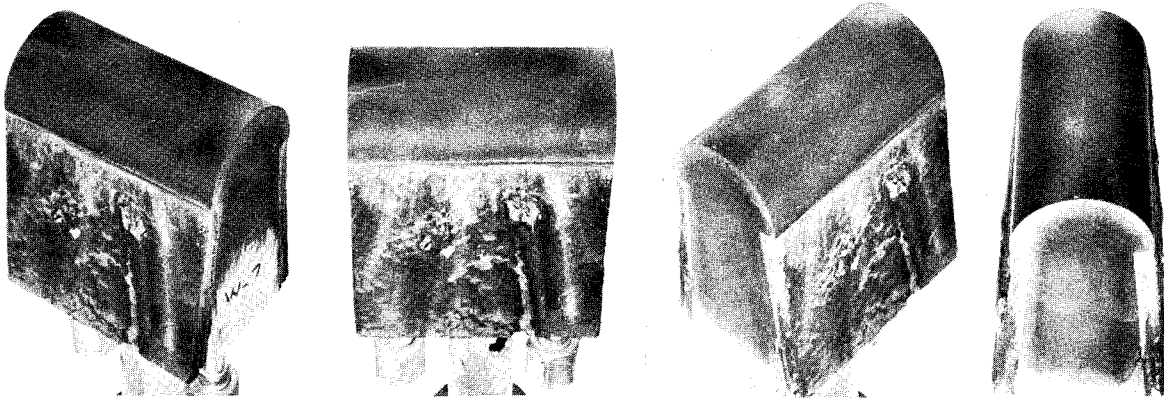
(c) Model P-2 after test.

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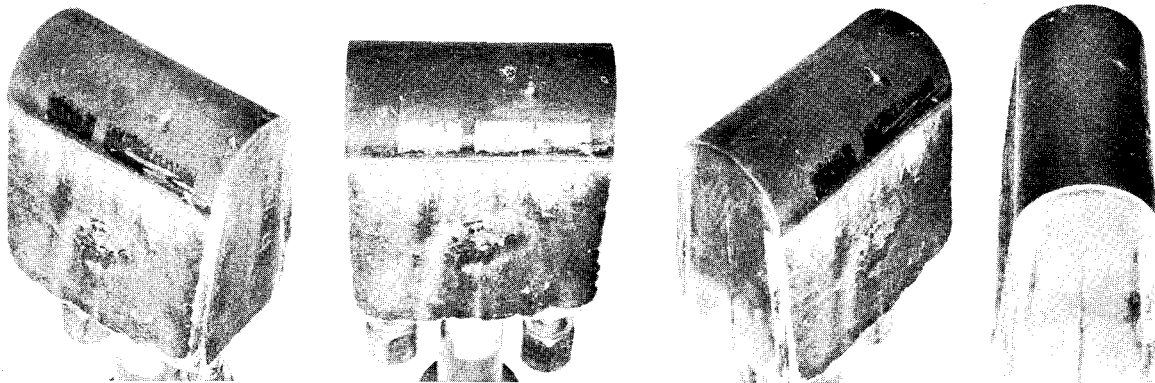
Figure 19.- Photographs of material B-3 on afterbody models.



(a) Typical model before test.



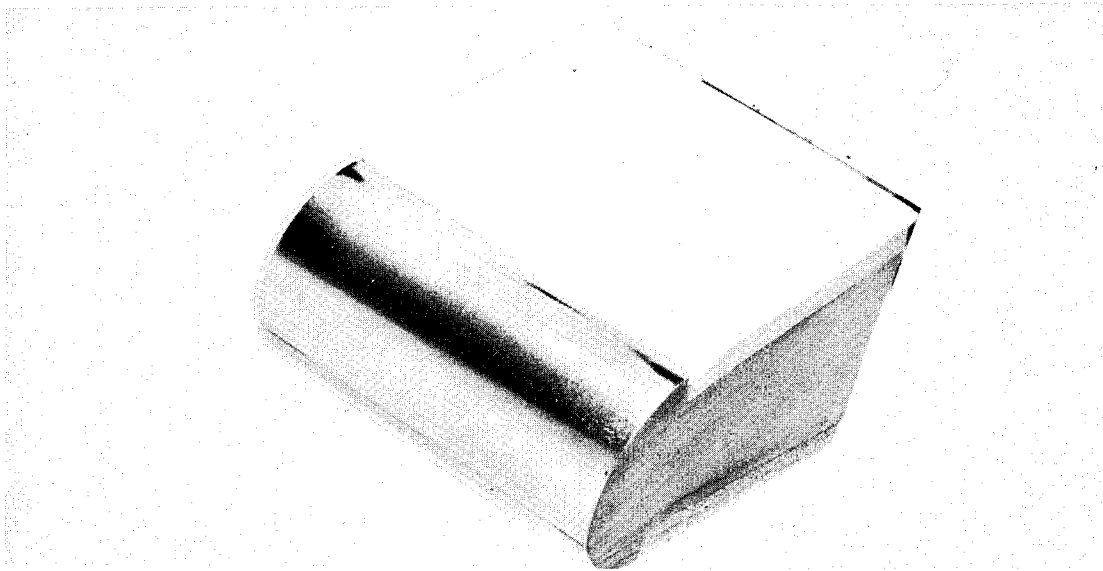
(b) Model P-3 after test.



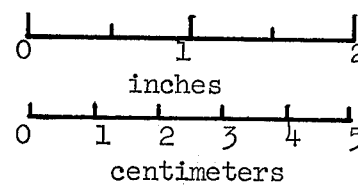
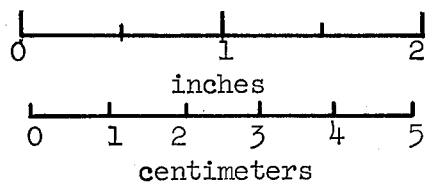
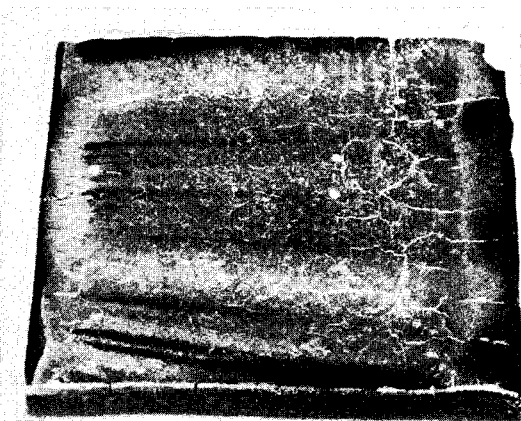
(c) Model P-4 after test.

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Figure 20.- Photographs of material C-3 on afterbody models.



(a) Typical model before test.



(b) Model P-5 after test.

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Figure 21.- Photographs of coating D-4 on afterbody models.

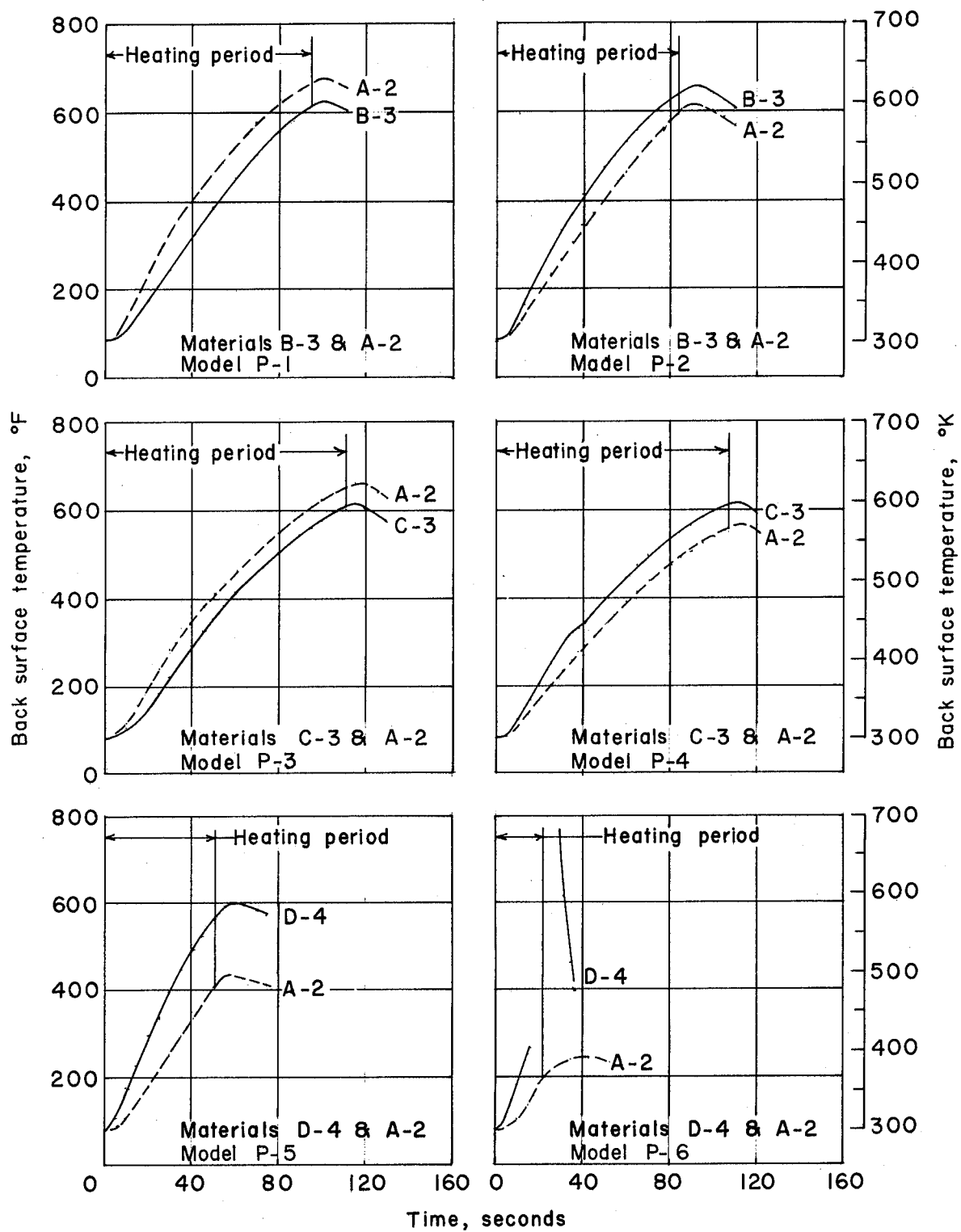


Figure 22.- Back surface temperature histories on panel models at thermocouple position 1.

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—NATIONAL AERONAUTICS AND SPACE ACT OF 1958

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